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AND

AGRICULTURAL GAZETTE

FOR

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GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE

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All Communications intended for the Firm should therefore be addressed WOODROFFE & SON, "The Westbourne Nursery," Harrow Road, London, W.

Notice to Purchasers of Seeds.

SUTTON AND SONS having received several Orders for GARDEN SEEDS without the SIGNATURE or ADDRESS of the Sender, they fear inconvenience will be caused thereby, as they cannot possibly ascertain to whom the goods should be sent. As these omissions occur more or less every year, Messrs. SUTTON request their friends who do not receive their goods promptly to write without delay. Royal Berkshire Seed Establishment, Reading.

The Gardeners' Chronicle.

SATURDAY, JANUARY 7, 1865.

MEETING FOR THE ENSUING WEEK.

SATURDAY, January 14 { Royal Horticultural (Show of Cyclamens), at S. Kensington—2 P.M.

THE present is a seasonable opportunity to invite attention to the question of the SHORTENING OF THE ROOTS OF TREES IN TRANSPLANTING. Roots in pots can be preserved entire when the plants to which they belong are shifted or transplanted; but where out-door trees have to be removed that have grown at freedom for some time, especially in stiff soil, it is almost impossible to perform the operation without mutilating and bruising many of the fibres. All agree that bruised roots are worse than useless, nay more, that they are positively injurious, and that they should therefore be removed before replanting. The sound roots should be separated from the unsound ones by means of clean cuts with a sharp knife. If, however, the plant is in light friable soil, and can be taken up with scarcely any injury to the smallest fibres, would it still be advisable or advantageous to use the knife? It must be borne in mind that the extremities of the roots, like those of the shoots, are in many cases not fully ripened. In pruning, immature portions of shoots are properly removed, except perhaps in the case of the extremities of leading shoots. The sap when in action will flow more or less into every bud, strong or weak; but more, of course, into the former than into the latter; and if a shoot has, say 30 buds, and 10 of them next the extremity are comparatively weak, these will doubtless attract a portion of sap, though not a third, perhaps not more than a sixth, of what the best buds will get. The result therefore of pruning off the weak end of the shoot containing these 10 buds would be a stronger development of the remaining 20 buds. The growth of roots, although in an opposite direction to that of the shoots, is nevertheless somewhat similar. It depends on the quantity of elaborated sap returned from the leaders; and if the quantity of roots is to a certain extent reduced, the remaining portions receive a greater amount of sap, which enables them to grow with proportionally greater vigour than they otherwise would do; and hence a small number of vigorous roots is better than a greater number of weak ones. In fact, a crowd of weak rootlets is often not equal to a few vigorous ones that can advance, and roam to a distance in quest of fresh food.

From what has been stated it will be evident that roots, in certain cases, may be advantageously shortened. But common and important as the operation of transplanting is, the pruning of the

roots previously to re-planting is not generally well understood. It would, therefore, be desirable to institute a series of experiments on the subject, in order to determine when, to what extent, and under what circumstances, the shortening in question should be made. In the meantime the following communication to the *Revue Horticole*, by F. MARC fils, gardener at Notre Dame du Vandreuil (Eure) may not be without interest:—

"I received towards the end of November, 1853," says M. Marc, "a package of fruit trees for the planting of some gardens of which I had the direction. During the transit, which required two days, the weather suddenly changed from rain and damp to intense frost, which penetrated throughout the bale and injured the greater part of the roots of the packages it contained. As soon as I received the trees I cut to the quick the roots of all those which appeared to me to have suffered the most, and these were Apples and Cherries. The roots of these were cut so that scarcely 2 inches were left, which was all the frost had spared. Some pyramids grafted on the Quince, as well as Apples on Paradise stocks, had all their fibres killed, and the other part of the roots had to be cut as short as those above mentioned. Resolving to do the best I could with them, I planted them at home, not however expecting that many would succeed. They were well mulched with rotten manure to protect them from the effects of dryness. In spring, these trees vegetated with as much vigour as if nothing had happened to them, and continued throughout the season to exhibit a vegetation truly luxuriant.

"In the autumn of the same year I wished to ascertain what had taken place underground, and I was much astonished at the fine long roots which the trees had made; one or more tiers of these roots had pushed from the neck of each tree. The surface of the section of the largest which I had cut so short was cicatrized, and presented eight or nine roots from 15 to 20 inches long.

"This circumstance furnished me with a hint in reference to transplanting wall Pear trees, four or five years old; for instead of saving, according to custom, the smallest rootlet, so that the tree might not feel its removal, I cut the roots well in. The tree, however, did not take badly, but the contrary. Only two trees were removed with the greatest care in saving the smallest fibres, and I can affirm that they were the only ones of this plantation which did not succeed perfectly, as may still be observed after having been planted eight years.

"Such was the commencement of the method which I now generally practise, and that on many hundreds of trees every year. I ought, however, to observe that I do not proceed to dress the roots as those under the conditions I have just mentioned. When the trees are in a perfect state, and not suffering from injury, I cut the roots short it is true, but proportionally to the age and vigour of the plants; the small fibres I cut back to an inch or an inch and a half; and I prune the tree into the form I wish to give it at the same time."

M. MARC says the best time for planting the Peach worked on the Almond is from the 10th to the 20th of February; and the Vine from layers towards the end of March.

If roots are shortened it should be with the view of removing portions that are weak and inefficient, so that stronger roots may push from the portions which are left. ||

A CORRESPONDENT has sent us a portentous looking production, which appeared at the mouth of a wine bottle, on cork, and resembles a large olive-black powder puff. Though 3 inches or more in diameter, it weighs, even with a portion of the cork attached, only a few grains, and is so light as to be absolutely impalpable. It might well surprise any one who had never witnessed the stalactitic masses which often hang down from the ceilings of old wine vaults, where they are frequently the pride of the owners, and are religiously allowed to grow and perish at their own wild will. These masses are undoubtedly fungoid, and the production has been described under various names, the most recent being the rather strange one of Zasmidium cellare, but no change of name or of system has ever thrown any clear light upon its real affinity, and all that can with safety be asserted is that the Zasmidium is only some abnormal state of probably some common Fungus, which has been nursed into its present highly developed condition through the favourable circumstances presented by the equable temperature and attendant slight degree of moisture characteristic of a good cellar.

It is, indeed, quite astonishing how enormously the spawn of some Fungi is developed in such situations. Instances have occurred in which a small cellar has been completely blocked up so as almost to forbid entrance, and a cask lifted up by the fungous mass, while every particle of surrounding wood was completely decomposed.

The Zasmidium appears to be comparatively harmless. For the most part it is quite superficial, and grows as readily upon the stone roof as upon vegetable substances. Very rarely we have seen instances of its penetrating the tissues of the wine corks, and in these cases probably there has been some pre-existent mischief from other sources. But so favourable a report cannot be given of other Fungi, which are the pests of the cellar. not only attacking the woodwork and packing laths, but spreading from these and the sawdust to the corks, whose tissue is in consequence more or less completely replaced by fungous cells, which unlike the proper cork cells suffer the wine to dribble slowly through them, so that after a few years the bottles are found more or less empty, and the contents frequently tainted by some disagreeable flavour communicated by the Fungus.

In some cases the evil goes a step farther, and we have seen long branched processes sent off from the cork into the wine, destroying its distinguishing properties, and rendering it perfectly useless.

It is not indeed surprising that fermented liquors should prove so highly nutritive to Fungi, if we reflect how active a part some of the tribe take in the process of fermentation. A slow change is constantly going on in all fermented liquors, however long they may be kept, and though fungous matter does not appear to be developed where the vinous fermentation has been tolerably complete, except in those cases where wine becomes what is called mothery (a condition which is probably always attended by a more or less decided acetic fermentation), there are instances in which such productions have been developed in strong bodied wines, as for instance in Madeira, one of which has been described under the name of Conferva Vini. The way in which the spawn of certain Fungi flourishes in poisonous metallic solutions, by appropriating the oxygen and rejecting the metal, may illustrate possibly the growth of these productions in wine containing a considerable percentage of alcohol.

It is clear then that the cellarman has quite as much need to guard against Fungi as the cultivator, and with both, perfect cleanliness and care are equally desirable. As far as possible all vegetable matter, as laths, sawdust, exposed beams, and above all, wooden shelves should be avoided. Felt may be substituted in packing for laths, and if after all the exposed corks should be covered with a white floccose mould, which will sometimes be the case where neither wooden laths nor sawdust are employed, it is advisable at once to wipe it off. Sealing wax is not always a preservative, for we have seen corks highly decomposed by Fungi beneath the wax if cracked or chipped, which is often the case if the mixture in which they are dipped is not sufficiently tough as regards its consistence. Metal capsules afford doubtless the greatest security, but these are used only for certain wines. The projecting portion of the cork might be painted with an aqueous solution of corrosive sublimate, which would prove a complete preventive, were not the metallic salt so dangerous as to make its use inexpedient except in very careful and judicious hands. Where there is reason to think that the substance of the corks has been materially impaired, which may be easily seen by simply cutting off the projecting part, and observing whether the substance is marbled with white veins or patches, it is requisite at once to recork the wine, putting aside those bottles where the spawn has penetrated so deeply as to impair the distinctive aroma. This has been practised within our experience with great advantage, and a valuable cellar has thus been saved, where mischief was not only threatened but absolutely begun. It is, however, the white mycelia which are most to be feared, and our Zasmidium may be left undisturbed where there is still an affection for such monstrosities.

In conclusion we may remark that a substance similar to the outward eye, is sometimes found in coal mines. This however consists merely of the threads spun by some subterranean spider, blackened by coal dust. Simply burning a portion will at once show its animal nature, if there is no opportunity of examining it with the microscope. *M. J. B.*

—— THE history of Mr. R. J. GRAY'S ASPLENIUM HEMIONITIS CRISTATUM, for which a First-class Certificate was awarded at a recent meeting of the Floral Committee, is of sufficient interest to be worth recording as an item of evidence as to the manner in which, it may be assumed, the curious varieties of Ferns generally originate. Some half dozen years ago, a plant in Mr. GRAY'S possession of Asplenium Hemionitis produced fronds which were divided or subcristate. This plant had a stem of about an inch in length, elevating the terminal crown, and the fronds were of the subhastate general figure, familiar in the less developed forms of the species; it however produced a lateral crown about half-way up the stem, the fronds of which were of the most highly developed palmatifid character; and this lateral crown gradually robbed the terminal one, so that frond after frond of the latter died off, till the whole had perished. The spores of the crested fronds were in due time sown, and yielded a crop of plants, amongst which, as they became large enough to show their peculiarities, could be detected representatives both of the crested and palmatifid forms of frond. Thus from seedlings of the original scarcely divided A. Hemionitis, but with slightly crested points, were obtained, some plants with well developed crests, and others with fronds deeply divided in a palmatifid manner. It is the most highly developed of these crested seedlings which was shown the other day under the name of cristatum, and gained the first class award. This will, we have no doubt, become a handsome evergreen greenhouse Fern, the primary lobes of its fronds being multifid at the apex, and sometimes even branched below, while the apices of each lobe become developed into fair-sized crested tufts, and their margins are more or less crenately-lobed. The kind of variation which has thus been accidentally developed, and which now appears to be fixed, is precisely what occurs in some of the well-known varieties of the Hart's-tongue Fern.

New Plants.

283. MACLEANIA SPECIOSISSIMA, *Hooker, Botanical Magazine*, t. 5453.

This very floriferous South American Vacciniaceous shrub appears to have been distributed by Mr. Linden as a species of Thibaudia—T. elliptica, under which name it was received from Brussels by J. Bateman, Esq., in whose garden at Biddulph Grange it produced its flowers. According to Sir W. Hooker, however, who has examined fresh specimens from Mr. Bateman's

garden, it is a species of the seldom seen genus Macleania, for which, on account of its great beauty, he has proposed the name speciosissima. "Rarely," it is remarked, "have we seen a more lovely flowering shrub." The specimens attracted much attention at one of the Exhibitions which took place at South Kensington in April last. In a note accompanying the specimens Mr. Bateman observed:—"I received the plant in 1859 from Mr. Linden, of Brussels. It requires the heat of a warm greenhouse, and should be placed in a large pot, which ought to stand on a bracket or shelf near the glass. In this way the branches will hang down gracefully and flower abundantly." The beauty of a plant such as this, with its long branches laden, as in our figure, with orange-scarlet tubes, may be well imagined, and one can hardly restrain a longing to see some such specimens lending both novelty and grace to our somewhat tame exhibitions of flowers.

Macleania speciosissima is described as a straggling shrub, of some few feet in the spread of its branches, which are much elongated and pendent, well clothed with coriaceous distichous evergreen leaves, ovate or oblong-ovate in form, entire, with three principal nerves, the young leaves being of a particularly delicate semipellucid purplish-red colour. The flowers are all drooping, most copious, in fascicles from beneath the leaves of the pendent branches, and have clavate pedicels, an articulated five-winged purplish-red calyx, and a tubular corolla nearly an inch and a quarter long, contracted below the small limb so as to be tubuloso-ventricose, longitudinally five-angled, and bright scarlet with a yellow mouth.

FRUIT GROWING IN KENT.

I HAVE been much amused in reading the article, at p. 1203, 1864, by a "Kentish Fruit Grower." He commences with such a stretch of imagination as to assume that he must buy Apple trees at 1*s.* 6*d.* each. No fruit grower in his senses would think of doing such a thing. A sane man would buy his stocks at some 50*s.* or 60*s.* per 1000, and have them grafted where it was intended they should be cultivated. This will at once dispose of his imaginary charge of 36*l.* per annum for interest. Again, no prudent man would plant a fruit garden unless the land were his own freehold, or on a lease with an unusually long tenure, and with a binding agreement for the landlord to take the trees at a valuation on its expiry. With regard to the abundant crop of Apples this most exceptional season, all that your correspondent says about their price is, I have no doubt, perfectly correct, for I know that in some orchards they have not been considered worth the trouble of gathering. Still fine fruit, such as I have recommended for careful cultivation, when properly selected and packed, and sent to Covent Garden Market, where really good fruit is appreciated, makes a remunerating price, as I have proved —Cox's Orange Pippin, 6*s.* per bushel, and Old Nonpareil, 8*s.* 6*d.* ditto.; but to make such prices the fruit must be fine and carefully selected. Mine were grown on dwarf bushes, the fruit carefully thinned, and owing to their growing near the surface of "Mother Earth,"—thus benefiting much by radiation—they were very beautiful. This is the effect of good cultivation. Fruit is "grown" in Kent, but not cultivated. And then with respect to its being sent to market, for the most part I believe the Kentish fruit goes to the Borough market, which is only a little less dirty and disorderly than that dirtiest and dingiest fruit market in the world—Spitalfields, and for the most part it is sent in bushel measures, the Apples but seldom carefully selected as to size and quality.

To support my assertion that fruit is not cultivated in Kent, I have only the testimony of my own eyes. I have seen what I allude to, but as there is no rule without exception, there may be many spots where choice fruit is properly cultivated. I hope so, for no county in England is so highly favoured by climate, soil, and site. I have seen standard fruit trees planted in rows among Gooseberry and Currant trees, the ground carefully dug a spit deep every year, and all the surface roots driven from the beneficial effects of sun and air. I have seen some fine orchards under Grass, the trees crowded with wood, in favourable seasons bearing too many fruit, in seasons unfavourable none at all. I have seen many, very many, orchards planted irregularly with fruit trees of all sorts unhappily commingled, some 10 and some 40 feet from each other. Now, in all this there is no cultivation; it is a sort of hap-hazard barbarous method of growing fruit, "the harsh ordeal of actual practice," to quote the words of your correspondent, who is most undoubtedly a "Kentish Fruit-grower," and not a cultivator. The 36*l.* per annum imaginary interest seems to haunt him; and I also observe that he fixes the maximum produce of each bush tree at half a bushel, but this is equally imaginary, for from some years' careful observation I see no such limit to the produce of a bush tree, although I made it the basis of a calculation.

Adverting to the conclusion of the letter of your correspondent, no way can be pointed out by which he can make more of his orchards in their present state than he now does; his varieties are doubtless too numerous, and not choice enough for the taste of the day; and he cannot thin his fruit so as to have them extra fine, and have the chance of a decent crop every season. The poor trees are so exhausted by the enormous crop they have borne this season, that it may require years before they recover. If half, or even more than half, the Apples had been taken off his trees about midsummer, the remaining fruit would have been worth double, and the trees would not have been fatigued—but that would have been fruit cultivation, and not fruit growing as at present in Kent.

As far as I have seen, the Kentish farmers in many instances sublet their orchards, thinking them *infra dig.* to attend to; well, perhaps they are so, under present circumstances. What is required in Kent is a race of clever cultivators, who will be able to give a liberal rent for some of those numerous favourable sites to be found on almost every farm in Kent, *i. e.* if the freehold is not to be bought. A far-seeing landlord would grant a lease of not less than 30 years, and agree to pay a certain price for the trees at the end of the tenure if they are then in a healthy state. If the country progresses in wealth as it has done for some years past, there is a great future for the clever fruit cultivator. As to the fruit grower he will be like an old stage coach—a thing of the past, and people will wonder that such things as Kentish orchards ever existed. As we increase in population, so it is probable the difficulties of "getting a living" may increase, and we shall decrease in physical proportions; it is therefore just probable that our fruit cultivators may one day be thin spare men. As the present Kentish fruit growers are for the most part portly gentlemen, it would seem advisable to preserve them (they would make capital mummies), so that future generations may see the difference physically between a fruit grower of 1864 and a fruit cultivator of 2064. Seriously, this matter of fruit cultivation is quite worthy of earnest attention. Our opposite neighbours, with a brighter climate, but with a soil decidedly inferior to that of Kent, are taking active measures to supply the London markets with fruit, and the "blunt John Bull" of your correspondent must look out or he will find himself distanced. It was only the last summer that a French fruit cultivator visited this place, and he was much taken with the calcareous nature of most of the soils here, and said that he had found some difficulty in finding in France soils like them, and so highly favourable for the culture of stone fruit, but that he had recently purchased a piece, 40 acres, near Rouen, which he intended to devote to the culture of Plums for the London market. The French fruit growers as a class are very superior men, well acquainted with the nature of soils and their adaptation to the different kinds of fruit, and also with fruit tree stocks and their effects upon the graft. I do not wish to make invidious comparisons, but I have not found much of this kind of information in Kent.

I can realise perfectly the present position of the Kentish orchardists, for when a young man I inherited an orchard of very fine Apple trees, which had been planted between 1750 and 1760. Many of these grand old trees used to bear from 20 to 30 bushels per tree. Among them were numerous sorts, so that when the winter kinds were stored in the fruit room, there were "cotchels" (the term used by the labourers here for small quantities), without end. I soon found that I had too many varieties, giving extra trouble both in gathering and storing, and there were always some ready for market before their proper time, thus requiring much care in watching them. I was soon tired of this, and by assisting the old trees in dying, and re-grafting the trees not too old, I succeeded in reducing my market varieties to two—both good keepers. I have since then never had any trouble with my crop, or reason to complain of the low price of Apples. If then, the "Kentish Fruit Grower" would examine his trees, find out those that do well in his soil, but taking great care that the sorts he selects for extensive growing will be marketable at a season when there is least fear of a glut, he may re-graft all his trees that are not too old and decrepid, and by reducing the sorts to say four or five, he will have much less trouble with his orchards and more satisfaction and profit, at least for a time; but I warn all rough fruit growers of what must come as the nation advances in skill and refinement. Apples and Pears of the choicest kinds may and will be cultivated in Kent, but not in the way that has been so long the only way, viz., by buying some 200, 300, or 500 standard Apple trees from the Surrey nurseries, of some 20, 30, or 50 sorts—sorts and trees all good enough, but not selected wisely. Well, these trees are stuck in among Gooseberry bushes and in Grass orchards, and in spite of this treatment they make fine trees, and as I have said bear quantities of fruit in favourable seasons, and few or none in seasons the converse. All this must be changed if the "Kentish Fruit Grower" wishes to keep his present position, and as he is doubtless a wise man, he will I trust think about it. Perhaps after Jean Crapaud has made his way in the London markets, and is grinning good naturedly (because his pockets are full) at the "Kentish Man," we shall see Kent really and truly a fruit garden. To bring this about, sites must be selected, soils examined, the stocks necessary for the different kinds of fruits must be seen to, for in some apparently favoured soils some kinds of fruit trees refuse to grow if grafted on certain kinds of stocks; and then again there must be but few wild but grand-looking standards (an old orchard near a farm house is the most charming picture of English rural life that can be seen), but trees all under the command of the cultivator, who must be able to see every bud and branch of his tree, so that the fruit may be thinned in due season, and the shoots pinched in *secundum artem;* no deep digging must be allowed, no Potatos, or Gooseberry or Currant trees, but careful good culture, so that from one acre of fruit trees a greater income may be secured than from 4 acres of common orchard trees. This will surely come to pass, for every passing season tells me that we have yet much to learn in open air fruit-tree culture. Yet the task to those whose minds are active, is easy. Let us not be discouraged by the wail of a "Kentish Fruit Grower," but try and meet the competition that must come, by skill and capital. *T. R.*

THE TRITOMA.

THE two finest plants of this genus—sometimes called Kniphofia—are those known as T. Uvaria glaucescens, and T. grandis. As I have grown these rather extensively, I may perhaps be able to offer a few hints on their cultivation, which may be useful to those who have been so unfortunate as to lose them during winter, or to have them so much punished by frost, that they have broken weakly and flowered indifferently the following season.

T. Uvaria glaucescens has long, rather narrow, glaucous leaves. It is a very abundant flowerer, throwing up the spikes from 4 to 5 ft. in height, and these bearing flowers of the richest orange scarlet. In a small bed planted last May I have had above 200 spikes. This sort commences to flower about the middle of August, and continues until October; and before it has done flowering, the following commences.

T. grandis is a magnificent species, well deserving its name, for it is the king of all the Tritomas. It is very different from the former, being much stronger in growth, with the leaves shorter and broader at the base, green or slightly glaucous, and recurving. The flower-spikes are from 5 to 7 feet in height, and the blossoms of a bright scarlet and yellow, hang on the spike for a much longer period, and come in greater profusion than in the other. It commences flowering about the end of September, and continues throwing up until winter. A boxful of flowers was sent from the country to London for examination, on New Year's Day, 1864.

I feel convinced that these two fine decorative plants, when seen and properly understood, will be much more extensively grown than they hitherto have been. There is scarcely any plant in cultivation as a hardy herbaceous plant that can rank with them, flowering as they do for at least five months of the later portion of the year.

As plants for garden decoration, either planted alternately in long rows, or in clumps, a large mass of each, they form grand features as specimens of floral beauty. I may also add that T. grandis makes a valuable plant for the decoration of the conservatory, by potting it in May, and plunging the pots in the open ground until October, when they should be taken up and placed in the conservatory. Just at that time of the year the conservatory requires something to enliven it. As to soil, if it be rather light, I would advise that it should be trenched as deeply as possible, putting in plenty of cowdung at the bottom, and also mixing rotten cowdung freely with the soil. On the other hand, if the soil is heavy and close, it should be trenched, and plenty of dung put in at the bottom, but it should be mixed with a quantity of grit or coarse sand and vegetable mould. The plants will grow almost anywhere—by lakes or ponds, in the flower garden, or in the pleasure ground. I will not say they are aquatics, but I am quite satisfied they will absorb a large quantity of moisture. If the soil is not suitable for them, it can, by a little assistance, be made so.

They are best planted out in May. They may readily be increased by division. If the summer proves hot and dry, like that through which we have recently passed, they should be mulched and watered freely from time to time. In winter the ground close around them should be covered with rotten tan or leaf mould; and should the weather set in very severe, the tops ought to be protected with a little litter or dry Fern. Nothing more will be required until May, when some rotten cowdung should be forked in around them. Their long, fiery-looking flower spikes have gained for them the vulgar name of Red-hot Poker plants. *T. Brown.*

TRADE MEMORANDA.

WE are unacquainted with the firm of May & Isaacs, of Edmonton.

Home Correspondence.

Gardeners and Under Gardeners.—Every one having a knowledge of gardening must be impressed with the fact, that whatever the amount of information a gardener may possess, either theoretical or practical, he will still be found wanting in some things; and it is a matter of regret to think how ill-informed many of our gardeners are even of the plain rudiments of education. This arises in some measure from the way in which young men are trained. A boy is taken to work in the garden, not with the intention of becoming a gardener, but he eventually does so; and this system is established so firmly, that it would be difficult to suggest an alternative, for it is seldom that people think of apprenticing their children to gardening. If they can afford premiums, they endeavour to place them in what they imagine may become a more lucrative position; and when such apprenticeship does take place in a garden, the result practically is not much better than when the youth has to struggle onwards by means of his own exertions. There are certain individuals who never make any progress; a sense of the real value of education never crosses their minds. What I wish, therefore, to impress upon garden superintendents is this: that every gardener in employing boys should make inquiries respecting their education, and, if he can manage it, should not employ any except such as have a tolerably good one. A contrary practice is, however, the rule; and young men who cannot even spell correctly, often obtain good situations. The proposed examinations, therefore, at South Kensington will be one of the best things that can occur; at any rate they will serve as a stimulant to persevering youths to push forward, provided the nobility and gentry will engage none but certificated gardeners. As the education of young men is generally effected by means of self application, it may not be out of place to offer a few suggestions as to the best mode of carrying out its improvement. Nothing is better perhaps than for them to unite into a class, and to take some branch of education for study. I would propose that the chief gardener be at the head of them—not to be always with them, but to pay them a visit once a week, in order to lend them all the assistance in his power. A society for the improvement of young gardeners has been esta-

blished here, and is working well. Two are appointed to act as treasurer and secretary; subscriptions being required to purchase weekly papers, eight in number, including the *Gardeners' Chronicle*. The *Florist and Pomologist* and the *Journal of Horticulture* are presented by Sir G. B. Middleton; he has also presented the Society with the following books:—"Theory and Practice of Horticulture," "School Botany," "Thomson's Book of the Garden," "Cottage Gardener's Dictionary," and other minor works, which are given out to be read fortnightly. Once a week each member has to be present, when one is appointed to give an essay on some subject connected with gardening; ten of these have already been delivered. The first was given by the head gardener (Mr. Blair), and was chiefly confined to matters of education. After the essay has been delivered, each is allowed to express his opinion on the subject, when sometimes animated discussions take place, perfect decorum being maintained, as a chairman is appointed to have full power over the meeting. In addition to this, the members meet twice a week for the study of English grammar, and as the Society advances, other branches are to be taken up. Something of this kind may be established in every garden in which a few young men are kept. I can assure them that they will not regret it. An old adage says that "unity is strength," and unity in study will be found strongly antagonistic to ignorance. *W. P. R., The Gardens, Shrublands.*

Coal Ashes a Disinfectant.—As the subject of the utilisation of sewage and other manurial matters that our dwellings furnish appears increasingly, and not without reason, to occupy attention, it is I think the duty of every one to endeavour to throw light upon the affair, in order that the preservation of the manure may be ensured, and at the same time its offensive character removed. It is evident that in its diluted form, it is deprived of much of its valuable properties; I have, however, read with astonishment in your pages some suggestions respecting using earth to disinfect it, drying the same, and using it a second time. Now, surely there is at hand in every house an agent better calculated than earth for the absorption and neutralisation of all offensive matters, viz., coal ashes. Who has not heard of the excellent results obtained a few years ago from using peat charcoal as a disinfectant, in a vile pit—the accumulation of years. After its application the contents of this were carted away through public thoroughfares at noonday without offence; and more than this, an independent gentleman had some of the material put in a vessel on his drawing-room table, to show that its offensive qualities were wholly negatived. I cannot say that I would be prepared to go so far as that. But to proceed to my own experience: I may state that during the last 26 years I have followed the mixing of coal ashes with house sewage with the best effect. Our closet has 5 or 6 steps up to it, and a pit underneath but not below the ground level, the walls of which are cemented inside; in this is a small doorway in which a flagstone is fitted, leaving at top a space of 8 or 9 inches to allow room for the introduction of coal ashes; over this opening, to prevent draughts when closed, a trap door is placed on hook hinges, so that it may be easily removed when the pit requires cleansing, which probably would not be more than once in three months. If attention is paid to throwing in the ashes daily, the place may be kept more free from effluvia than many water-closets, and also cleaned out without offending the olfactory nerves of the most fastidious. *J. M. E.*

Orchids in Flower in December.—The following short list may prove interesting to lovers of Orchids who may like to know what plants are in the habit of flowering at this dull season. I am of opinion that winter flowering Orchids are worthy of more notice than is usually bestowed upon them, as they enliven our glasshouses when little else is to be seen of interest in other departments. We have now in great beauty Angræcum sesquipedale, with ivory-white flowers, 5 inches across, and a green tail 12 inches long; A. eburneum superbum, Ansellia africana, Barkeria Skinneri, Burlingtonia amœna, Cattleya amethystoglossa, one of the most beautiful Cattleyas in cultivation; Calanthe Veitchii, a beautiful winter-flowering plant, bearing a spike 4 feet high, thickly set with beautiful rose-coloured flowers; C. vestita rubra oculata, C. vestita lutea, Cœlogyne fuscescens, Cypripedium hirsutissimum, very fine, two flowers being on each spike; C. Fairrieanum, C. barbatum nigrum, C. insigne, C. venustum, Epidendrum vitellinum majus, E. amabile, a magnificent variety, one that will become a general favourite when better known; Galeandra Stangeriana, Ionopsis paniculata, Leptotes bicolor, Lælia acuminata, L. anceps, L. autumnalis, a charming plant; L. prestans, Lycaste Skinneri, Maxillaria venusta, six months in flower; M. picta, and its larger variety; Miltonia Moreliana atro-rubens, Odontoglossum Insleayii, true; Oncidium Cavendishianum, O. Suttonii, O. pulvinatum majus, O. sphacelatum, Phajus maculatus, Phalænopsis amabilis, P. grandiflora, Saccolabium miniatum, S. violaceum, Sophronitis grandiflora, S. cernua and violacea, Trichocentrum Pinelii, and Zygopetalum crinitum. *E. Mitchell, gardener to R. F. Ainsworth, Esq., M.D., Lower Broughton, Manchester.*

Painless Extinction of Life in Animals designed for Human Food (see p. 1255, 1864).—On visiting the butcheries at Islington, which, moved by a deep sense of obligation I did, the intelligent head butcher, Mr. Grimaldi, informed me that his men might fail once in about 50 times to inflict death at a blow. But in the country I have seen, to my great horror, butchers hammer, so to speak, the heads of the poor brutes with many blows, ere, lowing and trembling, they sank on their knees and died. Striking on the head with the pole-axe, however well done, still inflicts a mighty pang, and the ox is dragged over the gory floor ere the deed is done. I need not say that herbivorous animals detest blood, and do not come in contact with it without suffering. But the pole-axe, had it even nothing objectionable, yields no relief to the countless sheep and other such animals which now are done to death with infinitely cruel accompaniments. I therefore, earnestly, most earnestly, press the attention of the humane public on the painless method which I commend. *Henry Mac Cormac, M.D., Belfast, Jan. 3.*

Societies.

LINNEAN: *November* 17.—G. Bentham, Esq., President, in the chair. The Hon. J. Leicester Warren was elected a Fellow. Dr. Hooker laid before the Society a lithographed plate of a gigantic species of Aristolochia from the forests of Old Calabar, where it had been discovered by the Rev. W. Thomson, of the United Presbyterian Church Mission, who had transmitted a flower in spirit to Kew. At Mr. Thomson's request it had been named A. Goldieana after the Rev. H. Goldie of the same Mission. Dr. Hooker also exhibited some Hazel nuts, said to have been taken from a closed cavity of a large Oak tree at Llanelly in South Wales, where it was supposed they had lain for many years. The nuts presented a curious striped appearance, and the kernels were quite sound and fleshy, though discoloured. They had been sent to Dr. Hooker by Mr. J. Douglas, the proprietor of the saw mills in which the tree was cut up. The following papers were read:—1. *Facts relative to the Movements of Insects, on dry polished vertical Surfaces.* By J. Blackwall, Esq.——2. *Note on a Skeleton of Dinornis robustus in the York Museum.* By T. Allis, Esq. ——3. *Description of a huge Banyan tree in the Chingleput district, Madras.* By Dr. Shortt. This enormous tree, it would appear, grows on the outskirts of the village of Pussumboor. The extent of ground which it covers is estimated at 4800 square yards. Some of the aërial roots have struck down close to the original stem, and by their rapid increase in girth have become united with it; others have united together, forming new trunks almost as large as the main tree. The number of aërial roots which form the support of the branches, as far as can be made out, is 2000, and the greatest height from which they descend to the soil is 60 feet. The extreme height of the tree is 83½ feet. The size of the tree and the regularity of its head give it from a distance the appearance of a well-wooded hill. From the minuteness of the seeds of the Banyan tree, they readily establish themselves in the smallest crevices either of trees or buildings, where they frequently grow to the eventual destruction of the support. The tree often fixes itself in the Palmyra, the droppings of birds which feed largely on the fruit, being arrested in the axils of the leafstalks; and when in this position the roots gradually encircle the stem of the Palm and eventually destroy it. The natives term this union "the marriage of the Palm and Banyan." The wood is light and useless except for fuel, but the aërial roots, when of sufficient size, are used for tent poles, their strength and lightness rendering them well suited for this purpose. The leaves are sewn together to form plates, off which the natives, especially the Brahmins, eat their food. The milky sap is in great request for sponginess of the gums and aphthæ, and the concrete sap supplies bird-lime. Several other kinds of Ficus have the same pseudo-parasitical habit.——4. *On Pæciloneuron, a new genus of Ternströmiaceæ.* By Capt. R. H. Beddome; communicated by Dr. Thomson. This forms a large tree on the western slopes of the Neilgherries, and is said to yield a valuable timber. The species was called P. indicum.——5. *On the naturalised Weeds of British Kaffraria.* By M. D'Urban; communicated by Dr. Hooker. After arriving at King William's Town, the author had occupied himself a good deal with gardening; but as the summer came on, it seemed such a hopeless task to keep down the weeds which choked the cultivated plants, that the attempt was abandoned in despair. Most of the weeds referred to in the paper were stated to be thoroughly established, and to be spreading with great rapidity, all of them increasing freely by seeds. Indeed, the luxuriance and prolificacy of the garden weeds were such as to force themselves on the attention. Certain garden flowers, as Eschscholtzia californica, Œnothera biennis, Zinnia elegans, Mirabilis Jalapa, Ipomœa purpurea, and Canna indica, were said to spread rapidly over gardens where they have been grown, till they become weeds. Of the Ipomœa at least four crops come up in the season. Of the 32 kinds of weeds mentioned by Mr. D'Urban, nearly all are found in North America, either native or naturalised, and it was suggested that they might, therefore, have been introduced with the American garden seeds, which are so largely imported into S. Africa. Among the more obtrusive was Purslane, which spreads over the ground in dense mats in an astonishing manner. Mr. D'Urban suggested that as the South African antelopes eat only succulent herbs and not Grass, and as a tame Dauker bok had been fed entirely on this plant, the fact might be turned to account by the Zoological Society, which had not been fortunate in managing the animals of this class which from time to time it had acquired. Xanthium Strumarium was another plant that had spread with great rapidity, so much so as to occasion alarm among sheep farmers and others interested in the wool trade, on account of the burs adhering to the fleeces. The Bur-Marigold, Bidens bipinnata, was also found most troublesome as a garden weed, hardly anything being able to compete with it, except the equally vile Bristly Fox-tail Grass, Panicum verticillatum. These two were noted as being enough to break the heart of a gardener. Nicandra physaloides and Solanum nigrum were said to be abundant, the soldiers often eating the berries of the latter, which seem quite innocuous. Physalis pubescens, the Cape Gooseberry, had spread in a wonderful manner, both in wild and cultivated ground. The Fingoe women collect the berries, which make a delicious preserve, and bring them to market. The Thorn Apple was said to be a very disagreeably intrusive plant, the purple variety of it, known as Datura Tatula, growing 6 feet high. Various other weeds, as Shepherd's Purse, Chenopods, &c., were stated to occur in great profusion.

Notices of Books.

Bericht über einige der wichtigsten botanischen Ergebnisse der Bereisung der portugiesischen Colonie von Angola in West Afrika in den Jahren 1850-1860, *durch Herrn Dr. Friedrich Welwitsch. Von Dr. E. Fenzl. Wien* 1864, *8vo, pp.* 10. (An extract from the 48th volume of the Transactions of the Imperial Academy.)

Professor Fenzl, who is so well known for his researches in botany, has lately sent us the small pamphlet of which the German title is given above. It is a report of some of the most important botanical results of Dr. Welwitsch's visit to the Portuguese Colony of Angola in West Africa from 1850 to 1860, some extracts from which will in all probability be acceptable to many of our readers, and more especially as Dr. Welwitsch is now in England arranging his valuable collections, which have already afforded matter for some most interesting papers, and are destined still further to enrich our journals.

Dr. Frederic Welwitsch was born at Mariansaal, in Carinthia, and from the very commencement of his academical course he acquired a great taste for botany. He was soon well known for his passionate love of collecting, his scientific knowledge of his native flora, and his indisputable merit as a contributor to the accurate knowledge of the Flora of the Vienna basin, and of Lower Austria. He soon however extended his researches beyond these narrow limits, and included the Floras of the rest of Europe and other continents in the compass of his investigations. Desirous, however, to observe for himself, he accepted, a short time after he had taken his doctor's degree, the invitation of the Wirtemburgh Botanical Travelling Union to explore the treasures of the Portuguese Flora, a task which had been so happily commenced by Link and Hoffmansegg. Having accomplished what he undertook to the satisfaction of his employers, he was induced to remain at Lisbon as a teacher of botany.

These brief details will serve to show how he became connected, and eventually to his distinguished credit, with the scientific expedition to Angola fitted out by the Portuguese Government. Furnished with all the information necessary for such a journey, hardened in body against the evil influence of a changeable temperature, accustomed to endure with patience and impunity all sorts of privations and difficulties, extremely enterprising and cool in the midst of danger, gifted moreover with an eminent degree of tact and discrimination, Welwitsch was exactly the man to be implicitly trusted with so hazardous an expedition.

More fortunate than Smith, who, together with most of his companions in Captain Tuckey's expedition to the river Congo, which at first appeared so hopeful, at last fell a sacrifice to the dreadful fever of the country, Welwitsch examined the greater part of the coast between the Congo and Cabo Negro, as also that lying between 6° and 16° south latitude. He penetrated moreover through indescribable difficulties from the mouth of the Cuanza 250 miles into the interior as far as Banza di Quisonde towards the east.

In the first year of his abode in Angola he examined the coast between the Congo and Cuanza for more than three degrees of latitude, oppressed by the heat of the desert, added to hunger and thirst. In October, 1854, he passed through the hilly and mountainous districts to the east, in order to penetrate the wonderful and richly-wooded districts of Cazenoja and Golungo-alto. Welwitsch remained nearly two years, wandering through these regions in every direction, mostly on foot, oppressed by fever, and with legs swollen and covered with sores. From September to December 1858 (the spring-time in Angola), when scarcely recovered from illness, he visited the shores of Dande to the north of S. Paolo de Loando, and in the following year (1859) from June far into October the coast of Mossamedes as far as Cabo Negro extending southward from Benguela. From hence he proceeded to the noble

and healthy table land of Huilla, 5000 to 6000 feet above the level of the sea, in order to return in good health to Europe.

A few only of his more important discoveries, whether as regards Vegetable Geography or Morphology, can be mentioned here.

In a geographical point of view, beyond all other particulars, the local but plentiful occurrence in the interior of Africa of a Cactus, a species of Rhipsalis, 6 to 8 feet long, growing parasitically on Adansoniæ and Sterculiæ more especially, excites our extreme astonishment. Were it not on the authority of Welwitsch that this assertion rests, it might be regarded as scarcely more than an error resting on some mistaken affinity, as all the many hundreds of Cacti belonging to various genera are exclusively confined to America.

A further important discovery, confirming the anticipation of Robert Brown, is that of Monodora Myristica, as well as a second species belonging to the same genus, in the woods of Golungo Alto and Pungo Andongo. This is the American Nutmeg cultivated in the West Indies, respecting whose native country doubts have existed, and which, as R. Brown properly remarked, was introduced with Blighia and many other useful plants by the Negroes.

Of not less interest is the occurrence of two new species of the genus Vellozia in the interior of Africa, as this genus was considered to be confined to the Brazils; as also that of species of Begonia, Hypoxis and Cedrela, a Rafflesiad growing parasitically on the branches of Cæsalpiniæ, and a blue-flowered Ouvirandra, in marshy but not submerged places—species belonging to genera which were believed either not to occur at all in Central Africa, or only sparingly.

In a journey through the wretched parched districts between the rivers Dande and Zenza, while he was wandering through the broad sandy plains stretching southwards to the left bank of the Zenza, he came upon a Palm forest five leagues in length, which consisted exclusively of the crowded stems of a branched Palm belonging probably to the genus Hyphæne. Like most African Palms it yields excellent wine. Should it prove on examination to be identical with Hyphæne thebaica or guineensis, it will prove the enormous extension in Africa of a genus, possibly confined to a single species.

As regards the great quantity of new morphologically interesting plants, mentioned by Welwitsch in his different communications, we shall advert to one or two only in particular, to show that the well known saying *semper aliquid novi ex Africa* (always some novelty from Africa) still holds good. We shall mention first a Musad (perhaps a true Banana) with a barrel-shaped stem 5-6 feet in diameter, growing on rocky broken land on the tops of the mountains of Pungo Andongo, more than 2000 feet above the sea. In the region of Golungo Alto, which abounds peculiarly in gigantic plants, he found an arboreous Umbellifer, with a stem 1-1½ foot thick, which is prized highly by the natives for its medical properties and value as a timber tree, certainly, as far as is at present known, the most gigantic plant of the order.

The most curious, and in every respect far the most remarkable, of all the plants found in Angola, is the N'tumbo of the natives, a tree of so abnormal and peculiar structure, that Dr. J. D. Hooker rightly remarks in his memoir in the Transactions of the Linnean Society of London, that since the discovery of Rafflesia Arnoldi in Sumatra, no plant has excited so great an interest as the Welwitschia mirabilis, dedicated to the honour of its discoverer.

This prodigy amongst trees belongs to the order Gnetaceæ, and certainly attains an age of at least 100 years. The unbranched stem, raised only a few inches from the ground, measures in very old individuals about 2 feet in length, and 4 (according to Welwitsch), or even 6 (according to Monteiro) in breadth at the crown. Raised, as it is, so slightly above the dry gravelly soil, it resembles* a gigantic loaf split in the centre into two wide gaping halves, or a massive round plate depressed in the centre, with a rough cracked warty dark brown surface, whose entire never changed nor renewed foliage consists of two opposite evergreen coriaceous leaves spread over the ground, variously curled and waved, which are from 1 to 2, or even 3 fathoms long, and 2 to 2½ feet broad, and what is most remarkable, they are the pair of cotyledons of the germinating plant, which continue to exist through its whole life, a phenomenon of which we have scarcely an example in any genus belonging to the higher orders of plants. The forked inflorescence which breaks out every year in the circumference of the crown, bears smaller barren hermaphrodite catkins, and larger carmine red female ones 2 inches long, and very like Fir cones.

Welwitsch found these mis-shapen monsters deeply sunk in the soil with their middle-sized roots, in considerable quantities at Cabo Negro (15° 40′ south lat.) on the dry plateau of the coast of Benguela, which is covered with loose sandy rough rubble, and from 300 to 400 feet above the level of the sea. A little north of this place at Mossamedes, in the neighbourhood of the Nicolas River, on the little Fishbay at 14° 20′ south lat., Herr Monteiro found it at a later period in a perfectly similar situation on quartzose schistose soil; and Mr. Baines, as also the well-known Cape traveller, Mr. Anderson, in Damaraland, between the 22d and 23d degrees of south latitude in the neighbourhood of Whalefish Bay, in a district in which not a drop of rain ever falls. The distribution of this remarkable plant, as at present known, which calls to mind some vegetable of a creation long since past, falls within the 14th and 23rd degrees of south latitude, and may therefore be considered as tolerably characteristic. It is well known to the natives. We must mention as of peculiar interest to the man of science, as also for the Pharmacist, or even the Ethnologist, the notice in the Portuguese language of the samples of wood, materia medica, and manufactures from Angola, sent to the Industrial Exhibition of London in 1862, of which Dr. Welwitsch is the author. It is greatly to be desired that this pamphlet of scarcely four sheets should find an intelligent translator, through which the meritorious and zealous labours of our friend should obtain a wider circulation and estimation.

* The crown, when divested of its leaves, resembles so closely the cracked surface of an old *Polyporus igniarius* that it might on a superficial view be taken for a Fungus.

Dictionary of Geography and Gazetteer of the World. By A. K. Johnston, F.R.S.E., F.R.G.S., F.G.S. Longman & Co.

In reference to a notice of this work which appeared in the *Gardeners' Chronicle* of Dec. 24, which has been considered in some quarters hypercritical, we must remark how extremely difficult it is to notice a work of this character without drawing attention to omissions and inaccuracies, while the undoubted merits of the book are passed over in silence.

Such a course must tend to produce an unfavourable impression; but it was very far from our intention to speak in a disparaging way of a work which our concluding paragraph says "must prove extensively useful, and must have cost an infinity of labour."

Garden Memoranda.

SEAFORTH HALL, SEAFIELD, LIVERPOOL (*Concluded from p.* 1136, 1864).—In continuation of our description we have to remark that at the further end of the Conservatory arcade, on the one side, is a gymnasium, a very large play-room, fitted up with a variety of articles which, while affording innocent recreation and amusement to the children, will also call into exercise and play, the thew and sinew of the physical system. On the other side is a billiard-room sumptuously furnished, and elaborately decorated and gilded. The dividing panels of the compartment being portable can be thrown aside, thus forming a spacious ball-room.

Descending a few steps we are in the conservatory proper, a useful building of octagonal outline, well suited for the cultivation of plants. It forms a pleasing terminus to the arcade already described. As usual in houses of this form, there is a fountain in the centre, set in a handsome stone basin neatly carved. From this, which is also of octagonal outline, wired on the top in form of a basket, proceeds four wire trellises perpendicularly to the rafters, which were covered with the plain and variegated Kennedya, Passifloras, Lapageria, and the handsome serrated-leaved Celastrus scandens. The specimen plants stand on Welsh slate stages towards the front, and the larger ones, such as Oranges, Araucaria excelsa, of which there are two plants, faultless in symmetry, each about 10 feet high, stand on gravel level with the paths. Lomaria chilensis, and Hypolepis tenuifolia, huge plants, with noble fronds, attracted prominent notice. We have learned since writing our former notice, that the bulk of the large Camellias referred to are plants originally imported about 40 years ago from China by the late Lord Strathallan, then the Hon. Mr. Drummond, a gentleman held in great favour by the Chinese, and among the first Europeans who were allowed to go far inland unmolested. Mr. Drummond presented the identical plants to the late Sir Robert Preston, Valleyfield, near Dunfermline, in whose possession they remained until purchased for Mr. Fernie. Reverting again to the plants that furnish this octagonal conservatory, we saw several specimens of Aphelexis and Chorozema; Sollya heterophyila; a handsome plant of the free blooming, small-leaved, white-flowered Leptospermum bullatum—a plant seldom seen in collections, and one deserving general attention as a late autumn decorative plant; several Acacias, of which the fine yellow elegant-foliaged oleifolia elegans, and lineata, with its long linear glaucous leaves, formed the most interesting, and are generally the most neglected sorts. Brachysema too, although a climber, and in this form meriting more popularity, was in excellent condition grown as a bush plant, clothed with dense masses of scarlet flowers. Here we also observed the sweet-scented Cytisus filipes, than which nothing of its kind is so well adapted for pot culture, being more easily kept within bounds than other members of its family. Then there were Ericas, Azaleas, and Pimeleas, all large plants, involving the outlay of no inconsiderable sum of money—in fact, no place that has yet come within our cognisance has been furnished on such a scale. It seems as if the country had been ransacked for specimens, regardless of cost, for there they are in abundance, and presenting a variety, especially among miscellaneous greenhouse plants, that we may look for in vain in almost any other private gentleman's establishment.

Nor are the stove and ornamental-foliaged plants few and puny in size, unless we except Orchids and Ferns, which are only as yet feebly represented. Of course, to provide specimen Orchids to fill one of the stove houses would be no small matter; but in a place such as this, where indoor gardening must ever form the most interesting feature, and where houses to such an extent prevail, it cannot be considered complete without the addition of some Ferns and Orchids, the more especially as other departments are so well represented. Among Orchids the only things noteworthy were Cattleya Skinneri and Mossiæ, Oncidium Lanceanum, Iridium guttatum and Cavendishianum, and one or two Cypripediums, along with several plants of Zygopetalum, of which maxillare was most worth notice. Among flowering stove plants a Pittosporum (usually a greenhouse family) called eugenioides, with sweet-scented flowers, rather thinly spread, looked well, and was of course useful for its fragrance alone. A very fine trained plant of Clerodendron Thomsonæ, which is one of our best recent stove flowering introductions, stood there, always an agreeable plant to look upon; also the fine scarlet-flowered Combretum purpureum. In another stove, which was well filled with specimen plants, stood that grand Melastomad, Medinilla magnifica, with its long pendent thyrses of flowers hanging like huge bunches of Grapes; this when well managed is really the finest flowering stove plant yet introduced. There were also several good Ixoras and Allamandas, two invaluable genera for decorative purposes and for exhibition. Among ornamental-foliaged plants there were unique specimens of Croton variegatum, Pandanus graminifolius, Dracæna mexicana, ferrea and its varieties, Cyperus alternifolius, and numerous others not less interesting, but of much smaller dimensions. The houses are well suited for the growth of these plants, not being too high; and yet sufficiently accommodating in every other way. The system of heating admits of some improvement, the pipes generally being too far from the front wall, and rather low upon the ground; while the valves, and the mode of conducting the branches from one division to another, are not of so masterly a character as the other general details of this great plant and fruit place. The wonder however, in so gigantic an establishment, is that so little deficiency is apparent.

Turning our attention to the fruit ranges, we find span-roofed house accommodation of 100 feet length, and about 18 feet width, for Pines alone. The plants in these houses are as healthy as they are numerous, and will in another year outgrow the space allotted to them. We observed fruiting plants of Queens; Smooth Cayennes, of which there were an excellent stock; Black Jamaicas and Montserrats, all good sorts, and in excellent health. They were heated, both top and bottom, by means of hot water, and what is of some importance there were numerous evaporating troughs for keeping the heated air proportionately charged with moisture.

In Vineries there was ample accommodation for keeping up a supply of fruit at all seasons. The young Vines had made good canes, and the borders seemed to be made up of that stiff plastic-like fibry loam incorporated with crushed bones, in which the roots of Vines delight so much to revel. Hamburghs: common Black, and Muscat, along with the Alexandrian Muscat, Lady Downes', and Black Alicante, form the chief sorts planted here. Peaches and Nectarines have several houses to themselves, and are grown both on the old and the present orchard house systems. Plums are served in the same way. The roots of all these are restricted within doors to a bed, with a curb-stone forming the boundary, both at the paths and in front. Then there are Cucumber and Melon houses, span-roofed in form, with a bed on either side the centre path, which had been of great service for furnishing a supply during the season. Cucumbers at the time of our visit were plentiful, and plants for winter growing vigorous. Besides all these there is a detached range, about 90 feet long, for the forcing of choice vegetables, which Mr. Hughes must find very useful for many purposes. In fact these would make admirable Vineries, and the broad shelving at top would come in well for forcing Strawberries.

The gardening offices are plain and commodious, and embrace everything that a gardener requires. They are so planned as to chime in with the other general offices, and have a good effect as a whole. The Mushroom house has the usual double or triple tier of beds, some in a state for gathering, and successional lots coming forward. Probably the most successful crops we ever saw were grown in such a house, with the droppings, as they came out of the stable, laid on the floor to ferment, thus giving off a surface heat far more natural than either flue heat or that of hot-water. What seemed to facilitate the propagation of the spawn was a blanket suspended from the ceiling, which had a tendency to check rapid evaporation. This upon the whole seems a sensible plan, and is worthy of the attention of all interested in Mushroom culture. Certainly we can vouch that the crop grown under such conditions was immense the week preceding Christmas.

As for vegetables out of doors there seems nothing to do so well—exposed as this place is to the influence of the Atlantic Ocean—as Asparagus and Seakale. In order to check the violence of the wind, and shelter common vegetables, spars about 15 feet long are nailed together in a diagonal form, presenting a wooden wall with diamond-shaped apertures, like the glass in the

windows of Elizabethan buildings. These walls are 12 feet high, and surround each quarter of ground. Fruit trees are trained thereupon, but will have little chance to succeed. Out-door gardening at Seaforth must ever be at a discount; for there is scarce an emblem of life in the various shrubs and trees planted for trial that we observed. The Green Tamarisk, Thorns of sorts, and the common Chestnut, are the only things that make a respectable appearance. Grass and gravel, with a few bedding plants, in sheltered places, are the only things worth paying attention to. Chrysanthemums, however, were in first-rate condition in one of these wooden pens, promising an abundant yield of bloom. Ground limestone makes capital walks, having a good appearance, and being as firm as concrete. The responsibilities placed upon Mr. Hughes in the last two years, during which these operations have been begun, carried on, and completed, must have been of a very onerous nature; and while, as in most places, the critic sees always something not quite to his liking, upon the whole there has been much done in Mr. Hughes's department to sustain a well-merited compliment. *J. A.*

Miscellaneous.

Aucuba himalaica.—This plant was discovered by Dr. Hooker in the Sikkim Himalaya; and notwithstanding the general similarity of features between it and the Japanese Aucuba, that distinguished botanist regards it as a distinct species. Aucuba himalaica proves to be a very handsome freely-branched hardy evergreen shrub, growing from 3 to 5 or 6 feet in height, and having full green stems, and large flat or expanded oblong-ovate leaves, very glossy whilst young, and maturing to a rich dark green hue. The flowers are produced in short dense terminal thyrsoid panicles, and have four small starry pink petals. The blossoms are succeeded by clusters of bright orange-coloured oblong one-seeded berries. Being found in its native habitat, at an elevation of nearly 10,000 feet on the most humid mountains of the Sikkim territory, it is considered sufficiently hardy to resist the cold of English winters, and may be regarded as a most valuable addition to the evergreen materials available for planting flower garden shrubberies and belts. In the almost total absence of flowers available for such situations during the winter and early spring months, fruit-bearing plants like the Aucuba are especially welcome, and its brilliant rich orange-coloured or coral-red fruit, contrasting with the dark green foliage, will be found very strikingly ornamental. The plants will also form noble bushes with which to fill vacant niches, and wider spaces beneath the partial shelter of other plants of tree-like habit, in larger shrubberies and arboretums. As an evergreen alone the Aucuba himalaica is a valuable introduction, its luxuriant and ample foliage distinguishing it from the generality of other shrubs. From the allied species it will be readily recognised by its loftier and bolder habit, combining the proportions of a Magnolia, with the verdure of a Laurel, by its considerably larger, longer, and more uniformly attenuated leaves; and by the gland-tipped teeth being much more prominent, as well as extended down two-thirds or more of the margins, while in A. japonica they scarcely extend to half the length of the leaf. Though adapted for all ordinary garden soils, the plant loves a deep cool border, and prefers partial shade to excessive sunlight. *Illustrated Bouquet.*

Calendar of Operations.

(*For the ensuing week.*)

Now that the new year has fairly commenced, a thorough examination of ornamental grounds should be made, with the view of seeing that all is neat and clean. Where evergreens are encroaching too much upon Grass they should be pruned in; walks should be swept and frequently rolled, and everything should be done that will serve to improve the appearance of the garden. If any portion of the kitchen garden or pleasure ground indicates a want of better drainage, this is an excellent time for remedying the evil, as there is greater leisure for improvements at this season than at any other; and as the surface is not so fully occupied, any disturbance of it is not so objectionable. If the subsoil consists of stiff clay, it is very easy to excavate it, now that it is thoroughly moistened. The depth of the drains and the distance apart must depend entirely upon the nature of the soil; but whatever the latter may be, the draining should be very liberally done, as it is of paramount importance that the water should percolate through the soil freely and quickly, for the sake of the crops in the kitchen garden, and to render the pleasure ground more enjoyable.

FLOWER GARDEN AND PLANT HOUSES.

Euphorbias, Poinsettias, and plants of that description which have done flowering, will now require less heat and moisture than they have been receiving, in order that they may be ripened gradually off, and have about three months' rest before they are again started into growth. It is not worth while to retain more of the old plants than will be required for large specimens, as young plants are easily propagated, and, if well grown, make nicer plants than the old ones, and, by discarding the latter, room is obtained for other things. Attend well to Tulips and other forced bulbs now in flower, in order that their beauty may be preserved as long as possible.

AURICULAS.—Remove decayed foliage, but in doing this care must be taken not to injure the plants. Water sparingly, and do not excite growth before next month.

CARNATIONS AND PICOTEES.—Soil for these should be frequently turned and exposed to the weather. Keep the plants dry, and dead foliage removed.

DAHLIAS.—Carefully examine the tubers in order to see that they are not rotting at the crown; if that appears to be the case, set them at work at once in gentle heat in order that they may not be entirely lost, especially in the case of valuable varieties. Pot roots keep sound longer than those from the open ground, and if not required for cuttings, make excellent early strong plants by starting them in gentle heat in the beginning of April.

HOLLYHOCKS.—Roots of these potted from the open gardens in autumn, for cuttings, may be started in a little heat. When the shoots are about 3 inches in length cut them off, put them into thumb pots in light soil, and place them on a mild bottom heat. Plants struck now will flower in September.

FORCING GARDEN.

ASPARAGUS.—If the bed made first has done bearing, it might be again planted with fresh roots, renewing the heat by means of linings if necessary.

CUCUMBERS.—These must have careful attention at this dull season. By a proper arrangement of the ventilators a constant circulation of air should be secured, and the portion of fresh air which is admitted from the outside should, if possible, be made to pass over the warm surface of the flues or pipes before it comes in contact with the plants. Upon a proper attention to this point the health of the foliage and the setting of the fruit very much depend. A high night temperature and a scalding evaporation are very injurious.

PEACHES.—If not already done, outside roots of these should be protected by a straw thatch, which should throw wet off into the drain in front of the border. If the buds are just swelling, maintain a temperature of about 50° by night, and sprinkle the trees several times a day in clear sunny weather.

PINES.—Maintain a healthy root action, without exciting the top too much. A temperature of 60° with a bottom of about 80° will therefore be amply sufficient for the present. Let succession plants have all the light possible by uncovering them as early in the morning as the state of the weather will permit.

VINES.—In the case of Vines started, keep up a moist atmosphere, and avoid sudden depressions of temperature by the injudicious admission of cold currents.

STRAWBERRIES.—Select some of the strongest best-rooted plants, and after examining the drainage and ascertaining that it is in an efficient state, they should be top-dressed with a mixture of loam, well rotted dung, and fine charcoal, and plunged close to the glass.

HARDY FRUIT AND KITCHEN GARDEN.

Scions for grafting, of choice fruit trees, should be secured, and laid in under a north wall. In selecting these make choice only of those varieties which have been proved by experience to be well adapted to the locality. There are many varieties which do admirably in one county, but are worthless in another. In purchasing new kinds, the above reason makes it advisable not to procure too many plants of any one variety till its applicability to the soil and situation has been tested. By procuring root-pruned plants on Quince stocks this may be easily managed in a couple of seasons. Planting of fruit trees should be proceeded with. It is well to be at some little pains in preparing the ground for the reception of Pears and other choice fruits. If the soil be deep and retentive, a stratum of ashes, or some similar substance, should be laid within 9 inches of the surface, to check the downward tendency of the roots. Loam from an old pasture, without manure, forms the best soil for the healthy and fruitful development of the Pear tree. Dig or trench and manure all vacant ground, and proceed as fast as possible with all pruning and nailing.

PEAS AND BEANS.—A crop of some early variety of Pea and of Mazagan Bean should be sown as soon as the ground is dry; and if carefully attended to, by mulching when up, and by protecting with Fir boughs on the windward side, they will generally produce a better crop than if sown in November, and, unless in very favourable localities, they will be quite as early. In sowing vegetable seeds, which are liable to be attacked by the mice, it will be found useful to sow chopped Furze or malt screenings in the drills.

ROOT HOUSE.—Take advantage of wet weather to examine and remove any decayed or decaying roots, and adopt efficient measures for keeping out frost.

STATE OF THE WEATHER AT CHISWICK,
During the last 39 years, for the ensuing Week, ending Jan. 14, 1865.

January.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 8..	40.7	29.7	35.2	11	0.26 in	4	6	7	4	1	14	2	2
Mon. 9..	41.1	30.7	35.9	14	0.71	1	7	4	4	5	11	6	1
Tues. 10..	41.8	30.4	36.1	17	0.40	3	10	3	4	6	7	4	2
Wed. 11..	41.7	30.6	36.1	19	0.77	4	6	5	2	6	9	5	2
Thurs. 12.	42.4	30.8	36.6	16	0.75	2	7	4	4	6	10	4	2
Friday 13.	42.9	32.1	37.5	19	0.29	5	4	5	4	6	7	5	2
Satur. 14..	42.0	29.8	35.9	16	0.80	6	7	7	4	3	6	3	3

The highest temperature during the above period occurred on the 14th, 1849, —therm. 56 deg., and the lowest on the 14th, 1838—therm. 4 deg. below zero.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON
For the Week ending Jan. 4, 1865, as observed at the Horticultural Gardens

Dec. and Jan.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth 1 foot deep	Of the Earth 2 feet deep	Wind	Rain
Thurs. 29	1	30.331	30.160	44	36	40.0	42	42	S.W	.00
Friday 30	2	29.961	29.831	42	24	33.0	42½	42½	S.	.00
Satur. 31	3	29.833	29.709	44	28	36.0	42	43	N.E	.08
Sunday 1	4	29.947	29.851	37	16	26.5	42	43	N.E	.00
Mon. 2	5	29.799	29.407	37	26	31.5	41	42	N.E.	.02
Tues. 3	6	29.833	29.406	52	25	38.5	40	41½	W.	.06
Wed. 4	7	29.997	29.338	52	31	41.5	42	41½	S.W	.00
Average.		29.965	29.671	44.0	26.5	35.3	41.5	42.3		.00

Dec. 29—Overcast, fine; cloudy.
— 30—Overcast, frosty at night.
— 31—Frosty, uniformly overcast, rain; slight frost.
Jan. 1—Slight snow, fine; sharp frost at night.
— 2—Hazy, foggy; snow; slight frost.
— 3—Partially overcast; overcast, slight frost.
— 4—Overcast; exceedingly fine throughout.
Mean temperature of the week, 2 deg. below the average.

MONTHLY DEPTH OF RAIN, in inches and hundredth parts of an inch, which fell at Chiswick in the years 1841 to 1864 inclusive.

	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.	1849.	1850.	1851.	1852.	1853.	1854.	1855.	1856.	1857.	1858.	1859.	1860.	1861.	1862.	1863.	1864.
	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.
January	2.60	1.06	1.33	2.25	2.97	2.85	1.31	1.16	1.73	1.43	3.07	2.72	2.14	1.92	0.10	1.76	2.09	0.41	0.61	2.18	0.82	1.53	2.19	0.57
February	0.76	1.22	2.35	2.27	0.93	1.47	1.34	3.12	2.52	0.95	0.90	1.06	0.59	0.78	1.35	0.62	0.31	1.48	1.31	1.20	1.41	0.38	0.26	0.76
March	1.32	1.81	0.47	2.44	1.25	1.09	0.41	3.05	0.85	0.13	3.57	0.25	1.48	0.42	1.75	0.97	0.73	0.88	0.77	1.63	1.89	3.74	0.63	2.53
April	1.58	0.15	1.62	0.33	0.95	3.93	0.92	3.06	2.21	1.79	1.65	0.52	2.58	0.90	0.26	1.97	1.77	2.13	2.01	0.95	1.44	2.29	0.54	0.77
May	2.16	1.73	5.26	0.25	2.89	1.35	1.59	0.28	3.53	1.84	0.74	1.74	1.60	4.03	1.94	4.33	0.87	2.05	1.80	3.04	1.31	3.54	1.40	1.95
June	2.45	1.58	1.62	0.97	1.36	0.80	1.31	3.20	0.31	1.40	1.33	4.69	2.54	1.53	1.48	0.88	1.91	0.78	3.10	5.15	2.35	2.33	4.46	1.70
July	3.56	1.52	1.67	2.10	2.31	1.78	0.79	2.21	2.82	2.68	3.90	2.28	4.17	2.40	6.30	1.43	1.22	2.55	2.18	2.72	1.90	2.09	0.80	0.50
August	2.69	2.81	3.28	1.84	2.79	4.50	1.50	4.70	1.60	0.97	2.03	3.71	1.87	1.77	1.45	3.50	2.80	1.46	2.49	4.16	0.50	2.40	1.96	1.59
September	3.71	3.39	0.98	1.31	1.77	1.76	1.66	2.20	2.49	2.36	0.42	3.54	2.41	0.58	1.15	1.99	3.52	1.05	4.05	2.82	1.78	2.74	3.47	2.79
October	4.61	1.71	4.19	4.13	1.39	5.54	1.75	2.93	2.18	1.55	2.01	3.87	3.78	2.61	6.15	2.40	4.01	1.36	2.55	1.60	1.04	3.00	1.56	1.42
November	3.41	4.43	2.13	3.06	2.11	1.43	2.26	0.90	1.32	2.03	0.55	6.20	0.91	1.81	1.34	0.94	1.53	0.10	2.72	2.60	4.10	1.01	1.68	1.94
December	2.12	0.76	0.53	0.39	2.61	1.21	1.81	2.03	1.28	1.15	0.62	1.97	0.30	1.27	1.11	1.88	0.30	1.53	1.95	2.03	0.94	1.49	1.26	0.94
Annual amount	30.97	22.27	25.48	21.94	23.93	27.71	16.65	28.34	22.84	18.28	20.79	32.55	24.87	18.92	24.38	22.72	21.06	15.78	25.54	30.08	19.48	26.54	20.82	16.86

The amount of rain which fell in 1864 was 16.86 inches, or 6¾ inches below the average of the preceding 38 years.

Notices to Correspondents.

NAMES OF PLANTS: *L C C.* 1, Pteris hastata; 2, Pteris cretica albo-lineata; 3, Doodia caudata; 4, Asplenium viviparum.—*E H.* 1, Lastrea Sieboldii, not podophylla; 2, Cyrtomium falcatum, not caryotideum; 3, Cyrtomium anomophyllum.—*B C D.* Ramalina farinacea.—*Faber Marianus.* 1, Acacia verniciflua; 2, Rhaphiolepis indica, not Australian, however. The others not determinable, though No. 3 is some Cassia.

PRIZE TAKING: *Vindex and W R.* We will endeavour to find room for your remarks shortly, but the subject is well-nigh exhausted.

SOUTH KENSINGTON SHOWS: *W H.* We know nothing of the origin of the lists referred to, which are we suppose intended to indicate rather than define the kind of subjects which are expected. Some of these are perhaps questionable, others doubtless have been omitted by oversight.

TRITOMAS: *W P.* Do not purchase unbloomed seedlings, as they often prove to be of a very inferior character—the plants varying, as most others do, when raised from seeds. It is, therefore, best to provide established plants of proved sorts. You will not be disappointed with T. Uvaria glaucescens or T. grandis, which are two of the best we have seen, and some notice of which will be found at p. 7.

ERRATA: In p. 1249, col. *b*, for "Arcade L'Etoile," read "Arc de l'Etoile"=Arc de Triomphe; and in p. 1250, col. *a*, for "Turner's pictures," read "Turner's later pictures."

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THE FOWLER MEMORIAL.
It is proposed to hold a PUBLIC MEETING in London, early in FEBRUARY next, to appoint a Committee for raising Funds for a suitable MEMORIAL in memory of the late JOHN FOWLER, to whose untiring zeal in the application of Steam Power to the Cultivation of the Soil, the Agricultural world is so much indebted.
PROMOTERS.
Signed, P. P.
DUCIE, Tortworth Court, Wotton-under-Edge.
PORTMAN, Bryanston, Blandford, Dorset.
A. N. HOOD, Cumberland Lodge, Windsor.
[illegible], Dumbleton Park, Evesham.
CHARLES BARNETT, Stratton Park, Biggleswade.
THOMAS RAYMOND BARKER, Hamble ton, Henley-on-Thames.
F. R. TEMPEST, Ackworth Grange, Pontefract.
H. S. THOMPSON, Kirby Hall, York.
A further List of Supporters, with notice of the time and place for holding the Meeting, will be given in future Advertisements. In the meantime any one wishing to support this movement, will oblige by forwarding his address in full as early as possible, to
Walton, near Wakefield. CHARLES CLAY, Hon. Sec., *pro tem.*

The Agricultural Gazette.
SATURDAY, JANUARY 7, 1865.

ANOTHER year has been gathered to the Great History of the Past: and nearly a week's sample already taken of its successor. It is the fashion of journalism, and no unreasonable or useless fashion to assume that, in passing the landmarks of time, men's thoughts are poised for the moment between the future and the past, in the attitude of reflection and of forecast; and that subjects may be addressed to them with some chance of profitable notice, which in the swift current of every-day life and business would be borne away and swallowed up with little likelihood of a hearing.

Nor is this assumption a vain one; for there are few men, even of the busiest classes in the busiest marts of commerce, who do not in their inner souls carry, like a hidden jewel, the consciousness of some higher aim than that which shows itself in the daily drudgery of active life. And though it be but dim, and faintly developed, and coming but rarely to the surface, yet it does assert itself and prevail at times; and those times are commonly such as this—the moment of turning from the old year to the new—the annual Death-and-Birth by which Time counts his ages, and Man his losses and gains, his apprehensions and aspirations; and indulges—if ever he thinks at all—his Thoughts.

And lucky it is for us that it is so; for Thoughts are the parents of Things, and what we do is born of what we think, or what others think for us; as surely as the hurried labour of the swiftest wheels and noisiest machinery is due to the silent flame and the invisible steam that originate the action of the whole. At the corresponding period to this, a twelvemonth back, we used the opportunity to draw attention generally to the 'Wants of Agriculture,' referring amongst other topics to that clause in the Charter of the Royal Agricultural Society which enjoins that it should "take measures for the improvement of the education of those who depend upon the cultivation of the soil for their support."

The appeal was not made in vain. The subject was shortly afterwards brought forward by Mr. HOLLAND at a Council Meeting of that Society, and a Committee at once formed to discuss and report upon the steps which the Society should take, in order to remedy this apparent neglect of one of the objects of its original constitution. The immense strides made by Agriculture in material progress, admitted by nearly all observers as a fact cotemporary with the history of the Society itself; indeed its own success in most of its other objects, could hardly fail to bring this topic eventually into prominent notice and discussion. It is in the natural order of things that it should be so.

When a man by a successful course of industry has raised himself in that scale of life that is measured by wealth, a want soon developes itself which increasing fortune far from satisfying only makes more prominent and exacting,—the want of original education better suited to his acquired position. He may be the last—though this is by no means always the case—to see it himself: the worse for him if it be so. Usually, however, the conscious deficiency reveals itself in the anxious care he displays in the education of those who are to come after him, the child or children who are to inherit what he has won. Hardly can a higher tribute be offered than we often see thus vicariously paid to the advantage in question: but while it affords the best answer to those who ignorantly undervalue it, the personally felt want from which the action springs, suggests a ground for help that *might have come* from without, a timely aid that would have saved much after-regret. "I might have been spared this mortification, which all I have gained by my industry cannot remove, had some kind hand been stretched out in early life in my favour;" such is the kind of reflection that occurs: and what is true of the individual may be similarly true of a whole class: and it is still more likely to be true if the class below them has been meanwhile receiving adventitious aid. The ground has been moving under them. If this be true of the agricultural class it is chiefly traceable to that besetting disadvantage of farming life which may be comprised in the word 'isolation.'

The children of the poor are collected at the Parish School and there brought into daily contact with social and educational influences far above what might seem to be their birthright: the children of the rich nurtured under every possible home advantage from the first, are launched in early years amongst their equals and superiors in our Public Schools and Colleges and thence into the thronged career of the various professions: the children of the trading and commercial classes forming the upper rank of Town population inherit the privileges their parents especially enjoy of constant communication, reciprocating knowledge and that kind of civilization, such as it is, which urban life and intercourse implies.

How is it with the children of the Agriculturist as compared with these? to what extent do they share the educational advantages of either? Even supposing those rural influences absent which render the boy only too willing a sharer in the out door occupations and amusements of the Farm, and his parent a too willing employer of work or superintendance that exacts no wages on Saturday night; what opportunities does the Farm House afford of home education, or do his parents enjoy of hearing of the best school, what inducement to send him soon enough, or keep him there long enough, for the real Work of Education?

Such is the general view of the case commonly taken. We are desirous not to overstate it—and we should be sorry to extenuate the actual truth: for either extreme becomes a fertile source of false or irrelevant arguments and merely wasteful discussion. To urge the question, for instance, as though the classes engaged in Agriculture were less shrewd, or less capable of availing themselves of opportunities than others, would be of very doubtful truth; but Shrewdness is not wisdom, nor even knowledge; on the contrary, it is often coincident with extreme ignorance; and Capability is even more deplorable where it is seen wasting itself through lack of opportunity. The case, fairly viewed, in fact resolves itself into one of *specific* disadvantage, arising out of the very nature of the calling, enhanced first by the unequal share of education

enjoyed by the middle classes in this country as compared with those above and below them, and secondly by the consideration of the loss which the community sustains; for the Classes of society are its Limbs, and the damage of one is an injury to the whole.

But then come the difficulties which the detailed consideration of the question suggests. What is meant by agricultural education? Indeed, before we come to that, what is meant by the words "those who *depend upon the cultivation of the soil for their support?*" We are told by the highest authority that "the KING himself is served by the field;" and it was no uncommon boast, at the period when the Charter of the Society, now nearly a generation old, was worded, that the class included in the above phrase numbered the greater portion of the whole population of the kingdom. This would be a heavy charge to undertake! There are few probably among the 5000 members of that Society, and few even among its very Council who would not on this construction become the subjects of its educational care and operations!

But assuming the phrase to point chiefly to the farming class—what, in fact, is that? A farmer may be the occupier of one or two thousand acres of his own land, or he may be the rack-renter of less than a hundred, or even fifty: but without pretending to include extremes, the class, if so it can be called, is one so wide and diversified, that some sort of conventional understanding is requisite at the outset as to the very meaning of a term it would be so difficult strictly to define. And then, what is meant by agricultural education?—for this is the common term to which the question has been brought. To one person it may present the idea of the general education of the children of the Farmer: to another it may mean the specific training to the business of the Farm of any one intending to follow that pursuit: to a third it may signify the general information and mental culture requisite, irrespective of mere technical acquirement, to an individual destined for that position of Society which the status of the Farmer implies.

The first of these would simply be a branch of what is called 'Middle-class Education.' The second would be analogous if not identical with apprenticeship to a trade. To learn a business is one thing, to follow it as an educated man is another: and that this latter is the sense intended may we think be gathered from the fact that few persons in speaking of the want of agricultural education allow their words to be taken as implying that farmers as a class do not understand their business as well as other men, but rather that the business itself though rich in scientific bearings, is necessarily followed under certain social and educational disadvantages, arising from a monotonous daily field of intercourse, chiefly with inferiors in mind; and consequently, in that worst sense solitary, where a spurious self-satisfaction slumbers at the post which the spur of mental rivalry should be ever watching; a condition sufficiently unfavourable to adult life, but far more disadvantageous to the young who grow up to manhood in it, the subjects in this country of no recognised system of school education adapted to their condition, and bearing a just proportion with that already provided for those above, and those below them. They would be no worse farmers it is argued, and would yet more usefully fill their rank in the social scale, not by being made keener proficients in the technical details of their business, but better informed in the topics of general education common to other men.

We have stated the question as it is popularly, perhaps superficially, viewed. It would be too much to say that this is the view commonly taken by the agricultural class itself. People are seldom the best judges in their own case, especially on questions of relative deficiency: and it is of course much easier to prefer the vague claim of some 'educational' advantage that shall be beneficial to a farmer in his own special calling, than to grapple with the whole bearings of a subject so wide as that indicated by the very indefinite phrase already quoted from the Society's Charter. Seven-and-twenty years have passed away since those words were written: and those years have seen vast changes in the agricultural world. During that period the business of the Society has been conducted by a Council composed partly of Landowners, partly of 'Farmers,' aided by two or three professional men, and the presence of one or two of the chief manufacturers of agricultural implements. That a governing body so constituted would be a very influential one—powerful for good in its own sphere—may be easily conceded; that it could possibly prove an educational tribunal in any shape beyond that of its Journal, its weekly transactions, its Lectures, and its Prizes for agricultural essays, implements, and stock, the first produced in its Journal, the two latter at its Annual Country Show, is more than the framers of its Charter ever probably contemplated. These have been its voice and utterance to its members, and to the agricultural world at large: if by 'education' be meant special class information to farmers on the subject of their own business, we may venture without fear of contradiction to say that a more demonstrative and practical form for supplying it could hardly have existed, if the matter was equal to the mode. As to anything beyond—as to *Education* in the true full meaning of the word, or as to any direction or assistance to the farming body of the kingdom how to bring up their children to be men of enlarged and educated minds, informed in the literature of their country, and versed in that kind of knowledge and those habits of thought which free the mind from class prejudice and elevate *the man* individually and socially, apart from the mere profession or pursuit by which he obtains his livelihood—if this be the Education looked for, or assumed as the object alluded to in the Charter, then indeed the case stands widely different.

This indeed would be a boon worth striving for, and one which if obtained or obtainable would be pregnant with results little short of a social revolution throughout the whole organism of rural life in this country. But the position of the 'Tenant farmer' in England, where the aggregation of land into few hands, extinguishing as it has done nearly the last vestige of a middle proprietary interest in the soil, likening its cultivators to a nomade class tied by mere temporary interest—an annual or at best leasehold occupancy—to the spot they inhabit, presents features far more anomalous than Educationists will readily deal with in the pages of a pamphlet or the Report of a Committee. The subject is one for a volume, and that too of matter more incisive and searching into the motives of action and latent springs of character, in classes and individuals, than agriculturists are much given to reflect upon. Indeed, apropos of volumes, the very state of our agricultural literature offers a sort of crucial test of the whole question. If it be so profitless as to shut the doors of publishers, and drive off the best writers into more fruitful channels, we have a difficulty of ugly significance at the very threshold, closing the main avenue by which mind can speak to mind. 'Tell me O learned Theban, how to make the Rent! Shew me O Sibyl, the one page in either of your proffered volumes that gives the receipt for *that;* and you may put the rest of it, and all the others with it, into the fire!' Preach how the educationist may, to this complexion it must come at last. Farming is a *business*, not a profession; and all that Science can furnish, or Colleges can give, will not save a man from miscarriage if he have not mastered one secret—how to make a bargain: rather, how to make a thousand bargains a year that shall shew a profit against the *one* great bargain to which he owes the name of 'tenant.'

This is the under-thought that fluxes the whole question, making the ground like digging in a quicksand. The cry is not shew us your science, shew us your knowledge, shew us your skill; but—shew us your *Balance-sheet!* This is the true 'Diploma,' that all men are ready to accept and countersign. Is there any specific form of education, it is asked, that can teach this? Perhaps not: but it is said, Somewhere, that "the Life is more than meat, and the Body than raiment;" and there may be something yet for Education to do, something left grievously undone, which lies beyond even the four corners of a balance-sheet. The matter is on its trial; and the conclusion is not yet. *H.*

NEW PORTABLE ENGINE.

ASSUMING that your subscribers include a large number of practical farmers and others interested in the progress of agricultural machinery, and also that they look to your columns with confidence for notice of any novelties, with which many of them may have no other means of becoming acquainted, I venture to remind you, that at the late Smithfield Club Show I exhibited an entirely new double expansive portable engine, designed for saving fuel and water, and which was generally acknowledged as the chief novelty, next to Messrs. Howard's engine, in the exhibition. As you were good enough at the beginning of the year to speak very favourably of my arrangement of portable engines, I had hoped you would have included it in your notice of the novelties at the show, it being the first I have exhibited at Islington.

The very great importance to farmers of saving fuel and water, and at the same time saving wear and tear in steam machinery, induces me to ask you to give insertion to this letter, especially as I believe the arrangement I adopt is the only one by which an engine can be made at about the ordinary price, and yet capable of working to the same power as an ordinary engine, and moreover, working economically.

The engines at present in operation on my plan are giving so much satisfaction from their great uniformity and steadiness of working, and from their small consumption of fuel (about 3 cwt. per day for 8-horse engine, and 4 cwt. for 10-horse), and working also without noise, or, except in cold and damp weather, any appearance of discharging steam—it being expanded nearly or quite to the atmospheric pressure—that I venture to think your readers will excuse my having drawn their attention to the subject.

During the past dry summer the importance of saving water was very prominently brought to the notice of users of steam machinery, it having to be brought many miles in some cases for the use of the ploughing or portable engine, especially the former, working away from farm buildings.

As the principle upon which my engines are constructed was so ably described, I think in one of your February Numbers, I will only add here that the steam being used twice over ensures great regularity of working, although the expansion is carried far enough to enable me to get rather more power from its second than from its first use. The steam from the boiler also, acting upon a small area of piston, does not unduly strain the working parts of the engine, although the cylinders are considerably larger than those of ordinary engines of the same power. In consequence also of the small amount of steam required, the boilers are nearly twice as large in proportion to the work they have to do, as those of ordinary portable engines; and consequently produce steam at a much cheaper rate, and subject the boilers to much less wear and tear, firing very easily and never requiring to be forced.

The alteration of ordinary engines by attaching to them new double expansion cylinders, I fully believe can be practically carried out with great advantage to the farmer, either by giving him the same power, at a great reduction of fuel and water, or a far greater power from the same amount of fuel and water; or lastly, and which would probably better suit most of those having portable engines, some additional power, and some (not inconsiderable) saving of fuel.

So soon as farmers learn that good serviceable engines are made, capable of doing a day's threshing or ploughing at less than half the cost for fuel and water which they now incur, and inquire for such engines; so soon, but probably not before, will the proprietors of threshing machines and engines and ploughing tackle, look about them for economical engines. The farmer having to find the coal tends to make the owners of engines indifferent to economy, although when they understand that economy of fuel and water goes hand in hand with economy of wear and tear, they will themselves see its importance. *Edward E. Allen, 5, Parliament Street, Westminster, S.W., December 21st.*

WHEAT AS FOOD FOR SHEEP.

ALLOW me to make a few further remarks upon the use of Wheat and cut Barley straw for feeding stock, particularly sheep, and at the same time to answer one or two inquiries which have been privately addressed to me on this subject.

First, let me say that I have not lost a sheep, old or young, since June last, although since I last addressed you I have added 100 shearlings to my stock of 550 head; and I have also a first-rate prospect of a large fall of lambs. I last week killed a good average lamb in connection with an experiment, to which I shall further refer. The carcase weighed 72 lb., the skin 15 lb.; three-fourths of the lambs nearly reach this average, and most of the remainder are very young lambs. Be it further remarked that the 50 best were reserved as ram lambs.

The allowance for the fatting sheep has just been increased to 1½ lb. of Wheat and Barley (mixed), with ½ lb. of Cotton-cake. An acre of very moderate Rape or Coleseed now lasts 188 sheep for eight days; and I expect they will be quite ripe for the butcher as soon as they can be shorn, if not sooner.

(2). My stock being now used to the Wheat, I am indifferent about having it boiled; and with the aid of an American grist mill, made by Riches & Watts, I find that grinding it is cheaper. The mill has given a new impulse to our agricultural energies; my locomotive steam engines being now much in request, occasionally make a half-day of overtime by grinding from 6 P.M. till midnight, working at the rate of eight sacks per hour.

Thus a stack of 80 to 90 sacks is threshed on one day, the straw is cut into chaff next morning, and the corn is ground in the two evenings. But for this my miller's bill would have been fearful, especially on my pig account.

A charge of 6*d.* per sack for grinding would give me

a trade profit on the use of the machinery, as the following account will show :—

Expenses of grinding for six hours :

Coals (4 cwt.), and carting		4s. 0d.
Engine man	2s. 0d.	
Three labourers	8 0	
One lad	0 9	
Five quarts of beer..	0 7½	
Tax on beer !	0 7½	
		7 0
		11 0
Use of mill and steam engine		13 0
(48 sacks at 6d., give 24s.)		24 0

Since the mill cost less than 30*l.*, 200 days' work at 3*s.* would clear its entire cost ; and the wearing parts, as I am told, may be replaced for 3*l.*

Next, let me say a word as to an experiment which I have just started to test the comparatives values of Linseed-cake and Wheat for feeding sheep.

I have selected four pens of sheep, two from my wether hoggets, and two from my newly-bought shearling wethers--apparently out of Southdown ewes by Westdown rams. There are five sheep in a pen. They all have per head, daily, 1 lb. of Clover chaff, and as much sliced Drumhead Cabbage as they will eat ; whilst one lot of hoggets and one of shearlings have 1 lb. of Linseed-cake apiece, and the other two lots have 1¼ lbs. of corn with a ¼ lb. of Cotton-cake (undecorticated). These quantities have been adjusted, as well as may be, to the standard suggested by Mr. Lawes in his recent valuable lecture on "The Chemistry of the Feeding of Animals, &c.," delivered before the Royal Society of Dublin. I am only at the end of the introductory fortnight of the trial, in which, as might be expected, all the lots have slightly lost weight on their removal from the field into a state of confinement. One feature in the case, however, has much surprised me, viz., that both the shearlings and the hoggets, when fed with the Linseed-cake, consume about twice as much Cabbage as those fed on corn and Cotton-cake. I had reckoned that each lot of five sheep would eat about 5 stone of Cabbage per day, whereas, in fact, each of the two lots fed on Linseed-cake eats 6 stone, the others only 3 stone. Thus far, I have very little evidence that the lots fed on Linseed are doing any faster than the others. The two pens of hoggets are still just equal in weight, as they were when first put up ; but the five shearlings on Linseed have gained some pounds on their competitors, without giving any other sign of superiority.

I wish that, for the sake of comparison, I had two pens eating nothing but Cabbage in addition to the 1 lb. of cut Clover hay ; but to make a fair trial, one lot should be promoted to corn rather than another put back, as mine have been, to the less concentrated diet.

I hope some other farmer may be induced to investigate this point in a proper manner—that is to say, with due regard to the health and habits of the animal ; for, unless these be consulted, the rigid results which Science may obtain, with her scales and spectacles, will have but little value. As the experiment proceeds, I intend to have the manure of the corn and Linseed-fed sheep respectively removed with care, and dug in at once in adjacent plots of equal size in a field close at hand. In these plots I propose to sow the greediest "vampire" of a plant that I can lay hands on, relying on its power of assimilation, rather than on chemical analysis, to test the value of the manure.

With respect to agricultural experiments in general, allow me to add one or two observations which appear to me to be seasonable. The new year which is opening upon us is the first since the Royal Agricultural Society completed its first quarter of a century, and concluded the first series of its Journal. I hope that our efforts to turn to the best account the lessons suggested by the remarkable season of 1864 may render this an epoch in our agricultural history. For the promotion of this object it is almost indispensable that careful experiments should be made. Our Charter distinctly contemplates the encouragement of such experiments, and its words, at all events, indicate that these should be suggested and modelled by men of science, and then carried out by men of practical ability and experience. The Highland Society has just called attention to this subject, by a paper in its "Transactions" from the able pen of Professor Anderson. We may, then, hope in time to procure from several quarters and under varying circumstances several series of experiments, as well designed and as perseveringly followed up as those of Mr. Lawes at Rothampsted. Professor Anderson refers particularly to our want of experiments with salts of potash ; and my intercourse with Professor Voelcker, as well as my requirements as a light-land farmer, have turned my thoughts into the same direction. Well-farmed chalky loams exhibit a steady increase in their power of producing grain and straw ; but their crops of Clover and Turnips (which require from six to eight times as much potash as the cereal) are comparatively at a standstill. It would seem, therefore, that their progress may be limited by the inadequacy of their stock of potash to meet some of our modern experiments. Since on light soils all the straw, hay, and Turnips are rightly consumed on the land, their stock of potash is in the main a circulating capital, which may be provided once for all if protected by proper management.

This consideration enhances the importance of securing a supply of potash if required. Meanwhile, although in their exaggerated valuations of manures chemists have put a fancy price on potash, we farmers never intentionally purchase it. The fact is, we will not pay the cost of the refined salts of commerce ; and, for want of experience, we are not prepared to say what price we would give for a rougher sample suited to our coarser uses, if modern enterprise brought such within our reach. This defect should certainly be remedied.

To return from this apparent digression to my subject of feeding stock on corn and cut straw. If I be asked, as I have been, why I care but little whether my straw be eaten by sheep on the land or trodden into manure, I answer that for the nutrition of plants I value straw chiefly for its potash, which will be but little diminished in passing through the animal. By feeding sheep on Barley straw, on land intended for a Barley crop, the deposits are left very handy for the young roots of the Barley, and a brisker circulation of my potash currency is secured, which is equivalent to an increase of capital.

The reader should bear in mind that the straw of a Barley crop contains about three times as much potash as the grain, and 50 per cent. more than a crop of Wheat straw. Straw has other merits, which should not be lost sight of; its gradual decomposition in farm-yard manure generates a series of acids, which combine with and fix the ammonia as it is formed, so as almost to supersede the use of artificial so-called deodorisers.

But this is beside my present purpose; let me, therefore, conclude by proposing this "sentiment for the new year" to my brother farmers : "Success to concerted action in well-devised experiments." *P. H. Frere, Dungate, Cambridge, Dec.* 30.

Home Correspondence.

The Water Supply.—Again I beg to call attention to that very important matter, the water supply of the country. We have already arrived at the middle of winter and are commencing a new year, and I venture to state that never in the memory of man were the subterranean springs so low, nor the outflowings of under-drains so scanty at this season of replenishment, as at the present moment. All observers of the laws of Nature which govern our perennial sources will admit that with the present low condition of the springs and subterranean supply occurring after two unusually dry years, the supply of water from wells and streams during the next summer must be less than ever. I have presumed to call the attention of the Home Secretary to the advantage of an inquiry into the general question of our water supply, and I now earnestly repeat the appeal, on the grounds—1st, That let the cause of the deficiency be accidental or not it is our duty, with the demands for the supply of water increasing in towns, villages, and farms, to provide if possible against such deficiency. 2d, That the indiscriminate uniform mode of draining various soils now prevalent leads to a derangement of our river systems. 3d, That the water we eject in winter and spring by drainage may be applied or stored for use in summer and autumn ; and 4th, that while we are suffering from a scarcity of water in a way which may frequently occur again as drainage increases, the rivers and watercourses are being polluted by the discharge into them of sewage from towns, to the injury of those who depend upon such streams for their supply. I submit that the question of water supply is one of equal importance with that of the utilisation of town sewage, and is closely allied to it, and that therefore any Commission or Committee dealing with the one should also deal with the other. *J. Bailey Denton, 52, Parliament Street, Westminster.*

The Breeding Flock.—At this season the breeding ewes demand the farmer's particular attention; this year, circumstances render them more than usually dependent on his liberality, from the scarcity of roots throughout the greater portion of England, as also the absence of any quantity of fog or old Grass on the pastures, a few frosty nights quite denuding them of their verdant appearance, thus reducing the keep to the cut chaff and artificial food supplied in the troughs. Some farmers do not approve of giving their inlamb ewes much corn or other fatting or stimulating food until a short time before the period of gestation expires, as they say the ewe is liable to become too fat, if kept well for a length of time previous to lambing, which is consequently attended with greater danger to the ewe, rendering her more liable to inflammatory disease or parturient fever. Our experience leads us to a different conclusion. Ewes in lamb from the middle of February to the middle of March should now be well kept ; they will then be strong and healthy, and be much better able to withstand the fatigue and pain of yeaning. By a niggardly system of pinching during pregnancy, the ewe greatly suffers both in health and condition, becomes emaciated, the wool gets dead, great quantities of it peel off, and are lost. When a breeding animal of any kind has gone half its time with young, it is difficult then to greatly improve the condition of the parent ; the greater portion of the nutriment of the food then goes to increase the *fœtus* in the womb, in which case we have a large offspring and a weaker mother, consequently increasing the danger and difficulty of a safe delivery. One lb. per head per day of Oats at a cost of ¾*d.*, with a good supply of cut chaff, Barley or Oat straw, with a small quantity of hay cut up along with it, will maintain the ewes in a state of healthy progression ; let them have plenty of exercise with their freedom of pure water, and we have no fear of the results. *G. Murray, Overstone.*

Societies.

ROMSEY : *Jan.* 4 : *Labourers' Encouragement Association.*—Lord Palmerston presided this afternoon at the 11th annual distribution of prizes given by the Labourers' Encouragement Association to the labourers in the district for proficiency in agriculture, length of service, &c. :—

Lord PALMERSTON said,—My friends and neighbours,—I have had great pleasure in distributing among you those rewards which your general good conduct and your skill and aptitude in the several departments of agriculture to which you have devoted yourselves have, in the opinion of the committee, justly entitled you ; and I trust that those rewards, although they may not be of great value intrinsically in themselves, will be highly appreciated by you as an acknowledgment of your good conduct—that they will serve as an incitement to you to continue in that course by which you have attained them, and will be an incitement to the emulation of others to follow the same course, with the hope of obtaining the like distinction. I say distinction, for it is no little matter for a man, whatever may be his station in life, to be esteemed and respected by those among whom he mixes. It is a satisfaction to him, and it is an honour to the district to which he belongs, and it is also, let me tell you, an advantage to the country and to the nation of which he is a member ; for the character of a nation, both in its own esteem and in the consideration which it receives from other nations, is built up by the aggregate good conduct of all the classes of which that nation consists. And the agricultura class, employed as it is in the production of those means by which a nation subsists, is the most important element in the national fabric, and their good conduct or their bad conduct has an important influence upon the general character of the nation and upon the esteem which that nation receives in other countries, upon its power, upon the respect which is paid to its independence ; and therefore I would have all of you and all others belonging to your class to remember that in pursuing that good conduct which entitles them to these tokens of approval—I can scarcely call them rewards—and in pursuing that conduct which secures for them the esteem and respect of their immediate neighbourhood, they are conferring a real benefit on their country, and are adding to its power, its wealth, its prosperity, and its respectability. But it would be taking a narrow and a limited view of what I must be allowed to say are your duties—for it is your duty to contribute by your good conduct to the welfare, and respectability, and prosperity of your country—it would be taking a narrow view of these duties if you were to confine them to your own personal conduct, though that personal conduct is the only element by which the committee have arrived at the conclusion of granting you the prizes and awards which you have received. But it is your duty not only to secure for the present generation by your conduct that respect of which you, I may say, are the foundation, but you have children who are to succeed you, and it is your duty to provide for the future as well as to look to the present, and you are, therefore, bound to take care that those children who flock around you shall be brought up in those ways which shall lead them in after life, when they become of the same age as yourselves, to pursue the same conduct which has obtained approbation for yourselves, and to serve, as you are doing, as an important element in the character and fabric of the nation. There are several ways in which you can perform that duty—there are several ways in which you ought to perform that duty. It is your business in the first place to give your children the best education you can obtain for them. In this town there are, I may say without exaggeration, as many sources of instruction as in any other town of equal size and population. Your children will have, at an early age, to engage in industrial pursuits. The period of their lives that can be allotted to the attainment of instruction must, therefore, necessarily be short, and the shorter it is the more care you ought to take that that period is well employed. Children are often thoughtless; they cannot have experience ; they do not know the value in after life of a cultivated and instructed mind ; but they know the value in childhood of amusement and idleness. It is your business to induce them to forego those childish amusements, and to devote the short years applicable to instruction to the attainment of that knowledge which may be useful to them in after life. You must not expect them to be scientific ; you must not expect them to acquire those attainments which are open to the acquisition of those who are employed in industrial and laborious occupations ; but there are three things which they can acquire, which they ought to acquire, and which are most important to them in their future occupations—I mean reading, writing, and arithmetic. The power of reading with ease gives a man the means, in those leisure hours which even the most laborious and most constantly employed occasionally have, of obtaining instruction from those various means which the diffusion of printing and the greater improvements of the age now place within the reach of almost every man who is able to read and take advantage of them. Writing is almost as important as speaking, because every man, whatever his station in life may be, must have constant occasion to convey his thoughts, his wishes, his complaints, his desires in writing, and unless that writing be legible and easily read, with the letters well formed, so that a person can read that writing without trouble and delay, it fails by disgusting the person to whom it is addressed. I must say that in the present day I do not think that instruction in writing is given in that way which would render it most useful. Children who are taught to write are taught to make up-strokes fine and down-strokes bold—the consequence of which is that writing often looks like an area railing, a little lying on one side, so that it is difficult for the eye to make out the letters of which that writing professes to be composed. Children should be taught to write a large hand, to form each letter well, and never to mind whether it looks beautiful or not. If it answers the purpose of being easily read, that is the thing which ought to be aimed at. Now, arithmetic is to every class a most useful attainment, and not merely that arithmetic which consists in chalking down figures upon a slate, and writing them in ink upon a piece of paper, but that which is valuable to a man especially engaged in industrial pursuits is the power in his own mind of making a ready and easy calculation of the matter in which he wants to arrive at a conclusion. That is entirely a habit—a habit easily acquired to a certain extent if boys are only taught in a proper way to arrive at it—not by fancying in their own minds that they see before them a slate with figures, and performing the same process which they would perform upon a piece of paper, but by building up, as it were, bit by bit in their own minds the calculation at which they wish to arrive, and they will find that the easiest thing in the world up to a certain limited extent. I saw an evidence of that in the model school in Dublin. The mental arithmetic class was called up, and the

master asked the boys—urchins some two feet and a half high, and none more than 12 years old—many questions, which were answered most readily. At last he says, "Now boys, 8*d.* a day, what is that in four years?" Now, that is exactly the sort of calculation that agricultural labourers have to make. In an incredibly short space of time four boys held up their hands as a token that they had made the calculation in their own minds. Three of them mentioned the same sum. The fourth mentioned a different sum. The master said to the fourth boy, "You are wrong." The boy said, "I am not wrong." "Well," said the master, "if you are not wrong, prove it." The boy said, "In four years there is a leap year, and I have added 8*d.* for the leap year." Well, I say that habit of mind and that faculty of calculation is a most useful thing, particularly for those who are engaged in industrial occupations. They can calculate what a ditch ought to cost for a certain distance. There is no matter of agricultural employment in which that power of mental calculation may not be usefully employed. Well, then, education is an excellent thing, but that is not all that children ought to be taught. They should also be taught good conduct. Good conduct is taught in many ways—at least, in two ways; first, by precept, and then, more powerfully, by example. Now, you all can give your children good precepts, because the rules of good conduct in life are plain and simple. The difference between right and wrong, between good conduct and bad conduct, is intuitively and instinctively known to all, and therefore you have the means of instilling those principles into your children; but you have also the assistance of those ministers of religion belonging to different creeds, who are ready and always occupied in assisting parents to give that good instruction and good advice to their children. But whatever good advice you may give your children, if the parents pursue a bad and reckless course of conduct, depend upon it children will follow the example instead of following the advice. They will turn out ill, and probably worse than the parents whose example they are imitating. There are few principles of human nature stronger than that of imitation, and where children see a man and wife quarrelling, the mother dirty, the father drunken, and the house uncomfortable, it is not in human nature possible that those children should be, the girls clean and well educated, the sons sober, honest, and industrious. It is unnecessary to press these things upon you, because you who have gained these rewards are men and women whose conduct in the past is a security for your good conduct in the future, and gives a certainty that your example will be as good as your advice, and that your families will be a comfort and honour to yourselves and a benefit to the community of which you are members. But your example will not be confined, as your precepts will be, to your own families. Your example will spread throughout the district to which you belong. You must, therefore, think—and it is a satisfactory and consoling reflection to have in your minds—that while by good conduct and by well bringing up your children you are contributing to your own advantage and contributing to the honour of your families, you are also spreading an example which will be useful to the whole district, and through that district to the whole country, of which you will, therefore, be worthy members. Well, friends and neighbours, I have nothing further to say to you. I am aware that most of what I have said is useless to you who do not require it. But still, truths, however deeply they may be engraven in the minds of men, are sometimes usefully repeated, and therefore I think we do well on these occasions to remind you of those principles of which I have no doubt you are all conscious, and which cannot be too often impressed upon the hearts and minds of all classes of her Majesty's subjects.

On the motion of the Rev. Mr. EMPSON, a vote of thanks was given to Lord Palmerston, who briefly acknowledged the compliment.

Farm Memoranda.

THE HOME FARM OF H. S. THOMPSON, ESQ., M.P., KIRBY HALL, YORKSHIRE.—On the Kirby Hall farm, as on others in this district under good and liberal management, the rotation of crops has of late years been a five-course one, viz., Clover, Oats, Barley, Turnips, Wheat.

The farm is remarkably clean and free from Couch and weeds of all kinds, and we may safely say that in our journeys through the county we have met with few farms that in this respect equal it, and certainly none that surpasses it.

The corn crops are drilled and horse-hoed with a Garrett's hoe, and in some fields through which we went we could find no Couch and few weeds of any description, and practically they might be described as thoroughly clean.

To show how systematically this cleaning is gone about, and how thoroughly and inexpensively the weeds are kept under, we may mention that the stubbles are gone over in autumn, and all the Couch and other weeds "forked out," and so effectually is this done that rarely indeed is there any hand picking required in the spring.

We walked over a field of Swedes and Mangels which had been cleaned in this way, and in the whole field were unable to detect a single blade of Couch.

The forking costs from 5*s.* to 10*s.*, and in extreme cases 15*s.* per acre, and if we contrast this with the common management usual on the neighbouring farms, it will be seen how greatly even on the score of economy the practice is to be recommended. We suppose it is by no means uncommon on those light sandstone soils for a farmer who aspires even to moderately clean farming, to spend from 15*s.* to 30*s.* per acre in raking, hand picking and otherwise cleaning his land for a root crop, but falling a little short of effecting a thorough cleaning, by the time the land is again in course for a fallow crop, the Couch is as abundant as ever, and the same expensive process has to be repeated.

By forking we may assume the average cost of cleaning as 10*s.* per acre, by the other mode 20*s.* per acre, being a difference of 100 per cent.

And besides the heavier labour bill which the Couch-growing farmer has to pay, he is also subjected to much loss from short crops, especially in that of the last grain crop in the rotation when the Couch has attained its climax, and being a Triticum, a member of the same family as the Wheat, robs the soil of much nutriment, which but for its presence would be utilised and taken up by the grain crop.

The farm-yard manure for root crops is usually spread on the land in autumn direct from the covered yard or boxes, and ploughed deeply in. On the light soils a reploughing is given in spring—artificials sown broadcast, harrowed in, and the seed drilled on the flat: the common form of corn drill being fitted with proper gearing for this purpose, and with its extra width a great many acres are sown in a day.

On the clay soils most excellent crops of roots are frequently grown by being sown on the stale furrow after one ploughing given in autumn, and manure as above described, at a very moderate outlay for labour.

The sheep kept are the Leicester breed, and for the last two years a cross with the Shropshire Down has been tried on a limited scale, but with satisfactory results.

A breeding flock is kept, and the produce fattened out as hogs from 12 to 14 months old.

The Cattle are of the Shorthorn variety, and the early age at which some of those bred on the farm are sold off fat is one of the most remarkable of the many interesting features of it. The practice has been to buy incalving Shorthorn heifers, which calve about the end of March, and during April and May. During summer the calves run with and suck their dams, and when weaned in Autumn are taken into a covered shed, where on roots, &c., they are carried on and come out prime fat at 1 year old, averaging from 36 to 40 imperial stones; and the bailiff assured the writer that this year he had sold them, some a trifle over and some under 12 months old, at the average price of 16*l.* a head. These are facts, and worthy the consideration of all interested in the breeding and fattening of cattle. The heifers usually get very fresh on the Grass, and after the calves are weaned are topped out on roots in the stall.

The Grass management is so fully described by Mr. Thompson in the Journal of the Royal Agricultural Society, that any details here would be superfluous. Suffice to say, we saw the old man busily engaged in the pasture collecting the droppings of the cattle, which, along with other vegetable refuse, is made into a compost, and in autumn respread, thus ensuring a regular and equable manuring, and utilising to the utmost the whole extent of the field, as where the cattle droppings are no Grass can grow for one season at least, and consequently a certain per centage of the land is waste, and even in the following season the Grass there comes so rank and strong as to be greatly disrelished by the cattle.

Some land sown to Grass a few years ago, and managed as described in the aforesaid essay, we went over, and found it very excellent herbage; Grasses very good and in great variety, and showing unmistakeable signs of the soundness and success of the mode of treatment adopted.

But what appeared to us as the keystone of much of the success and economy evident in the management of this farm was the simple and inexpensive though most excellent covered yards. We need not go into constructive details, but would recommend all contemplating such an erection to pay a visit of inspection here before settling their plans. The great essentials of a covered yard, viz. shelter, warmth, thorough ventilation without draughts, are obtained most fully, and judging from appearances we should say at a minimum cost.

In practice the advantages arising from the use of this yard are found to be first, a saving of straw, and that so appreciable that the bailiff stated he had been able to keep several head of cattle more on the same quantity of straw than when the yard was uncovered. Secondly, labour is economised, the manure being in a condition for application to the land direct from the yard, so that the extra filling, turning, &c., deemed necessary in ordinary management, is saved.

Thirdly, the manure is richer and better in quality, so much so that in its first application, being unaware of its strength, the usual dose was applied for roots, and Barley following, the crop was spoiled by over luxuriance. Since then little more than half the usual quantity has been used, and found to be amply sufficient.

Besides the large cattle yard there is another on the same principle of construction, fitted up and used wholly as a piggery, in which are kept in considerable number the Berkshire breed of pigs. This also is well contrived for the purpose, and the pig manure, unwashed and undiluted, is of the richest description.

The cart-horses have each a separate box in which the manure accumulates until on a level with the floor of the stable, and is then taken direct to the land; and, contrary to what might be expected, the effluvium so common in ordinary farm stables is not in the least perceptible in these boxes, the horses are much more comfortable than in stalls, and the manure made is first-rate.

In short, we found here a meat manufactory and a manure manufactory in great perfection, and as a consequence not only is there manure sufficient for the production of full crops of all descriptions on the arable, but considerable quantities are also spared for the improvement of the Grass land.

Did space permit we could detail many more interesting matters in connection with the management of this farm, but for the present we must be content with drawing to it the attention not only of the amateur ambitious of excelling as a model farmer, but also him who makes it the practical business of his life, assuring them severally that a day spent in its inspection and in the inquiry into the various processes and practices which from time to time have been tried and received reliable answers, will be a day fraught with much interest, and, rightly used, not wholly unconnected with profit. *From an Essay on Yorkshire Farming, by W. J. Moscrop, Kirkleatham.*

Reviews.

Agriculture, Ancient and Modern: an Historical Account of its Principles and Practice, exemplified in their Progress and Development. By "The Old Norfolk Farmer." Part 8. J. S. Virtue, Ivy Lane.

We have referred to this book as the successive monthly Parts of it appeared. Its historical part, and its references to the principles of the Art, have been the subject of praise in almost every notice that it has received in these columns. One hardly understands the plan of the work, and it may, therefore, be premature to speak of its deficiencies as regards the practical instructions which it contains; for those defects which are apparent in any section may be supplemented farther on. There is, however, in the character of the engravings which have accompanied the successive issues of the work, and in the general style of the author's references to details, sufficient indication that his volumes will not prove so good a guide to farm practice as they will to that general acquaintance with the history and principles of the Art in which agriculturists are by the way generally much more deficient. Even these however may be offended by the extravagances into which an unpractical writer is apt to fall; and it is well, therefore, in the interests of the work itself, as well as those of its readers, to point out any such extravagances or deficiencies as may in future numbers be corrected.

In our last notice we called attention to the terms of unqualified belief in which the author spoke of the transmutation of grain, and in particular of the certainty that Mr. Edkin's Barley had been raised from Oats; and this we spoke of as a foolish story. The author, however, asserts that, foolish or not, it is true.

"With respect to the transmutation of seeds," he says, "and the case of Mr. Edkin's Barley raised from Oats, I received the account from Mr. E. himself, and it is now in the hands of Mr. Wilson, of Edinburgh (the brother of the late 'Christopher North') so that I cannot send it to you; but it was confirmed by Mr. Fryer, of Chatteris, who sent me a sample of the Barley, a few grains of which I enclose. It is totally different from any other type of the grain, and is in great estimation with the maltsters. The transmutation of Oats into Rye is no new thing, and cases of it are continually occurring. There was a remarkable case in Norfolk last year on the farm of T. Moore, Esq., of Wareham, one of the Earl of Leicesters tenants; an account of it was sent to (and inserted in) the *Mark Lane Express* by Mr. John Hudson, of Castleacre, on his own authority, and he is a man too well known to allow of a doubt of his truthfulness or want of judgment in an affair of the kind."

Now, in disbelieving stories of this kind, no one casts any doubt upon the "truthfulness" of any man; but a man's trustworthiness as a witness depends on other elements besides his honour. He must be a careful and accurate observer, as well as an honest man, before his testimony can be pronounced unquestionable; and we do not hesitate to say that the difficulties in the way of believing the transmutation of Mr. Edkin's Barley, and Mr. Moore's Rye from the Oat plant, are infinitely greater than those in the way of accepting these accounts as true.

The same tendency in the author to extravagant argument and assertion, misled in both cases by a tendency to depart from common-sense views—perhaps dazzled by the recent grand achievements of English agriculture, so that nothing appears now to be impossible or incredible—is seen in the elaborate chapter which the present number of the work contains on steam cultivators.

Of the four classes of apparatus for steam cultivation—namely, those which travel over the land, pulling cultivators after them; those which employ locomotives on railways, drawing cultivators after them; those with stationary engine, and those with engine moving along the headlands—the first is very shortly dismissed; the second, including Halkett's and Grafton's guideway apparatus, occupies nearly three-fifths of the whole story. Now it is plain that at present the success of steam cultivation has been, and bids fair to be, altogether dependent on that of the 3d and 4th plans here enumerated. The 2d is as yet a mere speculation, deserving a record indeed, and perhaps encomium; but it is manifestly unpractical and unfair to put off Mr. Fowler's plan, which has been so largely successful, with a single page, and devote 9 or 10 to the discussion of a mere speculation.

In the chapter on the plough there is a good deal in disproof of certain passages quoted from the writings of Mr. Morton on the subject. But, unfortunately, Mr. Morton has been an agricultural writer for nearly a quarter of a century. And though we are not prepared

to admit that the passages here quoted from him are not defensible against the attack of the Old Norfolk Farmer, it is manifestly no compliment to suppose that the former has learned nothing during all that time. In fact there are few of our writers on cultivation who have of late years more confidently urged that its true object is simply to prepare a certain *quantity* of earth for feeding plants — that the quantity of internal superficies within that quantity which is available for that purpose, and not any particular conformation of the surface presented to the sky, is the real measure of efficient cultivation. This is perhaps less fully taught in the "Cyclopædia of Agriculture," which is here quoted; but indeed the "Cyclopædia of Agriculture" was written 10 to 15 years ago, and it necessarily fails to represent the agricultural progress, both in intelligence and achievement, which this period of time has witnessed. And the publisher ought immediately to set about the preparation of another edition of it.

Of the present number of the work before us we have to declare that with the same pleasant style and general instructiveness which it has heretofore displayed, especially in connection with the history and principles of the Art, yet it continues deficient in the practical details which the title page leads us to expect. There is a lack as yet of information about definite particulars, quantities, and prices; and if not supplied otherwise before, we recommend the author to collect and publish in an Appendix whatever information of this kind the work may at its close appear, on a general review of its contents, to require.

Miscellaneous.

Short-horned Cattle in New Zealand.—We learn from the *Wellington Independent* of Oct. 13, which has just reached us, that the beautiful Short-horned cattle which were selected by Mr. James Glass, of Worton, and embarked for New Zealand on board the good ship Asterope, have arrived safely at their destination. The *Independent* says:—"Breeders and judges of stock will experience a rich treat by paying a visit to the Asterope, now lying in this harbour, where we have seen without exception two of the finest animals (a bull and a cow) yet imported, and, as far as we can ascertain, this opinion is endorsed by all competent judges. The bull 'Knight Templar' is a rich roan of immense substance, fine constitution, and first-class quality; it will be seen by his pedigree, that he is full of the renowned 'Bates's' blood, now so fashionable both at home and abroad, and from the high prices realised by this blood generally, we have every reason to believe that his stock will be duly appreciated in the colony. The cow 'Syria' is a deep red, very handsome, a splendid handler, and of fine form. The condition of these animals reflects the greatest credit on Captain Stuart, to whose consideration the owners are greatly indebted for the care and attention bestowed on them during the voyage. These cattle are imported by some of our oldest settlers, Messrs. Nairn Brothers, and are the commencement of a herd now forming at Pourerere, in the province of Hawke's Bay. The benefits derived from the use of pure blood are too well known to require any comment. The animals in question were selected by James Glass, Esq., of Worton, near Devizes, Wiltshire, for many years a Short-horn breeder, and their appearance certainly reflects great credit on his judgment. They are from the herd of Mr. Stiles Rich, of Didmarton, Gloucestershire. The bull 'Knight Templar' gained two prizes as a yearling, and it was only on the condition that he left England that Mr. Rich consented to part with him, that gentleman having reserved him for use in his own herd. Both animals have been selected regardless of expense, and we cordially wish the spirited importers success, and trust their enterprise will prove remunerative. We should add that 'Syria' is believed to be in calf to the 7th Duke of York, lately purchased by Mr. Rich for 500 guineas, after being hired and used for three years in Mr. Rich's herd; his dam, Duchess 69th, was purchased by Captain Gunter for 500 guineas when nine months old." We understand that John Burgess, son of Henry Burgess, of Allington, near Devizes, took charge of the animals on their voyage, and great credit is due to him for the attention and care he bestowed upon them. Burgess was engaged here on behalf of Messrs. Nairn at 50 guineas per annum, with rations and lodgings; and to any enterprising and industrious young men New Zealand at the present time presents a fine opening, as there is no lack there of employment at high wages. *Devizes Gazette.* [Mr. Stiles Rich has, during the past 4 months, had 11 cow calves and 2 bull calves, chiefly roans—all to 7th DUKE OF YORK (17,754).]

Nature an Economist. — What an economist is Nature, so made by God! She economises even the light she so immensely possesses; catches it on the moon as a candle, after the sun has gone down, as we say, when he is but rising on other lands, and sends it inconceivably far to us from the stars. She economises heat, equalising it for the life and health of the whole world, by currents in the air and ocean and of the electric fluid. She economises water, to answer a thousand successive important purposes, in a thousand different places, with the same drop. How nicely and carefully she sifts out its minutest portions from the briny sea, to cleanse the air and revive the plants in due season, to fill the springs, and paint the sky and support all human life! How, with her mighty elemental agencies, she crumbles and bears down the barren rock from the mountains and the hills, to fertilise, for boundless and endless crops, the valley and the plain! How she makes the ashes even of the dead spring into Grass, and blossom into flowers! How, applying the same economy to crude minerals, from the very gravel in the ground she distils a curious, delicate wash to protect the tender stalks of the growing grain, though you may not think what perhaps cuts your hand to bleeding is this varnish of flint. How she saves every hair, particle, nailpairing, and exhalation, to turn it to some account! How she converts ice, and the snow that manures the poor man's ground, into harvests of corn and Wheat! How she nourishes her vegetable offspring, so that her animal may not die of hunger! The roots of a shrub, thirsty for a supply that had been drawn aside by an artificial channel, have been known, in her resolution not to be defrauded, to find their way to the aqueduct under ground, and bore a hole through its soft wooden plug, that every fibre might drink its fill, as was divinely intended. To one who looks with a careless view on Nature, it seems as if everything with her were in extravagant excess. We quote the line about "many a flower born to blush unseen," and we talk of the floods that are poured away to no purpose. But a closer inspection corrects this error, and shows how frugal her utility and perfect her order, enough, but "no room to insert a particle," however Art may re-arrange her forms to educate and give scope to human power.—*Rev. C. A. Bartol.*

Calendar of Operations.

JANUARY.—The ordinary work of the farm in this month includes *Tillage operations, Carriage of manure to fields, Threshing of grain for market, Management of live stock* in stable, byre, feeding-house, and cattle yard and fold, and *Attention to Irrigation.* The exceptional work of the season is *Land Drainage, Road-making, Marling and Claying, &c.* Reference to some or all of these will be made during the successive weeks.

1. *Land Drainage.*—The means are provided by various companies who accept a rent-charge of 5*l.* to 7*l.* 10*s.* for every 100*l.* advanced, for terms of 20 to 50 years, according to the state of the Money Market. —(*a*) See that you have ample outfall with a clear run *from* it to the stream, and a depth *to* it of at least 4 feet from the lowest surface of the land.—(*b*) Take your mains from the outfall along the lowest line of surface, and let your minor drains come straight down the hill to it, 4 feet deep, and 7 to 10 or 15 yards apart, according to the texture of the subsoil.—(*c*) Let spring water run clear away by conduits of its own into the mains; and depend upon the general drainage of the land solely for dealing with the rainfall.—(*d*) Use pipe tiles alone for your conduits, and 1½ to 2-inch pipes are the smallest you should employ. Avoid the use of open ditches, if possible. Sheep drains, however, for taking off swamp water, are serviceable in mountain pastures. The use of faggots and straw rope, or of wedge drains, practised in some clay districts, is not to be recommended. Plug and mole draining are cheap expedients available in pasture lands, and lasting some years, but not to be generally recommended. Deepening the drains in order to increase the interval between them is not good practice. Adopt that depth which is best in order to the laying useful a sufficient depth of soil above them, and that interval which the use of test holes will tell you that the depth in question will command. — (*e*) Drains becomes clogged sometimes where there are undulations in the fall by the deposit of particles of the peroxide of iron. The remedy in very ferruginous soils is to open the land up with ditches before its under-drainage is commenced, so that the mischievous soluble iron-salt may be either washed out or oxidised within the soil. The application of lime to the land will also decompose the iron-salts within the soil, and so tend to facilitate the oxidation which is desired. In any case, defect in the uniformity of fall within the drain will give occasion to stoppage arising from solid particles carried by the stream; and hence the smallest pipe consistent with the largest probable flow of water is best to use, because in these when the flow is little it will be confined in a narrower rill, and so be better able to transport whatever particles it holds in suspension.

As to stoppages by roots of plants, there is no remedy which does not involve the uselessness of the drain itself at the place where that remedy is applied. If the junction of the pipes be so perfect as to exclude the fine fibre of a root, it will also exclude water, and so be useless as a drain for that particular spot. It will, however, be best to make it thus useless, except as a main carrier for water whenever it crosses hedgerows or passes near to hedgerow trees. And this is effected by using long and tight collars for the pipes; or even, if necessary, by throwing morter in above the tiles when placed ready for the re-filling of the earth above them. For stoppage by the roots of Mangel Wurzels and other green crops, which have sometimes been observed, there is no help; except it be in placing the drain at least 4 feet deep, and in such thorough and deep tillage of the land as shall distribute the shower evenly throughout it, and so hinder the formation of any special stream of water within the soil, which would guide the roots of plants into the drains, where they soon astonishingly develope—to the entire filling of the channel. Deep stirring tends not only to the uniform distribution of rain-water and of roots throughout the subsoil, but also to the efficiency of land-drainage, whatever system be adopted. And the deep-stirring of the land by some other means, should always follow drainage. Shallow cultivation tends to the formation of a crust or 'pan' beneath the surface. The hardened floor on which the horses have trod while ploughing for a century or more, has become nearly impervious to water, and must be broken up before the drains can act efficiently.

Let me urge the need of thorough work. It is as true in agriculture as in every other thing, that nothing is stronger than its weakest part; and a patch in a field left undrained, though all the rest be dry, will often stop the whole tillage of the field, and even hinder the application to it of means which, had it not been for this partial failure in one spot, would have influenced for good the whole produce of the farm.—(*f*) Among the results of land drainage may be enumerated greater facility and economy of cultivation, more rapid plant-feeding, and an underground climate which, if not changed to the feeling of animals, is wonderfully changed as to its influence on plants. They are thus started earlier in spring, and kept more continuously growing, being less dependent on changes in the temperature of the air. And they are thus brought earlier to maturity. Harvest has been made a fortnight earlier on individual farms by the mere influence of land drainage. Manures which were formerly washed to waste exert their full influence on plant growth in well-drained land. And tillage, which on wet lands is often mischievous, exerts after thorough drainage, and on land in proper state for it, the wonderful influence for fertility which it possesses.

2. *Threshing and Cutting Chaff.*—The threshing of grain by machine may be put at 2½*d.* to 3*d.* per bushel for Wheat; and less in the case of those crops which yield more grain to a given bulk of straw. The superiority of steam-power threshing over hand labour consists chiefly in the greater quickness of the process; and the ability thus at once to supply the market without materially interfering with the ordinary labour of the farm, and without exposing the labourers to a constant temptation to dishonesty. It is now the custom in ome districts to store away several months' supply of cut chaff at a time, and however stale it thus might be supposed to be, the cattle relish it when mixed with pulped roots or scalded with some hot water in which a little salt has been put. The following is the account given by Mr. Samuel Jonas, of Ickleton, Cambridgeshire, of his experience. He says,* writing in July:—

"I have purchased of Mr. Maynard, of Whittlesford, one of his powerful chaff-cutters, with sifting apparatus attached which I can work from a wheel or drum attached to my threshing machine, which is driven by a 9-horse-power steam-engine, at the same time that I am threshing corn. The straw, when delivered from the threshing machine, is carried up an inclined plane by spiked rollers to a height of about 9 feet; it then comes down an inclined rack, nearly yelmed and ready for cutting into chaff. I can work off the produce of about 8 acres of good strong Wheat per day, thus cutting about 800 fans (10 tons) per day, the chaff being cut shorter and better than by the hand-box.

"Three men yelm the straw and feed the chaff cutter, and two men can carry the chaff into the barn if it be near; two or three boys should tread it down close, so as to cause it to heat. The only extra expense is for from 4 to 5 cwt. of coals per day. If, however, the straw is stacked as threshed and cut into chaff afterwards, the expense of cutting and sifting with Maynard's chaff-cutter would be as follows:—

	£	s.	d.
1 man to move the straw from stack to men to yelm ..	0	2	0
4 men to yelm straw	0	8	0
2 men to carry away chaff	0	4	0
3 lads to tread chaff down, 6*d.*	0	1	6
Hire of engine and chaff-cutter (this includes 1 man to feed chaff-cutter and engine-man)	1	10	0
Coals, 5 cwt.	0	4	6
Water, carting	0	2	0
	£2	12	0

"This will cut from 600 fans to 900 fans per day (8 to 11 tons), according to the lengths of cut: the first cut being about 3-16ths of an inch in length, the latter about 3-8ths. The cost would be, the very short cut 1*d.* per fan; the latter cost 1-3d of a penny per fan; but, by cutting the chaff at the same time you thresh, you save 47*s.* per day, or, in fact, cut 800 fans for 4*s.* 6*d.*"

3. *The Dung Heap.*—There is a considerable store of dung accumulated by January, and during the frosts of winter a good deal is generally carried to the fields.

"When cattle are fed in open yards, the dung may be either carried out now, or left till spring, and then turned over and made fit for application to the land at once. This, however, is a most wasteful practice; for the manure thus suffers the greatest possible exposure both to air and rain-water. When cattle are fed in covered yards, such a method is economical and efficient enough, as the dung so made is not then exposed to the washing of rain-water. When stall feeding is adopted, the soiled litter is thrown daily into the yard, either covered or open; or it is carried daily to the heap, and there covered with earth. When box feeding is adopted, the litter accumulates under the cattle, and the boxes are cleaned out only at intervals of months. It is then cut out and carted to the field, and either spread at once and ploughed in, or, if this cannot be done, carted to heaps in the fields where it is to be used. When carted together in January, the carts should be driven over the heap, which should be about 4 feet high. This treading down excludes air, and so checks the rotting process. Later in the season the

* Journal of the Royal Agricultural Society of England.

carts are backed against the heap, which, lying more loosely together, ferments more rapidly, and so the sooner acquires that rotten texture which enables it to be easily buried under the surface, or perfectly mixed with the soil. In any case, in order to the retention both of the volatile and the soluble products of this fermentation, the heap should be laid upon a bed of loamy soil, about 6 inches deep, and covered with a layer of such soil 3 or 4 inches thick; and when the heap is finally mixed together, before being carted out, this earth, rich with ingredients that would have been lost, should be mingled with the mass."

*** We shall be glad if our Correspondents under this division of our Paper will endeavour to state the probable proceedings of the ensuing week or two as well as describe the past.

Notices to Correspondents.

AN ACRE: *Scot.* The following are its dimensions:—

	Sq. yds.		Sq. yds.
Statute acre	4840	Cunningham ..	6250
Leicestershire ..	2308⅔	Westmoreland ..	6760
Herefordshire ..	3226⅔	Irish..	7840
Wiltshire	3630	W. Derby	9000
Devonshire	4000	Cheshire	10,240
North Wales (customary)	3240	Scotch standard acre	6104.1281
Ditto (erw)	4320	Dumbarton ..	6084.⅔
Cornish	5760	Inverness	6150.4

The common statement is that a Scotch acre is 5-4ths of an imperial acre.

DETECTION OF ADULTERATION IN MANURE: *Correspondent.* Earth adds to the weight of guano, which ought not to weigh more than 70 to 72 lbs. per bushel. Water is a common adulteration. Guano ought not to lose more than 10 to 16 per cent. by drying. Gypsum is often added to guano, and to ground bones. Its presence is shown by adding to the water which has been standing over some of the manure in a glass some chloride of barium to one portion, and some oxalate of ammonia to another; if both are rendered turbid, gypsum is present. But gypsum is rightly present in some manures; then weigh a portion of the manure, treat it with a solution of carbonate of ammonia, and wash with distilled water on a filter, add chloride of barium to the filtrate, the sulphate of barytes is thrown down; collect it, and weigh; for every 116 grains of it thus obtained, 68 grains of gypsum have been present; compare this with the published analysis of the manure. Chalk is detected by effervescence with an acid; the acid solution is afterwards to be neutralised with ammonia, and then oxalate of ammonia added; if lime be present, oxalate of ammonia will be precipitated. Common salt is added often to nitre, sulphate of ammonia, &c. Sulphate of ammonia, if pure, will be wholly dissipated by a red heat; any remains will be impurities. Common salt is detected in solution by adding a drop or two of nitrate of silver dissolved in water, when, if it be present, a white curd precipitate will fall down. Common salt makes a sparkling crepitating sound when thrown on hot coals; pure nitre causes brilliant burning of the coal without any noise.

DISSOLVING BONES: *J D.* The following is a prescription:—Plaster and puddle a floor of clay and let it dry. Lay thereon a ton of bone-dust—say 7 or 8 quarters; it should not be coarse, but need not be literally dust; if boiled or burned, so much the more favourable for the efficiency of the after operations. Pour water on the heap for a day or two as long as any is absorbed—then flatten it down and lay a lot of ashes round the edges—trample them firm. Pour on gradually 6 or 7 cwt, of sulphuric acid—four or five of the ordinary carboys. It should be poured into jugs, and thrown from the jugs on to the bones. The slowness of this plan, as well as its safety, is a recommendation. It will boil and fume, and effervesce, and you had better stand to windward of it. Before night it will be quiet, and, if still very wet, it should have the ashes closely packed around it. They may be mixed with the heap in a day or two, and it will be fit for the drill in a fortnight. If a smaller quantity is required, it may be made of the same proportions in a cask or in a slate tank.

OINTMENT FOR GALLED WOUNDS: *R.* Take of honey, 12 oz.; yellow or bees' wax, 4 oz.; compound galbanum plaster, 6 oz.; sweet oil, half a pint. Put the honey into a jar by the fire, then melt the other ingredients, and mix them together; to be spread very thin on linen, and changed twice a day.

SWEET CASKS: *N.* In order to preserve these sweet, they must be kept tightly corked at all times, and the sooner after emptying that they are filled again the better. The longe they are kept empty in a damp cellar, the greater the liability to becoming foul; and when once foul there is no cure. If, however, they are empty, and are to remain so, their heads should be taken out, and they should be thoroughly scoured and scalded, and thereafter left with the heads out in a dry and airy shed. We have a cask which is as sweet as a nut, and always yields good beer. It has been in use for at least 35 years, and though weevil-eaten and nearly rotten, still remains sound enough for use, and is as sweet as the day it was made, having received no other management than careful attention to the particulars named above.

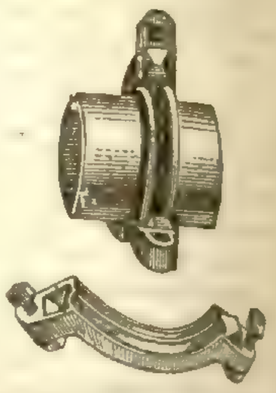
WEIGHT OF CATTLE: *J Smith.* It is estimated from measurement as follows:—The girth is to be taken where it is smallest, squarely round the body, immediately behind the shoulder; the length from the front of the shoulder to the insertion of the tail. Multiply the square of the girth in feet and inches with the length in feet and inches, and the product by .24, .26, .28, .30, according to the fatness of the animal, the result will be the weight of the carcase in imperial stones. The weight of the carcase is to the live weight of the animal as 1 to 2—or a little more than 1 to 2 in cattle—as 8 to 14, or thereabouts, in fat sheep; as 2 to 3 in the case of well fattened pigs. These proportions vary according to the condition and breed of the animal.

WINTER FOOD FOR STOCK: *J M.* The following are a number of different plans:—(1), 4 lb. of Bean straw, 12 lb. of Oat straw, 3 lb. of bran, 4 lb. of Rape-cake, and 40 lb. of Swedes (Mr. Horsfall); (2), 2 lb. of crushed Linseed boiled in 3 gallons of water, 5 lb. of ground corn, 10 lb. of straw chaff, 80 lb. of yellow bullock Turnips, with a little Wheat straw (Mr. Marshall); (3), ½ stone of Linseed-cake, 140 lb. of Turnips; (4), 8*d.* worth of Linseed and ground corn, 70 lb. of Turnips (Mr. Hutton); (5), 1½ lb. of Linseed, 5 lb. of Bean meal, with Turnips; (6), 3 lb. of oil-cake, and 3 lb. of Bean meal, with 40 lb. more Turnips than in No. 5; (7), 40 lb. of steamed Potatos, 4 lb. of ground corn, 6 lb. of cut straw (Mr. Marshall); (8), 1½ to 2 cwt. of Turnips, and straw (O. S.!) (9), 4 lb. of oil-cake, 2 lb. of Barley meal, and 100 lb. Turnips (Harkness); (10), 4 lb. of Linseed and Bean or Barley meal cooked with three feeds of Turnips (about 40 lb. each), straw *ad lib.*; (11), straw *ad lib.*, and 4 to 8 lb. of oil-cake each, and water (Lincolnshire).

PORTABLE HOT-WATER APPARATUS,

WITH TRUSS'S PATENT JOINTS FOR HEATING CONSERVATORIES, HOTHOUSES, &c.

T. S. TRUSS



Begs to offer complete HOT-WATER APPARATUS for GREEN-HOUSES (consisting of 4-inch Pipes and Joints, Saddle Boiler, Fire Doors, Bars, Soot Doors, Damper, Supply Cistern, Feed and Air Pipes, Pipe Stands, &c., of the best quality), delivered to any Railway Station in England, and to erect the same within 25 miles of London, at the following prices:—

4-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection.
16 feet by 8 feet	£8 10 0	£2 0 0	30 feet by 12 feet	£11 15 0	£2 10 0
20 feet by 10 feet	8 17 6	2 0 0	40 feet by 15 feet	15 0 0	2 15 0
25 feet by 12 feet	10 5 0	2 5 0	50 feet by 15 feet	18 0 0	3 0 0

Erections beyond 25 miles of London, Railway Fare for one Man charged extra.

By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints.

Estimates and Plans forwarded on application to

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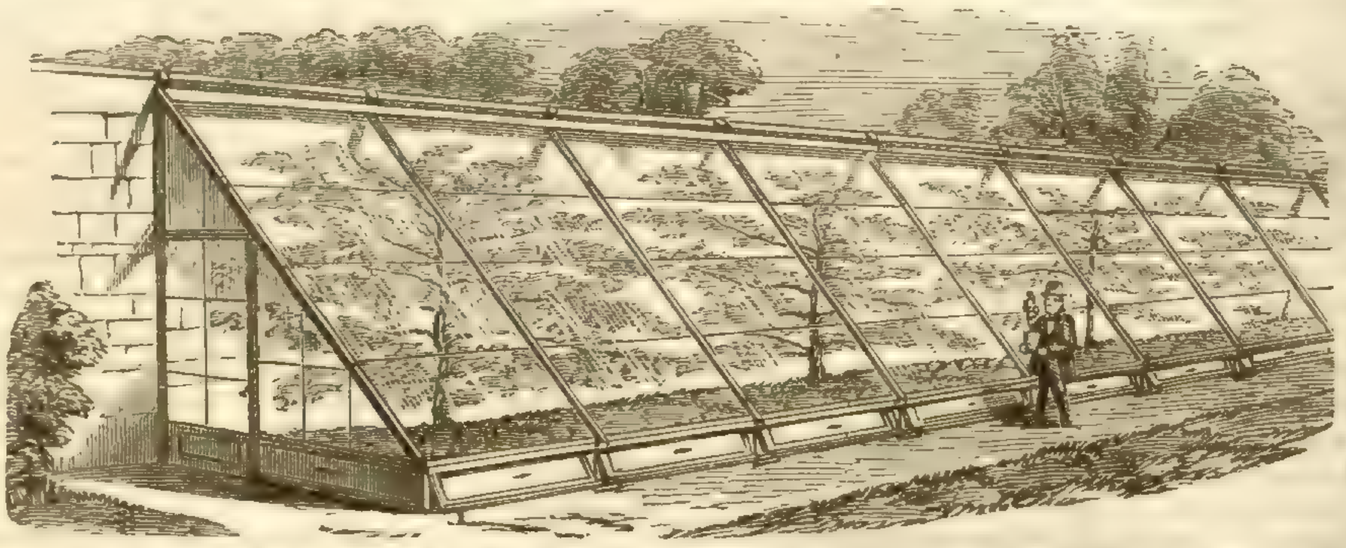
BY ROYAL LETTERS PATENT.



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Designed to meet the suggestions of JAMES SCOTT, Esq., of Hornsey, as being the desiderata of such structures. They are devoid of shadow, durable, portable, and a tenant's fixture, with the strength and durability of a permanent structure. Further particulars and prices by post or on application.

CONSERVATORIES	PINE and MELON PITS	BALCONIES	GATES
GREENHOUSES	VASES	IRON SASHES	TANKS
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Every description of IRONWORK. Lists Free.

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JAMES PHILLIPS & CO.,

HORTICULTURAL GLASS MERCHANTS,

180, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

REDUCED PRICES OF SHEET GLASS FOR HORTICULTURAL PURPOSES.

ENGLISH SHEET GLASS.

Packed in Crates of about 280 feet.

	16-ounce.	21-ounce.
Best	5½*d.*	7¼*d.*
Seconds	3¾*d.*	5*d.*
Thirds	2½*d.*	3½*d.*
Fourths	2¼*d.*	3¼*d.*

HORTICULTURAL GLASS,

Stock Sizes, 16-ounce. In 100 feet Boxes.

These prices only apply to the sizes stated.

				4ths.	3rds.	4ths.	3rds.
11 by 9	12 by 9	13 by 9	14 by 9	10*s* 9*d*	12*s* 3*d*	12*s* 6*d*	14*s* 0*d*
12 ,, 10	13 ,, 10	14 ,, 10	15 ,, 10				
13 ,, 11	14 ,, 11	..	..				
14 ,, 12	15 ,, 12	15 ,, 11	16 ,, 11				
18 ,, 12	19 ,, 12	16 ,, 12	17 ,, 12				
16 ,, 13	17 ,, 13	20 ,, 12	21 ,, 14				
19 ,, 13	20 ,, 13	18 ,, 13	..	11*s* 6*d*	13*s* 6*d*	13*s* 6*d*	16*s* 0*d*
16 ,, 14	17 ,, 14	21 ,, 13	..	14 to 15 ozs.		16 to 17 ozs.	
19 ,, 14	20 ,, 14	18 ,, 14	..	to the foot.			

FOREIGN SHEET GLASS.

In Cases for cutting up, in Sizes as Manufactured.

	16 oz., 200 ft. £ *s.* *d.*	16 oz., 300 ft. £ *s.* *d.*	21 oz., 200 ft. £ *s.* *d.*
Best	3 7 0	..	5 14 0
Seconds	2 10 0	..	4 13 0
Thirds	..	2 5 0	2 10 0
Fourths	..	1 15 0	2 0 0

GLASS for ORCHARD HOUSES,

As supplied by us to Mr. Rivers, to the Royal Horticultural Society, and to most of the Nobility, Clergy, and Gentlemen of the United Kingdom.

Each Box contains 100 feet.

		14 to 15 ozs.	16 to 17 ozs.	21 ozs.
20 by 12	Fourths	11*s.* 6*d.*	13*s.* 6*d.*	15*s.* 0*d.*
20 ,, 13	Thirds	13*s.* 6*d.*	16*s.* 0*d.*	19*s.* 0*d.*
20 ,, 14	Seconds	..	English.	English.
20 ,, 15	Best	..	18*s.* 0*d.*	23*s.* 0*d.*

The above prices include the Boxes.

We recommend 3rds quality at 16*s.*, or 21-ounce at 19*s.* (as supplied to Mr. Rivers). Best and Seconds are intended only for pictures or dwelling-houses.

SMALL SHEET SQUARES.

In 100 feet Boxes.

6 by 4	6½ by 4½	7 by 5	7½ by 5½	11*s.* 6*d.*
8 ,, 6	8½ ,, 6⅜	9 ,, 7	9½ ,, 7½	
		10 ,, 8	10½ ,, 8½	12*s.* 6*d.*

Boxes 2*s.* each, returnable at full price.

All small squares from 6 by 4 to 10½ by 8½ are cut from pieces, consequently there is only one quality.

London Agents for Hartley's Patent Rough Plate.

Perforated Glass for Ventilation.

Glass Shades, Ebony and Gilt Stands, Gas and Lamp Glasses, Chimney and Globes, &c.

Glaziers' Diamonds from 10*s.* to 21*s.* each.

GLASS TILES and SLATES in SHEET and ROUGH PLATE. PLATE GLASS, PATENT PLATE, and HARTLEY'S IMPROVED ROUGH PLATE. PAINTS, COLOURS, VARNISHES, &c.

GENUINE WHITE LEAD.	FINE OAK VARNISH.	LINSEED OIL.
ANTI-CORROSION PAINT.	,, ,, CARRIAGE.	BOILED OIL.
LINSEED OIL PUTTY.	PATENT DRYERS.	TURPENTINE.

Lead in Sheets or Cut to Sizes, Lead Pipe, Lift Pumps, Water Closets, and Plumbers' Brass Work of every description.

GENUINE SEEDS, CARRIAGE FREE.

NOW READY, POST FREE TO ALL APPLICANTS,

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DESCRIPTIVE AND PRICED CATALOGUE

OF

VEGETABLE AND FLOWER SEEDS FOR 1865.

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.

GLADIOLUS BRENCHLEYENSIS (True).

ROYAL NURSERIES, GREAT YARMOUTH.

Colour "VERMILION SCARLET," the brightest variety known.

Strong Flowering Bulbs, 3s. per dozen, 20s. per 100.

YOUELL & CO.

Have much pleasure in submitting the following Report from the Editor of the *Gardeners' Chronicle*:—

"GLADIOLUS BRENCHLEYENSIS.—We have received from Messrs. YOUELL & Co., of Great Yarmouth, some specimens of this plant, the gorgeous appearance of which cannot be spoken of in terms of exaggeration. The tall robust habit and intensely bright scarlet flowers place it at the head of all the hardy flowers of the autumn."

"The specimens are magnificent; we have seen as yet nothing of the kind so handsome near London. It is undoubtedly the most showy of the whole race of Gladioli."

It was exhibited by them in their Collections which obtained the three First Prizes at the Royal Horticultural Society and the Crystal Palace in September, 1862; also the First Prize at the Royal Horticultural Gardens, Kensington, Crystal Palace, and Brighton, in September.

GLADIOLUS, the most choice Show Varieties to name.

For which they were awarded the Three First Prizes at the Royal Horticultural Society, the Crystal Palace, and Brighton.

YOUELL & Co. beg to intimate that they are in a position to supply the most choice kinds of this beautiful tribe, in strong flowering Bulbs, as follows:—

No. 1 COLLECTION	contains	100	BULBS, in	50	of the most choice and handsome kinds, to name	£5	0	0
Half the above	,,	50	,,	25	ditto ditto	£2	10	0
No. 2 COLLECTION	contains	100	,,	30	ditto ditto	£3	15	0
Half the above	,,	50	,,	15	ditto ditto	£1	17	6
No. 3 COLLECTION	contains	100	,,	25	ditto ditto	£2	10	0
Half the above	,,	50	,,	12	ditto ditto	£1	5	0

Fine Selections will be supplied at 6s., 9s., 12s., 18s., to 30s. per dozen.

Strong Bulbs of unbloomed Seedlings, saved from the finest named kinds, 4s. per dozen, 25s. per 100.

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A CHOICE AND EXTENSIVE

COLLECTION of STOVE and GREENHOUSE PLANTS

ALWAYS ON VIEW. ALSO

FRUIT TREES, SHRUBS, AND ORNAMENTAL TREES,

FROM THE COUNTRY BRANCHES OF THE FIRM.

The SEED and GENERAL NURSERY BUSINESS is carried on here, and Packages are delivered free at the various London Railway Stations.

BRANCHES.

EALING NURSERY, G. CANNON, MANAGER.

Ten minutes' walk from the Ealing Station on the Great Western Railway Main Line.

FRUIT TREES, ROSES, and SHRUBS, are here extensively and successfully cultivated in some of the finest Loam in the county.

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Ten minutes' walk from Feltham Station.

EVERGREEN and DECIDUOUS SHRUBS, and CONIFERÆ, are here largely grown in a free Loam, well suited to their habits.

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ORNAMENTAL TREES are in a healthy and thriving state, and GENERAL HARDY PROPAGATION is here carried on.

The Stock in the above Nurseries is well worth the inspection of purchasers. The prices are very moderate, and the Plants are frequently transplanted to ENSURE SAFE removal.

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CATALOGUE of KITCHEN GARDEN, FLOWER, and AGRICULTURAL SEEDS.
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CATALOGUE of SOFT-WOODED and BEDDING PLANTS.
CATALOGUE of FRUIT TREES and FRUIT TREES in POTS.
CATALOGUE of HARDY SHRUBS and TREES (will shortly be issued).
CATALOGUE of DUTCH BULBS, published in August.
CATALOGUE of ROSES.

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BUTLER AND McCULLOCH'S COLLECTIONS of VEGETABLE SEEDS.
£3 3s. £2 2s. £1 10s. £1 1s. 10s. 6d.
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DOUBLE ITALIAN TUBEROSES, 3s. per doz.
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Best Garden Seeds, Carriage Free.

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New and Genuine Seeds Carriage Free.

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First-class Seeds, Carriage Free.

WM. PAUL (Son and Successor to the late A. PAUL) begs to announce that his NEW PRICED CATALOGUE of SEEDS is now ready, and may be had on application, post free.

N.B. Eight Prizes at the International Exhibition of the Royal Horticultural Society in December last, and nearly all the FIRST PRIZES at the Enfield and Waltham Abbey Horticultural Societies Shows were awarded to the produce of his Seeds.

Waltham Cross, N.

THE LONDON SEED COMPANY, LIMITED. The GENERAL PRICE CURRENT of KITCHEN GARDEN, FLOWER, and FARM SEEDS will be forwarded gratis and post free to any address in the United Kingdom.
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Notice to the Trade.

CARTER'S "FIRST CROP" PEA.

JAMES CARTER AND CO. beg leave to inform the Trade that in consequence of the great demand for the above PEA, they will in future be able to execute Orders for Small Quantities only.

SUTTON'S NEW EARLY PEA RINGLEADER. The Earliest Pea in cultivation.

THE NEW PARSNIP "STUDENT."—SEED of this improved PARSNIP, "ennobled" by Professor BUCKMAN, late of the Royal Agricultural College, Cirencester, is now ready for delivery by Messrs. SUTTON & SONS, post free, 8d. per oz.; also Wholesale to the Trade. It can also be obtained from any of the leading Seedsmen.
Royal Berks Seed Establishment, Reading.

Seeds, growth of 1864.

JOHN AND CHARLES LEE, SEEDSMEN to the QUEEN, beg respectfully to submit their NEW CATALOGUE for 1865 of KITCHEN GARDEN, FLOWER, and AGRICULTURAL SEEDS, containing Selections from the best Stocks at Home and Abroad, post free on application.
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THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, W.

CARTER'S GARDENER'S VADE-MECUM is now ready.

SUTTON'S AMATEUR'S GUIDE (ILLUSTRATED) is now ready.

The Gardeners' Chronicle.

SATURDAY, JANUARY 14, 1865.

MEETINGS FOR THE ENSUING WEEK.

THURSDAY, January 19—Linnean .. .. 8 P.M.
SATURDAY, — 21 { Royal Horticultural (Show of Violets), at S. Kensington .. .. .. 2 P.M.

WE may congratulate the Fellows of the Royal Horticultural Society on the preservation of the two most important and useful practical elements of the Society—the FLORAL AND FRUIT COMMITTEES, the dissolution of which seemed imminent a few days ago, in consequence of the utter impracticability of their meetings being holden on the days which had been set down for that purpose. It was not to be expected that some 60 or 70 men, including the best practical horticulturists within easy distance of London—men who are for the most part daily engaged in the keen pursuit of horticulture, either as gardeners or nurserymen, and who had cheerfully made the offering of their gratuitous services, could add thereto the utter disarrangement of their home affairs merely in order to accommodate the unfortunate Saturday meetings. We think therefore that the Council has done well to accept the offer of the Committees to continue their meetings on Tuesdays as heretofore. Had it been otherwise, we happen to know they would have met elsewhere.

This arrangement seems to be the best that could have been adopted under the circumstances, though we believe the best of all would have been to have augmented the Tuesday instead of holding the Saturday meeting. At least, it will give those country horticulturists who have pointed out that Saturday meetings virtually exclude them from exhibiting at all, an opportunity of staging their flowers and fruits before a London tribunal; it will enable the Committees to continue their good work of eliminating the bad from the good, to the great advantage of purchasers; and we trust it may be taken as an earnest that the horticultural body will henceforth be allowed to have its legitimate influence in the affairs of the Horticultural Society. If this be so, then the

little difficulty which has been only just tided over, will have left a bitter behind; and our second wish would be that angry feelings—if such have arisen, should be forgotten, and the prosperity of the Society, through the advancement of Horticulture, be made the one ground upon which there might be exhibited something like community of feeling and of action.

The raisers of seedlings should, however, take care not to forget that the tribunal for such productions will sit on Tuesdays and not on Saturdays; and that those productions, whether fruit or flowers, which it may be desired to submit to the judgment of these Committees, must be sent to the meetings held on the former day, and not those held on the latter. Otherwise both disappointment and conflict of judgment may arise.

We understand that among the changes to be proposed at the ensuing Anniversary will be the retirement from the Council of Sir Weathered Dyke, Mr. Cannell, and Mr. John Lee. To fill up the vacancies thus caused, and those occasioned by the resignations of Sir Daniel Cooper and Mr. Gonson, the Fellows will be invited to elect Sir Joseph Paxton, Sir A. Buller, Mr. G. F. Wilson, Mr. Beaverbrook Gibbs, and Mr. Murray, the latter of whom retires from the office of Assistant Secretary, in which he is to be replaced by the Hon. Mr. Fortescue. Time will show how far these contemplated changes, if carried out, will be beneficial. Some at least of them are in the right direction.

In our notice of the International Show of Fruits and Vegetables which took place in the Garden of the Royal Horticultural Society on the 7th of December (p. 1182), we drew the attention of our readers to a very interesting collection of Exotic Fruits which had been sent from the gardens of the Viceroy of Egypt by Mr. Harris, one of the Viceroy's Gardeners. This collection was highly appreciated by the Fellows of the Society and others who attended the Show, and deserves from our hands rather more than a passing notice. In these days of rapid locomotion, when Egypt may be reached even by sea in 12 or 13 days, or by going through France in little more than half the time we have named, we need not wonder if we meet with ex-tic productions at our exhibitions much more frequently than we have been in the habit of seeing them hitherto. And, certainly, they deserve the greatest encouragement, not only because they show us what the productions of other lands are like, but also because they give an interest to our exhibitions and vary their somewhat monotonous character. There is no reason why we should not be enabled frequently to see the fruits, not only of Egypt, but also of Algeria, of the Islands of the Mediterranean, and of those which grow on its sunny shores both north and south.

Amongst the fruits sent by the Viceroy of Egypt, there were two very fine bunches of Dates in the condition they had been cut from the Date Palm. To persons who have not had an opportunity of visiting the "Land of Egypt," these bunches gave a good idea of the appearance this fruit presents when seen hanging upon the trees. We have only to imagine a Palm tree, with a long bare stem some 50 or 60 feet in height, having a tuft of rather ragged-looking leaves on its top, and those same bunches hanging down below them, and we get a notion of what the Date Palm is like in its native country. It was rather amusing to hear some of the visitors at South Kensington, who had no doubt often seen the fruit in the condition in which it is sold in our shops, asking what the fruit could possibly be. The fruit of the Custard Apple was an attractive object in the Egyptian collection. This fruit was also exhibited by Mr. Blandy, of Reading, and had been received from Madeira. Pomegranates are common enough in the London shops, but those sent from the Viceroy's garden were of a larger size than we are in the habit of seeing them, one of them measuring no less than 18 inches in circumference.

If we except the fruit of the Papaw tree, of which two kinds were shown, the other fruits in the Egyptian collection were of less interest than those we have noticed, on account of their being more frequently seen in our markets. Lemons, Citrons, Shaddocks, and Oranges of various kinds, are articles which we see every day, in quantities, offered for sale. There was one Orange, however, in the collection to which we invite attention. This was named the "Mandarin Orange." Now, although it certainly was a variety of that fruit, it was not the finest variety to which the name of the "Mandarin" is given in Southern China. In that part of the world there are several kinds of Oranges largely grown to supply the markets. There is, for example, what we call the common China Orange and its varieties, which are all globular in form, having a thin rind, which adheres rather firmly to the pulp. Then there are three or four kinds, round but flattened in form, which look as if they had been subjected to pressure from above and below, and the rind of these is rather thick and loose, and easily removed from the pulp. The best variety of the first class to which we have alluded, and that most largely cultivated, is known in China amongst foreigners as the "Coolie Orange;" and the best amongst the second class is signified by being called the "Mandarin." The true Mandarin Orange is very different from that which was shown in the Egyptian collection. In the first place it is usually twice the size of the latter—three fruits will fill an ordinary dish—and its colour is a deep reddish orange, which renders it a very attractive object on the dessert table.

It does sometimes happen in this world that poor men are better than rich ones, although they may be a little less showy, and in the case of the Oranges we have named, the "Coolie" is certainly much finer than the "Mandarin" to eat. But people like to have something attractive on their tables as well as something good to eat. The true "Mandarin Orange," although inferior in quality to the "Coolie," is not to be despised even as a fruit for the dessert, and its large size, peculiar form, and bright colour, together make it greatly prized both by the natives and foreigners in the country where it grows.

There were several plants of the true "Mandarin Orange" introduced by the Horticultural Society of London in 1845 or 1846, and at that time in the Chiswick Garden. Whether they are still in existence, or have been sold or lost we cannot say. One thing is certain—we have never seen the fruit exhibited anywhere, or in our markets. The variety is certainly worthy of the attention of cultivators in Egypt, and in the Orange countries in the south of Europe, and there is no difficulty in procuring plants of the true kind direct from China, for there are plenty of them both in Hong Kong and in Canton, and we have steam ships which run direct from China to Suez in Egypt. Should any one who reads this article determine to send a commission to his friends in China for a few plants, there is one little bit of advice he may send along with it, namely, to purchase the plants with fruit growing upon them, and to see that it has not been stuck on. In China, we are told, it does not always follow that the fruit one sees upon a tree is its own. The Chinese have a habit, like other people, of sometimes making up things to sell.

We may add, that another collection of Egyptian fruits was sent for the International Exhibition from the gardens of Halim Pasha at Shoubra, by Mr. Chapman, the Pasha's gardener there. It arrived too late for the Exhibition, but it has been on view for some time past in the Conservatory at South Kensington. It contained some very interesting examples of Lemons, Oranges, and other Egyptian fruits in excellent condition. Unfortunately the specimens are not named: they are numbered, but the list has been lost or mislaid. This is to be regretted, as some of the kinds are evidently rare and valuable.

As Grafting Vines is now occupying attention, it may be worth while to inquire whether or not, and to what extent, the variety grafted is influenced by the stock upon which it is worked. There are at present in the garden of the Royal Horticultural Society two or three examples which may serve to throw considerable light upon this subject.

First, then, we have an example of Black Barbarossa grafted upon the Black Hamburgh, a union which has been attended by advantages even beyond all expectation. The Grapes thus produced are from two to three weeks earlier in colouring than those on Vines not treated in that manner, and they are nearly twice the size of those on plants on their own roots. They are, moreover, improved in point of appearance, and covered by a bloom that could not fail to satisfy the most fastidious in such matters. So far this is only what might have reasonably been expected from a successful experiment with the stock in question; but upon tasting the Grapes a fortnight ago, it was found that those from grafted rods were excellent, and possessed unmistakeably a certain amount of Hamburgh flavour, while examples taken from the ungrafted Vine were sharp and comparatively worthless. The leaves, too, on the grafted Vine, instead of dying off with a red tinge, as is always the case with the Barbarossa on its own roots, assumed a yellow hue, scarcely different from that of the foliage of the Black Hamburgh on which it is grafted. So thoroughly has this union altered and improved the Barbarossa, that had it been exhibited, fruit and leaves together, few, if any, would have been able to identify it. We have never seen a single instance in which the stock has exercised such a decided influence upon the graft. It would, therefore, be interesting to know whether this has been observed in other places, either in reference to this or any other variety of Grape. We are acquainted with many instances in which Grapes have been greatly improved by grafting, but not one in which the operation has so entirely changed the colour of the foliage and improved the flavour of the fruit as in the present.

The second example we have to adduce in reference to the influence of the stock on the graft is the case of the variety known as the Golden Hamburgh, worked upon an Indian Vine called Sidaitur Smyrna, a strong grower, producing large bunches of black coarse Grapes, with oval, ill-flavoured berries nearly the size of those of the Black Morocco. In this case the fruit borne by the graft was so much deteriorated as to lose nearly all its excellence; both berries and bunches were inferior in size to those upon the unworked Golden Hamburgh, but the foliage remained unchanged.

A third example in illustration of this subject is that of a Muscat Hamburgh grafted upon a strong variety known by the name of Gros Panse, a Grape originally brought from Spain. The graft in this case grew strongly, and produced a good cane, but the Grapes were altogether inferior to those produced upon the Vine upon its own roots, and the strong Muscat flavour so peculiar to the variety in question nearly disappeared. In the two cases just alluded to the same results have occurred in two successive seasons. It is now intended to double graft these Vines, when a better result it is hoped will attend the experiment.

—— M. E. Fatras, in a note on the Influence of certain Aromatic Plants on Silkworms, recently presented to the Academy of Science at Paris, states that although silkworms are evidently inconvenienced, and many of them destroyed by the presence of certain aromatic leaves beneath their ordinary food, those which survive are supposed to spin sooner, and produce finer cocoons than those which have not been subjected to this exceptional treatment. The plants which were experimented with were Pyrethrum Tanacetum, Artemisia Absinthium, Tanacetum vulgare, and Foeniculum vulgare. The first-mentioned was found to be most energetic in its action.

—— It is announced that the Keith, Brisbane, and Neill Prizes of the Royal Society of Edinburgh for 1865-66 and 1866-67 will be awarded as follows:—The Keith prize, which consists of a gold medal and from 40*l.* to 50*l.* in money, will be awarded in the session 1865-66, for the "best communication on a scientific subject, communicated, in the first instance, to the Royal Society during the sessions 1862-64 and 1863-65." Preference will be given to a paper containing a discovery.

The Macdougall Brisbane prize, the second in the gift of the Society, to be awarded biennially in such manner as shall appear the most conducive to the promotion of the interests of science, and consisting of a gold medal and a sum of money, will be awarded at the commencement of the session 1866-67, for an essay or paper having reference to any branch of scientific inquiry, whether material or mental. Competing essays are to be transmitted not later than 1st June, 1866. The essays may be either anonymous or otherwise; but in the former case they must be distinguished by mottoes. The competition is open to all men of science. In awarding the prize, scientific papers presented to the Society during the sessions 1864-65 and 1865-66, whether they may have been given in with a view to the prize or not, will be taken into consideration.

The Neill prize, consisting of a gold medal and a sum of money, will be awarded at the commencement of the session 1865-66, for a paper of distinguished merit, on a subject of natural history, by a Scottish naturalist, which shall have been presented to the Society during the three years preceding the 1st May, 1865; or, failing presentation of a paper sufficiently meritorious, it will be awarded for a work or publication by some distinguished Scottish naturalist, on some branch of natural history, bearing date within five years of the time of award.

—— Dr. Theodore Kotschy has lately communicated to the Vienna Academy of Science descriptions of some new African Plants. The Butter Tree of Mungo Park forms the type of the new genus Butyrospermum, Kotschy, which includes two species, B. nilticum and B. Parkii. The other new species are

Lomatium Knoblochori, Indigofera Knoblochori, and Centaurea intermedia—all collected near Gondokoro by the Rev. THOMAS KNOBLOCHER.

—— A Correspondent asks us to warn Gardeners against impostors. He states that an individual, giving himself out to be a gardener holding a first-rate situation in Ireland, and now engaged in making a round of visits in the "crack" English places, is apt to find himself suddenly run short of cash, which he seeks to borrow, under cover of some plausible promise of repayment as soon as he "meets his supplies." Several gardeners, we are told, have been in this way victimized. From the different parts at which this person has turned up in Lancashire and Yorkshire, our Correspondent thinks there can be no doubt that he is making a journey for this special purpose. The knowledge of these facts may serve to put others on their guard.

—— We mentioned at p. 1179 of our last volume that some curious additions to the VARIETIES OF LADY FERNS must be reserved for future notice, and it is to these that we would now briefly invite the attention of fern fanciers.

Some of these novelties are but forms derived from the species of other well-known varieties of Athyrium Filix-fœmina. Of this character is ROSEUM, a seedling of Dr. LYELL's, in which the pinnules are distant on a slender rachis, lower sometimes without upwards, and everywhere deeply lobed-laciate, while both pinnæ and fronds are finely crested, and the whole frond delicately symmetrical in development. This came from multifidum. Another seedling of Dr. LYELL's called FRIZELLIÆ CRISTATUM has dwarf fronds with the characteristic foreshaped abbreviated pinnæ at the base, and the upper part of the frond (rarely half its length in our specimens) ramosely multifid so as to form a good corymbosely branched head. Another, which it is proposed to call CHAMIT, also obtained from Frizelliæ, which seems to yield an infinity of sports, was raised by Mr. CHAPE, of Leyens; this is remarkable for its great habit, and its thorough departure from its parent type. The pinnæ in the fronds, we have seen, are about six inch long and bifid or multifid at the end with flat spreading lobes, the pinnules being unequal-sized, and with long incised teeth; while the apex of the frond forms a broadly spreading multifid head. We shall be curious to see this variety, as it advances. As a seedling, too, though without definite parentage, we must mention a very handsome variety found in the Fernery of Mrs. WALKER, for which Mr. WOLLASTON has suggested the name of POLYDEKEIMUM. It is of normal lance-shaped outline, and hitherto, the pinnæ broad and remarkably but rather shortly acuminate, and the pinnules acutely pyramidal, divided into small oblong lobes which have simple and very distinct though short small-sized teeth. It is the outline of the pinnæ and pinnules which gives the peculiarity to this very elegant form.

Of wild forms the most remarkable for the dense crowding of its parts, found in Antrim, and sent to us by the Rev. T. HINCKS, has been named ARMATUM. It is normal in the outline of the fronds and pinnæ, but the latter are made up of oblong ovate short-toothed pinnules of unequal length, so closely placed that they overlap half each other's width, and so densely packed with and from base to apex, that no portion of the under surface except the breadth of the costa is visible for the innumerable confluent spore-cases. Perfectly distinct from this, and simulating the variety Barnesi among Male Ferns, is one called MULTIFIDUM, found by Mr. ROBERTS of Leyens. This variety is chiefly remarkable for its short distant pinnæ, which, on fronds nearly 18 inches long, measure only an inch and a quarter; they are lanceolate, placed wide apart, and are made up of unequal-sized, blunt short oblong pinnules, which are lobed and toothed, but the lobes and teeth abbreviated like the other parts of the frond. Another pretty variety from the same source is POLYCERIUM, a small form apparently, with blunt oblong decurrent simply and finely-toothed pinnules, and having the tips of the pinnæ and frond forking into a variable number of spreading flat sharply-pointed serrated divisions. Another, called FIMBRIATUM, also from Leyens, has normal-shaped fronds of delicate texture, the pinnæ acuminate, the pinnules oblong and deeply lobed, but everywhere fringed by fine elongated convergent teeth; the sori are remarkably short, and placed near the costa. Different from this, having irregular pinnules, and long narrow but spreading teeth, something in the way of laciniatum, is SECTUM, a variety given by Mr. PARSONS, of Welwyn. These are a few of the many forms which have come under notice during the past year, and are those which possess the greatest degree of novelty of character. We have still a few other forms, chiefly Polystichums and Lastreas, which we shall notice shortly. *M.*

HYBRIDISM IN PLANTS.

THE phenomena of Hybridism are, to the botanist especially, a subject for study of considerable importance, not only for the practical results obtained under domesticity or cultivation, but from their influence on the questions of species and variety, and on systematic arrangement and description. The existence of hybrid plants in a wild state had long been denied by many, and is now scarcely recognized amongst extra-European plants, whilst others, amongst recent botanists, consider them as not only frequent but abundant in certain genera in northern and temperate Europe. The difficulties in establishing facts of which the evidence is all circumstantial have been summarily disposed of, and the authors of some of our most carefully prepared modern European flores have thought that, by external characters alone, they could not only recognize a hybrid, but even determine which parent supplied the male and which the female element, and have accordingly adopted a nomenclature expressive of their decision as of a proved fact. As a test of specific identity and diversity, the relative perfection of the hybridizing power is also still regarded by them as absolute, in opposition to the conclusions of Darwin. It may therefore be useful to consider how far the propositions on this head of that distinguished biologist have been confirmed or modified by subsequent observers, and what are the points which are specially in need of further investigation.

The principal facts bearing on this question, established in the admirable chapter on Hybridism in the "Origin of Species," appear to be—

That, generally, in order to produce the most fertile offspring, that is, hybrids most partaking of fertilization as to the reproductive system, there must be some affinity, although not always too close a consanguinity, between the two parents.

That, generally, as the affinity is more remote, the fertilizing process is less successful, not ceasing abruptly at a definite stage of remoteness, but diminishing by various gradations.

That generally, also, the fertility of the offspring of plants or animals nearly enough related to be considered as slight varieties will be unimpaired, but frequently diminished if the parents belong to more constantly distinct races. Where the distinctions between the parents have obtained constancy and importance enough to be admitted as species, intercrossing usually produces sterile offspring, and all power of intercrossing ceases as the differences still further increase so as to be deemed generic or ordinal.

But that exceptional cases more or less interfere with any universal regularity in any of these rules.

And that, although the generality of these rules has practically the effect of maintaining the distinctness of wild races once separated by a wide interval, yet that their indefiniteness—the numerous exceptions observed—forbid our considering them as a special provision for the preservation of any fixed relations of varieties, races, species, or genera. Nor can the greater or less perfection in the power of interbreeding, or the absolute want of it, be taken as positive tests of affinity or diversity. They are constitutional characters, standing more or less in correlation with external and structural characters, as these do with each other; and their value in the appreciation of affinity and diversity must be estimated, as we do other characters, not *à priori*, but by their observed constancy.

Since the publication of Mr. Darwin's work, two important botanical papers on the subject have appeared—the one the result of 10 years' experiments, carried on, perhaps, in some measure with a view to proving a preconceived theory; the other after eight years' experiments, but on a larger scale, and apparently with less of bias, and that in an opposite direction. The conclusions of the one are in direct opposition to—of the other, as far as they go, confirmatory of—Mr. Darwin's. Neither contains any reference to Mr. Darwin's chapter, which most probably the one author had never seen, and the other had not had an opportunity of studying, before drawing up his conclusions. We may therefore consider both these memoirs as founded on an independent study of previous works, as well as on personal observation.

The immediate occasion of the publication of both memoirs, was the prize offered by the Académie des Sciences in 1861, to be awarded in 1862, "Etudier les Hybrides végétaux en prenant de plus en plus fécondité et de la perpétuité en tant que perpétuité de leurs caractères." As it was impossible that such a study could be usefully completed in a single twelvemonth, the Academy, in offering the prize, must have had specially in view one or both of these observers, who were known to have been for years carrying on experiments on the subject.

Accordingly memoirs were sent in by M. Godron, Dean of the Faculté des Sciences of Nancy, and one of the authors of an elaborate and in many respects excellent "Flore de France," in which more definiteness had been ascribed to hybrids than in almost any other work; and by M. Naudin, Aide-Naturaliste at the Muséum d'Histoire Naturelle at the Jardin des Plantes, whose attention had been probably first directed to the subject in the course of his researches on Cucurbitaceæ. The former had carried on his experiments in the Botanic Garden of Nancy, and had also much studied the real or supposed wild hybrids of the centre and south of France, the latter had experimented, on a much larger scale, on plots of ground allotted to him in the Jardin des Plantes, where, moreover, he had the benefit of the great experience and judgment of his distinguished friend, M. Decaisne.

M. Godron's memoir is printed at length in the "Annales des Sciences Naturelles" (ser. 4, vol. xv. p. 135). He concludes, as he began, with the conviction that mongrels or crosses between the varieties of one species are absolutely fertile, whilst hybrids of two species, unless fertilized by one of the original parents, are always sterile; or, in other words, that this character is absolute for the testing of species and varieties. Opposed as this would seem to Mr. Darwin's views, the contradiction is in some measure more verbal than real. M. Godron makes the definition of the term "species" to depend on this one physiological character, in preference to any combination of characters, external structural or physiological. If two supposed species (for example, Datura Stramonium and D. Tatula) produce fertile crops, then they are varieties only, not species. If two supposed varieties (for example, Hyoscyamus niger and H. pumilus) produce crosses mutually sterile, then they are species, not varieties. But these are not strong or exceptional cases, nor does M. Godron deal with any such; he was probably not aware of them, not having met with any in the limited range of species he experimented upon; or if anything in his experiments did turn out contrary to his expectations, he would attribute it to some failure owing to deficiency in his procedure. So again, although he observed great variety in the degree of apparent perfection or defect in both the male and female organs of hybrids, the idea of different degrees of sterility does not appear to have occurred to him; and on the whole, his memoir, notwithstanding a number of facts and observations of considerable interest, cannot be said to have established much, if anything, towards the confirmation or refutation of Mr. Darwin's views.

M. Naudin's memoir is of a very different character. It is not yet published in extenso; but the second portion, including the discussion and general results of his experiments, is inserted in the same volume of the Annales des Sciences Naturelles (ser. 4, vol. xiv, p. 189), and the principal facts it contains are very clearly pointed out in an article in the "Natural History Review" (1864, p. 50). This is quite sufficient to enable us to appreciate the great value of his labours, and having moreover, on various occasions, had personal opportunities of witnessing the zeal, care, and sagacity with which he pursues any subject that he takes up, I cannot but concur in the high estimation conferred on his memoir by the committee appointed to award the prize. It is therefore of considerable importance that his conclusions should, in the main, so closely coincide with Mr. Darwin's, although independently formed. He especially insists on the great diversity in degree of sterility, and the impossibility of drawing, by means of this or any other character, any positive line of demarcation between a variety, a race, and a species; and the exceptional cases he has observed, more or less interfering with any universal regularity in the rules above given, are some of them very striking.

One new point brought out by the observations of both these experimentalists is, that when hybrids between species or marked varieties do become fertile, that fertility increases in successive generations, as compared apparently by a tendency more or less rapid to return to one of the parent types. M. Godron, reasoning *à priori* from the fact, supposed to be proved, that hybrids are more fertile except when fecundated by the pollen of one of the parents, regards this return to the parent type and increasing fertility as the natural consequence of such fecundation; but Naudin states that this increased fertility and return occur constantly (though not uniformly) under conditions in which he believes that no such fecundation from the parent type can have occurred. This he is disposed to account for by the supposition that the two parent essences are intermixed, not truly combined, in the hybrid and in all its parts, reproductive as well as vegetative, and that, in future generations, the tendency of the reproductive parts of one essence to combine with those of the same essence has the gradual effect of eliminating the other. This hypothesis appears to be new, and many circumstances are adduced in its support, but it requires much further observation and a much better knowledge than we yet possess of the physiology of fecundation before it can be admitted as proved.

Puzzling exceptional cases occur to both experimentators, in which, as usual, if they cannot refute the conclusions to be drawn, they are obliged to doubt the premises. Thus Ægilops spelloides, asserted to be the really hybrid offspring of the hybrid Æ. triticoides fecundated by Wheat, its male parent type, is found both by Naudin and Godron to be extremely fertile without further assistance from either parent, and to remain unchanged through successive generations. Godron, who admits that hybrids fecundated by one of the parents produce offspring which have so far returned to the nature of species as to become fertile, cites this in support of his rule that there is no return to the nature of the original parent without fecundation by that parent. Naudin doubts the assumed origin of Æ. spelloides. So again, Naudin, among the observations in support of his theory of intermixture of species adduces the fact, not only of the well-known differences in resemblance to either parent in their hybrid offspring, but that sometimes the first cross will be undistinguishable from one parent. Godron does not touch upon this circumstance, as opposed to the rules by which, in his 'Flora,' he had practically established the parentage of the hybrids described; but having observed that whilst, by fecundating Ægilops ovata with Wheat, he never failed to produce the intermediate Æ. triticoides, all his fecundations of Wheat by Ægilops, repeated upon several varieties of Wheat during five successive years, produced invariably nothing but Wheat, he explains this anomaly by supposing that his precautions were simply insufficient for preventing

simultaneous fecundation by neighbouring Wheat-flowers. I allude to these facts only as showing with what care experiments of this kind must be repeated, so as not, on the one hand, too hastily to oppose the evidence of our senses to reason from analogy, nor, on the other, to allow general theory to overrule actual experience.

Almost all experiments and observations upon hybridism have been upon plants in a state of cultivation, or animals in domesticity. In the wild state there is this difference, that exceptionally fertile hybrids must be still more rare; for to the obstacles opposed by sterility, or return to parent forms (or, say, disjunction of parent essences), to the establishment of new hybrid races, must be added the destruction ensuing from the want of the protection and assistance afforded by human care. Of this a curious instance is mentioned by M. Godron, in accounting for the rarity in a wild state of the Ægilops speltæformis, which seeds so readily under cultivation: the structure of the spike is such as to render the germination of the seed exceedingly difficult without extraneous aid in forcing it into the ground. All tends to confirm the now generally received opinion, that although hybridism in a wild state between races sufficiently distinct to be fairly called species is not unfrequent, the individuals are few, and generally differ from each other as much as they do from either parent. The modern practice, therefore, of giving names and descriptions of these hybrids as of distinct races cannot be too much deprecated: it is an attempt to give fixity to that which has none, confounding individuals with races, and overloading with practically useless matter our floras and faunas.

As to the direction in which future researches on hybridism are likely to be the most useful, it does not appear that any further evidence is required in support of Darwin's general laws and exceptions, as confirmed by Naudin. No number of cases of sterility in hybrids will disprove the well-established ones of exceptional fertility. But Naudin's hypothesis of the intermixture and subsequent disjunction of parental essences opens out a new field of research, requiring for its confirmation or refutation numerous varied and careful experiments which may ultimately give us some further insight into the hitherto concealed mysteries of fecundation. Practically also, much is to be done in the observation of plants in a wild state. Hybrids in our cold damp northern climates always appear to me much less frequent than in the south, for the same reasons, perhaps, that the proportion of perennials to annuals, and of propagation by offset to propagation by seed, is greater in the north than in the south. Is that the case? Is the confusion in the delineation of our Willows, for instance, mainly owing, as some pretend, to the frequency of hybrids, or to our having attempted to define as species races as yet too closely allied to have become fixed? These and similar questions may be well worth the attention of botanists resident in the country, who have leisure for observation supported by experiment. *From the President's Address at Anniversary of Linnean Society.*

EARLY FLOWERING BULBS.

THE HYACINTH.

WITH the following few remarks on the Hyacinth, I beg to conclude my short series of papers on this subject, and I may at once say that so thoroughly "used up" is everything connected with Hyacinth culture, that I will confine myself to a hint or two relative to the management of this useful flower in glasses. Two or three lumps of charcoal should always be placed in the glass; when this is done it is seldom necessary to change the water. Stale rain-water should not be used for Hyacinths on any consideration; unless it be well filtered it contains a great deal of putrid matter, which in a few days becomes highly offensive. Clear drinking-water should be always employed, and be made lukewarm when the bulbs are placed in the glasses. Let the water just touch the base of the bulb, and place the glasses in a cool dark dry place—not a cold and damp one, which is quite unsuitable for them. A cupboard in a sitting-room where there is a fire is the best place for them. When brought to the light avoid violent variations of temperature. Keep them in a window, but not in a draught, and no frost must be permitted to assail them. The coolest, lightest, and most airy part of the room, which is generally the window, is the place for them. As soon as the buds show colour, fill the glasses up to the brim with water and keep them in that condition. Avoid guano and other manures; a splendid head of bloom can be obtained without them, and in the case of glasses these applications invariably produce harm. With a very few exceptions, grow single flowers only in water.

The revolution of opinion that has taken place during the past few years as to the comparative value of double and single Hyacinths is worthy of remark. In 1857 this *dictum* was given in a contemporary:—"I give my full assent to the statement, that single Hyacinths cannot stand in competition upon an equal footing with their formidable rivals of the double class, and that, despite the enormous trusses of the singles, the contest would be unequal." The writer assumed the double varieties to be much superior to single flowers, inasmuch as the latter had "a poverty of substance and meagreness of outline in the bells, which left them immeasurably behind the double varieties." Now the double flowers are rarely to be seen at our Hyacinth shows in the groups of 24, 18, or 12, with two or three exceptions, and among the professed new varieties of the past two years, scarcely a double flower has appeared. The Dutch growers generally still think double flowers the best, but as the tendency in England is towards single flowers, they are necessitated to devote themselves to their production.

A liking for the larger and more substantial bells of double flowers is again taking root; but perfection is sought for chiefly among the single flowers. We are thus on the eve of another change. The large-belled kinds, of which we have conspicuous examples in Snowball and Madame Van der Hoop in the whites, and La Grande Vidette and Thorwaldsen in the blues, are certainly rising in favour. Many of the single varieties in each of the three classes of colours, with spikes thickly enough studded with bells, are however wanting in that shape and substance which is required to bring them up to the level of progress attained by other florists' flowers. The large-belled kinds I take to be types of the "coming" flowers. Some of the bells, as for instance in Madame Van der Hoop, are already beautiful in shape, and have that peculiar waxy appearance which makes them so attractive, and when fully reflexed, display as much beauty of symmetry as can be seen in a finely-formed and fully developed Fuchsia. The great desideratum is, more bells on the spike; but to effect this must be the patient work of time. The blue and white classes already furnish flowers of this character, but among the reds the development is only just discernible. I was conversing during the past summer with a celebrated Dutch grower, and in reply to my remark that English taste was taking the direction I have just indicated, he said that the preference was already anticipated in Holland, and that they were hybridising with a view to procure such flowers as I have named. So slowly however is the development of new characteristics accomplished, that it will be years before a stand of 12 large-belled Hyacinths shall be staged; it is surely, however, in the future of our Hyacinth exhibitions. This will necessitate the recognition of the idea of "shape" for the individual bells by our Hyacinth censors. Now, the symmetry of the spike hides defects of shape in the bells; then, there must be the presence of this desired feature in both bells and spike. *Quo.*

Home Correspondence.

Castle Kennedy Fig.—If "S. B." in his former communication was at fault in supposing this Fig to be synonymous with the Brown Turkey or the Brunswick, I must do him the justice to say that in his last communication I think he is nearer the truth in supposing it to be the same as the Large Brown or Chestnut Ischia of Miller, a valuable variety supposed to be lost. "S. B." says—"It seems probable that the old and formerly neglected tree at Stranraer remained the sole representative in this kingdom of a Fig cultivated by Miller, and which stands first on his list. Of Figs now cultivated here (except the recently imported Adam) the largest is the Brunswick; this was known to Miller, who describes it. Yet he states that his No. 1 is decidedly the largest Fig he knows, and therefore larger than the Brunswick. He speaks highly of its earliness, hardiness, and quality, nor does he say anything disparaging of it except its liability to crack in wet seasons, like many other thin-skinned fruit." This description agrees very closely with the character of the Fig grown here, as any one can see by referring to Messrs. Lawson's descriptive circular respecting it. When allowed to hang after being ripe, if water is freely administered to the roots, I have occasionally observed a tendency to crack, but this can easily be prevented by withholding water when the fruit is approaching maturity. It is a very early variety, being always first ripe in the Fig house; in fact it is nearly three weeks earlier than the Brunswick, and out of doors it is a fortnight earlier than any of the larger varieties grown here. Figs and other fruits were extensively cultivated here by Marshal Stair, who lived upwards of a century ago. His duties compelled him to frequently reside on the Continent for lengthened periods, and his well-known taste for gardening would doubtless induce him to embrace these opportunities for collecting some of the finer sorts of fruits. In this way it is probable the Fig in question may have been introduced here, or, what is equally probable, it may have been brought from England, and planted in this rather out-of-the-way place. It has been growing for an indefinite period—untrained and unpruned—against an old wall, and even in this neglected state in favourable seasons it has produced abundant crops of fine fruit. *Archibald Fowler, Castle Kennedy, Stranraer.*

Paxton Houses.—In reply to the inquiry of your correspondent "A.", in your Paper of Dec. 24, as to whether Sir Joseph Paxton's Patent Span-roofed Hothouses answer equally well whether set from east to west, or from north to south, I beg to say that in either aspect they equally fulfil the purpose of their erection. If placed with the ends east and west, one lean-to side, by facing the south, will receive the direct rays of the sun, and the fruit will in consequence ripen earlier than if the house stood in another aspect; the other lean-to side facing the north, and receiving much less direct sunlight, the fruit will ripen later and will form a succession crop. If the house is placed with the ends north and south the crop will ripen equally on both sides. It is somewhat wonderful what may be effected even with the smallest houses on this principle of perfect ventilation. A little model in my possession of only 8 feet square, and standing in the cold climate of the Peak of Derbyshire, had Vines planted in it three years ago, and this last summer, owing to their vigorous growth, they were allowed to carry 30 bunches of very fine Grapes, besides which the house contained an excellent crop of Figs, Cape Gooseberries, and other fruit, all of which ripened exceedingly well. In winter the little place is used for sheltering bedding-out plants, and with a very small flue and a handful of fire all frost and damp are excluded. *Samuel Hereman, Jan. 10.*

Glass Houses at Seaforth Hall.—In a long description of the garden doings at this place, which you have recently published, the writer, "J. A.," seems to leave it to be inferred that everything has been done by the gardener there. So far, however, is this from being the case, that I have the best authority for stating that the garden structures were designed entirely by Mr. Kemp, of Birkenhead Park, and that they were erected from his plans (the heating apparatus excepted), under the direction of Mr. Horne, a very superior and intelligent clerk of the works, who supplied some of the details. In the new edition of Mr. Kemp's book on Landscape Gardening, indeed, a plan and description of the whole arrangement are inserted, and this plan includes some portions that have not yet been carried out. *Vindex.*

Prize-taking at Exhibitions.—As an exhibitor of flowers at some of our principal national exhibitions—and not an unsuccessful one—perhaps you will allow me to say what I think of the question lately raised by "Florist:" premising that I think your own remarks generally very just and sensible, though I am not quite of your opinion when you say that the practice which has become prevalent of late of entering flowers, &c., in the gardener's name instead of the employer's, is "probably not the result of design," for one of your correspondents says that it is a matter of £. s. d., and that a spirit of emulation is no motive at all in getting up flowers for exhibition. I quite agree with "Florist" that the employer is the person to whom both "praises and prizes," to use one of your correspondent's expressions, of right properly belong, as in the case of other gentlemen's amusements which he instances, and which I think perfectly analogous: he is the exhibitor properly speaking, though he may think fit (and probably usually does) after deducting travelling expenses and entries to give the rest of the amount of the prizes to his gardener as an encouragement. My own gardener is content with this; he enjoys the trip free of expense to the exhibition, with his day or two's holiday, and the opportunity of seeing the specimens exhibited by the competitors, and learning something of the new flowers of the season; and does not think only (as your correspondent seems to suppose) of the amount he shall clutch by the awarded prizes. If it were not so, as you very properly say, "the remedy is in my own hands," and I should either cease from exhibiting, or provide myself with another gardener. One of your correspondents asks, "Does 'Florist' mean that gentlemen are to become practical gardeners?" and he instances the extreme cases of Lord A. and the Duke of B. not superintending the growth of their Cucumbers. Does he mean to say that the employers generally leave the matter entirely to their gardeners to do as they like—cultivate what flowers or fruits they choose, and leave the mode of cultivation entirely to their skill and judgment? This is to misrepresent the case, I am satisfied, of the generality of employers. And if they were not "practical gardeners," what would become of our exhibitions? Heads as well as hands come into my view of practical gardeners, and there are intelligent employers as well as intelligent gardeners. Take the amateur class (I speak of flowers particularly) and see who are the persons who usually exhibit; they are amateurs in the real sense of the term—lovers of flowers. I know many of them who have, it may be, one or more pet flowers which they are desirous to see brought to the highest pitch of perfection, and would themselves, if possible, have the honour of leading the van amongst the competitors towards that attainment. Amateurs must be practical gardeners. I call myself a practical gardener, and I am proud to claim the appellation, bringing both head and hands too to the work; and if I were not, my gardener's name would probably never have been known beyond the narrow limits of his own birth-place. I say not this from any conceit, but simply in justification of myself and many other employers, in claiming the position we do as the real exhibitors, and claiming also the "prizes" as well as the "praises" accruing to the awards. I said I bring head and hands too to the work—I take great pains with my seeds for rearing good seedlings, and see them sown; use my own judgment in selecting the old flowers I intend growing; am very busy in my forcing house in the season taking cuttings, potting off, and watching their growth when planted out; superintend the staking and trimming out; select the flowers for exhibition; and last, not least, "pay the piper too" who carries out my instructions, and I think I have a right to claim "praises and prizes" too, however I may share them

afterwards with my gardener. I do not at all object to the gardener's name being mentioned in the award, this is only his due; but I don't like, as a friend of mine ludicrously puts it, to have the firm called A. & Co., A. being the name of my gardener, as principal partner. I long resisted this new practice of which "Florist" justly complains; but latterly, finding myself almost alone, have unwillingly fallen in with the prevalent custom, and shall be glad if "exhibitors" in future make up their minds to return to the good old way—often better than the innovation. *Vindex.* [As far as our memory serves, the present has been the practice at the great London shows from the first.]—— The wail of "Florist" and "Faunus" represents the feelings of but a very small portion of the gardening community. "Florist" takes "racing to begin with," and asks, Ought not great race prizes to be given to the trainers on the principle in question? I say, certainly not. Moreover the comparison of trainers to gardeners is unjust. Blood is of first importance in horse-racing, the owners generally select their own stock, and a gentleman with a fine stud has no difficulty in getting a trainer to keep it in the best state; but where is the trainer who does for his master as much proportionately as many a gardener has done—substitute in a few years a first-rate and winning collection of plants for one of valueless rubbish, often without expense? Besides, the jockey who rides a horse is often quite as important a person as the trainer. Then, again, is it fair to class together competition for the Derby or the St. Leger, with 6000*l.* for the winner, and perhaps 20,000*l.* in bets, with that for the prizes at a flower show, where they are often worth as little as 2*s.* 6*d.* I will just remind "Florist" that it was Mr. Anson, a trainer, who won the last Derby and St. Leger, and that in these fashionable and most national of all competitions, he contested with the highest in the land. Yet we do not hear of any narrow-minded nobleman complaining to the press that he was obliged to compete with a person who at that very time might have been acting as his servant, and suggesting the formation of a separate race for all "inferiors!" I do not suppose that such a thought occurred to any gentleman owner present. "Again, as to yachting," I submit that "Captain Blowhard" should not be compared to a plantsman who inserts a cutting, and in the course of time stages it a winning plant; for the build of a yacht has generally much more to do with her sailing powers than the skill of her captain. Again, most noblemen and gentlemen pride themselves on their knowledge of stock and breeding, and for a very good reason never meddle with the minutiæ of gardening; yet "F." says, "it may be easily guessed how many more prize bulls those noblemen would have been at the expense and trouble of rearing," if the prizes were given to the men who attended on those animals—which they should not be. Surely "F." must know that even far greater men than those he mentions have for years sent their fruit and plants to the London shows, and it may not be easily guessed when they shall discontinue the practice. During the past autumn I have seen the practice which "F." is so anxious to introduce, carried out at several provincial shows, without any good result whatever, but with, as it appeared to me, a great loss of dignity to the noblemen and gentlemen who competed. Thus, if one wanted to know what gardener had produced the best brace of Cucumbers, it was found to be the Right Hon. Lord So-and-So, who had thereby added 2*s.* 6*d.* or 5*s.* to his princely revenue. And so with the Squire's fat Lettuces and Onions, which gained the blue-blooded owner the 1st prize, value one shilling. Now if the whole or any respectable portion of the gardens, forests, and other rural charms of properties could be tested in a competition, I see no objection to this plan; but while prizes which tend to improve the whole, must of necessity be given to very petty items, I am sure such unfair merit-recording is hurtful in its effects on gardening, inasmuch as it may prevent many of our most influential proprietors, who would not like to see their names bandied about as victors amongst Hollyhocks and Cabbages, from having anything to do with flower shows. On the other hand I have observed many gentlemen delighted and loquacious about "my gardener's" success. What are prizes given for? Good cultivation, or the display of costly plants? An exhibition of garden produce can in no sense be likened to one of articles of *virtu*, nor gardeners to those who merely "take care" of things. The prizes are given for excellence of culture; and as in nineteen cases out of twenty that excellence is the result of the gardener's skill and brains, it is not just, it is not honourable, it is hardly honest to deprive him of the *merit* which attaches to victory. The prize money is another matter, and one which must always be arranged between the gardener and his employer. If the gardener merely picks out some of his best fruit—say Peaches—and sends them for exhibition, his employer can scarcely be said to incur any additional expense for exhibiting, and consequently should not grudge his gardener the prizes won in this way; but if, on the contrary, the master is at heavy special outlay for exhibitions, then the case is totally different, and a share of the money returns must often satisfy the gardener, as the expense for vans, carriage, &c., sometimes exceeds the amount won. As there are all sorts of cases between the extremes of those who exhibit at little or no expense, and those who do so at a heavy outlay, it is not in the nature of things that any rule should be arrived at; but the question does not seem to be disputed, and it is pleasant to know that most gentlemen allow their gardeners the money so well earned. With respect to "Faunus," who writes about the case which he says "'Florist' so well puts," it is pretty evident that the Royal Horticultural Society has lost a fire-eating member; the horticultural press, moreover, must be specially benefited by the appearance of so uncompromising a censor, who has given his "first warning," as they do over the water. But the press is of all other powers least likely to award merit where it is not due. I would advise both "Florist" and his admirer to read a paragraph concerning the death of Mr. J. Lawrence, which appeared contemporaneously with "Faunus's" letter (p. 1207, 1864.) Men whose memory their country has not yet "let die," have said that gardeners as a class were more worthy and intelligent than any other men of the same social rank, and that that is true will not be doubted by those who have even the slightest knowledge of them. What has made them so? Is it money? They are the worst paid class of men in existence, taking into consideration the skill and knowledge they require, for many gardeners, in addition to professional knowledge, possess and must possess the knowledge of an office clerk, and yet are frequently paid less for all their duties than is often paid for that. No class of men work harder than prize-taking gardeners. I believe that the fact of the acknowledgment of merit by the press has not a little to do with the ability, the character, and the intelligence of our gardeners. Therefore I think that the system which obtains and works so well at our great London shows, should be adopted at all others where it is not followed; that where an individual, be he what he may, wins a prize with his own hands and with his own brains, it is both unfair and unmanly to deprive him even of the nominal merit of having done so; and that where an employer has time enough, skill enough, and love for gardening enough to become his own cultivator (a case which cannot often happen as society is at present constituted), he should, if an exhibitor, enter his plants in his own name, for surely if he is not above potting and watering, and tying and pruning, and gathering, and staging, and all the other labours of a gardener, he should not think it beneath him to contend with some of the best and most skilful members of a class which has done wonders towards beautifying the British Isles. *Wm. Robinson.*—— I have no desire to revive the little controversy you were so obliging as to permit me to initiate in your columns, but as I have been bitterly attacked, and my motives sadly misinterpreted, I hope you will kindly favour me with the insertion of a few parting words. You put it to me—whether I consider it beneath me to meet a respectable gardener in floral competition? I emphatically answer, no. I have now been an exhibitor for many years, I hope I may be spared for many more. During that time I have met with amateur florists, nurserymen and gentlemen's gardeners, and with some few exceptions have derived gratification and pleasure from their acquaintance, and although there have been occasions when I should have much preferred that the masters had been the exhibitors, I have not on the whole had reason to regret having entered into competition with gentlemen's gardeners as a class. It was only because I believe that one of the causes which militate against the increase of gentlemen as exhibitors, is the non ascription of prizes to them for their own flowers and fruit, that I was induced to moot the subject, and that such increase is much needed must be apparent to all who know anything of the metropolitan shows. Were it not for the contributions of the leading nurserymen, who thus in a manner advertise themselves, and of a few enthusiastic amateurs, the floral part of these exhibitions would be meagre in the extreme. Year after year among the few gardeners, exhibitors of plants, we meet with certain stereotyped names—and why is this? Are they who bear them the only gardeners in England or even in the environs of London who can grow Orchids, Ericas, &c.? The same obtains with respect to cut flowers, very few of the class being exhibitors of Roses, Dahlias, Gladioli, &c.; here also the nurserymen and amateurs carry all before them. Now there are, I may say, thousands of gentlemen in the land who keep gardeners of undoubted capacity and intelligence; I quite believe that among them are hundreds who could if so required exhibit plants and flowers quite equal if not superior to those of the leading nurserymen, and yet how very few of these are ever heard of in connection with the London shows? I grant that as regards fruit the case is somewhat different, for here they turn the tables on the nurserymen; but this only renders their shortcomings in the floral department the more conspicuous. The reason is obvious. The gardeners excel in fruit growing, because their employers have a direct interest in the matter—for where is the master who is not partial to fine fruit? But the case is different as regards floriculture for exhibition. The masters are ignored, and therefore have no incentive to allow or to require their men to grow for competition; and that they are altogether ignored, the reports of the metropolitan exhibitions in the floral publications abundantly testify—the gardeners' names alone being usually given. Thus in your own report of the autumn Crystal Palace Show may be found as Melon prize takers, Mr. Young, Leigh Park; Mr. Blair, Shrubland Park; Mr. Godfrey, Ware Park. Was there ever such a case of borrowed plumes—not only the masters' fruit but their very parks appropriated? [No, no: they are so printed merely for brevity; the full address, unless by oversight, being given once in the report.] Much as I have been found fault with for advocating the placing the master's name first, and the gardener's second on the prize card—instead of *vice versâ*, as at present, the great outcry raised against the proposed alteration confirms me in the view I have formed of the advisability of the change. For surely, if the gardeners lay such stress upon the prizes being awarded to themselves, asserting that the contrary would still further diminish their numbers as exhibitors—the converse should hold equally good, and we may fairly presume that the same feelings militate against gentlemen taking greater interest in floral competition. The argument that the masters have the remedy in their own hands is no doubt correct, but only to a certain extent. Some few gentlemen, principally Rosarians, do take the law in their own hands and exhibit in their own names, but the majority do not wish to enter into collision with their gardeners on the point, and so keep back. I suggested the alteration with the view of attracting to the exhibition table that large class of gentlemen, and I may add more especially, ladies, who, though very fond of flowers and floriculture, are not sufficiently enthusiastic in the cause to come forward as exhibitors under the present arrangement, but yet would become, under a different system, so interested on seeing their names in the prize-lists, as to cause them year by year to take greater delight and pleasure in the excitement of floral competition. Of this, besides several instances I might mention, I may adduce my own experience as a case in point. Years ago I took but slight interest in floriculture, and it was the spirit of emulation, and the excitement engendered at seeing my name as a prize-taker at a local show, that first led me to take pleasure in growing for exhibition, and has at length brought me to the pass of being considered by my friends "a wee bit crackit" on the subject. My opponents keep beating the air about the money awards. I repeat, I consider it reasonable and right the masters should give the prize-money to their men, and I believe it would be difficult to find a case where it is or could be withheld. As to the assertion that gentlemen in the country do not exhibit for fear they should be thought mean enough to keep back from their gardeners the few prize shillings, or may be pounds, it is so supremely absurd as to be beyond cavil. That there must be something which keeps gentlemen and ladies from floral competition must be manifest to all who consider with what keenness and avidity so very many of the latter take to poultry exhibiting. Surely the many hornets into whose nests I so unwittingly placed my hand, must agree with me in thinking that a pen of "great gawky fowls without a tail" will not bear comparison with a stand of 24 beautiful Roses. And yet, will any one tell me the reason why ladies exhibit Cochins and not Roses, all the time professing the deepest admiration for the latter? I could add much more to the point, but I refrain; and in bidding adieu to the subject, and thanking you much for your courtesy, I will only say, that if I have given offence, I meant it not. My devotion to floriculture alone induced me to come forward, and I trust that my passion for flowers will be sufficient excuse for having adopted the signature of *Florist.* [We cannot afford space to continue this discussion further.]

Societies.

ROYAL HORTICULTURAL: *Jan. 7 to 11 (First Weekly Show).*—The flowers selected for exhibition on this occasion were Primulas, which, together with some interesting plants of other descriptions, and a little fruit, were arranged round a fine specimen of Encephalartos Altensteinii, in a warm compartment at the end of the Eastern Arcade. From Mr. Smythe, gr. to Lord Sondes, Elmham, Norfolk, came Correa magnifica, well-grown, and finely-bloomed. Mr. Hally, of Blackheath, furnished various handsome zonate-leaved Pelargoniums. Messrs. A. Henderson & Co., of Pine-apple Place, sent a miscellaneous collection of plants, consisting chiefly of sorts remarkable for the beauty of their leaves, associated with Early Tulips, and the pretty little white Roman Hyacinth. Cut Camellias, intermixed with flowers of the charming Lapageria rosea, came from Mr. Coysh, gr. to Mrs. E. Wood, of Rugby, together with a small group of Stove and Greenhouse Plants, in which were Begonias, Oncidium divaricatum, and the showy winter-blooming Sericographis Ghiesbreghtiana, well furnished with crimson-scarlet Justicia-like blossoms. The same exhibitor also had a collection of nicely-flowered Primulas. Mr. J. K. Hedges, The Castle, Wallingford, sent examples of Bougainvillea speciosa, covered with gay mauve-coloured bracts. Messrs. E. G. Henderson contributed an interesting collection of Primulas, including examples of their pretty Fern-leaved varieties; and from the same firm also came an example of Schizostylis coccinea, a Caffrarian Iridaceous plant, bearing crimson blossoms of great beauty. From Mr. Short, Clewer, near Windsor, came Libonia floribunda, a neat habited sub-shrubby plant with bright-coloured tubular blossoms, not unlike those of Manettia bicolor. From the Garden of the Society came various contributions of Primulas and other plants which, being neatly arranged on tables of different

shapes and sizes in various parts of the exhibition-room, had a good effect.

The fruit consisted of a magnificent Cayenne Pine Apple from Mr. Ingram, of the Royal Gardens, Frogmore, whence also came a basket of excellent Mushrooms. From Mr. Smythe came a bunch of Barbarossa Grapes cut from a Vine grafted on the Muscat of Alexandria, a stock on which the Barbarossa is said to bear and keep well, the bunch in question having been ripe in August last. Finally, capitally ripened handsome Black Hamburgh Grapes were shown from one of Sir J. Paxton's patent houses at Rockhill, where they were stated to have received very little, if any, fire heat, and where the crop has, we believe, been excellent.

LINNEAN: *December* 1.—G. Bentham, Esq., President, in the chair. H. G. Dalton, M.D., was elected a Fellow. The following papers were read:—1. *On new tubicolous Annelids in the collection of the British Museum*, part 2, by Dr. Baird.——2. *On the structure of Bonatea speciosa, with reference to its fertilisation*, by R. Trimen, Esq.; communicated by C. Darwin, Esq. The author's object was, he observed, limited to the illustration of the manner in which the structure of the flowers of this plant ensures the removal of the pollinia by insects resorting to the flower, and how fertilisation ensues through the same agency. The most remarkable feature of the flower of the Bonatea was said to be the cohesion of so many of its organs with the lip: the long stigmatic processes cohere on either side for more than half their length with its upper surface, the anterior portions of the upper petals cohere for nearly a fourth of their length with its outer edges, and the inner edges of the lower sepals cohere with its under surface for about a third of their length. Thus a section through the base of the lip would divide these parts also, passing through no less than seven, or regarding the lateral limbs of the lip as petaloid anthers, of nine distinct organs. The rostellum forms a conspicuous green hood with its sides produced anteriorly into two long arms projecting upwards, and its apex similarly produced, but shorter and recurved. The membrane at the anterior edge of the lateral horns is folded back so as to form grooves, in which the caudicles of the pollinia lie, and the two discs are situated on the apices of these horns. The adaptation of this structure to insect fertilisation was pointed out as remarkable: an insect forcing its way into the rostellum cup, attaches one or both of the viscid discs to the under side of its head, and thus carries them away to another flower.——3. *Brief notice of results obtained by experiments with Entozoa;* by Dr. Cobbold.——4. *On the free Nematoids, marine and freshwater, with descriptions of* 100 *species:* by H. C. Bastian, M.B.

December 15.—G. Bentham, Esq., President, in the chair. Dr. St. Brody, exhibited specimens of Ammi glaucifolium, Lin. (A. majus γ glaucifolium, Gren. et Godr.) gathered by him on the banks of the Severn, near Gloucester, in September last. Dr. Shortt exhibited four samples of tea manufactured from the leaves of Coffee, three prepared in the Chinese method, and the fourth in the mode employed by the natives of Sumatra. The following papers were read:—1. *On the Tsetse Fly of Tropical Africa* (Glossina morsitans, *Westwood*). By Dr. Kirk. The author gave a brief *resumé* of what had been already recorded regarding this venomous fly, and added thereto such observations as his own experience suggested. In 1837 Captain Harris had marked on the map a "country abounding in flies destructive to cattle." In 1850 Gordon Cumming, heedless of this, and of information received from the natives, advanced into the fatal region, and the next day one of his horses died from the bite of the Tsetse. The head and body of the poor animal swelled up in a most distressing manner, his eyes were so swollen that he could not see, and in darkness he neighed for his comrades who stood feeding before him. Major Varden, who was the first to bring specimens to Europe, performed a most interesting experiment. Aware of the existence in certain districts of the Bechuana country, of plants poisonous to cattle (such as the Koûwhane, a species of Lasiosiphon) and suspecting that some such herb might be the cause of the mischief ascribed by the natives to the fly, he put the matter to the test by riding his horse into a Tsetse infested part, without dismounting or allowing the animal to feed. The result was the death of the horse. Major Varden found the fly usually upon hills, the plains being free from it. He had ridden up a hill and found the Tsetse increasing at every step, till at least 40 or 50 would be on his horse at once. The specimens he brought to England cost him one of the best of his stud; the animal was stung by ten or a dozen of the flies, and died in 20 days. Mr. Oswell, one of the discoverers of Lake Ngami, and one of the first to reach the marshy regions of Central Africa on the Upper Zambesi, states that the fly is strictly localised, and not known to shift its ground. During the heat of the day it is active, but it does not bite by night, and the natives then pass their cattle through without loss. While man, the goat, and wild animals are bitten with impunity, as also sucking calves, other domestic animals perish. Dr. Livingstone mentions that the ass is not affected by the bite, and although the sucking cal. lives, the dog fed on milk dies; but Livingstone's most important observation is the connection between the fly and large game, especially the buffalo and elephant, and its absence from parts where they do not exist, pointing to a possible means of ridding a country from this curse. During the Zambesi expedition, Dr. Kirk met with the Tsetse on many occasions and at distant parts. It was found to frequent open forest and well-wooded country, but to be absent from extensive Grass plains. In the morning while dew hangs on the Grass, and before the sun has warmed the air, they are sluggish, but with the heat of the day they become a real annoyance to the traveller, constantly biting him on the hands, face, and neck, dexterously avoiding a blow, and again alighting on the very spot from which they had been driven. If permitted they will gorge themselves with blood, and become unable to fly to a distance. On man the effects of the bite are not more than follow an ordinary mosquito bite. Dr. Kirk also remarked, that wherever he had found the fly it had been accompanied by the buffalo or elephant, but that it did not follow them everywhere, circumstances still unknown seeming to check its universal distribution. It was added that a dilation found at the base of the proboscis had been suggested as the seat of some very strong poison, but he had found nothing of the kind on dissection. The effects which in man follow the bite, show, however, that some irritant matter is injected. The object of this, it was observed, is no doubt to cause local congestion, and thus facilitate the sucking of blood. The accidental effects of this produces no after result in animals among whom the Tsetse naturally lives, but in certain domestic animals proves fatal.——2. *Description of a new variety of Lepidonotus cirratus, parasitic on the tube of Chætopterus insignis.* By Dr. Baird.——3. *List of Diurnal Lepidoptera collected by Mr. Wallace in the Eastern Archipelago.* By W. C. Hewitson, Esq.——4. *On the Lentibularieæ collected in Angola by Dr. Welwitsch, with an enumeration of the African species.* By Professor Oliver. This paper includes the results of Dr. Welwitch's explorations, together with notes on the other African Utriculariæ found in the Kew, Dublin, and Linnean Societies' herbaria. Ten new species of Utricularia, and one of Genlisea were described.——5. *Notes upon a few of the Plants collected in Japan, and in the Islands of the Korean Archipelago* in 1862-3, *by Mr. R. Oldham, late Botanical Collector attached to the Royal Gardens, Kew.* By Professor Oliver. This paper was chiefly of botanical interest. It was, however, mentioned that fruiting specimens of the plant called Rhynchospermum jasminoides show it to be no Rhynchospermum, and that it must for the present be retained in Panechites, being probably identical with P. Thunbergii. As, however, the fruit of Panechites itself is undescribed, the Japanese plant may some day require another transfer. The Ichnocarpus fragrans of Wallich was said to be very closely similar to P. Thunbergii, apparently congeneric, perhaps even conspecific. Respecting the Veitchia japonica of Lindley, Professor Oliver remarked, that Mr. Oldham had sent several specimens under this name obtained at Yokohama, and said to have been brought from Fusiyama. They consisted of the branches of an Abies bearing pseudo-cones of various size, precisely similar in form and structure (though mostly much larger) to those which, owing to insect punctures, infest Abies alba and excelsa in our plantations. "I cannot doubt," he observed, "that it was from fragmentary specimens of these malformations that the genus Veitchia was proposed in the *Gardeners' Chronicle* (1861, p. 265), though Dr. Lindley was no doubt misled by some seeds supplied to him which he understood were produced by the cones in question. I cannot be sure of the species of Abies, as none of the normal cones accompany the specimens."——6. *On three new Genera of W. Tropical Africa belonging to the Natural Orders Bixineæ and Tiliaceæ, with a note upon the genera Oncoba and Mayna.* By Prof. Oliver. The new genera are Dasylepis and Pyramidocarpus, belonging to the Bixinieæ; and Ancistrocarpus, belonging to the Tiliaceæ. Prof. Oliver believes it will be necessary to unite Oncoba and Mayna. ——7. *Potamogeton trichoides*, Cham., *in England.* By Dr. R. Caspary; communicated by Dr. Hooker. In the author's herbarium are specimens of this species, collected in 1850 by the Rev. Mr. Trimmer, in a pond near Framingham Earl, Norfolk. The English form is said to be intermediate between the varieties named leiocarpa and tuberculosa.——8. *Notice of two forms of Eriophorum angustifolium*, by Dr. Dickie. In a moor near Aberdeen, visited last May, Dr. Dickie found two evidently different forms of this plant, one with slender spikes having only stigmas visible, the other with shorter blunter spikes, very prominent anthers, and short stigmas. On dissection the former showed three stamens in a rudimentary condition; and a fortnight later they were in the same condition—quite rudimentary, and without a trace of pollen. In the other form the anthers were large, with copious pollen, and the stigmas short but apparently well formed. The two forms were generally growing separate, and were only at one spot intermixed. In both the seeds apparently reached full maturity, and no difference was apparent; but on sowing 40 seeds of each under precisely similar conditions, almost every seed of the plants with large anthers and short stigmas sprang up and continued to grow, while of the others not more than five or six showed any signs of life. The experiment was repeated with the same result. The hermaphrodite and unisexual forms had also been found amongst specimens of the same species from Davis' Straits.

Notices of Books.

Manuel de l'Amateur des Jardins, Traité général d'Horticulture. Première Partie. Par MM. J. Decaisne et Ch. Naudin. Paris, 8vo., pp. viii. and 708.

This is but a first instalment of a work which is intended to comprise a complete system of Horticulture. The names of its authors are quite sufficient to insure a careful exposition of principles and a useful practical application, for not only do they stand in the first ranks of science, but they are no less remarkable for their thorough knowledge of everything relative to cultivation. It must however be premised that as far as it goes, it is rather adapted for persons of education than for the self-taught, though we are happy to say that every day there is an increasing number of students in our first-rate gardens, who are glad to avail themselves of every opportunity of acquiring not merely a knowledge of the general system of cultivation but of the principles on which it rests, and of the nature and intimate structure of the objects which are placed under their care. The work before us, should it be thought requisite to publish a translation, will not indeed supersede such a book as the well-known Theory of Horticulture, which is in the opinion of the writer of this notice and of many other botanists the one on which, notwithstanding the value of his systematic works, the fame of the author will more especially rest; nor will it stand in the way of the admirable though simple Introduction of Professor Oliver, but it will give in a compact form a mass of information, on which the most implicit reliance may in general be placed, which would in vain be sought for in either of the works just mentioned or in any other we could name.

That more accurate information and of wider extent is a great desideratum amongst our cultivators is clear to every one who has deeply considered the subject. As regards the farm almost every one who has a little capital is anxious for land, and fancies that he can carry on its business, though he scarcely knows so much as the requisite rotation of crops; and it is often much the same with the garden, apart from those processes which require manual dexterity combined with judgment. The nature of the objects of cultivation, and some knowledge of their natural affinities and habits, of their mode of nutriment and growth, of the different conditions of temperature requisite at different seasons, of the comparative importance of top and bottom-heat, of the effect of evaporation and the circumstances under which it requires to be checked or promoted, together with a thousand little matters for which no rule of thumb, however good, can compensate, are all matters without which no one has a right to consider himself even a second-rate cultivator. And then, in order to meet the various difficulties which attend on artificial growth, he ought to have some knowledge of the nature of the diseases to which his plants are subject, which he cannot possess without some accurate views as to the functions of the different organs, and the various vegetable parasites to which they are exposed. Without such knowledge he will try experiment after experiment without advancing a step towards the desired end, if he does not do permanent injury to valuable plants which may be under his care. He may do well enough for ordinary emergencies, but in cases of difficulty he will be at a complete standstill. A little knowledge in such a case will often be worse than none.

For these and for similar reasons we cannot sufficiently praise those directors of public institutions or more wealthy employers, who either take measures for imparting correct views by actual instruction, or by providing their men with books and journals of a really scientific character which may enable them to gain such general views of the subjects which form the groundwork of their future usefulness and welfare. Nor ought we to be less thankful when such men as Decaisne and Naudin descend from their higher studies to cater for those who are in comparison "hewers of wood and drawers of water," the practical man, that is, rather than the original investigator.

It is time, however, to give some notice of the contents of the important work so happily commenced.

The Part now published contains the principles of Botany and Vegetable Physiology so far as they are necessary to the cultivator, together with a theoretic and practical exposition of the requisite operations in the cultivation as well of useful as of ornamental plants. Two volumes are to succeed, comprising particulars as to the culture, first, of ornamental plants, and secondly, of vegetables and fruit trees.

The first 164 pages contain the particulars usually found in what are called introductions to Botany apart from details of classification. As in most treatises of the kind, in opposition to the principle which was so luminously held forth by Prof. Henslow, and which has so materially modified botanical examinations in this country, the work commences with a description of the elementary organs of vegetables. We are ourselves strongly of the opinion that it is better to descend from the whole to the part, though much may be said on either side. A description of organs succeeds to that of their

elements, and then for 200 pages we have not only a sketch of the principal systems of classification of vegetables, but a notice of the characters of each natural order into which they are divisible, with the names of the principal genera. Then follows a chapter on their geographical distribution, which completes the first grand division of the volume.

The second division contains the general principles of gardening, and the operations employed in practice.

Here we have first the conditions dependent on climate, together with the modes of supplying artificial heat to the soil and air. Then follows an account of the varieties of soil and necessary manures, together with the means of supplying moisture. More we think might have been said with advantage about radiation, a matter which is little understood by cultivators in general, but which is perhaps one of the most important matters in cultivation, a thorough knowledge of the hygrometer being quite as desirable as that of the thermometer. These chapters occupy about 70 pages. The remainder of the volume is occupied by details as to the different implements and practices employed in the cultivation and propagation of plants, together with notes on artificial cultivation, hybridising, acclimatisation and rotation of crops, and lastly a treatise giving a slight sketch in about 30 pages of the accidents and diseases to which plants are exposed, a subject which for practical purposes would require a whole volume.

Such are the contents of the work before us, which from its nature is rather calculated for reference than extraction. We shall however briefly advert to a few of the matters it contains, which will serve as examples of the sort of information to be found. As a first extract we may give that which relates to chlorophyll.

"Of all the matters, solid or semi-fluid, contained in the cells of vegetables, those which perform the principal part in the phenomena of vegetation are the substances known under the vague name of chlorophyll. It is to these that plants are indebted for their colour. Chlorophyll appears generally under the form of globules or irregular masses of a green or greenish, or sometimes red tint, which more or less completely fill the cells. Its physiological action is still imperfectly known, but its presence in almost all the aërial vegetables, its abundance, and the place which it occupies in the youngest organs and those which are most directly exposed to atmospheric influences, leave no doubt that it is of the highest importance. It is developed especially under the action of light, and in consequence plants are more highly coloured in proportion as they are more directly exposed to the rays of the sun. We may indeed remark, in general, that they are so much the more vigorous as their verdure is deeper, and their flowers more vividly coloured, as regards the peculiar tint inherent in each species, and that their vigour is so much the less as their aërial organs present more feeble tints."

Such observations are of course not without exceptions, but they are illustrated by the fact that many plants which were highly ornamental when first introduced, after a year or two's cultivation in our less genial clime lose much of their beauty. Phygelius capensis is a case in point, and others are well known to cultivators.

Our second extract shall be made from the chapter on the conditions dependent on climate.

"Each species in the vegetable kingdom is, so to speak, a living thermometer, whose point from which the degrees are reckoned (or zero) coincides with the sum of temperature necessary to put its sap in motion. This motion, reckoning from the instant when it commences, is active or retarded in proportion as the heat ncreases or diminishes.

"The heat strictly requisite to make a plant or seed vegetate, and produce the organs of nutrition, such as the leaves and roots, is in general insufficient to make it run through the whole circle of its development. In most cases it requires a greater degree of heat to determine the formation of flowers and the ripening of the fruit. There is no horticulturist, however small his experience may be, who does not know that many vegetables brought into a colder climate than that from which they originated, and cultivated in the open air may be clothed with a luxuriant foliage, and still never bear fruit. Thus, for example, the Olive scarcely ever shows its flowers, even in the mild climates of Bretagne and Ireland, while the Jujube, though flourishing at Paris, never fructifies."

Acclimatisation is only possible within certain bounds, which we believe are extremely limited. The remark is scarcely true that in Ireland and the West of England, Potatos, Turnips, Beet, and Carrots almost universally take the place of corn. The extensive cultivation of Potatos in Ireland arose probably quite as much from social as from climatic reasons, and certainly there is no lack of corn cultivation in our western counties, including Wales.

We have room only for another extract, which is an apology for moles, which, whatever their worth may be, are an intolerable nuisance in gardens. Our authors shall, however, speak for themselves.

"Moles, though belonging to the tribe of insect eaters, are generally classed amongst animals which are injurious to agriculture. They cause, indeed, some mischief in gardens by loosening the earth under the plants and unrooting them; they are more injurious in meadows in consequence of the hills which they raise, which projecting from the surface impede the mowers and injure their scythes. In every country they are actively hunted, and there are even professed mole-catchers who go from farm to farm, and destroy multitudes. However, notwithstanding his evil deeds, it may be doubted whether the mole is not more useful than injurious. It is certain that he never touches plants, but lives exclusively on subterranean insects, especially worms, maggots, and larvæ of insects, which are very injurious to agriculture. It is believed that in places much frequented by mole-catchers, as for example, the environs of Paris, and where in consequence moles have become comparatively rare, a greater number of trees and other plants perish from the attacks of maggots, than formerly. It appears even that the trees rendered weak from this cause are much more attacked by Scolyti and other wood-feeding insects than healthy trees, and that they thus become so many foci of multiplication. If this connection of the mole and these insects, which is at present only probable, should ultimately be demonstrated, it would be a new proof that in nature nothing has been created without some useful end, and it would result, as a practical consequence, that it would be necessary henceforth to abstain from the destruction of an animal whose misdeeds would be more than compensated by its services."

We may perhaps give further extracts hereafter, but these must suffice for the present.

In a book of such extent it is almost impossible that some errors or hasty statements should not occasionally slip in. Cellulose, for example, is called at page 11 a quaternary substance instead of ternary; and at page 24, while the property of the spongelets in absorbing moisture is pointed out, in contrast to the surface which, if absorbent at all, is only so in a slight degree, no mention is made of the fine hairs which often clothe them, especially in an early stage of growth, and aid materially in the work.

We are rejoiced to find that in the description of the cells the old fancies of primary and secondary utricles are exploded, and the whole cell wall, however modified and thickened by after growth, is considered as essentially one.

First Help in Accidents, a Surgical Guide. 2s. 6d. By Charles H. Schaible, M.D., Ph.D., Royal Military Academy, Woolwich. Pp. 225. 12mo. Robert Hardwicke, Piccadilly.

If one is to believe a tenth part of the statements put forth by certain insurance offices, there are hosts of accidents to which men especially are liable, in riding and driving, in shooting or bathing, in the pursuit of their favourite amusements, and in the following their ordinary occupations; ladies too come in occasionally for burns and scalds, and sometimes take poison in mistake for physic. Indeed the chance is not inconsiderable that any particular young man may figure in some accident or other, either as a sufferer or spectator.

Now it very generally happens that no professional aid is at hand, while in many cases the life of the patient depends upon prompt assistance, and in every case the amount of suffering and the hopes of speedy recovery are closely connected with the promptitude and nature of the first help which the sufferer obtains. As a physician Dr. Schaible is perfectly aware of all these matters, and in frequent intercourse with the young men at the Woolwich Academy, the importance of his subject, as it bears upon military men, has been forcibly brought under his notice. He has heard of precious lives ebbing away which might have been saved had a comrade possessed the most elementary knowledge as to the direction of veins and arteries. He has heard of excruciating sufferings inflicted with the kindest intentions, and misdirected help proving absolutely fatal.

To remedy such errors, and to direct people aright, Dr. Schaible has written a very useful little book, intended originally chiefly for the direction of soldiers, but enlarged for general use; and surely every educated man ought to know as much of the treatment to be adopted on the occurrence of common accidents as shall enable him to maintain his presence of mind, and shall give him sufficient confidence either to render prompt and efficient assistance himself, or with a well grounded air of authority to direct the efforts of others.

We have carefully looked through this little work, and cordially approve alike of its object, and the way in which that object has been carried out. The directions appear to be very simple and intelligible, and the importance of getting regular medical assistance as soon as possible, is duly insisted upon.

We are compelled, however, to notice a mistake upon page 170, where, in speaking of the ill effects of breathing foul air, and the proper size of apartments, it is stated that—"The smallest cubic space for each adult should be—in bedroom, 300 cubic inches; in sitting room, 400." This is about the quantity of air required for a single minute's respiration. Probably the word inches is simply a misprint, and for cubic inches we should read cubic feet.

Hardwicke's Science Gossip, No. 1, Jan. 1865. (To be published monthly.)

This is a very cheap, amusing, and useful publication, which we may safely recommend, especially to young naturalists, as containing some very good reading, and much correct information. We should recommend W. M. B. to pursue his studies of the fly-mould. If he places these mouldy flies in water, he will probably have quite a new world burst upon him, full of interesting marvels. The extracts from various quarters are admirably chosen, and will be acceptable to country lovers of science who have not the opportunity of seeing the numberless journals which load the tables of public institutions in London. We ourselves acknowledge our obligation for information on matters which had escaped our notice.

As regards the error in the first volume of *London's Magazine of Natural History*, that "the common rosewood of cabinet makers is the root of Convolvulus scoparius, common in the Canary Islands, in Rhodes and Cyprus," which we have no opportunity of collating, we may remark that if the statement really occurs as reported, it probably arose from the fact that the root of Convolvulus scoparius had the reputation of possessing a fragrance rendering it an object of supposed commercial interest. The root bore the name of Leña noal, being an evident corruption of the Lignum Aloes or "lign aloes" of Scripture. A very interesting account by the Rev. R. T. Lowe, of another species of Convolvulus, known under the name of Chiparro, which has the same reputation, will be found in the *Annals of Natural History* for September, 1860.

An Account of the Progress of his Grace Henry the first Duke of Beaufort, through Wales, 1864, *and Notitia Cambro-Britannica.* By T. Dineley. Edited from the original MSS. in the possession of his Grace the eighth Duke of Beaufort, by Charles Baker, his Grace's Steward of the Seignories of Gower Kilvey. Printed for Private Circulation. 1864, 4to, pp. vi., 284 and 16.

A little before the Great Rebellion, Dugdale went through several of the Midland counties, and made copies of all the inscriptions he could find in the churches. The manuscript, consisting of several volumes, still exists at Eastwell, in the possession of the Earl of Winchilsea, and has, we believe, never been published. Dugdale foresaw the ravages which would be committed in the course of the coming political struggles. A curious intimation of it occurs in the church at Marholm, the burial place of the Fitzwilliam family, where the following inscription occurs on the tablet erected to the memory of Sir William Fitzwilliam.

TO THE COURTEOUS SOLDIER. BELLO CIVILI INSTANTE.
No crucifix you see, no fiery brand
Of superstition here pray let me stand.

The Duke of Beaufort's progress as Lord President of Wales and the Marches thereof, unhappily did not take place till after the Restoration, when much damage had been done, but still in the work before us there are many copies of inscriptions which have long since vanished, and which are of much interest to the archæologist. It, moreover, contains many instructive illustrations of the existing state of society, and many excellent sketches of the mansions where he was received, and of the churches of the country, which are extremely valuable. The book is very nicely printed on cream-coloured paper, and the woodcuts are admirable reproductions of the neat pen and ink sketches with which the MS. abounds, and which we have had the pleasure of inspecting.

One or two inscriptions are given from monuments in France, with a reference to the Duke's Ffrench Journall, under the title Normandy, but we are afraid that this is no longer in existence, or it would be well worth publication.

Garden Memoranda.

CALCUTTA BOTANIC GARDENS.—Among the severest losses to Calcutta sustained on shore by the late Cyclone is stated to be the total destruction of the Botanic Gardens. The valuable collection of plants from all parts of the globe, says a Calcutta paper, which was preserved there with so much care and attention, and all the fruit trees and rare plants lately prepared for distribution, have been thoroughly destroyed. This, it need not be said, is a loss not only to the botanist but to every lover of nature, and every one interested in introducing foreign plants and trees into India. A long course of years alone can repair the damage done there in a day. Dr. Anderson's energies will be taxed to the uttermost for some time to come, and Government assistance will doubtless be necessary to restore the gardens to anything like their former beauty. Many of the plants that have been destroyed cannot be easily replaced in India. Dr. Anderson's house suffered severely, and it is reported that one ship was carried up literally into the gardens. Stately trees which lined the river have also, it is said, been thrown down or stripped of their branches.

Miscellaneous.

The late Mr. William Cole—In our last week's Obituary the death of Mr. William Cole, of Fog Lane Nursery, Manchester, was announced, but the high position as a plant grower which Mr. Cole reached during a period of 23 years, is in itself a sufficient reason why his death should be more prominently noticed. Those who had watched him for the last three or four years, saw that hard work and mental anxieties were telling upon him. The up-hill work of establishing a large nursery business, and maintaining

a world-wide reputation as a most successful plant grower and exhibitor, was no ordinary task, and, as with thousands of others, Nature gave way, but the name will long remain in the memory of plant growers. Erysipelas and fever laid hold of him, and after a brief illness a peaceful death awaited him. He died Dec. 28, aged 52. Originally following another pursuit, circumstances led him to adopt that of gardening, and he at once placed himself under Mr. Robinson, gardener to — Delafield, Esq., Tunbridge Wells, with whom he remained three years. He then went into Messrs. Cormack's Nursery at New Cross, and we believe Mr. Charles Turner, of Slough, was in the establishment at the same time. Both have become eminent, each taking a lead in the two sections of plant-growing, and continuing fast friends. In 1841, he went as gardener to — Lewis, Esq., of Blackheath, and here began his career as an exhibitor. Commencing with Fuchsias, and being encouraged by Mr. Lewis, he followed with Heaths, &c. In 1845 he became gardener to H. Collyer, Esq., of Dartford, and remained with him until Christmas, 1853. During that period he fought many a hard battle at Chiswick and the Regent's Park with the late Mrs. Lawrence, and being well matched, Mrs. Lawrence, who at that time stood high for plant culture, found in Mr. Cole sometimes a defeating opponent. As a sound, practical plant grower, William Cole stood in the foremost rank. He was the friend of such men as Barnes, Stanley, Green, Fraser, May, and others, whose names are well known. Few men have brought into the exhibition tent more specimen new plants than he did. He sought eagerly for new things when at Dartford, and then did his best to bring them out as exhibition plants. We believe we are correct in saying that he was the first to bring out in this way Rollisson's variety of Ixora javanica, Genetyllis tulipifera, Franciscea eximia and confertiflora; Ixora alba and salicifolia, Rogiera amœna and two other kinds, Allamanda neriifolia, Hebeclinium ianthinum and other plants. We well recollect how he experimented with Stifftia chrysantha, a promising-looking subject as it appeared in the illustrations of a Belgian periodical, but which fairly baffled him. In 1853 he was strongly recommended by Mr. Turner as the manager of the Fog Lane Nursery, Manchester, then just started; soon after he became the proprietor, and year after year he fought his way as the most successful exhibitor at the Floral Exhibitions in the Midland and Northern Counties of England. Manchester, York, Bishop Auckland, Ripon, Leeds, Bradford, and many other towns owe much to him, for Cole's plants not only helped their Shows, but spurred gardeners on to similar successes. He was occasionally blunt in his manner, but we are certain that regret for his death will be universally felt. The expression used in a letter to the writer of these remarks by a well known exhibitor in Scotland, who defeated Mr. Cole at Glasgow last August, will be shared by many, especially by those who knew him best, "We have lost a truly clever man." He has left sons, three of whom will carry on the business as usual, for the benefit of the widow and family.

Calendar of Operations.

(*For the ensuing week.*)

FEW spectacles are more attractive than a well grown bed of Ranunculuses, and it is to be regretted that the sight is so rare. A few solitary patches are occasionally met with, but a large bed, containing 150 or 200 distinct sorts, is so seldom seen, that those who have had the privilege of leisurely contemplating such a sight will not readily forget the pleasing impressions it produced. The bed, if properly planted, will be covered with a carpet of soft green leaves, from among which, at intervals of 3 or 4 inches, will rise the slender flower stems, surmounted by beautiful variously coloured blossoms. As the roots will not require to be planted for a month to come, let us hope to induce some of our readers to attempt the production of such a bed. In its formation choose a spot in the lowest part of the grounds, where the rays of the sun will only fall for about three or four hours a day, either in the morning or evening, although the former is much to be preferred. The soil of the garden may be taken as it is, without any admixture, unless it is very poor, when a little leaf-mould, or very rotten frame manure, may be added. Dig up the bed thoroughly to the depth of 12 inches, and leave it rough until frost has pulverised it. Then level, and after some heavy rains have settled the soil, any time in February the planting may take place. In the meantime, however, carefully survey the domain, and cautiously choose the site, which should be such as will best secure fresh air, moisture, and shelter in the heat of midsummer. That done, boldly commence operations, and in an hour or two you will have done all that can at present be accomplished.

FLOWER GARDEN AND PLANT HOUSES.

The pleasure to be derived from a garden at this season depends much upon neatness and cleanliness in every department. Lawns should be carefully looked over and cleared of dead spray from trees, worm-casts, &c. Walks should be freed from weeds, and neatly rolled—operations which in the majority of cases require attention rather than much additional labour. In plant houses the principal work will consist in keeping them and their inmates scrupulously clean. Moderate fires, and frequent washing will be necessary. Conservatories, and indeed all show houses, should now be gay with forced plants, of which a supply must be kept up by means of successions introduced into heat as often as may be necessary.

AZALEAS.—If an early display is required, a few of the most forward plants should be placed where they can have a temperature of from 50° to 55°. Water carefully when necessary, and in mild weather ventilate freely.

CAMELLIAS.—Some of these will now be in flower. Water must therefore be liberally supplied, and air given tolerably freely during fine weather.

CINERARIAS.—These require careful attention in the way of watering. Do not place them so close together as to touch one another, and be sure to keep them secure from frost.

CHINESE PRIMROSES.—Plants in bloom should be introduced to the greenhouse or conservatory, and others brought on to succeed them as their beauty fades. Do not let them suffer from want of water.

JASMINUM NUDIFLORUM.—The bright yellow Primrose-like blossoms of this hardy Jasmine have such a cheerful look at this time of the year, when flowers are comparatively scarce, that a few plants of it should always be kept in pots for decoration in-doors, where, intermixed with green-leaved plants, they have a fine effect.

PELARGONIUMS.—These must be kept free from dead leaves and insects. Specimens intended for flowering in May should be placed as near the glass as possible; let the temperature at night be about 50°. That for the later blooming plants should not be above 40°.

SOLANUM CAPSICASTRUM. — This, together with S. Pseudo-Capsicum and other sorts bearing small round bright-coloured fruit, are very useful at this season for purposes of decoration. See therefore that those in conspicuous situations do not suffer from want of water, especially if unavoidably placed in the neighbourhood of hot pipes.

VIOLETS.—Both Neapolitan and Russian varieties will now be in flower, the latter out of doors. Let the pits in which the Neapolitan is grown, have plenty of air while the weather is mild.

FORCED FLOWERS.—These will at present consist chiefly of Tulips, Hyacinths, and other early blooming bulbs, of which successions, equal to the requirements of the establishment, must be at short intervals continually introduced into the forcing pit; as must also be Azaleas, Roses, Lilacs, Rhododendrons, and plants of that description. See that they have a healthy moist atmosphere, which must not, however, be over warm. A temperature of from 70° to 80° will be amply sufficient for the present.

FORCING GARDEN.

During open weather like the present, fire heat should be used with as much moderation as possible. Keep an eye to the maintenance of constant successions of crops.

ASPARAGUS.—Make a bed to succeed that in use last month. On fine days draw off the lights to allow the heads to acquire their natural flavour and colour.

CUCUMBERS.—Keep down thrips and red spider on these by maintaining a moist healthy atmosphere.

FIGS.—Trees in pots may now be started, beginning gradually at first and increasing both heat and moisture by slow degrees as the plants progress in growth.

MUSHROOMS.—Prepare horse-droppings for beds to succeed such as may soon become exhausted.

PEACHES.—Give abundance of air during the day, keeping gentle fires at the same time, so that during the present mild weather little fire-heat may be required at night.

PINES.—Plants intended for fruiting during the summer must now have careful attention. Let them have a steady earth temperature, and a top heat of about 65° at night. It is not too early to excite the general stock, which, however, must not be allowed to become drawn.

VINES.—See that there is always a steady warmth in the covering on the outside borders of early houses. Attend to the stopping and tying in of young shoots as they advance in growth. Let Hamburghs have a night temperature of about 65°. Muscats should be kept 5° or 6° higher.

HARDY FRUIT AND KITCHEN GARDEN.

While the weather keeps mild new fruit trees may be planted. Where old trees too are not growing well, a portion of the soil might be carefully removed from their roots and replaced by better material. All unoccupied ground should be rough dug, trenched, or ridged, regulating these operations according to the nature of the soil and the character of preceding and contemplated future crops. Keep frost, should it occur, out of fruit rooms, and remove all decayed fruit. Diligently proceed also with pruning, nailing, and training.

APPLES.—Let all trees infested with insects have a thorough cleaning and washing with Gishurst Compound, used according to Mr. Wilson's directions.

BEANS.—If not already done, plant Early Mazagan in a warm situation.

CAULIFLOWERS.—Keep slugs from these, and should severe weather set in, see that the plants are properly protected.

ENDIVE.—Continue to tie up some of the finest heads to blanch on dry days; protect also from hard frosts.

LETTUCE.—Protect in very bad weather, but expose freely on all other occasions. Sow for an early crop.

PEAS.—Sow some early kind in a warm situation; draw a little earth to the stems of those already up, and protect with Fir branches or dry Fern in severe weather.

RHUBARB AND SEAKALE.—Continue to introduce into warmth successions of these, as plants in use become worn out.

STRAWBERRIES.—A few may now be pushed forward; but do not drive them too fast, or the blossoms are apt to become "blind." During mild weather those in frames for succession should have plenty of air in the day time, but at night the lights should be put on in order to secure them against frost.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON
For the Week ending Jan. 11, 1865, as observed at the Horticultural Gardens

Jan.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth 1 foot deep.	Temperature. Of the Earth 2 feet deep	Wind	Rain
Thurs. 5	7	30.064	29.871	50	35	42.5	41	42	S.W	.26
Friday 6	8	30.163	29.874	43	24	33.5	43	42½	W.	.00
Satur. 7	9	30.281	30.159	48	29	38.5	43	42½	S.W	.00
Sunday 8	10	29.937	29.628	50	41	45.5	42	42½	S.W	.01
Mon. 9	11	29.967	29.743	49	37	43.0	44	43	S.W.	.00
Tues. 10	12	29.766	29.725	51	35	43.0	44½	43½	S.W	.00
Wed. 11	○	29.761	29.619	50	40	45.0	45	44	S.W	.05
Average.		29.991	29.802	48.7	34.4	41.4	43.2	42.8		.32

Jan. 5—Fine; overcast; cloudy; rain at night.
— 6—Partially overcast; cloudy; very fine, frosty.
— 7—Fine; clear and very fine throughout; slight frost.
— 8—Overcast; fine; slight rain at night.
— 9—Very clear, quite cloudless, very fine; overcast.
— 10—Overcast; cloudy and boisterous; overcast.
— 11—Fine; very fine; rain at night.
Mean temperature of the week, 5½ deg. above the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 39 years, for the ensuing Week, ending Jan. 21, 1865.

January.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 15..	41.5	28.9	35.2	12	0.54 in	3	6	5	3	4	8	7	3
Mon. 16..	41.6	30.7	36.2	19	0.34	1	9	5	3	5	9	4	3
Tues. 17..	42.6	30.8	36.7	13	0.48	3	8	3	4	3	10	4	4
Wed. 18..	41.7	31.4	36.6	16	0.55	1	3	2	5	7	10	6	5
Thurs. 19..	43.1	30.7	36.9	18	0.88	4	2	4	3	7	10	6	3
Friday 20..	42.6	31.3	36.9	15	0.65	4	7	4	2	8	10	2	2
Satur. 21..	43.8	32.8	38.3	18	0.48	1	5	5	1	7	12	6	2

The highest temperature during the above period occurred on the 19th, 1828,—therm. 60 deg., and the lowest on the 19th, 1838—therm. 4½ deg. below zero.

Notices to Correspondents.

BOOKS: *T.* The last edition of Brown's Forester will give you the required information.—*W Bruce.* Thompson's Gardeners' Assistant, and for ready reference as to varieties of fruit, Hogg's Fruit Manual.—*Mary.* Miss Maling's Indoor Plants and Indoor Gardener are distinct but similar: the latter is the more recent, and will no doubt be useful to you.

DRYING PLANTS: *G G D.* You may dry plants well enough for all practical purposes if you attend to these simple rules:—Gather them quite dry. Use perfectly dry paper, and plenty of it. Introduce at short intervals in the mass ventilators made of trellis-work, that is, thin narrow laths crossing each other. Place the papers under moderately heavy pressure in a dry airy position. The best papers are the unsized stoutish kinds, made for the purpose, such as Bentall's; but it is not very material what paper is used if these rules are attended to, and sufficient bulk is used between the plants—not less than that of two or three of our weekly numbers, indeed the more there is between each layer of plants the better. Most plants dry quite well with these precautions without changing the paper, and with once changing almost any may be successfully preserved. As to colour, some will turn black, whatever care may be taken to prevent it.

DWARFING TREES: *Gulielmus* will find a very full account of the methods practised by the Chinese in our Volume for 1846 (p. 771). In brief it consists in raising a ring of bark on a selected branch, usually a contorted one, so as to induce it to root into some earth which is placed about the wounded part; and then, when roots are produced, removing it, and planting it in the smallest possible quantity of earth, feeding it with the smallest quantity of water sufficient to maintain life, reducing the number of leaves, and cutting or burning the roots—in short, cramping the growth in every possible way. Thus every succeeding formation of leaves becomes more and more stunted, the buds and radicles become diminished, and the balance between roots and leaves necessary to maintain the character of dwarfness becomes at length established. Virtually, as remarked in the "Theory of Horticulture," it is accomplished by pushing root-pruning to excess.

INSECTS: *J D.* Your insect is the larva of the moth Ilithyia sociella with its strong leathery case. Will you be so good as to inform us under what circumstances it was found? *W.*

MUSHROOMS: *N B.* There are such decided varieties of the common Mushroom known, that it is a matter of some consequence to secure spawn of the best for cultivation in artificial beds.

NAMES OF PLANTS: *T. B.* Lycopodium complanatum.—*B. W.* 1, Helleborus niger; 2, H. fœtidus.—*C C.* Lachenalia pendula. We quite agree with you that these things are not half-enough grown. Some four or five species rank amongst the most elegant of early-flowering greenhouse bulbs.—*G G D.* Stenochlæna tenuifolia, sometimes called S. Meyeriana. If you can let it ramble over rockwork or against the end wall of a stove, not too hot, it will fruit, but the fertile fronds are quite distinct from the sterile ones, and bipinnate.—*Mary.* 1, apparently Adhatoda furcata, but the flowers were much crushed; 2, Geissomeria longiflora.

WULFENIA CARINTHIACA: *Devonian.* This plant, the repeated mention of which in the book to which you refer has attracted your notice, is an old-fashioned herbaceous perennial long since introduced to our gardens, and certainly, like many others of its class, not deserving the neglect into which it has fallen. You will find a figure of it in Sweet's "Flower Garden," t. 66. The crowded spikes of blue flowers, set off by the broad radical leaves, are very showy. It grows freely in light rich soil, but in most places requires frame protection in winter, being liable to rot off at that season if left exposed.

MISC.: *S P.* We believe the address was correct, but application should have been made in the first instance by letter.—*G.* September is the best time for moving all kinds of Evergreens. If they must be moved this season, that operation had better be done now than a month later. You can be supplied with the numbers you mention.

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The Agricultural Gazette.

SATURDAY, JANUARY 14, 1865.

WHERE manure is plentiful, and produce commands a ready sale, the soil in the hands of the energetic cultivator becomes a mere machine for converting the one into the other. So far from itself contributing one may almost say anything whatever to the result, it becomes enriched by the process. Thirty, fifty, even seventy tons of Cabbages and Greens in two or three successive crops within the year, 12 to 20 tons of Carrots, eight to a dozen tons of Potatos, followed by ten to fourteen tons of Onions, and these again succeeded by Greens and Cabbages, are yielded per acre. As soon as one crop is off another is put in; the only respite is in the winter time, before the Onion crop, when it is left bare for a season's frost. The land is being perpetually robbed. As much as 40*s.* an acre every year is paid for the mere commission of the salesman of its produce. The only *rest* it ever gets is an occasional crop of Wheat or Peas. Otherwise, if *that* be otherwise, it is perpetual robbery which is suffered by the land. This is the history of most of the market gardens around London.

But this is only one side of the picture. Notwithstanding a robbery so constant and so heavy, the land increases annually in fertility; for the supplies of dung are as abundant as the sales of produce. Eighty tons of dung per acre are not an infrequent dressing in the year. When three crops of Cabbages are taken, as they sometimes are, between the last crop of one year and the first of the second year thereafter, at least two of these are dunged at the rate of 40 tons an acre; and the land is worked so as to enable it to feed all this enormous quantity into the roots of plants. It is drained, if not naturally, artificially; and it is ploughed to the full depth of the staple, *i. e.*, 10 to 12 inches deep. We saw the process going on the other day: there were a number of three-horse teams in a 60-acre field turning over the Potato land deep for the Onion seed time of the coming spring. A heavy dressing of manure had been applied the previous March, and a heavy crop of Potatos had been removed. The land had been well tilled during the growth and in the removal of the crop, and now it was being turned, still full of fertilizing matter, nearly 12 inches deep; and it will lie and gather fitness as an Onion seed bed during the ensuing winter.

A sufficient depth of soil, better a free than an adhesive loam, and, if a gravel, possessing easy natural drainage, which must be afforded artificially if Nature does not furnish it; deep and thorough tillage; the neighbourhood of abundant supplies of dung upon the one hand, and of an insatiable market for produce on the other: these, together with an energetic activity which will take advantage of them to the utmost, are what create the most intensive and successful agriculture known to English farmers.

All this we saw the other day between Plaistow and East Ham on the east side of London. Mr. W. ADAMS, of Phashet Hall, East Ham, succeeding his father and grandfather before him in the same occupation, has now for many years been the tenant of 800 acres in that neighbourhood. The magnitude of the business will be gathered from some of his annual items of expenditure. His annual labour bill exceeds 6000*l.*; 70 horses are employed upon his farm; his rent, rates, tithes, and taxes amount to upwards of 5000*l.*; his payments to Covent Garden and other salesmen for commission on the disposal of his produce amount to 1500*l.* a year; his contracts for manure extend over many of the largest stables, breweries, and cow-houses in London; his total payments amount to close on 20,000*l.* a year. We do not suppose that there is a larger manufactory of food for London anywhere.

Perhaps the most striking illustration that his experience furnishes of the unusual style of agriculture which is here pursued, occurs in the adoption of an occasional crop of Wheat or Oats (of which about 100 acres are annually grown) as a "*rest*." That which is the "scourging" crop in ordinary agriculture is here adopted as a relief from the severity of the general cropping.

Cabbages taken year after year from the same land are found to be attacked by the root disease called clubbing, which shows itself very shortly after transplanting from the seed bed; and in order to escape this risk and "sweeten" the land generally for the other green crops, it is necessary both to retain some portion of land for the seed-beds which shall be always altogether new to the Cabbage plant, and also occasionally to take a grain crop, during which the land shall have a chance of hardening and acquiring that condition of both texture and composition which perpetual yield of abundant fallow crop destroys.

The principal crop grown upon the farm is Cabbages. The East Ham Cabbage is planted at all seasons of the year. Planted at intervals of 12 inches by 20 or 24 in autumn, it yields a crop of greens all through the winter and early spring months. Ploughed up as soon as possible in spring, the land is again covered with plants dibbled in at once about 16 inches by 24, and in 10 weeks another crop is ready; and a third is generally taken in autumn, the plants being dibbled in, and if necessary, watered individually from a water pot, as they are planted in August, and they yield an autumn crop. The first crop of Greens, perhaps after Peas or other grain crop, may have been heavily manured; in that case the second probably was not manured at all, but the third would again be heavily dressed. The land on the removal of this crop is deeply ploughed and left till March or April, when Carrots perhaps are sown without manure. These are pulled in summer, washed and bunched for market—the work being undertaken by a man digging, women and boys and a man washing and tying, at the rate of 7*s.* per 20 dozen bunches; and as 50 dozen bunches a day may be accomplished by a party thus constituted, large wages are earned. After Carrots possibly there may be time for a crop of Greens before the next spring's Potato planting. Here, again, a heavy manuring is applied; and after the Potato harvest the land is deeply cultivated for Onions.

But the rule which is thus described is not invariable. Whenever occasion offers a crop of Cabbages is taken, and to this end seed-beds are continually being provided for use at any time of the year. On the occasion of the first Potato failure, which ruined many growers around London, Mr. ADAMS promptly sold off his crop, being early convinced that it was to be a general loss, and he got but 10*l.* an acre for it; but his land was no sooner bare than he had it manured and ploughed, and in 10 weeks' time a Cabbage crop for sale was ready, worth 30*l.* an acre. This crop is sent into market almost daily throughout the year in waggon loads of 260 to 300 dozen, and these are disposed of by salesmen, who charge 8*s.* a load for their commission. Potatos in like manner are sold on a commission of 5*s.* a ton. The waggons bring back loads of dung of about 4 tons apiece, which the waggoners take to the field, and it is

thrown up for 4*d.* a load, and this is afterwards turned before use for ¾*d.* a yard. The digging of Potatos, dibbling of Cabbages—6*s.* to 10*s.* per acre for 2 feet and 1 foot intervals respectively; the cleaning of the Onion crop, about 4*l.* per acre; the hoeing of all crops, like the pulling and washing of Carrots and Parsnips, are all piece-work. The labour bill, varying from 70*l.* a week in winter to nearly 200*l.* a week in spring and summer, is thus paid over in detail to a number of foremen of the several contracts which have been entered into. These are either bodies of men, on terms of share and share alike; or where man, women and children are employed, they are, as far as possible, family parties, having a common interest in the result.

Besides the principal crops which we have named, Mangel Wurzels are occasionally grown for sale to the extent of 30 or 40 acres annually, some 10 acres of Rhubarb are cultivated, an occasional crop of Peas is taken, and as already said, about 100 acres of corn are grown. The chief crops, however, are Cabbages and Carrots, Potatos, and Onions, and of these, taken in succession, six to eight crops may be grown in the four years, and at least three of them are heavily dressed with manure from stalls and stables; probably 120 tons of dung per acre may be thus applied, or 30 tons per acre per annum, and the land will have had at least eight deep thorough ploughings.

Rent, and labour, and manure during these four years have annually cost from 20*l.* to 30*l.* an acre, and the produce of course has been proportionately large. Over some portion of the farm there will follow, after, perhaps, a crop of Peas, another four years of pretty much the same style of management. Over a considerable remainder the second four years will include Wheat and Vetches, and other crops less intensely cultivated, and more in accordance with the rules of ordinary farming. And over some portions Cabbages are never taken, in order that seed beds may be provided perfectly fresh to the crop, yielding plants, therefore, with the least possible liability to disease.

The land about East Ham lies in large and open fields, and is admirably adapted for steam cultivation; and Mr. ADAMS is on the point of introducing the steam plough. It will be almost the first introduction of it into the business of growing vegetables for the London market, to which it is nevertheless so perfectly adapted. For although Mr. SHEPPARD, of Lewisham, who employs it, does cultivate for the London market, yet his is much more of an ordinary farm, obeying the common rules of arable cultivation, than that which we have just described.

Perhaps one of the best lessons which the cultivation here affords is one which may be usefully read by Mr. ELLIS, Mr. MECHI, and other enthusiasts on the value of London sewage, who think that by an annual dressing of a few hundred tons per acre, containing about 1 ton of solid matter in 700 to 1000 tons of the liquid, the demands of a rapid and abundant vegetable produce may be met. Do they think that this is to satisfy the wants of a large succulent growth? Let them ask Mr. ADAMS, who applies 40 to 80 tons of solid dung per acre, when he wants excessive growth of that kind—who indeed applies 25 to 30 tons per acre over the whole of his green crops annually. This, even admitting that it contains a large proportion of water, is the quantity corresponding to 20,000 or 25,000 tons of the sewage, which when used at a much smaller rate than that per acre, is declared by them to be applied with such outrageous wastefulness.

THE West Riding Justices are interposing to forbid locomotives on turnpike roads. In at least one district of Yorkshire Sir GEORGE GREY, obedient to the remonstrance of the magistrates, has prohibited owners of threshing machines and cultivators drawn by steam, from driving them along public roads between dawn and midnight. On the 30th of December, Mr. JOHN ROWBOTTOM, part owner of a steam threshing machine, was passing with this machine through Cantley, a village near Doncaster, to Arnthorpe, at 3 o'clock in the afternoon, and was accordingly summoned before Messrs. ALDAM, WALKER, COOKE, and FRANK and Sir ISAAC MORLEY for neglecting to comply with the Home Secretary's order. He admitted being on the highway at the time named, but denied that he was passing from one place to another, declaring that he was merely moving his engine to and fro to try it after it had undergone certain repairs. It was quite impossible to make such a trial at night, and he was subjecting it to this test in the day time in order to see if the alterations made were effectual. The Bench made further inquiry, and on ascertaining that the engine had actually passed from Cantley to Arnthorpe, they fined the defendant in the mitigated penalty of 1*s.* and costs, and the police were directed to give notice to toll keepers that they must warn all persons passing through with steam engines that proceedings would be taken against them, and that they are liable to the penalty of 10*l.* for each offence.

We do not wonder that the Wakefield West Riding Steam Plough Company have memorialised Sir GEORGE GREY to refuse any further prohibition that may be desired until he has heard the other parties interested in this matter. But who are they that are interested in this matter? We have no hesitation in saying that the mere owners who are being attacked and fined, and who, as first smarting under the infliction, are protesting, have less interest in this question than the general body of tenant farmers of the country. We see that the Sarsden Estate steam plough has, during the past year ploughed and grubbed 726 acres, and earned 258*l.* at an expenditure in all of 75*l.*, being 183*l.* profit, or deducting 15 per cent. for interest and tear and wear on 1000*l.* the value of the apparatus, leaving a clear profit of 33*l.* Who suffers by obstructions in the way of sending this machinery from farm to farm—the Earl of DUCIE, who is the owner of it, or his tenants who seek the use of it? They have all their arrangements wasted and upset by these interferences. The work may be completed on one farm by midday, and another is ready to receive it. The machinery could be shifted and placed ready for its work in the afternoon of the same day; but the Home Secretary, at the bidding of the neighbouring "quality," whose carriage horses do not approve of steam, prohibits its removal, and the whole business of these farms is hindered and upset. Of course the time is coming when locomotive steam threshing machines and steam cultivators will be commoner on common roads than even the carriages of county magistrates, and when the latter will hardly be able to claim precedence on a fair consideration of the interests at stake. But it is to be hoped that long before that time we shall find both the magistrates and the Secretary of State anxious rather to facilitate than hinder the greatest improvement in modern agriculture.

RATIONAL SEEDING.

I ENCLOSE for publication in the *Agricultural Gazette* correspondence respecting my challenge in behalf of Rational Seeding. If my proposed conditions are in any way unfair, probably some of your readers may take the trouble to suggest their amendment. My only object is to show practically that a crop may now be confidently relied upon from a seeding less than one peck per acre, and I wish the trial to be as fair a one as is possible upon two soils so different in value. *Fred. F. Hallett.*

1. *To Mr. Hallett.*—I see in the *Gardeners' Chronicle* you challenge the United Kingdom to produce a seven acre field of Wheat equal to the one you have sown 7 gallons of seed upon, quantity and quality to be taken into consideration, and straw also, I presume. Will you allow me to accept your challenge, although I know I stand but a poor chance, as none of my Wheat is out of ground yet, having sown so very lately. *Chas. Bates, Dagenham, Essex, Dec.* 24, 1864.

The following is the challenge at p. 1236 (1864), referred to:—

"*Rational Seeding.*—In a recent Number 'Experimenter' stated he had a small piece of Wheat planted at less than a peck per acre. In support of the cause of 'Rational Seeding,' I may perhaps be allowed to say that I have a field of 7 acres drilled (in one day, with only the ordinary expense) with 12½ gallons of white Wheat on the whole 7 acres, which is and will be open to the inspection of any one who will give me an intimation of his intended visit. The wireworm attacked it severely, but I will venture to challenge its produce per acre and its millers' value per quarter against any other 7-acre field in the United Kingdom to be now named. The soil of my field is a poor one, and no manure was or will be applied to the crop. *Fred. F. Hallett, The Manor House, Brighton.*

2. *To Mr. Bates.*—In reply to yours of the 24th, accepting my challenge in the cause of "Rational Seeding," I beg to propose to you the following conditions. I am glad you have accepted it, because you have told me your land is worth 3*l.* an acre, and some of the finest Wheat land in the kingdom, while mine is, as you know from inspection, of a very different character, and was called by the late Mr. Samuel Druce, of Eynsham, worth some 12*s.* an acre; the advantage will therefore be greatly on your side.

In the first place I shall ask you to be so good as to furnish me with a map showing exactly your 7-acre field and the points of the compass.

And next that the jury consist of, say Mr. J. C. Morton (if he will be kind enough to act), and two or four other impartial gentlemen of standing, half of them to be practical farmers and half practical millers, who are to decide the following points:—

1. Quantity of produce per acre.
2. Millers' value per quarter of produce.
3. Millers' value per acre of produce.

The crop declared superior in two out of these three points to be the winner, and the owner of the other to pay 10 guineas to cover the expenses of the jury who will inspect the growing crops just before harvest, and appoint some one to see them threshed and dressed, to take for their adjudication one sealed sack of each crop, and to furnish to each of us a certificate of the quantity produced.

My soil, from deficiency of staple does not produce Wheat weighing more than 62 lbs. the imperial bushel, which is to be duly considered by the jury in their decision, otherwise the advantages would be too much on your side.

I have made no mention of the straw, as I know no means of making it practically assume its just value (and that only) in the decision, but I feel even more confidence upon this point than upon the others.

If either crop become destroyed by accident or otherwise, so as to render the comparison uninstructive and useless, notice to be given by the owner to the other party by the 1st July, and the affair to be at an end.

If you approve these proposed conditions, I will beg their insertion in the *Agricultural Gazette.*

I assume that your Wheat is "thick-seeded," and the difference will be added to my produce by the jury.

Whatever the result, I hope some deductions valuable to agriculture may be practicable, and my object will be attained. *Frederic F. Hallett, The Manor House, Brighton, Dec.* 27, 1864.

3. *To Mr. Hallett.*—In reply to yours of the 27th inst., I sent your letter to a friend asking him to make terms with you; he states his inability to do so, hence the delay; I therefore propose that you ask Mr. Morton to make such terms as can be carried out, and that shall not be to the prejudice of either party. For myself, I do not care so much about the terms, but as I am in this instance the representative of the views of the majority of British farmers, I must be careful how the trial is conducted. You may consider that I have accepted your challenge to produce 7 acres of Wheat as good as yours. *Charles Bates, Dagenham, Dec.* 31.

4. *To Mr. Bates.*—I have sent our correspondence to the Editor of the *Agricultural Gazette* for publication, with a proposal that any of the readers of that Journal should suggest an amendment of my conditions if they are thought unfair in any way. Of course you must at once name your field, as I do not challenge any 7 acres of your farm to be chosen next harvest. *Frederic F. Hallett, Manor House, Brighton, Jan.* 2, 1865.

WOOD PIGEONS.

[The following letters have appeared in the *Times* newspaper.]

(1) In your paper of the 13th inst., "Philornis" in a letter alludes to the absurdity of exterminating the wood pigeon, as resolved on by many agriculturists in this and neighbouring counties. Allow me through your pages to attract the attention of those interested in this and other supposed pests.

The wood pigeon decidedly prefers the seeds of plants not useful to man; wanting those, he, of course, does damage to the farmer's crop. But is the labourer not worthy of his hire? If they take the seeds, are they not taking "away the noisome weeds that without profit suck the soil's fertility from wholesome flowers?" In a dozen of crops of the wood pigeon cut up last year, nothing was found but noxious weeds. The sparrow prefers, as I have often seen, an insect to a seed. I have observed flocks of them in my garden busily employed in picking up the insects from the Pear, Plum, and Peach trees, while only a few of degraded tastes were busy at my Peas.

It is amusing to see how complacently the farmer looks on the rooks as they follow his plough in late autumn or early spring, when the birds are performing for him gratuitously the functions of scavengers on his land; but when they attack his Turnips their services are forgotten, and death is the sentence passed upon them. Let the farmer extirpate the crows, and the worms will soon do the same to his Turnips.

The evil done by these birds is often seen: the evil avoided very rarely is apparent. Let me give your farmer-readers a fact which came under my own observation. The late distinguished President of the Royal Society of Edinburgh, Sir Thomas Brisbane, was desirous to extirpate all the wasps on his property; 1*s.* per 100 dead wasps he paid to the boys, and 2*s.* 6*d.* for every wasp's nest brought in. What was the consequence? In two years the place was infested like Egypt with a plague of flies. The cause was clear, for at every wasp's nest you might have had a handful of the wings of insects.

The wasps were, therefore, doing their duty as conservators of the "balance of power," much better observed in nature than in Europe. Let not the farmer seek to destroy this balance; reduce by all means what are pests, but extermination is folly. Let the farmers get rid of weeds, they will stop the food of the wood pigeon at a time when it cannot rob them of their crops; but to set forth on a mission of extermination will inflict on us a plethora of pigeon-pies, and shortly reduce their

farms to a wilderness of weeds. *Alexander Bryson, F.R.S.E., Hawk Hill, near Edinburgh, Dec.* 17.

(2.) In support of Mr. Bryson's plea for the maligned and persecuted wood pigeon, allow me to refer to a passage in Mr. C. St. John's interesting book "Wild Sports in the Highlands" (Colonial and Home Library, vol. xviii. page 118). The author, a true sportsman, and no mean naturalist, states that for the satisfaction of a farmer, and in proof of his own favourite axiom that every wild animal is of some use to man, he determined to shoot some out of an immense flock of wood pigeons busily at work (March 8) on a field of Clover, belonging to the farmer, which had been under Barley the previous season. He accordingly killed eight of the birds, and immediately opened their crops in the farmer's presence. Every pigeon's crop was as full as it could possibly be of the seeds of two of the worst weeds in the country, the wild Mustard and the Ragweed, which the birds had found on the surface of the ground, these plants ripening and dropping their seeds before the corn is cut.

Mr. St. John truly remarks, "No amount of human labour and search could have collected on the same ground at that time of the year as much of these seeds as was consumed by each of these 500 or 600 wood pigeons daily for two or three weeks together. Indeed, during the whole of the summer and spring, and a considerable part of the winter, all pigeons must feed entirely on the seeds of different wild plants."

I can, from my own observation, corroborate what Mr. Bryson says as to the utility of the sparrow and other small birds. I kept a young chaffinch, which had quitted the nest but was unable to fly, for a considerable time in a cage outside my bedroom window, and all the time one of the parent birds (the cock) came constantly throughout the day and fed the young prisoner through the bars of the cage with caterpillars and other insects. A great many of these destructive pests were thus destroyed for the food of one young bird daily. Would it be possible for human hands to do the work so cleverly and well? *J. W., Edinburgh, Dec.* 22.

(3). Farmers are taunted with making grumbling a part of their profession, but surely they have a reason for complaint in the fact that they are constantly being instructed in their business by persons who know nothing about it, and advised, rebuked, snubbed, or, what is worse, patted on the head and called "intelligent" by people whose special fitness for the office of Mentors it is difficult to discover.

"Philornis," dating from Oxford, has raised a discussion in your columns on wood pigeons, and thinks that the attempt now being made in some parts of Scotland to reduce their numbers is "barbarous and shortsighted."

In support of his opinion he quotes Morris's British Birds, where, after giving a list of the plants and seeds upon which the wood pigeon feeds, the author expresses the opinion that the birds do more good than harm.

Mr. St. John, in his "Wild Sports in the Highlands," reads the farmers a similar lecture upon exactly the same grounds. But neither Mr. St. John in the Moray Firth, or "Philornis" at Oxford, ever saw a flock of wood pigeons as they are to be seen in the grain districts of Scotland. The word "pest" has ceased to be applicable; the thing has become a plague. The vast congregation darkens the air, and far as the eye can reach into misty distance the endless train extends. When they alight in a field, it seems as if a blue cloud had bodily descended upon it. Mr. Alexander Bryson, who follows "Philornis" (and who is an admirer of wasps as well as wood pigeons), speaks truly of the "balance of power" in the bird creation; but he is not aware how completely that balance has been destroyed as regards these pigeons. In the first place, it is only since improved cultivation introduced its Clovers and early spring crops that the wood pigeon has been attracted in such numbers from more northern districts; and, in the second place, the "balance of power" was destroyed when game preservators almost extirpated our birds of prey, and in particular the magpie. Those writers who think that because the wood pigeon feeds on wild seeds as well as grain it is therefore innoxious are entirely in error. The bird is an epicure as well as a glutton, and its weeds bear the same proportion to its corn that Falstaff's half-penny worth of bread did to his intolerable amount of sack. As illustrating the wood pigeon's powers of destruction in winter, I may mention that some years ago I had 20 acres of Rape-seed which was attacked by such multitudes that though the men sent to watch it killed 1200 in one week, yet the pigeons won the battle, and ate up every particle of the crop. Then in summer, though each bird has his crop crammed with corn till it resembles a cricket ball, the food consumed bears no proportion to the food destroyed. They fix on a part of a Wheat field where the grain inclines to one side. They trample it flat and beat out the corn with their strong wings, and leave nothing but broken and blackened straw.

Mr. St. John lets slip a sentence which gives us a hint as to his affection for the wood pigeon. He says truly it is an admirable gamekeeper's assistant. Let a poacher set his foot in a wood at night, and instantly the pigeons give the alarm, and the whole track of the man can be traced by the loud clapping noise of the watchful birds as they start from the trees.

Mr. Bryson seems more cruel than the Marquis of Tweeddale or the East Lothian Society. He says:—"Let the farmers get rid of weeds; they will stop the food of the wood pigeon at a time when it cannot rob them of their crops." This includes nearly their whole food. Then, were I a rook (an agricultural saint, by the way, compared to the wood pigeon), I would decline having Mr. Bryson for an advocate. He says:—

"It is amusing to see how complacently the farmer looks on the rooks as they follow his plough in late autumn or early spring, when the birds are performing for him gratuitously the functions of scavengers on his land; but when they attack his Turnips their services are forgotten, and death is the sentence passed upon them."

"It is amusing to see" how completely Mr. Bryson misapprehends the two rural scenes here described. The rooks while following the plough may, indeed, by some rare chance pick up a stray grub, but they are there for the purpose of feeding upon the earthworm, one of the best, if humblest, auxiliary cultivators we have; while the presence of crows among the Turnip-fields in early summer indicates the existence of grub. They are then never disturbed, as their operations are wholly for good. In conclusion, I would suggest to "Philornis" that there are birds more deserving of sympathy than the wood pigeon, and persons more worthy of censure than farmers. I see in the *Field*, with horror and disgust, that there is a club of fishers at Stockbridge who have declared war against kingfishers, and have during last summer murdered 34 of those rare and beautiful birds.—Yours, &c., *Robert Skirving, Camptoun, East Lothian.*

Home Correspondence.

Poisoning by the Meadow Saffron and the Yew.—The sudden death of a horse employed in one of the Madeley coal-pits has been attributed to the hay which it received cut up into chaff, containing the Meadow Saffron (Colchicum autumnale). The plant abounds in this neighbourhood, but as the cattle appear to avoid it no ill-effects seem to result to the animals from grazing where the plant grows. From the Colchicum being cut up into chaff with the hay, it is supposed that the horse in question had no power to reject the noxious herb. Would you, or any of your correspondents, be so kind as to inform me whether any ill-effects have before been noticed from the presence of the Colchicum in hay or in pasture? It is generally believed about here that browsing the Yew in the green or living state is innoxious to cattle, but that when either dry or only partly withered it becomes a violent poison. May I also ask for information on this point? *Geo. Maw, Benthall Hall, near Broseley, Jan.* 4. [Browsing green Yew is generally believed to be harmless. Perhaps our readers will state their experience.]

Foreign Correspondence.

ALAMOS, BUENOS AYRES.—As a very large number of emigrants from the three kingdoms have found their way to Buenos Ayres, and many are almost weekly arriving there, for the most part dedicating themselves to rural pursuits, a communication descriptive of the lands and agricultural and pastoral practice of the country, with other incidental matters, may not be out of place in the *Agricultural Gazette*, or uninteresting to its readers. I will, therefore, endeavour to give a general account in such brief form as may not be incompatible with the space you can appropriate to foreign matters.

It will not be an unprofitable digression to point out here the class of emigrants who are calculated to thrive in this country, viz., practical shepherds and breeders, with a moderate capital, who can at once purchase land and stock. Shepherds hardy and thrifty, men who while young have intelligence and energy sufficient to win their way to competence, and the moral courage to resist the "bottle" under the temptations thereto presented in a solitary sort of life in the "plain." Sober and intelligent farm labourers, sufficiently young to mould themselves to modes of living and customs entirely new; handy fellows who can work with any team or any yoke. Also good journeymen, tradesmen, and female servants.

The province of Buenos Ayres is, *par excellence*, a "plain;" scores of leagues, with scarce a variation of 30 or 40 feet of level. A rich alluvial plain, without wood, watered by sluggish streams and dotted with shallow lakes and pools, some of which are mere deposits of the rainfall, and others formed by the opening out of the rivulets as their course debouches on to the lower lands. Myriads of wild duck of endless variety, snipe, plover, swans, geese, curlew, spoon-bills, flamingo, herons, turkeys, *et multis aliis*, swarm in and about the marshy plains, as partridges and other ground-building birds do on the less low lands.

Except near to the towns and a few particular districts, in which considerable quantities of Wheat and Maize are grown, there is no cultivation; grazing in the plain, sheep, cattle, and horses, is the business of the country at large.

The plain, or campo, as it is called, is clothed with herbage, or parched and brown, according to the season, and greater or less rainfall. Nothing could be more varied, and in its way nothing more beautiful than aspects of this almost boundless plain, carpeted with numberless tinted herbage or wild flowers. Vast tracts of the Spotted Medick Clover, with its broad leaves of rich green (with a black spot where our own Clover has a white one), from among which peep the fine points of Grasses, which will take its place as the Trifolium dies down (this, as well as nearly all our Grasses, is annual), vast tracts again of Rye-grass (annual) mixed with many spreading panicled Grasses, and interspersed with wild flowers of various colours; here and there come broad patches, of scores of acres, of Scarlet Verbena, brilliant to look upon, others of purple, white, or pale pink; then perhaps a carpet of purple flower, the "Flor Morada," stretching miles—a sheet of water, or a mirage which looks like one, reflecting with magnified and elongated reflection groups of cattle, or it may be the few trees which are planted about the houses of the "Estancieros," or landowners; or one or more of those grand looking "Ombre" trees, which are dotted here and there, may be a league, or may be two or three leagues distant.

At other seasons we have leagues of the wild Chamomile, spreading its clustered flowers and hiding the Grasses below. But probably the most remarkable effect is that of the Thistle in its season — the annual Thistle, variegated leaved, growing 8 or 10 feet high, so thick as to be utterly impenetrable except where cattle have—single file—worked tracks through it, and among which thousands of cattle browse hidden entirely from the eye.

These Thistle beds cover the country far and wide at a certain season of the year (spring). It is when in flower that it presents so remarkable an appearance; as far as the eye can reach, standing high in one's stirrups to look over them or from a little higher ground than usual, on all sides the flower of the Thistle presents an all but unbroken sheet of beautiful rose purple colour. In districts a ride of a dozen leagues leaves the traveller still with the Thistle bed stretching to the horizon. This after seeding dies away, the whole plant stems, as thick as a man's wrist, virtually dissolve in a brief time under the action of sun and rain, leaving scarce a trace on the ground. In its place an autumn Grass covers the ground, in its turn giving place to the young Thistle plant, springing in dense masses from the fallen seed, and presenting a vast carpet of green and white, the colours of the leaves.

It is not always that the manifestations of rich verdure are presented to view. There being scarce any but annual Grasses, there is a period between the spring and the autumn, when all is brown and parched. In an unusually dry season there is scarcely a vestige of vegetation, the animals subsisting on the dried roots of the faded herbage, and in extreme cases dying by thousands for want of food and water. From the nature of the country, thinly populated as it is, it is natural that pastoral pursuits should prevail, and as I have said, such is the case.

The great pastoral farms are of two descriptions, or a combination of the two. The larger and more distant from the capital are almost exclusively devoted to cattle breeding. Large herds of semi-wild cattle and horses are reared and pastured on these "estancias," as they are called, many of which are of great extent, compressing 8, 10, 15, or 20 square leagues, some of the estancieros counting 20, 50, or 100,000 head on their possessions, all of which bear the owner's "brand." The cattle are divided into convenient "herds," which are under the charge of "Puesteros," who have their huts or houses on different points of the land, each having a given tract for the grazing of the animals. These men have their tropilla of tame horses, and generally the charge of a "Yeguada," or troop of wild mares, many hundreds in number, with which run their progeny of unbroken horses.

Each of these "puestos," or stations, has its "corral," a staked enclosure for driving in the animals for whatever purpose may be required; and there is also a piece of ground near to each station called a "rodeo," to which the cattle are brought up and settled to rest at night by the men in charge riding round them, from which process it takes its name, and through which the animals are prevented from becoming absolutely wild. This is the means also used to tame them when they have become wild.

The great annual events on a cattle 'estancia' are the marking (branding), and "cutting" of the young cattle and bulls. On these occasions the neighbours are invited to attend, and have thus an opportunity of parting out cattle of their own respective "brands" which may have strayed into the neighbouring herds. The scene presented at a "branding" and "cutting" is very animated; the animals are driven into a "corral," where they are lassoed and drawn out, thrown down and the operation performed; when the lassoes are loosened the enraged animal frequently gives chase to the horsemen, and he who is not on the alert runs the chance of his horse being gored, and himself hurt or killed.

Loud shouts, laughter and jokes, express the excitement of the picturesquely accoutred "Gaucho," the most expert of horsemen, on the occasion of these "Chevies;" a dance and other merry makings take place in the evening. Parting out cattle which have been sold for slaughter is another event in the Estanciero's life; some hundreds, or thousands, are sold of a certain age and condition, and these have to be picked out from the herd; for this pur-

pose trained bullocks called "señaleros" (or decoys) are used, and placed in certain positions to attract and lead off the animals parted out. The "tropas" being thus formed they are driven off to the killing establishments, a distance in some cases of 80 or 90 leagues. To drive in a herd thus formed it is generally considered that the staff of "peons" sufficient for the purpose is one man for every 100 animals. The advance guard or detachment consist of a "tropilla" of horses for the use of the peons or drivers, and these follow the lead of a mare with a bell round her neck; one or more drovers follow these in advance of the cattle to keep them from rushing forward, the other horsemen disperse themselves conveniently for keeping the animals together, and pushing them on at a slow pace. In the evening the cattle are rounded and settled to rest, the men slaughter an animal, picket their saddled horses, light a fire of Thistle stalks, bones, or anything they can find, and roast their supper.

The cattle are a long-horned hardy breed. Isolated attempts have been made to improve the breed by crossing with the Short-horned and other British bred cattle; the result of these attempts has been as a rule a financial failure, which I conceive was only to be expected, inasmuch as the cross of a highly and artificially made animal was sure to degenerate when subjected to rough treatment and acquiring wild habits of the native cattle; moreover, when the hide is the chief value of the animal there is no field for compensation for the expense.

I conceive that the improvement of the breed should commence in establishments of lesser magnitude, and near to the town, where greater care could be taken of them, and their qualities as beef and milk yielders would have a better prospect of telling. A few parties had foreseen this, and there are a few establishments at convenient distances from the capital where the breeding of oxen and dairy cows promises to take root and prosper, and from a nucleus thus formed an improvement will be gradually effected to the great advantage of the country; and at no distant period I conceive it will be practicable and profitable to feed the crosses of the Short-horn and Hereford to an extent which will render the beef sufficiently firm to take salt pickle and become an important item of export.

The other pastoral pursuit is sheep farming, and rivals in importance that of the cattle.

During the past 25 years this branch has had a wonderful development, and has gradually spread itself, driving back the cattle establishments year by year to greater distances from the capital. The lands within a radius of about five leagues from the city are chiefly occupied by villas and agricultural farms, and from that distance to about 30 leagues the chief "occupations" are those of sheep farmers; at the same time the sheep farms are by no means confined within that distance, and in many of their more distant establishments the two pastoral branches are united.

British residents in the country ("campo") have mainly dedicated themselves to this occupation, and there are a great number of our countrymen—to be counted by the thousand — ranging from "well to do" to "wealthy" sheep farmers, some renters of land or owners of land, of half a league to 5 or 6 square leagues, and owners of from 1000 to 50,000 sheep; and others are part owners of flocks, or have a proportion of the increase of flocks in lieu of payment for taking care of them. No business in the country has increased to such an extent, and no "stock" improved so much in class or value. Twenty years ago the average value of a flock of sheep was from 4f. to 6f. per head currency, equivalent to, say an average of 10*d.* to 1*s.* sterling per head. At the present day an average flock is worth 40f. to 45f. currency per head, and the fine flocks of superior crosses 300f. to 400f. per head. Young rams bred in the country from imported sheep have been sold as high as 5000f. currency per head, and third to fourth cross rams 500f., 1000f. to 2000f. each. A square league of land is assumed to suffice for the grazing of 10,000 to 15,000 sheep.

Sheep farms are conducted in a similar manner to the cattle "estancias;" "puestos" (or stations) are put up at convenient distances, and are provided with "corrales" formed of hurdles for use when required; but in fine weather the sheep are frequently left in "rodeo." Each flock is under charge of a shepherd, who is either paid by the month or has one-fourth or one-third interest in the wool and increase of the flock, which usually comprises about 900 to 1000 sheep in the first instance, and is allowed to increase according to the pasture room to 1300, 2000, or 2600, and sometimes to 3000. Each owner of sheep has his "señal" or mark, which is cut on the ear.

The wethers are sold for the market when opportunity offers. In most instances the "rams" are allowed to run with the flock, but in the better regulated establishments they are taken away and formed into a flock by themselves, and are distributed at the proper season. A shepherd having one-third interest in a flock of average class sheep will not earn from his share of the wool an equivalent to the wages of an agricultural labourer, but at the end of the "contract," if he has been careful he will have a third of increase, which will more or less make up the difference.

The wages of a shepherd are not quite so high as those of an agricultural labourer, which are about, in addition to board and lodging, 300f. to 400f. per month (say 50*s.* to 66*s.*), according to the skill of men; this, taking board and lodging into account, will make it equal to a wage of 1*l.* to 24*s.* per week.

The shearing commences towards the close of the month of October. The breed of sheep originally in the country was a coarse-woolled long-legged animal, fleet of foot, lean of flesh, and scarcely eatable; this was crossed by the "merino," and by continuous crosses, classes of sheep were produced yielding wool of various grades of fineness, the finest closely approximating to the "merino," having a plump carcase of delicate-flavoured mutton.

Of late years it has been found that the wool had deteriorated in quality and staple, probably owing to the comparatively precarious and unequal supply of feeding, as they were wholly dependent on "pasture," which, owing to the excessive stocking of land, was too frequently scant in the extreme. Several years of drought have likewise considerably influenced this.

Moreover, the fleeces were found to have become very light, not yielding in many cases 2½ lbs. per fleece. A remedy was sought in new blood, and several of our English breeds were introduced, such as the Leicester and Southdown, but these crosses have not "nicked," probably from the wide disparity between the breeds and the inferior quality of the wool; ultimately the Negretti and Ramboulette breeds have been introduced for the purpose of crossing, and with highly satisfactory results when extra care has been bestowed on the flocks, and the land not overstocked.

The cross with the Negretti has augmented the weight of wool, improved the staple, and, taking it as a whole, the cross has been a decided "nick." The Ramboulette cross has been equally, if not more, successful; larger carcase, much heavier fleeces, and longer and stronger staple—a matter of great importance, inasmuch as exceedingly fine and delicate stapled wool are relatively much more prejudiced by the presence of burr than longer and firmer stapled ones.

The sheep farmers have hitherto made no provision for the sheep, while at the same time they have overstocked the lands, an evil the greater where almost all the Grasses are annuals; the consequences have been very serious losses, for neither food nor water have they had in many districts where drought prevailed. In some instances whole flocks have disappeared, and others have only been saved wholly or in part, by being removed in time, and driven 20, 30, or more leagues to lands more favoured, or which had had but little stock on them. The past year was a calamitous one from this cause, and it is only to be hoped that sad experience will have taught them to be more provident.

The value of lands has increased rapidly during the past 12 years; 10-fold is under the mark; a dozen years ago, 80,000 f. would have purchased a square league of land in the most favoured districts for sheep farming, recently 800,000 f., 1,000,000 currency, has been paid for a square league of land for sheep farming purposes. Such prices are however excessive, and I do not think they will be maintained. Lands within the agricultural radius have increased in value at much the same ratio, 250 to 300 f. per square = 15*s.* per acre, was the price of agricultural farm lands at a distance of 4 to 5 leagues from the city; to-day it is worth ten times that, and more in some districts. We have now four main lines of railway working in the country; two are already open to traffic in part of their extent, and their influence on the value of property is very great; these iron arteries virtually radiate life through the country they traverse.

(To be concluded next week.)

Societies.

MIDLAND.—A long discussion on "The tenure of land" has just taken place between the members of this Club, at Birmingham. It has extended to three of their weekly meetings, and it terminated in the adoption of the following resolutions:—

1. A stamped agreement, bearing the signatures of the contracting parties, shall be entered into, and any concession from the stipulations therein contained shall appear at the foot of the same before the signatures are attached.

2. A twelvemonth's notice is most desirable.

3. Landlord in all cases to represent the in-coming tenant.

4. To pay for all compost and all the manure in the yards, and all the unconsumed hay and straw, at the market price, less the expense of carting the manure from the nearest depôt. That under the altered circumstances of the times, when the great demand is for meat, it is necessary to give encouragement to its production by giving to the out-going tenant some share of the money value of the cake and corn used during the last year of his tenancy, and that it is an especial necessary to improve the Grass lands, and therefore some remuneration should also be allowed for food consumed on either old pasture or seeds.

5. That at the commencement of a tenancy the farm shall be inspected by qualified persons, who shall fill up a properly prepared schedule, showing the general state of the cropping and the state of fertility of the various fields, and at the end of the tenancy there shall be a similar inspection to decide what permanent improvements have been made, which shall be paid for by the landlord, and if any dilapidation shall be proved, the outgoing tenant shall pay to his landlord such a sum as the arbitrators shall award.

6. In the opinion of this meeting no restriction should be placed upon the tenant preventing him from selling anything the produce of the farm, or as to the cropping of the land.

7. That as it has become necessary, in order to render farming moderately remunerative, to employ a large amount of capital in the cultivation of the soil, and to exercise great skill and industry, and use the utmost care and economy in every branch of farm management, it is the opinion of the Club that permission should be given to tenant farmers to destroy the whole of the rabbits upon their farms, and that where there are woods and plantations, the landed proprietors should undertake the destruction of those pests of the farm as the only means of preventing the serious losses which are now experienced in so many localities from injury to the young crops, and also from the damage which is done by rabbits to ordinary fences, and especially upon the lighter description of soil, and generally this Club is of opinion that the breeding of rabbits should be confined to warrens and waste lands, and that they should never be permitted to remain after land has been brought into regular cultivation.

8. Cottages: That the landlord shall provide sufficient cottage accommodation, and if the tenant requires any new cottages beyond those stipulated for upon taking the farm, the landlord shall be paid five per cent. upon any outlay not exceeding 100*l.* each.

The only opposition was to the seventh resolution, upon which Mr. R. Fowler moved the following amendment:—

"That no reservation of rabbits by landlords be made, such being prejudicial to good husbandry and public policy, and contrary to the spirit and letter of the existing game laws; and that if an excessive quantity of game be preserved by landlords, compensation for injury to crops be from time to time ascertained by arbitration, and paid for to the tenant."

A further amendment was moved by the Chairman as follows:—

"In place of valuations and compensations, the whole question to merge in one of rent. Then will be established a game rent in contradistinction to a farm rent, and the landlord, being a game preserver, will know what he is paying for his share on the stock on the farm."

On a show of hands being taken, there appeared for Mr. Fowler's amendment, 9; for the Chairman's amendment, 6; for the original motion, 14. It was then resolved:—

"That the following gentlemen be appointed a Committee to draw up a form of agreement in accordance with the views expressed in the above resolutions, and that they report to an adjourned meeting on the 26th of January:—Messrs. R. C. Chawner, R. H. Masfen, G. A. May, H. Osborn, T. B. Wright, T. Horley, jun.; W. Fowler, jun.; R. Jesson, C. M. Caldecott, C. Randall, J. Sidney, and E. Lythall.'

The meeting was then adjourned to the 26th of January.

[Since the publication of these resolutions the following letter has been addressed by Mr. Randall, of Evesham, to Mr. Masfen, by whom the discussion was opened:—]

I am sorry that you did not say, when asking me to be a member of a committee appointed to prepare a form of agreement to be submitted to the Earl of Lichfield, that the Midland Counties Farmers' Club had adopted certain resolutions which were to form the basis of that agreement. I was not aware of this until I saw the report of the proceedings in the *Midland Counties Herald;* and as I am entirely opposed to the more important of the resolutions which your committee have no choice but to act upon, I have no alternative but to ask you to let my name be withdrawn from the list of that committee. My attendance would only serve to embarrass your proceedings, and if I stayed away I might be supposed to concur in the resolutions which had been adopted. I will state, as briefly as I can, why I do not coincide with you, and consider the resolutions *seriatim.*

1. *That there shall be a stamped agreement* is a matter of course; but if the terms of that agreement have been well considered, why need you provide for "concessions?" This, I think, would be better omitted.

2. *Twelve months' notice.*—Undoubtedly desirable; but it is questionable whether the possessor of an entailed estate has power to agree to this.

3. *The landlord to represent the in-coming tenant.*—He does so of necessity, where the farm is not re-let. When it is, this would be inoperative. The in-coming tenant would, as a matter of course, have to pay the sum which should be awarded to the outgoing tenant; and this provision has a tendency to create a feeling of suspicion that the valuers might show more liberality to the out-going tenant if his claims had to be settled by the landlord. I do not say that this would be the case, but it is not desirable to create such a feeling where practically nothing is gained by the change.

4. *To pay the out-going tenant for all manure in the yards, and for all hay and straw at a market price.*—When we entered upon our farms we paid nothing for the manure, and about half the (market) value of the hay and straw. On what principle can we seek to charge our successors the full value of both? And are we thus to hold out an inducement to an off-going tenant to keep no stock in the last year of his tenancy, but to mow all his Clover and Grass, and save the hay and straw to sell to his successor; and instead of carting this manure upon the land, where he would get no allowance for it, he would leave all in the yards, where the in-coming tenant would have to pay for it, with the additional expense of carting that which should previously have been applied to the off-going tenant's root crops, to the benefit of his successor's corn crops? If this principle be admitted we may go still further, and pay the out-going tenant for the unexhausted value of all manures made upon the farm, and used during the last three or four years of a tenancy. You do not propose to carry your principle to this extent, but you do propose to extend this liberality alike to good and bad tenants, so that a farm may be left in a bad state of cultivation, and the tenant paid a large sum on

quitting more than he had himself paid on entering. This will not do. We must be content, on quitting our farms, to charge our successors on the same principle as regards hay and straw, and the manure made from the produce of the farm, as we ourselves have had the benefit of; and then we may fairly ask for the latter portion of this resolution, that we should be paid for the increased value of the manure by the use of purchased food, whether that manure be in the yards or upon the land.

5. *Provides for inspection of the farm on entering, and again on quitting.*—This would not prevent a tenant, who under this agreement had entered upon a farm in bad condition, which is almost universally the case, leaving it in the same condition, the very thing which it should be the object of all agreements to guard against; and as this agreement when settled (?) will be applied to existing as well as to new tenancies, the occupier of a farm which he has already brought out of a state of poverty and filth to high condition would receive no compensation on quitting for having done so, inasmuch as the inspectors could only report upon the farm as they found it, and in that condition he must leave it.

6. *The tenant to be allowed to sell off anything the produce of the farm, and not to be restricted as to cropping.*—I concur in both, but with these additions: That the proceeds of all sales of hay, straw, green food, and roots, shall be expended in other food for stock, and in manures, to be applied to green crops and Grass, and that on quitting the farm shall be so left as that the in-coming tenant can plant half the arable land with white straw crops, have one fourth in Clover, and only the remaining fourth to fallow.

7. Deals with rabbits, and I would leave them entirely at the mercy of the tenant, and should be disposed to include hares. On some estates of which I have the management the landlord reserves only the *feathered* game.

8. *The landlord shall provide sufficient cottage accommodation.*—Is it intended that the tenant shall determine what constitutes sufficiency? One hundred pounds will not pay for the erection of a cottage with three bedrooms, provide supply of water, hovel, pigstye, &c., all which are to be taken into account.

One great object of agreements should be to provide such compensation to out-going tenants as will abolish the custom which has hitherto prevailed of impoverishing their farms when about to leave them. There has been no pecuniary inducement yet to do otherwise, and no feeling that they were doing wrong, because their predecessors had done the same. The form of agreement which appeared in the *Midland Counties Herald* last week is an attempt to meet this difficulty, and I hope its publication will elicit suggestions which may improve it.

Looking at your resolutions as a tenant farmer, I feel that I have no right to ask for so much as you propose should be conceded to us; and as a land agent I have no hesitation in saying that with the strongest desire to leave tenants unfettered, and to compensate them for all improvements, I would not consent to an agreement embodying the resolutions of the Midland Farmers' Club, and I fear that an agreement based upon those resolutions will not assist Lord Lichfield in the object he has in view.

Farmers' Clubs.

LONDON: *Subjects for Discussion in* 1865.—

February 6.—Middle Class Education.—Proposed by Mr. Edmunds, Rugby.

March 6.—The Breeding and Management of Pigs.—Mr. S. G. Stearn, Brandeston, Wickham Market.

April 3.—The Management of Grass Land.—Professor Coleman, 150, Leadenhall Street, E.C.

May 1.—The importance of Shelter and Covering to the Farm and the Homestead.—Mr. J. Bailey Denton, Woodfield, Stevenage.

November 6.—The Management of Benefit Societies in the Rural Districts.—Mr. Charles Howard, Biddenham, Bedford.

December 4.—The Breeding and Management of Cattle.—Mr. T. Duckham, Baysham Court, Ross, Herefordshire.

A Silver Cup, of the value of not less than 10 guineas, will be awarded by the Committee for the best paper read during the year. Members unable to attend these meetings are invited to forward practical information upon them. Their letters will be handed to the introducer of the subject to which reference is made.

The discussions will commence at half-past 5 o'clock P.M. There are no meetings in January, June, July, August, September, or October.

CARMARTHENSHIRE: *Entry to a Farm in Wales.*—The following capital illustration of this from actual experience was given by Mr. Buckley at a late meeting of this Club. I beg you to suppose that some eight years ago I took to and entered upon a farm, say here, in the vale of Towy, if you please, upon the Silurian formation. It was a farm of the average quality, and of about 230 acres extent, reaching from near the river to the top of the hill. About 60 acres of it in the bottom were mostly very wet, and some 20 acres boggy; about 140 acres lay on the side of the hill, and was tolerably clean land, but most of it wanted draining; and the remaining 30 acres were still higher up, very precipitous, and nearly covered with furze and thorns. The 30 and the 60 acres of meadow were the only parts that the former tenant had not had under corn. The 140 acres had been all periodically broken up and exhausted, and was what we usually term "worn out." The rent at which I took this farm was 200*l.* a year. It had never before been let for more than 170*l.*; but in consideration of my landlord granting me a lease for 14 years, and extending the outbuildings a little for the accommodation of more stock, I paid the additional rent. I had, of course, well looked over the farm before I agreed for it, examined its soils and the capabilities for drainage and other improvements, and felt quite satisfied from experience that it would answer my purpose. I had a capital of 1600*l.*, which I considered would, with management and economy, help me through. I ought to have had 2000*l.* for the undertaking, so that my progress at first was somewhat more slow. I entered upon my farm at Michaelmas, found upon it a rick of rough hay and a moderate-sized heap of dung in the farmyard, that the former tenant intended for his Wheat land, and for these I paid him. My first business, after having got my drainers fairly to work, was to select several fields of the driest and most suitable land to plough up and lay through the winter, which the following spring were appropriated as follows:—12 acres to Mangels and Swedes, on which I expended the whole heap of dung, besides a good quantity of superphosphate, 12 acres to Barley, and 12 to Oats, and a little field of 3 acres to Wheat (that I might not have to buy bread), all of which I dressed with artificial manures, chiefly guano; my great object being to procure as good a supply of roots and straw as I possibly could for stock the winter following. As to the winter upon which I was just entering, I had very little stock indeed, and did not commence buying any until the new Grass afforded a bite in the spring. I also shut up my meadows, and a couple of fields my predecessor called Clover, with the like object of a good supply of food for the following winter. Through the spring and summer I bought in stock, chiefly two years old steers and heifers, and some cows to set my dairy going. These I selected with great care, preferring to pay a good price for what was likely to thrive, than to buy what was low-priced and inferior. They were all of the native black breed, which I considered would answer my purpose better than any other. Not but that I am a great admirer of the improved favourite breeds of Short-horns, Herefords, and Devons, and have no doubt that upon our best and most sheltered farms, under such culture as I have intimated, they may be kept profitably; but they must have all that such farms can afford, and an allowance of oilcake and something else as good besides, to keep them even at par; whereas the native blacks (if well selected) will, with a little better keep and extra protection and care, soon show a striking improvement, and tell you that it is time to take them to market, and a few pair of handsome three years old black steers or in-calf heifers are always a ready sale at a good price. I had besides, I must confess, a considerable predilection for the blacks, since seeing some noble specimens from North Wales exhibited at the Smithfield Club, and felt convinced that by selection and careful breeding they might be brought to rival the noted Scotch breeds, such as the Galloway, that fetch the highest price in the London market. Of course judgment, perseverance, and time are required to bring them to so high a point.

1. *Cultivation.*—Time will not allow me to go much into detail, and it must suffice to say that by the end of the fourth year I had brought the farm into a fair course of cultivation, and on the highway to a much better state of things. Having ploughed deep, broken the pan, and fetched up soil that the roots of the plants had not penetrated before, the land proved not to be exhausted, as I had thought, the crops being much better than I had calculated upon. My means of supporting and adding to my stock increased year by year, and with it my power of extended manuring, making me gradually to discontinue the large use of artificial manure, to which I was at first obliged to resort. My dairy produce and sales of stock had also increased in like proportion. Fifty acres I had broken up to be continued as arable land under a regular course of alternate cropping, as stated. The remainder of the 140 acres was in Grass, and had become far more luxuriant and fine in quality under the treatment named.

I must now run over a little more in detail my mode of cultivation. The whole of my ploughing is done in the autumn and early winter, and I plough my land but once, and that deeply, laying it up dry and loose to atmospheric influence during the winter, and do not again touch it until seed time, when by the use of Coleman's cultivator, a roller and harrow, a fine deep tilth is produced. With roots (crop No. 1), I manure heavily—say with 15 good cartloads of dung. 4 cwt. of superphosphate, and 1 cwt. of common salt; and this crop, which is usually a heavy one, is carted off the land early in November, and stored for winter use. The green tops being left behind and ploughed in, the land remains as before through the winter. In the month of March, by the use again of the cultivator, roller, and harrow, the Barley seed (crop No. 2) finds a congenial bed in a deep and rich soil, into which it is drilled at the rate of not exceeding 2 bushels per acre, the seed, Clover, and Italian Rye-grass, &c., being rolled or harrowed in over it. I always look for a produce of not less than 40 bushels per acre and of fine quality. After the Barley I usually have a good plant of Clover, &c., and the latter end of the following May or beginning of June I cut a heavy crop of Clover hay of near 2 tons an acre (crop No. 3), and then feed-off the after-growth; but I sometimes manure and cut a second crop as heavy as the first. I lime my Clover-lea early in November, but only with a light dressing of three or four loads per acre, and immediately plough for the Wheat or Oats (crop No. 4). If for autumn sown Wheat, I turn the furrow slice over and drill or dibble in the seed on the back: it should be pressed; but I usually prefer sowing April Wheat in light land, as I get a more certain crop and larger produce, in which case I work the land fine, as for Barley, and drill in about 1½ to 2 bushels per acre. I sometimes continue my Clover-lea a second year, and graze it, thus extending to a fifth crop or shift. In this case, if light ground, being more firm, I should put in autumn Wheat. Thus, by the circulation of the course, every field comes into the same crop every fourth or fifth year. A heavy manuring is given with the first or root crop, and a light dressing of lime with the fourth or Wheat crop, thus appropriating to that crop what organic matter still remains—also ameliorating the soil and rectifying any acidity there may be in it. The course is then commenced again with heavy manuring, and goes the same, or some other alternate course. The land never requires rest under such management as this, but increases in fertility. I can point out a field, for example, that has been going the round of cropping for about 20 years, that I last year cut two crops of Clover off, valued at near 2 tons per acre each crop, and followed this year by about the largest crop of Wheat I ever reaped.

2. *Drainage.*—My draining was carried on simultaneously with my other work from the beginning. I at first got on swimmingly by having fortunately hit upon the source of the water or springs in several instances, which I tapped, and led off the water, sometimes by a single drain, and by that means, laid dry a considerable area of land at little expense; but other parts of the 140 acres I could not thoroughly dry without cutting parallel drains throughout; and the work became laborious and expensive, and, at length, not a little discouraging, for it was draining away my money almost faster than I could find it.

During the cold dull days of winter it was indeed a most uncomfortable and cheerless occupation. I became fearful as to my health; and, as to the poor men, their condition was often pitiable—seeing them in the wet clothes in the morning that they had thrown off the night before. "Very damp, master," said one of them, half up to his knees in water. "Why, yes, it is, John," I replied. And I felt it so too, not about my feet only, but my spirits were damped that morning. My purse was draining, I fear faster than the land, and a great deal had yet to be done. A little reflection, however, set all right. Former experience assured me of the result. Golden harvests and green meadows loomed before me in the distance; and I soon added, "Push on, my boys, the allowance will be here presently, and warm you up." The water, from all the drains above a certain level, I convoyed down to a pond I had formed just outside the farmyard, which was not only very welcome to my geese and ducks, but the quantity of water was such, during the winter months, that the overflow pipe not only served to turn my daily-at-work chaff-cutter and root-mincer, but would work my three-horse power machine, when required, until about April or May, by which time I had usually threshed out. At the close of my sixth year all my farm was fairly drained, excepting about 40 acres of the boggy meadows; and, to attempt that, was quite too formidable and expensive an undertaking for the unexpired eight years of my lease. This I stated candidly to my landlord, and did what I could to persuade him to take it in hand, offering him 6 per cent. on the outlay in the shape of additional rent. I urged, too, that he could not but see how admirably the draining I had done answered, and what an improvement it would be to his estate to accomplish the whole. He replied that he had not the least idea, when he let me the farm, that it was so good a one, and that, with such a valuable stock and crop and productive dairy, I must be making my fortune, and ought to drain it myself. I pointed out to him some of the neighbouring farms in wretched poverty-stricken condition, and assured him that they were naturally quite as good as mine, and equally capable of improvement. He thought me rather sanguine, too, as to being able to effect the drainage of the boggy meadows, and said he did not feel at all disposed to invest his money in that way. It was at length arranged between us that I must drain the meadows at my sole expense, and that he would add seven years to my lease, and extend the accommodation for my stock in the way of additional sheds, for I had been put to all kinds of temporary contrivances for their winter protection. He gave me, at the same time, a significant hint that he should expect a considerably increased rent at the expiration of my term. I quite agreed with him on that point, and intimated that I or my son might probably offer him 50*l.* a year more, which would be 250*l.* He replied, "You mean 270*l.*, and then I shall have 100*l.* a year more than my old rent; however," he added "no one shall have the farm at anything near what you or your family shall have the offer of it at; and an applicant, without ample means, should not have it at any amount of rent, however great, for it is quite plain he must work out and deteriorate the farm to make capital and pay me; and the end would probably be that it would be thrown on my hands in such a state that I must again let it at a reduced rent." Thus we parted, with a good understanding as to the future.

Nothing, then, it appears to me, can be more plain than two conclusions. The first is, that it would have been very unwise in me had I done all that I have without the security of a lease; and the second is, that it would have been equally unwise in my landlord had he granted a lease to a tenant without adequate capital and knowledge of his business, as it would have been a bar to the improvement of his property, and the advantage, if any, would have been all on one side. The legitimate deductions to be drawn are—that men of capital and requisite agricultural information are the great desiderata for Welsh farms, as they are indeed the great panacea for poor farming everywhere; and that such men should be attracted to the soil by proper security and tenure, for, without that, they cannot be expected to invest their money, and will not do it.

Reviews.

An Address on the Condition of the Agricultural Labourer and his Cottage Home. By E. W. Moore, Coleshill. Simpkin, Marshall, & Co.

This address, delivered at a meeting of the Oxford Farmers' Club, was referred to at the time in these columns. Mr. Moore, who spoke at the recent general meeting of the English Agricultural Society on the education of the children of agricultural labourers, and was then answered with such warmth by Mr. Acland, has done well to publish his lecture delivered long before, in order that his sentiments on the condition of the labourer may be fully known. His assertion at the discussion before the English Agricultural Society was that children are educated at our parish schools both beyond and below their future life—beyond it in matters which it can never be of service to them to know, and below it too, for when they leave school they have acquired no fitness for the work on which they have immediately to enter. Mr. Acland's rejoinder, made with great vehemence, was that he had hoped that it was understood education was not for the purpose of making better tools of the poor children—better hedgers and ditchers, but better men and women—the soul rather than the body needed education, and it was to awaken the soul not to drill the body that schools were wanted. It is plain that truth was uttered both by Mr. Moore and by Mr. Acland; but in our opinion Mr. Moore's was the wiser speech of the two. They were, of course, mere words in both cases—

but in one only were they words uttered for a purpose which words are able to accomplish.

It was fair to assume, as Mr. Moore was right in doing, that the members of the Society addressed were interested in the welfare of the labourer; and, admitting that we all desired the real advancement of these children, it was wise to recommend that their education, which in the spirit of it was to actuate them rightly all through their life, should have some special fitness to the station and the occupation in which their future livelihood was to be obtained. Given, a common understanding as to the ultimate object of the whole training given at these schools, wise words temperately uttered by a man of known experience could exert a useful influence on the mere details of management, and we believe that those of Mr. Moore on the occasion referred to will not be lost.

On the other hand it was unfair and ill-judged to assume, as Mr. Acland was wrong in doing, that the members of the Society wished only to make the children of the agricultural labourer better drilled servants, better tools, and drudges; and even supposing that the real advancement of these children is not in every case so heartily desired, it was unwise to raise a prejudice by speaking of them as half starved creatures, and of the general body of farm tenantry as desiring to keep them down.

And even admitting that their employers are not always fully alive to the real interests of these children, angry words on such a subject, intemperately uttered, are incapable of bringing about that right mind which is desired. It appeared to us that Mr. Moore used words just for a purpose which words can serve, and was silent where silence too is best, leaving example and home labour to do their work towards the spreading a right influence, without any talk to help, or more probably, to hinder them. And it seemed to us that Mr. Acland used words for a purpose which mere words will never serve; and was silent on a subject on which his experience no doubt would enable him to speak with great authority and usefulness.

We happen to know very well how long and earnestly and quietly the author of this pamphlet has laboured for the good of all around him; and his pages here, just as his words at Hanover Square, have all the force of character and experience to back them. Both have the same object in view—the practical attainment of the same good end in their purpose in either instance. And whether it be the useful instruction of the child, or the decent accommodation of the family that is the immediate object, it is as they shall severally serve to educate in every respect a *better* population that they are desired. The pamphlet before us is chiefly directed to the discussion of the cottage question; and both descriptions of the state of things as in too many instances they are, and plans, estimates, and details connected with things as they ought to be, are supplied. The subject of wages is also discussed, and a great deal of information from various parts of the island is collected and published.

The mischievous effect of the law of settlement is illustrated; the evils due to beer-houses and to drunkenness are alluded to; and finally, *education* is defined and illustrated and urged with a large heartedness and fullness and force which will satisfy, we hope, even Mr. Acland himself.

"Instruct children in the two great commandments on which hang all the law and the prophets, and if you have done nothing else, you have done more to fit them for the duties and responsibilities of life than, though neglecting this you had taught them all knowledge beside. Education commences in earliest infancy—before the child can understand a single expression—and it continues till the end of our earthly existence; hence the supreme importance of inculcating those principles which alone can prove a safe-guard and comfort in those times of trial and temptation which are the common lot of man. No one feels more strongly than I do the necessity of all secondary remedial measures being judiciously adopted, and especially those affecting the homes of parents—removal of temptation—but, after all, character is of chiefest importance. Probably there is scarcely one important subject on which this country has committed greater blunders than that of educating the children of the industrial classes; formerly it was almost wholly neglected. In our national schools children were to be taught the Creed, the Lord's Prayer, the Catechism, and all other things which a Christian ought to know and believe to his soul's health; but for a long period this was most negligently done, or wholly left undone."—"What has been the result? As to our rural districts, it is most melancholy. The great object should be, as I have said, to lead a person to do his duty in the station in which it has pleased God to place him. The contrary has been too often the result, and it has extended even to our workhouses. The last year or two has witnessed a reaction, the half time system and industrial training have been recommended, and a general feeling of distrust seems to have pervaded the minds of our public men upon the subject. I am not at all surprised; the training of teachers for our country schools has been a mistake; they have come to instruct our children in things wholly beyond them, and calculated to unfit them for doing their duty. I contend, that after inculcating those great principles to which I have alluded, and teaching the children to read and write, with the common rules of arithmetic, and in addition, a little history and geography, particularly of our own country, the great object should be to instruct them in the knowledge of those things with which they will be associated in after-life, such as are connected with the cultivation of the soil, draining, management of implements, cattle, sheep, pigs, so that they may become intelligent ploughmen, drillmen, herdsmen, shepherds; these are the subjects to which the minds of our rural population should be directed (especially now, the steam-engine), and depend upon it, if there are those amongst them with talents for still higher things, it will manifest itself in spite of real or imaginary obstacles; they have proved, as a rule, the most successful who have risen from the ranks, whilst surrounded with difficulties. Knowledge is power, and if this is true in other walks of life, and men, with particular objects before them, pursue special studies to qualify them for their future positions, why should agriculture be the exception? Of course, girls should have a similar training, to fit them for domestic service, which would prove not only useful to them whilst so occupied, but especially so after they have entered upon the responsibilities of married life."

These are the words of a man of long experience in country life, and long acquainted with the relations of the owners, occupiers, and cottagers of country parishes. We hope that his excellent address here published, which was read last year to the Oxford Farmers' Club, may have a wide circulation.

Farm Memoranda.

WHEATHAMPSTEAD, HERTS.—At Wheathampstead my attention was directed to a farm, the management of which is the very converse of the mode of farming too common in Hertfordshire.

The farm consists of 317 acres, of which 26 are in not very productive Grass land; 56 acres of the arable are upon the strong loam of the higher levels, and the remainder is of a lighter character, rather a sharp flint gravel, somewhat under the average quality of the district. The whole has been more or less chalked from below, according to the custom of this county. The fertility of the farm is maintained, not by selling off the produce and trusting to London and other extraneous sources for an equivalent, but by developing and trusting to its own internal resources.

The following list of animals fatted and sold from the farm has been kindly furnished in illustration of the system pursued:—

	1862.	1863.
Lambs	391	392
Sheep	333	356
Beasts	6	5
Calves	45	50
Pigs	205	198
Total head ..	980	1001

On 317 acres of land.

The system of cropping is four-course, managed with especial reference to sheep stock. Much reliance is placed on the deep cultivation of the soil, which is principally effected by the use of a 2-wheeled plough divested of its mould-board, which follows the twist-plough, armed with a share copied from that of the unwieldy and disused old Hertfordshire plough. Besides the usual succession crops of Swedes, Mangel, mixed layers, Tares (to be followed by white Turnips), it is the practice here to sow Rape between the rows of Beans on the heavier portion of the farm. A certain portion of the ewe flock, which averages 330 head, consists of Dorsets, which are put to a Sussex or half-bred ram; both ewe and lamb are generally fatted for sale, and the stock replenished from farms.

The farm has been brought into a good condition after a somewhat lengthened occupation, by the system of which the following is a slight description. As rearing and maintaining the sheep stock is the leading feature of the farm management, the cropping the land is ruled by, and has special reference to, carrying out this object. On the average 330 ewes are put to the tup; these consist of a certain number of Dorsets, of half-bred and West-country Downs. The first are put to a Sussex or half-bred tup, and bring the earliest lambs; the tups put to the remainder are selected with a view to their early maturity and fatting qualities. The lambs begin to fall early in December, and the lambing closes with January or early in February. During the earlier stage the ewes and lambs as they fall are protected by a standing fold placed in a field of Swedes. As the season advances, and the weather permits, and as the lambs gather strength they are, with the ewes, transferred to an open fold, where the lambs are allowed a forward run by means of hurdles constructed for the purpose of allowing them to pass to the standing Swedes, which are, as is usual in this part of the county, drilled on the flat, partly because that system is found to answer, and also to guard against the very common danger of the sheep being cast between the ridges.

In addition to Swedes, and Mangel when the Swedes fall off, the lambs receive hay, chaff, cake, and Peas, and go off at weights of from 4 to 6 stone to the London market, bringing at that early period highly remunerating prices. After a certain time the ewes, generally bought in at a full age, receive oil cake to maintain their condition, and are generally made off as fat; the remainder of their food is the produce of the farm. The Swede crop, with hay and straw chaff, is the staple of their food in winter. Tares on the fallow generally succeeded by White Turnips the same season; a mixture of Trefoil and Dutch Clover, which is sown with the Barley crop in lieu of Clover, when it is deemed expedient to make the change, is grazed; Rape sown between the rows of Beans on the heavier portion of the farm fitted for that crop;—these, together with the run of the pastures, sustain the flock till they are in due time either made off fat, or again put to the tup. As all the produce of the ewes is made off, the stock of ewes is replenished from fairs, not so much with reference to their high blood as their useful character.

It is unnecessary to enter on the details of the husbandry, because it must be seen that so much food could not be raised on a farm without due attention to every operation. Other sorts of stock are also fed upon this farm. A certain number of cows are kept, usually Welsh, as these are better fitted to thrive on the pastures, which here, as in Hertfordshire generally, are of a rather inferior quality; these are used for suckling calves. Added to this a large number of pigs of various ages are fatted. *J. C. C.*

It needs no further comment to prove that the fertility of this farm is fully maintained by the manure made under this system, which produces so much fat stock; and it contrasts favourably with the practice which depends on the importation of manure, and by which farms contribute very little in proportion to their acreage under cultivation towards meeting the increasing demand for animal food, by a daily increasing population. It is manifest, also, that the mode of cultivation carried out on this farm requires security for the capital invested, and encouragement to the industry and skill by due fixity of tenure. *J. C. C.*

Miscellaneous.

Farm Bailiff.—He should be industrious, active intelligent. He should be first in the morning, and last at night. He should not only order men to their work, but lead the way; and should on all occasions move from one department to another without delay, assisting and directing where requisite, but always keeping the adage in view, the "Eyes of a master do more than the hands." He should be as the first power to the machine, and the best implement on the farm, and should assist his master "to manage the men, not the men to manage the master." He should be punctual and correct in his accounts, honest in his dealings, and regular in his business. He should every night note down in a book the operations of the day, the labour of the men, the corn and food consumed by the cattle and horses, the corn bought and sold; and having done this, write down what is required to be performed on the following day, on the opposite side, which the next night's account will confirm; he should then inspect the premises—see that all the locks are secure, the cattle safely housed, and retire early to bed as the only certain step to rising early in the morning. He will take care at all times to be prompt and decisive with the workmen, and if they are found idle, dissolute, or disorderly, admonish them; if no reform takes place, discharge them. He should on the other hand always treat them with kindness and civility, and will not fail to obtain the same kindness in return; he will never allow them to indulge in abusive or blasphemous language or in drunkenness, much less will he by precept give them encouragement to follow his example, or allow them to suppose he can be guilty of such practices himself; and he will do well to discharge all that are in the continual practice of either. He will endeavour to pay them fair wages as the only sure mode to have the work well performed, and to encourage his labourers to be honest. He will ascertain what is a fair price for labour by the piece, and give it; and so long as the workmen do the work properly, continue to give it. By lowering the price, in consequence of their making good earnings, he will, by so doing, check their exertions, and induce them to cheat him on every occasion; for if men at piece-work should not be allowed to exceed certain wages weekly, they will always require a great price for their work, which they will, by their duplicity, make him believe is due for their exertions when their labour is only half bestowed. *The late R. Baker, of Writtle.*

Adulteration of Guano.—(1). Weigh 50 grains of the sample, and dry it completely before the fire. The loss of weight, multiplied by two, will represent the amount of water present in 100 grains. (2). Weigh 20 grains of the dried sample, and burn it (either on a piece of thin glass over a spirit lamp, or in a metal spoon, exposed to the heat of a clear fire), until the blackness which is at first produced by the charred organic matter, has entirely disappeared. If the residue is greyish white, the guano is probably genuine; if it assumes a reddish colour, it has been mixed with earthy matters. The loss of weight, multiplied by five, will, after subtracting the amount of water found by operation No. 1, represent the percentage of organic and ammoniacal matters. (3). Place a tea-spoonful of the guano in a bottle; add to it about a table-spoonful of quick lime, made into a cream with water. Shake the mixture. The stronger the smell of ammoniacal salts produced, the better the guano. (4). Introduce the matter which is left on burning the sample of guano (operation 2) into a tumbler, and add to it a teaspoonful of spirit of salts, and about half a glass of water. If a brisk escape of gas, shown by the bubbling up of the liquor, is observed, the guano is adulterated (by limestone, chalk, or marly earth). Pour the mixture upon a filter formed from a piece of blotting paper, and wash it from the acid by pouring water over it two or three times. Dry the solid residue thoroughly before the fire, and ascertain its weight, which, multiplied by five, will represent the sand and earthy matters contained in the sample. *Dr. Hodges, of Belfast.*

Immediate Running of Deep Drains.—Mr. H. S. Thompson gave a very lucid and ingenious illustration of the greater quickness of the deeper drain. He had had glass tubes made, of different lengths, and filled with soil, and had tested the times at which they began to drip when water was poured on them all at the same moment. If the soil was dry, the short tubes, which represented shallow drains, began to run first; but if water was again poured on the tubes, before that previously poured on had all passed through, they began

to drip again immediately that the second quantity of water was poured on, and without waiting for the water last used to pass through the soil. This was evidently due to the elasticity of the air confined between the free water at the bottom, and that at the top of the column of earth, and in this case all the tubes, of whatever length, began to drip at the same moment. If, however, the tubes, after the first application of water, were allowed to remain some weeks, the short tubes discharged the whole of the free water, but the long ones, representing deep drained land, still retained a little free water at the bottom of the column of earth, and when water was again poured on at the top, this free water was immediately discharged, or the deep drain began to run; whereas the short tube, or shallow drain, having discharged all its free water, did not begin to drip for some time, in fact, not till the water had percolated through the column of soil.

Calendar of Operations.

JANUARY.—We continue our reference to the subjects named in our last Number as coming under the notice of the farmer during the current month.

4. *Tillage Operations.*—January is the worst month in the year for these, but we cannot travel far even out of the chalky, rocky, and sandy districts, with good natural drainage, where, if anywhere, land may be moved in a wet season without harm, but we see long teams of horses in the fields even now; they are doing more harm than good; stubbles and Grassland ought to have been all turned over before this. A thorough shattering of the land in October by steam power is as good as a summer fallow, and any subsequent movement of the land till just before the seed time is not only useless but injurious. Where ploughing must be completed leave the land in ridges, and clear out the waterfurrows well behind it, so that good surface drainage, needed where the land has been trodden during winter, may be provided.

5. *Sundries.*—Horse labour is almost entirely confined to work with carts and waggons on roads in soft weather, when tiles, stones, lime, and grain may be carried, and during frost on fields to which manure will continue to be taken. All corn stubbles and Clover lea ought to have been ploughed by this time: if any remain they should be finished. The work of digging, quarrying, hauling, and wheeling of marl, clay, or chalk on the lands appropriate for it may be done any time during winter; of course the earlier in the season the better, as the frost will have the longer to act on them. Threshing proceeds during this month, the cattle and sheep requiring an abundant supply of litter. During wet weather the men may be employed in preparing compost manures for use in spring. Mixtures of bones and ashes may be made, and well soaked at intervals with liquid manure. Superphosphate of lime may be made by the action of sulphuric acid on bones. Salt and lime may be mixed—1 cwt. to 1 ton—and spread on any dry sheltered floor. The contents of liquid manure tanks may be emptied over heaps, under shelter, of turf ashes, burned clay, charcoal dust, charred peat, sawdust, spent bark from the tan-yard, or any other substance capable either of acting as a sponge on the liquid or its volatile parts, or of rotting the more rapidly for its saturation by a substance in the act of fermentation. Where the system of box feeding is adopted, the urine of the animals is, no doubt, all absorbed by their litter, but even here the stable tank remains as a supply for all these purposes. In wet weather also, men may 'lease' straw for use as thatch during next harvest; and they should have a day now and then for cleaning the harness.

6. *The Sheepfold.*—Pulped roots mixed with straw chaff are good feeding for ewes. Mr. MacLagan, of Pumpherstone, Midlothian, thus describes his experience:—

"Disapproving of giving them a full supply of Turnips, and grudging the expense of feeding them on hay, for which I generally get about 3*l.* per ton, and having always failed in my attempts to make them eat straw, I determined to try the root-pulping system with them. There is generally sufficient Grass in my pastures for them till the middle of December. Whenever the Grass becomes scanty, I commence to give them pulped Turnips and chaff, at the rate of 10 lb. of Turnips to each ewe per day. This is gradually increased to 15 lb., more than which they seldom get till they are lambed, when they are allowed 20 lb. and upwards, or, in fact, as much as they can consume. About three weeks before lambing I mix with the pulped Turnips and chaff brewer's grains, Beanmeal, crushed Oats, or some other extra food, to bring the milk upon them, and the same feeding is continued after they have lambed till there is a full bite of Grass for them. I also allow them a limited quantity of hay some weeks before they lamb, as my object is to have my lambs fat and ready for the market as early as possible."

Mr. Spooner, of Southampton, in a late volume of the *Agricultural Gazette* thus refers to the importance of shelter:—

For shelter, a large covered shed, fitted with rack and manger for hay and roots, closed on one side, but, with the exception of hurdles, open on the other, will be the most convenient building; and close adjoining there should be a hovel protected on all sides, for the purpose of receiving ewes with weakly lambs, or in severe weather, to accommodate the lambs as fast as they fall, until they get a little strength. The sheds will, of course, open into the lambing-yard, which should be situated as near as possible to the shepherd's cottage. The yard should face to the south, and should be well bedded with earth, and then littered up with straw, to as to insure cleanliness and afford warmth and comfort to ewes.

Of course, if the flocks are kept in the field, either a hut or a house on wheels will be provided for the shepherd, so that he may not only have shelter for himself, but a fire likewise, with the aid of which he can warm gruel for an exhausted ewe, or prepare any convenient remedy that may be required. The ewes should be visited from time to time during the night, so as to afford assistance when really required, but not to do so officiously; for although in many cases lambs are lost for the want of assistance, yet in others the ewes are sometimes destroyed by unnecessary interference. One rule of importance should be borne in mind, which is, that manual assistance should be rendered to assist and not to control or oppose the efforts of nature. The cases most frequently requiring assistance are those where the presentation of the lamb is unfavourable, and where the lamb is dead. The ordinary presentation, it is well known, is with the fore-feet first, and the head next, resting on the fore legs—the parts thus presenting themselves in the form of a wedge. Sometimes the head and at others the legs are bent back, or the fore-feet may be coming together, or the lamb may lie on its back. These are false presentations, and the object should be by means of a small hand and skilful manipulation to turn the lamb, or push back or bring forward the parts that are misplaced. In some cases this cannot be done without destroying the lamb, but it is much preferable to lose the lamb than the ewe. Sometimes the hind parts present first, and then the labour is difficult. With regard to medicine, the following may be given in difficult cases, more particularly when there is much exhaustion:—

Opium powdered, 4 drachms; spirit of nitrous ether 6 ounces; water 2 ounces. Mix. To be well shaken, and a teaspoonful given as a dose with gruel, in which there has been previously mixed a teaspoonful of the following powder:—Ginger, 2 ounces; Gentian, 2 ounces; Cascarilla bark, 2 ounces. Mix. When there is much fever the latter may be omitted.

The free use of Turnips for heavy ewes is to be avoided before lambing. The result of many facts enables us to assign as the cause of warping and water-bellied lambs the consumption of extremely watery food.

House Lamb and Early Lamb are already receiving in our southern counties the attention of the shepherd. The following account of the management of a Dorset flock is abridged from the *Agricultural Gazette* of 1854:—

Even when the lambing takes place in the months of December or January, it is generally unnecessary to resort to the lambing yard except in severe weather. On the other hand, it is not advisable to allow the ewes to roam at large during the night time, as those about to yean are too apt to stray away from the main part of the flock, and their lambs are often lost or found dead. A shifting fold should be used, being placed on the driest and most sheltered part of the pasture field, and removed on to fresh ground every day; and in heavy rain it is necessary to take them to a hovel or covered shed. But in general, when the lambs are perfectly strong and the ewes healthy, it will not be necessary to put them under cover.

If Italian Rye-grass has been sown over a certain extent of Wheat, then the ewes with their lambs should now be placed on the best of this in the Wheat stubbles and on the young Clovers, taking care to feed the Clovers at the day time and the Wheat stubbles during the night. In this manner the ewes will give the greatest quantity of milk, and they may be kept upon these Grasses until the lamb is a month or five weeks old with immense advantage; for the lambs will be found at the end of that time in the best possible condition. At a month old the ram lambs should be castrated, and then the lambs, as well as the ewes, should be taken from the Grass and placed upon root-feeding. It is customary to fat the ewe and the lamb at the same time.

The lambs should feed in advance, and separate from the ewes; and, therefore, a lamb-gate should be provided, with space between the rounds to allow the lambs to pass through freely, without being sufficiently wide to admit the ewes.

Feeding should commence as soon as the shepherd can see in the morning, giving hay first, both to lambs and ewes; after which, the troughs should be filled with cut roots, taking care to have them cut finest for the lambs, which is done by passing them twice through the cutter, which plan reduces the food into a state resembling dice, in which state the lambs can readily consume it, and are induced to feed at the earliest period, without loss of time and without waste. As soon as the troughs have been supplied with cut roots, then proceed to give oil-cake and Peas, the quantity to be regulated by their wants, always taking care to allow them as much as they will eat. To prevent waste, let the oil-cake be broken fine—about the size of a Horse Bean is the best size—otherwise great waste will occur; for the lambs, whilst young, will take large pieces up and drop them outside the troughs, where it is trodden under foot and wasted. To induce them to eat cake or Peas at first, it is sometimes necessary to mix a small portion of common salt with it. The ewes should next receive their allowance of cake, but without any Peas, commencing with a quarter of a pound per day, the half of which should be given at this time, the other half just before the last bait of roots in the evening. After receiving cake for two or three weeks the quantity may be gradually increased up to a pound per day each, taking care to feed with only half the full allowance morning and evening; and towards the end of the fattening process half a pint of Beans should be given them daily. This renders their flesh more firm, the great objection to ewes fattened while suckling their lambs being, that they are mostly deficient in firmness and quality of meat. Cut roots should be given at times during the day, and the trough quite filled at night.

The lambs whilst young should have hay or hay-chaff twice a day; but after they arrive at the age of eight or nine weeks, they should receive hay three times per day; the first bait, as has been stated, the first thing in the morning, the second at noon, and the third about 3 o'clock in the afternoon.

The following are actual reports by a Hampshire farmer on this subject:—

"January 6th.—Our shepherds are still busy with the lambing season; although our horned ewes finished lambing in the month of December, yet in our flock of Southdown ewes we have at least a moiety which have not lambed; indeed, we consider ourselves warranted in saying that the Southdown ewes of the best and early lambing flocks are at least from 10 to 14 days later to lamb this year.

"January 20th.—Our shepherds are now engaged in feeding the ewes and lambs in earnest; the lambing season now drawing to a close, their attention is chiefly turned to fatting the lambs; they are allowed to range over about a quarter of an acre of Turnips, and eat off the tops before the ewes; they also get plenty of cut Swedes passed twice through Gardener's machine; they receive also a liberal allowance of White Clover hay, and as much Linseed cake and cracked Peas as they can eat; for we have found, after years of experience, if you would have fat lambs in perfection, they should have plenty of trough food at all times; nor is it less important that the ewes should be well fed, as it is proverbial with us that fat ewes make fat lambs. We have commenced selling our Somerset lambs dropped in October."

Merse of Berwickshire, Jan. 7.—A month ago we reported that, excepting on bare fallows—and that of small extent—no Wheat had been sown. Just then the weather was improving, and some patches of drier land were finished in fair order; but the resumption of accustomed wet prevented anything being done in the clay country, and many farmers there have not sown a single handful. These men, whose mainstay was fallow Wheat, are largely extending the cultivation of root crops; for a dry spring is favourable to the preparation of their land, and the drought was not materially injurious to Turnips sown in May or early June. Soft weather continued, with a little snow on the 18th, until the 23d, when the air got decidedly clearer. We were thus, during the Christmas week, enabled to secure a large portion of the Swede crop in good order; and on frosty days we got the crop nicely off the wettest land, where it had been stored in small heaps under shaws and earth. This crop has turned out a good one, on good land sown in good season; yet throughout the district you may see plenty of roots no bigger than Apples. The sharp dry frosts of the new year, though not injuring Swedes, had the effect of turning attention to muck-carting, which was rather in arrear. The wind blows strong and fresh to-day, and the ploughs are again moving. The rainfall during five weeks is 3½ inches. Pastures have been unusually bare, and the ewe flock requires a few Turnips, and hay and straw in hard weather. Hoggs suffered much from unseasonable growth of Turnip-tops, caused by the October rains; and, in special instances, heavy losses were incurred by the use of imperfectly decorticated Cotton-cake. As a cure for scouring, as well as a saving of Turnips in dirty weather, we began cutting a month earlier than usual, besides exhibiting daily a small portion of a mixture of Oats and Barley; and now that the ground is firm, the flock is flourishing. Cattle are thriving on full Swedes, and an allowance of Barley meal and Rape-cake, with the immediate prospect of Bean meal in addition. Corn is getting into condition now, and this will be the only thing to harden prices. Barley was extensively grown, and yields fairly; but the finest only is in demand, and good grinding quality can be had for 8*d.* a stone. Oats are a small crop, and bring a shade more money. Wheat we have just tried, and it would seem the best has gone with the wind that shook latter Barley and Oats too. With good feeding corn at just half the price, we are not inclined to use much Linseed-cake, except it be for a finishing bite. Potatos are a small crop of sound tubers, but of limited acreage; and the county is nearly back to its normal condition of a Turnip-growing district. *J. T.*

West Sussex, Jan. 10.—We are passing through a mild and very dry winter; the land ploughs up drier than perhaps any one has ever seen it do at this time of the year, and were it a little later in the season, sowing might be going on at the same time. As it is, we shall soon put in the Peas, as they perhaps are not so likely to blight if put in early and grown slowly, as they will do if put in about this time. Last year the crop failed so much with us that we feared good seed would hardly be got, but such is not the case, as there is a good supply brought from some other places, and the price from 40*s.* to 42*s.* The land being so dry, lies very light, and we think it better to have it ploughed up early, so that it may lay and get a little firmer, especially for Barley and Oats.

The winter being so mild, has saved the hay very much, and every week it becomes more difficult to dispose of. But we think a great

mistake is often made in being too sparing with it, though perhaps this year that will not be so much the case, roots being so scarce.

The lambing season for early Southdowns is now on, and as may be expected, goes on well; the lambs are strong, and losses are few. But roots will be short, and corn or cake must be used largely. We prefer Oats given to the ewes, which we think tends to keep them in fuller milk and healthy; and cake given to the lambs ground fine and mixed with a little chaff, and no more given than will be eaten up clean every day, as rain tends to make it unpalatable. As a matter of course work is well forward. We never cart out dung to put in heaps in the field, as our land being heavy and rather wet, we do more harm round the heap than is rectified for a year to come. And as we like to apply the dung fresh and long, we never care to turn it up to rot, preferring to let it do so in the land. On light land this may not be so well, though I should be disposed to try it even there. There are not many cattle being fatted in the usual way, the common plan this year is to have rather more than the usual number of store beasts in the straw yards, getting a few pounds of cake or corn to keep them just fresh, and trust to be able to make them out a little on the Grass. *G. S.*

Notices to Correspondents.

ANNATTO: *Anon.* The following is Mr. White's estimate:—Supposing the matter used to be genuine annatto, which is a West Indian dye (whereas the great bulk of the colouring matter that is used is an imitation of this annatto, containing turmeric, soft soap, and train oil), yet it is expensive, and, at best, useless. It costs 7*s.* 6*d.* per lb.; and if 6000 tons of coloured cheese are made in Cheshire annually, this useless dye costs 2250*l.*—a tax which consumers impose absurdly on themselves.

ASPHALTE FOR BARNS: *Young Farmer.* The following are reasons for preferring it to wood:—(1) the imperviousness of asphalte to moisture; (2) the exclusion it occasions to vermin; and (3) the preservation of the grain in a sweet state from the dryness in which it is kept. Get the asphalte in blocks; and having set up an old boiler near the place, mix gravel with it while hot, and run out the mixture on the surface required to the thickness of about 2 inches. In a few hours the asphalte-floor will bear any weight, and it will be found not only better but cheaper than wood., its cost only 7*l.* for an area which, of Oak, would be 40*l.*

CHEVIOTS: *John Tudor.* An application to Mr. Bertram, Cranshaws, Dunse, N.B., or possibly to Mr. J. Wilson, Woodhorn, Morpeth, would doubtless obtain for you the information you desire.

CONCRETE FLOOR: *X.* The following is a recipe by Mr. Lawrence, of Cirencester—viz., three parts coal ashes (those from the blacksmiths' forges to be preferred) and two parts gas lime from gas-works, to be thoroughly mixed, and then made into a mortar with gas-tar. If the gas tar come from gas works where the ammoniacal liquor is not separated, it will be sufficiently mixed for the purpose; but if the latter be separated, and the tar be thick, it will set quicker if about one-fourth part of water be mixed thoroughly with the tar when used. For the floors of cow-sheds, this should be laid about 3 inches thick in one layer, on an even surface of gravel, or stone broken very small with a sprinkling of gravel over, and rolled down. The mortar may be laid on with a common shovel, and merely patted down flat. In dry warm weather, if the mortar has been carefully made, the floor will set firm in a few days. For any ordinary out-house, half the thickness will make a permanent floor.

EARLY SEEDING OF WEEDS: *R.* The following table shows the number of ripe seeds yielded by a single plant as counted by Professor Buckman so early as April 15:—

	No. of flowers to each plant.	No. of seeds to each flower.	Total of Seeds.	Of these were ripe in April,
Veronica polita, Grey Speedwell	150 ×	3 =	450	150
Veronica hederæfolia, Ivy-leaved Speedwell..	250 ×	3 =	750	300
Capsella bursa-pastoris, Shepherd's Purse ..	150 ×	30 =	4500	1200
Cardamine hirsuta, Hairy Bitter Cress ..	150 ×	25 =	3750	1375
Stellaria media, Chickweed	500 ×	10 =	5000	500
Senecio vulgaris, Groundsel	150 ×	50 =	7500	2500
			21,950	6025

GRASS SEEDS: *W M.* Mr. Kitchen, who refers to this signature at p. 1236, may learn the name and address of the writer by applying to Messrs. Stuart & Mein, of Kelso, N.B.—*One who Knows.* We do *not* know either you or Mr. K.; and manifestly, therefore, our judgment of your disinterestedness must stand on the very same level as of the disinterestedness of your acquaintance. He may or may not be interested in the sale of Alsike Clover; his recommendation to use it must stand or fall by its reasonableness, whether it be disinterested or not. We shall discuss the subject in detail hereafter.

GUANO: *A Contributor.* It is best applied in damp or showery weather; it should not generally be put on Grass land in the spring later than April. Applied to arable land, it should immediately be mixed with the soil, either by harrowing or otherwise. When Wheat is sown very early in the autumn, a less than usual amount of guano must at that time be applied, and the rest in the spring. The Wheat otherwise might become too luxuriant, and be injured by subsequent frosts. Artificial manures in general should be put on the and only in quantities sufficient for the particular crop intended to be grown, and not with the intention of assisting the succeeding one. Each crop should be separately manured. Guano, before application should be mixed with at least from five to six times its weight of ashes, charcoal, salt, or fine soil. It should on no account be allowed to come in direct contact with seed.

LEAVES ON GRASS: *S P.* You had better rake the leaves off your home grounds if the trees are so thick as to make the fall quite a covering of the Grass.

MOLASSES: *Correspondent.* Mr. Keary, late of Holkham, has used it largely. He gives young stock roots, or Turnips cut into thin slices with Moody's cutter, and then mixed up with good sweet Wheat-straw chaff, moistened with a mixture of molasses and water, about 1 lb. of coarse molasses to 1½ gall. of water, and thrown over 1½ bushel of straw. He adds—according to the age of the animal—bran for young calves, Rape-cake for young steers, about 2 lbs. per head, and Linseed, about 3 lbs. or 4 lbs. per head for older steers just about to be fattened. The straw and treacle save the roots, of which about 1 bushel a-day is given to young steers, and 1½ bushel to two-year olds.

SCAB: *X.* Professor Simonds thus alluded to it:—It is to be cured only by the destruction of the egg of the insect which produces it, in addition to that of the insect itself. The rubbing in of unguents often succeeded. Arsenical applications were more potent, but they required great care. The best mode was that of sprinkling a solution of arsenic, again and again, over the diseased parts. The preferable form of such solution was that of arseniate of potash, blended with vegetable infusions, such as those of Foxglove, Stavesacre, Henbane, Dock-roots, &c. He recommended 2 oz. of common arsenic, and 2 oz. of carbonate of potash to be boiled together in a quart of water until they were dissolved, when a further quantity of water was to be added to make up a gallon of solution. To this gallon of solution, a gallon of vegetable infusion was to be added, made by pouring a gallon of boiling water over 4 oz. of Foxglove leaves, and allowing the infusion to remain till cold, when it was poured off. These 2 gallons of liquid constituted a safe agent and one of the most potent remedies for scab. Half a pint of it, at intervals of a few days, was to be sprinkled (from a bottle, through a quill in the cork) on the skin at the back and sides of the sheep. Two or three dressings would be found sufficient.

SEEDS OF WEEDS: *R.* The following are Professor Buckman's figures showing the way in which a single plant may multiply by seed; the dates are those when the plant in question was gathered:—

Black Mustard	8,000	Aug. 17
Charlock	4,000	Sept. 18
Shepherd's Purse	4,500	,, 9
Hedge Mustard	5,400	Oct. 13
Cow Parsnip..	5,000	Aug. 17
Fool's Parsley	6,000	..
Corn Bindweed	600	Sept. 26
Henbit Nettle	2,000	..
Red Bartsia	4,800	Oct. 1
Dandelion	2,040	..
Hard-headed Scabious	4,000	Sept. 10
Blackhead	3,000	..
Nipplewort	8,400	Sept. 23
Stinking Chamomile	40,650	..
Mayweed	45,000	Oct. 14
Ox-eye Daisy	15,000	Sept. 18
Burdock	24,520	Oct. 1
Sow Thistle	19,000	..
Groundsel	6,500	Sept. 10
Stemless Thistle	600	,, 8
Musk Thistle	3,750	Oct. 13
Corn Cockle	2,940	Sept. 8
Common Campion	3,425	Oct. 1
Red Poppy	50,000	,, 19
Cleavers	1,100	Sept. 11
Common Dock	13,000	,, 15
Dwarf Spurge	1,500	,, 15
Petty Spurge	1,200	,, 11
Sun Spurge	1,072	Oct. 14

VALUATION OF MANURE: *Merchant.* The following were Professor Way's elements of valuation:—

Names of Ingredients.	Per lb.	Per cent. per ton.	Per ton.
	s. d.	s. d.	£ s. d.
Ammonia in sulphate.. ..	0 $7\frac{3}{10}$	13 7	68 3 0
,, in muriate	0 $9\frac{6}{10}$	17 11	89 12 0
,, as supplied by bones ..	0 $4\frac{8}{10}$	8 $11\frac{1}{2}$	45 9 0
,, ,, dried blood ..	0 $5\frac{9}{10}$	11 0	55 0 0
,, ,, Peruvian guano ..	0 $4\frac{7}{10}$	8 9	44 2 0
,, ,, nitrate of potash..	1 $3\frac{1}{2}$	28 0	140 0 0
,, ,, nitrate of soda ..	0 $10\frac{4}{10}$	17 9	89 1 0
Biphosphate of lime	0 5	9 $7\frac{1}{4}$	48 3 6
Soluble neutral phosph. of lime	0 $3\frac{1}{2}$	6 $6\frac{1}{2}$	32 13 4
Phosphate of lime in coprolite	0 $0\frac{3}{8}$	1 3	6 5 0
,, in bone ash	0 $0\frac{91}{100}$	1 $8\frac{1}{2}$	8 11 5
,, in animal charcoal ..	0 $0\frac{88}{100}$	1 $7\frac{3}{4}$	8 2 2
,, in bones	0 $0\frac{6}{10}$	1 2	5 14 4
,, in Peruvian guano ..	0 $0\frac{59}{100}$	1 1	5 11 0
Potash in sulphate	0 $8\frac{3}{10}$	6 2	30 16 0
,, in nitrate	0 $4\frac{9}{10}$	9 2	45 14 0
,, in American potashes ..	0 $7\frac{8}{10}$	14 6	72 16 0
Magnesia in sulphate	0 $3\frac{4}{10}$	6 4	31 14 0
Soda in sulphate	0 $1\frac{4}{10}$	2 9	13 14 9
,, supplied by common salt	0 $0\frac{22}{100}$	0 $4\frac{1}{2}$	1 17 9
Organic matter, nitrogenous ..	0 $0\frac{1}{10}$	0 $2\frac{4}{10}$	1 0 0
,, non-nitrogenous ..	0 $0\frac{1}{20}$	0 $1\frac{2}{10}$	0 10 0
Alkaline salts	0 $0\frac{1}{10}$	0 $2\frac{4}{10}$	1 0 0
Sulphate of lime .. .	0 $0\frac{1}{10}$	0 $2\frac{4}{10}$	1 0 0
,, soda (dry) .. .	0 $0\frac{61}{100}$	1 $1\frac{1}{2}$	5 15 0
,, potash	0 $1\frac{8}{10}$	3 4	16 13 0
,, magnesia (dry)	0 $1\frac{22}{100}$	2 3	11 7 0
Sulphuric acid (real), in sulphate of lime	0 $0\frac{30}{100}$	0 $5\frac{1}{4}$	2 11 6
Adopted Averages.			
Nitrogen	0 $7\frac{3}{10}$	13 6	68 0 0
Ammonia	0 6	11 2	56 0 0
Phosphate of lime	0 $0\frac{3}{4}$	1 5	7 0 0
Soluble phosphate of lime ..	0 $3\frac{1}{2}$	6 $6\frac{1}{2}$	32 13 4
Potash	0 $3\frac{3}{10}$	6 2	30 16 0

Suppose the case of a manure containing 17 per cent. of organic matter, 16½ per cent. of soluble phosphate, and 13 per cent. of insoluble phosphate. Then, taking these ingredients apart from the other substances, also valuable, which the manure might contain, in 100 tons there would be—

17 tons of the first, at 1*l.*...	£17 0 0
16½ tons of the second, at 32*l.* 13*s.* 4*d.*... .	544 10 0
And 13 tons of the third, at 7*l.*	91 0 0
In all, therefore, so far as these ingredients went, the 100 tons would be worth ..	£652 10 0

or 6*l.* 10*s.* per ton. Many of these prices have altered since the date (1856) of Prof. Way's paper. Guano is dearer, coprolites are cheaper.

REIGATE SILVER SAND (best quality for Plants, &c.), 7*s.* 6*d.* per Ton, 28*s.* per 4 Tons, 39*s.* per 6 Tons, 6*s.* per 8 Tons, 5*s.* per Ton for 20 Tons and upwards, delivered to the Reigate Station. Best Kent and Surrey PEATS, LOAMS, ROCK SANDSTONE, &c.

N.B. Loaded trucks can be sent direct on all the Railways. London-made FLOWER POTS, in every size, at the lowest cash prices. W. SHORT, Sand and Peat Depôt, Reigate, Surrey.

COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 2*s.* per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped, J. BARSHAM'S Patent.

TOBACCO PAPER, strong, 8*d.* per lb. MYATT'S ASHLEAF KIDNEY POTATOS.

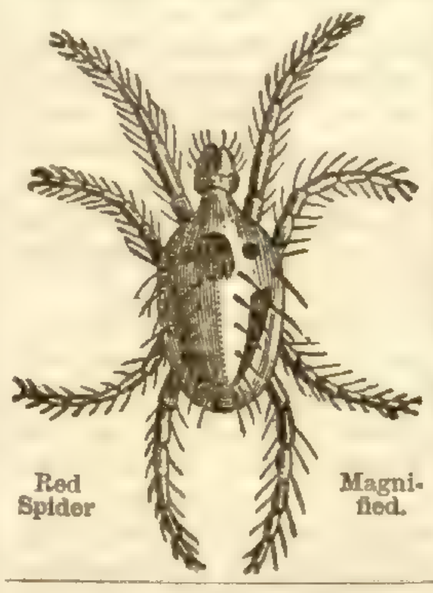
Prices to the Trade, also PRICED DESCRIPTIVE CATALOGUES on application. H. BROWN, Seedsman, Liverpool.

TOBACCO PAPER and CLOTH, first-rate quality. Price on application to CHAS. BROWN, Greenheys, Manchester.

To Nurserymen and Florists.

H. PERKINS, TOBACCONIST, 16, Cambridge Circus, Hackney Road, N.E., has a large Stock of Genuine ROLL TOBACCO PAPER, at 1*s.* per lb.; TOBACCO CLOTHS, at 10*d.* per lb. Warranted free from adulteration.

Post-office Orders to be made payable at Shoreditch Post-office



Red Spider — Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* each.

Wholesale by PRICE'S PATENT CANDLE COMPANY (LIMITED).

Glass for Garden Purposes.

JAMES PHILLIPS AND CO. beg to submit their prices as follows:—

PROPAGATING

GLASSES.

	Each.—s. d.		Each.—s. d.
2 inches in diameter ..	0 3½	12 inches in diameter ..	1 [illegible]
3 ,, ,, ..	0 4½	13 ,, ,, ..	2 0
4 ,, ,, ..	0 5½	14 ,, ,, ..	2 6
5 ,, ,, ..	0 6½	15 ,, ,, ..	[illegible]
6 ,, ,, ..	0 8	16 ,, ,, ..	[illegible]
7 ,, ,, ..	0 10	17 ,, ,, ..	4 0
8 ,, ,, ..	1 0	18 ,, ,, ..	5 0
9 ,, ,, ..	1 2	19 ,, ,, ..	6 0
10 ,, ,, ..	1 4	20 ,, ,, ..	6 0
11 ,, ,, ..	1 6		

HAND GLASSES, WITH OPEN TOPS.

	Each.—s. d.		Each.—s. d.
12 inches	6 6	18 inches	9 6
14 ,, ...	7 6	20 ,, ...	10 6
16 ,, ...	8 6	22 ,, ...	11 6
		24 ,, ...	12 6

Painted and Glazed with 16-oz. Sheet Glass.

HYACINTH and FLOWER DISHES.

6 inch diameter, 1*s.*; 9 inches, 1*s.* 6*d.*; 12 inches, 2*s.* 6*d.*

Hyacinth Dishes are intended to contain a number of roots bedded in sand and covered with moss, instead of the common Hyacinth Glass.

HYACINTH GLASSES.

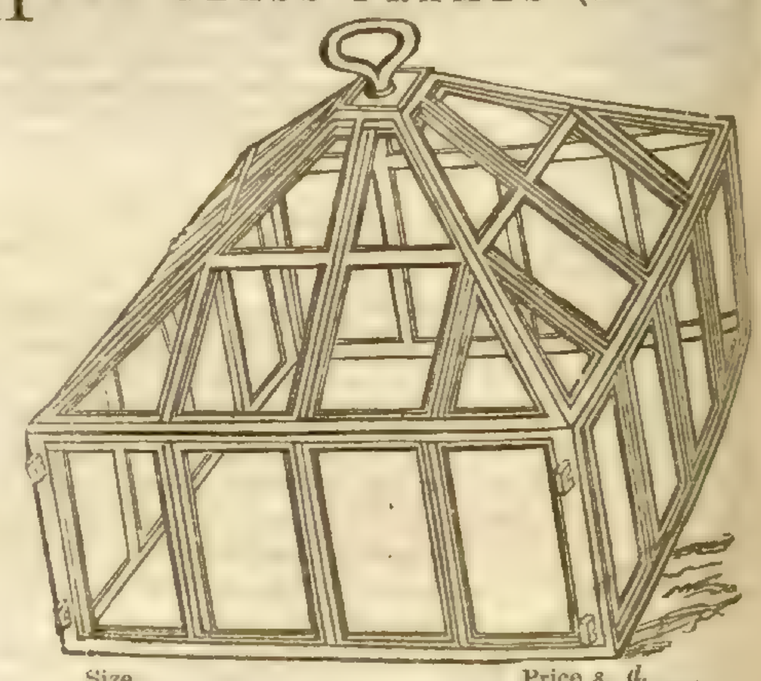
Common shape, per dozen, 2*s.* 6*d.* Improved shape, per dozen, 4*s.* 6*d.* Patent shape, per dozen, 6*s.* 6*d.*

London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.

LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS, PAINTS of various colours ground ready for use.

180, Bishopsgate Street Without, London, E.C.

HAND GLASS FRAMES (LOOSE TOPS).



Size.	Price s. d.	
14 by 14	4 0	Each.
18 by 18	5 9	,,
20 by 20	6 6	,,
22 by 22	7 6	,,
24 by 24	8 6	,,

Delivered Free to any Station in England if 12 or more are ordered.

J. JONES & SONS, 6, Bankside, London, S.E.

SUTTON'S NEW EARLY PEA RINGLEADER.
The Earliest Pea in cultivation.

THE DIXON'S YORKSHIRE HERO PEA.
Height, 2½ feet; a most abundant bearer and very branching. The true variety may be had in London of Messrs. HURST & SON, 6, Leadenhall Street, E.C.; Messrs. COOPER & BOLTON, 152, Fleet Street, E.C.
E. P. DIXON & SON, The Yorkshire Seed Establishment, Hull.

Garden Peas.

CHARLES SHARPE AND CO., Sleaford, have fine Stocks of the following, viz.:—

DANIEL O'ROURKE	SCIMITAR
PRIZETAKER	DICKSON'S FAVOURITE
WOODFORD'S MARROW	DILLISTONE'S FIRST EARLY
BEDMAN'S IMPERIAL	

Samples and Prices on application.

THE EARLIEST PEA known is CARPENTER'S EXPRESS, gathered May 7. See Testimonials, among which is the following from Mr. JOHN COX, Gardener to W. Wells, Esq., Red Leaf, Penshurst, Kent:—

"Dear Sir,—I beg to say I have tried your Express Pea this season, and am glad to be able to speak very favourably of it as the earliest Pea I have ever grown. I gathered in quantity this season nine days in advance of any other early variety, and earlier also than have ever been gathered in these gardens in the open air."

The following has been received from Messrs. Stuart & Mein, of Kelso:— "Dec. 27, 1864.

"Dear Sir,—A friend of ours, who is most particular in these matters, has just communicated the following information in reply to our inquiries about your Express Pea:—'I sowed CARPENTER'S Express, Sangster's No. 1, and Dillistone's Early Peas, on the same day. I found CARPENTER'S Express five or six days earlier than Dillistone's, and 10 or 12 days earlier than Sangster's; it is more prolific than Dillistone's. It is well worth a place in your New Seed List for its earliness. All were sown on the same piece of ground, and all had the same chance.' Have the goodness to send us ½ bushel as soon as possible and oblige "Your obedient Servants,
"Mr. Carpenter." "STUART & MEIN."

Price 3s. 6d. per quart. Trade price on application. Remittance requested from unknown correspondents.

EDWARD CARPENTER, Seed Merchant and Grower, Brighton and Sussex Seed Warehouse, 96, St. James Street, Brighton.

To be had also of the following Nurserymen:—

Mr. W. Barnes	Camberwell
Mr. W. Paul	Waltham Cross, N.
Messrs. Carter & Co.	High Holborn
Messrs. Downie, Laird, & Laing	Sydenham
Messrs. Bunyard & Son	Maidstone
Messrs. Osborn & Son	Fulham
Messrs. Stuart & Mein	Kelso.
Mr. Scott	Chichester
Mr. C. Turner	Slough
Mr. C. Sweet	Taunton
Mr. Cattell	Westerham
Mr. Quince	Peterborough

THE ESSEX RIVAL PEA.—A want has long existed amongst Gentlemen, Connoisseurs, Gardeners, and others, of a PEA that should not only be of early production, but combine at the same time the features of being prolific in yield, substantial in size, and excellent as a vegetable.

THOMAS ELEY, the Proprietor of the above-named splendid variety, has for some years past had this subject under consideration, and after a long and careful trial has succeeded in procuring a PEA which he thinks will fully supply the existing want, and which, from the large number of Testimonials that have been received by him, cannot fail to take its stand as one of the very finest, early, and most prolific varieties ever yet introduced in this kingdom.

Mr. ELEY desires to take this opportunity of informing the public, and especially those more particularly interested in such matters, that the ESSEX RIVAL PEA has not been placed in the market without FIRST having its merits fairly and justly established by several of the most leading Seedsmen in London and elsewhere, and the Testimonials received by him from these Growers and others, which appeared before the public in the *Gardeners' Chronicle* of Saturday, Dec. 31, 1864, page 1246, will more than fully bear out the characteristics of the above-named variety that are mentioned in this Advertisement.

Mr. ELEY cannot conclude this notice without returning his most sincere thanks to those gentlemen (who are quite unknown to him) for their candid and unbiassed opinion of the merits of the ESSEX RIVAL PEA, which they have been pleased to express in their several Testimonials.

Price 2s. 6d. per quart.

To be obtained of Mr. THOMAS ELEY, The Proprietor, Sible Hedingham, near Halstead, Essex.

Also of the following appointed Agents:—
Messrs. PETER LAWSON & SON, 28, King Street, Cheapside, London.
Messrs. COOPER & BOLTON, 152, Fleet Street, London.
Messrs. FRASER, RICHARDSON, & GOAD, 82, Bishopsgate Within, London.
Messrs. NUTTING & SONS, 60, Barbican, London.
Mr. G. W. DIXON, 48a, Moorgate Street, London.
Messrs. SUTTON & SONS, Reading, Berkshire.
Messrs. SALTMARSH & SON, Moulsham Nursery, Chelmsford, Essex.
Messrs. ROBERTS & SON, Denbigh.
Mr. B. R. CANT, St. John's Street, Colchester.
Mr. GEORGE TABER, Rivenhall, near Witham, Essex.
Mr. J. F. CHATER, Braintree, Essex.
Mr. JAMES VEITCH, Exotic Nursery, Chelsea.
M. PAUL TOLLARD, 4, Place des Trois Maries, Paris, France.

Mr. ELEY has much pleasure in giving the following Testimonial from Mr. James Veitch, which was not received in time to be added to the general list which appeared in the *Gardeners' Chronicle*, Dec. 31, 1864:—

"Royal Exotic Nursery, King's Road, Chelsea, S.W., Dec. 31, 1864.

"DEAR SIR,—The Early Pea you sent me last year was tried in my sample grounds here, comparatively with many others, and I have much pleasure in giving you my opinion of its merits. It was sown May 7, and ready for use July 14th. Height 3 to 3½ feet. I found it two days later than Carpenter's Express, one day earlier than Beck's Gem, five days earlier than Sangster's No. 1, eight days earlier than McLean's Advancer, and but slightly inferior in flavour to it. It appeared very productive, and I think will be much cultivated when its merits are known.—I am, Dear Sir, yours faithfully,
"Mr. Taber." "JAMES VEITCH."

Mr. ELEY will esteem it a favour if persons who try the ESSEX RIVAL the coming season will send him a report.

N.B. Orders from unknown correspondents must be accompanied by a remittance. The Trade liberally dealt with. Terms on application.

THE NEW PARSNIP "STUDENT."—SEED of this improved PARSNIP, "ennobled" by Professor BUCKMAN, late of the Royal Agricultural College, Cirencester, is now ready for delivery by Messrs. SUTTON & SONS, post free, 8d. per oz.; also Wholesale to the Trade. It can also be obtained from any of the leading Seedsmen.
Royal Berks Seed Establishment, Reading.

CHOICE SEEDS,
In Sealed Packets. Postage free.

CATTELL'S DWARF PURPLE-TOP BEET.—The best Red Beet in cultivation. 1s. per oz. packet.

CATTELL'S ECLIPSE BROCCOLI.—The latest, hardiest, and best White grown. 1s. 6d. per ½-oz. packet.

CATTELL'S RELIANCE CABBAGE.—1s. per ½-oz. packet.

KIRKLEES HALL DEFIANCE CUCUMBER.—Quite true. 1s. 6d. per packet.

VARIEGATED GARNISHING KALE.—Mixed, Red, White, Purple, Green, &c.; very handsome. 1s. per packet.

Trade prices on application.
JOHN CATTELL, Seed Grower, Westerham, Kent.

TRADE MARK.
HALLETT'S PEDIGREE NURSERY WHEAT.
PURE SEED OATS.
40s. a Quarter (with Sacks) for not less than Two Quarters.
Papers sent upon application, enclosing Stamp, to FREDERIC F. HALLETT, Esq., F.L.S., the Manor House, Brighton, Sussex.

WHEELER'S LITTLE BOOK for 1865.

WHEELER'S TOM THUMB LETTUCE, 1s. per packet.

NEW POTATO, MILKY WHITE, 4s. per peck.

GLOUCESTERSHIRE KIDNEY POTATO, 3s. per peck.

J. C. WHEELER AND SON,
SEED GROWERS, Gloucester.

FOR GRASS SEEDS.
WHEELER AND SON.

FOR SEED POTATOS, New Sorts.
WHEELER AND SON.

FOR GARDEN SEEDS.
WHEELER AND SON.

FOR FARM SEEDS, fine quality.
WHEELER AND SON.

WHEELER'S LITTLE BOOK for 1865,
Post free for four stamps, Gratis to Customers.

WHEELER'S LITTLE BOOK on GRASSES, gratis and post free.
J. C. WHEELER & SON, Seed Growers, Gloucester.

J. C. WHEELER AND SON,
SEED GROWERS, Gloucester.

SEED POTATOS.—Potatos, though not strictly roots, but tubers, equally require care in selection. We have had the gratification of introducing THREE NEW SORTS, which have given satisfaction to every one who has tried them. They are

PRINCE of WALES,
ALSTONE KIDNEY, and
GLOUCESTERSHIRE KIDNEY.

The first two sorts are now well-known and highly esteemed; the Gloucestershire Kidney is a variety which we can recommend with the most perfect confidence; and we have much pleasure in referring to the Testimonials in its favour in our "Little Book." We introduce this season another new variety—Milky White—which we believe to be the finest Potato ever raised. Although early, it is perfectly white and mealy, and of excellent flavour. We have but a small supply, and can only offer it in peck bags, each of which is marked on the outside with our Trade Mark.

GLOUCESTERSHIRE KIDNEY, 3s. per peck, 10s. 6d. per bushel.

This most excellent Kidney Potato we can recommend for earliness, flavour, size, and crop. In comparing it with the Ashleaf Kidney, it is as early, whilst it produces nearly double the crop, and is altogether superior to that variety.

MILKY WHITE, 4s. per peck.

Fine second early; ripens immediately after the Gloucestershire Kidney. Is of excellent flavour, and in colour as white as milk; keeps well, and is altogether one of the best, if not the best, Potato in cultivation. In our opinion Gloucestershire Kidneys, Milky Whites, and Flukes are all the sorts necessary to keep one's table supplied with Potatos of the highest excellence all the year round.

The new Potato Milky White can be obtained true of the following eminent Firms:—

Messrs. BATT, RUTLEY, & SILVERLOCK Strand, W.C.
" JAMES CARTER & Co. .. .. High Holborn, W.C.
" NUTTING & SONS .. .. Barbican, E.C.
" SUTTON & SONS .. .. Reading.
" JACOB WRENCH & SONS .. London Bridge, E.C.

It will be sent out in peck bags, each bag marked with our Trade Mark. We regret to say we have but a small quantity to offer this season.

J. C. WHEELER & SONS, Seed Growers, Gloucester.

SEED POTATOS.—RIVERS' ROYAL ASHLEAF, 13s. 6d. per cwt.; GLOUCESTERSHIRE KIDNEY, 11s. 6d. per cwt.; WALNUT LEAF, 10s. per cwt. Several other kinds equally cheap.
HENRY MINCHIN, The Nurseries, Hook Norton, Oxon.

SEED POTATOS.—MYATT'S EARLY PROLIFIC KIDNEY, EARLY DALMAHOY ROUND, and all the earliest and best varieties, of the finest quality, free from disease, and at very moderate prices.
Apply to H. & F. SHARPE, Seed Growers and Nurserymen, Wisbeach, Cambridgeshire.

SEED POTATOS.—The Subscribers have to Dispose of, in quantity, all the leading sorts of POTATOS, comprising WALKER'S EARLY REGENT, DALMAHOY EARLY, and RED BOG, carefully selected for seed and of fine quality. Prices per ton on application.
SMITH & SIMONS, Seed Merchants, Glasgow.

Seed Potatos.

GEORGE SIBBALD, MARKET GARDENER and FARMER, has for Sale about 100 tons of the following kinds of his own growing, true to name. Cash or reference required.

Per bush. of 56 lbs.	s.	d.	Per Bushel of 56 lbs.	s.	d.
Best Rocks	2	0	Flukes	2	6
Walker, Early	2	0	Lapstone Kidney	2	6
Dalmahoys	2	0	Lemon Kidney	5	0
Early American	3	0	Ash-leaved Kidney	5	0
Daintree's Early	3	0	Pool's King of Kidney (best for frames).	5	0
Chiswick Cluster	3	0			
Red Eyes, Early	3	0	Myatt's Improved Kidney	5	

Also Agent for PATERSON & SONS' SEEDLINGS.

Delivered free of expense at Dundee, or Broughty Ferry, Drumgeath, by Dundee.

POTATOS for PLANTING.
For descriptions, see SUTTON'S AMATEUR'S GUIDE.

Sutton's Early Racehorse Kidney	The King
Hudson's Nonsuch Kidney	Queen of Fluke
Hudson's Early May Kidney	Flour Ball, or Snowball
Daintree's Early Seedling	York Regent
Early Ashleaf Kidney	Pink-eyed do.
Myatt's do. do.	Forty-fold
Early Walnutleaf do.	Early Ten Week, or Golden Globe
Handsworth Early	Pink-eyed Fluke
Soden's Early Oxford	Rivers' Royal Ashleaf
Improved Early Shaw	Fox's Seedling
Fluke Kidney	Carter's Champion
Dalmahoy	Courteenhall Seedling
Wellington, or Arrowsmith's Seedling	Gloucestershire Kidney
	Caversham Seedling
Prince of Wales, or Red Regent	Mitchell's Seedling
Red Ashleaf Kidney	New Irish Apple
Skerry Blue	Early Frame
Dawe's Matchless, or Webb's Imperial Kidney	Lemon Kidney
	White Rock

PRICED LIST post free. Address:
SUTTON & SONS, Royal Berks Seed Establishment, Reading.

Important to Growers of Potatos.

H. AND F. SHARPE invite the attention of Growers of EARLY POTATOS to their fine selected stocks of MYATT'S EARLY PROLIFIC KIDNEY, and EARLY DALMAHOY ROUND, which are universally pronounced to be the earliest and most prolific sorts in cultivation, and especially adapted for early market purposes, yielding from 8 to 10 tons per acre, and ready for market by the end of June, clearing the land in time to sow for White Turnips or other autumn feed. The quality this season is unusually fine, and perfectly free from disease. Having an abundant supply, H. & F. S. are enabled to offer them at very moderate prices, and make a suitable reduction to purchasers of a large quantity. For Prices, and further information, apply to
H. & F. SHARPE, Seed Growers, Wisbech, Cambridgeshire.

A Boon to the World.

PRINCE of WALES' KIDNEY POTATO.—A new Seedling, remarkably handsome, fine eating, and the most prolific in the world. Testimonials:—

From Professor LINDLEY (Editor of the *Gardeners' Chronicle*).
"I have this morning had the Seedling Potatos examined. The crop is very extraordinary, and the Potatos themselves are very handsome, and quite ripe."

From SHIRLEY HIBBERD, Esq. (Editor of the *Gardeners' Weekly Magazine*.)
"The Seedling Potato (Prince of Wales), I have found to be wonderfully productive, excellent flavour, handsome, and such a one as the world ought to have the benefit of."

To be had of Messrs. BARR & SUGDEN, King Street, Covent Garden, W.C.; DOWNIE, LAIRD & Co., Forest Hill, S.E.; JAMES CARTER & Co. 237, High Holborn, W.C.; SUTTON & SONS, Reading.

Price 12s. per bushel.
N.B. They may be planted up to the end of May.

SEED POTATOS.
20 tons EARLY LEMON IMPROVED KIDNEY, one of the most prolific and early varieties grown.
6 tons EARLY ASHLEAF KIDNEY (true stock).
6 tons EARLY HANDSWORTH ROUND (true stock).
Fine ASPARAGUS and SEAKALE ROOTS, 2 years.
H. & R. STIRZAKER are supplying the above genuine sorts of Potatos at very reasonable prices, delivered free on the rail.
Skerton Nurseries, Lancaster.

To Radish Growers.

SHORT-TOP, SALMON, RED and WHITE TURNIP RADISH SEED, growth of 1864, to be SOLD in small or large quantities, at 32s. per bushel, on receipt of Post-office Order, payable to HY. SALTER, 14, Foundation Street, Ipswich.

THE TWO BEST CUCUMBERS IN CULTIVATION ARE

SWADLING'S BERKSHIRE CHALLENGE
and
SUTTON'S BERKSHIRE CHAMPION.

SWADLING'S BERKSHIRE CHALLENGE.—Mr. SWADLING, the raiser of this splendid new Cucumber, has during the last few years taken no less than Eleven First and several Second Prizes with this Cucumber at the Reading Horticultural Society, and has hitherto most carefully kept it exclusively in his own possession, but we have the honour of announcing that we have purchased the entire stock for a handsome sum. Swadling's Berkshire Challenge is one of the most finely formed White-spine varieties in cultivation; of fine form and good flavour. Price 2s. 6d. per packet (post free).

SUTTON'S BERKSHIRE CHAMPION.—This splendid variety, the best of the Grey-spine class, was sent out by us some years since, and has held to the present time its reputation; of fine form, free bearer, and great size. It has during the past season obtained for our customers several prizes, and we have every confidence in recommending it to the public. Price 1s. 6d. per packet (post free).

The undermentioned Seedsmen have ordered a supply of each sort:—

Messrs. BECK, HENDERSON, & CHILD 221, Upper Thames Street, E.C.
" COOPER & BOLTON .. .. 152, Fleet Street, London, E.C.
" HURST & SON .. .. 6, Leadenhall Street, London, E.C.
" NUTTING & SON .. .. 60, Barbican, London, E.C.
Mr. CHARLES TURNER .. .. Royal Nursery, Slough.

The following very excellent Old Sorts can be supplied at 1s. per packet (post free):—

IMPROVED SYON HOUSE.	LORD KENYON'S FAVORITE
LANCASHIRE WITCH.	MILL'S JEWESS.
VICTORY of BATH.	LYNCH'S STAR of the WEST

Address:
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

New Cucumber, Model.

EDWARD TILEY, the successful Raiser of some of the finest varieties of CUCUMBERS and MELONS now grown, has the above new production this season to offer. Length from 10 to 14 inches. A prolific bearer, bringing six and seven fruit to a joint. This gives it a great advantage over the long show varieties, which are generally shy setters. It is very handsome, being of an even size from stem to point; a beautiful black spine, carrying its bloom well; the flesh very solid and crisp, and the flavour excellent. For small families it is especially adapted, as after it once commences bearing, fruit may be cut from the same plant daily for six months. It would be a profitable variety for market gardeners. It is very hardy for a Frame Cucumber, so that where the supply of manure is scanty it will be a great boon. Price 2s. 6d. per packet.

CUCUMBERS—GENERAL OUTRAM (price 2s. 6d. per packet), a first-rate variety for exhibition, black spine, from 24 to 28 inches. The following varieties 1s. per packet (the Trade supplied):—Sir Colin Campbell, General Canrobert, Victory of Bath, Gordon's White Spine, Lord Kenyon's Favourite, Phenomenon, Captivation, Rifleman, Mills' Jewess, Manchester Prize, Conqueror of the West, Hunter's Prolific, Incomparable, Syon House, Cuthill's Black Spine, Allen's Victory, Champion of England, Trollope's King, Stockwood Ridge, Ipswich Standard, Ayres' Prolific, Tiley's Improved.

MELONS.

	Per packet—s. d.		Per packet—s. d.
Pine Apple	1 0	Meredith's Hybrid Cashmere	1 0
General Havelock	1 0	Camerton Court, Green-flesh	1 0
Mr. Ewen's Arundel Hybrid Green-flesh	1 0	Queen's Melon	1 0
Ditto ditto, Scarlet-flesh	1 0	Blackall's Green-flesh	1 0
Monro's Green Gage	1 0	Bailey's Green-flesh	1 0
Monro's Crystal Palace Hero	1 0	Bowood Green-flesh	1 0
Golden Drop, Green-flesh	1 0	Beechwood Green-flesh	1 0
Golden Perfection, Green-flesh	1 0	Windsor Prize ditto	1 0
Scarlet King, Scarlet-flesh	1 0	Emperor	1 0
Green Gage	1 0	Fleming's Trentham Hybrid	1 0
Incomparable	1 0	Duncan's Green-flesh Improved	1 0
Golden Ball	1 0	Hampton Court, Green-flesh	1 0
Bromham Hall, Green-flesh	1 0	Egyptian ditto, Improved	1 0
		&c. &c. &c.	&c.

Fine mixed AURICULA-FLOWERED SWEET WILLIAM, 1s. per packet.

HOLLYHOCK SEED from all named vars., 1s. per packet.
GRIFFIN'S ALMA LETTUCE, 1s. per packet.
TILEY'S EMPEROR RED CELERY, 1s. per packet.
TILEY'S SOLID WHITE CELERY, 1s. do.

A remittance must accompany all orders, either by Post-office order, or penny postage stamps.

EDWARD TILEY, Nurseryman, Seedsman, and Florist, 14, Abbey Church Yard, Bath.

REIGATE SILVER SAND (best quality for Plants, &c.), 7s. 6d. per Ton, 28s. per 4 Tons, 39s. per 6 Tons, 48s. per 8 Tons, 5s. per Ton for 20 Tons and upwards, delivered to the Reigate Station. Best Kent and Surrey PEATS, LOAMS, ROCK SANDSTONE, &c.

N.B. Loaded trucks can be sent direct on all the Railways.

London-made FLOWER POTS, in every size, at the lowest cash prices. W. SHORT, Sand and Peat Depôt, Reigate, Surrey.

COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 2s. per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped, J. BARSHAM'S Patent.

The Castle Kennedy Fig.

PETER LAWSON AND SON have made arrangements to send out the above next Autumn. They are now booking Orders, which will be executed in strict rotation as received. Plants, 10s. 6d. each; a few extra strong at 21s. each—with the usual Discount to the Trade.

Full printed particulars to be had on application.
Edinburgh and London.—Jan. 21.

Slater's New Hardy Prolific Melon.

J. SLATER AND SONS have great pleasure in offering the above MELON as being of a very superior quality, a very free setter, and an abundant bearer—each fruit weighing from 3 to 3½ lbs. Slightly netted; shape, oval; flesh, pale green; thick and juicy. Price 2s. per packet, post free.

J. SLATER & SONS, Seedsmen, &c., Malton, Yorkshire.
London Agents:
Messrs. HURST & SON, Seedsmen, 6, Leadenhall Street, E.C.

Lettuce Moor Park (True).

ROBERT PARKER begs to announce that he can supply a few pounds of SEED, last year's crop, of this valuable kind, the best and most useful Cos variety in cultivation for general purposes; price per pound to the Trade will be forwarded on application.

Also that his NEW PRICED and DESCRIPTIVE CATALOGUE of VEGETABLE, AGRICULTURAL, and FLOWER SEEDS, NEW and RARE PLANTS, &c. is now published, and will be forwarded to applicants.

Exotic Nursery, Tooting, Surrey, S.

Vine Duchess of Buccleuch.

NEW SEED AND PLANT CATALOGUES, &c.

ROBERT PARKER has much pleasure in offering this distinct and valuable early GRAPE, which will supply the long felt desideratum of a White Grape with Muscat flavour that may be grown and ripened with the Black Hamburgh.

The following Certificates and Prizes have been awarded at various London and other Exhibitions.

Two Certificates of Merit.
Three First-class Certificates.
Two First Prizes in open competition for the finest flavoured Grape of any colour. Chasselas Musqué, Muscat of Alexandria, and Frontignan competed for these prizes. For further description see Hogg's *Gardeners' Year Book for* 1865, page 32, and *Gardeners' Chronicle* of October 1st and 22d, 1864, pages 943 and 1008.

Also New SEED CATALOGUE, containing Select Priced and Descriptive Lists of the best varieties of Vegetable, Flower, and Agricultural Seeds; and New GENERAL PLANT CATALOGUE, containing Priced and Descriptive Lists of Miscellaneous, Greenhouse, Hardy, and Stove Plants, Azalea indica, Conifers, Ferns, Fruit Trees, Grapes, Rhododendrons, Roses, Dutch and other Bulbs, &c., which will be forwarded to applicants.

Exotic Nursery, Tooting, Surrey, S.

Vines, Vines. Strong Fruiting Vines.

LUCOMBE, PINCE, AND CO. offer the above for Sale, with extra large well ripened Canes, and prominent Fruit-bearing eyes, in good sized pots, certain to bear a good crop of fruit this season, at 10s. 6d. each.

They also have a very large stock of VINES, fit for immediate planting out in Vineries, of a superior quality. In Pots from 3s. 6d., 5s., to 7s. 6d. each.

A LIST of sorts will be sent on application to them.
Exeter Nursery, Exeter.

BLACK HAMBURGH, BLACK VICTORIA, WHITE TENERIFFE, and MUSCAT of ALEXANDRIA VINES, fine rods, true to name, 6 to 8 feet long, 30s. per doz. Dwarf Pyramidal and Dwarf-trained PEAR TREES on Quince stocks, select and choice sorts, of fine growth, 18s. and 30s. per doz. GUERNSEY ELMS, 5, 7, and 9 feet high, 30s., 40s., and 50s. per 100. This is the handsomest and most upright-growing of all Elms. Communication with the southern and western coasts of England easy, and the freight low.

CHARLES B. SAUNDERS, Nurseryman, Island of Jersey.—Jan. 21.

3000 Extra Strong STRAWBERRY PLANTS for Forcing, in 32-size pots (many of the pots having two plants in each), consisting of the following varieties, viz.:—

ADMIRAL NAPIER, BRITISH QUEEN, KEEN'S SEEDLING, &c., 50s. per 100. Plants of the above, and also of ELTON PINE for Planting, 3s. 6d. per 100.

Address T. & A. ANSELL, Camden Nursery, Grafton Road, Kentish Town, London, N.W.

STANDARD APPLES for Orchard Planting, strong choice named sorts.—SPRUCE FIRS, 3 to 4 feet, strong and handsome; AUSTRIAN PINES, 4 to 6 feet, ditto, ditto; and all kinds of FRUIT TREES, EVERGREENS, and ROSES, all recently transplanted, at

WOOD & Co.'s, Barbourne Nurseries, Worcester.
Prices upon application.

Dwarf-trained Trees.

BY THE THOUSAND, HUNDRED, OR DOZEN.

APPLES, PEARS, PLUMS, CHERRIES, PEACHES, and NECTARINES.

Fine, flat, well trained, of best quality and true to name.
RICHARD SMITH, Nurseries, Worcester.

RICHARD SMITH'S FRUIT LIST contains a sketch of the various forms of Trees, with Directions for Cultivation, Soil, Drainage, Manure, Distance, Pruning, Lifting, Cropping, Treatment under Glass; also their synonymes, quality, size, form, skin, colour, flesh, flavour, use, growth, duration, season, price, &c. Free by Post for one stamp.

RICHARD SMITH, Nurseries, Worcester.

Fruit Trees.

J. SCOTT, Merriott, Somerset, offers Selections from one of the most complete Collections of FRUIT TREES in this Country, numbering above 1000 sorts. A DESCRIPTIVE CATALOGUE, 84 pages, for seven stamps, the best and most complete Catalogue on Fruit Trees published, being full of interesting matter to the Cultivator. NEW GENERAL NURSERY STOCK CATALOGUE, one stamp, containing Forest Trees, Coniferæ, Flowering Shrubs, Evergreens, American Plants, Roses, Camellias, Heaths, &c.

DOBSON'S FIRST-CLASS SEEDS.

Sealed Packets, Post Free.

DOBSON'S EIGHT SUPERB BALSAMS, 1s., 2s.
DOBSON'S SPLENDID CALCEOLARIA, 1s 6d., 2s. 6d., 5s.
DOBSON'S PRIZE CINERARIA, 1s., 2s. 6d., 5s.
DOBSON'S UNRIVALLED PRIMULA, 1s., 2s. 6d., 5s.
DOBSON'S CHOICE HOLLYHOCK, 1s., 2s. 6d.
DOBSON'S CHOICE ANTIRRHINUM, 6d., 1s.
LOBELIA SPECIOSA, Crystal Palace Variety, 6d., 1s.
LOBELIA PAXTONIANA, fine, 6d., 1s.
PANSY, extra choice, 1s., 2s.
PETUNIA, choice selected, 1s.
PETUNIA NYCTAGINIFLORA, white, 6d., 1s.
PERILLA NANKINENSIS, 6d., 1s.
AMARANTHUS MELANCHOLICUS RUBER, 6d., 1s.

And about 400 different Species and Varieties, for which we beg to refer to our CATALOGUE, now ready, Gratis and Post-free.

J. DOBSON & SONS, Woodlands Nursery, Isleworth, W.

CARTER'S LIST OF NOVELTIES FOR 1865.

JAMES CARTER & CO.

BEG LEAVE TO STATE THAT THEIR

SELECT LIST OF NEW AND CHOICE

VARIETIES of GARDEN, FLOWER, and FARM SEEDS,

ALSO CHOICE VARIETIES OF

LILIES, GLADIOLI, AND SUNDRY NEW PLANTS,

Is Now Published, and will be forwarded Gratis and Post Free on application. The List will be found to comprise the following NEW and CHOICE SEEDS and PLANTS:—

CARTER'S FIRST CROP PEA.
McLEAN'S LITTLE GEM PEA.
THE YORKSHIRE HERO PEA.
CARTER'S SURPRISE PEA.
THE FRENCH BREAKFAST RADISH.
THE ALBERT SPROUTS.
CARTER'S CHAMPION BROCCOLI.
THE COLESHILL CUCUMBER.
CARTER'S CHAMPION POTATO.
WHEELER'S MILKY WHITE POTATO.
ORNITHOGALUM THYRSOIDES ALBUM.
LILIUM AURATUM.—Splendid large flowering roots just imported direct from Japan, by J. C. & Co.
BEATON'S NEW GERANIUMS.
SCHIZOSTYLIS COCCINEA.
IRESINE HERBSTII.
NEW VARIETIES of CLEMATIS.
&c. &c.
CLARKIA INTEGRIPETALA FLORE PLENO.
NASTURTIUM KING of TOM THUMBS.
NEMOPHILA MACULATA, purple.
GODETIA LINDLEYANA, double.
WHITLAVIA GRANDIFLORA, pure white.
CHRYSANTHEMUM DUNNETTII, fl. pl., large double white.
MELVILLE'S NEW SWEET WILLIAMS, and the NEW MEXICAN ANNUALS.

And numerous other Novelties of sterling merit.

PARTS I. and II. of

CARTER'S GARDENER'S AND FARMER'S VADE-MECUM

Now ready, comprising LISTS of VEGETABLE, AGRICULTURAL, and FLOWER SEEDS of every description, with full Cultural Directions, and CALENDAR of OPERATIONS for each Month of the Year, forwarded post free on receipt of 12 postage stamps, Gratis to Customers.

Our SEEDS being grown at our own SEED FARMS in ESSEX, can be confidently recommended.

COLLECTIONS of FLOWER and VEGETABLE SEEDS for ONE YEAR'S SUPPLY, comprising the best kinds only, from 10s. 6d., 21s., 42s., 63s., and 105s.

JAMES CARTER AND CO., HIGH HOLBORN, LONDON, W.C.;
DEDHAM and ST. OSYTH, ESSEX; CRYSTAL PALACE NURSERY, PERRY HILL, SYDENHAM, S.E.

BEDDING PLANTS.—STOCK-PLANTS for PROPAGATION.

E. G. HENDERSON & SON

OFFER STRONG PLANTS OF THE FOLLOWING SECTIONS,

SUCH AS ARE ADAPTED TO YIELD A

SUPPLY OF CUTTINGS FOR THE FLOWER GARDENS

OF THE COMING SEASON.

The varieties are enumerated in E. G. H. & SON'S SPRING BEDDING CATALOGUE of 1864.

ANTIRRHINUM.
BOUVARDIA.
CALCEOLARIA.
CENTAUREA.
CHRYSANTHEMUM.
DAHLIAS (Bouquet and Bedding varieties)
FUCHSIA, new varieties.
FUCHSIA, varieties of autumn 1864.
GAZANIA.
GERANIUMS, all sections.
HELIOTROPIUM.
LANTANA.
LOBELIA.
MIMULUS.
PENTSTEMON.
PETUNIA.
PHLOX.
SALVIA.
TROPÆOLUM.
VERBENA.
VERONICA.
SILVER and GREY-LEAVED PLANTS.
VARIEGATED-LEAVED PLANTS.

WELLINGTON NURSERY, ST. JOHN'S WOOD, LONDON, N.W.

HARDY, GREENHOUSE, STOVE PLANTS, AND SEEDS.

LOUIS VAN HOUTTE,

NURSERYMAN AND SEEDSMAN, GHENT, BELGIUM,

BEGS TO INFORM HIS CORRESPONDENTS THAT HIS

PRICE LISTS Nos. 103, 104, 105, AND 106,

ARE TO BE HAD AT

MESSRS. R. SILBERRAD AND SON, 5, HARP LANE, LONDON, E.C.

N.B. The Goods will be delivered free out of the Custom House in London, without any expense whatever to the buyer, but per contra 5s. will be charged in the account for each package.

The Seed Parcels are delivered free out of the Custom House in London, without any expense whatever to the buyer.

PETER LAWSON & SON,

SEED GROWERS AND MERCHANTS,

28, KING STREET, CHEAPSIDE, LONDON, E.C.; and at EDINBURGH.

LISTS OF ALL SORTS OF SEEDS AND PLANTS SENT FREE ON APPLICATION.

SEEDS, GROWTH OF 1864.

JOHN & CHARLES LEE,

SEEDSMEN TO THE QUEEN,

BEG RESPECTFULLY TO SUBMIT THEIR

NEW CATALOGUE FOR 1865

OF

KITCHEN GARDEN, FLOWER, AND AGRICULTURAL SEEDS,

CONTAINING SELECTIONS from the BEST STOCKS at HOME and ABROAD,

POST FREE on APPLICATION.

ROYAL VINEYARD NURSERY and SEED ESTABLISHMENT,
HAMMERSMITH, LONDON, W.

GENUINE SEEDS, CARRIAGE FREE.

NOW READY, POST FREE TO ALL APPLICANTS,

B. S. WILLIAMS'

DESCRIPTIVE AND PRICED CATALOGUE

OF

VEGETABLE AND FLOWER SEEDS FOR 1865.

Containing all Novelties worthy of notice, with a full description to each, and a few Hints for the guidance of Amateurs.

COLLECTIONS OF KITCHEN GARDEN SEEDS,

TO SUIT GARDENS OF VARIOUS SIZES,

10s. 6d., 21s., 42s., 63s., and 84s. each.

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.

BARR & SUGDEN 12 KING ST. COVENT GARDEN

Orders amounting to 21s. sent Carriage Paid.

NEW SEEDS FOR THE SALE OF 1865.

BARR & SUGDEN'S SELECTIONS OF VEGETABLE SEEDS

FOR ONE YEAR'S SUPPLY.

Suited to Gardens of various sizes. They contain the most approved varieties, and such only as are best adapted to secure a succession of Vegetables from January to December. The Seeds are all of the very best quality.

10s. 6d., 15s. 6d., 21s., 30s., 42s., 63s., 84s., 105s.

For particulars of these selections see our "Kitchen Garden Guide."

☞ *The Compendium of our "Illustrated Guides to Kitchen and Flower Garden" sent Free and Post Paid to each of our Customers.*

20,000 GLADIOLI, the most effective for Massing, and the best for Exhibition.

5000 LILIUMS, embracing the splendid L. LANCIFOLIUM, varieties RUBRUM, ROSEUM and ALBUM, and the magnificent and deliciously fragrant L. AURATUM.

BARR AND SUGDEN, SEED MERCHANTS and FLORISTS, 12, KING STREET, COVENT GARDEN, W.C.

W. DRUMMOND & SONS,

OF THE

SEED AND NURSERY ESTABLISHMENT

STIRLING, and 58, DAWSON STREET, DUBLIN

(*The only Establishments with which this Firm is connected*),

BEG TO INTIMATE THAT THEIR

DESCRIPTIVE CATALOGUE OF NEW VEGETABLE AND FLOWER SEEDS

is now ready, and may be had post free on application.

This Catalogue will prove a safe guide in choosing Seeds for the Garden. Its arrangement is simple, and contains, in the respective classes, only such varieties as are really worth cultivating, and to these a brief but accurate description is prefixed.

☞ *As usual, Parcels of Seeds are forwarded Carriage Free.*

New and Genuine Seeds Carriage Free.

Now Published, and will be issued post free,

WILLIAM WOOD AND SON'S NEW DESCRIPTIVE CATALOGUE of SEEDS for 1865.

COLLECTIONS of VEGETABLE SEEDS for ONE YEAR'S SUPPLY, 10s. 6d. to 3l. 3s.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

Best Garden Seeds, Carriage Free.

HOOPER AND CO.'S SELECTIONS of KITCHEN GARDEN SEEDS for ONE YEAR'S SUPPLY, 10s., 15s., 25s., 40s., 60s., 100s., of the best quality only.

Parcels value 21s. and upwards sent Carriage Paid.

HOOPER & Co., Seed Merchants, Covent Garden Market, London.

First-class Seeds, Carriage Free.

WM. PAUL (Son and Successor to the late A. PAUL) begs to announce that his NEW PRICED CATALOGUE of SEEDS is now ready, and may be had on application, post free.

N.B. Eight Prizes at the International Exhibition of the Royal Horticultural Society in December last, and nearly all the FIRST PRIZES at the Enfield and Waltham Abbey Horticultural Societies Shows were awarded to the produce of his Seeds.

Waltham Cross, N.

GEORGE TAYLOR,

"THE GROWER'S SALESMAN,"

for

CHOICE VEGETABLES and FRUIT,

21, Great Charlotte Street,

St. John's Market, Liverpool.

Commission Five per Cent.

CALCEOLARIA AMBASSADOR (SANG'S). — Strong Plants in single Pots of this magnificent Bedding-out CALCEOLARIA will be ready in April. Price 12s. per dozen. Early orders will oblige. The Trade supplied on the usual terms.

EDWARD SANG & SONS, Nurserymen and Seed Merchants, Kirkcaldy, N.B.

SUTTON'S NEW EARLY PEA RINGLEADER.

The Earliest Pea in cultivation.

Notice to the Trade.

CARTER'S "FIRST CROP" PEA.

JAMES CARTER AND CO. beg leave to inform the Trade that in consequence of the great demand for the above PEA, they will in future be able to execute Orders for Small Quantities only.

THE LONDON SEED COMPANY, LIMITED.

The GENERAL PRICE CURRENT of KITCHEN GARDEN, FLOWER, and FARM SEEDS will be forwarded gratis and post free to any address in the United Kingdom.

68, Welbeck Street, Cavendish Square, W.

THE LONDON SEED COMPANY, LIMITED,

68, Welbeck Street, Cavendish Square, W.

CARTER'S GARDENER'S VADE-MECUM

is now ready.

SUTTON'S AMATEUR'S GUIDE (ILLUSTRATED)

is now ready.

Notice to Purchasers of Seeds.

SUTTON AND SONS having received several Orders for GARDEN SEEDS without the SIGNATURE or ADDRESS of the Sender, they fear inconvenience will be caused thereby, as they cannot possibly ascertain to whom the goods should be sent. As these omissions occur more or less every year, Messrs. SUTTON request their friends who do not receive their goods promptly to write without delay. Royal Berkshire Seed Establishment, Reading.

Royal Horticultural Society.

PRIZES AWARDED TO

MESSRS. SUTTON AND SONS at the GREAT INTERNATIONAL SHOW in December last.

FIRST-CLASS CERTIFICATE for YELLOW GLOBE MANGEL
" " for LONG YELLOW MANGEL
" " for RED GLOBE MANGEL
SECOND-CLASS " for LONG RED MANGEL
FIRST-CLASS " for KOHL RABI
" " for HOME-GROWN GOURDS
SECOND-CLASS " for ORNAMENTAL GOURDS

The Gardeners' Chronicle.

SATURDAY, JANUARY 21, 1865.

MEETING FOR THE ENSUING WEEK.

SATURDAY, January 28 { Royal Horticultural (Show of Tulips and Mignonette), at S. Kensington.. 2 P.M.

IN his celebrated Essay on Gardens, to which we formerly alluded, Lord BACON enumerates flowers and fruits under eight sections, suitable as he suggests for furnishing and decorating so many successive gardens. Perhaps this specification of seasons was intended merely to illustrate his ideas on the subject, for he proceeds to say:—"These particulars are for the climate of London, but my meaning is perceived, that you may have *ver perpetuum* (perpetual spring) as the place affords." There are now a vastly greater assemblage of ornamental plants in England than existed in BACON'S time, and therefore more abundant means of fitting out such gardens, yet eight separate departments in the flower garden are not to be thought of in actual practice. In places of ordinary extent, they would very much resemble children's gardens; and it would be intolerable to suppose that only one eighth part of the kept grounds was in perfection at one time.

Subdivision is obviously carried far enough when we have a garden, or rather a section of a garden, for each of the four seasons. Indeed SPRING and SUMMER FLOWER GARDENS do not offer any very natural point of separation; they run into each other; and it is expedient to distinguish them only to prevent dilution and diffusion, by intensifying the respective beauties of the two seasons around special centres. The beginning of June may be assumed as a convenient transition in point of time. The improved modern Rhododendron may be conceived as the Prince of the spring garden,

while the equally improved Rose may be acknowledged as the Queen of the floral tribes of summer.

Every one loves SPRING FLOWERS. There is something peculiarly charming in the opening year, in the resurrection of vegetable life, in the gradual influx, and at length the full spring-tide of the multitudes that swell the train of FLORA. How attractive is the simple elegance of the Snowdrop and vernal Snowflake, the lavish beauty of the Crocus, and the constantly increasing throng of spring-flowering bulbs whose name is legion. Then there are the hosts of Primroses, and Polyanthus of various hues; the self-coloured, or Alpine Auriculas, as they are now called, and other species of Primula, too frequently overlooked or unappreciated. There is Rhododendron dauricum atrovirens from the steppes of the Amoor, which sometimes blooms at Christmas, but which is sure to find a fresh and lucid interval before it is overtaken by its congeners. How miserable to find only a plant or two of this species in otherwise well appointed gardens. Then, too, there are the other Rhododendrons and Azaleas, Lilacs of many sorts, Daphnes, such as D. Mezereum, D. pontica—Dr. ARNOLD's favourite shrub, D. Cneorum, and collina, and many others. In respect to shrubs, we must "mark our gardens deficient" to borrow BACON's phrase—deficient both in selection and treatment. In shrubs, there are many nurseries that put our best gardens to shame.

But to return to Spring: it is a beautiful season, but an uncertain one. The sky is often brilliant overhead; but it is not less frequently dark and scowling. In many places about the end of March, one is reminded of the quaint lines in Christabel:

> 'Tis a month before the month of May,
> And the spring comes slowly up this way.

Even in localities with an average climate, spring is rather a bleak season in Britain. It is late before the east wind exhausts its chilling breath; and the red moon of April—the *Lune rousse* of our neighbours across the Channel—seems to shed down a nipping and malignant influence. These circumstances plainly indicate that the Spring Flower Garden should be in a sunny and sheltered situation. Perhaps the position most desirable for it may be found in the vicinity of the ornamental plant-houses, if these stand apart, as they always ought to do, from the general forcing and more utilitarian glass ranges. It is extremely pleasant to step from the greenhouse or conservatory, already resplendent with early blooming plants, into the scarcely less attractive parterres tenanted by spring flowers in the open air. This is mentioned as the *beau ideal* in regard to situation; but it is freely admitted that in the immense diversity of local circumstances, it cannot always be attained. And it need not be solicitously aimed at. Wherever there are shelter and sunshine, and a moderately light, rich soil, or the means of improving it, the Spring Garden is sure to prosper.

The peculiar style best fitted for this sort of garden is a matter somewhat difficult to determine. There is, however, one ruling consideration which will be admitted by all; it is this, that the bloom of spring and summer flowers is individually of much shorter duration than that of the inmates of the autumnal garden. A week's bright sunshine will efface the splendour of a bed of Crocuses. Even in cloudy weather they seldom retain their beauty for more than two or three weeks. It is much the same with masses of Tulips. It is true that by separating and classifying Tulips in the order of their blooming, from the earliest Van Thols to the latest Byblœmens, three or four successive sets may be arranged which will prolong the Tulip season for five or six weeks; but of course the earlier and the later sections cannot be shown together. So, the early Rhododendrons come dropping in, from the beginning of April to the middle of June; but it is only after the middle of May that they display themselves in considerable masses. With such materials it is evident we cannot produce that general pictorial effect which results from the "bedding-out" system, and which its detractors scornfully call the shawl or carpet pattern. The effects in the spring and summer gardens must be fainter in their general expression, and more successional. From these considerations it seems to result that the spring garden must be in what is called the mixed style, that is, bulbs, herbaceous plants, and shrubs must be skilfully employed and interwoven so as to produce a character of intricacy, and at the same time a series of gradational effects. In this way the *tout ensemble* may never be so striking, at any one time, as in the autumnal flower garden; but it may be relieved from the disagreeable element of sameness sometimes complained of, the particular effects may be exquisite in their kind, and by happy contrivance and foresight on the part of the designer, all the diversified beauties of the season may be introduced and prolonged.

It will be understood, that when we say the spring flower garden should be constructed in the mixed style, we are not recommending the adoption, or the retention, of the old mixed flower border. In the present state of the art, that antiquated affair may be abandoned to the botanical amateur, who otherwise may not be able to find room for his numerous favourites. Spring flowers should be massed: only as they are not intended to produce one general effect which is to continue for a couple of months, the masses may be broken and varied by single plants, or clumps, or curtains of flowering shrubs interspersed among them. Ribbons may be admissible, but there is little room for panelling, and still less for the old rectangular beds, some four or five feet broad, which used to be the normal arrangement in bulb-gardens 40 years ago. The masses themselves need not be very massive, but they should be so intertwined and relieved that flowerless spaces of a few feet in breadth should hardly occur during the whole season.

Supposing it admitted, then, that the Spring Garden is to be laid out in what is called the mixed style, the question remains—what ought to be the ground or platform on which its parterres are to be projected. Ought it to be on lawn or gravel? Should the figures be separated by Grass sward or gravel walks? On these points opinions will naturally vary with the tastes of individuals. With all deference, our preference is in favour of gravel walks. Grass sward, which is so cool and pleasant in summer, does not yield a firm dry footing in early spring; it is hardly ever in fine condition before the first mowing in April or in the beginning of May; but well made gravel walks are serviceable at all times. Besides, they afford space for that condensed mode of ornamentation which is necessary to secure the successive effects of which we have spoken. For these reasons, we would reserve the well shaven lawn—the glory of Britain—to the warmer and drier seasons of summer and autumn.

The means and appliances for decorating the spring flower garden demand a fuller discussion than our space will now permit to us. They should be carefully studied and prepared for. Materials exist in abundance, yet in most cases they are not wielded and applied with sufficient skill and foresight. We believe that in this respect the spring flower garden does not receive the tithe of the attention that is lavished on the autumnal garden. This undeniable neglect is perhaps not unaccountable, but it is much to be regretted, and should be amended if possible. Here we may point to one mistake which might easily be remedied. All florists' flowers properly so called, everything that needs awnings and nursing frames, should be excluded from the flower garden, and relegated to some reserved department attached to the forcing or kitchen garden. The Tulips, for example, in the Spring Garden, should not be florists' flowers, or at least, should not be treated as such; they should rather be selections from the richly-coloured Early Blooming, Parrot, and Double-flowering varieties, of which the Bulb Catalogues of the metropolitan nurserymen afford such an abundant supply.

We observe with pleasure that the enterprising firm of Messrs. E. G. HENDERSON & SON have planted no fewer than 50,000 bulbs of these showy sorts in the Garden of the Royal Horticultural Society at South Kensington. It will be a fine sight. We trust every admirer of fine flowers near London, who keeps a note-book in which to enter a promising Verbena or showy Pelargonium, will visit these Tulips when in bloom, and record the names of those possessed of marked ornamental properties. The same remarks apply to Anemones. There is hardly anything better in the spring garden than the common Poppy Anemone, particularly the scarlet sorts. There are various other species, such as A. apennina, Pulsatilla, patens, &c., that are very useful. Many admirable bulbs are sadly forgotten or neglected in the present day. In old places one used to see most splendid groups of the beautiful and fragrant double Narcissus poeticus, the true Rose of May as it has been called. Its many single varieties, such as angustifolius, majalis, serotinus, are scarcely less ornamental. And on what beds of Jonquils were we wont to gaze with admiration "long time ago." We mean the real single many-flowered N. Jonquilla, resplendent in colour, and rich in fragrance—not N. odorus, single or double, though that also is a fine plant. We are sometimes tempted to ask: can gardeners grow Jonquils now? Not many we fear; they keep pottering at them, lifting them, dividing them, drying their roots; whereas soil and situation being favourable, they bloom in greatest profusion when they have stood three or four years in the same place; but this by the way. And fine beds, too, we have seen of the Polyanthus Narcissus—exquisite at least in their delightful odour, if not distinguished by brilliancy of colour. We might mention also N. moschatus, and N. (Ajax) maximus, and many others, for even a botanical collection of Narcissi is a sight worth seeing in a flower garden.

We have already pointed to the magnificent hybrid Rhododendrons, Azaleas, and their congeners; these form an admirable framework or setting for the bulbs and other plants indicated above; and indeed they might furnish out a very noble garden by themselves. As May advances, the various species and varieties of Pæonia come into bloom. Where the climate admits of them, the varieties of P. Moutan, now almost too numerous, are exquisite additions to the flower garden. Still finer perhaps, if that be possible, are many of the varieties of the herbaceous species, such as P. albiflora, edulis, tenuifolia, &c. These most beautiful plants have been most unaccountably neglected, from prejudice we suppose, or because people have not taken the trouble to inspect them. To be convinced of their decorative value, the gardener or amateur need only visit, at the proper time, the collection of Mr. SALTER at Hammersmith, or that of any other nurseryman who has paid sufficient attention to the family. But these, with the hybrid varieties of Iris germanica, in most climates of the island form the transition to the summer flower garden; and as such we leave them for the present.

WE referred last week (p. 26) to some special cases of GRAFTING VINES, in which results of a decided character seemed traceable to some peculiar influence exercised over the graft by the stock on which it was worked. The subject, as we have already said, is one of some importance, and we invite especial attention to some remarks thereupon by Mr. THOMSON, of Dalkeith, which have lately appeared in the *Florist*. Mr. THOMSON, it will be remembered, was one of the first to draw close attention to the matter in consequence of his success in grafting the Muscat Hamburgh. He now writes:—

"I consider it of great importance that, by the evidence of facts, some just conclusion should be come to as to the stocks on which our high-class but delicate Grapes will succeed best. I have inarched Vines on the Black Barbarossa, and found the Grapes deteriorated—Muscats would not ripen at all; on Lady Downes', West's St. Peter's, and White Muscat, without any improvement, though with no deterioration. On the Black Hamburgh I have only tried Snow's Muscat Hamburgh; but so satisfied am I with the extraordinary improvement in this best of all Black Grapes, that I have this season inarched a number of young Black Hamburgh Vines with it. On its own roots this Grape forms ragged unshapely bunches, the berries swell unequally, and many of them shank and never ripen at all; whereas on the Black Hamburgh stock I have had bunches 5 lb. weight, with berries equally swollen, and well coloured and finished in every respect. I would strongly advise some enterprising nurseryman to work a stock of plants of this Grape on the Black Hamburgh, for one day it must become a most popular Grape. It grows and ripens in the same house as the Hamburgh, and rivals the White Muscat for flavour. I have inarched the White and Grizzly Frontignans on Hamburghs this season, influenced by the effect of this stock on the Muscat Hamburgh, and am sanguine as to the result.

"One caution is necessary for those who may try experiments of this sort—they should take care that they inarch on stocks in good health and vigour. It sometimes happens that a particular Vine becomes, from some cause, unfruitful. To cut this Vine down, and graft it with another sort, and if success did not attend the operation to conclude that the Vine in question was an unsuitable stock, would not be a fair inference, when it is considered that the Vine was unfruitful when the experiment was begun, and might be expected to continue so, no matter what sort might be grafted on it, unless some radical change was wrought in regard to its general circumstances.

"The splendid bunches that Mr. HILL, of Keele Hall, showed at the London exhibitions last summer, were from the Black Prince on a Hamburgh stock, as is well known; in fact all the data that have come

under my observation point unmistakeably to the Black Hamburgh as the best stock for tender Vines. At first sight I would have concluded that the Raisin de Calabre would be an excellent stock. The Vine is hardy, grows and ripens its fruit well in a cool Vinery, and is a most vigorous grower; but it seems that it failed with Mr. FOWLER, of Castle Kennedy, from excess of vigour, in as far as it sent up more sap than was required by the berries, and burst them. Probably this could be avoided by leaving a more than ordinarily heavy crop on the Vine—a very pleasant way of effecting a cure, if it answered. On the whole I think this Vine should have a fair trial as a stock; it has many qualities to recommend it. If all who try such experiments would give the results through the press, the matter could soon be settled, and a great boon conferred on Grape-growers."

We quite coincide in Mr. THOMSON's last recommendation, and shall be happy to learn what has been the general experience of our readers on this point.

THE tribe of ONE-SEEDED CUCURBITS forms a small but very curious division in that important natural order. Amongst these the Chuchu or Chocho (Sechium edule, Sw.) is largely cultivated in warm countries, as for example in Madeira, where it bears the name of Pepinella or Cahiota, and from whence excellent specimens have just

been received through the kindness of the Hon. Mrs. ROWLEY, from one of which the accompanying figures have been prepared, which will be acceptable to many of our readers from the singular mode of germination, though the cultivation of the plant can never be more than one of curiosity in this country.

An admirable and full description will be found in Mr. LOWE's Manual Flora of Madeira, to which we are indebted for the following particulars.

Two varieties are extensively grown in Madeira in gardens and about houses, one of which bears

pale green flowers and fruit; the other, though better looking, and bearing larger fruit, which with the flowers is cream-coloured or white, is inferior in quality.

The habit of the plant is that of a Cucumber, but the annual stems, which are succulent and shining, spring from a large shapeless massive rhizome or root-stock, which is corky rather than fleshy or woody. The male flowers grow in short whorled axillary racemes, and have a delightful Peach-like fragrance. The female flowers are mostly solitary. The stigmas are combined into an umbrella-shaped mass. The ovary like its short stalk is covered with a mealy pubescence, and is top-shaped or clavate above, more or less indistinctly or irregularly five-lobed, one-celled, with a single erect ovule attached by the middle of one edge to the cell wall. The fruit is from 3 to 6 inches long, and about 3 inches broad above, where there is a large deep narrow transverse umbilicus, the edges of which are more or less puckered. At the base there are four or five irregular lobes or grooves, as in the upper figure. In germination, as in our lower figure, the radicle and a portion of the broad flat leafy cotyledons, which extend through nearly the whole length of the fruit filling the cavity, protrude from the fissure, the plumule making its appearance at one side. The coarsely rugged and uneven shining surface of the extremely solid and heavy fruit, which is described as setoso-echinulate, though perfectly smooth in the example before us, is very remarkable. The flesh is about an inch thick, hard, firm, and solid, fibrous inwards, and gradually compacted and blending with the large compressed softish fibrous shell. When boiled it is a favourite vegetable in Madeira during the autumn and winter months, resembling young Pumpkins when immature, but when ripe somewhat firmer, drier, or more mealy in consistence, with a peculiar nutty flavour. The specimen from whence our drawings were made proved excellent when boiled for nearly two hours. After germination the fruit enlarges into a persistent subaërial rhizome, one of the most singular peculiarities in the plant, which is of American origin. We believe that there are living plants at Kew. *M. J. B.*

—— ONE of the popular flowers of our time is unquestionably to be found in a race of PELARGONIUMS, which is wanting a name—a name that is, that shall be definitive, and not contradictory. The varieties of this race have been designated, for the most part, Scarlet Pelargoniums, but this title has long since become inappropriate, from the number of varieties having white or salmon-coloured, or pink, or rose-coloured, or parti-coloured flowers. They have been called Horse-shoe or Zonate or Zonal Pelargoniums, but these several terms, as implying what is true only of a part and not the whole, are as inappropriate when applied to the entire race as that which describes their original colour. They have been called Bedding Pelargoniums, but this is not discriminative enough, inasmuch as Pelargoniums of other races are more or less freely employed for bedding purposes, and besides, these are not exclusively bedding plants, for some of the varieties are amongst the most desirable acquisitions of modern times for conservatory decoration and for exhibition purposes. As we have, however, amongst them a group called Nosegays, might we not, from the profusion in which they produce their blossoms, and failing a better name, extend this idea with advantage, and by calling them all GARLAND PELARGONIUMS, avoid any further contradictions?

We have said that these Garland Pelargoniums, as we venture to call them, are desirable acquisitions for exhibition tables. Some perhaps who may have watched their fitful presence at our flower shows, and their too common appearance when present, may be inclined to question this, but we repeat advisedly that they *are* acquisitions for exhibition purposes. The reason they do not generally present the appearance they ought to do, is found partly in the inconstancy or insufficiency of the encouragement held out, and partly in the recent origin of the finer and more varied kinds. Prizes are offered sometimes and sometimes not, and consequently the growers are not prepared to show. The subjects are treated as common bedding "stuff," and insufficient prizes fixed, and the growers, few of whom are so much as stimulated to try, take just as little trouble as will suffice to win. Let it be known however, that fair remunerative prizes will be always forthcoming, and the growers will do the rest, though they may not just at first hit the same degree of perfection in growth as has been realised with the show Pelargoniums, after something like a quarter of a century's experience of their treatment as show plants. No doubt the fact of calling these things "Scarlet Pelargoniums," or "Scarlet Geraniums" as many say, has militated against them at exhibitions, the very name being so intimately associated with the idea of parterres and bedding out that they have been looked on as common and vulgar; but we propose to show that the materials are so much varied in tint, and so refined in character, that such an estimate of them is altogether false.

So much by the way. We will now run rapidly through the lists of these Pelargoniums, noting as we proceed the choicest of them, so far as they have come under our observation. For our purpose we may bring them all under the following colour groups:—Oculate, White, Rosy-pink, Salmon-colour, Cerise, and Scarlet. For the present we say nothing of the Nosegays, which form a group apart.

Of the Oculate series, that is to say those with white blossoms having a coloured eye, a group which is undergoing rapid improvement, the varieties named Amelina Grisseau, Eugène Mezard, Beauty, and Leonie Nivelet may be selected as especially good, differing among themselves in the amount and depth and arrangement of the salmon colour of the centre. These are all most refined and charming grown as pot plants.

Amongst Whites perhaps none beat our old friend Madame Vaucher on all points, more especially as a bedder; but as pot plants we have seen White Perfection and Vierge Marie in great beauty. These are certainly all good.

Of Rosy-pinks we look upon Beauté de Suresne as the best we have met with as to size and shape amongst the deeper-coloured varieties, whilst Flora, Mrs. William Paul, and Eve, are all exceedingly fine large-flowered sorts of a pale peach-blossom. Rose Queen, Christine, and Rose Rendatler are thoroughly good older varieties of this group, fine both indoors and out.

The best of those with Salmon-coloured flowers is we think, a Chiswick seedling called Princess Mary, the flowers of which are large, finely formed, and of a shaded salmon pink. St. Fiacre, salmon, deeper at the centre, is thoroughly good, a most prolific bloomer, and moderately dwarf; while Fanty and Auricula are two serviceable free-flowering varieties in this particular shade of colour. These are all admirable indoor plants.

Amongst Cerise or Rosy-scarlet flowers the choice is greater, and some of the finest of our Garland Pelargoniums will be found here, the shades of colour varying so much as they verge towards scarlet on the one hand and salmon colour on the other, that it is vain to attempt to describe their peculiar tints. Hector, Roi d'Italie, and Monsieur Martin are gems amongst them, and perfectly distinct, the first of a bright and light cerise-rose, the second a salmony scarlet, and the third a cerise-scarlet, all of them both as to pips, truss, and habit being everything that could be wished. But scarcely, if at all, inferior to these stand Umpire, Nora, Lord of the Isles, and Herald of Spring, all of them fine rosy scarlets, meriting a prominent position, and, like most of the varieties of this group of colour, exceedingly effective as pot plants.

Finally, of Scarlets, the name is legion. The zonate varieties are the most abundant, and of these Victor Emmanuel, Attraction, Amiral Protet, Martin Gireau, Clipper, and Adonis, which vary as much in their leaves as in their flowers, are amongst the best. Punch is not beaten amongst the large-flowered green-leaved sorts, but Faust is probably as good and different, while in Waltham Pet we have a green-leaved miniature scarlet of great beauty.

We look forward to the coming season as likely to yield a considerable advance upon the materials we have here indicated, but even with these who shall say the Garland Pelargoniums are mere "common bedding stuff," and unworthy a prominent place at our flower shows in the month of July, when the glory of their congeners—the more petted Show and Fancy Pelargoniums, has departed?

FILLING FLOWER BEDS IN WINTER.

THIS is a subject to which attention has been occasionally directed. Evergreens, variegated Hollies, and other dwarf shrubs, have been recommended for the decoration of the flower garden during the season of the year when flowers are not available, and there can be no doubt that by such means the beds are made to look furnished and neat, but certainly not like what they are in summer. As far as is known to me it has been left to Miss Hope, of Wardie Lodge, near Edinburgh, to introduce an entirely new and unique system of filling flower beds during winter; and it not with flowers, with that which is so like them that it requires close inspection to discover that flowers are not employed. Miss Hope is distinguished for her love of plants, and for the extensive knowledge which she possesses of their nature and culture, as well as for her devotion to her garden; and for years she has furnished her geometrical flower gardens with dwarf shrubs at an annual cost of some 50*l*. or 60*l*. She however longed for something that would produce an appearance more like a flower garden than shrubs, and having observed the fine tints of some varieties of what is called "Posey Kail," she made a selection of a few of the finest, and saved seed from them. She again selected the best varieties, and seeded them until she has arrived at what is all but perfection, as far as regards the various tints of purple, white, mauve, pink, and other intermediate shades. These she now grows in an open exposed field till the flowers that have occupied the beds in the garden during the summer and autumn months are cleared away; the beds are then well dug up, and filled in some instances entirely with the various shades of the Kail, with the exception of a single dwarf Cypress or other shrub, which is placed in the centre. Circular beds have a row of white Kail round the dark green shrub, then a row of purple, outside of which is a row of a very dwarf pink Kail. In other instances large oval beds have a taller shrub in the centre, and the ground run off into panels by means of dwarf plants of variegated Aucuba. These panels are planted with the various tints of Kail, and the whole is neatly bordered with variegated Ivy.

Other beds are formed into panels by means of dwarf specimens of common Green Kail, and are edged with Cerastium tomentosum, the panels being filled with variegated Kails. Long beds are planted in the ribbon style, and such plants as the variegated varieties of Veronica Andersonii, Arabis lucida, some of the dense-growing green foliaged and variegated varieties of Saxifrage, are used in connection with them, and certainly with remarkably good effect.

The geometrical garden which I have so imperfectly described, occupies a sunken panel of Grass, and consists of some 20 beds, that would require about 5000 bedding plants in them for summer decoration. This garden seen now, with the setting sun upon it shining through the transparent white and pink leaves of the Kail is more like a scene looked at through a kaleidoscope, than anything else with which I can compare it. Viewed from the windows of the mansion it has quite the appearance of a well-furnished flower-garden in the month of September, with this difference, that one is quite at a loss to conceive what Pelargoniums, Verbenas, or other flowers, yield such charmingly soft tints of colour as are afforded by the pink, mauve and almost magenta-coloured Kail.

Miss Hope's very intelligent gardener informed me that these several coloured varieties of Kail are perfectly hardy, and stand in the beds, not in full flower certainly, but in full foliage till May, few of them running much to seed before that time. Some varieties stand for two or more years without seeding, and he pointed out one very remarkable variety that could not be got to seed at all. This sort he however propagates from short side sprouts, which it throws out. Many of the varieties are remarkably dwarf, being not more than 4 inches in height, though they spread their foliage to some 8 or 9 inches in diameter; others grow much taller and larger in every respect.

Plants are obtained by sowing seed in March, and afterwards transplanting on poor light soil in an open exposed field, which no doubt has something to do with keeping them dwarf and stocky. When required for filling the beds, the proper tints and sizes are selected for the various panels and circles. They are removed with a small ball of earth at their roots, planted to the depth required, and watered to wash any earth off their leaves, and to settle the soil round their roots; they then require no farther attention except the removal of any decaying leaves which may appear on them during the winter.

Some may be disposed to smile at this style of flower gardening, and I confess that I had a strong tendency in this direction while on my way to Wardie Lodge, but as soon as I got a sight of the object of my visit, I made a mental apology to Miss Hope, her gardener, and her Kail. *W. Thomson, Dalkeith Park, Jan.* 18.

NOTES ON GARDENS.—No. XXVI.

THE DUBLIN PHŒNIX PARK AND ITS GARDENS.

THE main entrance to the Phœnix Park, or the Dublin Gate as it is called, is a little beyond the King's Bridge—the most western of the city bridges, "on proceeding a little further than which," says Sir E. B. Head, "we entered the gate of the Phœnix Park, the finest national playground in Europe, and I believe in the world. Indeed, it contains no less than 1700 acres of beautiful Grass, more or less covered with trees and shrubs, growing as wild as in any uncultivated region of the globe, all open to the public." This might be thought much too gushing from your Correspondent, but Sir E. B. Head is quite right, barring a slight mistake about the size of the Park, which is 1752 acres and odd in extent, and 7 miles in circumference, its size, pure air, and magnificent mountain views all combining to make it decidedly the "finest national playground in Europe." Lying to the west of Dublin, and thus escaping city vapours; bounded along its whole southern length by the Liffey; fanned by the purest mountain breezes; unpolluted by houses, even round its margin (the narrowest part running into the western limit of the city, in an obtusely acuminate manner, like the upper half of a leaf of Ficus religiosa with the apex bitten off—as if it had been designed to give the most convenient Park landing-stage to the city, and at the same time to keep the "groves of chimneys" and chief groves of trees as far apart as possible); traversed by the finest roads, with immense lawns, water, wood without end, wild hollows, herds of deer, and frequent military displays, this Park, as may be readily supposed, offers an inexhaustible and varied retreat to the Dublin Cockney. You meet this individual in the Park on a Sunday or holiday morning, leading the sometimes dainty and often pugnacious looking dog, just as the real Simon Pure takes himself to road, or marsh, or heath, in preference to the more straitened and artificial London parks. For there is one broad and excellent road, nearly three miles long, running straight as a gun-barrel from the Dublin end of the Park to its north-western extremity, and then, if the pedestrian takes the boundary roads, he may walk till exhausted, without the slightest chance of ever committing the mistake so frequent with strangers in the Regent's Park—going round the same circle till the trees begin to be familiar objects.

Along this great central road, at proper distances, there are opposite clumps of trees, each surrounded by iron fencing. Mr. Wilkie, the chief bailiff and superintendent, meditates a grand improvement here—planting a Wellingtonia in the centre of each clump; the clumps being just fitted to nurse the young Californian giants, and being at about the right distance apart to allow for their colossal development. All that is wanted to effect this is of course a grant of money, though not a very large one. But would they grow and thrive? Yes, most assuredly, for in Mr. Wilkie's garden, a little to the north of the country end of this grand drive, is a specimen which has given me the best idea I have yet had of the beauty and glorious dignity of the Wellingtonia. It is about 17 feet high, feathered to the ground, with the branches beginning to swing downwards a little from weight, but with such a strongly and beautifully built stem! Look at the pencil-like apex, pointing skyward with mathematical precision, and then trace it down, getting larger by degrees and beautifully great, till the base—sufficient for a tree of twice the height and size—is seen half hidden among the Grass. What excellent preparation to send a vegetable tower into the skies—a tower too, which, if it fulfils the promises of the foundation, and is always preserved as now by loving hands from injury, may survive strong 19th century buildings of man; see nations buried; and perhaps afford interest to the New Zealander (who will certainly not be a Maori), should he cross the Channel, and when walking up through the noble but smaller trees, see at last Mr. Wilkie's monument, the king of the grove!

To the right and north-east of this central artery, the Royal Military Infirmary, occupying 7½ acres, is the first establishment within the Park, and then some picturesque ponds in hollows are met with, but on the whole there is barely sufficient expanse of water in the Park for its extent. Then comes the head-quarters of that peculiar but excellent force the Irish Constabulary. From this finely situated barrack, the recruits are distributed over the country after being drilled and trained, and it also contains a reserve of picked men, and a troop of cavalry, ready to act or start for any part of the country upon emergency. Just beyond the police depôt is the Zoological Garden, very picturesquely situated, and with a handsome sheet of water dividing it from the Park on one side. The garden is a favourite resort of the people on Sundays, being opened after divine service at a penny charge.

Next comes the Viceregal demesne, containing 209 acres, well wooded, and cut off from the Park by a sunk fence, thus not interfering with the general expanse and beauty of the scene, but, on the contrary, improving it by presenting such a large oasis-like sweep of rich wood to the view. Nearly opposite the Viceregal entrance in the centre of the long road, stands the Phœnix, a pillar erected by Chesterfield when Governor of Ireland, and surrounded by a representation of the ornithological emblem of Immortality rising from its ashes. The Under-Secretary's (containing 52 acres) and Mr. Wilkie's places are the remaining ones to the right of the main drive, both finely situated, beautifying the Park, and of course adding immensely to its horticultural interest. Wellington's monument, a huge pile of granite, with the victories of the Duke engraved upon it, and bronze relievos at the base, rises on the left near the entrance to the height of 289 feet, and if not a very classic monument (it is sometimes alluded to by the "pisanthry" and others as "the big milestone") it is at all events a very simple, permanent, and imposing one.

The demesne of the Chief Secretary contains 71 acres, and is situated to the left of the central road, nearly opposite that of the Lord-Lieutenant, and there are several other extensive establishments on this side, though far removed from it. Among them there are the Mountjoy Barracks, the head-quarters of the Royal Engineers, occupying 9½ acres; the Hibernian School, surrounded by grounds 40 acres in extent, where great numbers of soldiers' boys are brought up; cricket grounds, plantations, &c.; but all these merely skirt the woods on the margin of a verdant prairie-like expanse, called, or miscalled, the "Fifteen Acres," where the reviews of troops take place. "Besides being the only spot in the United Kingdom in which a large army could be manœuvered, it is perhaps the most picturesque ground for the purpose that could possibly be conceived, for not only is it surrounded by Fir and Larch plantations of various shape, but on the south the horizon is bounded by a chain of mountains of extraordinary beauty," says Sir E. B. Head. Here, in 1849 before Her Majesty, and on numerous other occasions, many thousand men have been reviewed, not in the Hyde Park style, but with the swiftest and most dashing movements of every branch of the service performed. On those occasions, when the "Fifteen Acres" are flitted and swept over by the Horse Artillery and the united charges of three or four regiments of cavalry—when the whole force falls into line, extending, perhaps, a mile or more, and when the smoke and parade of "battle's magnificently stern array" are so fully represented, the view over the plain from its rising woody margins and mounds is a most attractive one to the citizens.

The road along the southern side of the Park commands beautiful and striking views of the Dublin mountains; winds in and out amongst well wooded and picturesque glades, mounds, and banks; looks down upon the Liffey, just outside the falling margin of the Park, which has here for miles worn itself out a richly verdant and winding valley; passes by numerous brakes of Furze, &c., quite sufficient to suggest "hiding in the bush," if not being "lost" in it; and finally runs out beyond the Park towards the "Strawberry beds." These last are the very steep banks of the Liffey planted for a great length with Strawberries; but also having a plantation of dancing tents and whiskey shops along the road at the base of the Strawberry ridge. To these united attractions the number of Dublin "boys" and girls that are attracted on a fine Sunday during the fruit season is something astonishing. In fact nothing would give any idea of it but the clouds of dust kicked up by the tightly packed jaunting cars dashing out in close file through the Park, with very merry passengers, all bound for "the beds."

There are lines of fine old Elms in the Park, and some old wood in various places, but by far the largest portion is comparatively young, Mr. Wilkie having planted many score thousands of very varied trees, many of the best deciduous trees being seen in abundance, and also the commoner Pines. But beautiful as the woods are in many parts already, the beauty and the interest which might be added to the charms of this noble Park by liberal and judicious planting of the rarer and more recent Pines, deciduous trees, and evergreens, may be easily imagined. No scene in the British Isles is more susceptible of improvement in this way, and no man living is better fitted to effect it than the much respected, or more correctly much-loved Superintendent, who in his own garden exhibits the finest, rarest, and noblest of our Pines, shrubs, and deciduous trees planted at his own expense, and now in the rarest health and beauty.

Spent in the planting of the finer trees and shrubs, what a different result does money produce compared with its outlay on endless floral decorations, perishing with the first frost of autumn, as may be seen in some of the London Parks, with a perennial roundelay of expense for housing, propagating, &c. I am not justified, nor do I wish to object to this system if carried out in moderation, but when one stands amidst some of those scenes and looks about for that most essential of all beauties in park or garden—trees, and no end of pudding-headed Limes, Elms, &c., are all that offer themselves for the eye to rest upon, it is not too much to wish that more skill and expense were devoted to the shrub and tree interest. "But they won't grow," may of course be said. Very few evergreens will grow in London, and with the exception of Aucuba, Box, and Holly, and perhaps a few others, it is a mistake to plant them; but if the soil were properly prepared—made if necessary (it is so on the north side of London, and the expense incurred during a few years by a garden decorated in the common manner, would probably furnish the same space with a sufficient depth of any desired soil), there can be no doubt that better things could be done with deciduous plants in the parks than we have yet witnessed. And after all, these evergreens are not so very desirable for the parks, for during the season when they are most enjoyed and enjoyable, evergreens possess no advantages whatever over deciduous trees and shrubs. How many people do we see in the parks during the winter season, except those who pass through on business? Very few indeed.

Hawthorn would have been a much more fitting name than Phœnix for the Dublin Park, for of all the subjects that at present embellish it, it owes most to the normal form of Cratægus Oxyacantha. There are thousands and thousands of fine old gnarled specimens of it in various parts of the Park, covering hill and hollow, of great size, standing singly on the turf, and in some cases covering a dozen acres by themselves. They are all old indigenous plants, annually of course a mass of flower; and at that season, of all "fragrant shades" that I am acquainted with, this is the chief. The effect of these trees when in flower to one wandering towards dusk in parts of the Park commanding a good view of a sheet of their tops, is at first sight, as if they were covered with snow. This plant and its varieties, and the host of beautiful European and American species of Hawthorn, do almost as well in the London Parks as in other places, and as in fruit or flower nothing can be more beautiful, we cannot have too many of them. For the fruit alone some species would be well worth planting in quantity; but as some come in flower later than the common one, and give us the finest "May" for three weeks after that month is past, more need scarcely be said in favour of the genus Cratægus. Some fine Elms that border the main drives were planted about 120 years ago. Among other improvements which were being carried out at the time of my visit, was the formation of a pond with a very picturesque island, to be planted with Austrian and other Pines on the mounds—a slight instalment of Mr. Wilkie's grand scheme of improvement, the sooner he is permitted to carry out which the better for Dublin and its Park.

There is at present no flower garden proper in the Park, but it is contemplated to make one, and no doubt the sprinkling of flower beds over one of the most picturesque spots near the Dublin entrance would be a boon to many, though such is by no means necessary, nor perhaps desirable, as the sort of improvement contemplated by Mr. Wilkie—great variety of the finest trees and shrubs in select spots widely separated, with here and there nearly distinct groups, to give decided features and peculiar charms to widely separated spots—is that which above all others would exercise the people in the Park as it were; make them travel and traverse miles from charm to charm, and thus effect for their bodily health, what no concise, elaborate, expensive garden in which the people crawl about ever could. It seems to me that there is an impression abroad that it is impossible to embellish a park with trees and shrubs, and that Tom Thumbs must be resorted to. This would be right enough if Limes and Elms, with here and there a brake of Privet

or Plane and Willow, were the chief things we could boast of in that class; otherwise certainly wrong. Sir J. Paxton was quite right in his opinion on "gardening in the Parks" in the sense in which it is now being done. They should at least have been finished as parks before being garnished with gardening; should have been made the most of with hardy subjects, before heavy expense was incurred with fugacious tenderlings.

The Phœnix Park was first "laid out" and opened to the public by the elegant Chesterfield, when Lord-Lieutenant of Ireland. The name "Phœnix" is supposed to be derived from a spring of limpid water, in Irish fionnuisge, which antiquarians suppose to be gradually corrupted into Phœnix. This spring is a strong chalybeate, now covered over, and near it, for the accommodation of those who frequent the spa, is a rustic dome with seats around, given, as an inscription tells, by the Duchess of Richmond in 1813. The Park, or a great portion of it, belonged, in very old times, to the Knights Templars, and afterwards to the Knights of St. John of Jerusalem. On the suppression of the monasteries it was surrendered to Henry VIII., and enclosed for a deer park by the Duke of Ormonde in the reign of Charles II. To Queen Elizabeth is attributed the idea of making it a Royal park. *William Robinson.*

(To be continued.)

THE WEATHER OF 1864.

January.—It may be remarked that at the end of 1863 the amount of rain was nearly 3½ inches short of the usual depth, so that the ground was in a comparatively dry state at the commencement of 1864. In January there fell little more than one-third of the usual quantity. The mean temperature was lower than usual; but, with the exception of the 6th, when the thermometer fell to 7°, there was no severe frost. East and N.E. winds were most prevalent. The barometer stood very high on the 3d, and its average for the month was higher than usual.

February.—This was another dry month. The depth of rain was only about ¾ inch. The mean temperature was nearly 4° below the average. Though generally cold the weather was not severe. The lowest temperature occurred on the night of the 9th, therm. 11°. The barometer averaged somewhat lower than usual. North and easterly winds were most prevalent.

March.—For five previous months the rain which fell in each was respectively below the average; but in this the quantity was nearly double the usual quantity for March; and it mostly fell on the 3d, 5th, and 9th. The barometer was generally low, and on the 7th it was remarkably low. The prevalent winds were from east and north-east. The highest indication of the thermometer was 60°, which occurred on the 20th; the lowest, 19°, on the 23d.

April.—The mean maximum temperature was 3½° above the average; mean minimum 1° below, and the mean of the month was 1½° above the average. The highest temperature in the shade was 75°, on the 20th. There were 12 frosty nights, the coldest of which was that of the 12th, therm. 25°; and on the 22d it was 26°; the latter affected vegetation more injuriously, in consequence of the previous very warm days, the thermometer in the shade being as high as 75°. The highest temperature of the days was 3.76° above, but that of the nights was somewhat below, the average. The barometer was generally higher than the average mean. The amount of rain was scarcely half the usual quantity. The prevalent winds were from north-east and east.

May.—Fully an average temperature was maintained in this month, owing to the heat of the days, for the nights were on the whole colder than usual, and six of them were frosty. Even as late as the night of the 29th the thermometer indicated 7° below freezing. The amount of rain was fully equal to the average quantity for the month; the greatest portion of it fell on the 6th, 9th, and 31st. From the 15th to the 20th, inclusive, the maximum in the shade averaged 82°, that of the 15th being 83°; this exciting influence as regards vegetation was followed by frosts on the 23d, 29th, and 30th; the thermometer on these nights indicated respectively 6°, 7°, and 4° below freezing; these degrees of frost were very much against tender sorts of vegetation, bedding-out plants, &c.

June.—The mean maximum temperature was not quite a degree below the average, but the mean minimum was more than 5½° colder than usual. On six nights the thermometer averaged only 3½° above freezing; on the 26th it fell to within 2° of that point. This was unfavourable to half-hardy kinds of vegetation. The days, however, were generally very fine, with abundance of sun; and with this the hardier kinds of vegetation made substantial growth. In previous years we have frequently had occasion to remark, that, with sunny days in June and July, even although the nights may be cold, the crops of grain give a better yield than when the mean temperature in these months is above the average, or higher than it was in this month, but derived from warm nights and warm but comparatively sunless days. The amount of rain was one-fourth of an inch below the average. The wind was from the west for half the days in the month. The barometer was generally steady.

July.—The days were very hot and dry, but the nights unusually cold. The mean maximum was 77.03°; the mean minimum 44.54°; the range between the night and day being 32½°. The thermometer was frequently as low as 40° or lower, on the 7th it was within 3° of the freezing point. Only half an inch of rain fell, little more than one-fifth of the usual quantity for this month. The barometer was tolerably steady, its mean height being a little above the average. South-west winds were less prevalent than usual, while those from east and north-west were more so.

August.—There was a still greater discrepancy between the mean minimum temperature at night and that of the average than was the case last month, for the temperature at night averaged fully 9° colder than usual; the mean maximum was upwards of 1½° higher than the average. There was much hot sunshine, and fruits of trees that had sufficient moisture at the root increased to large size and acquired perfect maturity; but in many instances the trees suffered from dryness, and the fruit was comparatively small. The harvest was brought forward early; and from the abundance of sun-heat and light in the previous months, whilst the foliage of the corn plants was yet green, and capable of elaborating the juices through the agency of powerful solar rays, the grain proved very substantial, much more so than when growth is made in warm but sunless weather.

September.—Although a month later in the season, the nights were actually warmer than in the previous month, still they were below the mean 2½°; whilst the mean maximum of the days was nearly a degree above the average. On three nights the temperature fell as low as the freezing point. The quantity of rain was in excess of that which usually falls in September; but it was soon absorbed by the parched soil, and without reaching the lower roots of trees. The want of water had been severely felt in many parts of the country; but the rains in this month refreshed at least the surface of the ground.

October.—The mean maximum temperature of the days was fully maintained; that of the nights was, as in all the months of the year, below the average. The lowest temperature occurred as early in the month as the 5th, when the thermometer indicated 25°; and on six other nights the temperature was at or below freezing.

November.—The nights were generally more or less frosty. The thermometer, as early as the 3d, was as low as 20°, and on the 9th it fell to 17°, which was the lowest point reached in the month. The average temperature of the nights was upwards of 6° below the mean; that of the days was, however, fully maintained. The quantity of rain was below the average; little fell till the 23d, when there was nearly an inch. The barometer on the 14th and 15th was remarkably low, and that too with an easterly wind.

December.—This month was cold and dry. The mean temperature was 2° below the average. The amount of rain was only 0.34, or about one-third of an inch. The roads were often dry and dusty. The arrears of rain at the commencement of the year was 3.32 inches; and if to this be added the deficiency in 1864, it appears that at the close of the year the arrear was 10$\frac{1}{10}$ inches. This is nearly equal to half a year's fall of rain. The deficiency may be spread over a number of years, and may be made up by degrees. But if it should be made up in the course of 1865, this would be the wettest year recorded, near London, for the last 24 at least. The springs have never been so low as they are at present for the last 40 years. *R. T.*

TABLE SHOWING THE HEIGHT OF THE BAROMETER AND THERMOMETER, AND DEPTH OF RAIN AT CHISWICK, FOR EACH MONTH OF 1864, COMPARATIVELY WITH THE AVERAGE OF THIRTY-SIX YEARS.

1864.	Barometer.			Thermometer.								Rain.	
	Mean.	Extreme highest.	Extreme Lowest.	Mean Max.	Above (+) or below (—) the average.	Mean Min.	Above (+) or below (—) the average.	Mean.	Above (+) or below (—) the average.	Extreme Highest.	Extreme Lowest.	Amount.	Above (+) or below (—) the average.
	Inches	Inches	Inches	Degrees	Degrees	Degrees	Degrees	Degrees	Degrees	Degrees	Degrees	Inches	Inches
January	30.136	30.528	29.805	42.22	—0.59	27.16	—3.86	34.69	—2.22	54	7	0.57	—1.058
February	29.842	30.278	29.306	42.44	—3.28	27.00	—4.68	34.72	—3.98	55	11	0.76	—0.702
March	29.619	30.208	28.911	51.06	+0.28	30.45	—2.92	40.75	—1.32	60	19	2.53	+1.219
April	30.041	30.339	29.633	61.20	+3.76	35.10	—1.08	48.15	+1.34	75	25	0.77	—0.809
May	29.942	30.214	29.590	67.67	+3.05	39.51	—2.50	53.59	+0.28	83	25	1.95	+0.033
June..	29.912	30.252	29.464	71.40	—0.58	42.97	—5.67	57.18	—3.13	80	34	1.70	—0.260
July	29.979	30.138	29.515	77.03	+2.42	44.54	—6.77	60.78	—2.18	87	35	0.50	—1.965
August	30.043	30.409	29.689	75.09	+1.65	41.44	—9.06	58.26	—3.71	89	31	1.59	—0.835
September	29.887	30.332	29.302	68.60	+0.93	43.36	—2.57	55.98	—0.32	75	32	2.79	+0.321
October	29.799	30.308	29.000	59.64	+0.41	38.29	—2.80	48.96	—1.20	68	25	1.42	—1.275
November	29.708	30.583	28.721	50.80	+1.12	28.93	—6.28	39.86	—2.58	66	17	1.94	—0.321
December	29.971	30.497	29.410	44.74	—0.61	29.93	—3.38	37.33	—2.00	58	10	0.34	—1.138
	29.899	30.583	28.721	59.32	+0.71	35.72	—3.58	47.52	—1.79	89	7	16.86	—6.785

The Mean Pressure was .011 inch below the average.
The Mean Temperature about 1¾ degree below the average.

The Mean Maximum Temperature nearly ¾ degree above the average.

The Mean Minimum Temperature fully 3½ degrees below the average.

Amount of Rain upwards of 6¾ inches below the average.

Home Correspondence.

Eriophorum angustifolium.—I see in your last Paper that Dr. Dickie has brought two forms of this before the Linnean Society. In April 1863, I noticed the following forms:—1, the sexes in different plants; 2, the sexes in different spikes on the same plant; 3, the sexes in different flowers of the same spike. These forms were in Sunninghill Bog, Berkshire. I could not find any hermaphrodite flowers there. My note says nothing as to any difference in the size or form of the spikes, or as to any rudimentary organs. The first and second forms were in a great measure if not entirely separate; I cannot say how this was as to the third form. I have seen forms 1 and 2 in the same place in former years. If Dr. Dickie happens to see this and will send me his address, I will furnish specimens with pleasure at the proper season. *G. H. Sawyer, Heywood Lodge, Maidenhead.*

Erianthus Ravennæ.—I beg to assure your Correspondent (see p. 1181, 1864,) that I have proved this Grass to be perfectly hardy for 20 years, and I wish also to inform him that it has flowered in the gardens of the late W. Borrer, Esq., Henfield, Sussex, but it did not ripen seeds. I may likewise add, for your Correspondent's information, that it is by no means a new Grass. *Charles Green, Hillfield, Reigate.*

Grafting Vines.—In the spring of 1863 I grafted a Dutch Sweetwater on a Syrian, cutting away a long rod of the latter owing to the difficulty of ripening it with the heat at command for Black Hamburghs, of which the other Vines in the same house consisted. In 1864 the scion produced some 20 bunches of Sweetwater Grapes, which were quite ripe about the middle of August, having precisely the same flavour and appearance as those on the parent stock—yet the Syrian appeared to have imparted a little additional thickness to the skin and rather more firmness to the flesh—the consequence of which was that the keeping properties of the Grapes seemed to be considerably enhanced. Some of the bunches were quite fresh and good on the 6th of this month (January, 1865), although the house had not been kept particularly dry—no fire having been used, except once, when the temperature fell to 20° Fahr., and a few plants in pots were also in the same house. The foliage on the scion had the same appearance as that on the parent Sweetwater, until it faded in November, when it assumed the beautiful mottled yellow colour of the Syrian—at a time when the parent Vine was yet green. It seems probable that the advantages of grafting Vines may be found considerable, and every contribution of experience in this direction may prove useful in inducing some either to proceed in one direction or to pause in another. *C. W., Calder Mount, near Garstang.*

Trade Catalogues.—Permit me to direct the attention of seedsmen to their Catalogues, and to ask whether or not the latter cannot be profitably condensed, inserting only the names of such flowers and vegetables as deserve cultivation. I have now before me a flower seed list, enumerating not less than 1500 sorts; a column is left for quantities ordered, the prices per ounce or packet are quoted, and here ends everything like information. What a task it is for us to wade through such an army of hard names in order to select one's 30 sorts. We require them good, and we wish to have our little garden gay. We cannot all afford to purchase bedding plants, which all of us have not the convenience for growing ourselves; neither can we at all times leave the selection of seeds to our seedsmen. I therefore do think that seedsmen ought to give this much information, viz.:—Duration, Height, Colour, Time of Flowering, and whether adapted for massing

or not, &c. I am of opinion that if nine-tenths of the names were altogether left out it would be a move in the right direction. Seedsmen should strive to excel in judicious selection, rather than in collections of mere botanical curiosities. *Ignoramus.*

Gardeners' Discussion Classes.—One of these was commenced at Shrubland under very favourable circumstances during the time Mr. Taylor was gardener there, and was conducted exactly on the same principles as those related by your Correspondent. I am glad to be able to say that the young men belonging to the place were fully aware of the advantages to be derived from such meetings, and that several of them are now holding very responsible situations. I may also add that the papers after being read by the members were sold, and that they often realised more than their original cost; the money thus obtained was appropriated to the buying of useful books, which became the Society's property. I would strongly advise head gardeners where a sufficient number of young men are employed, to assist in forming such societies, which in the end would prove beneficial both to masters and men. *E. Welch, Gardener, Palace Gardens, Armagh, Ireland.*

Elihu Burritt's Walk from London to John of Groats.—Under this title Mr. E. Burritt has published a most interesting little book, containing the remarks of a worthy and simple-minded man on subjects chiefly rural. Prefixed to it is his photographic portrait, which from its tall gaunt form, with hard-lined features, might readily pass for the picture of "honest Abe" himself. Among many acute and intelligent remarks, there are some rather questionable statements indicative rather of faith than knowledge. Thus, at page 170, he gravely relates a fable of the conversion of Oats into Barley! "The Oats are sown about the last week in June, and before coming into ear are cut down within 1½ inch of the ground. This operation is repeated a second time, and after standing through the winter, the produce in the following season is Barley." The authority given for this transformation is Mr. John Ekins, of Bruntisham, near St. Ive's. Again, at p. 122, he states, as an established fact, that the Potato is originally from New England! "The men and women, whom Hooker led to the banks of the Connecticut, sought for it in the white woods of winter, scraping away the snow with their frosted fingers. The largest they found just equalled the Malaga Grape in size, and resembled it in complexion. *They* called it the Ground Nut." But surely not with E. B. the "Potato." In the grounds of Burghley Park, he notices with special gratification the (American) White Birch (Betula papyracea). "There was not one that spread such delicate and graceful tresses on the breeze as our White Birch. I was glad to see such justice done to a tree in the noblest park in England, which with us has been treated with such disdain and injustice; and thought how it was regarded as a nuisance, so that any man who owns or can borrow an axe, may cut it down without leave or licence wherever he finds it." *G.*

The Year 1864 *at Weybridge Heath, Surrey:—*

Wind.		Weather,		Departure from Mean of last Nine Years. +, *above.* —, *below.*
Prevailing Winds.	On Days.			
		Mean height of barometer	inches 29.8876	inches .0253+
		Mean height of thermometer:		
		Highest in the sun	64°.8669	.9779—
N.	15	Highest in the shade	58°.7156	.7316—
N.E.	69	Lowest	38°.7950	1°.5829—
E.	5			
S.E.	11	Mean daily amount of ozone (greatly in defect		
S.	11	throughout the year)	2.9450	
S.W.	50	Mean temperature	48°.7554	1.1691—
W.	8	Rainfall	inches 16.3830	inches 7.1069—
N.W.	40	Number of wet days	20	days 15.7 —
		Number of days on which rain, &c. fell	162	days 26 —
		Driest month, July. Wettest ditto, September.		
Highest Winds.		Range of barometer	inches 1.79	inches .08 +
		Range of thermometer	78°	equal
January 22 and 23 (S.W.)		Range of ozonometer	12	
February 13 (S.W.)		January 2, 3, and 4. Barometer highest ..	inches 30.47	inches .091 —
August 23 (N.E.)		November 15. Barometer lowest	inches 28.68	inches .121 —
September 9 (W.S.W.)				
October 2, 3, 4, and 5 (E.N.E.)		July 20. Thermometer highest:		
		In the sun	97°	2°.61 —
		In the shade	89°	1.4 —
		December 18. Thermometer lowest (in the night of)..	11°	1.6 —
		February 2 and 13. Greatest amount of ozone ..	12	
		Jan. 6, 7, 8, 9, 14; and Oct. 28. Least amount of ditto	0	

W. F. Harrison, Bartropps, Weybridge Heath, Jan. 3.

Societies.

ROYAL HORTICULTURAL: *Jan.* 14 *to* 18 (*Second Weekly Show*).—Cyclamens, which formed the principal feature of attraction at this meeting, were contributed by Messrs. E. G. Henderson, of the Wellington Nursery, St. John's Wood, and by Mr. J. Aldred, of Kilburn. They consisted chiefly of seedling varieties of C. persicum. From Messrs. E. G. Henderson also came Senecio Ghiesbreghtii, a useful-looking subshrubby plant, with ample deep green leaves, and great corymbose panicles of golden-yellow blossoms. The same establishment likewise furnished a well-grown specimen of Sonchus laciniatus, a plant with handsome Fern-like foliage.

From the Rev. Geo. Cheere, Papworth Hall, Caxton, came a plant of Mignonette, well-flowered, and another of Mrs. Pollock Pelargonium, which still keeps a foremost place among three-coloured leaved kinds. Of other plants useful for purposes of decoration at this season, we noticed Camellias of different sorts, Veronica Andersonii, Daphne indica rubra, the fragrance of which quite charmed all who came near it; Jasminum nudiflorum, Solanum Capsicastrum, laden with bright orange-scarlet berries; Dracæna heliconæfolia, and last, but not least, a pretty little specimen of Dendrobium nobile.

Of Fruit, Mr. Meredith, of Garston, near Liverpool, sent three beautiful bunches of the true Black Alicante Grape, in the culture of which he is so very successful; also a handsome bunch of Child of Hale, a promising seedling Grape, a cross between Muscat of Alexandria and Syrian. This, together with the Alicante, was in a state of excellent preservation.

ENTOMOLOGICAL: *Jan.* 2.—F. P. Pascoe, Esq., F.L.S., President, in the Chair. Mr. F. Bond exhibited specimens of Ephestia ficella, reared from cork; also of Depressaria olerella; and of some remarkable varieties of the common Hepialus Humuli, from Lerwick, Shetland, as many as 20 males of which had been received, and of these only two exhibited the normal pure white colour of that sex, the remainder showing more or less distinctly the markings of the ordinary females. Mr. A. R. Wallace exhibited portions of an extensive series of beetles which he had received from Penang, including 200 species of Longicorn beetles, of which as many as 70 were new and distinct from the species which he had himself collected at Singapore. The Rev. O. Pickard Cambridge, gave some account of the collections which he had formed in Egypt, a portion of which was exhibited. He had found insects on the whole rare in that country, but had succeeded in capturing a considerable number of species of Micro-lepidoptera. He had observed that portion of the front of the Temple of Denderah was coated to the depth of several inches with the nests of a Mason bee (Chalicodoma sp.), which, together with its parasite Cœlioxys, swarmed on the spot. He had also bred a species of Thecla from the pod of the Gum Acacia. Mr. Roland Trimen sent a note pointing out the identity between Charaxes Argynnides, Westw., and Nymphalis Jahlusa. A note was also read from the Rev. J. Collins, relative to the capture of numbers of specimens of the rare Dasypolia Templi, in quarries and amongst rough stones near Huddersfield. Mr. S. Stone communicated the results of his investigations during the past year into the natural history of different species of English Wasps, the most remarkable fact being the prevalence in the month of August of a virulent disease in many nests, which destroyed the larvæ, and consequently determined the existence of the nests long before the ordinary period. He had also found a species of Acarus very abundant in the diseased nests. Mr. Stevens communicated the information that Mr. Bouchard, who had gone to South America on an entomological excursion, had arrived safely at San Tomalo, Venezuela.

Notices of Books.

Chymical, Natural, and Physical Magic. By Septimus Piesse, Ph. D., F.C.S. Third Edition. Pp. 267. Small 8vo. Longman & Co., 1865.

The question is often asked by kind and thoughtful parents, "What shall we do to amuse our boys during their Christmas holidays?" There may possibly be a little skating and snowballing, which they will not fail to make the most of, but our frosts seldom last long, and the winter evenings are almost certain to hang heavily on hand. There are of course a few amusements suitable for the country, and a few more, better calculated for a residence in town, but practically nobody knows how to occupy the time of the young gentlemen in a satisfactory manner, and they are really left to amuse themselves as they best can. Much time is spent in shapeless idleness; and ten to one, the various members of the family, including the young hopefuls themselves, are not sorry when the time comes for their return to school.

Half the secret of happiness to these young folks lies in a judicious plan of voluntary employment, and anybody who can invent a scheme combining amusement with instruction, is a benefactor to the rising generation. With some such thoughts as these, we have perused a charming book, with the above title, by Dr. Piesse. This gentleman, it seems, is so fortunate as to be the father of four intelligent boys and a little girl, and has long considered it a duty as a good Paterfamilias, to cater for their amusement; and it is impossible for anybody to examine his book, without giving a decided opinion that he has succeeded admirably.

There used to be in bygone days, a well remembered little volume entitled "Endless Amusement," and certainly the experiments and ingenuities propounded in the book in question were numerous and varied, but they were in general far too difficult for young persons to manage without the assistance of older hands.

Then, there was a volume called the "Boys' Own Book," which enjoyed a certain amount of celebrity, but there was something too puerile in its concoction (at least that was our impression) to please sharp lively boys. Dr. Piesse, on the contrary, has steered clear of both these opposite faults, and in this third edition has presented a book that is by far the best of the kind that it was ever our fortune to meet with. Who would not willingly be a schoolboy again to have such a field of endless amusement before him!

There are, first of all, a series of experiments depending entirely upon the ordinary laws of chemistry. These are indeed "Nature's own magic." They are highly instructive, and are well calculated to create a taste, which may lead boys of an inquiring mind to the systematic study of chemistry—enchanted ground, stocked with inexhaustible delights—a science which is evidently destined for many years to come to hold an increasingly important position in the world.

In the second place, there are many puzzles and ingenious tricks that depend upon the application of some well-known principles of arithmetic and geometry; and these again may induce a taste for studies, which, though termed severer, are not without an indescribable charm to minds of a certain character.

Again, there are explanations of some of the most famous tricks of our conjurors Houdin, Frickell, &c., showing how the feats are performed, and explaining sometimes the mystery of "clairvoyance," and sometimes the "inexhaustible bottle trick."

There is a good sprinkling of woodcuts illustrating the construction of "the funny funnel," "the revolving syphon," "the magic coffee pot, &c., and for a frontispiece there is a representation of a picture frame with a portrait of the author, drawn with invisible ink, which appears when warmed, and vanishes again on cooling. Information is also given as to where chymical and philosophical apparatus, &c., may be purchased at a moderate cost.

Furnished with Dr. Piesse's book, boys must be dull indeed if they cannot find amusement for themselves, and make fun for their companions.

Of *De Candolle's Prodromus*, the first fascicle of Section 2 of the 16th volume has just been issued. M. Alphonse De Candolle takes Cupuliferæ, containing the Oaks, Chestnuts, and Beeches; Corylaceæ, containing the Hornbeams, Nuts, and a few other genera; and Platanaceæ, containing the Liquidambars and Planes; and his son, M. Casimir De Candolle, the Juglandaceæ, containing the Walnuts, Hickories, &c.; and Myricaceæ, containing Myrica and Leitneria. Fortunæa is referred to Platycarya of Siebold and Zuccarini. Of Oaks 281 species are described. The common Oak, Quercus Robur, occupies more than seven pages, and comprises, as subspecies, pedunculata with 13, and sessiliflora with 19 varieties.

The sixth fasciculus of the 6th volume of *Walpers' Annales Botanices Systematicæ*, contains the conclusion of Orchidaceæ, by Prof. Reichenbach, and a portion of Graminaceæ.

Hogg's Gardeners' Year Book for 1865 is occupied by a variety of usual information, the most important of which are the notes on new fruits, plants, and flowers, and the comprehensive Horticultural Directory. The portion of the latter devoted to the seats of the nobility and gentry has been very much amplified. The Directory however now occupies so much space that it is perhaps a question whether it might not be advisable to issue it separately, so as to be able to afford in the Year Book a greater amount of information on matters more directly relating to cultivation.

The *Botanical Magazine* for January contains figures of the following subjects:—*Lissochilus Horsfallii*, a fine stove terrestrial Orchid from the Old Calabar River. It has plaited and very acute leaves two to three feet long, and a tall scape twice the length of the leaves, supporting a dense oblong spike of large showy flowers, of which the sepals are brownish purple and

reflexed, the petals broader, standing forward, white suffused with rose, and the lip funnel-shaped at the base, green streaked with purplish crimson, and with the prominent middle lobe deep puce colour, with three whitish elevated ridges on its disk. It has been introduced by T. B. Horsfall, Esq., M.P., of Bellamour Hall, Staffordshire.—*Dombeya Burgessiæ*, a subarboreous South African plant, with pubescent cordate five-lobed leaves, and cymose corymbs of five-petaled white flowers marked with crimson lines radiating from the centre, and fragrant. It is no doubt a fine plant for a large greenhouse conservatory, and has flowered at Kew.—*Dendrobium Parishii*, a handsome Moulmein epiphyte, introduced by Messrs. Low & Co. "At first sight it appears to bear a certain amount of resemblance to D. nobile, but it is in reality perfectly distinct. Even when out of flower it is readily distinguished by its thick clumsy leafless stems, which are bent downwards in a stiff ungainly manner." It blossoms, moreover, in summer. The leaves are leathery and oblong lanceolate, and the flowers geminate or ternate, the sepals and petals and lip of a deepish rose-colour, the latter being pubescent and oculate.—*Proustia pyrifolia*, a Mutisiaceous Composite, introduced from Chili by Mr. Veitch. It is a climber with small ovate leaves, and a paniculate inflorescence of white flower-heads "unattractive in its flowers and foliage, yet as the fruit advances to maturity becoming a singular and beautiful object, the long pendent branches and foliage being almost wholly concealed by the mass of rich rose-purple feathered pappus." As a greenhouse climber it cannot fail to be admired.—*Swainsona occidentalis*, a handsome West Australian species introduced by Mr. W. Thompson, of Ipswich. It has pinnate leaves, and rather large purple flowers.

In the *Floral Magazine* are figures of *Vallota eximia*, a fine pale centred variety of V. purpurea; *Clematis Jackmanni*, to which we have already frequently adverted; a yellow and red *Calceolaria Bird of Paradise*; and three varieties of *Tree Carnations*.

The *Florist and Pomologist* has a very good figure of one of Beaton's *Pelargoniums* called *Indian Yellow*, an orange-scarlet with a strongly marked suffusion of Indian yellow, and quite an acquisition for bedding purposes. It is in the hands of Mr. William Paul, who it appears has several others from the same source, including Amy Hogg and Rebecca, which will also be great acquisitions for garden decoration.

Seemann's Journal of Botany contains a figure of the new Irish Orchid *Neotinea intacta*, found at Castle Taylor, Galway. This is described by Prof. Reichenbach, who after enumerating many habitats in Europe and some in Asia and Africa, observes—"May those who believe that every species was created in and originated from one centre, determine what that centre was in the present instance, provided man has not already long ago turned it into fields or vineyards. The new theory of transmutation will be a great help to them. We may quite expect to hear that at great intervals of time our plant has, by various favourable and unfavourable conditions and circumstances, developed or retrograded into other species, perhaps Orchis ustulata, or Polygonum Bistorta." The January Number also contains papers on the sunken island of Atlantis, by Dr. Unger; notes on British Roses, by M. Déséglise; and a notice of a new British Truffle, Tuber excavatum, by Mr. W. G. Smith, who states that the specimens examined for identification were from the Truffle districts of Somersetshire, where it is not uncommon, and that it is probably frequent in the Truffle grounds throughout the country. The Numbers of this work for November and December contain figures of *Potamogeton nitens*, recently found in Ireland, and of *Lasiandra macrantha*, a fine Brazilian Melastomad, introduced by Mr. Linden, which has ovate acuminate leaves, and bears violet-purple flowers, upwards of four inches across, larger than in the well-known and similarly-coloured Pleroma elegans. The Editor points out that the Eranthemum Cooperi, lately figured in the Botanical Magazine, is the Justicia longifolia, of Forster, and the Justicia sinuata of Banks and Solander. Dr. Seemann also describes two species of Citriosma from Brazil, cultivated by Mr. Linden. These are called C. Thea, and C. Lindeni, both shrubs, the first with oblong acuminate leaves "emitting a delicious smell of tea," the second with elliptic acuminate leaves emitting a Citron-like smell.

The *Revue Horticole*, one of the leading horticultural periodicals published in Paris, has, during the past year, given figures of the following flowers, fruits, &c.:—*Dahlia Decaisneana*, a tall habited Mexican plant, introduced by M. Roezl, and producing flower-heads of small size, with the florets in a single series around the disk, violet rose, whitish at the base.—*Dahlias Mademoiselle Maria Joigneux and Mademoiselle Jeanne Barral*, the first lilac with amaranth stripes, the second a yellow, laced with faint rosy-tinted white.—*Hyacinth Kaiser Ferdinand*, a fine-looking single violet-blue.—A dimorphous *Moss Rose*, which had accidentally produced a flower of the ordinary centifolia type.—*Pæony Carrière*, a magnificent herbaceous variety, with fine double purplish-red flowers, raised by M. Charles Verdier, of Paris, and a plant of *premier mérite*.—*Acer Pseudo-platanus erythrocarpum*, a variety of Sycamore with the winged fruits of a deep dull red.—*Pyrethrum roseum M. Barral*, a full double variety, with the flower-heads of a carmine crimson.—*Clarkia pulchella flore pleno*, a fine double rosy-purple flowered variety of great beauty amongst annual flowers.—Groups of *Double Zinnias*, of *Double Portulacas*, and a few other subjects. Among fruits there are the *Pomme d'Api Noire*, a curious-looking blackish purple Apple.—*Pomme Reinette Carrée*, described as an Apple of the first quality, ripening in January, when it is of a golden yellow, a little flushed with red, and marked with russet dots, the flesh fine, sweet, and perfumed, of a salmony tint.—*Poire Fortunée Boisselot*, a large obovate deep olive green rough-skinned Pear, slightly yellowing, and taking a tinge of red at maturity. It is ripe in March and April, and is said to have a fine mellow buttery yellowish flesh, abundant sugary juice, and a fine flavour. The variety was raised by M. Auguste Boisselot, of Nantes, from the Bergamotte Fortunée.—*Poire Roux Carcas*, an extraordinarily fertile variety, obtained by M. Roux, of Carcassonne. It ripens in August, is roundish oblate, and of medium size, russety pale yellow in colour, and having a sweet mellow juicy and well-flavoured flesh. It is recommended as likely to be a useful summer Pear.—*Poire Beurré Sterckmans*, a winter variety, now pretty well known.—*Poire Le Brun*, a fine melting perfumed musky Pear, raised by M. Guéniot of Troyes, and named in compliment to M. Le Brun Dalbanne, President of the Horticultural Society of L'Aube. It ripens in September and October, and is large oblong clavate obtuse smooth, of a citron yellow with russet patches, the flesh fine white buttery and melting, with abundant juice, and a musky flavour, "something like Poire William, only more delicate and agreeable." It is said to be without pips or cells.—*Brugnon Jalais*, a freestone Nectarine, raised by M. Jalais, of Nantes, and having the fruit elongated, pale yellow at maturity clouded with red, the flesh fine and melting, and the juice sugary, with a vinous flavour.—*Gros de Candolle Grape*, and several varieties of *Strawberries*.

CATALOGUES RECEIVED.—*Carter & Co.'s Gardener's and Farmer's Vade-Mecum* for 1865: Part 1. *Flower Seeds and Plants*; Part 2, *Vegetable and Agricultural Seeds*. These are perhaps the most elaborate seed-catalogues published; and we observe that the two parts above specified are now issued separately. There are several promising novelties both amongst flowers and vegetables.—*Louis Van Houtte's Prix-Courant de Graines* offers a good assortment of sorts, old and new, and may be consulted with advantage.—*William Paul's Vegetable, Flower, and Agricultural Seeds* is a select list of some of the best things in the different departments. The Waltham Brussels Sprout is particularly recommended as being green to the centre when cooked.—*Butler & M'Culloch's Spring Catalogue of Seeds*, 1865, is another of the amplified lists, with remarks and cultural instructions.—*W. Cutbush & Son's Catalogue of Select Seeds* is a brief list of select sorts; amongst them occurs Cutbush's Dwarf Brussels Sprout, which is said to be that sometimes known as Judd's variety.—*James Veitch's Catalogue of Garden and Flower Seeds for* 1865, contains a selection of the best sorts of Vegetables and Flowers, the names of the former accompanied by useful remarks, and various particulars concerning the latter being tabulated. Amongst the new flowers we notice that seeds of Nolana lanceolata are offered.

Garden Memoranda.

S. RUCKER'S, ESQ., WEST HILL, WANDSWORTH.—At this dull season, when flowers are everywhere scarce, the display made by the charming Calanthe Veitchii in one of Mr. Rucker's Orchid-houses is well worth travelling miles to see. This glorious plant, a hybrid raised at Mr. Veitch's Exeter Nursery, between Limatodis rosea and Calanthe vestita, greatly surpasses both parents in grandeur of appearance, having a constitution even more robust than that of the Calanthe, and a colour much brighter than that of the Limatodis. Had Mr. Dominy raised no other seedling Orchid than this, he would have been entitled to the best thanks of all lovers of flowers; but fortunately for us other equally valuable results have followed his exertions, some of which are in this collection; but none of them are at present in flower. Other varieties of Calanthe are, however, now in full blossom here, as are likewise several magnificent examples of Lycaste Skinneri and Barkeria Skinneri, the purplish violet Epidendrum dichromum, and one or two others. In the Orchid house properly so called, several plants of Phalænopsis grandiflora now keep up a gay display, as do also one or two species of Angræcum, the most conspicuous among which is A. sesquipedale ornamented with some 20 long-tailed ivory-white star-shaped blossoms. Saccolabium violaceum is also in excellent condition, and Lælia anceps and others only want a few bright days to render them masses of floral beauty.

In a cool house Cypripedium insigne is blossoming freely; among comparatively hardy Orchids this is unrivalled for the length of time it will continue in flower, and for the ease with which it may be managed satisfactorily. Along with it is Odontoglossum pulchellum, the beautiful spikes of white blossoms of which are as fragrant as Jasmine. In the same house is likewise the rare Masdevallia candicans.

In a warm stove a fine variety of Epiphyllum truncatum, together with Linum flavum, the deep orange Rhododendron javanicum, the crimson Begonia fuchsioides, the bright blue Eranthemum pulchellum, the orange Imantophyllum miniatum, and Monochætum ensiferum, a useful rosy-pink flowering plant, all contribute to maintain a certain amount of gaiety, which is enhanced by a liberal introduction of such things as Dracænas, Coleus Verschaffeltii (both in the shape of standards and dwarf bushes), the green and red-leaved C. marmoratus, and some of the best of the many variegated-leaved Begonias. Associated with these is also a pretty specimen of Gardenia citriodora, a white-flowered deep green-leaved shrub, not half so extensively grown as it should be.

Camellias are now beginning to come profusely into flower; and on a comparatively cool greenhouse shelf in front of them are Epacrises (both red and white), Chinese Primulas, Myrtle-leaved Oranges laden with fruit, Skimmia japonica ornamented with numberless little crimson berries, and Daphnes.

The tropical aquarium has just been put in order for the spring. Immediately over the water are hung baskets full of different sorts of plants suitable for such a purpose, and round the margin of the tank are placed some fine Alocasias, consisting both of metallica and Lowii, intermixed with Dendrobium nobile and a few other Orchids in blossom, as well as with Marantas and other plants remarkable for the beauty of their leaves.

In the glass-covered promenade one of the most remarkable plants at present in flower is Enkianthus reticulatus, a stately shrub covered with numerous drooping clusters of pink and white bell-shaped blossoms that keep in beauty for many weeks together at a time. On the roof Lapageria rosea has been, and still is, blooming profusely. It is planted in well drained and light porous soil, in which, with proper attention to watering, it grows most luxuriantly. Its principal enemy is slugs, which eat off the young shoots close to the ground. To prevent this the stems are surrounded by narrow zinc troughs placed in the form of a square, and kept constantly full of water—a barrier over which slugs find it impossible to pass.

Of both Lycopods and Ferns this establishment possesses remarkably fine collections. Among the latter are some enormous Gleichenias, Cyathea medullaris, and others, among which we noticed wonderfully fine masses of Trichomanes reniforme, both covered with bell-glasses and without them; Todea superba, a New Zealand Fern, of great beauty; Hymenophyllum pulcherrimum, multifidum, and others, all in excellent health, and about to push into fresh growth.

Among other plants is a shelf-full of Nerine Fothergillii, in a cool house. This is one of the most useful of bulbs, flowering as it does every autumn, when its scarlet blossoms produce an admirable display. Mr. Pilcher blooms it in the same sized pots year after year so satisfactorily that this season he is trying the Guernsey Lily in the same way. Of the result we hope to be able to speak in a future report.

Miscellaneous.

Black Hollyhocks.—A rather extraordinary special culture is now carried on in the neighbourhood of Nuremberg. Everyone knows the dark variety of the common Hollyhock (Althea rosea), which is so deep in colour that the flowers appear almost black. These contain a great quantity of a colouring principle which is employed in colouring wines and dyeing Cotton. This article is more especially exported to England, where they have succeeded in fixing the colouring matter upon the fabrics. This culture is very lucrative. It produces as much as 8*l.* an acre. Mr. Heerdegen, a manufacturer and agent at Nuremberg, exports considerable quantities. *La Belgique Horticole.*

Wash your Watercresses.—In Cresses prepared for the table I have noticed portions of Frog's-bit (Hydrocharis morsus ranæ) and other weeds. These vegetables have often small mollusks and other aquatic animalcules adhering to them, and if the former are eaten in an imperfectly washed state, it will consequently happen that the latter are swallowed during the meal. Small mollusks are known to harbour larval parasites in prodigious quantities, and therefore it is not unreasonable to conclude—bearing in mind the extent of our knowledge of the transformations which these parasites undergo—that they are at least the source of one or more of the fluke parasites which occasionally invade our frames. The following case will best illustrate my subject:—A young girl, the daughter of a shepherd living at Kaplitz, in Bohemia, was in the habit of eating Watercresses, and drinking the stagnant water of ditches in the locality where she lived. After a while her health failed and her body became much enlarged. A medical man, Dr. Kichner, saw her only three days before she died, and by a *post-mortem* examination, he ascertained that no less than 47 specimens of a small Fluke (Distoma lanceolatum) had taken up their residence in this inappropriate "host." I say "inappropriate" because the parasite species in question has only three times been detected within the human "host;" its proper habitation being, apparently, the liver of the ox and sheep. *Popular Science Review.*

Double Orchids.—I observe that Dr. Moore is interested in the double-flowered Orchis Morio, mentioned on my authority in your list of double flowers (*Journ. Bot.* ii. 176). Will you allow me to say that the list I sent you was in great measure a compilation from various sources; and that I personally have not seen a double-flowered O. Morio, but cited it from Jacob's "Catalogue of Faversham Plants" (1777)

one of the earliest local Floras of this country. At p. 75 of that work, it is mentioned that "in a meadow near Cades, in Ospringe," some of these plants were found with flowers "of a rose colour, some white, and a very few with double flowers." No further description is given, nor does the accompanying engraving shed much light on the matter. According to the figure, the flowers have a circular outline, seem very double, and apparently have no nectaries; all the flowers of the spike are alike affected. The Ophrys aranifera, included in your supplemental list (*Journ. Bot.*, ii., 318), was only semi-double. It had three lips, one in the ordinary position and two lateral ones, representing the two lateral stamens of the outer series, which are usually suppressed; on one of these additional labella was an imperfect anther. In addition, the three inner stamens, which are generally wholly suppressed, were in this instance all present. A description and figure of this highly interesting specimen will be published in a future part of the Journal of the Linnean Society. Through the kindness of Professor Asa Gray and Mr. Darwin, I am enabled to record another double Orchid, which presented almost precisely similar changes to those found by me in O. aranifera. The plant in question is Pogonia ophioglossoides, and was found by Dr. J. Paine in a bog near Utica, New York. This American Orchid, and especially my O. aranifera, go far to confirm Brown's view of the structure of the Orchideous flower,—a view adopted and confirmed by Darwin (*Fertilization of Orchids*, p. 292.) For further remarks on this interesting subject I must refer to the forthcoming part of the Journal of the Linnean Society. Dr. Moore has favoured me by forwarding some flowers of Orchis pyramidalis similar to those mentioned by him (*Journ. Bot.* ii. 319), but even more curious. In the flowers I examined there were the three sepals as usual; within these a double, and, in some instances, triple whorl of petals, most of the latter being lip-like in form and colour. I could find no trace whatever of ovary or column, of pollen or nectary; but standing up in the centre of the flower, in the place usually filled by the column, was a small raceme, consisting of numerous bracts subtending a number of flower-buds. These latter were made up (so far as their structure and arrangement could be made out), of three sepals, enclosing some rudimentary petals, and these again encircling a prolonged axis with minute bracts and rudimentary flowers. The smallest of these tertiary flower-buds that I examined measured 1.100 inch in diameter, and consisted merely of a central dome or pimple of cellular tissue, encircled at the base by a shallow cup, whose edge was slightly three-lobed, the lobes indicating possibly the future sepals. In other minute buds the central dome was surrounded at the base by a four, five, or six-lobed cup; but as it was impossible to make sufficiently accurate examination of these rudimentary buds, I refrain from giving further details, but will merely add that these flowers present, so far as I am aware, the only recorded instance of median floral prolification in Orchids. Mr. Currey forwarded me some time since a flower of Oncidium sp., which I may term spuriously double; the sepals and two upper petals were normal, but the lip was divided into three all but separate pieces, confluent with the base of the column; each of the subdivisions had a callosity, in the centre of the "claw" in the case of the median segment, close to the upper and inner edge in the lateral segments. Do these callosities represent the outer two lateral stamens and one of the inner stamens?—their position justifies such an assumption. The flower in question had no ovary, although the column was present, bearing below a stigma, at the sides two triangular membranous wings,—representatives possibly of the two upper and inner stamens, and above an abortive pollenless anther. In conclusion, I will take the liberty of soliciting those of your readers who may meet with any malformations in plants to allow me the opportunity of inspecting them. *Dr. Masters in Journal of Botany.* [Dr. Masters, whose address is Rye Lane, Peckham, would, we are sure, be glad to have sent to him any specimens of plant malformations.]

The Silurus.—An important and, it is expected, highly useful addition has been lately made to our lake fish by the importation of 14 young specimens of the Silurus glanis, from Wallachia. The Acclimatization Society is indebted for this valuable acquisition to Sir Stephen Lakeman, who possesses an estate at Kapochein, in Wallachia, where this fish is abundant. The Silurus glanis attains a great weight under favourable conditions, thrives in lakes having peaty bottoms, and is remarkable for its delicious flavour.

Japanese Matches.—At a recent meeting of the Chemical Society, Dr. A. W. Hofmann exhibited some matches, or fuzes, which were brought from Japan by the Prussian expedition. Beautiful arborescent scintillations were thrown off during their slow combustion. The nature of the composition was the point of interest, and a guess had been hazarded that steel-filings were used among the ingredients to produce the sparks, but analysis had shown that there were no metallic particles, and that carbon, under the circumstances of the case, was capable of undergoing this remarkable kind of combustion. The composition was made of two parts of wood charcoal, three of sulphur, and 6½ parts of nitre. The paper covering was of the finest tissue, or that commonly known as "Chinese paper," and about 40 milligrammes of the mixture was folded up in each match.

Telescopic Ladder.—A ladder has been invented and patented by Mr. Henry Druce, solicitor, of Oxford. It is constructed on the telescopic principle, and consists of a series of pieces or lengths, each of which forms a single and distinct ladder of itself. These ladders are made to slide one into another, so that the ladder can be extended to any length according to the convenience of the person using it, and the number of pieces of which it is composed. When closed up it is about 6 feet long.

Calendar of Operations.

(*For the ensuing week*).

WE last week gave some directions for preparing beds for Ranunculuses. Let us now add a few words regarding choice of sorts. It need scarcely be stated that there is a marked difference between old varieties and seedlings which have been raised during the last few years. The tubers of the former are generally less robust and plump; the foliage is often weaker, and the flowers are almost always inferior in size and substance of petal to those of newly-raised seedlings. The art of hybridising has been wonderfully successful with the Ranunculus, and some new and fine kinds are annually produced. Unless, therefore, the old varieties are very striking, and unlike the modern sorts, growers, especially if beginners, should make their beds of new sorts. Good kinds are, however, expensive, and a failure when it occurs is therefore the more provoking. A very fine show may, indeed, be secured by one or two hundred mixed roots, which may be purchased at very small cost; or get a dozen of say first-rate roots, and placing them in different parts of the bed, fill up the spaces with common ones. The criterion by which a healthy root is known, is the plumpness of the forked portions, and the fine velvety texture of the crown; especially the latter. The tuber itself may be small and shrivelled, and yet the crown will indicate a sound condition; while, on the other hand, a plumpness of the tuber is of no service if the crown is dull, and instead of becoming bright when rubbed by the hand or on the coat, crumbles away. It should be remembered too that the silkiness of the crown, although always present in some degree, increases as the growing season advances. The Turban Ranunculus makes a splendid show, and it is surprising that it is not more grown in large gardens than it is, as beds of it, each filled with flowers of one colour, have a most imposing effect. The various kinds of Turbans may be purchased for three or four shillings a hundred. As an early flower it is well worthy of notice. The Ranunculus may be taken up without injury as soon as the flower is withered, if mould is allowed to adhere to it, and all the roots thus removed are put into the ground in a place secured from rain. They will then gradually become fully matured, and may be cleared away in July. This latter circumstance removes the objection of the beds being occupied too long to allow their being afterwards filled with flowering plants. Half-a-dozen beds on a Grass-plot would present a gorgeous sight in May and June.

FLOWER GARDEN AND PLANT HOUSES.

If not already done, look over beds of Crocuses and other bulbs to see that they are uninjured by weather or mice; also inspect half-hardy plants. As severe weather may yet be expected, every precaution should be taken to ward off its ill effects.

AURICULAS.—While the weather continues favourable let these have as much air as possible; they dislike close confinement.

BEDDING PLANTS.—These, if in pots, must also have air while the weather is mild; but means of protection at night must be at hand.

CARNATIONS AND PICOTEES.—Draw the lights off these in the day time when dry, but let them be put on again at night.

FORCED FLOWERS.—A second batch of Roses may now be placed in heat to succeed those in active growth. Keep down fly on the latter by frequent fumigations, and the Rose maggot by hand picking. Place in heat potsful of Tulips and Hyacinths to succeed those now in bloom, and see that the latter are not allowed to droop from want of water.

PELARGONIUMS.—These will now be growing slowly; therefore in fine weather let them have as much air as possible, consistent with the proper temperature. Fancy varieties may be kept a little warmer than ordinary kinds.

HARDY FRUIT AND KITCHEN GARDEN.

Digging and trenching may now be carried on with activity, and, where necessary, drains may also be put in. Wheeling should, if possible, be kept for hard weather.

APPLES.—Pruning and thinning of these must now be pushed forward with expedition. Where necessary root-pruning may also be performed; but this kind of work is best done in the autumn.

PEARS.—The observations made in reference to Apples also apply to these.

FORCING GARDEN.

During the present sunless weather high temperatures must be avoided, or unhealthy growth will be the result. The proper temperature to maintain is therefore a matter of the utmost importance, and will require during this and the next month or so great attention.

ASPARAGUS.—If not already done, make a bed to succeed that now becoming exhausted. On fine days give as much air as possible consistent with maintaining a proper amount of heat.

CUCUMBERS.—Worn out plants in houses may now be rooted up, the beds renewed, and their places filled with young plants.

PEACHES.—Admit air freely whenever the weather is mild, and keep the atmosphere moist, maintaining a steady night temperature of about 50°. Very early houses in which the fruit is set should be afforded a nice growing temperature, syringing liberally to prevent red spider, and keeping the border in a healthy state as to moisture, to secure a vigorous root action.

PINES.—Young plants growing in beds that have been some time planted will be benefited by having the soil loosened up as deeply as can be done without injuring the roots, giving it a liberal soaking of tepid water if it be found to be too dry. The water should be applied by means of a pot with a rose on it, and not so fast as to flood the surface, for if this is done the soil will be rendered almost as close as before forking up; indeed, careless watering is the great cause of the surface of the soil becoming close and hard, and should be carefully avoided. Endeavour to afford a nice regular bottom-heat, with a thoroughly moist atmosphere, and keep the plants growing as freely as may be consistent with preserving them dwarf and bushy. Have a constant eye to maintaining a succession of fruit, or securing a supply at the season when it may be most wanted, and let the treatment of the plants be regulated according to circumstances; this is a matter which demands considerable forethought, and which can be successfully managed only by careful observation and attention.

VINES.—Take advantage of all favourable opportunities to admit fresh air as freely as can be done with safety, and be satisfied with as low a temperature from fire-heat as may be considered safe under the state of the Vines, but shut up early, allowing the thermometer to rise considerably. This will to some extent economise fuel, and will be much more congenial than employing strong fire-heat.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Jan. 18, 1865, as observed at the Horticultural Gardens

Jan.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth 1 foot deep.	Temperature. Of the Earth 2 feet deep	Wind	Rain
Thurs. 12	14	29.243	29.028	47	30	38.5	46	44	S	.79
Friday 13	15	29.134	28.731	48	34	41.0	45	44	S.	.52
Satur. 14	16	28.919	28.568	47	35	41.0	44	46	W.	.02
Sunday 15	17	29.071	29.025	45	30	37.5	44	44	W.	.00
Mon. 16	18	29.978	28.960	45	27	36.0	43	42½	W.	.00
Tues. 17	19	29.409	29.121	40	28	34.0	43	43	W.	.00
Wed. 18	20	29.286	29.313	44	28	36.0	42½	43	W.	.00
Average.		29.391	29.963	45.1	30.3	37.7	43.9	43.3		1.43

Jan. 12—Cloudy and boisterous; very boisterous with rain, heavy rain
— 13—Clear and fine; very fine throughout; rain at night.
— 14—Uniformly overcast; very boisterous with rain; barometer exceedingly low.
— 15—Overcast; fine; very fine at night.
— 16—Fine; overcast at night; barometer again very low.
— 17—Clear, quite cloudless; cloudy; overcast at night; slight frost.
— 18—Cloudy; overcast; slight frost at night.
Mean temperature of the week, 8¼ deg. below the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 39 years, for the ensuing Week, ending Jan. 28, 1865.

January.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 22..	44.3	32.8	38.6	16	0.57 in	3	5	1	5	3	16	5	1
Mon. 23..	44.9	32.7	38.8	18	0.27	2	3	2	3	7	14	4	4
Tues. 24..	44.4	32.5	38.4	18	0.63	3	4	2	1	4	17	6	3
Wed. 25..	44.6	32.4	38.5	20	0.90	1	4	3	1	5	16	5	5
Thurs. 26..	45.5	32.6	39.1	18	0.34	1	5	3	4	3	15	5	4
Friday 27..	44.5	31.1	37.8	17	0.43	2	5	4	1	5	15	5	2
Satur. 28..	45.6	31.1	38.3	20	0.17	2	5	4	1	2	15	6	4

The highest temperature during the above period occurred on the 25th and 28th, 1846—28th, 1834, and 27th and 28th, 1861—therm. 56 deg., and the lowest on the 25th, 1827, and 27th, 1855—therm. 15 deg.

Notices to Correspondents.

BOILER: *F K* We have no doubt your plan would give a very powerful boiler, and one of quick action, but it is questionable if it would practically have any great advantage over the tubular boilers now in use, and it appears complicated, and likely to be expensive in casting and fitting up. We scarcely understand what is intended by the inner loose piece of the model. Is that intended to be cast with the rest, or distinct, and is the outer loose piece intended to be also removable in the boiler—as it is in the model? If you can be sure it would not prove expensive to manufacture, it may be worth further attention, and if so, we may be able to put you in the way of bringing it under the notice of some London house, if you desire it.

DRACÆNOPSIS: *B S.* This name was given by Planchon to the plants commonly known as Dracæna australis and indivisa. These he distinguishes from Dracæna mainly by their marcescent biseriate perianth segments and the many-seeded cells of their trilocular fruit, the true Dracænas having only one ovule in each cell, and seldom perfecting all three of them.

EGYPTIAN FRUITS: In our notice of the collection sent from the gardens of Halim Pasha (see Leading Article, p. 26), for "Shoolna" read "Shoobra."

NAMES OF PLANTS: *B.* 1, Cheilanthes hirta; 2, Litobrochia palmata; 3, Lastrea Sieboldii.—*P Q.* Monochætum ensiferum.—*Janet.* The Artillery plant, Pilea serpyllifolia.

RHODODENDRON PRÆCOX: *T B W.* It is a hardy hybrid raised from atrovirens fertilised by ciliatum, and is a beautiful dwarf very floriferous shrub, well suited for forcing, as being naturally an early bloomer it may be got into flower with a very slight amount of stimulus. We believe there are some slight variations, but the flowers are generally of a light rosy lilac.

ROSES ON MANETTI: *Y Z.* The recommendation to plant so that the stock is wholly covered is sound, but then the stocks should not be 8 inches or a foot long. They ought to be worked as close down as possible. You may accommodate the matter a little by planting so as to form a slight cone of earth about the stem, if your soil is heavy; but if light, it will be of less consequence to plant somewhat deeper.

SEEDS: *L H G.* Those marked No. 1 from Egypt appear to be the seeds of Trigonella fœnum græcum. The others we do not recognise, but will make inquiry about them.

Manures and Feeding Stuffs.

RAYNBIRD, CALDECOTT, AND BAWTREE. Address, 89, Seed Market, Mark Lane; or Basingstoke. Samples and prices on application.

THE LONDON MANURE COMPANY have now ready in fine condition—
DISSOLVED BONES,
SUPERPHOSPHATES of LIME,
TURNIP MANURE,
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MANGEL MANURE, &c. &c.
They also continue to supply GIBBS' PERUVIAN GUANO NITRATE of SODA, SULPHATE of AMMONIA, FISHERY SALT, and all FERTILISERS of known value.
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2 to 3 cwt. per acre to be harrowed into the land before the seed is sown. It can be obtained of Mr. LAWES, or through any of his appointed Agents; also
SUPERPHOSPHATE of LIME £6 6
MINERAL SUPERPHOSPHATE 5 5
Genuine Peruvian Guano direct from the Importers, and all Chemical Manures of value.
American and other Cakes at Market prices.
Address JOHN BENNET LAWES. Offices; 1, Adelaide Place, London Bridge, E.C.; and 22, Eden Quay, Dublin.

ODAMS'S BLOOD MANURE for CORN,
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JOHN FOWLER & Co., 23, Cornhill, London, E.C.; and Steam Plough Works, Leeds.

CLAYTON, SHUTTLEWORTH, AND CO., ENGINEERS, Manufacturers of PORTABLE and FIXED STEAM ENGINES, Machinery for Pumping, Hoisting, Grinding, Sawing, &c., Engines for Steam Cultivation, Self Moving Engines for Common Roads and Agricultural Purposes generally.
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PLAIN (per foot).			SNAKE PATTERN (per foot).		
$\frac{1}{4}$ in.	$\frac{5}{16}$ in.	$\frac{3}{8}$ in.	$\frac{3}{8}$ in.	$\frac{7}{16}$ in.	$\frac{1}{2}$ in.
2*d.*	2½*d.*	3*d.*	3½*d.*	4*d.*	5*d.*

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Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the kingdom.
Apply to HILL & SMITH, Brierley Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C., from whom only it can be obtained.

PATENT GUTTA PERCHA SOLES.—IMPORTANT TO GARDENERS.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. GLENNY, Esq., the celebrated Florist:—
"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles.—Your obedient servant, "G. GLENNY."
Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Calbotype trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealer in town or country.
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"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.
Two yards wide .. .. 1*s.* 9*d.* per yard run.
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"It is much cheaper than Mats as a covering."

THE MIDLAND FARMERS' CLUB. The ADJOURNED MEETING on the subject of "The TENURE of LAND," (introduced by Mr. R. H. MASSEY,) will be held at the LECTURE THEATRE of the PHILOSOPHICAL INSTITUTION, Cannon Street, Birmingham, on THURSDAY NEXT, January 26, at 3 o'clock punctually, when the Agreement prepared by the Committee will be submitted to the Club.
Members will be enrolled on the day of the Meeting, for which purpose a Committee Meeting will be held at the same place, half an hour previous to the Special Meeting, and Members nominated at this Meeting will be eligible to attend.
January 19, 1865. JOHN B. LYTHALL, Secretary.

LOCOMOTIVE ENGINES on HIGHWAYS. PRELIMINARY NOTICE.
The HOME SECRETARY having lately issued several orders under the authority of the Locomotive Act, 1861, restricting the passing of Locomotives on the Highways, excepting between the hours of 12 at night and 6 in the morning, thereby preventing the profitable employment of such Engines for Agricultural and other purposes, it is intended to hold a MEETING in LONDON on or about the 9th of FEBRUARY NEXT, to consider this important question.
Lord KINNAIRD will occupy the Chair, and further particulars will be given in future Advertisements. In the meantime any one approving of this movement, and wishing to join therein, will oblige by sending his name and address in full to
Walton, near Wakefield. CHARLES CLAY, Hon. Sec. *pro tem.*

THE FOWLER MEMORIAL. It is proposed to hold a PUBLIC MEETING in London, early in FEBRUARY NEXT, to appoint a Committee for raising Funds for a suitable MEMORIAL in memory of the late JOHN FOWLER, to whose untiring zeal in the application of Steam Power to the Cultivation of the Soil, the Agricultural world is so much indebted.
PROMOTERS.
Signed, P. P.
DUCIE, Tortworth Court, Wotton-under-Edge.
PORTMAN, Bryanston, Blandford, Dorset.
A. N. HOOD, Cumberland Lodge, Windsor.
EDWD. HOLLAND, Dumbleton Park, Evesham.
CHARLES BARNETT, Stratton Park, Biggleswade.
THOMAS RAYMOND BARKER, Hambledon, Henley-on-Thames.
F. R. TEMPEST, Ackworth Grange, Pontefract.
H. S. THOMPSON, Kirby Hall, York.
SUPPORTERS (*continued*).
John Lake Baker, Hargrave, Kimbolton, Hunts.
Jacob Paulus Amersfoords, Lake of Haarlem, Holland.
George Kennion, M.D., Oak Lea, Harrowgate.
Hy. J. Wilson, Newlands, Mansfield.
H. S. W. Hole, Heytesbury, Wilts.
James Stratton, Salthorpe, Swindon.
Chas. Burrell, Stretford.
William Cockburn, Hutton Mines, Guisbrough.
Ashby & Jeffrey, Stamford.
W. J. Moreton Pocock, Wonston Manor, Micheldean.
Ed. Righton, Thornton House, Stratford-on-Avon.
Henry Pye, St. Mary's Hall, Rochester.
William Saunders, 2, Esplanade, Plymouth.
Hy. Richardson, Skeldergate, York.
Amies & Barford, Peterborough.
Owen Wallis, Overstone Grange, Northampton.
David Wright, Beal, Northumberland
Robt. Hewer, Sarsden, Chipping Norton.
Hark Magnus Little, Elmington, Oundle.
Joseph Nicholls, Queen Camel, Ilchester.
Stephen M. Plummett, Peasemore, Newbury.
Samuel Smith, Somerton, Oxon.
Joseph Smith, Alford, Lincolnshire.
J. T. Wharton, Skelton Castle, Redcar.
Honourable Augustus Vernon, Sudbury Hall, Derbyshire.
Thos. Greetham, Stainfield, Wragby, Lincolnshire.
William Lacey, Panton, Wragby, Lincolnshire.
Christopher Robinson, Tapholme Hall, Wragby, Lincolnshire.
Ed. Browne, Langton, Wragby, Lincolnshire.
E. R. & F. Turner, Ipswich.
Hornsby & Sons, Grantham.
G. D. Trotter, Uplentham, Redcar
Wm. John Edmonds, Southcope, Lechlade.
James Dyce Nicol, Ballogie, by Aberdeen.
Michael Farrell, Woodburnden, Fordaine, N.B.
James & Frederick Howard, Bedford.
Thos. Coulson, Drax Hall, Selby.
At present it is intended to hold the Meeting on or about the 9th of February. Lord Portman will occupy the Chair; further particulars will, however, be given in future Advertisements. In the meantime any one wishing to support this movement will oblige by forwarding his name and address in full as early as possible to
Walton, near Wakefield. CHARLES CLAY, Hon. Sec. *pro tem.*

Land Drainage, & other Agricultural Improvements

MR. BAILEY DENTON, C.E., maintains a large Staff for the Execution of Land Improvements by a commission of 5*s.* per acre for Under Drainage, and a fixed charge for Outfall and other works.
For particulars, apply to him, at 52, Parliament Street, Westminster

Drainage of Land.

MR. C. F. HUMBERT, F.G.S., of Watford, Herts, and formerly Senior Surveyor to the Tithe Commission, a Land Surveyor and Land Agent, more than 20 years established in practice, undertakes Works of Drainage either at a contract price, or to lay out and overlook the same at a commission of 5*s.* per acre; and he has at his command a staff of experienced workmen. His custom is to charge merely the expenses out of pocket in making the preliminary Survey and Estimate where the works are not carried out

Drainage, &c.

MR. J. BEAUMONT, LAND AGENT, SURVEYOR, and DRAINAGE ENGINEER (for several years Assistant to Mr. Josiah Parkes), undertakes the Planning and Execution of Works of Drainage, and Estate Improvements generally; including Embankments and River Works; Reclamation of Marshes and Waste Lands; Irrigation and Warping; the Erection of Farm Buildings, Labourers' Cottages, &c., either at the private cost of the Landowner, or through the medium of the various Land Improvement Acts.
Estates Surveyed and Mapped, or Inspected and Reported upon for contemplated Improvements.
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DR. AUGUSTUS VOELCKER, F.C.S., Professor of Chemistry to the Royal Agricultural Society of England, has REMOVED his LABORATORY and CONSULTING ROOM to 11, SALISBURY SQUARE, FLEET STREET, E.C., to which he requests that all Letters and Samples for Analysis should be directed.
Dr. VOELCKER receives PRIVATE PUPILS for practical instruction in Analytical and Agricultural Chemistry.
11, Salisbury Square, Fleet Street, E.C.

THE LANDS IMPROVEMENT COMPANY.
Incorporated by Special Act of Parliament in 1853.
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The Company advances money, unlimited in amount, for the following works of Agricultural Improvement, the whole outlay and expenses in all cases being liquidated by a rent charge for 25 years.
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3. Jetties or Landing places on the sea coast or on the banks of navigable rivers or lakes.
4. The Erection of Farm Houses, Labourers' Cottages, and other Buildings required for Farm purposes, and the improvement of and additions to Farm Houses and other buildings for Farm purposes.
Landowners assessed under the provisions of any Act of Parliament, Royal Charter, or Commission in respect of any public or general works of drainage or other improvements, may borrow their proportionate share of the cost, and charge the same with the expenses on the lands improved.
No investigation of title is required, and the Company being of a strictly financial character do not interfere with the plans and execution of the Works, which are controlled only by the Government Enclosure Commissioners.
For further information, and for forms of application, apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster, S.W

THE WEST of ENGLAND LAND DRAINAGE and INCLOSURE COMPANY.
ESTABLISHED IN THE YEAR 1844, AND INCORPORATED BY SPECIAL ACT OF PARLIAMENT, 11 & 12 VICT., C. CXLII.
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Tenants for Life and Mortgagors can likewise Drain and Improve their Estates without any expense to themselves.
The Works are undertaken by the Company, who keep in constant employ a very extensive and experienced staff of Engineers, Surveyors, and Workmen; or Proprietors may avail themselves of the powers of the Act only, and get the Works executed under their own superintendence, or by Agents appointed by themselves.
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Works are also executed by the Company for parties advancing their own Capital or not wishing to borrow the money.
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Offices: Castle Street, Exeter; 30, Parliament Street, London.

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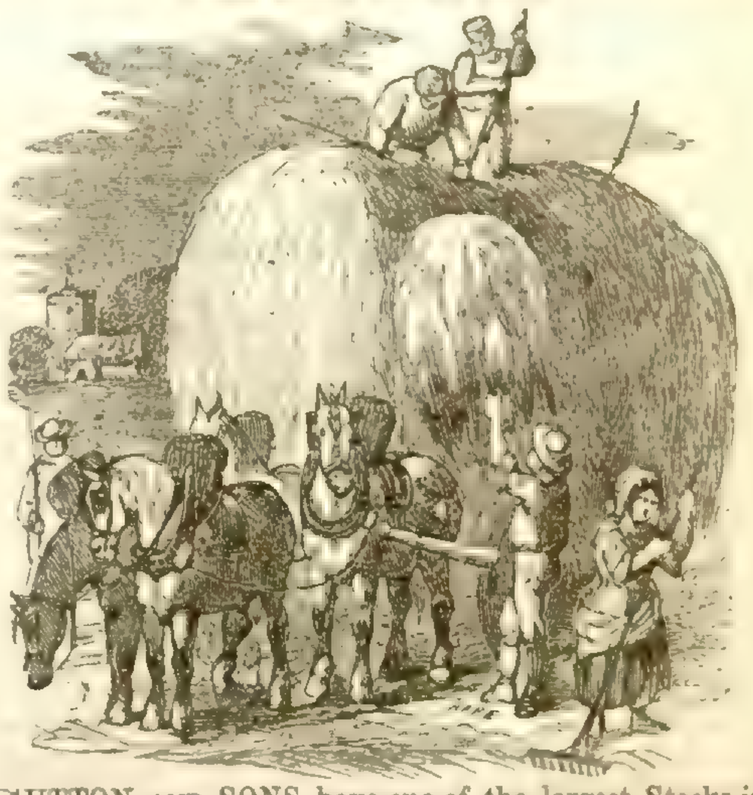
High Beech, Essex, N.E.

Grass Seeds for all Soils.



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The following letter has been received, besides many others:
From Professor LINDLEY, *Royal Horticultural Society, London.*
"We have already made trial of your Grass Seeds, and it is only justice to say that they have proved the best we have sown for many years."
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Best quality MIXTURES for LAYING DOWN to PERMANENT PASTURE, 30*s.* per acre.
Cheaper MIXTURES, omitting certain sorts, 24*s.* to 26*s.* per acre.
Best quality ditto, for Three or Four Years' Lay, 22*s.* 6*d.* per acre.
Ditto ditto, for One or Two Years' Lay, 14*s.* to 18*s.* 6*d.* per acre.
CLOVERS and fine GRASSES for RENOVATING OLD PASTURES, 6*s.* to 9*s.* per acre.
Finest LAWN GRASS SEEDS, 18*s.* per bushel.
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The Agricultural Gazette.

SATURDAY, JANUARY 21, 1865.

THE greater portion of our Paper is this day occupied with two discussions, which may be both described according to the title of one of them, as on THE PRESENT POSITION OF THE BRITISH FARMER. They both deserve the careful study of agriculturists. It is instructive to notice, which we shall do more fully on another occasion, the different tones adopted in the North and in the South respectively by the speeches on this subject. We have abridged the report of the proceedings before the East Lothian Club, but the paper read before the Hungerford (Wiltshire) Club is given unabridged and in full. The latter is unquestionably a very able lecture on its subject. Mr. WILLIAMS is well known in the agricultural world as a man of great ability. It cannot, however, but be seen how the political partizanship of the speaker does in his case interfere with that business-like discussion of the present difficulties of the farm which they seem to have received at the hands of the East Lothian Society. The latter is suggestive, helpful, hopeful; the former is passionate and angry, almost desperate. To this we shall hereafter draw attention in detail. Our reference to both these reports at present is merely to express the hope that readers will not be deterred by their length from giving them their best attention.

THAT was a curious bit of thoughtlessness or forgetfulness which was displayed the other day at the annual meeting of the Norfolk Agricultural

Society, and is reported in the papers this week. Mr. FRERE, the Editor of the Royal Agricultural Society's Journal, is not satisfied with the Southdown ewe as the mother of the cross-bred lamb. Plenty of wool, and a sufficient carcase of good quality early ready for the butcher are what he wants; and to this end he would use the best long-woolled ram he could find, but for the dam he prefers the old black-faced Norfolk sheep improved. The original breed were "a wild and hardy race, well fitted for a country of scanty herbage. Both sexes were crowned with horns, which, as the rule, were thick and spiral. Their limbs were long and muscular, their bodies long, and their general form betokened strength and activity. They have accordingly been regarded as well fitted for distant journeys and for bearing the rough treatment of the fold. They held their necks erect, and in their carriage more resembled the Chamois antelope than any other of our races of sheep."

This is the description given of them by Professor Low, and it is the ewe of this breed of which Mr. FRERE asked, whether the old Norfolk sheep improved first with the Southdown and then with the best rams out of the West, was not a better mother than the Southdown, giving them a large early lamb, and an early sheep for the butcher.

His reasoning was this: The offspring of two parents partakes most of the character of that one which has held that character through the greatest number of previous generations. A well-bred male, one with a lengthened pedigree of equally well bred ancestors, is certain to hand down his valuable characteristics to his offspring when put to a female whose parentage has been various and mongrel. It is the long wool and the larger frame of the Cotswold or the Leicester that we want to unite with the quality of mutton of the Blackfaced breed. Shall we not be more certain of a profitable sheep by taking the larger framed improved Norfolk ewe, uncertainly bred, without the momentum of many previous generations of fixed character to contend with in her cross, putting her rather than the well bred smaller Southdown sheep, more likely to hold her own in the "contention," to the long-woolled ram on which we are all agreed.

This was the nature of the suggestion, and its policy was to be determined in the usual way by a "sporting match." Mr. FRERE was to send 20 good old ewes to some good breeders of Southdowns, and they were to be put to a good Southdown ram. He was to receive back ten of his ewes thus crossed and ten of the Southdown ewes of the other's flock similarly served, and each party to the experiment was to fatten off the ewes and lambs, and exhibit and report the result, showing a score apiece, ten of the one cross and ten of the other cross, with their dams, at some future Norfolk agricultural meeting. Nothing could be fairer than the details of the proposed experiment, or, indeed, more amusing than the simplicity with which these arrangements are proposed, as if no such trial had ever been made before.

But the proposal is made in apparent ignorance or forgetfulness of one essential point, on which, more than anything, successful grazing depends. Mr. FRERE's courageous proposal—for surely there was considerable pluck in this attempt to teach the agriculturists of Norfolk their interest and business—was accompanied by the protest that he had come there "not to assert any opinion, still less to theorise;" but this was theorising of the most faulty sort. It was speculating in forgetfulness of some of the leading and most active facts connected with the subject. In the first place, a larger sheep is by no means necessarily a more profitable sheep. The larger frame is made possible by the parentage of the animal, but it is actually built up by a proportionate consumption of food. See what Mr. SKIRVING, of East Lothian, says on this subject in another column:—"It has been pointed out to us," he says, "as a fault that we are content to sell sheep at 2*l.*, when Lincolns or Cotswolds would fetch 4*l.* each. Now, I think a little sheep just eats in proportion, and I would not keep Southdowns one week longer if anything would pay better." The obtaining as our cross an animal whose tendency is to grow more largely into bone and yield a larger surface of skin within which a heavier carcase, and upon which a heavier fleece shall be found when it is ready for the butcher, is not necessarily a desirable thing at all in the interest of either the grazier or the breeder.

But there is another and still greater lapse of memory or of judgment displayed in Mr. FRERE's proposal. The ewe is to be a cross bred "improved" and therefore mongrel animal, in order that the superiority of the ram may be fully displayed in her produce. Her characteristics are to be held without tenacity, in order that those of the sire may be more certainly reproduced. But there are characteristics of the ewe which it is quite as desirable to retain and reproduce, as those of the larger framed and longer woolled ram to which she is put. We want her quality of flesh, her early maturity and aptitude to fatten, quite as much as his larger frame and heavier fleece; much more so indeed if Mr. SKIRVING, and the experience of graziers generally, be trustworthy. Put the long-woolled ram to a mongrel ewe, and you lose the advantage of that fixity of type which a well-bred Southdown would ensure you, and which would secure for you in their offspring her precocity and quality as certainly as his long wool and size. Your lamb may certainly enough grow into a large and long-woolled brute, but as to its proving a kindly feeder, and therefore a profitable sheep for the butcher, you have no certainty whatever.

All this is proper for discussion in this speculative way, because it has long since been realised and ascertained by experience almost everywhere. And accordingly it was at once pointed out by Mr. WOODS, the agent of Lord WALSINGHAM, and the proposal fell to the ground.

Mr. WOODS was quite prepared to meet the challenge between the Southdown and those long-legged blackfaced ewes which appeared to meet with favour in the mind of Mr. FRERE. They had been acquainted with them for years, and their acquaintance had more thoroughly satisfied them that the less they knew of them the more profit they got into their pockets. If he understood him rightly, he would try some ewes bred from the Suffolk downs and West Country downs, against the produce of Southdowns. Now, if it should be tried, as Mr. FRERE wished, by some impartial man, he believed that the result would be that which had been proved by every successful grazier in the country, that the more quality they got in the animals they had to feed the sooner they were fatted and the more profit the graziers would receive. He believed they would get very little quality in the stock bred from those long-legged, long-necked, ugly sheep, which would be the result of Mr. FRERE's cross.

Mr. WOODS added that Mr. FRERE was starting at no new point, but running on an old and well-tried path, because all he was advocating there had been tried scores and scores of times, and if they wanted an example, they might go on Norwich Hill that day, and go over the pens of sheep at Tombland fair, and they would see the very animals, the very breed of sheep, that he was endeavouring to make a great point of, and bringing it forward as an important discovery, and one which practical men had lost sight of.

The Editor of the *Norwich Mercury*, in his comments on this discussion, points out that so long ago as one of the Holkham sheep shearings the late Earl of LEICESTER, then Mr. COKE, had spoken in precisely the sense of Mr. WOODS' remarks, and against the proposal now so courageously made by Mr. FRERE. He had said:—

"Southdown sheep have been found preferable to the Norfolks in every essential good quality—in wool, in carcase, and in early maturity. Mr. BLYTH, the father of the present owner of Sussex Farm, was the first person who bought some, and he told me he gained by them the first year more than the amount of his rent. It has recently become a very general practice in the county to cross the Downs with Leicesters for the purpose of providing a staple of wool suitable for the Norwich manufacturer. One cross is advisable. It produces not only a good fleece of wool, but a good carcase of mutton; but it would be very injurious to breed from those cross-bred animals, as their progeny would degenerate into a mongrel breed, deficient in every quality requisite to form good and profitable stocks. Norfolk sheep-breeders cannot, therefore, be too strongly cautioned against the danger of falling into an error in practice at once disgraceful to the county, and injurious to the community at large, as well as to individuals who may have been led to commit the error."

May we not add that the Editor of the *Agricultural Society's Journal*, or, indeed, of any other agricultural periodical, mistakes his vocation when he pretends to teach agriculturists their business. His endeavour should rather be directed to induce them to teach one another.

THE PRESENT POSITION OF THE FARMER.

[The following paper was read by Mr. Williams, of Baydon, before the Hungerford Farmers' Club.

THE position of the British farmer at the present time is a very serious one, and it is a fit subject for a Farmers' Club to discuss; for however profitable it may be to learn from each other the best mode of breeding stock, feeding and grazing cattle and sheep, growing cereals, roots, &c., and all the various subjects which suggest themselves for further development, it is as well occasionally, and especially at the present time, to look to ourselves and see if we are in that healthy state as regards our affairs, which the welfare of our country requires of so great an interest as the agricultural one.

It was wisely said (some 20 years ago) by Mr. Lawrence, the then American Minister at the English Court, "that agriculture was the back-bone of England!" If so, it is also the spine; and it behoves us to look into our condition, and see if there is any danger of its being injured.

The farmers of this country ever have been, and I trust ever will be, noted for their industry and perseverance: they have the assurance of the wisest man that ever lived, "that in all labour there is profit;" but unfortunately of late years they have too much reason to regret that of the labour bestowed by themselves, and paid for to others—however true the words of Solomon may be—the *profit* goes to the public at large, and not to those who produce it.

1. Let us first consider the liabilities the farmer is subject to; afterwards see if, with the present price of corn, there is any hope of meeting these liabilities and making both ends meet; and also if there is any remedy that can be applied to meet his case, either by legislative enactments, or by his own means.

For example, then, I will take a farm of medium quality, of 400 acres arable, farmed on the four-course system.

	£	s.
Rent (about an average) would be	400	0
Tythes, about 7*s.* per acre..	140	0
Poor-rates, *highway-rates*, county and Church-rates, 4*s.* 6*d.* in the pound on 360*l.* according to the New Assessment Act	81	0
Labour, an average of 8*l.* per week, or	416	0
Income and assessed taxes, and insurance from fire and hail	21	0
Manure bill	80	0
Corn for 13 horses, 125 qrs. of Oats, at 20*s.* per qr. ..	125	0
Tradesmen's bills for repairs, hire of steam engine, drills, &c., and beer for labourers	150	0
Wear and tear in horse flesh	30	0
Seed Corn, Grass Seeds, Vetches, Turnip seed, &c. ..	220	0
	£1663	0

I have worked these figures out in detail, and am satisfied that the above sum of 1663*l.* is as near as can be the expenses and liabilities of the tenant who occupies it.

We will next see what the farm will produce, with sheep and wool at a very high price, and corn at a very low one.

	£	s.
Assuming that 32 acres are down to Sainfoin, it will interfere with the Wheat crop to the extent of 8 acres per annum; there would be, consequently, on the 4 field system 92 acres of Wheat, at 8 sacks per acre, at 19*s.* per sack	699	4
60 acres of Barley, at 9 sacks per acre, at 26*s* per qr...	351	0
40 acres of Oats, at 6 qrs. per acre, at 20*s.* per qr. .	240	0
8 acres of Peas, equivalent to the 8 acres of Sainfoin not planted with Wheat, 4 sacks per acre at 18*s.* ..	28	16
	£1319	0
We will assume there are 300 breeding ewes, together with 100 ewe lambs kept on the farm, and allowing for a loss of 5 per cent. per annum, or 20 in number, there would be 80 full mouth ewes for sale, at 40*s.* per head	150	0
Allowing a lamb to an ewe for 280 ewes, and deducting 100 ewe lambs for stock, there will remain for sale 180 lambs, say 120 wether lambs at 30*s.* ..	180	0
60 mixed cull ewe and wether lambs, at 20*s.* per head	60	0
	£400	0
The next item is wool, and take 330 fleeces, at an average of 3¼ lb. per fleece, or 44 tod, at 54*s.* per tod	118	16
20 head of cattle could be kept for the purpose of making manure, but as there is no allowance made for any but the green food of the farm, only a moderate profit can be allowed for their improvement, as all artificials given would have to be deducted: say then a profit of 2*l.* per head ..	40	0
Again, as regards pigs, the waste and offal of a farm cannot be made the most of without them, but if fatted, it generally, in a corn district, takes a guinea to make a pig worth a pound, so that little can be put to profit under that head: at the outside, without charging for extra food	16	0
Cattle and Pigs	56	0
Wool	118	16
Sheep	400	0
Corn	1319	0
Total	1893	16
Deduct expenses	1663	0
Balance	£230	16

Now, it has always been considered a rule that the tenant's income should be equal to the landlord's rent. In that case he ought to receive a net profit of 400*l.*, but we here find a deficiency of 169*l.* 4*s.* to begin with. Rather a serious item, seeing that his sheep have produced sufficient (without the wool) to pay the rent, and his wool has made such a price that he never had before and can scarcely hope to see again!

In the list of expenses I have made out I have charged nothing for interest of money, or the tenant's housekeeping expenses.

	£	s.
The capital required to stock this farm would be 7*l.* per acre, or 2800*l.*, which at 5 per cent. would be	140	0
For his own labour and profit	260	0
Making equal to the rent	400	0
Balance from the above account	230	16
Deficient	£169	4

This is caused by the low price of corn alone, as his stock has paid him well, and the Almighty has blessed him with a

crop, which I have put beyond an average, and of the finest quality and the greatest weight we have had for many years.

Passing strange this, that Wheat weighing 13 score nett, should with difficulty make 1*l.* per sack, and that Barley, weighing 11 score 4 lbs. nett, should be offered, without a customer, at 26*s.* per qr.: surely, as the saying is, "There is something rotten in the state of Denmark,' or otherwise in our own country, which requires an alteration of some sort!

But the farmer is in a much worse position than I have placed him above, inasmuch as he has but half a crop of hay, one third of a crop of Swedes and no Turnips at all. What is he then to do? He is certainly blessed with some beautiful straw, and this must be cut into chaff at a further expense, and a considerable amount of the corn, which no one else will buy, he must purchase himself for his stock, and should we have a backward spring, he may think himself well off if the 230*l.* 16*s.* left on account for him pays for the corn and artificials he is obliged to give to his stock!

He will then have nothing left for himself!!! But how sweetly does Sympathy soothe the troubled mind;—and she steps in here and says, "Never mind! this is nothing to the year 1860! 'Tis true you have nothing for your year's labour and capital; but times have been worse, for in 1860 you lost 100*l.*—and sure enough it was so!] And should there be any young gentlemen (amateur farmers) wishing to take farms at the present time, I invite them to look at the picture I have drawn (not a false one) and take care they don't give too much rent!

"Hope deferred maketh the heart sick;" and we have been living upon this material so long that it has become nauseous, and it is absolutely necessary to look further and see what can be done to meet our present condition!

In the days of our grandfathers (though they never made very large fortunes) if such a season as 1860 overtook them, a few years of prosperity would put them right. Not so now. Since then we have had at least three good harvests of Wheat, one, the best ever known; but through the price being continually so very low, there is no chance of making up for such losses.

2. We will therefore endeavour to find out, if possible, some remedy for this state of things. (*a.*) Take the item of Rent! "What is Rent?" was once asked in the House of Commons by the late Lord Herbert of Lea, when member for the Southern Division of Wilts, and he gave an equally significant answer.

"Rent is the surplus after all the other expenses of the farm have been paid." This appears to be a very reasonable and wise answer; but it is not a correct one, or the tenant farmer whose case I have illustrated) would be better off, and would exchange places with his landlord. "Supply and demand" regulate the price of rent, as well as other things; and it is certain that in England the supply cannot increase, nay, it is certain that it will continue to get less on account of the various railways that are continually being made. On the other hand, the demand increases; men who have been farmers all their days, bring up their sons to the like business: they look out for farms for them, and they find competitors in gentlemen's sons and retired tradesmen who fancy there is nothing so good as farming! The consequence is, that commercially speaking, the landlord is sure to get a high rent; for what one man won't give, another will. This is an artificial state of things altogether; and the farmer (if he would continue one) cannot help himself. Does it not seem strange, that he can afford to pay more rent when his produce is making less money? yet from the return of the Income Tax the Chancellor of the Exchequer can congratulate the country on their prosperity! The only way I can see to alter this artificial mode is, that the landlord should not have a prior claim over the public creditor. This keeps the rent above its natural level. A landlord would be more particular whom he took for a tenant, if this law was altered. As it is, the commercial man who serves the tenant with the 80*l.* worth of manure to keep the land in condition, must come in for poundage; whilst the landlord steps in before him and takes the whole of his 400*l.* for rent!

I don't mean to say that I advocate an alteration in this law, as the landlords would then naturally require bondsmen as security for the rent, but I am quite sure (as I have said before) that the rents are, generally, more than they would be from this cause.

Thus far, the tenant cannot help himself; but there is another case in which he can; and he deserves but little sympathy hereafter if, after struggling through the difficulties I have shown, he suffers his crops to be eaten up by a lot of hares and rabbits, kept by his landlord at his expense. Nothing can compensate him in a way of reduction of rent, that the landlord is ever likely to make; and the sooner he leaves his occupation the better. I well know, "There is no place like home," and it is still home, though eaten up with game, but it is a hopeless job; and I trust we may see the day, and we shall see it, if the price of corn continues at what it is, when every landlord who delights in the over-preservation of game will be obliged to occupy the land himself; or keep his stock upon the Thistles and natural produce of an uncultivated farm!*

(*b.*) The Tithe is the next thing to consider, and with one exception, we have too much cause to be thankful that this is a settled question. That exception is, that from various causes, the average returns are in reality more than the farmer realizes from his produce. But I shall have cause to refer to this further on.

(*c.*) Now for an item in which something might be done, and would too if any other class but ourselves had to do with it:—I mean the Local Taxes.

You will see that my tenant has to pay 4*s.* 6*d.* in the pound for poor rates, highway, county, and church-rates, and it amounts to 81*l.* per annum. There is but one small item of this that he can avoid, and there his brother ratepayers must join him; that is, where their conscience is offended, they may club together and upset the Church-rate. All the rest my tenant is compelled to pay; but the Church-rate is generally self-imposed. But where is the conscience of those who in these would-be days of "free-trade," would oppose all attempts to shift these burdens from the shoulders of the agriculturists to the State at large? although the cause which warranted these payments has passed away. I well remember at the time of the repeal of the corn laws, Mr. Disraeli proposing in the House of Commons that half of these burdens should then be placed on the Consolidated Fund; but the House did not carry their "free trade" notions so far as this, and he was beaten by a large majority. We have now borne these burdens for upwards of 20 years, since the foreigner has had free access to our markets, and brought the price to what it is; and now we have another M.P. sitting on the stool of repentance, not for the cause (as he was a free-trader) but for the effect of that measure, who, in the person of Mr. Norris, the member for Abingdon, came out the other day with the opinion "That as the farmers had lost the protection they used to have, and their market was open to all the world, these local burdens ought to be taken from their shoulders. Well done, Mr. Norris! you can see the injustice of the farmer chiefly maintaining the poor; causing the highways to be kept up by him at a double expense to what they used to cost. You can see the anomaly of the farmer having to provide for, and maintain all the pauper lunatics in the country; that the police force, which is in some instances required to assist in preserving the game that injures him, is paid out of these rates; that the poacher, induced to such a life by the preservation of game, when caught, is sent to prison, and his wife and family to the workhouse, and chiefly maintained by the occupying tenant! May you, sir, be spared to assist in getting these burdens removed from us, as an act of justice; and as you have assisted in getting that portion of "free trade" which has done injury to us, so may you strive to obtain that measure to its fullest extent.

I may be told that these taxes are a charge on the landlord, and not on the tenant. This is all bosh! Take away the burdens, and the tenant who pays them will have the greater part of the benefit. I know lots of cases—myself among the number—where rent was never altered from this cause. I have helped to build two county gaols, two lunatic asylums, two sets of police stations, alter one workhouse at a considerable expense and build another, thoroughly restore two churches, have had the whole of the police force added to the rates, am now paying an additional charge for the highways, and have never known any allowance of rent on this account; but rather the reverse, the rents have increased at the same time.

(*d.*) The next item is Labour, and a costly one too; equal to, or exceeding the rent; and the question is, Can we reduce this?

We certainly could do it; but for the last two or three years it has been stationary, although the average price of Wheat, taking Devizes market, of which I have the return, was for the year 1862, 53*s.* 4*d.*; for 1863, 43*s.* 6½*d.*; and for 1864, just ended, 38*s.* 2*d.* Now, when we consider that in the manufacture of a quarter of Wheat, one-fourth is manual labour, if with Wheat at 52*s.* a quarter (what it ought to be to remunerate the grower), the labour in this quarter of Wheat would amount to 13*s.*, it becomes a serious thing that the farmer should sell, as he has done this year at Devizes, the same for 9*s.* 6½*d.*, and yet be paying, as we are in my neighbourhood, the same amount for labour, losing thereby 3*s.* 5½*d.* by every quarter of Wheat that he gets rid of.

The fact is, you cannot reduce the price of labour. If you turn the men off, you suffer for it, and must ultimately keep them in the workhouse; if, on the other hand, you reduce their pay, you get abused, on the score that clothing and meat are both dear. So the tenant farmer has to stand the brunt.

The tradesman, therefore, is the only source from which the farmer can hope to reduce his expenditure. His manure bill will, as an act of necessity (though it ought not), become less; many of the comforts of his home must be dispensed with, in order that he may meet the payments that he cannot avoid; in fact, retrench as he will, it is impossible that any such cheese-paring system can meet his case. He is working with his arms and legs tied; his business is restricted; he is laden with burdens, which are a disgrace to the very name of "free trade;" and the first thing we have to do is, through the medium of these clubs, to become united (for without this we shall do nothing). Then let us never cease to agitate our cause, till, as producers, we obtain the same freedom that the consumers enjoy.

3. Look at the price of Wheat! In the *Mark Lane Express* of December 19th I met with an interesting account, entitled, "The Wheat Trade of the World," and in a calculation made up to November 30 it appeared there were five countries above the price in London; one (Milan), the same price; 5, within a few fractions; and 5, more or less below the English value.

Now if this is true (which I don't for a minute doubt) where upon earth does the large amount of Wheat imported come from? Let us take New York, for example. America is one of the countries quoted above the London value, and no wonder, from the fearful war they are engaged in. It is true we get nothing like the quantity we used to—for the best of all reasons, they have not got it! But, how is it that we get any, when it is worth more money there than in London? The fact is, our English sovereign is a standard value throughout the world, and the value of exchange is so great in America, gold being 230 per cent. or upwards premium, that the merchant can import it at a profit, although he gives apparently more money for it. This tells against the farmer in two ways: by bringing an additional quantity of Wheat into competition against him, and making money dear with us, thus checking the sale of our own produce. It is no wonder, then, that we have a low price of Wheat; and it is a hopeless thing to expect it otherwise.

Over this we have no control whatever. But in the article of Barley, it is the fault of the farmers themselves if that cereal remains at the discount it is at present. In the year 1863, the quantity of foreign Barley imported into the United Kingdom was 2,058,756 quarters; within 428,905 quarters of the quantity returned in the *Gazette* which regulates tithe, &c. During the past year about 1,700,000 quarters have been imported. I have been unable to ascertain the exact quantity, owing to the last quarter being returned in cwts. instead of quarters, but, reckoning 10 score to the sack, I am not far out. These large quantities, as a matter of course, are competitive with ours; and such being the case, we have a right to demand that our markets should be unrestricted and free from every cause that may influence them, either directly or indirectly, in the sale of our produce.

This is not the case. The Malt Tax, which the Government persists in keeping on (though advocating Free-trade principles), causes the maltsters and brewers to select the best samples only for their use. It cruelly checks the consumption of good wholesome beer, restricting the demand for Barley; and therefore the second rate and inferior samples become a drug on the market. But this is not all the mischief.

If ever there was a season when farmers' stock and produce should be made the most of, it is the present one, but the Malt Tax alone (and I will prove it) is the cause of this inferior Barley being unsaleable, and the quantity of straw which is being consumed by his stock is not made so palatable as it would be, provided he could malt the Barley his farm produces for his own cattle. But I fancy I hear some one telling me that the Chancellor of the Exchequer has given us an Act of Parliament for this very purpose. Well! so he has; and we will just see of what use it is. As a matter of course, whatever comes into the market for sale in the shape of feeding stuffs is competitive one with the other, and requires an equal freedom in its manufacture. We will take oil-cake versus malt cattle food, and see how the matter stands. The manufacturer of oilcake has no restrictions on his business; he buys his seed and makes the article the best way he can by the aid of science and steam power, and it is now selling at from 11*l.* to 12*l.* 10*s.* per ton. Now let us go into the manufacture of malt for cattle; the first thing you have to do is to take out and pay for a license, then you have to expend a lot of money in preparing your malt-house according to the instructions of the excise officers, that it might be locked up and secured as they choose; then you must get a mill of a peculiar character that will grind Linseed and malt together; then you must provide a house, not exceeding 10*l.* per annum in value, for the exciseman's use, and when you have done all this you will find the officers gauging the house the same as in other cases, and on all the increase attempting to charge a duty! Then again you cannot sell less than 5 quarters at a time, as the excise won't see to it under that quantity! I know of four individuals who are making this "cattle food"—one, a gentleman at Gloucester, who sells it at 15*l.* per ton, and who tells me those who have bought it are well satisfied with the effect—the three others are selling it at 12*l.* per ton, and they all say, on account of the restriction put on its manufacture, it cannot be made for less!—Let us see, as men of business, what we could do, were this tax swept away and the excisemen put beyond the limits of the cultivation of the soil. In any of our markets we can purchase heavy steely Barleys, weighing 11 score 4 lbs. net, at 26*s.* per quarter; at this weight, 5 quarters will weigh a ton, and will cost £6 10 0

To this I will add 5*s.* per quarter for making: and profit (a good one too) as it will only take 9 days to make it instead of 12 or 14, which will be	1 5 0
To this I will add 5*s.* per quarter for a rise in price, which I am certain would take place if it could be made free	1 5 0
Again, if this malt was only sufficiently made to change its nature from starch to sugar, and the malt screenings kept with it, there would not be much reduction in weight: still I can afford 4*s.* per qr., or 1*l.* per ton for that, which would be	1 0 0
Making altogether	£10 0 0

Now this would be the effect of that "Freedom of Trade," which is so much boasted of in these days! The effect on the Barley market would be a rise of 5*s.* per quarter! if not, I could sell you the malt at 25*s.* per ton less! viz., at 8*l.* 15*s.* per ton, and this would have the effect of reducing the price of oil-cake considerably. Can it be that the farmers, as a producing body—ay and the consumers too—will submit to this any longer? If so, I hope and trust they will not be able to get a pound of meat under a shilling.

This bill then of the Chancellor of the Exchequer's is a humbug and a cheat! It is a humbug, seeing it is of no use, and it is a cheat, inasmuch as the Government having since 1860 remitted duties to the benefit of almost every interest but the agricultural one, to the amount of 7 or 8 millions sterling, they have offered us this which is worse than nothing.

But the Malt tax works another evil: it causes the returns to be made on the best Barleys, whilst the inferior ones are consumed by the farmer himself for want of a sale. This affects the tithe payer, which I noticed earlier in my paper.

The annual return of Barley for 1863 was 33*s.* 11*d.*, and the Septennial one 35*s.* 10*d.*; for 1864 the annual average is 31*s.* 1*d.*, and the Septennial one 34*s.* 2*d.* I congratulate those farmers who pay tithes and corn rents, and who last year and this sold their Barley between 20*s.* and 30*s.* per quarter, upon these prices I have just quoted, and I have further to congratulate them that with the year 1864 ended the returns to be made at such a market as Devizes for this purpose. For the future we have reason to believe that Warminster will be the only place making a return in Wiltshire; and although this is a movement in the opposite direction to what it ought to be, still I congratulate my brother farmers on the score that "when things come to the worst they will mend." If there is a market where superior corn is produced more than another in Wiltshire, it is Warminster. How many estates are let at corn rents in Wilts I don't know, but the Earl of Pembroke's and Mr. Bevan's of Fosbury are: and I particularly refer the tenants to the above figures for their study.

In the Dr. and Cr. account which I have given, the sheep have yielded much more than an average, as from the loss of the Turnip crop, when the bulk of the stock was sold, they fell in value some 7*s.* per head. The corn again I have put above an average of seasons, except Peas, and perhaps Oats. And on the other hand I have put the expenses within the actual cost. Now the sympathising public tells us we must keep more stock! Be it so: it is our only chance. And I know some "go-a-head" farmers who do this, and are, in a measure, free from the evils I have shown. One of these, a friend of mine living within two miles of me, and who I am pleased to see present (and hope to see soon on his legs), consumes on a farm of 400 acres arable and 200 of down more corn than he grows! And acting on the principle of "Live, and let live," his grinding bill alone amounts for the past year to 70*l.*; and being moreover, a straightforward man, he will not object to my saying that his wool alone the last season brought him 600*l.*! But suppose we would all act upon this principle as a rule—where would the stock come from? Where is the money at these prices, to buy it? And even if this were practicable, where would be our market, and what would be the price, when the supply exceeded the demand? It must not be forgotten that the foreigners have found out our market, and are doing their best to supply us by purchasing some of our best stock to improve their own!

4. Such, then, is the "present position of the British farmer." I have shown you what his liabilities are, and he has to turn the greater part of these into gold which is at a high premium, from his produce which is at a fearful discount; and after working for a twelvemonth and using his capital to accomplish this, together with the anxiety of mind, it is a hard case that he should have nothing for himself!

As I want particularly to hear your opinions upon this subject, I shall conclude by expressing a hope that for the future, as a class, we may be united in demanding our share of the free-trade privileges that all other classes enjoy, and that we won't cease to agitate till we have got the fundholder to pay his portion of the maintenance of the pauper lunatics, the poor, the police, and those other burdens, in which he is as much interested as ourselves. And likewise that the excise may be put at arms' length, and every farmer be allowed to use his produce in any way he chooses. And moreover, that as an election will be soon at hand, we act as one man to send only such men to Parliament as will do these things for us.

5. *Steam Cultivation.*—I daresay that many will think it strange, that being one of the early inventors and patentees of the steam cultivator, and having patented a mode for making the portable engines locomotive, and now writing a theme on agriculture, I should omit to mention the very name! But I purposely intended this, and thought I had finished my paper, when yesterday morning, reading the *Mark Lane Express*, I put it aside, and took up my paper again to copy the following paragraph from its columns:—

"STEAM PLOUGHING.—*West Riding Sessions.*—It seems that steam ploughing is likely to go through a severe ordeal before the West Riding justices. Mr. J. W. Childers, of Cantley, gave notice a short time ago, under the provisions of 'The Locomotive Act, 1861,' for an order prohibiting the use of any kind of locomotive propelled by steam or any other than animal power on the roads in the West Riding, except between twelve at

[* Mr. Williams has written to us since the appearance of his paper, saying:—A gentleman in this neighbourhood (a thing I did not know at the time I wrote my paper) has been offered 15*s.* per dozen for all the rabbits he can send to London. The tenants on the estate are eaten up with them, and no doubt the gentleman (himself a tenant renting the mansion and the game) will make a fine thing of it."]

night and six in the morning. This notice was abandoned, but Colonel Smyth and other justices, without giving any notice to the parties interested, have applied to Sir George Grey, as one of the principal Secretaries of State, for an order for Lower Agbrigg; and Sir George Grey has, in accordance with the power given to him by the above-named Act, made an order that no locomotive shall travel on any public road in that district (Lower Agbrigg) except between the above hours—12 at night and 6 in the morning. It is thought by the Wakefield West Riding Steam Plough Company that this will have the effect, not only of putting a stop to their steam ploughing, but will also prevent the use of all traction engines on public roads, and they have sent a memorial to Sir George Grey on the subject, begging him to hear the parties interested before he give any further order for the West Riding, or any part of it, and asking that the above order may be rescinded. We understand that the West Riding Steam Plough Company, backed by a great number of companies and individuals in various parts of the kingdom, in thirteen different counties, are anxious to be heard on the subject, from a feeling that if these restrictions are to be imposed, it will be a severe blow to agricultural progress."

Here is another instance of the treatment the farmers are subject to! And I must ask your further patience while I show that it exceeds any other that I have exposed. This is not a singular instance of the kind, as Sir George Grey is very well aware of, being too ready to comply with the wishes of those who choose to make complaint! And it does not require the magistrates at Quarter Sessions to accomplish this, as Lord Folkestone himself did it in the neighbourhood of Salisbury; who, after his horses had passed an engine (but were too well bred to take any notice of it) got out of his carriage, inquired the name of its owner, summoned him before the bench of magistrates, and found, to his surprise, that there was an Act of Parliament to legalize these engines to travel, and that they had as much right there as he had! Finding a certain clause in the bill, he then wrote to Sir George Grey, who, without consulting the farming interest, proscribed these engines, in the Salisbury district, from travelling (except by night). Now assuming that every county is subject to this grievance. I will take Wiltshire as an illustration. In the first place, who have so great a right to travel on the public highways, as the farmers, who hitherto have been compelled to keep them in repair. More especially in our county, as when the magistrates gave notice of their intention to put the New Highway Act into operation, nearly every parish in the county, and every occupier of land in those parishes, memorialised the Bench in vain to suspend its operations for a twelvemonth, to see how the Bill acted in other counties.

Is it right then or just, that my Lord Folkestone, who pays but little in proportion towards the roads himself, should have the day to roll about in his carriage, whilst the farmer is obliged, after paying the greater part of the expense, to be about by night, breaking his rest, running into ditches, knocking down gate posts, at his Lordship's will? The blood rose in my veins as I read the above paragraph. What would be the result of this being the rule throughout the kingdom?

Suppose a farmer with a steam plough finished a field about the middle of the day, he would have plenty of time to move to another piece and set down ready for the next morning; but he cannot do this. He must waste the half day, and come at 12 o'clock at night, in the dark, to move his tackle; and it will be well for him if he don't get turned over! But supposing all goes right, how will his men be fit for work the next day after being about all night with the engine? I fearlessly tell those Yorkshire magistrates, and all the magistrates in the kingdom, to beware what they are about! I ask them if this is "FREE trade;" and I tell them, what they know already, that no class of men have treated them with greater respect than the farmers; but, if this is to be our reward, I beg to tell them that there is such a thing as a paid magistracy, which the farmers of England can better afford to contribute to than the Poor and the Highways, and the sooner they league together for such purposes the better!

You will think that I, an old Tory, am teaching Radical principles, but if such treatment as I have described is the result of Tory or Conservative principles, thus far I am ready to disown them.

Home Correspondence.

Rape Cake, &c. [The following letter has been forwarded to us by Mr. Alderman Mechi, to whom it was addressed.]—At the risk of having this my effusion consigned to the waste-paper basket, I venture to send it to you. My object is to point out one or two matters which I think are confirmatory of the views taken by you on the same subjects. Although my experience as an agriculturist in England is *nil*, I have had considerable experience as an amateur agriculturist in the East, and there are few of the staple crops in India that I have not tried, and some to a considerable extent. The subjects on which I shall touch are straw as food: burnt clay, and what you call rape cake, but which I suppose is the refuse after the extraction of the oil from the mustard seed.—(1) First, with regard to straw, the working bullocks in India get little but the Rice straw cut up and mixed with the cake of the Mustard seed after the oil has been expressed. Singular enough the bullocks in India reject the Linseed cake, but take greedily to the Mustard cake, if it be not too new. The ryot, or bullock driver, mixes it with cut straw after it has been soaked in water about 12 hours, and it is then eaten with avidity by the bullock. I have often noticed that if given too fresh from the mill, or in too large quantities, that it produced purging, but an exposure of two or three days to a tropical sun did away with all laxative tendency. So much for Mustard or Rape cake.—Straw as food: Throughout the East, at all events in the densely populated parts, straw is the only fodder for the bullock: for eight months in the year Grass is not to be had. So far from bullocks not thriving on straw, nearly all the bullocks fattened for the supply of Calcutta are fed on chopped straw and Mustard cake. The manure is not used for the land, but is eagerly sought after for fuel. I was surprised, in the last edition of your valuable work on Farming, to see you write about using finely cut straw for litter; to quote your own words, you might as well plough in Linseed-cake, Beans, or anything else for manure before it passed through the stomach of the animal. If you want bedding, why not use burnt clay and eat all the straw. I have used it with advantage in the East both for sheep and bullocks, not with a view for the manure but on account of its antiseptic qualities as a bed in every way better suited for a climate where fermentation was rapid.—(2) Burnt clay, where it is kept covered and not spent by exposure to the atmosphere, is one of the best preventives of putrefaction, and from its absorbent powers retains for vegetation what it has absorbed, only giving it out when wanted. I tried it 16 years ago for Sugar-cane. I followed what General Beatson said in one of the volumes of the Society for the Diffusion of Useful Knowledge. Its effect on Grasses in India is something wonderful; the ordinary Grass of the country is called Ooloo, stiff, raw, and harsh, with spikes at the end strong enough to run into the finger. Give a piece of this Grass land a stiff dressing of burnt clay, and the Ooloo Grass is supplanted by a beautiful succulent creeping Grass, called the Dôss, which vegetates through the hottest months; whether it is the Grass that attracts the moisture or the burnt clay I cannot say. I am inclined to think it is the burnt clay, but independently of its value for litter and manure, burnt clay is invaluable for mixing with lime to make mortar and cement. Sand is never used in India, but in its place burnt clay powdered fine into dust called Soorkey is used. So strong a mortar does this make that in many of the old forts built many hundred years before the English knew the country, it is easier to break the brick than the mortar. I grind it up for mortar in a mill with two heavy rollers and a pan turned by a steam-engine, 11-inch cylinder, and use it not only for building but for litter. If you can burn your clay at 6*d.* per cubic yard you can grind it for 9*d.* and have it as fine as flour. A sprinkling of this daily will absorb every grain of ammonia, and in the place of the fermenting mass of straw litter, in which, as far as I can make out, nearly all escapes, either in the shape of ammoniacal or carbonic acid gas, you will have a manure that you could almost sow out of a drill. So convinced am I with what I have seen of burnt clay, and from what I have read in your book, that I intend to try my hand on some of the stiff clays, and after drainage I will burn at least 200 yards to the acre if it can be done at a shilling a yard. When I was at home from India last year I paid Tiptree a visit, and I do not know whether I was more astonished at your pluck in taking to such a forbidding soil, or at the results you had obtained. When I do get fixed in a farm I shall take the liberty of calling on you and asking the favour of your opinion as a guide in many matters in which my experience would not be worth much. —— [What he calls Mustard I call E. India Rape. *J. J. M.*]

Potash for Manure.—I am very glad to see your Correspondent Mr. Frere has drawn attention to the want of potash as a manure; it has often struck me in reading the analyses of plants, that if potash could be brought to a reasonable price, it would be a very beneficial manure, and I believe it has recently been used in East Lothian for Potatos with the best result. The question is—how is it to be procured in its cheapest form? If some chemist would tell us this, and some respectable manure dealer would sell the salt at a reasonable price, I think it would meet with a large sale; at all events the dealer would find a customer in *F. J.*

On Laying Down Land to Grass.—I have long arrived at the conclusion that it would be impossible to grow Wheat profitably to any extent upon strong clay lands; and my observation, in going over several thousand acres every year, has also shown me the great advantage to be derived both by landlord and tenant, in adopting the system of laying down this description of land to permanent pasture. It should, however, be borne in mind that it is only strong clay soils which it is desirable to take out of cultivation, as, whilst these soils are most difficult and unprofitable to work, under existing circumstances, they produce, when properly laid down, the best pasturage. On the other hand, "middling" and "poor" soils, with porous subsoils, are rarely profitable as pastures. Indeed, I am of opinion that, whilst a great portion of strong land should be laid down, there are "poor" and "middling" pastures on porous subsoils, which would produce much more, and be found of greater profit to the farmer, by being ploughed up; and I have, therefore, in various lettings, allowed such pastures to be converted into tillage, on condition that the strong lands on the farms should be seeded down. In the system of yearly tenancies it can hardly be expected that a tenant farmer should, under ordinary circumstances, without assistance, undertake the laying down any great extent of clay land, as it is a fact, known to all practical men, that after the first two or three years the greater portion of the young Grasses disappear, when the land becomes for some time comparatively useless, and without good dressings of manure, or depasturing of cattle fed by artificial food, a long period elapses before the pastures are established. Mr. Bass, in his speech at Derby, suggested an allowance of three years' rent by the landlord, and in the discussion at Uttoxeter this was considered liberal, but by some unlikely to be allowed. I am glad to be able to state that I could name several landlords who have acted very liberally in this matter; and in a recent valuation and re-letting of an estate, upon which there is a good deal of old tilled clay land, I arranged for laying down a considerable portion, as the fields become fallow, the landlord providing all proper Grass seeds, and in the second year allowing the cost of 15 tons of good manure, equal altogether to from 4*l.* to 4*l.* 10*s.* per acre—the annual rental of the land being a little more than 20*s.* an acre. I am happy to say the arrangement was considered satisfactory to both landlord and tenants, and I have no doubt that, ultimately, the money so expended, whilst benefiting the tenants, will prove a profitable investment to the landlord. Various opinions exist as to the best mode of seeding down for permanent pasture. In many districts, where the land is naturally suitable for Clover and young Grasses, the practice of seeding down without a crop has been successfully adopted; but in my own experience, on strong clays, I have found it best to make a good dead fallow, well prepared before winter, and sown with Barley or Oats at the spring of the year, when the land should be worked as fine as possible, and the Grass seeds sown in the ordinary way. Of course, before seeding down, or indeed before any profitable system of culture can be adopted, the land should be made thoroughly sound by all requisite under-drainimg. *John Shaw, Land Agent, Derby.*

Tithe Commutation: Septennial Averages.—As many of your readers may feel anxious to know the result of the corn averages for the seven years to Christmas, 1864, published by authority in the *London Gazette* of the 30th ult., viz.:—

	Per imperial Bushel.
Wheat	6*s.* 0*d.*
Barley	4*s.* 3¼*d.*
Oats	2*s.* 10*d.*

I beg to state for their information that each 100*l.* of tithe rent-charge will, for the year 1865, amount to 98*l.* 15*s.* 10½*d.*, or about 4*l.* 8*s.* per cent. lower than last year. The following statement, from my "Annual Tithe Commutation Table," will show the worth of 100*l.* of tithe rent-charge for each year since the passing of the Tithe Commutation Act, viz.:—

For the year—		For the year—	
1837	£98 13 9¾	1853	£91 13 5¾
1838	97 7 11	1854	90 19 5
1839	95 7 9	1855	89 15 8¾
1840	98 15 9¼	1856	93 18 1¼
1841	102 12 5¼	1857	99 13 7¼
1842	105 8 2¾	1858	105 16 3¼
1843	105 12 2¼	1859	108 19 6¼
1844	104 3 5¼	1860	110 17 8¼
1845	103 17 11¼	1861	112 3 4¾
1846	102 17 8¾	1862	109 13 6
1847	99 18 10¼	1863	107 5 2
1848	102 1 0	1864	103 3 10¾
1849	100 3 7¾	1865	98 15 10½
1850	98 16 10		
1851	96 11 4¾		29) £2929 1 7
1852	93 16 11¼		
General average for the last 29 years ..			£101 0 0¼

Charles M. Willich, Actuary University Life Assurance Society, 25, Suffolk Street, Pall Mall East, Jan. 13.

Yew Poisoning.—Two years ago last September a number of yearling cattle of both sexes grazing on mixed seeds strayed during the night into a young plantation in which there were several plants of the Common or English Yew (Taxus baccata), of from 6 to 8 feet in height. Although they were discovered early the following morning, one had already died. Judging the cause, we had them at once removed to the farmyard, a distance of less than a quarter of a mile; on their way there one dropped down and instantly expired; three others were also severely affected. They seemed paralysed, and in a state of stupefaction; they also fell down several times between the field and farmyard. After remaining on the ground for a short time they could be induced to get up and proceed for a little distance, when they would again fall down. In each case the belly was distended to an unusual extent, sometimes the nervous system seemed affected, producing a twitching and convulsive motion of the muscles of the body. We lost no time in administering a bottle of Linseed oil to each of those appearing to suffer, and at once sent for a veterinary surgeon, who recommended purgative medicines in order to free the system as quickly as possible of the offensive matter. Those who recovered appeared dull and sluggish for several days, though we could not afterwards discover any ill effects either on their health or progress. On post mortem examination the young succulent shoots of the Yew were found in the paunch, though only in small quantities. In cases of this kind, where timely discovered, we think Read's Pump might be used with advantage, as by liberating the gas the danger might be mitigated or avoided. *G. Murray, Overstone.*

Poisoning by the Meadow Saffron (p. 35 *b*).—In answer to Mr. Maw, I would refer him to your Journal for 1862, p. 506 *a*, and also extract the following from the *Bath Chronicle*, some time in December, 1857. "Benjamin Freeman, haulier of Bristol, fed his horses with purchased hay made into chaff; the horses shortly after eating it were taken very ill and appeared to have been poisoned. Three of them, valued at 73*l.*, speedily died. The hay from which the chaff had been made was then submitted to Mr. Herepath, the analytical chemist, for examination, and found to contain a large portion of Colchicum autumnale. *Diss.*

Foreign Correspondence.

ALAMOS, BUENOS AYRES (*concluded from p.* 36).—It remains to me yet to give your readers a sketch of our agriculture and its development. In the more immediate vicinity of the city of Buenos Ayres there are a number of small farms devoted almost exclusively to the production of green fodder (Lucerne) for the

supply of the city in spring, summer, and autumn, during which seasons such fodder and corn is usually used for the feeding of horses.

A little farther out Wheat, Barley, Maize, Potatos, and Pumpkins are grown, and Lucerne extensively cut for hay, as well as for soiling; also large plantations of "Peach" wood, "Paraiso," and "Acacia" are made, yielding fuel and posts for fencing purposes; there are also farms on which stock are kept for dairy purposes and sheep for "ram" breeding, blood sires, "Cleveland bays," and cart sires, for the improvement of the native breed of horses, &c.

There are several outlying districts and colonies in the heart of the province, on the coast, and on the banks of the rivers, where grain, Wheat, and Maize are extensively grown; and efforts are being made towards the north to introduce the regular cultivation of Cotton with some prospect of success.

Agriculture has not been behind in the general advancement. A few years ago the true Roman plough, with hardwood share, and a rude brush-harrow, made with "peach" sticks tied together with hide, were the only implements of tillage in use; the plough merely scratched up the surface, leaving the uprooted Grasses to be dried by the sun. On land so worked over a couple of times, the Wheat, Barley, &c. was covered in with the brush harrow, the result was that the Wheat, Grasses and weeds came up together in no very unequal proportions; the crop when ripe was cut with the sickle, then loaded on a hide and drawn on to a patch of hard bare ground, encircled with stakes and hide rope, and into this circle a number of mares and horses were turned and driven round and round until the grain was threshed out and the straw broken up into fine chaff. The winnowing process consisted in the mass of grain and chaff being thrown up into the air with shovels, the wind separating the chaff from the grain; not unfrequently, rain coming on, much damage was done, and sometimes the whole crop lost.

The cultivation of the Maize consisted in the grain being dropped in the furrow of the plough (if furrow it could be called), and covered by the succeeding course, and so on every third furrow; the crop then took its chance till ripe, when the ears were gathered from the stalk. Anything like a "fence" was rarely seen; Potatos there were none grown, and those that appeared on the tables of a few were imported. The "Pumpkin" was the chief vegetable; for these the land was ploughed (scratched) and furrows opened at about 5 yards apart; others were then drawn at right angles with these at about the same distance at the intersecting points, a little soil was gathered in a mound, and three seeds placed in each. All crops were exceedingly precarious by reason of the imperfect and shallow tillage. In a season a little drier than usual, as a matter of course when the ground was stirred to a depth of scarcely 2 inches the crop was burnt up. Such a thing as hay was almost unknown comparatively few years ago. Barley was sown to cut green—this with Maize was the feed for horses. Subsequently Lucerne was introduced, and sown in small plots in the outskirts of the town.

The first improvement in the country plough was to point it with iron, and this iron point gradually increased in size till it assumed something like the form of a share. Some British settlers introduced the old English swing plough, and trained horses to draw it. At the present day all the farms within many leagues of the city are fenced in with wire fence and ditch, and many are surrounded with an impenetrable hedge formed of a prickly plant of the Mimosa kind, known as Napendy. The farms vary in size from 30 to 40 acres to several thousand acres, the larger ones combining tillage, pasture, and plantations for fuel and posts for fencing purposes.

The Crops.—Lucerne is grown for feeding horses in the city and for hay. A relatively immense surface is occupied by this crop, yielding large quantities of fodder. For soiling, Lucerne can be cut six or seven times in the year, and three times for hay. On several farms no less than 250 to 300 acres are occupied by this permanent leguminous Grass. The various sorts of grain mentioned are grown to a considerable extent, more especially the Maize. Potatos are also a crop of importance; two crops of these of the same variety are taken off the same ground, one being sown in the spring, and these being gathered, seed of this spring crop is sown in autumn. Wheat in some districts is grown extensively year after year; in others it is rarely seen.

The tillage for all crops is very much improved. The implements generally used are the common American plough, drawn by oxen, and a heavy harrow of wood, with iron tines, with which a furrow of some 4 inches is turned and reduced to a good tilth with the harrow; but there are a few farms in the possession of our countrymen, where some of the best English implements of tillage are used.

The Scottish swing plough, iron—Howards' and Ransomes' swing and two-wheeled ploughs, iron harrows, chain harrows, Rollin's cultivators, ridging ploughs, horse-hoes; and during the past two years several mowing and reaping machines, horse-rakes, &c., have been introduced and worked with complete success. I myself cut over 250 acres of Lucerne with Burgess & Key's mowers, and raked the same with Pichleson's horse-rake this past season.

Experiments are being made by two or three parties with a view to determine the practicability of growing sundry of our fallow crops, and the period of the year at which they can most advantageously be sown. These trials extend to the Swede, Mangel, Carrots, and Rape. The only difficulty I foresee lies in the frequency of lengthy periods of dry weather, which will necessarily render such crops precarious. Efforts are about to be made to introduce some of the perennial Grasses most esteemed in England. Beans do well, and will prove a useful crop.

The soil is a rich alluvial loam, without so much as a pebble, resting on a subsoil of silicious clay. On the lower lands, called "Bañados," the coating of loam is very thin, having been but recently freed from permanent surface water by the natural deepening of the streams. Many of these lands are flooded after rains, and the soil appears to be scarcely formed, retaining much of the character of mud deposits. By opening a few ditches to drain more rapidly the surface water these lands prove very rich under tillage, provided it be efficient, and deep-rooted plants thrive in the severest droughts. In moist seasons the growth of everything sown on them is excessively rank; straw crops would be impossible, or rather, I may say, straw would be everything, grain *nil*, and Lucerne is so rank as to be almost unfit for hay, but producing enormously for soiling purposes when cut at half growth; if, however, the surface draining is not effectual, and tillage deep and thorough, Lucerne rapidly dies out by reason of the existence or generation of hydrated silicic acid.

I conclude abruptly, as I find I have exceeded the limits I proposed. I fear you can ill afford space for the matter. *Alamos, Oct.* 24, 1864. [Many thanks.]

Societies.

EAST LOTHIAN: *Is it expedient to Increase the Number of Sheep in the County?*—This most important subject received a full and most intelligent consideration at a recent meeting of this Society. The following is an abridged report of the discussion:—The Chairman, Mr. R. S. SKIRVING, said: This subject we are about to discuss appears to me to involve five points or propositions, each of which I shall notice very briefly. The propositions to which I have alluded are—1st, Are the present prices of grain likely to be permanent? 2d, Are the present prices of meat likely to be permanent? 3d, Are the present prices of wool likely to be permanent? 4th, Can our agriculture be so changed as to admit of a large increase of sheep? and 5th, What variety of sheep would it be prudent to cultivate?

I think that perhaps the first proposition is the largest.—"Are the present prices of grain likely to be permanent?" [The speaker referred at some length to the past discussions during the agitation which preceded the repeal of the corn laws, and finished by saying:—] I think both sides of the question have made so many errors that it really would be impertinent in me to say now, or for any one to say, that present prices must necessarily continue. We have since the period alluded to (of Free Trade) had Wheat at 100*s.* a quarter, but to-day the average is 36*s.* It may or may not continue at that price. I won't attempt to prophesy; but I do think, as reasonable men, we should take it for granted present prices are to continue for such a length of time, with perhaps exceptionable years, which would make it prudent, if we possibly could, to farm so as to meet the cost of Wheat at 36*s.*, Barley at 26*s.*, and Oats at 18*s.* per quarter. I believe we are all agreed here that these are prices that will not pay to cultivate Wheat on the best land for the sake of selling, unless we can equally also cultivate cattle and sheep. Then as to the 2d and 3d questions—"Are the present prices of meat and corn likely to be permanent?" Now, I think in all human probability it will be for some considerable time, and from some time past, the rather that to a certain extent meat is always dear when corn is cheap. I shall not presume to express any opinion of what the price of wool is likely to be. 4th, "Can our agriculture be changed so as to admit of a large increase of sheep?" Now, that is a very important point. If you travel on a railway, and discuss the affairs of the country in general with some man not a farmer, he immediately says, "If Barley pays better than Wheat, why don't you grow Barley? If corn cultivation is bad, and mutton and wool pay well, why don't you all grow mutton and wool?"—as if you could do it in a moment. Sometimes you get the same advice from members of Parliament, at large agricultural meetings. It looks absurd, when my friend Mr. Hope is here present, that I should quote any statistics of his, he being much better able than I am to do it; but 12 years ago, Mr. Stevenson, of the *North British Agriculturist*, published an able article in the Royal Society's Journal, in which he gave full statistics from half-a-dozen East Lothian farms. Now, I think we may all look at these statistics with something like honest pride, for they show how much above petty concealment are the farmers of East Lothian. I feel something like humiliated when I read of the failure of that great idea of agricultural statistics, from the narrow-minded and incomprehensible jealousy of English agriculturists. Their conduct in this matter shows a miserable narrowness of mind in trying to keep back from the public what they are doing. We in this country fear nothing, and do not care how much it is known what we are about. I think our friend Mr. Hope never showed more judgment, and was a-head of most of us when he could produce in 1853 such statistics as the following:—Upon a farm of 653 imperial acres he only had 98 acres in Turnips, yet he had 1200 sheep, 90 cattle, and 100 pigs; and you see at a glance, that he must have fed his sheep in a great measure on artificial food. It is quite clear that at least one East-Lothian farmer at that time did exactly what Mechi has told us—to make our farms manufactories of beef and mutton. Men like the late Mr. J. Brodie of Abbeymains, and Mr. Cuthbertson, we must all look upon with pride. Now, it was all very well to say, "Go and do likewise." But you require three things. You require farms capable of doing it. I deny it could be done on some farms—strong clay farms. Then any man may say, and say very truly—"Why, I was bred to cultivate grain, and it requires a great deal of special knowledge to risk all this in cattle and sheep. I consider myself a fair farmer in producing Wheat, Barley, and Oats; but I do not like to speculate to that extent in stock." Then there is another difficulty in the way of farmers buying some 2000 or 3000 sheep—that of having insufficient capital. Mr. Mechi, in his panacea for that, says, if we have not money, why do we farm so much land. Instead of a man taking 500 acres, let him take a farm of 300, and if he cannot do that, let him take one at 200. Now, is a landlord going to cut down his farms in that style, and build three or four steadings upon it? Therefore there is a difficulty in largely increasing the cattle and sheep upon farms even with the best steadings. Then another of the questions that I hope will be discussed here, is, how far can this increase take place in existing circumstances?—as there is not the least doubt it would be a grand thing if we could be our own consumers of grain, and make our own oxen and sheep eat the grain in the shape of meal, and sell it to the public in the shape of beef, mutton, and wool. As to the fifth proposition which I have referred to—"What varieties of sheep would it be advisable to cultivate?"—half-a-dozen discussions might take place on that, but I shall advert to it very shortly. When I first saw the great shows of the English Society I thought we were on the wrong track altogether. I was quite down in the mouth when I saw the varieties of sheep shown in England and contrasted them with the small sheep here. It has been pointed out to us as a fault that we are content to sell sheep at 2*l.* when Lincolns or Cotswold fetch 4*l.* Now, I think that a little sheep just eats in proportion; and I would not keep Southdowns one week longer if anything better would pay. I have a small flock of Cotswolds which bring nearly double the price of Southdowns, but I cannot make up my mind that I am better paid when I get 4*l.* for a Cotswold than 2*l.* for a Southdown. With these remarks I beg to introduce the subject. I think it is an exceedingly important one. I do not expect it to be exhausted this day or for many a day, as I believe the sword of Damocles is hanging over the agricultural head; and with high rents and low grain prices, with the cost of labour and the cost of guano—and Wheat seems to have got sulky and refuse to grow without guano—I think we shall often have to discuss the question—"Can Grain be made to pay if given to cattle and sheep?"

Mr. DOUGLAS, Athelstaneford, said: In making the following remarks upon the subject under discussion, I shall treat it under two heads. First, "whether it would be expedient to endeavour to increase the number of sheep in the county;" and, secondly, "what varieties it would be most profitable to cultivate."

We have two very important reasons to induce us to increase the number of sheep on our farms at the present time—viz., the low and unremunerative price of corn crops, and the comparatively adequate price of beef, mutton, and wool—the former being fully a third below the value it can be grown at to pay, while the latter may be said to be at a price fully its value. Besides, by throwing more land into Grass, we shall lessen labour, curtail our guano bill, and save at least a pair of horses on the farm, and the tear and wear inseparably connected with the same. It is quite clear, where a rotation of cropping is pursued, that the proportion of a farm under grain crop is paying at present prices a much less sum than under ordinary circumstances it ought to do: the rents of not a few of the farms that have been let in the county during the last eight years are payable—one-half in money (calculated at the average price of Wheat for the preceding 19 years, or about 53*s.* per quarter), the other half being paid in grain according to the fiars' prices. Now this is a positive loss to the farmer of 13*s.* per quarter on that portion of his farm for which he pays money. Of course, I do not advocate niggardly farming—the taking-all-and-giving-nothing-system—but a generous application to the soil (for it is very grateful if properly treated), such as to secure a full average crop in ordinary seasons, as I consider a farmer never loses if he gets back the expense of the top dressing in increased straw and grain, for he thus keeps the land clean and in better condition; but as for making a fine thing of it, and increasing his produce and income indefinitely, it is not to be realised in practice. Now, gentlemen, I have spoken of what the division of the farm under grain does for us, and Potato farming is no great thing after all, nor do I believe it will ever be again for the simple reason that there are too many in the trade. I think it will not be denied that we can raise 2 stones of beef much more easily than half-a-quarter of Wheat, and for which, at present prices, we get 3*s.* more money—so that now it is up horn, down corn. Instead, then, of pursuing the sixth-break system of cultivation—viz., Turnips, Wheat or Barley, Grass, Oats, Beans, or Potatos, Wheat, which consists of only one crop of Grass during the six years, let us change it to the fifth-break system, and have two crops of Grass in 5 years—being two-fifths of the farm in Grass, one-fifth in Turnips and grain. And on those farms where Potatos are grown, I suppose the most suitable will be Turnips, Wheat or Barley, Grass, Grass, Oats, or Potatos, and, as I have already stated, we shall thereby save in labour, Grass seeds, guano, and horses; There can be no doubt that the time has arrived when we are justified in making an alteration in our proportion of land growing grain, and that it is desirable to sow down more to Grass; for myself, I may say it is my conviction that we shall never see the same prices for Wheat again, and do not believe that it will average about 40*s.* per quarter during the next 19 years; and I think it will be generally admitted, that it is not possible to grow Wheat at that price to pay present rents. We now come to the second division of the subject, viz., "What varieties of sheep it would be most profitable to cultivate." In my opinion this is by far the most important part of it; for it will be acknowledged that much depends on the proper selection of stock. I think that as a rule, and considering present prices, a stock of part breeding and part feeding sheep is the most profitable, and that half-bred or three-parts bred ewes are the most suitable for breeding either for lambs or aged sheep; at the same time, a good description of Cheviot ewe put to a Leicester ram ensures a good cross. They are good nurses, and give little trouble, if it is so arranged that they begin to drop their lambs about the beginning of April, when the young Grass is getting ready for them. Their half-bred lambs get to more weight than the three-parts bred, when kept until they are wedders and fed nearly equally well, but he should say scarcely in the same time. I am of opinion that a Cotswold ram may be employed with advantage in many cases to half-breeds and three-parts bred ewes. A longer staple of wool would be got, and an extra weight of carcase, while early maturity would not be a wanting; and I believe this cross will feed as quickly as any other; but the largest class of ram should be avoided, one of a middle size should be preferred—not too long in the body, with well sprung ribs, and firm good quality of mutton, a moderately short thick neck, and having a fleece of good quality; and there would be no fear of the lambs being lengthy and ill-shaped or bad feeders.

Mr. HOPE, Fentonbarns, said:—The long continued steady demand for butchers' meat at such high prices calls on us to consider whether we may not with advantage modify the rotation of crops on our several farms, to enable us to breed or feed more sheep, even though we should grow somewhat less grain. On every hand you hear farmers lamenting that the low price of corn swallows up the admitted large profits from stock breeding and feeding.

The natural remedy for this state of matters is to plough less and pasture more. In my neighbourhood land is seldom grazed for more than one year. At one time I considered this the most profitable practice. I have changed my mind and my practice on this point. I find by feeding sheep with

corn or cake on the first year's pasture it improves the Grass wonderfully for the succeeding year, and likewise that the sheep pay for the extra keep. But more than that, I have had large crops of Potatos after three year old Grass, with an application of artificial manures only, and the succeeding crops of Wheat without any manure at all have been beyond anything I ever grew before. Assuming, then, that an increased number of sheep are to be kept in the county, we come to the next part of the subject, viz., "What varieties it would be most profitable to cultivate?" I do not think it will be found generally profitable to maintain permanently on the farm a breeding stock of ewes of any variety, unless you can dispose of the ram lambs at a price considerably above their value to the butcher. We are able in this country to purchase the cast ewes of breeding flocks in the high and mountainous districts, which will produce first class lambs if crossed with high-bred rams, and then the ewes can be fed and sold at a higher price than originally paid for them. However, if any one is resolved to keep a breeding flock of ewes, I would recommend pure Leicesters or at least ewes that have been crossed from Cheviots with Leicester blood two or three times. I have had no experience in breeding either Lincolns or Cotswolds, but from what I have seen of them I do not think they possess either the shape or the aptitude to fatten that the Leicesters have. On the other hand, Cheviots cost less money to begin with; if the pasture is at all rough, they require few or no Turnips until within a few weeks of lambing, and they produce lambs by a Leicester tup, which can either be sold fat, or most profitably weaned. I generally keep my lambs from Cheviot ewes, and sell them when 15 or 16 months old. Their wool is considerable in quantity, and fetches the highest price per lb.; their mutton is more valuable than Leicester, and I may say at that season inferior to none. There is not in my opinion a better or more profitable way of obtaining first-class hoggs, than by purchasing Cheviot ewes, and using handsome, good sized, well-woolled, and high bred Leicester rams, and keeping the lambs of the same. Ewes should be kept principally on Grass during winter, while hoggs should be fed on Turnips, and a supply of them enables you to give the ewes the whole range of the pastures until there is a full bite for the hoggs also. Again, you dispose of your hoggs fat, when the flush of the Grass begins to fail, which gives you additional room for your ewes and lambs. It is very difficult to know and adjust the proper quantity of Turnips that should be allowed to ewes in winter. They should not be permitted to lose condition, but an oversupply of Turnips makes them liable to drop lamb, and the produce is lost. I should fancy that pulped Turnips mixed with abundance of chaff straw, would be a cheap mode of feeding. I may mention further, I annually winter a rather large lot of Cheviot wedder lambs, giving them half Turnips and the run of the Dirleton Links. They are grazed there during the following summer, and fattened off on Turnips in the autumn. I am certain they pay as well for their keep as any stock I could place on ground of that description.

Mr. SHIRREFF, Salcoats, after briefly touching upon the first three topics referred to by the Chairman, proceeded to state, in regard to the question whether the agriculture of the county could be so changed as to admit of an increase of sheep, that it had been said East-Lothian was not adapted for grazing—that there was something too dry for that in the climate. Hitherto there had been very little of what was called permanent old Grass in the county to enable them to judge as to that. The oldest pasture land he had was only five years old, and had not the character of permanent Grass, but it kept a greater portion of stock than any other. If they tried to have more grazing Grass they would find that the county was not too dry to graze.

Mr. SADLER, Ferrygate, said—In regard to the high price of sheep, of which they had heard a great deal, he did not think it was a great benefit to the farmers in East Lothian. In 1854 they could buy cast ewes for 10*s.* cheaper than they could this year. His own practice had been to buy these cast ewes and to cross them with a tup—then he had made a change, and crossed them with a Cotswold. They were very prolific, and had on the average 50 per cent. of twins. It had also been his practice to sell the lambs so long as they brought 25*s.* He thought the ewes were generally on the farm for about eleven months, and they paid about 8*d.* or 9*d.* a week, including the lamb. If they were to extend their Grass breaks slightly they might increase the ewes. There was another class of sheep to which he might refer—viz., Cheviot wedders. When parties were growing Turnips, they might extend their Turnip breaks a little, and keep a few more of these. They were a healthy stock, and generally paid well—from 8*d.* to 10*d.* a week. He had grown large fields of Turnips with portable manures, and succeeded in obtaining most excellent crops, which he would be glad to show to any members of the Club. In 1859 he was much struck with the prices given in England for Hampshire Downs, and bought 30 of them, for which he gave 50*s.* apiece. These, however, disappointed him. They certainly fetched 5*s.* more than the Leicesters and Cheviots, but everybody who saw them felt convinced that they ate 10*s.* more food than the others. They were easily fattened, but were tremendous consumers. In 1861 he was induced to purchase a few of the Lincolnshire ewes, but he must say he was disappointed with them also. They were long-necked, and the wool in wet weather did not stick out like that of the half-bred ewes, but fell down like silk on their backs. They were great consumers and not ready fatteners. He therefore put them away and they did not bring higher prices than half-bred hoggs. When travelling in England he had also got a number of Cotswolds; but he did not find them prolific either. They had a lamb each, but were exceedingly bad milkers. Half-bred lambs were at present quite fat while the Cotswolds were lean, although they had the same food. With their high rents they could not afford to keep up breeding stocks of sheep; and if they were to increase them it must be by purchase, from which they would not at present realise any great profit.

Mr. GAUKROGER, Southfield, stated that as far as regarded the prospects of the wool trade, he could only say it was in a very sound and healthy position, and the commodity was selling at higher prices than it has been known to be in the memory of man. Half-bred wools were selling at 2*s.* 6*d.* to 2*s.* 8*d.* per pound; and in the extraordinary period the banking and commercial world had passed through lately, with money at 9 per cent, it only fell about 3*d.* per pound, and it had already recovered about 1½*d.* of that. That, he thought, said a great deal for the prospects of the wool for next year. If it had not been for the circumstance to which he alluded, it would have gone the length of 3*s.* 6*d.* Gentlemen in York getting 2*s.* 6*d.*, 2*s.* 8*d.*, and 2*s.* 9*d.* expected to get as much yet as 3*s.* 6*d.*, and it was even thought that the price of wool was likely to get as high as 50*s.* a stone next year. As to the kind of sheep best suited for this district—he meant as regarded production of wool—none could be better than half-breds, three-parts bred and Leicester.

Mr. SMITH, Whittingham, said his experience with sheep commenced, he might say, when he began to farm for himself 27 years ago.

He put the sheep on the arable land along with the cattle, in the ordinary way, and allowed them to graze promiscuously. He had heard many say that this did not do—that sheep and cattle did not thrive very well together; but he must say that his experience had been the opposite. He thought it was an advantage to introduce a few cattle in every enclosed arable field among sheep. What he found during a lease which began several years before free trade, and extended many years after it, was that as regarded the cattle, it depended upon the state of the markets where they purchased and where they sold as to the profit that was left to the farmer. But with sheep he was always safe to calculate a fair return, particularly at that period for fat lambs. When he came to this country nothing surprised him more than to see so few sheep, and on many farms no sheep were kept. Their opinions were now much altered, for if they turned round now they would see that the whole country was covered with them. Still, however, he thought they would consider it desirable that there should be an increase to the regular sheep kept in the county. It was quite a common remark made by some speakers that clay farms were not well adapted for sheep; but he held they were quite capable of growing provision for a proportion of sheep if treated in a proper way. They could cart the Turnips into a lea field, and he held that to be the best way of feeding. Then, instead of their going into first or second years' Grass, he thought it would be better to adopt Mr. Shirreff's suggestions in regard to permanent Grass, particularly on dry land. While he thought sheep might be increased with a little difference in the management, he could not go in at all with what they heard loudly talked of, the throwing of land into Grass, as being more profitable in the present state of things. He did not see how that could do. They wanted to make their stock fat, at least; with Turnips they could do that; and they could not grow Turnips except by a systematic course of cropping. He would say let them increase their number of stock—at least leaving one arable field near the mains laid down in permanent Grass. They might add another field when the price of grain was so low, but let them continue a systematic course of cropping with other operations on the farm. This he might say: that while it was desirable to have as few restrictions as possible regarding cropping, he confessed he had never yet known any great benefit to result from departure from the most approved methods of cropping. In regard to the second part of the subject—the varieties most profitable to cultivate in this county, he held that the most profitable way of farming was to deal with the well known and approved stock suitable for this climate, and in keeping with other circumstances. It was a fallacy to state that what was suitable in one place was suitable everywhere. He considered that for this part of the county it was the crosses and the Leicesters which, taking them all in all, were the most profitable.

Mr. PATON, Standingstanes, said: The question "Whether it would be expedient to endeavour to increase the number of sheep in the county?" will be easily answered in the affirmative. Any one going into the grain market of Haddington on a Friday, and again into the stock sales on the following day, will at once see the great contrast betwixt the biddings of the buyers of grain and the buyers of sheep. In the grain market, after the bell rings to open the bags and commence sales, one is sometimes inclined to think the merchants must have come only to see the market and not to buy. Contrast this with the sale of stock. A lot of good or even indifferent sheep are not half-a-minute in the ring before there are half a score of bids showered upon the auctioneer from all directions, and he has often some difficulty in selecting one of them to run the lot up to a very high and paying price to the exposer, if they have been at all well managed. Now, what is to be learned from the two markets? Certainly that there is too much grain grown, either in this or other counties, but not too much stock.

It is now eight or nine years since I first went to Melrose Lamb Fair, and my experience is that a lamb that then cost 20*s.* now costs 30*s.*, and Wheat that was worth 80*s.* per qr. then will not now bring 40*s.* I think these figures answer the question on the card in the affirmative, and that it is expedient to endeavour to increase the number of sheep, and breeding ones in particular, since lambs have gone to such an extravagant figure; more could be kept by changing the system of cropping. If fewer horses were kept, more sheep could be fed, especially in summer. How few farmers pasture two years. Some will tell us their land cannot be profitably kept in Grass for two years—that the second year is not nearly equal to the first, and the third is still worse; if it will not grow pasture profitably, surely by manuring it will grow Tares. No doubt, Tares often leave the land in a very dirty condition, and, if taken as a green crop, often leave their bad effects during the whole rotation: but ought they ever to be sown as cleaning or green crop? Taking the average price of beef or mutton for the last seven years, I am convinced that a good crop of Tares, partly cut and carried into courts for cattle, and the remainder eaten on the ground by sheep, will pay as much, if not a deal more than Beans, and leave the land cleaner too. Many English as well as Scotch farmers are using Wheat pretty freely in feeding this winter, and for all secondary sorts perhaps it is as good a market to dispose of it as they can get; but I'm sure that dear as butcher meat is, it won't pay to grow Wheat to feed stock with. Then, instead of a crop of Wheat after Tares, a crop of Turnips might be taken, and is often taken in other counties; and it is well known that Turnips do very well after them, and can be raised with less manure than in any other way. Still, where land will grow good pasture, the expenses are very much less. Many more sheep could be kept were fewer Potatos grown; and, except those farms somewhat near to a railway station, and where a supply of manure can be obtained without a long cartage, it is questionable (taking year after year) if they will leave as much per acre as Turnips will do. No doubt, on real Potato soil no crop will pay nearly so much as Potatos; but how much of East Lothian is of this sort? Some will tell us that even good pasture pays very little per acre; but, my experience of last summer is, that pasturing with ewes and lambs gives as large a return per acre as Oats are giving this winter with present prices. And compare the expenses of the two crops. No doubt it was much too dry for Oats last season; but was it not too dry for Grass also? Again, I understand that this county suffers more or less every third or fourth year from high winds. Very little wind hurts a head of grain when nearly ripe; but it is quite the opposite with sheep, for they always look well in a good high dry wind, and that is the sort of day to sell them to advantage. On the card the question is also asked, "What varieties of sheep are most profitable to cultivate?" We will seek far and wide before we find a variety that will grow so much wool and mutton for the food consumed, combined with early maturity, as the Border Leicester. I think the main point for us is to endeavour to grow as much food as we possibly can for sheep, and let each one choose for himself the variety most suitable for the kind of food grown.

The motion of Mr. HOPE, "That the Club is of opinion that the feeding of stock in the county may be still further increased, and that longwoolled sheep, particularly Leicesters and crosses from them, have proved most remunerative," was unanimously adopted.

SOUTHERN COUNTIES ASSOCIATION *for the Encouragement of Agriculture, Arts, Science, Manufactures, and Commerce.*—An Association under this head is now being formed, the objects of which are to promote by meetings in the counties of Hants, Berks, Oxford, Surrey, Sussex, and Kent* in succession,—1st, for the exhibition of stock and implements, or articles connected with the pursuits of any of the departments established by the Association; and 2dly, for the reading of papers and discussions on subjects embraced within the scheme of the Association. The Association will be under the management of a Council empowered to make bye-laws, offer prizes, nominate local or sub-committees, fix meetings, and do anything necessary to the carrying out of the objects of the Association; and the Council is to consist of a president, two vice-presidents for each county, an honorary secretary for each department, and 36 members, of whom an equal portion shall be chosen from each county by the members belonging to that county, or in default thereof, by the members in general at the annual meeting. An annual meeting and exhibition will be held in the months of May and June. Portions of the mornings or evenings of each day shall be given to the reading of papers and discussion. Each separate branch of the exhibition will be arranged and managed, under the control of the Council, by a sub-committee of the department to which it belongs. Other meetings may be fixed by the Council for the reading of papers and holding discussions. A department for each subject embraced by the Association is to be established, and the societies promoting these objects, for the purposes of the exhibition and meeting, will be amalgamated. Agriculture in all its branches, with its implements and machinery, will form the first department; natural history, local geology, botany and horticulture, the second; the arts, manufactures, and commerce, as developed in these six counties, the third; local history and archæology, the fourth; and the improvement of the dwellings and the general condition of the labouring class, the fifth. Any other department may be added by the Council. Every subscriber of 10*s.* per annum shall be a member, and entitled to vote for the election of the Council. Every subscriber of 1*l.* shall, in addition, be entitled to receive the reports and papers of the Association. Every subscriber of 2*l.* per annum shall, in addition, be eligible for the office of president and vice-president. No subject or question of a political tendency shall be introduced at any meeting of the Association. Communications may be addressed to the Hon. and Rev. Samuel Best, Abbott's Ann, Andover; or Thomas Pain, Esq., Ugford Cottage, Salisbury. The first general meeting of the members, for the election of the officers and Council, and other general business, will be held at Guildford, Tuesday, January 17, at one o'clock. A large number of noblemen and gentlemen of influence, and residents in the several counties, have signified their adhesion to the Association.

Reviews.

Night Schools. By Charles Whitehead. Pp. 27. Longmans.

We have read this pamphlet with great enjoyment; and we think most readers of it will agree with us in praising it. They may, perhaps, be at first displeased by what seems to be an affected mannerism of style; but there is thorough good sense, evidently the result of both sound judgment and experience, in the matter of this publication; and this very soon reconciles us to any peculiarity of phraseology or of diction by which it is characterised. Besides, it is by no means certain that the peculiarity will be disagreeable to all. Let us quote the Preface as an example of it, and then refer in more detail to the substance of the pages which succeed it:—

"He who writes to the *Times*, pulls, as it were, the string of a literary shower bath; he is deluged with pertinent and impertinent appeals; he gets cold water poured over him in buckets-full; maniacs spout over him their anonymous gibberish; desponding Christians damp his ardour with warnings and prophecies of the 'great tribulation;' philanthropic parsons send forth streams of inquiries and advices; men with an eye to business make him the mark for the jets and taps of modern advertising; and kind-hearted ladies bedew him with the sweet essences of their sympathy and interest. In self-defence he sends forth this little pamphlet."

The pamphlet thus introduced is divided into five chapters, entitled respectively The Banes—The Antidotes—Practical Hints—Clubs and Associations—and Certificates of Merit. The first sentence declares that "labour interferes, and always must interfere, with the education of the working classes." This, however, we are glad to say, is far from striking the keynote of the whole performance. It sounds as if the author looked upon education and its object as something other than the assistance which good training will give to any man towards attaining the full purpose for which this life has been granted him. Labour is the lot of all, and it need not interfere with the "education" of any class, whether they be handicraft men or "skilled labourers," living by their fingers or their brains. If the word be used to signify that cramming of the memory with knowledge and with rules, to which it often is confined, then no doubt those who are fatigued

* At a meeting held at Basingstoke, December 12, 1864, Viscount Eversley in the chair, the County of Wilts was removed from the scheme as being included in the Bath and West of England Society.

with 10 hours daily manual labour, have a poor chance compared with others who have ample leisure. But Mr. Whitehead evidently does not so restrict the meaning of the word. We imagine him to agree with us in defining a right education as that training by which a man is helped to discharge his duty to his God and to his neighbour, and in particular by which he is helped to "learn and labour truly to get his own living and to do his duty in that state of life in which it has pleased God to call him." No man has better urged the fact that well-educated labourers are better worth their wages; or better illustrated the efficiency of a well-conducted night school either for making up the deficiencies or for maintaining the actual achievements of a child's training in the national school. And it is plain that Mr. Whitehead is in his own locality a laborious educator, and one who is thoroughly convinced that "education" is not an impossibility even for the working classes.

Among "the banes" to which he refers in his first chapter, is the faulty system of cramming adopted in our National Schools :—

"As a broad rule, if the National School would turn out boys generally grounded, thoroughly able to read, write, and cipher, nothing more could be expected of it. Then they could help themselves on if they wished. They would be able to put their knowledge directly to some practical use. They would be properly educated for their position in life. At this point, at the pig-keeping phase, night schools and reading rooms would carry them on."

The chapter on the Antidotes is full of wisdom and good sense. The day school and the night school must be kept apart—the latter is not to be an institution for helping out the former :—

"There need be no practical connection between the two: it is better that there should be none, as night schools worked by the machinery of the day schools do not answer. The associations of the place are not agreeable: the mode of teaching and the style of management are not usually suited to young men impatient of much restraint. The teachers are already tired by their day's work, and it is impossible to expect them to be lively or active enough to minister to the wants of a lot of hungry-minded fresh pupils. The lads, too, object to pay the 2*d.* or 3*d.* that is required at most of these night schools under the village schoolmaster."

Scholars should be admitted free, and generally speaking the clergyman is not the person to manage night schools.

"They must be purely secular institutions; that is if it is wanted to benefit the largest number possible If religious teaching were introduced, there would be a select few there is no doubt—just as there are a very select few of the labouring men in the churches on Sunday, and the large majority of the young men would still be attracted by beer alone. Employers must take up night schools, as part of their duties to their poor neighbours. They think it their duty, and perform it cheerfully, to find wine and meat for them;—it is more their absolute duty to afford them the chance of getting mental culture, and further, the option of going somewhere better than to the beerhouse. Young men are attracted there in a vast number of instances, because there is no other place to which they can resort. They cannot stay at home perpetually, in a smoky atmosphere, amid the jars of heads of rustic homes, amid the quarrellings of brothers and sisters and the din of never satisfied babies. The dens of cottages they inhabit allow of no privacy; no chance of self-culture there: too often there is no chance of common decency. They must go out somewhere. They do go out to the cheerful public-house. No one can wonder that they choose this alternative. They cannot fairly be blamed that they do choose it. This perpetual haunting of public-houses does fearful injury to the constitution. Employers should think of this, at least. It is an argument that the dullest can understand, and the most utilitarian entertain. Men who booze half their nights away in pot-houses, cannot do justice to work. The most enlightened employers will porceive the force of another argument, probably, that morality and the social virtues, utterly obliterated by pot-house visiting, are necessary to make really good workmen, men to be depended upon. The far higher arguments need not be here mentioned. The age is so very practical, that anything like sentiment is scorned. Employers of labour are, in the country, hardening their hearts more than ever to softening influences. Perhaps it cannot be expected that they should do otherwise. The price of Wheat is not calculated to inspire them. Philistines are upon them besides. Rich traders yearning to farm, longing for otium and steam ploughs, are giving false values to the price and rental of land. They will doubtless however see the truth of the dictum that the public-houses injure the qualities of their labourers that are essential to their business, and that if there were some other place where they might go, many would accept it gratefully. It is very easy, very inexpensive to give these places, call them night schools, institutions, reading rooms, or clubs, and it is not a great task to attend now and then in person. If two or three employers united and divided the expense and labour, they must meet with success,—that is if they used tact and discretion in their management Their influence would be very great necessarily, and the close relationship into which they would thus be brought with their men would be of infinite service both to masters and workmen. They would learn to understand each other. The employers would find traits and qualities in the men that they had not dreamed of before, and the employed would from such an acquaintance treat the masters with more deference, and make allowances for any little disputes that would before have made them sullen and morose. A better understanding, and a greater mutual knowledge are required between masters and servants; some bond beyond that of actual employment and the slight intimacy that arises out of it, is wanted now especially between them. It will not do for masters to fancy that when the work is done all common interest ceases; or for servants to look upon masters in the sole light of paymasters, from whom it is their duty to get as much pay for as little work as possible. There ought still to be social ties that knit them together, certain common interests between them, that close up the awkward gaps existing between class and class."

"It is manifestly impossible in vast businesses that employers can know very much of those employed by them; but if they would take every opportunity of meeting them, to encourage them, to explain their motives to them, if it were only as members of Parliament meet their constituents, the results would be most satisfactory. To less important employers the night school and the reading club offer special opportunities of understanding their workmen, and of being understood by them."

Then follows a capital chapter of practical hints as to the equipment of a school room and the management of a class; and the chapters on village associations and on certificates of merit also well deserve attention. Mr. Whitehead expressly disclaims the need of philanthropic sentiment as a stimulant to labour of this kind. There is a direct personal advantage arising out of it. "The employer has long since discovered that it pays better to have sharp educated workmen on the land; that such men give less trouble, understand quickly his plans, and are able to co-operate with him in systems of accounts, can carry out experiments, may be trusted to weigh and measure the various foods for his beasts; in short, are almost necessary under the improved scientific modes of farming. He has found out that the intercourse consequent on such teaching is calculated to bring his workmen nearer to him, to make them like him, to make them actually grateful to him; so that they will work over-hours for him, or do things for him that they would have before declined to do. Instead of a sentimentalist, he has been utilitarian; instead of a pure philanthropist, he has been helping himself. He has preferred to have men who could read, write, and cipher, about him. It has suited his balance-sheet and his tastes, and he gives them the chances for nothing. He deems himself amply repaid in every way for the few pounds a year that he has spent."

We have no doubt Mr. Whitehead's pages will be widely read.

Farm Memoranda.

MIDDLESEX FARMING.—The term Middlesex Farmer is generally understood in Hertfordshire to mean a person who farms Grass land and finds a market for its produce in the London hay markets. A very considerable portion of the district now under consideration is occupied by parks, paddocks, and lawns in the hands of their proprietors, though the soil, except from its proximity to London, has little attraction for the residence of the gentry. Some farms consist almost exclusively of Grass land, others, especially those which abut on the chalk district, are of a mixed character. Grass-land farming is of a very simple character; it requires, as compared with arable cultivation, but little capital, few and simple farm buildings, and no great amount of agricultural skill. The great object is to secure the first hay crop in such a condition that it may retain its weight, be set off by the best colour and "bouquet," and so obtain the best price in the London market. The other operations of the farm have reference to, and are made subservient to, this prime object. Very many of the fields are laid out in small and not very convenient enclosures; frequently overgrown with timber in the hedgerows, which are generally laid after a certain number of years' growth, though on some farms the Quicks are kept always neat and trim. Hay farming from its very nature is a precarious and anxious occupation; ruled very much by the changes of the weather, and requiring the constant practical application of the proverb, to "make hay whilst the sun shines." Many of the farms, and especially those near London, are held by persons engaged in some other business, as the hay farmer has obviously much time on his hands. Where the land is exclusively Grass the number of permanent labourers employed is very limited; mowing and making the hay are often performed by strangers. The mowers come from the counties of Bucks, Berks, Oxford, and other places, in companies; the work, as is usual in such cases is done by the acre, the price varying very much with the demand for their labour, the state of the weather, the weight and condition of the crop, and such like incidents. The haymakers are often, like the Hop pickers in Kent, strangers brought from various quarters, seeking this casual and for a time fairly paid employment. They are sometimes even hired by the hour, so that if the employer be dissatisfied with their work, or the weather changes, they may beat once paid off. Where the farms consist of arable as well as Grass land, the labourers on the farms, with the assistance of the casual labour which the agreeable associations of the hay field seldom fail to call out, are found sufficient to secure the crop. Tedding machines, which are now brought to such a state of perfection, are much in use by the larger farmers, though much hay is still made without them; these as it is well known not only throw the hay from the swathe after the scythe, but are found most serviceable, especially under some conditions of weather, in securing that rapid accomplishment of the process, by which the colour and weight are both retained, and time and labour economised. The introduction of the use of rickcloths said to have been invented by Sir Joseph Banks for the protection of the rick in the course of its building, and portable scaffolds to facilitate the pitching the hay from the carts, is within the memory of man—and are now amongst the most economical, if rather costly articles of the hay farmer's stock. The larger the rick generally the better it cuts out. It requires much practical experience, much patient discretion, to put together so large a mass of hay, from which first all the water must be evaporated to prevent mould and dust; to strike the balance between the too great desiccation of the hay, and its consequent loss of those succulent properties on which its weight depends; and the carrying too soon, and so endangering over heating and firing the mass, or the vexatious alternative of cutting or turning the rick, a process which, as is well known, calls forth from the passer-by the jeering inquiry, "Farmer, have you lost your watch?" Large ricks also require skilful builders, under whose guidance the work on the rick is carried on, special attention being paid to the probable settling of the whole equally and in proper form; when the rick is finished in a rectangular form, the sides are pulled and the thatching performed with care and with especial regard to the economy of straw in a district, where if not grown on the farm, it must be bought at a high market price.

The hay is sent to market in loads of 36 trusses of 56 lb. each, and is usually consigned to a salesman in the London market, the trussing and placing the hay on the carts, the making the bands, and cutting out, all require skilful and experienced hands, who either truss by the load, as casual labourers, or belong to the farm. The carts used in the field and on the road are of rather an unwieldy character, with large and broad wheels, and are fitted with ladders and copses. As the London market receives the entire produce of the farm, a load of London stable manure, which usually costs about 3*s.* 6*d.* at the mews or stables, is deemed an equivalent in return; this is deposited in clamps, is turned, and in due time finds its way to the fields, which sometimes are mown a second time. This crop bears the local name of "rowen," and is usually consumed by cows; this is deemed a bad practice.

The after Grass is sometimes fed by neat cattle, but mostly by sheep, in addition to such artificial food as will make them off at the turn of the year, before the fields are shut up for the succeeding hay crop. The hay trade thus carried on involves the necessity of much night work on the road for men and horses, and too often has a bad moral effect on the former, by constant temptations to drink, and sometimes to dispose dishonestly of the fodder of the horses and occasionally of a portion of the load itself. These evils are so keenly felt by some persons that they prefer grazing their land to sending their hay to the London market. Long-woolled or half bred sheep are preferred for this purpose, as it is well known that they are less gregarious than Downs, and are content to lie singly on the pastures. *J. C. C.*

Miscellaneous.

Steam Locomotion on the Highway.—In corroboration of the statement in the memorial from the Wakefield West Riding Steam Company, that locomotives are less dangerous in the day than at night, Mr. J. Howard, on the reading, at the weekly meeting of the town council of Bedford, of a letter from a Mr. Thurnall, in which the writer complained of "sundry infernal machines" passing through the streets, and endangering the lives of the public, said that "hundreds of these locomotives were now in use, and so far as he had been able to ascertain not a single accident had occurred from their travelling in the day time, and where excluded from the streets in the day he could bring evidence of injurious results that had taken place in the night. It was the practice of his firm invariably to send a man a hundred yards in advance of the locomotive, in order that he might, if he met spirited animals—whether in a carriage or not—stop the machine until they had passed, so that there should be no accident. One went to London and back the other day without the least trouble. He saw no more danger in it than in an express train passing a level crossing, nor yet so much, because they could see the road locomotive in time to get out of the way, but there probably would not be time to get out of the way of an express. He rode as spirited a horse as most people, and it took little notice of locomotives. Horses must be broken to it; for they might depend upon it that road locomotives would come into general use in the kingdom; it would be as little use to oppose them as it was to oppose railways."—*Bell's Weekly Messenger.*

Wages in Lincolnshire.—The lodging and maintenance of agricultural labourers was the subject of a very interesting paper some time ago, read by Mr. Marshall before the London Farmers' Club. The following are the arrangements adopted in North Lincolnshire, on a farm of 500 acres of Turnip land, where five farm servants, under the superintendence of a married foreman, are employed:—An ample house, and garden for vegetables, is provided rent free; 30*l.* a year in wages is given to the foreman, who has also the produce of two cows for five, or one cow for three men; 26 stones of bacon (*i. e.* a fat pig weighing 26 stones) for himself, and 26 stones for each of his men; he has further 40 stones of flour, 20 of best seconds for puddings and pies, and 20 best thirds for bread for each man, one quarter of malt for himself and the harvest men, and one sack for each man servant (equivalent to one pint per day and four in harvest). He brews himself, and has five tons of coals for the year's consumption; he finds candles for the stables and chaff house when required; and has 1*s.* per day for all casual boarders, such as additional harvest men, blacksmiths, carpenters, &c., who work by the day, and have their board. The men have three meals per day. For breakfast, hot bread and milk, and cold

meat; for dinner, hot meat, pies and puddings, vegetables, and one pint of ale; for supper, hot meat, bread and milk, or pea soup. By this means they have always meat three times a day, milk twice, and beer once. They pay for their own washing, and are allowed an interlude of three or four days as a holiday at some fitting period during the year, which always expires on the 13th of May. The annual expenses of their board and wages may be set down as follows:—

	£	s.	d.
Foreman's wages	30	0	0
26 stones of bacon, at 7s.	9	2	0
1 quarter of malt	3	12	0
2 cows, at 3s. 6d. each per week.. ..	18	4	0
130 stones of bacon, for 5 men at 7s. ..	45	10	0
200 stones of flour, at 2s.	20	0	0
5 sacks of malt, at 9s. a bushel	9	0	0
5 tons of coals, at 12s.	3	0	0
2 waggoners' wages, at 12l.	24	0	0
2 middle men, at 10l.	20	0	0
1 boy, at 6l.	6	0	0

These items amount to 188l. 8s. for six men; the yearly average for each being 31l. 8s., or within a little of 12s. per week.

Calendar of Operations.

JANUARY.—The subjects to which we refer this week as among the topics requiring special attention this month are the following:—

7. *Manure Management.*—The following account of the advantages of a covered dung-heap is taken from the *Agricultural Gazette* of 1852. A correspondent then spoke of the three ways in which alone manure is perfectly saved, viz.:—1st. The plan now general over the better farmed counties, of ploughing in fresh manure on the autumn stubble, in preparation for the succeeding green crop. 2d. The plan of liquefying the whole exuviæ for distribution by steam power and iron pipeage over the land. 3d. The plan of having the manure made in covered court-yards. The droppings and soiled litter of stall-fed cattle, and the same from the work-horse stable, are daily thrown into a walled and covered pit, care being taken that they are intermixed. A dozen feeding pigs are kept in the pit; any loose litter there may be found lying about, together with road scrapings and odds and ends of animal and vegetable refuse, are thrown in; the pigs mix and incorporate the whole well together. From time to time liquid from the manure tank is pumped in; and thus we have generally a deposit of a considerable quantity of well-made manure at hand, to supplement the dung heaps when they are exhausted. These (the dung heaps) are managed on a system which is simple and efficacious. The manure is carted out as the boxes become full, and thrown out of the carts into a heap of 5 feet in height by 12 feet broad. As we advance in this building we follow with a cover to the top and sides of clayey mould. This cover is at first about 6 inches thick. The still open side, to which we are adding, admits a small degree of atmospheric action, which induces a gentle heat. When this has gone on for three or four days, we add 3 to 6 inches more clay or soil, over which we pour dilute urine. This keeps the fermentation going on in the heap, the gases from which have to permeate the clay ere they can reach the atmosphere, and the now well-known absorption of ammonia by aluminal earth prevents any waste. Indeed, with manure taken from covered boxes, there will not be any escape of vapour from the clayey covering till the dilute urine is plentifully applied; even with manure made in courts exposed to rain, there will be an escape of nothing but of watery vapour; a loss which is a gain, as there is less weight afterwards to cart on the ground. In ten days after the heap has been made, it will, if it has been properly attended to as above, be fit for using in Bean or Potato drills, being soft and unctuous; it is cooked in its own steam. Should it not be required for a month or longer, all that is necessary is to give it a coat of 6 inches more clay or mould, and it stands ready to be cut up when wanted. I find this system to work exceedingly well. I am satisfied that from 70 loads of manure, carted out and covered with 30 loads of clay, I have a larger store of fertilising elements than I should have from 100 loads of similar manure carted out and trenched up in the old mode to ferment.

8. *Seed Time.*—Wheat may be sown when the land is fit in January. Autumn Wheats are still proper for use. If the land be in good order 6 pecks per acre will suffice, sown in rows 10 inches wide, and it is best sown on a stale furrow. In situations where there is greater risk 2 bushels may be sown. Oats may be sown in January, though the better seed time is February, and the more usual seed time is March. Arthur Young, in his Farmer's Calendar, referred to an experiment by an Earl of Winchelsea, reported by himself. His lordship said:—

"The general time of sowing Oats here is from the beginning of March to the end of April: and it is the opinion of most people here, that Oats sown much earlier would be liable to be destroyed by spring frosts. Last winter was very favourable for the experiment, as the weather was open at Christmas for sowing, and the frost in the spring not severe. I divided a field of 8 acres equally: one half was sown the day after Christmas Day; the other half the middle of March. Five bushels per acre were sown broadcast on each part, and the same Oats; the sort a small white Oat, here called short smalls. The early sown were ripe and cut one week before the others; they were harvested equally well, without being exposed to any bad weather. I had a rood of each set out very carefully in the middle of the field, reaped and threshed as soon as carried. The produce and weight were as follows:—

	Winchester Bushels.	Qrs.
Early	per rood, 22 .. or per acre ..	11
Late sown ..	„ „ 19 .. or ditto ..	9½

Weight per Winchester bushel as soon as threshed:—

Early sown	44½ lbs.
Late sown	42½ lbs.

"The crop was, as you see, very good. The land yielded Potatos the preceding year, 450 bushels per acre, and was not manured for that or the Oat crop; it had before that been in Grass for six or seven years. The soil is a red loam. I am inclined to think that ths early sowing will answer here, as this field is very high, and much exposed."

Though 5 bushels per acre are still a common, they are an unnecessary quantity of seed. Four bushels are amply sufficient, and when the land is in good tilth and in good condition, 3 bushels will be seed enough.

Peas and Beans may both be sown in January, though they are generally sown later. Peas for the London market are, however, very commonly sown in January on light dry soil, in drills 15 inches apart. They are sown by hand in these drills, and covered by pulling down a part of the ridgelets between the rows by the hand-hoe.

9. *The Feeding House and Cow Byre.*—The following particulars are gleaned from Morton's Farmers' Calendar (Routledge):—

Fatting beasts continue to receive their mixture of chaff, pulped roots, and meal—which is made richer as the fattening process is prolonged. One half the quantity of roots formerly commonly given (or, say ¾ cwt. daily), is thus used along with 20 lbs. or more of sweet straw chaff, and 4 lbs. to 8 lbs. of meal, either Beans and Barley meal, or oil-cake crushed and moistened, or their equivalent in Carob pods or Cotton-seed cake.

Cattle in store condition may be kept in a healthy, and, if young, in a growing state, on a few Turnips or Mangel Wurzels daily in yards, and fresh straw in their cribs, and a meal twice a day, consisting of a bushel of straw chaff, over which a hot and somewhat salt, thin, Linseed mucilage has been thrown. One or two pounds of Linseed meal and a small handful of salt to every gallon of water may be thus boiled in a copper, and thrown over two bushels of chaff, and given at twice during the day.

Certainly the practice of feeding cows in calf up till calving on straw alone, cannot be too much reprobated: the food is very insufficient, and lets them down so much in flesh, that when they calve, and are expected to yield productively, they lose a considerable time, and that, perhaps, the most valuable, in getting again into flesh before they give their usual quantity of milk; but if they have been well and sufficiently wintered, they yield at once adequately.

The proper food for cows in this month is cut chaff, one half hay and the other half straw, with a good bait of Turnips or Cabbages. Or, if green food and hay be scarce, less of them, with straw chaff soaked in thin Linseed mucilage, as already said, may be substituted. For young cattle, the same chaff, and as much Cabbage or Turnips or Mangel Wurzels as they require.

Cows may, some of them, calve this month. If they have been receiving fodder in the straw-yard, as just stated they will be in good condition for calving. They should afterwards receive more succulent food than formerly—as Turnips, Cabbages, Mangel Wurzels. After they calve, they should be kept quite from the other lean stock, either in the house or in another yard, and be fed upon those articles and hay, or cut chaff, mixed with pulped roots and 2 or 3 lbs. of meal, daily. The great expense of winter-feeding cows with hay alone eats up the profits of the dairy, even if none be given till they calve; for supposing them to calve in January or February, there remain three or four months for that expensive food.

In estimating the cost, it is not necessary to consider whether it will answer to give hay to them when at certain high prices, as many farmers are, by their leases, deprived of the power of selling hay. Where this is the case, the hay must be valued at what it costs, and not at what it would sell for. This estimate is easily made: and it will be found on calculation, that it can hardly be valued at less than 3l. a ton.

It is found that cows fed on pulped Turnips or Mangels, 1 cwt. a-piece, mixed with 15 or 20 lbs. of straw chaff, and 2 or 3 lbs. of Bean-meal, give butter without any disagreeable taste. And this is a much more economical food than hay.

In the weaning of the calf there are many methods. One as good as any is to let it suck for a week or ten days, feeding afterwards from the bucket with new milk for another week, till it can drink easily, giving it 3 quarts at morning, and as much at evening. Afterwards, for the new milk skim milk is gradually substituted, and half a pint of good Oatmeal for each meal per calf is mixed with hot water for some hours before it is added to the allowance of skim milk which each calf receives. When many calves are thus fed, the oatmeal and water are in quantity enough, if boiling in the morning, to keep warm till night, and 1 quart of this warm mucilage may then be mixed with 3 quarts of skim milk for each meal per calf. Linseed similarly prepared, may be substituted for the oatmeal.

It is proper to add, that when calves are brought up by hand to be afterwards reared and fattened as beef, they should receive new milk constantly; the quantity being gradually diminished by the substitution of dry food, with access to water. Oil cake may be given to them, a piece to suck being put in their mouths after drinking their milk, so that they are easily accustomed to the taste of it; and a netfull of sweet hay should hang up within their reach.

The last year's calves should now be fed liberally with chaff of hay and straw, mixed with pulped roots, either Turnips or Mangels; and they should be thoroughly well fed, and kept perfectly clean by means of litter. At this age it is a matter of great consequence to keep such young cattle as well as possible, for the contrary practice will inevitably stop their growth, which cannot be recovered by the best summer food. To steers and heifers two years old, the same food in proportionate quantity may be given, the chaff being of hay, if it is abundant; or straw, with baits of Turnips, Cabbages, &c. It is not right to keep yearling calves and two-year-olds together; they should, if in yards, be sorted out in lots of equal size and strength, or the weak ones suffer. And if the practice of giving them out Turnips along with a little hay or access to the straw, should be adopted, yearlings should receive in addition 1 lb. or 2 lb. of oil-cake daily apiece. The two-year-old steers should be in fattening order on the best food of the feeding house, as already described—or, if heifers, on the less fattening diet to which reference has already been made.

Notices to Correspondents.

CAROB POD: *X.* The following is an analysis by Mr. Kensington, F.C.S.:—

	In natural state.	In dry state.
Water	14.22	00.00
Sugar	54.07	63.03
Mucilage (and other digestible respiratory principles)	17.41	20.30
Woody fibre	3.88	4.52
Oil	0.96	1.12
Protein compounds (flesh-forming principles	7.72	9.00
Insoluble inorganic matters (insoluble ash)	0.62	0.72
Soluble organic matters (soluble ash)..	1.12	1.31
	100.00	100.00

The large amount of sugar deserves to be especially noticed; in addition to which it contains about 17 per cent. of other respiratory and fat-producing principles, and about 1 per cent. of ready made fat. For these reasons the Carob Bean appears to be especially well adapted for fattening purposes.

CAUSES OF PROGRESS: *Anon.* Mr. Hoskyns, in his paper before the Society of Arts, referred to four several agencies by which, in the absence of fresh lands waiting for inclosure, agriculturists and their customers have hitherto been benefited. These four "farmers' friends" are (1) guano; (2) Liebig, taken as representing the information which we owe to scientific men; (3) the Royal Agricultural Society of England, established at the commencement of the period under review; and (4) improved draining. And the influence of these several "items of new resource, all opening to view for the first time, almost simultaneously, about the year 1840"—formed the main topic of discussion.

CHURNING: *Langley.* Delay in the coming of butter is sometimes attributable to the cow having been long in milk, and the annoyance has ceased when the milk has been mixed with that from a freshly-calved cow—but it is often a great puzzle. You may burn bones and afterwards crush them easily. As to the Moss, both lawn and meadow are in want of manure. Apply some of this bone-dust, dissolved in sulphuric acid, and some ammoniacal manure with it, and 1 cwt. of sulphate of ammonia per acre.

DUNG: *Young Farmer.* An ox will make about 19 tons per annum in a well-littered yard, and 33 cubic yards per annum in a box; a horse will make 12 tons of manure per annum in a stable. Well-cultivated land will yield 4 tons of manure per acre per annum—enough for a dressing of 16 tons per acre every fourth year. As to its management, manure should be kept and consolidated in covered pits, and when carried out it should be ploughed in at once. Top-dressings on Clover and Grass are a most efficient application.

EPILEPSY: *Afflicted.* We see in the *Dublin Farmers' Gazette* that "Mugwort" (Artemisia vulgaris) has been recommended for its curative influence in such cases. "Two oz. of the dry plant, root and branch, or 6 oz. of the fresh plant, are shred up and boiled in a quart of beer on a slow fire, down to a pint; a naggin to be taken three times a day, morning, noon, and night, and a naggin should be taken when a fit is found coming on. The dose is for an adult, to be lessened in proportion to age." The cases are said to be numerous where it has been of the greatest benefit.

FARM-YARD MANURE: *J L.* The waste of manure by exposure to the air appears from Dr. Voelcker's researches to be due much more to loss by solution than to loss by evaporation. Dung, it appears, contains a mere trace of free ammonia at any time. In perfectly fresh horse-dung the amount of free ammonia is scarcely weighable, it being only about three parts in every 100,000 parts of dung, or 3 lbs. for every 40 tons; the same description of manure, in an active state of fermentation, yields somewhat more, but still a very inconsiderable quantity of free ammonia. Thus, under the most favourable circumstances, 100,000 parts of horse-dung yield only 49 parts of free ammonia, or in other words, 40 tons in round numbers yield on long-continued boiling only 49 lbs. of ammonia. It must not be supposed, however, that this quantity of ammonia is dissipated into the air during the fermentation of the dung, for it is only in the interior of the dung-heap that ammonia is liberated.

GERMINATION: *L.* It is the fact that grain from which the rootlets have protruded, and been dried up and rubbed off, will again germinate and grow. Of 485 seeds which Mr. Berkeley subjected to experiment, there was not one in which the roots had not greatly protruded, or in which the acrospire had not more or less moved. These seeds were thoroughly dried and then sown: 100 were placed in a pan of earth without drainage, and only 11 grew perfectly; 85 were placed in a pot with drainage, 71 sprouted perfectly, 12 imperfectly, and 2 refused to sprout. The 71 plants were healthy, and would, doubtless, have yielded, as well as plants from uninjured seed. The remaining 300 grains were steeped for 40 hours, and then laid 7 days in Couch: 8 of the grains were lost—of the other 292, 155 threw out the acrospire without any root, 42 threw out a root and no acrospire, 31 threw out both, and 64 did not germinate at all. The practical result is, that grain injured by sprouting would answer for seed in properly drained land.

IRRIGATION: *Cor.* The following table, by Professor Buckman,

represents the changes which took place in 12 species of the meadow-grasses under irrigation.

Table representing the Changes of Grasses under Irrigation.

BOTANICAL NAMES.	Proportionals. Before Irrigation	After 2 years' Irrigation	After 4 years' Irrigation.
Alopecurus pratensis	1	2	4
Poa pratensis	2	3	4
,, trivialis	1	2	1
Briza media	2	—	—
Cynosurus cristatus ..	2	1	—
Aira cæspitosa	1	—	—
Agrostis stolonifera ..	1	2	3
Dactylis glomerata	1	2	3
Avena flavescens .. .	2	3	3
,, pubescens	1	1	1
Hordeum pratense	1	2	2
Lolium perenne	2	4	6

This shows how the best Grasses are encouraged, and the inferior ones destroyed by irrigation.—It is not however consistent with universal experience.

MIXTURE OF MANURES WITH SOIL: *R S.* The efficacy of a manure is greatly influenced by the mechanical condition of the land, by the composition of the soil, and by the mode and time of their application. Guano is superior when in a finely-powdered condition. Superphosphate is better when applied to land with a liquid manure drill. By these means the manure is finely divided and more uniformly distributed with the soil than when carelessly applied.

NORFOLK FARM: *Correspondent.* Mr. Chadwick quoted the following table in 1856, at the Brussels Benevolent Congress—

Average produce of Wheat on a Norfolk Farm of 1030 acres

Periods of 7 years, ending	Acres in Wheat.	Bushels per acre	Price per quarter	Amount per acre.
			s. d.	£ s. d
1839	214	25½	57 0	9 1 8
1846	268	29½	56 4	10 8 9
1853	344	37½	47 6	11 0 2

Will any one tell us what has been the experience of his farm since 1853?

PLEURO PNEUMONIA: *A Z.* Mr. Horsfall used to combat it by giving food adapted to the restoration of the heat-giving elements, which in consumption seem first to go. On detecting any of the symptoms, as cough, quickness of respiration, intermittent warmth and chilling of horns, loss and acceleration of pulse, he bled till the pulse was sensibly affected; this usually requires 5 to 6 quarts to be taken. He then gives—

Epsom salts	8 oz.
Spirits of nitre	1 ,,
Tartar emetic	½ drachm.
Digitalis	½ ,,
Flowers of sulphur	4 oz.
Treacle	16 ,,
Coco olein	6 ,,

These were mixed and given with abundance of warm gruel. The patient needs watching; and the sick-room should be well ventilated and kept warm. The gruel is boiled Indian meal mixed with pea-meal. He then gave—

Coco olein	4 to 6 oz.
Spirits of nitre	½ to 1 ,,
Flowers of sulphur	4 ,,
Treacle or sugar	8 ,,

morning and evening in gruel, and at noon the gruel only with sugar. When the fever abates, oatmeal is substituted for the Indian meal, and the coco olein is given with sugar or treacle, morning and evening throughout, with occasional doses of ½ to 1 oz. of spirits of nitre. He said—"The treatment has varied somewhat from the first; towards the commencement I lost two, but latterly I have been uniformly successful, and out of the whole 14, 12 have recovered." The time they have been unwell has varied from 14 to 21 days; the healthy action of the skin has been maintained; they have lost in weight 1 to 1¾ cwt. each, and cows have reduced their milk to 3 or 4 quarts daily, regaining this loss, however, on recovery.

PATRONAGE OF BREEDS OF ANIMALS AND PLANTS: *J B.* The late Mr. Andrews of Comber put it thus—"Hundreds of pounds a-year of premiums are applied in rewarding the breeder who has lengthened by a few inches the hough of an ox, or produced in some degree a more rotund development of some muscle, which is admired and which is useful; but while the breeder who produces these beauties in utility and in fashion is largely rewarded, a very small sum is considered quite enough to give to those who apply themselves to produce the means by which the animals are supported."

POROSITY OF SOILS: *L.* Experiment has proved that 100 lbs. of a dry sand in a bag will take up and hold 25 lbs. of water before it begins to drip—that 100 lbs. of loam will in like manner take up about 40 lbs. of water, and that 100 lbs. of pure dry clay will take up 70 lbs. of water in the same way. That shows whether soils become more or less porous as they become stiffer and more clayey.

PHOSPHATES: *X.* According to the analyses of the soluble phosphate in commercial superphosphate and of the common phosphate in bones, 72 lb. of the former are equal in composition to 156 lb. of insoluble phosphate of lime or bone-earth, or to 100 lb. of soluble or bi-phosphate of lime; and 100 lb. of soluble or bi-phosphate are equal to 156 lb. of bone-earth rendered soluble by acid. The more soluble substance is, however, much more than equal in efficiency to the larger quantity of the less soluble.

ROTATIONS OF CROPS: *Landlord.* We cannot answer your question better than by quoting Mr. Caird—"The landlord who continues to bind his tenant down to any prescribed routine, from which he must not, under a penalty, deviate, inflicts upon him a very serious injury without any corresponding advantage."

THE SARSDEN STEAM PLOUGH: *Inquirer.* The facts are that 726 acres were last year ploughed or pulled, and that 258*l.* was received for doing it. Deducting 75*l* for coal and oil, and 150*l.* for the 15*l.* per cent. on the cost of the engine (1000*l.*) and there remain 33*l.* profit. The 150*l.* will keep the apparatus, rope and all, good, and pay 5*l.* per cent. for interest of money. The charge was at the average rate of rather more than 7*s.* an acre, the tenants paying for coal and water and removals.

WEIGHT OF CATTLE BY MEASUREMENT: *Constant Reader.* The formula was used by us for several years in estimating the weight of cattle at the Smithfield shows. The actual carcase weight subsequently obtained from the butcher bore out our estimate very satisfactorily. The formula is arrived at by taking the best means we can to obtain the contents of a cylinder, whose dimensions represent the carcase of the animal, and multiplying by such a fraction as represents the ascertained weight in stones or lbs. per cubic foot of the space which the living body is thus found to occupy. "Ewart's Agricultural's Assistant" (Blackie), one of the best packed books we know, contains we believe a full explanation of the process.

Exhibition Prize Medal, 1862.

HOTHOUSES for the MILLION.—On the principle invented and patented by Sir Joseph Paxton, M.P., combining simplicity, cheapness, excellence, and durability. SPAN-ROOF HOUSES, painted three coats, and glazed with English Sheet Glass, can be supplied ready for fixing, 21 ft. by 13 ft., 24*l.*; 43 ft. by 19 ft., 73*l.* 5*s.*; 64 ft. by 25 ft., 161*l.*

Illustrated Circulars, with Prices, can be had on application to SAMUEL HEREMAN, 7, Pall Mall East, London, S.W.

Also, A HANDBOOK on VINE and FRUIT TREE CULTIVATION, 2d Edition, price 1*s.*; post free, 1*s.* 1*d.*

Card.

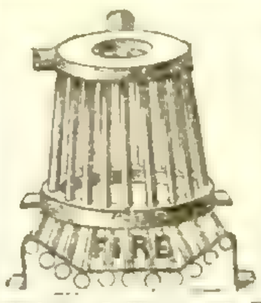
SAMUEL N. McGERROW,
GENERAL HORTICULTURAL BUILDER,
Knotty Ash, near Liverpool.

Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

Span-Roofed Iron Greenhouse.

FOR SALE, a SPAN-ROOFED IRON GREENHOUSE, 20 feet long, 15 feet wide, and 12 feet 6 inches high. This is a very neat and elegant House, and will be Sold Cheap.

Particulars on application to A. SHANKS & SON, 27, Leadenhall Street, London, E.C.



Heating by Hot Water,
FOR CHURCHES, SCHOOLS, HALLS, DWELLING-HOUSES, CONSERVATORIES, STOVE HOUSES, PINE PITS, &c.

J. TOOLEY begs to inform the Nobility and Gentry that he continues to fix HOT-WATER APPARATUS on the most improved and economical principles, having been many years with J. WEEKS & Co.

Tubular Boilers of all sizes; improved Screw Valves, Furnace Doors, &c. All work executed by J. T. warranted. References of the highest order in England, Ireland, and Wales.—J. TOOLEY, 9, Radnor Street, King's Road, Chelsea, S.W.

HEATING by HOT WATER—Public and Private Buildings, Manufactories, Conservatories, &c., heated on the most improved system, combined with perfect Ventilation.

BURY & POLLARD have just fixed at Wollaton Gardens, for Lord Middleton, several Boilers and long Ranges of Pipes.

BURY AND POLLARD
(Successors to John R. Peill),
Sole Manufacturers of the Improved CONICAL BOILERS, which require NO BRICKWORK, and which Boilers have for their durability and economy attained a celebrity far surpassing any other Boilers ever invented.

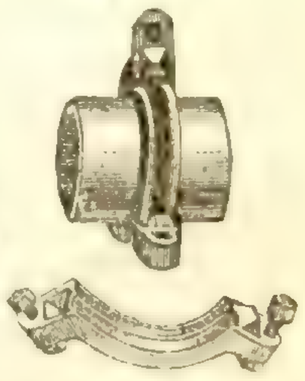
Park Iron Works, 17, New Park Street, Southwark, London, S.E.

N.B. Patent WINDMILLS for Pumping and Driving Farm Machinery, from half-Horse Power upwards. To be seen daily at work as above.

PORTABLE HOT-WATER APPARATUS,

WITH TRUSS'S PATENT JOINTS FOR HEATING CONSERVATORIES, HOTHOUSES, &c.

T. S. TRUSS



Begs to offer complete HOT-WATER APPARATUS for GREEN-HOUSES (consisting of 4-inch Pipes and Joints, Saddle Boiler, Fire Doors, Bars, Soot Doors, Damper, Supply Cistern, Feed and Air Pipes, Pipe Stands, &c., of the best quality), delivered to any Railway Station in England, and to erect the same within 25 miles of London, at the following prices:—

4-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection.
16 feet by 8 feet	£8 10 0 ..	£2 0 0	30 feet by 12 feet	£11 15 0 ..	£2 10 0
20 feet by 10 feet	8 17 6 ..	2 0 0	40 feet by 15 feet	15 0 0 ..	2 15 0
25 feet by 12 feet	10 5 0 ..	2 5 0	50 feet by 15 feet	18 0 0 ..	3 0 0

Erections beyond 25 miles of London, Railway Fare for one Man charged extra.

By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints.

Estimates and Plans forwarded on application to

T. S. TRUSS, C.E., 53, GRACECHURCH STREET, LONDON, E.C.

GRAY'S OVAL TUBULAR BOILER.

INTERNATIONAL EXHIBITION, CLASS IX., No. 2119.

Mr. GRAY begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his

NEW OVAL TUBULAR BOILER,

acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in Gardeners' Chronicle *of International Exhibition, May* 24, *page* 476.

"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. GRAY's variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so, the change, though a slight one, is no doubt an improvement."

They are made of all sizes, which, with prices, may be had on application.

JAMES GRAY, HORTICULTURAL WORKS,
DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.

ST. PANCRAS IRON WORK COMPANY,

OLD ST. PANCRAS ROAD, LONDON, N.W.

BY ROYAL LETTERS PATENT.

SCOTT'S GLASS WALLS AND ECONOMIC GREENHOUSES.

Designed to meet the suggestions of JAMES SCOTT, Esq., of Hornsey, as being the desiderata of such structures. They are devoid of shadow, durable, portable, and a tenant's fixture, with the strength and durability of a permanent structure. Further particulars and prices by post or on application.

CONSERVATORIES	PINE and MELON PITS	BALCONIES	GATES
GREENHOUSES	VASES	IRON SASHES	TANKS
HOTHOUSES	VERANDAHS	IRON HURDLES	HOT-WATER WORKS

PATENT WROUGHT-IRON STABLE FITTINGS AND ENAMELLED MANGERS.
Every description of IRONWORK. Lists Free.

ST. PANCRAS IRON WORK COMPANY, OLD ST. PANCRAS ROAD, LONDON, N.W.

GREEN'S PATENT SILENS MESSOR,

OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

BY SPECIAL APPOINTMENT,
SOLE MANUFACTURER

TO HER MOST GRACIOUS MAJESTY
THE QUEEN.

THE
FIRST PRIZE MEDAL
OF THE
INTERNATIONAL
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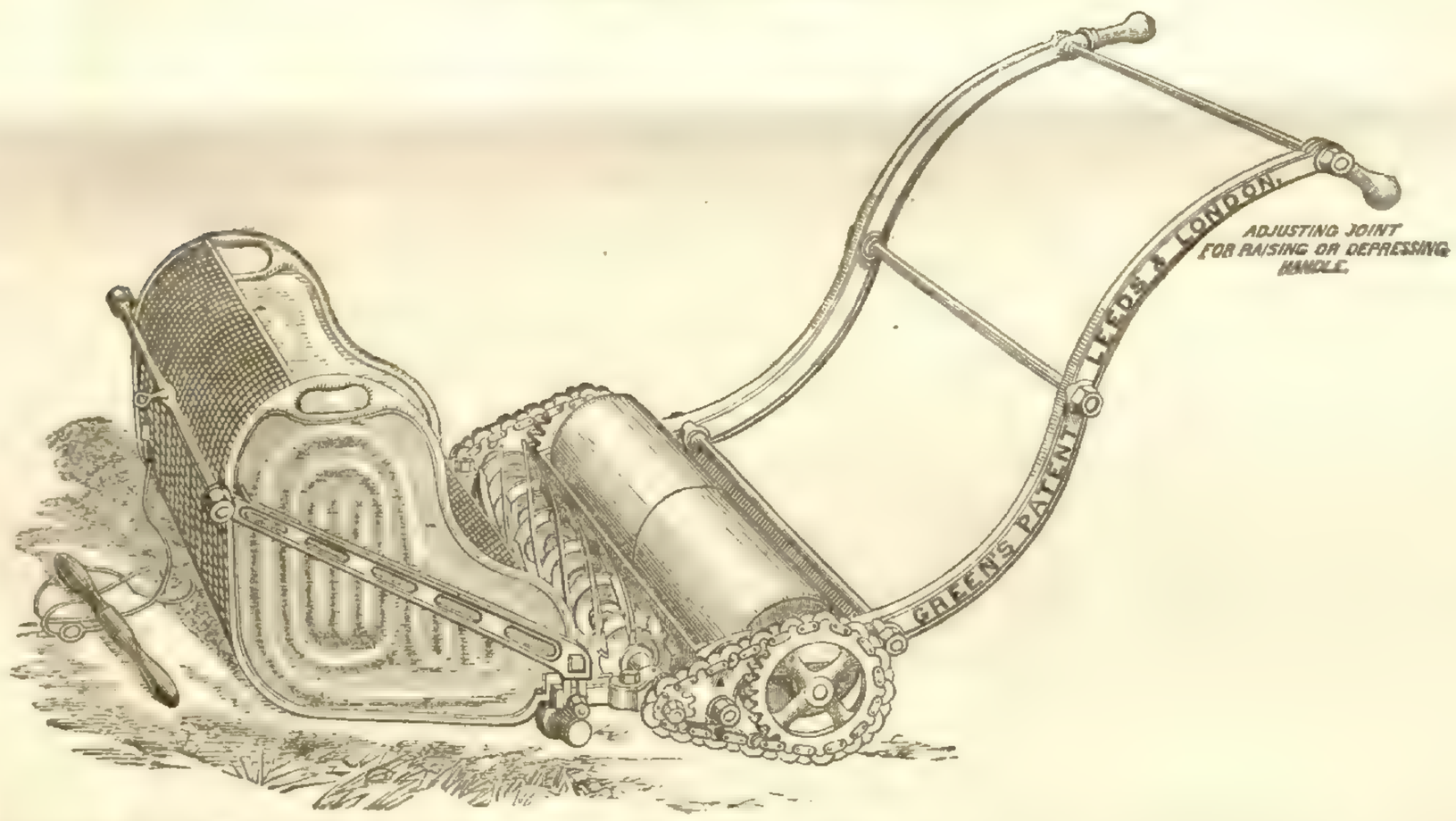
WAS AWARDED TO
THOMAS GREEN,
FOR HIS
PATENT
LAWN MOWERS.



FOREIGN MEDALS
AWARDED TO
GREEN'S PATENT
LAWN MOWERS:
LIEGE, 1861.
BRUSSELS, 1861 & 1862.
NAMUR, 1862.
GAND, 1862.
LINNEENNE, 1861,
1862, & 1863.
LAEKEN, 1862.

GREEN'S PATENT LAWN MOWERS have proved to be the best and carried off every Prize that has been given in all cases of Competition. The Judges at the Royal Horticultural Society's Show, held July 20, 1864, awarded them a First-class Certificate (No Prizes were given), and at the same time suggested a slight alteration, which has been done. Messrs. T. GREEN & SON consider their MACHINES now as near perfection as possible, and in consequence have continued making them as usual; they will have nearly 3000 ready for delivery at the commencement of the season, and they hope with their present facilities to be able to execute all orders on the day they are received.

Both the HORSE, PONY, DONKEY, and HAND MACHINES possess over all other Makers the advantage of Self-sharpening; the Cutters being steel on each side, when they become dull or blunt by running one way round the cylinder, can be reversed, again and again bringing the opposite edge of the cutters against the bottom blade, when the Machine will cut equal to new. Arrangements are made so that the cylinder can be reversed by any inexperienced person in two or three minutes.

Illustrated Price Lists Free on application.

GREEN'S IMPROVED NEW PATENT ROLLER,

FOR

LAWNS, DRIVES, BOWLING GREENS, CRICKET FIELDS, and GRAVEL PATHS,

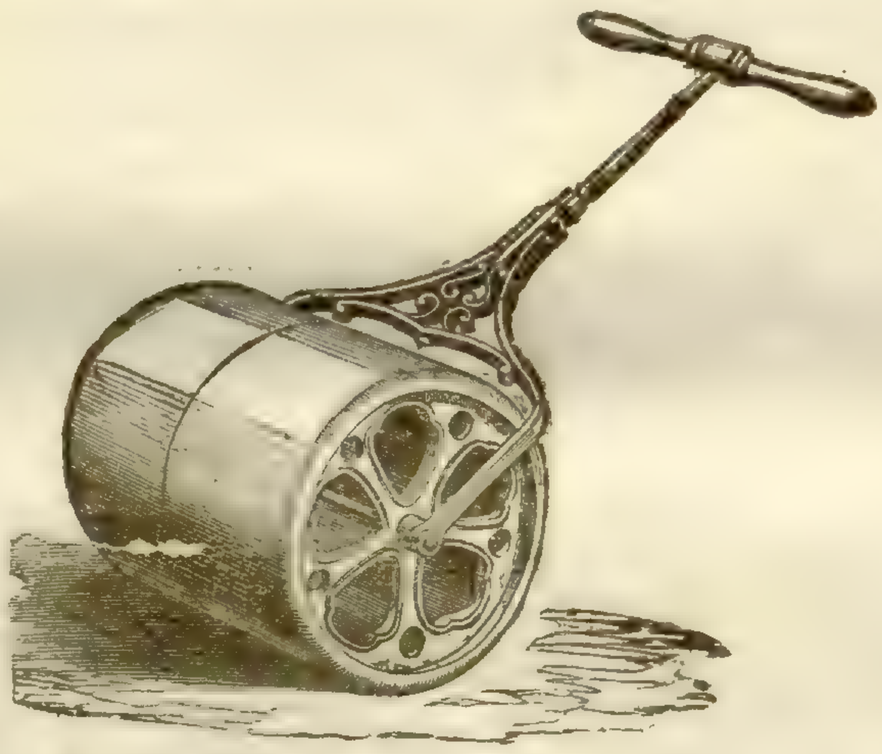
SUITABLE FOR HAND OR HORSE POWER.

PRICES OF

HAND ROLLERS.

Diameter	30	inches;	length	32	inches	£7	10	0
,,	24	,,	,,	26	,,	4	10	0
,,	20	,,	,,	22	,,	3	10	0
,,	17	,,	,,	16	,,	2	15	0

Delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.



PRICES OF

ROLLERS FITTED with SHAFTS,

SUITABLE FOR PONY OR HORSE-POWER.

Diameter	30	inches;	length	32	inches	£10	0	0
,,	30	,,	,,	36	,,	10	15	0
,,	30	,,	,,	42	,,	11	15	0
,,	30	,,	,,	48	,,	13	10	0
,,	30	,,	,,	60	,,	15	10	0
,,	30	,,	,,	72	,,	17	10	0
,,	30	,,	,,	84	,,	19	10	0

Delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.

The above ROLLERS possess many advantages over all others; they are made in two parts, and are free to revolve on the axis, affording greater facility for turning, and the outer edges are rounded off, or turned inwards, thus avoiding the unsightly marks left by other Rollers. They are manufactured of the best materials, and are got up in a manner surpassing any ever yet brought out.

THOMAS GREEN AND SON,
SMITHFIELD IRON WORKS, LEEDS; 2, FARRINGDON ROAD, HOLBORN HILL, LONDON, E.C.;
19, EDEN QUAY, DUBLIN; HADWIN'S BUILDINGS, TITHEBARN STREET, LIVERPOOL.

WHEELER'S LITTLE BOOK for 1865.

WHEELER'S TOM THUMB LETTUCE, 1s. per packet.

NEW POTATO, MILKY WHITE, 4s. per peck.

GLOUCESTERSHIRE KIDNEY POTATO, 3s per peck.

J. C. WHEELER AND SON, SEED GROWERS, Gloucester.

FOR GRASS SEEDS. WHEELER AND SON.

FOR SEED POTATOS, New Sorts. WHEELER AND SON.

FOR GARDEN SEEDS. WHEELER AND SON.

FOR FARM SEEDS, fine quality. WHEELER AND SON.

WHEELER'S LITTLE BOOK for 1865, Post free for four stamps, Gratis to Customers.

WHEELER'S LITTLE BOOK on GRASSES, gratis and post free.

J. C. WHEELER & SON, Seed Growers, Gloucester.

J. C. WHEELER AND SON, SEED GROWERS, Gloucester.

SEED POTATOS.—Potatos, though not strictly roots, but tubers, equally require care in selection. We have had the gratification of introducing THREE NEW SORTS, which have given satisfaction to every one who has tried them. They are

PRINCE of WALES,
ALSTONE KIDNEY, and
GLOUCESTERSHIRE KIDNEY.

The first two sorts are now well-known and highly esteemed; the Gloucestershire Kidney is a variety which we can recommend with the most perfect confidence; and we have much pleasure in referring to the Testimonials in its favour in our "Little Book." We introduce this season another new variety—Milky White—which we believe to be the finest Potato ever raised. Although early, it is perfectly white and mealy, and of excellent flavour. We have but a small supply, and can only offer it in peck bags, each of which is marked on the outside with our Trade Mark.

GLOUCESTERSHIRE KIDNEY, 3s. per peck, 10s. 6d. per bushel.

This most excellent Kidney Potato we can recommend for earliness, flavour, size, and crop. In comparing it with the Ashleaf Kidney, it is as early, whilst it produces nearly double the crop, and is altogether superior to that variety.

MILKY WHITE, 4s. per peck.

Fine second early; ripens immediately after the Gloucestershire Kidney. Is of excellent flavour, and in colour as white as milk; keeps well, and is altogether one of the best, if not the best, Potato in cultivation. In our opinion Gloucestershire Kidneys, Milky Whites, and Flukes are all the sorts necessary to keep one's table supplied with Potatos of the highest excellence all the year round.

The new Potato Milky White can be obtained true of the following eminent Firms:—

Messrs. BATT, RUTLEY, & SILVERLOCK Strand, W.C.
" JAMES CARTER & Co. .. .. High Holborn, W.C.
" NUTTING & SONS .. .. Barbican, E.C.
" SUTTON & SONS .. .. .. Reading.
" JACOB WRENCH & SONS .. London Bridge, E.C.
" STUART & MEIN .. .. Kelso
" PETER LAWSON & SON .. 28, King Street, Cheapside, E.C.
" MINIER & NASH .. .. Strand, W.C.

It will be sent out in peck bags, each bag marked with our Trade Mark. We regret to say we have but a small quantity to offer this season.

J. C. WHEELER & SONS, Seed Growers, Gloucester.

Seed Potatos.

GEORGE SIBBALD, MARKET GARDENER and FARMER, has for Sale about 100 tons of the following kinds of his own growing, true to name. Cash or reference required.

Per bush. of 56 lbs.	s.	d.	Per Bushel of 56 lbs.	s.	d.
Best Rocks	2	0	Flukes	2	6
Walker, Early	2	0	Lapstone Kidney	2	6
Dalmahoys	2	0	Lemon Kidney	5	0
Early American	3	0	Ash-leaved Kidney	5	0
Daintree's Early	3	0	Peel's King of Kidney (best for frames). ..	5	0
Chiswick Cluster	3	0			
Red Eyes, Early	3	0	Myatt's Improved Kidney ..	5	0

Also Agent for PATERSON & SONS' SEEDLINGS.

Delivered free of expense at Dundee, or Broughty Ferry, Drumgeath, by Dundee

SEED POTATOS.

20 tons EARLY LEMON IMPROVED KIDNEY, one of the most prolific and early varieties grown.
6 tons EARLY ASHLEAF KIDNEY (true stock).
6 tons EARLY HANDSWORTH ROUND (true stock).
Fine ASPARAGUS and SEA KAIL ROOTS, 2 years.

H. & R. STIRZAKER are supplying the above genuine sorts of Potatos at very reasonable prices, delivered free on the rail.

Skerton Nurseries, Lancaster.

Mona's Pride Potato.

MR. RUTLEDGE, of Hague House, Isle of Man, can supply his famous SEED this season at a reduced price, by reason of having grown largely. This Potato is now admitted by all as the only First Early and most prolific cropper for field or garden. Will furnish new tubers any month in the year, some being shown on New Year's Day.

Applications as above will be duly attended to.

A Boon to the World.

PRINCE of WALES' KIDNEY POTATO.—A new Seedling, remarkably handsome, fine eating, and the most prolific in the world. Testimonials:—

From Professor LINDLEY (Editor of the *Gardeners' Chronicle*).

"I have this morning had the Seedling Potatos examined. The crop is very extraordinary, and the Potatos themselves are very handsome, and quite ripe."

From SHIRLEY HIBBERD, Esq. (Editor of the *Gardeners' Weekly Magazine.*)

"The Seedling Potato (Prince of Wales), I have found to be wonderfully productive, excellent flavour, handsome, and such a one as the world ought to have the benefit of."

To be had of Messrs. BARR & SUGDEN, King Street, Covent Garden W.C.; DOWNIE, LAIRD & Co., Forest Hill, S.E.; JAMES CARTER & Co. 237, High Holborn, W.C.: SUTTON & SONS, Reading.

Price 12s. per bushel.

N.B. They may be planted up to the end of May.

Important to Growers of Potatos.

H. AND F. SHARPE invite the attention of Growers of EARLY POTATOS to their fine selected stocks of MYATT'S EARLY PROLIFIC KIDNEY, and EARLY DALMAHOY ROUND, which are universally pronounced to be the earliest and most prolific sorts in cultivation, and especially adapted for early market purposes, yielding from 8 to 10 tons per acre, and ready for market by the end of June, clearing the land in time to sow for White Turnips or other autumn feed. The quality this season is unusually fine, and perfectly free from disease. Having an abundant supply, H. & F. S. are enabled to offer them at very moderate prices, and make a suitable reduction to purchasers of a large quantity. For Prices, and further information, apply to

H. & F. SHARPE, Seed Growers, Wisbech, Cambridgeshire.

SEED POTATOS.—MYATT'S EARLY PROLIFIC KIDNEY, EARLY DALMAHOY ROUND, and all the earliest and best varieties, of the finest quality, free from disease, and at very moderate prices.

Apply to H. & F. SHARPE, Seed Growers and Nurserymen, Wisbeach, Cambridgeshire.

Erin's Queen Dwarf Ashleaf Potato.

WAITE, BURNELL, & CO. have the pleasure to introduce this really true and pure stock of the Ashleaf variety. It is very dwarf in the haulm, foliage of a dark green colour, very early, and invaluable for frames.

Supplied in sealed Bags marked

Price 15s. per Bush. Discount allowed to the Trade.

Seed Warehouse, 151, High Holborn, London, W.C.

To the Trade.

HOGG AND WOOD, Coldstream, N.B., can offer a fine lot of EARLY SEED POTATOS of the following sorts, all true to kind, viz., ASHLEAF KIDNEY, HANDSWORTH, OXFORD'S, DAINTREE'S EARLY, FORTYFOLDS, FOXE'S SEEDLING, DALMAHOYS, PRINCE REGENTS. Also

Three Years' TRANSPLANTED THORN QUICKS, very fine.
TRANSPLANTED ASH, 2½ to 3 feet.
APPLE CRABS, 2½ to 3 feet, fit for working.
WYCH ELM, 2 to 2½ feet.

For price, &c., apply as above.

SUTTON'S NEW EARLY PEA RINGLEADER. The Earliest Pea in cultivation.

Garden Peas.

CHARLES SHARPE AND CO., Sleaford, have fine Stocks of the following, viz.:—

DANIEL O'ROURKE	SCIMITAR
PRIZETAKER	DICKSON'S FAVOURITE
WOODFORD'S MARROW	DILLISTONE'S FIRST EARLY
BEDMAN'S IMPERIAL	

Samples and Prices on application.

THE EARLIEST PEA known is CARPENTER'S EXPRESS, gathered May 7. See Testimonials, among which is the following from Mr. JOHN COX, Gardener to W. Wells, Esq., Red Leaf, Penshurst, Kent:—

"Dear Sir,—I beg to say I have tried your Express Pea this season, and am glad to be able to speak very favourably of it as the earliest Pea I have ever grown. I gathered in quantity this season nine days in advance of any other early variety, and earlier also than have ever been gathered in these gardens in the open air."

The following has been received from Messrs. Stuart & Mein, of Kelso:— "Dec. 27, 1864.

"Dear Sir,—A friend of ours, who is most particular in these matters, has just communicated the following information in reply to our inquiries about your Express Pea:—'I sowed CARPENTER'S Express, Sangster's No. 1, and Dillistone's Early Peas, on the same day. I found CARPENTER'S Express five or six days earlier than Dillistone's, and 10 or 12 days earlier than Sangster's; it is more prolific than Dillistone's. It is well worth a place in your New Seed List for its earliness. All were sown on the same piece of ground, and all had the same chance.' Have the goodness to send us ½ bushel as soon as possible and oblige. "Your obedient Servants,

"Mr. Carpenter." "STUART & MEIN."

Price 3s. 6d. per quart. Trade price on application. Remittance requested from unknown correspondents.

EDWARD CARPENTER, Seed Merchant and Grower, Brighton and Sussex Seed Warehouse, 96, St. James Street, Brighton.

To be had also of the following Nurserymen:—

Mr. W. Barnes	Camberwell
Mr. W. Paul	Waltham Cross, N.
Messrs. Carter & Co.	High Holborn
Messrs. Downie, Laird, & Laing	Sydenham
Messrs. Bunyard & Son	Maidstone
Messrs. Osborn & Son..	Fulham
Messrs. Stuart & Mein	Kelso.
Mr. Scott..	Chichester
Mr. C. Turner	Slough
Mr. C. Sweet	Taunton
Mr. Cattell	Westerham
Mr. Quince	Peterborough
Mr. Edwards	222, Strand
Messrs. Beck, Henderson, & Child ..	Upper Thames Street
Mr. G. Davison	Hereford
Mr. W. Masters	Canterbury
Messrs. Wrench & Sons	London Bridge
Messrs. Paul & Son	Cheshunt

THE ESSEX RIVAL PEA.—A want has long existed amongst Gentlemen, Connoisseurs, Gardeners, and others, of a PEA that should not only be of early production, but combine at the same time the features of being prolific in yield, substantial in size, and excellent as a vegetable.

THOMAS ELEY, the Proprietor of the above-named splendid variety, has for some years past had this subject under consideration, and after a long and careful trial has succeeded in procuring a PEA which he thinks will fully supply the existing want, and which, from the large number of Testimonials that have been received by him, cannot fail to take its stand as one of the very finest, early, and most prolific varieties ever yet introduced in this kingdom.

Mr. ELEY desires to take this opportunity of informing the public, and especially those more particularly interested in such matters, that the ESSEX RIVAL PEA has not been placed in the market without FIRST having its merits fairly and justly established by several of the most leading Seedsmen in London and elsewhere, and the Testimonials received by him from these Growers and others, which appeared before the public in the *Gardeners' Chronicle* of Saturday, Dec. 31, 1864, page 1246, will more than fully bear out the characteristics of the above-named variety that are mentioned in this Advertisement.

Mr. ELEY cannot conclude this notice without returning his most sincere thanks to those gentlemen (who are quite unknown to him) for their candid and unbiassed opinion of the merits of the ESSEX RIVAL PEA, which they have been pleased to express in their several Testimonials.

Price 2s. 6d. per quart.

To be obtained of Mr. THOMAS ELEY, The Proprietor, Sible Hedingham, near Halstead, Essex.

Also of the following appointed Agents:—

Messrs. PETER LAWSON & SON, 28, King Street, Cheapside, London.
Mr. JAMES VEITCH, Royal Exotic Nursery, King's Road, Chelsea.
Messrs. COOPER & BOLTON, 152, Fleet Street. London.
Messrs. FRASER, RICHARDSON, & GOAD, 82, Bishopsgate Within, London.
Messrs. NUTTING & SONS, 60, Barbican, London.
Mr. G. W. DIXON, 48a, Moorgate Street, London.
Messrs. SUTTON & SONS, Reading, Berkshire.
Messrs. SALTMARSH & SON, Moulsham Nursery, Chelmsford, Essex.
Messrs. ROBERTS & SON, Denbigh.
Messrs. LOWE & Co., High Green, Wolverhampton.
Mr. ROBERT EMSON, Secretary to the Essex Agricultural Association.
Mr. B. MACKENZIE. Ventnor, Isle of Wight.
Mr. B. R. CANT, St. John's Street, Colchester.
Mr. GEORGE TABER, Rivenhall, near Witham, Essex.
Mr. J. F. CHATER, Braintree, Essex.
M. PAUL TOLLARD, 4, Place des Trois Maries, Paris, France.

Mr. ELEY has much pleasure in giving the following Testimonial (being the only one he solicited in 1863) from Mr. C. Newby, Gardener to Mrs. Wray, of Spencer Grange, Great Yeldham, Essex, and which has not before been published:—

"Spencer Grange, Great Yeldham, Nov. 23, 1863.

"DEAR SIR,—In reply to your letter respecting how I liked your stock of Early Peas I had of you last spring, I beg to say I have a very good opinion of them. I sowed the first time in the last week in March; they were fit to gather on the 15th of June. I saved them for seed. Sowed again on the 31st of July the new seed, and was able to supply two dishes of beautiful Peas for table during this month (November). I shall hope to give them more attention this coming season, for I believe they are, as far as I am at present able to judge, the best and finest Early Pea I have ever had or seen. I shall be glad if you would spare me a few of your stock for next spring, as I should not like to be without so valuable a stock.—I remain, yours obediently, "G. NEWBY,

"Gr. to Mrs. Wray, Spencer Grange, Great Yeldham."

Mr. ELEY will esteem it a favour if persons who try the ESSEX RIVAL the coming season will send him a report.

N.B. Orders from unknown correspondents must be accompanied by a remittance. The Trade liberally dealt with. Terms on application.

Notice to the Trade.

CARTER'S "FIRST CROP" PEA.

JAMES CARTER AND CO. beg leave to inform the Trade that in consequence of the great demand for the above PEA, they will in future be able to execute Orders for SMALL QUANTITIES ONLY.

THE DIXON'S YORKSHIRE HERO PEA. Height, 2½ feet; a most abundant bearer and very branching.

The true variety may be had in London of Messrs. HURST & SON, 6, Leadenhall Street, E.C.; Messrs. COOPER & BOLTON, 152, Fleet Street, E.C.

E. P. DIXON & SON, The Yorkshire Seed Establishment, Hull.

To Seed Merchants and Others.

TO BE SOLD, SANGSTER'S No. 1 PEAS, GREEN, ROUND, PURPLE-TOP, SCOTCH, YELLOW TANKARD, ALTRINGHAM, YELLOW and GREEN-TOP SCOTCH TURNIPS, WHITE POST and WHITE GLOBE ONION SEED.

The above all New Seed, and the stocks guaranteed.

Apply to Mr. W. COOPER, Seed Grower, Fendrayton, St. Ives, Hunts.

To the Trade and Others.

NEW and GENUINE ENGLISH ONION SEED, SCARLET RUNNER BEANS, and MANGEL WURZEL SEED. Price, &c., on application to

FREDK. GEE, Seedsman, Biggleswade, Beds.

Henry's Prize Hybrid Leek.

DOWNIE, LAIRD, AND LAING, having secured the entire stock of the Seed of this far-famed LEEK from Mr. Henry, are now sending it out in sealed packets as formerly, at 1s. each. This is undoubtedly the largest and finest variety in cultivation, weighing when cleaned from 4 to 5 lb., and blanched from 16 to 17 inches in length.

17, South Frederick Street, Edinburgh; and Stanstead Park, Forest Hill, London, S.E.

AYTON CASTLE GIANT SCOTCH LEEK.—The qualities of this superior Prize Leek having for the past five years been most thoroughly tested against other well known varieties, celebrated growers have pronounced it to be the finest, largest, and firmest fleshed Leek in cultivation.

The Subscriber having bought the whole stock of Seed saved by the raiser (Mr. Moffat, Ayton Castle Gardens), is now sending out the same in sealed packets at 1s each. A trial of this celebrated Leek is respectfully requested.

ROBERT T. MACKINTOSH, Nurseryman and Seedsman, 13, Melbourne Place, George IV. Bridge, Edinburgh.

Specimens of the Leek grown in an ordinary way—without any forcing—may be seen at above address; also at the Seed Establishment of Messrs. JAMES CARTER & Co., High Holborn, London, W.C.

New Cucumber, Model.

EDWARD TILEY, the successful Raiser of some of the finest varieties of CUCUMBERS and MELONS now grown, has the above new production this season to offer. Length from 10 to 14 inches. A prolific bearer, bringing six and seven fruit to a joint. This gives it a great advantage over the long show varieties, which are generally shy setters. It is very handsome, being of an even size from stem to point; a beautiful black spine, carrying its bloom well; the flesh very solid and crisp, and the flavour excellent. For small families it is especially adapted, as after it once commences bearing, fruit may be cut from the same plant daily for six months. It would be a profitable variety for market gardeners. It is very hardy for a Frame Cucumber, so that where the supply of manure is scanty it will be a great boon. Price 2s. 6d. per packet.

CUCUMBERS.—GENERAL OUTRAM (price 2s. 6d. per packet), a first-rate variety for exhibition, black spine, from 24 to 28 inches. The following varieties 1s. per packet (the Trade supplied):—Sir Colin Campbell, General Canrobert, Victory of Bath, Gordon's White Spine, Lord Kenyon's Favourite, Phenomenon, Captivation, Rifleman, Mills' Jewess, Manchester Prize, Conqueror of the West, Hunter's Prolific, Incomparable, Syon House, Cuthill's Black Spine, Allen's Victory, Champion of England, Trollope's King, Stockwood Ridge, Ipswich Standard, Ayres' Prolific, Tiley's Improved.

MELONS.

Per packet	s.	d.	Per packet	s.	d.
Pine Apple	1	0	Meredith's Hybrid Cashmere	1	0
General Havelock	1	0	Camerton Court, Green-flesh	1	0
Mr. Ewen's Arundel Hybrid Green-flesh	1	0	Queen's Melon	1	0
Ditto ditto, Scarlet-flesh ..	1	0	Blackall's Green-flesh.. ..	1	0
Monro's Green Gage	1	0	Bailey's Green-flesh	1	0
Monro's Crystal Palace Hero	1	0	Bowood Green-flesh	1	0
Golden Drop, Green-flesh ..	1	0	Beechwood Green-flesh ..	1	0
Golden Perfection, Green-flesh	1	0	Windsor Prize ditto	1	0
Scarlet King, Scarlet-flesh ..	1	0	Emperor	1	0
Green Gage	1	0	Fleming's Trentham Hybrid	1	0
Incomparable	1	0	Duncan's Green-flesh Improved	1	0
Golden Ball	1	0	Hampton Court, Green-flesh	1	0
Bromham Hall, Green-flesh..	1	0	Egyptian ditto, Improved ..	1	0
			&c. &c. &c.		&c.

Fine mixed AURICULA-FLOWERED SWEET WILLIAM, 1s. per packet.

HOLLYHOCK SEED from all named vars., 1s. per packet.
GRIFFIN'S ALMA LETTUCE, 1s. per packet.
TILEY'S EMPEROR RED CELERY, 1s. per packet.
TILEY'S SOLID WHITE CELERY, 1s. do.

A packet of the CUCUMBERS MODEL or GENERAL OUTRAM, with a packet of any other variety of Seed mentioned in the Advertisement, for 3s.

A remittance must accompany all orders, either by Post-office order, or penny postage stamps.

EDWARD TILEY, Nurseryman, Seedsman, and Florist, 14, Abbey Church Yard, Bath.

TRADE MARK.

HALLETT'S [PEDIGREE] NURSERY WHEAT.

PURE SEED OATS.

46s. a Quarter (with Sacks) for not less than Two Quarters.

Papers sent upon application, enclosing Stamp, to FREDERIC F. HALLETT, Esq., F.L.S., the Manor House, Brighton, Sussex.

OSBORN'S WHITE WINTER BROCCOLI. Price 2s. 6d. per packet.

Special offer to the Trade on application.

A PRICED LIST of select GARDEN SEEDS is now ready, and may be had free on application.

OSBORN & SONS, The Nursery, Fulham, London, S.W.

REIGATE SILVER SAND (best quality for Plants, &c.), 7s. 6d. per Ton, 28s. per 4 Tons, 39s. per 6 Tons, 48s. per 8 Tons, 5s. per Ton for 20 Tons and upwards, delivered to the Reigate Station. Best Kent and Surrey PEATS, LOAMS, ROCK SANDSTONE, &c.

N.B. Loaded trucks can be sent direct on all the Railways.

London-made FLOWER POTS, in every size, at the lowest cash prices. W. SHORT, Sand and Peat Depôt, Reigate, Surrey.

COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 2s. per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped, J. BARSHAM'S Patent.

TOBACCO PAPER and CLOTH, first-rate quality. Price on application to

CHAS. BROWN, Greenheys, Manchester.

To Nurserymen and Florists.

H. PERKINS, TOBACCONIST, 16, Cambridge Circus, Hackney Road, N.E., has a large Stock of Genuine ROLL TOBACCO PAPER, at 1s. per lb.; TOBACCO CLOTHS, at 10d. per lb. Warranted free from adulteration.

Post-office Orders to be made payable at Shoreditch Post-office.

Established Upwards of a Century.

BUTLER AND McCULLOCH,

SEED MERCHANTS, Covent Garden Market, W.C.

GENUINE NEW VEGETABLE SEEDS.
Orders amounting to 21s. and upwards sent Carriage Free.

COMPLETE COLLECTIONS for One Year's Supply.

No. 1.	No. 2.	No. 3.	No. 4.	No. 5.
3l. 3s.	2l. 2s.	1l. 10s.	1l. 1s.	10s. 6d.

BUTLER AND McCULLOCH'S NOVELTIES for 1865.

	Per packet—s. d.
BUTLER'S SUPERFINE DWARF CAULIFLOWER	2 6
BUTLER'S PERFECTION CUCUMBER, unquestionably the finest variety ever offered	2 6
BUTLER'S CLIMAX MELON	2 6
BUTLER'S PRESIDENT MELON	2 6

FLOWER SEEDS (sent Post free).

Assortments of	100 vars.	50 vars.	20 vars.	25 vars.	15 vars.
ANNUALS Hardy	20s.	10s.	5s.	..	2s. 6d.
,, Half Hardy	30s.	15s	.	7s. 6d.	4s. 0d.
PERENNIALS (Hardy)	25s.	12s. 6d.	..	6s. 6d.	3s. 6d.
,, Half Hardy	..	..	..	7s. 6d.	4s. 0d.

NOVELTIES in FLOWER SEEDS.—See Descriptive Catalogue.

BULBS for SPRING PLANTING.—Gladioli, Lilliums, including the splendid new L. auratum; Tigridias, Anemones, Ranunculus, and other bulbs suitable for spring planting, in great variety. Special quotations at low rates per 100 or 1000 on application.

BEDDING PLANTS.—250,000 well-rooted plants, comprising Calceolarias, Lobelias, Geraniums, Cerastiums, Cineraria maritima, Ageratums, &c.; to be sold at unprecedented low prices.

Agents for GOULDING'S HORTICULTURAL MANURE, 1s. per canister.

Sole Agents Wholesale and Retail, for MURRAY'S APHIS PASTILS, a new invention, and the most effectual in existence for Fumigating Plant Houses. In packets, 1s. and 2s. each.

Butler & McCulloch, Covent Garden Market, W. C.

Vines, Vines. Strong Fruiting Vines.

LUCOMBE, PINCE, AND CO. offer the above for Sale, with extra large well ripened Canes, and prominent Fruit-bearing eyes, in good sized pots, certain to bear a good crop of fruit this season, at 10s. 6d. each.

They also have a very large stock of VINES, fit for immediate planting out in Vineries, of a superior quality. In Pots from 3s. 6d., 5s., to 7s. 6d. each.

A LIST of sorts will be sent on application to them.
Exeter Nursery, Exeter.

Vine Duchess of Buccleuch.
New Seed and Plant Catalogues, &c.

ROBERT PARKER has much pleasure in offering this distinct and valuable early GRAPE, which will supply the long felt desideratum of a White Grape with Muscat flavour that may be grown and ripened with the Black Hamburgh.

The following Certificates and Prizes have been awarded at various London and other Exhibitions.

Two Certificates of Merit.

Three First-class Certificates.

Two First Prizes in open competition for the finest flavoured Grape of any colour. Chasselas Musqué, Muscat of Alexandria, and Frontignan competed for these prizes. For further description see Hogg's *Gardeners' Year Book for* 1865, page 32, and *Gardeners' Chronicle* of October 1st and 22d, 1864, pages 943 and 1008.

Also New SEED CATALOGUE, containing Select Priced and Descriptive Lists of the best varieties of Vegetable, Flower, and Agricultural Seeds; and New GENERAL PLANT CATALOGUE, containing Priced and Descriptive Lists of Miscellaneous, Greenhouse, Hardy, and Stove Plants, Azalea indica, Conifers, Ferns, Fruit Trees, Grapes, Rhododendrons, Roses, Dutch and other Bulbs, &c., which will be forwarded to applicants.

Exotic Nursery, Tooting, Surrey, S.

Strawberry Plants.

B. MALLER has a large stock of fine STRAWBERRIES in pots for forcing (will bear a fine crop planted out this year), at his Nursery, Burnt Ash Lane, Lee, Kent. Price on application per dozen or 100 for cash.

PRICED and DESCRIPTIVE CATALOGUE of FLOWER and KITCHEN GARDEN SEEDS now ready, forwarded free on application.

Please address all letters to the Seed Shop, Granville Terrace, Lewisham, S.E.

3000 Extra Strong STRAWBERRY PLANTS for Forcing, in 32-size pots (many of the pots having two plants in each), consisting of the following varieties, viz.:—

ADMIRAL NAPIER, BRITISH QUEEN, KEEN'S SEEDLING, &c., 50s. per 100. Plants of the above, and also of ELTON PINE for Planting, 3s. 6d. per 100.

Address T. & A. Ansell, Camden Nursery, Grafton Road, Kentish Town, London, N.W.

The Castle Kennedy Fig.

PETER LAWSON AND SON have made arrangements to send out the above next Autumn. They are now booking Orders, which will be executed in strict rotation as received. Plants, 10s. 6d. each; a few extra strong at 21s. each—with the usual Discount to the Trade.

Full printed particulars to be had on application.
Edinburgh and London.—Jan. 28.

STANDARD APPLES for Orchard Planting, strong choice named sorts.—SPRUCE FIRS, 3 to 4 feet, strong and handsome; AUSTRIAN PINES, 4 to 6 feet, ditto, ditto; and all kinds of FRUIT TREES, EVERGREENS, and ROSES, all recently transplanted, at

Wood & Co.'s, Barbourne Nurseries, Worcester.
Prices upon application.

Dwarf-trained Trees.
By the Thousand, Hundred, or Dozen.

APPLES, PEARS, PLUMS, CHERRIES, PEACHES, and NECTARINES.

Fine, flat, well trained, of best quality and true to name.
Richard Smith, Nurseries, Worcester.

To the Trade.

DWARF-TRAINED CHERRIES (very fine) of the following kinds, MAY DUKE, BLACK EAGLE, DOWNTON, ELTON, BLACK HEART, OX HEART, BEDFORDSHIRE PROLIFIC, WATERLOO, and WHITE HEART. Also horizontal-trained MAY DUKE and MORELLO. Prices very moderate, to be had on application.

Richard Smith, Nurseryman, Worcester.

Orchard Apple Trees for Sale.

Fernlown Nursery, near Wimborne, Dorset, January 21, 1865.

MESSRS. WM. AND D. STEWART have taken the above Nursery from Mr. J. Bartlett, with the whole stock thereon; a principal part consisting of several Thousand full STANDARD ORCHARD APPLE TREES, which they beg to offer at greatly reduced prices. The sorts are all of the best varieties in cultivation.

Orders will have our immediate attention. Parties not known to their firm of John Stewart & Sons, Dundee, N. B.; or to Mr. J. Bartlett, Ringwood, Hants, will please give reference.

Fruit Catalogue and Directory, 92 pages, price 1s.

J. SCOTT, Merriott, Somerset, has just published a new and enlarged Edition, with full descriptions of nearly 1000 sorts of Fruits, with instructions on Planting, Training, Root Pruning, Cordon Training, and various other modes. The Formation of Miniature Orchards, of Pyramids, and a host of other useful matter on Fruit Tree Culture.

Also, his DESCRIPTIVE CATALOGUE, 72 pages, of Coniferous Plants, and other Ornamental Trees, Evergreens, Roses, Greenhouse, Hardy, Winter and Spring Bedding Plants, &c. With Notes and Observations. Two stamps.

CALCEOLARIA AMBASSADOR (Sang's).—Strong Plants in single Pots of this magnificent Bedding-out CALCEOLARIA will be ready in April. Price 12s. per dozen. Early orders will oblige. The Trade supplied on the usual terms.

Edward Sang & Sons, Nurserymen and Seed Merchants, Kirkcaldy, N.B.

TO BE SOLD, Cheap, two PINUS EXCELSA, specimen Plants, one 8 feet, the other 10 feet, tubs included.

Also two young CAMELLIA IMBRICATA, 6 feet 6 inches, pots included.—For particulars apply to

Chas. Southby, Nurseryman, Clapham, S.

The Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

A CHOICE and EXTENSIVE COLLECTION of STOVE and GREENHOUSE PLANTS always on view. Also FRUIT TREES, SHRUBS, and ORNAMENTAL TREES, from the Country Branches of the Firm.

The SEED and GENERAL NURSERY BUSINESS is carried on here, and Packages are delivered free at the various London Railway Stations.

Branches.

EALING NURSERY, G. Cannon, Manager.
Ten minutes' walk from the Ealing Station on the Great Western Railway Main Line.

FRUIT TREES, ROSES, and SHRUBS, are here extensively and successfully cultivated in some of the finest Loam in the County.

FELTHAM NURSERY, R. Higham, Manager.
Ten minutes' walk from Feltham Station.

EVERGREEN and DECIDUOUS SHRUBS, and CONIFERÆ, are here largely grown in a free Loam, well suited to their habits.

At SION LANE and WOOD LANE NURSERIES, ISLEWORTH.

ORNAMENTAL TREES are in a healthy and thriving state, and GENERAL HARDY PROPAGATION is here carried on.

The Stock in the above Nurseries is well worth the inspection of purchasers. The prices are very moderate, and the Plants are frequently transplanted to ensure safe removal.

The following CATALOGUES are published, and will be forwarded Post Free on application:—

CATALOGUE of KITCHEN GARDEN, FLOWER, and AGRICULTURAL SEEDS.
CATALOGUE of STOVE and GREENHOUSE PLANTS.
CATALOGUE of SOFT-WOODED and BEDDING PLANTS.
CATALOGUE of FRUIT TREES and FRUIT TREES in POTS.
CATALOGUE of HARDY SHRUBS and TREES (will shortly be issued).
CATALOGUE of DUTCH BULBS, published in August.
CATALOGUE of ROSES.

John & Charles Lee, Proprietors, Hammersmith, London, W.

New Rose H.P. Princess of Wales.

First-class Certificate from the Royal Botanic Society of London.

WM. PAUL (Son and Successor to the late A. Paul) has still a fine stock of this superb New English ROSE.
Price, good Dwarf Plants, 3s. 6d. each.
The usual discount to the Trade.
Waltham Cross, N.

Roses.

FRANCIS AND ARTHUR DICKSON AND SONS can still supply fine strong DWARF and HALF-STANDARD ROSES, of most of the best leading kinds, at very moderate prices. LIST of kinds and PRICES will be forwarded upon application.

The "Upton" Nurseries, Chester.—Jan. 28.

Roses.

H. LANE AND SON have still to offer a large Collection of all the most popular sorts of STANDARD and DWARF ROSES, which can be confidently recommended, being particularly strong, healthy, and well grown, and supplied from at least 7 Acres. The finest stock ever seen in one Nursery.

The Nurseries, Great Berkhampstead, Herts.

ROSES, STANDARDS, HALF STANDARDS, and DWARFS.

Fine STANDARD ROSES, £5 per 100, or 15s. per dozen.

DWARFS, very fine, on the Manetti Stock, 60s. per 100, or 9s. per dozen, of all the best varieties in cultivation. Prices to the Trade on application. DESCRIPTIVE CATALOGUES gratis.

G. Parsons, Nurseryman and Seedsman, Western Road, and Montpelier Road, Brighton; and Hassock's Gate Nursery, Keymer.

Carnations, Picotees, Pinks, and Pansies.

JOHN HOLLAND, having for upwards of 25 years paid special attention to the cultivation of the above, is now offering Plants, which are extra strong and true to name, at the following prices:—

CARNATIONS, fine first-class varieties, 9s. to 18s. per dozen pairs.
PICOTEES, ,, ,, ,, 9s. to 18s. ,,
YELLOW GROUND PICOTEES, the largest collection in Europe, 9s. to 18s. per dozen pairs.
BORDER CARNATIONS and PICOTEES, 6s. per dozen pairs.
PINKS, the leading varieties, 6s. per dozen pairs.
PANSIES, the finest collection of good varieties, 4s. to 6s. per dozen plants.

Bradshaw Gardens, Chadderton, near Manchester.

RICHARD SMITH'S LIST of all the EVERGREEN FIR TRIBE suitable for Britain, giving size, price, popular and botanical names, derivations, description, form, colour, foliage, growth, timber, use in arts, native country and size there, situation, soil, and other information, with copious Index of their synonymes. Enlarged Edition, Free by Post for 12 postage stamps.

Richard Smith, Nurseryman, Worcester.

NEW ETRUSCAN CUT FLOWER VASE (TRIPLET), 5s. each.

HOOPER & CO.

BEG TO ANNOUNCE THE PUBLICATION OF THEIR

ILLUSTRATED SEED CATALOGUE,

WHICH IS RECOMMENDED AS THE BEST WORK OF THE KIND EXTANT.

FORWARDED GRATIS ON APPLICATION.

Seeds sent Carriage Free.

HOOPER AND CO., COVENT GARDEN MARKET, LONDON, W.C.

W. DRUMMOND & SONS,

OF THE

SEED AND NURSERY ESTABLISHMENT,

STIRLING, and 58, DAWSON STREET, DUBLIN

(*The only Establishments with which this Firm is connected*),

BEG TO INTIMATE THAT THEIR

DESCRIPTIVE CATALOGUE OF NEW VEGETABLE AND FLOWER SEEDS

is now ready, and may be had post free on application.

This Catalogue will prove a safe guide in choosing Seeds for the Garden. Its arrangement is simple, and contains, in the respective classes, only such varieties as are really worth cultivating, and to these a brief but accurate description is prefixed.

☞ *As usual, Parcels of Seeds are forwarded Carriage Free.*

GARDEN and FARM SEEDS, FOREST TREES, &c.

THE FOLLOWING

DESCRIPTIVE PRICED CATALOGUES FOR 1865

MAY BE HAD ON APPLICATION FROM

THOMAS KENNEDY & CO.,

NURSERYMEN AND SEEDSMEN,

DUMFRIES, N. B.

No. II. FOREST and ORNAMENTAL TREES, BEDDING PLANTS, ROSES, &c.
No. III. VEGETABLE and FLOWER SEEDS, IMPLEMENTS, &c.
No. IV. AGRICULTURAL SEEDS, &c.

"The fulness, expansiveness, and selectness of the Catalogues of Messrs. Thomas Kennedy & Co., Nurserymen, Seedsmen, and Florists, Dumfries, proclaim in loud language their honour and respectability, and also the wide-spread nature of their dealings. We can only reiterate our former favourable commendations, and say to all who may be disposed to deal with the Firm, that they will, under all circumstances, be treated in all integrity and uprightness."—*The Field*, March 19, 1864.

BARR & SUGDEN
12 KING ST. COVENT GARDEN

Orders amounting to 21s. sent Carriage Paid.

NEW SEEDS FOR THE SALE OF 1865.

BARR & SUGDEN'S SELECTIONS OF VEGETABLE SEEDS

FOR ONE YEAR'S SUPPLY.

Suited to Gardens of various sizes. They contain the most approved varieties, and such only as are best adapted to secure a succession of Vegetables from January to December. The Seeds are all of the very best quality.

10s. 6d., 15s. 6d., 21s., 30s., 42s., 63s., 84s., 105s.

For particulars of these selections see our "Kitchen Garden Guide."

☞ *The Compendium of our "Illustrated Guides to Kitchen and Flower Garden" sent Free and Post Paid to each of our Customers.*

20,000 GLADIOLI, the most effective for Massing, and the best for Exhibition.

5000 LILIUMS, embracing the splendid L. LANCIFOLIUM, varieties RUBRUM, ROSEUM and ALBUM, and the magnificent and deliciously fragrant L. AURATUM.

BARR AND SUGDEN, SEED MERCHANTS and FLORISTS, 12, KING STREET, COVENT GARDEN, W.C.

HARDY, GREENHOUSE, STOVE PLANTS, AND SEEDS.

LOUIS VAN HOUTTE,

NURSERYMAN AND SEEDSMAN, GHENT, BELGIUM,

BEGS TO INFORM HIS CORRESPONDENTS THAT HIS

PRICE LISTS Nos. 103, 104, 105, AND 106,

ARE TO BE HAD AT

MESSRS. R. SILBERRAD AND SON, 5, HARP LANE, LONDON, E.C.

N.B. The Goods will be delivered free out of the Custom House in London, without any expense whatever to the buyer, but per contra 5s. will be charged in the account for each package.

The Seed Parcels are delivered free out of the Custom House in London, without any expense whatever to the buyer.

GENUINE SEEDS, CARRIAGE FREE.

B. S. WILLIAMS,

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.,

BEGS TO STATE THAT HIS

DESCRIPTIVE AND PRICED SEED CATALOGUE

CAN BE HAD POST FREE ON APPLICATION.

It Contains all Novelties worthy of notice, with a full description to each, and a few Hints for the guidance of Amateurs.

The following LIST of KITCHEN GARDEN SEEDS is worthy of notice; the prices are affixed as low as possible for the finest samples that could be procured:—

		s.	d.
PEAS.—SANGSTER'S No. 1, BISHOP'S NEW DWARF LONG-PODDED, ALLIANCE or EUGENE, BURBIDGE'S ECLIPSE, CHAMPION of ENGLAND, HARRISON'S GLORY and PERFECTION, MATCHLESS MARROW, WATERLOO, &c.	per quart	1	0
" AUVERGNE, DICKSON'S FAVOURITE, RISING SUN, BLUE SCIMITAR, RINGWOOD MARROW, &c.	per quart	0	10
" DILLISTONE'S PROLIFIC, BRITISH QUEEN, VEITCH'S PERFECTION, LORD RAGLAN, PRINCESS ROYAL, HAIR'S DWARF MAMMOTH, BUCKLEY'S GENERAL WYNDHAM, BECK'S GEM, CHAMPION of SCOTLAND, &c.	per quart	1	6
BEANS.—BROAD, &c.	per quart, 6d. &	0	8
" FRENCH	per quart	2	0
" SCARLET RUNNER	"	2	4
BORECOLE or KAIL, the best sorts	per oz.	0	4
BROCCOLI, WALCHEREN	"	1	3
" GRANGE'S WHITE CAPE, DALMENY PARK, DWARF RUSSIAN, LEE'S WHITE SPROUTING, SNOW'S SPRING WHITE, &c.	per oz.	0	9
" CHAPELL'S CREAM, DILCOCK'S BRIDE, KNIGHT'S PROTECTING, WATERLOO, WILCOVE, &c.	per oz.	0	8
" SNOW'S WINTER WHITE	per packet	1	0

		s.	d.
BRUSSELS SPROUTS	per oz.	0	6
CABBAGE, the best kinds	"	0	4
CARROT, "	"	0	3
CAULIFLOWER.—EARLY LONDON, &c.	"	1	0
CELERY, the best sorts	"	0	6
" WILLIAMS' MATCHLESS RED	per packet	1	6
CUCUMBER, the best sorts	"	1	0
LETTUCE, the best sorts	per oz.	0	6
MELON, " "	per packet	1	0
ONION, " "	per oz. 4d. &	0	6
PARSLEY " "	per oz.	0	3
PARSNIP.—HOLLOW CROWNED	"	0	3
" THE STUDENT	"	0	4
SAVOY CABBAGE	"	0	4
SPINACH.—PRICKLY or WINTER	per quart	0	8
" ROUND or SUMMER	"	0	10
RADISH.—TURNIP	"	2	6
" SHORT-TOP, &c.	"	2	6
TURNIP, the best kinds	per oz.	0	3
MUSTARD and CRESS	per quart	1	3

Mushroom Spawn, superior quality, 5s. per bushel.

Strong Asparagus and Seakale Roots.

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WILLIAM WOOD AND SON'S NEW DESCRIPTIVE CATALOGUE of SEEDS for 1865. COLLECTIONS of VEGETABLE SEEDS for ONE YEAR'S SUPPLY, 10s. 6d. to 3l. 3s. Woodlands Nursery, Maresfield, near Uckfield, Sussex.

First-class Seeds, Carriage Free.

WM. PAUL (Son and Successor to the late A. PAUL) begs to announce that his NEW PRICED CATALOGUE of SEEDS is now ready, and may be had on application, post free. N.B. Eight Prizes at the International Exhibition of the Royal Horticultural Society in December last, and nearly all the First Prizes at the Enfield and Waltham Abbey Horticultural Societies Shows were awarded to the produce of his Seeds. Waltham Cross, N.

Rhododendrons.

JOHN WATERER begs to announce that his New CATALOGUE of Hardy, Scarlet, and other Choice RHODODENDRONS, as exhibited by him at the Royal Botanic Gardens, Regent's Park, is now published, and can be had on application. It gives faithful descriptions of all the esteemed varieties, as well as a Select List of Hardy CONIFERS, with heights and prices; also the leading kinds of EVERGREENS, ROSES, FOREST TREES, &c. The American Nursery, Bagshot, Surrey, near Sunningdale Station, South-Western Railway.

American Plants.

AS EXHIBITED IN THE ROYAL HORTICULTURAL GARDENS, KENSINGTON. WATERER AND GODFREY'S PRICED and DESCRIPTIVE CATALOGUE of RHODODENDRONS and other AMERICAN PLANTS will be forwarded on application. The Catalogue also gives a General Summary of their Stock, which contains probably the most extensive choice of all the Hardy and finest Evergreens and Conifers. Knap Hill Nursery, Woking, Surrey.

Seeds, growth of 1864.

JOHN AND CHARLES LEE, SEEDSMEN to the QUEEN, beg respectfully to submit their NEW CATALOGUE for 1865 of KITCHEN GARDEN, FLOWER, and AGRICULTURAL SEEDS, containing Selections from the best Stocks at Home and Abroad, post free on application. Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

SUTTON'S NEW EARLY PEA RINGLEADER. The Earliest Pea in cultivation.

THE NEW PARSNIP "STUDENT."—SEED of this improved PARSNIP, "ennobled" by Professor BUCKMAN, late of the Royal Agricultural College, Cirencester, is now ready for delivery by Messrs. SUTTON & SONS, post free, 8d. per oz.; also Wholesale to the Trade. It can also be obtained from any of the leading Seedsmen. Royal Berks Seed Establishment, Reading.

Notice to Purchasers of Seeds.

SUTTON AND SONS having received several Orders for GARDEN SEEDS without the SIGNATURE or ADDRESS of the Sender, they fear inconvenience will be caused thereby, as they cannot possibly ascertain to whom the goods should be sent. As these omissions occur more or less every year, Messrs. SUTTON request their friends who do not receive their goods promptly to write without delay. Royal Berkshire Seed Establishment, Reading.

The Gardeners' Chronicle.

SATURDAY, JANUARY 28, 1865.

MEETINGS FOR THE ENSUING WEEK.

THURSDAY, Feb. 2—Linnean .. .. 8 P.M.
SATURDAY, " 4 { Royal Horticultural (Weekly Show), at South Kensington .. . .. 2 P.M.

A TRANSLATION has lately appeared in the *Annals of Natural History* of a very important memoir by Professor H. KARSTEN on the mode of FORMATION OF CELLS.* Two theories, more especially, have hitherto prevailed on the subject: the one that of MOHL, who considered that cell-formation took place by the intrusion of a fold from the mother cell wall dividing the included mass; the other that of SCHLEIDEN, who conceived that the nucleus which is so often present in young tissues where an active process of development is going forward, was the builder of the simple cell-wall, by effecting a transformation of the mucilaginous substance around it into a gelatinous envelope, which subsequently becomes the membranous wall.

The latter notion is now pretty generally exploded, as the formation of the nucleus does not always precede the formation of the new cell, as well as from other considerations, amongst which is the fact that the nucleus is often external to though combined with the new cell or cells; while with the former is combined an opinion, that free cell formation sometimes takes place without any interference of the mother cell wall.

An examination of the process of the formation of sporidia in the ascigerous Fungi is quite sufficient to show that free cell formation does take place, and some phenomena in the production of cells in gum, seem to indicate that free cell formation may occur in vegetable fluid still in connection with the plant, as it does in the animal kingdom in organisable lymph.

MOHL added a theory to his account of the formation of new cells by intrusion, which has not received much countenance, viz., that the new

* Histologische Untersuchungen. Mit drei Tafeln in Steindruck. 4to. Berlin. 1 Thlr. 20 Sgr.

cell is at first clothed by a delicate nitrogenous membrane, which he calls the primordial layer, and that this remains unchanged until cellulose membranes are deposited upon its outer and inner surfaces.

KARSTEN now comes forward with a statement that in every case the formation of cells is free, and that their septa, when in apposition with each other, arise from these confluent membranes, and not from any development of the wall of the mother cell.

After speaking of former observations he says, "I shall here endeavour again to prove that all cells of vegetable tissue, as far as observation has yet gone, originate as minute free vesicles within the fluid contents of previously existing cells, and attain their normal dimensions after undergoing many determinate chemical changes; and moreover, that the involution of the parent cell to form septa, as far as is yet made out, though it may accompany its multiplication, does not originate or cause it."

In support of this, he brings forward a variety of facts tending to show that the annular thickening of the cell wall in several Algæ, on which so much stress has been laid, never proceeds so far as to form a real closed dissepiment, or to divide a previous cell completely in two, though it may occasionally act as a ligature, causing a marked constriction.

His theory is far more simple than that of his predecessors, and for that reason more likely to be true; and we think that it is very clearly stated, and rests on very powerful arguments. He has not, however, depended entirely on Algæ, but has supported his views materially by the investigation of the corkcells formed on the cut surface of several plants, both endogenous and exogenous, as also in Zamia and Cycas. He seems, moreover, to disbelieve entirely in the notion of the organs which are called vacuoles being mere cavities in a common substance. According to our author they are really cells surrounded by a very delicate membrane.

It is impossible for us in this place to enter into any details as to arguments on which he supports his views, but they are so simple, and so consistent with what takes place in the embryo sac, that they bear at the first glance the appearance of truth, though some of his observations may not endure rigid criticism, any more than some of those which he has clearly overthrown.

One of the most curious observations he has made, and one in which he could not be well deceived, is that as to the behaviour of the contents of the cells of the common Cladophora glomerata, to be found in almost every brook, where a perfect joint is left between two which have been cut across. Free cells are formed or already exist in the sound joint, two of which are privileged, and expand into perfect cells. The upper one of these gives rise to new joints and branches continuing the growth upwards, while the lower one bursts through the old septum and the remaining endochrome in the wounded joint, and projects ultimately from the original cell wall, forming the radical end, and attaching itself to any object with which it may come in contact—sometimes to neighbouring threads of Confervæ. It thus presents a striking analogy to that of roots, as it is not covered with an extension of the original cuticle. It is singular that the proper membrane of this cell when attached, often branches out altogether independently of its contents. This lower cell never seems to give rise to a new cell. It will, however, be better to give the author's comment in his own words.

"The branch, therefore, is developed within and under cover of the original enveloping membrane of the entire plant, whilst, on the contrary, the organ which represents the root of the higher plants is not covered by this general integument, but so soon as it has emerged from the surrounding wall of the cut cell, continues to elongate itself in the water quite free and unclothed.

"We here find, therefore, in the development of these two physiologically different organs a similar phenomenon to that which obtains in compound plants; for all those parts of vascular plants which belong to the ascending axis are clothed during their development by the epidermis; whereas this covering is wanting to the root, whose divisions are invested with a layer of tissue analogous in many respects to cork, even at their growing extremities."

It is curious that the two new cells to which the joint gives rise should thus preserve their polarity. Prof. KARSTEN brings forward this observation to illustrate the fact that the radical end of the embryo in Phænogams is always turned towards the aperture of the ovule or micropyle by which the pollen tube enters. The pollen tube may be considered as the radical end of the germinating pollen grain, and by communication with the embryo sac to affect the polarity of the indifferent or neutral cell which is ultimately to give rise to the perfect embryo. It is very probable that impregnation in every case, both in the animal and vegetable kingdom, consists of some polarising process.

We have said above that out of several cells contained in a joint, a few only, whether two or more according to the nature of the plant, are developed. The rest are either completely absorbed, and supply nutriment for the nascent cells, or some traces of them are left between the mother cell wall and that of the new cell. Prof. KARSTEN brings forward some examples of this. An admirable illustration will be found in the genus Ascobolus, in some of those species (as for example in A. Kerverni) in which the sporidia are developed in a separate sac which fills up only a portion of the ascus, and where there is a great space between the sporidia and the mother-sac. *M. J. B.*

WHEN Mr. RIMMEL, Dr. PIESSE, and Mr. WARRICK were a few days ago delivering lectures on the history and manufacture of Perfumes to fashionable audiences in the large conservatory at South Kensington, there was a plant close by silently illustrating the subject in its own way. This plant, which as MOORE sings of the Jasmine—

> "Let the delicious secret out
> To every breeze,"

was the beautiful LUCULIA GRATISSIMA, which had been in full bloom for several weeks past in the position just referred to.

In the dull days of winter, when many of our trees are leafless and our flowers comparatively few; when even the Chrysanthemum has gone out of bloom, and the Camellia, the Azalea, and the Hyacinth have not yet come in, any plant which comes naturally into blossom has an especial value, and if its blossoms are sweet-scented, its value will, on this account, be very much enhanced. Such a plant is the charming Luculia gratissima. It produces its flowers in the depth of winter, the plant is highly ornamental in the conservatory, and the flowers are deliciously fragrant. When we take all these things into consideration, one is apt to wonder it is not more commonly cultivated in our greenhouses and conservatories. Perhaps the reason we see it so seldom may be, that it is not such a rapid grower as many of our ornamental plants are; and it is not every one, apparently, who can succeed in its management. But its requirements are simple enough, so that any one with a conservatory and a little patience, may easily have it in a high state of perfection.

Luculia gratissima is a native of the Nepal and Khasya hills, where the climate is temperate, being neither excessively warm in summer nor cold in winter. It is, therefore, not hardy in England, but it requires only the protection of a conservatory from which the frost is excluded. There is one peculiarity about it which it is of considerable importance to know, if we would wish to succeed in its cultivation, and so have it in its most perfect condition, and that is, that it requires plenty of pot room, or, what is better, should be planted out in the border of the conservatory. It appears to be easily injured by sudden changes of moisture or dryness at its roots, and hence it is very apt to get sickly when grown in a small flower pot. When planted out in the border, as we recommend, it escapes a danger of this kind, and as we shall have in this way studied its wants, it will be found to repay us with fine healthy foliage and abundant heads of blossom. We may add that it delights in a light loamy soil enriched with leaf-mould or other kinds of manure.

The Luculia belongs to an Order, the Cinchonaceæ, which contains a number of plants remarkable for the beauty or fragrance of their flowers, and unsurpassed in the vegetable kingdom. As a proof of this we may name the Gardenia, Ixora, Bouvardia, Cinchona, and Manettia, and there are many others of equal merit.

In our enthusiasm about new plants we are sometimes apt to overlook the good old ones. On this account we have thought it might prove useful to draw attention to the charming Luculia gratissima as a valuable ornament for the conservatory during the winter months.

—— WE regret to have to record the death of Mr. CONRAD LODDIGES, which took place at his house at Hackney, after a week's illness, on the 20th inst. Mr. LODDIGES was in the prime of life, and though he has for some time ceased to take any very active part in Horticultural pursuits, yet from his connection with the once world-renowned establishment which owed its origin to a progenitor bearing the same name, the sad intelligence must arouse the sympathies of those who had no personal knowledge of the deceased gentleman, and his many excellent qualities. To quote a local contemporary:—"One of Nature's nobility himself, and descending from an ancestry of which he might well be proud, Mr. CONRAD LODDIGES lived in the warmest affections and most devoted attachment of all who knew him."

—— It will be remembered by those who have made use of the Chiswick reports, that the term MARBLED PELARGONIUMS has been applied to one of the sections of zonal varieties of that flower. The group thus indicated, which is marked generally by the pale green centre of its leaves breaking outwards in irregular blocks or marbly patches, and by the pallid colour of the footstalks of the leaves and flower trusses, and also of the stems, and which is well represented by the variety called Sheen Rival, appears to deserve more attention than has yet been accorded to it, and this we are glad to find it is now receiving at the hands of Mr. HALLY, of Blackheath, by whom we have been furnished with examples of some three or four novel kinds which he is cultivating under the name of Winter Variegated Pelargoniums.

Mr. HALLY remarks of the Pelargoniums belonging to this section, that contrary to the usual races of Variegated Pelargoniums, instead of losing their colour in the winter they become brighter and more effective, and it is to the development of this character that his efforts are now being directed. The lighter tints, he remarks, instead of being in these cases on the outside or margin of the leaf, occupy the centre, and form a paler-coloured star running out more or less into the zone, and where this happens, revealing the bright red tints, to which, however deep it may appear when blended with the deeper green portions, the zone is in reality owing. As there is only a partial instead of a total absence of chlorophyll in the discoloured parts, they are very hardy and vigorous in constitution; and at this season, while most other variegated kinds are out of condition, these are in their best dress, and very pretty as decorative plants for the conservatory. It is added that they are admirably adapted for winter bouquets.

The new varieties which Mr. HALLY has forwarded, are called Monitor, Marie, President, and Prince Arthur, the first perhaps being the best, if the specimens before us are fair illustrations of the general appearance of their foliage respectively, for in this the pale yellow green of the centre is well marked, and there is a good deal of red evident in the zone. In their present state they are not to be compared with the Mrs. Pollocks, the Lucy Grieves, and the Lady Cullums of the golden tricolor-leaved series, but they make a pretty variety, and we think give promise of a considerable increase of brightness if their breeding and selection is well followed up. Given this zonate marbled series as a basis, we see no reason why the hybridist should not realise leaves with a clearer yellow centre, a brighter red zone, and a deep green margin; and such would contrast well with the varieties we already possess.

We may mention that the varieties having this pale-green marbled centre to their leaves, though usually zonate, are not always so, for in the Chiswick collection we remember to have seen one called Dayspring in which it was entirely wanting; and though doubtless those with a red zone are to be preferred, especially in the prospect of securing its increased brightness, yet the leaves of this Dayspring had a very pretty and very distinct appearance.

Mr. HALLY has communicated a further memorandum, in which he remarks:—"I have observed as a rule in variegated plants, that in those cases where the variegations of the leaf consist of a lighter colour (never quite white), proceeding from the centre, the light colour—or rather want of colour, is continued in stripes down the outer side of the leaf-stalk, and diffuses itself on the outer side of the alburnum, giving a delicate tinge to the young stem. Some of the new golden-blotched Japan Euonymuses are good examples of this. On the other hand, those with light (generally white) edged leaves, have the stripe carried down the inner channels of the stalk, where it may be traced through the alburnum to the edge of the pith, but never altering the colour of the stem. Can this be owing to the existence of two different sets of chlorophyll cells, either set respectively, becoming partly or wholly obstructed or paralysed?"

FILLING FLOWER BEDS IN WINTER.

ALLOW me to claim space for a few remarks bearing on an article on this subject by Mr. Thomson, of Dalkeith, in your last number (p. 51). Much to my regret I was from home the afternoon on which Mr. Thomson called here, and the gardener having only been one year with us, Mr. Thomson was thus led into making the following mistake in his notice of our winter garden, viz., that it had "been for years furnished with dwarf shrubs at an annual cost of some 50*l.* or 60*l.*"

Those who will take the trouble to refer to my

article on Winter Flower Gardening, in Nos. 6 and 7 of your volume for 1863, will see that the original outlay, 16 years ago, was what we considered "very considerable," viz., from 18*l.* to 20*l.*, but that was a first and last experiment. Our present system requires "a few shillings, not yearly." This season we have been extravagant, and spent between 2*l.* and 3*l.* in some new cheap evergreens, for the sake of experiment and variety, but this was not necessary. It would take above 70*l.* to fill our beds in the style recommended in Nos. 48 and 49 of your Volume for 1862. So much for the expense of our winter garden.

Owing to our now having a larger stock of self-saved seed, and last summer, so trying for many plants, having kept the Cabbages from growing rank and coarse, our beds are better than they ever have been, and are pronounced a success by all who have seen them. I hope, however, to improve them still further next season.

Enclosed is a notice by Mr. McNab, of the Royal Botanic Garden, which gives further details of the varieties of Kail employed. He says:—

"It is perhaps not generally known that a member of the Cabbage family can be turned to good account for the winter decoration of flower gardens. The varieties of German Greens are now endless, varying from pure white, through every shade to dark purple, almost approaching black, and running through every tint of pink and green, many of the varieties being beautifully edged, and deeply indented. The crimped margins of the white varieties are delicately laced with green, red, and pink; while the pink varieties are edged with green, white, and dark purple. Others, evidently crosses between the German Greens and the Savoy, have their outer leaves green, while the inner ones run through every shade from a dark purplish pink to a light centre, giving them the appearance of huge Roses. Miss Hope, of Wardie Lodge, has the merit of being the first in Scotland to apply coloured Greens for garden decoration, and perhaps in no garden at the present day is winter garden decoration carried to such an extent. It may be stated that the coloured Greens are sown and treated like ordinary winter German Greens and Savoys, and when sufficiently strong are planted out in the open field, where they keep dwarf. It is of the utmost consequence that the plants be cultivated in an open airy place, so as to prevent them being drawn up, their greatest beauty being in the dwarf compact state. After the summer flower borders become disfigured by the autumnal frosts, the beds are cleared and prepared, and then planted with the coloured Greens, arranged so as to give an artistic effect to each clump or bed. Some of the beds have the outer circle of the plants white, next light, then dark pink, and centred with dark purple; while others have the outer rows dark, and gradually lightening to white centres. The collection of these Posy Greens, as arranged in Miss Hope's garden at Wardie, is well worthy of a visit, and few cultivators will go without profiting by it. The coloured Greens are very hardy, and will keep the flower-pots gay during four or five of the winter months, and can be removed in time to receive their summer occupants of Scarlet Pelargoniums, Verbenas, &c. Various plants have been tried to give the flower garden an attractive look during winter, but nothing up to this time, for simplicity and cheapness, can surpass the Posy Greens. It may be stated that when the time arrives for the removal of the coloured Greens, the finest varieties should be selected for seed-bearing plants. Such plants should be put at the base of a wall, where they will perfect their flowers and ripen their seed. Care, however, should be taken to cover them with a net while the seed is maturing, to prevent the seeds being carried off by birds. It is not necessary that each variety be kept apart, as the greater are the chances of new varieties being produced by having them together while in flower. Those not required for seed can be usefully employed for feeding cattle."

Economy and cheapness are indispensable if a system is to be popular. I hope to live to see our public parks and gardens no longer the deserted places they are at present in winter. That "there is nothing to see, and the walks are damp," are the reasons given for avoiding them; but to see the false, untrue taste for "chromatic gardens" increase and spread among us, every true lover of Nature will deprecate. The argument in favour of that style that has always been used to me and considered unanswerable, is, that in winter you can have no colour, save that produced by different tinted gravels and cinders. The Kails do away with this argument. I own it requires a much higher grade of observation and cultivation of the eye and taste to find pleasure in form rather than in colour, but I maintain that for one person who will be found in our public gardens admiring and studying the various and graceful groups of Conifers, there will be a hundred who will, with greater delight, stand enjoying a blaze of Crocuses, Pæonies, Verbenas, or Kails. It is by colour alone we can, at first at least, attract the non-gardening masses.

Why should Battersea and Kensington give delight to thousands, and elevate and purify their tastes, and bring them out of their houses only in summer? The triumph of skill and knowledge, as displayed in the sub-tropical beds at Battersea, is not required for the growth of the Brassica tribe in its endless variety and beauty of forms and colour, and what wholesome pleasure it would give to those who cannot have a sight of the country all winter, to have living growing plants to admire in their own public Parks and Gardens at that so-called "dead season."

For the sake of all let a true love of a garden be encouraged, more particularly among the young in our towns and cities. The town child cannot have Daisies and Buttercups, Heather and Gale, but it need not have man's bricks, cinders, and glass in its gardens, and may have Nature's handiwork to look upon there even in winter.

I leave alone all the present writing and talking for and against the bedding-out system, the old-fashioned botanical and herbaceous border, the subtropical plants, &c. It is well there are such varieties of taste; let us all please ourselves in what we grow. I care not whether it be Mosses or Palms, Bulbs or forest trees, flowers or foliage that are cultivated and preferred, only, I say, let us have real plants to work amongst; only let us in "trim gardens (not brickeries) take our pleasure," and if possible, keep Truth in them, and not merely in "our wells." *F. J. H., Wardie Lodge, Edinburgh.*

NOTES ON GARDENS.—No. XXVII.

THE DUBLIN PHŒNIX PARK AND ITS GARDENS.

(Continued from p. 53.)

THE garden of the Viceregal establishment is, of course, the Frogmore of the Green Isle; and naturally one would expect from this premise that forcing and all its concomitants must be seen in it in a high degree of perfection. The largest expectations would not be disappointed, for it is a really great fruit-growing garden, and scarcely less inferior for its plant-growing, considering that money is not granted for the purchase of plants rare or valuable, and that the Superintendent himself has to purchase novelties and young plants when he wants to add to his exhibition groups. This, of course, precludes the cultivation of Orchids, or expensive plants to any extent, but their absence is well compensated for by fine and numerous examples of soft-wooded plants generally, greenhouse and stove plants, and most others that can be obtained at a reasonable rate when young. A long look round here could not but afford interest and instruction well worth recording, but having "gone in" for a thorough overhaul of Messrs. Bain & Moore's domains I had little more than an hour to spend with Mr. G. Smith, the very able gardener to his Excellency; and this, of course, was spent upon the most salient points.

The chief sight in the Viceregal Gardens is not afforded by the flower garden or ornamental department, but by a curvilinear range about 500 feet long, and by ribbon borders in front running 100 feet longer still, in a straight line. A very wide border in front of this long range was planted with popular bedding plants in simple straight lines rather far apart, so that each line was quite definite for the 600 feet. Then a wide walk, and then another immense ribbon border, with the plants gradually rising to hide out the culinary aspects. The visitor is introduced to this scene from its western end, and, as will readily be imagined, the effect is very gorgeous. When people first see it they are delighted, though of necessity the interest is not lasting. These borders have been for some years the wonder of most Irish bedding-out people. A Connaught gardener would pronounce them "splindid;" a Hielandman who had not seen on his way some of the great bedding places, would no doubt ejaculate—"Ah, man, it's fine!" Hundreds of Englishmen would expatiate learnedly on "the bringing out of the colours," &c.; and most of us on first seeing such a display would feel equally enamoured of it; but, brilliant as the system is, and much though the skill and labour expended on it be, I cannot but think that a change to a higher and truer style of garden decoration must soon take root and grow rapidly; for we can no more find real pleasure in a garden displaying countless numbers of very few individual species, than we could in a museum arranged on a similar plan, a picture gallery with the pictures all alike, or a country with hills and vales, all, or nearly all, of one pattern. Mr. Smith deserves great credit for having brought this bedding and ribbon system to so high a degree of perfection in the Phœnix Park, and there can be no doubt but that, if another mode of arrangement were adopted by him, it would be equally well developed.

The fine range of houses fronted by these borders have nearly all undergone a great improvement, *i. e.*, having the back wall taken back 6 feet, the old roof being left as formerly, supported on pillars, and connected with the now lower back wall by a hipped roof, in which the ventilators are fixed. This of course throws abundance of light into the houses, gives more efficient means for ventilation, and a great deal of additional space for plant-growing. When this improvement is effected throughout the range, it will probably be second to but one other string of forcing-houses in existence.

Vines occupied almost every house in this range, and suspended abundant crops of the finest fruit, sufficiently plentiful indeed to make one wonder how one establishment could ever consume it. One house reminded me of that which shelters the great Vine at Hampton Court. In it were 500 bunches of Grapes, weighing from ½ to 1½ lb., all the produce of a single Vine about 10 years old, which now fills two-thirds of the house—70 feet long, will soon fill it altogether, and if it shows a disposition to do more, Mr. Smith can easily knock out a partition and let it go ahead. This Vine enters the house at one end, is trained longitudinally, 7 rods pruned on the close spur system, filling the house from front to back. The roots feed both in inner and outer borders, and have, like the rods, been conducted lengthways along the border.

Hall and room decoration forms a chief item in the Viceregal gardener's duties, and in the great range were many indications of this. Among them were many score fine plants of Dracæna terminalis—not the finely coloured plant usually known by that name, but a much more graceful and free-growing plant, which does well in the large vineries, and is a most valuable plant for room decoration on a great scale. For the same purpose Russellia juncea is grown, and surely nothing could make a more suitable drawing-room plant.

A curvilinear range for Peach culture, 220 feet long; half a dozen plant houses, finely filled; plentiful accommodation for the smaller branches of forcing, Melon culture, &c., make up the remainder of the glass department. To the contents of one or two of these houses I shall now allude.

Pelargoniums are shown in London about three feet in diameter; they are annually exhibited in Dublin by Mr. Smith between five and six feet across, full of bloom, and of the most perfect symmetry, without a stake. How he produces these plants, which must be well remembered by all who have seen the Dublin shows, Mr. Smith has been kind enough to inform me:—"We start in March with a cutting, strike in bottom heat, pick out the point, leaving about three joints over the surface, grow on, freely shifting as required, and keep topping at every two or three joints. As the plants get large the shoots are drawn down to a string passed round the rim of the pot. When they get larger still, two sticks are laid across the pot at right angles, stretching some distance from the rim; these being tied firmly to a string under the rim, a hoop of galvanised wire is attached to the sticks at a distance of 3 or 4 inches from the rim, and to this the shoots are tied down till the plant again gets too large to be tied to the hoop, when another is added further out still, and this the plant completely covers before blooming time." It looks then as if untrammeled by a tie, as these are never attached to the flower stems as at the London Shows, kinds being selected which, when grown in light, airy, and suitable houses, will support erect their own heads of bloom. To form a plant 5 to 6 feet through, the stopping process is carried on to the third summer, and the plant grown away the whole time. The old plants this year were managed thus:—"After flowering they were slightly cut in at once without being subjected to the usual drying and resting process. They of course retained a large amount of healthy foliage, were shaken out and very carefully repotted, kept in a gentle moist heat and shaded for about three weeks, and then gradually inured to light and air. The foliage held its place, and the plants started at once into vigorous growth. Denser heads of bloom can be got in this way than from young plants, though the latter are the most robust and healthy." The plants in 10-inch pots were 4 to 5 feet in diameter; in pots a size larger from 5 to 6 feet. I have seen most of the Pelargoniums shown in London during the past three years, but the very largest and best even of those shown were for size much inferior to Mr. Smith's plants, and hence my reason for dilating on a subject which many exhibitors no doubt think exhausted. The fancy Pelargoniums, though well grown, were not nearly as fine as those sent to the London shows.

The culinary garden in which all these houses are situated, is divided by high walls into three compartments; and both walls and gardens exhibited the best management. For the rougher vegetables there is another garden in a distant part of the demesne.

A rather lofty stove possessed more than usual interest from showing many Bananas full of the finest fruit, but more still from being half filled with a plant of Bougainvillea glabra, which, planted in the bed of the stove, had run up with a stem several inches in diameter to the top of the house, and there flowered in the greatest profusion. I could see many hundred twigs of bracts, but the sight as seen from the roof by a glazier must have been among those that are generally left to the imagination. It is worth recording that among the other well appointed garden offices seen, quite a respectable building for the accommodation of the young men was a noticeable feature—a good example in a place of great influence.

The flower garden proper (not at all so flowery however as the space in front of the great range in the culinary garden) is on the west side of the mansion (which by-the-by commands grand mountain views), and is 4 acres in extent, oblong in outline, and surrounded by a stone balustrade. It is merely divided into great squares by straight walks, with oblong beds filled with bedding plants along the sides of these, and plenty of Irish Yews (which do so well in the neighbourhood of Dublin that one would think "native air" was essential to their health) along the walks, except on the side next the Park; yet the effect of this garden was most graceful and dignified from the wide breadths of verdant turf and the nearly due proportioning of colour. In this garden were two Wellingtonias—one

planted by her Majesty and the other by the late Prince Consort: the last he planted I believe. There are Oaks and other trees in the grounds planted by her Majesty and other members of the Royal family. Nothing could be more creditable than the perfect keeping of this flower garden and indeed of all parts of the establishment.

To the north of the flower garden is the "wild garden," half pleasure ground, half wilderness, and in this is a little monument of peculiar interest. When Lord St. Germans left in 1855, each of his family planted a tree. The one planted by Lady St. Germans (Pinus insignis) soon died, and her ladyship's death occurring about the same time, the peculiarity of the circumstance induced Lord Carlisle to erect a little memorial on the spot where the Pine had perished, with the following inscription—

"Poor tree! a gentle mistress placed thee here,
To be the glory of the glade around.
Thy life has not survived one fleeting year,
And she too sleeps beneath another mound.

But mark what diff'ring terms your fates allow!
Though like the period of your swift decay,
Thine are the sapless root and wither'd bough,
Hers the green memory and immortal day."

These lines are now, unhappily for all those connected with the late Earl's establishment, a touching memorial of the writer too; but his rule in Ireland has left a deeper impression than any memorial could convey, for he was universally popular, and by none more loved or esteemed than by those most intimately connected with the Viceregal establishment and the Phœnix Park. *William Robinson.*

ORCHIDS AND THEIR CULTIVATION.—No. III.

ALL exotic Orchids, whether epiphytal or terrestrial, when caged up in an artificial structure, and subjected to an atmosphere somewhat foreign to their nature, even when best imitated, require more or less shade from a scorching sun. The very plants that will thrive under a variety of circumstances in the countries where they are indigenous, might succumb to similar treatment here. It is well enough to know—indeed such information is most valuable—the range of temperature, the degree of moisture, the exposure, whether shady or open, of all plants under cultivation; but it is not so desirable for growers to imitate to the very letter the precise habitat. For example, there are periods of drought and periods of deluge which occur in all tropical countries. In our systematic way of treatment we never attempt to produce so great variation, either as to moisture or drought, as even takes place in our own temperate climate. True, we are guided in a great measure, and we ought to be, by maximum heat during a season of growth, and minimum heat during a season of rest; but were we to hazard extremes, either one way or another, in our artificial climate, it would be at the expense of the health of the plant.

Again, there are some epiphytes which, doubtless, are growing in their native country pretty much exposed to sun heat, as witness for example, R. H.'s allusion (1864, p. 1061) to Broughtonia sanguinea and some other species not named, which grow in Jamaica, "exposed to the light and heat of the sun." Bring these home however, tie them upon blocks, get them as well established as possible before you suspend them close to the glass, in the face of a full meridian sun, in the months of June, July, and August—and what is the consequence? Evaporation goes on so rapidly from the leaves and pseudobulbs, that your artificial climate fails to provide the necessary food for assimilation, the leaves get scorched, and, if not, the chlorophyll is all but burned out of them, the plant sickens, and unless remedial measures be resorted to it may die. Growers of experience will never treat them so. Of course they tie them on blocks and hang them close to the glass, but they also take the precaution to shade them during summer for at least a few hours in the day. Such is my practice, and they grow and bloom successfully. Seedling Orchids, like other plants propagated in the same way, are never exactly similar to one another; and it may be well to be explicit, and disabuse the minds of those who are apt to suppose that mere locality and exposure has such a wonderful effect upon colour as some would lead us to believe. In our collection of Broughtonias we have them varying from a bright copper to a rich claret colour. This is a natural phenomenon, which those who buy half a dozen of imported plants can see for themselves. Not that I am ignoring the effects of light on colour, but it must not be accompanied by the influence of direct sun rays, else even the bright claret, which is the fastest of all the shades of Broughtonia flowers, will quickly lose its lustre. Most epiphytal Orchids do require light, and light in abundance; but some slight screen must intervene between the sun and the plants that are grown under a glass covering, the reason for which must be obvious to the merest tyro in horticultural art.

Prudence suggests, in basing any calculations on reliable data as to habitats, that the grower should act with some degree of caution; for, as we have already signified, it is possible to either over do, or fall short of any particular system of management. Generally speaking, light is of great importance to the well-being of many valuable Orchids—even the powerful light of summer. The moment, however, the sun makes its appearance, if high in the firmament, shading of some sort is essential. But when we come to the dull short days of winter, the importance of light cannot be too highly estimated. It is the first requisite for promoting the health, and ministering to the flowering tendency of plants of every description. It is the gardener's first outcry, and it should be the architect's first consideration. This is why I have some objection to Hartley's rough plate glass for Orchid houses during winter. The numerous corrugations over the surface disturb the action of light; and anything that has a tendency to modify light during wintry days, tells against the constitution of the plants. Houses that are glazed with this description of glass would require to be so low that the plants would not be more than from 6 to 12 inches from the roof. In fact it is observable, in dull foggy weather, that flowers are affected, in duration of bloom, under glass even of the finest transparency, which is dead proof against glass of an opaque nature. I would also object to double-glazed houses on the same plea. There is, no doubt, all the benefits accruing therefrom that Mr. Bewley notifies in his paper read before the British Association at Newcastle-on-Tyne, as to economy of heat, natural dispersion of moisture on the plants during night, and freedom from drip; but there is always the proportionate seclusion from light at a time when it is most wanted, that is not sufficiently counterbalanced by all the other advantages to be derived. The remedy for drip, so to speak, is in one's own hands, and the proper dispersion of moisture, in well managed houses cannot be complained of; a little more money will provide the necessary fuel, but no human power can augment the light. Any reasonable suggestion that is likely to prove advantageous to the cultivation of Orchids should never stand unaccomplished for the sake of a few pounds extra expenditure; because they are a class of plants that grow fast into money, if under judicious management, but they retrograde in value much faster than they grow if neglected. As the maturation of the wood of the Vine, and other fruits, is one of the main conditions for ensuring a crop of fruit, and maintaining a sound constitution, so is the proper ripening of the pseudobulbs of Orchids essential to the development of flowers and the health of the plants. Of course this implies that a proper mode of treatment has been conducted all through, for to be successful with the cultivation of plants they must not at any time be too much exposed to sufferance or surfeit.

That the class of plants we are treating of will stand more fatigue than any other order is beyond question, but that is no reason why any grower should torture them so unnecessarily, seeing that it may take years to put them into vigorous growth again. That is why I wish to lay down, as a principle, what I consider the best medium for promoting healthful action of the plant, in all its stages. Light, then, forms an important element in contributing towards success; therefore the less obstacle to its diffusion the better, more especially for established plants.

Plants, however, that are in a dried-up state, such as those imported, and any that are sickly in collections, recover all the sooner under subdued light. It would be impossible to conceive a better medium than a double-glazed house for these infirm patients; for the light would not be too strong in winter, and were it so in summer a partial shading could be put up. In such a house the air would be a great deal more motionless, the system of the plants would undergo less fatigue, by means of subdued evaporation and absorption, and health would more rapidly follow. In these days, when imported plants form the staple of trade and auction sales, something of this kind would be very desirable for more quickly plumping up the shrivelled substanceless pseudobulbs and leaves—a desideratum which I have always found it judicious to aim at effecting as speedily as possible.

One of the duties the cultivator has to observe in the annual routine of a plant's career—for by far the largest number of species only produce their blossoms once a year, and, if under systematic treatment, will come into bloom year by year as regularly as our national holidays come round—is the length of time that shade is necessary for certain kinds of plants. Such as Saccolabiums, Phalænopsids, and Vandas of sorts, delight in shade during the growing season, from seven o'clock in the morning to seven o'clock at night; or, more correctly speaking, for three months in the year, if the sun be brilliant, and proportionately so in the beginning and latter end of the season. Others, again, such as Cattleyas, Lycastes, Odontoglossums, &c., would be positively injured by such treatment, their leaves and pseudobulbs would be elongated without being properly consolidated, and consequently they could not yield such an array of flowers, and of such character, as those that underwent greatly modified treatment. That they require shade, and would suffer without it for so many hours of the day, we willingly concede, but not to the extent that is sometimes adopted. So long as plants are not actually scorched, even although the leaves become pale green, if they do not shrivel from the effects of strong light, all is well; for they are not half so subject to decay and spot during autumn and winter, and then the leaves regain a colour of the deepest green.

To sum up, it may be averred that no Orchid will live and thrive in the home we provide for it without shading from sunlight, either in a greater or less degree, according to the nature of the plant; and no plant is more impatient of shade during a season of rest, and in dull dark weather during the height of growth. This assertion, if correct, demonstrates beyond doubt the propriety of using the most transparent glass at command, so as to have light in abundance when light is required. The more glass we can have in any erection, the more suitable for the plants under culture, as it is an easy matter to roll up and down canvas, as circumstances demand. The system of shading, in use in some places on the Continent, is a lattice-work of wood, like an open gangway, which throws the rays of the sun obliquely on the glass, and does not darken the interior of the house so much as thick cotton cloth; but as it is a permanent covering during the summer months, I would hesitate to recommend it. *James Anderson, Meadowbank.*

Home Correspondence.

Winter Decoration of Flower Gardens.—I can almost imagine the impression made on Mr. Thomson on seeing the flower garden he speaks of at p. 51, planted with Kail, and from what I have myself seen, I feel sure that the sight would be a pleasing one. The late Mr. Duncan (gr. to Lord Wharncliffe, at Wortley Hall, Sheffield) was passionately fond of winter planting of the flower garden, and as soon as the victims of John Frost were cleared away, the principal flower garden, which is situated in front of the mansion, was immediately filled with the following plants, viz.:—Golden and other Yews, Variegated and other Hollies, Aucuba japonica, Santolina, or Cotton Lavender, &c. The varieties of plants used were not many, but with judicious arrangement they made a beautiful display during the dull months of winter, and I think I can say, without being ostentatious, that this attempt at decoration surpassed all that I have seen done in the same direction in other quarters. In the autumn of 1862 Mr. Duncan had the basin emptied in connection with a fountain, which is situated about the centre of the garden, and having erected a stage to the required height on which to place soil, some of the different coloured Kails were planted so as to have a gradual fall from the centre to the outside. The prominent position of this bed, together with the surrounding walks being of a reddish colour, increased the effect produced by it, and from the furthest point of sight this bed was most conspicuous. It was most amusing to hear the various conjectures of visitors as to what sort of plants it consisted of. How great, it may be imagined was their astonishment when they got near enough, to find that it was nothing more nor less than Kail! What, therefore, shall we say respecting a whole flower garden thus planted. It certainly may be considered a bold step to introduce the Cabbage tribe into the pleasure grounds; still the sight is doubtless a gorgeous one, especially when viewed from a distance. The plan of growing them in poor soil (as Mr. Thomson has stated) is good; it will help them to maintain their colour, and should they get too robust, a cut round their roots with a spade will check growth and cause them to lift better when required for planting. *W. P. R., The Gardens, Shrubland Park.*

Culture of Anæctochili.—No plants with which I am acquainted are more deserving of attention than these, or have greater beauty of foliage. I am afraid, however, that they are not generally well managed. I am nevertheless convinced that they may be grown well, provided right means are employed for that purpose, for my experience is that the older they get the stronger they grow. I find them to do well under the following treatment:—Commence potting them in March, but never earlier. The compost which I use is equal quantities of chopped Sphagnum, silver sand, peat or Cocoa-nut refuse. I place them singly in thumb-pots with plenty of drainage; then I set them in shallow pans and fill up between the pots with live Sphagnum, putting a bell-glass over them, tilted so as to admit air, and keeping the glass as clean and dry as possible in order to prevent them from damping, an evil to which they are very liable if not properly attended to. I then place them in the East Indian Orchid house, where they get plenty of heat and moisture, setting them near the glass, where they can have abundance of light but no sun. I give them plenty of water during the growing season, but in winter only just enough to keep them fresh. If they are kept too wet they are, as I have already said, liable to damp; and if you allow them to get too dry they are apt to shrivel or lose their foliage, and when that happens it takes a long time to get them right again. I find keeping them as nearly dormant as possible to be the best way to save them, and they look as well in winter as in summer. The foliage should never be wetted more than can be avoided, as it renders the surface of the leaf dim, and injures the plants. If all has gone on well, by next March they will be strong plants. I then cut them off just below the first root, and pot them as before, leaving the bottom part untouched; it then soon pushes one or more growths, which are removed and potted not later than July, as I find the better established they are before winter the less trouble they cause. To show what this treatment can accomplish, permit me to give the sizes of a few of the plants I possess:—A. Lowii has leaves 5 inches long, and

3 inches wide; Lobbii has leaves 3 inches long and 2 wide, seven and eight on a plant; petola, which is one of the finest, has from 10 to 12 beautiful leaves on one plant, 8 and 9 inches high; xanthophyllus I have very fine, also a variety of Lowii, and several others. *E. Mitchell, Gr. to R. F. Ainsworth, Esq., M.D., Lower Broughton, Manchester.*

Strawberries.—I am told that in gambling houses the croupier rolls a ball, and cries, "Now, gentlemen, make your game while the ball is rolling." An article on Strawberries acts on the nervous system much in the same way, and bestirs gentlemen to make their game. The time for planting Strawberries in spring—the best time here, will soon arrive. February, March, April, or May will do when the weather is open and the ground in good condition. If runners can be obtained in June, or early in July, of sorts that root quickly, and that make crowns speedily, they will produce a good crop the first season. Plants with balls of earth attached to them, obtained from nurserymen in the autumn, will also succeed, and yield a good crop the next season. I received in August from Mr. Turner 50 plants of Sir J. Paxton, in pots, fine plants; and 100 plants without balls, quite as fine; but the latter are now very inferior to the former. I advise purchasers to pay a little more for plants and carriage, and to have them in pots. August is often too hot for plants without balls, and September, here at least, is too late for next year's satisfactory cropping. All Strawberry plants that winter badly, or are spring-planted here, are disfruited and deprived of runners—at any rate till they become strong; after a year's rest they become fine plants, crop well, and last long. Two or three crops may then be taken, seldom more. In the first place let me name a few of the best kinds of Strawberries, suitable only to first-class loams, unctuous, deep, and well drained. Foremost is still British Queen, which hates chalk, but does well in rich stiff clay, the stiffer the better. Then come Carolina Superba, Filbert Pine, La Constante, Myatt's Pine Apple, and Crimson Queen. The last, I believe to be more easily grown than any of the others previously named. It came out as Myatt's No. 3. My friend, Mr. Adolphus Kent, of Blechingley, lately spoke of it in high terms to me. It is of no use whatever to put these into land of an inferior quality, with any amount of manure. They may now and then succeed, but failures will be more frequent than successes. Therefore I propose to name, secondly, for the public at large, other Strawberries, which in their way are all, more or less, first-class varieties, and which being growable with good cultivation and sure bearers, are, therefore, nationally the most valuable. Let beginners, therefore, select those, or choose from those to which I have prefixed an asterisk. Among early sorts, I would recommend *Alice Maude, Eclipse, and President. Strawberries that come in before these, are here uneatable. Let Mid-season sorts be *Rivers' Eliza, *Empress Eugenie. Later kinds may consist of *Wonderful, and later still, Boisselot's Seedling No. 1. called La Vineuse. I am always pleased to speak well of a foreign Strawberry when I can. This is a very nice Strawberry, and possesses an iron constitution. It is sweet, level in berry, and has cropped heavily two years in succession. Sometimes it is earlier and sometimes later than the Frogmore Pine. Last year it preceded them; so I put the *Frogmore Pine a little later still. This is, I think, a wonderful production. It has superseded entirely all other late Strawberries that have any pretension to constitution. Out of gratitude, therefore, I must ask permission to subscribe to the Ingram Testimonial. [Hear, hear!] I like the Frogmore Pine better than any other Strawberry here except the Royal Hautbois. White or rather amber-white and latish is *Bicton Pine, still the best Chilian, the best white, and very valuable. I have cropped heavily last summer two other Chilians, viz., Lucie and La Belle de Croncels, but I have thrown them away; the last is the best of the two, but they are not equal to, or even near to, Wonderful and Eliza. Of Hautbois, *Rivers' Royal Hautbois, a great cropper, sure, early mid-season and late. It is by far the best of all the Hautbois tribes that I have ever had. For beauty of plant and high flavour, but very small berries, the Black Hautbois is the best. Taken at all points, however, the Royal Hautbois is, perhaps, the best, and its parent, Belle Bordelaise, is the next best to have. Of Alpines, *the Old Red and White are favourites with me. Blanche d'Orleans is said to be larger than the Old White; but probably this arises from its being more recently raised from seed. Of Strawberries for preserving whole I would choose *Elton Pine and Oscar; they are very firm and well coloured sorts. *Sanspareil and Marguerite would do well for jam, for which I use the final picks of the different beds of Eliza and others. Strawberries for forcing might consist of Alice Maude, *Keens' Seedling, and Lecoq Pine. The last is the largest in berry, the heaviest cropper, and best flavoured (highly Pined) forced Strawberry with which I am acquainted. It has two peculiarities, viz., it has the stoutest fruit stems of all Strawberries, and it retains (an unusual thing) its high Pine flavour in the forcing house. Out of doors here its flavour was medicated rather than Pined. I sent it to Mr. Sturt's, at Critchill, where I tasted it under glass. There was a very fine crop of Keens' Seedling alongside of it, but they were not so abundant, nor so large or good, nor did their stalks hold up their crop so well. Try a few plants of Lecoq under glass, and do not water the plants after the fruit colours, and you will get the high Pine flavour, which some Pined Strawberries lose under glass. The berries that I tasted at Critchill were somewhat dried, and had their calices reflected. I have no glass. My Strawberry plants of all ages out of doors, slightly protected with leaves (but not muffled up so as to soften the crowns), were never finer. I may add that the two best novelties partially tried here last season, both very good, were John Powell and Lord Clyde, not yet let out. I have now removed the leaves, as, in case of genial weather, the plants would be drawn out into premature bloom. *W. F. Radclyffe, Rushton, near Blandford, Dorset.*

The Barbarossa Vine on its own Roots.—The subject of Vine grafting is now being treated in a way and at a time that must prove useful to Vine growers. Mr. Thomson has alluded to this matter with a practical freshness that deserves our best thanks, and from him we look for still more valuable results in the same direction. Speaking of the Barbarossa grafted, one of your correspondents states that the Grapes on an ungrafted Vine were sharp and comparatively worthless, a statement which I think should not go forth unqualified. A close acquaintance with this variety for 14 years proves to me that it is a most useful kind for late keeping if we understand its treatment, so as to get such crops from it as we obtain from other good sorts. Mr. Fleming, of Trentham, used to cultivate it successfully, and he would be the last man to send an inferior Grape to table. Colonel Tighe, than whom there is no better judge of Grapes, thinks the Barbarossa a good vinous Grape when kept till March, after which we have had it with the leaves quite green. Last autumn I saw most of the best Grape-growing gardens in England, but only at Chiswick did I see the Barbarossa look well when grafted; there it was all that could be desired, but the leaves were shed in the early part of November. Your correspondent "E," who furnished information last year respecting some noble-looking bunches of Barbarossa at Coombe Abbey, will, I think, agree that it is worth further trial on its own roots. *Chas. McDonald, Woodstock Park.* [Fine Barbarossas were shown from Coombe Abbey last week, as reported in another column.]

Trees blown down in Somersetshire.—In a storm on the morning of the 14th January, a Beech tree was uprooted here, which as it lies on the ground is 120 feet in length; circumference at 4 feet above the swell of the roots, 14 feet; below the fork, which is 46 feet from the base, 9 feet 8 inches. In falling it overthrew an Oak, which measures 25 feet to the fork, and 12 feet 6 inches above the swell of roots, and 10 feet 7 inches below the fork, from which rise two branches, each 9 feet in girth. In its fall it destroyed another Oak, which measures 50 feet to the branches, and 14 feet 10 inches above the swell of the roots. In the same storm a branch was broken off a Cedar of Lebanon, 55 feet long and 6 feet 6 inches in circumference. *W. C. Trevelyan, Nettlecombe.*

Foreign Correspondence.

ROYAL BOTANIC GARDEN, PERADENIA, CEYLON.—The following passages are from the Report by the Director, Mr. G. H. K. Thwaites, as to the state of the garden from September, 1863, to August, 1864:—

Cinchonas.—Complete success is attending the cultivation and propagation of the different species of Cinchonas now growing in the Hakgalle Garden. The plants exhibit the most perfect condition of health and vigour, and the number of each kind in the following list furnished to me by Mr. MacNicoll shows how successful he has been in their propagation:—

Cinchona succirubra, planted out in the forest, 1345 (the largest plant being 13¾ feet high, and the stem at the base 8¾ inches in circumference); plants for taking cuttings from, 2380; ready for distribution, 42,450; in different stages of rooting, 32,800.

Cinchona officinalis, planted out in the forest, 1044 (the largest plant being 6½ feet in height, and the stem at the base 5¾ inches in circumference); for taking cuttings from, 1934; ready for distribution, 58,747; in different stages of rooting, 47,400; of C. crispella (not distinguishable from C. officinalis), 430.

Cinchona micrantha, planted out in the forest, 300; plants for taking cuttings from, 320; in different stages of rooting, 229.

Cinchona Calisaya, plants for taking cuttings from, 82; in different stages of rooting, 24.

Cinchona Pahudiana, plants for taking cuttings from, 24; in different stages of rooting, 12.

It has been determined by Government that plants shall be distributed, to the extent they can be spared, free of charge, to persons residing in the Island. It is satisfactory to me to report that I have already received applications from 18 planters, and that the aggregate number applied for by them is 28,524:—of this number nearly 9000 have been issued, and there will be no difficulty in supplying the remainder at once. I have reason to believe that I shall before long receive applications for many more plants, and I have no fear of being unable to meet them, as Mr. MacNicoll informs me he can furnish plants at the rate of 20,000 per month, if they are required.

The small number of plants of Cinchona succirubra growing in the open ground at Peradenia, are making great progress, and are in perfect health, though not so robust in character as plants of the same age at Hakgalle.

A few plants of Cinchona officinalis, which were planted by way of experiment at Newera Ellia, were destroyed by a temperature of 24° Fahr. in one of the cold nights of February last, so that it is quite clear it would not be safe to plant Cinchonas in the island much above the elevation of 5000 feet, or where they would be liable to frosty nights succeeding the exceedingly hot days of the dry season.

I have transmitted to Sir William Hooker, who has kindly promised to have it submitted to analysis for me, a small quantity of bark of Cinchona succirubra from a tree three years old, and I hope to be able to communicate the results in a short time. Dr. de Vry, Professional Chemist to the Cinchona plantations of Java, who favoured me with a visit a few months ago, took to Europe with him some bark from a tree at Hakgalle which had died owing to the roots getting into swampy undrained ground, and he found, even in this unpromising specimen of bark, more than 2 per cent. of alkaloids, and of this nearly 1 per cent. of quinine.

I regret to say that some seeds of Cinchona pitayensis, obligingly sent to me by Mr. Clements R. Markham in March last, failed altogether to germinate.

Vanilla.—Nothing can be more luxuriant than the vines of this valuable plant growing here on trellis, and bearing an abundance of pods this season; thus proving the idea to be an erroneous one that the Vanilla will thrive only upon living trees. Notwithstanding the permission accorded to me to give plants to any natives expressing a willingness to cultivate them, there is, strange to say, very little inclination shown to pay attention to a plant promising such profitable return for the little trouble and labour required.

Tobacco.—A considerable quantity of seed of the three varieties grown here has been furnished to several persons applying for it.

Cotton.—There has been a little more demand for seeds during the past year, but there is no evidence yet of the cultivation of Cotton being taken up to any extent in the island.

Tea.—Some gentlemen interested in the cultivation of Tea in India have visited the Island during the past year, and have expressed a favourable opinion as to its capability to produce Tea of very excellent quality, with the likelihood of its cultivation being very remunerative. Having in view the probability of a demand being made upon these gardens for supplies of seed, I have directed that as many plants as possible be raised here, and I shall send seeds to Hakgalle for the purpose of having them sown, as some plants already growing there have a very healthy appearance.

The Linnean Society of London has very liberally made a valuable present to this Establishment of the first 15 volumes of its Transactions, and of a large number of dried specimens of Indian plants, collected by Doctors Roxburgh, Wallich and Wight, and by other celebrated botanists—a most important addition to the library and herbarium of these gardens.

From Kew I have received a considerable number of dried specimens of Indian plants; Dr. Anderson, of the Calcutta Botanic Garden, has been a liberal contributor of specimens from Singapore and Java; many interesting species have been sent to me by Dr. F. Mueller of the Melbourne Botanic Garden, and by MM. Teysmann and Binnendyk, of that of Java; and numerous specimens from Syria have been received from M. Lenormand.

The "Enumeratio Plantarum Zeylaniæ," in the preparation of which I have been engaged during the last few years, is now completed.

Societies.

ROYAL HORTICULTURAL: *Jan.* 21 (*Weekly Show*).—Violets were the principal subjects exhibited on this occasion. Of these Mr. Stedman contributed a collection consisting of Russian, Neapolitan, and what he called his Giant Violet, apparently an unusually robust variety of the Russian. A Seedling Violet named Czar, resembling the latter, but larger both in leaf and bloom, came from Mr. Graham, of Cranford, who stated that it had been blooming profusely out of doors for many weeks past. Mr. Aldred, of Kilburn, furnished various Seedling Cinerarias, among which was the variegated-leaved variety, Lilium auratum, a seedling Pelargonium, some hybrid Cyclamens, and Fern-leaved and other Primulas. From Mr. Bull came three plants of Elæagnus, various Aucubas, some with berries on them and others with finely variegated leaves. Mr. Ingram, Royal Gardens, Frogmore, communicated a collection of well-bloomed Primulas.

Of Fruit, Mr. Miller, gr. to Lord Craven, Coombe Abbey, near Coventry, sent six bunches of Lady Downes' Seedling Grape, one of the best late sorts in cultivation; and a similar number of bunches of Black Barbarossa, one of which weighed no less than 7 lb. Both these exhibitions were magnificent examples not only of skilful Grape growing, but also of the way in which Grapes may be preserved plump and sound, and covered with a fine bloom up to this late period of the season. Along with them was a plan of the gardens of Coombe Abbey, a full account of which was given at p. 991 of our last year's Volume. From Mr. Bullen, gr. to E. Budd, Esq., Vale Lodge, Leatherhead, came three Queen Pine Apples. Finally, from Miss Harrington, of Brook Street, came a dish of fine-

looking Almonds, the produce of trees growing at Wooden Hall, in Lancashire.

Jan. 24 (*Election of Fellows*).—At this meeting the following candidates were elected Fellows, viz.:—

R. Barnett, Esq.; A. Barret, Esq.; R. J. Blyth, Esq.; Sir A. Buller, Bart., M.P.; H. Bury, Esq.; Sir T. F. Buxton; R. W. Crawford, Esq., M.P.; A. Davis, Esq.; G. A. Day, Esq.; The Viscountess Downe, J. L. Ellerton, Esq.; J. Fortescue Harrison, Esq.; H. Good, Esq.; E. Hamilton, Esq.; Mrs. G. D. Hammond; Commander J. Lechmere, R.N.; Mr. Martin, Cottingham, Hull; Mrs. Morgan; Mrs. P. Ricardo; E. Smirke, Esq.; Miss Sloane Stanley; W. J. Stuart, Esq.; W. D. Tapp, Esq.; and C. Thomas, Esq.

Notices of Books.

British Columbia. An Essay by the Rev. R. C. Lundin Brown, M.A., Minister of St. Mary's, Lillooet. Printed at New Westminster, 1863.

From a notice prefixed to this pamphlet, we learn that the Government of British Columbia offered a prize of 50*l.* "for the best essay, setting forth in the clearest and most comprehensive manner the capabilities, resources, and advantages of British Columbia as a colony for settlement."

There is nothing on the face of the pamphlet before us to show whether Mr. Brown gained either the 50*l.* prize, or that of 10*l.* for the second best essay, but certain it is that his essay was considered to be valuable, and very justly so, by the authorities, for it bears the official mark of approval expressed in the following words—"The Government reserves the right of translation," and the Essay is printed at the Royal Engineer Press, New Westminster.

The introductory chapter informs us that till 1858 the colony was subject to the Hudson's Bay Company, who used it as a vast preserve of fur-bearing animals, and a fine income was obtained by the purchase of these furs from the natives, in the way of barter. In that year the discovery of gold on the banks of the Fraser (the great river of British Columbia, which has a course of 1000 miles) brought a host of miners from San Francisco. The home Government then revoked the grant to the Hudson's Bay Company, appointed Mr. Douglas as Governor, and sent a body of engineers to act as the pioneers of civilisation, by surveying and constructing roads and bridges, &c.

The second chapter takes the voyager through a narrow channel forced by the waters through the shoals at the mouth of the river Fraser. The entrance is described as sheltered from storms, and there is depth enough of water for all but the very largest vessels. Passing the flats, one comes to forests of Maples, then Cedars, and gigantic Pines. A bend in the river 15 miles up brings the voyager in view of New Westminster, the site of which was selected in 1859; and in less than four years this city contained 1000 inhabitants, with already three churches or other places of worship, a colonial hospital, and Government buildings. New Westminster has abundance of room for wharves, and is an excellent port, notwithstanding the unfounded assertion of jealous neighbours that there is a bar at the mouth of the river. A new comer is surprised at the exuberant fertility of the soil, but the very circumstance of its being so densely wooded has greatly hindered the cultivation of the land hitherto.

Sixteen miles further up the river is Fort Langley, and 35 miles higher is the mouth of the Harrison River, and the traveller can go to the Cariboo mines either up the Harrison, by Douglas, the Lakes and Lillooet, or up the Fraser by Hope Yale and Lytton. The word Cariboo, by the way, is said to be derived from the Carri-bœuf, or reindeer, frequenting those parts.

Miners will be able to obtain from this pamphlet much useful information as to the route they had better pursue, but these are matters which, of course, we cannot enter into here.

A number of spots are described as admirably adapted for agricultural operations; some being suitable for corn and fit at once for cultivation; others, and these by far the more numerous and extensive tracts, are fine pasture lands, often reminding one of some gentleman's park, and often spoken of as excellent for cattle raising. There is also a peculiar Grass called Bunch-grass, which is very useful to the drovers and teamsters; indeed, it is invaluable to the owner of cattle and horses.

As to climate, that of Cariboo is severe, the winter lasting from November to the end of April; yet the weather is usually clear and calm, though much snow falls in January or February. "But with the exception of Cariboo, the climate of British Columbia is universally regarded as one of the finest in the world. Nor can the fact of its extreme healthiness be too much insisted on: cases of sickness are rare, and many who suffered at home from feeble health have here inhaled new life from the bracing mountain breeze."

British Columbia is pre-eminently a gold country. To this it owes its existence as a colony. The "colour" of gold, *i. e.*, a minute quantity, but just enough to swear by, is found in the pan after washing the earth from any part of the country.

"The farther one goes up the Fraser and its tributaries, the coarser the gold becomes. The first pioneers of the country expected to find it so. Where, they asked themselves, as they examined the fine gold of the Lower Fraser, does this dust come from? It must be formed by the disintegration of coarser gold—where then is the coarser gold, and the quartz veins whence coarse gold comes? So those enterprising men went up the river and its tributaries in quest of coarse gold. This was discovered in 1859, first on the Quesnel River, and later, in 1860, followed the discovery of Cariboo."

As the mountains of this country appear to belong to an auriferous range, extending both to the north and south of Cariboo, nobody can possibly compute what may be the extent of these mines, nor the length of time during which they may be productive. Dearness of provisions has hitherto been the principal drawback to mining operations, and this is just the favourable opportunity for the agriculturist to step in, and supply the pressing wants of the miner. Even were the gold mines to be worked out, there are abundant indications of other minerals—silver, copper, tin, plumbago, galena (lead), iron, limestone, coal, &c.

The question has been asked—can British Columbia support an agricultural population? Mr. Brown thinks the country about the Lower Fraser is not by any means the locality where farming can at present be most successfully undertaken, but to reach the best agricultural lands we must penetrate further into the interior. He states that at Lillooet, where he resides, and New Westminster, farms have produced 50 bushels of Wheat, 60 to 70 bushels of Barley and Oats, and 60 to 70 bushels of Indian Corn to the acre.

The vegetables of British Columbia are unsurpassed by any in the world, Potatos yielding on one farm 7 tons, on another 15 tons to the acre, some of these weighing 2½ lb. each; Turnips, both Swedish and White, 25 tons to the acre, some of these up to 20 lb. weight; Onions 4 to 6 tons per acre, many of these up to 1½ lb. each; Cabbages and Beet equally fine. The orchard at Langley is a great success; Melons grow in the open air without manure, attaining great size and fine flavour.

The soil is adapted for Pears and Cherries, and probably the Grape itself would ripen on the sunny Rhine-like terraces of the Fraser. There is a ready market for the produce of the farmer and gardener. In 1862 the price of Potatos varied at New Westminster from 6*s.* to 16*s.* per 100 lb.; at Cariboo the price was 10*l.* Where so many horses and mules are employed, Barley will always be in great demand. Hitherto all the flour has been imported; the price at New Westminster has been 3*l.* per barrel, and in Cariboo 40*l.*—more or less.

British Columbia, Mr. Brown assures us, "is perfectly able to maintain an agricultural population, and to grow grain for the support of a large mining community," but for stock raising, and as a pastoral country it is unrivalled. Cattle thrive better and increase more rapidly in British Columbia than they do in England. For sheep the country is found to be admirably suited. Mutton costs 1*s.* to 1*s.* 3*d.* per lb., and wool sells at San Francisco at 40 cents per lb. It was feared that the small Cactus would prove an obstacle to the raising of sheep: instead of this it is found to be "most serviceable for fattening pigs." These animals can provide for themselves in summer time, and bacon forms one of the great staples at the mines. On the whole, if the settler finds in the first years more hardships than in older colonies, in none will he find so sure a market, or such high returns for all produce, whether of the garden, the field, or the farm yard.

The coasts and rivers of British Columbia are abundantly supplied with fish. In March the shoals of herrings arrive, in April shoals of houlican, a delicate fish, rather larger than the sprat; from March to October species after species of salmon continue to enter the river. Trout and sturgeon abound. In the lakes and marshes ducks of various kinds, snipe, teal, widgeon, geese, and swans are numerous; in the woods there are pheasants, grouse, partridges, and prairie chickens.

The famous Douglas Pine is well known from the sections of a tree 300 feet in height, which was cut at New Westminster and sent to the Exhibition of 1862, and its merits have been descanted upon in the *Gardeners' Chronicle.* The White Pine is also a very valuable wood for internal work. The principal berries are the Sallal, the Huckleberry or Blueberry, the Whortleberry, the Salmonberry, the Raspberry, Strawberry, Oregon Grape, Gooseberry, Currant, and Cranberry.

In the summer of 1862 the white population of the whole colony did not probably exceed 7000; in the winter it fell to 3000. The Chinamen numbered about 2500. They are a peaceful and industrious class, and have been considered a benefit hitherto; fortunately their numbers are not increasing.

The two great wants of the colony are capitalists and labourers. It would be well that the latter should not come without the means to maintain themselves for a time, in case of not immediately procuring work. We need not speak of the fields of labour open to the capitalist. Here it is pre-eminently true that money makes money. Nowhere can there be a finer opening for men of muscle, as miners, labourers, or artisans. "To be a miner nothing is wanted but pluck, strength, and a good constitution. True, the novice does not know where to look for gold; he must therefore ally himself with an experienced miner; a good partner is half the battle. True, the discouragements are many—bad weather, poor food, and sometimes swarms of mosquitos buzzing about him as he works. But he who means to succeed must set all these things at defiance, keep a good heart, and not be cast down by hardships or disappointments. I would also recommend him, if he hopes to be successful, to have nothing to do with the bad liquors which are frequently sold there—the ruin alas of many. To take the trouble of going to Cariboo, to undergo all the hardships of mining life, and then to spoil everything by drink, would be indeed a pity." This is excellent advice. Supposing a miner does not succeed at once in finding a claim: "First, he will try to hire himself out in the mines. Nor, if he is a man of sense, will he be too proud to work for another man. He who is not willing to take any honest employment that offers bread and wages, is quite unfit for the work of this colony. Such an one had better remain at home or emigrate elsewhere."

"If unsuccessful at the diggings, the miner is not left without a resource; he can work on the public roads, or engage in farm labour, or ply his own trade in any of the towns."

Carpenters can get 12*s.* a day at New Westminster, 20*s.* in the central towns, 60*s.* in Cariboo; ordinary labourers from 12*s.* to 16*s.* a day, at the mines 40*s.* On the public roads in the summer of 1862 6*l.* a month and board was given; for farm labour, 10*l.* and board, in the central districts. Wages are smaller at New Westminster, and living cheaper." This was written probably early in 1863, but things have not materially altered, we believe.

In the Appendices much useful information is given, such, for instance, as the "rules and regulations for the working of gold mines in British Columbia," &c.

It is impossible to speak too highly of this little pamphlet. Intending emigrants should procure and study it. It comes to us confirmed by the testimony of a resident in the colony, who has carefully underlined many passages, and has occasionally added his own commentary. Not many days have elapsed since Mr. Lundin Brown's Essay came to hand.

Watts' Dictionary of Chemistry. Parts XX.—XXIII. Longman & Co.

A splendid article on Light occupies nearly the whole of Parts XX. and XXI. In this, the undulatory theory is applied to explain the phenomena of Radiation, Interference, Reflection, Refraction, Absorption, and Polarization. Fizeau's ingenious method of measuring the velocity of light by means of a revolving toothed wheel, and another method by means of a revolving mirror, at the commencement of the article, will be read with pleasure by the scientific, and give a fair sample of the skill which has been brought to bear upon this interesting subject—a subject to which the highest mathematical reasoning and the most consummate ingenuity have been applied with marvellous success. We observe that Professor Stokes is frequently quoted in these pages.

Part XXII. has a short article on Magnesium, a metal which burns when held in the flame of a candle, with a dazzling light, so brilliant that it has been used for taking photographs. Magnesium wire may be procured in the shops at about sixpence per yard.

We must pass over an article on Magnetism to notice one more suited to our columns, on Manure, signed with the initials B. H. P.

After touching briefly upon the researches of Saussure, Davy, and Boussingault, the writer introduces us to a new era. "It was not until the year 1840 that a comprehensive theory of plant-nutrition was propounded by Liebig, with such perspicuity and force as to excite universal attention. The fundamental proposition of that theory was, that the food of plants, the materials from which the chief mass of their substance is produced in vegetation, consists solely of carbonic acid, water, and ammonia." "Under natural conditions these substances are constantly supplied to plants by the atmosphere, which contains them in small proportion, but in large aggregate quantity; by the decay of dead animals and plants; by rain, dew, &c., and by other means. But there are also other materials concerned in vegetation besides the carbonic acid, water, and ammonia, from which the plant constructs its chief substance. In almost all plants, and in every organ of a plant, there are certain substances, indestructible by fire, which remain as ashes when plants are perfectly burnt." These can only be introduced into the organism by means of the roots, and probably they are taken up in a state of solution.

Liebig came to the conclusion that "the capability of land to produce crops was due to the presence in it of the ash-constituents of plants; that the assimilation of carbon and nitrogen was dependent upon the presence of the ash-constituents in the soil." And he held that "the decrease in produce observed when a particular crop is raised year after year on the same land, was due to the abstraction of ash-constituents from the soil."

Following out these views, Liebig taught "that the proper composition of manures for plants was to be ascertained by burning the plants and analysing their ashes, and then combining the manure according to the analysis." He stated "that the exhaustion of the soil by successive crops, its decrease in fertility, is produced by the gradual removal of the mineral elements, in a soluble state, which are necessary for the development

of our cultivated plants. By a supply of manure they are again restored to the state suited to serve as nourishment to a new vegetation. If the supply of the removed elements of the soil, by means of manure, be sufficient: if the quantity taken away be restored, the original fertility reappears; if the supply be greater, the produce increases; a defective supply gives a smaller produce."

Consequently, the agriculturist was advised to "confine himself to supplying these substances to his land, and giving it the proper physical condition, so as to render possible, and to increase, the assimilation of carbonic acid and ammonia from the atmosphere." This theory of agriculture, or of manures, known as the mineral theory, was received with enthusiasm in England and America, and highly laudatory articles were written in the journals.

When brought to the test of experience, however, it is well known that Liebig's manures utterly failed, and some very sensible remarks sum up this valuable article on manure.

"Instead of reforming agriculture by his manures, Liebig caused them to demonstrate the incorrectness of his mineral theory of agriculture; and the failure of these manures, from the application of which farmers had been induced to anticipate such wonderful results, naturally produced a revulsion of opinion, which was sometimes expressed in a manner not altogether free from exaggerated opposition to his views."

"The practical farmer accepts in its full significance the abstract theory of plant-nutrition, so far as it concerns him; he also looks for its application to the art in which he is engaged, and for rules by which his practice may be improved. There is probably no art in which suggestions for improvement have been more eagerly accepted during the past 20 or 30 years than in agriculture; but when such suggestions are tested and found wanting, the practical nature of agriculture demands their abandonment." "These are abstract scientific questions of high interest for the chemist, and of possible importance to the future of agriculture; but they do not concern the farmer, whose business is to produce food with such means as are at his disposal. It would be a very illogical conclusion, that the facts observed as to the influence of artificial supplies of ammonia and superphosphate upon the growth of corn and root crops should be disregarded, because science is unable to explain the precise functions of those substances in vegetation; and it is equally irrational to denounce, as a folly and an error, the application of those facts, so far as present knowledge will admit." Such is the conclusion of an excellent paper on Manure, looked at from the chemist's point of view.

CATALOGUES RECEIVED.—*Barr & Sugden's Compendium to Seed Catalogue for* 1865, a list of 96 pages, contains a very full collection of Gourds, amongst which we notice the beautiful Lagenaria, shown last autumn at Kensington by Mr. Stuart, is offered under the name of Prince of Wales Gourd.—*Charles Turner's Catalogue of Seeds* contains several of Dr. Maclean's new early wrinkled Marrow Peas, among which Premier is one of great excellence.—*B. S. Williams's Descriptive Catalogue of Seeds*, which is very full, embodies many cultural paragraphs; amongst other novelties a Matchless Celery, said to be the finest red in cultivation, is offered.—*Robert Parker's Catalogue of Seeds* is a select list of the choicer varieties of flowers and vegetables.—*Charlwood & Cummins's List of Seeds* has, as its distinctive feature, an extensive collection of the seeds of hardy trees and shrubs.

Garden Memoranda.

MESSRS. LOW'S NURSERY, UPPER CLAPTON.—One of the most interesting houses in this extensive establishment, especially during the present comparatively flowerless season, is that in which the different kinds of Tree Ferns are grown, a long cool house, in which are some magnificent specimens of Dicksonias, Alsophilas, and Cyatheas with tall black trunks of great thickness, surmounted by wide-spreading heads of refreshing green leaves, producing an appearance more like that of summer than midwinter. These are associated with young Camellias, of which many thousands may be found in other houses. Heaths and Epacrises are most extensively grown here; all of them are well set with flower buds, and many of the former, such as hiemalis, are already even in blossom. Of the last-named variety there are stated to be no fewer than 20,000 plants in this establishment, a fact which speaks volumes in favour of the usefulness of this particular kind.

A new span-roofed house, about 125 feet in length, is being put up for the accommodation of specimen Heaths, and another not quite so long has just been completed for Orchids. The latter is also span-roofed, efficiently heated with hot water, and neatly fitted up with slate tables covered with gravel for the plants to stand on. Among Orchids there is little now in bloom except Calanthes, which have produced a magnificent display ever since the beginning of last October. Limatodis rosea has likewise been finely in flower, as have also been Sophronitis grandiflora, Cypripedium Lowii, Stonei, and Hookerœ, and the rare Dendrobium infundibulum, the charming white blossoms of which, faintly flushed with rose, are very delicate and pretty. Of the orange-flowered Epidendrum vitellinum, Odontoglossum grande, Lycaste Skinneri, Cattleya Aclandiæ, C. marginata, and Phalænopsis grandiflora, Messrs. Low possess an exceedingly fine collection. True, the plants are small, but in health and vigour they fully equal larger specimens. Of Odontoglossums recently imported from New Grenada they have also several hundreds, among which something new may reasonably be expected.

Of other novelties in the way of Orchids, the collection contains Dendrobium nodatum, a gay species imported from Moulmein, with slender stems, gouty at the joints; D. primulinum, a fine kind, producing large primrose-coloured flowers, with a few slight orange stains near the base of the lip; D. eburneum, and D. Farmeri aureo-flavum, both valuable species from Moulmein. Saccolabium Harrisonianum, a beautiful fragrant white-flowered species, and many others, may also be found in this establishment.

One house we noticed full of small plants of Pampas Grass raised from imported seeds; another contained small Orange trees well furnished with fruit; while in a third was an interesting collection of all the finer kinds of Japanese plants, among which we remarked variegated-leaved Camellias, Euonymus and Aucubas; also Retinosporas and the pretty Fern Lastrea Standishii, which has a fine appearance in Wardian cases. Associated with these was also Lomaria fluviatilis, with long narrow fronds, which when hanging over the edge of suspended baskets, intermixed with the leaves of other plants, have a highly ornamental appearance.

Among other new Eranthemums in a collection of plants remarkable for the beauty of their leaves, such as Alocasia Lowii, and others, was E. metallicum, a kind with medium-sized foliage, the upper surface of which has a beautiful metallic gloss on it, which gives the plant considerable value in an ornamental point of view. In hanging baskets, intermixed with the rosy-veined E. sanguinolentum, which it resembles in habit, it cannot fail to produce a pretty effect.

In other houses were large numbers of Araucaria imbricata, raised from seeds; and, in warmer compartments, Palms, Ferns, and fine-leaved stove plants in great abundance.

Miscellaneous.

Cabbages v. *Cauliflowers.*—It appears from the daily papers that a singular cause has recently been tried before the Imperial Court of Paris. The question to be decided was whether Cauliflowers are Cabbages, and it gave rise to a long and animated discussion. The question arose in consequence of the regulated price of the carriage of Cabbages by the Orleans Railway Company being much lower than that of more delicate vegetables. The market gardeners who forwarded Cauliflowers to the Paris market by railway insisted that they should be charged as Cabbages; the railway company, on the contrary, demanded the higher rate. The Court decided that Cauliflowers are not Cabbages, and gave judgment in favour of the Orleans Railway Company.

Mistleto on the Oak.—The following letters on this subject have recently appeared in the *Times* newspaper: "The interesting letters which have lately appeared in the *Times* respecting this singular parasitic plant will naturally lead your readers to inquire why the Mistleto is never found growing on the Oak tree; almost every one who knows the plant will tell you that it grows upon the Oak, but I have never met with any one who can point out an Oak with the Mistleto growing on it. The plant is very partial to Apple trees, and its extended growth on one of these trees verifies the correctness of Shakespere's observation of the "baleful Miseltoe," which, by its growth on fruit trees, injures them. Our early botanist, Dr. William Turner, speaks of this plant, and says of the berries—'The fowler maketh birdlime wherewith afterward he taketh the thrush. I never saw more plenty of right Oak Missel than Hugh Morgan showed me in London. It was sent to him out of Essex, where there is more plenty than in any other place in England that I have been.' Dr. Bulleyn, in his "Book of Simples," speaks of Mistleto, and asks—'What benefit hath that tree upon whom the Mistleto does grow? No more than any member of the body upon whom a cancer is placed, and will at length destroy altogether unless it be pulled from the tree.'" *Sidney Beisly, Sydenham, Jan.* 6.—"It may interest some of your readers to learn that in two localities in England the Mistleto may still be seen growing upon the Oak. The localities to which I refer are Eastnor Castle, near Ledbury, in Herefordshire, and Hackwood Park, near Basingstoke; from each of these places I have received sprigs of the very Oak trees on which the Mistleto was seen growing by the gentlemen who were kind enough to reply to my letters of inquiry. A few years ago I took some pains to investigate this subject, and, after corresponding with Professor Lindley and other eminent botanists, came to the conclusion that the growth of the Mistleto upon the Oak had always been the exception and not the rule, and that, even in the time of the Druids, Mistleto from the Oak was invested with peculiar sanctity and highly esteemed for its rarity. Though generally supposed to be confined to the Oak, Apple, and a few others, the Mistleto is occasionally found growing on the following trees:—Apple, Pear, Hawthorn, Service Tree, Mountain Ash, Hazel, Maple, Ash, Lime, Acacia, Willow, Poplar, Elm, Oak, and it is said the Scotch Fir." *Beaven Rake, Fordingbridge, Jan.* 11.—"I shall be happy to point out to Mr. Beisly, Mistleto growing on an Oak on the estate of Lord Somers at Eastnor, about five miles from this place." *J. A. Cooksey, The Lynches, Malvern, Jan.* 10.—"In my practice as a timber surveyor, I have twice met with the Mistleto growing on the Oak. In one case I marked the tree for sale, and it is now cut; it stood on the Tichbourne estate in this parish. In the other instance the tree was marked for sale, but it was spared at the request of the Rev. George Wood, rector of Shopwyke, near Chichester, and the tree is now standing on the Berningfold estate, Dunsfold, Surrey, now the property of Mr. Leyland, Woods, the present High Sheriff of Sussex." *Alfred Mellersh, Godalming, Jan.* 15.

Antiquity of Garden Plants.—We have historical evidence that existing species have not varied for several thousand years, and the reason is plain enough, because the external circumstances in which they have been placed have not varied. For all practical purposes, therefore, the characters on which species are founded may be assumed to be constant; and a minute and careful description of a plant will suffice, not only for the present, but for many succeeding generations of naturalists. But we have no warrant from nature to assume that such specific, or even generic, characteristics either have, or will continue to be, permanent for an unlimited period of time; that they will survive all future changes in the physical geography of the planetary surface. We know that great changes may be effected in a brief space of time in the organisation of plants by cultivation; and why should not an organic change be brought about in plants when their external circumstances are altered by nature in the course of ages? This world, what is it but a great and ancient theatre where the scenery of life is ever changing! Look at that majestic and venerable tree; its present form appears to be fixed, yet that very form is in reality as fleeting and evanescent as all the other forms through which that tree has passed from its first life movement in the seed; and what is true of that tree, which is a part of nature, is true of the whole of nature; the present appearance of nature now is no more unalterable than at any other geological epoch: it is the last of the many phases of creation, and equally fleeting with all the others.

Artesian Wells.—It has been observed that Artesian wells can only be successfully bored where porous strata are intercalated between impermeable ones. Where the intercalation is often repeated, several distinct sources of water may supply a single well. In that at Bruck, near Erlangen, there are three such sources; in that at Dieppe, seven; whilst the well at Dulmen, in Westphalia, is supplied by no less than 13 strata, in a depth of 380 feet. The great distance from which the water of an Artesian well may be derived was well shown by a boring near Tours, from which, when the borer was withdrawn, quantities of sand and small snail-shells were ejected, which must, without doubt, have found their way there from the mountains of Auvergne, 30 miles distant. A curious proof of the occasional direct communication of Artesian borings with superficial accumulations of water was given by wells of this description at Bochum in Westphalia, and Elbœuf in France, in the water from both of which eels and small fish have at times been found. *Popular Science Review.*

The Lignite Flora.—The sketch I am going to give refers to a remote, though not to the remotest period of our planet—one which, if not immediately preceding, at all events is very near man's appearance on earth. It has been named the Tertiary period, and is distinguished by its supplying us with the enormous masses of combustible materials preserved in argillaceous and arenaceous strata in the shape of lignite. There can be no doubt that the geological conditions of our globe were at that time very different from what they are at present; and the surface of our planet and the elevation of the solid land must have essentially differed from what they are now. It is well known that in the beds of brown coal, when they have not become a compact mass, we find fragments of a great number of plants and animals. It is highly interesting to cast a glance at this subterranean herbarium, and 20 years ago I eagerly studied this singular collection under very favourable circumstances. At that time the botanical treasures of the much older coal formation and of the later deposits had been investigated, but those of the lignite still remained a sealed book. As might have been expected, the study of these vegetable fragments made a deep impression upon me, and caused me many a surprise. The plants and animals of earlier periods exhibit but slight analogy with those of the present. But here all was reversed. In these investigations (often difficult) one frequently came across known forms, and sometimes it would seem as if one had to deal with the sweepings of a park planted with indigenous and foreign trees and shrubs. The most surprising was, that a considerable number of these plants so closely resembled the trees and shrubs now-a-days growing in North America as to be scarcely distinguishable from them. Justly attaching great importance to this fact, I may be permitted to refer, in support of it, to a few fossils. One of them is a rather large 3—5-lobed leaf, with toothed margin and long petiole. The leaf of only one tree now indigenous to North America resembles it entirely, or very closely, and that is the Amber tree (Liquidambar styraciflua), well known by the resin it exudes. That no mis-

take has been committed in this instance is more than proved by the fruit, which has been met with in a fossil state, and closely resembles that of the Amber tree. The fragments of leaves submitted next, one of which has been found in Switzerand, the other in limestone beds in Sinigaglia, are instantly recognised as those of the North American Tulip tree (Liriodendron tulipifera). Though they may not be quite identical with them, they must, at all events, be regarded as derived from the nearest ally. In Iceland, besides the leaves, the fruits (of L. Procaccinii, Ung.) have been observed. Amongst the other fragments frequently found in lignite are branches covered with minute lancet or nearly needle-shaped leaves, pointing towards a Conifer which is not met with in Europe, but has an extensive geographical range in North America. It belongs to the oldest vegetable monuments of that country, and is the Taxodium distichum. Other fossils of the lignite beds point towards trees of which several species at present inhabit North America. They belong to the genus Nyssa. The fruits and seeds of Pavia and Robinia, occasionally encountered, prove that these two genera, now confined to North America and admitted into our gardens as exotics, at one time flourished in Europe. It is well known that Europe is destitute of Walnuts, the one cultivated being derived from the woody mountains of the southern Caucasus. But a great number of different nuts are very common in lignite formations, and if compared with a large North American genus, their close resemblance at once becomes manifest; the so-called grey Hickory (Juglans cinerea) can scarcely be distinguished from the fossil Juglans tephrodes, Ung. I might enlarge upon the different Maples, Oaks, Poplars, Hornbeams, Firs, and Yews of the lignite flora, the nearest allies of which are not the species still existing in Europe, but almost exclusively those in North America; and I might add a great number of other details, all proving that the lignite flora had not a European but a North American character. This conclusion, which I published about 20 years ago, has not been shaken by any subsequent investigations. * * * These considerations force us to the conclusion that there must have been a continental connection. In the Tertiary period, or at the time when lignite was formed, Europe must have been connected with North America, and the Atlantic Ocean must have been divided at one place or other by a continent. *Dr. F. Unger, in Journal of Botany.*

Kingfishers.—"The poor kingfisher has at last fallen a victim to the "taste" of the ladies. Not content with having taken all our handsomest jays, magpies, &c., whose wings adorn their hats, and regardless of the numberless water-fowl who fall victims, they have now begun to use the skin of the poor little kingfisher for the same purpose, so that in a very little while we shall be compelled to look upon these beautiful birds as indeed *rara aves*. All who have seen them, as I have," writes a correspondent of the *Times*, "flying swiftly along with their blue backs glancing brightly in the sun, are able to appreciate the beauty they add to the banks of our rivers, and the loss we shall sustain by their extermination. If the taxidermists would only unite in not receiving the birds, the watermen would have other occupations to follow than turning their hands against our British kingfishers. For the ladies, I wonder they have the heart to give their consent to this bird murder." One of their number is also reported in the same journal to have uttered this feeling complaint:—"Please, do say a word to the ladies on our behalf. We thought they liked to see us flying about the Thames, but we are dreadfully persecuted just now. I tried in vain for three hours yesterday to get to my feeding-place, on an eyot at Datchet, where a waterman was waiting for me with a loaded gun. I heard him tell a gentleman that we were 'coming in' for ladies' hats, and fetched a high price, and that he had killed several this week. Do, pray, entreat the ladies not to wear us in their hats, or we shall inevitably be exterminated."

Calendar of Operations.

(*For the ensuing week.*)

Two of the greatest improvements in modern ornamental gardening are the almost total repudiation of mixing flowers and shrubs together, and of deep edgings to the outlines of walks. Nevertheless it will, we think, be admitted that a dark background of evergreens is particularly well adapted to exhibit gay flowers in mass. Where, therefore, bold walks possess an extensive and broad margin, much may be done in the way of decoration independent of the regular flower garden; and if the nakedness of such borders in winter were an objection, it would be easy where plenty of labour is allowed to turf or plant them over at the approach of the dull season, when Verbenas and Pelargoniums were over. For winter decoration of this description many eligible plants offer themselves—such as the common Wall-flower, the Christmas Rose, the winter Aconite, Wood Anemone, Snowdrop, Crocus, and many others. Hundreds of these might be potted in due time, and well established for the purpose, added to which a nursery of Rhododendrons, and other dwarf shrubs, such as Box, Aucuba, Laurustinus, &c., would be a useful adjunct. This is, however, carrying matters with a high hand, and presupposes considerable expense. A much cheaper method would be that of using Kail, as described in another column, but that plan might not answer so well in the south as in the north. As regards single permanent specimens of trees or shrubs on lawns, much discretion is requisite as to their position. The immense acquisition of new plants, of late years, adapted for lawns, has forced many into the dotting system, who formerly despised it; this is undoubtedly a retrograde direction, however, in point of taste. Such things, where space allows it, might, under good management, be made to form a distinct feature without deranging the general plan. In places of some extent, it should ever be borne in mind that the formal edges of shrub borders, which are absolutely necessary at first planting, are but means to a given end; therefore it should be remembered that no formal cut lines can ever produce so rich and grand an effect as the majestic sweeping rich outline, as well as varying tints, produced by such permanent and massive forms as full-grown Hollies, Laurels, Rhododendrons, &c., fringed overhead occasionally with arboreous forms—such as the Laburnum, the Purple Beech, or the Hemlock Spruce. The introduction of floral decorations therefore into shrubbery borders must be done sparingly and with sound judgment and good taste. A little lighting up of the margin is in general all that is required.

FLOWER GARDEN AND PLANT HOUSES.

In accordance with the directions just given, improve as much as possible outlines of every kind, plant fresh masses or groups of shrubs where necessary, and introduce specimen plants only where fitting opportunities offer. Much mischief is done by planting single specimen trees in recesses; these should be carefully preserved, as a general rule, to give deep shadows, and to throw the prominent features into bold relief.

AZALEAS.—Plants that have been kept in heat to bring them into flower will now require pretty liberal supplies of water, and take care to keep them free from cold currents of air. See that young plants are clear of insects and in a healthy growing condition.

CARNATIONS AND PICOTEES.—Soil for these having been obtained at the proper time, let it now be occasionally turned, and kept dry for use when wanted. Take care that it is free from wireworm.

CINERARIAS.—Give a little air when favourable, but avoid cold draughts. Pick off decaying leaves and keep down mildew by means of sulphur. Thin out superfluous leaves and shoots, and continue to move at intervals a few of the most forward plants into an intermediate house for early display.

DAHLIAS.—Roots of these may now be examined preparatory to their being placed hereafter in heat.

FORCING GARDEN.

Notwithstanding the changeable state of the weather, few seasons, on the whole, have been more favourable than this for early forcing, and it is surprising to find in most places just now such a scarcity of floral beauty. Where anything like proper attention has been paid, one would have thought that most things would now be in a highly satisfactory condition.

CHERRIES.—Advance steadily. Ventilate freely when the weather will permit, and maintain a moist growing temperature.

CUCUMBERS.—Water frequently between the hills, and round the sides of the frame. Ensure a temperature of 70° night and day, allowing a rise of 5° in the day if possible, and rising to 85° or even 90° during sunshine.

PEACHES.—Trees of these and of Nectarines which have been forced for several years oftentimes produce a large excess of fruit buds, and this more especially on weakly trees; a natural consequence of allowing these to remain are weak blossoms and inferior fruit and wood. When, therefore, such is the case, the trees will be greatly benefited by well thinning the flower buds, taking care to leave the largest and such as are most favourably placed. Of course a considerable number should also be left to allow for casualties. Syringe twice or oftener daily till the bloom is ready to expand, when that operation must for a time be discontinued. The night temperature may be permitted to advance to 45° with an increase by day, accompanied by a proportionately free admission of air whenever the weather is at all favourable.

PINES.—As a somewhat general shift should take place during this month or early in February, let us offer a little advice about soils. Our best Pine growers adhere in general to loam. What is wanted is not a new description of soil, but good texture. Few people use turf so fresh as they may and ought to do. Proper mechanical texture is the great desideratum, and this may be obtained in perfection in fresh loamy turf; lumps of charcoal and broken bones will add to its porosity, and also to its quality. Turf for Pines should be housed in September in a dry state, and should be chopped into squares, or small pieces when dry. As drainage for pots we would recommend in addition to open crocks, broken bones and charcoal mixed; on this put a layer of fresh turf in lumps, and then the ball of the shifted Pine.

STRAWBERRIES.—To these give abundance of air when the weather is at all mild.

VINES.—Difficult setters should be artificially fertilised, choosing the middle of a dry day for the operation. Grapes swelling should be thinned the moment the bunches can be handled. Many exhaust their Vines by deferring too long this important operation. Follow up the close stopping of all superfluous wood, provide plenty of atmospheric moisture, and do not be afraid to indulge in a considerable increase of temperature on the afternoons of bright days, which we may now surely soon expect.

HARDY FRUIT AND KITCHEN GARDEN.

Whenever the weather is at all favourable, see to the due preparation of ground for crops in general, but beware of carrying on any operations when the soil is in a wet state. Where kitchen gardens are composed of light sandy soil, they are better dug or trenched some weeks before the ground is wanted for cropping.

CAULIFLOWERS. — Look carefully after those in frames and under handglasses, while cold weather lasts.

LETTUCES.—Plants of these in frames will also now require attention. See that they are not suffering from undue confinement.

POTATOS.—Bring forward those in frames slowly, and let others be selected and put in order to succeed them.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Jan. 25, 1865, as observed at the Horticultural Gardens.

Jan.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth 1 foot deep.	Temperature. Of the Earth 2 feet deep	Wind	Rain
Thurs. 19	21	29.474	29.392	39	25	32.0	42½	43	W.	.00
Friday 20	0	29.584	29.525	39	18	28.5	42	42½	N.W.	.00
Satur. 21	23	29.609	29.585	41	18	29.5	41	42	W.	.00
Sunday 22	24	29.675	29.544	41	28	34.5	40½	42	W.	.00
Mon. 23	25	29.807	29.631	41	28	34.5	39½	41	S.	.00
Tues. 24	26	29.599	29.580	37	31	34.0	39½	41	N.E.	.00
Wed. 25	27	29.655	29.551	35	27	31.0	39½	41	N.E.	.00
Average.		29.629	29.544	39	25.0	32.0	40.6	41.8		

Jan. 19—Overcast throughout; slight frost.
— 20—Fine; light hazy clouds; frosty at night.
— 21—Frosty and foggy; frosty and foggy at night; the densest fog ever remembered.
— 22—Foggy; overcast; slight frost at night.
— 23—Slight fog; fine; overcast at night; slight frost at night.
— 24—Hazy; slight snow; hazy; snow; slight frost.
— 25—Hazy; foggy; snow, hail, sleet at night.
Mean temperature of the week, 6 1-10th deg. below the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 39 years, for the ensuing Week, ending Feb. 4, 1865.

January and February.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 29..	45.6	31.6	38.6	17	0.23 in	5	5	—	2	2	13	6	6
Mon. 30..	44.4	32.1	38.2	19	0.39	2	3	3	4	3	13	8	3
Tues. 31..	44.4	30.2	37.3	17	0.38	5	6	1	2	9	10	3	3
Wed. 1..	43.5	31.1	37.3	12	0.52	5	6	1	2	4	10	5	6
Thurs. 2..	43.9	31.4	37.6	13	0.75	3	6	5	3	2	11	6	3
Friday 3..	44.6	30.8	37.7	19	0.42	4	4	4	2	2	11	3	2
Satur. 4..	44.8	32.9	38.9	18	0.31	3	4	4	1	7	12	5	3

The highest temperature during the above period occurred on the 29th, 1863; 1st, 1852; and 3d, 1850—therm. 57 deg.; and the lowest on the 31st, 1857—therm. 8 deg.

Notices to Correspondents.

AFRICAN OAK: *J T W.* This wood, also called African Teak, is neither Oak nor Teak, but the produce of an Euphorbiaceous tree, called Oldfieldia africana. Though nearly one-third stronger than either English Oak or Malabar Teak, it is not so generally useful as those woods, its ponderous weight rendering it unsuitable as an exclusive material for ship-building, though it is very useful in certain parts, and particularly in steamboats, as it will stand a great degree of heat where there is a free current of air.

CONSERVATORY: *L H.* For such a house as you propose we should prefer wood, and to have the roof sashes fixed, providing for ventilation either by short lifting flaps or a lantern along the ridge; or by openings at the end just under the ridge in combination with flap ventilators at the sides about the level of the pipes.

DRYING FLOWERS: *B C.* If you wish to do this without pressing them flat, take the flowers quite dry and bed them in their natural form in a good body of pure fine sand, which is perfectly dry, and then let this be placed for some hours in a gentle heat, such as that of a slack oven.

FUNGI: *H D M.* Your Fungus is Chætomium murorum, Corda, new to Great Britain. More specimens would oblige. It is one amongst various Fungi which are developed upon damp paper. *M J B.*

HOT-WATER PIPES: *R D.* Todd's Patent Protoxide Paint is, we believe, one of the very best materials to use to prevent rust. It neither cracks nor blisters, and the hardest friction will scarcely remove it.

MARKET GARDENS: *E F.* These are usually let at the Christmas term. The crops then on the ground are taken at valuation.

NAMES OF FRUITS: *A W.* 1, Court of Wick; 3, Scarlet Nonpareil; 4, Royal Russet; 5, Flat Nonpareil; 6, Paradise Pippin.—*T B, Thirsk.* 1, Bedfordshire Foundling; 4, Rymer; 5, Reinette du Canada; 6, Ne plus Meuris.||

NAMES OF PLANTS: *A B C.* Stenochlæna tenuifolia.—*M H.* 1, Asplenium bulbiferum; 2, Asplenium lucidum; 3, Phlebodium areolatum; 4, Doodia caudata.—*P D.* Your Hollies are 1, compacta; 2, heterophylla.—*W R.* 1, Linum trigynum; 2, Lachenalia quadricolor.

SHELL SAND: *Enquirer.* The broken shell used for sprinkling over the surface of walks in London gardens and parks, is, we believe, to be had in quantity of Mr. G. Smeed, Sittingbourne, Kent. The price is about 2*s.* 9*d.* per yard delivered in the barge in London, when a barge load is taken; but we understand it is to be had retail of some of the nurserymen.

VINES: *E T.* Your soil, subsoil, and previous neglect are all against your Vines. If they would not ripen their fruit during the past dry season, what can you expect another year? Your rods, from the specimens sent, are partly mouldy, partly dead, and imperfectly ripened. You would have no better chance with new Vines under existing circumstances. Do not attempt to plant without thoroughly draining and remaking the border, mixing some good free soil with lime rubbish. It must not, however, be mere sand. If the roots of your old Vines are sound, they might do better if the soil were renewed, and the ground drained, but if they are decayed, the Vines had better be removed altogether. It is rather late in the season for a thorough reform. *M J B.*

WOODY EXCRESCENCES: *I. O. W.* The swellings are merely a growth of cork. The plant is evidently Ulmus suberosa. *M. J. B.*

MISC.: *R. W.* Please send your advertisement to the Office, and you will be informed the price.—One shilling is offered for a copy of No. 40, 1862.—Full price will be given for the *Gardeners' Chronicle*, No. 4, 1864. Apply at the Office.

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URATE,
MANGEL MANURE, &c. &c.
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LAWES'S MANURES.—The Manures manufactured by J. B. LAWES for the present Season of 1865 are now ready for delivery at his Factories, at the following prices:—
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One Dozen Bottles (value 20s.) of the GASEOUS FLUID or BLACK MIXTURE, unmatched in the known world for curing diarrhœa or scouring calves, sheep, and lambs; for ewes weakly and exhausted after lambing; for horses and cows exhausted and sickly, and for the fret, colic, or gripes in horses and cattle. An instantaneous remedy for blown cattle and sheep.
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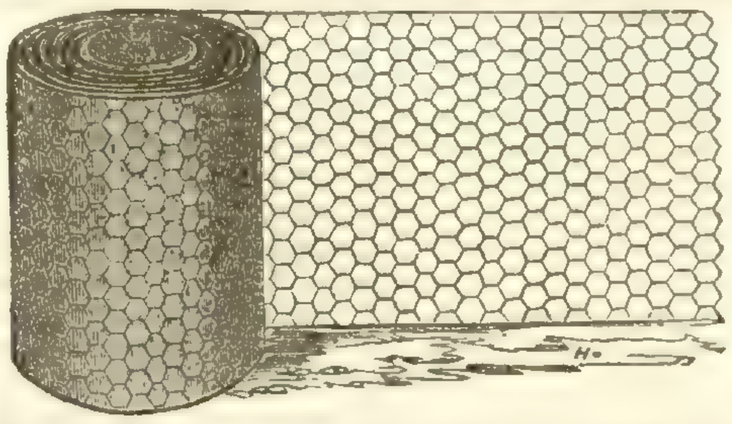
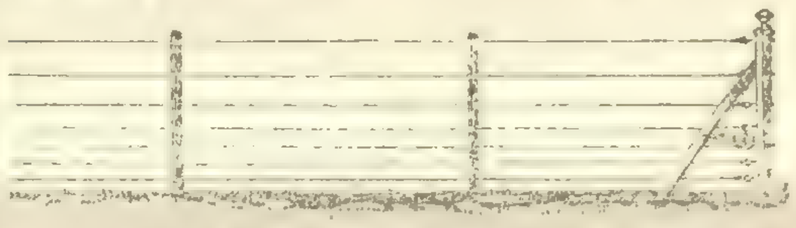
FURTHER REDUCTION in the PRICE of WIRE NETTING.



BARNARD, BISHOP, & BARNARDS beg to inform their friends and the public that they have made a further reduction in the prices of Machine-made Wire Netting, and also that all their Nettings are now Galvanised after being made, which adds much to their appearance, strength, and durability.

	Gauge.	Galvanised.	Japanned Iron.
2-inch mesh, 24 inches wide	No. 19	4¼d. per yd.	3¼d. per yd.
2-inch " " "	" 18	5 "	4 "
2-inch " " "	" 17	6½ "	5 "
2-inch " " "	" 16	8 "	6½ "
1⅝-inch " " "	" 19	4¾ "	4 "
1⅝-inch " " "	" 18	6 "	4¾ "
1⅝-inch " " "	" 17	7 "	5½ "
1⅝-inch " " "	" 16	9 "	7 "

All the above kinds can be made any width (under 6 feet) at proportionate prices.
Strong GALVANISED POULTRY NETTING, 7½d. per yard, 3 feet wide. GALVANISED SPARROW-PROOF NETTING for Pheasantries, 11d. per yard, 2 feet wide. Wire Netting of every mesh from half an inch to 6 inches.



Price of WIRE FENCING, and GALVANISED WIRE ROPE FENCING, suitable for the home trade or the colonies.
Five wires, 3 feet 6 inches high, pronged Standards, 8 feet apart, one wrought iron straining post and straining screws to each 100 yards of Fencing, 11d. per yard.
The same with Galvanised Wire Rope, 1s. 0½d. per yard
Illustrated Catalogues, with prices of every variety of Wire Fencing and Wire Netting, forwarded free on application.
*** Wire Fencing and Netting delivered Carriage Free at all the principal Railway Stations.

Drainage, &c.

MR. J. BEAUMONT, LAND AGENT, SURVEYOR, and DRAINAGE ENGINEER (for several years Assistant to Mr. Josiah Parkes), undertakes the Planning and Execution of Works of Drainage, and Estate Improvements generally; including Embankments and River Works; Reclamation of Marshes and Waste Lands; Irrigation and Warping; the Erection of Farm Buildings, Labourers' Cottages, &c., either at the private cost of the Landowner, or through the medium of the various Land Improvement Acts.
Estates Surveyed and Mapped, or Inspected and Reported upon for contemplated Improvements.
22, Parliament Street, Westminster, S.W.

THE COUNTY COLLEGE.—The FIRST TERM will COMMENCE on FEBRUARY 1. Only a very limited number of Pupils can be received at present. They must be above the age of 16.
The Course of General Study will be regulated by the Oxford and Cambridge Examinations. A Farm stocked to the amount of 3000l. will be made useful to those who wish to study Practical Agriculture. The Charge will be 15l. per term of 10 weeks.
For further particulars apply to the Rev. Prebendary BRERETON, West Buckland, South Molton, Devon.

THE CONSERVATIVE LAND SOCIETY.
INVESTMENTS FOR LARGE OR SMALL SUMS.
Investors may be either Shareholders or Depositors, or both. The taking of Land entirely optional. Prospectuses for the 13th year, explanatory of the Share, Deposit, Land, and Borrowing Departments, sent free of charge. Offices, 33, Norfolk Street, Strand, London, W.C., where Plans of 55 Estates in 22 Counties can be seen. Buyers of Land need not be Shareholders.
CHARLES LEWIS GRUNEISEN, Secretary.

THE LANDS IMPROVEMENT COMPANY.
Incorporated by Special Act of Parliament in 1853.
2, Old Palace Yard, Westminster, S.W.
TO LANDOWNERS, THE CLERGY, ESTATE AGENTS, SURVEYORS, &c., IN ENGLAND AND WALES, AND IN SCOTLAND.
The Company advances money, unlimited in amount, for the following works of Agricultural Improvement, the whole outlay and expenses in all cases being liquidated by a rent charge for 25 years.
1. Drainage, Irrigation and Warping, Embanking, Inclosing, Clearing, Reclamation, Planting, for any beneficial purpose Engines or Machinery for Drainage or Irrigation.
2. Farm Roads, Tramways and Railroads for agricultural or farming purposes.
3. Jetties or Landing places on the sea coast or on the banks of navigable rivers or lakes.
4. The Erection of Farm Houses, Labourers' Cottages, and other Buildings required for Farm purposes, and the improvement of and additions to Farm Houses and other buildings for Farm purposes.
Landowners assessed under the provisions of any Act of Parliament, Royal Charter, or Commission in respect of any public or general works of drainage or other improvements, may borrow their proportionate share of the cost, and charge the same with the expenses on the lands improved.
No investigation of title is required, and the Company being of a strictly financial character do not interfere with the plans and execution of the Works, which are controlled only by the Government Enclosure Commissioners.
For further information, and for forms of application, apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster, S.W

THE GENERAL LAND DRAINAGE and IMPROVEMENT COMPANY.
Offices: 52, Parliament Street, S.W.
DIRECTORS.
THE RIGHT HON. LORD RIVERS, *Chairman.*
George Thomas Clark, Esq.
John Chevalier Cobbold, Esq., M.P.
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Henry Currie, Esq.
William Fisher Hobbs, Esq.
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Sir Samuel M. Peto, Bart., M.P.
William Tite, Esq., M.P.
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J. BAILEY DENTON, *Principal Engineer.*
Under this Company's Act tenants for life, trustees, mortgagees, guardians, committees of incompetent persons, beneficial lessees, corporations (ecclesiastical or municipal), incumbents, charitable trustees, &c., may effect the following Land Improvements, and charge the outlay and expenses on the estate improved, by way of rentcharge, to be paid by half-yearly instalments, viz.:—
1. All works of Drainage, Irrigation, Warping, and Embankment.
2. The Erection of Farmhouses, Cottages for Agricultural Labourers, and all kinds of Farm Buildings.
3. The Construction of Roads.
4. The Grubbing and Clearing of Old Woodlands, Enclosing, Fencing, and Reclaiming Land.
The owners of estates, not entailed, who may be desirous to avoid the expense or inconvenience of a legal mortgage, may also charge their Estates with an outlay in improvements under the simple and inexpensive process of the Company's Act.
The term of years for the rentcharge is fixed by the landowner, so as to adapt the amount of annual payment to the circumstances of the tenants, and it may be so adjusted that principal, interest, and all expenses will be included in an annual charge of 6l. per cent.
No investigation of title being required, and the charge not being affected by incumbrances, no legal expenses are incurred.
The arrangements for effecting improvements are threefold:—
No. 1. The works may be designed and executed entirely by the landowner's agent, and the Company employed only to supply the loan and conduct the matter through all the official forms for charging the outlay on the estate.
No. 2. The Company will supply plans, specifications, and estimates for any improvements to be executed by the landowner's agent as under No. 1. In each of these cases the landowner will be solely under the control of the Enclosure Commissioners.
No. 3. The Company will undertake the entire responsibility of the improvements, prepare the plans, execute the works, and finally charge on the estate the actual amount expended, with their commission thereon, approved by the Enclosure Commissioners.
Landowners may thus obtain what assistance they require from the Company, and no more, in effecting the objects in view.
Works of Drainage and other improvements are also executed on commission for landowners, who merely require the skill and experience of the Company's officers and a staff in constant practice.
Applications to be addressed to WILLIAM CLIFFORD, the Secretary, at the Offices of the Company, 52, Parliament Street, S.W.

LOCOMOTIVE ENGINES on HIGHWAYS.
PRELIMINARY NOTICE.
The HOME SECRETARY having lately issued several orders under the authority of the Locomotive Act, 1861, restricting the passing of Locomotives on the Highways, excepting between the hours of 12 at night and 6 in the morning, thereby preventing the profitable employment of such Engines for Agricultural and other purposes, it is intended to hold a MEETING in LONDON on or about the 9th of FEBRUARY NEXT, to consider this important question.
Lord KINNAIRD will occupy the Chair, and further particulars will be given in future Advertisements. In the meantime any one approving of this movement, and wishing to join therein, will oblige by sending his name and address in full to
Walton, near Wakefield. CHARLES CLAY, Hon. Sec. *pro tem.*

THE FOWLER MEMORIAL.
It is proposed to hold a PUBLIC MEETING in London, early in FEBRUARY NEXT, to appoint a Committee for raising Funds for a suitable MEMORIAL in memory of the late JOHN FOWLER, to whose untiring zeal in the application of Steam Power to the Cultivation of the Soil, the Agricultural world is so much indebted.
PROMOTERS.
Signed, P. P.
DUCIE, Tortworth Court, Wotton-under-Edge.
PORTMAN, Bryanston, Blandford, Dorset.
A. N. HOOD, Cumberland Lodge, Windsor.
EDWD. HOLLAND, Dumbleton Park, Evesham.
CHARLES BARNETT, Stratton Park, Biggleswade.
THOMAS RAYMOND BARKER, Hambledon, Henley-on-Thames.
F. R. TEMPEST, Ackworth Grange, Pontefract.
H. S. THOMPSON, Kirby Hall, York.
At present it is intended to hold the Meeting on or about the 9th of February. Lord Portman will occupy the Chair; further particulars will, however, be given in future Advertisements. In the meantime any one wishing to support this movement will oblige by forwarding his name and address in full as early as possible to
Walton, near Wakefield. CHARLES CLAY, Hon. Sec. *pro tem.*

The Agricultural Gazette.

SATURDAY, JANUARY 28, 1865.

MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY, Feb. 1 { Society of Arts (Mr. J. C. Morton on London Sewage)—8 P.M. / Royal Agri. Society of England (Noon)

MR. T. DYKE ACLAND has at length published the letters ON AGRICULTURAL EDUCATION, addressed by him many weeks ago to the President of the Royal Agricultural Society of England. They were printed for the information of the Council so long ago as early in December; but though we have long had a copy of the pamphlet on our table, its non-publication hitherto has hindered any reference to it here until the present time. This is perhaps the more to be regretted because whatever influence it may be calculated to exert for the attainment of its object can hardly be looked for through the official authorities who have hitherto had the exclusive advantage of its perusal. It is through Mr. RIDGWAY, to whose shelves it is now committed, that it will at length reach those who are really concerned; and it is as an address to the general agricultural public, who are interested in its subject, not as a letter to the Council of the central Agricultural Society, that its facts and arguments will tell.

Taking advantage of a reference which had been made to the Society's duty in connection with the professional education of the farmer, and of the Committee of Inquiry into the subject which Mr. HOLLAND had subsequently obtained, Mr. ACLAND is at once afloat upon the great sea of middle-class education. True, these had no power whatever of right to launch him there; but his own tendencies, habits, and desires are irresistible. He is on the Commission of Inquiry into the condition of middle-class schools in this country, and every movement necessarily tends

in that direction. He has moreover had a distinguished share in getting the great educational bodies of the country to contribute of their immense surplus ability and energy towards the education of classes which have rarely been able to command the advantages of a university education.

And besides the action of the Universities he has, we presume through the Society of Arts, had some share in the credit, belonging mainly to Mr. HARRY CHESTER, of organising those examinations through the local societies in union, by which yet another contribution has of late years been made to the improvement of middle-class education. No wonder then that a hobby ridden so effectively and constantly should carry him wherever he may go—no wonder that any suggestion or inquiry, however closely it may be limited to a well-defined and particular object, acting as a spur without a rein, should send his steed careering all over the middle-class plain; or, if we must keep to our original comparison, acting as imperative but ill-defined sailing orders for his good ship "Education," should send her abroad on a voyage of commerce and discovery over the whole wide ocean of the English middle class.

And this is what the recent movement of the Agricultural Society has really done, for although the pamphlet is entitled Agricultural Education, the adjective might have been omitted or displaced by any other professional term without any glaring impropriety.

It seems to us that agricultural education and the education of agriculturists are two altogether different things. The former relates to the profession, the latter to the whole human nature of the individual. It is the object of the latter to place the body, intellect, and soul of man in cordial and intelligent relationship to the whole world of moral, spiritual, and material truth; it is the object of the former to teach only such applications of the truths thus conveyed as will tell upon the relationship of farmers to each other, to their landlords, their labourers, and their land.

Agricultural education in Mr. ACLAND's pamphlet means "physics, chemistry, physiology, meteorology, the laws of heat, geology, botany, animal pathology, political economy," &c., &c.—a medley of all the sciences. It is to quicken powers of observation, to confer alert vitality and wakefulness, to create habitual thoughtfulness, to strengthen resolution, to foster religious feelings and conviction. In the words of his correspondent—whom he quotes—it seems as if he would rather forget that his pupils are to be farmers—remembering only that they are to be men. And a very great service indeed he will have rendered if, his pages being generally read by agriculturists, they shall be induced by them to seek such an education for their sons as shall implant these, which are the essential elements of ultimate character, the firm foundation of ultimate position, whatever occupation or profession they may afterwards adopt as their source of maintenance and livelihood.

Nor do we say that there is not much in these pages relating more directly to the merely professional aspect of a good agricultural education. Although the pamphlet might be as properly addressed, let us say to the medical as to the agricultural profession, yet there is much in it of assertion, argument and advice from which the future farmer especially may benefit. We do not purpose to-day to offer here any analysis of its pages, but content ourselves with a cordial recommendation of them to those alone of the agricultural world, to whom, as we believe, they have any business to be addressed—the young farmers and agricultural students of the country.

But the pamphlet is addressed to Sir E. C. KERRISON, Bart., in his official capacity as President of the Royal Agricultural Society of England, and its object mainly is to induce the English Agricultural Society to come forward and assist the Universities, the College of Preceptors, and the Society of Arts in promoting that general improvement of middle-class education, out of which alone good farmers as well as good commercial men, or good professional men of any class, can be expected to arise. We contend that the Society will be altogether forsaking its well-defined field of labour if it accepts this invitation. With the utmost confidence, and unconvinced by the altogether inconclusive reply in Mr. ACLAND's second letter, we re-assert:—

"(1) That the only education with which the Royal Agricultural Society has anything to do is 'professional Agricultural Education;' (2) that a 'General Education' is as much out of its province as it is 'outside Apothecaries' Hall;' and (3) that if they had wanted to encourage agricultural education they would long ago have taken up Cirencester College."

Whether "the education of those who depend on the cultivation of the soil for their support," which the Charter directs the Society to take measures for improving, be a professional or a general education, and in what sense the neglect of Cirencester College, of which the Society has undoubtedly hitherto been guilty, is to be considered as neglect of duty, must be the subject of another paper. But we cannot delay insisting on the truth of the parallel between the practice of Apothecaries' Hall and the alleged duty of the Agricultural Society, which Mr. ACLAND seems, in his second letter, to have thought he had exploded. He says:—

"The Royal College of Surgeons confines its own direct action as much as possible to professional education and professional examination, but, feeling the importance of general education as an indispensable previous condition to the acquisition of technical knowledge and skill, it absolutely requires proof that every candidate has passed some preliminary examination as to his general education. For this purpose the medical authorities are so far from establishing a board of examiners of their own, that they enumerate a number of University and other certificates which they are willing to accept; and only in the case of 'candidates who shall not be able to produce one of the foregoing certificates,' do they require the candidate to pass an examination in English, Classics, and Mathematics.

"And how is this general examination conducted? Not by the Royal College of Surgeons itself, but 'by the Board of Examiners of the Royal College of Preceptors, under the direction and supervision of the College' of Surgeons.

"I think the course pursued by the College of Surgeons is dictated by a clear perception of most important principles; and making due allowance for the difference of circumstances, it is just the course which I desire to see taken by the Royal Agricultural Society."

It is difficult to read aright, and in their intended meaning, the words of any saving clause, and we hardly know what is the "due allowance for difference of circumstances" here referred to; but it seems to us that so far from the course of the College of Surgeons or Apothecaries' Hall being exactly what Mr. ACLAND desires the Society to follow, his admission here is a complete abandonment of the argument addressed to Sir E. C. KERRISON in his former letter. The examinations of the medical schools are essentially professional examinations; those only who have adopted the profession are admitted to them. It is as a test of professional ability that they are instituted. That is the purpose which they serve. The general education of which they require a preliminary proof, is not the object which they have in view; and although it is the basis on which the professional knowledge required is necessarily grafted, yet it is the former not the latter which is their especial aim and end. And although it answers Mr. ACLAND's purpose to play upon the words "outside Apothecaries' Hall," yet virtually and really we repeat that it is just as general middle-class education is outside Apothecaries' Hall, that we contend it must be kept outside of the Royal Agricultural Society of England.

But what, on the other hand, does Mr. ACLAND declare that he desires:—

The Royal Agricultural Society may, as it seems to him at the present time, take three decided steps:—

1. Diffuse information (on schools and general education) by its Journal.
2. Recognise a sound standard of general education.
3. Give prizes for competition, open to those who reach the standard, either for their general attainments, or their proficiency in particular subjects.

It thus appears plainly enough that it is general education which the Society is to recognise and reward. Apothecaries' Hall accepts all intending medical men whose general education is properly attested; it takes the preliminary list of medical students from the hands of the general examiner and tests them for professional ability and knowledge, and rewards them according to their professional standing. The English Agricultural Society, according to Mr. ACLAND, is to prepare the preliminary list of candidates, and submit them not to a professional but a general examination by University and College examiners, and to give prizes to those who reach their standard, not of a professional, but of a general education.

So far from being the copy which he would follow, the rule of Apothecaries' Hall is that which he directly reverses. And when his object is fully attained, we shall no doubt have the Cirencester College a great middle-class school for Gloucestershire, and copied as a middle-class school in every other county of the kingdom; and we shall have the Royal Agricultural Society, which might by a more friendly relationship have preserved the professional standing of the Cirencester institution, and suggested others of a similar kind elsewhere, presenting its insignificant contribution to the stimulus and guidance of the general movement, altogether lost in the abundant energy with which the work of general education, necessarily independent of any special body, is being carried on.

Good middle-class schools, whether county institutions or not, are very desirable things in the interest of agriculture, as of any other profession. If only they can retain their individuality, and help to encourage independence and individuality of character in boys, in spite of the overpowering organising and centralising tendency of the age, they are on every account desirable. The promoters of so desirable a movement command the heartiest good will. But when we hear of them anticipating the degradation of the great professional College at Cirencester to the level of a mere county school, and when we see them attempting to degrade the Royal Agricultural Society, the great professional Corporation instituted for agricultural improvement, to the level merely of a middle-class educational establishment, we protest. And we venture to foretell the failure of any such attempt. It is not likely that the 5000 members of the Agricultural Society, who know very well for what purpose they are associated, will be misled. The practical and professional character of the Society will be retained. Its members will discharge their duty to the general education question in the same way as Mr. ACLAND, a member of the Council, thinks he has discharged his to the Agricultural College question, *i. e.*, by their merely individual and personal interest in it. But as members of the Agricultural Society, and in their corporate capacity, we venture to predict that their action will be confined, as it ought to be, to the professional portion only of an agricultural education.

UTILISATION OF SEWAGE.

IN consequence of some remarks which appeared in a recent Number of the *Agricultural Gazette*, I have received numerous letters and pamphlets on the subject from various parts of the country, and as I am unable to reply to them separately through the post, I propose to refer to them briefly here.

A "County Magistrate" has obligingly forwarded his pamphlet on "The Utilisation of Night Soil apart from Sewage," but as a *resumé* of it was recently given in the *Agricultural Gazette* it will be unnecessary to repeat the contents now. The author has, with much fairness, published along with his pamphlet a report from a borough surveyor, whose opinion he sought, and who states that however applicable the author's plan may be to villages and isolated buildings, it would be quite impracticable in towns and populous places.

Mr. Edwin Chesshire, a well-known surgeon at Birmingham, has forwarded a communication accompanied by a pamphlet explaining his invention for solving the difficulties of the sewage question. His plan consists of an "iron catch pit," or intercepting tank, which is so constructed that it may be applied either to a common privy, in lieu of an ashpit, or to a watercloset, at some point between the seat and the sewer; and by means of a perforated partition in the tank the solid portion of the excrementitious matter is retained, while the fluid passes away as at present into the sewers. The tank is made large enough to serve for an average household from eight to 12 months, when the tank is wholly removed, and after being emptied is replaced. These tanks are in operation at Birmingham, and in some other towns, and are said to be successful in all that they seek to accomplish. The great objection to the plan is that the liquid, with its valuable ammonia, is allowed to escape, and to carry along with it some of the most fertilising properties of the solid matter. It would be found difficult too, in the case of many houses, to fix the tank so as to allow of its being easily removed.

A gentleman who writes from the neighbourhood of Cirencester, and who is evidently well acquainted with the subject upon which he writes, advocates the application of the earth principle to urinals and closets, and gives the details of a plan which he has adopted for several years, and in numerous instances with complete success. For urinals, he says, "throw down a barrow load of earth as the absorbent, and there never will be any smell so long as saturation is not completed." For outdoor privies he recommends a plan, similar to the one advocated by Mr. Moule, in which the ordinary cesspool is dispensed with, and a box formed under the seat, with a flap door at the back or side to admit of taking the contents away. Near to the seat the earth and ashes are placed, and applied as often as necessary;

a small shovel and brush being the only articles required. I have, myself, known this plan adopted in the country for years, and have always found the ashes sufficient to absorb all moisture, and prevent any offensive odour.

Several writers have called my attention to the self-acting dry earth closet patented by Mr. Moule, and bear testimony to its success. There can be no question as to this apparatus being an improvement upon the old *privé*, with its cesspool or ashpit, and with proper attention it will answer tolerably well. But my own experience has proved that unless due care be exercised in the preparation of the earth the hopper will clog, and the apparatus will become worse than useless; and all who have attempted to carry out sanitary measures for the working classes well know how difficult it is to work any plan which involves the least care or attention on their part. The cost of the apparatus is also an objection which cannot be overlooked. But, after all, the principal difficulties which beset the dry earth system and which will prevent its adoption in our cities and towns are:—

1. The necessity which it involves of keeping up a regular and sufficient supply of earth or ashes in our houses;

2. The difficulty of insuring a constant application of it to the closet; and—

3. The nuisance which must necessarily attend its frequent removal.

Beyond and beside these difficulties the system would involve the pulling of all our houses to pieces, and the formation of proper closets, with receptacles for the used as well as unused earth.

The communications which I have received show how great an interest the subject is exciting, and point to the necessity for legislative enactment to prevent the corruption of our streams, and to insure as far as practicable the application of the sewage to the soil. At Tamworth and other places where sanitary measures are now being adopted, it is seriously proposed to convey the sewage to the nearest stream, while there is intervening land to which it might be advantageously applied. In a town which I visited professionally a short time ago it was found, after a sum of nearly 30,000*l.* had been expended in sanitary measures, that through defective engineering the works were almost useless, and a similar sum is now being laid out on a more perfect scheme; but when all is finished the ratepayers will be most heavily taxed, the sewage will be pumped into the sea, and manure will be imported and purchased at a considerable cost for the adjacent lands to which the sewage might have been applied. This instance, and many others which might be mentioned, show the necessity for restrictive measures to prevent the great waste which is now being committed throughout the country at so great a cost. *C. Stuart Barker*, 12, *Buckingham Street, Strand.*

AGRICULTURE OF SOUTH WALES.

[The following is a portion of Mr. Buckley's lecture before the Carmarthenshire Farmers' Club, of which part was given last week.]

IT will doubtless be unhesitatingly conceded that there are peculiarities about Wales in a farming point of view. The most important of these may, I think, be ranged under three heads, viz., climate, soil, and the farming usages of the country. The two first are natural; and the third, although artificial, has been so long in existence that it has impressed a peculiarity of a very disadvantageous kind on the farming of the country.

(1.) And first as to our climate; we not only have more than an average quantity of rain, but our atmosphere is particularly moist, accompanied by a low temperature. Often for days together we have a thick drizzle from the sea, with scarcely a sight of the sun, while at the same time the barometer stands high, and I have noticed, when that has been the case, that it was confined to near the coast, and that to the east the weather was fine and bright. Receiving telegrams, as I do, from London every other day (Sunday excepted), giving me the weather and wind, I have been able to mark the difference, and have found it so striking that I could hardly have believed it, but for the statement of the fact. Occasionally, for instance, when we have had a thick, wetting, small rain, with the wind from the south-west, my telegram has said, "weather fine, wind north-west," or something like it. The consequence is that our corn crops, that look so green, healthy, and promising in the spring and early summer, not meeting with hot, dry, sunny weather in the later summer and autumn, so essential to the production of a mature, plump grain, do not fulfil their early promise, and at harvest present us with a lean immature sample, defective in quantity as well as quality. How strikingly this was exemplified in the harvest of 1861! If you will inquire of any of the maltsters of this town, I am sure they will inform you that they could scarcely get a bit of Barley in this country fit for malting, and that it could hardly have been worse; while at the same time, from all along the line of rail from Gloucester to Reading, they were procuring as fine, if not the very finest, Barleys they ever made into malt. They weighed frequently 56 lb. per bushel, struck measure. And your millers will testify to the same contrast in the Wheats. You know, in fact, that many, if not most, of our farmers had to buy flour for bread a little after the harvest. I was on several large farms in Warwickshire, and the quality of their Wheats really deserved the appellation of splendid. We are in the habit frequently of getting a change of seed—of Wheat and Barley particularly—from England, and I would remind you how the produce falls off in quality, even in the first crop, and that in the second or third the parentage would hardly be recognised. This may partly be laid to the change of the soil, but the climate is doubtless the chief cause. I should state that these observations do not equally apply to the growth and maturing of Oats, and that this grain should generally be sown in all our high, coarse, or damp land, there will be scarcely two opinions. Is it not plain, then, that our climate is peculiarly unfavourable to the production of corn! and is it not equally evident that it is highly favourable to the growth of roots and artificial Grasses, and to the luxuriance of our natural green pastures and meadows! It is plain that no skill or management can altogether surmount this incongeniality to the growth of corn, yet it may be considerably alleviated by only growing corn crops after roots of the subsequent Clover lea, in land under a regular course of alternate cropping, putting in the seed much earlier than is usual in this district. I have experienced this for many years, and the reason is obvious—the seed finds a deep clean bed under high cultivation, makes rapid growth, and acquires considerable strength and luxuriance early in the season, and secures longer days and a higher sun to mature it, thus becoming to some extent independent (if I may so speak) of the season. If these observations, then, are anything like correct, our course of husbandry is, to a large extent, pointed out. That we should only attempt a very limited growth of corn, and that always under a rotation of alternate crops, and that the great bulk of our land should remain in Grass (as we shall presently point out) as productive pastures and meadows, appears evident. I would just observe here in passing that even under such a restricted breadth of corn we should grow more in quantity and of far better quality than under the present system, in which nearly the whole farm is laid under contribution for its production.

(2.) Our soil is also to some extent peculiar, lying as it does, for the most part, on the Silurian formation. The surface soils on each of our various formations are of course of the same nature as the rock on which they lie, and have been brought to their present state by atmospheric and other natural influences during the roll of past ages.

(3.) The third peculiarity, as affecting the farming of Wales, is the system of farming that has prevailed from time immemorial. What I have chiefly to point out is, the usage of ploughing up periodically all the land upon which the plough can possibly be brought to work; that which is too high or steep, too low and boggy, or too rough and rocky, alone escaping (save perhaps a favoured meadow adjoining the homestead), and taking out of it a succession of corn crops, until quite exhausted and foul with weeds; and then laying it down, or leaving it to rest as it is called, in other words, leaving it to be renovated by the slow process of nature, and when nature has accomplished this task, ploughing it up again to go through the same course. By such a system, a large proportion of the land is always lying in an unproductive state, and it requires a great quantity or breadth to return a small result in produce. The stock kept are in consequence badly fed and inferior, and everything in fact is but just above starvation point, and whatever you bring to such a system of farming deteriorates. It has the advantage certainly of requiring but little capital or intelligence, the payment of the rent being the ultimate object, and if that, with a meagre living, can be accomplished, it is sufficient. It must be acknowledged, certainly, that at the beginning of some of these courses of corn crops, the field gets a dressing—sometimes a heavy one, dung and lime being tumbled on it together (the one eating up the other); but then it is spread upon the land in so foul a state that it produces weeds and trash instead of corn. As to leaving the land to rest, it is not at rest; there is nothing at rest but the farmer himself. The land is labouring to regain the fertility of which he has cruelly deprived it, while he is sitting by his fire-side, with his pipe in his mouth, considering which field he will plough up next. That this is the general system of farming, in this part of Wales at least, will not be denied.

Of course there are some very pleasing exceptions. If, then, there is any correctness in these observations, particularly as to climate and soil, to what course of husbandry do they point? Do they not indicate that the first and fundamental work is draining, and then the improvement of our natural pastures and meadows in connexion with the cultivation of a limited quantity of arable land under alternate green and corn crops, sufficient to supply the stock during the winter months with food and litter; and that the ploughing should be confined to such limited quantity of arable land under a regular rotation of cropping, seeing that the breaking up of pastures or meadow greatly injures its productiveness for a series of years: and grain crops never grown, except alternately with roots or Clovers, &c., and as part of a regular course? Do they not indicate that this is a country for flocks and herds, and that dairy farming, the breeding and rearing of cattle and sheep, is the legitimate business of the farmer in Wales, and to corn only as a secondary and subordinate source of profit? Nothing, I believe, has impoverished the Welsh farmer so much as his constant unavailing effort to raise grain crops. What proportion, then, of a farm as a general rule—for of course it must vary—should be broken up and kept as arable land? May I not venture to say that not more than about one-fourth or one fifth, after taking out all such inferior land as is too high or precipitous, or otherwise not ploughed? On the old red sandstone it may be something more, and on low grazing and alluvial lands it will be less. Take then for example, a farm of 200 acres of available land: 40 acres of it carefully selected as the most suitable to be kept as arable, and the remaining 160 as meadow and pasture. Whatever alternate course of cropping is pursued on the 40 acres—whether a four, five, or six-course shift, about one half of it will come into corn every year. Take, then, the four-course shift, and there will be, say, 10 acres under roots, 10 under Barley, 10 under Clover, and 10 under Wheat and Oats, and if this land is of fair medium quality, and has been for some time properly cultivated under such a rotation, the average yield should be at least about 40 bushels per acre of Barley, 30 bushels Wheat, or 50 to 60 Oats (we will say it is in Wheat). There will then be brought to the stackyard each year (carrying two acres to each stack) 5 stacks of Barley containing 80 bushels each, and 5 stacks of Wheat containing 60 bushels each, and taking it at 2 tons per acre, 40 tons of straw—a fair quantity for litter, the stock and other uses. This, although corn is only to be considered as a secondary source of profit, is probably more than the farm produced under the old system, when nearly the whole of the land was kept in requisition for that purpose chiefly. This estimate of the produce of corn is not guess work, but taken from my own experienced realisation of many years. Then the remaining 10 acres of roots and 10 acres of Clover will be usually heavy crops in our soils and climate: the former 20 to 30 tons per acre, and the Clover 1½ to 2 tons each cutting for hay, affording a great quantity of food to assist the meadow hay and straw for wintering the stock. But, as I have stated, the principal returns will be derived from the dairy and the rearing and feeding of stock, for which the largest possible supply of food will be provided by the improvement of the pasturage and meadows, by means of thorough draining, periodical dressing of lime, and earth dry from the ditches, with which a slight scattering of suitable Grass seeds should be applied when required, and by the application of suitable artificial manures, as guano, superphosphate, and bones; the dung from the farmyard not required for the roots, &c., being taken to dress the meadows and raise early and successive crops of Rye, Vetches, &c. By the consumption of so large a supply of food (especially in the winter, under proper accommodation) by a large and thriving stock, so great an accumulation of farmyard manure will be produced as to keep the farm (with but small assistance from artificial manures) in a rising state of fertility. What may be done for Grass lands, by the means I have pointed out, would scarcely be believed without being seen. I can point out a meadow that eight years ago was a poor clayey swamp, producing only the coarsest, sourest herbage, and not worth 10*s.* an acre; now it is covered in most parts with the finest Grasses, and well worth 3*l.* per acre.

Home Correspondence.

Painless Extinction of Life in Animals designed for Human Food.—I was very much interested by your notice of the pamphlet entitled "Painless Extinction of Life in Animals designed for Human Food," and with your judicious strictures upon it, and felt a strong desire in consequence to read the pamphlet for myself. I accordingly procured a copy from Messrs. Longmans (for which I paid 1*s.*, enough certainly for 12 pages of not very closely printed matter), and have read it with interest, and at the same time with surprise that the author should put forth such statements as are to be found at p. 10, that "blood is as wholesome and digestible as any portion of the flesh of animals," and that "the recommendation that animals should be well bled is merely a butcher's prejudice." It happens, very unfortunately for Dr. McCormac's theory, that the universal practice of enlightened and civilised society is in accordance with an enunciation of unquestionable authority. It was not always that the flesh of animals was permitted as food for mankind, and when at length the permission was given it was coupled with this proviso: "But flesh with the life thereof, which is the blood thereof, shall ye not eat." Not as the arbitrary decree of a sovereign was this prohibition given, but, like all enunciations from the same authority, in most perfect accordance with reason and right. Farther on in the same faultless code we read: "And whatsoever man there be * * * that eateth any manner of blood, I will even set my face against that soul that eateth blood, and will cut him off from among his people. For the life of the flesh is in the blood" (Lev. xvii., 10, 11). That the speciality of the prohibition may not be misunderstood, we read further on:—"And whatsoever man there be of the children of Israel, or of the strangers that sojourn among you, which hunteth and catcheth any beast or fowl that may be eaten, he shall even pour out the blood thereof and cover it with dust." Only once more, lest objectors should say

these regulations were enacted for the observance of a special people. We find that in the very first General Council assembled at Jerusalem, it was enacted, and made binding to the very end of time, that men "keep themselves from things strangled, and from blood." The above passages, to which more might be added, are the authorities upon which the practice of shedding the blood of all animals intended for food is based, and which have so thoroughly influenced the usages of Society, wherever the knowledge of them has been disseminated, so that "the recommendation that animals should be well bled," appears to be something more than a "butcher's prejudice;" at any rate, it is not a prejudice of recent date, but has descended through the fraternity of butchers for nearly or quite 4000 years. It is quite possible that our author has never taken the trouble to acquaint himself with these passages and others from the same authority, or we should never have found him saying, as on page 11:—"The butcher's prejudice about well-bled meat is one which they have imbibed from their superiors, and has no colour of support, whether in reason or fact." A very few words will suffice to show the reasonableness of the prohibition which forbids blood as an article of food. Whatever is taken into the stomach should be of a nature to be easily digested by the gastric juices thereof. Ordinary articles of food come within this category, but blood being the life, in reality a living vital substance, is on that account totally unfit to be used for the purposes of nutrition, because of the great difficulty of digesting it. Every one knows that, powerful as the solvent juices of the stomach are in resolving every dead and well masticated substance into the condition necessary to nutrition, they will not lay hold upon any living substance. If therefore blood is taken into the stomach it must remain there till its vitality is entirely destroyed, before it can be reduced into chyme, and therefore must be to a considerable extent a clog upon the system. "That the blood actually possesses a living principle, and that the life of the whole body is derived from it, is a doctrine of Divine revelation, and a doctrine which the observations and experiments of the most accurate anatomists have served strongly to confirm." "If the eaters of blood in general knew that it affords a very crude, almost indigestible, and unwholesome aliment, they certainly would not, on these physical reasons, leaving moral considerations out of the question, be so much attached to the consumption of that from which they could expect no wholesome nutriment, and which, to render it even pleasing to the palate, requires all the skill of the cook." So writes Dr. A. Clarke. Dr. Hunter "shows that the blood becomes vascular, like other living parts of the body, and he demonstrated this by a preparation in which vessels were clearly seen to arise from what had been a coagulum of blood, for these vessels opened into the stream of the circulating blood, which was in contiguity with this coagulated mass." Another writer affirms: "One general law affecting all living bodies is, that they have a tendency to resist the action of those bodies which threaten their destruction. This is undoubtedly the effect of life in every case." (Dr. J. Corrie's Essay on the Vitality of the Blood, Ed. 1791, p. 6.) Enough has probably been said to show the unfitness of blood as an article of food; and you have dealt so ably, though briefly, with our author's comparison of vivisection with the usual modes of slaughtering the animals designed for food, that any further notice would be superfluous, further than to say that your remark, "that there are numerous cases to show that instantaneous death from a blow is in all probability absolutely painless," is worthy of being pondered by our author, and by all who entertain similar views. The probability is, that the common sense of mankind (leaving higher motives out of the question), will lead them, along with the "prejudices" of the "butchers," to the very end of time. *William Chitty, Stamford Hill, Jan.* 16.

Effect of Irrigation.—In the last issue of the *Agricultural Gazette* Professor Buckman's Table of Grasses improved by irrigation must be a surprise to many of your readers; this table, as you say, is "not consistant with universal practice." I aver that it is the very opposite. For 20 years I have studied the subject of natural Grasses adapted to pasture land, and seen much of irrigation on meadows of natural Grasses, as well as with Italian Rye-grass, and am now engaged to improve a meadow where the herbage has become worthless by irrigation; therefore, the subject directly interests me, and I will feel greatly obliged by any information as to the amount of irrigation which produced the results as stated in Professor Buckman's Table. The Poa trivialis is the only good Grass that I have seen increase by irrigation, and this was with spring water. In the Table this Grass does not increase, while its congener, the Poa pratensis, an upland Grass, is made to double: more remarkable, the Aira cæspitosa dies out! *Charles M'Donald, Woodstock Park, Jan.* 23.

Yew.—I notice an article under the head of "Poisoning by Yew," and as the experience of your readers is requested on the subject I beg to give you mine. In March, 1859, I had, with other young horses running in my park, a very fine two-year old colt, by Raby out of a Beeswing mare. One morning the colt was found dead on the carriage-road. There were no indications of the cause of death, and in my absence the animal was buried. Some days after, however, horses' feet marks were discovered in the enclosed grounds near a Yew tree, the twigs of which had evidently been nibbled. On finding this I had the colt exhumed, and the result of a *post-mortem* examination, performed by Mr. C. Stephenson, of Newcastle, veterinary surgeon, gave the most conclusive proofs of the cause of death, considerable portions of fresh green Yew being found in the stomach. A more detailed account of this case may be found in the "Veterinarian" for July, 1859. *Jas. Laycock, Low Gosforth, Northumberland.*

Yew and Colchicum.—I observe you inquire as to the effect of Yew and Colchicum on cattle. A few weeks ago my heifers broke through into a neighbouring garden. In one corner, unknown to any of our people, there was a little scrubby Yew—one heifer died from eating it, and a horse was seriously ill. There was no doubt about the cause in each case. The leaves in the stomach of the cow were quite fresh. Two or three years ago, when Mr. —— came to Frog Lane Farm, he found some of the fields covered with Colchicum, and wishing to destroy it, he had it all mown; but instead of clearing it away he left it on the ground. When withered his cows ate of it, several of them were seriously affected, and one or two of them died. It is undoubtedly a very dangerous plant. *John Thornhill Harrison, Frocester Court, Jan.* 19.

Foreign Correspondence.

CANADA: *Downship of Dawn, Canada West.*—[The following letter addressed to Mr. Alderman Mechi has been sent to us for publication.] Permit me to address a few lines to you from the backwoods of America, and to inform you of a few of the great hardships the poor emigrants have to contend with in carving out a home for themselves in this inhospitable land. I was induced, from the flattering accounts I heard of Canada, to make a trial at bush-whacking, or clearing up a hundred acres of forest land. I was insane in that respect, for it's a task no one should undertake unless he has two or three sons to help him in his arduous task. I took a hundred acres from the Canada Company at ten dollars per acre, that is 2*l.* sterling. I paid 180 dollars down for the right of settling upon it as a leaseholder for ten years; the interest on the thousand dollars is 12*l.* sterling per year. As I have been on it ten years without being able to pay one penny, either principal or interest, and many thousands more being in the same position, I think it is high time that so much clap trap that we hear about emigration to Canada was exploded. I think prior to 1845 that Canada did offer a home to the hard-working agriculturist, but now it will hardly do that to a man of moderate means. What can a farm labourer do here when a capital of at least 800*l.* is too small to commence a bush farm? for it is quite by chance if he raises his bread and seed under ten years, and it is no small task to grovel through that long time and keep the bailiff from seizing your little property for the benefit of the storekeeper or the bootmaker. The new settler has almost insurmountable difficulties to contend with. First, he has five times too much to pay for his land, that is, what should be sold at 8*s.* per acre, he cannot buy under 2*l.* sterling. The Government lands are all sold to speculators, hence the enormous price asked for them, except those lands in the extreme north, which is fit only for the native Indians, as there are seven feet of snow frequently. I think they are not likely to be cleared fit for civilised people. Mr. McDougall, the Commissioner of Crown Lands, stated that the best lands were all sold, and it was unfair to set the poor emigrants down in the forest to starve. A sentence composed of so much truth ought to be printed in gold. That pithy sentence roused all the land speculators, your Streets, Hendersons, and the Canada Company's nominees, with a host of others, to fiery combat in the house of the Legislative Assembly; they at the same time asserting that it would direct the attention of the intending emigrants either to the United States or some other British colony. Why, sir, for the last four years we have had no emigration to Canada except a few poor Scotch fishermen, influenced by "Mr. George Brown, M.P.P. of the famous representation by population notoriety." What the people want is this, that it should be widely known that Canada does not offer a home to the sturdy labourer and his family; to a few single men it offers more advantages, as single men get higher wages than in England—if wages is their object, as they must sacrifice all other comforts. I will commence with stock, horned cattle first: the new settler from England generally begins with stock. He must have four cows at least, besides others growing up, as his land produces nothing but Grass for the first seven to nine years; some let it remain ten before they attempt to plough it up, and even then the roots and stumps interfere very much. Well, what is the result of keeping this stock? why, simply this; they in nine cases out of ten all die with the murrain, and frequently the settler's ox team goes also. That is a ruinous affair, for, however low everything rules, oxen are always dear, and the loser sacrifices every comfort, even necessaries for his children, to buy another ox; very likely next year the other one dies, then he mortgages his land, paying 10 per cent. interest; after that he works at ditching on the public highways to pay the interest, and finally the little farm goes, and then he has to cross over to the land where the Stars and Stripes flutter in the breeze, to ask them to let him try again to form a home under their banner, for though he worships the flag of Old England, though he admires the impartial manner in which she administers her laws, though he reverences the name of Victoria, and would draw the sword or shoulder the musket, and take a determined stand to protect the honour and dignity of that beloved land, yet you do not give him a fair opportunity to live under your protection. He wants land sufficient to keep him by hard work, and he must go where it is to be had good and cheap, at about 6*s.* per acre, though it be under another form of Government; and thus we are losing, and shall lose, half of our population in Canada. But I have wandered a little out of my path respecting cattle; I will simply tell you that I have lost 13 head of cattle, my ox team among the number; I don't know how many sheep, but I know 27 died in one year; we take but little notice of pigs dying, as they never pay to raise. I have seen but two good Wheat crops in 10 years, and we call 14 bushels to the acre a good crop. The fly destroys the Wheat, and there is a bug that breeds in the Peas and eats the inside out; and through the American war we are unable to sell our cattle or pigs, as they buy everything we have to sell. Our markets are very low in everything; I will be plain and state in English money:—Good beef, per lb., 1½*d.*, pork 2*d.* per lb. flour per 100 lb., 9*s.*, mutton 3*d.* per lb., hides per lb., 1½*d.*, butter 9*d.* per lb. (I have known it sold for years at 4*d.* per lb.), Oats 1*s.* 8*d.* per bushel, hay 2*l.* 8*s.* per ton. Many of our children are nearly naked and barefoot, owing to the high price of clothing and boots.—

Societies.

HIGHLAND AND AGRICULTURAL: *Jan.* 18.—At the annual meeting of this Society held this day, the Duke of Buccleuch occupied the chair. 101 new members were elected.

AGRICULTURAL EDUCATION.

The following is the report by the Council on Education and Committee of Directors on Education:—

"The Council and Committee have carefully considered how the Society can most effectually promote agricultural education, and they now beg to submit the following suggestions for the consideration of the directors:—

"1st. That the compulsory observance of a curriculum should be dispensed with, and that any course of study to be indicated should merely be suggestive and for the information of students.

"2d. That the rule which at present requires two separate periods of two years each to be devoted to classes and to the farm respectively should be repealed, and that no certificates of attendance at either be required.

"3d. That the possession of the required knowledge shall be deemed a sufficient qualification for a candidate, and that this should be determined solely by examination. That the examination should be both written and oral; that the value of the answers should be determined by numbers; and that the oral examination should be public.

"4th. That there should be two examinations, to be styled respectively the Certificate Examination and the Diploma Examination—the first to be open to candidates not less than 18 years of age, the second to those who have completed 21 years.

"5th. That to pass the Certificate Examination, a candidate must be acquainted with farm accounts, mensuration, and surveying, and must possess a good knowledge of practical agriculture, and a general acquaintance with the elements of botany, chemistry, and natural history.

"6th. That a certificate in the following terms, signed by the President or Vice-President of the Council on Education, and by the Secretary, should be granted to candidates passing this examination:—

"'We hereby certify that A. B. has been examined, and has been found to possess a knowledge of farm accounts, mensuration, and surveying, a good knowledge of practical agriculture, and a general acquaintance with the elements of botany, chemistry, and natural history, and that he is therefore entitled to present himself for the further examination, in terms of the regulations for the Society's diploma.'

"7th. That candidates who possess this certificate, and have completed their 21st year, should receive the diploma, if found, on the final examination, to possess a thorough knowledge of the theory and practice of agriculture; of mechanics and mensuration; of the physiology and treatment of domesticated animals; and of the applications of botany, chemistry, and natural history to agriculture.

"8th. That a sum not exceeding 100*l.* per annum should be placed at the disposal of the examiners to be applied in prizes—the number and amount of which shall be afterwards fixed—to candidates who pass with distinguished merit, and on a standard exceeding that required for the diploma.

"The Council and Committee believe that the modifications of the existing system now suggested will tend to popularise and extend the operation of the Society's Educational Charter, and to stimulate agricultural education. It is expected that the facilities afforded for preparation, and the prizes and marks of distinction proposed to be conferred, together with the publicity which will be attached to the awards, will have the effect of inducing provincial schools to devote attention to the education of agriculturists, and to vie with each other in qualifying pupils for such competitions.

"The Council and Committee recommend the Society to confine itself, at least for the present, to the exercise of such influence as has now been suggested. They cannot recommend the Society to establish direct relations with provincial or parochial schools. There are several objections to such a course. If prizes were to be offered, as has been suggested, to such schools, it would be difficult to regulate the number or determine the status of the seminaries which should be entitled to claim them. Any attempt to draw a line of demarcation might appear invidious, and would be unpopular, and expose the Society to imputations of partiality. On the other hand, if no such line were fixed, the Society would in all probability find itself exposed to demands which could not be refused without giving offence, and which, if complied with, would encroach unreasonably on the resources of the Society. The offer of a prize involves likewise the necessity of an examination in each case, at the instance of the Society itself; and though the gratuitous and valuable co-operation of the learned Professors, and the other gentlemen who constitute the Board of Examiners, will enable the Society to conduct the proposed certificate and diploma examinations in Edinburgh, the extension of a system of examination to the provinces would necessitate a staff far beyond that which it is in the power of the Society to organise. Other objections also

might, if necessary, be stated against direct intervention in regard to the tuition given at parish schools and other local seminaries.

"The Council and Committee have only further to recommend that two prizes should annually be allowed by the Society to the students who pass the best and the second best examinations in the Agricultural Class in the University of Edinburgh. (Signed) DUN. M'NEILL, *C.*"

Mr. NISBET HAMILTON moved the adoption of the report.

Mr. ELLIOT, of Wolflee, seconded the motion.

Mr. M'LAGAN, of Pumpherston, said: Yesterday he received a letter from Mr. Milne Home, requesting him to express his regret at not being able to be present at the meeting that day; he had therefore requested him to bring his views before the meeting. Mr. M'Lagan proceeded to read extracts from the letter; and concluded by saying:—There are parts of the report which require the most momentous consideration. I, therefore, with great deference humbly suggest to the directors whether they ought not to allow the report to lie on the table in the meantime, and bring it up for consideration at next meeting. I wish further to say that there are some objections of Mr. Home's to the report to which I give my most cordial assent. I allude particularly to that part which refers to the giving of diplomas. It is said in the report, I think, that there should be a certain number of marks required in giving the diploma, and that there should be money prizes given to those candidates who exceeded the specified number of marks. Now, I think that a diploma is the highest honour which anybody can confer upon a young man. It is a certificate of his proficiency, and it is the passport which he shows which gives him the privilege of going with honour from one district to another. I think you should not depreciate the value of that diploma by putting some paltry money prizes above it. This is one point which I wish to urge upon the directors. There are other points which I intended to advert to, but I shall not detain the meeting with them. I beg simply to reiterate the hope that the directors will take this point into their consideration—whether they will press the approval of the report at this meeting, or whether they will allow it to lie on the table till next meeting.

Mr. B. NICHOLSON, advocate, and Professor BALFOUR thought it was important that the meeting should proceed with the report and dispose of it just now. The latter said the better course would be to adopt it in its present condition and make alterations or improvements on it if necessary, as they received experience of its working. He considered the question of age a minor point, and was of opinion that they should not stop the adoption of the report for that. With regard to the prizes, he wished to remark that in the giving of these it was not intended to depreciate the diplomas, but that the prizes should be given in addition to those young gentlemen who manifested a higher standard of excellence than that required by the diploma.

Sir JOHN STUART FORBES said he thought the report should not be put either as the report of the directors or of the committee, but as the deliberate result of the consideration on this subject by the Committee on Education of this Society. The Council was one which had been established by their supplementary charter, and it consisted of men of the highest position and of the highest intelligence in the country—men who were perfectly suited to deal with that important question in the most liberal and systematic manner. He thought, therefore, it would be very undesirable that they should throw open the whole of the points of that question for discussion and for the comments of every one who might choose to take it up at the moment, considering that they had that deliberate report in favour of the adoption of a certain course. He was glad to think that the step which the committee had recommended had been taken; and they had advanced within the last twelve months to a point which he had never hoped to see accomplished in so short a time. Therefore he was anxious that they should not lose time. He was quite sure that details, such as the place of examination, and other matters, will be dealt with by the committee when they come to put the system into working order. He for one hoped that the Society might be able to go a little further in regard to elementary education. He was confident that when the system recommended was in operation, they would be certain of having their elementary material for their examinations of a higher character than it was at present. He thought that in time they should be able to select certain schools, which would enable young men to come forward and devote a good deal more time than they at present did to their agricultural education.

The Report was then adopted.

The following is Mr. Milne Home's letter, of which Mr. M'Lagan read portions to the meeting:—

Brighton, 10, Regency Square,
January 14, 1865.

My dear Sir,—As you have always taken an interest in the agricultural education movement, and as you supported me in it at the half-yearly meeting of the Highland Society, I hope you will now allow me to write to you with reference to the present position of the question.

About 10 days ago, when in Edinburgh, at the New Club, Mr. Hall Maxwell came to me and mentioned that a report had been drawn out by the Educational Council and Committee of Directors; that the directors had, on the day he spoke to me, adopted the report; that the Duke of Argyll also approved of it; and that it would be laid before the general meeting on the 18th inst., with a view to its being confirmed, and to its finally settling the whole matter. He added that he had been authorised to send to me a copy of the report.

I have since received this document, and have given to it much consideration, and with an earnest desire to acquiesce in what I was told had been approved of by the directors, and especially by the Duke as President of the Society—whose qualification to judge of this matter I fully appreciate—I was in hopes, till yesterday, of being able to return to Edinburgh in time for the Highland Society's general meeting next Wednesday; but as there is now a great probability of this not being the case, and as my silence when the report is read, especially after a copy had been sent to me, might be misconstrued, I take the liberty of addressing a letter to you, that, if you see proper, you may either read it or mention its purport at the general meeting when the subject is discussed.

The copy of the report which was sent to me I now enclose, that you may yourself judge of it, and also be the better able to understand the criticisms which I have to offer upon its leading features.

I much regret that an opportunity had not been given to me of perusing the report before it was laid before the directors for approval, or that I was not summoned to the meeting of the directors; in either of which cases I would have asked leave to submit to their consideration the remarks which I now feel constrained to make in the only way left open to me.

I shall notice, first, the parts of the report in which I cordially concur.

1st, I rejoice to see, in the very first paragraph, a declaration of the object aimed at—viz., "How the Society can most effectually promote agricultural education."

It is no less gratifying to see the recommendations which are contained in the report enforced by the following considerations:—"The Council and Committee believe that these recommendations will tend to popularise and extend the operation of the Society's Educational Charter, and to stimulate agricultural education It is expected that the facilities afforded for preparation, and the prizes and marks of distinction proposed to be conferred, together with the publicity which will be attached to the awards, will have the effect of inducing provincial schools to devote attention to the education of agriculturists, and to vie with each other in qualifying pupils for such competitions.

"The Council and Committee recommend the Society to confine itself, at least for the present, to the exercise of such influence as has now been suggested," and not "to establish direct relations with provincial or parochial schools."

I gather from these remarks that the reporters approve of agricultural instruction being given, certainly in provincial, perhaps also in parochial schools, and that they expect that both classes of schools will, as respects such instruction, feel the influence of the measures suggested in the report. Whether this expectation is likely to be realised, and in particular whether the provincial schools, in the prospect of "the prizes and marks of distinction proposed to be conferred," will vie with each other in qualifying their scholars to compete for these, is a separate question, on which I reserve my remarks till afterwards. At present I wish only to notice and approve of the object of the reporters, which is to popularise and extend agricultural education, and to stimulate provincial schools in affording it to their pupils.

2d, The prizes and marks of distinction proposed in the report—so far as these go, and viewed apart from the conditions annexed to them—meet also my approval. They are as follow:—

(1.) Two annual money prizes to the students who pass the best and second best examinations in the Agricultural Class of the University of Edinburgh.

(2.) A certificate to be conferred on candidates who on examination are found to understand farm accounts, mensuration, and surveying, and to have a good knowledge of practical agriculture, and a general acquaintance with the elements of botany, chemistry, and natural history.

(3.) A diploma to be conferred on candidates who on examination are found to have a thorough knowledge of the theory and practice of agriculture, and of the other branches stated in the report.

(4.) A sum not exceeding 100*l.* per annum to be applied by the examiners in prizes.

3d, There is another point in the report of which I approve The reporters "recommend the Society not to establish direct relations with provincial or parochial schools," but "to confine itself, at least at present, to the exercise of such influence as is suggested" in the report. I would entirely disapprove of the Society offering encouragement, and especially money prizes, to any particular school, or set of schools. These should be open to any institution which chooses to compete for them. To act otherwise, would, as the reporters say, be "invidious and unpopular, and expose the Society to imputations of partiality."

4th, The same views lead me to approve of the abolition of the restrictions which have hitherto limited competition for the Society's diploma. It seems to me quite right to dispense with the rule requiring attendance at classes and residence on a farm, for periods of two years respectively, and also with the observance of any curriculum. It ought to be sufficient, as the reporters say, if the candidate shall be in "the possession of the required knowledge," wherever and however that may have been obtained.

Whilst concurring in the facts of the report to which I have just been referring, and feeling much gratified in being able to do so, I feel bound, though with regret, to take notice of some portions in which I cannot concur, and which, I would really hope, the directors would calmly reconsider.

I allude now to the conditions which are annexed to "the prizes and marks of distinction" to be offered by the Society—conditions which appear to me to go far to neutralise the effects of these as stimulants to the popularisation and extension of agricultural education.

1. Referring to these in the order I have already mentioned them, why should the "agricultural class in the University of Edinburgh" be selected as alone to receive a money prize?

At the University of Aberdeen, there is also (as I told the committee) an agricultural class, called the Fordyce Lectureship, which is generally attended during the winter session by 20 or 30 students. It has a miserable endowment of only about 40*l.* yearly. Much as the Edinburgh class requires pecuniary encouragement, the Aberdeen class requires it more.

In thus assisting the one and ignoring the other, the Society would be exposing itself to the very "imputation of partiality" which the reporters say should be avoided. Moreover, as so many of the Edinburgh Professors are upon the committee, it might be alleged, however unjustly, that they also have been actuated in this matter by partiality.

2. With regard to the annual sum of 100*l.* to be bestowed in prizes, observe the remarkable restriction annexed. They are to be given only "to candidates who pass with distinguished merit, and on a standard exceeding that required for the diploma."

The diploma is only for students who have the highest qualifications; they must possess "a thorough knowledge of the Theory and Practice of Agriculture—of Mechanics—of Mensuration—of the Physiology and Treatment of Domestic Animals—and of the applications of Botany, Chemistry, and Natural History to Agriculture.' No money prize is to be given to any one who does not, on his examination, exceed that standard. Even those who come up to it are excluded, But what is still more grievous, the younger students who compete for the "certificate," and who obtain it, are excluded from these money prizes. Yet one would think that they were the very class who required most such a stimulus. The older students of 21 years and upwards, who gain the Society's diploma, have got within reach of the higher prize of profitable and professional employment.

I therefore earnestly hope that the Society will not sanction this restriction on the disposal of the 100*l.* Let a share of it go to those who, in competing for "the certificate," appear to the examiners to deserve a prize.

3. Another restriction which I humbly think objectionable is the condition as to the ages of those who compete for the diploma and certificate respectively. The latter can be gained only by persons above 18 years, the former by persons above 21 years of age.

Why should there be any such restriction? If a boy who possesses the requisite knowledge to compete for and gain the certificate is only 16 or 17 years old, why should he be excluded? If he possesses the same knowledge as the boy of 18, he appears to me to be all the more deserving.

I believe that boys would be sent up from the Dollar and Inverness Academies, and other provincial schools similarly well conducted, of 16 and 17 years of age, who would be found possessed of the knowledge specified as necessary for the certificate.

Moreover, this restriction in regard to ages of candidates seems to me inconsistent with the whole tenor of the first part of the report, which abolishes the system of restrictions hitherto existing, and which specially recommends "that the possession of the required knowledge shall be deemed a sufficient qualification for a candidate." If this restriction continues, it will have the effect of excluding from both "prizes and marks of distinction" all students except such as are at a University. For where else are there students who exceed 21 years of age; and how many provincial academies are there attended by scholars "exceeding 18 years of age?"

When the reporters say that they expect the prizes and marks of distinction will induce provincial schools to pay more attention to agricultural education, and to vie with each other in qualifying their pupils to compete for them, they seem to me to be labouring under considerable misapprehension as to the ages of the pupils at these schools.

4. There is another objectionable restriction, and that is, the condition that no student is to compete unless he comes to Edinburgh to be examined.

Such a condition would virtually limit the whole benefit—especially when coupled with the restriction as to age—to students of the University of Edinburgh.

It is not to be expected that young men would come up from provincial schools, or even from any other town the seat of a University, and incur the expense of travelling and of lodgings in Edinburgh, merely on the chance of getting an honorary certificate or diploma, especially if excluded from the money prizes.

The reporters apparently felt that this restriction would be open to animadversion, and therefore they set up a defence of it. They say that the "learned Professors" give their gratuitous co-operation, to "enable the Society to conduct examinations in Edinburgh;" but that "the extension of a system of examination to the provinces would necessitate a staff beyond what it is in the power of the Society to organise."

In other words, because the Edinburgh Professors are willing to take part in the examinations gratuitously when they are confined to Edinburgh, the Society, for the sake of a paltry saving, should deprive the students of the other Scottish Universities and of all the provincial schools, of the necessary means of testing their qualifications.

The Society sends judges ungrudgingly to distant parts of Scotland to examine cattle, pigs, and poultry, and award prizes to the most deserving, at an expense far exceeding what would be required to send a competent person to examine candidates in the provinces who may wish to compete for the diploma or certificate. I therefore cannot believe that the Society, if it sanctions the offering of prizes and marks of distinction to be competed for by the pupils of provincial schools, will refuse the only practicable means of carrying out that object.

But if the Highland Society really think it impossible to organise a special staff of their own to examine in the provinces, another plan equally efficacious, and very economical, may be adopted. Arrangements have been made by the Universities of Edinburgh and St. Andrews to hold district examinations for awarding honorary certificates of classical, literary, and scientific attainments to young men. These examinations are to be held in such towns as Perth, Ayr, Stirling, Inverness, Oban, and Dunse. Now, there would be no difficulty in arranging that the professors who are to conduct these examinations should at the same time visit the schools which had signified a desire to compete for the Society's prizes and honours, or receive the scholars for examination in the town where the other examinations are being carried on.

A short time ago, having been invited to join the District Committee for conducting an Edinburgh University examination in Berwickshire next summer, I had sent to me by the secretary a list of the subjects which will be embraced by it. Among these subjects I find mechanics, chemistry, natural history, animal and vegetable physiology, which are the principal heads of inquiry in an examination for the Society's diploma and certificate; so that the persons who, on behalf of the Universities, are to conduct the district examinations, would be quite competent to act in this matter also on behalf of the Society.

On these grounds, I cannot concur in the propriety of any of the restrictions which are recommended to be annexed to the prizes and marks of distinction specified in the report. If the directors really entertain the desire "to popularise and extend the operation of the Society's Educational Charter," I earnestly hope that they will reconsider these restrictions. I hope, also, that they will ask authority from the general meeting to arrange for district examinations being held, in the event of any provincial or parochial schools intimating on the part of their pupils a desire to compete for the Society's prizes and honours.

I have written thus fully to you, as I believe you appreciate the importance of the subject quite as much as I do. Had I been present at the meeting of the Society next Wednesday, I would have asked leave to express my views publicly on the reading of the report: I would have done nothing more in the way of opposition to the directors' proposals. But I could not have done less, in justice to my own previously expressed opinions, and to the opinions of many influential members of the Society who have, like yourself, honoured me with their support in this question. I therefore would feel much obliged if you would, on the reading of the report at the general meeting, have the kindness to make known my views in any way that you may see fit.

The directors are probably aware of my opinion, as, when Mr. Hall Maxwell explained to me some of the leading features of the report, I told him that I was sorry that I could not support it, and that I would have to say so at the genera meeting.—I remain, my dear sir, yours very truly,

DAVID MILNE HOLME.

To P. M'Lagan, Esq., of Pumpherston.

CHEMICAL DEPARTMENT.

Dr. ANDERSON, in reporting upon the business done in this department during the last six months, stated that during the latter part of the year a smaller number

of analyses had been made than during the first six months, when the traffic in manures was most active. They had, however, during the past six months had our usual amount of work, and great progress had been made. He intimated that experiments were being made in connection with the Bean crop, and also with reference to the effects of different kinds of manure on Grass. Some of the experiments alluded to in last report were still going on, and he expected that progress would be made in them during the next six months.

Mr. HARVEY, Whittinghame, said it had come to his knowledge that considerable adulteration had been discovered in some of their feeding cakes. He wished Dr. Anderson to explain how far this adulteration had come under his cognisance, and to inform the meeting whether it was foreign or home-made cakes which were the more adulterated.

Dr. ANDERSON, in reply, said he was sorry to say that the adulteration of oilcakes was far from uncommon at the present moment, and he thought he might venture to say that perhaps the adulteration was more common in the home-made cakes than in the foreign. He might give one sample as an example of the fact. A dealer in oilcakes—a man who took great pains to obtain a first-rate article—recently obtained samples from four manufacturers, and the result went to show that three out of the four samples were grossly adulterated. One of the manufacturers when taxed with the matter, admitted point-blank that it was adulterated, but said in extenuation that the price at which these oilcakes were sold was such that he was compelled to adulterate them. In regard to foreign-made oil-cakes, he believed there was a great deal of inferior and Turkish seed used in their manufacture.

PAPERS IN COMPETITION—LIST OF AWARDS.

Mr. FORBES IRVINE, of Drum, read the following list of premiums for reports:—

1. 30*l*., to Archibald Sturrock, Struthers Cottage, Kilmarnock, for a Report on the Agriculture of Ayrshire.
2. Gold Medal, or 10*l*., to Patrick Shirreff, Haddington, for Report on a new variety of Agricultural Plants—"Shirreff's Bearded Wheat."
3. Gold Medal, or 10*l*., to John Maclaren, Rossie Priory, Inchture, for a Report of Experiments on Feeding two kinds of Leicesters.
4. Gold Medal, or 10*l*., to George Armatage, veterinary surgeon, Pensher, Fence Houses, for a Report on Foot-and-Mouth Disease.
5. Gold Medal, or 10*l*., to Christopher Young Michie, forester, Duthil, Carr Bridge, Morayshire, for a Report on the Uses and Value of Timber.
6. Medium Gold Medal, or 5*l*., to said Christopher Young Michie, for a Report on the General Management of Plantations.
7. 5*l*., to Hugh Borthwick, shepherd, Traquair Knowe, Peebles, for a Report on Scab in Sheep.

PRESIDENTSHIP OF THE SOCIETY.

After a discussion of Sir T. Gladstone's motion, that the Presidentship of the Society should be hereafter open to the membership, and not confined as at present to persons of ducal rank—which resulted in an adoption of "the previous question," leaving the present rule unaltered; and after a somewhat unsatisfactory discussion of the differences between the directors and the officers and members of the Implement Committee, arising out of the late show at Stirling, the meeting terminated.

DURHAM COUNTY.—At the recent annual meeting of the County of Durham, Sir Hedworth Williamson, M.P., was elected President for the ensuing year.—Mr. Stratton moved, and Mr. Newby seconded, that the meeting of the Society be held in the city of Durham for the ensuing year. Carried.—Mr. Stratton then said he had a subject of much importance to bring before the meeting so far as the farmers and graziers were concerned, and that was with regard to dogs running after and preying on their sheep. As the law stood at present, if they knew a dog was destroying sheep they could not destroy it nor make the owner pay the damage done by it, unless they could prove that the dog had been in the habit of killing sheep. The laws with respect to this were different in Ireland and Scotland. If a dog did an injury there they had nothing to do but find out the owner, and they could compel him to reimburse them for their losses. He thought they ought to petition Parliament to endeavour to get the law of England in this matter assimilated to those of Scotland and Ireland. He said that they might appoint a committee to gain every information they could, and they might meet at some future day and consider it.—Mr. Johnson: And to inquire as to the best mode of remedying the law on the subject.—Mr. Furness said perhaps the secretary of the Northumberland Society might co-operate with them.—Mr. Johnson, the secretary, said he should be happy to do so, and he should mention the matter to the members for Northumberland in order to get their co-operation. It was agreed that the meeting be adjourned to that day fortnight.

Reviews.

The Journal of Agriculture, and the Transactions of the Highland and Agricultural Society of Scotland. January, 1865. Blackwood & Son.

The Journal contains papers on the agricultural uses of Gorse, on Coffee, on the Oat crop, on plantation roads, on water and its agricultural uses, on agricultural education in rural schools, with the agricultural summary of the last quarter of 1864, and with notes on the turkey, wool, and coprolites, and various statistical tables. The Transactions include papers on horse breeding, on autumn and spring manuring, on mixed plantations, on waste land reclamation, and on the action of uric acid as a manure. As a whole, the volume or Part is a satisfactory number, and full of useful information. The papers to which we shall at present refer are those on Gorse, on Agricultural Education, and on Uric Acid.

1. The serviceableness of Furze or Gorse as food for cattle is illustrated by several authorities. So long ago as 1812 Mr. Fraser Tytler fed his horses on bruised Gorse. Along with this they had "as much straw as they could eat, and 3 lb. 2 oz. of Oats per day till the beginning of February, when their allowance of Oats was doubled. The quantity of bruised Whins given per day was found, upon an average, to be 18¼ lb. The same system was continued in 1813. In the following year the stock of horses was reduced to eight, and a larger quantity of Whins was given them. Six of the horses got each 28 lb., and the other two horses from 20 to 22 lb. Corn was withheld from them during the short days of winter; and in spring, as the days lengthened, and the work became heavier, they got only half their former allowance, or 3 lb. 2 oz. Notwithstanding that the allowance of Oats was thus materially lessened all through the season, the condition of the horses was equal, if not superior, to what it had been during previous years—the quantity of corn withdrawn appearing to be more than compensated by the additional 10 lb. of Whins.

"The expense which attended this mode of feeding, including that of collecting and preparing the Whins, together with straw and Oats, was 4¾*d*. per day for each of the eight horses prior to the beginning of February, when no corn was given, and 8*d*. per horse after that date, Oats being then added. When hay was given instead of straw the daily expense was 1*s*. 0½*d*. per horse."

Some months ago "A Welsh Farmer" described his experience in the columns of the *Mark Lane Express*. He said:—

"As a proof of the great economy effected by the use of this food, I may state that I winter ten horses, which consume three and a-half cart loads per week. These cost from 1*s*. 6*d*. to 2*s*. per load; the cutting is done by the job at 1*s*. 6*d*. per load, the man also assisting the carter in loading. It is bruised after field hours in the same time that would be required to cut the necessary amount of chaff. The cost of keeping all my horses is therefore as follows:—

	£	s.	d.
Three loads and a-half of Furze, at (say) 2*s*.	0	7	0
Cutting and loading three and a-half, at 1*s*. 6*d*. ..	0	5	3
Carting home, half day each load, at 5*s*. per day ..	0	8	9
Ten bushels Oats, at 2*s*.	1	0	0
	£2	1	0

Not quite 4*s*. 1½*d*. per horse per week."

Again, in 1838, Mr. Robert Black, of Lochalsh, Ross-shire, described his success in the utilisation of the plant.

"In the winter of 1835 and spring of 1836 I had a bog of 16 Scotch acres drained and dug over to the depth of 10 or 12 inches, at an expense of 6*l*. an acre. The land at the time of sowing, April 1836, I considered in a very unfit state for sowing, as the raw peat had had no time to mellow down to anything like soil, and the seed was consequently sown over a raw peat-bog, showing symptoms of pulverisation only where the peat had happened to be more or less mixed with other matter. Contrary, however, to expectation, the seeds vegetated freely, and by October had reached the height generally from 4 to 6 inches. The severe spring of 1837 cut off by the ground many of the plants that had been unnaturally drawn up by shading or otherwise, but these all sprang again from the root, and are now the thickest and most luxuriant parts of the field.

"At the present date, 15th January, 1838, we have been cutting Gorse for two months back, and during that time have kept eight horses, young and old, wholly upon them; as also about the same number of cows partially so. The horses are in the yoke every day, and are in excellent condition, although they have not tasted Oats this season. The cows have also improved both in milk and condition since we began to give them a feed daily. From what I have seen of the feeding qualities of Gorse, I have no hesitation in saying that I consider it equal to both Oats and hay for work horses, and superior to any kind of food that is usually given to milch cows in winter; the butter and milk from cows fed on it being equal to those from the finest old pastures during the best part of summer."

The rector of Aghada, co. Cork, the Rev. W. R. Townsend, and Mr. G. Bolster, a farmer of that county, are further quoted. Professor Blythe's analyses are given, and various machines are described for preparing the food, whose virtues they unanimously praise. Mr. Walsh's Gorse-crushing machine, which has been already described in these columns, is referred to as the best of them. The following is the cultivation of the plant as described in these pages:—

"The most suitable situations for growing Whins are steep banks unfit for regular cultivation, or thin rocky land, which cannot be ploughed, and produces little in the shape of pasture. On such spots Whins will thrive; and once sown, and the young plants fairly established, no further care is in general necessary. It is a permanent crop—one of its great merits being that the season for using it is that in which other food is usually scarce and valuable. The ground must be dug or ploughed and harrowed before sowing the seed—of which the quantity allowed varies from 20 lb. to 30 or 35 lb. per imperial acre. When sown in drills 10 inches wide, as some recommend, from 15 lb. to 20 lb. will be sufficient; but when sown broadcast double the quantity will be necessary. Thick-sowing causes the plants to be drawn up, and therefore tender, which is of consequence, as the shoots are more easily prepared for use as food. The seed is sown in April, and the plants will be ready for cutting in 18 or 20 months afterwards. The first cutting is light compared with what will be obtained in the following year. Some cut only half the plants in each year, while others consider this unnecessary, and but the whole of their 'Furze-meadow' annually. The seed used for sowing is usually called 'French Furze.' Mr. Bolster recommends ground bones to be applied as a manure for Whins harrowed in along with the seed, and the analysis of the plant at once shows this to be a suitable application. In localities removed from the sea we would also give 3 cwt. of salt per imperial acre."

We may add an extract from a letter which the author publishes from an Irish farmer:—

"I do not now keep any note of the quantity given to cattle. When I did I found that a beast in the stalls can be got to consume as much as 3 stones (42 lb.) in 24 hours, by giving it in three feeds, one of them for the night instead of hay; but, generally speaking, 2 to 2½ stones (28 to 35 lb.) with 3 to 4 stones of roots, and 3 or 4 lb. of meal of some kind. It was found that the best time to give the Furze was about an hour or two after the Turnips; if given before the roots they do not take them so well; the reason I suppose to be that Furze is so rich in nutriment that the stomach is satiated, and instinctively the animals abstain. With regard to milch cows and store cattle they get it *ad libitum*.

"I consider that, economically, there is no food more suitable than Furze to yearlings and calves during winter. It holds a middle place between hay and roots, the first being too dry and indigestible for their young organs, and the other too laxative. Accordingly, they are ravenously fond of it—perhaps more so than full-grown cattle."

The writer goes on to praise its medicinal and curative properties. He speaks of its use in the stable with confidence; but says it is less adapted for sheep.

2. The article on the possibility and desirableness of agricultural instruction in rural schools is, we believe, from the pen of the recently appointed Director of agricultural schools in Ireland. It argues the possibility and the duty of teaching common things, and if of teaching the use of the needle to the girls, then the use of the spade to the boys. And not only the practical details of farming operations but the principles on which the failure or success of them must hinge are also to be taught to the future labourer of the country. "Over and over again," says Mr. Baldwin, "I have come across farmers who purchased machines, which, if properly used, would have proved economical, but which were thrown aside as useless for want of knowledge on the part of master and man. In all these cases the money sunk in the machines was regarded as a bad investment; the economy or profit which would have arisen from their use was lost, and agricultural progress retarded."

And again:—

"From a pretty lengthened correspondence with extensive employers of labour, as well as with men who view this subject from a philosophic point of view, and from my own independent observation, I am justified in saying that the labourer who understands something of the principles of the implements he uses, takes a deeper interest in his work. He performs the work allotted to him with more satisfaction to himself, and with more profit to his employer. Regarding the matter from this point of view, I consider that the employers of agricultural labour are most deeply interested in the agricultural instruction of the rising generation of labourers."

This article is the first of a series on the subject promised from the same pen.

3. Uric acid is the subject of a paper only partly published, in which field experiments are described by Dr. Anderson—Peruvian guano, guano ash alone, and guano ash with nitrogen equal in quantity to that in the Peruvian guano supplied respectively in uric acid and in sulphate of ammonia. The results upon the Turnip crop in plots of about 40 square yards apiece are described—those upon the Wheat crop are yet to be given. The circumstances of the experiment appear to have been unfortunate, and the results accordingly are somewhat contradictory. Speaking of the Turnip results Dr. Anderson says:—

"Comparing the results in each section with one another, it is to be observed that in every case the mixture of guano ash and sulphate of ammonia has given the best result. After it comes the guano itself, and then the uric acid mixture. The conclusion, therefore, is favourable to the ready-formed ammonia as a source of nitrogen in this case; but, as we shall immediately see, the experiments on Wheat by no means confirm this inference, and it is necessary to inquire how far the particular circumstances under which the experiments were made may tend to affect the results."

Farm Memoranda.

FORFARSHIRE FARM.—A few evenings ago, a farmer in Forfarshire showed us his books for the year now about to close, and also one of his father's for 1834; and the contrast between the two was so striking that we think it may interest some of our readers. His

farm contains 180 Scotch acres of land, all arable. The soil is a free light loam, except a small portion, certainly less than 15 acres, which is inclined to clay. The subsoil is the boulder drift, except a few ridges where the old red sandstone comes rather too near the surface. A good part of it is pretty steep, but all has a southern exposure, and is thoroughly drained where this was necessary. It requires the labour of three pairs of horses, and there is usually an "orra beast" besides. The following short table exhibits the rent and servants' wages for each of the two years:—

	1834.	1864.
Rent	£150	£270
Wages—Foreman	14	23
" Second Man..	12	21
" Third do.	10	18
" Housemaid	6	11
" Outworker	6	12
" Boy	5	10
	£203	£365

Thus in the items of rent and wages there is a difference of 162*l.*, of which 42*l.* is in wages alone. But other portions of the expenses were in still stronger contrast. In 1834, his father had paid 10*l.* for bone-dust, while the last year's accounts for artificial manures amounted to 150*l.*, and in one sense, he said it was too small. This raised the difference of expenses to 312*l.* We asked how he made it up, and will give his answer and the rest of this contrast as nearly as possible in his own words:—

"Why, I do not make it up at all. My farm is not considered too dear-rented, and it is certainly cheaper than some we know, but I am losing money on it. My father wrought it on the six-crop shift—1st, Oats after lea; 2d, Green crop; 3d, Oats or Barley; 4th, 5th, and 6th, Grass. He had thus 60 acres of corn, which would possibly yield on an average 400 bolls. I see crop 1834 stated at 420 bolls, of which only about one-tenth was Barley. Prices are entered from 15*s.* to 21*s.* 6*d.* per boll, but a very small portion was sold at the latter price. My father's horses scarcely ever got any clean corn, the shag being thought sufficient for them; but they had less work, and were seldom out in bad weather. He had sold of this crop 225 bolls of Oats and 40 bolls of Barley, and the total sum received amounts, you see, to 244*l.* 17*s.* 6*d.* His receipts from cattle were not so favourable, but from the way in which this part of the book is kept it would require some time to ascertain them exactly. He usually reared from 12 to 15 calves, and fed from 8 to 10 bullocks, which were four years old when they left the feeding byre. The price rarely exceeded 12*l.* a head, and was oftener below this. Those not required for feeding were sold when three-year-olds. Calves were then plentiful and cheap—about 10*s.* per head, except very early ones. My father got a new lease in 1839, and I succeeded him in the farm just at the time the whole agricultural interest was agitated by the new tariff and the repeal of the Corn-laws. The rent was now 180*l.* I got through the dull times which followed these changes, and the failure of the Potato crop, without losing seriously; and the high prices consequent on the war with Russia were giving me again a balance at my banker's when my lease expired. I was considered fortunate in getting my farm at 30*s.* per Scotch acre; and had prices kept an ordinary range, no doubt it would have paid me. But low prices of grain and Potatos, coupled with bad harvests, have completely altered my prospects, and my capital is melting away much faster than it accumulated. I have altered my system of cropping a little—sowing Barley after all my green crop. This gave me too little Oat straw; and to remedy this I take two Oat crops after lea, and break up my Grass at two years instead of three. This gives me 90 acres of corn instead of 60, one-third of the whole being Barley. By this mode of cropping and the liberal use of light manures, I can grow in favourable seasons nearly 300 bolls more than my father did; but then at late rates it takes all this to pay the manure merchants. Of my crop for 1863, after retaining or exchanging the quantity required for seed, meal, and horse corn, 150 qrs. of Barley and 220 qrs. of Oats were sold, and the net cash received was 315*l.* Take this from the amount of the rent, wages, and manure accounts, and you leave a balance of 200*l.* against me. Nor have we here all, or nearly all, the expenses. There are Turnip and Grass seeds, tradesmen's accounts, money paid for calves, wages of day labourers, harvesting and other expenses, amounting in the aggregate to upwards of 100*l.*, without saying anything of my own personal expenses or of those of my family. Now, let us see how this 300*l.* can be got.

"When you pay 10*d.* or 11*d.* for a pound of steak, and read in the newspapers that prime Scots are worth 73*s.* to 75*s.* per cwt. in the Glasgow market, you very naturally conclude that the profits of the rearer and feeder must be exorbitant; but I am firmly convinced that more money was made by cattle feeding when beef was 6*s.* 6*d.* and 7*s.* per stone than there is now at 10*s.* or 11*s.* If you rear your own stock, you pay two prices for your calves; and for one that died 20 years ago you now lose two or three. Not only is this the case with the calves, but at every subsequent period of their lives cattle are much more subject to disease. In my father's time the diseases were few, the loss from death trifling, and the nearest blacksmith our only doctor. Now, what with pleuro-pneumonia, the Grass disease, and the foot-and-mouth disease, &c., the veterinary-surgeon is almost in constant attendance, and his bills form no inconsiderable item in our expenses. It is a very fortunate year, indeed, in which no deaths occur on a farm of any size; and too often the stock is decimated by epidemics. I once lost all my cows except one—the worst in the lot; and 300*l.* would not cover my loss by deaths since I began farming, to say nothing of deterioration in those which survived. In this way a large percentage of the price of our fat stock is swallowed up. On the other hand, if, instead of rearing, you purchase your stock either as one or two-year olds, you now pay a price relatively fully as high as that of beef, and are still subject to loss from disease. Having less Grass than formerly, I now buy in a few bullocks for feeding; and this autumn I paid 16*l.* 10*s.* a head for them. High as this price is, it would have been still higher had it not been for the large numbers of English and Irish cattle that have for some seasons appeared in our local markets. The purchase of these is attended with great risk, and several parties in our neighbourhood have got their stock tainted by them. The railway trucks get the blame of this, and probably not without reason. The expenses attending feeding are now much greater than formerly; and you cannot get the high prices before mentioned unless you use something more than Turnips and straw. Only a few of our best cattle bring anything like the top prices quoted in the newspapers; and in the same report you will often find a difference of 2*s.* per stone between the two extremes. This on an ox of 40 or 50 stones amounts to 4*l.* or 5*l.*, and the animal may have consumed nearly as much food as a high-priced one. If forced from want of keep or any other cause to send our stock to market before they will sell for prime fat, they leave little or nothing for keep. Last season I received 265*l.* for cattle, but this includes the price of a cow which I had to replace. This is the largest sum I have ever drawn for them, for my Turnip crop was good, and I used the damaged grain freely. But, after all, it leaves a balance of 60*l.* against me on the expenses already enumerated, besides what was required for my personal and household expenses. You will not say that I am extravagant in either, but I know that I am going back in the world considerably more than 100*l.* a year."

To too many of our readers these notes will convey nothing new—nothing which they do not know by experience; but if they meet the eye of any of that numerous class who are anxious to leave other occupations for that of farming, it may serve to show them that even that healthful and much-envied employment has its dark as well as its bright side. *Scottish Farmer.*

TATTENHALL HALL, NEAR CHESTER.—[This farm received last year the prize of the Manchester and Liverpool Agricultural Society, as the best managed dairy or grazing farm of not less than 200 acres. The following is the Inspector's report.]—Farm contains 322 acres, viz. 183½ acres in pasture; 22 acres Clover and seed, mown; 11 acres meadow, covered with dung water; 13 acres meadow, irrigated; 6 acres Wheat, after Beans; 16 acres Wheat, after Oats or Clover; 25 acres Oats, after Clover or green crop; 17 acres Barley; 4 acres Beans; 2 acres Potatos; 16 acres Turnips; 3 acres orchard, gardens, and homestead; 3½ acres occupation roads, plantations, &c.

Rotation.—Oats, Wheat, roots, Barley, seeds.

Live Stock.—6 horses, 3 nags, 4 colts, 81 dairy cows, 13 feeding beasts, 3 bulls, 18 heifers and stirks, 142 sheep and lambs, 49 pigs, and 15 rearing calves; total, 334.

Stock kept on roots and cut straw till calved; then cut hay, crushed corn, bran, oilcake, with malt cornings added. Cutting, cooking, and mixing done by machinery.

The farmyard manure is mixed as made, and chiefly used for root crops and Beans. Previous to 1857 all the pastures had been drained by me, and since then have spent over 100*l.* a-year on an average on boiled bones, and chiefly applied to seeds after Barley. About 15*l.* per annum has been spent on super-phosphates, and applied to root crops with farmyard manure.

All the land has been drained; 30 acres of old pasture I drained with sods, and 25 acres with tiles.

Landlord has drained 215 acres with tiles, and erected an entire new homestead, filled up seven pits, and eradicated many miles of old fences, spending a considerable sum, for which he gets near 5 per cent. as increased rent.

The following has been done by me at my own cost, besides the draining and boning above-named:—Have filled up 32 pits, grubbed up many old fences, planted and kept clean over six miles of new ones, landlord finding plants; carted all materials for new homestead; pulled up old foundations, and removed old materials to the new site; supplied timber and carpenters' work for a building containing 24 feeding cattle, young stock and yearling calves. Supplied and carted paving stones and sand, and formed the ground for all the paving at the new homestead. Made 706 lineal yards of new occupation road through the farm, of hard materials. Made over two miles of footpaths, with cinders alongside; straight fences. Made a lawn, and near four acres of meadow, out of the site of the old homestead and waste land around. Planted an orchard of an acre, made out of a swamp. Levelled and laid out 1½ acre of meadow for irrigation with the wash from the house. The liquid manure from the other tanks is conducted into the middle of a 10-acre meadow, where the liquid can be drawn off into the water-cart from a tap.—July 12, 1864.

(Signed) GEORGE JACKSON.

This is a complete Dairy and Grazing Farm, and lies in a good climate, is well situated for good roads, and within two miles of a canal and railway. The surface is gently undulated, giving plenty of fall for the drainage; well supplied with pure water. The soil varies much from a good deep loam on a sandy subsoil, to a very tenacious clay loam on a solid clay subsoil. The fields, roads, farm buildings, yards, dairy, and piggeries, all appear substantial and well arranged for convenience and lessening labour. The machinery for the various purposes of indoor and outdoor work appears substantial and effective. The dairy arrangements appear complete. In the shippons each animal is supplied with water in the stall by pipes and troughs. We inspectors do not think much of this arrangement; we think a walk to a pond twice a day, and a little airing in the yard at any season of the year, is of great service to an animal in keeping it in health.

The new fences have been well trained and kept clean, and are now complete. Each field has one or two substantial gates and posts. The occupation roads and footpaths through the farm are in good order.

Swedes and Potatos healthy and clean; the former short of plants in places. Wheat a good healthy crop and clean; half the Oats an average crop, the other half above an average; Barley a very promising crop; Beans in drills clean, but not showing for heavy produce; pasture, both old and new, produced good herbage, but wanted rain; irrigated meadows appeared of a fair quality of herbage.

Live Stock, mostly home bred, and well selected for the various purposes required. The whole concern, including the dairy, showing no want of ability or perseverance in those at its head.

CHATTERIS, ISLE OF ELY: *January* 23.—The winter is rapidly passing away, and without much severe weather. We have occasional visits of frost, but they have not hitherto been of long continuance. Two nights ago we had 12° of frost, but there are indications of a change again, and the wind appears to be drawing back to the south. The Wheat seeding was generally late, and the land was in a very dry state. We have however a good plant, although not so forward as is usually the case at this season. Some of the last sown will be in danger of being injured by the present dry frosts, having no cover of snow to protect them. A good rain would do good to all our fen soils, as it would help to consolidate them, and prepare them for the Wheat when it commences to strike its spring roots from near the surface. The last crop of Wheat is turning out as well as we expected, and equal to our previous reports of it. The price is very low, which prevents its being a paying crop, except in the case of fine white Wheats; these are very scarce and realise a comparatively high price, from 6*s.* to 10*s.* per quarter above ordinary runs. Oats are not yielding so well as was expected, especially Polands. Barley is as good a crop as was anticipated, and is a very heavy sample, but is realising a poor price, and is being much used for feeding purposes. Beans and Peas are only a poor crop generally, and are a slow sale.

Our winter food is being rapidly consumed. The crops of Coleseed were inferior, and eat away quickly, and Mangels, except on cool soils, were light. We have 400 hoggetts now in yards eating cut Mangels, Whea straw, quarter lb. Linseed-cake, and 1-3rd lb. Barley meal, medicated at home, and made into a condimental food, and 1-6th Peas per day each. We bought our lambs in Lincolnshire at an average of about 34*s.* per head in August, September and October. They have been more unhealthy than last year, and are yet suffering from some irritation of the lungs. We have had more than our usual loss both before and since they came into the yards. In other respects they do well, and are quite free from lameness. We have 68 Scots eating Barley, Wheat and Oat straw, with 1 lb. Linseed-cake, 1 lb. Cotton-cake, and 2½ lbs. Barley meal per day each, on which they thrive very well.

We have been engaged with cultivating our lands designed for Coleseeds and Kohl Rabi another year, and have also ploughed about 50 acres, part by horses and part by steam, from 16 to 18 inches deep. We have not grown Kohl Rabi yet, but intend trying about 26 acres this year, to test its suitability for our fen lands, and its feeding value upon these soils. *A. S. R.*

ASTON PARK, NEAR NORTHWICH.—[A prize farm of the Manchester and Liverpool Agricultural Society.] Farm contains 188 acres. Of this, 83 acres is pasture, 33 acres meadow and Clover, mown, 28 acres Wheat after Potatos, 17 acres Oats, 4 acres Clover and Vetches, for stall feeding; 15 acres Potatos, 10 acres of these, early ones, and nearly all got up, and the land sown with common Turnips; 4 acres Swedes, 3 acres orchard and garden, 1 acre roads and waste.

Customary Rotation.—Roots or Oats, roots, Wheat, Barley or Oats, seeded down for six or eight years, sometimes varying a little as the case may require.

Live Stock consists of 5 horses, 1 pony, 1 colt, 54 dairy cows, 1 bull, 11 heifers and stirks, 27 pigs, and

10 rearing calves, total 109. In winter, generally feed sheep.

Stock kept on pasture and green Vetches in the summer. In winter, on straw, hay, roots, crushed corn, bran, and oilcake.

Make as much manure as possible, and chiefly applied to root crops. All the liquid manure is made available. During my occupation (12 years), I have purchased 757*l.* 14*s.* of bone manure, and applied it to Grass land and seeds; my landlord paying 250*l.* of this sum. Purchased annually near 3 tons of guano, and 20 to 30 tons of horse manure, and applied to root crops.

Have drained 74 acres, chiefly with horse-shoe tiles on slate soles. Landlord finding tiles.

Have marled 50 acres, at a cost of from 5*l.* to 6*l.* per acre. Filled up all the pits except those required for water, and made an easy approach to these. Made three ponds, one at the homestead and two in the fields.

Have eradicated 3350 yards of old fences, and planted new ones where required. All this at my own expense.

Have erected an extra pigcote, and made alterations in the old ones. Made a urine tank 90 feet by 5 feet, and 5 feet deep; landlord finding materials. Carted all materials for these, and for improvements in the house and outbuildings; and the tiles for draining from two to four miles.—July 12, 1864.

(Signed) SAMUEL HORNBY.

This farm lies at a tolerable elevation, but not in a bad climate. A good road runs through it, and lies within three miles of a market town. Is a good soil for arable cultivation, or the alternative system. The hay, straw, Turnips, and Oats, mostly consumed by stock on the farm.

The early Potatos are planted in beds, and Cabbages planted in the furrows. After the Potatos are taken up, the Cabbbages are earthed up, and the beds sown with common Turnips. The dry weather much against the Turnips. The winter Potatos were healthy and clean. Swedes promising considering the weather. Headridges well fallowed, and all the root crops clean.

Wheat, a thick strong crop, Oats much the same, and 14 acres of these, good seeds at bottom. Clover of first year, mown once, a heavy crop, then pastured, was full of White Clover. Seeds, and pasture of older growth, produced good herbage, but were bare of Grass. One old pasture of inferior quality and bare of Grass.

The remaining old fences have been much improved by judicious cutting, and many new ones have been planted. The fields are much improved in size and shape. The gates, posts, and road, in proper keeping. The same remark will apply to the house, dairy, outbuilding, farmyard, rickyard, garden and orchard. The farm buildings are very spacious and well arranged, although not new. In the dairy department, all the best appliances are adopted for reducing labour and manufacturing a good article, and the cheese room displayed no want of care or judgment.

Miscellaneous.

Theory of Land Drainage.—A plant, though spreading its roots to a certain distance all around it in the soil, is stationary, and must have its food brought to it. That is the first main fact on which the need depends for a current of water through the land. Water, a powerful solvent, brings substances out of the air which the plant requires as food, and these substances increase its powers as a solvent of other matters in the soil which the plant also needs as food. Moreover, water brings from the air materials of use in the soil in manufacturing food for the use of plants. On all these grounds, then, it is of importance that water should go through the soil after going through the air. It becomes laden with vegetable food by passing through the air, and it becomes still more laden with vegetable food by passing through the soil, till, when traversing the soil, it passes stationary roots and enters them, and feeds the plants to which they belong. And there are special reasons why rain-water should be induced to pass through the soil rather than lie stagnant on it. In the latter case it is not only useless to the plant, but it is directly mischievous. By evaporation it cools the surface, whereas by percolation through the land it carries the warmer temperature of the surface into the subsoil; and of what value this is to the growth of crops may be gathered from the experience of the last autumn, which has been so productive of growth in our pastures to so unusually late a season—not so much from the increased temperature of the air during November and December, which has been only about 2° or 3° above the average of the last 30 years, as from the increased temperature of the soil and subsoil at 1 and 2 feet deep, which has been 5° and 6° above the average of the past 13 years, during which observations have been made near London. And not only is it of importance that rain, by passing through the land, should carry the temperature of the surface, warmed by the direct rays of the sun, downwards, rather than, by evaporating from the surface, it should carry the heat away and cool the soil: but the percolation rather than the stagnation of the water is desirable, because in the one case air is made to permeate the land, in the other it is excluded. The chemical changes which air produces on and in the soil are desirable, and result in the preparation of useful food for plants; while by its exclusion, substances of a poisonous nature, especially where iron and vegetable matter exist together in the soil, are formed. *Morton's Farmer's Calendar.*

Calendar of Operations.

JANUARY.—In the last week of this month we refer to one or two points hitherto omitted.

(10) *The Stable.*—The following are the weekly rations collected by Mr. Morton from a number of correspondents, as exhibiting their practice in the winter feeding of horses; and published in the "Journal of the Agricultural Society." In successive columns we have put, first, the number of the case; secondly, the authority on which it is given; thirdly, the weight consumed per week of hay, Oats, Beans, roots, Clovers, and straw by a horse; and lastly, the calculated weekly cost of so maintaining it. This cost is calculated at the rates of 3*s.* a cwt. for hay, 3*s.* a bushel for Oats, 5*s.* a bushel for Beans, 4*d.* a cwt. for Turnips or Mangel Wurzel, 6*d.* a cwt. for Carrots and Clover, and without charge for straw. Where an asterisk (*) is attached to any item, it is to be understood that the corn has been bruised or ground, or the hay or straw has been cut into chaff; where a dagger (†) is appended, the article so marked has been boiled or steamed; a mark of interrogation (?) indicates that the result so marked is uncertain, owing to some indefinitiveness in the account given. The prices adopted in calculating the cost of food are the market prices of the grain consumed; and in the cases of the hay and green food, the value which it is supposed they might produce if given to other kinds of live stock on the farm.

THE WEEKLY FOOD OF A FARM HORSE IN WINTER.

No.	NAME AND ADDRESS.	Hay.	Oats.	Beans.	Roots.	Sundries.	Straw.	Weekly Cost.
		lbs.	lbs.	lbs.	Potatos.	lbs.	lbs.	s. d.
1	Professor Low—Elements of Agriculture	56*	56*	..	56†	..	56*	6 6
					Turnips.			
2	H. Stephens—Book of the Farm	112	35	..	112	..	..	6 0
						Potatos.		
3	J. Gibson, Woolmet—H. Soc. 1850 ..	..	84	..	217†	217†	112	9 0
						Barley.		
4	— Binnie, Seaton	..	70*	28*	243†	42†	ad lib.	11 6
5	— Thomson, Hangingside	..	84	14	336	14	ad lib.	9 6
6	W. C. Spooner, Ag. Soc. Journal, vol. ix.	..	63	..	42	..	196	4 9
7	T. Aitken, Spalding, Lincolnshire ..	ad lib. (⅔)	37	35	..	..	ad lib. (⅓)	9 0
8	G. W. Baker, Woburn, Bedfordshire ..	..	60*	20*	..	..	..	9 8
9	R. Baker, Writtle, Essex	70	42	..	..	..	140	5 0
10	J. Coleman, Cirencester	..	84	16	..	..	ad lib.	7 3
11	T. P. Dods, Hexham	..	95	..	56	..	ad lib.	8 0
						Linseed.		
12	J. Cobban, Whitfield	84*	60*	..	..	3½	ad lib.*	7 3
					Swedes.			
13	S. Druce, Jun., Eusham	112	52	..	70	..	2 bushs.*	7 0
14	C. Howard, Biddenham	ad lib. (⅔)	52	17	84	..	ad lib. (⅓)	8 6?
					Man. Wur			
15	J. J. Mechi, Tiptree	49*	70*	..	210	..	ad lib.*	7 6
16	W. J. Pope, Bridport	2*	84	..	..	..	ad lib.	9 0?
						Grains.		
17	S. Rich, Didmarton, Gloucestershire ..	168	63	..	..	2 bushels.	ad lib.	10 3
18	H. E. Sadler, Lavant, Sussex	140	84	..	..	..	..	9 9
					Carrots.			
19	J. Morton, Whitfield Farm	..	126	..	350	..	ad lib.	10 9
						Bran.		
20	E. H. Sandford, Dover	56	42	..	..	12	ad lib.	5 6
						Tail Corn.		
21	A. Simpson, Beauly, N. B.	..	49	7	105	21	ad lib.*	5 6
						Bran.		
22	H. J. Wilson, Mansfield	42	52½	..	..	21	ad lib.	6 6?
23	F. Sowerby, Aylesby, N. Lincolnshire ..	112	28	Cut Oat Sheaf.		..	ad lib.*	8 0?

(11) *The Pigstye.*—The following memoranda are abridged from Arthur Young:—Mangel Wurzel, Carrots, Swedish Turnips, and Cabbages, must be provided for the sows and stores from October till the end of May, by which time Tares, Clover, Lucerne, should be ready to receive them, which will carry them till the stubbles are cleared; Mangel Wurzel will indeed be good food through the summer, so that the whole year is filled up with these plants, together with the common offal of the barn-door and the corn-fields. When the sows pig, meal must be provided to make wash, by mixing it with water. This, in summer, will be good enough for their support, and in winter it must be mixed with boiled roots, ground Oats, and thinned Pease meal in water, for the young pigs. If cows are kept, then the dairy-wash is to be used in the above mixtures.

In order to the highest advantage, the sows should pig but twice a year; that is, in March and August; by which means there will never be a long and expensive season for rearing the pigs before they are put to the staple food of Clover, Mangel, &c.

Upon this plan the annual sale of lean hogs should be in October, the litters of April being sold then as stores, and those of August kept till October twelvemonth, to sell for baconers, if the farmer fats none himself. The stock upon hand this month will, in that case, be the sows, and the pigs littered in the preceding August; all which should have roots from the store, and run at the same time in the farmyard. In proportion to what they find in the straw of the barnyard, you must supply them with roots, giving enough to keep them to their growth.

It has been often remarked, that winter pigs are unprofitable; and it is certainly true, if they are not kept with great care and attention. Where there is a dairy, the milk and whey may be so profitably applied to their use, that it should be preserved carefully for that purpose. Six pecks of Peas boiled in a hogshead of water till well broken and dissolved, and then mixed in a tub or cistern with dairy wash, or given alone, will wean them well. If dry meat be given in addition, or alone, it should be Oats, which do for young swine far better than other sorts of grain. Barley does not agree nearly so well with them.

As to selling stores, farmers should fat their hogs now that meal is cheap. There is no cheaper or more efficient way of manuring their land.

(12) *Irrigation.*—Meadows may be floated this month; draining them at intervals of every three or four days. The rule is to flood the land until a scum appears upon the surface. Do not let the water on in frosty weather.

(13) *Woodland, &c.*—The following memoranda are again quoted from Arthur Young:—

This month is generally a busy one in felling corpse: the men who do the work are commonly paid by measure, or tale. In some districts the falls are only cut and laid in rows, and sold in that manner by the rood; in others, the farmer converts the stuff to its proper use, and sorts it into faggots, poles, hoop-stuff, or hurdles: and this, I believe, will generally prove the most profitable way.

In cutting woods there is one point much disputed, which is, the number of years' growth at which to cut. Customs vary from nine years to 27, but generally about 12 or 14. I have seen many woods, in cutting which one stem on a stool was left, to be of a double age at next cutting, in order to have some large wood in each fall. The question is, whether such stems draw from the root so much nourishment as to lessen the young growth as much as the large shoots amount to? From viewing such woods, I have observed, that the part of 12 years' growth, among which were some stems 24 years old, was as good as others, where the whole was only 12. If so, the additional growth is nearly all profit; but if not, it certainly makes the wood when cut more saleable, and applicable to more purposes.

In the Beech woods of Buckinghamshire, this system has been carried exceedingly far, for they are not cut till of 30 or 40 years' growth; the consequence of which is, they are destroyed as underwood, and nothing appears but single stems, which are successions of young trees. The way of cutting them is not by falls, as in common woods, but by singling out every year, the largest of the trees, and cutting enough of them to pay 12*s.*, 15*s.* or 20*s.* per acre per annum, according to the goodness of the wood. These trees, though some of them when cut would more than measure as timber, are all sawn into lengths of 4 feet or thereabouts, and rived into billets for fire-wood for the London market, being conveyed there by the Thames. Good Beech woods upon this system will pay 20*s.* an acre clear of expenses, which is more than underwood would pay upon the same soil. I believe it will generally be found, that the older the growth, the greater will be the profit. At 12 years' growth of Ash, the land must be very good to have a crop of Hop-poles; but at 20 years' growth, you will have very fine ones, and pay yourself much better than by the younger growth. Ten years' growth of Copse will be worth from 7*l.* to 12*l.* an acre, yielding 500 to 2000 faggots, and costing 2*s.* 6*d.* per 100 to cut and tie them.

Lest February should prove a forward month, Ash timber had better be felled in January than delayed longer: this is upon the supposition that the farmer occupies his own land, and employs a wheelwright constantly, which I have found to be a cheaper plan than employing others in the common way. If Elm abounds on the farm, this is the season to fell that also.

Planting may be carried on and should be finished during this month. Whatever pruning deciduous timber trees require should be completed in January.

Osiers may be cut in January. The planting of new beds may also be done this month. The sets are simply 2 or 3 feet cuts of wood of two or three years' growth, pushed right side down 10 or 12 inches deep in any river-side land deeply dug in autumn, in which they are planted, in yard-wide rows, and at intervals of a couple of feet.

Hop grounds give work this month in throwing and sorting the poles, in cutting underwood and pole plantations, occasionally in trenching operations, and in the preparation of manure.

Orchards should be pruned in December and

January, and preparations may soon be made for grafting by cutting back the line to be grafted, and by cutting grafts which may be stuck in a damp and shaded border until required for use.

Notices to Correspondents.

AGE OF SEEDS: *Cor.* The loss of germinating power may probably be estimated, in round numbers, as follows:—

Seeds of 2 years of age lose	.. ..	25 per cent.
" 3 years of age lose	.. ..	50 "
" 4 years of age lose	.. ..	85 "
" from 4 to 8 years lose	.. ..	95 "
" from 8 to 10 years lose	.. ..	100 "

The following table (see Report of British Association, 1850), will give some notion of the decrease in the value of seeds by keeping:—

Name.	Year Sown.	Age of Seed.	Number Sown.	Number Germinated.
		Years.		
Pastinaca sativa, Parsnip ..	1844	8	300	20
	1849	8	..	nil
Daucus carota, Carrot	1844	3	300	77
	1849	8	200	1
	1850	9	..	nil
Brassica napus, Rape	1844	3	450	323
	1849	8	300	4
Brassica rapa, Turnip	1844	3	900	335
	1849	8	600	15
	1850	9	300	5
Brassica oleracea, Cabbage ..	1844	3	150	11
	1849	8	..	nil
Phalaris canariensis, Canary Grass	1844	3	300	147
	1849	8	200	19
	1850	9	..	nil
Avena sativa, Oat	1844	3	300	237
	1849	8	200	37
	1850	9	..	nil
Triticum æstivum, Wheat ..	1844	3	300	210*
	1844	3	300	163
	1849	8	..	nil
	1844	3	300	139*
Hordeum vulgare, Barley ..	1844	3	300	167*
	1849	8	..	nil
	1844	3	300	236

* Preserved in wax cloth.

CROPS AND PRODUCE: *A N.*

Name.	Weight per Bushel.	Seed per Acre.	Crop Produce per Acre. Great.	Crop Produce per Acre. Ordinary.
	Lb.	Pecks.	Bushels.	Bushels.
Wheat	60 to 64	4 to 8	56	36
Barley	50 " 56	8 " 12	60	44
Oats	39 " 44	10 " 14	80	50
Beans	60 " 70	8 " 12	56	36
Peas	60 " 66	8 " 12	50	32
Tares .. .	64 " 68	10 " 12	48	30
		lb.	tons	tons
Mangel Wurzel	40	5 to 7	40	25
Swedes	60	2 " 3	25	15
Turnips	—	—	30	18
		cwt.		
Potatos	56	14 to 15	10	5

MANURES: *X Z.* The "quality" of a manure depends simply on that of its constituent parts. Dung does lose its valuable "qualities" by exposure to the air, but that way of expressing it is liable to mislead or at least to mystify. Dung never loses quality except by losing quantity. They are actual material particles possessing weight which fly from it, or which flow from it under mismanagement; and the distinct and definite idea that so much matter has gone which, if built up in the plants, would have added to their produce, is one which it is well to have firmly fixed in the mind.

MIXED WHEATS: *N.* We recommend that where different sorts are mixed for seed, those differing much in the length of their straw, but not differing much in the period of ripening, be chosen for mixture.

PRIZE LIST OF BATH SOCIETY: *R H H.* You might apply to J. Goodwin, Esq., 12, Edward Street, Bath.

SEEDS AND SORTS: *Purchaser.* Wheat: Velvet Ear and Fenton (white) and Piper's Thick-set (red) are short-strawed; Talavera (white) and April (red) are early; Fenton, Red Straw (white), and Hunter's are good white sorts; Lammas, Browick, Spalding, and Nursery are good red sorts. Barley: Chevalier, Old English, Annat—the first the most productive. Oats: Hopetoun, Potato, Tartarian, Poland, are good and productive; good, coarse, and productive, and early, respectively. Beans: Winter Bean, Heligoland, Tick and common Horse Bean. Mangel Wurzel: Elvetham, a long bulged red; Orange and Red Globe. Swedes: Skirving's, Sutton's, Rendle's, Matson's—the first coarse and productive, the last small and very neat.

TO GET A GOOD MEADOW: *X.* Mr. H. S. Thompson, M. P., speaking about the best method of treating newly-laid down Grass, states that after repeated failures in the attempt to establish a pasture by folding sheep year after year on the young Grass, he "became satisfied that to graze sheep on young seeds intended for permanent pasture was a mistake." He now sows a liberal allowance of the hay seeds of the district, with a sprinkling of Cow-grass and white Clover; with a crop of Wheat (one of the short-strawed varieties; he mows the first year, and as soon as the hay is removed, gives a good dressing of farmyard manure, and then for some years pastures it with cattle, beginning for the first year or two with young stock, until the turf is close and strong enough to bear the treading of heavy cattle.

WHEAT MEAL: *Correspondent.* This as food for stock was long ago recommended by Mr. W. Wood. He said, I have found wheat meal, or rather ground Wheat, highly beneficial to calves. I use it first boiled as porridge, and mixed with the new milk, in order to facilitate the weaning process; and after the calves are weaned I allow them a small quantity dry. I find they thrive better on Wheat and Barley meal than on any other kind. As extra food for cows calving early in the year, Wheat meal would be a valuable ingredient

WEIGHTS AND MEASURES: *Cor.* The whole subject is still in the same mess of confusion that has been once or twice fruitlessly attempted to be corrected. There are more than forty different weights and measures in use for the sale of Wheat alone; and if there are to be as many battles in the endeavours of each locality to secure the future use of the one it has been accustomed to, how small will be the chances of a beneficial result!

Wood Labels and Training Sticks.

JAMES MAY, 1, John's Terrace, Roman Road, Bow, London, E., begs to inform the Trade he can supply any quantity of WOOD LABELS from 2½ inches to 18 inches; TRAINING STICKS, from 6 inches to 5 feet.

List of Prices, &c., may be had on application.

FOR SALE, a CONSERVATORY, 36 feet long, 19 feet wide, very good, quite new and glazed. Price £110. To be seen at Mr. FREEMAN'S, 50, Triangle, Hackney, N.E.

JAMES PHILLIPS AND CO., 180, Bishopsgate Street Without, beg to subjoin their prices of GLASS SLATES.

WITH DRILLED HOLES.	Size.	Rough Plate. ¼ inch thick.	Rough Plate. 3/16 inch thick.	Rough Plate. ¼ inch thick.	Sheet. 16 oz.	Sheet. 21 oz.	Sheet. 26 oz.	Sheet. 32 oz.
		s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Duchess	24 by 12	1 3	1 6	1 9	0 9	1 0	1 4	1 8
Small Imperials..	20 " 14	1 2	1 5	1 8	0 8	1 0	1 3	1 7
Small Duchess ..	22 " 12	1 2	1 5	1 8	0 8	1 1	1 3	1 6
Countess	20 " 10	0 11	1 1	1 3	0 7	0 10	1 0	1 3
Viscountess ..	18 " 10	0 10	1 0	1 1	0 6	0 9	0 11	1 1
Large Ladies ..	16 " 10	0 9	0 11	1 0	0 6	0 8	0 10	1 0
Ladies	16 " 8	0 8	0 9	0 10	0 5½	0 7	0 8	0 10
Doubles	13 " 7	0 6	0 7	0 8	0 5	0 6	0 7	0 8

GLASS TILES.

Rough Plate.	Each—s. d.	Sheet.	Each—s. d.
¼ inch thick	0 10	16 ounce	0 6
3-16 inch thick	0 11	21 ounce	0 8
½ inch thick..	1 0	26 ounce	0 10
⅝ inch thick	1 6	32 ounce	1 0
¾ inch thick	2 0		

GLASS TILES, quarter of an inch thick,
Packed in Cases containing 50. 1*l.* 18*s.* 6*d.* per Case nett.
3-16 inch Case of 60 .. £2 2 3 | ½-inch Case of 60 .. £1 17 6
Cases, 2*s.* each extra, returnable at full price.

Glass Tiles and Slates will be found invaluable for Out-houses, Farm Buildings, Stables, and Factories.

PERFORATED GLASS for VENTILATION.

Caution to Gardeners.—When you ask for

SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the corporate mark "OBTAIN WARRANTED, without which none are genuine.

S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by sellers and makers.

S. & C.'s Pruning and Budding Knives are the best and the cheapest in the market.

Paxton Works, Sheffield. Established upwards of 125 years.

Card.

SAMUEL N. McGERROW,
GENERAL HORTICULTURAL BUILDER,
Knotty Ash, near Liverpool.

Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

Span-Roofed Iron Greenhouse.

FOR SALE, a SPAN-ROOFED IRON GREENHOUSE, 20 feet long, 15 feet wide, and 12 feet 6 inches high. This is a very neat and elegant House, and will be Sold Cheap.

Particulars on application to A. SHANKS & SON, 27, Leadenhall Street, London, E.C.

Great Reduction in Glass Houses.

J. STEVENS begs to say that he is prepared to erect SPAN-ROOF and LEAN-TO HOUSES at the following reduced prices, viz.:—Lean-to Houses suitable for Greenhouses, Orchard Houses, Vineries, Peach and Pine Houses, Forcing Houses, and Pits, 50 feet by 9 feet 6 inches, 50*l.*; fitted up with stages for all kinds of plants, with two rows of hot-water pipes along one side, 25*l* extra. Span-roof Houses, 50 feet by 12, 95*l.* They are all built of the best yellow deals, glazed with 20-oz. glass, and painted three times. Fixed free of charge within 10 miles of London. They are all properly ventilated. Plain and Ornamental Conservatories at equally low prices. Estimates given for all kinds of Glass Houses. Frames 10 feet by 5, 4*l* 10*s.*. N.B. First-class references given.

J. STEVENS, Horticultural Builder and Hotwater Apparatus Manufacturer, Plaistow, Bromley, S.E.

THE PATENT IN-DOOR PLANT CASES

(TO WHICH A PRIZE WAS AWARDED AT THE ROYAL HORTICULTURAL SOCIETY'S EXHIBITION).

SOLE MANUFACTURER,

JAMES GRAY, HORTICULTURAL WORKS,
DANVERS STREET, CHELSEA, LONDON, S.W.

The PATENT IN-DOOR PLANT CASE is one of the most useful of the Gardening Novelties of the day. It is a handsome ornament for the Drawing Room or Sitting Room, and at all times forms a fresh, pleasant, and interesting object to the mind and eye. It is always under command, and will preserve many of the most tender Exotic Plants through the severest winter with comparatively little of the trouble and annoyance attending the use of Lamps, Gas, and Heating appliances of any other kind.

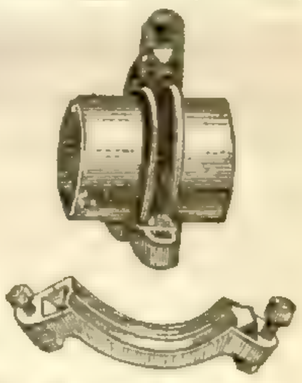
To all who have a taste for the cultivation of In-door Plants, for raising Seedlings, striking Cuttings, &c., the Plant Cases will be found an inestimable boon.

The Cases are highly approved and recommended by Professor Lindley, and by Messrs. Veitch, of the Royal Exotic Nursery, King's Road, Chelsea.

Sizes and Prices on application.

HOT-WATER APPARATUS,

WITH TRUSS'S PATENT PIPE JOINTS.



T. S. TRUSS, C.E.,

53, GRACECHURCH STREET, LONDON, E.C.

By means of these Joints the work is executed in less than half the time required for Socket Joints, and alterations can at any time be made, or the entire Apparatus removed and erected elsewhere with the greatest facility. A considerable saving in cost is also effected.

These Joints have been used for several years, giving entire satisfaction, and may be seen in use at the Royal Horticultural Society's Gardens, Chiswick, and many other places in Horticultural and Public Buildings. They are also exhibited at the Society's Gardens, South Kensington.

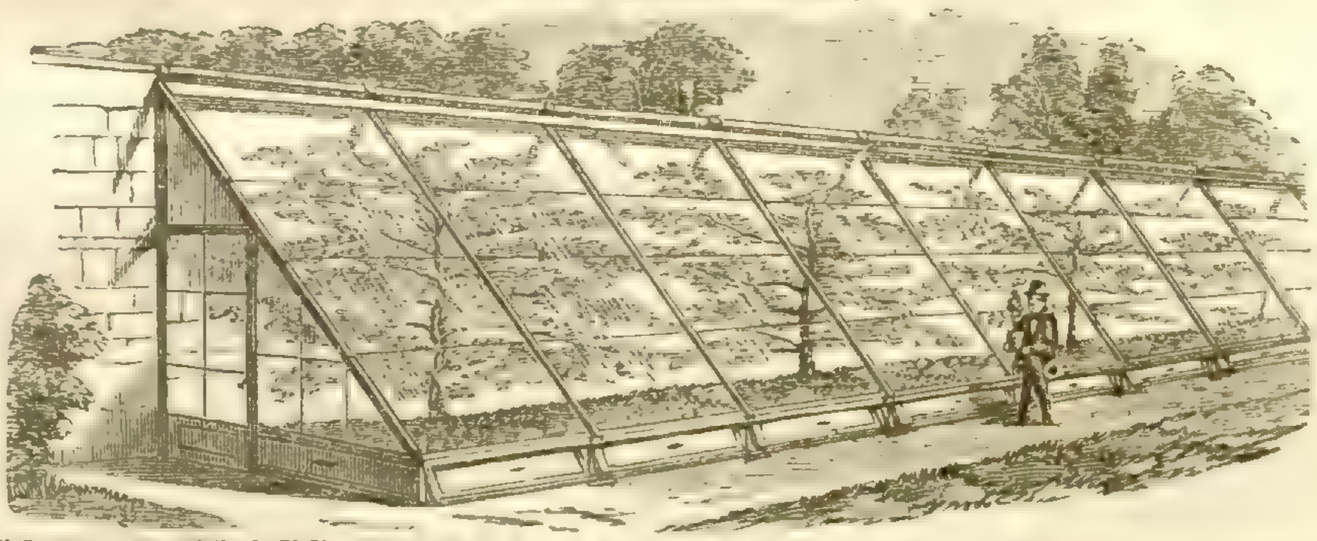
For a few prices, see last week's Advertisement.

ESTIMATES, PLANS, AND PRICE LISTS FORWARDED ON APPLICATION.

ST. PANCRAS IRON WORK COMPANY,

OLD ST. PANCRAS ROAD, LONDON, N.W.

BY ROYAL LETTERS PATENT.



SCOTT'S GLASS WALLS AND ECONOMIC GREENHOUSES.

Designed to meet the suggestions of JAMES SCOTT, Esq., of Hornsey, as being the desiderata of such structures. They are devoid of shadow, durable, portable, and a tenant's fixture, with the strength and durability of a permanent structure. Further particulars and prices by post or on application.

CONSERVATORIES	PINE and MELON PITS	BALCONIES	GATES
GREENHOUSES	VASES	IRON SASHES	TANKS
HOTHOUSES	VERANDAHS	IRON HURDLES	HOT-WATER WORKS

PATENT WROUGHT-IRON STABLE FITTINGS AND ENAMELLED MANGERS.

Every description of IRONWORK. Lists Free.

ST. PANCRAS IRON WORK COMPANY, OLD ST. PANCRAS ROAD, LONDON, N.W.

GREEN'S PATENT SILENS MESSOR,

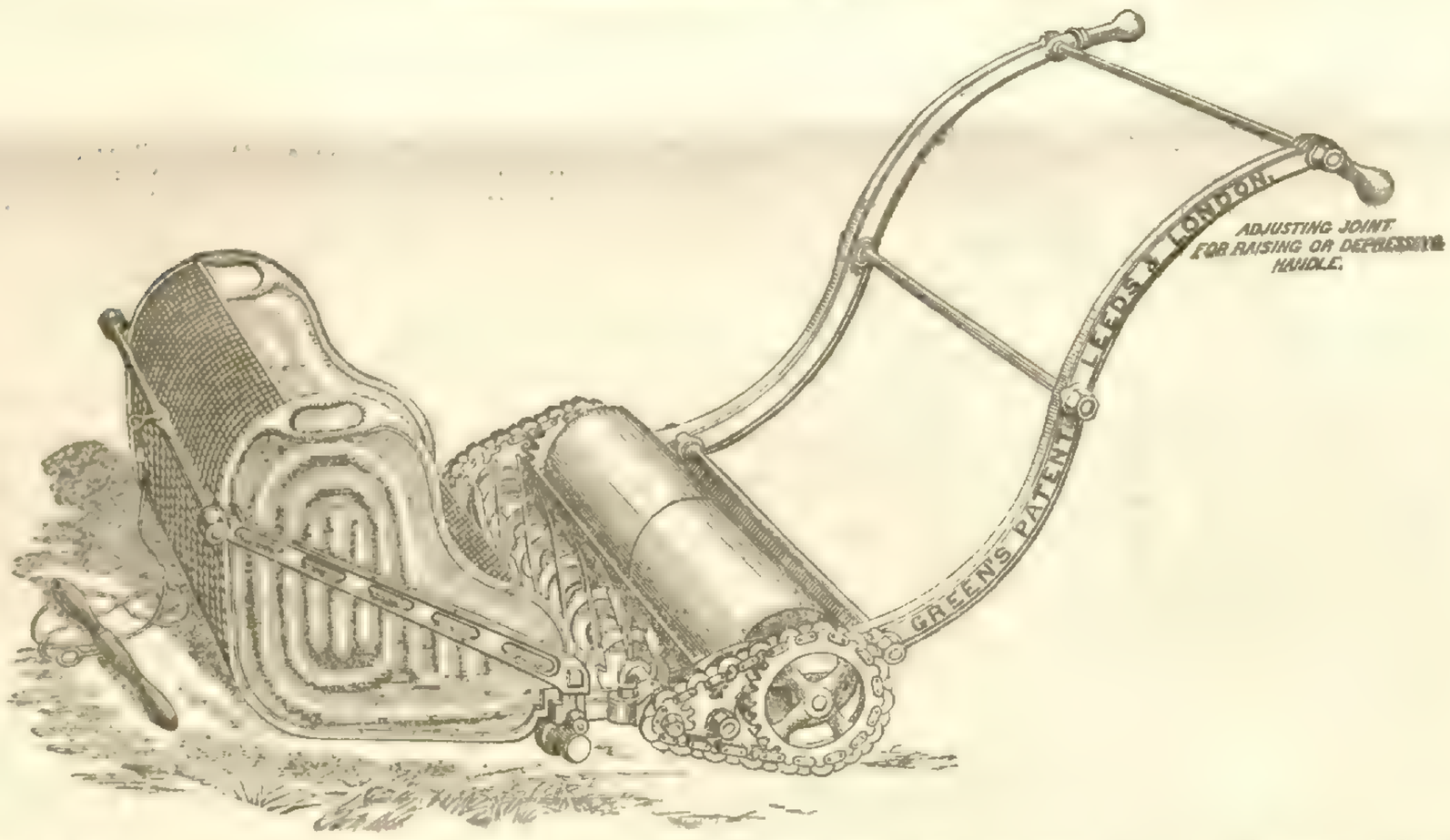
OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

BY SPECIAL APPOINTMENT,
SOLE MANUFACTURER

TO HER MOST GRACIOUS MAJESTY
THE QUEEN.

THE
FIRST PRIZE MEDAL
OF THE
INTERNATIONAL
EXHIBITION,
1862,
WAS AWARDED TO
THOMAS GREEN,
FOR HIS
PATENT
LAWN MOWERS.



FOREIGN MEDAL
AWARDED TO
GREEN'S PATENT
LAWN MOWERS:
LIEGE, 1861.
BRUSSELS, 1861 & 1862.
NAMUR, 1862.
GAND, 1862.
LINNEENNE, 1861,
1862, & 1863.
LAEKEN, 1862.

GREEN'S PATENT LAWN MOWERS have proved to be the best and carried off every Prize that has been given in all cases of Competition. The Judges at the Royal Horticultural Society's Show, held July 20, 1864, awarded them a First-class Certificate (No Prizes were given), and at the same time suggested a slight alteration, which has been done. Messrs. T. GREEN & SON consider their MACHINES now as near perfection as possible, and in consequence have continued making them as usual; they will have nearly 3000 ready for delivery at the commencement of the season, and they hope with their present facilities to be able to execute all orders on the day they are received.

Both the HORSE, PONY, DONKEY, and HAND MACHINES possess over all other Makers the advantage of Self-sharpening; the Cutters being steel on each side, when they become dull or blunt by running one way round the cylinder, can be reversed, again and again bringing the opposite edge of the cutters against the bottom blade, when the Machine will cut equal to new. Arrangements are made so that the cylinder can be reversed by any inexperienced person in two or three minutes.

Illustrated Price Lists Free on application.

GREEN'S IMPROVED NEW PATENT ROLLER,

FOR

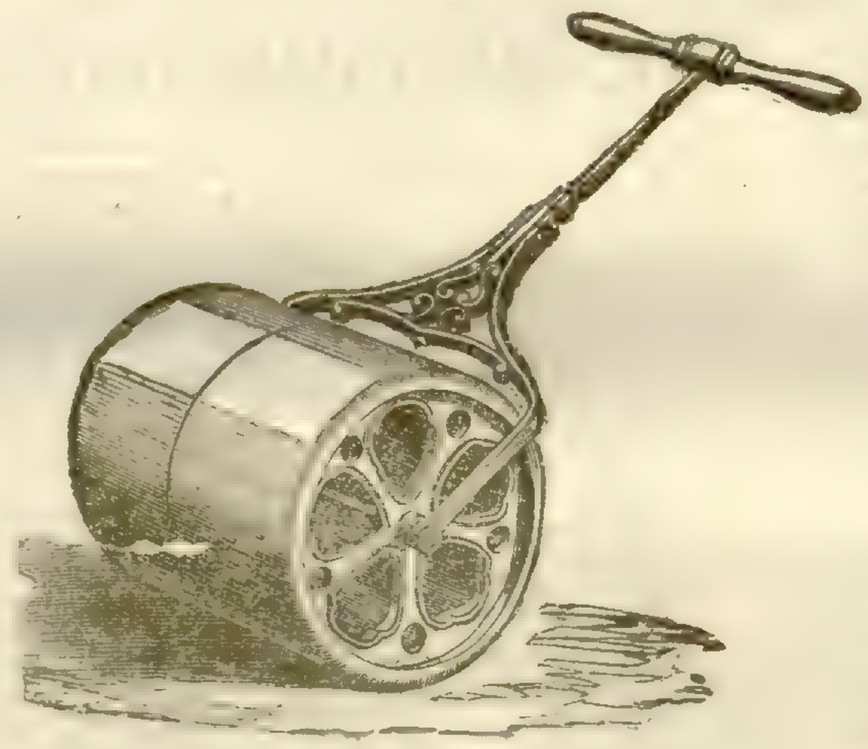
LAWNS, DRIVES, BOWLING GREENS, CRICKET FIELDS, and GRAVEL PATHS,

SUITABLE FOR HAND OR HORSE POWER.

PRICES OF
HAND ROLLERS.

Diameter	30 inches;	length	32 inches	£7	10	0
,,	24 ,,	,,	26 ,,	4	10	0
,,	20 ,,	,,	22 ,,	3	10	0
,,	17 ,,	,,	16 ,,	2	15	0

Delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.



PRICES OF
ROLLERS FITTED with SHAFTS,
SUITABLE FOR PONY OR HORSE-POWER.

Diameter	30 inches;	length	32 inches	£10	0	0
,,	30 ,,	,,	36 ,,	10	15	0
,,	30 ,,	,,	42 ,,	11	15	0
,,	30 ,,	,,	48 ,,	13	10	0
,,	30 ,,	,,	60 ,,	15	10	0
,,	30 ,,	,,	72 ,,	17	10	0
,,	30 ,,	,,	84 ,,	19	10	0

Delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.

The above ROLLERS possess many advantages over all others; they are made in two parts, and are free to revolve on the axis, affording greater facility for turning; the outer edges are rounded off, or turned inwards, thus avoiding the unsightly marks left by other Rollers. They are manufactured of the best materials, and are got up in a manner surpassing any ever yet brought out.

THOMAS GREEN AND SON,
SMITHFIELD IRON WORKS, LEEDS; 2, FARRINGDON ROAD, HOLBORN HILL, LONDON, E.C.;
19, EDEN QUAY, DUBLIN; HADWIN'S BUILDINGS, TITHEBARN STREET, LIVERPOOL.

WHEELER'S LITTLE BOOK for 1865.

WHEELER'S TOM THUMB LETTUCE, 1s. per pckt.

NEW POTATO, MILKY WHITE, 4s. per peck.

GLOUCESTERSHIRE KIDNEY POTATO, 3s. per peck

J. C. WHEELER AND SON, SEED GROWERS, Gloucester.

FOR GRASS SEEDS.—WHEELER & SON.

FOR SEED POTATOS, New Sorts.—WHEELER & SON.

FOR GARDEN SEEDS.—WHEELER & SON.

FOR FARM SEEDS, fine quality.—WHEELER & SON.

WHEELER'S LITTLE BOOK for 1865, Post free for four stamps, Gratis to Customers.

WHEELER'S LITTLE BOOK on GRASSES, gratis and post free.

J. C. WHEELER & SON, Seed Growers, Gloucester.

J. C. WHEELER AND SON, SEED GROWERS, Gloucester.

SEED POTATOS.—Potatos, though not strictly roots, but tubers, equally require care in selection. We have had the gratification of introducing THREE NEW SORTS, which have given satisfaction to every one who has tried them. They are

PRINCE of WALES,
ALSTONE KIDNEY, and
GLOUCESTERSHIRE KIDNEY.

The first two sorts are now well-known and highly esteemed; the Gloucestershire Kidney is a variety which we can recommend with the most perfect confidence; and we have much pleasure in referring to the Testimonials in its favour in our "Little Book." We introduce this season another new variety—Milky White—which we believe to be the finest Potato ever raised. Although early, it is perfectly white and mealy, and of excellent flavour. We have but a small supply, and can only offer it in peck bags, each of which is marked on the outside with our Trade Mark.

GLOUCESTERSHIRE KIDNEY, 3s. per peck, 10s. 6d. per bushel.

This most excellent Kidney Potato we can recommend for earliness, flavour, size, and crop. In comparing it with the Ashleaf Kidney, it is as early, whilst it produces nearly double the crop, and is altogether superior to that variety.

MILKY WHITE, 4s. per peck.

Fine second early; ripens immediately after the Gloucestershire Kidney. Is of excellent flavour, and in colour as white as milk; keeps well, and is altogether one of the best, if not the best, Potato in cultivation. In our opinion Gloucestershire Kidneys, Milky Whites, and Flukes are all the sorts necessary to keep one's table supplied with Potatos of the highest excellence all the year round.

The new Potato Milky White can be obtained true of the following eminent Firms:—

Messrs. BATT, RUTLEY, & SILVERLOCK	Strand, W.C.
" JAMES CARTER & Co. ..	.. High Holborn, W.C.
" NUTTING & SONS ..	.. Barbican, E.C.
" SUTTON & SONS ..	.. Reading.
" JACOB WRENCH & SONS	.. London Bridge, E.C.
" STUART & MEIN ..	.. Kelso
" PETER LAWSON & SON	.. 28, King Street, Cheapside, E.C.
" MINIER & NASH ..	.. Strand, W.C.

It will be sent out in peck bags, each bag marked with our Trade Mark. We regret to say we have but a small quantity to offer this season.

J. C. WHEELER & SONS, Seed Growers, Gloucester.

SEED POTATOS.—MYATT'S EARLY PROLIFIC KIDNEY, EARLY DALMAHOY ROUND, and all the earliest and best varieties, of the finest quality, free from disease, and at very moderate prices.

Apply to H. & F. SHARPE, Seed Growers and Nurserymen, Wisbeach, Cambridgeshire.

SEED POTATOS.—The Subscribers have to Dispose of, in quantity, all the leading sorts of POTATOS, comprising WALKER'S EARLY REGENT, DALMAHOY EARLY, and RED BOG, carefully selected for seed and of fine quality. Prices per ton on application.

SMITH & SIMONS, Seed Merchants, Glasgow.

SEED POTATOS.

20 tons EARLY LEMON IMPROVED KIDNEY, one of the most prolific and early varieties grown.
6 tons EARLY ASHLEAF KIDNEY (true stock).
6 tons EARLY HANDSWORTH ROUND (true stock).
Fine ASPARAGUS and SEA KAIL ROOTS, 2 years.

H. & R. STIRZAKER are supplying the above genuine sorts of Potatos at very reasonable prices, delivered free on the rail.

Skerton Nurseries, Lancaster.

Important to Growers of Potatos.

H. AND F. SHARPE invite the attention of Growers of EARLY POTATOS to their fine selected stocks of MYATT'S EARLY PROLIFIC KIDNEY, and EARLY DALMAHOY ROUND, which are universally pronounced to be the earliest and most prolific sorts in cultivation, and especially adapted for early market purposes, yielding from 8 to 10 tons per acre, and ready for market by the end of June, clearing the land in time to sow for White Turnips or other autumn feed. The quality this season is unusually fine, and perfectly free from disease. Having an abundant supply, H. & F. S. are enabled to offer them at very moderate prices, and make a suitable reduction to purchasers of a large quantity. For Prices, and further information, apply to

H. & F. SHARPE, Seed Growers, Wisbech, Cambridgeshire.

New Early Potato—Rintoul's Early Don.

DOWNIE, LAIRD, AND LAING are now sending out the above variety, introduced by Charles Rintoul, Esq., East Craigie, Cramond, near Edinburgh, the well known Potato cultivator, and grown by him very extensively for some years. It is a seedling from the old "Don," considerably earlier than Daintree's Seedling, is a handsome-shaped round white variety, slightly streaked with red, and is an immense bearer, producing from 80 to 90 bolls per acre. It partakes of the quality of the old Don, being very mealy and fine flavoured. For Field or Garden purposes this sort will be found a valuable acquisition, and can be highly recommended. Price 4s. per peck of 14 lb.

17, South Frederick Street, Edinburgh; and Stanstead Park, Forest Hill, London, S.E.

A Boon to the World.

PRINCE of WALES' KIDNEY POTATO.—A new Seedling, remarkably handsome, fine eating, and the most prolific in the world. Testimonials:—

From Professor LINDLEY (Editor of the *Gardeners' Chronicle*).

"I have this morning had the Seedling Potatos examined. The crop is very extraordinary, and the Potatos themselves are very handsome, and quite ripe."

From SHIRLEY HIBBERD, Esq. (Editor of the *Gardeners' Weekly Magazine*.)

"The Seedling Potato (Prince of Wales), I have found to be wonderfully productive, excellent flavour, handsome, and such a one as the world ought to have the benefit of."

To be had of Messrs. BARR & SUGDEN, King Street, Covent Garden W.C.; DOWNIE, LAIRD & Co., Forest Hill, S.E.; JAMES CARTER & Co. 237, High Holborn, W.C.; SUTTON & SONS, Reading.

Price 12s. per bushel.

N.B. They may be planted up to the end of May.

Mona's Pride Potato.

MR. RUTLEDGE, of Hague House, Isle of Man, can supply his famous SEED this season at a reduced price, by reason of having grown largely. This Potato is now admitted by all as the only First Early and most prolific cropper for field or garden. Will furnish new tubers any month in the year, some being shown on New Year's Day.

Applications as above will be duly attended to.

Henry's Prize Hybrid Leek.

DOWNIE, LAIRD, AND LAING, having secured the entire stock of the Seed of this far-famed LEEK from Mr. Henry, are now sending it out in sealed packets as formerly, at 1s. each. This is undoubtedly the largest and finest variety in cultivation, weighing when cleaned from 4 to 5 lb., and blanched from 16 to 17 inches in length.

17, South Frederick Street, Edinburgh; and Stanstead Park, Forest Hill, London, S.E.

AYTON CASTLE GIANT SCOTCH LEEK.—The qualities of this superior Prize Leek having for the past five years been most thoroughly tested against other well-known varieties, celebrated growers have pronounced it to be the finest, largest, and firmest fleshed Leek in cultivation.

The Subscriber having bought the whole stock of Seed saved by the raiser (Mr. Moffat, Ayton Castle Gardens), is now sending out the same in sealed packets at 1s. each. A trial of this celebrated Leek is respectfully requested.

ROBERT T. MACKINTOSH, Nurseryman and Seedsman, 12, Melbourne Place, George IV. Bridge, Edinburgh.

Specimens of the Leek grown in an ordinary way—without any forcing—may be seen at above address; also at the Seed Establishment of Messrs. JAMES CARTER & Co., High Holborn, London, W.C.

SUTTON'S NEW EARLY PEA RINGLEADER. The Earliest Pea in cultivation.

THE NEW PARSNIP "STUDENT."—SEED of this improved PARSNIP, "ennobled" by Professor BUCKMAN, late of the Royal Agricultural College, Cirencester, is now ready for delivery by Messrs. SUTTON & SONS, post free, 8d. per oz.; also Wholesale to the Trade. It can also be obtained from any of the leading Seedsmen.

Royal Berks Seed Establishment, Reading.

OSBORN'S WHITE WINTER BROCCOLI. Price 2s. 6d. per packet.

Special offer to the Trade on application.

A PRICED LIST of select GARDEN SEEDS is now ready, and may be had free on application.

OSBORN & SONS, The Nursery, Fulham, London, S.W.

Cucumber Seed.

CUTHILL'S EARLY HARDY PRINCE ALBERT, the most profitable grown. It is always there when wanted. 1s. per packet, or Trade by oz.

CUTHILL'S PAMPHLETS always on Sale.

JAMES CUTHILL, Camberwell, London, S.

The Best Cucumber in Cultivation—Neyton Hall.

F. G. GODWIN has pleasure in introducing to the notice of Cucumber Growers the above-named splendid variety; shape perfect, well shouldered, and running evenly from close to the stem to the nose; length 25 to 30 inches, frequently longer; smooth, dark green colour, black spine, fine flavoured, and remarkably productive; one of the best, if not the very best variety, either for Family Use or the Exhibition Table. In Packets, 2s. 6d. each.

For other choice CUCUMBERS, VEGETABLES, &c., see F. G. G.'s DESCRIPTIVE PRICED CATALOGUE of KITCHEN GARDEN SEEDS.

DESCRIPTIVE CATALOGUE of FLOWER SEEDS will be ready in a few days.

3 and 4, Norfolk Market Hall, Sheffield.

New Cucumber, Model.

EDWARD TILEY, the successful Raiser of some of the finest varieties of CUCUMBERS and MELONS now grown, has the above new production this season to offer. Length from 10 to 14 inches. A prolific bearer, bringing six and seven fruit to a joint. This gives it a great advantage over the long show varieties, which are generally shy setters. It is very handsome, being of an even size from stem to point; a beautiful black spine, carrying its bloom well; the flesh very solid and crisp, and the flavour excellent. For small families it is especially adapted, as after it once commences bearing, fruit may be cut from the same plant daily for six months. It would be a profitable variety for market gardeners. It is very hardy for a Frame Cucumber, so that where the supply of manure is scanty it will be a great boon. Price 2s. 6d. per packet.

CUCUMBERS.—GENERAL OUTRAM (price 2s. 6d. per packet), a first-rate variety for exhibition, black spine, from 24 to 28 inches. The following varieties 1s. per packet (the Trade supplied):—Sir Colin Campbell, General Canrobert, Victory of Bath, Gordon's White Spine, Lord Kenyon's Favourite, Phenomenon, Captivation, Rifleman, Mills' Jewess, Manchester Prize, Conqueror of the West, Hunter's Prolific, Incomparable, Syon House, Cuthill's Black Spine, Allen's Victory, Champion of England, Trollope's King, Stockwood Ridge, Ipswich Standard, Ayres' Prolific, Tiley's Improved.

MELONS.

	Per packet—s.d.		Per packet—s.d.
Pine Apple	1 0	Meredith's Hybrid Cashmere	1 0
General Havelock	1 0	Camerton Court, Green-flesh	1 0
Mr. Ewen's Arundel Hybrid Green-flesh	1 0	Queen's Melon	1 0
Ditto ditto, Scarlet-flesh ..	1 0	Blackall's Green-flesh.. ..	1 0
Monro's Green Gage	1 0	Bailey's Green-flesh	1 0
Monro's Crystal Palace Hero	1 0	Bowood Green-flesh	1 0
Golden Drop, Green-flesh ..	1 0	Beechwood Green-flesh ..	1 0
Golden Perfection, Green-flesh	1 0	Windsor Prize ditto	1 0
Scarlet King, Scarlet-flesh ..	1 0	Emperor	1 0
Green Gage	1 0	Fleming's Trentham Hybrid	1 0
Incomparable	1 0	Duncan's Green-flesh Improved	1 0
Golden Ball	1 0	Hampton Court, Green-flesh	1 0
Bromham Hall, Green-flesh..	1 0	Egyptian ditto, Improved ..	1 0
		&c. &c. &c.	&c.

Fine mixed AURICULA-FLOWERED SWEET WILLIAM, 1s. per packet.

HOLLYHOCK SEED from all named vars., 1s. per packet.
GRIFFIN'S ALMA LETTUCE, 1s. per packet.
TILEY'S EMPEROR RED CELERY, 1s. per packet.
TILEY'S SOLID WHITE CELERY, 1s. do.

A packet of the CUCUMBERS MODEL or GENERAL OUTRAM, with a packet of any other variety of Seed mentioned in the Advertisement, for 3s.

A remittance must accompany all orders, either by Post-office order, or penny postage stamps.

EDWARD TILEY, Nurseryman, Seedsman, and Florist, 14, Abbey Church Yard, Bath.

TRADE MARK.

HALLETT'S | PEDIGREE | NURSERY WHEAT.

PURE SEED OATS.

46s. a Quarter (with Sacks) for not less than Two Quarters.

Papers sent upon application, enclosing Stamp, to FREDERIC F. HALLETT, Esq., F.L.S., the Manor House, Brighton, Sussex.

OATS for SEED.—Samples and prices of the following four leading varieties, all pure and specially grown for Seed may be had from the Subscribers:—

BLACK TARTARIAN | EARLY SANDY
POTATO or FLEMISH | " BERLIE

W. DRUMMOND & SONS, Seed Establishment, Stirling, N.B.

☞ This Advertisement will not be repeated.

REIGATE SILVER SAND (best quality for Plants, &c.), 7s. 6d. per Ton, 28s. per 4 Tons, 39s. per 6 Tons, 48s. per 8 Tons, 5s. per Ton for 20 Tons and upwards, delivered to the Reigate Station. Best Kent and Surrey PEATS, LOAMS, ROCK SANDSTONE, &c.

N.B. Loaded trucks can be sent direct on all the Railways.

London-made FLOWER POTS, in every size, at the lowest cash prices. W. SHORT, Sand and Peat Depôt, Reigate, Surrey.

NATURAL GRASSES: their Names and Derivations; Quality, Produce, Elevation, Situation, Soil, Use, Peculiarity, Season, Growth, Increase, Time of Flowering, Price, &c. Free for One Postage Stamp.

RICHARD SMITH, Seed Merchant, Worcester.

Grass Seeds for all Soils.

SUTTON AND SONS have one of the largest Stocks in Europe of the PERMANENT NATURAL GRASS and CLOVER SEEDS, which they mix expressly to suit the soil for which they are required.

The following letter has been received, besides many others:—

From Professor LINDLEY, *Royal Horticultural Society, London.*

"We have already made trial of your Grass Seeds, and it is only justice to say that they have proved the best we have sown for many years."

PRESENT PRICES ARE:—

Best quality MIXTURES for LAYING DOWN to PERMANENT PASTURE, 30s. per acre.
Cheaper MIXTURES, omitting certain sorts, 24s. to 26s. per acre.
Best quality ditto, for Three or Four Years' Lay, 22s. 6d. per acre.
Ditto ditto, for One or Two Years' Lay, 14s. to 18s. 6d. per acre.
CLOVERS and fine GRASSES for RENOVATING OLD PASTURES, 6s. to 9s. per acre.
Finest LAWN GRASS SEEDS, 18s. per bushel.
PARK LAWN GRASS SEEDS, 16s. per bushel.

The First Prize Medal was awarded to SUTTON & SONS for their Grass and Clover Seeds at the Great International Exhibition of Roots and Cereals at South Kensington in October, 1863.

A Copy of Mr. MARTIN SUTTON'S "Essay on Pastures" is sent with each lot of Grass Seeds.

Seeds sent carriage free to all parts of the kingdom. Export orders delivered free to the Ship's side in any English Port.

PRICED LISTS of GARDEN and FARM SEEDS gratis and post free.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 2s. per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

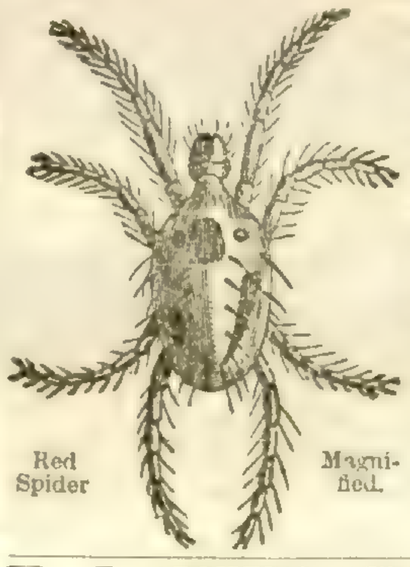
Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped, J. BARSHAM'S Patent.

ROLL TOBACCO CLOTH.—The cheapest and best article for Smoking Greenhouses and Destroying the Fly. Price 1s. 4d. per lb.; over 10 lbs. 1s. 1d. Post-office Orders payable at Fleet Street.

JOSEPH BAKER, 10, Gough Square, Fleet Street, E.C.



GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes, 1s., 3s., and 10s. 6d. each.

Wholesale by
PRICE'S PATENT
CANDLE COMPANY
(LIMITED).

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society &c.

PROTECTION from COLD WINDS and MORNING FROSTS.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.

Two yards wide	1s. 9d. per yard run.
Four yards wide..	3s. 6d. per yard.
An improved make, 2 yards wide ..	1s. 9d. per yard.
An improved make, 3 yards wide ..	2s. 8d. per yard run.

Also "Frigi Domo" Netting, 2 yards wide, 1s. 6d. per yard run.

ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, and of all Nurserymen and Seedsmen throughout the kingdom.

"It is much cheaper than Mats as a covering."

Great Reduction in Glass Houses.

J. STEVENS begs to say that he is prepared to erect SPAN-ROOF and LEAN-TO HOUSES at the following reduced prices, viz.:—Lean-to Houses suitable for Greenhouses, Orchard Houses, Vineries, Peach and Pine Houses, Forcing Houses, and Pits, 50 feet by 9 feet 6 inches, 50*l.*; fitted up with stages for all kinds of plants, with two rows of hot-water pipes along one side, 25*l.* extra. Span-roof Houses, 50 feet by 12, 95*l.* They are all built of the best yellow deals, glazed with 20-oz. glass, and painted three times. Fixed free of charge within 10 miles of London. They are all properly ventilated. Plain and Ornamental Conservatories at equally low prices. Estimates given for all kinds of Glass Houses. Frames 10 feet by 5, 4*l.* 10s.. N.B. First-class references given

J. STEVENS, Horticultural Builder and Hotwater Apparatus Manufacturer, Plaistow, Bromley, S.E.

Established Upwards of a Century.

BUTLER AND McCULLOCH,

SEED MERCHANTS, Covent Garden Market, W.C.

GENUINE NEW VEGETABLE SEEDS.

Orders amounting to 21s. and upwards sent Carriage Free.

COMPLETE COLLECTIONS for ONE YEAR'S SUPPLY.

No. 1.	No. 2.	No. 3.	No. 4.	No. 5.
3l. 3s.	2l. 2s.	1l. 10s.	1l. 1s.	10s. 6d.

BUTLER AND McCULLOCH'S NOVELTIES for 1865.

	Per packet—s.	d.
BUTLER'S SUPERFINE DWARF CAULIFLOWER.. ..	2	6
BUTLER'S PERFECTION CUCUMBER, unquestionably the finest variety ever offered	2	6
BUTLER'S CLIMAX MELON..	2	6
BUTLER'S PRESIDENT MELON	2	6

FLOWER SEEDS (sent Post free).

Assortments of	100 vars.	50 vars.	30 vars.	25 vars.	15 vars.
ANNUALS—Hardy	20s.	10s.	5s.	..	2s. 6d.
„ Half Hardy	30s.	15s.	..	7s. 6d.	4s. 0d.
PERENNIALS (Hardy) ..	25s.	12s. 6d.	..	6s 6d.	3s. 6d.
„ Half Hardy		..	..	7s. 6d.	4s. 0d.

NOVELTIES in FLOWER SEEDS.—See Descriptive Catalogue.

BULBS for SPRING PLANTING.—Gladioli, Liliums, including the splendid new L. auratum; Tigridias, Anemones, Ranunculus, and other bulbs suitable for spring planting, in great variety. Special quotations at low rates per 100 or 1000 on application.

BEDDING PLANTS.—250,000 well-rooted plants, comprising Calceolarias, Lobelias, Geraniums, Cerastiums, Cineraria maritima, Ageratums, &c.; to be sold at unprecedented low prices.

Agents for GOULDING'S HORTICULTURAL MANURE, 1s. per canister.

SOLE AGENTS Wholesale and Retail, for MURRAY'S APHIS PASTILS, a new invention, and the most effectual in existence for Fumigating Plant Houses. In packets, 1s. and 2s. each.

BUTLER & McCULLOCH, Covent Garden Market, W. C.

Sow Now.

PRIMULA SINENSIS FIMBRIATA, Crimson and Pure White, without exception the finest in the kingdom. 1s., 2s. 6d., and 5s. per packet, post free. Sent out by HOOPER & Co., Covent Garden Market, London, W.C.

CALCEOLARIA AMBASSADOR (SANG'S). — Strong Plants in single Pots of this magnificent Bedding-out CALCEOLARIA will be ready in April. Price 12s. per dozen. Early orders will oblige. The Trade supplied on the usual terms.

EDWARD SANG & SONS, Nurserymen and Seed Merchants, Kirkcaldy, N.B.

Beck's New Pelargoniums.

B. S. WILLIAMS has much pleasure in stating that he is now distributing strong Plants of New and Choice Varieties for this season. DESCRIPTIVE CATALOGUE, post free on application.

Paradise and Victoria Nurseries, Holloway, London, N.

GEO. BAKER AND SON beg to announce they have an extensive collection of the best hardy RHODODENDRONS in cultivation, fine healthy plants, at very moderate charges. Also a large collection of general NURSERY STOCK. Prices on application.

American Nurseries, Bagshot, Surrey, about 1 mile from Sunningdale Station, South-Western Railway.

American Plants.

AS EXHIBITED IN THE ROYAL HORTICULTURAL GARDENS, KENSINGTON.

WATERER AND GODFREY'S PRICED and DESCRIPTIVE CATALOGUE of RHODODENDRONS and other AMERICAN PLANTS will be forwarded on application. The Catalogue also gives a General Summary of their Stock, which contains probably the most extensive choice of all the Hardy and finest Evergreens and Conifers.

Knap Hill Nursery, Woking, Surrey.

Rhododendrons.

JOHN WATERER begs to announce that his New CATALOGUE of Hardy, Scarlet, and other Choice RHODODENDRONS, as exhibited by him at the Royal Botanic Gardens, Regent's Park, is now published, and can be had on application. It gives faithful descriptions of all the esteemed varieties, as well as a Select List of Hardy CONIFERS, with heights and prices; also the leading kinds of EVERGREENS, ROSES, FOREST TREES, &c.

The American Nursery, Bagshot, Surrey, near Sunningdale Station, South-Western Railway.

Russell's Pyramid Primulas.

GEO. CLARKE is now prepared to send out in packets, price 2s. 6d. each, this, the finest breed of PRIMULAS in cultivation. The Seed now for sale has been saved from selected plants, so that it is believed the produce will be even superior to that of former years.

Printed instructions for raising and growing the plants sent with each packet. Stamps received in payment.

Nursery, Streatham Place, Brixton Hill, London, S.

SEEDS, GROWTH OF 1864.

JOHN & CHARLES LEE,

SEEDSMEN TO THE QUEEN,

BEG RESPECTFULLY TO SUBMIT THEIR

NEW CATALOGUE FOR 1865

OF

KITCHEN GARDEN, FLOWER, AND AGRICULTURAL SEEDS,

CONTAINING SELECTIONS from the BEST STOCKS at HOME and ABROAD,

POST FREE on APPLICATION.

ROYAL VINEYARD NURSERY and SEED ESTABLISHMENT,
HAMMERSMITH, LONDON, W.

CARNATIONS, PICOTEES, and PINKS.

ROYAL NURSERIES, GREAT YARMOUTH.

YOUELL & CO.

Beg to offer to the Nobility, Gentry, and Trade generally, their EXTENSIVE and SUPERB COLLECTION of the above, which are this season unusually strong and healthy, at the undermentioned prices.

New Scarlet Clove Carnation "Garibaldi."

YOUELL & Co. have much pleasure in offering the above magnificent variety, far surpassing any in cultivation; colour intense vivid scarlet, large and bold flowers, fine pod free from bursting; the delicious Clove scent which it possesses is not to be equalled in any of its class. 5s. per pair.

Carnations and Picotees.

YOUELL & Co.'s collection of these is probably the most extensive in the Trade, and having for a series of years paid special attention to their cultivation, introducing the best of the new varieties, they are enabled to offer them at the following prices for fine strong well-rooted plants:—

CARNATIONS, finest first-class varieties, by name, 18s. and 24s. per dozen pairs.

PICOTEES, finest first-class varieties, by name, 18s. and 24s. per dozen pairs.

Ditto, on yellow grounds, 20s. and 30s. per dozen pairs.

Finest mixed BORDER CARNATIONS and PICOTEES, 9s. per dozen pairs.

True old CRIMSON CLOVE CARNATIONS, 12s. per dozen pairs.

YOUELL'S KING of SCARLETS, very brilliant and highly fragrant, 18s. per dozen pairs.

New Italian Yellow Carnations.

YOUELL & Co. have succeeded in importing 25 very choice, distinct, and beautiful varieties of the above—the ground colours being a rich yellow, striped and suffused with various shades of scarlet, crimson, purple, plum, and blue; they are extremely hardy, very strong growers, highly fragrant, and will give general satisfaction.

Price 3s. 6d. per pair, or 40s. per dozen pairs, of the most distinct kinds.

Perpetual Flowering or Tree Carnations,
Flowering Summer and Winter.

This deservedly popular class has of late received many additions to its hitherto general favourites. They cannot be too strongly recommended, not only for their delightful fragrance but the brilliant display they afford, during the Autumn and Winter months, either in the Greenhouse, Conservatory, or open Garden during the Summer months.

New White Clove Carnation "Princess Alice."

YOUELL & Co. beg to offer a few pair of the above desirable variety, which possesses the same properties as Garibaldi, only differing in colour, being of the finest snowy white.

5s. per pair; if 12 pair are ordered, 2l. 10s.

ROYAL NURSERIES, GREAT YARMOUTH.

GLADIOLUS BRENCHLEYENSIS (True).

ROYAL NURSERIES, GREAT YARMOUTH.

Colour "VERMILION SCARLET," the brightest variety known.

Strong Flowering Bulbs, 3s. per dozen, 20s. per 100.

YOUELL & CO.

Have much pleasure in submitting the following Report from the Editor of the *Gardeners' Chronicle*:—

"GLADIOLUS BRENCHLEYENSIS.—We have received from Messrs. YOUELL & Co., of Great Yarmouth, some specimens of this plant, the gorgeous appearance of which cannot be spoken of in terms of exaggeration. The tall robust habit and intensely bright scarlet flowers place it at the head of all the hardy flowers of the autumn."

"The specimens are magnificent; we have seen as yet nothing of the kind so handsome near London. It is undoubtedly the most showy of the whole race of Gladioli."

It was exhibited by them in their Collections which obtained the three First Prizes at the Royal Horticultural Society and the Crystal Palace; also the First Prize at the Royal Horticultural Gardens, Kensington, Crystal Palace, and Brighton.

GLADIOLUS, the most choice Show Varieties to name.

For which they were awarded the Three First Prizes at the Royal Horticultural Society, the Crystal Palace, and Brighton.

YOUELL & Co. beg to intimate that they are in a position to supply the most choice kinds of this beautiful tribe in strong flowering Bulbs, as follows:—

No. 1 COLLECTION	contains	100	BULBS,	in 50	of the most choice and handsome kinds,	to name	25	0 0
Half the above	„	50	„	25	ditto	ditto	2	10 0
No. 2 COLLECTION	contains	100	„	30	ditto	ditto	3	15 0
Half the above	„	50	„	15	ditto	ditto	1	17 6
No. 3 COLLECTION	contains	100	„	25	ditto	ditto	2	10 0
Half the above	„	50	„	12	ditto	ditto	1	5 0

Fine Selections will be supplied at 6s., 9s., 12s., 18s., to 30s. per dozen.

Strong Bulbs of unbloomed Seedlings, saved from the finest named kinds, 4s. per dozen, 25s. per 100.

CATALOGUES can be had on application.

PETER LAWSON & SON,

SEED GROWERS AND MERCHANTS,

28, KING STREET, CHEAPSIDE, LONDON, E.C.; and at EDINBURGH.

LISTS OF ALL SORTS OF SEEDS AND PLANTS SENT FREE ON APPLICATION.

WHEELER'S LITTLE BOOK for 1865, four stamps.

WHEELER'S LITTLE BOOK on GRASSES, gratis.

J. C. WHEELER AND SON, SEED GROWERS, Gloucester.

CARTER'S GARDENER'S VADE-MECUM is now ready.

Notice to Purchasers of Seeds.

SUTTON AND SONS having received several Orders for GARDEN SEEDS without the SIGNATURE or ADDRESS of the Sender, they fear inconvenience will be caused thereby, as they cannot possibly ascertain to whom the goods should be sent. As these omissions occur more or less every year, Messrs. SUTTON request their friends who do not receive their goods promptly to write without delay. Royal Berkshire Seed Establishment, Reading.

RAYNBIRD, CALDECOTT, AND BAWTREE, SEED FARMERS and MERCHANTS, 89, Seed Market, Mark Lane; and Basingstoke. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

DOBSON AND SONS' CELEBRATED SEEDS. Growth 1864. Quality unequalled.
DOBSON'S SUPERB ANTIRRHINUM, 6d., 1s.
DOBSON'S SUPERB BALSAM, 1s., 2s.
DOBSON'S SUPERB CALCEOLARIA, ex. ex., 1s. 6d., 2s. 6d.
DOBSON'S SUPERB CINERARIA, ex. ex., 1s., 2s. 6d.
DOBSON'S SUPERB HOLLYHOCK, 1s., 2s. 6d.
DOBSON'S SUPERB LOBELIA SPECIOSA, 1s., 2s.
DOBSON'S SUPERB PELARGONIUM, 2s 6d., 5s.
DOBSON'S SUPERB PANSY, 1s., 2s.
DOBSON'S SUPERB PRIMULA, ex. ex., 1s., 2s. 6d.
DOBSON'S SUPERB SWEET WILLIAM, 6d., 1s.
DOBSON'S SCARLET INTERMEDIATE STOCK, 6d., 1s.
Post free. The Trade supplied liberally.
Woodlands Nursery, Isleworth, W.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
*** Part II. (Exotic Ferns) will be issued as early as possible.
Foot's Cray Nursery, S.E.

GRAND INTERNATIONAL EXHIBITION of FLOWERS, FRUITS, VEGETABLES, HORTICULTURAL IMPLEMENTS, GREENHOUSES, CONSERVATORIES, AQUARIUMS, WARDIAN CASES, GARDEN and GREENHOUSE ORNAMENTS, INSTRUMENTS of GARDENING, &c., to be held at NICE, South of France, from the 20th APRIL to 15th MAY NEXT. FLOWERS, FRUITS, &c, from APRIL 25 to MAY 1.

The PRIZES consist of upwards of 200 LARGE GOLD, SILVER GILT, and SILVER MEDALS of considerable value, besides
TWO GRAND GOLD MEDALS of the EMPEROR.
ONE GRAND GOLD MEDAL of the EMPRESS.
GOLD MEDAL of HONOUR of the Ladies of Nice.
GOLD MEDAL of the Minister of Agriculture.
PRIZE of the Grand Duchess Helène of Russia.
PRIZE of His Royal Highness the Prince of Monaco.
PRIZE of His Royal Highness Prince Oscar of Sweden, &c.

Together with the prospect of distinguished personal Honours, understood to be conferred on the most meritorious Exhibitors.

English Nurserymen and Gardeners are specially invited to compete for the Prizes, and as an inducement the expenses of transport of all articles for exhibition to and from Nice will be borne by the municipal authorities.

A responsible party will be appointed in London to take charge of all perishable Fruits, convey them to Nice, and arrange them for Exhibition.

The Programme includes 92 Classes, and Supplemental Medals are at the disposal of the Judges.

Schedules of the Prizes, with all other information, may be had on application to E. STUART, Esq., 10, Southampton Street, Holborn, W.C., President of the Section of Horticulture.

ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON.
PRIZES OFFERED to EXHIBITORS at the FELLOWS' SATURDAY WEEKLY SHOWS, 1865.

A First-class Gold Banksian Medal for every 20 First-class Certificates gained by an Exhibitor.
A Second-class Gold Banksian Medal for every 20 Second-class Certificates gained by an Exhibitor.
A Silver Flora Banksian Medal for every 20 Commendations gained by an Exhibitor.
A Gold Medal, to be termed the Prince Consort's Medal, to the Exhibitor who shall, during the course of the year, gain the greatest number of marks, reckoning a First-class Certificate as 7 marks and a second as 5 marks.

PRIZES OFFERED BY HIS GRACE THE DUKE OF BUCCLEUCH, President of the Society.

A Prize of 15*l.* to the Exhibitor who, during the year, shall have obtained the greatest number of First-class Certificates.
A Prize of 10*l.* to the Exhibitor who, during the year, shall have obtained the greatest number of Second-class Certificates.

LADIES' PRIZES for INDOOR GARDENING.—The PROPRIETORS of the GARDENERS' CHRONICLE again offer, as announced last year, TWO PRIZES of 10*l.* each for the best examples of INDOOR PLANT-CULTURE exhibited at the Show of Table Decorations, which is to take place in the Garden of the Royal Horticultural Society, at South Kensington, on JUNE 24.

One Prize will be given for the BEST ORCHID IN BLOOM, grown and flowered in a room.

One Prize will be given for the BEST FLOWERING PLANT OR FOLIAGE PLANT of any kind, grown in a room.

The Competition is to take place amongst LADIES ONLY.

The Prizes are offered for the best single plants, examples of actual indoor cultivation; they must therefore have been grown in a room for at least six weeks previous to the time of exhibition, during which period they must have been under the management of the Exhibitors themselves.

The plants are to be such as are suitable for drawing-room decoration.

The Plants may be grown in pots, or boxes, or baskets, or aquaria, or in any other convenient and suitable contrivance.

Notice of the intention to exhibit must be sent to the Garden Superintendent at South Kensington not later than June 19, in order that accommodation may be provided. The Plants must be sent in by 9 A.M. on June 24, and be ready for adjudication by 11 A.M.

The Gardeners' Chronicle.

SATURDAY, FEBRUARY 4, 1865.

MEETING FOR THE ENSUING WEEK.

SATURDAY, Feb. 11 { Royal Horticultural (Weekly Show), at South Kensington .. . .. 2 P.M.

ON a portion of a promontory, enclosed in the windings of the Seine, is the BOIS DE BOULOGNE. The river flows along the western boundary of its race ground, beneath the opposite village of St. Cloud, then curves back again past Auteuil and Passy, where, bending, it straightens its course until we meet with it again shooting off at an angle parallel with the Place de la Concorde. Thus the western side is bounded by the river, the eastern by Auteuil and Passy, the northern by Neuilly, and the south side by the village of Boulogne, whence it takes its name. The forest was originally of far greater extent than at present, and was known as the Bois de Rouvray, or Garenne de Rouvray, afterwards changed to the Bois de St. Cloud, from its vicinity to that town; while its present name is mentioned as early as 1417, although it is occasionally referred to as the Bois de St. Cloud till about the middle of the 16th century. CHARLES IX. had a country seat here, and FRANCIS I., after his defeat at Pavia in Italy, was so captivated with his prison accommodation in Spain, that on his return he adopted it for the model of a new villa, called the Château de Madrid. This, with many of the finest trees, fell victims to the Revolution. On the approach of the Allied armies in 1814 many more trees were felled for the construction of the palisades erected in the defence of Paris; and in 1815 the British army of occupation, when building its encampment of log huts, cut down the survivors, and added the finishing stroke to the general desolation. The present state of the Wood is copse-like and most deplorable from the total absence of timber; the stools having reproduced, like the Hydra's head in the fable, and grown into a mingled mass of confusion.

Two main roads pierce through it, one, the Allée de Longchamp, from Porte Maillot to the race-course, and the other, the Allée de la Reine Marguérite, communicating between the little villages of Boulogne and Neuilly; and besides these, drives and walks, countless as the meshes of a fisherman's net, lead through the Wood in all directions. The fashionable and nearest entrance is, however, by the Avenue de l'Impératrice, starting from the Arc de l'Etoile, as the Porte Maillot is further down the road that continues the straight line of the Champs Élysées.

Descending a gentle gradient, wooden barriers separate us from a space reserved for horsemen on one side, and foot passengers on the other. These again are margined by gardens, with Cedars, Firs (Spruce and Silver), Cypresses, and deciduous planting, massed or dotted over the lawns. To the right in the distance frowns Mont St. Valerien, like a broken crest of wave terminating a long-backed sweep of hill, with a few Lombardy Poplars in the foreground, towering thinly over the sky line of distant bloom. At the end of the road are gates, which, folding to accommodate their immense width, form the usual entrance to the Bois.

Entering, and winding through a mixed wood of Elm, Ash, Beech, Maple, Acacia, and Oak, we emerge near the N.E. corner of Lake Inferior, enlivened by a neatly-painted fleet of pleasure-boats, and swans sailing about, and groups of water-fowl dabbling and quacking. Keeping the road to the left—past the Parc aux Daims, a cleared piece of ground—woods of Pine and Birch, beds of foliage and flowers dress the sloping banks of the water; soon divided in its length by a long island, in its turn bisected by a cut, which is prettily arched over with a rustic bridge. On this side of it is a Swiss restaurant enwrapt in a grove of Scotch Pine and Birch. Ferry boats take you across, and numerous walks thread the shrubberies, which can boast of better trees than are to be seen on the mainland. From here the banks get gradually steeper, till their height at the end far exceeds the proportionate width of the water, and no amount of after-thought seems capable of compensating for this constructional error *in initio*. The want also of an indicated water-line is sensibly felt, as the banks slide into the water with graceful hollows suggestive of the ancient bed of the lake, such as may be seen at the Lake of Lungern, near Lucerne. Rugged and careless banks, with Rushes, Willows, Alders, Poplars, and Dogwood, are less insipid on a large scale and less difficult to keep than smooth shaven lawns; and it becomes a further question how far the gardenesque and formal treatment of the details is in unison with the rural character of the scenery. We can only answer, "La critique est aisée, mais l'art est difficile;" but before quitting the subject will quote a passage from Sir UVEDALE PRICE's book "On the Picturesque," a work somewhat difficult of access, but which might easily be reprinted, as every gardener should have some knowledge of its contents.

"After the improver had settled the principal points where he would either add or take away earth for the sake of picturesque effect, he would then begin to dig out the soil that might be necessary for completing the form and size he wished to give his lake. In the management of this part, which must be entirely formed by digging, lies the great difficulty; for if the line be exactly staked out, and the bank everywhere sloped down in that direction to the edge of the future water, perfect monotony will as usual be the consequence. The art here consists—and it is by no means an easy one—in preserving a general play and connection of outline, yet varied by breaks and inlets of different heights and characters; it consists in avoiding sameness and insipid curves, yet in no less carefully avoiding such frequent and distinct breaks as, from a different cause, would disfigure the outline."

Then, alluding to natural banks, he says, "Let us suppose then that all the trees, bushes, and vegetation of every kind, were to be taken from such a" (*i. e.* a natural) "bank, what would remain?—a number of rough unsightly heaps of earth tumbled into irregular shapes, with perhaps several stumps, roots of trees, and large stones in different parts of it. If these also were removed, nothing would be left but broken irregular banks of earth. The prophetic eye of real taste might, indeed, even in this rude chaos, discern the foundations of numberless beauties and varieties, but the rash hand of false taste would destroy that foundation by indiscriminately destroying all roughness and inequality."

A dam crossed by a road separates Lake Inferior from Lake Superior. The latter, on a higher level, is a large open pool, with a quiet refreshing look that pleases at the first view. Keeping along its shore and past a meadow enclosed in triangular roads, we ascend towards an open platform of considerable elevation, with a Cedar of Lebanon, and seats round it, in the centre. Through a straight gap in the trees to the left is a glimpse of Meudon, the seat of Prince NAPOLEON, and in front the village of Boulogne, and beyond that again St. Cloud, hidden by the trees. The fort of Mont St. Valerien, once a convent, but now the strongest military position round Paris, crowns the hills to the right; and looking back down the lakes is a charming reach of water, which might be considerably improved by removing some scrubby trees to the left, and leaving a rather fine group of Oaks near the water's edge to create a subordinate vista.

Starting again through the Wood to the right we wind towards the Allée de la Reine Marguérite, a mixed avenue of trees, and crossing to the road in front of us come out near the Porte de l'Hippodrome, close to the village of Boulogne. Climbing the hill opposite is the village of St. Cloud, studded with trees, among which lie concealed the Château and its park, where the EMPEROR ordinarily resides in preference to the more stately Palace of the Tuileries. The place is well worth a visit, especially on Sundays during the fêtes in August, when the waterworks are in full play, and the people crowd here from all quarters of Paris to enjoy themselves with characteristic vivacity, the more striking as compared with the quiet prevailing at similar gatherings in Holland.* There is the usual amount of extraordinary humanity, some without legs, and some without arms; Balancés—but beware, ye bad sailors, for the downward swing is strangely suggestive of sea-sickness; wheels of fortune, and many other sights and amusements. Brass bands by the dozen, drums *ad libitum*, bells ringing, people hallooing, volleys of musketry from some adjoining Malakoff captured every ten minutes, and occasional stunning reports like the diapason in a concert resounding above the general Babel of tongues. Every "chevaux de bois" has its musical organ, and should you prove venturesome, and entrust yourself to the back of one of the steeds, circus-like revolving, the roar increases as you come opposite the band; the work of a huge muscular peasant grinding at the bell handle, as though in training for the labours of a HERCULES. Men, women, and children are blowing long tinselled pipes, like a screeching flock of macaws, or a fallen host of Cherubim and Seraphim, though if this, like the feather that broke the camel's back, prove too much for the nerves, you can ascend the Lantern of Demosthenes, and, supremely elevated above the vulgar herd, ascertain the time by the church clocks in Paris, criticise the horsemen in the Bois de Boulogne, or note the details of the Pantheon—all through a telescope for one penny! It is not so long since horses, with riders of 10, 11, and even 12 stone, might have been seen ploughing the sandy plains of the Champ de Mars. Turning to the right we have the race-course, the scene of our recent defeat, between us and the river. It is a large undulating piece of ground, with bunches of planting in parts of it, and at the further end, right under Mont St. Valerien, is the grand stand,

* The Kermis, or "People's feast," held in rotation at the different towns.

a long low building, somewhat resembling a river steamer. In the centre is the EMPEROR's pavilion, a Swiss cottage surmounted by a Gothic tower, and on either side covered stands for the tribune, and beyond these long open seats for visitors. At this end of the race-course there is a pretty drive past a windmill to a suspension bridge over the river to Suresnes, and just opposite, set back a little from the road, is La Grande Cascade.

From the yawning mouth of a large cavern, placed over another and deeper cavern, flanked on either side with a small cave, a thin stream of water issues over a straight ledge of rock into a pond. Little tributary streams concealed by rock-work trickle over the stones at right angles to the main fall, in front of which is a wee island of tussocky Grass with a small bush on it, which looks as if it had tumbled out of the big mouth. The effect of the tributary streams is to disturb the surface on either side, and thus counteract the intensity of dark contrast to the spray, by destroying as much as possible the reflection of the caverns. There is a path through the caverns behind the fall, and although it is rather damp for a prolonged stay, still looking at a landscape through a dazzling veil of water has a singular effect, as all will allow who have seen Hardrow Force in the North Riding, or the dreamy visions that colour the trembling rush when standing behind the third fall of the Giessbach in Switzerland. But it is as well, before judging of this cascade, to have read RUSKIN's faithful painting of Schaffhausen, or the subjoined ideal of SCHILLER from his ballad of the "Diver;" a remarkable proof of the *poeta nascitur*, as his only knowledge was drawn from HOMER's description of Charybdis:—

> "And it bubbles and seethes, and it hisses and roars,
> As when fire is with water commixed and contending;
> And the spray of its wrath, to the welkin up soars,
> And flood upon flood hurries on, never ending,
> And as with the swell of the far thunder boom,
> Rushes roaringly forth from the heart of the gloom."
>
> BULWER LYTTON.

What a grand conception of a whirlpool! Although a large body of water would render it not at all inapplicable to what the cascade might have been, had a river instead of a leakage from a reservoir formed the supply. There are very good artificial falls at Chatsworth and Virginia Water, but it is an open question how far episodes like the ruins at the latter place, though real and picturesquely grouped, or CARMONTEL's pagan temple at Monceau, are appropriate in English park scenery, since they are deficient in what most interests us, the history in their association. Features, on the contrary, like our old abbeys, are preserved not merely for their beauty, but for the halo spread around them from their association with past ages, as monuments of bygone generations, and silent witnesses of customs, habits and deeds, known only to us through the dim haze of history. Such heirlooms are national relics, but in sham temples, grottoes, and "other toys," there is nothing that interests us, nothing to claim our sympathy.

Leaving the Grand Cascade, we proceed on our way to the Allée de Longchamp, a fine old Acacia avenue, with side avenues shading the parallel walks. Long streaks of sunlight streaming through the feathery foliage brighten the road, and a little way up we again cross the Allée de la Reine Marguérite, while to the left from here a road leads to La Bagatelle. Taking the road to the right, we come out near the Cross of Catelan, now only existing as an obelisk, though a beautiful mass of greys and brilliant Moss patches in relief against the surrounding trees. This commemorates a deed of horror said to have been perpetrated here some 500 years ago on the person of a vain though inoffensive troubadour, who was murdered for his supposed wealth by an escort sent for his especial safety. Close by is the Pré Catelan, still a celebrated resort for holiday makers, for on Sundays at times as many as ten bands may be heard clashing their harmony, while a Swiss dairy and numerous cafés provide no lack of refreshment. There is also a curious kind of open theatre, surrounded by pavilion arbours and summer houses, which in its palmy days must have been very pleasant to sit in.

Serpentine walks sweep through the grounds, and there are beds of foliage plants, as Wigandia, Solanum Balbisii, and large masses of Portugal and Common Laurel, Privet, Chinese Arborvitæ, Yew, Mahonia, and Box, all mixed up together and struggling for existence. There are also handsome single specimen plants of Abies Pinsapo, Wellingtonia gigantea, Magnolia grandiflora, and Golden Yew, which "shine like good deeds in a naughty world," and show how favourable the soil and climate is to the growth of trees, if only allowed room to develope themselves.

From here we return to the western side of Lake Inferior, and see it to better advantage than on our ascent. Fallow deer are feeding in an enclosure on our left, and at the end of the island the water becomes a broad expanse, but little below the level of the road, with a background of trees all round it, and the boats in the corner, and the ducks still at their gambols. Taking the road at the end of the Lake, which sweeps round to the left, we arrive at the Jardin d'Acclimatation. If the animals from the Jardin des Plantes were brought here, or the Jardin des Plantes removed here, and its space relaid out as a Zoological Garden, with the Jardin d'Acclimatation as an accessory, it would form a very interesting feature, and save us making two bites of a Cherry. The principal entrance is near the Porte des Sablons from the Boulevard Maillot, from whence a carriage-road loops round a large irregular oval, meeting and continuing straight again to the opposite gate. In the centre, like a connecting link between the straight roads, is a piece of water, swelling here and pinching there, with basins for moor hens, coots, cormorants, sea gulls, pelicans, and many others of the web-footed tribe. There are also alpacas, llamas, sheep, and goats, while variously plumaged birds are perched about the lawns, and the conservatory, aquarium, and little quivering suspension bridge, are all objects of attraction.

Nor let it be thought that time is wasted in studying the beauties and wonderful mechanism of Nature, in the gorgeous array of the peacock, the subtle colouring of the dove, or the proud grace of the swan. For if the lessons unconsciously imbibed in the contemplation of the blending hues and appropriate harmony that spiritualises all her works fail in leaving their impress on the mind—an impress, we mean, of infinite consequence in preserving the purity of taste—there must be a fault somewhere, reader; surely not in the seed sown by the Teacher, but rather in the quality of the ground on which that good seed fell. *Z.*

WE invite the attention of Lady Cultivators to the LADIES' PRIZES FOR INDOOR GARDENING, which are offered by the Proprietors of this Journal, as announced last year.

The object of these Prizes, as we have formerly intimated, is that of exciting and fostering amongst ladies a taste for the cultivation of plants such as they would introduce for the decoration of their drawing-rooms, and of inducing them to realise the additional interest attaching to such objects, when reared by their own hands, and under their own especial care. Plant culture in living rooms is now rendered easy by means of modern appliances in the shape of plant-cases—of which, all points considered, that contrived by Miss MALING is the most useful; and, moreover, it affords a fund of interest to those who engage in it; for as remarked in the very useful guide* this lady has prepared, not only may the poorest and darkest room thus find some plants to lighten it, but "the gayest and gaudiest drawing-room can find some to tone it down and touch it with their refinement."

Two prizes will be submitted to competition. One prize of 10*l.* is specially offered for the best Orchid in bloom grown and flowered in a room. The other prize of 10*l.* will be given to the best flowering plant or foliage plant of any kind, cultivated in a room, which may be presented. Now that the ice has been broken, and distinguished individuals of their own sex, like Mrs. ELLIS, have expressed satisfaction that an opening has been made for ladies to compete for distinction in a department so appropriate as that of floral exhibitions, we trust there may not be the same hesitation as was manifested last year, but that a spirited competition may take place; for of the fact that ladies can and do grow plants in every way worthy of such rewards as are offered, there can be no doubt whatever.

The competition will take place at the exhibition of the Royal Horticultural Society which is to be holden at South Kensington on June 24th; and notice of intention to exhibit must be sent to the Garden Superintendent at South Kensington not later than June 19th. The plants themselves must be sent in by 9 o'clock on the morning of the exhibition day, and must be ready for adjudication by 11 o'clock.

* *The Indoor Gardener.* By Miss MALING. London: LONGMANS.

The conditions to be complied with by the competitors are these:—

1. The competition is to take place amongst ladies only.
2. The prizes are offered for the best single plants, examples of actual indoor-cultivation; they must, therefore, have been grown in a room for at least six weeks previous to the time of exhibition, during which period they must have been under the management of the exhibitors themselves.
3. The plants are to be such as are suitable for drawing-room decoration.
4. Flowering plants and foliage plants compete on equal terms for Prize No. 2, therefore the *best cultivated* specimen produced, of either class, is to win.
5. The plants may have been grown in pots or boxes, or baskets, or aquaria, or in any other convenient and suitable contrivance, so that they comply with condition 2.

—— THE ranks of science have sustained a heavy loss during the past week in the DEATH OF DR. HUGH FALCONER, which took place in London on the 31st ult. Dr. FALCONER, though perhaps little known to the general public, had a great reputation amongst men of science, by whom he will be deeply regretted. He was one of those many distinguished men who have won laurels in India, where some score of the best years of his life were spent, in the service of the East India Company. About ten years ago he returned from India in shattered health, and has now departed from amongst us at the age of 55. His chief field of study was palæontology, but he was favourably known also as a proficient in botany and natural history generally. The official appointments in India through which he became best known were those of Superintendent of the Botanic Garden at Saharunpore in succession to Dr. ROYLE, and afterwards of that of Calcutta. It was to information supplied by Dr. FALCONER that we owe the cultivation of Tea in N. W. India; and it has also been mainly through his suggestions that the Cinchona plant has been introduced into India, with a completely successful result. Dr. FALCONER has moreover been one of the chief instigators and directors of the inquiries which have recently been made as to the antiquity of man. It is truly remarked by the leading daily journal in announcing his death, that "all those who had any knowledge of him will deeply feel his loss."

—— We resume our notice of recently gathered VARIETIES OF BRITISH FERNS, with a few memoranda on some novel forms of Polystichum angulare.

One of the most beautiful we have met with, and which it is proposed to call BAYLIÆ, is of Irish extraction. It was found in Wexford, by Mrs. BAYLY, and has been forwarded to us by Dr. LYELL. It seems to combine in some degree the peculiar features of plumosum and gracile. The fronds we have seen have been small, of normal outline, and with very acute pinnæ and pinnules, the latter again divided into many acute awned lobes; the basal pinnules are quite pinnate, and the pinnulets separate. The texture appears to be rather thin and papery, in which respect, and the deep lobing, it approaches plumosum. Another, which is to be called ACIOTIS, has also, like the last, some affinity with gracile, but it is larger and more approaching to aculeatum in the outline of the pinnules, which have not only a very sharp spine-like point, but also a very sharply-pointed auricle or ear; the large basal pinnule is deeply lobed, but less so than in Bayliæ, and the pinnæ themselves are much acuminated. For a still larger form, but also with acutely-spinescent pinnules, the name STIMULANS has been proposed. In this the pinnæ and pinnules are distinct, the latter large, firm, long-stalked, trapeziform, lobed rather than toothed, the lobes rounded with two or three fine teeth, one of which is awned; and the apex both of the pinnule and auricle with a long spine-like tooth. Of similar texture and with the pinnules similarly distant is a variety proposed to be called DOLABRIFORME. It differs from the last in the blunter, shorter, and more hatchet-shaped pinnules, which have both apex and auricle rounded, the margin indistinctly lobed, except in the basal ones, which have about one rounded lobe on either side, and the spinescent awns very little developed. These three last are from the northern districts of England.

Quite distinct from the foregoing, and one of the most beautiful forms of this polymorphous species we have yet met with, is the variety PARVISSIMUM, which was first observed as a self-sown seedling in the Fernery of Mrs. HEAD, of Alphington, was brought into notice by Mr. R. J. GRAY, and is now, we believe, in the hands of Mr. PINCE, of Exeter. It is the neatest Fern we know. The fronds, which are thick and of a deep green colour, do not appear to be large; those we have seen are 8 to 9 inches long, with an acuminate apex, and numerous pinnæ, which are crowded with minute overlapping pinnules, these latter being so blunt as to have almost a quadrate figure, and so small that they do not measure more than a line in either direction. It resembles the variety called stipatum, but the parts are much smaller. This feature seems to be a fixed characteristic, as the fronds of two succeeding years are exactly alike in this respect. *M.*

KENTISH ORCHARDS.

A short time ago an article appeared in your Paper (see p. 1203, 1864,) by "A Kentish Fruit Grower," commenting upon a system of growing fruit on very small trees planted very closely together. At p. 7 of your present volume a reply to that communication by "T. R." appeared, which, as far as I was able to understand, supported the plan of growing fruit on these diminutive trees, although the more especial object of the writer seemed to be a tirade against the mode of fruit growing adopted in this county. As your readers may in some degree be misled by both communications, I venture, as one who has had a fair share of practice in growing fruit for the London market, to state a few plain facts on the matter.

In the first place, I may say that "A Kentish Fruit Grower" was much too liberal in his ideas of spreading the cost of fruit trees for a supposed miniature orchard over 10 years. The custom of this neighbourhood (the banks of the Medway) is not to allow a retiring occupier anything for trees that have been planted more than six years, and as little or nothing can be expected of fruit trees the first year, the first outlay ought to be divided by five instead of 10, so that 72*l.* per annum, instead of 36*l.* ought to be charged upon the profit for the expense of the trees, supposing them to have cost 1*s.* 6*d.* each, which is the price quoted by the principal London nurserymen for such trees, and which a friend of mine paid for a quantity from Mr. Rivers, of Sawbridgeworth. If the Surrey nurserymen sell them cheaper, the more honour to them; but supposing that only 1*s.* each was charged, there would still be an expense of 242*l.* per acre for trees alone, to plant this orchard; and spreading this outlay over five years, the charge of 48*l.* per annum must be met for this alone. "T. R.'s" idea of expecting an allowance to be made for fruit trees at the expiration of 30 years, may be very pleasant, but where is the landlord that would do it?

The mode of dwarfing trees by hand pruning is much older than "T. R." is aware of, as I have heard my grandfather speak of cutting and mutilating trees into many fanciful forms in his early days, which would be very near a century ago, and I have seen scores of trees not higher than 6 feet. I never saw better fruit on these trees however, than on larger ones, and in winter they were extremely ugly distorted things. If the mode of pruning now recommended affords fruit of so much better quality than that grown on full-sized standards, I for one would be glad to learn the secret. At the same time let the grower of such fruit state the result of his practice fairly, that is to say, the number of his trees and their produce. A couple of trees picked out from a hundred, and producing one bushel of fruit which might be sold to a friend, is no criterion. Let us have the whole, so that the readers of the *Gardeners' Chronicle* may judge for themselves how far "T. R.'s" theories are based upon practice. If he can point out a way whereby we can obtain more for our fruit than we now do, without incurring an expense greater than the expected increase, there are plenty of us who would follow his advice, but he must give us more satisfactory examples. A single bushel of fruit selling for 6*s.* is nothing; let us know how much 100 bushels were sold for.

I believe your Kentish Correspondent's report of the prices obtained to be quite correct, and I can also confirm his views that these prices ought not to be complained of, as they pay. Indeed the fruit season of 1864 may be regarded as a favourable one. In my own case I have been at some little trouble to look over my market tickets, and I find that up to December 31, I had sent 2874 bushels of Apples, (or perhaps I ought to say sieves) to the London markets, and the sum total, exclusive of commission and rail carriage, will average between 1*s.* 1*d.* and 1*s.* 2*d.* per bushel. I have not sent any since the new year, but a neighbour of mine sent some tolerably good Golden Knobs and Nonpareils, and his return was not quite 1*s.* 6*d.* If "T. R." will look at the market notes in the *Chronicle*, he will see that for Apples the price is quoted at 1*s.* to 2*s.* Now it is all very well for a Horticultural writer to urge the necessity of pruning the trees and thinning the fruit so as to improve the quality; but I ask how much of such work could be done to ensure an increased price of 3*d.* per bushel, and that would be equivalent to 20 per cent. If the buds on each tree have to be looked at every day as "T. R." suggests, 10*s.* a bushel will not be too much. My object, however, is not to offer suggestions, but to ask for plain positive facts; and as I have had a fair share of experience in fruit growing, and give my name, I have a right to expect that others who write upon improving Kentish orchards will point out examples of some extent which are better managed.

I leave "T. R." to define the difference between a fruit grower and a fruit cultivator, after he has persuaded the landlords to make an allowance for fruit trees planted 30 years. With regard to the different London markets, I may say that I have not sent any to Spitalfields for some years, but send to both Covent Garden and the Borough with about equal results. Notwithstanding "T. R.'s" denunciation of Kentish orchards, my firm belief is that if he will go into Covent Garden to-morrow and inquire into the history of the ten best kinds of Apples he sees there, he will find (barring foreign productions) that six of them come from Kent. Then if one of our large trees yields us 20 or more bushels of fruit, it is certainly as well as gathering that quantity from 40 or 50 small trees. The largest tree I have produced me 43 bushels, but some of my neighbours' exceeded this. Of the 287½ bushels noted above, 253 were gathered from very young trees that had only been planted three or four years. The rest were from trees ranging from 12 to 31 years old, and growing under different circumstances, giving an average of slightly over 6 bushels each tree. Of the treatment they receive I will say something hereafter. In the mean time, I shall be obliged if "T. R.," or any one else, will show by facts and figures how much return a diminutive orchard has ever made for the outlay incurred, giving market not nominal prices in support of his views. *W. C. Springett.*

LEAF-SPOTTING AND LEAF-BURNING.

I fear I shall not be able to do much towards either solving the difficulty of accounting for spotting on the leaves of plants, or doing more than has been done in the classification of probable or well ascertained causes in your able article at p. 1178 (1864). I have had frequent opportunities of observing the scorching produced by lenses, at long distances from the glass; and remember a case in which a number of Pine-apple plants—by no means the most sensitive to the action of intense light, were so thoroughly damaged, I might say perforated as with red-hot irons, that another kind of glass had to be substituted in order to prevent further injury. I have seen other cases equally well-marked of scorching by lens-light, and no doubt every practical man has experienced the same evil, and adopted means to counteract it.

I am not at all sure that the scorching supposed to be produced by the action of globules of water is due to that cause. I have seen a large collection of stove plants, including Ferns and Orchids, engined overhead repeatedly in bright sunshine, when thousands of drops of water must have formed lenses on the leaves, and I have looked in vain for any evil consequences; but the houses were glazed with the thin small-sized old-fashioned glass, and hundreds of small openings prevented any accumulation of hot air, which the modern system of glazing does not so readily permit to escape. This occurred most frequently when the foliage was youngest and without shading. In this case, too, the whole collection of plants being subject to the same conditions, sun spotting ought to have been very prevalent, yet I seldom have seen a collection of plants more free from this disfigurement than that alluded to.

I have at times looked for sun-scorching when visiting aquatic houses, and have seldom seen instances of scorching in those structures, but not having a house of this kind, I am unable to say, from personal observation, what effect the copious supply of humidity exercises in preventing scorching. I have, however, frequently seen leaves touching the glass, or exposed to a dry atmosphere, scorched by wholesale, so that entire leaves have been destroyed as if by the action of sulphurous acid. Some plants can endure a very dry atmosphere with apparent impunity, and yet lose their leaves in time without showing any scorching, the leaves falling while still green, I have seen a case of this kind in a Vanda tricolor, kept in a very dry house in the resting season. I think however the peculiar disease called "spotting" is quite a different thing from any of the cases above mentioned.

Again, I have seen Orchids in the most robust condition, thoroughly healthy and full of life, and on these a spot has appeared, succeeded by others, until the result has been the complete disfigurement and death of the plant, the roots all the time having been not only abundant, but in a healthy state, and the plant potted in the best material, and in accordance with the most scientific principles; where, moreover, no cold draught of air or the use of cold water have been ever permitted. I admit however that no one could say no single drop of cold water had ever fallen from the roof or otherwise, on to the plants.

This however is not all; for where spotting begins it does not confine itself in all cases to one plant, nor to one particular species of plant, but will often attack all that comes in its way. It is not invariably so, for I have seen a single leaf on a healthy plant attacked, and all the other leaves perfectly free, and this in cases where neither sunshine, cold, lens action, nor insects could well have caused the mischief. I am perfectly satisfied that there is some other cause beyond these. To keep Orchids wet in winter, and allow the atmosphere to become cold at the same time, will produce spotting, unless the remedy of a dry warm atmosphere is promptly applied. But whether the cold produces stagnation of the sap, and causes the tissue which is least perfectly developed or vitalized to decay; or whether some insidious Fungus is developed, I am unable to say, though the latter is very probable. A brisk circulation of heated air frequently changed and renewed, with a good share of daylight, is the condition least likely to produce spotting in Orchids. I apprehend the same atmospheric conditions are the least favourable to the production of Fungi, while a moist stagnant shady state of the atmosphere favours the production of these parasites.

Too much importance cannot be attached to keeping the leaves of plants in a healthy state. Whatever disturbs their functions must act detrimentally, not only on the surface, but on the entire development of flowers, seeds, or fruit. So much is this the case, that no man's skill and ingenuity is sufficient to overcome unfavourable conditions either of houses or climate, unless it can be brought to bear directly on these sources of evil. For instance, if an artificial atmosphere cannot be kept sufficiently humid to supply the necessities of such things as Pitcher plants, no soil, no management, can make up for the incessant waste occasioned by the continuous drain on the vital juices of the plant. I think that if, first of all, the requirements of certain classes of plants were well studied, and houses built which would supply these wants; and then if a judicious distinction were made between growing houses and showing houses, there would be much greater success in plant culture than there ever has been. There would be less damage from the attacks of insects, and there would be less spotting.

Improper methods of heating and ventilating have something to do with these disfigurements, as well as bad management. And besides these, impurities arising from different sources may so pollute the atmosphere that the conditions of healthy leaf-action cannot be maintained. We have a case in illustration of this point here. In one of our houses which we freely ventilate, on account of the plants (Pelargoniums, &c.) requiring plenty of air, some seven years since we grew remarkably fine specimen shrubby Calceolarias. Now we cannot grow them in the same place, although we have the same varieties as formerly, and the same treatment is given. The conditions and skill being the same, a similar, in fact an identical result ought to follow; but instead of this the leaves become browned in patches, appearing as if infested with red spider, for which insect I have in vain sought with high magnifiers. There is in fact no insect life to account for the misfortune; but we have several manufactories now in action around us, and I believe the noxious vapours from these pollute the air, and are the cause of this kind of spotting. *William Payne, Gardener, Fir Vale, Sheffield.*

NOTES ON GARDENS.—No. XXVIII.

The Dublin Phœnix Park and its Gardens.

(*Continued from p. 76.*)

Next in importance comes the Chief-Secretary's demesne and gardens. "The kitchen garden of the Chief-Secretary's lodge is reckoned one of the best managed in the county of Dublin," wrote Loudon, 40 years ago; and the description is even more applicable to it at present, for the chief productions of the kitchen garden, more especially Grapes, are as well done as they are in Ireland. The garden has for many years been in the hands of gardeners of the first class. It was here Mr. Niven laboured before he was appointed to Glasnevin; and good men have worked the place from his day till that of the present much-respected gardener, Mr. McNeill, who is more successful, both as an exhibitor of fruit and plants, than any of his predecessors. Here, large Pelargoniums, similar to those alluded to in noticing the Viceregal gardens, are grown, quite as well as by Mr. Smith, but it is only fair to say that it was by the latter those astonishing specimens were first shown or grown in Ireland. Now, however, Mr. McNeill is giving up their culture to some extent, wanting the room for his choice greenhouse plants. The two gardens being so close together there is a friendly rivalry between them, and indeed the productions of both are so much alike, that what is said of one may almost suffice for the other; but withal there are distinctive features, for though the "Lord's" produce the finest Pelargoniums in quantity, and display of course a much greater extent of glass and means, and very good specimen greenhouse and stove plants too, yet the "Chief's," and Mr. McNeill, have it all their own way with other specimen show plants.

Here it was that great specimens of Chorozemas, Pimeleas, and such like stove and greenhouse plants were first shown to the Dubliners and to Irish gardeners generally (who previously, like other people, had been accustomed to see, and to bring to shows, a group of stove and greenhouse plants all nicely mossed up in one basket); and from this garden still go to the Dublin shows the finest specimen plants. Fine as they are, they are grown under some difficulties, and to a large extent under Grapes and Peaches, as the chief glass is an iron range 100 yards long by 5 wide, which is all devoted to fruit growing. In these houses, as best he may, Mr. McNeill stows all his larger specimens, many of which would attract more than ordinary attention, even where Messrs. May and Whitbread compete. I have nothing peculiar to report, as in the case of the Pelargoniums, about the stove and greenhouse plants, the culture of which is now so generally understood, but if I mistake not there were subjects among them not common to collections. I particularly refer to such plants as Posoqueria longiflora and Tristania nereifolia, of which there were grand specimens, while of plants better done than I have noticed them at the London shows, Acrophyllum venosum, Rogiera cordata, Stenocarpus Cunninghami, and Heterocentrum roseum may be named. Rhynchospermum jasminoides was plentifully grown on huge trellises, and far finer than it has been shown by London exhibitors—who indeed do not seem to be aware of what the plant is capable. Heaths were also finely grown; but the same is true of all Mr. McNeill's plants, and pre-eminently so of his Chrysanthemums, which are trained, without sticks, in the same manner as the large Pelargoniums, and so free

and perfect did they look that I have little doubt Stoke Newington would be astonished could it see them. Mr. Smith grows his Chrysanthemums in this way too.

The Grapes were of the first quality, particularly Muscats, and the Granadilla was well fruited; but perhaps the most distinct aspect of the great range was afforded by Bananas half arching over the main passage. In the back wall were arched recesses, each being planted with the Musa, and thus you passed by a grove of them as it were. There are in addition houses for young specimen plant-growing, a good "Geranium house," and a new Melon house—a sort of structure, by the by, which appears to be superseding the old Melon frame about Dublin.

Here again, as at the Lord Lieutenant's, were immense ribbon borders in front of the main range and on each side of the central garden walk. The kitchen-garden was in fact a blaze of colour, but there is little other flower-gardening in the place; and if there were, it should be on an enormous scale to look anything after these wide, wide borders, 180 yards in length. But the borders here were differently arranged from those at the Lord's, *i.e.*, in circles and panels, with considerably more variety, and the soil in the back parts of some of the borders thrown into flattish pyramids to give diversity. It is, however, not so much the arrangement that wants altering, as the plants—the plants. Grace and verdure, two essentials of all vegetable beauty, are wanting, and they must be freely introduced. The quality known as "effect" was of course as well developed as could be desired. I was rather surprised to find that the Centaureas, which have done so much to vary and beautify bedding, were not used in two such great bedding places as those in the Phœnix Park. At Mount Merrion (the late Lord Herbert's place near Dublin), however, they are freely used by Mr. Walsh (who is perhaps the most advanced of the Dublin colour-culturists), but very sparingly in other gardens. The Scotch, led by Mr. Thomson, have taken a decided march ahead with these Centaureas.

The great quantity of Verbenas used here are all struck with ease in pans of sand and water. This reminds me of the quantities of bedding Pelargoniums I saw at the Viceregal Lodge, freely struck in beds in the open air, with about as much attention as is usually given to young Cabbage plants, and also how advantageous to the reading gardener must be elaborate essays on "the propagation of bedding Geraniums."

It would scarcely be fair to Mr. McNeill to omit mention of his well cared-for walls and wall-trees, but more than anything else do I wish to record that he possesses in no common degree a vein of the milk of human kindness and goodness, equally appreciated by his contemporary gardeners and rivals, and (which is a better sign still), by the less fortunate, and often unfortunate journeyman gardener who visits the Chief Secretary's gardens during those lapses that occur between the relinquishing of one lucrative situation and the getting of another. I particularly allude to this subject, from knowing that amongst the gardeners of Britain there are boors and tyrants in high places; and that there are some who measure their ability by the amount of work which they can get out of, and the abuse which they can play upon the often badly-fed and badly-housed journeyman gardener. It is very gratifying to know that gentle treatment of young gardeners is capable of yielding the best results, for Mr. McNeill is at once the most genial and successful of the leading gardeners of Ireland. *Wm. Robinson.*

Home Correspondence.

Elm Insects.—Can you suggest any remedy for the ravages which a great number of grubs like the accompanying one are making on my Elms—fine healthy trees 20 years old or more? The grubs work between the inner bark and the trunk of the tree. They seem to commence their ravages at the foot of the tree and then work upwards. I fear that the trees already attacked are beyond help. *F. S. S., Stockbridge, near Winchester.* [The grubs which have burrowed into your Elm trees are the caterpillars of the Goat Moth. They may be dislodged by blowing Tobacco smoke, or by introducing a flexible wire into their holes. *W.*]

Variegated Kail.—Some 20 years have elapsed since I first made Variegated Kail a hobby, and how I first set about improving the Variegated Curled Green, now so generally grown, may perhaps not be without interest. As my friend Mr. Thomson has paid a visit to the Wardie Lodge winter garden, I am glad that he considered what he saw there worthy of publicity. The Variegated Green now grown had perfectly smooth leaves when I first got possession of it. The person from whom I got it had brought it over from France. The small leaves of Variegated Kail, mixed alternately, and tied on to a thin wire with other things, were used occasionally as ornamental garlands for the head—a purpose for which they are exceedingly well adapted. Variegated Kail is likewise valuable for the dressing and decoration of epergnes or flower stands, for the centre of dinner tables in winter, when flowers are scarce; for candle light sets the leaves off to great advantage, and their beautiful transparency, viewed across the table, renders them very conspicuous. Indeed, as Mr. Thomson remarks, their appearance is little short of that of flowers. An objection to them when first cut, is their odour, but that gradually passes off. I have been trying constantly to still further improve the Variegated Garnishing Green originally raised by myself. The curl or fringe on the outside of the leaves I attained by crossing the plain coloured-leaved Variegated Green with the treble curled Scotch Green. These hybrids are, however, sportive, and require in the case of plants for seeding very careful selection, or the result will not be satisfactory. I consider that if the prejudicial idea that such plants are only fit for the cook, were got rid of, my favourites might be extensively grown for winter decoration, for nothing can be grown more economically. I would have two sowings of seed: the first, say on the 1st of March, and another on the 1st of April; these, if sown thinly on poorish ground, would be dwarf and pretty. A good breadth of ground should be sown at first, in order to allow of a selection being made of the different shades of colour required. When young they do not show their colours so effectually as after they have advanced a little in growth. The first sowing will grow tallest; the April plants when pricked out on poor soil will be dwarf, and will furnish to the ground. I consider that by judiciously using a portion of shrubs along with variegated greens, a good and at the same time a most economical arrangement might be accomplished in the way of ornamental out-door gardening. *Wm. Melville, Dalmeny Park Gardens.*

Wine Cork Fungus.—I believe that the curious Zasmidium cellare (see p. 6) is "an abnormal state of some common Fungus," but that its remarkable form is due, not to any of the favourable circumstances suggested by your correspondent "M. J. B." as attending its growth in a cellar, but chiefly to the presence of alcohol. I have seen it extensively developed in an old vaulted cellar in the north of England, and have always observed that it flourishes most about the corks of bottles containing the stronger wines or spirits. On one shelf, on which have been standing, perhaps for more than a century, a number of bottles which once contained some German or Dutch spirituous liquor, the entire space between the heads of the bottles (standing upright) and the shelf above is filled with a mass of it; and I have little doubt that one or more of the elements of alcohol, as it slowly evaporates through the cork, has been arrested and assimilated by the plant, and perhaps a chemical analysis of it would throw some light on this fact. We can scarcely imagine that the plant has only come into existence since man commenced the manufacture of alcoholic drinks, but must rather suppose that it is merely, as suggested by "M. J. B.," an abnormal development of a common Fungus, due to certain favourable circumstances; and that perhaps, by careful observation of its first development, the normal form might be discovered. I shall be glad, should any of your correspondents desire to make a chemical analysis of the Zasmidium, to supply a quantity of it, and also one of the old bottles just mentioned, with remains of the liquid which supplied nourishment to the plant with which it is crowned. *W. C. Trevelyan, Seaton, Axminster.*

Early Grapes.—Would you kindly allow me the means of asking parties who have produced Grapes at Christmas, and from thence till March, whether or not they have succeeded in continuing the early forcing of the same Vines for any length of time, and if so, with what result? I tried a house of Vines here, and ripened a crop in February; next season the fruit ripened at Christmas, the next crop in November, and so on till the Vines have gained one season, it being impossible to keep them back to the desired period, viz., about August. At the present time the same Vines are pushing again, to all appearance bidding fair to produce another crop under circumstances more natural to their nature. Notwithstanding this severe work these Vines are strong and healthy, though not so strong as others planted at the same time in other houses; but from the fact of their being so unstationary in regard to starting, it is not my intention to force for Christmas fruit again, unless my object in writing this is served by eliciting some plan for retarding the Vines. Shading the house in my case did not suffice; and I confess my pets were very nearly getting a cooling down by way of ice, only I was afraid I should be obliged to do the same thing too often. They were most impatient the second season, starting into growth in the middle of June; whereas, in the previous year they were not forced until August for the first crop. It is only in places where there are several Vineries that very early forcing can be practised, and even in these it will be best left alone if the Vines cannot be kept to a settled time of starting. *J. Roberts, Charleville Gardens, Tullamore.*

False Alarm respecting Bees.—On the 13th of December last, Mr. Woodbury stated in a contemporary that the consumption of food by bees during the two months of October and November, had been so rapid, that he had already lost a fine stock from sheer starvation, although he states that he made all his stocks up to a sufficient weight in October to stand the winter. Now, it is obvious that some mistake must have been committed; he either did not weigh the stock in question after he had fed it, or if he really did make it of sufficient weight to stand the winter, it must have been robbed. To tell bee-keepers that any stock of bees had consumed nearly 15 lbs. of food (the quantity required to insure their preservation over the winter) in October and November is obviously incorrect, and the writer ought to have known that he never had a stock that consumed that weight of food during these two months. The statement has however created so much alarm, that I have received numbers of letters soliciting information respecting the consumption of food, from bee-keepers who knew that I have kept an exact register of the loss and gain of my bees during every month, for a number of years. In order therefore to allay misapprehension, I send you the exact loss in weight of 20 stocks of bees that were weighed on the last day in each month specified:—

	Loss in Ounces.				Loss in Ounces.		
	Oct.	Nov.	Total.		Oct.	Nov.	Total.
1	30	22	52	11	38	41	79
2	24	32	56	12	35	36	71
3	33	39	72	13	23	24	47
4	31	17	48	14	32	43	75
5	33	27	60	15	37	24	61
6	32	31	63	16	28	36	64
7	18	15	33	17	33	24	57
8	34	29	63	18	40	39	[illegible]
9	33	27	60	19	44	32	[illegible]
10	30	27	57	20	32	40	72
Total consumption or loss of 20 stocks					640	605	1245
Average per stock					32.0	30.25	62.25
Mean average loss per stock for the last 10 years					40.76	25.95	66.71

It will thus be seen at a glance that there is no cause for alarm, as the actual consumption in October was $8\frac{3}{4}$ ounces per stock less than the average of the last ten years. In November, however, the loss was about $4\frac{1}{4}$ ounces per stock greater than the average. My bees were out almost daily in October, and were collecting food from Borage, Mignonette, and French Poppies; in November they were also out frequently, and I saw them carrying pollen into their hives as late as the 21st of that month. *William Carr, Clayton Bridge, Newton Heath, near Manchester.*

Habits of Peas.—I have often asked the question why Peas and Scarlet Runners always prefer to support themselves by newly cut stakes or branches, rather than by those that have been cut 12 months. I have found that Peas hang to Elm before Beech, although both may be used in the same row. Can any one suggest what is the cause of this difference? *D. R.*

Eugenia Ugni.—What treatment is required to make this plant fruit in England? We have one 5 or 6 feet high in a conservatory, which has never shown blossom even. *E. L.*

Societies.

ROYAL HORTICULTURAL: *Jan.* 28 *to* 31 (*Weekly Show*).—From Mr. Ford, gr. to W. E. Hubbard, Esq., Horsham, came two dishes of a good-looking late keeping Apple, known in Sussex by the name of "Bossoms," and stated to be valuable at this season, either for culinary purposes or for dessert. The same exhibitor also furnished a Ripley Queen Pine Apple, weighing 3 lb. From Major Trevor Clarke came three nice heads of Celery, and a pretty rosy crimson flowered Chrysanthemum, named Prince Albert. The Rev. Geo. Cheere again showed his prettily-flowered plant of Mignonette; and Mr. Chapman's collection of Egyptian fruit, of which previous notice has been taken by us, was also placed on the table. A few early Tulips and other spring flowers were furnished by the Society's garden, and associated with them we noticed examples of Daphne indica rubra, the old-fashioned large-leaved Cineraria populæfolia, coming into bloom, the pretty bright yellow-flowered Berberis nepalensis, Lycopods, Ferns, and Araucaria Cookii.

BOTANICAL OF EDINBURGH: *January* 12.—Among donations to the Museum at the Botanic Garden were cones of Picea Webbiana, Sequoia sempervirens, and Cryptomeria japonica, ripened at Holkham Hall, in Norfolk; and among additions to the University Herbarium were specimens of Capparis spinosa, the Hyssop plant of the Bible, and specimens of the ordinary Hyssop (Hyssopus officinalis) from Palestine. The following communications were read:—1. *Account of Excursions to the Mountains at the head of Loch Lomond to Ben Lawers and the Sow of Athole, in August and September* 1864. By Professor Balfour. Among the more interesting plants noticed during this tour were the following:—Sagina nivalis, on Binnain, along with Draba rupestris, Carex vaginata, and Polypodium alpestre. On Ben Voirlich all the ordinary alpine species were collected. On August 20 Dr. Balfour visited the mountain called the Sow of Athole, and gathered on it Phyllodoce cœrulea, Azalea procumbens, Lycopodium annotinum, Cornus suecica, and other alpine plants. On August 25 he made an excursion to Ben Lawers, and found abundance of Sagina nivalis on the spot where he had gathered the plant in 1847. He also picked Saxifraga cernua, Draba rupestris, and numerous other alpine species.—2. *Notice of Dilivaria ilicifolia* (*Juss.*), *sent from Old Calabar by Mr. Hewan*, and now flowering in the Edinburgh Botanic Garden. By Professor Balfour. Dr. Balfour showed specimens of the plant, and stated that he agreed with Dr. Anderson in thinking that it cannot be separated from Acanthus.—3. *Notice of Rosa alpina* (*Déséglise*), *found naturalised near Perth.* By F. B. W. White, M.D. Dr. White stated that he had gathered this Rose in the depths of the woods on Kinnoul Hill, near Perth, where it seems to have

fairly established itself. He gave a description of the plant, and exhibited specimens from the locality. The plant is not uncommon on the Continent.——4. *Extracts from Botanical Correspondence*, communicated by Professor Balfour. Among these was a letter from the Rev. J. Farquharson, noting some of the rarer plants which occur in the neighbourhood of Selkirk, among which are Trientalis europæa, Neottia Nidus-avis, Lathræa Squamaria, Plantago media, Blysmus compressus, &c. Mr. Sadler exhibited specimens of Cystopteris fragilis var. interrupta, which he had picked in Glen Farg, near Bridge of Earn, in 1863. Dr. J. Stirton, Glasgow, sent specimens of Mnium cochlearifolium, found by him on the hills behind Dunoon. Specimens were exhibited of Sagina ciliata (Fries) and Arenaria leptoclados (Guss), which had been transmitted from Old Machar, Aberdeenshire, by Mr. J. Sim; also specimens of Simethis bicolor (Kunth), from Bournemouth, and of Phalaris paradoxa (L.) from Swanage, transmitted by James Hussey, Esq., of Salisbury. Mr. John M'Donald exhibited a peculiar monstrous condition of a double Roman Narcissus. Dr. Greville sent a specimen of the common Carnation exhibiting monstrosity in the flowers, all the floral envelopes being changed into scales or bracts. Professor Balfour announced the painful intelligence of the death of Dr. W. Balfour Baikie, one of the early members of the Society, who had distinguished himself by his discoveries in Africa. He died of dysentery at Sierra Leone on 30th November last. Several gentlemen were elected Members.

Notices of Books.

Our Interests in China. A Letter to the Right Hon. Earl Russell, K.G. By Horatio N. Lay, C.B., late Inspector-General of Chinese Customs. Robert Hardwicke, Piccadilly, 1864.

Mr. Horatio Nelson Lay, the author of this letter to Earl Russell, is well known as a Chinese scholar of a very high order, and perhaps the most perfect speaker of that language amongst all our foreign interpreters. He rendered good service to the late Lord Elgin during the last Chinese war, and for this he was made a Commander of the Bath. At this period he had already left the Queen's service, and had been appointed one of the Inspectors of Chinese Customs. It would appear that his facility of expressing his ideas in Chinese, and his thorough knowledge of that language, combined with the strictest honesty of purpose, gained for him the confidence and esteem of the Ministers of the Emperor of China, and enabled him to attain an influence with them which probably no other foreigner ever attained before. In 1859 he was raised to the rank of Inspector-General of Chinese Customs, and the direction of all the ports open to foreign trade was placed in his hands. Enfeebled health, from severe knife wounds received in an emigration *émeute* at Shanghae, when he interfered to protect the life of a sailor, compelled him to return to England on sick leave in April, 1861. At this period he appears to have been held in the highest esteem not only by the Chinese Government but also by the representatives of foreign Powers resident in the Chinese capital, and to have possessed a great deal of influence with both parties.

Shortly after Mr. Lay arrived in England, Mr. Hart, who had been left in China as his *locum tenens*, wrote to say that the alarm in Peking, occasioned by the progress of the Taipings, was so great that the formation of a European naval force, under Imperial authority, was not improbable, and that Prince Kung, to whom the matter had been recommended, was now disposed to act frankly upon the advice which had been formerly given to him. Later letters from Mr. Hart authorised Mr. Lay to purchase vessels of war in England, and to engage the services of English officers and English crews. Captain Sherard Osborn was appointed to take command of the expedition, and our readers will remember that the subject was much discussed at that time in our public journals.

The naval expedition in question was to be quite independent of the provincial authorities. It was to be under the control of the Imperial Government alone, and Mr. Lay was to be its director. No orders were to be given to Captain Osborn but through Mr. Lay; and the latter gentleman was to be allowed to be the judge of what orders should be given and obeyed. Mr. Lay must have felt he was treading on dangerous ground, and that it was through fear only that the Chinese Government could be brought to agree to such a compact. A few passages from his letters to Mr. Hart at the time may be quoted to show this:—"On the 15th of March I wrote, 'If Prince Kung sends money for gunboats, he must send me a *carte blanche*. He must send so much money, and request me in so many words to use it in the best manner that my judgment may dictate. This is necessary for my safety. * * * You must send me by return mail a dispatch from Prince Kung, undertaking to agree to and confirm such terms and conditions as I may arrange with Captain Osborn and those under him. Take care, please, that its wording be full and exact.'"

In May Mr. Lay received a remittance and an official letter from Mr. Hart, formally apprising him that Prince Kung had authorised "the construction of a steam fleet, for the police service of the Chinese waters, to act in co-operation with the maritime customs under foreign inspection." This, however, did not satisfy Mr. Lay. He therefore replies:—"Any official dispatch from you, even with authority, would not entitle me to disburse any portion of the money until I had the proper authority under Prince Kung's seal. This I wait for. * * * I will write upon a separate sheet what it will be necessary for Prince Kung to send me forthwith, and please do not let him take a word therefrom or add a word thereto, or the lawyers will be telling me that it is not safe for me to act, and I shall have to refer to Peking again." We must refer our readers to the pamphlet itself for the document in question.

In the meantime various letters were received by Mr. Lay from Mr. Hart. In one he says, "I have received a dispatch from the Prince informing me that he has memorialised, and that the Emperor has directed him to carry out the proposal with all speed. ** A letter just received from Wade says, 'The chief [Mr. Bruce] writes to the Admiral to assist them in choosing steamers of which to make war vessels.' So we will have Mr. Bruce's support. Another, a third despatch from the Prince has reached, enjoining haste and telling me *to get as much money as I like;* so pray hurry on—hurry on. * * You may start the keels of four gun-boats and two despatch boats *without any fear*. I shall get more money without difficulty, so that the fleet may be four despatch-boats and six gun-boats. I got another despatch yesterday from the Prince about these steamers and money. *He's in an awful hurry, and tells me to do whatever I like.*"

Without further hesitation, the Queen's licence being promised, Mr. Lay 'proceeded with the building' and purchase of vessels, and could have dispatched at once three which he had purchased from the Admiralty, but he determined to detain them until he should be in possession of authority that would legally warrant his signing the necessary agreements with the officers and men. The authority in the desired form came at last, and when it was submitted to Mr. Lay's legal adviser, an opinion was given that under the circumstances Mr. Lay might act upon it with safety.

With the dispatch of the steam fleet to be commanded by Captain Osborn, and manned by Englishmen, the first scene of the drama closes, and Mr. Lay returns to China and reaches Peking on the 1st of June, 1863. And now his troubles were about to begin. From what he tells us it appears that a remarkable change had come over the Prince of Kung and his Government during his (Mr. Lay's) absence from China. "When I left China," he says, "the Emperor's Government, under the pressure of necessity, and with the beneficial terror established by the Allied foray to Peking in 1860 fresh in their recollection, was in the best of moods, willing to be guided, thankful for counsel, grateful for help, and in return for that help, prepared to do what was right by the foreigner." The face of things now was completely changed. "There was the old insolent demeanour, the nonsensical language of exclusion, the open mockery of all treaties, the declared determination to yield nothing that could be evaded. In short all the ground gained by the treaty of 1858 had been frittered away, and we were thrust back into the position we occupied before the war—one of helpless remonstrance and impotent menace. I cannot tell my grief and mortification when I beheld the labour of years lost, and through egregious mismanagement."

For this state of things Mr. Lay blames the careless indifference of Sir F. Bruce, Her Majesty's Minister at the Court of Peking, and the inexperience of his *locum tenens*, Mr. Hart, who had, despite many warnings, says Mr. Lay, "permitted himself, during my two years' absence, to be assigned a very subordinate position." Prince Kung was not now so accessible to foreign ministers as he had been. "He professed to be engaged with more important matters than foreign affairs."

And now Captain Osborn's steam fleet comes upon the scene. It will be remembered that it had been arranged that Captain Osborn was to be entirely independent of the provincial authorities, and was to receive all his instructions through Mr. Lay, and through him only. The Foreign Board now informed Mr. Lay that most satisfactory arrangements had been made with Sir F. Bruce, according to which our military officers were under the orders of the local authorities, and that, of course, he would not object to the naval officers being placed in the same position. Mr. Lay protested against this arrangement, as it was not in accordance with his agreement with Capt. Osborn and his officers, nor with the British Government, who had given the licence to serve the Emperor of China alone. He maintained that he had acted in the matter on the authority of Prince Kung, he laid that authority on the table before them, and remarked that its validity could not be impeached. "Oh never mind that authority, and if Captain Osborn offers any objection you have an easy remedy—dismiss him, and get some one else." In vain Mr. Lay addressed Prince Kung upon the subject, formally enclosing the agreements. He could get no answer, although the Prince addressed him regularly on other business. Finally, in order to remove all ground of refusal to ratify the agreement, Mr. Lay offered to cancel the entire agreement between Captain Osborn and himself, provided it was understood that the force should be under the Imperial Government. The Board will not agree to this either. "Captain Osborn must act under the orders, and not in concert with, the provincial authorities, and he must undertake, in writing, to accept this position." Such was the decision of the Prince of Kung.

As Captain Osborn was of Mr. Lay's opinion, and would not consent to serve under the provincial authorities, the dissolution of the force was then decided on. In justice to the officers and men who had come out so far upon his representations, Mr. Lay lost no time in endeavouring to secure them against pecuniary loss. In this matter the Chinese Government would seem to have acted honourably enough. Upon the authority of Prince Kung Mr. Lay handed to Captain Osborn an advance of about 70,000*l.*, and the ships and crews were despatched without delay. Other means were employed for the disposal of the ships on account of the Chinese Government, and so the whole scheme, which had taken so long to mature suddenly came to an abrupt termination. A few days afterwards Mr. Lay received a curt letter of dismissal, and thus his nine years' connection with the Chinese Government was brought to a close.

In the pages of the narrative under our notice there are two or three anecdotes which are rather amusing in their way. When Mr. Lay received the intelligence of his being appointed a C.B., he took occasion to tell the members of the Foreign Board. "Oh," they observed, "we could have given you honours," and with mock gravity continued, "We are making orders just like that which we are giving as a reward to your military officers who are assisting us at Shanghae." "Oh," exclaimed one, "ours is a very nice order, a capital imitation is it not?" and then, no longer able to restrain their merriment, they burst into a scream of laughter; another, to add to the joke, exclaiming, "This is what is called soothing the barbarian!"

It appears it is rather dangerous for any Chinese official to be too friendly with a foreigner. "I remember," says Mr. Lay, "just before I left China to return to England in 1861, when it was thought that I should visit Peking, a high official thus addressing me, 'When you go to Peking, upon no account say a word in my favour; rather disparage me than otherwise; you understand?'"

An anecdote is related to show that Sir F. Bruce simulated more or less friendliness even to the date of his (Mr. Lay's) leaving China, which one would think will afford some amusement to Sir Frederick when he sees it in print. "He affected interest in my future, and wished to know how I proposed employing myself, as he might perhaps be able to give me some assistance. 'There is one thing I wish you would undertake for me when you get down to Shanghae,' he said, as I was leaving the room; 'if you meet Sir Macdonald Stephenson, as you probably will, choke him off; tell him it will be of no use his coming up here; we don't want any of your —— telegraphs and railroads.'"

Mr. Lay concludes his letter to Earl Russell with some general remarks upon our policy in China, and evidently thinks we are drifting back to the old state of affairs which existed before the Chinese were brought to our feet at the close of the last war. For this state of things he considers that Sir F. Bruce and the other representatives of foreign Powers are greatly to blame. He also is far from thinking that we have heard the last of the rebellion in China. He feels assured that any attempt to suppress it simply by the sword will be found ineffectual. Crushed in one place, it will spring up like a weed in another, because the causes of it are to be found not in the people, but in that nest of corruption at Peking.

Mr. Lay tells his story fairly, and we must say with much ability. In so far as his charges against Sir F. Bruce and the other representatives of foreign Courts are concerned, there may be, of course, two sides to the question, and we have only heard one. This is not a political Journal, and we do not venture to express an opinion on our policy in China, but from the perusal of the Letter before us, and from other circumstances which have come under our notice, we cannot help thinking that it is bad policy in our Government to give any encouragement to its officials to take service in the Chinese Customs. Since the office of Foreign Inspectors has been established, there have been three men of mark who have left the Queen's service for that of the Chinese, namely, Mr. Wade, Mr. Lay, and Mr. Hart, and the first-named gentleman having resigned his appointment some years since, is now acting as her Majesty's representative at the Court of Peking. The system has a tendency to lower us in the eyes of a semi-barbarous people.

Garden Memoranda.

J. DAY'S, ESQ., TOTTENHAM.—Among the many magnificent plants in this establishment in the way of Orchids one of the most conspicuous at present is a wonderfully fine specimen of Cœlogyne cristata, measuring 4 feet in diameter, and about 2 feet in height, and ornamented with 60 flower spikes, on each of which there are from three to five yellow-stained ivory-white blossoms. Among winter-flowering plants this must ever occupy a prominent place, its glossy dark green foliage setting off the light-coloured blossoms to much advantage. The large white-flowered Angræcum sesquipedale is also now in flower, together with the

charming Saccolabium violaceum, S. Harrisonianum, and one or two others. From different kinds of Calanthe, including the handsome bright rosy-flowered C. Veitchii, Limatodis rosea, Lælia anceps, autumnalis, and others, which have been lately in great beauty, the blooms have been removed on account of their being required for in-door decoration.

The whole of the plants in the East Indian house have just been repotted, rearranged, and otherwise put in order for the growing season, and viewed as they now stand, when even few are in bloom, they have a very pretty effect. Aerides, Vandas, and Saccolabiums are grown in baskets, of which some 2000 are suspended from the roof of this and other houses, and in this way Mr. Stone gets more vigorous growth infused into both delicate and other sorts than could be obtained by any other course of culture. Dendrobium macrophyllum thus managed has shoots 4 feet in length; two plants of Dendrochilum glumaceum similarly situated had last season each 20 spikes of bloom on them; D. filiforme was equally satisfactory; Lælia præstans, a charming species in the way of marginata, has blossomed splendidly in this way; and Dendrobium Falconeri obtusum, a grand acquisition, has growths 3½ feet in length, well set with flower-buds; others in baskets are also growing with unusual vigour, many of them having made roots nearly as thick as one's finger.

In pots, we noticed a magnificent mass of Arpophyllum giganteum, which last year was ornamented with 16 closely packed spikes of little shell-like rose-coloured flowers, and even young offshoots separated from the parent plant exhibit indications of blossoming. Of the handsome Phalænopsis Schilleriana, Mr. Day has some four dozen plants, most of which differ somewhat from one another both in colour of the flowers and in marking or variegation of the leaves. One of the best as to flowers has its foliage nearly wholly green, whilst that of others is beautifully mottled. Among these some are throwing up stout flower spikes, from which issue as many as five laterals. When in full flower therefore, so fine a display as these must make, must indeed be a sight well worth seeing. Dendrobium heterocarpum blossomed well here last year, as did also Cymbidium eburneum, which is this season throwing up five flower spikes.

In a cool house placed against a north wall, in which the winter temperature varies from 45° to 50°, the glorious terrestrial Cape Orchid Disa grandiflora is growing freely. Several plants of the brilliant orange-scarlet Sophronitis grandiflora are at present in bloom, as are also Lælia præstans with unusually fine colour, L. albida, Odontoglossum nebulosum, Lycaste Skinneri, Epidendrum vitellinum, and Epidendrum Skinneri. Other kinds for which a cool temperature is evidently well suited, are the beautiful Odontoglossum Pescatorei and nævium; Anguloa Clowesii, Lælia superbiens, Sobralia macrantha, and Calanthe veratrifolia, all of which exhibit a freshness of appearance and vigour of constitution which these plants rarely possess in warmer houses. Lapageria rosea, trained along the roof of this house, produced last year no fewer than 80 of its handsome crimson bell-shaped blossoms.

Of Odontoglossa imported from New Grenada, Mr. Day has a fine collection, in which are doubtless O. Alexandræ, gloriosum, and others. Of the last named, one plant has already sent up a flower spike 10 inches in height. From this batch some novelties are expected.

A small frame full of variegated Orchids which we found here in one of the houses, is perhaps a matter worthy of mentioning now, when such things are all but lost in some establishments. Those in question seemed in perfect health, some of them, such as intermedius, measuring 5 and 6 inches in height, and well furnished with charmingly veined leaves. Let us hope that Mr. Stone's success with those under his care, may bestir others to again pay that attention to this charming class of plants to which the unrivalled beauty of their leaves entitles them.

Calendar of Operations.

(*For the ensuing week.*)

Now that the weather is again favourable, all operations in arrear in the shape of planting or other alterations in the way of ground-work should be proceeded with without delay. It need scarcely be stated that the principles of correct planting in the open ground are the same as those which regulate pot culture, allowance being made for the altered circumstances of the plants. Indeed, good planting is even more necessary for plants in pots than for those in the open ground, since they are so artificially situated, and have so little chance of being liberated from the bad management of man, by any kind intervention of Nature. A tree or shrub may possibly get on, in spite of the want of skill in the planter, because the soil being favourable, the roots may escape from their pent-up position, and abundant rains may re-dispose the clods so unceremoniously thrown upon them. But let a plant be once badly potted, and its chance of flourishing is gone indeed. The pot presents an impassible barrier to the roots, and the water applied only makes the mould more compact, and less capable of fulfilling its office. Both outdoors and in pots planting is, therefore, an operation of the greatest importance with regard to healthy vegetation, and its performance should never be wholly entrusted to inexperienced or careless hands.

FLOWER GARDEN AND PLANT HOUSES.

The winter, with one or two exceptions, has as yet been so favourable for indoor plants generally that comparatively little fuel will have been required in conservatories or greenhouses; a slight increase of warmth may soon, however, be indulged in for a couple of hours or so on sunny afternoons; but let the temperature sink at night again to 45° or 50°.

AURICULAS.—There has of late been sufficient moisture in the atmosphere for these plants, but as the days lengthen more water will be required. Towards the end of the month they may be placed on blooming stages. Keep them cool during the first two months of the year, in order that the plants may swell gradually and not be brought prematurely into bloom. Top dress and keep them clear of insects and dead foliage.

CARNATIONS AND PICOTEES.—Owing to the mildness of the season, some of these are starting into growth; be, however, sparing with water for a time, but towards the end of the month let them have a good soaking should the weather prove dry and a mild rain should happen to fall. Let frames in which they are kept be open as much as possible. As potting time is at hand, and the soil prepared, care should be taken not to let it get too wet. Early potting is desirable, but planting in beds must be deferred until March.

CINERARIAS.—Plants for flowering late may now be re-potted and stopped. Tie out the side shoots of such as are approaching the blooming season, and by means of frequent fumigation endeavour to keep them free from green fly.

DAHLIAS.—Cuttings of these will now or soon require to be struck freely, but roots placed in the forcing house should not be pushed so rapidly as to exhaust them too much, as March is the best time for obtaining healthy plants without much forcing. Pot roots should certainly not be started yet for a month or so to come.

FUCHSIAS.—Push forward autumn-struck plants; let them have sufficient pot room, and a moist growing moderately warm atmosphere. Pinch in the young shoots as often as they require it. Old plants may now be shaken out and re-potted, and put in cuttings for blooming late in the autumn.

PANSIES.—Re-pot such as are intended to bloom in pots. A month hence will do for planting them in beds.

PELARGONIUMS.—These will soon be beginning to grow, and in watering them take care that the soil is well soaked down to the bottom of the pot. Tie out the side shoots as they lengthen, and stop young plants from which late bloom is expected.

VERBENAS.—Cuttings of these put in now will be found to make good plants, either for pot culture or bedding purposes.

FORCING GARDEN.

The keeping up of regular supplies of Seakale, Asparagus, and Rhubarb will now require considerable attention. Owing to the changeable character of the weather, night coverings will have to be resorted to, especially in the case of pits, in which an even growing temperature must be maintained. This will diminish the amount of fire heat employed, which should be no more than is absolutely necessary. All glazed frames or pits at work must be kept washed and thoroughly clean; the importance of this in early forcing can never be overrated. Where a better method is not employed, hang mats or other coverings upon rails free from dirt. Keep at all times plenty of leaves and dung well blended, and in a state of high fermentation, ready for new beds, linings, &c.; a portion should be mixed once a week at this period.

MELONS.—Make a second sowing of these for fear of disappointment. Any surplus strong plants of the early sowings may be planted in large pots or boxes, and placed in a light part of any warm house; 70° of heat, and abundance of atmospheric moisture night and day, are indispensable.

PEACH HOUSE.—Trees in flower should have as much air as possible whenever the weather is favourable.

PINES.—Proceed steadily; if pits are at liberty, and provided with permanent bottom-heat of say 80°, it would be a good plan to shift a small portion of the plants into large pots in the expectation of their producing early fruit. Where a constant succession is required, let the final removal into the fruiting pots take place successively; no doubt this influences in a considerable degree the period of fruiting. Young stock which has thoroughly filled the pots, might also have a liberal shift, provided pit-room is at hand. With young plants an early growth, with a long summer before them, is important. In all potting, use good turfy loam, the newer and the rougher the better; when the soil is in a proper condition, water will pass through precisely where it falls without puddling the surface.

POTATOS.—Some Ash-leaved Kidneys may now be put into pots and placed in heat to bring them forward for planting out into frames and pits when the latter are ready for them.

VINES.—Proceed as before recommended; lessen the atmospheric moisture when the Vines are in blossom, and dispense altogether with syringing for a while; allow plenty of day heat with a lively circulation of air.

HARDY FRUIT AND KITCHEN GARDEN.

Nailing must now be pushed forward with vigour. Get all planting of fruit trees finished, and stake and mulch them. Remember to drain thoroughly. Nowhere is this advice more necessary than in the orchard; although Apples and Pears are fond of adhesive soils, they will never prove profitable where water is allowed to accumulate.

CAULIFLOWERS.—Get hand-glasses ready for such plants as are to be turned out of pots; enrich the stations for them, adding fresh loam also if at hand. Turn out four strong plants—one under each angle of the glass; the soil should be well soaked with liquid manure previously to their being planted.

HORSE-RADISH.—If not already done, this may now be planted; dibble in the sets or crowns in light rich soil from a foot to 15 inches deep.

RHUBARB.—Get both this and Seakale for next year's forcing planted immediately on rich ground, trenched; throw a hillock of old tan, ashes, or sand, round each crown to coax it on through the vicissitudes of the weather during this month and March.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Feb. 1, 1865, as observed at the Horticultural Gardens

January and February	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth 1 foot deep.	Temperature. Of the Earth 2 feet deep.	Wind	Rain
Thurs. 26	28	29.350	29.083	37	30	33.5	40	41	N.E.	[illegible]
Friday 27	●	29.402	28.980	3[illegible]	21	28.5	39½	41	N.	[illegible]
Satur. 28	1	29.910	29.753	39	8	23.5	39½	40	N.W.	[illegible]
Sunday 29	2	29.861	29.522	39	18	28.5	39	40	N.W.	[illegible]
Mon. 30	3	29.271	29.233	43	31	37.0	38½	40	E.	
Tues. 31	4	29.385	29.195	45	28	36.5	39	40	S.	[illegible]
Wed. 1	5	29.014	28.860	50	40	45.0	39½	40	S.W.	[illegible]
Average.		29.456	29.232	41.3	25.1	33.2	39.3	40.3		[illegible]

Jan. 26—Hazy, with rain and sleet; drizzly and foggy; rain.
— 27—Sleet, in broad flakes; heavy fall of sleet and snow, frosty
— 28—Very clear, quite cloudless, severe frost at night.
— 29—Severe frost; fine; overcast; frost at night.
— 30—Hazy and drizzly; foggy at night; rain.
— 31—Partially overcast; hazy; densely overcast; rain at night
Feb. 1—Foggy; exceedingly fine; overcast at night.
Mean temperature of the week, 5 deg. below the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 39 years, for the ensuing Week, ending Feb. 11, 1865.

February.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 5..	45.5	33.6	39.6	17	0.39 in	3	3	2	2	3	15	6	[illegible]
Mon. 6..	46.1	32.5	39.3	19	0.25	3	3	4	3	4	9	7	[illegible]
Tues. 7..	45.4	32.7	39.6	20	0.29	2	4	4	1	5	13	7	[illegible]
Wed. 8..	45.4	32.2	38.8	20	0.67	2	4	4	2	5	14	[illegible]	[illegible]
Thurs. 9..	44.0	31.3	38.1	15	0.40	1	6	4	2	2	15	[illegible]	[illegible]
Friday 10..	44.5	29.7	37.1	14	0.52	7	7	3	2	5	10	2	[illegible]
Satur. 11..	44.3	29.8	37.1	17	0.31	9	6	2	—	5	9	[illegible]	[illegible]

The highest temperature during the above period occurred on the 10th, 1831—therm. 65 deg.; and the lowest on the 5th, 1830—therm. 10 deg.

Notices to Correspondents.

ACER NEGUNDO: *R G.* The variegated variety of this tree is one of the most telling we know of, for ornamental planting where white variegation is desired.

BOOKS: *C P.* We do not know of any recent book such as you describe. Loudon's Arboretum et Fruticetum Britannicum is out of print, but copies are obtainable through the London bookseller.

DOLIQUE ASPERGE: *W C.* It is the Dolichos sesquipedalis, a Tropical American climber, which is cultivated in France in warm sheltered situations, such as at the foot of a south wall, with tolerable success. The pods are from 1 foot to 1½ foot long, cylindrical and pendulous, and when young are fleshy and cooked as a vegetable. Being without any tough parchment-like skin inside, they are esteemed as an excellent dish. Here it would require a fine season, as well as a warm situation.

FEATHERED COCKSCOMBS: *T W B.* You will find the Celosia aurea and its red-plumed ally amongst the most beautiful all decorative plants for the autumn, and they may be grown as bushy and as much branched as a show Pelargonium. The treatment should be something like the following:—The seed is to be sown in February or early in March, in a Cucumber frame or warm forcing pit. The young seedlings are to be potted into small pots as soon as large enough to be handled, and then shifted successively as fast as the roots begin to feel the sides of the pots. The plants must never get dry, or pot bound, or receive any check, but be grown on without intermission, in a moist genial temperature of about 65° or 70°, and potted in a compost of turfy loam, enriched by the addition of about one-third of well rotted manure or such fertilising agents as deer or sheep droppings, with a moderate addition of sand. An 11-inch pot will suffice for a thoroughly good specimen. The chief enemy to contend with is the red spider.

FUNGI *versus* ROOTS: *C P.* writes:—"Five years ago I planted some Coniferous and other trees at a place in the country and had them surrounded with wooden fences, the posts of which (Elm and Ash) stand about three feet in the ground and two feet from the stems of the trees. How much longer will it be safe to let the fences remain? I am afraid the roots may be attacked by some Fungus from the posts decaying. The subsoil is clay, and was drained four feet deep about three years ago." Our Correspondent should examine the posts, and if there is any indication of the presence of Fungi, such as spawn running in the ground, he had better remove both them and the spawn; but if nothing of the kind is apparent, they may be allowed to remain, with occasional examination.

GREENHOUSES: *Anon.* The galvanised sheet iron costs about one-third less than wood, and is light, but not more durable than wood. Solid iron will cost about half as much more as wood, and is of course very durable if properly put up. On the whole, greenhouses constructed of wood are no doubt the best for plant-culture generally, the objection to iron-houses being that they get too hot in summer. In the damp climate of Devon you had better use sheet glass—21-oz.—rather than rough plate, unless your house is intended for Ferns.

LEAF DISEASE: *E C.* We do not see any insects on your leaf, but it is spotted by the rudiments of some parasitic Fungus which is in too early a stage to admit of its being determined. *M. J. B.*

NAMES OF PLANTS: *R G.* 1, a Lastrea, but the specimen is insufficient; 2, Platyloma flexuosum; 3, Duranta Ellisiana variegata; 4, undeterminable.—*W P.* Cyclamen Atkinsii.—*T R.* Eupatorium adenophorum, a very useful winter-flowering plant.—*R W.* 1, Cyrtomium falcatum; 2, Onychium japonicum.—*D M K.* It appears to be a young growth of Psilotum triquetrum, a plant related to Lycopodium.—*C B.* Pteris tremula.—*E L.* We do not recognise the plant from your description.

PELARGONIUM WHITE PERFECTION: *C Pilgrim.* We cannot tell you who was the raiser of this variety, when it was sent out, or from whom it may be obtained. It was grown at Chiswick, but it appears that the name of the donor was either not sent with it or has been lost. Perhaps some reader of this notice may be able to supply the information.

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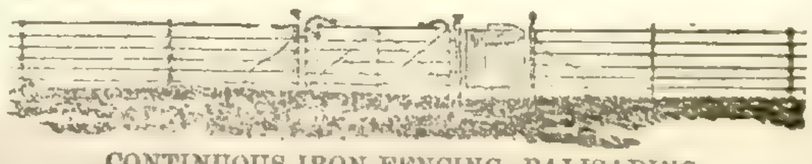
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DR. AUGUSTUS VOELCKER, F.C.S., Professor of Chemistry to the Royal Agricultural Society of England, has REMOVED his LABORATORY and CONSULTING ROOM to 11, SALISBURY SQUARE, FLEET STREET, E.C., to which he requests that all Letters and Samples for Analysis should be directed.
Dr. VOELCKER receives PRIVATE PUPILS for practical instruction in Analytical and Agricultural Chemistry.
11, Salisbury Square, Fleet Street, E.C.

LOCOMOTIVE ENGINES on HIGHWAYS.
NOTICE of MEETING.
The Home Secretary, Sir GEORGE GREY, Bart., having lately issued several orders under the authority of the Locomotive Act, 1861, restricting the passing of Locomotives upon the Highways excepting during the night, thereby preventing the profitable employment of such Engines for Agricultural purposes, a MEETING will be held on THURSDAY, the 9th FEBRUARY NEXT, at No. 69, REGENT STREET, London (St. James's Hall Building), about 2 o'Clock P.M., to consider this important question, and to form a Deputation to wait upon Sir George Grey, who has consented to receive the same the next day, the 10th. Lord KINNAIRD will occupy the Chair.
Walton, Wakefield, Jan. 1865. CHARLES CLAY, Hon. Sec.
N.B. That a correct List may be obtained, every one attending this Meeting is requested to leave his Card or Signature with the Door-keeper.

THE FOWLER MEMORIAL.
NOTICE of MEETING.
A PUBLIC MEETING will be held on THURSDAY, the 9th of FEBRUARY NEXT, at No. 69, REGENT STREET, London (St. James's Hall Building), at 12 o'Clock—noon—precisely, to appoint a Committee for raising Funds for a suitable MEMORIAL in Memory of the late JOHN FOWLER, to whose untiring zeal in the application of Steam Power to the Cultivation of the Soil, the Agricultural world is so much indebted. Lord PORTMAN will occupy the Chair.
CHARLES CLAY, Hon. Sec. *pro tem.*
Walton, Wakefield, Jan. 1865.
N.B. That a correct List may be obtained, every one attending the Meeting is requested to leave his Card or his Signature with the Door keeper.

The Agricultural Gazette.
SATURDAY, FEBRUARY 4, 1865.

MEETINGS FOR THE ENSUING WEEK.

MONDAY,	Feb.	6	London Farmers' Club (Mr. Edmunds on Middle-class Education).
TUESDAY,	—	7	Midland Counties (Birmingham)
THURSDAY,	—	9	Meeting for Memorial to the late John Fowler (69, Regent Street)—Noon.

WE direct particular attention to the announcement made above—that a Meeting will be held in St. James's Hall, on Thursday next, at noon, under the presidency of Lord PORTMAN, for the purpose of appointing a Committee to obtain subscriptions towards perpetuating, in a suitable manner, the memory of the late JOHN FOWLER. The readers of this Journal need no testimony of ours to the worthiness of this object, and we feel certain that all the success that can be desired will attend the effort that will at once be made to hand down the memory of so great a benefactor to English agriculture as the late Mr. FOWLER, during his short life, proved himself to be.

At the close of this Meeting Lord KINNAIRD will preside over another, when the question whether locomotive engines shall be prevented from travelling on the highways excepting between midnight and dawn will be considered; and a deputation will be named to wait upon Sir GEORGE GREY with a memorial upon that subject. The Home Secretary has announced that he will receive this deputation at 2.30 P.M. on Friday, Feb. 10th.

MR. ACLAND'S LETTERS ON AGRICULTURAL EDUCATION*:—We return to the consideration of this pamphlet, addressed to the President of the Royal Agricultural Society, and originally printed by the author for the consideration of the Council.

Perhaps the first idea occurring to any member of the Council on a first perusal of his copy of it must have been that the author had adopted a very unusual course in thus forestalling the deliberations of the Committee (himself a member) to whom the subject here discussed had been remitted for consideration.

The Council had committed the consideration of the duty imposed on the Society by their Charter

* *Agricultural Education, what it is, and how to improve it.* By T. D. ACLAND, Esq. W. RIDGWAY, 169, Piccadilly.

to a limited number of their body, in order to the collection by them of information and materials for a report for the ultimate deliberation of the entire Council, and it certainly seems to be a very premature and irregular proceeding for one member of a Committee so appointed to print and circulate amongst the members of the Council his own peculiar views of the subject, in a very early stage of their deliberations. Indeed, it appears, in the first page, that the writer had himself entertained some such impressions, which however had been overcome by the great personal interest he had taken in the subject. And in a *quasi* apology for an unusual step he declares his object to have been without delay to elicit the opinion of those who take a similar interest in it, as to the general end to be arrived at, and to offer something tangible for their consideration.

We are glad to acknowledge in the outset his concurrence in an opinion which has long existed as to the amount of good which might be accomplished by the Royal Agricultural Society, possessing great influence in every part of England, "if the Council now dealt with an object of its Charter which has hitherto lain dormant." The writer proceeds to illustrate his meaning as to the alleged good which the Society may effect, but his grand result points only to the foundation throughout England of public schools for the middle classes, in conjunction with landed proprietors and other capitalists. He then asks, "What is the right position for the Royal Agricultural Society to take up in reference to this national movement?" There can be no hesitation in replying—"No position at all." Such a movement is quite outside the well-defined field of its labours.

After passing over much matter that does not appear to have any bearing on the real question before the Council, which is—"To consider the measures which ought to be taken by the Society for the improvement of the education of those who depend upon the cultivation of the soil for their support," Mr. ACLAND asks:—

1. What is the agricultural education which the Council desire to improve? Is it a knowledge of what is called practical and scientific agriculture; or is it general education?

2. What steps can the Council take with a good prospect of success, to improve either the one or the other?

In his second letter on these points, he observes, "there is not a word about agricultural education in our Charter," and we may add, with a somewhat stricter interpretation of terms, not one word about the "general education of the middle classes." We take the general education of the middle classes in schools devoted to that purpose, to comprise the training and instruction which are generally deemed essential for the prosecution in after life of the endless variety of occupations open to young men at the close of such a course of instruction. That period is the usual time for the determination, in the case of every individual, of the occupation by means of which it is proposed for him to obtain his ultimate support; and it often happens that the choice is entirely different from that which was contemplated by the parents or the youths themselves in earlier years. But there generally occurs an interval of some years between the completion of the general education and the responsible entry on the special occupation which has been determined on.

Now at the date of the Society's Charter, obvious means existed for prosecuting the special studies applicable to most of the ultimate occupations in life which may have been selected by individuals; but it was no doubt seen by the Privy Council, that practical and scientific agriculture was an exceptional case at that time. They availed themselves therefore of the opportunity of the application for a Charter by the Society, to require them to supply that want. To say, therefore, that there is not a word in the Charter about "Agricultural Education" is really a puerile mystification of words.

We are therefore justified in passing without comment many pages in which, with an exceptional passage here and there, and divers quotations of letters from writers of whose capacity for enlightening us we know nothing, the author discusses an altogether different subject from that which is now before the Society. But there is towards the close of the pamphlet, an entire letter which Mr. ACLAND especially recommends to our attention. So far as it relates more particularly to the subject under our consideration, the following passages are more *ad rem* than Mr. ACLAND's 40 previous pages.

"As to whether any theory of agriculture could be successfully taught in ordinary schools, the circumstances being as we have described them, we are decidedly of opinion that any efforts in that direction would be futile. Let the farmer's son, and the lad intended for farming, have a good education; let him have the best his parents' means will permit; let that education be, whatever its extent, solid, and accurate (and such education, we are convinced, is easily obtainable now-a-days by all who will be at the pains to inquire); let the boy's school life be extended to five years, from 10 or 11 to 15 or 16; then, on leaving school, he would, we conceive, bring to the mastery of the details of agriculture a mind well disciplined, and one fully able to cope successfully with its problems. If, however, he could then be sent to an Agricultural College, and could devote his attention specially to the bearing that chemistry has upon tillage, and other kindred subjects, no one can doubt but that it would be highly beneficial. But to attempt to teach agriculture to a boy at 13 years of age would be, we think, no wiser than to train a boy of like age for a lawyer's or a grocer's life."

Rather than incumber this notice with any further extracts from these letters, which are of little value for our purpose, we only add Mr. ACLAND's own very candid summary at page 42:—"The preponderating opinion is that special agricultural knowledge can only be conveyed with advantage to those who have already had a good general education; that any attempt to teach it at school or college should be postponed at least till after the age when steady habits have been formed, and some actual experience gained."

Such having been the rational and generally received opinion amongst the best informed agriculturists, the earliest attempt to supply this want was the foundation of "the Agricultural College," incorporated by Royal Charter. Of that Institution a history and a full account of the course of instruction provided at it will soon be given in the Journal; and but for the somewhat depreciatory allusions to it contained in Mr. ACLAND's letters we should not refer to it here. He observes:—"I do not deny that a young man who has received a good general education, and who has formed steady habits, both of thought and conduct, may gain much useful information at a well-conducted Agricultural College; all I say is, a College course of special lectures is a poor substitute for general education, for practical experience, and for wholesome training of habits."

Can any one reading these observations draw any other inference than that this Institution, in this year 1865, does not comprise the class of young men described, and that they have only such advantage as special lectures may afford—no practical experience, or wholesome training of habits. With a perfect knowledge of the administration and teaching at the College, we venture to state that such an inference would, in every particular, be at variance with the facts.

Mr. ACLAND further on observes that he has taken the warmest interest in this College—that he has paid frequent visits to it, and that he has communicated frequently, and confidentially, with more than one of its principals, &c.

These remarks led us to inquire of the present authorities at the College what suggestions may have been offered to them in the way of an improved system of management by Mr. ACLAND, and we were rather surprised to hear that they have not had the honour of a visit from that gentleman during the past six years, nor have they heard of his having been at the College during that time.

In another place Mr. ACLAND observes: "Such an Institution, if it really offer the training and instruction which, in the opinion of intelligent landowners and parents, is best adapted to prepare the British farmer for his future life, can surely not languish for want of pecuniary support." We may confidently put it to the Council of the Royal Agricultural Society whether it is fair by them, to say nothing of this Institution, for a gentleman referring to it for the purposes of their deliberations on Mr. HOLLAND's educational motion, to prelude such observations by an expression of his warm interest in the College, and by references to his frequent visitations to it, when he has not been in communication with the Principal, nor been heard of within its precincts for five or six years? Had Mr. ACLAND's interest in this College led him to make those personal inquiries there which we have made, in reference to pecuniary results, he might no doubt have been permitted to inspect, as we recently have, accounts very carefully prepared, which would have shown him that the College had not "languished for want of pecuniary support:"—On the contrary, that with the exception of a few of its early years, during which an expensive staff was maintained, before its advantages, and almost its existence became known, the annual income of the College from students has, with one exception, considerably exceeded the annual expenditure on their account; and *that* though the Council of the Institution have been appropriating from 1000*l.* up to 1200*l.* per annum more recently, out of that income to provide first-class instruction for their students. Such a previous inquiry would have saved Mr. ACLAND the trouble of propounding to the Council of the Society the "obvious alternative,"* to which he calls attention on page 28, inasmuch as no foundation exists for either member of it.

Mr. ACLAND seems to estimate the possession of a College Diploma as of very small value to a young farmer. He would find that at Cirencester considerable exertions are made by the most energetic students to obtain one. These exertions are beneficial even to the unsuccessful, and they operate beneficially for the successful, as candidates for appointments. A case of this has recently come under our knowledge. A gentleman in a distant county advertised one of his farms to be let by tender. Amongst numerous applicants was a very assiduous student who had obtained the College Diploma, and who had proposed that as a qualification. On a survey of the tenders, the owner said, "that is the man for me," and he was at once offered a lease.

Let us add that this pamphlet concludes with the valuable suggestion that our Society should provide exhibitions, besides prizes of small amount, to stimulate the efforts of agricultural students. But how are they to be awarded? The Society or their Council, it seems, are deemed incompetent. They cannot judge of the competency, proficiency, or excellence of agricultural qualification. They are merely to furnish a list of the candidates for these prizes to the Universities, the Society of Arts, and the College of Preceptors, and the professional status and ability of the young farmers who come before them is to be determined by literary and non-professional examiners!!

[We add that the Education Committee of the Society met at Hanover Square on Tuesday last, and recommended the Council to vote a sum of money to be placed at the disposal of the committee, to be given in rewards to the successful candidates at examinations of such a kind, and to be held at such times and places as should hereafter be determined. At a conference subsequently held with representatives of certain examining bodies in general and literary education—the Universities, the College of Preceptors, and the Society of Arts—it was ascertained that these bodies are willing to cooperate with the Royal Agricultural Society; and that they will communicate to the Council a report in detail on the attainments of any candidates included in any list forwarded to them by the Council.

At the Council meeting on the following day, a discussion ensued on the Committee's report, and a resolution was ultimately carried, which virtually postponed the consideration of it till the next meeting, when a decision will be arrived at as to the policy of confining the action of the Society to the professional part of an Agricultural Education.

We also call attention to Mr. EDMUNDS' paper on Middle-class Education to be read next Monday before the London Farmers' Club.]

BARON LIEBIG has addressed a long report upon the Sewage question to the LORD MAYOR of London, for which we hope to find room next week. Meanwhile, on this subject, we at present merely add that the discussion before the Society of Arts, on Wednesday last, following Mr. MORTON's paper (which is reported at length in another page), was confined almost exclusively to Mr. WALKER, of Rugby, and Lord ROBERT MONTAGU. The former attributed the alleged failure at Rugby to mismanagement, especially on the part of the Royal Commissioners appointed to inquire into the subject. He had let portions of Grass land to them, which had suffered exceedingly in their hands. He quite believed, notwithstanding the Rugby experience hitherto, that sewage might be profitably used on land, notwithstanding cost of engines, pumps, and pipes.

Lord ROBERT MONTAGU followed Mr. WALKER with an elaborate and hostile criticism of the lecture, quoting largely the evidence taken by his own Committee to prove that the proper way of using sewage was not as water is used in water meadows, but in a much more careful and economical manner, at the rate of a few hundreds of

* The alternative is obvious: either it must be proved that the farmers lack the intelligence to perceive the value of the College life, or the system has yet to be matured which is suited to their real wants."

tons instead of many thousands as at present annually per acre. The discussion was adjourned till next Wednesday; and we hope to give a report next week.

THE FARMER AND HIS INSURANCES.

In these days of low-priced grain, the farmer naturally tries to reduce the cost of production. But now that the balance is on the wrong side of the ledger, it is more than ever necessary that he should exert every means to secure his property from the destroying elements, and from unforeseen misfortune. Among the many advantages which our advanced civilisation has conferred on agriculture, the means of insuring farming property against loss by fire and hail are not the least. Fire insurances have long been known, and those means of security are very generally, I might say universally, adopted by farmers. On the other hand, I learn from the report of the General Hail Storm Society that not 1 acre in 12 (we presume of corn) is insured against hail. Why, I would ask, is this? Why does the farmer show such indifference to secure himself against the damage of a hail storm, while he is so anxious to make himself safe against fire? Many persons would answer, that a fire, although occasionally caused by lightning, much more generally results from the wickedness or carelessness of man, while hail is always the act of God. At no period of the year are we safe from fire, but hail seldom visits us earlier than May or later than September, and if it did, would do very little harm to the farmer. And again, when a farmer insures against hail storms, he rarely thinks of protecting more than his corn and pulse crops, while fire secures the hay and the live stock, as well as the grain, straw, and chaff. Hail storms, when they do happen, are sometimes most desolating and destructive, but happily they rarely occur. Fires on the other hand are of weekly occurrence. If the two cases of fire and hail were put before a man learned in calculating risks, which would he say is the heaviest and should pay the highest premium? Surely he would say fire. And yet the occupier of an arable farm who has half his land under grain crop, pays 50 per cent. more for insuring his corn crops against hail than he would to secure his live and dead farming stock against fire. The report of the General Hail Storm Company says that on the 9th August, 1843, "hundreds of thousands of pounds" of property was destroyed on that one day. If we can tax our memory with figures, the damage in Norfolk after that awful storm was stated by the appointed valuers to be something above 30,000*l*. Ten years later Sir John Walsham stated that over 430,000 acres of corn were annually grown in our county. Supposing that all those acres had been insured during those ten years at 6*d*. per acre (the price now charged by the hail-storm societies), the farming interest would have paid for that protection upwards of 100,000*l*. Of course it was all guess work when Hail Insurance Companies were first established as to what premium should be paid, and certainly 6*d*. per acre seems a very small sum. But 6d. to insure 9*l*. (the average worth of an acre of corn) for four months is in reality 1*s*. 6*d*. for twelve, and that 1*s*. 6*d*. would for a year insure 30*l*. of farming stock against fire. Farmers ponder over the difference, and this is one reason that they don't insure more generally against hail. Certainly we hail insurers are to receive a bonus next year of 45 per cent., which will be a return of something like 2¾*d*. on the 2*s*. which we shall have paid during the last four years. If only 1 acre in 12 is insured, I presume, although the expenses would be more the risk of the Society would be just the same, provided that one-twelfth of the arable land was equally distributed over the kingdom. But unfortunately for us who live in Norfolk it is not. There are certain parts of England that seem peculiarly liable to hail-storms, and it is in those districts that most of the farmers insure. I wish not to be misunderstood. No one values the benefits of insurance more than I do, or feels more keenly the necessity of such wise precautions. I aim, quite as much as any director does, to extend the blessings of insurances, and I fancy that much good would result from thinking a little less of the reserved fund and a little more of the insured. If all our corn in Norfolk was insured at 3*d*. per acre, that would give an annual revenue of upwards of 5000*l*., and taking the average losses of the past 20 years, there is no doubt that three half-pence would more than pay for the hail-storm damage the farming interest has sustained. Let the Society try if a reduction of the premiums would not procure many more insurers than trying to frighten us farmers by telling us that when the next hail-storm comes we "cannot expect subscriptions in aid, voluntary rates, and other sympathetic contributions to our losses." I have constantly persuaded farmers, especially needy ones, to insure against hail, and have generally been met with this objection of cost. Once a large occupier replied, "If I could insure against wind and rain as well, I would willingly pay 2*s*. 6*d*. per acre. I have lost thousands of pounds in my long life from storms of wind and rain, but I never suffered sixpence, that I remember, from hail." And it is well known how difficult it is, when there has been little hail and a good deal of wind, to say how much of the damage resulted from the wind and how little from the hail. I am quite sure that the farmers would, if they could, gladly repeal the duty on fire insurances. It would sweep away the last vestige of their Protection, and they could then truly say when they ask for the abolition of the malt tax, that though the land pays chief part of the local burdens of the country, the farmers have not a single exemption from Imperial taxation. After all, in this matter of fire insurance, the trader who pays the duty is not much worse off (as far as regards cost) than the farmer who has no duty to pay. Farming stocks now cost 5*s*. per cent. for insurance, and household goods 4*s*. 6*d*. Still, it does seem monstrous that if 1*s*. 6*d*. per cent. should cover the risk of fire, Government should step in and tax the provident man just double the cost of his insurance, the duty being 3*s*. for every 100*l*. insured! *A Young Norfolk Farmer.*

LONDON SEWAGE

From the Agricultural Point of View.

[The following Paper, by Mr. John C. Morton, was read last Wednesday before the Society of Arts.]

I am perfectly aware that any service to be rendered by the Society this evening towards the utilization of London sewage must depend principally upon the discussion which is to follow the reading of this Paper. I shall, therefore, not occupy your time for more than forty minutes in stating, as an introduction to this discussion, those data and conditions on which agriculture, as I believe, may be able to offer a solution of the difficulties which surround the subject.

Early last November, before the Metropolitan Board of Works had decided what to do, and while the public papers, stirred up by the report of Lord Robert Montagu's committee, overflowed with controversy on the sewage question, I suggested to Mr. Foster that advantage should be taken of the agricultural week in December, when many farmers are in town, to submit some of the schemes which had been propounded before that Committee to the test of such criticism as they would have received here from an agricultural audience. The Wednesday in question had, however, already been allotted, and that is how the discussion of this subject happens to have been delayed till now, and left for me to introduce.

In this paper then on "London Sewage from the Agricultural Point of View," I not only mean to exclude the engineering and sanitary aspects of the question, but, while discussing the merely agricultural aspect of it, I wish to confine myself and you to that view of it which it presents, not to ratepayers and enthusiasts, but to farmers. Of course everybody knows that there has been a great deal of wild enthusiasm and speculation excited by both newspapers and committees; and even agricultural journals have been "bitten." I suppose that if a sober view of the agricultural value of sewage manure was anywhere to be expected, it would have been in the columns of the *Mark Lane Express*. But what does the clever Editor of that agricultural paper say? He declares that recent experiments, discussions, and discoveries have thrown so much new light upon it, and made us all so much more sanguine of a profitable issue, that an altogether new leaf in the book of agricultural progress has, in fact, been turned; and therefore, if any one shall hereafter quote any of the former leaves of this book—any of the older blue books, whether containing evidence or writings of his own or others—in any future discussion of the subject, a vat of the very richest of the stuff is to be prepared, and he is, in short, to be ducked in it.

Now having unfortunately given evidence before Dr. Brady's Committee, and having used at intervals during several years what opportunities occurred to me of presenting the facts and stating the arguments which have year by year accumulated as the urgency of the question grew, it might be difficult for me to avoid the fate which my kind friend and brother Editor had prepared for me. In order therefore, both to escape the ducking, and also to give the most recent evidence of an eye-witness, avoiding all reference to blue books and other publications, I have within the last few weeks spent a day at Rugby and another at Birmingham, a couple of days at the Craigentinny meadows, near Edinburgh, and a couple of days at Croydon. I have also spent a week with Mr. Harrison, M.Inst.C.E., of Frocester Court, Gloucestershire, in South Essex, down at the Dengie Flats, the Maplin Sands, at Burnham, Foulness, Rayleigh, Stanford-le-Hope, and other places, trying to find out in what relation the present circumstances of Essex agriculture stand to the subject. And we paid visits to the home farm of the Earl of Essex at Cassiobury, and to Mr. Blackburn's farm at Aldershot. And I propose to tell you what I have seen and heard within the last two months at all these places.

Of course the evidence of an eye-witness accustomed to the inspection of farms and to the examination and discussion of both ordinary and extraordinary agricultural experience, who has made it his business to examine afresh in this way almost all the places where sewage is now being utilised, must be a serviceable contribution to the discussion of the general subject, provided only that it be impartial. And if it be objected, as it may, by advocates of any of the schemes for using London sewage, that any one who has committed himself to a particular view of the subject before, for instance, Dr. Brady's Committee, must be pronounced already prejudiced and partial, then it must be at once admitted, that an acquaintance both with agriculture and with sewage has led me long ago to a definite opinion of the right way to connect the two; and that having formed this opinion after a previous inspection of most of the places named, it was with some confidence in its soundness that I recently examined them again.

This I presume is what is meant by prejudice. Allow me to say that there is no word used by amateurs in agricultural discussions that is more maltreated and abused. A man—of course I do not mean the professional agricultural chemist, who often works as much in the field as in the laboratory, but—one who takes his facts exclusively from the laboratory of the chemist, who deals with soils or with manures on filter papers, in bottles, and in crucibles, or with plants in fragments and in flower-pots, is allowed to expatiate unquestioned, and of course, we all gratefully acknowledge, often usefully, upon the policy or impolicy of the various operations of the farm; but he who has witnessed and directed the operations of chemistry and of life for years and over acres, who has long annually furnished the material and gathered the fruits of these operations over whole fields and farms, has his doubts or his convictions attributed to "prejudice." It seems to me that if the word be properly applicable to whatever either of credulity or of dogmatism on any subject precedes experience, it can be least frequently applicable on agricultural subjects to the farmer. He at least comes to any agricultural discussion with experience to guide opinion; and he has, as I think, cleaner hands, on the score of sobriety and impartiality of judgment, than the enthusiast who charges him with prejudice because he does not believe, to put it shortly, that the profits of farming depend simply upon the atomic theory of the chemist. I at once confess that the analogy of agricultural experience, both of costs and of returns, leads me to prefer those plans for using London sewage by which it is applied to land in quantity, as in water meadows; and I have found that the experience of sewage farmers hitherto does generally sanction these plans. Still further I may confess that, having investigated pretty fully both at Foulness, Dengie, and the Maplin Sands, and through the line of country thither, the plans of Messrs. Napier & Hope for using London Sewage there, I believe them to be consistent both with ordinary agricultural experience and with that of sewage farmers generally. With this "prejudice" it was that I revisited the different places I have named, and, finally dismissing these personal explanations, it is with this "prejudice" against me, I have now, in order to an agricultural view of the sewage of London, to tell you what I saw and heard upon my tour.

1. First then of Rugby:—Here the washings of 8000 people, in a town which is, I understand, very fully supplied with waterclosets, are drained into a tank in the valley below, and thence continually, excepting nights and Sundays, forced by pump through several miles of underground pipage to one or other of various exits, some of them a mile away, on land probably 60 or 70 feet above the level of the tank; and thence sometimes by hose, and elsewhere by mere surface runnels as in ordinary irrigation, the sewage is distributed, a plot or ridge at a time, over the Grass land, until the whole surface of a field is overtaken. I am told 50*l*. a year are paid to the town as rental for the manure—3*s*. or 4*s*. a day, or, including expenses of distribution and interest of capital, altogether probably 30*s*. or 40*s*. a day for some 200,000 gallons; and I am told that none of those who rent it are satisfied with the result. Mr. Campbell, to whom a portion of the sewage is sublet, fails of a profitable result because he cannot get the sewage when he wants it, nor enough of it then. Mr. Walker, over whose land most of it is poured, is dissatisfied because of the injured quality of his pasture lands, where it has been applied in large quantities. I have seen heavy and early crops of Italian Ryegrass, at least 10 tons per acre, in the month of April, grown here on rather unkind land, chiefly by the aid of sewage; and we all know from the published reports of the experiments superintended by Mr. Lawes, that the produce of the ordinary Grass fields upon the lias clay land here has been wonderfully increased, and nearly in direct proportion to the quantity of the sewage applied. But it is worth noting that although the manure is here applied upon the land at the cost of less than ½*d*. per ton, and not much more than 1*s*. per head per annum of the population who supply it, I did not meet with any one who was satisfied that it was agriculturally profitable. Let me mention here two other noteworthy things:—I saw coarse, couchy, weedy-looking stubble of Grass, originally, I was told, good grazing ground, which had been sewaged, and which after various mowings had latterly kept an enormous stock on it for some weeks to eat it down. And this land had been lately valued for the purposes of ordinary agriculture as having been injured to the extent of 20*l*. an acre, I think, in selling value, by being sewaged. And I saw good grazing land, which had been also sewaged—and was being sewaged when I walked over it—as full of Clover and sweet short Grass, and as abundantly producing first-class feed as any pasture I was ever over. Both had been sewaged—the one had been mown, and mown, and mown—and the other had been fed, and fed, and fed—the latter kept firm by the treading, and also no doubt

replenished by the droppings of the cattle which lay thickly on the ground, had retained the original quality of the Grass, which is generally, and at Rugby also, as I have said, injured by the sewage irrigation where only mown crops are taken. As to the valuation of the land for ordinary agricultural purposes after the use of sewage—it is plain that any figures so obtained must be taken according to the strict meaning of these words. The agricultural valuation of land must be made absolutely, not for any special purpose, in order to learn whether any profit or loss has been sustained.

2. At Birmingham, the sewers which drain the two valleys over which the houses of 300,000 people are here distributed unite in tanks at the confluence of these valleys—for the settlement and deposit of their mud before the comparatively clear water is allowed to flow into the natural stream again. Some 30 acres of land have been here purchased by the Corporation, and this mud is pumped by Walker's diaphragm pump to one and another section of this acreage, and as it dries it is dug out and carried away. This is creating such a nuisance, that at length they are pumping the sediment into barges on the canal which passes a few hundred yards away, and taking it to the various farms along the canal; in neither case however does the value received repay the costs connected with the process. In the meantime the soluble and valuable part of Birmingham sewage is going down the river as before. And as the water closet system extends, both the nuisance of the tanks and the wastefulness of the overflow from them will increase.

The level lands near the tanks are occasionally flooded from the sewers as they were formerly from the river; and with about the same effect as formerly, according to the tenant, who denies the right of the Corporation to charge a rent upon him for this water, which is, he alleges, no stronger than the original foul river water. But it is flat land, and occasionally the water lying on the land has killed the Grass instead of benefiting it. This is a contingency which may, I suppose, be sometimes looked for from the washings of a manufacturing town. It will be quoted by the advocates of scanty dressings as a risk to which those who use large quantities are especially liable. It appears to me to have been due to the flat surface, on which, with its imperfect surface drainage, the water was allowed to stagnate.

Mr. Councillor Walker is urging the distribution of the overflow of the sewage tanks here, and declares that their 20,000,000 tons of it per annum would, at even ¼*d.* a ton, yield a monstrous revenue beyond the cost of distribution. It seems to me that we have here an example of a central delivery of a great town drainage, where the water-closet system must be rapidly extending, which is ready for being turned immediately to agricultural account. It is however fair to mention, that several of the leading medical men in Birmingham recommend cutting off a portion of the supplies from the sewers immediately below the water-closets. Both Dr. Bell Fletcher and Mr. Chesshire recommend contrivances by which much is retained, as in portable closed cesspools, for collection at monthly or half-yearly intervals by night carts as formerly. And this practice, if it should extend, would to some extent diminish the value of the waste.

3. We now come to the Edinburgh meadows. The principal facts are that at Lochend and Craigentinny on the North-east, at Grange upon the South, and Dalry upon the West, there are some 350 to 400 acres of Grass land, over which the filthy natural drainage of the town is poured as in ordinary water meadows. The lands are generally sloping so as to enable a rapid flow, and the streams which wash out the valleys over which Edinburgh is spread, receiving the drainage of its houses, are of sufficient volume, together with the artificial water supply by which they are thus supplemented, to give an abundant irrigation to the land. From 10,000 to 20,000 tons per acre annually are thus distributed in one or two floodings during every interval between the cuttings of the Grass, of which three and four, and more rarely five, are taken in the course of the season. Perhaps the best illustration of the productiveness and value of the Grass thus treated is furnished by the fact that there are about 2000 cows in and around Edinburgh and Leith fed from the meadows during summer, or nearly six to every acre, and that between the middle of April and the end of October, they will on an average consume from 80 lbs. to 120 lbs. a day apiece, along with about half a bushel daily of spent malt from the distilleries. If the consumption of these cows be put down for 180 days at 100 lb. apiece, the produce of the acre which keeps six of them must be close on 50 tons a year, and for this the average price paid is 23*l.* to 25*l.*; or 10*s.* a ton as it grows. I learned from a very intelligent man, who keeps 24 cows in Leith, that he has usually purchased at the spring auctions, when the year's growth is sold, 4 acres for his 24 cows, paying about 100*l.* for them; and this perfectly tallies with the average result already given.

Some of the plots—(the Grass is let or sold by auction for the year in acre and half-acre plots)—are let or sold for as high as 40*l.* the imperial acre, but the average price is 23*l.* to 25*l.* per acre. The worst pieces are the flattest and undrained, which are thus incapable of getting a rapid flow either over or through the land. The best pieces are those which face the south, which have a sufficient slope to permit a rapid flow of the sewage over the surface, and which are of so open a texture as to permit a good natural drainage through the land. It is worth noting too that while the inferior bits have by drainage been improved in productiveness, the best bits always remain the best; it is always particular spots, especially those which, owing to aspect, soil, and abundant supply of irrigation, are earliest ready for the scythe, that command the exceptional prices which are sometimes quoted as if they were the average yield of the meadows. The early Grass is worth to a milkman as much as 1*s.* per cwt. to go to the field and cut it for himself, although the average throughout the year is not worth much more than 6*d.*, and that is how those early pieces fetch so long a price. It must also be understood that while Grass—milk being 10*d.* a gallon in the Edinburgh trade—is worth 6*d.* a cwt. or more, perhaps, upon an average, to the cow-keeper to cut and carry a mile, or even two or three, yet it is not worth so much for any other purpose. It will answer for feeding neither cattle, sheep, nor horses; and thus it is that it is just in proportion to the demand there is for it for cows that the price is maintained or not. The prices named were as high 20 years ago as now. There were then one-third fewer cows than now, but there were just about one-third fewer acres then as well. As the demand increased and prices rose, more acres have been added. Italian Rye-grass, broken up every third year and resown after taking a Potato crop, has been grown at Lochend, even above the natural fall of the stream, and, watered by self-acting pumps driven by the stream itself, it fetches nearly the average price, although it does not reach the maximum achieved upon the best bits of natural Grasses.

At Dalry, too, and the Grange, natural Grasses, chiefly Rye-grass, have been sown along with in places top-dressings of chopped Couch, and watered by the foul stream, and equal productiveness has been soon acquired for newly laid down pieces. Whatever Grasses are sown originally, Poa trivialis, Alopecurus geniculatus, and Glyceria fluitans, with Couch Grass, Crowfoot and other weeds — and where the land is best drained and driest, Rye-grass, Cat's-tail, Cock's-foot, &c., ultimately form the pasture. And it would be pronounced by any one as I saw it last month, a wonderfully thick and luxuriant grassy surface, nothing like so coarse and weedy generally as the Rugby meadow, to which I have just referred.

At Craigentinny, too, the meadows have been added to occasionally, and pumping engines have been erected to extend the limits of the area commanded by the stream; but they are no longer used, for it has been found here more than once that if but a few acres in excess of the demand are brought into the market, the average price of the whole at once drops. I cannot too strongly impress upon promoters of schemes for utilising London sewage, that this is a very important part indeed of the Edinburgh experience for them to read. 350 to 400 acres of this sewaged Grass suffice for 2000 cows. The people of Edinburgh and Leith are far better supplied with milk than those of London; but even there one cow suffices for every 100 of the population. And the 30,000 cows required at this rate by the metropolis, would all be fed during summer, according to the Edinburgh rate, on 5000 acres of Grass. If there be any considerable increase of the supply near London beyond the Edinburgh rate, then it is plain from the Edinburgh experience that the Edinburgh prices will not be maintained. Probably, the chief way out of this difficulty may be to copy Lochend in growing Italian Rye-grass, for which there is a demand other than that of cow-keepers, but I cannot doubt that the marketing of the enormous Grass produce which we shall obtain from London sewage will for many years be the great difficulty in the way of a profitable result. Without discussing here, in detail, the quantity of sewage to which the Edinburgh results are owing, it may be said that the drainage of an area covered by more than 100,000 people is spread over 350 or 400 acres (we cannot, of course, infer from this that the waste from all these people reaches the land); that six to ten floodings are given during the year, varying from 4 to 40 hours at a time, and amounting in all to 10,000 to 20,000 tons or more per acre per annum; that the Grass amounts to 45 to 50 tons per acre, capable of feeding 6 cows during the summer half-year; and that it is bought by men who are at all the expense of cutting it and carrying it a mile or two home themselves for 23*l.* to 25*l.* per acre on an average, exceeding 35*l.* and even 40*l.* per acre in particular plots. It may be also said that much of the land yielding nearly the average price is the poorest seaside sand; and that a great deal of it, watered with tail water which has already gone over land above, is just as good as the rest. It is all mowed and mowed, the produce being carried wholly away, and it maintains its productiveness year by year under this abundant sewage irrigation, notwithstanding this immense draught upon its resources. One fact more of great importance:—The land, notwithstanding the immense supplies of this manure, is not enriched; a grain crop following the heaviest crop of Grass on the sandy soil will fail unless it be itself heavily manured with cart dung; the Potatos following the Italian Rye-grass at Lochend require to be most liberally manured. The Italian Rye-grass following last year's manured Potatos, sown in August and September, is looking splendid just now at Lochend, and dressed as it will soon be with sewage from the pumps, at the rate of a thousand tons or more to every cutting—a good deal less than is poured on naturally by the stream over the land in natural Grass which it commands—it may be worth 20*l.* an acre during the coming summer. In 1866, too, it may be worth as much, but this growth and value is wholly owing to the supply month by month of the manure, not at all to the land, which is no richer at the end of all this manuring than it was at the beginning.

So much for the Edinburgh meadows:—If the gross proceeds of the land be put down as 8000*l.*, there is probably as much as 2*s.* a head obtained from so many of the population as contribute to the result, and diluted as it is (much of it, too, being used twice), I do not suppose that more than ¾*d.* per ton is obtained from the sewage. The Edinburgh results are obtained from the use of very dilute and already putrifying sewage in large quantities over slopes of light and well-drained land. And poor though they be as compared with the results and definitions of analysis, they are the most profitable results that have yet been anywhere obtained.

4. Compare them with the results on farms near London.

(*a.*) Near Croydon Mr. Marriage deals with the sewage of 20,000 people, in a stream of 1,000,000 gallons daily, over an extent of about 250 acres. He uses the water a second or third time. His fields vary from 300 to 500 yards long. The feeders are 15 yards apart, and the "panes" or beds between them sink transversely at once from these parallel feeders across the breadth of them; and they sink, on the whole, in the length of them, about 1 in 400. There are no intervening drains, but any cubic inch of sewage *may* leave the feeder at the upper end, and, if it be not previously absorbed by the gravel subsoil, trickle over the whole length of the bed to the transverse drain across it, 400 yards off; or it *may* leave the feeder 10 yards from the end, and trickle only 10 or 15 yards to the drain close by. A very close and thick growth of Grass, with Clover appearing in the autumn, exists in the upper fields of natural pasture, which has come of itself after the Italian Rye-grass without any direct sowing of seed, after the latter had died out, as it gradually does, after the second or third year. Italian Rye-grass is sown in autumn, and keeps down two or three years, and is then broken up for Mangel-Wurzel and followed by Potatos, and then is sown down again. A cutting of 10 or 12 tons of Grass in May is followed by others of about 7, 4, and 3 or 4 respectively, so that upwards of 20 and up to 25 tons of green food are got for use. This, however, is certainly less than might be expected. Mr. Marriage declares that there is no good derived from drainage; mere surface feeding as it flows is depended on; but the gravel subsoil here does supply a natural drainage to a certain extent, and the ditches are deep enough to take advantage of it. Land in the neighbourhood, and this land before sewaging, was worth 2*l.* an acre; Mr. Marriage pays 5*l.* and seems in good spirits. I hope he is here to state his experience to-night. He gets, I believe, upwards of 20*s.* a ton for Grass in town 10 miles off, and 12*s.* to 14*s.* a ton for it on the ground, his own men mowing it and weighing it. Sewage helps the early growth amazingly. It is common to put it on twice between the cuttings, the interval being five or six weeks, and the latter of the two dressings being often among the tall Grass, when it is quite as efficient as elsewhere. It is put on for 30 hours at a time. The main facts are that the sewage all goes on filthy, and that the water leaves the farm clean and limpid; and mixing up Mr. Marriage's plans for the future with his experience in the past, we may believe that it will leave behind it on the 250 acres available for it the following produce:—150 acres of Italian Rye-grass at 20 tons = 3000 tons at 12*s.* = 1800*l.*; 50 acres of Mangel Wurzel at 20 tons = 1000 tons at 20*s.* = 1000*l.*; 50 acres of Potatos at 6 tons = 300 tons at 70*s.* = 1050*l.* In all (under rotation of three years, Italian Rye-grass, Mangel Wurzel, and Potatos) 3850*l.*, or about 15*l.* per acre. It is plain that this sum may be largely raised by an increase in the quantity of the Italian Rye-grass; and of this I cannot doubt the possibility. It is only gradually that a market has been obtained for the Grass. At first there was considerable difficulty and some hay-making. Now there is a constant demand, but only an uneven supply. The second and third cuttings last year suffered from the drought, and under a hot summer it seemed that the tendency of the Grass to throw up its seed-stem was unconquerable.

(*b*) At Cassiobury, the experience of the Earl of Essex, which is longer than that realised at Croydon, may be also named. There is here, from Watford, the sewage of 4000 people, and 200 acres of land were provided with pipage to receive it; but I understand that his lordship has learned by experience of its comparatively small value in small quantities to apply it all over only 7 or 8 acres of Italian Rye-grass during summer, cutting 30 and 40 tons per acre annually, and over 30 to 40 acres of his Park-land during winter.

(*c*) Mention must be made of the Camp Farm, at Aldershot, where 10,000 to 12,000 men use the latrines. These are flooded and flushed out at regular intervals, and the

whole of the stuff is to come through 18-inch pipes of earthenware down to Mr. Blackburn's farm. This is 160 acres of poor gravelly sandy heathery waste. The subject here is only in estimate and anticipation as yet, although Mr. Blackburn has had experience elsewhere, by which he is guided both as to plans and expectations. Some of the stuff will *flow* over part of this, and that part will always be available for the *overflow* of any remainder, left un-delivered by the pumping apparatus. Mr. Blackburn will pump by underground pipes to the centre of every 5 acres, and thence deliver through surface-pipes on wheels to the centre of every 1½ acre, and thence by hose. A man will thus deliver, it is said, 400 tons a day, and 200 tons are expected to be a dressing for an acre. Drainage is obtained naturally through a gravel subsoil, and it is intended that none of the sewage shall flow away off the surface; it shall all be used in the deepened soil, and it shall all be used on a minimum quantity of land in the first place, until that is got up to the right standard of fertility, and then the work will be extended. Italian Rye-grass will be followed every third year by Potatos. Sixty tons per acre of the Grass is the standard of produce to be aimed at, and some 20 acres only are being prepared. The plan here is to put the sewage on before it has time to rot, and to use it by hose and jet at the rate of 200 to 400 tons to a cutting. There is a quantity of water in land-springs available, and useful for irrigation; but ordinary surface irrigation is not the plan advocated by Mr. Blackburn, he holds *that* only as a second resource. It is with pipe and hose, and with an economical use of the *fresh* material, that he declares to win.

It is plain that Mr. Blackburn's plans are directly opposed to those which have been productive of the Edinburgh result, which is due to irrigation in quantity with dilute and putrid sewage, and to a feeding not of the soil but of the plant.

These, then, are the facts, wholly agricultural—for I have not referred to the chemistry of the subject at all—on which the agricultural view of London sewage depends. The waste of London differs from that of Rugby and of Edinburgh and of Croydon in quantity alone. In every case there are from 40 to 60 tons of water to the annual waste of every individual of the population. In every case, as water closets come more generally into operation, this filthy water will become more fertilising. Meanwhile, the actual agricultural experience elsewhere surely is the proper guide for estimate and foresight here. If we had 15,000 to 20,000 acres of light and sandy slopes below the present outfall of the sewers, this agricultural experience would point at once to a very easy solution of the problem. Failing these, Messrs. Napier and Hope propose to pump the whole of North London sewage (100,000,000 tons per annum) 50 or 60 feet, and let it flow along a culvert down to Foulness and the Maplin Sands, where some thousands of acres, partly perhaps by purchase and partly by embankment from the sea, can be obtained, over which it may be poured, and there produce the 40 to 50 tons of Grass per acre which are got at Craigentinny. This will be the almost immediate result, and in the meantime, year by year, on the farms along the course of the culvert, it is believed a demand for sewage will gradually arise to supplement the deficiencies of Essex agriculture. I suppose that in the immediate opportunity which is thus afforded of using all the sewage at the very outset, whether or not in an outrageously extravagant and wasteful way, as some people think (at all events very much after the way in which Craigentinny is at present managed)—combining with this the scope which is afforded for the gradual extension of a more economical and considerate use of the sewage all through the lower part of Essex, on its way to the final outfall—this scheme has the advantage of its rivals. It certainly has the sanction of the agricultural view of the subject which Rugby, Edinburgh, Croydon, and Cassiobury present; and while Aldershot, with its proposed economy of the material, is still a problem, yet, if that should succeed, it too may be copied easily and perfectly.

I propose now to devote the short remainder of this paper to a consideration of the scope which Essex agriculture along the line of the culvert together with the Maplin Sands at its termination offer for the use of London sewage.

The Maplin Sands, a considerable width of which it is proposed to embank, are a uniform slope of sheer sand, not sufficiently inclined for catch-water irrigation; but sloped probably enough for the ridge line feeders of "lands" extending seawards at right angles from the shore; which "lands" might be laid out with sides sufficiently steep and with intervening drains also having fall enough; and several series of such lands, 300 or 400 yards long apiece, all pointing seawards, might be laid out in the breadth reclaimed; the cross main-drains of the first series collecting the water used there for a second use over the third series, and the tail water of the second series being used upon the fourth, and so on. The island of Foulness, all below high-water mark, is on the side next the sands a comparatively light soil, in places shallow upon a sandy subsoil, and quite suitable for irrigation, and capable of being laid out for it without much expense.

Excepting about Rochford and the Wakerings, and again over a tract near Stanford-le-Hope, where the soil is more or less free and light over gravel, the land all along South Essex, westward from Foulness, is a stiff clay soil. Most of it is arable, a proof of dry climate. Anywhere else than Essex such land would be in pasture, and if ever the rainfall be supplemented by even so small a quantity as 12 to 20 inches of sewage, it must be pasture here. Such stiff clay would be utterly unmanageable as plough land if frequently soaked either naturally or artificially. The drainage of the country is almost wholly a surface drainage: narrow ridges, the width of harrow, drill, &c., are worked by horses walking in the furrows, and these furrows are immediately cleaned out by a plough following the sowing machine, and they are then connected by cross cut furrows cleaned out by hand where necessary. Steam cultivation has been adopted in places, and probably deep draining will succeed after it. It is Wheat and Bean land, with occasional Vetches and fallow; straw is sold into London and dung brought back at about the cost of the straw. The whole country is the London-clay and arable, growing corn and straw for sale, and buying dung. There is hardly any stock to be seen.

And on Foulness the sales of straw to the bargemen and purchases of manure from the bargemen about balance each other in the year.

It seems to me that in the barren slope of worthless sand at one end of the line, in the immense scope which exists for an extension of the milk supply, of which I hope we shall hear something more this evening, at the other end of the line, and in the existence of an extensive tract of arable land without stock, whose straw is at present sent 20, 30, and 40 miles, and manure brought back as far, we have all the elements required for the profitable conversion of 100,000,000 tons per annum of North London sewage.

At the outset probably the demand for sewage along the line must not be counted on. Then, these sands come into use. In the outset, too, we shall probably be overstocked with the produce of the Grass sown there; and hay-making may be required.

Of course it is impossible to make 30 or 40 tons of Grass per acre into hay while the sun shines upon the land which grows so much. But I think it may be possible to make it artificially. Twenty-five tons of well-grown Italian Rye-grass which may make only 12*l.* or 13*l.* as green food, will yield probably 5 tons of hay, worth more than 20*l.* In the manufacture of this quantity 20 tons of water must be driven off, and if this can be done for 6*l.* or 7*l.*, there will be a profit on the process. The Grass might pass downwards by zigzag travelling open bands or shakers, from the top of a shaft or building to which it had been lifted, and might during its passage downwards be subjected to a current of hot dry air upwards, so as to come out dry enough to stack; or it might be taken slowly along a long horizontal shaft, and subjected to the same influence, entering it green and emerging dry. There does not seem any difficulty on the face of it in thus dealing with that large surplus of green Grass, which will certainly in the first instance be on hand. And if 6 or 7 tons of hay per acre are thus obtainable, the revenue should be even larger than though a direct sale of Grass were had for all at 10*s.* a ton.

The books tell us that 6 to 10 grains of water would be taken up by every 100 cubic inches, raised from say 60° to 180° or 200°, even supposing the space, or we may say the air which occupied it, had been saturated at the lower temperature. To take up 20 tons of water in this way then, we should need a quantity of air equal to from two to three millions of cubic feet, and raise it from 60° to 180° or 200°, and keep it at that temperature while it was passing through a shaft or passage for long enough to get saturated at the higher temperature from the moisture of the green Grass as it was being brought along the passage. Can such a shaft or passage, say 4 feet deep and 10 feet wide, be kept at the temperature in question, and have air heated to that temperature driven along it at the rate of about 800 yards an hour for 24 hours, by the consumption of say 5 or 6 tons of coal? If it can, then hay can be artificially made at a profit. And although the sewaged natural Grass makes soft and worthless hay, that from Italian Rye-grass is perfectly good. The conversion of the green Grass into hay, is a change from goods for which there is insufficient market and which will spoil if not immediately used, to goods for which there is always a demand, and which can be stored. And believing, as I do, that the immediate effect of any great extension in the neighbourhood of London, of such an experience as that of Lochend or Craigentinny, or even that of Croydon (the only profitable examples by the way which we have to follow) would at once glut the market, and altogether overflow the demand for its produce, I believe that this question of artificial hay-making is of great importance.

Whatever may be the scheme adopted, there is no difficulty either on the score of engineering, or, where the abundant method of irrigation is adopted, on the score of the chemistry and composition of the material to be anticipated. Neither is there any difficulty in the agricultural aspect of it, so far as the certainty of a crop is concerned; but I believe that during the first years of our agricultural experience of it, we shall be puzzled by a plethora of produce, for which there will be an insufficient market; and it will be some time before the cow-keeping business will be transplanted from the grooves in which both food and trade have run so long, down to a new region of food, even though more cheap and plentiful; and the question of artificial haymaking will have considerable importance during the period of change.

There is, however, another opportunity of a market afforded by the circumstances of South Essex agriculture.

Almost the whole of this district is arable, growing corn and straw for London, and fertilised by London dung, often at about the cost of the straw sold. There is, you may say, no stock. It is probable that if Grass were supplied to the farmers here they would consume it in yards at home, and send milk or meat to London, making manure for themselves, rather than at great labour and expense send straw to London, and cart back the dung. And this, if it could be carried out, would be the best way of disposing of the produce of the sewaged land. The Grass would be sold, if cheap enough, more easily than the sewage; and if it can be carried for 1*d.* or 2*d.* per ton per mile, I believe it can be delivered cheap enough to tempt a trade.

Green food properly consumed is worth 6*s.* to 9*s.* a ton to feed upon the land even in ordinary agriculture; near London, with a ready and immediate disposal of milk, it is worth from 15*s.* up to 20*s.* a ton. It is hardly possible to doubt either that cowhouses on a large scale, well situated near depôts of Grass in a country where there is a great demand for dung and ample supply of straw, and where winter food may easily be grown—with ready access, too, to the London milk market—would at once be hired and worked; or that under such circumstances a considerable change in the style of agriculture of the district would gradually grow; more stock would be kept upon the farms, and the London milk trade would extend over the plough lands of South Essex.

Lastly, there is the opportunity offered to the tenants of all such lands as lie near the culvert, to use the sewage on their own lands and grow this Grass themselves. I presume it is part of any and every plan of using the 100,000,000 tons per annum of the London sewage to pump it into reservoirs on hill tops or rising grounds wherever a local demand for its use occurs. Thence it may be delivered by hydrants or in runnels over the surface of the field to be watered. I confess my strong preference of the latter to the former. There is all the difference between them that exists between labour-needing and self-acting machinery. And while the plan of course is cheaper, it may be also quite as economical in the use of the material. If I had only 10,000 tons of the stuff per annum to pour over 10 acres on a slope (and this would, I presume, be thought a reasonable allowance even by those who advocate small dressings), I should prefer pouring it all over the highest acre, letting *its* tail water reach the others in succession by ordinary surface flow, to an equable distribution over the whole from equidistant hydrants, each of which must be managed by hand, delivering no more at a time than would sink into the land and there be all used. If, however, occasional reservoirs existed whence this sewage would be available in either way in different localities, we may safely leave those who have to make a profit by its use to their own devices as to its management. Anyhow, if by the use of surface irrigation great crops are obtained, and the water at a second or third use is perfectly clarified, then it is plain that the whole *attainable* result *is* attained; and great expense in hydrants and in detailed distribution will in that case be an expenditure for no useful end.

I believe I have only one additional remark to make, and that hinges on the conclusion here asserted—that if the water leave the land perfectly clarified, the whole attainable result is attained. This will be at once disputed, and is perhaps not absolutely true. In a dry season, no doubt, water, though free from fertilising matter, is itself invaluable, and in a drought it would often pay for pumping and for distribution; but when there is a question of gradually altering the whole style of agriculture of a county, I do not believe in this extra value of the mere water by which enthusiasts, in the advocacy of particular schemes, add on so many additional thousands of pounds to their anticipated receipts.

We have in this country varieties of rainfall amounting to 3000 and 4000 tons of water per acre per annum; but the value of the land depends very little upon this; the various styles of agriculture resulting from these differing circumstances do not as a rule differ materially in the quantity of rent which is possible under each. That depends on the composition and quality of the land, on the cheapness and abundance of manure; and on the neighbourhood of good markets.

On this subject, however, I must not longer detain you, and I will conclude by naming the results to which this discussion of the subject has hitherto led.

Collecting these nearly into one, although I have not been able to overtake within the allotted time all the grounds on which an opinion must be formed, yet the conclusion to which I believe that the agriculturist is led after a study of the subject is, that Grass as the produce and ordinary irrigation as the method—both, as involving a minimum of labour—are the proper agents by which the conversion, which we all desire, of London sewage into London milk will most perfectly be obtained.

Certainly, on the clay lands of South Essex, to double or quadruple the present annual water supply by a sufficient application of this sewage would be altogether incompatible with anything but Grass. On lighter lands with natural drainage, such as ultimately on the Maplin Sands, it may be possible to use the liquid in the growth of Mangel Wurzels or Potatos, and to take under arable management one or other of these crops in triennial succession with Italian Rye-grass, but elsewhere it must be Grass, and only Grass, that is capable of sewage treatment.

Another principal conclusion is that the profitable conversion of the enormous addition to the Grass growth of South Essex, which will follow the use of London sewage, can be expected only through a great and therefore necessarily a gradual extension of the London milk trade.

According to Mr. Lawes, we can depend on a ton of Grass from every 200 tons or thereabout; and to this agrees the experience at Edinburgh. What if some 200,000,000 tons, taking both north and south London, of sewage annually be converted by-and-by into Grass, which according to the Craigentinny rule is good for hardly anything but cow food. We should have a million tons of Grass to eat—enough for 50,000 cows, in addition to the supplies already grown for the number by which London milk at present is provided.

Lastly then, as a help out of this—one of the main difficulties which threaten the immediate profitableness of any scheme for using London sewage—I hope that experiments may be instituted as to the possibility of artificial hay making.

It will have been observed that in the course of this paper I have made no reference to Mr. Moule's earth system of dealing with house waste, as well as to other schemes for dealing with it in detail. The reason is, that I am constrained by the terms in which the subject has been announced. The subject is London Sewage. And we are, therefore, shut up to the discussion of how to use 200,000,000 or 300,000,000 tons of filthy water per annum. That is the problem for consideration; and thus the discussion of methods fit for single houses or for villages is excluded.

Again, I have made no reference to the nuisance which may be expected from that agricultural use of this sewage which experience elsewhere seems to have recommended. I believe that the efficacy of the sewage as a manure will be dependent to some extent on its being already in a putrifying state; and no doubt a certain nuisance will be created. But if any alarmist here, ready charged with a denunciation of these plans on this account, be about to frighten us all with accounts either of putrid miasma and resultant fevers, or of parasitic enemies which, through rotten sewage, rank and filthy Grass, unhealthy cows, and unwholesome milk, are thus to find their home in our bodies, breeding disease and death—I hope both he and all of us may bear in mind that 400 acres of land, treated more wastefully and filthily with sewage than any London sewage scheme proposes, have been for a century and more under the very noses of the Edinburgh people, who have, moreover, been fed for generations on milk from cows fed on this sewaged Grass. If any evils of the kind alleged are in the least to be as expected, they must have declared themselves long ago in the death rate of so large a town, which however, I believe, stands as low as that of any in the country.

Lastly, it will of course be pointed out that I have named one only of the rival schemes for using London sewage. In fixing on that one of the number for any particular application of the general rules of practice to which I have been directing your attention, I have followed the example of the shrewd and intelligent representatives of London who constitute the Metropolitan Board of Works, and who cannot be supposed indifferent either to the general interest of Londoners or the special interests of the rate-payers.

Home Correspondence.

Wheat Meal versus *Linseed Cake.*—As one prompt word may be seasonable, I send you the result of my sheep-feeding experiment as obtained in the last four weeks. Linseed-cake.—Five Down Shearlings gain 39¼ lbs.; five East Down Hoggets, 42 lbs. Wheat Meal.—Five Down Shearlings, 52½ lbs.; five East Down Hoggetts, 52 lbs. All four lots are now on Swedes instead of Cabbage; the Shearlings eat 6 stone per pen per day; the Hoggets 4 stone. *P. H. Frere, Jan.* 27. [We presume this is the experiment referred to at p. 13, where the "pens" are five sheep each. They get 1 lb. of Clover chaff a day, and as much Cabbage as they will eat, and one lot gets 1 lb. of Linseed-cake apiece, and the other 1½ lbs. of corn, and ¼ lb. of Cotton-cake apiece. Each lot of five had been found to eat 6 stone of Cabbages per day when fed on Linseed-cake, and only 3 stone per day when fed on corn and Cotton-cake.]

Poisonous Properties of the Yew.—About eight months ago there was an account in the *West Surrey Times* of the death of a valuable stallion belonging to Mr. Collins, landlord of the Cricketer Inn, Ripley, from eating twigs off a Yew tree to which he was tied while the man in charge was in a neighbouring tavern. *W. R. Tate.*

Farming is a Trade, and must be so considered.—If a man enters upon any business, a certain capital should be available to enable him to carry on the undertaking; he will also require a knowledge of the occupation he intends to follow. The average cultivation of land in Ireland is below that of England, though generally speaking the soil is better and the climate milder. The Irish farmer labours under difficulties peculiar to his country, and not the least is the smallness of his holding, which cramps his energies, and prevents a plan being carried out by which the land may be profitably tilled, and provide a plentiful supply of food for man and beast, and at the same time establish a manure heap, without which it is in vain to expect average crops. Artificial manures are most valuable, but cannot be compared in stamina to a well kept "mixen." It is necessary to adopt a course system of tillage, varying over a certain number of years, in order to bring land into thorough bearing condition. To do this effectually a man must have cash at command, as the farmer has to wait for interest on his outlay longer than any other speculator. A Dr. and Cr. account cannot be made up to a day, so many things interfering with purchases and sales. After a little experience of the capabilities of the land, and the fluctuations of the neighbouring markets, seasons, &c., a shrewd guess may be made of the annual income to be expected from a farm. Profits will always depend more or less upon the demand and supply of food. Losses from carelessness, mismanagement, and extravagance, should not be considered accidental, but must be attributed to the true cause, against which common foresight might have guarded. The ignorance of the correct meaning of tenant right is another source of discontent amongst the Irish agriculturists. A prevalent idea exists that a farmer having occupied and rented a farm for some years cannot be removed by his landlord. Tenant right does not give a man any privilege of this kind, without a special agreement under a lease; but relates to improvements made on the farm by the tenant, and approved by the owner of the property, for which compensation is to be received under the usual arrangement between the parties. The whole system of letting and sub-letting land in Ireland appears faulty, and until a different plan is adopted, and farms increased in size, little permanent improvement can be anticipated. *Falcon.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

Monthly Council: *Wednesday, Feb.* 1, 1865.—Present, Sir E. C. Kerrison, Bart., M.P., President, in the chair. The Earl of Shrewsbury and Talbot, Lord Feversham, Lord Tredegar, the Hon. A. H. Vernon, Sir A. K. Macdonald, Bart.; Sir T. Western, Bart.; Mr. Acland, Mr. Barnett, Mr. Barthropp, Mr. Bowly, Mr. Burgess, Mr. Cantrell, Colonel Challoner, Mr. Clayden, Mr. Dent, M.P.; Mr. Druce, Mr. Fisher Hobbs, Mr. Holland, M.P.; Mr. Rigden, Mr. Thompson, M.P.; Mr. Torr, Mr. Wells, Mr. Frere, Prof. Simonds, and Dr. Voelcker.

The following New Members were elected:—

Adams, George, Collaton, Kingsbridge, Devon
Addison, John, 6, Delahay Street, Westminster, S.W.
Banyard, Thomas, jun., Poplar Hall, Horningsea, Cambs.
Bennett, Stephen W., Wareham, Dorset
Best, John Vincent, Priors Barton, St. Cross, Winchester
Budd, Francis, Hatch Warren, Basingstoke
Burton, John, Gresford, Wrexham
Colman, Thomas H., Rockland St. Peter, Attleborough
Easton, William, Bradford, Taunton
Frank, Frederick S., Campsall Hall, Doncaster
Gothorp, James, Mowbray Hill, Bedale
Humfrey, Heber, Kingstone Farm, Ashbury, Shrivenham
Johnson, Arthur H., Appleby, Brigg
Mitchell, Frank J., Llanfrechfa, Caerleon, Newport, Mon.
Morgan, Colonel the Hon. Frederic C., Ruperra Castle, Newport, Monmouthshire
Stilwell, Arthur F., Hillingdon, Uxbridge
Taylor, Thomas, Shipton-on-Cherwell, Oxford
Wagstaff, Thomas, Chesterton, Peterborough
Watson, R. H., Dorsely, Totnes, Devon
Wetton, Henry, Chertsey, Surrey

Finances.—Mr. Fisher Hobbs presented the Report, from which it appeared that the Secretary's receipts during the past two months had been examined by the committee and by Messrs. Quilter, Ball & Co., the Society's accountants, and were found correct. The balance in the hands of the bankers on January 31 was 1134*l.* 10*s.* 8*d.* The balance sheet for the quarter ended December 31, 1864, and the statement of subscriptions and arrears, were laid upon the table; the amount of arrears then due being 831*l.* 221 members have given notice during the past year of their withdrawal from the Society. The sum of 2000*l.* received from the local committee at Plymouth had been placed on deposit with the Society's bankers. An account exhibiting the whole of the receipts and expenses of the Newcastle Meeting to this date was laid on the table, showing a balance in favour of the Society of 1312*l.* 6*s.* 6*d.* This report was adopted.

Plymouth Meeting.—Lord Feversham, Chairman, reported the recommendation of the committee that Mr. Moon be appointed Steward of Forage, and that Mr. Bowly be appointed a Steward of Live Stock. Also that there should be duplicate metal numbers for all horses and cattle; that prize animals should be distinguished by rosettes—white for 1st prize, red for 2d prize, blue for 3d prize; and that the prize cards now in use should be issued to winners in duplicate. This report was adopted.

Education Committee.—Mr. Holland, M.P., Chairman, stated that the Committee recommended the Council to vote a sum of money to be placed at the disposal of the Committee, to be given in rewards to the successful candidates at examinations of such kind, and to be held at such times and places, as shall hereafter be determined; and that all candidates for such examinations shall receive a certificate of nomination from some member of the Society. They reported that the Rev. Professor Rawlinson, the Rev. Dr. Temple, members of Delegacy for the local examinations, Oxford; Professor Liveing, one of the Syndicate for the local examinations, Cambridge; Mr. Hepwood, M.P., one of the Senate of the University of London; Rev. J. Constable, Royal Agricultural College, Cirencester; Rev. Canon Brereton; Rev. Dr. Jacob, Dean of the College of Preceptors; Mr. Robson, B.A., Secretary of the College of Preceptors, attended the conference on the invitation of the Council in accordance with the contents of the following letter:—

"December 9, 1864.

"Sir,—I have the honour, by direction of the Council of the Royal Agricultural Society of England, to inform you that that body, having in view the 7th national object set forth in its Charter, namely, 'to take measures for the improvement of the education of those who depend upon the cultivation of the soil for their support,'—bearing also in mind the great efforts made both by individuals and by learned and scientific bodies, in order to extend and improve the existing means of education for the class of which agriculturists form an important part, is desirous to obtain further information before it decides on the measures which it may be expedient for the Royal Agricultural Society to initiate or to promote.

"The Council desire to place themselves especially in communication with those educating or examining bodies which have devoted their attention to the present state of education as regards the class in question, with a view to obtain the advantage of their experience and counsel.

"The Council have appointed a Special Committee to carry on the requisite communications, instructing them to express a hope that the Universities, the Society of Arts, and the Royal College of Preceptors will do them the favour respectively to appoint one of their Members to confer with that Committee.

The Committee propose to meet on Tuesday, the 31st January, at 12 o'clock, in the Society's house, No. 12, Hanover Square. I am directed to request the favour of an intimation whether it will be convenient for a Member of your body to be present on that occasion.

(Signed) "H. Hall Dare, Secretary."

Mr. Harry Chester, deputed by the Society of Arts, was unable to attend in consequence of illness.

It appears that all these bodies are willing to co-operate with the Royal Agricultural Society of England, and that their several examining Boards are disposed to communicate to the Council a report in detail on the attainments of the candidates included in any list forwarded by the Council.

A discussion ensued, in which Mr. Thompson, M.P.; Mr. Holland, M.P.; the President, Mr. Acland, Mr. Torr, and Mr. Clayden took part, after which the report was adopted; and it was resolved that the names of Earl Fortescue, Lord Walsingham, Mr. Dent, M.P.; Mr. Randell, and Mr. Wells be added to the list of the Committee.

Country Meeting Queries.—Mr. Fisher Hobbs reported that the Committee proposed to introduce a clause into the queries requiring the local authorities to confer with the directors of railways, and to state the terms on which stock and implements would be conveyed over the Companies' lines. The schedule of implements for trial in 1866 would comprise only those which could be tried in the Show-yard; therefore no land outside the show ground would be required. This report was adopted.

The name of Mr. Fisher Hobbs was added to the list of the Railway Communications Committee.

Mr. Torr having moved that the Implement and Stock Prizes Committees meet at the November Council, and prepare a draft of the Prize Sheets to be sent to each member of the Committee in order that the same may be reconsidered at the December Meeting, the motion was seconded by Mr. Clayden and carried.

A Select Committee, consisting of Earl Cathcart, Major-General the Hon. A. N. Hood, the Hon. A. Vernon, Mr. Fisher Hobbs, Mr. Randell, Mr. Thompson, M.P., and Mr. Torr, was appointed to take into consideration the subject of the contract entered into with the contractor for the Society's Show-yard works.

A letter from the Committee of Privy Council for Trade relative to an Agricultural Meeting at Stettin was read, enclosing a prospectus.

The Trustees of the Melbourne Public Library in the colony of Victoria, having applied for the forthcoming volumes of the Society's Journal, the same was granted.

The Council then adjourned to their Weekly Meeting on the 8th inst.

At the Weekly Council on the 18th inst., Mr. Lawes will open the discussion on "Sewage."

Reviews.

Outlines of Modern Farming. By Robert Scott Burn. Vol. V. Virtue Brothers, 1, Amen Corner, Paternoster Row.

The present volume of Mr. Burn's compilation for students of agriculture includes the subjects of Town Sewage, Irrigation, and Reclamation of Waste Land. The first of these subjects is represented by the letters, evidence, and reports of Liebig, Lawes & Gilbert, Voelcker, and Way. Mr. Alderman Mechi, Mr. Blackburn, and Messrs. Hoffmann and Franklin are also called upon for evidence, and thus most of the facts material to the understanding of the subject are presented to the reader. Mr. Scott Burn, however, has himself

visited most of the localities concerned, and gives his own notes of Croydon, Craigentinny, &c. The general subject of irrigation is discussed in the second chapter of the volume. The author has studied both this subject and the allied one of Embankments practically and in detail, both on the Continent and in England, and we have accordingly a great deal of useful information. Moreover Mr. Pusey, Mr. Keelhoff, Dr. Voelcker, Captain Baird Smith, Mr. Cuthbert Johnson, are all made to contribute of their experience and information, and the chapter on Irrigation is thus generally satisfactory. Exception must be made, however, to the botanical information; the letterpress at pages 84 and 98, giving the botanical names of various weeds and Grasses, does not seem to have been "read" before publication. We quote the following reference to the utilisation of drainage water for irrigation purposes:—

"In many districts boggy lands lie at the foot of hill ranges. Now, a double benefit might in such cases be effected—first, by draining the hill-side pastures, and then applying the waters thus obtained to irrigate the boggy lands. The quantity of water obtained will be generally of ample quantity, and draining from Grass-covered hill-sides will be of excellent quality. The probable quantity will be roughly estimated from the rainfall of the district.

"The late Lord Hatherton, in Staffordshire, showed what could be done by the drainage waters of high land. He collected it in ponds, and led it off in the first place, to work a water-wheel, affording power for the labour of his farm steading; and in the second place, after working thus, he led it off to irrigate extensive meadows. Drainage water is, in fact, peculiarly valuable for irrigating purposes, containing, as it does, so much fertilising matter. We believe that in the collecting and utilising of drainage water coming from land high enough to give a moderate fall, lies a power of the value of which farmers have generally little idea. The following note from an agricultural periodical, on uniting irrigation with drainage works, will be suggestive on this point now under consideration:—

"'There are many thousands of acres of deep-drained agricultural land in different parts of Great Britain, where the outfalls of the drains are at sufficient elevation, and in suitable places, to allow of the water drawn off being used for purposes of irrigation. Lands, to be deep-drained, may also be laid out so as to work the subsoil water of the upper portions over the surface and through the soil of lower lying districts. No available depth of drain yields pure water, and it has been long proved by analysis that water from a manured field contains soluble salts of any manures used; it must evidently be an advantage to pass such water over and through other lands. We throw out the hints for what they may be worth; we think deep draining and irrigation may work together with advantage.'"

The quotations as to the quantity of water used on the Craigentinny meadows are not perfectly accurate.

"It appears, says Mr. Cuthbert Johnson, from the report of Dr. J. Stark ('Statement on Sewer Manure,' p. 49), that the celebrated Craigentinny Meads are annually irrigated with the city sewage about 18 times. For instance: a certain plot was watered in its turn, in 1845, May 3 and 14, June 3 and 20, August 15 and 31, October 8 and 29, November 24, December 31; in 1846, January 30, February 18, March 5 and 22, April 2 and 13.

"Now, if we calculate that on an average of months 500 tons of irrigation water would suffice to saturate the soil (always partially and sometimes thoroughly previously moistened), then it would require 9400 tons of water to give these 18 irrigations to an acre of land. I deem the quantities I have stated as likely to be an average amount of sewage-fluid required for the irrigation of an acre of Grassland to be nearly correct. In the report of Mr. George Buchanan, Engineer to the Irrigated Meads of Craigentinny, to the Commissioners of Metropolitan Sewers, he states the quantity of water necessary per acre to be equal to a stream of sewer-fluid of $3\frac{3}{4}$ cubic feet per minute for 12 days of 10 hours each. Now, this I calculate to be equal to $3\frac{3}{4} \times 60 \times 10 \times 12 = 23{,}400$ cubic feet, weighing $62\frac{1}{2}$ lb. per cubic foot, or $62\frac{1}{2} \times 23{,}400 = 1{,}462{,}500$ lb., or about 650 tons. It will be remarked, however, that the sewage-fluid in this case had to sustain the soakage, leakage, and evaporation during 13 days of the month of May. This slow irrigation is far from being the most economical mode of applying the sewage—the more rapid and copious application being to be preferred, as affording little time for the soakage into the substratum and the drains."

The land is not irrigated so often as 18 times in the year, and very much more is put on at a time than is here named. If ever there are 18 applications per annum, the total quantity applied is more likely 20 or 30 thousand tons per acre, though on an average the quantity applied may not really be more than 10 to 12 thousand tons.

The third division of the volume relates to waste land reclamation, and here we have descriptions of various examples in Ireland, in Lancashire, Bagshot Heath, and on various moorlands in different counties.

Calendar of Operations.

February.—Spring Wheat, Beans, Peas, and Oats may be sown this month.

Beans are to be sown early in February. Manure either in drills or broadcast if not already done. The land is to receive either a light ploughing, if manured broadcast, or a scarifying if it has to be drilled up to receive the manure; and the seed, from 8 to 10 pecks per acre, may be placed in the ground, either on the manure in the furrows and covered by splitting the intervening drills, or by sowing in every third furrow of the plough; or by the Suffolk drill in rows 18 to 24 inches apart; or by hand, either hoed in or dibbled. Dibbling may be cheapened one-half by the use of Sigma's dibble.

Peas may be sown on the lighter soils. Use the common Suffolk drill, the coulter levers being well weighted, in order that the seed shall be deposited at a sufficient depth. Sow in rows 12 to 18 inches apart—3 bushels per acre. After sowing the water furrows are to be cleared out.

Oats may be sown in rows 9 inches apart—10 to 12 pecks per acre on ploughed Clover stubbles of the past year (which, however, in England are more generally sown with Wheat), or on land that has borne any other green crop, that was ploughed in autumn, and has been well harrowed since winter. In exposed situations the sowing of Oats should be deferred till the end of March, and in Scotland generally they recommend upwards of 4 bushels to be sown per acre broadcast.

Clover, Grass, Carrot seeds, Mangel Wurzel, and Turnip seeds of all the required kinds must now be procured. Purchase 12 lb. per acre of Clover seeds, and 1 bushel per acre of Grass seed for use with the Clover; 3 bushels per acre of Italian Rye-Grass, if for use alone; 5, 7, and 3 lb. per acre respectively of Carrot, Mangel Wurzel, and Turnip seed, for the extent of land on which you grow each.

Manures should be purchased; guano and other fertilisers for grain crops, superphosphate and other manufactured manures for green crops.

Draining, Road-Making, and other extraordinary winter works should be finished.

Grass Lands.—Trampling from stock during these wet and cold months will seriously injure the herbage, and at the same time be of little benefit to the animals; they should, therefore, be all in yards.

Live Stock.—Calves will be arriving. A separate crib in a well-ventilated house should be provided for each. Undiluted milk is the best food; but after the first three or four weeks it must be supplemented by Linseed cake and sliced Turnips to admit of a larger number being reared to each cow. Yellow or late sown white Turnips yield more milk than Swedes, and should therefore form the staple food of the cows at this time. Horses must be put on full allowance of food of all kinds, as they will soon be required to work the full period of time. The ewes being now far advanced in pregnancy, require with their hay a few Mangel Wurzels or Turnips upon their pastures. They must on no account undergo any sudden change in keeping or management, as it tends to affect their constitution, and cause danger in lambing. Lambs and fatting sheep must have their regular increase of food, their sheds littered, and their feet frequently examined. The lambing season commences as early as January in many districts, especially such as are near good markets for early lamb.

Dairy Farm.—The food of the dairy stock should be gradually improved. When a sufficient number of cows have calved commence cheese-making; cheese is more profitable than veal. As the cows calve their food is changed to the best hay, and the warmest courts are allotted to them. Butter, on most dairy farms, is still the principal manufacture.

We shall refer to the several topics more particularly during the four following weeks.

Notices to Correspondents.

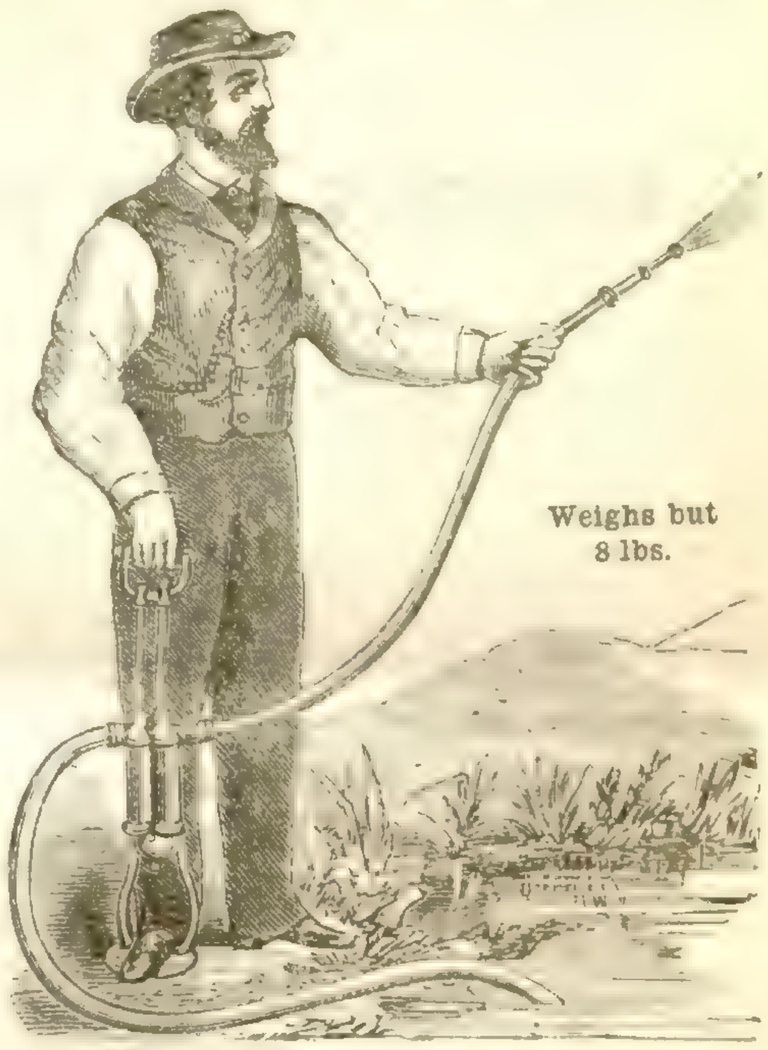
Blubber in Composts: *Scalpel.* The use of blubber in composts will be found largely recommended in old books on agriculture; but there can be little doubt that its value as a manure has been overrated. The object is to get it to rot and help rot other things in compost with itself. To this end we should make a compost of it with vegetable matters, as mould, dry peat, &c.—and turn it over frequently until it was beginning to rot, and thereafter add to the compost so much lime as would, with the quantity of the heap you intend to apply per acre, make a fair acreable dressing also of the lime. Depend upon mixture with the fibrous vegetable matter, and on repeated turnings, in fact upon the access of air, to the heap for getting it rotten. Lime is a good thing to add along with the prepared compost of this vegetable and animal matter; but it is not of much service in preparing the compost for use.

Cart Horses: *Rusticus* asks our Correspondents to inform him what they consider to be the proper allowance of food for cart horses at this season of the year. He gives his chopped Oat straw and Oats, but no hay, and should be glad to learn from others what proportions of each will keep cart-horses in fair working condition. [See page 88.]

Diseases of Wheat; *A Z.* There are three principal diseases by which the grains of Wheat are attacked:—1. Bunt, which is at once known by the grains being filled with dark powder, which has a disagreeable fishy odour. 2. Ergot, in which the grain is more or less enlarged, and the internal substance white and solid. 3. Earcockle, in which the altered grain is smaller than the sound. These grains are small, black, and rounded, consisting of a thick, hard shell, whose cavity is filled with a white powder. This powder contains no trace of fecula, but is exclusively composed of microscopic thread-shaped particles, which are in fact little dry, rigid worms. When immersed in water they are seen by their motion to be alive. Besides these the ordinary smut and mildew must of course be named.

Paring and Burning: *W G.* You shall have remarks on Oats and sorts next week. We recommend paring and burning and old peaty sward rather than attempting to reduce it simply by ploughing it under. Dressings of clay and lime and a good coat of ashes, then tillage and bonedust: these will get you a crop of Turnips.

THE HYDROPULT,



An Invention for Throwing Water by Hand Power.

(Secured by Royal Letters Patent).

PRICE LIST.

	£	s.	d.
Complete with Brass Cylinders and Japanned Stirrup	1	12	6
Complete with Brass Cylinders and Copper Stirrup	2	2	0

The Price "Complete" as above, includes 2½ feet Suction and 3 feet Delivery Hose, Galvanised Wire Strainer, Rose and Small Jet.

THE HYDROPULT
is invaluable for use in the
GARDEN for
WATERING BEDS,
SPRINKLING PLANTS,
DROWNING OUT INSECTS,
CLEANSING TREES FROM SMUTS,
DRESSING WITH LIQUID MANURE,
&c. &c.

THE HYDROPULT
is desirable in every
HOUSEHOLD for
WASHING WINDOWS,
WETTING SIDEWALKS,
SPRINKLING STREETS,
WASHING CARRIAGES,
EMPTYING CISTERNS,
FILLING BARRELS,
A SPRAY BATH,
&c. &c.

ORDERED by the WAR DEPARTMENT as FIRE ENGINES.

Robert Hogg, LL.D. and F.L.S., Rev. H. H. Dombrain, A.B., Shirley Hibberd, Esq., F.R.H.S., Thomas Rivers, Esq. (the eminent Florist), and other well-known gentlemen, recommend the Hydropult as an invaluable Garden Implement.

The Hydropult will draw water horizontally, if necessary, through Two Hundred Feet Suction Hose, and force it through Delivery Hose to an altitude of One Hundred Feet.

THE
GREENHOUSE AND CONSERVATORY HYDROPULT.
A NEW AND BEAUTIFUL IMPLEMENT,
Weighing scarcely 5 lbs.
AND SPECIALLY ADAPTED FOR USE IN THE GREENHOUSE AND CONSERVATORY.
Price 35s.,
Complete, with Brass Cylinders and Copper Stirrup, 2½ feet Suction and 3 feet Delivery Hose, Strainer, Rose, Jet, and Fan.

This NEW IMPLEMENT must necessarily supersede Syringes and other devices of the kind, for it will be found much more effective in its operation.

A LADY CAN WORK IT FOR HOURS WITHOUT FATIGUE.

CAUTION.

Important to the Public.—The extensive sale of the Hydropult has excited the cupidity of so-called respectable, but in reality unprincipled Manufacturers, who are now palming on the Public worthless imitations of the Hydropult, and through their connections are enabled to place said devices on exhibition, and for sale, in many of the principal Ironmongery and Seed Establishments throughout the city and provinces. These devices resemble in many respects the Hydropult in appearance, and are calculated to deceive the unsuspecting. The Proprietor therefore issues this Caution, and respectfully intimates that parties wishing to purchase the Hydropult should examine the machine offered for sale, and see if it has attached thereto a label, with the following words:—"The Hydropult, Vose's Patent, manufactured only by Griffiths & Browitt, Birmingham. Charles Pomeroy Button, Proprietor, 142 and 143, Cheapside, London." Unless this label is attached, the Machine is not the Hydropult.

Prospectuses, with Testimonials, on application.

HYDROPULT SHOW ROOM, 142 & 143, CHEAPSIDE, LONDON.
CHARLES POMEROY BUTTON, Proprietor.

GREEN'S PATENT SILENS MESSOR,

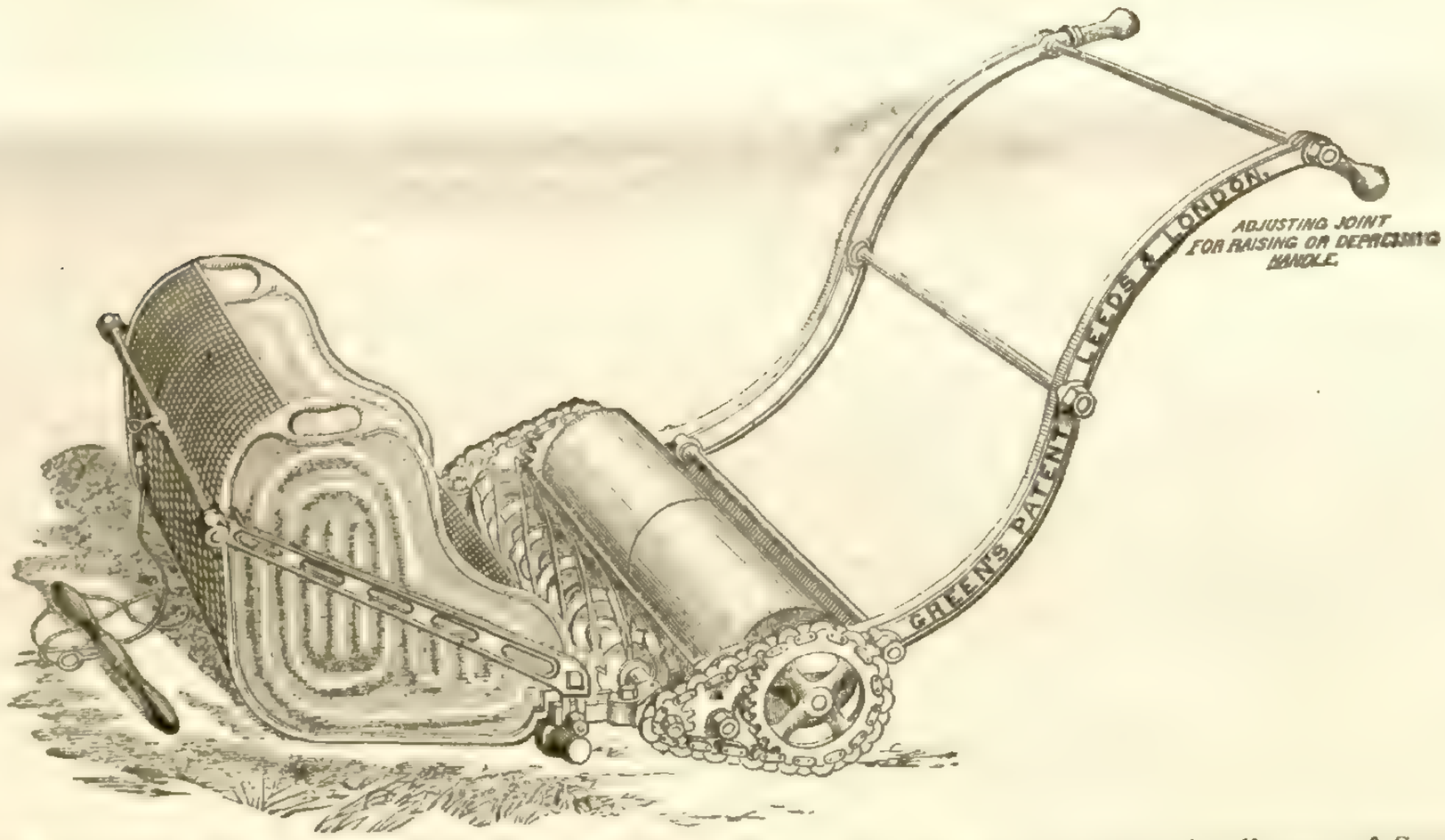
OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

BY SPECIAL APPOINTMENT,
SOLE MANUFACTURER

TO HER MOST GRACIOUS MAJESTY
THE QUEEN.

THE
FIRST PRIZE MEDAL
OF THE
INTERNATIONAL
EXHIBITION,
1862,
WAS AWARDED TO
THOMAS GREEN,
FOR HIS
PATENT
LAWN MOWERS.



FOREIGN MEDAL
AWARDED TO
GREEN'S PATENT
LAWN MOWERS:
LIEGE, 1861.
BRUSSELS, 1861 & 1863.
NAMUR, 1862.
GAND, 1862.
LINNEENNE, 1861,
1862, & 1863.
LAEKEN, 1862.

GREEN'S PATENT LAWN MOWERS have proved to be the best and carried off every Prize that has been given in all cases of Competition. The Judges at the Royal Horticultural Society's Show, held July 20, 1864, awarded them a First-class Certificate (No Prizes were given), and at the same time suggested a slight alteration, which has been done. Messrs. T. GREEN & SON consider their MACHINES now as near perfection as possible, and in consequence have continued making them as usual, they will have nearly 3000 ready for delivery at the commencement of the season, and they hope with their present facilities to be able to execute all orders on the day they are received.

Both the HORSE, PONY, DONKEY, and HAND MACHINES possess over all other Makers the advantage of Self-sharpening; the Cutters being steel on each side, when they become dull or blunt by running one way round the cylinder, can be reversed, again and again bringing the opposite edge of the cutters against the bottom blade, when the Machine will cut equal to new. Arrangements are made so that the cylinder can be reversed by any inexperienced person in two or three minutes.

Illustrated Price Lists Free on application.

GREEN'S IMPROVED NEW PATENT ROLLER,

FOR

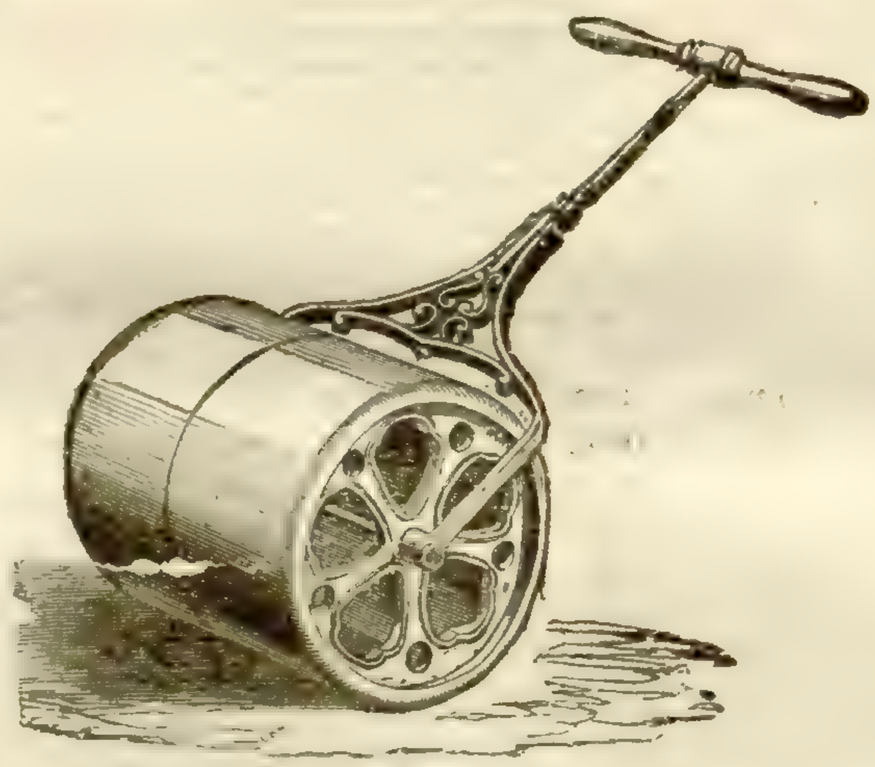
LAWNS, DRIVES, BOWLING GREENS, CRICKET FIELDS, and GRAVEL PATHS,

SUITABLE FOR HAND OR HORSE POWER.

PRICES OF
HAND ROLLERS.

Diameter	30	inches;	length	32	inches	£7	10	0
,,	24	,,	,,	26	,,	4	10	0
,,	20	,,	,,	22	,,	3	10	0
,,	17	,,	,,	16	,,	2	15	0

Delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.



PRICES OF
ROLLERS FITTED with SHAFTS,
SUITABLE FOR PONY OR HORSE-POWER.

Diameter	30	inches;	length	32	inches	£10	0	0
,,	30	,,	,,	36	,,	10	15	0
,,	30	,,	,,	42	,,	11	15	0
,,	30	,,	,,	48	,,	13	10	0
,,	30	,,	,,	60	,,	15	10	0
,,	30	,,	,,	72	,,	17	10	0
,,	30	,,	,,	84	,,	19	10	0

Delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.

The above ROLLERS possess many advantages over all others; they are made in two parts, and are free to revolve on the axis, affording greater facility for turning, and the outer edges are rounded off, or turned inwards, thus avoiding the unsightly marks left by other Rollers. They are manufactured of the best materials, and are got up in a manner surpassing any ever yet brought out.

THOMAS GREEN AND SON,
SMITHFIELD IRON WORKS, LEEDS; 2, FARRINGDON ROAD, HOLBORN HILL, LONDON, E.C.;
19, EDEN QUAY, DUBLIN; HADWIN'S BUILDINGS, TITHEBARN STREET, LIVERPOOL.

TO MARKET GARDENERS and OTHERS.—The best Four Sorts of PEAS in cultivation are:—

VEITCH'S PERFECTION	ADVANCER
KING of the MARROWS	PRINCESS ROYAL

Purchasers of large quantities will be liberally treated on application, stating quantity required, to

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Waite's Caractacus Pea.

WAITE, BURNELL, AND CO. beg to inform the Trade that they cannot send out any more of the above this season, but hope next year to be provided with sufficient stock to meet the demand anticipated.

Seed Warehouse: 181, High Holborn, London, W.C.

Garden Peas.

CHARLES SHARPE AND CO., Sleaford, have fine Stocks of the following, viz.:—

DANIEL O'ROURKE	SCIMITAR
PRIZETAKER	DICKSON'S FAVOURITE
WOODFORD'S MARROW	DILLISTONE'S FIRST EARLY
BEDMAN'S IMPERIAL	

Samples and Prices on application.

THE ESSEX RIVAL PEA.—The finest, most productive, and best flavoured Early Pea in cultivation. See large Advertisement of Testimonials, December 31, 1864: also see Advertisement and Testimonials of January 7 and 28, 1865, in *Gardeners' Chronicle*. Price 2*s*. 6*d*. per quart.

The Trade liberally dealt with. Terms on application.

To be obtained of—

Messrs. Peter Lawson & Son, 28, King Street, Cheapside, London.
Mr. James Veitch, Royal Exotic Nursery, King's Road, Chelsea.
Messrs. Cooper & Bolton, 152, Fleet Street, London.
Messrs. Fraser, Richardson, & Goad, 82, Bishopsgate Within, London.
Messrs. Nutting & Sons, 60, Barbican, London.
Mr. G. W. Dixon, 48*a*, Moorgate Street, London.
Messrs. Sutton & Sons, Reading, Berkshire.
Messrs. Saltmarsh & Son, Moulsham Nursery, Chelmsford, Essex.
Messrs. Roberts & Son, Denbigh.
Messrs. Lowe & Co., High Green, Wolverhampton.
Mr. Robert Emson, Secretary to the Essex Agricultural Association.
Mr. B. Mackenzie, Ventnor, Isle of Wight.
Mr. B. R. Cant, St. John's Street, Colchester.
Mr. George Taber, Rivenhall, near Witham, Essex.
Mr. J. F. Chater, Braintree, Essex.
M. Paul Tollard, 4, Place des Trois Maries, Paris, France.
Mr. THOMAS ELEY, Sible Hedingham, Halstead, Proprietor.

THE EARLIEST PEA KNOWN is CARPENTER'S EXPRESS, gathered May 7. See Testimonials. Price 3*s*. 6*d* per quart. Trade price upon application. A remittance from unknown correspondents is requested.

To be had also of the following Nurserymen:—

Mr. James Veitch	Royal Exotic Nursery, Chelsea
Mr. W. Barnes	Camberwell
Mr. W. Paul	Waltham Cross, N.
Messrs. Carter & Co.	High Holborn
Messrs. Downie, Laird, & Laing	Sydenham
Messrs. Bunyard & Son	Maidstone
Messrs. Osborn & Son	Fulham
Messrs Stuart & Mein	Kelso.
Mr. Scott	Chichester
Mr C Turner	Slough
Mr. C. Sweet	Taunton
Mr. Cattell	Westerham
Mr. Christmas Quincey	Peterborough
Mr Edwards	222, Strand
Messrs. Beck, Henderson, & Child	Upper Thames Street
Mr. G. Davison	Hereford
Mr. W. Masters	Canterbury
Messrs. Wrench & Sons	London Bridge
Messrs. Paul & Son	Cheshunt

EDWARD CARPENTER, Seed Merchant and Grower, Brighton and Sussex Seed Warehouse, 96, St. James's Street, Brighton.

STEPHEN BROWN'S SEED CATALOGUE for 1865 (Cultural and Descriptive) sent free by post.

Among the many novelties in Flower Seeds, he has the pleasure of introducing the INVINCIBLE SCARLET SWEET PEA, the stock of which is entirely in his possession. Colour most intense scarlet, and a real gem. This will be found one of the finest annuals which has been of late years introduced. (See Catalogue.)

Also, among several choice New Vegetables, is included the LONGSTANDER LETTUCE, a crisp and excellent summer Cabbage Lettuce, which continues in use four weeks longer than any other of the longest standing sorts. (See Catalogue.)

The Catalogue includes the finest of the new sorts of Vegetables, and a large number of splendid novelties in Flower Seeds.

STEPHEN BROWN, Seed Grower and Nurseryman, Sudbury, Suffolk.

A FEW REALLY GOOD THINGS.

DIXON'S BEST EARLY PEA, 3*s*. 6*d*. per quart.
DIXON'S YORKSHIRE HERO, 5*s*. per quart.
DIXON'S CHAMPION GREEN COS LETTUCE, 6*d*. & 1*s*. per pckt.
DIXON'S SELECT DARK CRIMSON BEET, 1*s*. per oz
DIXON'S NEW MAMMOTH WHITE CELERY, 1*s*. per packet.
MELVILLE'S VARIEGATED KALE, 6*d*. per packet.
BROWN'S INCOMPARABLE BROCCOLI, 2*s*. 6*d*. per packet.
The LENORMAND CAULIFLOWER, 1*s*. per packet.
The FROGMORE EARLY FORCING CAULIFLOWER, 1*s*. per pkt.
DALGLISH'S PRIZE CUCUMBER, 2*s*. 6*d*. per packet.
The YORKSHIRE HERO CUCUMBER, 2*s*. per packet.
DIXON'S YORKSHIRE FAVOURITE MELON, 1*s*. per packet.
DIXON'S EXQUISITE CURLED PARSLEY, 6*d*. per oz.

EDMUND PHILIP DIXON & SON, The Yorkshire Seed Establishment, Hull.

CHOICE SEEDS.

PEA, DILLISTONE'S EARLY PROLIFIC, the earliest kind known, 1*s*. per quart
" ADVANCER (McLEAN'S), 1*s*. 6*d*. per quart
" PRINCESS ROYAL (McLEAN'S), 1*s*. 6*d*. per quart
" YORKSHIRE HERO (DIXON'S), 5*s*. per quart
" PAYNE'S CONQUEROR, 1*s*. per quart
BEET, NUTTING'S SUPERB RED, 8*d*. per oz.
" PINE-APPLE SHORT TOP, 8*d*. per oz.
BROCCOLI, SNOW'S WINTER WHITE, True, 1*s*. per packet.
" WHITE CORNISH, 6*d*. per packet
" DALMENY, 1*s*. per packet
CABBAGE, LITTLE PIXIE, 6*d*. per packet
" KEMP'S INCOMPARABLE, 6*d*. per packet
" McEWEN'S MARROW, 6*d*. per packet
CAULIFLOWER, FROGMORE PROTECTING, 1*s*. per packet
" EARLY DWARF ERFURT, 1*s*. per packet
CELERY, WHITE QUEEN, 1*s*. per packet.
" MANCHESTER CHAMPION RED, 6*d*. per packet.
" IVERY'S NONSUCH, 6*d*. per packet.
CUCUMBER, SMITH'S FINE LONG FRAME, 1*s*. per packet.
" PEARSON'S LONG GUN, 1*s*. per packet.
" HARWOOD'S WHITE SPINE, 1*s*. per packet
LETTUCE, TOM THUMB (WHEELER'S), 1*s*. per packet
" IVERY'S NONSUCH, 1*s*. per packet
" PARIS WHITE COS, 6*d*. per packet
" NEAPOLITAN, 6*d*. per packet
MELON, EMPRESS EUGENIE, 1*s*. per packet
PARSNIP, THE STUDENT, 6*d*. per packet
TURNIP, CHIRK CASTLE BLACK STONE, 4*d*. per oz.
" AMERICAN STRAP-LEAVED, 4*d*. per oz.
POTATO, RIVERS' ROYAL ASHLEAF, per peck, 3*s*.
ASTER, TRUFFAUT'S SUPERB FRENCH, 18 varieties, mixed, 1*s*. per packet
STOCK, improved large flowering, 18 varieties, mixed, 1*s*. per packet

Orders of 21*s*. and upwards carriage free. Those kinds priced per packet free by post.

DESCRIPTIVE PRICED LIST on application.

RICHARD SMITH, Seed Merchant, Worcester.

100 000 1-year ASPARAGUS, 1*s*. 6*d*. per 100; 12*s*. 6*d*. per 1000.
50,000 1-year SEAKAIL, 2*s*. 6*d*. per 100; 22*s*. 6*d*. per 1000.
TRITOMA UVARIA, true, 6*s*. per dozen.
Trade Price on application.
CARSTAIRS & SONS, Warriston Nurseries, Edinburgh.

Cucumber Seed.

CUTHILL'S EARLY HARDY PRINCE ALBERT, the most profitable grown. It is always there when wanted. 1*s*. per packet, or Trade by oz.

CUTHILL'S PAMPHLETS always on Sale.

JAMES CUTHILL, Camberwell, London, S.

The Best Cucumber in Cultivation—Myton Hall.

F. G. GODWIN has pleasure in introducing to the notice of Cucumber Growers the above-named splendid variety; shape perfect, well shouldered, and running evenly from close to the stem to the nose; length 25 to 30 inches, frequently longer; smooth, dark green colour, black spine, fine flavoured, and remarkably productive; one of the best, if not the very best variety, either for Family Use or the Exhibition Table. In Packets, 2*s*. 6*d*. each.

For other choice CUCUMBERS, VEGETABLES, &c., see F. G. G.'s DESCRIPTIVE PRICED CATALOGUE of KITCHEN GARDEN SEEDS.

DESCRIPTIVE CATALOGUE of FLOWER SEEDS will be ready in a few days.

3 and 4, Norfolk Market Hall, Sheffield.

SUTTON'S BERKSHIRE CHAMPION CUCUMBER.

This splendid variety, the best of the Grey-spine class, was sent out by us some years since, and has held to the present time its reputation; of fine form, free bearer, and great size. It has during the past season obtained for our customers several Prizes, and we have every confidence in recommending it to the Public.

Price 1*s*. 6*d*. per packet (post free).

The undermentioned Seedsmen have ordered a supply of each sort:—

Messrs. BECK, HENDERSON, & CHILD 221, Upper Thames Street, E.C.
" COOPER & BOLTON .. .. 152, Fleet Street, London, E.C.
" HURST & SON .. .. 6, Leadenhall Street, London, E.C.
" NUTTING & SON .. .. 60, Barbican, London, E.C.
Mr. CHARLES TURNER .. .. Royal Nursery, Slough.

The following very excellent Old Sorts can be supplied at 1*s*. per packet (post free):—

IMPROVED SYON HOUSE.	LORD KENYON'S FAVORITE
LANCASHIRE WITCH.	MILL'S JEWESS.
VICTORY of BATH.	LYNCH'S STAR of the WEST

Address:
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

THE NEW PARSNIP "STUDENT."—SEED of this improved PARSNIP, "ennobled" by Professor BUCKMAN, late of the Royal Agricultural College, Cirencester, is now ready for delivery by Messrs. SUTTON & SONS, post free, 8*d*. per oz.; also Wholesale to the Trade. It can also be obtained from any of the leading Seedsmen.

Royal Berks Seed Establishment, Reading.

Sutton's Grass Seeds for all Soils.

MESSRS. SUTTON'S GRASS SEEDS being mixed expressly to suit the Soils for which they are required, persons ordering have only to state the nature of the soil and acreage to be laid down, when suitable Seeds will be supplied.

SUTTON & SONS have one of the largest Stocks in Europe of the PERMANENT NATURAL GRASS and CLOVER SEEDS, which they mix expressly to suit the soil for which they are required.

The following letter has been received, besides many others:—

From Professor LINDLEY, *Royal Horticultural Society, London.*

"We have already made trial of your Grass Seeds, and it is only justice to say that they have proved the best we have sown for many years."

PRESENT PRICES ARE:—

Best quality MIXTURES for LAYING DOWN to PERMANENT PASTURE, 30*s*. per acre.
Cheaper MIXTURES, omitting certain sorts, 24*s*. to 26*s*. per acre.
Best quality ditto, for Three or Four Years' Lay, 22*s*. 6*d*. per acre.
Ditto ditto, for One or Two Years' Lay, 14*s*. to 18*s*. 6*d*. per acre
CLOVERS and fine GRASSES for RENOVATING OLD PASTURES, 6*s*. to 9*s*. per acre.
Finest LAWN GRASS SEEDS, 18*s*. per bushel.
PARK LAWN GRASS SEEDS, 16*s*. per bushel.

A Copy of Mr. MARTIN SUTTON'S "Essay on Pastures" is sent with each lot of Grass Seeds.

Seeds sent carriage free to all parts of the kingdom. Export orders delivered free to the Ship's side in any English Port.

PRICED LISTS of GARDEN and FARM SEEDS gratis and post free.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

NATURAL GRASSES: their Names and Derivations; Quality, Produce, Elevation, Situation, Soil, Use, Peculiarity, Season, Growth, Increase, Time of Flowering, Price, &c. Free for One Postage Stamp.

RICHARD SMITH, Seed Merchant, Worcester.

TRADE

HALLETT'S [PEDIGREE] NURSERY WHEAT.
MARK.

PURE SEED OATS.

46*s*. a Quarter (with Sacks) for not less than Two Quarters.

Papers sent upon application, enclosing Stamp, to FREDERIC F. HALLETT, Esq., F.L.S., the Manor House, Brighton, Sussex.

REIGATE SILVER SAND (best quality for Plants, &c.), 7*s*. 6*d*. per Ton, 28*s*. per 4 Tons, 39*s*. per 6 Tons, 48*s*. per 8 Tons, 5*s*. per Ton for 20 Tons and upwards, delivered to the Reigate Station. Best Kent and Surrey PEATS, LOAMS, ROCK SANDSTONE, &c.

N.B. Loaded trucks can be sent direct on all the Railways.

London-made FLOWER POTS, in every size, at the lowest cash prices. W. SHORT, Sand and Peat Depôt, Reigate, Surrey.

OSBORN'S WHITE WINTER BROCCOLI.

Price 2*s*. 6*d*. per packet

Special offer to the Trade on application.

A PRICED LIST of select GARDEN SEEDS is now ready, and may be had free on application.

OSBORN & SONS, The Nursery, Fulham, London, S.W.

COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 2*s*. per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

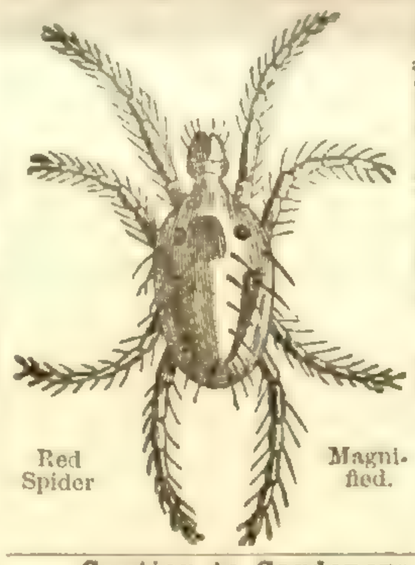
BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped, J. BARSHAM'S Patent.

ROLL TOBACCO CLOTH. The cheapest and best article for Smoking Greenhouses and Destroying the Fly. Price 1*s*. 4*d*. per lb.; over 10 lbs 1*s*. 1*d*.

Post-office Orders payable at Fleet Street.

JOSEPH BAKER, 10, Gough Square, Fleet Street, E.C.



Red Spider — Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 18 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

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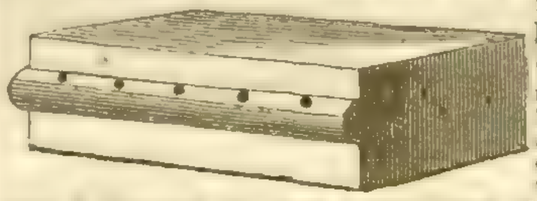

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H. LANE AND SON have still to offer a large Collection of all the most popular sorts of STANDARD and DWARF ROSES, which can be confidently recommended, being particularly strong, healthy, and well grown, and supplied from at least 7 Acres. The finest stock ever seen in one Nursery.
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Fine STANDARD ROSES, £5 per 100, or 15s. per dozen.
DWARFS, very fine, on the Manetti Stock, 60s. per 100, or 9s. per dozen, of all the best varieties in cultivation. Prices to the Trade on application. DESCRIPTIVE CATALOGUES gratis.
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Price, good Dwarf Plants, 3s. 6d. each.
The usual discount to the Trade.
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Finest named STANDARD ROSES, 12s. per doz.
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Best sorts, STANDARD APPLES, 12s. per doz.
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RED GRAPE CURRANTS, 2s. 6d. per doz.; 15s. per 100.
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WELLINGTONIA GIGANTEA, 2 feet, bushy, 2s. 6d. each.
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AMERICAN ARBOR VITÆ, transplanted, 2 feet, 4s. per doz.
LARCH, fine, 2 to 3 feet, 20s. per 1000.
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PORTUGAL LAUREL, thrice transplanted, 1½ feet, 20s. per 100.
All the above, with the exception of Larch, delivered carriage free when amounting to £3 and upwards.
The above can be obtained from HENRY MAY, The Hope Nurseries, Bedale, Yorkshire. CATALOGUES free on application.

CHARLES VERDIER FILS (Ex-Partner in and Successor to, the late firm of Victor Verdier Pere & Charles Verdier Fils), Nurseryman, 32, Rue du Marché aux Chevaux, Paris, has just published his new CATALOGUE for the present season (containing all the novelties in ROSES and GLADIOLI), which may be obtained either direct from him or of his Agents, Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London, E.C.

Shrubs, Roses, Fruit Trees, &c.

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GLADIOLI, fine, from 4s., 6s., 9s., & 12s. per dozen.
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GEO. BAKER AND SON beg to announce they have an extensive collection of the best hardy RHODODENDRONS in cultivation, fine healthy plants, at very moderate charges. Also a large collection of general NURSERY STOCK. Prices on application.
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AS EXHIBITED IN THE ROYAL HORTICULTURAL GARDENS, KENSINGTON.
WATERER AND GODFREY'S PRICED and DESCRIPTIVE CATALOGUE of RHODODENDRONS and other AMERICAN PLANTS will be forwarded on application. The Catalogue also gives a General Summary of their Stock, which contains probably the most extensive choice of all the Hardy and finest Evergreens and Conifers.
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PRIMULA SINENSIS FIMBRIATA, Crimson and Pure White, without exception the finest in the kingdom. 1s., 2s. 6d., and 5s. per packet, post free. Sent out by
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GEO. CLARKE is now prepared to send out in packets, price 2s. 6d. each, this, the finest breed of PRIMULAS in cultivation. The Seed now for sale has been saved from selected plants, so that it is believed the produce will be even superior to that of former years.
Printed instructions for raising and growing the plants sent with each packet. Stamps received in payment.
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TWO NEW FIMBRIATED PRIMULAS.
Seed Packets, 2s. 6d. and 5s. each.
PRIMULA CARMINATA SPLENDENS, a beautiful new coloured one.
P. FILICIFOLIA (Fern-leaved).
See other Advertisements of the older kinds of fimbriated Primulas.
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ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
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EARLY SPRING FLOWERS, largest Stock in England and greatest variety.—Wood's Giant Polyanthus and Giant Cowslip, Cowslip from the Highlands, Golden Chain Polyanthus, Florist Flower Polyanthus, Alpine Primrose, Scarlet Primrose, Gentianella, Double Crimson Primrose, ditto Yellow ditto, ditto Purple ditto, ditto Rose ditto, ditto White ditto ditto Lilac ditto, Double Pansy, ditto Negro Polyanthus, ditto Golden Chain ditto, ditto Pink Hepatica, Single Blue ditto, ditto White Violets, ditto Purple ditto. Seed of the above Polyanthus and Cowslip. LIST on application to Mr. WEBB, Calcot Gardens, Reading.

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SUTTON'S GUINEA COLLECTION of KITCHEN GARDEN SEEDS for ONE YEAR'S SUPPLY, Carriage Free.
SUTTON & SONS, Seed Growers, Reading, confidently recommend the above as Genuine New Seeds of the best sorts in cultivation, properly apportioned, and labelled with instructions for Sowing, &c., so as to ensure a good succession throughout the year.
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SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Genuine Garden and Agricultural Seeds.

CARRIAGE FREE.
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J. SCOTT is now prepared to execute orders for all kinds of GARDEN, FLOWER, and AGRICULTURAL SEEDS. Prices very moderate, and quality excellent.
The PRICED LIST and DESCRIPTIVE CATALOGUE sent post free on application for three stamps, or gratis to purchasers.
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DOWNIE, LAIRD, AND LAING beg respectfully to intimate that their NEW CATALOGUES of Florist Flowers and New Plants, Garden, Flower, and Agricultural Seeds, and French Hybrid Gladioli, are now ready, and may be had free on application.
17, South Frederick Street, Edinburgh; and Stanstead Park, Forest Hill, London, S.E.

First-class Seeds, Carriage Free.

WM. PAUL (Son and Successor to the late A. PAUL) begs to announce that his NEW PRICED CATALOGUE of SEEDS is now ready, and may be had on application, post free.
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100 in 50 fine named varieties for 25s.
12 fine Standard } ROSES, } 21s.
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Carriage of Parcels of 20s. and upwards paid to London.
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A CHOICE and EXTENSIVE COLLECTION of STOVE and GREENHOUSE PLANTS always on view. Also FRUIT TREES, SHRUBS, and ORNAMENTAL TREES, from the Country Branches of the Firm.
The SEED and GENERAL NURSERY BUSINESS is carried on here, and Packages are delivered free at the various London Railway Stations.

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EALING NURSERY, G. CANNON, Manager.
Ten minutes' walk from the Ealing Station on the Great Western Railway Main Line.
FRUIT TREES, ROSES, and SHRUBS, are here extensively and successfully cultivated in some of the finest Loam in the County.
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Ten minutes' walk from Feltham Station.
EVERGREEN and DECIDUOUS SHRUBS, and CONIFERÆ, are here largely grown in a free Loam, well suited to their habits.
At SION LANE and WOOD LANE NURSERIES, ISLEWORTH. ORNAMENTAL TREES are in a healthy and thriving state, and GENERAL HARDY PROPAGATION is here carried on.
The Stock in the above Nurseries is well worth the inspection of purchasers. The prices are very moderate, and the Plants are frequently transplanted to ENSURE SAFE removal.
The following CATALOGUES are published, and will be forwarded Post Free on application:—
CATALOGUE of KITCHEN GARDEN, FLOWER, and AGRICULTURAL SEEDS.
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Magnificent well ripened Vines from Eyes,

AT LOW PRICES.
GEO. CLARKE has a large Stock of very superior short-jointed VINES in pots, consisting of the leading kinds, well adapted for fruiting in pots this year, or for planting out to make permanent Vineries. Names and prices furnished on application. Nursery, Streatham Place, Brixton Hill, S.

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The following Certificates and Prizes have been awarded at various London and other Exhibitions.
Two Certificates of Merit.
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Two First Prizes in open competition for the finest flavoured Grape of any colour. Chasselas Musqué, Muscat of Alexandria, and Frankenthal competed for these prizes. For further description see Hogg's *Gardeners' Year Book for* 1865, page 32, and *Gardeners' Chronicle* of October 1st and 22d, 1864, pages 943 and 1008.
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Vines, Vines. Strong Fruiting Vines.

LUCOMBE, PINCE, AND CO. offer the above for Sale, with extra large well ripened Canes, and prominent Fruit-bearing eyes, in good sized pots, certain to bear a good crop of fruit this season, at 10s. 6d. each.
They also have a very large stock of VINES, fit for immediate planting out in Vineries, of a superior quality. In Pots from 3s. 6d., 5s., to 7s. 6d. each.
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STANDARD APPLES for Orchard Planting, strong choice named sorts.—SPRUCE FIRS, 3 to 4 feet, strong and handsome; AUSTRIAN PINES, 4 to 6 feet, ditto, ditto; and all kinds of FRUIT TREES, EVERGREENS, and ROSES, all recently transplanted, at
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Prices upon application.

1000 Magnificent DWARF and STANDARD-TRAINED PEACHES, NECTARINES, and APRICOTS, in about 30 of the best sorts in cultivation; also, a Large Collection of PYRAMID and BUSH FRUIT TREES, suitable for Gardens of all sizes, by the dozen, hundred, or thousand.
STANDARD and DWARF ROSES, large collection, cheap.
DESCRIPTIVE PRICED CATALOGUES, gratis and post free, on application to
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The Castle Kennedy Fig.

PETER LAWSON AND SON have made arrangements to send out the above next Autumn. They are now booking Orders, which will be executed in strict rotation as received. Plants, 10s. 6d. each; a few extra strong at 21s. each—with the usual Discount to the Trade.
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J. SLATER AND SONS have great pleasure in offering the above MELON as being of a very superior quality, a very free setter, and an abundant bearer—each fruit weighing from 3 to 3½ lbs. Slightly netted; shape oval; flesh, pale green; thick and juicy. Price 2s. per packet, post free.
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WEBB'S PRIZE COB FILBERTS, and other varieties of FILBERTS and NUTS, as shown in the GREAT EXHIBITION of 1862, and for which a CERTIFICATE of Honourable Mention was given. Trees of the above can be had on application to
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To the Trade.

DWARF-TRAINED CHERRIES (very fine) of the following kinds, MAY DUKE, BLACK EAGLE, DOWNTON, ELTON, BLACK HEART, OX HEART, BEDFORDSHIRE PROLIFIC, WATERLOO, and WHITE HEART. Also horizontal-trained MAY DUKE and MORELLO. Prices very moderate, to be had on application.
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Dwarf-trained Trees.

BY THE THOUSAND, HUNDRED, OR DOZEN.
APPLES, PEARS, PLUMS, CHERRIES, PEACHES, and NECTARINES.
Fine, flat, well trained, of best quality and true to name.
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Fruit Catalogue and Directory, 92 pages, price 1s.

J. SCOTT, Merriott, Somerset, has just published a new and enlarged Edition, with full descriptions of nearly 1000 sorts of Fruits, with instructions on Planting, Training, Root Pruning, Cordon Training, and various other modes. The Formation of Miniature Orchards, of Pyramids, and a host of other useful matter on Fruit Tree Culture.
Also, his DESCRIPTIVE CATALOGUE, 72 pages, of Coniferous Plants, and other Ornamental Trees, Evergreens, Roses, Greenhouse, Hardy, Winter and Spring Bedding Plants, &c. With Notes and Observations. Two stamps.

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HARDY FLOWER SEEDS, of Showy Colours only, sent free by post or rail, by
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A COLLECTION of the best 50 sorts known	10s.	6d.
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SUTTON'S CATALOGUE of SEEDS will be sent post free.
SUTTON & SONS, Seed Growers, Reading, Berks.

Carnations, Picotees, Pinks, and Pansies.

JOHN HOLLAND, having for upwards of 25 years paid special attention to the cultivation of the above, is now offering Plants, which are extra strong and true to name, at the following prices:—
CARNATIONS, fine first-class varieties, 9s. to 18s. per dozen pairs.
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YELLOW GROUND PICOTEES, the largest collection in Europe, 9s. to 18s. per dozen pairs.
BORDER CARNATIONS and PICOTEES, 6s. per dozen pairs.
PINKS, the leading varieties, 6s. per dozen pairs.
PANSIES, the finest collection of good varieties, 4s. to 6s. per dozen plants.
Bradshaw Gardens, Chadderton, near Manchester.

THE LONDON SEED COMPANY, LIMITED.

THE LONDON SEED COMPANY, LIMITED,
Offices: 68, Welbeck Street, Cavendish Square, W.

THE LONDON SEED COMPANY, LIMITED.
The GENERAL PRICE CURRENT of KITCHEN GARDEN, FLOWER, and FARM SEEDS is now ready, and will be forwarded gratis and post free to any address in the United Kingdom.

THE LONDON SEED COMPANY, LIMITED,
can now supply KITCHEN GARDEN SEEDS of all descriptions.

THE LONDON SEED COMPANY, LIMITED,
can now supply FLOWER SEEDS of all descriptions.

THE LONDON SEED COMPANY, LIMITED,
can now supply FARM SEEDS of all descriptions.

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Paradise and Victoria Nurseries, Holloway, London, N.

Royal Horticultural Society.

PRIZES AWARDED TO
MESSRS. SUTTON AND SONS at the GREAT INTERNATIONAL SHOW in December last.

FIRST-CLASS CERTIFICATE	for	YELLOW GLOBE MANGEL
"	"	for LONG YELLOW MANGEL
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SECOND-CLASS	"	for LONG RED MANGEL
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Seeds, growth of 1864.

JOHN AND CHARLES LEE, SEEDSMEN to the QUEEN, beg respectfully to submit their NEW CATALOGUE for 1865 of KITCHEN GARDEN, FLOWER, and AGRICULTURAL SEEDS, containing Selections from the best Stocks at Home and Abroad, post free on application.
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Orders amounting to 21s. and upwards sent Carriage Free.

COMPLETE COLLECTIONS for ONE YEAR'S SUPPLY.

No. 1.	No. 2.	No. 3.	No. 4.	No. 5.
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BUTLER AND McCULLOCH'S NOVELTIES for 1865.

	Per packet—s.	d.
BUTLER'S SUPERFINE DWARF CAULIFLOWER.. ..	2	6
BUTLER'S PERFECTION CUCUMBER, unquestionably the finest variety ever offered	2	6
BUTLER'S CLIMAX MELON..	2	6
BUTLER'S PRESIDENT MELON	3	6

FLOWER SEEDS (sent Post free).

Assortiments of	100 vars.	50 vars.	30 vars.	25 vars.	15 vars.
ANNUALS—Hardy	20s.	10s.	5s.	..	3s. 6d.
" Half Hardy	30s.	15s.	..	7s. 6d.	4s. 0d.
PERENNIALS (Hardy) ..	25s.	12s. 6d.	..	6s. 0d.	3s. 6d.
" Half Hardy		..	..	7s. 6d.	4s. 0d.

NOVELTIES in FLOWER SEEDS.—See Descriptive Catalogue.

BULBS for SPRING PLANTING.—Gladioli, Liliums, including the splendid new L. auratum; Tigridias, Anemones, Ranunculus, and other bulbs suitable for spring planting, in great variety. Special quotations at low rates per 100 or 1000 on application.

BEDDING PLANTS.—250,000 well-rooted plants, comprising Calceolarias, Lobelias, Geraniums, Cerastiums, Cineraria maritima, Ageratums, &c.; to be sold at unprecedented low prices.

Agents for GOULDING'S HORTICULTURAL MANURE, 1s. per canister.

SOLE AGENTS, Wholesale and Retail, for MURRAY'S APHIS PASTILS, a new invention, and the most effectual in existence for Fumigating Plant Houses. In packets, 1s. and 2s. each.

BUTLER & McCULLOCH, Covent Garden Market, W.C.

THE ROYAL HORTICULTURAL SOCIETY'S ITALIAN GARDENS at SOUTH KENSINGTON, with Arcades, Conservatories, Plants, Flowers, Fruits of all Countries; Cascades, Fountains, Sculpture, Fish Hatching, Bees, Silkworms, &c., are open to the public daily.

Show, Promenade, and Band, every Saturday and Monday.
Out-of-Door Season from the 1st May to the 31st October.
In-door season from 1st November to 30th April, in warmed conservatories.

Admission after 1 o'clock on the days mentioned below, not being Show, Fête, or Promenade days, will during the London Season be as follows:—Saturdays, 2s. 6d.; Sundays, the Gardens are closed to the Public, but open to Fellows and their friends personally introduced; Mondays, 6d.; Tuesdays, Wednesdays, Thursdays, and Fridays, 1s.—Admission during the months of August, September, and October, when the London Season is over, 3d. every day but Saturday: the Saturdays 1s. Admission on the Queen's Birthday, 1s., Easter Monday and Tuesday, and Whit Monday and Tuesday, 3d. each day. On the 26th August, the anniversary of the Birthday of the Prince Consort, the founder of the South Kensington Gardens, these Gardens are open Free at the wish of Her Majesty.

ROYAL HORTICULTURAL SOCIETY.
EXAMINATION of GARDENERS.

Arrangements have been made with the Society of Arts, for an EXAMINATION of GARDENERS in BOTANY, in APRIL NEXT, when Prizes of the value of £5, £4, £3, £2, and £1. respectively will be given by the Royal Horticultural Society, to the Five Candidates who, being Gardeners by Profession, and taking a Certificate in Botany of the First, Second, or Third Class, shall obtain the highest number of marks in that subject.

For particulars of the Examinations, apply to the Secretary of the Society of Arts, 19, John Street, Adelphi, W.C.

ROYAL HORTICULTURAL SOCIETY,
SOUTH KENSINGTON.
PRIZES OFFERED to EXHIBITORS at the FELLOWS' SATURDAY WEEKLY SHOWS, 1865.

A First-class Gold Banksian Medal for every 20 First-class Certificates gained by an Exhibitor.

A Second-class Gold Banksian Medal for every 20 Second-class Certificates gained by an Exhibitor.

A Silver Flora Banksian Medal for every 20 Commendations gained by an Exhibitor.

A Gold Medal, to be termed the Prince Consort's Medal, to the Exhibitor who shall, during the course of the year, gain the greatest number of marks, reckoning a First-class Certificate as 7 marks and a second as 5 marks.

PRIZES OFFERED BY HIS GRACE THE DUKE OF BUCCLEUCH, President of the Society,

A Prize of 15l. to the Exhibitor who, during the year, shall have obtained the greatest number of First-class Certificates.

A Prize of 10l. to the Exhibitor who, during the year, shall have obtained the greatest number of Second-class Certificates.

LADIES' PRIZES for INDOOR GARDENING.—The PROPRIETORS of the GARDENERS' CHRONICLE again offer, as announced last year, TWO PRIZES of 10l. each for the best examples of INDOOR PLANT-CULTURE exhibited at the Show of Table Decorations, which is to take place in the Garden of the Royal Horticultural Society, at South Kensington, on JUNE 24.

One Prize will be given for the BEST ORCHID IN BLOOM, grown and flowered in a room.

One Prize will be given for the BEST FLOWERING PLANT OR FOLIAGE PLANT of any kind, grown in a room.

The Competition is to take place amongst LADIES ONLY.

The Prizes are offered for the best single plants, examples of actual indoor cultivation; they must therefore have been grown in a room for at least six weeks previous to the time of exhibition, during which period they must have been under the management of the Exhibitors themselves.

The plants are to be such as are suitable for drawing-room decoration.

The Plants may be grown in pots, or boxes, or baskets, or aquaria, or in any other convenient and suitable contrivance.

Notice of the intention to exhibit must be sent to the Garden Superintendent at South Kensington not later than June 19, in order that accommodation may be provided. The Plants must be sent in by 9 A.M. on June 24, and be ready for adjudication by 11 A.M.

The Gardeners' Chronicle.

SATURDAY, FEBRUARY 11, 1865.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY,	Feb. 14	Royal Horticultural (Anniversary), at South Kensington	11 A.M.
THURSDAY,	— 16	Linnean	8 P.M.
SATURDAY,	— 18	Royal Horticultural (Weekly Show), at South Kensington	2 P.M.

OUR Indian letters give us a sad account of the effects produced by the late fearful Cyclone upon the BOTANIC GARDEN AT CALCUTTA. The valuable collection of trees and shrubs which had been brought together there from all parts of India and from many other parts of the world, has been greatly damaged, and many of the plants are entirely destroyed. Stately trees have been torn up by the roots, or have had their leaves and branches stript from their stems, and noble avenues, the work of many anxious years, have been all but demolished. The Eagre, or, as it is called in India, the "Bore," came rolling up the Hooghly on this occasion with a force which was almost overwhelming. Usually this tidal wave is only a few feet in height and comparatively harmless, unless to small boats, which generally contrive to get out of its course, but during the Cyclone it formed a wall of water fully 30 feet in height, breaking over the banks of the river and sweeping the country bare. It will take a century to replace many of the grand old specimens, and to make the Garden what it was on the eve of this remarkable storm.

The Calcutta Garden is situated on the right bank of the Hooghly, a short distance below the town. It was established by the East India Company in 1768, and liberally supported by the Company up to the time when the English Government took India into its own hands. But although the country has changed its rulers, the Botanic Garden at Calcutta is still appreciated and supported. Bishop HEBER, who visited it amongst other remarkable places during his tour in India, gives us the following description of it:—"The Botanic Garden at Calcutta is a very beautiful and well-managed institution, enriched, besides the noblest trees and most beautiful plants of India, with a vast collection of exotics, chiefly collected by Dr. WALLICH himself in Nepal, Pulo Penang, Sumatra, and Java, and increased by contributions from the Cape, Brazil, and many different parts of Africa and America, as well as Australia and the South Sea Islands. It is not only a curious, but a picturesque and most beautiful scene; and more perfectly answers MILTON'S idea of Paradise, except that it is on a dead flat instead of a hill, than anything which I ever saw. Among the exotics I noticed the Nutmeg, a pretty tree, something like a Myrtle, with a beautiful Peach-like blossom, but too delicate for the winter even in Bengal, and therefore placed in the most sheltered situation, and carefully matted round. The Sago Palm is a tree of great singularity and beauty, and in a grove or avenue produces an effect of striking solemnity, not unlike that of Gothic architecture. * * * These different establishments [Indian Botanic Gardens] used to be all cultivated by convicts in chains, of whom I have already spoken. In the Calcutta Garden their labour is now supplied by peasants, hired by the day or week; and the exchange is found cheap, as well as otherwise advantageous and agreeable; the labour of freemen here, as elsewhere, being infinitely cheaper than that of slaves."

To the many remarkable plants which grew in the Calcutta Gardens we may add that there were examples of the Amherstia nobilis and Jonesia Asoca, the latter being one of the most beautiful flowering trees in Southern India. There were many Palms of great interest and rarity; and the Banyan tree (Ficus indica), of which there was one fine specimen in the Garden, was widely extending itself and affording a delicious shade by means of its spreading branches, and dark green, shining foliage. Some years ago Mr. SCOTT, the head gardener, was most successful in the cultivation of the Amherstia, which had proved somewhat difficult to manage in Calcutta, and doubtless there were very fine trees of this plant in existence at the time of the Cyclone.

In this country, and throughout Europe, we owe the Calcutta Garden a debt of gratitude for many of the fine plants which adorn our stoves and hothouses, and which yearly find their way to our great Exhibitions. The East India Company was in the habit of sending these things home in the most liberal way and with no grudging hand, a proceeding which redounds to its credit, and we hope the good example thus set will long continue to be followed by its successors. Many of the captains of our "Indiamen," as Captain NISBET of the "Nile," for example, used to take great interest in bringing home Ward's Cases on deck filled with most valuable plants, and we believe often freight free. Such liberality in a Government, and in individuals, deserves to be made widely known, and to be long remembered.

The Calcutta Garden, like all the Indian establishments of a similar kind, is of great value to the country itself. By its means plants are introduced, propagated, and distributed all over India. Productions of mercantile, and even national importance are received, taken care of, and forwarded to their destination. The Tea plants which are now covering many of the slopes of the Himalayas, and the Cinchonas which are likely to prove such a boon to both foreigners and natives in that country, were sent, in the first instance, to the Calcutta Garden. The Directors of the Calcutta Garden have always been men of great scientific attainments, and ardent lovers of botany. ROXBURGH, WALLICH, FALCONER,—all now alas! no more—and THOMSON, are names of well-known men, under whose care the Garden has been since 1793; and Dr. ANDERSON, who has charge of the Garden now, is proving himself a worthy successor to these eminent men. We doubt not the latter will do all in his power to renovate this useful garden, and although it will take years to replace many of the specimens which have been destroyed by the Cyclone, yet the value of the establishment, both to Europe and to India, may be but slightly impaired.

We fear the Garden of the Agri-Horticultural Society of India, which is also a most useful establishment, may have been severely handled by the late storm. It is, however, more inland, that is, farther from the banks of the Hooghly than the Botanic Garden, and may not have suffered so severely as the latter has done.

A MEMOIR was read before the Academy of Sciences at Paris, by M. NAUDIN, on the 21st of last November, on HYBRIDITY CONSIDERED AS A CAUSE OF VARIABILITY IN PLANTS, of which memoir an

abstract is given in the *Reader* for January, 1865. "Although hybrid plants, when endowed with sufficient fertility to propagate their kind beyond the second generation, frequently and speedily revert to the type of one or other of the original species, nothing is more common than to find that certain individuals not only persist in their divergence from both the primary types, but actually depart still more widely from the original parents, and even in some cases present considerable difference from the first generation of hybrids."

In elucidation of this doctrine M. Naudin has proceeded with his experiments on several hybrid Daturæ, Mirabilis, &c., and he has kindly supplied us with seeds of three hybrid Daturæ, together with those of a hybrid Mirabilis and Cucurbita. The seeds yielded last year an abundant crop of plants, which, like M. Naudin's, presented reversions to the parent types, intermediate states, and some which appeared quite abnormal, in exact accordance with his latest observations. In the case of the hybrid Cucurbit of which we lately gave a figure, and which we expected to have bitter fruit, there was not the slightest bitterness, though the habit was not that of the parent Melon; and it is probable that the seed will yield something quite new another season. In all the three hybrid Daturæ there were individuals with both purple stems and flowers, while others had green stems and white flowers.

M. Naudin believes that in difficult genera, such as Salix, which abound in doubtful species, a multitude of anomalous forms occur in consequence of cross impregnation which become more or less permanent, and he thinks that the facts bear upon analogous phenomena in the animal as well as vegetable kingdom, and present a very interesting field for observation. *M. J. B.*

It will have been observed, from the letter published at p. 1157 of our last year's volume, that the arrangements for the South Kensington Horticultural Exhibitions in the present year have proved distasteful to the great body of Exhibitors; and it will, therefore, excite no surprise that the latter should have memorialised the Council of the Society under whose auspices the shows are to be carried out, with a view to their modification. A memorial to this effect has in fact been sent in, and we have been favoured with a copy of it, and of the reply, which want of space prevented us from noticing last week.

The memorial itself sets forth the "very objectionable arrangements" for 1865 as having been "condemned by the entire horticultural and floricultural press;" as "diametrically opposed to the interests of "exhibitors, as well as to that of the Society;" and as "totally adverse to the practical purposes of horticulture." The memorialists go on to say:—"It is not our object or wish to dictate to the Council. On the contrary, it is our earnest desire to co-operate with them if they will meet us in a practicable form; but with the arrangements as they at present exist we must most respectfully decline to exhibit at any of the Royal Horticultural Society's exhibitions for the year 1865; and we feel it our duty as horticulturists to communicate this intention to the Council without delay." They also state that at a recent meeting of the Exhibitors' Society it was resolved that:—"In consequence of the programme of the Royal Horticultural Society for the year 1865 being so diametrically opposed to the interests of exhibitors, the members pledge themselves not to exhibit at any of the Society's exhibitions unless the arrangements are modified to a practicable extent." This document bears between 40 and 50 signatures, amongst which occur such names as Baker, Young, Taylor, Chilman, Peed, Penny, Carson, Kaile, Whitbread, Page, Pottle, Bullen, May, Hoyle, Perry, Reynolds Hole, Radclyffe, Bailey, Stevens, Howard, Lane, Williams, Henderson & Co., Dobson, Cutbush, Turner, &c.—all well-known exhibitors; and it appears that others who have not signed, agree generally with the memorialists.

The Council has, as we are informed, returned the following reply, addressed to Mr. O. Rhodes, Secretary to the Exhibitors' Society.

Royal Horticultural Society, S. Kensington, W.
25th January, 1865.

Sir,—I am directed by the Council of the Royal Horticultural Society to acknowledge the receipt of a memorial, which, on behalf of certain exhibitors at the Society's former shows, you have done me the honour to transmit for the consideration of the Council.

The Council desire me to express their regret that the arrangements they have made in respect to the exhibitions of the ensuing season should have proved distasteful to any exhibitor, but as the programme has already been made public, they feel themselves pledged to adhere to it. At the same time they would observe that *they will not consider themselves precluded from introducing any modification or alteration in them that experience may hereafter prove to be desirable.*

It would appear from the memorial that exception is taken—1st, to the special shows; and 2d, to the day (Saturday) on which the great and special shows are to be held.

As regards the first, the Council have only to remark that their object in establishing what they have termed special shows was to give a fresh impetus to horticulture by calling special attention to particular tribes of plants; and as regards the second objection, they have only to remind the remonstrants that in making choice of Saturday they are but reverting to the practice of Chiswick in its palmiest days, when the facilities for locomotion were infinitely less than at present.

The Council desire me, therefore, to express their hope that those who have signed the remonstrance will reconsider their decision as to the course they intend to pursue.—I am, Sir, your most obedient servant,

Andrew Murray, Assistant Secretary.

The present Council has, no doubt, sufficient reasons for adhering to the programme it has announced; but seriously, in the interests of gardening and gardeners, and in the interest of the Society itself, we put it to the new Council—which in a few days will be elected, and to whose hands the affairs of the Society for the next twelve months will be committed—whether, since the Saturday meetings prove to be as distasteful to the resident Fellows as to the complaining Exhibitors, it would not be beneficial to the Society to make some change in the arrangements that will be agreeable to all parties. Experience has surely already proved that such modification is desirable.

It will be seen from our advertising columns that the Royal Horticultural Society has taken a first step in the matter of the Education of Gardeners, by offering through the Society of Arts five prizes of the respective values of 5*l.*, 4*l.*, 3*l.*, 2*l.*, and 1*l.*, to those persons, being gardeners, and gaining certificates, who stand highest at the examination in Botany which that Society holds towards the end of April next. We understand that this course has been adopted on the recommendation of the "Education of Gardeners' Committee," the season at which the Society of Arts' Examination is held not allowing the candidates sufficient time to prepare for the more special examination which we believe is to be instituted, and the machinery of that Society affording the most readily available means of bringing the prizes within reach of gardeners throughout the country.

—— The Red-flowered Locust tree—Robinia Pseudacacia Decaisneana—which we briefly mentioned at p. 579 of our last year's volume, is now being sent out by its raiser, M. Villevielle, of Manosque, in the form of one-year old grafted plants. This distinct variety was raised in the nursery of that gentleman in 1862, and has all the habit and general aspect of the common Robinia, but in addition is covered with long clusters of flowers of the finest rose-colour. M. Decaisne, after whom M. Carrière has named it, speaks of it as likely to cause a revolution in the ornamentation of promenades. The rose colour of its flowers, he remarks, can only be compared with that of the most brilliant varieties of Robinia hispida, and would give to our parks a new aspect at a time when ornamental trees have already lost much of their beauty. M. Carrière says it is destined to play an important part in the ornamentation of gardens and public walks, for which purposes it cannot be too much recommended, as the tree is vigorous and easily managed. The appearance of R. Decaisneana, he continues, will probably open a new field of interest amongst hardy trees, and result in the obtaining of other desirable varieties, combining with rose-coloured flowers the distinct habits assumed by varieties already known. The origin of this new Locust tree appears to have been quite accidental, but it will not be the less welcome on that account.

—— In describing the Jalais Nectarine in a recent Number of *Revue Horticole*, M. de Liron d'Airoles, after citing some examples of the occurrence of the Peach and Nectarine on the same branch presented to the *Société Centrale d'Horticulture*, and mentioning the similar examples recorded in the Transactions of the Horticultural Society of London, remarks that amongst all his reading and studies, he has searched fruitlessly to find the origin of the Nectarine. The Jalais Nectarine, he observes, was produced from a kernel of a Nectarine, and its kernels have given birth to other Nectarines, amongst which, however, he observed in 1863 one of remarkable vigour and fertility at the age of four years, and possessing so agreeable a flavour that he was induced to name it Jenny de Thouaré. This tree, though it almost appeared to be of a new type, came nearest to the Peach. Opinions will be divided, he thinks, as to whether this new form was the result of hybridisation, or of a 'play of the sap,' in other words whether it is a hybrid or a germinal sport; but at least he is persuaded that it throws some light on the origin of the Nectarine. For myself, he goes on to say, I am very much inclined to believe it to be an anomaly produced by a disease of the sap, and fixed by grafting.

THE PINE STOVE AT KNOWSLEY.

Knowsley Park, which I propose by and by to speak of in detail, is the seat of the Earl of Derby, a nobleman commanding universal respect on account of his moral worth, and his great talent as a statesman. A glimpse as to the extent and character of his private establishment must be therefore more than ordinarily interesting to the general reader. Nothing would be calculated to give more pain to lovers of gardening than to know that one so prominent should all but ignore their favourite calling. Fortunately, as I shall be able to prove, before I have exhausted my notes on the gardens and pleasure grounds, his lordship, who has all along been the friend and uncompromising advocate of agricultural interests, has done something, in his own right, for the advancement of gardening.

Rarely, indeed, does it happen that the practical man, who always intuitively assumes the capacity of a critic, finds himself agreeably disappointed with the extent, management, and character of any place of notoriety; but here the garden establishment, from whatever point of view you examine it, clearly enough demonstrates that it has latterly been well appointed. True, there are many things left undone during the last half century which might have been accomplished had proper representations been made. Here, as in many other places, judging from present appearances, the progress of gardening depends more really upon the gardener than his employer. If the superintendent of any establishment rests contented, and looks complacently on, with things as they are, simply and absolutely refusing to throw out suggestions for enlarging the sphere of his department, his employer cannot be blamed for not taking the initiative. Dozens that I know, hundreds I should say, of horticultural establishments, are chiefly enlarged at the instance, or by the reiterated suggestions of the gardeners who superintend them; and this is the principal reason why that body of men are almost universally esteemed as a plodding, industrious, and intelligent class.

Greatly indeed was the writer pleased to find that Knowsley represents gardening so well, and that in this fine old establishment there is accommodation for the cultivation of the king of fruits of a kind which must command universal admiration. All ye cultivators of the Pine-apple! who have been growing and fruiting your plants in houses of 30, 40, 50, and 60 feet long, and who may still be considering that you possess houses, plants, and fruit of an unique description, cast your eye upon the woodcut—look there for extent of accommodation, and listen while I describe the quantity and quality of the fruit.

The house is 100 feet long and 26 feet wide, containing as near as may be 600 plants. During the time of my visit, in the latter end of October, there were 170 Black Jamaicas swelling off their fruit, and in such condition as to excite the wonder of even the most stolid observer. It is not an unusual occurrence to see a dozen or two of that variety, in the early part of winter, probably about 4 lbs. weight; but it is altogether, according to my notions, an unprecedented example of cultivation to come in contact with 170 fruit, giving an average weight of 4½ lb. I give the weight upon the authority of Mr. Freeman, who says his largest fruit of this sort weighed 5 lb. 12 oz., and, judging from the eye, I can thoroughly endorse this statement. Such an array of fruit, so uniform in size and handsome in outline, in long lines on either side the centre path, like stripes of flowers in a ribbon border, was a sight of itself worthy a special visit. Here, indeed, were numbers of that luscious fruit in condition for table from November to January, sufficient to regale not only the palate of the Prince of Wales and his retinue, had his promised visit taken place, but also the whole Conservative party. As there are no better judges of fruit than noblemen and country gentlemen, we may state that Lord Derby prefers the Black Jamaica to all other kinds as a winter fruit, an opinion pretty generally endorsed.

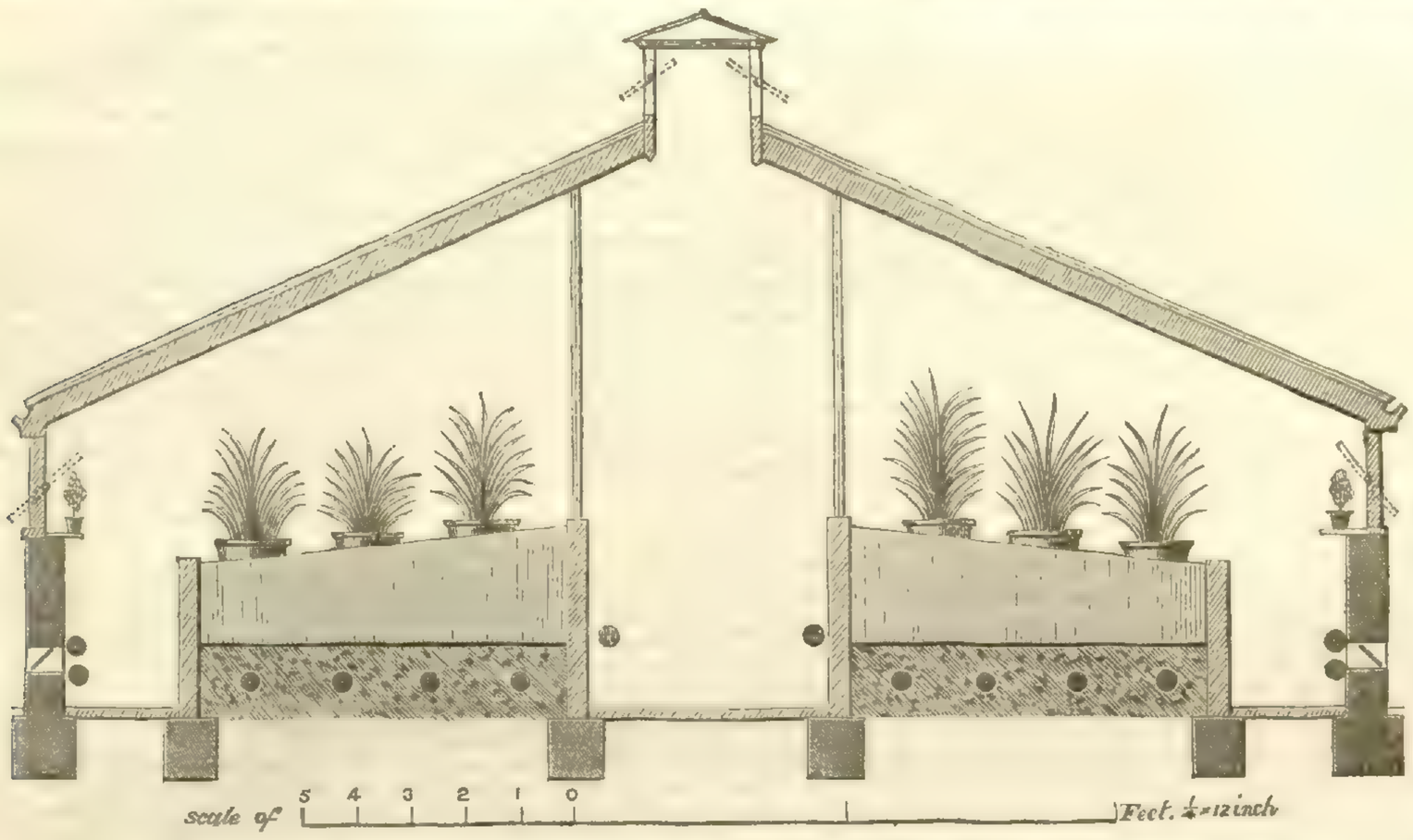
Some exceedingly handsome fruit of the Hurst House Seedling, of outline so exactly pyramidal as to appear to have been turned out of a mould, were also in ripening off, the largest of which weighed 7 lb. In flavour, during winter, it cannot bear comparison with Black Jamaica, but I have heard it more than once very favourably spoken of as a luscious summer fruit. Some people maintain that there is a degree of uncertainty about its fruiting which, if satisfactorily proved, will tell against it. Certainly, as I saw it at Mr. Fairrie's, at Liverpool, some years ago, it seemed to be a wonderful acquisition both as to habit and fruit-bearing tendencies.

There is something very grand in possessing a house for Pine culture of this extent; but doubtless many people will step in and declare against its general utility. What is the use of 600 or even 400 plants, it may be said, subject to the same treatment? Against this I have little to say, further than that each establishment must be guided according to the demand

made upon it. This much I may say, that if ever there was a model house for the cultivation of the Pine, certainly this is the house. The principle is good, and worthy of adoption; the size and details can be modified according to circumstances. Any lady fastidious about her person and dress can walk through, inspect, and admire this house quite unconcernedly, so very different is it from an older style of house, where the narrow passages and whitewashed walls are always a serious obstruction to capacious skirts. It scarcely need be said that the old style of house does not find much favour with either ladies or gentlemen, unless their enthusiasm for either fruit or flowers exceeds common bounds. It is a desirable object, therefore, to possess an unobjectionable medium for the cultivation of plants, and at the same time have ample walking space for those who desire to examine them.

A glance at the woodcut will show that the principal and central path is 4 feet wide, the beds on either side 7 feet, and the path by the wall 2½ feet. Bottom-heat is mainly, if not altogether, supplied by four rows of pipes, which are covered over with rubble for the diffusion of the heat. The space between the rubble and the surface is filled up with leaves, and, I think, the whole top-dressed with sand, which gives the surface a neat and tidy appearance. There are three principal rows of plants something after the style indicated in the sketch, which form those intended to, and in, fruit. Of course, in such a large house as this, there will be always a number of succession plants plunged in to take the places of those that are cut, and the front rows can never be so uniform as the artistic eye might desire. There is little, however, to take exception to in this way, as there is an admirable stock of succession plants in other houses ready for transfer. The plants, moreover, are clean, and, as I presume has been already surmised, in the very best of health. Surface heat is kept up by means of six pipes, the flows having large evaporating troughs, which are kept continually charged with moisture. The atmosphere is largely charged with ammonia, evident to the sense of smell as one enters the door, proceeding from manure water emptied into the troughs.

The command of heat is excellent, although the addition of two pipes more for surface heat would more evenly balance the bottom-heat, and cause a



little less firing. There are 1480 feet of piping in this house, attached to a saddle boiler erected by Meredith. The boiler is about 50 feet from the house, and heats an early Peach house 80 feet long as well. A side shelf all round the house is filled with French Beans for forcing, and keeps up an adequate supply. The ammonia tells beautifully upon the foliage of the Beans, which during short days are not usually of a very dark green hue. In this case, however, they come very highly coloured, and not so subject to the attacks and depredations of insects. Huge blocks of stone, the largest of which measure 7 by 2½ feet, are clasped together by iron bands to form the beds for plunging the plants in. They look massive, and from being neatly dressed form handsome walls of separation on either side the path. The mode of ventilation is as perfect as can well be conceived. In cold weather resort can be had to the openings on a level with the pipes; and in warm summer weather the side sash of wood and glass can be made use of; both of these openings are shown in the section. The top mode of ventilating is equally good. In fact the whole house abundantly testifies to the practical skill and judicious foresight of those who designed it. *J. A.*

FRUIT GROWING.

On reading the heading of the article in No. 5, p. 101, I quite hoped and expected that some experienced Kentish fruit cultivator had been stirred up to give us some hints on fruit culture, or to describe some mode of cultivation superior to that of common standard orchard trees; in other words, to describe fruit cultivation and not fruit growing. I have, however, been much disappointed, for I find only a repetition of the language of the "Kentish Fruit Grower," as given at p. 1203 (1864), and a ridiculous calculation based on the price of Apple trees at 1*s.* 6*d.* each, reminding one of the country grower who, on giving 3*d.* for a Ribstone Pippin at one of the fruiterer's shops in the city, went home and valued his own as worth at least 30*s.* per bushel. An Apple tree occupying the ground as a stock and tree for four or five years is cheap enough at 1*s.* 6*d.*, but if a contract were made for 5000 or 10,000 the price would be widely different. This supposed heavy expense fiction I have already disposed of at p. 7, and Mr. Springett should read the remarks there made; his calculation is alike absurd and ridiculous.

The only matter of interest I find in Mr. S.'s letter is that in which he tells us of that most arbitrary custom (surely it cannot be true) of Kentish landlords not allowing the value of trees to an outgoing tenant that have been planted more than six years. Why it is nipping an orchard in the bud, and must be ruinous to a tenant; no man of capital or judgment would take land under such an agreement. The fruit growers of Kent ought to resist it *en masse*; it seems degrading in the "Men of Kent" even to have allowed such an unjust arbitrary custom to exist. The remedy is, however, easy; men of capital should become their own landlords, and then exercise their skill in cultivating fruit.

How laughable it seems to me to see a sensible man write about "cutting and mutilating trees into many fanciful forms," as if that were cultivation; it brings to one's mind the old topiary method of mutilating evergreens, when many gardens were not thought complete unless they had a peacock cut in Yew or Box on each side of the garden entrance. I know of a farmer's garden in Essex still ornamented in this way. It is not at all remarkable that Mr. S. never saw better fruit on these trees, thus hacked and hewed every winter. It is not by such pruning that fruit can be cultivated successfully; the truth is, the knife should seldom or never be used. Mr. S., I am inclined to think, considers me as a daring innovator—a fresh hand despising all other modes of culture but my own. I am not so, however, for adding to some inherited experience (I am the fourth generation of fruit cultivators) I have for more than 40 years been an observer and an experimenter, marching on so slowly in cultural knowledge that I often think I ought to have known and published my present ideas 25 years ago.

The truth is that sound cultural knowledge must be the work of many years; there is no rapid road to it—no "coaching." Let me illustrate this. Some 20 odd years since I made a plantation of 3000 Pear-trees, they were planted 24 feet apart, row from row, for the purpose of cropping between them, and 5 feet apart in the rows; they bore fine crops till injured by the severe frost of 1860, and their fruit made a good price—from 6*s.* to 7*s.* 6*d.* per half sieve, or from 12*s.* to 14*s.* 6*d.* per bushel; the trees were not under the cutting and mutilating system, but were pruned during the summer at a trifling expense. From some changes I wished to make, not worth mentioning, I commenced about three years since to remove these trees, although 20 years old. Well, then and not till then I perceived that the trees, although only 5 feet apart, did not touch each other, but had plenty of room (owing to their being pyramids and regularly pruned) to produce fine crops of fruit. I felt how slow and inattentive I had been, and at once had them removed, 2000 of them, planted in rows 5 feet apart row from row, and from 4 feet to the same distance, tree from tree, in the rows. The springs and summers of 1863-4 were here very dry, yet I have not lost more than 5 per cent. of them. But here is the great fact: they stood on several acres, and owing to that required more care to attend to, and more time in gathering the fruit; they now occupy not quite one acre; and if in a few years they become at all crowded I shall remove every alternate tree, but for several years I shall have crops from these trees, and be able from their occupying such a patch of ground to give them very superior culture at a small cost.

At this moment they are in a most promising state, literally covered with blossom buds, and owing to being in a snug sheltered spot they will doubtless bear as fine fruit as when they occupied some 10 or 15 acres. These trees are on the Quince stock, and when I planted them the wiseacres all prophesied they would not live five years. From these Pears my attention was drawn to Apples, and I then found that a plantation of 400 trees from 12 to 15 years old, subjected to summer pruning, were in a healthy bearing state, although only from 3 to 4 feet apart. I then saw that planting fruit trees comparatively thickly, might be reduced to a regular system. If Mr. Springett reads this he will see that my deductions have not been made hastily. I may by the way mention that I have a piece of ground a little more than one acre occupied with Plum trees about 15 years old, very slightly pruned in summer; the crop has made more in one season than 2000 bushels of Mr. Springett's Apples. So much for methodical culture as compared with unmethodical growing of Apples on standard orchard trees.

I do not by any means despise standard orchard trees—they are beautiful things, and their fruit is valuable to the poor and to make cider of, also to give pigs the stomach ache; but as the prices given by Mr. S. show, they are not calculated for a large wealthy class of fruit consumers, annually increasing; 1*s.* 6*d.* per bushel is quite enough however, for Golden Knobs, which require iron teeth and a leather stomach, and are only fit for Kentish boys.

I have some 400 or 500 bushels of Sturmer Pippins. Now these sent to market in April and May will make from 3*s.* 6*d.* to 4*s.* the half sieve, and pay well for growing; last spring they made 10*s.* the half sieve. I mention the above facts about Plums and Apples, at the risk of being thought egotistic, merely to show Mr. S. that I am not what I daresay I have been called by the "Men of Kent," a "Cabbage garden experimenter." I assure them I am not so, for there are here 100 acres, nearly all more or less under fruit trees in all stages of their growth, and if he will come I will show him not "a couple of trees picked out of a hundred," but some interesting experimental quarters, among which a snug plantation of Cox's Orange Pippin of 100 trees on the English Paradise stock, were last autumn perfect pictures of fertility, as they are now pictures of promise. There is much yet to learn to bring fruit-tree culture to perfection. Old as I am, I can see that we are only commencing to know the effects of different kinds of stocks, the improvement to be made by grafting, by the adapting the modes of protection to trees while in bloom, &c. In short, when I reflect on what may be done, and the little that has been done in fruit culture, I feel surprise at the past, mingled with hope for the future. As to the planting an orchard of standard trees in a fine soil, and waiting till the trees bear, and when they overbear never thinning the fruit, the Devonshire and Herefordshire rurals have done it for many generations, and, like their brethren in Kent, they are satisfied: "so mote it be."

Mr. Springett seems to think that dwarf trees must always be "diminutive trees," for which he appears to feel the sort of contempt displayed by a Newfoundland dog for a small cur. He seems to forget that a tree, whether a dwarf or standard, if decently treated, will every season increase in size, so that dwarf or pyramidal Apple trees grafted on the Paradise stock, and Pear trees on the Quince stock planted 3 feet apart, in a few years become fine fertile trees, and by the time they are fit to thin out to 6 feet apart, are capable of bearing large quantities of fruit. It is not however so much the large quantity, as the superior quality, of fruit grown on trees well cultivated, making more than double the price of common fruit; and here I answer Mr. S.'s question: "How much of such (I presume summer pruning) work could be done to ensure an increased price of 3*d.* per bushel?" I have received this morning (Feb. 8), a note from my salesman, telling me that my Wellington (Dumelow's Seedling) Apples made but 3*s.* per bushel—they were small and gathered from standard trees overloaded with fruit; he adds, "had they been larger a higher price would have been obtained. I am now selling very fine Wellingtons as much as 7*s.* per bushel." Now, here is a difference, not of 20, but of more than 100 per cent. between growing Apples and cultivating them. The difference between a fruit grower and a fruit cultivator exists in about the same degree.

I give the above particulars to enable cultivators to form a correct idea of what may be expected from what Mr. S. calls a "diminutive orchard;" he seems to forget that his standard trees when first planted were diminutive trees, and have only become full-grown by culture and care. I may be wrong, but it appears to me, from Mr. Springett's letter, that he has never seen a dwarf or pyramidal Apple, Pear, Plum, or Cherry tree on their proper dwarfing stocks, so as to make them fertile and adapted for superior culture; and that he, like the rural orchardists of the West of England, exists in a pure, happy, unsophisticated state of mind, beautifully ideal, but not calculated for new phases of fruit culture.

I have written no "denunciation of Kentish orchards." No, I pointed out the advantages that

might be derived from improved fruit culture in Kent, and warned the growers that they must expect sharp competition.

I was prophetic to a greater extent than I thought for. I have just learned that a fine spot of 200 acres near London is at once to be appropriated to improved fruit culture, where all the fine modern kinds of Apples will be cultivated to a large extent, and Kentish Golden Knobs not allowed an entrance. I have only to add that you are at liberty to give Mr. Springett my address; I shall at any time be glad to give him a lesson on fruit-tree stocks, and the soils they affect, and endeavour, as Paddy says, to "insense" him as to the benefits of summer pinching, and the necessity of thinning fruit. I conclude with a paraphrase from Sir W. Napier's "Apple Pie Poem,"

"Next in your mind this maxim firmly root,
Never o'ercharge your tree with petty fruit."

T. R.

Home Correspondence.

Cœlogyne cristata.—I was pleased to see your notice last week of this beautiful Cœlogyne now flowering at Mr. Day's; it is one of the most magnificent winter-flowering plants in cultivation, its lovely blossoms being unrivalled in excellence by those of any other Orchid with which I am acquainted. When seen in masses of from 8 to 10 feet in circumference with from 150 to 200 blooms on each mass, such as may now be met with in the Orchid houses of W. Jackson, Esq., Scruton House, Yorkshire, they present one of the richest floral treats that can be met with at any period of the year, and well worthy of a journey from the Land's End to John o'Groat's to see. The reason of the Cœlogyne in many places not being seen in such perfection as it is capable of is its being too generally kept in the cool Orchid house; for I have invariably found it to thrive best in the East India house with plenty of moisture. When I first had the management of Mr. Jackson's plants they had been kept cool, and the growth and flowers they produced were very meagre. After however being treated more generously, the change in their health was something wonderful, and there are now specimens in the collection just named, such as are seldom to be met with in other establishments. *George Gordon, The Elms, Hampton Wick, Middlesex.*

Trade Lists.—Whatever is a poor gardener to do in these sensation days with all the so-called new things that are being sent out, and more especially this year? He is considered quite behind the age unless he has tried somebody's Atlantic Cable Cucumber, or who-is-it's Pneumatic Pea, or some other such vast improvement on all existing varieties. I have heard some people say that this is essentially an age of humbug, and I really think that we gardeners have to put up with more than our share of it. In my young days very few published a printed seed list, but now-a-days every seedsman sends out his "Little Book," "Vade-Mecum," or "Amateur's Guide," and he is not content to have simply a list of seeds—he must go "into the thing," and make up a book with illustrations, testimonials, &c., of some 80 or 100 pages. If we examine the lists of some of our largest advertising houses, we find that one offers for sale fifty-two new and choice varieties of vegetables, while another directs attention to forty-one new varieties of esculents. Now, see what we have to try in order to keep pace with the times; there are five new Peas, one Bean, three Kails, five Broccolis, three Sprouts, four Cabbages, three Cucumbers, one Lettuce, five Melons, two Onions, four Potatos, three Turnips, and a few others, all stated to be novelties, making up 41, which, be it observed, are reported to be a careful selection worthy of special attention. I verily believe that there is more misrepresentation in the matter of early Peas than in that of other seeds; formerly seedsmen were content to produce Expresses, Racehorses, No. 1's, Morning Stars, &c., but these have now become antiquated; and we have "First Crops," and "First and Best," &c. Early Peas, however, do not exhaust my subject, for nearly every other vegetable is stated to be either improved or ennobled. I heartily wish that seedsmen would have some pity on us poor gardeners, and stick to common sense in all matters relating to seed lists. Surely no man calling himself a gardener would think of looking into a seedsman's catalogue for what soil the Carrot "delighted" in, or for the treatment a Cucumber "loved;" and again, with regard to illustrations, with the exception of plates of knives, they are in general of little other use than to give children to play with. I am sure that large catalogues are not printed without great expense, which must be paid for out of the seeds either in the way of quality or price. What gardeners want is a catalogue of really good things, with perhaps a few brief descriptive notes respecting the seeds offered. Trade lists will soon be an intolerable nuisance if they continue to grow as fast as they have done during the past few years. Let us hope, however, that they may diminish rather than increase. *Q.*

Black Alicante and Royal Albert Grapes.—It is said that there is nothing new under the sun; but whether this is true or not I do not now stop to inquire. It is a singular fact, however, that the Grape which is extolled this year above all others (and deservedly so) is more than a hundred years old. It is true there are two varieties of the Alicante (so called); of that I am certain, and I am backed in this opinion by Mr. Peed, gardener to Sir Edward Walker, who is well known to be a first-class Grape grower. How such a Grape as the Alicante should have so long been almost lost seems a mystery, and in all probability had it not been for Mr. Meredith and Mr. John Cox of Crown East Court, Worcester, publicly exhibiting it in such grand style, it would have been but little known even in the present day. My object in referring to this Grape is twofold. I see in many of the trade lists sent to me that it is termed the Kempsey Alicante, and in others Kempsey's Alicante. Who Mr. Kempsey is it would be useless to ask—suffice it to say that in some instances the prefix bothers purchasers, making them believe that there is a distinction between the Black Alicante and Kempsey's Alicante; and as we have two Alicantes already, we have no occasion for a third. I have previously stated in your columns how the word Kempsey became first attached to this Grape. There are, as I have said, two varieties of Black Alicante, and it is certain that one of these varieties (and I believe the true one,) was known more than 100 years ago. And in the Vineries of the late Sir Offley Wakeman, Bart., Perdiswell Hall, with whom I lived upwards of seven years, there are Vines of it I should think at least 40 years old; these were all labelled the Liverpool Grape when first I took possession of the place; this goes to prove that it is not a new introduction. My object however in referring to the Vines at Perdiswell, is to speak of a Grape called the Royal Albert. I have never seen this variety offered for sale in any list sent to me, I therefore conclude that it is unknown, and requires to get into some good hands, like the Alicante, to bring it into notice. This Grape very much resembles the Barbarossa; its bunches are very large, it is a strong grower, and the berries are exceedingly large, the largest I have ever seen; it is not however one of the most prolific, but for a large Grape the flavour is good. Mr. Maule of Bristol once called on me just at a time when a large bunch was hanging by the door of the Orchid house that prevented my opening it; he was so struck with it that he bespoke every eye, but unfortunately my foreman got them mixed with the Barbarossa, so that I could not send them as I promised, and my employer dying the same autumn, which caused me to leave the neighbourhood, I have never had the opportunity of fulfilling Mr. Maule's request. The following season however I sent to the person then in charge of them, asking for a few eyes, but the reply I got was, it being a shy bearer it had been cut down and another variety worked on it. From that day to this I have never heard of such a Grape as the Royal Albert. Now as large bunches of Grapes at the present day appear to excite admiration, this variety should on no account be lost sight of. Doubtless it is to be met with in some out-of-the-way place, and let us hope that it will find its way into Mr. Meredith's establishment; when, under so skilful a cultivator, it would not only be brought to light, but astonish the admirers of large bunches and fine showy Grapes; and while Mr. Meredith would reap honours for successful cultivation, I should be content to know that I had partly been the means of bringing into notice another old Grape worthy of extensive cultivation. *Edwd. Bennett, Gr. to G. S. Foljambe, Esq., Osberton Hall, Worksop, Notts.*

Rough-plate versus *Sheet Glass.*—In the instructive papers on Orchid Cultivation now appearing in your columns, the question what glass admits the greatest number of rays of light is incidentally raised. Years ago this subject was most ably discussed by Dr. Lindley, and Mr. Hunt's valuable paper, which also appeared in the *Gardeners' Chronicle,* was a most important contribution to horticultural science. At the time when rough-plate glass came into use, the late Mr. Charles M'Intosh, then at Dalkeith, had a set of lights glazed with it, and with the glass in common use. I attended to the plants under those lights, and the result was most decidedly in favour of rough-plate during the dull winter months, and fully confirmed Dr. Lindley's words, viz., "I believe, indeed, that light passes through it as freely, though not so directly, as through transparent glass;" and again, "This glass is prepared by rolling, which destroys transparency without diminishing translucency." This is the truth and essence of the subject, and I have acted upon it—using it to the utmost wherever circumstances would permit. I have advised its use wherever I have had opportunity of doing so; and for all important purposes of plant and fruit culture I would use no other glass. Mr. Anderson cites Mr. Thomas Bewley's houses in illustration of this subject; those who have seen these splendid houses and magnificent plants, will admit beyond doubt or question that under rough-plate glass the highest success is attained. It is only of recent date that gardeners have begun to study seriously the importance of light in glazed structures. The velocity of light is computed at 12,000,000 of miles per minute; the rays proceed in straight lines through the air until intercepted by a denser medium, when the lines become bent or refracted. A straight rod held in a pool of water will very simply illustrate this point. In treating of the quality of glass, a most important point is the angle at which it is to be erected. It is most unfair to judge of the merits of glass without correctly considering the angle of elevation; in accordance with this, glass may be condemned in one case, and praised in another. When a ray of light passes from a rarer into a denser body, the refraction is towards the perpendicular, or the angle of refraction is less than the angle of incidence. The sine of the angle of incidence has to the sine of the angle of refraction a constant ratio, whatever be the inclination of the incident ray to the surface. Of rough-plate Mr. Anderson says, "the numerous corrugations over the surface disturb the action of light." Dr. Lindley says it simply aids in diffusing it. The prism does not disturb light, nor do we find that ridge-and-furrow houses disturb it in passing into their interior. The elaborate experiments of Mr. Hunt determined that glass of a pale yellow-green gave the most satisfactory results. In substance and colour Hartley's rough-plate is the best yet produced. *Charles McDonald, Woodstock Park.*

Spring Bulbs.—The announcement of the display intended at the Horticultural Gardens of 50,000 bulbs is quite startling. We shall indeed have an opportunity of improving our minds and our spring gardens. What becomes of the bulbs after flowering? Are they kept to be served out to country customers the next season? If so, some of us may further improve our knowledge as to the difference between home and foreign-grown bulbs. *Caveat Emptor.*

Foreign Correspondence.

Georgetown, Demerara.—The Annual Meeting of the Natural History Society took place on the 29th November last. On this occasion an Address was delivered by the Hon. W. Walker on his retiring from the office of President; and the following are a few passages selected therefrom:—

On the 21st of May the Council were enabled to make to his Excellency the Governor a report that they had received from Mr. Appun, the botanist employed by Government under their supervision, who left Georgetown in November last, advices to the 30th April, when he was at Pirara, in the neutral territory between the British and Brazilian frontiers.

Mr. Appun has been enabled to transmit safely to Georgetown a varied collection, by no means inconsiderable in extent, and possessing much interest and value, of specimens of Natural History in all its branches, together with a series of sketches, rough and unfinished, but spirited and characteristic, of the people and scenery around him. The "Hortus Siccus" has been forwarded to Sir W. Hooker, at the Royal Gardens, Kew; and the other component parts have been chiefly retained as additions to the local Museum, the Council proposing to select any specimens of peculiar rarity to be sent home for the examination of scientific persons there.

Mr. Appun left the Grove (Bartica) on the 21st November, 1863, pursuing his course up the Rio Massaruni, and on the 17th December reached the Saurua mountains in the Caropoon Creek; here he was stopped by the falls, above 50 feet in height, and as no corial could be dragged over them, he went on with only six Indians, sending back his boat with the other hands and leaving his baggage in the bush. He gives the height of these mountains at 500 feet, and states that he was four days in traversing them. He regained the Massaruni by the Membarou Creek, from the mouth of which in two days he came to an Indian settlement which he calls "Hanarer," to procure people to send back for his baggage.

On the 8th January he proceeded on his route, experiencing, however, great difficulties in inducing the chiefs to assist him with people. Crossing the Pacaraima range in six days with much labour, he arrived on the 24th at the foot of Roraima, where, and in the vicinity, he remained until the 7th of March, when he started for Pirara across the Humirida mountains and level savannas which had been burned by the Indians, and reached it on the 3d of April. During his residence there he spent a fortnight in the Canucu Mountains, making his way as far as the Brazilian frontier; at Mount Ilamkiping, where are found most of the plants employed in making the wourali poison, he rested three days. On returning to Pirara he despatched his first collection of specimens, the arrival of which was noticed at the time in the local newspapers.

Mr. Appun remained at Pirara until the end of June, making a second excursion to the Canucu mountains, and also visiting the River Mahu. In July he descended the Rupununi to the falls of the Essequebo, reascending the Rupununi to the Atorai country, and that of the Wapisianas, as far as Mount Vievie, which he describes as extremely interesting. Returning to the Atorais on the river Takutu, he next made his way towards the Amazon country down the Souaru-auru creek into the Takutu, thence to the Rio Branco and the Brazilian Fort St. Joaquim. He was most courteously received by the Commandant, and collected some interesting information. He remained there 12 days, and on his return ascended the river Surumu, a tributary of the Takutu, for a short distance, collecting on Mount Subina some fine specimens of rock crystal. He reached Pirara once more on the 24th October; and is supposed to be now on his way to Georgetown with larger collections, and with the object of recruiting before resuming his travels in the interior. Mr. Appun describes the fatigues of his several journeys as very severe: "fighting"—to use his own expression—in the day time with legions of sandflies, and at night with myriads of mosquitoes, the temperature in the shade at 100° F. Among other incidental notices Mr. Appun records that the Coca plant (Erythroxylon Coca) grows extensively on the Upper Amazon from Teffé to Tabatinga, the Brazilian Fort near the borders of Peru. He hopes, through the instrumentality of the Commandant of Fort St. Joaquim, to be able to bring some specimens of this valuable plant with him.

Mr. Appun believes himself to be the first European who has reached Roraima by way of the Massaruni, Schomburgk having gone by the Rupununi; and he asserts that the course of the Upper Massaruni and its branches is inaccurately laid down in Schomburgk's map, being from information given by the Indians, and not from personal observation. He states, moreover, that he has carefully compiled a new map of this region; and has kept a daily thermometrical register.

In approaching Roraima the natural obstacles which had to be overcome were very great, ascending high precipices along Indian paths or tracks, crossing ravines over half rotten trunks, as smooth as if artificially polished, where a step would have involved broken limbs if not loss of life, they required, he says, the nerve and skill of rope-dancers. The last day's travelling was worst of all; for three hours they scrambled up the face of a rocky acclivities, treading on sharp stones, and provided only with shoes of which the soles had entirely disappeared; without a drop of water to quench their thirst. They were, however, rewarded for all their efforts when they reached an elevation on the mountain range above the level of the forests, and enjoyed a glorious prospect of Roraima with its rocky summit of 1500 feet in perpendicular height reflecting the sun's rays in a brilliant reddish hue, while four distinct cataracts were plunging from its summit. Mr. Appun fixed his camp at the foot of the peak near a fall of the River Caroni, and remained there four days, but was

unable to reach the summit, which was shrouded in a dense mist, wetting the travellers to the skin, whilst at night the temperature fell to 50° F., so that they were shivering with cold. Both Acawais and Arecunas have a superstitious dread of approaching Roraima peak, and half the people who accompanied him returned when they had ascended about 1000 feet, and could not be persuaded by any inducement to advance another step. The side on which Mr. Appun ascended was the S.S.E., or opposite to that on which Sir Robert Schomburgk ascended; but Mr. Appun proposed to make another attempt, following in the same track. Mr. Appun states that he was led by the Indians to expect to find two species of Cinchona (Ladenbergia) on the Venezuelan side of the Caroni, of the bed of which river he remarks, that it is full of polished blocks of grey and red jasper, just like marble.

At this period it was Mr. Appun's intention to have returned to Georgetown immediately after accomplishing his visit to Fort San Joaquim; but he was subsequently induced to change his plans and to determine on spending a longer time at Roraima, which he anticipated would afford him a rich harvest of collections of plants, animals, and minerals. He has consequently become quite domesticated amongst the Arecunas, and hopes in this way to obtain in time some valuable information, especially as to the locality of gold deposits, in the existence of which, in that neighbourhood, he firmly believes.

Societies.

Royal Horticultural: *February 4th to 8th (Weekly Show).*—A fine plant of Rhododendron altaclerense, covered with delicate rose-coloured flowers, was shown on this occasion by Mr. Ingram. From Messrs. E. G. Henderson came a fine specimen of Sphærogyne latifolia, together with Dracænas, Dieffenbachias, and several other interesting plants. Rhododendrons, and one or two other plants, were also shown by Messrs. A. Henderson & Co., and from Mr. Bull came various Agaves and Yuccas, together with a collection of Dracænas. Mr. Catleugh sent Chinese Primulas, prettily fringed and excellent in colour. Mr. Miller, gr. to Lord Foley, contributed a basket of Mushrooms. The only Crocuses, to which this show was to have been devoted, came from the Society's Garden, which also furnished some Primulas and Hyacinths.

Notices of Books.

Manuel du Vigneron: Exposé de divers Procédés de Culture de la Vigne et de la Vinification par les plus renommés, d'où l'on a déduit, à l'aide d'une longue pratique, la methode rationelle. Par le Comte Odart. Paris, 1861. 8vo, pp. 558.

This is a charming little book, which, though its principal object is to show what the author considers the most rational mode of proceeding in and after the vintage, treats at such a length on the culture of the Vine itself, that it is of great interest to the Horticulturist as well as to the Wine-maker.

It is rather the work of the practical than of the scientific man, and therefore we may easily pardon his constant rubs against the chemist, some of which are just enough, while others are devoid of all reason. We may also pardon a little patriotic *amour propre.*

But without allowing that the red wines of Roussillon are equal to those of Oporto, or that France can produce such sherries as those of Spain, or Madeira equal to that of its own native country, or at least *vins de liqueurs*, as they are termed, which at all approach them, our principal object here assuredly is, if possible, to get some hints at Vine-growing. The cultivation, however, of Vines in the vineyard is so very different from that in an artificially heated house, that we cannot expect to gain much, and some of the favourite processes we must look at with amazement if not with distrust.

It seems clear, however, that the soil which in general suits Vines best is one of a tolerably free texture, intermixed more or less with stones, which in a hot country retain moisture when the surrounding soil is dry, and which cannot be removed without materially affecting the Vines. It is, in fact, the same condition which exists in some of our light lands, which lose their fertility almost entirely if the stones are removed. What Vines seem to suffer most from is a soil which sets hard when exposed to the sun, or beaten down with rain, or a stiff tenacious clay which will not suffer the roots a free passage. An impervious subsoil, if it is not too near the surface, and does not prevent proper drainage, does not seem to be injurious, though in some cases it is necessary to break through it to give the roots greater room. The cuttings are often made very long, with a view to prevent their drying up too rapidly before they can throw out a shoot, though reliance is not placed on the production of roots from the base, but rather from the upper portions of the rods. In soils which are subject to be beaten down into a solid mass, it is found advisable to use something by way of mulching, either in the more ordinary form, or in the shape of soil which does not set. Various manures are used, either properly so-called, or in the shape of top-dressings, but the one thing which is avoided more than anything else is raw stable manure, which can scarcely be employed without materially affecting the quality of the vintage—a good lesson to all advocates of coarse putrescent dressings. Green crops are often sown, as Lupines, &c., and ploughed in, and even the natural weeds are in some cases thought beneficial, but some aromatic plants are carefully extirpated, from some notion that they impair the bouquet.

There is one mode of manuring which we should not like to admit in the garden. When the cuttings are planted, a quantity of Heath or other slowly-decaying shrub, as Broom or Cistus, is previously buried in the soil, with a view to supply by its decomposition a slight degree of heat, and in the Vineyard itself large quantities of Reeds, Sedge, and other plants, or bundles of twigs are buried in trenches between the rows for the double purpose of supplying warmth and nutriment, but, as might easily be suspected, the Vines often become unhealthy and perish without the Vine dresser suspecting that the white fungous spawn which he sees has destroyed his plants, has really originated from some of these concealed faggots.

It is curious in open air cultivation to find the Vine-grower complaining, like our own gardeners, of a variety of diseases, such as rust, shanking, abortion, &c., and attributing them more frequently to the right cause. He knows that some kinds are more subject to particular forms of these diseases than others, and that even in the safest varieties much depends upon season and individual constitution. The mischief in the Vineyard is by no means over when the Grapes are ripe, for in the preparation of some kinds of wine an over maturity is necessary, or an artificial treatment after the Grapes are gathered, in the course of which in some seasons decay will take place in spite of every precaution, while some varieties will shank without attaining the state of desiccation which is requisite, so that instead of the berries approaching the condition of raisins they become sour and quite unfit for the wine press.

In general, Vines like a perfect drainage, and therefore succeed better on a slope than on flat ground, and though a great deal depends on aspect, good wines are made on particular parts of some hills which have a northern exposure, though this is the exception rather than the rule.

We are glad to see how completely the Vine mildew yields to the sulphur treatment, the sublimed sulphur being generally mixed, for the sake of economy, with quicklime.

In conclusion, while we see the importance of cultivating only the best varieties, proper attention being paid to the necessities of the peculiar district, and of the wines which they are best calculated to produce, we may feel surprised that our gardeners do not pay more attention to selecting those especial varieties which may suit their soil and appliances the best, while they frequently combine in the same house sorts which are utterly incompatible, and are surprised that they should have so little success. Where the soil is permanently wet, they cannot expect to avoid shanking and other diseases, nor can they be surprised if the berries mould or pass into a state of fermentation. As a general rule one variety only should be grown in each house, as it is difficult to find two which will not at some period of growth require a difference of treatment. We are convinced that if this simple rule were attended to, we should have far fewer complaints and disappointment, both on the part of gardeners and their employers.

Exposition des Produits de l'Horticulture à Caen du 15 au 18 Juin, 1865. *Programme.* Pp. 12.

This is the programme of the Central Horticultural Society of Caen and Calvados for the current year. The rules and proposed objects of exhibition are of course much the same as in other meetings of the same kind. We observe, however, one excellent rule which is not always adopted in country horticultural gatherings—that no name should appear on tickets till the prizes are determined. There are three prizes which are to be awarded by the Lady Patronesses, who themselves provide the medals—one for the most beautiful collection of plants, a second for the best bouquet, and a third for the plant which is considered to possess the greatest merit. They are to be assisted in their award by the President and two of the members. Prizes moreover are offered for the best cultivated gardens belonging to market gardeners, as also for the most profitable cultivation of any kind. The particulars, however, which are required for the determination are of too searching and inquisitive a nature to suit English tastes. Any object of art or any new implement or machine connected with horticulture is admitted, and a prize awarded according to the merit it may possess at the discretion of the judges. This, under proper regulation, might form a very interesting feature in such exhibitions.

Time was when the Royal Horticultural Society enjoyed, and deserved, a high reputation for the excellence of the papers (dissertations) that were published in its Transactions, and the care and skill with which they were drawn up. A glance at No. 1, Vol. V., of its present *Proceedings*, which has lately been published, shows that no such merit is now displayed. On the contrary, the new Number is a pitiable exhibition of negligence and ignorance, such as we should call unpardonable in the proceedings of the most obscure garden periodical. We take but one class of examples, that of bad spelling, which is worthy only of a dunce, and we do not presume to have exhausted even that schoolboy subject:—p. 2, *Jan.* 20, will be a ballot for 200 Cattleys! instead of Cattleyas; p. 6, Elucham Hall for Elmham Hall, and Corrœa for Correa; p. 20, Amaryllidæ, for Amaryllideæ, twice over; p. 23, dichomum for dichromum; p. 24, Cactii for Cacti, Aphelexis for Aphelexids, Baconia for Boronia, Chorozemias for Chorozemas. What is stuped (!) Queen of England in p. 23? Moreover, though this is the first portion of a new volume, it is without any proper beginning.

Catalogues Received.—*Francis & Arthur Dickson & Sons' Catalogue of Vegetable and Flower Seeds*, 1865, is a very ample list, containing a variety of useful remarks and ample directions for culture. Amongst vegetables the First and Best Early Pea is very highly spoken of.—*William Wood & Sons' Catalogue of Seeds* is another very full list, with useful cultural hints. Amongst the novelties we notice Lenormand's Cauliflower, a large French variety, said to be earlier than our English kinds; and an improved Variegated Kail, which is highly spoken of for the winter decoration of gardens.—*Chivas and Weaver's Catalogue of Vegetable and Flower Seeds* has, in addition to a good selection of these, what is called a monthly companion for amateurs.—*Lucombe Pince & Co.'s Select Catalogue of Seeds* is a summary of the choicer kinds of vegetables and flowers. We observe amongst Marrows a new sort called the Chusan, described as a compact shrub, producing an abundance of pale long green fruit, requiring little space, and being highly ornamental.—*E. Cooling's Select Catalogue of Seeds* comprises a good selection of sorts of moderate extent. There is offered amongst Melons a new hardy Ridge Melon from the Ionian Islands, with flavour "quite equal to Melons grown in a pit;" also a descriptive list of New Japanese plants.—*Richard Smith's List of Plants of the Fir Tribe* is a sort of garden cyclopædia of Coniferæ, containing a descriptive account of a very extensive collection. Mr. Smith's *Seed List* is of the select class, with much information relating to garden and farm scattered throughout.—*E. Taylor's (Malton) Catalogue of Fruit, Forest, and Ornamental Trees*, offers a selection of good useful plants. Among fruits we notice a tolerably full list of Gooseberries. Mr. Taylor's *Seed Catalogue* is also select.—*F. G. Godwin's Catalogue of Kitchen Garden Seeds* is confined to the more important varieties. The Myton Hall Cucumber is mentioned as one of the best sorts in cultivation.—*Flintham's (Rotherham) Catalogue of Seeds* is a select list, and is supplemented by the "Useful Garden Almanac."—*R. H. Poynter's Retail List of Seeds* is of moderate extent, and includes a calendar of operations.—*W. H. Rogers's Catalogue of Nursery Stock* is interspersed with many useful descriptive observations.—*Henry Brown's (Liverpool) Descriptive Catalogue of Seeds* is a very nicely arranged full list, with a variety of hints on cultivation and other information on various subjects. Among Pees, Brown's Early Exhibition is said to be the earliest in cultivation.—*S. Pousford & Son's Select Retail Catalogue of Seeds* is what its title indicates, and contains cultural hints for the principal subjects.—*The London Seed Company's General Price Current* is a full list of seeds for the garden and farm, with cultural notes.—*John Keynes's Descriptive Catalogue of Dahlias* offers a score of novelties, along with a select general collection. Most of the former, we observe, have won First-class Certificates.—*Hooper & Co.'s General Spring Catalogue* is a very full descriptive list of flower and vegetable seeds and roots, amongst which we notice a separate list of aquatic plants. Messrs. Hooper also offer Etruscan Pottery in considerable variety.

Of Scottish Catalogues we have before us:—*Peter S. Robertson's Sower's Guide*, an excellent and correctly got up list of farm and garden seeds, accompanied by descriptive notes and cultural hints.—*W. Drummond & Sons' Descriptive Catalogue of Vegetable and Flower Seeds*, another good descriptive list, select yet ample, with very useful notes. Their abridged *Selection of Flower Seeds*, with directions for their culture, is a sort of "handy-book" of the most popular flowers, chiefly annuals.—*Smith & Simons' Cultural Guide* contains the most ample information of any catalogue we have met with, and deals the most unsparingly with the uselessly long lists of varieties one often meets with, both as regards vegetables and flowers. Besides the general list of annuals, there are six separate selections for different purposes, prominently introducing about 100 of the best sorts.—*Downie Laird & Laing's Select Seed List* discards all inferior sorts, and offers among other things some 40 or more of "highly ornamental foliage plants," such as are used at Battersea, in Paris, and elsewhere.—*J. Stewart & Sons' Seed Catalogue* is less descriptive than most of the foregoing; their *Rose Catalogue* is full, and gives the usual information.—*Roughead & Park's (Haddington) Select List of Seeds* is confined to the sorts most worthy of recommendation.—*Thomas Kennedy & Co.'s (Dumfries) Forest and Ornamental Trees*, and *Select Vegetable and Flower Seeds*, afford ample choice of materials in these respective departments. The varieties of fruits are very fully described, and the seed lists are extensive, with directions for cultivation.

Of Irish Lists we have, in *Thomas McKenzie & Sons' (Cork) Vegetable, Flower, and Farm Seeds*, an exceedingly neat and well got-up list, with descriptive particulars and cultural hints. It also contains numerous figures of horticultural implements.

Of Foreign Lists, *Vilmorin-Andrieux et Cie.'s Catalogue des Graines d'Arbres et d'Arbustes* offers an extensive collection of the seeds of trees and shrubs.—*M. Villevielle's (à Manosque) Extrait des Prix-Courants* is a priced summary of his collection of fruits and ornamental trees, amongst which occurs the new rose-coloured Robinia Decaisneana.

Miscellaneous.

Mr. Miers.—We learn from the *Athenæum* that the Emperor of the Brazils has nominated Mr. John Miers a "Commendador," or Knight (of the highest class) of the Order of the Rose, and accompanied the insignia by an autograph letter.

Mushroom Beds.—In the formation of Mushroom beds, it is necessary to imitate as far as possible the conditions under which they are found growing naturally. In summer, beds may be made in any shed or cellar, and even in any shady situation out of doors, if covered with thatched hurdles to keep out the rain. Beds out of doors should be made deeper than those in a proper house, and they will be more lasting if the droppings are mixed with one fourth part of mellow turfy loam. In forming the bed, collect sufficient fresh horse droppings, spreading them out in any airy shed to dry, and turn them frequently, not allowing them to heat or ferment to any extent. After they have been so turned and dried as to prevent the possibility of their heating too violently when put together, make them up into a bed about 1 foot deep, beating them firmly together. If the droppings have been carefully prepared, gentle fermentation will soon commence, and by inserting a thermometer, the rise or fall of the temperature can be ascertained. If it rises too high, the surface of the bed must be loosened with a dungfork, and when showing symptoms of declining must again be beaten firm. When the temperature of the bed is from 75° to 80°, with no danger of its rising higher, put in the spawn. This is done by making holes about 4 inches deep, and 9 inches apart, inserting pieces of spawn about the size of an egg, and covering with the dung, pressing it closely about the spawn. It is of the greatest importance that the temperature of the bed should not decline below 70°, nor rise above 80° for a month after spawning, and it must be closely watched, lowering the temperature of the house, or covering the beds with mats, or straw as may be necessary. Within a fortnight after spawning cover the bed about 2 inches thick with good moist soil, and beat it firm. If before putting on the soil a covering of about 2 inches of cowdung (in about the same state as to moisture as the soil) is spread over the bed, it will last longer, and produce a larger crop of Mushrooms than if covered with soil only. After the bed has been made up and spawned, keep the house shut up, excluding the light, and use the syringe occasionally to keep the bed moist. This will be all the attention required. The most suitable temperature for beds in bearing is 50° to 55°, as a high temperature causes the Mushrooms to come small; and watering the beds when in bearing causes the young Mushrooms to damp off; therefore water only when the bed ceases to be productive, using water about the same temperature as the bed. Care must be taken in gathering the crop, so as not to dislodge or destroy the young Mushrooms. *Dickson & Sons' Seed Catalogue.*

Apples.—The Dorchester magistrates have decided that Apples are not agricultural produce, and therefore not exempt from toll when conveyed by horse and cart through turnpike gates.

Age of Vines.—The age to which the Vine continues to bear well ranges ordinarily from 60 to 70 years, often more, and under favourable circumstances of site and soil it is long lived. In the Gironde, when properly attended to, it will last from 100 to 150 years. In the commune of Pauillac, in a gravelly soil, there are Vines 200 years old; whilst at Pessac some are shown of a yet greater age, planted, as is there traditionally believed, in the 14th century, during the pontificate of Clement V. A Vine in Burgundy is credibly recorded to have lived 400 years, and in Italy plants three centuries old continue to flourish productively. *Denman's Vine and its Fruit.*

Servian Flora.—One peculiarity of Servia, Mr. Denton says, will not fail to be noticed by an English traveller. The Flora is almost entirely English. The banks skirting the roads which wind through the forests are carpeted with the wild Strawberry, and the open glades which run into the woods abound with the wild Raspberry; the thin soil on the steep sides of many of the hills is covered with the Whortleberry; the weeds and wild flowers of the fields also are those which are commonly met with in England; Violets and Daisies, Pansies and Spurge, Primroses and Oxlips, Forget-me-nots and Speedwells, Orchises of all shades, and wild Garlic, Meadow Saffron and the Cuckoo flower, or Ragged Robin. The hedges are powdered with Honeysuckle and the Clematis, and fringed with yellow Broom, with Bramble bushes, Dog Roses, and the White and Blackthorn. Trees, indeed, that are comparatively rare in England are met with in profusion in Servia. The wild Pear and Cherry, the Plum, and the Apple, may be seen in great numbers in the woods; the Acacia and Laburnum are met with by the sides of the roads, and Lilacs abound on all the hill sides. *Quarterly Review, Jan.* 1865.

Calendar of Operations.

(*For the ensuing week.*)

THE necessity of acting on physiological principles in all gardening operations is now pretty generally acknowledged. Nature works by rule, as surely as the expert artisan or mechanic, and our wisdom consists in first finding out her methods of procedure, and then imitating them. By a long course of experience, if guided by a habit of observation, every man will in time become skilful; but there is a more compendious method by which much time will be saved, and that is by reading the results of the observations of others. Let us recommend to every young beginner interested in plant culture the importance of studying well Dr. Lindley's "Theory of Horticulture." Many have acknowledged that they owe much of the pleasure and success which they have found in gardening to the perusal of that book; and no one can be ignorant of first principles and hope to be successful horticulturists. The labour of years will be superseded by becoming acquainted in this easy manner with the discoveries of others, and with the great laws of vegetable growth which the collation of those discoveries has brought to light. A man may indeed be a great reader, and yet not a practical gardener; but a judicious application to books will always shorten his labour and make his failures fewer. The reason why a certain mode of planting and potting is more efficient than others, it is very desirable to know on many accounts, and a man must either discover the theory by extensive research or learn it from others. Most persons will prefer the latter method, and the book we have named will prove a safe guide.

FLOWER GARDEN AND PLANT HOUSES.

The weather being still favourable for carrying on out-door alterations, soils for flower beds may be prepared, and digging and trenching where necessary may be pushed forward with advantage. The propagation of plants for massing must also now receive attention. Stock in pits should likewise be looked over, and any plants likely to prove short of the expected demand should be removed to where there is a gentle heat, to force them into growth for cuttings.

AURICULAS.—Whenever the weather is favourable let these have as much air as possible.

BEDDING PLANTS.—These, if in pots, must also have air whenever the weather is mild, but means of protection at night must be at hand.

CARNATIONS AND PICOTEES.—Draw the lights off these in the day time when dry, but let them be put on again at night.

CINERARIAS.—Secure these from frost, from which they are very liable to suffer. Strong growing plants may now require a shift, in order that their pots may be well filled with roots by flowering time. When fully established they may have an occasional watering with weak liquid manure.

FORCED FLOWERS.—Successional batches of Roses and Dutch bulbs may now be placed in heat. Among Tulips one of the best for forcing is Samson, a handsome variety, belonging to the Van Thol section. Where pots are scarce, bulbs of all kinds beginning to push may be advanced without injury by being placed thickly on soil under a greenhouse stage. They can afterwards, when convenient, be taken up and potted. Plants in pots of Lily of the Valley and of Weigela rosea should now be placed in heat.

PELARGONIUMS.—These will now be growing slowly; therefore in fine weather let them have as much air as possible, consistent with the proper temperature. Fancy varieties may be kept a little warmer than ordinary kinds.

PRIMULAS.—Water those in bloom with very weak liquid manure occasionally, and bring others forward for succession.

FORCING GARDEN.

High temperature must still be avoided, or unhealthy growth will be the result.

ASPARAGUS.—Prepare a new bed to succeed that now becoming exhausted. On fine days give as much air as possible consistent with maintaining a proper amount of heat.

CARROTS.—Sow a little Dutch or Early Horn in a 2-light box on a gentle bottom heat.

CUCUMBERS.—Worn out plants in houses may now be rooted up, the beds renewed, and their places filled with young plants.

PEACHES.—Admit air freely whenever the weather is mild, and keep the atmosphere moist, maintaining a steady night temperature of about 50°. Very early houses in which the fruit is set should be afforded a nice growing temperature, syringing liberally to prevent red spider, and keeping the border in a healthy state as to moisture to secure a vigorous root action,

PINES.—If not already done, young plants growing in beds that have been some time planted will be benefited by having the soil loosened up as deeply as can be done without injuring the roots, giving it a liberal soaking of tepid water if it be found to be too dry. The water should be applied by means of a pot with a rose on it, and not so fast as to flood the surface, for if this is done the soil will be rendered almost as close as before forking up; indeed, careless watering is the great cause of the surface of the soil becoming close and hard, and should be carefully avoided. Endeavour to afford a nice bottom-heat, with a thoroughly moist atmosphere, and keep the plants growing as freely as may be consistent with preserving them dwarf and bushy. Have a constant eye to maintaining a succession of fruit, or securing a supply at the season when it may be most wanted, and let the treatment of the plants be regulated according to circumstances; this is a matter which demands considerable forethought, and which can be successfully managed only by careful observation and attention.

POTATOS.—If not already done let some be planted in a frame on a gentle bottom-heat.

VINES.—Be satisfied with as low a temperature from fire-heat as may be considered safe, but shut up early, allowing the thermometer to rise considerably. This will to some extent economise fuel, and will be much more congenial than having recourse to much fire-heat.

HARDY FRUIT AND KITCHEN GARDEN.

Digging and trenching may now be carried on with activity, and, where necessary, drains may also still be put in. Wheeling should, if possible, be kept for hard weather.

APPLES.—Pruning and thinning of these must now be pushed forward with expedition. Where necessary, root-pruning may also be performed; but this kind of work is best done in the autumn.

PEARS.—The observations made in reference to Apples also apply to these.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Feb. 8, 1865, as observed at the Horticultural Gardens

February	Moon's Age.	Barometer.		Temperature.					Wind	Rain
				Of the Air.			Of the Earth			
		Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep		
Thurs. 2	6	29.094	29.052	54	34	44.0	41	40½	S.W.	.06
Friday 3	7	29.257	29.113	52	34	43.0	42½	41	S.	.00
Satur. 4	8	29.604	29.444	39	30	34.5	43	41½	N.E.	.00
Sunday 5	9	29.786	29.685	39	32	35.5	42	42	E.	.12
Mon. 6	10	29.906	29.859	45	35	40.5	42	41½	S.	.04
Tues. 7	11	29.901	29.762	50	33	41.5	42½	42	S.W	.08
Wed. 8	12	30.045	29.801	39	24	36.5	44	42½	N.E.	.00
Average.		29.657	29.602	45.5	31.7	38.6	42.4	41.5		.21

Feb. 2—Partially overcast; fine; cloudy, rain at night.
— 3—Hazy and cloudy; fine; rather mild.
— 4—Foggy; uniform haze; snow with cold wind.
— 5—Uniform haze; the day scarcely warmer than the night, rain
— 6—Hazy; uniformly overcast; rain at night.
— 7—Drizzly; rain; densely overcast; rain.
— 8—Uniformly overcast; cold N. E. wind; frosty.
Mean temperature of the week, ½ deg. below the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 39 years, for the ensuing Week, ending Feb. 18, 1865.

February.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds.							
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 12..	44.9	29.7	37.3	16	0.26 in.	4	7	1	—	4	12	8	3
Mon. 13..	44.4	29.6	37.0	14	0.37	3	5	5	2	5	11	6	2
Tues. 14..	45.7	31.3	38.5	11	0.50	1	5	4	3	3	13	8	2
Wed. 15..	48.9	31.4	39.2	14	0.37	4	4	5	—	5	11	7	3
Thurs. 16..	46.7	30.6	38.7	9	0.23	6	6	4	3	1	9	7	3
Friday 17..	44.1	31.0	37.6	15	0.32	3	5	4	3	5	7	9	3
Satur. 18..	45.1	30.9	38.0	16	0.30	5	4	4	2	5	9	6	4

The highest temperature during the above period occurred on the 16th, 1863—therm. 59 deg.; and the lowest on the 13th, 1855—therm. at zero.

Notices to Correspondents.

ARROWROOT: *C E P* will find the subject treated at length in Dr. Lankester's Lectures on Food. Starch is held to be a heat-giving or respiratory, not a flesh-forming or nutritious element of food.

COLOURED KAIL: *An Old Subscriber* asks if seeds of the different coloured Kails, such as those recently noticed as suitable for garden decoration, can anywhere be obtained. We suspect not. They must be carefully selected; Melville's variety is the best accessible one that we know of to be taken as a starting point.

CYCLAMEN: *M T.* We cannot tell what ails yours without seeing them. Cyclamen persicum in apparently good foliage and full of buds ought to bring its blossoms to perfection, and if yours does not, but they either die off or look shrivelled and withered, it is probably owing to a deficiency of warmth, or perhaps to cold draughts, or they may have been frozen and damaged in the bud.

FUNGI: *W Head.* Your Fungus is Clavaria flaccida. The best way of sending Fungi is to wrap them in soft paper and pack them firmly with any soft dry material in a box of thin tin. On no account put any damp moss with them, as it is almost sure to cause decay.—*C F P.* Your Fungus is Peziza coccinea. *M. J. B.*

GREENHOUSES: *J Brook.* There is no better plan of warming greenhouses than by means of a simple hot-water apparatus, with a boiler of quick action—such as the tubular ones now so much used. In regard to your other question, you may safely place yourself in the hands of the principal builders whose names appear in our advertising columns.

HOLLY BERRIES: *Amateur.* The seeds of the Holly do not germinate the first year, and it is usual therefore to keep them mixed up in a heap of earth or sand for one season before sowing, during which time it is advisable to turn them over two or three times, so as to facilitate the decay of the pulp and husks. They may be sown in autumn.

HOT-WATER PIPES: *M C* is desirous of ascertaining where Todd's Patent Protoxide Paint is now to be had. He states that it cannot be obtained in Dublin. Will some correspondent be good enough to say?

INSECTS: 46. We do not know the Otter Moth. The larvæ of the pale Tussock moth are called Hop digs in Kent, as they feed on Hops. *W.*

NAMES OF PLANTS: *P A.* 1, Selaginella Galeottii; 2, Selaginella Martensii; 3, Asplenium flabellifolium: 4, Asplenium bulbiferum.—*E A Q.* 1, Stenochlæna tenuifolia; 2, Lastrea acuminata; 3, Lastrea Shepherdi; 4, Blechnum occidentale v. pectinatum.—*W Head.* The plant growing on your old Apple trees is one of the species of Jungermannia or Scale-Moss, of which there is a considerable number found in this country.—*E J.* Asplenium lanceolatum.—*J G C.* Daphne indica rubra. The Camellia we do not recognise; it is probably a seedling

TOBACCO: *D B.* asks this question:—A gentleman's gardener has been in the habit of growing Tobacco, and drying it for the use of his hot houses, but for no other purpose. Does not this practice render him liable to have an information laid against him by the officers of the Inland Revenue for evading duty? We believe that strictly it is not permissible to grow more than half a pole of Tobacco plants, and that only in a physic garden and for medical purposes. Whether or not the narcotising of the insects which infest plants comes under this definition we are not prepared to say.

VINES: *Constant Reader.* The retention of so much young wood could hardly have failed to affect injuriously the ripening of the whole, and to weaken the lower buds, and this is no doubt the reason the Vines now fail to show fruit or to break satisfactorily. To have cut out from three Vineries wood enough, and more than enough, to serve for fire lights all the winter was severe pruning, and the wood must have been in much too crowded a state.

LAWES'S MANURES.—The Manures manufactured by J. B. LAWES for the present Season of 1865 are now ready for delivery at his Factories, at the following prices:—
LAWES'S PATENT TURNIP MANURE, and BONE SUPERPHOSPHATE of LIME, £6 6s. per ton.
LAWES'S SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES, £5 5s. per ton.
LAWES'S WHEAT, BARLEY, GRASS, and MANGEL MANURES, £8 per ton.
CONCENTRATED CORN and GRASS MANURE, £12 per ton.
These Manures can be obtained of Mr. LAWES, or through his appointed Agents, in all parts of the United Kingdom, at prices varying according to cost of carriage.
Genuine PERUVIAN GUANO direct from the Importers.
NITRATE of SODA, SULPHATE of AMMONIA, and other Chemical Manures. AMERICAN and other CAKES at market prices.
Address JOHN BENNET LAWES, 1, Adelaide Place, London Bridge, E.C.; and 22, Eden Quay, Dublin.

THE LONDON MANURE COMPANY have now ready in fine condition—
DISSOLVED BONES,
SUPERPHOSPHATES of LIME,
TURNIP MANURE,
BLOOD MANURE for Barley and Roots,
URATE,
MANGEL MANURE, &c. &c.
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No. 2. The Company will supply plans, specifications, and estimates for any improvements to be executed by the landowner's agent as under No. 1. In each of these cases the landowner will be solely under the control of the Enclosure Commissioners.
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THE MIDLAND FARMERS' CLUB.—A SPECIAL MEETING of the MIDLAND FARMERS' CLUB will be held at the Lecture Theatre of the Philosophical Institution, Cannon Street, Birmingham, on THURSDAY NEXT, February 16, at 3 o'clock, to ELECT a PRESIDENT for 1865, and to determine upon what course shall be pursued with reference to the discussion on the Tenure of Land, and the Agreement drawn up by the Committee. JOHN B. LYTHALL, Secretary.

The Agricultural Gazette.

SATURDAY, FEBRUARY 11, 1865.

THE past week has been of unusual agricultural interest in London. On Wednesday a large and influential meeting assembled for the adoption of resolutions declaring the unfairness and mischievousness of the Malt duty; and a deputation on the following day waited on the CHANCELLOR of the EXCHEQUER, to urge the propriety of reducing or removing this tax. The reply of Mr. GLADSTONE was couched in the most general terms, and merely stated that if, at the end of the financial year, a surplus of revenue should appear, it would be the duty of the Government to apply it towards such a reduction of taxation as would benefit the whole community alike, and the agricultural interest therefore with the rest. If, however, the present duty, as is alleged, has hitherto pressed more heavily on the agricultural than on any other interest, it appears to us, notwithstanding the apparent fairness of this reply, that we have that priority of claim on Mr. GLADSTONE'S consideration which he denies.

On Thursday a meeting was held in St. James's Hall, to raise a fund for the establishment of a Charity, to bear the name of the late JOHN FOWLER, on behalf of labouring men and their families injured by field machinery. Lord FAVERSHAM presided, and 40 or 50 gentlemen from all parts of England were present to testify to the great national loss which the death of Mr. FOWLER has inflicted. Lord PORTMAN and Mr. HOLLAND, M.P., were detained from the meeting by illness. Ample testimony was borne by Mr. RUCK, Mr. WILLIAMS, Mr. SANDERS, Mr. EDDISON and others, to Mr. FOWLER'S distinguished public services, and to his high-minded personal character. In particular, a most eloquent eulogium was pronounced by Mr. EDDISON of Leeds. And we cannot doubt that in honour of a memory so worthily held dear, not only over the country generally, but in the large town where Mr. FOWLER had latterly resided, a sufficient sum will be collected to establish the proposed Institution, by which his name will be most appropriately handed down.

On the afternoon of the same day a meeting assembled in the same room to consider the state of the law with reference to the use of the public roads by travelling agricultural engines. Lord KINNAIRD presided; and it is a great proof of the interest which the subject excites that several hundreds of agriculturists should have assembled to discuss it at the very time when the deputation on the Malt Duty, which must have taken away so many, was engaged with the CHANCELLOR of the EXCHEQUER. Mr. CALTHORP, M.P., and Mr. W. MARTIN, M.P., moved and seconded the first resolution—the latter relating the history of one of the first orders which the HOME SECRETARY had issued to forbid the travelling of these engines except during the night; and showing how it was the work of a very small minority of the residents in the district affected by the order, and in fact ultimately the work of only one, and he a man who had to confess that he had never met or seen one of these engines in his life. A dozen or more gentlemen, not only agriculturists, but men interested in mining operations, for whom these travelling engines are of the greatest importance, bore testimony to the stoppage of all work which must follow these orders of the HOME SECRETARY. Mr. HARRISON pointed out that the clay land of the country, generally in small holdings, is dependent on hired machines for any share it can have in the advantages of steam cultivation; but hired machines will no longer be workable at a profit if the daylight is not to be available for shifting them and placing them. Mr. NICHOLS, of Ilchester, has four of these machines, and has travelled 600 miles of road with them, and had never yet met with an accident. If however he is driven by the law to travel in the night, this is not likely much longer to be the case. It was on all hands agreed that the danger of mischief is in fact much increased by insisting upon travelling by night; that by daylight it is nothing; but that anyhow a horse now-a-days cannot be considered fairly broken in until it is broken to steam.

A Deputation from this meeting waits on the HOME SECRETARY as we are going to press.

THE discussion on THE AGRICULTURAL UTILIZATION OF LONDON SEWAGE lasted over a second evening before the Society of Arts. Last Wednesday Dr. VOELCKER, Mr. SIDNEY, Dr. GILBERT, Mr. Alderman MECHI, Mr. RAWLINSON, Mr. BOWING, Mr. J. T. HARRISON, C.E., Mr. STUART BARKER, and Mr. BACHOFFNER addressed themselves to the subject.—Dr. VOELCKER'S speech discussed chiefly the influence of the varying character of soils on the question. He showed that light and sandy soils are the only kinds adapted for dealing with the enormous quantities which constitute the drainage of London.—Mr. SIDNEY entered on a general discussion of the experience of the different towns where attempts had been made to deal with it, and showed that heavy dressings of it offer the only instances of profitable experience.—Dr. GILBERT offered a defence, which seemed to us complete, of the Royal Commissioners' proceedings at Rugby, which had been attacked by Mr. WALKER.—Mr. Alderman MECHI defended Baron LIEBIG'S recent letter, which he declared to be "exhaustive and conclusive" of the subject.—Mr. RAWLINSON showed that the cost of the small dose plan is altogether fatal to it.—Mr. BOWING criticised Mr. MORTON'S paper in the interest of those schemes which propose to deal with sewage in small doses.—Mr. HARRISON dealt with Baron LIEBIG'S argument that the utilization of sewage is the salvation of British agriculture. On the contrary, even on the most extravagantly small dose plan, it would not overtake a tithe of the area of English agriculture, so that nine-tenths of that area are still certain, on LIEBIG'S principles, ultimately to go to "rack and ruin."—Mr. STUART BARKER in particular defended the Carlisle experience, which he declared to be encouraging in the highest degree; and

Dr. Bachoffner argued in favour of the large dressings rather than the small—in favour of the allopathic rather than the homœopathic treatment of the soil.

The discussion was thus almost entirely in favour of applying sewage in quantity, as in water meadows, not by pipe and hose in small dressings. The Chairman, Mr. Chadwick, however, evidently favoured the latter view, and alleged that the question ought to be decided in every instance, whether of a farm or town, by actual experiment, even in flower pots and with water pots, certainly with water cart and small field plots, before any particular plan of operation is adopted. He concluded by emphatically declaring that on this subject he could not take the opinions of the farmers, for their practices and prejudices all ran counter to the use of liquid manure.

Now there was one point that cropped out occasionally during the debate, and which is especially apparent in this remark of Mr. Chadwick's, on which a reply ought to have been made, and would have been made, had it not been for the lateness of the hour to which the discussion reached. The ground on which Mr. Morton rests his argument throughout, is *the absolute sovereignty of agricultural experience in the decision of all agricultural questions.*

This is not urged as a doctrine, but as a fact. It is not that so it ought to be, but that so it inevitably is. Where can we find a better illustration of this truth than Baron Liebig and his letter give us? If ever there was an autocrat in science, or one whose mere authority would carry everything before it, it is Baron Liebig in the realms of chemistry; and yet he is of course as helpless and as powerless as a child in any attempt to disprove facts or thwart the course of Nature. He confesses simply enough that he tried it once and failed; and the great German philosopher found that he could no more thwart the course of Nature than the old Danish King could stem the tide. It will be seen, however, in his letter, which appears in our columns to-day, that this is really what he again attempts to do. He declares that according to all the lights of science guano is worth rather less than 8*l.* a ton. Is it therefore worth rather less than 8*l.* a ton? No; it is worth rather more than 12*l.* a ton. This, indeed, he calls a "fancy" price. On the contrary, it is the *real* price, as any one going into the guano market will find. Agricultural experience of guano during 20 years of a trade exceeding 1,000,000*l.* per annum, and over an acreage of probably more than 1000 square miles every year, has determined its real value to the farmer past all power of chemical authority to upset it.

And so with other points and topics in the agricultural field: once get the agricultural verdict fairly and it is final—it must be the true one. Whatever may be the prepossessions of the man of science there can be no appeal. Hence it is that if we can show how the analogy of ordinary agricultural experience bears upon the sewage question, and still better, if we can quote the records of actual agricultural experience of sewage elsewhere in illustration of the treatment of the question at the metropolis, we shall have thus obtained the only safe guide through its difficulties. And this was what in Mr. Morton's paper was attempted. Lord Robert Montagu does not indeed see how the analogy of agricultural experience leads to the conclusion that it is the best policy to put sewage on Grass land in quantity as in a water meadow. On the contrary he believes that the farmer puts on his manure sparingly, carefully calculating how much the crop will pay for and not putting more. But if agricultural experience proves anything, it proves that plants must be treated according to the nature of them. A rapid succulent growth, which is what we want in Grass, is obtained by excessive manuring. The London market gardener, as we showed the other day, applies 60 to 80 tons of solid dung per acre to the Cabbage crops of a single year. And it is consistent with this that the grower of a single acre of Italian Rye-grass, where succulent growth is also wanted, should put 10,000 tons of sewage on it in the course of a single year.

But we are not dependent only on analogy to guide us here. They have for years and generations been putting 10,000 tons of sewage per acre over many hundred acres of poor land near Edinburgh. Here is a case which, as it seems to us, fairly closes the door on any further discussion. If ever there was a satisfactory and conclusive bit of agricultural evidence on the subject, it is this. Three hundred and fifty acres in extent, and 50 to 100 years in duration—it is altogether unassailable. By the use of sewage in quantity, these 350 acres are made to keep 2000 cows during the season of growth. They must yield 50 tons of Grass per acre to do it—or a ton of Grass to every 200 tons of the stuff poured on. This, however, the advocates of minimum dressings declare to be a poor result. All we know is that there is nothing like it anywhere else in England; and taking the character and continuance as well as the quality of the produce into account, we don't suppose that there is anything like it anywhere else on the face of the earth.

Add to this result the one which Mr. Lawes observed at Rugby, and the argument in favour of abundant dressings appears to be irresistible. He found that the increase of produce under sewage was very fairly in direct proportion to the quantity of the stuff put on. Lord Robert Montagu indeed denied this, and quoted—whence, we know not—figures declaring that while 3000 tons of sewage per acre raised the growth of Grass from 9 tons to 22, 6000 tons added only one-third more, and 9000 tons only one-fifteenth. That would be 9, 22, 29, and 31 tons per acre for "nothing," and the three successive dressings respectively. The figures, as we read them in Mr. Lawes' report, are not 9, 22, 29, and 31, but in one instance 9, 15, 27, and 33, and in another 9, 16, 23, and 27 tons per acre for the successive dressings.

The successive steps were not 13, 7, and 2 tons of increased produce as Lord Robert Montagu alleged, which would have justified his assertion of diminishing effect from an increasing application, but 6, 12, and 6 in one case, and 7, 7, and 4 in another. Putting the two cases together, the Grass which grew where the heaviest dressings were applied was 3 tons 13 cwt. for every 1000 tons of sewage, and where the least quantity was applied it was 3 tons 15 cwt. per 1000 tons. This seems to bear out the assertion that the Grass produced is in direct proportion to the sewage applied. And this (with the Edinburgh results) is about the whole of what has been accurately ascertained upon this subject. We contend, in conclusion, that we are only safe, as we stand upon these, the actually achieved results of agricultural experience.

PRESENT POSITION OF THE FARMER.

I should not have ventured to trouble you with any comments of mine on Mr. Williams's lecture to the Hungerford Farmers' Club (p. 58), had it only appeared in our local journal—it bears so much more the appearance of a political squib than a contribution to English farming. But as you have given it a leading place in the *Agricultural Gazette*, I think it right in the interest of all the farmers in these southern counties to protest against the assumption therein contained, that at the present prices of corn and meat, a tenant farmer on good stock land can make only 8 per cent. of his capital—that on 400 acres of land, worth 1*l.* an acre, or 30*s.*, including tithes or taxes, he can only grow 1300*l.* worth of corn, or keep more than a flock of 300 ewes—and that his only refuge is to "sit solitary" and bemoan the present times (times of unexampled prosperity to every one else), to quarrel with the fixed payments of rent, tithes, and taxes, and to raise some vain expectation of a "good time coming," through tampering with the excise and game laws. I shall endeavour to show that things are not quite so bad as they seem to him; and that the tenant of that model farm of 400 acres which he has instanced, might under present prospects and present prices have presented to the listeners at Hungerford a much more prosperous balance sheet, and thereby lightened the sombre cloud which must have overcast the conviviality of their meeting.

You are quite right in characterising Mr. Williams as "a gentleman of well-known ability in the agricultural world." No one appreciates better the advantages and power of steam. Had he not been biassed by his preconceived opinions he would have made good use of it in drawing up his model balance-sheet, instead of putting it apologetically in a postscript, "fearing he might be thought to teach radical principles."

Had he done so he would have debited the yearly expenses with a higher sum for steam-engine, and less than 13 horses' keep. His ploughing would have been better and deeper, and the total annual outgoings perhaps rather less, but with these items I have no fault to find. I quarrel entirely with his receipts. I have had the pleasure of riding over that neighbourhood frequently with the Craven hounds. I know it to be a generally good Wheat land, capable if clean and moderately cultivated of growing 5 quarters to the acre. I also know that in fair seasons, and with proper attention, it will bear good crops of Vetches, Rape, Cabbages, Swedes, and Beans; and I contend that by a proper application of these crops to feeding his stock fat instead of selling it in store condition, he would reap from his 92 acres Wheat at least 450 quarters = 900*l.*; from his Barley and Oats, 8*l.* per acre, or 800*l.*, making his corn receipts 1728*l.* instead of 1319*l.* In addition to this he would sell his tegs fat at or after Christmas at 50*s.* each, instead of an average of 26*s.*, making a return of 45*l.* in lieu of the 220*l.* credited, and cattle and pigs in the like proportion; but I will not add any portion of these stock receipts to the 1728*l.* for corn. Supposing the stock to realise only the same sum beyond their expenses, and deducting the 1663*l.* annual outgoings, there will still remain to our model tenant the handsome balance of 640*l.*—more than 20 per cent. on his capital.

To prove the accuracy of these figures, I am aware it would be necessary to prove correct the two following theorems:—1st, That the food consumed in fatting an animal from store to fat condition will be paid for at present prices of meat, not by the increased value of the animal. 2d, That land of the quality above described will, if properly cultivated and manured, yield 5 quarters of Wheat to the acre, or an equivalent of spring corn every alternate year. Should any one deny these propositions (which I believe are now accepted by most thoughtful farmers) I would refer them to some articles in your Paper last summer on Condition in land, wherein I endeavoured to prove both theoretically and in practice the truth of them—the proof of them now were far too lengthy for this article. I will merely mention the great saving of expense through chaff-cutting and pulping machines, and of cartage through portable grinding mills, which have been of recent introduction, as additional evidence of the former, and the continually reported superiority of the effects of corn and cake-made dung over the application of rotten and rain-washed straw as confirmatory of the latter proposition. In fact, Mr. Williams quotes an instance of a neighbour of his who has adopted this plan with success. These are evidently times of transition. Old prices have passed away; new prices have not yet settled down. How much more worthily might the Southern counties' farmer take a leaf out of the East Lothian Club's book, where rents are much higher than here, and yet they look hopefully on the future. How much more sensible were it to employ his energies in growing more wool and fatting more meat, now that the prices of these products are so tempting. The increase of corn will follow as a matter of course, and if after a time prices should return to their former level, he will be prepared to reap the full advantage. Invoking Hercules in the shape of the Chancellor of the Exchequer will never be half so profitable as putting his own shoulder to the wheel. *J. B. M.*

EXPERIMENTS ON GROUND COPROLITES.

In the *Gardeners' Chronicle* of Nov. 23, 1861, I had the pleasure of laying before your readers the results of some experiments on coprolites (ground to an impalpable powder), and which showed in favour of their value as a manure. The plots then experimented on were considered too small to obtain trustworthy results, therefore in the following season one-eighth of an acre was taken for each experiment.

The field in which the experiments were tried was the same as on the previous occasion. After a winter fallow it was ploughed and managed in the usual way. A piece of ground was measured out through the centre of the field, and divided into six equal parts of one-eighth of an acre each. The manures used were bone meal, ground coprolites, bone ash, dissolved bones, and dissolved coprolites. One plot remained unmanured. All the manures were mixed with dry coal ashes, and sown by hand, an equal quantity being measured out for each drill.

The quantity of manure used, and the cost per acre, will be seen by the following Table:—

Plot.		Rate per acre.	Cost per acre.
		Cwt.	s.
1	Bone meal	3	21
2	Bone-ash	5	25
3	Unmanured	—	—
4	Coprolites (ground)	5	20
5	Dissolved bones	3	21
6	Dissolved coprolites	3	21

Each plot had 52 drills at 18 inches apart, and the seeds were sown with the manure on the 18th of June. The plants all came up about the same time, and appeared very regular; they were then hoed and thinned in the usual way.

As they advanced in growth they ran a great deal to neck, the bulbs being very irregular in size. The most regular crop in appearance at the time of pulling was that on which the ground coprolites were used. The season generally was of a fair average. In November they were taken up, topped and tailed, and weighed. In Plot No. 1 all the roots were weighed, whereas in the other plots only 13 drills were weighed.

The following Table will show the separate results of the weighing:—

Plot.		Number of drills weighed.	Weight.	Weight per acre.			
			lb.	Tons	cwt.	qr.	lb.
1	Bone meal	52	3778	13	9	3	12
2	Bone-ash	13	1042	14	17	2	20
3	Unmanured	13	924	13	4	0	[illegible]
4	Ground coprolites ..	13	1102	15	15	0	16
5	Dissolved bones ..	13	994	14	4	0	0
6	Dissolved coprolites	13	936	13	7	1	20

In looking at the above results, we find that th

Swedes manured with ground coprolites have given the greatest yield per acre. [This must be altogether exceptional.] Those manured with bone-ash are second best, and those manured with dissolved bones stand next.

That portion manured with dissolved coprolites, appears very little better than the unmanured portion, the reason of which may be this: the dissolved coprolites were fresh made, and there might have been a little free acid present, and thus have injured the young plant; or the plot being somewhat shaded by an orchard, the plants might have been checked in that way, as I observed that the remaining Swedes in that plot grew much larger afterwards, the season being then very mild.

The above experiments were carried on under my own superintendence and with the utmost care. The results being laid before your readers, they can draw their own conclusions from them. The experiments made the following year I hope to have the pleasure of sending to you in the course of a week or two. *E. T. Kensington, F.C.S., Moolham, Somerset.*

REPORT OF BARON LIEBIG ON METROPOLITAN SEWAGE.

THE following is the communication from Baron Liebig, President of the Royal Academy of Science at Munich, on the subject of the utilisation of metropolitan sewage, which was read at the Common Council last week, and referred by it to the Coal and Corn and Finance Committee for consideration:—

TO THE RIGHT HON. THE LORD MAYOR OF LONDON.

Munich, Jan. 19, 1865.

MY LORD.—In compliance with a request on the part of the Corporation, I have the honour to send your Lordship my views on the utilisation of the sewage of the metropolis. After a profound and admirable investigation of the sanitary, engineering, and agricultural questions connected with the sewage, the select committee of the House of Commons, under the presidency of Lord Robert Montagu, came to the conclusion that it was not only possible to utilise sewage, but that by its application to agricultural purposes, if properly conducted, great benefits might be derived from its use both by the country at large and the towns which furnished it.

An attentive observation of what has been written and spoken on this question leads me to believe that the greater number of persons in England, even the more enlightened, look upon sewage as a nuisance; they think it ought to be got rid of by any means, and the more quickly the better. It is to those who entertain such opinions that I shall chiefly address my remarks, and if my endeavours to convince them of the money value of the commodity should be successful, and thus prevent over-hasty steps being taken, the task I have set myself would be fulfilled.

These questions therefore, which have been elucidated already by the report of the Select Committee of the House of Commons, I shall leave untouched, and shall confine myself wholly to the endeavour to put in their proper light before the farmers, the inhabitants of towns, and the legislature those facts and principles which ought to be taken as guides in any estimate of the worth and importance of sewage.

With regard to my computation of its value, your Lordship will have the goodness to accept the numbers here given for neither more nor less than they were intended—as a starting point, namely, for certain calculations, in order to reduce to a more tangible form the result of my inquiries. These figures are not put forth as absolutely correct; indeed, in the present state of the matter no person in the world is able to state them with perfect accuracy.

Whoever is conversant with the history of agriculture will know that in the latter half of the last century practice found a means by the cultivation of Clover and other fodder for putting an end to the three-fold system, and for beginning a new one of rotation of crops. The result was an increase in the agricultural produce, which hitherto had been regularly diminishing. The pith of the new system adopted is contained in the following aphorism:—"The more fodder the more flesh, the more flesh the more manure, the more manure the more grain."

At that time no one had any correct idea of the cause of the fertility of the soil or the effect of manure, nor did it then occur to anybody that the fertility of the Clover fields would ever have an end. The whole system of farming was based on the production of farmyard manure by means of fields of fodder. That a Clover field could not form an exception to general laws, but must be subjected to the same conditions as a cornfield, was clear enough; and a time must therefore come when manuring would be as much a necessity for one as for the other in order to maintain its productiveness. For the cornfields stable manure was indispensable, but for the Clover and other fodder fields none was to be had. Years passed and certain strange peculiarities manifested themselves in these fodder fields; in many Clover fields the plants died away; Turnips, too, would not thrive any more as they had done. The very expression, 'Clover sickness,' showed that the cause was not supposed to lie in exhaustion of the soil, as in the case of cornfields, but was thought to arise from the field being ailing.

At the High School of Farming at Hohenheim it had become a dogma that the producibleness of a farm could be lastingly maintained by the proper rotation of crops without a supply of manure from without. In an analysis of the Hohenheim farming I had the opportunity of showing last year that in the period of 1828-60 the quantity of farm-yard manure was a third (33.) tons more, and the quantity of corn and Rapeseed crops one-fourth to one third less than in 1832-40. Practice itself was compelled to avow that its system had no foundation; the 'more grain' did not correspond with 'the more manure.' Such were the final results of high farming and stable dung alone; in one district the crops of fodder, in others the corn harvests, diminished.

Towards the end of last century practice found in gypsum, and later in bone-dust, a means by which the decrease in the yield of the fodder and the corn fields might be arrested, and the former productivity of the soil be restored. Then came superphosphate of lime and Peruvian guano into use, and many farmers were convinced that it would be difficult to maintain the produce of flesh and corn at its present height without the application of guano. What a crop was to come from when the supply of guano had ceased never occupied their thoughts, for farmers are generally not inclined to think of the evils of the morrow; with them "Sufficient for the day was the evil thereof."

Now, however, we know the cause of the efficacy of phosphate and Peruvian guano. We know with certainty that the cause of fertility lies in certain constituents of the soil, which serve for the formation of the body of the plants, of the roots, of the leaves and fruit; that the quantity of these in the ground is very limited; and that man, with all his art and skill, is unable to get fruit from a field when such constituents are wanting. These, as long as they are in the ground, are called "alimentary matters," but out of it "manures." Both names signify the same thing. It is now clear that in the products which the farmer brings to market he sells a part of the active agents of his fields, and that, accordingly, the harvests must gradually grow less in the same ratio as the conditions for its production decrease.

The following Table gives a summary of the matters which are drawn from the soil in different crops:—

	Wheat.	Pulse.	Potatos.	Cabbage.	Hay.	Flesh.
Potash	30	40	54	42	18.4	44
Phosphoric acid ..	45	36	18	20	10.7	42
Lime, &c.	28	24	38	38	70.9	13
	100	100	100	100	100.0	100

A glance at these analyses of the ashes of plants and the ashes of flesh suffices at once to make intelligible the effect of phosphates (bone-dust) and of guano. Both restore to the soil two conditions of fertility—phosphoric acid and nitrogen—which it had lost by centuries of cultivation and removal. The produce of the field diminished with the decrease of these stores; but which, on being augmented, again put the field into its former state.

The inhabitant of the town consumes in the bread, flesh, and vegetables which he eats the component parts of these fields, whence these different foods sprung, and which were the conditions of their growth. Hence all these accumulate in towns in the fluid and solid voidings of the inhabitants. By the following analysis it will be seen that the excrements of one man, who consumes (I.) Potatos, meat, and bread, and those of another (II.) who feeds on meat and but little bread, represent a mixture of the incombustible parts of their food:—

	I. Urine.	I. Fæces.	I. Individual. Total.	II. Individual. Total.
Potash	26.32	2.37	28.69	40
Phosphoric acid	21.64	13.98	35.62	31
Lime, &c.	15.24	20.45	35.69	29
	63.20	36.80	100.00	100

The relation of the town to the country, or of the place of consumption to that of production of food, is thus made intelligible at once.

In the English towns in which water-closets are introduced, these matters form the principal ingredients of the sewage. To these must also be added the urine of animals in the streets or stables, containing the constituents of their fodder; besides this, the constituents of the food brought from the ocean; and, finally, the rinsings of the kitchen, and part of the blood and offal of the slaughtered animals. The bones of these animals, of which phosphoric acid is the chief ingredient, do not enter the sewers, being applied to various purposes.

Thus it will be easily understood that if a possibility is offered to the farmer to get back, as sewage, those matters which he has carried to the town in the form of corn, meat, and vegetables, and if he gives his field the same, both in quantity and quality, as that he took from it, then its fertility may be assured for an endless number of years.

Reason tells us that a natural phenomenon cannot return with constancy if the causes of it are fluctuating, and that a field cannot constantly yield crops if the conditions of their growth continually decrease.

There is, perhaps, no land where the truth of this simple law of nature is so patent as in England. The British farmer has been enabled to win from his fields crops surpassing those which have ever been gained from a like superficies; not, however, because he is more skilful or diligent than the husbandman of other lands, but because he acts more in harmony with the law on which production depends. In no country as in England, is the farmer so ready to give a part of his profits for the purchase of manures, nor where he is more convinced that without their addition it would be impossible to preserve for a continuance the present high produce of his fields. But, considering the means by which they are obtained, the high crops are not signs of a lasting store of their conditions in the fields, but symptoms of exhaustion. The British farmer considers an outlay for manure not as a doubtful expenditure, but rather as an investment of capital which bears good interest. What distinguishes the farmer from the manufacturer is that the former is not so accustomed to calculate as the latter. The manufacturer knows exactly what he buys, and judges accurately the raw material which he intends to work up with his machines; while the farmer, in the choice of fitting manures for his land, is guided by vague notions which he calls his experience. He must wait for his crop to see if he has chosen the right. The true economy of his management, that tells him which manures and in what quantity his field requires, he is as yet unacquainted with; and this is the reason why he is almost unable to estimate the worth of sewage. This, however, he will soon appreciate when experience teaches him its effects. Up to this moment many farmers were still of opinion that stable dung, phosphates, and Peruvian guano, are sufficient to maintain their fields in a state of fertility. This may be true for certain fields and for a certain number of years; but we know that the supply of Peruvian guano must soon have an end, and a glance at the following analysis of bones and guano ashes shows that in one there is no potash, that in the other only traces of it are to be found; an ingredient which forms an important and most efficient constituent of stable dung, and is also indispensable for the maintenance of the corn and fodder crops:—

100 lb. of ashes of bones contain:—		100 lb. of Peruvian guano contain:—	
Potash	00.9	Potash	1½ — 2 lb.
Phosphoric acid	42.1	Phosphoric acid	40 — 42 lb.
Lime, magnesia	57.9	Lime, magnesia	58½ — 56 lb.
	100.0		100 100

I shall show that the sewage is especially rich in ammonia and potash, which latter fails in those manures sold by the trade; and that when it is employed, then only is the system of culture a rational one.

We will now examine more attentively the different matters which sewage contains; and by determining their trade value we shall be better able to judge what may be the worth of sewage for the purposes of agriculture.

The matters contained in sewage of most value for husbandry are ammonia, potash, phosphoric acid. But besides these there is a large amount of sulphuric acid, lime, magnesia, iron, and common salt; all which are also aliments of plants, but which I will not further allude to here because, for manuring purposes, they are not articles of trade.

Ammonia.—This is present in large quantity in the voidings of men and animals. When manufactured it is obtained from gas water and animal refuse (horns, hoofs, bones, &c.), and is sold as sulphate of ammonia and salammoniac. The manufacture of those salts cannot be extended beyond a certain limit, as the raw material is not to be obtained in unlimited quantity.

The best sorts of Peruvian guano contain 8½ per cent. of ammonia; thus, a yearly importation of 300,000 tons of guano is a quantity representing 100,000 of sulphate of ammonia. This is more than could possibly be manufactured in two years in all England, France, and Germany together.

Salts of ammonia are used as manure only in small quantity, and the comparatively low price arises from the small demand for the purposes of husbandry. When Peruvian guano ceases to be imported, the price of salts of ammonia may considerably rise. The present price of sulphate of ammonia, containing 25 per cent. of pure ammonia, is 15*l.* 10*s.*; a pound of ammonia would thus be worth 6*s.* 6*d.*, and the ton 62*l.*

Phosphoric Acid.—This acid is found in all parts of the world—in England in coprolites, in Spain, Canada, the Antilles, &c., in considerable beds of phosphorites and apatites, and the supply to be had may be considered unlimited.

The price of soluble phosphoric acid is to be determined by that of superphosphate of lime, which, when it contains 20 per cent. of soluble phosphoric acid, costs 6*l.* Thus, the ton amounts to 30*l.*; the pound to 3.21*d.*

The phosphoric acid in the phosphates can only be reckoned at half the price of this—1.6*d.*, or 15*l.* per ton.

Potash.—Wood ashes are the chief source of potash. Of late salts of potash have been manufactured from sea water as well as from the upper strata of rock salt near Stassfurt, but it does not seem that either yields so much as was expected, and the manufacturing cost of pure potash salts leads one to think that it will not be possible to supply it at less than its present price. The purest sulphate of potash brought to market contains, according to analysis, not above 56 per cent. of potash, which at 19*l.* per ton, gives 35*l.* 10*s.* per ton potash—per lb. 3.84*d.*

These, the market prices of ammonia, phosphoric acid, and potash, I shall take as my guide in estimating the worth of sewage; but I shall employ them first to fix the worth of Peruvian guano.

The best sorts of guano contain on an average 8½ per cent. of ammonia, 12 per cent. of phosphoric acid (¼ soluble and ¾ insoluble) and 0.6 per cent. of potash, and accordingly the value of 2240 lb. is as follows:—

One ton of Peruvian guano contains—

	lb.		pence.	pence.
Ammonia ..	190½	.. ..	at 6.6	1257
Phosphoric acid	67	soluble ..	„ 3.21	215
	201	insoluble ..	„ 1.6	322
Potash	13½	.. ..	„ 3.84	51
				1845 = 7*l.* 14*s.*

This is the real value of 1 ton of Peruvian guano.

The higher price that the farmer pays for it (13*l.* 10*s.*) is a fancy price, which by some agricultural chemists is still maintained to the evident detriment of the farmer. Their calculations is based on the supposition that certain matters contained in guano, rich in nitrogen, for example, uric acid, possess fertilising properties measurable by its nitrogen. What we know is, that the residue of Peruvian guano after lixiviation by water, and which contains the whole quantity of uric acid and a certain quantity of earthy phosphates, has little effect on vegetation; not more than may be ascribed to the phosphates, and the very small remaining quantity of ammonia.

In calculating the value of a manure it seems to me to be inadmissible to give to matters a market value as long as their effects are unknown, and which, at all events, are so slow that the farmer derives no corresponding advantage from their use; he ought to spend his money only in the purchase of such matters, the effects of which are known and perfectly certain.

Sewage of the Metropolis.—To determine the value of sewage has its difficulties. If we consider that the composition of the water of a sewer daily, nay hourly, varies; that the waters of different sewers, according to the quarter of the town, are different in their constituents, it cannot be wondered at that the chemical analysis of sewer-water affords no sure data for calculating its principal ingredients.

Not less great is the uncertainty attending the valuations of the annual amount of sewage, two of which differ by sixty millions of tons. A better and more reliable calculation is to be obtained from the facts gained by analysis of the fluid and solid voidings, and by which we can calculate with sufficient precision the quantity of ammonia, of phosphoric acid, and of potash which—a certain number of individuals being given—are known to enter the sewers.

The calculation made by me of the quantity of phosphoric acid in the urine of man agrees so nearly with that of Dr. Thudichum that I do not hesitate to take his results as the starting point of my reckoning. According to this, 6 1-5 tons of phosphoric acid are daily voided, taking the population of London at two millions of adults.

The relative proportion of the phosphoric acid in urine to that contained in fæces is as three to two; the phosphoric acid in both amounts, therefore, to a little more than 10½ tons.

The phosphoric acid in urine and fæces is in proportion to potash in both as 10 to 8; accordingly the voidings of men contain 8½ tons of potash.

These calculations are irrespective of wine and beer drinkers. As, however, in London 43,000,000 gallons of beer are annually consumed, besides 65,000 pipes of wine, the quantity of potash and phosphoric acid in both drinks should not be lost sight of. The beer gives half a ton of phosphoric acid and three quarters of a ton of potash daily.

If we reckon that daily 70,000 to 80,000 horses pass the streets, and that 15,000 cows are kept in the metropolis, and we admit that the urine of only 55,000 horses and 11,000 cows, and one-third of their solid voidings, reach the sewers, we may estimate that in these voidings of animals 8 tons of potash are contained daily, and 4½ tons of phosphoric acid.

This gives for the voidings:—

	Phosphoric Acid.	Potash.
	Tons.	Tons.
Of men	10½	8½
Of animals	4½	8
Beer	½	¾
Total	15	17

According to the analysis of sewer water by Letheby* it contains one part of phosphoric acid to seven parts of ammonia; this gives 105 tons of ammonia to 15 tons of phosphoric acid. I have every reason to believe that the quantity of phosphoric acid given in Letheby's analysis is rather too low, and that later examinations will show the quantity to be greater.

From the solid and fluid voidings of men and animals we obtain the proportion of phosphoric acid to ammonia 1 to 5; this gives for the entire amount of ammonia 75 tons daily. Accordingly, we may assume that 75 tons of ammonia, 15 tons of phosphoric acid, and 17 tons of potash daily flow into the sewers.

It may be said that 43 millions of gallons of beer are not

* See Dr. Letheby's very able and excellent "Report on Sewage and Sewage Gases, and on the Ventilation of Sewers."

drunk in London. I am convinced of this, and have, therefore, not taken into calculation the phosphoric acid and potash of the wine (65,000 pipes). Nor have I taken account of the refuse of kitchens.

In order to obtain a notion of the quantity of phosphoric acid and potash which the latter furnish to the sewers, I have analysed the water in which fish and certain vegetables were cooked. My examination shows that the water—if we take the total consumption of the metropolis—contains the following quantities of potash and phosphoric acid:—

	Potash.	Phosphoric acid.
	lbs.	lbs.
Fish* (450,000,000 lb.)	600,800	207,770
Potatos (510,000,000 lb.)	132,343	24,758
Cabbages (85,000,000 at 1 lb.) ..	147,241	39,823
Cauliflowers (14,000,000 at 1 lb.) ..	46,364	8,550
	926,748	280,901

This makes 414 tons of potash and 125 tons of phosphoric acid yearly.

We can, it is true, not calculate that more than half of the quantity of fish here given is consumed in the metropolis; but then, on the other hand, I have not reckoned 1,422,000,000 oysters, crabs, lobsters, shrimps, mussels, &c., and a mass of vegetables such as Peas and Beans (800,000 bushels), Asparagus (20,000 dozen), &c., all of which must be boiled and impart a certain amount of potash and phosphoric acid to the water that is afterwards flung away. Moreover, no account has been taken of a quantity of other refuse, scales of fish, fish bones, fragments of food, and the offal of slaughter-houses.

I therefore think that the numbers given by me as to the amount of manuring elements in the sewer water of the metropolis are not far from the truth. If there is an error, it may be that the estimate of the amount of potash and ammonia is too small. If we take for the yearly amount of sewage 266,000,000 of tons, or 728,762 tons daily, we have in this quantity 75 tons of ammonia, 15 tons of phosphoric acid, and 17 tons of potash, or in 6811 tons of sewage

1 ton.	1570 lb. ammonia ..	7.2	grains in 1 gallon.
	315 lb. phosphoric acid	1.44	,, ,,
	355 lb. potash ..	1.63	,, ,,
	2240 lb.		

As the ton of the best Peruvian guano does not contain more than 190½ lb. of ammonia, it follows that 6811 tons of sewage water contain as much ammonia as eight and one-third tons of guano, or 828 tons of sewer water as much ammonia as 1 ton of Peruvian guano.

According to the trade price of ammonia, phosphoric acid, and potash, the value of the sewage of the metropolis, from the matter daily contained in it, would be—

		Per ton.	
75 tons of ammonia	at	£62 0 ..	£4650 0
7½ ,, phosphoric acid, soluble ,,		30 0 ..	225 4
7½ ,, ditto, insoluble .. .. ,,		15 0 ..	112 10
17 ,, potash .. .. .. ,,		35 10 ..	603 10
Total daily			£5591 0

or in a year, 2,040,715*l*. At this rate the ton of sewage would be worth 1.84 of a penny.

If the ammonia be reckoned at the price that the farmer pays at present for it in Peruvian guano, the ton of sewer-water would then be worth something more than the double of that price. In the diluted state in which these matters are present in sewer-water, they are without any mercantile value; for to convert them into a solid form would require a larger outlay than the price that would be obtained for the production.

The application of sewage for manuring land offers, indeed, the only means by which the manuring matter contained in it can be turned to use. The possibility of doing so, according to its full value, is to be found in a wonderful property of the plant-bearing earth, which, amid the many wonders that Nature presents to the observer, may be looked upon as one of the greatest. This property consists in this: when water, in which manuring matter is dissolved, comes in contact with arable land—when, for example, such water is poured over it, so that the liquid filters through the soil, the manuring matter leaves the water much in the same way as the colouring matter in a fluid leaves it when absorbed as a dye by some material. Thus the manuring matter goes no further, but remains there, where water and earth are brought in contact with each other. This property extends itself principally to the three most important constituents of sewer-water—ammonia, potash, and phosphoric acid.

The first observations on this point were made in 1836 by the celebrated œnologist Bronner; later, in 1845, with regard to ammonia and the decomposition of ammonia salts, by Huxtable and H. S. Thompson; and in 1850 it was the subject of a very important investigation by Professor Thomas Way. This distinguished chemist showed, by a series of experiments, that the absorbent power of soils extends not only to ammonia, but to potash and phosphoric acid, and the decomposition of potash salts. And he developed fully his views as to the importance which the facts he had discovered must be of to agriculture. It is, therefore, the more striking that those discoveries, which, as we now know, form the basis of the most important of husbandry operations, should not at once have received fitting attention either from the so-called practical men or in scientific circles.

The reason, I suspect, is to be found in the circumstance that Way endeavoured to explain this quality by a view which lessened its importance with regard to husbandry. He was of opinion that the absorbing power was purely a chemical property, and dependent on a chemical combination (a silicate of lime and alumina) in the soil, which he also endeavoured to prepare artificially. Had this view been correct, then such soils only could possess the property in which such combination existed.

The absorbing power must be in proportion to the quantity in which the said combination was present in the soil; for in the majority of other soils in which the compound was wanting, or partially so, the property in question would be of little or no importance. I therefore believe the notion which arose after Way's second investigation to be the reason why his admirable labour remained for years unheeded.

In 1858 I occupied myself with this study on some properties of soils ("Annals of Chemistry and Pharmacy," vol. cv., p. 109), and showed that the property to absorb manure is inherent in every plant-bearing soil; that it is a general law, and that in this property many organic matters, even common turf, surpass many soils. This is not the place to enter more fully into the conclusions which may be drawn from this absorbing power of soils, and on this point I must refer the reader to the chapter on soils in my "Natural Laws of Husbandry," p. 151.

In my experiments I showed that every soil, independent of its composition, has an absorbent power peculiar to itself, capable of being expressed by a number. Of all soils pure sand possesses it in the smallest degree. In order to give a clearer notion of this capacity to absorb manure, I beg to observe that a clay soil of Bogenhausen, in the neighbourhood of Munich, whose power in this respect is not particularly great, absorbs per acre, 4 inches deep—

Ammonia, 2076 lb.; potash, 1910 lb.; phosphoric acid, 888 lb.

These figures show, therefore, that were a solution of those manuring matters spread in the form of sewage, by hose and jet, over an acre of land in Bogenhausen, a 4-inch stratum of soil would abstract from the sewage water 2076 lb of ammonia, 1910 lb. of potash, and 888 lb. of phosphoric acid; and that not a pound of ammonia, potash, &c., would penetrate below till the upper 4 inches had been saturated with them.

In the year 1845 the absorbent power of soils had not yet been discovered. The doctrine at that time was that plants derive their nourishment from a solution of ammonia, potash, &c., formed by the rain in the soil; and this opinion, generally admitted, led me to commit an error in the composition of an artificial manure, which circumstance was most unfortunate for the principles I had laid down in 1840. It was so inasmuch as the recognition of their truth was thus retarded many years. Greatly as I have suffered by it I do not now regret the error, as it was not so much mine as that of the time; and because without it the great natural law would not so soon have been recognised, by which all doubts respecting the utilisation of sewage have been removed, and the solution of all the questions concerning it assured. At that time I gave a recipe for a manure which was to restore to the soil different matters in the proportion in which they had been drawn from it in the crops. According to the former erroneous doctrine, the greatest difficulty seemed to lie in preserving the potash in the upper stratum of the soil, for being extremely soluble it was presumed that, with the first shower of rain, it would be washed into the ground at a depth beyond the reach of the roots. My manures contained the component parts of the most efficient artificial manures at present in use, in the exactest proportions for obtaining the wished-for crops; but I had rendered them ineffective by purposely depriving the soluble ingredients of their, as I thought, injurious solubility. It seemed to me that a link was wanting in the chain of conditions of organic life, and my temerity in wishing to improve the Divine order of things met with a severe punishment. A higher wisdom had provided for the supposed necessity, and had given the earth the wonderful property of drawing towards it, just as the loadstone attracts iron, all the elements indispensable for the maintenance of life.

On this point I said in my book, p. 113:—"With the natural law that organic life is developed only in the outermost crust of the earth, which is exposed to the sun, is most intimately connected the power of the fragments of that crust, which form the arable surface soil, to collect and retain all those nutritive substances on which life depends. A plant is not, like an animal, endowed with special organs to dissolve the food and make it ready for absorption. This preparation of the nutriment is assigned by another law to the fruitful earth itself, which in this respect discharges the functions performed by the stomach and intestines of animals. In performing this function the plant-bearing earth constitutes for the use of man and beast an immense purifying apparatus, whereby it removes from the water all matters hurtful to the health of animals, and all the products resulting from the decay and putrefaction of deceased generations of plants and animals."

A series of experiments with an artificial sewer-water, proved that a dilution with water, as great as that of the sewage of the metropolis, in nowise diminishes the absorbing effect of the soil. I found moreover, last summer, by experiments regarding the growth of plants, that a soil completely saturated with manuring matter, did not further, as might be supposed, the development of the plant's growth, for with many, on the contrary, it was prejudicial. In such earth Salad, Potatos, and Pulse were scantily developed; their leaves acquired a light yellowish hue, and after a few weeks the plants died. But roots, on the other hand (Beetroot), grew in the same soil luxuriantly.

I further found that common turf, which for corn and Beetroots is an almost unfruitful soil, might be changed into a most excellent one for them, by adding to it one-fourth the quantity of manuring matter (ammonia, potash, &c.) which the turf absorbs when completely saturated. In a trial field a crop was thus obtained, which gave 34 tons of roots and 29 tons of leaves per acre. At last it was proved that turf (bog turf) in coarse powder, when thoroughly saturated with manuring matter, as might be done with sewage, can be employed, like stable dung, for manuring fields, and, in equal weight, exceeds the latter in fertilising effect.

Stable manure consists, as every one knows, principally of straw and vegetable and animal residues in a state of decomposition, and is soaked with a liquid which contains the component parts of sewer-water. The effect of stable-dung depends chiefly on its component parts being gradually solved by rain and distributed throughout the soil. If we calculate the degree of dilution of a liquid composed of the most efficient constituents of 20 tons of farmyard manure, dissolved by the rain falling during one year over a whole acre of land, the result is as follows:—

Twenty tons of stable dung, rotten (according to Dr. Voelcker's analysis), contains—ammonia, 330 lb.; phosphoric acid, 200 lb.; potash, 220 lb.

If we take, on an average, 2600 tons of rain per acre, we have a solution containing—

	Per gallon.	In one gallon of sewer-water.
Ammonia	3.96 grains ..	.. 7.02 grains
Phosphoric acid ..	2.40 ,, ..	.. 1.44 ,,
Potash	2.60 ,, ..	.. 1.63 ,,
	8.96	10.27

These figures are intended to show that the quantity of rain falling on an acre of well dunged land is sufficient to turn the constituents of stable manure into a solution, which in the whole is more diluted than the sewer-water of the metropolis; and every farmer knows that rain is one of the chief conditions for the efficacy of stable manure, as well indeed as of every other. It cannot, therefore, be admitted that the manuring properties of sewer-water lose their favourable effect by dilution; and as it takes months for the component parts of stable dung, thus solved by rain, to penetrate and be spread over the ground, a process which with sewage is accomplished in a few hours or days, the effect of the latter, as regards time, must be greater and more complete.

Experiments made in a field near Munich have proved that less than one-half only of the rain-water which fell there in a year penetrated to a depth of six inches; the rest evaporated; and this may be accepted, I believe, for sewage also, when distributed over a field in moderate quantity.

Farm-yard manure is impregnated with a brown liquid (dung-water, viz., runnings of stable dung), a specimen of which gave by analysis:—

	1 gallon dung-water.	100 gallons of sewer-water.
Ammonia	277 grains ..	.. 720 grains.
Potash	169 ,, ..	.. 163 ,,
Phosphoric acid ..	7 ,, ..	.. 141 ,,

The efficacy of dung water on fields cannot be doubtful. It is often made strikingly evident when it happens that a heap of stable dung has been plentifully rained on before distribution. All the vegetation which springs up on the spot is distinguished by a peculiarly luxuriant growth—the cereals by broader dark green leaves and thicker stalks, the Turnips by a denser leafy crown and by thicker roots. The dung-water is particularly rich in potash. The sewer-water contains besides a much larger proportion of ammonia and phosphoric acid, which are, as we know, the most efficient elements in Peruvian guano. These facts will, I think, enable us to assign to sewer-water its fitting place among manures.

No one will ever think of supplying the full effect of farm-yard dung by the employment of phosphates or guano, but it is to be done either by the use of sewage. The chief value of sewage lies in this—that by its application the effects of phosphates, guano, and stable dung are made sure and lasting, and the crops raised to that maximum which the soil can produce, because, by means of sewer-water, those elements are given which are wanting in the three other manures, or are present in them in but small quantities.

Fifteen years ago, when the property of soils to absorb manure was as yet unknown, it would hardly have occurred to any one to employ sewer-water for manuring a field; for the great dilution of the liquid would have been considered an objection rather than otherwise. Now that we know such dilution has no effect on the accumulation of manurial matter in the earth, we look on this very circumstance as the indispensable condition for making the voidings of men and animals in towns available for agriculture. For it is only in this diluted state that it would be possible to put them in motion by means of machinery, and conduct them to those localities where they are to be employed. The old system of cesspools seems to us now a far greater hindrance to their utilisation, as their contents had to be carried from the towns to considerable distances by carts and horses.

Many persons fear that, by the employment of sewage for manure, the air will be poisoned by the stench; that many districts will thus be rendered uninhabitable; that a residence in the country will thus lose one of its chief benefits, the enjoyment of pure unsullied air; and that many a neighbourhood, otherwise healthy, will be rendered feverish and pestilential. As to the smell, every one knows that stable dung is not less odorous than sewer-water; and the inhabitants of London, living near the Thames, are aware that it is only when the river is low, and in summer especially, that it affects them as a stream of diluted sewage. These fears about the stench will at once vanish if the simple experiment be made of bringing the most stinking sewer-water in contact with earth. It is astonishing with what magical quickness the bad odour vanishes the moment the liquid has penetrated into the soil. As to generating fever, the fear is not groundless with regard to those places which are converted into bogs by inundating them with sewer-water; the authorities, however, will hardly allow so senseless a manipulation to be continued.

The favourable effect on Grass-land of dung-water diluted with water is well known; and that sewage, which represents a mixture of dung-water and Peruvian guano, might be used with the best result as manure for Grass-land, is manifest. This mode of application is, however, the least profitable of all. In order to form a clear notion on the matter, we must ask what would be the cost of manure sufficient to convert a sterile sandy soil into a fertile meadow—into such a one, for example, as could produce yearly 12 tons of Grass or four tons of hay. More than this sum no one of course would pay for a quantity of sewage sufficient for the same purpose. This question is easily solved. According to the analysis of a good but not super-excellent hay, the ton contains 18 lb. of phosphoric acid, 31 lb. of potash, and 36 lb. of nitrogen, equal to 43 lb. of ammonia. Accordingly an acre of meadow land, that annually yielded four tons of hay, would thus have drawn from it the following quantities:—

Of ammonia, 172 lb.; phosphoric acid, 72 lb.; potash, 124 lb.

With the experience we already have, we may admit that a porous, sandy soil, which allows the roots of Grasses to spread easily, must contain, at a depth of 5 to 10 inches, twelve times the quantity of those constituents which it imparts yearly to a crop of 4 tons of hay. Supposing the ground to contain, besides ammonia, phosphoric acid, and potash, the other necessary alimentary matters in sufficient quantity, there must be given to the soil in addition per acre:—

Ammonia, 2064 lb.; phosphoric acid, 864 lb.; potash, 1488 lb.

On every square foot of an acre thus would come, 322 grains of ammonia; 159 grains of phosphoric acid; and 239 grains of potash; and the next step would be to examine if the absorbing power of the sand was such as to enable it to take in and retain this quantity of nourishment, at a depth of 5 to 10 inches. The absorbing power of sand is in itself very small, but by the addition of clay it may be greatly increased. Five to 15 tons of clay would in this respect greatly improve an acre of sterile land: and this could be easily supplied by means of sewage, inasmuch as the clay might be mixed up with it in the form of fine mud.

It must be intelligible to every one that to manure a meadow with a greater quantity of one of these constituents than is required by the plants would be a waste of matter. If to every 1488 lbs. of potash, we were to give the Grass ground 1000 lbs. of phosphoric acid instead of 864 lbs., or 4000 lbs. of ammonia instead of 2064 lbs., the excess of both these substances would not be made use of by the plants. A manure containing several ingredients acts in this wise:—The effect of all of them in the soil accommodates itself to that one among them which, in comparison to the wants of the plant, is present in smallest quantity (Law of Minimum. See "Nat. Laws of Husbandry," p. 215).

If we compare with the above conditions the composition of the sewage of the metropolis, we find that the latter contains to every 1483 lb. of potash 1323 lb. of phosphoric acid, and 6735 lb. of ammonia; this is 459 lb. of phosphoric acid, and 4671 lb. of ammonia, more than the meadow plants have need of. Potash accordingly is, in sewer water, the matter which for the want of the Grasses is present in smallest quantity, and according to which the value of the other constituents of the manure must be measured. If daily in the 728,767 tons of sewage of the metropolis there are 17 tons of potash applicable for agricultural purposes, these, with 9·8 tons of phosphoric acid (in form of phosphates), and 23·5 tons of ammonia, would suffice to turn somewhat more than 25 acres of sand into meadow of the quality above described.

The market value of these manures would be—

	Per Ton.	Total.
	£ s.	£ s.
17 tons of potash	at 35 10	603 10
9.8 tons of phosphoric acid in form of phosphates ..	at 15 0	147 0
23.5 tons of ammonia	at 62 0	1457 0
		2207 10

According to this the price of a ton of sewage would be 2.8 farthings per ton, being three-eighths of that which I have computed its absolute value to be. The reason of this difference is, that sewage-water contains an excess of ammonia and phosphoric acid, which is without effect on the growth of Grass, and for this reason is not paid for.

	Ammonia.	Phos. Acid.	Potash.
	Tons.	Tons.	Tons.
Sewage contains ..	75	15	17
The meadows require ..	23.5	9.8	17
There remain therefore	51.5	5.2	—

Which, for the owner of the meadows, are valueless. I am

* These statistics are taken from Mayhew's interesting work on London.

even of opinion that at the price of 7*d.* for 10 tons of sewage the farmer would pay one-third more for the sewage than it was really worth to him, inasmuch as the Grasses derive a large portion of their nitrogenic nourishment from the atmosphere, and consequently an entire restitution of their nitrogen is unnecessary for them.

According to the preceding calculation, in one year 9125 acres, and in 800 days 20,000 acres, might be turned into meadow land with the sewage of the metropolis At the price of 7*d* per ten tons of sewage, the cost per acre would be 88*l.*, and for 20,000 acres 1,760,000*l.* At this price it would hardly be possible to find any one to enter upon the undertaking.

In all localities which by nature are adapted for the employment of sewage its use is unquestionably an advantage. But if a large capital be required, first to adapt the ground for this purpose, the speculator would hardly profit anything, even though he obtained the sewage for a farthing per ton.

If we say that in 800 days 20,000 acres of sandy land may be turned into a fruitful meadow, yielding annually four tons of hay per acre, it is clear that in order to keep this meadow in a state of fertility no greater quantity of sewage is required than suffices to supply the matter that is taken out of the soil in the four tons of hay. This is one-twelfth the quantity of sewage which was requisite for the original formation of the meadows, viz., 2430 tons per acre. The 20,000 acres would require annually 48,600,000 tons of sewage as manure. Of the 266,000,000 tons annually to be disposed of, 217,000,000 would be left; and the question now arises—What should be done with them? If treated as dairy land, each of the 20,000 acres of meadow would only require 243 tons of sewage per acre.

In the above 2430 tons of sewage, which it is calculated are necessary for an acre, the quantity of potash is contained which yearly is taken away in the crop of four tons of hay, and which yearly must be made good again, without reference to the other constituents in excess.

A natural meadow which, when simply irrigated without other manuring, yields 1½ to 2 tons of hay, would show very different results if fertilised by sewage. If, namely, the soil of the said natural meadow were so rich in potash as to yield half of the quantity required (62 lb.) for a course of years, then 1225 tons of sewage would be sufficient to obtain 4 tons of hay. Were the meadow still richer in phosphates and potash, then, perhaps, 400 to 500 tons of sewage would suffice to obtain the same amount of harvest. These yields, however, would not last, for if the manuring should be continued with such small quantities of sewage, the store of potash and phosphoric acid in the ground would decrease year by year. A time would come when the quantity of sewage would have to be increased each following year, till at last, by employing 2430 tons, the crops would remain constant. Thus it will be seen that no conclusion can be come to as to the worth of sewage, from the crop of hay which a natural meadow, manured with sewage, yields.

A rich harvest with little sewage is no proof of its high value, and a scanty crop with much sewage does not prove either that its value is small. One thing is certain, and that is, a good meadow, if over-manured with sewage, may become very bad, if the soil favours too great an accumulation of ammonia, which, beyond a certain limit, acts like poison on the tender Grasses, abounding in saccharine matter.

The full value of sewage, and of its separate constituents, can only be got out of it when it is employed on arable land. While in the case of a meadow the whole of that which has been taken from it in the harvest sold must be replaced in order to make the yield constant, it is sufficient, in the system of farmyard manuring, to give the farmyard manure those ingredients in addition which were taken from the ground in the preceding harvest, in the seeds and meat sold. The component parts of the straw remain on the farm, and, therefore, need nothing to replace them.

By means of Peruvian guano and phosphates the farmer replaces only a portion of these constituents. By means of sewage, on the contrary, he is fully enabled, with the proper addition of phosphates, to restore all of them to his field, and to increase those particular ones which the field most wants for giving higher and more constant crops. Sewage, as a never-failing source of ammonia, will prove to him of the greatest value when the supply of Peruvian guano is at an end.

It is not my intention here to instruct the farmer as to the quantity of phosphates he must add to sewage in special cases. The following example may suffice to show the mode of calculation.

If to the daily amount of sewage of the metropolis 275 tons of superphosphate of lime be added (equal to 75 tons of phosphoric acid) a mixture is obtained, answering, in the amount of potash, of ammonia, and of phosphoric acid contained therein, to 2650 tons of farm-yard manure, and 652½ tons of Peruvian guano.

In the daily amount of sewage are—

	Ammonia.	Phosphoric acid.	Potash.
	Tons	Tons	Tons
	75	15	17
		75	
		90	
With addition of 2650 tons of farm-yard manure ..	19½	11 8-10	13 1-10
652 tons of guano	55½	78 2-10	3 9-10
	75	90	17

In the foregoing statements you have, my lord, as I hope, sufficient data to enable any one interested in the question to come to a conclusion as to the value of sewage, both for the country and for the towns. I have the honour to be, my lord, your lordship's very obedient servant,

Justus Liebig,
President of the Royal Academy of Science, &c.

Home Correspondence.

Yew, Colchicum, and Ergot Poisoning.—It is now more than 20 years since this subject was ventilated in your columns, and as a generation of fresh readers has since arisen, perhaps the following *resumé* may be of some use to your present inquirers, and lead to fresh facts which may help to elucidate the mysterious nature of the poison of the Yew. Before I go on with it, I would however first get rid of the Colchicum and Ergot; which latter I have added, as I believe the harmlessness of both arises from the same cause. I feel convinced that immense injury would arise from both but for this circumstance. Where the Colchicum abounds, it is always in grassy meadows, and the cattle carefully reject it when browsing. The hay upon such land is not generally cut until after the Colchicum seed is ripe and shaken out. In many meadows the plant is so abundant, that if the hay was cut before this takes place, there would be a fearful dose of Colchicum, in its most active state, in every meal taken by cattle or horses. No doubt much of the seed would also get shaken out while putting into the rack. The same cause prevents Ergot doing injury. I have seen it abound fearfully in Rye crops, and at first wondered it did not destroy the people and cattle who fed upon them. But I observed that upon a very slight shake with a stick, the Ergot generally fell off, so that it was with difficulty that I could get good specimens adhering to the Rye. To this I attribute the immunity which I have seen follow the use of Rye very much affected by the ergot. It falls to the ground in cutting and harvesting the crop.—Now as to Yew. The subject is largely entered upon in your volumes for 1843-44. In p. 807 the poisoning of two out of three horses is mentioned, which ate only of the young green shoots. In p. 142 of the succeeding year, a case is mentioned of four bullocks dying from eating Yew some days after it had been cut down. In p 235 I mentioned my own experience, which had been pretty considerable, with regard to the Yew; having lived from a boy at a house where a large square stable-yard was bounded on two sides by a high hedge of Yews, and where there were many trees in the grounds, in the pasture fields, and churchyard, all with branches to the ground, and where I have frequently seen cows and horses browsing them without any injury. In the same place, however, I remember several valuable cows being killed by eating the withered shoots trimmed from a hedge. In p. 364 I called attention to the fact that at a large grassy valley near Chichester, called Kingley Bottom, there are numbers of Yews scattered most picturesquely about, of all ages, evidently eaten by the cattle. I also pointed out that I had several Yews to which cattle had access, and which were eaten by them. In p. 172 "Este" gives a case of a horse dying after eating withered Yew, and a pony eating the branches green with impunity. In p. 284, "George Crompton" gives a clear case, where two horses were killed by eating young green shoots, and where two more horses were apparently saved by taking castor oil. In p. 324, "A Subscriber" mentions a flock of sheep getting into a plantation abounding with Yew in a snow—and several dying in consequence. In p. 395, "Alfred Gyde," in a very sensible article, points out that all plants possess much more activity at some times than others—and that this may probably be the case with the Yew. He also gives the probable reason for the withered leaves being more poisonous than the green. In p. 417 "W. P. Keane," of Seybourne Grange, mentions an extensive pasture land near Town Malling, as having many old and young Yew trees in it, and that neither cattle, horses, nor sheep, ever suffered any ill effects from eating the green branches, but that when a tree was cut down several horses and bullocks died. Another Correspondent, "H. T.," states that the reason for the discrepancy between the witnesses arises from one party describing the consequences which have followed when cattle have eaten Yew on a full stomach; while the other records the consequences upon an empty one. Twenty years ago I felt no doubt that green Yew only would never hurt any cattle. But all these facts convince me to the contrary. It is clear that there are circumstances under which Yew is evidently poisonous when fresh—though my own experience would lead to a contrary result. The question now remaining to be settled, is—under what circumstances is fresh Yew harmless, and when poisonous? There is no doubt that withered Yew is decidedly deadly. "H. T.'s" observation is well worth consideration, as to whether fullness or emptiness of stomach has any effect. "Alfred Gyde's" remarks are also very valuable as to the time of year making a difference in the poisonous nature of the Yew—making it more intense. "G. Murray," in p. 60 of your Number for Jan. 21, 1865, gives a very strong case of two cattle dying in September from eating the green shoots. In any other notices sent on the subject, the time of year, whether the cattle were fasting, and whether they were accustomed to Yew in their pasture, would be desirable. The subject seems mysterious. That in many districts all kinds of cattle eat it with impunity, is clear. That in others they are poisoned by it is equally clear. Can this difference arise from the first being in the habit of eating it when they like, and so only grazing upon small shoots sparingly at a time, as a sort of relish; while the latter not being in the habit of eating it at their leisure, have taken a large quantity on breaking into a plantation, when pressed by hunger. A large dose of poison will of course kill where a small one might do no harm. This would account for almost, if not quite, all the cases mentioned, and is the only satisfactory solution of the case I can come to. This view has been strengthened by several cases sent to me since I before wrote on the subject. A herd of bullocks in a frost broke into a plantation in Ireland where there were many Yews, and several bullocks were found dead in the morning, evidently after feeding on them. Two out of three Dromedaries travelling with a circus in Cheshire, died very shortly after browsing a Yew tree by a public house, at which the whole company rested. In both these cases, as well as in those in pp. 807, 284, and 324, and in that of "G. Murray," it would be natural that the animals would eat greedily of what would be a great treat; and hence I imagine that quantity of the poisonous food is the real cause of its deadliness, just as large doses of Vinum Colchici, or Ergot, would destroy the lives which they now so often save when given in moderation. I hope that I shall be forgiven this terribly long and prosy communication, which I could not shorten. *W. D. Fox.*

Flax in Ireland.—Your agricultural readers will be interested in the following extract from the *Armagh Guardian* newspaper:—"Encouragement to Flax-growers. During the last week the scutch mill of C. Carson in Marlacoo has been employed in scutching 260 stone of Flax of fine quality and great length, grown by the Rev. J. F. Flavell on his farm at Mullabrack. This crop was the produce of somewhat less than 7 bushels of seed, giving an average of 38 stone to the bushel. It was sold for 9*s.* a stone, with the exception of 60 stone, which brought 8*s.* 9*d.* per stone." The above splendid crop was grown upon somewhat more than 3½ acres, and realised (as you will perceive) 117*l.* The seed was sacrificed. The question whether this can be done in England, and "if not, why not?" is one that may be asked by others besides *Your Constant Reader.*

Live Yew Poisonous to Cattle.—There is no question respecting the poisonous qualities of the Yew, in either the green or dried state, although there is still a mystery respecting the different effects it has on animals—killing some, and proving quite harmless to others. How can this satisfactorily be accounted for? Very conflicting statements have at times appeared on the poisonous and non-poisonous properties of the Yew, in both the green and dried state. And I confess I was at one time under the impression that live Yew was not so injurious as it was supposed to be; having noticed so many Yew trees growing on commons, hedge-rows, and church-yards, where cattle have free access, there always appeared something mysterious to me as to the cause of death of animals stated to have been poisoned by Yew. But this doubt is now clearly proved to me by the death of one of my employer's horses, which unfortunately broke loose into a shrubbery near the mansion, composed chiefly of Yews; and within one hour and a half from the time it got loose it was lying dead on the road; the horse seemed perfectly well up to the moment of its death, which was instantaneous—one squeak only was uttered, and it fell dead. When opened, the stomach and every part was found in the most healthy condition, and there appeared to be about as much live Yew in it as would fill a half-pint pot. There certainly appears to be something mysterious respecting the poisoning of cattle by Yew. Although I have always believed live Yew to be poisonous, I was under the impression that cattle would not eat sufficient to cause death, having noticed the horses under my charge bite off the Yew branches, turn them over a few times in their mouths, and then let them fall to the ground; therefore I came to the conclusion that instinct would teach them not to swallow enough to do them any harm, but on this point I am now perfectly satisfied. Next comes the question that more cattle do not get poisoned, for we frequently see Yew trees growing by the wayside that have their branches bitten off by cattle, and yet how seldom do we hear of deaths from this cause. I will now refer to a case quite the opposite to the one above. Last autumn, during some extensive alterations in the pleasure grounds here, the temporary fence was left unsecure, and some cattle got into the pleasure ground and regaled themselves pretty freely on some Yew-tree branches. There is no mistake about this—they were found eating at the trees. These beasts were driven into a part of the park where no water could be procured by them, and kept there for some hours; and although they had eaten far more than the horse, not the least harm came to either of them. Allow me in conclusion to state that the horse ate the Yew on an empty stomach, and was fed and watered after eating the Yew branches. The cattle, we may naturally suppose, ate the Yew on a full stomach, as they had the run of a large park; the latter for some hours at least were kept from any water. The horse died from eating Yew in the month of March; the cattle were not injured by eating Yew in the month of October. The question is, did the cattle survive through being kept from water, or are Yew branches more dangerous at one part of the season than another? I am inclined to think the latter. *Edward Bennett, Gr. to G. S. Foljambe, Esq., Osberton Hall, Worksop, Notts.*

Cultivation of the Cattle Melon.—After some years' experience and careful attention to the cultivation of this fruit for cattle-feeding purposes, I am enabled not only to say that the Cattle Melon, as selected and grown by myself, is a most valuable addition to the vegetable cattle-food of the farm, and more particularly to the occupiers of small farms, and cow-keepers, where the production of milk and butter is a considerable item—but that it is easily produced, and cultivated with as little expense as the ordinary crops of roots upon the farm; and it is especially adapted for small occupations or large gardens, in fact anywhere where space enough can be found for the bine to extend; because in almost any soil where moisture enough is obtained to support the plants immense crops can be grown, and will be available at the season when Grass is scarce, and before root-crops in general are ripe. The value of the crop is therefore very great, particularly in cases where only two or three cows are kept; for the Melons will grow upon any border near hedges and fences; a space dug 2 feet square and one shovel full of dung for each plant will give an abundant crop, and the land and adjoining hedge will be often loaded with fine

fruit. The woodlands, too, where not over crowded with timber trees, the first and second season after cutting the underwood, particularly in sheltered valleys where the land is moist and composed of vegetable mould, the accumulation of fallen leaves, &c., offer a capital opportunity for their growth. In all woodlands where the soil is good the stems of underwood are always found farthest apart; between these will be found ample room for planting the Melon seeds, and the first year after removing the underwood, Grass or weeds seldom appear to interfere with their growth. By digging a space about 2 or 3 feet across a circular mound may be formed, and by the application of a small quantity of Peruvian, or indeed any of the guanos, or a spit of dung, the plants will thrive immensely, having plenty of space for the bine to trail between the underwood stems without injury to its growth, and the produce will be very fine owing to the favourable combinations of soil, situation and climate. The farm labourers and cottagers generally, if encouraged to do so, may grow fine crops in any odd corner of their gardens, affording an edible vegetable whilst young, and when ripe good food for the pig, particularly when boiled and mixed with meal, in the same way as Potatos are often used for fatting purposes. All soils suitable for the production of root crops where the climate is favourable are well adapted for the growing of the Cattle Melon. In preparing the land for them it is only necessary to cultivate in the same manner as for root crops in general; ammoniacal manures are best for them, such as Peruvian guano, night soil, and rich town or yard dung. The Cattle Melon is best grown as a mixed crop (in open field culture), in order that room may be obtained for its trailing habit of growth, and it should be grown between Mangel Wurzel, Potatos or other root crops. Two rows of Mangel or Potatos on the ridge should be taken 2 feet apart, then dibble the Melon seed on one ridge the same width as two ridges of Mangel; thus growing alternately two lines of Mangel and one line of Melons; the manure should be buried in the centre of the ridge, and the Melon seeds dibbled 1½ inches deep and 2½ or 3 feet apart directly over the manure. In case, however, it is desired to grow them alone, the rows may be placed about 6 feet apart. The uses of the Cattle Melon are various; they are excellent food for cows, sheep, and pigs, and when ripe they are used abroad for many purposes in cookery. The French in particular use them in soups, &c. A friend just returned from the Continent, informs me that the working people of different towns in Italy consume the seeds in large quantities roasted and slightly salted. For cattle feeding I have found them very advantageous, as may be expected from the subjoined analysis, which I obtained from Dr. Voelcker, made from part of a fruit weighing 16 lb. in the unripe state:—

Composition of "Cattle Melon," sent by Mr. Blundell, of Bursledon, Southampton, analysed by Dr. Voelcker, Consulting Chemist to the Royal Agricultural Society of England:—

FIRST GENERAL COMPOSITION.

Water	92.030
Organic matters	7.350
Mineral matters (ash)	.620
	100.000

SECOND DETAILED COMPOSITION.

Water	92.030
*Soluble albuminous compounds	.619
†Insoluble do. do.	.156
Sugar and mucilage	4.661
Woody fibre (crude)	1.914
Soluble mineral matters	.540
Insoluble do. do.	.030
	100.000

This analysis, although taken from a fruit before the seed was formed, shows nutrition about equal to the common Turnip, and I hope to get the analysis of ripe fruit this season, when I have no doubt a much higher feeding value will be obtained, owing to the rich flesh and solid seeds which they contain. The expense attending the cultivation either in labour or manure is the same (certainly not greater) than required for Mangel or Potato crops. The Melon plants whilst young being so wide apart ample space is allowed for horse-hoeing, &c. The growth of the plants is so slow at first that the interculture may be continued for a much longer time than is the case with Mangel and other roots. When the plants, however, begin to spread, they grow with such rapidity that all the land is covered with luxuriant foliage in about three weeks, and about five weeks after the blossom, the fruit will weigh from 30 lb. and upwards. The weight of crop in my case amounted to 40 tons per acre, but I am firmly persuaded that a very much greater weight may be grown under more favourable circumstances, for it must be borne in mind that I treated the crop precisely as other roots in order that I might obtain the comparative value of each in open field culture. The last week in April and first fortnight in May is the best time for dibbling the seed. *Joseph Blundell, February 4.*

* Containing nitrogen	.099
† Do. do.	.025
Total nitrogen	.124
Equal to albuminous compounds (flesh-forming matters)	.775

Farmers' Clubs.

LONDON: *Feb. 5.—Middle-class Education.* — Mr. EDMUNDS delivered an able address, from which we give the following extracts:—He said: No apology is required for introducing the subject of middle-class education into this room. If the question is at home anywhere, it must be at the Central Farmers' Club; for the farmers, without doubt, form the largest class following any one profession or business in England.

The Labouring Class.—Two hundred years ago, they who could read and write were the exception; now they who cannot have become exceptions in their turn. Fifty years ago the bulk of the labouring population, and also many small farmers and tradesmen, had received little or no education; but, in the year 1839, Government deemed it necessary to do something towards raising them from this state of ignorance, and for providing for those classes who were unable to provide instruction for themselves. It will be well, I think, to lay before you, as concisely as possible, the results of this effort on the part of the Government. In 1841, 32.7 per cent. of male minors who were married could not sign their names in the register. In 1862 it was reduced to 23.7. Among women the difference was even greater. In 1841, 48.8 per cent. of minors were unable to write; but in 1862 there were only 28.5 per cent. In 1855, the number of schools inspected was 3853, and the number of children the schools could accommodate 704,495; whilst in 1863 the schools inspected numbered 6227, and they could accommodate 1,315,988 children. The Parliamentary grants to popular education, which amounted to 30,000*l.* in 1840, rose in 1862 to 774,743*l.* Rather more than one-third of these sums was spent in the payment of stipends to pupil teachers and gratuities for their special instruction. From the report given with the estimates which were laid before Parliament in the year 1863, it appears that the grants for popular education from the year 1839 to December, 1862, amounted to no less a sum than 6,710,862*l.* 14*s.* 10*d.*; and if we add to this 721,386*l.* in 1863, and a like amount for 1864, it will appear that Government has expended in 25 years, more than eight millions of public money on popular education. To this should be added also the sums raised by subscription in each parish, and then it will be seen how enormous is the total amount that has been spent upon the education of this particular class. If the result is not all we could have expected, there is not one of us but can and must acknowledge that a great and beneficial change has been wrought in the people; and the next generation will perceive a greater and greater still. The leaven has been introduced, and, depend upon it, it will work until the whole lump is leavened. A strong man is a most useful being; but how much a more useful being is he when he has a mind to guide and direct the strength and energy which he possesses! But however we may differ in opinion, the one fact remains undisputed, that through this action of the Government on popular education the artisan and the labourer have the means of obtaining a better education than many of our grand-fathers or fathers obtained, or could at that time have obtained, except at considerable expense. If I am asked, "Has a corresponding advance taken place in the education of any other class in this country?" I must answer, No; although the next greatest movement of importance has been the success obtained by our public schools. These, by securing men of the highest talent as masters, and consequently by an improved system of tuition, have so raised their position as to take them entirely out of the hands of the great middle-class, and have caused them to be almost monopolised by the upper classes of the country. But who are the middle classes? and who are they whose means of procuring a good sound education are said to be so unsatisfactory? I shall not here attempt to define who may be called the middle, and who the upper class; but will take a test which will be quite enough for our purpose, viz., the depth of the pocket. It is simply a question of means. Those who can afford to pay from 100*l.* to 120*l.* per annum for the education of each of their sons, can find all they need at our great public schools. Those who cannot pay from 6*l.* to 8*l.* a year for a day-scholar, or from 25*l.* to 30*l.* a year for a boarder, must I think, for the present send their children to the Government schools. But the class for whom a proper provision is wanting is that large class which lies between these, and which is paying or is prepared to pay the amounts last mentioned; but which finds neither the education within its reach, nor the facilities of obtaining it so good as what they ought to be.

Middle-class Schools.—Let us now try to learn what is wanted, and how that want may be supplied.

What is a school? It is, or ought to be, a training ground in which the mind is exercised and led on, step by step, to develop itself. The word "training" conveys fully what should be the object of all education. There is a great outcry about teaching something useful. "Cram them with useful knowledge," say some. "What is the use of teaching boys a lot of stuff that can be of no use to them in after life?" say others. Do we not meet with this continually? and are not those who use this language confounding the end with the beginning? A proper education is the training or forming of the mind to receive and acquire useful knowledge. School, as it were, only opens the garner which must receive its store day by day and year by year, and that according to the diligence and capacity of the gatherer. The Rev. C. Lake put this in its proper light when lately speaking at the Devon County School, where he had been examining the boys; and so full of truth are his words, that I cannot refrain from quoting them. "He would urge upon them the necessity of learning something difficult, something on which they must bestow all their energies of mind, which would tax them to the utmost; and if they did this, it would enable them in after-life to grapple with almost anything. Don't let them be mistaken on this point. The education of their sons did not consist in what was called useful knowledge only; it consisted of something different—in calling out and tasking the energies of the youthful mind. He would say to all concerned in the subject, that if they wanted to help in founding a great system of education they must make the boys learn something hard. He did not care what it was, so long as it was something difficult. It might be mathematics, or Latin, or French; but it must be something over which they would have to work hard, in order to get the mastery; and a youth who did this would acquire a power which would be to him of the greatest value in after life." Here Mr. Lake expresses clearly the principles upon which all education should be conducted. It is, in fact, teaching boys to work. "*Nihil sine laborando*" is now the motto of the Rugby School; and I think experience has taught all of us that there is nothing, worth having, to be obtained without labour. It is only by work that the mirror of the mind can be silvered and enabled to take a true impression of the objects presented to it. And this kind of work public schools alone can give. Of all the systems of education this one seems to have the preference. So great has been the success of the public-school system, that it is said that they who have been educated in any of our great schools can recognise each other as soon as they are called upon to act together, as they often are, in the army and elsewhere. It is acknowledged that by no other means can our youth acquire that self-reliance, that quickness of thought, that determination, that readiness to do and to suffer, if need be, than by the training and discipline which is to be found in these schools. It may perhaps be asked, "If this public-school education is so perfect, how is it that the middle classes, even in those towns where these schools are situated, do not avail themselves of it?" I reply, they cannot afford the time. The teaching of our great public schools has one object in view, viz., training for the Universities. A boy must remain at school until he is 19 if he would receive the full benefit to be derived from the system; and most boys of the middle classes leave school at 15 or 16. Fewer subjects must be taught, and those more thoroughly than is customary with boys who can give three more years at command, and who can consequently go through a greater range of subjects than their less fortunate neighbours. For these latter the course of instruction followed at the three following middle-class schools seems all that can be wished; and the subjects taught are sufficiently numerous for the time the boys will remain at school. At Bedford the instruction includes the following subjects—Scripture, Latin, mathematics (under which head are arithmetic, Euclid, algebra, mensuration of surfaces and solids, and land surveying) English, French, German, history and drawing. This school, if one may judge from the success which the boys have achieved at the University local examinations, is conducted admirably, and furnishes as good an education as any business man can require. But, unfortunately, it is only local boys who receive the benefit—I say unfortunately, for there is spent yearly on the education of Bedford alone money sufficient to educate the whole county; and if I belonged to the county of Bedford I should be knocking loudy at their doors. It must in justice be added that the masters are allowed to take a few boarders, who are called private pupils, at a charge for board and lodging of about 40 guineas; but this is comparatively nothing to the advantage that might be conferred on the country at large by the introduction of a more liberal system than the one at present in existence, good though it be. Next after Bedford comes St. John's Middle-Class School, Hurstpierpoint, which teaches the same subjects that are taught at Bedford, with the addition of Greek. It appears from the Calendar that about 300 boys are at present on the books. The expenses of education, board, and washing are 30 guineas per annum for boys in general, and for Sussex boys 27 guineas. These charges include every expense, except tradesmen's bills. The third school is in Devonshire, where, through the exertions principally of the Rev. Prebendary Brereton, one has been established at which the education is similar to that above, and the expense about the same as those, when the extras are added. The Devon school appears to have been established by means of shares of 25*l.* each; although a portion of the money spent was borrowed on loan, and handsome contributions were also made by Lord Fortescue and others to complete the work. At 30*l.* per annum, and with 100 boys, this school would pay 5 per cent. interest for the money advanced; but it appears from Mr. Brereton's description of the school in the Royal Agricultural Society's Journal that much has been done there "as a labour of love." If schools are established in this manner, you must calculate an extra cost of 5*l.* per boy for the first 100 boys; and with a capital of 10,000*l.* (upon which these calculations are made), you can purchase from 10 to 20 acres of land, erect the necessary buildings, and furnish them. This sum would however make provision for 300 boys; and if the school were full, it would of course reduce the cost of interest to 1*l.* 13*s.* 4*d.* per boy. I hope we shall not be driven to form Joint Stock Companies to educate our sons, though that is infinitely to be preferred to the present state of things; for it must be borne in mind that if we establish schools in this manner, we shall be still in a very much worse position than those who have the benefit of our great public schools.

[Mr. Edmunds then discussed the Report of Her Majesty's Commission on Public Schools, with especial reference to Harrow and Rugby, and alluded to the recent establishment of the Suffolk Memorial College, and of the Surrey County Schools. He also referred in detail to the examination tests which had been brought to bear on Middle-class Schools in general.]

Examinations.—The want of some standard for all those schools whose pupils are not intended for the Universities has long been felt, and various attempts have been made to supply it by the Universities and other public bodies.

1 and 2. There are the examinations held periodically by the Universities of Oxford and Cambridge. Oxford grants a title of Associate in Arts to those who pass the Senior Examination, Cambridge a certificate. 3. The College of Preceptors gives a diploma; and 4. The Society of Arts a certificate. The Rev. Prebendary Brereton has advocated the founding of county colleges, that should also examine boys and grant degrees. I may, perhaps, be left alone is my opinion, when I state that the whole of the above tests are unsatisfactory. They have done some good in stimulating those boys to exertion who know that they have to pass an examination: but the whole of the above authorities are self-constituted, and have therefore no power to grant their particular degrees, if degrees they may be called. And I would ask, if Mr. Brereton's plan should be carried out, what would be the value of the degrees they would confer, or how they could be compared with each other? It must be allowed that it is a mistake to meddle with any of the titles of the Universities. We want a new test, because the youths with whom we have to deal cannot afford the time, or the expense, to follow out the course of education which is necessary for an University examination; and we ought not to have a counterfeit. If we are to have a title, let it be something distinct, and conferred by those invested with authority to grant it, and then it will have a distinct value of its own. In this matter the Government can render great assistance. Let it form an examination board chosen from our Universities, from the College of Preceptors, from the Society of Arts, and wherever they can find the men they want, whose duty it should be to fix the subjects for examination. Let them appoint examiners from time to time, who should take examinations at different centres twice in each year, and to those who may be proved worthy let them grant a degree. If this were done by the whole of our educational institutions collectively, and the Government were to stamp the union by assigning particular degrees to the various stages of examination, one test would be applied to the whole kingdom, and one rank to each who passed the examinations. It would give a distinctness and a value to the examinations which they can in no other way possess: and the expenses thereof should be defrayed by the Government, as an acknowledgment to the great tax-paying portion of the community, and that they are not neglected by those whose duty it is to consult for the welfare of every class in general, not of this or that one in particular. I now come to the subject of agricultural education. This particular branch has been treated with so much ability by men of distinguished position and learning, that I feel somewhat nervous in approaching it. Amongst them, the farmers of England are deeply indebted to Lord Fortescue, Mr. Holland, M.P.; Mr. T. D. Acland, the Rev. Prebendary Brereton, and Mr. Morton; all of whom have spared neither time nor labour in endeavouring to rouse the interest of the agricultural class in what every thinking man must acknowledge to be a subject of the highest importance to the future well-being of their children. It has been shown in this paper the position in

which the middle classes are placed with regard to education, and the conclusion is clear. You must educate your children liberally. If you would have them take their proper position, and act as men among men, and it may be added, as farmers are. Agriculture is a science, and will soon have to be acknowledged as such. You must, therefore, prepare those accordingly who will have to practise it, or they will be left without employment. Moreover, it is not a solitary science, but a complicated one, requiring some knowledge of chemistry, geology, physiology, and pathology. From want of practical knowledge some signal failures have been made by those who have attempted farming upon what they have called scientific principles; and people have been led to condemn science, instead of the individual whose fault was that he had imbibed a certain amount of theory, but wanted a head to reduce it to practice. Listen to an extract from a letter received lately from a gentleman well-known to most of you, and who farms a considerable quantity of land, and I have no doubt you will acknowledge that it does but tell the plain truth: "The science of agriculture is understood by very few in England, and in consequence millions are lost. I am sure a knowledge of the science of engineering does not render men less practical. I fancy men are partially averse to science because many scientific men are bad men of business. This arises, in my opinion, from the fact that only those who have a pure love of science, generally speaking, unpractical minds, follow it in this country." Hear what Lord Fortescue says:—"It is perfectly clear that year by year the business of farming is becoming more complicated, more urgently demanding a sound and general training of mind and character to enable those who follow it to avoid the opposite extremes, sticking too fast to what is old, or rushing too wildly after what is new. I feel that as year by year that business becomes more important, it is more important that those who follow it should be furnished not only with material capital in the shape of money, to enable them to carry on the business, but also with that which is not a less real, though a less fleeting kind of capital, viz., that training of mind and character which it is the special object of a good education to impart. I think the landowners of England are very much mistaken in the view they take of their own interests, if, that being the state of the case, they do not look to the possession of that kind of capital as one desirable qualification in the tenants they seek to obtain for any farms which fall vacant. The other day I had occasion to say that I highly approved of long tenures; but one condition of security to the landlord is that the tenant should not only possess money capital, but skill, sense, and energy, to enable him to do justice to the land he has to hold for a number of years. I say, then, that those parents will have made by no means the least productive investment of capital, who have sunk some of it, or rather I should say have remuneratively expended some of it, in obtaining a sound education for their children." If these words of Lord Fortescue do not convince the farmers of England of the necessity of making this provision for their children, nothing that I could urge could possibly have that effect. How then is this desirable education to be obtained? By founding public schools, and by providing for each school a qualified person to teach natural science. This is all you can effect until a boy is 16 years of age, for no greater mistake can possibly be made than to attempt to found distinct schools for farmers and commercial men. All education, up to the age mentioned above, must be general; and parents, if they would have their children properly educated, must make up their minds to keep them at school until they are 16; for if they are removed before that time, their minds will not be sufficiently developed to receive the after-education which they require; and it is acknowledged that the year from 15 to 16 is of as much value to the boy's education as the two preceding ones. So far as we have gone, we can see our way with tolerable clearness; but something beyond this is wanting. The boy wants further instruction for another year in what is called natural science; and should be sent to a college (we may now use this term as distinct from a school) in which this instruction is given at such cost as to be within the reach of the sons of parents possessing only a moderate income.

The Agricultural Society.—Now, to assist in providing this instruction is, I think, the only way in which the Royal Agricultural Society can help the farmer in the question of education. To establish colleges to teach boys their business as farmers is as absurd as to found colleges for grocers or any other trade.

Farming, or the science of agriculture, can only be learned by *practice*; for if any business can be called practical it is the cultivation of the soil. It ought to solve the problem (and I believe it will) "how far science can be made practical." At Cirencester the cost of instruction and the length of time necessary for a student to remain there to pass the examination and obtain the college diploma are too great, for the expense is about 90*l.* per annum, and the time required two years. Hence you will perceive that this is not what you require; and if you were to read the examination papers, you would also perceive that too much is attempted. Yet you require something which cannot be taught at school, and which a boy should learn before he begins practical farming. This last should never be attempted except on a farm; and in the same way as boys are taught any trade or profession in general. You do not want to make Faradays, or Voelckers, or Professor Simonds, or agricultural engineers; though if you were to be so fortunate as to discover some of these among the raw material you would rejoice at the discovery. But you do require your boys to have some knowledge of chemistry, because from the absence of this knowledge I am sure thousands are wasted yearly in the misapplication of manures alone; thousands again in the purchase of articles which are scarcely worth the carriage home; and thousands also in applying to the soil a constituent which it already possessed in excess. I believe that a slight knowledge of geology would have prevented the waste of thousands in forming useless drains; I believe that some knowledge of the diagnosis of disease in animals would have saved immense sums to the agriculturist, would have prevented caustic remedies being applied to wretched animals which required treatment of the very opposite character; and also, I believe that a knowledge of botany would have aided, in no small degree, the productiveness of our green crops. It seems, then, that after a boy has been taught at school the elements of the different sciences above alluded to, twelve months' instruction at college would be required (and twelve months ought to be sufficient) to prepare him to turn his knowledge to account in learning practical farming; and I see no other way in which the Royal Agricultural Society can assist such education than by helping to provide a college or colleges for this purpose. They can have nothing to do with providing schools. They cannot attempt to give prizes or found scholarships at private schools, and public schools are not at present established all over England; so that giving to these would lay them open to the charge of unfairness in favour of one part of the country to the detriment of the other. The examination scheme was tried in Scotland and failed. But I maintain that by providing means for a scientific training, such as I have attempted to sketch, the Society would assist materially the interests of agriculture. To make my meaning clear—take Cirencester College as an example. Its professors, and in fact its means of support, are derived entirely from the fees paid by the students. The expenses are therefore far beyond the reach of ordinary incomes. But if the Royal Agricultural Society could grant, say, 1000*l.* per annum to pay the professors, confine the subjects taught to those above-named (with the addition perhaps of mensuration, land-surveying, and a knowledge of the working of a steam-engine), and bring the examinations down to a proper level, so that a youth of 17 or 18 could be reasonably expected to pass it, and reduce the charge to 50*l.* per annum, I do not anticipate failure, but the reverse. The attempt to teach practical farming should be abandoned, because that can only be learned at home, or (if not the son of a farmer) under some practical agriculturist. There is also another mistake made at Cirencester: when a man has passed their present examination, which few comparatively speaking do, there is given to him a diploma, and he becomes a member of the College. Now, seeing that you are, or can be, a member of the Royal Agricultural Society and I do not know of how many other societies besides, by paying to each a guinea per annum, the title becomes almost valueless. Yet some arrangement, like the following, might be made which would give the title value in the country generally. If the youth passed the examination above suggested satisfactorily at the end of his year's residence, there should be given to him a degree of A.R.A.C. (Associate of the Royal Agricultural College); and after that there should be another examination, in which a knowledge of practical farming ought to find a place. For this major examination any of the students might offer themselves within five years after they had passed the other or minor examination; and upon those who passed this last should be conferred the degree of Fellow of the College. Surely some scheme like this is worth a trial. Difficulties there are, and difficulties there will ever be, in the way of progress. It may be that no scheme for scientific education would quite answer our expectations at present; but every year as schools arise, in which a better education is imparted than there is at present, the want will more and more be felt, and the Royal Agricultural Society would do well to provide some distinctive mark of position, to which the rising generation might look forward, and in the obtaining of which there might be every reasonable prospect of success.

I hope the great cause for which I have so feebly contended has not suffered from the weakness of its advocate; and if our discussion to-night does but in some small degree rouse the middle classes to the necessity of providing for the educational wants of their children, it will not have been in vain. All would be indignant if charged with neglect in providing for their material wants; but in how much higher degree is the mind more than the meat! I pray them, as they value their welfare, to make some effort, some sacrifice if need be, to give this education to their children. They will then give them what even the reverses to which all are liable cannot take away; and they will be adding, as it were, living stones to the building up of the future prosperity of their country. This, rest assured, is the true Reform Bill: for to give power into the hands of the ignorant is like entrusting fire-arms to those who are unaccustomed to their use, and who are consequently quite as likely to injure their friends as their foes; but to give it into the hands of the educated, is to give it to those who know its value, and who consequently will use it for the benefit of the community, as the only true way of benefiting themselves.

Bath and West of England: *Council Meeting, Feb. 4.*—The Finance Committee presented their annual statement. The Society has now a funded capital of 4923*l.* 12*s.*, and the value of the plant, after making the usual allowance for depreciation, is 3084*l.* 5*s.* 10*d.*

The Salisbury Deputation reported that the site proposed for the show yard was in every respect eligible, and every member of the deputation was impressed with the extraordinary determination of all they met, to render the Salisbury meeting (1866) one of the very best the Society has ever had. It had been found necessary to have a larger area than that appropriated to the purposes of the Royal Agricultural Society on the occasion of their visit. The proposed site was not more than a quarter of a mile from the city, and it would be only separated by a roadway from the implement trial fields.

Calendar of Operations.

February: *Pea Culture.*—The following is abridged from Morton's *Farmers' Calendar* (Routledge):—

This is the season for sowing the hardy sorts of Pea; and towards the end of the month any kind of field Pea may be sown. The Pea can hardly be called an ameliorating crop, but admitting of cultivation in the wide intervals between the rows in which it is usually sown, and afterwards covering the ground with a bulky smothering growth of haulm, it is, when well cultivated, a fallow crop. The land should thus be left cleaner after Peas than it was; and as the crop yields in its nutritious straw a capital contribution to the dung heap, a frequent crop of Peas is no evidence of cross-cropping. It rarely, however, forms a regular part of the rotation, being taken now and then, in addition to the common course of cropping, when the land seems fit for it, or unfit for the crop which it is taken to displace.

The soils best adapted for it are the lighter loams which are hardly stiff enough for Beans; and calcareous soils are especially fitted for it. Pea straw contains in its ashes from 35 to 40 per cent. of lime, and 12 to 15 per cent. of potash. This indicates the kind of soil which the plant requires. Peas need liberal treatment and good cultivation like any other crop, but bad farmers are too apt to sow this Pulse when the land will yield nothing else. They have a proverb among them, which signifies that the season does for Peas as much as good husbandry; and they from thence take care that good crops shall be owing to season alone. Hence arises the general idea of Peas being the most uncertain crop. This is owing to their being too often sown on land that is not in good order. Let the careful husbandman lay it down as a maxim, that he should sow no crop on land that is not in good order; not merely in respect of fine tilth at the time of sowing, but also of the soil being in good heart and clear of weeds. I would not, however, here be understood to rank all kinds of crops together; because Beans and Peas will admit of cleaning while they grow. On that account, if a farmer comes to a field which his predecessor has filled with weeds, a horse-hoed crop of Beans might be expedient, when a Barley crop would be utterly improper. Peas, when managed in a spirited manner, will not have the reputation of being so very uncertain a crop, for this character has in some measure been owing to ill conduct.

Peas after Clover.—The white boiling Pea, of many sorts, and under various names, is more tender than the greys and various kinds of hog Peas; but I have many times put them into the ground in February, and though very smart frosts followed, they received no injury. I have uniformly found that the earlier they were sown the better. There is also a particular motive for being as early as possible; which is, to get them off in time for stubble Turnips. If they are sown in this month, and a right sort chosen, they will be off the land early in July, so that Turnips may follow, at not too late a time for sowing that crop. All the sorts of early Peas should be cultivated on dry soils only. Upon sands, dry sandy loams, gravels, and chalks, they succeed well.

Broad cast Peas are to be utterly rejected in every case. The only question that can arise in their culture is between drilling and dibbling. If the former is determined on, the land should have been ploughed in autumn with the skim-coulter. The surface being worked shallow with a scarifier and harrow as soon as possible after winter, drilling should directly follow. If dibbling is determined on, the land, if already clean, need not be ploughed till winter time or after it, and a heavy roller follows the plough. Dibbling Peas on a Clover layer generally results in a good crop.

It is the practice of some farmers to manure for Peas. If the land is in heart, and they are put in on a layer, they do not want manure. A very good crop may be gained without it. I have had five, and even five quarters and a half an acre, without any manure applied for this crop. Dung makes them run to long straw, and that is not favourable for podding productively. Beans will benefit from a heavy dressing of dung, but with Peas the case is different. There are very few situations in which the farmer can have such a command of manure as to give him a sufficiency. It is therefore of much consequence to him never to spread a load but where it will be sure to answer best. Every man complains of a want of dung; and he should be careful therefore to give it to the crops that will pay best for the expense.

As to distance between the rows of Peas, the practice of various farmers differs exceedingly. Equidistant rows from 9 to 18 inches are common. I have seen them at two feet, and even at three. In dibbling it is common in Norfolk and Suffolk to put in a row on every flag or furrow-slice of nine or ten inches breadth; and I have known very good crops in most of these distances. If horse-hoeing or much hand-hoeing is intended, double rows at nine inches, with intervals of 18, do well; but the greatest crops I have known have been from planting every furrow-slice. Where drilled in rows, the interval of 15 to 18 inches is to be preferred. This enables an efficient horse-hoeing of the land during the early stages of their growth.

From two to two bushels and a half per acre is the usual quantity when planting every furrow. If they are drilled at greater distances, six or seven pecks will do. Some have trusted to one bushel per acre, but that quantity is too small.

Peas after a stubble crop are sown by the drill after the harrow upon land which was cleaned, manured, and ploughed the previous autumn. The manure thus lying some months in the ground becomes more thoroughly incorporated with the soil; and is less likely to produce too gross and leafy a growth. The sorts sown may be (1) the early Grey Warwick, which, however, being of more rapid growth, is adapted for March or later sowing; it is not so productive as other sorts, and is especially adapted for late districts and land in good condition; (2) the common grey field Pea, later, more prolific, yielding a very bulky straw, and better adapted therefore for dry soils and districts, and for land not in such rich condition; (3) the Partridge Pea, or Grey Maple, very prolific, yielding plenty of straw, and better adapted than the last for a late country; (4) the winter field Pea, sown in autumn. There are also several white boiling Peas adapted for field culture which may be named, as (5) the Early Charlton, of medium bulk as to straw, yielding an abundant crop and tolerably early; (6) the Carolina Pea, later, equally abundant; (7) the White Sickle, a good cropper, yielding long bent pods, but much later than the others.

The place of the crop in the rotation is either after Clover, as already named, or after a corn stubble; and in the latter case it generally takes either the place of Clover in cases where there is believed to be a liability to "Clover sickness," or the place of Turnips in cases where there is believed to be a liability to the "finger-and-toe" disease.

After autumn culture, as already described, the land as soon as dry in February, is either scarified or merely well harrowed down, and the seed, two to three bushels

per acre, is drilled in rows, 15 to 18 inches apart, permitting the subsequent use of the horse-hoe. The ground is then again harrowed, and the field is shut up till the rows appear.

Notices to Correspondents.

BARKING TREES: *X.* Kill the hares and rabbits. If you may not, take as much thoroughly skimmed milk as required, and mix it up with soot till about as thick as paint. With this paint over the tree with a whitewash brush. It lasts well one season.

CONDITION OF EAST LOTHIAN LABOURERS: *Agriculturist.* Mr. G. Hope thus describes it:—"The hinds and ordinary workmen live in separate cottages with their families. A cottage and garden forms part of their wages, which likewise consists of specified quantities of the different kinds of grain and Potatos, or a piece of land wrought and manured for the growth of the latter. Each of them has a cow, which is their own property, grazed and kept on the farm; they are thus enabled to feed a pig. The possession of a valuable cow and pig not only enables them to rear their families comfortably; but it is a guarantee for their moral and social respectability. It is seldom that you hear of a man who owns a cow becoming a poacher, or being guilty of any of the minor offences against law and order."

CORRUGATED IRON ROOFING: *B D.* Can any of our readers give their experience of this roofing for farm buildings, and especially for cow byres, feeding houses, and stables.

DRAINAGE: *Inquirer.* The following are Mr. Bailey Denton's lines:—

When land is drained no furrows keep,
But lay it flat and plough it deep.
Sow your seed soon, wide in the row,
And clean and stir with Garrett's hoe.
Ere the last sheaf is off the ground
Let the broad share begin its round;
With sun to scorch and wind to dry,
In earnest plough and scarify.
But when the soil is filled with rain,
Then your labour is worse than vain;
For ev'ry footmark shod or cloven
Only stamps the dolt or sloven.

HAY: *Julia.* Cows in milk, of ordinary size, need 30 lb. of good hay daily each. Further next week.

HOOSE IN CALVES: *A Sufferer.* Mr. Spooner describes it as a disease of the windpipe and air passages, in which are found a number of small worms which produce a troublesome cough, and is often fatal. The disease is a sign of poverty or want of tone in the system, and it may be caused by bad water or a short supply; the eggs of the worm are probably taken with the water. To prevent the disease, give the calves some oil-cake or rape-cake during the winter, in comfortable yards. To cure it, give the following:—Linseed oil, 4 oz.; oil of turpentine, 1 oz.; oil of carraways, 20 drops, to calves from six to ten months old. To be repeated in a week. Three doses may be given.

HOVEN: *Cor.* This is owing to greedy feeding on green and succulent food. The following is Mr. Spooner's instructions:—Liberate the confined gases, or condense them by chemical re-agents. The probang should be passed into the stomach, so that the gas may escape: give the following draught:—

Powdered ginger	3 drachms
Hartshorn	1 ounce
Water	1 pint.

If these are not at hand, give lime-water, or two drachms of chloride of lime dissolved in a quart of water. It is well to follow with a purgative, to restore the digestive organs. Sometimes it is necessary, in order to save life, to relieve the distension by making an incision in the flank, on the left side, between the last rib and the hip-bone. A pen-knife and a quill, or stick of elder, inserted in the wound will suffice. The wound may be closed with a stitch and a little plaster.

MANURES: *X.*:—

Name.	Applied to	Weight per acre.
Guano	All crops	1 to 3 cwt.
Superphosph. of lime	Turnips	3 ,, 5 ,,
Common salt	Grain crops, Mangels	1 ,, 2 ,,
Soot	,, Potatos, &c.	30 ,, 40 bushels.
Sulphate of ammonia	Grain crops	1 ,, 1½ cwt.
Nitrate of soda ..	Ditto	1 ,, 1½ ,,
Gypsum .. .	Clover, Potatos, &c.	10 ,, 20 ,,
Rape cake	Grain crops, &c. ..	6 ,, 8 ,,
Bone dust	Turnips, Grass land, &c.	12 ,, 16 bushels.

All soluble manures should be applied during the season of growth—all others some weeks before the seed-time.

MR. GANT'S THEORY: *Exhibitor.* It was fairly discussed in the "Veterinary Review" at the time, which said:—"Assuming, for the sake of argument, that fatty degeneration of the heart is a common fact in a fattened beast, does not that prove how, in spite of such fatty degeneration, an animal may thrive in an extraordinary degree; and the fatty heart itself may, for aught we know as physiologists, be as digestible as the oil derived from a cod's liver? Science explains how fats are digested, and no man of science before Mr. Gant ventured to assert either that a tissue is, from the mere fact of its being fatty, unfit for human food, or that a fatty heart is so far unequal to the performance of its functions as to unfit an animal's flesh for nutritive assimilation."

OATS: *W G.* The Potato, Hopetoun, Flemish, and Early Angus Oats are suitable for the best qualities of soil in good situations. The Sandy, Dyock, Berlie, Red Mackbiehill, Blainslie, Grey Angus, Late Angus, Poland, Friesland, Shirreff, &c., are suitable for intermediate soils and situations. The Kildrummie, Strathallan, Black Tartarian, Barbachlaw, are suited for high altitudes and exposed places. So says the writer of an article in the current Number of the Quarterly Journal of Agriculture. Probably the Black Tartarian will best suit your peaty soil.

PULPED OR WHOLE ROOTS: *Feeder.* Mr. M'Laren's experiments gave 7*s.* 4½*d.* per ton for whole roots, 5*s.* 2*d.* per ton for pulped roots, given fresh with straw chaff; and 6*s.* 11*d.* per ton for pulped roots given fermented with chaff. The process is nevertheless extending. There is an economy of roots obtained by it; and the single experiments of Mr. M'Laren are not an unquestionable guide.

SHORT-HORN BREEDING: *Stockmaster.* Mr. Willoughby Wood has well illustrated the right policy for you. He argues against the prevalent practice of rearing all pure-bred male calves of the breed as bulls on two grounds:—1, that at present there are many blanks in bull breeding to one prize; and, 2, that if our best herds were annually to send a number of well-bred fat oxen to the butcher, farmers generally would have ocular evidence before them of all those advantages of precocity and economical feeding which would induce them generally to employ pure-bred bulls with their own cows.

WHEATS: *Young Gardener.* It is a coarse brown white chaff Wheat, and may be Hallett's, but we cannot certainly say.

Exhibition Prize Medal, 1862.

HOTHOUSES for the MILLION.—On the principle invented and patented by Sir Joseph Paxton, M.P., combining simplicity, cheapness, excellence, and durability. SPAN-ROOF HOUSES, painted three coats, and glazed with English Sheet Glass, can be supplied ready for fixing, 21 ft. by 13 ft., 24*l.*; 43 ft. by 19 ft., 73*l.* 5*s.*; 64 ft. by 25 ft., 161*l.*

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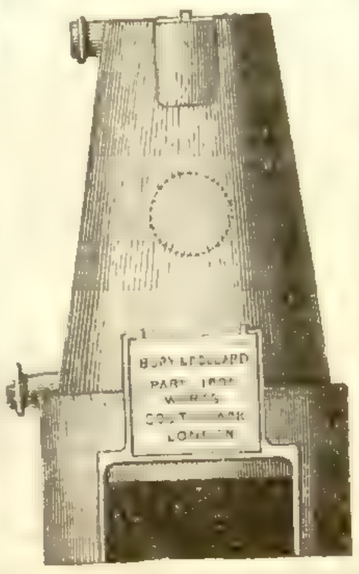

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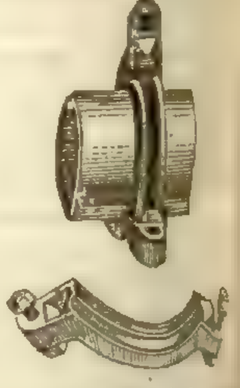

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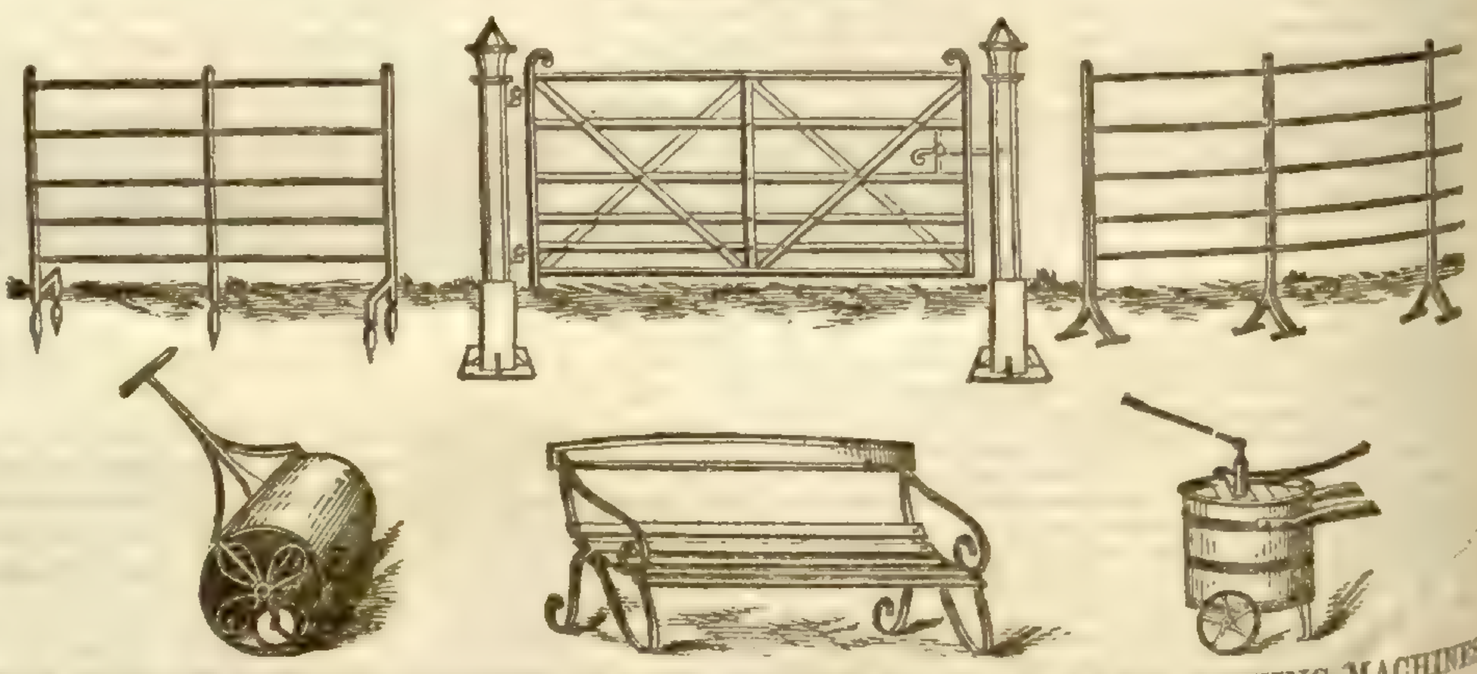

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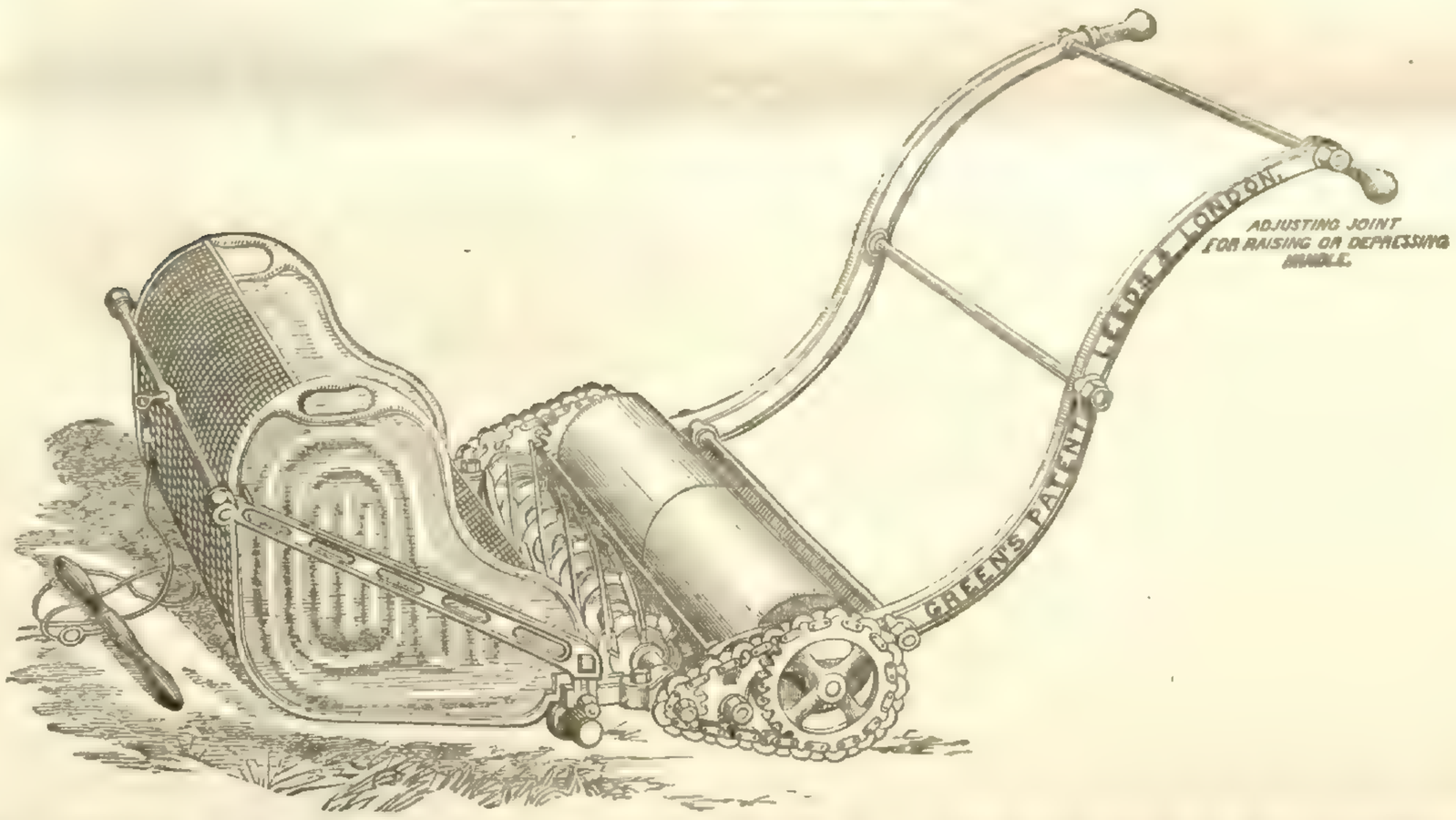

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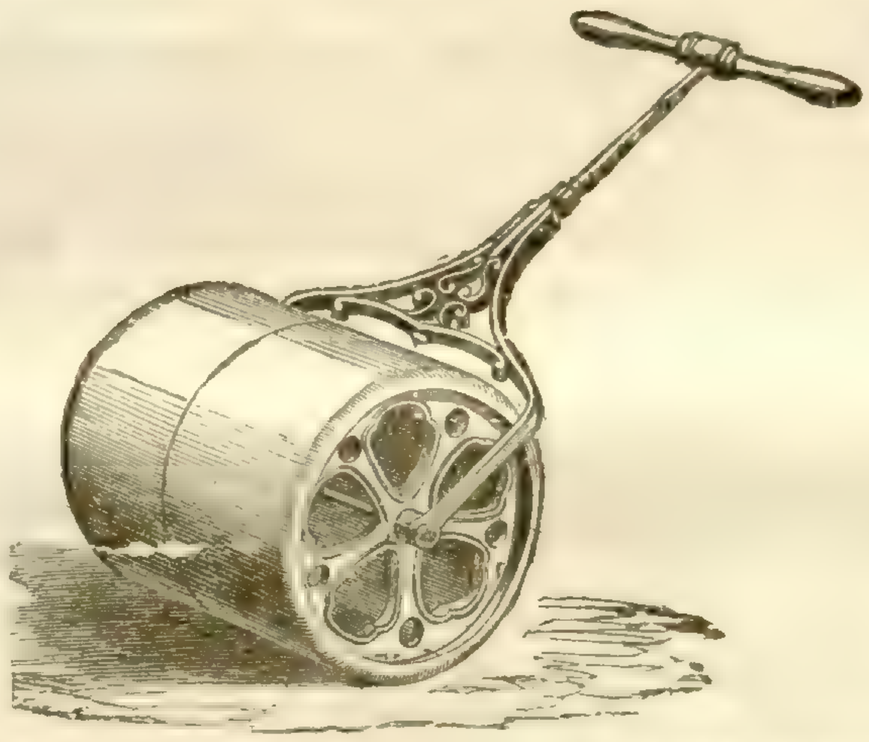

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,,	30	,,	,,	42	,,	11	15	0
,,	30	,,	,,	48	,,	13	10	0
,,	30	,,	,,	60	,,	15	10	0
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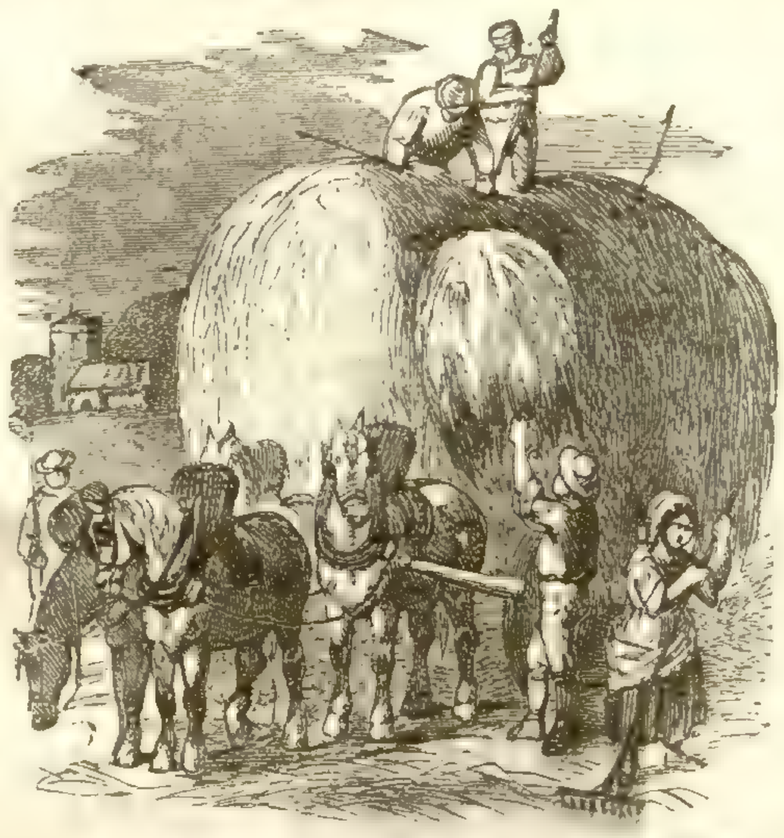

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Two First Prizes in open competition for the finest flavoured Grape of any colour. Chasselas Musqué, Muscat of Alexandria, and Frontignan competed for these prizes. For further description see Hogg's *Gardeners' Year Book for* 1865, page 32, and *Gardeners' Chronicle* of October 1st and 22d, 1864, pages 913 and 1008.

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BLACK HAMBURGH, BLACK VICTORIA, WHITE TENERIFFE, and MUSCAT of ALEXANDRIA VINES, fine rods, true to name, 6 to 8 feet long, 30s. per doz. Dwarf Pyramidal and Dwarf-trained PEAR TREES on Quince stocks, select and choice sorts, of fine growth, 18s. and 30s. per doz. GUERNSEY ELMS, 5, 7, and 9 feet high, 30s., 40s., and 50s. per 100. This is the handsomest and most upright-growing of all Elms. Communication with the southern and western coasts of England easy, and the freight low.

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J. SLATER AND SONS have great pleasure in offering the above MELON as being of a very superior quality, a very free setter, and an abundant bearer—each fruit weighing from 3 to 3½ lbs. Slightly netted; shape oval; flesh, pale green; thick and juicy. Price 2s. per packet, post free.

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DOBSON'S CELEBRATED PRIMULA SEED.—We have the pleasure to offer this magnificent Fringed strain of our own saving, and which cannot be excelled. Sealed Packets, 1s., 2s. 6d., and 5s., post free.

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To the Trade.

GEORGE MACINTOSH, Sole Agent for Mr. F. W. WENDEL, Erfurt, Prussia, begs to announce that the Stock of GERMAN SEEDS is becoming limited. To prevent disappointment, early applications from Customers will be esteemed a favour.
High Road, Hammersmith, W.

The Japanese Nurseries, Biggleswade, Beds.

PANSIES.—The finest Show Varieties with which T. A. has taken FIRST PRIZE at every Show in Hunts, Cambridgeshire, and Bedfordshire, 14 in number, in 1864, from 6s. per dozen upwards. All Strong Plants in Pots.

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Royal Horticultural Society.

PRIZES AWARDED TO
MESSRS. SUTTON AND SONS at the GREAT INTERNATIONAL SHOW in December last.

FIRST-CLASS CERTIFICATE for YELLOW GLOBE MANGEL
" " for LONG YELLOW MANGEL
" " for RED GLOBE MANGEL
SECOND-CLASS " for LONG RED MANGEL
FIRST-CLASS " for KOHL RABI
" " for HOME-GROWN GOURDS
SECOND-CLASS " for ORNAMENTAL GOURDS

ROYAL BOTANIC SOCIETY,
REGENT'S PARK.

SPRING EXHIBITIONS, SATURDAYS, March 18, April 8 and 29.
GENERAL EXHIBITIONS, WEDNESDAYS, May 24, June 14, and July 5.
AMERICAN PLANTS, MONDAYS, June 5 and 12.

Tickets to be obtained at the Gardens by orders from Fellows of the Society. Price: Spring Exhibition s, 2s. 6d. each; General and American Exhibitions, 4s. each.

LADIES' PRIZES for INDOOR GARDENING.—The PROPRIETORS of the GARDENERS' CHRONICLE again offer, as announced last year, TWO PRIZES of 10l. each for the best examples of INDOOR PLANT-CULTURE exhibited at the Show of Table Decorations, which is to take place in the Garden of the Royal Horticultural Society, at South Kensington, on JUNE 24.

One Prize will be given for the BEST ORCHID IN BLOOM, grown and flowered in a room.

One Prize will be given for the BEST FLOWERING PLANT OR FOLIAGE PLANT of any kind, grown in a room.

The Competition is to take place amongst LADIES ONLY.

The Prizes are offered for the best single plants, examples of actual indoor cultivation; they must therefore have been grown in a room for at least six weeks previous to the time of exhibition, during which period they must have been under the management of the Exhibitors themselves.

The Plants are to be such as are suitable for drawing-room decoration.

The Plants may be grown in pots, or boxes, or baskets, or aquaria, or in any other convenient and suitable contrivance.

Notice of the intention to exhibit must be sent to the Garden Superintendent at South Kensington not later than June 19, in order that accommodation may be provided. The Plants must be sent in by 9 A.M. on June 24, and be ready for adjudication by 11 A.M.

The Gardeners' Chronicle.

SATURDAY, FEBRUARY 18, 1865.

MEETING FOR THE ENSUING WEEK.

SATURDAY, Feb. 25 { Royal Horticultural (Weekly Show), at South Kensington .. .. .. 2 P.M.

EVERY gardener complains of the SPOT IN ORCHIDS, but no one seems to know how to prevent it, and few are agreed as to the cause. The most probable opinion is that it arises from a combination of cold and damp. Most certainly however, it is not precisely the same thing with common spotting, and there seems some reason to believe that it is contagious, or at any rate that there is little chance of getting rid of it without removal into another house, when it has once got complete possession anywhere.

Leaves of 10 different Orchids, variously affected, have been sent to us, as mentioned in p. 148, and as it seems clear that there are three distinct forms of disease, it may be well to call attention to them, though unfortunately we have no suggestion to make as to any remedy.

The first, which we have seen on many species of Orchis, and of which a very perfect example is sent us on Dendrobium speciosum, is characterised by deep pits which extend to half the thickness of the leaf only, or have communication with similar though not strictly correspondent pits on the other side. There is in general, no previous discoloration of the unaffected parts of the leaf, the chlorophyll being often as healthy in the interstices as in the pits. The withered part is a pale umber brown, or more rarely black. Sometimes however the affected part is chlorotic, as in a leaf of Aerides Larpentæ, where the evil is confined to the very base.

The second form, which exhibits broader blackish blotches, which are often superficial but sometimes much depressed, is generally preceded by a pale chlorotic discoloration. This form sometimes occurs on the same leaves as the former, and often runs over the pits, while it more or less completely penetrates the leaf. The two seem so distinct that we are inclined to think them different diseases. They certainly do not arise from the attacks of any Fungus, or from thrips or scale, though the unoffending insects are often brought forward as an excuse for an evil which does not apparently depend upon any culpable want of skill in the cultivator, as the very best seem sometimes quite helpless.

A third form, perfectly distinct from the others, occurs amongst the specimens sent, on Odontoglossum citrosmum, and another species of the same genus, of which we can at least speak positively that it is due to a Fungus—the second form of disease also occurring, in one instance, on the same leaf. The leaves are more or less chlorotic, and the first stage appears under the form of large oblong spots which look soft and pulpy, and of different concentric tints, olive green in the middle being succeeded by one or two shades of reddish brown. The central part is covered with little granulations, each of which is a little cyst. On examination the substance of the spot is observed to be traversed everywhere by a delicate branched mycelium, and each cyst is surrounded by a broad delicate fringe of coloured jointed threads. In this condition we have observed no perfect fruit. After a time the central part becomes strongly bleached, and is surrounded by a dark brown border, which is sometimes narrow, sometimes extremely broad in parts and irregular. The cysts have a more or less concentric arrangement, and the spores, which are colourless and hyaline, are oblong, rather narrower at one end, and have a single partition in the centre. We have not, however, seen the Fungus in its most perfect state, the soft spots being too young, and the bleached patches too advanced. The spots in an incipient state are not depressed like those of the two forms of disease mentioned above, and we, therefore, do not believe that the Fungus and either of these forms have any dependence on each other. In one specimen there is a pale yellow irregular shade beyond the spots occupied by the Fungus, which looks exactly like a sunburn. *M. J. B.*

BOTANICAL CONGRESSES have long been in fashion on the Continent, and have done much towards the promotion of science, by the interchange of ideas between persons having the same scientific pursuit, and the general diffusion of knowledge. It is now proposed in Germany to have similar horticultural meetings, which comprise the usual routine of horticultural shows, and at the same time discussions on questions previously proposed. It was determined at a meeting held at Mayence in the spring of 1863, that the second Congress should take place at Erfurt next September, and the proposition was cordially accepted by the Erfurt Horticultural Society.

As regards the exhibition itself, which is open to the whole of Germany for competition, the prizes embrace agricultural as well as garden produce, including flax and hemp; and trained trees in pots or otherwise are invited amongst other objects of culture. Especial attention moreover is directed to plants calculated for table decoration, as well as groups of flowers, ornamental baskets and vases, or in short any objects of art which may seem to enhance the beauty of the garden, or the conservatory and its surrounding pleasure grounds. The King of PRUSSIA offers as the 1st prize a gold medal for the most striking labours in the province of Horticulture.

The peculiar feature, however, of the Congress, is doubtless the proposition to discuss matters of horticultural interest, and a question accordingly has been selected with reference to each of the sections under which the exhibition is arranged. These sections are six in number, and comprise—1, Vegetables and agricultural produce; 2, Fruit and fruit trees; 3, Plants in pots; 4, Cut blossoms; 5, Objects of decoration; 6, Implements, machinery, &c. Corresponding to these, the following six questions are offered for deliberation:—

1. On DARWIN'S theory, especially on the production of new races of plants by selection.
2. On the most important operations in the production of regular trained trees, with respect to the different kinds of fruit, as well as the site and nature of the soil.
3. What are the best means of modifying difficulties which arise from diversities of nomenclature and terminology.
4. The history of the development of some important flower, as the Stock, the Aster, &c., from the first beginning to the present condition of its varieties.
5. On the choice of picturesque plants, as regards form and colour, for the ornament of buildings and their environs.

6. What implements during the last ten years have been most worthy of commendation and have most promoted horticulture.

An additional question refers to the schools for the improvement of gardeners, and within what limits theory and practice should be taught in them.

Something of the kind is most desirable in this country, but discussion is useless without a sound scientific foundation. We believe, however, that in consequence of the measures which have been taken at Kew for the improvement of the men, and in some private institutions, as in that of Miss Burdett Coutts, a race of gardeners is springing up amongst us, who will have something more to depend upon than the mere rule of thumb, and who will, both by example and precept, improve the present somewhat empirical system. *M. J. B.*

—— We announce with deep regret the Death of the Duke of Northumberland, which took place at Alnwick on Sunday last. His Grace was born in 1792, and was consequently in the 73d year of his age. Lord Algernon Percy, as he was then called, entered the navy at the usual early age; and many anecdotes are still afloat of his youthful spirit and gallantry. One of our daily contemporaries relates, that on one occasion a case of great distress was made known to the officers of the ship in which he was serving, and a subscription was resolved upon. The paper was handed round among the officers, and when it came to the turn of the young nobleman he put down his name for 1000*l*. The captain of the ship, startled at this display of princely liberality, wrote home to his father upon the subject. The answer of the Duke was prompt and decisive—that he would honour his son's draft to any amount. The same kindliness of disposition prompted him ever to manifest a warm regard for the shipmates with whom he had ever at any time sailed. The Duke did not however follow up the active duties of his profession, though he never formally retired from the service.

The late Duke was in 1816 created a peer in his own right by the title of Baron Prudhoe. He never showed any disposition however for public life. His tastes were more for antiquities and the fine arts; and he was among the first to explore the interesting remains of Egypt and the Holy Land, at a time when that journey was by no means so safe as of late years it has become. He was, however, a steady member of the Conservative party, and during the brief administration of Lord Derby in 1852, he consented to forego the quiet and retired tastes he had so long cultivated, and to accept the office of First Lord of the Admiralty. Since that time he has taken no active part in political life.

In 1847 he succeeded to the dukedom on the death of his elder brother. As soon as the estates were in his own hands, his Grace commenced a series of improvements, which, chiefly carried on at the family seat of Alnwick Castle, extended over every portion of his extensive estates. The hand of the master was felt everywhere.

Alnwick Castle is one of the few perfect specimens of the ancient feudal fortresses still preserved in the kingdom; and may rank with Warwick, or even Windsor. But it had been neglected by its former owners, and it was reserved for the late Duke to renovate the Castle from foundation stone to battlement, and to carry out all his restorations in keeping with the original buildings. In the interior his Grace pursued a different course. While the exterior presents the grim and frowning aspect of a fortress intended to resist the incursions of the Scottish invaders, the interior is fitted up with all the luxury of modern taste. Moreover, a moderate fortune has been spent on the building of cottages.

The late Duke was a liberal patron of Gardening, and it is in this character more especially that we have to deplore his loss. The noble gardens at Syon, with their fine specimens of hardy exotic trees, and their choice collections of tropical rarities, afford ample evidence of this. The attention which has been for many years given at Syon to the growth of rare tropical fruits is also well known; and our readers will recollect that at Syon only a few months since, as recorded at pp. 625, 650 (1864) was obtained the first example of the fruit of the Cocoa-nut grown and ripened in England, or, we believe, in Europe. It was in the garden of his Grace, then Lord Prudhoe, at Stanwick Park, that the Stanwick Nectarine was first fruited, and we have only to quote a passage from our volume for 1848 (p. 587) in connection with the distribution of that most excellent fruit, to put it beyond doubt that by the death of Algernon, Duke of Northumberland, gardeners have lost a true friend. The public, we then wrote, "will naturally be anxious to know how and where to procure such a Nectarine as this. For their information we have to state that the plants are exclusively in the possession of the Duke of Northumberland, and that his Grace has ordered them to be sold either by public auction or private contract, as may appear most advisable, *for the benefit of an excellent though ill-supported Charity*, the Gardeners' Benevolent Institution."

Towards all objects of a public nature the liberality of the Duke was unbounded. This is exemplified in the large number of lifeboats he presented to different stations along the rock-bound coast of his native county, which munificence was acknowledged by the Royal National Lifeboat Institution electing him their President. He was mainly instrumental in carrying out a survey of the old Roman wall which ran from the Tyne to the Solway; and the beautiful and highly valuable results of that survey were published at his expense. And within the last few years, when the spiritual destitution of the country was more especially brought home to the owners of property, his Grace was one of the first to recognise the obligations that rested on his class, and undertook to build and endow ten new churches on his own estates, the greater portion of which he lived to see opened.

—— The note on Spring Bulbs from a country Correspondent, printed at p. 126, seems to indicate the existence of a misconception amongst inexperienced cultivators, as to the habits of the Tulip as used for garden decoration, which it may be useful to show has no substantial foundation. Indeed, the very circumstance that the varieties of the more delicate breed of florists' Tulips are grown year after year without loss of vigour, as hinted by another Correspondent this week, may be taken as a pretty good indication of what is to be expected in the case of the hardier or more normal-conditioned varieties which are employed in flower gardens.

We have, then, no hesitation in stating our own conviction—and we are confirmed therein by that of a cultivator of great experience in this matter—that Tulips can be as well grown in English gardens as in those of Continental Europe. Our correspondent "Caveat Emptor" is perhaps not aware that good one-year-old offsets of these early flowering Tulips bloom as uniformly as the largest and most exuberant bulbs, and hence he may be relieved from his apprehensions as to the quality of bulbs to be supplied in future years. In all good soils the bulbs of early-flowering Tulips continue to bloom and enlarge until the third or fourth season, when they multiply or throw off their increase—not uniformly but according to the constitutional vigour of the variety, and the fertility of the soil. In some instances indeed the largest bulbs may give the largest flowers, and very often, indeed generally, they will yield the coarsest. The most perfect and uniform development of bloom will be, as a rule, secured by an average degree of vigour—in the Tulip as in other plants. This is well illustrated by many kinds of florists' flowers, in which, as is well known, the most perfect proportions and the purest strains of colour are generally the concomitants of an average degree of vigour in the growth of the plants, and by no means necessarily accompany either size or exuberance in the plant—that is, provided there is a healthy development. A striking example occurs in the case of the Hyacinth, in which it is not the largest bulbs but the most perfectly matured of average growth, which produce the finest spikes of blossoms.

To sum up, then, it is quality and not size, perfect maturation and not mere bulk, which are the conditions requisite to ensure fertility, whether that be sought in the form of blossoms or fruit from either bulbs or trees.

We ought perhaps to add that the 50,000 bulbs which have so much startled our correspondent, are understood to be but a moiety of the collection from which they are to be furnished, and which has yielded a display of a similar kind to that now anticipated at South Kensington, as we can testify, for some eight or 10 years past, and latterly on a very large scale.

—— We invite the attention of our readers, and of exhibitors generally, to an Advertisement which appears in another column, announcing a change of date for those Spring Shows of the Royal Horticultural Society, which had by some mischance been fixed for the same days as those of the Royal Botanic Society. The special show of Hyacinths and Camellias, announced for March 18th, will therefore take place on March 25th; and that announced for the 8th of April, on the 15th of that month.

ORCHIDS AND THEIR CULTIVATION.—No. IV.

One of the greatest of the enemies that creep insidiously into our Orchid-houses is Fungus. It appears in a variety of forms, at least it acts on the system of the plants in a variety of ways; and as stove plants, and plants in general, are more or less subject to one or other of the forms of it, it may be of some interest to illustrate a few examples in detail. I purpose, then, to submit some leaves affected by, what I consider to be, parasitical Fungi, and some whose lamina are disfigured by other causes, to "M. J. B.," who I have no doubt will obligingly give an opinion as to what the diseases are, and the best means, if any are known, of preventing their increase.

The first example illustrative of an attack of parasitical Fungus, in its most aggravated form, is a leaf of Aerides Fieldingii (Foxbrush). The malady only shows itself here in an incipient stage; but if the leaf had been allowed to remain on the plant a few weeks longer, it would have become quite putrescent. It is like a running sore in the body, the matter exuding when the lamina is pierced, and the malady ramifying from a common centre irregularly, in all directions. The normal colour of the leaf is a fine shade of deep green, but the affected part is as near the colour of Roman sepia as may be. Here the whole structure of the leaf is paralysed, and nothing that I have yet tried will arrest the progress of the malady. This is the most destructive of all Fungi, because it invariably begins with the young leaves in the centre of the plant, and is apparently as incurable as cancer in the human system. The Aerides from which the leaf was taken was attacked in this manner, and on perceiving its approach, I beheaded the plant much further down than a novice would have deemed necessary, and used antidotes, which I shall hereafter speak of in detail—all to no purpose. Some of the lower leaves on the plant are still quite good, but the disease is in the system, and the plant will eventually die in spite of all the remedial measures I can adopt. Corroborative of this I may state the history of a Phalænopsis amabilis, which I had grown to a model plant, having seven leaves, the largest of them measuring 10½ inches by 5¼ inches. In the autumn of 1861 the same disease, which I was then a stranger to, made its appearance on the centre of the youngest leaf. It was at that time the very picture of health. I applied sulphur, but the running sore rapidly grew worse. Judge of my chagrin to be obliged to cut the leaf off, for although disfiguring the plant it seemed more prudent to do this than run the chance of losing it altogether. For a month afterwards all went well. To my dismay, however, the disease was still there, for in a day or two the leaf on the opposite side showed similar symptoms. The almost imperceptible speck grew into a putrid mass, and leaf after leaf fell a victim to its influence. The stem during this time appeared to be perfectly sound, for young leaves grew out of the crown, of course with abated vigour. I had the roots of the plant examined, and, strange to say, there was scarcely a dead root in the mass—and there were above 100 of them—notwithstanding all the havoc on the leaves. I was in hopes that by reducing the size of the pot, and keeping the atmosphere afterwards a little warmer and dryer, that the malady might be overcome. The plant grew quite as well as one could expect any plant in like circumstances, but all my practical knowledge and care, as will soon be told in few words, was baffled. The affected plant kept growing from the autumn of 1861, was attacked with spot, made other leaves, got spotted again, and ultimately died upon a block in December, 1864. If "M. J. B.," whose scientific accuracy is admitted on all hands, can help us out of this dilemma, a very great service will have been rendered. If some antidote could be found out to arrest the disease in its incipient stages, the lives of such plants as are affected might be saved.

The second kind of spot is a very common one; in fact I have never seen a collection of any size completely clear of it. The leaves of Aerides Larpentæ, Dendrobium densiflorum, and Cattleya Leopoldi, sufficiently illustrate the form of it. The leaf of the Aerides is attacked at the base. The progress of the disease has been stayed for more than twelve months, and although the whole texture of the affected part of the leaf is destroyed, with the exception of a little at each margin, the other portion does not show any symptoms of distress. In the Dendrobium, although the leaf is marked all over irregularly, the parts unaffected cannot be complained of as showing want of vigour. The Cattleya has been more recently attacked, showing the disease in an active state, and differing from the other two examples in not having reached the lamina on the under side of the leaf. It has been asserted that these markings are the work of insects. I have grave reasons for doubting this; for although the circular or semicircular lines here and there over the surface of the leaf, which invariably characterise this spot, give a sort of colour to the idea, many other things interpose, pointing quite in a different direction. In such plants as have thick succulent leaves, a careful observer will see the germs or spores of Fungi, or whatever other name it may be proper to give them, in the tissue of the leaves some days or weeks before they break out. More than that, and by indisputable evidence, any one can predispose this race of plants to the spot or disease in question by sudden checks of any kind. Too much heat at one time, and too much cold at another, will do it; too much moisture at one time, and too much drought at another, will also do it. Watering tropical plants with cold water, injudicious currents of air, chilling the system, want of proper ventilation, and insufficient maturation of the pseudobulbs, will all have a tendency to propagate spot. I have a capital illustration of it in the case of Dendrobium speciosum. We could not get the plant to flower unless by adopting extreme measures. It was taken from a cool to a tropical house, and back again to a house of an intermediate temperature, where it has been exposed all summer to a very liberal supply of sun heat. This treatment had the desired effect. It is now full of flower, but the sudden variations induced spot of a virulent character. I believe that it is this same sort of spot that occasionally attacks Pelargoniums, and miscellaneous stove plants of a succulent nature.

Another form, something similar to the above, but more general in its ravages on the plants, is exemplified in a leaf of Aerides suavissimum, and a portion of a leaf of Vanda tricolor. I never knew this form of spot entirely to destroy any leaf or plant. The parts infected are more longitudinal than circular; and the leaf affected by it, as is the case with the Aerides

presents an appearance very similar to the human countenance after a severe attack of small pox. There is, at no period of the disease, however, any eruption. The fluids seem to dry up, and the affected parts are destroyed. There appears in such instances to be a general weakness in the system, as the distemper acts uniformly throughout, and is probably engendered or brought about by an improper mode of cultivation. The Vanda which was infested with this kind of spot when a very young plant, is now producing young leaves quite healthy and good. I am therefore of "M. J. B.'s" opinion, that this is an instance of spot mainly arising from constitutional weakness, and must eventually be overcome by skilful treatment.

The fourth kind of spot which I shall refer to is exemplified in a leaf of Odontoglossum citrosmum, and in others of O. Uro-skinneri, and Trichopilia tortilis. These leaves are injured by fumigation. The spots are black enough, and do not differ materially, to the uneducated eye, from some of the other examples adduced. In fact, a burn arising from fumigation acts on a succulent leaf, where the fluids are rapidly circulating, very much in the same way as the worst form of spot first spoken of. It differs, however, materially in this very important particular—that it is only partial in its effects. If mischief of this kind has been done, it will show itself speedily, without communicating any bad effects to leaves uninjured. Severe fumigation under any circumstances is highly injudicious, but when you come to deal with the Orchideæ that belong to a temperate locality the greatest care must be taken. On the contrary, however, the great majority of high-temperature Orchids are not easily injured unless the leaves are in an early stage of development. Odontoglots, Lycastes, and Trichopilias, will not stand even cautious doses, if repeated, with impunity. This sort of burn is easily distinguished from a sunburn by the layer on the under part of the leaf being injured in the highest degree.

Burns caused by the sun's influence need not be specially illustrated, as the practical eye can detect them on the most cursory examination.* Spots arising from or occasioned by such causes, merit the least consideration, because it can only be from want of attention, or probably by experimenting too far, on the gardener's part, that such accidents can occur. All plants requiring shade can be inured to a certain amount of sunlight; and if the gardener in the exercise of his daily duty can hit upon the proper balance of light and shade, so much the better for the health of the various plants with which he has to do. I look upon that sort of spotting, occasioned by sunburns, either through defective glass, injudicious syringing or want of shading, so very much dilated upon by M. Neumann in the article translated at p. 1180 (1864), as the most simple of all forms of spot, and the easiest thing imaginable for any gardener to guard against and avoid. Very different, however, are the kinds of spot which are engendered by numerous causes in the routine of cultivation. They try the metal of the practical man to a very high degree, and often appear on plants subjected to a course of treatment precisely similar to others of the same kind, growing side by side, in the highest state of health.

In the case of burns, the constitution of the plant is not affected to a high degree, unless the accident be a severe one. It is only part of the structure of the leaf or leaves that is affected, like any simple cutaneous accident to the human body. In the other illustrations of spotting to which I have alluded, the constitution is affected, and the plant is more or less disorganised according to the form of disease with which it is afflicted. So far as my observations have yet led me to form conclusions, the parasitical Fungi are clearly generated in the atmosphere, else the disease would affect both root and leaves simultaneously, and every cultivator can attest that this never happens, because many of the roots remain quite able to fulfil their functions after every leaf has been destroyed. It is quite another question, however, whether the disease is carried throughout the system of the plant, from leaves to roots and from roots to leaves. The vegetable physiologist will be best able to solve this enigma. *Jas. Anderson, Meadowbank.*

WEATHER OF 1864 IN LANCASHIRE.

January.—This was a cold dry month. The mean temperature was 35°.03, or 2°.098 below the average of the last ten years, and 5°.62 below January, 1863. The 7th was a remarkably cold day, the maximum temperature being only 19° and the minimum 16°; excepting the 24th and 25th of December, 1860, it is many years since we had so cold a day. The amount of rain was 1.21 inch, being 0.91 inch less than the average of the last ten years. It fell on only seven days, which is 6.8 days less than the average. The barometer at 10 A.M. on the 4th stood at 30.55 inches, which was the highest point it reached during any day in the year. The prevailing winds were from the south-west.

February.—This was again a very cold month. The mean temperature was only 34°.74, being 2°.478 below the average, and 6°.4 below February of last year. It was the coldest February we have had since 1860. On 17 days it was below the freezing point. The amount of rain was 3.45 inches, or 1.639 inch more than the average of the last 10 years. It fell on 13 days. The prevailing winds were from the east.

March.—The temperature was still below the average of the last 10 years, 1°.449; the mean temperature being 39°.48. Rain fell every day from the 4th to the 14th, when the weather improved, and we had some beautiful fine weather, with frosts at night, so that by the end of the month gardening and farming operations were getting in a forward state. The amount of rain was 2.80 inches, being 0.065 inch below the average. The prevailing winds were from the east.

April.—This was a very dry warm month; the mean temperature being 47.68°, or 1.536° above the average of the last ten years. The thermometer only once indicated as low a temperature as 32°, on the night of the 13th. Rain fell on only eight days, the amount being 1.26 inch, or 0.815 inch less than the average. The prevailing winds were from the west.

May.—This was the most remarkable month on record for its extreme heat and cold. On some of the days, from the 15th to the 21st, the thermometer indicated 81° in the shade and 127° in the sun, which was the greatest heat ever known in May. The nearest approach to it was in 1858, when the thermometer indicated 82° in the shade and 116° in the sun. This great heat brought vegetation very rapidly forward, but the frosts at the end of the month dispelled all calculations of an early harvest, and did very serious damage to the Potatos, Kidney Beans, &c. The mean temperature was 55°.87, being 2°.241 above the average. The amount of rain was 3.66 inches, or 1.456 inch more than the average. It fell on 12 days, but only on one day from the 7th to the 27th. The prevailing winds were from the east.

June.—This was a wet cold month, and the frost on the 1st cut down the Potatos, and even the young shoots of the Ash. Potatos advanced in value 50 per cent. The greatest cold registered before in June since 1794 (taken at the Royal Society and Royal Observatory), occurred in 1797, 40°; 1802, 40°; 1841, 40°.3; 1848, 38°.7; and 1849, 38°.6. The mean temperature of the month was 58°.32, being 0°.302 above the average; the day temperature being 10°.37 higher than June, 1863. It rained on 20 days, the amount being 3.98 inches, or 0.495 inch more than the average. The prevailing winds were from the west and south-west.

July.—This was a dry warm month. The mean temperature was 61°.95, being 1°.555 above the average. Rain fell on only 6 days, which was the least number of days in any month during the year. The amount was 1.59 inch, or 1.278 inch less than the average. The hay harvest was secured in very good condition, but very light on some grounds. The prevailing winds were from the south-west.

August.—This was again a very dry month, but the temperature was 1°.584 below the average of the last 10 years; the mean temperature being 58°.47. Rain fell on 12 days, the amount being only 2.20 inches, or 1.98 inch below the average. The drought was very severely felt in some parts of England, many brooks and springs being quite dry, that had never been known to be dry before in the memory of man. Water was sold for a penny a gallon, and cattle driven some miles to water; mining and other operations being almost at a stand for the want of water; and in some parts of Lincolnshire the Grass was almost burnt up, and they had to feed the cattle with the crops that were growing for their winter supply. The corn harvest was secured in prime condition, but Turnips were quite a failure in some parts. The prevailing winds were from the north-west.

September.—This month we had in Lancashire a copious supply of rain, which fell on 22 days, the amount being 3.39 inches, or 0.043 inch less than the average. The mean temperature was 55°.12, or 0°.484 above the average. The prevailing winds were from the south-west.

October.—This was a very dry month. Rain fell on only nine days, the amount being 1.88 inch, or 1.429 inch less than the average of the last 10 years. The mean temperature was 50°.32, or 0°.648 above the average. The prevailing winds were from the east.

November.—This was a very mild wet month. The Dahlias and other plants received no check until the night of the 2d of November, when they were all cut down with the frost. The temperature on three nights only was down to freezing point. The mean temperature of the month being 41°.92, or 1°.84 above the average of the last 10 years. Rain fell on 15 days, the amount being 2.97 inches, or 0.639 inch more than the average, it being the first month the fall of rain was above the average since June. The barometer fell to 28.48 inches at 4 P.M. on the 14th, which was the lowest point it reached on any day in the year. The prevailing winds were from the east.

December.—This was a very dry month. Rain fell on 10 days, the amount being only 1.89 inch, or 0.603 inch below the average of the last 10 years. The mean temperature was 38°.60, or 0°.275 above the average. The prevailing winds were from the south-east and south-west.

The mean temperature of the year 1864 was 48°.125, or 0°.108 above the average of the last 10 years. The total amount of rain was only 30·28 inches, or 2.894 inches less than the average; it fell on 148 days, or 32.3 days less than the average of the last 10 years. The prevailing winds were from the east on 77 days, and from the south-west on 73 days. *William Carr, Clayton Bridge, Newton Heath, Manchester.*

* The leaf of Odontoglossum Reichenheimii is affected by the sun, the burn from its appearance almost showing the exact angle of the sun in the firmament.

Home Correspondence.

Vine Grafting.—I am glad to see that this important subject is attracting the attention which it deserves, as from my own observation I am fully persuaded that the stock exercises a very important effect upon the character and quality of the Grape worked on it, and it is to such men as Mr. Thomson and others who have large opportunities for making trials of stocks, that we must look mainly for information in the matter. I feel, however, that all who have a worked Vine may assist by recording results, and I most willingly furnish what have come under my own notice at this place. I inarched a Golden Hamburgh on a Chasselas Musqué, and find no tendency to crack in the berries. The bunches are very compact and abundant, and the berries are medium sized, of a fine amber colour, and of good flavour, ripening a fortnight before the Black Hamburgh in the same house. We have the same kind worked on the Black Hamburgh, and it has been so unsatisfactory that I budded it last summer with a Muscat of Alexandria, and I shall be curious to see what the effect of this double working is. I ought perhaps to state that this Vine is in a late house, with an east aspect, where I have some difficulty in ripening the wood; and as this stock has suited the Golden Hamburgh so well elsewhere, I must attribute my own want of success to the cause just named, as the wood was particularly gross, and what few bunches it did show were very loose and irregular. The Black Prince appears to suit as a stock for the Black Hamburgh, but, so far as I can see, it exercises little or no influence over it, except that of giving the berry a more conical form, and in inducing the fruit to ripen a week or so later. Willmot's Black Hamburgh makes no appreciable difference on the common Black Hamburgh, except perhaps in the foliage, which I think it thickens. I should strongly recommend budding in preference to grafting, as the operation is more certain, and the union much neater on large stocks than grafting, but for this purpose the bud must be ripe and inserted in the Vines when the bark runs freely. Before closing I would suggest trying some of our late keepers—such as Lady Downes', on stocks that send up their sap late, in order to see how far that would prolong their keeping. *J. Sheppard, Gardener to J. Berners, Esq., Woolverstone Park.*

New Mode of Selling a New Rose.—I have been much amused this season at the sharp practice of one of the French Rose growers. He has, it seems, either raised from seed or bought a new yellow Tea-scented Rose, which he extols as the wonder of the age, and equal, if not superior, to the Cloth of Gold Noisette, which is to be proved. Well, he advertises his intention of selling this Rose on the following terms:—The price he fixes at 25 francs per tree, but he will not sell a less number than half-a-dozen, so that any Rose enthusiast wishing for the Rose must expend 150 francs or 6*l*. This seems hard, but then mark his generous proposal—he will not *sell* one tree, but if you buy his eight seedling Roses, all new, at an average price of 20 francs each, he will *give* you one of his new yellow Roses, so that in any case the yellow Tea Rose must cost you about 150 francs, for the "eight new Roses" are Hybrid Perpetuals, and neither rich nor rare, either in colour or quality, and therefore but of small value in the eyes of the true amateur. Verily they manage these matters "cutely" in France, for only imagine one of our respectable florists selling a new Pelargonium on the same conditions. The dodge is ingenious. *Rosa dumosa.*

Black Alicante Grape.—I did not see what Mr. Bennett had previously stated in reference to this Grape; but I conclude, from using the prefix 'Mr.' to the word Kempsey, that he has not correctly stated how Kempsey became attached to it. I know that the Alicante Grape existed at the late Rowland Lenthall's, Esq., of Kempsey, Worcestershire, in the year 1847, which I think was some time before Mr. John Cox (now of Crown East Court) became gardener to that gentleman. At that time this Grape was well known to many gardeners in that neighbourhood; but I am not certain whether or not it was held in much estimation by them. Its history was considered doubtful, but the connection of the Grape with Mr. Lenthall's place is unquestionable. In course of time Mr. Cox took charge of the place, and by his ability as a gardener he very soon developed the valuable qualities of this Grape, to the great astonishment of Mr. Bennett's predecessor at Perdiswell, and many others. It was also I think produced in excellent condition at the last flower show held in Worcester Guildhall. This may be set down as the coming out of the Kempsey Alicante (not Kempsey's), for the event created quite a furore in our Worcestershire gardening world, and as Mr. C. was well known, and withal good natured, he kindly distributed it to most people who asked for it. To Mr. Cox, therefore, belongs all the credit of first introducing and disseminating this Grape, and I have no doubt that Mr. Haywood, or his foreman, Mr. Collins, could supply correct information as to the origin of this Grape. My impression is that it was a "pro-

miscuous seedling," or that Mr. Lenthall "picked it up in some of his travels," but not 100 years ago. May not Mr. Bennett's Royal Albert be a sort of Hamburgh they have in some places about Worcester, called "Champion," which bears immense berries of good flavour but of bad colour, and bunches compact and large? *R. H. Poynter, Taunton.*

Spring Bulbs (see p. 126).—Your Correspondent, Mr. "Caveat Emptor," had better ask the florists what they do with their Tulip bulbs after flowering. Now, as they grow a much more delicately constitutioned and high-bred race of Tulips than those which are employed for bedding purposes, and bloom them with equal success—barring accidents of disease or errors of culture—year after year, the inference is fair, that the latter may also be grown in the same way; and such in fact is the case, as your Correspondent may learn if he will commence to grow a few beds next season. It is rather late to set about it now for the present year's bloom. *Oculis Solis.*

Eugenia Ugni.—This is grown at Lower Knowle, Kingsbridge, in the open air, and it is trained against a south wall, where it receives no protection. It is in fact quite hardy in Devonshire. In summer it is studded all over with beautiful fruit, of the size of a large Black Currant. It is my impression that the Eugenia will become an important plant, and that it will be much valued and cultivated for its fruit alone. We have this season preserved four jars of the latter, and it is said by all who have tasted it that it is the richest and best preserve ever eaten—it has a delightful aromatic flavour, which partakes something of that of a Pine Apple. Even when gathering the fruit a rich odour is left on the fingers. So freely does the plant bear, that I have even seen bushes of it only 1 foot in height, with fruit on them. *James Hyne, Gardener, Kingsbridge.*

Royal Albert Grape.—Mr. Bennett, I observe, has made a few remarks in your columns respecting a Grape called Royal Albert. Whilst living with a gentleman in South Staffordshire, some 12 years ago, I fruited a Vine which bore that name. It was growing in an early Peach house and ripened its fruit in May; it is a Black Grape, large in bunch and berry, thick in the skin, and rather inferior in flavour to the Black Hamburgh in general cultivation, which it greatly resembles in appearance. The foliage suffers a little from hot sun, and requires a slight shade under sheet-glass. I think it would make a good stock for grafting better sorts upon. This Grape was purchased along with other kinds from some of the London nurseries. *Henry Beddard, Gr. to J. S. Basset, Esq., Tehidy Park, Cornwall.*

Berberis asiatica.—Is this shrub likely to prove hardy in the south of Norfolk? [Yes.] Is it left unmolested by hares and rabbits, and likely to rival or excel B. Aquifolium as a plant for cover? I shall also be grateful for the names of any other distinct species of the same genus (evergreen) that promise to form good cover, and are easy of propagation. *Diss.*

The Knowsley Pine Stove.—I have read with amusement "J. A.'s" description of the Pine stove at Knowsley (p. 125). I heard of it last summer and sent one of my men over to look at it, but his report convinced me that we, who raise fruit for the market, need be under no fear on its account, but that Lord Derby would have still to buy his Pines at the season of the year when I shall try to have the most of mine ripe, namely, from January to June. "J. A." says, "if ever there was a model house for the cultivation of the Pine, certainly this is the house." A model house should be as perfect as man knows how to make it, and we know that good Pines, of from 4 to 5 lbs. each, cannot be ripened so as to satisfy the taste of good judges, without an atmospheric heat of 90°. I am certain from the pipes shown that this house will fail to keep up this amount of heat during five months of the year. It would take nearly three times as many. Therefore I hold that this house will not ripen Pines from the end of November till May. Are there none that will? So much for top-heat; let us examine the bottom-heat. Pipes will not do much good without they are hot enough to evaporate water in pans placed on them. All gardeners agree on this point. Then are these four rows of pipes intended to keep sending up moisture into the rubble and tan above, and so to the roots, which are not more than a foot above them? This would be something like boiling Potatos by steam. *G. H.*

Scentless Mignonette.—Can the fact that some very fine looking Mignonette in pots does not emit any scent at all, be accounted for? It has been coming on well for the last six weeks, and is well blown and fine looking, but without fragrance. There are many pots of it, and all without scent. Are there different kinds of Mignonette, some less fragrant than others? The seed came from that which did well in the open ground last summer. *J. W.*

Societies.

ROYAL HORTICULTURAL: *Feb.* 11 (*Weekly Show*).—The weather being unfavourable, very few subjects were produced. The only Begonias which were the subjects specially invited to be shown on this occasion, came from the Society's garden, and were confined to one or two well-known kinds of the variegated-leaved and flowering sections.

Mr. Bull sent some Araucarias, among which were Cookii, Bidwillii, and Rulei, together with four pretty plants of Libocedrus Doniana. W. Mercer, Esq., Staplehurst, had Eucharis amazonica; Lady Caroline Legge, two red-coloured Camellias; Mr. W. Smyth, gr. to Lord Sondes, Elmham Hall, a very good specimen of Epacris, and two plants of Ardisia crenulata covered with fruit; Scarlet Nonpareil and Boston Russet Apples, and Beurré Rance Pears were also shown by the same exhibitor. Major Trevor Clarke had one or two Chrysanthemums. Mr. Melville, gr. to the Earl of Roseberry, Dalmeny Park, sent his Improved Hardy Autumn or Winter Broccoli, a good white self-protecting kind.

Feb. 14 (*Anniversary.*)—Lord Henry Lennox, M.P., in the chair.

It having been previously announced that Mr. Godson had sent in his resignation as a member of the Council, it was now moved by Mr. Weston, and seconded by Major Phipps, that that resignation be not accepted. The motion, however, was lost. Scrutineers having been appointed to report the result of the approaching ballot for Council and Officers for the ensuing year, the late Assistant Secretary then read the Annual Report as follows:—

1. The Council have the satisfaction of being able to announce to the Fellows that the number of members of the Society continues to increase. On the 1st January, 1864, there were 3336 Fellows; on the 1st January last they amounted to 3380.

2. The Council also congratulate the Fellows on the success of the important works undertaken jointly by Her Majesty's Commissioners of 1851 and the Society. The Commissioners' works, and the convenient access which these works have given to the Conservatory through glazed and warmed arcades, and the Orchard-houses which connect them with the new and improved entrances, are important instalments towards the completion of the Gardens.

3. The improvements carried out by the Society have given general satisfaction to those who have of late visited the Gardens. These works have necessarily entailed considerable expense, but the Council, as reported at the last Annual Meeting, in consideration of the large sums voted by Her Majesty's Commissioners for the completion of the north arcades, the construction of the Orchard-houses, and for other works, engaged as part of the agreement to carry out on behalf of the Fellows, certain improvements. These improvements must have clearly shown that the Society fully appreciate the interest taken by the Commissioners in the success of the Gardens, and that the Society are anxious to complete to the full extent of their own means, the original design jointly contemplated by themselves and their landlords.

4. The expense of the ordinary maintenance of the South Kensington Gardens has been of necessity increased by the planting in the annexed grounds, and the labour required for the new glass houses, but on the other hand the Council can refer to several items on which a more than corresponding saving has been effected.

5. They are able to report a saving in an item which, on account of the necessity of maintaining it in working efficiency, is a very important one. In 1863 the salaries of the general staff amounted to 1012*l.* 8*s.* 3*d.*; and in the past year, by the strictest economy consistent with the due performance of the office work, they were reduced to 849*l.* 5*s.* 9*d.*

The Journal of the Proceedings of the Society in 1863 cost 780*l.* 19*s.*, and a reference to the annexed Revenue account will show that last year its expense was reduced to 334*l.* 7*s.*

Again, in 1863 the cost of foreign importations was 601*l.* 1*s.* 11*d.* In 1864 the Council have, whilst increasing the privileges of the Fellows specially interested in the plants sent home, and making suitable returns for donations to the Society, managed to reduce the net expenditure occasioned by its foreign collector to 454*l.* 9*s.* 8*d.*

6. Certain other savings have been effected, as will appear by reference to the accompanying statement of revenue and expenditure; but sufficient has been mentioned to show that the Council, whilst spending liberally on permanent works of improvement, have striven, not without success, to reduce the working expenses of the Society. Their efforts in this direction will, they anticipate, be assisted in future years by arrangements similar to those entered into with Messrs Waterer, and Messrs Henderson.

7. The policy of the Council with regard to the admission of the public into the Gardens came into operation too late last year to give a fair idea of the extent to which it will improve the income of the Society. They think, however, that their experience of the working of this measure during the months of August, September, and October tends to show that the public sufficiently appreciate the advantage of being permitted to visit the Gardens at a reasonable charge, to make it a financial success; and on the increase of reputation to the Society, from allowing a larger number to participate in the enjoyment of the Gardens, there can be no doubt. It is gratifying to the Council to be able to state that, exclusive of the Commemoration of the Prince Consort's Birthday, when 152,962 persons visited the Gardens without payment and without injury to it, the books show for the past year 185,092 entries. In 1863, even including the exceptional occasion of the uncovering of the Prince Consort's Memorial, when 17,805 persons paid a high fee for entering the Gardens, the number of entries reached only 133,326.

8. The receipts from the great Shows, owing to competition and various causes beyond the control of the Council, were smaller than in former years. Though, however, such flower shows can no longer be looked to as a certain source of revenue, the Council believe that the Fellows desire that they shall be continued, and that they are prepared to view them as a possible charge upon the revenue of the Society. Schedules for the great Shows have, therefore, been issued as hitherto.

9. Unfortunately, notwithstanding the increase which has been made of late years in the value of the prizes, these no longer give general satisfaction to the exhibitors. Certain gardeners and nurserymen have formed themselves into a society, in order, as they state, "to protect and advance" their own interests by agreeing on a scale of awards which they consider should be offered at Floral Exhibitions, and this scale has been transmitted to the Council. Although this attempt to dictate to the various Societies the expenditure of their own funds, is in itself of little moment, yet as indicative of a growing disposition on the part of Exhibitors to ignore the relations that should subsist between their own body and the officers on whom is devolved the responsibility of managing the Society's funds and affairs, the Council have not thought it right to pass it by without notice. The second step of the Exhibitors' Society has been to express to the Council its dissatisfaction with the arrangements of the Royal Horticultural Society for the year 1865. The Council believe that in instituting special and weekly shows, they are giving a fresh impetus to horticulture, by calling attention to particular tribes of plants, and by providing exhibitions to include the plants which bloom throughout the entire year, instead of limiting their shows to those which can be forced or kept back so as to flower in the early part of the summer. They believe also that the Floral Decoration Shows will again this year prove a great pleasure to all lovers of flowers and leaves for their own sakes; and that in fixing on Saturday for the Exhibitions they are consulting the wishes of the great body of the Fellows by returning to the practice of Chiswick in its most successful days. The Exhibitors' Society, however, has informed the Council that its members have pledged themselves not to exhibit at any of the Royal Horticultural Society's exhibitions unless these arrangements are modified to suit their views and convenience.

The correspondence on this subject will be read to the Fellows, in order to give them an opportunity of forming their own opinion on it.

10. The increased attention bestowed upon Chiswick has yielded the most satisfactory results. Never since the year 1855, when its relinquishment was contemplated, has that Garden presented so attractive an appearance, or proved so useful to the Society or to horticulture. The receipts from the sale of the superfluous produce of the Gardens, which in 1863 amounted to 540*l.* 8*s.* 8*d.*, reached the sum of 731*l.* 11*s.* 7*d.* in 1864, although there was a decrease in the expense of their maintenance. At the same time the Chiswick Garden Committee are able to report on the very efficient state in which the glass-houses have been kept; and it is estimated that the Fellows have received, by ballot or otherwise, in plants, grafts, or seeds, quite 1400*l.* of value. Eight hundred and thirty-seven packets of cuttings of various fruit trees, chiefly of Pears, Vines, and Apples, have also been given to various Fellows of the Society on application.

11. The number of Fellows and their friends who have derived enjoyment from these Gardens has been unusually great. The books show, for 1864, 8868 entries. This number is rather more than four times greater than the number of entries in any year since the opening of the Gardens at South Kensington.

12. It is with considerable satisfaction that the Council conclude their review of the material position and prospects of the Society by announcing that, through the liberality of her Majesty's Commissioners for 1851, the rents received on account of the exhibition of horticultural implements in the open arcades are to be considered a portion of the revenue of the Gardens. At the present moment the rentals for the spaces let amount to 200*l.* per annum, and the exhibitions have already been found of great practical use by many of the Fellows.

13. Whilst, however, the Council have earnestly endeavoured to improve the financial position of the Society and the condition of its Gardens, they have not been unmindful of the trust reposed in them to further its progress in horticulture.

14. They have had under their consideration the Report of a Committee appointed by them to consider and prepare a scheme for the improved education of gardeners. They would have been glad to have pronounced a definite opinion on the scheme therein recommended; but looking to the expense it would entail, and the importance of the various subjects touched upon by the Committee, they have felt that they could not at present deal with the question as a whole in a satisfactory manner; they therefore delay coming to any conclusion respecting it. In the meantime arrangements are being made with the Society of Arts for adding an examination in Gardening to the examinations which they now conduct throughout the United Kingdom; and the Council intend to offer prizes to successful candidates, and to allow them, in cases of great proficiency, the means of gaining experience at Chiswick. By this means, such encouragement as the funds at their disposal allow them to give for improving the education of gardeners will make itself widely felt.

15. With the view of facilitating the union with this Society of the various Horticultural and Floral Societies throughout the country, the Council have introduced into their programme the offer of certain advantages to those societies which shall avail themselves of the opportunity thus afforded for mutual assistance; and it is contemplated that such an union may help forward the system proposed for encouraging the education of gardeners.

16. It is also under consideration, whether it might not conduce to the progress of horticulture to hold a Provincial Meeting, similar to those of some of the other scientific societies, in one of the important centres of gardening interest, some time during the autumn.

17. The Council have given much consideration to the desirability of further improving the scientific organisation of their proceedings, so as not only to retain, but improve, the position that the Royal Horticultural Society holds among the various Continental Horticultural Societies, which are yearly adding to their influence and numbers. In this view, the Council have endeavoured during the past year to obtain in their labours the co-operation of a botanist who can deal with the subject of horticulture as a branch of vegetable physiology; and it is with pleasure that they are enabled to announce to the Fellows that they have secured the services of the Rev. M. J. Berkeley.

18. The Council are endeavouring to improve the scientific action of the Society by the periodical publication of a Journal, free from all ephemeral matter, and entirely devoted to papers on theoretical and practical Horticulture. It will be supplied to Fellows on conditions which have yet to be decided on, but the Proceedings will be issued, as hitherto, without charge to all the members of the Society. The new work will be conducted and edited by Mr. Berkeley, under the direction of the Council.

19. The reports of the Floral Committee, which have been published from time to time in the Proceedings of the Society, give evidence of the continued activity of this body; and the comparatively large number of First-class Certificates awarded by them, show that the rare and beautiful plants submitted to their judgment must have appeared to them to possess unusual merit. The Council feel that the Society is much indebted to the Floral Committee for their constant and gratuitous services. They have also to acknowledge the assistance rendered at Chiswick, and at the meetings of the Society, by the Fruit Committee.

20. The Council can report that the Experimental Garden of the Society at Chiswick has been made useful to the progress of Horticulture. The trial ground for flowers has been kept in work; an important series of experiments in the curvilinear Vinery on the numerous so-called varieties of the Muscat Grape, has been completed; great attention has been paid to the cultivation of fruit in pots; and extensive propagation of the more rare and valuable plants sent home by the foreign collector of the Society, has been carried on.

21. The Council deeply regret, however, to announce that the labours of Mr Weir have been for the present brought to a close by a serious illness. Struck down by fever, he is still lying almost totally paralysed, but the last mail brought intelligence that there was great amendment, and it is hoped he may shortly be able to return to this country. In the meantime the Council have taken measures to alleviate his misfortune, so far as it is possible for them to do so. Before this calamity befel him, he had gained a brilliant success. His last consignments contained the finest collections of valuable plants which have been imported for many years. Some of them have been already balloted for, and many others are under propagation for ballot among the Fellows during the next six months.

22. The Council are able to state that her Majesty contin ues

to take the liveliest interest in the proceedings of the Society, and has expressed herself in high terms of commendation on the improvements which have been made in the Gardens.

The adoption of the Report having been moved and seconded,

Mr. Godson, jun., moved by way of amendment, that a committee, to consist of five members, with power to add to their number, be appointed to investigate the affairs of the Society, and to report what is its true financial state; what were the circumstances under which such an extraordinary expenditure has been incurred; what can be done to save it from insolvency; and that the balance sheets of 1864 and 1865 be laid before the Committee. He then at some length criticised the accounts. With a revenue of something like 14,000*l.* he said, the Society had spent 20,000*l.*, and yet it was said to be a success. Among other things he complained that an item of 500*l.*, due for sculpture in 1863, had not been paid, but carried over to the following year's account. The receipts from the annual exhibitions had fallen off from last year. He denied that the accounts placed in the hands of the Fellows represented the true state of the Society's financial matters. In 1861 they had the "assets and liabilities," which showed what they possessed and what they owed. In the following year that was changed to "profit and loss," which also showed the state of affairs; but last year and this, when there was a great deficit, it would not do to publish that. It would have disclosed the fact that the Society was nearly 10,000*l.* in debt. In 1861 there was a balance shown in favour of the Society of over 10,000*l.*, so that in four years over 20,000*l.* had disappeared. There was one item of 2500*l.* for improvement of the gardens. Well, it was a matter of taste, but for his part he thought the "improvements" would have been more appropriate in Brompton Cemetery. He contended furthermore that the manner in which the Council had dealt with the life composition holders was not that which should be expected on the part of an honest society, and that it was calculated to drive away annual subscribers. The prospects of debenture holders, he said, were very bad indeed; and unless the Committee for which he moved was granted, or some similar action were taken to remedy the present system of management, at the end of 10 years the Commissioners of 1851 would swamp the Society.

Major Phipps seconded the amendment, but at the same time, disclaimed participation in many of the views expressed by Mr. Godson. He knew that the Society was considerably in debt, and that many fellows were withdrawing their subscriptions; nevertheless he saw that the Society had spent 1480*l.* for a tent! The greatest calamity that ever befel the Society had been, he said, its amalgamation with, or rather absorption by, the Commissioners of 1851. Public opinion had spoken loudly on this subject through the press, but owing to this union with the self-styled patrons of the Arts and Sciences, they had sacrificed the Society.

Mr. Cole replied to some of Mr. Godson's statements. He explained that the item of 500*l.* for sculpture, the carrying over of which from last year had been complained of, was for a commission given to Mr. Foley, the sculptor, who had not yet delivered it, and consequently the money had not yet been paid, and the carrying of the amount over was therefore perfectly correct. Then, again, as to what had been said as to losses on exhibitions and daily admissions, those two accounts were quite distinct. He found that the daily admissions for the previous year, as distinct from the exhibition receipts, were 134*l.* During this last year, including the Rhododendron Show, they amounted to nearly 700*l.* Owing to the state of the weather, they had not received so much from the exhibitions last year, and this could only be guarded against by having places under cover, which had now been provided. Mr. Cole proceeded to say that the fact was that the current working expenses for last year had been less than for the year preceding. The additional extra outlay last year had certainly been large. The fellows would recollect that at their last meeting it was announced that the Commissioners would make an outlay of 13,000*l.* to carry out certain works, and the fellows then agreed to spend a further sum of 3000*l.* But that was an outlay of capital, not of current expenses. Mr. Godson had said that the accounts were incorrect, but three most respectable gentlemen had gone through the books, and had certified as to their truthfulness. It was altogether misleading the Society to talk about its income being so much less than its expenses. The expenses last year were between 12,000*l.* and 13,000*l.*, and the income was very close upon that sum. It was hoped, however, that matters would improve. Mr. Cole concluded by expressing himself opposed altogether to the amendment.

Mr. Clutton said he was satisfied that the accounts were true and correct, but he found fault with their form. He thought they might be made more comprehensible, and trusted that next year they would be presented in a remodelled and improved condition. As regarded the Commissioners of 1851, he said the Council had been met by them in every way so as to conduce to the best interests of the Society, and he was sure they were entitled to the thanks of the Society for the encouragement and assistance they had given.

Mr. Wilson Saunders also expressed himself to a similar effect in reference to the Commissioners.

Mr. Turing, who said he was a debenture holder and a life subscriber, but quite independent of the Council, denied the statement of Major Phipps, that the Commissioners of 1851 had absorbed the Society. How could that be when they had done everything they could to assist it? They had granted them 13,000*l.*, and, now that things were looking up, he thought if it were not for this constant nagging, they would go on very well. He trusted, therefore, that the meeting would give a most emphatic negative to the amendment, which was in fact a vote of censure on the Council.

Major Phipps again said that in rising to second the amendment, he had no desire to impute motives to any one. All he wished to do was to express his sentiments, and he considered that the Horticultural Society had done wrong in connecting itself with the Commissioners of 1851. He thought the Society would have been more prosperous if it had confined itself to Chiswick, which was a place for horticulture, while South Kensington was not.

Mr. Bateman said he was glad that Major Phipps had taken occasion to disclaim participation in the remarks of the mover of the amendment. The previous speaker had said that Chiswick was the place for horticulture. Well, certainly Chiswick was in a most efficient state as far as, and in connection with those circumstances in which, its efficiency could be maintained; and his own feelings were entirely in favour of Chiswick. But people could not do impossibilities, nor shut their eyes to the changes which were taking place in horticulture in England generally, and in this metropolis in particular. There were four aspects under which Chiswick might be viewed: first, as an experimental garden; secondly, as a nucleus from which new plants might be distributed; thirdly, as an arboretum; fourthly, as an arena for great shows. He remembered the first exhibition held there. It was a poor affair, but still a beginning, and these shows became at length so popular as to produce a very large, if not legitimate portion of the income of the Society. He remembered one of the then Council expressing his fears that such a precarious source of income might be suddenly stopped. For several years, however, the shows had gone on increasing in popularity, until on one memorable occasion the admissions, by ticket at 5*s.* each, numbered 14,000. This naturally caused great competition. Then it was that the Botanic Gardens in the Regent's Park were opened, and then it was seen that the Chiswick exhibitions could no longer be relied upon—there was an end of them. Another point was the arboretum, where especially hardy plants could once be seen in the greatest perfection. This, he was of opinion, could no longer be the case, owing to the influences to which the plants were now subjected there owing to the encroachment of London; besides, what could they be expected to do in their 20 acres in comparison with the Imperial establishment at Kew? This he said with pain. As to the third point—Chiswick as a nucleus for the production and dissemination of rare plants—it was this, he believed, which first gave Chiswick its prestige, and as long as the rare plants of America, India, &c., remained to be discovered, and as long as the zealous collectors of the Society continued to send them over in such profusion, so long was that prestige maintained, but now nearly the whole world had been explored as far as hardy plants were concerned. No doubt there were still some in the passes of the Rocky Mountains and the Himalayas, and there were some doubtless also on the snowy mountains of Africa, but the natives guarded those peaks with so much jealousy, that no European had been permitted to scale their faces. Their collector in Brazil had been successful in sending over some rare specimens, but it must be remembered that tender plants were only for the enjoyment of a few, and the Society would not be justified in spending much money to procure them. He was of opinion, however, that Chiswick was still effective as a centre from which to distribute rare plants. Referring to Chiswick as an experimental garden, he said it was never before in such a satisfactory state as at present. He was happy to say that the Rev. Mr. Berkeley had consented to join the Society as consulting botanist, and to conduct the Journal. After alluding in commendatory terms to certain prizes that have been offered for window gardening among the poor of London, Mr. Bateman concluded by supporting the adoption of the annual Report and accounts.

Mr. Edgar Bowring, while agreeing that the accounts might have been presented in a more simplified and intelligible form, denied the justice of Mr. Godson's deductions. He explained the exact relation of the Society with the Commissioners, and contended that Mr. Godson's fears as to the latter swamping the Society at the end of 10 years were quite groundless; that in fact, from the nature of the agreement between the two bodies, such a thing was almost impossible.

The noble Chairman then briefly expressed his satisfaction with the past years working of the Society, and his hopefulness for its future career. He reminded the meeting that the position of the Council was a difficult one for gentlemen to hold, and he trusted that in labouring for the best interests of the Society its members would have the hearty support of the Fellows.

Mr. Godson's amendment was then put to the meeting, and was lost by a large majority, only three hands being held up in its favour!

The original motion for the adoption of the Society's report and statement of accounts was then put and carried unanimously.

Some remarks were subsequently made with respect to the inconvenience to many Fellows and their friends arising from what was formerly a private day, Saturday, being now converted into a public Show day, thus interfering with their privilege. The Chairman intimated that this matter would receive the attention of the Council.

The Scrutineers reported that his Grace the Duke of Buccleuch had been re-elected President; Mr. John Kelk, Treasurer; and Mr. W. Wilson Saunders, Secretary; that Mr. Henry Cole, Mr. Kelk, and Mr. W. W. Saunders, had been elected Expenses Committee-men; and Mr. James Nicholson, Mr. Jonathan Clarke, and Mr. Robert Hudson, Auditors for the ensuing year; that Sir J. Paxton, M.P., Sir A. Buller, M.P., and Mr. G. F. Wilson, F.R.S., had been made Members of Council in the room of Sir Wentworth Dilke, Bart., Mr. J. Clutton, and Mr. J. Lee, Ordinary Vacating Members: and that Mr. B. T. Brandreth Gibbs, and Mr. Andrew Murray had also been elected Members of Council in the room of Sir Daniel Cooper, Bart., and Mr. S. H. Godson, Extraordinary Vacating Members.

A vote of thanks was then unanimously passed to the Chairman, and the proceedings terminated.

At a later hour the following candidates were elected Fellows, viz.:—

G. T. Brooking, Esq.; J. Dillon, Esq.; Mrs. Grant Duff; H. Hayne, Esq.; E. M. Martin, Esq.; Mrs. W. G. Moore; G. T. Moses, Esq.; F. Parbury, Esq.; Mrs. Parbury; Mrs. Sichel; B. Standen, Esq.; C. E. Stubbs, Esq.; Rev. E. D. Tinling; Capt. Ward; J. Wheeler, Esq.; J. L. Wight, Esq.; Mrs. Wood; and Mr. Woodroffe.

The following were elected Honorary Members, viz.:

Dr. J. H. Balfour, Edinburgh; Rev. M. J. Berkeley; Charles Darwin, Esq.; Prof. Decaisne; Prof. Decandolle; Prof. Harvey, Dublin; Dr. J. D. Hooker; Prof. Koch, Berlin; Prof. Von Martius, Munich; Dr. Moore, Glasnevin; M. Naudin, Paris; Prof. Parlatore, Florence; M. Planchon, Montpellier; Prof. Regel, St. Petersburg: Prof. Reichenbach, Hamburgh; M. Schott, Vienna; and Herr Von Siebold, Leyden.

United Horticultural.—Under this title an Association of Gardeners and Amateurs has just been established. Our space does not now permit us to notice further the objects of this new Society, but we shall do so at an early opportunity.

Notices of Books.

Rust, Smut, Mildew, and Mould: an Introduction to the Study of Microscopic Fungi. By M. C. Cooke With nearly 300 figures (mostly coloured) by J. E. Sowerby. London: Hardwicke. 8vo. 1865. Pp. viii. and 238.

If there is truth in Dr. Watts' couplet, that

> "Satan finds some mischief still
> For idle hands to do,"

it may be confidently stated that Nature provides work enough for hands that do not like to be idle, of which the present beautiful volume is sufficient proof. No one with a microscope of common power, such as may be bought at Smith & Beck's or elsewhere for some 5*l.* or 7*l.*, need want rational amusement if they will but hunt the first field or hedgerow for microscopic objects such as those which Mr. Cooke has introduced to notice, and when his volume is exhausted, a host of similar objects in other branches of Mycology will still remain.

Mr. Cooke shall however speak for himself as to the nature of the objects to which he invites attention:—

"Mildew is just one of those loose terms which represent no definite idea or a very different one to different individuals. Talk of mildew to a farmer, and instantly he scampers mentally over his fields of standing corn in search of the brown lines or irregular spots which indicate the unwelcome presence of Puccinia graminis, known to him and to generations of farmers before him as mildew. Try to convince a Norfolk farmer that anything else is mildew and he will consider you insane for your pains. Speak of mildew in your own domestic circle, and inquire of wives, or daughters, or servants, what it means, and without hesitation another and even more minute species of Fungus which attacks damp linen will be indicated as true mildew to the exclusion of all others; and with equal claims to antiquity. Go to Farnham, and any other Hop-growing district, and repeat there your question—What is mildew?—and there is every probability that you will be told that it is a kind of mould which attacks the Hop-plant, but which differs as much from the mildew of the farmer and the laundry-maid as they differ from each other. The Vine-grower has his mildew, the gardener his mildewed Onions, the stationer his mildewed paper from damp cellars, the plasterer from mildewed walls; and in almost every calling or sphere of life, wherever a minute Fungus commits its ravages upon stock, crop, or chattels, to that individual owner it becomes a bugbear under the name of mildew."

A great deal of instruction will be found under each head on a variety of subjects most interesting to the cultivator and others, and Mr. Cooke has not failed to apply to the latest sources of information. The curious subject of dimorphism amongst others has received due attention, on which new light will undoubtedly be thrown by the third volume of the Carpologia which the Tulasnes are at this moment actively preparing While on this subject we ought never to forget that it was Fries who called attention to it more than 40 years ago. By mere intuition, before the modern improvements of the microscope, which have done so much for science, he saw more or less clearly the connection of many supposed genera, and announced facts which modern observers have either confirmed or dilated. The elder Sowerby's observations in English

Fungi on Rœstelia cancellata are another instance of tact in a very obscure subject.

As regards the important matters contained in Mr. Cooke's volume, we need not advert to them particularly here, as most of them have from time to time been recorded or reviewed in this Journal; and the volume is so reasonable as regards price that there is no excuse for not referring to the original, which we recommend to the notice of all horticulturists who wish to know something of a very large and troublesome class of diseases.

The Appendix contains a classification of all the species hitherto known as British, which will no doubt receive considerable increase hereafter; and we are sure that an opportunity for the record of new species will be given in some future edition of a work for which we foresee a considerable demand.

Le Jardin Fruitier du Muséum. By Prof. Decaisne.

(*Continued from p.* 1256, 1864.)

Pêcher Ispahan.—Leaves finely and sharply serrated, without glands; flowers large. Fruit small roundish; skin yellowish white on the shaded side, tinged with red next the sun. Flesh parting from the stone, or but slightly adherent, white, sometimes slightly rose-coloured next the stone, melting, with an acidulated sugary, slightly perfumed juice. Stone elliptic. Ripens at Paris about the middle of September. [This Peach, from the country of which the Peach is said to be a native, is not of much merit at Paris according to the above description, which agrees with that of the plant as it existed in the garden of the Royal Horticultural Society. Nevertheless some particulars relating to it as found in Persia, and to its introduction to Europe, may prove interesting.] It was supposed that the Ispahan Peach might be the natural type of the Peach, which, originally brought from Persia, has given to Europe the multitude of varieties, and of which Duhamel described more than 43 of the more remarkable for their beauty and excellence; but this shrub, or bush, has not been found wild in Persia, only in gardens. We ought therefore to suspend our opinion on this point till under longer culture its variations have been observed. We owe the tree to the voyage of Bruguière and Olivier. They found it in the gardens of Ispahan, where they frequently met with it abandoned to Nature, without having been budded or pruned, in order to improve its production. They thought the fruit possessed an agreeable flavour, and although it was in the month of November, it was scarcely ripe. They collected some of the stones, which formed one of the 738 kinds of seeds which they collected during their interesting voyage, and with which M. Olivier (whose companion perished) enriched the Museum of Natural History on his return in 1800. Five of the stones were sown, none of which rose the first year, but three came up in the spring of 1801. [The difference in the period of ripening which we remark between the fruits seen at Ispahan and those which were gathered at Paris, is similar to that which Professor Decaisne has stated to be the case with the Angora Pear. This variety ripens in fact several weeks earlier at Paris than in Asia Minor; but Ispahan, which is situated 15° to the south of Paris, presents all the characters of a continental climate.]

Pêcher Bourdine.—Syn. Bourdin, Incomparable de Narbonne, Pavie Admirable, Pêche blanche, Pêche Bourde, Boudin, Pêche Royale, Pêche de Zwoll, Pêche de Narbonne. Leaves crenated with globose glands; flowers small. [Fruit so like that of Téton de Venus, that many consider it the same, even among French authors themselves, born at Montreuil, where Peaches are more especially cultivated, where their cultivation forms the chief employment of the inhabitants, and where, consequently, they must be practically well acquainted with the varieties they cultivate. The Royale is also considered to be distinct from the Bourdine by many; but the fruit from trees obtained by the Horticultural Society under both names proved the same; and the fact of their being so, is corroborated by the following quotation from La Bretonnerie, Ecole du Jardin Fruitier, vol. 2, p 272, 1810; p. 389, edit. 1784:—

"*Boudine* or *Royale* are the same, whatever may be said by nurserymen, and stated in all the catalogues. This Peach was not known, when one of the cultivators at Montreuil of the name of BOUDIN presented it to Louis XIV. This Prince had the variety introduced into his gardens, and he esteemed it so much that it was named *La Royale.* This fact, on which I can firmly rely, has apparently been ignored by those who make two varieties of identically the same thing under different names. The Bourdine is an excellent Peach, ripe the middle of September [end of September or beginning of October in England]. It does not commence to bear so early as some others, but when it does begin, it bears abundantly. It is the best of late Peaches." To the latter remark of La Bretonnerie, made in 1784, there is perhaps scarcely an exception at the present day.]

Miscellaneous.

London Street Nomenclature.—Streets called after trees, flowers, and gardens, are more numerous than might be supposed, and may be presumed to have derived their names from the open spaces of cultivated ground by which they were originally surrounded. There are two Vine Streets, one in Westminster and one near Regent Street, called after the vineyards which had previously occupied the ground. From many names of a similar character, which occur in all parts of the town, but especially in and about the city, the following are selected as illustrations of a theory which it would be quite worth the while of an idle antiquary to investigate a little farther: Elm Tree Court and Garden Court, both in the Temple; Flower-de-Luce Court, in Fleet Street; Green Arbour Court and Break Neck Stairs, where Goldsmith lodged once, off Farringdon Market, but now removed to oblivion; Hatton Garden, called after Sir Christopher; Hay Hill; Rosemary Lane, better known by the less savoury appellation of Rag Fair; Saffron Hill, happily vanishing into brick-dust; and Willow Walk, in Pimlico. Leigh Hunt held, as an article of faith concerning green leaves in London, that there was not a single street in some part of which a tree was not visible. From these indications, there may have been a time when his creed was not very wide of the truth. *Reader.*

Calendar of Operations.

(*For the ensuing week.*)

WHILE the ground is white with snow, as it is at present, little can be done in the way of out-door work. Many in-door plants will however soon require attention in the way of potting; everything therefore necessary for the proper carrying out of that operation may now be put in readiness. Insects too should now be strictly kept in check, and constant care bestowed upon the timely performance of routine work.

FLOWER GARDEN AND PLANT HOUSES.

As regards the Conservatory and Show-houses, the obtaining Spring bulbs, Chinese Primulas, Begonias, and other plants in flower from forcing pits or other houses, and the removing such as have done blooming to other quarters, will now be the kind of work requiring most attention. A temperature of 45° at night, and from 50° to 55° during the day time, is at this time of the year sufficient in Conservatories, even in houses in which plants are in flower.

CARNATIONS AND PICOTEES.—Planting time with respect to these is now approaching; therefore bestow great attention on the proper preparation of soil for them, as upon that much of the after success depends.

ORCHIDS.—If not already done, re-pot such kinds as require that attention. Many sorts on blocks will have received little water since last autumn, and may be very dry. Occasionally, therefore, soak the blocks for a few minutes in tepid water; and baskets, if dry, will also be benefited by being subjected to the same process. Syringing may soon be resorted to early in the afternoons on fine days, and other conditions favourable to growth may more generally be put in force than would have been prudent during duller weather.

PANSIES.—Beds for these are best made in the autumn; but where plants have been kept in pots during winter they may be planted out with their balls entire on richly prepared soil as soon as the weather has become favourable for that purpose.

PINKS.—As soon as fine weather has returned, these ought to be carefully gone over, slightly forking up the surface soil and applying a top-dressing of light rich fresh mould to the depth of say half-an-inch all over the bed.

FORCING GARDEN.

CUCUMBERS.—Follow up former directions, regularly stopping and often sprinkling lightly with water round the frame.

FIGS.—As soon as the young shoots are four or five joints long, commence stopping them by squeezing them flat between the finger and thumb; this is one of the principal secrets of success in Fig management. Ensure a steady degree of moisture at the roots. Figs are very impatient of drought—a very short period of neglect in this respect may prove fatal to the crop.

KIDNEY BEANS.—Give liquid manure to these, and make sowings for succession as required.

PEACHES.—As before observed, suffer no gross shoots to push above five or six eyes without stopping; this will do more to equalise the sap than any mode of winter pruning. If the trees are properly attended to in these respects there will be little left for the knife. When the fruit is as large as marbles, commence thinning, taking only a few at a time. Give air freely when the weather is favourable, and syringe liberally with some force in the afternoon.

PINES.—Do not allow the bottom-heat to rise too suddenly; when much new tan has been added in consequence of recent shiftings or removals this may readily take place. Constant attention to the trial sticks is therefore now necessary, in order to ensure success. For general purposes 80° or 85° will be sufficient. Let atmospheric moisture be in proportion to the natural increase of heat and light, and give air freely early in the day on all favourable occasions, shutting up a good amount of sun-heat whenever a chance of doing so occurs.

VINES.—Attend regularly to the disbudding or stopping of superfluous wood. Take good care of bunches that require shoulder tying. A brisk heat may be permitted on bright afternoons; but be moderate at night; let 65° at that period be the maximum. Keep up a liberal amount of moisture independent of the syringe. As soon as succession houses are closed for forcing, be careful to secure a thoroughly moist state of the atmosphere by frequently sprinkling the floors and every available surface, but a regular moist state of the atmosphere is most effectually secured by means of a slight bed of fermenting materials in the house, which will also afford a little warmth, and the moisture from this is much more congenial to vegetation than anything that can be effected by the most careful use of either syringe or evaporating pans.

HARDY FRUIT AND KITCHEN GARDEN.

As the period for sowing seeds of some crops will soon be at hand, see that everything is in readiness for that purpose; never sow, however, until the ground is sufficiently dry to bear treading on without disadvantage, and otherwise in proper condition to receive the seed. Much mischief is committed by inattention to these particulars.

BEANS.—Sow Early Mazagan as soon as the ground will permit.

CARROTS.—Sow also Early Horn on a warm border.

WALL TREES.—All pruning and nailing must soon be brought to a close.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Feb. 15, 1865, as observed at the Horticultural Gardens

February	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth 1 foot deep.	Temperature. Of the Earth 2 feet deep	Wind	Rain.
Thurs. 9	13	30.392	30.192	40	25	33.0	43	42	N.E	00
Friday 10	○	30.516	30.469	37	26	31.5	41	41	N.E	00
Satur. 11	15	30.475	30 126	34	19	26.5	40	41	N E	00
Sunday 12	16	30.211	30.130	35	22	28.5	40	41	N E	00
Mon. 13	17	30.160	30.156	31	25	28.0	39½	41½	N E	00
Tues. 14	18	30 167	30.126	32	7	19.5	39	41½	E.	00
Wed. 15	19	29.473	29.646	39	21	30.0	38½	40½	N.E.	00
Average.		30.205	30.163	35.4	20.8	28.1	40.1	41.2		

Feb. 9—Very clear; clear, cold and dry; fine; slight frost.
— 10—Frosty; cold and dry; frosty at night.
— 11—Snowing; frosty; overcast; sharp frost at night.
— 12—Frosty; fine; snow, sharp frost.
— 13—Overcast; below freezing all day; slight frost at night.
— 14—Overcast; severe frost at night.
— 15—Sharp frost; fine with sun, slight frost at night.
Mean temperature of the week, 9½ deg. below the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 39 years, for the ensuing Week, ending Feb. 25, 1865.

February.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 19..	44.8	31.1	37.9	14	0.50 in	6	3	5	6	1	10	4	4
Mon. 20..	45 3	30.5	37.9	20	0.51	2	5	3	5	4	9	7	4
Tues. 21..	46.5	32.2	39.3	18	0.20	3	8	4	6	1	10	6	1
Wed. 22..	46.3	31.8	39 0	17	0.29	4	3	7	3	1	12	6	3
Thurs. 23..	46.9	31.4	39 2	13	0.44	4	5	7	2	1	10	7	3
Friday 24..	46.7	32.6	39.6	18	0.60	1	6	6	3	7	6	4	1
Satur. 25..	47.2	32.7	40.0	19	0.92	2	6	7	—	6	10	5	3

The highest temperature during the above period occurred on the 21st, 1859, and 21st, 1846—therm. 58 deg.; and the lowest on the 24th, 1860—therm. 18 deg

Notices to Correspondents.

BOOKS: *H P I.* Mr. Rivers's book on Fruit Gardens and Pruning of Fruit Trees is entitled the "Miniature Fruit Garden," and is published by Longmans.—*R J S.* The introductory portion of Moore's "Index Filicum" is the most accessible connected account of the genera of Ferns.—*Alpha.* Kemp's "How to Lay Out a Garden."

COOL ORCHIDS: *Old Subscriber.* There are no Orchids that will do without fire-heat, except such as our British species and those of North America, amongst which the Cypripediums rank first; but in the following list you will find a few showy species, that will succeed in a house with a temperature varying from 45° to 50° in winter, but which should range higher in summer, in order that their growth may be completed and well ripened:—Anguloa Clowesii; A. uniflora; Arpophyllum giganteum; Barkeria spectabilis; Cattleya Skinneri; Cœlogyne cristata; Cypripedium insigne; Dendrobium nobile; D. speciosum; Epidendrum amabile; E. atropurpureum; E. macrochilum; E. aurantiacum; E. vitellinum; E. Skinneri; Lycaste Skinneri; Odontoglossum grande; O. Insleayi; O. membranaceum; O. nævium; O. Pescatorei; Pleione maculata; P. Wallichiana; P. lagenaria.

DISEASED PEACH LEAVES: *Hortus.* The affection in your Peach trees is not of yesterday. It is not precisely the tips of the shoots which have died, for in the specimens sent the very tips are green. Moreover, where the affection is confined to one side of the twig, vegetation seems to have been more active there a few weeks since than it was on the side which remains green. We cannot help thinking that it has arisen from sudden change of weather, when vegetation was most active. The Peach is a delicate tree, and Knight was able to induce canker merely by letting a stream of cold water drip on the branches. There seems to be nothing wrong about your border, but if your trees have been planted where old ones stood, you will do well to ascertain that no old roots were left with which the new ones could come in contact. *M. J. B.*

LIBONIA FLORIBUNDA: *W H* This plant comes from Brazil. Gomphia decorans is another of Libon's Brazilian plants; this is probably what you mean by G. decora.

LODGE GATES: *An Old Subscriber* asks if some correspondent will kindly give information as to the best way in which a lodge gate can be made to open by a mechanical contrivance from the inside of the lodge; as the person living in his lodge is unable to go out in damp weather to open the gate, and he is desirous of adding to her comfort.

MUSHROOMS: *P P.* The extract at p. 128 was from the excellent Catalogue of Messrs. F. & A Dickson & Sons, of Chester.

NAMES OF PLANTS: *M M M.* 1, Lastrea æmula; 2, Polystichum angulare; 3, Hymenophyllum unilaterale; 4, Blechnum Spicant anomalum, in which the fronds are all fertile.—*N T.* 1, Pteris tremula; 2, Phlebodium areolatum.—*W H.* 1, Asplenium compressum; 2, Nephrolepis exaltata.—*Hortus.* Your Grass is Macrochloa tenacissima, one of the Espartos.—*T Ford.* Acacia dealbata.

PEAS: *S.* According to the Chiswick experiments, Ne Plus Ultra belongs to the class of Green Marrow Knight's; while Competitor belongs to the Green Knight's—the latter being distinguished by their wrinkled green seeds, and the former by their wrinkled mixed, that is white and olive, seeds. Competitor is there made the same as Tall Green Mammoth, while Ne Plus Ultra includes Jeyes' Conqueror.

WOODWARDIA: *H W.* Your Woodwardia which is grown too big for your house, if W. radicans, will flourish under glass on a north wall, with some slight extra covering in severe weather. The north aspect would be preferable.

THE LONDON MANURE COMPANY have now ready in fine condition—
DISSOLVED BONES,
SUPERPHOSPHATES of LIME,
TURNIP MANURE,
BLOOD MANURE for Barley and Roots,
URATE,
MANGEL MANURE, &c. &c.
They also continue to supply GIBBS' PERUVIAN GUANO NITRATE of SODA, SULPHATE of AMMONIA, FISHERY SALT, and all FERTILISERS of known value.
Works, Plough Wharf, Isle of Dogs.
Offices, 116, Fenchurch Street, E.C. E. PURSER, Secretary.

ODAMS'S BLOOD MANURE for CORN,
ODAMS'S BLOOD MANURE for ROOTS,
ODAMS'S SUPERPHOSPHATE of LIME.
MANUFACTURED BY
THE PATENT NITRO-PHOSPHATE or BLOOD MANURE COMPANY (LIMITED),
Consisting of Tenant Farmers occupying upwards of 30,000 Acres of Land.
Chairman.—JOHN CLAYDEN, Littlebury, Essex.
Managing Director.—JAMES ODAMS.
Particulars of these standard Manures may be obtained at the Offices, or of the Local Agents.
C. T. MACADAM, Secretary.
Chief Office: 109, Fenchurch Street, London, E.C.
Western Counties Branch: Queen Street, Exeter.
Manufactories: Plaistow, Essex; and Elford, near Topsham, Devonshire.

LAWES'S MANURES.—The Manures manufactured by J. B. LAWES for the present Season of 1865 are now ready for delivery at his Factories, at the following prices:—
LAWES'S PATENT TURNIP MANURE, and BONE SUPERPHOSPHATE of LIME, £6 6*s.* per ton.
LAWES'S SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES, £5 5*s.* per ton.
LAWES'S WHEAT, BARLEY, GRASS, and MANGEL MANURES, £8 per ton.
CONCENTRATED CORN and GRASS MANURE, £12 per ton.
These Manures can be obtained of Mr. LAWES, or through his appointed Agents, in all parts of the United Kingdom, at prices varying according to cost of carriage.
Genuine PERUVIAN GUANO direct from the Importers.
NITRATE of SODA, SULPHATE of AMMONIA, and other Chemical Manures. AMERICAN and other CAKES at market prices.
Address JOHN BENNET LAWES, 1, Adelaide Place, London Bridge, E.C.; and 22, Eden Quay, Dublin.

Established 1812.
PROCTOR AND RYLAND, in calling attention to their Special PREPARED BONE MANURES, have much pleasure in stating that they will be found of very superior quality, and the most economical offered to the Agriculturist:—
TURNIP, MANGEL, and POTATO MANURES have produced results of the most satisfactory and remunerative character on every description of tillage land.
WHEAT, OAT, and BARLEY MANURES strengthen the straw, increase the quantity, and improve the quality of the grain in a very marked degree.
BONE SUPERPHOSPHATE of LIME has been proved to be the most economical source of Phosphates for the growth of luxuriant root and corn crops.
GRASS MANURES, for mowing or grazing land, are very effective in improving the herbage. The preparation of Grass Manures is regulated according as they may be required to be more or less permanent in their character.
Offices: Corn Exchange Buildings, Carr's Lane, Birmingham.
Manufactories: Birmingham, Warwick, Bristol, and Chester.

THE WEST of ENGLAND LAND DRAINAGE and INCLOSURE COMPANY.
ESTABLISHED IN THE YEAR 1844, AND INCORPORATED BY SPECIAL ACT OF PARLIAMENT, 11 & 12 VICT., C. CXLII.
Chairman—The Right Hon. the Earl of DEVON, Powderham Castle.
Deputy-Chairman—WILLIAM PORTER, Esq., Hembury Fort, Honiton.
TERMS MUTUALLY ADVANTAGEOUS TO LANDLORDS AND TENANTS.
Lands Drained and improved without any expense whatever to the Owners, a small increased Rent paid by the Tenants being sufficient to meet the only payment which Landlords are required to make, viz., merely the interest of from four to five per cent. on the loan, this Company's Act not requiring them to pay off the principal; all expenses may be a permanent charge on the property, or made redeemable at any time, or liquidated over any term of years.
Tenants for Life and Mortgagors can likewise Drain and Improve their Estates without any expense to themselves.
The Works are undertaken by the Company, who keep in constant employ a very extensive and experienced staff of Engineers, Surveyors, and Workmen; or Proprietors may avail themselves of the powers of the Act only, and get the Works executed under their own superintendence, or by Agents appointed by themselves.
Outfalls through adjoining lands are obtainable under the Company's Act.
Works are also executed by the Company for parties advancing their own Capital or not wishing to borrow the money.
FREDERICK BRODIE, Secretary, Castle Street, Exeter.
Offices: Castle Street, Exeter; 30, Parliament Street, London.

THE GENERAL LAND DRAINAGE and IMPROVEMENT COMPANY.
Offices, 52, Parliament Street, S.W.
Directors.
The Right Honourable Lord RIVERS—*Chairman.*
George Thomas Clark, Esq.
John Chevalier Cobbold, Esq., M.P.
Col. the Hon. Wellington Cotton
Henry Currie, Esq.
William Fisher Hobbs, Esq.
Edward John Hutchins, Esq.
Sir Samuel M. Peto, Bart., M.P.
William Tite, Esq., M.P.
William Wilshere, Esq.
J. BAILEY DENTON, *Principal Engineer.*
Works of Drainage of any extent, Irrigation, Enclosing, Wood-grubbing, Road-making, Farm Houses, Farm Buildings, and Labourers' Cottages, are executed on all descriptions of property, whether freehold, entailed, mortgaged, trust, ecclesiastical, corporate or collegiate; or Loans granted for the purpose to landowners who desire to execute the works by their own agents.
The whole of the outlay in the Works, with all official expenses, may be charged on the Estate for a term of years, repaying principal and interest at six per cent.
No investigation of title being required, no legal expenses are incurred.
Applications to be made to WILLIAM CLIFFORD, the Secretary, at the Offices of the Company, 52, Parliament Street, S.W.

THE LANDS IMPROVEMENT COMPANY.
Incorporated by Special Act of Parliament in 1853.
2, Old Palace Yard, Westminster, S.W.
To LANDOWNERS, THE CLERGY, ESTATE AGENTS, SURVEYORS, &c., IN ENGLAND AND WALES, AND IN SCOTLAND.
The Company advances money, unlimited in amount, for the following works of Agricultural Improvement, the whole outlay and expenses in all cases being liquidated by a rent charge for 25 years.
1. Drainage, Irrigation and Warping, Embanking, Inclosing, Clearing, Reclamation, Planting, for any beneficial purpose Engines or Machinery for Drainage or Irrigation.
2. Farm Roads, Tramways and Railroads for agricultural or farming purposes.
3. Jetties or Landing places on the sea coast or on the banks of navigable rivers or lakes.
4. The Erection of Farm Houses, Labourers' Cottages, and other Buildings required for Farm purposes, and the improvement of and additions to Farm Houses and other buildings for Farm purposes.
Landowners assessed under the provisions of any Act of Parliament, Royal Charter, or Commission in respect of any public or general works of drainage or other improvements, may borrow their proportionate share of the cost, and charge the same with the expenses on the lands improved.
No investigation of title is required, and the Company being of a strictly financial character do not interfere with the plans and execution of the Works, which are controlled only by the Government Enclosure Commissioners.
For further information, and for forms of application, apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster, S.W.

Farm Seeds: Prices for February. Special Notice.
MESSRS. SUTTON respectfully request the attention of their agricultural friends to the fact that since the publication of their LIST of PRICES for January and February, CLOVERS and several other kinds of FARM SEEDS have greatly increased in value, and therefore they will be obliged to rise their prices for these articles on all orders received after the 28th inst., at which date their present List ceases to be binding.
Messrs. SUTTON at the same time earnestly request the favour of early orders, which will receive their immediate and careful attention, and which will be executed in strict rotation.
Royal Berkshire Seed Establishment, Reading.—February, 1865.

Notice.
PURCHASERS of LARGE QUANTITIES of FARM or GARDEN SEEDS will be supplied liberally by SUTTON & SONS.
For prices apply (stating quantity required) to SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

New Grass Seeds for Exportation.
SUTTON AND SONS have now ready for delivery New Seeds of all the most desirable kinds of GRASSES for PERMANENT PASTURE, and are packing the same in the execution of orders for Australia, New Zealand, and other Foreign parts. Prices, &c., will be sent post free on application.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

TRADE
HALLETT'S | PEDIGREE | NURSERY WHEAT.
MARK.
PURE SEED OATS.
46*s.* a Quarter (with Sacks) for not less than Two Quarters.
Papers sent upon application, enclosing Stamp, to FREDERIC F. HALLETT, Esq., F.L.S., the Manor House, Brighton, Sussex.

Manures and Feeding Stuffs.
RAYNBIRD, CALDECOTT, AND BAWTREE.
Address, 89, Seed Market, Mark Lane; or Basingstoke.
Samples and prices on application.

THE FOWLER BENEVOLENT INSTITUTION.
(THE FOWLER MEMORIAL.)
COPY OF RESOLUTION PASSED AT A MEETING, HELD IN ST. JAMES'S HALL, REGENT STREET, LONDON, FEBRUARY 9, 1865.
The Right Hon. Lord FEVERSHAM in the Chair.
"That the Memorial shall take the form of a Charitable Institution, to be called the FOWLER BENEVOLENT INSTITUTION, managed by a Board of Governors, Directors, or Council, to be appointed hereafter by the Subscribers, for the temporary or permanent relief and assistance of Engineers, Labouring Men, and their Families, who shall require and deserve such relief, and who shall by any accident become disabled or injured during the working of Agricultural Machinery, preference being given to those injured by steam ploughing and cultivating machinery. And also in the case of the death of these men by such accidents, for the temporary or permanent relief and assistance of their Widows and Children, and for the Education of the latter at a School to be built and maintained out of the Funds of this Charity—providing sufficient money can be obtained. And that the form of Charter or Deed of Trust for this Institution be drawn up by the Committee, and submitted for consideration and approval to the Subscribers when the Governors or Directors are appointed.
COMMITTEE APPOINTED BY THE MEETING.
The Right Hon. Lord Portman
The Right Hon. Lord Feversham
Edward Holland, Esq., M.P.
H. S. Thompson, Esq., M.P.
F. R. Tempest, Esq.
John Spencer Stanhope, Esq.
Mr. Matthew Savidge
Mr. T. C. Johnson
Mr. John Moore
Mr. E. Ruck
Mr. Edwin Eddison
Mr. Charles Clay
With power to add to their number.
The Committee will be glad to add the Names of any gentlemen to their List who will oblige by canvassing the districts in which they reside for Subscribers.
Subscriptions will be received by the Honorary Secretary, and acknowledged in the Agricultural Newspapers. Full copies of the resolutions passed at the Meeting, with forms for Subscriptions, may be had on application to CHARLES CLAY, Hon. Sec.
Walton, near Wakefield.

The Agricultural Gazette.

SATURDAY, FEBRUARY 18, 1865.

ON Wednesday Mr. LAWES opened a discussion on the agricultural value of town sewage by an address before the Royal Agricultural Society, in which he discussed some of the points which are touched by LIEBIG in his letter to the LORD MAYOR of LONDON, at the same time describing and defending the Rugby experiments. The lecturer is just the kind of witness whose evidence any student of this subject would desire to hear. Everybody declares that the testimony of the chemist is necessary to a right understanding of it, and of course agricultural evidence is required; and Mr. LAWES combines the knowledge of the chemist with that of the practical agriculturist more perfectly than they have ever hitherto been united in one man. Baron LIEBIG does indeed descend to the suggestion that being a manufacturer of manure his evidence on sewage is untrustworthy, but it so happens that the conclusions which the German chemist advocates, and which Mr. LAWES opposes, are those which the interest of the manure manufacturer would lead him to adopt. What magnificent scope for the indefinite extension of the artificial manure manufacture would there not be, if, as LIEBIG indicates, every farmer's modicum of town sewage delivered on the land should receive that preliminary supplement of soluble phosphorus, of potash, and other things which it requires to make it perfectly adapted to the crop! Mr. LAWES, to whom considerations of this kind have obviously never presented themselves in the same manner as they have to LIEBIG, simply desires to ascertain and state the truth; and in order that it may be useful truth, it must be true not only in the abstract, but practically—it must be truth not only scientific, but, as it may be called, commercial. The value of the material must be determined not only by its constituents, but by the condition in which they are presented. It is frequently the case that a mass of rock examined by the chemist may prove to contain 1000*l.* of gold; but the ore is so scantily distributed that it would cost more than 1000*l.* to extract it. To the chemist it is worth 1000*l.*, while commercially it is valueless. And this is very much the case with sewage. It may be worth 2*d.* a ton on the one view—it is actually worth barely a halfpenny a ton on the other. And just like LIEBIG's assertion of the value of guano, the former of these assertions is good for nothing in the face of actual experience.

This experience is now large and long enough to be trustworthy. Thanks to the Rugby investigation it is also detailed and accurate enough. In examining LIEBIG's recent statement, Mr. LAWES particularly pointed out his error in supposing that the ingredients of so much of a crop applied to the land will produce the quantity thus indicated. On the contrary, all experience proves, that in order to place a certain quantity of any substance in a plant, you must apply many times that quantity to its roots. A manufacturer will supply you all the ingredients of a bushel of Wheat for a shilling; but this shilling's worth will not when applied to his land produce the extra bushel which it represents. And it is found practically to take 6000 tons of sewage to do that which LIEBIG declares 2000 will suffice to do. And as to the distribution of sewage over arable land for just the purpose of supplying the ingredients which the crops remove, it appears that ploughland under an ordinary rotation, when no manure or cattle food is bought, loses only 7 lb. of phosphoric acid per acre annually; and 11,000,000 acres of it would be needed in order to that scientific distribution of the sewage to just meet this exhaustion which LIEBIG recommends. Of course the cost of such a distribution would be altogether fatal to the plan. And even if only the 600,000 acres be sewaged, which the London Corporation recommend, it would need a price of more than 2*d.* a ton to overtake the expenditure of distribution over so large an area as this.

But can the farmer afford 2*d.* a ton? That is the question. And Rugby experience decides it. The owner of the sewage there offered it to the Commissioners for 1*d.* a ton, knowing that he could make no more of it, though all his land is piped for its distribution. And they gave 1*d.* a ton, though they barely realised ½*d.*

The following are the figures representing the experience of the last four years.

WEIGHT PER ACRE OF GRASS FROM VARIOUS APPLICATIONS OF SEWAGE.

Year.	None applied.			3000 tons applied per acre.			6000 tons applied per acre.			9000 tons applied per acre.		
	T.	c.	q.	T.	c.	q.	T.	c.	q.	T.	c.	q.
1861	9	5	3	14	16	3	27	1	0	32	16	0
1862	8	3	1	27	8	0	34	10	0	32	9	0
1863	4	18	3	22	5	0	84	18	0	37	0	0
Average of 5-acre plot (A)	7	9	1	21	13	0	32	0	0	34	0	0
1861	8	18	0	15	16	3	22	15	0	26	13	0
1862	16	10	0	27	11	0	32	2	0	31	12	0
1863	8	0	0	25	5	0	30	11	0	34	9	0
Average of 10-acre plot (B)	9	6	0	22	5	0	28	9	0	32	12	0
1864 both fields unsewaged (A)	1	14	0	2	17	0	5	12	0	5	13	0
1864 both fields unsewaged (B)	3	1	0	5	12	0	7	4	0	6	11	0

A study of this Table shows that the increased produce follows the increasing application of sewage; and it proves that up to a certain point the result of applying a large quantity per acre is as profitable per ton as when a small quantity is used. Mr. LAWES concluded by warning the promoters of any of the schemes for using London sewage, that they must not expect to realise more than had been realised at Rugby; for the experiments there were perfectly trustworthy.

To the discussion which followed Mr. LAWES' paper, Dr. VOELCKER, the Earl of LONGFORD, Mr. MORTON, Dr. CRISP, Mr. FAWCETT, Sir E. KERRISON, Mr. T. SCOTT, Mr. ACLAND, and Mr. BLACKBURN contributed. Dr. VOELCKER corroborated the remarks of the lecturer on LIEBIG's faulty estimate. Dr. CRISP pointed out the real danger, as he asserted, of an increase of parasitic creatures in the bodies of those who shall be fed on sewaged produce; but as he alleged of a particular white "worm," which it seems is especially to be dreaded, that in all probability it was already flourishing in the bodies of half the gentlemen in the room, who certainly had not been feeding directly or indirectly on sewaged produce, one does not see the connection between his fears and the subject

of the lecture. Mr. Fawcett spoke of his experience of liquid manure on Grass, which answered very well in wet weather, but spoiled the growth in dry weather. Sir E. Kerrison asserted that ample experience already existed, both as to extent and as to duration, of the proper way of turning sewage to agricultural account. The Edinburgh meadows and the Rugby experience were together a sufficient guide. Mr. Scott described the experience at Wimbledon, where a pipage distribution had been abandoned as too costly, and the simple gravitation system had subsequently succeeded. Mr. Acland called attention to the need of examining the experience of ordinary water-meadows, with a view to its teaching how to deal with sewage.

The debate was closed by Mr. Lawes, who pointed out those difficulties connected with a practical dealing with the question which arose from the enormous quantity and constant flow of the stream. Many of the points named must be made the subject of remark hereafter.

We have more than once presented in these columns remarkable examples of the food manufacture of the country. Only the other day the farm at Plashet Hall, East Ham, where labour to the extent of 6000*l.* per annum is directed chiefly to the provision of vegetables for London, was described. Last year the farm near Woking, where ten to twenty thousand "score" of bacon are every year sold off four or five hundred acres, was referred to at some length. And occasionally examples have been given of the subsequent processes which the productions of the farm must undergo before they are ready for the kitchen or the cupboard. Thus, an account of the great bacon-curing establishment of Messrs. Hillier, near Stroud, will be found in our last year's volume. And we propose to-day to give some account of the largest flour-mills in London.

The difference between the weight of Wheat and the weight of all that the miller obtains from Wheat is generally found to be one pound in a bushel. Add all the flour and biscuit middlings, the coarse and finer Pollards, and the bran into which Wheat is converted in the mill, and it will be found one pound per bushel less than that of the Wheat from which these articles are obtained. Where the fine dust of the flour from the mill stones is drawn away by exhaust pipes and collected in a "stive" room, thence to be taken for sale to those who use paste and batter for cement or starch, or perhaps to be remixed with the manufactured flour before delivery, there is a smaller waste than in ordinary mills. We have now to describe an establishment where every known method of economy is employed, and where this loss and waste must be attributed to evaporation only. The flour and other goods for sale contain less water than the grain bought. The latter is reduced from berries weighing perhaps 10,000 to the pound to particles of inappreciable size; and there is involved in this process an enormous extension of surface laid open to the drying influence of the air, and as a considerable increase of temperature takes place during the grinding process, of course there is a certain loss by evaporation from the particles whose surface is exposed. It is a striking illustration of the magnitude of this establishment and of the quantity of its operations that the loss of this kind which is suffered in the year—the difference, due almost wholly to evaporation, between the weight of Wheat which is received and that of flour and meal and bran sent out, amounts to 360 tons per annum.

If this be, as we may assume it to be in the present case, not more than one in 80 or 90 of the grain which passes here through cleaners, fans, and millstones, silks and sieves and sacks, then the quantity of Wheat which is here manipulated must amount to 32,000 or 34,000 tons per annum, or considerably more than 100 tons a-day. This tallies perfectly with the actual performance of the mill in question, which, when driven to its utmost, is capable of delivering 1000 sacks of flour a day, corresponding to 1500 sacks of Wheat, and does actually upon an average convert 500 quarters of grain daily. This quantity, though so much below the possibility of its performance, is still largely beyond the ordinary experience of flour mills when compared with the means by which it is achieved. It is accomplished by an expenditure of about 14*l.* a day in wages, and a consumption of about 12 tons of coal a day, producing 400 horse-power, and driving 32 pair of stones, of which four or five at least are of course always out of work and in the hands of the dresser. The whole machinery, and excepting the reception and delivery of goods, the whole process goes on day and night continually, superintended by relays of men in attendance on engines, millstones, silks, &c. The arrangements for hoisting grain from barges outside the building are capable of lifting about 90 quarters an hour. Those for delivering flour and meal include a sufficiency of vans and carts, equally capable of overtaking during even short winter daylight the requirements of so large a factory, which is otherwise continually at work.

The City Flour Mills were erected by Mr. James Ponsford in 1851; Mr. Bramwell, brother to the present Baron Bramwell, being the architect, and Swaine & Bovill being the mill engineers. They were worked first for five or six years by Messrs. Ponsford, Currie & White. Every known appliance and arrangement was brought to bear upon the attainment of an economical and profitable result—except we presume that business tact, promptitude and ability, without which all other helps must fail; and after heavy losses of money (counting both the original investment and the annual expenditure) had been incurred, the factory was let to Messrs. Hadley. It stands, one end and side in the river, and the other end abutting on Thames Street, about 370 feet long and 60 wide, a building seven stories high, one of the most striking on the river side below Blackfriars Bridge. The lowest floor, one-half only of the length of the building next the Thames, contains coal-house and boilers. The next is on the level of the top of the boilers (seven in number, of which six are continually in work), and is occupied by the two engines, together 400 horse-power, which have lately been supplied with second cylinders, on the principle referred to at page 12, by which the same amount of power is derived from a consumption of 30 per cent. less fuel than formerly. Towards Thames Street on this floor are delivery stands for waggons, clerks' offices, counting house, &c. Mounting from this floor to the third, we are in a room 90 yards by 20. The whole power of the engine, which is centrally placed, drives here a central longitudinal shaft extending about half-way towards either end of the building. There is thus scope beyond for a further extension of the mill to the extent of nearly doubling the number of mill-stones at present used. These are arranged on the floor above, in eights, along the sides of the wall, and about 5 or 6 feet apart. And on this floor are the arrangements for driving them, together with the screws and lifts for taking the flour from them. All the stones are driven by straps from drums or riggers on the central shaft, and the vertical motion of these drums is converted into the horizontal revolution of the several riggers, or drums, on the shafts which carry the upper mill-stones, by the intervention of a wheel at each, carrying the lower strap, which both lifts it and directs it aright, so as to suit the position in which it is required to work. It results both from the upward lift of this lower strap as it leaves the central shaft, and from the stones driven being parallelly arranged on opposite sides of this central shaft, that the shaft itself runs almost lifted and pulling equally on both sides, almost without friction in its bearings. This arrangement of driving straps, though we are informed it is no new thing in other manufactures, is, as applied to the driving of millstones, a part of Bovill's patent, which has latterly so much engaged the attention both of the law courts and of the trade. Another part of the patent is seen in operation on the 4th floor, to which we next ascend. There are here the 32 pair of stones, arranged 16 on either side of the floor, and about 2 yards apart, concentred at the middle of the floor, leaving ample storage room at either end. Mr. Bovill's patent consists in the combination of a blast operating at the eye of the upper mill stone, with an exhaust operating all around the circumference of both mill stones, by which the flour and bran as made are drawn and driven through, and so hindered from clogging the surfaces by which they are being made. We understand that a blast alone and an exhaust alone have been each before employed; but that the combination of the two is new. The surfaces of the millstones are thus left the cleaner for their work; the power spent in driving them is unwasted by the clogging effect of the flour made, which if unremoved creates much useless friction in ordinary mill stones; and the grinding surfaces are the more efficient for their work, by the flour being rapidly removed from between them as it is made. It is perhaps partly owing to this, but chiefly owing to a heavier grinding as indicated by the unusual horse-power employed (12 horse-power or more per pair of stones) that while a pair of stones will generally grind about a sack per hour—12 quarters during the 24—the 28 pair of stones which are here generally at work get through 500 quarters in the day, which is at least 50 per cent. more than is the average rate. Another good effect of the blast is that the flour is delivered cooler from the stones, and thus less liable to injury during storage.

It may perhaps be worth while to describe here the operation of a pair of mill stones. They are circular slabs of French burr (about 4 feet across and 9 or 10 inches thick), pieced together and held in one by an iron rim. Their surfaces are made perfectly true planes; they are pierced at the centre by two circular eyes about 6 inches in diameter. The lower one is fixed and firmly bedded; the upper one hangs balanced on cross bearings on the end of the vertical shaft (passing through the eye of the lower one), by which it is driven. It is furnished with 4 leaden plugs around its upper circumference, by addition to which it can be accurately balanced, and the shaft is then lowered until the two surfaces are on the point of touching one another. The grain is fed into the interval between them through the eye of the upper stone, and the centrifugal tendency consequent on its revolution, together with blast and exhaust respectively where Bovill's patent is employed, drive it from the inner to the outer edge of the grinding surfaces, and it is reduced to flour and bran on its way. In order to the accomplishment of this result the surfaces of the stones are furrowed, so that both rubbing and cutting are combined in the process of grinding.

In the first place each surface is scored with 10 tolerably deep equidistant radial grooves, and thereafter the singular sections thus defined are tooled with straight and equidistant very close and shallow furrows chipped out, which are not radial, but which are parallel to the foremost of the radial sides of each section as the whole revolves, when this one surface revolves over the other, which it does at the rate of 120 revolutions per minute—the scorings of the under and upper surfaces cross one another and produce a cutting as well as a rubbing of whatever lies between them. And their action tends somewhat to check the rapidity of the centrifugal action upon the still unground fragments of the berry of Wheat which have yet to be reduced to flour. A week's grinding so far obliterates these markings on the stones as to require them to be re-dressed; and thus, of 32 pairs of stones, there are always 4 or 5 under the tool; and 11 men out of the 61 men and boys within this factory are constantly employed at this work. A steel straight edge is used by which to make wooden ones, and the latter when thus made absolutely true are used to indicate by means of paint any faults of surface in both the stones, and thus in re-tooling the scores upon the stones security is taken for the perfect truth of the surface employed. We understand that a good stone will wear not more than an inch in seven years.

To return to the mill we are now describing:—As the flour and bran leave the stones upon the fourth floor they fall down a tube into the floor below, and the whole is then received by a horizontal tube with screws, which conveys it along to the various lifts by which it is carried up into an upper floor, where it is dressed, and whence it drops into the flour rooms in "pastries," from which it drops into sacks. The exhaust air is carried with the flour dust, which it saves, into a canvas-walled room or "stive," where it is deposited.

In the fifth floor these "pastries" are situated, and here, too, are the Wheat scrubbers, sieves and fans by which any bunt is broken and removed, and dust and dirt is taken from the grain before it reaches the hoppers (one to every 4 pair) above the mill-stones.

On the sixth floor are the dressers—14 "silks"—cylinders of silk, of varying texture, 36 feet long, and about 3 feet in diameter, stretched upon octagonal frames, revolving at the rate of 30 per minute—into which the whole meal is received, and through which the flour passes into the "pastries" below, while the bran is delivered into shoots and carried by lifts, &c., to where it is stored, whence it is delivered for sale. In this way the whole produce of the stones is separated into the various sorts and qualities known in the market, which have been already enumerated. On this floor, too, are the fans, fed from the outer air through triple canvas for the perfect separation of London smoke and soot, which create the blast and exhaust respectively by which Mr. Bovill acts upon the grinding process.

The last story is where the corn is received. A couple of lifts, with a couple of men to each, are continually hoisting grain from the barges on the river seven stories below. This grain, of foreign and home growth, is mixed according to the object and judgment of the matter, and the various shoots are fed on this floor with the mixed grain, thence passing through scrubbers and fans to the hoppers over the stones, and thence by screws and

lifts to the silks, and thence by its own weight, and by lifts when necessary, to the sacks which slide down to the waggons waiting to carry the goods to the merchant or the baker. The grain is lifted by machinery, wheeled along by hand in bags for mixture, but never touched again. The process is thereafter carried on by machinery, and the whole is one of the most striking examples of well devised and economical organisation that we know. The fuel is economised in the outset by the most advantageous use of the steam which it produces. Power is economised both in the gearing and in the stones by a reduction of friction at the bearings of the central shaft, and by keeping the rubbing power of the stones to its proper purpose, not suffering the flour, when once it has been made, to remain and clog the surfaces. Labour is economised everywhere by putting screw and lift to do the work of hands. And over all are the trade arrangements by which 500 quarters are delivered daily to the mill, and the corresponding quality of flour (some 660 sacks) are delivered daily to customers in all parts of London; and thus the mill kept going without excessive storage being required.

The topmost floor is generally a good museum of all the various sorts of Wheat known, whether to the English farmer, or the miller and importer. The very best white Wheats from Berkshire, and the coarsest from the Fens, foreign growths, all sorts, pass through daily, and are mixed according to the judgment of the miller for the production of various qualities of flour for which he knows there is a market. Samples of grain and flour and *bread* in the counting-house below are the data on which large bargains are made. And in this way the material is provided for nearly half a million quartern loaves per week. And here, in this one mill alone, there is ground the produce, year after year, so far as Wheat is concerned, of probably 300 square miles of arable land.

It does good occasionally, we believe, to the quiet homely farmer, when he is induced to look over the hedge, not only at the energy displayed, whether successfully or not, upon a more bustling neighbour's field, but also at the power and energy displayed in those manufactures which are especially connected with his own occupation; and hoping that some such may read these notes, we have thus given an account of Messrs. Hadley's doings at the City Flour Mills.

—— We are hindered this week by the pressure of other subjects from giving that fuller discussion of Mr. Edmunds' extremely valuable paper on Middle-class Education, before the London Farmers' Club, which it so entirely deserves, and which we hope it will yet receive from our correspondents. We hope next week to direct attention to Mr. Edmunds' recommendations, with especial reference to those on the same subject which the Council of the Royal Agricultural Society are about to receive from their Committee on Education.

—— The *Mark Lane Express* has, during the past two weeks, tabulated an immense mass of information on the character of the last harvest. The following Table, in which the figures represent the number of the reports received, gives the principal results of the inquiry. It gives a condensed view of the general results of the harvest, and in doing this it is necessary to say that the averages of grain are assumed to be as follows:—Wheat 4 qrs., Barley 5 qrs., and Oats 6 qrs. per acre. In regard to Potatos there is no standard to guide us; but this is of less importance, as not more than three or four of the returns mention the amount, merely naming "average," and "over," or "under," as the case may be. The following is the table of the actual results:—

	Under Average.			Average.	Over Average.			
	½ crop	¼ to ½	Under		Over	¼ to ½	½ Over	Totals.
Wheat ..	21	33	116	259	114	27	9	579
Barley ..	10	62	51	228	188	18	14	566
Oats ..	30	65	258	132	29	17	2	533
Potatos ..	16	19	182	269	36	8	—	530

Stated in percentages of the whole number of reports, the following figures give the results as regards the grain crops:—

Per Centages of the Reports to the "Mark Lane Express," Jan. 1865:—

	Average.	Under Average.	Over Average.
Wheat	45	29	26
Barley	40	22	38
Oats	25	66	9

Our own reports in August last, though from a much smaller number of correspondents, may be compared with these by a similar per centage table. And there is a sufficient resemblance between them to show how fairly the character of the crops may be estimated before harvest by any one accustomed to such work.

Per Centages of the Reports to the "Agricultural Gazette," August 1864.

	Average.	Under average.	Over average.
Wheat	50	40	10
Barley	62	13	25
Oats	34	60	6

The principal discrepancy in the two Tables exists in the returns of the Wheat crop; and those at the time of our publication last summer were declared to be less favourable than had been confidently expected. And shortly afterwards it was pointed out that a wonderfully fine harvest time had undoubtedly improved the crop beyond the character given of it by our correspondents: as indeed the reports to the *Mark Lane Express* prove to have been the case.

—— An International Agricultural Exhibition at Cologne, under the patronage of his Royal Highness the Crown Prince of Prussia, is announced to be opened on May 15, 1865. It will embrace Machinery, Implements, and Productions of Horticulture, Agriculture and Forestry, together with objects of farmers' and foresters' household economy. All manufacturers and producers of such subjects are invited to contribute to the exhibition, which is to comprise the following principal divisions:—

1. Agricultural productions, including collections of any kind connected with rural life.
2. Implements and machinery for agricultural purposes.
3. Plans and models of dwelling and farmhouses and their materials, household furniture, working implements, victuals, and objects employed for the preparation and use of the same.
4. Productions and implements of forestry and sport as well as collections relating thereto.
5. Productions and implements of horticulture and garden architecture, including garden furniture, statues, aviaries, fountains, tents, &c., &c.

Questions and letters to be addressed post paid to the Horticultural Society "Flora," at Cologne.

The privy councillor Dr. Hartstein, Director of the Agricultural Academy, and Mr. Von Rath, President of the Agricultural Association for the Rhenish Provinces, both resident at Bonn, will gladly answer technical questions.

REPEAL OF THE MALT TAX.

As a class of men the farmers are blamed for their indifference to the repeal of the Malt tax: the majority, however, feel very strongly on the subject; yet for the want of union very little has hitherto been done. Perhaps something will be allowed for their isolated position, as compared with the inhabitants of towns. It has long been the opinion of many of the most eminent statesmen that when the Corn laws were repealed the Malt duty should certainly follow, and that its ultimate repeal would simply be a work of time, and the recent measure introduced by Mr. Gladstone would seem to imply that the period has fairly arrived when the obnoxious tax must be dealt with. That measure, however, being so clogged with restrictions, and next to useless to the farmer, he remains in much the same position as before, and this tends to show that any attempt to deal with it for the benefit of the farmer only is impracticable—alike selfish, inconsistent, and entirely opposed to the doctrine of free trade. If this is what Mr. Cobden means, when he states that he will be ready to give his support when the farmers come forward with a straightforward and honest policy—and as such policy is now admitted to be a total repeal remitted by instalments, we shall ever feel most grateful, and shall be anxiously looking for one of his powerful and telling speeches on the subject.

That the Malt Duty is unjust in principle, being utterly opposed to the free trade policy of the times; that the farmer is thereby debarred from the privilege of using his own corn in its most approved state for the fatting of his cattle, and the demand for a most important portion of his produce is thereby most unnaturally curtailed; that it inflicts great injury to the working classes, enhancing the price of the people's beverage from 50 to 70 per cent., diminishing their comfort by encouraging or leading them indirectly to spend their earnings at the public house; and lastly, injuring the public generally by contributing to make both beer and meat dear;—all these are objections well known and generally admitted.

Having to deal with a period of low prices for all kinds of corn produce at the present time, the position of the farmer is one that requires much consideration on his part, if not some anxiety; it is not necessary, however, that he should look on future prospects with a gloomy view because prices happen to be low. Why should the business of agriculture be exempt from those changes which beset all other occupations? Low prices may continue or they may not; all past experience would tend to show that we know nothing at all about it; however that may be, it is certain prices are beyond control, thanks to free trade in corn (though not in meat), and the point for consideration is, what system of farming is best adapted to meet low prices? We have heard a vast deal of information lately given upon this important subject, such as laying down land to permanent pasture, &c., for the purpose of more stock keeping. In this particular respect, however, I am extremely glad to find that so good an authority as yourself cannot agree; but in the rearing and keeping of as much stock as possible to meet the increasing demand for meat, the feeling appears to be well understood and unanimous.

It has ever been a matter of regret to all those farmers especially interested in the fatting of bullocks and sheep, that the feeding with malt should be impracticable and form an exception because of the Excise. You have only to walk into the various markets to see large quantities of Barley very low in price, and of excellent quality, apparently wanting customers, for there it stands in the sample sacks, week after week, till one is positively tired of looking at it.

And in the same town or street an active demand exists for both beef and mutton at high figures, and many of the animals about half fat. Why not turn some of that beautiful Barley into malt, and fatten your cattle, asks the consumer, and benefit yourself and me too?

Well, my friend, I shall be extremely glad to do so, as soon as I get the chance and am permitted; but so long as you stand there an idle spectator, you have no right or reason to complain, even though the price of meat should rise to 1*s.* per lb. Has it never occurred to your mind what a very large amount 1*d.* per lb. tax on meat would raise?

The Chancellor of the Exchequer professed to be astounded when some one or other of the deputation who waited upon him last year, informed him that it cost many millions to collect the five raised by the Malt tax; but as you and I are not exactly qualified to enter into statistics of that description, in lieu thereof let us take a retrospect of our respective meat bills for the past twelvemonth, and see what that would come to in a quiet kind of way.

In the mean time will you join with me in endeavouring to obtain, by all proper legal and constitutional means, the total repeal of the Malt duty, because if you will I have no doubt we shall succeed, and the farmer will do his utmost to provide you with meat of the best quality and at the cheapest rate, to say nothing of the many opportunities afforded of providing yourself with pure and wholesome beer. *W. Simmonds, Guildford.*

PAINLESS EXTINCTION OF LIFE

In Animals Designed for Human Food.

Like my excellent neighbour Mr. Chitty, I also was interested by your notice of the pamphlet by Dr. McCormack, and as the subject is strictly within the province of a Journal devoted to the development and improvement of food resources, I trust I may be allowed to make a few remarks in reply to those by my friend. I am anxious to break a lance with Mr. Chitty, because the line of argument he adopts is one calculated, even if fallacious, to have great weight with many excellent persons, who would countenance waste, and worse than waste, rather than violate a Biblical precept which they suppose to be binding on them. Mr. Chitty represents the objections to Dr. McCormack's as of two kinds, theological and physiological; that the eating of blood was prohibited by the Mosaic Law is most true, but are we bound by that law in these times? It is generally agreed that we are not; else we must abstain from labour on Saturdays; we must abstain from certain kinds of fish; we must abstain from pork, &c., &c. Mr. Chitty says: "it was not always that the flesh of animals was permitted as food for mankind," and in this he is probably wrong, for though there is an explicit declaration in Gen. ix., 3, that "every moving thing that liveth shall be meat for you," yet in Gen. iv., 2, we read of the flocks of Abel; in Gen. iv., 20, of the flocks of Jabal, and in Gen. vii., 2, of the distinctions between clean and unclean. Nevertheless the eating of blood was prohibited: "flesh with the life thereof, which is the blood thereof, shall ye not eat." If we consider the prophetic nature of many of the earlier precepts and injunctions of the Old Testament, I think it will appear that this and similar passages are not intended to set forth any physiological truth whatever. Suppose, for instance, we find that the blood is *not* the life; what will Mr. Chitty and those who hold similar views say to it?

Nevertheless, by taking a higher, that is to say a spiritual and not a carnal view of the subject, we may understand that the eating of blood was prohibited because it was the symbol of the precious blood of Christ, which was hereafter to be shed for the salvation of the world. If I may use the term without irreverence, I may say that it was a necessity of the Mosaic dispensation that blood should be considered sacred—most sacred; else what impression could the sprinkling of it in sacrifices make upon the minds of the congregation? True, the prohibition in Gen. ix., 4, precedes the primal declaration of the Levitical ceremonies, but is it not just such an anticipation of them as we have in Gen. vii., 2, where there is a distinction between beasts clean and unclean? Not only did the Levitical law forbid the eating of blood, but it enforced the prohibition by the penalty of death, and in Lev. iii., 17, the eating of fat is prohibited also. If Mr. Chitty considers the

Levitical Law binding in these matters, he is prepared to enforce the penalties for disobedience, and whether he himself is an abstainer from fat. But beside the sacredness of blood in former times as representing mystically the life of all flesh, and typically the plan and purpose of the Atonement, it is probable that the interdiction of its use might derive force from the practices of the heathens by whom the Jews were always surrounded. Those who are familiar with the Old Testament will be able to call to mind many prohibitions that have no meaning whatever except in bearing on the tendency of the Jews to become idolators. For instance, there was to be no sculpture on the altar, &c. In Psalm xvi., 4, and in Ezekiel, xxxiii., 25, distinct mention is made of the eating and drinking of blood by idolators, and that is alone sufficient to render perfectly intelligible the proscription of blood to the chosen people.

As for the New Testament declarations, they appear to represent the remaining prejudices of Jewish converts, nothing more. Our Lord made no declaration on the subject, and the Apostles were greatly influenced in their views and teachings of Christianity by their Jewish training and habits; so much so indeed, that a vision from Heaven was needed to show to Peter that the distinctions between clean and unclean had passed away. As respects the Biblical argument, probably the whole matter is summed up in 1 Cor. viii., 8. "Meat commendeth us not to God; for neither, if we eat, are we the better; neither, if we eat not, are we the worse." As in many other matters, it is doubtless left to us to follow the teachings of reason and conscience. "We are not under the law, but under grace."

As for the physiological part of the subject, it is obviously one for further inquiry and experiment. If animals can be killed instantaneously; if being so killed we can obtain from their carcases a larger amount of wholesome food, then let us follow Dr. McCormack, and suffocate instead of bleeding, and having done so, eat the blood. I dare say I shall be called a heathen, and something worse, for putting the case in this way; but I will risk all that, and maintain that if people like black-puddings they may eat them without violating any law of God, and perhaps without imperilling their powers of digestion. Mr. Chitty objects, because "blood taken into the stomach must remain there until its vitality is entirely destroyed;" but this is assuming that painless extinction of animal life is to be followed by the quaffing of bumpers of blood, hot from the bullock, which I suppose Dr. M'Cormack does not propose. In plain truth, Mr. Chitty's physiological argument melts into "air, thin air," before the fact that the blood when removed is no longer a vital substance; it has no more vitality than a finger nail, a body, a lock of hair, or a slice of flesh. The life of an animal is not in the blood, or the brain, or the muscles; the life is the result of the combination of these various constituents of the creature, and their combination under certain conditions. Dr. A. Clarke was a good man and an able theologian, but his authority for regarding the blood as "possessing a living principle" is of no value whatever; and as for the quotation from Dr. Hunter, we must know more about the experiment referred to, to accept it as evidence. Is the quotation from any work by the great John Hunter, and in what way, when, and where, was a coagulum seen to become vascular? Mr. Chitty has dealt with the subject in an able and spirited manner, but I think he fails to establish that the Biblical declarations have a physiological meaning, and I am sure he is wrong in assuming that if blood is taken into the stomach as food it must be taken while it yet has life in it. I suppose Mr. Chitty refrains from eating hare soup; for all cooks say that unless the blood is saved in dressing the animal, hare soup is not worth eating. *Shirley Hibberd, Stoke Newington, N. Feb.* 1, 1865.

Home Correspondence.

Effects of Irrigation.—Your Correspondent Mr. Charles McDonald wishes for information as to the amount of irrigation which produced the results observed by me and recorded in the Table quoted in your impression for January 28. To this I would reply that the Table records the changes in the growth of Grasses, and a subsequent one the same for other plants in a field after four years of irrigation. It is in a position where there is perfect command of the water, which was let trickle through, not upon or over the meadow, three times a year. The water was that of the River Churn, the longest arm of the Thames, which is employed in irrigation for many miles of its course, and so successfully as to have made land otherwise only worth 30*s.* an acre now let for 5*l.* an acre.* From Mr. McDonald's observation I almost incline to the belief, that, notwithstanding he says "I aver that it," that is, the Table, "is the very opposite of universal practice" (qy. experience)—that he has had more to do with flooded than with irrigated meadows, as Poa trivialis will certainly increase where water at all stagnates, but under proper irrigation sounder and better herbage takes its place, and amongst this there will ever be found an increase of Poa pratensis, which, though a Grass which in some state or other may be found almost everywhere, is still not entitled to be called so exclusively an "upland Grass." It is viewed as "more remarkable" that Aira cæspitosa dies out, a statement made with a note of exclamation—by one, too, who has studied Grasses for 10 years; but I would observe, as the result of more than 20 years of study of the Grasses both at home and abroad, that if Aira cæspitosa occurs in any quantity in a meadow under irrigation, it is itself the best evidence of the imperfection of the process, and that any well-informed drowner* knows so well, that whenever he traces a single tussack away from the water-courses he knows the water stagnates there, and at once makes a new conduit to convey it to the exit channel. The fact is that irrigation and flooding are too often confounded. In a good irrigated meadow the drainage should be so perfect that when the water is stopped one should be able to walk over it clean and find it sound in less than 24 hours, to which end there should be perfect command of the water to get it distributed all through the Grasses by a constant trickling motion, and equally so to get it drained off. I am now the tenant of some so-called irrigated meadows, but they lack both qualifications; they are on a sluggish stream liable to floods, and some parts are so low that they cannot be drained; the consequence is that here and there the water stagnates, to the delight of Aira cæspitosa, Rushes, Sedges, &c. In some portions that can drain these are quite absent, and if we could improve the whole we should look for the evidence of our success in the gradual dying out of these weeds, and a substitution of better things—and this much upon the principle recorded in our Table, which by the way only contains a part of our argument, but for the rest we must refer to our Natural History of British Grasses published by Hamilton & Co. *James Buckman, Bradford Abbas, Jan.* 30.

Utilisation of Sewage.—As this question is one of the greatest importance, and as it is most desirable that no erroneous calculations should be acted upon, I wish to call attention to the following serious oversight in Baron Liebig's estimate on the subject. I may remark, *en passant*, that having years ago, when greedily devouring the agricultural works of Liebig, expended 30*l.* in the purchase of 3 tons of his manure, I lost not only my 30*l.* but my crop also, from which I learnt that the great chemist was not infallible; and he has since still further lowered himself in my opinion by the pertinacity with which he clings to his inorganic manure theory, though scientifically refuted by Mr. Lawes, and practically by every farmer in the country; but I suppose the greatest minds do not like to own to a mistake. In the present instance the error to which I propose to call attention is the following:—Baron Liebig calculates the value of the excreta of 2,000,000 adult bipeds and 66,000 quadrupeds as being contained in the London sewage; and we gather from the calculation that 3-5ths of the phosphoric acid, 11-12ths of the potash, and nearly all the ammonia are contained in the urine, and these are the only three substances valued in the estimate. In a subsequent part of the report Baron Liebig refers to a now well-known fact, and states, that "where water and earth are brought in contact with each other, the manuring matter goes no further, but remains there." Now, of course it is impossible to calculate correctly, but every one must be fully aware that a large, if not indeed the largest, portion of the urine voided by man and beast is immediately brought in contact with earth, and consequently robbed of its manuring matter; some perhaps may only be partially so, from flowing over the surface into the drains; but much more only finds its way into them by under drainage, and though it may be argued that some day the soil of London will be saturated, so that it can retain no more, that day must be very far distant, and for present purposes cannot be taken into account. I also observe that in estimating the value of guano, Baron Liebig refuses to attach any value to the uric acid and urea contained therein, though in valuing the urine he estimates the full value of these its principal contents at their ammoniacal value, which no doubt they fully deserve, but then it is inexcusable to ignore them when contained in guano, especially when, as you have fully shown in your Leading Article on the subject, that value has been fully established by the "sovereign test of agricultural experience." *H. C.*

Wheat a Drug.—Wheat is certainly, at present, a drug in the market. Beef, mutton, pork, poultry, butter, milk, and cheese however pay well. There will be changes in the prices of various articles of human food, just as other saleable commodities, in a free country, rise and fall in value, according to the supply and demand. Men have no reason to complain, if from want of foresight or speculation they happen to have in their possession an article not so profitable as it used to be. If Wheat cannot be converted into bread, to pay the expense of growing, let it be either used in some other way, or less of it sown. Crushed grain and chaff, with the addition of a few roots, will fatten cattle rapidly in the stall, and leave in the yard a splendid dung-heap. Wheat land will bear almost anything related to the vegetable kingdom, but if farmers will continue to cultivate quantities of that which will not remunerate them for their trouble, they will have themselves to blame, and grumbling will not extricate them from their difficulties. Perhaps no occupation in life requires more patience, perseverance, and energy than farming. Spring and summer, autumn and winter each brings with it employment for an active and honest man. There is no great hardship in being obliged, occasionally, to substitute, or rather to increase or decrease, Wheat for stock, or stock for Wheat, because when a farm is fairly managed, animals, grain, &c., are generally apportioned according to the size of holding, and the wants of the neighbouring town. Men who enter into competition with their fellow-men in the manufacture of food, or anything else, must be prepared to contest the race with manly courage, if they intend to keep their place in the front rank. As a rule, probably, Wheat will continue low in price; when sold to the miller, however, it is a question whether it will not pay as food for pigs, sheep, and beasts? *Falcon.*

Yew—Poisonous.—One morning a short time since, when the ground was covered with snow, some Shropshire sheep in a gentleman's park on this estate gained access to a growing Yew tree, and very soon became seriously ill. One died the following night, and on a post-mortem examination a quantity of green Yew was found in the stomach. On the same morning in the adjoining field, where the branches of a Yew tree had been weighed down by snow during the night, and which had evidently been eaten by the sheep, a neighbour had 10 or 12 Herdwick ewes in such a state that he feared all would die; indeed, I saw them lying as if they were dead, and when lifted up they staggered as they fell. No time was lost in administering castor oil, Epsom salts, and gruel, and had not repeated doses been given throughout the day and following night I quite think all or nearly all would have died. Many were completely paralysed, and their tongues were swollen and black. It is probable the sheep would not have consumed sufficient Yew to produce the consequences related had not the ground been covered with snow. Our mountain flocks seldom take too much of the exposed Yew shrubs to do them serious injury: instinct doubtless teaches them to avoid such dangerous food. *Thomas Evennett, Monk Coniston, Windermere, Jan.* 31.

Societies.

Edinburgh: *Chamber of Agriculture.*—At the first general meeting of the Chamber of Agriculture and Scottish Farmers' Club held the other week, Mr. George Hope, Fentonbarns, was elected President. The Club was inaugurated by a dinner of the members. Mr. Hope, occupying the chair, proposed, "Success to the Chamber of Agriculture and the Scottish Farmers' Club." He said:—

Though not yet a year old, and only this day received from the arms of the nurse, it presents all the features of a vigorous youth, and the symptoms of a speedy arrival at lusty manhood, with a constitution and strength which betoken many long years of usefulness. You have already heard that it numbers upwards of 300 members. I am not aware of any similar institution connected with agriculture in Scotland meeting with such immediate, hearty, and universal support. I am glad the membership has not been confined simply to tenant farmers, that we take in all interested in practical agriculture, and hitherto all have been received who have applied for admission. At the same time, I think it a wise rule that a majority of the acting-committee should be composed of tenant-farmers. Chambers of Commerce are numerous throughout Scotland, and I may say every trade and profession is associated for the promotion of its separate interests, and I think it only right and fair that farmers also should have their Chamber of Agriculture. We all know the fable of the bundle of sticks—when taken separately, how feeble! when united, how strong! I am particularly pleased that the Association contains a considerable sprinkling of large and influential landowners, some of whom I am happy to see here to-night. I venture to predict they will prove most valuable members if they will only attend our ordinary meetings, and state their views frankly on all topics, where it may be supposed the interests of the landlords and the tenants do not run in the same groove. It may be said there are already numerous agricultural societies spread over the land; in fact, every little district has one of its own; and, finally, we have the great valuable and national institution the Highland and Agricultural Society of Scotland. It may be asked what more can we want? I will first state the objects of these associations, and then point out what I understand to be the work that lies before and is reserved for our Chamber, and you will observe at once the difference betwixt them. No one can be more ready than I am to admit the benefits that have been and that may be derived from these local associations, and still more from the Highland Society, and I doubt not for a moment that every member of our association will continue as heretofore, to give them a most cordial support. I have with delight the appearance here to-night of the singularly able and untiring secretary of the Highland Society, Mr. Hall Maxwell. I have the honour of being for the second time a director of that Society, and can speak from experience of the great merits of that gentleman, and I feel certain if our Chamber and Club have been calculated in any way to supersede or set at nought the operations of the Highland Society, neither he nor I would have been in this room at present. But I must return to the objects of these agricultural societies. I think I describe them truly when I state they are constituted mainly or wholly for improving the breeds of animals, bringing into notice new or improved varieties of grain, new or improved implements of husbandry, testing by experiments the value of different manures when applied to the soil in the production of various crops, or of feeding stuffs in the fattening of sheep and cattle. The Highland Society itself has done much for the furtherance of these important subjects, and still more in bringing the exertions of the local associations to a focus, and enabling the agricultural world to contrast and compare the stock thought best at home, and the implements most useful in their separate localities. But something more—however important we admit these subjects to be—is now felt to be wanting by the practical farmers of Scotland. There are many subjects which touch the interest of practical agriculture which the societies I have alluded to do not, and from their constitutions cannot take up. I will now quote from our prospectus

* This is a very [different] case to that stated by your correspondent, in which he is "engaged to improve a meadow where the herbage has become worthless by irrigation."

* The name "drowner" is given to the labourer who cleans out the conduits and directs the flow of the water in irrigation.

what are stated to be the objects of the institution: "To watch over the interests of practical agriculture. To promote the advancement of agriculture by the discussion of subjects connected with it. To consider questions that may be introduced into Parliament connected with agriculture. To afford frequent opportunities for social intercourse to farmers and others interested in agriculture from different parts of the country." Now, gentlemen, we have here a very wide latitude: we are "to watch over the interests of practical agriculture;" we are "to consider questions that may be introduced into Parliament connected with agriculture." I may affirm it is distinctly understood that whatever touches or trenches on the interests of practical agriculture is to be fully and freely discussed, and that no subject, if it can be legitimately alleged to do so, is to be tabooed. I trust every subject will be discussed dispassionately, and with decorum, and with the sole object of eliciting the truth; and, whatever may be the opinions or prejudices of others, the honest convictions of the speakers will at all times be fearlessly maintained. I do not for a moment suppose we are always to be employed in the discussion of exciting topics. I am certain we shall more frequently be found handling practical points of farm management. At the same time, to show the freedom of range we aspire to embrace, I may point out two or three subjects on which I believe there may be a difference of opinion, at least in regard to which the interests of landlords and tenants, at first sight, appear to diverge. First, there is the important question of the Law of Hypothec, which is at present exciting such universal attention. From the way this law is denounced by some and praised by others, it must exercise an important influence, either for good or evil, on practical agriculture. I have no doubt, when once the labours of the Royal Commission now sitting are fairly over, and you have the evidence taken in your hands, you will discuss the subject; and the opinion of the members will be taken as to whether it should be maintained, modified, or abolished. There are even more ticklish questions than the Hypothec-law which may come before us: for instance, the game laws and the preservation of game, by which I apprehend many tenants suffer so injuriously. I am glad to hear that of late it is difficult to find tenants for farms near preserves, except at very small rents. Again, there are the terms of leases, the rotations of crops frequently prescribed, and the conditions, generally, on which farms are let or taken on lease. Doubtless, the landlord has it in his power to lay down the terms on which he will part with the soil; and, should he find no one to agree to them, he is at full liberty to farm it himself if he chooses. I learn this has been of late extensively done on some estates in Forfarshire. I hope that discussions here may bring out clearly and satisfactorily what is the right and reasonable thing for landlords to ask—that they will find it to be their interest to bargain only for such terms as clear-headed business men will be willing to agree to. I have of late seen some leases so outrageous that I can only wonder they were ever offered for signature to sane men. The truth is, a tenant so very rarely submits a lease to his own lawyer, that I believe a charge of revising a lease for a tenant of agricultural subjects has no place in a lawyer's table of fees. So much evil has arisen from this, which has lately come under my notice, that I wish to call special attention to it. It is all very well so long as a tenant pays his rent and remains on the farm; but let him leave, or if either landlord or factor take offence at him, on many estates he is wholly in their power, from the impossibility of farming without breaking either one clause or another—a condition to which no independent man should allow himself to be reduced, or which no right-thinking landlord should desire. Besides these questions, there are many others which may come before Parliament that may require attention on the part of the Chamber, as involving the interests of practical agriculturists. I allude particularly to all assessments that may be laid on occupiers, such as poor-rates, for the maintenance of roads, or, it may be, for new or increased rates for national education. I am far from saying that occupiers should not bear their fair share of these burdens; but what I contend for is that they should have an opportunity of first considering them, and of being satisfied that they are called on for no more than is justly exigible. For the regulation of fairs and markets, also, I cannot imagine a more suitable body for giving advice than the Chamber of Agriculture. And there are many other questions I have no doubt your committee will take up. When it next meets, I hope it will be divided into sections with separate duties, and in this way the work will be cumbersome to none, and when we meet this time twelvemonths I trust we will be able to give a good account of our stewardship. Gentlemen, there is another point I must allude to, seeing there was some little difference of opinion in regard to it amongst our members—that is, that part of our scheme styled "The Scottish Farmers' Club." We have not yet had an opportunity of seeing how it will succeed; but we have secured excellent rooms in this hotel, which is most conveniently situated in one of the best parts of the city, and to which the members can at all times most freely resort, and where every comfort and accommodation can be obtained on the most reasonable terms. I am confident we have only to make use of our privileges to pronounce the Club not the least useful part of our programme. For myself, I intend henceforth to make our rooms my home when in Edinburgh, and I hope to meet there gentlemen from all parts of Scotland, the friendship of some of whom I trust to secure; and if ever I can be of service to any member, in regard to agricultural matters or otherwise, it will give me the greatest pleasure. Gentlemen, I cannot conclude without bringing under your notice the prominent part which has been taken in the formation of our Association by Mr. M'Lagan of Pumpherston. The time and the labour and the extensive correspondence that, as our honorary secretary, he has bestowed on it, demand our warmest thanks. I have no hesitation in saying that to him is mainly due the successful establishment of the Association. He assuredly deserves to have occupied the place which I have the honour this night to fill. Nothing could have prevented it, except the fact that Mr. M'Lagan has the misfortune to pay no rent, but happens to be owner of the fee-simple of the estates of Pumpherstone; but you will allow me, as the least acknowledgment we can make of his services, to join his name with the toast, and to give it thus—"Success to the Chamber of Agriculture and the Scottish Farmers' Club, with the health of Mr. M'Lagan, the late Honorary Secretary."

Reviews.

A Treatise on the Sanitary Management and the Utilization of Sewage, comprising details of a System, &c. By William Menzies, Deputy Surveyor of Windsor Forest and Park. Longmans.

The Agricultural Value of the Sewage of London, examined in reference to the principal Schemes submitted to the Metropolitan Board of Works, with Extracts from Evidence, &c. E. Stanford, 6, Charing Cross.

We merely name these publications this week—the latter one a pamphlet. Together we may say that they contain nearly all that exists of well-determined information on the subject common to them both. The book of Mr. Menzies deals with town sewage in its origin, house by house; the anonymous pamphlet deals with it in the mass after it has, in fact (to speak of that of London), been turned out of town as a nuisance, and is running to waste at Barking. We shall next week give an analysis of the contents of each of these works, and make such critical remarks on them as they appear to deserve. But we do not delay this mere announcement of their publication, as they both directly relate to the subject which is just now one of the greatest importance in the agricultural world: the latter in particular, as it appears to us, concentrating in readable and accessible form the whole of the evidence by which a decision of the town sewage question must be determined. It includes a discussion of the experience of all the towns where sewage has been applied—refers to the artificial manure trade in connection with the subject—describes the several methods proposed for dealing with town sewage, and advocates, as all those who have had any practical experience do, the treatment of the land with it in quantity as in ordinary irrigation.

Farm Memoranda.

A Weald of Sussex Farm.—Farming is very generally considered an unprofitable business, especially now when all grain is at such a low price. I have lately taken a farm in the Weald of Sussex, and will give a short description of it, and the manner in which it is proposed to manage it, both as to stocking and cropping, and then ask whether the manner proposed can be carried out—if the calculations are anywhere near right and such as are borne out by practice, and if so, can the resulting balance be considered satisfactory; and if not, what other mode of management can be recommended which shall produce better returns?

The size of the farm is 208 statute acres, lying mostly to the south; the fields are large and unencumbered with hedgerow timber; all the arable ground that requires it is drained well, and water lays but a short time after rain has ceased. The farm is divided as follows:—

Arable land	115 acres
Meadow for mowing	35 ,,
Pasture..	30 ,,
Roads, woods, &c.	28 ,,
	208

The soil is all of a description upon which roots can be grown, not strong land, but nice working, though with rather a tendency to run together and paste. After heavy rain, especially if worked fine, the subsoil is very various, as is the case in the Weald, veins of sand, marl and clay occurring all through it. None of the farm is what can be called hilly, and the buildings are so situated as that most of the manure carting can be done with one horse in a cart.

It is proposed, then, to mow the 35 acres of meadow land every year, and of course to pasture the pasture, and to crop the 115 acres of arable land as follows:—

23 acres root crop (1st year).
23 acres Oats (2d year).
23 acres—11½ Clover, 11½ Beans (3d year).
23 acres Wheat (4th year).
23 acres Trifolium, Tares, &c. (5th year).

115 acres.

The description of stock to be kept is to have 12 cows and to make them bring up 50 calves during the year, which is rather more than four each, the calves to be kept until two years old. They will suck the cows for two months, one calf at a time, and gradually weaned in that time, then put into a box and fed with hay, meal, roots, &c., until two years old, not leaving the box until fit for the butcher; there will thus be 38 calves to buy, and each cow's calf will bring up the number to 50; there would thus be from 80 to 100 animals always on the farm for which to provide food. I consider the number of boxes required for these would be 50 of 10 feet by 9 feet each, that is 20 boxes with one animal in each, 30 with two each, and the remainder would be in a large loose box or boxes during the time they were being suckled, the cows to be in a yard. The question is how to find sufficient food for this quantity of stock, and I give the quantities I imagine would be sufficient, and when I am wrong in this should be glad to be set right.

Number of head of stock always on farm would average 90, for which food must be provided.

Quantity of food possible to provide—

	Tons
23 acres of root crop, 15 tons per acre ..	345 roots
35 acres of meadow	35 hay
11½ acres of Clover, mowed twice	23 hay

The root crop would have to be begun in November, and last until the middle of the following June—seven months and a half, or say 230 days. From the middle of June until 1st November, four and a half months, the 12 cows would be in the pasture, and the rest of the stock would be in their boxes, fed on Trifolium, Tares, and Rape, cut green. The hay crop would have to last the same length of time as the root crop, that is 230 days.

	Tons.
12 Cows to have per day each 56 lbs. roots for 230 days ..	69
40 Beasts ,, ,, 42 lbs. ,, ,, ..	172
40 Beasts ,, ,, 21 lbs. ,, ,, ..	86
	327
12 Cows to have per day each 8 lbs. of hay for 230 days..	11
86 Beasts ,, ,, 4 lbs. ,, ,, ..	37
	48

The remaining 10 tons of hay would be required for the farm horses, of which six are kept.

As the land of the farm cannot be called a good Turnip soil, the Mangel and Swedes would always be taken after the Tares, &c., and so as to insure these crops as far as possible, the land would be got ready for them as soon as the Tares were cut, and the land where the Trifolium was grown would be sown immediately it was cleared with Rape or white Turnips, which the cattle would consume during half of August to the end of October; this land would be sown the following year with Swede Turnips. Thus there would be rather more than 23 acres of root crop to sow every year, and the land for the principal root crop having been got ready the previous year would enable it to be sown as early as desirable. At any rate it is calculated that having 23 acres of land ready for sowing with roots and a good half of another 23 acres to sow with Rape, Cabbages, &c., there would be no difficulty in growing the quantity of food stated above.

Supposing the above food supply to be correct, we now come to the quantity of corn or cake it would be necessary to give an animal, so as to make him weigh 75 stones (of 8 lbs.), by the time he is 2 years old. This I would put as follows. Each beast is not to eat more than 6*l.* worth of purchased food during the two years.

		lbs.
2 months with cow.		
6 months 1 lb. meal per day	=	180
6 ,, 2 ,, ,,	=	360
6 ,, 3 ,, ,,	=	540
4 ,, 4 ,, ,,	=	480 = 1560 = 14 cwt. nearly.

I now use as a fattening mixture—

1 sack of Wheat weighing	240 lbs. at 16*s.* ..	..	£0 16 0
1 ,, of Indian Corn ..	240 ,, 16*s.* ..	..	0 16 0
1 ,, of Beans	240 ,, 20*s.* ..	..	1 0 0
3 ,, of Oats	420 ,, 10*s.* ..	..	1 10 0
	1140		£4 2 0

The above are present prices of grain, to which add the grinding, and it will cost in all about 8*l.* 10*s.* per ton, so that each animal, eating 14 cwt. in the two years, will cost as nearly 6*l.* as possible. The question is, will the above quantities of roots, hay, and grain, fatten an animal up to 75 stones in the two years so as to make him fit for the butcher?—if so, at present prices he would be worth 20*l.*, beef in this neighbourhood readily fetching 5*s.* 4*d.* per 8 lbs. The roots would be all pulped, mixed with the hay cut into chaff, and also with as much Oat-straw chaff as it was found the beasts would eat.

As it may not from the above appear very clearly as to how the green food and Turnip ground would be managed, I will just state it as shortly as I can.

We begin with the close of harvest, when there would be 46 acres of ground to be looked after for the food supply required; 23 acres of it would be Wheat stubble, which would be sown as follows:—3 acres with Rye (manured with farm dung), 4 acres of Trifolium, 5 acres of Tares, all to be put in as soon after harvest as possible; then 5 acres more Tares, sown about six weeks after, 3 acres of winter Tares, sown as soon after Christmas as practicable, and 3 acres of spring Tares, to be sown in April. This food should last the beasts from the time Turnips and Mangel were done up to the middle of August. As soon as the Rye and the Trifolium ground and a portion of the Tare ground was cleared, they would be sown with Rape, planted with Cabbages and white Turnips, to be used for food from the middle of August to the 1st of November as before stated; the remaining Tare ground would be ploughed and worked as cleared, and got clean and in as good state as possible for next year's Mangel crop, and the rest of the land that was sown with Rape, &c., would be for the next year's Swede crop. It is expected by thus managing the land intended for the principal root crop, a crop of roots may always be grown, as there would be scarcely any work to do in the spring beyond a scarifying and harrowing, &c., for the Mangel ground, and an additional ploughing for that intended for Swedes; the farm-yard manure would be carted on this root ground during frosty weather, ploughed in deeply and then left until time for sowing the respective crops; the land not being a Turnip soil upon which sheep can be fed in winter, could not be cultivated in the ordinary way, and so make as sure of a crop of roots as by the method above stated.

In addition to the stock to be kept as described, it will be possible to keep also from 60 to 80 sheep for a year, to be bought in as lambs, and allowed to run over the pastures, meadows, and stubbles, getting what they can in this way, and sold as lean or store sheep.

I will now state the returns expected to be derived from the above mode of management, giving the real rent and taxes paid. I do not enter at all into the question of the amount of capital required; it will be seen I have not charged anything for interest of capital, as I do not desire to go into that part of the question. I merely put down the expenses and returns, and the balance left after deducting the expenses must be charged by any one as they think fit. All I wish to elicit is—can the system proposed be carried out in the way stated, and, if so, are the returns put down in the way they should be?—I mean as to the amounts. It will be seen I have charged for 50 calves to be bought; this I have thought necessary, so as to allow a margin for deaths. I would explain also that the 100*l.* put

down for trade bills and artificial manures would be sufficient to pay also for all seed to be bought.

Cr.	£ s. d.	Dr.	£ s. d.
23 acres Wheat, 9 sacks per acre ..	200 0 0	Rent and taxes ..	300 0 0
23 acres Oats, 16 sacks per acre	184 0 0	Labour	300 0 0
11½ acres Beans, 5 sacks per acre	55 0 0	Trade bills and artificial manures ..	100 0 0
50 beasts, at 20*l.* ..	1000 0 0	Oats for 6 horses, 20 sacks each = 120 at 10*s.*	60 0 0
60 sheep, at 30*s.* ..	90 0 0	Corn for 50 beasts, at 6*l.* each	300 0 0
		50 calves at 40*s.* ..	100 0 0
		60 lambs, at 16*s.* ..	48 0 0
			1208 0 0
		Balance ..	321 0 0
	£1529 0 0		£1529 0 0

N.B. Wages in this neighbourhood are 14*s.* per week for carter, 13*s.* for under carter, 14*s.* for man looking after stock, and day labour is 2*s.* per day. The present number of men on farm now is five, and three boys are also employed. *Leisurely.*

Miscellaneous.

The Preparation of Animals for Show.—This was referred to by Mr. Hamond at a meeting of the Norfolk Agricultural Society in a very amusing way. He said:—Who were the great winners at the Royal Agricultural Society's meetings?—they were Lord Walsingham, Lord Berners, and other lords. From the newspapers one would fancy Lord Walsingham and Lord Berners passed the greater part of their time in pulling hairs out of their cows' tails, or clipping their sheep. The principle which had been very much repudiated in Norfolk, with regard to the exhibition of animals, was a very correct one. If he had to get up a young lady for a show, he should put as much bustle on her as she required. And so it was with sheep; the only difference being that as little "bustle" as possible was taken off them. Gentlemen should be left to bring up their animals as they pleased, and to look the best they could; for the tup-hirer was a fool who was deceived by a little millinery.

Food in Blood.—When we recollect that we take from 5 lb. to 35 lb. from a sheep or from an ox, and multiply that by the number of sheep and oxen killed in the course of a year, you will find that it amounts to something which is quite frightful to contemplate. Now, I have no hesitation in saying that the blood you take away is just as good as the blood you leave in, and that you would do much better to leave the blood in the animal. There are other ways of killing animals than bleeding them to death. These are unpleasant things to think of; but after all, we have no hesitation in eating the mutton and beef after, it is plain, and we ought to be able to give a reason for our extravagance. We do not take the blood away from hares and rabbits; they are brought to the table and eaten by the most fastidious. So also with birds, pheasants, and partridges: we do not bleed them; and I tell you more—if you did they would not be so pleasant to eat; they would lose some of their gamy flavour. Dr. Carson, of Liverpool, many years ago pointed out the great loss incurred in the present mode of killing animals, and suggested a mode of killing them by which a large portion of the blood was saved. Mr. Carson, son of the late Doctor, was kind enough to send me a quarter of a sheep which had been killed in this way; I invited a few friends to partake of it, and they one and all pronounced it delicious. Economically this is an important question, and it ought to be a consideration whether we are justified in throwing away so large a quantity of this nutritious albumen. *Dr. Lankester on Food.*

Calendar of Operations.

February.—*Bean Culture.*—The following, extracted from a former volume, describes the process as carried on in Galloway:—

We are now occupied with Bean sowing, which is performed in the following manner:—The land, which was trench-ploughed in autumn, from exposure to the weather now breaks down before the drill plough, without any other previous operation; six drill ploughs, following each other, go a 'bout' in the morning, making 12 drills; a drill barrow, which sows three drills, then enters, and at a 'bout' finishes six drills. By this time the six ploughs have again drawn six drills, and on returning up the field, they cover the first six drills, now sown. They then draw off six new drills, and again cover six on their return, the drill barrow going at the same rate, and sowing at a 'bout' six drills also. A space of 12 drills is left between the opening and covering, which gives plenty of room for the working of the barrow and the passing of the horses. The drills are 27 inches wide, and are made across the winter furrows. Part of the land was dunged on the stubble, but the part* which was not dunged is dressed with three cwt. of guano per acre, sown in the drills by hand, and covered in with the seed. Two and a-half bushels of Beans are sown per acre, and with this force we get over from 10 to 12 acres a day. An expeditious plan at this season is of the greatest consequence, in taking advantage of a favourable seed time for Beans.

Or, if well ploughed and manured in autumn and harrowed down now, the seed may be sown by drill in rows 2 feet apart.—Or the seed may be ploughed in, the Bean barrow following every third furrow—or it may be dibbled. Clays and stiff loam are the proper Bean soils. The following sorts may be named:—

(1) The Winter Bean, a small oblong kind—two bushels containing seed enough per acre—weighing very well, often 70 lb. per bushels, adapted for light soils, and hardy enough for autumn sowing. (2) The common Horse Bean, a good deal larger, needing two to three bushels or more as the seeding of an acre, and requiring to be sown in spring on stiff soils. (3) The common Tick Bean, much smaller, very prolific, two bushels containing seed enough per acre. (4) Heligoland Bean, a plump, round seed, adapted for good soils; not so large as the Horse Bean; two bushels or ten pecks containing seed enough for an acre. (5) Long Pod—a name for many different sorts, all of them much larger than those already named, requiring fertile land, in good order, for their efficient culture. (6) Mazagan, also as much of a garden Bean as the Long Pod, but yielding a valuable produce per acre in fields well cultivated and in good condition.

Barley.—On this crop we may quote the following particulars from Mr. Randal's paper, read in 1861 before the Winfrith Farmers' Club:—

The common, or Early English Barley is the one most commonly cultivated through the kingdom; and although from time to time many other varieties have been introduced, it still maintains its position. It is suitable for light lands where the practice of sheep-folding prevails, and also for a greater range of soils than many other varieties; it has the advantage of coming to maturity earlier, requiring only from 14 to 16 weeks to perfect its growth. The Chevalier Barley is a great favourite with the maltster, and on good Barley land answers the farmer's purpose very well; but it is not in every district that so many bushels per acre of it can be grown as of the coarser varieties. It must be sown rather earlier in the season, as it requires a longer time to ripen than some of the more common sorts. The Leghorn Barley is a good sort, very fairly productive, and a good malting Barley, and it is often worth several shillings per quarter more than the coarser Barleys. The Annat Barley is one obtaining now a very wide reputation; but has not attained the celebrity of the Chevalier for malting purposes. It is very productive on sandy loams. The Nottingham Barley makes a fine sample, but it is also considered coarse; it is generally of a good colour, and works well in the malthouse, and is sown rather largely in the north of England.

In the cultivation of Barley, one great object to be attained before sowing it is to have the land perfectly clean and dry; and when Barley follows the Turnip crop it is well immediately after the Turnips are fed off, either to put a scarifier across the field or to plough it very shallow, for by so doing we get the sheep-droppings more intimately mixed with the soil, and also prevent the dung being washed away by the rain, especially in the hilly districts. Shallow or thin ploughing for the Barley crop is considered beneficial to the growth of Clovers, which, like Wheat, thrive and stand the winter better on a firm subsoil. In most rotations of crops Barley follows the Turnip crop, and is succeeded by Clover. If the Turnip crop, to which a liberal amount of artificial manures has been given, is all fed off on the land, and the soil be further enriched by oil cake or corn given to the sheep, the land may be sometimes left in too high condition, and the Barley will grow too luxuriantly, and be laid, and the consequence is a very inferior sample of corn, and most likely the Clover plant killed. To remedy this, a certain proportion of the Turnips should be pulled and carted away for feeding elsewhere. Sufficient attention is not always paid to seed Barleys,—the temptation of the higher price often takes all the best grain of the farm to the market, and the farmer then contents himself with sowing the best tailing. The seed ought to be of the best quality, fully matured, quite free from injury, and true in its variety. In sowing it some use the Suffolk drill, others prefer the old-fashioned plan of sowing broadcast. The drill is to be preferred, as it not only deposits the seed at an uniform depth, but also puts it out of the way of the birds, and effects a considerable saving in the quantity of seed required. Very early in the season three bushels per acre, or even less, is quite sufficient; but, as the season advances, a small addition to the quantity is required.

Mr. Randal adds,—"The early-sown Barley is always the best. I think we ought, if possible, to get the greater part of it in in the month of March, the earlier in the month the better; even the last week in February, if our hill land will work free, I do not think too early to begin sowing."

The following further particulars are taken from *Morton's Farmers' Calendar*:—

Spring Wheats may be sown this month on any land adapted to them, either Clover lea which has not been ploughed in time for an earlier sowing, or land which has borne a green crop—either pulled and carried away or fed on the land by sheep. The Talavera Wheat is one of the best for sowing at this time, though almost any of the sorts usually sown in autumn will do very well. Later in the season the so-called April Wheat, a red-bearded sort, is alone fit for use as seed, and a description of it will accordingly be given hereafter.

Top dressings.—The present is the best time of the year for top-dressings of Wheat with half soluble manures, as guano, soot, rape cake, &c., and 2 or 3 cwt. of the first, 30 or 40 bushels of the second, and 4 or 5 cwt. of the third, are a sufficient dressing per acre. It ought to be harrowed in as soon as possible. The more soluble manures, as nitrate of soda and sulphate of ammonia, are better sown somewhat later in the season, when growth is more active, and will more rapidly make use of what is within its reach.

Vetches to come into use for feeding during July may be sown now, as much as are likely to be wanted in that month. Three bushels per acre on any manured land of a clayey soil are sown in rows eight inches or thereabouts apart, and will yield very valuable food for sheep and cattle, and be cleared away in time for a crop of good stubble Turnips.

Sainfoin, too, may be sown towards the end of the month, though it is more usually sown in March, when its cultivation is described.

Seed beds for Cabbages and Kohl Rabi should be sown this month for transplanting in May into the fields where they are to be grown. The seed beds should have been cleaned and manured and dug in autumn. Three or four ounces of seed should be sown on each square perch of the prepared nursery, raked in, and then a peck of soot sown over each. A Cabbage nursery cannot be too good, nor can too much care be taken to have strong plants, by afterwards thinning carefully. The Drumhead Cabbage is the best sort for sowing at this season. And either the green or the purple variety of the Kohl Rabi may be chosen, if it be desired to try this crop.

Potatos are sometimes planted as early as February, but next month is the more ordinary season of planting in the field culture of this crop. It is right to push early, to choose early sorts, and to plant them in early soils, in order to have reached maturity before the time when the Potato disease usually appears. If the land intended for them were not cleaned and manured and deeply ploughed before winter, it may be well to plough the land this month, provided the weather be dry enough; but for this, as well as for all other crops, ploughing should go on while the soil is at all wet. Of course the recommendations and memoranda given above relate to the usual not the present weather of the month.]

Wester Ross: *Feb.* 13.—All around the snow has fallen to an unusual depth, rendering some of the railway lines impassable for several days. In this neighbourhood we had only a slight covering, which continued but for a short time. With a frost so intense and long-continued as we have had, a good covering of snow would have been very desirable, for as it is, there is the probability of both Wheat and Turnips being considerably injured. On Saturday and yesterday we had a partial thaw, but last night frost set in again, and to-day all is firmly bound up. The weather has been very suitable for having the manure carted to the fields, but having had such a continuation of frost, this part of our labour is completed; all odds and ends of work failing to be performed at this season are got through with, and we are now quite prepared for a change of weather. The weather previous to the new year was so fine and open that a considerable extent of lea was ploughed for Oats, and the work generally was so well advanced that should a thaw set in soon, the spring work would be of easy accomplishment, only the frost having so deeply penetrated into the soil it will take several days' thaw ere the ploughs can start. There is now a large breadth of ground to plough for Barley, off which during the frost, the Turnips were eaten by sheep. Previous to the frost the Wheat braird was looking well everywhere, and the earlier sowings were becoming winter-proud, but clearly their pride has got a fall, scarcely a tinge of green now remains. The full effect of the frost cannot as yet be told. The Turnip crop appears to be the most satisfactory and profitable part of the produce of the farm last season. These sown in autumn to be eaten off by sheep fetched some £[illegible] per acre, and those since eaten by hoggs at 3*d.* per head per week, which is the current price, have done equally well. There is, somehow, a thrift and durability in them larger amount of eating in them than usual, arising perhaps from the dryness of the season, and from the fact that their principal time of growth was late in the season, when their progress was necessarily arrested. Because of the heavy fall of snow in the hills a large number of Dinmonts have been sent down to Turnips, so that between the loss caused by frost and the additional quantity required by the new-comers our Turnips bid fair to be eaten in very good time. There is now a good demand for Potatos, at 3*s.* per ton, which, small as the price is, we are glad to see, for last year there was no demand at any price. The price of grain still tends downwards, and the difficulties of agriculturists increase.

Notices to Correspondents.

Excessive Price of Condimental Foods: *Droitwich.* On this subject there is the entire agreement of all scientific men. Mr. Lawes gives the following account of one of the foods:—

	s.	d.
"1 cwt. Barley would cost ..	8	4
" Oats	9	2
" Beans	9	4
" Peas	9	6
" Lentils	10	0
" Oilcake	10	0
" Linseed	16	6
" Hay	4	9

"The manufactured foods thus cost, weight for weight,

* Guano and other artificial manures are of little use to Beans.

or five times as much as the most nutritive of the ordinary stock foods on our farms." He then gives the composition of one of these foods, as ascertained in his laboratory. The figures stand as follows:—

Water	12 86
Nitrogenous substance	15 51
Fatty matter	6.22
Starch, sugar, &c.	55.97
Woody fibre	5 50
Mineral matter	3 94
	100.00

"Independently of the slight colouring with turmeric, and flavouring with cumin, anise, or other of the stimulating and carminative seeds used in cattle medicine, which these foods frequently exhibit, the constituents as here stated could be supplied by a mixture of Barley-meal with some of the leguminous seeds enumerated, and oilcake or linseed. Such a mixture, according to the prices quoted, could be prepared for about one-fourth the price of the manufactured cattle food."

FARM YARD AND ARTIFICIAL MANURE: *J. L.* They were thus compared some time ago by Mr. Cubitt, of North Walsham, a trustworthy practical man:—"Where farm-yard manure was used, he had found the Turnips more full of growth than otherwise, and of better quality. There was no doubt that the farmers were humbugged by artificial manures to the extent of some tens of thousands annually; but for the last 14 years he had used home-made superphosphate with bones dissolved on his own premises, and under his own inspection, and having tried various other manures, he had come to the conclusion that, as an artificial manure, there was nothing equal to the home made superphosphate. He must, however, caution the farmers as to how they used it. He had known many farmers having good land say it was useless, and throwing money away, to use artificial manure; and the reason of this was, that too much farm-yard manure was used with it. He could grow as great a body of Swedes with the artificial manure and six or eight loads of farm-yard dung as he could with that quantity of artificial manure and three times the quantity of farm-yard dung. A very small quantity of farm-yard dung, with six bushels of dissolved bones, would grow a good body of Turnips."

FARM BUILDINGS: *M.* The answer to your question must be delayed for a week.

FRESH BLOOD AS MANURE: *A Devonshire Reader* says, "I use the drainings from a slaughter house fresh over my garden; it consists of one-third blood and two-thirds water. This mixture I have had poured over the soil for the last twelve-month weekly, about 300 gallons a week, but fail to perceive the result I had expected. Scarcely any effect is visible. My soil is the new red sandstone; the liquid has the effect of making the ground much stiffer. I am the more surprised at the non-appearance of results from this mixture, as the same quantity over stable manure is most apparent in its good effects when applied to crops in the winter season. Perceiving much attention paid to sewage, I thought you would be able to solve my difficulty. The blood is used fresh, *i. e.* once a week. I fear the ground does not let it ferment properly, or there is some hidden cause which I might remedy. [See next week's Leader.]

FOOD FOR MAN: *Correspondent.* According to the scientific authorities an adult labouring man must have five ounces of flesh-formers supplied daily to restore the waste of the organic parts of his body; it becomes a serious inquiry how he can get the things to yield it, and their comparative cost. Now, to yield this 5 oz. it takes as follows:—

	lbs.	oz.		s.	d.
Wheat flour	2	1	average cost ..	0	4½
Oatmeal	1	13	,, ..	0	4¼
Rice	4	13	,, ..	1	2
Peas (dry)	1	5	,, ..	0	2¾
Potatos, ...	20	13	,, ..	0	7

From these quotations we need not wonder that the labourer on Oatmeal porridge, and the poor on a diet of Peas-pudding or Peas-soup, should be more hale and hearty than the Potato feeder.

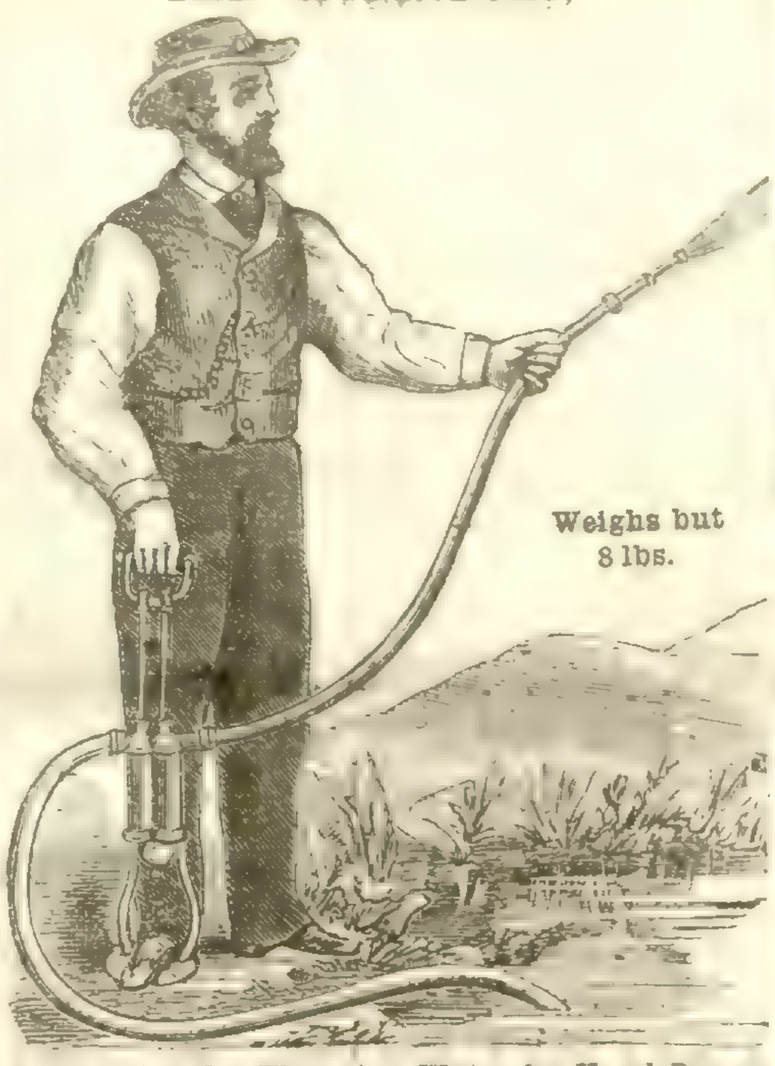
GRASSES: *Student.* The following is Professor Buckman's analysis of the native Grasses of Great Britain:—

Forty Genera.	Pasture.	Agrarian.	Wood.	Moor and Heath.	Water.	Sea-side.	No. of Species.
Anthoxanthum	1	..	..	..	..	..	1
Nardus	..	..	..	1	..	..	1
Alopecurus	1	1	..	2	2	..	6
Phleum	2	..	..	3	..	1	6
Ammophila	..	..	..	..	..	1	1
Lagurus	..	..	..	..	..	1	1
Phalaris	..	1	..	..	1	..	2
Gastridium	..	1	..	..	..	..	1
Polypogon	..	1	..	..	..	1	2
Mnium	..	..	1	..	..	..	1
Calamagrostis	..	..	3	..	..	1	4
Agrostis	2	1	..	2	..	1	6
Rottboellia	..	..	..	..	..	1	1
Spartina	..	..	..	1	..	..	1
Cynodon	..	1	..	..	..	..	1
Digitaria	..	1	..	..	..	..	1
Setaria	..	2	..	..	..	..	2
Panicum	..	1	..	..	..	..	1
Molinia	..	..	..	1	..	..	1
Melica	..	..	2	..	..	..	2
Catabrosa	..	..	..	..	1	..	1
Aira	2	..	1	3	..	1	7
Triodia	..	..	..	1	..	..	1
Holcus	1	..	..	1	..	..	2
Arrhenatherum	1	..	..	..	..	..	1
Hierochloe	..	..	..	1	..	..	1
Sesleria	..	..	..	1	..	..	1
Cynosurus	1	..	..	..	..	1	2
Arundo	..	..	..	..	1	..	1
Elymus	..	..	1	..	..	2	3
Hordeum	1	1	..	..	..	1	3
Triticum	..	1	1	..	..	3	5
Brachypodium	..	..	1	1	..	..	2
Lolium	2	1	..	..	..	..	3
Poa	2	4	1	2	2	4	15
Briza	..	..	..	2	..	..	2
Dactylis	1	..	..	..	..	..	1
Festuca	4	..	1	2	..	2	9
Bromus	1	7	2	..	..	..	100
Avena	2	2	..	3	..	..	7
Total	24	26	14	27	7	21	119

This table, then, amongst other facts, teaches us the highly interesting one that, in a country pre-eminently pastoral and in which pasture forms so large a portion of our soil, we have yet only 40 genera of the important natural order Gramineæ, and though these number as many as 119 species, only 24 are serviceable to the Grass-land farmer.

PIGS: *A B.* Mr Sidney's Book on the Pig tells all about it. You had better wait till Mr. Stearn reads his paper before the London Farmers' Club. He, too, has the whole story of practical management at his fingers' ends.

THE HYDROPULT,



An Invention for Throwing Water by Hand Power.

(SECURED BY ROYAL LETTERS PATENT).

PRICE LIST.

	£	s.	d.
COMPLETE WITH BRASS CYLINDERS AND JAPANNED STIRRUP	1	12	6
COMPLETE WITH BRASS CYLINDERS AND COPPER STIRRUP	2	2	0

The Price "Complete" as above, includes 2½ feet Suction and 3 feet Delivery Hose, Galvanised Wire Strainer, Rose and Small Jet.

THE HYDROPULT
is invaluable for use in the
GARDEN for
WATERING BEDS,
SPRINKLING PLANTS,
DROWNING OUT INSECTS,
CLEANSING TREES FROM SMUTS,
DRESSING WITH LIQUID MANURE,
&c. &c.

THE HYDROPULT
is desirable in every
HOUSEHOLD for
WASHING WINDOWS,
WETTING SIDEWALKS,
SPRINKLING STREETS,
WASHING CARRIAGES,
EMPTYING CISTERNS,
FILLING BARRELS,
A SPRAY BATH,
&c. &c.

ORDERED by the WAR DEPARTMENT as FIRE ENGINES.

ROBERT HOGG, LL.D. and F.L.S., Rev. H. H. DOMBRAIN, A.B., SHIRLEY HIBBERD, Esq., F.R.H.S., THOMAS RIVERS, Esq. (the eminent Florist), and other well-known gentlemen, recommend the HYDROPULT AS AN INVALUABLE GARDEN IMPLEMENT.

The Hydropult will draw water horizontally, if necessary, through Two Hundred Feet Suction Hose, and force it through Delivery Hose to an altitude of One Hundred Feet.

THE
GREENHOUSE AND CONSERVATORY HYDROPULT.
A NEW AND BEAUTIFUL IMPLEMENT,
Weighing scarcely 5 lbs.
AND SPECIALLY ADAPTED FOR USE IN THE GREENHOUSE AND CONSERVATORY.
Price 35s.,
Complete, with Brass Cylinders and Copper Stirrup, 2½ feet Suction and 3 feet Delivery Hose, Strainer, Rose, Jet, and Fan.

This NEW IMPLEMENT must necessarily supersede Syringes and other devices of the kind, for it will be found much more effective in its operation.

A LADY CAN WORK IT FOR HOURS WITHOUT FATIGUE.

CAUTION.

IMPORTANT TO THE PUBLIC.—The extensive sale of the Hydropult has excited the cupidity of so-called respectable, but in reality unprincipled Manufacturers, who are now palming on the Public worthless imitations of the Hydropult, and through their connections are enabled to place said devices on exhibition, and for sale, in many of the principal Ironmongery and Seed Establishments throughout the city and provinces. These devices resemble in many respects the Hydropult in appearance, and are calculated to deceive the unsuspecting. The Proprietor therefore issues this Caution, and respectfully intimates that parties wishing to purchase the Hydropult should examine the machine offered for sale, and see if it has attached thereto a label, with the following words:—"The Hydropult, VOSE'S Patent, manufactured only by GRIFFITHS & BROWITT, Birmingham. CHARLES POMEROY BUTTON, Proprietor, 142 and 143, Cheapside, London." Unless this label is attached, the Machine is not the Hydropult.

Prospectuses, with Testimonials, on application.

HYDROPULT SHOW ROOM, 142 & 143, CHEAPSIDE, LONDON.
CHARLES POMEROY BUTTON, PROPRIETOR.

£1000 UPON the WOOLSTON TACKLE against the NEWCASTLE "best application."
WILLIAM SMITH, Woolston, Bletchley Station.

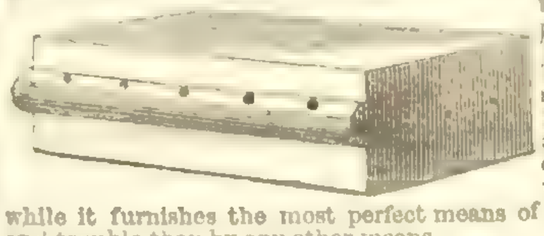
FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be seen at Work in every Agricultural County in England. For particulars apply to
JOHN FOWLER & Co., 28, Cornhill, London, E.C.; and Steam Plough Works, Leeds.

R. GARRETT AND SONS, Leiston Works, Suffolk, have ready for prompt delivery a large stock of their celebrated SUFFOLK CORN, SMALL OCCUPATION, and GENERAL PURPOSE DRILLS.
Also their improved CHAMBERS' PATENT BROADCAST MANURE DISTRIBUTOR.

AGRICULTURAL MACHINERY.—Chaff Cutters for hand or power. Threshing Machines, Carts, Waggons, Ploughs, Harrows, Turnip Cutters and Pulpers, and all kinds of Agricultural Implements; also the Prize Churn, Wire Netting, &c. Delivered carriage free. Price Lists on application.
BURGESS & KEY, 95, Newgate Street, E.C.; Works, Brentwood, Essex.

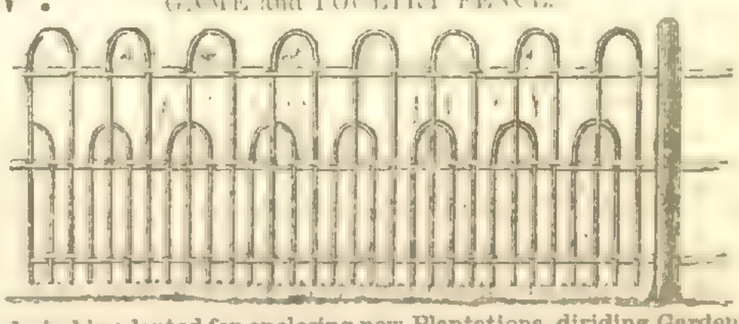
CLAYTON, SHUTTLEWORTH, AND CO., ENGINEERS, Manufacturers of PORTABLE and FIXED STEAM ENGINES, Machinery for Pumping, Hoisting, Grinding, Sawing, &c., Engines for Steam Cultivation, Self Moving Engines for Common Roads and Agricultural Purposes generally.
Stamp End Works, Lincoln, and 78, Lombard Street, London; also at LOWENGASSE, No. 44, Landstrasse, Vienna; and Gegenüber dem Bahnhof, Pesth.
Descriptive, Illustrated, and Priced Catalogues, Free per Post.
Special Drawings when required.
[*The best Steam Threshing Machinery made.*]

By Royal Letters Patent.
FOXLEY'S CORRUGATED or BEADED BRICKS for GARDEN WALLS.—The most complete remedy against all the evils attending the present system of Training Wall Fruit Trees, &c.; no Nailing required, or Trellis. The plan is very simple and most effective, entirely doing away with all complication, while it furnishes the most perfect means of Training at less cost and trouble than by any other means.



J. FOXLEY, Patentee, Stoney Stratford, Bucks.
London Agents: Messrs. F. & G. ROSHER, Old Jamaica Wharf, Upper Ground Street, Blackfriars, S.

W. S. UNDERHILL'S Patent WROUGHT IRON GAME and POULTRY FENCE.



Admirably adapted for enclosing new Plantations, dividing Gardens, &c. It effectually prevents trespass, and is low in price (varying from 6d. to 1s. 6d. per yard and upwards), neat in appearance, strong and durable.
Manufactory, St. Mary's Works, Newport, Salop. London Agent, Mr. R. WINDER, 18, Abingdon Street, Westminster, S.W., where Samples may be seen.

Farm, Park, and Garden.
GALVANISED CABLE STRAND FENCING.

CONTINUOUS IRON FENCING, PALISADING.
HURDLES, HURDLES, HURDLES.
ENTRANCE GATES, FIELD and HAND GATES.
LIGHTNING CONDUCTORS supplied or fixed complete.
GARDEN SEATS, GARDEN ROLLERS, and LAWN MOWERS.
WATER CISTERNS, WIRE NETTING.
JOHN GLODES, late H. J. MORTON & Co.,
12, Great George Street, opposite Town Hall, Leeds.
Illustrated Books and Catalogues on application.

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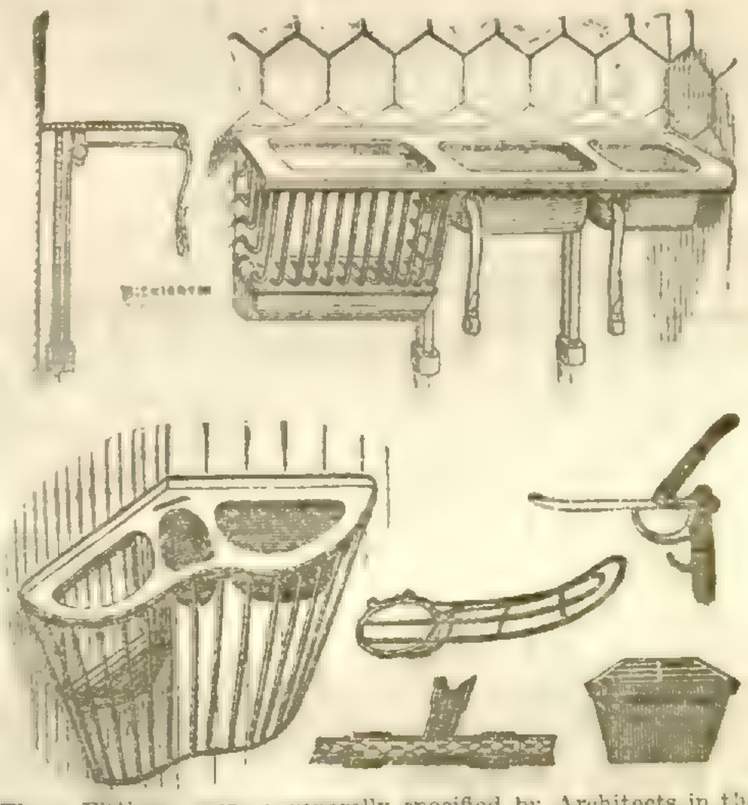
HARNESS BRACKETS.



These Fittings, now so generally specified by Architects in their specifications, may be seen at the Manufactory, 2, Winsley Street, Oxford Street, W., where a large supply is always on hand and regular sizes kept in stock, and where full-size Stalls and loose Boxes (variously arranged, with a view to the economy of space) can be examined.
COTTAM & COMPANY, Manufacturers and Patentees, hold the Prizes of 1851, 1855 (Paris) and 1862, for these Fittings.
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Oil Paint no longer necessary
HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.
Sold in casks of about 30 gallons each, at 1s. 6d. per gallon, at the Manufactory, or 1s. 8d. per gallon paid to any Station in the kingdom.
Apply to HILL & SMITH, Brierley Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C., from whom only it can be obtained.

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ALEXANDER BLAKE, Britannia Road, Fulham, S.W.—PARKS, GARDENS, and PLEASURE GROUNDS LAID OUT in the most effective manner. Improvements suggested and accomplished. Ferneries arranged. Plans and Estimates on application. Terms moderate.

Heating by Hot Water.

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HOT WATER PIPES, from Stock, per yard:—2-inch, 1s. 4d.; 3-inch, 2s.; and 4-inch, 2s. 7d. BENDS, from Stock 1s. 7d., 2s. 6d., and 3s. 3d. each. THROTTLE VALVES, 10s. 6d., 13s. 6d., and 15s. each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day. A discount to the Trade.

SHAW'S PATENT FLEXIBLE SELF-ADJUSTING LAWN MOWING MACHINES.

Full Particulars, Drawings, and Prices, post free on application to the Patentee and Manufacturer.
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SAYNOR AND COOKE'S WARRANTED PRUNING and BUDDING KNIVES, see that you have them. Observe the mark SAYNOR, also the corporate mark and WARRANTED, without which none are genuine.

S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of great quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not their make, all of which are warranted both by sellers and makers.

S. & C.'s Pruning and Budding Knives are the best and the cheapest in the market.

Paxton Works, Sheffield. Established upwards of 125 years.

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HAND GLASSES.

PRESERVE JARS.

REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.

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See Advertisement the first week in the month, or on application.

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LAWN MOWING AND ROLLING MACHINES.

EVERY MACHINE WARRANTED.

PRICES of MANUAL POWER MACHINES.

To Cut 12 inches, suitable for a Lady	£4 10 0
To Cut 16 inches, suitable for One Boy	6 0 0
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PRICES of PONY POWER MACHINES.

To Cut 25 inches	£11 10 0
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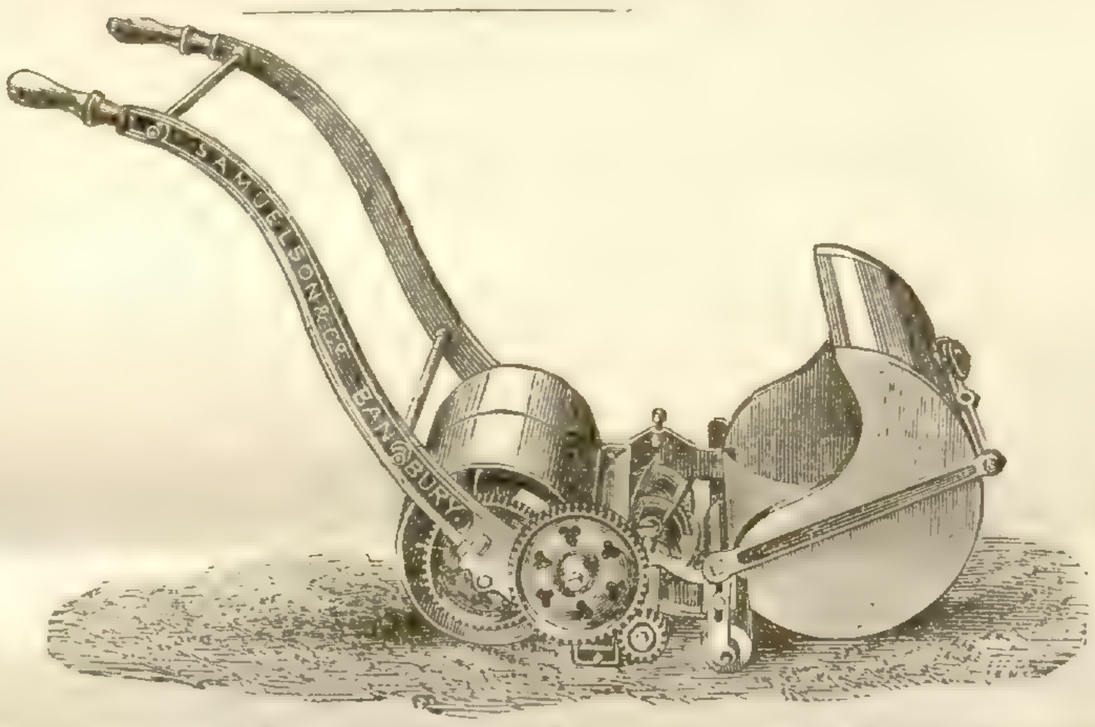
These Prices include Free Delivery to any Railway Station in Great Britain.



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ARE IN DAILY USE

AT THE

ROYAL GARDENS,

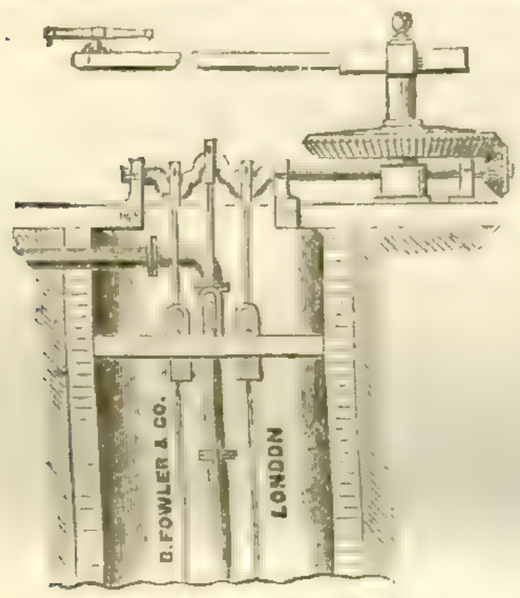
CRYSTAL PALACE GARDENS, &c.

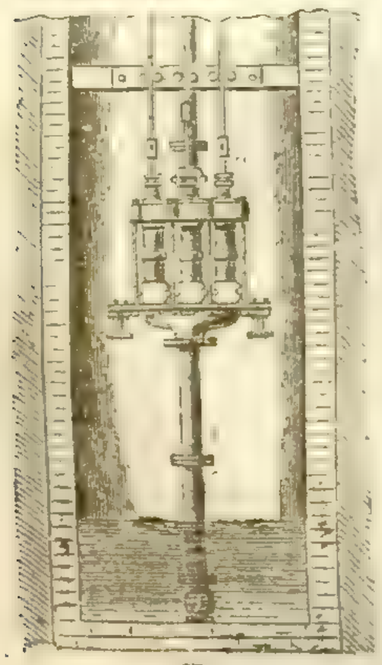
In again submitting these MACHINES to the notice of purchasers, Messrs. SAMUELSON & Co. wish to state that they do not make annual changes in the principle of their LAWN MOWERS. Experience has fully proved that the general design on which their MACHINES have been built for many years past is the best, and their attention has been given therefore rather to substantial improvements in manufacture, reduction of the draught, and increase of durability by the use of malleable iron in place of other metal, than to the production of ephemeral novelties. Their LAWN MOWERS are superior to all others for lightness of draught, elegance, and efficiency under all circumstances of ground and weather, being self-cleaning, and not liable to derangement in the gearing.

Illustrated Price Lists, with Selections from several thousand Testimonials, free by post on application.

SAMUELSON AND CO., BRITANNIA WORKS, BANBURY.

LONDON OFFICES: 18, CANNON STREET, E.C. AND OF ALL SEEDSMEN AND IRONMONGERS.





37.

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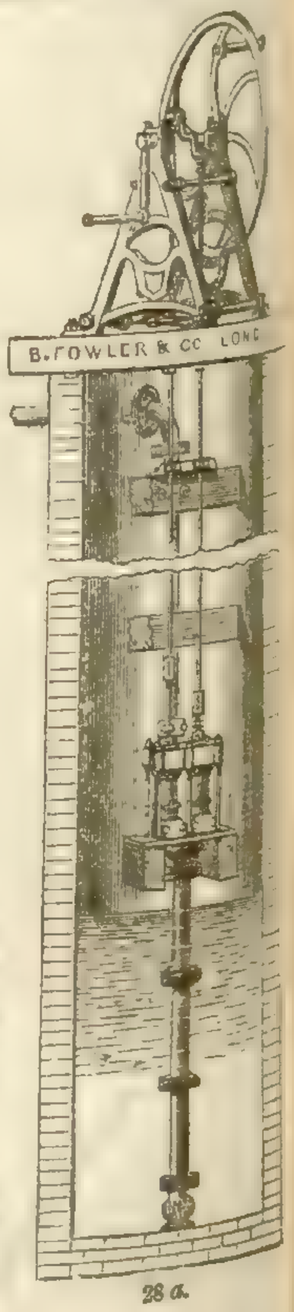
(LATE BENJAMIN FOWLER & CO.)

MANUFACTURERS OF

PUMPS AND HYDRAULIC MACHINERY,

WHITEFRIARS STREET, FLEET STREET, LONDON, E.C.



28 a.

THE LANDSCAPE SKETCH shows an adaptation of THE IMPROVED HYDRAULIC RAM. This is a simple Self-acting Machine, suited for raising a Supply of Water for use in Public and Private Establishments. Its adoption is not confined to positions as shown, but it is suited for any situation where a Fall can be obtained from a Stream, Brook, or Spring.

Messrs. FOWLER have fixed a great many in various parts of the country for raising from 600 to 6000 or more Gallons per day to elevations varying from 30 to 300 feet, and forcing through main pipes 50 yards to several miles in length.

No. 37. IMPROVED TREBLE BARREL PUMPS with HORSE GEARING for Raising Water from DEEP WELLS for the supply of MANSIONS and PUBLIC BUILDINGS.

No. 28a. DOUBLE BARREL PUMPS for HAND-POWER for similar purposes.

Messrs. FOWLER & Co. Manufacture and Erect every description of Engineer's Work required in Public or Private Establishments, such as Pumps for any purpose on the largest or smallest scale, Steam Engines, Water Wheels, Turbines, Warming and Drying Appraatus, Baths, Gas Works and Fittings. Estimates furnished from Plans or on inspection of position.

Price Lists of Pumps, &c. free on application.

TO MARKET GARDENERS and OTHERS.—The best Four Sorts of PEAS in cultivation are—

VEITCH'S PERFECTION	ADVANCER
KING of the MARROWS	PRINCESS ROYAL

Purchasers of large quantities will be liberally treated on application, stating quantity required, to

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

THE DIXON'S YORKSHIRE HERO PEA. Height, 2½ feet; a most abundant bearer and very branching.

The true variety may be had in London of Messrs. HURST & SON, 6, Leadenhall Street, E.C.; Messrs. COOPER & BOLTON, 152, Fleet Street, E.C.

E. P. DIXON & SON, The Yorkshire Seed Establishment, Hull.

To Seed Merchants and Others.

TO BE SOLD, SANGSTER'S No. 1 PEAS, GREEN, ROUND, PURPLE-TOP, SCOTCH, YELLOW TANKARD, ALTRINGHAM, YELLOW and GREEN-TOP SCOTCH TURNIPS, WHITE POST and WHITE GLOBE ONION SEED.

The above all New Seed, and the stocks guaranteed.

Apply to Mr. W. COOPER, Seed Grower, Fendrayton, St. Ives, Hunts.

Waite's Caractacus Pea.

WAITE, BURNELL, AND CO. beg to inform the Trade that they cannot send out any more of the above this season, but hope next year to be provided with sufficient stock to meet the demand anticipated.

Seed Warehouse: 181, High Holborn, London, W.C.

THE ESSEX RIVAL PEA.—The finest, most productive, and best flavoured Early Pea in cultivation. See large Advertisement of Testimonials, December 31, 1864: also see Advertisement and Testimonials of January 7 and 28, 1865, in *Gardeners' Chronicle*. Price 2s. 6d. per quart.

The Trade liberally dealt with. Terms on application.

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Messrs. Cooper & Bolton, 152, Fleet Street, London.
Messrs. Fraser, Richardson, & Goad, 82, Bishopsgate Within, London.
Messrs. Nutting & Sons, 60, Barbican, London.
Mr. G. W. Dixon, 187, Moorgate Street, London.
Messrs. Sutton & Sons, Reading, Berkshire.
Messrs. Saltmarsh & Son, Moulsham Nursery, Chelmsford, Essex.
Messrs. Roberts & Son, Denbigh.
Messrs. Lowe & Co., High Green, Wolverhampton.
Mr. Robert Emson, Secretary to the Essex Agricultural Association.
Mr. B. Mackenzie, Ventnor, Isle of Wight.
Mr. B. R. Cant, St. John's Street, Colchester.
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Mr. J. F. Chater, Braintree, Essex.
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Mr. THOMAS ELEY, Sible Hedingham, Halstead, Proprietor.

THE EARLIEST PEA KNOWN is CARPENTER'S EXPRESS, gathered May 7. See Testimonials. Price 3s. 6d. per quart. Trade price upon application. A remittance from unknown Correspondents is requested.

CARPENTER'S MAGNUM BONUM.—The Largest and Best Tall Pea grown. 5s. per quart.

CARPENTER'S MULTUM IN PARVO.—The Best Dwarf Pea grown. 5s. per quart.

CARPENTER'S MONSTROUS WHITE COS LETTUCE,
CARPENTER'S MONSTROUS GREEN COS LETTUCE,
CARPENTER'S MONSTROUS BROWN COS LETTUCE,
1s., 2s. 6d., and 5s. per packet, are the three best LETTUCES in cultivation.

CATALOGUES on application to EDWARD CARPENTER, Seed Merchant and Grower, Brighton, Sussex. Seed Warehouse, 96, St. James's Street, Brighton.

CHOICE SEEDS.

PEA, DILLISTONE'S EARLY PROLIFIC, the earliest kind known, 1s. per quart
" ADVANCER (McLEAN'S), 1s. 6d. per quart
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" YORKSHIRE HERO (DIXON'S), 5s. per quart
" PAYNE'S CONQUEROR, 1s. per quart
BEET, NUTTING'S SUPERB RED, 8d. per oz.
" PINE-APPLE SHORT TOP, 8d. per oz.
BROCCOLI, SNOW'S WINTER WHITE, True, 1s. per packet.
" WHITE CORNISH, 6d. per packet
" DALMENY, 1s. per packet
CABBAGE, LITTLE PIXIE, 6d. per packet
" KEMP'S INCOMPARABLE, 6d. per packet
" McEWEN'S MARROW, 6d. per packet
CAULIFLOWER, FROGMORE PROTECTING, 1s. per packet
" EARLY DWARF ERFURT, 1s. per packet
CELERY, WHITE QUEEN, 1s. per packet.
" MANCHESTER CHAMPION RED, 6d. per packet.
" IVERY'S NONSUCH, 6d. per packet.
CUCUMBER, SMITH'S FINE LONG FRAME, 1s. per packet.
" PEARSON'S LONG GUN, 1s. per packet.
" HARWOOD'S WHITE SPINE, 1s. per packet
LETTUCE, TOM THUMB (WHEELER'S), 1s. per packet
" IVERY'S NONSUCH, 1s. per packet
" PARIS WHITE COS, 6d. per packet
" NEAPOLITAN, 6d. per packet
MELON, EMPRESS EUGENIE, 1s. per packet
PARSNIP, THE STUDENT, 6d. per packet
TURNIP, CHIRK CASTLE BLACK STONE, 4d. per oz.
" AMERICAN STRAP-LEAVED, 4d. per oz.
POTATO, RIVERS' ROYAL ASHLEAF, per peck, 3s.
ASTER, TRUFFAUT'S SUPERB FRENCH, 18 varieties, mixed, 1s. per packet
STOCK, improved large flowering, 18 varieties, mixed, 1s. per packet

Orders of 21s. and upwards carriage free. Those kinds priced per packet free by post.

DESCRIPTIVE PRICED LIST on application.

RICHARD SMITH, Seed Merchant, Worcester.

A FEW REALLY GOOD THINGS.

DIXON'S BEST EARLY PEA, 3s. 6d. per quart.
DIXON'S YORKSHIRE HERO, 5s. per quart.
DIXON'S CHAMPION GREEN COS LETTUCE, 6d. & 1s. per pckt.
DIXON'S SELECT DARK CRIMSON BEET, 1s. per oz.
DIXON'S NEW MAMMOTH WHITE CELERY, 1s. per packet.
MELVILLE'S VARIEGATED KALE, 6d. per packet.
BROWN'S INCOMPARABLE BROCCOLI, 2s. 6d. per packet.
The LENORMAND CAULIFLOWER, 1s. per packet.
The FROGMORE EARLY FORCING CAULIFLOWER, 1s. per pkt.
DALGLISH'S PRIZE CUCUMBER, 2s. 6d. per packet.
The YORKSHIRE HERO CUCUMBER, 2s. per packet.
DIXON'S YORKSHIRE FAVOURITE MELON, 1s. per packet.
DIXON'S EXQUISITE CURLED PARSLEY, 6d. per oz.

EDMUND PHILIP DIXON & SON, The Yorkshire Seed Establishment, Hull

---

Early Sheep Feed.

SUTTON'S IMPROVED ITALIAN RYE-GRASS.—At a Meeting of the Royal Agricultural Society on the 16th March, in a Lecture delivered by Alfred Hughes, Esq., of Thorness, Isle of Wight, as reported in the *Bell's Messenger* and *Mark Lane Express*. Mr. Hughes said:—

"I always reserve a portion of Oat land to lay down with Sutton's Improved Italian Rye-grass, the most reliable plant I have come across for some years for ewes and lambs in the spring. When I tell you that I put it in the spring, and dressed it after harvest with guano, and that in the autumn, when my sheep fed it off, it was up to their knees, and that I fed it off again this spring with ewes and lambs, I think you will agree that this is a crop of very great value. The Italian Rye-grass which is sold by Sutton, of Reading, is a most astonishing vigorous plant; indeed, I never saw anything to equal it in the course of all my experience."

Mr. W. Cardwell, of Nunnery Farm, near Sheffield, in a letter to Messrs. Sutton, dated April 9th, 1863, says:—

"The Italian Rye-grass grown from seed purchased from you, and sown in August, is now 16 inches high, and is much admired."

SUTTON & SONS have a fine Stock at present of their IMPROVED ITALIAN RYE-GRASS, which is a very different and superior article to much that is sold as Italian Rye-grass.

Present price, 7s. per bushel; cheaper in quantities over 5 qrs. Carriage free in quantities of 8 bushels and upwards.

Quantity required per acre, if sown alone, 3 bushels.

Royal Berkshire Seed Establishment, Reading

To the Trade.

MYATT'S EARLY PROLIFIC ASH-LEAF KIDNEY, 120s. per ton; FORTYFOLDS, 90s. per ton; DALMAHOYS, 90s. per ton; FLUKES, 90s. per ton: YELLOW GLOBE MANGEL, 35s. per cwt.

Remittances to accompany orders from unknown correspondents.

A RETAIL DESCRIPTIVE CATALOGUE free on application, of Garden and Flower Seeds, containing German Asters, Stocks, Larkspurs, &c., genuine as imported.

CHRISTMAS QUINCEY, Seedsman, &c., Peterborough.

New Early Potato—Rintoul's Early Don.

DOWNIE, LAIRD, AND LAING are now sending out the above variety, introduced by Charles Rintoul, Esq., East Craigie, Cramond, near Edinburgh, the well known Potato cultivator, and grown by him very extensively for some years. It is a seedling from the old "Don," considerably earlier than Daintree's Seedling, is a handsome-shaped round white variety, slightly streaked with red, and is an immense bearer, producing from 80 to 90 bolls per acre. It partakes of the quality of the old Don, being very mealy and fine flavoured. For Field or Garden purposes this sort will be found a valuable acquisition, and can be highly recommended. Price 4s. per peck of 14 lb.

17, South Frederick Street, Edinburgh; and Stanstead Park, Forest Hill, London, S.E.

A Boon to the World.

PRINCE of WALES' KIDNEY POTATO.—A new Seedling, remarkably handsome, fine eating, and the most prolific in the world. Testimonials:—

From Professor LINDLEY (Editor of the *Gardeners' Chronicle*).

"I have this morning had the Seedling Potatos examined. The crop is very extraordinary, and the Potatos themselves are very handsome, and quite ripe."

From SHIRLEY HIBBERD, Esq. (Editor of the *Gardeners' Weekly Magazine*.)

"The Seedling Potato (Prince of Wales), I have found to be wonderfully productive, excellent flavour, handsome, and such a one as the world ought to have the benefit of."

To be had of Messrs. BARR & SUGDEN, King Street, Covent Garden W.C.; DOWNIE, LAIRD & Co., Forest Hill, S.E.; JAMES CARTER & Co., 237, High Holborn, W.C.; SUTTON & SONS, Reading.

Price 12s. per bushel.

N.B. They may be planted up to the end of May.

Great Agricultural Competition at Paris.

PREMIUM GOLD MEDAL FOR SEEDS AWARDED TO R. T. MACKINTOSH, EDINBURGH; ALSO THE HIGHLAND AND AGRICULTURAL SOCIETY'S SILVER MEDAL.

ROBERT T. MACKINTOSH, SEEDSMAN and NURSERYMAN, 12, Melbourne Place, George IV. Bridge, Edinburgh, begs respectfully to intimate that his PRICED LISTS of GARDEN, FLOWER, FARM, and NATURAL GRASS SEEDS are now ready, and may be had post free on application.

R. T. M.'s stock of TURNIP and GRASS SEEDS is this season particularly fine; he continues to devote strict attention to cleaning and sending out none but the finest and purest description of Seeds, for which he has been awarded the highest Premiums by the principal Agricultural Societies, both at home and abroad.

R. T. M.'s stock of the celebrated EVERGREEN PERENNIAL RYEGRASS SEED for PASTURE being limited, early orders to secure a supply of the same will oblige.

All orders above £5 delivered Carriage Free at all the Railway Stations throughout the Kingdom.

W. TOOGOOD, THE QUEEN'S SEEDSMAN, Southampton, has a few cwt. of his IMPERIAL ORANGE GLOBE PRIZE MANGEL to offer to the Trade, and the same of SUTTON'S SELECTED YELLOW GLOBE.

In consequence of the great demand for the OSBORNE YELLOW GLOBE, the Stock of which was presented to him by S. Toward, Esq., her Majesty's Steward, early orders only will secure a supply.

His AGRICULTURAL SEED CATALOGUE is in the press, and can shortly be had gratis.

SUTTON'S SELECTED YELLOW GLOBE MANGEL.

SUTTON'S PRIZE MANGEL WURZEL SEED

Is now ready for sending out.

LARGE YELLOW GLOBE,
ORANGE GLOBE,
RED GLOBE,
LONG RED,
LONG YELLOW

NEW SORTS of MANGEL WURZEL.

NEW YELLOW INTERMEDIATE, very fine shape, free from roots.

NEW RED INTERMEDIATE, similar in shape and habit.

ENGLEFIELD YELLOW GLOBE, a heavy cropper.

SUTTON'S ELVETHAM LONG RED, of superior feeding quality.

SUTTON'S SELECTED YELLOW GLOBE, large and fine.

FISHER HOBBS' ORANGE GLOBE, a fine sort, already very popular.

ORANGE or YELLOW, oval shape.

For Prices see SUTTON'S NEW FARM SEED LIST, which may be had gratis on application.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

REIGATE SILVER SAND (best quality for Plants, &c.), 7s. 6d. per Ton, 28s. per 4 Tons, 39s. per 6 Tons, 48s. per 8 Tons, 5s. per Ton for 20 Tons and upwards, delivered to the Reigate Station. Best Kent and Surrey PEATS, LOAMS, ROCK SANDSTONE, &c.

N.B. Loaded trucks can be sent direct on all the Railways.

London-made FLOWER POTS, in every size, at the lowest cash prices. W. SHORT, Sand and Peat Depôt, Reigate, Surrey.

COCOA-NUT REFUSE delivered within 2½ mile of Charing Cross, at 2s. per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped, J. BARSHAM'S Patent.

ODAMS'S BLOOD MANURE for CORN,
ODAMS'S BLOOD MANURE for ROOTS,
ODAMS'S SUPERPHOSPHATE of LIME.

MANUFACTURED BY

THE PATENT NITRO-PHOSPHATE or BLOOD MANURE COMPANY (LIMITED),

Consisting of Tenant Farmers occupying upwards of 30,000 Acres of Land.

Chairman.—JOHN CLAYDEN, Littlebury, Essex.
Managing Director.—JAMES ODAMS.

Particulars of these standard Manures may be obtained at the Offices, or of the Local Agents.

C. T. MACADAM, Secretary.

Chief Office: 109, Fenchurch Street, London, E.C.
Western Counties Branch: Queen Street, Exeter.

Manufactories: Plaistow, Essex; and Elford, near Topsham, Devonshire.

LAWES'S MANURES.—The Manures manufactured by J. B. LAWES for the present season of 1865 are now ready for delivery at his Factories, at the following prices:—

LAWES'S PATENT TURNIP MANURE, and BONE SUPERPHOSPHATE of LIME, £6 6s. per ton.
LAWES'S SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES, £5 5s. per ton.
LAWES'S WHEAT, BARLEY, GRASS, and MANGEL MANURES, £8 per ton.
CONCENTRATED CORN and GRASS MANURE, £12 per ton.

These Manures can be obtained of Mr. LAWES, or through his appointed Agents, in all parts of the United Kingdom, at prices varying according to cost of carriage.

Genuine PERUVIAN GUANO direct from the Importers.

NITRATE of SODA, SULPHATE of AMMONIA, and other Chemical Manures. AMERICAN and other CAKES at market prices.

Address JOHN BENNET LAWES, 1, Adelaide Place, London Bridge, E.C.; and 22, Eden Quay, Dublin.

THE LONDON MANURE COMPANY have now ready in fine condition—

DISSOLVED BONES,
SUPERPHOSPHATES of LIME,
TURNIP MANURE,
BLOOD MANURE for Barley and Roots,
URATE,
MANGEL MANURE, &c. &c.

They also continue to supply GIBBS' PERUVIAN GUANO NITRATE of SODA, SULPHATE of AMMONIA, FISHERY SALT, and all FERTILISERS of known value.

Works, Plough Wharf, Isle of Dogs.

Offices, 116, Fenchurch Street, E.C. E. PURSER, Secretary.

KENSINGTON'S CONCENTRATED HORTICULTURAL MANURE.—Adapted for the growth of all kinds of Fruit, Flowers, and Vegetables, and can be used either in a liquid or dry state.

In casks 28 lbs. each, 5s.; In casks 56 lbs. each, 10s. Free to rail.

Moolham Chemical Works, Ilminster.

Manures and Feeding Stuffs.

RAYNBIRD, CALDECOTT, AND BAWTREE.

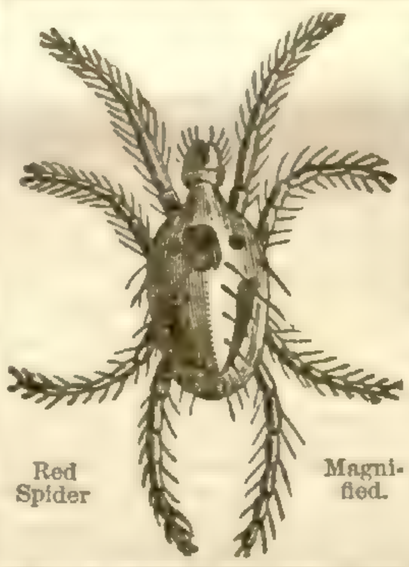
Address, 89, Seed Market, Mark Lane; or Basingstoke.

Samples and prices on application.

ROLL TOBACCO CLOTH. The cheapest and best article for Smoking Greenhouses and Destroying the Fly. Price 1s. 4d. per lb.; over 10 lbs. 1s. 1d.

JOSEPH BAKER, 10, Gough Square, Fleet Street, E.C.

Post-office Orders payable at Fleet Street.



Red Spider — Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes, 1s., 3s., and 10s. 6d. each.

Wholesale by

PRICE'S PATENT CANDLE COMPANY (LIMITED).

TOOGOOD'S (late PAGE & TOOGOOD'S) IMPROVED BLIGHT COMPOSITION introduced in 1850, has been manufactured under W. TOOGOOD'S sole directions since that period. He has made great improvements in it, and by reducing the price 25 per cent., it is one of the cheapest and has always been the most efficacious remedy extant. To publish the Testimonials no newspaper would give space, but Messrs. CUTBUSH & SON, the eminent Nurserymen, say:—"It is the best thing for the purpose we can find, and does not appear to injure the young foliage like Gishurst does. This is our experience after 10 years' trial."

"February 24, 1864."

Mr. E. SAGE, *Gardener to* Lord HOWE, *says*:—

"Will you please send us 15 gallons of your Blight Composition. I see you have reduced the price, and trust that you may some day be able to make another reduction, and I feel assured that no 'Gishurst,' will be used by practical men."

"We hereby Certify that during the whole time we were Warehousemen in the Establishment of B. PAGE & Co., and subsequently PAGE & TOOGOOD, that we Manufactured the Blight Composition under Mr. TOOGOOD'S *sole directions, and that he alone knew the proportions of the various ingredients.*

Signed JOHN MORLEY,
HENRY DREW,
HENRY SHEERMAN,
GEORGE ISAACS."

"July 13, 1863."

Extra strong, 3s. per gallon (sufficient to make 4 gallons fit for use), 10 gallons and upwards carriage free to London.

May be obtained of the principal Nurserymen and Seedsmen in the Trade, and of W. TOOGOOD, Royal South Hants Seed Establishment, Southampton.

BENJAMIN LAMB, 243, Tottenham Court Road, London, W., MANUFACTURER of RUSTIC HORTICULTURAL GOODS—Rustic Fern Stands, Flower Vases, Ornamental Flower Pots, Mignonette Boxes, Stag's-head Brackets, Oak do., Suspending Pots, Crocus do., Glass Shades and Stands. Prices on application.

Caution to Gardeners.—When you ask for

SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the corporate mark OBTAIN WARRANTED, without which none are genuine.

S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by sellers and makers.

S. & C.'s Pruning and Budding Knives are the best and the cheapest in the market.

Paxton Works, Sheffield. Established upwards of 125 years.

Magnificent well ripened Vines from Eyes,

At Low Prices.

GEO. CLARKE has a large Stock of very superior short-jointed VINES in pots, consisting of the leading kinds, well adapted for forcing in pots this year, or for planting out to make permanent Vineries. Names and prices furnished on application. Nursery, Streatham Place, Brixton Hill, S.

Vine Duchess of Buccleuch.

New Seed and Plant Catalogues, &c.

ROBERT PARKER has much pleasure in offering this distinct and valuable early GRAPE, which will supply the long-felt desideratum of a White Grape with Muscat flavour that may be grown and ripened with the Black Hamburgh. Strong Planting Canes, 21s. each; extra strong Fruiting Canes, 42s. each.

The following Certificates and Prizes have been awarded at various London and other Exhibitions.

Two Certificates of Merit.

Three First-class Certificates.

Two First Prizes in open competition for the finest flavoured Grape of any colour. Chasselas Musqué, Muscat of Alexandria, and Frontignan competed for these prizes. For further description see Hogg's *Gardeners' Fruit Book for* 1865, page 32, and *Gardeners' Chronicle* of October 1st and 22d, 1864, pages 943 and 1008.

Also New SEED CATALOGUE, containing Select Priced and Descriptive Lists of the best varieties of Vegetable, Flower, and Agricultural Seeds; and New GENERAL PLANT CATALOGUE, containing Priced and Descriptive Lists of Miscellaneous, Greenhouse, Hardy, and Stove Plants, Azaleas, Camellias, Conifers, Ferns, Fruit Trees, Grapes, Rhododendrons, Roses, Dutch and other Bulbs, &c., which will be forwarded free on application.

Exotic Nursery, Tooting, Surrey, S.

Vines, Vines. Strong Fruiting Vines.

LUCOMBE, PINCE, AND CO. offer the above for Sale, with extra large well ripened Canes, and prominent Fruit-bearing eyes, in good sized pots, certain to bear a good crop of fruit this season, at 10s. 6d. each.

They also have a very large stock of VINES, fit for immediate planting out in Vineries, of a superior quality. In Pots from 48. 6d., 5s., to 7s. 6d. each.

A LIST of sorts will be sent on application to them.

Exeter Nursery, Exeter.

Slater's New Hardy Prolific Melon.

J. SLATER AND SONS have great pleasure in offering the above MELON as being of a very superior quality, a very free setter, and an abundant bearer—each fruit weighing from 3 to 3½ lbs. Slightly netted, shape oval; flesh, pale green; thick and juicy. Price 1s. per packet, post free.

J. Slater & Son, Seedsmen &c., Malton, Yorkshire.

London Agents:

Messrs. Hurst & Son, Seedsmen, 6, Leadenhall Street, E.C.

To the Trade.

DWARF-TRAINED CHERRIES (very fine) of the following kinds, MAY DUKE, BLACK EAGLE, DOWNTON, ELTON, BLACK HEART, OX HEART, BEDFORDSHIRE PROLIFIC, WATERLOO, and WHITE HEART. Also horizontal-trained MAY DUKE and MORELLO. Trees very moderate, to be had on application.

Richard Smith, Nurseries, Worcester.

1000 MAGNIFICENT DWARF-TRAINED MAYDUKE and MORELLO CHERRIES, and other kinds; also extra fine trained ROYAL GEORGE PEACHES and PEACH APRICOT. Trees very cheap, to clear.

Address, Wm. Wood & Son, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

1000 Magnificent DWARF and STANDARD-TRAINED PEACHES, NECTARINES, and APRICOTS, in above 40 of the best sorts in cultivation: also, a Large Collection of PYRAMID and BUSH FRUIT TREES, suitable for Gardens of all sizes, by the dozen, hundred, or thousand.

STANDARD and DWARF ROSES, large collection, cheap.

DESCRIPTIVE PRICED CATALOGUES, gratis and post free, on application to

W. Knight, Floral Nursery, Heathfield, Sussex.

WEBB'S PRIZE COB FILBERTS, and other varieties of FILBERTS and NUTS, as shown at the Great Exhibition of 1862, and for which a Prize Medal or Honorable Mention was given. Trees of Cob Filbert can be had on application to

Mr. Webb, Culford Gardens, Reading.

Dwarf-trained Trees.

By the Thousand, Hundred, or Dozen.

APPLES, PEARS, PLUMS, CHERRIES, PEACHES, and NECTARINES.

Fine, flat, well trained, of best quality and true to name.

Richard Smith, Nurseries, Worcester.

Fruit Catalogue and Directory, 92 pages, price 1s.

J. SCOTT, Merriott, Somerset, has just published a new and enlarged Edition, with full descriptions of nearly 1000 sorts of Fruits, with instructions on Planting, Training, Root Pruning, Cordon Training, and various other modes. The Formation of Miniature Orchards, of Pyramids, and a host of other useful matter on Fruit Tree Culture.

Also, his DESCRIPTIVE CATALOGUE, 72 pages, of Coniferous Plants, and other Ornamental Trees, Evergreens, Roses, Greenhouse, Hardy, Winter and Spring Bedding Plants, &c. With Notes and Observations. Two stamps.

To the Trade and others.

WOOD AND INGRAM having a fine stock of the following, will be glad to dispose of them at a very cheap rate:—

Dwarf maiden Apples.
Dwarf maiden Cherries.
Dwarf maiden Peaches.
English Elms, 1-year seedling.
English Oaks, 2-years' seedling.
Gorse, 2 years seedling.
Acacia, Common, 8 to 10 feet, and 10 to 12 feet.
Acacia inermis, fine standards.
Standard and Dwarf Worked Roses.
Dwarf Box for edging.
Carnations and Picotees, show varieties.
Standard Laburnums.
Abele Poplars, 10 to 12 feet.
Cut-leaved Alders, 4 to 5 feet, and 6 to 7 feet.
Bishop's Longpod Peas.
Dickson's Early Favourite Peas.
White Spanish Onion, Bedfordshire grown.
Asparagus, 2 and 3-years.
Sea Kale, 1 and 2-years.

Prices on application.

The Nurseries, Huntingdon.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

*** Part II. (Exotic Ferns) will be issued as early as possible.

Fern's Clay Nursery, S.E.

GEO. BAKER AND SON beg to announce they have an extensive collection of the best hardy RHododENDRONS in cultivation, fine healthy plants, at very moderate charges. Also a large collection of general NURSERY STOCK. Prices on application.

American Nurseries, Bagshot, Surrey, about 1 mile from Sunningdale Station, South-Western Railway.

American Plants.

As Exhibited in the Royal Horticultural Gardens, Kensington.

WATERER AND GODFREY'S PRICED and DESCRIPTIVE CATALOGUE of RHododENDRONS and other AMERICAN PLANTS will be forwarded on application. The Catalogue also gives a General Summary of their Stock, which contains probably the most extensive choice of all the Hardy and finest Evergreens and Conifers.

Knap Hill Nursery, Woking, Surrey.

Rhododendrons.

JOHN WATERER begs to announce that his New CATALOGUE of Hardy, Scarlet, and other Choice RHododENDRONS, as exhibited by him at the Royal Botanic Gardens, Regent's Park, is now published, and can be had on application. It gives faithful descriptions of all the esteemed varieties, as well as a Select List of Hardy CONIFERS, with heights and prices; also the leading kinds of EVERGREENS, ROSES, FOREST TREES, &c.

The American Nursery, Bagshot, Surrey, near Sunningdale Station, South-Western Railway.

New Roses of 1865.

JOHN FRASER, of the Lea Bridge Road Nurseries, N.E., begs to announce that his LIST of NEW ROSES for 1865 may be had on application. The varieties offered have been selected with great care, and may be depended upon as being the best.

Price 36s. per dozen. The usual discount to the Trade.

The Plants are healthy and vigorous.

New Roses of 1865.

BENJAMIN R. CANT offers 30 varieties, the pick of the year, at 36s. per dozen. The plants are first-rate.

A DESCRIPTIVE LIST will be forwarded on application.

St. John's Street Nursery, Colchester.

N.B. The usual discount to the Trade.

New Rose H.P. Princess of Wales.

First-class Certificate from the Royal Botanic Society of London.

WM. PAUL (Son and Successor to the late A. Paul) has still a fine stock of this superb New English ROSE.

Price, good Dwarf Plants, 3s. 6d. each.

The usual discount to the Trade.

Waltham Cross, N.

Seedling Roses.

WM. PAUL (Son and Successor to the late A. Paul) will shortly announce five NEW SEEDLING ROSES of first-class merit, a PRICED DESCRIPTIVE CATALOGUE of which will be ready early in March.

All the NEW FRENCH ROSES from 36s. to 42s. per dozen; older kinds from 9s. to 24s. per dozen.

Waltham Cross, London, N.

New Roses for 1865.

JOHN KEYNES, Castle Street Nursery, Salisbury, has much pleasure in offering several thousands of extra strong Plants in pots of the above. Plants will be ready for delivery about the third week in March.

A DESCRIPTIVE LIST is now ready, and will be forwarded on application.

New Roses of 1865.

PAUL AND SON will have their usual fine plants of the NOVELTIES of the YEAR ready in March at reasonable prices.

PRICED LIST—the description mostly the result of personal observation, now ready.

"Old" Cheshunt Nurseries, Cheshunt, N.

ROSES, STANDARDS, HALF STANDARDS, and DWARFS.

Fine STANDARD ROSES, £5 per 100, or 15s. per dozen.

DWARFS, very fine, on the Manetti Stock, 60s. per 100, or 9s. per dozen, of all the best varieties in cultivation. Prices to the Trade on application. DESCRIPTIVE CATALOGUES gratis.

G. Parsons, Nurseryman and Seed-man, Western Road, and Montpelier Road, Brighton; and Hassocks Gate Nursery, Keymer.

CHARLES VERDIER FILS (Ex-Partner in and Successor to, the late firm of Victor Verdier Père & Charles Verdier Fils), Nurserymen, 32, Rue du Marché aux Chevaux, Paris, has just published his new CATALOGUE for the present season (containing all the novelties in ROSES and GLADIOLI), which may be obtained either direct from him or of his Agents, Messrs. R. Silberrad & Son, 5, Harp Lane, Great Tower Street, London, E.C.

Shrubs, Roses, Fruit Trees, &c.

WM. CUTBUSH AND SON'S GENERAL NURSERY STOCK is the best near London.

GLADIOLI, fine, from 4s., 6s., 9s., & 12s. per dozen.

CATALOGUES on application.

Highgate Nurseries, London, N.

First-class New Seeds.

Carriage Free at Market Prices.

J. SCOTT'S DESCRIPTIVE CATALOGUE and PRICED LIST of the above are well worthy the notice of purchasers, post free.

GLADIOLUS, best HYBRIDS of GANDAVENSIS, at 6s., 9s., and 12s. per dozen. Descriptive List sent post free.

Merriott Nurseries and Seed Stores, Yeovil, Somerset.

The Japanese Nurseries, Biggleswade, Beds.

PANSIES.—The finest Show Varieties with which T. A. has taken FIRST PRIZE at every Show in Hunts, Cambridgeshire, and Bedfordshire, 14 in number, in 1864, from 6s. per dozen upwards. All Strong Plants in Pots.

Thomas Ayres.

Beck's New Pelargoniums.

B. S. WILLIAMS has much pleasure in stating that he is now distributing strong Plants of New and Choice Varieties for this season. DESCRIPTIVE CATALOGUE, post free on application.

Paradise and Victoria Nurseries, Holloway, London, N.

CARTER'S GARDENER'S VADE-MECUM is now ready.

CALCEOLARIA AMBASSADOR (Sang's). — Strong Plants in single Pots of this magnificent Bedding-out CALCEOLARIA will be ready in April. Price 12s. per dozen. Early orders will oblige. The Trade supplied on the usual terms.

Edward Sang & Sons, Nurserymen and Seed Merchants, Kirkcaldy, N.B.

RICHARD SMITH'S SEED CATALOGUE contains a Calendar of Time for Sowing, particulars of Collections, with Prices, Directions for Cropping well and economically, Soil, Manure, Depth, Distance, Season, Hardiness, Duration, Form, Height, Colour, Storing, Use, Flavour, and other qualities described. This List Free by Post for one stamp. Seeds direct from the Growers the surest way to success.

Richard Smith, Seed Merchant, Worcester.

First-class Seeds, Carriage Free.

WM. PAUL (Son and Successor to the late A. Paul) begs to announce that his NEW PRICED CATALOGUE of SEEDS is now ready, and may be had on application, post free.

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JOHN HOLLAND begs to intimate to his friends and patrons that he has taken into partnership his Son-in-Law Mr. Frederick Jones. That the business will in future be continued by the firm of Holland & Jones, Bradshaw Gardens, Chadderton, near Manchester.

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GENUINE NEW VEGETABLE SEEDS.

Orders amounting to 21s. and upwards sent Carriage Free.

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FLOWER SEEDS (sent Post free).

Assortments of	100 vars.	50 vars.	30 vars.	25 vars.	15 vars.
ANNUALS—Hardy	20s.	10s.	5s.	..	2s. 6d.
" Half Hardy	30s.	15s.	..	7s. 6d.	4s. 6d.
PERENNIALS (Hardy) ..	25s.	12s. 6d.	..	6s. 6d.	3s. 6d.
" Half Hardy ..	..	..	..	7s. 6d.	4s. 6d.

NOVELTIES in FLOWER SEEDS.—See Descriptive Catalogue.

BULBS for SPRING PLANTING.—Gladioli, Liliums, including the splendid new L. auratum; Tigridias, Anemones, Ranunculus, and other bulbs suitable for spring planting, in great variety. Special quotations at low rates per 100 or 1000 on application.

BEDDING PLANTS.—250,000 well-rooted plants, comprising Calceolarias, Lobelias, Geraniums, Cerastiums, Cineraria maritima, Ageratums, &c.; to be sold at unprecedented low prices.

Agents for GOULDING'S HORTICULTURAL MANURE, 1s. per canister.

SOLE AGENTS, Wholesale and Retail, for MURRAY'S APHIS FASTILS, a new invention, and the most effectual in existence for Fumigating Plant Houses. In packets, 1s. and 2s. each.

BUTLER & McCULLOCH, Covent Garden Market, W.C.

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THE LONDON SEED COMPANY, LIMITED. All SEEDS of the value of 20s. and upwards delivered carriage free to any Railway Station in England and Wales, or any Steam Port in England, Wales, Scotland, or Ireland.

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EARLY SPRING FLOWERS, largest Stock in England and greatest variety.—WEBB'S Giant Polyanthus and Giant Cowslip, Cowslip from the Himalayas, Golden Chain Polyanthus, Florist Flower Polyanthus, American Primrose, Scarlet Primrose, Gentianella, Double Crimson Primrose, ditto Yellow ditto, ditto Purple ditto, ditto Rose ditto, ditto White ditto, ditto Lilac ditto, Double Pansy, ditto Negro Polyanthus, ditto Golden Chain ditto, ditto Pink Hepatica, Single Blue ditto, ditto White Violets, ditto Purple ditto. Seed of the above Polyanthus and Cowslip. LIST on application to Mr. WEBB, Calcot Gardens, Reading.

New Catalogue for 1865.

GEO. SMITH begs to announce that his PRICED and DESCRIPTIVE CATALOGUE, containing the Newest and most Approved Varieties of Show, Spotted, and Fancy PELARGONIUMS; Zonale and Variegated GERANIUMS, FUCHSIAS, VERBENAS, PETUNIAS, DAHLIAS, CHRYSANTHEMUMS, BEDDING PLANTS, &c., is now ready, and will be forwarded in exchange for one postage stamp.

*** Coloured Illustrations by Mr. Andrews, free by post, in exchange for 12 postage stamps, of FUCHSIAS GENERAL LEE, DIADEM, and FANTASTIC, the three finest Fuchsias G. S. has ever had the pleasure to offer, for description of which see Catalogue.

Tollington Nursery, Hornsey Road, Islington, London, N.

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JAMES TYNAN begs to inform Gardeners, Amateurs, Members of Horticultural Societies, &c., that his importation of the above and other FLOWER SEEDS of merit is now ready, in selections and mixed packets, to suit the requirements of any purchaser.

The GERMAN ASTERS comprise Truffaut's Pæony-flowered Perfection, Dwarf Chrysanthemum-flowered, Globe-flowered, Quilled, Crown, the beautiful new "Victoria," and other varieties suitable for exhibition and decoration.

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EVERLASTINGS, LARKSPURS, PHLOX DRUMMONDI, PETUNIAS, ZINNIAS, and all other choice FLOWER SEEDS of the best quality.

Flower Seeds (heavy sorts excepted) free by post.

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JAMES TYNAN'S Seed Warehouse, 68, Great George Street, Liverpool.

GENUINE AGRICULTURAL SEEDS. CATALOGUE now ready, post free.

JAMES VEITCH.

Royal Exotic Nursery, King's Road, Chelsea.

TWO NEW FIMBRIATED PRIMULAS. Seed Packets, 2s. 6d. and 5s. each.

PRIMULA CARMINATA SPLENDENS, a beautiful new coloured one.

P. FILICIFOLIA (Fern-leaved).

See other Advertisements of the older kinds of fimbriated Primulas.

E. G. HENDERSON & SON, Wellington Nursery, St. John's Wood, London, N.W.

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GEO. CLARKE is now prepared to send out in packets, price 2s. 6d. each, this, the finest breed of PRIMULAS in cultivation. The Seed now for sale has been saved from selected plants, so that it is believed the produce will be even superior to that of former years.

Printed instructions for raising and growing the plants sent with each packet. Stamps received in payment.

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Carnation Princess of Wales.

WILLIAM TOOGOOD has now ready a large Stock of his splendid Clove-scented CARNATION to offer at 2s. 6d. per pair.

W. T. has great confidence in recommending this splendid SCARLET CARNATION as the best Bedding variety known.

Westergate Nursery, near Arundel, Sussex.

WANTED, English Saved Seed, crop 1864, of CLIANTHUS DAMPIERI and C. DAMPIERI SPLENDENS. Quote price and quantity.

BARR & SUGDEN, Seed and Plant Merchants, 12, King Street, Covent Garden, W.C.

Royal Horticultural Society.

PRIZES AWARDED TO MESSRS. SUTTON AND SONS at the GREAT INTERNATIONAL SHOW in December last.

FIRST-CLASS CERTIFICATE	for	YELLOW GLOBE MANGEL
"	"	for LONG YELLOW MANGEL
"	"	for RED GLOBE MANGEL
SECOND-CLASS	"	for LONG RED MANGEL
FIRST-CLASS	"	for KOHL RABI
"	"	for HOME-GROWN GOURDS
SECOND-CLASS	"	for ORNAMENTAL GOURDS

LADIES' PRIZES for INDOOR GARDENING.—The PROPRIETORS of the GARDENERS' CHRONICLE again offer, as announced last year, TWO PRIZES of 10l. each for the best examples of INDOOR PLANT-CULTURE exhibited at the Show of Table Decorations, which is to take place in the Garden of the Royal Horticultural Society, at South Kensington, on JUNE 24.

One Prize will be given for the BEST ORCHID IN BLOOM, grown and flowered in a room.

One Prize will be given for the BEST FLOWERING PLANT OR FOLIAGE PLANT of any kind, grown in a room.

The Competition is to take place amongst LADIES ONLY.

The Prizes are offered for the best single plants, examples of actual indoor cultivation; they must therefore have been grown in a room for at least six weeks previous to the time of exhibition, during which period they must have been under the management of the Exhibitors themselves.

The Plants are to be such as are suitable for drawing-room decoration.

The Plants may be grown in pots, or boxes, or baskets, or aquaria, or in any other convenient and suitable contrivance.

Notice of the intention to exhibit must be sent to the Garden Superintendent at South Kensington not later than June 19, in order that accommodation may be provided. The Plants must be sent in by 9 A.M. on June 24, and be ready for adjudication by 11 A.M.

The Gardeners' Chronicle.

SATURDAY, FEBRUARY 25, 1865.

MEETINGS FOR THE ENSUING WEEK.

THURSDAY,	March 2—	Linnean	8 P.M.
SATURDAY,	— 4	Royal Horticultural (Weekly Show), at South Kensington	2 P.M.

WHILE there is much speculation abroad as to the proper treatment of what it has become fashionable to call COOL ORCHIDS, and much misapprehension in certain quarters as to the capability of endurance possessed by many of them, it is quite certain, as Mr. BATEMAN has shown, that a considerable number of species do really prefer a much more moderate degree of heat than it had been the custom to afford them. It is, moreover, equally certain that experience is the only safe guide to the grower as to how far the declension of heat may be carried in the case of any particular species, not only as regards that which it is able to endure, but also as to that under which it will thrive and bloom in a satisfactory manner.

The attention which has been directed towards these beautiful plants has led to the issue of a very excellent descriptive Catalogue of Cool Orchids by the Messrs. BACKHOUSE & SON, of York. In this *brochure*, which is now lying before us, and which may be cited as an illustration of the axiom that demand induces supply, we find some introductory remarks bearing so forcibly on this point of endurance, and recording so clearly the experience of these gentlemen in the matter, that we gladly transfer them to our columns for the benefit of such of our readers as may be now only beginning to devote attention to the subject; for as Messrs. BACKHOUSE observe, we doubt not that the culture of Vinery and Greenhouse Orchids will become general when their beauty and ease of culture are known. The remarks to which we refer are these:—

"New Grenada, Peru, Guatemala, and Mexico are all hot tropical regions. The 'Equator of heat,' or line of highest mean annual temperature, passes close along the northern coast of New Grenada. But although these countries are, by their geographical positions, subjected to a very high temperature in low and flat districts all the year round, yet their elevated regions afford a widely different climate. Vast mountain chains, which occupy a large portion of the whole, rise far into the regions of eternal ice and snow. On the slopes of these, and on the immense table lands that stretch for hundreds of miles, a cool and genial climate is found not very unlike our own, though rarely if ever presenting the extremes of heat and cold that occur in England. In the vast forests and humid ravines of these mountain regions, Orchidaceous plants of surpassing beauty abound. They have for 20 or 30 years past been imported into Europe in very limited quantity, but, as a rule, were at once subjected to a close and stifling heat. Because they were from the tropics, whether (in reality) from the chilly slopes of a snowy 'Sierra,' or from the hot jungles of India, it was all the same. Nature rebelled, and the plants died! Within the last 12 or 18 months, thanks to the perseverance of Low, Veitch, Linden, and other eminent nurserymen, many of these beauties have again been imported. They hate being dragged down from their cool mountain homes, and cooped up in a box for six or eight weeks in the hot and humid climates through which they must pass to reach us; and therefore few, comparatively, survive of some of the very finest, making these still both rare and expensive. Others, scarcely less charming, travel well, and are now offered at far lower prices than have been usual hitherto. Some of the finest of the New Grenada Odontoglossums and Oncidiums occur in districts that are liable to extreme cold, and may yet be found hardy enough for the winters of some parts of England. We learn from the fine work on Orchids of the late M. Pescatore, of St. Cloud, near Paris, that a very beautiful Orchid was met with in an Oak wood, 800 feet above a village where the snow was lying 6 inches thick, and the thermometer indicated 8° of frost! (three below the freezing point of Reaumur). The grand Lælia majalis, in Mexico, is said to bear several degrees of frost; and Cattleya labiata and Sophronitis grandiflora, from Brazil, have been found not unfrequently with the hoar frost upon them. We ourselves have had icicles hanging abundantly within a few inches of Epidendrum vitellinum, which was placed in a niche of rock-work during the frost of last winter. The plant was in no way injured, and grew finely all the summer. There is every reason to believe that many, and perhaps most, of the Orchids from Brazil, Mexico, Peru, New Grenada, Nepal, Khasya, China, and Australia, will bear a temperature close upon the freezing point without injury. Not that we recommend this to be tried, any more than we should with a Cineraria! but we are satisfied that a greenhouse temperature (which is never safely allowed to fall much below 40°) is not only abundantly sufficient for them, but likely to induce a far more vigorous growth and abundant bloom than the usual warmth of 'Orchid houses' in winter will effect.

"We have consequently placed a large portion of our collection in houses where the winter temperature falls to from 35° to 45°, associating them, in fact, with 'greenhouse plants.' That they will bear this, and in many instances even more, is certain. Cattleya Mossiæ and Lælia purpurata continued growing out of doors in a deep shady recess for six weeks after the frost had cut off Kidney Bean tops, &c., in the adjacent ground, and were only taken in after the thermometer registered 28½°. This temperature severely injured one of the young growths of Cattleya Mossiæ, but did not hurt two others which had been formed almost entirely out of doors. Eight degrees of frost last winter killed Odontoglossum grande. Three and a half degrees of frost (28½° Fahrenheit) very slightly spotted its leaves. It destroyed the leaves (only) of Lycaste Skinneri, and did not hurt in the slightest degree the glorious Lælia superbiens, all of which were side by side out of doors. Now, if Cattleya Mossiæ will bear this, all Cattleyas will (?) except Cattleya superba, as with this exception they come from cooler districts than Cattleya Mossiæ. It must, however, be borne in mind that an Orchid wintered in a warm house (60° to 70°) will scarcely stir if placed out of doors or in a greenhouse the following summer, even if the temperature be 80° in the shade during the day. They *will* have a second nap! The coolness of the night temperature, and free circulation of air, more than neutralise the high day temperature. Plants so treated will rest for months with the thermometer at 60° to 80°, and begin to grow in autumn when their sleep is over, even with the thermometer at 40° to 50°! This clearly proves that to get a free and vigorous summer growth in a greenhouse, or out of doors, our plants must be *wintered* at a proportionately *lower* temperature (40° to 50°). It is not easy to accommodate recently imported ones to this wholesome discipline, because the great heat of the voyage, &c., often stimulates an untimely growth, which you cannot check severely without endangering your plant. It must, however, be aimed at as far as possible, and not till it is done shall we see on many of our finest species the short stiff leathery leaves and rich purple tinted stems, &c., which we find in the imported specimens, healthily developed in their fine mountain climate. We have yet to learn that mere *size* is not the standard of excellence in an Orchid's stem or bulb any more than in cattle!

"There are many Orchids which will bear greenhouse treatment when the growths have been well matured during the summer in a cool and airy situation, which

will rot directly if placed in a greenhouse when they have been grown in a moist and close house with a temperature of 70° to 80°. We may be able to see no difference before the two are tried, but we shall soon find that they have very different constitutions.

"As a rule, while these plants are growing freely they should have an abundant supply of water. Odontoglossums should never have the soil dry, but they like air in constant motion, and a bright sunny position in winter. In summer, they should be carefully shaded from direct sunshine, and a very humid atmosphere maintained, combined with very free ventilation day and night. At that season the night temperature should be 15 to 20 degrees lower than the day temperature, so as to cover the plants with dew. In winter, and especially when the temperature is very low, little or no water should be given, and the atmosphere should be kept as dry as possible. The pseudobulbs are the natural reservoirs for moisture, so that if plump and well matured, the plants will require no water for weeks or even months while at rest during the winter; and this is, in fact, the only safe condition at this period. Air will be dangerous with the thermometer outside below 40°, but will be advantageous, when the sun shines and there is little wind, for an hour or two at mid-day, the thermometer being at 45° or more outside in the shade."

For a list of the species which have been subjected to the treatment thus sketched out, the interested reader should at once consult the Catalogue in question.

WE alluded last week to the formation of a new Society, under the name of the UNITED HORTICULTURAL SOCIETY; and we now add a few particulars respecting its main objects and intentions, which, according to the rules which have been placed in our hands, are as follows:—

"The objects of the Society shall be to promote the practice, study, and advancement of horticulture in all its various branches; means shall be especially taken for the examination of plants, flowers, and edible fruits, their nomenclature and synonymes, establishing their relative merits, investigating their physiology and diseases, their uses, properties, cultivation, and improvement; also to facilitate the formation of a fund for the benefit of gardeners during sickness, calamity, and old age; such fund to be managed by a separate committee, acting under a separate code of rules.

"The operations of the Society to embrace periodical meetings at which members are invited to produce new plants, flowers, fruits, and other objects of interest; committees to be appointed to adjudicate upon such productions; certificates to be awarded of 1st, 2d, and 3d class, at the discretion of the committees, such certificates to bear a money value to be determined by the general committee at the end of the year, according to the amount of the funds then in hand; also the reading of papers, lectures, and discussions thereupon; the original papers, reports, &c., if so determined by the members, to be printed and sold for the benefit of the Society.

"At any ordinary meeting committees of members may be appointed for the investigation of special subjects; such committees to report the results of their investigations as soon as may be convenient.

"All surplus monies remaining at the annual meeting, after all the debts of the Society are paid or allowed for, with the exception of 5*l.* to be reserved, shall be handed over to the trustees or committee of the benefit fund proposed to be formed in connection with this Society."

We learn from Mr. MARSHALL, of Enfield, a gentleman who has taken some interest in the organisation of the Society, that its intentions are not at all antagonistic to any existing associations; and hence it is intended to obtain for the Committee powers so to arrange the meeting days, which are fixed generally for the first Tuesday in each month, and the third Tuesday in June, July, and August, that they may not clash with those of the Floral Committee at South Kensington.

Mr. MARSHALL further explains that the original and principal idea was to form a Society which would enable practical gardeners to meet and discuss the value, merits, and uses of the various novelties and other objects of interest that might be brought before them. No existing Society, he observes, offers any facilities to them in this matter. "It is likewise proposed to form a fund for the benefit of gardeners, from which they might receive assistance during sickness or calamity or in old age. This however is to be managed by a separate Committee, its only connection with the Society being that it will receive all surplus funds after the current expenses of the year have been liquidated."

We merely add the remark that the object of meeting for the acquirement of information on matters relating to their daily occupation is a sufficiently laudable one on the part of the members; and that there can be no good reason why persons thus assembled should not pass judgment upon objects brought before them for that purpose; but we are rather inclined to question whether it be good policy to attempt to establish the benefit fund, which is one of the objects set forth, inasmuch as such a course must inevitably lead to a division amongst horticulturists detrimental to the interests of the Gardeners' Benevolent Institution, an association which is already doing a great amount of good for gardeners, and might accomplish much more, and perhaps in a better way, if it were better supported.

THE admirable account given by Mr. ANDERSON in our last week's Journal of the different forms of SPOT in ORCHIDS, which was prepared quite independently of our leading article on the same subject, except that the materials for observation were the same, leaves little room for comparative remarks. The two are singularly in accordance with each other, Mr. ANDERSON noticing a fourth form of spotting, derived directly from fumigation. We have, however, never seen in his second form, that of which Dendrobium speciosum afforded such a striking example, any appearance of fungous threads at any stage of the disease, a very important point to settle, as, if it at all arises from a Fungus, a remedy is almost hopeless. We may sometimes contend with superficial species, but seldom with those which are essentially internal. Our attention shall be directed particularly to this point. As regards the Fungus on Aerides Fieldingii and Odontoglossum citrosmum, there is either a misprint or slip of the pen in our leading article, where it is said that the fringe of the cysts is coloured, as it is perfectly hyaline and colourless. The soft pulpy condition of this form of spot will distinguish it at once. The third form on Aerides suavissimum is much less formidable. As there seems such good reason to believe that the second form arises from sudden changes of treatment, it is very possible, if our notion is correct that there is no mycelium in the affected leaves, that a well-conducted series of experiments may lead to some beneficial result. The first step towards the removal of disease is an accurate notion of its nature, and we feel much indebted to Mr. ANDERSON for the nice discrimination he has shown in indicating the very different diseases from which Orchids have lately suffered so hopelessly. We recommend his paper to the especial notice of cultivators, for it deserves a very careful perusal. *M. J. B.*

—— THE Gardeners of Scotland have determined to hold in Edinburgh, in the month of September next, a GREAT INTERNATIONAL FRUIT AND FLOWER Show in connection with the Horticultural Society of Edinburgh. This exhibition is fixed for the 6th of that month, and the schedule of prizes, now before us, is on so liberal a scale that a fine gathering may be anticipated. In the class devoted to home-grown fruits the principal prizes are 15*l.* for a collection of 20 sorts of fruit; 10*l.* for a collection of 16 sorts, excluding Pineapples; 10*l.* for two bunches of each of 8 varieties of Grapes; 10*l.* offered by the Proprietors of this Journal, for a collection of the best 6 kinds of choice fruits, including 2 Pineapples, 2 Melons, 4 distinct sorts of Grapes, 12 Peaches, 12 Nectarines, and 12 of any other fruit; 5*l.* for two bunches of each of 4 varieties of Grapes; and 5*l.* for the best collection of fruit shown by fruit merchants. In a class provided for foreign-grown fruits 5*l.* prizes are offered for collections of Grapes, of Pears, and of Apples coming respectively from France and Italy, Austria and Russia, Germany, Holland and Belgium, the United States, British North America, and Turkey and Egypt. This ought to bring together materials for a fine display. Prizes are also offered for plants, flowers, and vegetables, sufficient to make up a nice Autumn show. In the class devoted to home-grown fruits, we notice, there are 54 prizes offered for Grapes; 14 for general collections of fruits; 9 for Pineapples; and others in proportion. The display of Grapes alone should be worth a journey to Edinburgh to see.

—— The EXPOSITION UNIVERSELLE D'HORTICULTURE of Amsterdam, which has been already announced in general terms at p. 1130 of our last volume, is fixed for the first week in April next. The objects of exhibition are to be sent in from the 1st to the 4th of April; the International Jury assembles on the morning of the 5th; the grand opening takes place on the 7th; the public are to be admitted from the 8th to the 12th; and there is to be a sale of plants on the 13th.

We understand that since the original programme was issued, prizes to the amount of 1800 florins have been added, bringing up the total to 15,000 florins. The gardeners of foreign amateurs who exhibit will be rewarded in the same manner as the actual programme promises to the gardeners of amateurs in the Netherlands. One of the rooms of the Palais de l'Industrie, where the exhibition is to be holden, will be warmed for the reception of hothouse plants. After the closing of the exhibition there will be the public sale above alluded to of such plants as may have been exhibited with that object. Part of the expenses of transport will be reimbursed to the exhibitors, and foreign contributions are to be exempt from duty at the frontiers. Such are some of the particulars set forth in a circular recently issued.

Those persons who intend to exhibit are required to give notice to the Secretary, Mr. KEELAGE, of Haarlem, before the 10th of March; and lists of the articles to be sent are to be forwarded to the Assistant-Secretary, Mr. H. WITTE, of Leyden, before the 26th of March.

Concurrently with the Horticultural Exhibition a Botanico-Horticultural Congress is to be held; and already notice has been received of many interesting questions which will be discussed. The Programme and regulations will soon be published. Upwards of 200 botanists and horticulturists have signified their adhesion to the Congress, of which those persons who form the International Jury will be considered members.

—— We beg to call attention to the subscription list of the INGRAM TESTIMONIAL FUND, which appears in another column, and to remind those of our readers who have not yet contributed, that they will not long have the opportunity of doing so, as the list must soon be closed. Mr. INGRAM is too well and too favourably known in the profession to need that we should add one word more in commendation of the object, which is to do honour to one who has known how to merit it.

New Plants.

284. CORYLOPSIS SPICATA, *Siebold and Zuccarini, Fl. Jap.* 47, t. 19; *Hooker, Bot. Mag.* t. 5458.

The generic name sufficiently indicates the aspect of this new hardy plant, which is that of a Nut bush (Corylus), its habit being deciduous, and its leaves long-stalked, acutely heart-shaped, strongly feather-veined, mucronately-serrated, and having above a pubescent green surface, but beneath being somewhat hoary. In its native country it is said to form a bush of some 3 or 4 feet high, flowering before the leaves are produced.

It is this early-flowering character which will give it its chief value in our English gardens, to which it has been introduced from Japan, both by Mr. Fortune and Mr. Veitch. The plants introduced by the former gentleman flowered last spring in the nursery of Mr. Standish, by whom they were shown at South Kensington in March last; and those imported by the latter furnished the specimens from which the figure in the *Botanical Magazine* was made.

The flowers themselves are rather small, regular, and five-petaled; but they appear profusely in conspicuous racemes before any leaves are put forth, and a bush laden with them must have rather an ornamental appearance, sufficiently so indeed, to make it a desirable occupant of the front ranks of a shrubbery border. The blossoms are pale yellow, and issue singly from the axil of a greenish yellow bract, some eight to 12 being produced in a raceme. They have moreover the odour of Cowslips. The racemes are 2 to 3 inches long, and drooping; the bracts ample cordate or ovate, yellow-green, the lowest ones largest and not floriferous; the calyx has a short turbinate downy tube crowned with five ovato-lanceolate subincised erect segments; the corolla consists of five oblong-spathulate obtuse or retuse erect petals; and the stamens are five in number, as long as the petals. Within the stamens stand five erect oblong subulate scales or glands arranged in a ring around the two-celled ovary. These particulars will enable our readers the more readily to understand the accompanying figure, which represents a leaf and a portion of a flowering twig.

It may be added that the genus Corylopsis belongs to

the Hamamelidaceæ or order of Witch Hazels, and that five nectary scales are attributed to it by its learned founders, who understand them in this case to be bifid.

NOTES ON GARDENS.—No. XXIX.

The Dublin Phœnix Park and its Gardens.

(*Concluded from p.* 102.)

Next comes the pleasantest portion of my Phœnix Park experiences. I have to describe the home of Mr. W. S. Wilkie, chief bailiff and superintendent of the 1752 acres. His house is a Gothic one, but of what the walls were made, if I wished to tell I could not, for they were hidden by Wistaria, by Roses growing on their own roots, and of great climbing capability; by Abelia floribunda, which formed a charming wall covering, was full of flower, and had been for years on the wall; by the best forms of Clematis; by Clianthus, Habrothamnus elegans, and Swainsona galegifolia, which was flowering beautifully as a hardy herbaceous plant, having been planted out for some years. The Lodge is a tasteful and very suitable one; but what have I to do with buildings? I should not mention it were it not clothed with plant beauty, as all such houses ought to be.

Mr. Wilkie's little demesne is about 6 acres in extent. About 2 acres of this are devoted to ornamental purposes; the remaining 4 acres in part to a Strawberry ground, and to a compact and well cropped fruit and vegetable garden, with neat Vinery and greenhouse, frames, pits, &c., some of these being filled with Japanese plants of recent introduction—Retinosporas, Osmanthuses, and rare Pines not yet proved hardy, and these all picked plants of the earliest batches sent out; so, as they are no doubt intended by Mr. Wilkie to be planted out, he will, if they succeed, be in advance of most persons with good specimens, as he already has the best plants of some older favourites.

The pleasure-ground occupies about 2 acres—a comparatively small garden, but if measured by the amount of pleasure it has given to lovers of plants and gardens—amongst them some of our greatest statesmen and thinkers—great indeed.

But who are these admiring the beautiful Pines? As I live, the very high priests of Irish and Scottish horticulture—Dr. Moore and Mr. M'Nab! Now, if I merely recorded of the place, that I had seen these gentlemen in this lonely part of the Phœnix Park, the old proverb which tells that it's not precisely "for nothing the cat winks," would surely help curiosity on the subject. Mr. Wilkie's garden is divided by winding walks and banks into two scenes, each distinct, and yet having much in common, for the finest and rarest Conifers, in the greenest health, are the chief features in both. That furthest from Mr. Wilkie's house is almost exclusively given up to beautifully developed Cypresses, Thujas, Junipers, and rare Pines of all sorts, dotted about singly on the turf, with here and there an enormous plant of Pampas Grass, and raised banks all around with Cyclamens in flower near the margin; plenty of spring bulbs asleep around them, and behind and on the top rare evergreens, and deciduous shrubs and trees: there being occasionally seen amongst these, such plants as Pyrus vestita, a great-leaved species from the Himalayas, about 25 feet high; Paulownia; Acer colchicum, upwards of 20 feet high; Quercus glabra, &c.; and near the winding entrances, very perfect specimens of the Weeping Ash, formed by framework into capital tents, with a close row of sawn blocks around inside for seats. This part of the garden, which has been named the "Happy Valley" by some of Mr. Wilkie's noble lady visitors, is oblong-oval in outline, and not traversed by walks.

Among the trees which divide this from the more varied and flowery part of the garden around Mr. Wilkie's house there is one very interesting plant, almost hidden by others. It is Whately's Tree; for the great Archbishop himself grafted it, and always called it "my tree." He was fond of the garden, as was Lord Carlisle, and many other people, great and small, and used frequently to visit it. One summer day, years ago, he came to Mr. Wilkie and told him he was going to graft a tree in summer, much to Mr. W.'s astonishment, but his Grace took a phial of water, and inserting the end of a scion in full leaf, taken from the old plant of Pyrus vestita, attached the scion to a stock of the common Pyrus, and eventually succeeded with his graft. It must be gratifying to all gardeners to know that men of Whately's stamp could thus find pleasure in their work. This Pyrus vestita would be an interesting treasure in any garden.

The gardening around Mr. Wilkie's house is of the most delightful kind, for he is fond of plants of all sorts, of the tree and shrub as well as the herb, the bedding plant as well as the Pine; and by most tastefully arranging all so as to produce a picturesque and graceful whole, and at the same time infinite variety and interest of detail, gives himself and his numerous visitors such a concentration of the pleasures of gardening as is hardly elsewhere to be found in a similar space. Near the Lodge, in a quiet corner, stands alone a beautiful specimen of Thuja gigantea, 10 feet high, planted by the late Lord Carlisle, whose loss must have been deeply mourned by those connected with the Park, to whom his good and noble nature was so well known; and near it is the Wellingtonia previously spoken of. But though fine Pines were a chief feature, and of course equally embellished the scene at all seasons, yet a few steps from these the smallest plants contributed their aid on little irregular beds—full of flower to be sure, but not masses of one flower. Thus Mrs. Pollock Pelargonium and Centaurea ragusina were twined around by the Japanese Honeysuckle, and perhaps flanked by Salvia patens and Dianthus superbus, with its delicate fringy blossoms. When plants of the elegant Thujopsis borealis, 10 feet high, had been admired near the rising boundary of the lawn, I had merely to turn round and survey a bed of Souvenir de Malmaison and other Roses on their own roots full of flower, and mixed up with Gladioli, which had been for several years undisturbed in the rich bed; while round the margins were single plants, such as Salvia argentea, the silvery-leaved Centaureas, and great rich tufts of Gentiana acaulis, indicating with other subjects that the garden would be as charming in April as in August, as every garden ought to be. What a fine compact Laurel-like shrub is that Quercus glabra, 8 feet high, near a mass of the white-stemmed Rubus, and how graceful are those immense plants of Pampas Grass in the moist sheltered places! A pair of Cupressus Lambertiana, each 28 feet high, and each more than 100 feet in circumference, were noble objects on the lawn, and seemed to gladden the heart of Mr. M'Nab, connoisseur as he is of such plants, but he was equally delighted with many others, and avowed that at least five of the Conifers were the most perfect of their kind in the country.

Apart from the intrinsic beauty of the Pines, not a few of them were most interesting in a commemorative sense, being planted by men of mark who had been attracted to the garden. Thus the sons of Burns had planted a Picea Nordmanniana, and there was a beautiful Thujopsis borealis, which General Lord Seaton planted in 1860. In the garden, too, are the now monumental plants of Lord Carlisle, who, if report speaks true, was fonder of the garden than of any other—plants which a year or two ago many doubted not but he would live to see well developed trees. Picea grandis was of Archbishop Whately's planting.

The finest Deodars in Ireland are supposed to be the dense spreading specimens on Mr. Wilkie's lawn, about 26 feet high; and there are healthy individuals over 20 feet high of Cedrus atlantica viridis, and C. atlantica argentea. The Douglas Fir and Picea nobilis, like all the other Pines, are in the freshest health, and 30 and 15 feet high respectively. But how exceedingly tasteful and refreshing are these irregular masses of bedding plants—Salvias, Fuchsias, trailers—here and there among the shrubs and tapering young Pines, and how well some of these old root-stumps of great trees that have been blown down in the Park look with the heads planted in the ground, and the old root basin or basket turned up to act as a vase, filled again with mixed bedding plants, Alpines, Centaureas, and in fact a little of almost every favourite plant. Some of these upturned stumps looked a little too long in the leg for a garden in which no gewgaw rusticity of any kind was attempted; but then the variegated Ivies and Honeysuckle, Virginian Creeper, &c., were trained up these, and to a great extent hid the defect.

Cupressus funebris, 15 feet high; C. macrocarpa, 26 feet; C. torulosa, 20 feet; C. sempervirens, 22 feet; Libocedrus chilensis, 9 feet; Pinus taurica, true, 18 feet, and 56 feet round; Picea cephalonica, 30 feet; Larix dahurica, 16 feet; Juniperus excelsa, 13 feet; J. recurva, 18 feet; and Picea Pinsapo, were all rising specimens in the greenest health. A plant of Thujopsis borealis had been planted by the late Countess of Eglinton, and one of Mr. Wilkie's best Wellingtonias by the late Earl of Eglinton when Lord Lieutenant of Ireland. Most of such trees, which may now be called monumental, had neatly written labels with the name of the planter and date of planting, in addition to the name of the plant, upon them. Mr. Wilkie's best Araucarias, and some other valuable Pines were killed by the great frosts of recent years. The soil and air of the place are of course favourable to the Pine tribe, but I think the densely covered banks by which Mr. Wilkie has skilfully sheltered his garden, must to some extent help in producing the rich health and verdure displayed by these plants.

The banks were quite as interesting as the lawn, for in front of Paulownia, Weeping Holly, Double Horse-Chestnuts, &c., were quantities of climbing Roses in profuse vigour, running as best they could among Clematis and Cotoneaster, while in front the common Brake, Alströmerias four or five feet high, Phloxes, and Epilobium angustifolium had a most romantic struggle for mastery. On the margins of some borders Gentiana acaulis was most luxuriant, and I understood the same borders were covered in spring by the flowers of bulbous plants. Salvia patens and some of the Fuchsias are found hardy, and are taken advantage of accordingly. Montan Pæonias, mixed with Liliums, &c., were doing freely, and only require protection in winter from Laurel branches.

One of the best autumnal plants in the garden is Clematis Flammula, which runs freely over the banks and stumps, and is much sought after for cutting. It is strange that this plant, which is capable of doing almost as much for gardens in the autumn as the Hawthorn does in spring, is not more used than it is.

In Mr. Wilkie's parlour I had the honour of "handling the spade," the aristocratic looking spade, which had been used by her Majesty, by the late Prince Consort, and by other very great people when planting trees in the Park. Ah! my poor blue aprons, thought I, you are often despised by the snob and pseudo swell, but Royalty deems itself nobly employed in handling your "chief arm." I had not yet seen you compared in print to the swearing betting horsey-man, or the dame that feeds the ducks. But great men have put good and creditable things on record about you, and so you can afford to let the coarse sneer pass.

"Why talk so much of so small a place?" some one with half a-dozen acres of unrelieved bedding stuff may say. Well, simply because it gave me a practical lesson of how very much could be done to form the most beautiful of garden scenes with hardy plants alone; and while wandering about and enjoying fresh views and beauties at every turn, I could not but conclude, though fresh from the astonishing display at Battersea, that if the "subtropical" plants of half-a-dozen botanical gardens were "stood out" for the summer, they could not produce so charming a scene. But Mr. Wilkie could add with hardy plants the very aspect which many of these tender plants are placed out to afford. What pot plant for instance could give a better effect of the sort than the splendid specimens of hardy Yuccas which stood last summer—and no doubt still stand—in Mr. Veitch's flower-garden at Chelsea? None. With the horticulturists of Dublin this garden is only second in popularity to its good and dignified founder.

'Twould scarcely be wise to wish that everybody should imitate this or any other style of gardening; but it is much to be desired, that, as great interest and variety of some sort should be seen in most gardens—much to be desired, that people who devote their means and attention to open-air gardening should enjoy so much of flowers and trees at all seasons without any horrible interval between spring, summer, or autumn "decoration," as Mr. Wilkie does. Still more is it to be desired that the owners and managers of gardens should act as independently of "fashion" in gardening as he does; and instead of copying the "effects" of the leading gardens in their vicinity, give us something of their own creating. Then we should find that ever-fresh interest in gardening which we now find in books and in all other works of art wrought for our delight. *Wm. Robinson.*

MARIE GUISSE PEAR.

This new Pear, figured in the *Revue Horticole* for January 1865, is very handsome, and has a remarkably rich warm appearance. The fruit is middle-sized, or rather large, obovate; colour, well russeted golden yellow. Flesh melting, rich, perfumed, excellent. Season, March and April. The tree is described as being very vigorous and an abundant bearer. It is 30 feet high, and 3 feet in circumference at the base. As is often the case with seedling Pears whilst young, many of the branches are yet spiny. It was raised from seed of the Saint-Germain in 1834, at Jussy, a village in the environs of Metz, and fruited for the first time in 1857; in 1860 it produced nearly 600 Pears. This variety was obtained by M. Guisse, of Sainte-Ruffine, and is named in compliment to his daughter by M. Hiva, an old mayor of Cassy-les-Metz, and a distinguished Vine grower.

It will be observed that the seedling just named was 24 years old before it produced fruit; but this may be accounted for by the circumstance of the tree having been grown in rich soil, 7 feet deep. In such deep soil, the Pear is long before it commences to bear; but Pear trees similarly situated have lived and borne for hundreds of years. Should this variety be as good in our climate as it looks, and as it has proved to be in the finer climate of the Moselle, keeping also till March or April, it will be a valuable acquisition. Some good late keeping varieties of Pears are yet desirable. ||

Home Correspondence.

Spot in Orchids.—While admitting that Orchids, like other plants, have their periods of youth, maturity, and death, I still believe that their lives are shortened by bad management quite as often as they perish from natural decay. I have plants which were introduced into this country from 20 to 30 years ago. To put plants into unsuitable houses is bad management. I have erred much in this respect, for out of 10 houses several are not so fit for Orchids as they would have been if built expressly for them. Adverse circumstances will sometimes occur; as, for instance, a pane of glass may be broken or cracked, and not observed until the plant immediately below it has received its death stroke from cold or drip. Cold wind is often the cause of one sort of spot, and I would urge on any one erecting Orchid houses not to have them less than from 17 to 20 feet in width. In a narrow house one has not that command of heat which is desirable. If you give air to such houses it is ten to one that you give too much, especially in winter, and the heat is driven out before the gardener perceives it, if he has many houses to attend to. If you do not give air the plants grow watery, and are thus rendered still more liable to disease. It may be said, why cannot you give just sufficient air and no more? The answer is that to secure such accuracy too much care and time would be required, especially in large establishments. Houses from 17 to 20 feet wide, and 10 feet high in the centre, contain a large amount of heated air which is not speedily acted on by

cold—a point of great importance, especially in winter. With me one cause of spot has been too free flowering, which has impaired in some cases the vital energies of the plants, so much so that they have gradually sunk. Allow for instance, Phalænopsis rosea to flower as much as it likes, and the result will be certain death. I would advise all Orchid growers to pay particular attention to the ventilation of their houses, as I believe it will be found that there is more spot in dark, dull, damp close houses, than where light and air are abundant. There are some few exceptions, but I am inclined to think the main points in Orchid culture to be light and air—warm fresh air, and plenty of it. *Robert Warner, Broomfield.*——I am not learned in Orchids, but I have found the following abstergent lotion to be very effectual in curing white Fungus on Rose-leaves:—Dissolve 2 oz. of blue vitriol in hot water, then put it into a stable bucket full of cold water. I do not know whether this would be too strong for the foliage of Orchids or not; but the sufferer by practice might adjust this. Fungi spread rapidly, and therefore should be got off without delay. Probably removal of the incipient blotch by means of a sharp knife would arrest the malady. Were the diseased Orchids mine, I should try both plans. The leaves might be sponged both on the upper and under sides. Sulphur is not a remedy for a bad fit of Fungus. If left on long it stops the pores of the leaves, and does the same mischief as the Fungus. Moreover, if the sun is very hot, sulphur will burn the leaves. Probably some of Mr. Anderson's Orchid leaves were burnt in this way. If the disease does not arise from Fungus, but proceeds from constitutional causes, a different mode of treatment as to temperature will be the likeliest way of arresting the malady. Let me hope that the above plans, one or other, may be of service to Mr. Anderson. *W. F. Radclyffe.*

Scentless Mignonette.—The deficiency of fragrance in your Correspondent's Mignonette doubtless arises from low temperature. I have several plants precisely in the same condition, in a pit the temperature of which is just sufficiently high to keep out frost; other plants of Mignonette raised from the same packet of seed were recently placed in a pit where the temperature never falls below 70°, and the fragrance of these is all that could be desired. *M. A., East Malling.*

Trade Lists.—Your Correspondent "Q." deserves credit for his efforts to reform trade lists. If, however, he knows that so much misrepresentation as he mentions exists in the seed trade, why does he not stick to old-fashioned things instead of bothering himself about what even our "largest advertising houses announce." One thing is certain, if new things were not sought after, seedsmen would not offer them, and the same remark equally applies to book catalogues. "Q." must not imagine that all gardeners scorn the action of looking into a trade list for the treatment of particular things. My own experience as a seedsman convinces me that they do consult such lists, and often profitably to themselves. *K.*

Black Alicante and Royal Albert Grapes.—Mr. Poynter (see p. 149) is mistaken in concluding that I am unacquainted with the Black Alicante. During the 18 years I have contributed to your Journal, my paragraphs have always related to subjects which I have well understood, and I may assert that that on the Grape in question forms no exception to the rule. Mr. P. concludes from my using the prefix 'Mr.' to the word Kempsey that I have not correctly stated how Kempsey became attached to this Grape. What I did say was, "I see in many of the trade lists sent me that this Grape is termed the Kempsey Alicante, and in others Kempsey's, but who Mr. Kempsey is it would be useless to inquire," meaning, as a matter of course, that there was no such person. For further remarks by me on this part of the subject I beg to refer Mr. Poynter to your volume for 1862, pp 1149 and 1197; I may, however, just state that the first time this Grape was shown by Mr. Cox under the name of Kempsey Alicante was some eight or ten years ago at one of the meetings of the Pomological Society in London. Previous to that meeting no Grape was known as the Kempsey Alicante. Mr. Cox then gave many eyes of it to his friends and other applicants. No show within my remembrance has been held in the Guildhall, Worcester for many years, and although this Grape may have created a *furore* in Worcester, I venture to say that it was not until Mr. Meredith and Mr. Cox exhibited it at the International show at South Kensington in 1862 that it became generally known. As a proof of this, examine lists of Grapes previous to that date, and look at them now; every list will be found to have Alicante in it since that date. Mr. Poynter says his impression is that this Grape was a promiscuous seedling, but, as if in contradiction to that, he states that Mr. Leuthall (which should have been Mr. Nuttall) picked it up while travelling: not, however, he adds, 100 years ago. The last part of his statement would imply that the Alicante was not known 100 years ago. In a work I have by me, however, edited by the Rev. Wm. Hanbury, vol. ii., p. 779, this Grape is fully described, and for the satisfaction of your Correspondent I will quote part of the description. Black Alicante is reported to have large berries, placed thinly on the bunches, which are flat at the top, long and heavy; the leaves are said to die off to a red colour in the autumn. This work was written in 1771, which is nearly 100 years ago. In your Volume for 1845, p. 753, it will be seen that more than 40 years ago, the Alicante was grown by a Mr. Jos. Meloney. Let me now advert to the Royal Albert, with my account of which Mr. Poynter also appears dissatisfied. The Grape I allude to under this name is not the Champion Hamburgh, Dutch, Mill Hill, Wilmot's, or any other Hamburgh. That such a Grape as the Royal Albert does exist, Mr. P. will find if he will look in your Paper for the year 1842, p. 742, where the following account of it is taken from the Royal Horticultural Society's Proceedings:—"Mention was also made of a fine-looking Grape, called the Royal Albert, received on the 13th of October last, from Mr. J. S. Brock. The bunch sent weighed 2 lb. 2 oz. The berries were large, inclining to oval, purple, and possessed a fine bloom. The skin was moderately thin; flesh juicy, with a little crispness, scarcely so rich as a well-ripened Black Hamburgh, but could perhaps be grown to equal perfection with that variety." This is the Grape I wrote about last week, and one, if I mistake not, which will sooner or later be found worthy of all I said of it. Let it get into the right hands, and it will astonish even Mr. Poynter—quite as much as his statements about the Alicante have astonished me. *Edward Bennett, Gardener, Osberton Hall, Worksop, Notts.*

Pine Growing.—I have for some time past been inquiring why Pine Apples are not grown as commonly as Grapes, and the answer I generally receive is—that they are liable to the attack of troublesome insects, and are longer in coming to maturity than Grapes, and accordingly more expensive. It occurs to me, however, that there must be other reasons, and one of them is that the treatment necessary for the successful cultivation and management of Pines has been kept more or less secret among gardeners, and that amateurs have never had the courage to try and penetrate the mystery. If any of your contributors would correctly enlighten your readers on the subject of the growth of Pines from the commencement to maturity, accompanying their remarks by stating the size of stove for fruiting them in, a description of succession pits, and their number, and at the same time indicate the cause of the alleged expensiveness to the grower, I think it would not take long before Pine-growing became as much a mania as Cucumber-growing. Why should not Pines be grown in open borders in the stovehouse instead of in pots, and fruited in 12 months from planting the offset? *H. P. Q., Chelmsford.*

The Knowsley Pine Stove.—"G. H." is evidently one of those individuals who can see nothing good out of his own immediate circle. Surely it would have been just, if not generous, before placing upon record the conclusion of "one of his men," and his own adverse opinion founded on the woodcut and the disinterested remarks that accompanied it, to have condescended to visit Knowsley occasionally between the months of "January and June," to see with his own eyes the failure he anticipates. Mere assertions, it must be remembered, carry very little weight. *J. A.*

Cratægus crenulata.—Does this plant require a wall? And is it more ornamental than C. Pyracantha? *Diss.* [We have no knowledge of it, otherwise than as a wall plant, in which position it is a very beautiful bright-looking evergreen, which we are surprised is not more generally met with.]

Foreign Correspondence.

Gastrolobium grandiflorum.—This year large flocks have started for the Flinders, and on the road out have had frightful losses from this poisonous Gastrolobe. It is most destructive, and for a death dealer I do not think it has been surpassed. It is fatal to cattle as well as sheep. Some drop as soon as they eat it; others dash madly into the bush and are seen no more; but most of them show no symptoms of it till the morning after they have eaten of it, when they drop in hundreds. *F. M., Melbourne.*

Societies.

Linnean: *Jan.* 19.—G. Bentham, Esq., President, in the Chair. Archibald Campbell, M.D., Lieut.-Col. Scott, R.E., and J. L. Stewart, M.D., were elected Fellows. The following papers were read:—1. *Extract of a Letter from Mr. W. H. Brewer, State Geologist to the Survey of California, on the Forests of Sequoia (Wellingtonia) gigantea, addressed to Sir W. J. Hooker.*——2. *On a new Banana from Tropical Africa*, by Dr. Kirk. This plant, which was evidently closely related to Musa Ensete, was proposed to be called Musa Livingstoniana. ——3. *On the Anatomy of Doridopsis, a genus of Nudibranchiate Mollusca*, by Albany Hancock, Esq.

Feb. 2.—G. Bentham, Esq, President, in the Chair. The Rev. R. W. M'All and Capt. Douglas Galton were elected Fellows. The following papers were read:—1. *On the Movements and Habits of Climbing Plants*, by C. Darwin, Esq. The author divided climbing plants into three groups, namely, twining plants, leaf-climbers, and tendril-bearers, and detailed at great length his observations under each division. In his concluding remarks he observed that it might be presumed plants become climbers in order to reach the light and to expose a larger surface of leaves to its action, and to that of the free air. This was effected by climbing with wonderfully little expenditure of organised matter in comparison with trees, which have to support a load of heavy branches by a massive trunk. Those plants which have a twining habit are furnished with revolving internodes. In the next group the possession by a plant of leaves with their petioles or tips sensitive, and with the consequent power of clasping any object, would be of very little use unless associated with revolving internodes, by which the leaves could be brought into contact with surrounding objects, though on the other hand revolving internodes without other aid suffice to give the power of climbing. Unless, therefore, we suppose that leaf-climbers simultaneously acquired both capacities, it seems probable that they were at first revolvers and could thus climb, and that subsequently they became capable of grasping a support. From analogous reasons it is probable that tendril-bearing plants were primordially twiners, that is, they are the descendants of plants having this power and habit; for in the majority the internodes revolve like those of twining plants, and in a very few the flexible stem retains the capacity of spirally twisting around an upright stick. With some tendril-bearing plants the internodes have lost the revolving power, which has passed into the tendrils. These tendril-bearers have undergone much more modification than leaf-climbers; hence it is not surprising that their supposed primordial revolving and twining habits have been lost or modified more frequently than with leaf-climbers. The three great tendril-bearing families in which this loss has occurred in the most marked manner are the Cucurbitaceæ, Passifloraceæ, and Vitaceæ. There is abundant evidence in the whole group of leaf-climbers that an organ still subserving its proper function as a leaf, may become sensitive to a touch, and thus grasp an adjoining object. Thus true leaves may acquire all the leading and characteristic qualities of tendrils, namely sensitiveness, spontaneous movement, and subsequent thickening and induration. If their blades or laminæ were to abort they would form true tendrils; and of this process of abortion every stage may be met with. According to these views, leaf-climbers were primordially twiners, and tendril-bearers (of the modified leaf division) were primordially leaf-climbers. Hence the latter stand between twiners and tendril-bearers, and ought to be related to both. This proves to be the case, for the several leaf-climbing species of the Antirrhineæ, of Solanum, of Cocculus, and of Gloriosa are related to other genera in the same family, or even to other species in the same genus, which are true twiners. On the other hand the leaf-climbing species of Clematis are very closely allied to the tendril-bearing Naravelia, and the Fumariaceæ include closely allied genera which are leaf-climbers and tendril-bearers. Lastly, one species of Bignonia is both a leaf-climber and a tendril-bearer, and closely allied species are twiners. Tendrils consisting of modified flower peduncles likewise afford many transitional states. The common Vine gives every possible grade, from grandly developed tendrils to a bunch of flower-buds bearing the single usual lateral flower-tendril. Some tendrils are thus foliar and some axial in their nature, and it might have been expected that they would present some differences of function, but this is not the case; on the contrary, they present the most perfect identity in their several characteristics. The most interesting point in the natural history of climbing plants is their diverse powers of movement. The most different organs—stem, flower-peduncle, petiole, midribs of the leaf or leaflets, and apparently aerial roots, all possess these powers. Climbing plants, continued the author, are so numerous as to form a conspicuous section of the vegetable kingdom. They belong to many and widely-different orders. To gain some crude idea of their distribution in the vegetable series, I marked all the families in Lindley's "Vegetable Kingdom," which include plants in any of the sub-divisions of twiners, leaf-climbers, and tendril-bearers, and these (some at least in each group) all proved to have the power of spontaneously revolving. Lindley divides phanerogamic plants into 59 alliances, and of these 36 (above half) include climbing plants—hook and root-climbers being excluded. To these a few Cryptogamic plants must be added which climb by revolving. When we reflect on the wide serial distribution of plants having this power, and when we know that in some of the largest well-defined orders, such as the Compositæ, Rubiaceæ, Scrophulariaceæ, Liliaceæ, &c. two or three genera alone out of the host of genera in each, have this power, the conclusion is forced on us that the capacity of acquiring the revolving power on which most climbers depend, is inherent, though undeveloped, in almost every plant in the vegetable kingdom. The author thus concluded his remarks:—The perfection of the organisation of plants is forced on our minds by the study of the many kinds that climb. Let us look at one of the more highly organised tendril-bearing climbers. It first places its tendrils ready for action as a polype places its tentacula. If the tendril be displaced, it is acted on by the force of gravity and right itself. It is acted on by the light, and bends towards or from it, or disregards it, whichever may be most advantageous. During several days the tendril or internodes, or both, spontaneously revolve with a steady motion. The tendril strikes some object, and quickly curls round and firmly grasps it. In the course of some hours it contracts itself into a spire, dragging up the stem, and forming an excellent spring. All movements now cease. By growth the tissues soon become wonderfully strong and durable. The tendril has now

done its work, and done it in an admirable manner.——2. *Note on the genera Darwinia and Bartlingia*, by the President. In this paper, Mr. Bentham showed that the original genus Darwinia of Rudge ought to include the later ones: Genetyllis of De Candolle, Hedaroma of Lindley, Polyzone of Endlicher, and Schuermannia of F. Mueller. Owing to Rudge having overlooked the minute calyx lobes, and misunderstood some other points of the structure of his Darwinia, it was generally referred to Monochlamydeæ, and hence was overlooked by De Candolle when working up Myrtaceæ. The latter overlooked the staminodia, distinguishing his Genetyllis from Chamælaucium expressly by their absence, and hence Lindley established Hedaroma, giving to it characters which are really common to DeCandolle's and to Rudge's species, although omitted in their descriptions. Of Darwinia thus extended, Mr. Bentham noticed 23 species, which he distributes under the sub-genera Hedaroma with 11 species, Genetyllis with 6 species, and Schuermannia with 6 species. Bartlingia founded on specimens of Sieber's, and inexplicably retained in Myrtaceæ by Schauer, Mr. Bentham finds to be none other than Pultenæa obovata, with the buds in the young stage when the sepals and petals have not grown into the irregular form characteristic of Papilionaceæ.

Royal Horticultural: *Feb. 18 to 22 (Weekly Show).*—Major Trevor Clarke furnished for exhibition on this occasion some very pretty cut flowers of forced Chrysanthemums. From Messrs. Lee came the handsome winter-flowering Cœlogyne cristata, Dendrobium cœrulescens, Double Chinese Primulas, and one or two winter and early spring-flowering Heaths and Epacrises. Six small bouquets and a box of cut Camellias were contributed by Mr. Batley, of Rugby. Of Japanese plants one or two examples came from Mr. Bull, who had also Imantophyllum cyrtanthifolium, and various little Standard Orange trees. From Mr. Hall, gr. to H.R.H. Prince Edward of Saxe Weimar, Molecombe, near Goodwood, came a very pretty basketful of Violets, and with them some pendent rustic decorations, consisting of blocks of wood covered with Moss, from among which peeped Snowdrops and Winter Aconites in full bloom, tastefully intermixed with living fronds of British Ferns, a combination which at this season of the year has an extremely good effect. Mr. Tillyard, gr. to J. Kelk, Esq., sent beautiful examples of Muscat of Alexandria and West's St. Peter's Grapes, still in a state of excellent preservation. From Capt. G. H. Clarke came a Pine-apple and specimens of Navel Orange imported from Pernambuco. Finally, from Mr. Fraser, Lea Bridge, came examples of winter-flowering Heaths, together with the charming deep purplish-violet blossomed Hovea pungens, one of the most useful as well as ornamental of early hardy greenhouse plants.

Notices of Books.

A Monograph of the British Spongiadæ. By J. S. Bowerbank, LL.D. Vol. I. Published for the Ray Society. 8vo, 1864. Pp. xx. and 290. Tab. lith. 37.

If every branch of science were overwhelmed with a nomenclature similar to that which prevails in this volume, its study would indeed be the pursuit of knowledge under difficulties. Such terms as bipocillated equianchorate, floricomo-hexradiate, and a hundred equally overpowering, might well be a heavy blow and strong discouragement at the very outset. In many cases we think that matters are not facilitated by this new nomenclature. Such terms as expando-ternate do not to our apprehension convey any definite notion, and many of them are certainly framed in opposition to all received rules of etymology. They may be ingenious, but it is ingenuity which is almost on a par with that of Ehrenberg, who gave generic and specific names to the different forms of sponge spicules. It is, therefore, we think, much to be regretted that a work which has so much to recommend it should be overwhelmed with such a mass of ill-looking, and, we think, needless phraseology.

Though we protest so far, we would not detract from the general merits of a most beautiful and acceptable work, of which we have here only the first instalment. The figures are extremely well executed and very instructive, and when we turn to the text we find a full and excellent account of all that is known of the structure and physiology of these very curious productions. At present but little has been ascertained in many of the groups; it is however at least clear that, in spite of the apparent excessive simplicity of structure, except as regards the skeleton, all are really tenants of the animal kingdom.

The skeleton is of three kinds, calcareous, siliceous or horny, and in the second more especially, the spicules assume the most strange and varied forms, which would astonish us the more were we not apprised of the very complicated calcareous coverings which are elaborated by the Foraminifera, beings quite as simple in structure so far as we know, as the Sponges themselves.

The most important element however in the Sponges, equally with the Foraminifera, is that curious substance sarcode, which was first discovered and described by Dujardin, and which is now ascertained to occur in the vegetable as well as the animal kingdom.

"It is," says our author, speaking of it as it is found in Sponges, "a pellucid, semi-transparent gelatinoid substance, variable in colour and insoluble in water. It dries readily, and its physical characters are restored by immersion in water with little or no apparent alteration. When separated from the living Sponge it has at certain periods an inherent power of locomotion; small detached masses of it may be observed slowly but continuously changing their form, and occasionally progressing in different directions. It is usually spread thinly and rather evenly over the internal tissues, but the surface is rarely perfectly smooth; sometimes it abounds in obtuse elevations, and occasionally separates naturally into innumerable irregularly round or oval masses which are exceedingly variable in size."

By means of a double set of pores, a constant communication is kept up with the surrounding fluid: the former of these are minute, and often when closed invisible to the naked eye, and through these nutritive matter contained in the water is imbibed; the latter are large and permanent, and through these the imbibed water and any fecal matter are expelled, together with in many cases reproductive bodies.

It is not clear how these apertures open and shut. In some cases cilia have been observed, and it is probable that they exist in every case, and very possibly on the whole surface of the sarcode, which seems to answer the purpose at once of nutrition and aëration. So few, however, of the marine Sponges have been studied immediately on their removal from the water, that little positive is known on the subject.

The reproductive bodies are of various kinds; sometimes naked eggs, sometimes ova contained in very complicated ovaries; sometimes propagation is carried on by gemmules as they are called, secreted within the Sponge, or produced externally; and sometimes by mere division of the sarcode, every particle of which seems to be able to live at its own expense and to reproduce the species. The gemmules are bodies of a doubtful nature, and if they are of two kinds, one of which bears spermatozoa, they must be of a higher character than mere buds.

Mr. Carter, who has made such valuable observations on Sponges, as on other aquatic productions at Bombay, makes the following statement:—"When the transparent spherical capsules which contain the granules within the seed-like bodies are liberated by breaking open the latter under water in a watch-glass, their first act is to burst: this takes place after the first 36 hours, and their granules, which will presently be seen to be the true ova of a proteiniform infusorium, varying in diameter from about the $\frac{1}{4800}$th part of an inch to a mere point, gradually and uniformly become spread over the surface of the watch-glass. On the second or third day (for this varies) each granule will be observed to be provided with an extensible pseudo-pediform base; and the day after most of the largest may be seen progressing by its aid or gliding over the surface of the watch-glass in a globular form by means of some other locomotive organs."

"The truth appears," says Dr. Bowerbank, "simply to be that any minute mass of sarcode, whether separated voluntarily or involuntarily, has inherent life and locomotive power, and is capable of ultimately developing into a perfect Sponge, and in the course of this process the dermal membrane is produced at a very early period."

Dr. Carter's description, he says, is strikingly similar to his account of the masses of sarcode separated from the sarcodous lining of the interstitial cells of Spongilla; but it must be observed that, in the development of the egg, the first act is to liberate itself from the membranous envelope, and the contents thus hatched become moving masses of free sarcode, but without the locomotive cilia that are found on the so-called ova or gemmules so minutely and accurately described by Dr. Grant in his papers on the Structure and Functions of the Sponge, in the Edinburgh New Philosophical Journal.

Both these modes of propagation occur in the same species, but Dr. Bowerbank has never seen them both well developed in the same individual.

The subject is of peculiar interest to the botanist, because of its bearing on the mode of reproduction in the minute Puff-balls belonging to the order Myxogastres, in which propagation sometimes takes place by an Amœboid body proceeding from the interior of a spore, and which cannot be distinguished from a true Infusorium, while in other cases the spores germinate like ordinary spores. It is only an additional instance in proof that vegetable and animal life are not two distinct things, and that the two kingdoms are far from being acutely separated from each other.

Many other matters of importance might be noticed, but we have quite reached our usual limits. It seems very ungracious to find any fault where we have so much to interest us, and where we ought to feel so much obligation for collecting such a mass of information on a point which cannot fail to be attractive. It is, however, a great object of the present day to simplify science quite as much as is compatible with perfect truth, and to avoid as much as possible anything which can prove repulsive. The great drawback to Wallroth's book on European plants, was a nomenclature which was not familiar, in consequence of which a mass of most valuable information on Cryptogamic plants has been almost universally neglected, and we have fears of similar consequences in the case before us. With this apology, if we may so call it, we conclude our somewhat desultory remarks, at the same time expressing a hope that the descriptive part relating to the species may very shortly follow.

M. Muquardt, of Brussels, announces a magnificent folio work on Java plants, entitled *Fleurs, Fruits, et Feuillages choisis de la Flore et de la Pomone d'Ile de Java*, painted from Nature by Madame Berthe Hoola van Nooten. The work is published in 10 parts, each comprising four plates, richly printed in colours and touched with the pencil, with four leaves of French and English text. Mr. G. Severyns, of Brussels, has been engaged in the production of the plates. The prospectus tells us that the author, in a touching preface, explains the painful circumstances which induced her to seek in these studies the means of bringing up her family, in the accomplishment of which sacred duty she has had the consolation to find in the study of Nature a vivifying balm. At the same time, she has had the satisfaction of producing a magnificent album, which will form an indispensable supplement to works already published on the same subject.

Catalogues Received.—*E. G. Henderson and Son's Catalogue of Seeds* is a well prepared ample list of kitchen and flower-garden subjects, and contains besides some very useful observations on Seed-sowing, on Manures, on Destroying Insects, &c., as well as a set of Golden Rules for Amateur Gardeners. Amongst specialties we observe Henderson's Perfection Sweet William, which is described as the last improvement on Mr. Hunt's celebrated strain.—*John Salter's Descriptive Catalogue of English and Foreign Novelties* contains a large assortment of Chrysanthemums, including upwards of 30 novelties, and many other interesting subjects, amongst which is a most extensive collection of hardy Variegated plants.—*Peter Lawson & Son's Garden Seeds* is a neatly arranged comprehensive list. Countess of Eglinton, a new mauve bedding Verbena, is announced.—*Stuart & Co.'s General Catalogue of Choice and Rare Seeds* is a most comprehensive list. Of the beautiful feathery Celosia, 12 distinct colours are offered, including rose, crimson, carmine, orange, pink, and yellow. Mr. Stuart also offers seeds of the beautiful perennial Lagenaria, of which fruit was shown last autumn at South Kensington.—*William Knight's (Hailsham) Catalogue of Nursery Stock* is a general list of shrubs, fruit-trees, and Roses.—*William Thompson's Descriptive Catalogue of Flower Seeds* is a well arranged select list, amongst the novelties in which we notice Waitzia aurea and W. corymbosa, two species of a genus of Everlastings, which are likely to prove attractive garden flowers.—*Robert P. Ker's (Liverpool) Descriptive Priced Catalogue of Seeds* is a select list; Meredith's Persian Hybrid is recommended as the best Melon grown.—*Lamoureux Clark & Co.'s General Price Current* is a full seed list, with useful notes and cultural hints. There is also a calendar of operations. Among Potatos, the Creeper Kidney is mentioned as one of the very earliest, and as the sort grown generally about Penzance for the first supply in Covent Garden Market.—*Drummond Brothers (Edinburgh) Priced List of Garden Seeds* is a condensed list, and seems carefully prepared.—*Haage & Schmidt's (Erfurt) Catalogue of Seeds and Plants* is most elaborate, the numbers of the seed list alone reaching over 8000! of which more than 1300 are seeds of trees and shrubs, about 50 of aquatics, and over 200 of succulents.—*Vilmorin-Andrieux & Cie.'s Extrait Général des Catalogues* is an abridged list, with several woodcut illustrations.—*William Davidson's (Edinburgh) Select Lists* is chiefly devoted to farm seeds.—*Downie Laird & Laing's Descriptive Catalogue of Florists' Flowers* is chiefly devoted to such subjects as Pansies, Hollyhocks, Phloxes, Pentstemons, &c., of which a very extensive selection is offered.

Garden Memoranda.

Mr. John Fraser's Nursery, Lea Bridge, Leyton, Essex.—Already are the show houses in this well-known establishment quite a blaze of floral beauty. Prominent among plants employed in producing this display are Azaleas, both red and white, and Rhododendrons. Worthy of especial notice among the latter is a rose-coloured variety of caucasicum, which is stated to force with great facility, while in point of appearance it is greatly superior to its parent. Double-blossomed Chinese Peaches are also at present in great beauty, and varying as their blossoms do in colour from snowy whiteness to rich deep crimson, they have a striking and highly ornamental effect. One variety moreover has carnation-striped blossoms. Considering the ease with which these double-blossomed Peaches can be had in bloom, it is a matter of surprise that they do not receive more attention than is at present bestowed on them for purposes of early spring decoration. Among Cyclamens, which are now blooming in profusion, the little kind called Coum is still deservedly a favourite, on account of the beauty of its deep purplish rose-coloured blossoms. Winter and spring-flowering Heaths are also at present objects of interest, especially the sorts called E. regerminans, hiemalis gracilis, melanthera, and a few others; as are also Epacrises, Boronia pinnata, Tetratheca ericifolia, and certain other early-flowering greenhouse shrubs; among which the Hovea pungens must not be forgotten, on account of the beauty of its peculiarly rich violet

purple blossoms. Among Correas, cardinalis is a fine kind, its blossoms being rich scarlet, tipped with green, the two colours producing a charming contrast. Crocuses consisted of potsful of the common large yellow kind; a white sort called Diana; and Orondates, purplish violet, and one of the largest varieties in cultivation. Of striped kinds La Majestueuse is one of the very best, while for the ease with which it may be forced it has few equals. Narcissi likewise made a good display, as did also Deutzia scabra and gracilis, Kalmia glauca, Hyacinths, and double Tournsol Tulips. Among lilacs was one named Charles X., the blossoms of which when out of doors are of the deepest purple; but when forced they come nearly white. This is stated to be the variety employed about Paris for producing white flowers when forced in darkness. As far as fine effect is concerned, few plants equal the common Guelder Rose when forced; here we noticed standard specimens of it, loaded with balls of snowy whiteness, which, contrasted with rose-coloured Azaleas and Rhododendrons, had a fine effect. Ledum palustre, a well-known forcing shrub; Chinese Primulas, and Daphnes are likewise at present in fine flower. Of Camellias, Mr. Fraser has an extensive assortment, and as covering for walls they have few equals. When trained in closely, as they are here, they occupy little room, and flower profusely; while when not in flower their fine evergreen leaves form an extremely ornamental background for other plants.

To the growth of Pelargoniums several houses are devoted, and seldom have we seen more promising plants than those intended for the forthcoming exhibitions. Zonate and other sorts likewise claim much attention here, and to their propagation and growth many long span-roofed houses are appropriated. One stove, wholly set apart for the cultivation of Ixoras, contained a fine collection of these showy shrubs, associated with a few plants remarkable for the beauty of their leaves; while in a forcing house were Lilies of the Valley, the new Double White Almond, just coming into bloom, apparently a valuable acquisition both indoors and out; the blue-flowered Exacum zeylanicum was also in flower, and is worth growing on account of its colour. On the inside roof of a comparatively cool house Lapageria rosea blooms beautifully every year, and produces abundance of seeds from which multitudes of young plants have been raised. It may be worthy of remark that the flowers produced towards the end of the season are those which furnish seeds most abundantly, the early blossoms being nearly or in most cases wholly barren. Neapolitan Violets, now blooming in great perfection, are being removed from frames in which they have been wintered, and potted preparatory to being placed in the show houses.

Roses and fruit trees are becoming important features of this nursery, both indoors and out. Under glass some of the newest Roses are coming into bloom, and even grafts put on since Christmas are furnished with flower buds. The respective merits of the different sorts now on trial will therefore soon be in some measure determined. Some of the better known kinds of Teas now in blossom are uncommonly sweet-scented, a quality belonging to them even more appreciated now than later in the season.

Orchard-houses are annually stripped of their summer stock on the approach of winter, and are converted into hybernatories for other kinds of plants. Among the latter we noticed Lilies, which succeed admirably in houses such as these. Of L. auratum Mr. Fraser has several hundreds, most of which flowered beautifully last season. Coniferous seeds also germinate freely in houses of this description, which, however, to be useful, should always have a hot-water pipe run round them—as is the case here. The fruit trees in pots with which they were filled last season are now plunged out of doors, and have their pots covered with Cocoa-nut refuse, a cheap and useful material for such a purpose, as well as for plunging pots in in pits.

Vine eyes in great numbers are being started into growth in heat, and of the collections of specimen plants and large Azaleas, for which this nursery is celebrated, it is impossible to speak in terms of too much praise. On these, however, we shall doubtless have to report more particularly on future occasions.

As far as can be ascertained at present, the Japanese Retinosporas, Thujopsis dolabrata, and Sciadopitys verticillata planted out of doors, have received no injury from the late severe weather, which has also had no ill effect on the bright yellow blossoms of the Winter Aconite, several beds of which are now in great beauty.

Miscellaneous.

Sale of Bulbs of Lilium auratum.—An importation of these, together with some seeds of Wellingtonia, and a few plants of Tree Ferns, was sold the other day by Mr. Stevens, and realised large prices, especially the Lilies, which although in many instances only presumed to be L. auratum, fetched as much as from 2*s.* to 8*s.* apiece. The seed of Wellingtonia fetched from 15*s.* to 25*s.* an ounce, and the Ferns from 1*l.* to 4*l.* per plant. Altogether, a sale of some 425 lots realised the sum of 420*l.*

Uses of the Vine.—When in flower the Vine exhales an agreeable odour, and there is no part of the plant which is not applicable to some useful purpose. In Switzerland the leaves are applied to medicinal or surgical uses. In cuts and green wounds they are esteemed a sovereign remedy: decoctions of the juice of the leaves are used in poultices with great advantage. When boiled they yield an agreeable tea, but more astringent than that of China: it is much liked, and thought very bracing to the nervous system. The prunings, crushed and pressed, give excellent vinegar. The leaves and tendrils bruised, and the juice fermented, afford a pleasant light drink of a vinous character. The leaves form also excellent food for cattle when fodder is scarce, but they are of too much value in the vineyard to be often spared for that purpose. In such cases they should not be taken till they begin to fall off. They are then collected, put in a dry loft, and sometimes salted, pressed and left to ferment. In some places they are alternated with layers of straw, and then form still more excellent fodder. After the vintage, animals are often turned into the grounds to browse on the leaves. Vine branches furnish potash and salts when burned; basket-work is made from them; and the bark is used for bands to tie the Vines to the props. *Denman's Vine and its Fruit.*

Calendar of Operations.

(*For the ensuing week.*)

DURING the present changeable weather great attention will be required in the way of maintaining proper temperatures, and the requisite amount of moisture in stoves and other plant houses. Spare no labour to keep up a gay appearance in the Conservatory and other show houses. Cut and train Climbers, and let everything be kept scrupulously neat and clean.

FLOWER GARDEN AND PLANT HOUSES.

Look over beds of Crocuses and other bulbs to see that they are not thrown out of the ground by the late frost. Also inspect half-hardy plants that have been closely covered up, in order to see whether or not they are secure from injury, or suffering from confinement.

AURICULAS.—Now that mild weather has returned, let these have as much air as possible; they dislike confinement.

CARNATIONS AND PICOTEES.—Draw the lights off these in the day time when there is no frost or heavy rain, but let them be put on again at night.

PELARGONIUMS.—Those for purposes of exhibition will now be in their pots in which they are to be bloomed, and will be growing pretty freely; therefore whenever the weather is fine, let them have as much air as possible, consistent with the proper temperature. As has been stated on former occasions, let Fancy varieties be kept a little warmer than ordinary kinds.

ROSES.—Another batch of these may now be placed in heat to succeed those coming into bloom. Keep down fly by frequent fumigations.

TULIPS.—Place in heat potsful of bulbs to succeed those now in bloom, and see that the latter are not allowed to droop from want of water.

FORCING GARDEN.

ASPARAGUS.—A bed to come in in succession should now be made. On fine days give a little air, to keep the heads from becoming too much drawn.

CHERRIES.—Force slowly while the weather is comparatively dull. Syringe the trees occasionally, and keep all floors and other evaporating surfaces moist.

CUCUMBERS.—Where necessary fill pits and frames with young plants. Cuthill's Black Spine is as useful as any to plant for ordinary purposes.

MELONS.—Sow now; pot in small pots when strong enough; keep near the glass, and either plant out or pot into large pots, using properly warmed, rather strong turfy soil. Sow for succession at intervals of about a month until May.

PEACHES.—Admit air freely whenever the weather is mild, and keep the atmosphere moist, maintaining a steady night temperature of about 50°. Early houses in which the fruit is set should be afforded a nice growing temperature, syringing liberally to prevent red spider, and keeping the border in a healthy state as to moisture to secure a vigorous root action.

PINES.—Young plants in beds that have been some time planted will be benefited by having the soil loosened up as deeply as can be done without injuring the roots, giving it a liberal soaking of tepid water if it be found to be too dry. Endeavour to afford a nice regular bottom-heat, with a thoroughly moist atmosphere, and keep the plants growing as freely as may be consistent with preserving them dwarf and bushy. Have a constant eye to maintaining a succession of fruit, or securing a supply at the season when it may be most wanted, and let the treatment of the plants be regulated according to circumstances; this is a matter which demands considerable forethought, and which can be successfully managed only by careful observation and attention.

STRAWBERRIES.—Put sufficient of these for a second crop into a Peach-house or Vinery, and place them on a shelf near the glass where they will have plenty of light. A fresh supply of plants should be afterwards placed under cover every fortnight or so. Let the temperature be low at first, and even afterwards force gently and give all the air possible, or the flowers will be apt to become "blind."

VINES.—Take advantage of all favourable opportunities to admit fresh air as freely as can be done with safety, and be satisfied with as low a temperature from fire-heat as may be considered safe under the state of the Vines, but shut up early, allowing the thermometer to rise considerably. This will to some extent economise fuel, and will be much more congenial than strong fire-heat. Except where Vines are in flower keep the atmosphere moist, but the foliage should always be allowed to become perfectly dry in the course of the day.

HARDY FRUIT AND KITCHEN GARDEN.

Digging and trenching may still be carried on with activity. All wheeling will, as a matter of course, have been done during the late hard weather.

APPLES AND PEARS.—Pruning and thinning of these must now soon be completed.

BEANS.—Broad Windsor and Johnstone's Wonderful may be planted as soon as the ground is in a fit state for their reception.

PARSNIPS.—Seed of these should be sown as soon as possible. Had the weather, indeed, been favourable, it should have been in the ground before this time.

PEAS.—Make a sowing of these as soon as the ground is fit to receive the seed.

POTATOS.—Early sorts should now be planted without delay.

SPINACH.—This will doubtless have suffered in some places from the late frosts. A sowing to supply early plants should therefore now be made.

RADISHES.—Let a sowing be made on a warm border.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Feb. 22, 1865, as observed at the Horticultural Gardens

February	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth 1 foot deep.	Temperature. Of the Earth 2 feet deep.	Wind.	Rain.
Thurs. 16	20	29.429	29.055	41	20	30.5	40	40	E.	[illegible]
Friday 17	21	29.391	29.259	40	28	34.0	39	40	W.	[illegible]
Satur. 18	[illegible]	29.594	29.503	47	31	39.0	39	40	W.	[illegible]
Sunday 19	23	29.577	29.271	43	25	34.0	40	40	W.	[illegible]
Mon. 20	24	30.247	29.970	38	24	31.0	39	40	N.W.	[illegible]
Tues. 21	25	30.348	30.145	39	30	34.5	39	40	S.W.	[illegible]
Wed. 22	26	30.227	30.222	52	34	43.0	39	40	S.W.	[illegible]
Average.		29.844	29.632	42.7	27.4	35.1	39.3	40		[illegible]

* Rain and melted snow.

Feb. 16—Uniformly and densely overcast.
— 17—Very clear; fine with bright sun; slight frost.
— 18—Quite clear; rain; drizzly.
— 19—Clear; fine; slight frost at night.
— 20—Very clear; clear, cold, and dry; fine; frosty at night.
— 21—Dry and frosty; snow-flakes; overcast.
— 22—Foggy; hazy and cloudy; dull and foggy.

Mean temperature of the week, 3 1-5th deg. below the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 39 years, for the ensuing Week, ending March 4, 1865.

February and March.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday..26	47.1	33.4	40.3	20	0.48 in	4	7	5	1	4	[illegible]	[illegible]	[illegible]
Mon. ..27	47.9	33.7	40.3	19	0.40	3	6	5	2	6	8	6	[illegible]
Tues. ..28	49.2	33.3	41.3	14	0.81	1	8	5	—	2	10	[illegible]	[illegible]
Wed. .. 1	47.7	33.8	40.3	14	0.45	2	7	5	1	3	11	[illegible]	[illegible]
Thurs. .. 2	49.0	35.4	42.2	15	0.22	3	7	6	2	3	9	6	[illegible]
Friday .. 3	50.0	32.4	41.2	12	0.48	3	9	3	4	3	8	6	3
Satur. .. 4	49.9	31.3	40.1	10	0.40	2	7	3	4	5	9	6	3

The highest temperature during the above period occurred on the 4th, 1860—therm. 70 deg.; and the lowest on the 4th, 1852—therm 15 deg.

Notices to Correspondents.

BOOKS: *Scotus.* Next week. — *Young Gardener.* Lindley's Vegetable Kingdom will give you the information you are seeking.

BRITISH HERBARIA: *W B.* We are unable to say when the decisions respecting the prizes are likely to be announced. You had better apply to the Secretary.

FRUIT-TREE WALL: *Lancashire.* We should recommend the use of Foxley's Beaded Bricks, of which a brief notice was given at p. 698 of our last year's volume, and a woodcut will be found in our advertising columns. No further preparation for training is then required, the bricks being pierced with holes for the purpose. If however your wall is already built of plain bricks, your best plan would be to drive in eyes at convenient distances and stretch horizontal wires between them, the trees to be tied to the wires; that is, if you object to the ordinary practice of nailing.

NAMES OF PLANTS: *G G.* 1, Bryum ligulatum, a Moss, not a Fern; 2, Elæagnus japonicus; 3, Rhamnus Alaternus fol. argenteis.—*Y Z.* Scilla sibirica.—*Enquirer.* The Asafœtida plant is called Narthex Asafœtida.—*G A.* The plant you allude to with rough Rhubarb-like leaves is probably Gunnera scabra.

OSIERS: *T B.* We do not know of any publication on the growth of Osiers; but a pretty full account is given in the third volume of Loudon's "Arboretum."

PINE-APPLES: *G H.* We shall be happy to receive and publish your views on the economical management of this king of fruit; and doubtless if you should chance to differ from our Correspondent "J. A." on any important point of practice, he will be ready to discuss the question, in a temperate way.

RAIN: *R S.* The fall of snow, when it melts, is included with the amount of rain.

THE MARKET GARDENERS AND THE POLICE AUTHORITIES: *A Correspondent* thinks it very hard that the market gardeners and salesmen who attend Covent Garden Market should not be able to get any refreshment before 4 o'clock, though their labours commence at 3, after which hour they are busily engaged, and they have previously had to travel many miles; and harder still that Sir Richard Mayne should have refused their application that the coffee-houses used by them should be allowed to open at the earlier instead of the later hour, on the ground that it was not a special case. We are inclined to think it is rather a hard case, especially in such weather as we have lately experienced; but might they not contrive to provide, on the private club principle, what is required under the circumstances?

THE WEATHER: *Arabella.* February was always called Fill-dyke by our Saxon ancestors, which name it well deserved, as you see.

VEGETABLE SHEEP: *M B.* The plant so called is the Raoulia eximia, a New Zealand Composite, growing on the mountains, and forming large woolly hemispherical cushions, a couple of feet high, and a yard in diameter. The Cibotium Barometz is called Tartarian Lamb.

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GRASS SEEDS FOR ALL SOILS.

Messrs. Sutton's GRASS SEEDS being Mixed expressly to suit the Soils for which they are required, Persons ordering have only to state the Nature of the Soil, and Acreage to be laid down, when suitable Seeds will be supplied.

SUTTON'S

GRASS and CLOVER

SEEDS

FOR

PERMANENT PASTURES,

RECLAIMED MARSHES,

GOOD BLACK PEATY SOIL,

CHALKY UPLANDS,

SHEEP DOWNS,

WATER MEADOWS,

CHURCHYARDS,

CRICKET GROUNDS,

PARK LANDS.

SUTTON'S

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SEEDS

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3 or 4 YEARS' PASTURE

HAY or SOILING,

2 YEARS' DITTO,

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FINE GARDEN LAWNS,

NEW PARK LAWNS,

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List of Prices of Turnip, Mangel, and other Farm Seeds, with any information required, will be sent on application.

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Each kind of Grass and Clover Seed supplied separately if required.

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Bromus Schrœderi (Schrœder's Brome Grass).

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THE ALSIKE CLOVER for CLOVER-SICK LAND.—This excellent Clover will thrive in almost any soil. It produces two good cuttings in the year and [illegible] flowers. It may be sown [illegible] per Acre, [illegible] with other Seeds, either for alternate husbandry or for Permanent Pasture. If sown with Italian Rye-grass it is ready for mowing three times in the year.

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The Agricultural Gazette.

SATURDAY, FEBRUARY 25, 1865.

MEETING FOR THE ENSUING WEEK.

Wednesday, March 1—Royal Agri. Society of England (Noon)

Have the members of the Royal Agricultural Society at all considered what the Educational Committee of their Council are recommending that body to do? On Wednesday next a decision, adjourned from the last meeting, will no doubt be declared upon a proposition which really has no claim whatever upon the consideration which it will receive; and certainly none upon that favourable consideration of it which some enthusiasts desire that it should have.

It is proposed that 300*l.* of the Society's funds be voted for prizes to be annually awarded to boys, the sons of farmers or of members of the Society, who shall pass, with the greatest credit to themselves, the local University examinations or those of the College of Preceptors. In addition to these bodies the Society of Arts had been originally asked to co-operate, but its examinations, which alone have any direct reference to agriculture, are now excluded from the scheme. And it curiously illustrates the same tendency on the part of the promoters of this plan that a proposal that 25*l.* should be appropriated for a special paper on Mechanics as applied to agriculture, which is the only professional feature it possesses, is expressly declared to be contingent on further negociations with the Universities.

All this, then, is in discharge of the duty connected with agricultural education which the Charter of the Society imposes! It is plain that agricultural education—"the education of those who are dependent upon the land for their support"—so far from being promoted by this scheme, is altogether ignored. The class indicated by the words of the Charter are not the sons of farmers or of members of the Agricultural Society—but those, whether sons of farmers or not, who, entering agriculture as a profession, become dependent on the cultivation of the land for their

support; and it certainly may be fairly concluded that the education referred to is that professional education by which they become qualified to obtain a maintenance in this way.'

In place, however, of any examination which, by testing so much of this qualification as is capable of being thus tested, shall stimulate young men to seek a thorough professional equipment as agriculturists, all that the Society is asked to do is to reward those who have satisfied a merely literary board of examiners. It is not a knowledge of the art of agriculture, or of any special applications to it of the sciences; it is not an acquaintance with soils, and plants, and animals—with the practice of the field, the fold, the farm—with the experience of the agriculturist, or with the explanations given of it by the man of science—but a knowledge of spelling forsooth!—of Arithmetic and Geography, of Grammar, English History, and Writing; of Latin, Greek and French; of Drawing, Mathematics, "*Music*," which the AGRICULTURAL Society of England is desired to stimulate and reward!

Let it be clearly understood that there is no question raised here of the importance of any or all of these departments of what is pronounced by the experts to be a sound middle-class education—nor do we at all deny the serviceableness of any of these studies as real educators of the mind. Nor is there any displeasure because of the amount of money which it is proposed to appropriate — a much larger sum, we say with Mr. EDMUNDS, might very properly be devoted to the promotion of agricultural education. The question raised is whether the funds of the Agricultural Society will be spent in accordance with either the intentions of its founders or the good will of its members, if voted for the purposes which the Committee have thus indicated. We admit that they are perfectly consistent in putting "music" and "religious knowledge" upon their list of studies; but if the mention of either of these subjects do not awaken the common sense of our leaders to some perception of the grotesque unfitness of the course on which the Agricultural Society is being asked to enter, nothing can be hoped to do it.

Does it not seem plain upon the very face of it that the Agricultural Society, if it interfere directly in the subject of education at all, must confine itself to agricultural education?—In the first place it is obvious that to do what it is asked to do for the promotion of general education will be a useless flinging away of money; for it is utterly visionary to suppose that the few pounds placed at the disposal of the University examiners will be felt as any additional spur whatever by candidates for the status, place, and literary rank, which, as awarded by a public board of such high standing, are the real objects actuating them. —In the second place it will manifestly be an indefensible wrong doing; for the money for which they are petitioned is not at the disposal of the Council for any such purpose as is proposed. It is at their disposal solely for the agricultural objects which are specified in the Charter; and general middle-class education certainly is not one of them.—And in the third place it will be a most mischievous mistake; for it will close the door on the efforts which might and could and should have been made for the promotion of professional and agricultural training. The duty specified in the seventh clause of the Society's Charter will be declared discharged; and the subject will altogether drop.

We submit to those who are really interested in the promotion of agricultural education that this is a most serious and weighty consideration. There certainly are a large number who sympathise in the efforts that have been made to induce the Council of the Society to an effort in connection with this subject. They may rest assured that if that body be misdirected now on to the wide field of middle-class schooling, nothing will be done for the special and professional object in which we are concerned.

It is earnestly to be desired that no rash step taken now, and retraced under directions from the general meeting of members next May, shall result in a distaste and indifference towards the whole subject, so that the professional education which alone is the proper object of our efforts, shall be left altogether in the lurch.

Is there no middle term on which the advocates of this middle-class movement may agree with us? Why should not the conduct of Apothecaries Hall towards candidates for the medical degree, to which Mr. ACLAND gave his adhesion in his letters to the President, be our guide? Let the candidates for the honours and rewards of the Society be exclusively, if you will, those who have already passed the middle-class education tests; but on the other hand let them be exclusively intending agriculturists, and let them gain their places on *our* lists by the test of agricultural examinations alone. It is idle to say that nothing can be learned of a man's professional ability and qualifications by such a test. The practical men who say that the real test of agricultural ability is only in the field and in the market are quoted with approval by those who are nevertheless their very antipodes on the educational subject. Their judgment is virtually misrepresented. There is not one of them who does not form a judgment of the servants whom he hires by just such an examination as he is here asserted to despise—nor one of them whose son at the Agricultural College does not derive periodical guidance and incentive in just this way.

Agricultural education is a definite thing, and many of its results can be tested by examinations. To its promotion we cordially hope that the educational efforts of the Agricultural Society may be directed and confined. These efforts are the more likely to be efficient and successful if the field of their operation be thus limited. They will be utterly lost if thrown into the great sea of middle-class schooling; where Mr. ACLAND, according to his pamphlet, strives to send them. And it is moreover well worthy the consideration of the Council whether they will not thus be misappropriating the funds which are placed at their disposal for agricultural purposes alone.

THE PRESENT POSITION OF THE FARMER.

[To the papers on this subject read before the Hungerford and the East Lothian Societies respectively, and lately reported in our columns, we now add another, or rather an address, spoken by Mr. Grey, of Lipwood—John Grey, of Dilston—at the recent annual meeting of the Hexham Farmers' Club, of which he was the founder, and has long been the President.]

1. *The Corn and Meat Produce of the Farm.*—The subject was—"The changes which have taken place in the prices of agricultural produce, and the means which we may be able to devise to meet that without the ruinous loss which attends the raising now of the produce of grain." Ten or twelve years ago he took the liberty of suggesting to them the propriety of looking ahead, and adverted to the large importation of foreign produce, which would greatly interfere with the markets of our own produce in this country. At that time it was obvious to him that the great increase in the importations would be in the articles of Wheat and other grain. That had come about. They would recollect that they used to calculate on 60*s*. per qr. as an average price for Wheat, and now it was down to 40*s*. or less. On the other hand, they used to reckon butcher meat at an average cost of 5*d*. per lb. and thought themselves well-off if they got 6*d*., while now it had gone up to 8*d*. and 9*d*. It seemed quite obvious that, looking over the world and seeing the great extent of corn-growing land, and the thin population of many other countries, and considering that Wheat could at all times be conveyed from one part of the world to the other upon that great highway of nations—the sea that divided them from other countries—and by means of those lines of railways which now intersected the globe in all directions—it seemed quite obvious that Wheat should be the article they would be likely to be inundated with, because it could be put on board a vessel or truck and conveyed from place to place with very little cost or diminution of value. It required no feeding and attention like cattle; there was nothing of that required for such cargoes as those. Not only did cattle require both food and water on their way, but they were liable to loss of health and the risk also of disease, and consequently great depreciation in value would be sustained. That had come perfectly true, and the recommendation which he took the liberty to bestow upon them then had been in the right direction. He told them generally, at that time, that he would judge of the condition of a farmer by the extent of the flock of ewes upon his farm, and the condition of his live stock. That generally had held good. Another thing showing the very great importation of grain and its increased consumption in this country, was that about 20 years ago the average importation of Wheat into England was about a million and a half quarters; now it had risen to between seven and eight millions; and on one occasion it had reached as high as 11 millions. That proved not only the great increase in the population of the country, but, what he rejoiced was also a fact, that the poor—the labouring classes—of this country were better fed than they used to be in the earlier days of many of those present—and better fed than any other class of labouring people in the world. Those circumstances proved the great change that had taken place in the market prices of the produce of their land, and it might point out to them the necessity of accommodating themselves, as well as they could, to a different mode of cultivation, which would tend to modify, in some degree at least, the consequences of the reduction in the price of grain When he asked what was to be done in these t[illegible] people said they must lay their land to Grass. T[illegible] was a very easy, but a very fallacious solution of [illegible] question; because they knew that if they put all [illegible] land to Grass they could not possibly maintain the [illegible] of stock that could be kept under another cour[illegible] husbandry.

"There was no doubt, as most of them, he dared say, [illegible] aware, that there were certain portions of land they mig[illegible] on almost every farm which, from its remote situ[illegible] steepness, or the peculiar quality of its soil, would be [illegible] laid out to permanent Grass than in any other way. S[illegible] was going a very short way, but that it should be d[illegible] ever it was desirable to do it, he was perfectly satisfi[illegible] had been his custom to make an allowance to the tenant [illegible] he agreed upon the propriety of laying into permanent [illegible] such fields as he had described—he had allowed him th[illegible] of the lime required to be applied to the land, and he als[illegible] the Grass seeds required. That was a course which ha[illegible] frequently failed, and caused him to doubt the wisdom [illegible] so. The failure, perhaps, was caused by the want of [illegible]dge, want of experience, and want of care in sowing for permanent pasture those very small, those very [illegible] seeds which it was needful to apply on such occasions. P[illegible] it would not be out of place were he to detail to them [illegible] the result of a set of experiments he recollected being [illegible] many years ago for the Highland Society of Scotland, [illegible] they would find recorded in that very compendious w[illegible] agriculture, by his friend Mr. Chalmers Morton—the "[illegible]pædia of Agriculture." They had also been transferr[illegible] very able treatise by Mr. Wilson, of Berwickshire, [illegible] made by fine loam being sifted and put into boxes in [illegible] grooves could be made to any desired depth Groo[illegible] made of a ¼-inch, ½-inch, 1 inch, 1½ inch, and 2 inches. W[illegible] they believe it that of all the seeds deposited with[illegible] various grooves the only one in which a great number [illegible] and germinated were in that of a quarter inch depth be[illegible] surface? At the half inch half were lost altogether, but [illegible] whole inch groove hardly any penetrated. What w[illegible] become of those small seeds if they were thrown among [illegible] and a heavy roller passed over them afterwards? W[illegible] plain that one half of them would be lost sight of alto[illegible] If they wanted good permanent pasture they must be [illegible] pains to prepare their mould as fine as possible, swee[illegible] surface with a roller, and having sown the seeds, [illegible] them in as lightly as possible with that description o[illegible] they had no difficulty in getting now-a-days if they [illegible] do it, and they should do it as carefully as a gardene[illegible] with his light rake. Without that, they would never [illegible] half of their seeds again. Another point to be observe[illegible] sowing land to permanent pasture was, that the land [illegible] be sown to Grass without a crop of corn, and at the [illegible] season of the year with a little mixture of Rape and Bar[illegible] something which in the autumn would give food t[illegible] sheep, during the eating of which they would [illegible] very gently, and in their turn would manure [illegible] land and increase its fertility. It did not do to [illegible] off the care of permanent pasture when they had ob[illegible] the right kind of seed, and sown it in the way he ha[illegible]tioned; for a very great deal depended on the way in [illegible] the land was used afterwards. Sheep ought to be put [illegible] to eat the Rape and Barley; but should be carefully re[illegible] before any frost or wet could injure the Grass, because [illegible] young germs of seeds were easily destroyed or injured [illegible] stock should be put upon the land at all until the next s[illegible] when it had got a certain degree of firmness; but the [illegible] ought to be eaten by light cattle rather than sheep—[illegible] were such close nibblers. They found a sweet place, and [illegible] into the very root; and it was ten to one but that the [illegible] was so closely eaten that they lost the seeds altogeth[illegible] drought succeeded. Again, in the autumn pains sh[illegible] taken to have it eaten as bare as may be so, as not to [illegible] the roots but to keep down the rough and superf[illegible] because there was a tendency of rough Grass, if not eve[illegible] usurp the ground, and displace those of a finer and [illegible] nutritious quality. Pains ought to be taken in keep[illegible] down, not to eat during the second year in the winter [illegible] third year, when it began to rather lose its verdure and [illegible] was quite necessary that some assistance should be given [illegible] in the way of manuring with guano, bone, nitrate of [illegible] and other things which are very precious to the growth [illegible] Grass in that way.

2. *Rotation of Crops.*—So far, then, as re[illegible] the sowing of land for permanent Grass. [illegible] again, they must extend their view beyond [illegible] because as practical farmers they were well aw[illegible] that they could not keep the extent of s[illegible] required for the consumption of the country [illegible] paying their rents unless they had a consider[illegible] amount of their land under cultivation. They [illegible] have a rotation of crops, and must have litter, [illegible] straw, and manure as well as root crops to keep [illegible] amount of stock. But it was quite possible to a[illegible] that object with less cultivation than we are at pre[illegible] addicted to.

He was speaking generally of inferior soils, because [illegible] richer soils in the land which are cultivated, a man mu[illegible] very little brains indeed if he could not discover how [illegible] to the best advantage. He was sure some of them wo[illegible] him out that in such a year as last, they must have se[illegible] of Oats on poor and clayey land which would do [illegible] than pay for the carrying in and threshing. He had seen [illegible] and it always struck him, and he would express his [illegible] whether it was agreeable or otherwise, that upon [illegible] where 30 or 40 acres of Oats were sown upon poor, clayey [illegible] and so small a return obtained for it, that if only one-h[illegible] been sown with corn and that half had had applied to it [illegible] or some other suitable manure, and the money expended [illegible] that one half which would have been saved from cul[illegible] the other half, that the farmer would have had as much [illegible] the half as upon the whole, and his land would come [illegible] better condition next year than now. He thought they [illegible] all agree with him, at least they would not question [illegible] great deal of it, that the farmer in such a case would [illegible] been very much better off if he had sown [illegible] and applied to it the value in manure it cost [illegible] to cultivate the other, and his land would [illegible] come out in better condition. There was nothing so [illegible] the "starving" system—nothing had such a tendency [illegible] a farm and bring down the tenant It was one thing [illegible] "I have such a number of acres under corn," and an[illegible] say that that quantity of corn was cultivated to pr[illegible] advantage. They had much better go over a less are[illegible] better and reap more from it, than to have a small cro[illegible] large portion of land which was only improver[illegible] doing. Then, instead of ploughing out land after [illegible] one year in Grass—suppose they took an extended [illegible] cultivation—let them be very good, very [illegible] part which they did cultivate, and let them leave [illegible] part to grow and to produce green food and roots. An[illegible] of ploughing land after it had been one or two years in [illegible] let them pursue the system of leaving it for [illegible]

three or four years, for they must remember that in laying out land in that way they could easily [illegible] a field that was not doing as well as they could wish, and save other fields to grow Grass for the maintenance of stock. They could also introduce another system which was followed more in the South of England than there, and which, if closely attended to, would tend to bring a greater amount of food and nutrition forward without increasing to any great extent the amount expended on the cultivation of corn. Instead of two years' Grass they could occasionally work a field for a crop of Rape. By applying a little effective manure, they knew that nothing produced so many pounds of mutton as a Rape crop did. Another thing could be done where the land was suitable—they could take a turn with Tares or some other green food. If they put sheep on land growing Tares, not only did these animals thrive well themselves, but they materially increased the value of the land wherever they went. So fertilising, indeed, was the manure of the sheep, which was distributed in small quantities, that it had been called "the animal with the golden hoof." There was another system of feeding with Tares common in the South of England which he would direct their attention to. If the land permitted of being eaten twice a season, they might cut the Tares, and by shifting them forward every second or third day the sheep would get their food without trampling other parts down with their feet.

3. *Grass Land Farming.*—These were plans which must be followed out not at all by his dictation, but by their own sense teaching them—by their own thought, and by their own judgment. He did hope that that Club, and the various clubs of a similar character, might become of still greater use than they had been. It was not merely the cultivation of the land that needed attending to, but it was the cultivation also of the occupiers of the land. He hoped they had there a useful library consisting chiefly of agricultural books, and he trusted they would take out those books which would teach them theoretically that which they must work out practically by their own thought and judgment. There was, however, a description of farming which was exempt from the depression which had been brought over the corn-growing of the country—he meant those farms already found in pasture.

He would not say exactly the rich grazing pastures occupied by a stock for a very short time feeding on them, and then taken to the market, because they knew the price of lean stock had now gone up to such a pitch that it made it a most difficult matter, and one in which the greatest care had to be taken to render it a profitable pursuit. But there were many mountain pastures of a very good description in which the advantage they held then was very obvious. Many farms in the north now kept great quantities of stock upon them, where within the last 20 years' by judicious draining of the rough parts and the use of lime over the surface, he saw flocks of sheep now-a-days having very much finer carcases than the sheep of 20 years ago. The sheep now came much earlier to maturity and produced double the quantity of wool, compared to those of the time referred to. Those gentlemen in the possession or occupation of that description of land, might thank their stars at being so fortunate in their exemption from the troubles of their fellow farmers. It was frequently said—but he thought there was a great error in the remark—that the tillage farmer often found himself labouring under a disadvantage, and he (the farmer) would speak of his neighbour's farm being so much more easily managed because it was all Grass. Now he was of a different opinion, for instead of being more easily managed, he thought the greatest amount of judgment was necessary to manage well and to the best advantage, the stock alone. A man must know not only the description of stock best suited to the soil, and which could be brought to perfection with the greatest ease and in the shortest time, but he must also know how to manage that stock so as to make the most of it. Instead of it being easier to manage a hill farm with good stock upon it, it was just one of those situations which required a very great amount of judgment and attention. In fact, it was a most difficult thing to manage such farms with success.

4. *Land Agency.*—But no man deserved to be, indeed, no man could be a successful manager of land if he was wanting in judgment, or wanting in industry and attention. When he heard of that or this great duke extolled as being a very good landlord, who never turned out his tenants, he was always ready to say, "Let me see his tenants."

No man should be kept as a tenant who was not a man of judgment and a man of sound business knowledge, and if such a man was kept on a farm, instead of being a good landlord and a good subject, he was a bad landlord as well as a bad subject who permitted such persons to have the occupation of his land. It was also very easy to say "He's a slovenly fellow; he's an idle and indolent fellow, that gets drunk as often as he can, but he has been so long on the farm that I don't like to turn him away." Let him see the class of men elevated in their character and conduct, and in their intellect, and then he would say whether the land was well farmed or otherwise. It would not do to tell him—"This is a dear farm, such a man has been on it for a number of years, and he has made nothing, but nearly ruined himself through it." He said—Let him see the man, and then he would tell them if the farm was worth anything. If a man had not sufficient capital he was left entirely at the mercy of the times. If any one would take the trouble to look into the matter, he would soon be able to tell whether a farm is a cheap or a dear one. He could point out some farms that would be dear in some hands, which were cheap in the hands of those who occupied them.

In entering upon this discussion, he took it up very reluctantly, as he considered that he had retired from public life. But still he confessed that he had very great pleasure in coming again among them, and he was glad to see so many congregated together, and taking an interest in maintaining the Hexham Farmers' Club. He did not pretend to dictate to them his opinions or assertions, but rather to endeavour to bring forth their opinions in connection with the subject, and their experience—which was great—into the discussion which he hoped would follow.

STATISTICS OF LAND DRAINAGE.

[The following are extracts from the third of Mr. Wallace Fyfe's short course of lectures on Land Drainage and Manures, lately given before the Royal Agricultural College.]

1. *Extent Drained.*—To show you the magnitude of this as a public question we may refer to the calculations of Mr. Bailey Denton regarding the extent of undrained lands. In a former lecture we stated the balance of undrained at 10 million acres. He says that there are, however, 11 million acres of undrained clays alone. His calculations run thus:—The extent of Great Britain is 56,352,000 acres, of which there are about 29,390,000 wet land capable of improvement by drainage; but the extent of land already permanently drained does not exceed 1,700,000 acres, so that there remain 21,000,000 acres to be yet drained. The remaining 33½ millions consist for the most part of free soils naturally dry, which absorb and infiltrate to various depths beyond the reach of evaporation from one-half to one-third of all the rain that falls upon the surface, the remaining portion of the rainfall being taken up by vegetation or evaporation or passing off the surface without entering it in times of heavy or sudden rainfalls. The residue of this 33½ millions consist of mountainous lands of rock formations, the surface of which, having rapid slopes, throws off the rainfall in very large proportions, viz., from one-half to four-fifths of the rainfall. Within the bounds of these steep lands there are bogs and moors which catch a large quantity of the water thrown from the mountain slopes, and give off by evaporation much more moisture than the rain that falls directly upon them. The extent of the surcharged free soils drained or requiring draining is about 12,000,000 out of 23,000,000 wet lands (adding in the drained), leaving of clays alone about 11,000,000. The utmost extent of land drained under the Public and Private Moneys Acts, and under the several Drainage Company's Acts, does not exceed as yet 1,100,000 acres, at least the total outlay up to this time does not reach 6,000,000*l.*; so that at the present rate of progress it may be fairly considered that it will take a century to complete the under-drainage of the country. Now the number of pipeyards or brickyards making pipes in Great Britain is estimated at 2800, and assuming the number of pipes made at each yard to be on the average 150,000 a year, the number made annually may be taken at 420,000,000. As 1250 pipes are used in under-draining an acre, 336,000 acres may be drained per annum; but a large number of pipes are applied to temporary unconnected purposes that cannot come into this computation.

2. *Legislation on Drainage.*—It is important to know precisely what are the provisions of the Act of 1861, and how far it is or may be found available to remedy a pressing and threatening evil resulting from increased drainage. For the first time power is given to two-thirds of the lower land proprietors of any district so injured to compel the remaining third to join them in the expense of getting rid of obstructions to the removal of the upland waters existing in the shape of mills, dams, weirs, &c., whereby the passage of the upland water is interrupted in its way to the main outfalls; to which powers are super-added powers of compulsorily obtaining land in order to straiten or deepen old rivers or watercourses, and to make new cuts. The Act is divided into three parts. Parts I. and II. refer to district drainages, requiring combined works, and comprise no fewer than 71 clauses, including some provisions of a new and highly practical character. It would appear that a comparatively small proportion—one-tenth of a district even—may set the measure afloat, whilst the dissentients must amount to at least one-third before the project can be rejected if approved of by the Inclosure Commissioners of England and Wales. Part III. refers simply to outfall works to be carried out by private proprietors, such as easements for the passage of drainage waters through the lands of lower owners, and the deepening and straitening of watercourses. It must not be concealed, however, that the means of attaining these objects are attended with an expense considered by Mr. Bailey Denton and other practical men to be even greater than attended the exercise of the same powers partially existing previously. The whole of the expense of proceeding under Part III. of the Act is in fact to be paid by the applicant for the improved outfall, and any adjoining occupier through whose land it is necessary to pass may offer objections and employ counsel as in the case of Railway Bills, and the Act declares that all "reasonable" expenses must be paid by the applicant. One great advantage has, however, been gained,—the right of landowners to discharge injurious waters through the interposing lands of their neighbours has been legalised.

There is, however, a mighty power in England known as the Commission of Sewers, and in all modern Acts of Parliament relating to drainage saving clauses are inserted, preserving entire the rights of these Commissioners, which may in no way be interfered with. These Commissions, it is true, are local; the chief are those of the Romney Marsh in Kent, and those of the Great Bedford Level; of the new outfall and others in the fen country, and counties of Cambridge, Northampton, Lincoln, and Norfolk. But the powers of these corporations, referring as they do not only to sea-walls, rivers, streams, and watercourses, but to banks, ditches, gutters, sewers, gotes, caleres, bridges, trenches, "outrageous springs," mills and milldams, weirs, fish-garths, kedels, gores, flood gates, locks, and ponds; and as they are specially reserved in every Act of Parliament, are very apt to interfere with drainage practice and privileges. The origin of our existing Drainage Acts was to confer powers on tenants for life, and others, to improve estates in which they were interested, and these Acts were certainly of great benefit by promoting improved cultivation; indeed, it is their having proved so beneficial that has led to an extension of their powers. The first Drainage Act, 3 & 4 Vict., was repealed by 8 & 9 Vict., c. 56. Under this last Act no powers are given to borrow, but the Act 9 & 10 Vict., c. 101, authorised the Commissioners of the Treasury to advance a sum not exceeding 2,000,000*l.* for Great Britain, to be obtained on application to the Inclosure Commissioners, who were appointed to carry out the Act, the charge upon the land to be 6*l.* 10*s.* per annum, payable for 22 years. Subsequent Acts have been passed to facilitate drainage operations, and it is not a little remarkable that whilst English landowners remained generally apathetic, the Scotch grasped at once at the Government grant, and certainly got the lion's share of the money. I happened to reside in Berwickshire about the period, and to my certain knowledge a large proportion went to Berwickshire and Northumberland. In 1848 the first of the Drainage Companies whose enterprise comes now so materially in aid of the Government grant, was incorporated by Act of Parliament as 'The West of England and South Wales Draining Company.' The 19 & 20 Vict., c. 70, was also an Act passed incorporating the Scottish Drainage and Improvement Company, and affording greater facilities for the improvement of land in Scotland, and in 1849 an Act was passed intituled—'An Act for the Incorporation of the General Land Drainage and Improvement Company, and for facilitating the Execution of Land Drainage.' No steps, however, can be taken by this Company, except with consent of the Inclosure Commissioners. It must be kept in view that whereas the usage in regard to drainage loans has been to pay off principal and interest in 22 years at 6½ (now 7½) per cent., some Companies now offer to do it on permanent loans, not repayable. The Act 16 & 17 Vict. c. 154, is an Act incorporating the Lands Improvement Company, and extends to England, Wales, and Scotland, affording facilities for the improvement of land, by enabling the Company to issue transferable mortgage debentures. The same Company obtained another Act in 1839, and can now afford great assistance to landowners in draining and improving their estates. Mr. James Sanderson, now of Westminster, in a report on the Agriculture of Berwickshire and Roxburghshire, just published, thus speaks of the Scotch run upon the Government loan:—It was not till the Government grant was given in 1845 that drainage was carried out on a gigantic scale in the two counties. Landowners and farmers, already cognisant of drainage being the basis of every agricultural improvement, alike eagerly sought the Government money—the former merely accepting the money and becoming security for the outlay, and the latter readily paying the required interest. Never was there a more judicious loan, adds Mr. Sanderson, or one from which accrued so many benefits. Landowners in some cases had their estates greatly increased in value without any outlay; and farmers, though paying a little interest, became occupants of a workable soil and producers of luxuriant crops; labourers needed not to seek for labour, and all classes of the community became sharers in an increased production of food. The writer adds that he can furnish no reliable data as to the amount of Government money expended in Berwick and Roxburgh; but this, he says, must be great, as 50,000*l.* was spent alone in the western division of the last-named county. Subsequent to if not concurrent with the Government loan he states that a fresh impulse was given to landowners and farmers to expend on drainage their private capital. Hence in both counties very large sums have been expended both by landlords and tenants. He subsequently explains that in the district in question the arrangement is such that the landlord is generally at the expense of opening drains, the tenant either furnishing the tiles and closing the drains or filling them with stones. In other cases the tenant is charged a percentage on the total outlay, and again in others the tenant is at the sole expense. I have never seen farming enterprise I must say exceed that of these Border farmers; and to furnish an idea of the spirit with which they prosecute their calling, I shall just adduce an instance out of many given by Mr. Sanderson.

"The farm of Woodend, Dunse, is," he says, "a singular, it might be said unprecedented example of expeditious improvements. The farm contains 900 arable acres" (quite a common size for Border arable farms, where the farmers mostly act more like landlords than tenants, keeping their carriages and their bailiffs, and calling in the latter merely to point out upon the plan of the farm the operations for the day). But to return to Mr. Sanderson: "The soil," he says, "is chiefly of a loamy character. The fields vary from 20 to 60 acres, and are well laid out with straight fences. The farm is exceedingly well managed, and for Turnip culture especially, the tenant, Mr. Logan, is not surpassed. Mr. Logan entered on a new lease of the farm at Whitsuntide, 1859, little more than two years since. During the first year he limed 700 acres, at a total cost of 3500*l.*" (and let me tell you, liming is in Berwickshire no joke; all the lime having to be drawn from the other side of the Tweed, a distance perhaps of 20 or 30 miles, from the Northumberland and North Durham lime kilns, for what renders lime so important an application in Berwickshire is the destitution of it in the soil). "In the same year Mr. Logan drained 600 acres—the drains 3 feet deep and 30 feet apart—at a cost of 2520*l.*" (Pretty well for one year's outlay—6020*l.* But

this was not all—for) "Simultaneously with these outlays Mr. Logan was engaged in driving carriages for two steadings, which cost the proprietor 1000*l.*" When Mr. Sanderson wrote, Mr. Logan intended still to complete the whole drainage and liming of the farm in another season, and I doubt not that when these were accomplished the entire outlay on improvements on that farm might be set down at 9000*l.*—10*l.* an acre; yet I am pretty sure that Mr. Logan knows well what he is about.

THE PRESENT POSITION OF THE BRITISH FARMER.

HAD your correspondent "J. B. M." in a late *Agricultural Gazette* been a farmer, which I am confident he is not, I should not have troubled to make any reply to his statement, but have left it to stand for what it is worth in the eyes of all practical men; but as I believe him to belong to that class, whose income is so graphically described by the late Lord Herbert of Lea "as the surplus, after all the other expenses of the farm have been paid," I am not surprised to find him attempting to put a better face on matters than I have done, and I must crave a short space in your Journal for a reply, or the landlords may suppose that my figures are incorrect, and that his are unanswerable.

Your correspondent asserts that my paper "bears more the appearance of a political squib than a contribution to English farming," and that, had I introduced the steam plough, I could have made out a better case. Now he is wrong in both instances! When asked by the committee of the Hungerford Farmers' Club to give them a subject for discussion, it struck me that the "position of the British farmer" at the present time was such a peculiar one, so unknown to half the world, that it would be instructive and set people thinking, if it were properly and truthfully illustrated. I therefore suggested it, and have, as far as my ability permits, given as faithful an account as 45 years' experience would warrant me in doing. It would be impossible to give a fair description of farming by taking the extremes either way, so I took a 400-acre farm of medium quality, and I gave as near as I could, this year's average of quantity and price that each crop produced. But your correspondent protests against the amount of produce I have given, and against the idea that a tenant farmer can only make 8 per cent. with the present price of corn and meat! If he will look beyond the statistical part of my paper, he will see that I gave the tenant farmer nothing, much less 8 per cent.! If he has ridden over the Craven country this season he must have been struck with the appearance of the Swede and Turnip fields, and how few and far between, and small also, are the hayricks; and if he had only thought on the matter he might have asked himself, how upon earth even the 400 sheep I have mentioned are to be kept, together with the 20 bullocks and 13 horses, except by artificial means. This will settle the 8 per cent., and I again assert that the majority of the farmers this year, when they have paid every one else, must keep house and pay their own expenses out of their capital.

Following the Craven hounds does not give a man that practical experience which a life devoted to the business is able to attain; as a proof the following quotation will confirm. "I quarrel entirely with his receipts. I have had the pleasure of riding over that neighbourhood frequently with the Craven hounds. I know it to be generally good Wheat land, capable, if clean and moderately cultivated, of growing 5 qrs. to the acre. I also know that in fair seasons, and with proper attention, it will bear good crops of Vetches, Rape, Cabbages, Swedes and Beans; and I contend that by a proper application of these crops to feeding his stock fat instead of selling it in store condition, he would reap from his 92 acres Wheat at least 450 qrs. = 900*l.*; from his Barley and Oats 8*l.* per acre, or 800*l.*, making his corn receipts 1728*l.*, instead of 1319*l.*

"In addition to this he would sell his tegs fat at or after Christmas at 50*s.* each, instead of an average of 26*s.*, making a return of 450*l.* in lieu of the 220*l.* credited, and cattle and pigs in the like proportion; but I will not add any portion of these stock receipts to the 1728*l.* for corn. Supposing the stock to realise only the same sum beyond their expenses, and deducting the 1663*l.* annual outgoings, there will still remain to our model tenant the handsome balance of 640*l.*, more than 20 per cent. on his capital."

The theory of the writer of the above is much finer than his practical knowledge. Would that it could be realised! My paper is headed "The Present Position of the British Farmer," and he has entirely forgotten, or even taken into consideration, what is to keep the 180 wether lambs, in addition to the 400 stock. (1 sheep to an acre, besides the lambs through the summer), till they are worth 50*s.* each! He seems to have thrown all the fat on their backs in five minutes, taking credit for 230*l.* without any cost, as the whole produce of the farm will not maintain those that I put there, viz, a breeding flock! It is as a rule the duty of those who do not breed to fatten and make off the tegs for market. But the 5 quarters of Wheat per acre puzzles me! I have lived in the Craven district nearly all my life, and most of the farmers would put the average at 7 sacks per acre; but I fearlessly assert that 30 bushels per acre is the very outside that the whole Craven district can be put at on an average of seasons. I have put it above an average, viz., 32 bushels. Then again your correspondent has added 209*l.* to my account for Barley and Oats, assuming that they make 8*l.* per acre! Now, on the contrary, I am certain that they do not exceed 6*l.* per acre; nor do I believe they average that sum. After showing the position of the farmer I analysed his case to see how, or where, or in what way, he could help himself. I would advise your Correspondent to read that part of my paper again, and unless he is a large preserver of game I think he will admit the truth of my observations. But should he be one of those who are satisfied to eat up their tenants' crops with rabbits and hares, and then sell them at 12*s* or 15*s.* per dozen, which I have known done, then he will not agree with my statement, and I shall not sympathise with him.

With respect to the steam plough I should have been wrong if I had introduced it into my paper, as in England it is the exception rather than the rule! And I know that three-fourths of the sets made by Messrs. Fowler & Co. are for foreign service. The effects from its use in Egypt and India are perfectly marvellous; and the English farmers who cannot afford to buy them will have further to compete with the extra produce therefrom. But I am taking up too much of your space, so will conclude by subscribing myself. *J. A. Williams, Baydon, Feb.* 16.

Home Correspondence.

The Weald of Sussex Farm.—Your correspondent "Leisurely" evidently writes with a view of eliciting information, rather than dogmatically asserting that what he proposes is *the* system of working a clay farm to the best advantage. One important fact he certainly keeps in view, and that is the necessity of keeping a large head of live stock. We, however, doubt very seriously whether he will find the plan which he proposes succeed so thoroughly as he seems to expect, judging from his somewhat sanguine balance sheet. In the first place the rent and taxes of the land, only amounting to 30*s.* per acre, hardly warrant, at least for some years, the estimated number of cattle which your Correspondent proposes to maintain; 80 to 100 cattle and 60 sheep seems to us a very heavy winter stock for a farm of 300*l.* per annum of rent, tithe, and rates, consisting of wealden clay. Starting with this assumed number, your Correspondent next asks the most necessary question as to how he has to find food, not only for keeping them in what is usually considered store condition, but to fatten at least 40 of them. Now, if 23 acres of strong land can be made to grow a sufficient quantity of roots to feed 40 cattle, maintain 40 head of young stock in a healthy state, and 12 cows in milk with regularity through a series of years, your correspondent has gained his point. That "345 tons of roots, 35 tons of hay, and 23 tons of Clover hay" will do so, we doubt altogether. It is not to be expected that "42 lb. roots, 4 lb. of hay, and 3 to 4 lb. of meal per day," will in any case turn off cattle at two years old of the weight your Correspondent looks for (75 stone of 8 lb.) Let him double his allowance of roots, and let the meal and hay remain undiminished, or, let him add 4 or 5 lb. of oilcake per day to his bill of fare before he need expect to turn a beast off his farm fit for a butcher to look at. He, of course, must be the best judge as to whether the land is capable of growing roots profitably on the whole of the fallow break; the term Wealden clay, and the tendency of "running together," do not sound encouraging, and we (with our small experience of clay-land farming albeit well drained) would rather suggest a less acreage of roots, with an increased breadth of Beans, to be used as a means of maintaining stock. It is also a question whether a few of the fat beasts would not be well exchanged for a "lot" of good in-calving heifers, to be sold at the London market before calving. These would be maintained at a much less cost, would not need so many roots, and leave, we feel sure, a good return. Although differing from your correspondent, we cannot but admire the business-like way in which he sets to work to "count the cost" before he commences his career. May he be successful is our earnest wish! *In haste.*

Mangels.—This winter has taught us all a lesson, and I believe you will have the largest sale of Mangel seed you have ever had since you have been in business. We have now discovered that the pulping of Mangels with a mixture of Clover and hay chaff is the best possible feed for cattle and sheep. We shall, therefore, all of us grow more Mangels. If people would give a good order for Mangel seed and plant that, they would be very much more advantaged than by attempting to feed stock on malted Barley. I farm nearly 700 acres of land, and I would not use Malt if I could get it duty free. Beans and Mangels are the food for fatting stock. We never remember their feeding so fast on any kind of food. I have now about 600 sheep, and with lambs shall soon have 900 sheep, so I must know something about it. [This has been sent to us by Mr. Sutton, of Reading; being an extract from the letter of a Correspondent.]

Societies.

LONDON: *Middle-class Education.*—The following is an extremely abridged report of the discussion which followed Mr. Edmunds' valuable paper:—

Mr. J. A. NOCKOLDS (Stort Lodge, Bishop's Stortford) said boys were sent too young to classical and mathematical schools and that there was a great want of preparatory schools. Among men of great attainments in the present day, he had met with very bad spelling, bad writing, bad summing. Three-fourths of the gentlemen, and even the commercial men of the present day, wrote as if they never intended that any one should read what they wrote. He had to thank Lord Palmerston for the remarks which he had made recently upon the prevalent handwriting of the present day. Experience showed that great knowledge was not necessarily great wisdom, and that the best education was that which taught a man to do his duty "in that state of life to which it had pleased God to call him."

Mr. JAMES HOWARD (Bedford) thought they had something to learn from the Americans on the question of education. The whole of the States were divided into educational districts, and in those districts there was a school-rate of from a farthing to a penny in the pound. It was a matter for the consideration of the people of England whether they would adopt a system similar to that which prevailed in America, and which he was bound to say thoroughly answered the purpose, for not only were the labouring classes in the schools better educated than those of England, but the middle classes also. Another course open was the formation of joint-stock undertakings for large schools in different parts of England. He thought that the educational establishments of England were generally on too retail a scale, and considering the quality of the education imparted, scandalously dear. He did not agree with Mr. Edmunds in objecting to Government examination, because he thought that it afforded some guarantee of efficiency; but failing Government co-operation in schools especially intended for agriculturists, he would gladly accept the co-operation of the Royal Agricultural Society of England. He believed in inspection, knowing that the schools opened by inspection had made very great advances.

Dr. VOELCKER (Salisbury Square) said it was not necessary for him (Dr. Voelcker) to dwell on any point raised by Mr. Edmunds with regard to the education of boys of the middle classes up to the age of 16. But then came the difficulty which he should have liked Mr. Edmunds to clear up a little more than he had done: what were they to do with the lads after they had left school? He believed that a firm step in advance would be made if that superior general middle class education, of which so much had been said, were introduced throughout the length and breadth of the country. If a lad had received the groundwork of education he would not be satisfied with what he had obtained. At all events, boys who had made good progress at school would wish for some further knowledge. They would perhaps employ their leisure time in the laboratory, studying chemistry practically and usefully, when they had received their primary education in the schools where the rudiments of natural science were taught. He must say that in that respect there seemed to him to be in the scheme laid down for the Surrey School a great omission. He agreed with Mr. Edmunds that the elements of natural science—botany, geology, mineralogy, and so on—might be taught in schools with great advantage; and he thought that would be an excellent preparation for entering the higher schools or colleges where these sciences were especially taught, and would in after-life prove of great use to the practical farmer.

Mr. RICHARD GARRETT (Leiston Works and Carlton Hall, Saxmundham) said in his county a scheme for the improvement of middle-class education had been started. They had built a college for the accommodation of 300 boys. Eleven gentlemen subscribed 500*l.* each, and among the subscribers were a number of persons who did not reside in the county of Suffolk, but who had some relationship or connection with it; no less than 5000*l.* was sent by persons in that position, most of whom lived in the metropolis. They had built, and furnished, lighted, and warmed the building, and had spent 20,000*l.* upon it. Nearly the whole amount of cost had been paid out of voluntary contributions. The great object was to give a superior education, so well as a cheap one. The governors guaranteed in the prospectus that the cost should not exceed 25*l.* a-year, including board and washing; but still the great object in view was to provide a superior education to that which the middle classes generally now obtain. There had been munificent gifts from two or three individuals, for prizes and scholarships to be awarded for certain degrees of proficiency in mathematics and other studies which would tend to qualify a young man for business. These gifts amounted to between 1300*l.* and 1600*l.*, and these things encouraged them to drop the word school and leave only the word "college." It was, however, intended to receive boys nine years old. There would be two schools, an upper and a lower one, and in the upper school the boys would be allowed to remain for a considerable time.

The Rev. ALBERT C. DAYMOND (Framlingham) the Head Master elect of the school just referred to, held that they must educate a man in order that he might be educated; that is to say, they must give him a general education up to a certain point, in order that they might add a special education. He described in detail the style of education which it is proposed to give at the Suffolk Memorial College. He thought that such institution would supply for the county of Suffolk a very great want, and he should like—he spoke disinterestedly in the matter—he should like to see the example which Suffolk had set to the rest of England followed in all the counties in which such institutions did not exist.

Mr. CROSSKILL said that there was one point on which he did not agree with Mr. Edmunds. When he talked about the Royal Agricultural Society advancing a thousand a year for any such purpose as education, he was suggesting what all who were well acquainted with that Society must feel perfectly certain was not likely in our day to be carried out. He did not himself profess to have that knowledge of the Charter of the Royal Agricultural Society which those gentlemen had who talked so much about it when any improvement was asked for, but he fancied that if any such proposition were to be made by any of them, that the Royal Agricultural Society should advance a thousand pounds, or contribute a thousand a year for the education of farmers' sons, they would very soon be told that the Charter did not allow it.

Mr. J. BRADSHAW (Knowle, Guildford, and High Sheriff of Surrey) related an anecdote showing the advantages of education and good conduct. In the year 1833 he went out to South America. There was on board the vessel a boy between 14 and 15 years old, who had been educated at a naval school. His father, who was a surgeon in the Royal Navy, was taken prisoner during the war; and the result was that the mother was left to educate her children in the best way she could. The boy wrote out the ship's log, and he was favourably impressed by his good conduct; and when he arrived at South America, finding that there was a vacancy in his establishment he gave him employment. He had since risen to eminence, and he was now in a perfectly independent position; he had, in fact, acquired a very ample fortune. He (Mr. Bradshaw) would not have noticed him, had he not been educated; and he believed that education and good conduct would generally be rewarded.

Alderman MECHI said: He presumed that in speaking of middle-class education especially they had some regard to its effect upon agriculture. When visiting schools in different parts of the country, where the pupils were nearly all farmers' sons, he had always made it a point to inquire what kind of books the lads had access to, and whether there was a general library on the subject of agriculture, and the answer was, he assured them, generally "nil." Now, he did think that as a Farmers' Club they were bound to look at the question with reference more particularly to the welfare of

agriculture. They must all agree that the mechanism of education—by which he meant reading, writing, arithmetic, grammar, and spelling—was as much suited to their particular occupation and vocation as to any other; yet he had often found farmers, and even members of an agricultural club, who though they had perhaps considerable mental powers, which in some degree made up for their deficiencies, had often felt the want of a good education. He thought there had been great neglect on the part of the Government, in not stimulating the education of such persons more than it had done. That neglect did not exist in America. He was not sufficiently democratic for the Americans; but, looking at their statistics of education, he felt bound to express his admiration. There were in America no less than 90,000 public schools, though the population was very little larger than our own; two-thirds of the population were educated in those schools; and it was rarely indeed that you met with any one who could not at all events read and write well. The Americans had been said to be impatient of taxation—they must have become more patient of it by this time—yet the first thing people did when a new town was settled was to tax themselves for education. Not long ago he found that in the State of New York alone the total sum expended on education was larger than the whole amount of Government expenditure for education in this kingdom. He would then say, let them look at this question in its bearing upon agricultural occupations and agricultural success. They must all feel that up to a certain point all education was preparative, and it was of the highest importance that they should have institutions like the Agricultural College at Cirencester, but of a less expensive character, where those who were intended to be farmers might receive a special education adapted to the practical operations of farming. What they especially needed, he thought, was a good agricultural library in every school in a rural district.

The Rev. J. Constable (The College, Cirencester) said it was very wisely remarked at the outset that one object of education is to present to the young mind something hard. He was convinced that nothing called out the faculties of the mind better than the fixed studies—Latin, Greek, and Mathematics. It had been thought that physical science, from its progressive nature, was not capable of educating the young mind as well as those sciences which had been fixed for centuries; but he was far from thinking that the day was distant when natural science would occupy a more prominent position in the education of the country than it had yet attained. He was far from thinking that chemistry, geology, botany, and zoology, were not capable of greatly developing the minds of the people. The other day he had the pleasure of meeting the deputies from Oxford and Cambridge, the members of the College of Preceptors, and others, in Hanover Square Rooms, and he there broached the opinion which he had just intimated, to the disapproval of Dr. Temple, who demurred as to the practicability of the Royal Agricultural Society measuring a man by his attainments in science. He said to the Doctor, "Will you be kind enough to say whether, if I put into your hand a treatise on chemistry, you can tell the quality of the mind that produced that treatise?" "Oh," was the reply, "certainly I could; nevertheless I should not think the test a proper one." Well, now, that was just the point they had to consider that evening—whether it was not possible to develop the mind by those studies which would be of the greatest practical use in after life. He agreed to a great extent with Mr. Crosskill, and he did think the giving up of a little Latin would be advantageous, provided chemistry and other physical sciences were substituted for it. On this point he might appeal for confirmation to one on his right hand (Dr. Voelcker), who would tell them that if teachers chose to make science difficult and educational they could easily do so. The gentleman that read the paper that evening said the standard at Cirencester was high. Perhaps that was true. He knew that his friend Dr. Voelcker laboured for many years to make the standard high and difficult, because it was essential to the class of minds which they had had to deal with at Cirencester, many of them being only half-educated, that they should pass through a discipline as well as a course of instruction that would fit them for their professional career. If they would give this subject a practical turn, let them consider whether it was not possible to educate up to a higher standard, by adding to what had been termed the machinery of education—reading, writing, and arithmetic—mathematics and the physical sciences.

Mr. Congreve, Peter Hall, Coombe, Coventry, said: As a Warwickshire man, he could not help expressing the pleasure with which he had listened to the able paper of his neighbour, Mr. Edmunds, and he was glad that that paper had been so well received, especially as the writer had only a month to prepare it. He concurred in the opinion that if a man were educated well, he might as well make a good farmer as a good anything else. A good education was, in short, the basis of everything good: it fitted a man to be a good farmer as well as a good citizen, and a man who possessed it might, with good conduct, be expected to succeed, whatever might be his calling.

Reviews.

Agricultural Education (Pamphlet). By Edward Holland, Esq., M.P.

This is a reply by the Chairman of the Education Committee of the Royal Agricultural Society to letters on the educational subject addressed to the President by Mr. Acland, a member of that Committee, and subsequently published. Mr. Holland represents the view that the professional Society should confine its efforts in this field to the promotion of professional education. Mr. Acland, as our readers are aware, knowing that such an effort will be useless except it be preceded by a sound general training on which professional efficiency must be grafted, contends for the whole force of the Society's influence being thrown along with that of the Universities and the College of Preceptors into the general scheme of middle-class local literary examinations which these learned bodies periodically conduct. Of course, Mr. Holland, with every other intelligent man, holds as strongly as Mr. Acland does, that a good general training must precede a good special or professional education; but he believes that, thanks to the existing examining bodies, and thanks still more, let us say, to the intelligent convictions of the general middle class of this country, this general education is already obtainable, and becoming more so every day—that any effort by the Society to promote it would, in fact, be altogether lost in the great movement on this subject which is just now actuating every class of society—but that whether it would or not, such an effort would be quite out of the field which is clearly marked out for the Society's operations by its Charter. He believes, moreover, and so must every other intelligent man, that the particular department of labour in this field which belongs to the Society is large enough and well-defined enough to make those labours which it ought to undertake both efficient and important. The class whose special education it might test and stimulate is considerable, both for its number, and for the intelligence which the preliminary education it already receives confers. Let however a certain standard of preliminary ability and intelligence, the results of a good general education, be required before any of the class in question can claim the guidance or the spur which the professional Society may very well administer—the class will still be large enough, and the object great enough, to be well worth the labour the Society might thus undertake.

These are the considerations which apparently influence Mr. Holland in his reply to Mr. Acland's letter. His judgment will undoubtedly be received with that respect which a lifetime spent in the promotion of professional agricultural education must command for it. And it is the weightier and more trustworthy for its entire coincidence with that which the Agricultural Society of Scotland have already acted on in connection with the subject. We extract the following passage from these pages on the question whether it be desirable or possible to test a knowledge of practical agriculture by examination. Mr. Holland says:—

"I look upon this as the crowning examination of the whole, and perfectly easy to manage. Remember, it is not teaching practical agriculture that I ask you to entertain, but to take a test for its having been taught. At Cirencester agriculture has a certain number of marks allotted to it; Practical Agriculture absorbs a certain number of these, and the way of proceeding there is most satisfactory. We secure the services as examiner in practical agriculture of some noted man as an agriculturist. Last year Mr. S——, from Wiltshire, was kind enough to render us his services. The mode of proceeding was as follows:—The Principal introduced to him the candidates for diploma, with some such words as these: 'Mr. S.——, these are candidates for the diploma, to obtain which it is necessary to gain such and such a number of marks in practical agriculture; it will not be dictated to you how you are to examine them, but proceed with them to the farm and keep them there three, four, or more hours until you have satisfied yourself as to their respective attainments. Do not confine your examinations to the state of the farm, the nature of the crops, their rotation and so forth, but ascertain what these young men know of cattle, sheep, implements, and of every matter connected with the practical management of a farm.' The examiner did so, and I understand he has been since pleased to express his surprise and gratification at the amount of practical knowledge displayed. Now, why should not the same results follow from examinations in practical agriculture when the competitors for our rewards come off their fathers' farms, or from farms on which they are gaining practical knowledge as pupils? I will not consequently yield this matter of examination in practical agriculture; I look upon it as the crowning act of our proceedings."

We sincerely hope that the author of this pamphlet will carry his views in the Council next Wednesday; and that the governing body of the Royal Agricultural Society of England will see their way to the adoption of such a plan as may lead to the improvement and promotion of a sound professional agricultural education.

A Treatise on the Sanitary Management and Utilisation of Sewage, &c. By W. Menzies, Deputy Surveyor of Windsor Forest and Park. Illustrated with numerous Drawings. Longmans.

We have here, issued in a style which does great credit to the publishers, a small volume profusely illustrated by lithograph drawings, which contains a full account of the method by which Osborne House has been drained, and by which its drainage water has been utilised; as well as of the plans by which the same system has been carried out at the Wellington College and at the Broadmoor Criminal Lunatic Asylum; with details of the methods by which the author proposes that the same idea shall guide the utilisation of both house waste and town sewage everywhere. Beginning with a particular account of the best construction for water-closets and of the necessity of ventilation, and of various devices for ensuring it, the author proceeds to insist first upon the need of keeping the rainwater out of the house drains, and secondly upon the need of filtering the contents of those drains before attempting to pass them through pipes on to the land. The upward filtration adopted by the Prince Consort at Osborne is described, and the entire merit of first perceiving the principle of upward filtration, and of designing such a tank upon that principle as would continue to act, is ascribed to his Royal Highness.

Then follows a chapter on methods of irrigation: and a very sensible chapter it is; expressing a preference for sandy slopes and a small area of Grass land and ordinary surface gravitation and putrid sewage, to extensive distribution by steam power and subterranean pipes, and preliminary deodorisation by antiseptic additions to the liquid: a preference which has long been asserted and defended by all practical men.

The full development of the plans which Mr. Menzies recommends for dealing with town sewage is possible only in the case of those (almost) towns which sometimes arise around new manufactories where cesspools, filters, &c. might all be provided before the new streets are built. For existing towns it is impossible to attempt any such plan of cesspool filtration, or of restricted water supply as he requires. Excessive water supply, and frequent and abundant flushing of all drains, are a part of the sanitary arrangements of those towns which they will not abandon. And any plan for utilising drainage must take these as an inevitable part of the circumstances with which it has to deal. Mr. Menzies accordingly, as the matter at present stands, believes "the utilisation of London sewage upon a perfect scheme to be hopeless if any adequate return is to be obtained for the outlay necessary to make either the solid or liquid parts available." But we learn farther on that he is not acquainted with the circumstances on which the utilization of London sewage must depend.

He says:—"As I have not examined the country round London, I am not prepared to say that there is sufficient land suitable for the purpose to warrant a system of irrigation, even upon the principles I have advocated, being undertaken on economical principles alone. It would require a very long investigation as well as serious thought; but I believe it would be a waste of time to go into the matter, unless a complete change is made in the system of town drainage."

It is however right that Mr. Menzies should know that the country around London has been well examined, and that others *are* "prepared to say," &c.—that much "serious thought" has been already spent upon the subject, and that in fact 80,000*l.* has already been deposited as a guarantee that the plans devised shall be carried out.

It is, indeed, unfortunate for the author of this work, that there can be hardly any reader of it who will not see at once how deficient it is in the acknowledgment which is due of what has been already done in connection with its subject. The whole of the chemistry, and the whole of the agriculture of house and town sewage have been already long since worked out by well-known labourers in both fields. These labourers are, however, all unnamed in these pages. And even as to some of the details of house accommodation, in which the strength of Mr. Menzies' publication lies, there is a similar forgetfulness of the just claim of others to the credit of inventions which the reader is led to believe original. Thus, a method of flushing out the curves of the drain pipe for a closet is both represented and described without any acknowledgment of its real authorship, which however may be learnt from Mr. Rawlinson's Report of the Sewerage, &c., of Windsor Castle* (1863), from which it is plain that many an idea developed in this book is taken. And even on the origin of the Osborne filter tank, which is so exclusively attributed to the late Prince Consort, further details might have been supplied with more of that justice to the claims of other labourers, in which this book is certainly deficient.

As another example of this same fault, it must be added that the earth-closet system, which is certainly the best plan of dealing with the nuisance in the case of detached country houses, is named without any mention of the Rev. H. Moule, to whom, as our readers know, the credit of it is due.

A Reviewer who has no professional interest in these matters, around which capitalists are now crowding clamorous for their profits, is the more jealous for the reputation which is all that mere thinkers and inventors are likely to get out of them. And it is impossible therefore to conclude this generally commendatory notice of Mr. Menzies' able work on the domestic and field arrangements required for dealing with sewage house by house, without pointing out the undue self-assertion which the author exhibits, and the lack, we do not say of generosity, but of just and candid acknowledgment, which it displays towards his predecessors in the field.

The Agricultural Value of the Sewage of London, Examined in Reference to the Principal Schemes Submitted to the Metropolitan Board of Works, with Extracts from the Evidence of Chemists, Engineers, and Agriculturists, &c. E. Stanford, 6, Charing Cross, S.W.

In a well-packed pamphlet of 78 pages, an anonymous author here very compendiously arranges whatever trustworthy evidence exists upon this most important subject. In successive chapters we have from him a history of the rise of the portable manure trade, and of the origin and progress of the liquid manure theory; the evidence of chemists, engineers, and agriculturists on town sewage; and then a discussion and defence of the decision of the Metropolitan Board in favour of the Napier-Hope proposal to utilise the drainage water of the metropolis upon the Maplin Sands and along the line of the culvert which is to convey it there.

"The time has passed for theorising on the value and use of sewage. There is in existence a sufficient mass of reliable evidence to point out the best mode of

* "The means of flushing the syphon traps of the water-closets is new, having been invented and applied by Mr. Turnbull (Clerk of the Works, Windsor Castle), and, so far as I know, is peculiar to Windsor Castle. The abundant supply of water enables this form of application to be made. The effect is most beneficial." *Mr. Rawlinson's Report.*

disposing of the sewage of London, keeping in view three important conditions:—

"1. That 277,000 tons, amounting to about ten million cubic feet, and capable of filling a lake 75 acres in superficial area, and 3 feet deep, must be received and consumed by the contractors every day in the year.

"2. That the whole course of the Thames shall be secured from pollution, and the inhabited districts from even the chance of a nuisance.

"3. That the Metropolitan Board should obtain, without involving the ratepayers in any risk, a fair full rent, increasing as the field for the use of sewage is increased."

These three conditions are shown to be compatible with the Maplin plan, and with no other that has been yet proposed; and no one, we venture to say, who reads the evidence here epitomised can come to any other conclusion. It establishes, as the author here puts it:

"1. That the liquid sewage of a great city may be made to produce a considerable profit if it be applied by gravitation in a suitable manner on a suitable soil.

"2. That the most suitable soil is a sandy porous soil; and the more barren the more profitable will be the application.

"3. That where it is essential to dispose daily of a constant flow of sewage (too great to be stored for occasional use), Grasses, natural or artificial, are the more profitable crops.

"4. That the most economical and profitable application is by gravitation by open channel irrigation on the water-meadow system, so as to cover each meadow at suitable periods with a thin film of liquid, and pass the sewage from field to field until the utmost amount of manurial value has been exhausted.

"5 That a supply of sewage would be of great value to the ordinary crops of an arable farm, such as cereals, roots, beans, &c., as well as Grass intended for hay in times of drought; and that such occasional sewage service, delivered by gravitation, would be worth a very much higher rent, either per ton or per acre, than a constant service.

"6. That liquid sewage cannot with advantage be constantly applied to clay soils in substitution for farm long straw manure, because long straw manure has a beneficial mechanical effect in loosening clay, which liquid in any quantity consolidates.

"7. That arable farms (except as regards artificial Grasses) cannot be employed to receive the bulk of a constant supply of sewage, because the most important crops of an arable farm would, during many months of the year, be damaged by either excessive rain or artificial irrigation. That it is essential, in order to obtain the utmost profit from a constant supply of liquid sewage, that farms irrigated should be specially laid out as 'sewage manure farms.' A constant daily supply cannot be made to dovetail with the ordinary rotations of an arable farm."

The fifth of these conclusions rests upon a smaller body of evidence than the others; but it is hardly possible to doubt that in exceptional seasons and at exceptional times it will be possible to raise a considerable revenue from sewage applied in this way to arable land near a running stream of it. It is, however, by the abundant irrigation of Grass land, as at Rugby and at Edinburgh, that the only hope rests of ever dealing profitably with an enormous constant daily flow. *This is the problem which is offered for solution; and the following is the Napier-Hope plan of dealing with it, as described in these pages:*—

"A culvert will be constructed ten feet in diameter, which will tap the Northern Main Outfall Sewer of the Metropolitan Board at Abbey Mills, three miles from London. This culvert will run for a distance of three and a-half miles, with a fall of two feet per mile, to a point where the levels of the ground will require it to be lifted 20 feet. The discharge will then continue in a culvert of the same dimensions, sometimes in cutting, sometimes on embankment, until it reaches the head of the navigation of the river Crouch, at Battle's Bridge, in Essex, 28 miles from the commencement at Abbey Mills. The sewage will be again lifted 12 feet by pumping at nine and a-half miles. The object of these lifts is, besides increasing the velocity of the current, to cause the culvert to command as much as possible of the surrounding country by gravitation. At Battle's Bridge the main culvert will divide into two smaller ones, running on the north and south sides of the river Crouch. That on the north will be 18 miles long, terminating on the Dengie Flats; that on the south will be 16 and a-quarter miles long, terminating on the Maplin Sands. Both these places are extensive foreshores on the east coast of Essex, dry at low water, and several miles in width, by about 20 miles of aggregate length These vast plains are to be reclaimed from the sea by embankments (similar to those which are common in Lincolnshire, Holland, and other countries) to the extent of some 8000 acres in the first instance; ultimately probably 20,000 acres will be enclosed. There is scarcely any population at present along these dreary shores, which, however, will become, if the project is carried out, the most highly-fertilised lands in Great Britain. The sewage will be discharged upon these flats, and made to cover the whole of them by gravitation. The effect of this discharge when these sands are shut off from the sea by the banks, and other arrangements—which will presently be described—will be to convert the barren surface into a tract on which crops of Grass as rich as those on Craigentinny meadows may be grown. In the course of time the gradual deposit of the particles held in suspense by the sewage will permanently increase the value of the sands.

"As the distribution will be effected by gravitation, hand labour will only be required to keep the water-meadow channels clean and in order, at a trifling expense, once or twice a-year.

"From the nature of the sands there is no doubt that, if needful, all the sewage of the north side of the metropolis, at present 1,800,000, but say 2,000,000 of people, and 100,000,000 tons per annum, or 10,000,000 cubic feet daily, could be absorbed upon them; and therefore there is not the slightest hazard that when once the culvert to Maplin Sands is constructed, the Metropolitan Board will ever again be troubled by the pollution of the Thames.

"But it is not the intention, and it will not be the interest of the contractors, for the sewage to pour the whole mass on the sands; one-third of the length of the culvert will be high enough above ground to deliver a supply of the liquid, by gravitation, to the farms on either side. Arrangements will be made by reservoirs, or otherwise, for furnishing the two classes of farmers who may be likely to require either a constant or an occasional supply of sewage, either to those who consider it will pay them to lay out their farms as sewage farms, and take a daily certain quantity; or to the more numerous class who may desire to take a limited quantity of liquid in times of drought, or to start a hay crop after a first cutting, or for transplantation of Cabbage or Mangel, or other market garden purposes; in fact, to supply the desideratum mentioned by Alderman Mechi, of liquid sewage at 2*d.* or 3*d.* a ton, 'in certain seasons.' The area which can be reached by gravitation from the culvert will exceed 80,000 acres; but if sewage be anything like the value which some persons believe, it will be easy, by short lifts and by pumping, to extend the area of utilisation enormously."

This is the plan by which in three or four years we may hope that London filth, which is but imperfectly removed even by the millions which have been spent on draining, may be expected finally to disappear—its elements being re-arranged in the more wholesome form of London milk.

Miscellaneous.

Death of Mr. W. Steevens.—It is with unfeigned regret that we announce the death of Mr. Steevens, well-known as an exhibitor at the meetings of the English Agricultural Society; and in particular as the inventor of a plough and cultivator for use by steam-power. He died (we quote from the *Mark Lane Express*) on Wednesday, Feb. 15, at his residence, 6, Godolphin Road, Hammersmith, in his 56th year. Being a strong-built man, he might have reckoned on living many years longer to pursue the labour of love and hope which he long ago began; but he had contracted a chronic pulmonary complaint, which told on him, as these diseases ever do, when the wind was in the east and the thermometer falling. The present extraordinary season of chopping winds, rain, frost, snow, fog, and spring temperature all in one week, told heavily on his complaint. But although his cough had been severe for some days, he was, from being under the clever surgical treatment which had frequently relieved him before, in his usual buoyant frame of mind up to the day of his death; but in the evening of that day, while in the act of handing back a cup from which he had just drunk, his head drooped, and he had departed without any signs of additional suffering. Mr. Steevens was at the Fowler Testimonial and other meetings in St. James's Hall on the previous Wednesday; and it was then little thought that one among us in his usual health and spirits would, within a week, have lost all interest in worldly affairs, from lying in the long sleep of death. Mr. Steevens attended, we believe, every Royal meeting but the first, and had, therefore, been in some conspicuous position here and elsewhere for 25 years. From being endowed with a powerful mechanical mind, and a quick imagination, with much skill in drawing and using tools, he has made many improvements in implements which have been adopted by agricultural and other engineers.

Couch Grass.—At the meeting of an Agricultural Society in Northamptonshire the harmony of the proceedings was disturbed by a speech from Sir H. Dryden, who said that, amongst all the prizes, he was surprised to see they had no cups for Twitch, Dock, Thistles, and Nettles. "What! no prize for the staple commodity of South Northamptonshire. He had been through England, Ireland, and Scotland, and he must say that that district (South Northamptonshire) was the worst farmed and lowest rented of any in her Majesty's dominions." Sir Henry Dryden was answered by Mr. J. Beasley, who "could not sit down tamely under the slur that had been cast upon them by Sir Henry Dryden's imputation, and he did not hesitate to say that his insinuations were utterly false and untrue."

Calendar of Operations.

FEBRUARY.—*The Cow Byre.*—The following, on the management of calves, is from the pen of Mr. Wilson, of Edington Mains:—It is desirable to have all the cows to calve between February 1 and April 1. If earlier they will get almost dry ere the Grass comes, and calves later than this will scarcely be fit for sale with the rest of the lot. When a calf is dropped it is immediately removed from its dam, rubbed dry with a coarse cloth or wisp of straw, and then placed in a crib in the calf-house among dry straw, where it receives a portion of its own mother's first milk. For a fortnight new milk is the only food suitable for it, and of this it should receive a liberal allowance twice a day; but means should after this be used to train it to eat Linseed-cake and sliced Swedish Turnips, and the readiest way to do so is to put a bit of cake into its mouth immediately after getting its milk, as it will then suck greedily at anything it can get hold of. By repeating this a few times, and placing a few pieces in its trough, it will usually take to this food freely; and whenever this is the case, it should have as much as it can take, so that its allowance of milk may be diminished to meet the necessities of the younger calves which are coming in succession. This is of the greater importance that it is always most desirable to avoid mixing anything with their milk by way of helping the quantity. When a substitute must be resorted to, oatmeal porridge mixed with the new milk is perhaps the best. The sour smell invariably found in the calf-house when porridge, or jelly of any kind, is mixed with the milk, is proof sufficient that indigestion is the consequence. An egg put into each calf's allowance, and mixed with the milk by stirring with the hand, is a good help, and never does harm; but with this exception, it is best to give milk warm and unadulterated, however small the quantity; and along with this dry farinaceous food, Turnips and hay *ad lib.* If more liquid be needed, a pail with water may be put within their reach, as this does not produce the bad effects of mixed milk. Indeed, it is best to keep as closely as possible to the natural arrangement according to which the calf takes its suck at first frequently, and then at longer intervals, as it becomes able to eat of the same food as its dam. The diet of the cows at this season is a matter of some consequence. Swedish Turnips yield the richest milk, but it is too scanty, and calves fed on it are liable to inflammatory attacks. Globe Turnips should, therefore, form their principal food during the spring months. Care should also have been taken that they do not get too low in condition in the autumn and winter; and for this end it is well to put them dry at least three months before calving. Some may think this long; but on a breeding farm milk is of little value at this season. The cows, when dry, are kept at less expense, and by this period of rest their constitution is invigorated, greater justice done to the fœtus now rapidly advancing to maturity, and much more milk obtained after calving, when it is really valuable.

The Sheepfold.—Mr. Ruston thus described his experience of feeding sheep instead of bullocks in yards during winter:—I have now tried sheep in yards for five years. Last year the lung disease appearing in a lot of Scots I had, excited my fears lest it should spread and decimate another lot which I had just received from Scotland. I therefore determined at once to send the latter lot away, and sell them again, keeping over those in which the disease had appeared. This drove me to the necessity of purchasing nearly 400 lambs for the purpose of consuming my hay and Mangels, and manufacturing my straw into manure. I made very close observations, kept a diary of all necessary particulars, valued them into the yards, and valued them out to Grass with the dates of going in and out; calculated their cost for artificial food, noticed very narrowly what quantity of straw they made into manure, and also the quality of the manure, as far as appearances enabled me to judge. From close and careful observation last winter and again this—for I have now between 600 and 700 sheep in yards—I find six lambs will tread down as much straw, and make it into good manure, as a 12*l.* or 14*l.* bullock. I put the sheep into my ordinary fold yards, and always calculate six sheep to one bullock; so that where I should have 10 bullocks I put 60 sheep. During the whole of last winter I don't suppose I had more than a dozen lame sheep whilst they were in the yards; and there have been far less cases in the yards than there were previously to their coming in. I find it is very essential to keep a thin layer of dry straw over the yard. In wet days we litter them twice a day, and on fine days once, but we only use a small quantity at a time; this just keeps the heat of the manure from rising to injure their feet, and prevents them also treading on wet straw during the day. When they first come into the yard, and indeed until the end of February, when the days begin to lengthen, we give them a larger quantity of dry food; they pick the bedding straw over, and where practicable have a stack or good heap in the yard to run to; we also cut them chaff, hay and straw together, and feed them several times a day with it. We give them a few Mangels twice or thrice a day, but not in quantities sufficiently large to make them scour; but as the days lengthen we increase the quantity of roots, and reduce the supply of dry food. I find an acre of Mangels of an average crop will carry 25 sheep—i.e. 25 lambs—during the weeks they will require to be in the yard, say from the beginning of December till the beginning or middle of April; old sheep would consume more, and 20 per acre would be a fair calculation.

I will now present some details in connection with my last year's experiments. The 377 lambs wintered in the yards last year were bought during the months of August and September, and were kept entirely on Grass-keeping without artificial food, until December, when they were consigned to their winter quarters. A few of them were lost during the winter, but at the end of the winter when turned out to Grass the following had been the results:—

	£	s.	d.	£	s.	d.
The whole 377 lambs were valued into the yards at	618	14	0			
They cost for artificial food.. ..	37	15	1½			
Making a total cost of				656	[illegible]	[illegible]
Further, the 364 put to Grass were valued at	891	12	0			
And the 13 casualties realised ..	9	16	3			
Making a total of				901	[illegible]	[illegible]
Which shows a profit on the whole of				244	19	[illegible]
And this I dispose of as follows—viz., hay, straw, attendance, at 3*s.* per head, for 377				56	11	[illegible]
15 acres Mangel, allowing 25 sheep to the acre, at 12*l.* 11*s.* 2½*d.* per acre				188	[illegible]	[illegible]

or, if you take 2 acres more Mangels, and call the total quantity 17 acres, it will then give you 11*l.* 1*s.* 8*d.* per acre for them, within a fraction; but I regard the former as the more correct calculation.

This was an instance of extraordinary return, and in Mr. Ruston's case it was contrasted with great ill luck in the cattle feeding with which he had to compare it.

To this we add the following account of Mr. McLagan's experience in early lamb, as given in last week's *Scottish Farmer*:—As an instance of how much can be made out of sheep when managed with skill and liberality, we may mention that Mr. McLagan has this year already realised for lambs out of two score of ewes 100 guineas. He has been selling lambs for nearly six weeks—the earliest lambs, so far as we know, which

have found their way to the butcher from any breeder in Scotland. Latterly some of these lambs have been bringing as high as 49*s.*; and even at the beginning they each weighed some 7 or 8 lb. dead weight. The sheep from which Mr. McLagan obtained these lambs are of the Dorset breed, which appear to be a hardy and tolerably prolific race, and have the reputation, which is fully justified by the butchers' experience of the lambs this year, of being "capital killers." These sheep lamb twice a year; but Mr. McLagan, in order to be first in the market, and like the early bird to catch the worm, only takes one crop of lambs from them. This year he was rather too early; lamb apparently not being considered a luxury in Scotland, or, at all events, not being deemed a profitable article of sale by the butchers at Christmas or New Year's Day. Next year, therefore, Mr. McLagan proposes to keep his lambing-time back for about three weeks, as he calculates that he has lost something like that amount of keep on them this year. Instead, therefore, of having them lambing in the end of October, he proposes to keep them back until the third week in November. Out of the two score ewes for which Mr. McLagan paid 3*l.* per head, he obtained 45 lambs; but it should be stated that these were the product of 35 ewes only; the other five, having been injured by transit on the railway from the south, did not yield offspring. Up to the time of lambing, the ewes received nothing beyond Grass, Turnips, and such hay as was cut from the roadsides, ditches, &c. The cost of their keep for ten months before lambing is estimated at about 6*d.* a week; and for the two months they remained with the lambs, when they were supplied with oilcake, corn, and anything they could eat, about 15*s.* or 16*s.*—that is altogether for the year about 36*s.* This, multiplied by 40, the number of the ewes, gives us 72*l.*, which, deducted from 105*l.*, the value of the lambs, leaves 33*l.* of clear profit, or 16*s.* 6*d.* per head. Not a bad profit, surely, when it shall have been augmented by the value of the wool and the manure.

Notices to Correspondents.

BEES: *Sir.* Weigh the hives, and should they be each 20 lbs. gross weight there will be no occasion to feed them. The sun will attract them out, even if they have food, and for this reason screens are recommended to prevent the sun shining on the hives in the cold season. We recommend a little book which contains most useful hints to a bee keeper, entitled, "Bee Keeping," No. 3, by the late J. H. Payne, Esq., price 4*d.*, 162, Fleet Street, E.C.

CATTLE MELON: *C Saville* describes another unfortunate experience of last year with Mr. Blundell's seed. We have already given a great many instances of this kind; and it is generally understood that the seed sent out last year was unfortunately not sufficiently ripened to be good. But knowing Mr. Blundell, we are able to assert with confidence that all he has published on this subject has been in good faith; and that his statements of his experience are trustworthy.

ERRATA.—In col. c, of page 154, in the 35th line from the top, for "singular" read "angular," and in the fourth line from the bottom, for "matter," read "miller."

FALLOW: *Old Sub.* Fallow is held in Scotland, by a recent decision, to include land, labour, and dung, and the fallow which is to be given free is not satisfied by giving merely the labour free, but the appellant is bound to give the dung also.

GRASS FOR SEA-SHORE: *R.* Psamma arenaria, Sea-mat Grass; Elymus arenarius, Sea-lyme Grass; Cynodon dactylon, Creeping Dog-tooth Grass, are among the most useful Grasses for binding together the surface of sand-banks.

HORSE SHOES: *J W B.* Ordinary plough horses wear shoes weighing 2½ lb. apiece. The shoes of a saddle horse again do not weigh 1½ lb.; but the custom of different localities is exceedingly various. Where flint is the common road material, shoes are made thicker than elsewhere.

HORSES: *Julia.* You will see the rations allowed to farm horses during winter by a number of Correspondents given at p. 88. Probably a stone of hay and 8 or 10 lbs. of Oats a day should suffice for carriage horses, with access to straw and water.

NEW MANURE: *A Subscriber from No. 1 till now.* The new French manure is, we believe, in the nature of a steep for the seed, and therefore altogether untrustworthy. We have not seen the announcement of an agency in London; but probably this mention of it may bring it to us.

ORCHARDING: *A Young Gardener* says:—I should feel greatly obliged if your talented Correspondent Mr. John Cox, who has lately written in the *Gardeners' Chronicle* "On Orchard Management," would kindly answer the following questions through your columns. We have bought a fine lot of Orchard Apple trees, with capital stems 6 feet long, 4¼ inches in circumference, with splendid heads, consisting of 12 to 15 strong shoots (2 to 3 feet in length), the result of last year's growth. The trees are planted as directed, but what I particularly wish to know is, if those shoots should be shortened or headed down this season? and what should be the subsequent management in pruning for the next year or two? [The letter had been sent by mistake to Mr. Cox, of Longford, and hence the delay of its publication.]

ROTATION OF CROPS: *Student.* The cause of this need has been attributed by the Rev. M. J. Berkeley to the existence of Fungi on decaying matter of the previous crop attacking the young plant. He says:—It is acknowledged almost universally that in the common system of cultivation, Wheat cannot profitably succeed Wheat. The same may be assumed, from common consent, respecting Wheat after Italian Rye-grass mixed with Clover. In this case, though the crop in parts may be good, after a time patches become blighted and die. Now here, again, we have taken pains to ascertain the cause. We do not assert that we have satisfactorily traced this to spawn arising from decaying vegetable matter attacking the roots. We know, however, so far as our own experience goes, that if the blighted straws are split up, there will very generally be found traces of fungous matter.

STRAW ON CLAY: *J Smith.* If you grow too much straw on a strong clay soil, you do not need any manure at all. Tillage, not manure, is wanted in such cases. A dressing of common salt tends to strengthen straw; from 2 cwt. on stiff soils up to 4 or 5 on light soils are a common dressing.

WEEDS: *Subscriber.* In pastures weeds are discouraged by drainage, close pasturage, and artificial top-dressings, and by perseverance in spudding or pulling large plants at all seasons of the year, especially in the spring and summer, and before their seed time. If these means will not avail, the land must be ploughed up, well fallowed, and laid down again.

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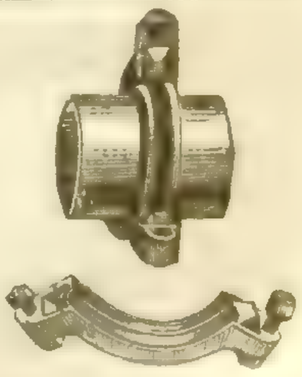

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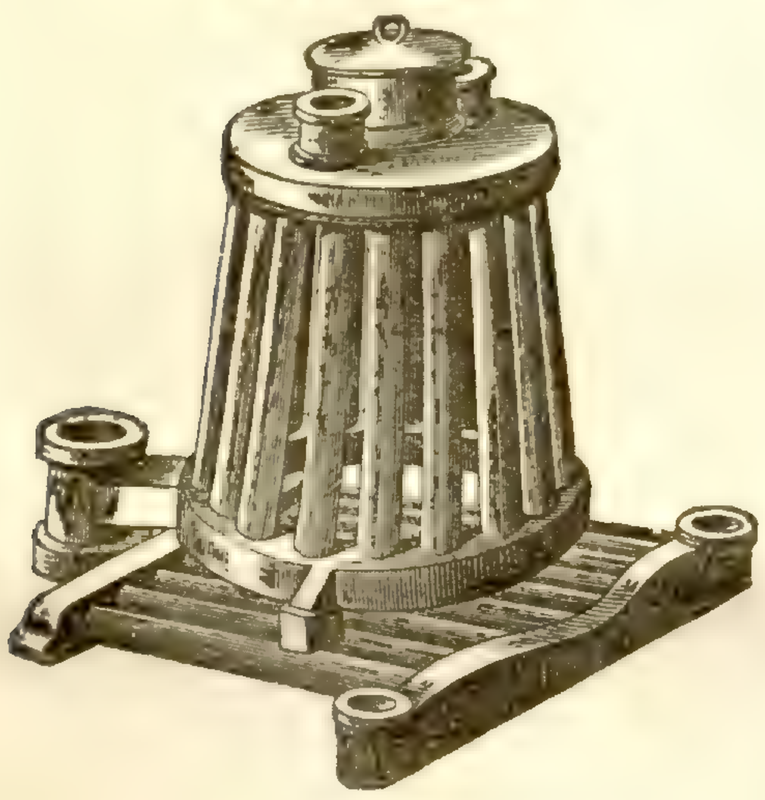


ORMSON'S

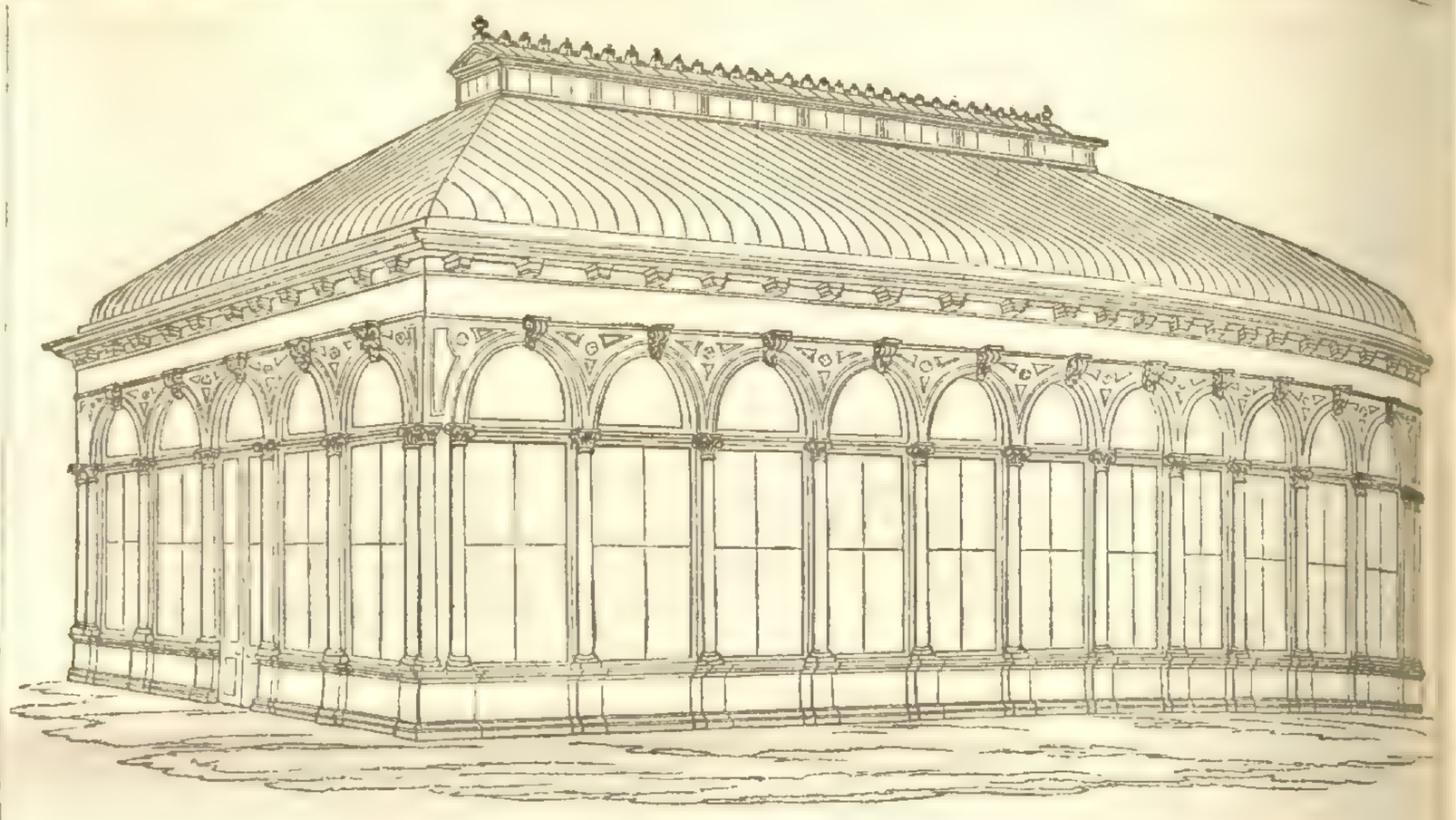
PATENT JOINTLESS TUBULAR BOILER

HAS NOW GAINED the highest standing reputation for Power, Efficiency, Safety, and Economy of Fuel. There is not a single joint exposed to the action of the fire, which renders these Boilers far more safe than any other Tubular Boiler ever invented.

May be seen in successful operation in the Gardens of many of the Nobility and Gentry in England, Ireland, and Scotland.

They are made of various sizes. Prices on application.

HENRY ORMSON,
Stanley Bridge, King's Road, Chelsea, S.W.



HORTICULTURAL BUILDINGS

MANUFACTURED BY STEAM POWER MACHINERY.

LOWEST PRICES AND BEST MATERIALS.

DESIGNING, BUILDING, HEATING, AND VENTILATING ON THE MOST APPROVED AND SCIENTIFIC PRINCIPLES.

Plans, Specifications, and Estimates on application.

HENRY ORMSON,

HORTICULTURAL BUILDER, AND HOT-WATER APPARATUS MANUFACTURER,
STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

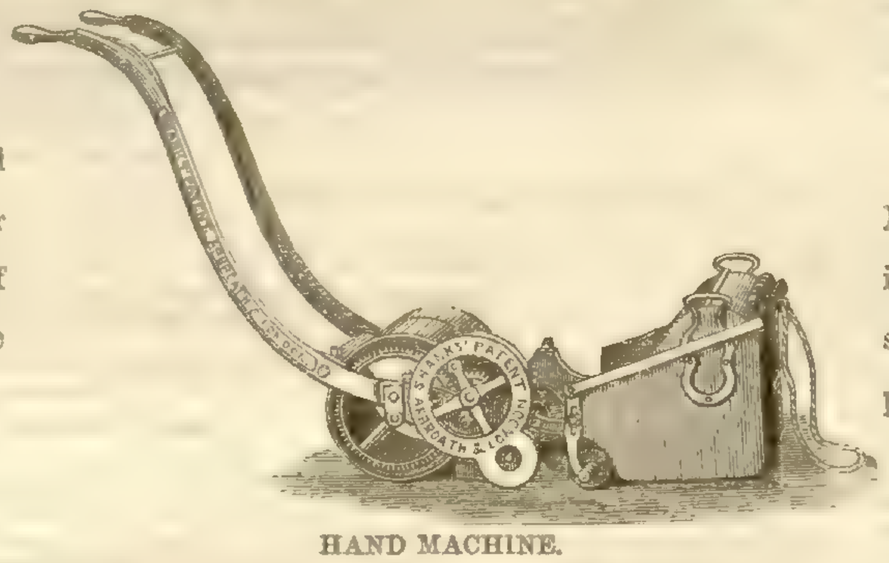
SHANKS' NEW IMPROVED PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1865.

PATRONIZED ON FIVE SEPARATE OCCASIONS DURING THE SEASON OF 1864 BY

HER MAJESTY THE QUEEN.

Alexander Shanks & Son are gratified to find that in the large and increasing demand for their celebrated MACHINES, they receive a conclusive proof that their merits are every season becoming more appreciated by the Practical Gardener.



HAND MACHINE.

A. S. & Son, in introducing Improvements into their MACHINES, have been careful that the advantages in point of durability, simplicity of construction, and superiority in the work executed, which have all along been peculiar to SHANKS' MACHINES, should still remain.

A. S. & Son have a large stock of their MACHINES ready for the ensuing season, and as they have made large additions to their Manufactory there will be no delay in the execution of Orders.

SHANKS' PATENT LAWN MOWERS are in daily use in the ROYAL GARDENS at KEW, WINDSOR, BUCKINGHAM PALACE, HAMPTON COURT, OSBORNE and BALMORAL; in the GARDENS of the ROYAL HORTICULTURAL SOCIETY at KENSINGTON; in the GROUNDS of the CRYSTAL PALACE COMPANY at SYDENHAM; in VICTORIA PARK; in BATTERSEA PARK; and in many hundreds of the principal Gardens in the Kingdom, as well as abroad, where their merits have been fully proved and their success established.

PRICES—including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom.

SHANKS' NEW PATENT HAND MACHINE for 1865.

Width of Cutter.		
10-inch Machine	£3 10 0	*Easily Worked by a Lady.*
12-inch Machine	4 10 0	*Easily Worked by a Lady.*
14-inch Machine	5 10 0	*Ditto by a Boy.*
16-inch Machine	6 12 6	*Ditto by a Man.*

SHANKS' NEW PATENT HAND MACHINE for 1865.

Width of Cutter.		
19-inch Machine	£7 12 6	*Easily Worked by a Man and Boy*
22-inch Machine	8 7 6	*Ditto by Two Men.*
24-inch Machine	8 17 6	*Ditto by Two Men.*

Silent Movement for the five smallest sizes, 4*s.* extra; for the other sizes, 7*s.* 6*d.* extra.

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
25-inch Machine	£12 10 0	25*s.* extra.
28-inch Machine	14 10 0	30*s.* "
30-inch Machine	12 10 0	30*s.* "

Silent Movement, 12*s.* 6*d.* extra; Boots for Pony, 21*s.* per set; Ditto for Donkey, 16*s.* per set.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
30-inch Machine	£19 0 0	30*s.* extra.
36-inch Machine	22 0 0	30*s.* "
42-inch Machine	26 0 0	40*s.* "
48-inch Machine	28 0 0	40*s.* "

Silent Movement, 20*s.* extra; Boots for Horse's Feet, 24*s.* per set.

Shanks' Patent Lawn Mowers are warranted to give ample satisfaction, and if not approved of may be at once returned.

PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N. B.
LONDON OFFICE and SHOW ROOMS, 27, LEADENHALL STREET, E.C.

A Stock of Lawn Mowers always kept at 27, Leadenhall Street, from which Orders can be at once executed.

TO CONIFER PLANTERS.—All the following have been Transplanted within the last three years, and are handsome specimens for planting singly. For prices in smaller quantities, see CONIFER LIST, which may be had for 12 stamps.

	Per dozen.		Per dozen.
Abies Douglasii, 3 to 4 ft.	30s.	Irish Yew, 4 to 5 ft.	42s.
" " 4 to 5 ft.	42s.	" " 5 to 6 ft.	60s.
" " 5 to 6 ft.	60s.	Juniperus thurifera, 5 to 6 ft.	60s.
" " 6 to 8 ft.	84s.	" " 6 to 7 ft.	72s.
" orientalis, 2 to 3 ft.	60s.	Pinus Cembra, 3 to 4 ft.	30s.
" Albertiana, 3 to 4 ft.	42s.	" " 4 to 5 ft.	42s.
" Menziesii, 4 to 5 ft.	36s.	" excelsa, 4 to 5 ft.	42s.
" " 5 to 6 ft.	60s.	" " 5 to 6 ft.	60s.
Araucaria imbricata, 2 to 3 ft.	60s.	" " 6 to 8 ft.	84s.
" " 3 to 4 ft.	120s.	Portugal Laurels, noble Pyramids, for imitation Orange trees, 4 to 5 ft.	72s.
" " 4 to 5 ft.	240s.	Ditto, 5 to 6 ft.	96s.
Arbor-vitæ, American, 5 to 6 ft.	21s.	Red Cedar, 4 to 5 ft.	18s.
" " 6 to 7 ft.	30s.	" " 5 to 6 ft.	24s.
" Siberian, 5 to 6 ft.	42s.	" " 6 to 7 ft.	30s.
" " 6 to 7 ft.	60s.	Thuja aurea, 1½ to 2 ft.	48s.
Cedrus Deodara, 4 to 5 ft.	60s.	Taxodium sempervirens—	
" " 5 to 6 ft.	72s.	8 to 10 ft.	72s.
Colchic Laurels, 4 to 5 ft.	21s.	10 to 12 ft.	84s.
" " 5 to 6 ft.	30s.	Thujopsis borealis, 3 to 3½ ft.	42s.
Cupressus macrocarpa—		Wellingtonia gigantea—	
4½ to 5 ft.	30s.	2 to 2½ ft.	60s.
" Lawsoniana, 3 to 3½ ft.	30s.		
Cryptomeria viridis, 3 to 4 ft.	30s.		

FOR AVENUES

Abies Douglasii, 8 to 10 ft., 15s. each; 120s. per dozen
" " 10 to 12 ft., 21s. each; 200s. per dozen
" inverta, 3 to 4 ft., 15s. each; 120s. per dozen
" " 4 to 5 ft., 21s. each; 200s. per dozen
" " 5 to 6 ft., 31s. 6d. each; 300s. per dozen
Araucaria imbricata, 5 to 6 ft., 63s. each; 600s. per dozen
" " 6 to 7 ft., 84s. each; 700s. per dozen
Cedar of Lebanon, 7 to 8 ft., 21s. each; 200s. per dozen
" 8 to 10 ft., 25s. each; 240s. per dozen
Cedrus Deodara, 6 to 7 ft., 10s. each; 90s. per dozen
" " 7 to 8 ft., 15s. each; 120s. per dozen
" " 8 to 9 ft., 21s. each; 180s. per dozen
Picea nobilis, 2½ to 3 ft., 42s. each; 400s. per dozen
" " 3 to 4 ft., 63s. each; 600s. per dozen
" Nordmanniana, 2½ to 3 ft., 42s. each; 400s. per dozen
" " 3 to 4 ft., 63s. each; 600s. per dozen
" Pinsapo, 2½ to 3 ft., 21s. each; 200s. per dozen
" " 3 to 4 ft., 42s. each; 400s. per dozen
Pinus excelsa, 8 to 10 ft., 15s. each; 120s. per dozen
" " 10 to 12 ft., 21s. each; 200s. per dozen
" Lambertiana, 6 to 7 ft., 21s. each, 200s. per dozen
Sequoia sempervirens, 8 to 10 ft., 7s. 6d. each; 72s. per dozen
" " 10 to 12 ft., 10s. 6d. each; 84s. per dozen
Wellingtonia gigantea, 4 to 4½ ft., 31s. 6d. each; 300s. per dozen

Acacia, 8 to 10 ft.	Flowering Almonds, 7 to 8 ft.
Chichester Elms, 8 to 10 ft.	Mountain Ash, 8 to 10 ft.
Double Pink Thorns, 6 to 7 ft.	Spanish Chestnut, 8 to 10 ft.

At 18s. per dozen.

RICHARD SMITH, Nursery, Worcester.

TO THE TRADE.

3,000,000 3-year SILVER FIR.
1,000,000 3-year SPRUCE FIR.
100,000 3-year BALM of GILEAD FIR.
50,000 3-year PINUS CEMBRA.

The Subscriber offers the above very fine Seedlings at moderate prices.
DAVID A. REID, Park Attwood, Bewdley; or ALLASTER & Co., Glasgow. Trade Lists on application.

GENTLEMEN PLANTING for immediate effect, can be supplied with a few extra fine specimens of CEDRUS DEODARA, from 15 to 20 feet high, which can be transplanted with the greatest safety, at almost any season of the year, by a safe and simple machine. The Ball of earth, Tree, and Machine will weigh about 1 ton altogether. The cost of transit can be ascertained at any Railway Station in the Kingdom. Price per Tree, including Machine, 5l. 5s.

A few Specimen Trees taken up last June (and not yet planted), may be seen at the Stapleton Road Nursery, standing in the Machines.
WM. MAULE & SONS, The Nurseries, Bristol.

To the Trade.

W. P. LAIRD AND SINCLAIR, NURSERYMEN, Dundee, N.B., still offer the following of fine quality. Prices on application.

SEEDLINGS.—1-yr. Ash, 2-yrs. Oak, 2, 3, and 4-yrs. Spruce, 1-yr. Pinus Laricio, 1 and 2-yrs. Cedrus atlantica, 1-yr. White Broom, 1-yr. Laburnum, 2-yrs. Service, 2-yrs. Apples, 2 and 3-yrs. American Arbor-vitæ, &c.

TRANSPLANTED.—Larch, 1 to 1½ ft. and 2 to 3 ft.; Scotch Fir, 2-yrs., 1-yr. out; Pinus austriaca, 9 to 12 ins.; English Oaks, 1½ to 2½ ft.; Elm, 6 to 8 ft.; Norway Maple, 6 to 8 ft.; Hornbeam, 1½ to 2½ ft.; Holly, 6 to 9 ins.; Quicks, strong and ex. strong; Privet, 1½ to 2½ ft.; Irish Yews, of sizes; Irish and Swedish Junipers, of sizes; Portugal Laurels, Siberian and American Arbor-vitæ, of sizes; Daphnes, of sorts; Hardy Heaths, Thuja Lobbi; Abies Douglasii, Thujopsis borealis.

CARNATIONS and PICOTEES, fine named sorts

POTATOS, Kidney and Round, best early garden sorts, grown specially for their own retail.

Dundee.—March 4.

H. AND F. SHARPE have a surplus stock of the following SHRUBS to dispose of at a low figure.

VARIEGATED BOX, 18 to 24 in	COMMON YEW, 3 to 4 feet.
AUCUBA JAPONICA, 18 to 24 in.	IRISH YEW, 3 to 4 feet.

All transplanted, well rooted, and bushy stuff
Nursery and Seed Establishment, Wisbech

HAAGE'S DWARF EARLIEST CAULIFLOWER.—Very dwarf, the earliest, hardiest, and finest of Cauliflowers Packets 1s. 6d each. The finest new varieties of VEGETABLE SEEDS. CATALOGUES sent free.
STEPHEN BROWN, Seed Grower, Sudbury, Suffolk.

WHEELER'S LITTLE BOOK for 1865.

WHEELER'S TOM THUMB LETTUCE, 1s. per pckt.

NEW POTATO, MILKY WHITE, 4s. per peck.

GLOUCESTERSHIRE KIDNEY POTATO, 3s. per peck

J. C. WHEELER AND SON, SEED GROWERS, Gloucester

FOR GRASS SEEDS.—WHEELER & SON.

FOR SEED POTATOS, New Sorts.—WHEELER & SON.

FOR GARDEN SEEDS.—WHEELER & SON.

FOR FARM SEEDS, fine quality.—WHEELER & SON.

WHEELER'S LITTLE BOOK for 1865.
Post free for four stamps, Gratis to Customers.

WHEELER'S LITTLE BOOK on GRASSES, gratis and post free.
J. C. WHEELER & SON, Seed Growers, Gloucester.

J. C. WHEELER AND SON, SEED GROWERS, Gloucester.

SEED POTATOS.—Potatos, though not strictly roots, but tubers, equally require care in selection. We have had the gratification of introducing THREE NEW SORTS, which have given satisfaction to every one who has tried them. They are

PRINCE of WALES,
ALSTONE KIDNEY, and
GLOUCESTERSHIRE KIDNEY.

The first two sorts are now well-known and highly esteemed; the Gloucestershire Kidney is a variety which we can recommend with the most perfect confidence; and we have much pleasure in referring to the Testimonials in its favour in our "Little Book." We introduce this season another new variety—Milky White—which we believe to be the finest Potato ever raised. Although early, it is perfectly white and mealy, and of excellent flavour. We have but a small supply, and can only offer it in peck bags, each of which is marked on the outside with our Trade Mark.

J. C. WHEELER AND SON Glo'ster

GLOUCESTERSHIRE KIDNEY, 3s. per peck, 10s. 6d. per bushel.
This most excellent Kidney Potato we can recommend for earliness, flavour, size, and crop. In comparing it with the Ashleaf Kidney, it is as early, whilst it produces nearly double the crop, and is altogether superior to that variety.

MILKY WHITE, 4s. per peck.
Fine second early; ripens immediately after the Gloucestershire Kidney. Is of excellent flavour, and in colour as white as milk; keeps well, and is altogether one of the best, if not the best, Potato in cultivation. In our opinion Gloucestershire Kidneys, Milky Whites, and Flukes are all the sorts necessary to keep one's table supplied with Potatos of the highest excellence all the year round.

The new Potato Milky White can be obtained true of the following eminent Firms:—

Messrs. BATT, RUTLEY, & SILVERLOCK	Strand, W.C.
" JAMES CARTER & Co.	High Holborn, W.C.
" NUTTING & SONS	Barbican, E.C.
" SUTTON & SONS	Reading.
" JACOB WRENCH & SONS	London Bridge, E.C.
" STUART & MEIN	Kelso
" PETER LAWSON & SON	28, King Street, Cheapside, E.C.
" MINIER & NASH	Strand, W.C.

It will be sent out in peck bags, each bag marked with our Trade Mark. We regret to say we have but a small quantity to offer this season.

J. C. WHEELER & SONS, Seed Growers, Gloucester.

New Early Potato—Rintoul's Early Don.

DOWNIE, LAIRD, AND LAING are now sending out the above variety, introduced by Charles Rintoul, Esq., East Craigie, Cramond, near Edinburgh, the well known Potato cultivator, and grown by him very extensively for some years. It is a seedling from the old "Don," considerably earlier than Dauntree's Seedling, is a handsome-shaped round white variety, slightly streaked with red, and is an immense bearer, producing from 80 to 90 bolls per acre. It partakes of the quality of the old Don, being very mealy and fine flavoured. For Field or Garden purposes this sort will be found a valuable acquisition, and can be highly recommended. Price 4s. per peck of 14 lb.

17, South Frederick Street, Edinburgh; and Stanstead Park, Forest Hill, London, S.E.

A Boon to the World.

PRINCE of WALES' KIDNEY POTATO.—A new Seedling, remarkably handsome, fine eating, and the most prolific in the world. Testimonials:—

From Professor LINDLEY (Editor of the *Gardeners' Chronicle*).
"I have this morning had the Seedling Potatos examined. The crop is very extraordinary, and the Potatos themselves are very handsome, and quite ripe."

From SHIRLEY HIBBERD, Esq. (Editor of the *Gardeners' Weekly Magazine*.)
"The Seedling Potato (Prince of Wales), I have found to be wonderfully productive, excellent flavour, handsome, and such a one as the world ought to have the benefit of."

To be had of Messrs. BARR & SUGDEN, King Street, Covent Garden W.C.; DOWNIE, LAIRD & Co., Forest Hill, S.E.; JAMES CARTER & Co. 237, High Holborn, W.C.; SUTTON & SONS, Reading.
Price 12s. per bushel.
N.B. They may be planted up to the end of May

Seed Potatos.

SKERRY BLUE POTATO is proved now to be one of the best for Bulk, perfectly free of Disease, and fine flavoured. Those who have been supplied by me from the Parent Stock where first raised, speak strongly of them. Cash, 4s.

"All my Potatos are diseased save the Skerries; the produce is enormous, all sound and good
"WM. WOOLSEY, The Crescent, Castlebelingham."

"These Potatos should not be mixed. I will change my Skerries every year, they are with us the only Potato worth growing.
"PATRICK KENNEDY, Steward, Greenwood Park."

BOSTON BLUE-NOSED KIDNEY, raised from Seed brought from Boston, Massachusetts. This is a large-growing early variety. Acres of this Potato can be cleared off the ground before August 1. Its produce is double those other early delicate varieties, Kidneys, Ash Leaves, &c. 5s. per cwt. Ten Tons of this variety I have contracted for.

Delivered Free of Carriage in Liverpool, Glasgow, or Dublin. Prices on application. In Bags 2½ cwt. Bags 2s.

Two Millions Seedling and Transplanted THORN QUICKS.
ANDREW G. DALY, Nurseryman and Seedsman, Newry.

New Cucumber.

E. BUNDLE can with confidence highly recommend the PRESTON HERO CUCUMBER, the best White Spine ever grown; short neck, prolific bearer. Length 26 to 30 inches. Gained First-class Certificate at the Brighton Horticultural Show in September, 1864. 2s. 6d. per packet of five Seeds, may be had of

E. BUNDLE, Wood's Lee, Preston: or of H. SMYTHE, Centurion Nursery, Brighton, Sussex.

TO THE TRADE.
A First-rate Stock of DANIEL O'ROURKE PEAS and the ROYAL ASHLEAF POTATOS in quantities; also a Ton of WHITE SPANISH ONION, growth 90 per cent.
WM. CLARK, Seedsman, 42, Bishopsgate Street Without, N.E.

THE EARLIEST PEA KNOWN is CARPENTER'S EXPRESS, gathered May 7. See Testimonials. Price 3s. 6d. per quart. Trade price upon application. A remittance from unknown Correspondents is requested.
CARPENTER'S MAGNUM BONUM.—The Largest and Best Tall Pea grown. 5s. per quart.
CARPENTER'S MULTUM IN PARVO.—The Best Dwarf Pea grown 5s. per quart.
CARPENTER'S MONSTROUS WHITE COS LETTUCE,
CARPENTER'S MONSTROUS GREEN COS LETTUCE,
CARPENTER'S MONSTROUS BROWN COS LETTUCE,
1s., 2s. 6d., and 5s. per packet, are the three best LETTUCES in cultivation.
CATALOGUES on application to EDWARD CARPENTER, Seed Merchant and Grower, Brighton, Sussex. Seed Warehouse, 96, St. James's Street, Brighton.

THE ESSEX RIVAL PEA.—The finest, most productive, and best flavoured Early Pea in cultivation. See large Advertisement of Testimonials, December 31, 1864: also see Advertisement and Testimonials of January 7 and 28, 1865, in *Gardeners' Chronicle*. Price 2s. 6d. per quart.

The Trade liberally dealt with. Terms on application.

To be obtained of—
Messrs. Peter Lawson & Son, 28, King Street, Cheapside, London.
Mr. James Veitch, Royal Exotic Nursery, King's Road, Chelsea.
Messrs. Cooper & Bolton, 152, Fleet Street, London.
Messrs. Fraser, Richardson, & Goad, 82, Bishopsgate Within, London.
Messrs. Nutting & Sons, 60, Barbican, London.
Mr. G. W. Dixon, 48a, Moorgate Street, London.
Messrs. Sutton & Sons, Reading, Berkshire.
Messrs. Saltmarsh & Son, Moulsham Nursery, Chelmsford, Essex.
Messrs. Roberts & Son, Denbigh.
Messrs. Lowe & Co., High Green, Wolverhampton.
Mr. Robert Ennson, Secretary to the Essex Agricultural Association
Mr. B. Mackenzie, Ventnor, Isle of Wight.
Mr. B. R. Cant, St. John's Street, Colchester.
Mr. George Taber, Rivenhall, near Witham, Essex.
Mr. J. F. Chater, Braintree, Essex.
M. Paul Tollard, 4, Place des Trois Maries, Paris, France.
Mr. THOMAS ELEY, Sible Hedingham, Halstead, Proprietor.

CHOICE SEEDS.

PEA, DILLISTONE'S EARLY PROLIFIC, the earliest kind known, 1s. per quart
" ADVANCER (McLEAN'S), 1s. 6d. per quart
" PRINCESS ROYAL (McLEAN'S), 1s. 6d. per quart
" YORKSHIRE HERO (Dixon's), 5s. per quart
" PAYNE'S CONQUEROR, 1s. per quart
BEET, NUTTING'S SUPERB RED, 8d. per oz.
" PINE-APPLE SHORT TOP, 8d. per oz.
BROCCOLI, SNOW'S WINTER WHITE, True, 1s. per packet.
" WHITE CORNISH, 6d. per packet
" DALMENY, 1s per packet
CABBAGE, LITTLE PIXIE, 6d. per packet
" KEMP'S INCOMPARABLE, 6d. per packet
" McEWEN'S MARROW, 6d. per packet
CAULIFLOWER, FROGMORE PROTECTING, 1s. per packet
" EARLY DWARF ERFURT, 1s. per packet
CELERY, WHITE QUEEN, 1s. per packet.
" MANCHESTER CHAMPION RED, 6d. per packet.
" IVERY'S NONSUCH, 6d. per packet.
CUCUMBER, SMITH'S FINE LONG FRAME, 1s. per packet.
" PEARSON'S LONG GUN, 1s. per packet.
" BARWOOD'S WHITE SPINE, 1s. per packet
LETTUCE, TOM THUMB (WHEELER'S), 1s. per packet
" IVERY'S NONSUCH, 1s. per packet
" PARIS WHITE COS, 6d. per packet
" NEAPOLITAN, 6d. per packet
MELON, EMPRESS EUGENIE, 1s. per packet
PARSNIP, THE STUDENT, 6d. per packet
TURNIP, CHIRK CASTLE BLACK STONE, 4d. per oz.
" AMERICAN STRAP-LEAVED, 4d. per oz.
POTATO, RIVERS' ROYAL ASHLEAF, per peck, 3s.
ASTER, TRUFFAUT'S SUPERB FRENCH, 18 varieties, mixed, 1s. per packet
STOCK improved large flowering, 18 varieties, mixed, 1s. per packet
Orders of 21s. and upwards carriage free. Those kinds priced per packet free by post.
DESCRIPTIVE PRICED LIST on application.
RICHARD SMITH, Seed Merchant, Worcester.

BARR & SUGDEN
12 KING ST. COVENT GARDEN

Orders amounting to 21s. sent Carriage Paid.

NEW SEEDS AND SPECIALITIES FOR THE SALE OF 1865.

	s.	d.
PEAS, McLEAN'S ADVANCER, the earliest dwarf wrinkled Marrow .. .. per qt.	2	0
" McLEAN'S PRINCE of WALES and PRINCESS of WALES, wrinkled Marrow .. .. .. "	2	0
" KNIGHT'S ALBERT EDWARD, the earliest tall green Marrow .. .. "	5	0
BEET, COVENT GARDEN, a fine medium sized variety, of a rich deep blood-red colour .. .. per oz.	1	0
" BECK'S IMPROVED SEAKAIL, the midrib of the leaf is about 3 inches broad .. .. .. "	1	0
BORECOLE, ALBERT SPROUTS, one of Mr. Melville's successful hybrids .. .. per pkt.	1	6
" DALMENY SPROUTS, also one of Mr. Melville's successful hybrids .. .. "	1	0
" COVENT GARDEN GARNISHING, the variegations are beautiful, ranging from white to crimson "	1	0
BROCCOLI, SNOW'S WINTER, a very superior stock; also OSBORN'S WINTER .. .. .. each "	2	6
" The HORTICULTURAL, superb late white, and CHAMPION, late white .. .. .. each "	1	0
CAULIFLOWER, COVENT GARDEN, early, an exceedingly fine stock .. .. "	1	0
" NEW DWARF MAMMOTH, very large and fine for forcing .. .. "	1	0
LEEK, HENRY'S PRIZE GIANT and AYTON CASTLE GIANT .. .. each "	0	6
CUCUMBER, BARR'S PEARL GEM, fruit pearl cream, very handsome, flavour delicate .. .. .. "	1	0
" PRINCE ALBERT, the most prolific and best for forcing of the Syon House varieties .. .. "	1	0
CUCUMBER, LONGFELLOW, a very long handsome black spine variety .. .. per pkt.	1	6
" ROYAL ALBERT, a splendid grey spine variety, very long and finely formed .. .. "	1	6
MELON, GARIBALDI, a fine melting red flesh variety "	1	6
" PRINCESS LOUIS of HESSE, melting scarlet flesh variety .. .. "	1	6
TOMATO, GRENIER, a new upright growing variety .. "	1	0
VEGETABLE MARROW, CUSTARD, very fine stock .. "	0	6
" MOORE'S VEGETABLE CREAM .. .. .. "	0	6
LETTUCE, COVENT GARDEN GIANT, White Summer Cos, the finest white summer Lettuce in cultivation .. .. "	1	0
" COVENT GARDEN GIANT, brown winter Cos, the best brown Cos Lettuce cultivated .. .. "	1	0
" MOOR PARK and IVERY'S NONSUCH, excellent sorts of Summer Cos Lettuce.. .. .. each "	1	0
" COVENT GARDEN summer Cabbage, the best of this class for summer .. .. "	1	0
" STANSTEAD PARK ECLIPSE Cabbage, the best of this class for winter .. .. "	1	0
POTATO, PRINCE of WALES KIDNEY, a superior second early, very handsome, and not subject to disease .. .. .. per peck 3s. 6d., per bushel	12	0
" ENGLAND'S FAIR BEAUTY KIDNEY, very floury, fine flavoured, great cropper, and very handsome .. .. per peck 3s. 6d. "	12	0
" COVENT GARDEN PROLIFIC, a first-class second early round variety, fine flavoured, dwarf top, and great cropper .. .. per peck 3s. 6d. "	12	0

BARR AND SUGDEN, SEED MERCHANTS, 12, KING STREET, COVENT GARDEN, W.C.

GENUINE SEEDS, CARRIAGE OR POST FREE.

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It contains all Novelties worthy of notice, with full description to each. The following CHOICE FLOWER SEEDS are particularly recommended, being received direct from the most celebrated German and English cultivators, and are carefully saved from their best strains of each class. The ASTERS and STOCKS are the produce of plants grown in pots, and warranted the finest in form and colour.

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This Aster was introduced two years ago, and has been fully proved to be a variety of great merit.
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23. An assortment of 12 varieties, containing of each colour 100 seeds .. 1 6

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26. An assortment of 4 varieties, containing of each colour 100 seeds .. 1 0

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The most beautiful in cultivation. The flowers are perfectly double, imbricated, globular, and as large as the Giant Emperor Aster. Being of vigorous growth, the stem only requires tying. Each plant produces from 10 to 20 flowers. Its habit is that of an elegant pyramid, height from 1½ feet. In order to grow this to perfection, it is very important that each plant should be at least 1½ square feet apart. Quite new.
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SUPERB DOUBLE HOLLYHOCK.
Saved from one of the finest strains in existence; this strain invariably takes first prizes when shown.
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Extra double, saved from the finest double flowers.
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DOUBLE AFRICAN and FRENCH.
73. An assortment of 12 varieties, containing of each colour 1 packet .. 2 0

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75. An assortment of 10 varieties, containing of each colour 1 packet .. 1 6
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78. An assortment of 12 distinct varieties .. 2 0

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80. An assortment of 25 splendid kinds .. 3 0
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93. An assortment of 12 varieties, containing of each colour 1 packet .. 1 6

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97. An assortment of 6 varieties, containing of each colour 1 packet .. 1 0

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AUTUMNAL STOCK, EARLIEST FLOWERING.
These new Autumnal Stocks are strongly to be recommended, producing a splendid effect when grown in the open ground; grown as Summer Stocks they bloom abundantly from the beginning of August until destroyed by the frost.
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A magnificent variety for winter flowering; it commences to produce immense spikes of flower about nine months after sowing.
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108. An assortment of 8 varieties, containing of each colour 100 seeds .. 2 0
109. An assortment of 4 varieties, containing of each colour 100 seeds .. 1 0

EMPEROR STOCK, NEW LARGE FLOWERING.
These are remarkable for extra large flowers and beautiful habit; when cultivated in the open ground, the effect in autumn is magnificent.
111. An assortment of 8 varieties, containing of each colour 100 seeds .. 2 0
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114. An assortment of 36 varieties, containing of each colour 100 seeds .. 6 0
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118. An assortment of 16 varieties, containing of each colour 100 seeds .. 3 0
119. An assortment of 12 varieties, containing of each colour 100 seeds .. 2 6

GERMAN TEN-WEEK STOCK, NEW HYBRID.
Foliage between rough and Wallflower-leaved.
122. An assortment of 6 varieties, containing of each colour 100 seeds .. 1 [illegible]

GERMAN TEN-WEEK STOCK, WALLFLOWER-LEAVED.
124. An assortment of 12 varieties, containing of each colour 100 seeds .. 2 6
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MINIATURE, or DWARFEST TEN-WEEK STOCK.
127. An assortment of 6 varieties, containing of each colour 100 seeds .. 1 6

NEW DWARF BOUQUET TEN-WEEK STOCK.
128. An assortment of 4 varieties, containing of each colour 100 seeds .. 1 [illegible]

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A new and improved class, producing splendid spikes of large and beautiful flowers.
129. An assortment of 6 varieties, containing of each colour 100 seeds .. 1 6

ROSE-FLOWERED AUTUMNAL ROCKET STOCK.
A novelty of the present season, very beautiful, and highly recommended.
130. An assortment of 4 varieties, containing of each colour 100 seeds .. 2 0

Salpiglossis.

131. An assortment of 10 varieties, containing of each colour 1 packet .. 2 [illegible]

Schizanthus.

133. An assortment of 8 varieties, containing of each colour 1 packet .. 1 [illegible]

Thunbergias.

137. An assortment of 6 varieties, containing of each colour 1 packet .. 1 [illegible]

Tropæolums.

139. An assortment of 6 dwarf bedding varieties .. 1 6

Wallflowers.

141. An assortment of 10 double varieties, containing of each 100 seeds .. 3 [illegible]
142. An assortment of 6 double varieties, containing of each 100 seeds .. 2 [illegible]

Zinnia elegans.

144. An assortment of 6 varieties, containing of each colour 1 packet .. 1 [illegible]

DOUBLE ZINNIA ELEGANS.
146. An assortment of 8 varieties, containing of each colour 1 packet .. 2 6
147. An assortment of 4 varieties, containing of each colour 1 packet .. 1 0

KITCHEN GARDEN SEEDS,

COMPLETE COLLECTIONS to suit GARDENS of various sizes, 10*s.* 6*d.*, 21*s.*, 42*s.*, 63*s.*, and 84*s.* each.

Just Imported, a Large Stock of LILIUM AURATUM (the New Japan Lily), good strong bulbs, 5s. to 7s. 6d. each.

DOUBLE TUBEROSES, fine roots, 3*s.* per dozen. GLADIOLI, beautiful varieties, 6*s.*, 8*s.*, 12*s.*, to 24*s.* per dozen.

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The SEED and GENERAL NURSERY BUSINESS is carried on here, and Packages are delivered free at the various London Railway Stations.

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Ten minutes' walk from the Ealing Station on the Great Western Railway Main Line.
FRUIT TREES, ROSES, and SHRUBS, are here extensively and successfully cultivated in some of the finest Loam in the county.

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Ten minutes' walk from Feltham Station.
EVERGREEN and DECIDUOUS SHRUBS, and CONIFERÆ, are here largely grown in a free Loam, well suited to their habits.

At SION LANE and WOOD LANE NURSERIES, ISLEWORTH,
ORNAMENTAL TREES are in a healthy and thriving state, and GENERAL HARDY PROPAGATION is here carried on.

The Stock in the above Nurseries is well worth the inspection of purchasers. The prices are very moderate, and the Plants are frequently transplanted to ENSURE SAFE removal.

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CATALOGUE of HARDY SHRUBS and TREES (will shortly be issued).
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GLADIOLUS BRENCHLEYENSIS (True).

ROYAL NURSERIES, GREAT YARMOUTH.

Colour "VERMILION SCARLET," the brightest variety known.

Flowering Bulbs, 3s. per dozen; 20s. per 100.

YOUELL & CO.

Have much pleasure in submitting the following Report from the Editor of the *Gardeners' Chronicle* :—

"GLADIOLUS BRENCHLEYENSIS.—We have received from Messrs. YOUELL & Co., of Great Yarmouth, some specimens of this plant, the gorgeous appearance of which cannot be spoken of in terms of exaggeration. The tall robust habit and intensely bright scarlet flowers place it at the head of all the hardy flowers of the autumn."

"The specimens are magnificent; we have seen as yet nothing of the kind so handsome near London. It is undoubtedly the most showy of the whole race of Gladioli."

It was exhibited by them in their Collections which obtained the Three First Prizes at the Royal Horticultural Society and the Crystal Palace; also the First Prize at the Royal Horticultural Gardens, Kensington, Crystal Palace, and Brighton.

GLADIOLUS, the most choice Show Varieties to name.

For which they were awarded the Three First Prizes at the Royal Horticultural Society, the Crystal Palace, and Brighton.

YOUELL & Co. beg to intimate that they are in a position to supply the most choice kinds of this beautiful tribe, in strong flowering Bulbs, as follows :—

No. 1 COLLECTION contains	100	BULBS,	in 50	of the most choice and handsome kinds,	to name	£5 0 0
Half the above	„ 50	„	25	ditto	ditto	2 10 0
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Fine Selections will be supplied at 6s., 9s., 12s., 18s. to 30s. per dozen.
Strong Bulbs of unbloomed Seedlings, saved from the finest named kinds, 4s. per dozen; 25s. per 100.
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HARDY, GREENHOUSE, STOVE PLANTS, AND SEEDS.

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The Seed Parcels are delivered free out of the Custom House in London, without any expense whatever to the buyer.

Established Upwards of a Century.

BUTLER AND McCULLOCH,
SEED MERCHANTS, Covent Garden Market, W.C.

GENUINE NEW VEGETABLE SEEDS.

Orders amounting to 21s. and upwards sent Carriage Free.

COMPLETE COLLECTIONS for ONE YEAR'S SUPPLY.

No. 1.	No. 2.	No. 3.	No. 4.	No. 5.
3l. 3s.	2l. 2s.	1l. 10s.	1l. 1s.	10s. 6d.

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	Per packet—s. d.
BUTLER'S SUPERFINE DWARF CAULIFLOWER	2 6
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BUTLER'S PRESIDENT MELON	2 6

FLOWER SEEDS (sent Post free).

Assortments of	100 vars.	50 vars.	30 vars.	25 vars.	15 vars.
ANNUALS—Hardy	20s.	10s.	5s.	..	2s. 6d.
„ Half Hardy	30s.	15s.	.	7s. 6d.	4s. 0d.
PERENNIALS (Hardy)	25s.	12s. 6d.	..	6s. 6d.	3s. 6d.
„ Half Hardy	..	..	..	7s. 6d.	4s. 0d.

NOVELTIES in FLOWER SEEDS.—See Descriptive Catalogue.

BULBS for SPRING PLANTING.—Gladioli, Liliums, including the splendid new L. auratum; Tigridias, Anemones, Ranunculus, and other bulbs suitable for spring planting, in great variety. Special quotations at low rates per 100 or 1000 on application.

BEDDING PLANTS.—250,000 well-rooted plants, comprising Calceolarias, Lobelias, Geraniums, Cerastiums, Cineraria maritima, Ageratums, &c.; to be sold at unprecedented low prices.

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SOLE AGENTS, Wholesale and Retail, for MURRAY'S APHIS PASTILS, a new invention, and the most effectual in existence for Fumigating Plant Houses. In packets, 1s. and 2s. each.

BUTLER & McCULLOCH, Covent Garden Market, W.C.

GENUINE AGRICULTURAL SEEDS.
CATALOGUE now ready, post free.
JAMES VEITCH,
Royal Exotic Nursery, King's Road, Chelsea, S.W.

LADIES' PRIZES for INDOOR GARDENING.—The PROPRIETORS of the GARDENERS' CHRONICLE again offer, as announced last year, TWO PRIZES of 10*l.* each for the best examples of INDOOR PLANT-CULTURE exhibited at the Show of Table Decorations, which is to take place in the Garden of the Royal Horticultural Society, at South Kensington, on JUNE 24.

One Prize will be given for the BEST ORCHID IN BLOOM, grown and flowered in a room.

One Prize will be given for the BEST FLOWERING PLANT OR FOLIAGE PLANT of any kind, grown in a room.

The Competition is to take place amongst LADIES ONLY.

The Prizes are offered for the best single plants, examples of actual indoor cultivation; they must therefore have been grown in a room for at least six weeks previous to the time of exhibition, during which period they must have been under the management of the Exhibitors themselves.

The Plants are to be such as are suitable for drawing-room decoration.

The Plants may be grown in pots, or boxes, or baskets, or aquaria, or in any other convenient and suitable contrivance.

Notice of the intention to exhibit must be sent to the Garden Superintendent at South Kensington not later than June 19, in order that accommodation may be provided. The Plants must be sent in by 9 A.M. on June 24, and be ready for adjudication by 11 A.M.

The Gardeners' Chronicle.

SATURDAY, MARCH 4, 1865.

MEETING FOR THE ENSUING WEEK.

SATURDAY, March 11 { Royal Horticultural (Weekly Show), at South Kensington .. .. .. 2 P.M.

WE have just received the first report of the Committee of Enquiry on the ravages of the WHITE ANT IN ST. HELENA, instituted by the present Governor Sir CHARLES ELLIOT. We have little experience in this country of the destructive powers of ants, though they prove occasionally a source of considerable annoyance in houses, where they are very difficult to extirpate. It is mostly in our woods that we see what powers of destruction they have when once they attack a tree, which they soon reduce to the appearance of a coarse honeycomb. In one or two localities however on the coast of France, a very small species has proved extremely destructive to wooden structures, so much so as to cause very serious apprehensions, and Myrmica domestica, an exotic species accidentally introduced, has occasionally taken possession of houses at Paris. In James Town, St. Helena, the white ant has prevailed to an extent seldom heard of in countries abounding with that scourge. It appears to have been introduced into the island about 20 years ago, but it is only within the last 10 years that its ravages have

increased to such an extent as to make some attempt at extirpation a matter of necessity. "Churches, schools, offices, and dwelling-houses of both rich and poor have been equally attacked. Goods in warehouses of various kinds are destroyed continually. The Customs' House is invaded—wine casks are destroyed; the corks of wine, beer, and spirit bottles eaten out; books, clothing, and furniture in dwelling houses are nowhere safe, and the loss to the inhabitants of the island is of an immense amount, and the expense continually incurred is enormous."

Under such circumstances it was obvious that full inquiry ought to be made as to the most probable means of prevention, and the kinds of wood most likely to escape. For this purpose information was obtained from various quarters by the standing committee, and amongst others Sir W. J. Hooker sent specimens of various woods most likely to resist the plague. All the softer woods, as might be expected, more or less rapidly fell a sacrifice, or if from some accidental or unknown circumstance, some particular piece had escaped for years, when removed to another situation it was quickly destroyed. Teak seems less subject to attack than other woods, and in the course of the experiments Myrtaceæ seem in general to have resisted better than woods belonging to other natural orders, though some, as the Blue Gum (Eucalyptus globulus), perished. A few hard Brazilian woods also escaped, together with a few other kinds, as Mammee, Hymenæa Courbaril, and Cedrela odorata. In some cases, where specimens were not attacked at first, they did not endure a longer trial.

It was hoped that the processes which have been adopted with a view to prevent dry rot, as those of Sir W. Burnett, Jackson, Kyan, &c., might either prove destructive to the insects from the large quantity of poisonous metallic salts with which the wood was impregnated, or, at least, be distasteful; but in general complete impregnation proved no less inefficacious than partial coating. Sulphate of copper, chloride of zinc, sugar of lead, arsenic, corrosive sublimate, carbolic acid, and creosote, all in turn proved useless, and in some cases the destruction was total. Mr. Langton's charring process was not more successful. One of the most hopeful appears to be a process suggested by Lieut.-Colonel Baker, late Garrison Engineer at Lahore, which consisted of rosin and earth oil rubbed into charred wood while hot. Col. Baker recommended also, but less successfully, sulphate of copper, in the proportion of a pound to 8 gallons of water. Deal and Ash, which are peculiarly subject to attack, escaped completely when treated according to the first process, but the solution of sulphate of copper, though at first apparently hopeful, failed.

The hard woods which seem the most capable of resistance are in general expensive. The great point is to find something which will render the softer woods, such as Deal or Pitch Pine, safe, and it is to be hoped that some modification of Col. Baker's process, in which the wood may be impregnated after Boucherie's method, combined with external charring, will prove a perfect remedy. Metallic salts seem useless, and resinous matters with petroleum and its allies, on the contrary afford the best hope of protection, though all have occasionally failed. *M. J. B.*

The following brief notice of the destruction of much of the noble Calcutta Botanic Garden, from the pen of its able director Dr. Anderson, has been forwarded to us by Dr. Hooker. We may shortly expect more detailed information through the same channel:—

"The garden here is ruined, as you know, by the Cyclone. I do not yet know what the losses have been, but 950 large trees are uprooted and prostrate. Many species are lost. Of 67 Mahoganies in the garden, 31 have been blown down. The storm wave reached to the Agri-Horticultural Society's gardener's house, and carried a large piece of the helm of a ship to the foot of the large Gmelina arborea opposite to it.

"The plants on Wallich's Mount are all gone, except a few trees; a fourth of the great Banyan is also gone. My house has received most serious damage, and is still scarcely habitable.

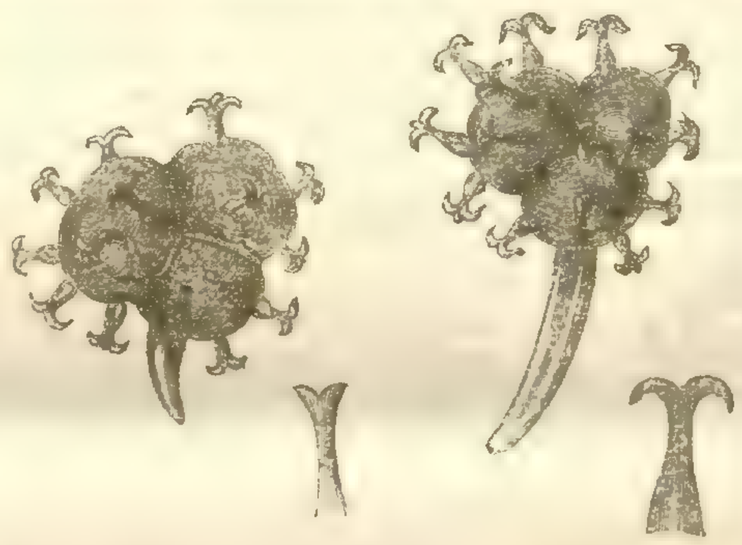
"Bengal is now covered only by Endogens. Palms, Bamboos, and Musaceæ, have suffered little; while all Exogens have gone down before the storm. In the Teak avenue, near Kyd's Monument, two shattered stumps are all that remain. The large Adansonia is down. Happily the natural order groups are almost uninjured and looking well: they were all set up the day after the gale, while the ground was wet. In low places, where they were under water for four or five days, they have been lost. I am preparing a full report on the storm and its devastations here, but it is melancholy work recording the loss of so many trees I knew so well."

It has been the fashion with most Mycologists, in consequence of the difficulty of the subject, to characterise Parasitic Fungi rather by the plants on which they are developed than by any good distinctive characters. Mistakes have in consequence been made in two directions, either distinguishing forms where there are no distinctive characters, or confounding matters which are really different. Within certain bounds, however, the same species affects in general plants which belong to the same natural order, and sometimes wanders to those of neighbouring orders with or without any marked difference.

We have a very striking instance of this in the curious parasite of which we are able to give a figure from the pencil of Mr. Broome.

Dr. Léveillé published in the "Annales des Sciences Naturelles" for April, 1848, a parasite under the name of Triphragmium echinatum, which was discovered by M. Prost at Mende in the department of Lozère, on Meum athamanticum; and specimens have since been published by Rabenhorst in his collections of dried Fungi. The primary spores of this species are globose, but divided by septa into three equal parts, and supported by a hyaline stem. Each of the divisions is armed with two or three simple or branched processes, which give the plant a very curious appearance under the microscope.

At a later period Mr. Thwaites forwarded to us from Ceylon, a parasite on a species of Hedera



(H. Vahlii) agreeing with the parasite on Meum in every particular, as Mr. Broome has observed, except that every process is either bifid or trifid, the short divisions being strongly recurved, whereas in M. Léveillé's plant the spines, if forked, have the divisions much shorter and not in the least reflexed. Few objects can be more attractive under the microscope; and such highly developed ornaments are so rare amongst Pucciniæ, as to make that before us one of peculiar interest in itself, apart from other considerations.

We have then a parasite on a plant belonging to the natural order Araliaceæ, distinguished only by a slight difference of character, not sufficient to justify the proposition as a distinct species, from a parasite on a plant belonging to Apiaceæ, a circumstance which, were it needful, would tend strongly to show the justice of the close approximation by authors of these two natural orders.

Our plant may be regarded, then, as a marked variety of Triphragmium echinatum, characterised by the recurved divisions of the spines, and may bear the name of T. echinatum var. Thwaitesii. The diameter of the spores, inclusive of the spines, varies from $\frac{1}{500}$ to $\frac{1}{550}$th of an inch. Our figure represents two of the spores of the Ceylon plant and a spine magnified, as also a spine from one of Rabenhorst's specimens, to show the difference between the Ceylon and European plant. *M. J. B.*

Mr. R. Warner has kindly sent to us a leaf of Dendrobium densiflorum, which exhibits a very curious form of Spot, which may be identical with Mr. Anderson's No. 2, but if so it is a very curious variety. Like that, it does not seem to be so injurious as two of the other forms. The leaf is two years old, and the younger leaves are not at present affected. In Mr. Anderson's case the spots are very irregular in form, and pretty uniform in colour, but here the spots are more or less shaded with brown, and are distinguished by their having a broad orbicular pit in the centre, surrounded by three or four concentric depressions. In some cases where the spots at their commencement have been near to each other, the spots are still orbicular, but the depressions are more irregular, surrounding as they do, two or more central areolæ. The spots do not penetrate the leaf completely though there is a slight indication of the concentric rings on the under side. The appearance is quite new to us, and we are very happy to place it on record. *M. J. B.*

—— In the last Number of the *Proceedings of the Royal Horticultural Society* is an announcement of the more extended scheme for the Examination of Gardeners, which has been under the consideration of the Society; and which we mentioned at p. 124, in alluding to the more limited scheme adopted for the present year. The Examinations Committee, it appears, recommended the Council to request that the Society of Arts would cause a special paper to be prepared, more adapted for Horticultural than Botanical Examinations, the prizes for which should be provided by the Horticultural Society; and also that the Society of Arts should be requested to co-operate in adding a scheme for Examination in Practical Gardening, to its other examinations, in future years. With regard to this recommendation, which has been duly submitted to the Councils of the two Societies, Mr. Foster's letter of reply announces the willingness of the Society of Arts to include Practical Gardening among the subjects for examination in its future programmes; and with this view the Council of that Society invite the joint committee to embody in a paragraph the particulars of this additional item of examination for insertion in the next issue of its programme.

—— The disease which has attacked the Mulberry Silkworm has for some time past attracted the attention of the Government and of the learned Societies in France; and the discovery of a new Silkworm in Senegal has been one of the results of the inquiries instituted to remedy the distress caused by the disease. A note on this insect, the Saturnia Bauhiniæ of Guérin, has recently been presented to the French Academy of Sciences by M. Guérin-Méneville, who proposes to found thereon a new sub-genus under the name of Faidherbia, in honour of General Faidherbe, the commander of the French military expedition in the district of the Senegal, through whose instrumentality the silk-producing qualities of the insect have been made known. Specimens have been sent to Europe; and from a report addressed to the Academy it appears that the Senegal silkworm will live in France, and that the silk produced by it is much more rich than that produced by any silkworm hitherto known. A cocoon spun by one of these silkworms contains 633 milligrammes of silk, those of the common Mulberry silkworm containing only 290, and those of the silkworms of the Ailantus and Ricinus only 255 and 175 respectively. It is proposed to introduce the cultivation of this new silkworm into Algeria.

—— As an illustration of the effects of Drainage, we may mention the substance of a paper recently addressed to the Munich Academy of Sciences by Professor Vogel on the alteration of the vegetation produced by this operation. The details of some experiments on a moor, made on a large scale for the purpose of excluding accidental irregularities of the soil chosen, are interesting. The produce obtained from one Bavarian morgen, 40,000 square feet, under three different conditions, was as follows:—From *A*, representing the moor untouched, 7 cwt., but full of Carices, only fit to be used as straw, and not saleable; from *B*, representing the moor drained, 11 cwt.; and from *C*, representing the moor drained and manured, 26 cwt., the produce in both the latter cases being also good as food.

—— The National Auricula Show is fixed to take place this year on the 26th of April, at Cambridge, in connection with the Horticultural Exhibition, and under the superintendence of Richard Headly, Esq. If we may judge from the interest which has been taken by the public in these flowers at the London spring shows held during the past year or two, we may presume that the Auricula is again making way in popular favour; and those who are amongst its admirers cannot do better than send in subscriptions in augmentation of the prizes to be offered on this occasion, so as to offer greater inducements to cultivators throughout the country to bring out their plants, and thus to keep alive an interest in the annual gathering of the growers. All necessary information may be obtained of Mr. Douglas, Davy Gate, York, to whom subscriptions should be sent.

—— Dr. F. C. Schubeler has recently been nominated Professor of Botany, and Director of the Botanic Garden at Christiania.

—— We learn from the *Revue Horticole* that Dr. Maximovicz, who not long since returned to St. Petersburgh from Japan, with a very large collection of rare plants, has been appointed Director of the Imperial Garden in that city.

—— Models, illustrative of an ingenious mode of shading greenhouses and pits, have been submitted to our inspection by Mr. M'Kellar, of Canbury Place, Kingston-on-Thames. The plan, which we are not at present at liberty to describe, is not only simple, but apparently effective, in its action; the operator, placed

at one end of the house, being able to raise or lower the roller, which is outside the roof, equally at both ends with the greatest facility. This new plan of shading or covering, promises to be well worth the attention of all concerned in the erection of garden structures.

WINTER FLOWERS.

A FEBRUARY DAY AMONG THE LONDON NURSERIES.

The snow is in the fields and parks, its black sludge in the streets; frost, sleet and rain succeed each other rapidly and regularly. Out-door garden attractions are out of the question, and if otherwise it would scarcely be philanthropic to induce people to take their "pleasure" in "trim gardens" at this most wretched quarter of our generally wretched winter—except such pleasure as may be derived from briskly walking where a varied collection of deciduous and evergreen trees and shrubs display their forms. The plants of spring are in the grip of ice, and there is naught in flower out of doors; but to the horticultural mind there is still a glimpse of better things, for though the snow and smut come down as the "water comes down at Lodore," there is at Chelsea some of the fragrance and beauty of the cool Orchid region; though the sun is a "hidden mystery" to the inhabitants of this great city, yet there are charms of the Mediterranean shores expanded at St. John's Wood; and though the weather is undoubtedly that of the "region of Oak and Birch," yet the verdure and elegance of lands beyond the Line waves comfortably in the northern district of a metropolis several hundred miles "too far north" for anything but indoor floral attractions in winter. I bethought me therefore—when frozen out—to have a look at some of these, for though it is a notoriously bad season for flowers, and this almost the worst end of it, and though nurserymen generally do not pay special attention to the production of spring or late winter flowers, yet I fancied I might find, besides those commonly grown, some interesting plants for the season, "to the manner born" as it were. So off to Woodroffe's Nursery, Harrow Road—to take the northern side first.

Here I am much too early to see the display made by the enormous quantities of popular flowers that are grown in houses worthy to accommodate the finest specimens sent to our shows, from their size and excellence; but Cinerarias are already blooming in quantity, as are other common flowers of spring, and there is a house—I am afraid to saw how long—not less than 150 feet, filled with early Pelargoniums just beginning to open. Albion, Mr. Woodroffe considers the best white, and Brilliant the best red for this early work, but he has other favourite sorts, such as Floribunda. The old and fine Calla æthiopica is grown in great quantity here, but sold as soon as it comes into flower, proving that the people have not yet lost all love for plants fragrant graceful and chaste, though some will have us believe they cannot be attracted by anything but masses of unmeaning colour. Burchellia capensis is rather abundant here and in full flower, being much used for cutting; and Acacia Drummondii is flowering nicely, and is useful for sale in a small state, but these are only casual things flowering here now; by-and-by the spread of bloom will eclipse that of any of the great bedding-places; and yet a little later the plants will carry sweet pleasures to a hundred thousand London homes.

Messrs. A. Henderson's Nursery, Pine-apple Place, always to me most interesting from its age, standing, associations, and even its very name, shows that in consequence of a large furnishing trade more attention is paid to the blooming of winter and early spring-flowering plants than is common in nurseries; and though there are 200 plants out—lending beauty to London halls and drawing-rooms,—yet there is a very good display in the show-house, nicely arranged and matted comfortably. The Tussac-grass in flower here, seems more in unison with the weather than many other subjects. Mr. Tanton, the superintendent, says it was very striking before the flowers began to fade; and Rhododendron variabilis, which has been shown recently, is very neat in habit and exquisite in colour. Bouquets of mixed bulbs—in rustic and other earthenware pots—look very pretty, Bulbocodium vernum being among them, as well as Golden Prince Tulip, which is highly valued, having been in flower since a few days after Christmas. But the sweetest and most beautiful ornaments of this show-house—not even excepting Fortune's showy double-flowered Peaches, are symmetrical standards of Viburnum Tinus virens, a compact sheet of fragrant white blossoms — a first-class plant for conservatory decoration, and doubly useful to the gardener, as the standards will produce as good an effect on terraces, &c., during the summer months as other subjects which are grown in tubs solely for furnishing it. Had I a large conservatory to decorate in the best manner, I should regard a batch of these standards as indispensable. The Camellias are very fine here—among the newer ones being Pizano, a beautiful white from Florence. Brachysema latifolia is an excellent winter-flowering greenhouse plant that has been in flower for many weeks. Among other greenhouse things in bloom, Styphelia tubiflora and Diosma buckoo (?) may be named, while the Lapageria, though much cut at all seasons, is still yielding flowers, as are the sweet Daphnes too, among them being D. indica marginata, with large and pale flowers, intermediate between rubra and alba, but larger than either. In the stoves and intermediate houses Gardenia citriodora is of course one of the best plants for the season, and very useful for cutting. The Hebecliniums are coming in flower; there is a scandent Begonia—Comte Limminghe—clinging to the walls in flower; and Cytisus filipes, gently forced, is without a rival for chaste and graceful beauty.

Messrs. E. G. Henderson's Nursery, Wellington Road, at once rewarded me for an Arctic ramble, by the bloom of a probably unequalled collection of Cyclamens. Cyclamen Atkinsii, Coum, and other species are flowering beautifully, and there is an enormous stock of the seedlings of C. ibericum and mixtures coming into flower in the frames; but the frames and pits, here and elsewhere, might be mistaken by the uninitiated for the longitudinal root and Potato pits of some gigantic farming establishment, from the covering up material heaped upon them; and getting a peep at the earliest flowerers of the very extensive and excellent collection of choice herbaceous and Alpine plants, florist's flowers, &c., cultivated here, is out of the question, though hibernation in a house devoted to Cyclamens, or in a nicely planted winter garden, is quite possible, and very delightful. Cyclamen persicum in remarkable variety—from pure white through subtile shadings to rose and purplish crimson—is the chief attraction in the Cyclamen house; and many of the plants have been in flower for weeks, though the greater number have not yet unfolded a flower bud, but will burst into bloom by-and-by. Cyclamens are by far the best of all dwarf and easily cultivated winter and spring-blooming plants. In some places seedlings of C. ibericum are now in flower out of doors. Nice blooming plants of the best, C. persicum, may be had in 18 months from sowing the seeds; they are in fact invaluable, and though popular, not nearly so much grown as they deserve to be, and will be. Andromeda phillyreæfolia, an elegant white-flowered species; Acacia platyptera, a first-class winter-flowering Acacia, or I should say, the best winter species, though a vile odour may sometimes emanate from it; and Echeveria secunda, a neat useful winter-flowering succulent, (which I was pleased to see in several places, as it is one of the hundred succulents that, if paid as much attention to as commoner plants generally receive, would well repay it,) are blooming in the greenhouses. Also Schizostylis coccinea, which proves to be "a really good thing;" and Aucuba japonica vera, with berries of surpassing brilliancy, to pass by the Camellias and other plants more common to gardens. In the stoves, the Cypripediums are abundantly in flower; and in cooler houses a nicely-growing stock of Cephalotus, with the Dionæa, and the hardy—in some places at all events—Goodyera pubescens, afford additional interest.

Mr. Williams's Paradise and Victoria Nurseries, Holloway, the first of which is vastly improved since I first saw it some four years ago, and is every day becoming more paradisiacal, though the Victoria Nursery is rapidly advancing to surpass it, afford some choice things. Among Orchids, of which there are fine and well-filled houses here, the variety of Dendrobium nobile—which, by the by, will yet be grown by the dozen in places where choice spring decoration of the indoor department is practised—called intermedia is very delicate and pretty, as are two other distinct and desirable vars. Dendrobium Pierardi, Cœlogyne media, Phalænopsis several species, and Cypripediums may be named as the best; though here, as in most other nurseries, it should be observed, the object is the production of saleable plants of all sizes, not the production of flowers at this or any other season: that of course falls to the private gardener. The Sarracenias do very nicely here, particularly S. Drummondii, and its white or pale variety—the beautifully marked pitcher-lids being well-developed and more attractive than many flowers. Astrapæa Wallichii is just gone out of bloom, and that on a plant only a foot high. At the Victoria Nursery one of the most remarkable sights is, at present, the number of foundations that are dug out, preparatory to almost covering the place with glass, but the clay of Holloway in icy weather is not the pleasantest compound in the world to look at, and G. A. Sala does not retain a more fearful respect for the mud of the Army of the Potomac than do I for the clay of Holloway and its neighbourhood. For his hardy plants Mr. W. purposes making a new nursery a little beyond the London clay and London smut. The winter garden or conservatory here is a very fine house—full as it can be of valuable plants. There is a good deal to be seen and a good deal to be learnt. I cannot say enough about it now, but, that a conservatory in which the night temperature descends below 40° in this cold weather, and warms up when the sun does come out to a comfortable 60°—average conservatory heat in fact, should display in fine health such plants as Theophrasta imperialis, Cyathea medullaris, Todea africana, Palms, Zamias, Dicksonias, Marattia elegans and Gleichenia hecistophylla, flabellata and dichotoma in duplicate and as large specimens, is too important to be passed by. Some of the plants are much the better for passing the whole year in this house, as is illustrated by two plants of Marattia elegans of the same age; one passed the last summer in a stove, and its stipes might furnish crutches for a veteran; the other, which has remained here for the past 12 months, is not one-third so tall, but much healthier and very neat. There is a bench in this house 100 feet long, closely filled with the finest Agaves, Yuccas, Dracænas, and many of their allies as to habit, which reminds one closely of the aspect of the succulent house at Kew, and which augurs well for our soon seeing many of these fine things in general cultivation. Most of them, while second to none for producing striking effect indoors, are also the very best subjects for placing out in summer in flower gardens or on terraces.

Messrs. H. Low & Co.'s Nursery, Clapton.—I had hoped to reach Chelsea by the evening, but having opened the day among the fair natives of Cyprus and Southern Europe at St. John's Wood, I was obliged to cry *peccavi* in a veritable grove of Tree Ferns at Clapton, amongst the interminable Orchid and other houses in this nursery. So far I could never have got in the time, had it been possible to look into 5 per cent. of the limitless parallel lines of pits, &c., passed on the way, and spread out here by the furlong. Anybody writing of antipodal scenery without having the advantage of travel among Dicksonias, should at once go to the Clapton Nursery, where three rows of Tree Ferns in a long house will afford a most essential perspective. Looking lengthwise or sideways the effect is remarkable. It would be pardonable absent-mindedness in a man to peer through the stems for an aborigine and his "gin" or squaw, in this house. I was on the point of doing so, when my eye caught the roof of an adjoining house, and the illusion was dispelled. Bigger Fern trees I should not have wondered at, but when the number seen together much exceeds 100, then you get something unique for a northern clime. Of course the meadows of Heaths and other hard-wooded plants grown here are, as a rule, in too youthful a state for flowering; though there is one species—Erica hiemalis—in flower in great force—20,000 to 25,000 plants in 60-sized pots. If there is such a thing as a gardener who does not decorate his greenhouse with this plant in the early spring, "let him look to it." Among greenhouse subjects in flower, Hovea pungens, very deservedly praised of late; Erica bruniades, Westringia longifolia, a very pretty little white Labiate; Epacrises—hyacinthiflora, Lady Panmure, candidissima, and Copelandi being among the best; Grevillea rosea, and Ceratopetalum gummiferum are among the most noticeable. Among Orchids, Dendrobium barbatulum and sulphureum; the Cypripediums, particularly the fine C. Stonei; Limatodis rosea, some of a very extensive batch yet in flower; and lastly, a deliciously sweet-scented Orchid from Moulmein—Bolbophyllum fœnisecii. *Wm. Robinson.*

Home Correspondence.

Tagetes pumila and other Bedding Plants.—Some three years ago, in consequence of the Calceolaria failing in so many places, it was feared that its culture would have to be partially given up, and that something must be found as a substitute for it that could be depended upon with more certainty. Although many things were recommended and brought under notice at the time, yet as a yellow bedding plant the Calceolaria stands unrivalled at the present day. It is true there are some varieties of it that cannot be depended upon, such as Yellow Prince of Orange, Trentham Yellow, Kayi, &c., but there are others that may be planted without fear of failure, such as Gaines's Seedling (one of the neatest growing Calceolarias in cultivation), amplexicaulis, integrifolia, &c.; these and some few others can be depended upon, and we have at present on the whole nothing to decidedly supersede the Calceolaria. As people's tastes vary however, and as we must keep progressing with the times, we hail with delight any introduction that may be found useful in the flower garden. One of the best things which have come under my notice for some time is Tagetes pumila. I have seen nothing to surpass this annual when well managed; its neat habit, serrated foliage, profusion of bloom, pretty orange-coloured flowers, and long duration, stamp it at once as one of the most useful bedding plants we have. Last season this was furnished by my seedsman, with a strong recommendation to try it. In May I planted out a row in order to give it a fair trial, and although I flatter myself that I have the gems of the bedding plants (and shall bed out this season nearly 40,000), Tagetes pumila was considered by all who saw it at Osberton during the past summer to be the second best thing grown there; the cream of the bedding being four large circular beds of Amaranthus melancholicus ruber, edged with Cloth of Gold Pelargonium—these beds were the admiration of all. Both the Amaranthus and Cloth of Gold do well here; but I feel certain that the Amaranthus will be eclipsed by the introduction of Achyranthus Verschaffeltii into our flower garden. I look upon this plant as a great boon to the flower gardener. The management of Tagetes pumila is so simple and easy that any comments upon its culture would be superfluous; suffice it to say the foliage should be thinned, in order to check over-luxuriant growth, and to permit the plants to throw up the blossoms more prominently. *Edward Bennett, Gr. to G. S. Foljambe, Esq., Osberton Hall, Worksop, Notts.*

The Black Morocco, alias the Kempsey Alicante Grape.—Neither Mr. Poynter nor Mr. Bennett seem to be acquainted with the history of the so-called

Kempsey Alicante Grape, which, if my memory serves me correctly, is as follows:—Some few years ago, at one of the meetings of the British Pomological Society, which it is to be regretted no longer exists, some black Grapes of enormous size were exhibited. My recollection of them is very vivid, for I thought them like oval Orleans Plums. Well, these were said to have come from Kempsey, in Worcestershire; no one knew the variety, and all were surprised at the size of the berries; the bunches were compact, and the berries regularly set. After some inquiries made of the grower—I think Mr. Cox—it was decided that the variety was unknown, and that it should in future bear the name of the Kempsey Alicante (I am not quite certain if it was not sent under the name of Alicante), and that the name of the place should be attached to it to distinguish it from other kinds known under the name of Alicante. In common with other members I received some cuttings, and in process of time my Vines bore some fruit. Much to my surprise I found it to set badly, and the bunches to be rather long and loose. The berries, instead of being oval and swelling out like those exhibited, were long and almost cylindrical, some of them very large, the majority small and stoneless. I confess that I was staggered, and thought that the wrong sort had been sent by mistake. On inquiry I found that this was not the case. Soon after seeing my Vine in bearing I happened to be at Chiswick—I think in the autumn of 1863—and there I saw my Kempsey Alicante in full bearing, under the name of the Black Morocco (one of Speechly's Grapes, and a very old variety), which it undoubtedly is, for not only in fruit, but in foliage and habit the Kempsey Alicante agrees with it. The very marked deviation from the usual habit of the Black Morocco in the bunches and berries of those sent to the Pomological Society under the name of Alicante was made the subject of a rigid inquiry, the result of which, as far as I recollect, was found to be the treatment of the bunches by Mr. Cox, the gardener, who most carefully fertilised every bunch with the pollen of some other kind of Grape. If so, it seems to open up a new field of inquiry. Can the size and form of the berries of Grapes undergo so great a change by carefully fertilising their flowers with foreign pollen, *i. e.* with pollen taken from other kinds of Grapes? If so, we have much to learn. *T. R.*——The name of Alicante Grape has been familiar to me for 20 years, but I was led to believe that it was only a synonym of Black Prince, till I called on Mr. Ingram, at Belton, near Grantham, six years ago, where I saw splendid crops of a Grape I had never seen before, and on inquiring the name of it I was told that it was the Black Alicante. I at once saw that this was a most distinct Grape, and asked for cuttings of it, which Mr. Ingram sent me when the wood was ripe. In the course of a couple of years Mr. Meredith began exhibiting his fine samples of what was called "Kempsey Alicante;" thinking this might be a distinct variety from Mr. Ingram's, I wrote to Mr. Meredith for cuttings of it, which he kindly sent me. I have fruited Mr. Ingram's, but not Mr. Meredith's, but judging from the foliage they are identical. Now, these Vines of Mr. Ingram's had all the appearance of being 20 years old when I saw them; and if they are the same variety as Mr. Meredith's and Mr. Cox's, the Vine must have been in the country for many years. I hope Mr. Ingram will tell us what he knows of it. I learn from a neighbour of his, that he had splendid crops and bunches of it last year. I gave a neighbour some Vines to plant in a new Vinery four years ago, amongst them one raised from Mr. Ingram's Alicante; and both last year and in 1863 he cut Black Hamburghs out of his small house in the second week in June, and Black Alicante on Christmas Day; the latter would have kept till March had it been convenient to let the bunches hang. It is not a little curious that it should be so difficult to trace the origin of so many of the new Grapes that have of late years come before the public. No one can raise a Seedling Vine and grow it till it fruits in a nobleman's or gentleman's garden without its coming under the constant notice of many individuals, some of whom might be brought forward to furnish collateral evidence, when the reputed origin of a Vine is called in question, as has been done in more than one case within the last half dozen years. I certainly think that purchasers are entitled to evidence that what they buy is what it is represented to them to be—not only distinct, but new. *Wm. Thomson, Dalkeith.*——With me the Black Alicante is a great favourite. I have often said, and I am still of the same opinion, that it is the very best late black Grape in cultivation, and I predicted that when its good qualities became known and its proper treatment better understood, it would be found in every collection, particularly where late Grapes are in request, a prediction which, thanks to Mr. Meredith and one or two others, is being verified. As to how the prefix "Kempsey" became attached to this variety, I must refer your readers to the Transactions of the Pomological Society for the years 1857-8. *John R. Cox, Crown East Court, near Worcester.*

Microscopes.—A lens of the extraordinary power of 1-50th focal distance has recently been manufactured by Messrs. Powell & Leland. This is twice the power of the highest known lens previously made, namely 1-25th of an inch, described in last year's Proceedings of the Royal Society. The new lens possesses a magnifying power of 3000 linear measure, and has been secured by the Radcliffe Trustees for the New Museum at Oxford. *I. O. Westwood.*

Impressions of Plants.—A few days ago I was shown some impressions of Fern leaves. They were taken on canvas or something like it, and were very beautiful, and perfectly white. How is it accomplished? *One of the Old School.* [Can any one inform our correspondent?]

Libocedrus Doniana.—It may interest some of your readers to learn that this Libocedrus—in my opinion one of the prettiest and most distinct of its class, has proved itself to be perfectly hardy here this winter, having stood out without any protection without even changing the colour of one of its leaves, though the winter has been the most severe we have had in the south of Ireland since 1855, or for 10 years. When visiting the principal nurseries about Exeter some two years ago, I saw at one of them in particular, several fine plants of this species, but all of them were in large pots or tubs, and on inquiring why they were not planted out, I was informed that they would not stand out during the winter, and were always moved under cover when some frost set in. Now, as I believe the climate of Devonshire and Cornwall much resembles that of the south of Ireland, I have always hitherto protected my plant with a large pot inverted, or a straw cap, during the winter months, but having omitted to do so this year it is a great pleasure to find that this species is so much hardier than I was led to expect—a fact which, when known, will, I am sure, lead to its more general cultivation; its presumed delicacy, when its great beauty is considered, being, as far as I can see, the only reason why it is not more generally met with in collections. *W. E. G., Belgrove, Queenstown, Co. Cork.*

Royal Albert Grape.—Since my last communication appeared in your columns respecting this Grape, I have received, amongst other letters on this subject, one from which I venture to give the following extract:—"The original Vine (says the writer) was brought to this island, Guernsey, many years ago by the late Mr. Savory Brock, from a monastery in the South of France. It was first fruited in Mr. Brock's Vinery at Detroit, Guernsey, in the year 1842 or 1843, and some bunches of it of immense size were sent to Prince Albert on his birthday; hence the name of Royal Albert. Being a very shy bearer, and requiring totally different treatment from any other Vine grown in Guernsey, it has never been cultivated there, and by mere accident only the original stock has escaped destruction. Another Grape was worked upon it, and in course of time that, through a change of gardener, was cut back, and a cane grown from the original stock below the graft, which bore fruit last year. In this way only has the variety been preserved. Some eyes from the Royal Albert were sent in 1846 by a gardener here to a nurseryman at Leamington, from whom the Vine at Perdiswell in all probability was procured. The Royal Albert requires heat later in the season, and more of it than we ever give to other Grapes: in fact, it wants a house to itself to do it justice." These remarks bear out exactly what I have previously stated respecting this Grape, and as we have thus discovered the spot in which the original Vine is known to exist, and as there is a possibility of getting an eye from this Vine, I am pleased to think that my efforts in its behalf have not been made in vain. *Edward Bennett, Osberton Hall Gardens, Worksop, Notts.*——Mr. Bennett is quite correct in all that he has written respecting this Grape. That there is a variety of Vine in cultivation under the name of Royal Albert, is well known in this neighbourhood; it was grown at Kent's Green, near Worcester, the seat of William Morton, Esq., and was exhibited in splendid condition at a horticultural show in the Town Hall, Worcester, by that gentleman's gardener, Mr. William Collins, in or about the year 1845 or 1846. One bunch of it, I believe, weighed between 5 and 6 lbs. The origin of this Grape—at least its first introduction into this country, is well known. In the year 1840 Mr. Jones, of Birmingham, was erecting a Vinery at Kent's Green, and amongst other places he was also putting up some glass structures in the Island of Jersey; there he saw this Grape growing under the name of the Prune d'Hiver or Winter Plum. He procured a couple of plants, and brought them with him to this country; one was sent to Kent's Green, the other, I am informed, went to Frogmore, where after some few years it likewise produced its fine fruit, and was there named Royal Albert. These two Vines, if in existence, will no doubt be the two oldest in the kingdom. The one at Kent's Green was grown for some few years, but not being much liked by the proprietor it was cut down and another kind was worked upon it, so the old root is still there—at least it was so some few years ago. When I entered upon my situation at Kempsey, under the late Robert Nuttall, Esq., in the year 1847, I found a small plant of this variety there, which had been procured from Mr. Collins the previous summer; this produced some very fine fruit for several years, but not being considered equal in point of flavour to other varieties then in cultivation, it shared the fate of its parent, to make room for a more approved kind. It was a very strong grower, producing large foliage as well as large bunches and berries, and was indeed very similar in general appearance to the Barbarossa of the present day, which I have always considered to be identical with this variety. If I understand rightly, however, Barbarossa is a seedling raised at or near Stratford-upon-Avon, some 10 or 12 years ago; and if such is really the case, it would tend to confirm Mr. Bennett's opinion that they are in reality two distinct kinds. *John R. Cox, Crown East Court, near Worcester.*

Walnuts.—Some time since one of your Correspondents asked the best way of preserving Walnuts. I send you a few for trial. If you think them good for the last week of February, you can publish my way of keeping them, which is, simply, in a large pan with alternate layers of Walnuts and sea sand. I got my sand five or six years since (perhaps I have used it a little too long), I put it in a heap to run dry, and then packed my Walnuts. I put them away as they came from the outer husk, without wiping or drying; hence, from the sand adhering, it is necessary to soak them a few minutes and wash them before putting them on the table. I think you will find them plump, and that they peel easily. *Portsdown.* [The fruit are in good preservation, and the flavour excellent. We shall be glad to see the Figs at the proper season.]

Societies.

Entomological: *Jan.* 23 (*Anniversary*).—The following gentlemen, namely, Messrs. W. Wilson Saunders, Aug. Sheppard, Edw. Sheppard, and Moore, were elected on the Council for the ensuing year in the room of Messrs. Wallace. Bates, May, and Grut. The President and other officers were re-elected. The President delivered an address in which he reviewed the Society's proceedings during the past year, as well as the general progress of the science, for which address a vote of thanks was passed.

Feb. 6.—F. P. Pascoe, Esq., President, in the Chair. The President nominated Messrs. W. Wilson Saunders, Stainton, and Smith, as Vice-Presidents. He also announced that the Council had determined to offer two prizes of five guineas each, to be awarded at the end of the present year to the authors of the two best Essays on subjects connected with economic Entomology. Mr. Brewer exhibited a minute species of beetle new to this country, Corticaria trimeatela, allied to C. fuscula, also Ceutorhynchus biguttatus, which he had also captured at Worthing at the roots of marine plants. He had also taken Latridius nodifer, Westw., at roots of plants at Hampstead in considerable numbers. Captain Cox sent some portions of the wood of a dog-kennel, the crevices of which were infested to a remarkable extent with specimens of the dog tick, Ixodes Ricinus, which had latterly attacked his dogs; the latter were however speedily cured by having common grease rubbed over the infested parts. Mr. Bond exhibited a further series of the remarkable varieties of the Ghost Moth with party-coloured males, captured at Lerwick in Shetland, also specimens of Bombus Smithianus, White (Proc. Linn. Soc.), hitherto only found in the Shetland Islands. The President stated that he had recently received a species of the remarkable genus Cossyphus from Australia; the genus had hitherto been found in the South of Europe, Morea, Algeria, Calcutta and India, as far as Rangoon, but not in the Eastern Islands. Professor Westwood stated, however, that he had lately obtained it from the Zambesi. Mr. J. S. Baly read some further "Descriptions of New Genera and Species of Phytophagous Coleoptera."

Royal Horticultural: *Feb.* 25 to 27 (*Weekly Show*).—Of Narcissi, which were the subjects specially invited on this occasion, a small supply came from the Society's Garden, which also furnished some four dozen well-managed potfulls of Lily of the Valley beautifully in flower, and emitting a most delicious fragrance, some of the tufts having as many as 26 spikes of bloom on them. From Messrs. Lee came a prettily flowered small plant of Phalænopsis Schilleriana, Dendrobium speciosum, Hedaroma fuchsioides, finely grown and charmingly in blossom, together with Franciscea confertiflora, which is still one of the best of the Franciseas at present in cultivation. Mr. Bull sent various plants of Pandanus elegantissimus, Cyperus alternifolius variegatus from Madagascar, and a fine mass of the Irish Fern (Trichomanes speciosum). From Mr. Cox, gr. to Captain Cahill, Southall, came two seedling Cinerarias named Donato and Cardinal Wiseman. A window box, flower basket, and a few bouquets were contributed by Mr. Greaves, of Bayswater. In addition to what attractions belong to these weekly shows, it may be added that the Society's conservatory now begins to present a large amount of gaiety. The semi-circular stages at the ends, and along its garden front, are at present full of spring-flowering and ornamental fruiting plants, which also occupy circular beds in the central promenade. Camellias, and similar shrubs of a decorative character, are likewise now in great beauty, and well worth inspection, as are also the healthy graceful-looking Tree Ferns, Dicksonia antarctica and others, which may be found growing here in the greatest possible luxuriance.

United Horticultural.—It is announced that the first meeting of this Society, for the election of officers, and other business, will take place at 37, Arundel Street, Strand, on Tuesday, March 7, at 7 P.M. precisely; Messrs. Shirley Hibberd, George Baker, and Joseph Newton, are acting as Honorary Secretaries *pro tem.*

Notices of Books.

A Practical Treatise on the Cultivation of the Grape Vine. By William Thomson, Gardener to his Grace the Duke of Buccleuch, K.G., Dalkeith Park. Fourth Edition. Edinburgh and London: Blackwood & Sons.

The issue of a fourth edition of Mr. Thomson's Treatise on the Vine so soon after its first appearance is the best of all practical commentaries on its merits, to which we have adverted in former notices. In the present edition, such further information as experience has suggested has been added, and as a sample of this new matter we may quote what the author says on planting young Vines:—

"I can strongly recommend the following method of planting and treating young Vines, from my own experience of it in the past season. It is, probably, in its details new, but it only requires to be described to commend itself to all who have any knowledge of such matters. I had a large house to plant, chiefly with Muscats, in April, 1864. I had a stock of one-year-old plants in 8-inch pots by me; I cut the rods back to 4 feet in February, and allowed them to stand in a cold Peach house till the 13th of April, when the border was ready for their being planted; I shook all the earth from their roots, and spread them out on the soil of the border, one Vine to each rafter, and 5 feet apart, covered the roots with 6 inches of soil, and gave the whole a good watering, with water at a temperature of 150°, and covered the surface with an inch of dry soil, to prevent to some extent the escape of the heat communicated to the border by the warm water. The Vines were just bursting their buds when planted, and instead of adopting the usual practice of stopping or rubbing off all the buds but one or two, I allowed all to grow, and tied them carefully to the wires; by this means I had in some instances 10 rods to one Vine, all of which have, during the season, run to the top of the house, and partly down the back wall—a distance of 30 feet, and many of these rods are as strong as ever I had previously seen a single rod from a Vine the first year it was planted. At this date (January 6, 1865) they are not yet cut down, and the whole house is a perfect thicket of wood. I will shortly cut back all these Vines to within a foot of the front sashes, and train up two rods from each this season for fruiting in 1866; and I need not tell those who know that a plant makes roots in proportion to its leaves, that Vines treated as I have described will have an enormous excess of roots formed in the border as compared with others treated on the one rod and pinching system, and that the bearing-rods they will make this year will be in proportion to the extent and vigour of their roots in the soil. I have just measured one of them that when planted in April was not thicker than a writing-quill, and I find that it is now 3½ inches in circumference, and has 10 rods perfectly ripe to the top of the rafters, a distance of 21 feet. If, instead of permanent vigour and productiveness, an immediate return were the object aimed at, I have no hesitation in saying that such a Vine would yield 50 lb. of Grapes this autumn."

We may add that those who have not yet consulted Mr. Thomson's book may do so with the full confidence that the lessons they are taught will be those of a master.

The Principles of Biology. By Herbert Spencer. London. 8vo. 1865. No. 1—13.

It is only to the first number of the fourth part of this important publication that we purpose to refer on the present occasion, and this because it treats on the Morphological Development of Plants. Mr. Herbert Spencer is well known as a profound and original thinker. No one can be in his company even for a few minutes without hearing something in the way of remark or question which is highly suggestive, though some of his questions may be so profound as to require a month's labour to give anything like a satisfactory answer, if it be possible to give an answer at all.

As in everything he writes, there is in the portion of his work before us, No. 13, much to call for deep reflection. In a great deal of what he says we cordially concur, and where we differ, we do so with somewhat of distrust in our own conclusions. We quite agree that a cell cannot be considered as a morphological or physiological unit. There are conditions of plants as well as animals in which no cell can be discovered, which consist apparently entirely of the gelatinous substance called sarcode, which, confined by no investing membrane, exhibits the most curious indications of vitality, and seems to perform at once the functions of aeration and nutrition. Mr. H. Spencer therefore considers unicellular plants as aggregations of the first order, rather than as units.

Cell is then added to cell, first in a longitudinal direction, then in ramifications; longitudinal as well as transverse division takes place, the forms become definite, a kind of axis is formed, and thus through various steps we arrive at aggregates of the second order, from which we proceed to such plants as the Ash-leaved Seaweed, Delesseria sanguinea. "The fronds of this plant, quite regularly shaped, have their parts decidedly subordinated to the whole; and from their midribs grow other fronds, which are just like them. Each of these fronds is an organised group of those morphological units which we distinguish as aggregates of the second order.* And in this case, two or more such aggregates of the second order, well individuated by their forms and structures, are united together; and the plant composed of them is thus rendered, in so far, an aggregate of the third order."

From Algæ our author proceeds to Hepaticæ, and in the most ingenious way traces the morphological development of a branched Jungermannia from one of the frondose ones. The mode of doing so is scarcely capable of being clearly explained without figures, and much less can we dispense with the figures when he proceeds to show that the type on which an Endogen and Exogen are formed is merely a modification of that which prevails amongst these humbler plants.

As a part of his theory he considers the axis to be morphologically only a development of a portion of the leaf. To use his own words: "The phænogamic axis in its primordial form being an integrated series of folia (or leaves); and the development of that part by which these folia are held together at considerable distances taking place afterwards; it is inferable from the general principles of embryology, that in its rudimentary stages, the phænogamic axis will have its foliar parts much more clearly marked out than its axial parts."

He explains in a very ingenious way the identity of the monocotyledonous form of embryo with the dicotyledonous, by supposing one of the cotyledons to have the outer edges united so as to form a cylinder, and thus to prevent the equal development of the next leaf. The whole part of the treatise which relates to the homologies of the leaves of Phænogams with those of Acrogens, and even with the superior Thallogens is excellent, and well worth an attentive consideration.

We do not think that he is equally successful in combating Goethe's doctrine of potential buds in the axils of leaves as accounting for many morphological structures. His illustration from Umbelliferæ fails, because we see the spokes of the umbels often developed from the axil of a bract, and these bracts reduced almost to nothing or entirely obsolete in the same plant. We cannot regard the spokes or rays as metamorphosed leaves without some much stronger arguments. We are prepared indeed for all sorts of developments wherever the active cellular tissue is present, and we should no more wonder to see flowers occasionally produced from parts to which they are in general strangers, than buds from the edges of leaves.

The objects of our Journal forbid us entering more minutely into the various matters brought forward, but we can assure those who are not disinclined for a little stiff reading, that they will not consult our author without deriving some new ideas from his disquisitions.

* In the text it is said of the first order, but this is clearly a slip of the pen.

Garden Memoranda.

The Earl of Derby's, Knowsley Park.—Knowsley Park joins the extensive park of the Earl of Sefton, at Croxteth, the mansion itself being about eight or nine miles distant from Liverpool, and some two or three miles from Huyton station, on the Liverpool and Manchester line. The house is situated on sloping ground, and is commanding in its position, and at the same time so surrounded with plantations of considerable age as to be sufficiently sheltered from the violent storms that prevail in the district. There is no want of timber on the estate, but it does not, as in many old places of note, form a leading characteristic, the boles and branches of many of the trees, not remarkable for size, being carpeted over with Lichens and Mosses, evidently showing the unsuitableness of the locality for promoting a high order of cultivation among the forest tribes.

One of the finest features in the park is a lake 90 acres in extent, which furnishes, and is furnished in turn with an ample supply of water to form the little river or stream that meanders through a portion of the grounds, flowing past the mansion, and forming the most natural of all boundaries for separating an extensive deer park from the dress grounds and artistic flower garden. Had Knowsley been a castellated structure, with the appurtenances of that style of architecture such as they were in the Norman, Tudor, or Elizabethan eras, then the stalwart forms of the red deer, with their huge antlers, sending forth their wild croaking cry, would have been in keeping with such a building, even had they browsed up to the very castle walls, as is the case in the magnificently wooded park that surrounds Raby Castle. Knowsley, however, has no pretensions to any of the orders of architecture. The building is a simple parallelogram with a few relieving points, and is constructed almost entirely of brick. It has never been remodelled in any way to please the æsthetic eye, although there has been an addition made to its size. Some of the older portions are hidden from view by the trees which are growing almost close by its side. It is of very large size, and the interior must be very commodious.

Park scenery, with specimen trees and clumps of evergreen shrubs in the foreground, bound the mansion on two sides; in fact, it may be said to entirely surround it, if we except the flower and kitchen gardens, which lie in immediate contiguity on the other two sides. Evergreens, Roses, and bedding plants of sorts grow wild with vigour, and such as bloom do so effectively. The flower garden by the side of the house is a square panel, the groundwork of which is Grass. This panel is divided into four, and again subdivided into a series of irregular beds. Rhododendrons and standard Roses are largely used as individual plants for prominent positions in these beds, and must have been grand while in flower; while the massive dark-green foliage, indicative of high health, must have much relieved the masses of colour during summer and autumn. Bedding plants should be well contrasted with shrubs, and a variety of other things that are ever suggesting themselves to the observant and educated eye. Such is by far the most telling and consistent style of geometrical flower gardening. Some may run riot with discordant glaring mixtures, but there can be no doubt that of all the styles yet introduced for flower gardening purposes, there is none so effective, and in fact, none so capable of being made to suit the various kinds of architecture, or different characters of scenery, as a well balanced system of massing. All the opposition that has been brought to bear upon this style has but pointed out defects in detail, and the only remedy that has been suggested has been a return to the old system, which was simply no system at all, but a heterogeneous mass of incongruity. Not that I wish to advocate the expulsion of herbaceous plants, but this much may be said: that any arrangement of a mixed character, such as the make-up of the old herbaceous border, must ever be subsidiary in purely ornamental gardening. The flower garden at Knowsley was tastefully planted, having a sufficiency of colour to make the design striking, and enough of individuality to satisfy the eye while passing from one object to another.

The flower garden is bounded, on one side, by a large conservatory, some 120 feet by 24 feet. This house is divided across the centre; one part forming a stove, and the other a greenhouse. A collection of plants in flower is always kept in these houses, with a few choice specimen plants in the centre, which at all seasons form objects of attraction. In the stove division were some fine examples of Cycads, Musas, Crotons, &c.; while the greenhouse division contained some good specimen Camellias, and numerous standard plants of Heliotropes and Coleus Verschaffeltii, which looked handsome towering over the heads of dwarfer plants, and making an admirable contrast to the Capsicums, richly clad with scarlet fruit, which formed the most prominent feature at the time of my visit. At the end of these houses stood a large collection of Zonate Pelargoniums, in splendid bloom, with colours varying from pure white up through the various shades of rose to a rich scarlet, all of which come in well for indoor decoration— not the least important part of Mr. Freeman's duties.

This conservatory is constructed after the same fashion as the Pine stove (see p. 125), only it is a much loftier building, and a little more pains has been taken with its architectural decoration. The paths are beautifully polished, and marked off by a rounded kerb stone. The plants in the centre appear as if they were planted out, the pots being plunged in the soil; while those in front stand on a stage raised after the usual fashion, and are easily inspected. The house forms a nice quiet resort for Lord Derby's family and friends; and being in the highest order of keeping, and having ample perambulating space, and seat accommodation, must be often visited.

Ascending the wooded slope towards the kitchen garden, we pass a pond of irregular outline, bounded with rockery, and ornamented with evergreen shrubs in a variety of shades of colour, a charming and picturesque residence and resort for the fine collection of ducks that move listlessly, but gracefully, upon the water. A great deal more interesting is the aviary close by, being probably the most extensive thing of the kind in the country. It covers a large space of ground, and is completely enveloped with hexagon wire netting, appearing in the distance like a huge canopy of gauze. The interior arrangement is such as would excite the admiration of any ornithologist. The ground is somewhat undulating, and is laid out into clumps divided by numerous curvilinear walks, so that the fancier may have the best opportunity of making a thorough inspection. These clumps are planted with evergreens, Portugal Laurels predominating, the dark sombre tints of which are vastly relieved by the diversified plumage of the collection of birds naturalised here, which may be said to include all that is beautiful and interesting, from the handsome prattling cockatoo to the modest and sweet-toned canary. This I understood has for many years been a specialty with the Derby family, and only requires to be seen to enamour the most listless spectator.

The kitchen garden covers an area of 18 acres, and is surrounded and divided by brick walls. The walls have been long built, as the appearance of the bricks clearly enough indicates, but they are still in a good state of keeping. This is partly attributable to the greater portion of them being faced with a wooden trellis to fasten the trees to, which does away with nail holes and shreds, always more or less a harbour for insects. The Peach wall is covered with a collection of trees in splendid bearing order, and apparently free from the least symptoms of canker. In fact I do not recollect to have elsewhere seen such a fine lot of trees unprotected, unless it was many years ago at Pinkie, near Edinburgh, where there was a very lofty wall partly trellised, and in splendid bearing order; but that wall was heated with

a fire. Likely enough these fine trees were all but destroyed in the severe winter of '61, which has not had a parallel in Scotland for the last 20 years. At Knowsley, success may be partly attributable to the excellent natural drainage—not to speak of what has been done artificially—which always follows in gardens lying on an incline, and to the porous character of the subsoil. One other thing strikingly apparent is the management of the trees. Summer thinning of the shoots or young growths is well attended to, but those that are allowed to remain for furnishing the following year's fruit are never tied in until the trees are dressed and rearranged, thus giving them the full benefit of light and air during the growing and ripening season. Some excellent samples of the Salway were, near the end of October, still hanging on the wall, which speaks volumes for the root action of the trees, as well as for the dryness of the atmosphere. I did not make any special inquiry as to Mr. Freeman's management in root pruning, or lifting, but judging from results, I have no doubt this is statedly attended to, else the growths would not have been so uniform throughout. Apricots also do unexceptionally well here; the trees are large and some of them very old. The Moorpark, being still the best variety, all but monopolises the south wall devoted to Apricot culture. There had been quantities of fruit of Musch Musch on a vigorous tree, a very estimable sort for preserving purposes; and there was also a most excellent specimen of the Royal Orange. Plums here, as everywhere, are rather critical bearers, producing an abundant supply one season, and all but a total failure when the spring is capricious and uncertain. Here they are grown in great variety, and on different exposures, but as a rule are found to succeed best on a west wall. There was a good crop still hanging of Blue Impératrice, a most excellent sort for late purposes in mild localities. Cherries, which are also planted on a wall with a western exposure, are in future to have a glass covering, which, besides ensuring a regular crop, will do away with all the trouble and annoyance of providing against the depredation of birds. Morello Cherries and Red Currants were covering a portion of the north wall with a sheet of crimson and scarlet, and were protected with a double covering of nets. Pears are largely grown upon the walls, but as the majority of them were housed, I shall be better able to speak of their merits when noticing the fruit room. A large space of a south wall, or rather of a wall with a southern exposure, is planted with Pears, which furnish fruit, as can easily be imagined, much superior to those grown in any other position in the garden, and scarcely, if ever, fail to produce a crop, which must be set down to the credit of wood ripening. I presume the blossoms of these are protected. A mellow Pear, when Peaches, Apricots, and Plums are out of season, is a very desirable and palatable dessert fruit, and on this, if on no other account, the trees are worthy of any protection that is required. So much for the fruit upon the walls.

The Standard Apples and Pears at Knowsley are of great age, and have a very stunted and wrinkled or hide-bound appearance. Certainly they have been kept within bounds by the knife, and now that they are fast wearing out, fruit may have been produced in abundance, but the size and flavour must be much deteriorated. It is more than time that young ones should take their places, and Mr. Freeman, fully alive to the exigency, is removing them by degrees, which is by far the best system to act upon, even here, where the supply, from walls and espaliers, is unlimited in character and kind. It would be imprudent to make a clean sweep of these veterans, even in these days when young trees are so rapidly got up into a bearing state. It shows more judgment and practical ability to do things of this sort by instalments. The fronts of a few of the wall borders are planted with Pears trained in low horizontal trellises, which yield excellent fruit. Like all old gardens the quarters of ground allotted to vegetables are of an exceedingly fertile character, producing crops of a satisfactory kind. The Brassica tribe, for autumn and winter use, are both largely and well represented, as also the salad department; for, if anything was more gigantic than another, according to comparative bulk, it was Celery, which seems to be a specialty in the gardens of most of the people of Lancashire. *J. A.*

(*To be continued.*)

Calendar of Operations.

(*For the ensuing week.*)

The strong gales lately experienced in the neighbourhood of London and elsewhere have, we understand, been very destructive to aged timber trees, in some instances blowing them down altogether, in others inflicting on them partial injury. In both cases, therefore, see that the damage done is repaired with as little delay as possible. Roll walks and clear lawns from dead spray from trees or other refuse, so as to have them in proper order for the scythe or machine. Most kinds of hardy annuals may now or soon be sown; as however the too early performance of this operation often ends in disappointment from the seeds not germinating, we would advise the inexperienced in such matters to wait until the soil is not only sufficiently dry to bear trampling upon without injury, but also until its temperature has been somewhat raised by means of increased sun heat. Vegetation will then push onwards unchecked

FLOWER GARDEN AND PLANT HOUSES.

Many plants, as for instance Phloxes, Asters, &c., throw up too many flowering shoots; where such is the case, thin them out so as to obtain not only fine heads of bloom but increased strength in the remaining shoots, to enable them to stand with less assistance from stakes. Secure all newly-planted trees against strong winds, and mulch well over the roots.

Auriculas.—Young growths of these will now be somewhat tender, therefore protect them from frost; and water more frequently, as well as more liberally, weak liquid manure once a week will strengthen the trusses; give plenty of air, and fumigate occasionally; green-fly generally appears with the young growth.

Azaleas.—Give young growing plants liberal shifts; a good fibrous peat with a little white sand suits them admirably, but for stronger kinds a small portion of loam may be used with advantage. When potted the plants should be put into a nice moist growing atmosphere, and they should have a temperature of from 55° to 60° by night, and 65° to 70° by day; give air freely in fine weather, and attend regularly to the stopping, thinning, and training of the shoots. Large specimens will now require more water.

Bedding Plants.—Push on propagation of all kinds, in order to have thoroughly established and well hardened plants by May. Pot off autumn-struck cuttings at present in store pans.

Calceolarias.—Any plants struck during the winter should be repotted into 4-inch pots to succeed the first plants. If not so large, they will make compact handsome bushes for purposes of decoration; it is not too late to strike cuttings of the best shrubby kinds for bedding out, such as Aurea floribunda, Prince of Orange, King of Sardinia, Pallida, Beauty of Montreal, Kayi, Dropmore, and Orange Boven.

Carnations and Picotees.—Strong-growing varieties may now be put into larger pots. If there is any green fly on the plants, give them a good smoking with tobacco or tobacco-paper before taking them from the pit. The latter end of the month will be soon enough for planting out in borders.

Cinerarias.—Such plants as are intended for exhibition should now have their small leaves and superfluous shoots removed, to admit light and air; tie out as thinly as possible, and keep them as near the glass as may be convenient; fumigate, so as to have them thoroughly clean before coming into flower, and sulphur such as may be affected with mildew. Seedlings will now be coming into flower, and any novelties that may appear should be watched so as to select for preservation such only as are of first-rate form and well defined colours.

Dahlias.—This is the best month for propagating these; cuttings struck now have time to make fine plants; therefore propagate freely, and when sufficient cuttings have been taken, divide the roots to make a few strong early plants.

Pinks.—Top-dress with half-rotten manure, mixed with rich loamy soil.

Tulips.—Protect the best bed with canvas, Frigi Domo, or mats, whenever there is much frost or excessive rain. Do not, however, keep it so close as to excite weakly growth.

FORCING GARDEN.

Cucumbers.—Maintain for these a steady heat of 65° or 70° at night. Give air on every favourable opportunity.

Figs.—Keep the shoots thin so as to expose the foliage to light and air, and persevere in the use of the syringe to prevent red spider. Give air freely on bright days, shutting early in the afternoon after syringing the house.

Peaches.—Proceed gradually with the disbudding of the early house, and where the fruit is very thick a portion should be removed as soon as fairly set.

Pines.—Look over young stock, occasionally examining and repotting such as is found to be in want of more pot room. The temperature may be slightly advanced as the amount of light increases, but this is a matter in which the state of the plants will be the best guide. Aim at securing strong dwarf plants, with a free habit of growth; and if this is obtained, it is immaterial whether the night temperature is 60° or 70°, and very much will depend upon circumstances as to which will be proper.

Strawberries.—Continue to bring on succession plants very gradually, and afford those in bloom a rather dry atmosphere, with a free circulation of air, as they set their fruit badly in a moist close atmosphere. Plants swelling their fruit must be liberally supplied with clear, rather strong, manure water; and if fine large fruit is expected, thinning must be resorted to immediately the berries are fairly set.

Vines.—See that Vines starting into growth are tied up in their places before the shoots get so long as to be liable to be broken off in the operation. Syringe frequently until the leaves begin to unfold; but use the syringe sparingly after that time. Where the buds do not promise to break regularly, bend the Vines so as to place those that are backward in the most likely position to catch the sap, and this should be done directly any indications of their not breaking regularly are observed. If any of the bunches in houses where stoning has been finished, look as if they would be improved by a few more berries being cut out, let this be done at once.

HARDY FRUIT AND KITCHEN GARDEN.

All pruning and nailing should be brought to a close as soon as possible. Make timely preparations for protecting wall trees. Be sure that everything is in readiness for that purpose, so that the material to be used can be put up in a short time when it is needed.

Carrots.—A good breadth of Early Horn should be got in about this time, to succeed those sown on heat last month.

Cauliflowers.—When large enough, and the weather has become warmer, these should be carefully pricked out, either in gentle heat, or on a warm sheltered border; if the latter, they will require protection until well rooted.

Leeks.—These should now be sown.

Turnips.—Sow Early White Dutch on a gentle bottom-heat, and also a good supply for succession in a warm border; dress the beds with dry soot and ashes occasionally.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending March 1, 1865, as observed at the Horticultural Gardens.

February and March.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth. 1 foot deep.	Temperature. Of the Earth. 2 feet deep.	Wind	Rain.
Thurs. 23	27	30.285	30.135	52	41	46.5	40	40	S.W	
Friday 24	28	29.789	29.576	49	27	38.0	42	41	N	
Satur. 25	○	30.1[illegible]	30.075	50	23	38.0	42	41	N.W	
Sunday 26	1	29.947	29.833	47	29	38.0	40	41½	S.W	
Mon. 27	2	30.021	29.891	52	39	45.5	44	42	S.	
Tues. 28	3	29.524	29.419	53	37	45.0	44	43	S.W	
Wed. 1	4	29.626	29.535	51	37	44.0	44	43	W	
Average.		29.945	29.875	50.5	33.7	42.1	42.3	41.5		1.[illegible]

Feb. 23—Fine, hazy; overcast; rain.
— 24—Heavy rain; clear at night; slight frost.
— 25—Very clear, and fine in forenoon; cloudy; overcast.
— 26—Rainy at intervals throughout the day.
— 27—Fine throughout; overcast at night.
— 28—Densely clouded, fine, with clouds, overcast.
March 1—Cloudy, showery, overcast; showers.
Mean temperature of the week, 1.4-4th deg. above the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 39 years, for the ensuing Week, ending March 11, 1865.

March.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday.. 5	48.9	31.9	40.4	15	0.47 in	4	6	5	3	4	8	[illegible]	[illegible]
Mon. .. 6	49.0	32.8	40.4	16	0.26	4	6	4	3	4	[illegible]	[illegible]	[illegible]
Tues. .. 7	49.6	32.9	41.2	15	0.42	4	8	4	1	5	12	[illegible]	[illegible]
Wed. .. 8	49.7	31.7	40.2	15	0.18	4	7	2	3	5	7	[illegible]	[illegible]
Thurs. .. 9	49.5	31.1	40.3	11	0.47	3	5	3	2	6	[illegible]	[illegible]	[illegible]
Friday ..10	50.0	31.6	40.3	15	0.69	4	4	1	4	6	11	4	6
Satur. ..11	49.5	32.3	40.4	16	0.33	2	5	3	5	3	15	4	[illegible]

The highest temperature during the above period occurred on the 10th, 1826—therm. 67 deg.; and the lowest on the 10th, 1847—therm. 7 deg.

Notices to Correspondents.

Books: *Henricq.* The book you inquire about costs about a guinea, and may be had through any bookseller.—Some Kotschy's Les Chênes de l'Europe et de l'Orient will probably suit your purpose. Mr. A. Murray is the author of the text of Lawson's magnificent Pinetum Britannicum.—*P.* A "Selection from the Physiological and Horticultural papers of T. A. Knight, published in the Transactions of the Royal and Horticultural Societies," was published in 1849 in an octavo volume with seven plates, and may no doubt still be obtained. We do not find that the works of the Gaertners, of Kölreuter, or Weigmann, have been translated into English. What works of Dr. Thuretl do you refer to?—*W E G.* The publication on the Flowers and Fruit of Java noticed last week, can be ordered through any of the foreign booksellers, such as Williams & Norgate, Dulau & Co, or Nutt. The price is about 150 francs.—*C B.* Berkeley's Handbook of the British Mosses.

Camellias: *James Firmin.* It is not a good time to put in cuttings of the common Camellia for stocks, just now that the plants are starting. The best time is about June, when the young wood has become nearly ripe. They should be inserted firmly in the sand, set in a close shady place for a short time, and then placed where they will be subjected to a mild bottom heat.

Grafting Hollies: *Clericus.* March is the usual time of year for grafting Hollies, and whip-grafting is said to be the best mode of effecting it. Probably you would effect your purpose as well by budding in July, or by inarching, if it is to inoculate an established tree with distit varieties.

Diseased Verbenas: *S T.* This is not the first time we have seen an affection precisely similar in Verbenas. There is no trace of any Fungus upon your plants now, but it is very possible that if you examine very closely you will find here and there little delicate brown threads surmounted with a few white seeds. Unfortunately we cannot tell you how to prevent the evil. Many measures were taken against a similar affection in one of our largest nurseries, without any success. If you find it spread, we should recommend you to move the plants for a time to another house. It is possible we may have an opportunity of personal inspection, and so we shall be glad to give you further information. *M J B.*

Insects: *B S W.* The insects sent are the Podura fimetaria. We would advise watering the earth in which they are found with gas-tar water.—*J D.* Be so good as to send specimens of the nest and cocoons, and also, if possible, of the larva of the Ilithyia, to Professor Westwood, Oxford. *W.*

Labels for Trees. *L.* We believe Kestall's prepared labels are still sold by Nixey of Soho Square.

Names of Plants: *B N.* 1, Onychium lucidum; 2, Adiantum Capillus veneris.—*June.* Omphalodes verna.—*F Warren.* The seeds are those of Abrus precatorius.

Pancratium: *Indoctus.* Without knowing what Pancratium you refer to, it is difficult to give you the information desired. Some of the stove species, for instance, were found by Herbert to rot when kept dry in the stove during the season of rest, and he concluded they should have been removed to a cooler place, as yours have been; but perhaps in your case the reduction of temperature was carried too far. A strong alluvial soil seems to be best for them. We should suggest a resting temperature of about 50°.

Peas: *One of the Old School.* Your Pea, the pod of which is eaten as well as the seed, is one of the Sugar Peas. They are not much grown, but some few sorts may be obtained through the continental seedsmen.

Misc.: *E P Wilkinson.* You can have the No. for 4th June, 1864.—*Jud.* They are very difficult to procure. The last time we saw anything of them was at Messrs. Veitch's Nursery. We have also observed specimens at Messrs. Lee's Nursery, Hammersmith; but that was long, long, ago.

For Cultivation of Kohl Rabi, see

MESSRS. SUTTON'S FARM SEED LIST for 1865, gratis and post free.

SUTTON & SONS, Seed Merchants, Reading.

Improvement of Grass Lands

BY SOWING GOOD SEEDS OF THE MOST SUITABLE KINDS.

SEEDSMEN BY APPOINTMENT Sutton AND Sons

SUTTON'S RENOVATING GRASS SEEDS should NOW be SOWN.

These Seeds consist of PERENNIAL CLOVERS and fine GRASSES for improving the bottom. Price 10*d.* per lb. 8 or 12 lbs. per Acre will be sufficient, and will produce a great increase in the produce.

PRICED SEED LISTS free.

SUTTON & SONS,
Royal Berkshire Seed Establishment,
Reading.

Early Sheep Feed.

SUTTON'S IMPROVED ITALIAN RYE-GRASS.—At a Meeting of the Royal Agricultural Society on the 16th March, a Lecture delivered by Alfred Hughes, Esq., of Thorness, Isle of Wight, as reported in the *Bell's Messenger* and *Mark Lane Express*, Mr Hughes said:—

"I always reserve a portion of Oat land to lay down with Sutton's Improved Italian Rye-grass, the most reliable plant I have come across for some years for ewes and lambs in the spring. When I tell you that I put it in the spring, and dressed it after harvest with guano, and that in the autumn, when my sheep fed it off, it was up to their knees, and that I fed it off again this spring with ewes and lambs, I think you will agree that this is a crop of very great value. The Italian Rye-grass which is sold by Sutton, of Reading, is a most astonishing vigorous plant; indeed, I never saw anything to equal it in the course of all my experience."

Mr W. Carnell, of Nunnery Farm, near Sheffield, in a letter to Messrs. Sutton, dated April 9th, 1863, says:—

"The Italian Rye-grass grown from seed purchased from you, and sown in August, is now 16 inches high, and is much admired."

SUTTON & SONS have a fine Stock at present of their IMPROVED ITALIAN RYE-GRASS, which is a very different and superior article to much that is sold as Italian Rye-grass.

Present price, 7*s.* per bushel: cheaper in quantities over 5 qrs. Carriage free in quantities of 8 bushels and upwards.

Quantity required per acre, if sown alone, 3 bushels.

Royal Berkshire Seed Establishment, Reading

RAYNBIRD, CALDECOTT, AND BAWTREE,
SEED FARMERS and MERCHANTS,
89, Seed Market, Mark Lane; and Basingstoke.
Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

Grass Seed for all Soils.

RICHARD SMITH offers the best selection that can be made of PERMANENT MEADOW GRASS and CLOVER at 20*s.* per acre, consisting of 2 bushels light and 12 lbs. heavy seed. The kinds and quantities are chosen for their early growth, crop, nutritive qualities, reproductiveness, and permanency, and can be had separately or properly mixed to suit heavy, light, or medium soil.

RICHARD SMITH, Seed Merchant, Worcester

SUTTON'S SELECTED YELLOW GLOBE MANGEL.

SUTTON'S PRIZE MANGEL WURZEL SEED

Is now ready for sending out.

LARGE YELLOW GLOBE,
ORANGE GLOBE,
RED GLOBE,
LONG RED,
LONG YELLOW

NEW SORTS of MANGEL WURZEL.

NEW YELLOW INTERMEDIATE, very fine shape, free from roots.

NEW RED INTERMEDIATE, similar in shape and habit.

ENGLEFIELD YELLOW GLOBE, a heavy cropper.

SUTTON'S ELVETHAM LONG RED, of superior feeding quality.

SUTTON'S SELECTED YELLOW GLOBE, large and fine.

FISHER HOBBS' ORANGE GLOBE, a fine sort, already very popular.

ORANGE or YELLOW, oval shape.

For Prices see SUTTON'S NEW FARM SEED LIST, which may be had gratis on application.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

GENUINE AGRICULTURAL SEEDS.
CATALOGUE now ready, post free.
JAMES VEITCH,
Royal Exotic Nursery, King's Road, Chelsea, S.W.

INTERNATIONAL AGRICULTURAL EXHIBITION, at Cologne, Prussia.—A GRAND INTERNATIONAL EXHIBITION of AGRICULTURAL and HORTICULTURAL PRODUCTS and MANUFACTURES will be held, under the Patronage of H.R.H. the Crown Prince of Prussia, in the Grounds of the Horticultural Society "Flora," at Cologne, from the 15th to the 31st May next.

Contributions, for which gratuitous space will be provided either in the open air or under covers, are invited, of the following articles:—

1. Agricultural Products.
2. Implements and Machines for Agricultural Purposes.
3. Plans and Models of Dwellings, such as Farm Houses, &c.—of their Materials, Household Furniture, Working Implements, Victuals, and Articles connected with the same.
4. Products and Implements of Forestry and Sport, as well as Collections related thereto.
5. Products and Implements of Horticulture and Garden Architecture, such as Garden Furniture, Statues, Aviaries, Fountains, &c.

Arrangements are being made to obtain a remission of the Customs duty of all articles contributed by foreign exhibitors.

Some of the Railway and Steam Navigation Companies have already consented to convey articles for exhibition either free, or at a very reduced rate of freight; and it is expected that others will follow their example.

A Public Sale will be held at the close of the Exhibition of such articles as the exhibitors may wish to dispose of.

Juries, selected from the most eminent of the German and foreign exhibitors, will award Gold, Silver, and Bronze Medals, and Honourable Mentions, according to merit.

All Applications for Space must be made on or before March 30 next.

Goods will be received from April 15 to May 5; and the Exhibition will finally close on May 31, unless the Committee exercise their right of keeping it open another fortnight.

For further particulars apply to

Mr. F. W. Grunt, Secretary of the "Flora," Cologne.

Royal Agricultural Society of England.
PLYMOUTH MEETING.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.
MEETING at PLYMOUTH and DEVONPORT, 1865

Stock and Implement Prize Sheets are now ready, and will be forwarded on application to H. HALL DARE, Secretary.
12, Hanover Square, London, W.

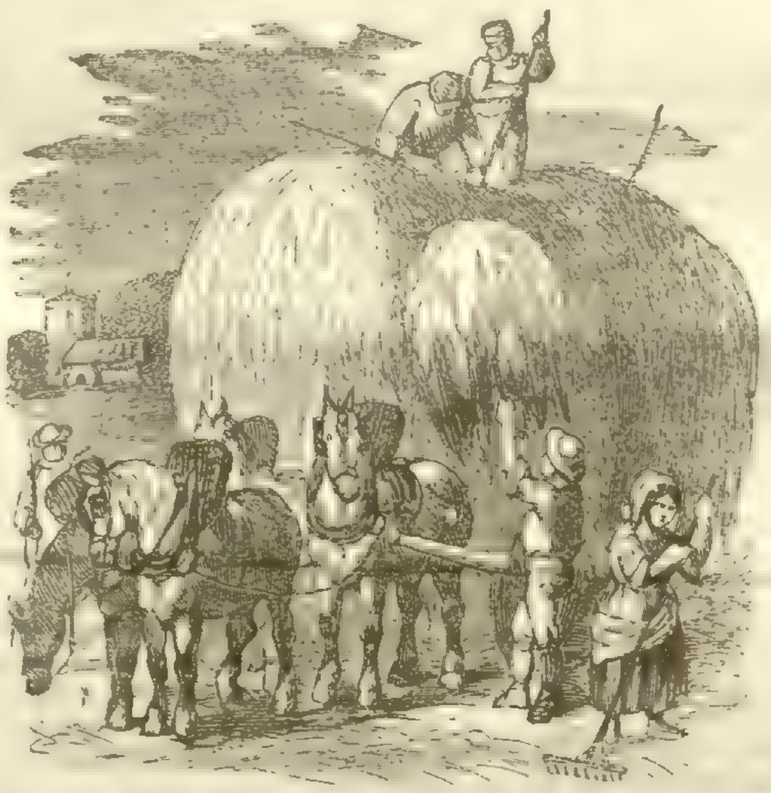
SUTTON'S

GRASS SEEDS FOR ALL SOILS.

Messrs. SUTTON'S GRASS SEEDS being Mixed expressly to suit the Soils for which they are required, Persons ordering have only to state the Nature of the Soil, and Acreage to be laid down, when suitable Seeds will be supplied.

SUTTON'S GRASS and CLOVER SEEDS FOR

PERMANENT PASTURES,
RECLAIMED MARSHES,
GOOD BLACK PEATY SOIL,
CHALKY UPLANDS,
SHEEP DOWNS,
WATER MEADOWS,
CHURCHYARDS,
CRICKET GROUNDS,
PARK LANDS.



SUTTON'S GRASS and CLOVER SEEDS FOR ORCHARDS.

3 or 4 YEARS' PASTURE HAY or SOILING,
2 YEARS' DITTO,
1 YEAR'S CROP of HAY,
FINE GARDEN LAWNS,
NEW PARK LAWNS,
BOWLING GREENS,
RENOVATING OLD PASTURES.

Messrs. SUTTON beg to announce that their GRASS and CLOVER SEEDS, which have hitherto given such great satisfaction, are now ready for sending out. The Seeds this year have been harvested in the best possible condition, and Messrs. SUTTON respectfully request early orders, which shall meet with their best personal attention.

List of Prices of Turnip, Mangel, and other Farm Seeds, with any information required, will be sent on application.

Mr. MARTIN SUTTON'S "ESSAY on PASTURES," 6*d.* post free, or Gratis to Customers.

SUTTON AND SONS, ROYAL BERKSHIRE SEED ESTABLISHMENT, READING.

MEADOW AND PASTURE GRASS SEEDS.

JOHN & CHARLES LEE,
SEEDSMEN TO THE QUEEN,

Recommend those who are about to Lay Down or Improve their Pastures or Lawns, to send them full particulars of the nature of the soil to be dealt with, and to state if the land is drained or undrained. They have made the most careful selections for the following MIXTURES, which cannot fail to produce the required effects:—

MIXTURES for LAYING DOWN LAND to PERMANENT MEADOW or PASTURE, carefully selected to suit various soils. 30*s.* per acre.

MIXTURES to LAY DOWN PARK or FIELD LAWNS; all coarse-growing kinds carefully excluded. 32*s.* per acre.

MIXTURES for ORCHARDS or LAND SHADED with TREES. 30*s.* per acre.

MIXTURES for RENOVATING OLD PASTURES. 8 to 12 lb. per acre; 9*d.* per lb., 80*s.* per cwt.

MIXTURES for RECLAIMED MARSHES and HEATH LANDS. 20*s.* to 24*s.* per acre.

MIXTURES of GRASSES and CLOVERS for ALTERNATE HUSBANDRY, for One, Two, or Three Years' Lay. 18*s.*, 20*s.*, and 22*s.* per acre.

MIXTURES for MAKING NEW or IMPROVING OLD GARDEN LAWNS, 18*s.* per bushel.

A COMPLETE CATALOGUE of AGRICULTURAL SEEDS sent post free on application.

ROYAL VINEYARD NURSERY and SEED ESTABLISHMENT,
HAMMERSMITH, LONDON, W.

The Agricultural Gazette.

SATURDAY, MARCH 4, 1865.

MEETING FOR THE ENSUING WEEK.

MONDAY, March 6 { London Farmers' Club (Mr. Stearn on the Management of Swine—6 P.M.

—— THE Essex Reclamation Bill, giving power to a Company to embank at Maplin and at Dengie, and to convey the sewage of North London to fertilise a large tract of foreshore there which is now covered at high water, was read last Monday before the House of Commons; and, after an unsuccessful attempt by its opponents to postpone its consideration, it has been referred to a Select Committee.

—— The Committee appointed to confer with the HOME SECRETARY by the general meeting which was held last month, about the travelling of locomotive engines on highways, resolved that "it will be sufficient for the protection of the public, under the Locomotive Act, 1861, if Sir G. GREY requires the owners, or persons in charge of such engines, when travelling on the public roads, to have some person to accompany or precede the engine, whose duty it shall be to signal the engine-driver when he deems it necessary to stop or slacken the speed of the engine, and who shall be instructed to assist horses, and carriages drawn by horses, passing such engines; and as a further precaution, it is recommended that the speed should be limited to four miles an hour."

This resolution was communicated by Lord KINNAIRD to Sir GEORGE GREY, who has replied as follows:—

"MY LORD,—I am directed by Secretary Sir GEORGE GREY to acknowledge the receipt of your lordship's letter of the 11th inst., forwarding a copy of a resolution of the Agricultural Locomotive Committee in reference to the use of locomotives on high-roads; and I am to inform your lordship that Sir GEORGE GREY does not think he is empowered by law to impose on the owners of locomotive traction engines regulations of the nature proposed in the resolution of the Committee, but that he would suggest that the owners of such engines, in any distric in which a restrictive order is in force, should give public notice that they are willing to adopt such regulations, any should ascertain whether their adoption would be satisfactord so as to admit of a revocation or modification of the order.

"I have the honour to be, my lord,
"Your lordship's obedient servant,
"H. WADDINGTON."

Under these circumstances our readers will be glad to learn that Mr. HOLLAND, M.P., has obtained leave to bring in a Bill which may under necessary restrictions give to Steam Cultivators the relief they require.

—— Our readers will observe from the report in another column, that the Council of the Agricultural Society have again postponed for a month their decision on the Education question.

—— The paper on Egyptian Agriculture in another page will we are sure be read with much interest. A country where steam cultivation is probably more largely adopted than it is anywhere else—where hundreds of English locomotive threshing and ploughing engines are already employed, must certainly excite very considerable interest among agriculturists. The author of the account which we this day give

of it is Mr. W. H. Delano, one of Messrs. Howard's staff. He is now again on his return to Egypt, but any inquiries will reach him which are addressed to him at the Britannia Works, Bedford.

In the *Agricultural Gazette* for October 31, 1863, will be found the results of some experiments on the germination of Wheat, which for the 42 samples operated upon may be summarised as under:—

In 10 samples the seed failed from 52 to 92 per cent.
In 13 " " 18 to 48 "
In 19 " " 2 to 12 "
In 42 " " an average of 25 per cent.

Now these experiments were appealed to as showing, *inter alia*, the great importance of a trial of seed before sowing, and also as establishing the fact that if seed of a low germinating power be employed, those by whom it is used are really "thin seeders." The facts upon which these simple conclusions were based are so incontrovertible that one is at a loss to know how they could have been denied on the one hand, or how the reasoning founded upon them could have been disputed on the other.

Notwithstanding the terrible onslaughts which the former series had to bear, we still continue our experiments; and as a further contribution to this subject, beg to submit for consideration the following:—

Table of the Germination of Barley, 1863:—

No.	Label.	Price Per Quarter. s.	d.	Came up Per Cent.	Failed Per Cent.	Remarks.
1	From Sherborne ..	29	0	98	2	All market samples.
2	From Martock	29	0	98	2	
3	From Lulworth	24	0	96	4	
4	From Crewkerne ..	28	0	76	24	
5	From Mr. Masters ..	28	0	96	4	
6	Odessa	24	0	96	4	
7	From Salisbury	24	0	100	0	Salisbury is considered one of the best places for seed Barley. The samples are mostly from the Chalk Rock.
8	Do. Do.	24	0	96	4	
9	Do. Do.	24	0	90	10	
10	Do. Do.	24	0	92	8	
11	Do. Do.	24	0	100	0	
12	From Langport	28	0	100	0	These, like most of our specimens, are market samples.
13	From Chard	27	0	82	18	
14	Stiff Straw	28	0	82	18	
15	Nottingham	32	0	90	10	
16	Chevalier	26	0	96	4	
17	From Yeovil	26	0	70	30	This is a low germinating series; their uniformity of price and difference in germination is remarkable.
18	Do. Do.	26	0	70	30	
19	Do. Do.	26	0	84	16	
20	Do. Do.	26	0	94	6	
21	Do. Do.	26	0	84	16	
22	Chevalier Sown on Farm	28	0	96	4	Two good samples and the yield of the crop of 50 acres, each about 40 bush. per acre.
23	American Sown on Farm	28	0	100	0	
24	Do. Do. ..	30	0	92	8	
25	New from Farm 1864 ..	30	0	98	2	
	Average ..			92	8	In round numbers.

If then we sum up our general conclusions with regard to the Barley, as in the case of the Wheat, they will be found to be as under:—

In 7 samples the seed failed from 16 to 30 per cent.
In 4 " " 8 to 10 "
In 14 " " 0 to 4 "
In 25 " " an average of 8 per cent.

Now, on comparing these with the results obtained in the germinating of Wheat, it will be found that the market samples of the two kinds of grain varied immensely in germinal power, the result being greatly in favour of Barley. With regard to the latter, every one practically acquainted with the subject will know that the veriest starvelings among its grains will germinate: however poor the "tail" of Barley may be it will grow, and it is even asserted by some that poor seed is the best to sow; and in rare cases this may even be so, where the poor sample is the result of a cold uncongenial Barley climate and soil, as if it be used in a good Barley district it becomes so changed as not to be recognised. We last year sowed 50 acres of such thin seed, said to be American (No. 23 of our Table), at the rate of 6 pecks to the acre, the general rate of the district being a sack to the acre.

But now, without asserting that this poor seed is as good as that of a plumper description, the question arises whether we did not sow almost as many seeds as our neighbours, a point which will be made clearer from the following calculations:—

Take three examples of Barley,—1st, a light thin sample labelled Odessa; 2d, the American sample previously referred to as being sown by us; and 3d, the growth from this, which we this year sold at 30s. per quarter. In these samples every 100 seeds weighed as follow:—

	grains.		
1. Odessa ...	48	The proportional numbers of seeds according to measure were ...	184
2. American ...	54		159
3. Own Grown ...	80		89

Thus, 89 seeds of No. 3 and 150 of No. 2 occupied the same space as 184 of No. 1. Hence, then, the better sample is nearly twice the weight of the poorer, and contains *more than double the number of seeds*.

Poor, then, as were the seeds of No. 2 (23 of Table), they seem all to have germinated; the crop we obtained was very good, and it was after Wheat, but it is questionable whether, if we had sown less, we should not have had a better crop, and yet we have shown that this is really thick seeding.

Take, now, the converse. We sowed at the same rate, namely, 6 pecks per acre, 50 acres after Swedes of a stout Chevalier Barley, such as may be compared with No. 3 as above. Here the produce was less, which it ought not to have been after roots; the quality is certainly superior, but all our neighbours concurred that the field would have been larger with more liberal seeding, and we have great respect for our neighbour's opinion, especially when we see that his double seeding really gets him a few more bushels per acre.

But the truth is our crop was lessened by our being obliged to wait for some of the Turnips to be eaten off, and here is the important matter to be considered: The extreme of thin seeding presupposes the extreme of good cultivation, land in good heart, of a fine tilth, and all done up to time, such as we have no doubt is fully followed out by some of the advocates of the system. But if under the present cultivation all cases were treated with the like infinitesimal dosing of seed, we cannot think that the general results would be so good as at present, for in a poor soil with a late climate, where probably from circumstances the grain is not got in early, there is only time for the growth of a single stem, tillering is out of the question, and therefore each stem yields no more seeds at some inches from its neighbour than it would at half the distance.

But, say the advocates of the extreme of thin-seeding, "What sense can there be in sowing thickly if the land is not strong enough to grow enough of a plant when sown thinner?" The truth, however, is that in many cases neither the soil nor the time allotted for growth is sufficient to grow fine stools of Barley, while it can grow single ears, which may be put as thick as we please, as for each one of them we require a distinct seed to be sown.

Nevertheless we confess that too much seed is sown as a rule, but in so saying we would respectfully dissent from the sweeping assertion which would accuse all men of folly who do not content themselves with the use of pecks of seed where they now employ sacks.

In some rich lands we have seen much straw to follow as the result of thin-seeding, but neither good grain nor a large yield. During the past year we sowed six and eight pecks of White Oats to an acre in parts of a field—the former made straw nearly six feet high, but only yielded 30 bushels to the acre; the latter a short straw, as much as 40 bushels.

It seems then to us to follow that there can be no absolutely fixed rule as to seeding; and though we believe that improved farming will require less seed, yet we are also sure that as things are, many thick-seeders find their account in their seeming prodigality. *B.*

AGRICULTURAL EDUCATION.

Much as agriculture differs from many occupations, there are some to which it bears a general resemblance. It is not an art or practice requiring mere manual dexterity, and which may be learnt by observation and imitation, neither is it a profession in which eminence may be gained by mere abstract study, as in law and divinity.

It has by common consent been allowed to consist of two parts: Practice and Science, a combination the existence of which is strikingly shown at the annual exhibitions held in the Royal Agricultural Society's show ground, and the union of which has been further sanctioned by that Society adopting it as their motto. It is unnecessary for me here to enlarge upon the full depth and height of meaning contained in these two words. They are the foundation of agricultural advancement—the two strong pillars upon which agricultural knowledge rests.

It is in this fundamental truth that we trace the analogy of agriculture to other pursuits. The surgeon, for instance, must be thoroughly conversant with his art, firm of hand, steady of purpose and able to guide his knife, so as to effect his purpose, and yet avoid injuring important arteries and nerves. Equally important is his scientific knowledge, not only to qualify him for following his profession, but to guide him in those numerous difficulties which are constantly to be met with in exceptional cases.

The engineer also requires to have a good knowledge of the uses of tools and machines, and the general details of his business. At the same time he ought to possess a thorough knowledge of the application of physical and mathematical laws to the various branches of his profession. In other words, he should know both the practical and theoretical parts of his occupation.

Now, the same general rule applies to agriculture. A good farmer must know the daily routine of farm work; but to be accomplished in his business he should know the why and the wherefore of those daily operations—or the Science of farming.

In considering, therefore, the best mode of educating a young man so as to make him a good farmer—for such, I take it, is the only object which rational agricultural educators should have in view—it is only wise to consider the methods which good authorities sanction, and success stamps as the best means of acquiring a good knowledge of the occupations above-mentioned.

Without going into wearisome detail, it will be enough to state that the means used in both cases are similar, and embrace, first, a thorough knowledge of details, obtained by a regular course of instruction in the workshop or the dissecting room; and, secondly, a knowledge of the theoretic part of their professions attained by attendance on lectures, and the perusal of the best books on the subject.

Agricultural education must be gained in the same way: first, by a knowledge of details, attained by careful observation on a well managed farm; secondly, by a careful study of scientific works and agricultural literature, and attendance at lectures in a good scientific school or college. Such a course of instruction would doubtless give all the information necessary to make a good practical and scientific farmer, just in the same way as a course of instruction in other subjects, conducted on the same principles, sends out good surgeons and good engineers.

It is professional education we want. Agriculture is becoming more scientific than agriculturists, and it is most desirable that farmers should keep up with their business. The farmers of an older system did very well for that system—but now they begin to find their deficiencies, and to ask for some better instruction for their sons.

It is encouraging to see that this general cry for knowledge is being responded to by the Royal Agricultural Society of England, and that a committee has been appointed to consider this important subject.

If however the intention of sound professional agricultural instruction has to be abandoned for a scheme of middle-class education, because an enlarged mind is necessary to the right understanding of scientific teaching—then may agriculturists wait, and wait in vain, for the knowledge which they now feel the need of.

It will be little less than an insult to the agricultural community if even the Royal Agricultural Society think fit to withhold its encouragement from special or professional knowledge, and to bestow it upon a more general and elementary education, on the ground that the young agriculturists of the present day are not in a fit state for the reception of such knowledge. It is much to be feared that such is the tendency of the leaders of this Society. Leaving the subjects of theoretical and practical agriculture, and the attendant sciences of chemistry, geology, botany, mechanics as applied to agriculture, there is great danger of the money of the Society being thrown away in a vain attempt (as far as an agricultural society is concerned) to raise the general education of the country by giving prizes for English literature, classics, Scripture history, drawing, and music. Without the slightest feeling of disregard towards these important and elegant branches of education, no one can help regretting if the influence and wealth of the Royal Agricultural Society is diverted into such a channel rather than to the more urgent wants of that part of the community which it represents. No one will deny the fact that it is not use teaching chemistry to a man who does not properly understand his mother tongue, and who is deficient in the elements of education. First, however, I maintain that such is not the condition of our substantial and

wealthy and leading farmers; secondly, that it is to this very class of farmers and their sons that we must look for further progress; and thirdly, that in this class there is a demand for scientific knowledge.

It will be beginning at the wrong end if the Royal Agricultural Society first try to elevate the whole agricultural community, and then give special knowledge.

The right principle to go upon is to encourage leading agriculturists and their sons to further attainments; to give encouragement to the sons of men not engaged in agriculture to enter the ranks of farmers and compete for prizes, the attainment of which shows direct knowledge on agricultural subjects, and to make the possession of a prize, or certificate, or diploma, stamped with the seal of the Royal Agricultural Society, a testimonial showing their appreciation of his agricultural knowledge.

It must have been gratifying to all who are interested in agricultural education to have witnessed the interest which has of late been excited in this powerful Society with regard to agricultural education—but it will be mortifying indeed if, after all the talking and writing upon this subject, the result is to be a few prizes given to young men who have shown a proficiency in classics, Scripture history, drawing, and music. *X. Y. Z.*

THE MALT TAX QUESTION.

The malt tax yields to the revenue nearly 6,000,000*l.* annually (which cannot be spared). By whom is it paid? By the public; by every one who is a beer drinker; by the consumer. This tax is paid, in fact, by those who drink the beer. There may be a little extra charge upon maltsters for capital, and interest thereon (as paid in advance before sales are made) to Government, but it is all put on the malt, and the consumer pays it all. There is no respect or favour paid to classes here. The mechanic and the farm-labourer are upon equal terms as consumers, and each pay the tax, according to the quantity they consume.

What advantage would these classes derive by its reduction or total repeal? The reduction in the price of beer would be considerable. In the event of the total repeal of the tax, it would be something like 22*s.* per quarter tax added to 32*s.* per quarter for Barley—total present cost 54*s.* per quarter, exclusive of maltster's costs and profit. But a quarter of good Barley will make rather more than a quarter of malt, but as the duty is always charged from the couch, or in its most swollen state, it may fairly be taken as I have put it. Well, take off the 32*s.* tax, we have again 32*s.* for the Barley, to which add 6*s.* per quarter for malting and costs of sales and delivery, &c., and 15 per cent. for maltster's risk and profit, *i. e.*, 5*s.* per quarter: total cost of the quarter of malt is 43*s.* The account then stands thus:—Malt, 43*s.*; tax, 22*s.*; total, 65*s.*—about the present price for good malt. The difference thus shown then proves a reduction of about one-third in the price of malt by the repeal, and of course a corresponding reduction in the price of beer; good beer, therefore, instead of being a 1*s.* per gallon, may be as profitably sold for 8*d.*

But would not the total repeal of the duty enhance the price of Barley? So the advocates of repeal say, but why should it? At least to any extent? Inferior Barleys might advance a trifle, but no one thinks that Barley will outstrip Wheat in price. The two are now nearly upon a par as to price per stone, and no one would think of putting inferior Barley through the expensive process of malting, to say nothing of the waste or loss by so doing. Good Barley, weighing 32 stones per qr., will not produce 25 stones of malt, inferior still less proportionately.

Suppose the duty off, then there would be no restrictions, and every farmer may make his own malt. That would be folly indeed. Malting is of itself a peculiar business, requiring consummate judgment and constant watchfulness. No novice or unpractised man can make malt. He may wet Barley and dry it again, after a fashion. You want the greatest proportion of malt from the steep. It must be all properly grown, or it is merely wetted Barley dried again. None but men of great experience can do this.

But, after all, it is asserted that it is a most burdensome and obnoxious tax, and wholly opposed to the principles of free trade. This is by no means clear. Free trade means unrestricted commerce, no tax upon importation. A tax upon imported Barley or malt would be in direct opposition to free trade; but this is an internal tax, a tax upon Barley converted into malt, a tax upon a species of manufacture, a tax upon one of the chief necessaries of British society—its national beverage, and therefore obnoxious enough, and in that view altogether indefensible, and cannot be too strongly reprobated. No one approves the tax, except as a dire necessity for the public payments.

What effect would the total repeal have upon the condition of the working man? Beer would become in a great measure his substitute for tea and coffee, and sugar and milk. The poor man, be he mechanic or labourer, has generally to depend upon his cup of tea or cup of coffee before he goes to his labour, and on his return from it. This he takes in company with his family. The tea and the coffee I know, from good testimony, is none of the best or strongest; it is weak and cheap. In like manner he may have his beer weak and cheap, for it can be brewed at almost any price; I therefore take one to be as good as the other, the difference being in the tea, coffee, sugar, milk, and the beer he may take in substitution. I certainly from experience, hold to the beer after a hard day's toil, but I don't match a quart of beer against a cup of tea, but both in great moderation. In this way cheap beer will be an immense boon to the poor working man.

What effect will the total repeal have upon the employers of labour? Very great indeed. It is not often taken into account how much the cost of labour is enhanced by the quantity of beer consumed under the varied operations performed by workmen daily. A farmer will find his beer bill amount to from 3*s.* to 4*s.* per acre upon his occupation. The master mechanic, the builder, the manufacturer, the shipwright, the miner, the foundry master, the railway manager—indeed every employer will find that from 5 to 15 per cent. and more of the wages paid is for beer. What a tremendous account!—and yet this national beverage is kept up high in price by this most obnoxious tax. All necessaries for and personal comforts required by the numbers ought at all times to weigh most with righteous statesmen.

What taxes are to be substituted to enable this large sum to be repealed? The first undoubtedly is a renewal and further charge upon property and income; the scale to descend much lower than heretofore as a return for the boon. The foolish bugbear of its being a war-tax is no longer tenable. Only just let one of the Powers of Europe insult us grossly, provocative of war. The Chancellor of the Exchequer need not hesitate—he may lay on what taxes he likes, and where he likes; there will be no grumbling, but here is a heavy tax upon one of the actual necessaries of British life. It must be repealed or greatly reduced. Next, there is a new and most powerful interest come into being within the past 30 years or so—the railway interest. I am not sure it has contributed its share to the public treasury. It has occupied our senators above all others; it has possessed itself of our fields, our homes, our trades, our shipping, our everything, on which it is flourishing amazingly. I think this interest might contribute something both by passenger and luggage traffic. Wines and spirits might again contribute something more—they are luxuries, not necessaries. Tempting beer shops are opened everywhere. A higher licence might curb this "social evil," and add a trifle to the revenue. Joint Stock Companies are curtailing and contracting every individual enterprise. Let them pay a tax for their immense monopolies and privileges. If the tax is to be taken off, there is nothing to effectually hinder the great man who manages our Exchequer from doing it. *O. F.*

NOTES ON EGYPTIAN AGRICULTURE.

Amongst all the cotton-growing countries called to sudden prosperity by the American war, none have succeeded better in the art, whether for quality of staple or quantity grown per acreage of arable surface, than modern Egypt. Old Mehemet Ali had already prepared the fellaheen for the present demand by his various enactments for the cultivation; and amongst all his various schemes for making Egypt great, glass manufactories, spinning, weaving, dyeing establishments, salt-pits, arsenals, foundries, sugar factories, &c., Cotton growing has proved most important, and Cotton will pay for all the other failures. For the Cotton crop of 1863, Egypt received over 12 millions; for that of 1864, she will receive over 20 millions, as the notices in the *Times* of "gold withdrawn for Alexandria" daily testify.

The writer, after completing an agricultural tour in Spain and Portugal, started for Egypt in November 1863, and remained there travelling about the agricultural districts till June 1864; and perhaps his brief superficial notes on Egyptian Agriculture may prove interesting to our farmers at home.

In the autumn of 1863 things were very queer in Egypt; the extraordinary inundation of the Nile, spreading for miles on each side of the river's natural bed, had drowned the crops and broken the railway communications. Besides this, a violent murrain that seemed like a second Mosaic plague desolated the country; the native oxen and buffalos, as well as those hastily imported from the coasts of the Black Sea, Trieste, Spain, Portugal, and France were all seized; scores of dead beasts were floating down the swollen waters of the Nile; carcases lay on every road, and in every field and ditch. In fact, so rapid was the course of the malady, that even the polyglot European speculators of Alexandria, neglected for a little while to buy up the hides and hoofs for export.*

The natives were in despair, and bewailed their splendid oxen with many bitter tears; the only available animals left were the camel and donkey, both better suited for carrying than for draught, as the Arab horses, all thorough-bred, are little fit for agricultural purposes. A sight pretty commonly seen at this time was the patient camel (about as vicious a beast as ever stepped) and the much enduring Egyptian donkey yoked together (the yoke at an angle of about 60°), dragging the simple Egyptian plough, the industrious fellah encouraging them from the plough handle, who would indeed, have scratched up the land with his fingers rather than miss his crop. Meanwhile, the Government of the Viceroy set to work to right things; double pay was offered to all the railway *employés* to get the line in working order within a certain time; the drowned Cotton was dragged up, and the land replanted with Flax, Indian Corn, Wheat, and Burseem, or Egyptian Clover; and as no draught animals were forthcoming, large orders were given to Howard and Fowler for steam ploughs.

In these brief notes modern agricultural Egypt will be described under the four following heads:—1, the Soil; 2, the Produce; 3, the Animals; 4, the Men.

1. *Soil.*—The arable land all over Egypt is for the most part loam, entirely free from stone, with a heavy clay subsoil, the latter strongly impregnated with salt; yet in some parts, for instance Shoubra, belonging to H.H. Halim Pasha, the whole soil is a heavy clay, and makes very superior bricks.

It is generally supposed that the water from the Nile during its rise deposits the rich fertilising mud wherever it flows: this is far from the case. It is only for a short distance on each side of the banks that the deposit takes place, and the rent of land there is exceedingly high compared to that at a greater distance; the water conveyed by canalisation to the lands of the Delta is perfectly limpid, and merely used for simple irrigation. It is only on the immediate banks of the Nile that the fellah may be seen when the waters recede, wading up to his armpits, sowing his seed broadcast on the ooze, casting his bread upon the waters which he will find after many days. It is frequently supposed that the land is inexhaustibly fertile; it is not so however, as has been amply demonstrated by the liberal-minded Prince and agriculturist before named, who planted two fields side by side with Flax, the one dressed with superphosphate, the other left without manure. It is no exaggeration to say that the Flax treated with the manure, grown under the superintendence of H. H.'s English gardener, Mr. Wm. Chapman, had double the thickness of stalk, and was nearly double the height of the other; in fact, the difference between the two samples was as striking as anything could be. This enlightened Prince has since ordered 300 tons of guano and superphosphate for his different estates in Egypt.

The fellaheen are also alive to the value of manure, and spread on their fields dust from old ruins, abounding in the Delta, which contain a great deal of lime. The dung of the camels, oxen, buffaloes, horses, and donkeys is collected by the women and children, who compress it with their hands into a bun-like shape and stick it on the walls of their huts, where it dries and is used for fuel, there being little wood and no coal or lignite in the country. The land is broken up to a depth of about 3 inches with the Egyptian plough, partly from the want of proper implements to go deeper, partly for fear of bringing up the salt subsoil. The Egyptian plough is like that used in India, Spain, and Portugal, a mere iron point or pick adapted to a wooden frame-work which scratches up the land as a one-tined scarifier would do, so that to get anything like a tilth, the fellaheen must plough and cross plough at least five times. They then drag a large flat smooth frame-work of wood, on which the fellah stands, over the land, to level and pulverise it, after which, with a small short-handled broad-bladed hand-hoe, the blade making an angle of 45° with the heft, they set up the land in ridges and arrange their water furrows for irrigation, at which they are very clever. This hand-hoe, called a "fass," is the national implement, and suits well the national habit of squatting when at work.

About the only other implement in use is the native threshing machine, a wooden framework, or chariot, running on sharp iron discs or skeiths, which they drive over the grain and straw in a circle; the action of the discs and of the animals treading bruises and cuts up the straw in short lengths and insufficiently threshes the grain, the whole is then piled up in the middle of the circle and a fresh supply strewn in the track of the charioteer. To winnow the grain they take a heap of the mixture and toss it up in the air with a wooden shovel, when the wind blows the straw chaff and cavings to a little distance, the grain falling straight to the ground. The chopped, bruised straw, &c., with a good deal of grain in it, is given to the animals for fodder, whilst the grain, with a good deal of dirt in it, is garnered or sold without further operation. The Arabs had carried the same methods to Spain and Portugal, where they are in use to the present day, so that owing to the demand for chopped bruised straw our makers of threshing machines (all warranted to produce a market sample), must adjust their wares accordingly.

It may be broadly stated that with good cultivation and water the soil of Egypt will grow anything. It is the old story: to make a good seed bed the land must be pulverised to a good depth. With a fine climate and soil a crop may be got, as in Peru, by one man scratching a furrow, another following dropping in the seed and stamping the earth over with his foot, but only inferior

* With reference to the murrain, a well-known literary Bey of Cairo related the following, which has passed from coffee-house to coffee-house all over the country:—A Sheikh-el-Beled, or chief of a village, rendered public praise to Allah for that it had pleased him to confound the infidel Cotton growers of America (might their tombs and beards be ever defiled!) in a bloody war, whereby the Cotton grown by his servants in Egypt, the true believers, fetched a high price from those sons of dogs and pigs the English; but Allah, displeased at the selfishness of the Sheikh and his people, as a punishment sent the murrain.

crops are obtained in this way under the most favourable conditions.

What can be done by properly pulverising and deep stirring the soil in Egypt has been shown by the use of the steam-plough; the steam-grown Cotton of His Highness the Viceroy and His Highness Halim Pasha fetching far higher prices in the market than any other. It is worth mentioning that in April last, within sight and at a short distance of the Pyramids, there was a peaceful contest between Howard's and Fowler's steam ploughs, very near the spot where took place the battle between the Mamelukes and the French troops under Napoleon, known as the Battle of the Pyramids.

With regard to the saltness of the subsoil the following is interesting:—A gentleman of standing at Suez, finding when the French company made the cutting for the Suez water-canal (the supplement of the great work) that though a good coating of sand was on the top of the land, clay was the subsoil, conceived the idea of bringing the clay to the surface by deep ploughing, thus rendering it fit for cultivation, and converting the arid, barren port of Suez into a flourishing agricultural district. When the Nile water was let into the canal all Suez rejoiced and glorified the French who had made it. They sent their horses and asses to drink, and congratulated themselves that for the future instead of buying water by the skinful from Moses' Well, nine miles away, they would have it at their doors, gratis. Soon, however, it began to be brackish, and shortly became so salt as not to be potable. Every day as the water evaporated, the Nile running low ceasing to feed the canal, thick incrustations of salt were found on the banks which the Arabs stole and sold. It is still however an open question whether some salt-absorbing plants might not be found which, being constantly grown and ploughed in, would after a time produce a soil fit for cultivation.

2. *Produce.*—The agricultural produce of Egypt is illimitably varied, as of old. Gourds, succulent roots, Melons, Onions, and the like are predominantly excellent. For Oranges and Lemons Egypt might rival Seville and the Azores; the large Blood Oranges grown in Shoubra Gardens are particularly delicious, and would fetch a high price in Covent Garden. Peaches, Apricots, Nectarines, Figs, Bananas, Prickly Pears, grow in profusion, and are plucked hot from the tree, owing to the powerful sun. Grapes and Pine Apples do not succeed so well, on account of the sudden fall of temperature during the night, the thermometer frequently sinking 10° in a very short space of time: glass houses have been, however, ordered out by some of the princes. Dates are produced in enormous quantities, and whether fresh, dried, or mashed, form a large part of the native food, notably of the Bedouins. Each Date-bearing Palm pays a tax of 3*d.* a year to the Government; they are frequently 70 feet high, the Dates growing in clusters under the tuft of leaves; the natives easily climb up with their bare hands and feet to gather them. Though the Palm grows to such a height, it has little root, and is frequently blown down; its wood is tough, and makes capital crates. Sycamore Figs are sold in large quantities. An alley of these trees above three miles long, leading from Cairo to Shoubra, forms a complete arcade and yields a good revenue; it looks 200 years old, though it was only planted 40 years ago by Mehemet Ali.

The staple products of the country are Wheat, Indian Corn, or Doura (of which the native loaves or flat jacks are made, one or two of a man's wives grinding sufficient meal every day before the mud-hovel door), Burseem or Egyptian Clover, Flax, Sugar-cane, chiefly in Sheed or Upper Egypt, Rice in Lower Egypt, and mighty Cotton everywhere—all these crops are grown on ridges, so that they can be easily irrigated. For Cotton the ridges are set out from 3 ft. 6 in. to 4 ft. apart, centre to centre; the seed is dibbled in at distances of 1 ft. to 1 ft. 6 in. apart, the plants being afterwards hoed. The seed is all in by the end of March, the young plants appearing a few days afterwards; the water-wheel and pump then begin work, the fields being irrigated every 10 or 12 days, though at greater intervals when the plant is high. The fellaheen are very careful of the water, and when their fields are too small for a water-wheel they will irrigate by skins or baling. In September the Cotton-plant is 9 feet high, full of pods and beautiful yellow flowers, between which time and the end of December four pickings take place, the average weight gathered being 5 to 7 cwt. per acre. All the boys and girls of the villages turn in to pick. The harvest is ginned as soon as possible at the numerous English, French, German, Italian, Maltese, Greek, Syrian, Armenian, Albanian, Native, and even American ginning factories, where the Cotton is ginned for the seed and a small sum per cantar or cwt.—in times of competition for the seed only. The clean Cotton then goes to Minet-el-Bassal, the well known Cotton market of Alexandria, where it now fetches from 9*l.* to 12*l.* per cwt. The produce of an acre of Cotton may be valued at 50*l.* on an average, so that supposing the rent of the land, seed, cultivation, hoeing, picking, irrigation, "*firdeh*" or land-tax of 16*s.* per acre, to come to 15*l.*, a very high estimate, the clear profit per acre is 35*l.*—presuming there are no poll tax, ship money, benevolences, or viceregal invitations to take shares in Egyptian companies, which it is not yet quite safe to ignore. Many of the ginning factories above named have from 150 to 200 gins, with hydraulic presses for baling the Cotton, oil presses for extracting oil from the seed, and producing the now well-known Cotton-seed cake. The greatest difficulty the proprietors have is the cost of labour, which is nearly as high as in England. Cotton-seed oil is now largely used in the soap trade, and its refined extracts for lubrification.

The Cotton shrub will bear for three years, but as the roots are very strong, deep searching and exhausting for the soil, they are generally pulled up by the end of December—the wood, which is wonderfully tough, is sold for fuel, the leaves for fuel and manure; the land is then rapidly worked over for Indian Corn, which is sown and harvested within 90 days, or with Flax or Egyptian Clover. This Clover or Burseem is one of the fellah's best helps, and when properly irrigated it may be cut 15 times before the great heats come on—it grows as high as Flax.

The camels, horses, oxen, and donkeys, goats, and sheep, are all put on Burseem in the spring; its rich juices fortify and fatten them wonderfully, their nature becomes renovated, and they are enabled to withstand the summer heat. A good deal of Burseem seed has been sent to England at various times—it would be advantageous to know how it has succeeded. It is possible with irrigation to obtain four crops a year on the banks of the Nile—Flax, Indian Corn, Burseem and Melons.

On the varieties of Sugar Cane, the yellow and the purple and white, as well as Rice, space will not permit to treat, but should the present prices for Cotton abate, the European capital in the country may be then attracted by these important staples.

Weeds growing on a fallow field perish completely in the summer from the heat. Hasheesh, "the weed," is well known; when dry it looks like a bunch of Thyme. The natives smoke a few of the leaves on their pipes, and after a few whiffs become affected and start for pleasant dreamland. The weed when green is pressed, and its inspissated juice made up into little sticks and sweetmeats. It is taken after meals to produce its full effect, but it is best never to touch it. Flowers are little grown and cared for, the practical fellah seeing no utility in what cannot be eaten or sold.

3. *Animals.*—The chief animal of modern as of ancient Egypt is the camel; far from being the affectionate creature represented, it is exceedingly morose and dangerous, biting viciously, and kicking when provoked in every possible direction, which, from its peculiar conformation, it is enabled to do. An enraged camel tearing about is by no means rare in the streets of Cairo. In their excesses of passion they frequently dangerously wound and sometimes kill people. As a carrying animal in the desert its utility is unbounded, but its merits in towns are not so shining; it often slips on the wet roads when loaded, breaking its back. Transport moreover by camel in towns is not so cheap as cartage, though the loads they will carry are tremendous; four bales of cotton, weighing 300 lbs. to 380 lbs. each, being frequently seen. The camel is a very shy animal, only fully understood by the Bedouins; it does not breed in towns. The price of a camel averages from 10*l.* to 12*l.*; their food is principally chopped straw with a little Burseem hay. The dromedary bears the same relation to the camel as the race-horse to the cart-horse; they have a very easy eight to ten miles an hour pace, and cost about 20*l.*

The oxen and buffalos are fine large-sized strong draught animals, and make good beef, though producing little milk. They have the swaying neck, drooping sidelong gait of the camel, and are very docile. They do not draw from the head but from the neck, the yoke passing in front of a bony hump peculiar to them. Buffalo butter is white and hard, with little flavour. Milk is chiefly obtained from a hardy little race of goats, whose unnaturally distended udders are kept in bags by the careful natives, so that no stray kids should milk them.

The horses as companions and steeds are admirable, but of little use comparatively for draught, being small and fiery. The Arabs spoil the stride by training them to stop suddenly when at full gallop, pulling them on their haunches and checking them with a very cruel curb. To show their skill they will dash at full speed against a dead wall, reining up and turning suddenly when a few inches from it. The Arab horse's paces are the walk, amble, canter and gallop—trot they have none; many are trained to walk in the camel fashion by having each fore and hind leg roped together. Horses with this pace are much sought after by effete old Turks. The price of horses has now gone up considerably, formerly they could be obtained for riding purposes at from 6*l.* to 10*l.* The sheikhs and principal people ride mares. The Egyptian donkey reaches a development both of mind and body unknown in less favoured climes; he can live on less food, sustain greater and more continuous fatigue than the horse, and carry almost as heavy a burthen; his only deficiency is want of speed. He, too, has the camel motion, and his paces are the same as those of the horse. Owing to his endurance and strength it is found cheaper to wear him out than use him well. If a European riding a donkey in the intricate streets of Cairo loses his way (one takes a donkey in Cairo as a "Hansom" in London), the best thing is to give his steed the rein, and without fail it will find the nearest way back to its station. The price of a good donkey with saddle is now 12*l.* Some fetch a high price, however; for instance, a white Meccan ass, ridden by the Sultan in the Garden of Shoubra during his visit to Egypt, cost 500*l.* It will be remembered that the prize was taken at the Donkey Show by His Highness the Prince of Wales with an animal given by His Highness the Viceroy during the Royal visit to Egypt. The sheep are small and poor. Last year the English Government sent out 25 picked sheep, of best races, bought for 400*l.*, to cross with the native breed, under the superintendence of a member of one of our well-known Norfolk sheep-breeding families; but when the Arabs saw the big Leicesters and compact Southdowns contrasting so strangely with their own diminutive race, "Wullah," said they, "this is a device of the Christians to make us eat pork; these are no sheep, but pigs with wool on them." These splendid animals, thus despised, cooped up in an old stable, soon began to suffer from too great a growth of hoof for their heavy bodies, which superinduced foot-rot, so that they gradually drooped and died. This scheme, that if properly carried out, would have increased the wealth of the country, there being no difficulty from the climate, was thus rendered abortive.

The black pig would flourish, but religious prejudice is opposed to his increase. Dogs are under the same law, but numerous instances of sneaking kindness to these animals on the part of the natives, show that they possess the human friendliness for the race, although opposed to their creed. White turkeys, fowls, pigeons, doves, and plover, abound. Snipe, quail, wild ducks, and geese are plentiful in their season, though the latter have a sardine-like flavour only to be subdued by abundant sprinkling of lemon juice. The Bedouins also bring desert hares to market, which have little flavour.

4. *Labourers.*—Taking everything into consideration, an English farmer with capital would soon make a fortune in Egypt after studying the climate for a time, provided he could make sure of labour. The fellaheen are naturally a mild gay inoffensive race, with plenty of Mahomedan bigotry, yet understanding the general laws of humanity; they have been however so ground down by centuries of oppression, that a low cunning has been developed painful to note. Gratitude they are unacquainted with; it is quite unknown to them, and this failing often disappoints Europeans; they are lazy, except in agriculture; sensual, dirty, and obstinate; on the other hand, they are wonderfully hardy, working out in the fields during the full heat of the sun, with nothing on them save a covering for the loins, and a camel's hair bonnet; not revengeful, and considering their religious feelings against Christians, can be got to work pretty well by those who study their character. The best way to manage them is by fear, being at the same time just and truthful. The women and children work almost as much as the men, and bear fatigue wonderfully. It is just to say that the English workmen who have gone out to work steam-ploughs, cotton gins, &c., have generally acted badly, beating the natives, getting drunk, and working little, though many earn from 20*l.* to 30*l.* a month, besides board and lodging. Say the Arabs, these Christians eat our Dates, and throw the stones in our faces.

The greatest nuisance in dealing with the natives is the system of backshish which pervades all classes. European intercourse is, however, improving this state of things.

Labour might be obtained from Greeks and Maltese, but they are a treacherous and unsafe people to deal with, though they have the advantage of working on Friday, which the native has not. Should any farmer think of proceeding to the East, and wish to ask any questions, the writer will be happy to answer them to the best of his ability.

Home Correspondence.

Agricultural Education.—I entirely agree in the conclusion to which Mr. Edmunds arrives in his address before the London Farmers' Club, printed in last week's *Agricultural Gazette*, viz., that the Royal Agricultural Society should establish a college where the science of agriculture is taught, allowing the practice to be gathered where it may; and at such a cost as to be within the reach of the sons of farmers. Such a scheme was urged on the notice of the Highland Society, but from difficulties in the way was never pressed at the time the Charter for education was obtained. Well would it have been if it had been then carried out. As yet however there is no symptom of sufficient interest being awakened in the minds of those most interested to obtain it. Until it is sought, indeed demanded, it is not likely that either of the National Societies will go so far out of their usual course as to provide such institutions. If, however, they were to set about establishing such colleges, I for one think their success would be secured. By "establishing" colleges, I mean their actually doing so, not merely aiding existing institutions. These colleges, if set agoing, would require to provide lecturers to teach chemistry as applied to agriculture, animal and vegetable physiology, and a knowledge of the diseases of plants and animals; while there ought to be a course showing in what way the practice of agriculture can be better understood when a knowledge of these various branches of knowledge has been acquired. Two winter sessions of five months each, with say five lecturers delivering perhaps five lectures

a week each, regular examinations, and certificates of attendance to all, and of proficiency to those who choose to come for examination, might be the scheme to start with. To young men from 17 to 20 such a series of instruction might be of the greatest value, as indeed it has been to many who have embraced such opportunities as have hitherto been open to them. And the cost of the lectures, if aided by the Societies, would not be great. Indeed 600*l.* a year from the funds of each of these two great Societies would go far to pay the cost that would be incurred. I cannot speak so much for London; but for Edinburgh I am pretty sure that for that sum an excellent institution could be established. I have no doubt such an institution would have been established long ere this if our landlords had shown that they desired to have men so educated on their estates. If, when a land-steward, or factor, or a tenant farmer is wanted to fill a vacancy on a farm, the question was put "How have you been educated? Do you know something of the sciences bearing on agriculture, as well as the practice of the art? Have you attended instruction in veterinary medicine?"—there would be more inquiries after such knowledge. This is the reason why, in my opinion, scientific instruction is not more wanted for young agriculturists: *this*, and also the expense which at present attends its being attained. The mere offering to examine and award certificates to such as possess a certain amount of knowledge, gathered where they may, is not sufficient; because the mere certificate confers no advantage on the competition for farms or for situations. Indeed, a disposition still exists to look something coldly on men who have a smattering of words on their tongues. Perhaps this dislike is not quite unjust in every case; still, were elementary instruction in the sciences bearing on agriculture more available, this feeling would soon be corrected, and a deeper and more thoroughly intelligent class of men would spring up, who would show that their learning had not been thrown away. *J. M., Mid Lothian.*

Weald of Sussex Farm (p. 157).—If "Leisurely" has taken to his farm in the usual condition left by an outgoing tenant, he is probably not far wrong in his estimate of the cropping and returns. It will take him three or four years of hard work to get it clean and tilled thoroughly and full of manure. But after that time I think he may look forward to better prospects; I therefore send him these few lines, which I hope will comfort him. The stock he proposes to keep is very large for 100 acres of arable land. It is calculated that the fatting of one beast for a year will fully manure 1 acre. If so, his 50 fat beasts, with an equal number of yearlings, 12 cows, and 10 horses, besides sheep, all make enough for 100 acres annually. Should this prove so, he will find it to his advantage in the course of a very few years to reduce his stock or grow more corn. Let. Unless he is very far from a town or market, he will find it more profitable to make butter from his cows, keeping on only his own calves, than purchasing sucklings. He would then buy in his fatting stock as yearlings, keep them in growing condition through the first winter, and make them off by the following Christmas:—

He should thus make by his 12 cows	£200 0
He would save the 50 calves, 100*l.*; and their keep one year, 300*l.*	400 0
	600 0
Deduct the purchase of 40 yearlings annually	400 0
Leaving a money profit (irrespective of manure) of ..	£200 0

I calculate he would still have manure enough for 20 acres of root crops annually, besides a little to mix with ashes and compost for his meadow land. He then would be enabled to adopt the following 5-course rotation:—1st, roots; 2d, Wheat; 3d, Beans, Tares, and Cabbages; 4th and 5th, Wheat and Oats. He would thus get 46 acres instead of 23 of Wheat every year, which at 10*l.* an acre would be 460*l.* instead of the 200*l.* now calculated on; making, with 200*l.* additional on his cow stock, a balance yearly of 660*l.* in his favour. I feel confident this amount might be realised after a little time with care and attention, without affecting the other items of his balance-sheet to any extent. And he would save the anxiety and trouble of bringing up young calves on arable land, which in dry summer is precarious. *J. B. M.*

Malt Tax.—I read a week or two since that Mr. Miner Gibson, when addressing his constituents, represented, in comparison with other duties, the tax on beer as only paying 12½ per cent. How is that to be made out? I have just brewed 70 gallons of beer from 5 bushels of malt, sufficiently good for all ordinary purposes; it might be bottled off in a few days and represented without any fear of detection as Bass's Pale Ale. Considering the malt duty to have been abolished, what will be the cost of the brewing? Five bushels of malt, at 4*s.* 6*d.* per bushel; 5 lbs. of Hops, at 1*s.* 6*d.* per lb.; man's time and firing, &c., 2*s.* 6*d.*; total, 32*s.* 6*d.*; or less than 6*d.* per gallon. I cannot, however, in consequence of the operation of the malt duty, obtain a bushel of malt under 9*s.*, and with this addition it brings up the cost of the brewing to 9½*d.* per gallon, or nearly 60 per cent., or at the brewer's price of 1*s.*, more like 100 per cent. to the consumer. *W. S.*

Irrigated Meadows.—Will you record my thanks to Prof. Buckman for his reply on "effects of irrigation." Although a good deal is known of Grasses and their relative value on pasture land, I find very little practical information recorded as to which are best for land irrigated. Mr. Buckman would confer on many an essential service by further illustrating this subject in your columns. *Chas. McDonald, Woodstock Park, Feb.* 20.

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

Monthly Council: *Wednesday, March* 1.—Present: Sir E. C. Kerrison, Bart., M.P., in the chair; Earl Cathcart, Lord Chesham, Lord Berners, Lord Feversham, Lord Tredegar, Lord Walsingham, Major-General the Hon. A. N. Hood, the Hon. A. H. Vernon, Sir J. V. B. Johnstone, Bart., M.P.; Sir T. Western, Bart.; Sir Watkin Wynn, Bart., M.P.; Mr. Acland, Mr. Arkwright, Mr. Raymond Barker, Mr. Barnett, Mr. Bowly, Mr. Burgess, Mr. Cantrell, Colonel Challoner, Mr. Clayden, Mr. Dent, M.P.; Mr. Druce, Mr. Brandreth Gibbs, Mr. Fisher Hobbs, Mr. Holland, M.P.; Mr. Wren Hoskyns, Mr. Hudson, Colonel Kingscote, M.P.; Mr. Lawrence, Mr. Pain, Mr. Randell, Mr. Rigden, Mr. Sandy, Mr. Shuttleworth, Mr. R. Smith, Mr. Thompson, M.P.; Mr. Torr, Mr. Wills, Mr. Wallis, Mr. Frere, and Professor Simonds.

Lewis Loyd, Esq., of Monk's Orchard, Bromley, Kent, was elected a Governor of the Society.

The following New Members were elected:—

Anthony, John, Yealmpton, Devon
Bayly, John, Plymouth
Bayly, Richard, Plymouth
Bayly, Robert, Brunswick Terrace, Plymouth
Beales, William, Barton Hall, Mildenhall, Suffolk
Bolton, Jasper, Ballykisteen, Tipperary, Ireland
Booth, Thomas C., Warlaby, Northallerton, Yorkshire
Brereton, Rev. J. L., West Buckland, South Molton
Burgess, John, Barncoose Farm, Redruth, Cornwall
Bury, William, 17, New Park Street, Southwark
Cannon, John Henry, Beckley, Oxford
Case, James, Langley, Loddon, Norfolk
Chambers, L. T., Hanley Lodge, Upton-on-Severn, Worcestershire
Clark, William, Luncy Barton, St. Ewe, St. Austell, Cornwall
Coaker, George, Old Newnham, Plympton, Devon
Coles, W. T., Bushey Lodge, Watford, Herts
Crosby, James Moore, 73, Newbro' Street, Scarboro', Yorks.
Eccles, Henry Jenner, Spriddlestone, Brixton, Plymouth
Elstone, William, Bank House, Selby, Yorkshire
Feilden, Robert, Coxbench, Derby
Frank, John Charles, Rhydairy, Oswestry, Salop
Hardy, Jeffery, Plymouth
Hawker, James, Seven Trees House, Plymouth
Hicks, Francis, Plymouth
Holland, William, Broxton, Chester
Horswell, James, North Milton, Milton Abbott, Lew Down, Exeter
Hosken, Samuel, Loggans Mill, Hayle, Cornwall
Josling, W. F., The Boarded Burns, Chelmsford
Kingdon, Boughton, Rose Hill, Exeter
Knowling, Richard Eales, Morice Square, Devonport
Leach, Henry, Corston, Pembroke
Manners, Lord George H., M.P., Cheveley Park, Newmarket
Monks, James, Durham
Moore, John, Maristow, Roborough, Devon
Norrington, Joseph, North Hill Villa, Plymouth
Plimsaul, John, Bedford Street, Plymouth
Pollard, James G., 17, New Park Street, Southwark, S.E.
Radford, William, 31, Prospect Street, Plymouth
Richardson, Robert, 11, Sussex Gardens, Hyde Park, W.
Rodwell, Benjamin B. Hunter, Ampton Hall, Bury St. Edmunds
Searth, Matthew, Park Farm, Lower Beeding, Horsham
Shepheard, John, Plymouth
Simpson, John Thomas, Houghton, Ollerton, Notts
Smith, Wm., Higher Hoopern, Exeter
Sparrow, Benjamin, 1, Caer Badden Senate, Plymouth
Taylor, Herbert Minton, M.R.C.S., Barmby Moor, York
Tremain, James, Trevarthian, St. Newlyn, Ladock, Cornwall
Tyacke, John, Merthen, Falmouth
Whitaker, John S., Bratton, Westbury
Widdicombe, Samuel, Hay, Ugborough, Ivybridge
Willcocks, John, jun., Cleeve, Ivybridge
Wills, Joseph, Plymouth
Wood, Bennett Wm., Humberstone, Great Grimsby
Youmans, Richard, Badby, Daventry

Finances.—Major-General the Hon. A. N. Hood, Chairman of the Committee, presented the Report, from which it appeared that the Secretary's receipts during the past month had been examined by the Committee, and by Messrs. Quilter, Ball, & Co., the Society's accountants, and were found correct. The balance in the hands of the bankers on February 28 was 1379*l.* 8*s.* 5*d.*

The Committee recommended that the Secretary send the usual circular to members who have not paid their subscriptions for the current year.

Journal.—Mr. Thompson, M.P., Chairman, reported the following arrangements for discussions at the Weekly Council Meetings:—Wednesday, March 15, Mr. Ellman will read a paper on the management of a Breeding Flock of Sheep; Wednesday, March 29, Professor Voelcker on Natural Deposits of Potash in Germany. The new number of the Journal, including a full report of the discussion on Sewage the week before last, will be in the hands of members next week. This report was adopted.

Chemical.—Mr. Wren Hoskyns reported that the second lecture to be delivered by Professor Voelcker would be at the end of May, on the irrigation of Meadows by River Water. The field experiments carried on by the Professor during the last season did not produce a satisfactory result owing to the drought. He therefore proposes to repeat them. The usual grant of 200*l.* had been awarded to Professor Voelcker for the following papers:—

1. On the Absorption of Potash and its Salts by soils of known composition.
2. On Mangel Experiments. These two papers have already been published.
3. On some Causes of Sterility and Unproductiveness of Soils.
4. On the Comparative Feeding Value of Palm-nut Meal and Cake for the forthcoming Journal.

The report was adopted.

Plymouth Meeting.—Lord Feversham, Chairman of the Committee, reported their recommendation that Exhibitors' and Agents' tickets be signed on the back as well as in the gate book. That a sum of 20*l.* be granted to the Local Committee for advertising in the district with a view to attract Exhibitors. That the Dining Pavilion and First-class refreshments be placed near the Horse-ring, and that there be a temporary fence and special entrance for the use of the contractor, the position of the same to be left to the Honorary Director. This report was adopted.

Education.—The report of the Committee, which had circulated among the Members of Council, was taken as read, when a discussion ensued, in which Mr. Thompson, M.P.; Col. Challoner, Mr. Holland, M.P.; Mr. Dent, M.P.; Mr. Lawrence, Mr. Bowly, Lord Berners, Mr. Cantrell, Lord Feversham, Mr. Wells, Major-Gen. the Hon. A. N. Hood, Mr. Wren Hoskyns, Mr. Torr, Mr. Randell, Lord Walsingham, Mr. Dyke Acland, and the President took part, and the report was referred back to the Committee. Letters on the subject from Earl Fortescue, Prof. Liveing, Cambridge; and Mr. Robson, B.A., Secretary to the College of Preceptors, were read. It was moved by Colonel Challoner, and seconded by Mr. Randell, that it should be an instruction to the Committee to consider whether it would not be expedient to establish an examination of candidates as to their practical knowledge of Stock and Agricultural Machinery. The motion was negatived on a division by 16 Noes to 5 Ayes.

Show Yard Contracts.—Earl Cathcart reported the recommendation of the Committee, that it is desirable the extra work to be done by the Contractor at Plymouth should be subject to measure and value, and paid for accordingly; and that with a view to ulterior arrangements it may be desirable that some competent Clerk of the Works or other officer be appointed for this purpose, whose special knowledge gained at Plymouth may possibly render his future services of value to the Society. The Report was adopted, and the name of Mr. Brandreth Gibbs added to the Committee.

Railway Arrangements.—Mr. Thompson, M.P. stated that the rates charged for conveyance of Stock and Implements to and from the Society's Shows had been considered by the Committee, who recommended that a circular letter be addressed by the Secretary to the principal Railway Companies, calling their attention to the prejudicial effect produced on the Society's Country Meetings, and consequently on the Railway Company's receipts, by the great trouble and expense incurred by exhibitors, and requesting that the charges may in future be in accordance with the tariff adopted by the great majority of the Railway Companies previously to 1862. This Report was adopted.

Lord Berners having moved that a Committee be appointed to consider the propriety of providing more commodious house accommodation for the use of the Society, and whether the present house can advantageously be disposed of, the motion was seconded by Major-Gen. the Hon. A. N. Hood, and the House and Finance Committees were requested to report to the Council thereon.

The motion of which the Earl of Powis had given notice, viz, that it be an instruction to the Railway Arrangements Committee to seek an interview with the Chairman of the Great Western Company as to the places at which the transfer of Soock from the narrow to the broad gauge will be made for the Plymouth Meeting, was referred to the Railway Arrangements Committee.

Letters inviting the authorities of the cities and towns in the district comprising the counties of Cambridge, Essex, Hertford, Huntingdon, Norfolk, and Suffolk, to offer sites for holding the meeting of 1866 in that district, were directed to be sent.

The Council then adjourned to its Weekly Meeting on the 8th inst.

Reviews.

Sermons on what I Saw in Syria, Palestine, and Greece, preached in my Parish Church. By S. Smith, M.A., Vicar of Lois Weedon and Rural Dean, Author of "The Revelation: with a short, plain, and continuous Exposition." Printed for the Author by Spottiswoode & Co., New Street Square, E.C. 1864.

We have long had a copy of this work upon our table, and ought before this to have called the attention of our readers to the beautiful simplicity and forcible expressness of its English, which are here directed to the highest ends.

The simple, pure, and lucid style of which it is so welcome an example has long been known to agricultural readers, who have benefited by some of the humbler uses to which the author has for many years been content to put it. And it is because the Rev. Samuel Smith, of Lois Weedon, has so long and gratefully been known to thousands through our columns, that we call their attention to works of another and a higher order from his pen. The other book which is mentioned on the title-page of these Sermons was reviewed in the *Gardeners' Chronicle* at the time of its

publication. The present volume, so clearly described in the simple title which the author gives it, is essentially a book of travels in the Holy Land, in Syria, and Greece. Its readers are conducted through the most interesting scenes of Christian and Ancient History by one whose sympathies, experience, and erudition are the best security that all the impressions which these scenes are fitted to produce will be most effectively urged upon their attention. The following is the Preface:—

"The object of the Sermons on what I saw in Syria, Palestine, and Greece, is briefly stated.

"On our return home*—for I was accompanied by my wife—a pretty general wish appeared to prevail on the part of my parishioners to know all the details of our pilgrimage in lands so endeared to their thoughts from childhood. A very simple occurrence decided what might otherwise have been doubtful; and I met their wishes at once by preaching on the subject, for several successive Sundays, in my Parish church. I trusted that the tendency of what I said might be to enable them, as a congregation, to realise more sensibly the scenes and characters of the Bible; to feel as the poor woman felt when we spoke to her of Nazareth, and Sychar, and Bethany, and Jerusalem: 'Why, then, I suppose it's all true.' Because we had seen, she believed.

"This, in reality, is our pressing want. The world is too much with us. We lay waste our powers on outward and visible things which pass away, to the great forgetfulness of that which, invisible and spiritual, endureth for ever. So that something is needed to break the spell which so binds us to earth; and the only effectual thing is a real, heartfelt belief in that gracious Being, who, for our happiness always, would draw our affections to Himself, where He is; in Him, whose footsteps we followed on that far-off sacred land; the scenes of whose Passion were so vividly impressed upon us on the spot, that we saw him, so to speak, evidently before us, crucified.

"My desire is to convey those impressions, if possible, to the minds of others; and it would indeed be a subject of rejoicing if He, who puts into the mind good desires, would bring this same to good effect, and so confirm, even in a single instance, that faith, which is 'the substance of things hoped for, the evidence of things not seen.'"

The Gentleman's House, or How to Plan English Residences, from the Parsonage to the Palace; with Table of Accommodation and Cost, and a Series of Selected Plans. By Robert Kerr, F.R.I.B.A., Architect, Professor of the Arts of Construction in King's College. London: John Murray.

Professor Kerr has produced an exhaustive book on a most interesting subject, one whose history is, indeed, in great measure the history of English civilization. And it is not only the present style of domestic architecture that he describes, but that of every preceding age in English history. The first part of the book is descriptive in as many chapters of the dwelling places of every century since the tenth. The second part discusses in general the conditions and circumstances of the problem, and in particular every kind of accommodation which its best solution offers—and what with day rooms, bed rooms, nurseries, supplementaries and thoroughfares, state rooms, domestic offices, stabling and farm offices, there are nearly 120 separate subjects, and as many chapters in which they are severally discussed. Parts 3d and 4th relate to notes on site and the arrangement of grounds, and notes on architectural style. The question of accommodation and cost occupies the concluding section. The whole is elaborately illustrated with plans and elevations of existing mansions. It is a most complete and exhaustive work on a subject which commands the interest of a large number of readers.

Farm Memoranda.

Lammermuir Sheep Farm: *Feb.* 22.—Since the commencement of the year the weather has been stormy throughout, with heavy falls of snow, establishing about a month ago a regular blockade, since which date the hill flocks have been hand-fed. About 1 lb. of hay is considered a fair allowance daily for each sheep, and this is generally given at twice—morning and evening. When reduced entirely to this, the expense of maintaining a flock is very considerable—more especially if hay has to be bought at the time, as prices run up very fast during a snow storm. On this farm the Blackfaced division have been kept on Clover and Rye-grass hay; but having a good crop of Turnips, and fearing to draw too heavily on the reserve of hay, we have put all the Cheviots on to Turnips. They get four or five hours feeding on the Turnip break each day, and are afterwards turned to the hill to scrape up what Heather they can from amongst the snow, and seem to be doing well. Such weather as this proves the value of a command of rough pasture upon which to turn the sheep, as where there is nothing but field Grass or bare pasture, and that covered with snow, the allowance of Turnips must be greatly increased. From the covering of snow, Turnips in the field appear to have been well protected from the frost; but now that the sheep are put upon the break, a great amount of labour is entailed in picking up the Turnips from under the pavement of snow which is speedily formed by the treading of the sheep; and the supply requires to be daily provided, as the frost transforms any that are left overnight into lumps of ice before morning. We stored a few Turnips this year in the following way, viz.: placing them with straw and root left on (Paviour fashion) on the surface of the ground and close together, one Turnip deep, the straw forming a pretty close covering and protection from the frost, and from such stores, covered as they have been with snow, the Turnips have been taken out very fresh. How they may keep in dry spring weather remains to be proved, but where field workers are scarce it has the recommendation of being easily and speedily done. The Cheviot ewe hoggs are wintered on Turnips, and having been early put upon them in autumn we find that a considerable number of them have shed their teeth. Finding it not very practicable to put them on cut Turnips in the regular way with cutter, boxes, &c., we had a Turnip slicer made with three blades, shank, and cross handle, with which the shepherd slices and chops the Turnips where they grow. The young sheep soon learned to follow the cutter closely, the firm snow providing a clean table from which they picked up the chips. The knives are formed to cut the Turnip into slices and chips, and not into angular lumps.

Whether our Turnips will stand the somewhat early demand made upon them this spring, we can scarcely yet say; but experience leads us to believe that the true way to economise Turnips in bringing ewes into good lambing condition, is to begin early and with small quantities, and so prevent them even getting down in condition rather than reserve the Turnips for a few weeks full allowance immediately before lambing.

This spring must now necessarily be a busy one in regard to farm labour, considerable portions of lea being still to plough for Oats, and all the Turnip break for corn also. To-night blows fresh, however, the snow is rapidly disappearing, and we hope we have already seen the worst of the winter. *J. S. B.*

Miscellaneous.

Short-horn Register.—It is but little more than four months since the project of establishing a Short-horn Register, by which facilities of intercourse between buyers and sellers of Short-horns might be secured, was formally suggested; and yet, under the management of Captain Spencer, whom men of all parties and shades of opinion selected as a thoroughly fit person to conduct it, the design has become fashioned into working order, and been followed by complete success. A great want, long and keenly felt, was at once met, and well met; the movement seemed natural; and the breeders of England may be said to have given their suffrages in favour of the undertaking. Captain Spencer has already bought and sold several hundred pounds' worth of Short-horns of both sexes; and, in every instance, we believe, to the entire satisfation of his employers. We have seen letters to this effect from many of the parties, and may therefore speak in no undecisive tone. The "Register," printed (and very badly printed we must own) lies before us. It contains the names of 36 bulls, and of 13 cows and heifers, of various ages. Some of these animals are magnificently bred, and display pedigrees which comprise the whole length and breadth of the most distinguished Short-horn history. Captain Spencer, we presume, as the character of his "Register" alters, in consequence of sales and additional entries, will print and publish successive editions, so that the public may have continual opportunities of learning the state of the market. *Bell's Messenger.*

The Labourer.—Who among us can place himself in imagination exactly in the position occupied by the man whom he employs? Where will you find the employer who naturally and cordially accepts exactly the point of view from which any right-minded labourer of course must contemplate his prospects? It is easier to look down with good-will on those of lower station from your own high place, than to stand as one of them on their platform and thence look up, desirously for them, like the thoughtful ones among themselves, at the possibilities of advantage and improvement within their reach. And so it is rare to find a benevolence in this particular department which does not think of agricultural labourers as a body needing to be managed, directed, and provided for as such—rather than as neighbours in whose personal and family interests warm regard is felt, altogether independently of their relationship as servants.

Calendar of Operations.

March.—We are now in the midst of the general seed time of the farm, Oats and Barley, Spring Wheat, Clover, &c., being all to put in this month. Potato planting, too, may be done.

Oats.—In reply to the question of a correspondent put a fortnight ago, we shall next week give the illustrations of sorts commonly cultivated, from *Morton's Farmer's Calendar*:—

"The Tartarian White Oat is a coarse thin grain, rarely reaching 40 lbs. a bushel, but yielding a very bulky crop of both straw and grain. It is grown a good deal in the southern counties, and in the cheese districts. It is very late of ripening, and therefore well fitted for late climates and poor soils. The Black Tartarian is shorter-strawed than the white variety, much earlier in ripening, and fitted therefore for later districts and poorer soils.

"The Naked Oat is a very prolific sort, more liable, however, to loss by wind at harvest time than other kinds; and therefore not coming into favour, though it has long been known to English agriculture.

"The Hopetoun Oat is one of many agricultural plants which are due to the energy and patient perseverance of Mr. Patrick Shirreff, of East Lothian. It is a tolerably early Oat, with a large panicle, and hardly therefore properly represented in our drawing (D). It yields a heavy grain and very long straw—its seed is distinguished by a small ruddy mark on its front, and its straw acquires a reddish hue as it ripens. It is well adapted to lately reclaimed land and the lighter class of soils, and has come largely into cultivation.

"The Sandy Oat (E), of Aberdeenshire origin, has been in cultivation for the last 25 or 30 years. It has a smaller grain than some other kinds, but yields well, and possessing a remarkably stiff straw is especially adapted to soft and peaty soils.

"The Poland Oat is a very short-strawed and very early variety, and as such better able than other sorts to meet the difficulties of late districts and rich soils. The black variety of this Oat is represented at F.

"The Potato Oat has long been in cultivation. It is rather a short-strawed sort, and yields the very best quality known to English agriculture. Its grain is short, and round, and white; the ear is somewhat compact. It is less adapted than some other sorts to the more clayey soils, and it is more liable on such soils to a disease called the Tulip root, which is sufficiently described by its name. Potato Oats are liable to shed at harvest time, and should be cut before the straw has entirely lost its green colour.

"The Barbachlaw Oat is a hardy and prolific sort, adapted for late climates and moorish soils. It yields a coarse thin grain, but is very productive both of straw and seed.

"Besides the Oats thus named and illustrated, many others are known to Scotch and English farmers. Among them we may enumerate—the Angus Oats, the common Dun Oat, the Berlie and the Canadian Oat. The last-named is being largely cultivated in some of the southern counties, having acquired a high reputation in 1860 for the quality and quantity of its yield, notwithstanding the difficulties of an unusually wet season and harvest time. Forty-six pounds per bushel were a common weight for the Canadian Oat last year. [It is however a coarse and thick-skinned variety.]

"White Oats should be sown now, in preference to any other season; and, in the general conduct of them the farmer should, as a general rule, avoid sowing them after other corn crops, by which they exhaust the land. They should receive the same preparation as Barley.

"What good reasons are to be offered for sowing Oats on land in such bad order that Barley is not to be ventured in, I know not. The common argument is their hardiness, which will give a middling produce, about sufficient to pay expenses, and leave a trifling profit, when no other crop will do the like.

"The question between Barley and Oats depends, first, on the relative price. Oats may be expected to yield two quarters or more per acre more than Barley; it is therefore easy to calculate, at given prices, which grain will pay the farmer best; but it is not to be forgotten, that Barley generally leaves the soil in much better heart than Oats leave it, the latter being a more exhausting crop.

"*Oats on Lays.*—It is very common husbandry to put in Oats on one ploughing of old Grass, and on layers of shorter duration. The method is, to plough the land as early as possible, drill-press, if necessary, sow Oats broadcast, and harrow them under. And in Scotland the almost universal practice is thus to take Oats after Grass or Clover. In England Wheat is the more common succession. But in very many cases it is better to put Peas in on light land, and Beans on stiff soils, and to follow these with Oats or Wheat, according to circumstances. I have known Oats which had produced inferior crops, followed by Oats again the next year, and produce largely, which proved that they wanted tilth. Peas or Beans will rather improve than exhaust land, when put in thus on layers; whereas two crops of Oats will scourge the land too much.

"Let it, however, be well remembered, that these observations are made (so far as they relate to old Grass) on the supposition that the farmer will not, or is not allowed, to pare and burn, a method much superior, and which ought to be pursued in all cases where it is practicable.

"As to the quantity of seed required, 2 bushels per acre of the better kinds, as Potato and Poland Oats, will be as large a seeding as 4 bushels or even more of the lighter awny sorts—the Tartarian varieties, for instance."

Notices to Correspondents.

Beer: *Cor.* The whole thing is stated perfectly in Mr. Lawrence's pamphlet (Longmans) on the Real Sources of Bodily Strength. He says:—I have heard labourers talk about the liberality of a master who induces them to labour on at extra hours at night by plying them with beer. This the men suppose gives them additional strength, equal to the extra labour required. Now, you cannot labour under a

* July 1863.

greater mistake than this, nor one more injurious to your-selves. This extra quantity of beer is really a source of weakness in the end, instead of giving you real strength, as I hope to show you by-and-by. Your flesh or muscle is the real source of your strength. That is not increased in any sensible degree by the beer you have been putting into your stomach in the course of the day. The spirit which that contains affects your spirit; that is to say, it inflames your mind, and makes that run faster, which affects your brains, and induces you to make at the moment greater exertions than you ought to make in the course of the day. It is the permanent nourishment of the body, not the passing influence of spirit, that is the true source of enduring strength.

BEANS: *Irish Subscriber.* It is possible in an extremely wet climate that Beans sown in June may yield a lot of useful stem and leaf as provender for pigs and horses in September.

CHEESE: *L.* It is made in the dairy, and is less dependent on the food of the cows than is generally supposed. Hear Mr. Harding of Cheddar:—On my own farm I pasture half my cows on artificial Grass—good three-year-old pasture, and the other half on old pasture; and I am satisfied I should not make as much cheese as I do now, and particularly not of such good quality, if I did not use the young pasture. I have satisfied myself that, whether we made the cheese at Delphi, among the mountains; at Cunning Park, amongst forced Grass; or among the heather at Corwar, where Mr. Wason is making the desert to blossom as the rose, there was no material difference whatever. My opinion is that good cheese with good management, in the hands of a person who has something in the upper storey, can be made anywhere, whether at the Land's End in Cornwall or at Caithness in the extreme north of Scotland.

DURATION OF PREGNANCY: *M.* The following Table gives the information you want:—

Species.	Premature Labour.	Regular Labour.	Protracted Labour.
Mare	11 months or 330 days.	11½ months or 340 days	14 months or 420 days.
Cow	8 months or 240 days.	9½ months or 285 days	11 months or 330 days.
Sheep and Goat ..	4½ months or 135 days.	4⅘ months or 144 days.	5⅓ months or 160 days.
Sow	3⅔ months or 110 days.	4 months or 120 days.	4½ months or 130 days.
Bitch	1⅚ month or 55 days.	2 months or 60 days	2⅓ months or 70 days.
Cat	1⅔ month. or 50 days.	1⅚ month or 55 days.	2 months or 60 days

ECONOMICAL MANURE: *C.* The manure formerly so-called was thoroughly investigated in these columns and exposed as worthless. What the present thing may be we do not know. Guano, superphosphate, bonedust, soot and lime, and farmyard dung are all known and trustworthy. Why should you wish to try a "quack" advertisement.

GAME: *Victim.* There is no doubt whatever of the enormous personal injury inflicted. Experiments have been entered on to show that one, two, or three hares, or even large rabbits, will consume as much as a sheep. This, though, has comparatively little to do with the actual extent of the evil. The late Mr. Philip Pusey, at one time of his life a game preserver, a President of the Royal Agricultural Society, and the Editor of the Society's Journal, said:—Even if you ascertain that three or four hares do not eat more than one sheep, you could not estimate the amount of injury to a farmer by the food eaten by an equivalent number of sheep, because the hares are allowed to help themselves, and to go everywhere where they ought not to go; and independently of that, the positive loss, the annoyance to a farmer who has cultivated his land upon improved principles, is very great.

GRASS LANDS IN ORCHARDS: *J. Kelley.* Let pigs graze in your orchard without being ringed—their "tillage" will benefit the trees, and not (next year) prove to have injured the pasture. Bone-dust is the best manure you can apply to your pastures. Further, hereafter.

HAY FARM: *Constant Reader.* Having got out of condition by being repeatedly mown, it will regain it by being constantly fed—the spongy, mossy state will disappear if stock are continually foddered on it. Common Grass-seed harrows will tear out the Moss. Keep cake-fed sheep and cattle on the land.

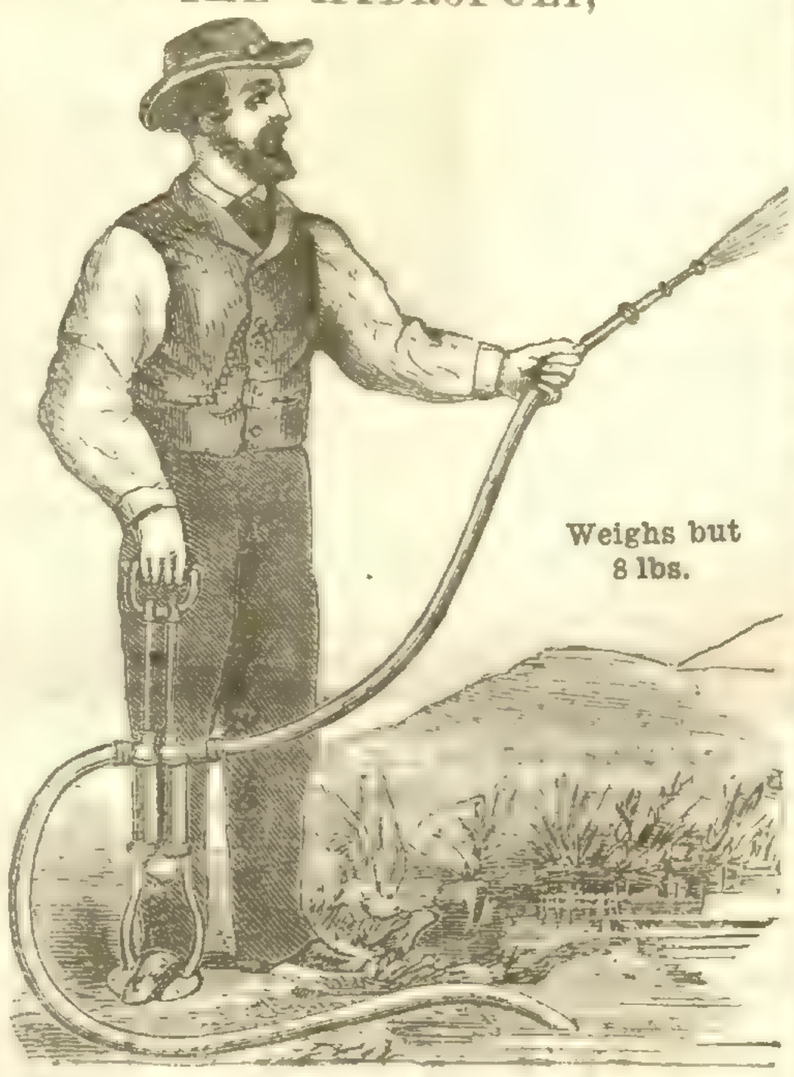
SAWDUST: *F & A Dickson & Sons.* Mr. Tanqueray's herd at Hendon were littered very much on sawdust, and it seemed to answer very well. The subsequent heap of dung did not seem to heat and rot so readily as ordinary straw dung would do; but we know of no reason why sawdust should not be used.

SERVANT GIRLS: *Master.* The real remedy is to be found in the form of example, as was well put by Mr. Warren, Recorder of Hull, in one of his charges He said:—I ask you whether any observant person can walk the streets of our cities or towns on Sundays, when shoals of servant girls are abroad, without feelings of pity and disgust? Slipping out of front doors, and sneaking out of areas, may be seen kitchen and scullery maids, aping the absurdities of their superiors in station, with lace or make-believe lace petticoats, crinolines, kid gloves, parasols, and preposterous head-dresses. But you will say, What is the remedy for it? First of all, let their betters cease to set them an example of a preposterous and paltry love of finery. Let mistresses steadily and resolutely set their faces against finely dressed servants. Do not let quickly-cast-off fashionable clothing be given to servants, but be otherwise and charitably disposed of.

SUBSTITUTES FOR GUANO: *J. L.* Mr. James Dove, of Eccles-Newton, near Kelso, published lately, in the "Highland Society's Transactions," his experiments on this subject. They related to guano bought at 12*l.* 10*s.* per ton, nitrate of soda and sulphate of ammonia both at 18*l.* 10*s.* per ton, superphosphate, an exceedingly rich sample, 8*l.* 10*s.* per ton, and Rape-cake 6*l.* 5*s.* per ton. These manures were applied in various quantities, so as to be of nearly equal cost, on half-acre plots, and the whole produce was in every instance weighed. They were applied (1) to Oats when sown, on the 15th of April, and there was a large gain from nitrate of soda and from guano. They were applied to Barley (2) when sown, on the 25th of April, and the guano paid its expense, while all the others resulted in loss. To red-strawed Wheat (3) they were applied on the 1st of May; the nitrate of soda and sulphate of ammonia resulted in a small gain, all the others were a loss To Beans they were applied (4) on the 30th of May, and the land was scuffled and hoed the same day; the guano and the superphosphate were a gain, all the others were a loss.

WOOL: *M N.* The whole thing was well stated in these columns years ago by Professor Tanner. He said:—The softness of wool, which is always a sign of a thriving sheep, is mainly to be attributed to the presence of the yolk, which is an oily matter that has a powerful influence upon its growth, as well as upon its softness. Yolk exudes through the vessels which convey the blood to the surface of the body. If the blood is rich from the presence of fatty matter, the healthy action of these vessels will keep up the supply required by the wool; but it is clear that its presence is primarily dependent upon the quality of the blood, and this can only gain its richness from the food the animal consumes.

THE HYDROPULT,



An Invention for Throwing Water by Hand Power.

(SECURED BY ROYAL LETTERS PATENT).

PRICE LIST.

	£	s.	d.
COMPLETE WITH BRASS CYLINDERS AND JAPANNED STIRRUP	1	12	6
COMPLETE WITH BRASS CYLINDERS AND COPPER STIRRUP	2	2	0

The Price "Complete" as above, includes 2½ feet Suction and 3 feet Delivery Hose, Galvanised Wire Strainer, Rose and Small Jet.

THE HYDROPULT
is invaluable for use in the
GARDEN for
WATERING BEDS,
SPRINKLING PLANTS,
DROWNING OUT INSECTS,
CLEANSING TREES FROM SMUTS,
DRESSING WITH LIQUID MANURE,
&c. &c.

THE HYDROPULT
is desirable in every
HOUSEHOLD for
WASHING WINDOWS,
WETTING SIDEWALKS,
SPRINKLING STREETS,
WASHING CARRIAGES,
EMPTYING CISTERNS,
FILLING BARRELS,
A SPRAY BATH,
&c. &c.

ORDERED by the WAR DEPARTMENT as FIRE ENGINES.

ROBERT HOGG, LL.D. and F.L.S., Rev. H. H. DOMBRAIN, A.B., SHIRLEY HIBBERD, Esq., F.R.H.S., THOMAS RIVERS, Esq. (the eminent Florist), and other well-known gentlemen, recommend the HYDROPULT AS AN INVALUABLE GARDEN IMPLEMENT.

The Hydropult will draw water horizontally, if necessary, through Two Hundred Feet Suction Hose, and force it through Delivery Hose to an altitude of One Hundred Feet.

THE
GREENHOUSE AND CONSERVATORY HYDROPULT.
A NEW AND BEAUTIFUL IMPLEMENT,
Weighing scarcely 5 lbs.
AND SPECIALLY ADAPTED FOR USE IN THE GREENHOUSE AND CONSERVATORY.
Price 35s.,
Complete, with Brass Cylinders and Copper Stirrup, 2½ feet Suction and 3 feet Delivery Hose, Strainer, Rose, Jet, and Fan.

This NEW IMPLEMENT must necessarily supersede Syringes and other devices of the kind, for it will be found much more effective in its operation.

A LADY CAN WORK IT FOR HOURS WITHOUT FATIGUE.

CAUTION.

IMPORTANT TO THE PUBLIC.—The extensive sale of the Hydropult has excited the cupidity of so-called respectable, but in reality unprincipled Manufacturers, who are now palming on the Public worthless imitations of the Hydropult, and through their connections are enabled to place said devices on exhibition, and for sale, in many of the principal Ironmongery and Seed Establishments throughout the city and provinces. These devices resemble in many respects the Hydropult in appearance, and are calculated to deceive the unsuspecting. The Proprietor therefore issues this Caution, and respectfully intimates that parties wishing to purchase the Hydropult should examine the machine offered for sale, and see if it has attached thereto a label, with the following words:—"The Hydropult, Vose's Patent, manufactured only by GRIFFITHS & BROWITT, Birmingham. CHARLES POMEROY BUTTON, Proprietor, 142 and 143, Cheapside, London." Unless this label is attached, the Machine is not the Hydropult.

Prospectuses, with Testimonials, on application.

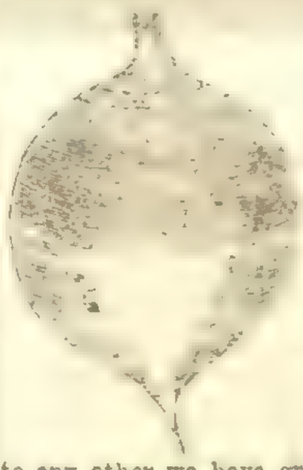
HYDROPULT SHOW ROOM, 142 & 143, CHEAPSIDE, LONDON.
CHARLES POMEROY BUTTON, PROPRIETOR.

SEED CORN from the CHALK.—All the most approved varieties supplied by RAYNBIRD, CALDECOTT & BAWTREE. Address, Basingstoke; or 89, Seed Market, Mark Lane, London, E.C.
*** Samples and prices on application.

TRADE
HALLETT'S | PEDIGREE | NURSERY WHEAT.
MARK.
PURE SEED OATS.
46s. a Quarter (with Sacks) for not less than Two Quarters.
Papers sent upon application, enclosing Stamp, to FREDERIC F. HALLETT, Esq., F.L.S., the Manor House, Brighton, Sussex.

Good Clover Seed.
GENUINE NEW CLOVER SEED may be obtained of the Undersigned. Prices (according to Market and quantity required) will be forwarded on application.
SUTTON & SONS, Seed Growers, Reading, Berks.

THE ALSIKE CLOVER for CLOVER-SICK LANDS.—This excellent Clover will thrive in almost any soil. It produces two good cuttings in the year, and makes superior Clover Hay. It may be sown alone (14 lb. per acre), or in conjunction with other Seeds, either for alternate husbandry or for Permanent Pasture. If sown with Italian Rye-grass it is ready for mowing three times in the year. It is included in all Messrs. SUTTON'S mixtures, and they strongly recommend it to more general cultivation. Price may be had on application.
Royal Berkshire Seed Establishment, Reading.



Three Hundred Guineas in 12 Prizes.
FOR SIX YEARS SUCCESSIVELY HIS LATE ROYAL HIGHNESS THE PRINCE CONSORT'S PRIZE CUPS HAVE BEEN AWARDED TO
SUTTON'S CHAMPION SWEDES at the Royal East Berks and South Berks Agricultural Societies, and many other valuable Prizes in various parts of the kingdom.
From Mr. LARGE, *Bailiff to the Right Hon.* Lord Berners:—
"The Champion Swedes from seed Lord Berners purchased of you, are far superior to any other we have grown I can confidently say they are many tons per acre heavier than any other Swedes growing on his lordship's farm."
Price of Seed 1s. per pound, or cheaper by the Bushel.
SUTTON'S NEW FARM LIST gratis and post free.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

New Mangel Wurzel Seed, grown from selected Bulbs.
H. AND F. SHARPE beg to announce to the Trade that their Stocks of the above-named Seed are very fine this season, and they are prepared to make special offers of all the sorts at very moderate prices.
Seed Growing Establishment, Wisbech.

W. TOOGOOD, THE QUEEN'S SEEDSMAN, Southampton, has a few cwt. of his IMPERIAL ORANGE GLOBE PRIZE MANGEL to offer to the Trade, and the same of SUTTON'S SELECTED YELLOW GLOBE.
In consequence of the great demand for the OSBORNE YELLOW GLOBE, the Stock of which was presented to him by S. Toward, Esq., her Majesty's Steward, early orders only will secure a supply.
His AGRICULTURAL SEED CATALOGUE is in the press, and can shortly be had gratis.

TRUE SCOTCH LEEK SEED.—This LEEK has been grown in the Subscribers' Nurseries for the past 40 or 50 years; there is no hardier or better variety in cultivation.
Price 1s. 6d. per oz.; free by post, 22 stamps.
EDWARD SANG & SONS, Kirkcaldy, N.B.

Henry's Prize Hybrid Leek.
DOWNIE, LAIRD, AND LAING, having secured the entire stock of the Seed of this far-famed LEEK from Mr. Henry, are now sending it out in sealed packets as formerly, at 1s. each. This is undoubtedly the largest and finest variety in cultivation, weighing when cleaned from 4 to 5 lb., and blanched from 16 to 17 inches in length.
17, South Frederick Street, Edinburgh; and Stanstead Park, Forest Hill, London, S.E.

IVERY'S NONSUCH LETTUCE.—The best Summer variety in cultivation, will stand a month longer than any other sort without running to seed, 1s. per packet, sealed with initials "W. I." See *Gardeners' Chronicle*, Feb. 25, for Seedsmen and Nurserymen already supplied.
CATALOGUE of CHOICE SEEDS may be had on application.
MUSHROOM SPAWN of superior quality. The Trade supplied.

TO THE TRADE.
SNOW'S TRUE WINTER WHITE BROCCOLI.
SNOW'S SPRING WHITE BROCCOLI.
ELLITSON'S MAMMOTH APRIL WHITE BROCCOLI.
CARTER'S CHAMPION CUCUMBER.
EXTRA TRIPLE CURLED PARSLEY.
FLOWER SEEDS. Novelties of last season, various.
The above all true, and fine stocks.
ROOTS.—Tigridias, Liliums, Gladioli, Anemones, Paeonies, Cannas, Tritonia aurea, &c. Trade prices on application.
STEPHEN BROWN, Seed and Nursery Establishment, Sudbury, Suffolk.

REIGATE SILVER SAND (best quality for Plants, &c.), 7s. 6d. per Ton, 28s. per 4 Tons, 30s. per 6 Tons, 48s. per 8 Tons, 5s. per Ton for 20 Tons and upwards, delivered to the Reigate Station. Best Kent and Surrey PEATS, LOAMS, ROCK SANDSTONE, &c.
N.B. Loaded trucks can be sent direct on all the Railways.
London-made FLOWER POTS, in every size, at the lowest cash prices. W. SHORT, Sand and Peat Depôt, Reigate, Surrey.

COCOA-NUT REFUSE delivered within 2½ mile of Charing Cross, at 2s. per bag.
For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.
Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.
BARSHAM'S BRUSHES and MATS are sold in every town.
CAUTION.—Every Brush is stamped, J. BARSHAM'S Patent.

Heating by Hot Water.
W. J. HOLLANDS, IRON MERCHANT, 31, Bankside, London, S.E.
HOT WATER PIPES, from Stock, per yard:—2-inch, 1s. 4d.; 3-inch, 2s.; and 4-inch, 2s. 7d. BENDS, from Stock 1s. 7d., 2s. 6d., and 3s 3d. each. THROTTLE VALVES, 10s. 6d., 13s. 6d., and 15s. each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day. A discount to the Trade.

Manures and Feeding Stuffs.

RAYNBIRD, CALDECOTT, AND BAWTREE.
Address, 89, Seed Market, Mark Lane; or Basingstoke.
Samples and prices on application.

GOULDING'S HORTICULTURAL MANURE,
Manufactured by
W. & H. M. Goulding, Manure Manufacturers,
108, Patrick Street, Cork; 22, Westmoreland Street, Dublin.
One Shilling per Box.
The use of it ensures the finest and best developed Flowers, Bulbs, Roots, &c.
Agents, Wholesale and Retail:
Messrs. James Carter & Co., Seed Merchants, 237, High Holborn.
" Butler & McCulloch, Covent Garden.

LAWES'S MANURES.—The Manures manufactured by J. B. Lawes for the present Season of 1865 are now ready r delivery at his Factories, at the following prices:—
LAWES'S PATENT TURNIP MANURE, and BONE SUPERPHOSPHATE of LIME, £6 6s. per ton.
LAWES'S SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES, £5 5s. per ton.
LAWES'S WHEAT, BARLEY, GRASS, and MANGEL MANURES, £8 per ton.
CONCENTRATED CORN and GRASS MANURE, £12 per ton.
These Manures can be obtained of Mr. Lawes, or through his appointed Agents, in all parts of the United Kingdom, at prices varying according to cost of carriage.
Genuine PERUVIAN GUANO direct from the Importers.
NITRATE of SODA, SULPHATE of AMMONIA, and other Chemical Manures. AMERICAN and other CAKES at market prices.
Address John Bennet Lawes, 1, Adelaide Place, London Bridge, E.C.; and 22, Eden Quay, Dublin.

THE LONDON MANURE COMPANY
have now ready in fine condition—
DISSOLVED BONES,
SUPERPHOSPHATES of LIME,
TURNIP MANURE,
BLOOD MANURE for Barley and Roots,
URATE,
MANGEL MANURE, &c. &c.
They also continue to supply GIBBS' PERUVIAN GUANO NITRATE of SODA, SULPHATE of AMMONIA, FISHERY SALT, and all Fertilisers of known value.
Works, Plough Wharf, Isle of Dogs.
Offices, 116, Fenchurch Street, E.C. E. Purser, Secretary.

ODAMS'S BLOOD MANURE for CORN,
ODAMS'S BLOOD MANURE for ROOTS,
ODAMS'S SUPERPHOSPHATE of LIME.

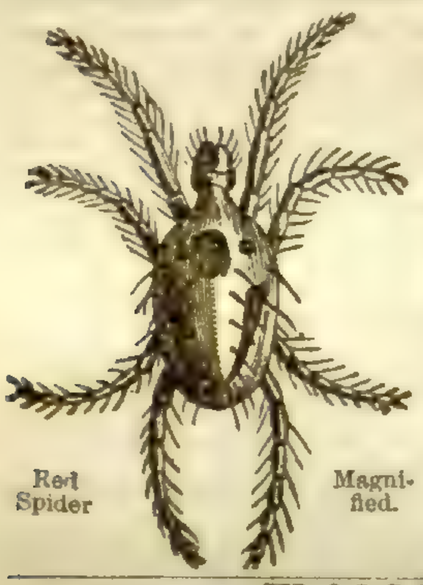
Manufactured by

THE PATENT NITRO-PHOSPHATE or BLOOD MANURE COMPANY (Limited),
Consisting of Tenant Farmers occupying upwards of 30,000 Acres of Land.
Chairman.—John Clayden, Littlebury, Essex.
Managing Director.—James Odams.
Particulars of these standard Manures may be obtained at the Offices, or of the Local Agents.
C. T. Macadam, Secretary.
Chief Office: 109, Fenchurch Street, London, E.C.
Western Counties Branch: Queen Street, Exeter.
Manufactories: Plaistow, Essex; and Elford, near Topsham, Devonshire.

Established 1812.

PROCTOR AND RYLAND, in calling attention to their Special PREPARED BONE MANURES, have much pleasure in stating that they will be found of very superior quality, and the most economical offered to the Agriculturist:—
TURNIP, MANGEL, and POTATO MANURES have produced results of the most satisfactory and remunerative character on every description of tillage land.
WHEAT, OAT, and BARLEY MANURES strengthen the straw, increase the quantity, and improve the quality of the grain in a very marked degree.
BONE SUPERPHOSPHATE of LIME has been proved to be the most economical source of Phosphates for the growth of luxuriant root and corn crops.
GRASS MANURES, for mowing or grazing land, are very effective in improving the herbage. The preparation of Grass Manures is regulated according as they may be required to be more or less permanent in their character.
Offices: Corn Exchange Buildings, Carr's Lane, Birmingham.
Manufactories: Birmingham, Warwick, Bristol, and Chester.

ROLL TOBACCO CLOTH.
The cheapest and best article for Smoking Greenhouses and Destroying the Fly. Price 1s.4d. per lb.; over 10 lbs. 1s. 1d.
Joseph Baker, 10, Gough Square, Fleet Street, E.C.
Post-office Orders payable at Fleet Street.



GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes, 1s., 3s., and 10s. 6d. each.

Wholesale by
PRICE'S PATENT CANDLE COMPANY (Limited).

TOOGOOD'S (late Page & Toogood's) IMPROVED BLIGHT COMPOSITION introduced in 1850, has been manufactured under W. Toogood's sole directions since that period. He has made great improvements in it, and by reducing the price 25 per cent., it is one of the cheapest and has always been the most efficacious remedy extant. To publish the Testimonials no newspaper would give space, but Messrs. Cutbush & Son, the eminent Nurserymen, say:—"It is the best thing for the purpose we can find, and does not appear to injure the young foliage like Gishurst does. This is our experience after 10 years' trial."
"February 24, 1864."

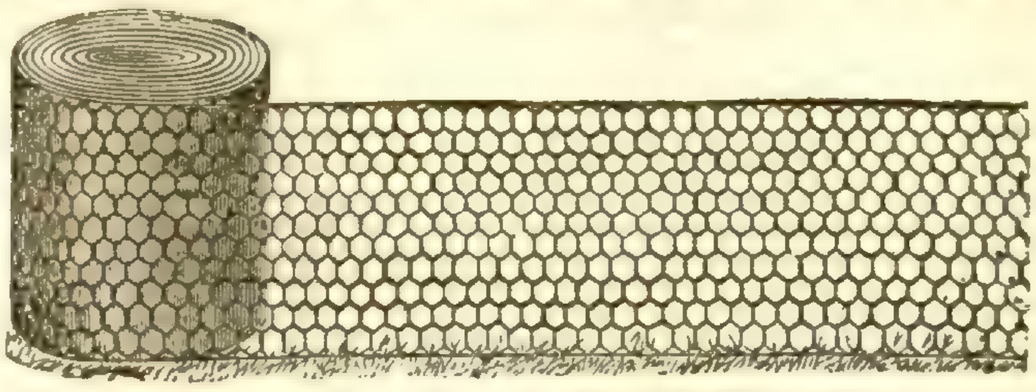
Mr. E. Sage, *Gardener to* Lord Howe, *says*:—
"Will you please send us 15 gallons of your Blight Composition. I see you have reduced the price, and trust that you may some day be able to make another reduction, and I feel assured that no 'Gishurst,' will be used by practical men."

"We hereby Certify that during the whole time we were Warehousemen in the Establishment of B. Page & Co., and subsequently Page & Toogood, that we Manufactured the Blight Composition under Mr. Toogood's *sole directions, and that he alone knew the proportions of the various ingredients.*
Signed John Morley,
Henry Drew,
Henry Sheerman,
George Isaacs."
"July 13, 1863."

Extra strong, 3s. per gallon (sufficient to make 4 gallons fit for use), 10 gallons and upwards carriage free to London.
May be obtained of the principal Nurserymen and Seedsmen in the Trade, and of W. Toogood, Royal South Hants Seed Establishment, Southampton.

NEW IMPROVED PREMIUM WIRE NETTING.

GREAT IMPROVEMENT,



WITH REDUCED PRICE.

PRICES PER LINEAL YARD, 24 INCHES HIGH.

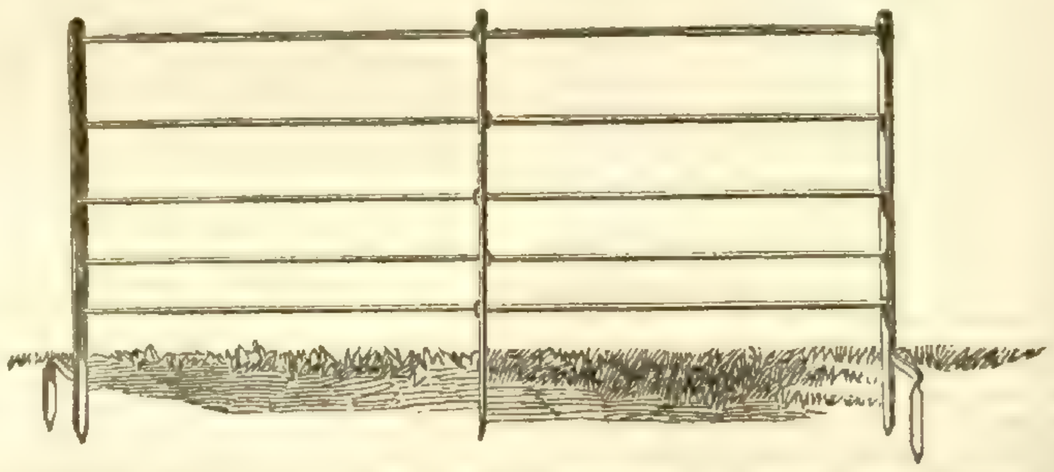
Size of Mesh.	Mostly used for	Light. Japanned.	Light. Galvanized.	Medium. Japanned.	Medium. Galvanized.	Strong. Japanned.	Strong. Galvanized.	Extra Strong. Japanned.	Extra Strong. Galvanized.
2¼ inch	Hares, Dogs, Poultry ..	3d.	4d.	3¾d.	5d.	4½d.	6d.	5½d.	7d
2 inch	Game or Poultry Netting	3½d.	4¼d.	4d.	5d.	5d.	6½d.	6½d.	8d.
1⅝ inch	Small Rabbits, Hares, &c.	4d.	4¾d.	4¾d.	6d.	5½d.	7d.	7d.	9d.
1½ inch	Smallest Rabbits	5d.	6d.	5¾d.	7d.	7d.	9d.	9d.	11d

Quantities of 100 yards or upwards delivered free at nearly all the principal Railway Stations and Shipping Ports in England; and 200 yards or upwards delivered free to most parts of Scotland and Ireland.

*** *Every description of Netting warranted to give satisfaction, and if not approved will be exchanged or may be returned unconditionally.*

J. B. BROWN AND CO. Offices: 18, CANNON STREET, CITY, LONDON, E.C.,
Nearly opposite St. Swithin's Lane and London Stone, and near London Bridge.
WAREHOUSE (where Netting is kept in stock), 148, UPPER THAMES STREET, E.C., opposite the City of London Brewery, and close to the London Bridge Steam Boat Pier.

ST. PANCRAS IRON WORK COMPANY,
OLD ST. PANCRAS ROAD, LONDON, N.W.



IRON HURDLES, FENCING, AND GATES.

	Each.—s.	d.
SHEEP HURDLES, 3 ft. high, 6 ft. long, 4 Bar ..	4	0
Ditto ditto ditto, 5 do.	4	5½
Ditto ditto ditto, ⅝ Top Bar	4	8
CATTLE HURDLE, 3 ft. 6 in. high, 6 ft. long ..	4	11½
Ditto ditto ditto strong	5	9
OX HURDLE, 4 ft. high, 6 ft. long	7	6

DR. SPRATT'S PATENT LOCK.
The simplest and best Fastening for Field, Wicket, Swing, and Railway Gates. Particulars and Prices on application.
PATENT WROUGHT-IRON STABLE FITTINGS, CONSERVATORIES, &c. Lists Free.

ST. PANCRAS IRON WORK COMPANY, OLD ST. PANCRAS ROAD, LONDON, N.W.

JAMES PHILLIPS & CO.,
HORTICULTURAL GLASS MERCHANTS,
180, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

REDUCED PRICES OF SHEET GLASS FOR HORTICULTURAL PURPOSES.

ENGLISH SHEET GLASS.
Packed in Crates of about 280 feet.

	16-ounce.	21-ounce.
Best	5½d. ..	7¼d.
Seconds	3¾d. ..	5d.
Thirds	2¾d. ..	3½d.
Fourths	2¼d. ..	3¼d.

HORTICULTURAL GLASS,
Stock Sizes, 16-ounce. In 100 feet Boxes.
These prices only apply to the sizes stated.

				4ths.	3rds.	4ths.	3rds.
11 by 9	12 by 9	13 by 9	14 by 9	10s 9d	12s 3d	12s 6d	14s 0d
12 ,, 10	13 ,, 10	14 ,, 10	15 ,, 10				
13 ,, 11	14 ,, 11	..	..				
14 ,, 12	15 ,, 12	15 ,, 11	16 ,, 11				
18 ,, 12	19 ,, 12	16 ,, 12	17 ,, 12				
16 ,, 13	17 ,, 13	20 ,, 12	21 ,, 14				
19 ,, 13	20 ,, 13	18 ,, 13	..	11s 6d	13s 6d	13s 6d	16s 0d
16 ,, 14	17 ,, 14	21 ,, 13	..	14 to 15 ozs.		16 to 17 ozs.	
19 ,, 14	20 ,, 14	18 ,, 14	..	to the foot.			

FOREIGN SHEET GLASS.
In Cases for cutting up, in Sizes as Manufactured.

	16 oz., 200 ft. £ s. d.	16 oz., 300 ft. £ s. d.	21 oz., 200 ft. £ s. d.
Best ..	3 7 0	..	5 14 0
Seconds ..	2 10 0	..	4 13 0
Thirds ..	..	2 5 0	2 10 0
Fourths ..	..	1 15 0	2 0 0

GLASS for ORCHARD HOUSES,
As supplied by us to Mr. Rivers, to the Royal Horticultural Society, and to most of the Nobility, Clergy, and Gentlemen of the United Kingdom.
Each Box contains 100 feet.

		14 to 15 ozs.	16 to 17 ozs.	21 ozs.
20 by 12	Fourths ..	11s. 6d. ..	13s. 6d. ..	16s. 6d. ..
20 ,, 13	Thirds ..	13s. 6d. ..	16s. 0d. ..	19s. 6d.
20 ,, 14	Seconds ..	.. ..	English. ..	English.
20 ,, 15	Best ..	.. ..	18s. 0d. ..	22s. 6d.

The above prices include the Boxes.
We recommend 3rds quality at 16s., or 21-ounce at 19s. 6d. (as supplied to Mr. Rivers). Best and Seconds are intended only for pictures or dwelling-houses.

SMALL SHEET SQUARES.
In 100 feet Boxes.

6 by 4 ..	6½ by 4½ ..	7 by 5 ..	7½ by 5½ ..	11s. 6d.
8 ,, 6 ..	8½ ,, 6⅜ ..	9 ,, 7 ..	9½ ,, 7½ ..	12s. 6d.
		10 ,, 8 ..	10½ ,, 8½ ..	

Boxes 2s. each, returnable at full price.
All small squares from 6 by 4 to 10½ by 8½ are cut from pieces, consequently there is only one quality.
London Agents for Hartley's Patent Rough Plate.
Perforated Glass for Ventilation.
Glass Shades, Ebony and Gilt Stands, Gas and Lamp Glasses, Chimney and Globes, &c.
Glaziers' Diamonds from 10s. to 21s. each.

GLASS TILES and SLATES in SHEET and ROUGH PLATE. PLATE GLASS, PATENT PLATE, and HARTLEY'S IMPROVED ROUGH PLATE. PAINTS, COLOURS, VARNISHES, &c.

GENUINE WHITE LEAD.
ANTI-CORROSION PAINT.
LINSEED OIL PUTTY.

FINE OAK VARNISH.
" " CARRIAGE.
PATENT DRYERS.

LINSEED OIL.
BOILED OIL.
TURPENTINE.

Lead in Sheets or Cut to Sizes, Lead Pipe, Lift Pumps, Water Closets, and Plumbers' Brass Work of every description.

GENUINE AGRICULTURAL SEEDS.
CATALOGUE now ready, post free.
JAMES VEITCH,
Royal Exotic Nursery, King's Road, Chelsea, S.W.

CARTER'S GARDENER'S VADE-MECUM is now ready.

Notice.

PURCHASERS of LARGE QUANTITIES of FARM or GARDEN SEEDS will be supplied liberally by SUTTON & SONS. For prices apply (stating quantity required) to SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Notice to Purchasers of Seeds.

SUTTON AND SONS having received several Orders for GARDEN SEEDS without the SIGNATURE or ADDRESS of the Sender, they fear inconvenience will be caused thereby, as they cannot possibly ascertain to whom the goods should be sent. As these omissions occur more or less every year, Messrs. SUTTON request their friends who do not receive their goods promptly to write without delay. Royal Berkshire Seed Establishment, Reading.

RAYNBIRD, CALDECOTT, AND BAWTREE,
SEED FARMERS and MERCHANTS,
89, Seed Market, Mark Lane: and Basingstoke.
Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

Anemone Seed.

JAMES HOADE begs to offer Seed of the above beautiful Spring Flower, with printed Cultural Directions. In packets, free by post, for 13 stamps.
Addlestone Nursery, Addlestone, Surrey.

American Plants.

AS EXHIBITED IN THE ROYAL HORTICULTURAL GARDENS, KENSINGTON.
WATERER AND GODFREY'S PRICED and DESCRIPTIVE CATALOGUE of RHODODENDRONS and other AMERICAN PLANTS will be forwarded on application. The Catalogue also gives a General Summary of their Stock, which contains probably the most extensive choice of all the Hardy and finest Evergreens and Conifers.
Knap Hill Nursery, Woking, Surrey.

Rhododendrons.

JOHN WATERER begs to announce that his New CATALOGUE of Hardy, Scarlet, and other Choice RHODODENDRONS, as exhibited by him at the Royal Botanic Gardens, Regent's Park, is now published, and can be had on application. It gives faithful descriptions of all the esteemed varieties, as well as a Select List of Hardy CONIFERS, with heights and prices; also the leading kinds of EVERGREENS, ROSES, FOREST TREES, &c.
The American Nursery, Bagshot, Surrey, near Sunningdale Station, South-Western Railway.

HARDY SCARLET RHODODENDRONS.—Upwards of 200 Choice Named Sorts of the most beautiful RHODODENDRONS in cultivation are offered at the low price of 10*l.* per 100, or selected, 30*s.* per dozen, by W. H. ROGERS, Red Lodge Nursery, Southampton.
The Plants are strong, busby, and well rooted, averaging from 1 to 2 feet.

GEO. BAKER AND SON beg to announce they have an extensive collection of the best hardy RHODODENDRONS in cultivation, fine healthy plants, at very moderate charges. Also a large collection of general NURSERY STOCK. Prices on application.
American Nurseries, Bagshot, Surrey, about 1 mile from Sunningdale Station, South-Western Railway.

Lilium auratum—The Golden-Rayed Japan Lily.

E. G. HENDERSON AND SON having imported between 2000 and 3000 bulbs of the above-named Superb LILY, offer them in good roots, from 5*s* and upwards each. For description see E. G. H. & Son's SEED CATALOGUE, which will be sent post free on application.
Wellington Nursery, St. John's Wood, London, N.W.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
*** Part II. (Exotic Ferns) will be issued as early as possible.
Foot's Cray Nursery, S.E.

Beck's New Pelargoniums.

B. S. WILLIAMS has much pleasure in stating that he is now distributing strong Plants of New and Choice Varieties for this season. DESCRIPTIVE CATALOGUE, post free on application.
Paradise and Victoria Nurseries, Holloway, London, N.

First-class New Seeds.

CARRIAGE FREE AT MARKET PRICES.
J. SCOTT'S DESCRIPTIVE CATALOGUE and PRICED LIST of the above are well worthy the notice of purchasers, post free.
GLADIOLUS, best HYBRIDS of GANDAVENSIS, at 6*s.*, 9*s.*, and 12*s.* per dozen. Descriptive List sent post free.
Merriott Nurseries and Seed Stores, Yeovil, Somerset.

Russell's Pyramid Primulas.

GEO. CLARKE is now prepared to send out in packets, price 2*s.* 6*d.* each, this, the finest breed of PRIMULAS in cultivation. The Seed now for sale has been saved from selected plants, so that it is believed the produce will be even superior to that of former years.
Printed instructions for raising and growing the plants sent with each packet. Stamps received in payment.
Nursery, Streatham Place, Brixton Hill, London, S.

To the Trade.—Golden Chain Geranium.

WILLIAM HUSSEY begs to offer the above, fine healthy Plants, struck last spring, which have been topped, and have now several shoots on each, at 25*s.* per 100 or £10 per 1000. Also several thousands struck in August last in store pots (not topped), which could be shaken out and packed in a very small compass, at 16*s.* per 100.
Mile End Nursery, Eaton, Norwich.

J. IVERY AND SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

CALCEOLARIA AMBASSADOR (SANG's). — Strong Plants in single Pots of this magnificent Bedding-out CALCEOLARIA will be ready in April. Price 12*s.* per dozen. Early orders will oblige. The Trade supplied on the usual terms.
EDWARD SANG & SONS, Nurserymen and Seed Merchants, Kirkcaldy, N.B.

ARAUCARIA IMBRICATA.—Splendid Specimens of the above, stout, vigorous, well-shaped, of good colour, and finely rooted, can be supplied in any quantity at greatly reduced prices, in sizes from 3 to 8 feet. A large stock to select from.
MAURICE YOUNG, Milford Nurseries, near Godalming, Surrey.

Verbenas.—Surplus Stock.

JAMES HOLDER can supply strong Plants of the above, in 30 sorts, including the most distinct colours, viz., Scarlet, White, Purple, Pink, and Crimson, at 20*s.* per 100, hamper included, or 50 plants for 10*s.* 6*d.*
Crown Nursery, Reading, Berks.

PETER S. ROBERTSON AND CO.'S SOWER'S GUIDE, containing a fully Descriptive and Priced List of their new and select stock of SEEDS suitable for all GARDEN and AGRICULTURAL purposes, with many useful Hints as to Culture, will be forwarded post free on receipt of six stamps.
33, St. Andrew Square, and Trinity Nursery, Edinburgh.

Seedling Roses.

WM. PAUL (Son and Successor to the late A. PAUL) begs to offer the following FIRST-CLASS NEW HYBRID PERPETUAL ROSES, at present exclusively in his possession, and which are specially recommended. Good plants will be ready for delivery in May next.

ELIZABETH VIGNERON.—Flowers fine rosy pink, very large and full, in the style of Lælia, but fuller, fresher, and brighter in colour than that superb variety; form perfectly finished, constitution hardy, growth vigorous. Price 7*s.* 6*d.* each.

GLORY of WALTHAM.—Flowers resplendent crimson, very large and full, a seedling from Leveson Gower, larger, brighter, darker, and of better form than the parent. A superb Rose, of hardy vigorous growth, producing shoots 6 feet long in one season, and of the thickness of the little finger. Price 7*s.* 6*d.* each.

MADAME EMILE BOYAU.—Flowers soft rosy flesh colour, changing to blush, of a pleasing colour, sufficiently large, perfect in form, moderate in growth, hardy in constitution, good and distinct. Price 5*s.* each.

PRINCE DE JOINVILLE.—Flowers light crimson, a fine large showy Rose, of vigorous and hardy habit, quickly forming a highly decorative bush, standard, or pillar Rose, of great beauty. Price 5*s.* each.

PRINCESS LICHTENSTEIN.—Flowers white, globular, large and full. A good hardy white Rose, of compact growth, flowering abundantly. Price 5*s.* each.

The best of the NEW FRENCH ROSES, 36*s.* to 42*s.* per dozen. Last year's kinds, 24*s.* to 30*s.* per dozen. Older kinds, 9*s.* to 18*s.* per dozen.

WILLIAM PAUL, Waltham Cross, London, N.

New Roses for 1865.

JOHN KEYNES, Castle Street Nursery, Salisbury, has much pleasure in offering several thousands of extra strong Plants in pots of the above. Plants will be ready for delivery about the third week in March.
A DESCRIPTIVE LIST is now ready, and will be forwarded on application.

New Roses of 1865.

PAUL AND SON will have their usual fine plants of the NOVELTIES of the YEAR ready in March at reasonable prices.
PRICED LIST—the description mostly the result of personal observation, now ready.
"Old" Cheshunt Nurseries, Cheshunt, N.

New Roses of 1865.

JOHN FRASER, of the Lea Bridge Road Nurseries, N.E., begs to announce that his LIST of NEW ROSES for 1865 may be had on application. The varieties offered have been selected with great care, and may be depended upon as being the best.
Price 36*s.* per dozen. The usual discount to the Trade.
The Plants are healthy and vigorous.

New Roses of 1865.

BENJAMIN R. CANT offers 30 varieties, the pick of the year, at 36*s.* per dozen. The plants are first-rate.
A DESCRIPTIVE LIST will be forwarded on application.
St. John's Street Nursery, Colchester.
N.B. The usual discount to the Trade.

New Roses for 1865, and Gladioli.

EUGENE VERDIER, FILS AINÉ, NURSERYMAN, 3, Rue Dunois, Paris, will shortly Publish his CATALOGUE, containing 96 New ROSES, and names of GLADIOLI disposable for this spring.
The Catalogue can be obtained upon prepaid application, direct from E. V., as above; or of his Agents, Messrs. Betham & Blackith, Cox's Quay, Lower Thames Street, London, E.C.

NEW ROSE (Tea-scented) MARECHAL NIEL.—This magnificent Yellow Rose, faithfully portrayed in the Journal "L'Horticulteur Francais," continues, notwithstanding the criticisms, to be given GRATIS to each purchaser of not less than 20 of the New Roses for 1865, otherwise this variety will be sold at 4*s.* per plant.
Direct from EUGENE VERDIER, Fils aîné, Nurseryman, 3, Rue Dunois, Paris. Orders also received by his Agents, Messrs. Betham & Blackith, Cox's Quay, Lower Thames Street, London, E.C.

Roses.

H. LANE AND SON have to offer an immense collection of ROSES (consisting of 7 Acres in one piece) of all the popular sorts; very healthy, strong, and well grown.
CATALOGUES of the above, also of RHODODENDRONS, CONIFERS, TREES, and SHRUBS, FRUIT TREES, VINES, PEACHES, NECTARINES, &c., in Pots, may be had upon application at the Nurseries, Great Berkhampstead, Herts.

Shrubs, Roses, Fruit Trees, &c.

WM. CUTBUSH AND SON'S GENERAL NURSERY STOCK is the best near London.
GLADIOLI, fine, from 4*s.*, 6*s.*, 9*s.*, & 12*s.* per dozen.
CATALOGUES on application.
Highgate Nurseries, London, N.

JOHN HOLLAND begs to intimate to his friends and patrons that he has taken into Partnership his Son-in-Law Mr. FREDERICK JONES. That the Business will in future be continued by the Firm of HOLLAND & JONES, Bradshaw Gardens, Chadderton, near Manchester.

CATALOGUES of FLORIST FLOWERS, ROSES, FRUIT TREES, &c., on application.

HOLLAND AND JONES have ready for delivery a large and Choice Collection of
CARNATIONS, fine first-class show varieties, 9*s.* to 18*s.* per doz. pairs.
PICOTEES, " " " 9*s.* to 18*s.* " "
YELLOW GROUND PICOTEES, the largest collection in Europe, 9*s.* to 18*s.* per dozen pairs.
BORDER CARNATIONS and PICOTEES, 6*s.* per dozen pairs.
PANSIES, good varieties, 4*s.* to 6*s.* per dozen plants.
The Heaviest LANCASHIRE SHOW GOOSEBERRY TREES, 3 and 4 years old, 4*s.* to 6*s.* per dozen.
A remittance required from unknown correspondents.

EARLY SPRING FLOWERS, largest Stock in England and greatest variety.—WEBB's Giant Polyanthus and Giant Cowslip, Cowslip from the Himalayas, Golden Chain Polyanthus, Florist Flower Polyanthus, American Primrose, Scarlet Primrose, Gentianella, Double Crimson Primrose, ditto Yellow ditto, ditto Purple ditto, ditto Rose ditto, ditto White ditto, ditto Lilac ditto, Double Pansy, ditto Negro Polyanthus, ditto Golden Chain ditto, ditto Pink Hepatica, Single Blue ditto, ditto White Violets, ditto Purple ditto. Seed of the above Polyanthus and Cowslip. LIST on application to Mr. WEBB, Calcot Gardens, Reading.

New Seed Business.

DRUMMOND BROTHERS
(SONS OF MR. PETER DRUMMOND, OF STIRLING, N.B.),
Beg to intimate that in September last they opened commodious premises at the undernoted address, where they purpose carrying on the RETAIL SEED BUSINESS in all its branches.
They are now prepared to execute orders for VEGETABLE and FLOWER SEEDS, and as their stocks have been selected with the greatest care, they respectfully solicit a share of the trade of the country. Regarding free delivery, see Catalogues.
A PRICED and DESCRIPTIVE LIST of GARDEN SEEDS, &c., will be sent upon application.
DRUMMOND BROTHERS, Seedsmen and Nurserymen, 52, George Street, Edinburgh.

Extension of Time from March 1 to April 1

FOR APPLICATION OF SPACE AT

GRAND INTERNATIONAL HORTICULTURAL, AGRICULTURAL, and INDUSTRIAL EXHIBITION, to be held at NICE, ALPES MARITIMES, April 2[illegible], 1865.
The PRIZES for the HORTICULTURAL Fêtes of these Grand Fêtes alone consist of upwards of 200 LARGE GOLD, SILVER-GILT, and SILVER MEDALS of considerable value, besides
TWO GRAND GOLD MEDALS of the EMPEROR
ONE GRAND GOLD MEDAL of the EMPRESS
GOLD MEDAL of HONOUR for the Ladies of Nice.
GOLD MEDAL of the Minister of Agriculture
PRIZE of the Grand Duchess Hélène of Russia.
PRIZE of His Royal Highness the Prince of Leiningen
PRIZE of His Royal Highness Prince Oscar of Sweden, &c.
Together with the prospect of distinguished personal Honours, understood to be conferred on the most meritorious Exhibitors.
English Nurserymen and Gardeners are specially invited to compete for the Prizes, and as an inducement the expenses of transport of all articles for exhibition to and from Nice will be borne by the municipal authorities.
A responsible party will be appointed in London to take charge of all perishable Fruits, convey them to Nice, and return them for exhibition.
The Programme includes 92 Classes, and Supplemental Medals are at the disposal of the Judges.
Schedules of the Prizes, Forms of Application, with all other information, may be had on demand of E. SHEARD, Esq., 10, Southampton Street, Holborn, President of the Section of Horticulture.

LEEDS HORTICULTURAL SOCIETY.
SECOND YEAR.—£[illegible] in PRIZES.
GREAT FLORAL FÊTE and GRAND GALA, [illegible] splendid Marquees, commencing June 8, 1865. [illegible] Prizes for Collections of Stove and Greenhouse Plants, Orchids, Azaleas, Ferns, Pelargoniums, Heaths, &c. In Cut Flowers, Roses, Verbenas, Pansies, and Tulips; also Cut Fruit, and Fruit Trees in pots.
Schedules and Forms of Entry are now Ready, and may be had of JAMES BIRBECK, Secretary.
Shakespere Street, Burmantofts, Leeds.
Note.—The Railway Companies will convey plants, &c., free one way.

FLORAL and HORTICULTURAL FÊTE, to be held at PETERBOROUGH, in connection with the NORTHAMPTONSHIRE AGRICULTURAL SOCIETY'S ANNUAL SHOW, on THURSDAY, July 6. Premiums amounting to more than 200*l.* will be offered for competition. Open to all England. Prizes to be paid on the day of Exhibition.

COMMITTEE

Rev. Wm. Strong	W. Paley, Esq., M.D.	Messrs. Amies & Barford
The Very Rev. the Dean	T. Walker, Esq., M.D.	Mr. E. Vergette
Rev. Wm. Cape	H. Porter, Esq., M.D.	" H. Elsey
Rev. C. Daymond	S. C. W. Buckle, Esq.	" J. S. Clarke
C. L. Strong, Esq.	G. Wyman, Esq.	" John Thompson
H. H. English, Esq.	Mr. W. Rowell	" John Fox
H. P. Gates, Esq.	" W. Wyman	" Wm. Thompson
A. Percival, Esq.	" F. G. Buckle	" John House
	" W. Vergette	

The Schedule and Rules may be obtained of the Secretary, Mr. JOHN FOX, 14, Narrow Street, Peterborough.

LADIES' PRIZES for INDOOR GARDENING.—The PROPRIETORS of the GARDENERS' CHRONICLE again offer, as announced last year, TWO PRIZES of 10*l.* each for the best examples of INDOOR PLANT CULTURE exhibited at the Show of Table Decorations, which will take place in the Garden of the Royal Horticultural Society, at South Kensington, on JUNE 24.
One Prize will be given for the Best Orchid in Bloom, grown and flowered in a room.
One Prize will be given for the Best Flowering Plant or Foliage Plant of any kind, grown in a room.
The Competition is to take place amongst LADIES ONLY.
The Prizes are offered for the best specimen plants, examples of refined indoor cultivation; they must therefore have been in the exclusive care for at least six weeks previous to the Show and exhibition, during which period they must have been under the management of the Exhibitors themselves.
The Plants are to be such as are suitable for drawing-room decoration.
The Plants may be grown in pots, or boxes, or baskets, or aquaria, or in any other convenient and suitable contrivance.
Notice of the intention to exhibit must be sent to the Garden Superintendent at South Kensington not later than June 10, in order that accommodation may be provided. The Plants must be sent in by 9 A.M. on June 24, and be ready for adjudication by 11 A.M.

The Gardeners' Chronicle.

SATURDAY, MARCH 11, 1865.

MEETINGS FOR THE ENSUING WEEK.

THURSDAY, March 16—Linnean .. .. 8 P.M.
SATURDAY, — 18 { Royal Horticultural (Weekly Show), at South Kensington .. .. .. 2 P.M.
{ Royal Botanic (Spring Exhibition).

IT must have been very gratifying to those who have at heart the advancement of Gardening interests, to have witnessed at South Kensington, on Tuesday last, the revival of a series of HORTICULTURAL MEETINGS similar to those which the Horticultural Society used formerly to hold with so much *éclat* in Regent Street; to have listened to the explanations of the Chairman, Mr. WILSON SAUNDERS, in respect to these and the other agencies through which the governing body there has determined to aid in the advancement of legitimate horticulture; and to have seen the display which a proper sympathy with an object like this was the means of bringing out. We are glad to have so unmistakeable a cause of gratulation, and we trust that such sights and such feelings may be encouraged to the uttermost on all sides, so that amity may once more prevail, for verily we have had enough and more than enough of contention and discord. Indeed, we but give expression to a very general opinion when we say that it is of vital importance to the Society itself, that harmony should be speedily re-established.

These scientific meetings—for this is to be their distinctive title—are to take place on alternate Tuesdays throughout the year, with some few omissions, as when these days happen to fall inconveniently, and during the vacation months of August, September, and October. The new plants, flowers and fruits submitted for the judgment of the Floral and Fruit Committees will form the basis of the exhibition, the meetings of these Committees being moreover continued on the Tuesdays throughout the vacation months just mentioned. Papers are to be read, short lectures given, and our worthy coadjutor, the Rev. M. J. BERKELEY,

who has been appointed Botanical Referee to the Society, will give a brief account of the more interesting of the subjects displayed.

We would urge upon the raisers, introducers, and exhibitors of new plants, flowers, and fruits, that they should heartily support this movement, which is entirely in the right direction; and we hope that exhibitors generally may also lend their aid by bringing forward from time to time some of their choice specimen plants. Indeed, if they would but be guided by our advice, the authorities themselves would take some direct steps towards securing the presence of a proportion of these latter. Were they only to place a few small medals at the disposal of the working Committees for this special purpose, we have faith that the object would be realised.

We received a short time since some plants of Verbena which had suffered from a mysterious disease, but which arrived in such a dry state that we could say very little that was satisfactory about them. It has, however, from local circumstances, so happened that we have been able to examine the plants while growing, and we found that it was not only Verbenas which suffered, but Petunias, Fuchsias, Deutzias, and, we believe, in other establishments Lobelias, from a similar affection.

The roots were perfectly healthy, and so were the plants apparently in the first instance, though a few had been spotted by thrips, but the appearance was totally different where the insects had been at work. In process of time, however, little dark purple or blackish specks are formed at the tips of the shoots, extending more or less down the stem. The young leaves become thickened and deformed, the parenchym is developed in unusual abundance, the leafstalk becomes brittle, the affected parts wither, and either the whole plant becomes unhealthy or perishes altogether. In some cases the specks first occur on the stem, and occasionally the leaves thicken without much discoloration. There was no mould whatever about the plants, and no fungous matter in the soil, though the leaf-mould which formed part of the compost was scarcely so much decomposed as might be wished.

The loss of plants last year was considerable, and matters at present do not look very promising. The point of course is to suggest, if possible, some practical remedy.

Now, it has been ascertained beyond the possibility of doubt that disease is either induced, or there is a predisposition for pernicious affections, where great and sudden changes of temperature and atmosphere take place in the course of growth, or where forcing is carried beyond due bounds. It is believed that one or more forms of Orchid disease* arise or at least are encouraged by similar treatment, and it is pretty well ascertained that rust in Grapes and some other affections arise from sudden draughts of cold air in highly heated houses.

Now, in the garden in question the cuttings were struck in a far warmer house than they occupied when established, and we are inclined to think that it is to this cause mainly that the affection is due. A quantity of Verbena cuttings which had been struck with nothing more than the shelter of a common conservatory, seemed everything that could be wished, in the same house where the disease was prevalent. We have suggested therefore that a careful comparison should be made between the two modes of treatment, and we are sanguine as to the results. It is we believe no uncommon affection, though we have had no opportunity of studying it before, except in withered specimens transmitted by post; and as so much depends in every garden now upon raising multitudes of bedding-plants, the subject is one of general importance.

While on the subject of disease, we cannot help again cautioning gardeners against the introduction of artificial manures with whose composition they are wholly unacquainted. We have, for example, heard of one which consists in very great measure of sulphate of iron, a substance which, though possibly useful in minute doses in chlorotic affections or to vegetation in general, is extremely prejudicial to plants when in excess, but has the merit, as regards the view of the manufacturer, of giving colour when exposed to the air, and weight to the sample, two matters of great importance where the eye of the buyer is to be captivated; and it is necessary, to avoid the expense of carriage, to hold out great concentration as an inducement to the purchaser. Now such a manure would, we conceive, be injurious in many cases; and the same might be said perhaps of some other compositions for which the public pays a great price in proportion to their real productive value.* A rough analysis, quite sufficient for all practical purposes, may be had for a small sum; and if artificial manure is to be used on a large scale, the guinea or two guineas which it costs is money well laid out, especially as in some cases the real value of the manure is scarcely a sixth of the market price. It is perhaps worth inquiring whether in some cases mischief is not done by some of the remedies against thrips and mildew, which, though quite innocent so long as they are confined to the leaves, may not be so when absorbed by the roots from the soil on which they have fallen. Sulphur is perhaps the least likely to be injurious, as it is insoluble in water. There is so much empiricism in the application of some of the vaunted remedies, even those which enjoy deservedly a high reputation when employed judiciously, that we can well conceive permanent injury occasionally to be caused, where the source is not at all suspected. *M. J. B.*

* We take this opportunity of stating that in our Leading Article, March 4, Mr. Warner's case of spot should have been compared with Mr. Anderson's No. 3 instead of No. 2.

* A very respectable dealer in artificial manures has told us he had one analysed by Nesbitt, and it was found that the real value was 35*s.* a ton, when the selling price was 13*l.*

—— We invite attention to the Floral Decoration Show which is to take place in the Gardens of the Royal Horticultural Society, on the 24th of June—the day on which the Prizes for Ladies' Indoor Gardening are also offered. On this occasion Special Prizes, of the value of 10, 7, and 3 guineas respectively, the gift of Sir Wentworth Dilke, Bart., will be awarded for the most tastefully Decorated Dinner Tables. Beautiful arrangement of the fruit, flowers, and china will be the test of merit, so that valuable fruit or flowers or china will not be required, neither is it necessary that the flowers or fruit should be grown by the exhibitor. Ladies are invited to join in the competition. Each exhibition is to be shown on a separate table, laid as if for a dinner "*à la Russe*" of 10 persons. The competitors may use such china, glass, metal, or other ornaments as they please; may or may not combine fruit and flowers together; may use Sèvres, Chelsea, Worcester, Dresden, Staffordshire, or any other china for their plates; may use coloured or white glasses, or both; may use coloured or plain damask: may, in short, study their own tastes. The prizes are to be awarded by a jury of ladies, assisted by members of the Royal Academy.

KITCHEN GARDEN PLANTS.—No. I.

The Pea.

In commencing a series of papers on the esculents which find a place in the kitchen garden, I cannot do better than begin with the Pea, which is the most popular vegetable grown. From the garden of the ducal mansion down to that of the humblest cottage, Peas find a place everywhere; they are always welcome at the dinner table, and rarely are they left untouched by any that surround it.

At the outset, I confess to having experienced some difficulty in getting reliable information concerning many of the professedly new kinds. Conditions of soil and climate, together with differences of stock (to use a business designation), have such an important bearing on the trials that have been made of them, that from different localities the reports appear to be conflicting. I intend to give, primarily, the results of my own observation, and to fall back occasionally on the most trustworthy auxiliary information I have been able to obtain.

A slight introductory notice of the new first early Peas of the present season's sending out, may not be out of place. The First Crop of Messrs. Carter & Co., Holborn, London; the Ringleader of Messrs. Sutton & Sons, of Reading; the First and Best Early of Messrs. F. & A. Dickson & Sons, of Chester (already well-known as having sent out Early Favourite, a capital second early Pea); the Express of Mr. E. Carpenter, of Brighton; and the Essex Rival of Mr. T. Eley, of Halstead, Essex, form a batch of five new early varieties claiming public patronage. For the last-named, however, unusual earliness is not claimed—as in the case of the others—as it comes into bearing about the same time as Daniel O'Rourke. All are backed up by testimonials, and the three great desiderata in early Peas, viz., hardiness, productiveness, and earliness, are claimed for each of them. I imagine they will be found to bear more or less of the characters of Dillistone's Early Prolific, or Sangster's No. 1, and if only one of them should be found to combine the vigour and productiveness of the last with the earliness of the first, it will be a welcome addition to the early Peas. It will be an interesting study to test them, though an inevitable resemblance there must be between them. Earliness will be the prime test of superiority, and yet what this season establishes the next may undo. They will no doubt be tried in several localities; indeed, thus alone can their merits be satisfactorily determined; and it is to be hoped that the utmost publicity will be given in your columns to the results of any trials that may be made.

Dillistone's Early Prolific is now generally admitted to be the "earliest Pea in cultivation." By some it is said to be from two to four, by others eight to ten days earlier than Sangster's No. 1, or Daniel O'Rourke. It grows about two feet in height, pods only at the top of the haulm, and yields but one gathering. It is only under the most favourable circumstances that a second gathering can be taken from it. In cold and exposed situations, and on cold clayey soils, it is very probable Sangster's No. 1 would come into bearing before it. This variety, and its synonym Daniel O'Rourke, which is but a selection from it, are the most generally grown as first early Peas. The acreage of land devoted to the production of this well-known kind for the market (I speak of them as being identical), is something almost fabulous. It is invariably grown by contract, and the largest houses send down persons to "rogue" them as it is termed, previous to harvesting the crop. As they also supply, generally, their own "stocks" for sowing, the most careful selections are annually or biennially made, but when subjected to field culture the plants frequently develop a rapid tendency to deteriorate. Light sandy soils in eligible situations, where it is possible to obtain them, are generally employed for the Pea harvest.

In raising early Peas for kitchen garden purposes, it has been recommended to sow in long narrow boxes, or half circular drain tiles, about the middle of March, the Peas being raised in heat and allowed to remain till they attain the height of about six inches. The boxes should then be placed in a cold frame, or on a sheltered spot, round which could be placed some mats or hurdles lined with straw, exposing the plants gradually as much as may be possible; and when hardened sufficiently transplanting them to the open ground, and planting them thinly. These successive removals check luxuriance of growth; thin planting also increases the vigour of the plants, and under favourable conditions Peas have been gathered on the 1st of June, and even earlier.

Sangster's No. 1, has, by a process of selection which many of the leading kinds of Peas have to undergo, appeared under the synonyms of Sebastopol, Carter's Earliest, Veitch's First Early, Sutton's Champion, &c.

Early Waterloo, Charlton, Hotspur, Prince Albert, Early Kent, or May, and others, are only various designations given to an old single-blossomed Pea that is now scarcely to be met with in its original form. As it only produced one pod on a stalk it soon gave way to the Old Double-blossomed Frame or Early Warwick, a variety that ranks next in earliness to Sangster's No. 1, though I have known instances of the true type of the Old Ringwood Marrow, now somewhat difficult to be obtained, having preceded it in bearing. The Early Warwick is, however, generally recognised as ranking next in point of earliness to Sangster's No. 1. The Early Emperor, Morning Star, or Conqueror, is two or three days later than the Double-blossomed Frame, and has smaller pods. The twain have become almost identical, and can rarely be met with purely distinct.

An old and very dwarf Pea known as Beck's Early Gem, Tom Thumb, Pois Nain Hâtif, &c., growing about one foot in height, ranks next in the order of turning in, and has also long been used for forcing purposes. Thanks, however, to the indefatigable exertions of Dr. Maclean, of Colchester, this Pea is now superseded by a very prolific and dwarf early wrinkled Marrow named Little Gem, sent out a year or two ago by Mr. Turner, of Slough. It is, if anything, dwarfer than Beck's Gem; the pods are well filled and hang very thickly on the haulm; the flavour is far in advance of anything bearing before it, and it is said to force remarkably well. I hope it has corresponding hardihood in conjunction with its other good qualities. When I saw it growing by the side of Beck's Gem last summer it was in a very sheltered position. The latter seems very difficult to keep true, as it betrays a strong tendency to "sport" into taller growth; but Little Gem is quite "constant," as the florists say, in this respect, and this will be an additional point in its favour. *Quo.*

THE SMALL BIRD QUESTION.

Some time in 1863 (see p. 1061) you inserted some remarks of mine on the habits and peculiarities of small birds, and I then proposed to relate, as opportunities offered, my experience of the usefulness or destructiveness of the birds which frequent cultivated land. I was glad at that time to be able to say a word in praise of that very handsome and useful bird, the starling. I should be equally glad to be in a position to offer favourable testimony as to the utility of that busy and well-known bird, the House Sparrow; but as a conscientious witness I am unable to do so. The sparrow has so closely associated itself with civilised man that it can scarcely be regarded as a wild bird. Any one travelling through wild tracts of wood-land, heath, or plain, may find some finches; or in the depths of the loneliest wood a robin will twitter its welcome, or an inquisitive little wren utter its shrill note of alarm and surprise; but the sparrow will make no sign. The sparrow is the constant attendant of man whenever he tills the land and grows corn, and as soon as the land is broken up and a farmstead reared, a company of the great sparrow army will be almost certain to be quartered upon the farmer.

In a state of Nature, and feeding upon the seeds of wild plants, which we may presume overgrew and choked the ground before man came upon the scene, the sparrow must have been a respectable and useful bird. I grieve when I contemplate his present habits to see how much he has fallen from that state of innocence. His tastes are now for luxuries; he takes tithe from every farmer; Wheat, Oats, Barley, are equally to his taste. As soon as the grain is formed in the ear he assembles his companions to feed on the tender corn. He attends the harvesting of the corn with undiminished appetite, he follows it to the stack yard, and takes up his quarters in the straw, nibbling at every exposed ear of Wheat about the stack. A flock of sparrows numbering several hundreds may be found about most farmsteads, and the subsistence of the birds composing it is grain or seed filched from the farmer, whose stock of poultry suffers by the robbery, and who is obliged to make up for the deficiency by feeding the fowls with marketable corn. Having followed the sparrow through the farm, where examples of his depredations are common, and instances of his usefulness rare, I will next accompany him to the garden, for the products of which he has also a penchant.

During the winter season, when the titmouse is busy in the pursuit of insects, and the thrush is hunting out snails from their hiding places, and the starling busy on the ground in pursuit of grubs, the sparrow remains about farm-yards and stables, but as soon as the earliest sown Peas appear above ground the sparrow commences his course of destructiveness by devouring the tender shoots. In country villages the farmers and cottagers are often deprived of the luxury of green Peas by the mischievous sparrow. From the time of the first appearance of the Peas until their full development in the garden in my charge, the sparrow is an occasional visitor, but when the pods appear on the Pea-haulms, the sparrow remains with me, and no opportunity is lost of feeding on the coveted food; and as the young birds appear they are conducted to the Pea quarters, and soon taught to enjoy a dish of early Emperors.

From this sketch of the present habits of the sparrow it will be seen that it has given up its wild ways, and attached itself to the fortunes of man, and is dependent upon him for support. I maintain, then, that the advocates for the preservation of small birds should except the sparrow from their list of pets, and allow its destruction. I do not mean extermination—all birds are more or less useful kept in due proportion; but as we have disturbed the arrangements of nature, it devolves upon us to devise means of maintaining a just balance, with a view of securing the happiness of birds as well as our own convenience. The rule has been that all birds which interfere with the pursuits of the sportsman—the hawk, the owl, the raven, the magpie—should be shot without mercy. The tendency of the recent outcry about small birds is to preserve indiscriminately the small feathered pests of the farm, which have unduly increased, owing to the absence of their natural enemies.

It has been urged that sparrows destroy caterpillars. In summing up the character of the sparrow I am sorry I cannot give it much credit in that respect. Sparrows' tastes may vary; it is very possible that sparrows located in towns, and eating seasoned food, resort occasionally to the hedges for that which is less sophisticated, but the sparrow of my acquaintance prefers the food his hard bill and powerful gizzard can best deal with, and caterpillars suffer but slightly from his attack. *William Ingram, Belvoir.*

Home Correspondence.

Spot in Orchids.—I have seen and heard much of this disease, both in Orchids and in other plants. About seven years ago I was in the neighbourhood of Manchester, where I had the charge of a collection of Orchids. Some time after being there, I had a cutting of Nepenthes sent me. I struck it under a bell-glass; then a larger bell-glass was procured, under which it was grown until it had become established. It succeeded satisfactorily until summer had fairly set in, when, after a very hot day or two, the plant began to form small granules, which on young leaves appeared quite on the surface, leaving the leaves in reality in good health, while in the case of more matured foliage they could not work through the skin; a little discoloured ring, however formed round them. I placed a thermometer under the bell-glass, and found that on very hot days the excitement had been too great for healthy development. I kept the thermometer under the glass, and took care to give air when required. The discoloured rings soon became pale brown spots, and did not increase in size. I had two good plants of Phalænopsis grandiflora, one of which threw out several offsets at different times. As soon as two leaves were produced, the young plants were taken off and placed under a bell-glass, where they soon made themselves quite at home; these also threw out granules in the same way as the Nepenthes, but they were rather more watery and transparent. Most of them worked out through the cuticle, and where they could not get through, they were assisted to do so until no spots were left. Four years ago I left the plants in question in good health. I afterwards called at a large establishment where Orchids are grown extensively, and I was delighted with the general appearance of the collection. At one end of the East Indian house were, however, some fine specimens of Phalænopsis, and among them was a valuable plant of amabilis on a block; seeing that it had been sulphured, I asked what it was for, as the plant appeared in excellent health. My informant did not know what disease it was affected with, but thought that it was damp in a certain stage. Some time after I saw the plant again; in spite of all that had been done to it, it was quite a mass of putrefaction. In the year 1863 I called at the same establishment again, and all was well then; in 1864 another plant of P. amabilis was seized in the same way, in this instance the affection being confined to one of the under leaves. The spot was large and quite putrid. I looked well into it, and I perceived that it consisted of two spots, one much more putrid than the other. In the latter I observed a small discoloured granule, which I set down as the cause of the evil, the putrefaction being the work of a Fungus; sulphur was freely applied and the wound dried up. In the autumn I bought several Orchids. Among them were two of Phalænopsis grandiflora, and one of amabilis; the latter soon showed granules in one of the matured leaves. I picked them out as they appeared, and the plant looked all right up to December 24, when I had to leave home for a week or two. On my return I found the young centre leaf so badly affected that I pulled it out, and an older leaf had a large putrid spot in it, which I cut out. Another leaf fell off, and my plant is now a stump. I called at the Nursery in question last week, and saw the Phalænopsis amabilis which was affected with spot last summer, and had been cured by the application of sulphur. The spot had not increased, and the other leaves on the plant looked to be as healthy as any one could wish. I brought the plant away with me; I have watched it daily, and the leaf has shown no further symptoms of decay. This morning I inspected it again, and I remarked a small black spot on a newly made leaf. Being somewhat prominent I thought it might perhaps be rubbed off. On passing my nail over it, however, I found that it was rather puffy, and that there was a dent in the leaf. I therefore cut out the piece affected, and removed the leaf whose wound had been dried up with sulphur. This plant is growing on a piece of deal, and was fixed in a pot of good open material, into which the roots had freely entered. On examining the wood I found Fungus on it, which had attacked the roots. I should have said that my plant which is now a stump, was also on a block when I bought it. I find that its roots have the same sort of Fungus on them as the others, although the plant has been in a pot since I have had it, without the block. I am of opinion that the first cause of spot is a low temperature, too suddenly increased, thereby producing eruptions, together with a sudden rush of cold air when the plants are over excited, thus checking the rapid circulation of 'sap;' small granules are then formed, making way for any "Fungus" that might be partial to such a spot. *W. Craggs.* [Your Phalænopsis amabilis has either a very exaggerated form of the second variety of spot alluded to in Mr. Anderson's paper, or a distinct and more virulent disease. We can see no Fungus, but there are some curious brown bodies in the leaf which require further examination. The black speck is no form of it, but probably a condition of Anderson's third variety. The affection of the roots is very curious, but not produced by a Fungus. *M. J. B.*]

Black Alicante Grape.—Your Correspondent "T. R." states that I seem not to be acquainted with the history of this Grape, yet he confirms everything I have stated respecting it. In your Paper for the year 1862, p. 1197, I mentioned that it was identical with the Black Morocco: a statement which "T. R." confirms. I also stated that it first received the name of Kempsey Alicante at one of the meetings of the Pomological Society—this too "T. R." confirms; and I moreover remarked that it was a very old variety—this your Correspondent likewise confirms; and more than that, I saw the Grapes growing on the Vines previous to their being sent to the meeting just mentioned. Having seen the Alicante growing at Kempsey, under the skilful management of Mr. Cox, and being personally acquainted with Mr. C., I here take the liberty of quoting his own words respecting the setting of this Grape. "The right way is," he said, "to keep a dry warm atmosphere, with a free circulation of air, while setting is going on; and to gently shake the Vines, or what is still better, to draw the hand lightly down the bunches two or three times a day during the time they are in bloom. By this means I have grown," he said, "yearly heavy crops of well-formed and thickly-set bunches of this truly useful Grape." Mr. Cox made no use of pollen from other varieties. I believe that by grafting it on the Black Hamburgh it sets much more freely than on its own roots. Mr. Thomson's remarks are correct respecting new varieties of Grapes, and other things, that are constantly being brought under our notice. To avoid old friends with new faces, we have a right to demand every particular respecting them. *Edward Bennett, Osberton Hall, Worksop, Notts.*

Impressions of Plants.—In answer to the inquiry of "One of the Old School" (p. 198), one of the young school begs to inform him that the mode of taking these impressions is thus:—Stretch a piece of white jean or silk on a cushion, and fix the Ferns or other leaves thereon firmly with small pins at every point. Prepare some Indian ink or green or blue paint with as little moisture as possible; dip into it a small brush (a tooth-brush is the most suitable), and brush it lightly on the teeth of a fine dressing-comb over and about the Ferns so fixed. Let them remain till the ink is quite dry, and then remove the pins with care. The impression will be found quite white. The veins should afterwards be marked out with a fine pen in the same colour. *Louisa Jessie Brown, Beech Grove, Tring.*——Having employed some of my leisure time in taking impressions of Fern leaves, &c., with successful results, I offer the subjoined for the information of your correspondent of last week, the which I have gleaned from the "Boy's Own Magazine." The process may be comprised under three heads, namely, exciting the paper, printing it, and fixing it. The materials used are nitrate of silver, hyposulphite of soda, flat camel's hair brush, printing frame, one or two porcelain dishes, and paper, all of which may be obtained of any photographer. First, as regards exciting. Dissolve one drachm of nitrate of silver in two ounces of rain water. When dissolved, pour the solution into a saucer. Pin a piece of paper on a board held horizontally; then with the camel's-hair brush carefully brush this solution on till the paper will imbibe no more; then hang up to dry in a dark room. This process had better be performed by candlelight, as if the paper is exposed to the sunlight or to daylight it will turn black. It will be as well also when the paper is being prepared to mark it in the corner on the prepared side, that it may be better distinguished in the after process. Printing: supposing there is good diffused sunlight, and the glass of the printing frame is cleaned well on both sides, place the object to be copied on the glass face upwards, the excited paper on this face downwards, then the backboard, which must be screwed down tight. The frame may be now carried into the light, and placed facing the full sunlight; care must be taken that no shadow falls on the frame, otherwise it will present streaks. The time of exposure will be about five minutes. As to fixing, when the printing has gone deep enough, take the paper out of the frame, and immerse it in the fixing solution, made by dissolving 3 ounces of hyposulphite of soda in 1 pint of rain water; let it be immersed for about five minutes, then place it in a pail of water for about six hours, changing the water twice or three times, so as to completely wash away every trace of the soda, which, if allowed to remain, would cause the impression to fade completely away. After which, hang up to dry as before. When dry, if the natural tint is required, colour the picture like the original. *R. G. D. Fry, Jun., Manor Nursery, Lee, Kent.*——"One of the Old School" will find that impressions of Ferns or any other leaf may be taken thus: fasten with small pins a previously pressed leaf on white satin jean, so that it lies quite flat; then fill a small brush (tooth-brush) with Indian ink, and with a second brush or comb cause the ink to splash slowly and evenly over the entire surface until it becomes of a dark gray colour. Then take off the leaf, and the part it has protected from the ink will remain white. Groups of leaves can be pinned according to taste. *H. S.*

Hardy Flower-garden Plants.—Would Mr. Robinson oblige by naming and telling us something about the best of the hardy and half-hardy plants which would afford graceful and other very desirable effects in our often uninteresting though gaudy flower-gardens. *A. Keen.*

Restiaceous Plants.—Now-a-days, when "sensationalism" reigns in gardens nearly to the same extent as on the stage, it may seem a needless task to occupy your space in making inquiries as to the existence in cultivation in this country of any species of Restiaceæ—Sedge-like plants for the most part of little beauty, having their head-quarters at the Cape of Good Hope, and in the southern portions of the Australian Continent, though oddly enough, one has been found by Lechler in Chili. Some among these plants are graceful in form and elegant in habit, particularly certain species of Thamnochortus, Calopsis, &c., which would vie, except in size, with the most ornamental of our Grasses. Two different plants, under the same erroneous name of Willdenovia teres, are to be met with in Botanic Gardens in this country and the Continent. Neither of them have any real claim to the name assigned to them in gardens, and published catalogues. The one which, in a recent Number of the Journal of the Linnean Society, I have called Restio subverticillatus, is a tall-growing plant with a cylindrical stem, bearing at intervals on its surface large sheaths of a bright flesh colour, which contrasts well with the dark green of the stem. From these sheaths issue whorls of numerous hair-like, often drooping, branchlets studded with minute needle-like leaves, and bearing sometimes spikelets like the catkins of the Birch in miniature, in terminal panicles. The female plants are not so graceful as the male; the spikelets are not so numerous, and their form is different. The male plant I have seen at Kew and Oxford, and I am indebted to the curator of the Botanic Gardens in the latter place for sending me a fragment of the same species from the garden at Birmingham. The female plant was grown many years ago in the Botanic Garden at Liverpool, as shown by specimens now before me. The other species to which I have alluded is R. ferruginosus of Link, a far less ornamental plant, of straggling habit, and probably valueless to the horticulturist. It is, or was, at Kew, and I have seen it in the Botanic Garden at Berlin, where it was received originally from England. Should any of your readers have in cultivation any

species of this family, I should esteem it a favour if they would kindly forward me fragments of them sufficient for identification. The true Willdenovia teres is a very different plant from the two grown in this country under that name, and is, so far as I know, not to be found in our greenhouses. *Maxwell T. Masters.*

Foreign Correspondence.

Epipogium Gmelini.—Koch in his Synopsis indicates the wide distribution through Germany, of Epipogium—a plant which, when the excellent Genera and Species of Orchidaceous Plants was written, was only known to you from Austria and Siberia. I have it from the Tenteburger Wald, that historically classical spot; and I have it also from various places in Switzerland. I send you the only specimen I ever found in Holstein, where it is exceedingly rare. *F. Mueller, Melbourne.*

Societies.

Royal Horticultural: *March 4 to 6 (Weekly Show).*—Messrs. E. G. Henderson showed on this occasion some interesting varieties of Cyclamen, among which were C. Coum, Atkinsii, and vernum. From Mr. Greaves, Bayswater, came bouquets and one or two baskets of Tulips and other spring flowering plants. Mr. Bull had Dracæna ferrea variegata, two plants of Aralia Sieboldii, two new varieties of Camellia, Cypripedium villosum, and the showy Imantophyllum miniatum. Mr. Harding contributed various plants suitable for table decoration, among which were the white-blossomed Cytisus filipes, Azaleas, and the pretty little white-blossomed Andromeda phillyreæfolia. Mr. Lucking, Westbourne Park, furnished Lilies of the Valley, Fairy Roses, Tulips, Hyacinths, and half-a-dozen bouquets. From Mr. Ingram, Royal Gardens, Frogmore, came various seedling Cinerarias, cut Camellias, Ansellia africana, Amaryllis, and Apples, among which were Frogmore Late Golden Pippin, Rosemary Russet, Scarlet Russet, Court Pendu Plat, Scarlet Nonpareil, and Gipsy King, all in a state of excellent preservation. Mr. Beech sent a spike of Schizostylis coccinea; and Mr. Marcham, gr. to E. Oates, Esq., three seedling Cinerarias, named Favourite, Gem, and Duke of Buccleuch. Messrs. Lee furnished cut Camellias, several varieties of Epacris, and other early-flowering plants. From Mr. Meredith, of Garston, near Liverpool, came very fine bunches of true Black Alicante Grape, plump, black as sloes, and still covered with a beautiful bloom, although they were stated to have been ripe no less than eight months. They were the produce of Vines in pots ripened early in January 1864. Mr. Tillyard contributed three bunches of excellent Muscat of Alexandria Grapes, and one of new Black Hamburgh. From Mr. Bullen, gr. to E. Budd, Esq., came two Queen Pine Apples, and a dish of well-grown forced Seakale.

March 7 (Floral and Fruit Committees).—Of this highly interesting meeting a separate notice will be found in another column. From Mr. Veitch came an extensive collection of valuable plants, among which were various fine varieties of Lycaste Skinneri; the rare and beautiful Phalænopsis Schilleriana; Cœlogyne cristata, one of the most useful of winter-flowering Orchids; Cattleya Pilcheri, an interesting variety, the result of a cross between C. crispa and Lælia Perrinii; and Lælia Lindleyana, a white kind, tipped in the lip with purplish lilac. For this a First-class Certificate was awarded. Mr. Veitch showed moreover a small cream-coloured Angræcum from Madagascar; the deep purple-blossomed Barkeria Skinneri superba; the fine variety of Odontoglossum Pescatorei called splendens, to which a First-class Certificate was awarded; Cattleya Warscewiczii; and Cypripedium lævigatum, a beautiful species from the Philippine Islands, to which was also justly awarded a First-class Certificate. In the same collection were the wax like white Rhododendron Princess Alexandra, a hybrid between R. jasminiflorum and an unnamed species, to which a First-class Certificate was awarded; also Rhododendron Princess Helena, a charming pink-flowered kind, in the way of but different from R. Princess Royal; Magnolia pumila, Cytisus filipes, the crimson Camellia named Roi Leopold, Hyacinths, Tulips, and Narcissi. From Messrs. Low came the rare Dendrobium luteolum noticed by us at p. 269, 1864. To Mr. Sherratt, gr. to J. Bateman, Esq., Knypersley, was awarded a First-class Certificate for a glorious spike of Phalænopsis Schilleriana, with no fewer than 35 large-sized and beautifully coloured flowers on it. From the same collection also came a cut spike covered with coral-coloured fruit of Cotoneaster Simondsii; and an example of the Moulmein Dendrobium hedyosmum, a white-flowered species with an orange-coloured lip. Mr. Todman, of Clapham, had some promising Seedling Azaleas, the best of which were Dr. Lindley and Lord Palmerston, both bright rosy flowers, and the former especially promising. The creamy white-blossomed Nicotiana wigandioides came from Mr. Gibson. A hybrid Sonchus, with gracefully pendent handsome foliage in the way of that of S. laciniatus, was exhibited by Mr. Wilson Saunders, who also showed a little Brasavola, resembling B. nodosa. From Mr. Standish came Corylopsis spicata, described the other day at p. 172; and Camellia Reine des Beautés, a delicate pink sort, of fine form and substance, and the double variety of reticulata, a richly-coloured showy variety. To both of these Camellias, First-class Certificates were awarded. F. J. Graham, Esq., showed again his vigorous growing seedling Russian Violet, named the Czar; and Mr. Bull sent a very interesting group of Aucubas, eight of them being novelties imported by Dr. Von Siebold, to four of which, named macrophylla, fœmina latifolia, mascula elegans, and mascula elegantissima, First-class Certificates were awarded.

Subjects submitted to the inspection of the Fruit Committee were confined to some Apples and Pears from Yorkshire, chiefly for the purpose of being named.

United Horticultural: *March 7.*—W. Marshall, Esq., in the chair. A meeting of this new Society was held in Arundel Street, Strand, on Tuesday evening last, and was tolerably well attended. The importance of forming a Gardeners' Benefit Club in connection with the Society was discussed at some length by Mr. Deal and others, when it was ultimately decided that at present the Society alone should receive attention. The proposed rules for its guidance previously submitted to the members for inspection, were confirmed, and office bearers were elected. A Committee meeting then took place to arrange preliminaries for future operations.

Botanical of Edinburgh: *Feb. 9.*—Prof. Balfour, V.P., in the chair. The following communications were read:—1. *Contributions to the Flora of Otago, New Zealand.* By Dr. Lauder Lindsay. The author gave an account of the collections of plants made by him in the settled districts between Dunedin, the capital of the province of Otago, and the Clutha river. These present a parallelogram of country about 60 miles long by 20 broad. It may be characterised as the lowlands, or district of the plains, in contradistinction to the west coast region, which is that essentially of deep fiords with lofty mountain walls. It consists of a succession of plains and gentle uplands, with few hills of an elevation of more than 1500 feet. Its flora may be said to represent the eastern seaboard, the eastern plains, and, generally, the settled districts of Otago. It differs materially from that of the Western Alps (which rise to 9000 feet) of the central great Lake basins, and of the western fiords, whose flora has, generally speaking, an alpine or sub-alpine character. Among the more characteristic herbaceous plants of the district are species of Olearia, Celmisia, Senecio, Cordyline, &c. The author includes 58 natural orders, 147 genera, and 235 species in his enumeration. He mentioned five new species—Viscum Lindsayi, Celmisia Lindsayi, Poa Lindsayi, Aciphylla Colensoi, and Crepis novæ-zelandica, and exhibited drawings of them. There were also five species which had not been previously found in Otago; 30 were rare in Otago or New Zealand, or exhibited other interesting peculiarities of geographical distribution; 25 species were common to New Zealand and Britain; and 27 were British plants naturalised. Hardy immigrant plants are gradually displacing the more delicate and rarer herbaceous natives of Otago and of New Zealand. In the majority of cases it is to the detriment of the colonist, whose fields or pastures are destroyed by the luxuriant intruders, though in certain exceptional cases, for instance in the pasture Grasses and Clovers, he is decidedly and largely benefited.——2. *Remarks on some Seedling Coniferæ raised from Seeds Ripened in Britain.* By Mr. McNab. For some years past, said Mr. McNab, my attention has been directed to Coniferæ raised from seeds ripened in Britain, and I have now the honour to lay before the Society some observations relative to the few species which have come under my notice, accompanied with a series of living specimens of each variety, showing the various stages of degeneracy, as well as the diversity of forms, which some of them assume. Beginning first with the Abies Douglasii, some of the specimens are taken from the trees originally introduced by the late Mr. David Douglas, the botanical collector; some from seedlings introduced directly from North-West America during the last ten years; and some from plants (18 in number) raised from seed ripened in different districts of Scotland, and now growing in the Botanic Garden. The original trees in the Botanic Garden (introduced by Douglas), as well as those recently raised from seed direct from the American continent, are of a rich dark green colour, having straight clean stems, while the majority of those raised from British ripened seeds have their leaves somewhat shortened, and of a yellowish green tint, with bare undulated stems, and branches more or less covered with resinous warts. Many of the plants raised from home-ripened seeds have a sickly look and a stunted appearance, notwithstanding that many of them had reached the age of from 14 to 15 years. The soil of the Botanic Garden is naturally of a light sandy description, and it may seem curious that the trees of the Douglas Pine of foreign introduction should do so well, while the British seedlings should in so many instances dwindle away. In several counties in Scotland we are informed that fine trees of Douglas Pine are to be seen reared from home-saved seed. Soil, in connection with a more vigorous state of health of the seed-producing trees, may account for the present apparent luxuriance of the offspring. In several instances it has been found that specimen trees (not the original ones introduced by Douglas) are set down as British seedlings, and said to be as vigorous in growth as trees raised from imported seeds. Those who state this are probably not aware that, previous to British seedlings being produced, the Douglas Pine was extensively propagated by layers and cuttings, and these layers and cuttings must now be noble trees: After British seedlings came to be produced freely, no more plants from cuttings were ever heard of. If a degeneracy exists, as I firmly believe it does, it would be well for cultivators to return to the original method of propagation by layers and cuttings, instead of trusting so much to home-saved seed. Several of those trees which produce cones freely are frequently stunted, and at a comparatively early age yield abundance of cones. It is universally acknowledged that in the case of the Scotch Fir and Larch, the healthiest seedlings are those produced by large vigorous trees; and that stunted trees, which often produce cones in great profusion, give rise to an unhealthy offspring. Such must also have been the case with some of the original Douglas Pines, which had been placed in situations not altogether suitable for them, and at an early age became weak. The result is that cones are freely produced; but the offspring, if any, cannot be relied upon. Plants, three or four years old, raised from home-saved seeds of the Douglas Pine, as well as those of the Scotch Fir and Larch, look as healthy as those young plants of the same age raised from imported seeds. The constitutional weakness in the plants raised from British-saved seeds does not show at once, but at various periods between three to fifteen years after germination. Seeds of the Douglas Pine are now being sent home freely, and ought to be eagerly sought after by cultivators. It does not always happen that foreign seeds will produce healthy vigorous trees. Some of those originally sent home by Douglas produced trees which do not assume the gigantic growth nor yet have the fine green tints of vigorous trees. One variety, which was called the Abies Douglasii taxifolia, is of a yellowish green colour, with branches somewhat pendulous, having the stem and branches thickly covered with resinous warts. Although this tree is diminutive when compared with most of those introduced by Douglas, still it has an amount of vigour very different from seedlings raised from British-saved seed. We have in the Botanic Garden one of these pendulous trees reared from a cutting, standing side by side with the green upright form, proving, in this instance, that soil has not so much to do with the change as original constitutional weakness. I also lay before the meeting specimens taken from 12 seedling plants of Abies Menziesii, being part of the offspring of the noble tree now growing in the Keillour Muir Pinetum, Perthshire, the property of William Thomson, Esq., of Balgowan, and which is without exception one of the healthiest and finest trees of the kind in Europe. It was planted by the late Mr. Thomas Bishop, forester, Methven, about the year 1831. The tree grows in a deep, spongy peat soil, where it tillers freely, and cuttings stuck into the peat soon take root. The plants produced are very various, as seen by the specimens now exhibited. The seedlings were raised from seed presented to the Botanic Garden by Mr. Thomson during the year 1858, being from the first cones produced by the tree, and it may have happened that the male flowers were not perfected simultaneously with the female ones. In the neighbourhood various species of the Abies tribe exist in large quantities, particularly the Abies nigra, A. alba, A. rubra, and A. excelsa. As some of them stand within 50 yards of the Abies Menziesii, judging from the diversity of seedlings, I am inclined to think that some of the young female cones must have been fertilised with the pollen of some of the above-mentioned trees, particularly with that of the Abies nigra; as it is a remarkable fact that the nearer the seedlings approach to the Abies nigra the more healthy and compact they become. I lay before you some specimens of Abies Menziesii, raised from home-saved seed just received from Balgowan. Notwithstanding that the seedlings were produced at a subsequent date, they exhibit much the same appearance as those raised in the Botanic Garden. Although healthy, none of them possess the vigour of one specimen which accompanies them, said to be taken from a young tree struck from a cutting eight years ago. I have also to lay before the meeting specimens of Picea nobilis, raised from British-saved seed. The seedlings vary much, but none of them possess the vigour of foliage exhibited by the large tree now growing in the Botanic Garden, raised from seed originally sent home by Mr. Douglas, or even the plants reared from layers and cuttings taken from the original trees. The British seedlings look well till they get about 1 foot high, at which size they begin to assume a yellowish tint, and finally decay. Many of the seedlings are now dead, the largest having attained the height of 3 feet. These circumstances prove that early decay is not altogether dependent on soil, as layers and cuttings from the original imported seedlings are as healthy as the original trees. Precisely the same remarks apply to the British seedlings of the Pinus monticola—all assuming a yellowish tint after they reach four or five years of age. These remarks may not be applicable to British seedlings planted in a peaty soil, where the monticola seems to grow best. Such, however, is the case with the plants raised from home-ripened seeds now growing in the Botanic Garden, but not with those from imported seed. It may be said that layers and cuttings of Coniferous trees, particularly of

the Picea and Abies tribes, are not so very easily produced. With layers I would recommend the twisting of a small piece of very fine copper wire round the branch sufficiently tight to compress the bark without bruising it, previous to being pegged into the soil. When so treated the majority of them will be found rooted 12 or 18 months after being laid, according to the nature of the wood. Young points not more than two years old should be used. Cuttings take a much longer time. They have been successfully rooted under hand glasses at the base of a north exposed wall, where no sun can reach them; also in pots well drained and filled with sand, and placed in a cold frame.—Professor Balfour called attention to the recent observations of Mohl and others, relative to the self-fertilisation of the flowers of Oxalis, Viola, Specularia, Impatiens, Fumaria, &c. In these cases fertilisation takes place in the flower bud. The flowers remain small and closed, and the ovary is fertilised in this condition. In some of these cases the petals are not developed, and are so minute as scarcely to be recognised. The first indication of the floral functions having been accomplished is in the appearance of the impregnated ovary. In these closed flowers the pollen grains send out tubes without contact with the stigma. Mr. Gorrie stated that he had often observed these conditions of the flowers in Impatiens, and Mr. M'Nab had done the same in the case of some species of Viola.—Mr. Sadler stated that he had collected Eranthis hiemalis in full bloom on the 14th of January last, at Pitcaithly House, near Bridge of Earn.——Mrs. Bain, Hillside, Montrose, sent specimens of a small flowered small-leaved variety of the white Water-Lily (Nymphæa alba). She states that it occurs in the greatest profusion in Lochalsh, the waters being entirely covered with it. It is exceedingly beautiful and delicate, and quite different from the normal form.——Mr. Kerr exhibited a photograph of a cluster of 50 Pears on a branch 8 inches long, and weighing 19 lbs. The Pears were raised in Briggs' Orchard, Marysville, California.——Colonel Playfair, British Residency, Zanzibar, sent the fruit of a Palm called "Moailie," found in the Pangani River, East Coast of Africa. It has no arborescent stem. The leaves spring out of the ground, and are of immense length. The petioles make rafters upwards of 30 feet long. The fruit is produced in clusters of more than 100.

Notices of Books.

Journal of the Linnean Society. Vol. viii., No. 32: *Botany.*

This Number contains a good paper on the Morphology and Anatomy of the Genus Restio, by Dr. Masters. Observations on South of France Orchids (O. longibracteata, and Serapias cordigera); and Pœciloneurum indicum, a fine Ternströmiaceous tree "said to yield valuable timber," are well illustrated; and the number also contains a good paper on the weeds of British Kaffraria, from which we extract the following:—

"The well-known 'Cape Gooseberry' (Physalis pubescens) was introduced about 40 years since into his garden at King William's Town by the Rev. J. Brownlee. It has spread in a wonderful manner, and by the agency of birds has been carried to the beautiful forests which fill the gorges or 'Poorts' in the Buffalo Mountains about 14 miles from King William's Town, and it has firmly established itself all along the lumber-roads made through the forest. The Fingoe women collect the smooth yellow berries and bring them to the markets for sale. They make a delicious preserve."

There is besides a note on Sequoia (Wellingtonia) gigantea by Professor Brewer, in a letter to Sir William Hooker. The writer observes:—

"An interesting discovery this year has been of the existence of the big trees in great abundance on the western flanks of the Sierra Nevada, in about lat. 36° or 37°. They are very abundant along a belt at 5000–7000 feet alt., for a distance of more than 25 miles, sometimes in groves, at others scattered through the forests in great numbers. You can have no idea of the grandeur they impart to the scenery, where at times a hundred trees are in sight at once, over 15 feet in diameter, their rich foliage contrasting so finely with their bright cinnamon-coloured bark. I found trees larger than they occur further north (in the Calaveras and Maipura groves). The largest tree I saw was 106 feet in circumference at 4 feet from the ground. It had lost some buttresses by fire; it must have been at least 115 or 120 feet when entire; it is 276 feet high. The Indians tell of a much larger tree, which I did not see.

"There seems no danger of the speedy extinction of the species, as it is now known in quite a number of localities, and, contrary to the popular notion, there are immense numbers of younger trees of all sizes, from the seedling up to the largest. There has been much nonsense and error published regarding them.

"I have no doubt of the true generic relations. I think that no one who is familiar with both species *in situ* would separate them generically from the Sequoia sempervirens, also abundant in this State, and fully as restricted in its distribution; nor do I think the names of Wellingtonia and Washingtonia would be insisted on with such zeal, were it not for seed dealers and plant collectors. I may remark that the seed collectors on this coast have created endless confusion by naming species more for profit than from any honest conviction that they were new species."

Appendix to the Bibliographer's Manual of English Literature. Pp. 328. Compiled by Henry G. Bohn.

The Bibliographer's Manual, containing an account of the rare, curious, and useful books published in Great Britain and Ireland from the invention of printing, was compiled by Mr. Lowndes, who died in 1843. Mr. Bohn revised and enlarged the work, and published it in ten parts.

To render it complete he has compiled an appendix, containing an account of books issued by literary and scientific societies and printing clubs, books printed at private presses, books privately printed, and the principal literary and scientific series. In the first class we find the publications of the Bannatyne Club, of which Sir Walter Scott was President. It was instituted at Edinburgh in 1823, and was limited to 100 members. The Surtees Society, the Camden Society, the Parker Society, and many more which are not so well known, are found here. Mr. Bohn has with great labour compiled a catalogue which will be extremely useful to literary men, and to many persons indispensable. An alphabetical index of eight double columned pages of the various Societies, Clubs, Institutes, &c., whose publications are given, affords some slight notion of the service which Mr. Bohn has rendered to the student of English Literature.

Messrs. Longman announce a new edition of *Brande's Dictionary of Science, Literature, and Art*, re-constructed and greatly extended, to appear in 12 monthly Parts, commencing on March 31. Considerable additions have been made in many branches of science, especially in Mathematics, Geology, Mineralogy, and Botany.

The *Report of the Manchester Field-Naturalists' Society* indicates a flourishing condition of that very useful institution—an institution of a kind we could wish to see multiplied in all the great centres of population, or indeed wherever a sufficient number of persons could be got together. The members appear to work in good earnest: as indications of which we find scattered through the report many scraps like the following:—Mr. G. E. Hunt adds to the list of Manchester Mosses Physcomitrium sphæricum, found sparingly in three places on the borders of Mere Mere, this being only the second occasion on which it has been gathered in Britain. The first was 30 years ago, when it was detected in the same place by Mr. Wilson. Mr. Holland finds Geum rivale and intermedium in considerable plenty close at hand at Mobberley, the field of one of the summer excursions, and draws attention to the curious physiological peculiarity of the former, in elevating the fruit far above the withered calyx and stamens, considering that this indicates a tendency towards the diclinous structure familiar in some other Rosaceæ. On the occasion of another excursion to Norcliffe Hall, Mr. Grindon exhibits a singular leaf of Convallaria multiflora with the margins united so as to convert it into a tubular cup resembling the pitchers of Sarracenia, and which, taken in connection with Cabbage leaves that are occasionally found in the same condition, he regards as throwing light on the real nature of these organs.

Catalogues Received.—*Thibaut & Keteleer's* (Paris) *Catalogue Général des Plantes* indicates a very extensive collection of choice plants of all kinds, from Orchids and stove plants to Phloxes, Pelargoniums, and Hardy Ferns.—*William J. Watson's* (Newcastle) *General Catalogue of Fruit, Forest, and Ornamental Trees* is an extensive, well got up list; also *Catalogue of Vegetable and Flower Seeds.*—*Fowler & Son's* (Glasgow) *Catalogue of Seeds.*—*William Paul's New Roses, &c.*, has for its most prominent features the new Roses of the season, of which there are five to be let out from Waltham; and Beaton's hybrid bedding Pelargoniums, of which some 16 will be ready for distribution this spring. Among the five new Roses occur Glory of Waltham, a large full flower of a rich crimson; and Princess Lichtenstein, a hardy white, with large full globular flowers: both of the H. P. class.—*Carstairs & Sons' Descriptive Catalogue of Florists' Flowers* comprises most of the leading flowers, including a goodly list of Fancy Pansies.—*Maurice Young's Catalogue of New and Rare Plants, Coniferæ, &c.*, is well prepared and comprehensive; the collections of hardy trees, American plants and Conifers being of considerable extent.—*George Smith's Catalogue* includes a fine assortment of Pelargoniums, Fuchsias, and Verbenas, for which the Tollington Nursery is always famous.

Garden Memoranda.

(*Concluded from page* 200.)

The Earl of Derby's, Knowsley Park.—Turning our attention to the indoor forcing department, we find that there are several ranges of houses, which have been built at different times. The oldest range consists of houses, which must have been unique in their day, for they have not only length but breadth to give them a character. Few lean-to-houses for Vine-cultivation, even now, are erected 24 feet wide with a 5-feet stone pathway; and few practical men will deny the advantages, in a cultural point of view, of having scope for length of canes to obtain quantity and quality of fruit. This very range is said to be the oldest in Lancashire; and as to the old Vines, some of which still remain, I may quote Lord Derby's statement, that he sees very little difference in their general appearance since he was a boy. Curiously enough, all the old Vines that one meets with, if in a healthy condition, produce more highly-coloured, and some say better-flavoured fruit than younger samples subjected to the same treatment. Especially is this the case with Muscats. Some line of demarcation must, however, be drawn as to age, else it must be at the expense, at all events, of flavour. One can quite well conceive the green changing into an amber colour more rapidly in the case of an old Muscat Vine, which seldom if ever produces bunches or berries so large as those from younger plants; but as yet it is mere hypothesis as to superiority of flavour. The same rule as to colour and age of Vines does not hold good with the Black Hamburgh, so that the solution of the problem must still be looked for.

The late vinery, which contains some of the old Vines above referred to, has within these last two years had an accession of young plants, and a greater variety of sorts has been introduced, which Mr. Freeman intends to prove thoroughly, growing those only which he finds to serve his purpose best. The old Vines, and the new ones that will not stand the practical test, will be cut out as the others increase in size. In this house, which is between 60 and 70 feet long, and 24 feet wide, are Foster's Seedling, Chavoush, Black Hamburgh, Lady Downes', and Black Alicante. Foster's Seedling is rather a handsome-looking bunch, with a small white, or yellowish white, round berry, having a sort of Frontignan flavour. Chavoush is much after the same style, with the berries a little larger, but scarcely such a fine-flavoured sort. Neither of them, however, are remarkable, and they are decidedly inferior to any variety of Muscat in cultivation. Lady Downes' and Black Alicante were growing side by side, the latter having more oblong and larger berries and bunches—upon the whole pretty evenly matched. As to appearance I should prefer the latter, and decidedly so as to flavour. If there is a point of superiority for anything in Lady Downes' as grown at Knowsley, it is in its being rather more free and vigorous. Since the advent of the Black Alicante, there is a disposition to plant it largely as a high-class late-keeping black Grape, and even to graft it on Lady Downes', of which there are now numerous houses planted in the country. Muscat Hamburgh in another house was in excellent condition as to colour, growing on its own roots. Another house of the same size was chiefly a Muscat house, the principal part of the crop being cut; what remained was moderate in size of bunch and berry, but excellent in colour. There was also a large house of Lady Downes', which had made excellent canes, as brown and hard as a piece of half-dried wood, which is sure to be a great success this season. The earliest house had been started some months, with the view of cropping out the old Vines, and getting a few bunches in the early months of the year. This mode of treatment seems to be well enough as an experiment, but a few years' practice prove conclusively that you would wear out every Vine operated upon in this way, as the plants refuse to rest in the height of the growing season; so that to work on safe ground we are not a particle in advance of our forefathers, who used to begin to force permanent Vines early in October. In all the six houses in this range devoted to Vine culture, Mr. Freeman is going cautiously to work, introducing as many young plants and rooting out as many old as will lay a good foundation for future years, and not limit too seriously the supply which such a family as he serves, with the means placed at his command, has a right to expect. There are also two span-roofed low houses for the cultivation of Vines in pots, having both top and bottom-heat, which form a capital auxiliary to the range of main houses, and can be forced for early purposes without having recourse to extreme measures with the permanent Vines.

A range of Peach-houses, 90 feet long, contains a collection of trees in fine bearing order, and keeps up the supply until those out of doors are fit for use. Besides these there are succession Pine stoves, full of thriving plants, to supplement the fine large fruiting house, a woodcut of which has been given at p. 125, (and which it may be mentioned, as well as the Conservatory, and other recent erections, was designed and erected by Mr. McGerrow). Corresponding with these houses, which are about 50 feet long, is a very fine house full of Figs and Oranges in pots, in good order, with fruit-shelves filled with French Beans for forcing purposes; the one mostly grown here is Newington Wonder. Then there are Cucumber, Melon, and other serviceable pits for growing and forcing vegetables to a large extent, some of the older ones being heated with flues, and all those recently erected with hot-water pipes.

The plant-houses are not numerous, but they are very serviceable, and contain a collection of plants for decorating the drawing-room, dining-room, entrance-hall, and such-like purposes, such as I have never seen excelled. There are two span-roofed houses, the one 70 feet long, and the other about 50 feet, full of nice vigorous plants, which are only grown for a year or two and then thrown aside, others being propagated to take their places. Such plants as these are more

than usually interesting, being serviceable not only in extensive places like Knowsley, but just the sort of thing which ladies who have only a house or two, aim at. I will therefore give the names of the more prominent of those used for winter decoration:—Plumbago rosea, a very handsome subject, throwing up long spikes of rose-coloured flowers from plants one year old; Vinca rosea and alba; Exacum zeylanicum, a pretty blue plant of the Gentian order; Clerodendrons different sorts; Justicia speciosa, than which there is nothing more graceful or more easily managed; Solanum Capsicastrum, with its bright-coloured berries; Heterocentrum roseum, a much-neglected Melastomad, and a very pretty one; Poinsettia pulcherrima, very dwarfly grown, and showing large crimson heads; Euphorbia jacquiniflora, dwarfer than I have seen it before; Gesnera cinnabarina, in hundreds—and nothing can be finer from New Year's Day up to April than this magnificent-leaved and brilliant-flowered Gesnerwort; several dozens of double Primulas, growing all the better for a little heat; and the charming Luculia gratissima, showing large clusters of flowers. The way the latter is managed is this: a plant is allowed to grow vigorously, and every shoot is layered into a pot during summer; these are severed from the parent in autumn, and flower all the winter. All these plants have a little bottom heat, and the house or surface heat is at no season kept much above what is called an intermediate temperature. The plants that we have described are mostly yearlings, and the results show how advisable it is for such soft-wooded tender plants to manage them in this way.

The greenhouse plants are of a like character and equally select, but they require more time to bring them to a flowering state. Geraniums, Azaleas, and Epacris, with a few winter-flowering Heaths, such as hiemalis, predominate here. There were one or two plants of Clianthus Dampieri in flower, not a whit too highly spoken of as a decorative plant. There was also a number of very nice Dianthus hybridus multiflorus, which is evidently as free blooming as its name implies; and a few basketsful of Tropæolum Eclipse, which looked graceful as a hanging plant. Then in another place was Azalea amœna, grandly managed, every point showing a bloom bud, and many dozens of plants of them; not to speak of the more common deciduous Azaleas, Rhododendrons, &c., which are kept in a reserve ground for forcing to furnish cut flowers.

The fruit room is a large commodious building, from 80 to 100 feet long, with numerous tiers of shelves all round, and a table running all the way up the centre, with three tiers of drawers chiefly filled with Pears, while the top is reserved for a few choice specimens of all the Apples and Pears that are gathered and stowed away, so that the family may easily examine them. The sorts of Pears that were particularly fine among a numerous collection, are well known, as a rule, to succeed best all over the country. They were:—Marie Louise in extra fine condition, being both large and well coloured; Beurré d'Amanlis; Grosse Calebasse from dwarf espaliers, very fine samples; Beurré de Capiaumont; Glou Morceau, very good, some of the samples cracking, as this sort very generally does during a wet season; Colmar d'Aremberg; Beurré Diel; King Edward, of enormous size; Louise Bonne of Jersey; a very beautiful looking sort named Hepworth, but tough and coarse grained in the flesh; Flemish Beauty; Beurré Langelier, a nice medium-sized fruit, but tree of a weak constitution; and Vicar of Winkfield, also fine, but tender. The Apples were quite as remarkable for size and high finish as the Pears. Lord Suffield, Gravenstein, Paradise and Newton Pippins from a south wall were extraordinary fine samples. Prominent among their fellows stood—Rose of Sharon, New England Pippin, Court Pendu Plat, Kerry and Ribston Pippins, Reinette du Canada, and Alfriston. The house, which has been recently built, is well finished, and what is often neglected in houses of this description containing an interesting collection of fruit, is here specially provided, viz., ample walking space and means to provide abundance of light. Of course the fruit in all such houses keep best in almost total darkness, and here, though there are numerous windows for use when required, they are kept at other times closed with shutters. Ventilation and artificial heating, although only sparingly used, are also well provided for.

The gardens at Knowsley, under the careful and successful superintendence of Mr. Freeman, are exceedingly well appointed, horticulture being fully represented in all its branches, and likely to be better and better represented every year. The only things that we have now to notice are a Mushroom-house, 60 feet long, with the usual double-tiered beds, part of which was showing a dense crop; and the head gardener's Cottage. The latter is of recent erection, and is a large commodious building, handsomely finished both outside and in, and is situated at one end of a neatly designed flower garden. What a pleasure it is to see the chief of this garden establishment provided with house accommodation of such a character, showing how much his services are appreciated by a nobleman so distinguished and practical as the Earl of Derby. *J. A.*

Miscellaneous.

Soil for Vines.—Porous land, particularly when gravelly or chalky, yields the pleasantest wines—fresh and light. The more calcareous the soil, the drier and more friable it is, the better for the Vine; the water which falls at intervals permeates freely to the roots, the surplus is carried off by the pervious nature of the ground, and the product will be fine, dry, and generous. Granitic soils, or those mingled with decomposed particles of that rock, also yield good wines. Strong argillaceous loam is very prejudicial to the Vine, as it not only restrains the free expansion of the roots, but often imparts an earthy taste to the produce. In central France it thrives in argillaceous slate; in the north, fat sand, with a mixture of calcareous loam, is preferred. Almost every free combination of earths and rocks will answer, but the injurious effects of too moist a site, or too rich an animal manure, are well known; as are the exhaustion and deterioration of soils, which, though formerly the homes of generous wines, are no longer capable of supplying them of equal quality. In Italy and Sicily the choicest plants grow among the rubbish of volcanoes. Three-fourths of all Vines are planted on hilly ground, and wines of the highest class are made from such as are reared among stone and loose pieces of rock, with little attention save occasionally raking the ground around them. Rich, highly-dressed land has never produced wine of preferable quality. In districts where the summer is sufficiently long and warm, and the temperature throughout the year never sinks below a minimum of 50° of Fahrenheit, the Vine matures nothing but ripe and well-flavoured fruit; and when the bearing is exuberant, the quantity as well as quality is dependent entirely upon the climate. The Grape that furnishes the most saccharine matter makes the best wine. *Denman's Vine and its Fruit.*

Calendar of Operations.

(*For the ensuing week.*)

Although the weather is still somewhat cold and wintry, a collection of the best hardy annuals may now be sown; they are of most service before Verbenas, Pelargoniums, and other bedding plants, come to perfection, and therefore no time should be lost in getting them in the ground. Where a frame or pit however is at liberty we would recommend their being sown in small pots in loamy soil, and not turned out until they are slightly pot-bound; the flower then gains the predominance, and the great proportion of this above the leaf constitutes the chief beauty of most annuals.

FLOWER GARDEN AND PLANT HOUSES.

Crocuses in pots have blossomed beautifully this year, and out of doors there is also a fine display. Among yellows, lilacs, and whites are some very large and showy kinds, which when planted in parallel rows close together, have a striking effect, a point that should not be forgotten at next planting season.

Fuchsias.—Where fine specimens of these are required, a moist atmosphere, with a slight amount of shading, will cause the shy sorts to make wood by retarding the flowering principle. Those wintered in outhouses or cellars, if not already done, should now be brought forth and potted, if possible, to give them a start for the decoration of lawns or the flower-garden.

Hyacinths.—These should not have too much heat; they lose much of their effect when the bells are too far asunder through too much excitement in proportion to light.

New Holland Plants.—Now is a good time to shift such as require more pot room.

Orchids.—These will be pushing vigorously, and many on blocks and baskets will require careful attention in the way of watering, which should be done on sunny mornings early, and air given freely for a couple of hours, in order to prevent moisture from lodging amongst the buds and tender shoots.

FORCING GARDEN.

Cucumbers.—Make it a point to turn one or more of the linings frequently until May. See that they are in good condition as regards moisture, and take care that no burning extends into the bed.

Figs.—Provide against red spider by copious syringings.

Kidney Beans.—Secure abundance of atmospheric moisture to these, and water them continually with clear weak manure water.

Peaches.—Trees on which fruit is swelling will now begin to enjoy a little liquid manure; guano water, clear and weak, will be found of great service. Gross shoots need scarcely be feared with this application, provided all luxuriant wood is stopped as soon as it is 5 or 6 inches long.

Pines.—It should be at all times understood that a sudden check of any kind whatever is at variance with the whole economy of Pine growing. In shifting in spring this frequently happens if the plants are allowed to stand unplunged in a temperature of 50°, whilst the tan bed from which they were taken has probably been 85°. Such a great discrepancy is found to be followed by pernicious effects. Attend well to atmospheric moisture; rest assured that as far as the Pine alone is concerned, it is not easy to overdo it at this period. Shut in sun heat whenever it can be done.

Vines.—Look well to the bottom-heat outside. Endeavour to keep your fermenting material to 80° or even 90° if possible. When material of this kind is suffered to become inactive at this period, it is worse than useless. Early Grapes now stoning should be run over once more with the scissors; let the shoulders be well set out. Keep up an agreeable warm atmosphere on all ordinary occasions, but allow the heat to rise to 85° or 90° early in the afternoon of bright days, which we may now expect soon to get, sinking to 65° at night.

HARDY FRUIT AND KITCHEN GARDEN.

Protect fruit blossom when it appears by all possible means. Straw-ropes, mats, canvas, bunting, nets, Fir boughs, and fronds of Fern, should all, or any of them, be in requisition.

Broccoli.—As soon as the ground is in a proper state to receive the seed, sow a little of the Purple Sprouting sort.

Herbs.—Sweet Marjoram and Basil may now be sown in heat.

Tomatos.—These may now be sown, and raised in a Cucumber frame.

Turnips.—If not yet done, lose no time in getting in a little seed of the White Dutch on a warm border.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.
For the Week ending March 8, 1865, as observed at the Horticultural Gardens.

March.		Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth. 1 foot deep.	Temperature of the Earth. 2 feet deep.	Wind.
Thurs.	2	4	29.941	29.671	50	27	38.5	44	43	W
Friday	3	5	30.219	30.207	50	21	[illegible]	44	43	N W
Satur.	4	6	30.285	29.695	47	27	37.0	43	42	S W
Sunday	5	7	29.579	29.403	48	28	38.0	43	43	S W
Mon.	6	8	29.377	29.178	41	29	35.0	43	42	S W
Tues.	7	9	29.574	29.479	45	21	33.0	42	43	W
Wed.	8	10	29.755	29.597	41	30	27.0	42	42	N W
Average.			29.823	29.664	46.4	26.1	36.2	42.9	42.8	

March 2—Rain; cloudy and very boisterous; fine at night
— 3—Uniformly overcast, dusky clouds, fine, frosty at night
— 4—Hoar frost, heavy clouds; rain.
— 5—Clear, drizzly; fine at night, clear; slight frost.
— 6—Fine; cloudy; overcast.
— 7—Cloudy and damp, cloudy; fine at night; rain, frost very cold.
— 8—Overcast, slight hail and sleet; dusky white clouds, so but cold.

Mean temperature of the week, 4½ deg. below the average

STATE OF THE WEATHER AT CHISWICK,
During the last 39 years, for the ensuing Week, ending March 18, 1865.

March.		Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain	Preceding Years.									
Sunday	12	50.8	32.3	41.5	19	0.24 in	1	4	[illegible]	4	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Mon.	13	50.9	31.4	42.6	14	0.36	2	2	4	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Tues.	14	51.4	35.3	43.3	18	0.70	2	6	5	—	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Wed.	15	51.1	34.3	42.7	19	0.37	3	9	4	1	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Thurs.	16	51.5	34.6	43.0	13	0.68	—	10	8	—	4	11	[illegible]	[illegible]	[illegible]	[illegible]
Friday	17	50.0	32.9	41.4	12	0.37	5	8	4	—	5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Satur.	18	50.5	33.3	41.9	11	0.24	3	8	3	2	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

The highest temperature during the above period occurred on the 12th, 1841, and 15th, 1828—therm. 67 deg.; and the lowest on the [illegible] 1846—therm. 17 deg.

Notices to Correspondents.

Apple Trees: *J Kelly.* The best thing to be done with your Moss-covered Apple trees, is to scrape off some of the Moss, as you propose, and then to give the trunks and branches two or three good thorough dressings with dry wood-ashes, which should be applied by the hand with some force, so as to adhere to them. This must be done during dry or foggy weather, or after the trees have been well wetted by means of an engine.

Fish Mould: *Piscator.* Your fish is attacked by some species of Leptomitus, the pest of aquaria. You will find a good account of Fish moulds in the "Intellectual Observer" for 1864. *M J B.*

Flower Pots at Exhibitions. *J. Bagstock.* What is meant by an 8-inch pot is one of the ordinary character, measuring 8 inches in diameter just below the rim inside. It is the size usually called twenty-fours, or 24 to the cast.

Horticultural Manures: *Seedsman.* We have had no experience with the manures sent out under this name by the Messrs. Goulding.

Mineral Turpentine: *J Little.* We have not seen any of the material used for hothouse painting, but there can be no question, if it is a preparation from petroleum, that it must be pernicious to plants. You say the smell is still bad when the sun shines on the paint, though it was put on three months since, and that from that time the stove plants have shown more and less symptoms of decay—Crotons losing the entire of their foliage, and Camellias in other houses both buds and leaves. This is not surprising, and there can be no doubt whatever that these results are directly attributable to the effluvia from the "Mineral Turpentine." You will always be liable to annoyance unless you can get rid of it.

Names of Plants: *J W.* Cœlogyne cristata.—*S D.* 1, [illegible] Patersoni; 2, Asplenium marinum; 3, Todea hymenophylloides *alias* pellucida.—*Crocus* 1, Scilla sibirica; 2, Scilla bifolia.—*M R.* 1, Sibthorpia europæa; 2, Cyclamen Coum; 3, Helleborus fœtidus.—*W R H.* Acacia dealbata.—*S Roberts.* 1, Begonia fuchsiodes; 2, Coronilla glauca; 3, Genista canariensis; 4, Acacia hybrida, apparently.

North Aspect Walls: *W. W.* Your climate is good, and Peaches and Nectarines ripen in it perfectly well on an eastern aspect, but they cannot be expected to do so on a north aspect. For this, Cherries, such as the Morello, preserving, and others for kitchen use, are more appropriate. Early Pears for dessert and stewing Pears may also be tried. The Jargonelle succeeds very well on a north aspect.

Orchids: *A D B.* According to some authorities Epidendrum macrochilum and E. atropurpureum are identical, and have no doubt the two "var. roseums" are also the same. What is Cypripedium biflorum? There are other manuals besides that you mention, as Appleby's, Henshall's, and Lyons, from each of which no doubt a novice might glean something. We believe the particulars of the other books you mention have not been announced, and therefore we cannot form no opinion respecting it.

Shading Cloth: *B Findlay.* The new material would, we imagine, be very efficient both for protecting trees and for shading, and being partly woollen would no doubt be more durable than the usual cotton shading cloths. Whether this durability would be such as to compensate for the increased price can only be determined by experiment; but it is a very material point, upon which the value of the article must depend. It looks as if it would answer well.

Spot in Orchids: *E N.* The leaf of Phalænopsis amabilis is evidently affected with the worst form of Orchid disease, and one for which at present no remedy has been discovered. Look at Mr. Anderson's remarks on Orchids in our Number for Feb. 18 of this year, and see what he says at the beginning of the paper.

White Perfection Pelargonium: *G Pilgrim.* We understand that this variety, highly spoken of by the Floral Committee as a pot plant, was raised by Mr. J. F. Chater.

Three Hundred Guineas in 12 Prizes.

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THE ALSIKE CLOVER for CLOVER-SICK LANDS. This excellent Clover will thrive in almost any soil. It produces [illegible] in the year, and makes superior Clover Hay. It may be sown (about 14 lbs. per acre), or in conjunction with other Seeds, for a remunerative husbandry or for Permanent Pasture. If sown [illegible] it is ready for mowing three times in the year. [illegible] in all Messrs. SUTTON'S mixtures, and they strongly recommend it to more general cultivation. Price may be had on application.
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Laying down Land to Pasture,
AND IMPROVEMENT OF GRASS LANDS.

MR. MARTIN SUTTON'S ESSAY on the above subject, revised and enlarged from the Journal of the Royal Agricultural Society, may be had post free for 6 stamps on application.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Bromus Schrœderi (Schrœder's Brome Grass).

SUTTON AND SONS having imported a small quantity of the above new FORAGE PLANT, so highly spoken of by French Agriculturists, can supply it in packets at 1s. each (post free).
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NATURAL GRASSES: their Names and Derivations; Quality, Produce, Elevation, Situation, Soil, Use, Peculiarity, Season, Growth, Increase, Time of Flowering, Price, &c. Free for one Postage Stamp.
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WHEELER'S LITTLE BOOK on GRASSES. Post free for four stamps.—J. C. WHEELER & SON, Gloucester.

SHOULD GRASSES be SOWN WITH or WITHOUT a GRAIN CROP?
See WHEELER'S LITTLE BOOK on GRASSES.

HOW to SOW GRASS SEEDS.—See WHEELER'S LITTLE BOOK on GRASSES.

DIFFERENT GRASSES for DIFFERENT SITUATIONS.—See WHEELER'S LITTLE BOOK on GRASSES.

A FEW REMARKS on LAWN GRASSES.—See WHEELER'S LITTLE BOOK on GRASSES.

ILLUSTRATIONS of the TEN PRINCIPAL GRASSES.—See WHEELER'S LITTLE BOOK on GRASSES.

THE TEN PRINCIPAL GRASSES are DESCRIBED in WHEELER'S LITTLE BOOK on GRASSES.

WHICH are the BEST GRASSES for PERMANENT PASTURE?—See WHEELER'S LITTLE BOOK on GRASSES.

TABLES of MIXTURES for VARIOUS SOILS, arranged and recommended by J. C. WHEELER & SON, Gloucester, Seedsmen to the Gloucestershire Agricultural Society.

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ON LAYING DOWN LAND to PERMANENT PASTURE, and its subsequent Management.
See WHEELER'S LITTLE BOOK on GRASSES.

PRICED LIST of FARM SEEDS.—See WHEELER'S LITTLE BOOK on GRASSES.

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NEW FORAGE PLANT: BROMUS UNIOLOIDES (or SCHREDERI; SCHREDER'S BROME GRASS, sometimes called NEW ZEALAND GRASS and PRAIRIE GRASS.—This grass was introduced into Great Britain many years ago by Mr. Charles Lawson, sen., of Edinburgh, and was shown and described at the Great Exhibition of 1851. It is now attracting considerable attention, from the enormous cuttings of green food it has lately produced on the Continent and elsewhere. It is undoubtedly a most productive plant, especially under irrigation or liquid manure.

Small quantities of Seed may be obtained for experiment from PETER LAWSON & SON, The Queen's Seedsmen, 28, King Street, Cheapside, E.C.

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INTERNATIONAL EXHIBITION, 1862.

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CARTER'S PERMANENT PASTURE GRASS, carefully mixed (to order), to suit all Soils, from extra cleaned samples, can be supplied according to the quality of the Mixture, at 26s. to 30s., and 32s. to 35s. per acre.

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Patron, H. R. H. The PRINCE of WALES, K.G.

HEREFORD MEETING, 1865.
President: The Rt. Hon. Lord TAUNTON.

The ANNUAL MEETING, 1865, will be held at HEREFORD on the 5th, 6th, 7th, 8th, and 9th of JUNE NEXT.

PRIZE SHEETS for STOCK and POULTRY; and REGULATIONS for IMPLEMENTS, ARTS, LACE, and HORTICULTURE are ready.

Applications to be made
For Stock and Implements, to the SECRETARY.
For Poultry, to Mr. S. PITMAN, Taunton
For Arts, Manufactures, and Lace, to Mr. R. R. M. DAW, Exeter.
For Horticulture, to Mr. JONATHAN GRAY, Bath.

ENTRIES CLOSE as follow:
STOCK and IMPLEMENTS, 15th April.
POULTRY, 15th May.
ARTS.—Section 1. Pictures, &c., 22d April.
Section 2. Art Manufacture, 15th April.
Honiton Lace work to be delivered on or before 1st May.
By Order of the Council,
HENRY ST. JOHN MAULE, Secretary,
1st March, 1865. 2, Wood Street, Bath.

Royal Agricultural Society of England.
PLYMOUTH MEETING.

ROYAL AGRICULTURAL SOCIETY of ENGLAND. MEETING at PLYMOUTH and DEVONPORT, 1865.
Stock and Implement Prize Sheets are now ready, and will be forwarded on application to H. HALL DARE, Secretary.
12, Hanover Square, London, W.

The Agricultural Gazette.

SATURDAY, MARCH 11, 1865.

—— THE report of the Bath and West of England Society in another column, calls attention to a matter which is exciting much attention in the North of England. It is declared that in the present state of the law there is no protection for the property of the farmer so far as sheep and cattle are concerned; that we cannot compel a vicious dog to be kept under proper surveillance unless it can be proved he has already worried sheep, and that his owner knows it. A Bill placing the responsibility of mischief done upon the owners of such animals has been introduced into the House of Commons, and a petition in its favour has been widely circulated by the Durham County Agricultural Society.

—— The proceedings of the West Riding magistrates, owing to which Sir GEORGE GREY issued the order forbidding the travelling in daylight of locomotive engines on highways in the district of Lower Agbrigg, have had this further result, that the Steam-plough Company of Wakefield have withdrawn their apparatus from the district in question, and suspended so many of their machines as were employed in it. This is the natural consequence which must follow the HOME SECRETARY'S order wherever it is enforced. There is no reason why the order if needed anywhere is not necessary everywhere; and the ultimate consequence of it thus must be the entire distruction of the business of hiring out steam-cultivators, on which so many clay-land districts are already dependent.

—— The Royal Society for the Prevention of Cruelty to Animals have widely published the history of a recent case before Mr. D'EYNCOURT, the Clerkenwell magistrate, by which the practice of exposing shorn sheep for sale in frosty weather was shown to be illegal, and in contravention of the statute 12 & 13 Vict., cap. 92. They declare it to be their intention diligently to proceed against offenders in future seasons, regardless of the results which may follow on conviction.

BARON LIEBIG has addressed another long report on Metropolitan Sewage to the LORD MAYOR. He is this time anxious in the interests of the public to expose the fallacy of the NAPIER-HOPE plan for turning it to account. These gentlemen, according to him, propose to take the drainage of North London along a culvert, falling 9 inches per mile, from the Abbey Mills to Maplin — there to pour it over some 20 square miles of surface which are at present under high water—thus converting that which at low water is a mere slope of sheer sand, some 2 or 3 miles wide, into dairy farms, yielding 40 or 50 tons of Grass per acre, as at Craigentinny. But such a project is altogether baseless—all the calculations as to crops, returns, &c., are absolutely fabulous. The scheme is "like a soap bubble, glistening with bright colours, but inside hollow and empty; there is not the slightest doubt that every penny expended in that frivolous undertaking will irretrievably be lost." For—and this is all the argument—there is sand and *sand*. The sands at Craigentinny do indeed yield Grass worth 20*l.* and 30*l.* per acre; but then, what are the sands at Craigentinny? "An exact comparative investigation" of these and those at Maplin "seems not to have been thought necessary." And therefore the probability that the experience of sewage on the one will be paralleled by the experience of sewage on the other is altogether without foundation.

It appears to us that Baron LIEBIG is at the least as unphilosophical in denying the asserted parallel without the necessary examination, as others may be in declaring it. More so, for the latter do proceed upon experience, whereas LIEBIG's conclusions are mere speculations. His reports, throughout, are in the very teeth of the Baconian rule which requires you to guide your reasoning by facts, not to ascertain your facts by mere reasoning. In his valuation of sewage he is guided not by the conclusions to which the actual analysis of it leads, but by the conclusions to which a reasoning process leads him, applied to various assumptions regarding food, digestion, and sanitary arrangements. The enormous sums which he declares that London is at present wasting at Barking are ascertained, not by an actual examination of the material as it is, but by an enumeration of its contents after he has determined by his unrivalled reasoning faculty what it ought to be. And in his present letter also there is an error of very much the same kind. There was no actual examination in the first instance of the liquid to be used, and there is no actual examination in the second of the land on which it is to be used. But the Lochend and Craigentinny experience is declared to be the result of Edinburgh sewage upon land of various quality, "loam," "sand, with trap rock beneath it," and even "strong clay," these words being utterly indefinite, and conveying no certain meaning. Moreover, Edinburgh sewage, it is argued, must contain a great deal of street-sweeping and other material, the result of disintegrated trap rock, and "must carry in the form of mud towards the meadows the detritus or mechanically abraded matters of the streets." What it does contain and what it does carry we are not informed. LIEBIG, moreover, makes a good deal of the assertion that at Lochend this mud is collected by deposit in a pond, and thence conveyed as a top dressing over the poorer parts of the land.

The conclusion to which he leads his readers is that the poor sands are inevitably the poorest in their produce, that the richer loams which were originally the best are always the best, that "the higher situated meadows, the character of which is most remote from sand, must produce higher crops than the lower plots, which originally were nothing but fine sand." We are also told that "sand middling fine when completely saturated with water, takes up in its power one-fifth of its volume; and a bed of sand could not consequently absorb per acre more than 100 tons of sewage. The largest quantity of sewage brought on to such a sand would percolate through without enriching it."

Unfortunately the whole statement is written in ignorance of the facts. The low-lying loams and clays are the poorest parts of the Lochend and Craigentinny sewage farms. The poorest sands through which the sewage "percolates without enrichment of the land," yield 20*l.* worth of Grass per acre annually. The sewage poured over all

brings all to pretty nearly one standard of produce. The merest barren sand, known as such—not indeed by the tests of the chemist, but by those of the great laboratory of Nature—by the condition as to vegetation in which they were before the sewage was applied, yield now 40 tons of Grass per acre. The portion next the shore has indeed a thin skin of black soil, the result, we presume, partly of mineral and partly of vegetable deposit, during its 40 years or more of sewage application, but this appears to be little more than a colouring of the original sand; and dig 2 or 3 inches down, and you come upon *that*, of the original colour.

In truth the whole affair is a hand to mouth feeding of the plants direct from the liquid manure. The sewage is used over and over again in order to exhaust the food for plants which it contains. Excepting by its mere mechanical offices and structure, the soil has very little indeed to do with the result. It affords a standing ground for the crop, and it affords a sufficiently open texture for the transmission of the liquid; and this liquid feeds the crop. Where it is a good loam, and also free in its texture, with a sufficiently rapid slope of surface, the crop is best—most valuable rather perhaps because earliest than because it produces more from month to month than where the soil, a poor sand, is equally open, and as favourably conditioned regarding slope and aspect. It is the stronger clays and the flatter surfaces, neither of which permit a rapid flow over and through the soil, that are inferior. And the best land of all, worth 5*l.* an acre without sewage, to which Mr. Miller, of Craigentinny, conducted the stuff by steam power, has proved a failure, and has been at length abandoned as a sewage experiment.

The broad and obvious facts to be read at Craigentinny and elsewhere are that for sewage purposes the poorest open soils are the most likely to yield a profitable result—that it is rather by a direct feeding of the plant than by enrichment of the soil that we must expect to succeed—that the same sewage must therefore be used over and over again—and that any other method of distribution than that of ordinary water meadows, by mere gravitation from surface channels, will exhaust the profits of the undertaking.

AGRICULTURAL EDUCATION.

In answer to some of the many questions upon agricultural education which are now discussed, I will give you some outlines of my remembrance of our parochial matters in my young days, some 60 years ago. It is a large agricultural parish, and 50 years since contained above 3000 inhabitants—now nearly 5000. Such was the advanced state of education at that time, but few of its inhabitants were capable of intelligently managing parochial business, and as a matter of course it was thrown upon the hands of the curate, and some two or three influential farmers. The farmers soon had everything their own way. The Charitable Trusts were also in their hands, and the lands were let to their dependants, realising some 300*l.* per year. Now (and all of it is land) its rental is near 800*l.* Church-rates would include mole catching, sparrow catching, and other like et ceteras, and the accounts would run on for many years without passing. The "charity schools" master kept the accounts, such as they were; made out the rate-books, in fact was "the factotum" as vestry clerk. Many of the farmers could not write their own names, or at most imperfectly. The state of education was as low as possible. He was a good scholar who could write a good hand and cast up common accounts, beyond which it was superfluous to go. He was then fit for business, and was soon found following the plough, &c. To send a son to a boarding school was a monstrous innovation, and would bring down upon the hapless father's head all manner of petty sneers at his presumption and aiming greatness; and as for the daughters, poor things! "what do they want to know?"—a little reading and sewing is plenty for them. Yes, this in my young days. The young farmers would only "talk of bullocks," and horses, and sheep, and coursing, and quoits, and cricket, &c.—the young "ladies" of poultry and butter, goslings and ducklings, &c. Now and then a mind broke out amongst them, and then he or she was looked upon as a prodigy. The general cast of society partook of gross ignorance and much vanity, which led to much petty jealousy and strife. I look back upon that time as one greatly to be deplored for its unhappiness and irreligion. Gradually knowledge became valuable, and was sought after by all classes, and at the present time, taking them in the aggregate, I do not know a more intelligent and better conducted population. We have courageously and most usefully established many means by which all may learn, *i.e.*, reading and other Societies of all kinds, schools, lectures, reading-rooms, news-rooms, night-schools. Tracts without end. We have, besides the Church, Wesleyan, Baptist, Independent, and other congregations. We have Educational, Agricultural, Horticultural, Floricultural, and Poultry Societies and Exhibitions, and the further we advance the more appears to open before us in the broad road to knowledge. Why! no abuses or matters exceptional could stand before all this. So now we have everything fair and above board. Churchmen and Dissenters and politicians of all grades cheerfully unite in promoting the general good, and the best interests of the parish and neighbourhood.

I often look back upon my own doings and participation in promoting these improvements. I have endeavoured to take my share therein. I well remember the old dame and her school where I first attended; next I went to a common day school, and to "top up" I was sent to a large charity school, where the master was privileged to take a "few boarders" (we had 46 or 47, besides 200 charity boys); I continued there one year and a half, leaving at midsummer, when I was 12 and a half years old—not 17 as is now the case. My first corn stack I built the following harvest, and until I was 24 took my regular part as a workman on the farm which I still occupy, where I was born, and where my forefathers dwelt and farmed before me.

At the age of 18 a neighbour permitted me to read his newspaper—"Evans' and Ruffy's Farmers' Journal." I soon perceived that wondrously clever farmers as we were, we did not know everything. We could grow our Oats, Wheat, and fallow crops successively. Who could beat that? We could make our Long-wools fat at three and four years old, and heavy sheep; many could not do that, could not make them fat. We brought into use the "two-haled" plough, and threw out the one-haled Dutch plough; was not that a feat? In short we knew how to farm; if we did not, who did? I read of the introduction of bones as a manure—how ridiculous! I read of the Suffolk drill What! put the Wheat in all in rows—how foolish! It ought to be scattered equally over the land. Give me the "seed-hopper;" I can beat all your drills. I read of the threshing machine in Scotland; very complicated and inexplicable. Then I read of Swedish Turnips; hardy enough to stand any winter—very likely—wish they may. I kept reading on, *i. e.*, of Holkham sheep-shearing, Woburn gatherings, South-down sheep, new Leicesters, improved Short-horns, white-faced Herefords, Suffolk Punches, Clydesdale horses; and then, again, of Bakewell, Ellman, Young, and men of that day; till I began to think I knew very little about it all, and if they were right, we after all knew very little about our real business, and had very much to learn. We have much to learn; we have been learning ever since, and wonderful advancements in the science and practice of agriculture we have seen, but I verily believe that at 60 years hence some sexagenarian will look back, as I am doing, and with much pity will deplore the ignorance of these present times. It savours highly of the pedant and the presumptuous to imagine that we have attained in our time nearly to the topmost stave in the ladder of perfection. Why, the scientific department of agriculture is scarcely known, much less practised, and nowhere to perfection. So far as regards field culture, no one can set bounds to the beneficial application of scientific aids, and if here and there a mind strikes out from the common ruck, and achieves success, it is but one instance. We want an educated body of farmers, educated in the best sense, educated far in general knowledge, educated highly into the mysteries of nature, educated in that precise knowledge necessary to enable them to extract the most profitable produce from the soil, educated fully into the geological, chemical, and practical requirements of soils, and the true management thereof, and their crops. At present much of it is conjecture. We follow a known practice somewhere. It fails with us. Why? Because of our ignorance the aid was not adapted either for the soil, climate, or crop. Then comes in the animal economy. We want our young farmers to be educated in all matters relative to the true business management of farm stock. Their breeding habits, management, food, propensities or peculiarities, diseases. Their Breeding: *i.e.*, the best principles and practice; Habits: provisions and appliances for their rest and comfort; Management: attention, feeding, cleaning, lairage; Food: an immense subject, embracing natural and artificial Grasses, roots, bulbs, and tubers, all the tribes of Turnips and Cabbages, all the varieties of corn-cake and cattle foods, how to make them, and how most profitably to apply them in feeding stock; Peculiarities: freedom, confinement, warmth, air, &c.; Diseases: a life-long study of itself. There is no fear of our next race of farmers being too highly taught. Just look at what we have passed through the past 60 years. The world is almost in fact turned upside down. Our next race must keep it righted. *O. F.*

THE AGRICULTURAL LABOURER.

[The following admirable speech on this subject was delivered by Mr. John Grey, of Dilston, at the first meeting of the Royal Agricultural Society at Newcastle. Lord Portman was chairman. H.R.H. the late Duke of Cambridge was present. We republish it as a capital illustration of the co-relations of classes, and of the influence of better education upon all.]

Mr. Grey, of Dilston, said:—Notwithstanding the very kind encouragement which certain friends are inclined to bestow upon me, I cannot but feel it a nervous thing for a humble individual like myself to be thus called upon to occupy the situation in which I now stand. It has been my lot, at some times and at distant intervals, to speak to small sections of my fellow-countrymen on subjects connected with our common interests—the agricultural interests of the land; but I have not anticipated being called upon to address a meeting so distinguished for rank, so imposing in numbers, and so important in character, as that which I now have the honour to survey around me. The toast which has been unhappily committed to my hands, is that of the labouring classes; a subject to which none could feel indifferent, whether regarded as involving the welfare of so large a portion of our fellow-subjects, or exercising, as it does, so powerful an influence on the general well-being of society, and on the whole moral atmosphere in which we live. I should have satisfied myself with making these remarks and announcing the toast which has been entrusted to my care, had not that toast been committed to me with a request, that as I am considered somewhat more conversant with the circumstances of the labouring classes than some other gentlemen, I should accompany it with a few remarks, which I should not have made, had I consulted my own feelings on the present occasion. Those whose lot in life compels them to labour for their daily bread, although by good management and good conduct they may do much to increase their comfort and respectability, cannot greatly alter their condition or improve their circumstances by their individual exertions. The employment on which they depend for the support of themselves and their families must come from sources over which they can exercise no control. We must then look to others than the peasantry themselves for any material improvement in their condition. The tenant farmers are the parties generally by whom the peasantry are employed, and much might be done by their consideration and kindliness. But then, again, the means which the farmer employs and the spirit with which he cultivates, depend greatly on the terms on which he holds and the encouragement which he receives from his landlord, and thus the various classes of society are dependent one upon another, and a direct chain of communication is established between the owner and the tiller of the soil. It was admitted on all hands to be the duty of the landlord to supply suitable dwellings for the labourers on his estates, and it is his duty as well as his interest to let his land to such tenants, and on such terms as are likely to ensure its good and liberal treatment; and just in proportion as a liberal system of cultivation prevails will the welfare of the labourers be.

No one can have travelled through the different provinces of this land with much observation, without having discovered that the condition of the peasantry is generally a sure index of the state of cultivation in any district. If they be found well housed, well clothed, and of cheerful aspect, then be assured they are well employed and well paid; but, on the contrary, if we see them with comfortless and ill-furnished dwellings, themselves ill-clothed and their children ill-educated and of squalid appearance, then as surely shall we find that district ill-cultivated and unimproved; so certainly and so sympathetically do they act and react the one upon the other. Much of the land in England, I regret to say, is still held by tenants-at-will—or, on annual tenure—and no system I believe is more calculated than this to put a check upon extensive and spirited improvement.

Two things are indispensable to the good cultivation of the soil. The one is, adequate capital in the hands of the occupier, and the other, the knowledge which is necessary to apply that capital to profitable and beneficial use. But the uncertainty of annual tenure and the consequent absence of good cultivation, deprives the occupier of the means of obtaining capital, and of the inducement to acquire knowledge: it leaves the soil in a state of comparative sterility, and the tenancy in a state of stationary ignorance. I know it is alleged in favour of this system that such a good understanding prevails between landlords and tenants, that changes of tenancy rarely occur, and that the confidence so engendered makes up for the want of more ample security; and I am willing to admit, in its fullest extent, the existence of kindness on the part of the landlord and of gratitude on that of the tenant. I am willing to recognise the feeling of mutual regard and reciprocal obligation and attachment, so existing, as one of the sweetest ingredients in our cup of social intercourse; but is that feeling of necessity stronger and more genuine in the case of tenants-at-will, than in that of the more independent and more spiritedly improving tenants, who hold upon lease and do not grudge the improvements they make, knowing that they have time on hand to reap the benefit, and assuming that they have landlords capable of appreciating the value of good tenants, and willing to give them a fair preference at another letting. I could tell, were this a time to particularise, of farms which have descended from father to son by renewed leases for very many years, and which have advanced under them from a rental of 200*l.* or 300*l.* a year to one of eight, nine, and ten hundred, without outlay by the landlord beyond the erection of needful buildings, but which under yearly tenancy would never, I am satisfied,

have reached more than half that amount. It is nevertheless a pleasing sentiment to entertain, and it has been sweetly said and sung, that "the farm I now hold on your honour's estate, is the same which my forefathers tilled." This, my lord, is pretty in language—it is poetical in sentiment, but let us see how it bears in the case of tenants-at-will, not only on the income of the landlord and the condition of the labourer, but on the interests of the community at large. Let us see what it is when reduced to the matter-of-fact prose which experience teaches. It would tell, I imagine, something in this way. "My forefathers occupied your lordship's farm, and I occupy it now. My grandfather farmed this land 60 years ago; an industrious but ignorant man, he made a living and brought up a family. My father succeeded him and did likewise, and here I am now treading in their footsteps. It is true no improvements have been made, but then the rent has been little advanced. It is true that where rushes grew 50 years ago, rushes grow now, but then we have incurred no expense. It is true that the same wasteful, crooked, and inefficient fences that my grandfather patched and mended, I patch and mend still; that the same undrained land which he ploughed I plough now; and that I reap at this day crops as scanty as those which he reaped."

I have been told by a gentleman in this room that tenants-at-will with whom he is connected don't desire to have leases. That however is not the universal sentiment, for there are tenants-at-will, and I regret to say, in this county and in my own neighbourhood, who see the improvements beneficially carried on in other estates and would anxiously imitate them if they could have leases, but they can't. There are however some who don't desire leases, I am told. It is so. And as I know something of that class of people, of their opinions and sentiments, I shall tell you why. They argue in this way. "If we should take leases and improve the land, higher rents will be exacted, and perhaps others seeing our improvements may covet our farms and come into competition with us at our next taking. So long then as we are left undisturbed and allowed to go on in our own way, let us be content as we are. It is not for us to trouble ourselves about Mr. Parkes, and Mr. Smith, of Deanston, about drain tiles, and drain pipes, guano, nitrate of soda, and such new-fangled affairs." And so, my lord, it is, that they come to the philosophic conclusion that "'tis better to bear the ills they have, than flee to others that they know not of." We have been told by the Duke of Cleveland that, unlike machinery and manufactures, there is a limit to the improvement and productiveness of land. I am not at all nervous on that point—that limit will not be arrived at in our days. So long as any land in the country remains undrained and unimproved—so long as annual tenure prevails in any district, we shall not have reached that period. No, you may rest assured that annual tenure is incompatible with large improvements; generally speaking, both the capital and the knowledge to carry them out are wanting; but if those existed—what man would be so foolish as to lay out his money in improvements when, by some change of circumstances, another might step in to reap the benefit? How can he tell how soon some cause of disagreement may arise between himself and his landlord—or how soon, in the mutability that attaches to all human affairs, another Pharoah may arise who knows not Joseph? No man of sense will sow where he has not the certainty of reaping, or invest capital in improving land which he has not a pretty sure prospect of recovering. It is on lands ill-tenanted and ill-cultivated that the labourers are least employed and worst paid.

But the duties which we owe to the labouring classes, whether as landlords or tenants or British subjects, are not all fulfilled by giving them employment at adequate wages and supplying them with dwellings conducive to the comforts, conveniences, and decencies of life—no; they have still higher claims on our help and guidance, for they have minds to cultivate and souls to care for as well as bodies to feed and to clothe. And if we would elevate them in character and in feeling—if we would lay open to them those fair fields of intellectual enjoyment, from which by reason of ignorance they are too generally excluded; and if, above all, we would teach them to live and to act under an abiding sense of the high obligations which as moral agents and accountable beings are imposed upon them, we must provide for the rising generation a better system of education than their fathers have enjoyed, and that education must be blended with moral and religious instruction.

This opens to my mind so wide and attractive a field of discussion, that I must not at this hour venture to enter upon it—but it is easy to advert to the circumstances of our sister land where, by a widely diffused and easily accessible system, of education for the lower classes, many men have arisen from their ranks who have been distinguished in the highest walks of literature and science—men who like Leslie fathomed the depths of philosophical truths—or like Leyden, climbed to the topmost heights of human learning. But the value of such an establishment is to be estimated far less by the occasional development of extraordinary genius and talent, than by the general diffusion of knowledge over the great mass of the people. I feel that I have detained you too long. Allow me, in proposing "the labouring classes," to express the wish, that the hamlets of our peasantry may long send forth the shout of health and of joy. Long may the golden harvests that robe our fertile plains, be gathered by them in peace and in plenty—and very long may all classes in this favoured land, combining their efforts for the general good, present to the world the spectacle of a powerful and prosperous—a happy and a loyal people.

Home Correspondence.

Middle-Class Education.—At a time when the Albert Middle-class College is creating much discussion, allow me to offer a few remarks about an Institution soon to be opened, which it is hoped will go far towards supplying the great want felt in the county in which it is situated. I refer to the Albert Middle-class College in Suffolk, incorporated by Royal Charter, and intended to answer the two-fold purpose of a County Memorial to the late lamented Prince Consort, and an establishment in which his views with regard to the education of the middle classes can be practically and efficiently carried out. Viewed in the first aspect it is by no means insignificant. It has been erected from the designs of the most approved among a number of competitive architects, at a cost which, together with the furniture and fittings, will amount to at least 25,000*l.* Its situation in the immediate neighbourhood of the old town of Framlingham is healthful, pleasant, and picturesque, and invested with great historic interest. Its grounds are 15 acres in extent; and every precaution that science can suggest has been taken to render the building, if possible, fireproof, or in case of such a calamity as fire, to furnish the means of speedily extinguishing it. For the rest it will be seen that the College is named after his late Royal Highness, whilst on the principal terrace will stand his statue, moulded by the eminent hand of Mr. Durham, and cast in bronze by Messrs. Elkington. This work of art, which during its progress has been inspected and approved by her Majesty the Queen, together with the pedestal on which it will be placed, is the magnificent gift of Mr. Thomas Lucas, of the Belvidere Road, Lambeth. The undertaking originated with, and has been nobly supported by most of the aristocracy and upper middle-class of the county, whilst many non-residents connected with the locality by birth, business, or otherwise, have also liberally contributed towards it, there being no less than 16 donors of 500*l.* each and upwards to be laid out on the building or in scholarships and prizes. Among the foremost are the Earl of Stradbroke (Lord Lieutenant of the county), President; Sir Edward C. Kerrison, Bart., M.P., Vice-President, and the 24 Governors, who have been unremitting in their attention and efforts as regard the scheme, and to whose zeal it is unquestionably due that the institution is now *un fait accompli.* To give an instance of the noble-spirited way in which the undertaking is fostered. At the January meeting of the Governors, Sir Edward Kerrison announced his intention of lending 2000*l.* free of interest towards the completion of the building, &c. At the very next meeting, held a few days since, the noble baronet informed his coadjutors that he had decided to give instead of lend that additional sum towards clearing the way, in order that the establishment should not, if it could possibly be avoided, open in debt. As regards the second purpose for which all these traits of lofty and gentlemanly character have been manifested, permit me, sir, to say a few words as to the kind of education which is here offered to the sons of farmers and business men at the moderate cost of 25*l.* per annum (30*l.* in the case of boys non-resident in the county, their admission being always subject to preference being given to Suffolk boys), which sum will cover all expense for board, washing, tuition, and ordinary medical attendance. The prospectus is thoroughly practical, and the course is intended to prepare the pupils for the active duties of agricultural, manufacturing, and commercial life. The scheme of instruction (as settled provisionally) comprises:—Religious Instruction, Reading, Writing, Arithmetic, Spelling, English Grammar, Geography, and History, Latin, French, German, Mathematics (especially Surveying and Book-keeping). The elements of the Natural Sciences, Agricultural Chemistry, Geometrical Engineering, Model and Architectural Drawing, and Vocal Music. To superintend the carrying out of this scheme, the Rev. Albert C. Daymond has been chosen as Head Master, from a list of upwards of 160 candidates, and his staff at present numbers ten Assistant Masters, carefully selected for their character, ability, and teaching power, —the French, German, and Practical Drawing Masters being in constant attendance at the College. Great care and circumspection are also used in filling up the domestic staff, and nearly the full number of pupils—three hundred—are already waiting for admission in April. I have enumerated the above subjects in order that you may be able to judge how fully and faithfully it is the purpose of the Governors to give effect to the views of the great man to whom this Institution is dedicated, and I may here be allowed to express a hope that if the movement is found to achieve that success which is anticipated, other counties will not be slow to follow the example so worthily set them, and secure for the middle classes throughout the kingdom such an education as shall—speaking comparatively—place them on a level with the upper and lower classes. ——, *Honorary Secretary, Carlton Hall, Saxmundham, Suffolk, Feb.* 27.

Calves killed by eating Sewaged Italian Rye-grass.—I related this circumstance some time since, and subsequently conversed with Prof. Simonds on the subject. He assured me that the only cause was the excessive richness of the food which they were allowed to eat *ad libitum.* He said that he knew of many such cases occurring with young animals, and thus lambs perish by consuming Clover, the first growth of which had been fed off by older sheep eating cake, &c. The same Italian Rye-grass when brought home, cut up, and given in moderate quantities, never injured the calves. This was the first and will be the last time I ever permit them to help themselves to such stimulating food. *J. J. Mechi.*

Yew.—Much discussion having appeared in the *Gardeners' Chronicle* as to whether or not the Yew tree is poisonous to cattle, will you allow me to suggest that the only method of arriving at a satisfactory conclusion on the subject would be by submitting the leaves to a careful analysis at different seasons of the year. Some years since, two of my cows died suddenly from having eaten some clippings of Yew in a half-dried state. My impression at the time was, that death was caused by inflammation produced by the point at the end of the leaf, which becomes exceedingly hard and sharp at a certain stage of desiccation. *A Subscriber.*

Malt Tax.—I venture to look at the proposed repeal of the malt tax in a light by which few care to examine the question. I have been a practical farmer and feeder of stock for some 30 years or more, and I remember reading as to experiments with malt and with Barley, in which, as a feeding material, the former had no advantage over the latter worth mentioning. It surprises me to observe so much weight laid on the benefit that would arise from the supposed cheapening of beer. Some one has calculated that the reduction would amount to a penny per quart. Now even if it would reduce the price of the quart *to* a penny, chemistry and physiology assure us this would be a misfortune, and not a blessing. Unless all chemists are mere impostors, almost the whole of the nourishing principles in the Barley are utterly destroyed by fermentation. We are assured by the very highest authority in chemistry that 580 quarts best Bavarian beer, which is very similar to Allsopp's, Bass's, &c., contain exactly as much flesh-forming matter as 1 lb. of bread, or 9 oz. of beef, and we find that to make these 580 quarts of beer about 350 lbs. of Barley have been used—of sound nourishing Barley food, all now reduced to 1 lb.! But what has become of these 350 lbs., says the beer lover? Chemistry says, they were malted in order to produce sugar, from which the alcohol in the beer was formed, and without which beer would never be asked for. So that we are brought down to balance 1 lb. of bread and some alcohol against 350 lbs. of wholesome Barley food; and comparing the price of the 350 lbs. with the brewer's charge for the 580 quarts of beer, even adding a trifle for hops, trouble, &c., it is easy to understand why brewers should declare beer to be the true Balm of Gilead. I need not here take up time to show how every chemist and physiologist admits that alcohol does not contain a vestige of nourishment, but destroys digestion, and devitalises the blood; and I will conclude by asking those who clamour for free trade in malt, that more beer may be used, to consider what Solomon would have said on this subject. He desires the people to curse those who only delay supplying them with corn, probably till the price rose to an unreasonable height. What would he have said had the corn been all but utterly destroyed, worse than being burnt, since it is the fertile source of most of our pauperism and crime? *J. Mackenzie, M.D.*

Sewaged Italian Rye grass makes the very best hay, which surpasses in feeding properties, as well as in fattening, the best meadow or Clover hay. My horse-keepers and stock-feeders now admit this, much to their surprise, and prefer it to all other sorts. It is cut up into chaff. This statement is consistent with chemical analyses. Care should be taken to get it up green. It should be cut when about flowering, but not allowed to run to seed. As a rule, Italian Rye-grass is over-made. It should heat nicely in the stack. *J. J. Mechi.*

Societies.

Bath and West of England, *March* 4.—At the usual monthly meeting of Council, the Secretary read the following letter and form of petition from the Durham County Agricultural Society:—

Durham County Agricultural Society.

"Durham, Feb. 21, 1865.

"Sir,—I beg to forward you a copy of a Petition which has been adopted by the Durham County Agricultural Society.

"The subject to which it refers is one well deserving the attention of all Agricultural Societies throughout the kingdom, and the Council of the Durham Society hope the question may be deemed of sufficient importance to induce you to adopt similar Petition to both Houses of Parliament.

"Mr Fenwick, M.P. for Sunderland, has undertaken to bring in a Bill during the present Session, and your support is most earnestly desired, in order that an amendment of the present law may be effected.

"I am, Sir, your obedient Servant,

"F. T. Wharam Sec.

To the Honourable the House of Commons in Parliament Assembled.

The Humble Petition of the Members of the Durham County Agricultural Society sheweth,

That in the opinion of your petitioners the English law affecting the liability of the owners of dogs guilty of sheep-worrying is defective, and requires amendment.

In the county of Durham large numbers of dogs are kept, and the owners of sheep, especially in the densely populated mining districts, are constantly incurring great losses in consequence of their sheep being killed or injured by vicious dogs.

The present law practically affords no protection to persons whose sheep may have been attacked, as, before the owner of a dog can be rendered liable for any damages the animal may have committed, it must be proved that the dog has previously worried sheep, and that his owner has had due notice of his vicious propensities.

Your petitioners beg to call the attention of your Honourable House to the difference in the state of the law which exists in Ireland and Scotland, and they would respectfully urge that in their judgment the application of such a law to England would afford owners of sheep that protection which they so much require. The Scotch Act provides

"1. In any action brought against the owner of a dog for damages in consequence of injury done by such dog to any sheep or cattle, it shall not be necessary for the pursuer to prove a previous propensity in such a dog to injure sheep or cattle.

"2. The occupier of any house or place or premises in which any dog which has injured any sheep or cattle has been usually kept or permitted to live or remain at the time of such injury shall be liable as the owner of such dog, unless the said occupier can prove that he was not the owner of such dog at the time the injury complained of was committed, and that such dog was kept or permitted to live or remain in the said house or place or premises without his sanction or knowledge."

The Act 25th and 26th Victoria, which applies to Ireland, contains similar provisions, and in cases where the amount of damages claimed does not exceed 5*l.*, enables the owner of the sheep killed or injured to recover, in a summary way, before any justice or justices sitting in petty sessions.

No complaints are made against the working of these Acts in Scotland and Ireland, and in consequence of the greater strictness with which dogs are watched by their owners, sheep-worrying does not prevail to anything like the same extent it does in England.

Your petitioners, therefore, humbly pray your Honourable House to take into your serious consideration the expediency of assimilating the law of England, in this respect, with that of Scotland and Ireland.

And your petitioners will ever pray, &c.

In the course of a long and interesting discussion it was stated that the evil complained of in the North of England, is also severely felt in many parts of the Western counties, and it was ultimately resolved that the Council, fully appreciating the importance of the subject, thank the Durham Society for their communication, and, although it is not in accordance with the practice of the Bath and West of England Society to petition Parliament as a Society, they hope that the attention of individuals in this district will be called to the state of the law with a view to any improvements which may be practicable.

SMITHFIELD CLUB.

At the last Meeting of the Council at the Agricultural Hall, Islington: present—The Right Hon. Lord Tredegar, V.P., in the chair; the Right Hon. Lord Feversham, Messrs. Buckley, B. E. Bennett, Beasley, Clayden, Farthing, Greetham, Giblett, Brandreth Gibbs (Hon. Sec.), Keary, Ladds, Leeds, Moore, Robert Smith, Sanday, Shuttleworth, J. S. Turner, J. B. Thompson, and Owen Wallis.

1. The Minutes of the last Council Meeting were read and confirmed.

2. It was resolved that in future the Stewards be paid 10*l.* each.

3. Messrs. Owen Wallis and Edward Pope were elected as the new Stewards of Live Stock, to succeed the two who retire by rotation.

4. Messrs. Sanday and Robert Overman were elected Stewards of Implements.

5. The Reports of the Stewards on protests at the last show were received and adopted.

6. It was resolved that the death of the animal shall be the only remission in the fines due for non-exhibition of animals not exhibited, without 14 days' notice having been given.

7. That the Silver Cup to the butcher purchasing stock to the greatest amount out of the classes at the late Show be awarded to Mr. Waghorn, of Cheltenham.

8 The prize sheet for next Show was revised. The different suggestions made at the general meeting, or since sent to the Hon. Secretary, were considered. The following alterations, &c, were made:—

In Cross bred Cattle.—That an increase of 5*l.* be made to the 1st prize in each class.

In Sheep.—That the Kentish have a distinct class.

That a new class be added for long-woolled sheep not being Leicesters, Cotswolds, Lincolns, or Kentish. 1st prize, 15*l.*; 2d, 10*l.*

That the prizes for Shropshire sheep, 1-year-old, be—1st, 20*l.*; 2d, 15*l.*; 3d, 5*l.*

That the Class for 2-year-old Shropshire Sheep be done away with.

That the prizes for Oxfordshire Sheep, 1-year-old, be:—1st, 20*l.*; 2d, 15*l.*; 3d, 5*l.*

That the prizes for Crossbred Sheep, 1-year-old, be:—1st, 20*l.*; 2d, 15*l.*; 3d, 5*l.*

That a Silver Cup, value 20*l*, be given for the best Pen of Pigs in lieu of the Gold Medal.

That a Gold Medal be given in place of the Silver Medal to the breeder of the animal winning the Silver Cup.
1. For the best Steer or Ox in any of the Classes.
2. For the best Cow or Heifer in any of the Classes.

That there be three Butcher's Cups in lieu of one; viz.: for the largest purchaser of Beast, value 20*l.*; for the largest purchaser of Sheep, value 15*l.*; for the largest purchaser of Pigs value 10*l.*

That the rule respecting Fines be modified so as in future to remit the fine in case of an animal dying before the Show, provided the proper certificate be lodged.

9. The Hon. Secretary was requested to communicate with the Railway Companies to ask them to convey animals to the Show in Horse Boxes, and by quick trains at ordinary rates, and respecting returning Implements unsold free.

10. The Implement Committee was re-appointed with the same power as heretofore.

11. The following were elected Members of the Club:—Owen Phillips, of Treriffith, Cardigan; Thos. Parker, of Black Lion, Cardigan; John Lynn, of Church Farm, Stroxton, Grantham; P. H. Frere, of Cambridge.

12. The thanks of the Meeting were voted to the Chairman.

Farmers' Clubs.

London: *Pig Breeding and Feeding.*—The following paper was read last Monday by Mr. Stearn, of Suffolk:—

Mr. Stearn said: Mr. Chairman and gentlemen, in bringing forward the subject for discussion this evening, as it stands upon the card, viz., "The Breeding and Management of Pigs," I will explain, as far as I can, the importance of this much neglected and almost despised subject. I consider it one of more importance than almost any other subject to the public at large, as all classes, from Royalty to the peasant, are interested in it. There certainly has been a great improvement in the last few years in swine, owing, I have no doubt, in a great measure to the agricultural shows having given to breeders a chance of seeing what a pig ought to be. Still there is not so much encouragement given at the shows to the pig class as there is to all other classes. For instance, Newcastle and Lynn gave away in local prizes last summer several hundred pounds to horses, cattle, and sheep, but entirely omitted the pigs; from what cause I never could make out, unless it was that they thought a pig beneath their notice. The pig is an animal of great importance in an economical point of view, if we take into consideration with what extraordinary quickness the supply can be replenished; for the fecundity of the sow is astonishing, and the early maturity of her progeny is almost unexampled in animal creation. The inhabitants of most countries are great consumers of the flesh of the pig; and no other animal produces such a variety of dishes. I consider that pork must be the most profitable article to the butcher as well as to the farmer, the offal being so small compared with either cattle or sheep. In fact there is scarcely any part of the pig but what can be used for food, and the flesh, in the form of fresh or pickled pork, hams, bacon, sausages, pork-pies, and innumerable other dishes, constitutes the principal food of thousands all over the world. It is my firm belief that the keeping of swine is fast becoming something more than a mere means of disposing of the refuse of the farm, which would otherwise be wasted. Formerly large breeders and graziers thought the pig beneath their notice, but I find the thing is changing; still I must say I am often disgusted as well as surprised to see what a disgraceful lot of pigs are kept by many of our large agriculturists as well as by the small ones, such as I am sure if kept to any great extent will ruin any one, for they eat an enormous quantity of food, and will neither grow nor fatten upon it; but if farmers generally would pay proper attention to breeding, rearing, and feeding, I believe there could be double the meat raised at little more than the present cost, and especially if they had suitable piggeries, made use of proper feeding-troughs, and selected a good herdsman. I have studied the management of pigs for the last 30 years, and have found that the better the attention the greater the profit; and if a person wishes to make a pig pay, the pig must be kept well when young, and not allowed to run 12 months in almost a starving condition.

The first thing which I introduce must be the piggeries.

For any one commencing the breeding of pigs must provide a place to keep them in. I must say I scarcely ever see one that I consider fit to put a pig into. Some are badly ventilated, others low and damp, nine-tenths of them too small, some too cold, others too much confined, and having no means of altering them between summer and winter; and a great many of them have the cisterns inside them, to receive the wash, &c., from the house, which is very bad indeed; for the constant stench from it injures the health of the animals, and I am sure is most unpleasant to those who have to attend them. But the worst of all sties are those with wooden floors laid over a pit. Some I observe a foot deep, which, of course, must get filled up with unwholesome rubbish. I have said that I am surprised at the pigs kept by many persons; but if I think again I do not know that I ought to wonder so very much, when I take into consideration the general construction of the places where the pigs are kept. If there is one corner on the premises worse than another, that is where the pig-sty is placed, and people almost require marsh-boots to get to it. There is no question but what it would be a great boon to the tenant farmer if landlords would take more interest in providing better buildings for the pigs. It is not the most expensive place that is the best; I consider it decidedly otherwise. But what is required is a simple, economical, well-situated, and well-planned piggery. Some build expensive brick or stone buildings, which I have proved are not so healthy as buildings of another kind. I find a boarded building by far the best; if tiled or slated it should be reeded and plastered underneath, so as to prevent the extremes of heat and cold, having a ventilator on the top made to open and shut, half-doors and falls both back and front, like a model of one of my buildings which I have with me this evening, and which, gentlemen, I will exhibit to you at the close of my paper. The farrowing pen ought to be large, to allow the sow plenty of room, and likewise to admit of rails being placed round the sides, and so fixed as to prevent the sow lying on the young ones. These rails should be made to shift according to the size of the sow, in height from 8 to 12 inches, and extend out from the wall about 9 inches, having the supports carried up sloping from the rail to the wall, instead of straight from the floor, like an inverted bracket. I will introduce a model of these rails presently. When the sow lies down there will be no likelihood of her crushing the pigs against the side, as there is plenty of space left for them to pass between her and the wall; for that is generally where the mischief is done, as sows invariably like to lean against something when they lie down, especially when they are kept bare of litter, as I like to have them. Since using these farrowing rails, I have had hundreds of pigs without losing one from being crushed; whilst if we take an average of the country, nearly half the pigs are lost from that cause. I have heard a great many people lately complain of losing many pigs from the mother lying on them; but if they will follow my plan they will find it a great protection. Each pen ought to be at least from 8 to 10 feet square, and the best floor I find is asphalte. No damp or scent can rise from that. I have tried boards, bricks, and almost everything in the way of floors. Many people will contend that boards must be best; but, gentlemen, I think I can convince you of the contrary. If you will consider for only one minute, you will see that they cannot be healthy; for if the boards are placed close, you will find the moisture stands, and the floor becomes quite saturated, and if a space is left the refuse litter will go between, so that it will become one mass of putrid matter underneath, quite level with the floor, whatever the depth may be; and this is likely to bring on all kinds of disease. In the cold weather I think the asphalte too cold for very young pigs, therefore I have some lattice floors to lay down on the asphalte, which are taken up once a week, and everything is swept from underneath. Every morning I have the beds attended to and fresh littered, for I find the cleaner a place is kept the better the pigs thrive. The floors are washed down generally once a week; everything runs off, and the asphalte soon dries. There is another great advantage, namely, that it certainly does not take more than two-thirds of the straw which is required for any other floor, for the moisture appears to run under the litter without wetting it so much, as the asphalte is laid a little on the slope. What litter is taken from the pens inside serves for the pounds outside, which ought to be paved in some way to prevent the pigs from rooting. A tank should be made just outside to receive the drainage from the pounds; the building to be troughed to take off the rain-water, so as to prevent the manure being washed. By following this plan the manure is made very regularly and good. I find this piggery most comfortable and convenient in the summer for getting pigs up for the shows. For on the hottest day it is always made cool and sweet inside by closing the top doors, opening the lower, and partly shutting down the falls on the south side, whilst on the north side everything is set open. Lattice slips are put to all the lower doors, to prevent the pigs getting out. At a time when the pigs were perfectly cool in this model piggery, the herdsman was obliged to go round several times in the day to all the other places with a watering-pot, to pour water over the pigs to keep them alive.

In selecting pigs for breeding great attention should be given to choosing a good breed, such as will come to early maturity; for that is where I find the profit is gained, and the better the quality of the breed the less food is required to bring them to that maturity.

The contrast between the coarse and the many beautiful specimens of our improved breeds is very manifest, and affords good proof of what may be achieved by the skill and care of the breeder. To give an extended outline or description of the original species, or of the various breeds and innumerable crosses and varieties of pigs, would occupy too much time, therefore, I shall just describe our Suffolk pigs. From the many prizes awarded to them from the various agricultural shows all over the kingdom, and my own experience, I consider no other breeds so well adapted to most localities as the improved white and black Suffolks. The improvement took place not before it was needed, for a worse animal could not be found than the old Suffolk pig, with its long thin snout, large lop ears, arched back, long legs, thin body, coarse bristly hair, thick, long, straight tail; in fact, with everything to make it a disgusting-looking brute. When I read a paper on swine a few years since, as many persons no doubt will remember, I said I did not like black pigs so well as white; but by judicious crossing they have become so nearly equal to the white that I now have scarcely a preference. They are similar in form and symmetry, and will either of them come to early maturity, and fatten to a great weight with a small quantity of food in proportion to that weight. In choosing the boar and the sow of the Suffolk breed the chief points are: a rather small head, with wide heavy chaps; short snout; broad deep chest; ears rather small and thin, with the ends sharp and pendulous, pointing a little forward; roundness of rib; shortness of the legs; small feet; long body; the thigh well dropped close to the hock; shoulders and hams thick; the neck rising well behind the ears; small bones in proportion to the flesh; broad and straight or slightly rising back; tail small and curled, and placed high; hair thin, long, fine and silky. Strict attention to these points in selection cannot fail of perpetuating good stock. As much or more attention ought to be given to the boar as to the sow; for I find the progeny generally resembles the boar more than the sow. I prefer the sows for breeding to be rather larger than the boar, and good sized animals, since they are more likely to have a larger number of pigs. And great care should be taken not to save one with less than 10 or 12 pigs. I consider 12 good even pigs to be sufficient in a general way for a sow to bring up. I do not recommend breeding very young. Generally speaking there is not sufficient care taken on this point. Breeding too young is a means of preventing the sows growing to the proper size, or acquiring sufficient strength. The proper time for the sow to begin to breed is from 10 to 12 months old, the boar being from 8 to 12 months old. I think it well to cross as far distant as possible occasionally, so as to strengthen the constitution. Some think this of no consequence, and breed in-and-in many years following. Some time back I purchased a sow from a gentleman who had made a practice of this for more than 20 years. The first farrow she produced with me came out full of ulcers; the legs of most of them were crooked with large spavins; in fact, they could scarcely be called pigs at all, and I was obliged to have them all killed when they were a few weeks old. But when wishing to make a cross, my plan is to buy a sow of different blood, and then fall back again to my original stock; by which means I retain the same character, without injuring the breed. I find that by this method I can breed them almost exactly as I desire. So far as my experience goes, the time of gestation averages about 113 days, or 16 weeks and one day. But old sows go rather longer than young ones. When a sow is in pig she should have full liberty to roam about and feed on Grass in the summer, whilst in the winter she should have roots of various kinds and about a pint of Beans per day. A short time before farrowing she ought to be put into a convenient pen or sty, and fed on simple food. As the time approaches she should be carefully watched, and allowed only a small quantity of dry short straw; otherwise, on farrowing, if the straw is too long, the pigs are very likely to be smothered. The proper plan is, at the time of farrowing, to have a man with the sow to attend to her; for I think it is not wise to lose half, or perhaps the whole of the pigs for the want of a little attention at the most particular time, especially after having had the expense of keeping the sow so long previously. At the time of farrowing I allow a very small quantity of litter cut short, and have a hamper placed in the pen with a little straw at the bottom, and lined with an old blanket. I put a slip of partition about 2½ feet high across the pen, to prevent the sow from getting to the hamper. As the pigs come forth I put them into it, and cover them up until the sow has done farrowing, after which I put them to her and let them suck. When finished I put them back into the hamper, give the sow a little warm milk and bran, and whilst she is eating this have the bed attended to, by removing all the wet straw, &c. I add a little fresh straw cut short, and then, when the sow lies down, let the pigs go to her again. I always give the herdsman 6*d.* per head for all the pigs he can bring up to a month old. I find this much the cheapest plan, for then there is no fear but that he will see to them properly, and attend to them in the first instance as well in the night as the day. How often do we hear people complain of the sow eating her own young. Therefore steps ought to be taken to prevent her from doing so; for, when once a sow does that, she is of very little use for breeding purposes. If you will allow me I will explain what I have found to be the cause. In some litters the side teeth are much longer and sharper than in others; when this is the case, and the pigs begin to suck, they bite and scratch the paps, punishing and irritating the sow to such a degree, that it brings on inflammation, and the sow becomes mad with rage. She throws some one way and some another; at last she bites

them, and, if she once draws blood, she will begin to eat them. Now, my plan for preventing this is as follows: When the pigs are a few hours old I have them taken away in the hamper, so that the sow cannot hear them, and nip those teeth off with a pair of pincers. As soon as this is done, and the pigs put back, care is as kind to them as possible, and perfectly docile. Since having my model piggery, I prefer breeding in the winter, rather than in the summer; for the proper temperature of the sties can be kept up quite sufficiently in the coldest weather, and after the pigs have been taken proper care of the first day or night, the cold does not appear to affect them so much as the heat. If pigs are farrowed in January and February, and kept with the sow eight or nine weeks before being weaned, they will grow and thrive in the spring and summer, so that they are fit for either breeding, feeding, stock yards, or anything you may require them for in the autumn, and thus you can have another litter of pigs in August instead of October. When farrowed too late in the autumn, young pigs will not thrive through the severe weather in winter, and especially if the usual plan is resorted to, of turning them into open sheds or cold piggeries, you see them worth very little more for their two or three months' keep; but by pursuing the plan I have recommended, you clear the worst time by having the pigs kept with the sow. The general opinion is not to breed so that the pigs come at the time of year I have stated, viz., January and February, because people care to give so little attention to the sow at the time of farrowing. She is put into a cold damp sty, with scarcely room to turn round in, and a great deal of straw. When she begins to make her bed, strict orders are given that the man or boy not to go near her for several hours, for fear of disturbing her; but when he does go to the place he finds that some of the pigs have crept away from the mother and perished with the cold, and some are crushed against the wall for want of rails to protect them. Some sows, especially young ones, will not allow their pigs to approach them, others will eat the pigs from their paps in consequence of being so bitten and punished by the teeth. Through all this mismanagement many gentlemen have declined breeding pigs altogether. I find eight weeks old is a good time for weaning pigs in the summer, and nine weeks in the winter. And I like to have those which are not saved for stock operated upon a short time previously. The boars I keep for stock are confined in a shed with a roomy yard, under lock and key; for if they are allowed to roam, we are likely to get wrong in the breed. I allow them plenty of water, and about a pint and a-half of Beans each per day, and any other food which is most convenient, such as Vetches, or Mangel Wurzel: I always keep some of the latter all the year on purpose. I will now explain my method of feeding. Many people think I have said too much already upon that subject for my own interest; but never mind, I have no secret. When the pigs are about three days old, and whilst the sow is feeding, I give them some new milk, warm from the cow, sweetened with a little sugar, just to induce them to eat. The milk is put into a flat wooden trough, with the sides about three quarters of an inch high, placed in the bed where the pigs lie. After running into it once or twice, they will drink it, and are no more trouble. In three or four days I mix half skim milk with the new, and likewise some oatmeal and a little fine sharps; by degrees I omit the new milk and sugar, and in their stead add some whole Indian Corn or Barley. The sow, as I have stated before, after farrowing, should be fed for a few days on mild food, such as bran mixed with warm milk. After two or three days add a little Barley or Bean-meal, and increase the quantity of these as the pigs keep growing. For a few weeks after the pigs are taken off the sow, they cannot be fed too well or too frequently; but care must be taken not to give them too much food at a time, and to make them clear their troughs out, for they will eat the food much better when it is fresh. I give them a variety of meal, such as Wheat, Maize, Barley, Oat, and whatever is most convenient to mix together. I have it all wetted with cold water, and then scald it with boiling water, and sprinkle it with salt. The cooking house is fitted up with a copper and cisterns, and the food is mixed one under the other. What is mixed one day is used the next, thus giving sufficient time to allow the food slightly to ferment, and cool sufficiently to feed with. This is my winter plan, but in the summer I mix all with cold water, and feed with cold food. Between meals I give them whole Maize, and Mangel Wurzel or Swedes cut small, a little coal and soil occasionally, and allow them plenty of clean water.

Pig Feeding.—When pigs are put up fatting, I find nothing better to feed them with than Barley and Maize meal, mixed together into slops, water always kept by them, and a little Mangel cut for them occasionally.

It is very beneficial to wash and brush them as often as convenient. This is quickly done by experienced hands, and will amply repay for the trouble. If you will try the experiment between this and the common mode of treatment, you will be surprised at the difference. I am certain that the cottagers would find their pigs fatten a great deal faster if they would wash and brush them, and feed them with warm food, instead of with cold ice, and that they would be well paid for any little extra trouble it might cause them. Store pigs ought to have their liberty, as far as convenient, to range in large yards in winter, and to have the run of a piece of pasture in the summer. They should also be fed two or three times a day. Good bred and well fed store pigs will always consume the refuse from the farm and dairy, which a bad bred one would refuse. I have never known mine refuse anything in the way of pig food yet that was offered them, not even the prize animals. I have received letters from a great many gentlemen at different times, requesting me, if I could, to inform them how to prevent little pigs' tails falling off. Now this is a thing I have given my attention to for a long time, but I am sorry to say up to the present I have not been able to solve the mystery. I have asked the opinion of a great many old pig breeders, but no two thought alike. One would have it that it is only the winter pigs which lose their tails; another says that it comes from the easterly winds; another, from breeding too close; another, from feeding. I have bred thousands of pigs, and tried a great many experiments. Once or twice I thought I had found out the riddle. But no; what seemed to do good at one time took not the least effect the next. I find that quite as many pigs lose their tails in the spring and summer as in the winter. I have bred as closely as anything could be bred, just for a trial, and not one tail has come off. Then, again, I have bred as far distant as possible, and perhaps nearly half the pigs have lost their tails. Sometime last summer I had two sows, sisters of one litter, put into a place with only a low partition to divide them. They farrowed within an hour of one another. Several pigs of one sow lost their tails, whilst those of the other lost none. Both litters were bred precisely the same. In the coldest week last January five of my sows farrowed; they averaged 10 pigs each, and not one of them lost a tail. I have quite made up my mind it is neither breeding, feeding, hot weather, cold weather, nor easterly wind which is the cause, nor does it signify whether the pigs are black or white; therefore I must leave it to some one with a wiser head than I have to solve this mysterious affair. I will now introduce feeding-troughs. This is a subject which I consider has been but little studied, if we may judge from the badly-constructed troughs we see in use. Not being able to buy, or even see, a trough my short-legged heavy-faced pigs could eat out of at all comfortably, I turned my attention to them, and designed some, which have been manufactured by Messrs. Ransomes & Sims, Ipswich. They are of simple construction, easily adjusted so as to suit pigs of various sizes, and will prevent waste and soiling of food; are a good width from back to front, and have no sharp edge left in the front, so that a pig with the heaviest chap can feed with the greatest ease and comfort, as well as those animals that can eat out of a quart mug. In fact, they are most economical in every respect. I have brought models with me; but as the troughs have been out some little time, I think most likely many now present have seen them in use. I will offer nothing further, except my best thanks, gentlemen, for your kind attention. My statements are plain, and I hope intelligible. If they appear too plain for my present audience, they I trust will be good enough to accept an apology on the ground of my anxiety that every person, however unlettered, may be able to understand and apply them.

Reviews.

An Address to the Students of the Royal Agricultural College, Cirencester. By the Rev. John Constable, M.A., Principal.

We refer to this Address in order to welcome the opinions on agricultural education of one whose official position gives them the highest claim to consideration.

Mr. Constable thus concludes a lecture in which he argues for the efficiency of mathematical and scientific studies as educators: and contends for the influence of the Agricultural Society being thrown into the scale of scientific and professional, rather than merely general and preliminary training:—

"It is vain to say you cannot teach, and you cannot examine in practical agriculture, unless you mean by the latter that it is impossible to ask a man to describe how he has done that which he has never been as yet called upon to perform. A youth may know, and accurately, how much to give for particular labour, the quality of work which a machine under certain circumstances ought to perform; he may have watched fatting cattle day by day, have seen them fed and weighed, may know the cost of their food, indeed may have many accurate statistics, yet he is said to possess only theoretical knowledge, because he has not as yet directed labour or machines of his own, or fatted cattle purchased by his own capital. Is such a conclusion as this reasonable? Yet it is the conclusion of those who say you can neither examine in nor teach practical agriculture. It may take a long time to remove prejudices, but if agricultural colleges have their lecture system fully illustrated by contiguous well and profitably managed farms; if they persistently open their doors to the inspection of practical men; if they invite eminent and successful agriculturists to test the practical knowledge of their pupils by examining them in the details of farm labour on the farm—not in the lecture-room—where the animals, the crops, the live stock, are before both pupil and examiner, why then, I am sanguine enough to believe that it will yet be confessed that such colleges can teach practical as well as theoretical agriculture, and that the encouragement of the successful students is not an object unworthy the attention of the Royal Agricultural Society of England.

"Whether it would be wise for this Society to expend any large amount of money in the direct reward of intelligent and enlightened students, is hardly a doubtful question. All men know that degrees are valuable in proportion to the difficulty of securing them, and to the eminence of the examiners. No reward, therefore, in mere money would be an equivalent to a degree granted by the Royal Agricultural Society, if the latter signified that the possessor was an educated agriculturist; that is, that he had a sound knowledge of the principles of science, and of the practice of British agriculture. Whether the Society will ever stimulate men to severe and persevering application by this reward, time alone can show. They may fritter away a large sum annually in rewarding intelligent boys who pass well in the Oxford and Cambridge middle class, but it will be long before such an encouragement advances British agriculture."

The preliminary part of the Address discusses the relative influence of classical and mathematical studies; and the only point on which a reader feels disposed to criticise the very useful and able discussion which the subject here receives is the too frequent and almost exclusive reference to "polish" as the test by which the merits and efficiency of either method are to be determined. "Polish is not the *chief* object in middle-class education," nor is it, we venture to say, the "*chief*" object in the education which any class whatever needs. Education is not a "garb," nor is the want of it a "tarnish." We do not like the tone of the following remark on the alleged fact that the requirements of the middle class may be met by other studies than that of the dead languages:—

"To assert this is not for one moment to deny that, for the higher forms of success in all employments, the long established and recognised basis is the best—it is merely to say polish is not the *chief* object in middle-class education; indeed, it may be questioned whether scholarship and polish are not to a certain extent alien from all money-making occupations. So soon as ever the scholar descends to the tradesman, you will detect the tarnish in his deportment; it is vain to endeavour to disguise the fact. Educators, however high their attainments, carry the impress of their calling wherever they go; and those having the softer and more cultivated dispositions know well, that to revert to the classic tastes of youth, and to reassume the garb of the true gentleman, the money-maker's tools must not be in their possession for too long a period."

Mr. Constable proceeds to say that "plain speaking on this subject is much to be desired." And we act on his maxim by the confident assertion that it is not money but the love of money that is the really degrading influence; and one which exists as mischievously in the heart of the classically educated man with that 'polish' which is the garb, but merely the *garb*, of the true gentleman, as in that of the tradesman who alone is here supposed to hold the money-maker's tools in his hands. It is when "polish" is sought or "tarnish" is avoided as an end—when either is considered as the real object concerning which an educator labours, that he will be most likely to fail of the work which he is wanted for. Let him ply his means, religious, moral, and the study, whether of the languages or of the sciences, so as to ensure the quality — the strength, tenacity, and ductility —of the metal in his hands, and its *capabilities* therefore, whether of usefulness or of ornament, and the polish and the beauty and the garb will come, and the tarnish will probably be avoided. But it is possible that by labouring for these, as the aim and end of education, he may turn out, not men with the inner strength and goodness of true metal, but mere lacquered shams, Birmingham ware, men with the "garb" indeed and polish of the gentleman, without that essential power and worth which alone ought to be the *object* of middle-class or any other education.

To return however to the subject of professional training, on the use and need of which we are glad to claim Mr. Constable's valuable judgment, we may mention as a matter belonging to his own county, that on Tuesday last a paper was read before the Kingscote Farmers' Club by Mr. Want, the head master of the middle class school at Dursley, on "Education, that of the middle classes generally and the farmers in particular." And after an interesting discussion, resolutions somewhat to the following effect were adopted:—

"That a sound religious, moral, and general education should form the groundwork of the education of the farmer.

"That a means of instructing youths after they leave school, between the ages of 15 and 21, is greatly needed.

"That whilst fully appreciating the importance of the practical experience obtained by them at home on the farm, it is very desirable that they should receive sound scientific instruction.

"That for this purpose a person properly qualified should be engaged to afford such instruction.

"And, provided a sufficient number of young men unite and engage such instructor, Resolved that this Association grant from their funds the sum of 10*l.* towards the purchase of chemical and other apparatus."

About eight names were given in the room, and it was believed that a class of about 20 may be formed.

Mr. Constable says in his lecture that—"If the middle class cry out for teachers, teachers will be forthcoming." And no doubt application will be now made to the Agricultural College, in the hope that the instruction on agricultural science needed by the Kingscote Farmers' Club may be provided thence.

Farm Memoranda.

Indian Agriculture and "Reh."

[The following notes on the effects of drainage and of evaporation in a country where rain and heat and droughts are excessive, are interesting to English agriculturists. They are taken from the *Friend of India* of Oct. 13, 1864.]

In the year 1858 it was found that many of the villages on the banks of the Jumna Canal were suffering extreme poverty in consequence of the failure of their crops. The cause of this failure looked incomprehensible. The crops were sown and tended as of old, and there was no change in any respect except in the important one that the land remained barren. The destitution of the villagers became at last so serious that the attention of Government was drawn to it, and Colonel Baird Smith made a report on the subject. He thought that the mischief was caused by the percolation of the canal water through the soil in various directions. By this means it brought into action certain soluble salts in the earth and carried them to the surface, thus producing a "saline efflorescence destructive to vegetable production." To avoid this it would be necessary to lower the bed of the canal throughout, and the work would cost at least five lakhs of rupees. So serious was the evil that the Punjab Government expressed its opinion that it might "be quite worth while to incur this expense to save the loss of revenue which will otherwise accrue, and to avert the distress with which so many villages are threatened." On further inquiry it proved that the deterioration in the soil was much greater and extended over a wider district than had been supposed. The agent of all this mischief was "Reh."

Reh is sulphate of soda. Or, according to a careful analysis by Dr. Thomas Anderson, of Glasgow, it is a mixture of common salt, with much sulphate of soda, potash, lime, and a small quantity of alumina. The water of the Jumna Canal did not bring it to the soil, but only developed it. Captain Glover thought that the only way of getting rid of it was to provide a complete system of surface drainage, so that the salt might be thoroughly washed off the land. The Commissioner of the Delhi division, Mr. Brandreth, ascribed the presence of Reh to excessive irrigation. "The soil," he wrote, "is damp for several feet below the surface, and its mere dampness is sufficient to cause the salt to rise to the surface." Lieut.-Col. Turnbull agreed with Col. Smith, that the cause was the canal being higher than the land. In the water itself there was nothing present which could do any harm to the land. About the potency of the salt there could be no doubt. Some lands it turned into what is called in the collection of reports published by Government, a "dry swamp." Mr. Sherer wrote:—"Land so affected has, at first sight, all the appearance of fen or marsh, and you are surprised when you press it with the foot not to find it oozy." Sometimes a sickly Grass grew up, and nothing that was sown would bear fruit. The seed might as well have been thrown into the Jumna itself. The effect on the inhabitants was necessarily most disastrous. Sir John Lawrence was at this time Commissioner of the Punjab, and thus the people had every security that their troubles would not be lost sight of. In point

of fact, the local government took the matter up in a very earnest spirit, and there was nothing left undone to put an end to the calamity that had fallen on the people.

After Sir John Lawrence's departure this very curious subject continued to occupy the attention of the Punjab Government. But the difficulty was considerably increased by the discovery upon analysis that the water of the canal, and also of the Ravee and the Ganges, contained the principal constituents of Reh. Lieutenant-Colonel Strachey, in a letter dated October 24, 1862, acknowledged that this was true, but he gave an explanation of the circumstances which we must quote:—"As to the analysis of river waters, I can readily understand they should contain a sensible amount of sulphate of soda (*Reh*). The great plains of Northern India are obviously the detritus from the mountains beyond them. The constituents of the soil in the plains are certainly those of the silt now brought down out of the mountains by the great rivers. Therefore it is exactly what one might expect to find that the river water contains a very minute portion of sulphate of soda, and of the other soluble salts commonly found in the soil. The fact that rain is scarce in the Reh districts accounted for the great prevalence of the salt, because the surface was less effectually washed.

Thus, then, ample information was collected as to the nature of the evil, and its cause. It remains to apply a remedy. In February, 1863, the supreme government ordered a bit of bad land to be selected, and the experiment tried whether deep drainage would get rid of the Reh. Between February and September the authorities in the Punjab were engaged in carrying on the necessary investigations, and the chemical examiner, Mr. T. E. Brown, recommended the artificial production of nitrate of lime as a means of fertilising land covered by Reh. Dr. Anderson, of Glasgow, thinks that drainage is the only cure. The Government has still to carry out some plan, and it is very evident that it must be an expensive one. Further inquiries could scarcely add any useful information to that already collected, and the public would be glad to learn that some practical measure has been adopted to stop the progress of the mischief. We may add that the blue-book, containing the reports from which we have drawn the materials for this article, is worth preserving by agriculturists and scientific men, for very little is known about Reh, and it is not even mentioned in so elaborate a work as Ure's Dictionary.

Calendar of Operations.

March.—The engravings of Oats, promised last week, must be postponed till our next issue.

The Ewe Flock.—The following on this subject is quoted from the pen of our Correspondent "*O. F.*"

"It is requisite to provide suitable lambing paddocks or pens for the lambing season, to which the ewes can be taken every night. In them, and also about the pasture field, or adjoining fields, shelter pens should be constructed, in which a ewe about to lamb, or immediately after she has lambed, should be put, if the weather is unfavourable. These pens are made with straw-wattled hurdles; five hurdles making a double pen, three being set down parallel with each other, and so near that the two other hurdles form the back and front. As the season draws nigh every preparation is made, and the allowance of food is increased. The ewes being heavy with lamb, require additional support. When their 'time is up,' my ewes are constantly watched for a few days upon the pastures where they have been wintered. As soon as the lambs begin to fall, they are collected into a roomy field, provided as above, in the corner of which, adjoining the shepherd's house, are the lambing paddocks, into which they are driven every dark and unfavourable night. In fine open moonlight nights they are sometimes left out, as it is desirable that the paddocks or lambing pens should be freed from taint, *i.e.*, be sweetened occasionally. Tainted straw or gangrenous droppings are sometimes fatal to ewes if they come in contact with the wounded uterus. On the large farms upon the Downs and Wolds, and in many other parts of the country, ewes are generally, if not universally, lambed while on Turnips. In such cases lambing yards, or pens of sufficient capacity, should be provided, with a temporary house for the shepherd. It is constant and untiring attention that is required. It is only in special cases that the shepherd's skill and experience are brought into requisition.

"The ewe about to lamb must be examined by the shepherd to ascertain that all is right. This being found correct (*i.e.* the nose and fore-feet in front, and ready to come forth), she should be left awhile to her own efforts. Should her pains be protracted, the shepherd must lend assistance, or the lamb will be dead ere it is brought forth. The ewe should be gently laid upon her side: the shepherd should then draw one foot forward after the other, and then by a steady pull draw the lamb away. If the lamb is wrongly presented, then comes the difficulty and danger: the shepherd has to push it back most frequently into the lamb-pouch, there turn it, and by the ewe's pains, and his guidance and help, it is often brought away without much damage. The ewe, in all cases of severe labour, should have a small tablespoonful of laudanum administered, to keep her from paining till the parts become easier, followed in a day or two by a small dose of Epsom salts, and warm cordial drinks or gruel, and suitable food, such as hay, chaff, and sliced Turnips or Carrots.

"The lamb should be cleared of all adhesion around the nostrils as soon as it is born, and very soon afterwards suckled. The ewe's udder should be cleared of wool, to prevent its being drawn in by the lamb. The castration should take place about 14 days after birth, on a mild, damp morning. As the ewes lamb they should be drafted off to other pastures, and the lambs ought there to have access to a fenced inclosure, where they can enjoy a ration of corn and cake to themselves."

Notices to Correspondents.

Breeds of Sheep: *Flockmaster.* Leicesters cut a good fleece of wool, upon an average of 7 lb. each, and weigh, at 14 or 15 months old, from 9 to 10 stones each. Cotswolds average, when fit for the butcher, at 14 or 15 months old, from 12 to 13 stones, and the weight of wool of the whole flock approaches to 8 lb. each. Lincolns are not generally fit for the butcher at 14 or 15 months old, but they are kept until they are 22 to 28 months old, when their weight will be from 30 to 40 lb. per quarter; and they cut a second fleece, weighing from 10 to 14 lb. The weight of wool of an entire flock, under fair average management, is about 8½ lb. each. Shropshire sheep, as yearlings, cut from 5½ to 7 lb of wool, and if they have been well kept, will weigh from 16 to 18 lb. per quarter, but they are not calculated to come out as yearlings, and are more frequently run on until the following Christmas or second year's clip, when they can be made 25 or 30 lb. per quarter. The Oxford Downs generally drop their lambs in the month of February, and at 13 or 14 months old they are ready for market, weighing, upon an average, 10 stones each, with a fleece varying from 7 to 10 lb. The ewes are good mothers, and produce a great proportion of twins.

Bromus: *J W R.* You will see it is referred to in a paragraph elsewhere. Apply to Lawson's for any further information.

Dairy Produce: *L. M.* This is Mr. M'Adam's statement, but it is far above the ordinary experience:—"A stock of cows calved by April 1st, and receiving good feeding—assuming that all the herd have come to their proper time of calving—will average about 11 imperial quarts each daily, or 28 lbs. per cow. In speaking of the quantities of butter or cheese produced by a stated quantity of milk, it requires to be understood that milk from newly calved cows does not yield so much butter or cheese as milk from cows approaching their time of going dry (in proportion to the weight of milk). Thus from a stock of cows all calved by May 1st, 260 lbs. of milk will give 22 lbs. of cheese ready for the market in the month of June, while the same quantity of milk from the same cow in October will produce 28 lbs. ready for the market, and increase in the yield of cheese from the quantity of milk until the cow goes dry. The monthly yield of milk in my dairy stands as under:—

April—	30 days' yield,	28 lbs of milk	daily..	840 lbs.
May —	31	,, 30	,,	.. 930
June —	30	,, 33	,,	.. 990
July —	31	,, 26	,,	.. 806
Aug. —	31	,, 22	,,	.. 682
Sept. —	30	,, 18	,,	.. 540
Oct. —	31	,, 14	,,	.. 434
Nov. —	30	,, 10	,,	.. 300
Dec. —	31	,, 4	,,	.. 124
				Milk 5646

which, allowing 10 lbs. of milk on an average to yield 1 lb. of cheese, will leave as the year's produce of each cow 564 lbs. of cheese."

Insurance of Title: *R.* Mr. Wren Hoskyns says:—We have insurance offices in abundance, ready to undertake every species of risk, and not too full of business at present; and here is a risk declared by the best authorities to be, not, like life insurance, a mere question as to the time when an event, certain in itself, will take place, but the infinitesimal risk of a thing which rarely ever happens at all. The Great Eastern is a floating property of tolerable magnitude, yet she can be insured. Why should not landowners take a leaf out of the ledger of commercial prudence and sagacity, and by a Landed Title Insurance Company free themselves for ever from the tyranny of shadowy doubts upon their titles that have such fearful power for mischief, yet no reality or substance, except for the benefit of those who raise them?

Lactometer: *Reader.* The following describes one:—The instrument is made of brass, in the form of a shallow, oblong vessel, capable of containing about an ounce of fluid; the depth of the vessel is made to increase gradually, by means of a slab of white enamel fixed in a gentle slope from one end to the other; this slab is graduated throughout its entire length. Upon this the milk is poured till the vessel is filled, and a cover of plate-glass is then put on—this should be done by giving it a sliding motion, to exclude air bubbles. When the vessel full of milk is thus covered, the degree of dilution possessed by the sample under examination is estimated by the number of degrees on the enamel which can be read through the glass cover.

Linseed, Gorse and Rape: *G H B* Next week.

Oilcake: *Reader of the Agricultural Journal.* The following remarks on the cake manufacture are by a writer in the Agricultural Society's Journal. He said:—"The intrinsic value of Linseed-cake is not sufficiently dwelt upon; hard-pressed cake, or cake which is closely ground, although genuine, is invariably refused by the farmer, and preference given to the more tender-looking but adulterated kinds. My own bailiff, I have observed, is inclined to the latter-mentioned quality of cake, especially for sheep. It, however, requires little if any consideration to decide where the preference should be shown. The difference may be discovered by the greater amount of mucilage which a given quantity will produce, which may be quickly and easily tested. The finest quality is made as follows:—200 lbs. of ground Linseed are mixed with 28 lbs. of ground nut-cake, 28 lbs. of Rape cake (also ground), and 28 lbs. of coarse bran. The second qualities are made of a small admixture of Linseed with a considerable part of the undermentioned articles; and the third qalities are made wholly of the last-named of the following articles, without any Linseed at all:—

Foreign Linseed-cakes.	Castor-oil Nut-cakes.
Dodder-seed cakes.	Rice husks.
Poppy seed cakes.	Cotton seed cakes
African ground Nut cakes.	Rape-cakes

Sometimes the whole of the above are mixed and worked together; but a supply of each is not always on hand; and some or all, according to circumstances, are introduced to make up the desired quality.

Steam for Chop: *West Riding.* What is it that you want to know the use of? We cannot read. [Will any one tell us where the best milk cans available for gauging as well as holding milk are sold?]

The Sheep Fold: *D F.* Mr. Ruston's address is Chatteris, Isle of Ely.

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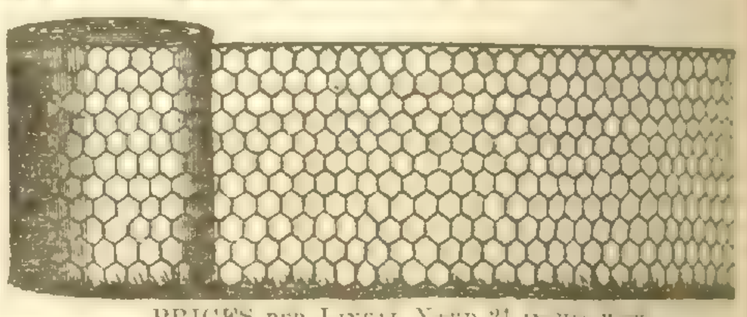

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2 in.	Game or Poultry Netting	0 3½	0 4½	0 4	0 5	0 5	0 6	[illegible]
1⅔ in.	Small Rabbits, Hares, &c.	0 4	0 4½	0 4½	0 6	0 5½	0 7	[illegible]
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1 in.	Pheasantries, &c. ..	0 9	0 11	1 0½	1 1½	1 3	1 6	[illegible]
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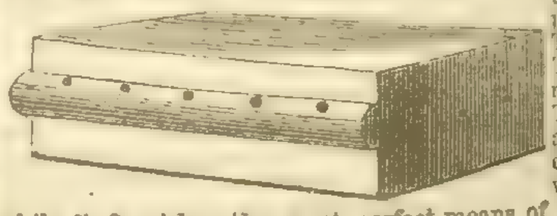

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J. C. Wheeler & Son, Seed Growers, Gloucester.

ON LAYING DOWN LAND to PERMANENT PASTURE, and its subsequent Management. See Wheeler's LITTLE BOOK on GRASSES.

PRICED LIST of FARM SEEDS.—See Wheeler's LITTLE BOOK on GRASSES.

J. C. WHEELER AND SON, Seed Growers, Gloucester, will forward a copy of their LITTLE BOOK on GRASSES, post free on receipt of four stamps. It may also be had from any bookseller, price 4d.
Published by Longman & Co.

J. C. WHEELER AND SON, Gloucester, Seedsmen to the Gloucestershire Agricultural Society.

Improvement of Grass Lands

By Sowing good Seeds of the most Suitable Kinds.

SUTTON'S RENOVATING GRASS SEEDS should NOW be SOWN.

These Seeds consist of PERENNIAL CLOVERS and fine GRASSES for improving the bottom. Price 10d. per lb.; 8 or 12 lbs. per acre will be sufficient, and will produce a great increase in the produce.

PRICED SEED LISTS free.

Sutton & Sons,
Royal Berkshire Seed Establishment,
Reading.

Clovers and Rye-grass Seeds.

SUTTON AND SONS can supply the proper quantities of the best kinds of CLOVER and RYE-GRASS SEED, either Common or Italian Rye-grass, at 16s. per acre; or Clovers without Rye-grass at 14s. per acre.

The sorts of Clovers supplied by Sutton & Sons are the Alsike, the Common Red, and the White Clover (14 to 16 lb. per acre).

The great produce of the above-named Mixture is shown by the following:—

From C. F. Thruston, Esq., *Talgarth, Machynlleth, July* 31.

"I cut a crop of Grass on June 2, which had been previously dressed with soot and guano. It was full ripe, and the Italian Rye-grass was nearly 4 feet high, Clover in proportion. I am now (July 3) getting a second crop from it equally heavy."

In ordering it is only necessary to state that "Clovers and Italian Rye-grass," or "Clovers and Common Rye-grass," or "Clovers only," are required for so many acres, when the proper quantities will be sent.
Royal Berkshire Seed Establishment, Reading.

Early Sheep Feed.

SUTTON'S IMPROVED ITALIAN RYE-GRASS.—At a Meeting of the Royal Agricultural Society on the 16th March, in a Lecture delivered by Alfred Hughes, Esq., of Thorness, Isle of Wight, as reported in the *Bell's Messenger* and *Mark Lane Express*. Mr. Hughes said:—

"I always reserve a portion of Oat land to lay down with Sutton's Improved Italian Rye-grass, the most reliable plant I have come across for some years for ewes and lambs in the spring. When I tell you that I put it in the spring, and dressed it after harvest with guano, and that in the autumn, when my sheep fed it off, it was up to their knees, and that I fed it off again this spring with ewes and lambs, I think you will agree that this is a crop of very great value. The Italian Rye-grass which is sold by Sutton, of Reading, is a most astonishing vigorous plant; indeed, I never saw anything to equal it in the course of all my experience."

Mr. W. Cardwell, of Nunnery Farm, near Sheffield, in a letter to Messrs. Sutton, dated April 9th, 1863, says:—

"The Italian Rye-grass grown from seed purchased from you, and sown in August, is now 16 inches high, and is much admired."

Sutton & Sons have a fine Stock at present of their IMPROVED ITALIAN RYE-GRASS, which is a very different and superior article to much that is sold as Italian Rye-grass.

Present price, 7s. per bushel; cheaper in quantities over 5 qrs. Carriage free in quantities of 8 bushels and upwards.

Quantity required per acre, if sown alone, 3 bushels.
Royal Berkshire Seed Establishment, Reading.

CARTER'S GARDENER'S VADE-MECUM is now ready.

New Mangel Wurzel Seed, grown from selected Bulbs.

H. AND F. SHARPE beg to announce to the Trade that their Stocks of the above-named Seed are very fine this season, and they are prepared to make special offers of all the sorts at very moderate prices.
Seed Growing Establishment, Wisbech.

To Market Gardeners and Seedsmen.

RICHARD WALKER, Seed Grower, &c., Biggleswade, Bedfordshire, begs to offer the following for cash:—

YELLOW GLOBE MANGEL WURZEL, 28s. per cwt.
WHITE SPANISH ONION, 1s. 6d. per lb.
RED CABBAGE PLANTS, extra strong, 5s. per 1000.
EAST HAM DITTO, fine, 3s. per 1000.

SEED CORN from the CHALK.—All the most approved varieties supplied by
Raynbird, Caldecott & Bawtree. Address, Basingstoke; or 89, Seed Market, Mark Lane, London, E.C.
*** Samples and prices on application.

HALLETT'S [PEDIGREE] NURSERY WHEAT.
TRADE MARK.
PURE SEED OATS.
46s. a Quarter (with Sacks) for not less than Two Quarters.
Papers sent upon application, enclosing Stamp, to Frederic F. Hallett, Esq., F.L.S., the Manor House, Brighton, Sussex.

REIGATE SILVER SAND (best quality for Plants, &c.), 7s. 6d. per Ton, 28s. per 4 Tons, 39s. per 6 Tons, 48s. per 8 Tons, 5s. per Ton for 20 Tons and upwards, delivered to the Reigate Station. Best Kent and Surrey PEATS, LOAMS, ROCK SANDSTONE, &c.
N.B. Loaded trucks can be sent direct on all the Railways.
London-made FLOWER POTS, in every size, at the lowest cash prices. W. Short, Sand and Peat Depôt, Reigate, Surrey.

JAMES CARTER AND CO., Seed Merchants, High Holborn, London, W.C.

GENUINE FARM SEEDS.

"ONLY" PRIZE MEDAL FOR SEEDS.

INTERNATIONAL EXHIBITION, 1862.

CARTER'S SELECT LIST of GENUINE FARM SEEDS (at special prices) is now ready, and will be forwarded gratis and post free on application.

CARTER'S PERMANENT PASTURE GRASS, carefully mixed (to order), to suit all Soils, from extra cleaned samples, can be supplied according to the quality of the Mixture, at 26s. to 30s., and 32s. to 35s. per acre.

GENUINE FARM SEEDS.

"ONLY" PRIZE MEDAL FOR SEEDS.

INTERNATIONAL EXHIBITION, 1862.

James Carter & Co., Seed Merchants, High Holborn, London, W.C.

COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 2s. per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the Patent Cocoa Fibre Company, Kingston-upon-Thames.

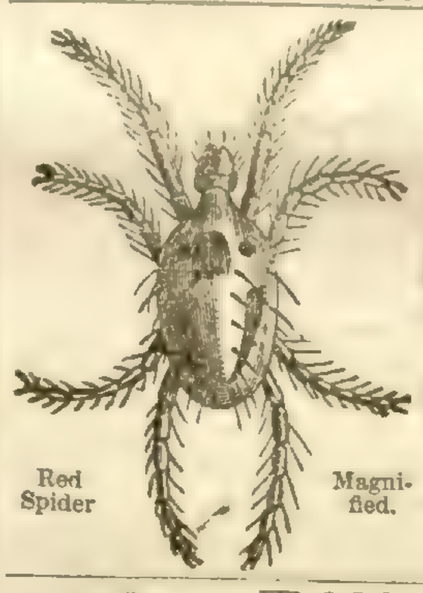
Postage Stamps or Post-office Orders payable to J. Barsham & Co.

Barsham's BRUSHES and MATS are sold in every town.

Caution.—Every Brush is stamped, J. Barsham's Patent.

To Nurserymen and Florists.

H. PERKINS, Tobacconist, 16, Cambridge Circus, Hackney Road, N.E., has a large Stock of Genuine ROLL TOBACCO PAPER, at 1s. per lb.; TOBACCO CLOTHS, at 10d. per lb. Warranted free from adulteration.
Post-office Orders to be made payable at Shoreditch Post-office.



Red Spider Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes, 1s., 3s., and 10s. 6d. each.

Wholesale by
PRICE'S PATENT CANDLE COMPANY (Limited).

TOOGOOD'S (late Page & Toogood's) IMPROVED BLIGHT COMPOSITION introduced in 1850, has been manufactured under W. Toogood's sole directions since that period. He has made great improvements in it, and by reducing the price 25 per cent., it is one of the cheapest and has always been the most efficacious remedy extant. To publish the Testimonials no newspaper would give space, but Messrs. Cutbush & Son, the eminent Nurserymen, say:—"It is the best thing for the purpose we can find, and does not appear to injure the young foliage like Gishurst does. This is our experience after 10 years' trial."

"February 24, 1864."

Mr. E. Sage, *Gardener to* Lord Howe, *says*:—

"Will you please send us 15 gallons of your Blight Composition. I see you have reduced the price, and trust that you may some day be able to make another reduction, and I feel assured that no 'Gishurst,' will be used by practical men."

"We hereby Certify that during the whole time we were Warehousemen in the Establishment of B. Page & Co., and subsequently Page & Toogood, that we Manufactured the Blight Composition under Mr. Toogood's *sole directions, and that he alone knew the proportions of the various ingredients.*

Signed John Morley,
Henry Drew,
Henry Sheerman,
George Isaacs."

"July 13, 1863."

Extra strong, 3s. per gallon (sufficient to make 4 gallons fit for use), 10 gallons and upwards carriage free to London.

May be obtained of the principal Nurserymen and Seedsmen in the Trade, and of W. Toogood, Royal South Hants Seed Establishment, Southampton.

PATENT GUTTA PERCHA SOLES.—Important to Gardeners.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. Glenny, Esq., the celebrated Florist:—

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles.—Your obedient servant, "G. Glenny."

Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Calbotype trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town or country.

The Gutta Percha Company, Patentees, 18, Wharf Road City Road, London, E.C.

MEADOW AND PASTURE GRASS SEEDS.

JOHN & CHARLES LEE,

SEEDSMEN TO THE QUEEN,

Recommend those who are about to Lay Down or Improve their Pastures or Lawns, to send them full particulars of the nature of the soil to be dealt with, and to state if the land is drained or undrained. They have made the most careful selections for the following MIXTURES, which cannot fail to produce the required effects:—

MIXTURES for LAYING DOWN LAND to PERMANENT MEADOW or PASTURE, carefully selected to suit various soils. 30s. per acre.

MIXTURES to LAY DOWN PARK or FIELD LAWNS; all coarse-growing kinds carefully excluded. 32s. per acre.

MIXTURES for ORCHARDS or LAND SHADED with TREES. 30s. per acre.

MIXTURES for RENOVATING OLD PASTURES. 8 to 12 lb. per acre; 9d. per lb., 80s. per cwt.

MIXTURES for RECLAIMED MARSHES and HEATH LANDS. 20s. to 24s. per acre.

MIXTURES of GRASSES and CLOVERS for ALTERNATE HUSBANDRY, for One, Two, or Three Years' Lay. 18s., 20s., and 22s. per acre.

MIXTURES for MAKING NEW or IMPROVING OLD GARDEN LAWNS, 18s. per bushel.

A COMPLETE CATALOGUE of AGRICULTURAL SEEDS sent post free on application.

ROYAL VINEYARD NURSERY and SEED ESTABLISHMENT,
HAMMERSMITH, LONDON, W.

Vine Duchess of Buccleuch.

New Seed and Plant Catalogues, &c.

ROBERT PARKER has much pleasure in offering this distinct and valuable early GRAPE, which will supply the long-felt desideratum of a White Grape with Muscat flavour that may be grown and ripened with the Black Hamburgh. Strong Planting Canes, 21s. each; extra strong Fruiting Canes, 42s. each.

The following Certificates and Prizes have been awarded at various London and other Exhibitions.

Two Certificates of Merit.

Three First-class Certificates.

Two First Prizes in open competition for the finest flavoured Grape of any colour. Chasselas Musqué, Muscat of Alexandria, and Frontignan competed for these prizes. For further description see Hogg's *Gardeners' Year Book for* 1865, page 32, and *Gardeners' Chronicle* of October 1st and 22d, 1864, pages 943 and 1008.

Also New SEED CATALOGUE, containing Select Priced and Descriptive Lists of the best varieties of Vegetable, Flower, and Agricultural Seeds; and New GENERAL PLANT CATALOGUE, containing Priced and Descriptive Lists of Miscellaneous, Greenhouse, Hardy, and Stove Plants, Azalea indica, Conifers, Ferns, Fruit Trees, Grapes, Rhododendrons, Roses, Dutch and other Bulbs, &c., which will be forwarded to applicants.

Exotic Nursery, Tooting, Surrey, S.

Magnificent well ripened Vines from Eyes,

At Low Prices.

GEO. CLARKE has a large Stock of very superior short-jointed VINES in pots, consisting of the leading kinds, well adapted for fruiting in pots this year, or for planting out to make permanent Vineries. Names and prices furnished on application. Nursery, Streatham Place, Brixton Hill, S.

Slater's New Hardy Prolific Melon.

J. SLATER and SONS have great pleasure in offering the above MELON as being of a very superior quality, a very free setter, and an abundant bearer—each fruit weighing from 3 to 3½ lbs. Slightly netted: shape oval; flesh, pale green; thick and juicy. Price 2s. per packet, post free.

J. Slater & Son, Seedsmen, &c., Malton, Yorkshire.

London Agents:

Messrs. Hurst & Son, Seedsmen, 6, Leadenhall Street, E.C.

STANDARD ORCHARD-HOUSE TREES in POTS. Paid to London.—Fine STANDARD and HALF-STANDARD TREES of PEACHES, NECTARINES, APRICOTS, and PLUMS, full of blossom buds, and adapted for planting out in orchard houses, are now offered. Prices given on application.

Messrs. Thomas Rivers & Son, Nurseries, Sawbridgeworth.

To the Trade.

DWARF-TRAINED CHERRIES (very fine) of the following kinds: MAY DUKE, BLACK EAGLE, DOWNTON, ELTON, BLACK HEART, OX HEART, BEDFORDSHIRE PROLIFIC, WATERLOO, and WHITE HEART. Also horizontal-trained MAY DUKE and MORELLO. Prices very moderate, to be had on application.

Richard Smith, Nurseryman, Worcester.

1000 MAGNIFICENT DWARF-TRAINED MAYDUKE and MORELLO CHERRIES, and other kinds; also extra fine trained ROYAL GEORGE PEACHES and PEACH APRICOT. Finer trees could not possibly be desired.

Address, Wm. Wood & Son, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

To the Trade and others.

WOOD and INGRAM having a fine stock of the following, will be glad to dispose of them at a very cheap rate:—

Dwarf maiden Apples.
Dwarf maiden Cherries.
Dwarf maiden Peaches.
English Elms, 1-year seedling.
English Oaks, 2-years' seedling.
Gorse, 2 years seedling.
Acacia, Common, 8 to 10 feet, and 10 to 12 feet.
Acacia inermis, fine Standards.
Standard and Dwarf Worked Roses.
Dwarf Box for edging.
Carnations and Picotees, show varieties.
Standard Laburnums.
Abele Poplars, 10 to 12 feet.
Cut-leaved Alders, 4 to 5 feet, and 6 to 7 feet.
Bishop's Longpod Peas.
Dickson's Early Favourite Peas.
White Spanish Onion, Bedfordshire grown.
Asparagus, 2 and 3-years.
Sea Kail, 1 and 2-years.

Prices on application.

The Nurseries, Huntingdon.

Dwarf-trained Trees.

By the Thousand, Hundred, or Dozen.

APPLES, PEARS, PLUMS, CHERRIES, PEACHES, and NECTARINES.

Fine, flat, well trained, of best quality and true to name.

Richard Smith, Nurseries, Worcester.

CARTER'S GARDENER'S VADE-MECUM is now ready.

HARDY FLOWER SEEDS.

An assortment of 100 splendid varieties	.. ..	20s. 0d.
" 50 "	.. ..	10s. 0d.
" 36 "	.. ..	7s. 6d.
" 24 "	.. ..	5s. 0d.

Carriage free.

Richard Smith, Seed Merchant, Worcester.

Lilium auratum—The Golden-Rayed Japan Lily.

E. G. HENDERSON and SON having imported between 2000 and 3000 bulbs of the above-named Superb LILY, offer them in good roots, from 5s and upwards each. For description see E. G. H. & Son's SEED CATALOGUE, which will be sent post free on application.

Wellington Nursery, St. John's Wood, London, N.W.

First-class New Seeds.

Carriage Free at Market Prices.

J. SCOTT'S DESCRIPTIVE CATALOGUE and PRICED LIST of the above are well worthy the notice of purchasers, post free.

GLADIOLUS, best HYBRIDS of GANDAVENSIS, at 6s., 9s., and 12s. per dozen. Descriptive List sent post free.

Merriott Nurseries and Seed Stores, Yeovil, Somerset.

Russell's Pyramid Primulas.

GEO. CLARKE is now prepared to send out in packets, price 2s. 6d. each, this, the finest breed of PRIMULAS in cultivation. The Seed now for sale has been saved from selected plants, so that it is believed the produce will be even superior to that of former years.

Printed instructions for raising and growing the plants sent with each packet. Stamps received in payment.

Nursery, Streatham Place, Brixton Hill, London, S.

RICHARD SMITH'S SEED CATALOGUE contains a Calendar of Time for Sowing, particulars of Collections, with Prices, Directions for Cropping well and economically, Soil, Manure, Depth, Distance, Season, Hardiness, Duration, Form, Height, Colour, Storing, Use, Flavour, and other qualities described. This List Free by Post for one stamp. Seeds direct from the Growers the surest way to success.

Richard Smith, Seed Merchant, Worcester.

HEDERA MACULATA ARGENTEA MARGINATA, or LARGE SILVER-STRIPED IVY.—Strong plants, 8d. each or 70s. per 100.

ROSA LAURENCIA or FAIRY ROSE.—4s. per doz. or 25s. per 100. Well adapted for edging or bedding.

LONICERA AUREO-RETICULATA or GOLDEN-VEINED HONEYSUCKLE.—Strong plants, 8d. each or 50s. per 100.

A. Godwin & Son, Nurseries, Ashbourne, Derby.

ROBERT T. VEITCH respectfully announces to his Friends and the Public in general, that in connection with the SEED BUSINESS carried on by him at 54, High Street, Exeter, Pursuant to the WILL of his FATHER, he is forming an extensive NURSERY on some ground near the Queen Street Railway Station, the principal entrance to which is in the New North Road; where he trusts, by courtesy and a strict personal attention to all orders, to merit a continuance of the public support so long received by his late Father.—March, 1865.

SUTTON'S PRIZE MANGEL SEED, saved exclusively from fully-developed Roots.

LARGE YELLOW GLOBE MANGEL.

9d. per lb. Cheaper by the cwt.

For prices of SUTTON'S SELECTED YELLOW GLOBE, ELVETHAM LONG RED, LONG YELLOW, RED GLOBE, and other choice Sorts, see SUTTON'S NEW FARM SEED LIST, which may be had gratis and post free on application.

Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

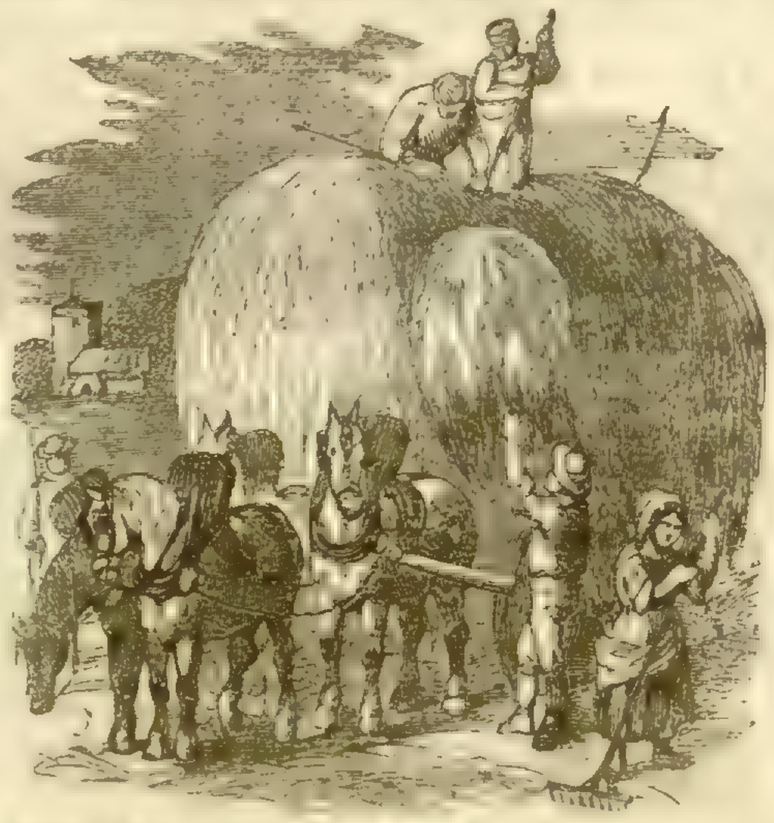
CARTER'S IMPROVED ORANGE GLOBE MANGEL WURZEL.

Saved from large transplanted roots of good shape and a fine dark orange colour. Can be recommended as the best Mangel in cultivation. Price for large or small quantities on application.

James Carter & Co., Seed Merchants, 237 & 238, High Holborn.

Sutton's Grass Seeds for all Soils.

MESSRS. SUTTON'S GRASS SEEDS being mixed expressly to suit the Soils for which they are required, persons ordering have only to state the nature of the soil and acreage to be laid down, when suitable Seeds will be supplied.



Sutton & Sons have one of the largest Stocks in Europe of the PERMANENT NATURAL GRASS and CLOVER SEEDS, which they mix expressly to suit the soil for which they are required.

Prices, according to quantity required, may be had on application.

A Copy of Mr. Martin Sutton's "Essay on Pastures" is sent with each lot of Grass Seeds.

Seeds sent carriage free to all parts of the kingdom. Export orders delivered free to the Ship's side in any English Port.

Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

New Roses for 1865.

JOHN KEYNES, Castle Street Nursery, Salisbury, has much pleasure in offering several thousands of extra strong Plants in pots of the above. Plants will be ready for delivery about the third week in March.

A DESCRIPTIVE LIST is now ready, and will be forwarded on application.

New Roses of 1865.

PAUL and SON will have their usual fine plants of the NOVELTIES of the YEAR ready in March at reasonable prices.

PRICED LIST—the description mostly the result of personal observation, now ready.

"Old" Cheshunt Nurseries, Cheshunt, N.

New Roses of 1865.

JOHN FRASER, of the Lea Bridge Road Nurseries, N.E., begs to announce that his LIST of NEW ROSES for 1865 may be had on application. The varieties offered have been selected with great care, and may be depended upon as being the best.

Price 36s. per dozen. The usual discount to the Trade.

The Plants are healthy and vigorous.

New Roses of 1865.

BENJAMIN R. CANT offers 30 varieties, the pick of the year, at 36s. per dozen. The plants are first-rate.

A DESCRIPTIVE LIST will be forwarded on application.

St. John's Street Nursery, Colchester.

N.B. The usual discount to the Trade.

New Roses for 1865, and Gladioli.

EUGENE VERDIER, Fils Aîné, Nurseryman, 3, Rue Dunois, Paris, will shortly Publish his CATALOGUE containing 96 New ROSES, and names of GLADIOLI disposable for this spring.

The Catalogue can be obtained upon prepaid application, direct from E. V., as above; or of his Agents, Messrs. Betham & Blackith, Cox's Quay, Lower Thames Street, London, E.C.

NEW ROSE (Tea-scented) MARECHAL NIEL.—This magnificent Yellow Rose, faithfully portrayed in the Journal "L'Horticulteur Francais," continues, notwithstanding the criticisms, to be given GRATIS to each purchaser of not less than 20 of the New Roses for 1865, otherwise this variety will be sold at 4s. per plant.

Direct from Eugene Verdier, Fils ainé, Nurseryman, 3, Rue Dunois, Paris. Orders also received by his Agents, Messrs. Betham & Blackith, Cox's Quay, Lower Thames Street, London, E.C.

Roses.

H. LANE and SON have to offer an immense collection of ROSES (consisting of 7 Acres in one piece) of all the popular sorts; very healthy, strong, and well grown.

CATALOGUES of the above, also of RHODODENDRONS, CONIFERS, TREES, and SHRUBS, FRUIT TREES, VINES, PEACHES, NECTARINES, &c., in Pots, may be had upon application at the Nurseries, Great Berkhampstead, Herts.

Seedling Roses.

WM. PAUL (Son and Successor to the late A. Paul) begs to offer the following FIRST-CLASS NEW HYBRID PERPETUAL ROSES, at present exclusively in his possession, and which are specially recommended. Good plants will be ready for delivery in May next.

ELIZABETH VIGNERON.—Flowers fine rosy pink, very large and full, in the style of Lælia, but fuller, fresher, and brighter in colour than that superb variety; form perfectly finished, constitution hardy, growth vigorous. Price 7s. 6d. each.

GLORY of WALTHAM.—Flowers resplendent crimson, very large and full, a seedling from Leveson Gower, larger, brighter, darker, and of better form than the parent. A superb Rose, of hardy vigorous growth, producing shoots 6 feet long in one season, and of the thickness of the little finger. Price 7s. 6d. each.

MADAME EMILE BOYAU.—Flowers soft rosy flesh colour, changing to blush, of a pleasing colour, sufficiently large, perfect in form, moderate in growth, hardy in constitution, and distinct. Price 5s. each.

PRINCE DE JOINVILLE.—Flowers light crimson, a fine large showy Rose, of vigorous and hardy habit, quickly forming a highly decorative bush, standard, or pillar Rose, of great beauty. Price 5s. each.

PRINCESS LICHTENSTEIN.—Flowers white, globular, large and full. A good hardy white Rose, of compact growth, flowering abundantly. Price 5s. each.

The best of the NEW FRENCH ROSES, 36s. to 42s. per dozen. Last year's kinds, 24s. to 30s. per dozen. Older kinds, 9s. to 18s. per dozen.

William Paul, Waltham Cross, London, N.

Shrubs, Roses, Fruit Trees, &c.

WM. CUTBUSH and SON'S GENERAL NURSERY STOCK is the best near London.

GLADIOLI, fine, from 4s., 6s., 9s., & 12s. per dozen.

CATALOGUES on application.

Highgate Nurseries, London, N.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

*** Part II. (Exotic Ferns) will be issued as early as possible.

Foot's Cray Nursery, S.E.

Seeds worth Growing.

DOBSON'S CELEBRATED CALCEOLARIA, Sealed packets, 1s. 6d., 2s. 6d., 3s. 6d., and 5s.

DOBSON'S PRIZE CINERARIA, sealed packets, 1s., 2s. 6d., and 5s.

DOBSON'S UNRIVALLED PRIMULA, superb fringed white or red, 1s., 2s. 6d., 5s.

DOBSON'S SUPERB BALSAMS, 8 colours, separate, 2s.; mixed, 1s.

IMPORTED GERMAN SEEDS.

J. Dobson & Sons, Seedsmen, Isleworth.

EARLY SPRING FLOWERS, largest Stock in England and greatest variety.—Webb's Giant Polyanthus and Giant Cowslip, Cowslip from the Himalayas, Golden Chain Polyanthus, Florist Flower Polyanthus, American Primrose, Scarlet Primrose, Gentianella, Double Crimson Primrose, ditto Yellow ditto, Purple ditto, ditto Rose ditto, ditto White ditto, ditto Lilac ditto, Double Pansy, ditto Negro Polyanthus, ditto Golden Chain ditto, ditto Pink Hepatica, Single Blue ditto, ditto White Violets, Purple ditto. Seed of the above Polyanthus and Cowslip. List on application to Mr. Webb, Calcot Gardens, Reading.

New Carmine-striped Verbena Annie.

GEORGE COOLING, of Bath, has great pleasure in offering this really novel and beautiful VERBENA, the finest striped variety ever raised. It is an excellent grower, of very compact pretty habit, and produces in great profusion immense trusses of carmine and white striped blossoms, of perfect form and good substance, which are remarkable for the length of time they last in bloom. Altogether it is a most desirable acquisition, and is quite thoroughly distinct from any in cultivation. For bedding purposes it will be unique, and no exhibition stand will be complete without it. It has obtained a First-class certificate from the Floral Committee of the Royal Horticultural Society, in addition to five First Prizes and Certificates elsewhere. See report to correspondence and editorial remarks in *Gardeners' Chronicle*, July 16, Sept 17, Dec 17, in *Journal of Horticulture*, and other provincial papers; it is also figured in the *Florist* for February.

Good plants will be ready the first week in May at 5s. each, or for 25s., with the usual discount to the Trade.

18, Broad Street, Bath, near the York House: Nursery, Bathealston, near Bath.

New Plants.

MR WILLIAM BULL begs to intimate that he is now supplying Eight distinct and beautiful New kinds of hardy AUCUBAS, introduced by Dr. von Siebold from Japan. Four of these received First-class Certificates when exhibited at the last Meeting of the Floral Committee of the Royal Horticultural Society. An inspection is invited.

Mr WILLIAM BULL's Seven NEW FUCHSIAS are now being sent out, at Half a Guinea each. For names and description *vide* his New List, p. 25

During Mr. WILLIAM BULL's recent tour on the Continent he has bought up the stocks of all the best NEW PLANTS, in value exceeding 1000*l*. This fact is merely mentioned to show their merit and importance. These New Plants are not yet for sale, but Mr W. B will be happy to show them to any one visiting his establishment

NEW GLOXINIAS. The best sorts in cultivation. Good bulbs offered at 3s 6*d*. and 5s. For descriptions *vide* Mr. W. B.'s List of New Plants

NEW ZONALE PELARGONIUMS. The *Gardeners' Weekly Magazine*, July 23, 1864, p. 236, says:—"Mr. WILLIAM BULL, of King's Road, Chelsea, has sent out more good Zonale Pelargoniums than any other cultivator in the country" For names and descriptions, see Mr W. B.'s List of New and Rare Plants.

Among the important and interesting Novelties to be sent out this season, *for the first time*, are—

The MUSTARD TREE of SCRIPTURE.
A new Variegated-foliaged CHRYSANTHEMUM, SENSATION.
A new Variegated-foliaged VERBENA, POPULAR.
A new Variegated-foliaged AUBRIETIA PURPUREA.

Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

MESSRS. A. HENDERSON AND CO. beg to announce that they have SOLD the ENTIRE STOCK of their beautiful NEW ALLAMANDA to Mr. WILLIAM BULL, of King's Road, Chelsea, S.W.

Pine Apple Place, Edgware Road, London, W.

ALLAMANDA HENDERSONI.

Mr WILLIAM BULL begs to intimate that he has purchased the entire stock of this exquisite New Plant from Messrs. A. Henderson & Co., of Pine Apple Place.

Subscribers' names are now being enrolled for it.

Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

Seeds, Growth of 1864.

JOHN AND CHARLES LEE, SEEDSMEN to the QUEEN, beg respectfully to submit their NEW CATALOGUE for 1865 of KITCHEN GARDEN, FLOWER, and AGRICULTURAL SEEDS, containing Selections from the best Stocks at Home and Abroad, post free on application.

Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

CALCEOLARIA AMBASSADOR (SANG'S). — Strong Plants in single Pots of this magnificent Bedding-out CALCEOLARIA will be ready in April. Price 12s. per dozen. Early orders will oblige. The Trade supplied on the usual terms.

EDWARD SANG & SONS, Nurserymen and Seed Merchants, Kirkcaldy, N.B.

CARTER'S GARDENER'S VADE-MECUM is now ready.

Established Upwards of a Century.

BUTLER AND McCULLOCH,

SEED MERCHANTS, Covent Garden Market, W.C.

GENUINE NEW VEGETABLE SEEDS.

Orders amounting to 21s. and upwards sent Carriage Free.

COMPLETE COLLECTIONS for ONE YEAR'S SUPPLY.

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BUTLER AND McCULLOCH'S NOVELTIES for 1865.

	Per packet—s.	d.
BUTLER'S SUPERFINE DWARF CAULIFLOWER.. ..	2	6
BUTLER'S PERFECTION CUCUMBER, unquestionably the finest variety ever offered	2	6
BUTLER'S CLIMAX MELON..	2	6
BUTLER'S PRESIDENT MELON	2	6

FLOWER SEEDS (sent Post free).

Assortments of	100 vars.	50 vars.	30 vars.	25 vars.	15 vars.
ANNUALS—Hardy	20s.	10s.	5s.	..	2s. 6d.
" Half Hardy	30s.	15s.	.	7s. 6d.	4s. 0d.
PERENNIALS (Hardy) ..	25s.	12s. 6d.	..	6s. 6d.	3s. 6d.
" Half Hardy		..	..	7s. 6d.	4s. 0d.

NOVELTIES in FLOWER SEEDS.—See Descriptive Catalogue.

BULBS for SPRING PLANTING.—Gladioli, Liliums, including the splendid new L. auratum; Tigridias, Anemones, Ranunculus, and other bulbs suitable for spring planting, in great variety. Special quotations at low rates per 100 or 1000 on application.

BEDDING PLANTS.—250,000 well-rooted plants, comprising Calceolarias, Lobelias, Geraniums, Cerastiums, Cineraria maritima, Ageratums, &c.; to be sold at unprecedented low prices.

Agents for GOULDING'S HORTICULTURAL MANURE, 1s. per canister.

SOLE AGENTS, Wholesale and Retail, for MURRAY'S APHIS PASTILS, a new invention, and the most effectual in existence for Fumigating Plant Houses. In packets, 1s. and 2s. each.

BUTLER & McCULLOCH, Covent Garden Market, W.C.

American Plants.

AS EXHIBITED IN THE ROYAL HORTICULTURAL GARDENS, KENSINGTON.

WATERER AND GODFREY'S PRICED and DESCRIPTIVE CATALOGUE of RHODODENDRONS and other AMERICAN PLANTS will be forwarded on application The Catalogue also gives a General Summary of their Stock, which contains probably the most extensive choice of all the Hardy and finest Evergreens and Conifers.

Knap Hill Nursery, Woking, Surrey.

FLORAL and HORTICULTURAL FETE, to be held at PETERBOROUGH, in connection with the NORTHAMPTONSHIRE AGRICULTURAL SOCIETY'S ANNUAL SHOW, on THURSDAY, July 6. Premiums amounting to more than 200*l*. will be offered for competition. Open to all England. Prizes to be paid on the day of Exhibition.

COMMITTEE

Rev. Wm. Strong	W. Paley, Esq., M.D.	Messrs. Amies & Barford
The Very Rev. the Dean	T. Walker, Esq., M.D.	Mr. E. Vergette
Rev. Wm. Cape	H. Porter, Esq., M.D.	" H. Elsey
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H. P. Gates, Esq.	" W. Wyman	" Wm. Thompson
A. Percival, Esq.	" F. G. Buckle	" John House
	" W. Vergette	

The Schedule and Rules may be obtained of the Secretary, Mr. JOHN FOX, 14, Narrow Street, Peterborough

LEEDS HORTICULTURAL SOCIETY. SECOND YEAR.—£350 in PRIZES.

GREAT FLORAL FETE and GRAND GALA, in Six splendid Marquees, commencing June 8, 1865. Largely increased Prizes for Collections of Stove and Greenhouse Plants, Orchids, Azaleas, Ferns, Pelargoniums, Heaths, &c. In Cut Flowers, Roses, Verbenas, Pansies, and Tulips; also Cut Fruit, and Fruit Trees in pots.

Schedules and Forms of Entry are now Ready, and may be had of JAMES BIRBECK, Secretary.

Shakespere Street, Burmantofts, Leeds.

Note.—The Railway Companies will convey plants, &c., free one way.

THE BRISTOL, WEST of ENGLAND, and SOUTH WALES CHRYSANTHEMUM, AUTUMNAL FLOWER, PLANT, and FRUIT SOCIETY.

The SECOND EXHIBITION in connection with the above Society will be held in the Rifle Volunteer Drill Hall, Queen's Road, Clifton, on THURSDAY, the 16th of November, 1865.

The Schedules of Prizes offered by the above Society can now be obtained of the Nurserymen in Bristol, or of

Imperial Fire Office, Corn Street, Bristol. J. HOBBS, Hon. Sec.

LADIES' PRIZES for INDOOR GARDENING.—The PROPRIETORS of the GARDENERS' CHRONICLE again offer, as announced last year, TWO PRIZES of 10*l*. each for the best examples of INDOOR PLANT-CULTURE exhibited at the Show of Table Decorations, which is to take place in the Garden of the Royal Horticultural Society, at South Kensington, on JUNE 24.

One Prize will be given for the BEST ORCHID IN BLOOM, grown and flowered in a room.

One Prize will be given for the BEST FLOWERING PLANT OR FOLIAGE PLANT of any kind, grown in a room.

The Competition is to take place amongst LADIES ONLY.

The Prizes are offered for the best single plants, examples of actual indoor cultivation; they must therefore have been grown in a room for at least six weeks previous to the time of exhibition, during which period they must have been under the management of the Exhibitors themselves.

The Plants are to be such as are suitable for drawing-room decoration.

The Plants may be grown in pots, or boxes, or baskets, or aquaria, or in any other convenient and suitable contrivance.

Notice of the intention to exhibit must be sent to the Garden Superintendent at South Kensington not later than June 19, in order that accommodation may be provided. The Plants must be sent in by 9 A.M. on June 24, and be ready for adjudication by 11 A.M.

The Gardeners' Chronicle.

SATURDAY, MARCH 18, 1865.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY, March 21	Royal Horticultural (Scientific Meeting), at South Kensington ..	3 P.M.
SATURDAY, — 25	Royal Horticultural (First Spring Show), at South Kensington ..	2 P.M.

WE beg to remind our readers that the second of the SCIENTIFIC TUESDAY MEETINGS of the Royal Horticultural Society takes place next Tuesday. We hope to see it well supported by the profession, in respect to the display of New Plants and of specimens of superior cultivation.

WE are now approaching the mid time of the vernal season, and would therefore revert for a little to the SPRING FLOWER GARDEN. This department of floriculture has of late years been comparatively neglected; it is confessedly not receiving the attention which is its due. On that account, and even at the risk of some repetition, we would again press it on the attention of our readers. Most people at one time or other of their lives have experienced what has been called "the vernal joy." There is no denying the exquisite beauty and delightful fragrance of Spring Flowers. All that can be said against them is that they appear when the great world is in London. So much the worse for the great world! But there are other worlds besides that composed of the upper ten thousand. There are many estimable people of refined taste and high appreciation of beauty, who continue in their country residences all the year round. In addressing a few hints to them, we have found an audience which may be called fit, but cannot be said to be few.

It was formerly remarked that the effects in the flower garden are in spring more transient, successional, and diversified, than at any other period of the year. In the autumn flower garden there is only one phase, which, when once complete, remains permanent till the frost destroys it; in the spring flower garden there are three or four flushes of blossoming, which pass successively into each other. In the latter case, then, the different flowering plants cannot be completely formed into distinct masses; they require to be interwoven, as well as harmonised; and a certain intricacy necessarily emerges, which makes it difficult to forecast the appearance and expression of the various groups as they come successively into view. In the ordinary operations of the bedding-out system in June, one can see distinctly the patterns adopted, and a little play of imagination can add the colours they will display when in full bloom. In November and December, it really needs the prophetic eye of taste — to use once more the illustrious CHATHAM's well-worn phrase—to discern the effects that will follow the dispositions then made. In a cold and drizzly day of that dark season, with the soil which is operated on approaching the consistence of mud, it demands much fertility of invention and patience in execution to be a successful designer. We would therefore counsel the inexperienced aspirant at this kind of work to study his future plans on the ground when the plants are in blossom. Let him mark the various effects of the groups and masses of plants before him, and note them in his memorandum book. Suppose, for example, that he is studying the physiognomy of a bed of Tulips, such as is often seen in ornamental grounds. It is abruptly defined on its edge, we shall say, and circular, elliptical, or rectangular in the form of its outline. Do that edge and outline please him? Are they in harmony with surrounding objects? Or would it not be better that the Tulip bed were broken, fringed, and shaded off, like the irregular groups and masses of wild flowers which grow spontaneously in woods and pastures? Whatever conclusion is come to, a record should be made of it, and, if any skill in drawing is possessed, a rough sketch may be added. Of course there may be some extremely clever people who do not need such aids as these, their invention being infallible and all-sufficient. We may not presume to offer them advice, but even they may be reminded that it was partly by sketching from nature that SALVATOR ROSA, and TURNER, and LINNELL, and many others acquired their power and pre-eminence as artists. "I also would be a painter, though a humble one!" the flower gardener may say. If that is his ambition he should study effects, with the living objects before him; he should know well the nature and capabilities of his materials; and he must have premeditated designs.

There is another matter which requires foresight and preparation. Often, in this department of his work, the gardener finds his materials scanty and insufficient. Bulbs and other spring flowers cannot be multiplied so rapidly as Verbenas and other "bedding-out stuff." Perhaps an adequate supply is to be had only by purchase; and that may be impossible or inconvenient on the drizzly November morning when we have supposed him to be at work. Or his bulbs are snugly ensconced in the ground, and he cannot lay his hands on them. This is probably the reason why Eranthis hiemalis, Muscari botryoides, and numerous other beautiful spring plants, are seldom so largely and effectively employed in the flower garden as they might and ought to be. They should be diligently propagated by division in the reserve ground, or when already possessed in sufficient quantity, they may be taken up before the disappearance of the leaves in summer, and stored in large pots or boxes, sunk in the earth till the roots are required for planting. Many of them are not improved by being dried.

Some of these smaller plants are extremely beautiful, and can hardly be possessed in overabundance. Nothing is more attractive for example than the species of Erythronium or Dog's-tooth Violet, whether in small clumps or in edgings. Quite a fund of beauty is to be found in the single genus Scilla, especially the species S. sibirica, amœna, verna, bifolia, &c., but who except nurserymen ever has them in sufficient quantity? We strongly recommend that these, and other plants, such as Dodecatheon Meadia and its varieties, Cyclamen Coum and Atkinsii, Primula cortusoides, and its recent varieties from Japan, as well as the Japanese Epimediums, &c., should be associated with slight rockwork, suitable soil, whether peat earth or light decomposed turf, being provided for the plants, and the stones being laid on the surface rather for protection than ornament. Who has not lost numbers of such things ruthlessly buried by the spades of ignorant labourers! After such a massacre of innocents, one has a lively sympathy with the rage of the antiquary, when he finds his officious domestics have been scouring his old helmets or rubbing the sacred *patina* from his Roman coins. This is

doubtless one of the reasons that Alpines are so generally grown in pots and frames.

There is another means of ornamentation in spring gardens, which, though adopted by some skilful gardeners, has not been so generally employed as it is desirable it should—that is, the sowing of hardy annuals in the open ground, in September, to survive the winter, and to come into flower in the opening of the season. Many of the Californian annuals, particularly in the early stages of growth, have considerable powers of resisting frost. We have seen self-sown plants of Saponaria calabrica, though a southern species, survive the winter with the assistance of a wall, and showing its blooms, of a more than ordinarily intense hue, in May. As a rule, these annuals have deeper colours in spring—a result which has been ascribed to the fainter light at that season—and that of course is bad philosophy. It is rather due to their slower and sturdier growth, and perhaps to the influence of cold. These annuals, embracing a considerable number of species, are beautiful in themselves; and, as they present a style of growth and efflorescence differing considerably from ordinary spring plants, they are the more valuable. It may be suggested that it is useful to have a few dozens of pots filled with Nemophila, Collinsia, Gilia, &c., and kept in winter in cool frames or pits, to supply materials for making up failures or furnishing bare spots in spring. It is hardly safe, however, to introduce them into the greenhouse, as they are liable to be retained there if they come early into flower. In March and April there is no gayer inmate of the greenhouse than the common Nemophila insignis.

The management of the Spring Garden during the summer and autumn months is a matter for discreet consideration. It is obviously inexpedient to leave it blank during all that time. Where bulbs are regularly lifted, as Tulips ought to be, the ordinary bedding-out plants may be substituted for them, and these are cleared away by the frost and give place again to the bulbs in the beginning of winter. But this is working double tides: and the consequent exhaustion of the ground must be repaired by an abundant supply of manure, or compost, or even fresh soil. There are some bulbs, however, such as Crocus, Narcissus, and Iris Xiphium and Xiphioides, which improve when allowed to remain in the ground for three or four years continuously; these it is not desirable to weaken by covering them with a matting of Verbenas and Gazanias, though a thin sprinkling of such plants may be admissible. We formerly suggested that in this style of garden, Rhododendrons and other finer evergreens should be more or less copiously introduced. It would be in harmony with this kind of ornamentation that Scarlet or other Geraniums, of some considerable size, and prepared for the purpose, should be spaced out somewhat in the gardenesque style, as the late Mr. Loudon used to call it. In old times, when "the bedding-out system" was in embryo, or only beginning to shape itself, one used to see examples of Melaleuca, Metrosideros, and other New Holland plants plunged out in warm nooks, and occasionally the stimulated growth produced those curious bottle-brush-like flowers which were not often witnessed on the shelves of the greenhouse. Some of these plants we fear are things of the past, or are only to be found in botanic gardens. Perhaps the modern Cannas, Ricini, and other inmates of the semi-tropical garden, may take their place.

We can imagine some of our professional readers exclaiming, Is our work never to be done! You bid us in November and December be tasking ourselves with planting a spring garden. In spring, when we should be occupied with propagating Verbenas, Lobelias, and Pelargoniums, you tell us to be studying the effects of our past labours, and to be forming plans for the future. In summer you suggest an additional sphere of bedding out. Truly our work is never ended! Well, it is said that when the cultivation of Turnips in the fields was first proposed, the indolent slaves of routine inquired: "When is our work to be done? When are we to have an interval of rest?" In these days of cheap grain, however, Turnips form the sheet-anchor of the farmer. *Redit agricolis labor actus in orbem.* So to the gardener labour comes round in an unbroken circle. But where there is true *diligence*, that is love of work, there will be no complaint; it will rather be a pleasure that there is no season without its interest, no day without its attractive duty.

When we consider how much the enjoyments of the middle and higher classes in this country depend upon the horticultural knowledge and general intelligence of Gardeners, the education of this body of men appears to be a subject quite within the province and well worth the attention of a great Horticultural Society like that at South Kensington. We are therefore glad to learn by the Annual Report presented by the Council to the meeting held on the 14th ult., that "arrangements are being made with the Society of Arts for adding an examination in gardening to the examinations which they now conduct throughout the United Kingdom; and the Council intend to offer prizes to successful candidates, and to allow them, in cases of great proficiency, the means of gaining experience at Chiswick."

We confess, however, to have some doubts as to the success of this scheme, and would much prefer to see the Society in a position to manage its own affairs—to educate gardeners and to examine them itself. The time was when the Society gave a scientific and practical education to gardeners in its own garden at Turnham Green, and conferred a real benefit on many of the principal gardens, not only in Great Britain, but also in many other parts of the world. Our older readers may call to mind the names of many first-class men who were educated by the Society, or rather who finished their earlier education in the Society's garden, and who afterwards filled, most worthily, those situations to which they were recommended. A system which was followed by such good results is certainly worthy of our attention, and should not be abandoned without we see our way clearly to a better.

There was one peculiar feature in the Chiswick garden training which always appeared to us a most important one. It was not considered advisable that young men should come there to learn the rudiments of practical gardening. These were supposed to have been acquired in private gardens in which an apprenticeship had been previously served. But after having acquired the rudiments of practical gardening in a gentleman's garden, they came to Chiswick, where they had an opportunity of learning the higher branches of their profession. Here they had the means of acquiring a knowledge of the relative value of all the vegetables and fruits in cultivation, as well as the most approved methods of growing the former, and pruning and training the latter. Here, too, they learned the theory of horticulture, and had the means of becoming well grounded in the laws of vegetable physiology. Moreover—and this is a most important point—in the hothouse department, and in the arboretum, they were made acquainted with all the more important herbaceous plants, shrubs and trees which were of use either for ornamental purposes, or as producing valuable timber, &c.

These were a few of the advantages which young gardeners enjoyed before the evil days fell upon Chiswick. And in addition to these, there was one thing they acquired likely to prove of considerable importance to them in after life. The circumstances by which they were surrounded had a tendency to make them more cultivated and refined in their habits; the rust was rubbed off by coming in contact with men of the world whose attainments were of a superior order, and they were, in this way, better fitted for the management of those situations which were afterwards committed to their care. How often do we hear complaints from the employers of gardeners, more particularly from ladies, of their being pestered with a pretence of knowledge by men of the Andrew Fairservice class, whom Sir Walter Scott has so admirably painted in the Waverley Novels—men who have acquired, like a parrot, a string of Latin names, and fancy they are learned! Few specimens of this kind were likely to be recommended to situations from Chiswick.

In so far as the kitchen garden and fruit department are concerned, we are glad to add our testimony to the statements made at the annual meeting to which we have alluded. These departments are in the most efficient condition; they reflect the highest credit on Mr. Eyles and his assistants, and must prove of great value to the young gardeners who are employed by the Society. It is therefore, we think, a great pity that the other departments are so much neglected. The Arboretum, unrivalled in the kingdom for a collection of trees and shrubs, is in a most pitiable condition. A short time more of such neglect and the names of the trees will be lost, and their origin and history unknown. It may be very true, as was indeed stated at the meeting to which we have alluded, that London is rapidly extending itself, with its smoke and dust, in the direction of Turnham Green, but its baneful effects are not yet felt, and many years must elapse before we need apprehend any appreciable damage from this cause. No doubt some of the Conifers present an unhealthy appearance, but other influences than London smoke are at work upon them—the subsoil and flat land at Chiswick are unsuitable to many of the species of this family of trees.

Let us hope, therefore, that the Council of the Society will look into this matter. Much money need not be expended upon the Arboretum, for high keeping is not essential, but by all means let us have the trees preserved and correctly named. We have no doubt the Council is perfectly sincere in its desire to advance the education of gardeners, and we venture to suggest that this is one of the ways, and a very important one, by which this may be accomplished. In these days something more is expected from a first-class gardener than a knowledge of fruits and vegetables. Parks and pleasure grounds are placed under his care, and nothing can be of more importance to him than a knowledge of the names and habits of our indigenous or exotic trees and shrubs. Moreover, the Fellows of the Society themselves, and all who are interested in planting, may learn much from the Arboretum at Chiswick, and, on this account, as well as for the education of young gardeners, we put in our plea for its preservation. *F.*

—— Chinese Primroses are certainly amongst the most useful of winter-flowering plants for the greenhouse and conservatory, both on account of their beauty and the variety of aspect which they present. We have already (1862, p. 356) adverted to some very fine double-flowered sorts brought into notice by Messrs. F. & A. Smith, of Dulwich; and we have been lately much gratified by the sight of a box of flowers from Messrs. Windebank & Kingsbury, Nurserymen, of Southampton, who were, we learn, the raisers of the varieties grown by the Messrs. Smith. Their strain of Primula is a remarkably fine one. The flowers are large, full, and frilled, and in colour vary from white through shades of pale flesh-colour, to blush of deepest hue, and from that again to the carmine-rose tint of M. Benary's carminata, and on through the ordinary deep rose tints to a very dark purple rose. The pale ones especially are also remarkable for a large yellow star-like eye, sometimes measuring fully five-eighths of an inch across, the flowers themselves being about two inches. Some others are splashed and flaked with rose on a white ground; and both pure white and flesh-tinted white as well as rose and rosy-purple full double flowers were amongst those sent for inspection. With respect to these double-flowered sorts, which, with those of the Messrs. Smith, are decided acquisitions, Messrs. Windebank & Kingsbury state that, after several years careful selection and hybridising, they have succeeded in fixing the valuable property of producing double flowers from seed, from 10 to 20 per cent. of the seedlings coming double. In illustration of this they further state, that since 1862 they have produced upwards of 200 double-flowered plants, all from seed.

—— We are glad to be able to subjoin the following remarks on Winter Variegated Pelargoniums, by Mr. Perry, of Castle Bromwich, as supplementary to our own observations at p. 74. There can be no doubt that the varieties of this popular flower with gaily-coloured leaves are extremely valuable for greenhouse decoration during the dull season of the year, when flowers are scarce. There can be as little hesitation in concluding, from all past experience, that attention having now been more especially directed towards them, and it having become more and more an object of the cultivator to seek for varieties showing an advance in respect to foliage which is gay in winter, that desirable changes will be effected. Hence we may look for many additions to, and for not a few improvements upon the varieties already produced. Mr. Perry remarks:—

"Variegated-foliaged plants have become very fashionable of late years for summer and autumn decoration, but none surpass in beauty at this season of the year some of the Variegated Pelargoniums, whether considered as ornamental plants for the greenhouse, conservatory, or for mixing with flowers in bouquets and vases. I have for some few years past cultivated the various classes of Zonal, Garland, and Marbled Pelargoniums both for exhibition and bedding purposes; and I find that some of the variegated section are beautiful objects during the winter season, while others which are worthy of admiration both in and out of doors during the summer, are by no means ornamental now. Mrs. Pollock, Sunset, and others of the tricolor class appear to lose all their beauty during the winter months unless kept in a hothouse; while others are much more attractive now than in the summer. The most striking variety in my collection at the present time is Burning Bush, which I believe was raised by Mr. Hally. One plant, which is about three years old, is exceedingly beautiful, every leaf on it having the deep pink circular band, which is now much brighter than it is in summer. Picturatum is the next best, but does not approach in beauty to Burning Bush.

"It is gratifying to learn that Mr. Hally is devoting his attention to the enlargement of this class; and I have no doubt that in a few years a greater variety of Winter Variegated Pelargoniums will be brought into existence, which will add considerably to the means at

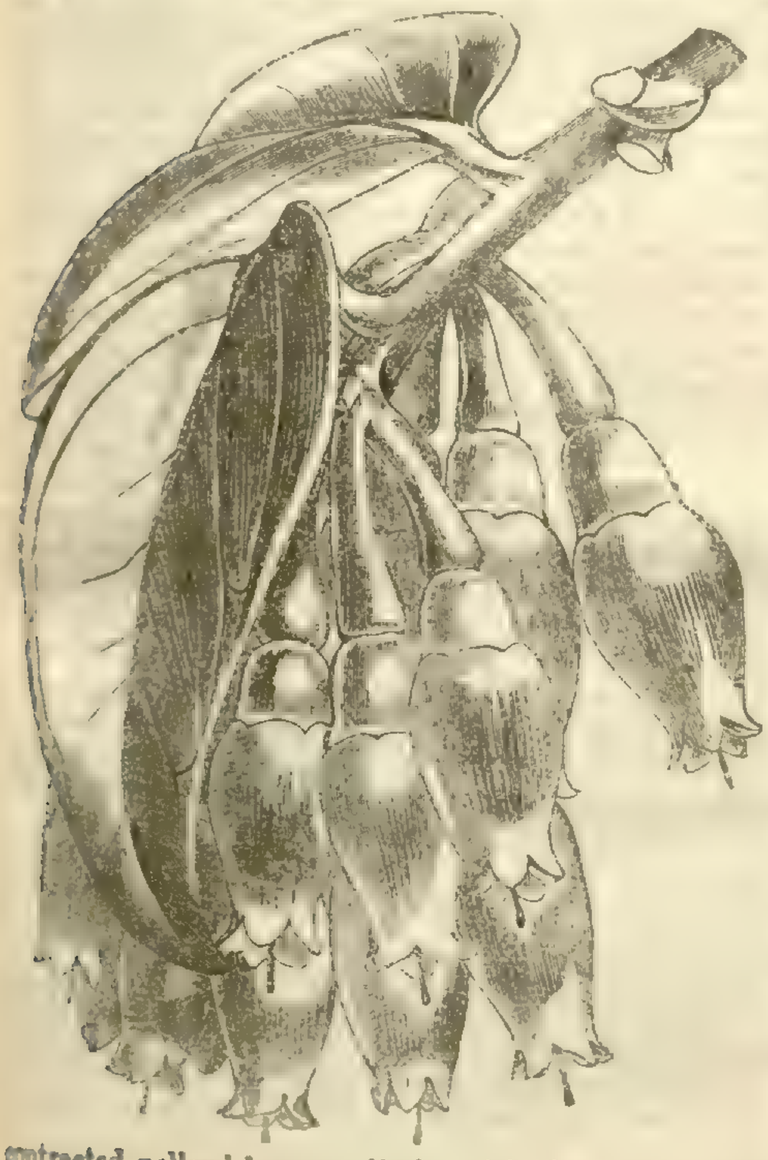
our disposal for the decoration of our drawing-rooms and conservatories at a season when flowers are necessarily scarce."

— Our readers will have already learned from our advertising columns, that besides the INTERNATIONAL EXHIBITIONS already announced, another is to take place this year at Cologne. This indeed is to be mainly an agricultural display, the principal items being agricultural productions, agricultural implements and machinery, and productions and implements relating to forestry; but there is also to be a display of the productions and implements of Horticulture and Garden Architecture, including garden furniture, statues, fountains, &c. The exhibition is to take place in the grounds of the "Flora" Horticultural Society, laid out by the director of the Royal Gardens, M. Lenné, of Potsdam, "a master and Nestor of horticultural science." It is to open on the 15th of May, and it is proposed that it should close on the 1st of June. Notice of intention to exhibit must be given before the 30th of March.

New Plants.

285. THIBAUDIA SARCANTHA. *Hooker, Botanical Magazine*, t. 5450.

This very ornamental Vacciniaceous stove plant bears considerable resemblance to the Macleania speciosissima noticed at p. 6, but differs in a variety of particulars, and obviously so in the form of its green-tipped red flowers. The branches are described as pendulous; the leaves fleshy-coriaceous, oblong-ovate acuminato-acute, three to five veined; and the corymbs of flowers either lateral in the leaf axils, or collected together so as to form a compound drooping cluster at the apex of the branch. The flowers are about an inch in length, with club-shaped pedicels, articulated with the bell-shaped five-toothed green calyx, and an urceolate very fleshy subglobose red corolla tube, terminated by a



contracted yellowish-green limb, with five erect short teeth.

This Thibaudia, like the Macleania already alluded to, was flowered by Mr. Bateman, and was exhibited by him at one of the meetings of the Royal Horticultural Society last spring. It is supposed to be a native of New Grenada. Though publishing it as new, Sir W. Hooker appears inclined to identify it with the Psammisia sclerophylla of Planchon and Linden (*Flore des Serres*, viii. 205, t. 825) which, he observes, it very much resembles, "but the branches are there erect, and the corymbs only drooping." The erect habit, pubescent branches, more fleshy flowers, and more fleshy pubescent pedicels of that plant, seem, however, to indicate that this of Mr. Bateman's is sufficiently distinct from it.

PEAR TREES IN POTS.

How almost absurd it seems even now, how absurd it would have been thought a few years ago, to write on such a subject: for one is so inclined to think of a small stunted plant confined in a pot, and always crying, like Sterne's starling, "I can't get out." Thanks to the acquirement of knowledge under difficulties and prejudices, this idea has vanished, and those who have gone into the culture of fruit trees in pots are now surprised that it has been left to the present age for its development. The great source of success is undoubtedly the modern method of feeding trees by rich surface dressings; at one time a plant or tree placed in a pot was duly watered, but never fed, so that at the end of summer its hard ball of earth was without nutriment, which had all been washed out of it, and the tree consequently starved.

There are no fruit trees that so fully return thanks in kind for liberal surface feeding as Pear trees on Quince stocks, and none that can be kept more fully in a state of robust health in pots. This is owing to their numerous fibrous roots, which readily come to the surface with open mouths if rich food is given to them.

Pear trees may be potted at any time from November till the end of March, and curiously enough, if potted when the blossom buds are bursting, they will often bear a fair crop the same season. The pots best adapted for them are 13-inch, and in these, without repotting, they will continue to grow and bear fine fruit for 10, 15, or more years, the only culture required being top-dressing and surface-dressing. The former should be done in November, by taking out the surface soil 4 to 5 inches deep, and replacing it with some fresh compost well rammed down; the latter, in June, by giving some rich surface dressing, so as to lie 2 or 3 inches above the rim of the pot, forming a reservoir surface to hold water. This dressing should be repeated in July, and again in August; it may be made with horse-droppings from the roads soaked with liquid manure, and mixed with a small quantity of loam, or by the best of all surface feeders—the former material and malt or kiln dust, equal quantities, saturated with liquid manure—this should not be laid in a heap, or fermentation makes it smell like a den of very dirty wild beasts. The compost for potting and top-dressing in autumn should be garden mould or sandy loam, two-thirds, and rotten manure one-third.

With regard to the management of the trees after being potted, the pots should at once be plunged in the ground to three-fourths of their depth,* and if in autumn, some litter, leaves, or manure should be placed on them to protect their roots from frost. As but few trees will be likely to bear the first season, they may remain plunged throughout the summer. In the autumn all will be found studded with blossom buds. In November they may be removed to their winter and spring quarters, which may be (if no glass-roofed sheds are convenient) a lean-to shed of any kind, sloping to the N.E., and closed there, but open to the S.W. Three or four rows of trees may be placed here in front, the pots partially plunged and protected with manure; and here they may remain till they have blossomed and set their fruit; in short, till all danger from spring frosts is over, which here in Hertfordshire is not till the first week in June. They will require duly watering, perhaps once a week, commencing the first week in March.

When the fruit is fully set and safe, the trees may be removed to their summer quarters; the pots plunged, and surface dressings given as above directed.

The very finest Pears may be grown by this method of culture, in all climates warm enough to ripen them. In cool climates the orchard house must be called into requisition. Mr. Thomson, of Dalkeith, has, I believe, grown Pears on trees in pots under glass much finer in every respect than those from his wall trees. This is quite enough to decide the question as to the feasibility of growing Pears in pots in a cool climate. Here, where they bear well, and ripen their fruit in the open air, they are most interesting, and give but little trouble.

With regard to the quantity of fruit borne by trees in pots as compared with wall trees, I have frequently seen more Pears on a nicely pruned pyramid of 4 or 5 years old than on a straggling wall tree five times that age; for if well fed, and their shoots pinched in in summer, Pear trees in pots become most remarkably prolific, and above all, they are always healthy and free from canker.

If pyramidal Pear trees in pots are attended to in summer by pinching off the ends of all their young shoots as soon as they have made three or four full-sized leaves, they soon become models of perfection both in form and fertility; but the great advantage derived from their culture is the facility of removing the trees to a place where their blossoms can be protected from our spring frosts—the greatest evil we have to guard against in Pear culture, for it is now well known that Pear trees on Quince stocks always show abundance of blossoms, yet too seldom give a good crop.

Another advantage this mode of culture gives is that of making the cultivator independent as to the nature of his soil. It may be chalk or clay, gravel or sand, yet a few bushels of good loam and manure in which to put his trees make him free of all anxiety on this head. There is no fear of the roots of his trees penetrating to an unfavourable substratum, for if surface dressing is freely given in summer, the roots seem almost by instinct to come up to feed, and scarcely attempt to enter the soil beneath the pot. If they ever do this, the annual removal of the pots to and from their winter and spring quarters is quite a sufficient root-pruning.

Although I have mentioned the front of any shed open to the S.W. as being calculated to give sufficient shelter to the trees during their blossoming period, there is no doubt but that a roomy airy orchard-house would be far better. I mention a shed to show very humble cultivators what may be done if they happen to have one ready built. If a shed is to be built there is nothing better or cheaper than cheap 21-oz. glass—"fourths" as it is called in the trade—to roof it with. A lean-to shed, 10 feet wide, and 20 or 30 feet long, would shelter a great number of trees; but instead of its roof sloping to the N.E., as recommended for common sheds roofed with slates, or thatch, or felt, it should slope to the S.W.; the back may be 8 feet in height, and the front 4 feet, the back (and ends if the place is exposed) close boarded and the front open. Gardeners and amateurs are, as far as I have seen, not at all aware of the usefulness of these lean-to glass-roofed sheds open in front; they should have their rafters 20 inches asunder, and if glazed with the above-mentioned cheap strong glass their cost is but trifling. In climates not sufficiently warm to ripen Pears, the trees might remain in them the year through; there are also many garden crops that might be cultivated under them. Intelligent gardeners would make good use of them if once established as necessary appendages to a garden. With regard to fruit trees in pots, one can scarcely calculate the advantages to them from being under a roof during the winter; their roots are sheltered from the heavy cold storms of winter, and become ripe and hard. I am at this time building one of these lean-to glass-roofed sheds 200 feet long and 14 feet wide, with a very old Yew hedge for its back wall; it is open in front, and intended merely for the shelter of fruit trees; its climate will be dry, the great desideratum in England.

As this shed is built after rather an original method, and not a brick used in its construction, although its foundations are perhaps nearly as durable as brick, it may be worthy of a short description.

Its posts, on the top of which is laid the plate, are of deal, and 5 inches by 4. These are let into cast-iron sockets 2 feet long, 5 inches by 4 in diameter outside measure, and 4 inches by 3 inside measure; each socket has a flange at bottom 3½ inches wide, which forms a footing of about 1 foot in diameter, and if the soil is well rammed, this holds the building fast. These sockets are let into the earth to the depth of 15 inches, leaving 9 inches of the iron casing above the surface of the soil. Each post is let into the socket 1 foot, and rests on a shoulder, so that when fitted in, the iron socket and post fit accurately, and have a very neat appearance. The advantages of building light glass-roofed sheds after this method are obvious enough. 1. If a tenant wishes to remove his glass-roofed shed, which may perhaps be a Vinery or a Peachery, he has merely to draw the posts from their sockets, leaving them in the unbroken ground for his landlord. 2. There are no foundations to dig, or bricks and mortar—those detestable nuisances—to be carted. 3. They are light and airy, and as useful as if built by what the Yankees call "a ponderous British builder."

If any of your readers would like to see the commencement of the building I have endeavoured to describe, they will be shown it on calling on Messrs. Thos. Rivers & Son, Sawbridgeworth. *T. R.*

* If the soil be light and sandy, the pots may be plunged to their rims; if cold and stiff, not so deeply.

WINTER FLOWERS.

A FEBRUARY DAY AMONG THE LONDON NURSERIES.

ONE winter day's ramble has been sketched at p. 197. I have still another to record, and commence with Mr. JOHN FRASER'S NURSERY, Leyton. This and its winter flowers have been treated of so recently (p. 175) that it is not necessary for me to dwell on it, but good plants—unlike good advice—may, advantageously, be mentioned twice, and Kalmia glauca cannot be too freely employed as a neat and charming plant for early forcing; while second to no other used for that purpose, I here find Amygdalus sinensis albo-plena, a plant much like a Prunus, forming dwarf neat bushes, having perfectly double flowers of the purest white, and being one of the most beautiful and easily forced of all spring flowers. Here also is Leschenaultia Baxteri major, Spiræa prunifolia flore-pleno, Hovea pungens, Exacum zeylanicum; and lastly, to pass by more frequently grown early-flowering plants, the beautiful Lachenalia tricolor, which blooms naturally in the greenhouse in February, is as easily grown as a Crocus, and should be—to the extent of at least a dozen 48-sized pots—in every collection where flowers are required at this time of the year. The culture and keeping here are as perfect as I have seen it in either public or private garden, but then the great nursery which would neglect these things now-a-days, would soon fall into the rear rank, and this time I am not hunting after peculiarities or excellences of culture: so away to the West to look for more flowers.

Before entering Mr. VEITCH'S NURSERY, King's Road, Chelsea, I must cross the road and look at those noble specimens of Yucca recurva, now sprinkled with snow, in the flower garden opposite. They are of great size and beauty—just such plants as, if in pots, one would like to stage in an exhibition group of the largest fine-leaved plants: only inconvenient to move. I mention this old plant because the effect it produces here, finely grown in straight lines around the flower-garden, I have not seen surpassed in all my ramblings. It was particularly striking last autumn when some of the plants were in flower. What an excellent subject for the—I was going to say geometrical gardener, but it will look as well in dell as on plateau, and will be very largely used when people begin to produce "aspects of mixed vegetation" in the open air. However difficult it may be to find grace or any of its allies in most flower gardens, it is satisfactory to know that there is no scarcity of it in all our great indoor-plant places, and here it is in the greatest profusion, afforded by Palms, Tree Ferns, Cycads, tender Pines, in fact by everything of elegant and graceful habit that can anywhere be hunted up. The space occupied along the corridor and adjacent houses by these is very large, and yet, winter or summer, the

scene is ever grateful to the eye and mind; because group the plants as you may, the "lines of beauty" are ever there; arrange them as you may, the mystery and indefiniteness which constitute beauty of vegetation in its highest sense, cannot be extinguished. Such a scene can have no effect on the mind but an elevating one; nobody ever was or ever will be repelled by it. It is only by freely intermingling such plants with free-flowering ones, that you can get the supremest beauty of vegetation—not that which pleases a class, however large or learned, but all mankind. This I say advisedly; and I take this opportunity to utterly repudiate the false notion that it is by colour alone we can attract the non-gardening community. Therefore, I urge that every conservatory or house for exhibiting plants in their best state, should have in it a large proportion of ever-verdant and gracefully habited species which are incapable of being trained into ugliness, and moreover always ready to intensify by contrast the beauty of free-flowering plants.

A delicious treat is to be had here in the cool Orchid-house, which would be worth visiting were it only for the profuse masses of Barkeria that are in full bloom, but Lycaste Skinneri is in still greater profusion and very decided variety—an invaluable plant for the present season. Also in flower, and very beautiful indeed, are large masses of Cœlogyne cristata—the most striking plants in the house, though other "good things" in the Orchid way are here, with Lælia Lindleyana, and the pure and exquisite Cattleya Warscewiczii delicata at its best. But here is a plant, another of the perennially interesting section, which at once turns the tide of Orchid admiration—a mass of Cephalotus follicularis, nearly a foot in diameter, with a profusion of by far the largest pitchers I have seen, though always particularly observant about this plant, and all apparently from one root-stock. And with this, ever-interesting subjects are not exhausted, for here is probably a unique collection of Pitcher plants—the rarest species and Mr. Dominy's hybrids being all in excellent character and condition.

By-the-by I wish Mr. Dominy would infuse a little of the blood of Cypripedium spectabile into some of the ugly-lipped species now so common in stoves; he has done more difficult things, surely. He is raising the valuable Pitcher-plants from seed by the thousand. They are in one of the propagating houses, pricked into pots and pans; you might put half-a-dozen tiny plants on the thumb-nail, and yet every little leaf is terminated by a Lilliputian pitcher—a most interesting sight. The Ouvirandra, another plant which will gratify a visitor as much at Christmas as Midsummer, is now here in a good state, as I am glad to know it is in several other London Nurseries. There is a new Cypripedium flowering with Calanthes; a houseful of Epacrids in full bloom—quite a gay sight; and Rhododendron Princess Royal is freely blooming among the best greenhouse subjects;—but here I must wind up, having yet to go further west.

Messrs. J. & C. Lee's Royal Vineyard Nurseries, Hammersmith—the oldest battle-field of the trade, where the very ground must be full of old pruning-swords—I approach with feelings analogous to those which might be supposed to possess a soldier of the new Empire when visiting the field of Austerlitz: but with that the comparison ends, for the fray is still going on as active as ever in the Royal Vineyard, and one of the first things the visitor meets is a show house, which for its excellence as such, and its contents, might be thought more in unison with the latest advance in a first-class nursery dating from our own day. There are many other fine new houses, within hail of very useful old ones, that have been doing duty since the earlier days of the good old king. Well, Tremandra hirsuta is very useful here at this season, with Boronia pinnata, Erica gracilis and grandinosa, Correa magnifica and cardinalis; but the most telling plant in this house of specimens is Genetyllis fuchsioides, very much earlier than G. tulipifera, which is now slowly opening its bracts, while G. fuchsioides is covered with gay flower heads that have been open for two months, others being expected to continue to hold on in perfection till May. Talk about a plant "which retains its beauty for a considerable time" after that! Among stove plants and Orchids, Dendrobium cœrulescens, Cœlogyne cristata, the Franciseas, and Monochætum sericeum multiflorum, are some of the best in flower. Though Camellias are late this season, there are a good many specimens in flower amongst the excellent collection of these plants in this nursery; and finally Rhipsalis salicornoides, a small yellow-flowered succulent, is in bloom; this, grown well in dense little bushes, might make a useful winter-flowering plant. Half the fine succulents I believe to have been driven from cultivation by drought and cold; they would bear the treatment without suddenly perishing—*ergo* it was good for them. Thus the glistening health and beauty of flower which they possess with plenty of light and heat were never to be seen. I have seen Mammillarias grown in bottom heat and in frames kept very warm, that could not be surpassed as ornamental plants from the time the corona of crimson buds appeared through the white spines till flowering was over. Here I stop for the present. The sagacious reader will observe that I am but describing a hurried and impromptu look through some of our great London Nurseries; while to do these establishments anything like justice, and glean all the interest and instruction so freely to be had in each, would necessitate "camping out" for a few days at Clapton, in the King's Road, at St. John's Wood, or at Hammersmith, as the case might be. *Wm. Robinson.*

Home Correspondence.

Royal Horticultural Society.—I am very glad to learn by your Leading Article at p. 219, that there are hopes of having some interesting meetings at the Royal Horticultural Gardens. I well remember the Tuesday meetings we formerly had in Regent Street, and which were continued for many years with unquestionable success. Very instructive they were too. I exhibited at them for many years, and looked forward to the day with pleasure, there being always so nothing to be learned, and a greater or lesser number of new plants to be seen. If around London there were any good specimens in bloom, they were nearly always produced at these meetings; and it was the same with fruit. The reason was, that every encouragement was given to those who supported the Show—medals and certificates were at the command of the officers to award to subjects deemed worthy of them. And not the least interesting part of the meeting was the lecture by Dr. Lindley, in which all available information respecting the merits of the plants and fruits was given. I have seen many plants brought from a long distance to these meetings, and I have no doubt the Tuesday meetings now projected will meet with the same success, provided encouragement is given to those who have plants to bring. I for one will do my part to support the Society, if they will only make the meetings as interesting as possible. There are many others besides who are willing to lend a helping hand. I should advise that prizes should be offered for good old things as well as new. New plants are not always ready on the day fixed, but by encouraging other plants a proportion of fine specimens may always be expected, and many old faces that one seldom sees in our days will undoubtedly appear. It is quite as interesting to see a good old plant well-grown as many of the new ones; and though I am a lover of new plants, I would not forget the old kinds, as is too often the case. I gather from your report that there were some fine Orchids exhibited on the occasion referred to. This class of plants was always well represented at the Regent Street meetings, and many fine specimens both of old and new kinds have been shown there. I well remember it was there the first plants of Vanda suavis and of V. cœrulea were seen. What a sensation these two plants caused at that time!—and indeed I often now hear them spoken of as having been first shown there. It must do good to any Society to have such plants spoken of in such a way. In the days to which I allude, if one wanted to see everything new and good during the autumn and spring months, 21, Regent Street, was the place to be visited. I never pass the old place but I think of those meetings with a great amount of pleasure. Many exhibitors like myself, supporters of the great shows of 15 or 20 years ago, and many spirited growers of a later date, are, I hear, willing to make these Tuesday meetings such that the Fellows may have some inducements to continue paying their subscriptions, for they must have something to see in the shape of flowers and fruit besides what the Garden itself can produce. I hope these remarks from a four-guinea Fellow will not be out of place, for I wish the Society every success. *B. W.*

Royal Albert and Barbarossa Grapes.—In speaking of the Royal Albert in a late Number I stated that it very much resembled the Barbarossa. Mr. Cox, who is acquainted with both varieties, confirms my opinion. I may here state that the Barbarossa was introduced from the Continent by T. C. Ward, Esq., and that it was not raised from seed in this country. It was first shown, I believe, at one of the Horticultural Society's meetings, held January 16, 1849, by Mr. Bevington, gr. to Mark Phillips, Esq., of Stratford-on-Avon, and if I remember rightly there was a white variety, also named Barbarossa, exhibited along with it. It was first offered for sale in the spring of 1850 by Mr. Butcher, of the same place. There can be no mistake respecting the Royal Albert, known to Mr. Cox and myself, as both bear the same name of Prune d'Hiver, or Winter Plum. The writer of the letter I published in your columns (p. 198) also stated that it was first introduced into Guernsey under the name of Prune d'Hiver many years ago. *Edward Bennett, Osberton Gardens, Worksop, Notts.*

Small Birds.—My experience of the house-sparrow leads me to give him a much worse character for depredation in the garden than your correspondent, Mr. Ingram, gives him. We find here about this time, when the Gooseberry and Currant buds are beginning to open, that these audacious little gentlemen literally strip the bushes. This is a fact about which there can be no doubt; for if one is taken at night and has his crop opened, the latter will be found to be quite crammed with buds. The sparrow is besides a bold, cunning fellow; if moved from the bushes, he perches upon a tree close by, giving a chirp of defiance, and returning to the stripping process even before you leave the spot. I have watched him closely, but I never could detect him attacking any trees, such as Cherries, or Plums, upon which the bullfinch generally feeds. The latter is very different in its habits from the sparrow; it is easily scared away, and seldom returns the same day to the same place. *J. F., Cliveden.*

Impressions of Ferns.—A very good effect is produced by taking impressions of Ferns, &c., in the manner stated at p. 221, viz., by pinning down the fronds rather widely, so as to leave some spaces between them; and after having the ground partially filled by means of the Indian ink with brush and comb, to lay down more fronds in the intervening spaces, or even above parts of the first layer of fronds. In this way you get impressions of the Ferns having the appearance of being behind the others. Even three layers of leaves may be thus executed. The fronds ought to be very well dried before pinning down, otherwise the points of the pinnules are very apt to turn up and prevent the impressions from being perfect. *J. F. Deanston.*

Hardy Flower Garden Plants.—I shall have much pleasure in getting up for the information of "A. K. on" and others, as soon as time permits, a correct list of "hardy and half-hardy," but particularly "hardy" plants, which from their beauty of flower, leaf, or aspect, would tend much to add to our open-air ornamental gardening that variety and [illegible] at present most people of taste take very good care to produce in their conservatories and stoves. *Wm. Robinson.*

Syringing and Grape Setting.—I would feel greatly obliged if some of your contributors would state in an early Number the grounds of objection which some have to the syringing of Vines when in leaf, but more especially when in flower. In my younger days, say 25 years ago, when I had the charge of houses under a head gardener, the prevailing practice was to syringe well up to the time of colouring, but by no means to allow a bunch when in flower to be touched with water as it would prevent setting. Now, despite the utmost care, the bunches would at times get a drenching; but I cannot recollect seeing any of them suffer from their immersion. Moreover, about the year 1811, while visiting a few places in Ayrshire, I was very much struck with the exceedingly well set bunches of Muscats at Auchincruive House, on asking Mr. Skinner how he managed to set them so well, he modestly replied that he was not sure if he could tell; that during all the time he had grown them (34 years I think) he had found no difficulty in setting them, and that he was quite surprised to hear gardeners complain about the matter. I asked him if he impregnated them artificially? He said, "No, his mode of treatment was to give plenty of heat, air, and syringing, and that he considered syringing them when the Vines were in flower assisted the blossoms to set." The Vine borders were heavily cropped, and Mr. S. had no idea where the roots were. Under this treatment red spider was unknown. I do not mean to say that the bunches were anything like the 6 and 8 lb. hamperfuls we see exhibited now-a-days, but there were no heated borders or other appliances then so now so common. I mention this to show that excellent and well-bloomed Grapes can be grown, even although the syringe is used till a late period; I have adopted the practice for years, and can testify to its correctness, and my opinion is, that all other things being equal, the syringe is very useful up to about the time of the berries colouring. It prevents the establishment of red spider, though it does not kill it, and it tends in a great degree to keep the Vines clean and healthy. Perhaps some of your correspondents will give the *rationale* of their objections to the use of the syringe in Grape growing. *Derwent.*

Cookia punctata.—Has Cookia punctata (Wampee) been fruited in England? I have a plant in a tub just come into flower, but the blossoms all fall off. Last year it flowered, but with no signs of fruiting. *C. E. F.*

Royal Albert Grape.—After reading Mr. Cox's account of the origin of this Grape, allow me to reiterate my statement, made at p. 149, that I believe this and a variety of Hamburgh known in some gardens about Worcester as the Champion Hamburgh to be identical, and that "some gardens" had special reference to Lower Wick Nursery (late Mr. J. Boughton's), and W. Mott's, Esq., of Kent's Green. In the first-named place, I think there is an old plant of the Champion, from which Mr. Collins probably got the plants that produced the prize fruit alluded to by Mr. Cox. Mr. Jones may have sent him cuttings of a Grape named Royal Albert, which when it fruited about the year 1847 was found to be identical with it; hence the two names. Such at least is the tenor of information impressed on my mind during a long and intimate connection with Mr. Collins and his family. It was my son Henry or William who took the variety to Mr. Nuttall's, Esq.; but whether it was a plant from Lower Wick or a cutting from Kent's Green, I forget. I trust that Mr. C. will give his experience in reference to this variety and the Alicante, with the Worcester history of which I am confident he is most familiar. If my impressions are wrong, I gladly succumb; but if the identity of the two Grapes can be established, I shall not have written in vain. *Robt. H. Poyster, Taunton.*

Societies.

Royal Horticultural: *Mar. 7.*—On this occasion the following Candidates were elected Fellows, viz.:—

Lady Elizabeth Arthur; J. W. Bowen, Esq.; Mrs. Bullock; R. Burra, Esq.; J. Burstall, Esq.; Mrs. Butcher; Hon. Mrs.

Dutlane; Mrs. C. Durant; Mrs. Grainger, Mrs. C. M. Hunt; Mrs. W. S. Jones; E. King, Esq.; Mrs. Malcolm; Mrs. C. Newton; Mrs. J. E. Phillips; R. Pickering, Esq.; E. Pike, Esq.; G. Sheward, Esq.; Sir J. C. Thorold, Bart.; Dr. Wenzel, and Mrs. J. Williams.

March 11 (*Weekly Show*).—At this meeting Messrs. Lee exhibited fine plants of Cordyline indivisa, Davallia tenuifolia, Cyathea Smithii, and Oncidium Phillipsii. Mr. Bull contributed a small collection of plants, among which were Camellias Contessa Ottolini, a finely imbricated rose-coloured variety; and Raffii, also a handsome deep rose-coloured kind. From the same exhibitor likewise came Anthurium leuconeurum and an ornamental stand for the decoration of the drawing-room. Mr. Coysh, gr. to E. Wood, Esq., Rugby, contributed Deutzia gracilis, Thyrsacanthus rutilans, and other plants. Mr. Lucking and Mr. Greeves sent window-baskets, bouquets, and flower-baskets, well filled with Hyacinths and other early flowers.

Notices of Books.

Notes upon the Errors of Geology, illustrated by reference to facts observed in Ireland. By John Kelly, Vice-President of the Royal Geological Society of Ireland. 8vo, London, 1864. Pp. xvi. & 300.

The very first glance at the title of this curious book inevitably raises a spirit of opposition. The Editor himself seems to have felt this, for though the title-page appears as above, the book is labelled Notes on Errors of Geology, which, if not adopted from mere economy of space, certainly places the subject before us in a less offensive point of view.

The main object is doubtless to reconcile the Mosaic account of the Creation with geological teachings, and like most other works in the same direction it only makes the matter more obscure. It is strange when every one is contented to receive without the slightest misgiving, the account in Scripture of many matters of a cognate character in astronomy and natural history, which are stated in conformity with the notions prevalent at the time when the books were written, that so many should stagger at similar discrepancies between the account of the Creation and what has been ascertained in modern times of the structure of the earth. The great object was to show that the Earth and all that is in it proceeded from the hand of God, and we may be well content to receive this, without insisting upon its being a scientific revelation.

Whether, however, it is wise or not to make the Mosaic account antagonistic to those of the geologists, we have here another attempt to reconcile apparent discrepancies, and we must say that it is not a very happy one, though we are far from thinking that the volume does not contain some valuable matter.

The author's theory is that the six days or periods of creation correspond with the six great systems of rocks, including the Silurian and Devonian as one. For this there is not a shadow of proof except in the writer's imagination, and when we come to details we have a confusion of language which is quite inexplicable in a person who has been accustomed to scientific research. If the days are to be interpreted as periods, they may as well comprise 960 millions of years as 960. The necessary confusion between the creation of the vegetation which, through many ages, supplied the materials for the coal beds, from the combined action of the innate heat of the earth, or that generated by the grinding of other parts of the disjointed nucleus, and the light diffused in the firmament before the sun was formed, and that of the various phænogamous plants which adorn the present surface of the globe which could not have existed at the same time with the gigantic cryptogams of the coal measures, together with similar facts relative to other branches of natural history, is at once subversive of the author's theory of the accordance of the formation of the six systems with the six Mosaic periods.

It is not easy to see how the overthrow of the Huttonian theory of the existing state of the earth having arisen from the operation of the same causes which now modify its surface, and the adoption of the author's notion that the sedimentary rocks have been formed by the ejection of comminuted matter from fissures in the nucleus of the earth, really helps his theory, and when he asserts that the great sandy deserts may have arisen from matter ejected not as in the former case into the sea, but into the open air, he simply becomes absurd.

We might easily, if this were the proper place to do so, pick holes in several of his arguments, but it is better to call attention to those parts of his book which are really valuable. The chapter on defects in the succession of rocks in Ireland is well worth perusal; and in spite of the sneers which he every now and then casts out against our best geological authorities, his notions of subterranean agency in the formation of some strata are worth consideration. At the beginning of the present century an artist was travelling with Donovan the naturalist, and another scientific friend, in Wales, and naturally the conversation turned on geology. The one was a zealous Vulcanian and the other Neptunian, and the controversy was so keen between the two that they separated and left the artist to his sketching. Both probably were partly right and partly wrong, and so possibly the case may be with Mr. Kelly and the geologists whom he reprobates. There may be truth on both sides, and such men as Lyell and Murchison would be the very first to give fair consideration to any theory properly brought before them, convinced as they may be of the justice of their own views, which have been adopted not from mere tradition but from personal estimation of multitudes of facts. No one will deny that there are many difficulties in the notion of large systems of rocks arising from mere external abrasion of pre-existent continents; but the difficulties in Mr. Kelly's theory are at least as numerous, and after all the merest sciolist in geological lore could not help recognising the fact, that many fossil beds must have originated precisely in the same way in which similar recent beds are now in the act of formation.

Garden Memoranda.

Robert Warner's, Esq., Broomfield, near Chelmsford, Essex.—Lovers of Orchids will find Mr. Warner's establishment at present well worth inspection, there being few places in which that gorgeous family, in which Nature seems to have concentrated the gems of her handy work, is better represented than at Broomfield. Go there when you will, there is always a plentiful display of magnificent blooms.

Mr. Warner has been successful enough not only to hit upon the best plan of growing his plants, but also of flowering them in perfection. For the growth of these and other plants, we find here all sorts and sizes of houses,—the old "lean-to," and more modern "span-roofed," some facing south and some north; but Mr. Warner is of opinion that the most suitable form of house is the "span-roofed," and as to aspect, that which has the fullest possible benefit of the sun, with a slight shading when it is too powerful. This is undoubtedly the secret of his success in producing such a large amount of bloom. He never allows the temperature to get so high as most growers do, a circumstance which, besides being an advantage to the plants, permits the lovers of them to spend more time among them, with a greater amount of pleasure than when they are grown in warmer houses—this may be said especially of the houses for Cattleyas, Lælias, &c., the doors of which are open every fine day. There is therefore a free circulation of air always passing among them. The plants are also kept as near the glass as possible, in order that they may have the full benefit of light in which to ripen their bulbs. Another point in his practice which deserves notice is, that he never gives his plants so much water that the soil or potting material becomes soddened, a great fault with many growers. Experience has proved that too much water is injurious to Orchids, causing them to make growths or bulbs of such a succulent nature, that it is impossible to get them sufficiently ripened to stand the winter; whereas if less water is given during their period of growth, and they are afterwards carefully ripened, their bulbs and leaves become firm enough to withstand the dull weather during that period of the year.

Before entering the first house, we come into a sort of porch, the sides and roof of which are tastefully covered with climbers; out of this the Orchid house door opens, and the possibility of a draught of cold air entering is thus prevented. The house itself is span-roofed, about 40 feet long and 20 feet wide, and it is used for East Indian species. On entering will be found a grand display, in fact a bank of bloom of Phalænopsids, reaching the entire length of the house. The beauty of their lovely drooping spikes, many of which had from 20 to 40 blooms on them, is still further enhanced by the charm of variety here and there imparted to them by intermixture with plants of the mauve-coloured Schilleriana.

Amongst the different species are many varieties, both as regards colour and size, as well as with respect to shape of flowers; one variety of grandiflora has the blooms very thickly set on the spikes, and the lip of a much deeper orange than usual. Here may also be seen the rare and beautiful P. intermedia var. Porteana, with a fine spike of flowers; it has been in bloom for several months, and is likely to last for a few more. Here we had also some well-bloomed specimens of roseum, which is not, however, so showy as the other kinds, but it is well worth growing on account of the long time it remains in bloom, which the same spike will do for 12 months at a time.

This bank of Phalænopsids is backed up with such plants as Aerides, Cypripediums, Saccolabiums, Vandas, &c., the fine green foliage of which forms a good background to the flowers, setting them off to excellent advantage. Some of the plants of Cypripedium villosum are very fine, having as many as two dozen fully expanded blooms on them; and we also saw a fine spike of C. Lowii, well furnished with singularly beautiful flowers; some fine specimens of C. hirsutissimum are likewise now in perfection. Saccolabium violaceum, with fine arching spikes, one of which is 14 inches long, covered with beautiful white flowers spotted with mauve, is a magnificent plant, which keeps in bloom for many months.

The centre of the house is filled with Vandas, among which V. Lowii 7 feet high bloomed splendidly last year. Of V. suavis there are more than 20 plants some of them 6 feet high, and showing fine spikes for flowering in summer; V. tricolor and insignis are equally fine, and many of them are in bloom. There are, moreover, several fine plants of Aerides Larpentæ, 4 feet high; large masses of A. virens superbum, A. quinquevulnerum, A. odoratum purpurascens, A. affine, &c,

Mr. Warner has imported several fine plants of the long-leaved Sophronitis grandiflora, which is now in bloom, and far surpasses, both in colour and size, any of the other varieties; it was hanging along with the Phalænopsids, and induced an earnest desire for such a colour in that fine family.

We next entered a "lean-to" house, about 100 feet in length, down one side of which is a row of Cœlogyne cristata, just going out of bloom, with which they have been covered. Of this there are two varieties, one with bright lemon colour in the centre of the lip, and having the additional advantage of coming into bloom just as the other goes out, thereby considerably prolonging their season. In front of these are many fine Orchids in bloom, and among them Cypripedium biflorum, with two flowers on each spike, a good variety as to colour, &c.; also C. venustum, C. javanicum, and Lælia Lindleyana, useful on account of its lasting so long in bloom; together with Aerides cylindricum, a very rare plant, with large white and pink flowers.

On the other side, the whole length of the house, are two rows of specimens of Cattleyas, Lælias, &c., in the same beautiful condition.

On leaving this we come to a house called the "Cattleya House," which is span-roofed, and filled with what might alone be termed a good collection of Cattleyas, Lælias, &c., in such a state of health and vigour as it really does one good to witness. One plant of Lælia purpurata promises to produce 50 flowers, and when in full bloom will be a sight well calculated to repay its possessor for the trouble of cultivating it. Mr. Warner has about 20 varieties of Cattleya Mossiæ, which bloom every year in great perfection. Here is the fine specimen of Lælia superbiens that was once the pride of the Horticultural Society's Gardens at Chiswick. This fine plant was sold some years ago to A. Fairrie, Esq., of Liverpool, and on the breaking up of his collection, Mr. Warner purchased it; it is still in the best of health, and has just gone out of bloom. In this house are some large specimens of Lælia elegans, L. Warneri, and L. anceps, just going out of flower; these must have been splendid, having, as they had, some hundreds of blooms on them. On one side of the house are some fine plants of Dendrobium nobile, with as many as 200 blooms on a plant, together with D. Wallichii, well flowered; Cœlogyne cristata, 3 feet across, loaded with its delicate blossoms; the lovely sweet-scented Odontoglossum pulchellum, with 20 spikes, and another plant the same size just going out of bloom. In this collection were moreover Lælia Barkerii, with richly-coloured flowers; also four well-bloomed plants of Cattleya Warscewiczii delicata, and a fine specimen of Cœlogyne flaccida, with 12 gracefully drooping spikes of beautiful creamy-white, yellow, and brown flowers. In this house, tastefully arranged, are several fine specimens of Tree Ferns, the most conspicuous among which is Cibotium princeps, which is one of the most ornamental of Ferns.

These intermix well with Orchids, as the effect produced by them, when judiciously arranged, is really pleasing, and the little shade they impart is not injurious to the Orchids. Mr. Warner observed that this house was well adapted for specimen plants, pointing out at the same time that it had five doors, all leading into other houses, and consequently, that a good circulation of heated air could always be kept up among them. He added, however, that small plants do not succeed well in it, as they require a closer house till they have become well established.

The next house is that in which Lycastes, Odontoglossums, and other Orchids requiring comparatively cool treatment are grown, a system which Mr. Warner adopted many years ago. His plants of Lycaste Skinneri are not flowering well this season. Mr. Blake, the gardener, stated that they had been divided and repotted last year, which was the cause of their not producing such a profusion of bloom as they have for several years past. They are now, however, making strong growths, which promise to furnish a much better display next season. This house is planted with Vines, the leaves of which make a capital shading in summer for Orchids, as well as afford a supply of Grapes, an advantage of great importance in a gentleman's place, where fruit as well as flowers is required. Some plants of the Odontoglossum grande here are very fine, and judging from the number and strength of the old flower spikes they must have been grand indeed when in bloom last autumn. Odontoglossum nævium majus, membranaceum, Warneri, and many others are also growing very luxuriantly, together with several large specimens of Arpophyllum giganteum. The latter are not however showing so well for bloom as they ought to do, owing to the too great distance at which they are placed from the light. If Mr. Warner would remove them to the Cattleya house, and place them as near the glass as possible, he would doubtless find the change beneficial to them.

At the end of this house is a span-roofed one for Ferns and fine-foliaged plants, in the centre of which is a large tank for gold fish and aquatic plants. Suspended from the roof are some fine specimens of such Ferns as are adapted for basket culture. Amongst them we noticed Adiantum setulosum, A. assimile, Davallia bullata, and Pteris scaberula, all of which are useful for that purpose. In summer Achimenes and Gloxinias are grown in baskets, and when in bloom, mixed with the Ferns, they have a very pretty effect. Plants of Æschynanthus are also grown in the same

way. In the centre of the tank stands a large plant of Dicksonia antarctica in a pot—raised, of course, out of the water; about half-way down the outside of the pot is a projecting rim, capable of holding a row of Lycopodium denticulatum, which seems to grow luxuriantly in such a position, and looks very pretty. At the end of this house, overhanging the water, is Cibotium Schiedei, with fronds 6 feet long, the plant being 12 feet across, its beautiful feathery fronds having a good effect, as they droop towards the water. There are many other Ferns planted out, in the selection and arranging of which, so as to contrast well with each other, a great deal of taste has been displayed, as well as in the general arrangement of the house. Along the sides are some fine specimens of Adiantum cuneatum, some of them 3 feet across, together with A. cardiochlæna, variegated Begonias, Marantas, &c. Into this house Mr. Warner moves many of his Orchids when in bloom, a practice which imparts a very pleasing variety to it, and prolongs the season of the Orchids; as many as 100 blooms of Lycaste Skinneri may sometimes be found here at once, and the effect produced by their mingling with the graceful fronds of the Ferns is very gratifying.

Passing from this house we enter a small one, filled chiefly with Miltonias, Oncidiums, Sobralias, &c.; amongst the former are some fine specimens of M. Moreliana and spectabilis; and among Oncidiums Phelpsianum very finely in bloom. It is one of the best yellow kinds, with a richly coloured lip. Winter-flowering Oncids are very useful, as they last long in flower, and are well adapted for cutting, either for vases or bouquets. Returning from this house we come again to the Cattleya house, from which we pass to a range of three lean-to houses, facing south, which are planted with Vines, trained up the root in the ordinary way. The two first contain many fine Orchids, but they are used chiefly for the commoner kinds, such as Lycastes, Zygopetalums, Phajus Wallichii, of which there are some very large specimens now showing flower; Dendrobium moniliforme, D. densiflorum, and many of our strong-growing but less rare kinds, that add very considerably to the general display. The last house in this range is a sort of greenhouse for the hardier kinds of Ferns and flowering plants, and is now very gay, especially with Azaleas. Among these is a fine specimen of amœna—an indispensable plant where flowers are wanted in winter—and a good plant of Perryana. This house cannot be left without the visitor noticing seven large specimens of Dendrobium nobile, placed here to retard their bloom; judging from the number of buds with which they are furnished, they will, when in flower, form a complete floral mass. One often sees this beautiful Orchid, which is one of the most easy to cultivate, with only a few blooms scattered over a large plant, whereas if it received only ordinary "stove" treatment when forming its bulbs, and after it had done so had water gradually withheld till they were well ripened, it would be sure to furnish plenty of flower.

The nine houses described are so situated that you pass from one to the other without opening any doors communicating with the open air, an arrangement which "growers" will at once see the advantage of, as it prevents the possibility of cold draughts, so injurious at all seasons, but more especially when the plants are making their young growths.

There is another "span-roofed" house, about 100 ft. long, which contains some of the choicest Orchids, but it is used more for plants in a small state than for specimens. Here are, however, some magnificent plants of Aerides Schröderi, which, as well as being extremely rare, is one of the finest in cultivation. Besides these there are here some fine Saccolabiums, Dendrobium macrophyllum giganteum, well set with bloom; and D. lituiflorum, a very handsome and rare kind.

Some distance from this is another span-roofed house, which Mr. Warner has had built to receive the plants when any of his other houses require painting or cleaning, he being of opinion that this is a matter which should be very carefully attended to. To have the painting regularly done when required is one of the best means of preventing "drip" from the roof, an evil which all Orchid growers dread, especially in dull weather. It is also necessary to keep the glass clean, so that the water may pass freely off. *W. B.*

Miscellaneous.

Walnut Grafting.—The multiplication of Walnuts by grafting is attended by some difficulty, a circumstance the more to be regretted, as there are some superior varieties which it is desirable to propagate on a large scale, and which will not be reproduced with any certainty from seed. M. Leroy, of Angers, has attended much to the subject, and finds that he succeeds best with wood of two or three years, when the tree is in full sap, and the bud is beginning to push. One year's wood is too soft for the woody part to offer sufficient surface for junction, while in the older branches, the pith occupying only a comparatively small space, the graft is more readily applied to the stock. He found also that grafts made on a level with the soil, or even sunk in it, were most successful. The mode of grafting which answers best is what is called *Greffe anglaise*, which appears to be what is known in England as shoulder grafting, a method which requires dexterous manipulation. *La Belgique Horticole*, Jan. 1864.

Calendar of Operations.

(*For the ensuing week.*)

Although the weather is still comparatively sunless and cold, and vegetation generally backward, beds and borders are beginning to get gay with Crocuses and other spring bulbs. The display which these make is greatly enhanced by good keeping; the surface of the beds should therefore be clean and neatly raked; edges trimmed, and the surrounding lawn well swept and rolled. Grass cutting must soon be commenced; see therefore that scythes and mowing machines are in proper order for that purpose.

FLOWER GARDEN AND PLANT HOUSES.

Climbers in Conservatories and other show houses will now want frequent attention. Prune off superfluous shoots, stop or pinch the points of over luxuriant leaders to induce a flowering habit in such kinds as produce blossoms from the axils of their leaves, and keep them neatly tied and trained. As regards the out-door department, see that everything is neat, clean and orderly. Let all fresh turfing be completed forthwith, and if not already done, cut in all coarse evergreens or shrubs before the bud becomes too much advanced.

Annuals.—Make a sowing of tender sorts if not already done. Pot off Balsams, Cockscombs, &c.; such things succeed best in a frame placed on gently fermenting materials, close to the glass, and well matted up at night.

Bedding Plants.—Continue potting off stock for out-door decoration; also making cuttings of Verbenas, Fuchsias, Petunias, Calceolarias, Pelargoniums, &c.; they will all be wanted. Shade newly-potted plants, and remember that in making cuttings the leaf should not be first allowed to flag, and then an attempt made to restore it by abundance of water, but the foliage should never be allowed to droop.

Dahlias.—Repot the most forward cuttings; and put in others. It is very desirable to have extra strong plants for mixed borders and the shrubbery. These can be obtained by dividing and potting the old roots, after sufficient cuttings have been taken from them.

Orchids.—Those growing in stoves must soon receive a slight shade for two or three hours on bright days, more especially those which have been disturbed at the root; these, if convenient, should be removed to a house or pit by themselves, as established plants which have remained undisturbed will enjoy more sunshine.

Tulips.—Keep the foliage dry so long as we are in danger of spring frosts. If a watering is necessary, either from a continuance of dry weather, or from the soil being light, it can be done between the rows, without watering the plants over head. Protect from hail on all occasions, and rain also while the weather is cold.

FORCING GARDEN.

Cherries.—These should have free syringings, with abundance of air. The syringing, however, must cease the moment any change of colour in the fruit is perceived.

Figs.—Follow up stopping; give manure water very freely.

Peaches.—Persist in stopping at all times every gross shoot on all the upper parts of the tree—allowing such, however, to ramble when they grow towards the extremities of the lower parts; this is the best way of equalising the sap. Syringe freely—especially in the afternoon—and at that period endeavour to create atmospheric moisture for the night, by sprinkling all available surfaces, except flues or pipes. Trees of these and of Nectarines in pots now in full bloom must have as much air as the state of the weather will permit.

Pines.—Little new can be added at present. Give air freely to growing successions in dung-pits; induce them to grow more in bulk than in length.

Strawberries.—Keep up successions; do not suffer those on which fruit is swelling to get dry; use plenty of liquid manure according to former directions, viz., constantly clear and weak.

Vines.—Endeavour to avoid the consequences of indulging in too much atmospheric moisture in the daytime. Many berries are doubtless scalded, as well as leaves injured, by a surplus of atmospheric moisture in the morning, or too early in the afternoon, in an endeavour to accelerate forcing by shutting up unreasonably early.

HARDY FRUIT AND KITCHEN GARDEN.

Have everything in readiness to protect blossoms, the opening of which appears to be late this season, and endeavour to eradicate insects by all possible means. See that all winter and early spring work amongst fruit trees is brought to a close forthwith. The period has now arrived for committing to the earth the seeds of most kinds of kitchen garden crops.

Cabbages.—Earth up plantations of the largest plants, and keep them free from weeds. Sow also seeds of two or more sorts which will succeed each other.

Carrots.—Look sharply after crops of Early Horn, to prevent slugs from eating them. Nothing is better, perhaps, than cinder-ashes riddled extremely fine, and the mere dust taken out; these sown thickly over the ground present such a rough surface, that snails and slugs dislike to venture on them.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Mar. 15, 1865, as observed at the Horticultural Gardens.

March.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth. 1 foot deep	Temperature. Of the Earth. 2 feet deep	Wind	Rain.
Thurs. 9	11	29.950	29.879	46	25	35.5	42	42	N	
Friday 10	12	29.980	29.574	45	34	39.5	42	42	N W	
Satur. 11	13	29.914	29.520	44	31	37.5	42	42	N W	
Sunday 12	○	30.024	30.011	45	27	36.0	42	42	N E	
Mon. 13	15	29.953	29.709	48	30	39.0	42	42	N	
Tues. 14	16	29.923	29.817	42	30	36.0	42¼	42	N E	
Wed. 15	17	30.010	29.984	40	29	34.5	42	42	N E	
Average.		29.965	29.783	44.3	29.4	36.8	42.1	42.0		

March 9—Cloudy and cold; clear and do; overcast, slight frost.
— 10—Fine, cloudy and cold, cloudy at night.
— 11—Cloudy and cold; showery; cloudy.
— 12—Overcast; cloudy and cold; cold N E wind, overcast, slight frost.
— 13—Overcast; fine; cloudy; overcast at night
— 14—Cloudy and cold; some snow-flakes; overcast.
— 15—Frosty drizzle, cold and densely clouded, slight frost at night.
Mean temperature of the week, 9 deg. below the average.

STATE OF THE WEATHER AT CHISWICK
During the last 39 years, for the ensuing Week, ending March 25, inclusive.

March.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N	N E	E	S E	S	S W	W	N W
Sunday..19	51.7	33.5	42.6	13	0.33 in	5	5	—	4	2	—	—	—
Mon. ..20	52.0	34.3	43.1	15	1.11	3	4	3	—	11	5	—	—
Tues. ..21	51.1	32.8	41.9	17	0.21	9	—	—	3	4	—	—	—
Wed. ..22	50.7	31.6	42.6	18	0.44	7	4	4	2	4	3	—	—
Thurs. ..23	50.9	33.3	42.1	16	0.80	6	8	1	2	4	2	—	—
Friday ..24	48.6	31.9	40.2	13	0.13	4	4	1	—	2	7	—	—
Satur. ..25	51.1	32.7	41.9	14	0.50	3	11	5	—	2	3	—	—

The highest temperature during the above period occurred on the 25th, 1843—therm. 69 deg; and the lowest on the 25th, 1850—therm. 14 deg.

Notices to Correspondents.

Cabbages: *Messrs. Stuart & Mein.* Your Fearnought when cooked is excellent. It is evidently very hardy, only a few of the outside leaves in the specimens you have sent us being browned by the frost.

Climber for Greenhouse: *C W.* Either a Banksian Rose, Jasminum azoricum, or Passiflora coerulea-racemosa would suit your end trellis very well; though if you can give it a deep bed of soil, Lapageria rosea would be one of the finest things you could plant; but in this case something else, such as the Passiflora, would be needed for immediate effect, as the Lapageria would be some time in covering the trellis, being a slow grower till its roots become well established.

Cypripedium biflorum: *A D B.* This, we are told, is a garden name for a distinct winter flowering form of Lady's Slipper, which generally produces two flowers on the peduncle, but whether in other gardens it bears the name of multiflorum we cannot say; nor have we had an opportunity of ascertaining what is its proper name.

Garden Library: *A Gardener.* We recommend you to add to the books you name as already in hand, as many of the following—latest editions—as you can procure:—Lindley's Theory and Practice of Horticulture; Loudon's Encyclopædia of Plants; Thompson's Gardeners' Assistant; Stephens' Rural Chemistry; Rivers' Miniature Fruit Garden; Hogg's Fruit Manual; Kemp's How to Lay Out a Garden; Du Breuil's Grafting, Pruning, and Training Fruit Trees; Fish's Wardle; Williams's Orchid Grower's Manual; Thomson on the Vine; Paul's Rose Garden; Morton's Cyclopædia of Agriculture. The list might be extended if your means permitted. You can get the prices on application to any bookseller.

Garden Notices: *J H C.* Your letter can be used privately, but we do not see that anything is to be gained by publishing it. In fact, the rule you suggest is that adopted by our correspondents. Some persons—both of the gardening fraternity and of the sight seeing public—are unable to find anything good unless it happens to come in with their own hobbies, ignoring altogether the general and particular wants of each respective establishment.

Heaths: *J D.* A span-roofed Fernery, without fire-heat, glazed with rough plate glass, the sides and ends brick, will not offer very suitable conditions for growing Heaths. They might bear the absence of fire-heat if the house were kept close during severe weather, but they would not thrive without much more light and air than would be thought necessary for Ferns.

Ladies' Prizes: *C D.* The intention is to place as little restriction as possible. Six weeks are named, because there must be some limit, and because, with most plants, the space of time would be sufficient to determine the development of blossoms or of a healthy set of foliage. The case you mention, that of an Orchid purchased in the middle of May to be shown at the end of June, is an extreme one, and would doubtless be estimated in making the awards.

Names of Plants: *T Ford.* 1, Cyrtomium falcatum; 2, Lastrea Filix-mas cristata; 3, Asplenium Trichomanes.—*J J.* 1, Chorozema varium; 2, Plumbago zeylanica.—*W J.* Linospermum fruticosum.

Rose-leaf Parasites: *T W.* Your Rose leaves are attacked by a parasitic Fungus, Peronospora sparsa, which is sometimes very destructive, and as it originates in the substance of the leaf, very unmanageable. We see both aphis and thrips on the leaves, but the mischief is not chargeable to them. *M J B.*

Seed Farming: *T M J.* We cannot possibly tell whether your "young gardener" would be able to manage a small seed farm; but if he has no direct knowledge of seed growing further than that of saving a little for home use, we should think he would not. We cannot direct him to any work on the subject which he could study with advantage. It requires considerable tact and experience to harvest seed when it is a question of profit. The best means of learning would be to get employment for a season in some of the establishments where this work is carried out on an extensive scale.

Variegated Kail: *H S S J.* Yours is a very fair sample, but would be improved by further selection for a season or two, seeding only the best coloured and most decided forms.

Violets: *Alpha.* Mr. Graham's Violet, named Czar, is an usually robust-growing variety of Russian. It was awarded a First-class Certificate the other day by the Floral Committee of the Royal Horticultural Society.

West-aspect Walls: *W.* In a situation where Peaches do ripen well on an eastern aspect, they will do so equally well on a western aspect. We have found this to be the case in many instances. Indeed, of the two we should prefer the western. ‖

Erratum.—In the advertisement of the Agricultural and Industrial Exhibition to be held at Nice, inserted March 11, page 210, the year should be 1865 instead of 1856.

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The Agricultural Gazette.
SATURDAY, MARCH 18, 1865.

We understand that the Education Committee of the Royal Agricultural Society of England have finally resolved to report to the Council their recommendation that a sum of 300*l.* be set apart annually for prizes to be awarded by those who conduct the local examinations, superintended by the Cambridge and Oxford Universities.

What has been the history of this affair hitherto?—At the December General Meeting of the Society in 1863, the Council were startled into the consciousness of an unfulfilled duty by the announcement of their entire neglect of the seventh object specified in the Charter of the Society, as being among those for which they were incorporated. It is there declared, among a number of other agricultural particulars—such as the promotion of Cattle breeding and of good cultivation, of Agricultural Chemistry and Entomology, of Cottage building, &c.—that the Society are to promote "the education of those who are dependent upon the cultivation of the land for their support." The Society had, indeed, by their Journals and their Shows, and to some extent by their discussions, been promoting agricultural education during the whole course of their career. This was pointed out and admitted by the mover in this matter; but all this they could not help doing; all this was incidentally and inevitably the consequence of their mere existence and activity. Many others of the objects specified would in like manner have been promoted by any such combination of the leading agriculturists of the country for the general purpose of agricultural improvement. The Society, however, had not been satisfied with this general tendency and result of their proceedings in the case of the other objects to which their attention is directed. They had not merely excited a general interest in agricultural pursuits among the large body of their members, and left it to find its own direction and expression; but they had laboured specifically and particularly by the offer of prizes, and by the costly commission of scientific and intelligent men, at great expense of labour, time, and money, and with special direction and intention, to promote a more accurate inquiry into the entomology and chemistry and mechanics of agriculture, and a more general, and, as it has proved, most fruitful interest in the improvement of the cultivation of the soil, and of the useful qualities of our various breeds of horses, cattle, sheep, and pigs.

While all the other objects of the Charter had been thus the subject of direct laborious and successful effort, none of them being left to a merely natural share in the benefit accruing from the general interest and excitement consequent upon the proceedings of a large Agricultural Society, but each of them being the subject of that special, costly, and continued effort which the Society are directed by their Charter to make in the case of each—the seventh—that which specifies the promotion of the education of those who are dependent on the cultivation of the land—had been left altogether in neglect. The Journal did indeed promote this education; but the Journal was itself specified as one of the purposes for which the Society was incorporated. The annual shows promoted it; but these, too, were directly named among the objects contemplated by the Charter. Over and above these the Charter specifies the education of the agriculturist; but over and above these the Society had done nothing for the education of the agriculturist.

Now, as ever, the young man who is to be a farmer, leaves the small village school, or the local boarding commercial school, or the better county general or public school, where the general training of school life and particular instruction in the elements of knowledge have been suffered, experienced, or enjoyed, and goes on to a farm, generally under his father, more rarely under a good practical man elsewhere, and there works like a labourer, or hunts and shoots and smokes like a man of leisure; and so, incidentally as one may say, and without any systematic instruction, picks up whatever good or bad of country life and field management, and market skill he comes across. There is certainly a need of some special direction and incentive, some guidance, some urgency, applied to just this point in the agricultural scheme which has not hitherto been thought of.

Here, then, is a great national agricultural society whose business it is to adopt measures for the increase of the results and the profits, and for the improvement of the machinery and methods of practical agriculture; and this is just a task for them. The whole analogy of all their past proceedings shows that they may interfere in such a work as this in perfect consistency with all they have done for agricultural improvement in other points. This is a thing on the same rank with those—having as direct and practical a connection with that immediate increase of farm produce towards which, as an Agricultural Society, their efforts have hitherto, and properly, been directed. And it thus may claim both rein and spur from those in the saddle here, as much as any other towards which the good horse "R. A. S." has hitherto been directed. Nay! the "rein and spur" applied to professional agricultural education, which on general grounds we thus see are proper for the effort of the Royal Agricultural Society, but which they have hitherto neglected to apply, are plainly indicated in those words from their Charter which we have already quoted, as part of the very business for which they are incorporated.—This was the case stated at the General Meeting 15 months ago.

Very shortly after this, Mr. HOLLAND, M.P., moved for a Committee of Council to inquire into the instructions of the Charter in this matter, and to consider how they could be obeyed. This Committee has met at intervals ever since, and appears at length to have brought its deliberations to an issue by a clear line of demarcation between the two parties in it who have been conducting the discussion. And it appears that those who originally moved the action of the Society in this matter are in a small minority. Instead of reading the instructions of the Charter in the light of all the other particulars which it specifies, and seeing in this reference to agricultural education a direction to promote that professional training and instruction with which the ends of agriculture are as directly connected as they are with all the other objects named; the majority elevate this seventh object for which the Society is incorporated, on to the level of a higher and altogether different class of subjects, with which as a professional body, with strictly defined purposes and objects, the Society has hardly anything to do. They recommend the Council not to reward professional attainment or, as in all the other examples of its rewards, professional skill, but to reward mere quality of mind. They are to give their prizes for attainments in that general middle-class education which the Universities by

their examination and degrees promote; and as we contend, they are altogether leaving the strictly agricultural field to which they are confined by their Charter.

Of course the subject cannot be allowed to remain in its present position. We can hardly suppose that the Council will sanction a departure so egregious from the whole scheme and tendency of their proceedings hitherto. But if they should, we cannot doubt that a full general meeting of the Society would be clearly on the side of the minority who protest against the present resolution of their Committee, on the ground both of misdirection and of waste.

The lecture on Agricultural Education which we publish in this Number of our Journal gives the opinions of one who may be considered fairly representative of the agricultural judgment on this subject. With ample experience of business and of life he has been and is a good tenant-farmer, who has long achieved the position of success, goodwill, and general esteem in which he now stands. And notwithstanding the excessive expressions* which he sometimes uses in order to urge his convictions of the need of practical knowledge and of habits of patient industry as alone the true basis of success, we have long known him as one of the most intelligent of the correspondents of this Paper; in full sympathy with all that has been done of late years for the social, intellectual, and professional advancement of every class connected with the land. His remarks, written some years ago for a village audience, in a style adapted for the amusement as well as the instruction of his neighbours, are nevertheless full of practical wisdom, and deserve the study of those of our readers who are especially interested in the subject which is now engaging the attention of the Royal Agricultural Society.

We do not, however, rest on a single protest of this kind against the extreme views of those doctrinaires in educational matters into whose hands the Agricultural Society seem about to place themselves. Almost the universal testimony, so far as we have gathered it, of the best farmers in the country unquestionably declares the need of improved professional training, and the desirableness of the Society directing its efforts for agricultural education there. And this we undertake next week to show.

—— Mr. Bailey Denton has drawn up a personal petition, which was presented on the 6th of this month to the House of Commons, on the Water Economy of Great Britain. His object is that an inquiry may be instituted into the water economy of the country, and the effect of the drainage of lands, and the sewerage of towns upon the river systems. And he rests his case on the following grounds:—

(1). That in consequence of growing population—of improved land culture—of manufactures spreading in all parts of the kingdom—of sanitary regulations extending into all towns, and of the droughts experienced in rural districts, it is of the highest importance that the supply of water for social, agricultural, and commercial purposes, be made forthwith the subject of proper conservation.

(2). That within the last quarter of a century numerous Acts of Parliament (firstly) for the drainage of private estates, (secondly) for the drainage of districts, and (thirdly) for the sewerage of towns, have come into operation, all of which, in different ways, affect the water supply and alter the condition of the rivers.

(3). That the effect of under-draining private estates is to discharge a larger quantity of water than had previously been discharged into the rivers, inasmuch as a proportion of the water discharged by drainage was formerly evaporated from the surface, and therefore never found its way into the rivers.

(4). That the manner and time in which this increased discharge reaches the rivers and affects the water supply necessarily depends, in a great measure, upon the mode in which the drainage and sewerage works are carried out.

(5). That the operations under "The Land Drainage Act, 1861," being limited to districts, which are generally portions of catchment basins, must be detrimental to the main river-courses, because while better outfalls are secured for the districts under treatment, increased quantities of water are suddenly discharged upon the lower portions of the valleys without any provision having been made for receiving it.

(6). That the object of all towns in which sanitary regulations and systematic sewerage have been adopted is to acquire from rivers and from springs flowing into rivers, a copious supply of pure water, which, after serving the inhabitants, is returned to the rivers polluted in character and diminished in quantity.

(7). That this supply has in certain instances been already gained, and in others is being now sought, under Parliamentary sanction, by the diversion of water and springs out of certain valleys into other valleys, whereby the water supply of the latter is, or will be, injuriously affected.

(8). That the extent of lands and the number of towns drained since the several Acts referred to became law, though forming a small proportion of the lands and towns of the country requiring draining, afford data for anticipating the effect of general extension.

Mr. Denton believes that an investigation of the whole subject of the water economy of the country, would not only tend to a more perfect knowledge of the several elements affecting the question than at present prevails, but would lead to an acknowledgment of the necessity for establishing such a control over the catchment basins of the rivers as would prevent waste and pollution, and would initiate a better, because a more discriminate drainage of lands, whereby any deficiency resulting from the use of water in towns would be fully made up by additions gained and utilised in the drainage of lands.

* Of course this general acquiescence in the argument of the lecturer does not bind us as regards particular expressions; and we must except in this way the very strong terms of disapproval in which (though they are subsequently to some extent disavowed) he in one place speaks of the existing school training of the agricultural labourer. When referring to the loss to agriculture which is thus sustained of many "educated" labourers who have become bankrupt in character, reference ought, in fairness to the education complained of, to have been also made to the loss which is thus sustained of the far larger number who leave the homestead and the field for better paid and altogether higher employment elsewhere.

We must add that we should find no difficulty whatever in giving a long list of good agricultural labourers, who are also good readers and writers, and fair arithmeticians.

AGRICULTURAL EDUCATION.

Extract from a Village Lecture by a Neighbouring Farmer.

I think there is a great disposition at the present time to run into extremes. Whenever a thing is found defective, persons are not always satisfied with remedying the defect, but go directly to the opposite extreme. In nothing has this shown itself more, in my opinion, than in the education of farmers and of farm labourers. I will take first the education of farmers' sons. I will give you a short outline of my own, premising it by stating that my good old father had a very large family to rear, on a very poor farm; and he was just one of those plain old-fashioned gentlemen that always thought it was his duty to pay his debts before he provided his children with luxuries; and he always looked upon education as a luxury that all were entitled to if they could pay for it, or if they liked to set to work and get it; but it cost him a deal more to fill our bellies and clothe our backs than it did to cultivate our minds. Therefore I don't know that I am quite a fair specimen of the farmers' sons of that day; but when I look around me now for those who were my playfellows and companions in those days, and compare notes, I have great reason to be grateful that I have kept my standing and position as well as most of them, and I say, as the old song says:

"Some higher, some lower, I own there may be,
But more have done worse than done better than me."

But education is in the present day thought of such primary importance that farmers' sons and daughters must be sent to a boarding school, even though the rent be in arrear, and tradesmen's bills sent in with that nasty heading (that my father could never endure), viz., "To bill delivered;" and even in some instances (that I have known) the school bills have not been paid, and the parents have boasted that they have given their sons a good education, though they have nothing else to give them, and nobody could take that from them. I don't know who would wish to do it—for myself I should not wish to possess anything that I knew was not come by honestly. But I promised to give some account of my own education. Well then, at the age of three I was sent to a Dame's school in the village; a little, decrepid, crooked old woman, that was fit for nothing else—I don't know that she was fit for *that*—but I should like to see the person who dared to tell her she was not fit to keep a school; she would pretty soon tell them that she had kept a school for 50 years, and if she was not fit, she should like to know who was. Well, I dare say she was, for she soon made an impression on my young head, but it was made by her thimble—what she called a thimble pie, and as they say earliest impressions last the longest, therefore don't be surprised that I have a soft spot left yet. At the age of seven I was sent to a boys' school; but I was soon big enough to keep the pigs and scare the crows, and I believe my school education was sadly neglected after this, for I was only sent on those days that my services could be dispensed with at home, and that was when the pigs did not want keeping, when the rooks did not want scaring, when there were no Beans wanted shimming,* no ground to harrow, no hay to make, and when harvest was done, then I went to school; but at the age of 13 I left school altogether. My father, however, soon after this engaged with an elderly man (and a sad old drunkard he was); he had failed several times in business, and as a last resource had taking to teaching; he used to come three evenings a week to complete the education of me and my brothers. This to me was of some advantage, for considering the barren soil he had to cultivate, he really did produce some effect; I was then of an age that I began to think for myself, and wished to learn such things as I thought would be useful to me. I learnt the first four rules in arithmetic well; he taught me practically to measure land, timber, brick work, and some other things—in fact, just such things as I thought would be likely to be useful to a farmer, for I never thought of being anything else, as I never heard of any of my forefathers being anything but farmers; none of them ever became gentlemen, and I never heard of any one of them becoming a pauper.

* Horse-hoeing.

Now just look at my education. You will probably think it very defective—but is not the education of farmers' sons in the present day carried to the opposite extreme? Reading, writing, and arithmetic, were all that was thought necessary for farmers in those days—I am not sure that it is not all that a farmer requires to learn at school in the present day. I know that from fashion education is become essential to maintain a certain position in society, but I have not seen the necessity yet of farmers' sons being kept at school till they are 16 or 17 to make them good practical farmers. I have never been able, in all my experience, to discover that a farmer's crops grow the better, that his cattle, sheep, or pigs fatten the quicker, that his horses do more work, or that his labourers are more attentive or industrious because their master is a classical scholar, or because he learnt music, dancing, Greek, and Latin when at school. But I promised not to touch on any subject that I had not some practical experience on, I will, therefore, leave the school training of farmers' sons to those who have more knowledge on that subject than I have, by again stating that reading, writing, and arithmetic are in my opinion all the school training absolutely necessary to make a good farmer, believing that the youth who can read well is in possession of the key that will unlock the storehouse of knowledge, and that it is his own fault if he does not use it.

I believe, and my experience confirms my opinion, that boys who begin early to learn the practical part of farming have great advantage over those who are 16 or 17 before they leave school. These boys (I beg their pardon if there are any here, for they are usually all young gentlemen in the present day)—these young gentlemen, then, cannot be made at that age to begin at the beginning, they cannot be brought to see the necessity there is to learn to do anything menial or any of the drudgery work on the farm; they little think the advantage it will be to them in after life to be enabled not only to say to a man or a boy, go and do such and such things, but to be able to go and teach them how to do it. There is the rent difference it is said between the words "go" and "come." There is a great difficulty in learning and recollecting even the names of our different implements and things belonging to them, if not learnt in early life—our poor old despised Kent plough has 60 different things belonging to it, such names as probably some of you never heard before, and if I were to tell them to-night you would not recollect them in the morning, nor perhaps wish to do it. There is the sheath, the buck, the cock, the scrode, the spindle, the condum, the bolster, and many others that some of you would have no idea ever belonged to a plough if you were only to hear their names, and I frequently meet with persons calling themselves farmers, that don't know the names of all these things, but our plough-boys know them all well enough by sight, and by name, and look with pity on their master who does not, and think what a pretty fellow he is for a farmer.

I have been asked by persons often, who are not farmers, who have educated their sons till they have become above their own business, that could not bear the idea of standing behind a counter to weigh plums or measure calico:—perhaps they are not rich enough to send their sons to the university and make parsons of them, or they have no church patronage if they did, they therefore think they will make a farmer of him:—I have been asked my opinion as to the best place to send these youths to, whether to Norfolk or Scotland, or to an Agricultural College, such as Cirencester or others. I invariably answer, send the lad as near as you can to the place you think he is likely to settle in as a farmer, select the man who has the character of being the best farmer in his locality, and if you can find such a thing as a money-making farmer in the present day (there are some), and get him to take him and treat him as one of his family, send him there: and I shall be much surprised if he does not learn there from example more industry, perseverance, and economy than will compensate for any deficiency in theoretical or even scientific knowledge that he might have learnt at Cirencester or any other college. Scotland, Norfolk, and some other distant places have the merit of being the best farmed of any portion of the United Kingdom, but the person who studies farming in these places will, when he becomes a Kentish farmer, have to unlearn a great deal that he has previously learnt, and you, Mr. President, know as well as any one that nothing is more difficult to learn than how to unlearn what we have already learnt amiss. I find these young men, and farmers' sons generally that have been kept at school till they are 16, are under the impression that practical farming is a very easy thing to learn—that nothing else is required of them but to look and see what is going on, to walk about with their hands in their pockets, with occasionally a gun on their arm and a dog at their heels. They are quite willing to admit that it is necessary for a boy to go as an apprentice for seven years, and to work 10 and 12 hours every day to learn to make a shoe, but they think, or generally act as if they thought, that the knowledge and practice of farming was to come as naturally and with as little effort as sucking does to young pigs. But I think differently, and would advise all young men who wish to become good farmers, and

to live on the profits of their farms, to rise early and spend a large portion of their time on the farm, to observe closely everything that is going on, to take a full daily part in the operations of every season, and to learn in a practical manner every piece of labour, from the coarsest drudgery to the most artistical performance. Mere reading, mere listening, or even merely occasionally acting, will no more teach him to farm well than it would to build a ship or construct a steam engine.

On looking into a work the other day, "On Agricultural Education," I saw the following passage:—"A due acquaintance with systematical botany, vegetable and animal anatomy, chemistry, physiology, and geology, united with practical knowledge in the art of agriculture, will alone enable a farmer to derive the greatest advantage from his profession." Why, I threw down the book in disgust! and you cannot wonder, sir, if all these things are necessary to be known by farmers, to enable them to derive the greatest benefit from their profession, that some of us do so badly, for it is well known that some of our wisest men have spent the greatest portion of their lives in making themselves masters of only one of these sciences; and the writer thinks it necessary for us to know them all. Why, we farmers, whose business requires much thought, great personal attention, unremitting industry, have not time to master the hard words, much less to enter into the solution of difficult problems and deep speculations, but I don't think it is necessary to learn these things, and if I did, I am sure I could not learn them, nor would I advise even you young men to attempt it. We probably do possess some great advantages over our forefathers in education; we should be in a sad dilemma if the little we possess was taken away from us; we should think it impossible to go on now without some method of book-keeping; we should be sorry to go back to the days of our grandfathers, when the old gentleman chalked his accounts on the crown of his hat, made × for pounds, 0 for shillings, and : for pence; and his wife kept her accounts by the knots in her apron string. I say we should think it an impossibility to do business now in this way, but I can tell you as a fact, that one of my grandfathers, who could neither read nor write, cultivated and managed a larger extent of land than ever I have done. He filled every office in the parish (except the parson's and clerk's), raised a considerable amount of property, was respected by his landlord, beloved by his labourers, and died regretted by all who knew him. But I say it would be an impossibility to go back to such a state, and I don't desire it, but it is a question with me if we are not running to the opposite extreme; if we are not spending too much time, to acquire theoretical book knowledge, and losing a great deal of that industry, energy, perseverance, and economy, that our forefathers possessed. I hope you will not think I am altogether opposed to education, but let me give my own definition of the word—a good education to me means useful knowledge, and no opportunity ought ever to be neglected for acquiring it. Youth is doubtless the best time to learn, but something ought to be learnt every day of one's life, and there are things that nothing but experience will teach.

But we will now start the young farmer into business on his own account. He has long been very wise in his own estimation; he is now 22, and has for some time thought himself competent to cultivate a farm of any extent; has often been finding fault with the old governor, and calling him mean and stingy (of course behind his back) for not starting him in business, not even thinking that the old governor, as he calls his father, had to depend entirely on his own resources when he went into business. But as we cannot put old heads on young shoulders, so we must take him as he is; we must not give him up yet, for, clever as he thinks himself, he never needed counsel and advice more than he does now; and fortunate is the young man who has a father or a friend who is kind enough to give it, when he has prudence and common sense enough to receive it.

The first thing I would advise him is what I think all the young ladies would advise too, and I don't think you, sir, would object to it, for it is to get married. It is probable he has been already a considerable time a courting, let him therefore now get married, for no business that I am aware of requires the helping hand of a wife more than a farmer's. If things are not taken care of in the house, they may as well be neglected in the field; a good wife to take care of the house will enable a farmer to be abroad looking after his men, his stock and his crops all the day, and will induce him to keep at home all the night.

As soon as it becomes known that our young friend has taken a farm, it is surprising how many persons there are who are wanting to assist him; nearly every one has something just then to sell. One has a horse that he knows will suit him—perhaps he has a dozen other horses, but not one he would recommend, but this is just the horse that he is sure must suit him. Now my young friend has studied horses more than most things, and on looking round and observing the horse's thick legs, sunken eyes, grey hairs, and long teeth, says "he looks as if he is too old to suit him."—"Oh dear no; he is not old; just in his prime, a good seasoned horse, out of hand work, neither blind, lame nor lazy, perfectly sound, wind and limb, not a blemish about him; he has neither windgall, spavin, nor curb—dirt cheap, as fresh as a kitten and as quiet as a lamb: there was never such another horse, and he must certainly give satisfaction, go wherever he may; — would not sell him to any one else." For that reason alone our young friend, if he is sharp, won't buy him. Another has the best cow to sell, at least as good as ever a pail was set under; a third has the best breed of pigs in the kingdom, in fact if it is known that he has a good property, his very house will be beset with calls, cards and circulars, each and all expecting to fleece him out of something. He must have more than a common share of shrewdness if he is not taken in by some of them; but if I am his adviser, there is one thing more than all others that I would caution him against, and that is, those advertising humbugs that are daily puffing their artificial manures, their prepared cattle food, and their agricultural implements. Time will not admit of giving my reasons for this advice: suffice it to say that I have myself suffered enough from these things in former times, and I should just as soon expect my good friend Mr. W.— to recommend Morrison's pills to all his patients, and persuade all mothers to soothe their infants to sleep with Godfrey's Cordial, and to feed them on the Revalenta Arabica food, as for an experienced farmer to recommend all these things and implements to a young beginner, and persuade him to use them. I don't think if he wished to ruin him in two years he could find a more effectual way of doing it. No, no, my young friend, don't you be led to believe that you cannot do without all these things. It is those who sell them who make the money, not those who use them; never be tempted to buy these things, particularly the manures, because they are cheap; shun them as you would a draper's shop selling off 50 per cent. below prime cost. But now, having trained our young friend and started him in business, we will leave him to take care of himself, and just turn our thoughts and attention to our labourers and their families, for the community at large are quite as much interested in the labourer as in the farmer; nay, more, for you may have good labourers without having good farmers, but you cannot have good farmers without you have good labourers; therefore it is very essential that our labourers should be properly reared, trained, and educated.

It is probable that the mental capacities of our labourers were too much neglected in the time of my youth, and it is a question with me now, if we are not now going to the opposite extreme. When I was young, sir, almost the only thing then thought of with respect to the labourers' children, was to practise, to exercise, and to increase their physical powers, to develope their muscles, to give strength to their bodies and limbs, and to prepare and fit them for the laborious duties that would be required of them in after life. They were taught "To learn and labour truly to get their own living, and to do their duty in that state of life to to which it had pleased God to call them." Athletic sports and gymnastic exercises were encouraged; they were allowed to walk as they liked, to run, to tumble, to jump, or to wallow, when they pleased—in fact to live and act much in accordance to Nature, and not in the artificial state they are brought up in in the present day. Each boy then tried to excel in some feat of strength, or agility; their ambition was to be thought and to become a man. With what delight the little urchins would tell each other what great things they were going to do when they got bigger. Just fancy such a dialogue as I have heard between them!—why it would make your heart thrill again, to hear one of these little rascals say, "Shan't I be just glad when I get as big as our Jack, I shall leave off going to school then, and go keeping crows; I shall have 3*s.* a week, and our mother says she will put 6*d.* every Saturday night into my money box, to help buy me a bran-new jacket, and I know our master will give me 6*d.* for myself to spend at the fair if I scare all the crows away, for he did give our Jack one last year."

All they thought of, all they talked about, was their work; no crime was in their opinion equal in enormity to idleness; they were taught to believe that that was the parent of every vice. The height of their ambition was to have a new gaberdine and a clean shirt to appear at church in on Sunday, and to have a good dinner when they got back! and I don't know that theirs was not true philosophy, for wise men have said: "Man only requireth food and raiment—all else giveth trouble." Rural sports were more encouraged then; running matches, cricket matches, wrestling matches, and occasionally boxing matches. These sometimes brought black eyes and bloody noses, but no bones were broken; the boys were thought none the worse of by any except the mother, and she was more pleased than crossed when her boy was champion. I expect to hear some of you say, "What a shocking thing to be in such a state of ignorance!" but I never knew any of those boys to do wrong because they did not know any better. But this state was too barbarous to be allowed to last; a great change came among us. Religion became fashionable, or, at least, the profession of it; the dissenters were opening their Sunday schools in all directions. The rival systems of Bell and Lancaster sprang up, and people became so sympathetic, sentimental, and philanthropic, that these poor boys could no longer be left to Nature and their parents to rear: they must be educated, and their mental powers must no longer remain dormant.

I caught this educational fever, and most severely I had it too; no young person of 17 was ever more sanguine than I was about the great good which must result from educating those boys. This fever of mine nearer brought a rupture between my good old father and myself than any other thing that ever occurred. I well recollect his saying "he thought Master Will would go mad on learning. Why," said he, "he can't eat his supper now without a book on the table, and I really believe, if he could have his way, he would make all the people scholars; and I should like to know who is to do the work then?" I told him I thought they would do their work the better for it. He said, "I tell you they won't, sir; and when you have had as much experience as I have had, you will find that a man who can read, write, and cypher, will never thresh for a living; I tell you he can't, sir." Oh! how I pitied my poor father's ignorance; but I did not dare tell him so. I thought then what a sad thing it was to be so benighted as he was; I have had 40 years' experience since then, but it all goes to confirm that he was right and that I was wrong, for I have never known an educated person get his living as an agricultural labourer yet. I do not mean a person that has had a college education, that has learnt the dead languages, metaphysics, and the arts and sciences; no, but I mean a person that can read and write, and do the first four rules in arithmetic well.

I have known such persons to become paupers; I have known them to become drunkards; I have known them to become thieves; I have known them to go to gaol, and I have heard of their going to the gallows, but I never knew one to become a good agricultural labourer yet. I can say, and do say, that in nothing that I ever set my heart upon was I ever so grievously disappointed as in the high hopes I entertained of education. I thought when our parish schools became general; when the mass of the people had been instructed there, that they must become better, that they would be more honest, more temperate, more industrious; better sons, better husbands, better fathers, better servants, better masters, and better labourers;—now, have they become so? I should like to have that question faithfully and fearlessly answered by every farmer, and by every labourer, too, that has lived as long and watched the result as narrowly as I have. I have heard many of my brother farmers express their regret that education—that is, such an education as our labourers' boys get in our parish schools—does them no good. I have often wondered to see our school walls covered with maps; to see how readily the boys point out to you a city in China, or a river in the centre of Africa, and yet not know the names of half the towns in our own country: and yet when they leave school, and are employed in agriculture, they never find the knowledge of China or Africa the least advantage to them; but it would be very useful to them to know the names and distances of our county towns, and to have a better knowledge of common things. I dare say it will be thought very presumptuous for me to find fault with the system pursued in our schools, but we farmers are very apt to judge of things by the result; and if the seed sown does not produce a good crop, we think the seed defective or the cultivation bad. And now, after having pursued this educational scheme for more than 30 years with no better results to ourselves, we begin to think there must be something wrong in the system.

The *Times* only last week, in an article on the report of the Educational Commissioners, said, "The landowners (with the exception of the farmers) are more parsimonious in giving their money for educational purposes than any class. So the farmers give less to this purpose than any one. Can it be wondered at, if we get so little return for our money?—for it takes from us nearly all those that would be our best labourers, and does not make those that are left us any better. These boys at the age of 10 or 12, or perhaps before, begin to show their good or bad propensities; the good boys are encouraged and petted by the schoolmaster, clergyman, and the ladies; they think it is a pity that so good and clever a boy should be a labourer on a farm all his life, so they begin one and all to put their notions into his head, and look out for something better for him, and they generally succeed. I don't blame these philanthropic people; they are to be commended; but I think they ought not to blame us if we are not so liberal. We can't afford it; a good labourer, next to a good wife, is the best thing a farmer has, and it is therefore unlikely that farmers will give their money freely to support a system that takes from them the most useful things they have.

I am now speaking of the education of the labourers as it affects their masters. But how does it affect themselves?—does it make them more contented and happy? are they better on earth or nearer to Heaven? I have great doubts if the happiness of mankind is in proportion to the knowledge they possess or the position they hold; I am not certain there is not as much happiness found in a cottage as in a palace. Education increases responsibilities, for the wisest man that ever trod this earth said that where much is given, much is required; and that it is easier for a camel to pass through the eye of a needle than for a rich man to enter into the kingdom of Heaven. But I did not come here to preach a sermon, or to give a

lecture on education. I only wish to speak of that as a thing connected with farming. I had previously said that reading, writing, and arithmetic is all the schooling necessary for a farmer—surely it is all that is necessary for a labourer then, and I don't think that even this is absolutely necessary for a good labourer, for I have some now as good labourers as a farmer can wish to be master of, who can neither read nor write. I am not going so far as to say that knowledge does our labourers harm, but the education they get at our parish schools does them, as labourers, no good. I doubt if a boy who is kept at school till he is 14 ever becomes an expert farm labourer. I have said that formerly the development of the boy's physical powers was all that was thought of; now his mental capacity is alone cultivated, to the neglect of the former. Perhaps it may be thought that no preparation or training is necessary to make a plough-boy, but I tell you that it is, and that a boy of 14 who has done nothing else but go to school, where he has been spending seven hours each day and 11 each night in bed, is no more fit to take the place of one of our plough-boys than our plough-boy is fit to take his place in his class at school.

I will tell you what our boys are expected to do, and what they do do if they stop with us. They are called at 5, are expected to be up and get their breakfast, into the stable, harness their horses, and off to work before 6. The boy who has been used to lie in bed till 7, and breakfast at 8, cannot do this; he can't eat at 5, he must go till 2 before he gets his dinner; he has been as hungry as a hunter all the forenoon, but before 2 he is as tired as a dog, and cannot eat his dinner; but eat or not eat, he must go to his stable to bait, water, clean, and litter his horses at 8, or before he gets to his supper, and then to the stable again till 10, often half-past 10, before he gets to his bed. The next day the same routine. About the third morning he overlays—that is, he does not get up when called; the penalty for that is to be pulled out of bed by his heels and started to his long yoke without a breakfast. At night he is found by his mate asleep in the stable, the candle burning and the horses unattended to. This is considered an unpardonable offence, and the probability is that he is well soused with cold water. The poor boy cannot stand this; he goes crying home to his mother. She has a mother's feelings, says her boy shall not put up with such treatment, she will keep him at home first; so she does, and allows him to run the streets to finish his education there, and it is surprising how fast he progresses, for in less than a week he will learn to swear, and before a fortnight he will be seen smoking a short pipe, and if he gets twopence he will go to a public house and buy a pint of beer, and if he can't get either beer or tobacco he will spend his time by shoring up the churchyard wall, and make unpleasant remarks to every female that passes by!

But perhaps you think that no boy could do the work that is required, but I tell you they can; and in former times, when they were prepared for it, they did it, and more; but the boy then began at 10 to go to work—light jobs at first I admit, but as his age and strength increased so did his work, and so did his appetite, for when he was about 13 something like this took place between his father and master:—"I say, master, that boy of mine begins to bite precious hard, I should be terribly glad to get his legs under your table."—"I don't know, Master Jones, do you think he would be man enough for allworks boy?"—"Man enough! Oh, yes, he is man enough, I am sure, if you will but try him; he is older than I was when I came to live second boy with your father, and if you will but try him I'll take care he does; if I once get him out of my house he warn't want to come back again; he will never find a worse shop than mine." The boy was as pleased as the father; he knew he would not have more work than he had had, and a great deal more to eat; so the bargain was struck; the boy commenced his duties with a light heart and a cheerful countenance, as happy as the day was long. He would sing at plough as blithe and as gay as the lark o'er his head. I don't say he was quite so musical; he might keep neither time nor tune, but some of these boys sang well enough to sing psalms at church, and I can assure you, Mr. Chairman, there was not more fault found with psalm singing in those days than there is now. I don't say they were polished or polite in those days, and with all our schools they are not much improved now. It must be admitted that our farm servants as a body are rough and uncouth, do many things that we wish them not to do, and leave undone some things that we wish them to do; but we have them to work, and if they work well we look over many things we should wish were different. Much has been said to us farmers about the conduct of these our yearly servants; I think sometimes more than they deserve, and much of their rough uncouth manner has been laid to the want of education. Their rough side seems always to come first to strangers. When you mix more closely with them you will find more good points, more originality of thought, more of the milk of human kindness concealed under their rough exterior than you ever thought they possessed, and we must make great allowances for their age. These yearly servants are most usually between 14 and 24. Do all other classes do right at that age? Is education a guarantee for correct conduct at that time of life? I doubt it. I think that some of our greatest men in the land, our statesmen, our admirals, our generals, our judges—ah, and our parsons too, would blush to acknowledge or to tell of all they said, saw, or did at that time of life!

Well, in the course of time, these young men get married; that generally makes a wonderful improvement in them, as it does in all mankind; it civilises them, makes some of them comparatively polite, and all of them more thoughtful. One Sunday morning, a few years since, on my way to church, I met one of these young men who had been in my service some years. He accosted me by putting his hand to his hat and saying, "Good morning, sir;" I returned his salutation and said, "Good morning, Belsey; why, you are married, are you not?"—"Yes, sir, I am!"—"Well, I thought so, for I never saw you put your hand to your hat, or say 'sir' to me before. Well, what do you want now?" The man smiled (for I spoke kindly to him), and said, "If you please, sir, I want you to give me a job."—"Well, I daresay we can find something for you to do if you are here at 6 in the morning." The man came, and since that day he has never wanted a job, and I don't think he will whilst I want a labourer. I think he is here to-night, and can vouch for the truth of that statement. There is a great deal to be done by a little judicious management even with farm labourers. They are not insensible to acts of kindness; there is gratitude among the best of them; and with nothing that you give them do they seem so pleased with, so grateful for, and for which you get so good a return, as for a good jug of beer. I have said there is gratitude in the best of them, I wish I could say there was in all of them, and as I see more here to night than I have ever seen in this room before, I will take this opportunity of saying, that nothing is more pleasing to a master than to see a man who has received a favour show his gratitude by his conduct, and nothing is more annoying than ingratitude to every one, and an ungrateful fellow does injury to others as well as himself. I always speak as much as I can in the plural in preference to the singular number. "I" and "mine" are words I never use when I speak to my men, and I much prefer hearing them say, us, we, and ours, to he and his. I think it looks well between master and man when we do this, and that 'ours' are good horses, 'our' corn yields well, or we shall get 'our' season done next week, &c. &c.

I have said enough about Education here to make some of you perhaps think I am altogether opposed to it; that is not the case. I think the system is wrong as regards agricultural labourers. Your infant schools to teach and instruct the young I don't object to, if you don't keep the little ones too long at it, and cramp their limbs when they ought to be at play. Your Sunday schools cannot but be good where sound moral and religious instruction is imparted, but I do not think any of your schools do more, or so much good, as the village evening school used to do, when the lads used to assemble after their day's work was done. They went to get instruction then because they thought they wanted it, and they valued it the more because they had to pay for it, and the things they learnt there were in some way connected with their work. If they had ploughed an acre and a half in the day they would find out at night how far they had walked to do it; if a field was 30 rods long, how wide should it be for an acre?—if their wages were 6*l.* or 7*l.* a year, how much was that a week? There was no strictness nor much discipline in these schools; bad language was not allowed, and a portion of Scripture was usually read before they separated. Well, I have said that I have known good agricultural labourers that could neither read nor write, but there are three things which are essential to every labourer—that is, honesty, sobriety, and industry; every man who possesses these, though he does not know his alphabet, will be a good labourer, and what is more, he may have a good master, for he can choose his own. Honesty is indispensable, for no man will keep a thief if he knows it; if he finds out a man to be a thief he will at once discharge him, if he does his duty to himself and society, for he may as well break his leg as keep a thief. If you have a drunkard about you, you may as well have the gout; you don't perhaps discharge him, for when sober he is one of the best, and promises every time it shall be the last; but he is no more to be depended on than the gout—the fits are sure to return, and often at the most inconvenient season. But I am inclined to think that the lazy man is worse to have about you than a drunkard or a thief; the thief robs you, you find it out, discharge him, and get him punished. The drunkard vexes you, and punishes you and himself, but the idle man if he does not steal robs you daily; and though perhaps it is not so bad as breaking your leg, or having the gout, yet he is such a continual source of annoyance that you may as well have a perpetual toothache.

Well, I have taken so much time with farming, farmers, and labourers, that I have little time to speak of the female part of our community, but I must say a little now, as I wish this to be my last as well as my first lecture on things connected with farming.

There is no need to say anything about farmers' wives, for they are things of the past. I know of only one left, and she is old and worn out; when our good old neighbour Mrs. G——is gone, where will you find another? Then the farmers' daughters, I cannot say much about them, it would be very ungallant for me to do so, for many of them are very pretty girls; highly educated, very accomplished; can play, sing, dance, speak French; some of them German and Italian; but I don't know one who can milk, churn, or beat the butter—in fact, not one fit for a farmer's wife, which I suppose accounts for our friends Messrs. X., Y., Z., and other farmers that I see here, remaining so long single. But now, with regard to our labourers' girls, I have said how it is regretted by farmers that the schooling of our boys does them but little good—we believe it has quite spoilt the girls. It is often to me a matter of surprise that the common sense of our labourers does not show them that education is at a discount, and honest and industrious labour at a premium—but education is like a lottery, it gives a few prizes, but a vast many more blanks. But while there are prizes it will, like all games of chance, have its supporters; no matter how rash or visionary the scheme, particularly when the tickets are given free, persons will always be found to accept them. If there should be any lady here who is in want of a nursery governess, let her advertise; there will be at least 50 applicants, no matter how little the salary, or what the requirements are; plenty are ready to take that situation. If you want a lady's maid, you will easily get one, for our parish schools fit the girls for little else but to dress themselves, to walk about in idleness, and imitate their mistresses. If you require a cook, by giving large wages, and allowing them to be sole mistresses of the kitchen, you will get one, and keep her too, if you don't find fault when your dinner is spoilt, never interfere with her perquisites, and allow her cousins to visit her as often as she pleases; but if you want a scullery maid, you may do the work yourself. Now, if this is the case with the gentry, what is it with us poor farmers!—we who don't want servants merely to look at, for females shun a farm-house as they would a pestilence; girls that call themselves respectable will never go as servants in a farm-house if there is another situation to be had. We sometimes inquire at a registry office (a thing we never did formerly), where there are lots of names, but the answer is invariably, "No; they won't go to a farm-house; there is too much to do and nothing to see;" so we are obliged to put up with slatterns that other people won't have, unless we make an effort and give double the amount of wages we formerly did, and which we cannot afford now; but we do sometimes do it, in the hopes of getting something useful and respectable. What is the result? Why, we get a girl that is fit to read novels, to read the newspapers instead of doing her work, to spend a large portion of her time in writing her love letters, and will read yours whenever she has an opportunity; she thinks herself competent to set an example in politeness to the whole household, and to laugh at her mistress because she does not dress according to the fashion, nor speak grammatically.

This we attribute very much to the alteration that has taken place in their education lately; these girls are great copyists; they endeavour to imitate their superiors in everything as regards dress; if the fashion is for ladies to wear bonnets not larger than oystershells, they must have one too; if you meet a lady in the street with one of another kind, you can but notice the alteration, but are in doubt if it is intended as a new fashion, or whether it is an old bonnet hindside before; but be this as it may, you conclude that it is so positively ugly that it cannot become fashionable; but in the course of a few weeks you will see every girl in the village has one like it stuck on her head, turned up in front, with flowers in the middle. This feeling of imitation is not confined solely to dress. We old-fashioned farmers think it wrong that these girls are taught so little at school that is likely to be useful to them as a servant, wife, or mother; can they make a bed or cook a Potato? how few of them can knit or darn a stocking, make a shirt, or do plain needlework; they can embroider and crochet, and can scarcely walk the streets without crochet needles in their hands. Well, poor things, I won't blame them, if they are taught no better! They have, as I said, a propensity to copy their superiors, and when ornamental needlework becomes so fashionable, that the first ladies of the parish cannot attend a village concert or a village lecture without taking their work with them, is it to be wondered at that these poor girls follow the example?

I am frequently asked what becomes of all our country girls? Persons would not ask this question if they were to make use of their eyes and ears and judge for themselves. A very large percentage of them go into the towns and subsist and exist in a way I must not name; a great many of them (more than are required) become needlewomen and dress-makers—they go into country towns, and try to get a living by their needle. They find the market overstocked with them; it is impossible for them to live honestly and virtuously, many then proceed to London, where bad becomes worse, and the feelings of humane Christian people are harrowed with the recital of their privations and sufferings. Penitentiaries and reformatories are running over with them; societies are formed and subscriptions raised for the purpose of sending them off by shiploads to Australia, and yet good female servants were never more wanted in farm-houses than now. Why, sir, such a thing as a country milkmaid does not exist in the whole of our parish. I do not know of one in the Isle of Thanet; if I could only find one, such as I used to see plenty of 35 years ago, I think I could make a fortune by exhibiting her as a curiosity; but as I have not time to exhibit her, if I should find one, I would

send her up to the British Museum, and I have no doubt that her clean, honest, rosy cheeks, cheerful countenance, and laughing eye, would attract more attention, and be more admired than any antediluvian fossil you could find there.

It was published that my lecture was to be on things connected with farming, therefore I wish it to be clearly understood that all I have said about education is intended to apply to farmers, farm servants, and farm labourers only. How it has affected other branches of the community I have no experience to justify me in saying, so I will leave that to those who have had better opportunities of judging than I have. I thank you, Mr. President, Ladies, and Gentlemen, for the patience and good humour you have exhibited during the time I have occupied.

Home Correspondence.

The Weald of Sussex Farm.—It is very pleasant for amateur farmers "to draw up a scheme," as they say in Chancery, for a farm, with a nice little balance on the right side, but he is a bold man who rushes into print with it; as bold as the Irishman at a fair who drags his coat on the ground and challenges anybody to stamp on it. Your correspondent from a Weald of Sussex farm has certainly started a scheme which will bring him to grief if he tries it, the main feature consisting of getting beasts fat at two years old. Now any one acquainted with the subject knows well that it cannot be done, except, perhaps, with a few picked Short-horns; he will certainly not meet with the stock to do it at the fairs in this county of Sussex (from which I, too, date;) the result would be that he would sell his 2-year olds at the spring fairs from 12*l.* to 14*l.* per head, which would make a woful difference in the balance-sheet. His dietary, too, is only sufficient to keep them in good store condition, as pointed out by another correspondent: to achieve his proposed object he would have to feed highly from the first—the more so that Grass land at the rent he names is not suited for fattening. This would involve an outlay of at least 5*l.* a head beyond his calculation, and then at last, as I have already said, they would only be half fat, and instead of getting his 5*s.* 4*d.* per stone, he would have a difficulty in getting the butchers to take them at about 4*s.* 8*d.*, and their weight would be from 5 to 10 stones under that he estimates. Another amateur has, I see, taken pen and paper in hand to improve the "scheme" to the goodly extent of 460*l.*, but this gentleman is not strong in arithmetic, which must have taught him that he could not eat his cake and have it too. He proposes certain changes, such as buying yearlings instead of calves, and thereby releasing a portion of the land required for their keep the first year, and growing thereon 23 acres of Wheat, but in making out his balance he calculates not only 260*l.* for the Wheat, but also 300*l.* as the keep of the calves for one year saved: now "this is very magnificent," as the French General said of the English charge at Balaclava, "but it is not war;" neither is the above farming, so that your correspondent must beware of false lights. It may be said, why don't I prescribe?—but I have drawn up so many unrealised schemes that I have given it up, as will no doubt your correspondent in time. If he succeeds in getting his house supply from the dairy, poultry, keep of private horses, and some lusty bacon, as profit, he will do better than 99 amateur farmers out of 100; and this I am well content to do, though occasionally I find myself in the position of the gentleman farming his own land, who triumphantly produced a balance sheet with the balance on the right side, who when asked, "But what have you allowed for rent?" had to come down from his stilts, with "Oh dear, I forgot that!" *H. C.*

Reviews.

Journal of the Bath and West of England Society. Vol. XII., Part 2. J. Ridgway.

We have here a capital Number of a most useful agricultural Journal. To Mr. Goodwin, the Editor, there has long been due the credit of an annual collection of papers of the very highest agricultural interest; so that his Journal is second to none as at once representative and incentive of agricultural progress. Professor Buckman on the Geology of Gloucestershire, Mr. Brown on Foot-rot in Sheep, Dr. Crisp on the Growth of Animals, Mr. Wallace Fyfe on the Fairs and Markets of the Western Counties, Mr. Darby on Flax Culture, Dr. Smith on Dietaries, Mr. Ellis on Oyster-breeding, the Report of the successful meeting at Bristol, and a large number of shorter papers, fill the present Number.

The Quarterly Journal of Science. No. 5. J. Churchill & Son.

The present Number contains formal papers on the Relations of Government to Art and Science, on the Mammals of Australia, on the Coal Measures of Great Britain, on the Cause of Britain's Greatness, on the Oral Instruction of the Deaf and Dumb, on Petroleum, and on Metal Mining, together with the usual chronicles of the sciences—that of agriculture referring to Prof. Church's analysis of soils and subsoils after drought, Mr. Harrison's dairy records, and the utilisation of London sewage. The Review department of the work is very interesting, and Dr. Cobbold's work on Entozoa, Mr. Marsh's on Man and Nature, and others here criticised and characterised, are of agricultural interest. The following is a passage from the review of the last-named book on the control of sand hills in motion:—

"The control of dunes by man is effected either by forming them originally by artificial means, by protecting them when natural, or by removing them when that can safely be done. In some places a mere artificial wall will give rise to a broad belt of dune. Thus, in 1610, a wall of three or four miles in length, thrown across a tide-washed flat between the Zuider Sea and the North Sea, occasioned the formation of rows of dunes a mile in breadth, and altogether excluded the sea. Similar results have been obtained by mere plank walls and screens of reeds. Where dunes already exist, they can be prevented from advancing by planting certain Grasses, creeping plants and shrubs, the Arundo arenaria being the most valuable. This plant grows to the height of about 2 feet; but its strong roots and their rootlets extend 40 or 50 feet through the sand. The looser the soil the better it thrives, and as soon as the sand ceases to drift it dies, its roots fertilising the sand and helping to form a vegetable mould for forest planting, pasturage, and ultimately arable land. The leaves of the Arundo are nutritious food for cattle and sheep; its seeds feed poultry; cordage and twine are made from its fibres; it thatches well, and its roots are good fuel. So many valuable properties sometimes check its main use as a safeguard against the drifting sands. The Beach-grass is an American representative of this plant. On the French coast upwards of 100,000 acres of land have been reclaimed; and in other parts of Europe a very large area.

"Of trees to succeed the Arundo, none is better than the Pinus maritima, where it will grow. Its resins yield, according to the French returns, a clear profit of 20*s.* per acre per annum, exclusively of the value of the timber.

"As the plains and dunes of sand on the European coasts are estimated to amount to at least 20,000 square miles, it is evident that much yet remains for human agency in this matter; and as moving sand is invariably mischievous, while fixed sands rapidly become profitable, the subject is one of extreme practical importance."

Farm Memoranda.

Balnabreich, Brechin: *Waste Land Reclamation.*—I entered as tenant of the farm of Balnabreich at Martinmas, 1859, upon a 19 years' lease. The farm extended to 258 acres arable and 23 of pasture, besides a considerable extent of land under wood, at the yearly rent of 340*l.* for the arable and pasture land, and 10*l.* for the woodland: a portion of the woodland I was at liberty to improve. Immediately on getting possession of the farm I began to improve the woodland, and by Martinmas, 1860, I had, by trenching and draining, reclaimed 57 acres 9 poles, and made it fit for cropping.

The trenching cost 675*l.* 15*s.* 7*d.* The expense of clearing the ground of tree roots and stones, after the wood was off the ground, which I did with my own servants and horses, I estimate at 4*l.* per acre, amounting to 228*l.* I have paid for cutting and filling up again 557 chains of drains, 77*l.* 4*s.* 2*d.*, and for tiles for the same, 70*l.* 15*s.*

All the above work has been done at my own expense, without any assistance from Government grant, or any promise of help from the proprietor.

The land thus reclaimed, with the exception of 7½ acres, was a regular forest of wood, with a black or yellow soil lying on a clay subsoil. The 7½ acres was a thorough swamp or bog, with several pools in it, and a good deal of wood in different places. The woodland was formerly let yearly for pasture at a rent generally of about 2*l.* 10*s.*

The removal of the stones and of the roots of trees was a work of considerable difficulty; and the drainage of the 7½ acres of bog was very difficult indeed. It was so soft that it was scarcely possible to pass over it without sinking through the surface, except when planks of wood were laid for the purpose. On cutting below the surface the soil was found in so liquid a state that it was necessary in many places to carry a quantity of the surface near the spots where the drains were to be put, and to throw over this as much of the under surface as would lie without running back into the drain. After allowing the drain to be in that state until the soil that had been thrown out became somewhat firm, I proceeded to dig as deep as the softness of the ground would permit. I then laid in a 5-inch pipe with collars. After a time I removed the pipe and deepened the drain as much further as possible, and then relaid the pipes and collars. By this time I was pretty well through the soft boggy surface, and was reaching the top of the gravel. Two or three weeks afterwards I proceeded to dig well down into the gravel, where I got a great quantity of water, as much as filled a 5-inch pipe for a leader, and by putting in branch drains into the bog I got it at last thoroughly dried.

Almost another 12 acres required drainage, but by going 3½ to 4 feet deep I always found, as before, a good open drawing bottom below the clay.

In spring, 1860, I had about 20 acres of the newly trenched land under crop; but owing to the backwardness of the season and the state of the ground, which was much poached with dragging off the tree-roots and stones, the seed was late in being got in. Where earliest sown there was a good crop; but the later the sowing the crop was always the poorer.

I used 6 bushels of Oats and 2½ cwt. of Peruvian guano per imperial acre. I considered that the crop did no more than cover the expense of seed and guano, and labour in laying it down, and gathering and removing the small roots that were on the surface.

In autumn 1860 I had all the ground cleared of roots and stones so far as I was able. A number of the roots were so large that they could not be pulled out, even with three or four horses, so that I allowed them to remain, and sowed round about them for two seasons; and in the end of harvest 1862, when they had become much lighter, I had them all removed. Many of the stones were of such a size that they had to be blasted with gunpowder in order to render them manageable.

In spring 1861 I put the whole of the trenched ground into Oats, and had a very fair crop all over, except on 10 or 12 acres that had not been drained. I used 6 bushels of Oats, and 2 cwt. Peruvian guano, and 1 cwt. blood manure per imperial acre. I estimate the average produce at 3 qrs. per acre.

In autumn 1861 I had the whole of the trenched land ploughed, with three horses in the plough. Being exposed to the frost all winter, it was well pulverised; and in spring 1862 I had 46 acres sown with Oats—with 6 bushels of Oats, and 3 cwt. Peruvian guano per acre. I estimate the return at 4 quarters and 6 bushels per acre, worth 7*l.* 2*s.* 6*d.* Eight acres, after carrying two crops, were sown in Turnips. The ground was ploughed like the rest in autumn with three horses; in spring I gave it 50 bushels of lime per acre, on the frosted surface, and a double timing of iron harrows. I then drilled the ground without cross-ploughing or grubbing, and then laid down with 15 bushels of mixed bones and 2 cwt. of blood manure per acre. There was a good crop of Turnips, worth 6*l.* per acre. I tried six drills at the rate of 15 yards dung and 8 bushels bones per acre; but I could not distinguish the difference but by the marks after growing. I had also 3 acres in Potatos laid down with 3 cwt. of guano and 50 bushels of lime. This was a very good crop, and quite free from disease.

When I entered on this farm at Martinmas 1859, there was a very poor crop of Turnips, all diseased with finger-and-toe. Part of them were valued to me at 2*l.* per acre. In a short time they were nearly all gone, not a single cartload being left on an acre. On my entry, and ever since, I have ploughed the land intended for Turnips next season as soon as the harvest was finished, as deep as three horses were able to do with a large plough, and allowed it to remain in that state till the proper time for laying down the Turnips. I never cross-plough or grub, but have always given from 50 to 60 bushels of lime to the acre, according to the nature of the ground. I then gave one or two double turns of heavy iron harrows, then raised the drills, and then put the circular harrows over them.

In 1860 I had no dung for the Turnips, it being all required for the former Turnip-field which was to be sown out. I accordingly gave for the Turnips 16 bushels mixed bone-dust and 2½ cwt. of blood or Turnip manure per acre, and put on the dung next spring before ploughing for the Barley. In 1861 I pursued the same plan, using all the dung I had for the field after Turnips. In spring, 1862, I continued to work on the same system, but had as much spare dung after manuring the land that had been in Turnips as went over nearly all I had for Turnips, at the rate of 20 yards of dung per acre. The remainder was laid down as in the former two years. Since following this system of liming, I have never been troubled with finger-and-toe amongst my Turnips on any part of the farm since I began to labour the ground in the way I have described, and have never had a single failure of the Turnip crop. The farm has now been wrought on a five-years' rotation for the last 20 years. I am now changing into a six years' rotation—viz., three crops of Grass, followed in succession by Oats, Turnips, and Barley. The farm had become almost incapable of growing Turnips.

I may mention, in addition, that I have expended upwards of 350*l.* in the drainage of the land formerly in cultivation.

Cost of Improvement.

	£	s.	d.
Trenching	£675	15	7
Clearing the ground	228	0	0
Cutting and filling drains	77		2
Tiles for the same	70	15	0
	£1051	14	9
Per Imperial Acre	18	9	0

Statement of Crop, 1861.

	£	s.	d.
Oats for seed, per acre	1	0	0
Guano, do.	1	6	0
Blood manure, do.	0	8	0
Labour, do.	0	13	6
	3	7	6
Produce. 3 qrs. do.	4	10	0
Profit	£1	2	6

Statement of Crop, 1862.

	£	s.	d.
Oats for seed, per acre	1	0	0
Guano, do.	1	19	0
Labour, do.	1	0	0
	3	19	0
Produce. 4 qrs. 6 bush. per acre	7	2	6
Profit	£3	3	6

Mr. Charles Sangster, of Balnabreich, in the Transactions of the Highland Society.

[The Society's Gold Medal was last year awarded for

the above communication.—We add that the descriptions the other day of the prize farms of the Manchester and Liverpool Agricultural Society were taken from the lately published Journal of that Society.]

Miscellaneous.

Pea Soup.—An excellent soup can be made with 1 pint of Peas, 5 quarts of water, four large Onions, sticks of Celery, three Carrots. Wash and cut the vegetables in pieces, and fry them in any kitchen fat, with two tablespoonsful of brown sugar; then put the whole into the water with the Peas, and all the bones saved for the purpose, and more meat if the soup is desired rich, and a salt herring or a pig's foot is an excellent addition. Boil the whole five hours.

The Schrœder Brome.—"The Schrœder Brome is a perennial Grass of extraordinary productive power, lately introduced into France. A Frenchman speaks of having experimented upon it for six years, during which time it never fell off, either in its constitution or its yielding property. The early period at which it comes forward is an important qualification. The first cut will be ready in March, if the last crop of the preceding year has been taken in good time; it comes in even before Rye. Four, and in some years five cuts may be obtained in the season, and either in the green or dry state it is superior to any other kind of fodder, especially for milch cows, but all graminivorous animals are fond of it. This Grass forms the ear and the seed with great rapidity; this is the case with every cutting, when the ear and seed are fully developed, though not quite ripe, and the ears of the first crop have been able to be taken off sufficiently forward to be used as seed when dry, and afterwards to mow the herbaceous part. Any soil almost seems to suit Schrœder Brome, but it appears to do best on fresh land; without doubt the best land will produce the heaviest crops, but it would be difficult to tell on what kind of soil this Brome will not grow. This Brome lasts about six or eight years without any diminution of produce or appearance of dying out. One of the peculiar merits of this plant is that no weeds will thrive under its culture; it comes up quickly and grows very rapidly; it does not require to be sown thick, but rather deep. It is as green food that this plant is especially useful, but when converted into hay it retains all the valuable properties of the plant when in its green state, but it is greatly decreased in weight. It is not longer in making than meadow hay. The straw is very heavy, and although a little tough, cows and pigs will eat it without being cut. The Schrœder Brome seems to be very desirable food for cows, as it greatly increases the quantity of milk and makes the cream very thick, and the butter made from it has a finer flavour and keeps well, even if the weather be very warm." *From a French Journal.*

(E) Sandy Oat. (F) Black Poland Oat.

(G) Potato Oat. (H) Barbachlaw Oat.

Calendar of Operations.

March.—We give in this page plates of Sandy, Black Poland, Potato, and Barbachlaw Oats, to which reference was made a fortnight ago.—In the press of other matter occupying our pages to-day, we can only shortly refer to the other points on which English farmers are now engaged.

Barley sowing is now proceeding all over the southern counties—Annat, Chevalier, and Common English Barley are the best sorts, and 10 pecks is a sufficient quantity.

Spring Wheat too is still being sown, especially the true *Triticum æstivum*, a bearded Red Wheat, which bears sowing even in April.

Clover and Grass seeds are being put in; and on this we make the following extract from Morton's *Farmers' Calendar*:—

"1st. Clover may be sown broadcast and harrowed in at the time the Barley is drilled; a pair of light harrows at the same time following the drill-machine, to cover the Clover seed.

"2nd. It may be sown before the roller, when the Barley is just above the ground.

"3rd. It may be hand or horse-hoed in when the corn receives either of those operations, if the farmer is in the practice of giving them.

"Of these methods, the first is the surest for a crop, and the most to be recommended, notwithstanding the admitted evil which sometimes takes place in a wet season, of the Clover growing so luxuriantly as to damage the Barley. The second succeeds well if rain follows in due time, and would perhaps, generally succeed, if the farmer ventured to harrow it in, which he might safely do. In the third method it often succeeds, but it also often fails; nor is it necessary, in many cases, to hoe the Barley.

"In any case it is best sown with a handbarrow covering 5 yards in width, and if this be set to sow one half of the quantity per acre that is wanted and made to cover the ground twice, the work will be more perfectly done. If these seeds be sown with the Clover, then another sowing will be necessary with the same tool set for Grass seeds. It is covered in by a light harrowing with either the bush or web harrow, or light seed harrows of the common kind, and rolled. Of the seeds sown at this season we have—1. Trefoil sown 14 to 16 lb. per acre alone in some districts as one of the earliest foods for ewes and lambs in spring. It is ploughed up after a first folding, and a crop of Turnips may be taken. 2. Red Clover or Cow-grass (10 lbs. to 15 lbs. per acre) sown often by itself as affording a heavy first cut later in the summer for forage—coming in for this purpose after the Trifolium incarnatum. 3. Various mixtures of Clovers, as for instance, 10 lb. of Red Clover, 4 lb. of White Clover, 4 lb. of Trefoil. The Red Clover is a large seed, the White Clover a much smaller one, so that 4 lb. of it contain as many seeds as 10 lb. of the other; the yellow-blossomed Trefoil is the largest seed of the three. This I have found to yield a first, second, and third cut during the summer—the later cuts containing, however, more of the White and Yellow Clovers. The Alsike Clover is coming into use partly as a substitute for the White; it is equally perennial, and has a larger habit of growth."

West Sussex: *March* 13.—At last we hope spring weather has come, and we are able to work upon the land; though we have not had a great deal of rain, yet it has been enough to prevent sowing, and Peas that should have been in some time ago are only now being sown, and we shall now have our hands full. The weather has been rather cold, and the spring crops, such as Vetches, Rye, &c., on which we must more than usually depend, are backward, and from the same cause the roots are disappearing fast, and we shall find it difficult to get through the next six weeks, but corn has to fill the gap, and as mutton is so dear, and *it* so cheap, we can afford to be more liberal. Perhaps at no ordinary time has mutton been so dear as now; at our last week's market it brought from *6s.* to *7s. 6d.* per stone of 8 lb., and there was a fair supply, and the quality generally good, rather less than the usual supply of rough lean fed. And I believe that unless corn rise in price and best cake fall, there will be more corn-fed meat now than has been before. It has this year been used so much and with so good results that the fear of accidents through using it has nearly died out. The young Wheat plant looks well and thick on the ground, but not forward. All kinds of stock are doing well, and lambs will be ready in pretty large numbers for Easter, as it comes so much later. There have been a good many cross-bred ones already in the market, but compared with mutton they have sold badly, though for the most part they have been of good quality. Beef has not been very plentiful, nor yet of very first-rate quality, and has not been so dear as mutton. Pork has been abundant, and the price for fair sows about 4*s.* 4*d.* to 4*s.* 6*d.* per 8 lb. A great many have been fatted, and there has been a good deal of disease among them, and many have died. And the mouth disease has been very prevalent among cattle, so much so, that it has hardly been safe to take any to market and bring them back. In reference to this disease, I do not see in what way the preventing of stock affected with it being taken to market could be a hardship to any one; it is got over in perhaps a week or fortnight, and it would be only to keep them that

much longer, and this we may hope would prevent its spreading. Surely any animal labouring under an infectious disease ought not to be allowed to come to market to spread that disease farther. *G. S.*

Notices to Correspondents.

Dairy: *South of England.* The dairy should be cool, and a somewhat sunken floor, a shaded or thatched roof, and an aspect north and east are therefore desirable. Twenty-five cows may yield 160 gallons of milk daily during the height of the season, and when milk is left 24 hours to set up cream you will need 60 square feet of cistern, or more if vessels with sloping edges be used. Between two or three therefore of the ordinary vessels will be needed for every cow. (See Handbook of Dairy Husbandry, Longmans, price 1*s.*) For cows, &c. you may consult Scott Burn and Bailey Denton (Blackwoods, and Chapman & Hall respectively.)

Flax Culture: *Subscriber.* McAdam, De Mann, Dickson, are all authors on this subject. They are all cheap publications. We do not know the publishers; probably McGlashen, of Dublin.

Horse Labour: *Young Inquirer.* Three to four horses per 100 acres is the usual allowance. See Handbook of Farm Labour. (Longmans, price 1*s.*)

Linseed, Gorse, and Rape: *Cor.* Sow 9 or 10 pecks of Linseed broadcast on a good rich loamy tilth early next month.—Sow 20 lb. of Gorse-seed, hoeing it in now or soon in rows about 20 inches apart. The first cutting will be in autumn and winter 1866, when only every other row should be cut down, and thereafter alternate rows in succession every year. Sow 2 quarts per acre of Rape-seed in rows 14 inches wide at fortnightly intervals in April and the three following months, and you will have a succession of food all through the summer and autumn.

Paring and Burning: *Turf.* Dr. Voelcker has thoroughly exhausted the subject. The practice, he says, is condemned (1) because it destroys the organic part of the soil; (2) because it exhausts the land of its fertility; (3) because the expense of the operation would be better laid out in manures. But to these objections Dr. Voelcker replies as follows:—(1) The idea that organic matters in the soil necessarily and under all circumstances exercise a beneficial effect on the growth of plants is a mistake. The humus theory has indeed retarded rather than promoted agricultural improvements. Again (2), soils need not be impoverished by paring and burning; and they would not suffer in this way from the process, if performed, as it ought to be, as a preparation for root crops to be consumed upon the land. (3) As to the greater profitableness of other means of agricultural improvement at not greater cost, the assertion may be fairly met by the abundant experience which could be quoted as to the profitableness of burning. The fact is, that this process changes inert vegetable matter into highly effective mineral food for Turnips—it improves the mechanical condition of impervious soils—it changes the chemical constitution of the soil constituents—it brings within reach a large quantity of readily available mineral food from the soil; it is, however, applicable with safety only on soils containing clay.

Peruvian Guano: *Young Hand.* It is a perfectly trustworthy and excellent manure. We should, however, prefer Peruvian guano to it for meadow land.

Price of Bread: *Curate.* We repeat here an answer formerly given to the same question. The right definition of a "reasonable" profit is just the "largest profit possible." The price of a thing depends upon the demand for it, quite as much as it does upon the cost of it. When Lord Walsingham sold his ewes at Chelmsford for 20*l.* a-piece, and when Colonel Townley asked and received 1200 guineas for "Master Butterfly," shown there, they did not regulate their demand by what the animals had cost them, but by what they thought their customers were willing to give; and they acted on the very same principle as actuates and justifies your baker in putting as high a price upon his loaves as he can get your parishioners to give. The only way in which the price of well-bred stock can be reduced in the face of a well-sustained demand, is to increase the number of the breeders and their herds. You will do more to bring the loaf to what may be a reasonable price by inducing a rival baker to set up his shop in your village, that by any information on the relationship between the cost of flour and bread that we or any other authority can give you.

Sheep per 100 acres: *Young Inquirer.* It is impossible to answer an inquiry of this kind. There are lands which will fatten an ox and a sheep per acre, and others that will starve a rabbit.

Size of Farms: *A Subscriber.* 150 acres is not a large farm, except perhaps in some parts of Ireland.

Sunday Labour: *Cor.* It is quite unnecessary even on dairy farms. Mr. Palin, of Stapleford, avoids it. The Saturday's work is continued till 11 P.M., the evening's milk being then made into cheese. On Sunday morning the cows are milked at the usual time, and the milkers generally have a little assistance from the team men and others who have no particular occupation on that day; after milking, the cheese of the previous evening and any others which may require it are turned in the vats, when the business of the day ceases until milking in the evening: the servants breakfast at 8 o'clock, and the comfort of the Sabbath day is enjoyed as it is (or ought to be) in other houses where cheese is not made at all. On Mondays the business of the day is precisely the same as on the four following ones, only that there is one meal's milk more to be made into cheese than the ordinary quantity; thus the ordinary Sunday's labour in cheese-making establishments is divided between Saturday evening and Monday morning.

Thrashing Machines: *Northumberland.* The comparison of the Scotch and English machines is in favour of the latter. The following are the results of an experiment with Wheat under the inspection of Mr. M'Lagan, of Pumpherston:—

	Good Grain.	Weight per bushel.	Gross Weight of good.	Light Grain.	Weight of good and light.
	bu. st. lb.	lb.	st. lb.	st. lb.	st. lb.
English machine	23 3 9	62¼	128 9	4 10	133 5
Scotch Do.	23 2 1	60¾	123 8	5 4	128 12

The English machine gave both more good grain and a greater weight per bushel, namely, 1½ lb., and the sample was decidedly superior, both in appearance and in handling, and contained no broken grain. The good grain from both machines was sent to market, and sold by an agent on the Saturday; that from the English machine brought 5*s.* per quarter more than the grain from the Scotch. Wishing to know what became of the Wheat that passed through the Scotch machine, he caused some of the straw from it to be put through the English machine, and after a quarter of an hour's working he obtained 52 lb of Wheat. He also put some of the straw from the English machine through the Scotch one, and after five minutes' work obtained 1¾ lb. of Wheat—that is at the rate of 5¼ lb. in a quarter of an hour. These trials seem conclusive as to the superiority of the English construction.

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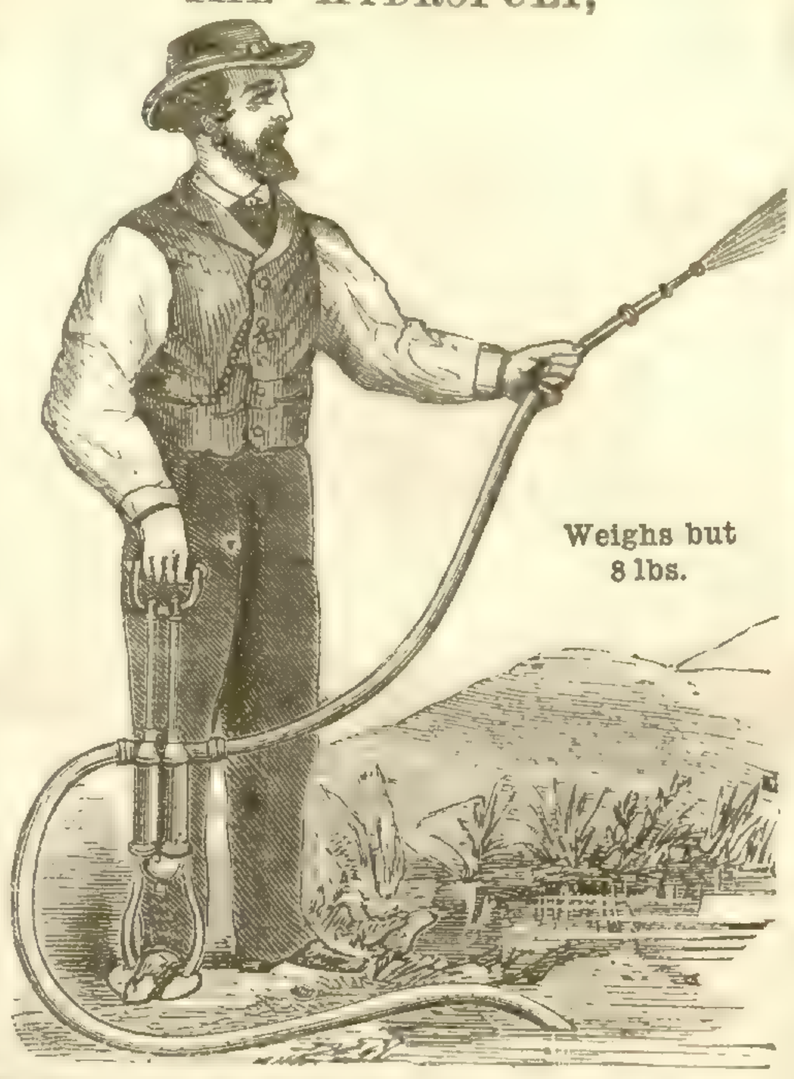

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AND SPECIALLY ADAPTED FOR USE IN THE GREENHOUSE AND CONSERVATORY.
Price 35s.,
Complete, with Brass Cylinders and Copper Stirrup, 2½ feet Suction and 3 feet Delivery Hose, Strainer, Rose, Jet, and Fan.

This NEW IMPLEMENT must necessarily supersede Syringes and other devices of the kind, for it will be found much more effective in its operation.

A LADY CAN WORK IT FOR HOURS WITHOUT FATIGUE.

CAUTION.

Important to the Public.—The extensive sale of the Hydropult has excited the cupidity of so-called respectable, but in reality unprincipled Manufacturers, who are now palming on the Public worthless imitations of the Hydropult, and through their connections are enabled to place said devices on exhibition, and for sale, in many of the principal Ironmongery and Seed Establishments throughout the city and provinces. These devices resemble in many respects the Hydropult in appearance, and are calculated to deceive the unsuspecting. The Proprietor therefore issues this Caution, and respectfully intimates that parties wishing to purchase the Hydropult should examine the machine offered for sale, and see if it has attached thereto a label, with the following words:—"The Hydropult, Vose's Patent, manufactured only by Griffiths & Browitt, Birmingham. Charles Pomeroy Button, Proprietor, 142 and 143, Cheapside, London." Unless this label is attached, the Machine is not the Hydropult.

Prospectuses, with Testimonials, on application.

HYDROPULT SHOW ROOM, 142 & 143, CHEAPSIDE, LONDON.
CHARLES POMEROY BUTTON, Proprietor.

CARTER'S GARDENER'S VADE-MECUM
is now ready.

The Original Seed Bag Manufactory.
ALEXANDER NICOL AND CO.,
Manufacturers of
SEED BAGS, CORN SACKS, &c.
Chalmers Street Works,
Arbroath, N.B.

Glass for Garden Purposes.
JAMES PHILLIPS AND CO.
beg to submit their prices as follows:—

PROPAGATING GLASSES.

	Each.—s.	d.		Each.—s.	d.
2 inches in diameter ..	0	3½	12 inches in diameter ..	1	9
3 " " ..	0	4½	13 " " ..	2	0
4 " " ..	0	5½	14 " " ..	2	6
5 " " ..	0	6½	15 " " ..	3	0
6 " " ..	0	8	16 " " ..	3	6
7 " " ..	0	10	17 " " ..	4	0
8 " " ..	1	0	18 " " ..	5	0
9 " " ..	1	2	19 " " ..	6	0
10 " " ..	1	4	20 " " ..	6	0
11 " " ..	1	6			

HAND GLASSES, WITH OPEN TOPS.

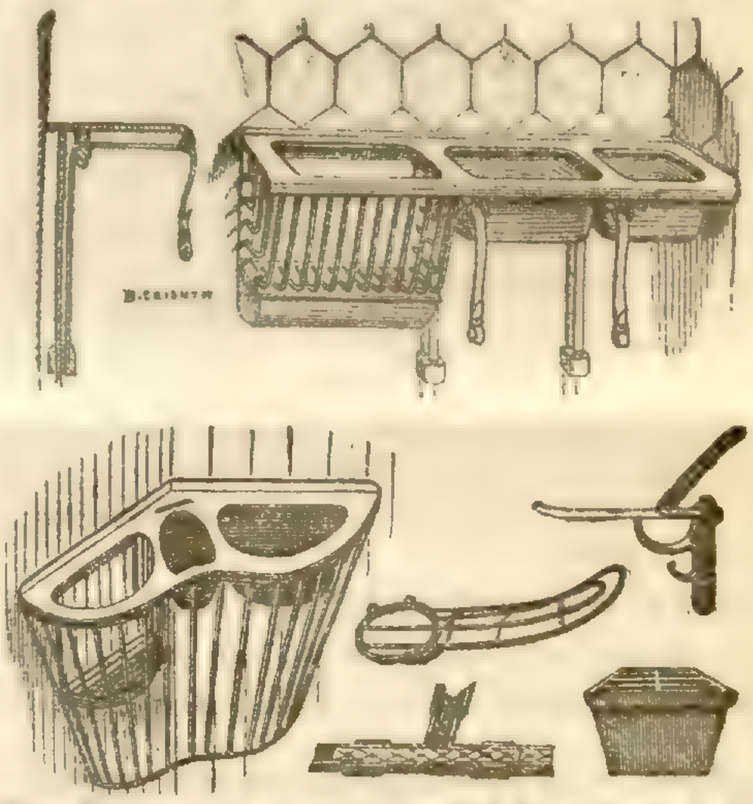
	Each.—s.	d.		Each.—s.	d.
12 inches	6	6	18 inches	9	6
14 "	7	6	20 "	10	6
16 "	8	6	22 "	11	6
			24 "	12	6

Painted and Glazed with 16-oz. Sheet Glass.

HYACINTH and FLOWER DISHES.
6 inches diameter, 1*s.*; 9 inches, 1*s.* 6*d.*; 12 inches, 2*s.* 6*d.*
Hyacinth Dishes are intended to contain a number of roots bedded in sand and covered with moss, instead of the common Hyacinth Glass.

HYACINTH GLASSES.
Common shape, per dozen, 2*s.* 6*d.* Improved shape, per dozen, 4*s.* 6*d.*
Patent shape, per dozen, 6*s.* 6*d.*
London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.
LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS, PAINTS of various colours ground ready for use.
180, Bishopsgate Street Without, London, E.C.

COTTAM'S PRIZE STABLE FITTINGS and HARNESS BRACKETS.



These Fittings, now so generally specified by Architects in their specifications, may be seen at the Manufactory, 2, Winsley Street, Oxford Street, W., where a large supply is always on hand and regular sizes kept in stock, and where full-size Stalls and loose Boxes (variously arranged, with a view to the economy of space) can be examined.
Cottam & Company, Manufacturers and Patentees, hold the Prizes of 1851, 1855 (Paris) and 1862, for these Fittings.
*** Apply for No. 3 Catalogue, to be had free, of Cottam & Co., 2, Winsley Street (opposite the Pantheon) Oxford Street, London, W.

Oil Paint no longer necessary.
HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which Hill & Smith will forward on application.
Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the kingdom.
Apply to Hill & Smith, Brierley Hill Iron Works, near Dudley, and 32, Cannon Street West, E.C. from whom only it can be obtained.

Patronised by 70,000 Stock Breeders.

DAY, SON, AND HEWITT, Sole Inventors of the Celebrated STOCK-BREEDER'S MEDICINE CHEST, containing as follows:—
Six Bottles (at 2*s.* 6*d.* each) of the UNIVERSAL CHEMICAL EXTRACT, match less for penetrating, mollifying, and assuaging pain in all wounds, kicks, cuts, strains, &c., in horses and cattle; straining in ewes lambing, and swollen and inflamed udders in cows and ewes; sore feet in cattle, sheep, and dogs.
One Dozen Bottles (value 20*s.*) of the GASEOUS FLUID or BLACK MIXTURE, unmatched in the known world for curing diarrhœa or scouring calves, sheep, and lambs; for ewes weakly and exhausted after lambng; for horses and cows exhausted and sickly, and for the fret, colic, or gripes in horses and cattle. An instantaneous remedy for blown cattle and sheep.
One Dozen Packets (value 18*s.*) of the RED DRENCH or INFLAMMATION POWDER, for cleansing after calving or lambing, for straining in ewes, and for removing all feverish symptoms in cows and ewes after calving or lambing; for yellows in oxen, and for colds, chills, and all inflammatory cases in horses, cattle, and pigs.
One Dozen (value 7*s.* 6*d.*) of the RED PASTE or CONDITION BALLS (for horses). These Balls give vigorous health, purify the system, and produce a mole-like sleekness of coat.
Price of Chest complete, with Shilling Key to Farriery, 2*l.* 16*s.* 6*d.* securely packed, and carriage free. Sample case, usefully assorted 16*s.* 6*d.* Messrs. D., S., & H. respectfully urge their friends to send their orders early, so that no purchaser may be kept waiting.
Either preparation may be had separately in boxes, carriage paid.
Address—Day, Son, & Hewitt, Animal Medicine Manufactory, 22, Dorset Street, Baker Street, London, W.; or Wantage, Berks.
Testimonials from all parts of the United Kingdom and Ireland sent free on application.
Established over One Quarter of a Century.

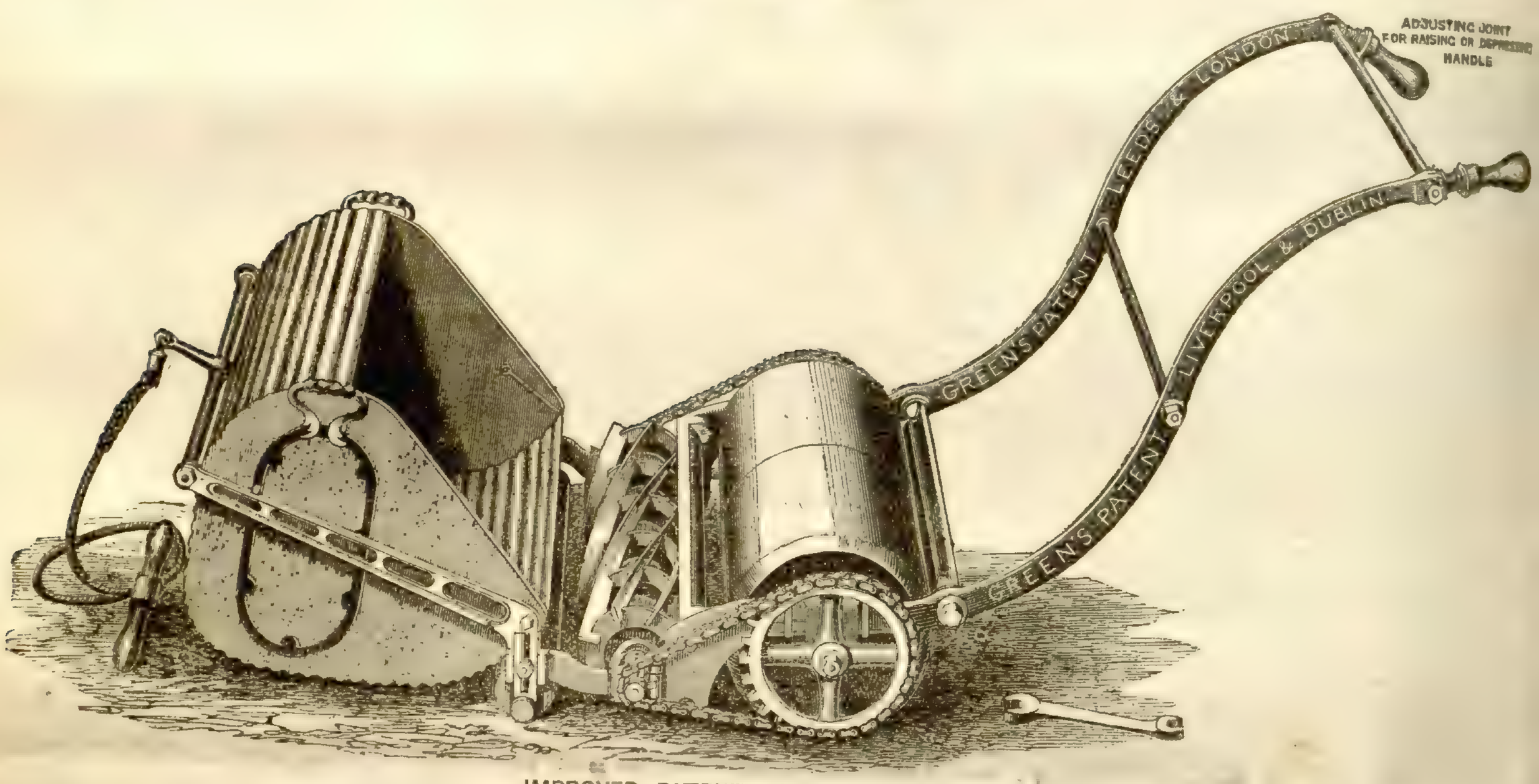
GREEN'S PATENT SILENS MESSOR,

OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

BY SPECIAL APPOINTMENT,
SOLE MANUFACTURER

TO HER MOST GRACIOUS MAJESTY
THE QUEEN.



IMPROVED PATENT LAWN MOWER FOR 1865,

AS RECOMMENDED BY THE JUDGES OF THE ROYAL HORTICULTURAL SOCIETY'S SHOW HELD JULY 20, 1864.

GREEN'S PATENT LAWN MOWERS have proved to be the best, and carried off every Prize that has been given in all cases of competition. The Judges at the Royal Horticultural Society's Show, held July 20, 1864, awarded them a First-class Certificate (no Prizes were given), and, at the same time, suggested a slight alteration, which has been done, and Messrs. T. G. & Son consider their MACHINES now as near perfect as possible.

Messrs. T. G. & Son beg to state that, owing to the great demand for their MACHINES in past years, they have been unable to execute orders with that despatch due to their numerous customers, but are now happy to inform them, that they have made such alterations and arrangements in their premises, whereby they trust to be in a position to send off all orders the day they are received.

PRICES OF HAND MACHINES.

To cut 10 inches	£3 10 0	*Suitable for a Lady.*
" 12 "	4 10 0	" "
" 14 "	5 10 0	*Suitable for One Person.*
" 16 "	6 10 0	" "
To cut 18 inches	£7 10 0	*Suitable for One Person.*
" 20 "	8 0 0	*Suitable for Two Persons.*
" 22 "	8 10 0	" "
" 24 "	9 0 0	" "

Packing Cases are charged at the following low rates, viz.: for the 10 and 12 inches Machine, 3*s.*; 14 and 16 inches, 4*s.*; 18 and 20 inches, 5*s.*; 22 and 24 inches, 6*s.* Parties providing themselves with Lawn Mowers are recommended to purchase the Cases in which to stow them away, when not in use, to prevent them from getting damaged; if returned, two-thirds will be allowed for them.

PRICES of HORSE, PONY, and DONKEY MACHINES, including Patent Self-delivery Box; Cross Stay complete; suitable for attaching to ordinary Chain Traces or Gig Harness.

To cut 26 inches	£13 0 0	*Leather Boots for Donkey,* 18*s.*
" 28 "	15 0 0	
" 30 "	17 0 0	
To cut 30 inches	£21 0 0	*Leather Boots for Pony,* 22*s.*
" 36 "	24 0 0	
" 42 "	27 0 0	*Leather Boots for Horse,* 26*s.*
" 48 "	30 0 0	

The 26, 28, and 30 inches can easily be worked by a Donkey, or by Two Men, on an even Lawn, the 30 and 36 inches by a Pony, and 42 and 48 inches by a Carriage Horse; and, as the MACHINES make no noise in working, the most spirited animal can be employed without fear of its running away, or in any way damaging the MACHINE.

Both the HORSE, PONY, DONKEY, and HAND MACHINES possess (over all other Makers) the advantage of self-sharpening: the cutters being steel on each side, when they become dull or blunt by running one way round the cylinder, can be reversed again and again, bringing the opposite edge of the cutter against the bottom blade, when the MACHINE will cut equal to new. Arrangements are made that the cylinder can be reversed by any inexperienced person, in two or three minutes.

The above MACHINES are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England; are warranted to give satisfaction, and, if not approved of, can be at once returned unconditionally.

THOMAS GREEN AND SON,

SMITHFIELD IRON WORKS, LEEDS; 2, FARRINGDON ROAD, HOLBORN HILL, LONDON, E.C.;
19, EDEN QUAY, DUBLIN; and HADWIN'S BUILDINGS, TITHEBARN STREET, LIVERPOOL.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 12.—1865.] SATURDAY, MARCH 25. {Price Fivepence. {Stamped Edition, 6*d*.

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ROYAL BOTANIC SOCIETY, REGENT'S PARK.
GENERAL EXHIBITIONS, WEDNESDAYS, May 24, June 14, and July 5.
AMERICAN PLANTS, MONDAYS, June 5 and 12.
Tickets to be obtained at the Gardens on Vouchers from Fellows of the Society, price 4s. each.
The SECOND SPRING EXHIBITION, SATURDAY, April 8. Tickets 6d each.

CRYSTAL PALACE.—SEASON 1865.
FLOWER SHOW ARRANGEMENTS.
GREAT FLOWER SHOW, MAY 20 | ROSE SHOW, JUNE 24.
AUTUMN (FRUIT and FLOWER) SHOW, SEPT. 6 and 7.
The Schedules of Prizes will be shortly ready for delivery.
By Order. Geo. Grove, Secretary.

WEYMOUTH and DORSET HORTICULTURAL and FLORICULTURAL SOCIETY will offer this Season a PRIZE for ROSES, to be called the RADCLYFFE PRIZE of TWENTY GUINEAS, Open to all England. Schedules will be ready May 10. Suggestions as to time and mode of Exhibition will be thankfully received from the principal Rose Growers.
R. T. Hawkins, Secretary.

AN EXHIBITION of FLOWERS and FRUIT will be held at BRENTWOOD, ESSEX, on JUNE 6, in conjunction with the Annual Meeting of the Essex Agricultural Association. Schedules can be had of R. B. Postans, } Hon.
Brentwood, March 25. A. J. Thorne, } Secs.

LANGPORT FLORAL and HORTICULTURAL SOCIETY.—The NEXT EXHIBITION of the above Society will be held on AUGUST 3 NEXT. Particulars will be announced in a future Advertisement.

THE BISHOP AUCKLAND FLORAL and HORTICULTURAL SOCIETY will hold their next ANNUAL EXHIBITION in the Park of the Lord Bishop of Durham, on FRIDAY, August 25. The Schedule of Prizes may be had on application to
Mr. J. Reed, Secretary.

MR. WILLIAM PAUL, of Waltham Cross, is now shewing a fine Collection of HYACINTHS, CAMELLIAS, and other SPRING FLOWERS, at the ROYAL HORTICULTURAL SOCIETY'S GARDENS, SOUTH KENSINGTON, which will remain open until the 1st of April.
Admission, Mondays, 6d.; Tuesday to Friday inclusive, 1s. Band on Saturday and Monday at 3.

Grand Exhibition of Hyacinths, Tulips, &c.
WM. CUTBUSH and SON beg to invite an inspection of their GRAND EXHIBITION of HYACINTHS, TULIPS, and other SPRING FLOWERS, which will be held at their Nurseries, Highgate, from MONDAY, March 27, to SATURDAY, April 1, both days inclusive. Admission free, from 10 A.M. till dusk.
Highgate Nurseries, London, N.

Seed Orders without Signatures.
MESSRS. SUTTON and SONS have still on hand several ORDERS for SEEDS from Customers who have omitted to give either their Name or Address, so that it is impossible to ascertain to whom the goods should be sent.
Messrs. Sutton, fearing that inconvenience must be experienced from this unavoidable delay, request their friends who do not receive their goods promptly to write.
Royal Berkshire Seed Establishment, Reading.

THE GARDENER'S and AMATEUR'S FRIEND.

CARTER'S GARDENER'S VADE-MECUM is now ready.

Genuine Seeds, Carriage Free.
WM. PAUL'S PRICED SELECT LIST is now ready, free by post.
Paul's Nurseries, Waltham Cross, N.

W. VIRGO and SON will have much pleasure in forwarding their CATALOGUE of NURSERY STOCK post free on application.
Wonersh Nursery, near Guildford.

Carnations and Picotees.
MR. G. S. DODS has a fine stock of the Old CLOVE CARNATION, and a great assortment of other CARNATIONS and PICOTEES at 1s. per dozen.
Epsom Nursery, Epsom.

Selected Garden Seeds.
PAUL and SON'S PRICED CATALOGUE contains descriptive list of FINE-FOLIAGED PLANTS for Sub-tropical Gardens. Free by Post. All Seeds Carriage paid.
"Old" Cheshunt Nurseries, Cheshunt, N.

New Fuchsias.
E. G. HENDERSON and SON can now supply LA TRAVIATA, ANNA BULLEYN, MARVELLOUS, and TROUBADOUR, at 10s. 6d. each; the set, 30s.
Wellington Nursery, St. John's Wood, London, N.W.

Choice Primula Seed.
WILLIAMS' SUPERB STRAIN, the finest Fringed and best Coloured Flowers in Cultivation. In sealed packets, Red, White, or Mixed Seed, 2s. 6d., 3s. 6d., 5s.
Paradise and Victoria Nurseries, Holloway, London, N.

Gladioli.
STEPHEN BROWN'S CATALOGUE (Cultural and Descriptive), containing his extensive and first-class Collection of Gladioli, sent free on application.
Seed and Nursery Establishment, Sudbury, Suffolk.

The Best New Roses for 1865.
WM. WOOD and SON have many Thousands of the above, all fine strong healthy plants.
DESCRIPTIVE CATALOGUES may be had on application.
Woodlands Nursery, Maresfield, near Uckfield, Sussex.

STANDARD ROSES.—Several thousands of kinds useful for Public Gardens, &c. Very low price on application to Paul & Son, "Old" Cheshunt Nurseries, Cheshunt, N.

ROSES.—Superb STANDARDS, 15*s*. to 18*s*. per dozen; DWARFS, 9*s*. to 12*s*. per dozen. NEW ROSES of 1865, 36*s*. per dozen. DESCRIPTIVE PRICED LISTS on application.
Richard Smith, Nurseryman and Seed Merchant, Worcester.

NEW ROSES of 1865.—For the BEST SELECTION of the year, see PAUL and SON'S DESCRIPTIVE LIST.
"Old" Cheshunt Nurseries, Cheshunt, N.

Manetti Stocks.
WM. WOOD and SON can spare from 4000 to 5000 of the above, good plants.
Woodlands Nursery, Maresfield, near Uckfield, Sussex.

H. and F. SHARPE, Seed Growers and Merchants, Wisbech.
SPECIAL PRICED LIST of NEW SEEDS on application.

Genuine Garden and Agricultural Seeds.
JAMES CARTER and CO., Seed Farmers, Merchants, and Nurserymen, 237 and 238, High Holborn, London, W.C.

New and Genuine Agricultural, Garden, Flower, and Forest Seeds.
PAUL TOLLARD, 4, Place des Trois Maries, Paris.
Agent, Mr. E. Courtin, 29, Lime Street, City, E.C.

NEW and GENUINE AGRICULTURAL, GARDEN, and FLOWER SEEDS.
Special prices and advantageous offers on application to James Fairhead & Son,
Seed Growers and Merchants, 7, Borough Market, London, S.E.

BEAUTIFUL NEW DOUBLE SENECIOS for the coming Bedding Season.—For full particulars, opinions of the Press, &c., apply to
Wm. Dillistone, Munro Nursery, Sible Hedingham, Essex.

FLOWER SEED NOVELTIES, ENGLISH and CONTINENTAL, a rich assortment. CATALOGUES free.
Stephen Brown, Seed Grower, Sudbury, Suffolk.

SEED of CLIANTHUS DAMPIERI and C. DAMPIERI SPLENDENS. Quote price.
Barr & Sugden, 12, King Street, Covent Garden, W.C.

To the Trade.
SALVIA PATENS SEED, by the 100 or 1000.
H. Harman, Denham, near Uxbridge.

Dahlias, Verbenas, Bedding Plants in any quantity.
C. E. ALLEN'S ANNUAL CATALOGUE of the above is now ready, and can be had on application.
Norfolk Nursery, Shacklewell, near London, N.E.

Pines.
B. S. WILLIAMS begs to announce that he has a fine Stock of the above, including all the best kinds. Prices on application.
Paradise and Victoria Nurseries, Holloway, London, N.

NEW GRAPE, "ROYAL VINEYARD," the best late White Grape extant. Strong planting Canes, 21s. each; strong fruiting, 42s. each.
B. S. Williams, Paradise and Victoria Nurseries, Holloway, London.

PYRAMID APPLES, PEARS, PLUMS, and CHERRIES.—Beautiful Trees for Garden or Orchard Houses.
Richard Smith, Nurseries, Worcester.

THE VICTORIA NECTARINE.—A few strong bearing Trees of this fine Nectarine, Pyramids, in pots, 10s. 6d. each, are offered, carriage paid to London.
Messrs. Thos. Rivers & Son, Nurseries, Sawbridgeworth.

WEBB'S PRIZE COB FILBERTS, and other varieties of FILBERTS and NUTS, as shown in the Great Exhibition of 1862, and for which a Certificate of Honourable Mention was given. Trees of the above can be had on application to
Mr. Webb, Calcot Gardens, Reading.

FORTY ACRES of FRUIT TREES.—APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, and APRICOTS in every form desired for Fruiting.
Richard Smith, Nurseryman and Seed Merchant, Worcester.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
Richard Smith, Nurseryman and Seed Merchant, Worcester.

Orchard-house Trees.
H. LANE and SON, The Nurseries, Great Berkhampstead, Herts, have to offer a fine stock of the following in pots, well set with bloom buds: APPLES, CHERRIES, FIGS, NECTARINES, PEACHES, PEARS, and PLUMS.

Fox and Game Covert.
MAULE and SONS can supply 2-years old ENGLISH FURZE and BROOM at 10s. per 1000.
The Nurseries, Bristol.

LARCH, Transplanted, strong and of good growth. 1½ to 2½ feet, 2½ to 3½ feet.—James Huddart, Nurseryman and Seedsman, Farrington Hall Nursery, Preston, Lancashire.

Transplanted Quick.
CHARLES SHARPE and CO., Sleaford, have a quantity of well-rooted Transplanted QUICK to offer. Price on application.

STRONG 3-years' Transplanted THORNS on Sale Cheap.
Apply to
Samuel Finney & Co., Gateshead Nursery, Newcastle-upon-Tyne.

STRONG Transplanted ASH, 2 to 3 feet.
Price on application to
Richard Smith, Nurseryman, Worcester.

WANTED, SCOTCH and SILVER FIRS, Transplanted, 1 to 2 feet. State lowest price and quantity to
Wm. Wood & Son, Woodlands Nursery, Maresfield, Uckfield, Sussex.

WANTED, strong bushy COMMON LAURELS, 2 to 3 feet. Apply, stating price, to
Richard Brown, Nurseryman, Stamford.

Bromus Schrœderi (Schrœder's Brome Grass).
SUTTON and SONS having imported a small quantity of the above new FORAGE PLANT, so highly spoken of by French Agriculturists, can supply it in packets at 1s. each (post free).
Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

Furze or Gorse (Ulex europæus).
SUTTON and SONS have a fine stock of NEW SEED. Also all other kinds of AGRICULTURAL SEEDS at very moderate prices, as see SUTTON'S PRICED SEED LIST (gratis and post free).
Royal Berks Seed Establishment, Reading.

New Lucerne Seed (Luzerne de Provence).
SUTTON and SONS have just imported a very fine parcel of NEW LUCERNE SEED, which they can offer at 1s. per lb., or cheaper by the cwt. (Sow 20 lb. per acre in drills.)
Royal Berks Seed Establishment, Reading.

NATURAL GRASSES: their Names and Derivations; Quality, Produce, Elevation, Situation, Soil, Use, Peculiarity, Season, Growth, Increase, Time of Flowering, Price, &c. Free for One Postage Stamp.
Richard Smith, Seed Merchant, Worcester.

GOOD CLOVER SEEDS at MARKET PRICES.—SAMPLES and PRICES of CLOVER SEEDS may be had post free on application (stating quantity required) to
Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

THE TRUE PERENNIAL COW GRASS SEED.—The true single cut COW GRASS may be obtained from
Sutton & Sons, Seed Growers, Reading.

Agricultural Seeds.
CLOVER, RYE-GRASS, and all other AGRICULTURAL SEEDS (Genuine) at Market Prices. Purchasers of large quantities supplied on liberal terms.
Richard Smith, Seed Merchant, Worcester.

AGRICULTURAL and GARDEN SEEDS, finest quality.—CLOVER and GRASS SEED, 1 year's lay, 16s.; 2 years, 17s. 6d. per acre. Imported ITALIAN RYE-GRASS, 6s. per bushel. PRICED LIST post free.—George Davison, Hereford.

AGRICULTURAL SEEDS, of the finest quality.
DESCRIPTIVE LIST, with prices and particulars as to free delivery, &c., post free upon application.
James Dickson & Sons, Seed Merchants, 102, Eastgate St., Chester.

Notice.
PURCHASERS of LARGE QUANTITIES of FARM or GARDEN SEEDS will be supplied liberally by Sutton & Sons.
For prices apply (stating quantity required) to Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

RAYNBIRD, CALDECOTT, and BAWTREE, Seed Farmers and Merchants, 89, Seed Market, Mark Lane; and Basingstoke.
Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

WANTED, GERANIUM SUNSET.
State quantity and price to E. Cooling, Derby.

Rhododendrons.
WANTED, a few Thousands of RHODODENDRON STOCKS for immediate working.
Apply, stating price and quantity, to Maurice Young, Milford Nurseries, near Godalming.

J. IVERY and SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

ARAUCARIA IMBRICATA.—Splendid Specimens of the above, stout, vigorous, well-shaped, of good colour, and finely rooted, can be supplied in any quantity at greatly reduced prices, in sizes from 3 to 8 feet. A large stock to select from.
Maurice Young, Milford Nurseries, near Godalming, Surrey.

HAAGE'S DWARF EARLIEST CAULIFLOWER.—Very dwarf, the earliest, hardiest, and finest of Cauliflowers. Packets 1s. 6d. each. The finest new varieties of VEGETABLE SEEDS. CATALOGUES sent free.
Stephen Brown, Seed Grower, Sudbury, Suffolk.

NEW LETTUCE, THE LONGSTANDER.—Most remarkable for duration without running, crisp and excellent. Packets 1s. each.
Stephen Brown, Seed Grower, Sudbury, Suffolk.

JAMES CARTER and Co. beg leave to state that they have entirely SOLD OUT of "FIRST CROP PEA."

SCARLET RUNNERS WANTED.
Send sample and price to
Barr & Sugden, 12, King Street, Covent Garden, W.C.

KING of the POTATO.—The ORIGINAL STOCK. Special low price upon application, stating quantity required.
James Dickson & Sons, Seed Merchants, 102, Eastgate St., Chester.

SEED POTATOS.—MYATT'S EARLY PROLIFIC KIDNEY, EARLY DALMAHOY ROUND, the most prolific early varieties in cultivation. For price and further particulars apply to
H. & F. Sharpe, Seed Growers, Wisbeach, Cambs.

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☞ See for names and descriptions CATALOGUE No. 105, pages 118 to 130.

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BYLSIANUM, dwarf bush, 1½ to 2 feet across, 10 to 15 flower buds, 5*s.* each, 50*s.* per dozen

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The two sorts, mixed, 5*s.* per dozen
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" " PALLIDA, 2*s.* 4*d.* each, 22*s.* per dozen

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PODOPHYLLUM EMODI, 2*s.* 4*d.* each, 22*s.* per dozen
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ALPHABETICAL INDEX of the VARIOUS GENERA contained in LOUIS VAN HOUTTE'S CATALOGUE No. 108.

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GAZANIA AUREA PYRAMIDALIS	1	0
" SPICATA ROSEA	1	0
GYNANTHEMUM CORONARIUM, dwarf, yellow	1	6
" CARINATUM ATROCOCCINEUM, new	1	6
" BICOLOR DUNNETTII FLORE PLENO, new	1	0
HELIANTHUS, finest hybrid	1	6
HOUSTONIA INTEGRIPETALA FLORE PLENO, new	1	0
KOCHIA TRIFLINE INDIVISA	2	6
LINUM GRANDIFLORUM ENGELMANNII, a novelty	1	0
LOBELIA BOSSELARDII	1	0
" LACINIATA	0	6
MALCOLMIA, fine varieties	0	6
MOXINIA, erect or drooping	1	0
PELIPTERUM SANFORDII	0	6
HELICHRYSUM NANUM ATROSANGUINEUM	1	0

	Per Packet.—s.	d.
HOLLYHOCK, from named flowers	0	6
HOVEA CELSI, good seed	1	6
LILIUM GIGANTEUM	1	0
LOBELIA ERINUS SPECIOSA	0	6
" PAXTONIANA	0	6
MIMULUS MACULOSUS	0	6
MOMORDICA BALSAMINA LEUCANTHA, a new climber	1	6
NASTURTIUM KING of TOM THUMBS	1	0
NOLANA LANCEOLATA, new	1	0
ORNITHOGALUM THYRSOIDES ALBUM	1	0
PANSY, seed saved from prize flowers	1	0
PETUNIA, very choice	0	6
PHALACRÆA CŒLESTINA TOM THUMB	1	6
PHLOX DRUMMONDII, TWILIGHT	1	0
" " PRINCESS ALEXANDRA	1	0
PRIMULA FELICIFOLIA, red or white	3	6
RESEDA CRYSTALLINA, the New Mignonette	1	0
RHODANTHE ATROSANGUINEA	1	0
SOLANUM PRINCESS BEATRICE	1	0
STOCK, PURPLE QUEEN	0	6
" INTERMEDIATE	0	6
" VICTORIA TEN-WEEK	1	0
" AUTUMNAL FLOWERING	0	6
" BROMPTON	0	6
" DWARF GERMAN TEN-WEEK	0	6
TAGETES SIGNATA PUMILA	0	6
VERONICA GLAUCA	1	0
WAITZIA AUREA, new	1	0
" CORYMBOSA, new	1	0
WHITLAVIA GRANDIFLORA ALBA, new	1	0
WIGANDIA CARACASANA, new	1	0
SWEET WILLIAM, Hunt's superb strain	0	6
" " Melville's crimson belted	0	6

COLLECTIONS OF KITCHEN GARDEN SEEDS,

10s. 6d., 21s., 42s., and 63s. each.

CHOICE GLADIOLI, fine roots, 6s., 8s., 12s., and 18s. per dozen. TUBEROSES, fine roots, 3s. per dozen.

CARTER'S GARDENER'S VADE-MECUM is now ready.

Seeds worth Growing.

DOBSON'S CELEBRATED CALCEOLARIA, Sealed packets, 1s. 6d., 2s. 6d., 3s. 6d., and 5s.
DOBSON'S PRIZE CINERARIA, sealed packets, 1s., 2s. 6d., and 5s.
DOBSON'S UNRIVALLED PRIMULA, superb fringed white or red, 1s., 2s. 6d., 5s.
DOBSON'S SUPERB BALSAMS, 8 colours, separate, 2s.; mixed, 1s
IMPORTED GERMAN SEEDS.
J. DOBSON & SONS, Seedsmen, Isleworth.

The Royal Vineyard Nursery and Seed Establishment Hammersmith, London, W.

A CHOICE and EXTENSIVE COLLECTION of STOVE and GREENHOUSE PLANTS always on view Also FRUIT TREES, SHRUBS, and ORNAMENTAL TREES, from the Country Branches of the Firm.

The SEED and GENERAL NURSERY BUSINESS is carried on here, and Packages are delivered free at the various London Railway Stations.

BRANCHES.

EALING NURSERY, G. CANNON, Manager.
Ten minutes' walk from the Ealing Station on the Great Western Railway Main Line.
FRUIT TREES, ROSES, and SHRUBS, are here extensively and successfully cultivated in some of the finest Loam in the County.

FELTHAM NURSERY, R. HIGHAM, Manager.
Ten minutes' walk from Feltham Station.
EVERGREEN and DECIDUOUS SHRUBS, and CONIFERÆ are here largely grown in a free Loam, well suited to their habits.

At SION LANE and WOOD LANE NURSERIES, ISLEWORTH.
ORNAMENTAL TREES are in a healthy and thriving state, and GENERAL HARDY PROPAGATION is here carried on.

The Stock in the above Nurseries is well worth the inspection of purchasers. The prices are very moderate, and the Plants are frequently transplanted to ENSURE SAFE removal.

The following CATALOGUES are published, and will be forwarded Post Free on application:—
CATALOGUE of KITCHEN GARDEN, FLOWER, and AGRICULTURAL SEEDS.
CATALOGUE of STOVE and GREENHOUSE PLANTS.
CATALOGUE of SOFT-WOODED and BEDDING PLANTS.
CATALOGUE of FRUIT TREES and FRUIT TREES in POTS.
CATALOGUE of HARDY SHRUBS and TREES (will shortly be issued).
CATALOGUE of DUTCH BULBS, published in August.
CATALOGUE of ROSES.
JOHN & CHARLES LEE, Proprietors, Hammersmith, London, W.

New Hollyhock, Purple Emperor (May's).

HENRY MAY was awarded the following Prizes for HOLLYHOCKS during the Autumn of 1864:—

Crystal Palace, 24 blooms, 1st prize	Sunderland, 12 blooms, 1st prize.
Brighton, 24 blooms, 1st prize.	Sunderland, 6 spikes, 1st prize.
Bishop Auckland, 24 blooms, 1st prize.	Hull, 24 blooms, 1st prize.
Bishop Auckland, 9 spikes, 1st prize.	Cottingham, 24 blooms, 1st prize.
Darlington, 24 blooms, 1st prize.	Durham, 12 blooms, 1st prize.
Darlington, 12 spikes, 1st prize.	Durham, 6 spikes, 1st prize.
Bradford, 24 blooms, 1st prize.	Hetton, 12 blooms, 1st prize.
Bradford, 6 spikes, 1st prize.	Hetton, 6 spikes, 1st prize.
	Thirsk, 24 blooms, 1st prize.
	Harrogate, 12 blooms, 1st prize.

The Purple Emperor was in all the above stands of Hollyhocks, and was awarded a First-class Certificate at Bishop Auckland, and also at Stokesley. It has been extensively ordered by Mr. Chater, Messrs. Downie, Laird, & Laing, The Rev. Ed. Hawke, Mr. Bircham, Mr. Harrison, &c., and who are all well-known to be first-rate judges and cultivators of the Hollyhock, and have all seen it exhibited except Mr. Bircham.

Colour rich purple, shaded lighter at the edges; a fine well-filled flower; very smooth and large; of vigorous habit; decidedly the best purple out. Fine plants now ready at 15s. each. The usual discount to the Trade.

CATALOGUES of HOLLYHOCKS, &c., now ready and sent free.
Address, HENRY MAY, The Hope Nurseries, Bedale, Yorks.

Cheap! Cheap!

CHOICE SPRING FLOWERS, &c.

	Per doz.—s.	d.
Hepaticas, sorts	4	0
Primroses, in 6 distinct double varieties .. 4s. to	9	0
Polyanthus, fine strain	4	0
Auriculas, finest Alpines	6	0
" border varieties	3	0
Lilies of the Valley	2	0
Lavender	3	0
Pinks, finest named .. 3s. to	6	0
Violets, double white, and purple	3	0
" Russian, white and blue	3	0
Œnothera splendens	4	0
Hepatica, Mauve, new and beautiful, 2s. 6d. each	18	0
Viola Devoniensis, new, 1s. each	9	0
Phlox, fine named .. 4s. to	6	0

	Per doz.—s.	d.
Dielytra spectabilis	6	0
Hollyhocks, finest named, 6s. to	9	0
" seedlings	3	0
Wallflowers, double sorts	4	0
Cloves, old crimson	4	0
Picotees, fine mixed	4	0
Alyssum saxatile	4	0
Pyrethrums, fine named, 6s. to	12	0
Hunt's choice Sweet Williams	2	6
Christmas Rose, "white," 6s. to	9	0
" " scarlet, 12s. to	18	0
Daisies, double white and scarlet	3	0
" Gold-leaved	4	0

The following in Stock Plants, new, 1864.

	Per doz.—s.	d.
Fuchsias, best of 1864	6	0
Verbenas, " "	4	0
Geraniums (bedding), 1864, 9s. to	12	0
Petunias, double and single, 4s. to	6	0
Mimulus maculosus, six sorts	4	0
Pentstemons, best of 1864	6	0

	Per doz.—s.	d.
Chrysanthemums, best of 1864	6	0
Antirrhinums, best of 1864	6	0
Phlox, " "	9	0
Tropæolums, " "	6	0
Lobelias, " "	4	0
Cinerarias, " "	12	0
Strawberries	2	0
Ageratum Prince Alfred	4	0

HERBACEOUS PLANTS.
100 in 50 fine named varieties for 25s.

12 fine Standard / 12 fine Dwarf { ROSES, in 24 fine sorts, } 21s.

Carriage of Parcels of 20s. and upwards paid to London.
Post-office Orders on Castle Hedingham.
WILLIAM DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

New Catalogue for 1865.

GEO. SMITH begs to announce that his PRICED and DESCRIPTIVE CATALOGUE, containing the Newest and most Approved Varieties of Show, Spotted, and Fancy PELARGONIUMS; Zonale and Variegated GERANIUMS, FUCHSIAS, VERBENAS, PETUNIAS, DAHLIAS, CHRYSANTHEMUMS, BEDDING PLANTS, &c., is now ready, and will be forwarded in exchange for one postage stamp.

*** Coloured Illustrations by Mr. Andrews, free by post, in exchange for 12 postage stamps, of FUCHSIAS GENERAL LEE, DIADEM, and FANTASTIC, the three finest Fuchsias G. S. has ever had the pleasure to offer, for description of which see Catalogue.
Tollington Nursery, Hornsey Road, Islington, London, N.

New Carmine-striped Verbena Annie.

GEORGE COOLING, of Bath, has great pleasure in offering this really novel and beautiful VERBENA, the best striped variety ever raised. It is an excellent grower, of very compact pretty habit, and produces in great profusion immense trusses of carmine and white striped blossoms, of perfect form and fine substance, which are remarkable for the length of time they last in bloom. Altogether it is a most desirable acquisition, and a variety thoroughly distinct from any in cultivation. For bedding purposes it will be unique, and no exhibition stand will be complete without it. It has obtained a First-class certificate from the Floral Committee of the Royal Horticultural Society, in addition to five First Prizes and Certificates elsewhere. See report to correspondence and editorial remarks in *Gardeners' Chronicle*, July 16, Sept. 17, Dec. 31; in *Journal of Horticulture*, and other provincial papers; it is also figured in the *Florist* for February.

Good plants will be ready the first week in May at 5s. each, or six for 25s., with the usual discount to the Trade.

18, Broad Street, Bath, near the York House; Nursery, Batheaston, near Bath.

NEW HARDY LATE-FLOWERING RHododendrons.

PRINCE of WALES.—Bright rose shaded with purple, divided black marking on the upper petals, free grower, profuse bloomer, hardy, and the latest Hybrid Rhododendron grown. One-year grafted plants, 10s. 6d. Two-year ditto, strong, 21s. Larger plants, 31s. 6d. to 42s. each.

PRINCESS of WALES.—Deep magenta edge, pure white centre, primrose flake on the upper petals, slightly spotted with brown, totally distinct from any variety at present known, and when in bloom may be readily distinguished from all others; it is a beautiful and first-class Rhododendron. One-year grafted plants, 10s. 6d. Two-year ditto, strong, 21s. Larger plants, 31s. 6d. to 42s. each.

The usual Discount to the Trade.

The above beautiful Rhododendrons were first introduced to the public last year by M. Y., and he has again much pleasure in calling attention to them; they are both most distinct varieties, the colour and marking of the Princess of Wales being quite a fresh type, and unlike any other Rhododendron. They have both been proved in the open ground for several years, capable of withstanding our most severe winters, and being very late bloomers escape the spring frosts, frequently so fatal to the earlier blooming kinds. They are confidently recommended as most desirable additions to this favourite class of plants.

Coloured Plates, by Andrews, will be forwarded on application for 13 stamps each, or the two for 25 stamps.

Maurice Young, Milford Nurseries, near Godalming, Surrey.

CARTER'S GARDENER'S VADE-MECUM is now ready.

CALCEOLARIA AMBASSADOR (Sang's). — Strong Plants in single Pots of this magnificent Bedding-out CALCEOLARIA will be ready in April. Price 12s. per dozen. Early orders will oblige. The Trade supplied on the usual terms.

Edward Sang & Sons, Nurserymen and Seed Merchants, Kirkcaldy, N.B.

HEDERA MACULATA ARGENTEA MARGINATA, or LARGE SILVER-STRIPED IVY.—Strong plants, 8d. each or 70s. per 100.

ROSA LAURENCIA or FAIRY ROSE.—4s. per doz. or 25s. per 100. Well adapted for edging or bedding.

LONICERA AUREO-RETICULATA or GOLDEN-VEINED HONEYSUCKLE.—Strong plants, 8d. each or 50s. per 100.

A. Godwin & Son, Nurseries, Ashbourne, Derby.

BEATON'S GERANIUMS.

Notices of the Press.

"Among scarlets passing off in one direction towards orange and yellow, and in the other towards purple rose and magenta, the bedder-out will have acquired amongst Pelargoniums a variety of tints which must be invaluable to him, especially in seasons like the present; the flowers, moreover, having in many cases a play or glow of colouring, which gives them extraordinary richness and brilliancy."—*Gardeners' Chronicle*, August 20, 1864.

"There is a decided novelty in their colour and style, which will render them indispensable in every collection."—*Journal of Horticulture*, July 5, 1864.

"The like have never been obtained; possessing as they do not only novelty, but singular beauty of colour, and remarkable profusion of bloom."—*Journal of Horticulture*, September 20, 1864.

"The acquisition of new colours amongst the varieties of so popular and useful a flower cannot be otherwise than agreeable to those who follow up the parterre system of flower gardening. * * * Many of them combine the prolific bloom of the Nosegay race with the better-shaped blossoms of the more ordinary kinds. * * * Indispensable to those who, in the matter of flower gardening, wish to keep pace with the times."—*The Florist*, January, 1865.

ALEXANDRA.—Top petals of flowers crimson, lower petals magenta the combination of colours producing a most beautiful glow or play of colour; very free and effective. Price, 5s. each.

AMY HOGG.—Flowers bright purplish rose, the trusses of immense size, very abundant, and standing up well above the leaves. A strong free-growing Hybrid Nosegay, of spreading habit, the leaves slightly zonate, very distinct and attractive. Price, 5s. each

"A grand acquisition."—*The Florist.*

"It was the admiration of all who saw it."—*Journal of Horticulture.*

"Very distinct and attractive; * * stands in the front rank."—*Gardeners' Chronicle.*

BEATON'S INDIAN YELLOW.—Flowers orange scarlet, with a strong glow of yellow, quite a novel and pleasing colour; the trusses, which are of medium size, are produced in extraordinary abundance; a Hybrid Nosegay, of dwarf but free habit, with zonate leaves, a distinct and first-rate bedding variety, and very effective. Price, 5s. each.

"A most unexpected and valuable addition to the materials fo *parterre* gardens."—*Gardeners' Chronicle.*

"Quite novel in colour."—*Journal of Horticulture.*

"All the more welcome as being the first of this colour which will be placed within reach of the flower gardener."—*The Florist.*

BLACK DWARF.—Flowers crimson scarlet, the trusses of medium size and very abundant, leaves darkly zonate; a true Nosegay, of close dwarf habit. Grown at the Crystal Palace on trial, although not before offered for sale. Price, 2s. 6d. each.

"Extremely useful for small beds or the margins of ribbon borders, on account of its close dwarf habit."—*Gardeners' Chronicle.*

DONALD BEATON.—Flowers clear orange scarlet, of immense size and fine form, trusses also large; a strong free-growing kind, excellent for bedding. Price, 5s. each.

"A thoroughly good variety."—*Gardeners' Chronicle.*

DUCHESS.—Flowers soft rosy lake, of good size and form, trusses also good and abundant. A very free-flowering kind, of dwarf habit, invaluable for bedding. Price, 3s. 6d. each,

FULGENS.—Flowers vivid scarlet, with large clear white eye, truss large and compact, forming a perfect globe, horse-shoe leaf. Price, 3s. 6d. each.

GLOWWORM.—Top petals of flowers fiery scarlet, lower petals of magenta flushed with crimson; the trusses are good and abundant, very erect, standing well above the foliage; the habit is dwarf and compact. This variety promises to be one of the most novel and beautiful plants recently introduced for beds, the combination of colours producing a rich and peculiar glow quite unique in the Geranium. Price, 5s. each.

"Quite a novelty."—*Journal of Horticulture.*

"Another remarkable flower."—*Gardeners' Chronicle.*

"Remarkable for the glow of colour."—*The Florist.*

MAGENTA QUEEN.—Flowers magenta, top petals crimson, with large white eye; a Hybrid Nosegay, of strong free habit, very distinct and pleasing. Price, 5s. each.

ORANGE NOSEGAY.—Flowers bright orange, trusses very large; a true Nosegay, with deep green leaves, and of free habit, quite new in colour, very effective. Price, 5s each.

"A great acquisition; * * the flowers differ from all others we have seen in their decided bright orange tint."—*Gardeners' Chronicle.*

"In this the yellow tint is also strongly marked."—*The Florist.*

PILLAR of BEAUTY.—Flowers brick-red, scarlet eye, immense truss, half-climbing habit, invaluable for clothing the pillars or walls of the conservatory and flower garden. Price, 5s. each.

PRINCESS LICHTENSTEIN.—Flowers salmon pink, beautiful soft colour, very smooth, perfect form and fine close habit. Price, 5s. each.

SALAMANDER.—Flowers brilliant scarlet, white eye, fine compact habit, horse-shoe leaf. Price, 3s. 6d. each.

SCARLET GEM.—Flowers bright orange scarlet with white eye, a profuse bloomer, dwarf habit, with dark horse-shoe leaves, invaluable for the mass of colour it produces. Price, 3s. 6d. each.

MRS. WM. PAUL.—Flowers clear delicate rose-pink, very large and of perfect form, habit dense, dwarf, and strong; a plant of great promise for out-of-door culture. Price, 5s. each.

"In respect to size and form far in advance of all the rose-pink varieties we have yet seen; * * flowers larger than a crown-piece; * * quite circular; * * exceedingly delicate and beautiful."—*Gardeners' Chronicle.*

WALTHAM SEEDLING.—Flowers fine, full, dark crimson, very large truss, horse-shoe leaf; a Hybrid Nosegay, raised from Stella, but much darker than that variety. Price, 5s. each.

Good Plants ready for delivery in May next. Early orders are respectfully solicited.

William Paul, Waltham Cross, London, N.

American Plants.

As Exhibited in the Royal Horticultural Gardens, Kensington.

WATERER and GODFREY'S PRICED and DESCRIPTIVE CATALOGUE of RHododendrons and other AMERICAN PLANTS will be forwarded on application. The Catalogue also gives a General Summary of their Stock, which contains probably the most extensive choice of all the Hardy and finest Evergreens and Conifers.

Knap Hill Nursery, Woking, Surrey.

Rhododendrons.

JOHN WATERER begs to announce that his New CATALOGUE of Hardy, Scarlet, and other Choice RHododendrons, as exhibited by him at the Royal Botanic Gardens, Regent's Park, is now published, and can be had on application. It gives faithful descriptions of all the esteemed varieties, as well as a Select List of Hardy CONIFERS, with heights and prices; also the leading kinds of EVERGREENS, ROSES, FOREST TREES, &c.

The American Nursery, Bagshot, Surrey, near Sunningdale Station, South-Western Railway.

GEO. BAKER and SON beg to announce they have an extensive collection of the best hardy RHododendrons in cultivation, fine healthy plants, at very moderate charges. Also a large collection of general NURSERY STOCK. Prices on application.

American Nurseries, Bagshot, Surrey, about 1 mile from Sunningdale Station, South-Western Railway.

A DESCRIPTIVE CATALOGUE of NEW and RARE JAPANESE PLANTS, CONIFERÆ, RHododendrons, EVERGREENS, FRUIT TREES, &c., will be forwarded on application to

Maurice Young, Milford Nurseries, near Godalming, Surrey.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

*** Part II. (Exotic Ferns) will be issued as early as possible.

Foot's Cray Nursery, S.E.

ROBERT T. VEITCH respectfully announces to his Friends and the Public in general, that in connection with the SEED BUSINESS carried on by him at 54, High Street, Exeter. Pursuant to the WILL of his FATHER, he is forming an extensive NURSERY on some ground near the Queen Street Railway Station, the principal entrance to which is in the New North Road, where he trusts, by courtesy and a strict personal attention to all orders, to merit a continuance of the public support so long received by his late Father.—March, 1865.

WANTED, CAMELLIA, ORANGE TREES, and RHododendron ARBOREUM, from 7 to 10 feet high, also one plant ARAUCARIA EXCELSA, not less than 12 feet. All measurements from top of tub or box. Apply, stating description and price, to R. S. W., *Gardeners' Chronicle* Office, W.C.

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PLYMOUTH HARDY BRONZE-TOP SWEDE TURNIP.

THE LONDON SEED COMPANY, LIMITED,

ARE NOW SENDING OUT

NEW SEED OF THE ABOVE EXCELLENT VARIETY OF SWEDE.

Price 1s. per lb., or £5 per cwt.

Extract from a Letter just received from a Clergyman *in Wiltshire:—*

"In consequence of the excellent quality of the Plymouth Hardy Bronze-top Swede supplied by you last year, I shall be obliged by your sending me Six Bushels more."

The FARM SEED PRICE CURRENT is now ready, and will be forwarded Gratis and Post Free.

Address, LONDON SEED COMPANY,
68, WELBECK STREET, CAVENDISH SQUARE, LONDON, W.

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GRASS SEEDS FOR ALL SOILS.

Messrs. Sutton's GRASS SEEDS being Mixed expressly to suit the Soils for which they are required. Persons ordering have only to state the Nature of the Soil, and Acreage to be laid down, when suitable Seeds will be supplied.

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GRASS and CLOVER

SEEDS

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PERMANENT PASTURES,

RECLAIMED MARSHES,

GOOD BLACK PEATY SOIL,

CHALKY UPLANDS,

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WATER MEADOWS,

CHURCHYARDS,

CRICKET GROUNDS,

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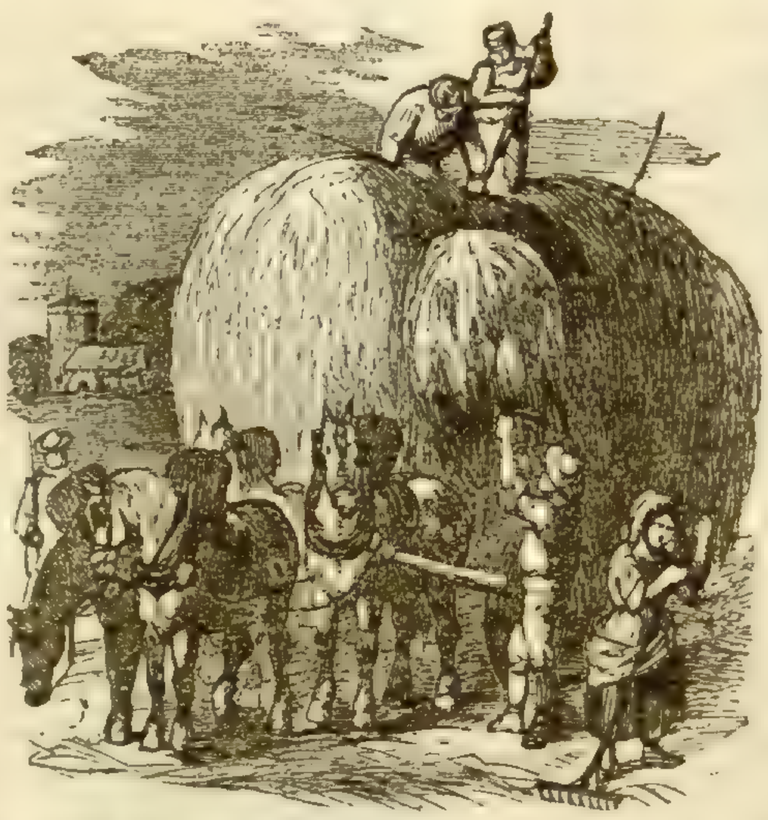

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for 3 or 4 YEARS' PASTURE

HAY or SOILING,

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1 YEAR'S CROP of HAY,

FINE GARDEN LAWNS,

NEW PARK LAWNS,

BOWLING GREENS,

ORCHARDS,

RENOVATING OLD PASTURES.

Messrs. Sutton beg to announce that their GRASS and CLOVER SEEDS, which have hitherto given such great satisfaction, are now ready for sending out. The Seeds this year have been harvested in the best possible condition, and Messrs. Sutton respectfully request early orders, which shall meet with their best personal attention.

List of Prices of Turnip, Mangel, and other Farm Seeds, with any information required, will be sent on application.

Mr. Martin Sutton's "ESSAY on PASTURES," 6d. post free, or Gratis to Customers.

SUTTON and SONS, ROYAL BERKSHIRE SEED ESTABLISHMENT, READING.

RICHARD SMITH'S LIST of all the EVERGREEN FIR TRIBE suitable for Britain, giving size, price, popular and botanical names, derivations, description, form, colour, foliage, growth, timber, use in arts, native country and size there, situation, soil, and other information, with copious Index of their synonymes. Enlarged Edition, Free by Post for 12 postage stamps.
RICHARD SMITH, Nurseryman, Worcester.

To Noblemen and Others.

LARCH, 2-years' Transplanted, well rooted, and every twig well ripened, grown on strong land and in an exposed country. They are well adapted for spring planting in the south. Likewise PINUS AUSTRIACA and WHITE AMERICAN SPRUCE, very fine and strong. Hardy shrubs, 20s. per 100.
JOSEPH TREMBLE & SONS, Penrith, Cumberland.

MARSH AND PERKINS, 42, Drapery, Northampton, offer the following:—
1-year CHINESE ARBORVITÆ, 5s. per 1000.
1-year and 1-year bedded CHINESE ARBORVITÆ, 10s. per 1000.
GREEN BOX, 1 foot, 50s. per 1000.
SPRUCE, 2-year seedling, 2-year bedded, 4s. per 1000.
LARCH, 1-year seedling, 1-year bedded, 4s. per 1000.

G. FROST, having still on hand a large quantity of 2-year-old GORSE or FURZE, fine, bushy, well-rooted stuff, which must be cleared in a few days, the ground on which they are growing having changed hands, offers them at the very low price of 2s. 6d. per 1000 for cash.
Nurseries, Bampton, Devon.

TO THE TRADE.—3,000,000 3-year SILVER FIR; 1,000,000 3-year SPRUCE FIR; 100,000 3-year BALM of GILEAD FIR; 50,000 3-year PINUS CEMBRA; 3,000,000 1-year LARCH; 1,000,000 1-year THORNS; 1,000,000 1-year ALDER; 1,000,000 1-year ASH.
The Subscriber offers the above very fine Seedlings at moderate prices.
DAVID A. REID, Park Attwood, Bewdley; or ALLESTER & Co., Glasgow. Trade Lists on application.

FOREST TREES, &c., Transplanted, in large quantities at reasonable prices:—Larch, 1 to 2, 2 to 3, 3 to 3½ or 4 ft.; Ash, Sweet Briar, Beech, Elm, 1½ to 2, 2 to 2½ ft.; Oak, Turkey; Chestnut, Horse; Elm, grafted; Laburnum; Beech, purple; Thorn, scarlet, 2 to 3, 3 to 4, 4 to 6, 6 to 8 ft.; Spruce Fir, 1½ to 2 ft.; Austrian and Weymouth Pine, Silver Fir, 6 to 12, 12 to 18, and 15 to 20 inches; strong Thorns, 3, 4, and 5 years; Standard and Bush Apples, Pears, Plums (strong), Arbor-vitæ, fine, 4 to 6 ft.; Hollies, common and varieties, 1 to 2, 2 to 3, 3 to 4 ft.; Yews, common, and Irish (extra transplanted, fine roots), 2 to 3, 3 to 4, and 4 to 6 ft.; Rhododendron ponticum, 1 to 1½, 1½ to 2, 2 to 2½ ft.; Cedrus Deodara, 2 to 3, 3 to 4, 4 to 5, and 5 to 6, finely furnished and rooted.
H. & R. SIBRAKER, Skerton Nurseries, Lancaster.

J. SCOTT, Merriott, Somerset, has to offer Cheap and splendid CEDRUS DEODARA, 5 to 7 feet; Taxodium sempervirens, 5 to 6 feet; Portugal Laurels, 3, 4, 5, and 6 feet high, and as much through; Thuja Lobbii, and T. Menziesii, 4 to 5 feet; Pinus excelsa, 3 to 8 feet; Irish Yews, 6 to 10 feet, fine; Cupressus funebris, 2 to 3 feet; C. Lawsoniana, 2 to 3 feet; with hundreds of other beautiful Evergreens. Also, Large Limes, Poplars, Horse-Chesnuts, Elms, &c., all in the best possible condition for removal. A Choice Lot of EVERGREEN OAKS, for Avenue Planting, 12 feet high, with splendid Balls, will remove with certainty to grow. About 10,000 fine Larch, 2½ to 3 feet; 200,000 Strong Thorns, 3 to 4 feet; and a Large Stock of fine Spruce and Beech, from 2 to 4 feet.
GENERAL NURSERY and CONIFEROUS CATALOGUE, 2d.; NEW FRUIT TREE CATALOGUE and DIRECTORY, 1s.

GRAYSON'S TRUE MORTLAKE GIANT ASPARAGUS, grown on the ground where the late Mr Grayson brought it to such perfection, so that Grayson's Asparagus is esteemed the best.
Plants one year old, 2s. 6d. per 100. | Plants two years old, 4s. per 100.
Seed post paid in packets just under the ounce, 6d.
Post-office orders on Mortlake.
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THE ESSEX RIVAL PEA.—The finest, most productive, and best flavoured Early Pea in cultivation. See large Advertisement of Testimonials, December 31, 1864: also see Advertisement and Testimonials of January 7 and 28, 1865, in *Gardeners' Chronicle*. Price 2s. 6d. per quart.
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Messrs Cooper & Bolton, 152, Fleet Street, London.
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Messrs. Nutting & Sons, 60, Barbican, London.
Mr G. W. Dixon, 48a, Moorgate Street, London.
Messrs Sutton & Sons, Reading, Berkshire.
Messrs. Saltmarsh & Son, Moulsham Nursery, Chelmsford, Essex.
Messrs Roberts & Son, Denbigh.
Messrs. Lowe & Co., High Green, Wolverhampton.
Mr. Robert Emson, Secretary to the Essex Agricultural Association
Mr B. Mackenzie, Ventnor, Isle of Wight.
Mr. B R. Cant, St. John's Street, Colchester.
Mr George Taber, Rivenhall, near Witham, Essex.
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CARPENTER'S MONSTROUS WHITE COS LETTUCE,
CARPENTER'S MONSTROUS GREEN COS LETTUCE,
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1s., 2s. 6d., and 5s. per packet, are the three best LETTUCES in cultivation.
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PEA, DILLISTONE'S EARLY PROLIFIC, the earliest kind known, 1s per quart
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CABBAGE, LITTLE PIXIE, 6d. per packet
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" NEAPOLITAN, 6d. per packet
MELON, EMPRESS EUGENIE, 1s. per packet
PARSNIP, THE STUDENT, 6d. per packet
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POTATO, RIVERS' ROYAL ASHLEAF, per peck, 3s.
ASTER, TRUFFAUT'S SUPERB FRENCH, 18 varieties, mixed, 1s. per packet
STOCK improved large flowering, 18 varieties, mixed, 1s. per packet
Orders of 21s. and upwards carriage free. Those kinds priced per packet free by post.
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Important to the Trade and Others.
The remainder of a Large Stock of
NEW and GENUINE WHITE SPANISH ONION SEED. Prompt net cash price 1s. 6d. per lb., or cheaper by the cwt.
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"I have had this season a very fine crop of the Elvetham Long Red Mangel, now in store, and that too in a season considered unfavourable for Wurzel. In this district I find no sort so suited to my strong alluvial soil as your Elvetham Long Red."
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New Mangel Wurzel Seed, grown from selected Bulbs.

H. AND F. SHARPE beg to announce to the Trade that their Stocks of the above-named Seed are very fine this season, and they are prepared to make special offers of all the sorts at very moderate prices.
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RICHARD WALKER, SEED GROWER, &c., Biggleswade, Bedfordshire, begs to offer the following for cash:—
YELLOW GLOBE MANGEL WURZEL, 28s. per cwt.
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FOR PERMANENT PASTURE (all carefully and thoroughly cleared
The seeds of each sort separate may be seen in large quantities in Messrs. SUTTON'S Warehouses, and growing specimens of these and many others in their sample grounds.
All the best and most suitable of them are contained together with Alsike, Perennial White, and Perennial Red Cloverst, in Messrs. SUTTON'S Mixtures for Permanent Pastures.

	Per lb. above 7 lb. s.	d.	Per Bush. s.	d.
ALOPECURUS PRATENSIS	1	6	12	0
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AGROSTIS STOLONIFERA	0	10	9	0
BRACHYPODIUM SYLVATICUM	1	0	15	0
CYNOSURUS CRISTATUS	1	6	35	0
DACTYLIS GLOMERATA	1	0	9	0
FESTUCA DURIUSCULA	1	0	10	0
" ELATIOR	1	3	12	6
" GIGANTEA	1	3	14	0
" HETEROPHYLLA	1	3	14	0
" PRATENSIS	1	0	15	0
" OVINA	1	0	11	0
" RUBRA	1	0	10	0
" TENUIFOLIA	1	3	14	0
" LOLIACEA	1	3	15	0
GLYCERIA FLUITANS	1	0	11	0
" AQUATICA	1	0	19	0
HOLCUS AVENACEUS	0	10	7	0
LOLIUM ITALICUM	0	6	7	0
" PERENNE	0	4½	6	6
" " PACEYANUM	0	4½	7	6
" " SEMPERVIRENS	0	5	8	6
PHLEUM PRATENSE	0	8	28	0
POA PRATENSIS	1	3	21	0
" TRIVIALIS	1	3	21	0
" NEMORALIS	1	3	28	0
" FERTILIS	1	6	28	0
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The Plants are healthy and vigorous.

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The best of the NEW FRENCH ROSES, 36s. to 42s. per dozen. Last year's kinds, 24s. to 30s. per dozen. Older kinds, 9s. to 18s. per dozen.

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THE LONDON SEED COMPANY, LIMITED,
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Full COLLECTIONS of GARDEN SEEDS for a whole year, 10s. 6d., 20s., 40s., 60s., 100s. each. For particulars see the GENERAL PRICE CURRENT.

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All SEEDS of the value of 20s. and upwards delivered carriage free to any Railway Station in England and Wales, or any Steam Port in England, Wales, Scotland, or Ireland.

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CARTER'S GARDENER'S VADE-MECUM is now ready.

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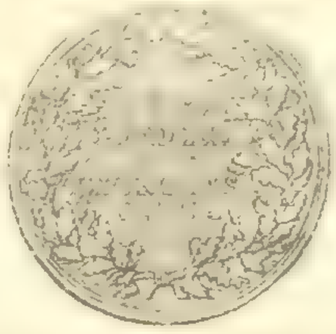

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LARGE YELLOW GLOBE MANGEL.

9d. per lb. Cheaper by the cwt.

For prices of SUTTON'S SELECTED YELLOW GLOBE, ELVETHAM LONG RED, LONG YELLOW, RED GLOBE, and other choice Sorts, see SUTTON'S NEW FARM SEED LIST, which may be had gratis and post free on application.
Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

Three Hundred Guineas in 12 Prizes.

For Six Years Successively his late Royal Highness the Prince Consort's Prize Cups have been awarded to SUTTON'S CHAMPION SWEDES at the Royal East Berks and South Berks Agricultural Societies, and many other valuable Prizes in various parts of the kingdom.

From Mr. Large, *Bailiff to the Right Hon.* Lord Berners:—
"The Champion Swedes from seed Lord Berners purchased of you, are far superior to any other we have grown. I can confidently say they are many tons per acre heavier than any other Swedes growing on his lordship's farm."

Price of Seed 1s. per pound, or cheaper by the Bushel.
SUTTON'S NEW FARM LIST gratis and post free.
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Improvement of Grass Lands

By Sowing good Seeds of the most Suitable Kinds.

SUTTON'S RENOVATING GRASS SEEDS should NOW be SOWN.

These Seeds consist of PERENNIAL CLOVERS and fine GRASSES for improving the bottom. Price 10d. per lb.; 8 or 12 lbs. per acre will be sufficient, and will produce a great increase in the produce.

PRICED SEED LISTS free.

Sutton & Sons,
Royal Berkshire Seed Establishment,
Reading.

Clovers and Rye-grass Seeds.

SUTTON AND SONS can supply the proper quantities of the best kinds of CLOVER and RYE-GRASS SEED, either Common or Italian Rye-grass, at 16s. per acre; or Clovers without Rye-grass at 14s. per acre.
The sorts of Clovers supplied by Sutton & Sons are the Alsike, the Common Red, and the White Clover (14 to 16 lb. per acre).
The great produce of the above-named Mixture is shown by the following:—

From C. F. Thruston, Esq., *Talgarth, Machynlleth, July* 31.
"I cut a crop of Grass on June 2, which had been previously dressed with soot and guano. It was full ripe, and the Italian Rye-grass was nearly 4 feet high, Clover in proportion. I am now (July 3) getting a second crop from it equally heavy."

In ordering it is only necessary to state that "Clovers and Italian Rye-grass," or "Clovers and Common Rye-grass," or "Clovers only," are required for so many acres, when the proper quantities will be sent.
Royal Berkshire Seed Establishment, Reading.

Magnificent well ripened Vines from Eyes,

At Low Prices.

GEO. CLARKE has a large Stock of very superior short-jointed VINES in pots, consisting of the leading kinds, well adapted for fruiting in pots this year, or for planting out to make permanent Vineries. Names and prices furnished on application. Nursery, Streatham Place, Brixton Hill, S.

Vine Duchess of Buccleuch.

New Seed and Plant Catalogues, &c.

ROBERT PARKER has much pleasure in offering this distinct and valuable early GRAPE, which will supply the long-felt desideratum of a White Grape with Muscat flavour that may be grown and ripened with the Black Hamburgh. Strong Planting Canes, 21s. each; extra strong Fruiting Canes, 42s. each.
The following Certificates and Prizes have been awarded at various London and other Exhibitions.
Two Certificates of Merit.
Three First-class Certificates.
Two First Prizes in open competition for the finest flavoured Grape of any colour. Chasselas Musqué, Muscat of Alexandria, and Frankenthal competed for these prizes. For further description see Hogg's *Gardeners' Year Book for* 1865, page 32, and *Gardeners' Chronicle* of October 1st and 22d, 1864, pages 943 and 1008.
Also New SEED CATALOGUE, containing Select Priced and Descriptive Lists of the best varieties of Vegetable Flower, and Agricultural Seeds; and New GENERAL PLANT CATALOGUE, containing Priced and Descriptive Lists of Miscellaneous, Greenhouse, Hardy, and Stove Plants, Azalea indica, Conifers, Ferns, Fruit Trees, Grapes, Rhododendrons, Roses, Dutch and other Bulbs, &c., which will be forwarded to applicants.
Exotic Nursery, Tooting, Surrey, S.

To the Trade.

DWARF-TRAINED CHERRIES (very fine) of the following kinds: MAY DUKE, BLACK EAGLE, DOWNTON, ELTON, BLACK HEART, OX HEART, BEDFORDSHIRE PROLIFIC, WATERLOO, and WHITE HEART. Also horizontal-trained MAY DUKE and MORELLO. Prices very moderate, to be had on application.
Richard Smith, Nurseryman, Worcester.

To the Trade and others.

WOOD AND INGRAM having a fine stock of the following, will be glad to dispose of them at a very cheap rate:—

Dwarf maiden Apples.
Dwarf maiden Cherries.
Dwarf maiden Peaches.
English Elms, 1-year seedling.
English Oaks, 2-years' seedling.
Gorse, 2 years seedling.
Acacia, Common, 8 to 10 feet, and 10 to 12 feet.
Acacia inermis, fine Standards.
Standard and Dwarf Worked Roses.
Dwarf Box for edging.
Carnations and Picotees, show varieties.
Standard Laburnums.
Abele Poplars, 10 to 12 feet.
Cut-leaved Alders, 4 to 5 feet, and 6 to 7 feet.
Bishop's Longpod Peas.
Dickson's Early Favourite Peas.
White Spanish Onion, Bedfordshire grown.
Asparagus, 2 and 3-years.
Sea Kail, 1 and 2-years.

Prices on application.
The Nurseries, Huntingdon.

Dwarf-trained Trees.

By the Thousand, Hundred, or Dozen.

APPLES, PEARS, PLUMS, CHERRIES, PEACHES, and NECTARINES.
Fine, flat, well trained, of best quality and true to name.
Richard Smith, Nurseries, Worcester.

CARTER'S GARDENER'S VADE-MECUM is now ready.

HARDY FLOWER SEEDS.

An assortment of 100 splendid varieties		..	.. 20s. 0d.
"	50	"	.. .. 10s. 0d.
"	36	"	.. .. 7s. 6d.
"	24	"	.. .. 5s. 0d.

Carriage free.
Richard Smith, Seed Merchant, Worcester.

Lilium auratum—The Golden-Rayed Japan Lily.

E. G. HENDERSON AND SON having imported between 2000 and 3000 bulbs of the above-named Superb LILY, offer them in good roots, from 5s and upwards each. For description see E. G. H. & Son's SEED CATALOGUE, which will be sent post free on application.
Wellington Nursery, St. John's Wood, London, N.W.

First-class New Seeds.

Carriage Free at Market Prices.

J. SCOTT'S DESCRIPTIVE CATALOGUE and PRICED LIST of the above are well worthy the notice of purchasers, post free.
GLADIOLUS, best HYBRIDS of GANDAVENSIS, at 6s., 9s., and 12s. per dozen. Descriptive List sent post free.
Merriott Nurseries and Seed Stores, Yeovil, Somerset.

Russell's Pyramid Primulas.

GEO. CLARKE is now prepared to send out in packets, price 2s. 6d. each, this, the finest breed of PRIMULAS in cultivation. The Seed now for sale has been saved from selected plants, so that it is believed the produce will be even superior to that of former years.
Printed instructions for raising and growing the plants sent with each packet. Stamps received in payment.
Nursery, Streatham Place, Brixton Hill, London, S.

Notice of Removal from 9, Mansion House Street,

Opposite the Mansion House, London.

FLANAGAN AND SON, Seedsmen, beg to inform their Customers, that having Sold the Lease of their Premises as above, they have REMOVED to 98, CHEAPSIDE, nearly opposite Bow Church, E.C., where they hope to have a continuance of their favours.

Mr. E. J. Lowe's New Pansies.

EDWIN COOLING has the pleasure to announce that he has been entrusted with the stock of the above named splendid Novelties for distribution. They have been awarded First-class Certificates wherever exhibited, and are all most distinct and beautiful. A DESCRIPTIVE PRICED LIST of the 24 varieties free on application.
Strong healthy plants are now ready for sending out.
Mile Ash Nurseries, Derby.

JOHN HOLLAND begs to intimate to his friends and patrons that he has TAKEN into PARTNERSHIP his Son-in-Law Mr. Frederick Jones. That the Business will in future be continued by the Firm of Holland & Jones, Bradshaw Gardens, Chadderton, near Manchester.

CATALOGUES of FLORIST FLOWERS, ROSES, FRUIT TREES, &c., on application.

HOLLAND AND JONES have ready for delivery a large and Choice Collection of
CARNATIONS, fine first-class show varieties, 9s. to 18s. per doz. pairs.
PICOTEES, " 9s. to 18s. "
YELLOW GROUND PICOTEES, the largest collection in Europe. 9s. to 18s. per dozen pairs.
BORDER CARNATIONS and PICOTEES, 6s. per dozen pairs.
PANSIES, good varieties, 4s. to 6s. per dozen plants.
The Heaviest LANCASHIRE SHOW GOOSEBERRY TREES 3 and 4 years old, 4s. to 6s. per dozen.
A remittance required from unknown correspondents.

EARLY SPRING FLOWERS, largest Stock in England and greatest variety.—Webb's Giant Polyanthus and Giant Cowslip, Cowslip from the Himalayas, Golden Chain Polyanthus, Florist Flower Polyanthus, American Primrose, Scarlet Primrose, Gentianella, Double Crimson Primrose, ditto Yellow ditto, ditto Purple ditto, ditto Rose ditto, ditto White ditto, ditto Lilac ditto, Double Pansy, ditto Negro Polyanthus, ditto Golden Chain ditto, ditto Pink Hepatica, Single Blue ditto, ditto White Violets, ditto Purple ditto. Seed of the above Polyanthus and Cowslip. LIST on application to Mr. Webb, Calcot Gardens, Reading.

Established Upwards of a Century.

BUTLER AND McCULLOCH,

SEED MERCHANTS,

Covent Garden Market, W.C.

GENUINE NEW VEGETABLE SEEDS.

Orders amounting to 21s. and upwards sent Carriage Free.

COMPLETE COLLECTIONS for ONE YEAR'S SUPPLY.

No. 1.	No. 2.	No. 3.	No. 4.	No. 5.
3l. 3s.	2l. 2s.	1l. 10s.	1l. 1s.	10s. 6d.

BUTLER AND McCULLOCH'S NOVELTIES for 1865.

	Per packet—s.	d.
BUTLER'S SUPERFINE DWARF CAULIFLOWER.. ..	2	6
BUTLER'S CLIMAX MELON..	2	6
BUTLER'S PRESIDENT MELON	2	6

FLOWER SEEDS (sent Post free).

Assortments of	100 vars.	50 vars.	30 vars.	25 vars.	15 vars.
ANNUALS—Hardy	20s.	10s.	5s.	..	2s. 6d.
" Half Hardy	30s.	15s.	..	7s. 6d.	4s. 0d.
PERENNIALS (Hardy) ..	25s.	12s. 6d.	..	6s. 6d.	3s. 6d.
" Half Hardy...	..	..	..	7s. 6d.	4s. 0d.

NOVELTIES in FLOWER SEEDS.—See Descriptive Catalogue.

BULBS for SPRING PLANTING.—Gladioli, Liliums, including the splendid new L. auratum; Tigridias, Anemones, Ranunculus, and other bulbs suitable for spring planting, in great variety. Special quotations at low rates per 100 or 1000 on application.

BEDDING PLANTS.—250,000 well-rooted plants, comprising Cineerarias, Lobelias, Geraniums, Cerastiums, Cineraria maritima, Ageratums, &c.; to be sold at unprecedented low prices.

Agents for GOULDING'S HORTICULTURAL MANURE, 1s. per canister.

SOLE AGENTS, Wholesale and Retail, for MURRAY'S APHIS PASTILS, a new invention, and the most effectual in existence for Fumigating Plant Houses. In packets, 1s. and 2s. each.

BUTLER & McCULLOCH, Covent Garden Market W.C.

ROYAL BOTANIC SOCIETY of LONDON,
REGENT'S PARK.
THE FIRST SPRING EXHIBITION.
LIST of AWARDS, March 18, 1865.

12 HYACINTHS. (Amateurs.)
1st Prize, Mr. W. Young, Gr. to R. Barclay, Esq., West Hill, Highgate.
2d, Mr. G. Wheeler, Gr. to Sir F. H. Goldsmid, Bt., Regent's Park.

12 HYACINTHS. (Nurserymen.)
1st, Mr. W. Paul, Waltham Cross.
2d, Messrs. W. Cutbush & Son, Highgate.

18 TULIPS.
1st, Messrs. W. Cutbush & Son.
2d, Mr. W. Paul.
3d, Mr. W. Young, Gr. to R. Barclay, Esq.

6 CAMELLIAS in Pots. (Amateurs.)
3d, Mr. G. Wheeler, Gr. to Sir F. H. Goldsmid, Bt.

6 CAMELLIAS in Pots. (Nurserymen.)
1st, Mr. W. Bull, King's Road, Chelsea.

12 CAMELLIAS, Cut Blooms. (Amateurs.)
1st, Mr. T. Trassier, Gr. to D. J. Kay, Esq., High Leigh, Hoddesdon.
2d, Mr. T. Todman, Gr. to R. Hudson, Esq., Clapham Common.
3d, Mr. Todd, Gr. to Sir C. Isham, Lamport Hall, Northampton.

12 CAMELLIAS, Cut Blooms. (Nurserymen.)
1st, Messrs. J. & C. Lee, Hammersmith.
2d, Mr. W. Paul, Waltham Cross.
3d, Mr. B. S. Williams, Holloway.

12 CYCLAMENS.
1st, Messrs. E. G. Henderson & Son, Nurserymen, St. John's Wood.

12 CHINESE PRIMULAS.
1st, Mr. T. Todman, Gr. to R. Hudson, Esq.
2d, Mr. R. Weatherill, Nurseryman, Woodside, Finchley.

6 MISCELLANEOUS PLANTS.
1st, Mr. B. S. Williams, Nurseryman.
2d, Mr. G. Wheeler, Gr. to Sir F. H. Goldsmid, Bt.
3d, Mr. W. Young, Gr. to R. Barclay, Esq.

NEW PLANTS.
First-class Certificate, Mr. J. Veitch, Chelsea, for Rhododendron Princess Alexandra.
First-class Certificate, Mr. J. Veitch, Chelsea, for Rhododendron Princess Helena.
First-class Certificate, Messrs. E. G. Henderson, for Rudgea leucocephala.
First-class Certificate, Messrs. E. G. Henderson, for Aucuba longifolia, [in fruit.
First-class Certificate, Mr. W. Bull, for Aucuba japonica macrophylla.
First-class Certificate, Mr. W. Bull, for Aucuba japonica fœmina latifolia.
First-class Certificate, Mr. W. Bull, for Aucuba japonica mascula.
First-class Certificate, Mr. W. Bull, for Aucuba japonica mascula elegantissima.
First-class Certificate, Mr. W. Bull, for Aucuba japonica mascula elegans.
First-class Certificate, Mr. W. Bull, for Camellia Prince Camille.
First-class Certificate, Mr. W. Bull, for Asplenium myriophyllum.
Second-class Certificate, Mr. W. Bull, for Aucuba japonica lancifolia variegata.
Commendation, Mr. W. Bull, for Nephrodium molle cristatum.

MISCELLANEOUS.
Silver Medal, Mr. R. Laing, Nurseryman, Twickenham, for Aucuba japonica, in fruit.
Silver Medal, Mr. W. Paul, for Collection of Hyacinths.
Silver Medal, Mr. B. S. Williams, for New and Rare Plants.
Small Silver Medal, Messrs. Paul & Son, Nurserymen, Cheshunt, for Roses in pots.
Small Silver Medal, Messrs. W. Cutbush & Son, for Collection of Hyacinths.
Small Silver Medal, Mr. W. Paul, for Boxes of Cut Roses.
Bronze Medal, Messrs. W. Cutbuth & Sons, for Collection of Tulips.
Bronze Medal, Mr. G. Wheeler, Gr., for Stove and Greenhouse Plants.
Bronze Medal, Messrs. E. G. Henderson & Son, for Collection of Cyclamens.
Small Bronze Medal, Mr. R. Weatherill, for Collection of Cinerarias.
Small Bronze Medal, Mr. W. Paul, for Collection of Crocuses.
Small Bronze Medal, Mr. W. Paul, for Collection of Narcissus.
Small Bronze Medal, Mr. W. Paul, for Collection of Tulips.
Small Bronze Medal, Mr. W. Paul, for Collection of Lilies of the Valley.
Small Bronze Medal, Mr. T. Todman, Gr., for Double Chinese Primroses

CARTER'S GARDENER'S VADE-MECUM is now ready.

New Chrysanthemums, Pyrethrums, &c.

JOHN SALTER'S DESCRIPTIVE CATALOGUE of NEW CHRYSANTHEMUMS, DOUBLE PYRETHRUMS, SCARLET GERANIUMS, HARDY VARIEGATED PLANTS, &c., &c., is now ready and will be sent on receipt of two stamps.

Versailles Nursery, William Street, Hammersmith Turnpike, W.

PETER S. ROBERTSON AND CO.'S SOWER'S GUIDE, containing a fully Descriptive and Priced List of their new and select stock of SEEDS suitable for all GARDEN and AGRICULTURAL purposes, with many useful Hints as to Culture, will be forwarded post free on receipt of six stamps.

33, St. Andrew Square, and Trinity Nursery, Edinburgh.

LADIES' PRIZES for INDOOR GARDENING.—The PROPRIETORS of the GARDENERS' CHRONICLE again offer, as announced last year, TWO PRIZES of 10l. each for the best examples of INDOOR PLANT-CULTURE exhibited at the Show of Table Decorations, which is to take place in the Garden of the Royal Horticultural Society, at South Kensington, on JUNE 24.

One Prize will be given for the BEST ORCHID IN BLOOM, grown and flowered in a room.

One Prize will be given for the BEST FLOWERING PLANT OR FOLIAGE PLANT of any kind, grown in a room.

The Competition is to take place amongst LADIES ONLY.

The Prizes are offered for the best single plants, examples of actual indoor cultivation; they must therefore have been grown in a room for at least six weeks previous to the time of exhibition, during which period they must have been under the management of the Exhibitors themselves.

The Plants are to be such as are suitable for drawing-room decoration.

The Plants may be grown in pots, or boxes, or baskets, or aquaria, or in any other convenient and suitable contrivance.

Notice of the intention to exhibit must be sent to the Garden Superintendent at South Kensington not later than June 19, in order that accommodation may be provided. The Plants must be sent in by 9 A.M. on June 24, and be ready for adjudication by 11 A.M.

FLORAL and HORTICULTURAL FETE, to be held at PETERBOROUGH, in connection with the NORTHAMPTONSHIRE AGRICULTURAL SOCIETY'S ANNUAL SHOW, on THURSDAY, July 6. Premiums amounting to more than 200l. will be offered for competition. Open to all England. Prizes to be paid on the day of Exhibition.

COMMITTEE

Rev. Wm. Strong	W. Paley, Esq., M.D.	Messrs. Amies & Barford
The Very Rev. the Dean	T. Walker, Esq., M.D.	Mr. E. Vergette
Rev. Wm. Cape	H. Porter, Esq., M.D.	" H. Elsey
Rev. C. Daymond	S. C. W. Buckle, Esq.	" J. S. Clarke
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H. P. Gates, Esq.	" W. Wyman	" Wm. Thompson
A. Percival, Esq.	" F. G. Buckle	" John House
	" W. Vergette	

The Schedule and Rules may be obtained of the Secretary, Mr. JOHN FOX, 14, Narrow Street, Peterborough

THE BRISTOL, WEST of ENGLAND, and SOUTH WALES CHRYSANTHEMUM, AUTUMNAL FLOWER, PLANT, and FRUIT SOCIETY.

The SECOND EXHIBITION in connection with the above Society will be held in the Rifle Volunteer Drill Hall, Queen's Road, Clifton, on THURSDAY, the 16th of November, 1865.

The Schedules of Prizes offered by the above Society can now be obtained of the Nurserymen in Bristol, or of

Imperial Fire Office, Corn Street, Bristol. J. HOBBS, Hon. Sec.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

NOTICE is HEREBY GIVEN that an addition of THREE PENSIONERS will take place in JULY NEXT. All persons desirous of becoming Candidates are required to send in their applications, accompanied with testimonials, to the Committee on or before the 1st May next, after which day they will not be received. Preference will be given to those persons who have been Subscribers for 15 years; should there not be sufficient of that class, then the claims of those who have not been Subscribers for so long, or not at all, will be considered.

Printed Forms of Petition may be had upon application to the Secretary. By order of the Committee,

March 25, 1865. EDWARD R. CUTLER Sec.

The Gardeners' Chronicle.

SATURDAY, MARCH 25, 1865.

MEETING FOR THE ENSUING WEEK.

SATURDAY, April 1 { Royal Horticultural (Weekly Show), at South Kensington .. .. .. 2 P.M.

WE have already intimated (see p. 147) that the scientific men of Germany propose to discuss in the Congress which is to be held at Erfurt, in September next, certain questions relative to plants and their cultivation, which are more or less deeply agitating the mind of the thinking portion of the horticultural community, whether professionals or amateurs; and it has occurred to us that it may not be without interest to our readers, nor even barren of results so far as the discussion itself is concerned, if we ourselves throw out a few thoughts and suggestions on the several questions which are to be raised, and which are in brief as follows:—(1) On DARWIN's theory, as it relates to the production of new races of plants by selection; (2) On the most important operations in the production of regular trained trees; (3) On the best means of modifying difficulties arising from diversities of nomenclature and terminology; (4) On the history of the development of some important flower; (5) On the choice of picturesque plants for ornamenting buildings; and (6) On the implements which during the last 10 years have most promoted horticulture. To the first of these propositions we now address ourselves. The remaining questions will be discussed as opportunities may from time to time arise:—

No more striking proof could be afforded of the hold which "Darwinism" has taken on the attention of practical men in Germany, than the proposal on the part of the Directors of the Horticultural Congress of Erfurt, that the application of DARWIN'S THEORY should be the very first of six questions to be offered for deliberation to the savans who are to assemble in that town. The exact terms of the subject proposed are—"On DARWIN's theory, especially on the production of new races of plants by selection." Nor indeed is this the only subject of discussion which relates to the theory of evolution and natural selection, for the fourth question, "The history of the development of some important flower, as the Stock, Aster, &c., from the first beginning to the present condition of its varieties," admits of no other treatment than as an example of this same theory.

It is with the first only of these questions that we have now to do, or rather with only the latter half of it; and we hope that in this we shall be followed by our Erfurt friends; for there will be little chance of their ever getting to the practical consideration of the "production of races by selection," if they commence discussing a theme of such hot dispute amongst Germans as the "Darwinian theory," under all, or indeed under any of its aspects, more or less controverted as these are. For in Germany, as with us, some believe in the creation of species by variation, and attribute a separate origin to each; some believe in natural selection, which others hold to be a myth; some believe in the struggle for existence, and that plants grow, not where they like best, but only where other plants will let them; others believe that each species occupies a territory assigned to it from its creation, and in which it would never be disturbed but for man, or from the effects of his unnatural interference with the so-called laws of nature. And lastly, there are some who go all lengths with Mr. DARWIN, and others who rank him with hair-brained speculators in every particular of his theory.

In the "production of races by selection" two principles are involved, both of them practically acted upon by every gardener, though but little regarded by most either in their scope or effect. Firstly, what is a race, and how is it that we have such things as races at all? Secondly, what is the gardener's function in producing races by selection? Is he in its exercise assisting Nature and thus accelerating natural operations; or, as is so commonly supposed, defeating Nature, and forcing her to produce what, but for his agency, she never could have produced.

The term Race is in systematic botany defined as "a variety that comes true from seed;" it is thus the middle of the three terms, viz. Species, Race, and Variety; though as every one allows that races are nothing but permanent varieties, the sequence of terms in order of development should be Species, Variety, Race; and further, as, according to Mr. DARWIN's theory (under which the terms of the Congress require us to discuss the question), the offspring of a race becomes a species by the same process of selection as that of a variety becomes a race—it follows that we have the closed genetic series of Species, Varieties, Races, Species. This is not, however, in a scientific sense a series returning into itself, for according to this theory the last produced species always differs specifically from the first, or parental.

Now, as these terms all express comparative and not absolute differences, it is impossible to frame any but arbitrary characters for them. In scientific botany the two extremes, or Species, are the only ones universally recognised. What by common consent are called species are groups of individuals supposed to be descended from a common parent, differing from each other by one or more conspicuous characters, and which do not mutually cross, or if crossed, do not produce a permanently fertile offspring. It is true that the matter of common descent can never be proved; that there are many groups of individuals of which some botanists regard the differential characters as conspicuous and specific, and others as inconspicuous, and those of varieties only; that many plants which conspicuously differ may still be mutually crossed and have fertile offspring; and that there are a few that resemble each other so closely that no one calls them species, and yet which cannot be so crossed; but so long as the great majority of known plants are resolvable into groups of individuals which are recognised as distinct species by the majority of botanists, the term species remains good for such groups in practice, whatever theory of their origin is adopted.

Such then is the generally accepted definition of a species, but in regard to what are races and what varieties no such agreement amongst botanists exists, except in theory. In practice it is impossible to distinguish them except their history is known, and amongst wild plants this can hardly ever be traced. The gardener

however, who does know the history of so many races, has a very definite idea of what he calls such as distinguished from varieties; and to the gardener's view we shall next address ourselves.

It is often assumed that the different Diseases which exist in cultivated plants are due rather to the ignorance or carelessness of the cultivator than to some cause over which he had no possible control. Gardeners are therefore frequently blamed by their employers, where all possible pains have been taken, and where there has been no avoidable deficiency of knowledge or experience. Some of the most formidable affections have been of exotic origin. There is good reason for believing that the Potato disease was prevalent in South America long before it reached this country; and we had some years since an opportunity of proving that a curious disease with which a collection of Camellias was attacked had been imported from Italy. So as regards at least one affection of Orchids which depends on the growth of a parasitic Fungus, it is highly probable that it was imported from abroad, and it is possible that some of the other affections to which they are subject may be of a similar origin.

Major Trevor Clarke has kindly sent us two leaves of a species of Cattleya from Bahia, which are affected by a form of spot which we have not hitherto seen in England. They are sprinkled on either side with orbicular superficial white discs, about the tenth of an inch in diameter, most of which have in the very centre a minute reddish-brown granular speck. Similar specks are sometimes scattered about, and a few seem to become dilated, and ultimately more or less completely obliterate the paler disc.

Should such an affection ever prevail in our houses, which is not impossible, its appearance on plants imported from their native country is now recorded, and we shall be glad to receive from other quarters samples of morbid appearances, especially such as may not be conceived to arise from close packing or a long voyage. *M. J. B.*

—— We learn that the Royal Horticultural Society is to be represented at the Congress at Amsterdam by the Rev. M. J. Berkeley, who goes as chief of the deputation from England. We are also informed that Capt. Cockerell has been appointed to the office of Assistant-Secretary to the Society, vacant by the resignation of the Hon. E. Portman.

—— The Prizes offered last year by the Royal Horticultural Society for British Herbaria have now been awarded, and 26 Silver Medals are to be distributed for the best collections from as many counties of Great Britain and Ireland. Gold Medals for the best out of the several county collections have been assigned to Dr. St. Brody (Gloucestershire), Mr. Joshua Clarke (Essex), and Miss Lydia E. Becker (Lancashire); and the Gold Medal offered for any new species found wild in the United Kingdom has been awarded to Mr. Joshua Clarke for Erucastrum inodorum. The locality where this was found, was a large heap of sand from a railway cutting through a chalk hill, between Saffron Walden and Warden. A few plants of the Erucastrum, with hundreds of Erysimum cheiranthoides, were found apparently wild on this sand-heap. Mr. Berkeley regards it as merely a form of Brassica Erucastrum, and quite as much entitled to be considered indigenous as many other plants admitted into our Flora, though probably accidentally introduced in the first instance.

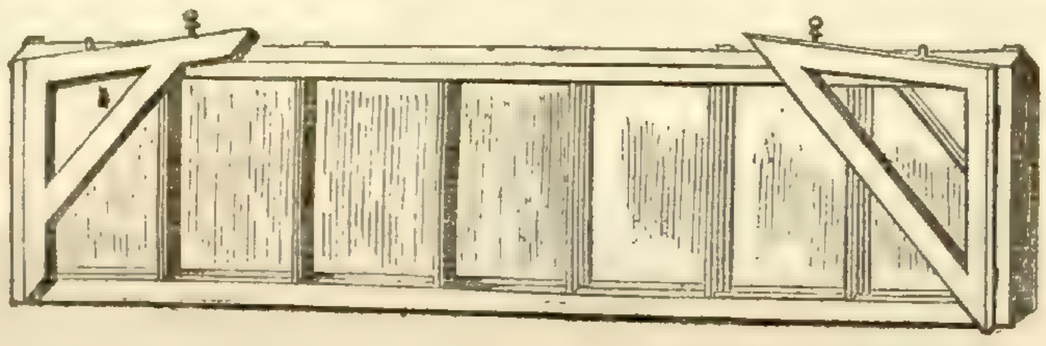
—— In digging up a border at Kew a few days since, one of the workmen met with a bright yellow powdery substance in some abundance, which was mixed up with the sandy soil, and covered the roots of a little shrub. At first sight it seemed to be something quite new. At least nothing of the kind had ever occurred in such a situation, but on close examination it was clear that it was the Sepedonium mycophilum, in a very anomalous position. As the Fungus is parasitic, it became an object of interest to see to what it owed its origin, and on cutting into the lumps of soil little brown leathery particles were observed, which on examination were found to be filled with the oblong spores of some Boletus. The riddle therefore was solved. From accidental circumstances the Boletus had never burst through the soil, and the parasite was developed in a subterranean position. When occurring in its ordinary condition on Boletus, it is generally accompanied by a very disagreeable smell; but, as the specimens in question are perfectly inodorous, the odour must be due to the decaying Fungus rather than the parasite. *M. J. B.*

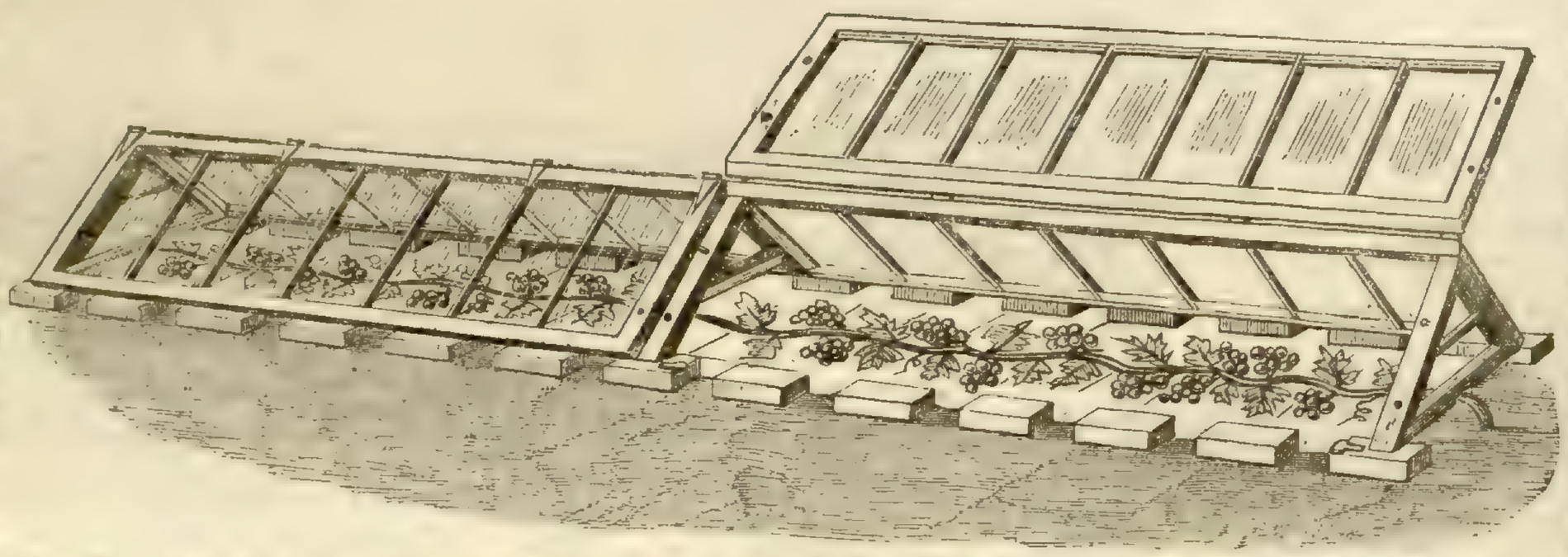
—— We regret to have received intelligence from Berlin of the death there, on Saturday last, of Sir Robert Schomburgk, lately her Majesty's Consul at Bangkok, and celebrated for his travels and scientific investigations in South America.

—— It will be seen by an advertisement in another column that the Weymouth and Dorset Horticultural and Floricultural Society contemplate offering this season a prize for Roses, value 20 guineas, to be called the "Radclyffe Prize." Schedules, it is stated, will be ready by the 10th of May. Let us hope that Rose growers generally will ably support this Society in its laudable endeavour to do honour to a name justly great among Rosarians, not only in Dorsetshire, but elsewhere; and that a large and fine exhibition may be the result of so liberal an award.

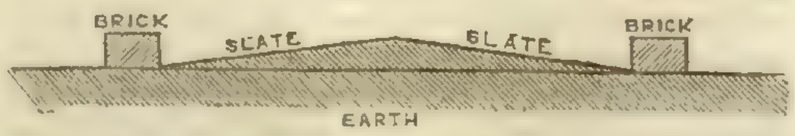
GRAPES FOR THE MILLION.

An ingenious contrivance, called Wells' Portable Folding Ground Vinery, with slate bottom, on which Grapes are grown and ripened in the open air, without the aid of artificial heat, has just been submitted to our inspection. By the annexed representations it will be seen that it closely resembles Mr. Rivers' Curate's Vinery; but it is an improvement on that form of case, inasmuch as one side is hinged at top and moveable, thereby enabling cultural operations to be performed under more advantageous circumstances than when the whole case has to be moved in order to inspect the Vines. When not in use, owing to the ends folding on to the side frame as they do, the whole can be stowed away into a comparatively small space. It may, in fact, be folded together perfectly flat, one Vinery, consisting of two lengths of 7 feet each, occupying a space of only 7 feet long, 21 inches wide, by 9 inches deep, and may be placed in any outhouse or shed, or under the stage of a greenhouse, until wanted again in the spring; or it may be advantageously used for protecting young crops during winter, or for raising early Peas, French Beans, &c.





A Vine is intended to be planted at one end of each Vinery, which is made about 14 feet in length. Slates



slightly raised in the middle form a dry clean bed, along which the Vine is to be led horizontally; and in order that there may be plenty of ventilation, the framework is to be set on bricks placed at certain distances apart for the ingress of air. This contrivance, the end of which is an equilateral triangle about 21 inches in the side, occupies, as will be seen, little room, and can be managed perfectly without a gardener. It is intended, in short, to assist amateurs with but a few square yards of ground to grow their own Grapes. Strong Vines planted now in them will, it is stated, ripen fruit next autumn of a size, colour, and flavour, equal to those of hothouse Grapes, *i. e.*, provided the season is favourable.

Concerning contrivances of this sort, Mr. Rivers says:—"I feel I ought to tell my readers the perfect success of my Ground Vineries this season (1864). In four of them are growing four varieties, one in each Vinery, viz., Trentham Black, Black Hamburgh, Buckland Sweetwater, and La Bruxelloise. On these four Vines are 100 bunches, their berries now (August 10) swelling rapidly. The only culture they have had has been taking off about half the number of bunches they produced, thinning the berries, and stopping the shoots: no syringing, no watering, has been required; and not a red spider or any other blight is to be seen." Mr. Wells states that he has himself produced on an average 20 bunches, fully ripe, in each of his Ground Vineries, during the autumns of 1863 and 1864, with no other attention than that mentioned in this quotation. One Vine alone yielded 40 bunches.

The advantages which are claimed for these Vineries are as follows:—1st, they are so made that one side can be opened and laid flat on the other, exposing the whole of the interior at the pleasure of the cultivator; 2d, they are extremely portable, six Vineries when folded together forming a square of the same area as one Vinery when open.

Examples may be seen at 25, Bishopsgate Street Within.

MR. W. PAUL'S LECTURE ON SPRING FLOWERS,

Delivered at South Kensington March 21, 1865.

The subject which has been proposed for my Lecture, and which I readily accept, is the Cultivation of Spring Flowers. There is so much poetry in those words—Spring Flowers, that I find it difficult to refrain from indulging a sentimental mood. The first flowers of the garden and the first warblings of the grove, are inspiring themes to the dullest fancy, and to the least sensible of the stirring of the poetic muse. I am bold to confess this, undaunted by the recollection of the sensations of Hamlet and Horatio in their midnight watch on the platform before the Castle at Elsinore—

Hamlet. The air bites shrewdly—it is very cold.
Horatio. It is a nipping and an eager air—

undaunted too by what our great humourist, Hood, has said in his poem on Spring:—

"Come, gentle Spring; ethereal mildness, come;
Oh! *Thomson*, void of rhyme as well as reason,
How could'st thou thus poor human nature hum—
There's *no* such *season*.

* * * *

Let others eulogise her floral shows,
From me they cannot win a single stanza;
I know her blooms are in full blow,—and so's
The Influenza.

Her Cowslips, Stocks, and Lilies of the Vale,
Her honey-blossoms that you hear the bees at,
Her Pansies, Daffodils, and Primrose pale—
Are things to sneeze at.

* * * *

In short, whatever panegyrics lie
In fulsome odes, too many to be cited,
The tenderness of Spring is all my eye,
And *that* is *blighted*.

Now, I am not disposed to quarrel with the poet for drawing so desolate a picture of an English spring; on the contrary, in his facts and fancies I think I find powerful reasons for the extensive cultivation of spring flowers. Our gardens *may be* decorated and enlivened, our hearths and halls perfumed and adorned by the grateful odours and brilliant tints of early flowers.

Spring flowers are not cultivated so extensively as they should be in English gardens. There is no reason that is, why our gardens should be so bare and desolate as they generally are in spring. Every country mansion which is tenanted in the early months of the year might have a garden of gay spring flowers exclusively, or one in which they were largely combined with evergreens—green, variegated, and berry-bearing. Such a garden should partake of the romantic and picturesque—wood and water, rock and dell—rather than of the trim and formal. I would gather the Primroses, Violets, and other hedge and wayside flowers, and intermix them with such exotics as flower in spring, and are found suitable to our climate out of doors. There may be reasons, however, why it is not desirable to give up a portion of the garden for the exclusive use of spring flowers. Be it so. There is still no reason why spring flowers should not be abundantly cultivated. They may be planted in the ordinary beds of the flower garden and removed when the season arrives at which it is customary to plant out Pelargoniums, Verbenas, and other summer and autumn-flowering plants. Or they may be planted in front of the evergreen beds or borders which exist in most flower gardens, and thus the general garden will be made gay and interesting in spring as well as during the other seasons of the year.

For the sake of convenience in the discussion of this subject, as well as to assist the memory in the recollection of details, I propose to arrange "Spring Flowers" under two heads:—1st, *Hardy Spring Flowers*, or such as bloom naturally out of doors in the months of February, March, April, and May. And 2ndly, *Greenhouse and Hothouse Spring Flowers*, or such as bloom naturally at the same season, but require the protection of glass.

Of flowers which bloom naturally out of doors in spring, Bulbous plants form a very important class. Of these the Crocus, Snowdrop, Snowflake, Scilla, Hyacinth, Tulip, and Narcissus take the highest rank. Their culture is simple. They may be planted in beds or borders in the garden out of doors late in autumn, and prefer a rich loamy soil. They should be set so far beneath the ground, say from 4 to 6 inches, as to be beyond the reach of the winter's frost, and if the weather prove more than commonly severe an additional covering of loose straw is no bad contrivance to secure efficient protection. Bulbs or bulbous plants thrive best under this peculiarity of culture; they should be taken from the ground in summer so soon as the flowers and leaves are completely decayed, dried in the sun, laid up in a dry room or storehouse, and replanted again in the course of the autumn months.

The Hyacinth has already been made the subject of a lecture. I need not therefore refer again to that.

Crocuses and early single Tulips have been greatly improved of late. Those who are not acquainted with the modern kinds will be surprised and delighted with their increase in size; and the colours are now exceedingly varied, rich, and splendid. The Narcissus known as Gloriosa is also a valuable addition to spring flowers on account of the large handsome heads of white and yellow blossoms which it produces, and the Narcissus minor and N. Bulbocodium are also beautiful plants of lowly growth.

Another important variety of spring flowers exists among what are commonly termed "perennials or herbaceous plants." The Alpine Auricula, Polyanthus, Alyssum, Saxifraga granulata, Cheiranthus Marshallii, Iberis, Primrose, Hepatica, Pansy, Daisy, Violet, Forget-me-Not, Anemone, and others too numerous to mention, are of this class. These plants are not generally particular as to soil, provided it be not too moist. They are usually allowed to remain permanently in the ground unless it is wished to increase their number, when the roots are taken up and divided shortly after the flowering season; some may also be propagated by cuttings, others by seeds. The single Anemone, which, judiciously treated, becomes one of the most beautiful spring flowers, thrives wonderfully from seed. If sown in spring, on a bed of light earth, the seeds barely covered with sandy peat, a gorgeous crop of flowers of rich, brilliant, and varied hues will adorn the garden in the following spring. The Alpine Auricula, the Polyanthus, the Primrose, and the Pansy, may be treated in the same way, the last-mentioned succeeding admirably from cuttings also

There are some beautiful varieties of Pansy in use at the gardens at Cliveden, the seat of the Duchess of Sutherland, of various clear and decided colours, which are invaluable as spring flowers on account of their hardy nature and profusion of bloom. Nowhere has spring gardening been carried out with so much spirit, perseverance, and success, as in the extensive and beautiful gardens just alluded to, where, under the able management of Mr. Fleming, the usual gay scenes of summer, with their odoriferous accompaniments, are realised in early spring. Mr. Fleming's admirable little book, "Spring and Winter Gardening," in which his practice is clearly and pleasingly detailed, and of which I am informed a new and enlarged edition will shortly appear, is well worthy of study by those who may wish to enrich their gardens with fresh stores of spring flowers.

Again, hardy annuals and biennials, which are usually sown in spring to flower in summer, may be sown in autumn to flower in spring. A host of valuable spring flowers is derivable from this source at a small cost of money and labour. The Wallflower, Honesty, Candytuft, Catchfly, Erysimum, Gilia, Iberis, Nemophila, Saponaria, and Virginian Stock are amongst the hardiest and best for this purpose; but the number and variety may be considerably increased and extended. These may be sown in August where intended to grow and flower; or if the soil is loose or the situation damp, such conditions being unfavourable to their preservation during winter, it were better to sow on solid soil in a moderately dry place, and transplant the seedlings early in spring.

The plants we have spoken of hitherto are of lowly growth, but the most effective of spring flowers are found among hardy ornamental trees and shrubs. We have to search the garden for the tiny Violet and Lily of the Valley, the Snowdrop, the Primrose, and the Hepatica; these are lost to the heedless many, who know not how much modest beauty waits to be wooed in its retirement. But the larger forms of vegetable life cannot be so passed by. They rise before us, confront us at every step, and prefer their claims with an eloquence and power that few can resist.

The most conspicuous of spring-flowering trees and shrubs are the different varieties of Almond, Mespilus, Laburnum, Cherry, Peach, Pear, Plum, Whitethorn, Horse Chestnut, Magnolia, Tree Pæony, Flowering Currant, Lilac, Cydonia, Mahonia, and double-flowered Furze. And this enumeration, large as it is, by no means exhausts the catalogue of spring-flowering trees and shrubs; it merely gives examples of what are intended to include the most desirable. The Almond is one of the most beautiful of spring-flowering trees, it blooms so early and profusely. It is free, hardy, and accommodating withal. Even London, with its limited list of "acclimatised" trees, may justly reckon the Almond among the number. The Laburnum, with its long racemes of golden blossoms, is equally hardy and beautiful. The Horse Chestnuts, both scarlet and white, are noble trees. But the most important of spring-flowering trees are the varieties of Whitethorn and double-blossomed Peach, and if these were more generally known, I have no doubt they would be more extensively planted. Not only our gardens but our shrubberies and parks are open to great improvement by the free introduction of trees like these, and but few soils are of such a nature as to preclude their cultivation. In a general way, these trees should be allowed to take their natural growth, or at most be but balanced in growth by encouraging or checking a weak or rampant shoot occasionally. In special instances, where artificial forms may be desirable, Cydonias, Ribes, Lilacs, and the like, may be trained with round heads on stems, or as pyramids.

I must pass on to the second part of my subject, to speak of those plants which bloom naturally under glass in spring. We find here an entirely different assemblage, a gayer and more brilliant order of beauty. For the most part they are natives of warmer climates, and the flowers are of larger size, and endowed with richer tones of colour.

Glass structures intended for spring-flowering plants should be built as light and airy as possible. The colours of flowers depend so much on light, that the lighter the structures in which they are grown, the brighter and stronger will be the colours; and it is scarcely less important that the structures be well ventilated. There is much moisture in the air in spring, the damaging effects of which, in excess, is best counteracted by securing a free circulation of air.

The Cyclamen is one of the chastest and sweetest of spring-flowering plants. Some of the species are hardy, but I prefer to treat the whole as greenhouse plants. The best mode of increasing them is by seeds, which should be sown in June, or so soon as the seed is ripe, in soil composed of about equal parts of loam and sandy peat. Place them in a cold pit. In September the seedlings may be transplanted into single pots. They should retain their leaves through the first winter, and be gradually brought to rest when about 12 months old. The greater part will flower during their second spring.

The Camellia, of which there are endless varieties, stands forth prominently among spring flowers. The Rose is universally acknowledged the Queen of Summer, and I think we may justly call the Camellia the Queen of Spring. Whether we consider the symmetry of its rich and delicate blossoms, or the deep massive green of its expansive leaves, from either point of view it is a lovely plant. In the climate of Angers, in the west of France, the Camellia is treated as an out-of-door plant. There, in the nurseries of M. Leroy, thousands are planted in the open ground, receiving as protection in winter nothing but a slight thatch of reeds. I have seen it in this country thriving well, trained against a wall, but it is more satisfactory to grow it under glass in the temperature of a cool greenhouse. It may be planted out there, or grown in pots. The soil should be composed of equal portions of rich loam and sandy peat. Weak liquid manure is an excellent stimulus during the season of growth and flowering, enriching the colour of the leaves, and increasing the size and beauty of the flowers. Whether planted out, or grown in pots, a little warmth, a moist atmosphere, and plenty of moisture at the root are desirable during the season of growth. This period over, abundance of air should be given, or better, the plants, if in pots, should be re-potted and placed out-of-doors on the north side of a hedge or wall, where the morning sun only can reach them. On the approach of autumn (September) the plants should be reconveyed to the greenhouse. The most vigorous and healthful Camellias I ever saw were in the gardens of Oulton Park, when under the care of the late Mr. Errington, who informed me that he watered the plants half the year with guano water. The flowers and leaves were of prodigious size and substance, and the latter as dark in colour as those of the Portugal Laurel.

I shall never forget the impressions I received from a visit to the Messrs. Loddiges' Camellias at Hackney some 20 years ago. I am almost afraid to say what I believe, that some of the plants were 30 or 40 feet high, the branches thickly interwoven and bending beneath the weight of thousands of gorgeous blossoms. The ground beneath was thickly strewed with the fallen flowers, producing a complete carpet of richly variegated colours. Blackbirds, thrushes, and other song birds built their nests among the branches, flitting hither and thither, delighting the ear with their varied melodies, the scene reminding one of the grandeur and beauty of a tropical forest.

The Indian Azalea is another spring-flowering plant of rare beauty, which, like the Camellia in one respect, merely requires protection from frost in winter. At Digswell Rectory, near Welwyn, a plant of the white variety lived in the open air through several winters. No one who has attended the flower-shows of this metropolis—for which our country still stands unrivalled and alone—can fail to have remarked the rich and varied masses of colour which the Azalea presents to the eye. Azaleas are of easy culture. Grafted plants are best. The soil they prefer is sandy peat, which should be firmly pressed in well-drained pots. A moderately close, warm, moist atmosphere during the season of growth assists in the formation and setting of the flower-buds. Azaleas are best placed out of doors and slightly shaded from the sun during the summer months. A minute insect, the thrip, is a great pest to this plant, and requires checking by the frequent use of tobacco smoke.

In addition to these we have Heaths and Epacrises, which delight in a peaty soil, and require careful watering and little heat; Acacias, Correas, Cytisuses, Veronicas, and sundry stove and greenhouse plants; and last though not least, many rare and beautiful Orchids. The latter are usually made the object of special culture, and their high prices have hitherto kept them in comparatively few hands. Their culture is not, as is supposed by some, difficult; and as they become more plentiful they will doubtless enter largely into the purposes of in-door spring gardening. There remain under this head certain Annuals not sufficiently hardy to endure the winter out of doors, but which if sown in May, June, and July, and grown under glass, will bloom freely and beautifully during the spring months. Such are the Chinese Primula, the Cineraria, the Petunia, Schizanthus, Stock, Mignonette, and the like.

In conclusion, I would venture a few remarks on the art of Forcing. Although all forced flowers are not *naturally* spring flowers, they are made so by the art of the cultivator, and enter so largely into the decoration of our conservatories and halls at that season that we cannot possibly overlook them.

The art of "forcing" consists in accelerating the period of perfection of fruits and flowers. The practice is simple, but nevertheless requires an amount of knowledge, care, and watchfulness, which thoroughly test the capabilities of the cultivator. By forcing, the fruits which ripen naturally in autumn are brought to perfection in spring and summer; the flowers of summer are induced to bloom in winter and in spring. Here, as with spring flowers, the glass-structures should be as light as possible. A low night temperature should also be insisted on. Plants unduly excited or overworked by a high temperature during the day require the restorative of periodical rest, and this is best provided for by a low night temperature. A difference of 15° or 20° between the maximum of day and night temperature is seldom too much. The syringe must be used freely every morning and evening when forcing, in order to prevent the exhaustive effects of hot dry air; and the quantity of water sprinkled over the plants and house must be greater during sunny than cloudy days, and in proportion to the increase of temperature. It is well to lower the temperature of the forcing house when the plants have arrived at that stage of development at which the flower buds begin to colour. The period of expansion is of course retarded by this practice, but then the flowers are much better developed, and the colours are stronger.

A great deal might be said on the preparation of plants for forcing. Those of us who are accustomed to deal with plants in this way know well that we may change the flowering season of almost any plant. For instance, the Rose, which naturally *blooms* in summer, and *rests* in winter, may be made to *rest* in summer and *bloom* in winter. By a long-continued course of systematic treatment the seasons may be completely reversed. Cold and drought are the agencies by which we effect this; and in the absence of the one we may accomplish the end in view by the use of the other Plants have two periods of rest, night and day, and summer and winter; and a plant that is made to rest in summer will surely work out its course by blooming in winter. It is worthy of further remark that a plant if removed from the open ground and forced one year, and then returned to its former position, will bloom at an earlier period than its fellows which may have been left undisturbed, so great is the force of habit, even among plants. On these grounds then is the practice of forcing based.

I have only to enumerate a few plants which experience has shown to be well suited for the purpose of forcing:—Amaryllises, Crocuses, Hyacinths, Tulips, Lily of the Valley, Fuchsias, Pelargoniums; Azaleas, especially the Ghent varieties; Deutzias; Red and White Dwarf Almonds; Double White and Double Pink Japan Cherry; the Double-blossomed Cherry, Plum, Peach, and Thorn, in their kinds; Lilacs, Kalmias, Prunus trilobata, Rhododendrons, Roses, Syringas, and Viburnum plicatum.

Such of these plants as are grown in the ground out of doors should be transplanted from the ordinary nursery rows one year before they are required for forcing. This will induce the emission of fibrous roots below, and the formation of flower-buds above ground during the following summer. Late in October dig up the plants, pot them, and place them in the forcing-house early in December. Every successive year less heat will be required to bring them into full bloom at a given date, or if the same amount of heat be applied they will be brought into bloom at an earlier period.

I add a brief synopsis of the most interesting and attractive spring flowers, many of which have, however, been already alluded to in this paper:—

I. For Out-of-door Culture.—*Bulbs:* Crocus, Crown Imperial, red and yellow; Cyclamen Coum and vernum; Dog's-tooth Violet, lilac and white; Fritillaria Meleagris; Hyacinths, garden varieties; Muscari botryoides and pallida; Narcissus, Ranunculus, Scilla, Snowdrop, Snowflake, Tulip. *Perennial or Herbaceous Plants:* Alyssum saxatile and variegatum; Anemone, garden varieties, also A. nemorosa flore-pleno and Pulsatilla; Arabis, several sorts; Aubrietia deltoidea and purpurea; Caltha palustris flore pleno, Cardamine pratensis flore-pleno, Cerastium tomentosum and Biebersteinii, Cheiranthus Marshallii, Corydalis nobilis, Daisies, Dielytra spectabilis, Epimedium rubrum and others, Forget-me-Not, Gentians, Helonias bullatus, Hepaticas, Iberis sempervirens, Lily of the Valley, Pæonia tenuifolia, single and double; P. albiflora in varieties; Pansies, Orobus varius and vernus, Omphalodes verna, Polyanthuses, Primroses, Phloxes, Polemonium Richardsoni, Pulmonaria virginica, Saxifrages, Sanguinaria canadensis, Vinca elegantissima, Violets, and Winter Aconite. *Biennials:* Eschscholtzia crocea, Honesty, Wallflower. *Annuals:* Candytuft, Catchfly, Collinsia bicolor, Erysimum, Forget-me-Not, Gilia, Limnanthes Douglasii, Lupins, Nemophila, Saponaria, Silene, and Virginian Stock. *Shrubs and Trees:* Almonds, Berberis Darwinii, Cherries, Cydonias, Deutzia gracilis, Ericas, Double Furze, Horse Chestnuts, Lilacs, Mahonia japonica, Magnolias, Mespilus, Mezereon, Peaches, Pears, Pernettya, Plums, Rhododendrons, Ribes, Skimmia, and the Thorns.

II. For In door Culture.—*Bulbs:* Those already mentioned, to bloom at an earlier date. *Plants requiring the protection of an ordinary Greenhouse:* Acacia, Azalea indica, Camellia, Daphne odora rubra, Epacris, Heath, Pæonia Moutan, Primula denticulata, Rhododendron, Richardia æthiopica, and Salvia gesneriflora. *Greenhouse Annuals:* Calceolaria, Cineraria, Petunia, Primula sinensis, Mignonette, Schizanthus; Intermediate, Brompton, and Queen Stock. *Stove Plants:* Allamanda cathartica, Begonia fuchsioides and incarnata, Clerodendron splendens, Dipladenia crassinoda, Franciscea confertiflora and eximia, Gardenia radicans, Gesnera cinnabarina and refulgens, Ixora coccinea, and Monochætum ensiferum. *Orchids:* Cœlogyne cristata, Cattleya Mossiæ, Skinneri, and others; Cypripedium caudatum, villosum, and others; Dendrobium densiflorum and D. nobile, in variety; Lycaste Skinneri, Odontoglossum Pescatorei, Phalænopsis grandiflora and Schilleriana; and Vanda insignis.

Home Correspondence.

Small Birds.—The destruction of the young buds on Gooseberry and Currant trees by sparrows at this season may be easily prevented by means of the following simple and inexpensive remedy:—When the gardener prunes the trees, let him take a reel of common black sewing cotton, and lace it backwards and forwards and across in all directions amongst the twigs: this effectually keeps the birds off. I have adopted the plan for several years with success, and have found it a great protection to young Peas. *E. R.*——Both Mr. Ingram and your correspondent "J. F." are, I think, far too lenient towards that audacious little rascal, the house sparrow. I don't object much to any of the other small birds, although we cannot keep fruit here without netting it; neither do I mind a few sparrows, for I like to see and hear them; but it is the large number that is so annoying. Scarcely anything seems to come amiss to the sparrow in the way of food, or materials for building its nest; for here, as with Mr. Ingram, he begins feeding upon the Peas from the time they are out of the ground till they are fit to gather. Next to them comes Beet, which he will entirely eat up if left alone; then Lettuce, Spinach, and Endive—I should not have had any of the last three fit for use for the last two summers if they had been left to the mercy of sparrows. I have now a bed of Endive with scarcely a leaf on it, and Spinach and Lettuce nearly as bad; even the tops of the Cabbage leaves and Broccoli have been attacked this winter. Generally I find that white cotton drawn from one side of the piece of ground to the other, and placed from 12 to 18 inches apart, and a few inches above the ground, keeps them away; but sometimes this fails. Also a sprinkling of soot, as long as it adheres to the leaves. My experience is the same as that of "J. F." with regard to Gooseberry and Currant buds; the bullfinch takes the Gooseberry in preference to the Currant, but the sparrow takes whichever is most convenient to get at. Sparrows are also almost as troublesome in the flower garden as in the kitchen garden. In winter and spring, Pinks and similar things are often quite spoiled by them. Last June I had some beds of Verbenas, Nierembergias, and Petunias nearly destroyed just after they were planted out by those pests. They took the tops away wholesale to build their nests with; they also almost stripped the Gazanias of their leaves. *J. Bryan, Heydon House, Royston.* [If country sparrows are bad, we fear London sparrows are worse.]

Duchess of Buccleuch Grape.—I purchased one of the "21*s.* planting canes" of this Vine, which was growing in an 8-inch pot. Instead of planting it out I forced it in the pot, and it has now on it three bunches 15 inches long, set and thinned. The Vine showed seven bunches at first, but wishing to see what it would prove to be, and to give it as fair a chance as possible, I reduced them to three. I have no hesitation in pronouncing this to be one of the best new Grapes lately sent out. Even if plants that are offered as fruiting plants at 42*s.* had yielded such a crop I should have been well satisfied, but that such a small Vine should do so is surely worth notice. *R. N., Aswarby Park Gardens, Falkingham.*

The Weather.—The thermometer in my garden, placed 1 foot above the surface of the ground, stood at 17° this morning at 6 o'clock; it is one of Negretti and Zambra's best instruments. Another thermometer on a wall sheltered from the wind, and 5 feet from the ground, stood at 19° at the same hour. We have not had the temperature here so low at this date within the last 25 years. *Henry Doubleday, Epping, March* 21.

Royal Albert and Champion Hamburgh Grapes.—I cannot conceive on what grounds Mr. Poynter considers these two kinds of Grapes to be identical, for in my opinion no two varieties can differ from one another more than they do. Champion Hamburgh, or, as it is sometimes called Black Champion, is well known to be an early Grape, producing a rather thin and delicate

lent, which often turns yellow before the fruit becomes ripe. On the other hand, Royal Albert is a very strong grower, making large dark green foliage, which it retains until long after the fruit is perfected; it requires some two months longer to bring its fruit to maturity than any of the Hamburghs do. As to the introduction of this variety to Kent's Green, I beg to reiterate that it was through Mr. Jones it was sent there in the year 1840; it was planted out in 1841, and produced its first fruit, one small bunch, in 1842. I can also inform Mr. Poynter that Mr. Collins never grew Champion Hamburgh during the 20 years he was gardener at that place. *John R. Cox, Gardener, Crown East Court.*

Chinese Silkworms Feeding on Oak Leaves.—The China Correspondent of the *Times* of Feb. 16, states that the silkworms at Newchwang feed on Oak leaves instead of the stereotyped Mulberry, and naturally produce a much coarser thread; but the Chinese utilise it to a considerable extent. It is intermixed with cotton, and used for fabricating silk cloth of a rough texture. Two crops are produced—the latter of which is taken to the coast in the early part of November, shortly before the navigation is closed by ice. Of the quantity produced accurate information has not been obtained, but it is evidently considerable. From one valley, which is however one of the most productive, about 80 cartloads are taken away annually; each cart carries 10 baskets, which each contain about 15 cubic feet; that would give about 12,000 cubic feet of loosely piled cocoons from that one valley. The production in the whole region could, it is said, be quadrupled in a few years if the entering of foreigners into the trade should give sufficient inducement to the cultivators. Mr. Major, the manager of Messrs. Jardine Mathieson's silk factory at Shanghae, is of opinion that, notwithstanding its coarseness, the silk could be used with advantage in manufacturing the coarser kinds of silk in Europe. The yield is infinitely less; inasmuch as 20 lb. of cocoons only give 1 lb. of silk, against 5 lb. or 6 lb. which are reeled from a similar quantity of Chinese cocoons. It is then suggested that the Newchwang worm might serve another useful purpose,—namely, to strengthen and restore the breed, which, in Europe, is almost, if not quite, lost, and in China is greatly deteriorated. Mr. Major has had much experience in silkworms both in Europe and China, he having been engaged in silk farming in the south of Italy many years before he went to the East, and his opinion that a cross between the Newchwang worm and that of China and Europe might be effected with advantage, is therefore worth consideration. Kang-ni, the second Emperor of the reigning dynasty, appears to have made the first experiment of feeding silkworms on Oak leaves, about 200 years ago; and specimens of the cocoons obtained are to be seen in the Museum of the Chamber of Commerce at Lyons at the present day, having been sent home by the Jesuit missionaries, who, under that Emperor, gained so prominent a position in China. It is evident that since then the worm has thriven and multiplied. The fact, then, that a species of silkwork in China feeds on the leaves of an Oak, though of much interest, is not altogether a novelty. But what is the Oak? and what is there known of the Chinese and Japanese Oaks? Among Mr. Fortune's plants sold by auction last year were some pretty half-evergreen Oaks, said to be Japanese, but they also come from China. *G., Feb.* 16.

Forcing Memoranda, February, 1865:—

	Cold of Night.	9 A.M.	Heat of Day.	9 P.M.	Wind at 9 A.M.	Hours of Sun.	Remarks.	First Vinery. Morning.	Noon, with air.	Evening.	State of Crop.	Second Vinery. Morning.	Noon, with air.	Evening.	State of Crop.	First Peach House. Morning.	Noon, with air.	Evening.	State of Crop.	Second Peach House. Morning.	Noon, with air.	Evening.	State of Crop.
1	35	38	40	45	S.W.	0	Dull.	60	68	64	Size of Peas, thinning, and in Flower.	58	66	60	Coming into Flower.	52	63	53	Size of Robins' Eggs.	48	60	50	Swelling off after Setting.
2	38	40	40	52	S.W.	2	Hazy.	60	70	64		58	68	60		51	65	52		48	61	49	
3	34	34	38	45	W.	0	Foggy.	62	70	64		58	68	60		50	64	54		50	62	51	
4	32	35	38	32	S.W.	0	Frosty.	60	69	64		57	67	60		51	63	54		49	60	52	
5	30	31	33	30	N.	0	Snow.	63	68	64		59	68	60		52	64	55		50	60	53	
6	30	30	41	37	S.W.	0	Foggy.	62	68	64		60	67	59		53	65	54		51	62	52	
7	36	44	44	39	W.	3	Hazy.	60	69	64		58	66	60		51	65	54		50	63	54	
8	31	40	40	34	N.	0	Frosty.	60	68	64		57	68	60		52	58	55		50	62	53	
9	32	35	43	33	N.	3	Frosty.	60	69	64		58	67	59		52	65	56		50	63	55	
10	30	34	42	29	S.W.	5	Bright.	60	70	66		60	68	62		53	65	54		52	62	54	
11	26	31	40	25	S.E.	5	Bright.	64	75	66		60	72	64		50	75	55		49	75	55	
12	25	29	36	33	S.	0	Dull.	62	70	66		58	68	62		53	70	55		50	68	54	
13	30	32	35	32	N.	0	Snow.	63	72	66		59	68	62		53	68	54		50	66	55	
14	21	29	42	21	N.	6	Bright.	60	78	66		58	76	62		48	75	55		48	75	55	
15	16	20	39	23	S.W.	6	Bright.	60	80	66		58	76	62		54	80	54		50	80	52	
16	21	31	41	33	S.W.	3	Snow.	64	84	66		60	80	62		54	83	54		50	83	53	
17	23	30	51	34	N.	0	Snow.	62	80	66		58	76	62		53	83	54		50	83	52	
18	28	36	50	42	S.W.	0	Rain and Snow	63	80	66		59	76	63		54	82	54		50	82	54	
19	33	37	43	30	S.W.	0	Rain and Snow	63	78	65		59	76	62		53	73	55		52	70	53	
20	29	32	45	30	N.	5	Windy.	63	82	65		59	78	61		54	82	55		50	80	54	
21	28	35	39	35	S.	0	Cloudy.	63	74	66		59	70	62		52	62	55		50	62	54	
22	33	42	51	42	S.W.	0	Cloudy.	66	76	65		62	72	61		52	70	54		50	70	54	
23	43	48	56	46	S.W.	0	Cloudy.	66	78	67		62	76	62		54	74	58		50	75	56	
24	45	46	50	37	N.W.	0	Mild.	60	78	68		60	76	60		52	75	54		52	72	54	
25	32	36	52	35	N.W.	7	Bright.	66	80	70		64	80	58		52	83	54		50	80	54	
26	33	40	49	47	S.	0	Dull.	64	75	67		58	70	62		50	64	55		52	65	55	
27	30	37	49	45	N.	0	Foggy.	64	78	67		62	76	62		56	75	55		50	74	54	
28	43	47	54	42	S.W.	3	Hazy.	66	75	69		64	70	64		55	75	55		54	74	54	

J. Miller, Manor Gardens, Worksop.—March 1.

Societies.

Royal Botanic: *March* 18 (*First Spring Show*).—Notwithstanding the unusually cold weather which we are still experiencing, an excellent display of spring flowers was produced on this occasion. Hyacinths were contributed in large numbers and in particularly fine condition, especially the collections from Mr. Wm. Paul, of Waltham Cross, the fine growth and fragrance of which justly excited the admiration of all who saw them. From Messrs. Cutbush also came a large assemblage of these favourite flowers, in addition to which Tulips, Roses both cut and in pots, Cyclamens, Camellias, Cinerarias, Primulas, and miscellaneous stove and greenhouse plants were contributed in tolerable abundance. Her Royal Highness the Princess of Wales honoured the exhibition with her presence just before it was thrown open to the public.

Of Hyacinths Mr. William Paul contributed upwards of 100 potsful, chiefly well-known kinds; among them, however, we noticed Lord Palmerston, a charming greyish-blue sort with a white eye, and King of the Blues, both comparatively new and fine varieties. Of Duc de Malakoff, orange buff and red; Feruk Khan, deep plum with a fine metallic lustre, in the way of Prince Albert; Florence Nightingale, red and white; and Köning von Holland, buff, we noticed some extremely fine examples. Among white varieties the most conspicuous were Queen of the Netherlands, Mont Blanc, and Alba maxima. The best yellow was decidedly Ida, of which there were several well grown plants. A collection of 12 varieties shown by Mr. Paul was quite unique of its kind, the spikes of bloom being magnificent, both in regard to size and brilliancy of colour. They consisted of Van Speyk, Grand Lilas, and Garrick, pale blues; King of Blues, dark and beautiful; Prince Albert, nearly black; Grandeur à Merveille and Tubiflora, cream-coloured sorts; Von Schiller, Solfaterre, and Macaulay, belonging to the red, or red-striped class; Ida, yellow; and Alba maxima, white. Messrs. Cutbush's 12 kinds consisted of Le Prophète and Florence Nightingale, striped pink; Marie, blue; Mimosa, dark plum; Snowball and Mont Blanc, white; Baron von Tuyll, Grand Lilas, and Garrick, blue; Von Schiller and Macaulay, red; and Emmeline, delicate pink. In addition to these Messrs. Cutbush also contributed a collection of 100 potsful, which, though inferior to Mr. Paul's, were nevertheless good examples of bulb cultivation.

Of Hyacinths from amateurs the best came from Mr. Young, gr. to R. Barclay, Esq., who had, among others, Queen of the Netherlands, white; Ida, yellow; Princess Clotilde, red; Argus, a fine blue with a white eye; Howard, red; Madame Van der Hoop, white; Sultan's Favourite, red and white striped, all in excellent condition. Mr. Wheeler, gr. to Sir F. H. Goldsmid, Bart., also contributed. It may be remarked that, with the exception of Lord Wellington, a fine blush kind, large and full, we did not observe double-blossomed varieties in any of the collections shown on this occasion.

Early Tulips were furnished by Messrs. Cutbush and Mr. Wm. Paul. Among the different sorts the most conspicuous were Keizer Kroon, red and yellow; Proserpine, rose; Couleur Cardinal, crimson; Roi Pepin, clear red and white; Archduc d'Autriche, in the way of Keizer Kroon, but smaller; Cerise Gris de Lin, lilac rose, edged with yellowish white; white Pottebakker, Tournesol, and Vermillon Brillant. A group of Early Tulips also came from Mr. Young.

Roses in pots were exhibited in fair condition, considering the sunless and cold season we have had, by Messrs. Paul & Son. Among them were President, Devoniensis, Lefèbvre, and Madame Falcot, the last an improvement on Safranot; the most conspicuous of all, however, was John Hopper, rich in colour, large and fine, and evidently a valuable kind for early forcing. Some fine cut blooms were shown by Mr. W. Paul, among which were Lord Macaulay, Senateur Vaisse, Gloire de Dijon, and others.

Of cut Camellias several boxfuls were shown, in which were many fine blooms. They came from Messrs. Lee, Mr. William Paul, and Mr. Williams. Among the different varieties we noticed Belle Jeannette, red faintly striped with white; Maria Teresa, Marguerite Gouillon, Montironi, La Reine, Contessa Mastiani, and Passiana, all pale-coloured kinds; Optima and Caryophylloides, both good carnation-striped sorts; Feasti, Eximia, and Sarah Frost, all reds; Elegans, large and charmingly mottled with white; and Jenny Lind, a good white kind. In the Amateurs' class Mr. Trussler, Mr. Todman, and Mr. Todd contributed good boxfuls of blooms. Of Camellias in pots, some fine plants were furnished by Mr. Bull, who had among others Mrs. Abbey Wilder, Raffia, and Valtevaredo, all fine varieties. Mr. Wheeler also showed plants in pots.

Collections of flowering and fine-foliaged plants were exhibited by Mr. Williams, Mr. Wheeler, and Mr. Young. In Mr. Williams's group were beautiful examples of Dracænas and Variegated Yuccas, of which he is stated to have one of the best collections in the kingdom. Plants in flower consisted chiefly of Azaleas, Imantophylium miniatum, Hedaromas, Deutzia gracilis, Thyrsacanthus rutilans, Epacrises, Cytisus, and Amaryllids.

From Mr. Bull came a valuable collection of Aucubas, consisting chiefly of kinds already noticed by us; also Aglaonema commutatum in fruit; the Fern-like Cupania undulata, and other interesting plants. Messrs. Veitch again showed their fine new Rhododendrons Princesses Helena and Alexandra. From Messrs. E. G. Henderson came an interesting collection of Cyclamens, various kinds of Aucuba, and Rudgea leucocephala, a handsome plant, with ample deep-green leaves, and terminal clusters of pure white blossoms.

Mr. Laing, nurseryman, Twickenham, showed three plants of the common spotted-leaved Aucuba japonica, loaded with fruit, not the little abortions that have hitherto now and then been detected on plants of this Aucuba, but fine clusters of bright coral-coloured berries, each as large as the hip of a Dog Rose. This we learn is the result of crossing the plants in question with the male Aucuba introduced by Mr. Fortune. To Mr. Laing, therefore, belongs the credit of being the first to show what can be done in this way with our common garden plant in this country, and for the achievement he received, as he well deserved, a Silver Medal.

Among other subjects of exhibition were several collections of Chinese Primulas, among which a rosy-salmon-coloured kind called carminata splendens deserves attention on account of its colour; some well-flowered Cinerarias came from Mr. Weatherill, and Crocuses, Narcissi, and Lilies of the Valley from Mr. Wm. Paul; these were all well grown and flowered.

A list of prizes awarded on the occasion will be found in our advertising columns.

Royal Horticultural: *March* 21.—The newly-instituted fortnightly meetings, on the plan adverted to by us the other day at p. 219, bid fair to be as successful at South Kensington as those of Regent Street were in days gone by. On the present occasion not only were considerable numbers of highly interesting subjects exhibited, but the attendance of visitors was unusually large. The excellent way in which the proceedings were conducted, too, must have been highly gratifying to all true lovers of horticulture. In the first place, the Rev. Mr. Dix pointed out the different objects to which Certificates had been awarded. The Rev. Mr. Berkeley then gave a short discourse on what presented itself of interest in a botanical way. Mr. Bateman alluded briefly to two cut spikes of Dendrobium shown by him, one the well-known D. densiflorum, the other the new D. luteolum, which he said was not less remarkable for the beauty of its pale primrose-coloured flowers than for the length of time they remain in beauty. Mr. William Paul then gave a very interesting Lecture on Spring flowers, which will be found at p. 268.

The following candidates were elected ordinary Fellows, viz:—

Mrs. G. Arbuthnot, Mrs. F. C. Burnett, J. Cater, Esq.; Mrs. Dickinson, Mrs. Field, T. B. Hall, Esq.; J. King, Esq.; H. Kopke, Esq.; Major W. Martin, Major H. N. Pedder, Mrs. T. Pocock, Mrs. Pym, J. Searight, Esq.; Mrs. F. Squibb, Mrs. Tyler, S. Vaile, Esq., and J. Scott, Esq.; and as a Corresponding Member, Thos. James Ladd, Esq., Wellington, New Zealand.

March 21 (*Floral Committee*).—Mr. Williams furnished Dracæna limbata, Yucca quadricolor, Imantophyllum miniatum, and a nice collection of Side-saddle plants. Mr. Parker had the handsome pale blush-flowered Rhododendron Countess of Haddington. Mr. Green, gr. to W. Wilson Saunders, Esq., a beautiful dwarf horseshoe-marked South African Pelargonium, the Gladiolus-like Diasia iridifolia, and other interesting plants. From Messrs. Windebank & Kingsbury of Southampton, came fine Chinese Primulas, both single and double, raised from seed, as noticed at p. 244. Messrs. Veitch contributed a large collection of plants, among which were Lycaste Skinneri, an extremely fine plant of Cephalotus follicularis, the white-blossomed Cytisus filipes, Azalea Queen Victoria, Rhododendron Princess Helena, Lomaria L'Herminieri, the fronds of which when young are of a beautiful red colour; the ivory-white flowered Cymbidium eburneum; a red

blossomed Siphocampylus; and Urceolina aurea, with handsome green leaves, and yellow blossoms tipped with green. From the same establishment also came the Tree Fern, Dicksonia Youngii, the singular Anthurium Scherzerianum, with brilliant scarlet inflorescence, various Lady's Slippers, Acacias, and Epacrises, and a handsome-leaved species of Peperomia. From Mr. Bull came a variety of Elæagnus japonica, with leaves handsomely margined with golden yellow; a curiously crested variety of Nephrodium molle; Arisæma ringens purpuratum, Lomatia elegantissima, and a splendid example of Imantophyllum miniatum, remarkable for the size and deep colour of its flowers, the result of cool treatment. Mr. Earley, Digswell, sent a box of spring flowers.

Awards.—First-class Certificates were given to Urceolina aurea, Rhododendron Princess Helena, Siphocampylus sp., Dicksonia Youngii, and Lomaria L'Herminieri, from Mr. Veitch; to Brahea dulcis and Lomatia elegantissima, from Mr Bull; to Primula sinensis Glen Eyre, Stewartii, and kermesina splendens plena, from Messrs. Windebank & Kingsbury; and to Dracæna limbata from Mr. Williams. Second-class Certificates to Arisæma ringens purpuratum and Elæagnus japonica aureo-marginata, from Mr. Bull. Third-class Certificate to Peperomia sp., from Mr. Veitch. Special Certificates to Cephalotus follicularis, Cypripedium Lowii, and a collection of flowering plants, from Mr. Veitch; to a collection of Primula sinensis from Messrs. Windebank & Kingsbury; to Sarracenias from Mr. Williams; to a collection of plants from Mr. Green, gr. to W. Wilson Saunders, Esq; to Dracænas, Imantophyllums, &c., from Mr. Bull; and to Cut Spring Flowers from Mr. Earley, gr. to F. Pryor, Esq.

March 21 (*Fruit Committee*).—Some very fine Muscat of Alexandria Grapes, still in good preservation, came from Mr. Tillyard, gr. to J. Kelk, Esq.; various Apples from Mr. Ingram and others; and a valuable hardy-looking seedling Apple, named Lord Burghley, from Mr. House, of Peterborough. To the last a Certificate was awarded.

A collection of Vegetables, consisting of Celery, Onions, Beet, Endive, Mustard and Cress, and blanched Chicory, came from Mr. Earley of Digswell.

Though unconnected with the meeting just reported, it may be mentioned that in an enclosed compartment at the top of the Eastern Arcade, there is now on view a continuous exhibition of Spring Flowers, from Mr. Wm. Paul, of Waltham Cross. It consists of Rhododendrons and other forced shrubs, arranged with much taste, and so intermixed with spring bulbs and other interesting plants as to have a gay and striking effect. So fine a display of floral beauty during this cold snowy weather is a sight not to be overlooked, and is one which we are sure must be appreciated by all lovers of gay flowers.

Liverpool Hyacinth and Spring Exhibition: *March* 15.—The Spring Exhibition of this Society, held in St. George's Hall, was, we have no hesitation in saying, the finest Spring Exhibition yet seen, and we heartily wish so grand a display could be got together in London. The Hall itself is of great extent and beauty, and admirably adapted to the purposes of a flower show, and when lighted up in the evening, the Hyacinths, Tulips, Azaleas, and Rhododendrons had a brilliant appearance. Upon one side were massed the Azaleas, whose rich and varied blooms would, perhaps, have been set off to better advantage could some green foliage have been introduced as a background; but want of space prevented this. On the other side were the Rhododendrons and various Greenhouse plants. Down the centre ran three lower tables, upon which were placed the smaller kinds of flowers. These were well arranged for effect. The long lines of upright formal Hyacinths were divided by pots of Mignonette, and the bright colours of the Tulips were relieved by more sober tints. On each side of the entrance to the Crown Court baskets of plants, large flowering greenhouse and hardy plants, and a pretty lot of standard Roses were grouped, and round the lower part of the organ gallery were arranged the bouquets. A new feature in the arrangements was the introduction of a number of suspended baskets filled with flowers and plants, which had a very pretty effect.

There was a sharp competition in Hyacinths; and as the entries were numerous in most of the classes, and many of the collections so evenly balanced, the judges, Mr. William Paul and Mr. William Dean, had no easy task. In the classes for nurserymen, Messrs. Cutbush & Son, of Highgate, led the way, but it is only due to the Liverpool nurserymen to say that their growth was better than last year. Some of the amateurs would, if showing in the same classes, compel Mr. Cutbush to go in full strength another year, for Mr. Cahill and some of the other growers in the Amateurs' Class showed remarkably fine lots. In fact, the growth this year showed a marked advance over that of last year, and that is matter for much congratulation.

In the Class for 24 Hyacinths (Nurserymen), Mr. Cutbush took 1st and 2d prizes, and Mr. George Davies, Liverpool, 3d. In the first lot were Von Schiller, Alba maxima, Grand Lilas, Macaulay, very fine; Princess Charlotte, fine; Marie, a very fine single blue; Le Prophète, fine single blush pink; Queen of the Netherlands, a very fine white; Charles Dickens; Garrick, double blue with fine spike; Princess Clotilde; Haydn, very fine spike, the best of the mauve colours; Bleu Aimable, a very fine bright shaded single violet; Argus, in fine character; Florence Nightingale; Marie Cornelissen, a decided beat on Emmeline; Baron von Tuyll, Mont Blanc, a superb white; Snowball, with a beautiful close spike and very large bells finely formed; Mrs. Beecher Stowe; Van Speyk, the best double blue; Grandeur à Merveille; General Havelock, very fine; and Mimosa, not often seen so good as this. In the second lot were Lord Wellington, double blush, very fine; La Dame du Lac; Macaulay, very fine; Lina, well-coloured and fine; Marie, again very fine; Mont Blanc, most superb; Gigantea, fine spike, but narrow in petal as usual; Lord Palmerston, a fine new-shaded light blue; Emmeline; Le Prophète, extra fine; Laurens Kostar, Florence Nightingale; Von Schiller, and Haydn. In the third lot were Koh-i-Noor, Von Schiller, Van Speyk, Ida, very fine, the best of the yellows; Howard, fine colour, but narrow petal, good close spike; Nimrod, Violet Amiable, Mirandoline, a good single white; Prince of Orange, a shaded single pink with fine spike; and other kinds. An extra prize in this class was awarded to Messrs. Thomas Davies & Co., in whose collection were fine examples of Louis Speyk, a very promising single blue, with large bell and close spike; Margo, a new single blue, resembling Grand Lilas, but the bells hang irregularly; Duc de Malakoff, orange and pink, first-class and distinct in colour; Gen. Havelock; Baron Rothschild, very like Lina, with long spike, but having a crumpled appearance as shown; and Celine, deeper in colour than Lina, but thin and narrow.

For 12 Hyacinths (Nurserymen), Messrs. Cutbush & Son were placed 1st with Seraphim, Mont Blanc, Gen. Havelock, Princess Clotilde, Baron von Tuyll, Argus, all fine; Von Schiller, extra fine; Princess Clotilde, beautifully soft in colour and very close spike; Marie, S. B., very fine; Queen of the Netherlands, Grand Lilas, and Charles Dickens. 2d, Mr. Thos. Gray, West Derby, with Ida, Argus, Charles Dickens, Cavaignac, and Grandeur à Merveille, all very fine; Nimrod, very fine spike; Fleur Parfait, Alba maxima, Norma, Baron von Tuyll, Amy, fine in colour; and Madame Hodson. 3d, Messrs. Cutbush & Son, whose best were Lady Sale, Haydn, Emmeline, Argus, Howard, Mimosa, Princess Clotilde, and Mont Blanc. Extra prizes were awarded to Mr. George Davies, in whose lot Mirandoline, Macaulay, Ida, and Lord Wellington, were all fine; also to Messrs. Thomas Davies & Co, who had Leonidas and Baron Rothschild in their collection.

In the class for Gentlemen's Gardeners and Amateurs, there was some close fighting, especially in the sixes. In that for 18 sorts: 1st, Mr. Cahill, gr. to William Roskell, Esq., with Howard, in very fine character; a superb Mimosa, Lord Macaulay, extra fine; Charles Dickens, Von Schiller, with a magnificent spike; La Nuit, Grandeur à Merveille, Mirandoline, Alba maxima, Emmeline, Gigantea, Fair Maid of Denmark, Couronne de Celle, Prospero alpina, Baron von Tuyll, Koh-i-Noor, very fine; Grand Lilas, and Queen of Hyacinths. These were well grown; in fact, at present Mr. Cahill stands in the first rank as a grower. 2d, Mr. Hignet, gardener to Charles Rowe, Esq., with Gigantea, Charles Dickens, Queen of Hyacinths, Van Speyk, Grandeur à Merveille, very fine; Koh-i-Noor, Grand Lilas, Alba maxima, Ida, Baron von Tuyll, Mimosa, Florence Nightingale, which is not the same as Mr. Cutbush exhibits under this name, and is inferior to it; General Cavaignac, very fine; General Lauriston, an old but little known single blue; Mont Blanc, Belle Quirine, Von Schiller, and Lord Wellington, double blush. 3d, Mr. Cahill, with Koh-i-Noor, Baron von Tuyll, Orondates, S.B., Grand Lilas, Florence Nightingale, Unica spectabilis, Mont Blanc, Sultan's Favourite, Ida, Alba maxima, Duc de Malakoff, Mirandoline, Howard, Bleu Aimable, Le Prophète, General Havelock, Queen of Hyacinths, and Mimosa. Extra prizes were awarded also to Mr. Sorby, gr. to E. Zwilchenbart, Esq., in whose lot was a very fine General Pelissier, the deepest red of all Hyacinths; Koh-i-Noor, very fine; Noble par Merite, a very beautiful double blush, deeper in colour than Lord Wellington; and to Mr. Griffiths, Fairfield, in whose collection Bleu Aimable, Susanna Maria, Cosmos, and Argus, were all fine.

In the class for 12 the competition was very close, and Mr. Williams, gr. to C. Mozley, Esq., led with an unusually fine Cavaignac; Van Speyk, very fine; Von Schiller, extra fine; Madame Van der Hoop, unusually fine; La Dame du Lac, Ida, Queen of Hyacinths, La Tour d'Auvergne, unusually fine; Baron von Tuyll, Alba maxima, Grand Lilas, and Lord Wellington, double blush. 2d, Mr. Dunbar, gr. to C. Braun, Esq., with Mimosa, Van Hookbakken, a large and loose semi-double pale blush; La Dame du Lac, Laurens Kostar, Grandeur à Merveille, Baron von Tuyll, Princess Charlotte, Ida, Grand Lilas, Von Schiller, Von Speyk, and Lord Wellington. 3d, Mr. Wilson, gr. to J. E. Reynolds, Esq., whose Grand Lilas, Garrick, Mont Blanc, Cavaignac, and Von Speyk were all fine. Extra prizes were awarded to Mr. Cahill, who had Frederick the Great, a semi-double pink striped kind; Princess of Wales, evidently the same as La Dame du Lac; Bleu Aimable, very fine indeed, and Queen of Hyacinths, all very fine. Also to Mr. Turner, gr. to William Preston, Esq., who had a novelty in Grande Vainqueur, double white, but, as shown, no acquisition.

In the Class for 6 Hyacinths, the judges were obliged to place Mr. Cahill and Mr. Fleming, gr. to S. M. Mellor, Esq., equal 1st, by throwing the first and second prizes together to be divided; and Mr. Williams and Mr. Turner, gr. to E. Bates, Esq., were in the same way placed equal 3d, by dividing the combined third and fourth prizes. Extra prizes were also given to Mr. Hignet and Mr. Wilson. The competition in this class was severe, and in the different collections we noticed as very fine—Lord Macaulay, Ida, Von Schiller, and Victoria Alexandrina, a good bright single red.

Polyanthus Narcissi were not so well grown as last year. There was a large display of Tulips; Messrs. Cutbush & Son having the classes for double and single Tulips to themselves in the Nurserymen's Class. Amongst Doubles, the best were Duke of York, Golden Tournesol, Imperator Rubrorum, and the well-known Tournesol and La Candeur. In Single Tulips, the best were Rouge Eblouissante, shaded pink and white, of fine form and dwarf; Cottage Maid; Proserpine, an extra fine pale rose-coloured Tulip: Queen of Violets, soft lilac, fine form and dwarf; Duc de Guillon, Grand Duc, Keizer Kroon, Roi Pepin, Cramoisi Superb, White Pottebakker, and Vermillon Brillant, of which there was a large display.

Some excellent Rhododendrons were shown, and a bank of Azaleas was much admired. For 6 Azaleas, Mr. Sorby, gr. to E. Zwilchenbart, Esq., took 1st and 2d prizes for some superbly flowered dwarf plants; and in the Class for 3 Azaleas, Mr. Williams, gr. to C. Mozley, Esq., took the lead with fine plants. Some good Camellia blooms were shown, especially Mathotiana, fine red; Princess Bacciocchi, a thick-petalled dull red flower, of fine form; Il Montironi, delicate blush, of exquisite form; Lowi, one of the best imbricated kinds; Targioni, a very fine large-petalled, tinged white, of fine form; and Jubilee. Mr. Meredith had Black Alicante Grapes in fine character, and there was a good display of bouquets, greenhouse and hardy plants in full bloom, and many things worthy of notice.

The Committee, headed by Mr. Tynan, the chairman, and Mr. Ker, the secretary, deserve all praise for so successfully carrying out the exhibition; and we understand about 250*l.* was taken for admission.

Notices of Books.

Le Jardin Fruitier du Muséum. By Prof. Decaisne.

(*Continued from p.* 152.)

Pêche Pucelle de Malines.—Leaves serrated, glandless; flowers large; fruit middle-sized or large, depressed globular; skin thin, highly coloured next the sun, whitish on the shaded side; flesh yellowish white, rayed with deep red at the stone, from which it parts freely, excepting occasionally a few slightly adhering fibres, melting, very juicy and sugary, and rich. Ripe 10th to 20th of August in France, end of August and commencement of September in Belgium [and about the latter period in England]. The tree is subject to mildew. The fruit must be gathered before it is too ripe, otherwise it becomes mealy. It is said to have been raised at Mechlin by Major Espéren. [By its leaves, flowers, and fruit it most resembles the Madeleine de Courson (the Red Magdalen of Miller). It differs from the Royal George in having large instead of small flowers. Like the latter well-known Peach it has serrated leaves and highly coloured fruit; and Peaches having these characters, such as the Royal George, Royal Charlotte, and Red Magdalen, are, like the Pucelle de Malines, subject to mildew; but it is not more so than others of its kindred. It is a fault inseparable from the class. Nevertheless we cannot for that fault dispense with the varieties of this class, of which the excellence in other respects has been so long established—during several generations of the present dynasty, and long before in France. Besides, it is a fault which can be remedied, unquestionably, if checked in time; or if the mildew cannot be effectually cured after it once makes its appearance, its very appearance can and should be prevented, if due precautions be taken.]

Pêche Pavie de Bonneuil.—Syn. Bonneuil de Fontainebleau. Leaves deeply serrated, glandless; flowers large; fruit middle-sized, roundish, greenish white; a clingstone; flesh white, tough, very sweet, but with little flavour. It does not ripen in the climate of Paris and against a wall before the end of October or beginning of November, and then it may be kept for a considerable time in the fruit room. It is therefore only fit for a very hot southern climate. [Quite out of the question for England; although it might be useful in some parts of the Colonies which are too hot for the freestone or melting Peaches.] The tree continues to vegetate very late in autumn.

Poire Mussette.—Fruit small, or middle-sized, long, like a horn, straight or crooked; stalk short, or none; skin yellow. Flesh white, juicy, crisp, sweetish, astringent. Season, beginning of August. It was described by Dom Cl. Saint-Étienne in 1670; and notwithstanding its inferior quality it is still sold in great quantity in Paris. Prévost gives it erroneously the name of Musette d'Anjou, which belongs to a totally different variety.

Poire Sucrée de Montluçon.—Fruit large turbinate, broad and flat at the eye, which is deeply sunk in a regular cavity; stalk moderately thick, and about 1½ inch long; skin yellow, sprinkled with reddish dots, and specks more or less coloured. Flesh melting, sugary, rich with slight perfume, and a Crassane flavour. A very good fruit. Professor Decaisne says he is indebted to M. Joseph Grandin of Montluçon, a very intelligent amateur, for a knowledge of this excellent Pear. The tree which produced it appears to have been observed about the commencement of the present century by a person named Rochet, and propagated under the name of *Sucré Vert*, for which another gardener substituted very properly that of Sucrée de Montluçon, The tree is excessively vigorous; and its productiveness is unequalled. M. Grandin sent several of the fruits in 1862, and they were nearly as large as finely grown Duchesse d'Angoulême Pears.

Poire Jansemine. — Syn. Canette de Boucouge, Jeannette, Mouille-bouche (of some). Fruit small or middle-sized, roundish, pale green. Flesh half melting, rather gritty, otherwise a good early Pear, ripening in August. The tree is vigorous, and a great bearer; but notwithstanding this, on account of its grittiness, it cannot be recommended; and there are many better, also good bearers, which ripen at the same season.

Poire Defays.—Syn. Doyenné Defay. Fruit middle-sized, roundish, with projections surrounding the insertion of the stalk; skin smooth, yellow, washed with orange red next the sun. Flesh very white, fine, melting, sugary, perfumed but not musky. A very good fruit, adds Professor Decaisne. It was discovered in 1837 by F. A. Defays, at Champs Saint Martin, near Angers. The name is Defays, and not Defay, as it is usually written.

Poire d'Ange.—Syn. Ange d'Eté, Desse, Notre-Dame, Petite Verdette. Middle-sized, turbinate; stalk long, rather slender; skin green, sprinkled with grey dots. Flesh greenish white, juicy, but very gritty; juice sugary and agreeably perfumed. Season, August or September. A very good fruit, [but its grittiness is an objection]. The flesh of the Poire d'Ange usually presents a singular character at its extreme maturity, that of becoming very brown without softening and keeping thus for several weeks; its flavour is then like that of baked Pears. Prof. Decaisne believes that a Pear cultivated in Lombardy, and in Venetia, under the name of Pera Morota should be made synonymous, judging from the form and the character which it presents at maturity. The Poire d'Ange is met with in several of the small provinces near Paris, such as that of the Orléanaise; in Brie and in the Hurepoix it is called Muscat Vert, Petite Mouille-Bouche, and at Orleans, P. Desse, or P. Dosse. The French authors, Merlet, Duhamel, Noisette, and others, regard it as a variety of the Salviati.

Poire de Marsaneix.—Fruit small, round, or Bergamot-shaped; stalk long, slender; skin covered with cinnamon-brown russet, like the Rousselet de Quessoy. Flesh breaking, juicy, very granular. A stewing Pear. Season, end of December. The following information has been furnished by M. le Comte d'Abzac de Ladouzet, and by M. de Lamothe, Secretary to the Horticultural Society of Périgueux:—

"This Pear originated in a parish in the canton of St. Pierre, called Marsaneix, from which it takes its name, situated in a woody country about 10 miles from Périgueux. The tree is very hardy, and bears abundantly in the open country, but it is generally grafted in hedges on the common Hawthorn (Cratægus

Oxyacantha), in order to draw some profit from the enclosures, which are also made to produce some other fruits, such as Medlars, &c. Under these conditions the Pear-tree in question does not grow high, and it does not last much more than 20 years; but it is easy to replace it by grafting on the Thorn as before, and this can be done at little expense, and the produce is comparatively abundant. This mode of turning the hedges to account is much employed in the Périgord. Many kinds of Pears succeed very well grafted as above, but none are long-lived. The Poire de Marsaneix is now found in great quantities near Périgueux, being considered, for our climate, the best kitchen Pear, and there are some connoisseurs who possess recipes by which these Pears when cooked are rendered truly delicious." [Pears may be grafted on the White Thorn without injuring the hedge as a fence, if due precautions are taken. The top of the Pear tree should be commenced immediately above the height determined for the hedge, and the branches of the Pear should be pruned so as not to overhang the top of the hedge. If this be done, and the sides of the hedge dressed sloping, both Pear-tree and Thorn-hedge will grow, without the former destroying the efficiency of the latter.] ‖

Garden Memoranda.

Laeken, the country Palace of the King of the Belgians, is situated about three miles from Brussels. It is a plain building, but is said to be elegantly furnished. It was built for the Austrian Governor of the Netherlands before the French Revolution, and is famous as being the place where Napoleon planned his disastrous Russian campaign. It is reached from Brussels by a road lined with tall Lombardy Poplars, called the Allée Verte, and is situated on a considerable eminence. The approach to the Palace is through a handsome pair of iron gates. A circular piece of Grass, with a basin about 50 feet in diameter, having a large jet in the centre, is encircled by the carriage drive to the front entrance; and on the left of this is the walk leading to the pleasure garden, which is laid out in an irregular form with large masses of such plants as Kerria japonica, Pyrus japonica, Lilacs, Laburnums, and many other large deciduous flowering shrubs.

In this garden is placed the Orangery, a building about 200 ft. long by 30 ft. wide; with a dark roof, and admitting light only by the front sashes, the back and ends being of brick. It is heated by four large upright stoves, and contains about 100 Orange trees, many of which are of large size, but none of them in robust health. Most of the trees are very old, and trained much in the same way as those at Versailles. Interspersed among the Orange trees are many fine and extra large-sized specimens of the Sweet Bay in good health, and some few trees of the Pomegranate.

A walk to the west of this leads to a mixed garden of fruit trees and flowers. The beds for flowers are cut out on the Grass, and Standard Pear and other fruit trees are arranged by the sides of the Grass paths and between the flower beds. The effect of this arrangement, however, is not good. This garden was doubtless originally a kitchen and fruit garden, as many of the old standard fruit trees remain, although now quite worn out. The flowers generally consist of herbaceous plants and annuals, amongst which some very large masses of Dielytra spectabilis are conspicuous.

A walk through the centre of this garden leads to the plant houses, consisting of two stoves and an Orchid house. The stove plants are allowed to grow together in the wildest confusion, and exhibit no attempt at good cultivation. They consist of Franciscea, Euphorbias, Allamandas and such like, with a few succulents. The Orchid house contains some Cattleyas and Vandas, with Stanhopeas, Maxillarias, Phaius Wallichii, and many other inferior things; but like the stove plants indicate a total absence of good cultivation. Two pits for Pines and a small pit for half-hardy plants make up the remainder of the glass houses. Adjoining this is a kitchen garden of about an acre. This, however, we suppose, could not have been the only kitchen garden belong to the establishment, but was the only one we saw.

The park adjoining the Palace is extensive and laid out with much skill; we believe by the late Mr. Macintosh when gardener to his Majesty the King of the Belgians, at Claremont. This beautiful park is open to the public on certain days. A Gothic memorial church is being erected to the late Queen of the Belgians, at a short distance from the Palace. There is also a cemetery here wherein lie interred the remains of the celebrated Madame Malibran. *E.*

Miscellaneous.

The Currant Grape.—The isles of the Ionian Sea, once known as the Republic of the Seven Islands, and the neighbouring coasts, are renowned more for their bountiful supplies of the useful dried Currant than for rich or mellow wine. This article of domestic import, the staple of modern Greek commerce, is the fruit of a species of Vine bearing so close an affinity and resemblance to the ordinary Grape plant, as to deserve a passing notice. In form, leaf, size, and mode of growth, to the eye of the casual observer it presents little or no apparent difference, its berries growing in similar bunches, which look exactly like miniature Black Grapes. The word Currant is a corruption of Corinth, from which once-celebrated Grecian city they were first imported, and it has similarly impressed its name for the fruit on most European languages. * * * The Currant Vine is an exceedingly tender plant, requiring the greatest care in its cultivation; yet in the end it well repays the cost and patience bestowed upon it. It is extremely fastidious in its selection of the soil and temperature suited to its growth, and its after development is so slow, that for six years it bears no fruit at all, and does not yield a full crop before the 15th season. It thrives best on the southern shores of the gulfs of Corinth and Lepanto, and on the ancient Peloponnesus. The only other places where Currants will grow are three of the more fertile of the Ionian isles, for they resist every attempt at transplantation in other countries of similar temperature or latitude. In Sicily and Malta the cuttings passed into the ordinary Grape, and in Spain they would not take root at all; even at so short a distance as Athens recent similar and persevering attempts signally failed, yet the fertile and lovely island of Zante is nearly buried in the profusion of its innumerable plantations. *Denman's Vine and its Fruit.*

Preservation of Pollen.—M. E. Faivre calls attention, in the Bulletin of the Horticultural Society of the Rhone, to a new case of the preservation of the property of fecundation in dried pollen. It is clearly a matter of considerable interest that we should have the power of impregnating plants with strange pollen conveyed from a considerable distance. Pollen of Gesnera cinnabarina was gathered at Lyons on the 5th of January, 1862, and was kept in paper for a year, free from moisture and not exposed to the light. In January, 1863, some grains were employed for the impregnation of G. cinnabarina of the same variety as that from which the pollen was derived, and succeeded perfectly. The remaining pollen was then sent in a letter to Paris, and being submitted to an attentive examination, we doubted for a moment of its fitness for the purpose, as the grains were wrinkled and dry. They swelled with difficulty when placed in water, and the substance which came from them in consequence of their rupture, did not exhibit the strange molecular movement which takes places in normal pollen. On the second of April, however, notwithstanding our apprehension, some of the pollen was used in the Jardin des Plantes by the head-gardener, M. Ouley, and the operation was perfectly successful. On the 17th of April many ovaries had set, and their development proceeded regularly. It was intended to try the pollen a third time last year, but it does not appear with what result. *La Belgique Horticole.*

Calendar of Operations.

(*For the ensuing week.*)

The cold north-easterly winds, frost, and snowy showers which we are now experiencing have had the effect of keeping blossom buds comparatively safe within their winter coverings. Increased sunshine in the middle of the day will, however, doubtless soon induce them to unfold. Plenty of mats, canvas, and other materials for all purposes of protection should therefore always be at hand, in order that they may be ready in cases of emergency.

FLOWER GARDEN AND PLANT HOUSES.

Show houses should now be gay with Camellias, spring bulbs, and other early flowering plants. Stock exhausted by forcing should be placed in a pit or frame by itself to regain its lost vigour. A bottom heat of 80°, with frequent syringings, will in due time restore it to perfect health and put it in proper order for another season.

Camellias.—Keep such as are making growth well syringed; they should not have much air given them at present. Should black-fly appear on the young shoots, which sometimes will happen, a good syringing with tobacco water will soon destroy it.

Cinerarias.—Remove to a cool shady house such as are required for a late display. Weak liquid manure may now be given liberally, say two or three times a week. Look well to seedlings, and select such as have the most circular outline and well defined colours, and place them apart from the more common kinds, for seed.

Pelargoniums.—Tie and regulate the shoots according to previous instructions. Midsummer and late-flowering plants, and also seedlings, will now require attention; let each shoot be tied to its proper place, and everything in the way of crowding the plants should be avoided.

Pinks.—The effect of frosty winds is already in some instances becoming disagreeably apparent. The plants having been firmly pressed in the soil, and the beds top-dressed, little remains to be done for some time. If, however, the weather continues dry, a good watering on a mild morning will prove of advantage.

Tulips.—Protect the best bed with canvas, Frigi Domo, or mats, while unfavourable weather lasts. Stir the surface between the bulbs as soon as it is in the best state for the operation, *i.e.*, between wet and dry.

FORCING GARDEN.

Cucumbers.—Get out successional crops, if not done. Take every precaution to avoid burning at the roots. To this end, when making the hills for them, form a hole three parts the depth of the bed in the centre of each light; half fill it with raw turf chopped slightly, and on this place the compost for the hills. Never finally soil over the beds until all danger from burning is past, and then only half at a time, taking care that the linings are in good order at that period, or an injurious depression of the temperature will suddenly take place. Melons may receive similar treatment.

Figs.—More Figs are lost through drought than by any other evil. A constantly moist state of the soil is indispensable to their success, when confined in boxes or pots. They succeed admirably when a pit of leaves in a state of fermentation can be given up to them. Plunged in a bottom-heat of 70° or 75°, in this way, and allowed to ramble at the root, with close stopping in the wood, and a humid atmosphere of 65° or 70°, they will be everything that can be desired.

Peaches.—Early fruit will in many cases be stoning. Remember that this process will not bear pushing. See that young wood is carefully trained.

Strawberries.—Introduce sufficient plants every fortnight to meet the demand; keep them near the glass; give them all the air possible while in flower; when sufficient are set for a crop, pinch all the rest of the blooms off. Plants that are swelling fruit should be well supplied with manure water.

Vines.—Thinning and shoulder-tying being finished in early Vineries, little is necessary to be done, except to pursue an even course in regard to heat and atmospheric moisture. See that all the principal leaves, on which so much depends, have fair play as to a free exposure to light, and endeavour to prevent their coming in contact with the glass. Follow up stopping, more especially with the grosser shoots, and allow lower branches to ramble a little, to equalise the sap. Late Vines as before; keep the wood moistened at least twice a day.

HARDY FRUIT AND KITCHEN GARDEN.

Asparagus.—In planting this it is of the utmost importance to give every attention to a proper rotation of crops. Where Celery is grown in what are called Scotch beds, the latter make capital Asparagus ground. The preparation consists in trenching it much deeper than the rest, and in manuring heavily.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Mar. 22, 1865, as observed at the Horticultural Gardens

March.		Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth 1 foot deep	Temperature. Of the Earth 2 feet deep	Wind	Rain.
Thurs.	16	18	3 025	29.949	44	23	33.5	42½	42	N.E.	[illegible]
Friday	17	19	29.924	29.903	45	24	34.5	42	42	E	[illegible]
Satur.	18	20	29.970	29.927	42	32	37.0	42	42	E.	[illegible]
Sunday	19	21	29.827	29.735	39	24	3 .5	41½	41½	E	[illegible]
Mon.	20		29.974	29.836	36	21	28.5	41	41	N E	[illegible]
Tues.	21	23	30.015	29.950	42	24	33 0	40½	41	E	[illegible]
Wed.	22	24	29.944	29.913	45	25	35.0	40	41	N	[illegible]
Average.			29.954	29.888	43 3	24 7	34 0	41 3	41 5		[illegible]

March 16—Overcast; sharp frost at night.
— 17—Overcast, dry cold haze, fine; frosty.
— 18—Foggy, overcast, fine, overcast at night
— 19—Overcast and cold; strong, very cold easterly wind; boisterous; frosty.
— 20—Strong frosty N E. wind, fine; frosty at night,
— 21—Dry and frosty, fine, but cold; frosty.
— 22—Cold and dry, dusky white clouds; some granular snow cold frosty wind.

Mean temperature of the week, 8 4-10th deg. below the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 39 years, for the ensuing Week, ending April 1, 1865.

March and April.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain	Prevailing Winds N.	NE	E	SE	S	SW	W	NW
Sunday..26	51.8	32.3	42 0	14	0 17 in	1	7	4	2	5	6	[illegible]	[illegible]
Mon. ..27	54.0	34.8	44.3	13	0 37	2	8	4	2	3	7	11	[illegible]
Tues. ..28	53.3	34.2	43.8	16	0 68	4	7	4	2	4	8	[illegible]	[illegible]
Wed. ..29	53.8	33 6	43.7	12	0.33	2	5	6	3	2	7	8	[illegible]
Thurs. ..30	53.7	31.7	41 2	17	0.50	3	5	6	1	8	4	[illegible]	[illegible]
Friday ..31	54.9	34.1	44 5	17	1 30	3	7	3	3	9	5	8	[illegible]
Satur .. 1	54.9	34.6	44.7	21	0.76	3	8	4	3	5	11	1	[illegible]

The highest temperature during the above period occurred on the 27th, 1830—therm. 75 deg.; and the lowest on the 1st, 1838—therm. 16 deg.

Notices to Correspondents.

Cockroaches in Orchid Houses: *A Beginner.* Search for them at night by candle-light, and destroy all you can get at; also lay some of Chase's Beetle Poison about the house in the parts they most frequent. This, if followed up, will speedily thin their numbers.

Glasgow Horticultural Society. A report of the Exhibition on the 22d is unavoidably deferred till next week.

Lily of the Valley: *W Howard.* Yours are extra fine examples of successful cultivation. Thirty-two sized pots full, bearing a vigorous tuft of healthy leaves, and yielding a score or more spikes of flowers, many of them with 16 or 18 bells on a stalk, leaves very little to be desired.

Pansies: *M N.* You may get very good successional blooming plants by planting single cuttings in thumb pots, placing them in moderate heat, and keeping them well watered and shaded. They must be hardened off into cold frames, after they get established at the root, and may be planted out towards the end of May, being in the meantime shifted into larger pots, and kept in a free growing state.

Sparassis: *Enquirer.* The new British fungus, Sparassis crispus, was found in a Fir wood in Berkshire, not far from the Wellington College. It may be eaten, but is scarcely likely to be found in sufficient quantity to be of much importance. About Prague it is brought to the market for sale, and it is said to be valued in the French provinces bordering on the Rhine.

Strawberries: *P R Z.* Manure water if applied with moderation will be beneficial. One good grower recommends its use twice a week from the time the fruit is set till it begins to change colour; and makes his manure from soot or the dung of sheep or deer, in preference to guano, which rather induces an overgrowth of the foliage. But you must remember it is used quite clear, and so weak as only just to colour the water.

Variegated Holly: *Youell & Co.* Your Seedling Holly, which you describe as a very robust grower, and which you have named Webbiana, is, so far as can be judged without seeing the plant itself, a very fine one; its large broad bold-looking foliage, with well-marked golden marginal variegation and a marbled green centre, being very effective.

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PURE SEED OATS.
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F. W. GRUBE, Secretary to the Flora, Cologne.

BATH and WEST of ENGLAND SOCIETY, for the Encouragement of AGRICULTURE, ARTS, MANUFACTURES, and COMMERCE. Established 1777.
Patron, H.R.H. The PRINCE of WALES, K.G.
HEREFORD MEETING, 1865.
President: The Rt. Hon. Lord TAUNTON.
The ANNUAL MEETING, 1865, will be held at HEREFORD on the 5th, 6th, 7th, 8th, and 9th of JUNE NEXT.
PRIZE SHEETS for STOCK and POULTRY; and REGULATIONS for IMPLEMENTS, ARTS, LACE, and HORTICULTURE are ready.
Applications to be made
For Stock and Implements, to the SECRETARY.
For Poultry, to Mr. S. PITMAN, Taunton
For Arts, Manufactures, and Lace, to Mr. R. R. M. DAW, Exeter.
For Horticulture, to Mr. JONATHAN GRAY, Bath.
ENTRIES CLOSE as follow:
STOCK and IMPLEMENTS, 15th April.
POULTRY, 15th May.
ARTS.—Section 1. Pictures, &c., 22d April.
Section 2. Art Manufacture, 15th April.
Honiton Lace work to be delivered on or before 1st May.
By Order of the Council,
HENRY ST. JOHN MAULE, Secretary,
1st March, 1865. 2, Wood Street, Bath.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.
On WEDNESDAY, March 29, at 12 o'Clock, Dr. VOELCKER will deliver a LECTURE on NATURAL DEPOSITS of POTASH in GERMANY. By Order of the Council,
12, Hanover Square, W. H. HALL DARE, Secretary.

Royal Agricultural Society of England.
PLYMOUTH MEETING.
ROYAL AGRICULTURAL SOCIETY of ENGLAND.
MEETING at PLYMOUTH and DEVONPORT, 1865.
Stock and Implement Prize Sheets are now ready, and will be forwarded on application to H. HALL DARE, Secretary.
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The Agricultural Gazette.

SATURDAY, MARCH 25, 1865.

AT the next Monthly Meeting of the Council of the Royal Agricultural Society of England a precedent of the very gravest importance may be established—one which will affect the whole future history and management of the Society; and it becomes the duty of every member of that body to consider well the question which will then come before him for decision. The Committee appointed with reference to the "education of those who are dependent on the cultivation of the land for their support" (the promotion of which is declared by the Charter to have been one of the objects for which the Society was incorporated) have decided by a majority to recommend the Council to give a large sum of money in prizes to the sons of farmers or of members who may pass with credit the examinations annually held by the Universities in different parts of the country in Reading, Writing from dictation, English Composition, Arithmetic, Geography, English History, and the rudiments of Faith and Religion; also another large sum of money to be awarded by the same examiners as prizes to the sons of members or of farmers who shall send in the best papers on Mathematics, Mechanics, Chemistry, Electricity, Magnetism, Light and Heat, Zoology, Botany, and Geology. Their decision professes we believe to have been guided by the conviction that agriculture is no exception among the various arts and occupations of life as to the great professional advantages which attend upon a good general and scholastic education.

It is not at all likely that they will find any one on the Council or any intelligent man elsewhere who will in the least disagree with them on this point. A good school-training will benefit the future farmer as much as it will the future manufacturer. Every person will readily admit the truth of this. The committee will however, we confidently believe, find a large majority of the members of the Society who, notwithstanding this opinion, entirely differ from them as to the policy of appropriating any portion of the funds of the Society in the manner which they recommend.

There is ground in the educational field nearer the completion of the agricultural education, where it is much more certain therefore that any efforts made will have an agricultural effect, on which the Society ought to labour; and it only needs that they require from any candidate for their rewards and honours *here* a certificate that he has creditably passed the University test of a general education in order to gain all that general result which the plan of the Committee contemplates, while the direct professional result of the professional examinations which they might conduct would be so much clear gain in addition.

The case of those who oppose the decision of the Committee is (1) that the Society is a professional body, incorporated for strictly professional objects, and bound to labour with an aim simply towards the profitable (in *every sense* profitable) increase of the agricultural produce of the country—(2) that "the education of those who are dependent on the cultivation of the land for their support," which is named as one of these professional objects, means therefore the professional training of the actual or intending farmer—(3) that in order to promote this professional training, examinations in that "Practice with Science," which is the guiding motto of the Society, should be instituted, and suitable rewards should be offered for those who may pass these examinations with distinction—(4) that in so far as a good general education affects the professional status which alone can properly come under the eye of the Society, it will be promoted by distinctions of this kind attached to the professional standing towards which alone the Society's examinations will be directed—but that (5) if it be considered desirable that the Society should exert any direct influence upon this important preliminary general education, that influence can be exerted with perfect efficiency, and without any expenditure of money, by the simple expedient of requiring from the candidates for the professional distinctions which the Society will grant, a certificate of having already passed the test of a fair general middle-class education.

The whole case is perfectly, and as it seems to us unanswerably presented in Lord FORTESCUE's memorandum on the subject, which was laid before the Council at the last meeting, and which we here republish:—

"The Education Committee, in their report, have proceeded on the principle that it is the duty of the Royal Agricultural Society to encourage general education rather than special agricultural training, or, at least, that they can, with ease and efficiency, do the one, and with difficulty—if at all—effect the other. They accordingly recommend 200*l.*, out of the 300*l.* asked for, to be given in prizes for proficiency shown in general subjects at the examinations held by the two great universities and by the College of Preceptors, but only 50*l.* for special knowledge of any subjects bearing at all directly upon agriculture. I am far from undervaluing the daily-growing importance of the two subjects chemistry and mechanics (including steam machinery) as applicable to agriculture; still, I must remark that they were probably unknown to the honoured pioneers of agricultural progress in this country, whether as regards improvement in stock or improvement in cultivation: I mean such men as BAKEWELL and the late Lord LEICESTER; and I suspect that such subjects have had but little of the personal attention of many of the most successful exhibitors of stock, and of the practical men who have made most money by farming, from the foundation of the Society down to the present time; for both these have generally contented themselves with turning to account, in their own practice, the results worked out by the study and experience of others, instead of personally striving after the acquisition of purely scientific knowledge. I dissent both from the views and recommendations of the committee, and agree with Mr. HOLLAND, who has striven so long, and at such sacrifice of trouble and money, to promote agricultural education, that it is not the business of the Royal Agricultural Society as a society (however much it may be that of its members individually) to promote general education as such, though it is impossible to promote good instruction in agriculture without indirectly giving great practical encouragement to general education among farmers. With Mr. HOLLAND, I consider the encouragement of agricultural studies to be the clear duty of the Royal Agricultural Society—a duty too long neglected perhaps by that most influential body, but a duty which it is not at all too late for it to undertake now, with great credit to itself and benefit to those 'mainly dependent upon the cultivation of the soil for their support;' for I think Mr. HOLLAND has conclusively shown (in his excellent letter of the 18th inst. to Mr. ACLAND), by the example of Cirencester College, that it is a duty, which the Society can, without difficulty, adequately perform, in the same way that it has so long and effectually encouraged improvement in stock, viz., by giving prizes and certificates. The Society has unquestionably at its command the means of establishing examinations comprehensive and searching enough to inspire as much confidence in the fairness of its awards of prizes for agricultural knowledge as it has for excellence in stock. All that it need profess to do is to reward young men for showing proficiency in at least some important branch of agriculture. It would not, of course, profess to do so for complete practical mastery of the whole art of farming with profit. I would add that if, 10 years ago, when middle-class education had attracted scarcely any public attention, the Council had taken the steps which their Education Committee have just recommended, the Royal Agricultural Society would at least have received credit for guiding, instead of merely following, public opinion upon this question, and might have perhaps been pardoned for stepping out of its natural course of duty, in consideration of the apparent hopelessness of getting the needful work accomplished in any other way. But now that both our great universities have (thanks to Mr. ACLAND) undertaken to conduct middle-class examinations—now that the subject of middle-class education has been for more than a year one of the questions of the day, the theme of innumerable speeches, pamphlets, articles in newspapers, reviews, and magazines; now that a Royal Commission has been appointed upon the subject, and that middle-class schools and colleges are springing up in all directions, on every variety of principle, to supply this newly-recognised want, I fear the Council may expose itself to much hostile criticism, both for what the report proposes the Society should do and also should

leave undone—both for the now superfluous support which it is asked to give to the cause of general education, and for its continued neglect appreciably to encourage practical agricultural training. In saying this, I shall hardly be myself suspected of indifference to general education among farmers sons, when it is remembered that, 10 years ago, I, as a private individual, gave a prize of 20*l.* to the Devonshire farmer's son who passed the best examination in the English language, in the history and geography of the British empire, and in practical mathematics; that I was one of the founders, and am now patron of the Devon county-school, which passed a larger number of pupils than any other school at the last Cambridge middle-class examination; and that, next to the repudiation of State aid and State interference in the education of the middle classes, perhaps the point most insisted upon in my pamphlet on 'Public Schools for the Middle Classes,' last year, was the desirableness of education for boys in public schools, and for young men in public colleges, as distinguished from too early an exclusive professional training in exclusively professional institutions."

"*Castle Hill, Feb.* 28, 1865."

It is hardly possible that the concurrence of Lord Fortescue, one of the most earnest labourers in the field of general education, with Mr. Holland, who has longest and most efficiently of any one laboured in the field of professional agricultural education, can fail of influencing the Council aright.

We publish during this and next week letters on this subject from distinguished agriculturists in 18 or 20 different counties, which well deserve the attentive study of those who are interested in this subject. In particular let us refer to one of the last upon the list to-day, written by Mr. Paget, M.P., who may be named along with Lord Fortescue and Mr. Holland as having long laboured most successfully at that union of general and professional education which is carried on under what is called the half-time system.

The Yorkshire papers report an interview between the representatives of the Wakefield Steam Plough Company and the magistrates upon whose report Sir George Grey had issued his order forbidding the passage of locomotive engines on highways, except between midnight and 6 A.M., in a certain district in that county. Although several of those who had signed that report now declare that further consideration of the subject has convinced them of the baseless character of the danger which they had anticipated, yet the Bench generally remained unconvinced that the arrangements offered by the Company for diminishing the alleged danger were sufficient, and refused to interfere for the removal of the order which the Secretary of State had given. It is to be hoped, however, that this difficulty, which otherwise bids fair not only to ruin the Wakefield Steam Plough Company, but altogether to put a stop to steam power on hire for agricultural purposes, may be removed by the passing of the Bill just introduced by Mr. Holland, M.P., into the House of Commons. This Bill, repealing certain sections of the Locomotives Act, 1861, under which the Secretary of State has acted in the recent order he has issued, declares that every locomotive propelled by steam or any other than animal power, to be used by the owner thereof either in his own person or by his servants, on any turnpike road or public highway, shall be worked according to the following rules and regulations:—

(1). At least three persons shall be employed to drive or conduct such locomotive, and if more than two waggons or carriages be attached thereto, an additional person shall be employed, who shall take charge of such waggons or carriages.

(2). One of such persons shall precede such locomotive, and signal the driver of such locomotive when it shall be necessary to stop or slacken the speed thereof, &c.

(3). The drivers shall keep upon the off side of the road, and give as much space as possible for the passing of other traffic.

(4). The whistle shall not be sounded for any purpose whatever; and no steam shall blow off when the locomotive is upon the road.

(5). Every such locomotive shall be instantly stopped on any other person with a horse or carriage putting up his hand requiring it.

No locomotive is to be driven more than four miles an hour along any public highway, or more than two miles an hour through any town or village.

Penalties up to 5*l.* and 10*l.* are levied for infraction of the Act.

Existing restrictions as to the use of steam engines within 25 yards of roads are not to apply to locomotives used for ploughing purposes.

We cordially hope that the reasonable provisions which the Bill contains for ensuring safety in the presence of this new passenger along our roads which the exigencies of modern agriculture have called into existence will be deemed sufficient; and that the power which a few timid residents in any district now possess of putting a stop to what has become a most important branch of rural industry, may thus finally be abolished.

THE GERMINATING AND CULTIVATING OF CEREALS.

I should not again have troubled you on the former of these subjects, had not your respectable and scientific correspondent "B" again caused to be published the results of the experiments on the germinating of Wheat, which he made in the autumn of 1863, and added to them the results of some further experiments he has made on the germinating powers of Barley, both being opposed to the results of many experiments I myself have made, especially on the growing of Wheat, and to the experience of those who are called, but erroneously, thin-seeders.

But your correspondent, in the first place, gives, in the article under review, a summarised table of the results of the experiments he made on 42 samples of Wheat on the above date, which are as follows:—

"In 10 samples the seed failed from 52 to 92 per cent.
In 13 " " " 18 to 48 per cent
In 19 " " " 2 to 12 per cent."

He then goes on to give us a Table of the Germination of Barley, and which he introduces with this remark:—"Notwithstanding the terrible onslaught which the former had to bear," and which I rather think refers to some strictures which I myself made when the "Table of Germinations of Wheat' was first published in the *Agricultural Gazette.* Let me here observe that I have a high opinion of the many excellent qualities of the gentleman who made these experiments, and I feel certain that he would not publish to the world any matters which he does not conscientiously believe to be true; but I beg most respectfully, and in the most friendly spirit, to ask him to repeat his experiments, and if he will do so I feel certain that he will find the results will be very different from those of his former experiments; he will, in fact, find that Wheat of any kind and of all kinds is as well able to reproduce itself as is any other grain, and that the organs of reproduction of it are as perfect, and nearly as active, as are those of other cereal seeds; and I assure him that I do not write this from opinion only, but from practical experience and the results of experiments; but were I to confine myself to opinion only, I might ask, Why should the Creator have made Wheat, the staff of life and food of man, less perfect in its kind than is Barley, the food of hogs, or Oats the food of horses and of dogs? But I ask no such questions, knowing full well that if man were so treated there would be a wise and sufficient reason for his being so, though I could not discover it.

But I repeat, I make the statement I do from facts obtained from long experience and carefully made experiments. From long experience I write; for let me inform my readers, that I commenced my agricultural training, or I may write, I obtained my knowledge of farming from near 50 to 60 years back on an estate of nearly 2000 acres, and on which, what is now erroneously called thin seeding, the Tullian system of husbandry, which is founded upon it, was better practised than I have seen it on any other estate or farm since, whether great or small. On that estate 1 single peck was occasionally put upon an acre of land, and never on any account whatever did the seed exceed 4 pecks an acre, and very frequently very much less, and the crops never failed to be as fine as crops could be grown; and, my respected readers, should you doubt the truth of what I am writing, as probably you will, I have abundance of proof that I am stating nothing but facts.

But those brilliant and never-failing crops, my friends, were not produced by thin seeding only; but on that estate the land was always really cultivated, and never to a less depth than 9 inches, and often one plough following another brought up the soil to the depth of 12 inches, and then followed the roll, scuffler, scarifier, harrows, and then, when a complete seed bed had been comminuted, the drill, which was then first used in that part of the country, put in the seed, and never more than 4 pecks an acre of either Wheat or Barley were put in, and sometimes, as I have said, so little as 1 peck was used, but that was dibbled in by the hand.

Let me therefore ask, if Wheat were so defective of the germinating principle as our worthy experimenter's "Tables of Germination" would lead us to believe it is, would those magnificent and never-failing crops have been produced year after year as they were from such small, nay, almost homœopathic quantities of seed? Impossible, or the crops must have failed—been homœopathic crops as well as homœopathic seedings for them. But, now to a little of my own practice since I have been in my parish of Wix, now 28 years: and I will be as brief as I can. For 17 of these years I rented two small fields by the side of the little glebe I held in my own hands. The fields were horribly foul when I took them, and so the first year I fallowed the larger to get out the Couch-grass, &c., and during the year I ploughed it 11 times, and scarified it as many, getting out mountains of Couch, &c. Did I burn them? No, I did not; I was at least 27 years younger then than I am now, but still too old to dissipate into the atmosphere by active combustion what would become by fermentation or slow combustion the exact food I should want for my Wheat crop; and so, having become delightful mould, it was all carted on the land for my second Wheat crop. During the 16 years after the fallow the field was 13 times Wheat, once Barley, and twice Clover. For the Wheat I never exceeded 2 pecks of seed an acre, and I had generally a little of the land done with much less; but the average yield of the 13 crops was 44 bushels an acre, and one year (1847) the yield was 55 bushels an acre. Now this being the case I will here ask if my seed had failed to grow (and I had on one occasion more than a dozen kinds mixed together) even to the 10th or 20th part that our respectable experimentalist informs us Wheat seed does fail to grow, should I have had 572 bushels of crop from 6½ bushels of seed, or 44 bushels an acre for 13 years out of 16 from half a bushel of seed an acre? One year, also, in the other of my rented fields, I had 7 quarters and 7 bushels of Barley an acre from less than 3 pecks of seed, and which I sold for 46 shillings a quarter, and the maltster who bought it afterwards sent me word that it was the best Barley he had ever seen. But, again, at the front of my lawn I have a plot of land, the eighth of an acre, which was last year with Wheat for the tenth time in succession, the seed being dibbled in, seed by seed, in rows exactly one foot apart each way, so that one seed only was to each 144 inches of ground. Now, in that plot so seeded for 10 years in succession there was scarcely a gap from a seed failing to grow, and long before harvest the crop was as thick on the ground as it could grow, as many gentlemen who saw it, and with astonishment, can bear witness, yet it was not the best crop I had grown, but still the yield averaged about 1200-fold, and some roots produced 2000-fold.

But so much for my practice, and so much in favour of the productive and germinating powers of Wheat proved by it, and here I might come to a close, but my readers I hope will excuse me if I give them a short history of some experiments I have lately made, and purposely to test the vital powers that there are in different kinds of cereal seeds; or perhaps it will be sufficient if I merely give the results of them, and they are these, namely: out of more than 20 samples of Wheat planted in rows in my garden, and as many in flower-pots placed near a window in a tool house, so freely did they all germinate, that not more than 5 seeds in 100 failed to grow. I have also both Wheat and Barley growing in vases on my chimney-piece, forming to me interesting and pleasing ornaments, and in these it seems that almost every seed grows. It is true that Barley grows quicker than Wheat, but I think not more certainly; but those gentlemen who may be disposed to seed their lands reasonably, that is, with about two pecks of Wheat and three of Barley, will never find their crops fail from a lack of seed—that is, if they deeply and thoroughly cultivate their lands, put them in good condition, and put in their seed as nature and common sense direct, seed by seed, and not by children's handsfull and metal cupsfull, as is the common custom; and above all, let them not use the primitive tool imported from the centre of Africa, called the pre-Adamite "drags," a model of which was exhibited by a swarthy son of the desert in his Arab's tent at the Great Exhibition of '51.

And let them not trust to quackery of any kind, such as wetting and drying their seed before using it; or, if they must quack, let them get their seed charmed by some strolling gipsy, who will tell their fortunes at the same time, and for the same expense. But, as I have often said before, let them trust to skill and industry, and then they need not fear for the results. For my part, I scarcely remember having a smutty ear in my fields, and I no more wet my seed than I nail horse-shoes over my stable door to keep witches out from riding my horses to death. Nor, my respected readers, need you fear to sow rationally, that is thinly, lest it should cause your Wheat to mildew. Mr. Alderman Mechi is a thin-seeder, a one-peck man sometimes, and so is Mr. Hallett; and the Rev. S. Smith is a two-peck man, and I am a two-peck man, and many more—and whoever saw mildew in our fields? Often have I seen thick-seeders' crops nearly ruined by it, but never did I see it where two or three pecks an acre of seed only were used. *Geo. Wilkins, Wix Parsonage, March* 11, 1865.

AGRICULTURAL EDUCATION.

1. Bedfordshire.—The education of farmers' sons in my neighbourhood is of the ordinary description; unfortunately it is not thought necessary for farmers to know much of art and science, and very much to their loss they neglect to study foreign languages. The schools in which they are trained are unsuitable for their after calling in life, failing to prompt their energy or ability to judge for themselves. There is no agricultural training school here. When leaving school the young farmer enters on his father's farm, and it is considered quite sufficient for the young gentleman's training and the study of agriculture if he sees his father's labourers plough, sow, and reap. Young men who are intended for agricultural pursuits waste a large portion of their time in so-called "boarding schools." Good sound training should be given in agricultural colleges where special training and instructions in every branch of agriculture are imparted. In every other trade or business a man has special training for the duties required of him. In farming too often a man goes at it in the dark, but by degrees he sees daylight at his own expense. *James Ross, Hoo Park Farm, Luton.*

2. Berkshire.—The great necessity that exists is, I think, for a better class of schools, after the plan of the endowed grammar schools, where boys would be well educated, and where those whose future occupation in life was decided upon, would pursue, in connection with

the general instruction imparted to the whole school particular branches—for instance, where those who are to farm, could gain an insight into measuring and mapping land, and read somewhat of the theory of agriculture, &c. I feel quite satisfied that farmers as a class have largely participated in the general progress of the nation, and are rapidly becoming far more intelligent than in a former time. If good schools increase, they are not slow to avail themselves of their advantages. And as to professional education, let there be colleges or schools here and there, where youths, whether the sons of farmers or others, can acquire a scientific knowledge of agriculture, *i.e.* where they could acquire that amount of elementary knowledge of chemistry, botany, &c., that would enable them to turn it to practical account when situated on a farm acquiring a knowledge of practical agriculture. I believe, generally, this must be acquired on a farm; there are some who will make almost any circumstances subserve their interests, not so men in general. I think scientific knowledge should be pursued uninterruptedly. A little land for experiments might be attached to each college, but not a farm in the ordinary way, *i. e.* for profit. It leads to all kinds of mistakes, and is in every way undesirable. These colleges should be founded by companies, and the cost might be various, according to the means of those who send their sons, or rather that persons of different means should be able to select those suited to their circumstances; this might be done in various ways, either by having some established on lower (30*l.*) and some on higher (80*l.*) terms, or as they do at the Universities, where men can live for 100*l.* to 300*l.* per annum. Then the addition of scholarships, exhibitions, &c., would still further help,—1st, Nothing can supply the lack of good home parental training—the best foundation, under God, of all future success in any walk of life; 2d, a good general education is wanted in large or public schools; and 3d, the opportunity of acquiring a scientific knowledge of agriculture previous to practical training on the father's farm, or away from home, as means and other circumstances seemed to render desirable. At present, there is no doubt, three or four years of the most important period of a young man's life (destined for farming pursuits) are spent in a most desultory way; no habits of business formed, little mental cultivation. The market table is too often one of the chief educators of the smaller class of farmers, and the young men have very contracted notions as to what is for their real advantage. Still there is a wonderful progress. Landlords find this in the demand for houses of a very different character to those which prevailed even 30 years ago. Let our agricultural societies give all possible encouragement to special or professional education but have nothing to do with schools for the education of youth generally. After all a good home training in early life is the best security; this, combined with industry, tact, and good common sense, is pretty sure to enable a man to make his way. The minds of farmers and farmers' sons are very sensitive, and I have no doubt in the long run they are as well able to care for their own interests as any other class of the community. *E. W. Moore, Coleshill.*

3. Buckinghamshire.—My belief is that the present generation of farmers are far better educated, better mannered, more intelligent, though perhaps not so money-making as their progenitors. I know instances of boys of 10 to 14 years of age, sons of well-to-do tenant farmers, who are sent to very good schools, thereby in my opinion showing that their parents value a good education for them. I feel confident that there is no class of men in the kingdom more capable of judging for themselves how to educate their children than the farmers of England, and I think that all this meddling with the education of the sons of agriculturists is taking a great liberty with the class. My opinion about education for a youth who is to follow his father in a farm is this: that the boy should be taught in the best school that the father's means will permit of; that he should be kept at school till he is 15 or 16 years old, if possible, and then initiated by his father, if he considers himself competent, into the mysteries of farming. I see daily young men who have been sent to good but not expensive schools, who write a good hand, spell well, express themselves well both in writing and conversation, have a polite and manly bearing, and give every promise of being active in business, and thoroughly appreciating the necessity of exerting their minds and bodies to keep pace, as far as their position requires, with the increasing intelligence of the country. I have no faith in agricultural colleges. A youth whose mind has been developed by a good sound practical education will learn more in two years at home under his father's tuition than he would in five years at lectures and classes, &c., at agricultural colleges. One boy may have to follow his father in a large grazing farm, another in a dairy farm, each having a fair proportion of arable land. The knowledge how to select bullocks and sheep, or dairy cows and heifers, must be learnt on the spot by attending fairs and markets, and seeing what is done. The chemical analysis of a soil will not in my opinion be as useful knowledge as being a good judge of buying stock. *W. G. Duncan, Bradwell, Stony Stratford.*

4. Cambridgeshire.—I finished my education at Wesley College, Sheffield, which was of a general rather than of an agricultural character, and very shortly after my arrival at home the serious illness of my father compelled me to take almost the entire management of his farm business (about 600 acres). By reading, observation, and inquiry, I had to acquaint myself with practical and scientific agriculture as well as I could; and that has been the course I have subsequently pursued. Direct instruction for a year or two would have been a great boon, and would have imparted information which it has taken many long years to acquire; and on some points—of agricultural chemistry to wit—knowledge would have been obtained, which can only be secured as the result of direct teaching. Doubtless, with ordinary intelligence and persevering application, many of the principles which govern modern agriculture may be understood sufficiently to enable them to be applied successfully; but it is at a far greater cost, both of time and energy, than would be the case, were they studied under the immediate direction of competent teachers. Successful and economical agriculture at the present day requires not only what has been denominated practical knowledge, but also that which is theoretic and scientific. Theory and practice ought never to be divorced. It is a right and necessary alliance. To know the right thing to apply in the right quantity, in the right place, is to possess a knowledge which must result in immediate pecuniary benefit. What immense losses have frequently been sustained for the lack of this knowledge—a knowledge which science and practice combine to impart. I feel every day the necessity of a more thorough knowledge of some of the more scientific branches of agriculture, that I might be able with greater success—because less at a guess—to direct my practice. *Alfred S. Ruston, Chatteris.*

5. Devonshire.—The usual education of the farmer's son is the parish school. Some few may attend the Grammar School in the town, but those who are most likely to be brought up to succeed their fathers generally go to work at home, and have rather less of education than their brothers, who may be brought up to trades. The young man generally goes to work at home, and has no training in anything beyond attending markets and fairs, to fit him for gaining a livelihood on a farm, that the labourers do not equally enjoy. There are hereabout so few men who have had an education fitted to call out the higher powers, that I much doubt whether I could say generally for the district that the farmers as a class are better in this generation than the last; the best farmers we get are men who have not been bred as farmers, but who, being shrewd business men, have taken to farming in after life. The farming of this district, however, depends so much more on stock and its management than on agriculture in its more restricted sense, that every man who gets hold of a little land becomes to a certain extent a jobber, as he says he picks up the rent outside the fences, and no doubt by tact gets along; but possibly if you were to ask how much produce his farm makes he could give no reasonable reply. What has been his gain is his neighbour's loss, that is he has been the better man at bargaining, and so long as this prevails we cannot expect any great advance in the farmer as a class, especially as the farms are so small as to make all these things a mere temporary shift, involving no large principle. I should say that a lad would be likely to succeed who had, until 17, a good sound general education, embracing as much general knowledge, as much mathematics, and as much good moral training as he has power to embrace; then as to special training I think that unless he can have reading and lectures, or both combined, and with practical observation on the land from time to time, so as to combine the two in such way as to render what is going on on the farm reasonably interesting, and what he learns by book or lectures reasonably applicable to the work, he is not likely to derive much benefit, for I have seen many young fellows in farms where they were placed to be taught, who really, though they might see the operations of the farm, had not their minds directed to the principles upon which the work was going on, and merely whiling away their time hunting, shooting, and so forth, the school training being mostly lost, and nothing more than indolent and careless habits acquired. But it may be in many cases out of a man's power to get to such an establishment—in that case perhaps it may be well that before he attempts any regular course of reading or attending lectures, where there is no farm for him to carry on both cases simultaneously, he should see somewhat of farming in order that he may understand the terms used, and generally the use of words applied to the subject, so that he may the more readily comprehend what he hears and reads afterwards when he cannot have the farm to refer to. As to the question now pending before the Committee of the Council of the Royal Agricultural Society of England, I think that to stop after making young men fit by their general education, which may have been tested by other means, and to give premiums to the sons of persons connected with the Society or with farming, is an entire perversion of the subscriptions, because, though their fathers are connected with the land, the sons may be merchants, tradesmen—in short, anything; their abilities have been tested, they have done, it may be, most creditably, but they have not done and it may be are never intended to do anything for agriculture; and should the Society choose to divert 300*l.* or any sum in that direction, it is an entire misappropriation of funds given for the advancement of agriculture—it ought to be protested against. If the spirit and the letter too of the Charter is to be carried out or even attempted, it should be by encouragement of the particular knowledge of the business and science of agriculture. *X* 1.

6. Devon.—I am well acquainted with the views of farmers, and I know their belief is, that practical agricultural knowledge, with sound general education, is likely to be more useful than Greek or Latin, &c. As soon as the youths return from school, about 15 or 16, they assist and make themselves useful on the farm, if they are selected for farmers; and I believe that the sons of farmers are better educated in every way than their fathers; and I also believe the attempt made to induce farmers to go beyond what they consider useful will prove abortive. I may here state to you that the poorer classes, when sent to the village school, are taught what unfits them for after life, instead of such things as sewing and knitting, &c., for the girls, and for the boys, reading, writing, and arithmetic, and all beyond this is an injury rather than a good to farm labourers. *George Turner, Exeter.*

7. Durham.—Farmers' sons, and others intending to be farmers, are now in this district as well educated and brought up as any other class of men. There are schools in abundance suitable for farmers' sons, where all the branches of an English education are taught, including algebra, mathematics, chemistry, geology, &c. Young men intended for farmers, after leaving school, are generally bound for three or five years either to their own father (if he has a farm), or otherwise to some well-known farmer or agriculturist in the neighbourhood, where they are supposed to learn all the requirements necessary to be a farmer, in order to enable them to manage a farm of their own. I am most decidedly of opinion that farmers' sons are now, taking them as a whole, better educated and more alive to the interests and advantages of a good sound and practical education than any previous generation, and as a whole they take advantage of it; and I believe that there is now no fear (owing to education) of the march of improvement in agriculture being stayed, as all must feel convinced that, as all other scientific pursuits are advanced by experiment and illustrated and improved by discussion, so agriculture is in nowise an exception to a rule so useful and so profitable. I have always been impressed with an idea that a youth sent to school to learn the ordinary branches of an English education, ought, previous to leaving school altogether, spend two or three years in some (what I would term) agricultural college, where the business of his future life would form an every-day study, and where the mind would be able better to comprehend and understand agriculture in all its phases, both as a science and an art. Whereas at an ordinary school he cannot, as the mind is constantly being taken to something else to learn, and thus there is not improved that constancy of mental action so necessary to all scientific pursuits. Whatever may be the nature of education in other respects, it should always be a matter of chief consideration to imbue the youthful mind with a deep sense of religion, to teach the duty we owe to God and man, and to impress upon all persons the benefits to be derived from habits of temperance, industry, and forethought in their journey through life. The inculcation of these moral and religious duties constitutes the groundwork of all good education. *Robt. B. Dixon, Land Agent and Valuer, Darlington.*

8. Gloucestershire: *The Cotswolds.*—First: The usual education of the sons of farmers in this district (as far as I know), even of those intended to be farmers, has, I believe, generally, no special relation to their future avocations as farmers. I know of no schools in this district in which any special instruction to fit lads for their future occupations as farmers is professed to be given (except, of course, the Cirencester Agricultural College). The young men on leaving school generally stay at home, and are engaged on the farm, picking up what knowledge they can from their observation of their father's and their neighbours' proceedings, and doubtless not a little from the discussions at the farmers' clubs on agricultural subjects. Looking back from any point of view embracing a retrospect of two generations, the advance of the agriculturist in education, in general intelligence, and in social standing is enormous, and the advance is still progressive. Comparing the present generation with their fathers, the mental and moral improvement is very striking. Many of the young men now seem quite alive to the necessity of a higher tone of education and manners, and also to the acquisition of as much sound scientific knowledge as they can procure. I must add that my observations are intended to apply solely to our hill farmers; with those of the vale my knowledge and acquaintance have been very slight. Possibly pastoral and dairy employments may be less favourable to the development of the mental powers than active agricultural engagements. *A R. Fewster, Nailsworth.*

9. Gloucestershire.—I do not see why the education of a farmer should be different from that of any other man intended for any other business. All he requires is a good sound education; a little Latin and

French is not amiss, though not absolutely necessary. The misfortune is that you cannot get into a good school for less than 50*l.* or 60*l.* per annum, which is more than an ordinary renting farmer can well afford. My notion is that a boy ought not to spend many years at school. I left myself before I was fourteen, and went at once to assist in every operation that might be going on, taking the milking pail morning and evening, seeing the cattle foddered properly, lending a helping hand. I have never found a boy in the way after leaving school; and should quite despair of his making a man of business unless he had to mix with everything that moved before he was 16 or 17. Of course he ought to have access to proper books to amuse and improve his mind; but I am averse to spending a long time at school. A little knowledge of chemistry may be of use, though I have never felt the want of it, nor have I ever seen a chemical farmer cut much of a figure. Of course in trying any new manure or feeding stuff one would not go into it deeply at first, but feel the way gently, marking the results. This, I believe, is a much safer course than depending on chemical analyses, which are not entirely to be relied on in every case. Depend on it that a knowledge of farming is picked up by degrees from observation and experience. All the learning in the world will not compensate for that; and I believe that a youth brought up on a farm of two or three hundred acres is more likely to excel in business than as though he were on a very large holding; as, in the latter case, matters are too wide-spread and wholesale to be within the compass of a young mind. The most successful farmers of my acquaintance are not highly educated, but are energetic, sensible men, who can buy and sell judiciously, and attend well to their business. *X* 2.

10. Gloucestershire.—I consider the present tenant farmer, in point of education, social standing and real intelligence, to be far superior to the past generation of farmers; of unassuming manners and little exterior show, he is too often looked down on with slight and contempt by his professional or mercantile and trading neighbour, who himself perhaps possesses but a very small share of the other's sound sense and real intelligence, and employs less than one-eighth of the capital in his calling. The present farmer fully recognises the great value and necessity of education in his business, and to my knowledge he strains every nerve, and practises much self-denial to find the means to suitably educate his son intended to be a farmer, but herein lies a difficulty. In this philanthropic age, whilst the parish pauper's child gets comparatively a good education provided for him, the tenant farmer, with increasing heavy parochial and county contributions, higher rents and labour, with diminished profits, is obliged to educate his son at the present schools, which, deriving no help from any endowments are much too expensive to allow the pupil to remain sufficient time for sound education. I think the pupil should be well grounded at first in general knowledge, comprising a good store of arithmetic; land surveying and mathematics, the principles of chemistry and geology, are of course desirable if obtainable. The classics I deem not indispensable if a hindrance to other studies; but a knowledge of French (and perhaps German) might be useful to facilitate the reading of continental publications, foreign correspondence and foreign easy intercourse, to conduct occasional sales of English or foreign farm produce. The above, combined with good moral training to form right principles, should, I conceive, be a fair groundwork for the embryo farmer to act on; after this his own common sense, energetic application, with the advice and example of the best farmers, must work out the practical solution. *X* 3.

11. Hants.—The same means are available for the sons of farmers as for the sons of tradesmen, and commercial and professional men, but these schools being for the most part situated in towns, the residents of these towns are enabled to effect a considerable saving in the cost by sending their sons as day scholars, whilst farmers, from their isolated position, are necessarily obliged to incur the additional cost attending boarders. Amongst the higher classes of farmers an equally liberal education is afforded to their sons as that to the sons of other classes, but if the means of the parents are limited or straitened, the effect of the extra expense of living operates injuriously in limiting the time devoted to education. There are numerous excellent schools in this neighbourhood, and in this county, where the sons of farmers, as well as the middle classes generally, might be well and sufficiently educated. I know of no schools exclusively intended for farmers' sons, and I think it most unnecessary that there should be any, for it is most desirable that the roughness and provincialism of the country should be rubbed down by the smoother habits and manners of the town, besides which, if a farmer has many sons, not more than one on an average becomes a farmer, the others serve to fill the avenues of the trades and professions. Village schools for the education of farmers' sons would, I consider, be extremely objectionable, and the expense of travelling and boarding appears to be one of the unavoidable expenses of a country life. Schoolmasters are by no means too well paid, but it would be much better if a more moderate sum was charged for boarding (et ceteras done away with altogether), and a much higher sum apportioned for education itself. Then the state might very properly step in and promote middle-class education by providing additional masters on special subjects, or providing free of cose maps, books, and stationery. This, I think, would bt much better than ruining the present schools by establishing others on lower terms, supported by external or charitable assistance. Farmers have no special claims for special assistance in the way of education other than those which the middle classes have generally, and I do not consider that it is the province of the Royal Agricultural Society to interfere in the matter, or to apply to it any portion of the funds which are subscribed for other and for special purposes. The poor are for the most part educated by charity, and so are the rich to a very great extent, inasmuch as the Universities of Oxford and Cambridge, &c., are supported quite as much by the enormous bequests made in days of old as by the payments made by the students. The middle classes are debarred from availing themselves of the universities by two reasons, unless they intend their sons for the Church. One reason being the great expense of living rather than learning, and the other the non instruction afforded on the various special subjects required in the study of the various professions. Still education is afforded cheaply for wealthy people, and the expense is diminished perhaps one-half by means of eleemosynary aid. It is this, I take it, which affords almost the only claim of the middle classes for public assistance in the way of education. The cost of respectable and substantial middle-class education as boarders may be considered, boarding included, to range from 30*l.* to 60*l.* and 70*l.* per annum in this neighbourhood. As a rule there is no great reason to complain of the education afforded, and as a class those engaged in tuition are, I think, well worthy of their hire. The education given to the sons of farmers is much superior and is much more appreciated as compared with that of 30 years ago. The usual mode pursued in the education of the farmer in the south of England is, after leaving school at the age of 15 or 16, for the lad to remain at home on his father's farm if he is the son of a farmer, or if not so, to become a pupil to some agriculturist of repute for several years. This latter course is often pursued by young men who have passed several years at Cirencester, where, although they have had excellent opportunities of studying the sciences connected with farming, yet generally find themselves deficient in that practical knowledge necessary to secure success in a business only moderately profitable. I do not consider that the funds of the Royal Agricultural Society should be devoted to common middle-class education, but I think aid might be very advantageously afforded to such establishments as Cirencester College, where special agricultural knowledge is taught, and I am inclined to think that assistance might also be given to Farmers' Clubs, so as to enable them to secure good lecturers and good books for the use of farmers' sons and pupils. *W. C. Spooner, Eling, Southampton.*

12. Huntingdon.—We find amongst farmers very various degrees (as of material condition so) of intellectual attainment; from very high to almost zero: and so far as I have observed, I believe that the educational status of the son generally speaking is in pretty strict proportion to that of the father: the rising generation cannot of course but in some measure share in the common progress of the race; but the actual education, intellectual training, schooling of the son is proportional to that of the father; *e.g.*, if the father can barely read and write, the utmost intellectual ambition of the father certainly, of the son probably, would be satisfied if the son could read and write well, and do sums with tolerable facility, and so again, if the father farmer were a well educated man we should generally find the education of the son proportional to the father's own intellectual condition, and consequent appreciation of education. To speak of farmers intellectually and educationally as a distinct definable class would be not only contrary to fact, but it might at the very outset of the move you contemplate, provoke the opposition of those amongst the farmers of England who are conscious both of their own appreciation of education and also of their complete ability to take care of the education of their sons without hint or help from any one. There is however a large number of farmers whose own education has been almost nil; whose capacity of appreciating education, and whose notions of the education of their sons are in strict proportion to their own mental condition; for the sons of these farmers there is doubtless a great want of good schools. The existing schools are—1st, the national schools: these, as being intended for labourers, and being partly eleemosynary, the farmers will not avail themselves of; 2dly, the old grammar schools: these, as being chiefly preparatory for the universities and the so-called liberal professions, and moreover expensive, are out of the reach of the kind of farmers under consideration; 3rdly, there are the so-called commercial schools scattered about the country: they are started chiefly as a means of livelihood, kept by men who regard school-keeping as a commercial investment, and who, except quite accidentally, have no aptitude whatsoever for the work of education. The utmost professed to be taught in these schools is reading, writing, book-keeping, a little experimental land measuring, a little drawing, and perhaps, to make the prospectus a little more alluring, the elements of Latin—an education palpably inferior to that provided in our best National schools. It is for this class that schools are wanted; and in our endeavours to supply this want I think the following points should be kept in view:—1st, the masters—the educational staff—must be gentlemen, men of liberal, generous minds, who can appreciate the importance of their calling; and who, in all their intercourse with their pupils, will exercise a generous, liberal, humanising manly influence on them. 2d, the schools must not be class schools—not for the sons of farmers only; this certainly would tend to produce a narrow, exclusive, "caste" habit both of mind and character. 3d, the education (at any rate for the greater portion of the school life) must not be professional, but general, humane; a training of the head and heart with the express object of making good, well-informed, self-reliant citizens; a general sharpening of the mental tools, and elevating of the moral habits; a training, I repeat, to turn out good and capable men. Preparation for any particular work or calling—for the application of the faculties to any specific work—should be deferred as long as possible, in the case of those whose education time, at the longest, is but short; for this purpose in the schools there might be special classes for elder pupils; but probably a better plan (if specific professional training be needed for farmers) would be to have agricultural colleges, where the student of agriculture might spend a year, just as the medical student acquires his professional training by walking the hospitals. But I should be disposed to think that, with the mental faculties fairly roused, and got into play, the youth or young man, stimulated by a decided bent to the particular calling of a farmer, would, by books, by his own observation, &c., be very well able to dispense with any specific agricultural training; and, if such training should be advisable, it would probably be best got by an apprenticeship to some well-chosen master of the art. I should expect, I must say, an Agricultural College to prove a failure; there is not demand enough for it in the nature of the case. 4th. There is the cost of the education; it must not be high—to fix it high would be fatal, suicidal, considering both the material and mental condition of those for whose sons the education is intended; men (at any rate the farmer portion of them) whose means could not afford a costly education for their children, and whose appreciation of education is besides very low. I believe masters of the right sort—men of liberal education and generous feeling—could be found who would undertake the work for the work's sake, at just a living remuneration. But the capital required to start such schools must be not a commercial investment but a free gift; to fulfil their proper object, the schools could never do more than just support themselves; to be made widely available for the class intended to be benefited by them, there must be on the part of all promoters the utmost generosity and self-denial for at any rate a long time to come. It is an investing age; a speculating age; large dividends and high rates of interest were never more in request, but still, if you can come forward with some well-considered, practical scheme of schools for the one class in England who need direction in this matter most of all, I should hope the scheme would not fall through for the want of £ s. d., even though the money interest be 0 per cent., and the money dividend *nil*. *X* 4.

13. Kent.—Farmers' sons in this district are educated in much the same way as other persons sons are. I know of no school or establishment in this district specially for the education of farmers' sons, or for those that are intended to be farmers; but if any farmer's son shows an aptitude for learning beyond his fellows, the father is told by the schoolmaster that it is a pity that the boy should be a farmer; that he ought to go into the Church, or be a lawyer, a surgeon, a surveyor, an engineer, or go into a Government office. We have in this neighbourhood some large and I think good schools, but I cannot hear that there is even a separate class for those that are intended for farmers. What does the young man generally do after leaving school? This I think is the most important era in life, but, alas, how is it too often spent; most of our farmers' sons that are intended for farmers go home and reside with their parents, and get but little special training to fit them for gaining a livelihood as a tenant farmer; they usually learn to ride, to hunt, to course, to shoot, to smoke, and too often to drink. You will not wonder when I tell you how few of these young men keep the standing and position of their fathers, though as far as school teaching goes they are far better educated than their fathers were. I am between 60 and 70 years of age, and have spent all my life in this neighbourhood. How few is the number that I can name of this class that have with credit followed their fathers; but it would be a very large number that I could reckon who are gone to poverty and decay. I think the defect is the want of industry, not the want of education, that is the cause of so many going to ruin. I often feel very grateful that my father had to rear 10 sons and a lot of daughters on a very poor farm. He could not afford to let his boys hunt and shoot; we were obliged to work; and it is such men as me that have wedged out these hunting, shooting, smoking young gentlemen. Don't think me opposed to field sports; I have enjoyed them myself. What I think wrong is that these youths on leaving school do so little else. I have often known

commercial, professional, and tradesmen send their sons into an office, or apprentice them to learn their own business, and I believe it would be well in many instances if farmers were to do the same. In the few instances I have known I think it has answered. I think the present generation of farmers is far superior in education (but not in wealth) to the last. We may not have many classical scholars, but we have many intelligent clear-headed business men, as a proof of which I may state that most of our poor-law unions in this part of Kent have a farmer as chairman of the board of guardians. The same may be said of the different highway boards, and we cannot be said to be purely an agricultural district. We have many magistrates who are *ex officio* members, and some of them very regular in their attendance, but the chairman and the vice-chairmen of both boards are farmers. These are facts, and will show you better than an opinion, that the education of farmers has kept pace with that of other classes. There are near me two farmers who may be said to be well-educated men; but I think neither their farms nor their balance-sheets would prove that their education was beneficial to their farming. *X.* 5.

14. North Lincolnshire.—Very few of our young men go into other counties to learn farming, but stay with their parents. When those parents are industrious the young men stick to the practical part pretty well, but I am sorry to say among the larger and more affluent farmers many of the young men get sadly too fond, and far too soon to like hunting better than the regular routine of the farm. No doubt the present generation are much better educated than any former, particularly the smaller farmers, though many of the more respectable class of last generation were well educated men, and their social standing has not so much altered as in some countries. In my opinion, give a boy a fair education after he comes from school; it greatly, nay, altogether depends upon himself, if he will make up his mind to get to know the whole practical part of farming. If industrious he may succeed in business. I would have him learn the manual labour of the farm so as he would be able to correct a man when he was doing wrong, not to find fault when a man was doing right. This is not the case at present with our more respectable class—they get too fond, as I said before, of field sports before they know anything about the business they are intended for. As to my own school-education I am sorry to say it was very meagre, having left school when I was a little over 13 years of age. My father left the north of Wiltshire in the year 1817, and took a large farm in this neighbourhood (1100 acres), he yielding to my own inclination of going to work upon the farm instead of going two or three years to school, which I ought to have done. For five years I stuck well to business, rising early and early to rest. At that time my father took the present farm of upwards of 900 acres I am now on, leaving an elder brother at the other. My father likewise has another farm of 460 acres, which was occupation enough for our time without much work for our hands. In 1825 I started business for myself at Aylesbury, where I have been ever since. I attribute my own success in business, under the good providence of God, in the first place to getting to know the practical part of farming in my youth, following that up with tolerably industrious habits. *X.* 6.

15. Lincolnshire.—There is a rumour spreading that the Royal Agricultural Society are about to provide a series of prizes for middle-class educational students. Whether this rumour is correct or not will soon be proved; but it is said that the Committee on the Educational Department question intend to recommend such a course at the next monthly meeting of the Council. The popular movement for the better education of the middle classes cannot be too highly commended. It will be the means of doing great service to the country, and is therefore worthy of every effort to support it, consistent with truth and honesty. But the funds of the Agricultural Society of England are subscribed for the sole purpose of promoting agricultural advancement, and not for the education of the middle classes. What in the name of common sense has our Society, as a body, to do with the education of the sons of the clergy, or the sons of those engaged in commerce, manufactures, trade, or in the various offices and employments connected therewith, *i. e.* the middle classes exclusively. If any of their sons are studying agriculture, then a recognition of such may be right; but to appropriate a single shilling of the Society's funds in promoting middle-class education is a direct perversion of the funds, and is acting in contravention of the intentions of the Society. The praiseworthy appropriation of such funds for educational purposes is to confine them to agricultural students, and to give such rewards, prizes, or honours as may from time to time be deemed expedient. It may be right, and it may be desirable for the Royal Agricultural Society of England to connect itself with the middle-class educational movement so far as to take advantage of a combined system of examinations, or the admission of any middle-class students to agricultural examinations, and of course to the chance of agricultural honours, &c.; but on no account to give prizes or honours to other than agricultural students. It is quite true that middle-class education may embrace very much that an agricultural student ought to study, *i.e.*, geology, mineralogy, chemistry, botany, &c., but unless the student is professedly studying agriculture he is not entitled to any prize as an agricultural student, and for the Royal Agricultural Society to give prizes for proficiency in any department of learning, agriculture excepted, is decidedly wrong. I am an old member of the Society, and feel greatly interested in its prosperity. I hope nothing may be done to mar its onward progress. The funds are by no means so large as to admit of any misappropriation. I have always thought the Society wondrously stingy in the prizes offered to essays and reports; almost any editor would give as much for "the matter" as the prizes amount to. Then we have no poultry show. Many ways could easily be pointed out as a laudable and useful appropriation of the Society's funds, but none to equal in usefulness a liberal provision for agricultural education. Only offer a series of honourable distinctions, either in prizes or diplomas or both of good order, depend upon it, the stimulus would soon be universal. I hope you will urge the men of business who are on the Council to attend the next meeting, to watch closely, and if needful frustrate this folly of the Committee on Education. *O. F.*

16. Norfolk.—There are several good commercial schools in Norfolk, besides those of a higher class, and some of the grammar schools appear especially devoted to middle-class education. Supposing the lad intended for a farmer to be, as he generally is, the son of a farmer, "the special training" he receives is all imparted by his father. The young man lives on the farm and helps in the management, and soon becomes a bailiff to his father. By this means he obtains a good practical knowledge of the working of that particular farm, but he has no opportunity of perfecting himself in scientific agriculture, or even of knowing much of the practice and theory of farming in other districts. There can be little doubt, that as far as education and general intelligence are concerned, farmers of the present day are greatly in advance of the past generation. As sound practical farmers, I don't think they are much improved; but of course their knowledge of the principles and science of agriculture must be greater. What is wanted in the general education of a boy intended for a farmer, is a more correct and extended knowledge of the common things of nature and art. Surely the study of plants and animals, of chemistry and mechanics, must be of more use to a farmer in after life than the rudiments of Latin and Greek. Although I can't fully appreciate the advantages of a first-class education (having only received a very poor one myself), yet I can in a measure comprehend the elevating influence it imparts to those who have time to thoroughly perfect it. But farmers' sons leave school at 15 and 16, and should therefore employ all their scholastic days in the attainment of really useful knowledge. I take it to be a great advantage for all boys, but especially country boys, to be educated out of their own county, and now travelling is so quick and cheap, the extra expense is very trifling. Independently of the boy losing his rustic manners and his country dialect (two tiresome things to get rid of), the development of those ideas he possesses, and the acquisition of sundry new ones, will surely result from being educated in a new locality. If the schoolboy has during the last few years been well educated at a distance from home, the after training on his father's farm will be more likely to succeed. Yet after a time, there can be no doubt a year spent at an Agricultural College, or with some good farmer in another part of the kingdom, would be beneficial. But the practical part of agriculture can be learned in the best and cheapest manner at home, provided always that the lad attends to business, and does not devote all his time to pleasure. My individual experience is simply this: I was sent for six years to a common commercial school at Norfolk, and when I was just 15 I left school, and passed the next five years in learning farming at home. From 20 to 28 I was engaged in managing farms and estates in various parts of the country, and I fancy in those eight years I gained more information, and a better knowledge of practical agriculture, than I should if I had passed my whole life in Norfolk. I must express my decided opinion that the proposed expenditure of 300*l.* by the Royal Agricultural Society for general educational rewards, in which no proficiency in agricultural knowledge is required, will be a decided misapplication of the funds of the Society. *Clare Sewell Read, Plumstead House, Norwich.*

17. Norfolk.—The sons of farmers in this county are frequently but too superficially taught. We have no schools where a good and sound education can be had at a moderate cost. There are grammar schools where classics are the leading feature, with terms from 60 to 70 guineas per annum; but the schools chiefly supported by tenant farmers are generally of a low type, the terms averaging about 25*l.* per annum, conducted by men in many respects inferior to our certificated National masters. Some of my neighbours have sent their boys at an early age to our leading grammar schools, but have been obliged to remove them, owing to their not being taught, or well grounded in the rudiments. We have a Free Grammar School in our nearest provincial town, in the midst of a very important agricultural district. This school is richly endowed, but as the free boys are only taught Latin and divinity it is not supported. No doubt but the present education of farmers is in advance of our forefathers; but still far from satisfactory. I know young farmers, educated at our grammer schools, who can neither spell properly, nor speak nor write grammatically. Your next question is even more important. What does the young man generally do after leaving school? If the son of a small farmer, he goes to work on the farm, and becomes a practical man. If the son of a large or well-to-do farmer, his time is too often divided between idleness and pleasure. It has long been my impression that farmers make a great mistake in the after-training of their sons; while every other young man who learns a trade or enters a profession has to undergo a certain amount of drudgery, the farmer's son when leaving school has a horse to ride, probably takes out a licence to shoot, or keeps a brace or two of greyhounds. This is all very well in due season, and far be it from me to deny young men such invigorating and harmless pleasures, but let them first know something of the practical part of their business. In short, let them be taught the use of the plough and drill and all other work of skill. There is nothing either degrading or demoralising in work; on the contrary, I should be proud to see the day when the young farmer can set his men an example in the various operations of husbandry, and be equally at home as a lecturer in the club room. Alas! how many there are of my own class perfectly useless in either sphere. It is true there are many young farmers around us who are excellent farmers, possessing great tact and judgment in their business, and enterprising withal, but not of sufficient education to take their stand in this social position to which in other respects they are so well qualified. And I would here allude to that great loss of moral power amongst us as a class for want of a higher order of education or intelligence—see our abortive efforts to get a repeal of that unjust imposition the malt duty. Would the manufacturing and commercial classes have rested so long under such a burthen? If farmers knew how to set about it they would be certain of success, but the mass, with a few exceptions, are an easy apathetic non-political body who will not nor cannot be aroused. It is impossible to organise them even for their own good, hence their helpless and almost powerless position. But education to a farmer without thorough practical training is but too often of little value, hence we find the majority of our successful and money-getting farmers are comparatively uneducated. It is said that agricultural labour is so cheap that it does not answer a farmer's purpose to make his boys work, but all who understand the business of farming know that but one master is needed; and if his sons on first leaving school are to be but half employed or to be allowed to lounge about in idleness, we all know the too probable result; besides, no farmer (and I speak from experience), feels so much delight in his business as he who was taught in his early days to follow the plough. Being one of a large family and needy withal, my education was far from costly, commencing at five years of age under the tuition of an old dame in the village (not to be compared with our present parish school mistresses). In due course I was placed under the care of the village schoolmaster, and finished my academical career at the age of 14, a sort of finishing touch having been given at a very cheap boarding school, where I believe I got a pretty fair knowledge of the English grammar. On leaving school I commenced my six years' apprenticeship. I was taught to turn my hand to almost every kind of work on the farm. At the age of 17 such was my ambition that I took my place as an able hand in the harvest field: when a year or two older could plough, drill, mow, pitch, or unpitch with the best man on the farm; and to prove how such work developes strength and activity, I have many an evening (after my day's ploughing) gone to a cricket club four miles distant, and when too dark to see the ball finished up with foot racing or wrestling. At 21 years of age I took the full management of the farm. I would here explain that my father died when we were all very young, and hard struggling it was for years after to maintain our position. I carried on the farm for the benefit of my family till the youngest was of age, and with some success, being able to divide a little sum amongst ourselves, and starting on my own account in the farm with 500*l.* and a borrowed capital of 2000*l.* more, as security for which I could only give a bill of sale over all my effects. Suffice it to say I have not been unsuccessful, but attribute that success in a great measure to that thorough practical knowledge obtained during my apprenticeship. Had I been brought up in idleness and placed in business with ample means, I should probably have come to grief, as many others have done. This is a brief history of my agricultural career. To conclude, I do most certainly advocate a more sound and intellectual system of training for the sons of farmers, to be followed by a thorough practical knowledge of their business. The former can only be obtained by the establishment of large public agricultural schools or colleges, where an education can be obtained at moderate terms, say not exceeding 40*l.* a year. *X.* 7.

18. Norfolk.—The course of education pursued in the present day is quackery; that is, whether a youth is to be a shopkeeper, a linen-draper, or a farmer, he has to go through the same routine of

learning. Another thing which strikes me forcibly at this time is this, that if farmers could be induced to pay more attention to their daughters' education in having them domesticated for farmers' wives, it would be much better than teaching them music and other accomplishments suitable in their places, but not exclusively. Norfolk, I believe, is peculiarly circumstanced at this time. A young man, when he takes a farm, is not at liberty to choose whether he should keep a dairy or only bullocks and sheep; for this reason—not one out of forty of the farmers' wives, particularly young farmers, have any idea about the management of cows, —it must be left to servants. And that is the rub; where are we to get a good servant? That is the question. Every farmer is asking you at Michaelmas, and often during the year. Some of our large farmers employ a gang of young lads and girls, and while they do that, I'll be bound for it we shall have no modest, clean, and domestic servants. *W. H. Taylor, Wymondham.*

19. Northamptonshire.—I think it is difficult to overrate the advance made by the actual generation of farmers compared with those who existed 40 years ago. For 20 years I had no difficulty in keeping far ahead of all the farmers around me, but now it is not so. The general cultivation of the neighbourhood is very much improved. Some of my own tenants farm their land as well as I can, and they adopt any improvement as soon as they are satisfied that it will pay. Some of the best of them have been labourers. I send a copy of a paper which I read some years ago at the Social Science Meeting on the application of half-time education to agricultural labourers. I continue the system, and year by year am more thoroughly convinced of its advantages. Now, the result on the boys is that they are more orderly and industrious and very much more intelligent. They will understand an order given and carry it out. They do not lay aside their books when school is done with. Those who continue in farmers' service have given satisfaction, but their education enables many of them to fill more lucrative situations with credit, and I have never had a single complaint of their conduct in after life. My schoolmaster sent his son at 15 years old to work on my farm, because he saw how well the half-time succeeded with the labourers' boys, and he always has rejoiced that he gave him the opportunity. His intention was to fit the boy to become a bailiff, and I think it an excellent foundation for a working bailiff's education. To apply this to your query, I would say that the farmer's son generally leaves school at 14. Now I should recommend that he should continue for two or three more years to spend three days a week at school and three on the farm at work. I think that the intelligence and observation which are developed in the labourer's son would be still more marked in the farmer's son. I do not think that scientific knowledge is very necessary in the ordinary tenant farmer. If he has a taste for it I am quite sure that he will be able to gain it after the preparation which I propose for him. His usual place is not to lead, but to observe and follow the most profitable systems which he sees around him. Cirencester is the place in which a steward or land agent may acquire the science he ought undoubtedly to possess. He ought to learn chemistry and geology, enough to know the peculiarities of the estate on which he is to operate, and to appreciate the opinion which he may obtain from professional men as to manuring, soiling, draining, &c. He should be a light in the country whose advice would be looked up to and example followed; but an education such as he requires is beyond the reach of the bulk of tenants' sons; and I think that in a well cultivated country intelligent observation gives a man nearly all he requires, while in a wilderness, where so many things are new, science will be a most valuable assistance to a farmer. You will gather from what I have said that I have long taken a great interest in this question as applied to the substratum of our agricultural population, and I shall watch its progress and receive with pleasure any light which you may be enabled to throw upon it. *Charles Paget, Ruddington Grange, Northampton.*

20. Sussex.—The general education of farmers' sons intended for farming in this neighbourhood is principally confined to academic instruction, nor are the classics entirely passed over. There is a College at Hurstpierpoint, also private schools at Lewes and elsewhere. Upon leaving school the boy is attached to his father's farm, and entirely under the direction of his father. If his means are small the boy follows the plough, and otherwise works with the labourers, which associates him with low life, and often unfits him for good society. If the family of the boy is in better circumstances, then he mixes with better society, and often neglects his duties, to the no small chagrin of the father, who finds it difficult to fix his son's mind on the operations of the farm. I believe that the present race of farmers are not so well informed upon the general working of the land as the last generation, but we possess many appliances which formerly were unknown. I account for this want of practice by the manner of living, which is more pleasurable and more expensive than it formerly was, owing to the mind having been withdrawn from the lower avocations of farming by education, or rather by refinement, which unfits a man for the unprofitable business of cultivating the soil. The only men who profit by a good and liberal education are agents to noblemen and gentlemen, who have the management of estates, but do not confine their mind to farming. If it is necessary to produce more evidence of the necessity of practical knowledge in farming, I may say that I know of no young man in this neighbourhood, of the age of 22, who is capable of conducting a large farm to advantage unless entirely trusting to an experienced bailiff. Even at a maturer age, few who are liberally educated can manage of themselves. These experienced men to whom they trust are sprung up from a class of indigent but practical farmers, who have been reduced by the commercial policy adopted by the so-called (but improperly) political economists. With regard to the breeding and grazing department we have few living authorities, and none equal to Bakewell, Buckly, Price, Tomkins, Stone, Chapman, Stokes, my late father, and a few others who gained their knowledge by dint of study, confined to the natural bent of the mind; no assistance was then at hand, but that which one imparted to the other, being the result of a well-considered practice. In conclusion, I am quite prepared to prove my assertion, that any education which entices the mind from the avocations of a farm, must inevitably weaken the object, and mislead the practitioner into a labyrinth of difficulties. *Thomas Ellman, Beddingham.*

21. Yorkshire.—The sons of farmers in this neighbourhood who are intended for agricultural pursuits are for the most part sent to private schools, which are both numerous and respectable, and when he leaves school he is presumed to be able to read and write correctly, to have a certain amount of information respecting arithmetic, surveying, the keeping of agricultural accounts, and to understand the rudiments of botany and chemistry. He is immediately set to work upon the farm, to harrow, plough, and other things as his strength permits. He generally continues with his father until the age of 23 or 25, when he is put upon a farm on his own account. Many farmers in this neighbourhood take agricultural pupils. I generally have three or four who stay for two or more years, and work at anything they prefer, keep an account of what is doing on the farm, and attend the markets with me. The present generation of farmers in this neighbourhood are both far better educated, and much more anxious for general information than the last. Forty years ago the tenant farmers could read very imperfectly, kept very inaccurate accounts, and never left their homes except to market. Now, every farmer of 50 or more acres of land takes at least one newspaper weekly, attends some club or reading room, and is ready to take part in any discussion that may arise at the market dinner table on agricultural subjects. I remember the time when any order, however absurd, sent from the landlord or his steward would be implicitly obeyed. Now, it would be read over, considered, and discussed, and if found injurious to the tenant farmer petitioned against and published in newspapers. With regard to the kind of education suited to the tenant farmer, I am of opinion that every boy should be educated upon a broad basis until the age of say 14, when his attention should almost be exclusively directed to those sciences which he will be called upon to bring into practice when he enters upon the work of a farmer: accurate book-keeping, some knowledge of mechanics, especially tension and draught, analysis of soils and manures, land surveying, levelling, planning, &c., are some of the subjects most useful to tenant farmers. *John Outhwaite, Bainesse, Catterick.*

Home Correspondence.

Dr. Mackenzie and the Malt Tax.—I have read with astonishment the article in your Paper of Saturday last on the malt tax by Dr. Mackenzie. It is full of egregious fallacies. It contains one truth, however, namely, that the Dr. "looks at the malt tax in a light by which few care to examine the question." The fewer the better, for the "light" is moonshine. He remembers reading as to experiments between Barley and malt. Were they the memorable ones conducted upon two cows by Dundas Thompson at the instance of the Government in 1846?—on "two cows, one a white one, quiet and steady," and the other a brown one, "fitful in her appetite" and temper, and which experiments are remembered chiefly for their worthlessness? If so, let me supply Dr. Mackenzie with the experience of a practical farmer. Mr. Hudson, of Castleacre, says:—"I grow 3000 quarters of Barley annually; if allowed to malt coarse Barley, and feed with it, I could save 2*l.* 12*s.* per beast by it as compared with Barley." Experience for experience I prefer that of the practical farmer to that of the theoretical doctor. Farmers have been often blamed for not listening to the teachings of science, but they are justified in their reluctance to listen, when science, in the person of Dr. Mackenzie, talks such nonsense as the following: "To make 580 quarts of beer, about 350 lb. of Barley have been used, of sound nourishing Barley food, all now reduced to one pound"!! Was there ever such balderdash! "Unless all chemists are mere impostors," says the Dr., "almost the whole of the nourishing principles of the Barley are utterly destroyed by fermentation." The Dr.'s teetotal enthusiasm has here carried him beyond the precincts of truth. He quotes Solomon. I prefer the counsel of a better man, and refer him to Paul, who says "Be temperate in all things." Yes, temperate in assertion as well as in drinks, and the Doctor was very intemperate when he wrote the above. 'All' chemists do not state that the nutritious properties of Barley are utterly destroyed by fermentation. Professor Johnstone writes—"Beer, therefore, is food as well as drink. A little beef eaten with it makes up the deficiency in gluten as compared with milk (the model food); so that beef, beer, and bread, our characteristic English diet, are most philosophically put together, at once to strengthen, to sustain, and to stimulate the bodily powers" (Chemistry of Common Life, p. 301). Again, I am sorry to write that the Doctor sees things "in the light" of moonshine when he alleges that "every chemist and physiologist admits that alcohol does not contain a vestige of nourishment, but destroys digestion and devitalises the blood." Liebig writes (I suppose Dr. Mackenzie will allow him to be a chemist):—"Alcohol stands high as a respiratory material. Its use enables us to dispense with starch and sugar in our food." Again, "Some temperance families, depriving their servants of beer, gave them compensation in money, but they soon found that the monthly consumption of bread increased so strikingly that the beer was twice paid for, once in money and a second time in bread." Dr. Moleschott, another distinguished German chemist, says, "Alcohol is a box for savings; a man who eats little and drinks moderately retains in his tissues and blood more than he who under corresponding circumstances eats more without taking beer." So much for the rash statement of "every chemist," &c. Now, for the physiologists. The learned writer of the "Physiology of Common Life," says, "There are few facts better established than that wine and beer increase the activity and power of the organism, while they diminish its waste," p. 175. The great physiologist, Dr. Carpenter, himself a temperance advocate, alleges that in some cases "malt liquors constitute a better medicine than could be administered in any other form, and afford the only means of procuring the digestion of the amount of food which the system really requires." I think the above statements show that the light in which Dr. Mackenzie views the malt tax, is a melodramatic glare derived from teetotalism, or some other such delusion. Every man who has in a state of exhaustion partaken of a glass of unadulterated ale knows that it is nutritious, in the right sense of that word, and true science teaches that other material beside *flesh*-forming matter, is required for creatures who possess brains and a nervous system, whatever may suffice for others, who are constituted differently. No man was ever more opposed to the sin of drunkenness than the brave Havelock; "his saints," said his General, "are always sober, and can be depended upon," and yet, what do we read respecting his attack on Cawnpore?—they had no meat for 48 hours, and happily "some porter was served out; and no one who heard their cheers as they marched off, and watched their invigorated step when they subsequently came into close contact with the enemy, could doubt the beneficial result of the stimulant." Such facts as these are worth a thousand chemical theories which teach us that bran is more nutritious than flour, and horseflesh than ox-beef. Dr. Mackenzie calls upon us to consider what Solomon would say, and then deliberately informs us that he desired the people to curse those who had not done so great an evil as those commit who convert Barley into beer. I disregard such curses. Beer is the poor man's wine, and we know Who ordained wine "to make glad the heart of man." As good a man as Dr. Mackenzie, and a better one than Solomon, did not consider that its temperate use would "destroy digestion or devitalise the blood," but advised his friend to —"Drink no longer water, but use a little wine for thy stomach's sake, and thine often infirmities," and the time is not distant when the repeal of the iniquitous Malt Tax shall enable the toiling labourer to realise in all its blessedness the fact that our common Father hath not only caused the Grass to grow for cattle, but hath also provided wine to make glad the heart of man. *J. H.*

Yew Poisonous to Cattle.—Of the poisonous effects of the Yew upon some animals there is no doubt. A case in point, tending to prove the dangerous qualities of the Yew, occurred here the other day. A doctor from Loughborough, seven miles from here, called, leaving his horse in charge of his servant in near proximity to a Yew hedge, which he incautiously allowed it to eat off. After driving about four miles the horse showed signs of sluggishness, and was with difficulty got along; before it had got two miles further it began to reel, and before the gentleman could alight fell down and died instantly. When opened and examined the stomach was found to contain a quantity of Yew, which was the immediate cause of death, as in every other respect the animal was found to be in the most perfect health. In this instance the Yew was eaten on an empty stomach, which would no doubt tend to accelerate its fatal effects. In another instance a farmer here had some sheep inclosed in a paddock adjoining his garden, in which were growing some Yew trees. The sheep broke down the fence and ate of the Yews, the consequence being that several died in the course of the next day—this occurred during the month of April. No fact is more certain than that some animals, and under some circumstances, have died from eating Yew,

although similar animals and under similar circumstances have not been so killed. We have here large quantities of Yews adjoining the park and bounded with iron fencing, over which the cattle reach the branches and keep them as neatly cropped as if they were cut with a pair of shears, and in no instance have I seen the slightest injury to result from it. I do not see any good reason for supposing Yew to be more fatal at one season than another, although there appears to be a decided mystery respecting its effects, which is far from being well understood. *George Westland, Kingston Hall, Derby.*

Reviews.

The Journal of the Royal Agricultural Society of England. Second Series. Vol. I. J. Murray.

In what particulars this volume is No. 1 of a new series we do not see. It is precisely on the same plan and of the same style as the 25 volumes which have preceded it. And it might as well have been No. 26 of the old series as No. 1 of the new. There is indeed for the first time in the history of the Society's Journal a description of the great agricultural school at Cirencester; let us hope therefore that the "new series" betokens the turning over a new leaf in the Society's guidance as regards its relationship to the subject of agricultural education.

The present part is a very interesting and instructive publication, with a great variety of contents, every particular being treated by an experienced man and able writer. Perhaps the only instance in which the authorship strikes one as peculiar, is in the article on Stocking Land, which is a subject occupying the very first rank in the practical management of a farm, and is here treated by the Rev. J. L. Brereton. We find, however, on turning to it, that it is the detailed account of expenditure and returns on a small glebe farm, where the management includes the purchase of an amount of cattle food equal to 20*l.* per acre over the whole extent of the farm! The accounts given are thus altogether exceptional. Let us, however, add that they are not the less interesting on this account; proving, as they do, that during the present high prices of meat and low prices of grain, a great deal more may be profitably done than is in stock feeding. The volume contains papers by Mr. Lawrence on the Royal Agricultural College (a simple statement of the facts which constitute its history and description); by Mr. Belcher on Breaking up Pastures; by Mr. C. Cadle on Orchard Management; by Professor Simonds on Parasites (an exceedingly useful and interesting paper); by Mr. J. A. Clarke on Lois Weedon Culture under Horse Tillage; by Mr. W. J. Moscrop on Covered Cattle Yards; by Mr. Scott Skirving on 10 Years of East-Lothian Farming (another well-written paper by an intelligent practical man); by Dr. Voelcker on Unproductiveness in Soils, and on several other subjects treated from the chemical point of view; by the Rev. J. L. Brereton on Stocking Farms; by Mr. Spooner on Horse Breeding; by Mr. Wells, the Rev. Wm. Brown, and Mr. Frere on Flax Culture; and by Mr. Amos on the Newcastle Dynamometer; together with several shorter miscellaneous communications by Mr. Lawes, Mr. Lawrence, Mr. Frere, and Mr. H. S. Thompson, M.P.

There is also a report of the recent discussion on Town Sewage; and in this, as well as in the articles on Flax Culture, there is exhibited a praiseworthy regard for the value of the Journal as a source of immediate agricultural news.

Flax culture is occupying a great deal of attention just now, and it is well represented here. Town sewage is the subject of the day; it, too, is fairly represented.

The relations of the price of meat and meal, which constitute the most important agricultural topic at the present time, are, however, very inadequately represented here. Mr. Brereton gives his experience on a small farm of 30 acres, where the valuations and expenditure exceed 2000*l.* a-year; and Mr. Frere relates a small experiment. The Editor ought to have collected a large body of facts from the ordinary agricultural field on such an important subject.

He has, however, given us an extremely interesting and well-filled volume, and deserves our thanks.

Miscellaneous.

Agricultural Education.—Welsh farmers are undoubtedly best suited for Wales. They, like their native black cattle, are indigenous to the soil, and will thrive best upon it; but both are in want of something which must be had before they can do much good in the world. The farmer wants more money and improved knowledge of his business. I could point out to you a Welsh farmer who, some 20 years ago (when a young man) was sent to a good farming county in England to learn rotation, cropping, &c., and who, after his return, farmed so successfully that he is at this time an opulent farmer and a freeholder. Please to mark that it is the English scion grafted on the Welsh stock that has borne this fruit. The stock is indigenous to the soil. The scion is an improved knowledge of agriculture. The want of the black cattle, too, is very similar to that of their masters—they want better breeding and rearing and feeding; and when the wants of both are supplied, they may go together to the shows of the Royal Agricultural Society and of the Smithfield Club, and cut as respectable an appearance as any there. Why should a farmer be expected to be up with his business (now rising to a science), without a professional education, any more than any other man? The farming interest appears to be coming awake to this important subject, to judge from the numerous advertisements in every agricultural journal, either from pupils or farmers requiring them; and high premiums appear to be paid, as in the learned professions. But the agricultural college of which we have sometimes talked, situated somewhere here on the Silurian formation, would doubtless be the thing for Wales, the experimental farm attached to it being situated on the soil, and subject to the climate of the country in which it is instituted; and the extension of our county agricultural society to the whole of South Wales, in such a way as to give the whole of the southern principality interest in it, would doubtless be of advantage, as it would bring such a varied display of stock, implements, and machinery under view, as cannot be secured by a small society; and such large central societies are now the order of the day. *Mr. Buckley at Carmarthen.*

Cottages.—1. Double cottages are to be preferred, standing within their garden plot. 2. The angles should be north, south, east, and west. 3. The garden should contain from a sixth to a quarter of an acre. The privy at the extreme end, with the pigstye. 4. A drain from the back door to the privy should carry surface drainage and house slops to the privy; and thence to a closed tank at some distance. 5. Tiles or slates, not thatch, are to be used. 6. A back as well as a front door: windows on three sides. Both sashes to open, where sashes are used; both casements, where there are double casements. 7. The day-room to have in its chimney an air-tube or separate flue. The floor to be made with a boarded centre, and hard flags or tile border, set in concrete. The floors to be raised 6 inches at least above the outer road. The back room to have a fireplace, with boiler attached, and a well-trapped sink. 8. Three bed-rooms: for parents, boys, and girls. Height of rooms to be 8 feet; the top of the windows to reach the ceiling. A fire-place to be in one room at least, a ventilating tube in the other two. 9. The front room and bedrooms to be approached from a porch. 10. Where rows of houses exist, a wash-house in common to all the houses should be contrived in the garden. 11. The privy in every case to be removed as far as possible from the water supply. *Dr. Acland.*

Calves' House.—You may prefer a calves'-house darkened if it is to be used for fattening veal, but if you intend rearing calves either as heifers or for beef, it should not be dark. Indeed, in that case it is better that the calves be kept in a yard with a shed. In this shed there may be shallow troughs, containing a little cut Mangel, sprinkled over with meal, and some small netted bags of hay should hang within reach and under shelter, which the calves may suck and pull at. One or more frames (hurdle fashion), wide enough to stretch across the shed, may be slung from the roof, and pulled up out of reach when not required; those are let down into their places twice a day when the calves are fed. These frames, about a hurdle high, contain openings with a hanging catch to each at intervals of about 30 inches or 3 feet, into which the head of the calf is placed when it gets its milk from the pail, and in this way the two advantages are secured—(1) of feeding them without any contest at the pail; and by keeping them fixed in their places for 10 minutes after feeding; (2) of hindering them from sucking one another, which they are very apt to do. The cow byres may be made as described by Mr. Newlands, our best agricultural engineer (at p. 805, Vol. I. of Morton's "Cyclopedia of Agriculture"): and if your farm is arable as well as pasture, and the cattle are to be fed on roots as well as hay during winter, the cow-house may be made as there represented: the section showing Turnip-house, gangway for the feeder, manger, standing ground for the cows, gutter, and a space of about 3 feet 6 inches between it and the wall as room for cleaning up, bringing litter, &c. The pigsties should be made with a lean-to roof, high enough next the wall to allow of a gangway for a man, and the divisions should be perfectly separated so as to hinder draught. At the end of the gangway may be the boiling-house. The cow byre and open shed should be the north range, and the pigsties the east range of a rectangular yard. Room for six cows, say 24 feet as length of the byre, and an open shed of other 15 feet, will suffice on the north side.

Calendar of Operations.

March.—We have referred during past weeks to Oat and Barley, and Grass and Clover seeding; also to the management of the ewe flock at this season. This is of course only a small portion of what occupies the attention of the farmer. Sainfoin, Vetches, and Parsnips may be sown in March, and Potatos may be planted. The operation of paring and burning, as the best way of breaking up old turf for a green crop, may be carried on. The operation of hoeing in the fields of Wheat and winter Beans is commenced. The roller and the harrow are in use on Grass fields, and also when the land is perfectly dry on young Wheats.

Dairy Operations are commencing; the milk is however still, even in cheese dairies, devoted almost entirely to butter making, the quantity being hardly enough yet to occupy the full attention of the cheese maker.

On Weed Sowing, directly in foul crop seeds, and indirectly in foul manure where the straw used in cattle lair is of weeds—also from the nurseries of weeds in waste places, we extract the following piece from Morton's *Farmers' Calendar*:—

"From the regularity with which weeds are sown from all these sources, it is no wonder that so many men have come to look upon them as a necessity. Let, however, more correct knowledge become general as regards the nature and habits of weeds, and processes of weed destruction be devised in accordance therewith, and we feel quite sure that our enemies will be kept in abeyance.

"*Early Hoeing of Weeds* is necessary to this end, for that weeds are often multiplied by the very processes employed to get rid of them there can be but little doubt. This may be done, either by subdivision of creeping forms, such as Coltsfoot and Couch, or by sowing seeded weeds in hoeing. A few seasons back we had a dirty piece of Beans containing, amongst other weeds, three circular patches of Coltsfoot; this was ploughed and scuffled, and the next summer Coltsfoot was tolerably evenly spread over its whole extent. The creeping root of Couch is in this way cut into bits by the plough, and though much be picked off the surface, enough of it usually is buried in some instances to increase the evil, and in all to ensure its continuance.

"As regards sowing weeds by hoeing, it may be remarked that it is too much the practice to treat all weeds alike, and so attack them all at once in a regulation time of hoeing, and thus as some will be in seed while others are progressing to that point, though we may destroy the latter, yet at the same time we sow the former. It cannot be too strongly urged that as different soils and districts present weeds of different species which do not all arrive at their most mischievous point of growth at the same period, so the only possible way in which to effect the destruction of all is to kill them as soon as they are fully formed, and before they bloom. During March therefore, the hoe should be at work in dry weather among young Wheats. Patches of Coltsfoot should be carefully forked out, and no bloom allowed to seed."

Paring and Burning.—The following is another extract, condensed and abridged:—

This is one of the occasional works of early spring. There is no better way of breaking up old sward, especially on adhesive soils. And even on lighter soils of there be a large extent of Grass land to be converted into arable, it is best after feeding the Grass hard down the previous autumn, to break up at least one-half of it by paring and burning. If one-half be ploughed under before winter, it will yield a large crop of Oats, provided it be tolerably free from wireworm; and if the other half be pared and burned, the ashes spread will ensure a capital crop of Turnips; and thus at starting you have half corn and half cattle food, and can continue the system you have begun.

The paring (breast ploughing) will cost from 15*s.* to 20*s.*, according to the character of the sward; but it may very well be done, as by Snowdon's paring plough, by horses. The turf is harrowed over roughly, and tiled by hand to dry. Fires are lighted every 8 or 10 yards, and a heap begun at each, and covered over daily or rather nightly as they need. The burning will cost 12*s.* to 15*s.* per acre; and the ashes may be spread for 3*s.* They should be ploughed under with as shallow a furrow as possible, rolled, and after rain, harrowed, and then cross-ploughed at a rather greater depth. The Turnip seed being sown in rows upon the flat, will grow luxuriantly with no other manure.

But the burning of the soil of arable land is also carried on in early spring and in the autumn with good effect, especially on calcareous clays. It is adopted for three distinct purposes. It is used for the purpose of destroying an excess of vegetable matter in the soil, being however then confined to comparatively limited districts—those of fens and bogs—and even there it is dying out as its object becomes attained, so that in many districts where the peat was 6 feet thick, the plough now takes hold of the clayey bed on which it rests. It is adopted, secondly, for the purpose of bringing a turf quickly into tilth, and there its object is not so much to dissipate vegetable matter as merely to destroy its fibrous structure, charring rather than burning being thus the object aimed at. It is employed, thirdly, for the purpose of exposing clays and calcareous soils to just such heat as shall produce certain mechanical and chemical effects that are desired."

This last purpose is gained by the process of stifle burning in calcareous districts, and by burning in heaps with fuel in stiff clays:—"Mr. Beaumont describes his practice on a farm of Lord Mansfield, which was a poor clay, at a rent reduced by the poverty and consequent incapacity of its tenants to 10*s.* per acre when he took it in hand, and his first step was to burn enormous quantities of this clay soil. He tells us that in 1853 he put 10,000 cubic yards on 100 acres of land with an extraordinary result. His straw was quadrupled in bulk, and the grain doubled in value; an excellent Turnip crop was attained. A large herd of cattle was kept during the winter in the fold-yard, and a famous heap of manure resulted for use in the following spring. After another year's experience, during which nearly as much burnt earth again has been put on, the valuation for grain crops has been again raised from 700*l.* to 1200*l.*, and the stock of cattle has been increased. Mr.

Beaumont put the cost of the process at 6*d.* per cubic yard of the clay measured after burning; filling, spreading, and applying, 2*d.*; fuel, &c., 1*d.*; so that 4*l.* per acre covered the cost of putting on 100 cubic yards.

Dung Heaps should now be turned and commingled. Those intended for the fields where Carrots are to be sown should be the first. This operation will cost 1*d.* per cubic yard, measured before turning. Six inches of the soil on which the heap lies should be thrown up with it. Dung heaps, too, will still be forming in fields for Turnips, &c., being carried out from the yards whenever time and weather permit. And among other occasional employment during March, there will be the threshing of grain for the market, or for the supply of straw, and the completion of all work connected with fences and roads. Stones should be picked off any fields, whether in Grass or corn, over which either scythe or reaping machine is to go this year.

Notices to Correspondents.

Birds v. Insects: *France.* The following is the passage you allude to, it is contained in a petition addressed some years ago to the French Senate:—Against insect enemies man is powerless. His eye is not even sharp enough to discern many of them, his hand too slow to catch them. But God has given him in the bird a faithful ally, who wonderfully accomplishes the task which man is incapable of performing. This providential mission of birds for a long time was considered a poetical exaggeration; now, thanks to the labours of modern naturalists, it ranks as one of the best demonstrated truths of science.

Books: *A V., Brussels* "The Complete Grazier" (Burn's Edition of Youatt), Longmans. There are many other books on the subject, and our standard works, "Stephens' Book of the Farm," and "Morton's Cyclopædia of Agriculture (Blackie)," may be consulted.

Cooking Meal for Cattle: *J. C. X.* Mr. M'Culloch's experiments state that, by merely boiling the same quantity of Bean-meal (4 lbs.), instead of giving it raw, an equal result is produced by 71 cwts. of Mangels as by 84 cwts., and with Swedes the cooking of the auxiliary Bean-meal makes a saving over the raw meal of 27 cwts. Swedes; or, to put the value of the cooked food in another light, it appears that an ox fed on Turnips alone consumed daily 150 lbs. Swedes, while one with 4 lbs. raw Bean-meal consumed daily 130 lbs. Swedes, and another with 4 lbs. Bean-meal cooked consumed daily 100 lbs. Swedes, the 4 lbs. raw Bean-meal being an equivalent to 20 lbs. of Turnips; whilst by merely cooking it, it became equal to 50 lbs. Turnips.

Daily Food of Cow: *R.* Half a cwt. of Turnips, 16 lbs. of Hay, and 24 lbs. of Wheat and Oat straw daily, are large rations for a small cow. Cut the straw into chaff, mixing a small quantity of hay, and pulp the roots, mixing them all together. You will thus save much hay. An acre of good land may produce, under proper cultivation, 50 cwts. a month of green food throughout the year.

Guano: *R.* It is rarely adulterated except with things which add to its weight. A bushel of good guano, filled in without pressure, should not exceed 73 lbs. in weight—it may vary from 69 to 73 lbs., and the lighter the better, provided, on throwing it into water, none of it floats, for that would show an admixture of sawdust. If heavier than 73 lbs. per bushel, it has been adulterated with earth.

Manures, Linseed Cake, &c.: *Cor.* The manure trade is now very brisk, and judging from the large deliveries required by dealers, a very extensive trade is expected this season. The following is Mr. Purser's report:—Guano remains at last year's price, Nitrate of Soda firm, Bones are scarce, and command high rates.

		£	s.	d.		£	s.	d.
Peruvian guano, direct from importers' stores, or ex ship (30 tons	per ton	12	5	0	to	12	10	0
Bones	,,	6	0	0	to	6	5	0
Ditto crushed	,,	6	10	0				
Animal charcoal (70 per cent. phosphate)	,,	5	0	0				
Coprolite, Cambridge, whole..	,,	2	5	0	to	2	8	0
,, ,, ground	,,	3	0	0	to	3	3	0
,, Suffolk, whole ..	,,	1	18	0	to	2	0	0
,, ,, ground ..	,,	2	10	0	to	2	12	0
Nitrate of soda	,,	15	0	0	to	15	10	0
Sulphate of ammonia	,,	14	0	0	to	15	0	0
Gypsum	,,	1	10	0				
Sulphuric acid, concentrated, 1.845	per lb.	0	0	1				
Ditto brown, 1.712	,,	0	0	0¾				
Superphosphate of lime ..	per ton	5	0	0	to	6	5	0
Blood manures	,,	6	5	0	to	7	10	0
Dissolved bones	,,	6	15	0				
Linseed cakes, best American (barrel)	,,	11	5	0				
Ditto, ditto (bag) ..	,,	10	10	0				
Ditto, English	,,	11	0	0	to	11	10	0
Rape cake	,,	5	15	0	to	6	0	0
Cotton-seed cake	,,		..				..	

Stiff Clay: *M. N.* You must hope to improve the character of your soil by drainage, liming, occasional paring and burning, and good cultivation. Drain with tiles in any case straight down the slope, 4 feet deep, and 20 to 24 feet apart. Do this now—then pare and burn the land; or if it be lying fallow, burn all the clods of earth you can gather together, and spread the ashes. Fallow the land well, and manure it this summer, and let a good subsoiling across the line of drains be one of the fallow operations. Sow Wheat in the autumn, and you will probably reap a good harvest next year. Apply 100 bushels of hot lime per acre on the stubble, and take care always to cultivate where the land is dry, and to use dry autumnal weather for the purpose.

Turnips: *Scot.* They are much more nutritious grown in Scotland than in South England. You know Mr. M'Combie's declaration:—I fat from 300 to 400 beasts annually—my average price for them in London this season has been 35*l.* a-head; I never exceed 4 lbs. oilcake and 2 lbs. bruised oats a beast per day; they have what Turnips they can consume and Oat straw *ad libitum*, 12*l.* per acre is my average profit in feeding on Aberdeen Yellow and Swedish Turnips. I sometimes realize less—often more.

Veterinarian: *X.* Mr. Gamgee says that there is about one professional man to every 240 square miles in Scotland, and many counties far exceed this average. Thus, Ross and Cromarty, with an area of 2955 square miles, contains nearly 5000 horses, 18,000 head of cattle, and upwards of 300,000 sheep, with only one veterinarian. The losses in this county, for want of veterinary surgeons, are, as might have been anticipated, very severe. Inverness—area 4186 square miles—contains nearly 4000 horses, 24,000 head of cattle, and upwards of 600,000 sheep, and only three veterinary surgeons. The complaints respecting the need of qualified veterinarians are more loud from Inverness-shire than from counties even, if possible, worse supplied.

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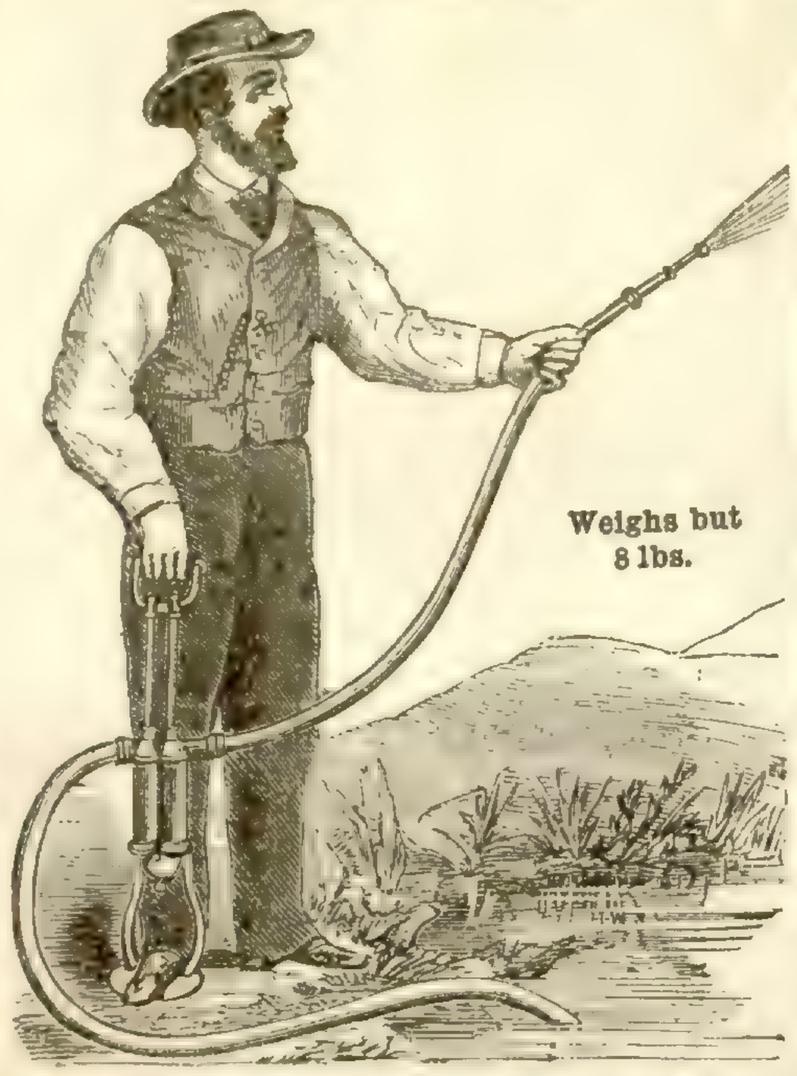

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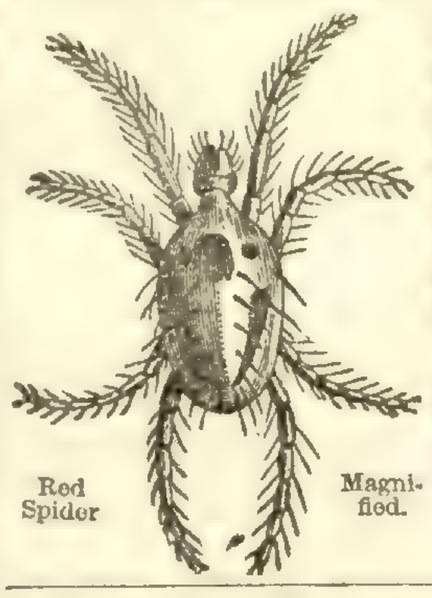

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"We hereby Certify that during the whole time we were Warehousemen in the Establishment of B. Page & Co., and subsequently Page & Toogood, that we Manufactured the Blight Composition under Mr. Toogood's *sole directions, and that he alone knew the proportions of the various ingredients.*

Signed John Morley,
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Sold in casks of about 30 gallons each, at 1s. 6d. per gallon, at the Manufactory, or 1s. 8d. per gallon paid to any Station in the kingdom.

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GARDEN BORDER EDGING TILES, in great variety of patterns and material, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.

F. & G. Rosher, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.

Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also TESSELATED PAVEMENTS of more enriched designs than the above.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cements, &c.

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SILVER SAND (REIGATE, best quality), at the above addresses—14s. per Ton, or 1s. 3d. per Bushel; 2s. per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less.

FLINTS, BRICK BURRS or CLINKERS, for Rockeries and Grotto Work.

F. & G. Rosher.—Addresses see above.
N.B. Orders promptly executed by Railway.

POTS, POTS, POTS.—Directions for making small Pressed Flower Pots, for growing Bedding Plants. Post free for 37 stamps.

W. Henderson, New Castle, Ballymahon, Ireland; or to W. Henderson, Nurseryman, Birkenhead.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society &c.

PROTECTION from COLD WINDS and MORNING FROSTS.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.

Two yards wide	1s. 9d. per yard run.
Four yards wide..	3s. 6d. per yard.
An improved make, 2 yards wide ..	1s. 9d. per yard.
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Also "Frigi Domo" Netting, 2 yards wide, 1s. 6d. per yard run.

Elisha Thomas Archer, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, and of all Nurserymen and Seedsmen throughout the kingdom.

"It is much cheaper than Mats as a covering."

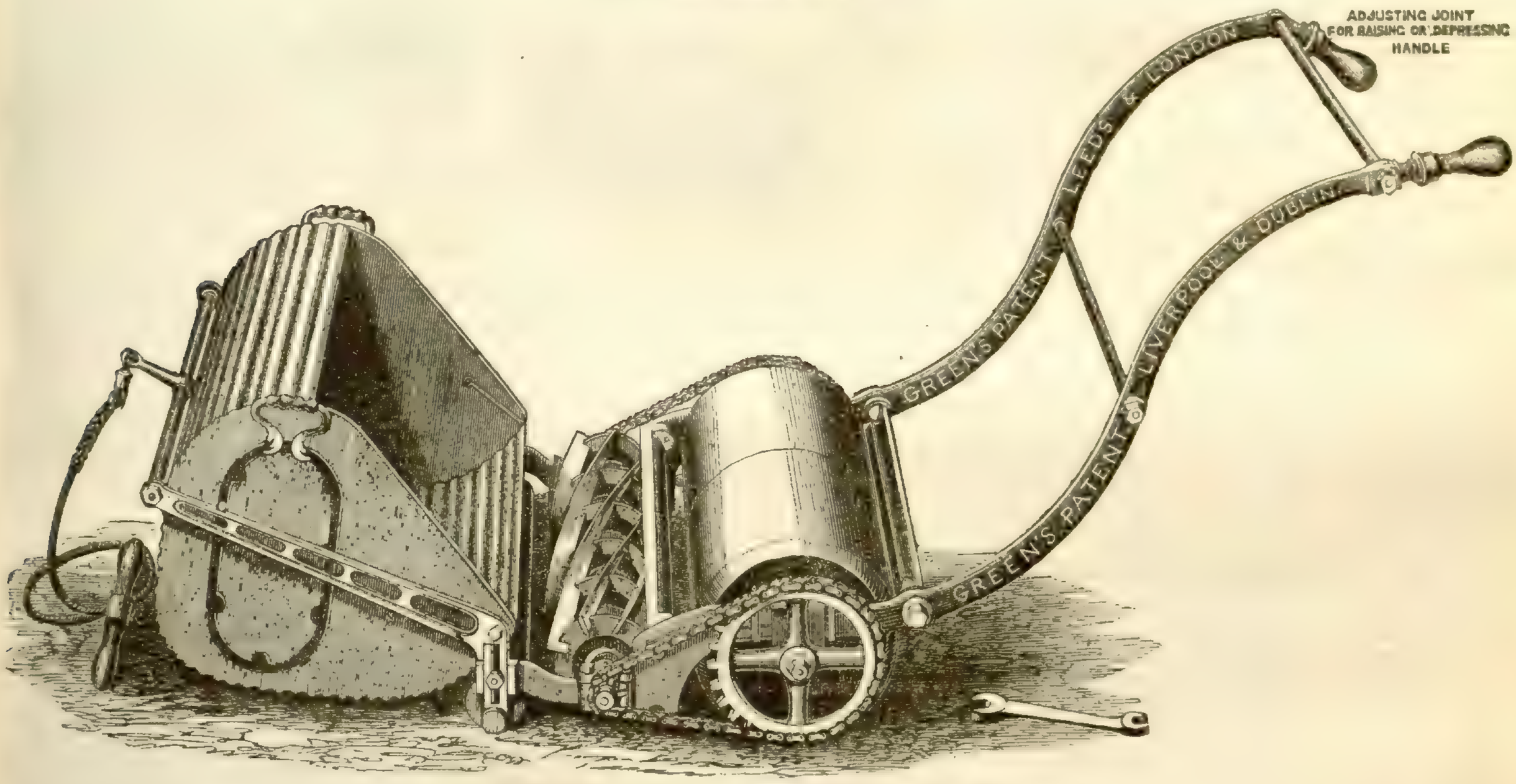
GREEN'S PATENT SILENS MESSOR,

OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

BY SPECIAL APPOINTMENT,
SOLE MANUFACTURER

TO HER MOST GRACIOUS MAJESTY
THE QUEEN.



IMPROVED PATENT LAWN MOWER FOR 1865,

AS RECOMMENDED BY THE JUDGES OF THE ROYAL HORTICULTURAL SOCIETY'S SHOW HELD JULY 20, 1864.

GREEN'S PATENT LAWN MOWERS have proved to be the best, and carried off every Prize that has been given in all cases of competition. The Judges at the Royal Horticultural Society's Show, held July 20, 1864, awarded them a First-class Certificate (no Prizes were given), and, at the same time, suggested a slight alteration, which has been done, and Messrs. T. G. & Son consider their MACHINES now as near perfect as possible.

Messrs. T. G. & Son beg to state that, owing to the great demand for their MACHINES in past years, they have been unable to execute orders with that despatch due to their numerous customers, but are now happy to inform them, that they have made such alterations and arrangements in their premises, whereby they trust to be in a position to send off all orders the day they are received.

PRICES OF HAND MACHINES.

To cut 10 inches	£3 10 0	*Suitable for a Lady.*	
" 12 "	4 10 0	"	"
" 14 "	5 10 0	*Suitable for One Person.*	
" 16 "	6 10 0	"	"
To cut 18 inches	£7 10 0	*Suitable for One Person.*	
" 20 "	8 0 0	*Suitable for Two Persons.*	
" 22 "	8 10 0	"	"
" 24 "	9 0 0	"	"

Packing Cases are charged at the following low rates, viz.: for the 10 and 12 inches Machine, 3*s.*; 14 and 16 inches, 4*s.*; 18 and 20 inches, 5*s.*; 22 and 24 inches, 6*s.* Parties providing themselves with Lawn Mowers are recommended to purchase the Cases in which to stow them away, when not in use, to prevent them from getting damaged; if returned, two-thirds will be allowed for them.

PRICES of HORSE, PONY, and DONKEY MACHINES, including Patent Self-delivery Box; Cross Stay complete; suitable for attaching to ordinary Chain Traces or Gig Harness.

To cut 26 inches	£13 0 0	*Leather Boots for Donkey*, 18*s.*
" 28 "	15 0 0	
" 30 "	17 0 0	
To cut 30 inches	£21 0 0	*Leather Boots for Pony*, 22*s.*
" 36 "	24 0 0	
" 42 "	27 0 0	*Leather Boots for Horse*, 26*s.*
" 48 "	30 0 0	

The 26, 28, and 30 inches can easily be worked by a Donkey, or by Two Men, on an even Lawn, the 30 and 36 inches by a Pony, and 42 and 48 inches by a Carriage Horse; and, as the MACHINES make no noise in working, the most spirited animal can be employed without fear of its running away, or in any way damaging the MACHINE.

Both the HORSE, PONY, DONKEY, and HAND MACHINES possess (over all other Makers) the advantage of self-sharpening: the cutters being steel on each side, when they become dull or blunt by running one way round the cylinder, can be reversed again and again, bringing the opposite edge of the cutter against the bottom blade, when the MACHINE will cut equal to new. Arrangements are made that the cylinder can be reversed by any inexperienced person, in two or three minutes.

The above MACHINES are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England; are warranted to give satisfaction, and, if not approved of, can be at once returned unconditionally.

THOMAS GREEN AND SON,

SMITHFIELD IRON WORKS, LEEDS; 2, FARRINGDON ROAD, HOLBORN HILL, LONDON, E.C.;

19, EDEN QUAY, DUBLIN; and HADWIN'S BUILDINGS, TITHEBARN STREET, LIVERPOOL.

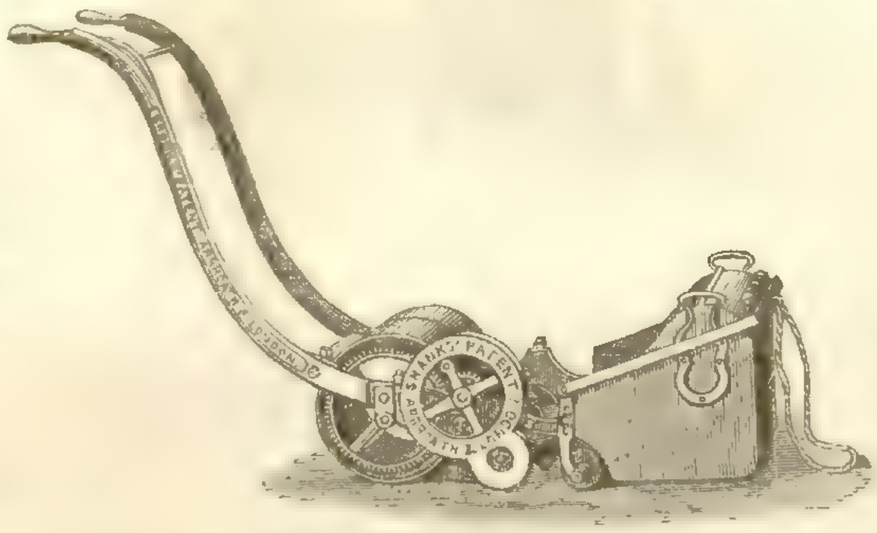
SHANKS' NEW IMPROVED PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1865.

PATRONIZED ON FIVE SEPARATE OCCASIONS DURING THE SEASON OF 1864 BY

HER MAJESTY THE QUEEN.

Alexander Shanks & Son are gratified to find that in the large and increasing demand for their celebrated MACHINES, they receive a conclusive proof that their merits are every season becoming more appreciated by the Practical Gardener.



HAND MACHINE.

A. S. & Son, in introducing Improvements into the MACHINES, have been careful that the advantages in point of durability, simplicity of construction, and superiority in the work executed, which have all along been peculiar to SHANKS' MACHINES, should still remain.

A. S. & Son have a large stock of their MACHINES ready for the ensuing season, and as they have made large additions to their Manufactory there will be no delay in the execution of Orders.

SHANKS' PATENT LAWN MOWERS are in daily use in the ROYAL GARDENS at KEW, WINDSOR, BUCKINGHAM PALACE, HAMPTON COURT, OSBORNE and BALMORAL; in the GARDENS of the ROYAL HORTICULTURAL SOCIETY at KENSINGTON; in the GROUNDS of the CRYSTAL PALACE COMPANY at SYDENHAM; in VICTORIA PARK; in BATTERSEA PARK; and in many hundreds of the principal Gardens in the Kingdom, as well as abroad, where their merits have been fully proved and their success established.

PRICES—including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom.

SHANKS' NEW PATENT HAND MACHINE for 1865.

Width of Cutter.		
10-inch Machine	£3 10 0	*Easily Worked by a Lady.*
12-inch Machine	4 10 0	
14-inch Machine	5 10 0	*Ditto by a Boy.*
16-inch Machine	6 12 6	*Ditto by a Man.*

SHANKS' NEW PATENT HAND MACHINE for 1865.

Width of Cutter.		
19-inch Machine	£7 12 6	*Easily Worked by a Man and Boy*
22-inch Machine	8 7 6	*Ditto by Two Men.*
24-inch Machine	8 17 6	

Silent Movement for the five smallest sizes, 4*s.* extra; for the other sizes, 7*s.* 6*d.* extra.

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
25-inch Machine	£12 10 0	25*s.* extra.
28-inch Machine	14 10 0	30*s.* ,,
30-inch Machine	15 15 0	30*s.* ,,

Silent Movement, 12*s.* 6*d.* extra; Boots for Pony, 21*s.* per set;
Ditto for Donkey, 16*s.* per set.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
30-inch Machine	£19 0 0	30*s.* extra.
36-inch Machine	22 0 0	30*s.* ,,
42-inch Machine	26 0 0	40*s.* ,,
48-inch Machine	28 0 0	40*s.* ,,

Silent Movement, 20*s.* extra; Boots for Horse's Feet, 24*s.* per set.

A. S. & Son have pleasure in submitting the following List from among the hundreds of distinguished individuals, both in this country and abroad, whose patronage they have had the honour to receive:—

HER MOST GRACIOUS MAJESTY THE QUEEN,

For the Royal Gardens at Kew, Windsor, Buckingham Palace, Hampton Court, Osborne, and Balmoral.

HIS MAJESTY THE EMPEROR OF THE FRENCH
HIS MAJESTY THE KING OF SAXONY
HIS ROYAL HIGHNESS THE PRINCE OF PRUSSIA
HIS GRACE THE ARCHBISHOP OF CANTERBURY

HIS EXCELLENCY THE LORD-LIEUTENANT OF IRELAND
HIS EXCELLENCY THE BELGIAN MINISTER
HIS GRACE THE ARCHBISHOP OF YORK
THE RIGHT HON. LORD PALMERSTON

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The Most Hon. the Marquis of Westminster
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The Most Hon. the Marquis of Kildare
The Most Hon. the Marquis of Abercorn
The Most Hon. the Marquis of Londonderry
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Shanks' Patent Lawn Mowers are warranted to give ample satisfaction, and if not approved of may be at once returned.

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LONDON OFFICE and SHOW ROOMS, 27, LEADENHALL STREET, E.C.

A Stock of Lawn Mowers always kept at 27, Leadenhall Street, from which Orders can be at once executed.

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A handsome CONSERVATORY for Sale, 36 feet by 19 feet. Price 110*l.* A Large Assortment kept.

Heating by Hot Water.

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HOT WATER PIPES, from Stock, per yard:—2-inch, 1*s.* 4*d.*; 3-inch, 2*s.*; and 4-inch, 2*s.* 7*d.* BENDS, from Stock 1*s.* 7*d.*, 2*s.* 6*d.*, and 3*s.* 3*d.* each. THROTTLE VALVES, 10*s.* 6*d.*, 13*s.* 6*d.*, and 15*s.* each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day. A discount to the Trade.

Exhibition Prize Medal, 1862.

HOTHOUSES for the MILLION.—On the principle invented and patented by Sir Joseph Paxton, M.P., combining strength, cheapness, excellence, and durability. SPAN-ROOF HOUSES, painted three coats, and glazed with English Sheet Glass, can be supplied ready for fixing, 21 ft. by 13 ft., 24*l.*; 43 ft. by 19 ft., 57*l.* 5*s.*; 64 ft. by 25 ft., 161*l.*

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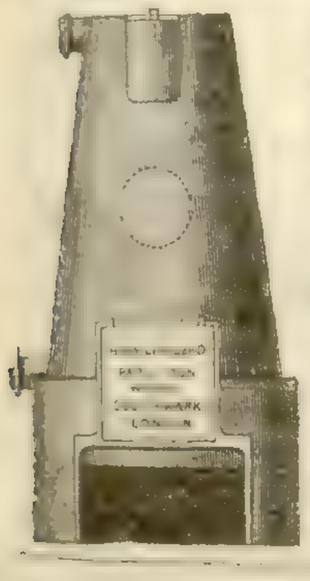
T. G. MESSENGER, the Proprietor of the above Works, finding it necessary (through the great demand for his Horticultural Buildings and Heating Apparatus) to make large additions to his Premises, and to Fit the same with an entire set of STEAM-POWER MACHINERY, is now enabled to execute any orders entrusted to him with the greatest dispatch, and at the lowest possible price consistent with good and substantial work.

Illustrated Catalogues, Working Model, Plans and Estimates, free on application.



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These BOILERS are adapted for setting in Brickwork, or as shown in sketch they require NO BRICKWORK.

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N.B. Patent WINDMILLS for Pumping and Driving Farm Machinery, from half-Horse Power upwards. To be seen daily at work as above.

Greenhouses—Heating Apparatus.

DENNIS' PATENT METALLIC HORTICULTURAL BUILDINGS are made from the best wrought iron, upon an entirely new principle. The combination of Iron and Glass under this Patent is perfect; the possibility of fracture is prevented, and a permanently water-tight roof insured. The leading practical advantages are extreme smallness of framing, admitting a maximum of light and heat, and perfectly neutralising atmospheric conduction.

They are thoroughly ventilated, exceedingly strong and durable, are speedily erected, and whilst maintaining their established superiority for Conservatories of the highest order, are acknowledged by the most eminent Horticulturists of the day to be the "desideratum of perfection," promoting perfect symmetry of growth and richness of colour, both for Fruit and Flowers.

From the complete adjustment of the constructional parts of these patent buildings, their manufacture is so facilitated that a comparison in point of cost with perishable wooden structures is most favourable.

THE GARDENER'S OWN GREENHOUSE (Lately known as Dench's Patent) is a Tenant's Fixture.

The Patent, Plant, Business, Machinery, and all connected with the above, have been transferred to T. H. P. DENNIS, who has determined to supply these really useful buildings at such a reduced scale of prices that every one desiring a Greenhouse may possess one.

NOTE.—A No. 1 Lean-to, 12 ft. 6 in. by 9 ft., including honest 16-oz. Glass, £16 12*s.* 6*d.*

T. H. P. D. has introduced most important improvements in their finish and construction, and after numerous experiments has succeeded in arranging them as a TENANT'S FIXTURE, which he feels sure will be valued by gentlemen having limited tenures. With Mr. DENNIS' adaptation they make excellent Orchard-houses, and afford all that can be desired in a profitable building.

Wood structures at the lowest price consistent with sound work.

Prospectuses and Estimates on application to T. H. P. DENNIS, Horticultural Builder, Hot-water Engineer, &c., Chelmsford, Essex.

WM. SMITH begs to call attention to his Prices of a Large Stock of various sized LIGHTS for HOUSES or PITS, made of 2-inch yellow Deal.

5 ft. 2 in. long by 3 ft. 9½ in. wide	£0	12*s.*	0*d.*
6 ft. long by 3 ft. 11½ in. wide	0	15	0
7 ft. long by 4 ft. wide	0	17	6
5 ft. 6 in. long by 4 ft. 4½ in. wide	1	4	0
6 ft. 3 in. long by 3 ft. 9½ in. wide	1	2	0
6 ft. 3 in. long by 4 ft. 8½ in. wide	1	5	0
9 ft. 6 in. long by 4 ft. 4½ in. wide	1	14	0

Five per cent. discount allowed if 400 feet are taken.

Grapery and Hothouses, Conservatories, and Vineries made to order at 1*s.* 1*d.* per square foot. Apparatus for ventilation on the best principle. 24-inch Lights made to order, glazed and painted three coats, at 8*d.* per foot; do. Unglazed, at 4*d.* per foot.

Estimates given for efficiently Heating by Hot Water. One, Two, Three, or Four-light Garden Frames, fitted with iron keys at angles, always in stock.

164, King Street, Hammersmith; or W. SMITH, Horticultural Builder, Turnham Green.

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SAMUEL N. McGERROW, GENERAL HORTICULTURAL BUILDER, Knotty Ash, near Liverpool.

Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

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Patronised by 70,000 Stock Breeders.

DAY, SON, AND HEWITT, Sole Inventors of the Celebrated STOCK-BREEDER'S MEDICINE CHEST, containing as follows:—

Six Bottles (at 2*s.* 6*d.* each) of the UNIVERSAL CHEMICAL EXTRACT, match less for penetrating, mollifying, and assuaging pain in all wounds, kicks, cuts, strains, &c., in horses and cattle; straining in ewes lambing, and swollen and inflamed udders in cows and ewes; sore feet in cattle, sheep, and dogs.

One Dozen Bottles (value 20*s.*) of the GASEOUS FLUID or BLACK MIXTURE, unmatched in the known world for curing diarrhœa or scouring calves, sheep, and lambs; for ewes weakly and exhausted after lambng; for horses and cows exhausted and sickly, and for the fret, colic, or gripes in horses and cattle. An instantaneous remedy for blown cattle and sheep.

One Dozen Packets (value 13*s.*) of the RED DRENCH or INFLAMMATION POWDER, for cleansing after calving or lambing, for straining in ewes, and for removing all feverish symptoms in cows and ewes after calving or lambing; for yellows in oxen, and for colds, chills, and all inflammatory cases in horses, cattle, and pigs.

One Dozen (value 7*s.* 6*d.*) of the RED PASTE or CONDITION BALLS (for horses). These Balls give vigorous health, purify the system, and produce a mole-like sleekness of coat.

Price of Chest complete, with Shilling Key to Farriery, 2*l.* 16*s.* 6*d.* securely packed, and carriage free. Sample case, usefully assorted 16*s.* 6*d.* Messrs. D., S., & H. respectfully urge their friends to send their orders early, so that no purchaser may be kept waiting.

Either preparation may be had separately in boxes, carriage paid.

Address—DAY, SON, & HEWITT, Animal Medicine Manufactory, 22, Dorset Street, Baker Street, London, W.; or Wantage, Berks.

Testimonials from all parts of the United Kingdon and Ireland sent free on application.

Established over One Quarter of a Century.

COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 2*s.* per bag.

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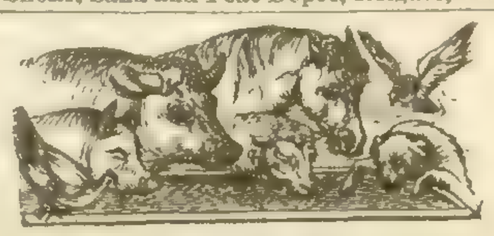
BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped, J. BARSHAM'S Patent.

REIGATE SILVER SAND (best quality for Plants, &c.), 7*s.* 6*d.* per Ton, 28*s.* per 4 Tons, 39*s.* per 6 Tons, 48*s.* per 8 Tons, 5*s.* per Ton for 20 Tons and upwards, delivered to the Reigate Station. Best Kent and Surrey PEATS, LOAMS, ROCK SANDSTONE, &c.

N.B. Loaded trucks can be sent direct on all the Railways.

London-made FLOWER POTS, in every size, at the lowest cash prices. W. SHORT, Sand and Peat Depôt, Reigate, Surrey.



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THORLEY'S SUGAR and SPICE for COWS.

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THORLEY'S SUGAR and SPICE will COAX the APPETITE when all other Compounds have failed. Can only be had in 4 oz. packets, 1*d.* each; Half Cases, 224 penny packets, 17*s.*; Quarter Cases, 112 penny packets, 8*s.* 6*d.*—145, Fleet Street, City, E.C.

THORLEY'S COMPOUND of SUGAR and SPICE is sold in Penny Packets by all Grocers, Druggists, and Corn Chandlers throughout the world. Cases, 448 penny packets, 34*s.*

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MR. EDWIN COOLING, HORTICULTURAL VALUER, Mile Ash, Derby.

Horticultural Agent and Valuer.

MR. A CHANDLER (of the late Firm of CHANDLER & SONS, Vauxhall) continues to undertake all VALUATIONS connected with Horticulture.

He is also open to engagements as JUDGE at HORTICULTURAL EXHIBITIONS, having for many years acted in that capacity.

1, Devonshire Terrace, Fulham Road, S.W.

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TO BE LET, the FARMS near RUGBY, under Irrigation from the Sewage of that town, comprising about 320 Acres, mostly of Grass Land.

Apply to Messrs. WRATISLAW & FULLER, Solicitors, Rugby.

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TO BE LET, with immediate possession, near Brighton, a SMALL FARM, or MARKET GARDEN, about 12 Acres, with excellent Dwelling House and Outbuildings, two large Greenhouses, with Vines, Forcing Pits, and otherwise prepared for the purposes of a Market Gardener.

Further particulars may be had personally, or by letter, of Mr. W. H. BACON, 3, Trafalgar Place, Clapham Rise, S.

Nursery Land and House in Warwickshire.

TO BE SOLD or LET, about TWO ACRES of superior and admirably situated NURSERY LAND, with commodious and excellent Dwelling House, and extensive and complete Outbuildings. The late owner successfully carried on, up to his death, a large general Nursery trade, but part of the land has since been taken for railway purposes. There is still, however, sufficient left for a good Nursery, and, if required, more Land may be had. To a man thoroughly understanding his business this is an unusually good opportunity, there being no other Nursery near, and this being in the neighbourhood of many gentlemen's seats, and close to a first-class railway station on the L. & N. W. Railway. Part of the purchase money might remain.

Address, by letter, THOS. HOLLICK, Nuneaton.

Sales by Auction.

SALE THIS DAY AT HALF-PAST TWELVE PRECISELY.

Consignment of Plants from Holland.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., THIS DAY, SATURDAY, March 25, at half-past 12 o'Clock precisely, a quantity of specimen CONIFERS, HOLLIES, AZALEAS, RHODODENDRONS, ROSES, FRUIT TREES, and a variety of Flowering Trees and Shrubs.

On view at the Auction Rooms, 38, King Street, Covent Garden and Catalogues had.

Imported Orchids from Central America.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, March 29, at half-past 12 o'Clock precisely, the following Choice ORCHIDS, sent over to Mr. Skinner by native collectors from Central America.

Epidendrum vitellinum, magnificent masses.
Odontoglossum grande, very fine masses.
Lycaste Skinneri.
Barkeria spectabilis.
Barkeria Skinneri.
Lælia superbiens.
Odontoglossum cordatum.
" pulchellum.
And many others.

And a few fine plants of Oncidium bifolium, from the Argentine Republic.

On view the Morning of Sale, and Catalogues had.

Consignment of Plants from Ghent.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, April 1, at half-past 12 o'Clock precisely, a fine assortment of CAMELLIAS, ALOES, LAURUSTINUS, Variegated HOLLIES, RHODODENDRONS, AZALEAS, DELPHINIUMS, IRIS, VINES, KALMIAS, ROSES, LAURELS, SHRUBS, BULBS, &c. On view the Morning of Sale, and Catalogues had.

Important Sale of Established Orchids.

MR. J. C. STEVENS has been favoured with instructions to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, April 6, at half-past 12 o'clock precisely, a Valuable COLLECTION of ESTABLISHED ORCHIDS, including some of the best Plants for Cool Houses now so much in vogue. Among them would be many fine specimens of Aerides Warneri, which is one of the handsomest and very best for a cool temperature; Aerides Lindleyana, Odontoglossum grande, Lælia superbiens, and the extremely rare Epidendrum cnemidophorum, &c.; also some of the best East Indian and other kinds, including Aerides quinquevulnerum, virens, and Fieldingii; Vanda cœrulea and suavis; Saccolabium guttatum, violaceum, and curvifolium; Angræcum sesquipedale, Phalænopsis Schilleriana and amabilis; Cypripedium Veitchii, villosum, Stonii, and Lowii; Cattleya elegans, amethystoglossa and marginata; Dendrobium macrophyllum giganteum, &c.

On view the Morning of Sale, and Catalogues had.

Sale of First-class Carnations, Picotees, and Pinks, Standard Roses, Fruit Trees, &c.

MESSRS. PROTHEROE AND MORRIS will SELL, at the City Auction Rooms, 38 and 39, Gracechurch Street, City, E.C., on FRIDAY, March 31, at 12 for 1 o'Clock precisely, a first-class collection of CARNATIONS, PICOTEES, and PINKS, from a celebrated Grower. A choice assortment of STANDARD and DWARF ROSES, fine AZALEA INDICA, and other plants in bloom. Selected AMERICAN PLANTS; FRUIT TREES; some fine bulbs LILIUM LANCIFOLIUM RUBRUM; VERBENAS, FUCHSIAS, DAHLIAS, in dry roots, &c.

On view the Morning of Sale. Catalogues may be had at the Rooms, as above; and of the Auctioneers and Valuers, American Nurseries Leytonstone, N.E.

High Beech, Essex.

SALE OF NURSERY STOCK AND GREENHOUSE PLANTS.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. JAMES CRAWFORD (who is retiring from the Business) to SELL by AUCTION on the Premises, opposite the King's Oak, High Beech, Essex, on MONDAY, April 10, at 11 for 12 o'clock precisely, the whole of the valuable NURSERY STOCK, consisting of Evergreens, Coniferæ, and Deciduous Shrubs, Vines in Pots; Hollyhocks, Rhododendrons, Standard and Dwarf Roses, Fruit Trees, &c.; also about 6000 Choice Greenhouse Plants, including Azalea indica, Camellias, Ericas, Fuchsias, and the usual Miscellaneous Assortment of Soft-wooded Plants, Cyclamen of sorts, about 4000 Roses in pots, a few Stove Plants, Dahlias, a superb Collection of Hardy and Greenhouse Ferns, Japanese Rhododendrons, &c.

May be viewed one week prior to the Sale. Catalogues had on the Premises; at the Swan Inn, Stratford; the Eagle, Snaresbrook; the principal Seedshops in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

Fawsley Park, near Daventry.

IMPORTANT SALE OF SHORTHORNS, &c.

MR. STRAFFORD has received Instructions from the Executor of the late Sir Charles Knightley, Bart., to offer for SALE by AUCTION, without reserve, at the Home Farm, Fawsley Park, on TUESDAY, March 28, the small but select HERD of SHORT-HORNS, consisting of 20 Head of Bulls, Cows, and Heifers, which are descendants of three choice Cows retained from the Herd sold in 1856, when 77 head averaged upwards of 80*l.* each.

They are chiefly by Sarawak (15,238) and Bull's Run (19,368), and fully sustain the fine character for which the Herd has so long been distinguished.

At the same time will be sold the Remainder of the Stock, consisting of about 30 Head of other Cattle, including a few Alderneys, some pure-bred Yorkshire Pigs, and Fat Wether Sheep.

Catalogues, with Pedigrees, may be had on application to Mr. STRAFFORD, 13, Euston Square, London, N.W.; or of Mr. LINDSAY, at the Home Farm, Fawsley Park, near Daventry.

Sale of Ayrshire Dairy Stock.

THERE will be SOLD, by PUBLIC AUCTION, at DRUMGLAS, on THURSDAY, April 6, 45 Pure Bred Three-year old AYRSHIRE HEIFERS, in calf to an Ayrshire Bull. They were selected with the greatest care and judgment from the best Dairy establishments in Ayrshire, and are all expected to Calve betwixt April 15 and May 30 next. The valuable qualities of Ayrshire Cows for Dairy purposes are sufficiently well known. Drumglas is within two miles of the New Galloway Station, which is only 60 miles from Carlisle by direct line of railway.

Further particulars can be obtained from Mr. BARTON, Stewarton, Ayrshire, N.B.; or Mr. WALLET, Auctioneer, Castle Douglas, N.B.

Important Sale at Combermere.

FARM YARD, STABLES, GARDENS, AND ABBEY, NEAR WHITCHURCH AND NANTWICH, CHESHIRE (LATE THE RESIDENCE OF FIELD MARSHAL LORD VISCOUNT COMBERMERE, DECEASED).

MESSRS. CHURTON AND ELPHICK will SELL on APRIL 11, 12, 13, 17, and 18, the choice Stock of AYRSHIRE DAIRY COWS and HEIFERS, Cross-bred Cattle, Fat Bullocks and Heifers, Young Stock, Waggon and Carriage Horses, Berkshire Pigs, Dorking Poultry, Carriages, Harness, Steam Engine, Large Collection of Modern Implements and Dairy Utensils, greater portion of the Bed-room Furniture, and extensive Collection of STOVE and GREENHOUSE PLANTS, in a great variety, including 13 very fine Orange Trees in full fruit, 10 feet high from the tubs, and about 10 feet through; Large Camellias in Bloom, Vines, Pine and Fruit Trees in Pots.

N.B. The GARDEN EFFECTS will be SOLD on THURSDAY, April 13, at 12 o'clock.

Catalogues of the whole Effects may be had, 10 days prior to the Sale, from the AUCTIONEERS (enclosing six stamps), Chester, or Whitchurch, Salop.

HEATING BY HOT WATER.

It is now generally admitted that Buildings of any kind can be more effectually Warmed by Hot Water than by any other means; but as so much depends on the way in which the Apparatus is fixed, it is of the greatest importance that it be done by experienced men.

J. JONES & SONS

ARE PREPARED TO ESTIMATE FOR WARMING, TO ANY EXTENT—

GREENHOUSES	PINE STOVES	LECTURE HALLS	WORKSHOPS
CONSERVATORIES	ORCHARD HOUSES	BILLIARD ROOMS	WAREHOUSES
VINERIES	CHURCHES	HALLS and PASSAGES	DRYING ROOMS
HOT HOUSES	CHAPELS	BATHS	CELLARS
FORCING PITS	SCHOOLS	FACTORIES	COACH HOUSES
PEACH HOUSES	READING ROOMS	OFFICES	HARNESS ROOMS

J. Jones & Sons' APPARATUS is simple in construction, moderate in cost, and economical in working.

It is equally available for the AMATEUR'S GREENHOUSE, or the longest range of FORCING HOUSES; for the smallest Chapel or largest Church; for Private Offices, or those of Public Companies.

It is admirably adapted for DWELLING HOUSES, as coils of pipes can be placed in any part, for warming the various rooms. One or more Baths may be heated from the same Boiler, and a constant supply of hot water obtained in any part of the house.

For WAREHOUSES and WORKSHOPS this system of Heating is unsurpassed, as it is not only the means of keeping goods dry, but it also adds to the comfort of the workpeople, and thereby effects a saving in labour.

J. Jones & Sons recommend Boilers of all kinds being set in Brickwork, if possible; but Portable Boilers can be supplied, if required.

MATERIALS.—All Materials supplied will be of the best quality.

DELIVERY.—Boilers of various kinds, and Pipes and Connections, being always in stock, can, at a very short notice, be sent to any part.

FIXING.—The Fixing will be done by experienced men, fully capable of finishing properly any work they may undertake; and J. Jones & Sons are prepared to guarantee the effectual working of any Apparatus fixed by their own men.

ESTIMATES.—Plans and Estimates will be sent, on application.

J. Jones & Sons have lately fixed their HOT-WATER APPARATUS in or near the following places; and the working of the same has in all cases given the greatest satisfaction.

Abergavenny	Cambridge	Enfield	Liphook	Sevenoaks
Abingdon	Cardiff	Epsom	Liverpool	Shiffnal
Aldershot	Carshalton	Erith	Liss	Southampton
Addlestone	Cattal	Exeter	Luton	Solihull
Abbey Wood	Caterham	Faversham	Lymington	Shrewsbury
Alton	Chelford	Farnborough	Lynn	Stafford
Anerley	Chepstow	Farnworth	Malvern	Stamford
Ascot	Cheltenham	Farnham	Manchester	Stanstead
Ash	Chertsey	Finchley	Marlow	Stone
Atherstone	Chester	Gloucester	Merthyr	Stonehouse
Aylesbury	Chilworth	Godalming	Middleton	Stroud
Banbury	Chiswick	Glynde	Minster	Sunninghill
Balham	Cirencester	Godstone	Nantwich	Swansea
Barnes	Clapham	Gomshall	Newhaven	Sydenham
Bath	Colney Hatch	Grantham	Newnham	Teddington
Battle	Congleton	Gravesend	Newmarket	Teignmouth
Beckenham	Cookham	Guildford	Newport	Thame
Beccles	Coventry	Hailsham	Northampton	Thetford
Bedford	Cowes	Hackney	Northwich	Tongham
Bexhill	Crawley	Hammersmith	Norwich	Torquay
Bickley	Croydon	Hampton	Nottingham	Tunbridge
Birmingham	Culham	Harrogate	Oxford	Tunbridge Wells
Bishop Stortford	Darlington	Haslemere	Oswestry	Twickenham
Blackheath	Dartford	Hastings	Paris	Uckfield
Blandford	Datchet	Hatfield	Pembroke	Uxbridge
Blisworth	Deal	Hayward's Heath	Petersfield	Virginia Water
Bournemouth	Derby	Hertford	Pinner	Wallingford
Boxmoor	Diss	Hitchin	Poole	Waltham
Brentford	Dingwall	Horsham	Potter's Bar	Walton
Bridgend	Dorchester	Hull	Ramsgate	Warlingham
Brighton	Dorking	Huntingdon	Reading	Warrington
Bridgenorth	Dover	Inverness	Reigate	Watford
Bristol	Downham	Kilburn	Richmond	Wellingborough
Bromley	Dublin	Kettering	Rickmansworth	Weybridge
Brixton	Dulwich	Kingston	Ringwood	Weymouth
Broxbourne	Eastbourne	Leamington	Ross	Windsor
Buckingham	Edenbridge	Leeds	Rugby	Worcester
Burton	East Grinstead	Lewes	Rushton	Wisbeach
Bury St. Edmund's	Edmonton	Leytonstone	Ryde	York
Canterbury	Ely	Limerick		

J. JONES AND SONS,

IRON MERCHANTS and HORTICULTURAL ENGINEERS,

6, BANKSIDE, SOUTHWARK, LONDON, S.E.

J. JONES & SONS' HOT WATER APPARATUS FOR GREENHOUSES, 6, Bankside, London.

J. JONES & SONS' HOT WATER APPARATUS FOR CONSERVATORIES, 6, Bankside, London.

J. JONES & SONS' HOT WATER APPARATUS FOR HOTHOUSES, 6, Bankside, London.

J. JONES & SONS' HOT WATER APPARATUS FOR HALLS AND PASSAGES, 6, Bankside, London.

J. JONES & SONS' HOT WATER APPARATUS FOR BILLIARD ROOMS, 6, Bankside, London.

J. JONES & SONS' HOT WATER APPARATUS FOR BATHS, 6, Bankside, London.

J. JONES & SONS' HOT WATER APPARATUS FOR CHURCHES, 6, Bankside, London.

J. JONES & SONS' HOT WATER APPARATUS FOR CHAPELS, 6, Bankside, London.

J. JONES & SONS' HOT WATER APPARATUS FOR SCHOOLS, 6, Bankside, London.

J. JONES & SONS' HOT WATER APPARATUS FOR LECTURE HALLS, 6, Bankside, London.

J. JONES & SONS' HOT WATER APPARATUS FOR WAREHOUSES, 6, Bankside, London.

J. JONES & SONS' HOT WATER APPARATUS FOR OFFICES, 6, Bankside, London.

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THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 13.—1865.] SATURDAY, APRIL 1. {Price Fivepence. Stamped Edition, 6d.

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ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON.
The FLORAL and FRUIT COMMITTEES will Meet on TUESDAY, April 4, at 12 o'Clock. FLOWER SHOW and DISCUSSION on NEW and RARE PLANTS at 3. The public can see the Exhibition at 4. Admission, 1s.

ROYAL HORTICULTURAL SOCIETY. TRIAL PLANTS at CHISWICK.
The Council wish to receive NEW FOLIAGE PLANTS and SEEDS from Nurserymen, Amateurs, and others, for Trial at Chiswick. They will be adjudicated upon by the Floral Committee as soon as they are sufficiently advanced to be reported on, and the results published. The South Boundary Wall of the Garden is now ready to receive New Half-hardy Shrubs.

To Exhibitors of Flowers, Seeds, Horticultural Implements, &c.
THE COUNCIL of the ROYAL HORTICULTURAL SOCIETY, South Kensington, have fitted up a portion of the Arcades in the Gardens for PERMANENT EXHIBITIONS connected with Horticulture. An Attendant to take orders is provided. Apply to Mr. Fox, S.E. Arcade.

ROYAL BOTANIC SOCIETY, REGENT'S PARK.
The SECOND SPRING EXHIBITION this season will take place on SATURDAY NEXT, April 8. Tickets to be obtained at the Gardens on Vouchers from Fellows of the Society, price 2s. 6d. each. The Band will play from half-past 2 to half-past 5.

ROYAL BOTANIC SOCIETY, REGENT'S PARK.
GENERAL EXHIBITIONS, WEDNESDAYS, May 24, June 14, and July 5. AMERICAN PLANTS, MONDAYS, June 5 and 12. Tickets to be obtained at the Gardens on Vouchers from Fellows of the Society, price 4s. each.

UNITED HORTICULTURAL SOCIETY.—The FIRST EXHIBITION of this SOCIETY will be HELD at the ALBION HALL, Moorgate Street, on TUESDAY, April 11. Doors Open at 1 o'Clock.

CENTRAL HORTICULTURAL SOCIETY.—The APRIL MEETINGS of this Society will be held on TUESDAYS, April 11 and 25, at the DR. JOHNSON ROOMS, 41, Essex Street, Strand, W.C. Mr. George Glenny will Read a Paper on the PROPERTIES of FLOWERS on the 11th; and his PRIZE of 10s. 6d. for the best pair of AURICULAS, and Mr. Pain's PRIZE of 10s. 6d. for the best SEEDLING AURICULA, will be competed for on the 25th. R. T. Broome, Assistant Secretary.

AN EXHIBITION of FLOWERS and FRUIT will be held at BRENTWOOD, ESSEX, on JUNE 6, in conjunction with the Annual Meeting of the Essex Agricultural Association. Schedules can be had of R. B. Postans, } Hon.
Brentwood, March 25. A. J. Thorne, } Secs.

Grand Exhibition of Unforced Hyacinths.
MESSRS. ARTHUR HENDERSON AND CO.'S ANNUAL DISPLAY of the above Galaxy of Flowers will be held in the Lapageria House, commencing APRIL 1, and ending APRIL 12.
The Nurseries, Pine Apple Place, Edgeware Road, London, W.

JOSEPH HUSSEY (Coachman, &c.) and his Wife, or either of them, are requested to COMMUNICATE with their Ex-Employers (Mr. and Mrs. P.) at W. C. H., near Farnham, Surrey.

Choice Camellia Blooms for Easter Decorations.
LUCOMBE, PINCE, AND Co. have now a large quantity of extra fine CAMELLIA BLOOMS for Disposal, which can be securely packed, and sent to any distance with safety. Price on application. Exeter Nursery, Exeter.

Genuine Garden and Agricultural Seeds.
JAMES CARTER AND CO., Seed Farmers, Merchants, and Nurserymen, 237 and 238, High Holborn, London, W.C.

H. AND F. SHARPE, Seed Growers and Merchants, Wisbech. SPECIAL PRICED LIST of NEW SEEDS on application.

Fox and Game Covert.
MAULE AND SONS can supply 2-years old ENGLISH FURZE and BROOM at 10s. per 1000.
The Nurseries, Bristol.

Transplanted Quick.
CHARLES SHARPE AND CO., Sleaford, have a quantity of well-rooted Transplanted QUICK to offer. Price on application.

STRONG 3-years Transplanted THORNS on Sale Cheap. Apply to
Samuel Finney & Co., Gateshead Nursery, Newcastle-upon-Tyne.

ALDERS, 1 to 1½, 1½ to 2, and 2 to 3 feet; BIRCH, do. do.; POPLAR, BLACK ITALIAN, 2 to 3½ feet.
For price of above apply to
John Carter, Nurseryman, Keighley, Yorkshire.

LARGE IRISH YEWS.—Handsome single-stemmed Specimen IRISH YEWS, 6, 7, 8, and 9 feet high, by the pair, dozen, or hundred. Prices on application.
Thomas Jackson & Son, Nurseries, Kingston, Surrey, S.

WANTED, 3000 SPANISH CHESTNUT PLANTS, 3 to 4 feet high.
State price, &c., George Taber, Rivenhall.

WANTED, SCOTCH and SILVER FIRS, Transplanted, 1 to 2 feet. State lowest price and quantity to Wm. Wood & Son, Woodlands Nursery, Maresfield, Uckfield, Sussex.

CARTER'S GARDENER'S VADE-MECUM is now ready.

THE GARDENER'S and AMATEUR'S FRIEND.

CHARLES TURNER'S SPRING CATALOGUE of BEDDING and other PLANTS is now ready, and may be had on application. The Royal Nurseries, Slough.

Genuine Seeds, Carriage Free.
WM. PAUL'S PRICED SELECT LIST is now ready, free by post.
Paul's Nurseries, Waltham Cross, N.

W. VIRGO AND SON will have much pleasure in forwarding their CATALOGUE of NURSERY STOCK post free on application.
Wonersh Nursery, near Guildford.

Selected Garden Seeds.
PAUL AND SON'S PRICED CATALOGUE contains descriptive list of FINE-FOLIAGED PLANTS for Sub-tropical Gardens. Free by Post. All Seeds Carriage paid.
"Old" Cheshunt Nurseries, Cheshunt, N.

Choice Flower and Vegetable Seeds,
Carriage or Post Free.—See
B. S. WILLIAMS'S DESCRIPTIVE CATALOGUE, post free to all applicants.
Paradise and Victoria Nurseries, Holloway, London, N.

Select Double Hollyhocks.
WILLIAM PERRY'S ANNUAL LIST of HOLLYHOCKS is now Ready, and can be had post free. It contains all the best Varieties both New and Old; the Plants are strong and healthy. Price per hundred on application.
Wisemans, Sawbridgeworth, Herts.

Dahlias, Verbenas, Bedding Plants in any quantity.
C. E. ALLEN'S ANNUAL CATALOGUE of the above is now ready, and can be had on application.
Norfolk Nursery, Shacklewell, near London, N.E.

NEW ROSES of 1865.—For the BEST SELECTION of the year, see PAUL AND SON'S DESCRIPTIVE LIST.
"Old" Cheshunt Nurseries, Cheshunt, N.

STANDARD ROSES.—Several Thousands of kinds useful for Public Gardens, &c. Very low price on application to Paul & Son, "Old" Cheshunt Nurseries, Cheshunt, N.

ROSES.—Superb STANDARDS, 15s. to 18s. per dozen; DWARFS, 9s. to 12s. per dozen. NEW ROSES of 1865, 36s. per dozen. DESCRIPTIVE PRICED LISTS on application.
Richard Smith, Nurseryman and Seed Merchant, Worcester.

The Best New Roses for 1865.
WM. WOOD AND SON have many Thousands of the above, all fine strong healthy plants.
DESCRIPTIVE CATALOGUES may be had on application.
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Shrubs, Roses, Fruit Trees, &c.

WM. CUTBUSH and SON'S GENERAL NURSERY STOCK is the best near London.
GLADIOLI, fine, from 4s., 6s., 9s., & 12s. per dozen.
CATALOGUES on application.

Highgate Nurseries, London, N.

Notice of Removal from 9, Mansion House Street,

Opposite the Mansion House, London.

FLANAGAN and SON, Seedsmen, beg to inform their Customers, that having Sold the Lease of their Premises as above, they have REMOVED to 98, CHEAPSIDE, nearly opposite Bow Church, E.C., where they hope to have a continuance of their favours.

EARLY SPRING FLOWERS, largest Stock in England and greatest variety.—Webb's Giant Polyanthus and Giant Cowslip, Cowslip from the Himalayas, Golden Chain Polyanthus, Florist Flower Polyanthus, American Primrose, Scarlet Primrose, Gentianella, Double Crimson Primrose, ditto Yellow ditto, ditto Purple ditto, ditto Rose ditto, ditto White ditto, ditto Lilac ditto, Double Pansy, ditto Negro Polyanthus, ditto Golden Chain ditto, ditto Pink Hepatica, Single Blue ditto, ditto White Violets, ditto Purple ditto. Seed of the above Polyanthus and Cowslip. LIST on application to Mr. Webb, Calcot Gardens, Reading.

NEW HARDY LATE-FLOWERING RHODODENDRONS.

PRINCE of WALES.—Bright rose shaded with purple, divided black marking on the upper petals, free grower, profuse bloomer, hardy, and the latest Hybrid Rhododendron grown. One-year grafted plants, 10s. 6d. Two-year ditto, strong, 21s. Larger plants, 31s. 6d. to 42s. each.

PRINCESS of WALES.—Deep magenta edge, pure white centre, primrose flake on the upper petals, slightly spotted with brown, totally distinct from any variety at present known, and when in bloom may be readily distinguished from all others; it is a beautiful and first-class Rhododendron. One-year grafted plants, 10s. 6d. Two-year ditto, strong, 21s. Larger plants, 31s. 6d. to 42s. each.

The usual Discount to the Trade.

The above beautiful Rhododendrons were first introduced to the public last year by M. Y., and he has again much pleasure in calling attention to them; they are both most distinct varieties, the colour and marking of the Princess of Wales being quite a fresh type, and unlike any other Rhododendron. They have both been proved in the open ground for several years, capable of withstanding our most severe winters, and being very late bloomers escape the spring frosts, frequently so fatal to the earlier blooming kinds. They are confidently recommended as most desirable additions to this favourite class of plants.

Coloured Plates, by Andrews, will be forwarded on application for 13 stamps each, or the two for 25 stamps.

Maurice Young, Milford Nurseries, near Godalming, Surrey.

New Zonale Pelargoniums.

J. SALTMARSH and SON, Nurserymen, Seedsmen, and Florists, Chelmsford, beg to offer the following New Varieties, which will be ready for distribution on May 1.

LITTLE TREASURE.—This is unquestionably the best Dwarf Scarlet Geranium ever raised, either for bedding or pot culture. The foliage is small; colour, dark green with a slight zone; flowers bright scarlet with small white eye, equal in form and colour to that well-known variety "Attraction," and produced in greater profusion than any other variety extant. The wood being very close-jointed, young plants bedded out scarcely exceed 6 inches in height during the summer, and are covered with bloom throughout the season.

It was awarded a First-class Certificate at the Royal Horticultural Society's Meeting, Sept. 13th, 1864. Price 5s. each.

LUNA.—Foliage rich golden yellow, with a broad well-defined brownish red or chocolate zone; flowers, rich scarlet with small white eye. This will prove a most effective variety for mixed beds or ribbon borders; planted side by side with Christine it has a charming effect. Its qualities are not fully developed under pot culture, consequently it has not been shown in a favourable condition to receive awards at meetings. Price 10s. 6d. each.

The above varieties have elicited the following favourable reports from leading horticultural journals:—

From the Gardeners' Chronicle, September 12, 1863.

"Some attractive Pelargoniums were shown by Messrs. Saltmarsh & Son, one of which, called 'Little Treasure,' of dwarf bushy habit, with small zonate leaves, and a profusion of scarlet flowers, promises to be useful; and another, 'Luna,' a yearling, had handsomely marked leaves of a golden yellow, with a well-defined zone of brownish red."

From the Gardeners' Weekly Magazine, in the report of the Royal Botanic Society's Exhibition, July 9, 1864, *under the head of New Geraniums:*—

"From Messrs. Saltmarsh & Son, Chelmsford, came 'Little Treasure,' dwarf habit, dark green leaf with dark zone, small trusses of lively scarlet flowers, as good in form and substance as 'Attraction.' This will no doubt be a first rate bedder."

And from report of the Horticultural Society's Meeting, September 13, 1864, *in the Journal of Horticulture:*—

"'Little Treasure,' a free-flowering dwarf variety, with scarlet flowers, of very compact habit, producing a profusion of trusses of flowers, and very useful for bedding purposes; received a First-class Certificate."

SEEDS.

Thomas Gibbs & Co.

AGRICULTURAL,
GRASS
MEADOWS and PASTURES.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND
THOS. GIBBS & Co.
Corner of
HALF-MOON St.
PICCADILLY,
London.
APPOINTED Ap. 3. 1844
THE SEEDSMEN

CORNER of STREET.

Trade Mark.

KITCHEN GARDEN
AND
FLOWER.

Catalogues forwarded post free to any address on application.

NEW PLANTS FOR 1865.

B. S. WILLIAMS,

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.,

Begs to announce that on the 1st May he will be prepared to supply strong Plants of the undermentioned Novelties, which he has much pleasure in offering for the first time:—

New Fuchsias.

The following four Fuchsias are the most novel and distinct yet offered, and cannot fail to give satisfaction. The first is the production of Mr. Wyness, Gardener to Her Majesty, Buckingham Palace, by whom it was exhibited during the past season, and received Certificates of Merit. Amongst novelties and acquisitions introduced of late, this undoubtedly is the most distinct, but at present it must not be looked at in the light of a florist flower, but as the type of an entirely new race, producing its cluster of flowers quite erect. Its habit is superior to the light varieties of the ordinary drooping kinds, and it blooms profusely throughout the season, thus making it a very valuable Decorative plant, and invaluable for supplying Cut Flowers. In Nos. 2, 3, & 4, will be found great improvements on those previously sent out. No. 2, a well-formed flower, with great width of sepal. No. 3 is the finest proportioned double flower yet offered. No. 4, quite distinct on account of its serrated petals.

No. 1. FUCHSIA ERECTA, VAR. NOVELTY.—Tube and sepals pure white, medium size; sepals cordate, gracefully recurved; corolla soft rose, shading to a white base. A very nice proportioned flower, its habit good, producing large clusters of bloom; leaves marbled and veined; a decided acquisition.

No. 2. FUCHSIA AGAMEMNON.—Rich scarlet sepals, broad, and of great substance; corolla very double; colour dark plum, flaked towards the base with fiery crimson; habit first-class.

No. 3. FUCHSIA MAJESTIC.—Carmine scarlet sepals, tube of great substance, and well reflexed; corolla bluish violet, flamed or feathered to the base. Undoubtedly the finest double Fuchsia yet raised.

No. 4. FUCHSIA SERRATIPETALA.—Corolla barrel shape, rich mulberry colour; each petal evenly serrated; scarlet tube and sepals, the latter reflexed to the tube, showing the feathered base of the corolla. A grand flower for exhibition purposes.

Price 7s. 6d. each.

New Single Petunias.

STRIATA PERFECTA (Holland).—The production of Mr. Holland, of Isleworth, the successful raiser of Royalty and Duchess of Northumberland, the favourites of the past season. The variety now offered is quite distinct in character, having blush white ground and four pure magenta stripes evenly diverging from the centre. The flowers are of a medium size, good shape, and constant. The Seedling Plant when exhibited was about 2 feet high, and as much through, covered with flowers, thus showing its first-class habit and constancy. Received First-class Certificates from the Royal Botanic and Royal Horticultural Societies, July, 1864.

Price 5s.

SPLENDIDA (Williams).—Very large and distinct flower, pure white ground, having four bars or club-shaped stripes of rich carmine diverging from the centre; the outline occasionally broken by a small blotch; good free branching habit. Received First-class Certificate.

Price 5s.

PURPLE BEDDER.—A diversity of character and colour is much wanted in our summer gardening, with quality combined. The Petunia has long been a favourite flower, but constitution and substance have been wanting to withstand our variable seasons. This variety is therefore confidently recommended to supply that desideration, being of medium height, with free branching habit, requiring no pegging down. B. S. W. feeling assured that it will be found the best bedding Petunia yet offered, has prepared a large stock to supply at moderate prices.

Price 2s. 6d. each; 24s. per dozen; £6 per 100.

New Calceolaria.

BIRD of PARADISE.—Colour bright orange red, with a margin of yellow, the whole flower minutely spotted, medium in size, good truss, free branching habit, giving a good succession of flowers, suitable either for bedding or pot culture. When grown as a pot plant its flowering season may be prolonged up to Christmas, a time when such a striking colour will be most acceptable.

Price 5s.

NEW GRAPE, ROYAL VINEYARD.

B. S. Williams begs to state that he has still a fine stock of this valuable Grape. For description see previous Advertisements. The following report has been recently received:—

From the *West of Scotland Horticultural Magazine*, March 1865.

"The New Grape, Royal Vineyard.—A bunch of this Grape received by us on February 23, was submitted to several practical gardeners in this district, including some of our leading Grape growers, and the following is their opinion of its merits. The first and most conspicuous quality is its fine, plump condition, at this season of the year, which proves its value as a late-hanging white Grape—certainly in advance of any other in that respect. No berries had been cut from the bunch sent, and none bore any signs of shrivelling or decay. The berries are large, more round than oval, average thin skinned, more juicy than sugary, of good flavour, in which a slight dash of Frontignan may be detected, and with something of the amber appearance of the Muscat. The bunch is somewhat like that of the Frontignan in outline, but the shoulders are considerably larger, and the body more bulky. As a good late-hanging white Grape, which was much wanted, this variety takes a position peculiarly its own."

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.

CARTER'S GARDENER'S VADE-MECUM is now ready.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

*** Part II. (Exotic Ferns) will be issued as early as possible.
Foot's Cray Nursery, S.E.

TO AMATEURS, EXHIBITORS, and OTHERS.—Immense Stock of fine healthy Plants, of the cream of New and Approved ROSES, VERBENAS, PETUNIAS, FUCHSIAS, &c., especially adapted to the purposes of the above, can now be supplied. CATALOGUES Gratis on application to W. Knight, Floral Nursery, Hailsham.

Cheap Bedding Plants—Mostly 2s. 6d. per Dozen.

J. SCOTT, Merriott, Somerset, has just Published the 11th Edition of his FLOWER GARDEN DIRECTORY and CATALOGUE of BEDDING PLANTS; it is full of matter interesting to lovers of flowers, such as Selections of all the best plants for decorative purposes, with ample directions how to Plant, Arrange, and Cultivate them, in Ribbons, Circles, Squares, &c. It also enters largely into WINTER and SPRING GARDENING, with full Directions thereon, and giving Lists of all the best Early Flowers, and their Cultivation. Price 7*d*.

Seeds worth Growing.

DOBSON'S CELEBRATED CALCEOLARIA, Sealed packets, 1*s*. 6*d*., 2*s*. 6*d*., 3*s*. 6*d*., and 5*s*.
DOBSON'S PRIZE CINERARIA, sealed packets, 1*s*., 2*s*. 6*d*., and 5*s*.
DOBSON'S UNRIVALLED PRIMULA, superb fringed white or red, 1*s*., 2*s*. 6*d*., 5*s*.
DOBSON'S SUPERB BALSAMS, 8 colours, separate, 2*s*.; mixed, 1*s*.
IMPORTED GERMAN SEEDS.
J. Dobson & Sons, Seedsmen, Isleworth.

Imported German Seeds.

J. DOBSON AND SONS have the pleasure to offer the following, which are unrivalled for quality, post free.

ASTERS, in Sealed Collections.
24 TRUFFAUT'S PÆONY-FLOWERED, 4*s*.
18 " " " 3*s*. 6*d*.
12 " " " 3*s*.
12 CHRYSANTHEMUM-FLOWERED, ex., 3*s*.
12 NEW BOUQUET PYRAMIDAL, 3*s*.
12 NEW GIANT EMPEROR, 3*s*.
8 PERFECTION PYRAMIDAL, 3*s*.

STOCKS, in Sealed Collections.

12 DWARF GERMAN, 3*s*.
12 BRANCHING, 3*s*.
12 WALLFLOWER-LEAV'D, 3*s*.
12 EMPEROR, 3*s*.
8 " 2*s*.
4 HYBRID CAPE, 2*s*.
10 DOUBLE LARKSPUR, 2*s*. 6*d*.
12 PHLOX DRUMMONDII, 2*s*. 6*d*.
6 ZINNIA ELEGANS, 2*s*.

Woodlands Nursery, Isleworth, W.

Choice Flower Seeds.

B. S. WILLIAMS begs to offer the following choice selection of FLOWER SEEDS, which he can specially recommend:—

PRIMULA (Williams' superb strain), Red, White, or mixed, 2*s*. 6*d*., 3*s*. 6*d*., and 5*s*. per packet.
CALCEOLARIA, finest mixed, 2*s*. 6*d*. per packet.
CINERARIA, finest mixed, 2*s*. 6*d*. per packet.
ASTER, all the best kinds, 6*d*. per packet.
AURICULA, seed saved from a superb collection, 1*s*. per packet.
BALSAM, Camellia-flowered, extra fine, 1*s*. per packet.
HOLLYHOCK, from named flowers, 6*d*. per packet.
PANSY, seed saved from prize flowers, 1*s*. per packet.
CARNATION and PICOTEE, very fine, 1*s*. per packet.
STOCKS, all the best kinds, 6*d*. per packet.
PETUNIA, very choice, 6*d*. per packet.
RESEDA CRYSTALLINA (the new Mignonette), 1*s*. per packet.
GLADIOLUS, fine varieties, 6*d*. per packet.
GLOXINIA, erect or drooping, 1*s*. per packet.
HOVEA CELSI, good seed, 1*s*. 6*d*. per packet.
WEITZIA AUREA and CORYMBOSA, 1*s*. per packet.
WIGANDIA CARACASANA, 1*s*. per packet.
ORNITHOGALUM THYRSOIDES ALBUM, 1*s* per packet.
CORDYLINE INDIVISA, 2*s*. 6*d*. per packet.
CELOSIA AUREA PYRAMIDALIS, 1*s*. per packet.
WHITLAVIA GRANDIFLORA ALBA, 1*s*. per packet.
NOLANA LANCEOLATA, 1*s*. per packet.
PRIMULA FILICIFOLIA, Red or White, 3*s*. 6*d*. per packet.
Paradise and Victoria Nurseries, Holloway, London, N.

TO THE TRADE.

1-year Seedling ARBUTUS, 40*s*.
1-year Seedling ARBOR-VITÆ, CHINESE, 15*s*.
3-year Seedling " " AMERICAN, 15*s*.
1-year Seedling BERBERIS DARWINII, 40*s*.
1-year Seedling BROOM, WHITE PORTUGAL, 15*s*.
1-year Seedling " YELLOW SPANISH, 15*s*.
1-year Seedling PICEA NORDMANNIANA, 100*s*.
1-year Seedling PORTUGAL LAUREL, 15*s*.
1-year Seedling YEWS, ENGLISH, 15*s*.
BEDDED ARBOR-VITÆ LOBBII, 80*s*.
" BOX, NEW BROAD-LEAVED, 40*s*.
" HEMLOCK SPRUCE, 100*s*.
" PERNETTYA MUCRONATA, 70*s*.
" PORTUGAL LAUREL, 6 to 9 inches, 40*s*.
" PICEA PINSAPO, 2 yr., 100*s*.
" RETINOSPORA ERICOIDES, 80*s*.
" RHODODENDRONS, 3 yrs., very fine hybrids from best named sorts, 60*s*.
" THUJOPSIS BOREALIS, 3 to 5 inches, 70*s*.
" YEW, ENGLISH, 5 to 7 inches, 70*s*.
Richard Smith, Nurseryman, Worcester.

Primula sinensis fimbriata.—Double Flowers from Seed.

WINDEBANK AND KINGSBURY have much pleasure in announcing that they are now prepared to receive orders for Seed of their superb strain of CHINESE PRIMULAS, which after several years careful selection and hybridizing, they can recommend as the finest strain in cultivation. Blooms were submitted to the Editor of the *Gardeners' Chronicle*—an extract from his article on them will be found below. We also exhibited a Collection before the Floral Committee of the Royal Horticultural Society, on the 21st March last, when three First-class Certificates were awarded to Selected Varieties, and a Special Certificate to the Collection for their novelty and excellence. The fine Double varieties exhibited and sent out by Messrs. Smith of Dulwich, which have also been awarded several First-class Certificates, were raised by us. Our Seedlings have produced us since 1862 nearly 250 beautiful double flowering plants. The Seed now offered will produce a profusion of Double flowers—apart from this very valuable property, the single flowers, as will be seen below, are remarkable for their variety of colour. Our Collection comprises five distinct colours, viz., white, blush, rosy lilac, deep carmine, and striped, and their intermediate shades.

Extract from the *Gardeners' Chronicle*, p. 244:—

"* * * We have been lately much gratified by the sight of a box of flowers from Messrs. Windebank & Kingsbury, of Southampton. * * * Their strain of Primula is a remarkably fine one. The flowers are large, full, and frilled, and in colour vary from white through shades of flesh colour, to blush of deepest hue, and from that again to the carmine rose tint of M. Benary's Carminata, and on through the ordinary deep rose tints to a very dark purple rose. The pale ones especially are also remarkable for a large yellow star-like eye, sometimes measuring fully 5-8ths of an inch across, the flowers themselves being about 2 inches. Some others are splashed and flaked with rose on a white ground, and both pure white and flesh-tinted white, as well as rose and rosy-purple full double flowers, were amongst those sent for inspection * * *."

We are now booking orders for Seed, which will be ready in June next. As the stock will be limited, early orders are solicited, which will be executed in strict rotation.

Sealed packets, 2*s*. 6*d*. each. Trade price on application.
Bevois Valley Nursery, Southampton.

WELLINGTONIA GIGANTEA and CUPRESSUS LAWSONIANA. Warranted true.

Seeds of the above may now be had at W. J. Watson's Seed Warehouse, Town Hall Buildings, Newcastle-on Tyne.
Price, per packet, 5*s*. and 2*s*. 6*d*. Sent post paid.

Abies Douglasii.

WILLIAM BARRON begs to offer beautiful well-grown plants of the above, with good leaders and capital roots (never having been in pots), 15 in. to 18 in., 60*s*. per 100; 2 ft. to 2 ft. 6 in., 100*s*. per 100. As an ornamental timber tree, the Douglas Fir stands unrivalled. The noble specimen shown in the International Exhibition in 1862 was, when cut down, 309 feet high. The strength of the Timber considerably surpasses the Larch and best red Deal, and was only approached by the Pitch Pine. See *Gardeners' Chronicle*, June 17, 1863. Elvaston Nurseries, Derby.

RICHARD SMITH'S LIST of all the EVERGREEN FIR TRIBE suitable for Britain, giving size, price, popular and botanical names, derivations, description, form, colour, foliage, growth, timber, use in arts, native country and size there, situation, soil, and other information, with copious Index of their synonymes. Enlarged Edition, Free by Post for 12 postage stamps.
Richard Smith, Nurseryman, Worcester.

FOREST TREES, &c., Transplanted, at reasonable prices:—Larch, 2 to 3, and 3 to 4 ft.; Spruce Fir, Beech, Ash, 1½ to 2, and 2 to 2½ ft.; Oak, Turkey; Chesnut, Horse; Beech, Purple, 2 to 3, 3 to 4, 4 to 6, and 6 to 8 ft.; Austrian and Weymouth Pines, 6 to 12, and 12 to 18 inches; Thorns, strong; Arbor-vitæ, Silver, Yew, English and Irish, extra fine roots, 2 to 3, 3 to 4, and 4 to 5 feet. POTATOS, LEMON KIDNEY, improved.—Three tons of this small selected seed will be Sold Cheap.
H. & R. Stirzaker, Skerton Nurseries, Lancaster.

BROMUS SCHRADERI

(AUSTRALIAN PRAIRIE GRASS).

JAMES CARTER & CO.

BEG TO ANNOUNCE THAT THEY ARE EXPECTING

A LARGE CONSIGNMENT OF THE ABOVE GRASS SEED

DIRECT FROM AUSTRALIA.

Their Correspondent *gives the following particulars of it:—*

This Grass is grown most successfully; it is considered to be far superior to any of the English Grasses. When used for Green food the growth is much more vigorous than Rye Grass. One of its peculiarities is that it sends up its seed at a very early stage of its growth, and that is one reason that makes it so much more nutritious than other Grasses. The Grass has a very early and quick growth in the spring, and if it will suit our climate (and there is every reason to believe it will), will be found invaluable for early feed. It has already been tried in France, with the following results:—

A new green crop, called "Brome," has recently attracted much attention, in consequence of the perseverance of M. A. Lavallée. A farmer at Trappes, M. Dailly, has produced 31 tons of green Brome per hectare (or more than 12 tons per acre); M. Benoit, of Asy, obtained 35 kilogrammes from 200 grammes of seed, or 185 times the weight of the seed; another farmer got 74 kilogrammes from one kilogramme of seed. It is claimed for the Brome that it promises to feed three bullocks where two were fed before; a magnificent prospect for the beef eater as well as the beef grower. One great peculiarity of the Brome is its growth during an amount of heat which suspends all other vegetation, thus affording green food for cattle before and after all other sources are cut off, and fitting it peculiarly for exposed situations and arid soils. Some years since a farmer, in the department of Finisterre, received some leguminous seeds from America, and has ever since cultivated the plant with great success; this turns out now, it is said, to be identical with the Brome in question.

James Carter & Co. will be happy to book Orders for supplying this GRASS in quantity next autumn, and they can now offer a limited number of packets, price 1*s*., for immediate sowing.

CARTER'S PERMANENT PASTURE GRASS

SUPPLIED AND MIXED TO ORDER TO SUIT EVERY SOIL, AT

26*s*. to 30*s*. per acre, and 32*s*. to 35*s*. per acre.

JAMES CARTER AND CO., 237, 238, & 261, HIGH HOLBORN, W.C.;
DEDHAM and ST. OSYTH, ESSEX; and CRYSTAL PALACE NURSERY, FOREST HILL, S.E.

GENUINE GRASS SEEDS.

PERFECTLY FREE FROM WEEDS.

JAMES VEITCH,

ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA, S.W.,

Directs the special attention of intending purchasers to the following VERY FINE MIXTURES, which he guarantees are not to be surpassed in quality and selection.

In ordering Grasses a description of the Land to be laid down is very necessary, that a suitable Mixture may be supplied

MIXTURES for PERMANENT PASTURES and MEADOW LANDS.

Containing only the finest suitable Grasses and Clovers.

25*s*. to 30*s*. per acre.

MIXTURES for IRRIGATION or WATER MEADOWS.

Specially prepared from those kinds of Grasses most suitable for moist situations.

25*s*. per acre.

MIXTURES for PARK and FIELD LAWNS.

16*s*. per bushel.

MIXTURES SUITABLE for SHEEP WALKS.

Being composed only of kinds which thrive on poor soils.

25*s*. to 30*s*. per acre.

MIXTURES for RECLAIMED MARSHES or HEATH LANDS.

20*s*. per acre.

MIXTURES for GARDEN LAWNS, PLEASURE GROUNDS, GRASS PLOTS, BOWLING GREENS, &c.

18*s*. per bushel, 1*s*. per lb.

This Mixture has been most carefully prepared from the finest growing kinds, and cannot fail to give satisfaction.

MIXTURES for RENOVATING OLD PASTURES.

(Sow 10 to 12 lbs. per acre). Price per lb., 9*d*.

MIXTURES for ALTERNATE HUSBANDRY.

These Mixtures are formed of the best Clovers, Fescues, Rye-grasses, &c. &c., according to requirement, for either One, Two, or Three Years' Pasture or Hay.

16*s*., 18*s*., and 20*s*. per acre.

In ordering this Mixture it should be stated whether it is required for One, Two, or Three Years' Lay.

Where large quantities are required, J. V. will feel pleasure in quoting special prices.

Each kind of Grass and Clover Seed supplied separately if required.

Full DETAILED CATALOGUES of AGRICULTURAL SEEDS will be forwarded (Post Free) on application.

SUTTON'S

PRIZE MANGEL WURZEL AND TURNIP

AND

IMPROVED KOHL RABI SEED.

FOR PRICES, SEE

SUTTON'S NEW FARM SEED LIST,

WHICH MAY BE HAD GRATIS AND POST FREE ON APPLICATION TO

SUTTON AND SONS, ROYAL BERKSHIRE SEED ESTABLISHMENT, READING.

SUTTON'S

GRASS SEEDS FOR ALL SOILS.

Messrs. SUTTON'S GRASS SEEDS being Mixed expressly to suit the Soils for which they are required, Persons ordering have only to state the Nature of the Soil, and Acreage to be laid down, when suitable Seeds will be supplied.

Prices, which vary according to quantity required, and purpose for which they are intended, may be had on application to

SUTTON AND SONS, ROYAL BERKSHIRE SEED ESTABLISHMENT, READING.

MEADOW AND PASTURE GRASS SEEDS.

JOHN & CHARLES LEE,

SEEDSMEN TO THE QUEEN,

Recommend those who are about to Lay Down or Improve their Pastures or Lawns, to send them full particulars of the nature of the soil to be dealt with, and to state if the land is drained or undrained. They have made the most careful selections for the following MIXTURES, which cannot fail to produce the required effects :—

MIXTURES for LAYING DOWN LAND to PERMANENT MEADOW or PASTURE, carefully selected to suit various soils.
30*s.* per acre.

MIXTURES to LAY DOWN PARK or FIELD LAWNS; all coarse-growing kinds carefully excluded.
32*s.* per acre.

MIXTURES for ORCHARDS or LAND SHADED with TREES.
30*s.* per acre.

MIXTURES for RENOVATING OLD PASTURES.
8 to 12 lb. per acre; 9*d.* per lb., 80*s.* per cwt.

MIXTURES for RECLAIMED MARSHES and HEATH LANDS.
20*s.* to 24*s.* per acre.

MIXTURES of GRASSES and CLOVERS for ALTERNATE HUSBANDRY, for One, Two, or Three Years' Lay.
18*s.*, 20*s.*, and 22*s.* per acre.

MIXTURES for MAKING NEW or IMPROVING OLD GARDEN LAWNS, 18*s.* per bushel.

A COMPLETE CATALOGUE of AGRICULTURAL SEEDS sent post free on application.

ROYAL VINEYARD NURSERY and SEED ESTABLISHMENT,
HAMMERSMITH, LONDON, W.

Notice.

PURCHASERS of LARGE QUANTITIES of FARM or GARDEN SEEDS will be supplied liberally by SUTTON & SONS.

For prices apply (stating quantity required) to SUTTON & SONS Royal Berkshire Seed Establishment, Reading.

PRICES of SUTTON'S PERMANENT GRASS SEEDS.—Two bushels Large Seeds, and 12 lbs. Small Seeds per acre.—For very best quality (including Clovers), 30*s.* to 35*s.* per acre. For very Good ditto (including Clovers, but omitting some of the more expensive kinds of Grasses), 26*s.* to 30*s.* per acre.

All Goods delivered Carriage Free, except very small parcels.
Royal Berkshire Seed Establishment, Reading.

RAYNBIRD, CALDECOTT, AND BAWTREE,
SEED FARMERS and MERCHANTS,
89, Seed Market, Mark Lane; and Basingstoke.
Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

VERBENAS and LOBELIAS.—Purple King, Foxhunter, Lord Raglan, Mrs. Woodroffe, Brillant de Vaise, &c., in Pots at 16*s.* per 100; out of pots, 14*s.* Lobelia speciosa true, 12*s.* per 100 for cash. Remarkably fine Plants can be had of
GEORGE EDWARDS, Clarence Nurseries, Haxby Road, York.

Calceolarias.

ISAAC DAVIES begs to offer the following Hybrid Shrubby Varieties, which he raised last year, and which are now offered for the first time. They have all the habit of Aurea floribunda, and are equally good for bedding :—

GARIBALDI, crimson scarlet
CRIMSON KING, fine crimson
RUBRA FLORIBUNDA, red mottled
AUREA SUPERBA, fine yellow
NAPOLEON, bright crimson
NEGRO, very dark
OTHELLO, dark crimson
CONSTELLATION, yellow spotted
NOVELTY, buff
COMET, orange scarlet
OPTIMA, dark crimson
GENERAL LEE, bright crimson
LEVIATHAN, [illegible], large truss

Price 18*s.* per dozen; second size, 12*s.* per dozen. The usua discount to the Trade.

Larkfield Nursery, Wavertree, near Liverpool.

Novelties for 1865.

GEORGE SMITH begs respectfully to announce that he has much pleasure in offering his NEW SEEDLING FUCHSIAS, VARIEGATED and ZONALE GERANIUMS, being confident that they far surpass anything yet offered, viz :—

FUCHSIAS.

DIADEM (G. S.)—Tube and sepals waxy scarlet, well reflexed, of great substance; corolla dark violet with vermilion feather. One of the finest double Fuchsias yet offered. 10*s.* 6*d.*

EXCELLENT (G. S.)—Tube and sepals crimson; corolla magenta, new in colour, very large and fine. 10*s.* 6*d.*

FANTASTIC (G. S.)—Tube and sepals crimson scarlet, well reflexed; corolla mauve, most singularly formed, there being eight petals, the outer four expanded in the way of La Crinoline, and the inner four forming an inner corolla round the filaments; thus there are two distinct corollas in one. A free-blooming and brilliant variety. Figured in the Floral Magazine for Feb. 10*s.* 6*d.*

GENERAL LEE (G. S.)—Tube and sepals of fine form, well reflexed; corolla violet purple, very double, extra large, and very smooth; of robust habit. A first-class variety. 10*s.* 6*d.*

ZONALE GERANIUMS

GLORY.—Flowers of fine form and great substance, light orange scarlet, in the way of Herald of Spring and Roi d'Italie, but brighter in colour; pips larger than a crown piece, extra. 5*s.*

HIGHGATE RIVAL.—Flowers rosy salmon, large, and circular; truss extra large, well formed, quite new in colour, a free bloomer, and in every way a fine variety. Awarded a Certificate by the Floral Committee of the Royal Horticultural Society. 5*s.*

IDA.—Flowers blush with pink centre, truss very large and well formed, blooming for an extraordinary length of time. It is an acquisition. 3*s.* 6*d.*

PINK BEAUTY.—Flowers rosy pink, the upper petals white and pink, truss large, compact, and of excellent form, remarkably free, and one of the best of its class. 3*s.* 6*d.*

PRIME MINISTER.—Zonate foliage, flowers of fine form, bright scarlet and white eye. 5*s.*

PRINCESS.—Bright rosy pink, truss large, a free blooming and fine bedding variety. 3*s.* 6*d.*

THE CLOWN.—Flowers large and conspicuous, white ground, rosy scarlet centre, truss large and compact, very fine and free. Awarded a First-class Certificate by the Royal Botanic Society. 5*s.*

VARIEGATED GERANIUM.

STELLA VARIEGATA.—A sport of Nosegay Stella, being a most splendid addition to its class; of dwarf habit; foliage green with a broad band of creamy white, crimson scarlet flower. The most beautiful and effective Variegated Geranium for clumps or ribbon planting. 10*s.* 6*d.*

G. S. will be prepared to send out after April 20, in good plants, the foregoing New Fuchsias, Zonale and Variegated Geraniums.
Early orders are respectfully solicited.
*** Coloured Illustrations of Fuchsia Diadem, Fantastic, and General Lee, by Mr. Andrews, in exchange for 12 postage stamps.
Tollington Nursery, Hornsey Road, Islington, London, N.

ARAUCARIA IMBRICATA.—Splendid Specimens of the above, stout, vigorous, well-shaped, of good colour, and finely rooted, can be supplied in any quantity at greatly reduced prices, in sizes from 3 to 8 feet. A large stock to select from.
MAURICE YOUNG, Milford Nurseries, near Godalming, Surrey.

FOR SALE, ARAUCARIA EXCELSA, 8 feet high, and 5 feet through, in a pot about 18 ins. in diameter, price £5.
ARAUCARIA CUNNINGHAMII, 5 feet high, and 3 feet through, in a pot about 15 inches in diameter, price £4.
For further information apply to J. R., care of Messrs. Low & Co., Clapton Nursery, London, N.E.

Extra strong 2-year Seedling Larch, and 1-year do. Black Thorn.

FRANCIS AND ARTHUR DICKSON AND SONS can still supply the above at very moderate prices.
"Upton" Nurseries, Chester.

TRANSPLANTED LARCH, &c.

25,000	fine Transplanted LARCH,		3½ to 4 feet
100,000	"	"	2 to 3 feet
300,000	"	"	1 to 2 feet

Bedded and Seedling LARCH in large quantities; Transplanted SPRUCE, &c., at moderate prices. Through rates by rail to all parts of the country.
R. MORRISON, The Nurseries, Elgin, N.B.

E. PIERCE, Yeovil Nurseries, Somerset, offers
150 CEDAR of LEBANON, 8 to 10 feet, well rooted, 100*s.* per dozen.
2300 GREEN HOLLIES, three times transplanted, 60*s.* per 100.
2000 AMERICAN ARBOR VITÆ, 5 feet, 50*s.* per 100.
1000 CHINESE ARBOR VITÆ, 4 feet, 50*s.* per 100.
1000 RED CEDAR, 4 feet, 50*s.* per 100.
2000 PORTUGAL LAUREL, 2½ feet, 40*s.* per 100.

CARTER'S GARDENER'S VADE-MECUM is now ready.

Giant Asparagus Roots.

EDWARD TAYLOR, NURSERYMAN, Malton, Yorkshire, offers a large Stock of the above at the prices quoted below :—

1-year ASPARAGUS roots,	1*s.* 3*d.* per 100;	10*s.* per 1000.
2-year "	1*s.* 6*d.* per 100;	12*s.* 6*d.* per 1000.
3-year "	2*s.* per 100;	17*s.* 6*d.* per 1000.

GRAYSON'S TRUE MORTLAKE GIANT ASPARAGUS, grown on the ground where the late Mr. Grayson brought it to such perfection, so that Grayson's Asparagus is esteemed the best.

Plants one year old, 2*s.* 6*d.* per 100. | Plants two years old, 4*s.* per 100.
Seed post paid in packets just under the ounce, 6*d.*
Post-office orders on Mortlake.
FRANCIS R. KINGHORN, Sheen Nursery, Richmond, S.W.

☞ SPECIAL AND IMPORTANT.

TO LARGE PURCHASERS OF FARM SEEDS.

THE DIRECTORS OF THE LONDON SEED COMPANY LIMITED

ARE NOW IN A POSITION, FROM THE EXTENT OF THEIR CAPITAL, TO MAKE THE FOLLOWING

SPECIAL OFFER TO LARGE PURCHASERS OF FARM SEEDS,

And trust that they will receive the earnest support of all who desire to purchase their Farm Seeds from first hands and at the Lowest Prices.

*** *All Seeds Carriage Free.*

TURNIP.	Per Bushel	Half Bushel.	Quarter Bushel.	Gallon.
LONDON PURPLE-TOP SWEDE	£1 14 0	£0 17 6	£0 9 0	£0 4 6
PLYMOUTH " "	1 14 0	0 17 6	0 9 0	0 4 6
SKIRVING'S " "	1 11 0	0 16 0	0 8 6	0 4 6
GREEN-TOP SWEDE	1 11 0	0 16 0	0 8 6	0 4 6
GREEN-TOP YELLOW ABERDEEN or SCOTCH	1 7 0	0 14 0	0 7 6	0 4 0
PURPLE-TOP YELLOW " "	1 9 0	0 15 0	0 8 0	0 4 6
DALE'S HYBRID	1 7 0	0 14 0	0 7 6	0 4 0
WHITE GLOBE	1 11 0	0 16 0	0 8 6	0 4 6
GREEN GLOBE	1 9 0	0 15 0	0 8 0	0 4 6
LINCOLNSHIRE RED GLOBE	1 11 0	0 16 0	0 8 6	0 4 6
TANKARDS	1 17 0	0 19 0	0 10 0	0 5 0
GREY STONE	1 17 0	0 19 0	0 10 0	0 5 0

MANGEL WURZEL.	Per Cwt.	Half Cwt.	Qr. Cwt.	14 lbs.
LONG RED	£2 14 0	£1 8 0	£0 15 0	£0 8 [illegible]
LONG YELLOW	3 8 0	1 16 0	0 18 0	0 10 0
YELLOW or ORANGE GLOBE	2 14 0	1 8 0	0 15 0	0 8 [illegible]
RED GLOBE	3 8 0	1 16 0	0 18 0	0 10 [illegible]
FISHER HOBBS' ORANGE GLOBE, fine stock	3 3 0	1 12 6	0 17 0	0 9 6
CABBAGE.				
LARGEST DRUMHEAD, for Cattle	9 15 0	5 0 0	2 12 6	1 7 6
CARROT.				
ALTRINGHAM	6 15 0	3 10 0	1 17 6	1 0 [illegible]
LARGE YELLOW BELGIAN	5 15 0	3 0 0	1 11 6	0 17 6
LARGE WHITE BELGIAN	5 7 0	2 15 0	1 10 0	0 16 [illegible]

MIXED GRASSES.

For LAYING DOWN to PERMANENT PASTURE, 10*s.* per bushel, or 75*s.* per quarter. ITALIAN RYE-GRASS, 5*s.* per bushel, or 38*s.* per quarter.

CLOVERS.

At the lowest Market prices. Special offers and Samples will be sent by return of post.

LONDON SEED COMPANY LIMITED, 68, WELBECK STREET, CAVENDISH SQUARE, LONDON, W.

PETER LAWSON & SON,

THE QUEEN'S SEEDSMEN,

28, KING STREET, CHEAPSIDE, LONDON, E.C.; and at EDINBURGH.

LISTS OF ALL SORTS OF SEEDS AND PLANTS SENT FREE ON APPLICATION.

PHOSPHO GUANO.

PHOSPHO GUANO, in its natural state, is found on trap-rock islets within the Tropics. It was discovered in 1854; and its existence was made known in August 1856, by Dr. Voelcker, at the Cheltenham Meeting of the British Association for the Advancement of Science, when he read a paper "On the Remarkable Composition of a New Variety of Guano, called Columbian or Maracaibo Guano," pointing out its peculiar fitness as the base of a highly-concentrated Phosphatic Manure.

The valuable and peculiar qualities of this Manure, now well known as PHOSPHO GUANO, immediately attracted the attention of the leading Agricultural Chemists, who pronounced it to be greatly superior to all other Guanos as a manurial agent.

PHOSPHO GUANO contains in its natural state nearly double the quantity of phosphoric acid found in bones and other substances from which Superphosphates are prepared; and Liebig states that by using PHOSPHO GUANO the farmer conveys to his field 26 per cent. more phosphoric acid than by a mixture of equal parts of Peruvian Guano and Superphosphate of Lime; while "the advantage for the improved quality of the soil appears still more in favour of the PHOSPHO GUANO, if the quantity of soluble phosphoric acid is taken into consideration."

One of the most important advantages of the PHOSPHO GUANO is its uniform composition, and in this particular it is equalled by no other Manure; for with scarcely an exception, they all vary greatly in different samples, even when drawn from a comparatively small bulk.

The effect of the application of PHOSPHO GUANO to both Grain and Root crops has borne out, most truthfully and satisfactorily, the character given to it by Liebig and Voelcker. Whether used to assist the growth of Grain or Roots, or applied as a Top-dressing to Grass lands, it is found to produce, beyond all other Manures, the greatest amount of the food-properties of the plant, and that with a marked superiority of quality. The beneficial effect of the PHOSPHO GUANO on the second and third year's crops is also very marked; and in this respect it is unequalled.

PHOSPHO GUANO, being a very highly concentrated Manure, requires, before being used, to be mixed with an equal weight of wood ashes, sand, or dry earth, so as to insure its equal distribution. Treated in this way, it becomes the cheapest Manure in the market.

Extract from Report of Baron Liebig, *dated 11th September*, 1863.

"Phospho Guano surpasses, most certainly, by its more correct and constant composition, the best sorts of Peruvian Guano; and of its superior efficacy there cannot be the slightest doubt."

Pamphlets, containing a full description of the Phospho Guano, its History, Nature, Properties, &c., may be obtained on application.

The Net Cash Price, including Bags, is £11 10*s.* per Ton, for Ten Tons and upwards, Carriage Free at any Railway Station or Shipping Port in the Kingdom. Smaller lots are charged higher.

PETER LAWSON AND SON, CONTRACTORS,
EDINBURGH; and 28, KING STREET, CHEAPSIDE, LONDON, E.C.

Lilium auratum—The Golden-Rayed Japan Lily.

E. G. HENDERSON AND SON having imported between 2000 and 3000 bulbs of the above-named Superb LILY, offer them in good roots, from 5s and upwards each. For description see E. G. H. & Son's SEED CATALOGUE, which will be sent post free on application.

Wellington Nursery, St. John's Wood, London, N.W.

Verbenas.—Surplus Stock.

JAMES HOLDER can supply strong Plants of the above, in 30 sorts, including the most distinct colours, viz., Scarlet, White, Purple, Pink, and Crimson, at 20s. per 100, hamper included, or 50 plants for 10s. 6d.

Crown Nursery, Reading, Berks.

Carnations, Picotees, &c.

CHARLES TURNER'S stock of the above is very extensive, and in the finest health.

For prices see CATALOGUE now ready.

PELARGONIUMS "JOHN and MARY HOYLE."—These and other new varieties in the finest plants; also the best established varieties at very moderate prices.

See CHARLES TURNER'S CATALOGUE now ready.

VERBENAS.—All the best kinds now ready, and Perry's beautiful new varieties ready 1st May, described in C. TURNER'S CATALOGUE.

The Royal Nurseries, Slough.

Mr. E. J. Lowe's New Pansies.

EDWIN COOLING has the pleasure to announce that he has been entrusted with the stock of the above named splendid Novelties for distribution. They have been awarded First-class Certificates wherever exhibited, and are all most distinct and beautiful. A DESCRIPTIVE PRICED LIST of the 24 varieties free on application.

Strong healthy plants are now ready for sending out.

Mile Ash Nurseries, Derby.

New Catalogue for 1865.

GEO. SMITH begs to announce that his PRICED and DESCRIPTIVE CATALOGUE, containing the Newest and most Approved Varieties of Show, Spotted, and Fancy PELARGONIUMS; Zonale and Variegated GERANIUMS, FUCHSIAS, VERBENAS, PETUNIAS, DAHLIAS, CHRYSANTHEMUMS, BEDDING PLANTS, &c., is now ready, and will be forwarded in exchange for one postage stamp.

*** Coloured Illustrations by Mr. Andrews, free by post, in exchange for 12 postage stamps, of FUCHSIAS GENERAL LEE, DIADEM, and FANTASTIC, the three finest Fuchsias G. S. has ever had the pleasure to offer, for description of which see Catalogue.

Tollington Nursery, Hornsey Road, Islington, London, N.

New Carmine-striped Verbena Annie.

GEORGE COOLING, of Bath, has great pleasure in offering this really novel and beautiful VERBENA, the best striped variety ever raised. It is an excellent grower, of very compact pretty habit, and produces in great profusion immense trusses of carmine and white striped blossoms, of perfect form and fine substance, which are remarkable for the length of time they last in bloom. Altogether it is a most desirable acquisition, and a variety thoroughly distinct from any in cultivation. For bedding purposes it will be unique, and no exhibition stand will be complete without it. It has obtained a First-class certificate from the Floral Committee of the Royal Horticultural Society, in addition to five First Prizes and Certificates elsewhere. See report to correspondence and editorial remarks in *Gardeners' Chronicle*, July 16, Sept. 17, Dec. 31; in *Journal of Horticulture*, and other provincial papers; it is also figured in the *Florist* for February.

Good plants will be ready the first week in May at 5s. each, or six for 25s., with the usual discount to the Trade.

18, Broad Street, Bath, near the York House; Nursery, Batheaston, near Bath.

Established Upwards of a Century.

BUTLER AND McCULLOCH,

SEED MERCHANTS, Covent Garden Market, W.C.

GENUINE NEW VEGETABLE SEEDS.

Orders amounting to 21s. and upwards sent Carriage Free.

COMPLETE COLLECTIONS for ONE YEAR'S SUPPLY.

No. 1.	No. 2.	No. 3.	No. 4.	No. 5.
8l. 8s.	3l. 3s.	1l. 10s.	1l. 1s.	10s. 6d.

BUTLER AND McCULLOCH'S NOVELTIES for 1865.

	Per packet—s. d.
BUTLER'S SUPERFINE DWARF CAULIFLOWER.. ..	2 6
BUTLER'S CLIMAX MELON..	2 6
BUTLER'S PRESIDENT MELON	2 6

FLOWER SEEDS (sent Post free).

Assortments of	100 vars.	50 vars.	30 vars.	25 vars.	15 vars.
ANNUALS—Hardy	20s.	10s.	5s.	..	2s. 6d.
" Half Hardy	30s.	15s.	..	7s. 6d.	4s. 0d.
PERENNIALS (Hardy) "	25s.	12s. 6d.	..	6s. 6d.	3s. 6d.
" Half Hardy ..	..	..	..	7s. 6d.	4s. 0d.

NOVELTIES in FLOWER SEEDS.—See Descriptive Catalogue.

BULBS for SPRING PLANTING.—Gladioli, Liliums, including the splendid new L. auratum; Tigridias, Anemones, Ranunculus, and other bulbs suitable for spring planting, in great variety. Special Quotations at low rates per 100 or 1000 on application.

AGRICULTURAL SEEDS, saved from pure Stocks, and received direct from the growers, including all the best kinds of Turnips, Swedes, Carrots, Mangel Wurzel, Grasses, &c.

PRICE LIST just published, and may be had gratis on application.

Agents for

SOULDING'S HORTICULTURAL MANURE, 1s. per canister.

SOLE AGENTS, Wholesale and Retail, for

MURRAY'S APHIS PASTILS,

a new invention, and the most effectual in existence for Fumigating Plant Houses.

In packets, 1s. and 2s. each.

BUTLER & McCULLOCH, Covent Garden Market, W.C.

GEO. BAKER AND SON beg to announce they have an extensive collection of the best hardy RHODODENDRONS in cultivation, fine healthy plants, at very moderate charges. Also a large collection of general NURSERY STOCK. Prices on application.

American Nurseries, Bagshot, Surrey, about 1 mile from Sunningdale Station, South-Western Railway.

American Plants.

AS EXHIBITED IN THE ROYAL HORTICULTURAL GARDENS, KENSINGTON.

WATERER AND GODFREY'S PRICED and DESCRIPTIVE CATALOGUE of RHODODENDRONS and other AMERICAN PLANTS will be forwarded on application. The Catalogue also gives a General Summary of their Stock, which contains probably the most extensive choice of all the Hardy and finest Evergreens and Conifers.

Knap Hill Nursery, Woking, Surrey.

Rhododendrons.

JOHN WATERER begs to announce that his New CATALOGUE of Hardy, Scarlet, and other Choice RHODODENDRONS, as exhibited by him at the Royal Botanic Gardens, Regent's Park, is now published, and can be had on application. It gives faithful descriptions of all the esteemed varieties, as well as a Select List of Hardy CONIFERS, with heights and prices; also the leading kinds of EVERGREENS, ROSES, FOREST TREES, &c.

The American Nursery, Bagshot, Surrey, near Sunningdale Station, South-Western Railway.

Rhododendrons.

WANTED, a few Thousands of RHODODENDRON STOCKS for immediate working.

Apply, stating price and quantity, to MAURICE YOUNG, Milford Nurseries, near Godalming.

J. IVERY AND SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

Russell's Pyramid Primulas.

GEO. CLARKE is now prepared to send out in packets, price 2s. 6d. each, this, the finest breed of PRIMULAS in cultivation. The Seed now for sale has been saved from selected plants, so that it is believed the produce will be even superior to that of former years.

Printed instructions for raising and growing the plants sent with each packet. Stamps received in payment.

Nursery, Streatham Place, Brixton Hill, London, S.

CARTER'S GARDENER'S VADE-MECUM is now ready.

ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON.

SPECIAL SHOW of HYACINTHS and CAMELLIAS, SATURDAY, March 25, 1865.

AWARDS OF THE JUDGES.

CLASS 1.—18 HYACINTHS, distinct kinds. (Nurserymen.)
1st, Mr. W. Paul, Waltham Cross, N., £1 10s.
2d, Messrs. Cutbush & Son, Highgate, N., £1.

CLASS 2.—12 HYACINTHS, 6 kinds. (Amateurs.)
1st, Mr. W. Young, Gr. to R. Barclay, Esq., West Hill House, Highgate, £2.
3d, Mr. M. Higgs, Gr. to Mrs. Barchard, Putney Heath, 10s.

CLASS 3.—6 HYACINTHS, distinct kinds. (Open.)
1st, Messrs. Cutbush & Son, Highgate, N., £1
2d, Mr. W. Young, Gr. to R. Barclay, Esq., West Hill House, Highgate, 15s.
3d, Mr. W. Paul, Waltham Cross, N., 10s.

CLASS 4.—6 HYACINTHS, distinct kinds, Grown in Windows in Pots or Glasses. (Amateurs.)
1st, Mr. W. Bartlett, Shaftesbury Road, Hammersmith, £1
2d, Mrs. L. Young, 6, Blenheim Terrace, Highgate Road, Kentish Town, 15s.
3d, Miss Fortune, 1, Gilstone Road, Brompton, S.W., 10s.
3d, Mr. W. Paskins, Millfield Lane, Highgate, N., 10s.

CLASS 5.—6 HYACINTHS, new kinds of 1864-5. (Open.)
1st, Messrs. Cutbush & Son, Highgate, N., £1.
2d, Mr. W. Paul, Waltham Cross, N., 15s.

CLASS 6.—12 Pots of TULIPS, 6 kinds. (Nurserymen.)
1st, Messrs. Cutbush & Son, Highgate, N., £1 10s.
2d, Mr. W. Paul, Waltham Cross, N., £1.

CLASS 7.—12 Pots of TULIPS, 4 kinds. (Amateurs.)
1st, Mr. W. Young, Gr. to R. Barclay, Esq., West Hill House, Highgate, N., £1 10s.
2d, Mr. W. Bartlett, Shaftesbury Road, Hammersmith, £1.
3d, Mr. H. Ford, Millfield Lane, Highgate, 15s.

CLASS 8.—CROCUSES, Collection of. (Nurserymen.)
1st, Mr. W. Paul, Waltham Cross, N., 15s.
2d, Messrs. Cutbush & Son, Highgate, N., 10s.

CLASS 9.—CROCUSES, 12 Pots of. (Amateurs.)
1st, Mr. W. Bartlett, Shaftesbury Road, Hammersmith, 15s.
2d, Mr. W. Young, Gr. to R. Barclay, Esq., Highgate, 10s.

CLASS 10.—6 PELARGONIUMS, forced. (Open.)

CLASS 11.—6 pots of LILIES of the VALLEY. (Open.)
1st, Mr. W. Bartlett, Shaftesbury Road, Hammersmith, £1.
2d, Mr. W. Paul, Waltham Cross, N., 15s.

CLASS 12.—6 PRIMULAS, various colours. (Open.)
1st, Mr. T. Todman, Gr. to R. Hudson, Esq., Clapham Common, 15s.

CLASS 13.—12 CAMELLIAS, cut blooms, distinct kinds. (Open.)
1st, Mr. T. Trussler, Gr. to D. G. Ray, Esq., High Leigh, Hoddesdon, £1.
2d, Messrs. J. & C. Lee, Royal Vineyard Nursery, Hammersmith, 15s.
3d, Mr. W. Paul, Waltham Cross, N., 10s.

CLASS 14.—6 CAMELLIAS in Flower, distinct kinds. (Nurserymen.)
2d, Messrs. J. & C. Lee, Royal Vineyard Nursery, Hammersmith, £1 10s.
2d, Mr. W. Bull, King's Road, Chelsea, £1 10s.

CLASS 15.—6 CAMELLIAS in Flower, distinct kinds. (Amateurs.)

CLASS 16.—4 CAMELLIAS in Flower, distinct kinds. (Open.)

CLASS 17.—CAMELLIA, single Specimen. (Open.)
3d, Mr. W. Bull, King's Road, Chelsea, 10s.

CLASS 18.—6 RHODODENDRONS, 4 kinds. (Open.)

CLASS 19.—RHODODENDRON, single Specimen. (Open.)

CLASS 20.—MISCELLANEOUS COLLECTION of PLANTS in FLOWER (Open.)
1st, Messrs. J. & C. Lee, Hammersmith, for Collection of Stove and Greenhouse Plants, £1 10s.
2d, Mr. W. Bull, King's Road, Chelsea, for Collection of Plants in Flower, £1.
Extra, Mr. W. Paul, Waltham Cross, for Collection of Hyacinths, £1 10s.
Extra, Messrs. Cutbush & Son, for Collection of Tulips, £1 10.
Extra, Mr. T. Todman, Gr. to R. Hudson, Esq., Clapham Common, for 10 Small Azaleas, £1 10s.
Extra, Messrs. Paul & Son, Cheshunt, Herts, for 24 Pots of Roses, £1 10s.
Extra, Mr. R. Laing, Twickenham Nurseries, for 2 Plants of Aucuba japonica, £1.
Extra, Mr. M. Higgs, Gr. to Mrs. Barchard, Putney Heath, for 6 Standard Mignonette Plants, £1.
Extra, Mr W. Paul, for Collection of Tulips in Pots, £1.
Extra, Mr. W. Paul, for Collection of Roses in Pots, £1
Extra, Messrs. Cutbush & Son, for Collection of Narcissus, £1
Extra, Messrs. Cutbush & Son, for Collection of Hyacinths, £1
Extra, Mr. W. Miller, Gr. to Earl of Craven, Coventry, for 6 Bunches of Grapes, £1
Extra, Messrs. Paul & Son, for Collection of Cut Roses, £1
Extra, Mr. W. Bartlett, Hammersmith, for Collection of Plants in Flower, 15s.
Extra, Mr. W. Paul, for Collection of Cut Roses, 15s.
Extra, Mr. W. Bartlett, for 8 Azaleas, 15s.
Extra, Mr. E. Shuter, Gr. to Earl of Wilton, Manchester, for Lady Downe's Grapes, 15s.
Extra, Mr. W. Bartlett, for Collection of Narcissus in blooms, 10s.
Extra, Rev. G. Cheese, Papworth Hall, St. Ives, Hunts, for Stand of Anne Boleyn Pinks, 10s.

Seed Orders without Signatures.

MESSRS. SUTTON AND SONS have still on hand several ORDERS for SEEDS from Customers who have omitted to give either their Name or Address, so that it is impossible to ascertain to whom the goods should be sent.

Messrs. SUTTON, fearing that inconvenience must be experienced from this unavoidable delay, request their friends who do not receive their goods promptly to write.

Royal Berkshire Seed Establishment, Reading.

Seeds, Growth of 1864.

JOHN AND CHARLES LEE, SEEDSMEN to the QUEEN, beg respectfully to submit their NEW CATALOGUE for 1865 of KITCHEN GARDEN, FLOWER, and AGRICULTURAL SEEDS, containing Selections from the best Stocks at Home and Abroad, post free on application.

Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

New Fuchsias.

E. G. HENDERSON AND SON can now supply LA TRAVIATA, ANNA BULLEYN, MARVELLOUS, and TROUBADOUR, at 10s. 6d. each; the set, 30s.

Wellington Nursery, St. John's Wood, London, N.W

Choice Primula Seed.

WILLIAMS' SUPERB STRAIN, the finest Fringed and best Coloured Flowers in Cultivation. In sealed packets, Red, White, or Mixed Seed, 2s. 6d., 3s. 6d., 5s.

Paradise and Victoria Nurseries, Holloway, London, N.

Beck's New Pelargoniums.

B. S. WILLIAMS has much pleasure in stating that he is now distributing strong Plants of New and Choice Varieties for this season. DESCRIPTIVE CATALOGUE, post free on application.

Paradise and Victoria Nurseries, Holloway, London, N.

BEDDING PLANTS, BEDDING PLANTS in great variety. Will be ready for sending out in May. An immense stock of the above, price, per 1000, £8; per 100, £1, or 4s. per dozen, at W. J. WATSON'S, The Hall Nurseries, Fenham, near Newcastle-on-Tyne.

A DESCRIPTIVE CATALOGUE of NEW and RARE JAPANESE PLANTS, CONIFERÆ, RHODODENDRONS, EVERGREENS, FRUIT TREES, &c., will be forwarded on application to

MAURICE YOUNG, Milford Nurseries, near Godalming, Surrey.

GERMAN FLOWER SEEDS.—Superb varieties of ASTER, STOCK, BALSAM, WALLFLOWER, PHLOX DRUMMONDI, PORTULACA, LARKSPUR, ZINNIA, &c.

For prices, see DESCRIPTIVE SEED LIST.

RICHARD SMITH, Seed Merchant, Worcester.

FLORAL and HORTICULTURAL FETE, to be held at PETERBOROUGH, in connection with the NORTHAMPTONSHIRE AGRICULTURAL SOCIETY'S ANNUAL SHOW, on THURSDAY, July 6. Premiums amounting to more than 200l. will be offered for competition. Open to all England. Prizes to be paid on the day of Exhibition.

COMMITTEE.

Rev. Wm. Strong	W. Paley, Esq., M.D.	Messrs. Amies & Barford
The Very Rev. the Dean	T. Walker, Esq., M.D.	Mr. E. Vergette
Rev. Wm. Cape	H. Porter, Esq., M.D.	" H. Elsey
Rev. C. Daymond	S. C. W. Buckle, Esq.	" J. S. Clarke
C. I. Strong, Esq.	G. Wyman, Esq.	" John Thompson
H. H. English, Esq.	Mr. W. Rowell	" John Fox
H. P. Gates, Esq.	" W. Wyman	" Wm. Thompson
A. Percival, Esq.	" F. G. Buckle	" John House
	" W. Vergette	

The Schedule and Rules may be obtained of the Secretary, Mr. JOHN FOX, 14, Narrow Street, Peterborough.

The Gardeners' Chronicle.

SATURDAY, APRIL 1, 1865.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY,	April	4	Royal Horticultural (Floral and Fruit Committee), at S. Kensington.. Noon
			Do. (Scientific Meeting) .. .. 3 P.M.
THURSDAY,	—	6	Linnean .. .. 8 P.M.
SATURDAY,	—	8	Royal Horticultural (Weekly Show), at South Kensington .. .. .. 2 P.M.
			Royal Botanic (Second Spring Show).. .. .. 2 P.M.

IN continuing the remarks on DARWIN'S THEORY, commenced at p. 267, we have to observe that a Race, as commonly understood amongst horticulturists, is an individual (or group of individuals) with a well-marked character, which differs from a variety in being more permanent or true under cultivation, whether from seed, or by division, or both. It is further usually assumed, that a variety will produce offspring whose characters are those of the parent of that variety, which offspring reverts, as it is called, to the original condition of the species, but that a race will ordinarily not do so. Whether this is in any great degree true or not, is a matter of doubt. There can be no question that the offspring of a variety frequently does not show the distinctive characters of that variety, and it is hence often hastily assumed that it has reverted to, or resumed all those of, the parent of the variety; but in a multitude of instances it will be found that the offspring of the variety not only differs from its parent in those characters which constituted it a variety, but in still others from the parent of the latter, and perhaps as a general rule it will always be found to be so.

For to what do we owe varieties at all, except to the fact that, contrary to the general belief, in organic nature like does *not* produce like. Let the offspring of a parent be ever so numerous, no two of them resemble in all points, either one another, or their common parents, or any ancestor whatever. Certain parental features are retained in varying degrees and proportions, either little changed or so blended as to produce an apparently new character, foreign to both parents; but there is no known instance of the individuality of the parent being so fully

transmitted, as that the son shall be confounded with the father, or that the ancestral portrait shall pass muster for that of any member of the succeeding generations of the family. Perhaps indeed there is no more wonderful and inexplicable fact in nature than this—that the innumerable sons of men have all differed from one another, and continue to differ, however numerous they become. Why the offspring of our first parents should not have been all precisely like one another and their parents, and so on through all succeeding generations, and why we should never find even two precisely similar individuals, are hitherto unexplained facts, with whose explanation we have nothing now to do, and to which we allude only to show that every individual is in reality a variety, and that there is in truth no such thing as a *bonâ fide* reversion to all the parental characters.

We may thus regard variation as a centrifugal force, ever tending to sunder the members of a family, and as such it is an instrument at the disposal of the gardener or breeder, whereby he makes (as it is called) races out of varieties, and even educes forms as dissimilar as species out of races.

It is now an admitted axiom, that to SELECTION alone must we look for the establishment of new races of our existing garden plants, but before going further we must clearly define what we mean by the *production* of races. In ordinary parlance it would imply that the gardener had the power of forcing a plant to give birth or origin to a variety that shall differ from its parent in possessing a wished-for character; and such we know to be a very prevalent opinion. We believe it to be in the main an unfounded one, and would invite all thoughtful gardeners to follow carefully the arguments we have to produce against this opinion, but not to accept them without inquiry and observation. Putting aside the results of hybridising or crossing, which are foreign to the present discussion, and of the permanence of which there are many doubts, a gardener has no recognised means of causing a plant to produce seed of a quality other than it would naturally produce. By administering proper food to the parent, and otherwise treating it judiciously, he may induce it to produce more, or larger, or more healthy seed; but no treatment that we know of will influence the parent to produce seed that will grow up into plants differing from that parent in any desiderated particular of colour, form, or arrangement of either floral or foliar organ. And yet this is what the gardener wants to do, and this desideratum, thanks to Nature's bounty, he actually obtains if he perseveres long enough.

To produce new varieties of plants then is the undeviating course of Nature—to take advantage of this fact and to accelerate its operation, by so nourishing his plants that they produce more healthy seed, and in larger quantities, is the gardener's function. The more seed the plant gives, the greater amount of variation will there be in the first generation; and the more variation, the better chance the gardener has of finding the germ of the quality he desiderates. But in all this he is acting upon no certainty; he is only multiplying his chances.

The operation of selection is too well known to require any elucidation from us; but a practical question of great importance remains, which we hope will be well discussed at Erfurt, viz., what are the limits to the amount or kind of change that a gardener may expect to effect by continuous selection; and under what conditions may he with most confidence expect certain desired results. For instance, we suppose that we know perfectly well that it is hopeless to expect to obtain a lilac, blue, or violet Rose or Camellia; and yet there is no theoretical obstacle to our doing this. Whites, damasks, blushes, striped, and parti-coloured Roses have appeared obedient to the gardener's skill, and, as it is said, even the sulphur and "cloth of gold" races, exist nowhere but in gardens. It is not as if all these colours were never present in one genus, for we have them all in Gentiana, and probably in many others, nor as if colours once supposed impossible did not sometimes appear, for we have such a case in FORTUNE's yellow Camellia—but we have hitherto no rationale of the operation, no "handbook of selection." And yet with regard to obtaining hardiness, scent, size of flower, amount of doubling, and all other qualities, structural and functional, there are no doubt tolerably safe if not certain clues, which, if found, would lead to success in producing these qualities when wanted; and we doubt not that these clues are to be obtained through a searching scientific study of the individual and general characters of all the congeners of the plants to be operated upon.

And here DARWIN's theory comes in aid. If it be true that all the species of a genus are, through natural selection, the descendants of a common parent, then the operator may expect to find a character peculiar to one species of a genus appearing in the offspring of another species of the same genus, if he multiplies it sufficiently, and the nearer the species are specifically, the greater will be his chance of success. To initiate an inquiry into the characters of the genera of cultivated plants in reference to the operations of the cultivator in producing races, would be a splendid work; it would inaugurate an epoch in scientific horticulture, and as such we recommend it most earnestly to the attention of the Horticultural Congress at Erfurt. Should we not find the subject so treated by them we may recur to it ourselves, and offer suggestions for its elucidation.

IN a report of a meeting of the Botanical Society of Edinburgh, which will be found at p. 222, are some observations by Mr. M'NAB, on CONIFEROUS PLANTS FROM HOME-GROWN SEEDS, the tendency of which is to indicate that in our climate some at least of the choice Conifers of America are so far degenerating, that plants raised from seeds ripened in this country are rapidly dying out in certain situations. Of the latter fact there is no room for question, and the writer seems to have good and sufficient grounds for his conclusions. The subject is undoubtedly of considerable importance. We are just favoured by Mr. C. W. STRICKLAND with a note, here subjoined, in which another cause is indicated for results similar to those pointed out by Mr. M'NAB. Mr. STRICKLAND writes:—

"A few weeks ago a paper was read at a meeting of the Botanical Society of Edinburgh, for the purpose of showing that some of the more recently introduced Firs, especially those from California (such as the Abies Douglasii and nobilis), when grown from English seed turned yellow and sickly, and generally within a few years died altogether. There may be some such tendency; but my experience of these trees leads me to think that other causes are very often to blame. I have found these kinds of Fir exceedingly capricious as to the soil in which they will grow. Neither the Douglas Fir nor the A. nobilis will live upon an oolitic soil. They turn yellow and die, exactly as is described in the paper referred to. But they will both thrive upon the sandy loam, which belongs to the beds of calcareous grit. Now I have a number of plants of the Douglas Fir, grown from English seed, which were dying as fast as they could do on the oolite, and which I removed to the soil which suited them; and these have quite recovered, and are now of a deep green colour, and growing vigorously. The same appears as if it would be the case with two plants of A. nobilis, which I last year treated in the same manner for the same reason. What has become of the Arboricultural Committee of the Horticultural Society? This is surely a subject for it to investigate."

Have these results been noticed elsewhere, and under what conditions? We shall be glad to publish any observations which observant readers in different parts of the country, and in localities with different geological conditions, may be able to offer. The subject may indeed be specially commended to all who are interested in arboriculture.

—— THE lovers and friends of Horticulture are reminded, that on Tuesday next, the 4th of April, occurs another of the TUESDAY SCIENTIFIC MEETINGS of the Royal Horticultura Society, at South Kensington. The successful commencement of these meetings we have already had the pleasure of recording. For the future it rests with the Fellows themselves, and the growers of New or Rare plants, whether they shall be maintained and as far as may be improved—the former gracing them with their presence in sufficient numbers to stimulate the exhibitors; and the latter taking care that visitors shall not come to be disappointed either as to the number or quality of the plants or flowers presented for their examination. We understand that amongst the many other objects of interest that will be exhibited next Tuesday, may be expected a beautiful Odontoglot (the Odontoglossum gloriosum of REICHENBACH), imported by Messrs. LOW & Co. from New Grenada; an extraordinary Dendrobium (D. senile), introduced from Moulmein by the same firm, and which is covered with white hairs, like what is popularly known as the Old-Man Cactus of Mexico; a new Cypripedium (C. concolor), if it lasts so long, from Mr. RUCKER's garden; and some pots for Orchids, on a new principle, from Mr. BATEMAN.

—— We invite attention to the CHRYSANTHEMUM SHOW which is to take place on the 16th of November next at Bristol, under the auspices of the Bristol Chrysanthemum Society, as announced in our advertising columns of last week. It has been pointed out to us that certain classes for cut blooms of Chrysanthemums, in sets of 24, 12, and 6, are specially intended to induce metropolitan and other distant growers to take part in the show. Mr. Hobbs, the Honorary Secretary, is ready to give all necessary information.

—— The scientific world has to deplore the recent loss of Mr. H. W. SCHOTT, director of the gardens of Schönbrunn, and the author of various publications on the order Aroideæ, in regard to which M. SCHOTT was regarded as a high authority. It may be added, that the death of Sir R. SCHOMBURGK, which we mentioned last week, took place on the 11th of March.

—— We understand that the COLOGNE EXHIBITION, which is to be opened by the CROWN PRINCE OF PRUSSIA, is postponed from the 15th May till the 2d of June by his Royal Highness's desire. Consequently notice of intention to exhibit may be given up to the 1st of May, and articles will be received from the 1st up to the 25th of May. By this arrangement the committee think it will be possible for the exhibitors at Stettin, on the termination of the Stettin Exhibition, to forward their articles to Cologne; and that it will perhaps be also possible that the articles exhibited at Cologne should afterwards be sent to the Dresden Exhibition. Besides Gold, Silver, and Bronze Medals, prizes will also be adjudged,—one of the value of 127*l.*, for the best steam plough; one of 75*l.*, for the best traction engine; and one of 75*l.*, for the best steam fire-engine. Land, fuel, and water will be supplied for the trying of the steam ploughs and engines.

—— Two of the finest NEW PALMS shown at the Brussels Exhibition last year were the Stevensonia grandifolia and Regelia majestica, mentioned at pp. 413-4 of our last Volume. These names, however, it appears, were of garden origin, and will not stand; for Mr. WENDLAND, who is a learned authority amongst these princes of the vegetable world, has recently in *L'Illustration Horticole* characterised them under other names, both being regarded as types of new genera. The Stevensonia is to be henceforth PHŒNICOPHORIUM SECHELLARUM, and the Regelia is to be VERSCHAFFELTIA SPLENDIDA. Both appear to be natives of the Seychelles Islands, and both are remarkable for the broad bifid foliage they bear, at least in their adolescent state. A very beautiful figure of the Verschaffeltia is given in the number just issued of *L'Illustration Horticole.*

—— The following statement from M. Cosson's 'Voyage Botanique en Algerie" (*Ann. Sc. Nat.* ser. 3., xix., 121 in note), may serve as a hint to gardeners who are addicted to OVERWATERING their plants:—

"The dwarf Palm (Chamærops humilis), which is so widely spread over the littoral region of Algeria, and often presents the greatest obstacle to the clearance of the ground, owing to the strength and length of its suckers, may easily be got rid of by judiciously directed irrigation. M. VIGNON, chief engineer officer of the Tlemcen district, has extirpated this tree throughout the territory of Hadjar-Roum, by irrigating the land from the Isser River; in less than two years the suckers of the Chamærops were thus not only killed but converted into a deep bed of vegetable mould. In this case the result has been, that what was an utterly barren inhospitable tract of land in an agricultural point of view, has become one of the most fertile and productive."

—— Under the title of "Cercle Professoral pour le Progrès de l'Arboriculture," a Society has recently been established in Belgium having for its object to secure uniformity of teaching in matters relating to arboriculture, as well as to the choice determination and classification of Fruits; in short, charging itself with whatever concerns the interests of two important branches of national industry—Arboriculture and Pomology. The "Cercle" invites the assistance of those who are in possession of information relating to these subjects; and admits as patrons those who are willing to contribute by a small annual payment to their advancement. Triennial general meetings are to be holden, and a record of them published. The *Bulletin du Cercle*, which is to cost 5 francs a year, is moreover to contain communications of which the Committee authorise the publication, as well as reports on controverted questions, &c. The President is M. V. VANDEN HECKE DE LEMBEKE, and the Secretary M. EM. RODIGAS, Professor in the State School of Horticulture at Ghent.

KITCHEN GARDEN PLANTS.—No. II.

THE PEA.

IN the first batch of Dr. Maclean's new Peas sent out by Mr. Turner, was a very dwarf variety called Mignon. It succeeded badly in the south, but in the north of England, even under circumstances adverse to its proper development, it was very promising. It seems now to be lost sight of, as Mr. Turner does not quote it in his list.

Dr. Maclean's name has become interwoven, as it were, with the history of Peas. For many years past he has been engaged in the laudable work of producing

a class of dwarf wrinkled Marrows as early as Sangster's No. 1, but possessing at the same time the hardihood, productiveness, and flavour of the late wrinkled kinds. In order to attain this result, he commenced hybridising Beck's Early Dwarf Gem with the best of the Marrow varieties, an operation which he has followed up, making selections with praiseworthy persistency, until some valuable early dwarf wrinkled Marrows have been the result. Dr. Maclean's first fruits were two popular kinds, known as Harrison's Glory and Harrison's Perfection, both round Peas, the first of a green colour, the latter white. As these proved spare croppers in cold and late localities, they are gradually giving place to better sorts, though for the former there is still a large demand. Hairs' Dwarf Mammoth was also Dr. Maclean's, and is now, though not an early variety, as popular as ever. After the lapse of a little time came Advancer, a first-class early wrinkled Pea, but wanting that fulness of flavour which some of its successors possess. A variety known as Dwarf Prolific, combines earliness, flavour and productiveness to a remarkable degree, and bids fair to acquire a wide-spread popularity. Among others there appeared Epicurean, somewhat later than Advancer, Mons. Soyer, Essex Rival, Sea-green Wrinkled Marrow, Princess Royal, Queen of the Dwarfs, Early Emerald, Wonderful, Premier, and Prince of Wales. These have been selected from nearly 100 seedlings, which passed into the hands of Mr. Turner. Of these, Little Gem, Prolific, Advancer, Princess Royal, Prince of Wales, and Wonderful, seem likely to become staple Peas. Prince of Wales and Wonderful are both dwarf white wrinkled Marrows, the former the earliest, but both very productive, and possessing a rich flavour. Princess Royal is a round white Pea in the way of Harrison's Perfection, but greatly superior to it. The others have either become lost, or they have failed to gain position, though possessing some excellent qualities. There is scarcely any vegetable that has to encounter so much prejudice as a new Pea, especially from large wholesale houses. Premier was a new variety of 1864; it has scarcely had a fair trial, as the dry summer was unfavourable to it. It is later than the others, coming into bearing about the same time as Veitch's Perfection.

With regard to rotation of crops, Dickson's Early Favourite, which originated in a selection of some straight pods from the old Auvergne, ranks next in point of earliness. It grows about 4 feet in height, and produces pods in profusion. Of other "second early" varieties succeeding this, or in some localities preceding it, there is Prizetaker, or Rising Sun, a good selection from Bellamy's Green Marrow, likewise known in the Midland districts as Leicester Defiance, and Noble's Green Marrow. It is a variety extensively grown in Yorkshire and other districts for purposes of exhibition; its dark green pods grow to a large size on good soil; it is very deficient in flavour, but it is a good cropper. Champion of Paris, or Paradise Marrow, likewise known as Excelsior Marrow, is a famous "Cottagers' Pea;" it grows about 4½ feet, and is very productive. Somewhat similar to the foregoing, although not quite so large or so tall-growing, is the Ringwood Marrow, a variety which when true often comes into bearing immediately after Sangster's No. 1; the pods swell out before the Peas attain any size; they therefore appear fit to gather before they really are so. Along with Champion of England, a Pea of such good qualities and so generally liked as to be cultivated everywhere, comes into bearing Fairbeard's Nonpareil, a small dwarf white Knight's, but one that is seldom cultivated; also Fairbeard's Surprise, a round white variety, a sport from Champion of England; and Bishop's Longpodded Dwarf, a very dwarf but excellent Pea. These are again followed by Burbidge's Eclipse or Stubbs's Dwarf, another good dwarf Pea; and by Flack's Victory and Bedman's Imperial, now generally acknowledged to be the same, though the original difference was in favour of Victory, which was a little dwarfer and more productive than Imperial. Blue Prussian, a variety much grown by cottagers, and Woodford Dwarf Green Marrow also rank in this class as far as the order of rotation is concerned. From the last was selected Batt's Wonder, a first-class stock of the foregoing when a true type of it can be obtained. The Woodford Marrow is a great bearer; it is invaluable for dry situations, and even when apparently too old the Peas prove deliciously tender when cooked.

The Blue Scimitar is essentially a market gardener's Pea; thousands of acres of it are annually grown to supply the different markets throughout the country. Under ordinary field culture it yields a good produce, and when subject to high culture it pods freely, and the peas are large and deliciously sweet. Careful selections are periodically made from this variety by leading wholesale houses, who grow it in great quantity, as an indifferent stock quickly degenerates into a small and comparatively worthless type. It is very much grown in the southern and western counties of England. A variety known as the Matchless or Milford Marrow, or with the modern designation of Stradsett Marrow, is rapidly receding from sight, and the same may be said of the old Tall Green Marrow, with its synonyms, Denyer's Early Prolific, Garbutt's Amazon, &c.

Hairs' Dwarf Mammoth and Lord Raglan, generally regarded as being identical, now also come into bearing, with Veitch's Perfection close in their wake. Hairs' Mammoth is a variety somewhat impatient of cold and clayey or late situations, a constitutional defect supplied by the more robust form of Veitch's Perfection. It is of hardier habit, and can stand variations of climate and soil better than Hairs', and it is altogether one of the best Peas in cultivation. For late crops it is unsurpassed. It should always be sown late, as in its earlier stages of growth it is impatient of a check from cold, and I have known cases of the crop failing in consequence. Dixon's Yorkshire Hero, from the trial I observed, did not appear to be the improvement on Veitch's Perfection predicted; but then it was tried in an unfavourable season—in the South of England at least. It is dwarfer than Perfection, and promises to be a good cropper, but it will require a moist climate and genial weather to bring out its qualities. It should not be condemned till it has stood the test of another season's cultivation. *Quo.*

OUVIRANDRA FENESTRALIS.

This is the Lace or Lattice-leaf plant, so called because the leaf resembles lace or fine lattice work; in fact, it is not unlike a skeleton leaf of the India-rubber plant (Ficus elastica). The Ouvirandra is one of the most extraordinary productions to be met with in our gardens. We are indebted for its introduction to this country to the Rev. W. Ellis, who collected it in Madagascar, and introduced it about eight or ten years since, along with many other fine plants. As in the case of other aquatics cultivators were at first at a loss as to its proper treatment, but perseverance has enabled us to overcome the difficulty, and to find out how to manage it.

The most convenient vessel for its growth is a large tub, some four or five feet in diameter by two feet deep. This should be placed in a tank, and sunk in the water to within two inches of the top of the tub, allowing one side to be a trifle higher than the other, as the water will want swilling off at times. The temperature of the water should range from 80° to 86°—not lower. The tub should be filled with clear rainwater, previously warmed. The best soil is good rich stiff loam, which has lain in a heap outdoors for at least 12 months, and has been frequently turned over to sweeten it.

A good time for potting is the spring, but it may be done at any time when the plant is growing freely. Take an 8-inch pot, place a piece of tile over the hole, and fill the pot with the loam, which should be rubbed fine. Then make a hole in the centre of the soil to receive the plant, and after placing it, press the soil firmly around it. If the plant is small, the pot should stand on another inverted in the middle of the tub, so as to bring the leaves within five or six inches of the top of the water. The bottom of the tub should be covered to within two inches of the top of the pot with broken potsherds, washed clean. Over these should be added white stone or spar, to the level of the pot, but this should not be carried higher than the soil the plant is growing in, as it is liable to interfere with the young leaves. The white stones appear to increase the transparency of the water, so that the plant can be seen to greater advantage.

Every evening a large water pot should be filled with pure rainwater and placed in the tank to warm, and on the next morning (therefore daily), this quantity of water should be poured into the tub towards the side in order to swill off any filth that may have collected on the surface. This will also change the water sufficiently for the well-doing of the plant. Great attention is required to keep up a uniform temperature in the water, which should be as near 84° as possible; the temperature of the house may be kept so as best to suit the other plants grown in it, for the Ouvirandra being several inches under water, will be protected against sudden atmospheric changes.

When the plant is of sufficient strength it should be taken out of the tub and placed in the tank. The tub should be emptied and washed clean, and then replaced in the tank and filled with rain water, which should be previously warmed. If the plant requires a shift it should be repotted, and then placed at the bottom of the tub; for when the plants are strong they like deep water.

As a precaution, I would advise that when the plants require changing or repotting, the temperature of the house should be at least 80°, the atmosphere humid, and the house well shaded, as the Ouvirandra is very impatient of exposure. Should anything settle on the leaves—as from the water not being quite clean, take a pipe syringe, and placing it under the leaves, syringe gently upwards; the plant should be handled as little as possible. When first introduced, it was thought that it ought to go to rest in winter; and if the heat is not sufficient to keep it growing, it will do so. When grown in glazed or glass pans, or globes, and placed on the shelves of the house, the plants are liable to suffer checks from the variation of the temperature of the house. They are always subject to be attacked by confervæ, which is a great enemy to them, as it is almost impossible to clean them without injury.

I may mention the size of the specimen grown under the treatment now indicated. It measured 12 feet in circumference, or 4 feet in diameter; and Mr. Ellis admitted that he had never seen a finer plant or finer leaves in its native country. *Thos. Brown, Tooting.*

Home Correspondence.

Grapes for the Million.—Your account of Mr. Wells' patent invention for growing Grapes on the ground under glass, reminds me of a plan which, upwards of 60 years ago, was annually followed by the old gardener of a near relative of mine. He had no houses, but the beautiful large bunches of Black and White Grapes which he furnished even up to Christmas, I well remember. The Vines were trained so that two leading shoots were carried to the right and left on the ground, and as they lengthened they were pegged down firmly. From these two horizontal stems, others about a foot apart were trained upwards 7 or 8 feet against the wall, and fastened by strings passed through little fixed rings for staples. As soon as the Grapes began to show the slightest colour the rods were untied and brought down into two-light Cucumber and Melon frames, which in autumn could be well spared. Damp mown Grass was sprinkled on the surface of the soil, and air was given freely; diluted stable drainage was liberally supplied to the roots of the Vines. And for the Grapes I know great praise was bestowed on the old gardener, who had lived for upwards of 40 years at the Manor house. Some thin gauze material was so fixed on the frames that no wasps could enter. In many instances this plan might even now perhaps be followed with good results. I believe that the two stems trained and pegged down rooted at several points in the ground, giving additional vigour to the growth of the upright canes. *T. J., Emsworth.*

Winter Mushrooms.—The following is a list of the quantities of Mushrooms which have been produced in the Mushroom house here from a bed 8 ft. long and 4 ft. 6in. wide, from Jan. 18th to March 6th:—

Jan. 18	.. ..	23	Mushrooms, 3¼ in. in diameter
„ 23	.. ..	27	„ 2 „ „
„ 27	.. ..	22	„ 2 „ „
„ 31	.. ..	23	„ 2¾ „ „
Feb. 1	.. ..	14	„ 2½ „ „
„ 2	.. ..	24	„ 2¾ „ „
„ 3	.. ..	20	„ 2½ „ „
„ 4	.. ..	32	„ 2¼ „ „
„ 5	.. ..	13	„ 2 „ „
„ 7	.. ..	14	„ 2¼ „ „
„ 8	.. ..	8	„ 2 „ „
„ 11	.. ..	17	„ 2¼ „ „
„ 14	.. ..	21	„ 2½ (weight 1 lb. 6 oz.)
„ 17	.. ..	29	„ 3 in. in diameter
„ 18	.. ..	20	„ 2 „ „
„ 20	.. ..	27	„ 2¼ „ „
„ 23	.. ..	20	„ 3 „ „
„ 25	.. ..	19	„ 3¼ „ „
„ 28	.. ..	36	„ 2 „ „
March 2	.. ..	12	„ 2 „ „
„ 6	.. ..	40	„ 1½ „ „

466, showing an average of 22, and 4 over, every day.

Robert Stokoe, Gardener to H. C. Marshall, Esq., Weetwood Hall, near Leeds, Yorkshire, March 13.

The Knowsley Pine Stove.—The subject of the transmission of heat from one body to another is one closely connected with the duties of a gardener, and as I am a young gardener, hoping, before I am much older, to take in hand the management of a garden establishment, I should be exceedingly glad if some one of your contributors would decide the apparently doubtful question as to the completeness of the heating arrangements in the Knowsley Pine stove. "G. H." appears to "throw cold water" on the system of "bottom-heat," &c.; while we young gardeners were in ecstacies with the plan as it stands at p. 125. "G. H." states, by implication, that the roots of the Pines will be destroyed (steamed) by evaporation from the pipes which pass through the rubble beneath them; but my tutors have given me to understand that steam at boiling point is simply a moist gas-like matter mixed with air, which, when passing through rubble colder than itself, will deposit water, which would run off, leaving behind a portion of its heat. On the rubble is placed a finer material (it ought to be firmly rammed down), and upon this the tan or plunging material. Now, I am told that this finer material resists the steam in a similar manner to that in which the Davy lamp resists the ingress of carburetted hydrogen, or fire-damp, that the steam merely damps the first under coating of fine material which rests on the rubble, and that the heat imparted to the Pine pots, though originally steam, is then a dry heat. I should like to know if I have been wrongly informed, and whether the roots of the Pines would be cooked like steamed Potatos. *A Young Gardener.* [We shall have something to say respecting this, shortly.]

Physalis.—One of your correspondents mentions (p. 223) the frequent occurrence of Physalis pubescens at the Cape. I think that this genus requires further examination. Don (no conclusive authority) places P. pubescens and P. peruviana in different sections, stating that the former is annual, the latter perennial; but on reading the descriptions of the plants they seem in other respects identical. Then, again, P. edulis is said to be a variety of P. peruviana, and Messrs. Carter send out seeds of the two varieties separately. These I am trying this year. The point is worth ascertaining, as one of the three sorts, if there be three, yields one of the most delicious preserves known. If the roots are confined in pots, or if planted out in a very arid sunny place, the fruit may be ripened in the open air in England. Under glass without heat it would, of course, succeed, and possibly might grow under the shade of Vines and Peaches,

where these cover the roof. If so, it would utilise many otherwise useless spaces. The preserve requires to be boiled much longer than usual. *S. B.*

The Royal Horticultural Society and the Flower Shows.—I am pleased to find that you were satisfied with the meeting of the 21st ult. I was glad to see such a good attendance of Fellows, and should imagine that they were equally pleased with yourself. So many could indeed hardly have been expected, seeing that it was a cold windy day; but depend upon it, if there is a display interesting to the public to be seen, and the public are led to expect it, they will not fail to pay it a visit. If these meetings are only kept well before the public, there will be no lack of plants or of visitors. I have, since the last meeting, met several Fellows who have regretted that they were not present, so that there is evidently no lack of interest when the right thing is put forward, though people soon get tired out when there is nothing to interest them. Many ladies and gentlemen become Fellows of the Society solely on account of the shows, for the sake of inviting their country friends. Most people like to see something good in the shape of flowers, especially flowers which they have never seen before; and those who live in the country have only the chance of seeing such at these meetings during the spring and autumn months. In summer there are the large shows, which have been for many years a great attraction; but I fear there will be a falling off if we do not adopt some different arrangements as regards various objects exhibited. There is no doubt we have the finest plants that can be got together. No skill is wanting, no pains spared, as regards their cultivation, and when placed on the tables they have a good effect as regards a blaze of bloom; but the public seem to require something further, and that is a greater variety of objects, which might be secured without adding much to the working expenses. There is plenty of material to be had. If some change is not made in these great shows, they will not be held in such high estimation as they have hitherto been. Flower shows are like other amusements—there must be something fresh to attract the public, and satisfy different tastes. Some prefer Orchids, some Pelargoniums, some Heaths, Roses, or Fuchsias, &c.; and it is only within a few years that Ferns and Fine-foliaged plants have had their many admirers, especially amongst the ladies. We cannot have better guides than they as to what is wanted to give interest to our shows, for they are critics of most refined taste. I have heard them say—"if we could only get the managers of the great shows to introduce some of the Tree Ferns among the stiff-looking flowering plants, what a fine contrast would be presented by the feathery fronds elevated on the stately stems of the Ferns, showing themselves above the gay flowers below." Let us take the last May show at the Regent's Park, for example: this was the finest show of flowers ever seen; and the large tent, with its turf banks, is just the place one would prefer for a flower show, if some alterations, easily made, were carried out, so that the banks were not the same year after year. This show, I have said, was the finest ever seen as regards flowers. The bank of Orchids was grand; and so were those of Azaleas and Pelargoniums—all fine things in an exhibition, and such as we cannot do without; but in my opinion large examples of fine-foliaged plants were wanted—such, for instance, as Dracænas, Palms, Cordylines, Tree Ferns, &c. If such as these had been introduced amongst the grand Azaleas that were shown, the stiffness and formality which were complained of would not have been apparent. Plants are too formal when, as in these, hardly a leaf is to be seen, but the formality may all be put out of sight by introducing freely large elegant Tree Ferns. The managers of shows should give more encouragement to such glorious exhibition plants as these; and then they would soon be brought together. Such plants ought to be at the disposal of the officers, so that they may be placed in positions where they may yield the best effect. The more variety we get, the more admirers we shall secure for our shows, and that is just what is required. *B. W.*

Climbing variety of Rosa devoniensis.—It may be interesting to know that this most beautiful of all light-coloured climbing Roses, so successfully and universally cultivated in this neighbourhood, is of the most vigorous and robust growth, making shoots from established plants, measuring from 18 to 20 feet in length in one season. It is a most abundant early and late bloomer; in favourable situations it commences to flower in May and continues to produce its most beautiful blossoms all through the season, until late in November; and it retains its foliage all the year. It is very hardy, having withstood the severe winter of 1860–1. In this locality it grows and thrives in almost any soil or situation, even in thickly built parts of the city, amidst the smoke and dust of which it thrives and blooms in great perfection. So highly esteemed is this variety, that there is scarcely a villa residence in this neighbourhood where one does not find this Rose, and no amateur considers his collection perfect without it. Its blooms are of large size, some of them measuring 6 inches in diameter, and their shape is most perfect. It is in fact one of the best light-coloured exhibition Roses in cultivation. *A Rose Amateur, Bath.*

Duchess of Buccleuch Grape.—Surely your Correspondent at Aswerby Park has come to a premature conclusion respecting this Grape. It may be all that he states in its favour, but the fact of its showing so many bunches does not prove its excellence. I could mention inferior varieties with the same good property. Had your Correspondent reserved his decision until his bunches were ripe, and found them free from "cracking," his opinion might then have been of benefit to gardeners. *Vitis.*

Societies.

Royal Horticultural: *March* 18 (*Weekly Show*).—Messrs. Lee exhibited at this meeting a handsome specimen of Camellia Madonna; also some beautiful cut blooms of Countess of Orkney, Jenny Lind, Leeana superba, and other Camellias, together with Lycaste cruenta and Skinneri, Dendrobium nobile, and five standard Azaleas. From Mr. Bull came Brahea dulcis, Cypripedium barbatum giganteum and villosum, Dracænas, and a fine specimen of Platycerium alcicorne. Messrs. A. Henderson sent miscellaneous spring-flowering plants, among which were Gastrolobiums, a Grevillea, Rhododendron ciliatum, and Hebeclinium ianthinum. Mr. Harding, Maddox Street, furnished five dwarf well-bloomed standard Azaleas, suitable for dinner-table decoration; the Rev. G. Cheere contributed cut blooms of Anne Boleyn Pinks; and Mr. Boyce, Stockwell, Chinese Primulas. Mr. Brown, gr. to Mrs. Ashton, Elmdon Hall, exhibited some fine Easter Beurré Pears from a small tree on a south wall; and Mr. Melville, Dalmeny Park, had two heads of "Improved Milan Sprouting Cabbage," a cross from the Brussels Sprout; also a green-leaved Seakale, said to be easier to blanch than the purple kind.

March 25 (*First Spring Show*).—It would be difficult to conceive anything more interesting or truly beautiful than the fine exhibition of Hyacinths, Tulips, and various other early-flowering plants that took place in the Society's Garden at South Kensington on Saturday last. The whole of the enclosed portion of the eastern arcade was literally a blaze of spring flowers of the most charming descriptions, thus connecting the Society's fine conservatory, and its gay floral decorations, with Mr. William Paul's continuous exhibition adverted to last week, and producing as a whole a very fine display. Unfortunately the day was most unfavourable, rain pouring down heavily nearly the whole afternoon.

Hyacinths especially were unusually abundant. In the class of 18 varieties were spikes of flower which were justly the admiration of everybody. Conspicuous in Mr. William Paul's collection were Von Schiller, Macaulay, Solfaterre, Koh-i-Noor, and Miss Nightingale, all various shades of red; King of the Blues, dark, large, and fine; Garrick, Van Speke, Charles Dickens, and Grand Lilas, paler shades of blue; Feruk Khan, and Prince Albert, both nearly approaching black; and in blush and whites, Tubiflora, Gigantea, Seraphine, Grandeur à Merveille, and Alba Maxima. Messrs. Cutbush's collection contained two very conspicuous white-eyed kinds—viz., Lord Palmerston and Argus. Robert Fortune, a new purplish-puce coloured variety, was likewise shown in fair condition by Messrs. Cutbush, who had also Haydn, another of what may be called the mauve class, and Ida, yellow, bearing an excellent spike.

Awards.—18: 1, Mr. William Paul; 2, Messrs. Cutbush.

Groups of 12 Hyacinths from amateurs were excellent in their way. Mr. Young, gr. to R. Barclay, Esq., Highgate, had well managed examples of Mimosa (violet blue), Macaulay, Von Schiller, Van Speyk, Grandeur à Merveille, and Madame Van der Hoop, the last with large fine bells, which are, however, arranged somewhat thinly on the spike, as is the case with nearly all kinds with very large bells.

Awards.—12: 1, Mr. Young; 2, withheld; 3, Mr. Higgs.

Among Hyacinths in sixes were some extremely fine examples of good cultivation. Messrs. Cutbush had Von Schiller, Macaulay, Duke of Wellington, Seraphine, Marie, and Grand Lilas, all in very fine condition, as were also Argus, Queen of the Netherlands, and Grandeur à Merveille, from Mr. Young; and Solfaterre, King of the Blues, Alba Maxima, Couronne de Celle, Feruk Khan, and Ida, from Mr. Wm. Paul.

Awards.—6: 1, Messrs. Cutbush; 2, Mr. Young; 3, Mr. Wm. Paul.

Of Hyacinths stated to be grown in windows, several collections were shown, some of them equalling both in point of growth and flower those produced under more favourable circumstances. All were in pots, with the exception of one lot from Miss Fortune, which was in glasses, and considering that it came from a window in the neighbourhood of Brompton Road, together with the dark unfavourable weather we have had, it certainly did that young lady's cultural abilities credit. The Whites were the best, as they have been everywhere this year, but the Reds were also fair examples of good glass cultivation.

Awards.—6: 1, Mr. Bartlett; 2, Mrs. L. Young; Equal 3, Miss Fortune and Mr. W. Paskins.

New Hyacinths, though promising, were not in a condition to admit of their merits being properly judged. From Messrs. Cutbush came Thorwaldsen, marbled pale blue, Cuvier, pale blue, with indigo stripe in the centre of each petal; La Française, a large-belled white variety; Hogarth and Gertrude, rosy pink. Mr. W. Paul had Princess Mary of Cambridge, pale porcelain blue, with fine spike and bells; Beauty of Waltham, rosy pink, with white eye, compact in the spike; Goliath, pink, with fine bells; Prince Alber crimson, with a scarlet tinge on the outside of the tube; and Leviathan, with large white bells, having a slight rosy tinge. Doubtless another season, when the bulbs shall have acquired more age, these varieties will become greatly improved as regards size of spike. Princess Mary of Cambridge, Beauty of Waltham, and Leviathan appear at present to be the best.

Awards.—6: 1, Messrs. Cutbush; 2, Mr. Wm. Paul.

Large collections of Hyacinths were exhibited both by Mr. Wm. Paul and Messrs. Cutbush. Mr. Macintosh of Hammersmith, also contributed an interesting group, in which were some fine kinds. In Mr. Paul's collection we remarked Garibaldi, a fine deep crimson; Queen of the Netherlands, one of the finest of the whites; L'Espoir, primrose yellow; and Duc de Malakoff in its two forms, the one buff, the other distinctly striped with bright red. Messrs. Cutbush also had many beautiful kinds.

Early Tulips were shown in great perfection, both in twelves and in collections of upwards of a hundred, by Messrs. Cutbush and Mr. Wm. Paul. The best kinds exhibited were White Pottebakker; Roi Pepin, white, flaked with red; Keizer Kroon, yellow and red; Archduc d'Autriche, crimson and yellow; Proserpine, violet rose; Rose Luisante, Cramoisi Royal, Yellow Prince, Standard Royal, and Vermillon Brillant. Among double sorts New Yellow Tournesol, the old Tournesol, and Duke of York, red and white, were the finest. In the Amateurs' Class were also some good Tulips.

Awards.—12: 1, Messrs. Cutbush; 2, Mr. Wm. Paul. Amateurs: 1, Mr. Young; 2, Mr. Bartlett; 3, Mr. Ford.

Crocuses were exhibited in splendid condition by Mr. W. Paul and Messrs. Cutbush. Mammoth, white, was by far the best of its class; Prince Albert occupied a similar position as regards blues; Cloth of Silver was the finest striped kind; and Golden Yellow appeared still to be the most useful yellow. Good collections also came from amateurs.

Awards.—1, Mr. Wm. Paul; 2, Messrs. Cutbush. Amateurs: 1, Mr. Bartlett; 2, Mr. Young.

Roses in pots were shown by Messrs. Paul & Son and Mr. W. Paul. Among those of the former we remarked fine examples of Maurice Bernardin, Victor Verdier, Le Rhone, Alba Rosea, Baron Adolphe de Rothschild, Charles Lefebvre, and Lord Clyde; among Mr. W. Paul's were John Hopper, Prince of Wales, Senateur Vaisse, with several fine blooms, and numerous buds of Anna Alexieff. Several boxes containing excellent blooms of these and numerous other varieties came from the same exhibitors.

Camellias, in the shape of plants, were not in first-rate condition; but of cut blooms there was a fair display. The latter came from Mr. Trussler, gr. to J. Kay, Esq., Hoddesdon; Messrs. Lee, and Mr. Wm. Paul. Among them were several good examples of old Double White, Fimbriata, Elegans, Donckelaari, Colvilli, Eclipse, Jenny Lind, a beautiful blush white; Picturata, &c. The best single specimen came from Mr. Bull; but that was only considered worthy of a third prize.

Awards.—12: 1, Mr. Trussler; 2, Messrs. Lee; 3, Mr. Wm. Paul. Plants 6: 1, Messrs. Lee; 2, Mr. Bull.

Miscellaneous Collections of flowering plants came from Messrs. Lee and Bull. Among them were Medinilla magnifica, with fine spikes of flowers, Boronia pinnata, Hedaroma fuchsioides, one or two Oncids, Dendrobium nobile, Camellias, Azaleas, Dracænas, Imantophyllum, and several other plants, all well grown and finely in bloom. There were moreover tolerable potfuls of Lily of the Valley from Mr. Bartlett and Mr. Wm. Paul; Chinese Primulas and Azaleas from Mr. Todman; a splendid collection of Cyclamens from Messrs. E. G. Henderson; Narcissus from Messrs. Cutbush; six fine plants of tree Mignonette trained as standards, from Mr. Higgs, gardener to Mrs. Barchard; Rhododendron Countess of Haddington from Mr. Parker; the splendid new violet-blotched orange-scarlet Azalea Stella, in fine bloom, from Mr. Veitch; a neatly-filled plant case from Mr. Bull, ordinary spotted-leaved Aucuba, in fruit, from Mr. Laing; Horse Chestnuts rooted in glasses, from Miss Lane; bouquets and baskets of spring flowers from Mr. Lucking and Mr. Greeves; and ornamental flower-pots, baskets, &c., in Etruscan ware from Messrs. Hooper & Co.

Of Fruit there was little. From Mr. Hannan, gr. to J. Crawshay, Esq., Cyfarthfa Castle, came two good Pine Apples; from Mr. Shuter, gr. to the Earl of Wilton, Heaton Park, Manchester, bunches of Lady Downes' Grape ripe in October last; and bunches of the same variety, ripe in August last, also came from Mr. Miller, gr. to the Earl of Craven, at Coombe Abbey. Both these exhibitions were in a state of excellent preservation. The greatest novelty was however a fruit of Ficus Cooperi, ripened in one of the Society's stoves at Chiswick. It is obovate in shape, about the size of a pigeon's egg, red in the skin and beautifully mottled with white. Whether or not it will be good to eat remains to be proved; but in point of appearance it is very handsome.

Glasgow and West of Scotland Horticultural: *March* 28.—Horticulture in Scotland is becoming quite popular, and no are the great shows that periodically take place in the City Hall of Glasgow. Thousands of spectators visit the flower shows now for hundreds that were induced to come out even five years ago. All this is brought about by offering liberal prizes to gardeners, who furnish the flowers to create a display. It is quite a mistaken idea for a body of gentlemen to ignore the efforts and assistance of the gardening fraternity if they intend to have successful floral exhibitions. The public, on the

occasion of this spring show, flocked together in such numbers as not only to fill the large City Hall, but the lesser halls which were improvised to form an outlet for the crowd of sight-seers. The various articles contributed showed no retrogression on the part of gardeners: although in some instances, as in the case of Hyacinths, there was not a large display. The two principal exhibitions of plants, which were not only meritorious in themselves, but were set up so as to present a pleasing arrangement, came from Mr. Mitchell, gr. to His Grace the Duke of Hamilton, Hamilton Palace, and Mr. Kirk, gr. to W. C. Paterson, Esq., Ashville, Partick. The former sent good specimens of Pultenæa, Dasylirion glaucum, a couple of match plants of Cordyline indivisa, Todea pellucida, Eristemon buxifolius and scaber, several Azaleas, not the least pretty of which was amœna; several nice Camellias, including Lemichezii, a good formed crimson, with thick petals; Queen of Denmark, small but good form; and Decus italicum, along with a few miscellaneous subjects of a creditable order, but much injured by cold during transit—the thermometer being down to 22°. Mr. Kirk had a smaller collection, but a very creditable one, all his plants being uninjured. Prominent among their fellows stood Dendrobium eburneum, a fine clear white sort, with an orange spot; the beautiful and delicate Cattleya Warscewiczii, and several varieties of Lycaste Skinneri, one or two of which were very good; a nice Dendrobium Farmeri, a most noble plant of Barkeria Skinneri, with nine spikes each numerously flowered; one or two Cypripediums, including Dayanum, with its beautiful foliage and pretty bearded flower, and the varnished-looking villosum; Azaleas Flag of Truce, Iveryana, and Rubens; Bambusa variegata, a handsome dwarf variegated plant; and Campylobotrys refulgens—these were the cream of this collection. Mr. Kirk also showed a finely coloured sort of Dendrobium nobile, Phajus grandifolius, and a nice plant of the true Vanda suavis, with 13 flowers on the spike. Mr. Sutherland, Newton House, showed Phalænopsis amabilis and grandiflora, and a dense plant of Cypripedium insigne.

Among Greenhouse Plants there were: a nice variety of Chorozema Henchmanni, one or two good Acacia Drummondii, and several Heaths of sorts, the best of which were elegans and perspicua nana. The best of the Epacrises exhibited were hyacinthiflora and Fairbairnii. Along with these were several finely bloomed plants of Deutzia gracilis, and a nice contribution of Club Mosses. Amaryllids were much better than we have seen them here exhibited before. The best variety in the several lots brought forward was Edith, a very finely-formed flower of the Solandræflora breed, with a fine orange-scarlet perianth, a little reflexed at the tips, but having a distinct band of white from centre to base of the segments. Next in importance to this was the beautifully marbled marginata conspicua, and the dull crimson but finely formed Cleopatra; Ackermanni and vittata were the next best.

Azaleas were contributed in large numbers, and upon the whole well managed. The premier lot from Mr. Boyd, Easter Hill, were grand plants of uniform size, and thickly set with bloom. They were Magnet, Beauty of Europe, and Roi Leopold. The best in the other lots were Duc de Malakoff; Duke of Devonshire, large and showy; Iveryana, Murrayana, and Criterion, all apparently good forcers.

Rhododendrons were furnished by Mr. Methven, Leith Walk. The best in a group of 24 were Guttatum pictum, an extra well-formed white flower with black spots, apparently a good trusser; Prince Camille de Rohan, something after the above type, but more crisped on the edges; Towardii, pale rosy purple with black spots; Catawbiense album, a most chaste white flower with slight spotting; Exquisite, a fine peach colour with slight spotting; Mrs. Siddons, purplish rose, with a dash of white on top of petal; and Dalhousiæ, apparently just newly expanded.

Hyacinths were but feebly represented as to numbers, and not of a first-class character generally. The best kinds among whites were Alba superbissima, Grandeur à Merveille, blush; among reds Lina, Macaulay, Von Schiller, and Cavaignac; and among blues Mimosa, Charles Dickens, and Baron von Tuyll. Mr. Glass, View Park, was the most successful among gardeners. Among the newer and rarer sorts we noticed Solfaterre, a bright vermilion; Koh-i-Noor, a good double red; and Ida, a distinct yellow. Mr. John Wilson, Moray Place, exhibited by far the finest lot in glasses that we have seen shown, being fine, dark in foliage, and large in spike; they were grown in Tye's registered glasses, in water, with a little pinch of guano occasionally. The sorts were Mont Blanc, Grand Lilas, Baron von Tuyll, Von Schiller, Madame Hodson, and Charles Dickens.

Tulips, Crocuses, and Narcissi were represented in large numbers, and upon the whole creditably. This was especially the case with a collection of miscellaneous bulbs from Mr. P. Mackenzie, Gordon Street; Messrs. Austin & M'Aslan had also a very creditable display of miscellaneous plants. The best kinds of Cineraria were Midshipman, Lord Palmerston, Adam Bede, and Princess of Wales. A seedling named Turnerfield Beauty, from Mr. Paton, was awarded a First-class Certificate; it was medium-sized, with good outline, dark blue disc and white-ground colour, with deep crimson tips. Bouquets were largely shown, the best one by far coming from Messrs. J. & R. Thyne's, Buchanan Street; it consisted of Phalænopsis in centre, with Dendrobium nobile, Oncidiums of sorts, Ixoras, Euphorbia, &c., slightly, but scarcely sufficiently relieved with Ferns.

Messrs. Campbell, secretary, and Anderson, treasurer, accomplished their respective tasks in a most efficient manner.

Notices of Books.

De la Famille des Solanacées. Par M. Alphonse Milne-Edwards. Paris, 1864. 8vo, pp. 140, 2 tab. lith.

This is one of three competitive treatises presented by Messrs. A. Milne-Edwards, G. Planchon and D. Cauvet, in the Natural History Section at the Upper School of Pharmacy at Paris, of which at present we have seen two only.

The family of Solanads is of great importance in a medical point of view, in consequence of the number of valuable articles it furnishes for the Materia Medica; and if it supplied no other contribution to the nutriment and luxury of man than the Potato, which is far from being the case, it would possess great value also as regards human economy. To the botanist it is especially interesting, because of the marked family likeness of most of the genera which it comprises, and the great uniformity of character, though as in all other natural groups there are individuals which depart from the common type, while neighbouring orders sometimes contain species which are separable rather by habit than essential distinctions. The subject was therefore well chosen for a thesis, and if M. Milne-Edwards' treatise, which we notice first, does not contain much novelty, it has at least been carefully and conscientiously drawn up. Besides the two plates, a quantity of well executed figures are intercalated in the text, which add greatly to its value.

The treatise is divided into three parts, the first of which is introductory, passing in review the general characters of the order, its natural affinities and classification. The second is devoted to a notice of each separate genus, and the third to the medical and economical history of the plants which it contains.

M. Milne-Edwards adopts rather the arrangement of Endlicher than of Dunal, rejecting entirely the Nolanaceæ as altogether abnormal.

"The arrangement proposed by Endlicher," he says, "is based on characters of the first dignity; it appears to us far more natural, and we propose, with only a few modifications, to follow a similar path. We do not indeed pretend to present in a manner altogether irreproachable the affinities of this family; for the moment we wish to establish in a natural group definite divisions, whatever may be the value of the characters on which they are based, we end always in forming divisions more or less artificial. Strict lines of demarcation do not exist in Nature; the characters melt gradually the one into the other, and according to the manner in which they are grouped, they suffer a series of modifications more or less important. It is impossible in the same family not to recognise the existence of a certain number of typical forms with which a series of derivative forms is connected; but between these last the differences are slightly marked, they are attached the one to the other, and are allied equally to the forms derived from one or more other types from which we cannot separate them, so that if we wish to state in the most exact manner the analogies and differences of any group whatever of the vegetable or, indeed, the animal kingdom, we must search out these types, study them deeply, and then examine by what series of characters and intermediate forms they are related to neighbouring types."

We have, for example, almost exactly the same type of fruit as that which is so general in Solanads in such plants as Verbascum, and Celsia; while in Nicandra we have at times a plurilocular capsule, in Datura a capsule opening by four valves; and in Lycopersicum, by a strange hypertrophy, the berry which was at first typically bilocular becomes spuriously multilocular.

M. Milne-Edwards divides the Solanads into two sections, the first of which bears berries, the second dry fruit, and in each there is a small exceptional group which has a straight instead of a curved embryo.

The principal species in each genus are noted, but of one or two remarkable ones we can find no notice, as of the Brazilian Cherry (Physalis edulis), the Tomato of the Cannibals, or the Apple of Sodom.

The third, or more purely pharmaceutical part, gives an account of the several alkaloids peculiar to the order, their uses, and modes of preparation. It is curious that while atropine, daturine, hyoscyamine, solanine, &c., are all quaternary bodies, consisting of carbon, hydrogen, nitrogen, and oxygen, nicotine, which is liquid at an ordinary temperature, is only ternary, oxygen being absent.

Solanum nigrum is cited as an economical plant, the leaves being boiled in some parts of France as Spinage. We should, however, be sorry to partake of them without their being particularly well drained, and even then it would be with more or less of fear and trembling.

On the whole we consider the treatise, which is pleasantly written, a very creditable contribution to our knowledge of an order with which it is incumbent on every medical man especially, to make himself well acquainted.

Des Solanées. Par D. Cauvet. Strasbourg, 1864. 4to. Pp. 152, tab. lith. 6.

This treatise is divided into two parts, of which the first is purely botanical, while the second treats of the Physiology and Toxicology of the natural order. The part which is at all general is comprised in about 13 pages, the classification being confessedly borrowed for the greater part from Dunal, the Nolanads however being rejected. The greater part of the first section is devoted to M. Cauvet's pet study of the arrangement of the leaves and nature of the ramification, to which the six plates are dedicated. The whole is very carefully and cleverly worked out; but, excellent as the matter is, it reminds us inevitably of the deal of sack to a half-penny worth of bread.

M. Milne-Edwards in his treatise briefly adverts to this subject in the following terms:—"At first sight Solanads seem to present great differences in the arrangement of the leaves upon the stem, but if we seek, as M. Naudin has done, the law of these variations, resting on comparative organography, we find that the normal disposition of the leaves is quincuncial. In some species this arrangement is observed during the whole life of the plant, in others it exists only in an early stage of growth, or, what amounts to the same thing, in the young shoots. The primary axis disappears frequently before the plant has reached its full growth, and vegetation is continued by the appearance of many branches, which in their turn are soon displaced by others. These branches are ordinarily two in number, and according as they are developed equally or unequally, there result equal or unequal dichotomies, and if one of the two branches always becomes abortive, this abortion taking place alternately to the right or to the left, the leaves become doubled."

M. Cauvet has traced out the morphology species by species, and shows clearly that the dichotomy or forking in most instances amongst vegetables does not arise from a division of the axis, but from the diversion of the axis from its original course by the formation of a branch with which the leaf is often confluent, so as to mask the real disposition.

The subject is however one of the most abstruse in botany, and minute details are quite unfit for a popular Journal.

The second part of M. Cauvet's thesis treats at considerable length on the narcotic and other poisonous properties of Solanads, and is extremely well done. The following curious matter amongst others is stated with respect to opium, while speaking of the smoking of stramonium.

"Our excellent friend and colleague, M. Berquiez, has related to us the following fact which he learnt from an eminent chemist in London, who prepares morphine on a large scale. There was once a proposition in England to sell to the Chinese opium from which the morphine had been abstracted. They had contrived to give to the opium the exact appearance of that from which the morphine had not been withdrawn, and it was supposed that it would be just as acceptable to the opium smokers. After trial, however, the drug was completely rejected, as they could not obtain in the slightest degree the desired effect. Morphine, therefore, is a necessary ingredient in producing the narcotic vapours; and if the morphine does not itself enter into these vapours, may it not result from volatile matters analogous to those of Datura.

"As far as we know, neither morphine, nor any of the alkalies of opium, is volatile. But as regards these alkalies as well as daturine, we may perhaps admit the carrying off of particles, mechanically as it were, by the vapours of which the smoke is composed."

We mentioned in the notice of M. Milne-Edwards' treatise that the leaves of Solanum nigrum are sometimes used as Spinach, and M. Cauvet records a no less remarkable circumstance, that the young shoots of Lycium, the Tea plant of our cottage gardens, are sometimes eaten as Asparagus.

In neither of the treatises do we find any details as to the development of the embryo, and perhaps this was not to be expected, as M. Cauvet states in his preface that the time allowed was too short for many original researches, though it was long enough not to justify a mere compilation.

Catalogues Received.—*Louis Van Houtte's (Gand) Catalogue des Plantes de Serres et de Plein Air*, is, as usual, full of interesting subjects, amongst which we notice the rare pitcher-bearing Dischidia Wallichiana, and a double Scarlet Pelargonium, called Ranunculiflora plenissima.—*Ambroise Verschaffelt's (Gand) Plantes Nouvelles* gives brief descriptive notices of new plants to be sent out this spring—among them the curious Amorphophallus nivosus.—*Louis de Smet's (Gand) Prix Courant*, 1865, is worth consulting amongst other things for its long list of Agaves and allied plants, as well as Cacti.—*Bruce & Co.'s (Hamilton, Canada West), Seed Catalogue*, prepared for the climate of America, is much like our own English lists, giving a selection of the best sorts, and directions for cultivation. One of the chief specialties is a list of hardy native Grapes.—*C. Turner's General Spring Catalogue*, 1865, comprises ample selections of the chief florists' flowers, both old and new varieties. Hoyle's Pelargoniums, and the white Azalea Louise von Baden, are amongst the latter.—*Eugène Verdier fils aîné (Paris) Rosiers Nouveaux* is a brief descriptive list of selected novelties of last season, amongst which we notice some of English origin.—*J. Linden's Catalogue des Plantes Exotiques* contains descriptions of Mr. Linden's novelties for the present season, among which Rogiera gratissima, of which a coloured plate is given, will probably be one of the most useful. Franciscea Lindeniana is highly spoken of; also Lælia Wallisi, which with the aspect of Cattleya bulbosa is said to have flowers as large as those of L. purpurata. The enumeration of tropical fruits and officinal plants is a marked feature of this list.—*Vilmorin - Andrieux et Cie.'s Supplement aux Catalogues*, and *Catalogue des Plantes de haut Ornament pour les Jardins et les Squares:* the first a list of novelties in different departments, the second a descriptive list, with several woodcuts, of foliage plants for the summer garden, may be consulted with advantage. Salvia splendens compacta looks as if it should be a fine plant also for indoor decoration.

Garden Memoranda.

Messrs. Cutbush's Exhibition of Hyacinths.—This has already been open to the public for a fortnight, and as the flowers are still in excellent condition, we understand that it will be kept open for a week longer. All therefore who have not yet seen this charming display of early flowers should lose no time in doing so, for a more interesting exhibition it would indeed be difficult to find. The arrangement is similar to that of former years, the Hyacinths being placed on a greenhouse shelf in front of a raised bank of other flowers, consisting of Heaths and Epacrises, Camellias, Narcissi, Azaleas, Pelargoniums, Cytisuses, Andromedas,

Deutzias, Eriostemons, Rhododendrons, Tulips, Fairy Roses, and Solomon's Seal; the whole edged with Crocuses, Cyclamens, and Mignonette.

As regards Hyacinths, passing over double-flowered varieties, which, with the exception of a few favoured kinds, seem to be out of fashion, we have here varieties of all shades of colour, in excellent condition, and so placed that the different colours contrast strikingly one with another. To single Reds, Hogarth is a promising addition, its bells being large and fine, and of great substance. Among older varieties, Solfaterre and Florence Nightingale were in excellent condition. Among Mauves, Robert Fortune claims a first rank, being brighter in colour than Haydn, which is nevertheless still a useful flower. La Française, blush, is another new variety, which bids fair to be an improvement on many in its class. Among Whites, Fair Maid of Denmark is the purest of all; but, all things considered, perhaps Snowball is the best. Queen of the Netherlands, Mont Blanc, and Grandeur à Merveille are, however, all fine kinds. To Blues, the new kind called Cuvier (pale blue with a dark stripe down the centre of each petal) is a valuable addition. Thorwaldsen is flowering better this year than it did last; and Marie and Lord Palmerston must by no means be overlooked. The last is, however, more mauve than blue; and, as with Argus, the bold white eye in this variety will ever render it a favourite. Dark—nearly black—kinds are still confined to Prince Albert, General Havelock, and Von Humboldt. Ida is by far the best yellow; and Duc de Malakoff the best buff; this last is generally though not always charmingly striped with red. Of other kinds the name is legion; and for further information respecting them we must refer to our reports of spring shows published this week and last.

Narcissi are so much alike that it is almost useless to refer to them by name. There is here, however, a good collection of them, and those who have leisure will doubtless find much interest in inspecting them.

Among Crocuses, La Majestueuse is a noble striped sort, as are also Silver-striped and Sir Walter Scott. Among whites Mammoth takes the lead; the best blue is Prince Albert, and the best yellow Cloth of Gold.

A collection of Early Tulips at one end of the exhibition attracts, and deservedly, much attention. The best among them are Couleur Cardinal, Cramoisi Superb, Fabiola, Keizer Kroon, White Pottebakker, Proserpine, Roi Pepin, a charming red and white striped kind in which the colours are clear and distinct, Rouge Luisante, Mrs. Moore, Vermillon Brillant, and Yellow Prince. The best double sorts are the two Tournesols, Imperator, and Duke of York.

Other houses contain Vines in pots, large supplies of plants suitable for purposes of ordinary decoration, and thousands of bedding materials, among which are Mrs. Pollock and Nosegay Pelargoniums in abundance.

Out of doors is a good stock of Roses, fruit trees, and shrubs, together with a selection of Conifers best adapted for suburban gardens. The whole of this nursery is being reorganised, and another large piece of land at Finchley has just been added to it.

Miscellaneous.

Cultivation in Servia.—It is difficult to realise the fact of the existence in the centre of Europe, in the nineteenth century, of a country in so primitive a condition as Servia. Wallachia and Moldavia were not long since in the same rude state; but recent events have brought those Danubian countries more into communication with the rest of Europe, and they have acquired some of its superficial civilisation. The spirit of improvement has penetrated these rich provinces, and a thousand ships are now yearly freighted with the produce of their teeming soil. The day has passed when a Boyer would reply, as one is said to have done on being asked why his countrymen did not cultivate their fertile prairies, that "it would be a pity to spoil so fine a wilderness." These vast plains, for ages abandoned to the wild luxuriance of Nature, now wave with magnificent crops of Wheat and Maize. Very different is the aspect of Servia. There almost all vegetation is spontaneous, and the marvellous fecundity of the soil displays itself chiefly in the growth of timber. No botanist has yet described and classified its flora; no artist has yet gazed with rapture upon its wood-capped hills, rushing torrents, and long-drawn vales. . . . A very small portion of the soil of Servia is cultivated; some travellers estimate it at a sixth, others only at an eighth. Although situated to the south of Hungary, the productions of the country resemble rather those of the north than of the south of Europe. The Olive is unknown, although it thrives in the corresponding latitudes of France and Italy. In the district of the Lower Morava Wheat is partially cultivated, but enormous numbers of swine are everywhere reared, and they rove through the forests in a style of almost primitive wildness. The cup of a particular kind of acorn—the Vallonia of commerce—is in extensive demand for tanning. A recent traveller was shown in Schabatz a warehouse full of them, the value of which was estimated at 40,000*l*. Much of Servia in fact resembles a new settlement in North America, where belts of wood alternate with patches of cultivated land, and the stumps of charred trees remain in the ground, between which, as in Canada, is planted Indian Corn, the stubble serving the purpose of manure. The whole process of agriculture is at present almost that of a newly-settled country, and there is but little scientific farming. The Fig and the Mulberry thrive well, but we have heard of no attempts to rear the silkworm. The Plum abounds, and from it is distilled the common spirit of the country. The Vine covers the slopes of some of the hills, and especially in the neighbourhood of Semandria yields a good wine, which is retailed in the small inns of the country for 3*d*. per pint, but may be purchased wholesale of the growers at 2*d*. per quart. The Vine is said to have been introduced into Servia by the Emperor Probus, and the Grapes grown near Semandria are not surpassed in flavour by any in Europe. Many of the wines are extremely rough and astringent, but others are exceedingly good, particularly that known as Negotin, of which the Servians are justly proud. This wine also possesses the repelling name of "Turk's blood," and it has acquired a high reputation in Hungary. In Servia a custom still prevails with reference to it, which strongly marks the old hatred of the people to their Mahomedan rulers. Whenever a bottle of it is opened, the first person who tastes it affects an air of surprise, and asks, "What is this?" A second, having likewise tasted it, replies solemnly, "It is Turk's blood;" on which the first rejoins, "Then let it flow freely!" *Quarterly Review, Jan.* 1865.

Calendar of Operations.

(*For the ensuing week.*)

Owing to the winterly weather which we have been experiencing, vegetation is unusually late. Most matters connected with cultivation however now begin to claim attention. Recently transplanted trees and shrubs ought to be carefully inspected, for failure is often caused by cold drying winds setting in before the plants have had sufficient time to replace their lost roots. Occasional waterings should therefore be given in dry weather, and to maintain a more uniform state of moisture about the tender newly formed fibres, spread, where it can be done, a thick mulching of rotten leaves or dung over the ground as far as the roots extend. This, if objectionable on account of its appearance, might be hid by some covering, as that of Moss, or in some cases even ordinary soil. When the plants are very valuable they might be sheltered from drying winds, and even shaded from hot sunshine by a temporary screen of mats or other suitable material. As a matter of course, large trees which have been recently planted will before now have been firmly secured against wind-waving, in order that they may not be displaced, or their roots strained or broken.

FLOWER GARDEN AND PLANT HOUSES.

Auriculas.—Weak liquid manure now once a week will strengthen the trusses; give plenty of air whenever the weather is at all favourable, and fumigate occasionally.

Azaleas.—Give young growing plants liberal shifts; a good fibrous peat with a little white sand suits them admirably, but for stronger growing kinds a small portion of loam may be used with advantage. Give air freely in fine weather, and attend regularly to the stopping, thinning, and training of the shoots. Large specimens will now require more water.

Calceolarias.—Any plants struck during the winter should be repotted into 4-inch pots to succeed the first plants. If not so large, they will make compact handsome bushes for purposes of decoration.

Carnations and Picotees.—If there is any green fly on the plants, give them a good smoking with tobacco or tobacco-paper before taking them from the pit in which they have been wintered.

Cinerarias.—Plants intended for exhibition should now be kept as near the glass as may be convenient; fumigate, so as to have them thoroughly clean before coming into flower, and sulphur such as may be affected with mildew.

Dahlias.—Cuttings struck now will be found to make fine plants; therefore propagate freely.

FORCING GARDEN.

Cherries.—If the fruit of these has set too thickly it must be thinned, leaving sufficient for a fair average crop.

Cucumbers.—See that the plants do not get overcrowded with wood and foliage, and by no means allow them to bear heavy crops at any one time. If you wish them to continue in a bearing state for a lengthened period, give them a good watering occasionally with liquid manure. Sow some Short Prickly for Gherkins.

Peaches.—The night temperature should not exceed 60° in the early house, until the "stoning" of the fruit is completed.

Pines.—Young stock will now be in rapid growth; take care to give air freely if the thermometer can be kept above 60°. In the afternoon however, syringe and shut up at 90°, if possible for a couple of hours. Pines swelling will, of course, now require liberal waterings of warm liquid manure.

Vines.—Those which were started early will now or soon have Grapes in their last stage of swelling. See therefore that nothing is wanted in order to have them in first-rate condition.

HARDY FRUIT AND KITCHEN GARDEN.

While the weather is so unfavourable, wall trees should be covered at night, and during hail and snow storms; on ordinary occasions the covering should be removed during the daytime. The young shoots of Peach and Nectarine trees are very subject to attacks of green-fly, which, if allowed to get ahead, seriously injure them. Syringing occasionally with tobacco-water is the best remedy.

Beans.—Earth up transplanted ones, and put in another crop if those last sown are fairly up.

Cauliflowers.—Sow for an early autumn supply.

Celery.—That sown early in boxes will soon want pricking out. The old plan is very good, viz., to put some very rotten and mellow dung on a firm bottom. On this, the plants, pricked three inches apart, will produce many fibres, and will remove with the trowel, in balls, with the most trifling amount of check. The chief reason why Celery runs, is that luxuriance of growth is succeeded by a sudden check.

Mustard and Cress.—Sow at the foot of a south wall.

Potatos.—Continue to plant as the winter crops of Borecole, Brussels Sprouts, and other greens are cleared away.

Spinach.—Hoe between the rows of autumn crops. If the ground is poor, a good soaking of manure-water will increase and prolong its produce.

Strawberries.—Get beds and borders of these weeded and otherwise cleaned before the plants have grown much. Where appearances do not require to be studied, a thin mulching of long stable litter will be found to protect them from cutting winds, and to encourage and strengthen their growth.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON, For the Week ending Mar. 29, 1865, as observed at the Horticultural Garden

March.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth 1 foot deep.	Temperature. Of the Earth 2 feet deep.	Wind	Rain.
Thurs. 23	25	29.86	29.816	40	19	29.5	40	41	N	
Friday 24	26	29.838	29.791	43	18	32.0	40½	41	N	
Satur. 25	27	29.827	29.374	45	29	37.0	40½	41	S W.	
Sunday 26	28	29.674	29.272	41	24	32.5	41	41	N	
Mon. 27	[illegible]	30.073	29.978	44	19	31.5	40	40½	N	
Tues. 28	1	30.049	30.021	44	28	36.0	40½	41	N W	
Wed. 29	2	30.031	29.999	46	23	34.5	40	40½	E	
Average		29.916	29.750	43.7	22.8	33.3	40.3	40.8		

March 23—Showers of snow in broad flakes; fine; frosty at night.
— 24—Frosty; dusky and snow-like clouds, fine, sharp frost.
— 25—Frosty, densely overcast, rain.
— 26—Cloudy and cold; stormy, with snow-showers, boisterous; frosty at night.
— 27—Cloudy, with clear intervals; dusky white clouds, fine; sharp frost.
— 28—Hoar-frost; fine; overcast; snow.
— 29—Snow in broad flakes, fallen to the depth of 2 inches; overcast.

Mean temperature of the week, 9½ deg. below the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 39 years, for the ensuing Week, ending April 8, 1865.

April.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Variable
Sunday ..2	55.4	36.2	45.8	20	1.19 in	4	5	4	3	4	1	[illegible]	[illegible]	[illegible]
Mon. ..3	57.0	34.0	46.5	20	1.19	4	4	5	3	4	1	[illegible]	[illegible]	[illegible]
Tues. ..4	56.7	36.0	46.4	15	0.30	5	2	3	1	3	12	[illegible]	[illegible]	[illegible]
Wed. .. 5	56.6	36.5	46.5	18	0.30	2	4	5	2	3	7	[illegible]	[illegible]	[illegible]
Thurs. .. 6	57.0	36.6	46.8	14	0.30	3	9	5	2	4	13	[illegible]	[illegible]	[illegible]
Friday .. 7	57.3	36.9	47.1	18	0.50	2	8	4	3	2	12	[illegible]	[illegible]	[illegible]
Satur. .. 8	55.8	35.8	45.8	21	0.69	2	6	7	2	6	8	[illegible]	[illegible]	[illegible]

The highest temperature during the above period occurred on the 7th, 1859—therm. 79 deg.; and the lowest on the 6th, 1851—therm. 21 deg.

Notices to Correspondents.

Books: *R C.* There is no garden book since the date of Loudon's Encyclopædia, which gives descriptions of the different varieties of Clematis introduced of late years; not even a very recent catalogue.

Camellias: *W Brown.* If you want to add some really good varieties to your collection, we recommend you to procure Duchesse de Berri, white; panicea, crimson; Sarah Frost, rosy carmine; Contessa Lavinia Maggi, carnation striped; Reine des Beautés, delicate margined flesh-colour; and Countess of Derby, delicate carnation striped.

Country Shows: *Fairplay.* It is certainly not desirable that the officials—chairman, committee men or secretary—should accompany the judges whilst performing their duties, though it may be done without wrong intention in most cases. The judges should always be perfectly free. If there has been an error of this kind in the case you refer to, the committee, being, as you say, practical men, will no doubt provide a remedy. The object, we believe, is generally to assist the judges in finding the articles to be judged, a matter of some importance, for the system of entries at country shows is not always so perfect as in the metropolis, where it is generally difficult to mistake the objects to be adjudicated on.

Diseased Verbenas: *Henricq.* Your Verbenas are affected precisely the same way as those noticed in a Leader in the Journal, March 11, p. 220. *M. J. B.*

Hepatica angulosa: *M T M.* It is a very fine hardy herbaceous plant, with pale blue flowers, and about twice the size of the common Hepatica.

Indian Yellow Pelargonium: *S S T.* You cannot do wrong in introducing this, which is quite an acquisition, being a colour altogether different from any with which we are familiar in this class of flowers. The dash of yellow is not mistakeable.

Lawn Levelling: *W P.* You may do this safely now as the weather is moist, and the season backward. Pare off the turf rather thickly and quite even; then fill up the hollows, ramming the new soil solid; and finally dress over the surface so as to make it quite smooth and even before relaying the Grass. The work should not be now delayed in case of a sudden change to hot dry weather. Keep the turf well rolled after it has been settled down by a good shower.

Names of Plants: *Devonian.* The Anemone is A. sulphurea, but the supposed fruit is clearly a Geum, and probably G. montanum; the blue flower appears to be Anchusa officinalis; and as to the double-flowered plant from the botanic garden at Martigny, it seems to be exactly Lychnis Viscaria in a double-flowered condition. The Anemone is recorded in Garden Catalogues, but we are not aware if it is now obtainable.—*M. T.* 1, Pteris tricolor; 2. Lomaria magellanica; 3, Davallia pentaphylla.—*J. B.* Hebeclinium ianthinum.—*T. G.* Triteleia uniflora.—*Rollo.* One of the Gesneras—which, we cannot say, without a leaf. It is of the easiest culture in a stove.

Taxodium sempervirens: *H C.* We are not aware that the plant is poisonous to cattle or horses.

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Messrs. Lewis & Co., High Green, Wolverhampton.
Mr. Robert Lawson, Secretary to the Essex Agricultural Association
Mr. [illegible], Peterborough.
Mr. B. Wood, Ventnor, Isle of Wight.
Mr. B. R. Cant, St. John's Street, Colchester.
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Chemistry.

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Mr. POOLEY performs Analyses of Soils, Manures, &c., at moderate fees, and may be consulted upon all questions involving Chemical or other scientific principles.

Royal Agricultural Society of England.
PLYMOUTH MEETING.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.
MEETING at PLYMOUTH and DEVONPORT, 1865.
Stock and Implement Prize Sheets are now ready, and will be forwarded on application to H. HALL DARE, Secretary.
12, Hanover Square, London, W.

The Agricultural Gazette.

SATURDAY, APRIL 1, 1865.

MEETINGS FOR THE ENSUING WEEK.

MONDAY, April 3 { London Farmers' Club (Prof. Coleman on Grass Lands).—6 P.M.
WEDNESDAY, — 5—Royal Agri. Society of England—Noon.

IT is manifestly proved by the letters on AGRICULTURAL EDUCATION which we have lately published, that the rising race of tenant farmers are both better educated than their fathers, and more alive to the advantages of a superior education than their predecessors were. There is universal testimony to this fact from every county in England. Mr. FEWSTER, of Gloucestershire, whose memory extends over two generations; Mr. GRAY, of Northumberland, whose professional life has exceeded half a century, and many others of our correspondents of almost equal experience, who prefer to remain anonymous, agree with the younger men who have written from Norfolk, Yorkshire, Lincolnshire, and elsewhere in perfect accordance here. The tenant farmers of this country are indeed far from being one class—they extend over a very long stretch of the social scale, including every step between the rank of the agricultural labourer and that of the independent country gentleman; and to talk of anything but the merely professional education of those who are dependent upon the cultivation of the land for their support, as if it were one thing—definable and recognisable, and capable of being stimulated or promoted as such—is clearly a mistake.

It is however plain that the general educational standing and intelligence of all the classes within the wide limits here presented, has been greatly raised during the past 20 or 30 years: and that the various schooling which is within the reach of these classes has produced a wonderful improvement upon all.

And there is another thing which is also plainly made out—one which is almost as universally attested—characteristic however, probably, rather of the higher than of the lower of the many classes included within the ranks of tenant farmers, and it is this—that there is not among the rising generation of them so much of the detailed practical and professional knowledge on which farm profits hinge as there used to be. It is a striking assertion in Mr. ELLMAN'S letter (p. 278), that he does not know a young man in his neighbourhood able to manage a farm without the aid of a bailiff. And his testimony is not solitary on this point. Those who have taken the pains to read through the letters we have published must have learned there, what we have all observed in actual country life, that there is very generally now-a-days much leisurely and idle time too often lost between school days and the actual tenancy of a farm and entry into independent business. The consequence is that a greater extent of land is every year coming into the hands of men, who, with larger capital than has hitherto been invested on it, and with greater resources in manures and stock and cattle foods than have ever hitherto been known, yet do not possess that personal and practical knowledge of their business which the former tenants had. There is a "rent" difference, it is said, between the words "go" and "come" in agriculture, doubtless arising out of the comparative unproductiveness as well as the greater costliness of operations ordered but not *directed*. And the country generally as well as the individual tenant suffers from that inferiority on the score of practical skill and professional ability with which the rising generation of agriculturists is in danger of being chargeable.

One point more appears plainly from these letters; and we may appeal to the experience of every country neighbourhood for its truth—that agricultural success depends more on professional knowledge and plodding industry and moral worth than on scientific attainment or high educational status or refinement. We do not by this assertion mean to disparage any of these latter ingredients in the character of a well-educated professional man; but whether the assertion does or does not amount to any such disparagement is of very little moment—for it is unquestionably the truth.

The letters we have published agree with every man's personal experience in proof of this. It is industry, not chemistry—kindliness and firmness, promptitude and skill, in directing labourers—quickness of observation among live stock and in the field—professional knowledge and business habits, and good character—not high scholastic attainments nor profound science, that makes the successful farmer and the trusted neighbour in country life. Look at letter No. 17, last week, and at what Mr. CLARE SEWELL READ has written in the same page on this subject, both from Norfolk. In No. 14, too, there is the opinion of a man of long and successful experience, on whose opinion perfect reliance may be placed. It is to these and many other such that we confidently and unhesitatingly direct the agricultural student for a sound judgment of the kind of equipment he needs for the attainment of professional success. This however we do, let us repeat it, with no desire to disparage a good and scientific education, which is professionally serviceable, as well as independently to be valued for mere manhood's sake, *i. e.* for its personal and *extra* professional influence.

But it is not to agricultural students that we address these remarks. They are written in the hope that the decision of the Royal Agricultural Society of England, as represented by its Council, may not next Wednesday be what its Educational Committee recommends. Farmers are already all alive to the advantages of a good scholastic education—they are getting more and more alive to these advantages every day—they have during the current generation been gaining and gathering in a harvest of these advantages more rapidly than any other professional body that can be named. It is not here that any interference (which as Lord FORTESCUE observes would after all be the mere following of an already established opinion) is desirable. Moreover it is not here, as has over and over again been proved, that a strictly professional Society has any right to interfere.

On the other hand, farmers' sons, owing perhaps in some measure to a higher style of scholastic education, and the altered tastes which are thus acquired—owing also no doubt to the greater wealth and higher social standing of the body to which they belong—are in real danger of growing up with a less practical and perfect professional education than their fathers had. There is a long interval between school and actual business occupations—and this interval is less industriously filled than it used to be. There is much time wasted which ought to be professionally employed. It is here that interference is wanted; and happily it is here that the interference of the Royal Agricultural Society of England is called for by its Charter as interpreted by the whole analogy of its past history. Let the Society offer rewards through the University examiners, as the Education

Committee desires it should, for the attainment of a mere school rank, and it will be stepping altogether out of its proper field, on to ground where everything is already urged to energetic action, and where no help is wanted. Let it offer rewards through its own professional examiners (to those who have already passed the test of a sufficient general education) for professional acquirements and attainments, such as by industry, whether in the field or in the class-room, may be achieved: it will then be acting within the well-defined field of its labours; and it will be applying whip and spur where urgency and stimulant are greatly needed.

We hope that Mr. Holland's views to this effect, backed as they unhesitatingly are by Lord Fortescue, will guide the decision of the Council next Wednesday; and that, having concluded to confine the direct action of the Society on the educational field within the professional circle, some practicable plan may thus be devised for promoting "the education of those who are dependent on the cultivation of the land for their support."

Let it be borne in mind, however, that in the opposition which is offered to the general education scheme of the Committee, there is no intention of disparaging the importance and necessity of the first-class preliminary school training to which it would confine the Society's attention. We cordially agree with all that the writers of the admirable letters, Nos. 12, 24, 29, and 30 upon our list, have said on this point.

The opposition to the Committee's scheme arises out of the facts that (1) a full grown conviction on this subject is already prevalent where it is bearing good and useful fruit; farmers are already quite alive to the advantages of good schooling—(2) that any benefit which might follow from the direct interference of the Society here is to be realised without any such appropriation of the Society's funds as the Committee recommends, by the simple expedient of requiring from the candidates at a professional examination a certificate of having already passed elsewhere the test of such a preliminary education as is desirable—and (3) that as it is only on the field of professional education that an agricultural Society has any right to labour, so it is here especially that a growing need exists of that rein and spur which the Society's examinations and rewards would offer and apply.

We are happy to announce the class list in Agriculture of the University of Edinburgh for the Session 1864-5, because, besides the merely class distinctions which it records, there are prizes included in it which are given by the Highland and Agricultural Society.

The following are the men who have this session taken honours:—

1. *In Ordinary Class Examinations.*
(First-class Certificates.)
Christian Carl Jacobsen, Denmark.
Patrick George Craigie, Scotland.
(Second-class Certificates.)
John Brown Kennedy, Scotland.
George Kent Walton, Warwickshire.

2. *Highland Society Prize of 6l. and 4l., to be given in Books.*
1. Christian Carl Jacobsen.
2. Patrick George Craigie.

We are glad to say that Mr. Jacobsen had already distinguished himself at the Royal Agricultural College, Cirencester, where during the past two years he has been a successful student.

The Bill for reclaiming the Maplin Sands and Dengie foreshore, and for enabling the sewage of North London to be utilised in South Essex on its way to these terminal points, has passed through the Committee of the House of Commons. A very feeble opposition has been offered to it; and although the Marquis of Salisbury and the London Corporation, and Mr. Ellis, all professed hostility to the measure, yet no evidence, except for the promoters of the Bill, was called. And this was so complete, that the adverse criticism to which the plans of Messrs. Napier & Hope were subjected, was received with obvious impatience by the Committee.

Messrs. Hemans and Bateman declared the adequacy of the plan in an engineering point of view; Professors Way, Voelcker, and Odling, and Mr. Lawes declared its consistency with the known chemical laws and facts bearing on the subject. Mr. Campbell, of Rugby, and Messrs. Boyce and Gillespie, of Edinburgh, related the agricultural experience on which the plan is based. Several farmers in South Essex declared their willingness to use the sewage when it is brought near them, and Mr. Petre and Mr. Hope bore testimony to the financial merits of the scheme.

The proof led seemed complete, and it is hardly likely that any further opposition, whether in the Commons or before the Lords, can now stay the progress of the first great measure which has been proposed for solving the great social and agricultural difficulty of modern times.

—— Mr. Corbet, Secretary to the London Farmers' Club, writes to the *Times* about the Bill relating to Union Rating introduced by Mr. Villiers. He declares that farmers are not hostile to the principle of this measure. He adds:—

The subject has continually come under the consideration of the members of this Club, and invariably with a strong majority, if not altogether unanimous opinion, in favour of some system of union rating. In March, 1847, it was resolved at the conclusion of the discussion—

"That, for the several reasons stated, it is important that the law of parochial settlement should be immediately and wholly abolished, and relief administered in districts so large as not to continue any restrictions on the agricultural labour-market, or afford any motives to influence the choice of labourers for the sake of diminishing the share of any future chargeability to the poor-rates."

In March, 1850, as the result of another meeting, the resolution adopted ran thus:—

"That the extension of rating and settlement to unions instead of parishes would be highly beneficial."

In November, 1856, at a meeting called to consider the moral and social condition of the agricultural labourer, the introducer of the subject went for the abolition of the law of settlement as a means for improving the working man's condition; and in December, 1861, there was an almost unanimous opinion as to "the desirability of abolishing parish and substituting union settlements in the agricultural districts." All these meetings were very fully attended, and, having had many other opportunities of ascertaining the feeling, I quite concur with Mr. Walter in the belief that "there is not a farmer in the country but who has already formed his opinion on the subject, and that it is not on the part of the farmers generally that we find any objections raised to the measure." On the contrary, the agriculturists as a body have long been endeavouring to obtain that extension of settlement now about to be granted.

—— The Bill for rendering owners of vicious dogs responsible, to which we referred a few weeks ago, was on Wednesday last read a second time before the House of Commons. Mr. Fenwick, in moving it, said that at present there is no remedy as against the owner of a dog for injuries to sheep and cattle, unless it can be proved that the dog has been in the habit of worrying sheep or cattle, and there is often great difficulty in obtaining that proof. The information he had received led him to believe that in almost every county in England very considerable injury is inflicted by dogs on sheep and cattle. In his own county, according to returns received, no fewer than 962 cases of such injury to sheep alone have been recorded, and in no instance has any compensation been obtained. The grand jury of the county, Poor Law Guardians, highway authorities, and agricultural societies have petitioned in favour of the Bill. It was read a second time without opposition.

AGRICULTURAL EDUCATION.

[The following are in continuation of last week's publication.]

22. Bucks.—The doings of sons intended for farmers after leaving school are various. Some get upon the outside of a horse, ride here, there, and everywhere; attend races, hunt, fish, and shoot, as well as look after all sorts of amusements; and in fact do everything except what they ought to do. And some, as soon as they leave school at from 14 to 16 years of age, not only watch over their father's work but give a helping hand on all busy occasions; and in this way get actual practice, which gives them a thorough knowledge of what work is. Besides this they watch over and tend their father's stock, and thereby get a thorough knowledge of what stock is, as well as knowing how to tend it in health and in sickness. The present generation of farmers in this neighbourhood is of much the same style and character as the last generation, not more intelligent or of sounder standing. They may be a little better educated, and that's all. I am of opinion that the standard of our universities for the local examination of their junior candidates is one that ought to be aimed at; and of their subjects arithmetic is the most important. When it is considered how few there are who attempt to pass that examination in comparison with the number of youths at school, we may fear that there are not near so many as there ought to be who reach that standard. I do not put much faith in special or professional training till after this period. After this the special education should begin. This should be by constant practice, by most diligent and careful observation, aided by an experienced teacher, and above all there should be a regular and continuous record kept of all occurrences, experiments, and observations. *William Smith, Woolston.*

23. North Devon.—I should say that, abandoning specific localities and looking broadly over Great Britain, our present race of tenant farmers are sufficiently educated for their position. I am sure the small ones (60 acres and under) are. At present these men are an honest, industrious, resolute, never-flagging race, unaspiring, but hopeful and happy drudges; work hard and work hard; look over the large farmer's hedge sometimes, and follow closely in his wake; beat him occasionally in some crops, and always meet their landlords at rent day; "can read any English book without much spelling;" can write a little, but are bad at figures, as the curate knows when he receives his fortnightly bill for dairy produce, and so they go on year after year—but give these men what you would call a good English education, and as small farmers they are spoiled. *C., North Devon.*

24. Gloucestershire.—I should say the usual time for a farmer's son to leave school, if intended for a farmer, is at from 15 to 16 years of age, and for the most part after this time his knowledge is obtained on his father's farm. Of course it is natural for the youth to prefer home; he has more freedom, and if inclined to be industrious and painstaking, is pleased with the opportunity of being of use and adding to the general fund; if to be careless and idle, he feels that he can more easily shirk his work there than elsewhere, and can be more his own master. The father, also, naturally and hopefully looks for help from his son when he leaves school, and is tempted to believe that the time will soon come when he may leave some of his duties to him and enjoy more leisure. He has also another inducement: at home, his son will be, or at all events he hopes he will be, of service to him—that is, that his school services will be of value to him, whilst to send him from home, to learn what he believes he could teach him as well at home, would be to involve a needless and unjustifiable expense. This explanation of the reason for a farmer's son being taught his business at home, leads on to the answer to your second question. On looking around, I cannot help feeling perfectly assured that there are a considerable number of elderly men as farmers, whose intelligence, address, and style altogether are superior, or, at all events, in still more cases equal to their sons or younger relatives who are following the same business. Why is this? I believe it to arise from the home tuition of the latter, and until some method is found out to stimulate them to mental exertion at home and a different course of learning adopted to that generally taught in schools, I believe farmers, as a class, will not hold that position in the social scale to which they are entitled, considering the capital and intelligence required in efficiently carrying out the working of a farm. Naturally the youth, whether actively engaged at work, or in superintending the work of others, is too tired at night to take pleasure in keeping up the learning he has acquired at school; he may possibly read some agricultural work now and then, but not often; bred upon a farm, hearing so much about it, and seeing to its management every day, he seldom cares to learn farming by book as it is called, and so some amusement, or may be a sleepy way, whiles away the evening; and as to the daytime, I believe that as a rule both father and son would consider time wasted if occupied in book work. Thus day by day the adaptation of the mind for mental labour grows insensibly weaker, and agricultural science does not give him that share of aid which it ought to give when combined with, what he may already have, observation and experience. Again, from continually conversing with the labourers and speaking carelessly to them, the farm youth who neglects his studies at home by habit becomes confirmed in a very incorrect and provincial manner of speaking. From these causes he finds himself at a loss for the ability to argue, and for that address which he requires in his intercourse with the world as he grows older. I will now venture to give my idea of your last question—How best to educate boys, especially farmers' sons, for the business of farming? First of all: what ought now to constitute a thoroughly efficient man of business as a farmer? My idea is, that he must have a thorough practical knowledge of his business in all its branches; added to this he should be well acquainted with agricultural chemistry, which, besides its common use, will enable him to judge correctly as to the advisability of adopting the different theories which may from time to time be brought before his notice; preserving him on the one hand from prejudice against adopting any judicious improvements suggested by science, and on the other hand from making mistakes by following too implicitly advice offered by scientific men; he should certainly have a knowledge of mechanics. He is to be master of several different kinds of machines, and not entirely ignorant of their structure, and the general principle of mechanics, is a greater inconvenience and loss than he is probably aware of. A knowledge of entomology would be interesting, of the general principles of geology and of veterinary science useful; whilst to be thoroughly acquainted with parish law in all its bearings is another absolute essential. He should possess a knowledge of character: he is, as the employer of labour, called upon to exert himself to so

his best endeavours to manage his labourers in such a manner as shall make them most efficient, and at the same time promote good feeling and harmony between employer and employed; this he cannot do without such knowledge, for different men require very different treatment, and he should, as all other classes should, have a thorough knowledge of the Bible, and an honest desire as a true Christian to make its principles his rule of every-day life. Now, how are we to educate a son whom we intend should follow our business as a farmer in order to make him what I have described? My opinion is, that at the age of 10 or 11, up to which time we may suppose he has been taught properly at home, the boy should be sent to a school, where besides the usual English and religious education, Latin grammar, mathematics, botany, the rudiments of chemistry, anatomy, and mechanics should be taught to be entered into as the lad grows older, and is found capable of understanding and taking an interest in the various sciences named. His education at this school should be completed at from 15 to 16 years of age, at which time he should be enabled to enter for 1 year or 1½ year at most a farming College, somewhat similar to that at Cirencester, where sciences connected with his business, experimental and practical agriculture, and parish law, should be vigorously pursued; mathematics may or may not be continued there, but I hold its study to be of immense importance to all youth, as it habituates the mind to correct reasoning and to reflection. The youth, by this time 17 or 18 years old, now returns to his home, not however to be separated entirely from his College; let various prizes be competed for by such home student, and examinations kept up from time to time, and if not fortunate enough to gain a prize, let a medal or some other mark of distinction be given if he pass the examination creditably. This stimulus would, I think, be sufficient to incite a young man to study, yet at the same time would neither hinder his usefulness at home, nor his means of obtaining that practical knowledge of agriculture which of course is most necessary (all the rest being adjuncts) to a successful issue to his labours. We hear of commercial schools in abundance, why cannot we have farming schools in each county? as spoken of by Mr. Edmunds (I believe) in his lecture on the subject at the Farmers' Club, so that we, as a class, could have our sons properly educated at a moderate cost; I believe that farmers would avail themselves of such schools if they could be found, but at the present time the terms of schools capable of teaching what I have proposed would be above the reach of most tenant farmers. *W. J. Edmonds, Southrope, Lechlade.*

25. Gloucestershire: *Vale District.*—The farmers in this neighbourhood generally send their sons till about 12 years of age to the parish schools, where a good education can now be had at about 2*d.* per week, and then for two years to a boarding school to finish off, at a cost, including extras, of about 50*l.* a year. Afterwards, those intended for farmers are set to work on the farm, engaging in any and all kinds of work, *i. e.*, ploughing and sowing, reaping and mowing, building and thatching ricks, hedging, ditching, and draining, looking after and feeding cattle and sheep, assisting in buying and selling stock and corn, and any other operation required in the business of farming, until they become first-rate wide-awake practical farmers, cautious as to trying new plans, but ever ready to adopt any improvement that will make "two ears of corn grow" where only one grew before. From my own observation great progress has been made in farming in this county in the last 30 years, farmers as a class being far better educated than formerly, being thereby better fitted to judge of the value of modern improvements and carry them out. I have no fear that English farming will lag behind for want of skilful farmers, both able and willing to extract from the soil as much as it can be made to produce. *J. C.*

26. Herefordshire.—I quite agree with you in thinking the present generation are considerably in advance of the past, both in intelligence and knowledge of their business in the improved culture of their land, and in the method of making more beef and mutton, otherwise with our increased expenditure we could not make it answer; and with all our skill, many I fear must succumb under the ruinously low price of Wheat and other corn on the cold clay lands. I think a boy should, on leaving school, if he is intended for a farmer, be placed on a farm, where he should be taught how to do all the grosser operations, such as hedging, ditching, ploughing, shearing, &c.; so that should it be necessary he would be able to show his men how to do any of these operations if they were not competent. This I think is becoming more and more necessary every year on account of the inferior class of workmen rising up. Formerly I could not give a workman a job he did not know how to begin and end with little or no instruction, which is far from being the case now. I would not keep a boy to these grosser operations excepting to teach him how to perform them; and if he is an intelligent lad he would not be long in acquiring the requisite knowledge. He should attend fairs and markets, to obtain a knowledge of the value of stock and the system of buying and selling. By such a training I think he would be far more likely to make a successful farmer than by any special or professional training. *P. Norman Edwards, Brinsop Court.*

27. Lincolnshire.—The usual course of education consists of instruction in reading, writing, summing, and mensuration. There is no special education in schools for the sons of farmers. When the young man leaves school he begins at once to attend to farming business, usually at home, under the superintendence of his father, as the shepherding, breeding, rearing, and feeding of stock, the tillage of the farm, the planting and reaping of crops, attending the markets, &c. Farmers' sons have a much better education now than 40 years ago, when I was young; and consequently are more intelligent, and take a higher social standing. The child intended for a tenant farmer ought to become efficient in the following particulars, viz, in reading, writing (so as to be legible), summing, grammar—he ought to be able to measure and estimate stone quarries, heaps of manure or ashes, hay and corn stacks (round or square), timber, brick or stonework, carpenters' work, roofing, &c., for cottages, houses, or agricultural buildings; also earth works, embankments, levelling for drainage, &c. together with plan drawing for all these purposes. After he has gone through the above general education, add six months instruction at a veterinary college. Doubtless a special education has its advantages, but it is beyond the reach of the ordinary tenant farmer. *T. B. Dring, Claxby, Spilsby.*

28. Norfolk.—I have never heard any complaint as to the want of good schools in this county. I believe there is one or more in every market town in the county where farmers' sons can learn all they require. Boys intended for farmers should be taught, in addition to a sound English education, Latin and French. I think the grand point is in training boys three or four years after they leave school in all the practical parts of farming, so as they know and can do all the different sorts of work upon a farm, in order to be able to set the labourer to work in a proper way. I think that there is more fuss about the education of farmers' sons than necessary. *Thos. Brown, Denver.*

29. Northumberland.—In reply to your queries about agricultural education, I would say generally that the present race of farmers are much in advance of their fathers in that kind of knowledge which is the fruit of early education and mental culture; in proof of which I send a return (of membership, &c.,) which I have just obtained from the Secretary of the Hexham Farmers' Club, of which I have been President from its commencement till last year, when the wear and tear of 30 years warned me that it was time to retire from the discharge of many public duties which my position or inclination had imposed upon me. In the early part of this century, few agricultural societies existed, and farmers' clubs for the purpose of discussion on practical or scientific subjects were unknown. Now we find such institutions abounding all over the country. The Tyneside Agricultural Society and the Hexham Farmers' Club originated at the rent-day dinners with the tenants of the estates under my management. At first the members of the Club were very few, but its discussions and addresses soon began to excite a wider interest; its numbers gradually multiplied, and its library, which was a much desired object with me, increased to its present dimensions. Papers are read and subjects discussed at the monthly meetings of that Club, except in time of harvest, and mainly by practical farmers. The existence of such a Club in a rural district, comprising 221 members, with a library of 489 volumes, besides several agricultural periodicals, is a strong fact in proof of the better education and increased knowledge of the present generation.

> "We've fallen on better times; men read and think;
> Our good forefathers used to fight and drink."

At least so it was with the dwellers on the Borders, the cultivation of whose fields and stock is now thought to be somewhat exemplary. Although the county of Northumberland stands tolerably high in the scale of agriculture it is by no means well supplied with schools of a higher order than such as are found in all the villages. This may be accounted for in part by its proximity to Edinburgh, affording to the sons of respectable farmers the means of various education on moderate terms, an education more formed on the study of mathematics and the natural or physical sciences than of the classics, which, however desirable as a training of the mind and a foundation for the acquirement of elegant and extended knowledge, is not so essential or so immediately available in the agriculturist's line of life. The progress of modern agricultural improvement is greatly indebted to the discovery of new manurial substances, and success in applying them depends on the knowledge of their especial suitableness to the description of soil to be operated upon, and the kind of produce to be raised. Knowledge of that kind is much better acquired in the public education of Edinburgh than in any schools in England, except in the College of Cirencester and others perhaps that are instituted for the especial object of agricultural instruction. The knowledge of chemistry and of animal pathology can never be out of place in a farmer's education. You ask, what do youths intended for farmers do when they leave school? That admits of most various answers, and yet it is often the great turning-point which stamps a value or otherwise on the future character. Some who have the means may be allowed to travel a little, at least in their own country, and find an opportunity of observing the customs and husbandry of different districts. The numerous meetings of agricultural societies in this day offer attractions and concentrated means of gaining such information. Some, if indulged in such inclinations, become sportsmen and idlers, who can talk better than they can act on farming matters—though I would not indiscriminately censure sportsmen, for I never saw a real energetic leader in a fox hunt who had not the material to make him a leader in more dignified pursuits, if occasion roused him to exertion. Some, of indolent habits and listless mind, content themselves with what they have learnt, and take to the quiet operations of the farm, seeing that their fathers have got on with little education, and are satisfied to do likewise. What I have enjoined on the sons of farmers of not the highest class has been, on leaving school, to use all industry during the day in perfecting them in the use of all implements and machinery found on the farm, to be able to show how work should be done to others, and to employ the long evening hours in reading useful books, such as the library of the Club contains, under the assurance that the cultivation of the mind is essential to the good cultivation of the land. In cases where men have raised themselves to occupy farms, from a lower condition, by industry and carefulness, but without education, the example and stimulus are wanting to their family, and the benefit of education is not appreciated. In such cases the improvement and progress in education are slow, but everything is tending to its general advancement; and I am by no means satisfied that it will be accelerated by legal enactments or public provision. I have had much to do with the management and inspection of village schools, and have invariably found that gratuitous education is least valued and least efficient. Schools, varying in character and expense, suited to different grades of society, have been greatly multiplied in the country during the last 50 years; and it is unquestionable that education and intelligence have advanced in a corresponding degree among the middle and lower classes of the agricultural population. *J. Gray, Lipwood House.*

30. Northumberland.—The present generation of farmers are better educated, are more alive to the benefits of education, and have better opportunities of conferring these advantages on their sons than any previous generation. I think, however, there is still a want of good middle-class schools throughout the country, and that more advance has been made in the provision of means of education for the working classes than for the middle classes; but the idea of singling out farmers as a class, and insisting on schools specially for them, appears to me simply absurd, and whatever the charters of the national agricultural societies say on the subject, I cannot see that it forms any part of their duty to take the education of the farmers' sons under their charge. As to the special kind of education required for the sons of farmers who intend to follow their father's profession, I do not think there need be any specialty in their education more than in that of their brothers intended for engineers, lawyers, merchants, or any other profession. I do not suppose a man will make a better lawyer by having been made to study Blackstone when a boy at school; no more will he make a better farmer by being obliged when a school-boy to study your Cyclopædia. Till they are 15 or 16 I would give them as good a general education—English, Latin, and mathematics—as I could attain to; such an education as shall not merely teach them to read and write, but to think. Fifteen is as soon as they can really decide what profession they are to follow, and if they should show an earlier inclination for farming, you may rest assured it will be by their carrying on their own especial education every hour they are at home. If possible, I would prefer that they should get their general education at school with other boys and be at home at night. After their school days they should have a couple of years of real work at home, putting out hand and learning practically the work they will afterwards have to superintend; and if this is relieved during the winter months by attending agricultural, chemistry, and natural science classes either at a university, or wherever they can be most conveniently obtained, it will further exercise the mind, and greatly add to the interest of their work. After a couple of years at home, 12 or 18 months in the office of a country lawyer in good practice is of great advantage to any young man, from the business habits he there acquires; and then, when his mind is formed, and he has sufficient knowledge of his profession to appreciate the difference he will see in the farming of other counties, he should, if possible, spend other 2 years in one or more of the best farmed districts of the kingdom, which will greatly tend to rub off the prejudices one naturally and unconsciously gets in favour of the customs of one's own neighbourhood. This training would, I think, give a young man as thorough a knowledge of his profession as he could have till he fairly embarks in it for himself. I am not aware of any new means which are desirable to attain this end; and the additional means required are more good middle-class schools. There are always able and intelligent farmers to be found who will receive pupils, and there would be more, did said pupils more generally show a desire to learn their business. But from some unaccountable cause, farming, which to those actually engaged in it is a most difficult profession, in which we are always learning, is, by outsiders, looked upon as the most simple thing in the world, and

which any one can follow with success, and pupils very frequently have the same idea, and fancy all they have to do is to kill time till they are old enough to take a farm, when perhaps they learn to their cost what it is. *Thomas T. Dods, Hexham.*

31. Northumberland.—In this, as in other counties, the present generation of tenant farmers are much better educated, in every way, than the preceding, or any other generation has ever been. The smaller farmers are now seeing the advantages of a good education, and, as far as their means will allow, are conferring these advantages on their sons. Lastly, I think that boys intended to be farmers should receive a sound general education when at school—that schools and schoolmasters should have as little as possible to do with the "special and professional" training of a farmer—and that such training should be received at home, on a farm. *G. L.*

32. Oxfordshire.—My impression is that farmers' sons do not want a special education provided for them, but that a good general education is all that is necessary, for which purpose there are sufficient schools in existence at 60*l.* per year upwards; but as all farmers cannot afford so high a price it is very desirable that they should be provided with good middle-class schools, of which there are too few in the country. A very satisfactory one has lately been established in this county at Bloxham by the Rev. J. Edgerton, a late fellow of New College. There is no doubt, I think, but that the farmers of the present generation are better educated and more alive to the advantages of a good education than the last; but one cannot but regret that the youth of the present age who intend making farming their pursuit, too often and too quickly settle down to their cigar, their gun, or their horse after leaving school, instead of turning to any practical use the education they have received. I consider a knowledge of the veterinary art, chemistry, geology, botany, entomology, and meteorology to be essential, and may be acquired by any youth in connection with his legitimate occupation in less time than is frequently devoted to the former, with such helps as may generally be obtained in the nearest market town. It is very much the practice with most young men to attend one or more markets a week; how profitably could an hour or two of that day be spent in attending a class or lecture on one or other of the before-named subjects, instead of devoting it to that which is neither elevating nor satisfactory. *John B. Spearing, 4, St. Giles, Oxford.*

33. Shropshire.—Let it be understood that my remarks have reference only to my own district (which is rather a peculiar one), and perhaps would not be applicable to the more favoured parts of the country. In reply to your first question, there are no schools which in my opinion are suitable for the education of young farmers beyond the common rudiments of learning; and I regret to say this is all the education they get, having afterwards to fight their way at the tail of the plough; and this is not confined to those who may claim the want of means to do otherwise by their children, but the like insufficiency prevails with those who have ample means at their disposal. To your second question, I am sorry to say I cannot agree with you in the cheering opinion you give of the rising generation. Except in a few isolated cases, there appears to me to be very little if any improvement as far as relates to general intelligence, or the most distant approach to the knowledge of those sciences so closely connected with the cultivation of the soil. With regard to your last inquiry, which is of vast importance, I shall speak with great deference to the opinion of others. There is no doubt up to a certain point the usual routine of education would suffice for all, and where time and money is no object, this should be pursued to its completion; but for the great bulk I am strongly of opinion that special education should commence at a much earlier stage than is generally thought necessary, taking it for granted that school education has for its object the preparing of the mind for that after culture which it is in the power of any man to obtain. I am of opinion that the mind might be as effectually expanded by being taught those things in which individuals are likely to be occupied in after life as by classical lore. And why may not animal and vegetable physiology, animal pathology, botany, geology, chemistry, barn mechanism, &c., be made the class book of agricultural schools? But with all this, the after opportunities of young farmers are of the greatest importance; for however good or appropriate a young man's education might have been, unless he is fortunate enough to be associated with those of a like kindred spirit, he is very apt to forget the training of his youth, and relapse into the habits of his less fortunate neighbours. What appears to me the great thing wanted in this district is some magic wand to instil into the people a wish or desire for education, and then all would soon be accomplished; at present, I fear with a large majority, "ignorance is bliss." *Evan Davies, Patton, Wenlock.*

34. Suffolk.—There can be no doubt that the appreciation of education and the facility of acquiring it are infinitely advanced in the last half century. We have in this place, erected by subscription, and to be opened immediately, the "Albert School and College for the Middle Classes," intended for 300 pupils at the charge of 25*l.* per annum for board, lodging, and education. At Woodbridge the same thing is occurring. "The Seckford Charity School," rebuilt on a much enlarged scale. A few years ago, the "Foundation School of the Ipswich Corporation," underwent a similar change. At Aldborough a good school has been erected, and a classical master appointed. At Helmingham, under the patronage of Mr. Tollemache, a good middle-class school has been erected, and one at Stradbroke under the Rev. J. C. Ryle, and the churchwardens as corporation. There are no schools professing attention to agricultural education in particular; nothing of the kind of Mr. Nesbit's agricultural chemistry, or the Cirencester educational farm. I have no predilection for a farm and school establishment; the field of observation might be circumscribed, and the same daily round and the same peripatetic lecture must become stale and unexciting. Let such farmers as can afford it send their sons early to a good boarding school, and acquire what they can of every mental accomplishment; then a year or so to such a man as Mr. Nesbit for agricultural chemistry, to be followed by a course of lectures at University College, making acquaintance with animal and vegetable physiology in particular, with natural and moral philosophy, the principles of various sciences, their ramifications and practical application; afterwards to a large farm from home, and another and another in distant localities, taking with them their standard scientific and Latin books. We have many on our Suffolk light lands who can do this, but on our heavy lands they are few and far between; let the less favoured classes imitate such a course as far as they can. On our heavy lands the occupations are smaller, and the majority of tenants of such farms cannot afford to pay 25*l.* per annum to our new college. Their boys, if not within walking distance of the village school, ride upon a donkey, taking their dinners in a canvas bag slung over the shoulder; the girls have such small extra indulgences as are at command. "But braw lads and buirdly hizzies are reared in sic a way as this is." After such schooling the sons take their practical knowledge by working on the farm; if several sons, some are apprenticed to trades. I do not see that by legislation, or by contributory association, any alteration can be made so universal as to affect the position of the middle classes in general or the sons of small farmers in particular. The penny postage, cheap literature in general, and the penny newspaper in particular, the electric telegraph, cheap and rapid travelling by steam, free trade, and international visiting are giving us a repetition of the primal blessing—"Let there be light, and there was light!" These are directly and indirectly opening out the powers of the intellect, and are making the privileged stickler for effete stereotyped systems look as jealously at the acquirements of the middle classes as the farmers did at the better education given at the pauper establishments. *Geo. Edwards, Framlingham.*

35. Suffolk.—The occupiers of land in Suffolk vary in style and position, from some who occupy from 20 to 100 acres, working on the farm themselves, through every gradation of holding 200, 300, 500, to 1000 acres, and employing a moderate but more often limited capital, and filling all positions in society, from that of the peasant to that of the independent gentleman. The smaller holders avail themselves of the village schools, those of greater estates are educated to the age of nine or 10 by their mothers, sisters, or by a nursery governess; many of those of the middle class spend two or three years at a boarding school, called commercial, where for payment of from 28*l.* to 35*l.* or 40*l.* per annum they are pretty well grounded in reading, spelling, writing, and arithmetic, with "geography and use of the globes;" in some instances a little mensuration. The first four are attained with a fair degree of moderate proficiency; but for junior clerks in an office I prefer the attainments made by tolerably acute boys at our national British and foreign and free schools in the town. Young men are mostly apprenticed to shopkeepers; one of the family, probably the eldest, remains at home to learn farming, a little hunting, or shooting, where the opportunity and means offer; it is only at home that such have any special training for gaining a livelihood on a farm. And at the present time it needs a very special training indeed to afford him much chance of realising this object. I have no hesitation in saying, after having had a wide range of opportunity for observation, that a very marked improvement has been manifest in the style, habits, intelligence, and social standing of the present generation, as compared with the past, say 20 years ago, and I think this is still progressive. I attribute this in some degree to the improvement in the lower class of schools, to the more correct appreciation of the value of practical English education, of the necessity that boys should work either in trade, or farming, instead of hanging about home for the remote chance of being put into a good farm after having been half spoiled by the leisure and pursuits of gentlemen; not a little to the stimulus afforded by their companionship with such of the other members of the family who have been engaged in trade in towns, where they have had great facilities to improve themselves in any branch of intellectual development to which their taste, or the requirements of their respective engagements, may direct them. I would rather have a boy come to my office having a good general education, upon which I might afterwards graft the specialties of my business, than have his mind filled with such theories as I fear he would be mistaught at a school, where if he has to leave at 15 he will find fully enough to occupy his attention during his short term. *X. 8.*

36. Warwickshire.—Sons of farmers in this neighbourhood usually receive their education at some boarding school, from about the age of nine, until their parents consider they have acquired enough knowledge to qualify them for active duties. This education embraces the general teaching of such a school and a little classical learning. On leaving school the young man is either placed under the instruction of some practical farmer of supposed ability, under whose guidance he observes the usual routine of farm management, or he takes an active part in the duties of his father's business at home. I know of no other especial training (generally) "to fit him for gaining a livelihood on a farm." There are countless instances where the son's intelligence or social bearing is in no degree superior to his parent's; but speaking generally, the present generation of farmers is far in advance of the last generation in education and therefore in intelligence. I doubt if there be any means by "which thorough efficiency may be certainly conferred for the successful discharge of all the duties which devolve on a tenant farmer." This end can only be attained (but not certainly) by a sound general scholastic education followed by the student witnessing and partaking of the active duties of real agricultural life. As there is no royal road to arithmetic, neither is there to successful practical farming; no professional training for an agricultural learner can be safely substituted for active personal participation in the every-day employment on a well-ordered farm. "Practice with Science" is sound doctrine enough, but Science without Practice never has, nor ever can, lead to satisfactory results to the tenant farmer. *J. C. Adkins, Milcote, Stratford-on-Avon.*

37. Yorkshire.—The great proportion of farms here are from 250 to 300 acres, although there are several farmers holding from 400 to 600 acres. The generality of farmers here have been educated in country (private) or endowed grammar schools, some of them having been a year or two at a better school to finish. On leaving this school the young man in many cases learns his business practically, by taking the looking after some particular part of the work on the farm, as the tillage or the stock at home, and learning from observation, attending markets, &c. My opinion is that the farmers of the present generation are considerably superior to those of the past—more intelligent, better educated, and occupying a higher social position. I also think that tenant farmers are generally wide awake as to the benefit of a good education for their children. I do not think an outcry need have arisen on the subject of the education of farmers' sons, and although there is a difficulty in choosing a school exactly to your mind, yet I think, if even special establishments were provided, farmers would still select other schools they might think more suitable. None of our best young farmers have been at Cirencester from this neighbourhood that I know of. *Peter Stevenson, jun., Rainton, Thirsk.*

Home Correspondence.

The Weald of Sussex Farm.—Dear Mr. "H. C." I agree with you that it is rather a bold thing to send a balance sheet to the press, but at the same time I am sorry to see sarcastic remarks made on one who appears anxious to profit by the experience of others, and to meet these critical times by energetic measures, and therefore I come to the rescue of our friend "Leisurely" by endeavouring to prove that it is quite possible to bring out oxen at two years old fit for any market, without their being what you term picked animals. I am not an amateur, or a fancy Short-horn breeder, although I generally succeed in having well-bred stock, and "I am no orator as Brutus was," but a plain-spoken, clod-hopping farmer, satisfied it I can pay my rent, and make both ends meet at the end of the year. After this preamble I will give you a little of my own experience, and simple facts are startling things. Weaver & Moore sold for me by auction at Tewkesbury fair, on the 8th of this month, two oxen of the Short-horn breed, under two years old, and one of them brought 23*l.*, and the other 23*l.* 5*s.* They were not fed in any extravagant manner with a view to producing show animals, but merely in the common course of business; they never even tasted oil-cake during their short life, and indeed lived somewhat hard last summer, the dry season having burnt up the pastures and Vetches, and when they were put into the stalls in October, they did not look as well as I should have wished. They had, however, a good start (which all sporting men know is a great point), having been managed when calves as I shall presently describe. I may add that the mothers of both of them were three-year-old heifers, and indeed one of the cows was a twin; and they were certainly not picked oxen, as I had none to choose from, having reared but three altogether. Their companion was sold fat to a butcher some little time ago for 15*l.* at 1¾ year old. You give it as your opinion that stock cannot be bought at the Sussex markets capable of coming thro

early to maturity; it appears to me very probable that such might be the case if yearlings were bought, as it is too much the practice to starve growing cattle, but it is very uncomplimentary to the Sussex farmer to insinuate that good calves are not to be met with in your county. There is one of "Leisurely's" projects which does not appear to me so well digested as the rest; I mean as to the number of calves he proposes to rear with his 12 cows, and the manner of so doing; by making each cow rear four calves, milching each two months, the last calves bought must, of course, be born very late in the season, which is always a disadvantage, and besides which they would come in for the fag-end of the cow's milk, which if richer in quality would be less in quantity, whereas the earlier ones would have more than was necessary for them. I would suggest that 24 calves only should be reared from the 12 cows, adopting the following system, which I have practised myself for several years with the greatest success. My four cows rear eight calves. I allow the calves to suck their mothers a few days or a week, after which they have new milk from a pail three times a day for a fortnight longer, when I begin gradually to lessen the quantity of new milk and to replace it with skim milk, adding boiled Linseed, and shaking a handful of Bean flour into each calf's portion. By the time they are five or six weeks old the new milk is taken off entirely, and the Linseed jelly and Bean meal increased as necessary, according to the quantity of skim milk there may be for them; by the time they are three months old I find they do not care much for their drink in the middle of the day, as by that time they will eat a sufficiency of other things, and at four months they are weaned from it entirely. I have read many books on the rearing of calves, as well as prize essays on the subject, and have reaped much valuable information from them, but have always been surprised to find no one advocate feeding these young creatures more than twice a day. It is acknowledged by all that no calves are so fine as those which run with their mothers, in which case they will suck every hour. Then why not take Nature for our guide, and follow her dictates as nearly as we can? What can be more monstrous than to keep a young sucking animal 12 hours without food? Who can have heard them bellowing an hour or two for their supper before they can get it without thinking that he also would be woefully hungry if he had not had a good dinner at 1 o'clock after an early breakfast? *L. C. S.*

Societies.

Kingscote.—Mr. Dodson lately read the following paper:—*Can an alteration be made in the Systems of Farming in this district, with a view to the keeping and maintaining an increased quantity of stock?* After some preliminary remarks, he said: Doubtless to English agriculturists, from the low price of corn, this is become the topic of topics, more especially to those occupying thin light land; the amount of other produce (consequently success or otherwise) depending in a great measure on the amount of stock kept.

1. *Description of the District.*—The following are the characteristics of the soil, and the leading features of the systems applicable and mostly pursued in this district.

The farms for the most part are arable; the soils, although varying, chiefly dry, and better calculated for carrying sheep than supporting horned stock. Still for several reasons I believe no soil can be well and profitably farmed without a mixture and combination of stock, for if sheep appears the most suitable and natural description for light land, circumstances arise rendering the keeping of cattle almost indispensable, as a large portion of the produce under either system could not be advantageously consumed without their aid. I refer to the straw of the different corn crops, the profitable disposal of which puzzles the arable farmer, I think, more than almost any other branch of his business. I find three different systems of farming are practised: the four, five, and six-field rotations of cropping. The four-field (or what is generally termed the Norfolk), is the well known alternate green and root crop with corn; the five-field an extension by keeping the seeds down two years; and the six a further extension by an additional grain crop the sixth year after Wheat; Sainfoin being grown under each of the rotations. The quantity however I think varies more according to the caprice or opinion of the individual occupier rather than as the exigences or necessities created by the modes pursued demand. The adoption of either of these modes should be (and doubtless is) regulated by circumstances. I find for the most part the five-field is much more generally followed than either of the others, and on reflection one is led to the opinion that it should be the best for maintaining a full quantity of stock, as with a like proportion of Sainfoin it gives a larger acreage of green and root crops, and consequently less for corn.

2. *Influence of Rotation.*—In order to place the matter before you as clearly as I can, I will give you the probable amount of food likely to accrue under each system as at present managed, so as to enable us the better to arrive at the best course to follow.

We will then consider if any extra application of artificial manure or feed should be applied, any alteration made, or any intermediate crops, &c. taken, so as to increase the amount of food, and thus enable us to keep and maintain an extra quantity of stock. We will suppose a farm of 400 acres of arable, with an addition of some 40 acres of second-rate pasture, and 40 to 60 acres of sheep walk, which latter appears to me to be rightly named, most of it being more calculated for exercise than a means of increasing them in flesh.—(*a*) We will first deal with the arable, and begin under the four-field rotation. The 400 acres ought to be reduced by having in Sainfoin say 60 acres, leaving 340 acres, or 85 each for roots, Barley, seeds, and Wheat. From what I can gather, the amount spent for artificial manure for the Turnip crop seldom averages more than 1*l.* per acre, the Swedes receiving the main of the farm-yard dung in addition; the expenditure for artificial feed mostly confined to the fatting sheep feeding off the roots. The past few years, however, cake or corn has been increasingly used in the straw yards for cattle. With the foregoing quantity of manure, say we grow an average of 15 tons per acre of roots, or 1276 tons for the 85 acres; 170 acres of corn producing 212½ tons of straw, at 25 cwt. per acre; there will then remain the 85 acres of seeds, and 60 of Sainfoin for hay and feed for stock, 75 of which I think must be reserved for mowing, yielding say 24 cwt. per acre, or 90 tons of hay, and of after Grass 40 cwt. per acre, or 150 tons. We now come to the 70 acres for grazing, producing 6 tons per acre, or 420 tons. I think we need not here enter on the pastures, as they would be similar in each case.—(*b*) Next comes the five-field under like circumstances, with 50 acres Sainfoin, leaving 350 under crop of 70 acres roots, 140 corn, 140 seeds: the 70 acres roots, at 15 tons per acre, producing 1050 tons; 140 acres corn producing 175 tons straw at 25 cwt. per acre; there then remains the 190 acres seeds and Sainfoin for hay and feed for stock. Mowing 100 acres would give us, at 24 cwt. per acre, 120 tons of hay, and of after Grass 40 cwt. per acre, 200 tons. We now come to the 90 acres for grazing, producing 6 tons per acre or 540 tons.—(*c*) Lastly, the six-field, with 55 acres Sainfoin, leaving 345 acres under crop, or 57½ roots, 172½ corn, 170 seeds, and Sainfoin: the 57½ acres roots at 15 tons per acre, or 855 tons 15 cwt.; 172½ corn, at 22 cwt., producing 189 tons, 14 cwt. straw, equally dividing the seeds and Sainfoin for mowing and feeding The 85 acres mown at 20 cwt. per acre, or 85 tons hay; after Grass 35 cwt. per acre, or 148 tons 15 cwt.; 85 acres Grass at 5½ tons per acre, or 467 tons 10 cwt. These calculations would give us, 1st, for the four-field:—

1275	tons roots	For winter keep, litter, and thatching.
212½	,, straw	
90	,, hay	
570	,, Grass	Summer keep.

2d, the five-field:—

1050	tons roots	For winter keep, litter and thatching.
17	,, straw	
120	,, hay	
740	,, Grass	Summer keep.

Lastly, the six-field:—

855	tons roots	For winter keep, litter and thatching.
189	,, straw	
85	,, hay	
616	,, Grass	Summer keep.

We will now proceed to consider the amount of stock that may be kept under each system, and the time and season of its supply. For the purpose of simplifying the matter, I will calculate the whole of the Grass, roots, and part of the hay as sheep keep; then, after deducting a certain quantity of the straw that may be needed for litter and thatching, say in the first case (*a*) 100 tons, leaving 112 tons, which with the 20 tons of hay left as food for heavy stock, the 1275 tons of roots, with 70 tons of the hay, would carry 633 sheep for 28½ weeks, allowing them 23 lb. roots and 1¼ lb. of hay each daily; the 112 tons of straw, and the remaining 20 tons of hay would run to about 20 lb. of straw and 4 lb. of hay each for 63 head of cattle for 28 weeks. The 70 acres fed and the after-Grass would run to 20 lb. Grass daily each for 400 sheep for 23 weeks. (*b*) The 5-field (1050 tons of roots and 57 tons of hay giving a like quantity, viz., 23 lb. and 1¼ lb. daily), would keep about 522 sheep 28 weeks, leaving 63 tons of hay, which, with 100 tons of straw, allowing 75 tons for litter, &c., will be 28 weeks' keep for 84 beasts at 13 lb. straw and 9 lb. of hay each daily; the summer feed at 20 lb. daily, 515 sheep for 23 weeks. (*c*) The six-field, 855 tons roots as before, the roots would carry 425 sheep for 28 weeks, consuming 46½ tons of hay, leaving 38½ tons to be consumed with 100 tons of the straw, leaving 89 tons for the et ceteras. This would be 16½ lb. straw and 6½ lb. hay daily for 28 weeks for 69 beasts. The summer keep would be 23 weeks' keep for 428 sheep, at 20 lb. each daily.—The four-course would thus give us winter keep of 28½ weeks for 633 sheep, and 23 weeks in summer for 400 sheep, and winter keep for 63 beasts for 28 weeks; the five-field would give 28 weeks' winter keep for 522, and 23 weeks in summer for 512 sheep, and 28 weeks' winter keep for 84 beasts; the six-field 28 weeks' winter keep for 425 sheep, and 23 weeks summer for 428 sheep, and 28 weeks' winter keep for 69 beasts. I have taken no notice of the pastures, but will consider them as furnishing some hay, and to maintain a portion of cattle and horses under each system; nor of any intermediate crops, as Vetches, &c, in consequence of there being circumstances alike in each case. I do not mean to say my calculations are correct; at the same time I think them sufficiently so for our purpose. The great drawback to the four-course shift is the frequent repetition of the same crops, the difficulty of finding keep to maintain a heavy stock during summer, and the great disparity in the winter and summer supply; in fact, I do not consider it suitable for the light soils of this district, neither do I find it followed to any extent. Again, I do not hold with the six-field as at present practised, although the winter and summer supply is much more equal; it will not carry the quantity of stock, and the taking of two white straw crops in succession is too scourging, and not to be sanctioned unless backed by a very liberal application both on artificial feed and manure, consequently I think the five-field, which is the system (as I have before intimated) for the most part practised, cannot well be done away with.

3. *The 5-field Course of Cropping.*—I shall therefore confine my remarks more particularly to this than the others, pointing out where I think addition, alteration, or modification may be beneficially made.

First, considering the effect likely to be produced by the application of an increased quantity of artificial manure. The root crop undoubtedly of all light soils is the mainstay and foundation of the succeeding crops in the rotation—I will therefore deal with this first. The preparation of the land I need not enter on, as doubtless your experience and practice have led you to adopt that most suited to the soil. Autumn cultivation however should be carried to the utmost extent possible. The mode and extent of manuring is where I suggest an alteration. In the first place, I should reserve the farmyard manure for the seeds, growing the roots solely with artificials, applying 5 cwt. superphosphate, 2 to 3 cwt. guano, or 8 to 12 bushels of bones for Swedes, the bones being the most certain in dry seasons, costing from 3*l.* to 3*l.* 15*s.* per acre—the greatest quantity I should recommend. A somewhat smaller quantity might do for common Turnips, at the same time there is nothing like a full dressing, and I am convinced liberal manuring grows them at a cheaper rate per ton; the manure being the only extra expense. By this treatment I believe 25 tons would be the average instead of 15. Next in importance are the artificial Grasses. Here improvement may be effected; first of all, every care should be used to obtain a proper tilth when planting the seeds—a fine surface, mellow, and somewhat firm seed-bed is the best. The seeds should be good and clean, true, and of the best sorts of their kind (for these vary considerably), and to in some measure obviate the difficulty of obtaining a plant it would be well to alternate the red and white Clovers with Alsike and yellow, sowing on one-half the brake 1½ bushel of Pacey's Rye-grass, ½ bushel Cocksfoot, and 2 lbs. Timothy, with 8 lbs. of red Clover or Cowgrass and 4 lbs. white; on the other portion substituting 6 lbs. Alsike, and 7 lbs. of yellow or Hop, or a like quantity of milled Giant Sainfoin might replace the Clover. Some advise a portion of Italian, it throws up a strong braird the first year if the land is in good condition, but on some soils dies out the following winter, leaving the pastures thin and hollow-looking. Particular care should be taken not to feed out the young plant too close or late after the corn is off, much mischief being often done in this way: the middle of October is late enough, moderate feeding to this time I do not think injures them at all. In the spring following give it a dressing of ¾ cwt. each of guano and nitrate of soda, costing about 22*s.* or 23*s.* per acre, and which ought to give an extra 7 or 8 cwt. of hay per acre and more lattermath, applying the yard manure in the fall as soon as the stock had done feeding, which would greatly nourish the roots, and be the means of its throwing up a much larger quantity of keep the next summer, and consequently making the land in much better condition for the succeeding Wheat crops. If my anticipations are realised by these applications, it would give us an increase of 10 tons per acre, or some 700 tons of roots, 35 tons of hay, at an increase of 7 cwt. per acre, and 230 tons of Grass at an increase of 10 cwt. per acre of after-Grass, and 2 tons of Grass per acre the second year. The whole question is one of pay. Now I think the roots cannot be valued at less than 5*s*, the hay at 40*s.*, and the Grass at 8*s.* per ton. The increased quantity at these items would amount to 337*l.* Now, what is the expenditure? 1st, an addition of 2*l.* 15*s.* per acre for 70 acres roots, and 23*s.* per acre for 100 acres of mowing Grass, or a total of 307*l.* 10*s.* It may be asked about the expense of applying the yard manure to the second year's seeds; this I cannot allow in addition; in fact, I think it would be done cheaper than when applied to the root crop in the usual way. If these figures are anything like correct there is sufficient encouragement to adopt it, as there can be no doubt the portions under corn, being in much better condition, would give a greater yield both in corn and straw; and it is the well doing anything, whether plants or animals, that enables it to withstand any unfavourable change or vicissitudes of the weather. In my previous calculations (particularly as regards the cattle) I did not mean it to be understood they could be kept without artificial food; by growing the extra quantity of roots and green food there can be no doubt the outlay might be greatly reduced, that is per head, as a large portion of the roots might be hauled off, pulped, and mixed with chaff, and thus making equally good or better food at less expense.

4. *Artificial Food.*—There is another means of increasing and keeping up a full quantity of stock, and by some advocated in preference to the foregoing, viz., expending a large amount in artificial feed.

This, I acknowledge, may be done to a considerable extent, still I think to use concentrated food economically, bulky food is necessary, and which in the winter season we have at command, in the shape of roots and straw. But the difficulty on light land arable farms is the keeping and maintaining cattle enough during summer to convert in the winter season the straw of our cereals into good manure. Bear in mind I do not deprecate the use of artificial feed—far from it; for I think the more animal food we produce on the farm, the better prospect will there be of advantageously combining them with an increased amount of artificials; for our ruminating animals must have sufficient to in some measure appease the craving of a large stomach. Now the increased amount that would accrue by a liberal application of manure would in some measure supply this; the 230 tons of Grass, reckoning (taking our young cattle on the average) to consume 140 lbs. each daily, would furnish nearly 23 weeks' keep for 23 head. Supposing for instance the 230 tons of Grass I have before mentioned went for this purpose, allowing 1 cwt. instead of 1¼ cwt. daily, making up the deficiency with 2 lbs. of cake, we might keep 28 head rather more than 23 weeks, whilst the 700 tons of roots (which might be all spared for the yards), would run to 1 cwt. each for the 84 beasts for 28 weeks. These I am confident, pulped and mixed with chaff, would do them better than 4 lbs. cake daily, the cost in the former case being, at the price I put on the roots of 3*d.* per cwt., 1*s* 9*d.*; in the latter, at the present price of cake, 2*s.* 9*d.*, which would be a saving of 1*s.* a week, or 28*s.* each beast, or for the 84, 117*l.* 12*s.* The same difficulty, if not to the extent, appears attached to this system as to the four-field—the obtaining a plant of seeds, and I presume from a similar reason, the frequent repetition of the crops; but then this would to some extent be removed by the alternating the Clovers as I have mentioned.

5. *Alteration of Cropping.*—Now, if the expenditure I have suggested appears too extravagant, I think an alteration might be made for the best by keeping, say one-third of the seeds down a year or two longer.

This, if reducing the quantity in corn, would give the same return from the improved condition. What I have previously proposed has been an increased expenditure in carrying out the present systems rather than any alteration; if in preference to this an alteration be decided on it may be effected in various ways, but I think not to any advantage, and must be done by increasing the acreage of stock food producing crops, and lessening those of corn. For instance, you may keep down the seeds three or four years, or at any rate a portion of them, say one-third; this if allowed to remain but one year would be a great assistance, but it would not amount to little over half of the increase by manuring as in the former case. Or we might extend the course thus: 1st year Wheat; 2d, roots; 3d, corn; 4th, catch crops, portions first to Rye, winter Oats, or Barley, and Vetches, to be succeeded by Rape, while part might be Mangel and Turnips; fifth year corn; sixth and seventh seeds, allowing an equal portion for Sainfoin: this for 400 acres would be 50 acres each. There would, therefore, be three corn crops in the seven years, making 150 acres, which would exceed by 10 acres the old system. The food for stock would be much the same. Allowing half the catch crops in the fourth year as summer keep, and the other portion as root crops, my calculations would be about 1125 tons roots, 187½ tons of straw, 100 tons of hay, and 815 Grass, Rape, &c. There would, however, be a little extra outlay for a portion of the fourth year's crops; it would likewise create more labour, and I question if it would accommodate horned stock so well as the other, but it might sheep. Again, there is less hay; so on the whole would not carry more stock; therefore the only prospect of any advantage would be the probability of obtaining a better plant of Clover, as that would only come once in seven years, instead of five. If this system was adopted I doubt not it would be (in fact, should be) similarly treated with respect to a liberal application of artificial dressings as in the former instance, to be attended with any beneficial results. Whichever system is followed, my remarks are equally applicable; if the four-course there is then the greater necessity of liberal treatment. With respect to the six-field this might do if the whole of the third crop of corn was wholly consumed on the farm, in addition to a full dressing of artificial manures, and the usual importation of artificial feed; then no doubt an equal, if not greater quantity of stock might be kept.

6. *Grass Lands.*—With respect to the pasture and sheep walks, as regards the former I do say it does not get that attention it deserves.

This land is occupied by its natural plants, and is consequently the more likely to repay any reasonable outlay for manure and good treatment, and which, if judiciously applied, I believe many of them would supply food for double the quantity of stock than they now carry. A compost,

composed of refuse matter found on most farms, such as road and ditch scrapings, the accumulation of the litterings of the rick yard, weeds, and the like, with an addition of lime and salt, should be applied as far as it could be obtained, towards supplying the deficiency, with 1½ to 2 cwt. guano per acre, giving a good dressing of bones to the whole once in eight or ten years. Many of the sheep walks in their present condition, to my fancy, seem nearly worthless, and 5s. per acre would be a great rent for them. I cannot help imagining from their appearance they are occupied by other stock than the tenant's (you know the kind of stock I mean); if, however, this was done away with, and they were brought into cultivation, four times the amount of the farmer's stock might be kept on them that they now carry, besides producing a portion of corn in addition, and I am sure their value would be increased at least threefold. There are several matters equally applicable under each of the systems, as also the details, which would unnecessarily have taken up your time; so I thought it best to leave them, trusting any omissions necessarily wanting will be supplied in the discussion.

7. *Conclusion.*—From a careful consideration of the whole subject, I am led to believe the five-field course of cropping as at present followed cannot be dispensed with to advantage.

At the same time I do say it may be materially improved and modified, so as to enable us not only to increase our stock but to maintain it in better condition; and as this ought to be the aim and object of every individual occupier, in order to this he must first see that his land be kept free from everything obnoxious to the crops he cultivates, use every appliance and means to cheapen, and at the same time to thoroughly and properly prepare the soil for the crop. Choose the proper kind adapted to the soil and climate, and then see that the kind and quantity of manure is given to render it capable of yielding the largest possible quantity compatible with the outlay. Amongst other matters I have not entered into is that of growing intermediate crops of Vetches and the like between the Wheat and roots. This, I think, should be done to the extent of one-sixth or one-eighth of the Wheat land; these also should receive a dressing of manure of some kind. These crops, however, I imagine, from the lightness of the soil and other influences, cannot be taken with the advantage they can in some localities, there being more difficulty and risk in securing a full crop of roots afterwards, otherwise I should have advised their extended use.

Before concluding, there is one other matter or two I wish to mention. In the first place, I have not been advocating this liberal outlay for the increasing and maintaining that kind of stock usually claimed, tended, and watched over with such jealous care by the landlord, I mean game, and those vermin rabbits; for I do say, where such abound, that every effort of the most energetic, enterprising, and persevering man possible must fail to cope with them, or obtain a return for his outlay. Again, no tenant subject to a 6 months' notice to quit would be justified in thus liberally expending his capital, therefore, previous to doing so he should first either obtain a lease or an agreement granting reimbursement for any outlay he may have incurred, and from which at the expiration of his tenancy he has not derived an adequate return. I fear my remarks have been tedious, and I also feel an apology is necessary, and tender it for venturing to thus appear before those whose experience and practice must be superior to my own. The subject I consider one of growing importance, and there are many points connected therewith I have scarcely touched on—in fact, to thoroughly sift the matter could hardly be done in one evening. I trust, however, a discussion may ensue that will make up for my deficiency, and thus cause no regret on the part of the committee for having entrusted so important a subject to the hands of so humble an individual.

Reviews.

The Journal of Agriculture, and Transactions of the Highland and Agricultural Society of Scotland. No. 88. W. Blackwood & Sons.

We refer to the present interesting Number of this Journal for the purpose of extracting a passage from Dr. Anderson's report on the Edinburgh sewage water and sewaged soil, of which we were not aware the other week when writing on the Craigentinny meadows. The quantity of ammonia present in the sample of Edinburgh sewage examined amounted to 8¾ grains per gallon, which is above the average of samples at Rugby. The analysis of the soil is given in the following passage:—

"The soil irrigated is of two kinds: 1st, that in the neighbourhood of Lochend, which is a loamy soil, capable of producing in its natural state excellent crops of all kinds; and 2d, of a perfectly barren sand. The first of these has been longest irrigated, a part of it having been under sewerage for nearly 200 years, and all of it for at least half a century. The inferior soil lies on the low ground towards the sea, and 30 or 40 years since was a barren tract, covered with scanty herbage, full of sand holes, and known by the name of the Figgate Whins.

"The two soils are very different to the eye. That from Lochend is a fine black loam, perfectly uniform in its texture, and obviously containing a large quantity of organic matter. The other is a nearly pure sand, on the surface of which is a thin layer of black soil, containing a considerable quantity of organic matters surrounding the roots of the Grass. The samples for analysis were obtained by digging a hole 10 inches deep, and cutting a slice 2 or 3 inches thick from the side, and mixing the whole carefully together. The samples were dried at 212°, and contained:

		Lochend.	Figgate Whins.
	Organic matter	19.28	5.64
Soluble in acids.	Protoxide of iron	5.22	1.41
	Alumina	1.38	0.51
	Lime	0.62	0.53
	Magnesia	0.26	0.13
	Potash	0.29 }	0.12
	Soda	0.49 }	
	Chlorine	trace	trace
	Phosphoric acid	0.57	0.22
	Sulphuric acid	0.37	0.05
	Carbonic acid	1.03	
	Soluble silica	0.63	0.07
Insoluble in acids.	Peroxide of iron and alumina	4.58	
	Silica	66.28	91.53
		100.00	100.02
	Nitrogen, equal ammonia	0.02	0.26

"These results are peculiarly interesting from the light they throw on the differences between the two soils. It is evident, in fact, that the Lochend soil has been greatly changed in its composition by the action of the sewage, and the quantity of organic matter, and of all the valuable plant food, materially increased. We have not, of course, the means of contrasting by actual analysis the exact composition of the soil before it was irrigated with that it now possesses; but it may be safely asserted, from the known composition of analogous soils, that it would not have contained more than a fourth, certainly not above a third—of the organic matter, ammonia, and phosphoric acid now present in it. There has been produced, therefore, a very marked increase in the quality of the soil, which could only have been brought about by many years' irrigation. The other soil has been much less affected, and may be considered as being still, to all intents and purposes, a sand, which can only be maintained in its present state by the constant addition of valuable matters; and there can be no doubt that if it were left to itself for some years it would revert to its original sterility. It is worthy of notice that though it is usually supposed that the quality of the soil to be irrigated by sewage is a matter of little moment, provided it be sufficiently open in its texture to permit the free passage of the fluid, the experience of Craigentinny does not support this view, for the naturally good soil brings in its irrigated state about 8*l.* per imperial acre more than the inferior sand. Part of this difference may be due to the fact that the Figgate Whins land, being farther from the sewers, gets only the worst part of the sewage, but this cannot explain it entirely."

On the last quoted sentences we would ask whether the higher price obtained for the best plots is owing to their being more productive through the summer, or to the mere fact that the produce is earlier, and that spring keep in the first weeks of it is especially desirable and valuable.

We may name as among the subjects occupying Dr. Anderson's pen in the present Number of the Transactions, the account given by him of experiments on the fertilising effects of uric acid as a manure. This, it will be remembered, is altogether ignored by Liebig in his recent extraordinary estimate of the agricultural value of guano, although acknowledged by him in his equally extraordinary estimate of the agricultural value of sewage water. It is satisfactory to learn from these experiments that he was wrong in the former and right in the latter instance. The following are the conclusions to which Dr. Anderson arrives:—

"From these experiments it appears that the guano-ash—that is, the mineral matters of the guano when applied alone to the Wheat crop—are entirely without effect, the produce where it is used being identical with that of the Nothing plots. In every case, however, the nitrogenous manure has produced a very marked increase in the crop, and little difference exists in the action of the guano, the uric acid, and the sulphate of ammonia. In Section 1st, the guano has produced the best result; then follow the guano-ash and sulphate of ammonia; while the guano-ash and uric acid stand third, but the difference is very small, and less than 5 per cent. of the crop between the two extremes. In Section 2d, the guano-ash and uric acid stand first, then the guano-ash and sulphate of ammonia, while the guano itself is third.

"The conclusion to which these results therefore lead is, that there is no difference whatever between the manurial effect of nitrogen in the three different forms in which it has been used in the experiments."

Calendar of Operations.

April.—*Potato Planting.*—The last week in March or early in April is as good a time as you can choose. If cultivated and manured in autumn, the planting of the sets alone is needed now. Perhaps the best plan would be in that case simply to plough the land over, and plant the sets a foot apart in every third furrow. When the land has been thoroughly tilled and manured before winter, and left in ridgelets 26 inches wide, the intervals in these ridgelets may now be horse-hoed, and the sets planted and covered by splitting the ridges with the plough. When the cultivation has been done since winter, you must open up the land as just described in drills about 26 inches wide with the double mould-board plough, spread the dung in them, plant the sets on it, and cover up all by splitting these drills again. If Potatos follow a manured green crop, then two cwt. of guano may be sown broadcast over all per acre before covering up the sets—no other manure being used.

Even, however, where farm manure is used abundantly, guano will sometimes prove a profitable addition.

In the choice of a Potato there is now ample scope. It may suffice to name the various round white Potatos called Regents, of which probably by much the largest acreage in Potatos now consists—the Fluke, a large flat kidney recently introduced, and acquiring rapid popularity—the Axbridge Kidney Potato, of excellent quality, and retaining its quality till late in the year—Stratton's Kidney, a prolific and early kind—Soden's Early Oxford, &c. It is necessary that having chosen your kind, in which you will be guided by the experience of your neighbours if your own is not sufficient, and by the prevalent choice in the market, that you should put them into the ground as soon as possible after the middle of March, planting middle sized whole Potatos as sets, which should have been dried and greened the previous autumn in the sun, kept in pits during winter, moved as soon as the severity of the weather was over, and kept (safe from frost) on floors, not more than two thick if possible, and moved, if necessary, so as to hinder any sprouting or any breaking of the sprout until they are planted. In sorting sets for planting, it is well rather to choose the larger of the middle size than the smaller, and great crops have been raised when the distance between large sets in well-tilled land has been as much as one two feet from set to set in the row.

Manures.—On this subject we condense a paper by Mr. Lawes, published some years ago:—

Manure for Wheat.—On the heavier descriptions of land two to three cwt. per acre of Peruvian guano is the best manure for this crop. It should be sown broadcast before the seed, and harrowed in. It is sometimes mixed with twice its weight of common salt, by which, as well as by ashes or other matters, a more equal distribution through the soil is attained. On lighter soils the best farm dung is the best manure for the Wheat crop.

Manure for Barley and Oats.—When either of these crops follows a root crop which has been partially or wholly removed from the land, a mixture of equal parts Peruvian guano, or nitrate of soda, or sulphate of ammonia, with superphosphate of lime, may be used with advantage. About one cwt. of the guano, nitrate or sulphate, and one cwt. of superphosphate of lime will generally be sufficient for an acre. The manure should be sown before the seed, as recommended for Wheat. When one corn crop follows another, as Oats after Wheat, about twice as much of the artificial mixture should be used as under ordinary circumstances. When corn crops require to be top-dressed late in the spring, nitrate of soda is the best manure to employ; one to one and a-half cwt. per acre being used.

Manure for Meadow Hay.—To Grass land mown for hay, from 8 to 10 tons of rotten dung should be applied once in about every four or five years in the month of November. The artificial manures most suitable for Grass land are Peruvian guano, salts of ammonia, and nitrate of soda. When either of these manures is used alone, the following quantities may be applied:—

Peruvian guano ..	..	..	2 to 2½ cwt. per acre
Salts of ammonia	..	..	1 „ 1½ „
Nitrate of soda ..	..	..	1 „ 1½ „

One cwt. of nitrate of soda, mixed with one cwt. of superphosphate of lime, is also a very good manure; or, a mixture of equal parts of Peruvian guano, ammonia salts, nitrate of soda, and superphosphate of lime, applied at the rate of two cwt. per acre, is perhaps the most generally useful.

The best time to apply the artificial manures is from the end of January to the middle of February; if the application is delayed much later than this, nitrate of soda is the best manure to employ.

Manure for Mangel Wurzel.—The best dung at command should be employed; 10, 15, or even 20 tons per acre being spread after the land is drawn in ridges and previous to their being split; and two to three cwt. of Peruvian guano, mixed with twice its weight of common salt, should be strained by hand on the top of the dung.

Manure for Potatos.—It is the general practice to dung heavily for Potatos. Although the crop might not be so large, it is probable that if Potatos were taken after some other crop well dunged, instead of the dung being applied directly for their growth, they would be less liable to disease. Supposing this plan adopted, three to four cwt. per acre of an equal mixture of Peruvian guano and superphosphate of lime should be used for the Potatos.

Manure for Turnips.—When Swedes, or common Turnips, follow a corn crop which had been manured by farmyard dung, the roots may be grown by artificial manures alone. From two and a-half to three cwt. of superphosphate of lime should be drilled with the seed; and in the case of Swedes (except when sown late, or if the land be considered in good condition) from two to three cwt. of Peruvian guano may be used in addition. If the preceding crop has not been manured by dung, seven to ten tons per acre should be applied, two and a-half cwt. of superphosphate of lime being drilled with the seed; and if the dung used be poor, two cwt. of Peruvian guano may be strained over it in the drills. Or, where no manure drill is employed, the superphosphate of lime may be sown broad-cast after the dung is spread, either alone or mixed with guano, as the case may require. These manures do not react injuriously upon each other when mixed together; but the guano is liable to be injurious to the young Turnip plant if brought in close contact with it. Hence, when guano and superphosphate of lime are mixed together, and sown by the drill, two or three inches of soil should intervene between the manure and the seed.

Notices to Correspondents.

Cottages and Gardens: *Landowner.* Whether a good cottage can or can not be built for a rent which the labourer can pay, it is a very rare case indeed that the addition of land such as is let with it, will not command a rent which shall pay for both. A good cottage with half an acre of good land, as a

garden close by, will easily command a rent of 6*l.* or 7*l.* a-year. Such land will command—it generally does command—double its agricultural rent, and in this lies the margin off which the landlord who borrows money of the Land Improvement Society for the erection of cottages, can write the extra rent (for mere house room) which is to repay the loan, and which lies beyond the means of agricultural wages.

Felt Roofing: *Builder.* We presume you have failed in consequence of not observing the following:—"All roofs covered with the felt must get a good coating of gas, or, what is the same thing, coal-tar; or, if more convenient, Stockholm tar, and dry fine pounded chalk, whiting, or lime—the latter being well slaked by exposure to the air—in the proportion of 2½ buckets of tar to one of chalk, whiting, or lime, well boiled together, kept constantly stirred while boiling, and put on hot, with a common tar mop or brush; at the same time, some coarse sharp sand should be sifted over it. In cold weather a less proportion of chalk will be found necessary. The process of coating should be commenced at the ridge of the roof, spreading it rapidly, working it well into the crevices, taking care not to go back over the work more than is necessary, yet to coat it effectually, the workman finishing as he goes on, and to every potful scattering with a brush dry sharp sifted sand before commencing another. The smell from the tar goes off in a few days. It is absolutely necessary that the day should be dry, and the felt perfectly so, before the coating is put on." If the felt be painted, "it requires a first preparation, which can be either a slight coat of lime whitening, or a coat of clearcole, which is a mixture of parchment-size and whiting; a slight coat only is necessary—the former for out-door and the latter for in-door work. Your first coat of paint should be principally of red lead, boiled oil, and plenty of dryers, after which the paint will be found to take and dry effectively; but we would note that for out-door work, the coating of tar, slaked lime, and sand, will be found the most economical and effective."

Fencing: *C F P.* Sixty acres are 29,040 yards, rather more than 170 yards square. If the piece be square, then you will need about 680 yards of fencing. If it be round, less will be needed, but it is plain that any quantity *may* be needed according to the irregularity of the outline within which your area lies.

Grass Land: *J Kelly.* You will get more immediate effect from a dressing of guano and salt than from one of lime and salt. Put on lime in the autumn, 60 or 70 bushels per acre, in an earthen compost.

Land Drainage: *Cor.* Land may be well drained though it dries patchy in spring; this may be owing to a variability in the composition of the soil, or to the former existence of occasional peat deposits in the field from stagnant water; it may be well drained, though after heavy rains you find at the lower ends of the furrows the sands and silt washed down and deposited, evidencing a flow of water over the surface; this will often occur after showers on land which is thoroughly dry, either naturally or artificially; it may be drained sufficiently, though water should stand 12 hours after rain in the footmarks of horses; in ordinary clay soils, the least puddling or breaking of the surface will cause the retention of water on the surface, even at the very edge of a ditch; and land may be sufficiently drained though even 12 months after the completion of the operation rushes and sedges be found in the grass: their destruction by drainage is a work of years, not of months. But it cannot be considered sufficiently drained if a hole four feet deep near drains four feet deep retain the water for many days after rain.

Losses by Death: *Average.* Burger, a German writer on the statistics of agriculture, has the following table:—

	Horses.	Kine.	Sheep.	Swine.
From birth till weaning	5	3	10	12
— weaning till 1 year old	4	2	8	6
— 1 to 2 years	3	2	7	3
— 2 to 3 years, ...	3	1·5	5	3
During time of use	5	2	5	4

Manure: *Young Farmer.* A mixture of "phosphate of lime, carbonate of potash, nitrate of soda, and lime" would no doubt be useful on most soils. We should prefer nitrate of soda and common salt for corn crops, and the phosphate of lime in the form of commercial superphosphate for root crops. Guano and common salt would be a useful application to Grass lands, half and half, and 3 or 4 cwt. per acre in all.

Manure for Grass Lands: *A. B.* The following indicates the result of Mr. Lawes' experiments. It represents the percentage composition of a pasture in stem, leaf, &c., respectively, in four separate plots in Mr. Lawes' park, of which No. 1 had had nothing done to it, and No. 4 had received occasional dressings of farm manure, while No. 2 received annually a dressing of sulphate of ammonia and nitrate of soda, and No. 3 received dressings of various mineral salts, superphosphates, &c.:—

Percentage of	1	2	3	4
Grassy stem	50	36	42	70
Grassy leaf	26	53	20	18
Leguminous herbage	5	2	23	4
Weedy herbage	16	6	2	7
Shedded seeds, &c.	3	3	3	1
	100	100	100	100
Total produce per acre in lbs...	2691	3928	3726	4507

Nos. 1 and 4 represent the natural composition of the pasture under bad and good ordinary management respectively. In No. 3 leguminous plants were increased from 4 or 5 to 23 per cent. by mineral manure; weeds were reduced from 16 or 17 to 2 per cent.; grassy leaf in No. 2 was increased from 18 or 20 to 53 per cent. by ammoniacal manure. Last line of the table is added to show the influence of these manures on the quantity of the produce. The figures give the weight in lbs. per acre of the average crop during three years.

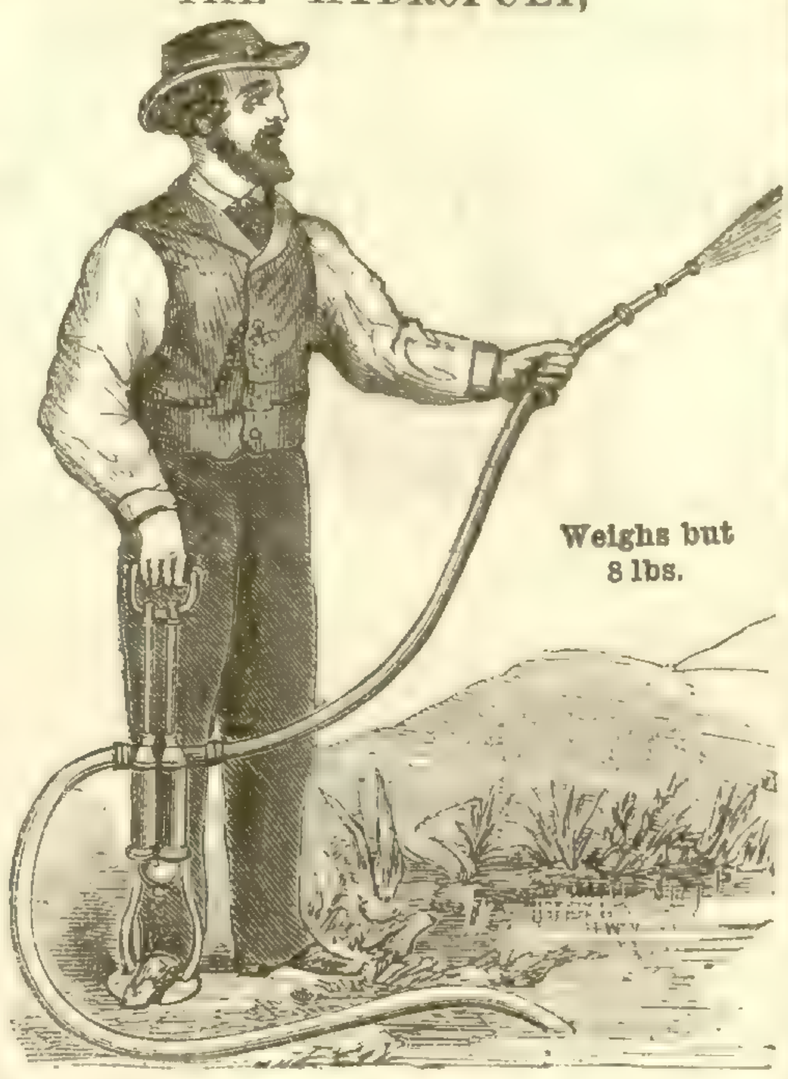
Milk: *Young Hand.* There is a considerable risk in sending milk a long distance by rail in summer. They do send it from Swindon to London—70 miles—and no precautions are taken. A little carbonate of soda added would save it sometimes. Be careful as to the details of your contract.

Oil-cake and Green Food: *X.* In our experience of oil-cake as food for sheep, the addition of 1 lb. diminished the consumption of Swedes from 6 to 8 lbs.; it is probable that 4 to 6 lbs. given daily to a cow would diminish the quantity of the other food given to it to three-quarters its former amount; at the same time enriching the milk afforded.

Railways: *Subscriber.* Grant's Portable Railway, exhibited at Worcester and largely advertised in this Journal, is very efficient for the removal of heavy material as stones, earth, roots, dung, &c., but not for the removal of comparatively light material, as straw, corn crops, &c.

Reasons for the Agricultural Benevolent Association: *J. L.* They are well given by Mr. Disraeli:—"A breaking bank, a bad debt, a foolish friend, might be the fate of all; but it is not all who have to meet the barren harvest, the destructive storm, or to encounter the mildew, the murrain, and the rot."

THE HYDROPULT,



An Invention for Throwing Water by Hand Power.

(Secured by Royal Letters Patent).

PRICE LIST.

	£	s	d.
Complete with Brass Cylinders and Japanned Stirrup	1	12	6
Complete with Brass Cylinders and Copper Stirrup	2	2	0

The Price "Complete" as above, includes 2½ feet Suction and 3 feet Delivery Hose, Galvanised Wire Strainer, Rose and Small Jet.

THE HYDROPULT
is invaluable for use in the
GARDEN for
WATERING BEDS,
SPRINKLING PLANTS,
DROWNING OUT INSECTS,
CLEANSING TREES FROM SMUTS,
DRESSING WITH LIQUID MANURE,
&c. &c.

THE HYDROPULT
is desirable in every
HOUSEHOLD for
WASHING WINDOWS,
WETTING SIDEWALKS,
SPRINKLING STREETS,
WASHING CARRIAGES,
EMPTYING CISTERNS,
FILLING BARRELS,
A SPRAY BATH,
&c. &c.

ORDERED by the WAR DEPARTMENT as FIRE ENGINES.

Robert Hogg, LL.D. and F.L.S., Rev. H. H. Dombrain, A.B., Shirley Hibberd, Esq., F.R.H.S., Thomas Rivers, Esq. (the eminent Florist), and other well-known gentlemen, recommend the Hydropult as an invaluable Garden Implement.

The Hydropult will draw water horizontally, if necessary, through Two Hundred Feet Suction Hose, and force it through Delivery Hose to an altitude of One Hundred Feet.

THE
GREENHOUSE AND CONSERVATORY HYDROPULT.
A NEW AND BEAUTIFUL IMPLEMENT,
Weighing scarcely 5 lbs.
AND SPECIALLY ADAPTED FOR USE IN THE GREENHOUSE AND CONSERVATORY.
Price 35s.,
Complete, with Brass Cylinders and Copper Stirrup, 2½ feet Suction and 3 feet Delivery Hose, Strainer, Rose, Jet, and Fan.

This NEW IMPLEMENT must necessarily supersede Syringes and other devices of the kind, for it will be found much more effective in its operation.

A LADY CAN WORK IT FOR HOURS WITHOUT FATIGUE.

CAUTION.

Important to the Public.—The extensive sale of the Hydropult has excited the cupidity of so-called respectable, but in reality unprincipled Manufacturers, who are now palming on the Public worthless imitations of the Hydropult, and through their connections are enabled to place said devices on exhibition, and for sale, in many of the principal Ironmongery and Seed Establishments throughout the city and provinces. These devices resemble in many respects the Hydropult in appearance, and are calculated to deceive the unsuspecting. The Proprietor therefore issues this Caution, and respectfully intimates that parties wishing to purchase the Hydropult should examine the machine offered for sale, and see if it has attached thereto a label, with the following words:—"The Hydropult, Vose's Patent, manufactured only by Griffiths & Browitt, Birmingham. Charles Pomeroy Button, Proprietor, 142 and 143, Cheapside, London." Unless this label is attached, the Machine is not the Hydropult.

Prospectuses, with Testimonials, on application.

HYDROPULT SHOW ROOM, 142 & 143, CHEAPSIDE, LONDON.
CHARLES POMEROY BUTTON, Proprietor.

A Boon to the World.

PRINCE of WALES' KIDNEY POTATO.—A new Seedling, remarkably handsome, fine eating, and the most prolific in the world. Testimonials:—

From Professor Lindley (Editor of the *Gardeners' Chronicle*).

"I have this morning had the Seedling Potatos examined. The crop is very extraordinary, and the Potatos themselves are very handsome, and quite ripe."

From Shirley Hibberd, Esq. (Editor of the *Gardeners' Weekly Magazine*).

"The Seedling Potato (Prince of Wales), I have found to be wonderfully productive, excellent flavour, handsome, and such a one as the world ought to have the benefit of."

To be had of Mr. James Veitch, Royal Exotic Nursery, King's Road, Chelsea, S.W.; Messrs. Barr & Sugden, King Street, Covent Garden, W.C.; Downie, Laird & Co., Forest Hill, S.E.; James Carter & Co., 237, High Holborn, W.C; Sutton & Sons, Reading.

Price 12s. per bushel.

N.B. They may be planted up to the end of May.

CHOICE SEEDS.

PEA, DILLISTONE'S EARLY PROLIFIC, the earliest kind known, 1s. per quart
" ADVANCER (McLean's), 1s. 6d. per quart
" PRINCESS ROYAL (McLean's), 1s. 6d. per quart
" YORKSHIRE HERO (Dixon's), 5s. per quart
" PAYNE'S CONQUEROR, 1s. per quart
BEET, NUTTING'S SUPERB RED, 8d. per oz.
" PINE-APPLE SHORT TOP, 8d. per oz.
BROCCOLI, SNOW'S WINTER WHITE, True, 1s. per packet.
" WHITE CORNISH, 6d. per packet
" DALMENY, 1s. per packet
CABBAGE, LITTLE PIXIE, 6d. per packet
" KEMP'S INCOMPARABLE, 6d. per packet
" McEWEN'S MARROW, 6d. per packet
CAULIFLOWER, FROGMORE PROTECTING, 1s. per packet
" EARLY DWARF ERFURT, 1s. per packet
CELERY, WHITE QUEEN, 1s. per packet.
" MANCHESTER CHAMPION RED, 6d. per packet.
" IVERY'S NONSUCH, 6d. per packet.
CUCUMBER, SMITH'S FINE LONG FRAME, 1s. per packet.
" PEARSON'S LONG GUN, 1s. per packet.
" HARWOOD'S WHITE SPINE, 1s. per packet
LETTUCE, TOM THUMB (Wheeler's), 1s. per packet
" IVERY'S NONSUCH, 1s. per packet
" PARIS WHITE COS, 6d. per packet
" NEAPOLITAN, 6d. per packet
MELON, EMPRESS EUGENIE, 1s. per packet
PARSNIP, THE STUDENT, 6d. per packet
TURNIP, CHIRK CASTLE BLACK STONE, 4d. per oz.
" AMERICAN STRAP-LEAVED, 4d. per oz.
POTATO, RIVERS' ROYAL ASHLEAF, per peck, 3s.
ASTER, TRUFFAUT'S SUPERB FRENCH, 18 varieties, mixed, 1s. per packet
STOCK improved large flowering, 18 varieties, mixed, 1s. per packet

Orders of 21s. and upwards carriage free. Those kinds priced per packet free by post.

DESCRIPTIVE PRICED LIST on application.
Richard Smith, Seed Merchant, Worcester.

CARTER'S GARDENER'S VADE-MECUM is now ready.

Manures and Feeding Stuffs.

RAYNBIRD, CALDECOTT, AND BAWTREE.
Address, 89, Seed Market, Mark Lane; or Basingstoke.
Samples and prices on application.

Great Bargains in Manures.

MR. POTTER, in RETIRING from BUSINESS, offers the above at from 30 to 40 per cent. under usual prices.
Address 2, Bernard Villas, Upper Norwood, S.

GOULDING'S HORTICULTURAL MANURE,
Manufactured by
W. & H. M. Goulding, Manure Manufacturers,
108, Patrick Street, Cork; 22, Westmoreland Street, Dublin.
One Shilling per Box.
The use of it ensures the finest and best developed Flowers, Bulbs, Roots, &c.
Agents, Wholesale and Retail:
Messrs. James Carter & Co., Seed Merchants, 237, High Holborn.
" Butler & McCulloch, Covent Garden.

LAWES'S MANURES.—The Manures manufactured by J. B. Lawes for the present Season of 1865 are now ready for delivery at his Factories, at the following prices:—
LAWES'S PATENT TURNIP MANURE, and BONE SUPERPHOSPHATE of LIME, £6 6s. per ton.
LAWES'S SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES, £5 5s. per ton.
LAWES'S WHEAT, BARLEY, GRASS, and MANGEL MANURES, £8 per ton.
CONCENTRATED CORN and GRASS MANURE, £12 per ton.
These Manures can be obtained of Mr. Lawes, or through his appointed Agents, in all parts of the United Kingdom, at prices varying according to cost of carriage.
Genuine PERUVIAN GUANO direct from the Importers.
NITRATE of SODA, SULPHATE of AMMONIA, and other Chemical Manures. AMERICAN and other CAKES at market prices.
Address John Bennet Lawes, 1, Adelaide Place, London Bridge, E.C.; and 22, Eden Quay, Dublin.

ODAMS'S BLOOD MANURE for CORN,
ODAMS'S BLOOD MANURE for ROOTS,
ODAMS'S SUPERPHOSPHATE of LIME.
Manufactured by
THE PATENT NITRO-PHOSPHATE or BLOOD MANURE COMPANY (Limited),
Consisting of Tenant Farmers occupying upwards of 30,000 Acres of Land.
Chairman.—John Clayden, Littlebury, Essex.
Managing Director.—James Odams.
Particulars of these standard Manures may be obtained at the Offices, or of the Local Agents.
C. T. Macadam, Secretary.
Chief Office: 109, Fenchurch Street, London, E.C.
Western Counties Branch: Queen Street, Exeter.
Manufactories: Plaistow, Essex; and Elford, near Topsham, Devonshire.

THE LONDON MANURE COMPANY
have now ready in fine condition—
DISSOLVED BONES,
SUPERPHOSPHATES of LIME,
TURNIP MANURE,
BLOOD MANURE for Barley and Roots,
URATE,
MANGEL MANURE, &c. &c.
They also continue to supply GIBBS' PERUVIAN GUANO NITRATE of SODA, SULPHATE of AMMONIA, FISHERY SALT, and all Fertilisers of known value.
Works, Plough Wharf, Isle of Dogs.
Offices, 116, Fenchurch Street, E.C. E. Purser, Secretary.

Established 1812.

PROCTOR AND RYLAND, in calling attention to their Special PREPARED BONE MANURES, have much pleasure in stating that they will be found of very superior quality, and the most economical offered to the Agriculturist:—
TURNIP, MANGEL, and POTATO MANURES have produced results of the most satisfactory and remunerative character on every description of tillage land.
WHEAT, OAT, and BARLEY MANURES strengthen the straw, increase the quantity, and improve the quality of the grain in a very marked degree.
BONE SUPERPHOSPHATE of LIME has been proved to be the most economical source of Phosphates for the growth of luxuriant root and corn crops.
GRASS MANURES, for mowing or grazing land, are very effective in improving the herbage. The preparation of Grass Manures is regulated according as they may be required to be more or less permanent in their character.
Offices: Corn Exchange Buildings, Carr's Lane, Birmingham.
Manufactories: Birmingham, Warwick, Bristol, and Chester.

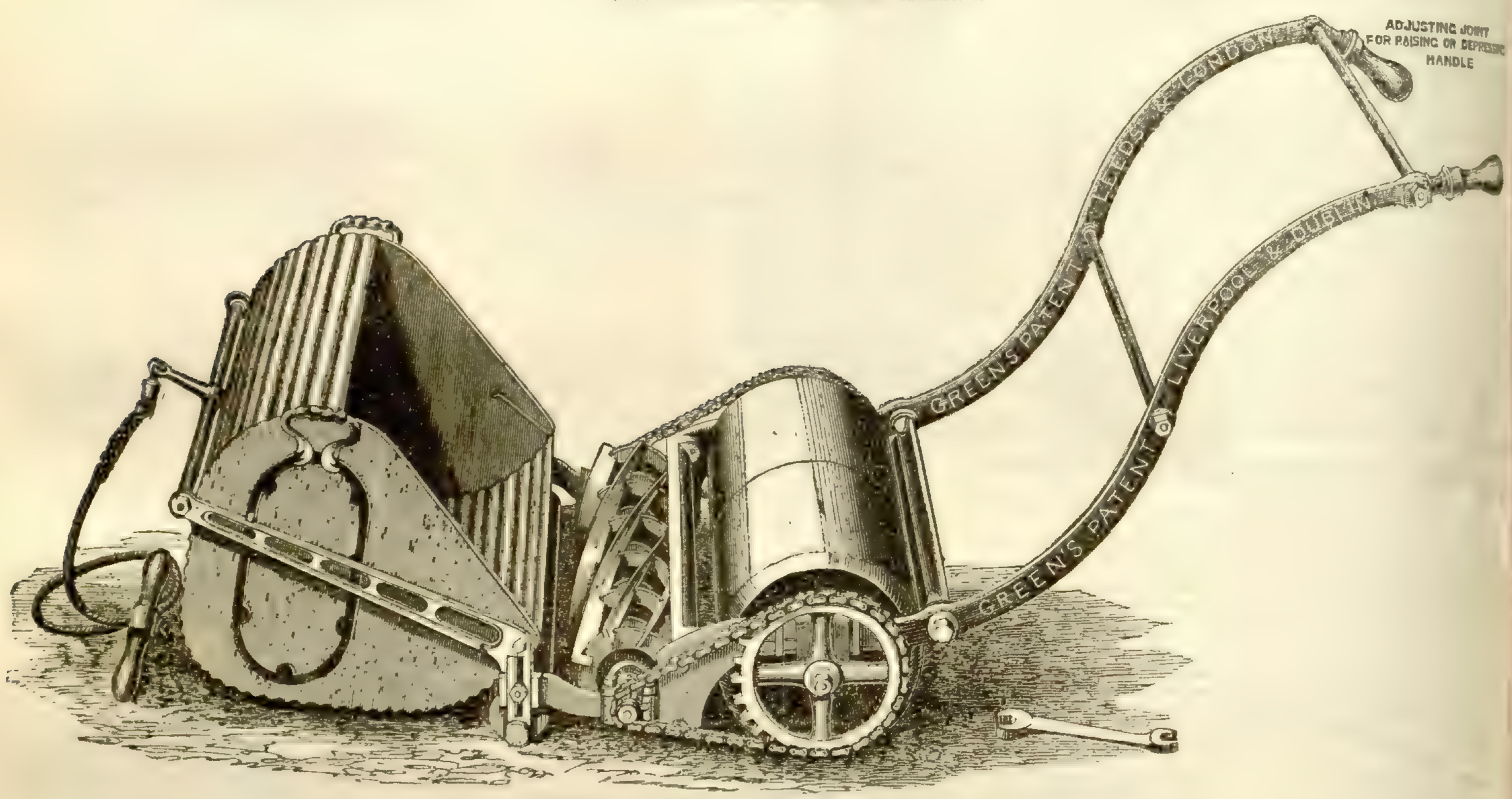
GREEN'S PATENT SILENS MESSOR,

OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES,

BY SPECIAL APPOINTMENT,
SOLE MANUFACTURER

TO HER MOST GRACIOUS MAJESTY
THE QUEEN.



IMPROVED PATENT LAWN MOWER FOR 1865,

AS RECOMMENDED BY THE JUDGES OF THE ROYAL HORTICULTURAL SOCIETY'S SHOW HELD JULY 20, 1864.

GREEN'S PATENT LAWN MOWERS have proved to be the best, and carried off every Prize that has been given in all cases of competition. The Judges at the Royal Horticultural Society's Show, held July 20, 1864, awarded them a First-class Certificate (no Prizes were given), and, at the same time, suggested a slight alteration which has been done, and Messrs. T. G. & Son consider their MACHINES now as near perfect as possible.

Messrs. T. G. & Son beg to state that, owing to the great demand for their MACHINES in past years, they have been unable to execute orders with that despatch due to their numerous customers, but are now happy to inform them, that they have made such alterations and arrangements in their premises, whereby they trust to be in a position to send off all orders the day they are received.

PRICES OF HAND MACHINES.

To cut 10 inches	£3 10 0	*Suitable for a Lady.*	To cut 18 inches	£7 10 0	*Suitable for One Person.*
" 12 "	4 10 0	" "	" 20 "	8 0 0	*Suitable for Two Persons.*
" 14 "	5 10 0	*Suitable for One Person.*	" 22 "	8 10 0	" "
" 16 "	6 10 0	" "	" 24 "	9 0 0	" "

Packing Cases are charged at the following low rates, viz.: for the 10 and 12 inches Machine, 3*s.*; 14 and 16 inches, 4*s.*; 18 and 20 inches, 5*s.*; 22 and 24 inches, 6*s.* Parties providing themselves with Lawn Mowers are recommended to purchase the Cases in which to stow them away, when not in use, to prevent them from getting damaged; if returned, two-thirds will be allowed for them.

PRICES of HORSE, PONY, and DONKEY MACHINES, including Patent Self-delivery Box; Cross Stay complete; suitable for attaching to ordinary Chain Traces or Gig Harness.

To cut 26 inches	£13 0 0	*Leather Boots for Donkey,* 18*s.*	To cut 30 inches	£21 0 0	*Leather Boots for Pony,* 22*s.*
" 28 "	15 0 0		" 36 "	24 0 0	
" 30 "	17 0 0		" 42 "	27 0 0	*Leather Boots for Horse,* 26*s.*
			" 48 "	30 0 0	

The 26, 28, and 30 inches can easily be worked by a Donkey, or by Two Men, on an even Lawn, the 30 and 36 inches by a Pony, and 42 and 48 inches by a Carriage Horse; and, as the MACHINES make no noise in working, the most spirited animal can be employed without fear of its running away, or in any way damaging the MACHINE.

Both the HORSE, PONY, DONKEY, and HAND MACHINES possess (over all other Makers) the advantage of self-sharpening: the cutters being steel on each side, when they become dull or blunt by running one way round the cylinder, can be reversed again and again, bringing the opposite edge of the cutter against the bottom blade, when the MACHINE will cut equal to new. Arrangements are made that the cylinder can be reversed by any inexperienced person, in two or three minutes.

The above MACHINES are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England; are warranted to give satisfaction, and, if not approved of, can be at once returned unconditionally.

THOMAS GREEN AND SON,

SMITHFIELD IRON WORKS, LEEDS; 2, FARRINGDON ROAD, HOLBORN HILL, LONDON, E.C.;
19, EDEN QUAY, DUBLIN; and HADWIN'S BUILDINGS, TITHEBARN STREET, LIVERPOOL.

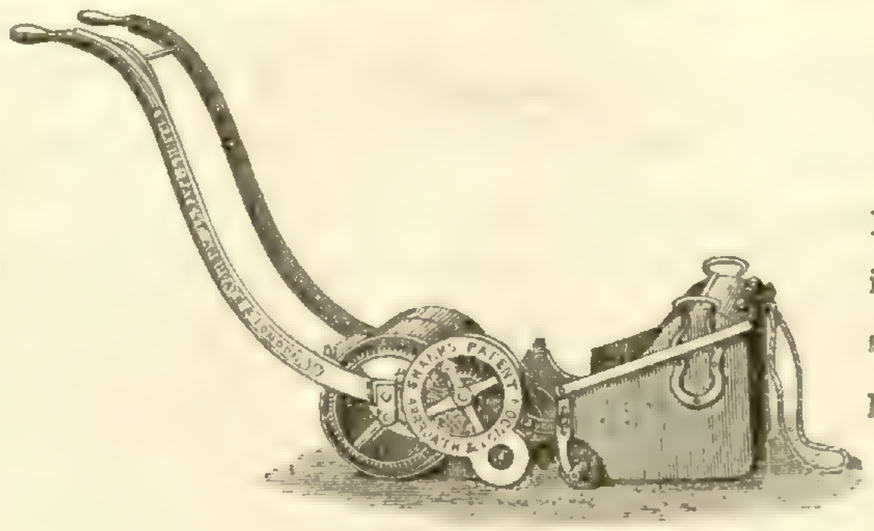
SHANKS' NEW IMPROVED PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1865.

PATRONIZED ON FIVE SEPARATE OCCASIONS DURING THE SEASON OF 1864 BY

HER MAJESTY THE QUEEN.

Alexander Shanks & Son are gratified to find that in the large and increasing demand for their celebrated MACHINES, they receive a conclusive proof that their merits are every season becoming more appreciated by the Practical Gardener.



HAND MACHINE.

A. S. & Son, in introducing Improvements into their MACHINES, have been careful that the advantages in point of durability, simplicity of construction, and superiority in the work executed, which have all along been peculiar to SHANKS' MACHINES, should still remain.

SHANKS' PATENT LAWN MOWERS are in daily use in the ROYAL GARDENS at KEW, WINDSOR, BUCKINGHAM PALACE, HAMPTON COURT, OSBORNE, and BALMORAL; in the GARDENS of the ROYAL HORTICULTURAL SOCIETY at KENSINGTON; in the GROUNDS of the CRYSTAL PALACE COMPANY at SYDENHAM; in VICTORIA PARK; in BATTERSEA PARK; and in many hundreds of the principal Gardens in the Kingdom, as well as abroad, where their merits have been fully proved and their success established.

PRICES—including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom.

SHANKS' NEW PATENT HAND MACHINE for 1865.

Width of Cutter.		
10-inch Machine	£3 10 0	*Easily Worked by a Lady.*
12-inch Machine	4 10 0	
14-inch Machine	5 10 0	*Ditto by a Boy.*
16-inch Machine	6 12 6	*Ditto by a Man.*

SHANKS' NEW PATENT HAND MACHINE for 1865.

Width of Cutter.		
19-inch Machine	£7 12 6	*Easily Worked by a Man and Boy*
22-inch Machine	8 7 6	*Ditto by Two Men.*
24-inch Machine	8 17 6	

Silent Movement for the five smallest sizes, 4*s.* extra; for the other sizes, 7*s.* 6*d.* extra.

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
25-inch Machine	£12 10 0	25*s.* extra.
28-inch Machine	14 10 0	30*s.* ,,
30-inch Machine	15 15 0	30*s.* ,,

Silent Movement, 12*s.* 6*d.* extra; Boots for Pony, 21*s.* per set; Ditto for Donkey, 16*s.* per set.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus
30-inch Machine	£19 0 0	30*s.* extra.
36-inch Machine	22 0 0	30*s.* ,,
42-inch Machine	26 0 0	40*s.* ,,
48-inch Machine	28 0 0	40*s.* ,,

Silent Movement, 20*s.* extra; Boots for Horse's Feet, 24*s.* per set.

A. S. & Son have pleasure in submitting the following List from among the hundreds of distinguished individuals, both in this country and abroad, whose patronage they have had the honour to receive:—

HER MOST GRACIOUS MAJESTY THE QUEEN,

For the Royal Gardens at Kew, Windsor, Buckingham Palace, Hampton Court, Osborne, and Balmoral.

HIS MAJESTY THE EMPEROR OF THE FRENCH
HIS MAJESTY THE KING OF SAXONY
HIS ROYAL HIGHNESS THE PRINCE OF PRUSSIA
HIS GRACE THE ARCHBISHOP OF CANTERBURY

His Grace the Duke of Bedford
His Grace the Duke of Newcastle
His Grace the Duke of Marlborough
His Grace the Duke of Rutland
His Grace the Duke of Sutherland
His Grace the Duke of Buccleuch
His Grace the Duke of Devonshire
His Grace the Duke of Leinster
His Grace the Duke of Athole
His Grace the Duke of Norfolk
His Grace the Duke of Hamilton and Brandon
His Grace the Duke of Argyll
His Grace the Duke of Northumberland
His Grace the Duke of Roxburghe
His Grace the Duke of Wellington
His Grace the Duke of Buckingham
The Most Hon. the Marquis of Normandy
The Most Hon. the Marquis of Bute
The Most Hon. the Marquis of Winchester
The Most Hon. the Marquis of Exeter
The Most Hon. the Marquis of Breadalbane
The Most Hon. the Marquis of Westminster
The Most Hon. the Marquis of Lansdowne
The Most Hon. the Marquis of Stafford
The Most Hon. the Marquis of Kildare
The Most Hon. the Marquis of Abercorn
The Most Hon. the Marquis of Londonderry
The Most Hon. the Marquis of Ailsa
The Most Hon. the Marquis of Tweeddale
The Most Hon. the Marquis of Aylesbury
The Right Hon. the Earl of Tankerville
The Right Hon. the Earl of Poulett
The Right Hon. the Earl of Meath
The Right Hon. the Earl of Leicester
The Right Hon. the Earl of Camperdown
The Right Hon. the Earl of Shannon
The Right Hon. the Earl of Abergavenny
The Right Hon. the Earl of Morley
The Right Hon. the Earl of Durham
The Right Hon. the Earl of Lauderdale
The Right Hon. the Earl of Home
The Right Hon. the Earl of Harrington
The Right Hon. the Earl of Carnarvon
The Right Hon. the Earl of Northesk
The Right Hon. the Earl of Glasgow
The Right Hon. the Earl of Stamford and Warrington
The Right Hon. the Earl of Aberdeen
The Right Hon. the Earl of Aberdour

The Right Hon. the Earl of Ashburnham
The Right Hon. the Earl of Haddington
The Right Hon. the Earl of Cawdor
The Right Hon. the Earl of Denbigh
The Right Hon. the Earl of Galloway
The Right Hon. the Earl of Hopetoun
The Right Hon. the Earl of Mansfield
The Right Hon. the Earl of Milltown
The Right Hon. the Earl of Selkirk
The Right Hon. the Earl of Winchilsea
The Right Hon. the Earl of Zetland
The Right Hon. the Earl of Minto
The Right Hon. the Earl of Kintore
The Right Hon. the Earl of Seafield
The Right Hon. the Earl of Southesk
The Right Hon. the Earl of Kinnoul
The Right Hon. the Earl of Airlie
The Right Hon. the Earl of Bessborough
The Right Hon. the Earl of Brownlow
The Right Hon. the Earl of Howe
The Right Hon. the Earl of Lindsey
The Right Hon. the Earl of Rothes
The Right Hon. the Earl of Ranfurly
The Right Hon. the Earl of Strathmore
The Right Hon. the Earl of Rosslyn
The Right Hon. the Earl of Harrowby
The Right Hon. the Earl of Shrewsbury and Talbot
The Right Hon. the Earl of Westmoreland
The Right Hon. the Earl of Dalhousie
The Right Hon. the Earl of Portarlington
The Right Hon. the Earl of Kilmorey
The Right Hon. the Earl of Dartmouth
The Right Hon. the Earl of Guildford
The Right Hon. Earl Spencer
The Right Hon. Earl Fortescue
The Right Hon. Earl Vane
The Right Hon. Earl Nelson
The Right Hon. the Countess of Stair
The Right Hon. Countess de Morella
The Right Hon. the Countess of Waldegrave
The Right Hon. the Countess of Cottenham
The Right Hon. Viscountess Milton
The Right Hon. Viscountess Castlereagh
The Right Hon. Viscount Seaham
The Right Hon. Viscount Duncan
The Right Hon. Viscount Eversley
The Right Hon. Viscount de Vesci
The Right Hon. Viscount Boyle

HIS EXCELLENCY THE LORD-LIEUTENANT OF IRELAND
HIS EXCELLENCY THE BELGIAN MINISTER
HIS GRACE THE ARCHBISHOP OF YORK
THE RIGHT HON. LORD PALMERSTON

The Right Rev. the Lord Bishop of Durham
The Right Rev. the Lord Bishop of Ripon
The Right Rev. the Lord Bishop of Killaloe
The Right Rev. the Lord Bishop of Melbourne
The Right Rev. Lord Bishop Nixon
The Right Hon. Lord Bagot
The Right Hon. Lord Monck
The Right Hon. Lord Hatherton
The Right Hon. Lord Kinnaird
The Right Hon. Lord Lovat
The Right Hon. Lord Rollo
The Right Hon. Lord Braybrooke
The Right Hon. Lord Blantyre
The Right Hon. Lord Berwick
The Right Hon. Lord Halliburton
The Right Hon. Lord Churchill
The Right Hon. Lord Ossulston
The Right Hon. Lord Portman
The Right Hon. Lord Vernon
The Right Hon. Lord Willoughby de Broke
The Right Hon. Lord Cremorne
The Right Hon. Lord Dalrymple
The Right Hon. Lord Inchiquin
The Right Hon. Lord Rokeby
The Right Hon. Lord Rayleigh
The Right Hon. Lord Ashtoun
The Right Hon. Lord Stanley
The Right Hon. Lord James Murray
The Right Hon. Lord Berners
The Right Hon. Lord Harris
The Right Hon. Lord Kingsdown
The Right Hon. Lord Rivers
The Right Hon. Lord Taunton
The Right Hon. Lord Oranmore
The Right Hon. Lord Wharncliffe
The Right Hon. Lord Bateman
The Right Hon. Lord Lilford
The Right Hon. Lord Sudeley
The Right Hon. Lord John Thynne
The Right Hon. Lord Cavan
The Right Hon. Lord Middleton
The Right Hon. Lord Calthorpe
The Right Hon. Lord Dunfermline
The Right Hon. Lord Abercrombie
The Right Hon. Lord Castlerosse
The Right Hon. Lord Carrington
The Right Hon. Lord Dufferin
The Right Hon. Lord Poltimore
The Right Hon. Lady Leighton

The Right Hon. Lady Rashleigh
The Right Hon. the Ladies Boyle
The Right Hon. Lady Holland
The Right Hon. Lady M'Taggart
The Right Hon. Dowager Lady Clinton
The Right Hon. R. C. Nesbitt Hamilton
The Right Hon. Lord Crewe
The Right Hon. Lord Elibank
The Right Hon. Lord Binning
The Right Hon. Lord Hume
The Hon. Mrs. Howard
The Hon. Gerald C. Talbot
The Hon. Hely Hutchinson
The Hon. C. L. Butler
The Hon. C. S. Cowper
The Hon. Captain Duncombe
The Hon. Ashley Ponsonby
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The Hon. Captain Drummond
The Hon. Francis Drummond
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The Hon. Sir Edward Butler, Bart.
The Hon. Sydney R. Curzon
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The Hon. Major Murray
The Hon. Chief Baron Sir Frederick Pollock
The Hon. Percy Ashburnham
The Hon. Percy Barrington
The Hon. L. H. K. Hannan
The Hon. H. Petre
The Hon. and Rev. A. G. Campbell
Hon. and Rev. C. A. Harris
Hon. and Rev. W. H. Spencer
Sir John Neeld, Bart.
Sir Arthur Elton, Bart.
Sir Arthur Halkett, Bart.
Admiral Sir Philip Hornby
Sir J. H. Crewe, Bart.
Sir J. M. Steel Graves, Bart.
Sir Charles Taylor, Bart.
Sir George Edmondstone, Bart.
Sir Lydstone Newman, Bart.
Sir Coleman Rashleigh, Bart.
Sir John R. Carnac, Bart.
Sir Philip Egerton, Bart.
Sir William Maxwell, Bart.
Sir Archibald Dunbar, Bart.

Shanks' Patent Lawn Mowers are warranted to give ample satisfaction, and if not approved of may be at once returned.

☞ A. S. & Son *beg to intimate that their Warehouse at 27, Leadenhall Street, is the only place in London where intending purchasers of Lawn Mowers can choose from a stock of from 150 to 200 Machines. All sizes are kept in stock, whether for Horse, Pony, or Hand Power, and orders are executed on the day they are received.*

PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N. B.
LONDON OFFICE and SHOW ROOMS, 27, LEADENHALL STREET, E.C.

NEW TARIFF OF GLASS AND HORTICULTURAL GOODS.

THOMAS MILLINGTON,

GLASS AND COLOUR MERCHANT,

87, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.

THE AGRICULTURAL HALL, ISLINGTON, CONTAINING AN ACRE OF GLASS, WAS SUPPLIED BY ME.

Mr. Rivers and the leading men in the Horticultural profession, as well as the Nobility, Gentry, and Merchants, have favoured me with Orders for Home use and for Exportation.

SHEET GLASS.

In Cases for Cutting up, averaging from 6 to 9 feet super.

Average Thickness, 15 to 16 oz.

4ths quality	.. ..	per 300 feet case	32s. 6d.	or about 1½d.	per foot.
3ds ,,	.. ..	,,	41 0	,, 1¾	,,
2ds ,,	.. ..	,,	60 0	,, 2¼	,,
Best ,,	.. ..	,,	92 0	,, 3¼	,,

Average Thickness, 21 oz.

4ths quality	.. ..	per 200 feet case	33s. 6d.	or about 2d.	per foot.
3ds ,,	.. ..	,,	42 0	,, 2½	,,
2ds ,,	.. ..	,,	63 0	,, 3¾	,,
Best ,,	.. ..	,,	89 0	,, 5¼	,,

Average Thickness, 26 oz.

4ths quality	.. ..	per 200 feet case	44s. 6d.	or about 2¾d.	per foot.
3ds ,,	.. ..	,,	56 0	,, 3½	,,
2ds ,,	.. ..	,,	84 0	,, 5	,,
Best ,,	.. ..	,,	116 0	,, 7	

SHEET SQUARES, Cut to Order.

Average Thickness, 15 to 16 oz.

	Under 1 foot super.	Under 2 feet super.	Under 3 feet super.	Under 4 feet super.	Under 5 feet super.	Under 6 feet super.
4ths quality	1½d.	1¾d.	2 d.	2¼d.	2½d.	2¾d.
3ds ,,	1¾	2	2¼	2¾	3	3¼
2ds ,,	2	2½	2¾	3	3½	4
Best ,,	2½	3	3½	4	4½	[illegible]

Average Thickness, 21 oz.

4ths quality	2¼d.	2¾d.	3 d.	3¼d.	3½d.	3¾d.
3ds ,,	2½	3	3¼	3¾	4	4¼
2ds ,,	3	3¼	3¾	4¼	4½	[illegible]
Best ,,	4	4½	5	5½	6	[illegible]

Average Thickness, 26 oz.

4ths quality	3d.	3½d.	3¾d.	4 d.	4¼d.	4½d.
3ds ,,	3¾	4	4¼	4¾	5	5½
2ds ,,	4¼	5	5½	5¾	6	[illegible]
Best ,,	5¼	6½	7	7½	8	[illegible]

15 oz. Squares usually kept in Stock, &c.

32 oz., 36 oz., and 42 oz. are also supplied in various quantities.

EXTRA WHITE or CRYSTAL SHEET GLASS, very superior for Pictures and best Glazing.

RUBY, GREEN, BLUE, YELLOW, COLOURED, ENAMELLED, GROUND, and FLUTED GLASS.

15 oz. Squares usually kept in Stock, packed in 100 ft. and 100 ft. Boxes.

Stock Squares.

				4ths.	3rds.	2nds.	Best.
6 by 4	7 by 5	8 by 6	9 by 7	9s. 6d.	10s. 9d.	12s. 6d.	14s. 8d.
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½				
10 by 8	12 by 9	12½ by 10½	14½ by 10½				
10½ by 8½	12½ by 9½	13 by 10	15 by 10				
11 by 9	13 by 9	13½ by 10½	13 by 11	10s. 6d.	12s. 0d.	14s. 8d.	17s. 3d.
11½ by 9½	12 by 10	14 by 10	14 by 11				
15½ by 10½	16 by 10	14½ by 11½	15 by 11	11s. 6d.	13s. 6d.	16s. 0d.	18s. 0d.

Stock Squares.

				Per 100 feet. 4ths.	3rds.	2nds.	Best.
15½ by 11½	14 by 12	17 by 13	22 by 16	..			
16 by 10	14½ by 12½	18 by 13	24 by 16				
14½ by 11½	15 by 12	23 by 13	20 by 17				
15 by 11	15½ by 12½	18 by 14	22 by 17				
15½ by 11½	16 by 12	22 by 14	24 by 17	..	11s. 6d.	13s. 6d.	16s.
16 by 11	16½ by 12½	24 by 14	20 by 18				
21 by 11	17 by 12	22 by 15	22 by 18				
13 by 12	18 by 12	24 by 15	24 by 18				
13½ by 12½	22 by 12						

ORCHARD HOUSE SIZES,

As recommended by and supplied to Mr. Rivers, and the leading Horticulturists of the day.

Average Thickness, 15 to 16 oz.

		4ths.	3rds.	2nds.	Best.
16½ Inches by 12½ Inches.					
20 ,, 12 ,,					
20 ,, 13 ,,					
20 ,, 14 ,,	Per 100 feet ..	11s. 6d.	13s. 6d.	16s.	18s.
20 ,, 15 ,,					
20 ,, 16 ,,					
20 ,, 17 ,,					

Average Thickness, 21 oz.

		4ths.	3rds.	2nds.	Best.
20 Inches by 12 Inches.					
20 ,, 13 ,,					
20 ,, 14 ,,					
20 ,, 15 ,,	.. .. ..	14s. 6d.	18s. 6d.	24s.	[illegible]
20 ,, 16 ,,					
20 ,, 17 ,,					

The above prices are only for the sizes stated, but if a quantity of any other size is required, they can be supplied at about 5 per cent. additional, provided time is allowed to manufacture them.

I have also a GREEN TINTED GLASS, which I can strongly recommend. In Summer it gives a cool appearance and in Winter a warm one.

PROPAGATING GLASSES.

3 inches diam.	0s. 4d.	each.
4 ,, ..	0 5	,,
5 ,, ..	0 6	,,
6 ,, ..	0 7	,,
8 ,, ..	0 10½	,,
10 ,, ..	1 2	,,
12 ,, ..	1 6	,,
14 ,, ..	2 8	,,
16 ,, ..	3 0	,,
18 ,, ..	4 6	,,
20 ,, ..	6 0	,,

HAND GLASSES.

12 inches diam.	5s. 6d.	each.
14 ,, ..	6 6	,,
16 ,, ..	7 6	,,
18 ,, ..	8 6	,,
20 ,, ..	9 6	,,
22 ,, ..	10 6	,,
24 ,, ..	11 6	,,

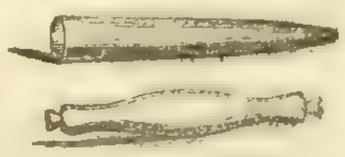
If removable tops, 1s. extra.

Painted and Glazed with Sheet Glass.

PRESERVE JARS.

In. diam.	Without Lids.	With Lids.	
3 ..	0s. 4d. ..	0 6	each.
4 ..	0 5½ ..	0 8	,,
5 ..	0 7 ..	0 10	,,
6 ..	0 9 ..	1 1	,,
7 ..	0 10½ ..	1 2	,,
8 ..	1 2 ..	1 6	,,
9 ..	1 6 ..	2 0	,,
10 ..	1 10 ..	2 4	,,

These will be found preferable to any other kind of Jar.

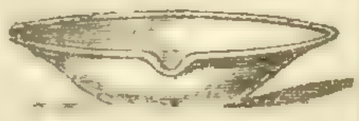


CUCUMBER TUBES.

Ins. long.		each.
12 ..	0s. 10d.	
13 ..	0 11	
14 ..	1 0	
15 ..	1 1	
16 ..	1 2	
17 ..	1 3	
18 ..	1 4	
19 ..	1 5	
20 ..	1 6	
22 ..	1 7	
24 ..	1 9	

ROLLING PINS.

each	
1s. 3d.	
1 4	
1 6	
1 8	
1 9	
1 10	
2 0	
2 2	
2 3	
2 4	
2 8	



MILK PANS.

6 inches diam.	0s. 5d.	each.
8 ,,	0 8	,,
10 ,,	0 10½	,,
12 ,,	1 1	,,
14 ,,	1 6	,,
16 ,,	2 0	,,
18 ,,	2 5	,,
20 ,,	2 10	,,
22 ,,	3 4	,,
24 ,,	4 0	,,

Intermediate sizes in proportion.

FISH GLOBES.

In. diam.		Qts. each.
8	¾ filled,	3..1s. 4d.
9	,,	4..2s.
10	,,	6..2s. 6d.
11	,,	8..3s.
12	,,	9..3s. 6d.
13	At same average according to weight.	7d. per lb.
14		
15		
16		

If on feet, 9d. per lb.

GLASS TILES, in SHEET and ROUGH PLATE. PLATE GLASS, PATENT PLATE, and HARTLEY'S IMPROVED ROUGH PLATE.

PAINTS, COLOURS, VARNISHES, &c.

GENUINE WHITE LEAD, 30s. per Cwt.
SECONDS ditto, 28s. per Cwt.
LINSEED OIL PUTTY, 9s. per Cwt.
PINE OAK VARNISH, 10s. to 12s. per Gallon.
,, CARRIAGE ditto, 12s to 14s. per Gallon.
,, CRYSTAL or PAPER, 10s. to 12s. per Gallon.

WHITE ZINC PAINT, 34s. per Cwt.
One hundred weight of pure Zinc Paint, with 3 gallons of Linseed Oil, will cover as much as one hundred weight and a half of White Lead and 6 gallons of Linseed Oil.
Special Dryers for this paint.

GROUND PATENT DRYERS, 3d. to 4½d. per lb.
,, OXFORD OCHRE, 3d. to 4½d. per lb.
,, RAW UMBER, 4½d. to 6d. per lb.
,, BURNT Ditto, 6d. to 9d.
GREEN PAINT, all shades, 28s. to 60s. per cwt.
BLACK PAINT, 24s. to 36s. per cwt.

STUCCO PAINT, 24s. per cwt.
This paint adheres firmly to the walls, resists the weather, and is free from the glossy appearance of oil paint, resembling a stone surface, and can be made any required shade. It is mixed with rain or pure river water.

LINSEED OIL, 3s. 9d. per gallon
BOILED OIL, 4s. 3d. per gallon.
TURPENTINE, 7s. per gallon
MINERAL Ditto, 3s. 6d. per gallon.
PREPARED OIL for ANTICORROSION, 4s. 6d. per [illegible]
BRUSHES for Ditto.

IMPROVED ANTICORROSION PAINT, 28s. to 34s. per cwt.
Anticorrosion Paint is extensively used for all kinds of work in exposed situations, in Brick, Stone, Compo, Iron, Iron Bridges, Conservatories, Greenhouses, &c., and is easily laid on by any ordinary workman.

MILLED LEAD in Sheet and Pipe of all Sizes. OLD LEAD bought or taken in exchange. LIFT PUMPS, WATER CLOSETS, & PLUMBER'S BRASS WORK of all kinds.

NETT CASH.

HOT-WATER APPARATUS for Greenhouses, Hot-houses, Vineries, &c. Estimates on application.
J. JONES & SONS, 6, Bankside, London, S.E.
For List of Prices see *Gardeners' Chronicle*, February 25, 1865.

Greenhouses and Conservatories.

H. FREEMAN, Horticultural Works, Hackney, N.E., Established 20 years. Good substantial made GREENHOUSES, Glazed, ready for fixing. 42 feet by 13 feet, 50*l.*; 21 feet by 13 feet, 28*l.*; 12½ feet by 10 feet, 15*l.* A handsome CONSERVATORY for Sale, 36 feet by 19 feet. Price 110*l.* A Large Assortment kept.

WM. SMITH begs to call attention to his Prices of a Large Stock of various sized LIGHTS for HOUSES or made of 2-inch yellow Deal.

[illegible] by 3 ft. 9½ in. wide	..	..	..	..	£0 12*s.*	0*d.*
[illegible] ft. 11½ in. wide	..	..	..	..	0 15	0
[illegible] by 4 ft. wide	..	..	..	..	0 17	6
[illegible] by 4 ft. 4½ in. wide	..	..	..	..	1 4	0
[illegible] by 3 ft. 9½ in. wide	..	..	..	..	1 2	0
[illegible] by 4 ft. 8½ in. wide	..	..	..	..	1 5	0
[illegible] by 4 ft. 9½ in. wide	..	..	..	..	1 14	0

Five per cent. discount allowed if 400 feet are taken.
[illegible] and Hothouses, Conservatories, and Vineries made to order [illegible] per square foot. Apparatus for ventilation on the best [illegible] 2-inch Lights made to order, glazed and painted three [illegible] 4*d.* per foot; do. Unglazed, at 4*d.* per foot.
[illegible] given for Efficiently Heating by Hot Water. One, Two, Three, or Four-light Garden Frames, fitted with iron keys at [illegible], always in stock.
194, King Street, Hammersmith; or W. SMITH, Horticultural Builder, Turnham Green.

Exhibition Prize Medal, 1862.

MUSGRAVE'S PATENT SLOW COMBUSTION STOVE.

This Stove is the nearest approach to Warming by Hot Water.

It will burn in Churches from Saturday till Sunday evening, without attention during the hours of worship. In Halls will burn day and night for weeks, with little care. Capable of Warming a large Apartment for 24 hours, at a cost of 3*d.*; and deserving of special attention, because of its safety, healthfulness, durability, and extreme simplicity.

It is also made for small Conservatories, with a vapour chamber.

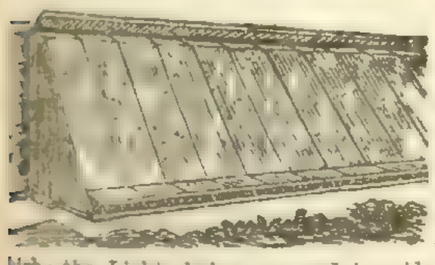
For particulars of the above, and of MUSGRAVE'S PATENT STABLE and COW-HOUSE FITTINGS, which attracted so much attention at the Exhibition, address,

MUSGRAVE BROTHERS, Ann Street Iron Works, Belfast.

The Stove can be seen in operation at Messrs. Cox & SON, [illegible] Southampton Street, Strand, W.C.

Under the Patronage of Her Majesty.

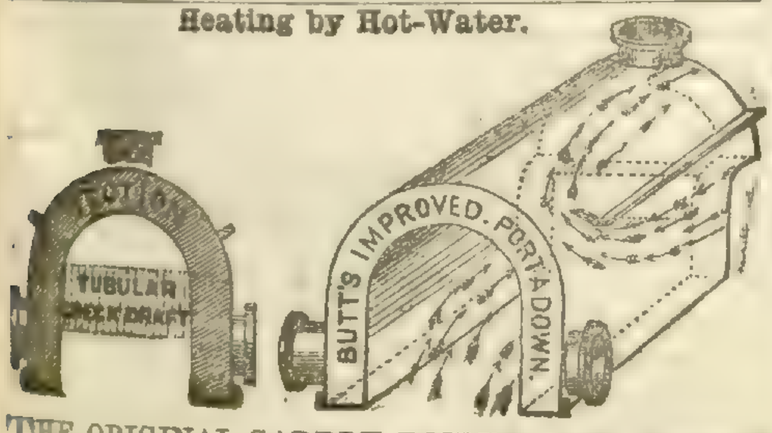
CLARK AND HOPE (LATE CLARK) 55, Lionel Street, Birmingham, MANUFACTURERS of METALLIC and WOODEN HOT-HOUSES, CONSERVATORIES, VERANDAHS, &c., COPPER and WROUGHT IRON SASHES, SKYLIGHTS, &c., and HOT WATER APPARATUS for Horticultural and Domestic purposes.



C. & H. beg to call attention to their NEW TREE COVER, or Continuous Glass Covering for Garden Walls; which is constructed of Cast and Wrought Iron, glazed with or without putty, and fitted together with bolts and nuts, constituting a Tenant's Fixture. It can be made 6, 7, or 8 feet wide, and 10, 12, or 14 feet high; the Lights being opened together, by means of simple and durable machinery, in lengths of about 50 feet; and the cost does not exceed that of a wooden structure.

Further particulars, with prices, forwarded upon application; and on receipt of the amount in postage stamps, a Book of Designs, plain 1*s.* 6*d.*, coloured 2*s.* 6*d.*, for Horticultural Buildings, &c.

Heating by Hot-Water.



THE ORIGINAL SADDLE BOILER, with Improved Tubular Check Draft, Flued Ends, and Ribbed Sides, for Heating Greenhouses, Vineries, Forcing Pits, Public Buildings, &c. These Boilers possess increased heating surface capacity, power, economy in fuel, and are the only class of Boilers, all points considered, when properly fixed, that can be relied upon with safety for Heating Greenhouses, &c., of any extent, by Hot Water, and at a moderate price.

Gardeners interested in such work should write for List of Testimonials, sent Post Free on application to FREDERICK WILLIAM BUTT (late of London), Portadown, Ireland.

Greenhouses—Heating Apparatus.

DENNIS' PATENT METALLIC HORTICULTURAL BUILDINGS are made from the best wrought iron, upon an entirely new principle. The combination of Iron and Glass under this Patent is perfect: the possibility of fracture is prevented, and a permanently water-tight roof insured. The leading practical advantages are extreme smallness of framing, admitting a maximum of light and heat, and perfectly neutralising atmospheric conduction.

They are thoroughly ventilated, exceedingly strong and durable, are speedily erected, and whilst maintaining their established superiority as Conservatories of the highest order, are acknowledged by eminent Horticulturists of the day to be the "desideratum of perfection," promoting perfect symmetry of growth and richness of colour, both for Fruit and Flowers.

From the complete adjustment of the constructional parts of these patent buildings, their manufacture is so facilitated that a comparison in point of cost with perishable wooden structures is most favourable.

THE GARDENER'S OWN GREENHOUSE (Lately known as Dench's Patent) is a Tenant's Fixture.

The Patent, Plant, Business, Machinery, and all connected with the above, have been transferred to T. H. P. DENNIS, who has determined to supply these really useful buildings at such a reduced scale of prices that every one desiring a Greenhouse may possess one.

NOTE.—A No. 1 Lean-to, 12 ft. 6 in. by 9 ft., including honest 16-oz. Glass, £16 12*s.* 6*d.*

T. H. P. D. has introduced most important improvements in their finish and construction, and after numerous experiments has succeeded in arranging them as a TENANT'S FIXTURE, which he feels sure will be valued by gentlemen having limited tenures. With Mr. Rivers' adaptation they make excellent Orchard-houses, and afford all that can be desired in a profitable building.

Wood structures at the lowest price consistent with sound work.

Prospectuses and Estimates on application to T. H. P. DENNIS, Horticultural Builder, Hot-water Engineer, &c., Chelmsford, Essex.

Card.

SAMUEL N. McGERROW,
GENERAL HORTICULTURAL BUILDER,
Knotty Ash, near Liverpool.

Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

Heating by Hot Water.

W. J. HOLLANDS, IRON MERCHANT,
31, Bankside, London, S.E.

HOT WATER PIPES, from Stock, per yard:—2-inch, 1*s.* 4*d.*; 3-inch, 2*s.*; and 4-inch, 2*s.* 7*d.* BENDS, from Stock 1*s.* 7*d.*, 2*s.* 6*d.*, and 3*s.* 3*d.* each. THROTTLE VALVES, 10*s.* 6*d.*, 13*s.* 6*d.*, and 15*s.* each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day. A discount to the Trade.

REIGATE SILVER SAND, 12*s.* per ton, at Swan Place; delivered 5 miles, or to any London Wharf or Railway, 16*s.* per ton, or 1*s.* 6*d.* per bushel (sacks at cost price, or on hire). Kentish and Hampshire PEATS, YELLOW LOAM, LEAF-MOULD, and COCOA FIBRE REFUSE.

J. KENNARD, Swan Place, Old Kent Road, London, S.E.

REIGATE SILVER SAND (best quality for Plants, &c.), 7*s.* 6*d.* per Ton, 28*s.* per 4 Tons, 39*s.* per 6 Tons, 48*s.* per 8 Tons, 5*s.* per Ton for 20 Tons and upwards, delivered to the Reigate Station. Best Kent and Surrey PEATS, LOAMS, ROCK SANDSTONE, &c.

N.B. Loaded trucks can be sent direct on all the Railways.

London-made FLOWER POTS, in every size, at the lowest cash prices. W. SHORT, Sand and Peat Depôt, Reigate, Surrey.

COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 2*s.* per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

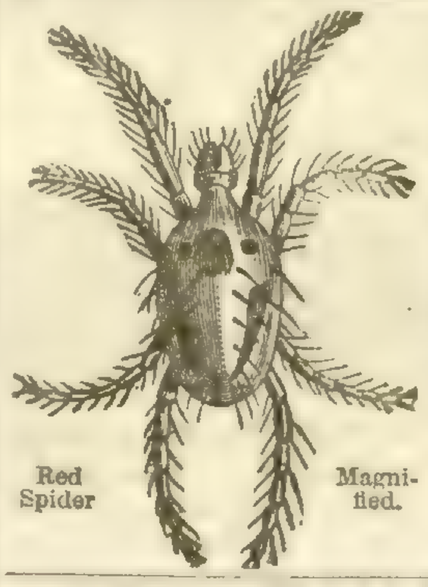
BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped, J. BARSHAM'S Patent.

To Nurserymen and Florists

H. PERKINS, TOBACCONIST, 16, Cambridge Circus, Hackney Road, N.E., has a large Stock of Genuine ROLL TOBACCO PAPER, at 1*s.* per lb.; TOBACCO CLOTHS, at 10*d.* per lb. Warranted free from adulteration.

Post-office Orders to be made payable at Shoreditch Post-office.



Red Spider — Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* each.

Wholesale by
PRICE'S PATENT
CANDLE COMPANY
(LIMITED).

TOOGOOD'S (late PAGE & TOOGOOD'S) IMPROVED BLIGHT COMPOSITION introduced in 1850, has been manufactured under W. TOOGOOD'S sole directions since that period. He has made great improvements in it, and by reducing the price 25 per cent., it is one of the cheapest and has always been the most efficacious remedy extant. To publish the Testimonials no newspaper would give space, but Messrs. CUTBUSH & SON, the eminent Nurserymen, say:—"It is the best thing for the purpose we can find, and does not appear to injure the young foliage like Gishurst does. This is our experience after 10 years' trial."

"February 24, 1864."

Mr. E. SAGE, *Gardener to* Lord HOWE, *says*:—

"Will you please send us 15 gallons of your Blight Composition. I see you have reduced the price, and trust that you may some day be able to make another reduction, and I feel assured that no 'Gishurst,' will be used by practical men."

"We hereby Certify that during the whole time we were Warehousemen in the Establishment of B. PAGE & Co., and subsequently PAGE & TOOGOOD, that we Manufactured the Blight Composition under Mr. TOOGOOD'S *sole directions, and that he alone knew the proportions of the various ingredients.*

Signed JOHN MORLEY,
HENRY DREW,
HENRY SHEERMAN,
GEORGE ISAACS."

"July 13, 1863."

Extra strong, 3*s.* per gallon (sufficient to make 4 gallons fit for use), 10 gallons and upwards carriage free to London.

May be obtained of the principal Nurserymen and Seedsmen in the Trade, and of W. TOOGOOD, Royal South Hants Seed Establishment, Southampton.

Patronised by 70,000 Stock Breeders.

REGISTERED — DISEASE HAS FOUND ITS MASTER — TRADE MARK.

DAY, SON, AND HEWITT, Sole Inventors of the Celebrated STOCK-BREEDER'S MEDICINE CHEST, containing as follows:—

Six Bottles (at 2*s.* 6*d.* each) of the UNIVERSAL CHEMICAL EXTRACT, matchless for penetrating, mollifying, and assuaging pain in all wounds, kicks, cuts, strains, &c., in horses and cattle; straining in ewes lambing, and swollen and inflamed udders in cows and ewes; sore feet in cattle, sheep, and dogs.

One Dozen Bottles (value 20*s.*) of the GASEOUS FLUID or BLACK MIXTURE, unmatched in the known world for curing diarrhœa or scouring calves, sheep, and lambs; for ewes weakly and exhausted after lambing; for horses and cows exhausted and sickly, and for the fret, colic, or gripes in horses and cattle. An instantaneous remedy for blown cattle and sheep.

One Dozen Packets (value 15*s.*) of the RED DRENCH or INFLAMMATION POWDER, for cleansing after calving or lambing, for straining in ewes, and for removing all feverish symptoms in cows and ewes after calving or lambing; for yellows in oxen, and for colds, chills, and all inflammatory cases in horses, cattle, and pigs.

One Dozen (value 7*s.* 6*d.*) of the RED PASTE or CONDITION BALLS (for horses). These Balls give vigorous health, purify the system, and produce a mole-like sleekness of coat.

Price of Chest complete, with Shilling Key to Farriery, 2*l.* 16*s.* 6*d.* securely packed, and carriage free. Sample case, usefully assorted 16*s.* 6*d.* Messrs. D., S., & H. respectfully urge their friends to send their orders early, so that no purchaser may be kept waiting.

Either preparation may be had separately in boxes, carriage paid.

Address—DAY, SON, & HEWITT, Animal Medicine Manufactory, 22, Dorset Street, Baker Street, London, W.; or Wantage, Berks.

Testimonials from all parts of the United Kingdom and Ireland sent free on application.

Established over One Quarter of a Century.

THOROUGH-BRED PEDIGREE ALDERNEY BULL for SALE, very handsome. 12 Months old March 18. Cow and Calf in the hands of the Breeder.

Apply to the GARDENER, East Lodge, Wanstead, Essex.

Sewage Irrigation.

TO BE LET, the FARMS near RUGBY, under Irrigation from the Sewage of that town, comprising about 320 Acres, mostly of Grass Land.

Apply to Messrs. WRATISLAW & FULLER, Solicitors, Rugby.

Sales by Auction.

Azaleas, Carnations, Pinks, Gladiolus, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, April 5, at half-past 12 o'Clock precisely, a quantity of CARNATIONS, PINKS, ROSES, PICOTEES, GLADIOLUS, FRUIT TREES, RHODODENDRONS, AZALEAS, CONIFERS, SHRUBS, &c., from a celebrated Nurseryman.

On view the Morning of Sale, and Catalogues had.

Important Sale of Established Orchids.

MR. J. C. STEVENS has been favoured with instructions to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, April 6, at half-past 12 o'clock precisely, without the least reserve, a Valuable COLLECTION of ESTABLISHED ORCHIDS, including some of the best Plants for Cool Houses now so much in vogue. Among them would be many fine specimens of Aerides Warneri, which is one of the handsomest and very best for a cool temperature; Aerides Lindleyanum, Odontoglossum grande, Lælia superbiens, and the extremely rare Epidendrum cnemidophorum, &c.; also some of the best East Indian and other kinds, including Aerides quinquevulnerum, virens, and Fieldingii; Vanda cœrulea and suavis; Saccolabium guttatum, violaceum, and curvifolium; Angræcum sesquipedale, Phalænopsis Schilleriana and amabilis; Cypripedium Veitchii, villosum, Stonii, and Lowii; Cattleya elegans, amethystoglossa and marginata; Dendrobium macrophyllum giganteum, &c.

On view the Morning of Sale, and Catalogues had.

Important Sale of Established Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, April 11, at half-past 12 o'clock precisely, without the least reserve, by order of the Executors, a portion of the Collection of ESTABLISHED ORCHIDS of the late Mr. VEITCH of Exeter, including

Aerides Warneri (90 plants)	Vanda Batemanni
" Lindleyanum	" suavis
" maculosum	" tricolor
" quinquevulnerum	" teres
" rubrum	" violacea
" Wightianum	Cattleya Mossiæ
" virens	" Skinneri
" affine	" maxima
" suavissimum	" labiata
Odontoglossum grande	" guttata
Lælia purpurata	" amethystina
" superbiens	Phalænopsis amabilis

And a quantity of choice Dendrobiums, Cymbidiums, Lycastes, Stanhopeas, Miltonias, Angulpas, Trichopilias, Calanthes, Barkerias, &c.

On view the Morning of Sale, and Catalogues had.

Sale of First-class Carnations, Picotees, Pinks, Standard Roses, &c.

MESSRS. PROTHEROE AND MORRIS will SELL, at the City Auction Rooms, 38 and 39, Gracechurch Street, City, E.C., on WEDNESDAY, April 5, and SATURDAY, April 8, at 12 for 1 o'clock precisely each day, a first-class Collection of CARNATIONS, PICOTEES, and PINKS, from a celebrated Grower; a large Assortment of Standard, Half-Standard, and Dwarf ROSES, fine AZALEA INDICA, and other Plants in bloom; selected AMERICAN PLANTS, VERBENAS, FUCHSIAS, DAHLIAS in dry roots, &c.

On view the Morning of Sale. Catalogues may be had at the Rooms as above, and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

High Beech, Essex.

SALE OF NURSERY STOCK AND GREENHOUSE PLANTS.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. JAMES CRAWFORD (who is retiring from the Business) to SELL by AUCTION on the Premises, opposite the King's Oak, High Beech, Essex, on MONDAY, April 10, at 11 for 12 o'clock precisely, the whole of the valuable NURSERY STOCK, consisting of Evergreens, Conferæ, and Deciduous Shrubs, Vines in Pots; Hollyhocks, Rhododendrons, Standard and Dwarf Roses, Fruit Trees, &c.; also about 6000 Choice Greenhouse Plants, including Azalea Indica, Camellias, Ericas, Fuchsias, and the usual Miscellaneous Assortment of Soft-wooded Plants, Cyclamen of sorts, about 4000 Roses in pots, a few Stove Plants, Dahlias, a superb Collection of Hardy and Greenhouse Ferns, Japanese Rhododendrons &c.

May be viewed one week prior to the Sale. Catalogues had on the Premises; at the Swan Inn, Stratford; the Eagle, Snaresbrook; the principal Seedshops in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

Childwick Hall, near St. Alban's.

VERY IMPORTANT SALE OF SHORT-HORNED CATTLE.

MR. STRAFFORD begs to announce that he has received instructions to SELL by AUCTION, without reserve, on WEDNESDAY, April 5 NEXT, at Childwick Hall, near St. Alban's, the entire HERD of SHORT-HORNED CATTLE belonging to E. A. Fawcett, Esq., consisting of upwards of 60 head of Bulls, Cows, and Heifers, that have been bred from some of the most famous Herds in the Kingdom. Many of them are descended from the celebrated Bulls Fifth Duke of Oxford (12,762), Gloucester (12,950), Francisco (12,893), Cheltenham (12,588), Chanticleer (17,530), The Brier (15,376), Great Mogul (14,651), and Royal Butterfly 5th (18,756), whilst others combine the famous blood of Kirklevington, Tortworth, Warlaby, Wiseton, and other well-known sorts. The young stock are chiefly by First Duke of Oxford and Gloucester (19,637) and Mandarin (18,317), and are very promising. The cows and heifers are served by the same bulls and Lord of Warlaby (20,213), the 1st prize bull at the Bath and West of England Show at Bristol. Particular attention has been paid to the dairy qualities of these animals, which are very prolific and in a healthy breeding state.

Catalogues, with Pedigrees, may be had on application to Mr. STRAFFORD, 13, Euston Square, London, N.W.; or of Mr. FAWCETT, at Childwick Hall, near St. Alban's.

Siddington House, Cirencester.

IMPORTANT SALE OF SHORT-HORNED CATTLE.

MR. STRAFFORD is favoured with instructions from E. Bowly, Esq., of Siddington House, Cirencester, to announce for SALE by AUCTION, without any Reserve, on THURSDAY, April 27 NEXT, about 40 HEAD of First-class SHORT-HORNS, from his very celebrated Herd, which consists of the entire Lady Byron family, and the whole of one or two other well-known tribes, as well as some young and valuable BULLS. They are chiefly by Fourth Duke of Oxford (11,387), Earl of Walton (17,787), and Seventh Duke of York (17,754). The young Stock are very promising, especially the Bulls, which are of good size and substance, rich in colour, full of fine hair, with mellow handling, and plenty of style and character. The whole of the Animals are in good healthy condition, and mostly reared on the Farm, where some of the tribes have been for nearly 30 years.

Catalogues, with Pedigrees, may be had on application to Mr. STRAFFORD, 13, Euston Square, London, N.W.; or of Mr. BOWLY, Siddington House, Cirencester.

Sale of Ayrshire Dairy Stock.

THERE will be SOLD, by PUBLIC AUCTION, at DRUMGLAS, on THURSDAY, April 6, 45 Pure Bred Three-year old AYRSHIRE HEIFERS, in calf to an Ayrshire Bull. They were selected with the greatest care and judgment from the best Dairy establishments in Ayrshire, and are all expected to Calve betwixt April 15 and May 30 next. The valuable qualities of Ayrshire Cows for Dairy purposes are sufficiently well known. Drumglas is within two miles of the New Galloway Station, which is only 60 miles from Carlisle by direct line of railway.

Further particulars can be obtained from Mr. BARTON, Stewarton, Ayrshire, N.B.; or Mr. WALLET, Auctioneer, Castle Douglas, N.B.

HOTHOUSES FOR THE MILLION.

AWARDED A PRIZE MEDAL, 1862.

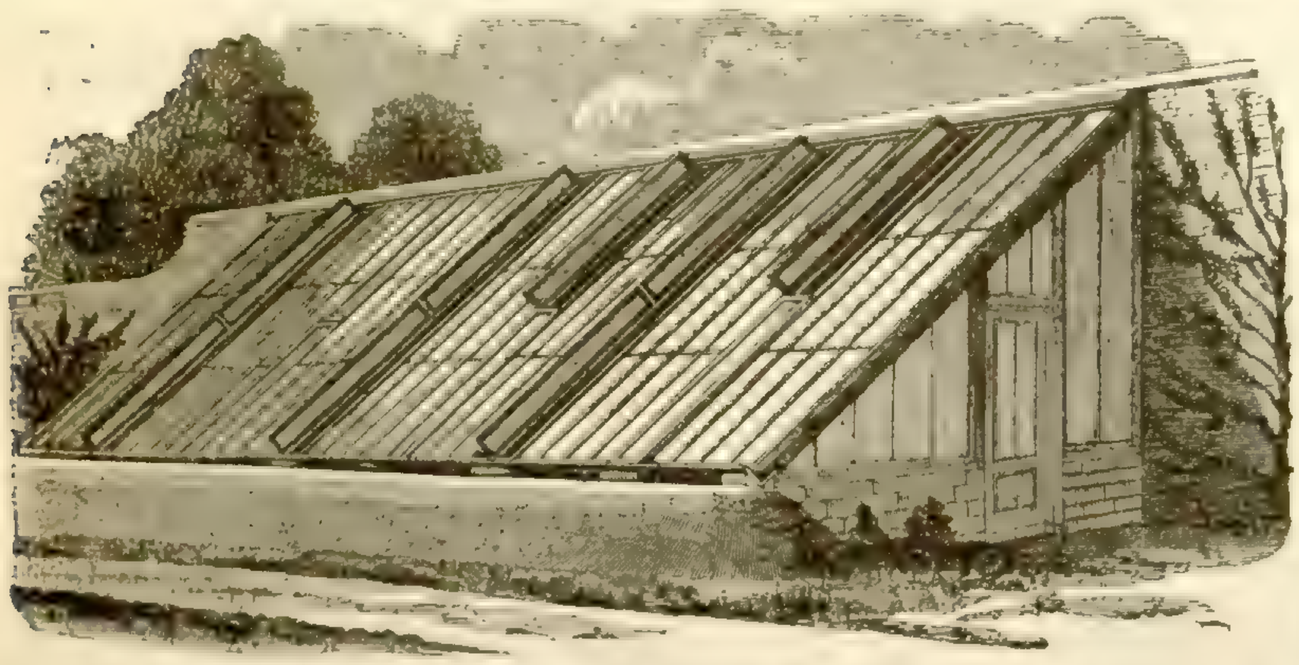
ON THE PRINCIPLE INVENTED AND PATENTED BY

SIR JOSEPH PAXTON, M.P.

COMBINING SIMPLICITY, CHEAPNESS, EXCELLENCE, AND DURABILITY.

BEING CAPABLE OF FULFILLING IN THE MOST PERFECT MANNER ALL THE REQUIREMENTS OF HORTICULTURE.

MANUFACTURED for the AGENT, in LONDON; NEWTON in CARTMEL, LANCASHIRE; GLOUCESTER; COVENTRY; ABERDEEN, and PAISLEY ONLY, in order to supply the Neighbouring Districts, and to save purchasers unnecessary expense in Carriage.



These PATENT GLASS HOUSES are composed of simple parts, and may be lengthened and arranged to form the boundaries of Gardens; they cost less than Brick W[illegible] and insure a certain crop of Fruit. As Portable Structures they may be removed and refixed at little expense; and though calculated for Gardens of the highest order, the[illegible] from their cheapness, desirable for Market Gardens, where they may be made to cover any extent, as also for Suburban Villas and Cottage Gardens.

When the HOUSES are not required Portable, improved Iron Gutters and Supports are now supplied, rendering the structures most permanent and durable.

TESTIMONIALS.

"Grosvenor House, May 19, 1863.

"The Marquis of Westminster writes, in reply to Mr. Hereman's note, to say that he has much pleasure in informing him that the Glass Houses for Peaches, &c., which he constructed for him in Dorset, 1860, have fully answered their purpose, and prove very satisfactory."

"5, Prince's Gate, S.W., May 16, 1863.

"Sir,—I am happy to be able to inform you that the Lean-to Roof which you sent to me at Bryanstone is most successful, and I am quite satisfied will repay its cost.

"Mr. S. Hereman." "Yours &c., Portman."

"27, Grosvenor Square, May 14, 1863.

"Sir,—I have much pleasure in reporting to you that I am quite satisfied with the Patent Glass Houses which you furnished in 1861. My gardener at Hackness is of opinion, as far as his experience of them up to this moment goes, that the system of ventilation which you adopt is quite equal, if not superior, to any other system which he has yet tried.

"Mr. S. Hereman." "I remain, &c., [Sir] John V. B. Johnstone."

"Woodcote [Newport, Salop], May, 1863.

"Mr. Cotes has much pleasure in stating that he considers the Glass Lights put up by Mr. Hereman o be a great addition to the Woodcote garden, and shall be always ready to testify as to their efficiency."

"Mr. S. Hereman, 7, Pall Mall East."

"Belgrave, near Leicester, May 20, 1863.

"Sir,—The Lean-to House which you supplied to me in 1860 has fully answered my expectations. The House is planted with Vines, and Figs on the back wall; there is no artificial heat, and, though last year was a most unfavourable one, some of the bunches of Black Hamburgh Grapes weighed more than a pound, and ripened well for the season.

"The material and construction of the house have proved highly satisfactory.

"Mr. Hereman." "Yours &c., Alfred Ellis."

"Johnson Hall, near Eccleshall, Staffordshire, May 11, 1863.

Sir,—I have had in operation for several years, Lean-to Vineries made with your 14 feet sashes at an angle of about 50 degrees, the lower or front wall being 3 feet high. Nothing can be more simple than their construction; the mode of ventilation is excellent, and entirely obviates the annoyance and breakage caused by movable sashes, and I feel much pleasure in recommending these structures.

"Mr. S. Hereman." "Yours, &c., Edward Lyon."

"Shalimar, Acton, W., May 11, 18[illegible]

"Sir,—In reply to your letter of the 9th inst., I am happy to say that I was so very well satisfied with the Lean-to Houses erected by you in my garden three years since, that I had another put last November.

"Mr. S. Hereman." "I remain, &c., Samuel Rickards."

"Wath-upon-Dearne, near Rotherham, May 12, 18[illegible]

"Dear Sir,—The three small Glass Houses you sent me answer admirably. The Lean-to with 16 feet sashes covers now about 25 healthy and strong Vines; last year the produce and quality of the fruit were surprising. * * * I recommend every one who is so fortunate as to take pleasure in his garden, and who can afford the expense, to erect one or more of your cheap 'Hothouses for the Million'—a never-failing source of profitable amusement.

"I have other more costly and extensive glass structures, but, having regard to their cost and efficiency, they bear no comparison with those I had of you.

"I am surprised that market gardeners do not adopt them more generally.

"Mr. Samuel Hereman." "I remain, &c., G. P. Nicholson."

"Norfolk Villa, Eastbourne, May 12, 18[illegible]

"Mrs. Baugh has much pleasure in informing Mr. Hereman that her Orchard House is perfect in every way, and answers admirably for the culture of fruit trees in pots. Mr. Hereman is at liberty to make whatever use he wishes of these few lines, as Mrs. Baugh thinks it a pity these houses should not be more general in this growing place."

"Inverary [Castle] Gardens, May 21, 18[illegible]

"Dear Sir,—I have much pleasure in bearing testimony to the efficiency of the Lean-to Glass Houses which you erected here for covering in Peach and Fig trees. Although our wall is 17 feet high the fruit sets regularly over the whole surface, and, with the command of ventilation these houses give, fruit can be forwarded or retarded at pleasure.

"Mr. S. Hereman." "I remain, &c., John Cair" [Gardener to His Grace the Duke of Argyll]

"The Grove, Stanmore, May 12, 18[illegible]

"Dear Sir,—I am happy to inform you that the Glass House supplied by you answers my expectation. I am using one division for Cucumbers, and the other for bedding-out plants, which thrive remarkably well, being so near the glass, and having a thorough ventilation, which your method of construction so amply secures.

"Mr. S. Hereman." "I remain, &c., W. Lewis" [Gardener to Joseph Gillott, Esq.]

"Without any pretence to high finish or elaborate workmanship, which in such structures represent a mere waste of money, they are perfectly well made. The arrangement is as simple as ingenuity can render them. No rafters obscure the light and make them cumbrous. No sashes have to be pushed up or let down by ever-breaking lines and weights, or by expensive mechanical contrivances; and yet all the ventilation requisite in such buildings is as perfectly secured. * * * * It is their perfect portability that must give them a peculiar value in the eyes of the public. If we hire a house for two or three years, and are enthusiastic enough to fix up a greenhouse, it remains the absolute property of the landlord at the end of the term. But, if instead of fixing up we drop down one of these Hereman's, we pack it up and remove it along with the watering-cans, wheel-barrows, and other implements."—*Dr. Lindley in* "The Gardeners' Chronicle," *July 28th*, 1860.

Circulars with LISTS of PRICES and CARDS to VIEW Houses in operation in the neighbourhood of London, also ESTIMATES for ORNAMENTAL CONSERVATORIES, GREENHOUSES, &c., to Designs can be had on application to

SAMUEL HEREMAN, Agent, 7, PALL MALL EAST, LONDON, S.W.

The SECOND EDITION of A HANDBOOK of VINE and FRUIT TREE CULTIVATION, as adapted to the above Patent Hothouses, containing Illustrations, Hints for Heating Houses, and General Directions for Cultivation, &c., may be had of Mr. Hereman, price 1*s.*; post free, 1*s.* 1*d.*

"The instructions given for the cultivation of the Vine and other crops are essentially practical, and are evidently written by one who has himself performed all the operations before he attempted to instruct others."—*Cottage Gardener*, October 6, 1863.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by William Bradbury, of 13, Upper Woburn Place, in the Parish of St. Pancras, in the Co. of Middlesex, and Frederick Mullett Evans, of No. 11, Bouverie Street, in the Precinct of Whitefriars, City of London, Printers, at their Office, Lombard St., Precinct of Whitefriars, City of London, and Published by them at the Office, No. 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said Co.—Saturday, April 1, 1864.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 14.—1865.] SATURDAY, APRIL 8. {Price Fivepence. STAMPED EDITION, 6d.

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ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON.
A SPECIAL SHOW of EARLY AZALEAS and SPRING FLOWERS will be held on SATURDAY, April 15. Doors open at 2. Band at 3. Privileged Tickets for Fellows' friends, 2s. 6d.; Tickets to the public, 3s. 6d. Either of these Tickets bought on the 15th will be charged 5s. each.

UNITED HORTICULTURAL SOCIETY.—The FIRST EXHIBITION of this Society will be held at the ALBION HALL, Moorgate Street, E.C., on TUESDAY NEXT, April 11. Doors open at 1 o'clock. Admission 1s.
ROBT. PINCE GLENDINNING, Hon. Sec.

CRYSTAL PALACE.—SEASON 1865.
FLOWER SHOW ARRANGEMENTS.
GREAT FLOWER SHOW, MAY 20.
GREAT ROSE SHOW, JUNE 24.
AUTUMN (FRUIT and FLOWER) SHOW, SEPT. 6 and 7.
The Schedules of Prizes now ready.
By Order. GEO. GROVE, Secretary.

New Fuchsias.
E. G. HENDERSON AND SON can now supply LA TRAVIATA, ANNA BULLEYN, MARVELLOUS, and TROUBADOUR, at 10s. 6d. each; the set, 30s.
Wellington Nursery, St. John's Wood, London, N.W.

Fuchsias.
WILLIAM HUSSEY begs to offer 25 sorts of FUCHSIAS, taken from the cutting pots, for 5s., package included. The above could be sent postage free for 6s.
Mile End Nursery, Eaton, Norwich.

Choice Primula Seed.
WILLIAMS' SUPERB STRAIN, the finest Fringed and best Coloured Flowers in Cultivation. In sealed packets, Red, White, or Mixed Seed, 2s. 6d., 3s. 6d., 5s.
Paradise and Victoria Nurseries, Holloway, London, N.

Verbenas.—Surplus Stock.
JAMES HOLDER can supply strong Plants of the above, in 30 sorts, including the most distinct colours, viz., Scarlet, White, Purple, Pink, and Crimson, at 20s. per 100, hamper included, or 50 plants for 10s. 6d.
Crown Nursery, Reading, Berks.

New Chrysanthemums, Pyrethrums, &c.
JOHN SALTER is now sending out the NEW CHRYSANTHEMUMS of 1865. His DESCRIPTIVE CATALOGUE of Chrysanthemums, Double Pyrethrums, Scarlet Geraniums, Hardy Variegated Plants, &c., will be sent on receipt of Two Stamps.
Versailles Nursery, William Street, Hammersmith Turnpike, W.

BEDDING PLANTS, BEDDING PLANTS in great variety. Will be ready for sending out in May. An immense stock of the above, price, per 1000, £8; per 100, £1, or 4s. per dozen, at W. J. WATSON'S, The Hall Nurseries, Fenham, near Newcastle-on-Tyne.

GERMAN FLOWER SEEDS.—Superb varieties of ASTER, STOCK, BALSAM, WALLFLOWER, PHLOX DRUMMONDI, PORTULACA, LARKSPUR, ZINNIA, &c.
For prices, see DESCRIPTIVE SEED LIST.
RICHARD SMITH, Seed Merchant, Worcester.

GLENNY'S UNRIVALLED BALSAM SEED, 6 classes, 37 stamps; mixed packet, 13 stamps. The new large Border PINKS, NELL GWYNNE and LORD RAVENSWORTH, may still be had at 1s. the pair.
Fulham, S.W.

J. IVERY AND SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

VERBENAS and LOBELIAS.—Purple King, Foxhunter, Lord Raglan, Mrs. Woodroffe, Brillant de Vaise, &c., in Pots at 16s. per 100; out of pots, 14s. Lobelia speciosa true, 12s. per 100 for cash. Remarkably fine Plants can be had of
GEORGE EDWARDS, Clarence Nurseries, Haxby Road, York.

Fox and Game Covert.
MAULE AND SONS can supply 2-years old ENGLISH FURZE and BROOM at 10s. per 1000.
The Nurseries, Bristol.

Transplanted Quick.
CHARLES SHARPE AND CO., Sleaford, have a quantity of well-rooted Transplanted QUICK to offer. Price on application.

LARGE IRISH YEWS.—Handsome single-stemmed Specimen IRISH YEWS, 6, 7, 8, and 9 feet high, by the pair, dozen, or hundred. Prices on application.
THOMAS JACKSON & SON, Nurseries, Kingston, Surrey, S.

To Planters of Conifers.
YOUELL AND CO. can supply 50 Species of RARE and HARDY CONIFERS in good Plants for £5. Carriage paid to London, Peterborough, Hull, and Newcastle-on-Tyne.
Royal Nurseries, Great Yarmouth.

WANTED, EVERGREEN OAKS.—Parties having the above to dispose of, will oblige by stating quantity, size, and lowest price per 100. Also say if in pots.
FRANCIS & ARTHUR DICKSON & SON, 106, Eastgate Street, Chester.

ROSES.—Superb STANDARDS, 15s. to 18s. per dozen; DWARFS, 9s. to 12s. per dozen. NEW ROSES of 1865, 36s. per dozen. DESCRIPTIVE PRICED LISTS on application
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

The Best New Roses for 1865.
WM. WOOD AND SON have many Thousands of the above, all fine strong healthy plants.
DESCRIPTIVE CATALOGUES may be had on application.
Woodlands Nursery, Maresfield, near Uckfield, Sussex.

NEW ROSES of 1865.—For the BEST SELECTION of the year, see PAUL AND SON'S DESCRIPTIVE LIST.
"Old" Cheshunt Nurseries, Cheshunt, N.

ROSES in POTS for BEDDING by the Dozen, Hundred, or Thousand. The months of April and May are very eligible for planting out Roses from pots.
WM. WOOD & SON have many thousands of Strong Plants to offer at a very reasonable rate. CATALOGUES gratis on application.
Address Woodlands Nursery, Maresfield, Uckfield, Sussex.

TO AMATEURS, EXHIBITORS, and OTHERS.—Immense Stock of fine healthy Plants, of the cream of New and Approved ROSES, VERBENAS, PETUNIAS, FUCHSIAS, &c., especially adapted to the purposes of the above, can now be supplied. CATALOGUES Gratis on application to W. KNIGHT, Floral Nursery, Hailsham.

GLADIOLI.—Fine roots, Named varieties, 6s., 8s., 12s., and 18s. per dozen.
B. S. WILLIAMS, Paradise and Victoria Nurseries, Holloway, London.

Gladioli.
STEPHEN BROWN'S CATALOGUE (Cultural and Descriptive), containing his extensive and first-class Collection of Gladioli, sent free on application.
Seed and Nursery Establishment, Sudbury, Suffolk.

THE GARDENER'S and AMATEUR'S FRIEND.

CARTER'S GARDENER'S VADE-MECUM is now ready.

CHARLES TURNER'S SPRING CATALOGUE of BEDDING and other PLANTS is now ready, and may be had on application. The Royal Nurseries, Slough.

Genuine Seeds, Carriage Free.
WM. PAUL'S PRICED SELECT LIST is now ready, free by post.
PAUL'S Nurseries, Waltham Cross, N.

W. VIRGO AND SON will have much pleasure in forwarding their CATALOGUE of NURSERY STOCK post free on application.
Wonersh Nursery, near Guildford.

Selected Garden Seeds.
PAUL AND SON'S PRICED CATALOGUE contains descriptive list of FINE-FOLIAGED PLANTS for Sub-tropical Gardens. Free by Post. All Seeds Carriage paid.
"Old" Cheshunt Nurseries, Cheshunt, N.

Select Double Hollyhocks.
WILLIAM PERRY'S ANNUAL LIST of HOLLYHOCKS is now Ready, and can be had post free. It contains all the best Varieties both New and Old; the Plants are strong and healthy. Price per hundred on application.
Wisemans, Sawbridgeworth, Herts.

Dahlias, Verbenas, Bedding Plants in any quantity.
C. E. ALLEN'S ANNUAL CATALOGUE of the above is now ready, and can be had on application.
Norfolk Nursery, Shacklewell, near London, N.E.

Choice Flower and Vegetable Seeds,
CARRIAGE OR POST FREE.—See
B. S. WILLIAMS'S DESCRIPTIVE CATALOGUE, post free to all applicants.
Paradise and Victoria Nurseries, Holloway, London, N.

Flower Gardeners.
G. GLENNY'S LIST of the BEST SIXTY SORTS of SEEDS, from which Amateurs may safely choose. Sent free on receipt of a directed envelope at
Dungannon House, Fulham, S.W.

GERANIUM MRS. POLLOCK.—Well established Plants can be supplied after May 1.—Price per dozen or 100, on application to JOHN SCOTT, Florist, Bathford, near Bath.

FLOWER SEED NOVELTIES, ENGLISH and CONTINENTAL, a rich assortment. CATALOGUES free.
STEPHEN BROWN, Seed Grower, Sudbury, Suffolk.

THE VICTORIA NECTARINE.—A few strong bearing Trees of this fine Nectarine, Pyramids, in pots, 10s. 6d. each, are offered, carriage paid to London.
Messrs. THOS. RIVERS & SON, Nurseries, Sawbridgeworth.

FORTY ACRES of FRUIT TREES.—APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, and APRICOTS in every form desired for Fruiting.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

NEW GRAPE, "ROYAL VINEYARD," the best late White Grape extant. Strong planting Canes, 21s. each; strong fruiting, 42s. each.
B. S. WILLIAMS, Paradise and Victoria Nurseries, Holloway, London.

Pines.
B. S. WILLIAMS begs to announce that he has a fine Stock of the above, including all the best kinds. Prices on application.
Paradise and Victoria Nurseries, Holloway, London, N.

PYRAMID APPLES, PEARS, PLUMS, and CHERRIES.—Beautiful Trees for Garden or Orchard Houses.
RICHARD SMITH, Nurseries, Worcester.

To the Trade.
EXTRA STRONG PEAR STOCKS, very Stout and well-rooted. Apply to
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B. S. WILLIAMS has much pleasure in stating that he is now distributing strong Plants of New and Choice Varieties for this season. DESCRIPTIVE CATALOGUE, post free on application.
Paradise and Victoria Nurseries, Holloway, London, N

SUTTON'S CLEAN CLOVER and GRASS SEEDS, for One Years' Lay, 16s. per acre, carriage free.
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FINEST MIXTURE of GRASS SEEDS for PERMANENT PASTURE. Warranted to contain only the most nutritious and permanent varieties in cultivation, at 20s., 23s., 27s., and 30s. per acre, from
W. J. WATSON, Seedsman, Groat Market, Newcastle-on-Tyne.

NATURAL GRASSES: their Names and Derivations; Quality, Produce, Elevation, Situation, Soil, Use, Peculiarity, Season, Growth, Increase, Time of Flowering, Price, &c. Free for One Postage Stamp.
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CLOVER, RYE-GRASS, and all other AGRICULTURAL SEEDS (Genuine) at Market Prices. Purchasers of large quantities supplied on liberal terms.
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DESCRIPTIVE LIST, with prices and particulars as to free delivery, &c., post free upon application.
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AGRICULTURAL SEEDS, of finest quality, at moderate prices, can now be had at
W. J. WATSON'S Seed Warehouse, Groat Market, Newcastle-on-Tyne.
PRICED LIST free on application.

AGRICULTURAL and GARDEN SEEDS, finest quality.—CLOVER and GRASS SEED, 1 years lay, 16s.; 2 years, 17s. 6d. per acre. Imported ITALIAN RYE-GRASS, 6s. per bushel. PRICED LIST post free.—GEORGE DAVISON, Hereford.

NEW and GENUINE AGRICULTURAL, GARDEN, and FLOWER SEEDS.
Special prices and advantageous offers on application to
JAMES FAIRHEAD & SON,
Seed Growers and Merchants, 7, Borough Market, London, S.E.

Genuine Garden and Agricultural Seeds.
JAMES CARTER AND CO.,
SEED FARMERS, MERCHANTS, and NURSERYMEN,
237 and 238, High Holborn, London, W.C.

H. AND F. SHARPE,
SEED GROWERS and MERCHANTS, Wisbech.
SPECIAL PRICED LIST of NEW SEEDS on application.

SEED of CLIANTHUS DAMPIERI and C. DAMPIERI SPLENDENS. Quote price.
BARR & SUGDEN, 12, King Street, Covent Garden, W.C.

SPECIMEN PELARGONIUMS.—A few Plants of the Leading Sorts to be Sold cheap. Apply to
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GIANT ASPARAGUS.
1-year, 1s. 9d. per 100 .. 14s. per 1000.
2-years, 2s. 6d. ,, .. 20s. ,,
YOUELL & Co., Royal Nurseries, Great Yarmouth.

GIANT ASPARAGUS ROOTS, 2s. 6d. per 100.—This delicious vegetable does not require half the expense usually incurred in planting it For instructions, see RICHARD SMITH'S SEED LIST for 1865. Strong Transplanted SEA KAIL, 2s. per doz.
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LAING'S MAMMOTH RED CELERY.—The finest and most hardy Celery out. Free by post, 1s. and 2s. per packet.
YOUELL & Co., Royal Nurseries, Great Yarmouth.

JAMES CARTER AND Co. beg leave to state that they have entirely SOLD OUT of "FIRST CROP PEA."

THE INVINCIBLE SCARLET SWEET PEAS are now SOLD OUT.
STEPHEN BROWN, Seed Grower, Sudbury, Suffolk.

FOR SALE, a few Bushels of McLEAN'S ADVANCER PEA. For particulars apply to
W. HORLEY, Post Office, Toddington, Beds.

SCARLET RUNNERS WANTED.
Send sample and price to
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HAAGE'S DWARF EARLIEST CAULIFLOWER.—Very dwarf, the earliest, hardiest, and finest of Cauliflowers. Packets 1s. 6d. each. The finest new varieties of VEGETABLE SEEDS. CATALOGUES sent free.
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NEW LETTUCE, THE LONGSTANDER.—Most remarkable for duration without running, crisp and excellent. Packets 1s. each.
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DAINTREE'S EARLY POTATOS.—About 2 Tons to Dispose of. For price apply to
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SEED POTATOS.—MYATT'S EARLY PROLIFIC KIDNEY, EARLY DALMAHOY ROUND, the most prolific early varieties in cultivation. For price and further particulars apply to
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BEAUTIFUL KAIL, in great variety, for Decorating Flower Plots in Winter. Two packets for 7 stamps.
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THE TRUE PERENNIAL COW GRASS SEED.—The true single cut COW GRASS may be obtained from
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GOOD CLOVER SEEDS at MARKET PRICES.—SAMPLES and PRICES of CLOVER SEEDS may be had post free on application (stating quantity required) to
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SEED CORN from the CHALK.—All the most approved varieties supplied by
RATHBIRD, CALDECOTT & BAWTREE. Address, Basingstoke; or 89, Seed Market, Mark Lane, London, E.C.
*** Samples and prices on application.

Seedling Roses.

WM. PAUL (Son and Successor to the late A. Paul) begs to offer the following FIRST-CLASS NEW HYBRID PERPETUAL ROSES, at present exclusively in his possession, and which are specially recommended. Good plants will be ready for delivery in May next.

ELIZABETH VIGNERON.—Flowers fine rosy pink, very large and full, in the style of Lelia, but fuller, fresher, and brighter in colour than that superb variety; form perfectly finished, constitution hardy, growth vigorous. Price 7s. 6d. each.

GLORY of WALTHAM.—Flowers resplendent crimson, very large and full, a seedling from Leveson Gower, larger, brighter, darker, and of better form than the parent. A superb Rose, of hardy vigorous growth, producing shoots 6 feet long in one season, and of the thickness of the little finger. Price 7s. 6d. each.

MADAME EMILE BOYAU.—Flowers soft rosy flesh colour, changing to blush, of a pleasing colour, sufficiently large, perfect in form, moderate in growth, hardy in constitution, good and distinct. Price 5s. each.

PRINCE DE JOINVILLE.—Flowers light crimson, a fine large showy Rose, of vigorous and hardy habit, quickly forming a highly decorative bush, standard, or pillar Rose, of great beauty. Price 5s. each.

PRINCESS LICHTENSTEIN.—Flowers white, globular, large and full. A good hardy white Rose, of compact growth, flowering abundantly. Price 5s. each.

The best of the NEW FRENCH ROSES, 36s. to 42s. per dozen. Last year's kinds, 24s. to 30s. per dozen. Older kinds, 9s. to 18s. per dozen.

William Paul, Waltham Cross, London, N.

New Roses of 1865.

BENJAMIN R. CANT offers 30 varieties, the pick of the year, at 32s. per dozen. The plants are first-rate.
A DESCRIPTIVE LIST will be forwarded on application.
St. John's Street Nursery, Colchester.
N.B. The usual discount to the Trade.

40,000 Dwarf Roses, in Pots, for Bedding or Greenhouse Culture.

Woodlands Nursery, Mayfield, near Uckfield, Sussex.

WM. WOOD AND SON have much pleasure in offering the following, in well-grown Plants, viz.:—
BOURBON and TEA-SCENTED ROSES, 12s. to 18s. per dozen.
CHINA, NOISETTE, and HYBRID PERPETUAL, 9s. to 12s. per dozen. Cheaper by the 100.
HYBRID PERPETUAL and TEA SCENTED ROSES, established in 6-inch Pots, for Greenhouse Culture, 24s. to 30s. per dozen.

Shrubs, Roses, Fruit Trees, &c.

WM. CUTBUSH AND SON'S GENERAL NURSERY STOCK is the best near London.
GLADIOLI, fine, from 4s., 6s., 9s., & 12s. per dozen.
CATALOGUES on application.
Highgate Nurseries, London, N.

HARDY FLOWER SEEDS.

An assortment of 100 splendid varieties	..	..	20s. 0d.
" 50 "	..	..	10s. 0d.
" 36 "	..	..	7s. 6d.
" 24 "	..	..	5s. 0d.

Carriage free.
Richard Smith, Seed Merchant, Worcester.

To the Trade.

CALCEOLARIAS, YELLOW, ORANGE, and RED, 8s. per 100.
SCARLET GERANIUMS, 10s. per 100.
SCARLET VERBENAS, 8s. per 100.
WHITE VERBENAS, 8s. per 100.
BLUE VERBENAS, 7s. per 100.
PURPLE VERBENAS, 7s. per 100.
LOBELIA SPECIOSA, from cuttings, 5s. per 100.
CATALOGUES post free on application.
The above are well-rooted and good healthy Plants, shaken out of cutting pots.
Samuel Cox, Nurseryman and Florist, Ludlow.

Russell's Pyramid Primulas.

GEO. CLARKE is now prepared to send out in packets, price 2s. 6d. each, this, the finest breed of PRIMULAS in cultivation. The Seed now for sale has been saved from selected plants, so that it is believed the produce will be even superior to that of former years.
Printed instructions for raising and growing the plants sent with each packet. Stamps received in payment.
Nursery, Streatham Place, Brixton Hill, London, S.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
*** Part II. (Exotic Ferns) will be issued as early as possible.
Foot's Cray Nursery, S.E.

TO EXHIBITORS of PLANTS.—A large and beautiful stock of fine SPECIMEN PLANTS on Sale at J. C. Papman's, Providence Nursery, Boston Spa, near Tadcaster.
Just published, a NEW DESCRIPTIVE CATALOGUE of DAHLIAS, HOLLYHOCKS, and BEDDING PLANTS, to be had on application. Boston Spa.—April 8.

New Zonale Pelargoniums.

J. SALTMARSH AND SON, Nurserymen, Seedsmen, and Florists, Chelmsford, beg to offer the following New Varieties, which will be ready for distribution on May 1.

LITTLE TREASURE.—This is unquestionably the best Dwarf Scarlet Geranium ever raised, either for bedding or pot culture. The foliage is small; colour, dark green with a slight zone; flowers bright scarlet with small white eye, equal in form and colour to that well-known variety "Attraction," and produced in greater profusion than any other variety extant. The wood being very close-jointed, young plants bedded out scarcely exceed 6 inches in height during the summer, and are covered with bloom throughout the season.
It was awarded a First-class Certificate at the Royal Horticultural Society's Meeting, Sept. 13th, 1864. Price 5s. each.

LUNA.—Foliage rich golden yellow, with a broad well-defined bronze red or chocolate zone; flowers, rich scarlet with small white eye. This will prove a most effective variety for mixed beds or ribbon borders; planted side by side with Christine it has a charming effect. Its qualities are not fully developed under pot culture, consequently it has not been shown in a favourable condition to receive awards at meetings. Price 10s. 6d. each.

The above varieties have elicited the following favourable reports from leading horticultural journals:—

From the Gardeners' Chronicle, September 12, 1863.

"Some attractive Pelargoniums were shown by Messrs. Saltmarsh & Son, one of which, called 'Little Treasure,' of dwarf bushy habit, with small zonate leaves, and a profusion of scarlet flowers, promises to be useful; and another, 'Luna,' a yearling, had handsomely marked leaves of a golden yellow, with a well-defined zone of brownish red."

From the Gardeners' Weekly Magazine, in the report of the Royal Botanic Society's Exhibition, July 9, 1864, under the head of New Geraniums:—

"From Messrs. Saltmarsh & Son, Chelmsford, came 'Little Treasure,' dwarf habit, dark green leaf with dark zone, small trusses of lively scarlet flowers, as good in form and substance as 'Attraction.' This will no doubt be a first rate bedder."

And from report of the Horticultural Society's Meeting, September 13, 1864, in the Journal of Horticulture:—

"'Little Treasure,' a free-flowering dwarf variety, with scarlet flowers, of very compact habit, producing a profusion of trusses of flowers, and very useful for bedding purposes; received a First-class Certificate.

SEEDS.

Thomas Gibbs & Co.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND — THOS. GIBBS & Co. Corner of HALF-MOON St PICCADILLY, London. APPOINTED Apl. 3, 1844. THE SEEDSMEN

CORNER of STREET.

Trade Mark.

AGRICULTURAL, GRASS MEADOWS and PASTURES.

KITCHEN GARDEN AND FLOWER.

Catalogues forwarded post free to any address on application.

CARNATIONS, PICOTEES, and PINKS.

ROYAL NURSERIES, GREAT YARMOUTH,

YOUELL & CO.

Beg to offer to the Nobility, Gentry, and Trade generally, their EXTENSIVE and SUPERB COLLECTION of the above, which are this season unusually strong and healthy, at the undermentioned prices.

New Scarlet Clove Carnation, Garibaldi.

Youell & Co. have much pleasure in offering the above magnificent variety, far surpassing any in cultivation; colour intense vivid scarlet, large and bold flowers, fine pod free from bursting; the delicious Clove scent which it possesses is not to be equalled in any of its class. 5s. per pair; if 12 pairs are ordered, £2 10s.

New White Clove Carnation, Princess Alice.

Y. & Co. beg to offer a few pairs of the above desirable variety, which possesses the same properties as Garibaldi, only differing in colour, being of the finest snowy white. 5s. per pair; if 12 pairs are ordered, £2 10s.

Perpetual Flowering or Tree Carnations,

FLOWERING SUMMER AND WINTER.

This deservedly popular class has of late received many additions to its hitherto general favourites. They cannot be too strongly recommended, not only for their delightful fragrance but the brilliant display they afford, during the Autumn and Winter months, either in the Greenhouse, Conservatory, or open Garden during the Summer months. 12s., 18s., and 24s. per dozen plants.

Carnations and Picotees.

Y. & Co.'s collection of these is probably the most extensive in the Trade, and having for a series of years paid special attention to their cultivation, introducing the best of the new varieties, they are enabled to offer them at the following prices for fine strong well-rooted plants:

CARNATIONS, finest first-class varieties, by name, 18s. per dozen pairs.
PICOTEES, finest first-class varieties, by name, 18s. per dozen pairs.
Ditto, on yellow grounds, 20s. and 30s. per dozen pairs.
Finest mixed BORDER CARNATIONS and PICOTEES, 8s. per dozen pairs.
True old CRIMSON CLOVE CARNATION, 12s. per dozen pairs.
YOUELL'S FIRE KING, very brilliant, 18s. per dozen pairs.

New Italian Yellow Carnations.

Youell & Co. have succeeded in importing 25 very choice, distinct, and beautiful varieties of the above—the ground colours being a rich yellow, striped and suffused with various shades of scarlet, crimson, purple, plum, and blue; they are extremely hardy, very strong growers, highly fragrant, and will give general satisfaction. Price 3s. 6d. per pair, or 40s. per dozen pairs, of the most distinct kinds.

ROYAL NURSERIES, GREAT YARMOUTH.

NEW PLANTS FOR 1865.

B. S. WILLIAMS,

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.,

Begs to announce that on the 1st May he will be prepared to supply strong Plants of the undermentioned Novelties, which he has much pleasure in offering for the first time:—

New Fuchsias.

The following four Fuchsias are the most novel and distinct yet offered, and cannot fail to give satisfaction. The first is the production of Mr. Wyness, Gardener to Her Majesty, Buckingham Palace, by whom it was exhibited during the past season, and received Certificates of Merit. Amongst novelties and acquisitions introduced of late, this undoubtedly is the most distinct, but at present it must not be looked at in the light of a florist flower, but as the type of an entirely new race, producing its cluster of flowers quite erect. Its habit is superior to the light varieties of the ordinary drooping kinds, and it blooms profusely throughout the season, thus making it a very valuable Decorative plant, and invaluable for supplying Cut Flowers. In Nos. 2, 3, & 4, will be found great improvements on those previously sent out. No. 2, a well-formed flower, with great width of sepal. No. 3 is the finest proportioned double flower yet offered. No. 4, quite distinct on account of its serrated petals.

No. 1. FUCHSIA ERECTA, VAR. NOVELTY.—Tube and sepals pure white, medium size; sepals cordate, gracefully recurved; corolla soft rose, shading to a white base. A very nice proportioned flower, its habit good, producing large clusters of bloom; leaves marbled and veined; a decided acquisition.

No. 2. FUCHSIA AGAMEMNON.—Rich scarlet sepals, broad, and of great substance; corolla very double; colour dark plum, flaked towards the base with fiery crimson; habit first-class.

No. 3. FUCHSIA MAJESTIC.—Carmine scarlet sepals, tube of great substance, and well reflexed; corolla blush violet, flamed or feathered to the base. Undoubtedly the finest double Fuchsia yet raised.

No. 4. FUCHSIA SERRATIPETALA.—Corolla barrel shape, rich mulberry colour; each petal evenly serrated; scarlet tube and sepals, the latter reflexed to the tube, showing the feathered base of the corolla. A grand flower for exhibition purposes.

Price 7s. 6d. each.

New Single Petunias.

STRIATA PERFECTA (Holland).—The production of Mr. Holland, of Isleworth, the successful raiser of Royalty and Prince of Northumberland, the favourites of the past season. The variety now offered is quite distinct in character, having blush white ground and four pure magenta stripes evenly diverging from the centre. The flowers are of a medium size, good shape, and constant. The Seedling Plant when exhibited was about 2 feet high, and as much through, covered with flowers, thus showing its first-class habit and constancy. Received First-class Certificates from the Royal Botanic and Royal Horticultural Societies, July, 1864.

Price 5s.

SPLENDIDA (Williams).—Very large and distinct flower, pure white ground, having four bars or club-shaped stripes of rich carmine diverging from the centre; the outline occasionally broken by a small blotch; good free branching habit. Received First-class Certificate.

Price 5s.

PURPLE BEDDER.—A diversity of character and colour is much wanted in our summer gardening, with quality combined. The Petunia has long been a favourite flower, but constitution and substance have been wanting to withstand our variable seasons. This variety is therefore confidently recommended to supply the desideration, being of medium height, with free branching habit, requiring no pegging down. B. S. W. feeling assured that it will be found the best bedding Petunia yet offered, has prepared a large stock to supply at moderate prices.

Price 2s. 6d. each; 24s. per dozen; £6 per 100.

New Calceolaria.

BIRD of PARADISE.—Colour bright orange red, with a small spot of yellow, the whole flower minutely spotted, medium in size, in truss, free branching habit, giving a good succession of flowers, suitable either for bedding or pot culture. When grown as a plant its flowering season may be prolonged up to Christmas, and when such a striking colour will be most acceptable.

Price 5s.

NEW GRAPE, ROYAL VINEYARD.

B. S. Williams begs to state that he has still a fine stock of this valuable Grape. For description see previous Advertisements. The following report has been recently received:—

From the *West of Scotland Horticultural Magazine*, March 1865.

"The New Grape, Royal Vineyard.—A bunch of this Grape received by us on February 28, was submitted to several practical gardeners in this district, including some of our leading Grape growers, and the following is their opinion of its merits. The first and most conspicuous quality is its fine, plump condition, at this season of the year, which proves its value as a late-hanging white Grape—certainly in advance of any other in that respect. No berries had been cut from the bunch sent, and none bore any signs of shrivelling or decay. The berries are large, more round than oval, average size, very thin skinned, more juicy than sugary, of good flavour, which a slight dash of Frontignan may be detected, and with something of the amber appearance of the Muscat. The bunch is somewhat like that of the Frontignan in outline, but the shoulders are considerably larger, and the body more bulky. As a good late hanging white Grape, which was much wanted, this variety takes a position peculiarly its own."

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.

Notice.

PURCHASERS of LARGE QUANTITIES of FARM or GARDEN SEEDS will be supplied liberally by Sutton & Sons. For prices apply (stating quantity required) to Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

Primula sinensis Seed.

F. and A. SMITH, The Nurseries, Dulwich, S., beg to offer Seed of their extra fine and superb strain of the above, which they can guarantee to be of unequalled quality, and likely to produce a considerable proportion of Double flowers. They have now in bloom a collection of the various varieties of this favourite flower, both single and Double, and respectfully invite an inspection of them.

PRIMULA SINENSIS, red, 1s. and 2s. 6d. per packet.
" white, 1s. and 2s. 6d. per packet.
" KERMESINA, a new colour, extra fine, 2s. 6d. per packet.
" striped, 2s. 6d. per packet.
" The Trade supplied on liberal terms.

CHOICE VARIEGATED GERANIUMS for BEDDING or POT CULTURE.

Mrs Pollock	Golden Tom Thumb	Rainbow
Yellow Belt	Golden Vase	Glow-worm
Mrs Milford	Fontainebleau	Burning Bush
Golden Harkaway	Miss Emily Domville	Snowflake

The above 12 varieties will be sent on receipt of a remittance for 21s., by Alfred Fryer, Nurseryman, Chatteris, Cambridgeshire.

Magnificent Double Hollyhocks.

H. J. HARDY'S LIST is now ready, and will be sent post free. All the varieties (including upwards of 50 new ones, and some extra Dwarf Novelties) are Exhibition Show Flowers, and strong well-grown plants, price 6s. to 18s. per dozen; Seedlings, free on application. All Carriage paid to London, and for Two Dozen to any Railway Station.

Stour Valley Seed Grounds, Bures, Essex. Established 1804.

RICHARD SMITH'S SEED CATALOGUE contains a Calendar of Time for Sowing, particulars of Collections, with Prices, Directions for Cropping well and economically, Soil, Manure, Depth, Distance, Season, Hardiness, Duration, Form, Height, Colour, Storing, Use, Flavour, and other qualities described. This List Free by Post for one stamp. Seeds direct from the Growers the surest way to success.

Richard Smith, Seed Merchant, Worcester.

BEATON'S GERANIUMS.

Notices of the Press.

"Among scarlets passing off in one direction towards orange and yellow, and in the other towards purple rose and magenta, the bedder-out will have acquired amongst Pelargoniums a variety of tints which must be invaluable to him, especially in seasons like the present; the flowers, moreover, having in many cases a play or glow of colouring, which gives them extraordinary richness and brilliancy."—*Gardeners' Chronicle*, August 20, 1864.

"There is a decided novelty in their colour and style, which will render them indispensable in every collection."—*Journal of Horticulture*, July 5, 1864.

"The like have never been obtained; possessing as they do not only novelty, but singular beauty of colour, and remarkable profusion of bloom."—*Journal of Horticulture*, September 20, 1864.

"The acquisition of new colours amongst the varieties of so popular and useful a flower cannot be otherwise than agreeable to those who follow up the parterre system of flower gardening. * * * Many of them combine the prolific bloom of the Nosegay race with the better-shaped blossoms of the more ordinary kinds. * * * Indispensable to those who, in the matter of flower gardening, wish to keep pace with the times."—*The Florist*, January, 1865.

ALEXANDRA.—Top petals of flowers crimson, lower petals magenta the combination of colours producing a most beautiful glow or play of colour; very free and effective. Price, 5s. each.

AMY HOGG.—Flowers bright purplish rose, the trusses of immense size, very abundant, and standing up well above the leaves. A strong free-growing Hybrid Nosegay, of spreading habit, the leaves slightly zonate, very distinct and attractive. Price, 5s. each

"A grand acquisition."—*The Florist.*

"It was the admiration of all who saw it."—*Journal of Horticulture.*

"Very distinct and attractive; * * stands in the front rank."—*Gardeners' Chronicle.*

BEATON'S INDIAN YELLOW.—Flowers orange scarlet, with a strong glow of yellow, quite a novel and pleasing colour; the trusses, which are of medium size, are produced in extraordinary abundance; a Hybrid Nosegay, of dwarf but free habit, with zonate leaves, a distinct and first-rate bedding variety, and very effective. Price, 5s. each.

"A most unexpected and valuable addition to the materials for parterre gardens."—*Gardeners' Chronicle.*

"Quite novel in colour."—*Journal of Horticulture.*

"All the more welcome as being the first of this colour which will be placed within reach of the flower gardener."—*The Florist.*

BLACK DWARF.—Flowers crimson scarlet, the trusses of medium size and very abundant, leaves darkly zonate; a true Nosegay, of close dwarf habit. Grown at the Crystal Palace on trial, although not before offered for sale. Price, 2s. 6d. each.

"Extremely useful for small beds or the margins of ribbon borders, on account of its close dwarf habit."—*Gardeners' Chronicle.*

DONALD BEATON.—Flowers clear orange scarlet, of immense size and fine form, trusses also large; a strong free-growing kind, excellent for bedding. Price, 5s. each.

"A thoroughly good variety."—*Gardeners' Chronicle.*

DUCHESS.—Flowers soft rosy lake, of good size and form, trusses also good and abundant. A very free-flowering kind, of dwarf habit, invaluable for bedding. Price, 3s. 6d. each.

FULGENS.—Flowers vivid scarlet, with large clear white eye, truss large and compact, forming a perfect globe, horse-shoe leaf. Price, 3s. 6d. each

GLOWWORM.—Top petals of flowers fiery scarlet, lower petals of magenta flushed with crimson; the trusses are good and abundant, very erect, standing well above the foliage; the habit is dwarf and compact. This variety promises to be one of the most novel and beautiful plants recently introduced for beds, the combination of colours producing a rich and peculiar glow quite unique in the Geranium. Price, 5s each.

"Quite a novelty."—*Journal of Horticulture.*

"Another remarkable flower."—*Gardeners' Chronicle.*

"Remarkable for the glow of colour."—*The Florist.*

MAGENTA QUEEN.—Flowers magenta, top petals crimson, with large white eye; a Hybrid Nosegay, of strong free habit, very distinct and pleasing. Price, 5s. each.

ORANGE NOSEGAY.—Flowers bright orange, trusses very large; a true Nosegay, with deep green leaves, and of free habit, quite new in colour, very effective. Price, 5s each.

"A great acquisition; * * the flowers differ from all others we have seen in their decided bright orange tint."—*Gardeners' Chronicle.*

"In this the yellow tint is also strongly marked."—*The Florist.*

PILLAR of BEAUTY.—Flowers brick-red, scarlet eye, immense truss, half-climbing habit, invaluable for clothing the pillars or walls of the conservatory and flower garden. Price, 5s. each.

PRINCESS LICHTENSTEIN.—Flowers salmon pink, beautiful soft colour, very smooth, perfect form and fine close habit. Price, 5s. each.

SALAMANDER.—Flowers brilliant scarlet, white eye, fine compact habit, horse-shoe leaf. Price, 3s. 6d. each.

SCARLET GEM.—Flowers bright orange scarlet with white eye, a profuse bloomer, dwarf habit, with dark horse-shoe leaves, invaluable for the mass of colour it produces. Price, 3s. 6d. each.

MRS WM PAUL.—Flowers clear delicate rose-pink, very large and of perfect form, habit dense, dwarf, and strong; a plant of great promise for out-of-door culture. Price, 5s. each.

"In respect to size and form far in advance of all the rose-pink varieties we have yet seen; * * flowers larger than a crown-piece; * * quite circular; * * exceedingly delicate and beautiful."—*Gardeners' Chronicle.*

WALTHAM SEEDLING.—Flowers fine, full, dark crimson, very large truss, horse-shoe leaf; a Hybrid Nosegay, raised from Stella, but much darker than that variety. Price, 5s. each.

Good Plants ready for delivery in May next. Early orders are respectfully solicited.

William Paul, Waltham Cross, London, N.

Choice Flower Seeds.

B. S. WILLIAMS begs to offer the following choice selection of FLOWER SEEDS, which he can specially recommend:—

PRIMULA (Williams' superb strain), Red, White, or mixed, 2s. 6d., 3s. 6d., and 5s. per packet.
CALCEOLARIA, finest mixed, 2s. 6d. per packet.
CINERARIA, finest mixed, 2s. 6d. per packet.
ASTER, all the best kinds, 6d. per packet.
AURICULA, seed saved from a superb collection, 1s. per packet.
BALSAM, Camellia-flowered, extra fine, 1s. per packet.
HOLLYHOCK, from named flowers, 6d per packet.
PANSY, seed saved from prize flowers, 1s. per packet.
CARNATION and PICOTEE, very fine, 1s. per packet.
STOCKS, all the best kinds, 6d per packet.
PETUNIA, very choice, 6d. per packet
RESEDA CRYSTALLINA (the new Mignonette), 1s. per packet
GLADIOLUS, fine varieties, 6d. per packet.
GLOXINIA, erect or drooping, 1s per packet.
HOVEA CELSI, good seed, 1s 6d per packet.
WEITZIA AUREA and CORYMBOSA, 1s. per packet.
WIGANDIA CARACASANA, 1s per packet.
ORNITHOGALUM THYRSOIDES ALBUM, 1s per packet.
CORDYLINE INDIVISA, 2s 6d. per packet.
CELOSIA AUREA PYRAMIDALIS, 1s. per packet.
WHITLAVIA GRANDIFLORA ALBA, 1s per packet.
NOLANA LANCEOLATA, 1s. per packet.
PRIMULA FILICIFOLIA, Red or White, 3s. 6d. per packet.

Paradise and Victoria Nurseries, Holloway, London, N.

The Royal Vineyard Nursery and Seed Establishment Hammersmith, London, W.

A CHOICE and EXTENSIVE COLLECTION of STOVE and GREENHOUSE PLANTS always on view. Also FRUIT TREES, SHRUBS, and ORNAMENTAL TREES, from the Country Branches of the Firm.

The SEED and GENERAL NURSERY BUSINESS is carried on here, and Packages are delivered free at the various London Railway Stations.

Branches.

EALING NURSERY, G. Cannon, Manager.
Ten minutes' walk from the Ealing Station on the Great Western Railway Main Line

FRUIT TREES, ROSES, and SHRUBS, are here extensively and successfully cultivated in some of the finest Loam in the County.

FELTHAM NURSERY, R. Higham, Manager.
Ten minutes' walk from Feltham Station.

EVERGREEN and DECIDUOUS SHRUBS, and CONIFERÆ are here largely grown in a free Loam, well suited to their habits.

At SION LANE and WOOD LANE NURSERIES, ISLEWORTH. ORNAMENTAL TREES are in a healthy and thriving state, and GENERAL HARDY PROPAGATION is here carried on.

The Stock in the above Nurseries is well worth the inspection of purchasers. The prices are very moderate, and the Plants are frequently transplanted to ensure safe removal.

The following CATALOGUES are published, and will be forwarded Post Free on application:—

CATALOGUE of KITCHEN GARDEN, FLOWER, and AGRICULTURAL SEEDS.
CATALOGUE of STOVE and GREENHOUSE PLANTS.
CATALOGUE of SOFT-WOODED and BEDDING PLANTS.
CATALOGUE of FRUIT TREES and FRUIT TREES in POTS.
CATALOGUE of HARDY SHRUBS and TREES (will shortly be issued).
CATALOGUE of DUTCH BULBS, published in August.
CATALOGUE of ROSES.

John & Charles Lee, Proprietors, Hammersmith, London, W.

T. and A. ANSELL, having an immense stock of BEDDING PLANTS, will be prepared to send them out to the Trade, and to parties requiring large quantities, at 10s. per 100, the first week in May. VERBENAS (Scarlet, Purple, and White), LOBELIAS, CALCEOLARIAS, PYRETHRUMS, AMARANTHUS, CINERARIA MARITIMA, AGERATUMS (Blue and White), NIEREMBERGIAS. Early orders solicited, which will be executed as received. Post Office Orders (payable at Brecknock Place, Camden Town,) or reference required.

Camden Nursery, Grafton Road, Kentish Town, N.W.

JOHN HOLLAND begs to intimate to his friends and patrons that he has TAKEN into PARTNERSHIP his Son-in-Law Mr. Frederick Jones. That the Business will in future be continued by the Firm of Holland & Jones, Bradshaw Gardens, Chadderton, near Manchester.

CATALOGUES of FLORIST FLOWERS, ROSES, FRUIT TREES, &c., on application.

HOLLAND and JONES have ready for delivery a large and Choice Collection of

CARNATIONS, fine first-class show varieties, 9s. to 18s. per doz. pairs.
PICOTEES, " " " 9s. to 18s. " "
YELLOW GROUND PICOTEES, the largest collection in Europe, 9s. to 18s. per dozen pairs.
BORDER CARNATIONS and PICOTEES, 6s. per dozen pairs.
PANSIES, good varieties, 4s. to 6s per dozen plants.
The Heaviest LANCASHIRE SHOW GOOSEBERRY TREES, 3 and 4 years old, 4s. to 6s. per dozen.

A remittance required from unknown correspondents.

Novelties for 1865.

GEORGE SMITH begs respectfully to announce that he has much pleasure in offering his NEW SEEDLING FUCHSIAS, VARIEGATED and ZONALE GERANIUMS, being confident that they far surpass anything yet offered, viz:—

FUCHSIAS.

DIADEM (G. S.)—Tube and sepals waxy scarlet, well reflexed, of great substance; corolla dark violet with vermilion feather. One of the finest double Fuchsias yet offered. 10s. 6d.

EXCELLENT (G. S.)—Tube and sepals crimson; corolla magenta, new in colour, very large and fine. 10s. 6d.

FANTASTIC (G. S.)—Tube and sepals crimson scarlet, well reflexed; corolla mauve, most singularly formed, there being eight petals, the outer four expanded in the way of La Crinoline, and the inner four forming an inner corolla round the filaments; thus there are two distinct corollas in one. A free-blooming and brilliant variety. Figured in the Floral Magazine for Feb. 10s. 6d.

GENERAL LEE (G. S.) Tube and sepals of fine form, well reflexed; corolla violet purple, very double, extra large, and very smooth of robust habit. A first-class variety. 10s. 6d.

ZONALE GERANIUMS

GLORY.—Flowers of fine form and great substance, light orange scarlet, in the way of Herald of Spring and Roi d'Italie, but brighter in colour; pips larger than a crown piece, extra. 5s.

HIGHGATE RIVAL.—Flowers rosy salmon, large, and circular; truss extra large, well formed, quite new in colour, a free bloomer, and in every way a fine variety. Awarded a Certificate by the Floral Committee of the Royal Horticultural Society. 5s.

IDA.—Flowers blush with pink centre, truss very large and well formed, blooming for an extraordinary length of time. It is an acquisition. 3s. 6d.

PINK BEAUTY.—Flowers rosy pink, the upper petals white and pink, truss large, compact, and of excellent form, remarkably free, and one of the best of its class. 3s. 6d.

PRIME MINISTER.—Zonate foliage, flowers of fine form, bright scarlet and white eye. 5s.

PRINCESS.—Bright rosy pink, truss large, a free blooming and fine bedding variety. 3s. 6d.

THE CLOWN.—Flowers large and conspicuous, white ground, rosy scarlet centre, truss large and compact, very fine and free. Awarded a First-class Certificate by the Royal Botanic Society. 5s.

VARIEGATED GERANIUM.

STELLA VARIEGATA.—A sport of Nosegay Stella, being a most splendid addition to its class; of dwarf habit; foliage green with a broad band of creamy white, crimson scarlet flower. The most beautiful and effective Variegated Geranium for clumps or ribbon planting. 10s. 6d.

G. S. will be prepared to send out after April 20, in good plants, the foregoing New Fuchsias, Zonale and Variegated Geraniums.

Early orders are respectfully solicited.

*** Coloured Illustrations of Fuchsia Diadem, Fantastic, and General Lee, by Mr. Andrews, in exchange for 12 postage stamps.

Tollington Nursery, Hornsey Road, Islington, London, N.

Strong Fruiting Vines.

JAMES DICKSON and SONS can still supply MUSCAT of ALEXANDRIA, CANON HALL MUSCAT, and MILL HILL HAMBURGH for immediate fruiting in Pots; also, True BLACK ALICANTE, LADY DOWNES' SEEDLING, and a few other leading varieties, strong, for planting out.

The "Newton" Nurseries, Chester.

Vine Duchess of Buccleuch.

New Seed and Plant Catalogues, &c

ROBERT PARKER has much pleasure in offering this distinct and valuable early GRAPE, which will supply the long-felt desideratum of a White Grape with Muscat flavour that may be grown and ripened with the Black Hamburgh. Strong Planting Canes, 21s each; extra strong Fruiting Canes, 42s. each.

The following Certificates and Prizes have been awarded at various London and other Exhibitions.

Two Certificates of Merit.
Three First-class Certificates
Two First Prizes in open competition for the finest flavoured Grape of any colour. Chasselas Musqué, Muscat of Alexandria, and Frontignan competed for these prizes. For further description see Hogg's *Gardeners' Year Book for* 1865, page 32, and *Gardeners' Chronicle* of October 1s and 22d, 1864, pages 813 and 1008

Also New SEED CATALOGUE, containing Select Priced and Descriptive Lists of the best varieties of Vegetable, Flower and Agricultural Seeds; and New GENERAL PLANT CATALOGUE, containing Priced and Descriptive Lists of Miscellaneous, Greenhouse, Hardy, and Stove Plants, Azalea indica, Conifers, Ferns, Fruit Trees, Grapes, Rhododendrons, Roses, Dutch and other Bulbs, &c., which will be forwarded to applicants.

Exotic Nursery, Tooting, Surrey, S

Magnificent well ripened Vines from Eyes,

At Low Prices.

GEO. CLARKE has a large Stock of very superior short-jointed VINES in pots, consisting of the leading kinds, well adapted for fruiting in pots this year, or for planting out to make permanent Vineries. Names and prices furnished on application. Nursery, Streatham Place, Brixton Hill, S.

To the Trade and others.

WOOD and INGRAM having a fine stock of the following, will be glad to dispose of them at a very cheap rate:—

Dwarf maiden Apples.
Dwarf maiden Cherries.
Dwarf maiden Peaches.
English Elms, 1-year seedling.
English Oaks, 2-years' seedling.
Gorse, 2 years seedling.
Acacia, Common, 8 to 10 feet, and 10 to 12 feet.
Acacia inermis, fine Standards.
Standard and Dwarf Worked Roses.
Dwarf Box for edging.
Carnations and Picotees, show varieties.
Standard Laburnums.
Abele Poplars, 10 to 12 feet.
Cut-leaved Alders, 4 to 5 feet, and 6 to 7 feet.
Bishop's Longpod Peas.
Dickson's Early Favourite Peas.
White Spanish Onion, Bedfordshire grown.
Asparagus, 2 and 3-years.
Sea Kail, 1 and 2-years.

Prices on application.

The Nurseries, Huntingdon.

Dwarf-trained Trees.

By the Thousand, Hundred, or Dozen.

APPLES, PEARS, PLUMS, CHERRIES, PEACHES, and NECTARINES.

Fine, flat, well trained, of best quality and true to name.

Richard Smith, Nurseries, Worcester.

CARTER'S GARDENER'S VADE-MECUM is now ready

DIPLADENIA AMABILIS.—This is a new hybrid of unrivalled beauty, having the deep rosy crimson flowers of D. crassinoda, approaching the size of D. splendens. It is of good habit and a most abundant blooner, and for stove decoration or exhibition an invaluable acquisition. 7s 6d. each

Jas. Backhouse & Son, York Nurseries

To the Trade.—Golden Chain Geranium.

WILLIAM HUSSEY begs to offer the above, fine healthy Plants, struck last spring, which have been topped, and have now several shoots on each, at 25s per 100, or £10 per 1000 Also several thousands struck in August last in store pots (not topped), which could be shaken out and packed in a very small compass, at 16s. per 100.

Mile End Nursery, Eaton, Norwich

NEW HARDY LATE-FLOWERING RHODODENDRONS.

PRINCE of WALES.—Bright rose shaded with purple, divided black marking on the upper petals, free grower, profuse bloomer, hardy, and the latest Hybrid Rhododendron grown. One-year grafted plants, 10s. 6d Two-year ditto, strong, 21s. Larger plants, 31s. 6d. to 42s. each.

PRINCESS of WALES.—Deep magenta edge, pure white centre, primrose flake on the upper petals, slightly spotted with brown; totally distinct from any variety at present known, and when in bloom may be readily distinguished from all others; it is a beautiful and first-class Rhododendron. One-year grafted plants, 10s. 6d. Two-year ditto, strong, 21s. Larger plants, 31s. 6d. to 42s. each.

The usual Discount to the Trade.

The above beautiful Rhododendrons were first introduced to the public last year by M. Y., and he has again much pleasure in calling attention to them: they are both most distinct varieties, the colour and marking of the Princess of Wales being quite a fresh type, and unlike any other Rhododendron. They have both been proved in the open ground for several years, capable of withstanding our most severe winters, and being very late bloomers escape the spring frosts, frequently so fatal to the earlier blooming kinds. They are confidently recommended as most desirable additions to this favourite class of plants.

Coloured Plates, by Andrews, will be forwarded on application for 13 stamps each, or the two for 25 stamps.

Maurice Young, Milford Nurseries, near Godalming, Surrey.

Primula sinensis fimbriata.—Double Flowers from Seed.

WINDEBANK and KINGSBURY have much pleasure in announcing that they are now prepared to receive orders for Seed of their superb strain of CHINESE PRIMULAS, which after several years careful selection and hybridizing, they can recommend as the finest strain in cultivation. Blooms were submitted to the Editor of the *Gardeners' Chronicle*—an extract from his article on them will be found below. We also exhibited a Collection before the Floral Committee of the Royal Horticultural Society, on the 21st March last, when three First-class Certificates were awarded to Selected Varieties, and a Special Certificate to the Collection for their novelty and excellence. The five Double varieties exhibited and sent out by Messrs Smith of Dulwich, which have also been awarded several First-class Certificates, were raised by us. Our Seedlings have produced us since 1862 nearly 250 beautiful double flowering plants. The Seed now offered will produce a proportion of Double flowers—apart from this very valuable property, the single flowers, as will be seen below, are remarkable for their variety of colour. Our Collection comprises five distinct colours, viz., white, blush, rosy lilac, deep carmine, and striped, and their intermediate shades.

Extract from the *Gardeners' Chronicle*, p. 244.—

" * * * We have been lately much gratified by the sight of a box of flowers from Messrs Windebank & Kingsbury, of Southampton. * * * Their strain of Primula is a remarkably fine one. The flowers are large, full, and frilled, and in colour vary from white through shades of flesh colour, to blush of deepest hue, and from that again to the carmine rose tint of M. Behary's Carminata, and on through the ordinary deep rose tints to a very dark purple rose. The pale ones especially are also remarkable for a large yellow star-like eye, sometimes measuring fully 5-8ths of an inch across, the flowers themselves being about 2 inches. Some others are splashed and flaked with rose on a white ground, and both pure white and flesh-tinted white, as well as rose and rosy purple full double flowers, were amongst those sent for inspection. * * * ."

We are now booking orders for Seed, which will be ready in June next. As the stock will be limited, early orders are solicited, which will be executed in strict rotation.

Sealed packets, 2s. 6d. each. Trade price on application.

Bevois Valley Nursery, Southampton.

Flowering Plants.

F. AND A. SMITH, The Nurseries, Dulwich, S., beg to offer the following, nicely bloomed and in good condition. Prices, which are moderate, will be furnished on application. AZALEAS, EPACRIS, HYACINTHS, TULIPS, ACACIAS, CINERARIAS, CYTISUS, GERANIUMS, CYCLAMENS, &c., &c.

Special quotations to the Trade.

PETER S. ROBERTSON AND CO.'S SOWER'S GUIDE, containing a fully Descriptive and Priced List of their new and select stock of SEEDS suitable for all GARDEN and AGRICULTURAL purposes, with many useful Hints as to Culture, will be forwarded post free on receipt of six stamps.

33, St. Andrew Square, and Trinity Nursery, Edinburgh.

Cheap Bedding Plants—Mostly 2s. 6d. per Dozen.

J. SCOTT, Merriott, Somerset, has just Published the 14th Edition of his FLOWER GARDEN DIRECTORY and CATALOGUE of BEDDING PLANTS; it is full of matter interesting to lovers of flowers, such as Selections of all the best plants for decorative purposes, with ample directions how to Plant, Arrange, and Cultivate them, in Ribbons, Circles, Squares, &c. It also enters largely into WINTER and SPRING GARDENING, with full Directions thereon, and giving Lists of all the best Early Flowers, and their Cultivation. Price 7d.

British and Exotic Ferns.

A. STANSFIELD AND SONS, NURSERYMEN, &c., Todmorden, beg respectfully to announce that their new GENERAL FERN LIST will be ready for issue in May next. The list will be sent, post-free, for three penny postage stamps.

The BRITISH SECTION, comprising some 500 varieties, with practical hints upon the Culture of the different species, is now ready, and will be forwarded post-free for two penny postage stamps. Gratis to all previous purchasers of Ferns. Note full address,

A. Stansfield & Sons, Vale Nurseries, Todmorden, Lancashire.

BEDDING PLANTS, from Store Pots, 8s. per 100; less quantities, 1s. 6d. per dozen.—VERBENAS Defiance, Mars, Lord Raglan, Brillant de Vaise, General Simpson, Purple King, Mrs. Holford; CINERARIA MARITIMA; CERASTIUM TOMENTOSUM; CALCEOLARIA PRINCE of ORANGE, AUREA FLORIBUNDA.

Marsh & Perkins, 22, Drapery, Northampton.

Bedding Calceolarias.

JAS. BACKHOUSE AND SON offer the undermentioned, fine autumn-struck plants in single pots, strong and healthy, at 21s. per 100, 4s. per dozen:—

AUREA FLORIBUNDA	PRINCE of ORANGE
CAMDEN HERO	" YELLOWS
CANARIENSIS	SPARKLER
KAYI	

And the following at 6s. per dozen:—

DESIRABLE | PRINCESS ALEXANDRA
VICTOR EMMANUEL

York Nurseries.

RAYNBIRD, CALDECOTT, AND BAWTREE,
Seed Farmers and Merchants,
80, Seed Market, Mark Lane; and Basingstoke.
Prize Medals, 1851, for Wheat; 1862, for
"Excellent Seed Corn and Seeds."

CARTER'S GARDENER'S VADE-MECUM is now ready.

PINUS MARITIMA, PINEASTER or SEA PINE.—This variety of Fir is now being largely planted along the Seashore, where it grows better than any other Pine. Its qualities for standing the sea breeze and growing in any Soil—pure sand not excepted—are well known. The French Government are planting it in immense numbers along the Coast. A package containing 5000 2-year Seedlings will be forwarded on receipt of Post Office Order for 20s.; and prices of 1-year Seedling and Transplanted may be had on application. April is the best month for Planting.

The Nurseries, Elgin, N.B.

JUST ARRIVED from Belgium, ORANGE TREES with Fruit and Bloom, 2s. 6d., 3s. 6d., and 5s. each; CAMELLIAS and AZALEAS, 21s. per dozen; a splendid Collection of BRITISH and FOREIGN FERNS, many rare kinds; FERN STANDS filled complete, from 4s. 6d. each.

R. Green, 154, Kingsland Road, N.E.; and the Bedford Conservatories, Covent Garden, W.C.

TRANSPLANTED LARCH, &c.

25,000 fine Transplanted LARCH, 3½ to 4 feet
100,000 " " 2 to 3 feet
300,000 " " 1 to 2 feet

Bedded and Seedling LARCH in large quantities; Transplanted SPRUCE, &c., at moderate prices. Through rates by rail to all parts of the country.

R. Morrison, The Nurseries, Elgin, N.B.

E. PIERCE, Yeovil Nurseries, Somerset, offers
150 CEDAR of LEBANON, 8 to 10 feet, well rooted, 100s. per dozen.
2300 GREEN HOLLIES, three times transplanted, 60s. per 100.
2000 AMERICAN ARBOR VITÆ, 5 feet, 50s. per 100.
1000 CHINESE ARBOR VITÆ, 4 feet, 50s. per 100.
1000 RED CEDAR, 4 feet, 50s. per 100.
2000 PORTUGAL LAUREL, 2½ feet, 40s. per 100.

TO THE TRADE.

1-year Seedling ARBUTUS, 40s.
1-year Seedling ARBOR-VITÆ, CHINESE, 15s.
3-year Seedling " " AMERICAN, 15s.
1-year Seedling BERBERIS DARWINII, 40s.
1-year Seedling BROOM, WHITE PORTUGAL, 15s.
1-year Seedling " YELLOW SPANISH, 15s.
1-year Seedling PICEA NORDMANNIANA, 100s.
1-year Seedling PORTUGAL LAUREL, 15s.
1-year Seedling YEWS, ENGLISH, 15s.

BEDDED ARBOR-VITÆ LOBBII, 80s.
" BOX, NEW BROAD-LEAVED, 40s.
" HEMLOCK SPRUCE, 100s.
" PERNETTYA MUCRONATA, 70s.
" PORTUGAL LAUREL, 6 to 9 inches, 40s.
" PICEA PINSAPO, 2 yr., 100s.
" RETINOSPORA ERICOIDES, 80s.
" RHODODENDRONS, 3 yrs., very fine hybrids from best named sorts, 60s.
" THUJOPSIS BOREALIS, 3 to 5 inches, 70s.
" YEW, ENGLISH, 5 to 7 inches, 70s.

Richard Smith, Nurseryman, Worcester.

SPRING PLANTING—SPECIAL OFFER.

COMMON LAURELS, 2-year Cuttings, 20s. per 1000.
TREE BOX, Gold and Silver-Striped, and Handsworth Broad-leaf, 12s. per 100.
BIRCH, 8 to 10 feet, 75s. per 100.
IVIES (Irish), 20s. per 100.
" Californian and other sorts, 6s. per dozen.
LONICERA BRACHYPODA, 30s., 40s. per 100.

CONIFERÆ.

PICEA NORDMANNIANA, 1, 2, 3, and 4 feet.
" PINSAPO, 1, 2, and 3 feet.
" " fine specimens, 8 and 10 feet.
ARAUCARIAS, 2, 3, 4, 5, 6, 7, and 8 feet, very fine plants.
CRYPTOMERIA LOBBII, 2 to 2½ feet.
CUPRESSUS LAWSONIANA, 2 to 3 feet.
JUNIPERUS CHINENSIS, 1½ to 2½ feet.
" SABINA, 1½ to 2½ feet.
RETINOSPORA OBTUSA and PISIFERA, 50s. to 75s. per 100, new from Japan.
TAXUS ELEGANTISSIMA, 1 to 2 feet.
" Gold-Striped, 1 to 2 feet.
" Irish, 3, 4, 5, 6 to 7 feet.
THUJOPSIS BOREALIS, 1 to 1½ feet.
THUJA AUREA, 1, 1½ to 2 feet.
WELLINGTONIAS, 1 to 1½ feet.

A DESCRIPTIVE CATALOGUE of New and Rare Japanese Plants, Coniferæ, Rhododendrons, Evergreens, Fruit Trees, &c., will be forwarded on application to

Maurice Young, Milford Nurseries, near Godalming, Surrey.

RICHARD SMITH'S LIST of all the EVERGREEN FIR TRIBE suitable for Britain, giving size, price, popular and botanical names, derivations, description, form, colour, foliage, growth, timber, use in arts, native country and size there, situation, soil, and other information, with copious Index of their synonymes. Enlarged Edition, Free by Post for 12 postage stamps.

Richard Smith, Nurseryman, Worcester.

WELLINGTONIA GIGANTEA and CUPRESSUS LAWSONIANA. Warranted true.

Seeds of the above may now be had at W. J. Watson's Seed Warehouse, Town Hall Buildings, Newcastle-on-Tyne.

Price, per packet, 5s. and 2s. 6d. Sent post paid.

FOR SALE, ARAUCARIA EXCELSA, 8 feet high, and 5 feet through, in a pot about 18 ins. in diameter, price £5.

ARAUCARIA CUNNINGHAMII, 5 feet high, and 3 feet through, in a pot about 15 inches in diameter, price £4.

For further information apply to J. R., care of Messrs. Low & Co., Clapton Nursery, London, N.E.

Abies Douglasii.

WILLIAM BARRON begs to offer beautiful well-grown plants of the above, with good leaders and capital roots (never having been in pots), 15 in. to 18 in., 60s. per 100; 2 ft. to 2 ft. 6 in., 100s. per 100. As an ornamental timber tree, the Douglas Fir stands unrivalled. The noble specimen shown in the International Exhibition in 1862 was, when cut down, 309 feet high. The strength of the Timber considerably surpasses the Larch and best red Deal, and was only approached by the Pitch Pine. See *Gardeners' Chronicle*, June 17, 1863. Elvaston Nurseries, Derby.

FOREST TREES, &c., Transplanted, at reasonable prices:—Larch, 2 to 3, and 3 to 4 ft.; Spruce Fir, Beech, Elm, 1½ to 2, and 2 to 2½ ft.; Oak, Turkey; Chesnut, Horse; Beech, Purple, 2 to 3, 3 to 4, 4 to 6, and 6 to 8 ft.; Austrian and Weymouth Pines, 6 to 12, and 12 to 18 inches; Thorns, strong; Arbor-vitæs, fine; Yew, English and Irish, extra fine roots, 2 to 3, 3 to 4, and 4 to 5 feet.

POTATOS, LEMON KIDNEY, improved.—Three tons of this small selected seed will be Sold Cheap.

H. & R. Stirzaker, Skerton Nurseries, Lancaster.

BARR & SUGDEN
12 KING ST. COVENT GARDEN

SEED AND PLANT MERCHANTS.

Orders amounting to 21s. sent Carriage Paid.

Agents, Wholesale and Retail, for London and Home Counties for

STANDEN'S GARDENERS' AND AMATEURS' FRIEND.

A highly concentrated inodorous Artificial Manure. Sold in Canisters at 1s. 3d. and 2s. 6d.

(*The long-sought desideratum for the practical Gardener and Amateur.*)

The G. and A. F. is the most valuable of all Artificial Manures for promoting a healthy vigorous growth in Camellias, Azaleas, Franciscea, Ixoras, Boronias, Eriostemons, Polygalas, Dipladenias, Pimeleas and Orchids, also for all other Greenhouse and Stove Plants in general. For Fruit Trees in pots, Vine Borders, Lawns, Pleasure Grounds and Kitchen Garden Crops, the G. and A. F. is invaluable.

"The Royal Nurseries, Slough.

"Dear Sir,—I have much pleasure in giving my experience in reference to your Manure, 'The Gardeners' and Amateurs' Friend.' It is most valuable for many kinds of pot plants, particularly Azaleas and Camellias. I have also found it very beneficial for Rhododendrons in pots, and in small quantities for Roses, when so grown. I have no doubt but it is an excellent stimulant for Roses growing in beds and borders. We intend giving it a fair and extensive trial in 1865, in the open ground, also for Pot Vines.—And remain, &c.,

"Charles Turner."

"Mr. B. Standen."

"Timberhurst, near Bury.

"Sir,—I have used your Manure, 'The Gardeners' and Amateurs' Friend,' largely for all kinds of Fruit Trees in Pots in Orchard Houses, and found it to answer very much better than anything in the form of Manure I have ever tried; and being free from smell, it can be used largely in houses without being offensive to any person.—I am, yours respectfully,

"John Davenport,
(late Gardener to Thomas B. Potter, Esq., Buile Hill, Pendleton.)

"Mr. Standen."

"Abney Hall, Cheadle.

"Sir,—I have no hesitation in saying that your 'Gardeners' and Amateurs' Friend' is just the thing which I had long been wishing to meet with. I have used it during two or three seasons for New Holland plants generally,—also for Camellias, Azaleas, Ixoras, and most Stove Plants, and its effect on all of these was satisfactory, and this in such a degree as fairly surprised me. I have used several other Artificial Manures, also solutions of Peruvian Guano, and Manure Water obtained from various sources, against your Manure, and invariably found the latter to be most effective and perfectly safe. Its being inodorous is a great recommendation, as it can be used in houses frequented by ladies without any of the offensive smell caused by Manure Water.—Yours obediently,

"John Smith."

"Mr. Standen."

GLADIOLI, the most beautiful for Exhibition or Massing.

Per dozen, 2s., 3s. 6d., 5s. 6d., 9s., 12s., to 30s.; Per 100, 12s. 6d., 21s., 30s., 42s., to 100s.

LILIUM LANCIFOLIUM ALBUM, ROSEUM and RUBRUM.

Superb Plants for Conservatory and Flower Garden Decoration.

Each, 1s. to 1s. 6d.; Per dozen, 10s. 6d. to 15s. 6d.

LILIUM AURATUM, Flowering Bulbs, imported from Japan.

Each, 7s. 6d., 10s. 6d., and 12s. 6d.; Per dozen, 60s., 80s., and 100s.

FLOWER SEEDS, Hardy, Half Hardy, or Tender, in Collections, Post Paid.

3s. 6d., 5s. 6d., 7s. 6d., 10s. 6d., to 21s.

VEGETABLE SEEDS, in Collections, Carriage Paid, 21s. and upwards.

10s. 6d., 15s. 6d., 21s., 42s., to 63s.

FARM SEEDS, Carriage Paid, 21s. and upwards.

BARR AND SUGDEN, SEED MERCHANTS, 12, KING STREET, COVENT GARDEN, W.C.

BROMUS SCHRADERI

(AUSTRALIAN PRAIRIE GRASS).

JAMES CARTER & CO.

BEG TO ANNOUNCE THAT THEY ARE EXPECTING

A LARGE CONSIGNMENT OF THE ABOVE GRASS SEED

DIRECT FROM AUSTRALIA.

Their Correspondent *gives the following particulars of it:—*

This Grass is grown most successfully; it is considered to be far superior to any of the English Grasses. When used for Green food the growth is much more vigorous than Rye Grass. One of its peculiarities is that it sends up its seed at a very early stage of its growth, and that is one reason that makes it so much more nutritious than other Grasses. The Grass has a very early and quick growth in the spring, and if it will suit our climate (and there is every reason to believe it will), will be found invaluable for early feed. It has already been tried in France, with the following results:—

A new green crop, called "Brome," has recently attracted much attention, in consequence of the perseverance of M. A. Lavallée. A farmer at Trappes, M. Dailly, has produced 31 tons of green Brome per hectare (or more than 12 tons per acre); M. Benoit, of Asy, obtained 35 kilogrammes from 200 grammes of seed, or 185 times the weight of the seed; another farmer got 74 kilogrammes from one kilogramme of seed. It is claimed for the Brome that it provides to feed three bullocks where two were fed before; a magnificent prospect for the beef eater as well as the beef grower. One great peculiarity of the Brome is its growth during an amount of cold which suspends all other vegetation, thus affording green food to cattle before and after all other sources are cut off, and fitting it peculiarly for exposed situations and arid soils. Some years since a farmer, in the department of Finisterre, received some leguminous seeds from America, and has ever since cultivated the plant with great success; this turns out now, it is said, to be identical with the Brome in question.

James Carter & Co. will be happy to book Orders for supplying this GRASS in quantity next autumn, and they can now offer a limited number of packets, price 1s., for immediate sowing.

CARTER'S PERMANENT PASTURE GRASS

SUPPLIED AND MIXED TO ORDER TO SUIT EVERY SOIL, AT

26s. to 30s. per acre, and 32s. to 35s. per acre.

JAMES CARTER AND CO., 237, 238, & 261, HIGH HOLBORN, W.C.;
DEDHAM and ST. OSYTH, ESSEX; and CRYSTAL PALACE NURSERY, FOREST HILL, S.E.

SEEDS, GROWTH OF 1864.

JOHN & CHARLES LEE,

SEEDSMEN TO THE QUEEN,

BEG RESPECTFULLY TO SUBMIT THEIR

NEW CATALOGUE FOR 1865

OF

KITCHEN GARDEN, FLOWER, AND AGRICULTURAL SEEDS,

CONTAINING SELECTIONS from the BEST STOCKS at HOME and ABROAD,

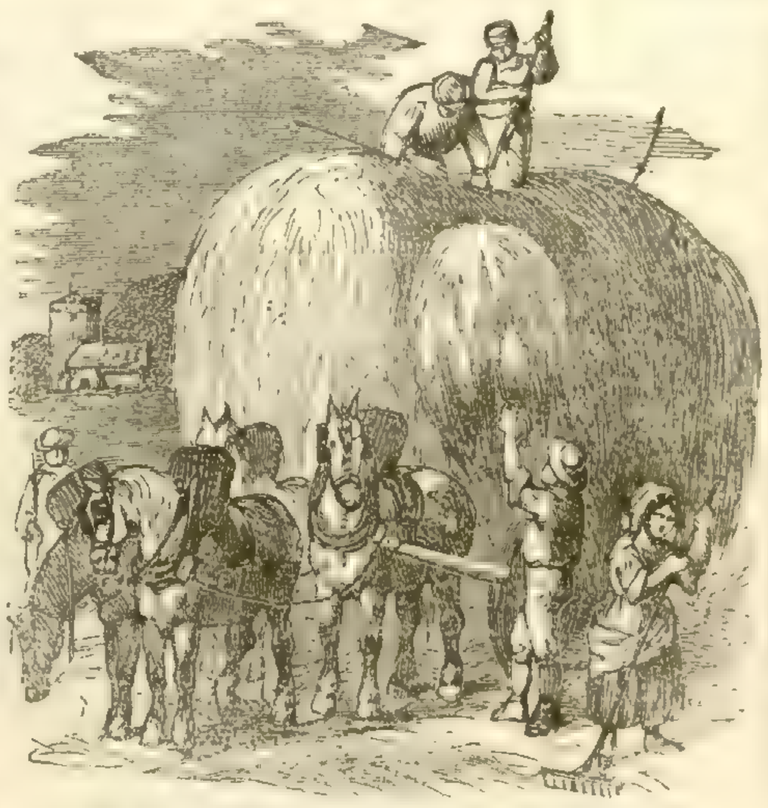
POST FREE on APPLICATION.

ROYAL VINEYARD NURSERY and SEED ESTABLISHMENT,
HAMMERSMITH, LONDON, W.

SUTTON'S

GRASS SEEDS FOR ALL SOILS,

AT ALL PRICES, ACCORDING TO QUANTITY AND PURPOSE FOR WHICH THEY ARE INTENDED.



Messrs. SUTTON'S GRASS SEEDS being Mixed expressly to suit the Soils for which they are required, Persons ordering have only to state the Nature of the Soil, and Acreage to be laid down, when suitable Seeds will be supplied.

MR. M. H. SUTTON'S ESSAY on PASTURES sent with every parcel of Grass Seeds.

SUTTON AND SONS, ROYAL BERKSHIRE SEED ESTABLISHMENT, READING.

SUTTON'S

PRIZE MANGEL WURZEL AND TURNIP

AND

IMPROVED KOHL RABI SEED.

FOR PRICES, SEE

SUTTON'S NEW FARM SEED LIST,

WHICH MAY BE HAD GRATIS AND POST FREE ON APPLICATION TO

SUTTON AND SONS, ROYAL BERKSHIRE SEED ESTABLISHMENT, READING.

THE EARLIEST PEA KNOWN is CARPENTER'S EXPRESS, gathered May 7. See Testimonials. Price 3s. 6d. per quart. Trade price upon application. A remittance from unknown Correspondents is requested.

CARPENTER'S MAGNUM BONUM.—The Largest and Best Tall Pea grown. 5s. per quart.

CARPENTER'S MULTUM IN PARVO.—The Best Dwarf Pea grown. 5s. per quart.

CARPENTER'S MONSTROUS WHITE COS LETTUCE,
CARPENTER'S MONSTROUS GREEN COS LETTUCE,
CARPENTER'S MONSTROUS BROWN COS LETTUCE,
1s., 2s. 6d., and 5s. per packet, are the three best LETTUCES in cultivation.

CATALOGUES on application to EDWARD CARPENTER, Seed Merchant and Grower, Brighton, Sussex. Seed Warehouse, 96, St. James's Street, Brighton.

THE ESSEX RIVAL PEA.—The finest, most productive, and best flavoured Early Pea in cultivation. See large Advertisement of Testimonials, December 31, 1864; also see Advertisement and Testimonials of January 7 and 28, 1865, in *Gardeners' Chronicle*. "Is well worthy of notice."—*Journal of Horticulture*. Price 2s. 6d. per quart.

The Trade liberally dealt with. Terms on application.

To be obtained of—
Messrs. Peter Lawson & Son, 28, King Street, Cheapside, London.
Mr. James Veitch, Royal Exotic Nursery, King's Road, Chelsea.
Messrs. Cooper & Bolton, 152, Fleet Street, London.
Messrs. Fraser, Richardson, & Goad, 82, Bishopsgate Within, London.
Messrs. Nutting & Sons, 60, Barbican, London.
Mr. G. W. Dixon, 48a, Moorgate Street, London.
Messrs. Sutton & Sons, Reading, Berkshire.
Messrs. Saltmarsh & Son, Moulsham Nursery, Chelmsford, Essex.
Messrs. Roberts & Son, Denbigh.
Messrs. Lowe & Co., High Green, Wolverhampton.
Mr. Robert Elmson, Secretary to the Essex Agricultural Association.
Mr. Christmas Quincey, Peterborough.
Mr. B. Mackenzie, Ventnor, Isle of Wight.
Mr. B. R. Cant, St. John's Street, Colchester.
Mr. George Taber, Rivenhall, near Witham, Essex.
Mr. J. F. Chater, Braintree, Essex.
M. Paul Tollard, 4, Place des Trois Maries, Paris, France.
Mr. THOMAS ELEY, Sible Hedingham, Halstead, Proprietor.

WAITE, BURNELL, AND CO. have great pleasure in recommending the following:—

	s.	d.
BRUSSELS SPROUTS—RICHMOND'S COMPACT, selected for its very dwarf and compact habit; in sealed packages, per ounce ..	2	6
BROCCOLI—DANCER'S IMPREGNATED EARLY WHITE, per lb.	10	0
CABBAGE—BURNELL'S KING of the DWARF, the earliest grown; very dwarf, growing close to the ground; very fine and sweet flavour; in sealed packages, per ounce..	2	6
CUCUMBER NORBITON GIANT, the finest, longest, and most prolific Cucumber in cultivation; per packet	2	6
POTATOS—ERIN'S QUEEN DWARF ASHLEAF, very dwarf in the haulm, foliage of a dark green colour, very early, and invaluable for frames (vide Circular); per bushel	15	0
CONVOLVULUS TRICOLOR SPLENDIDISSIMUS, colour reddish purple, very distinct; per packet	1	0
POLYANTHUS, selected from the finest laced flowers by that eminent florist JOHN KEYNES, of Salisbury (strongly recommended); per packet .. .. 2s. 6d. and	5	0
PRIMULA SINENSIS FIMBRIATA, the choicest grown; per packet, 2s. 6d. and	5	0

Seed Warehouse: 181, High Holborn, London, W.C.

CHOICE SEEDS.

PEA, DILLISTONE'S EARLY PROLIFIC, the earliest kind known, 1s. per quart
" ADVANCER (McLEAN'S), 1s. 6d. per quart
" PRINCESS ROYAL (McLEAN'S), 1s. 6d. per quart
" YORKSHIRE HERO (DIXON'S), 5s. per quart
" PAYNE'S CONQUEROR, 1s. per quart
BEET, NUTTING'S SUPERB RED, 8d. per oz.
" PINE-APPLE SHORT TOP, 8d. per oz.
BROCCOLI, SNOW'S WINTER WHITE, True, 1s. per packet.
" WHITE CORNISH, 6d. per packet
" DALMENY, 1s. per packet
CABBAGE, LITTLE PIXIE, 6d. per packet
" KEMP'S INCOMPARABLE, 6d. per packet
" McEWEN'S MARROW, 6d. per packet
CAULIFLOWER, FROGMORE PROTECTING, 1s. per packet
" EARLY DWARF ERFURT, 1s. per packet
CELERY, WHITE QUEEN, 1s. per packet.
" MANCHESTER CHAMPION RED, 6d. per packet.
" IVERY'S NONSUCH, 6d. per packet.
CUCUMBER, SMITH'S FINE LONG FRAME, 1s. per packet.
" PEARSON'S LONG GUN, 1s. per packet.
" HARWOOD'S WHITE SPINE, 1s. per packet
LETTUCE, TOM THUMB (WHEELER'S), 1s. per packet
" IVERY'S NONSUCH, 1s. per packet
" PARIS WHITE COS, 6d. per packet
" NEAPOLITAN, 6d. per packet
MELON, EMPRESS EUGENIE, 1s. per packet
PARSNIP, THE STUDENT, 6d. per packet
TURNIP, CHIRK CASTLE BLACK STONE, 4d. per oz.
" AMERICAN STRAP-LEAVED, 4d. per oz.
POTATO, RIVERS' ROYAL ASHLEAF, per peck, 3s.
ASTER, TRUFFAUT'S SUPERB FRENCH, 18 varieties, mixed, 1s. per packet
STOCK improved large flowering, 18 varieties, mixed, 1s. per packet
Orders of 21s. and upwards carriage free. Those kinds priced per packet free by post.
DESCRIPTIVE PRICED LIST on application.
RICHARD SMITH, Seed Merchant, Worcester.

CARTER'S GARDENER'S VADE-MECUM is now ready.

Paterson's New Seedling Potatos.

WM. PATERSON AND SON, Dundee, beg to intimate that owing to the extraordinary demand this season for their FAMED SEEDLINGS, their stock of several varieties is getting short, especially VICTORIA and the Early kinds.

Field sorts they still hold in quantity.

Buyers are recommended to make early application either to W. P. & Son direct, or to Messrs. PETER LAWSON & SON, London, and Messrs. FRANCIS & ARTHUR DICKSON & SON, Chester.

To the Trade or Others.

POTATOS for PLANTING.—Wheeler's Gloucestershire Kidneys, 16s. per sack of 16 stone; Webb's Imperial Kidneys, 16s. do.; Myatt's Prolific, 15s. do.; Fortyfold, 10s. do., 90s. per ton; Spencer's King, 10s. do.

YELLOW GLOBE MANGEL SEED, from Transplanted Bulbs, 4d. per lb., 35s. per cwt. DRUMHEAD CABBAGE PLANTS, 3s. 6d. per 1000; Early do., 4s. per 1000. Sacks 2s. each.

CHRISTMAS QUINCEY, Seed Grower and Seedsman, Peterboro.

A Boon to the World.

PRINCE of WALES' KIDNEY POTATO.—A new Seedling, remarkably handsome, fine eating, and the most prolific in the world. Testimonials:—

From Professor LINDLEY (Editor of the *Gardeners' Chronicle*).

"I have this morning had the Seedling Potatos examined. The crop is very extraordinary, and the Potatos themselves are very handsome, and quite ripe."

From SHIRLEY HIBBERD, Esq. (Editor of the *Gardeners' Weekly Magazine*).

"The Seedling Potato (Prince of Wales), I have found to be wonderfully productive, excellent flavour, handsome, and such a one as the world ought to have the benefit of."

To be had of Mr. JAMES VEITCH, Royal Exotic Nursery, King's Road, Chelsea, S.W.; Messrs. BARR & SUGDEN, King Street, Covent Garden, W.C.; DOWNIE, LAIRD & Co., Forest Hill, S.E.; JAMES CARTER & Co., 237, High Holborn, W.C.; SUTTON & SONS, Reading.

Price 12s. per bushel.

N.B. They may be planted up to the end of May.

YOUELL'S NORFOLK HERO CUCUMBER.—Without exception the very best Cucumber for open ground cultivation that has yet been offered. It is the most prolific bearer, as handsome as any Frame variety, and is as delicate in point of texture, the fruit measuring from 16 to 20 inches in length. Packets containing 6 Seeds, 1s.; 18 Seeds, 2s.

Royal Nursery, Great Yarmouth.

☞ SPECIAL AND IMPORTANT.

TO LARGE PURCHASERS OF FARM SEEDS.

THE DIRECTORS OF THE LONDON SEED COMPANY LIMITED

ARE NOW IN A POSITION, FROM THE EXTENT OF THEIR CAPITAL, TO MAKE THE FOLLOWING

SPECIAL OFFER TO LARGE PURCHASERS OF FARM SEEDS,

And trust that they will receive the earnest support of all who desire to purchase their Farm Seeds from first hands and at the Lowest Prices.

*** *All Seeds Carriage Free.*

TURNIP.	Per Bushel.	Half Bushel.	Quarter Bushel.	Gallon.
LONDON PURPLE-TOP SWEDE	£1 14 0	£0 17 6	£0 9 0	£0 4 6
PLYMOUTH " "	1 11 0	0 17 6	0 9 0	0 4 6
SKIRVING'S " "	1 11 0	0 16 0	0 8 6	0 4 6
GREEN-TOP SWEDE	1 11 0	0 16 0	0 8 6	0 4 6
GREEN-TOP YELLOW ABERDEEN or SCOTCH	1 7 0	0 14 0	0 7 6	0 4 0
PURPLE-TOP YELLOW " "	1 9 0	0 15 0	0 8 0	0 4 6
DALE'S HYBRID	1 7 0	0 14 0	0 7 6	0 4 0
WHITE GLOBE	1 11 0	0 16 0	0 8 6	0 4 6
GREEN GLOBE	1 9 0	0 15 0	0 8 0	0 4 6
LINCOLNSHIRE RED GLOBE	1 11 0	0 16 0	0 8 6	0 4 6
TANKARDS	1 17 0	0 19 0	0 10 0	0 5 0
GREY STONE	1 17 0	0 19 0	0 10 0	0 5 0

MANGEL WURZEL.	Per Cwt.	Half Cwt.	Qr. Cwt.	14lbs.
LONG RED	£2 14 0	£1 8 0	£0 15 0	£0 [illegible]
LONG YELLOW	3 8 0	1 15 0	0 18 0	0 [illegible]
YELLOW or ORANGE GLOBE	2 14 0	1 8 0	0 15 0	0 [illegible]
RED GLOBE	3 8 0	1 15 0	0 18 0	0 [illegible]
FISHER HOBBS' ORANGE GLOBE, fine stock ..	3 3 0	1 12 6	0 17 0	0 [illegible]
CABBAGE.				
LARGEST DRUMHEAD, for Cattle	9 15 0	5 0 0	2 12 6	1 [illegible]
CARROT.				
ALTRINGHAM	6 15 0	3 10 0	1 17 6	1 [illegible]
LARGE YELLOW BELGIAN	5 15 0	3 0 0	1 11 6	0 [illegible]
LARGE WHITE BELGIAN	5 7 0	2 15 0	1 10 0	0 [illegible]

MIXED GRASSES.

For LAYING DOWN to PERMANENT PASTURE, 10*s.* per bushel, or 75*s.* per quarter. ITALIAN RYE-GRASS, 5*s.* per bushel, or 38*s.* per quarter.

CLOVERS.

At the lowest Market prices. Special offers and Samples will be sent by return of post.

LONDON SEED COMPANY LIMITED, 68, WELBECK STREET, CAVENDISH SQUARE, LONDON, W.

PHOSPHO GUANO.

PHOSPHO GUANO, in its natural state, is found on trap-rock islets within the Tropics. It was discovered in 1854 and its existence was made known in August 1856, by Dr. Voelcker, at the Cheltenham Meeting of the British Association for the Advancement of Science, when he read a paper "On the Remarkable Composition of a New Variety of Guano, called Columbian or Maracaibo Guano," pointing out its peculiar fitness as the base of a highly-concentrated Phosphatic Manure.

The valuable and peculiar qualities of this Manure, now well known as PHOSPHO GUANO, immediately attracted the attention of the leading Agricultural Chemists, who pronounced it to be greatly superior to all other Guanos as a manurial agent.

PHOSPHO GUANO contains in its natural state nearly double the quantity of phosphoric acid found in bones and other substances from which Superphosphates are prepared; and Liebig states that by using PHOSPHO GUANO the farmer conveys to his field 26 per cent. more phosphoric acid than by a mixture of equal parts of Peruvian Guano and Superphosphate of Lime; while "the advantage for the improved quality of the soil appears still more in favour of the PHOSPHO GUANO, if the quantity of soluble phosphoric acid is taken into consideration."

One of the most important advantages of the PHOSPHO GUANO is its uniform composition, and in this particular it is equalled by no other Manure; for with scarcely an exception, they all vary greatly in different samples, even when drawn from a comparatively small bulk.

The effect of the application of PHOSPHO GUANO to both Grain and Root crops has borne out, most truthfully and satisfactorily, the character given to it by Liebig and Voelcker. Whether used to assist the growth of Grain or Roots, or applied as a Top-dressing to Grass lands, it is found to produce, beyond all other Manures, the greatest amount of the food-properties of the plant, and that with a marked superiority of quality. The beneficial effect of the PHOSPHO GUANO on the second and third year's crop is also very marked; and in this respect it is unequalled.

PHOSPHO GUANO, being a very highly concentrated Manure, requires, before being used, to be mixed with an equal weight of wood ashes, sand, or dry earth, so as to insure its equal distribution. Treated in this way, it becomes the cheapest Manure in the market.

Extract from Report of Baron Liebig, *dated 11th September, 1863.*

"Phospho Guano surpasses, most certainly, by its more correct and constant composition, the best sorts of Peruvian Guano; and of its superior efficacy there cannot be the slightest doubt."

Pamphlets, containing a full description of the Phospho Guano, its History, Nature, Properties, &c., may be obtained on application.

The Net Cash Price, including Bags, is £11 10*s.* per Ton, for Ten Tons and upwards, Carriage Free at any Railway Station or Shipping Port in the Kingdom. Smaller lots are charged higher.

PETER LAWSON and SON, CONTRACTORS,
EDINBURGH; and 28, KING STREET, CHEAPSIDE, LONDON, E.C.

New Lucerne Seed (Luzerne de Provence).

SUTTON AND SONS have just imported a very fine [illegible] of NEW LUCERNE SEED, which they can offer at 1s. [illegible] (Sow 20 lb. per acre in drills.)
Royal Berks Seed Establishment, Reading.

Bromus Schraderi Schrader's Brome Grass.

SUTTON AND SONS having imported a small quantity [illegible] FORAGE PLANT, so highly spoken of by [illegible] 1s each (post free).
[illegible] & Sons, Royal Berkshire Seed Establishment, Reading.

Furze or Gorse (Ulex europæus).

SUTTON AND SONS have a fine stock of NEW SEED. Also all other kinds of AGRICULTURAL SEEDS at very moderate prices, as see SUTTON'S PRICED SEED LIST (gratis and post free).
Royal Berks Seed Establishment, Reading.

Carnations, Picotees, &c.

CHARLES TURNER'S stock of the above is very extensive, and in the finest health.
For prices see CATALOGUE, now ready.

PELARGONIUMS "JOHN and MARY HOYLE."—These and other new varieties in the finest plants; also the best established varieties at very moderate prices.
See CHARLES TURNER'S CATALOGUE now ready.

VERBENAS.—All the best kinds now ready, and Perry's beautiful new varieties ready 1st May, described in TURNER'S CATALOGUE.
The Royal Nurseries, Slough.

GEO. BAKER AND SON beg to announce they have an extensive collection of the best hardy RHODODENDRONS in cultivation, fine healthy plants, at very moderate charges. Also a large collection of general NURSERY STOCK. Prices on application.
American Nurseries, Bagshot, Surrey, about 1 mile from Sunningdale Station, South-Western Railway.

American Plants.

AS EXHIBITED IN THE ROYAL HORTICULTURAL GARDENS, KENSINGTON.
WATERER AND GODFREY'S PRICED and DESCRIPTIVE CATALOGUE of RHODODENDRONS and other AMERICAN PLANTS will be forwarded on application. The Catalogue also gives a General Summary of their Stock, which contains probably the most extensive choice of all the Hardy and finest Evergreens and Conifers.
Knap Hill Nursery, Woking, Surrey.

Catalogue.

YOUELL AND CO.'S GENERAL and DESCRIPTIVE PRICED CATALOGUE for this season is now ready, and will be sent free on application.
It contains detailed Lists of Greenhouse Plants, Conifers, Shrubs, Gladioli, as well as all the newest introductions in Soft-wooded Plants.
Royal Nursery, Great Yarmouth.

CARTER'S GARDENER'S VADE-MECUM is now ready.

New Catalogue for 1865.

GEO. SMITH begs to announce that his PRICED and DESCRIPTIVE CATALOGUE, containing the Newest and most Approved Varieties of Show, Spotted, and Fancy PELARGONIUMS; Zonale and Variegated GERANIUMS, FUCHSIAS, VERBENAS, PETUNIAS, DAHLIAS, CHRYSANTHEMUMS, BEDDING PLANTS, &c., is now ready, and will be forwarded in exchange for one postage stamp.
*** Coloured Illustrations by Mr. Andrews, free by post, in exchange for 12 postage stamps, of FUCHSIAS GENERAL LEE, HADEM, and FANTASTIC, the three finest Fuchsias G. S. has ever had the pleasure to offer, for description of which see Catalogue.
Tollington Nursery, Hornsey Road, Islington, London, N.

Established Upwards of a Century.

BUTLER AND McCULLOCH,
SEED MERCHANTS, Covent Garden Market, W.C.

GENUINE NEW VEGETABLE SEEDS.

Orders amounting to 21s. and upwards sent Carriage Free.

COMPLETE COLLECTIONS for ONE YEAR'S SUPPLY.

No. 1.	No. 2.	No. 3.	No. 4.	No. 5.
3l. 3s.	2l. 2s.	1l. 10s.	1l. 1s.	10s. 6d.

BUTLER AND McCULLOCH'S NOVELTIES for 1865.

	Per packet—s.	d.
BUTLER'S SUPERFINE DWARF CAULIFLOWER.. ..	2	6
BUTLER'S CLIMAX MELON..	2	6
BUTLER'S PRESIDENT MELON	2	6

FLOWER SEEDS (sent Post free).

Assortments of	100 vars.	50 vars.	30 vars.	25 vars.	15 vars.
ANNUALS—Hardy	20s.	10s.	5s.	..	2s. 6d.
" Half Hardy	30s.	15s.	..	7s. 6d.	4s. 0d.
PERENNIALS (Hardy) ..	25s.	12s. 6d.	..	6s. 6d.	3s. 6d.
" Half Hardy		..	..	7s. 6d.	4s. 0d.

NOVELTIES in FLOWER SEEDS.—See Descriptive Catalogue.

BULBS for SPRING PLANTING.—Gladioli, Liliums, including the splendid new L. auratum; Tigridias, Anemones, Ranunculus, and other bulbs suitable for spring planting, in great variety. Special Quotations at low rates per 100 or 1000 on application.

AGRICULTURAL SEEDS, saved from pure Stocks, and received direct from the Growers, including all the best kinds of Turnips, Swedes, Carrots, Mangel Wurzel, Grasses, &c.

PRICE LIST just published, and may be had gratis on application.

Agents for
GOULDING'S HORTICULTURAL MANURE, 1s. per canister.

SOLE AGENTS, Wholesale and Retail, for
MURRAY'S APHIS FASTILS,
A new invention, and the most effectual in existence for Fumigating Plant Houses.
In packets, 1s. and 2s. each.
BUTLER & McCULLOCH, Covent Garden Market, W.C.

Choice Camellia Blooms for Easter Decorations.

E. COMBE, PINCE, AND CO. have now large quantity of extra fine CAMELLIA BLOOMS [illegible] carefully packed, [illegible] application. Exeter Nursery, Exeter.

Lilium auratum—The Golden-Rayed Japan Lily.

E. G. HENDERSON AND SON having imported [illegible] between [illegible] and [illegible] bulbs of the [illegible] Japan LILY, offer them at good roots, from 5s. and upwards each. For description see E. G. H. & SON'S SEED CATALOGUE, which will be sent post free on application.
Wellington Nursery, St. John's Wood, London, N.W.

18 DOZEN of BEDDING PLANTS ready in May for 24s. See CATALOGUE, post free on application.
12 PACKETS of BEAUTIFUL FLOWER SEEDS for out of doors for 18 stamps. 24 ditto for 30 stamps, post free.
SAMUEL COX, Seed Merchant, Nurseryman and Florist, Bullring, Ludlow.

Mr. E. J. Lowe's New Pansies.

EDWIN COOLING has the pleasure to announce that he has been entrusted with the stock of the above named splendid Novelties for distribution. They have been awarded First-class Certificates wherever exhibited, and are all most distinct and beautiful. A DESCRIPTIVE PRICED LIST of the 24 varieties free on application.
Strong healthy plants are now ready for sending out.
Mile Ash Nurseries, Derby.

Seed Orders without Signatures.

MESSRS. SUTTON AND SONS have still on hand several ORDERS for SEEDS from Customers who have omitted to give either their Name or Address, so that it is impossible to ascertain to whom the goods should be sent.
Messrs. SUTTON, fearing that inconvenience must be experienced from this unavoidable delay, request their friends who do not receive their goods promptly to write.
Royal Berkshire Seed Establishment, Reading.

Royal Pavilion, Brighton.

THE BRIGHTON and SUSSEX FLORICULTURAL and HORTICULTURAL SOCIETY will hold their SUMMER and AUTUMN EXHIBITIONS in the above splendid Rooms and Eastern Lawn, on the same grand scale as former years. SUMMER SHOW, WEDNESDAY and THURSDAY, June 28 and 29. The AUTUMN, WEDNESDAY and THURSDAY, September 13 and 14.
Schedules of Prizes to be had on application to the Secretary, 96, St. James's Street; or E. SPARY, Superintendent of Exhibitions, Queen's Graperies. By Order of the Committee,
Brighton, April 5. EDWD. CARPENTER, Secretary.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

NOTICE is HEREBY GIVEN that an addition of THREE PENSIONERS will take place in JULY NEXT. All persons desirous of becoming Candidates are required to send in their applications, accompanied with testimonials, to the Committee on or before the 1st May next, after which day they will not be received. Preference will be given to those persons who have been Subscribers for 15 years; should there not be sufficient of that class, then the claims of those who have not been Subscribers for so long, or not at all, will be considered.
Printed Forms of Petition may be had upon application to the Secretary. By order of the Committee,
March 25, 1865. EDWARD R. CUTLER, Sec.

The Gardeners' Chronicle.

SATURDAY, APRIL 8, 1865.

MEETING FOR THE ENSUING WEEK.

SATURDAY, April 15 { Royal Horticultural (Second Spring Show), at South Kensington .. 2 P.M.

WE are often applied to for information respecting DISEASES which affect a single plant in a large house, and which can only be accounted for by local causes. We have now before us a very curious case in which a quantity of Nectarine and Peach trees of different varieties have been attacked at the same time, to the perplexity of very good judges who have examined the matter on the spot. It can scarcely be expected that we should be able to do much better, without the advantage of a personal inspection; we think the matter however too interesting to pass it by without some notice. Specimens of five varieties before us, consisting of the Elruge, Downton and Violette Hâtive Nectarines, and the Violette Hâtive and Royal George Peaches exhibit well-grown healthy shoots with clear deep-green leaves, from leaf-buds, accompanied by flower-bearing shoots, some perfectly and some imperfectly ripened, in which the flower buds are either totally abortive, or where they have expanded, are weak and more or less blanched; while, in the few cases in which the fruit has set, it soon withered. In one case, that of the Royal George Peach, we observe a pallid grumous wash on the smooth trunk, consisting of irregular oblong bodies proceeding from a slender hyaline stem, the nature of which we cannot determine. On examining the soil, which consists of loam mixed with burnt earth, and apparently an admixture of very rotten leaf-mould, at first sight there is nothing to attract attention; but in the loam are some tough clayey lumps, which when broken asunder show a thin filmy shining substance, which under the microscope shows delicate threads and fungous particles of no very definite form or character, but which are likely to be extremely mischievous.

Such is all that the specimens exhibit, except a very little of the common black mould which grows wherever there is damp, but not to such an amount as to be of any consequence whatever.

On looking at the history as detailed by our Correspondent, we cannot help thinking that a fatal error has been made in two directions. The young trees were planted in 1862, when they broke remarkably well with very healthy foliage, and in 1863 they did equally well, and bore a small quantity of fruit each, but not such a quantity as would be at all injurious. In the autumn, however, of that year they received a top-dressing of three parts loam and one-part spent Mushroom bed, to which was added a portion of some substance called Economical Manure, and in 1864 there was evident mischief, for the plants broke much in the same way as they have done this year. There was clearly some suspicion about the top-dressing, which was removed, and replaced with a lighter compost, and some fruit was ripened. In Midsummer they seemed to be recovering, and it was supposed that the mischief was remedied. In the autumn they received a similar top-dressing with the omission of the artificial manure, and the trees are now in a worse state than ever, though the roots are extremely active, and throw up abundance of suckers. In another house, where the trees at first were in an unsatisfactory state, the artificial manure was never applied, and they are now all that can be wished.

We conceive that it was wrong in the first place to employ so dangerous an article as soil from a spent Mushroom bed. Experience shows every day more clearly that fungous spawn has a pernicious and often fatal though somewhat mysterious influence on plants. In a case moreover which we reported some time ago, where the graft perished, as we believe from spawn derived from old decayed roots, the stock sent off buds in every direction.

In the second place we do not consider it judicious to use in forcing-houses artificial manure, of the constituents of which we are ignorant, without some previous knowledge of its mode of action, or of the precise quantity which may be used with safety.

The evidence in the present instance is indeed rather against the manure than the Mushroom soil, and it is possible that the mischief was aggravated by the filmy matter in the loam.

It was remarked that the shoots of the diseased plants were of an unusually deep green. It is very possible that this, which seems at first like rude health, may really be a symptom of internal disease, for it frequently happens that where a plant is infected with fungous matter the chlorophyll, on which the colour of the leaves depends, assumes a deeper tint. It is intended, we believe, to destroy the plants altogether, which is a wise step, for there is little hope of their recovering their health after two years' successive affection.

It may be observed, though we have not precise indications respecting a quantity of Vines, which it should seem, however, had something of the same treatment, that they partially suffered, but have recovered, and appear at the present time likely to prosper. Foul play was at first suspected, but this notion may we think be set at rest by the fact of the trees putting out such strong shoots. If any mineral poison had been used, the leaves in all probability would have withered, and there would have been little vigour about the roots. It looks much more like a case of over-feeding combined with fungous poison. *M. J. B.*

IN a very interesting paper on WINDOW HORTICULTURE, read by Mr. JOHN BELL on the 29th ult. at a meeting of the Society of Arts, and printed in the Society's Journal, we find a confirmation of the utility of the Iron Flower Stands, of which some account was given at p. 461 of our last volume. Mr. BELL has now for some time had experience of their use, and that experience has been favourable. We are therefore glad to give prominence to his remarks thereupon, at the same time recommending the entire paper to the notice of those who take interest in this subject of Town Gardening. Mr. BELL observes:—

"Formerly, a few separate pots of flowers were all we saw at windows, confined by perhaps a bar of iron for safety. Then came the wooden Mignonette and flower boxes, which now for some years we have seen in terra cotta also, prettily wrought. And now we find commonly about, in the best parts of London, receptacles of a larger size and more elaborate decoration, on the window-sills of our largest houses, and faced with the beautiful tiles of Messrs. MINTON and others of our best manufacturers. Having myself been for some years a window gardener, and my plants thriving better at my windows than in my garden below, it naturally suggested itself to me to provide receptacles of a still larger size; and my windows being French casements, opening outwards, I could

not have them on the sills. I therefore projected these receptacles further out, so that the top of the earth contained in them should be level with and not above the sill. I had these made in iron by the Coalbrookdale Iron Company, so as to contain as much as two barrowfulls of garden mould, besides 2 inches in depth of fragments of flower pots broken small for drainage. These are capable of perfect support by various means, as I have tested; but I think the best and completest is where the receptacle or window garden is made in one casting with the window-sill, which being let or fixed into the brickwork at the base of the window, like other window-sills, only a little further in, the whole affair becomes perfectly self-supporting, to the extent of five times the weight of earth that can be put in it. By this means also no damp can enter the wall, and the drainage is provided for. Practically there is no appreciable drip, the mass of earth in common cases absorbing and evaporating the moisture. But in the case of Ferns, and any plants requiring a superabundance of moisture, two little sixpenny tins of appropriate shape hung over the sides, catch the drops from the two drainage holes, which are amply sufficient, inasmuch as there are two inches of drainage all over the bottom of the window garden, and this runs off the superabundance into the drainage tins, which may thus from time to time be again emptied into the window garden. These also evidently afford safety at nursery windows; they are capable of being glazed wholly up the window, or partly up, as may be seen in front of a house in Piccadilly, and they might be even heated by pipes, &c.; but in all cases, evidently the first point is to obtain a firm substructure and support. In this kind of iron window garden I have had much success in raising plants and flowers from seed in the usual way; and also when bedded out, when they have thriven with marked luxuriance.

"With early bulbs in these window gardens I have not had such marked success. Although they are in full bloom now, they are little better or earlier than those in my garden below, and by no means show the same superiority as the Geraniums and summer plants. This I attribute to their exposed and unprotected position during the winter, high in the air; and thus, perhaps, the same quality and airy situation which favours the later plants acts adversely to the early ones. The window garden, indeed, is attacked directly by frost, below, in front, and at the sides, as well as at the surface of the contained earth, and this year with its alternations has been a trying one."

To avoid the disadvantage just referred to, Mr. Bell proposes another winter to cover closely with mats, both below and at the sides, allowing the matting to lap over at top; and in this way to retain the advantages, while avoiding the disadvantages of the elevated airy position of his window gardens.

GROUND VINERIES.

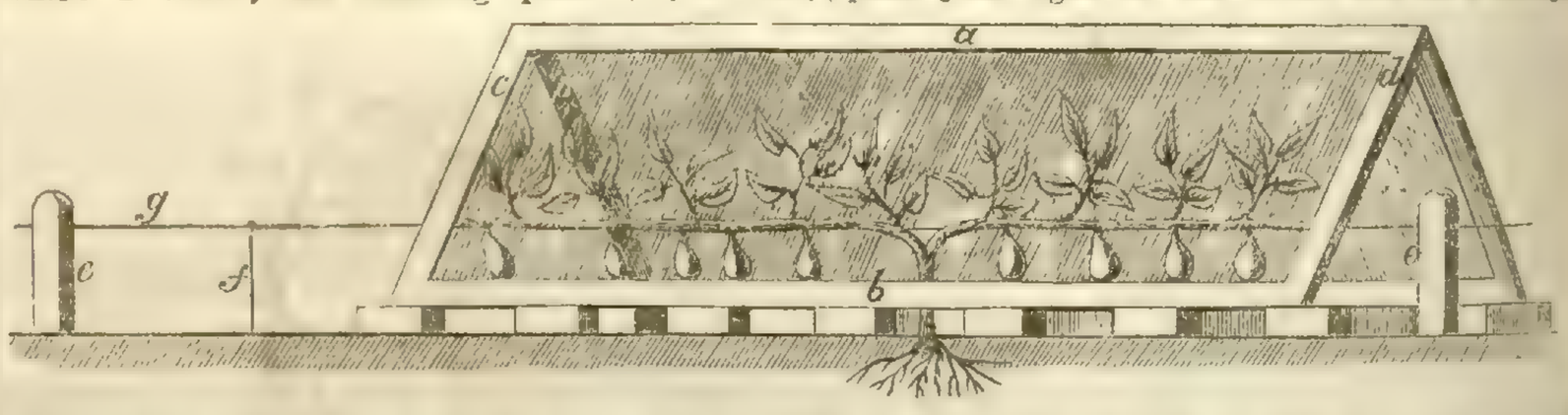
Pray allow me space to disclaim being the inventor of the Ground Vinery as implied in your remarks at p. 268, and to state that the hinged Ground Vinery, of which you gave a figure, not only "closely resembles" the Ground Vineries, now very common, but is in every respect, except the hinges, the same thing. It may, perhaps, interest some of your readers to know the origin of this interesting structure; with permission I will, in a few words, give it.

In the summer of 1858 I happened to be on a visit to Dr. S. Newington, of Ticehurst, a gentleman full of horticultural enthusiasm, and of a lively inventive mind. One fine summer's morning he took me into his garden to show me "something quite new in Vine culture, and likely to lead to the culture of Grapes by the acre." I was accordingly introduced to a glass ridge standing over a furrow; it was proposed that a Vine planted at one end should be trained under the glass, and supported by bars across the furrow, so that the bunches of Grapes should hang in it; and to promote their ripening the furrow was to be lined with slates or tiles. I was much interested with the invention, and more so when I learnt that my arrival was awaited to propose some method of ventilation, about which the owner and his gardener could not decide. Curiously enough, hinges were proposed, to allow of the opening of the roof for that purpose, but as that would, I then thought, bring on having the glass in a separate frame, and make the Vinery too expensive for the poor man (Dr. N.'s principal motive in inventing it), or as the term is now, "for the million," I objected to it. By a lucky thought the idea of low ventilation came to my mind, and I immediately called for some bricks, placed them as in your figure, p. 268, and the ventilation question was at once put to rest, for in the most sunny places no other ventilation is required. In or about the year 1858 I made my first Ground Vineries, which from my having a curate as a warm-hearted friend, full of vivacity, we christened the "Curate's Vinery." I found after the lapse of two or three years that the bunches of Grapes hanging in the furrows, although they ripened well, yet in moist weather were inclined to mould. I therefore filled up my furrows, and covered the surface with slates, pegging the Vines down through the interstices; the Vines are still there, and seem to improve every year in fruitfulness. The berries are not flattened, as some people supposed they would be, by lying on the slates, but ripen thoroughly, and are always of excellent flavour. I ought to mention that birds are apt to creep in at the ventilating apertures, as are also field mice, in the month of October. I generally place some netting to keep out the former, and poison the latter.

I admire very much the hinged Ground Vinery. For those who do not mind the extra expense, the convenience of lifting one side for the purpose of pruning and gathering the fruit, rather than tilting up one side of the 7-feet length, (although it can be done with one hand), is most agreeable. I can, however, see but little merit in its portability, for this reason:—In winter the Vinery should remain over the Vine, to keep off the injurious effects of frost, and rain, and snow; in spring and summer to protect its young shoots, and bring it forward; and in autumn to ripen its fruit, so that it can never be stowed away—it is always wanted. With regard to the extra expense incurred by having hinged Ground Vineries I have no idea, but I can give the cost of the improved Ground Vinery now used here, not only for Grape culture, but for cordon culture of Pears, Peaches, Apricots, and Plums—with all these the glass should be over the trees all the year. The simplicity of their manufacture—the method invented by my son—is almost amusing.

There are no cross-bars, but merely a frame; in the top bar, *a* (see figure) is a groove half an inch deep; in the bottom bar, *b*, is a groove a quarter of an inch deep; in the bars at each end, *c* and *d*, are grooves half an inch deep. The pieces of glass, which should be cut so as to fit, are pushed into the upper groove, and let fall into the lower one; when fitted in, the two end pieces are pushed inwards, so as to drive all the pieces into close contact. A little putty is required at the bottom to prevent water lodging, and some at each end to keep the pieces from moving laterally, and the Vinery is completed.*

In the sketch of this barless Ground Vinery which I annex, the straining posts *e*, *e*, of oak,



4 inches in diameter and 30 yards apart, are driven into the ground to a depth of 18 inches; the supports of slight iron rod, *f*, are flattened at top, and have a hole through which the wire *g* passes; these supports are stuck into the ground to some 8 inches in depth, and support the wire at a height of about 9 inches from the ground—galvanised wire of the thickness of laid cord is the proper size. Trees to be trained to the wire should be lateral cordons with two branches on a stem 9 inches in height. The sketch shows a Pear tree of this form, which is managed on the cordon system of rigid summer pinching. Peach trees are planted and managed after the same method, for they produce fine and well-ripened fruit under Ground Vineries; from being close to the earth, and yet free from the effects of rain and cold winds, these lateral cordon trees will give the finest of fruit. It is presumed that Pears, from the constant radiation of moist heated air from the earth, will equal in size those from the south of France.

The cost of the frames of these ridges, in 7-feet lengths, made by Mr. Rivett, Stratford, Essex, is 66*s.* per dozen, so that the cost of each Vinery (14 ft.) will stand as follows, or something approaching to it. Frame, 11*s.*; glass, 56 feet of 21-oz., 4ths (this should be bought in quantities at 20*s.* or 21*s.* per box of 100 feet; it is foreign glass, but it answers well for Ground Vineries), 11*s.* 8*d.* Slipping the glass in is a very simple operation, and can be done by any clever labourer; but we will say for painting and glazing, 3*s.*; tiles (24) for paving, 2*s.* 6*d.*; bricks, 1*s.* 6*d.*; total cost, 1*l.* 9*s.* 8*d.* for a 14-feet length, in which two Vines may be grown for three or four years, and then, if one is removed, one Vine 14 feet long may be permanent; or if it is wished to increase the quantity of Grapes grown, 7-feet lengths may be added at intervals to the 14-feet length, till a long and fruitful Vine, such as never has been seen in England, may delight the eye of the cultivator.

It is really encouraging to find that we can have a species of garden frame 3 feet wide and 100 feet long, for something over 10*l.*, for it must not be forgotten that as a frame for Lettuces, Endive, and Salads in winter the Ground Vinery is most convenient, because it is so easily covered with straw, which will keep out the most severe frost. [It is when adopted for these purposes that portability may be an advantage.] I have had Lettuces ever since the middle of February with nice white hearts and very tender; and I may mention by the way, that Wheeler's Tom Thumb Lettuce is a capital variety for winter and early spring. Again, these structures are excellent for early Strawberries, for Cauliflowers, for early Peas, French Beans—in short for a whole genus of garden crops.

In forming Ground Vineries of any considerable length, it must be recollected that only one at each end should be closed. I have just formed one for cordon trees, 84 feet long, in 7-feet lengths; and I have reason to think that in the course of a few years, if turned to Vine culture, one Vine would fill that length. I have indeed one Vine of the Trentham Black which has now reached 28 feet, and from its vigour I hope to live to see it 100 feet long; the 7-feet lengths of Ground Vineries will be added to the present structure from year to year. In a light rich soil and good climate I can see no end to the extent to which Grapes may be grown with the aid of glass applied in this simple mode, so that in every respectable cottager's garden—at least in the southern districts of England—we may hope to see Grapes ripening under Ground Vineries made at home by the intelligent and well-to-do labourer. The "Portable Folding Ground Vinery" will find many patrons, but the simple Ground Vinery as invented by Dr. S. Newington is *par excellence* the poor man's Vinery, or the thing "for the million."

Very recently we have applied the Ground Vinery principle to growing Grapes at the foot of walls with a tolerably warm aspect, such as S.E., S., or S.W., so that every wall may have a footing of ripe Grapes.

The mode of operating is as follows:—Take half the span of a Ground Vinery of the dimensions I have given, and it will give you what is called by gardeners a "light," 7 feet long and 2 feet wide; place some bricks along the front of the wall, about 20 inches or so from it, exactly as they are placed under Ground Vineries. Pave the space from inside the bricks to the wall with tiles or slates; plant Vines 14 feet apart, and about 9 inches from the wall; peg them down on the slates or tiles through the interstices, and nail two pieces of deal two inches square, one at each end, to your light, so that when it rests against the wall there is a space of two inches between it and the wall; then place your light on the bricks and let it rest against the wall. You have thus a lean-to Ground Vinery. The apertures at bottom between the bricks are for the ingress of cool air, the space at top for its egress when heated. The appearance of a wall of fruit trees with glass and Vines at its foot is very interesting, and hundreds of pounds of Black Hamburgh Grapes may thus be grown for a very small outlay. I must not omit saying that the top of the light should be fastened to the wall with two light hooks and staples, and in exposed places a stout peg should be driven in the ground at foot to keep it firm.

To conclude, I have reason to believe that in the cooler parts of England and the warm parts of Scotland these lean-to Ground Vineries would ripen Grapes better than the span-roofed or ridge Vineries; and I think it is quite probable that 4-inch brick walls, low, say 18 inches in height, against which such "lights" or sashes as I have described might be placed, would ripen Black Hamburgh Grapes very far north if a warm site and sunny aspect be selected. At any rate the experiment is inexpensive, and well adapted to the pockets of those who like Grapes, and yet cannot afford to build a Vinery.

I commenced this article merely to disclaim an invention attributed to me. I have been led on to much more than I intended, and so I feel that instead of my usual signature I ought to give my full address. *Thomas Rivers, Sawbridgeworth.*

* Width at base, 3 feet; depth to upper edge of ridge, 20 inches; length of slope, including bottom and top bars, 24 inches.

AUSTRIAN WINES.

As the popularity of the Austrian wines is fast increasing in England, it may not be without interest to know something about the Vine employed in their manufacture. The particular wine about which I shall now speak is the common Red Vöslau, which is manufactured at Vöslau, near Vienna, by Mr. Robert Schlumberger, the principal wine producer and the largest proprietor of Vineyards in the Vöslau district. This wine is made from a Vine called the Vöslau, which is supposed to have been imported into that district from Portugal about a century ago, along with many other kinds which are often called even now Portuguese Vines—but climate, situation, soil, and treatment are said to have produced such a favourable change upon the fruit of the Vöslau

Vine that it is in demand not only for wine-making, but also for purposes of dessert. I have applied to Mr. Schlumberger for information on this subject, and he has kindly furnished me with the following particulars.

"The Vöslau Vine," he states, "has the excellent property of possessing a hardy constitution, and readily adapts itself to almost any place or soil; it however succeeds best in a light, open, warm soil, which is not water logged, and from which heavy rains pass off readily. In heavy soils and damp situations it grows luxuriantly, but fails to ripen its wood in autumn; consequently its bearing properties in such situations are much deteriorated. This Vine is more robust and vigorous in habit than any other sort; its young wood is strong and rambling, and the pith unusually large—hence the necessity of a dry situation to bring it to maturity.

"The berries of this Grape are large and are ornamented with a fine deep bloom; the bunches are loose and of medium size; the berries very sweet and exceedingly agreeable to the palate—in fact suitable alike for table use and for wine-making.

"The wine is of a brilliant ruby colour, and in quality full and strong, without that sharp astringency so common to most other red wines; it possesses a fine bouquet, and is mellow, fruity, and aromatic.

"In England this Vine appears to be deserving of special attention, for I am convinced that it will succeed well in the open air in the southern parts of that country, and in particularly favourable situations; trained against walls, when properly treated, it will yield rich and fine fruit. The only fault the variety has consists in its delicate and thin skin, which is apt to burst in rainy seasons, in which case the berries soon become mouldy and spoiled. To prevent this, however, a kind of wooden roof might be raised over the Vines to protect the Grapes from wet, similar to that used at Fontainbleau and Thomery, for covering the famous Chasselas Grapes grown so largely for the Paris markets.

"The Vöslau Grapes, in addition to their easy growth and cheap culture, surpass in fine natural flavour all those produced in hothouses or grown artificially, which are mostly flat to the taste and thick-skinned,* and during autumn would form an ornament and a delicious dessert for an English dinner-table.

"The south of England being situated under the same degree of latitude as Rüdesheim, Marcobrunn, and Steinberg, all famous for Rhine wines; and besides having the great advantage of milder winters than the mountainous districts of Burgundy, Vöslau, Tokay, and the Rhine, I cannot doubt, as I have already stated, that many localities might be found in the southern counties quite suitable for the cultivation of the Vöslau Vines in the open air, and that excellent Grapes for the dessert might be obtained from them."

The wine produced from this Grape is now in the London market, and may be had of Mr. F. Andres, of 12, Mark Lane, Mr. Schlumberger's agent. As to its quality, the following extract from the *Medical Times and Gazette* of Feb. 18 may give some further information.

"The red Vöslauer, the lowest quality, costs 15*l.* per hogshead, in bond; it is 24*s.* per dozen retail. It is a good stout, full-bodied, serviceable, and, I believe, an economical wine, as its stoutness renders it more satisfying than most Bordeaux of equal price. There is no complaint of thinness, coldness, sourness, or poverty. It is a good sound wine, with just roughness enough to be clean."

I hope soon to give some account of Mr. Schlumberger's Champagne, which is finding great favour amongst a few who have used it since 1862. *E.*

* This remark is intended to apply to the kinds grown under glass in Austria.

Home Correspondence.

Rhododendron Aucklandii.—I have now in flower a plant of this Rhododendron, each of four trusses on which has respectively five, six, seven, and eight flowers on it, and some of the blossoms measure 5½ inches in diameter, although they have not yet attained their full size. It is a splendid variety, and on comparing it with the drawing of it in Sir W. Hooker's work I don't think it is there done justice to, as the flower evidently must have been past its best when the representation was taken. It first flowered with me in 1858; it also flowered in 1863; the individual blossoms bid fair to be 6 inches in diameter when fully expanded. *Wm. Brown, Gardener to Mrs. Alston, Elmdon Hall, near Birmingham.*——This magnificent Sikkim Rhododendron is now in bloom in the Rhododendron house belonging to Edward Rawson, Esq., Ash Grove, Halifax. In habit it resembles an ordinary fine hybrid Rhododendron, only that the leaves are larger; but like R. Nuttallii and others of the Sikkim kinds, it gets to a large size before it flowers. There is however a large pot-plant in one of the greenhouses at Mill House, near Halifax, which has now one truss of flowers bursting into bloom, and it also bloomed in 1863 and 1864. The plant at Ash Grove has two large trusses of expanded blossoms, each blossom being quite as large as R. Dalhousiæ, with the lovely pink-tinted white colour of the Luculia gratissima, and the perfume of May blossom. Will any of your Correspondents who have tried their hand at crossing the Sikkim kinds, be so good as to communicate the result? Is it possible to cross R. Aucklandii with R. ciliatum or R. Gibsoni, and *vice versa*, with the view of obtaining a dwarfer habit with size of flower? I know efforts have been made to obtain crosses from R. Aucklandii and R. Dalhousiæ fertilised with the pollen of scarlet hybrids, but I doubt such a cross being of much use. How valuable these glorious Sikkim Rhododendrons would be if we could reduce their growth within moderate bounds for blooming! *W. D.*

Duchess of Buccleuch Grape.—A writer, who is a stranger to me, noticed this Grape in your Paper (see p. 269). This has given an opportunity to your correspondent "Vitis" to convey, by a carefully arranged inuendo, the idea that the Grape is not free from "cracking." I would have taken no notice of such a communication, were it not that it may annoy those who have purchased and planted the Grape, to have it hinted that it is worthless, which, if subject to "cracking," it certainly would be; but let me assure all such that I have grown it in pots grafted on other Vines, and planted out in a common Vine border, and it has never produced a single cracked berry yet; nothing, indeed, has been said in bringing it before the public which is not short of its real merits. *W. Thomson, Dalkeith Park.*

Peas.—I see by your Paper of the 11th ult. that your Correspondent who signs himself "Quo" proposes to write a series of papers on the esculents of a kitchen garden, and he commences with the Pea. His remarks seem sensible, and I quite agree with him as to the different character obtained for the Pea, or any other vegetable, from the "locus in quo" and "quo modo" they are grown; and his experiments will be valuable if he can prove the similitude of vegetables of any kind under different names, so that our Catalogues may be weeded of a host of Peas, Broccolis, Cabbages, &c., with all sorts of names, which on comparison are found to be identical. But "Quo" must be especially careful that his experiments are conducted with Peas or any other vegetable of the genuine variety, otherwise they will be of little value. For instance when I notice that he states that "Charlton, Hotspur, Prince Albert, or Early Kent, are only various designations given to an old single-blossomed Pea," I feel how grossly he must have been deceived by whoever supplied him with the seed. No one that I know of has heard of Charlton or Hotspur as being otherwise than double-blossomed Peas, differing totally in habit of growth, foliage, time of flowering, and podding from the Early Kent or Prince Albert Pea, which latter were introduced some years ago by the late Mr. Cormack of New Cross, and are now very difficult to be obtained perfectly true. I believe however that I have preserved the stock, and I should say that on a fair trial, grown side by side, they are from three weeks to a month earlier than either Charlton or Hotspur, now going out of date, and differ very little from Dillistone's, except that I consider them a better Pea, and certainly quite as early. I intend to have the respective merits of some of these Peas tried at the Royal Horticultural Gardens at Chiswick, which should be considered the true test ground of all England.——In the second paper of "Quo" upon the Pea, printed at p. 292, I regret to have to notice a further list of mistakes. "Quo" states that Harrison's Glory and Perfection were the fruits of Dr. Maclean's hybridising Beck's Early Dwarf Gem with the best Marrow varieties. This is quite erroneous. Dr. Maclean had nothing whatever to do with the raising of these Peas. They were raised by Harrison, of Romney, who raised Alliance and Climax, wrinkled varieties of the same Pea, at the same time, and hence they were called by his name. Why should Dr. Maclean adopt it? Again, Hairs' Dwarf Mammoth was not Dr. Maclean's, nor had he anything to do with the introduction of it. I do not believe that Dickson's Early Favourite could have been selected from the late Auvergne; nor can Fairbeard's Nonpareil be considered very dwarf at 5 feet high. Batt's Wonder, with its fine scimitar-shaped pod, is totally different from the Old Woodford in everything but colour, and I certainly don't envy "Quo" his fondness for "Old Woodfords," which to most tastes are poor enough when young. "Quo's" enumeration of the thousands of acres of Scimitar Peas is what the French would call a little *trop fort*, and I quite differ from him with regard to the comparative merits of Hairs' Mammoth and Veitch's Perfection, as if he had a true stock of both sown side by side, I believe he would be much puzzled to decide which was which in point of hardiness, earliness, or flavour. I have written this little "quid pro Quo" off hurriedly to save the post, and will only repeat that a true and correct description of the origin, similitude, &c., of Peas or any other vegetable would be most valuable; but mistakes like these are more mischievous, and do more harm, than perhaps "Quo" is aware of. *A Seed Merchant.*

Abies Douglasii.—Lately I have seen a large quantity of this tree propagated from layers; the plants are now from 6 to 10 feet high, and they not only retain the flatness of the original branch layered, but are all more or less tortuous and bent both in their leaders and laterals. It is affirmed that this is the general habit of A. Douglasii, and that seedlings observe the same peculiarities (or deformities) of habit. In my experience—and I have seen beautiful specimens from seed, of large size—I have universally found A. Douglasii, when raised from seed, to grow with a stem from root to top as straight as an arrow, equally so with Abies pectinata, A. Khutrow, &c., and the laterals radiating with admirable regularity and symmetry. Moreover, I have seen flagmasts, which were grown abroad, of great height, and models of tapering and perfect straightness. *Scalpel.* [Seedlings are usually perfectly straight and symmetrical. Some Firs propagated from laterals will throw up a leader from the base if bent over, but we are not aware if the Douglas Fir will do this. Can any one say if it will?]

The Yorkshire Summer Shows.—The schedule for the seventh year of the Great Yorkshire Gala Floral and Musical Exhibition, is now before the public, and should command a first-class exhibition, the amount of money offered in prizes at the great exhibition in the middle of June, being 88*l.* The desire shown by the Committee to obtain first-class exhibitions, so as to give the gardeners and inhabitants of the northern counties an opportunity of seeing floral exhibitions second only to London, if not equal to many of the exhibitions held there, should obtain for them the support of all interested in gardening. The large number of gardeners who yearly attend this great exhibition from Yorkshire, Lancashire, and other surrounding counties, is something wonderful, and the chief object of the visit is to see how some growers excel in culture, and to notice new plants; in fact to pick up some hint or other. No person can for a moment deny that such exhibitions generally do a great deal of good for horticulture, by stimulating gardeners to imitate their neighbours, if not to excel them. If it had not been for the wholesome influence of these exhibitions, gardening would not have made the rapid progress it has. At a good exhibition, no matter how clever we are, something must and will be learnt; and employers would spend a little money well, if they would send their gardeners to see such exhibitions as those in question. The York Floral Fête has now become a much looked for event by gardeners, who expect there to see many novelties in a high state of perfection, and for months before the exhibition takes place they speak of the York Show as they would of a visit to home. The schedule for this year is a tempting one, with 12*l.* as a first prize for 12 Stove and Greenhouse Plants; 6*l.* for 6 Orchids; 6*l.* for 6 Azaleas; 10*l.* for 12 Pelargoniums, and 5*l.* for a collection of Six Fruits. Other liberal prizes are offered for other plants, fruits, and flowers. The Committee have thus dealt liberally, confidently hoping that distant growers will exhibit, and I believe arrangements can be made for a reduced rate for the transmission of plants. Roses are made for the first time a special feature here, and Rose growers of the South are earnestly invited to exhibit. It is true that the time fixed will be early for many, but there are some who will be able to show well at that time. To growers for sale it will be an excellent opportunity for advertising on most advantageous terms, by exhibiting to a very large company of buyers. Amateur growers from the South will be welcomed, and it is hoped they will kindly give their aid 6*l.* and 5*l.* are named as first prizes for 48 and 36 single blooms in the open class; and 2*l.* and 1*l.* for 18 and 12 single blooms in the amateur class. Several other prizes are offered for Roses, and 6*l.* for 6 Roses in pots, besides other liberal prizes for Roses in pots. Plants generally are freely rewarded, and the schedule is so very liberal that many exhibitors who have not yet shown there will see much to tempt them to go in June. The Leeds Summer Show takes place a week earlier, and this Society has put out a very liberal schedule—310*l.*, which the Committee hope will ensure for them a good exhibition. I have heard rumours of supposed opposition to York from the old city, and regret such rumours have been circulated, as there is no foundation for them. It would be a folly to think of rivalling York, and there is plenty of room for both. Leeds has a very much larger population than York, and unlike York stands central in a densely populated district, with such towns as Bradford, Halifax, Huddersfield, and Wakefield within a few miles. In these districts there is a much greater love for gardening amongst citizens and labourers than in the agricultural districts, and greenhouses are in the manufacturing districts much more numerous than in the agricultural counties. There is therefore an enormous population to support a flower show, but it must be a good one to have this support. Leeds is endeavouring to meet this want, and deserves success. The schedule just issued shows 12*l.* as a 1st prize for 12 Stove and Greenhouse Plants, 6*l.* for 6 Orchids, 12*l.* for 12 Pelargoniums, 4*l.* for a collection of 6 fruits, and many other good prizes. Roses, too, are specially invited with 8*l.* and 4*l.* as 1st prizes for 48 and 24 single blooms in the open class; and 5*l.* and 2*l.* for 24 and 12 Roses in the Amateurs' Class; 4*l.* is also offered for 6 Roses in pots, and there are other prizes for Roses. New plants are liberally encouraged, and Tulips are also invited. In appealing to the growers and amateurs for their aid, it should be borne in mind that although there are a great number of growers in these districts, Roses cannot be seen in the high state of perfection in which the southern growers can produce them; if the latter will but exhibit, it will stimulate many to grow more Roses. Halifax has hitherto had an autumn show, but as an outskirt of the town, King's Cross, could get up a more paying exhibition, and, in fact, a better show, Halifax has abandoned the autumn exhibition for a summer show in June, the prizes offered at which should secure a good exhibition; it is hoped that the efforts made may be successful in every respect. *W. D.*

Societies.

Royal Horticultural: *April* 1 (*Weekly Show*).—Mr. Bull furnished on this occasion a small collection of Camellias, striped Azaleas, Medinilla magnifica, a small plant of Alocasia Lowii, Bertolonia margaritacea, Arisæma ringens purpuratum, Anthurium leuconeurum, his fine Imantophyllum miniatum, Sauromatum guttatum, Cineraria Attraction, with a broad white ring margined with bright rosy purple; and specimen plants of Astrocaryum mexicanum and Latania rubra. From Messrs. Lee came Camellias, Medinilla, and Boronia pinnata; Mr. Catleugh, Chelsea, contributed Cytisuses, Pelargoniums, and Azaleas; Lady Caroline Legge sent a small plant of Hymenophyllum tunbridgense; and Mr. Coysh, gr. to E. Wood, Esq., Rugby, three plants of Dielytra spectabilis, in full bloom; also seven Azaleas, all in excellent condition; together with Statice Holfordii, and very good plants of Adiantum cuneatum and pubescens. Mr. Kilminster, gr. to Mrs. Seaton Laing, sent three stands for dinner-table decoration; also a flower-basket filled with white Azaleas, Camellias, Deutzias, and other spring flowers. Messrs. Lucking & Greeves again contributed flower-baskets, bouquets, &c. From Mr. Meredith came beautiful Black Alicante Grapes still in excellent pre-

servation, although they were stated to have been ripe for nine months, proving this to be one of the best keeping Grapes in cultivation. We also remarked good specimens of Reinette du Canada, Blenheim Orange, Adams' Pearmain, and other Apples.

April 4.—Another fortnightly meeting for scientific discussion took place at South Kensington on Tuesday last, and was even more brilliant than its predecessors, the subjects of exhibition being more varied and interesting; while Fellows and their friends attended in perhaps greater numbers than on either of the two former occasions on which these meetings have been held. J. J. Blandy, Esq., presided; the Rev. Mr. Dix pointed out, as before, the different objects to which certificates had been awarded; Mr. G. F. Wilson, F.R.S., of Gishurst Cottage, Weybridge, alluded to the more remarkable kinds of fruits exhibited; and Mr. Bateman (in the room of the Rev. M. J. Berkeley, who, through indisposition, was unfortunately unable to attend) delivered a highly instructive lecture on what was present of interest in the way of Orchids and other plants. He commenced by requesting Colonel Scott to read an extract from a letter received from Mr. Berkeley relative to a peculiar double-flowered variety of Chinese Primrose furnished a fortnight ago by Messrs. Windebank & Kingsbury of Southampton. On examination this variety was found to differ from most other monstrous forms of Chinese Primrose. Each stamen was replaced by a more or less imperfect flower, of which some of the parts were like ordinary petals; others resembled complete florets, while others again were merely hollow tubes or threads. Among Primroses and their allies there are, it is known, two forms of flowers, viz., pin-eyed and thrum-eyed. Mr. Darwin, it was stated, had shown that these flowers are of different degrees of fertility, according as they are impregnated with the pollen of similar or different flowers. The thrum-eyed, unless carefully impregnated, are also held barren, but if fertilised with the pollen of the pin-eyed flowers they yield a much larger quantity of seed than the pin-eyed flowers impregnated with the thrum-eyed. Now artificial impregnation with pin-eyed flowers is much the easier process; but the comparatively poor amount of seed is against it. It would be very interesting to ascertain whether the best flowers in a florist's point of view some from thrum-eyed or pin-eyed, and positive information on the point would be very desirable.

Mr. Bateman then directed attention to three kinds of Cypripediums exhibited. The word had been translated, he observed, by some gallant classic, Venus' Slipper. He hoped that Venus did not, slattern-like, wear her slipper down at the heels; but all the species he had seen seemed to indicate that she did. Thirty years ago he said there were only two Cypripediums in the country; now there are at least 20 distinct species in cultivation, and, judging from specimens in Dr. Lindley's herbarium which he had lately had an opportunity of inspecting, there were many yet to introduce from South America, vieing in beauty with even the very handsomest of those we now possess. C. hirsutissimum from Mr. Veitch, and another Bornean species, C. Lowii, introduced by Messrs. Low, also shown by Mr. Veitch, came under review, as did also a cream-coloured kind never exhibited before, from Mr. Rucker. This was stated to differ from all tropical Cypripediums in colour and beauty of leaves, which are empurpled beneath and charmingly marbled above. The credit of discovering this fine species belongs to Mr. Parish, an Indian missionary, and it was stated that a figure of it would shortly be published in the "Botanical Magazine," under the name of C. concolor. It was remarked that a collection of the different kinds of Cypripedium alone would afford much interest. All, or nearly all of them, are plants that will succeed under cool treatment; and persons fond of Orchids, yet unwilling to embark largely in their cultivation, could not perhaps commence with a more suitable section of this glorious class of plants. Of Odontoglossums, a beautiful genus of cool Orchids from New Grenada, Mexico, and Peru, daily rising in importance, several kinds were exhibited. Among them were O. Pescatorei, a superb species, which Mr. Bateman said Mr. Anderson, of Meadowbank, had grown with as many as 100 flowers on a spike; O. pulchellum, whose snow-white blossoms form beautiful ornaments for dark hair or dark silk dresses, was also shown by Mr. Rucker. O. gloriosum, now in flower for the first time, was exhibited by Mr. Low. This, it was stated, is one of the many fine plants collected in the neighbourhood of Bogotá, and Mr. Bateman observed that it promised to be one of the most attractive of the genus; wild specimens showing sometimes as many as 100 flowers on a spike. Another important plant from Bogotá, Odontoglossum Lindleyanum, thus named by Dr. Reichenbach in compliment to Professor Lindley, was also shown for the first time on this occasion by Mr. Rucker. It has narrow-petaled yellow-spotted flowers, quite distinct from others in cultivation. Of Cœlogyne cristata, a specimen was exhibited by Mr. Veitch; but being a small plant it gave no adequate idea of its real beauty; under Mr. Dominy's care it would soon have half a hundred spikes of flowers on it, for with Mr. Day and others it becomes literally a cataract of white blossoms, which last for weeks, indeed for months, in beauty at a time. Orchids, it was mentioned, begin to be greatly in demand for bridal bouquets, and the white and gold colour in the flowers of this and other species render them very suitable for such a purpose. Chysis bractescens belongs to the class of plants likely to be useful in this respect, as does also the beautiful and durable Phalænopsis amabilis. Of this fine plant it was related that when the late Duke of Devonshire saw the first example of it in blossom in the collection of Messrs. Rollisson, of Tooting, he was so struck with its wonderful beauty, that although Messrs. Rollisson did not wish to part with it he would take no denial, but handed a blank cheque to Messrs. Rollisson to fill in whatever sum they chose to consider it worth. They put down 100*l.*, so that what cost pounds then, thanks to recent importations may be now bought for shillings. Dendrobium lituiflorum and the Moulmein D. senile, mentioned in our last week's Number, which when better known it was said would create quite a furore among Orchid growers, next engaged attention, as did also a cut spike of the New South Wales D. speciosum. This noble species, it was observed, was some 20 years in cultivation in this country before it flowered; the atmosphere of Orchid houses, until comparatively lately, had always been so warm and moist that luxuriant growth was encouraged at the expense of flowers. Cultivators have, however, become alive to the importance of more sensible treatment, and the result has been that this beautiful Dendrobe now flowers as regularly as the least shy-flowering of the race. A small boxful of cut Orchids from Mr. Day was next examined. It contained Dendrobium Farmeri, a Lycaste from Mexico, a Cattleya from Brazil, a pretty Leptotis, a Cœlogyne, and Oncidium nubigenum, which has spikes a yard long, from a snowy altitude, teaching us this lesson—that a vast number of beautiful Orchids grow in a temperature not higher than that of an ordinary greenhouse. Other plants to which attention was directed, were the beautiful Brazilian Chytroglossum Maria Leones; Hepatica angulosa, a new species stated to be perfectly hardy, and forming a tuft of large deep sky-blue flowers of great beauty; and a new Phycella, remarkable for the intense orange-scarlet colour of its blossoms. The last two plants came from Messrs. Backhouse of York. Mr. Bull's high-coloured Imantophyllum miniatum, adverted to on a former occasion, together with Polygonatum verticillatum, and Bertolonia margaritacea, with leaves sprinkled, as it were, all over with pearls, next came under notice, as did also a pretty looking striped-leaved Lily of the Valley, from Mr. Salter, of Hammersmith. Concerning the fruit of Ficus Cooperi, the same specimen of which, mentioned by us at p. 294, was shown again, Mr. Bateman said that although, as we all know, Figs are wholesome in general, yet some are known to be poisonous; it was desirable therefore, to ascertain to which class the fruit shown belonged, and he hoped that some zealous horticulturist, *pro bono publico*, would eat the fruit in question, in order to settle the point as to whether it was poisonous or not! The Fruit Committee, he remarked, although it was their duty to taste all fruits submitted to their inspection, had lacked the courage to put the matter to the test. Examples of what were called Branch Orchid Pots, an invention of Mr. Bateman's, were submitted to the meeting. Of these we hope to give some account hereafter. Cut Camellia blossoms, shown by Mr. Blandy, and cut spikes of the beautiful Odontoglossum pulchellum, contributed by Mr. Rucker, were distributed among the ladies present.

Concerning the Tuesday meetings, Mr. Bateman stated that they had no connection with the Saturday shows, at which miscellaneous plants were invited, while anything new or curious should be sent to the Tuesday meetings, which had been arranged to take place every alternate week.

The following candidates were elected Ordinary Fellows, viz.:—

Captain Duncan Baillie, Sir Wm. Keith Ball, Bart.; J. C. Curwen Boyd, Captain John Cockerell, T. Cooper, Esq.; Mrs. Forbes, Viscountess Glentworth, G. F. Gregory, Esq.; Lady Louisa Inchiquin, Mrs. William Leslie, Col. W. H. Lomer, Mrs. Parke Pittar, Miss Preston, Mrs. D. Scaramanga, H. W. Schneider, M.P.; Christian Emanuel Stahl, F. Thompson, Esq.; Marquis of Tweeddale, J. Vaughan, Esq.; W. J. Wimsett, Esq.; Mrs. Gordon, and John S. Miller, Esq.

April 4 (*Floral Committee*).—A large collection of beautiful plants was contributed on this occasion by Mr. Veitch, who received a First-class Certificate for the charming Maranta Veitchii, and a Special Certificate for an extremely well grown and finely-flowered example of the singular looking Anthurium Scherzerianum and other plants. To the beautiful new sky-blue Hepatica angulosa, and brilliant orange-scarlet Phycella from Messrs. Backhouse mentioned above, First-class Certificates were awarded, and similar marks of distinction were conferred upon the new yellow Cypripedium concolor, Odontoglossum Lindleyanum, and Chytroglossum alluded to by Mr. Bateman, from Mr. Pilcher, gr. to S. Rucker, Esq. The handsome Odontoglossum gloriosum, specimens of which were sent both by Messrs. Low and Mr. Day, both received First-class Certificates, as did also Oncidium amictum, from the last-named gentleman. From Mr. Williams, of Holloway, came various interesting plants; prominent among which were Colocasia longiloba, and a variety of Phalænopsis amabilis, prettily marked with pale yellow, to both of which First-class Certificates were awarded. From Mr. Green, gr. to W. Wilson Saunders, Esq., came the yellow-blossomed Cyrtopodium Andersonii, a plant somewhat difficult to flower; Pelargonium filipendulifolium, a famous plant for the ornamentation of hanging baskets; Miconia flammea, and Cinchona nobilis, the last apparently a valuable addition to fine foliage plants on account of its strong robust habit of growth. To the last two First-class Certificates were awarded, and a Special Certificate for the others. Collections of Tulips, Hyacinths and Narcissi came from Messrs. Cutbush, who, besides a Special Certificate for the classes of plants just named, also received First-class Certificates for their new Hyacinths Cuvier and La Française, described in our columns last week. A Special Certificate was awarded to Mr. Bull for an interesting group of plants in flower, and to the handsome-leaved Bertolonia margaritacea, and a Second-class Certificate for a new species of Polystichum with prettily divided fronds. To Mr. Salter was awarded a Special Certificate for his yellow-striped leaved Lily of the Valley, and a collection of cut blooms of Camellia from Mr. Ingram, gr. to J. J. Blandy, Esq., was similarly favoured. The last-named exhibitor also furnished cut spikes of the old but nearly lost scarlet-flowered Salvia Regla (?), one of Mr. Hartweg's early introductions to the Society's gardens from Guatemala. Various beautiful examples of Hoteia (Spiræa) japonica were furnished by Mr. Veitch; it is a perfectly hardy plant, bearing handsome deep-green leaves, and numerous airy panicles of white blossoms, which, when induced to develop themselves a little earlier than they otherwise would do, by a little forcing, have a striking and beautiful effect. The finely grown New Holland Pitcher Plant formerly exhibited, and the brilliant violet-blotched Azalea Stella were both reproduced on this occasion. From Mr. Turner of Slough came cut specimens of the new Roses, Pierre Notting and Madame Victor Verdier, both very fine.

April 4 (*Fruit Committee*).—The 1st prize offered for Dessert Apples at this meeting was carried off by Mr. Ruffett, gr. to Lord Palmerston, who contributed well-kept fruit of Ashmead's Kernel, Claygate Pearmain, Pearson's Plate, Nonpareil, Golden Harvey, and Sturmer Pippin. A 2d prize was awarded to Mr. Cox, gr. to W. Wells, Esq., Redleaf, also for fairly-kept fruit. Mr. Ingram, gr. to J. J. Blandy, Esq., contributed a good dish of Keen's Seedling Strawberries, for which a 1st prize was given. To Mr. Chapman, gr. to His Highness Halim Pasha, was assigned a Special Certificate for beautiful Seedling Oranges and Lemons, two unknown fruits from Upper Egypt, and fine dishes of Early Handsworth and Ashleaf Kidney Potato, planted in the latter end of November, and dug on the 1st of February. Potatoes, it was stated, are not generally grown in Egypt; but from Mr. Chapman's experience with them, he is of opinion that they might be grown there with advantage, and one thing of importance with regard to them is that he had never seen them attacked by the Potato disease.

Notices of Books.

The Apiary; or Bees, Bee-hives, and Bee-culture. By Alfred Neighbour. Kent & Co., Paternoster Row. Geo. Neighbour & Sons, 149, Regent Street, and 127, High Holborn. 1865. 8vo., pp. 132.

It has become rather the fashion of late, for individuals to write and publish books relating to matters connected with their own trade or profession—occasionally with the clearly expressed and avowed purpose of advancing the interests of their business. Such works are by no means to be despised, for it is natural to suppose that a man becomes tolerably well acquainted with the subject in which he is pecuniarily interested. We need not go far for illustrations. Who can take up the catalogues of some of our most celebrated nurserymen and seedsmen without finding a vast fund of useful and interesting information? Then again we have the "Book of Perfumes," by Septimus Piesse, a man of mark in his peculiar avocation; and there are a host of others of a similar character. In reference to the book before us we have the distinct admission that it has been compiled with the view of supplying information, and "full and detailed replies, sufficient to meet all ordinary inquiries" on matters connected with bees and bee-hives; but the author aims at a higher mark, "that of furnishing instructions useful to the scientific apiarian, or, at least, valuable to those who desire to gain a much wider acquaintance with the secrets of bee-keeping than is now usually possessed." The author moreover hopes that his labours may result in something beyond the encouragement of a refined and interesting amusement for the leisurely classes. "The social importance of bee-keeping as a source of pecuniary profit for small farmers and agricultural labourers, has, he observes, "never been appreciated as it deserves."

These are the avowed objects of the writer, and we have now to see whether the results have proved equal to his aspirations. Let us take the last paragraph first. We wish the author every success in his endeavours to advance the interests of small farmers and labourers, and to promote "a more excellent way" of bee management among them. But long experience has made us very dubious of the advantages likely to accrue from any advice that may be given in these quarters. Still there may be exceptions; and we find that among those most amenable to advice, and most ready to adopt the improvements of the more advanced

apiarian, gardeners form the most numerous body. Nevertheless, the object is a most laudable one, and it would be well, as the author observes, if the clergy and the educated country gentry, who may be interested in bee-keeping, would exert their influence in promoting an improved system among their poorer neighbours. But great circumspection must be used in not urging or attempting too much; the changes recommended must be most simple in character, or failure, disappointment and disgust will invariably ensue. We have enlarged on this point, not so much with the view of finding exception to the expressed object of the author, as to point out that it is a rock on which many enthusiastic bee-keepers have split. One ardent revolutionising apiarian, going about among cottagers and inducing them to adopt his more scientific modes of management, will work an infinity of mischief. We have known a village nearly depopulated of its bees, through the well-meaning but mis-judged efforts of one such man.

With respect to the other objects of the book, we think the author has been successful in the task he imposed upon himself. Mr. Neighbour has, for many years, been a practical bee-keeper, and has had opportunities of thoroughly testing the value of all the directions for the scientific management of the apiary which he has given. The introductory chapters contain a concise and generally correct account of the natural history of bees, their habits and peculiarities, though the following sentence is rather in error:—"The queen-bee, unlike the great majority of her subjects, is a stayer at home; generally speaking she only quits the hive twice in her life," that is, once on the day of her marriage, for the purpose of meeting with a drone, and again when leading off a swarm. Now, it is by no means certain that queens are content with one matrimonial excursion, even if it has proved a successful one, and it is well known that the same queen has led off first swarms for four successive seasons. But this slight error is of little consequence, and is probably a mere oversight.

We find a very good description of the various hives, which is the more useful, as the dimensions of each are given. It would be out of place here to expatiate at length on the respective merits of all these. For our own use we should avoid Nutt's Collateral Hive, but if adopted at all, we should prefer a much larger centre box; the size as given is far too small. Taylor's Amateur Shallow Box or Eight-bar Hive is a very good one. Neighbour's Improved Cottage Hive is one always likely to prove a favourite with the public. For our own use, we should prefer the stock hive to be considerably larger, with fewer windows, and with one large glass as a super instead of three small ones. The Cottagers' Hive, and Taylor's Improved Cottage Hive, are both excellent, and may well find a place in any apiary. The Unicomb Observatory hives are very good, particularly the one after Mr. Woodbury's pattern. By far the best hive described, however, is the Bar and Frame Hive, made either of wood or straw. Full and clear directions for the manipulation of these hives in general management, and in their use for the formation of artificial swarms, are given, and this comprises one of the most useful and interesting portions of the book.

Then we have various bee-houses described; but as a rule we are not partial to the use of large sheds constructed to contain several stocks. There is also an account of the "impressed wax sheets for artificial comb." These were first introduced to English apiarians from Germany, and are very useful adjuncts to the scientific operator in the management of the Bar and Frame hives. To quote Mr. Neighbour, "These artificial partition walls for combs are sheets of genuine wax, about the substance of thin cardboard. They receive rhomboidal impressions by being pressed between two metal plates, carefully and mathematically prepared, and cast so that the impressions are exactly the same size as the base of the cells of a honeycomb. An inspection of a piece of comb will show that the division of the opposite cells is made by a thin partition wall common to both; now, the substance of this is said to be only the 180th part of an inch, whilst the artificial ones we are recommending are between the 30th and 40th part of an inch, more than four times the thickness of the handy-work of the bees themselves. It would indeed be vain to attempt to furnish sheets of wax at all approaching their own delicate fabric; the impressed sheets are quite as thin as they can be to bear the handling which is requisite for fixing them in the hives. We find, however, that the thickness is no disadvantage; the bees speedily excavate and pare the artificial sheet, so as to suit their own notions of the substance required; then, with admirable economy, they use the surplus thus obtained for the construction of the cells. After a sheet has been partly worked at by the bees, it is interesting to hold it up to the light and observe the beautiful transparency of that part of it contrasted with the opaqueness of the part not yet laboured upon.

"When it is considered, as writers tell us, that more than 14 lb. of honey* are required for the secretion and elaboration of a single pound of comb, it will not be difficult to form a just estimate of the value of this invention, which thus furnishes cheap and excellent assistance to our industrious favourites." But the greatest advantage to be derived from the use of these artificial sheets, is in our opinion to be found in their use as guides for straight and well-formed combs in the frame hives and in supers generally.

The part of the book treating on the formation of Artificial Swarms is very useful and interesting; but it is a subject which does not admit of quotation. The operation of "driving," or forcing bees to leave their domiciles, is also well treated on; and as all bee keepers, aiming at any degree of excellence as bee masters, should know well how to effect this operation easily, we commend this portion of the book to their notice.

There is a short account of the "Ligurian or Italian Alp-bee," which is very good so far as it goes; but we should have been glad to have seen a more extended and complete description of this variety and its introduction into England. We, ourselves, may before long have something to say on this subject; for, as we may here announce, we propose, on the suggestion of various correspondents, to devote some space weekly, under the superintendence of a practical apiarian, to subjects devoted to bee management—on which subjects communications and inquiries for information are invited.

In conclusion, we can safely recommend apiarian beginners to procure this useful manual; while to bee keepers generally, who have their hives made under their own inspection, or who may use those of other makers, the book will also be found a useful guide to the better methods of management.

* We believe quite 20 lb. of honey are required for every pound of wax constructed.

A Few Words on the Choice of a Microscope. By J. J. Plumer, Esq., M.A. Pp. 31. John Churchill & Sons, New Burlington Street. 1865.

This is really a most valuable pamphlet to all who are thinking of investing money in one of these beautiful instruments. The writer reprints this, with revision, from the "Quarterly Journal of Microscopical Science." He has no interest in the matter, but a sincere desire to save others from the snares into which he himself fell, and to enable those who would set up a microscope for themselves, to reap, by a short and royal road, all those benefits from that delightful instrument which it cost him years to acquire.

It appears that since the year 1850 at least eight important improvements have been introduced. Each of these is discussed, and the would-be purchaser is urged to be satisfied with nothing short of "the best microscrope stand that the best optician can supply." This gives a pleasant sense of security and complete control over all the adjustments. But the cost of such an instrument complete is 60 guineas. Still Mr. Plumer recommends the best stand, with a couple of useful object glasses, rather than an inferior stand with a dozen.

Usually each great maker prides himself on some peculiar excellence, and these merits can only be combined by a sort of compromise. Each principal maker will have his special advocates. On all these matters Mr. Plumer gives most valuable information, and tells us what he considers best, and why. Then he goes on to speak of cheaper, but still very excellent instruments at 20 to 30 or 40 guineas, and so on down to 5*l*. For instruction and amusement, but not suited for scientific research, a microscope may be had as low as three guineas, and even at a guinea.

Nothing can be better than the advice to purchasers contained in this little eighteenpenny pamphlet. There are five illustrations representing microscopes.

Florists' Flowers.

The Pansy and its Culture.—As so many persons fail in cultivating this plant successfully, and as this is a good time for planting them, a few hints on their culture will perhaps be useful to many readers. In the South of England, where the heat is greater frequently than in the North, it is best to select a shady situation where there is a free circulation of air. If such cannot be found, then place them elsewhere, but always where there is a free admission of air. Any garden soil will suit them, but if poor, a moderate supply of very rotten manure should be dug in, and the Pansy revels in leaf-soil when mixed with the ordinary soil and a little manure. Plant out early in April at the latest. Many persons do not think of buying and planting until May, which is a very great mistake, for the plants should be established before they have to endure so much hot dry weather. These remarks are intended for those who have not planted, but autumn planting is frequently practised in the South, and is best, simply securing the plants from injury from wind by pegging them down, and surfacing the bed with a mixture from underneath the potting bench, run through a coarse sieve, or just making up a mixture of common soil and leaf-soil for the occasion. In the South it is most easy to winter them out-of-doors in this way, if slugs are looked after; but the real work of preserving them comes on with the hot June and July weather, when, as Pansy growers know to their sorrow, the plants seem to melt under old Sol's influence, and plants which were in full health in the morning are prostrated before night. I find the best safeguard against such mishaps, is to frequently give the plants a rose-pot watering in the evening, and then stir the surface early in the morning, and give a slight top-dressing of the soil I have before alluded to. This keeps the roots moist and cool; and by keeping the shoots well pegged down, this occasional surfacing induces the side shoots and young centre shoots to root freely, not only prolonging the bloom, but in the autumn yielding a large supply of healthy young plants, without the trouble of putting in cuttings. Just take up the plants, pull them to pieces, and plant the young rooted short pieces. If the weather is very scorching, a few branches of Evergreens stuck into the soil amongst the plants will help to keep them cool. In the North here we have great advantages in the cooler weather of summer, but we have terrible disadvantages in some districts in the severe winds we get, especially the cold east and west winds of February and March. I dare not trust my plants, of which I annually grow thousands, out of doors, but take them all up in October or November. After treating them in the manner I have recommended, viz., by top-dressings and pegging out, we take all up, pull them to pieces, throw away all old growth, and plant in cold frames all the young rooted pieces. These frames are filled with brick or other rubbish to within 15 inches of the glass, and with about six inches of good soil; the plants are near to the glass, and are kept as dry as possible in wet weather, and as hardy as free ventilation can make them.

Pansies will stand any amount of frost, if dry, but not frost with damp so well. In fact more, far more, Pansies are lost from damp and neglect than by frost. With such frame treatment here they do well, making stocky plants for spring planting. We keep them well aired and very hardy, never covering the glass with mats or other covering, no matter how severe the weather, but, as I said before, keeping them as dry as possible and looking well after the removal of damping foliage. Cuttings can be put in at various times through the summer under hand-glasses, or in cold frames under a north wall, keeping them close for a fortnight or so, but looking after damp.

What a supply of flowers can be kept up from seed! A batch of seed sown in a cold frame in August or September, or even later, the seedlings planted out as soon as they are ready, will in the South and many districts in the North and Midland Counties, give a grand display in April, May, and June; and another batch of seedlings from seed sown in April or May will yield another display from August till December. The Pansy is most easily cultivated by seed, makes very strong plants, and blooms profusely. I often feel surprised it is not universally used for making flower gardens brilliant from March till bedding-out time, when a few shillings worth of seed will do it with so little trouble. I believe many think there is so much trouble with the Pansy they fear to use it; but such fears are groundless. The Fancy Pansies are very beautiful, and beds of seedlings of these and the English kinds mixed give an endless variety of colours, and require to be seen to be fully appreciated. Here we fill beds with these seedlings in spring, for I dare not plant out such small things until all fear of the frost throwing them out of the ground has passed away, and the beds give dense masses of flower through the summer and autumn. It will be as well to state that in very hot dry weather the Pansy suffers sometimes from attack of the Black Aphis. The moment this appears they should be washed with tobacco water, and the plants must be kept freely syringed and growing freely. *W. Dean, Bradford Nursery, Shipley, Yorkshire.*

Garden Memoranda.

T. Jones', Esq., Ellerslie House, Manchester.—This place is famous for its Orchids, many varieties of which are now in bloom, due regard having been paid in forming the collection to have a fair proportion of sorts that would flower all the year round. This point having been efficiently carried out, the effect produced, even during the whole of this adverse spring, has been striking in the extreme. The following list of kinds now in great beauty will show that they embrace almost every shade of colour, from pure white to the most brilliant scarlet.

Of Dendrobiums there is a fine display, consisting of different varieties of D. macrophyllum; the new primrose-coloured D. luteolum; the golden D. chrysotoxum in splendid condition; the beautiful D crepidatum, with pure white petals and sepals, tipped with delicate mauve, while the lip is richly blotched with dark orange; and the charming D. marginatum. The collection moreover contains D. densiflorum, D. Paxtoni, D. albo-sanguineum, D. primulinum, and the ever-flowering D. nobile, all in fine bloom. Likewise Odontoglossum Phalænopsis, a glorious kind, one flower on which measured 2½ inches in length and 2¼ inches in breadth; O. pulchellum, with 10 fine spikes of bloom; and O. cordatum, the last a beautiful and rare species just coming into flower. Odontoglossum læve has likewise a spike 4 feet long, with 40 flowers on it. Among other sorts of Orchids in bloom are Chysis bractescens, Oncidium sarcodes, a fine variety of Epidendrum aurantiacum, E. macrochilum, the ivory-white Cymbidium eburneum, Cœlogyne elegans, 4 plants of Leptotes bicolor, covered with flowers; Cypripedium barbatum, and other varieties of Lady's Slipper, as C. Lowii and C. hirsutissimum; Lycaste Skinneri, embracing at least 10 distinct and beautiful varieties; Trichopilia suavis, with 19 blossoms;

and Vanda tricolor and V. tricolor insignis, the last richly ornamented with unusually large spots. Of Phalænopsis grandiflora there are several plants in flower, and of P. Schilleriana seven plants are coming finely into great beauty.

With a few trifling exceptions the whole collection of Orchids here is in splendid health, no spot or other pest being perceptible—a matter for congratulation, considering the unfavourable winter through which we have but now just passed. *G. I.*

Miscellaneous.

The Late Mr. M'Leay.—Intelligence has been received of the decease, at his residence near Sydney, New South Wales, on the 25th of January last, of the distinguished naturalist William Sharp M'Leay, Esq., A.M., formerly of Trinity College, Cambridge, whose writings, 40 years ago, produced quite a revolution in the opinions of zoologists as to the relations of natural objects and their systematic classification. Mr. M'Leay was the first to point out clearly the distinction, previously overlooked, between those near relationships arising from the direct affinities of animals, *inter se*, in respect to their general characters, and those more remote resemblances which resulted from a uniformity in but one or very few characters, which he distinguished by the name of analogies; thus a butterfly and a moth are related together by affinity as members of the same order, whilst a butterfly and an ascalaphus (one of the gauze-winged flies) are only related together by analogy, in consequence of both possessing long, slender antennæ, terminated by a knob, and yet the ascalaphus had actually been described as a Papilio, although belonging to a distinct order of insects. Perceiving, moreover, the difficulty, or rather the impossibility of arranging the various relationships of animals, as had previously been done, in a right line, Mr. M'Leay adopted a circular system of arrangement, by which means the series returned into itself at any point; he, moreover, considered that every group of animals contained five primary and five subordinate, or osculant, types; and that although the arrangement of these five primary types in their own circle was regulated by their affinities, yet their relative positions were tested and proved by relations of analogy existing between the relative points of the various adjacent circles. These were the principles of the circular quinarian system of nature, which were developed with amazing skill in the "Horæ Entomologicæ," the first part of which appeared in 1819, the second in 1821. This work was followed by various memoirs, published in the "Transactions of the Linnean Society" and "Zoological Journal," and the views set forth in these writings were adopted and developed by various naturalists of eminence. *Athenæum.*

Local Names of Plants.—A complete collection of the names by which our British plants and animals are known in country places would be interesting, and would be, besides, not without its utility. Many of these names are exceedingly pretty,—far prettier than those by which they are generally known,—at any rate in works on Natural History. Some conjure up poetical associations, or remind us of traditions or stories connected with the plants themselves, or point out uses which have, perhaps, now become obsolete. Many local names, too, are no doubt very ancient; some being of Saxon, some of Norse, and others of Celtic origin: and these ancient names would be a very sure means of determining whether the plants which bear them were true natives, or were introduced amongst us, and by whom, in later times. One fact would be very observable in such a collection, namely, that many different plants are known in different places by the same name; and, no doubt, the same would be true to a certain extent with regard to animals. Thus "Robin run by the hedge" is a name which, I believe, is generally applied to Ground Ivy (Glechoma hederacea); but I have heard the same name given to red Campion (Lychnis dioica). Harebells, or hairbells, or airbells (Campanula rotundifolia, but which may be the correct English name I have not yet been able to make out) are often called "Bluebells," and the same name is frequently applied to the wild Hyacinth (Hyacinthus nonscriptus). I am told that in Sussex the greater Bindweed (Convolvulus sepium) is called "Woodbine," the name which in most places serves to distinguish the Honeysuckle (Lonicera), which in Cumberland is called "Bindwood"—a name not quite so euphonious as Woodbine, but evidently meaning the same, and merely differing in the transposition of its parts. In Cheshire "Bindweed" means the Twining Knotgrass (Polygonum convolvulus); but all these plants are characterised by their twining around others for support, and it is only likely that they should have received the same, or very similar names. As a rule, labouring men do not recognise minute differences in plants, and classify much more by similarity of leaves or habit than by resemblance in the flowers; thus many plants that have large coarse leaves are called "docks"—as "Burdock;" while in Cheshire Water Lilies are "Flatter Docks," or Floating Docks. In that county, too, Polygonum amphibium is called Ground Willow because its leaves are just the shape of Willow leaves, and the different kinds of Lamium are everywhere called "dead Nettles" only because their leaves are like the leaves of the true or Stinging Nettle. Some local names are exceedingly curious, and it is somewhat puzzling to find out their derivations. In Cumberland the Bistort (Polygonum bistorta) is called by the strange name of Easter man-giants. The only derivation that I can suggest for this appellation,—and I think it is the right one,—is that being sometimes in that country eaten in the spring about Easter-time, the leaves being boiled as a vegetable, the word "mangiant" must be derived from the French *manger*, "to eat." *Science Gossip.*

Calendar of Operations.

(*For the ensuing week.*)

Bright days have come at last, and the genial showers which accompany them are already producing a visible improvement on out-door vegetation. Beds and borders will require surface stirring and raking, lawns should be mown, and walks swept and rolled. Dead branches, if any, on trees and shrubs should be removed, and everything done which will be likely to render flower gardens and ornamental grounds as enjoyable as possible, after the long, dreary, cold weather which we have experienced.

FLOWER GARDEN AND PLANT HOUSES.

Great care should always, but especially at this season, be bestowed on the operation of watering. Too much, too little, or an injudicious mode of appliance, are equally fatal to high cultivation. A very fine-rosed pot, and slight applications of water, at intervals, close on the heels of potting, is the best way, as a general rule, to penetrate the mass, and to cause the particles of soil so to arrange themselves that atmospheric influence shall be somewhat modified, but by no means intercepted. This advice has reference chiefly to newly-potted stock in pots; but equal attention must be paid to ordinary conservatory specimen plants. This is the period too for the free use of liquid manure, but take care that it is perfectly clear, and not too strong.

Orchids.—Growing plants should now have a somewhat larger amount of atmospheric moisture than was allowed them when the days were sunless, together with a liberal circulation of air early in the morning, shutting up close betimes, and taking care to observe moderation in the use of fire heat, in order that a pure atmosphere may be enclosed for the night. See that growing Dendrobiums have liberal supplies of water, and plants on blocks frequent syringings.

Pelargoniums.—Plants intended for early blooming will now want watering freely; be careful that enough is given at a time to penetrate the ball. Sufficient artificial heat must be used to admit of air being given freely every day. While the weather is bright maintain a moist growing atmosphere by sprinkling the paths and floor of the house two or three times a day. Attend regularly to the tying and training of the shoots as they progress. Some of the autumn potted plants may be stopped for late flowering. The surface of the soil should be kept clean, the plants kept free from decayed leaves, and above all things keep a diligent watch for green fly.

Stocks.—Sow now in heat, either in well drained pans or boxes of light soil; make the surface level and smooth, pressing it lightly, and if the soil be dry, water freely some hours before sowing. Sow thinly, and cover very lightly with fine sandy soil, placing a piece of glass on the pan or box, and shading from bright sunshine. The seed may also be sown in a cold frame, or under a hand-glass, and also on a warm sheltered border early in May.

FORCING GARDEN.

Cucumbers and Melons.—Sow for a crop of autumn Melons. Those who have nothing but dung beds to grow them in will find this a good time for doing so; successional plants of Cucumbers must also receive attention.

Mushrooms.—Take care to provide a moist atmosphere for these. Beds made after this should possess more moisture in the manure than those made early in the season.

Pines.—Attend to regulating the air, heat, and atmospheric moisture, as directed last week. Fruiting houses or pits should now average 80° by day, and about 70° at night; 85° or 90° may be allowed, however, from 3 o'clock to 5 in the afternoon. Dung pits must not be so warm by 5°, as the plants in them are more liable to become drawn.

Strawberries.—Place these near the glass and give plenty of liquid manure; also keep up a moist warm growing atmosphere until the fruit begins to colour. There will be no difficulty in getting fruit set after this, if the plants are kept near the glass, and are allowed on all favourable occasions abundance of air.

Vines.—Where crowded, some of the laterals may be removed in the earliest house, where the Grapes are beginning to ripen; not, however, to throw sunlight immediately on the berries, but in order to promote a perfect secretion in the principal leaves, with a view to heighten the flavour of the fruit, and to organise plump buds for the ensuing year.

HARDY FRUIT AND KITCHEN GARDEN.

Asparagus.—As soon as young plants begin to start, let new plantations be made.

Beet.—For an early supply sow a small quantity now, and the main crop the first week in May. Sow in drills about 1 inch deep, and from 15 to 18 inches apart. Beet likes a deep and rich, yet rather light and loamy soil, well manured during the previous season, and if this cannot be obtained, the ground should be trenched 2 feet deep, and ridged up in autumn.

Potatos.—A full crop may now be planted. Kidneys with well protected sprouts, or any other early kind planted now, will be little later than those put in in February. This, however, requires some extra care, the sets should be placed in baskets, a single layer thick, on damp litter, and carefully handled; they should by no means be planted during either sun or wind. Those with sprouts 2 or 3 inches long managed thus, and covered at night until the second week in May, will closely succeed those in frames.

Winter Greens.—See that plenty of Kale, Savoys, Brussels Sprouts, Leeks, &c., are got in without delay.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending April 5, 1865, as observed at the Horticultural Gardens.

March and April.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth 1 foot deep.	Temperature. Of the Earth 2 feet deep	Wind.
Thurs. 30	3	30.236	30.225	50	25	37.5	40	41½	N E
Friday 31	4	30.210	30.074	57	42	49.5	41	41	N
Satur. 1	5	30.058	30.019	56	24	40.0	43	41½	N W
Sunday 2	6	30.034	29.824	58	29	43.5	44	42	W
Mon. 3	7	30.000	29.804	57	35	46.0	44½	43	[illegible]
Tues. 4	8	30.171	30.164	53	38	45.5	45½	43	E
Wed. 5	9	30.207	29.950	57	44	50.5	57	44	S W
Average		30.130	29.980	55.4	33.8	44.6	43.5	42.3	

March 30—Clear; very fine; slight frost at night.
— 31—Fine; very fine in forenoon; overcast; slight rain night; frosty.
April 1—Uniformly overcast; dusky, and white clouds; [illegible] night; frosty.
— 2—Fine, very fine; overcast at night.
— 3—Fine; partially overcast; dry haze; fine at night.
— 4—Foggy, fine; overcast.
— 5—Overcast; rain; fine at night.
Mean temperature of the week, 1 deg. below the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 39 years, for the ensuing Week, ending April 15.

April.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds.						
Sunday ..9	54.7	35.8	45.2	19	0.73 in	2	7	2	1	5	[illegible]	[illegible]
Mon. ..10	55.6	33.8	44.7	15	0.27	2	4	8	2	4	[illegible]	[illegible]
Tues. ..11	55.7	35.6	45.7	19	0.31	3	8	[illegible]	—	2	[illegible]	[illegible]
Wed. ..12	55.7	35.3	45.0	25	0.56	8	8	[illegible]	[illegible]	3	[illegible]	[illegible]
Thurs. ..13	55.3	36.6	44.4	15	0.45	9	[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]
Friday ..14	57.2	35.2	46.7	14	0.36	4	8	4	[illegible]	[illegible]	[illegible]	[illegible]
Satur. ..15	59.1	37.8	48.5	19	0.47	1	9	5	2	[illegible]	[illegible]	[illegible]

The highest temperature during the above period occurred on the 14th, 1852—therm. 73 deg.; and the lowest on the 10th, 1852, and 15th, 1862—therm. 20 deg.

Notices to Correspondents.

Books: *F W.* We are not aware of any work on British Grasses with preserved specimens, except that of Dr. Moore, and we cannot say whether this is still in print. You had better apply to the Dublin publisher.

Climbing Rosa devoniensis: *M C.* This is said to be a sport from devoniensis of course, and appears to have originated with Mr. Curtis of Torquay. It is said to be fixed, and to be as hardy and vigorous as Gloire de Dijon.

Cocoa-nut Refuse: *T R.* We find this an excellent material for giving slight protection about the roots of outdoor plants in winter; and equally good as a mulching during summer weather.

Copings for Walls; *Sir H W B.* Stone is admitted to be the best material; and Portland cement will answer. To throw the wet off the trees to the other side of the wall the coping must have a slope. But whatever materials be used the coping should have a *throating* or groove on the under side. When the water reaches this groove it will drop clear of the face of the wall. The coping may project 3 inches, the groove being formed at 2 inches from the face of the wall.

Cucumber Beds: *A Young Beginner.* It appears probable the small white insects like lice with which you are troubled have been brought into existence by the heat of the dung bed, the eggs or larvæ having been present in the soil. We have often observed them in newly made dung beds, and particularly when the soil employed for the Cucumbers has been mainly composed of humus or vegetable mould, such as leaf-mould, or the bottoms of old wood stacks; but we have never found them particularly injurious, and they are easily subdued by pouring diluted tobacco water over the whole surface of the bed through the rose of a watering-pot. This should be done about noon, the frame closed and shaded if the sun shines, and the whole syringed with tepid water early the next morning, after which it may be advisable to introduce a few toads into the frame. However the bed is of long standing and the white insects have developed, and invariably adhering to the under surface of the leaf and clustered on the very young shoots, you have got a pest for the destruction of which the remedies necessary to be employed are so strong that they destroy the plants also. In that case we find, from long experience, that the most economical plan is to burn the plants, remove the soil, and begin again, taking care to whitewash the interior of the frame or pit with quick lime. If you can send up some of the insects we will have them examined.

Frogmore Late Pine Strawberry: *C Chaty.* We believe this variety has turned out remarkably well, not only as a late bearer, but also as a good cropper, and one of roughly good quality in point of flavour.

Garden Expenses: *Factotum.* We cannot answer such questions. It would require an intimate acquaintance with many points on which your note gives no information. You cannot fairly expect much if you pay little.

Methonica: *J R S.* Methonica is the same as Gloriosa. They are all fine things—superba, Plantii a variety, virescens, and grandiflora; the first perhaps the best, the second of more manageable size.

Names of Plants: *A B.* 1, Tussilago Petasites; 2, Cornus mascula.—*W C.* Desfontainea spinosa.—*J H.* 1, Chrysosplenium varium; 2, Epacris grandiflora; 3, Scottia dentata.

Rats: *Subscriber.* Trap them, or kill them with phosphorus. For the latter we find the following formula:—Melt a piece of lard in a bottle plunged in hot water; add half an ounce of phosphorus, and one pint of proof-spirit. Cork the bottle tight after its contents have been heated to 212°, taking it out of the water, and agitating it smartly till the phosphorus becomes uniformly diffused, forming a milky-looking liquid. When cooled, this forms a compound of phosphorus and lard from which the spirit separates spontaneously, and may be poured off to be used again. The compound, gently warmed, is to be made into a dough with flour and sugar, and flavoured with oil of Rhodium or anise, made into pellets, and laid in the holes or runs frequented by the rats.

WHEELER'S GRASS SEEDS.—The demand for our CLOVER and GRASS SEEDS for One, Two, and Three Years' Lay, for Grass Seeds for Permanent Pasture, and for Seeds for Renovating Old Pastures is now so great, that we feel it unnecessary to continue advertising them, but Copies of our ILLUSTRATED BOOK on GRASSES may still be had.
J. C. Wheeler & Son, Gloucester, Seedsmen to the Gloucestershire Agricultural Society.

Improvement of Grass Lands
By Sowing good Seeds of the most Suitable Kinds.

SUTTON'S RENOVATING GRASS SEEDS should NOW be SOWN.

These Seeds consist of PERENNIAL CLOVERS and fine GRASSES for improving the bottom. Price 10*d.* per lb.; 8 or 12 lbs. per acre will be sufficient, and will produce a great increase in the produce.

PRICED SEED LISTS free.

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Royal Berkshire Seed Establishment,
Reading.

PRICES of SUTTON'S PERMANENT GRASS SEEDS.—Two bushels Large Seeds, and 12 lbs. Small Seeds per acre.—For very best quality (including Clovers), 30*s.* to 35*s.* per acre. For very Good ditto (including Clovers, but omitting some of the more expensive kinds of Grasses), 26*s.* to 30*s.* per acre.
All Goods delivered Carriage Free, except very small parcels.
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Grass Seed for all Soils.
RICHARD SMITH offers the best selection that can be made of PERMANENT MEADOW GRASS and CLOVER at 30*s.* per acre, consisting of 2 bushels light and 12 lbs. heavy seed. The kinds and quantities are chosen for their early growth, crop, nutritive qualities, reproductiveness, and permanency, and can be supplied separately or properly mixed to suit heavy, light, or medium soil.
Richard Smith, Seed Merchant, Worcester.

NEW FORAGE PLANT: BROMUS UNIOLOIDES var. SCHRADERI; SCHRADER'S BROME GRASS, sometimes called NEW ZEALAND GRASS and PRAIRIE GRASS.—This grass was introduced into Great Britain many years ago by Mr. Charles Lawson, sen., of Edinburgh, and was shown and described at the Great Exhibition of 1851. It is now attracting considerable attention, from the enormous cuttings of green food it has lately produced on the Continent and elsewhere. It is undoubtedly a most productive plant, especially under irrigation or liquid manure.
Small quantities of Seed may be obtained for experiment from Peter Lawson & Son, The Queen's Seedsmen, 28, King Street, Cheapside, E.C.

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Carriage or Freight Free.
WILLIAM DAVIDSON is prepared to supply, all of first-class quality, true to name, and at moderate prices—

GRASS SEEDS,	VEGETABLE SEEDS,
CLOVER SEEDS,	FLOWER SEEDS,
TURNIP SEEDS,	PLANTS, &c.

And every other description of Seeds in common use.
PRICED CATALOGUES for the season sent post free on application.
William Davidson, Seedsman, 304, St. Andrew Square, Edinburgh.

CARTER'S GARDENER'S VADE-MECUM is now ready.

TRADE MARK.
HALLETT'S [PEDIGREE] NURSERY WHEAT.
PURE SEED OATS.
40*s.* a Quarter (with Sacks) for not less than Two Quarters.
Papers sent upon application, enclosing Stamp, to Frederic F. Hallett, Esq., F.L.S., the Manor House, Brighton, Sussex.

To Seed Merchants and Others.
TO BE SOLD. YELLOW TANKARD, ALTRINCHAM YELLOW, GREEN-TOP SCOTCH, PURPLE-TOP SCOTCH TURNIP SEED; WHITE PORT and WHITE GLOBE ONION SEED. Apply to
Mr W. Cooper, Seed Grower, Fen Drayton, St. Ives, Hunts.

New Mangel Wurzel Seed, grown from selected Bulbs.
H. and T. SHARPE beg to announce to the Trade that their Stocks of the above-named Seed are very fine this season, and they are prepared to make special offers of all the sorts at very moderate prices.
Seed Growing Establishment, Wisbech.

To Market Gardeners and Seedsmen.
RICHARD WALKER, SEED GROWER, &c., Biggleswade, Bedfordshire, begs to offer the following for cash:—
YELLOW GLOBE MANGEL WURZEL, 28*s.* per cwt.
WHITE SPANISH ONION, 1*s.* 6*d.* per lb.
RED CABBAGE PLANTS, extra strong, 5*s.* per 1000.
EAST HAM DITTO, fine, 3*s.* per 1000.

Three Hundred Guineas in 12 Prizes.
For Six Years successively his late Royal Highness the Prince Consort's Prize Cups have been awarded to
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From Mr. Large, *Bailiff to the Right Hon.* Lord Berners:—
"The Champion Swedes from seed Lord Berners purchased of you, are far superior to any other we have grown. I can confidently say they are many tons per acre heavier than any other Swedes growing on his Lordship's farm."
Price of Seed 1*s.* per pound, or cheaper by the Bushel.
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Laying down Land to Pasture,
And Improvement of Grass Lands.
MR. MARTIN SUTTON'S ESSAY on the above subject, revised and enlarged from the Journal of the Royal Agricultural Society, may be had post free for 6 stamps on application to Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

JAMES CARTER AND CO., Seed Merchants,
High Holborn, London, W.C.
GENUINE FARM SEEDS.

"ONLY" PRIZE MEDAL FOR SEEDS.

INTERNATIONAL EXHIBITION, 1862.

CARTER'S SELECT LIST of GENUINE FARM SEEDS (at special prices) is now ready, and will be forwarded gratis and post free on application.
CARTER'S PERMANENT PASTURE GRASS, carefully mixed (to order), to suit all Soils, from extra cleaned samples, can be supplied according to the quality of the Mixture, at 26*s.* to 30*s.*, and 32*s.* to 35*s.* per acre.

GENUINE FARM SEEDS.

"ONLY" PRIZE MEDAL FOR SEEDS.

INTERNATIONAL EXHIBITION, 1862.

James Carter & Co., Seed Merchants, High Holborn, London, W.C.

INTERNATIONAL AGRICULTURAL EXHIBITION at COLOGNE, PRUSSIA.—EXTENSION of TIME.
Applications for SPACE received till APRIL 30. Goods received from MAY 1 to 20. For particulars apply to
F. W. Grube, Secretary to the "Flora," Cologne.

Royal Agricultural Society of England.
PLYMOUTH MEETING.
ROYAL AGRICULTURAL SOCIETY of ENGLAND.
MEETING at PLYMOUTH and DEVONPORT, 1865.
Stock and Implement Prize Sheets are now ready, and will be forwarded on application to H. Hall Dare, Secretary.
12, Hanover Square, London, W.

The Agricultural Gazette.

SATURDAY, APRIL 8, 1865.

The first April showers are descending that usher in the spring after a winter distinguished by persistency of cold rather than by extreme severity. November and December in last year were both below the average temperature; November decidedly so. There were only six nights in November and eight in December which were free from frost upon the Grass. From the 4th to the 21st of January in the present year the weather was mild for the time of year, though the end of that period was marked by two nights of great severity; then a cold period set in, attaining its maximum of severity on the morning of the 29th, when the minimum thermometer registered $10\frac{1}{2}°$, *i. e.* $21\frac{1}{2}°$ below the freezing point. Altogether the month of January was below the average; February was decidedly so; and March also, to the great amount of at least 4°. In this last month the first and last two days were warmer, but the rest of the month was characterised by dry and piercing winds, generally of much violence, and all the days but three either from the north or east.

In the 90 days of the quarter ending March 31, there have been only 12 nights free from frost. The amount of rain or water derived from melted snow amounted to $3\frac{1}{2}$ inches in January, $1\frac{3}{4}$ in February, and a little over $\frac{3}{4}$ in March. Between the 22d of January and the 21st of February the depth of snow that lay on the ground in the Thames Valley was 22 inches. It is so large a quantity of icy cold water penetrating the soil which has been the cause of retarding vegetation, much more than the frosty air.

Such in brief has been the character of the quarter just ended; it would no doubt be more interesting to the readers of the *Agricultural Gazette* to be informed what sort of weather we may expect in the quarter on which we have entered. The last quarter was stormy, cold and dry—the rule of zig-zag would have us anticipate the present to be about to be still, warm and wet, but the rule of zig-zag, though it may work very fair results in some cases—as for instance, shall we say, in distributing even-handed justice at Quarter Sessions!—will betray us into very great mistakes if we trust to it in meteorology.

But it will probably be said—have we not a means of forecasting the weather of the coming summer by the indications which the vernal equinox through which we have just passed supplies? This is no new idea, though it has been put forward again of late and urged upon us with much pretension. There was a book which contained many odds and ends of professed scientific knowledge published towards the end of last century, which contained some rules for prognosticating the coming summer from observations made at the equinox. They ran something in this way. "If during the 18th, 19th, 20th, or 21st of March a storm happen from the N., N.W., or N.E., the following summer will be fine five times out of six; but if during these days a storm arise from the S.W., S., or S.E., the summer will be wet." And this is much the same as any old sailor will tell you:—"A fine day, your honour."—"It is."—"The sun's crossing the line with an easterly wind."—"Well, and what do you think of that?"—"Oh! we shall have a fine summer, your honour!"

Now, any one who knows the anatomy of a sailor's mind will not think it strange to find such persuasions firmly fixed there; but it would be hard to say what peculiar virtue there is in the sun's changing the name of his declination from south to north to influence the weather of the succeeding six months, that that hour should have a potency which is refused to the several days preceding and following the equinox—when Nature in the northern hemisphere is plainly feeling the effects of sunshine shed down at a fast increasing angle.

Such prognostications as are above alluded to suit very well with the opinions of weatherwise persons who trust to their memories only; but they vanish quickly before the inexorable records of science. This year the sun was hid behind dense clouds on the 18th and 19th, whilst the wind blew from the east, gradually rising in strength, till on the 20th it had become a fierce gale, which swept clear the face of the heavens, and on the 21st had backed towards the north with a perfectly clear sky; on the 22d the wind was blowing strongly from dead north, with the sky still almost clear.

Let those readers of the *Agricultural Gazette* who put faith in these signs as affecting the coming season, learn to expound the riddle they offer, and then regulate their operations in the field accordingly. For ourselves, whatever be the field work of the season, or of the day, we mean to follow, in the spirit, an old English rule which is always safe to act upon, and shall endeavour at least to "make our hay when the sun shines."

J. S., S.

—— Dr. Voelcker gave a very interesting discourse last week before the English Agricultural Society on the value of potash as a manure, and the consequent agricultural value of certain mineral beds lately discovered in Germany, which contain a large per-centage of potash salts. Potash is almost as scanty in soils as phosphoric acid, while it is required in much larger quantity by plants. It is needed not only for itself but for its services as a vehicle of other substances. Silica for instance is taken into plants by its means. The value of wood ashes as a manure has been long known, and their effect has been due chiefly to the potash which they contain. An additional source of it has been long desired, and this has at length been obtained in the salt mines of Strassfurth, where a great thickness of potash-bearing mineral beds are traversed before the mine reaches the enormous deposit of pure rock-salt (chloride of sodium) which there exists. Various extracted potash salts are obtained from these preliminary beds; some of them deliquescent muriates, but one a sulphate selling at about 8*l.* a ton, of which large quantities are likely to be imported into this country for agricultural purposes.

The following are Dr. Voelcker's remarks on the probability of its usefulness in English soils. He said:—

What we require for the present, is an extensive series of experiments with these crude potash salts on

crops and on soils more likely to be benefited than other crops grown upon soils which, like clay, contain as a rule a good deal of potash. I would suggest for practical experiment the following crops—Turnips and Swedes, then Potatos and Clover. And I would especially recommend potash-salts for light sandy soils. Those soils are generally deficient in potash; and I am not at all sure that a good deal of disease in Turnips and root crops generally is not due, in a measure at least, to the almost exclusive use of superphosphate of lime, which some farmers make as a manure on their light land. The disease in Turnips is far less conspicuous on light land when only half a dressing of superphosphate is used and half a dressing of common farmyard manure. In farmyard dung and in liquid manure we find a considerable quantity of potash, and on light soils I believe potash must be supplied in some way or other. It is on light soils of that character that Clover frequently fails. I am not prepared to say that Clover sickness is in every instance caused by the absence of potash; but certain it is that potash must be present in the soil, or the crop will not grow luxuriantly. Potatos likewise require a considerable quantity of potash; and as they grow well when liberally manured on sandy soils, there is a greater chance of potash becoming exhausted when under the cultivation of Potatos than when corn crops are grown. The analyses of Dr. G. Grouven, of Salzmünde, prove that unless there is potash present in the soil our roots are likely to get diseased, and for this reason it is that I would especially suggest extensive trials with potash-salts for root crops.

The crude mineral as imported contains about 20 to 24 per cent. of sulphate of potash, and Dr. Voelcker recommends that it be used on light soils for Turnips, Potatos, and Clover, (1) alone, at the rate of 3 cwt. per acre; (2) alone, in comparison with 3 cwt. of common salt per acre; (3) mixed with superphosphate of lime, 3 cwt. of each per acre; and (4) mixed with common salt and superphosphate, 3 cwt. of each.

The German discovery will stimulate inquiry here. It is to be expected that the saliferous marls of Cheshire and Worcestershire, geologically identical with those where rock-salt is found in Germany, will on examination be found like them to contain potash-bearing beds in some part of the series which our salt mines traverse.

—— Last spring the Committee of the Royal Society for the Prevention of Cruelty to Animals offered a premium of 50*l.* for a Vermin Trap, "which, without inflicting torture, should either secure vermin alive, or instantaneously destroy them," and under the following conditions:—"The invention must be simple, inexpensive, certain, and fit for use in game preserves."

Upwards of 120 competitors forwarded about 200 traps, or models, or drawings; and an exhibition of these ingenious contrivances took place at St. James's Hall, Regent Street, on the 26th of May last, and subsequently during four weeks at the Royal Horticultural Gardens, Kensington.

The judges agreed, with regret, that the collection did not contain one trap which fully answered to the conditions of their advertisement, though there were many inventions or improvements upon old traps likely to become of service to game preservers. They declined therefore to award the prize to any of the candidates, but presented donations amounting to 10*l.* to three of them, and directed that honourable mention should be made of others as follows:—The first prize was given to the old steel trap provided with India-rubber gums to hold an animal without injuring it; by the Rev. Mr. Baker, Hargrave Rectory, near Kimbolton. The second to a box trap, through passage, with large treadle, cleverly connected with doors which close the ends; by Mr. John Hancock, of Brunswick Mount, Nottingham. The third to a Wheel Pitfall; the animal treads upon one blade of the wheel and falls into the pit, carrying the wheel round until the next blade closes the opening; by F. E. Hooper, Esq., 29, Kildare Terrace, W. Many of the exhibitors are desirous to have another trial of their skill, and it has, therefore, been resolved to hold early this Spring another Exhibition, and invite a competition for the premium still remaining in the hands of the Committee, particulars of which may be had of Mr. Colam, the Secretary of the Society, at 12, Pall Mall, S.W.

—— It will be seen from the report of the Council Meeting in Hanover Square last Wednesday, that the report of the Education Committee has been adopted by a large majority; and that the efforts of the Society in connection with the seventh object specified in its Charter, are thus to be confined to the promotion of general education in country districts. Had Mr. Dent's proposal to admit reporters to these Monthly Councils, which, by the way, has been refused, been adopted previous to the past meeting, we might have learnt how it is that the Council has come to think it right thus to neglect the duty of promoting professional agricultural education.

—— On Wednesday evening last Mr. Holland's "Locomotives on Highways" Bill was read a second time.

VALUE OF LAND IN LONDON.

"The great city! the heart of the commerce and finance of the civilised world!"—at least so said the late Baron Rothschild, and he must be accepted as a great authority on such matters—a city guarded by 640 police, 800 Honourable Artillery Company, 600 London Militia, and near 2000 Riflemen! My agricultural friends will naturally think that all this implies an immense area of space. How surprised, then, will they be when I tell them that the City of London is exactly the size of a farm of 631 acres and 10 poles! Into this small space are crowded daily more than 800,000 persons, and at night about 130,000 repose there. To these must be added uncountable vehicles and animals of every description. Land everywhere in the City is dear, but especially so in the neighbourhood of the Bank of England, the Royal Exchange, and other commercial points. I shall astonish some of my country friends when I assure them that the last cheap thing I heard of in Lombard Street was sold at two millions and a quarter per acre! say 70*l.* per superficial foot, or 630*l.* per superficial yard! and still the price is rising. Imagine paying an annual rental of 25*l.* odd for a space not much larger than a full-sized tea-tray! The old idea that London is paved with gold becomes literally realised, when one must place 70 golden sovereigns on each superficial foot. Well may citizens choose to live out of town, and only do business in the City, when one first floor in Lombard Street lets for 4500*l.* annually, and another for 2800*l.* Vast indeed must be the transactions whose concoction and completion take place on these costly floors. Mighty steam, by rail and by sea, and the wonderful telegraph, have made London the accessible focus of the business world. To those floors come, gliding along the telegraphic wires, business conversations and hard bargains. Far away countries, at every point of the compass, are hourly challenged on business matters. Once tedious months are now compressed into brief hours. Men's busy thoughts ebb and flow at lightning speed, unhindered and unchecked by wind, tide, or time. Well may the resigned agriculturist, who must abide Nature's protracted course, sigh for the quick returns and abundant profits of keen commercial men having all these advantages. In conclusion, let agriculturists (I mean landlords and tenants) learn to concentrate and intensify, with a view to increased profit, following the example of the busy occupants of the most powerful, loyal, respectable, and charitable city in the known world. Agriculture has much to learn and many prejudices to unlearn ere she takes rank with commercial progress and enterprise. Our half-tilled, half-stocked, neglected, and dilapidated estates must present a very different appearance if their owners and occupiers desire to do justice to themselves, the food consumer, and the country at large. There is plenty of money in this country to effect all necessary improvement, if the desire for such progress can be awakened. That it may and ultimately will be, is the wish and the belief of *J. J. Mechi, April*, 1865.

AGRICULTURAL EDUCATION.

[The following are in continuation of last week's publication.]

38. Cornwall.—As to the style and character of education in the present day, I can boldly affirm that of the better class of farmers' sons is very superior to what it was formerly; but the middle and lower classes are considerably behind persons of other vocations, in consequence of the scarcity of suitable schools. This is the result of my own observation for very many years. I fear the kind of education in this county is not at all adapted to effect the successful training of the various faculties of the mind so as to afford the lads the skill, intelligence, and judgment required by the practical agriculturist. I think if schools purposely for the education of tenant farmers' sons could be established in various localities, where practice could be combined with the usual routine of scholastic education, it would be a very considerable advantage, especially if competent lecturers could occasionally visit to interest and instruct the youths. *M. Michell, Tregoose, Truro.*

39. Devonshire.—I have not the slightest doubt that both in intelligence and education the present generation is far beyond the last, more especially in the desire for good schools for their sons; and judging from those living near me I should say the supply is by degrees becoming equal to the demand. Of course, the Agricultural College is a very useful supplement to this course, but then only a small portion of our tenant farmers will ever in my opinion avail themselves of these institutions—more from the time required than from the cost. In giving my opinion of the result, I should say from observation that though the education obtained is not of a high order, still, looking to these boys as future renting farmers, it is of the best; but one cannot help seeing that the attractiveness of the pursuit tends to distract the thoughts from books, and difficult as it always must be to make boys duly appreciate learning, in their case it is especially so. *X. 9.*

40. East Lothian.—There are no schools in this district where agricultural education is given. Formerly farmers' sons intended for farmers, after getting a middle-class education, often attended for a session the agricultural class of the University of Edinburgh, filling up their time at other classes, and writing in some office to acquire a knowledge of business and accounts which farming so sparingly affords. At the present time university agriculture is entirely neglected, while a knowledge of business is more and more sought after. There are however some farmers who keep their sons at home after leaving school, trusting to their picking up knowledge in the best way they can. There is nothing required for rent-paying farmers beyond an ordinary education; with this, youths of energy will educate themselves in any particular branches of knowledge they may have a turn for. Young farmers have often too much unoccupied time, and mere pride and refinement has a tendency to prevent them acquiring a knowledge of the minutiæ and drudgeries of their profession so essential to profitable management. East Lothian is essentially a corn-growing district, yet few of its farmers are aware of the cereals having male and female organs of generation, and still fewer know where to find them. Taking the farmers of this county collectively, the past generation in character, social position, and intelligence, stood higher than the present. But the word 'intelligence' is here used apart from professional intelligence. The recent advances in draining, manuring, &c., and the spread of agricultural periodicals, have done much for the tenantry of the present time. While the inhabitants of East Lothian generally have of late increased in wealth, refinement, and intelligence, farmers have fallen from their relative position. *P. Shirreff.*

41. Hereford.—The farmer of the present day is very far in advance of his predecessor in education, general intelligence, and social standing. The opportunities for obtaining those advantages have vastly increased during the past quarter of a century, and during that period I believe no body of men have made greater strides as a body than the English farmers towards attaining those desiderata. As regards general knowledge, no body of men require to be better informed; the best groundwork for this is a good commercial education; this acquired, he can, by steady and close application, learn sufficient of anatomy, botany, chemistry, geology, mineralogy, and the use of medicines for his general practice; but that he shall become a veterinary surgeon, a botanist, a chemist, or geologist, or any other such scientific profession, is, in my opinion, beyond what is requisite, and indeed, if arrived at, would, I think, end in disappointment and retard his successful pursuit of the more practical part of his business. For whilst, by the study of anatomy, he may render himself sufficiently acquainted with the animal form to know when it approaches perfection, and to quickly detect evil or injury, yet it is not absolutely requisite that he should be able to dissect an animal. And so it is in botany: he may acquire a sufficient knowledge of the Grasses and herbs which grow and flourish upon certain soils, and their value, or otherwise, for feeding purposes; yet I do not see it requisite that he should be proficient in that study, which, like the former, requires many years of close study and observation. It is certainly no more requisite that he should be enabled to analyse the soil he cultivates or the grass he grows, than that the carpenter should be enabled to ascertain the constituent parts of the wood he works upon. And so with the use of medicines: a quick eye to detect when an animal is amiss, and a general knowledge of the effects of simple medicines, may frequently avoid the necessity of professional attendance; but beyond that point the exercise of an imperfect, yet more advanced scientific knowledge, may as frequently prove a serious evil. I confess I really do not see in those intended in after life to fill the situation of farmers are to be specially educated at schools in any of the foregoing special branches of study. Land measuring he can glean sufficient of to lay the groundwork, but unless qualified professional teachers are obtained disappointment would be the result of the effort, and most certainly, as far as I can judge, there are few, very few, such teachers at the present day. *T. Duckham, Baysham Court, Ross.*

42. Lincolnshire.—The sons of respectable and well-to-do farmers in this neighbourhood commonly receive a good general education; but I am not aware that any effort is made to impart what may technically be termed an agricultural education. I do not think we have any very noted schools just about here, where farmers' sons are chiefly educated, but the boys are scattered up and down the country, at different schools, in accordance with the views and sympathies of their parents. Young men after leaving school and intending to become farmers, where their fathers are engaged in agriculture, generally remain at home, and learn the practical part of husbandry there; the remainder of their knowledge has to be obtained by reading, observation and inquiry. Where their parents are not

farmers, they go as pupils to one or other of those who profess to receive and instruct young men in agricultural knowledge and practice. I am decidedly of opinion that the present generation, as compared with the past generation of tenant farmers in this neighbourhood, is better educated, more intelligent, and enjoys a higher social status. It is not general education that is now so much needed for farmers' sons, but what I should call professional. Most of them have some knowledge of classics and mathematics, and understand the agriculture of Virgil, and have made long strides after getting safely and surely over the *pons asinorum* of Euclid. To some Homer is a familiar book, and to many reading and speaking French is an agreeable pastime. As far as my own observation enables me to form an opinion, I should say farmers' sons have a far better knowledge of classics and mathematics, of mental and moral philosophy, and, if you please, of political economy, than they have of the scientific branches of agriculture. And I consider the requirement of the present day is professional education, and it needs to be thorough. A farmer ought to have an intelligent reason for everything he does, and not, as is often the case, "leap in the dark." To possess this he must be educated accordingly. *Alfred S. Euston, Chatteris.*

43. Lincolnshire.—(1). Frequently farmers send their sons at the age of eight or nine years to a local school—generally to the various grammar schools in this district, where the classical forms the principal part of their education. Farmers' sons leave school about the age of 15 or 16. In most cases they return home to their father or to some acknowledged practical agriculturist to learn the business of farming. As a rule the practical part of farming can only be thoroughly acquired by close observation, and occasionally taking part in every operation on a farm. (2). As far as I am able to judge from my own observation, and by tradition of the habits, manners, and education of the past generation of farmers, and to contrast them with those of the present, I am led to the conclusion that the general education and theoretical knowledge of the present class of tenant farmers must be far in advance of the past. This of course must be expected when we consider the great advantages of the present day, through the numerous first-class publications upon nearly every subject, both scientific and practical, relating to farming. That the practical part of the business of a farmer is in advance I do not believe. The young men of my father's time, 40 or 50 years ago, were accustomed to ploughing, grooming their own horse, and attending to a certain quantity of stock—in fact, taking part in any of the practical work on the farm. Now this is very different: not one in ten of the higher class of farmers would be capable upon commencing business of directing from his own practical experience the various operations on his farm. I apprehend the best instruction for a child intended to gain a livelihood by farming would be to direct the mind from childhood to the observation of the laws and effects of Nature, and to make it familiar with the numerous operations that are taking place on a farm; by being acquainted with these, the youth when he goes to a school (where the education is similar to that at the "Priory," Louth), would then often connect the scientific part of his education with many incidents of his past life, and so it would make a deeper impression. Upon leaving school the youth would require three years' close attention to the practical working of a farm: and the due attention to all those little things which in themselves appear trifling, but collectively are often the means of carrying on a farm successfully. I am strongly of opinion that the course of education as conducted by the grammar schools of the county, is not that best adapted for the proper education of a farmer. We have no school expressly for the education of intending farmers; I think a special education is very desirable, for I am of opinion that a great deal of time is lost in an intending farmer spending so much school time in the acquirement of high classical knowledge, to the neglect of that which is more useful. *Wm. Dudding, Panton House, Wragby.*

44. Suffolk.—The present generation of farmers I believe to be less prejudiced, more desirous of progress, and naturally therefore better educated than the past, although there is room for improvement. My opinion as to the kind of education up to the time of leaving school necessary for a farmer—or, indeed, any young man of the middle class destined to earn his living—is in favour of the usual course of study adopted in our large public schools, giving more attention to French and German, geography, and history, and less to Greek and the higher mathematics, which latter, useful and advantageous as they are, are certainly generally less so than the former. With the reputation which England holds for first-rate agriculture and stock breeding amongst continental nations, it is proverbial that her farmers speak only their native tongue, often to their own detriment, and, contrasted with their close rivals the Belgian farmers, to their shame. As to the special and professional training for a farmer, this (except perhaps an initiation into chemistry) is better, I deem, left until the young man leaves school to take up that profession: as the general training is very necessary, and leaves him fit to follow any middle-class occupation, and the special training is far better practical, combined with theoretical, than theoretical alone, which it would commonly be at school. *Henry Edwards, Woodbridge.*

45. Warwickshire.—As to the usual education of the sons of farmers, the quality and size of farms in this locality are very various—none what you would call large, consequently there is every grade or description of farmer renting them, from those barely one remove in intelligence from the ordinary labourer to the man of capital and general intelligence; and the education of their sons is as various as the quality of the land, ranging from the free day-school of the parish to the boarding-school where a tolerable general education is given. I am not acquainted with any schools which profess to give special training to the sons of farmers in this county. After leaving school a boy is generally actively employed on the farm. In my opinion, home, as a rule, is the best place for a young man to gain that knowledge which should fit him to get his living by farming. I believe the past generation of farmers gave their sons greater educational advantages than they had had the benefit of themselves, and I observe farmers of the present day who have the means are desirous of giving their sons a useful general education. As regards the education of their sons, no doubt farmers are placed at a great disadvantage when compared with the middle classes in towns, where, from the establishment of collegiate, proprietary, or other good day-schools, their sons have the advantage of a much better and much less expensive education than can be obtained in the country. Looking to the prospects of farming, I do think it highly desirable that good day-schools at accessible distances should be established in the country. The expense of boarding schools is more than many have the means to defray for a family, and day-schools where a fair general education is given are very rare in the country. I think the earlier a boy is allowed or encouraged to interest himself in the daily work of the farm, the better. I would not keep a boy at school after the age of 14; but let him begin to make himself useful on the farm, and encourage him to improve himself by useful general study during the long evenings of winter; then, as he arrives at manhood he will probably avail himself of those special publications which explain the principles on which successful cultivation of land depends. But the more I reflect the more the question expands, for how much in a farmer's business depends on causes over which he has no control, and how much on a well-ordered and frugally kept house, especially if his farm be partly or principally a dairy farm. So much for special training. I by no means deprecate general education—the better informed a man is, the better position he is enabled to take in society, and the more useful he will be in his neighbourhood—always supposing he makes a rational use of his knowledge. *J. H. Burbery, Kenilworth.*

EXPERIMENTS ON GROUND COPROLITES.

The field used for the experiments in 1863 was one kindly lent me by Mr. Cuff, of Oxenford Farm, it being of a widely different nature from the one used on the previous occasions. The field was only partially drained, facing north; soil shallow and gravelly, and generally considered poor ground. The total extent of the field was 7 acres, and it was all well manured with farm-yard manure, at the rate of 15 loads per acre. The previous crop was Wheat, and the manures used on this occasion were only bone-dust, dissolved bones, and coprolites ground to an impalpable powder. All the manures were well mixed with dry couch ashes before drilling with the seed.

Throughout the centre of the field 2 acres were drilled in with the ground coprolites in 28 drills; on either side of this we had seven drills (half an acre) of dissolved bones, and on the one side bone dust was drilled in 14 drills (1 acre). Unfortunately this side of the field was very wet, and this injured the effects of the manure considerably.

The following Table will show the arrangements of the plots, with the rate and cost per acre of manures used:—

Plot 1.	½ acre.	Dissolved bones	7 drills	3 cwt. per acre			21s.
,, 2. ,, 3.	1 ,,	Coprolites	28 ,,	6 ,,	,,	,,	21s.
,, 4.	½ ,,	Dissolved bones	7 ,,	6 ,,	,,	,,	21s.
,, 5.	1 ,,	Bone dust	14 ,,	3 ,,	,,	,,	21s.

The seed and manures were drilled in on the 26th of June, the ground being in capital order, and the weather fine. The first lot of plants that appeared were those manured with coprolites, consequently they came to hoeing before the others. The plot manured with bone dust did not show well from the commencement. The plants always appeared stunted in growth, owing to the wet land.

On the 23d of January, 1864, we measured out from each plot 4 half-perches taken from the centre and ends of the various plots. The following Table will show the result of the experiment, after the roots were cleaned in the usual way:—

Plot.	Manures.	Drills.	Weight of 2 perches.	Per acre.
			lb.	Tn. ct. qr. lb.
1	Dissolved bones ..	7	279	9 19 1 14
2, 3	Ground coprolites ..	28	289	10 6 1 20
4	Dissolved bones ..	7	272	9 14 1 14
5	Bonedust	14	197	7 0 2 24

In comparing the above results it is evident that the great deficiency in the plot manured with bonedust is due to the undrained ground, but there is little difference between those plots manured with dissolved bones and those manured with the ground coprolites, although rather more favourable to the latter. I now beg to lay before you the result of experiments on the same subject, which were kindly sent to me by Mr. Baldwin of Glasnevin.

He says—"The crop was Aberdeen Turnips, the previous crop being Oats. The land was prepared in the usual way. The field on which the experiment was tried is an open plain, free from hedges or plantations. The manures were (per statute acre)—

1st Plot.	5 cwt. superphosphate. 4 cwt. chloride potassium. 1 cwt. sulphate ammonia.
2d Plot.	5 cwt. superphosphate. 4 cwt. chloride sodium. 1 sulphate ammonia.
3d Plot.	8 cwt. ground coprolites.
4th Plot.	5¼ cwt. bone-ash.
5th Plot.	14 cwt. of a superphosphate, made by dissolving coprolites in sulphuric acid.

The produce of bulbs were—

Plot.	Tons.	cwt.	qrs.	lbs.
1	24	17	1	0
2	21	13	3	14
3	21	1	2	16
4	20	14	0	0
5	22	0	3	14

"I regret no plot was left unmanured, but the experimental plots were separated by a drill to which no manure was applied, the average weight of which would give 20 tons per acre."

In this experiment I consider that the coprolites have shown decidedly well, although it occurs to me that it would be better to try nothing but phosphatic manures against each other to get at a comparative value of coprolites. With this view I intend to make experiments with bone-ash, Sombrero guano, and coprolites, all ground to an impalpable powder and applied to a sandy soil. *E. T. Kensington, F.C.S.* [The result in No. 1 Plot is interesting in connection with the value of potash salts as a manure, referred to in another column.]

Home Correspondence.

Malt as Food.—Your correspondent "J. H." surely cannot have read about the experiments as to feeding stock with Barley and with malt, brought before Parliament lately, and with the effect of entirely extinguishing the claims of malt as even equal to Barley. I quite agree with "J. H." that Liebig is an eminent chemist, and I beg he may note that the nonsense attributed to me, as to 580 quarts of best Bavarian beer containing exactly as much flesh-forming matter as 1 lb. of bread, is in truth Liebig's words, and not mine. Yet, I doubt if "J. H." will show that here Liebig is in error, as he himself will admit he was when, without due consideration, bringing forward the now entirely exploded idea of alcohol being of use in respiration, &c. I admit that abstainers must (if they can get it) have more food than those who drink fermented liquors, and also, that Moleschott's and Johnstone's alcohol drinkers retain in their tissues and their blood, many used-up parts of their bodies, which, without alcohol, God has ordered to be cast out, as the cause of disease when retained; and I think no person can wisely propose to check this healthy natural process, nor can it be done with impunity. Surely "J. H." was in joke when naming Mr. Johnstone as a sound authority in organic chemistry, or classing him along with Liebig, Böeker, Lyon Playfair, Christison, Lallemand, Le Cann, &c., all of whom agree that alcohol is neither food nor force, but instantly destroys the digestive fluid of the stomach, and the blood with which it comes in contact. When Drs. Carpenter, Miller, &c., prescribe fermented liquors, they do so as medicine, and not as good in health; but I notice that while every patient if possible escapes from the continued use of any real tonic, order him alcohol, and he will stick to it for life, whether in sickness or in health! I presume "J. H." has never seen Dr. Lee's Analysis of Johnstone's fallacies in Vol. III. of Dr. Lee's works. It is unanswerable. *J. Mackenzie, M.D., Eileanach, Inverness.*

Agricultural Education.—In your Paper of the 25th March, I find it stated by a writer on the education of Devonshire farmers (p. 275) that "the best farmers we get are men who have not been bred as farmers, but who, being shrewd business men, have taken to farming in after life." Here at all events is something new under the sun! To be successful in a swimming-match, you must never see water until the day you contend for the prize! Henceforth we must go to town to learn country work, and so the problem as to the best means of obtaining agricultural education is solved at last, and what I am now about to write may be only wilful waste of time and paper; still I hope you will give it a place in your columns as a few parting words contributed by an unbeliever. I must say then that my experience of Devonshire has been considerable, but I never knew a man not bred to farming succeed, make money, and shine as a farmer there or elsewhere; I never knew a man not bred to farming make money by farming, but I have known such men lose a great deal, and many notable instances could be mentioned of foolish attempts of this kind which ended in ludicrous failure and serious loss to

those who had the temerity to play with edged tools of this description. A man may attain respectable eminence in various trades, callings, and professions, after he has reached middle age, but he cannot become an agriculturist unless he commences young. He must know vegetable and animal physiology to qualify him, and the foundation of this knowledge can be laid in youth only. It must grow with his growth, and strengthen with his strength, and cannot be attained intuitively in manhood. An agriculturist at 50 is always making mistakes. He is afflicted with the disease called "sciolism," which a certain learned professor defines to be "the bad habit of knowing about subjects without really knowing the subject itself." He has had no mental training, he lacks appreciation and discrimination; his judgment on agricultural subjects is stagnant, and fails in that clearness, grasp, and polish, which early training give; he is always arriving at false conclusions, because deduced from false premises; he insists that an Oak can be an Oak without the acorn, and no wonder therefore that in practice he fails—the wonder would be if he did not, for in rural affairs it will be found that Nature refuses to disclose her secrets to the man who has not trodden her courts when a boy. *C., April* 4.

Potato Culture.—In all the districts where Potatos are extensively grown this is the busy season, and it is one of the best ever known. The land is in admirable order, owing to the unexampled winter through which we have just passed, aided considerably by the late severe frosts coming in such dry weather as the present. The ridging and planting has already commenced, and all goes on satisfactorily. In the district from which I write, Potato culture obtains great attention. In fact it has become one of the chief crops of the neighbourhood, and its culture, both practically and scientifically, is much studied. Some of the crops obtained last year were enormous, for which fabulous prices were received. This year a large breadth is in course of culture, for which the best varieties are sought after. The popular variety is the Dunbar Regent, and to keep up a correct stock of it yearly importations from Scotland are secured. The stock thus imported don't attain their full productive powers, from the change, till the second year after introduction; afterwards they begin to degenerate, but many years will elapse before they become unprofitable. There are two causes why these importations are so advantageous. The East Lothian cultivators obtain large quantities of seed Potatos from the stiff lands of Renfrewshire: these being planted on the fine red soils of East Lothian, *i. e.*, the Dunbar district, produce Potatos of the very best quality, scarcely to be equalled elsewhere; so that, being imported into this district, we have the changes from clay or very stiff loam to rich mild red land, and thence to mild rich loam. The importation of a few tons yearly in this way lays the foundation for a large stock for ensuing years, for which a good demand is always kept up. The variety called Flukes is next in popularity, and in real quality for the table they are superior to Regents, but they are far more difficult to cultivate to profit. The sets require to be larger, and in dry seasons none must be cut. They require close planting, on account of their tardy and scanty growth of haulm. They make the highest price in the market. Rocks, I think, come next to the above in general favour, on account of their extraordinary productiveness. They are, however, very exhausting to the soil, owing chiefly to the large quantity of haulm produced, as well as the great weight of tubers. Snowballs and Dalmahoys are also freely grown, and Red Regents and Skerry Blues partially. Myatt's Seedlings and a few other sorts have been introduced, but none are more extensively grown except the above varieties. The mode of culture in this district is pretty nearly established, and but slight deviations are made from it. It may be stated thus: in the autumn the land is ploughed, and all grassy and rooted weeds are got out by some means; it is laid up for the winter as winter ploughed, and well drained; as early as the returning season permits it is cross-ploughed, and, if requisite, it is well worked and pulverised. At the present time most of the lands that have been cross-ploughed are in excellent condition for planting, but this is owing to the peculiar season; I never knew it to be so before. The planting is principally done upon the ridge system, at 30 inches apart. As the ridges are drawn out, fold-yard manure at the rate of from eight to ten loads per acre is carefully spread along the rows, followed by sowing about 3 cwt. of Peruvian guano, or 4 cwt. of superphosphate, or other like popular manure. In the absence of fold yard manure an extra quantity of artificial manure is put on; many crops are thus put in. Then follows the planting of good Regent sets, 13 inches asunder at the bottom of the ridge or row; good Fluke sets, 11 inches asunder; Rocks, Skerry Blues, Red Regents, 13 inches asunder; Dalmahoys, Snowballs, and free-growing sorts, about 12 inches asunder. The ridges are worked in the usual way, opening one on passing down, and closing one returning up. When the plants are just showing above ground, the ridges are lightly rolled down. Some particular growers take the trouble to cover in carefully with large hoes by hand, and with profitable results. Great caution should be observed not to put them in when the land is wet or works unkindly. The plants (sets) should be at all times covered with dust or fine mould, so as to feed the earliest vegetation. *O. F.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

Monthly Council: *Wednesday, April* 5.—Present, Sir E. C. Kerrison, Bart., M.P., President, in the chair; the Earl of Powis, Lord Chesham, Lord Feversham, Lord Tredegar, Lord Walsingham, Major-General the Hon. A. N. Hood, the Hon. A. Vernon, Sir J. Johnstone, Bart., M.P., Sir A. K. Macdonald, Mr. Acland, M.P., Mr. Raymond Barker, Mr. Barnett, Mr. Barthropp, Mr. Bowly, Mr. Bramston, M.P., Mr. Cantrell, Mr. Dent, M.P., Mr. Druce, Mr. Brandreth Gibbs, Mr. Fisher Hobbs, Mr. Holland, M.P., Mr. Hutton, Mr. Jonas, Col. Kingscote, M.P., Mr. Lawrence, Mr. Lawes, Mr. Pain, Mr. Randell, Mr. Rigden, Mr. Robt. Smith, Mr. Thompson, M.P., Mr. Torr, Mr. Turner, Mr. Wells, Mr. Henry Wilson, Prof. Wilson, Mr. Frere, and Dr. Voelcker.

Edward J. Coleman, Esq., of Stoke Park, Slough, was elected a Governor of the Society.

The following new Members were elected:—

Alger, Wm. Henry, Ford Park, Plymouth.
Broderick, George, Carshalton, Surrey.
Brown, James, Eastgate Street, Chester.
Clutton, Henry, 9, Whitehall Place, Westminster, S.W.
Edwards, G. Withers, jun., Woolston, Oswestry, Salop.
Fisher, Richard, King's Coughton House, Alcester.
Flewett, Thomas, Hereford.
Forby, James, Wenhaston Grange, Halesworth, Suffolk.
Ford, James, 11, Frankfort Street, Plymouth, Devon.
Goulter, Allen, Hawkesbury, Chippenham, Wilts.
Goulter, J. Richards, Hawkesbury, Chippenham, Wilts.
Grimwade, Edward, Ipswich, Suffolk.
Jones, Thomas, Agden, Malpas, Chester.
Kelly, John, Plymouth, Devon.
Kingsmill, Wm. Howley, Sydmonton Court, Newbury.
Lambarde, Francis, Edenbridge, Kent.
McDouall, James, jun., Logan, Stranraer, Wigtonshire.
Methuen, Lord, Corsham Court, Chippenham, Wilts.
Nash, William, St. Austell, Cornwall.
Parlby, The Rev. J. Hall, Manadon, Plymouth, Devon.
Perrwee, James, Boreham, Chelmsford, Essex.
Rendle, Thomas, Mannamead, Plymouth, Devon.
Sowton, Richard, Higner Yealmpton, Plympton, Devon.
Thomas, R. D., Monnington Court, Peterchurch, Hereford.
Vosper, Thomas, Merafield, Plympton, Devon.
White, Arnold Wm., 12, Great Marlborough Street, London.
Williams, Charles, Carlton-le-Moorland, Newark, Lincoln.

Finances.—Major-General the Hon. A. N. Hood, Chairman, presented the report, from which it appeared that the Secretary's receipts during the past month had been examined by the Committee, and by Messrs. Quilter, Ball, & Co., the Society's accountants, and were found correct. The balance in the hands of the bankers on March 31, was 1241*l.* 19*s.* 7*d.*, 3000*l.* remaining on deposit at interest. The balance-sheet for the quarter ended March 31, 1865, and the statement of subscriptions and arrears, were laid on the table, the amount of arrears then due being 540*l.*

Discussions.—Mr. Thompson, M.P., Chairman, reported that the Committee recommended that the following shall be the arrangement for discussions at Weekly Councils in the months of May and June.

May 10.—On Flax, by Mr. Beale Browne.
May 24.—On Irrigation, by Professor Voelcker.
June 14.—On Diseases in Pigs, by Mr. Budd.

The Committee referred to the Council for decision whether the Index to the first series of the Journal now ready, shall be immediately delivered to members entitled to it, at an estimated cost of from 40*l.* to 50*l.*, or retained and forwarded with the August Number of the Journal. The Council decided that the delivery of the Index should be deferred to August.

House.—The House and Finance Committees having considered the reference from the Council as to providing the Society with a new house, Major-General the Hon. A. N. Hood stated that they had at present nothing to report.

Plymouth Meeting.—Lord Feversham, Chairman, reported that the Committee had ordered the usual advertisements to be issued, calling for tenders for the supply of refreshments in the show-yard. They recommended that a sum of 50*l.* be appropriated by the local committee to bill posting in the four western counties. That the use of a building contiguous to the trial fields be accepted, on the condition that the Society insure it from damage by fire during the period occupied. That a sum not exceeding 50*l.* be granted to the local committee in aid of the erection of a temporary platform for foot-passengers along a narrow approach to the Showyard. On the motion of Mr. Brandreth Gibbs they recommended that the colours for the rosettes of the prize animals shall be the same as those previously used on the cards, viz., 1st Red, 2d Yellow, 3d Blue.

This report was adopted.

Showyard Contract.—Mr. Randell presented the following report:—

"The Committee have taken into consideration the arrangements hitherto made with Mr. Manning for the erection of the showyard, the moveable buildings required, and work not included in the contract, and are of opinion that it would be more satisfactory to the Council if the contract for these works in future were thrown open to competition.

"They recommend that a surveyor be employed, who shall attend the Plymouth meeting, examine Mr. Manning's bills, both for contract and extra work, and report thereon to the Secretary; obtain all the information necessary to enable him to perform the duties hereafter mentioned, in reference to the works required for 1866, and report to your Committee at Plymouth whether it is desirable to purchase from Mr. Manning, and if so at what prices, all or any of the following portable buildings and other article:—Offices: Director's, Secretary and Council's complete, Veterinary Inspector's, Stewards and Judges'. Stewards of Finance, Storeroom for receiving yard, Yardmen's room, Catalogue store, Post-office, Money changer's office, Consulting engineer's office, Ladies' cloak rooms (2) complete, Entrances and exits, Turnstiles, Catalogue boxes, All notice boards, Ropes for rings, Cups and chains for water, with any other moveable article which is always required. The Committee ask for authority from the Council to act as they may deem expedient after receiving the report of the surveyor.

"The duties of the surveyor after the Plymouth meeting would be to prepare plans for the show-yard, 1866, and submit them to the Council: these being approved, to make detailed specifications for the purpose of obtaining (by advertisement) tenders for the works required; also to prepare an agreement to be entered into with the party whose tender shall have been accepted, see that the work is properly performed, prepare a schedule with prices for all work likely to be required and which is not included in the contract, measure all work and check bill for extra charges, make inventory, take charge of and account for the Society's plant, and direct its removal immediately after the Show to the place where the next is intended to be held—the Council having secured a piece of land for the erection of one or more of the offices, in which the other offices and plant of the Society shall be stored.

"The Committee recommend that a sum of 25*l.* shall be given to a surveyor for his attendance at Plymouth, and his railway expenses; and for the year 1866 a salary of 100*l.*

"(Signed) Edward Kerrison, *President.*"

This Report was adopted.

Railway Arrangements.—Mr. Pain stated that the Committee had been unable to induce the Companies to abate their charges, or give greater facilities than those of last year.

Agricultural Education.—The President having been summoned to attend a Committee of the House of Commons, the Earl of Powis was unanimously requested to take the chair. Mr. Holland, M.P., in presenting the report of the Committee as its Chairman, stated that he, with several other members, dissented from it, and had signed a protest which would be found at the end of the report.* The adoption of the report having been moved by Lord Walsingham, and seconded by Mr. Thompson, M.P., the following amendment was moved by Mr. Holland, M.P., and seconded by Mr. Lawrence:—

"That this Society is desirous of offering honours

* The following are the report and protest referred to:—

"Report.—The Committee have revised the report placed before the Council on the 1st March, and have again taken into consideration the various subjects which were discussed upon that occasion.

"In consequence of the late period of the year at which this report has been referred back to them, the Committee cannot recommend any examination in practical agriculture in 1865, and are not prepared to advise the appointment by the Council of a Board of Examiners until a trial has been made of the existing examining bodies.

"The Committee recommend that a sum not exceeding 100*l.* be given for Society's prizes amongst candidates who have passed the Oxford and Cambridge Senior and Junior Preliminary Examination.

"That a sum not exceeding 100*l.* be given to candidates at the Oxford and Cambridge Examinations for special subjects.

"That a sum of 100*l.* be left in the hands of the Committee for additional prizes in connection with these examinations or for expenses attendant thereon.

"Every candidate shall be recommended by a member of the Royal Agricultural Society of England, and must be a person in some way dependent on the cultivation of the land for his support or intending to make agriculture his profession.

"In the choice of special subjects, the Committee being necessarily restricted to those in which candidates are examined at the Oxford and Cambridge local examinations, have made their selection with a view to the encouragement of proficiency in such branches of science as are applicable to the study of practical agriculture, and calculated to prepare the mind of the student for the proper reception of that practical education, which must ultimately be completed by observation of the working of a farm, and thus enable him to test the value of such theories as may be presented to him.

"The subjects chosen will be especially useful to machine makers, manure manufacturers, and others who it is hoped will be attracted to these examinations, though more indirectly dependent upon agriculture for their support than the actual cultivators of the soil.

(Signed)
"Edward Holland, Chairman."

"Protest.—We the undersigned Members of the Education Committee have entered our protest on the minutes against the accompanying report; upon these grounds:—

"1st. Because it does not appear to us that the framers of the Charter contemplated the Society's dealing with the question of General Education.

"2d. Because we are of opinion that the operations of the Society should be confined to the special object of encouraging efficiency on the part of candidates in practical and scientific agriculture; thereby advancing agriculture as a science, and acting in conformity with its own motto 'Practice with Science.

"3d. Because it appears to us that the report recommends a needless expenditure of the Society's funds: as in case any person were permitted to compete for the Society's honours without producing a certificate from one of the existing public class examining bodies, testifying that he had passed an examination in the subjects named in the accompanying report, such certificate, without any distribution of the Society's funds, would be sufficient guarantee that the candidate had acquired the amount of general knowledge requisite for qualifying him to compete for the special honours and rewards offered by the Society.

"(Signed)
"Ed. Holland
"H. N. F. Kingscote
"C. Randell.
"J. Wilson.

and rewards for the purpose of encouraging the special training of young men in the science and practice of agriculture during the interval elapsing between the completion of ordinary education, and their entry on their ultimate occupation.

"That for this purpose an examination shall take place in the month of —— for the next three years, of any young persons between the ages of 19 and 22 years, who shall have given one month's previous notice of their desire to offer themselves for examination in practical and scientific agriculture.

"That three examiners shall be annually appointed by the Council to conduct such examination.

"That the distinctions awarded by the Society shall be divided into three classes:—

1. Any candidates who shall in the opinion of the examiners have exhibited the highest qualifications shall receive the diploma of the Society, under its corporate seal.
2. That any number of candidates not exceeding six, being the next in order or qualification to those receiving the diploma, shall be presented with a Certificate of Merit, to be signed by the Chairman on behalf of the Council, and shall be entitled to an Exhibition of £20 per annum for three years.
3. That any number of candidates not exceeding six, and being next in succession in order of merit, shall receive a gold medal of the value of 10*l*.

"That the examinations in practical agriculture shall comprise all the details of tillage, manuring, feeding and general management of stock, and the keeping of farm accounts. That the examinations in the sciences more immediately connected with agriculture shall comprise the elements of geology, chemistry, botany, mechanics, and vegetable physiology."

This amendment is framed with a hope that the marks of distinction proposed to be conferred, together with the publicity which will be attached to the awards, will have the effect of inducing middle-class schools to devote attention to agricultural education, and to compete with one another in qualifying pupils to become candidates for the Royal Agricultural Society's honours.

A discussion ensued, in which Professor Wilson, Mr. Pain, Mr. Cantrell, Mr. Jones, Mr. Wells, Mr. Turner, Mr. Dyke Acland, M.P.; Mr. Bowly, the Earl of Powis, Lord Feversham, Colonel Kingscote, M.P.; and Mr. Torr took part. On a show of hands there were 10 Ayes to 19 Noes for the amendment, and 18 Ayes to 8 Noes for the report. The report was then carried.

Mr. Dent, M.P., having moved that the privileges at present given to the Press at the Weekly Meetings be extended also to the Monthly Councils, the motion was seconded by Mr. Lawrence, but lost, on a division, by 17 Noes to 5 Ayes.

Meeting of 1866.—Memorials, with plans and sections, signed by the Mayors and Town Clerks of Bury St. Edmunds, Ipswich, King's Lynn, and Norwich, were presented, soliciting the Council to hold the Society's Country Meeting at those places in the year 1866; and a Committee, consisting of Mr. Brandreth Gibbs, Mr. Pain, Mr. Randell, and Mr. Torr was appointed to inspect the various sites offered for showyard and trials, and to report to the Council on the 3d May. The Secretary having announced a vacancy in the Council by the decease of Mr. Buller, M.P., gave notice that the election to fill this vacancy would take place on the 3d May.

Bath and West of England: *April* 1.—*Council Meeting. Admission to the Society's Exhibitions.*—All members who have paid their subscriptions before the 1st of May in each year shall have their tickets forwarded by post direct from the accountant's office, thus saving inconvenience and delay when they arrive at the Society's Show-yard. Members subscribing 1*l*. and upwards will be admitted by tickets giving the right of ingress and egress during the entire week: 10*s*. subscribers will be admitted on the Wednesday only. All privilege tickets, as they have hitherto been termed, will be entirely done away with, and none but subscribers of 1*l*. and upwards will henceforth be admitted for the whole period of the Exhibition, through a special entrance gate, without repeated payment.

The programme of the Hereford Meeting was presented and approved. The latest day for entering stock and implements is the 15th of the present month; after that day no entries can be received. The Exhibition will open on Monday, June 5, at 10 o'clock A.M., when the stock and poultry will be publicly judged. The implements in the yard and the Fine Arts Exhibition will at the same time be open to those desiring special facilities of observation. The horticultural department will open at 1 o'clock; and the horses, of which a fine show is anticipated, in response to the numerous and liberal prizes, will be paraded in the circle at 12 and 4 daily. On Tuesday all the above departments will open at 9 A.M., and at 10 the trial of steam ploughs, reaping machines, and other implements will take place. For Wednesday there is a repetition of the attractions of the previous day, with the addition of the competition for shoeing prizes, the annual meeting, the public banquet, and the final exhibition of entire horses, which leave in the evening. The charge for admission on any one of the first three days has been fixed at 2*s*. 6*d*. each person. Thursday and Friday are the popular days, when all departments of the show-yard will be open to the public on payment of 1*s*. each. The Exhibition will close on Friday at 5 P.M. As usual at the exhibitions of the Society, two superb military bands will attend on Wednesday, and one or other of these bands will perform on each day of the meeting.

New Members.—Mr. J. Paull, Brockley Hall, near Bristol; Mr. T. Coombs, Dorchester; Mr. J. B. Vevers, Park Hill Court, Stoke Edith, Ledbury; Mr. J. Walker, Westfield House, Horner, Hereford; Mr. J. Lane, Church Farm, Stroxton, Grantham.

London: *April* 3.—*Grass Land Management.*—Professor Coleman, late of Cirencester College, read a paper on the subject, dividing it into the following heads:—1st, Is it desirable to materially increase the Proportion of Grass land? 2nd, How can we best produce a Pasture? 3rd, Improvement of Worn-out and Neglected Pastures; 4th, Value of Irrigation by Water and Sewage. The following are extracts:—

I.—Is it desirable to materially Increase the Proportion of Grass Land?

At the present time we are constantly met by the assertion that land should go down to Grass. Those who know nothing of practical matters seem to look upon this as a panacea for all our difficulties. Stock is high, and likely to maintain high rates. Corn, on the other hand, is low; therefore grow Grass. And so, with a dash of the pen as it were, and a shrug of the shoulders at our dull stupidity in not at once seeing the necessity for altering our practice, the question is settled. A nobleman, who takes a lively interest in agriculture, but like many others has a theoretical rather than a practical acquaintance with the subject, lately fell into conversation with a large Lincolnshire farmer. "Ah," said he, "you are all wrong in Lincolnshire: you should lay all your land down to Grass." The gentleman to whom this remark was addressed soon proved that Lincolnshire was growing more beef, mutton, and wool now than would be possible if his idea could be carried out, and giving us a vast bulk of corn into the bargain, in the production of which a thriving population was very profitably employed, and added his opinion that the present prices of corn and horn would have comparatively no effect upon the increase of Grass, but might prevent our churchyards being ploughed up. There may be and doubtless are instances, where the land is strong, expensive to cultivate, and the climate moist and backward, where the return to pasture may be desirable; but even in such cases, we must have a considerable proportion of arable land, in order to winter our stock and make the most of our Grass land. I cannot help giving the testimony of a celebrated Shorthorn breeder, whose farm consists of two-thirds pasture. He told me if he had double the arable land he could winter a greatly increased stock; as it was, he gave his neighbours 2*l*. an acre for Barley straw, and carted it, and could not get enough, and that it was utterly ridiculous to talk of laying down more land to Grass. It certainly would be in his case, as he has too much already; but there may be instances of land broken up from pasture in consequence of the high price of corn, that may advantageously go back to Grass; but except in the case of very rich land, as the alluvial soils resting on clay, such as the grazing lands of Leicestershire, accompanied as they often are with flooded meadows that produce a great bulk of coarse hay, Grass land cannot be worked to advantage without at least an equal quantity, and more often two-thirds of arable to grow fodder and litter.

II.—How to Produce a Pasture.

First select a proper mixture and sufficient quantity of good seeds. This can only be obtained by going to a respectable seedsman, and paying a full price. Having been much struck with the appearance of the young pastures on Mr. Henry Howard's property at Greystoke, Cumberland—where a large park of naturally rough land was gradually reclaimed by breaking up 40 or 50 acres at a time, taking one or two crops just to clean the surface and allow the vegetable matters to rot—I have received a very full account of the process from Mr. Barker, the highly-respected agent, and cannot do better than read it verbatim to the Club. Mr. Barker says: "I shall follow the order indicated by you. 1. *The Soil*—Soils of various qualities have been treated—sandy clay, and moorish soils on a clay, and sandy clay subsoil; red loam on limestone and red loam on freestone; soft spongy clays and hard gravels. 2. *The mode of breaking up the old sward.*—Paring and burning were resorted to—on some rough heathy land at first; but latterly the first operation has been simply ploughing out with two horses abreast, excepting the land was very rough with Ling or Rushes, and then these were mown off before ploughing. The land so ploughed (begun in October and carried on to be finished by January if possible) was sown with Oats, generally black Tartarian, and manured with from 2 to 3 cwt. of Peruvian guano. 3. *Course of Crops.*—Oats as above, the first year. Second year—Turnips, with a mixture of bones and guano, the Turnips chiefly eaten on the ground. Third year—If the land appeared insufficiently enriched or unbroken, another crop of Turnips as before; if considered in a proper state, then the land well scarified and worked, and about the latter end of May or beginning of June sown with Rape and Grass-seeds and a little guano. In the spring of the year, either preceding the Turnip crop or before sowing down, the land received a good liming, say 150 or 160 bushels to the acre. I have never in practice found any prejudicial effect or loss from applying lime and guano in the same year, but rather the contrary. If the ammonia is set free by the lime, I think the soil catches it. 4. *The Mixture of Seeds.*—The following may be taken as an average, but different soils had different quantities:—5 lb. Rape, 5 lb. Cow-grass, 5 lb. White Clover, 2 lb. Red Clover, 2 lb. Alsike Clover, 2 lb. Meadow Foxtail, 1 lb. Crested Dogstail, 2 qts. Meadow Fescue, 8 qts. Italian Rye-grass, 8 qts. Pacey's Rye-grass, 8 qts. Stickney's Rye-grass, 2 qts. Cocksfoot. 5. *Period at which First Fed.*—Generally in August. The field sown is always divided by hurdles into three or four divisions, and these are fed in rotation, not allowing them to get too bare. The stock in the first year always sheep, which fatten with surprising rapidity. The Rape affords shelter to the young seeds, and the additional feed gives increased droppings on the land and increased fertility. 6. *Future Management; and Manures, if any.*—The second year a part is generally cut for hay, mown early, about 4th to 8th of June, and a luxuriant fog follows. The part pastured is fed by a mixed stock of horses, cattle, and sheep, and so on from year to year. If judiciously stocked and attended to, the pasture becomes in the second or third year like old good pasture land, and will continue so. Land managed as above 20 years ago is now still fine pasture. You will observe that all wet land is first drained either before the first plougher out or in the stubble. As to improvement in value, the land has been advanced from 100 to 500 per cent. We took into our hands about 100 acres from a farm that had been ploughed and mismanaged; the farmer was glad to get quit of it at 3*s*. 6*d*. per acre. After undergoing the above course of treatment, and after we had three years of the first Grass, the farmer was pleased to have it again at 25*s*. per acre, and it is now far cheaper to him than when he paid 3*s*. 6*d*." Such is Mr. Barker's description of a practice which from personal observation I know to have been most profitable, and which I consider so valuable as to need no apology for introducing. In the southern counties, as I said before, his plan would not always, or perhaps generally, answer; and we have the choice of spring corn or Wheat. The latter is often the best crop to sow in, but it comes at the end instead of the beginning of a rotation, when the land is often not so clean as it should be. Where, however, Wheat follows the fallow, I should recommend laying down with it, in preference to either Barley or Oats; and for this reason—that the seeds would have more air and light, and be less drawn up; the surface firmer; and the seeds, if kept near the top, would vegetate better.

III.—Improvement of Worn-out and Neglected Pastures.

The first point is to remove superfluous water. We cannot grow nutritious Grasses so long as the soil is saturated with moisture. We may have, it is true, a considerable bulk of watery bad herbage, and it is this fact that has led to an idea that Grass land does not want drainage so much as arable; indeed in some instances it has been said that drainage has injured Grass land. This I deny as regards clay. Instances may occur in which drainage does no good—where the subsoil is gravel, for instance, and where the moisture which found its way along the porous beds from higher land may have actually nourished, and only been in excess at rare intervals; for be it remembered such water is not necessarily stagnant: it may fertilize and pass on, and so after a time escape. Now close draining in such a case, by cutting off the water before it reaches the soils, may do harm, and I have heard of cases where this was so apparent that the drains were blocked up again. Draining alone will not renovate a worn-out pasture, as too often people appear to imagine it should do: the coarse Grasses which have taken possession of the ground, and driven out or dwarfed the better sorts, die out when the water goes; the soil contains little available food; the atmosphere has not been able to circulate and act upon the minerals; and consequently, if draining is not followed by liberal treatment, the produce, at any rate for a time, falls off, and the farmer who may have looked upon drainage as the only necessity is disgusted to find he has less Grass than before, and perhaps jumps to a too-hasty conclusion that the drainage was a mistake.

Mr. Coleman then described the improvements of Grass land on Mr. Ruck's property at Braydon, and Mr. Campbell's at Buscott, and elsewhere, and concluded by a reference to the subject of irrigation. We shall return to his valuable paper next week.

Reviews.

Additional Statements by Mr. William Menzies in Support of his Plan for the Drainage of Towns. Longmans.

Mr. Menzies here answers some of the objections which have been raised to his plans since the publication of his recent work on this subject. Any plan of dealing with town sewage so as to benefit by all the chemical, engineering, and chemical considerations which affect the subject, must, he says (1) be free from nuisance, (2) economical, that is creating a profit by the utilisation of the drainage water, (3) must prevent escape of these waters into rivers (which by the way is implied in the first and second conditions), and (4), practicable.

On the first point Mr. Menzies has given evidence to "show that a vast amount of fæcal matter remains putrefying in the drains of towns as they are at present formed, in consequence of the prevalent system of trusting so much to the rain water for flushing purposes, and that thus foul air of the worst kind is discharged either through the street gratings, which let down the surface water, or into the houses, and that malignant disease is the result." And even if the modern system of thorough drainage of towns is efficient in daily carrying away every day's sewage and filth, yet the plan of open gratings and ventilation which obtains through them is most faulty.

"In fact, if any engineer were to set himself the task of devising the best means of discharging, in the midst of the population, all the stench possible from sewage drains in a town, it would be difficult for him to plan a more complete method than these gratings afford."

We have heard Dr. Bell Fletcher, of Birmingham, inveigh against these gratings over town sewers as real sources of pestilence.

Secondly, on the economy or profitableness of a plan for dealing with sewage, Mr. Menzies contends that its dilution by rain water is mischievous.

"Water in itself is not a source of fertility to land. It is an excellent agent for carrying or developing sources of fertility, but in itself it has little or none. In fact, an excess of water is ruinous and exhaustive, and any meadows irrigated with pure water would soon become worthless. The water must, if the fertility of the soil is to be kept up, contain a certain amount of ammonia or other substance on which plants can feed, and the question at issue is, 'what is that amount per gallon?' Profitable agriculture is not regulated by questions of the chemical value of manure alone, but is a more comprehensive study of the state in which that manure is, the cost of applying it, and the mechanical condition of the land, as to wetness and dryness, upon which that manure is applied. The common sense of every man will guide him in forming the opinion that, if you dilute all the daily excreta of a human being in more than 25 gallons of water, or six times what would fill an ordinary stable pail, the extreme limit of dilution is reached that land generally could bear to advantage. In summer and in dry weather all will go well with that amount of dilution; but in winter and wet weather, when vegetation is dormant or the earth is saturated at any rate, then it is immense advantage to reduce the sewage water to the minimum; or, if I am not correct, all the principles upon which we have been acting for years, of thorough underground drainage, are wrong."

On this last point we do not think Mr. Menzies right. It is stagnation not excess of water that is the evil corrected by drainage. And while the evidence of

the water meadow is so strong, we do not think so much as our author appears to do, of those difficulties in the way of sewage utilisation which dilution creates. Of course all the instances of arable culture which he quotes, are real examples of the difficulty which he anticipates; and we admit that excessive dilution is an obstacle to any satisfactory utilisation of sewage except on Grass lands. There, however, we have scope enough for obtaining all that we can expect to obtain for dilute London sewage, viz., about 1*d.* a ton, or 1 ton of Grass for 100 to 200 tons of sewage under the best scheme for turning it to account.

It is not at all likely now-a-days, that any plan contemplating a diminished water supply and water-use per head of any town population will be allowed; and although we entirely agree with Mr. Menzies as to the mode in which the sewage is to be applied to the land, and also as to the difficulties which dilution puts in the way of its use on arable land, yet it seems plain that we must deal with the question as we find it, and so ascertain the best way we can of turning sewage to account diluted with the rainfall as well as with the water supply. It is into the question of the economical utilisation of *such* sewage that we have to enter, notwithstanding that on one of the last pages of this pamphlet we find it stated:—

"I think I need scarcely enter into the question of economical utilisation in the fields, as every one can see that to have provision made for irrigating with such excesses of rain-fall must be out of all reason, and that 25 gallons per head of the population is quite enough to provide for. The real principles to be acted on I believe are, after having fixed quantities of sewage—which I should like to see reduced to 10 or 15 gallons per head—then to put as much water in summer upon a limited area of as porous land as possible, so as to lessen the cost of supervision and distribution; and again in winter to spread the water out widely, so as to lessen the chance of over-saturation of the land."

Miscellaneous.

Waste Land Reclamation.—The following may be quoted on the authority of Mr. R. Smith, of Emmett's Grange, Devonshire, as a true comparison of the cost of a Turnip crop on Lincoln Heath, and on a newly broken up moorland in Exmoor.

Comparative Cost of Cultivating an Acre of Hill Land, at an elevation of 1000 feet, against an Acre of Lincoln Heath, both being prepared for Turnips.

Lincoln Heath, Turnip Fallow.*

	£	s.	d.
By rent and parochial rates	1	5	0
By three ploughings, at 8*s.* each	1	4	0
By cross-draggings, rollings, harrowings, drillings, manure, and seed, &c.	0	10	0
By 20 bushels of bones, at 2*s.* 6*d.* (or other artificials to the same value)	2	10	0
	£5	9	0

Unreclaimed Waste (Dry Land).

	£	s.	d.
By paring and burning	1	0	0
By one ploughing, 8*s.*, dragging, &c., 3*s.* 6*d.* ..	0	11	6
By 2½ tons of lime, at 20*s.*	2	10	0
By rent and rates	0	7	6
By sowing Turnip seed	0	1	0
	£4	10	0

"The weight of the root crop would in all probability be in favour of the new land. The ashes resulting from the burning of this thick coating of indigenous plants are found to be powerful agents for the production of roots, but little good is really effected without the aid of lime to mix with the fibrous earth, beyond the growth of a Turnip of inferior size. . . ." Mr. Smith thus describes the system of farming by which this high moorland may be most profitably cultivated. 'When the farm is sufficiently advanced, I much prefer the following course of cropping, for elevated lands:—First year.—To pare and burn the natural herbage for a root crop, and apply 2½ tons of lime per acre, mixed in with a moderately thin furrow of soil, say 2½ inches; this will produce 20 tons of Turnips per acre, at a cost (as previously stated) of 4*l.* 10*s.*—say 5*l.* per acre, or at the rate of 5*l.* per ton. Second year.—Formerly I adopted the plan of sowing two Turnip crops in succession, for the reason that the second one was an inexpensive and convenient one, and enabled me to clean the land more effectually before sowing it down with Grass seeds. My present plan is to seed out all lands after a Turnip crop with artificial Grasses, omitting the corn crop at this stage of culture, and until the new fibrous soil shall have had its frolic, and become more fixed and consolidated for the growth of corn. When these Grass seeds are sown, it is both desirable and profitable to add half a dressing more lime (1½ tons) for their enjoyment and that of the farm stock when depasturing them; still it is an extra outlay of capital, that must be considered with reference to other expenses when so many other works are waiting to be performed, and these alike with tenant's capital. Thus, after the Turnips are consumed (chiefly upon the land), the land is carefully ploughed, cleaned, and sown with artificial Grasses and rape seed, commencing the first week in April. 'These young Grasses will be ready to stock by the end of June, and if allowed to get well established, they will usually fatten full ten sheep per acre; and if care be taken to clear them occasionally, so that they sweeten and recover themselves, they will prove of infinite value up to Christmas. If they remain clear from the end of September for the ewes and lambs, which is a still better plan, they give a help over the inclemency of the months of March and April, after which they become first-rate pastures for the fattening of any class of stock, and maintain their comparative goodness for several years. This plan of farming in an elevated country goes very far to conquer the climate and enable the farmer to maintain a large and healthy flock of sheep; in fact it may be said to form the key-stone to the whole structure—without it the building is in danger." *Burn's Outlines of Farming.*

* The figures here given were given to the writer about eight years ago by one of the best Lincoln Heath farmers.

Close Parishes, Labourers, and Farmers.—Amongst other things the honourable member for Northamptonshire refers to the charge that "large landowners, by keeping close parishes, contrive to shuffle off their responsibilities to the shoulders of their poorer neighbours"—as there is no question whatever but they do. The fact is not even denied, but, with a passing compliment to the landlords generally, is taken for granted, and we reach to results in this wise:—"You heard a pitiful description of the poor labourer, weary and way-worn with having to walk several miles to and from his daily work (cheers). He could tell honourable gentlemen who cheered that this was simply twaddle ('Oh, oh!' and 'Hear.') If the labourer had to compete with other labourers who lived on the estate, no doubt he would be injured; but this was not the case. The tenant-farmer, his employer, was no doubt injured, for he only received three-parts of a day's work instead of a whole day's work—the services of a partially-tired man in the place of the services of a wholly fresh one." We will not attempt here to exactly define the meaning of "twaddle;" but if "twaddle" means truth, if "twaddle" means stubborn fact, if "twaddle" means a matter of common occurrence, then is Sir Rainald Knightley well justified in the use of this slang phrase, for hundreds or thousands of cases might be cited, as cases were cited in the House on this very evening, showing that the labourer has to walk miles daily to and from his work. It is the master, however, we are told, that is injured, not the man; although seriously as we doubt such an assumption, we will take the case as thus put, and so proceed to learn that the farmer who has been making such a noise over the matter receives ample compensation already for any such loss of heart, and strength, and sympathy from his servant. And in what form does the tenant receive this? Sir Rainald shall say, for there is not one man in a thousand who would ever guess how he gets his own back again: "In entering into his farm, this loss—of part of a day's work—is taken into consideration, and the tenant-farmers paid a smaller rate in consequence." Well might the House receive such a statement with a chorus of prolonged *O—hs!* when farms are systematically raised in rent where rates are low, and labour as a consequence difficult to be obtained at its best. *Mark Lane Express.*

Deadly Effects of the Yew Tree.—One day lately three Kyloes, pasturing in a field on the estate of Mark Sprot, Esq., of Riddell, Roxburghshire, were allowed to browse on the branches of a Yew tree, and in a very short time all the animals gave symptoms of being poisoned. Shortly afterwards one of them died, and a part of the carcase was thrown into the dog kennel at Riddell, when one of the dogs which had eaten of the flesh was suddenly seized with illness, and died on the following day. *Edinburgh Courant.*

Calendar of Operations.

April is one of the busiest months in the agricultural year. Dairy farmers and arable farmers are alike fully occupied. It is the seed time of Parsnips, Carrots, and Mangel Wurzel, and Grasses among green crops; and of Flax, and Barley, and Oats, and even Wheat (although the cereals would all have been better sown earlier) among seed crops, and there is a great deal of work in the arable fields in preparation for the later fallow crops, Swedes and Turnips.

Carrots.—The following is quoted from Morton's *Farmer's Calendar*:—

The corn stubble should have been cleaned, well tilled, and manured in the autumn; and if stirred by the grubber pretty early in spring, and harrowed down and well rolled this month, it will be ready for the seed. Sometimes, however, Carrots are taken after a Turnip crop fed off by sheep; and there is no better chance of obtaining a good crop. The Turnips should have been consumed early in the spring, and the land ploughed and well harrowed, and that is all the preparation it will need. About six lb. of seed should be procured for every acre; and it is well to mix them for a few days with damp sand, and then add a peck of Oats to the quantity of sand holding six lb. of Carrot seed. The whole may be sown on well rolled land with the Suffolk drill, in rows about 15 inches apart: the weights being taken off the coulter levers to ensure that the seed shall not be deeply covered.

It may be well, beside the autumnal manuring in the one case, and the sheepfold in the other, to sow broadcast a week or two before the seed two or three cwt. of Peruvian guano if a great crop is desired. The seed is covered in either by the roller, if the weather be dry, or by the bush harrow, and the field shut up till the appearance of weeds indicates need of the hoe; when either the hand or the corn horse-shoe must be set to work, which can be safely done, as the rows of the corn sown at the same time, show the place of the future rows of the Carrots to be saved.

The Belgian Carrot is much the best kind to sow for cattle food; it will yield from six to 16 tons per acre more than any of the red garden Carrots; and the value of the two per ton as food is not materially different. Twelve to 15 tons per acre of the Belgian Carrot may be expected under good cultivation; and 25 to 30 tons have not unfrequently been realised.

The cultivation of the Parsnip is similar to that above described of the Carrot. About 5 lb. of seed per acre will suffice for rows 15 inches apart. The ground should have been deeply tilled and well manured and then rolled heavily, so as to avoid too deep a burial of the seed.

Dairy Management.—We quote the following from the contributions of "A Gloucestershire Dairywoman" in a past volume of this Journal:—

The process of cheese-making commences very generally in the beginning of April, although the milk which is made whilst the cows are eating hay is not of the finest quality. This is very manifest even in its outward appearance, there being a deficiency of the blue coat, a sign of richness which is observable when the cows are eating Grass; and the cheese is more inclined to heave during this month than later in the season.

The use of a small quantity of the sour whey, and also a little saltpetre, has sometimes proved an effectual remedy against this. A tablespoonful of saltpetre to about 40 gallons of milk is placed on the cloth which covers the cheese-tub underneath the sieve, and the milk passed through in straining dissolves it, and mixes it effectually with the milk. The practice of using annatto or cheese-colouring is not so generally adopted now as formerly.

After the rennet is put into the milk it should always stand at least an hour without being disturbed, when it should be cut slowly with a knife having three blades, but only sufficiently small to allow of some of the whey being dipped from it; after it has stood a quarter of an hour it may be broken up very small, without the risk of getting the fat from the curd into the whey, which is of importance; the curd being broken very small the second time causes it to sink into a solid mass, and the whey can then be more easily taken from it. It is of importance that the curd be made as dry as possible; therefore it is generally put into vats and placed in the press for half an hour to effect this, and when taken out and placed in the tub, in large dairies a mill for grinding the curd placed on the top of the tub has been found efficacious, as a saving of much labour to the dairymaid, the crumbling of the curd sufficiently small being a very hard process for the hands, and not so regularly done as when prepared by the mill. It then only requires to be pressed firmly into the vats. Cheese has been found richer by the curd not being regularly scalded, but merely a little scalding water thrown over it after the vat is sufficiently full, first laying a cloth over it, the cheese being turned over to allow of both sides receiving the hot water; this makes it firm on the outside and prevents its cracking.

It is well to commence cheese-making by using the thinnest vats; the cheeses in these are more likely to keep their proper shape thus early in the season; they should not be made thicker than eight or nine to the cwt. It is customary to set up a small portion of milk for butter, to be skimmed once and afterwards to be put into the cheese. The addition of this cold milk is an advantage to the curd, and it has been proved that when the milk requires to be warmed to make it of the proper heat (about 80°) before adding the rennet, it is a much better plan to warm some of the milk which is brought from the cow to a greater degree of heat, and to warm that which has been standing twelve hours and the cream taken from it; it has been observed that the cheese is much firmer by this plan, therefore it is well to adopt it. After the cheese has been in the press two hours, it should have the wet cloth removed, and replaced by a dry one, and if it be found that the curd is not properly closed, a second may be used before it is salted. The salt should be rubbed in at night to the cheese made in the morning, and that made at night as soon as possibly convenient in the morning; three times is sufficient for thin cheese, and four times for thick, the cloth to be left off the last time of salting; afterwards a small quantity of salt may be used to prevent the cheese sticking to the vat during the time it is in the press, taking care that it is turned every day; and though it is not necessary for thin cheese to remain in the vat more than four days, it is thought an advantage, if there be press room, to leave it longer before turned out on the shelves; when there it must be turned every day. Avoid putting it in a draught of air when tender, as this will invariably cause it to crack.

The Lambing Season, which is nearly over in the southern counties, is only just beginning on the northern moorland farms. The following is from the records of a Lammermuir farm, published many years ago in the columns:—

Cheviot and black-faced ewes, having been fed on Turnips either at home or elsewhere, have probably returned to the pastures towards the middle of this month. Though there is little spring on the moors, yet having been very lightly stocked for some time, they are clean, so that the ewes do not be in condition. Those which are kept on Turnips at home are netted on for seven or eight hours during the day, and are to return to the pastures at night, do generally better than those which are in the low country, and constantly consume the Turnips. The first lambs now make their appearance, the black-faced leading the way; indeed, this breed generally two or three days sooner than either the Cheviots or Leicesters. The shepherds are now very busy. It is useful, at this season, to have a few well-sheltered spots, conveniently situated, fenced off some time previous to the ewes making their appearance, into which ewes that are shy of lambs, or have twins, may be put for a few days. This prevents much confusion and disturbance, as the shepherd knows at once where to find these special objects of his care: and if they have been saved for a short time previous, there is generally milk sufficient for them; though when such is not the case, a

Turnips, when to be had, will make up the deficiency. The jackets are removed from the hoggs about the beginning of April, and the opportunity is taken of branding an initial letter on their backs. Experience of the jackets confirms the opinion in their favour. Out of 600 ewe hoggs (only about 70 of which received ten weeks' Turnips) the loss during six months has amounted to one and a-half per cent.; while, in respect of condition, they will stand comparison with many in the district which have had four months' Turnips. When the jacket is removed, the wool underneath is found to have retained all the yolk it possessed in the end of November, when they were put up, forming a curious contrast to the bleached appearance of those parts which are uncovered. On a hill farm, if the twins are sufficient to fill up the blanks caused by death, it is all that is required. Those ewes having twins, together with some of the worst milkers, are put into enclosed fields, where the Grass is rather better, and where hungry lambs can be more easily assisted with cow's milk.

Notices to Correspondents.

Consumption of Food: *Stockmaster*. The following are Mr. Lawes' results:—Oxen fed liberally consume 12 to 13 lbs., sheep 15 lbs., pigs 26 to 30 lbs. of the dry substance of their food per week for every 100 lbs. of their light weight, and they increase 1 lb. in live weight for every 12, 9, and 5 lbs. respectively of the dry substance thus consumed. The maximum increase of live weight will be where the dried food contains 5 parts of non-nitrogenous to 1 part of nitrogenous compounds. Cereal grain contains 6 parts of non-nitrogenous to 1 of nitrogenous compounds; leguminous seeds about 2 parts to 1. The dry substance of oil-cake and corn, of Turnips, of Swedes, of Mangel Wurzel, and of Potatos, is generally $\frac{9}{10}$, $\frac{7}{8}$, $\frac{5}{6}$, $\frac{4}{5}$, and $\frac{1}{4}$ of their whole weight respectively.

Dairy Produce: *X*. Where cheese is the sole produce the following is an example of return per cow from the dairy of Mr. Chandos Pole, at Bartonfields, near Derby:—Cheese is the sole produce of Mr. Pole's dairy, and from 7 to 9 tons are annually made, on the Cheddar plan, from 40 cows, and sold for from 7*s.* to 8*os.* a cwt.; and the annual produce per cow thus varies from 14*l.* to 18*l.* in cheese alone. The whole annual produce was one year as high as 19*l.* 10*s.* per cow. The cows had all been at Grass for a fortnight or longer before we saw them; up till then they had been receiving, as they severally calved and came to the pail, Beans boiled to a soup and poured over their chop of mixed hay and straw. This, together with a few roots and 100 bushels of brewers' grains weekly among 40 cows, was their feeding. They are brought in night and morning to the cow-house to be milked.

Grass: *J W.* We recommend you to apply rotten bone-dust, about 10 cwt. per acre (if in an earthen compost so much the better), and thereafter to carry Turnips or other feed for sheep on the land and fold sheep. If the Rib Grass is excessive, you can hoe it up. The bone-dust and the folding will encourage the finer Grasses and Clovers.

Half time Education of Labour: *Teacher*. The following is Mr. Chadwick's remark on this subject:—Most farmers are now aware that if colts are worked too young, old and strong horses are not obtained; and that every colt is worked injuriously and wastefully if it be worked the same stages as full-grown horses. Yet we permit this to be done with children, the future stock of labour of the country. We permit them to be overworked mentally, as well as physically. Six hours of sedentary mental effort is as long a stage as adults can stand from day to day. Six hours' school teaching from day to day wears out the school teachers; yet the present educational theory expects that amount of mental effort from day to day from infants. It is the common practice to work young and growing children bodily also during the same stages, or during the full working hours as adults.

Haymaking: *Subscriber*. In 1851 the whole cost at Frocester Court, in mowing, making, carrying, ricking, thatching, over 123 acres, was 7*s.* 6*d.* per acre. In 1852 the cost over exactly the same extent was 8*s.* 8*d.* per acre. In 1856 the whole cost of mowing and making (including some acres of Clover), "thatching and all," was 8*s.* an acre over 145 acres. In 1857 the whole cost over 154 acres was 61*l.*, or about 8*s.* an acre. In 1859 the mowing machine was used in addition to the hay-tedder and horse-rake, and the whole cost of manual labour in mowing, making, carrying, ricking, and thatching 170 acres, was only 6*s.* an acre. The quantity of beer and cider consumed is about 2 gallons per acre during the whole process—but of course it and every other item of the cost varies immensely with the weather.

Produce of Cows: *Dairymaid*. The following may answer your question. The figures describe the competition of Ayrshire cows for the prizes of the Ayrshire Agricultural Society:—

Cow belonging to	Weight of milk at 4 milkings during two days.		Butter Produced.		Time occupied in Churning.	
	lbs.	oz.	lbs	oz.	h.	m.
Archibald Wilson ..	96	14	2	20	0	25
James Hendrie.. ..	97	4	2	14½	0	50
William Reid	82	3	2	9	0	45
William Reid	109	6	3	6½	1	45
R Wallace	114	2	1	9½	2	5
R. Wallace	94	11	1	15	1	45

The following is the kind of food used during the competition:—

No. 1.—One bushel draff, Mangel, Bean-meal, Oatmeal, Mangel juice with Oatmeal.

No. 2.—Mangel boiled and Bean-meal.

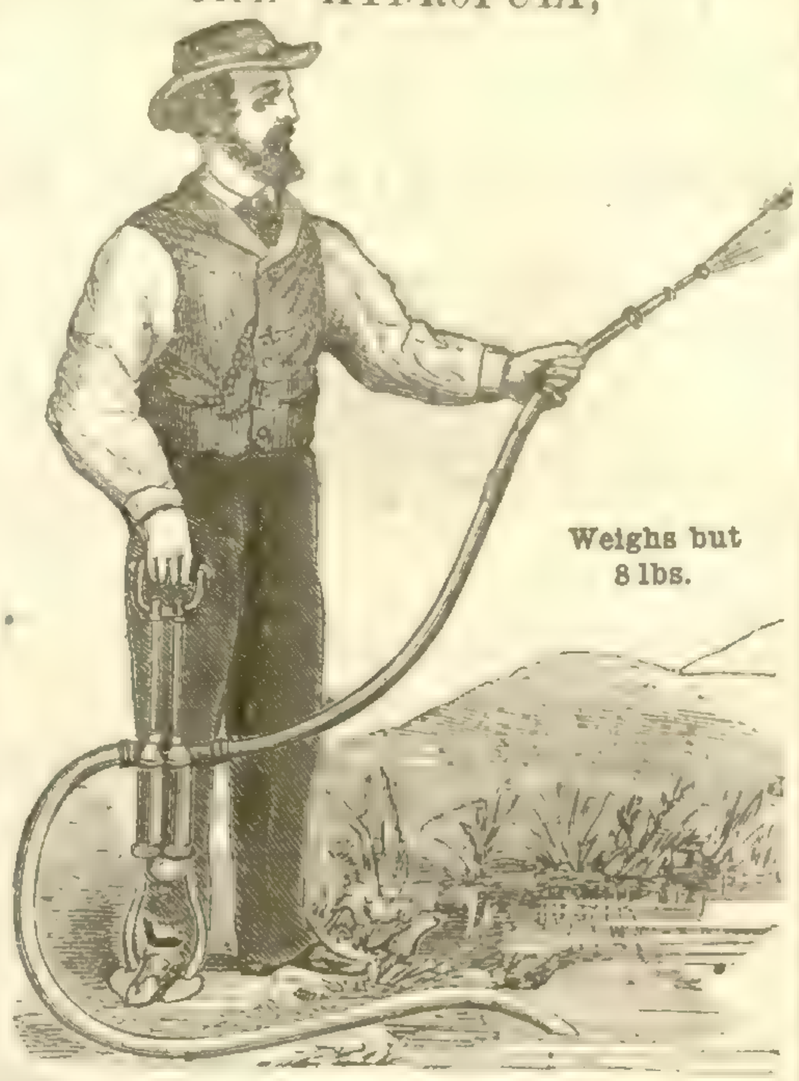
Nos. 3 and 4.—Cut Grass with 2 lbs. Bean-meal, 1 lb. Oatmeal, 1 lb. Bran, and ½ lb. Oilcake.

Nos 5 and 6.—Grass during the day, and Mangel night and morning, with 3 lbs. of Oatmeal, and 3 lbs. of Bean-meal each. No. 6 refused to eat the meal.

Recent Short-horn Sales: *Cor*. We greatly regret to announce the death of Captain Spencer, who had organised a series of sales at Rugby; Mr. Carr, of Stackhouse, officiated in his place. At Fawsley the remains of the late Sir C. Knightley's herd were disposed of by Mr. Strafford; 14 cows and heifers sold for 653*l.*, and six bulls sold for 152*l.*; the 20 fetched about 40*l.* apiece; 61 and 62 guineas were received for one or two of the lots. At Althorp 23 cows and heifers fetched 765*l.*, and 8 bulls, 297*l.*, averaging about 34*l.* each; 64*l.* and 55*l.* were the highest prices for cows and heifers respectively. The highest prices at the Rugby sale were 72 guineas for *Alice Wharfdale*, a heifer of Lady Pigott's, bought by Col. Towneley, and 83 guineas for Elector, a bull bought by Mr. Crawley; 57 head fetched 34*l.* 12*s.* each, or 1974*l.* in all, the 23 cows and heifers averaging 32*l.* 11*s.*, and the 34 bulls 36*l.*

Salt: *H. A. D.* says:—I have recently purchased about 8 tons of salt, which has been used in curing at Bristol, and I purpose to apply it as dressing to Grass lands on a clay soil, fairly drained, but over which a good deal of Moss has sprung up. [2 cwt. per acre is as much as we should recommend on clay land. Sow it broadcast in wet weather as soon as you can.]

THE HYDROPULT,



An Invention for Throwing Water by Hand Power.

(Secured by Royal Letters Patent).

PRICE LIST.

	£	s.	d.
Complete with Brass Cylinders and Japanned Stirrup	1	12	6
Complete with Brass Cylinders and Copper Stirrup	2	2	0

The Price "Complete" as above, includes 2½ feet Suction and 3 feet Delivery Hose, Galvanised Wire Strainer, Rose and Small Jet.

THE HYDROPULT
is invaluable for use in the
GARDEN for
WATERING BEDS,
SPRINKLING PLANTS,
DROWNING OUT INSECTS,
CLEANSING TREES FROM SMUTS,
DRESSING WITH LIQUID MANURE,
&c. &c.

THE HYDROPULT
is desirable in every
HOUSEHOLD for
WASHING WINDOWS,
WETTING SIDEWALKS,
SPRINKLING STREETS,
WASHING CARRIAGES,
EMPTYING CISTERNS,
FILLING BARRELS,
A SPRAY BATH,
&c. &c.

ORDERED by the WAR DEPARTMENT as FIRE ENGINES.

Robert Hogg, LL.D. and F.L.S., Rev. H. H. Dombrain, A.B., Shirley Hibberd, Esq., F.R.H.S., Thomas Rivers, Esq. (the eminent Florist), and other well-known gentlemen, recommend the Hydropult as an invaluable Garden Implement.

The Hydropult will draw water horizontally, if necessary, through Two Hundred Feet Suction Hose, and force it through Delivery Hose to an altitude of One Hundred Feet.

THE
GREENHOUSE AND CONSERVATORY HYDROPULT.
A NEW AND BEAUTIFUL IMPLEMENT,
Weighing scarcely 5 lbs.
AND SPECIALLY ADAPTED FOR USE IN THE GREENHOUSE AND CONSERVATORY.
Price 35s.,
Complete, with Brass Cylinders and Copper Stirrup, 2½ feet Suction and 3 feet Delivery Hose, Strainer, Rose, Jet, and Fan.

This NEW IMPLEMENT must necessarily supersede Syringes and other devices of the kind, for it will be found much more effective in its operation.

A LADY CAN WORK IT FOR HOURS WITHOUT FATIGUE.

CAUTION.

Important to the Public.—The extensive sale of the Hydropult has excited the cupidity of so-called respectable, but in reality unprincipled Manufacturers, who are now palming on the Public worthless imitations of the Hydropult, and through their connections are enabled to place said devices on exhibition, and for sale, in many of the principal Ironmongery and Seed Establishments throughout the city and provinces. These devices resemble in many respects the Hydropult in appearance, and are calculated to deceive the unsuspecting. The Proprietor therefore issues this Caution, and respectfully intimates that parties wishing to purchase the Hydropult should examine the machine offered for sale, and see if it has attached thereto a label, with the following words:—"The Hydropult, Vose's Patent, manufactured only by Griffiths & Browitt, Birmingham. Charles Pomeroy Button, Proprietor, 142 and 143, Cheapside, London." Unless this label is attached, the Machine is not the Hydropult.

Prospectuses, with Testimonials, on application.

HYDROPULT SHOW ROOM, 142 & 143, CHEAPSIDE, LONDON.
CHARLES POMEROY BUTTON, Proprietor.

Grass Seeds with a Corn Crop, and Grass Seeds without a Corn Crop, see

MR. MARTIN SUTTON'S ESSAY on PASTURES, which is addressed to remarks on the above question, contains other very valuable information. Price 6*d.*, post free.

Also the "*TIMES* CORRESPONDENCE," complete, republished in Sutton's New Farm Seed List, with LETTERS by
MR SANDERSON, | LT COL GANDY,
J. J. MECHI, ESQ. | MR MARTIN SUTTON,
SIR GEORGE JENKINSON, BART.
Which may be had gratis and post free on application.
Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

THE ALSIKE CLOVER for CLOVER-SICK LANDS.—This excellent Clover will thrive in almost any soil. It produces two good cuttings in the year, and makes superior Clover Hay. It may be sown alone (14 lb. per acre), or in conjunction with other Seeds, either for alternate husbandry or for Permanent Pasture. If sown with Italian Rye-grass it is ready for mowing three times in the year. It is included in all Messrs. Sutton's Mixtures, and they strongly recommend it to more general cultivation. Price may be had on application.
Royal Berkshire Seed Establishment, Reading.

GRAYSON'S TRUE MORTLAKE GIANT ASPARAGUS, grown on the ground where the late Mr Grayson brought it to such perfection, so that Grayson's Asparagus is esteemed the best.
Plants one year old, 2*s.* 6*d.* per 100. | Plants two years old, 4*s.* per 100.
Seed post paid in packets just under the ounce, 6*d.*
Post-office orders on Mortlake.
Francis R. Kinghorn, Sheen Nursery, Richmond, S.W.

New Cattle Food.

BLUNDELL'S CATTLE MELON.—Heavy Crops of this Fruit may be grown by the same cultivation and manure as required for root crops, and ready for feeding purposes before the root crops are ripe. Time of sowing, the end of April.
Seed of last year's growth is now ready for delivery at 2*s.* 6*d.* per packet of 50 Seeds, with full instructions for cultivation.
Cash remittances from unknown correspondents.
Address, Joseph Blundell, Bursledon, Southampton.

REIGATE SILVER SAND.—Best Kent and Surrey PEATS, LOAMS, SPHAGNUM, ROCK SANDSTONE, London-made FLOWER POTS, &c.
N.B. Loaded Trucks can be sent direct on all the Railways.
W. Short, Sand and Peat Depot, Reigate, Surrey

REIGATE SILVER SAND, 12*s.* per ton, at Swan Place; delivered 5 miles, or to any London Wharf or Railway, 16*s.* per ton, or 1*s.* 6*d.* per bushel (sacks at cost price, or on hire). Kentish and Hampshire PEATS, YELLOW LOAM, LEAF-MOULD, and COCOA FIBRE REFUSE.
J. Kennard, Swan Place, Old Kent Road, London, S.E.

GOOD FIBROUS PEAT, suitable for the Growth of AMERICAN PLANTS and other purposes, for Sale on moderate terms.—Apply to the Station Master, Farningham Road Station, on the London, Chatham, and Dover Railway.

COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 2*s.* per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the Patent Cocoa Fibre Company, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. Barsham & Co.

Barsham's BRUSHES and MATS are sold in every town.

Caution.—Every Brush is stamped, J. Barsham's Patent.

Great Bargains in Manures.

MR. POTTER, in RETIRING from BUSINESS, offers the above at from 30 to 40 per cent. under usual prices.
Address 2, Bernard Villas, Upper Norwood, S.

GOULDING'S HORTICULTURAL MANURE,
Manufactured by
W. & H. M. Goulding, Manure Manufacturers,
108, Patrick Street, Cork; 22, Westmoreland Street, Dublin.
One Shilling per Box.
The use of it ensures the finest and best developed Flowers, Bulbs, Roots, &c.
Agents, Wholesale and Retail:
Messrs. James Carter & Co., Seed Merchants, 237, High Holborn.
" Butler & McCulloch, Covent Garden.

Kensington's Concentrated Horticultural Manure.

THIS MANURE is adapted for the Growth of all kinds of Fruit, Flowers, and Vegetables, and can be used either in a liquid or dry state.
In casks 28 lbs. each, 5*s.*; in casks 56 lbs. each, 10*s.* Free to rail.
Moolham Chemical Works, Ilminster.

THE LONDON MANURE COMPANY
have now ready in fine condition—
DISSOLVED BONES,
SUPERPHOSPHATES of LIME,
TURNIP MANURE,
BLOOD MANURE for Barley and Roots,
URATE,
MANGEL MANURE, &c. &c.
They also continue to supply GIBBS' PERUVIAN GUANO NITRATE of SODA, SULPHATE of AMMONIA, FISHERY SALT, and all Fertilisers of known value.
Works, Plough Wharf, Isle of Dogs.
Offices, 116, Fenchurch Street, E.C. E. Purser, Secretary.

LAWES'S MANURES.—The Manures manufactured by J. B. Lawes for the present Season of 1865 are now ready for delivery at his Factories, at the following prices:—
LAWES'S PATENT TURNIP MANURE, and BONE SUPERPHOSPHATE of LIME, £6 6*s.* per ton.
LAWES'S SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES, £5 5*s.* per ton.
LAWES'S WHEAT, BARLEY, GRASS, and MANGEL MANURES, £8 per ton.
CONCENTRATED CORN and GRASS MANURE, £12 per ton.
These Manures can be obtained of Mr. Lawes, or through his appointed Agents, in all parts of the United Kingdom, at prices varying according to cost of carriage.
Genuine PERUVIAN GUANO direct from the Importers.
NITRATE of SODA, SULPHATE of AMMONIA, and other Chemical Manures. AMERICAN and other CAKES at market prices.
Address John Bennet Lawes, 1, Adelaide Place, London Bridge, E.C.; and 22, Eden Quay, Dublin.

ODAMS'S BLOOD MANURE for CORN,
ODAMS'S BLOOD MANURE for ROOTS,
ODAMS'S SUPERPHOSPHATE of LIME.
Manufactured by
THE PATENT NITRO-PHOSPHATE or BLOOD MANURE COMPANY (Limited).
Consisting of Tenant Farmers occupying upwards of 30,000 Acres of Land.
Chairman.—John Clayden, Littlebury, Essex.
Managing Director.—James Odams.
Particulars of these standard Manures may be obtained at the Offices, or of the Local Agents.
C. T. Macadam, Secretary.
Chief Office: 109, Fenchurch Street, London, E.C.
Western Counties Branch: Queen Street, Exeter.
Manufactories: Plaistow, Essex; and Elford, near Topsham, Devonshire.

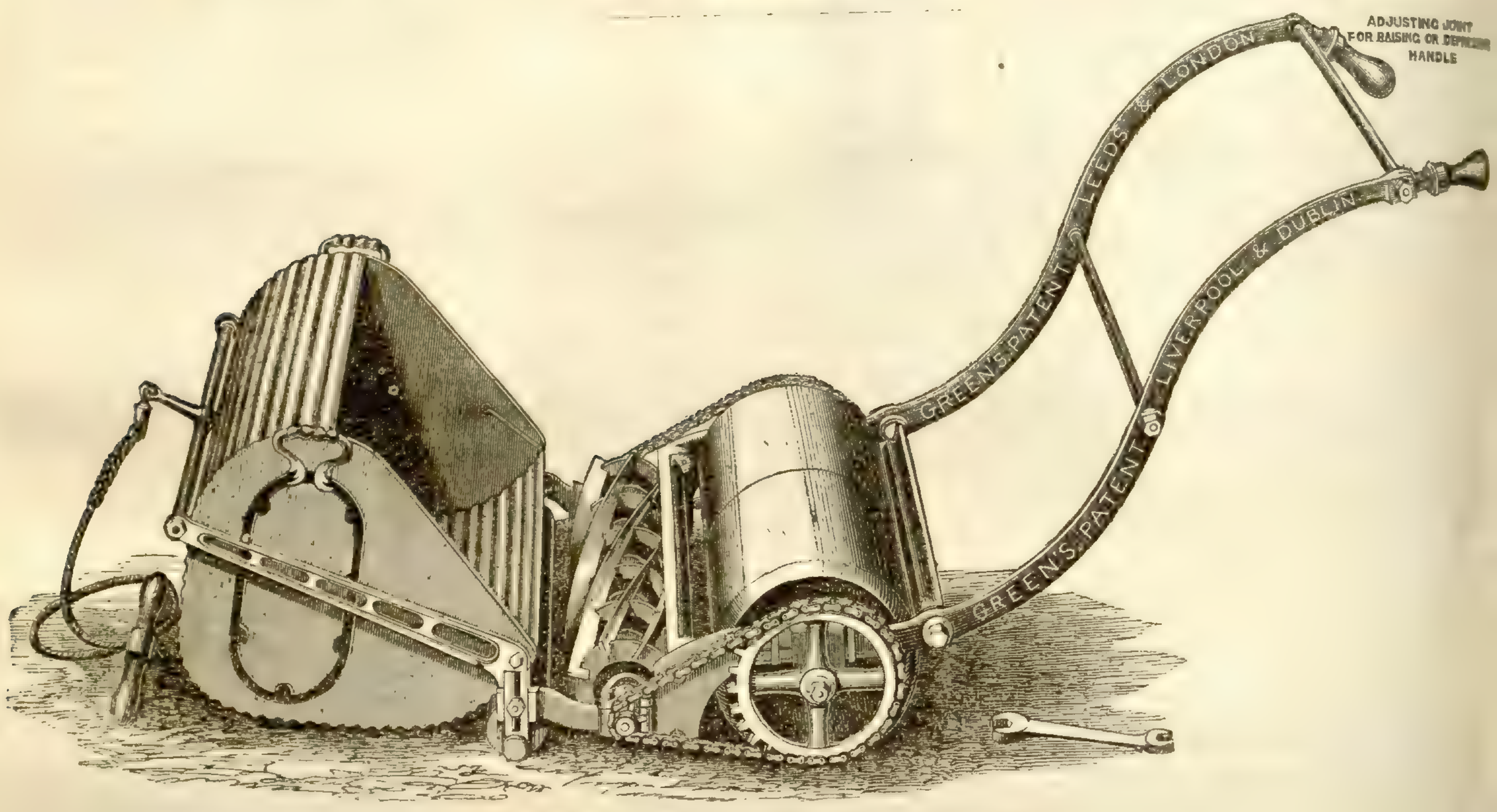
GREEN'S PATENT SILENS MESSOR,

OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

BY SPECIAL APPOINTMENT,
SOLE MANUFACTURER

TO HER MOST GRACIOUS MAJESTY
THE QUEEN.



IMPROVED PATENT LAWN MOWER FOR 1865,

AS RECOMMENDED BY THE JUDGES OF THE ROYAL HORTICULTURAL SOCIETY'S SHOW HELD JULY 20, 1864.

GREEN'S PATENT LAWN MOWERS have proved to be the best, and carried off every Prize that has been given in all cases of competition. The Judges at the Royal Horticultural Society's Show, held July 20, 1864, awarded them a First-class Certificate (no Prizes were given), and, at the same time, suggested a slight alteration, which has been done, and Messrs. T. G. & Son consider their MACHINES now as near perfect as possible.

Messrs. T. G. & Son beg to state that, owing to the great demand for their MACHINES in past years, they have been unable to execute orders with that despatch due to their numerous customers, but are now happy to inform them, that they have made such alterations and arrangements in their premises, whereby they trust to be in a position to send off all orders the day they are received.

PRICES OF HAND MACHINES.

To cut 10 inches	£3 10 0	*Suitable for a Lady.*	
" 12 "	4 10 0	"	"
" 14 "	5 10 0	*Suitable for One Person.*	
" 16 "	6 10 0	"	"
To cut 18 inches	£7 10 0	*Suitable for One Person.*	
" 20 "	8 0 0	*Suitable for Two Persons.*	
" 22 "	8 10 0	"	"
" 24 "	9 0 0	"	"

Packing Cases are charged at the following low rates, viz.: for the 10 and 12 inches Machine, 3*s.*; 14 and 16 inches, 4*s.*; 18 and 20 inches, 5*s.*; 22 and 24 inches, 6*s.* Parties providing themselves with Lawn Mowers are recommended to purchase the Cases in which to stow them away, when not in use, to prevent them from getting damaged; if returned, two-thirds will be allowed for them.

PRICES of HORSE, PONY, and DONKEY MACHINES, including Patent Self-delivery Box; Cross Stay complete; suitable for attaching to ordinary Chain Traces or Gig Harness.

To cut 26 inches	£13 0 0	*Leather Boots for Donkey*, 18*s.*
" 28 "	15 0 0	
" 30 "	17 0 0	
To cut 30 inches	£21 0 0	*Leather Boots for Pony*, 22
" 36 "	24 0 0	
" 42 "	27 0 0	*Leather Boots for Horse*, 24
" 48 "	30 0 0	

The 26, 28, and 30 inches can easily be worked by a Donkey, or by Two Men, on an even Lawn, the 30 and 36 inches by a Pony, and 42 and 48 inches by a Carriage Horse; and, as the MACHINES make no noise in working, the most spirited animal can be employed without fear of its running away, or in any way damaging the MACHINE.

Both the HORSE, PONY, DONKEY, and HAND MACHINES possess (over all other Makers) the advantage of self-sharpening: the cutters being steel on each side, when they become dull or blunt by running one way round the cylinder, can be reversed again and again, bringing the opposite edge of the cutter against the bottom blade, so the MACHINE will cut equal to new. Arrangements are made that the cylinder can be reversed by any inexperienced person, in two or three minutes.

The above MACHINES are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England; are warranted to give satisfaction, and, if not approved of, can be at once returned unconditionally.

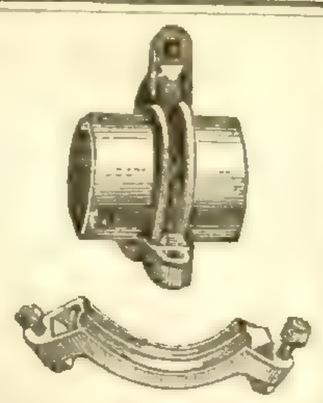
THOMAS GREEN AND SON,

SMITHFIELD IRON WORKS, LEEDS; 2, FARRINGDON ROAD, HOLBORN HILL, LONDON, E.C.;

19, EDEN QUAY, DUBLIN; and HADWIN'S BUILDINGS, TITHEBARN STREET, LIVERPOOL.

HOT-WATER APPARATUS,

WITH TRUSS'S PATENT PIPE JOINTS.



T. S. TRUSS, C.E.,

53, GRACECHURCH STREET, LONDON, E.C.

By means of these Joints the work is executed in less than half the time required for Socket Joints, and alterations can at any time be made, or the entire Apparatus removed and erected elsewhere with the greatest facility. A considerable saving in cost is also effected.

These Joints have been used for several years, giving entire satisfaction, and may be seen in use at the Royal Horticultural Society's Gardens, Chiswick, and many other places in Horticultural and Public Buildings. They are also exhibited at the Society's Gardens, South Kensington.

For a few prices, see last week's Advertisement.

ESTIMATES, PLANS, AND PRICE LISTS FORWARDED ON APPLICATION.

TERRA COTTA GALLERIES, No. 1, South Wharf, Praed Street, Paddington, W., are NOW OPEN with a fresh stock of VASES, FOUNTAINS, TAZZAS, FLOWER POTS, GARDEN EDGINGS, and other Architectural goods.

BENJAMIN LAMB, 243, Tottenham Court Road, London, W., Manufacturer of RUSTIC HORTICULTURAL GOODS—Rustic Fern Stands, Flower Vases, Ornamental Flower Pots, Mignonette Boxes, Stag's-head Brackets, Oak do., Suspending Pots, Crocus do., Glass Shades and Stands. Prices on application.

SHAW'S PATENT FLEXIBLE SELF-ADJUSTING LAWN MOWING MACHINES.

Full Particulars, Drawings, and Prices, post free on application to the Patentee and Manufacturer,
John Shaw, Junction Works, New Wortley, Leeds.

NEW TARIFF OF GLASS AND HORTICULTURAL GOODS.

THOMAS MILLINGTON,

GLASS AND COLOUR MERCHANT,

87, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

HAND GLASSES.

PRESERVE JARS.

REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.

MILK PANS.

See Advertisement the first week in the month, or on application.

SAMUELSON & CO.'S

PATENT LAWN MOWING and ROLLING MACHINES.

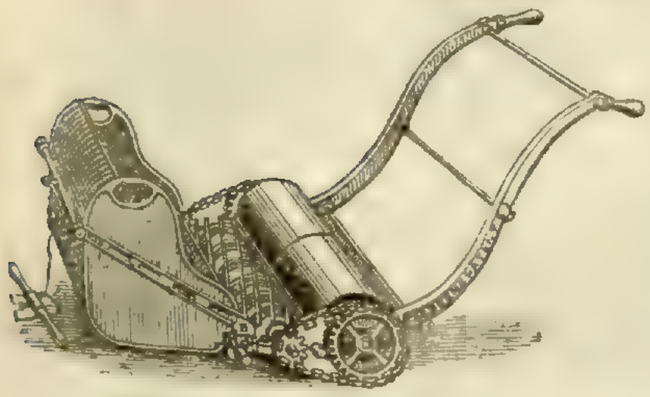
TO BE OBTAINED OF ALL RESPECTABLE IRONMONGERS OR SEEDSMEN, OR OF

SAMUELSON AND CO., BRITANNIA WORKS, BANBURY.

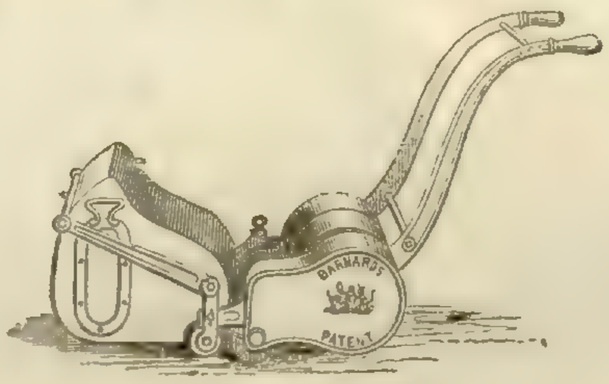
LONDON OFFICES: 18, CANNON STREET, E.C. LONDON WAREHOUSE (where Stock is kept):
10, LAURENCE POUNTNEY LANE, E.C.

J. B. BROWN & CO., 18, CANNON STREET, CITY, E.C.

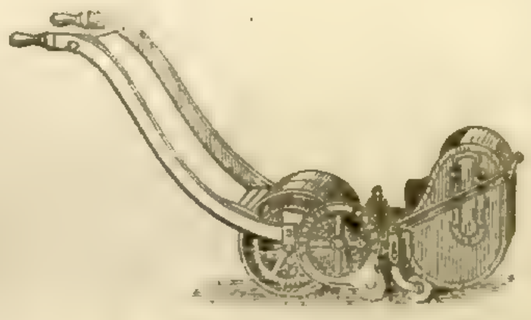
LAWN MOWING MACHINES FOR 1865.



GREEN'S MACHINE.



BARNARDS' MACHINE.



SHANKS' MACHINE.

*** Owing to the early pressing demand for LAWN MOWERS, even before the season commences for the New Mowing Machines, J. B. B. & Co. would esteem it a great favour could orders be forwarded to them with as little delay as possible, say to be executed if so desired at any time named.

GREEN'S HAND MACHINE.

Size.	Easily Worked.	Price.	Size.	Easily Worked.	Price.
10-inch	*By a Boy* ..	£3 10 0	18-inch ..	*By a Man* ..	£7 10 0
12-inch		4 10 0	20-inch	*By Two Men*	8 0 0
14-inch		5 10 0	22-inch		8 10 0
16-inch	.. *By a Man* ..	6 10 0	24-inch		9 0 0

BARNARD'S MACHINE.

Size.	Easily Worked.	Price.	Size.	Easily Worked.	Price.
8-inch ..	*By a Child* ..	£2 10 0	16-inch	*By a Man* ..	£6 0 0
10-inch ..	*By a Lady* ..	3 5 0	18-inch		6 10 0
12-inch	*By a Boy* ..	4 10 0	20-inch ..	*Man and Boy* ..	7 0 0
14-inch		5 0 0	22-inch ..	*Two Men* ..	7 10 0

SHANKS' HAND MACHINE.

(Silent Movement, 4*s.* to 7*s.* 6*d.* extra. Tool Boxes, 5*s.* extra.)

Size.	Easily Worked.	Price.	Size.	Easily Worked.	Price.
10-inch	*By a Lady* ..	£3 10 0	19-inch ..	*Man and Boy* ..	£7 12 6
12-inch		4 10 0	22-inch	*By Two Men* ..	8 7 6
14-inch	.. *By a Boy*	5 10 0	24-inch		8 17 6
16-inch	.. *By a Man*	6 12 6			

SHANKS' PONY and DONKEY MACHINE.

Size.	Price.	Extras. Patent Delivery.	Extras. Silent Movement.	Boots for
25-inch	£12 10	25*s.*	12*s.* 6*d.*	*Donkey*, 16*s.*
28-inch	14 10	30*s.*	12*s.* 6*d.*	*Pony*, 21*s.*
30-inch	15 15	30*s.*	12*s.* 6*d.*	

A specimen of each of the best Machines which have been brought out for the season will always be on view at their Offices, 18, Cannon Street, and their New Warehouse, 148, Upper Thames Street, quite close to the Offices, for the inspection of those who may wish to select for themselves in preference to leaving the selection to J. B. B. & Co. A stock of Machines will also be kept on hand, from which orders can be at once executed.

*** *Every Machine sent out is Warranted to give ample satisfaction, and, if not approved of, may be exchanged for any other size of Machine, or for the Machine of any other Maker, or may be at once returned unconditionally.*

J. B. BROWN AND CO., OFFICES, 18, CANNON STREET, CITY, LONDON, E.C.

NEARLY OPPOSITE ST. SWITHIN'S LANE and "LONDON STONE," and near LONDON BRIDGE.

WAREHOUSE (where Machines are kept in Stock), 148, UPPER THAMES STREET, E.C.

OPPOSITE the CITY of LONDON BREWERY, and close to the LONDON BRIDGE STEAM BOAT PIERS.

AUSTIN, SEELEY, AND CO.'S
Stock now comprises—

296 different kinds of VASES.
94 STATUES and FIGURES of CHILDREN.
70 FIGURES of ANIMALS and BIRDS.
About 200 FOUNTAINS, at prices from £10 to £400.
15 BASKETS from 1 to 10 feet diameter.
17 FLOWER BOXES for WINDOWS, &c.
6 GARDEN SEATS.
22 SUN-DIAL PEDESTALS.
23 ORNAMENTS for GATE PIERS.
And a great variety of BALUSTRADING and PEDESTALS.
369 to 375, Euston Road, Regent's Park, N.W.

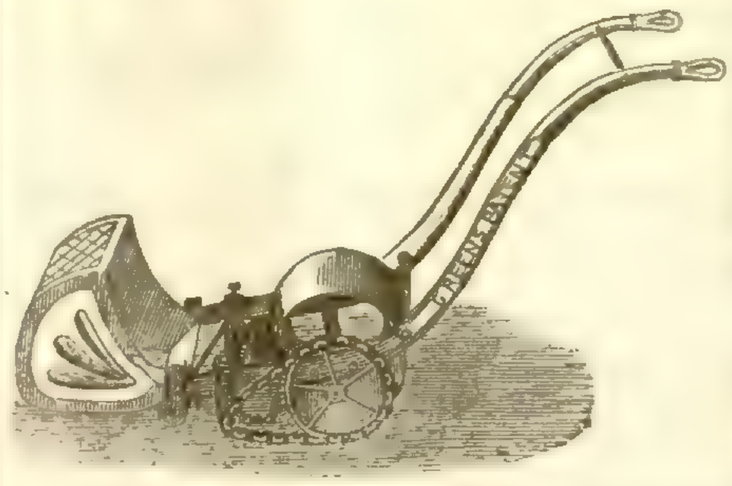
Hydraulic Suction Pumps, Garden Engines, Syringes, &c.

CAUTION.—The well-known reputation of READ'S ENGINES, MACHINES, and SYRINGES, has led to the nefarious practice of Manufacturers selling and advertising weekly Syringes as "READ'S PATENT."

R. READ begs to caution the Public against being deceived by such false representations, as many of these instruments, upon trial, will be found defective and useless.

READ'S SYRINGES have the Royal Arms, and address, 35, Regent Circus, London, W. Descriptions post free.

DEANE AND COMPANY'S HORTICULTURAL TOOLS.



LAWN MOWERS.

GREEN'S PATENT | SAMUELSON'S PATENT
SHANKS' PATENT | BARNARD'S PATENT.

DEANE'S MOWING MACHINES, with Patent Improvements, 50s., 70s., 90s., 140s.
GARDEN ENGINES, Galvanised Iron. Prices 55s., 65s., 70s., 90s., 100s., 110s.
GARDEN ENGINES, Wood, 90s., 110s., 138s.
GARDEN ROLLERS, 1l. 10s., 1l. 14s., 2l., 2l. 7s. 6d., 2l. 12s. 6d., 3l. 2s. 6d.
GALVANISED WIRE NETTING, all sizes.
GARDEN SEATS, elegant patterns.
CAST-IRON ORNAMENTAL FLOWER STANDS, to hold Seven Vases, 27s.
GREENHOUSE SYRINGES, 8s., 10s., 18s. 6d.
BOYD'S SELF-ADJUSTING SCYTHE, 10s. 6d.
ORNAMENTAL WIRE WORK, FLOWER STANDS, &c.

Every Implement for Garden use on the lowest terms.

DEANE'S NEW ILLUSTRATED HORTICULTURAL LIST POST FREE ON APPLICATION.

DEANE AND CO., 46, KING WILLIAM STREET, LONDON BRIDGE, E.C.

JOHN WARNER & SONS, LONDON, MANUFACTURERS.

J. WARNER & SONS
Have much improved the construction of their

GARDEN
ENGINES

in some important particulars for this Season.

They may be obtained of the Trade generally throughout the Kingdom at the following prices:—

No. 547. WARNER'S best ENGINES, in Wood Tubs, and fitted with WARNER'S Registered Spreaders—

24 Gallons, £6 10s.
14 „ £5 10s.

No. 547A. WARNER'S strong ENGINES, in Galvanised Iron Tubs, well painted—

10 Gallons	£2	19	0
16 „	3	14	0
24 „	4	19	0
28 „	5	10	0

No. 579½. WARNER'S WATER BARROWS, thoroughly Galvanised and well painted—

20 Gallons	£2	2	0
30 „	2	13	0
36 „	3	17	0
50 „	5	12	0

The 50-Gallon Barrow is made extra strong throughout, and fitted with handle for two men.

No. 568½, AMERICAN ENGINE, is now well known and appreciated. It throws a continuous stream, and is complete in itself. £1 18s.

SYRINGES in great variety, from 7s. 6d. to 18s. 6d.

The DISC SYRINGE, No. 557A, will recommend itself by the ease with which it is filled, and non-liability to get out of order. Price 9s.

WARNER'S
AQUAJECT

Is this season first introduced to the notice of horticulturists as possessing the following advantages:—It is simple in construction, portable, and easily worked. It throws a continuous stream, and is low in price.

The Aquaject, 30s.

The small AQUAJECT is the most perfect form of Syringe yet introduced. It throws a continuous stream, with very small movement, and with it blight, &c., is readily washed from the under side of foliage. 18s.

No. 35. WARNER'S IRON PUMPS for Wells not exceeding 25 feet in depth — 2½-in., 28s.; 3-in., 41s.; 3½-in., short barrel do., 21s.

No. 36. IRON FORCE PUMPS for raising water above their level, for watering yards, gardens, &c., through hose—2½-in., 59s.; 3-in., 65s.; 3½-in., 77s.; 4-in., 89s.

No. 36½. FORCE PUMP on BARROW, recommended for its great portability and simplicity of construction. £5 15s.

No. 42. WARNER'S PORTABLE PUMPS, with Folding Legs, and of superior construction. Price 55s.; Rose Suction, 2s. 6d. per ft.

No. 597A. BRANCH PIPES with Cocks and Roses — ½-in., 3s. 6d.; ⅝-in., 5s.; ¾-in., 6s.

No. 599. TAPER BRANCH PIPES—½-in., 4s. 9d.; ⅝-in., 5s. 6d.; ¾-in., 6s.; 1-in., 7s.

RUBBER HOSE in all sizes.

FOUNTAIN JETS in great variety, from 8s. to £2 2s.

DESCRIPTIVE PRICE LISTS forwarded on application.

Exhibition Prize Medal, 1862.

HOTHOUSES for the MILLION.—On the principle [illegible] and patented by Sir Joseph Paxton, M.P., combining [illegible], completeness, excellence, and durability. SPAN-ROOF [illegible], painted three coats, and glazed with English Sheet Glass, [illegible] ready for fixing, 21 ft. by 13 ft., 24*l.*; 43 ft. by 19 ft., [illegible] 25 ft., 161*l.*

[illegible] Circulars, with Prices, can be had on application to [illegible] HEREMAN, 7, Pall Mall East, London, S.W.

A HANDBOOK on VINE and FRUIT TREE CULTIVATION, 5*l* Edition, price 1*s.*; post free, 1*s.* 1*d.*

Midland Steam Power Horticultural and Hot-water Works, Loughborough.

T. G. MESSENGER, the Proprietor of the above Works, finding it necessary (through the great demand for his [illegible] Buildings and Heating Apparatus) to make large [illegible] in his Premises, and to Fit the same with an entire set of STEAM-POWER MACHINERY, is now enabled to execute any [illegible] entrusted to him with the greatest dispatch, and at the [illegible] possible price consistent with good and substantial work.

[illegible] Catalogues, Working Model, Plans and Estimates, free on application.

Heating by Hot Water.

W. J. HOLLANDS, IRON MERCHANT, 31, Bankside, London, S.E.

HOT WATER PIPES, from Stock, per yard:—2-inch, 1*s.* 4*d.*; 3-inch, 2*s.*; and 4-inch, 2*s.* 7*d.* BENDS, from Stock 1*s.* 7*d.*, 2*s.* 6*d.*, and 3*s.* 6*d.* each. THROTTLE VALVES, 10*s.* 6*d.*, 13*s.* 6*d.*, and [illegible] each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post [illegible] attended to the same day. A discount to the Trade.

Heating by Hot Water.

HOT-WATER PIPES, at Reduced Wholesale Prices, with Elbows, Syphons, Tee Pipes, and every other connection; [illegible] and Cast-iron Boilers, Saddle, Conical, Cylinder, TUBULAR, [illegible], from 24*s.* each. Improved Boilers and Iron Stands to [illegible] brickwork, 50*s.* each. Valves from 10*s.* 6*d.* each. Patent [illegible], Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Castings of every description in stock, at

Mr. LYNCH WHITE'S Iron Wharf, Upper Ground Street, Blackfriars Bridge, London, S. Price List on application.

WM. SMITH begs to call attention to his Prices of a Large Stock of various sized LIGHTS for HOUSES or made of 2-inch yellow Deal.

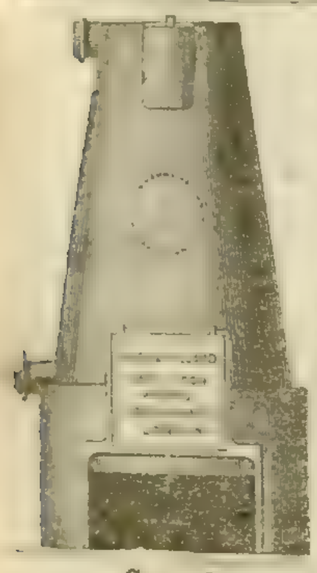
5 ft. [illegible] in. long by 3 ft. 9½ in. wide	£0 12*s.* 0*d.*
6 ft. [illegible] long by 3 ft. 11½ in. wide	0 15 0
7 ft. [illegible] long by 4 ft. wide	0 17 6
8 ft. 6 in. long by 4 ft. 4½ in. wide	1 4 0
8 ft. [illegible] in. long by 3 ft. 9½ in. wide	1 2 0
9 ft. [illegible] in. long by 4 ft. [illegible] in. wide	1 5 0
11 ft. [illegible] in. long by 4 ft. 4½ in. wide	1 14 0

Five per cent. discount allowed if 400 feet are taken.

Green and Hothouses, Conservatories, and Vineries made to order at 5*s.* 1*d.* per square foot. Apparatus for ventilation on the best principle. 2-inch Lights made to order, glazed and painted three times, at 8*d.* per foot; do. Unglazed, at 4*d.* per foot.

Estimates given for efficiently Heating by Hot Water. One, Two, Three, or Four-light Garden Frames, fitted with iron keys at angles, always in stock.

164, King Street, Hammersmith; or W. SMITH, Horticultural Builder, Turnham Green.



HEATING by HOT WATER.—Public and Private Buildings, Manufactories, Conservatories, &c., heated on the most improved system, combined with perfect Ventilation.

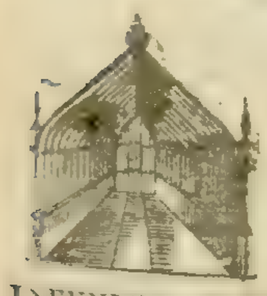
These BOILERS are adapted for setting in Brickwork, or as shown in sketch they require NO BRICKWORK.

BURY AND POLLARD
(Successors to John R. Peill),
Sole Manufacturers of the Improved CONICAL BOILERS, which are in general use, and which Boilers have for their durability and economy attained a celebrity far surpassing any other Boilers ever invented.

Park Iron Works, 17, New Park Street, Southwark, London, S.E.

N.B. Patent WINDMILLS for Pumping and Driving Farm Machinery, from half-Horse Power upwards. To be seen daily at work as above.

Greenhouses—Heating Apparatus.



DENNIS' PATENT METALLIC HORTICULTURAL BUILDINGS are made from the best wrought iron, upon an entirely new principle. The combination of Iron and Glass under this Patent is perfect; the possibility of fracture is prevented, and a permanently water-tight roof insured. The leading practical advantages are extreme slenderness of framing, admitting a maximum of light, and perfectly neutralising atmospheric conduction. They are thoroughly ventilated, exceedingly strong and durable, easily erected, and whilst maintaining their established superiority as Conservatories of the highest order, are acknowledged by all practical Horticulturists of the day to be the "desideratum" of cultivation, promoting perfect symmetry of growth and richness of colour, both for Fruit and Flowers.

From the complete adjustment of the constructional parts of these patent buildings, their manufacture is so facilitated that a comparison in point of cost with perishable wooden structures is most favorable.

THE GARDENER'S OWN GREENHOUSE
(Lately known as Dennis's Patent) is a Tenant's Fixture.

The Patent, Plant, Business, Machinery, and all connected with the above, have been transferred to T. H. P. DENNIS, who has determined to supply these really useful buildings at such a reduced scale of prices that every one desiring a Greenhouse may possess one.

NOTE.—A No. 1 Lean-to, 12 ft. 6 in. by 9 ft., including honest 16-oz. Glass, £18 18*s.* 6*d.*

T. H. P. D. has introduced most important improvements in their first, and construction, and after numerous experiments has succeeded in arranging them as a TENANT'S FIXTURE, which he feels sure will be valued by gentlemen having limited tenures. With Mr. RIVERS' adaptation they make excellent Orchard-houses, and afford all that can be desired in a profitable building.

Wood structures at the lowest price consistent with sound work.

Prospectuses and Estimates on application to T. H. P. DENNIS, Horticultural Builder, Hot-water Engineer, &c., Chelmsford, Essex.

Card.

SAMUEL N. McGERROW,
GENERAL HORTICULTURAL BUILDER,
Knotty Ash, near Liverpool.

Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

CARTER'S GARDENER'S VADE-MECUM is now ready.

Glass for Garden Purposes.

JAMES PHILLIPS AND CO. beg to submit their prices as follows:—

PROPAGATING GLASSES.

	Each.—*s.* *d.*		Each.—*s.* *d.*
2 inches in diameter	.. 0 3½	12 inches in diameter	.. 1 9
3 " "	.. 0 4½	13 " "	.. 2 0
4 " "	.. 0 5½	14 " "	.. 2 6
5 " "	.. 0 6½	15 " "	.. 3 0
6 " "	.. 0 8	16 " "	.. 3 6
7 " "	.. 0 10	17 " "	.. 4 0
8 " "	.. 1 0	18 " "	.. 5 0
9 " "	.. 1 2	19 " "	.. 6 0
10 " "	.. 1 4	20 " "	.. 6 0
11 " "	.. 1 6		

HAND GLASSES, WITH OPEN TOPS.

	Each.—*s.* *d.*		Each.—*s.* *d.*
12 inches	.. .. .. 6 6	18 inches	.. .. .. 9 6
14 "	.. .. .. 7 6	20 "	.. .. .. 10 6
16 "	.. .. .. 8 6	22 "	.. .. .. 11 6
		24 "	.. .. .. 12 6

Painted and Glazed with 16-oz. Sheet Glass.

HYACINTH and FLOWER DISHES.
6 inches diameter, 1*s.*; 9 inches, 1*s.* 6*d.*; 12 inches, 2*s.* 6*d.*

Hyacinth Dishes are intended to contain a number of roots bedded in sand and covered with moss, instead of the common Hyacinth Glass.

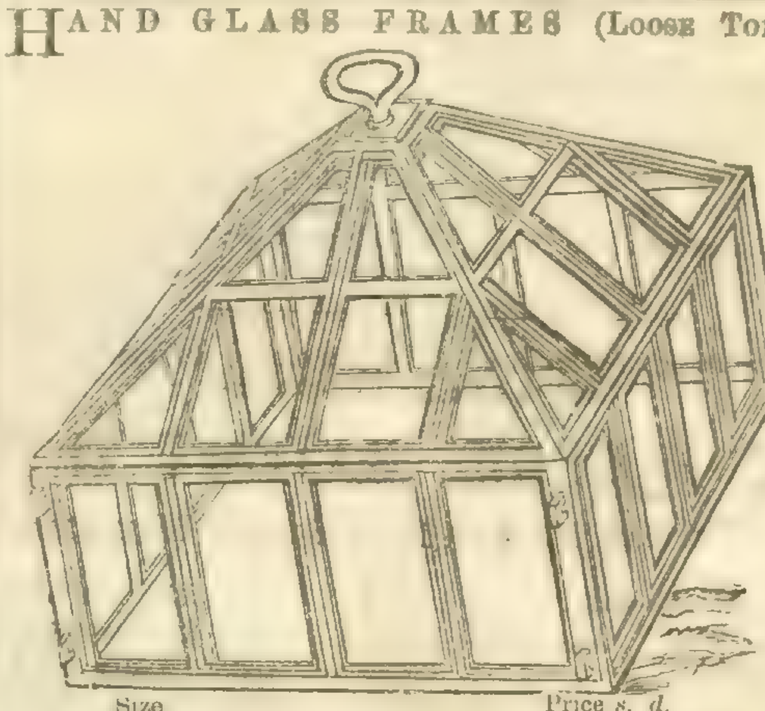
HYACINTH GLASSES.
Common shape, per dozen, 2*s.* 6*d.* Improved shape, per dozen, 4*s.* 6*d.* Patent shape, per dozen, 6*s.* 6*d.*

London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.

LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS, PAINTS of various colours ground ready for use.

180, Bishopsgate Street Without, London, E.C.

HAND GLASS FRAMES (LOOSE TOPS).



Size	Price *s.* *d.*	
14 by 14	.. .. 4 0	Each.
18 by 18	.. .. 5 9	"
20 by 20	.. .. 6 6	"
22 by 22	.. .. 7 6	"
24 by 24	.. .. 8 6	"

Delivered Free to any Station in England if 12 or more are ordered.
J. JONES & SONS, 6, Bankside, London, S.E.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* each.

Wholesale by
PRICE'S PATENT
CANDLE COMPANY
(LIMITED).

TOOGOOD'S (late PAGE & TOOGOOD'S) IMPROVED BLIGHT COMPOSITION introduced in 1850, has been manufactured under W. TOOGOOD'S sole directions since that period. He has made great improvements in it, and by reducing the price 25 per cent., it is one of the cheapest and has always been the most efficacious remedy extant. To publish the Testimonials no newspaper would give space, but Messrs. CUTBUSH & SON, the eminent Nurserymen, say:—"It is the best thing for the purpose we can find, and does not appear to injure the young foliage like Gishurst does. This is our experience after 10 years' trial."

"February 24, 1864."

Mr. E. SAGE, *Gardener to* Lord HOWE, *says:*—

"Will you please send us 15 gallons of your Blight Composition. I see you have reduced the price, and trust that you may some day be able to make another reduction, and I feel assured that no 'Gishurst,' will be used by practical men."

"We hereby Certify that during the whole time we were Warehousemen in the Establishment of B. PAGE & Co., and subsequently PAGE & TOOGOOD, that we Manufactured the Blight Composition under Mr. TOOGOOD'S *sole directions, and that he alone knew the proportions of the various ingredients.*

Signed JOHN MORLEY,
HENRY DREW,
HENRY SHEERMAN,
GEORGE ISAACS."

"July 13, 1863."

Extra strong, 3*s.* per gallon (sufficient to make 4 gallons fit for use), 10 gallons and upwards carriage free to London.

May be obtained of the principal Nurserymen and Seedsmen in the Trade, and of W. TOOGOOD, Royal South Hants Seed Establishment, Southampton.

ROLL TOBACCO CLOTH.—The cheapest and best article for Fumigating Greenhouses and destroying the Fly, price 1*s.* 4*d.* per lb.; over 10 lbs. 1*s.* 1*d*

JOSEPH BAKER, 10, Gough Square, Fleet Street, London, E.C.
Post Office Orders payable Fleet Street.

Manures and Feeding Stuffs.

RAYNBIRD, CALDECOTT, AND BAWTREE.
Address, 89, Seed Market, Mark Lane; or Basingstoke.
Samples and prices on application.

Patronised by 70,000 Stock Breeders.

DAY, SON, AND HEWITT, Sole Inventors of the Celebrated STOCK-BREEDER'S MEDICINE CHEST, containing as follows:—

Six Bottles (at 2*s.* 6*d.* each) of the UNIVERSAL CHEMICAL EXTRACT, matchless for penetrating, mollifying, and assuaging pain in all wounds, kicks, cuts, strains, &c., in horses and cattle; straining in ewes lambing, and swollen and inflamed udders in cows and ewes; sore feet in cattle, sheep, and dogs.

One Dozen Bottles (value 20*s.*) of the GASEOUS FLUID or BLACK MIXTURE, unmatched in the known world for curing diarrhœa or scouring calves, sheep, and lambs; for ewes weakly and exhausted after lambing; for horses and cows exhausted and sickly, and for the fret, colic, or gripes in horses and cattle. An instantaneous remedy for blown cattle and sheep.

One Dozen Packets (value 13*s.*) of the RED DRENCH or INFLAMMATION POWDER, for cleansing after calving or lambing, for straining in ewes, and for removing all feverish symptoms in cows and ewes after calving or lambing; for yellows in oxen, and for colds, chills, and all inflammatory cases in horses, cattle, and dogs.

One Dozen (value 7*s.* 6*d.*) of the RED PASTE or CONDITION BALLS (for horses). These Balls give vigorous health, purify the system, and produce a mole-like sleekness of coat.

Price of Chest complete, with Shilling Key to Farriery, 2*l.* 16*s.* 6*d.* securely packed, and carriage free. Sample case, usefully assorted 16*s.* 6*d.* Messrs. D., S., & H. respectfully urge their friends to send their orders early, so that no purchaser may be kept waiting.

Either preparation may be had separately in boxes, carriage paid.

Address—DAY, SON, & HEWITT, Animal Medicine Manufactory, 22, Dorset Street, Baker Street, London, W.; or Wantage, Berks.

Testimonials from all parts of the United Kingdom and Ireland sent free on application.

Established over One Quarter of a Century.

PURE BRED BERKSHIRE PIGS for SALE.
G. M. ALLENDER, Lee Grange, Winslow, Bucks.

MR. EDWIN COOLING,
HORTICULTURAL VALUER,
Mile Ash, Derby.

Horticultural Agent and Valuer.

MR. A. CHANDLER (of the late Firm of CHANDLER & SONS, Vauxhall) continues to undertake all VALUATIONS connected with Horticulture.

He is also open to engagements as JUDGE at HORTICULTURAL EXHIBITIONS, having for many years acted in that capacity.

1, Devonshire Terrace, Fulham Road, S.W.

Sales by Auction.

Important Sale of Established Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, April 11, at half-past 12 o'clock precisely, without the least reserve, by order of the Executors, a portion of the Collection of ESTABLISHED ORCHIDS of the late Mr. VEITCH of Exeter, including

Aerides Warneri (90 plants)	Vanda Batemanni
" Lindleyanum	" suavis
" maculosum	" tricolor
" quinquevulnerum	" teres
" rubrum	" violacea
" Wightianum	Cattleya Mossiæ
" virens	" Skinneri
" affine	" maxima
" suavissimum	" labiata
Odontoglossum grande	" guttata
Lælia purpurata	" amethystina
" superbiens	Phalænopsis amabilis

And a quantity of choice Dendrobiums, Cymbidiums, Lycastes, Stanhopeas, Miltonias, Anguloas, Trichopilias, Calanthes, Barkerias, &c.

On view the Morning of Sale, and Catalogues had.

8000 Lilium auratum and other Bulbs, just arrived from Japan.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, April 19, at half-past 12 o'clock precisely, without reserve, an Importation of 8000 LILIUM AURATUM and other BULBS, just arrived ex "Mountain Ash" from Japan.

On view the Morning of Sale, and Catalogues had.

High Beech, Essex.

SALE OF NURSERY STOCK AND GREENHOUSE PLANTS

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. JAMES CRAWFORD (who is retiring from the Business) to SELL by AUCTION on the Premises, opposite the King's Oak, High Beech, Essex, on MONDAY, April 10, at 11 for 12 o'clock precisely, the whole of the valuable NURSERY STOCK, consisting of Evergreens, Coniferæ, and Deciduous Shrubs; Vines in Pots; Hollyhocks, Rhododendrons, Standard and Dwarf Roses, Fruit Trees, &c.; also about 1000 Choice Greenhouse Plants, including Azalea indica, Camellias, Ericas, Fuchsias, and the usual Miscellaneous Assortment of Soft-wooded Plants, Cyclamen of sorts, about 1000 Roses in pots, a few Stove Plants, Dahlias, a superb Collection of Hardy and Greenhouse Ferns, Japanese Rhododendrons, &c.

May be viewed one week prior to the Sale. Catalogues had on the Premises; at the Swan Inn, Stratford; the Eagle, Snaresbrook; the principal Seedsmen in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

Sale of first-class Carnations, Picotees, Pinks, Standard Roses, &c.

MESSRS. PROTHEROE AND MORRIS will SELL, at the City Auction Rooms, 38 and 39, Gracechurch Street, City, E.C., on THURSDAY, April 13, at 12 for 1 o'clock precisely, a first-class Collection of CARNATIONS, PICOTEES, and PINKS, from a celebrated Grower; a large Assortment of Standard, Half-Standard, and Dwarf ROSES, fine AZALEA INDICA, and other Plants in bloom; selected AMERICAN PLANTS, VERBENAS, FUCHSIAS, DAHLIAS in dry roots, &c.

On view the Morning of Sale. Catalogues may be had at the Rooms as above, and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

Clapham Park.

The Lease of a well-built Detached Residence, known as North Villa, North Road, Clapham Park, together with the Conservatories, Greenhouses, Pits, and Stabling, now upon the premises. Held for a term, of which 20 years are unexpired, at a rental of £60 per annum. Purchaser to have the advantage attached to goodwill of business, and may take the New Forcing Houses, and Stock in Trade, &c., at a valuation if desired.

MR. J. STEVENS is instructed to SELL by AUCTION, the above very DESIRABLE PROPERTY, which can be adapted either for private occupation or for the purposes of a Nurseryman's Business, at Garraway's Coffee House, Change Alley, Cornhill, London, E.C., on MONDAY, April 10, at 1 o'Clock, unless previously disposed of by Private Contract.

May be viewed, and particulars and Conditions of Sale may be obtained of Mr. ARTHUR T. HEWETT, Solicitor, Nicholas Lane, E.C.; at the place of Sale; and at the Auction and Agency Offices, Clapham Common, S.

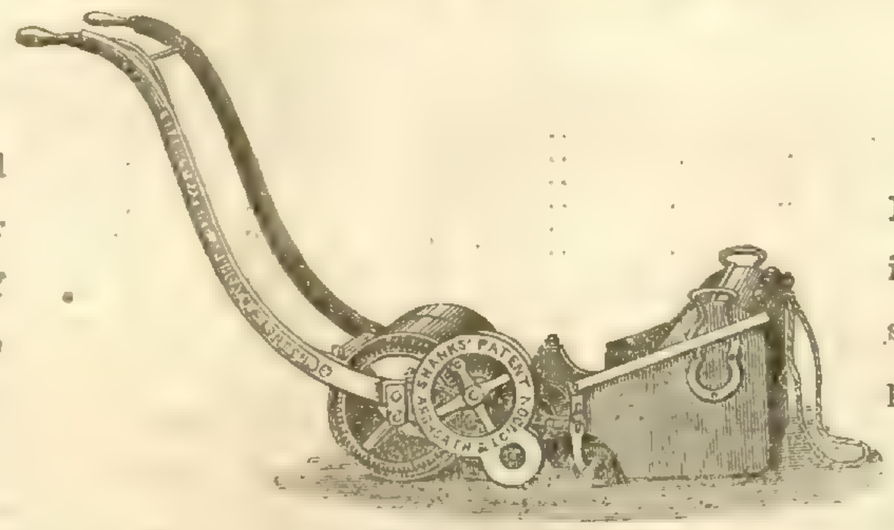
SHANKS' NEW IMPROVED PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1865.

PATRONIZED ON FIVE SEPARATE OCCASIONS DURING THE SEASON OF 1864 BY

HER MAJESTY THE QUEEN.

Alexander Shanks & Son are gratified to find that in the large and increasing demand for their celebrated MACHINES, they receive a conclusive proof that their merits are every season becoming more appreciated by the Practical Gardener.



HAND MACHINE.

A. S. & Son, in introducing Improvements into the MACHINES, have been careful that the advantages in point of durability, simplicity of construction, and superiority in the work executed, which have all along been peculiar to SHANKS' MACHINES, should still remain.

SHANKS' PATENT LAWN MOWERS are in daily use in the ROYAL GARDENS at KEW, WINDSOR, BUCKINGHAM PALACE, HAMPTON COURT, OSBORNE and BALMORAL; in the GARDENS of the ROYAL HORTICULTURAL SOCIETY at KENSINGTON; in the GROUNDS of the CRYSTAL PALACE COMPANY at SYDENHAM; in VICTORIA PARK; in BATTERSEA PARK; and in many hundreds of the principal Gardens in the Kingdom, as well as abroad, where their merits have been fully proved and their success established.

PRICES—including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom.

SHANKS' NEW PATENT HAND MACHINE for 1865.

Width of Cutter.		
10-inch Machine	£3 10 0	*Easily Worked by a Lady.*
12-inch Machine	4 10 0	
14-inch Machine	5 10 0	*Ditto by a Boy.*
16-inch Machine	6 12 6	*Ditto by a Man.*

Silent Movement for the five smallest sizes, 4*s.* extra; for the other sizes, 7*s.* 6*d.* extra.

SHANKS' NEW PATENT HAND MACHINE for 1865.

Width of Cutter.		
19-inch Machine	£7 12 6	*Easily Worked by a Man and Boy*
22-inch Machine	8 7 6	*Ditto by Two Men.*
24-inch Machine	8 17 6	

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
25-inch Machine	£12 10 0	25*s.* extra.
28-inch Machine	14 10 0	30*s.* ,,
30-inch Machine	15 15 0	30*s.* ,,

Silent Movement, 12*s.* 6*d.* extra; Boots for Pony, 21*s.* per set; Ditto for Donkey, 16*s.* per set.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
30-inch Machine	£19 0 0	30*s.* extra.
36-inch Machine	22 0 0	30*s.* ,,
42-inch Machine	26 0 0	40*s.* ,,
48-inch Machine	28 0 0	40*s.* ,,

Silent Movement, 20*s.* extra; Boots for Horse's Feet, 24*s.* per set.

A. S. & Son have pleasure in submitting the following List from among the hundreds of distinguished individuals, both in this country and abroad, whose patronage they have had the honour to receive:—

HER MOST GRACIOUS MAJESTY THE QUEEN,

For the Royal Gardens at Kew, Windsor, Buckingham Palace, Hampton Court, Osborne, and Balmoral.

HIS MAJESTY THE EMPEROR OF THE FRENCH
HIS MAJESTY THE KING OF SAXONY
HIS ROYAL HIGHNESS THE PRINCE OF PRUSSIA
HIS GRACE THE ARCHBISHOP OF CANTERBURY

His Grace the Duke of Bedford
His Grace the Duke of Newcastle
His Grace the Duke of Marlborough
His Grace the Duke of Rutland
His Grace the Duke of Sutherland
His Grace the Duke of Buccleuch
His Grace the Duke of Devonshire
His Grace the Duke of Leinster
His Grace the Duke of Athole
His Grace the Duke of Norfolk
His Grace the Duke of Hamilton and Brandon
His Grace the Duke of Argyll
His Grace the Duke of Northumberland
His Grace the Duke of Roxburghe
His Grace the Duke of Wellington
His Grace the Duke of Buckingham
The Most Hon. the Marquis of Normandy
The Most Hon. the Marquis of Bute
The Most Hon. the Marquis of Winchester
The Most Hon. the Marquis of Exeter
The Most Hon. the Marquis of Breadalbane
The Most Hon. the Marquis of Westminster
The Most Hon. the Marquis of Lansdowne
The Most Hon. the Marquis of Stafford
The Most Hon. the Marquis of Kildare
The Most Hon. the Marquis of Abercorn
The Most Hon. the Marquis of Londonderry
The Most Hon. the Marquis of Ailsa
The Most Hon. the Marquis of Tweeddale
The Most Hon. the Marquis of Aylesbury
The Right Hon. the Earl of Tankerville
The Right Hon. the Earl of Poulett
The Right Hon. the Earl of Meath
The Right Hon. the Earl of Leicester
The Right Hon. the Earl of Camperdown
The Right Hon. the Earl of Shannon
The Right Hon. the Earl of Abergavenny
The Right Hon. the Earl of Morley
The Right Hon. the Earl of Durham
The Right Hon. the Earl of Lauderdale
The Right Hon. the Earl of Home
The Right Hon. the Earl of Harrington
The Right Hon. the Earl of Carnarvon
The Right Hon. the Earl of Nornesk
The Right Hon. the Earl of Glasgow
The Right Hon. the Earl of Stamford and Warrington
The Right Hon. the Earl of Aberdeen
The Right Hon. the Earl of Aberdour
The Right Hon. the Earl of Ashburnham
The Right Hon. the Earl of Haddington
The Right Hon. the Earl of Cawdor
The Right Hon. the Earl of Denbigh
The Right Hon. the Earl of Galloway
The Right Hon. the Earl of Hopetoun
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The Right Hon. the Earl of Milltown
The Right Hon. the Earl of Selkirk
The Right Hon. the Earl of Winchilsea
The Right Hon. the Earl of Zetland
The Right Hon. the Earl of Minto
The Right Hon. the Earl of Kintore
The Right Hon. the Earl of Seafield
The Right Hon. the Earl of Southesk
The Right Hon. the Earl of Kinnoul
The Right Hon. the Earl of Airlie
The Right Hon. the Earl of Bessborough
The Right Hon. the Earl of Brownlow
The Right Hon. the Earl of Howe
The Right Hon. the Earl of Lindsey
The Right Hon. the Earl of Rothes
The Right Hon. the Earl of Ranfurly
The Right Hon. the Earl of Strathmore
The Right Hon. the Earl of Rosslyn
The Right Hon. the Earl of Harrowby
The Right Hon. the Earl of Shrewsbury and Talbot
The Right Hon. the Earl of Westmoreland
The Right Hon. the Earl of Dalhousie
The Right Hon. the Earl of Portarlington
The Right Hon. the Earl of Kilmorey
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THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 15.—1865.] SATURDAY, APRIL 15. {Price Fivepence. STAMPED EDITION, 6*d*.

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A SPECIAL SHOW of EARLY AZALEAS and SPRING FLOWERS, at the ROYAL HORTICULTURAL SOCIETY'S GARDENS, South Kensington, THIS DAY at 2. Military Bands at 3.30. Admission 5*s*.

ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON.
MEETING of FRUIT and FLORAL COMMITTEES, on TUESDAY NEXT, the 18th inst., at 12.

ROYAL BOTANIC SOCIETY, REGENT'S PARK.—EXHIBITIONS of PLANTS, FLOWERS, and FRUIT, WEDNESDAYS, May 24, June 14, and July 5. AMERICAN PLANTS, MONDAYS, June 5 and 12. Tickets to be obtained at the Gardens on Vouchers from Fellows of the Society, price on or before May 13, 4*s*.; after that day 5*s*.; or on the Exhibition days, 7*s*. 6*d*. each. The LAST SPRING EXHIBITION will take place on SATURDAY, April 29; tickets 2*s*. 6*d*. each.

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WM. WOOD AND SON have many Thousands of the above, all fine strong healthy plants.
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RICHARD SMITH, Seed Merchant, Worcester.

J. IVERY AND SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

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NEW HARDY LATE-FLOWERING RHODODENDRONS.

PRINCE of WALES.—Bright rose shaded with purple, divided black marking on the upper petals, free grower, profuse bloomer, hardy, and the latest Hybrid Rhododendron grown. One-year grafted plants, 10s. 6d. Two-year ditto, strong, 21s. Larger plants, 31s. 6d. to 42s. each.

PRINCESS of WALES.—Deep magenta edge, pure white centre, primrose flake on the upper petals, slightly spotted with brown, totally distinct from any variety at present known, and when in bloom may be readily distinguished from all others; it is a beautiful and first-class Rhododendron. One-year grafted plants, 10s. 6d. Two-year ditto, strong, 21s. Larger plants, 31s. 6d. to 42s. each.

The usual Discount to the Trade.

The above beautiful Rhododendrons were first introduced to the public last year by M. Y., and he has again much pleasure in calling attention to them; they are both most distinct varieties, the colour and marking of the Princess of Wales being quite a fresh type, and unlike any other Rhododendron. They have both been proved in the open ground for several years, capable of withstanding our most severe winters, and being very late bloomers escape the spring frosts, frequently so fatal to the earlier blooming kinds. They are confidently recommended as most desirable additions to this favourite class of plants.

Coloured Plates, by Andrews, will be forwarded on application for 13 stamps each, or the two for 25 stamps.
Maurice Young, Milford Nurseries, near Godalming, Surrey.

New Zonale Pelargoniums.

J. SALTMARSH AND SON, Nurserymen, Seedsmen, and Florists, Chelmsford, beg to offer the following New Varieties, which will be ready for distribution on May 1.

LITTLE TREASURE.—This is unquestionably the best Dwarf Scarlet Geranium ever raised, either for bedding or pot culture. The foliage is small; colour, dark green with a slight zone; flowers bright scarlet with small white eye, equal in form and colour to that well-known variety "Attraction," and produced in greater profusion than any other variety extant. The wood being very close-jointed, young plants bedded out scarcely exceed 6 inches in height during the summer, and are covered with bloom throughout the season.
It was awarded a First-class Certificate at the Royal Horticultural Society's Meeting, Sept. 13th, 1864. Price 5s. each.

LUNA.—Foliage rich golden yellow, with a broad well-defined brownish red or chocolate zone; flowers, rich scarlet with small white eye. This will prove a most effective variety for mixed beds or ribbon borders; planted side by side with Christine it has a charming effect. Its qualities are not fully developed under pot culture, consequently it has not been shown in a favourable condition to receive awards at meetings. Price 10s. 6d. each.

The above varieties have elicited the following favourable reports from leading horticultural journals:—

From the Gardeners' Chronicle, September 12, 1863.

"Some attractive Pelargoniums were shown by Messrs. Saltmarsh & Son, one of which, called 'Little Treasure,' of dwarf bushy habit, with small zonate leaves, and a profusion of scarlet flowers, promises to be useful; and another, 'Luna,' a yearling, had handsomely marked leaves of a golden yellow, with a well-defined zone of brownish red."

From the Gardeners' Weekly Magazine, in the report of the Royal Botanic Society's Exhibition, July 9, 1864, *under the head of New Geraniums*:—

"From Messrs. Saltmarsh & Son, Chelmsford, came 'Little Treasure,' dwarf habit, dark green leaf with dark zone, small trusses of lively scarlet flowers, as good in form and substance as 'Attraction.' This will no doubt be a first rate bedder."

And from report of the Horticultural Society's Meeting, September 13, 1864, *in the Journal of Horticulture*:—

"'Little Treasure,' a free-flowering dwarf variety, with scarlet flowers, of very compact habit, producing a profusion of trusses of flowers, and very useful for bedding purposes; received a First-class Certificate.

Carnations, Picotees, &c.

CHARLES TURNER'S stock of the above is very extensive, and in the finest health.
For prices see CATALOGUE, now ready.

PELARGONIUMS "JOHN and MARY HOYLE."—These and other new varieties in the finest plants; also the best established varieties at very moderate prices.
See CHARLES TURNER'S CATALOGUE now ready.

VERBENAS.—All the best kinds now ready, and Perry's beautiful new varieties ready 1st May, described in C. TURNER'S CATALOGUE.
The Royal Nurseries, Slough.

JOHN HOLLAND begs to intimate to his friends and patrons that he has TAKEN into PARTNERSHIP his Son-in-Law Mr. Frederick Jones. That the Business will in future be continued by the Firm of Holland & Jones, Bradshaw Gardens, Chadderton, near Manchester.

CATALOGUES of FLORIST FLOWERS, ROSES, FRUIT TREES, &c., on application.

HOLLAND AND JONES have ready for delivery a large and Choice Collection of
CARNATIONS, fine first-class show varieties, 9s. to 18s. per doz. pairs.
PICOTEES, " " 9s. to 18s. " "
YELLOW GROUND PICOTEES, the largest collection in Europe, 9s. to 18s. per dozen pairs.
BORDER CARNATIONS and PICOTEES, 6s. per dozen pairs.
PANSIES, good varieties, 4s. to 6s. per dozen plants.
The Heaviest LANCASHIRE SHOW GOOSEBERRY TREES, 3 and 4 years old, 4s. to 6s. per dozen.
A remittance required from unknown correspondents.

New Catalogue for 1865.

GEO. SMITH begs to announce that his PRICED and DESCRIPTIVE CATALOGUE, containing the Newest and most Approved Varieties of Show, Spotted, and Fancy PELARGONIUMS; Zonale and Variegated GERANIUMS, FUCHSIAS, VERBENAS, PETUNIAS, DAHLIAS, CHRYSANTHEMUMS, BEDDING PLANTS, &c., is now ready, and will be forwarded in exchange for one postage stamp.

*** Coloured Illustrations by Mr. Andrews, free by post, in exchange for 12 postage stamps, of FUCHSIAS GENERAL LEE, DIADEM, and FANTASTIC, the three finest Fuchsias G. S. has ever had the pleasure to offer, for description of which see Catalogue.
Tollington Nursery, Hornsey Road, Islington, London, N.

HARDY FLOWER SEEDS.

An assortment of 100 splendid varieties	..	..	20s. 0d.
" 50 "	..	..	10s. 0d.
" 36 "	..	..	7s. 6d.
" 24 "	..	..	5s. 0d.

Carriage free.
Richard Smith, Seed Merchant, Worcester.

To the Trade.

CALCEOLARIAS, YELLOW, ORANGE, and RED, 8s. per 100.
SCARLET GERANIUMS, 10s. per 100.
SCARLET VERBENAS, 8s. per 100.
WHITE VERBENAS, 8s. per 100.
BLUE VERBENAS, 7s. per 100.
PURPLE VERBENAS, 7s. per 100.
LOBELIA SPECIOSA, from cuttings, 5s. per 100.
CATALOGUES post free on application.
The above are well-rooted and good healthy Plants, shaken out of cutting pots.
Samuel Cox, Nurseryman and Florist, Ludlow.

CARTER'S GARDENER'S VADE-MECUM is now ready.

HOOPER AND CO., Seedsmen, &c., Covent Garden Market, London, W.C., offer the undermentioned:—

LILIUM AURATUM.
Fine flowering bulbs of this unsurpassed and magnificent recently arrived from Japan. 3s., 5s., 15s., 21s., and 31s. 6d. each.

LILIUM TENUIFOLIUM.
An exceedingly rare and lovely Lily, from Siberia, hitherto unobtainable. Perfectly hardy, dwarf, and of a bright vermilion. Bulbs will be ready in August, for which orders are now forward. Price 2s., 3s., 5s., and 7s. 6d. each.

PRIMULA SINENSIS FIMBRIATA.
Brilliant deep rosy crimson, 1s., 2s. 6d., and 5s. per packet.
Pure white, 1s., 2s. 6d., and 5s. per packet.
From the size of flower, deep and perfect fringing, and the colours of this stock, we believe it to be unequalled by any in this country. Testimonials to this effect are continually received from those who have tried it.

CARNATIONS and PICOTEES.
In sealed collections of 12 superb varieties, 3s. 6d., 4s., and 5s. It would be impossible to overrate the qualities of this class of these universal favourites. They are unsurpassed, and include greatest variety of colour it is possible to conceive; likewise from 80 per cent. of fine double flowers.

SEEDS of ALPINE PLANTS.
Assortments of 12 species, 3s.; 18 species, 5s.; 25 species, 7s. 6d. These have been collected with care from their native habitats in the Alpine range, and afford an opportunity for obtaining many choice gems in this interesting class of plants.

Primula sinensis fimbriata.—Double Flowers from Seed.

WINDEBANK AND KINGSBURY have much pleasure in announcing that they are now prepared to receive orders for Seed of their superb strain of CHINESE PRIMULAS, which after several years careful selection and hybridizing, they can recommend as the finest strain in cultivation. Blooms were submitted to the Editor of the *Gardeners' Chronicle*—an extract from his report on them will be found below. We also exhibited a Collection before the Floral Committee of the Royal Horticultural Society, on 21st March last, when three First-class Certificates were awarded to Selected Varieties, and a Special Certificate to the Collection for their novelty and excellence. The fine Double varieties now offered and sent out by Messrs. Smith of Dulwich, which have also been awarded several First-class Certificates, were raised by us. Seedlings have produced us since 1862 nearly 250 beautiful distinct flowering plants. The Seed now offered will produce a proportion of Double flowers—apart from this very valuable property, the single flowers, as will be seen below, are remarkable for their varied colour. Our Collection comprises five distinct colours, viz., white, blush, rosy lilac, deep carmine, and striped, and their intermediate shades.

Extract from the *Gardeners' Chronicle*, p. 244.—

"* * * We have been lately much gratified by the sight of a box of flowers from Messrs. Windebank & Kingsbury, of Southampton. * * * Their strain of Primula is a remarkably fine one. The flowers are large, full, and frilled, and in colour vary from white through shades of flesh colour, to blush of deepest hue, and from that again to the carmine rose tint of M. Benary's Carminata, and on through the ordinary deep rose tints to a very dark purple. The pale ones especially are also remarkable for a large yellow eye, like eye, sometimes measuring fully 5-8ths of an inch across, the flowers themselves being about 2 inches. Some others are striped and flaked with rose on a white ground, and both pure white and flesh-tinted white, as well as rose and rosy-purple full double flowers were amongst those sent for inspection * * *."

We are now booking orders for Seed, which will be ready in July next. As the stock will be limited, early orders are solicited, and will be executed in strict rotation.

Sealed packets, 2s. 6d. each. Trade price on application.
Bevois Valley Nursery, Southampton.

BARR & SUGDEN
12 KING ST. COVENT GARDEN

SEED AND PLANT MERCHANTS.

Orders amounting to 21s. sent Carriage Paid.

LILIUM AURATUM, Third Consignment this season from Japan.
3s. 6d., 5s. 6d., and 7s. 6d. each.

GLADIOLI, Surplus Stock.
50, in 50 beautiful varieties, 21s.; 25, in 25 do., 10s. 6d. Varieties for Massing, 2s., 3s., and 4s. per dozen. 10s. 6d., 15s. 6d., and 21s. per 100.

FLOWER SEEDS, Hardy, Half Hardy, or Tender, in Collections, Post Paid.
3s. 6d., 5s. 6d., 7s. 6d., 10s. 6d., to 21s.

VEGETABLE SEEDS, in Collections, Carriage Paid, 21s. and upwards.
10s. 6d., 15s. 6d., 21s., 42s., to 63s.

FINE LAWN GRASS SEED, for Renovating or Laying Down New Lawns, 1s. per lb

FARM SEEDS amounting to 21s. and upwards sent Carriage Paid.

Agents, Wholesale and Retail, for London and Home Counties for

STANDEN'S "GARDENERS' AND AMATEURS' FRIEND."

(The long-sought desideratum for Flowers, Fruits, and Vegetables.)

Sold in Canisters, at 1s. 3d. and 2s. 6d.

The "Gardeners' and Amateurs' Friend" is a highly Concentrated Inodorous Artificial Manure, far surpassing in value any article of this description hitherto introduced; its effect is extraordinary in promoting a healthy vigorous growth in Camellias, Azaleas, Francisceas, Ixoras, Boronias, Eriostemons, Polygalas, Dipladenias, Pimeleas, Orchids, also for all other Greenhouse and Stove Plants in general. For Fruit Trees in pots, Vine Borders, Lawns, Pleasure Grounds and Kitchen Garden Crops, the "Gardeners' and Amateurs' Friend" is invaluable.

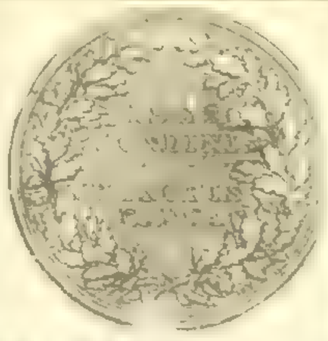
In addition to the high Testimonials in last week's Advertisement, we may add an extract from a letter received from "Alpha":—

"When Standen's Manure first came under my notice, I was anxiously engaged in pushing on a collection of Azaleas for exhibition, applied it to one of these, which was in a hard and stunted condition, and it soon wrought a surprising improvement in the plant. I have since repeatedly used it in growing Azaleas. I apply it first when they begin to push their bloom buds, and again when they are placed in the house where they are to make their growth, which will be about two months after the first application. In the autumn, if a plant does not swell its bloom buds to my mind, I give it another half dose. To Camellias I apply it in about the same proportions, and at the same stages of growth, while to Pimeleas, Eriostemons, Polygalas, and other strong-growing hard-wooded greenhouse plants I give it only once in the season, just as they are starting into growth, while half the quantity is probably as much as a Boronia will require. To Ixoras and Francisceas I give it in larger doses. I think half as much more than Azaleas or Camellias require is perfectly safe for these. I also administer it to Ixoras when they are starting into growth, and again as soon as they are fairly set for bloom. Allamandas should be cut after they are set for bloom (giving it earlier would probably cause them to grow too woody), so with Dipladenias, but these should not have too large a dose at once. I have also used it upon many other stove plants, and proved it to answer admirably. Although it is perfectly suitable for many soft-wooded plants, I would recommend that it should be given to these in small quantities. I used it in small quantities for many Orchids, and never found that it injured them; indeed they all seemed to enjoy it much. I have never made much use of it on for plants in pots, but I have watered Vine-borders with it just as the Grapes were beginning to colour, and have no doubt about its value in these. For Roses and all kinds of Vegetable Crops which require abundance of manure it will, I think, be found all that can be wished.
"Alpha."

BARR AND SUGDEN, SEED MERCHANTS, 12, KING STREET, COVENT GARDEN, W.C.

BROMUS SCHRADERI

(AUSTRALIAN PRAIRIE GRASS).



JAMES CARTER & CO.

BEG TO ANNOUNCE THAT THEY ARE EXPECTING

A LARGE CONSIGNMENT OF THE ABOVE GRASS SEED

DIRECT FROM AUSTRALIA.

Their CORRESPONDENT *gives the following particulars of it :—*

This Grass is grown most successfully; it is considered to be far superior to any of the English Grasses. WHEN USED FOR GREEN FOOD the growth is much more vigorous than Rye Grass. One of its peculiarities is that it sends up its seed at a very early stage of its growth, and that is one reason that makes it so much more nutritious than other Grasses. The Grass has a very early and quick growth in spring, and if it will suit our climate (and there is every reason to believe it will), will be FOUND INVALUABLE FOR EARLY FEED. It has already been tried in France, with the following results :—

A new green crop, called "Brome," has recently attracted much attention, in consequence of the perseverance of M. A. Lavallée. A farmer at Trappes, M. Dailly, has produced 31 tons of green Brome per hectare (or more than 12 tons per acre); M. Benoit, of Asy, obtained 35 kilogrammes from 200 grammes of seed, or 185 times in weight of the seed; another farmer got 74 kilogrammes from one kilogramme of seed. It is claimed for the Brome that it promises to feed three bullocks where two were fed before; a magnificent prospect for the beef eater as well as the beef grower. One great peculiarity of the Brome is its growth during an amount of cold which suspends all other vegetation, thus affording green food for cattle before and after all other sources are cut off, and fitting it peculiarly for exposed situations and arid soils. Some years since a farmer, in the department of Finisterre, received some leguminous seeds from America, and has ever since cultivated the plant with great success; this turns out now, it is said, to be identical with the Brome in question.

JAMES CARTER & Co. will be happy to book Orders for supplying this GRASS in quantity next autumn, and they can now offer a limited number of packets, price 1s., for immediate sowing.

CARTER'S PERMANENT PASTURE GRASS

SUPPLIED AND MIXED TO ORDER TO SUIT EVERY SOIL, AT

26s. to 30s. per acre, and 32s. to 35s. per acre.

JAMES CARTER AND CO., 237, 238, & 261, HIGH HOLBORN, W.C.;
DEDHAM and ST. OSYTH, ESSEX; and CRYSTAL PALACE NURSERY, FOREST HILL, S.E.

GENUINE GRASS SEEDS.

PERFECTLY FREE FROM WEEDS.

JAMES VEITCH,

ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA, S.W.,

Directs the special attention of intending purchasers to the following VERY FINE MIXTURES, which HE GUARANTEES are not to be surpassed in quality and selection.

In ordering Grasses a description of the Land to be laid down is very necessary, that a suitable Mixture may be supplied.

MIXTURES for PERMANENT PASTURES and MEADOW LANDS.

Containing only the finest suitable Grasses and Clovers.

25*s.* to 30*s.* per acre.

MIXTURES for IRRIGATION or WATER MEADOWS.

Specially prepared from those kinds of Grasses most suitable for moist situations.

25*s.* per acre.

MIXTURES for PARK and FIELD LAWNS.

16*s.* per bushel.

MIXTURES SUITABLE for SHEEP WALKS.

Being composed only of kinds which thrive on poor soils.

25*s.* to 30*s.* per acre.

MIXTURES for RECLAIMED MARSHES or HEATH LANDS.

20*s.* per acre.

MIXTURES for GARDEN LAWNS, PLEASURE GROUNDS, GRASS PLOTS, BOWLING GREENS, &c.

18*s.* per bushel, 1*s.* per lb.

This Mixture has been most carefully prepared from the finest growing kinds, and cannot fail to give satisfaction.

MIXTURES for RENOVATING OLD PASTURES.

(Sow 10 to 12 lbs. per acre). Price per lb., 9*d.*

MIXTURES for ALTERNATE HUSBANDRY.

These Mixtures are formed of the best Clovers, Fescues, Rye-grasses, &c. &c., according to requirement, for either One, Two, or Three Years' Pasture or Hay.

16*s.*, 18*s.*, and 20*s.* per acre.

In ordering this Mixture it should be stated whether it is required for One, Two, or Three Years' Lay.

Where large quantities are required, J. V. will feel pleasure in quoting special prices.

Each kind of Grass and Clover Seed supplied separately if required.

All DETAILED CATALOGUES of AGRICULTURAL SEEDS will be forwarded (Post Free) on application.

CHOICE VARIEGATED GERANIUMS
for BEDDING or POT CULTURE.

Mrs. Pollock	Golden Tom Thumb	Rainbow
Yellow Belt	Golden Vase	Glow-worm
Mrs. Milford	Fontainebleau	Burning Bush
Golden Harkaway	Miss Emily Domville	Snowflake

The above 12 varieties will be sent on receipt of a remittance for 21s., by ALFRED FRYER, Nurseryman, Chatteris, Cambridgeshire.

TO EXHIBITORS of PLANTS.—A large and beautiful stock of fine SPECIMEN PLANTS on Sale at J. C. PARMAN'S, Providence Nursery, Boston Spa, near Tadcaster.

Just published, a NEW DESCRIPTIVE CATALOGUE of DAHLIAS, HOLLYHOCKS, and BEDDING PLANTS, to be had on application. Boston Spa.—April 15.

CARTER'S GARDENER'S VADE-MECUM is now ready.

BEATON'S GERANIUMS.

NOTICES OF THE PRESS.

"Among scarlets passing off in one direction towards orange and yellow, and in the other towards purple rose and magenta, the bedder-out will have acquired amongst Pelargoniums a variety of tints which must be invaluable to him, especially in seasons like the present; the flowers, moreover, having in many cases a play or glow of colouring, which gives them extraordinary richness and brilliancy."—*Gardeners' Chronicle*, August 20, 1864.

"There is a decided novelty in their colour and style, which will render them indispensable in every collection."—*Journal of Horticulture*, July 5, 1864.

"The like have never been obtained; possessing as they do not only novelty, but singular beauty of colour, and remarkable profusion of bloom."—*Journal of Horticulture*, September 20, 1864.

"The acquisition of new colours amongst the varieties of so popular and useful a flower cannot be otherwise than agreeable to those who follow up the parterre system of flower gardening. * * * Many of them combine the prolific bloom of the Nosegay race with the better-shaped blossoms of the more ordinary kinds. * * * Indispensable to those who, in the matter of flower gardening, wish to keep pace with the times."—*The Florist*, January, 1865.

ALEXANDRA.—Top petals of flowers crimson, lower petals magenta, the combination of colours producing a most beautiful glow or play of colour; very free and effective. Price, 5*s.* each.

AMY HOGG.—Flowers bright purplish rose, the trusses of immense size, very abundant, and standing up well above the leaves. A strong free-growing Hybrid Nosegay, of spreading habit, the leaves slightly zonate, very distinct and attractive. Price, 5*s.* each

"A grand acquisition."—*The Florist.*

"It was the admiration of all who saw it."—*Journal of Horticulture.*

"Very distinct and attractive; * * stands in the front rank."—*Gardeners' Chronicle.*

BEATON'S INDIAN YELLOW.—Flowers orange scarlet, with a strong glow of yellow, quite a novel and pleasing colour; the trusses, which are of medium size, are produced in extraordinary abundance; a Hybrid Nosegay, of dwarf but free habit, with zonate leaves, a distinct and first-rate bedding variety, and very effective. Price, 5*s.* each.

"A most unexpected and valuable addition to the materials for *parterre* gardens."—*Gardeners' Chronicle.*

"Quite novel in colour."—*Journal of Horticulture.*

"All the more welcome as being the first of this colour which will be placed within reach of the flower gardener."—*The Florist.*

BLACK DWARF.—Flowers crimson scarlet, the trusses of medium size and very abundant, leaves darkly zonate; a true Nosegay, of close dwarf habit. Grown at the Crystal Palace on trial, although not before offered for sale. Price, 2*s.* 6*d.* each.

"Extremely useful for small beds or the margins of ribbon borders, on account of its close dwarf habit."—*Gardeners' Chronicle.*

DONALD BEATON.—Flowers clear orange scarlet, of immense size and fine form, trusses also large; a strong free-growing kind, excellent for bedding. Price, 5*s.* each.

"A thoroughly good variety."—*Gardeners' Chronicle.*

DUCHESS.—Flowers soft rosy lake, of good size and form, trusses also good and abundant. A very free-flowering kind, of dwarf habit, invaluable for bedding. Price, 3*s.* 6*d.* each,

FULGENS.—Flowers vivid scarlet, with large clear white eye, truss large and compact, forming a perfect globe, horse-shoe leaf. Price, 3*s.* 6*d.* each.

GLOWWORM.—Top petals of flowers fiery scarlet, lower petals of magenta flushed with crimson; the trusses are good and abundant, very erect, standing well above the foliage; the habit is dwarf and compact. This variety promises to be one of the most novel and beautiful plants recently introduced for beds, the combination of colours producing a rich and peculiar glow quite unique in the Geranium. Price, 5*s.* each.

"Quite a novelty."—*Journal of Horticulture.*

"Another remarkable flower."—*Gardeners' Chronicle.*

"Remarkable for the glow of colour."—*The Florist.*

MAGENTA QUEEN.—Flowers magenta, top petals crimson, with large white eye; a Hybrid Nosegay, of strong free habit, very distinct and pleasing. Price, 5*s.* each.

ORANGE NOSEGAY.—Flowers bright orange, trusses very large; a true Nosegay, with deep green leaves, and of free habit, quite new in colour, very effective. Price, 5*s.* each.

"A great acquisition; * * the flowers differ from all others we have seen in their decided bright orange tint."—*Gardeners' Chronicle.*

"In this the yellow tint is also strongly marked."—*The Florist.*

PILLAR of BEAUTY.—Flowers brick-red, scarlet eye, immense truss, half-climbing habit, invaluable for clothing the pillars or walls of the conservatory and flower garden. Price, 5*s.* each.

PRINCESS LICHTENSTEIN.—Flowers salmon pink, beautiful soft colour, very smooth, perfect form and fine close habit. Price, 5*s.* each.

SALAMANDER.—Flowers brilliant scarlet, white eye, fine compact habit, horse-shoe leaf. Price, 3*s.* 6*d.* each.

SCARLET GEM.—Flowers bright orange scarlet with white eye, a profuse bloomer, dwarf habit, with dark horse-shoe leaves, invaluable for the mass of colour it produces. Price, 3*s.* 6*d.* each.

MRS. WM. PAUL.—Flowers clear delicate rose-pink, very large and of perfect form, habit dense, dwarf, and strong; a plant of great promise for out-of-door culture. Price, 5*s.* each.

"In respect to size and form far in advance of all the rose-pink varieties we have yet seen; * flowers larger than a crown-piece; * * quite circular; * * exceedingly delicate and beautiful."—*Gardeners' Chronicle.*

WALTHAM SEEDLING.—Flowers fine, full, dark crimson, very large truss, horse-shoe leaf; a Hybrid Nosegay, raised from Stella, but much darker than that variety. Price, 5*s.* each.

Good Plants ready for delivery in May next. Early orders respectfully solicited.

WILLIAM PAUL, Waltham Cross, London, N.

PETER LAWSON & SON,

THE QUEEN'S SEEDSMEN,

28, KING STREET, CHEAPSIDE, LONDON, E.C.; and at EDINBURGH.

LISTS OF ALL SORTS OF SEEDS AND PLANTS SENT FREE ON APPLICATION.

The Royal Vineyard Nursery and Seed Establishment Hammersmith, London, W.

A CHOICE and EXTENSIVE COLLECTION of STOVE and GREENHOUSE PLANTS always on view Also FRUIT TREES, SHRUBS, and ORNAMENTAL TREES, from the Country Branches of the Firm.

The SEED and GENERAL NURSERY BUSINESS is carried on here, and Packages are delivered free at the various London Railway Stations.

BRANCHES.

EALING NURSERY, G. CANNON, Manager.

Ten minutes' walk from the Ealing Station on the Great Western Railway Main Line.

FRUIT TREES, ROSES, and SHRUBS, are here extensively and successfully cultivated in some of the finest Loam in the County.

FELTHAM NURSERY, R. HIGHAM, Manager.

Ten minutes' walk from Feltham Station.

EVERGREEN and DECIDUOUS SHRUBS, and CONIFERÆ are here largely grown in a free Loam, well suited to their habits.

At SION LANE and WOOD LANE NURSERIES, ISLEWORTH. ORNAMENTAL TREES are in a healthy and thriving state, and GENERAL HARDY PROPAGATION is here carried on.

The Stock in the above Nurseries is well worth the inspection of purchasers. The prices are very moderate, and the Plants are frequently transplanted to ENSURE SAFE removal.

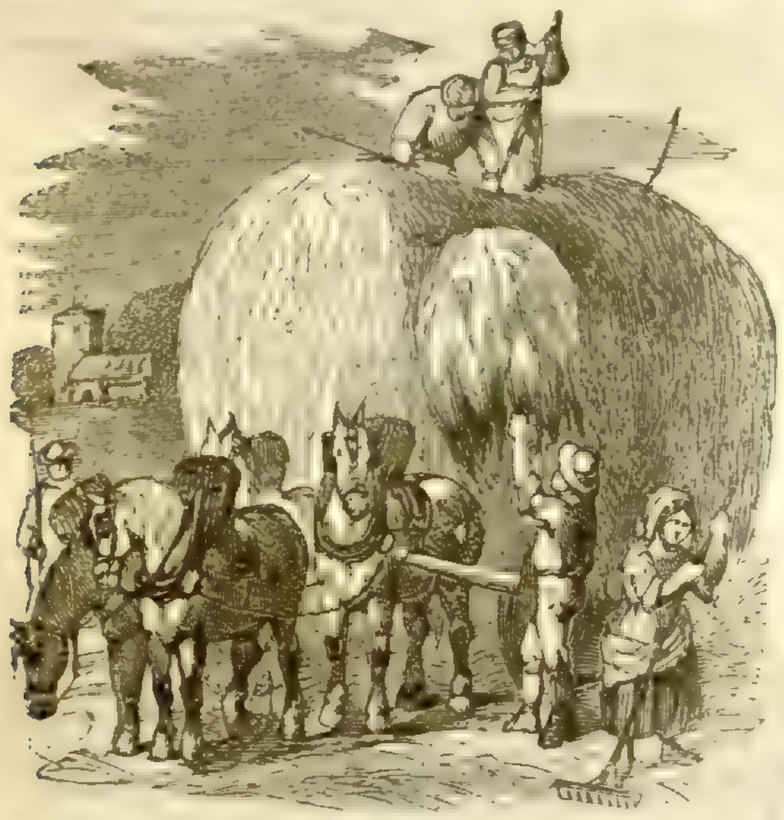
The following CATALOGUES are published, and will be forwarded Post Free on application:—

CATALOGUE of KITCHEN GARDEN, FLOWER, and AGRICULTURAL SEEDS.
CATALOGUE of STOVE and GREENHOUSE PLANTS.
CATALOGUE of SOFT-WOODED and BEDDING PLANTS.
CATALOGUE of FRUIT TREES and FRUIT TREES in POTS.
CATALOGUE of HARDY SHRUBS and TREES (will shortly be issued).
CATALOGUE of DUTCH BULBS, published in August.
CATALOGUE of ROSES.

JOHN & CHARLES LEE, Proprietors, Hammersmith, London, W.

Sutton's Grass Seeds for all Soils.

MESSRS. SUTTON'S GRASS SEEDS being mixed expressly to suit the Soils for which they are required, persons ordering have only to state the nature of the soil and acreage to be laid down, when suitable Seeds will be supplied.



SUTTON & SONS have one of the largest Stocks in Europe of the PERMANENT NATURAL GRASS and CLOVER SEEDS, which they mix expressly to suit the soil for which they are required.

Prices, according to quantity required, may be had on application.

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These Seeds consist of PERENNIAL CLOVERS and fine GRASSES for improving the bottom. Price 10*d.* per lb.; 8 or 12 lbs. per acre will be sufficient, and will produce a great increase in the produce.

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Also the "*TIMES* CORRESPONDENCE," complete, as published in SUTTON'S New Farm Seed List, with LETTERS by

MR. SANDERSON, | LT.-COL. GANDY,
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Grass Seed for all Soils.

RICHARD SMITH offers the best selection that can be made of PERMANENT MEADOW GRASS and CLOVER at 30*s.* per acre, consisting of 2 bushels light and 12 lbs. heavy seed. The kinds and quantities are chosen for their early growth, great nutritive qualities, reproductiveness, and permanency, and can be had separately or properly mixed to suit heavy, light, or medium soil.

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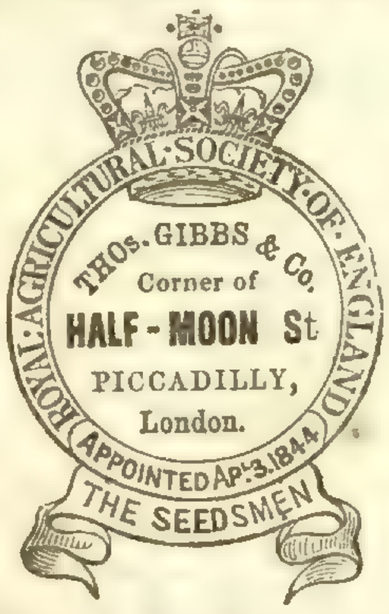

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Recommend those who are about to Lay Down or Improve their Pastures or Lawns, to send them full particulars of the nature of the soil to be dealt with, and to state if the land is drained or undrained. They have made the most careful selections for the following MIXTURES, which cannot fail to produce the required effects:—

MIXTURES for LAYING DOWN LAND to PERMANENT MEADOW or PASTURE, carefully selected to suit various soils.
30*s.* per acre.

MIXTURES to LAY DOWN PARK or FIELD LAWNS; all coarse-growing kinds carefully excluded.
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PRIZE MANGEL WURZEL AND TURNIP

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Small quantities of Seed may be obtained for experiment from Peter Lawson & Son, The Queen's Seedsmen, 28, King Street, Cheapside, E.C.

To Farmers, Bailiffs, and Gardeners.

Carriage or Freight Free.

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And every other description of Seeds in common use.

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CARPENTER'S MAGNUM BONUM.—The Largest and Best Tall Pea grown. 5s. per quart.

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CARPENTER'S MONSTROUS WHITE COS LETTUCE,
CARPENTER'S MONSTROUS GREEN COS LETTUCE,
CARPENTER'S MONSTROUS BROWN COS LETTUCE,
1s., 2s. 6d., and 5s. per packet, are the three best LETTUCES in cultivation.

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The Trade liberally dealt with. Terms on application.

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Mr. James Veitch, Royal Exotic Nursery, King's Road, Chelsea.
Messrs. Cooper & Bolton, 152, Fleet Street, London.
Messrs. Fraser, Richardson, & Goad, 82, Bishopsgate Within, London.
Messrs. Nutting & Sons, 60, Barbican, London.
Mr. G. W. Dixon, 48a, Moorgate Street, London.
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MELON, EMPRESS EUGENIE, 1s. per packet
PARSNIP, THE STUDENT, 6d. per packet
TURNIP, CHIRK CASTLE BLACK STONE, 4d. per oz.
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POTATO, RIVERS' ROYAL ASHLEAF, per peck, 3s.
ASTER, TRUFFAUT'S SUPERB FRENCH, 18 varieties, mixed, 1s. per packet
STOCK improved large flowering, 18 varieties, mixed, 1s. per packet

Orders of 21s. and upwards carriage free. Those kinds priced per packet free by post.

DESCRIPTIVE PRICED LIST on application.

Richard Smith, Seed Merchant, Worcester.

A Boon to the World.

PRINCE of WALES' KIDNEY POTATO.—A new Seedling, remarkably handsome, fine eating, and the most prolific in the world. Testimonials:—

From Professor Lindley (Editor of the *Gardeners' Chronicle*).

"I have this morning had the Seedling Potatos examined. The crop is very extraordinary, and the Potatos themselves are very handsome, and quite ripe."

From Shirley Hibberd, Esq. (Editor of the *Gardeners' Weekly Magazine*).

"The Seedling Potato (Prince of Wales), I have found to be wonderfully productive, excellent flavour, handsome, and such a one as the world ought to have the benefit of."

To be had of Mr. James Veitch, Royal Exotic Nursery, King's Road, Chelsea, S.W.; Messrs. Barr & Sugden, King Street, Covent Garden, W.C.; Downie, Laird & Co., Forest Hill, S.E.; James Carter & Co., 237, High Holborn, W.C.; Sutton & Sons, Reading.

Price 12s. per bushel.

N.B. They may be planted up to the end of May.

To Market Gardeners and Seedsmen.

RICHARD WALKER, Seed Grower, &c., Biggleswade, Bedfordshire, begs to offer the following for cash:—

YELLOW GLOBE MANGEL WURZEL, 28s. per cwt.
WHITE SPANISH ONION, 1s. 6d. per lb.
RED CABBAGE PLANTS, extra strong, 5s. per 1000.
EAST HAM DITTO, fine, 3s. per 1000.

To Seed Merchants.

TURNIP SEED for SALE.—120 bushels PURPLE-TOP SWEDE; 52 bushels GREEN-TOP SWEDE; 84 bushels ABERDEEN GREEN-TOP YELLOW. All transplanted and carefully grown.

If desirous to purchase for three months credit, a satisfactory reference to a London House will be required, without which no unknown correspondents will be attended to.

W. Woodcock, Nurseryman and Seed Grower, Wisbech.

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PURE SEED OATS.

46s. a Quarter (with Sacks) for not less than Two Quarters.

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N.B. Loaded Trucks can be sent direct on all the Railways.

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REIGATE SILVER SAND, 12s. per ton, at Swan Place; delivered 5 miles, or to any London Wharf or Railway, 16s. per ton, or 1s. 6d. per bushel (sacks at cost price, or on hire). Kentish and Hampshire PEATS, YELLOW LOAM, LEAF-MOULD, and COCOA FIBRE REFUSE.

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COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 2s. per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the Patent Cocoa Fibre Company, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. Barsham & Co.

Barsham's BRUSHES and MATS are sold in every town.

Caution.—Every Brush is stamped, J. Barsham's Patent.

ROLL TOBACCO CLOTH.—The cheapest and best article for Fumigating Greenhouses and destroying the Fly, price 1s. 4d. per lb.; over 10 lbs. 1s. 1d.

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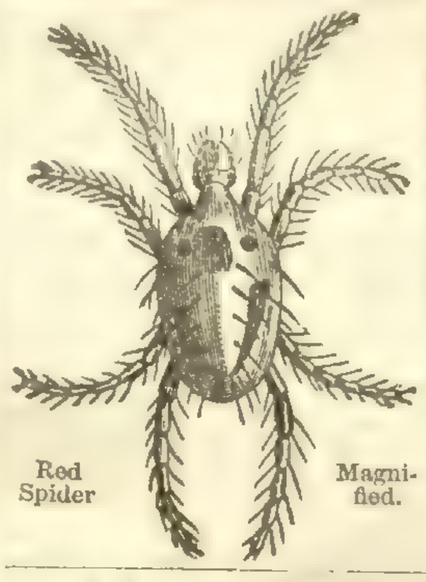

Red Spider — Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes, 1s., 3s., and 10s. 6d. each.

Wholesale by
PRICE'S PATENT
CANDLE COMPANY
(Limited).

TOOGOOD'S (late Page & Toogood's) IMPROVED BLIGHT COMPOSITION introduced in 1850, has been manufactured under W. Toogood's sole directions since that period. He has made great improvements in it, and by reducing the price 25 per cent., it is one of the cheapest and has always been the most efficacious remedy extant. To publish the Testimonials no newspaper would give space, but Messrs. Cutbush & Son, the eminent Nurserymen, say:—"It is the best thing for the purpose we can find, and does not appear to injure the young foliage like Gishurst does. This is our experience after 10 years' trial."

"February 24, 1864."

Mr. E. Sage, *Gardener to* Lord Howe, *says*:—

"Will you please send us 15 gallons of your Blight Composition. I see you have reduced the price, and trust that you may some day be able to make another reduction, and I feel assured that no 'Gishurst,' will be used by practical men."

"We hereby Certify that during the whole time we were Warehousemen in the Establishment of B. Page & Co., and subsequently Page & Toogood, that we Manufactured the Blight Composition under Mr. Toogood's *sole directions, and that he alone knew the proportions of the various ingredients.*

Signed John Morley,
Henry Drew,
Henry Sheerman,
George Isaacs."

"July 13, 1863."

Extra strong, 3s. per gallon (sufficient to make 4 gallons fit for use), 10 gallons and upwards carriage free to London.

May be obtained of the principal Nurserymen and Seedsmen in the Trade, and of W. Toogood, Royal South Hants Seed Establishment, Southampton.

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be seen at Work in every Agricultural County in England. For particulars apply to

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SAMUEL N. McGERROW,
General Horticultural Builder,
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Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

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HOT WATER PIPES, from Stock, per yard:—2-inch, 1s. 4d.; 3-inch, 2s.; and 4-inch, 2s. 7d. BENDS, from Stock 1s. 7d., 2s. 6d., and 3s. 3d. each. THROTTLE VALVES, 10s. 6d., 13s. 6d., and 15s. each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day. A discount to the Trade.

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HOT-WATER PIPES, at Reduced Wholesale Prices, with Elbows, Syphons, Tee Pipes, and every other connection; Wrought and Cast-iron Boilers, Saddle, Conical, Cylinder, Tubular, and Elliptic, from 24s. each. Improved Boilers and Iron Stands to use without brickwork, 56s. each. Valves from 10s. 6d. each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Castings of every description in stock, at

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WM. SMITH begs to call attention to his Prices of a Large Stock of various sized LIGHTS for HOUSES or made of 2-inch yellow Deal.

5 ft. 2 in. long by 3 ft. 9½ in. wide	£0	12s.	0d
6 ft. long by 3 ft. 11½ in. wide	0	15	0
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9 ft. 8 in. long by 4 ft. 8½ in. wide	1	5	0
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Five per cent. discount allowed if 400 feet are taken.

Green and Hothouses, Conservatories, and Vineries made to order at 1s. 1d. per square foot. Apparatus for ventilation on the best principle. 2-inch Lights made to order, glazed and painted three times, at 8d. per foot; do. Unglazed, at 4d. per foot.

Estimates given for Efficiently Heating by Hot Water. One, Two, Three, or Four-light Garden Frames, fitted with iron keys at angles, always in stock.

194, King Street, Hammersmith; or W. Smith, Horticultural Builder, Turnham Green.

CARTER'S GARDENER'S VADE-MECUM is now ready.

£1000 UPON the WOOLSTON TACKLE against the NEWCASTLE "best application."

William Smith, Woolston, Bletchley Station.

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H. FREEMAN, Horticultural Works, Hackney, N.E., Established 20 years. Good substantial made GREENHOUSES, Glazed, ready for fixing. 42 feet by 13 feet, 50l.; 21 feet by 13 feet, 28l.; 12½ feet by 10 feet, 15l.

A handsome CONSERVATORY for Sale, 36 feet by 19 feet. Price 110l. A Large Assortment kept.

TERRA COTTA GALLERIES, No. 1, South Wharf, Praed Street, Paddington, W., are NOW OPEN with a fresh stock of VASES, FOUNTAINS, TAZZAS, FLOWER POTS, GARDEN EDGINGS, and other Architectural goods.

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By Royal Letters Patent.

FOXLEY'S CORRUGATED or BEADED BRICKS for GARDEN WALLS.—The most complete remedy against all the evils attending the present system of Training Wall Fruit Trees, &c. no Nailing required, or Trellis. The plan is very simple and most effective, entirely doing away with all complication, while it furnishes the most perfect means of Training at less cost and trouble than by any other means.

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HORTICULTURAL TOOLS.—LAWN MOWERS, GARDEN ENGINES and ROLLERS, and TOOLS of all kinds. Improved WIRE NETTING, Prize CHURN, &c. Delivered carriage free.

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GARDEN BORDER EDGING TILES, in great variety of patterns and material, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.

F. & G. Rosher, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.

Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also TESSELATED PAVEMENTS of more enriched designs than the above.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cements, &c.

To be obtained of F. & G. Rosher, at their Premises as above.

SILVER SAND (REIGATE, best quality), at the above addresses—14s. per Ton, or 1s. 3d. per Bushel; 2s. per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less.

FLINTS, BRICK BURRS or CLINKERS, for Rockeries and Grotto Work.

F. & G. Rosher.—Addresses see above.

N.B. Orders promptly executed by Railway.

Hydraulic Suction Pumps, Garden Engines, Syringes, &c.

Caution.—The well-known reputation of READ'S ENGINES, MACHINES, and SYRINGES, has led to the nefarious practice of Manufacturers selling and advertising weekly Syringes as "Read's Patent."

R. Read begs to caution the Public against being deceived by such false representations, as many of these instruments, upon trial, will be found defective and useless.

READ'S SYRINGES have the Royal Arms, and address, 35, Regent Circus, London, W. Descriptions post free.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society &c.

PROTECTION from COLD WINDS and MORNING FROSTS.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.

Two yards wide	1s. 9d. per yard run.
Four yards wide..	3s. 6d. per yard.
An improved make, 2 yards wide ..	1s. 9d. per yard.
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Also "Frigi Domo" Netting, 2 yards wide, 1s. 6d. per yard run.

Elisha Thomas Archer, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, and of all Nurserymen and Seedsmen throughout the kingdom.

"It is much cheaper than Mats as a covering."

PATENT GUTTA PERCHA SOLES.—Important to Gardeners.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. Glenny, Esq., the celebrated Florist:—

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles.—Your obedient servant, "G. Glenny."

Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Calbotype trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town or country.

The Gutta Percha Company, Patentees, 18, Wharf Road, City Road, London, E.C.

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New Seed and Plant Catalogues, &c.

ROBERT PARKER has much pleasure in offering this distinct and valuable early GRAPE, which will supply the long-felt desideratum of a White Grape with Muscat flavour that may be grown and ripened with the Black Hamburgh. Strong Planting Canes, 21s. each; extra strong Fruiting Canes, 42s. each.

The following Certificates and Prizes have been awarded at various London and other Exhibitions.

Two Certificates of Merit.

Three First-class Certificates.

Two First Prizes in open competition for the finest flavoured Grape of any colour. Chasselas Musqué, Muscat of Alexandria, and Frontignan competed for these prizes. For further description see Hogg's *Gardeners' Year Book for* 1865, page 32, and *Gardeners' Chronicle* of October 1st and 22d, 1864, pages 943 and 1008.

Also New SEED CATALOGUE, containing Select Priced and Descriptive Lists of the best varieties of Vegetable, Flower, and Agricultural Seeds; and New GENERAL PLANT CATALOGUE, containing Priced and Descriptive Lists of Miscellaneous, Greenhouse, Hardy, and Stove Plants, Azalea indica, Conifers, Ferns, Fruit Trees, Grapes, Rhododendrons, Roses, Dutch and other Bulbs, &c., which will be forwarded to applicants.

Exotic Nursery, Tooting, Surrey, S.

Mr. E. J. Lowe's New Pansies.

EDWIN COOLING has the pleasure to announce that he has been entrusted with the stock of the above named splendid Novelties for distribution. They have been awarded First-class Certificates wherever exhibited, and are all most distinct and beautiful. A DESCRIPTIVE PRICED LIST of the 24 varieties free on application.

Strong healthy plants are now ready for sending out.

Mile Ash Nurseries, Derby.

Russell's Pyramid Primulas.

GEO. CLARKE is now prepared to send out in packets, price 2s. 6d. each, this, the finest breed of PRIMULAS in cultivation. The Seed now for sale has been saved from selected plants, so that it is believed the produce will be even superior to that of former years.

Printed instructions for raising and growing the plants sent with each packet. Stamps received in payment.

Nursery, Streatham Place, Brixton Hill, London, S.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 38 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

*** Part II. (Exotic Ferns) will be issued as early as possible.

Foot's Cray Nursery, S.E.

RICHARD SMITH'S LIST of all the EVERGREEN FIR TRIBE suitable for Britain, giving size, price, popular and botanical names, derivations, description, form, colour, foliage, growth, timber, use in arts, native country and size there, situation, soil, and other information, with copious Index of their synonymes. Enlarged Edition, Free by Post for 12 postage stamps.

Richard Smith, Nurseryman, Worcester.

Abies Douglasii.

WILLIAM BARRON begs to offer beautiful well-grown plants of the above, with good leaders and capital roots (never having been in pots), 15 in. to 18 in., 60s. per 100; 2 ft. to 2 ft. 6 in., 100s. per 100. As an ornamental timber tree, the Douglas Fir stands unrivalled. The noble specimen shown in the International Exhibition in 1862 was, when cut down, 309 feet high. The strength of the Timber considerably surpasses the Larch and best red Deal, and was only approached by the Pitch Pine. See *Gardeners' Chronicle*, June 17, 1863. Elvaston Nurseries, Derby.

E. PIERCE, Yeovil Nurseries, Somerset, offers
150 CEDARS of LEBANON, 8 to 10 feet, well rooted, 100s. per dozen.
2300 GREEN HOLLIES, three times transplanted, 60s. per 100.
2000 AMERICAN ARBOR VITÆ, 5 feet, 50s. per 100.
1000 CHINESE ARBOR VITÆ, 4 feet, 50s. per 100.
1000 RED CEDAR, 4 feet, 50s. per 100.
2000 PORTUGAL LAUREL, 2½ feet, 40s. per 100.

TO THE TRADE.

1-year Seedling ARBUTUS, 40s.
1-year Seedling ARBOR-VITÆ, CHINESE, 15s.
3-year Seedling " " AMERICAN, 15s.
1-year Seedling BERBERIS DARWINII, 40s.
1-year Seedling BROOM, WHITE PORTUGAL, 15s.
1-year Seedling " YELLOW SPANISH, 15s.
1-year Seedling PICEA NORDMANNIANA, 100s.
1-year Seedling PORTUGAL LAUREL, 15s.
1-year Seedling YEWS, ENGLISH, 15s.
BEDDED ARBOR-VITÆ LOBBII, 80s.
" BOX, NEW BROAD-LEAVED, 40s.
" HEMLOCK SPRUCE, 100s.
" PERNETTYA MUCRONATA, 70s.
" PORTUGAL LAUREL, 6 to 9 inches, 40s.
" PICEA PINSAPO, 2 yr., 100s.
" RETINOSPORA ERICOIDES, 80s.
" RHODODENDRONS, 3 yrs., very fine hybrids from best named sorts, 60s.
" THUJOPSIS BOREALIS, 3 to 5 inches, 70s.
" YEW, ENGLISH, 5 to 7 inches, 70s.

Richard Smith, Nurseryman, Worcester.

New Fuchsias, Verbenas, &c., of 1864.

WM. RUMLEY AND SONS have to offer the under-named, in fine plants, packed in hampers, and free by post, viz.:—

FUCHSIAS.—The following best New varieties of 1864, 5s. to 9s. per dozen, or 6d. to 9d. each according to size—Blue Beauty, Bessie Calloun, Charming, Constellation, Flora's Bouquet, Flossy Fowle, King of Denmark, Lord of the Manor, La Favorita, Miss Dorcas Webber, Multiflora pendula plena, Mrs. Scott, Mauve Petticoat, Neptune, Profusion, Princess of Wales, Prince of Wales, Puritani, President Davis, Queen of Beauties, Rifleman, Snowdrop, Striata flore pleno, The Osprey, The Parachute, The Big Umbrella, The Wonder, The Triumph of 1864, The Bride, The Magnificent, &c.

VERBENAS.—The following best New varieties of 1864, 4s. to 6s. per dozen, or 4d. to 6d. each according to size—Beauty, Brightness, Bedding Glory, Cherry Ripe, Dowager, Duke of Cambridge, General Jackson, Jessie, Lady Belper, Mrs. Dobree, Madame Gonillard, Monsieur Jackson, Mr. Beckett, Melindres splendens, Merry Maid, Optima, Princess Alexandra, Sunbeam, Urban, Valencia, Vignette, &c.

PETUNIAS, choice varieties, 4s. to 6s. per dozen.

CINERARIAS, choice varieties, 4s. to 12s. per dozen.

CHRYSANTHEMUMS, best New varieties of 1864, 4s. to 6s. per doz.

BEDDING CALCEOLARIAS, best varieties, 3s. to 6s. per dozen.

A NEW DESCRIPTIVE CATALOGUE of Fuchsias, Verbenas, Petunias, Cinerarias, Chrysanthemums, Dahlias, Geraniums, Calceolarias, Lobelias, Pentstemons, Mimulus, &c., is now ready, and may be had on application.

Gilling, near Richmond, Yorkshire.

GRAYSON'S TRUE MORTLAKE GIANT ASPARAGUS, grown on the ground where the late Mr. Grayson brought it to such perfection, so that Grayson's Asparagus is esteemed the best.

Plants one year old, 2s. 6d. per 100. | Plants two years old, 4s. per 100.

Seed post paid in packets just under the ounce, 6d.

Post-office orders on Mortlake.

Francis R. Kinghorn, Sheen Nursery, Richmond, S.W.

CAULIFLOWER PLANTS, strong, which have stood out-doors all the winter, 4s. per 100.

POTATOS, per ton:—FLUKES off the Lancashire Moss and Sand for seed, £3 to £4; ARROWSMITH'S SEEDLING, £3 10s.; ASHLEAF KIDNEY, £9; FORTYFOLD, £3 15s.

Also on sale, JERUSALEM ARTICHOKES.

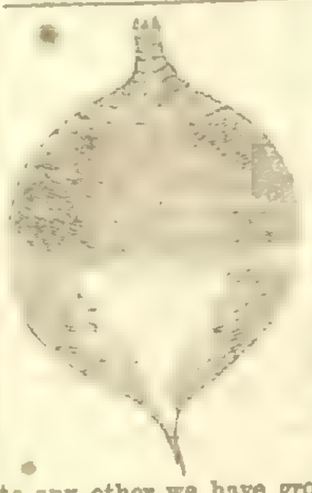
FARM, GARDEN, and FLOWER SEED CATALOGUES free on application.

H. Brown, 4, Commutation Row, Liverpool.

Laying down Land to Pasture,

And Improvement of Grass Lands.

MR. MARTIN SUTTON'S ESSAY on the above subject, revised and enlarged from the Journal of the Royal Agricultural Society, may be had post free for 6 stamps on application to Sutton & Sons, Royal Berkshire Seed Establishment, Reading.



Three Hundred Guineas in 12 Prizes.

For Six Years Successively his late Royal Highness the Prince Consort's Prize Cups have been awarded to SUTTON'S CHAMPION SWEDES at the Royal East Berks and South Berks Agricultural Societies, and many other valuable Prizes in various parts of the kingdom.

From Mr. Large, *Bailiff to the Right Hon.* Lord Berners:—

"The Champion Swedes from seed Lord Berners purchased of you, are far superior to any other we have grown. I can confidently say they are many tons per acre heavier than any other Swedes growing on his lordship's farm."

Price of Seed 1s. per pound, or cheaper by the Bushel.

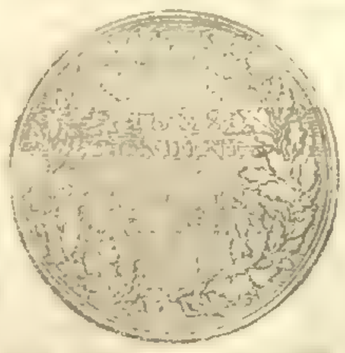
SUTTON'S NEW FARM LIST gratis and post free.

Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

JAMES CARTER AND CO., Seed Merchants, High Holborn, London, W.C.

GENUINE FARM SEEDS.

"ONLY" PRIZE MEDAL FOR SEEDS.



INTERNATIONAL EXHIBITION, 1862.

CARTER'S SELECT LIST of GENUINE FARM SEEDS (at special prices) is now ready, and will be forwarded gratis and post free on application.

CARTER'S PERMANENT PASTURE GRASS, carefully mixed (to order), to suit all Soils, from extra cleaned samples, can be supplied according to the quality of the Mixture, at 26s. to 30s., and 32s. to 35s. per acre.

GENUINE FARM SEEDS.

"ONLY" PRIZE MEDAL FOR SEEDS.

INTERNATIONAL EXHIBITION, 1862.

James Carter & Co., Seed Merchants, High Holborn, London, W.C.

Established Upwards of a Century.

BUTLER AND McCULLOCH,

Seed Merchants, Covent Garden Market, W.C.

GENUINE NEW VEGETABLE SEEDS.

Orders amounting to 21s. and upwards sent Carriage Free.

COMPLETE COLLECTIONS for ONE YEAR'S SUPPLY.

No. 1.	No. 2.	No. 3.	No. 4.	No. 5.
3l. 3s.	2l. 2s.	1l. 10s.	1l. 1s.	10s. 6d.

BUTLER AND McCULLOCH'S NOVELTIES for 1865.

	Per packet—s.	d.
BUTLER'S SUPERFINE DWARF CAULIFLOWER.. ..	2	6
BUTLER'S CLIMAX MELON..	2	6
BUTLER'S PRESIDENT MELON	2	6

FLOWER SEEDS (sent Post free).

Assortments of	100 vars.	50 vars.	30 vars.	25 vars.	15 vars.
ANNUALS—Hardy	20s.	10s.	5s.	..	2s. 6d.
" Half Hardy	30s.	15s.	..	7s. 6d.	4s. 0d.
PERENNIALS (Hardy) ..	25s.	12s. 6d.	..	6s. 6d.	3s. 6d.
" Half Hardy	..	..	..	7s. 6d.	4s. 0d.

NOVELTIES in FLOWER SEEDS.—See Descriptive Catalogue.

BULBS for SPRING PLANTING.—Gladioli, Liliums, including the splendid new L. auratum; Tigridias, Anemones, Ranunculus, and other bulbs suitable for spring planting, in great variety. Special quotations at low rates per 100 or 1000 on application.

AGRICULTURAL SEEDS, saved from pure Stocks, and received direct from the Growers, including all the best kinds of Turnips, Swedes, Carrots, Mangel Wurzel, Grasses, &c.

PRICE LIST just published, and may be had gratis on application.

Agents for

GOULDING'S HORTICULTURAL MANURE, 1s. per canister.

Sole Agents, Wholesale and Retail, for

MURRAY'S APHIS PASTILS,

A new invention, and the most effectual in existence for Fumigating Plant Houses.

In packets, 1s. and 2s. each.

Butler & McCulloch, Covent Garden Market, W.C.

THE LONDON SEED COMPANY, LIMITED, 68, Welbeck Street, Cavendish Square, London, W.

THE LONDON SEED COMPANY, LIMITED. The FARM SEED LIST is now ready, and will be forwarded gratis and post free. See also SPECIAL LIST for large purchasers.

THE LONDON SEED COMPANY, LIMITED, are now supplying FARM SEEDS of best quality, viz.—GRASSES, CLOVERS, TARES, TURNIPS, MANGEL WURZEL, &c.

THE LONDON SEED COMPANY, LIMITED, can supply SWEDE TURNIPS at 34s. per bushel; SCOTCH TURNIPS at 27s. per bushel; GLOBE TURNIPS at 20s. to 31s. per bushel.

THE LONDON SEED COMPANY, LIMITED, can supply fine samples of MANGEL WURZEL of the following varieties:—LONG RED, 54s. per cwt.; LONG YELLOW, 60s. per cwt.; YELLOW GLOBE, 54s. per cwt.; RED GLOBE, 60s. per cwt., FISHER HOBBS' ORANGE GLOBE, 63s. per cwt.

THE LONDON SEED COMPANY, LIMITED, can supply large DRUMHEAD CABBAGE at £9 15s. per cwt., ALTRINGHAM CARROT, £6 15s. per cwt.; large YELLOW BELGIAN CARROT, £5 15s. per cwt.; large WHITE BELGIAN CARROT, £5 7s. per cwt.

THE LONDON SEED COMPANY, LIMITED, can supply GRASSES for PERMANENT PASTURE at 10s. per bushel, or in large quantities at 75s. per quarter. ITALIAN RYE GRASS, 5s. per bushel, or 38s. per quarter.

68, Welbeck Street, Cavendish Square, W.

Cheap Bedding Plants—Mostly 2s. 6d. per Dozen.

J. SCOTT, Merriott, Somerset, has just Published the 14th Edition of his FLOWER GARDEN DIRECTORY and CATALOGUE of BEDDING PLANTS; it is full of matter interesting to lovers of flowers, such as Selections of all the best plants for decorative purposes, with ample directions how to Plant, Arrange, and Cultivate them, in Ribbons, Circles, Squares, &c. It also enters largely into WINTER and SPRING GARDENING, with full Directions thereon, and giving Lists of all the best Early Flowers, and their Cultivation. Price 7d.

Calceolarias.

J. PYLE has a few hundreds of the above, autumn-struck.

AUREA FLORIBUNDA, 9s. per 100; KAYI, 9s. per 100; PRINCE of ORANGE, 12s. per 100.

CAULIFLOWER PLANTS, 4s. per 100.

Package and carriage free to all London Stations.

Post-office Orders payable Upper Holloway.

St. John's Nursery, bottom of John Street, Upper Holloway, London.

T. AND A. ANSELL, having an immense stock of BEDDING PLANTS, will be prepared to send them out to the Trade, and to parties requiring large quantities, at 10s. per 100 the first week in May. VERBENAS (Scarlet, Purple, and White), LOBELIAS, CALCEOLARIAS, PYRETHRUMS, AMARANTHUS, CINERARIA MARITIMA, AGERATUMS (Blue and White), NIEREMBERGIAS. Early orders solicited, which will be executed as received. Post Office Orders (payable at Brecknock Place, Camden Town,) or reference required.

Camden Nursery, Grafton Road, Kentish Town, N.W.

Magnificent Double Hollyhocks.

H. J. HARDY'S LIST is now ready, and will be sent post free. All the varieties (including upwards of 50 new ones, and some extra Dwarf Novelties) are Exhibition Show Flowers, good strong well-grown plants, price 6s. to 18s. per dozen; Seedlings, price on application. All Carriage paid to London, and for 1½ Dozen to any Railway Station.

Stour Valley Seed Grounds, Bures, Essex. Established 1801.

New Seedling Petunias (single).

THOS. BARNES begs most respectfully to intimate that his Set of NEW PETUNIAS will be ready on and after the 20th April.

The above are a selection from several thousand, are very beautiful in colour, perfect in shape, and quite distinct.

The set of Eight are offered for 30s., and separately 5s.

A DESCRIPTIVE LIST forwarded on application.

Dane Croft Nursery, Stowmarket.

MONS. J. LINDEN, Nurseryman, Royal Botanical and Zoological Gardens, Brussels (Belgium), begs to inform Amateurs and the Trade, that he has just published his NEW CATALOGUE of EXOTIC and other PLANTS newly imported, which may be had on application to his Agents,

Messrs. R. Silberrad & Son, 5, Harp Lane, Gt. Tower Street, London.

TO AMATEURS, EXHIBITORS, and OTHERS.—Immense Stock of fine healthy Plants, of the cream of New and Approved ROSES, VERBENAS, PETUNIAS, FUCHSIAS, &c., especially adapted to the purposes of the above, can now be supplied. CATALOGUES Gratis on application to W. Knight, Florist, Nursery, Hailsham.

RICHARD SMITH'S SEED CATALOGUE contains a Calendar of Time for Sowing, particulars of Collections, with Prices, Directions for Cropping well and economically, Soil, Manure, Depth, Distance, Season, Hardiness, Duration, Form, Height, Colour, Storing, Use, Flavour, and other qualities described. This List Free by Post for one stamp. Seeds direct from the Growers the surest way to success.

Richard Smith, Seed Merchant, Worcester.

NEW VIOLET, THE CZAR.—In answer to numerous inquiries, Mr. F. J. Graham begs to state that it is his intention to place the Disposal of this fine Seedling, which has obtained two First-class Certificates, and also of his pure YELLOW WALL-FLOWER, YELLOW PERFECTION, in the hands of his Son, Mr. John Graham, who will be prepared to execute orders very shortly at the rate of £5 per 100 for the former, and 3s. per packet for the seed of the latter, containing about 100 seeds.

Cranford, near Hounslow, W.

British and Exotic Ferns.

A. STANSFIELD AND SONS, Nurserymen, &c., Todmorden, beg respectfully to announce that their new GENERAL FERN LIST will be ready for issue in May next. This list will be sent, post-free, for three penny postage stamps.

The BRITISH SECTION, comprising some 500 varieties, with practical hints upon the Culture of the different species, is now ready, and will be forwarded post-free for two penny postage stamps. Gratis to all previous purchasers of Ferns. Note full address.

A. Stansfield & Sons, Vale Nurseries, Todmorden, Lancashire.

Bedding Calceolarias.

JAS. BACKHOUSE AND SON offer the undermentioned fine autumn-struck plants in single pots, strong and healthy at 21s. per 100, 4s. per dozen:—

AUREA FLORIBUNDA	PRINCE of ORANGE
CAMDEN HERO	" YELLOWS
CANARIENSIS	SPARKLER
KAYI	

And the following at 6s. per dozen:—

DESIRABLE | PRINCESS ALEXANDRA

VICTOR EMMANUEL

York Nurseries.

CARTER'S GARDENER'S VADE-MECUM is now ready.

PINUS MARITIMA, PINEASTER or SEA PINE.—This variety of Fir is now being largely planted along the Sea shore, where it grows better than any other Pine. Its qualities of standing the sea breeze and growing in any Soil—pure sand not excepted—are well known. The French Government are planting it in immense numbers along the Coast. A package containing 100 2-year Seedlings will be forwarded on receipt of Post Office Order for 20s.; and prices of 1-year Seedling and Transplanted may be had on application. April is the best month for Planting.

The Nurseries, Elgin, N.B.

ROYAL BOTANIC SOCIETY of LONDON,
REGENT'S PARK.
THE SECOND SPRING EXHIBITION.
LIST of AWARDS, April 8, 1865.

6 AZALEAS. (Amateurs.)
1st Prize to Mr T. Todman, Gr. to R. Hudson, Esq., Clapham Common
2d, Mr. G. Wheeler, Gr. to Sir F. H. Goldsmid, Bt., Regent's Park.
3d, Mr. W. Young, Gr. to R. Barclay, Esq., West Hill, Highgate.

6 AZALEAS. (Nurserymen.)
1st, Mr C. Turner, Slough, Bucks.
2d, Mr B. S. Williams, Holloway.
3d, Messrs. H. Lane & Son, Great Berkhampstead, Herts.

3 NEW AZALEAS.
1st, Mr C. Turner, Nurseryman, Slough.
2d, Mr. T. Todman, Gr.
3d, Messrs. Lane & Son.

6 CINERARIAS. (Amateurs.)
1st, Mr J. James, Gr. to W. F. Watson, Esq., Isleworth.
2d, Mr. R. Marcham, Gr. to E. Oates, Esq., Bydorp House.

6 CINERARIAS. (Nurserymen.)
1st, Messrs. J. Dobson & Son, Isleworth.

12 Pots of LILY of the VALLEY.
1st, Mr. Bartlett, Shaftesbury Road, Hammersmith.

6 BEGONIAS.
1st, Mr W. Young, Gr. to R. Barclay, Esq.
2d, Mr G. Wheeler, Gr. to Sir F. H. Goldsmid, Bt.
3d, Mr. R. Marcham, Gr. to E. Oates, Esq.

6 FOLIAGE and FLOWERING PLANTS.
1st, Messrs. J. & C. Lee, Nurserymen, Hammersmith.
2d, Mr. B. S. Williams, Nurseryman, Holloway.
3d, Mr G. Wheeler, Gr. to Sir F. H. Goldsmid, Bt.

MISCELLANEOUS.
Silver Medal to Messrs. Paul & Son, Cheshunt, for Roses in Pots.
Silver Medal to Mr. W. Paul, Waltham Cross, for Roses in Pots.
Small Silver Medal to Messrs. Paul & Son, for Cut Roses.
Small Silver Medal to Messrs. H. Lane & Son, for Collection of Azaleas.
Bronze Medal to Messrs. W. Cutbush & Son, Highgate, for Collection of Hyacinths.
Bronze Medal to Mr. W. Paul, for Collection of Hyacinths.
Bronze Medal to Mr. W. Paul, for Cut Roses.
Bronze Medal to Mr. W. Bull, Chelsea, for Collection of Dracænas.
Bronze Medal to Mr. W. Bull, Chelsea, for Collection of Camellias.
Bronze Medal to Messrs. E. G. Henderson & Son, for Collection of Cyclamens.
Small Bronze Medal to Messrs. W. Cutbush & Son, for Collection of Tulips.

NEW PLANTS.
First-class Certificate to Mr. J. Holland, Gr., for Asplenium Trichomanes Harovii.
First-class Certificate to Mr. W. Bull, for Bertolonia margaritacea.
First-class Certificate to Mr. W. Bull, for Camellia bicolor de la Reine.
First-class Certificate to Mr. B. S. Williams, for Alsophila latebrosa.
First-class Certificate to Mr. B. S. Williams, for Colocasia longiloba.
First-class Certificate to Mr. R. Marcham, Gr., for Cineraria Lord Amberley.
First-class Certificate to Mr. W. Paul, for Rose Maréchal Niel.
Second-class Certificate to Mr. W. Bull, for Polystichum ordinatum.

THE ILFORD HORTICULTURAL and MARKET GARDEN COMPANY, LIMITED. Incorporated under the Companies Act, 1862, by which the liability of each Shareholder is limited to the amount of his Shares. Capital £50,000, in 10,000 Shares of £5 each. Deposit 10s. per Share on Application and 10s. on Allotment. No Call to exceed £1 per Share, or to be made at a less interval than three months from a previous Call.

DIRECTORS.
THOS. RIVERS, Esq., The Nurseries, Sawbridgeworth, Herts, *Chairman*.
ROBERT HOGG, Esq., LL.D. Co-Editor of the *Journal of Horticulture*, 99, St. George's Road, Pimlico, S.W.
GEORGE W. JOHNSON, Esq., Co-Editor of the *Journal of Horticulture*, 10, Stanley Crescent, Kensington Park, W.
CHARLES LEE, Esq., of J. & C. Lee, Nurseries, Hammersmith, 12, Warwick Crescent, Kensington, W.
WILLIAM PAUL, Esq., The Nurseries, Waltham Cross.
Bankers—The London and Westminster Bank, Lothbury.
Solicitors—Messrs. PATTISON & WIGG, 50, Lombard Street, London.
Secretary—Mr. RICHARD DEAN.
General Manager—Mr. ARCHIBALD HENDERSON, late Gardener to His Grace the Duke of Sutherland, at Trentham.

PROSPECTUS.
This Company is formed for the purpose of establishing and carrying on the business of Fruit Growing and Market Gardening at Great Ilford, in the County of Essex, and for growing on an extensive scale Fruit, Vegetables, and Flowers for the supply of the Metropolitan and other Markets.
The Directors have provisionally agreed for a Lease, with immediate possession of about 135 Acres of Land at Great Ilford, with Agricultural Buildings, for a term of 21 years, with power of renewal.
The property to be leased is most eligibly situate at a distance of about 7 miles from the Royal Exchange by road, 400 yards from the Ilford Station of the Great Eastern Railway, and about 1½ mile from the Barking Station of the London and Tilbury Line. Each of these Lines runs constant Trains, and by means of the proposed Metropolitan and Great Eastern Extensions, the property will be brought into immediate communication with all parts of London. The Free Wharf at Barking and the Wharf at Ilford also afford every facility for the delivery of Manure and Coals at the cheapest possible rate.
The lands lie open to the South, and are belted by Trees on the northern and eastern boundaries. They have been farmed by the present owner for several years, and are now in excellent condition. The soil is a rich loam, and is thoroughly drained, both naturally and artificially.
The vast extent of the Trade in the Metropolitan and Provincial Markets in Fruits, Flowers, and Vegetables is well known; and the enormous consumption consequent on the growth of the Metropolis, and the great commercial prosperity of the country generally, is increasing so rapidly, that the home supply is unequal to the demand. To meet this demand large quantities of the more delicate Fruits, Vegetables, and Salads are imported from foreign countries, though it is a well known fact that English-grown Fruits and Vegetables find the readiest sale and command the highest prices, proximity to the markets contributing greatly to the wholesomeness and consequent value of these articles. Whilst the demand for Market Garden produce is steadily on the increase, the cost of horticultural buildings is very much reduced.
The supply of the Metropolitan Markets with Fruit, Flowers, and Vegetables is an object peculiarly suited to the scope of a Joint Stock Company; and as the profits of this business are known to be very large, it cannot fail to be highly remunerative when backed by the capital of a Company. The facts above stated furnish the best evidence of the extended field which awaits the operations of the Company, and of the large returns which, with ordinary care and vigilance, may be confidently expected from the capital.
The scale on which the proposed operations will be carried on will make the Gardens an object of interest to the proprietary; and the proximity of the property to London will render it a favourite place of resort to those Shareholders who take an interest in high-class Gardening.
There will be no charges whatever for promotion, and the preliminary expenses up to and inclusive of registration will be on the most moderate scale.
If no Allotment of Shares be made to the applicant, the deposit will be returned in full.
Prospectuses and Forms of Application for Shares may be had of the Solicitors; or by sending the annexed Form to the Bankers of the Company with a remittance for the deposit.

FORM of APPLICATION for SHARES.
To the DIRECTORS of the ILFORD HORTICULTURAL and MARKET GARDEN COMPANY, LIMITED.
GENTLEMEN,—Having paid the sum of £ , being 10s. per Share on Shares, I request you to allot me Shares in the Ilford Horticultural and Market Garden Company, Limited; and I hereby agree to become a Member of the said Company, and to accept such Shares or any less number that may be allotted to me, and to execute the Articles of Association when required; and I request you to place my name on the Register of Members in respect of the Shares allotted to me.—I am, Gentlemen, your obedient Servant,
Name (in full) .....
Address (in full) .....
Profession (or Business) .....
Date .....

Seed Orders without Signatures.

MESSRS. SUTTON AND SONS have still on hand several ORDERS for SEEDS from Customers who have omitted to give either their Name or Address, so that it is impossible to ascertain to whom the goods should be sent.
Messrs. SUTTON, fearing that inconvenience must be experienced from this unavoidable delay, request their friends who do not receive their goods promptly to write.
Royal Berkshire Seed Establishment, Reading.

Seeds, Growth of 1864.

JOHN AND CHARLES LEE, SEEDSMEN to the QUEEN, beg respectfully to submit their NEW CATALOGUE for 1865 of KITCHEN GARDEN, FLOWER, and AGRICULTURAL SEEDS, containing Selections from the best Stocks at Home and Abroad, post free on application.
Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

ROBBERY from VALUABLE PLANTS.
TWENTY POUNDS REWARD.
On SATURDAY LAST, April 8, some person or persons STOLE from the Plant-houses of Messrs. E. G. HENDERSON & SON, Wellington Nursery, St. John's Wood, London, a Branch of the beautiful GERANIUM LUCY GRIEVE, and also a Branch of another new and beautiful Variety in the same section. As the stolen property will easily be recognised by any party acquainted with the kinds hitherto grown, and distinguished from all others by their exceedingly beautiful and distinctly coloured leaf-zones, this Notice is given as a Caution to deter from any clandestine offer of the goods at a future period, and Messrs. E. G. HENDERSON & SON hereby offer a Reward of £20 to any person who shall offer information to the above Establishment leading to the conviction of the guilty party. This Reward shall be held payable for the period of One Month from the present date, after which the sum of £10 will be given at any after period to any person offering the same information, as the plants will not be sold until 1866. As the house in which the plants are kept is generally kept locked, and the stolen portions having been wrenched and not cut off, it is believed they were immediately conveyed from the premises.
The Wellington Nursery, St. John's Wood, London.—April 15, 1865.

ACCLIMATISATION SOCIETY of GREAT BRITAIN.
3, Duke Street, Adelphi, London, W.C., April 10, 1865.
The COUNCIL of the Acclimatisation Society GIVE NOTICE, That, in accordance with No. 3 of the Society's Rules, they hereby SUMMON a SPECIAL GENERAL MEETING, to be held in the Council Room of the Royal Horticultural Society at South Kensington, on MONDAY, April 24, at 3 o'Clock P.M., to ELECT his Royal Highness the PRINCE of WALES as President of the Society, in the room of their late President, his Grace the DUKE of NEWCASTLE, deceased. By Order of the Council,
B. WATERHOUSE HAWKINS, Honorary Secretary.

Royal Pavilion, Brighton.
THE BRIGHTON and SUSSEX FLORICULTURAL and HORTICULTURAL SOCIETY will hold their SUMMER and AUTUMN EXHIBITIONS in the above splendid Rooms and Eastern Lawn, on the same grand scale as former years. SUMMER SHOW, WEDNESDAY and THURSDAY, June 28 and 29. The AUTUMN, WEDNESDAY and THURSDAY, September 13 and 14.
Schedules of Prizes to be had on application to the Secretary, 96, St. James's Street; or E. SPARY, Superintendent of Exhibitions, Queen's Graperies. By Order of the Committee,
Brighton, April 5. EDWD. CARPENTER, Secretary.

The Gardeners' Chronicle.
SATURDAY, APRIL 15, 1865.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY,	April	18	Royal Horticultural (Floral and Fruit Committee), at S. Kensington .. Noon
THURSDAY,	—	20	Linnean .. .. 8 P.M.
SATURDAY,	—	22	Royal Horticultural (Weekly Show), at South Kensington .. .. .. 2 P.M.

WE have received various communications with reference to the PINE STOVE AT KNOWSLEY, of which a description and section were given at p. 124, and upon which some further remarks by the writer of that description will be found at p. 341. Our correspondent "G. H.," prognosticates (p. 150) that the heating arrangements will be found defective, and not calculated to ripen Pine Apples in winter, adding that good Pines cannot be ripened without an atmospheric heat of 90°, and that the Knowsley house, with the pipes shown, would fail to keep up this amount of heat during five months of the year. It would take, he adds, nearly three times as many pipes, to ripen Pines from the end of November till May. With regard to the bottom-heat, he observes that the pipes are intended to send up moisture into the rubble and tan above, and so to the roots, which are not more than a foot above them; and he argues that this would be something like cooking Potatos by steam.

With regard to top-heat, taking the section of the house as represented, we may estimate that there are about 34 square feet of glass in each foot run; consequently as there are six pipes, each foot in length of the house has 6 feet of pipe. In other words, there are fully 6 square feet of surface of pipe to 34 square feet of glass, or upwards of 5½ square feet of glass for each square foot of surface of pipe. Now, if a heat of 90° were to be maintained solely by means of these six pipes, we do not think they would be sufficient at all times in winter. But there are eight pipes below the surface in the beds; and though it is difficult to say how much heat may be imparted by them to the atmosphere of the house, we may estimate that as much will be constantly given off as would arise from a surface of metal pipe, or any other substance equal to that of the area of the beds, and at their temperature—say between 80° and 90°. The surface of the beds is 1400 square feet, all but the area of the end paths opposite to them. This is more than double the surface of pipe for supplying atmospheric heat. The surface of the beds may not be quite half so hot as that of the pipes, but it is twice the area; and although it does not follow that the heating effect arising from their radiation will be in the same proportion, still unquestionably it must be very considerable, and must aid greatly in maintaining the temperature of the house.

As to the "four rows of pipes intended to keep sending up moisture into the rubble and tan above, and so to the roots," the writer of the article in which the house is described does not mention any such intention; he merely says the flow-pipes—for the *surface-heat*, be it observed—have large evaporating troughs. Hot-water pipes of themselves will not give out, nor keep sending up moisture. By their heat they will cause vapour to ascend from where it may exist amongst the rubble in which they are imbedded, and that vapour will be condensed on any surface colder than itself with which it may come in contact, and it will be absorbed by soil or other porous substances not already saturated. But if the heat is kept up, evaporation will still go on, and the roots of the plants will either ultimately become parched if moisture is not supplied, or if this is done, and the heat at the same time raised far above that which vegetation could bear, they will become "cooked." These extremes, however, can be easily avoided,—no more moisture need be given than the roots of the plants require, and no more heat than is necessary.

One correspondent thinks that eight pipes for bottom-heat, and only six for top-heat, is out of proportion. Mr. MEREDITH has had great experience, and must have been aware that fewer pipes would have been sufficient to give more bottom-heat than he could require; but he doubtless wished to avoid the cooking system, and therefore we suppose he has allowed a large amount of pipe in order that the desired quantity of bottom-heat may be obtained from a large surface without any part of it being heated much in excess of a safe temperature for the roots, or that which would not raise the heat of the soil about them above 90°—the temperature which "G. H." mentions with favour; but if it does not exceed this his Potatos would be long in cooking. It may be thought, however, that the heat from eight rows of pipes with less than a foot of clear space between them will so accumulate as to be adequate for any culinary purpose. But to wait for this would be like waiting by the side of a river till all the water should have run past, before attempting to cross; for the water, though constantly passing, would be as constantly coming on. So with respect to the supposed accumulation of heat from the pipes; it would be constantly generated, but it would also be as constantly dispersed.

As, however, no portion of heat can possibly be lost, it may fairly be asked—what would become of it? At least, we may be certain that in this case it must pass in continuous succession from one adjoining particle to another till it reaches the surface of the soil, and from the soil it must pass into the atmosphere of the house, and thus assist in maintaining the temperature of the latter. By this diffusion of heat the soil is prevented from becoming over-heated, whilst at the same time the exposed pipes are assisted in adequately maintaining the atmospheric temperature. That they would do so without the heat radiating from the beds, we however think needs confirmation. On the average, perhaps, they would, but in the case of sudden and severe frosts probably more pipes would be necessary; and this is exactly what "J. A." suggested.

Another correspondent, (p. 293) urges that the finer materials placed over rubble in which such pipes are imbedded, would resist the steam or vapour raised by the pipes, and that the plants would consequently at length suffer from dryness; but he is certainly wrong in inferring that these finer materials would resist the steam in a similar manner to that in which a DAVY lamp resists the ingress of carburetted hydrogen, or fire-damp. For a DAVY lamp does not prevent the ingress of carburetted hydrogen. On the contrary, the wire gauze covering of the lamp permits the ingress of the gas, and permits the same to be burned; but the flame is so much cooled on coming in contact with the wire that before it can pass outward it is extinguished, and consequently cannot ignite the carburetted hydrogen outside.

—— WE have more than once had occasion to mention Mr. BULL's strain of Mimuluses, obtained by a lucky cross between M. cupreus and one of the garden varieties which were formerly much grown, which show an infinite variety in the spotting and speckling of their beautiful flowers, whence they have acquired the name of maculosus. We have now to notice another perfectl

new strain from the same source, a veritable DUPLEX MONKEY-FLOWER, a thorough hose-in-hose, as though the calyx, justifying the name, had taken to mimicking the corolla. This remarkable curiosity is to be sent out in the course of the spring. In the samples before us, showing some three or four different styles of spotting, the corolla exactly resembles some of the forms commonly known in gardens as Mimulus maculosus, alluded to above, but instead of the calyx being of its usual form and green colour, this organ is converted into a coloured body, almost exactly like the corolla in size and form, and like it brightly coloured and handsomely spotted.

Of course, looking at the Mimulus as a florist's flower, this new feature is a defect, inasmuch as it interferes with the 'properties' which are required to constitute a perfect flower; but regarding it as a decorative plant, it is a very great advantage. No one can doubt or dispute the beauty of some of the fine varieties of Mimulus, but the defect of the plant from a garden point of view is, that the flowers drop too soon: the beauty is not enduring. Now, leaving out of question altogether the fact that here the ornamental part of the plant is at once doubled in quantity, there remains the very important fact that be the corolla ever so fleeting or evanescent, when it falls the plant to all intents and purposes still remains in flower. The calyx is virtually itself a flower, as far as ornament is concerned, and this part does not fall like the corolla, but lasts as long as its substance will endure. We are informed that this new strain, which may be distinguished as the DUPLEX MIMULUS, has sprung from Mimulus maculosus, which it quite resembles in its colour and markings. Its great merit is that the flowers, as represented by the outer of the two floral whorls, remain persistent for a period hitherto unknown amongst Mimuluses.

—— The CHALLENGE which has been given by the Royal Horticultural Society to the gardens of the Sovereigns of Europe, for a COMPETITIVE EXHIBITION of Fruit and Vegetables, has, we are informed, been already favourably received by France, Russia, Italy, Turkey, Hanover, Greece, Belgium, &c. The competition is to take place at the International Fruit Show, which is fixed to commence on the 9th of December. On this occasion, besides the Gold Medal for the best collection of Fruit and Vegetables produced in the garden of a Sovereign, Gold Medals are also offered for the best collection of Fruit and Vegetables grown by any Botanic or Horticultural Society in any part of the world; for the best and most complete representative collection of Fruit and Vegetables from any of the Colonies; and for the best and most complete representative collection from the Presidencies of India; while Certificates exchangeable for Medals are to be given for separate exhibitions of Fruits and Vegetables, either fresh or preserved, from all parts of the world. This should produce something of interest.

—— According to the *Building News*, Mr. MORRIS, the architect, has proposed to the authorities to try TERRACE GARDENING in TRAFALGAR SQUARE. He advocates the formation of a new terrace to the south of the Nelson Column, the central space being diversified by the introduction of suitable plants, shrubs, and low-growing trees, and the portion about the fountains, now the peculiar gymnasium of vagrant urchins, being, if necessary, laid a foot or so under water. Portable trees, such as adorn the walks of the Tuileries, would be placed on the Pall Mall Terrace, as well as within the enclosed areas of the National Gallery. The effect, observes our contemporary, would be altogether unlike anything which London yet offers, and, although not a single foot of soil would be laid bare, the works of architecture and sculpture would be relieved and harmonised by the presence of horticulture. There is no great horticultural obstacle to this introduction of terrace gardening for the people, but the trees must be portable, and will need a reasonable amount of care and skill to keep them respectable; moreover, effective plants will be costly. Certainly the site stands in need of improvement.

—— M. SISMUNDA has found on a fragment of a boulder of gneiss in the Turin Museum, the imprint of an Equisetum, which M. BRONGNIART has determined to be a new species, Equisetum Sismondæ, nearly allied to the E. infundibuliforme of the coal formation. By this new fact, observes a writer in the *Reader*, the scientific importance of plant evidence, though not diminished, has changed its venue; for, instead of indicating a determinate geological epoch, it shows that in spite of geological catastrophes which have taken place since the coal period, the climatic conditions proper for plant-life have been perpetuated in the localities whence such evidence is derived.

—— Some of our correspondents have latterly directed attention to the necessity for the cultivation of young ORCHARD TREES, as distinguished from the haphazard mode of planting and leaving them to their fate. The idea finds an echo across the Atlantic. Even in fertile America, as we learn from the *Cultivator*, there is found to exist a very decided difference between the Orchards that have, in this sense, been cultivated, and those that are sown down in Grass. The observant traveller is speedily convinced that it is necessary to pay some regard to management, in order to get a thrifty vigorous growth. Here is one example, in which the garden is beside the Orchard. The trees are a dozen years old, and the land is kept highly manured in both cases. Those in the garden bear liberally, while those in the Orchard, which is in Grass, and the trees themselves not half the size of the others, give very little fruit. Those growing in the Grass look sickly and half dead, while those in the garden look healthy and thrifty. Again, two Orchards, not 80 rods apart, belong to two neighbours. One is thrifty and vigorous, giving liberal crops of fruit; the other looks half starved and stunted, and many trees are dying. When examined it is found that the former has been kept cultivated; while the latter has been sown down to Grass. The conclusion drawn from these examples, is that a young Orchard needs cultivation just as much as a field of corn or a crop of vegetables.

—— In a memoir on the CULTIVATION of the CARNATION, contained in *La Belgique Horticole* for Jan. 1864, accompanied by an extremely beautiful chromo-lithographic plate, the following statement is copied from *Le Bulletin de la Société du Cantal*, 1846, as a means to ascertain beforehand what seedling plants are likely to prove double, a matter of some importance, as the young seedlings require considerable care, and it is therefore unadvisable to keep those which will prove single or merely semi-double:—"The young plants," it is said, "which show at first only a single leaf, yield single flowers; those which show two, semi-double flowers; and finally, those which develope at the time of germination four leaves, have double flowers." This statement is reproduced, without confirmation, however, by M. SERINGE, and is probably unfounded. It would be a matter of interest if some raiser of seedling Carnations would ascertain the truth or falsehood of the statement, and report accordingly. *M. J. B.*

A NOVEL PLAN OF FORMING VINE BORDERS.

ALTHOUGH good Grapes are grown in all parts of the country, still instances of failure occur; and even if that were not the case, many people every year erect Vineries and commence Vine growing, and such persons are anxious to obtain information to guide them in the formation of their Vine borders, and in other points connected with the management of Vines. Therefore, I presume that contributions containing practical suggestions from those who have had some experience in gardening will still be in a measure acceptable, even if well-known facts are recapitulated.

In almost every situation in this country it is advisable to prevent the deep penetration of the roots of Vines into the subsoil, by forming in the first case a floor or concreted bottom to the Vine border, and building up the materials composing the border upon it. This precaution is imperatively necessary when the subsoil consists of clay, and if not equally so in light or rocky soils, is nevertheless very much to be recommended. I am speaking more particularly of borders outside the Vineries; and the suggestion I wish to make to those who have borders still to construct, is to deviate a little from the commonly observed procedure of flat even paving, and to make them in the manner of steps, so that the irregularity

of the bottom of the border will give different depths to it, an advantage which I shall presently explain.

Trees in a wild state distribute their roots in the soil in which they grow so as to reach all the available nutriment of the space about them. Some roots generally penetrate deeply into the earth, and others spread and ramify throughout the richest soil of the surface. These surface roots experiencing the warmth of spring before those which have gone deeper into the earth, send the first flush of sap to the opening buds. The roots in a Vine border of uniform depth, say of 2 feet, are equally and immediately influenced by external heat, whether of the sun or by artificial means, and there is a simultaneous root action, and in consequence a more rapid growth than is necessary in the early stage of growth of the Vines, and a falling off in the supply of sap when it is most required by the fruit. An even shallow border is open to other objections, as it is liable to be dried up during a hot and arid season—as many gardeners during the last two seasons can sufficiently testify.

I once had the opportunity of seeing the manner of growth of Vines in a Vineyard in France. An excavation in the rocky soil on which the Vines grew showed a certain number of surface roots spreading through the superficial surface soil, and others were seen penetrating the disrupted strata even to the depth of 6 feet. Remembering this, in the last Vine border I made, I gave an irregular depth to it by forming, in the manner above mentioned, the bottom of a series of steps, and giving the whole border increased depth. I also employed a large quantity of stone in blocks immediately over the concreted bottom of the border, and distributed pipe-tiles throughout the rubble. I desired, as will be seen, to have by this arrangement two sets of roots—those amongst the stones and angles of the steps, and beyond the first vivifying warmth of spring, lying ready as an army of reserve to pour up a supply of sap at the stoning period; and the smaller and more numerous rootlets spreading through the surface soil of the border, ready to be affected by the warmth of spring.

As I have before remarked, it is never advisable here to let the roots of Vines penetrate deeply into the subsoil, although in sunny France Vines send their feeding roots uncontrolled very deep into the ground or rock. We in this country have less heat and more moisture, and my experience of deeply penetrating roots is that they gradually perish, and that shanking of the berries ensues. But a modified application of the lesson I gained from the wild Vines has in my case resulted so well, that I give the suggestion to your readers. *Wm. Ingram, Belvoir.*

DOUBLE-GLAZING.*

THE advantages of double-glazing are at least fourfold, but before proceeding to describe them it may be well to state in what the principle of double-glazing consists. 1. There must be a double glass roof; and double sides will carry out the principle more completely. 2. It is absolutely necessary that the space between the two glass roofs should be air tight, as it then encloses a body of air which becomes a non-conductor of heat or cold.

The roof is constructed with ordinary wooden rafters 4 feet apart, with three light iron sashes between. The inner glass is common 21-oz. per foot. It is put in about 1 inch from the under sides of the rafter, so that the rafter being about 6 inches in depth, 5 inches of the rafter is outside the inner glass. On these projecting rafters the outer roof rests. The outer roof consists of simple framed sashes 4 feet wide, which for the convenience of moving are made in two lengths. They are glazed with the same kind of glass as the sides, viz., the fine ribbed glass called Hartley's rough plate. These simple sashes are fixed on the rafters by screw bolts, so as to be easily removable.

Thus the inner and outer glass is from 5 to 6 inches apart. The distance is not important; either 4 or 6 inches will do, but it is of the utmost importance that the glass should fit closely, so that there should be no circulation of air between. The glass is carried up to within one foot of the top of the ridge, which foot is fitted with wooden shutters for ventilation. The Fernhouse is 48 feet long, 60 feet wide, and 21 feet high. Two rows of 4-inch pipe are sufficient to heat all this large body of air.

The advantages of double-glazing are these:—

1. It prevents any excess of heat by day. In hot summers the heat has never gone up higher than 70°, while with a single roof any one hot morning would have run it up to 85° or 100°.

2. It is a great protection from cold by night. The cubic contents of the house is 46,000 feet. The heating power is only 430 feet of 4-inch pipe, or about 1 foot of pipe to every 100 cubic feet of air. This quantity of pipe in a single-roofed house would only just keep the frost out, but with the double roof the temperature rarely goes down below 48°. The estimate shows a gain of 14° of heat. The loss of heat is very slow in cold weather. It would take three nights of severe frost to bring the heat down from 52° to 48°, and 36 hours to cause the same reduction were the fires to go out entirely. With a single roof this reduction would take place in six hours. It is a great comfort to know that if the fire was neglected or an accident happened to the boiler, the plants would receive no damage.

3. It prevents the aridity consequent upon radiation and condensation in bright cold weather either by day or night. In ordinary houses, where moisture forms a requisite of good plant growing, no matter how freely we use the syringe in the evening, we find the house dry in the morning, arising from the great condensation of moisture on the roof, which moisture runs off when thus condensed. With a double roof there is very little condensation on the roof, the blanket of non-conducting air between the two roofs of glass preventing it, and consequently, as the air cools down a little in the night, the condensation takes place on the plants themselves, exactly according to nature. The plants in the Orchid-house, which has a double roof and sides, are in the morning beautifully covered with dew, like a plot of Cabbages on a May morning. Is not this the perfection of plant-growing? There is another fact connected with non-radiation of great importance in plant-growing. This is the curious fact that there is a steady uniform increase of temperature in the house according as we ascend from the floor to the roof, day and night. Thus in the Fern-house hardy Ferns and temperate plants grow below, while tropical Ferns, plants, and Palms grow near the roof. In ordinary houses we remove tender plants from near the glass in severe weather, but in this double-roofed Fern-house the nearer they are placed to the glass the warmer they are. The saving of fuel is 20 per cent. per annum, so that the extra cost of the double roof is soon paid for in fuel alone; but this is a trifle compared to the enhanced value of the plants grown in a double-roofed house. The effect is astonishing, and would surprise plant growers in general. Caution is needful not to give so much water as is done in single-roofed houses.

* A resumé of the descriptions of the double-glazed houses of Thomas Bewley, Esq., of Dublin, read at the Congress of Botanists and Horticulturists at Amsterdam, April, 1865.

4. It secures the almost total cessation of annoyance from insects. Formerly these pests abounded, now they rarely appear, and when they do so they are few in number and are easily got rid of. From this fact it may be inferred that when plants are grown in a condition of atmosphere favourable to perfect health, they are but little liable to attacks by insects, which often spoil their beauty.

A remarkable instance of the value of double roofs to stoves and Orchid-houses occurred in January, 1864. There occurred four days and nights of hard frost, the thermometer not rising to 32° by day, and falling to 18° at night. Just as the frost began an accident happened to the heating apparatus, and all the water ran out of the pipes, and the accident could not be repaired until after the 3d night of frost. The temperature was about 56° in the morning when the fire was discontinued; after 24 hours the reduction of heat was only 3°; the following morning, or after 48 hours, only 3° more; and in the 3d night 2° more were lost; thus making a reduction of only 8°, from 56° to 48°, in 72 hours. Nothing was injured! a striking proof of the value of double-glazing, for without it every plant would have been frozen, and the loss would have been immense. With double-glazing, gardeners and employers may in severe weather sleep in peace.

Another year's experience has fully confirmed all the advantages before narrated. A market gardener at Colney Hatch has grown Early Cucumbers for Covent Garden with great success, and with saving of fuel. The plan has long been in use in Russia. I will conclude by inquiring whether in other countries on the Continent the system has had a fair trial, and with what results? *Robert Warner, Broomfield.*

Home Correspondence.

The Knowsley Pine Stove.—One word with reference to the practical question of heating, raised by my remarks on the Pine Stove at Knowsley. Many of your correspondents seem to be totally unacquainted with the principles of heating, and "G. H.," who set the ball rolling, among the number. A glance at the woodcut will show that the pipes which supply bottom-heat are at a lower level than the flow pipes which furnish surface-heat; and, as is well known, particles of water after they become heated rise to the highest point, consequently the flow pipes that furnish atmospheric heat will be giving off nearly a third more heat than the same surface at the low level. This heat finds its way into the atmosphere unimpeded, and the large evaporating troughs that are fixed to these pipes are valuable auxiliaries for raising the temperature. I said in my report (p. 125) that "the addition of two pipes more for surface-heat would more evenly balance the bottom-heat." And so in all probability it might; but when we consider the certain drawback of heating power occasioned by the position of bottom-heat pipes, I am not sure but that the whole plan as it stands is well conceived and carried out. The "cooking" process spoken of is a simple absurdity, for in the first place the pipes are at least 30 inches from the roots of the plants, as any one can see for himself, and the heat is dispersed first by the rubble, then by the compact tan and leaves, so that although there were such a possibility as raising the water to the boiling point, the non-conducting material would defy "cooking." Once more, bottom-heat should be from 5° to 10° higher than surface-heat for successful Pine culture, and reasoning by analogy, this bed, unless supplied with fermenting material to assist the bottom heat, would never be more. We all know very well that during summer the Pine requires a surface temperature of 90° to finish up the fruit and develop the flavour; but we also know that no successful cultivator of Pines subjects his fruiting house to a temperature of 90° at any time during the five months that "G. H." alludes to; and that to do so in a house of such an extent as the woodcut and description represents, where there will always be more or less succession plants introduced, would be absolute madness, certain to produce results of the most lamentable kind. The practical success of the scheme was amply testified by results as recorded in the notice alluded to, and would have satisfied ordinary minds; but I may add that Mr. Freeman writes: "Nothing could be further from the truth than 'G. H.'s' statement. I have 60 Pines to cut now (March 4) before the end of May, although we only grow one variety in quantity." The interest which your readers have taken in the question must be my apology for again referring to the matter. *J. A.*

Bye-laws of the Royal Horticultural Society.—Since the publication of the revised bye-laws of this Society I have been expecting that some one would call your attention to clause 76, which reads thus:—"No member of the Council shall, at any exhibition of the Society, receive any money prize, medal, or pecuniary reward of any description, in respect of any plant or other article belonging to him, or to any firm of which he is a member, or in the profits of which he is interested." There is no doubt the gentlemen who revised these bye-laws had in view similar laws, which are in force, in the case of directors of public companies, but the case of the Horticultural Society is totally different. As I read this bye-law, it virtually excludes from exhibiting any spirited member of the Council who may wish to do so. It also excludes from the Council our great business nurserymen, who are now all exhibitors; and also all gardeners, who mostly bring something or other to these exhibitions in the course of the season. This may not be any serious loss in the case of the latter, as they can seldom be of much use on the Council; but it is far otherwise with the gentlemen and nurserymen. It must be a love of horticultural pursuits that in most instances recommends a gentleman to this post; and if he pleases to go to the expense of growing plants for purposes of exhibition, they do not come under the head of goods supplied to the company; they come to be judged by independent men, and if they are fortunate enough to get a prize, it would not repay the outlay. In many instances this prize goes to the gardener, he bearing the expenses of the transit! and I should like to know if it ever repays him for the anxiety, labour, and outlay, unless he is very near the place of exhibition. This is of small importance to the gentleman, who can carry his plants elsewhere now-a-days, but he is naturally more pleased to see them, and point them out to his friends, at the Society of which he is an acting member. I am of opinion that this bye-law is directly antagonistic to the interests of the Society. *J. Fleming, Cliveden.* [It is no doubt a bad law, for its effect must be to keep away either good plants or good men.]

Oxalis Boweana.—I enclose an unusual-sized tuber, if such it may be called, found upon Oxalis Boweana, which I met with whilst upon a visit to Mr. Fitt, gr. to W. Wilshire, Esq., The Frythe. The tuber enclosed is but one of many formed upon an ordinarily grown specimen in a 32-pot, many of them being larger than the one enclosed, and the whole forming a mass at the bottom of the pot as large as one's fist. They have forced the whole ball up some 2 inches above the rim of the pot. The only cause for this growth, as far as could be ascertained, was this—that the pots were placed in pans, filled with water. Will these tubers produce next season, plants in strength proportionate to their size? Or are they, as their very aqueous appearance would suggest, simply reservoirs of nutriment, a provision of Nature afforded for the support of the plants in a season of dearth? *W. Earley, Digswell.* [The roots are quite similar in character to those of O. Deppei, which has been sometimes cultivated as an esculent, only they are much smaller. See Transactions of Horticultural Society, second series, iii. 31. They are merely fleshy roots, not fit for planting, for which purpose the bulbs formed round the crown should be used, and these should be planted shallow. With good culture this sort might perhaps be as productive as O. Deppei.]

Abies Douglasii.—Several years ago I planted at Boynton three or four plants of this Fir, grown from layers, which I bought at Messrs. Loddiges' nursery. They will be 20 feet high or more. I have not seen them very lately, but they have had a true leader for many years, and the upper half of them all is as symmetrical, or very nearly so, as that of a seedling would be, but for 6 or 7 feet from the ground they still show the one-sided character of a plant raised from a cutting. I have not the least doubt that like other Firs nearly allied to them they would have thrown up true leaders from near the ground if they had been bent down when young. *C. W. Strickland.*

Foreign Correspondence.

Exhibition of the Société Royale Néerlandaise pour l'Encouragement de l'Horticulture.—The "Exposition Universelle" of this Society was opened at Amsterdam on yesterday week. The arrangements were much the same as those at the Brussels Exhibition of last year, of which a full account was given at p. 412 of our volume for 1864, the various collections being broken up as soon as the judging had been completed, and distributed with a view to producing the best effect, by which means both Belgium and Holland, with their limited materials, are enabled to produce far better shows as regards effect than we do in England with our grand exhibition plants in almost unlimited quantities. The present show was exceedingly good in many of its features, especially in the interesting departments of Floral Decorations, Camellias, and New Plants, the latter being well represented from the establishments of Messrs. Linden, of Brussels; Messrs. A. Verschaffelt and J. Verschaffelt, of Ghent; Messrs. Groenewegen & Co., of Amsterdam; and Mr. Veitch, of Chelsea.

The show took place in the Palais de l'Industrie, a fine building of iron and glass, apparently put up in a first-rate manner, a good modification on a smaller scale of the Palace at Sydenham. The chief faults of the building, as a place for exhibition, are the narrow-stepped and too upright staircases leading to the galleries, which are both tiring and dangerous—strong objections at any time, but especially when, as was the case in this instance, there is a crowded company. The building has four entrances, a transept with a large central dome, and an arched nave extending from the dome in opposite directions. It is neatly ornamented on the outside, and the inside has a very good appearance. There is one gallery ranging all round the building, and two in the dome. The effect, looking down from these galleries on the top of the plants, was very charming, the whole plan of the arrangement being brought at once before the eye. A more lovely sight indeed than that presented to view, in the dark shining green of the Palm leaves, the graceful airiness of the Tree Fern fronds, and the characteristic elegance of the Dracænas and such like plants, intermingled and enlivened as they were with flowers of all hues, can hardly be imagined. It was like a scene in Fairyland, and well repaid the journey from England. Besides this principal area, there were two large rooms filled with plants, and arranged with admirable effect. On Friday, the opening day, carriages with the *élite* of the land thronged to the gathering; and on Saturday, when it was open to the public early in the morning, it was crowded throughout the day. It was gratifying to see the people of Holland taking so deep an interest in a horticultural show, but then it is to be remembered that the Dutch were always patrons—and not patrons only, but practisers of advanced gardening. The show continued open up to Wednesday last; and it is but just to state that everything about it was well planned and well carried out. The managers must have been gratified to see the manner in which their invitation was met, both as regards company and plants. Some of the collections had, indeed, come hundreds of miles; and it was surprising to see how little they were injured from travelling, except in the case of a few of the Orchids which were damaged by cold. The entries amounted to over 800, and they were well varied, nearly all the classes of tender as well as hardy plants and flowers being filled.

Though glass houses are what we should call somewhat scarce in Holland, there is no doubt that plants are well grown there. Some of the Epacrises, Pimeleas, and others were as well cultivated as we have ever seen them, and the flowers were finely coloured. Ferns and Palms are also exceedingly well grown, and we saw some good Orchids, and Orange trees well covered with fruit. Some of the Oranges were, however, grown on flat trellises, such as we use for Peaches, which we think is bad taste, as the Orange forms so much more beautiful a tree when grown with a bushy head.

We have already mentioned that, as was the case at Brussels last year, the whole of the plants were re-arranged after the awards had been made. This seems to be the custom at the great continental shows, one day being taken for the purpose before the company is admitted; and it is surprising what an effect is produced from the variety of subjects at command—surprising, indeed, as contrasted with the stiff formality of our English shows, from which, though it has nearly ruined them, the managers seem afraid to diverge.

At Amsterdam the floor of the principal area was laid out with broad turf edgings like a geometrical garden, with beds of earth for the pots to stand on, small edgings of wood around each bed, and good broad paths of some 14 feet wide, so that the company could promenade at ease. On entering the transept, there appeared a group of standard Bays on each side, intermixed with Agaves, Dracænas, Orange trees, &c. In the midst was a large circular bed with foliage and flowering plants, tolerably well arranged, except that the centre was too stiff, and should have been occupied by a fine Palm which was standing close by. Around this were ranged flowering plants, such as clumps of Roses, Camellias, and Azaleas, well grown, and affording a good variety of colour. Acacias also were usefully introduced as regards colour. Dwarf Ferns were grouped between the flowers, variety being secured by two fine specimens of the green-leaved Encephalartos Altensteinii, a fine specimen of the Tree Fern Dicksonia antarctica, and a splendid Fan Palm. These princely plants were arranged on pedestals, and greatly enhanced the effect produced by the charming colours of the Roses and Azaleas—the two latter good for so early in the season. At the end of the transept was a noble Palm, Phœnix dactylifera, the finest plant we ever saw, and on each side were many other fine-foliage plants, fringed with the graceful foliage and showy yellow flowers of Acacias, and in front of these a fine display of Azaleas. There were also standard Orange trees, and two fine Tree Ferns, Cyathea excelsa, and Cibotium Schiedei with its graceful light-green fronds.

To the right of the transept was a broad walk, with fountain, the sides tastefully laid out in beds filled with flowers and foliage plants. At the two ends were fine groups of Azaleas, and on each side Agaves, Ferns, &c., divided by four Dracænas about 5 feet high clothed to the pot with foliage, two of them indivisa, the others lineata and Veitchii. Next, a broad walk round the fountain, and fine groups of Ferns, with Cibotium princeps and Schiedei, two of the most graceful of the race, set on pedestals at the back, while in front was a fine plant of Platycerium grande in first-rate health, the stag's-horn fronds of which proved a great attraction to the visitors. On the opposite side was a grand specimen of the rare Alsophila contaminans (glauca), one of the finest of Tree Ferns from its feathery graceful habit; and along with it Angiopteris evecta, Cibotium Schiedei and Cyathea excelsa, another splendid plant of Platycerium grande being placed in front. On either side of this bank of Ferns were showy flowering plants backed up by Palms, Banksias, &c., with Acacias and Camellias in front. Then came a fine collection of Agaves, Aloes, Yuccas, Dracænas, &c., the most conspicuous being Agave filifera major, univittata, and schidigera, Dracæna indivisa, and Yucca quadricolor and variegata. On this side came another group of flowering plants, amongst which Rhododendrons were conspicuous. These were backed up with Tree Ferns and other foliage plants. On the other side was a fine collection of Palms, containing Seaforthia robusta, a

fine Latania Verschaffeltii, Areca Verschaffeltii, and a grand Latania borbonica, one of the most noble in its class, which looked well towering over the other kinds. In front of these were some good double white and red Camellias; Mathotiana alba was the finest in the exhibition, the flowers of large size and of good form; Mathotiana, was one of the finest reds; and Jenny Lind also was very fine. Epacrises were a conspicuous feature of the show. At the end of the building was a fine well-arranged collection of Coniferæ, with Araucaria excelsa as a centre. On one side of it was a collection of well-bloomed Rhododendrons, giving a fine display of colour; on the other some good Camellias, Boronias, Pimeleas, &c., and in front a grand collection of Agaves.

To the left of the Transept the space was laid out with walks, fountain, and groups of plants in a similar way, but the kinds of plants were varied. Amongst them were Cyathea dealbata, with its silvery fronds; some fine Standard Laurustinus in bloom; specimens of Variegated Orange; some splendid plants of the Myrtle-leaved Orange laden with fruit; Agave filifera longifolia and Parmentieri, with their handsome thread-edged leaves; Cordyline indivisa; some beautiful collections of Epacris with fine spikes of finely-coloured flowers, admirable plants for exhibition on account of the variety of their colours; Cycas revoluta and circinalis; Dion edule; Agave dealbata; a very fine Beaucarnea glauca; Yucca aloifolia variegata, which looked well amongst the green-leaved plants; Pandanus utilis, and a good collection of Cyclamens.

At the back of these were ranged the Hyacinths, the whole length of this part of the nave, raised up at the back and the pots hidden with moss. In front of these was a broad walk, and then a splendid row of well-grown Orange trees in fruit. On the other side of the building was a similar bank of Tulips, Narcissi, and other bulbs, which made a fine display. The bulbs, however, were not grown so well as we see them produced in London, the flowers not being so finely developed. The climate may have something to do with this, the winter being longer and colder, and the climate damp, which makes them naturally later, and we know that forcing is not good for them. There was not one good new Hyacinth except King of the Blues, which is a grand variety, producing bold spikes of fine colour. The collections consisted nearly of the same kinds as those we are accustomed to see shown in London.

The galleries were filled on the sides with groups of Begonias, Cacti, Cinerarias, bulbs of all kinds, Tree Violets, and some handsome Fritillarias, with their drooping bell-shaped spotted flowers. These we ought to encourage more than we do at home, for they are very handsome spring-flowering plants. There was also Lilium Brownii, a charming species with its large white flowers. Here, too, was placed a group of Ardisia crenulata, clothed with shining deep green leaves, laden with coral-red berries, and having a very fine appearance. There was a large collection of Primulas, the double kinds good, but the singles very poor, being plain flowers deficient in colour. There were some good collections of hardy variegated plants, and also a collection of Ivies. In the centre were placed the Vegetables and Fruit; the former consisting of Peas, French Beans, young Carrots, Broccoli, Seakale, Lettuces, Radishes, &c. The fruit contained nothing of particular merit. There was a good assortment of Apples and Pears; very bad Grapes; Strawberries in pots, but indifferently grown; fruiting Pines in pots, but none good; and Vines in pots, but like the rest badly managed, and the fruit quite green. There seemed to be wanting some lessons on the culture of Fruits in pots. *W.*

To this account we may add some further particulars from the prize list, reserving a few comments on some of the special subjects of exhibition, for another occasion:—

12 New Plants introduced by the Exhibitor and not in commerce:—1st Prize, M. Linden, Brussels, for Anthurium magnificum, Aralia furfuracea, Aralia Mitsde fol. variegatis, Dioscorea Anœctochilus, Echites rubro-venosa, Echites variegata, Franciscea Lindeniana, Maranta roseo-picta, Maranta eburnea, Rhopala aurea, Urospatha maculata, and Urospatha marmorea. 2d Prize, Mr. Veitch, Chelsea, for Maranta Veitchii, Dracæna sp., Schismatoglottis sp., Sonerila sp., Bertolonia pubescens, Lycopodium sp., Melastoma sp., Dieffenbachia sp., Urceolina aurea, Polystichum sp, Gesnera sp.; Rhododendrons Princess Alexandra and Princess Helena. and Eranthemum sp.

25 New Plants introduced to Europe since January 1, 1864: 1st, M. Linden, for Alocasia singaporensis, Anthurium magnificum, Aralia lepidota, Coccocypselum metallicum, Cocos elegantissima. Crescentia Liboniana, Cyanophyllum glaucovirens, Dimorphanthus mandschuricus, Encholirion Liboni, Gesnereæ nov., Mappa fastuosa, Magnolia sp.; Maranta amabilis, picturata, Wallisi, and roseo-picta; Meliosma nobilis, Rhopala aurea and elegantissima, Rogiera gratissima, Rhaphis flabelliformis fol. variegatis, Saurauja sarapiquensis, Sphærogyne cinnamomea, Urospatha aureo-reticulata, Cissus amazonica. 2d, M. A. Verschaffelt, Ghent, for Verschaffeltia splendida, Peperomia arifolia, Achyranthes Verschaffeltii, Pandanus ornatus, Zamia grandis, Zalacca Wagneri, Ardisia japonica picta; Acer sanguineum, Freiderici Gulielmi, jucundum, and amabile; Agave Verschaffeltii 3 varieties, Yucca hystrix, Aralia Sieboldii fol. reticulatis, Rhopala interrupta and nitida, Eranthemum sanguinolentum, Asplenium feruleceum, Anthurium grande, Maranta striata, Anthurium Scherzerianum, Phrynium Vanden Heckei, Dieffenbachia Baraquiniana.

6 New Plants introduced to Europe by the Exhibitor: 1st and 2d, MM. Groenewegen & Co., Amsterdam, for Syphonium divaricatum, Cycas pectinata, Pandanophyllum humile, Aglaonema oblongifolium fol. var., Phyllagathis rotundifolia, Jambosa magnifica, Nephelaphyllum tenuifolium, Medinilla farinosa, Ardisia pumila, Anœctochilus sp, Horsfieldia aculeata, Climacandra obovata.

Plant in flower, newly introduced, and not in commerce: 1st, M. Glijm, Utrecht, for Tillandsia dianthoidea. Plant not in flower, newly introduced, and not in commerce: 1st, M. Witte, Leyden, for Cyrtandra bicolor; 2d, Mr. Veitch, for Maranta Veitchii.

Plant in Flower (Orchid excepted), the most remarkable for good cultivation: 1st, M. Van den Bossche, Ghent, for Azalea indica rubra plena; 2d, M. A. Van Geert, Ghent, for Rhododendron Countess of Haddington. Plant not in flower, the most remarkable for good cultivation: 1st, Madame Legrelle d'Hanis, for Theophrasta imperialis; 2d, M. Smit, Overveen, for Isopogon anthemifolius.

20 Plants of Ornament, large specimens: 1st, Baron Osy, for Alsophila australis, Cyathea dealbata, Araucaria Bidwillii, Philodendron longifolium, Latania borbonica, Areca Verschaffeltii, Pandanus cuspidatus and elegantissimus, Dracæna umbraculifera and indivisa, Zamia Lehmanni, Beaucarnea glauca, Dasylirion viride latifolium and glaucophyllum, Bonapartea hystrix; Agave Salmiana, filifera latifolia, and dealbata; Yucca quadricolor and californica; 2d, M. Smit. This collection contained several Banksias and other Proteaceous plants.

The most complete Collection of Officinal Plants: 1st, M. Witte, for a collection of upwards of 200 species; 2d, M. Van Hulle, Ghent, for a collection of 50 species, of a much rarer character however than those which gained the 1st prize.

15 Exotic Orchids in flower: 1st, M. Linden, for a group including Vanda Cathcartii and four other Vandas, Ada aurantiaca, &c. 10 Exotic Orchids: 1st, M. A. Verschaffelt, who showed Cypripedium villosum and hirsutissimum. The best Orchid in flower: 1st, Baron de Cannart d'Hamale, for Cypripedium villosum,

15 Palms, large specimens: 1st, Mr. A. Verschaffelt, for Latania Jenkinsii, borbonica, and Verschaffeltii; Brahea nitida, Chamærops stauracantha, Livistona Hoogendorpii, Oreodoxa Sanchona, Areca speciosa and Verschaffeltii, Seaforthia robusta, Caryota excelsa and Rumphii, Thrinax grandis, Wallichia caryotoides, and Jubæa spectabilis; 2d, M. Glijm. 6 New Palms: 1st, M. A. Verschaffelt for Latania Verschaffeltii, Pinanga maculata, Calamus Impératrice Marie, Phœnicophorium sechellarum, Verschaffeltia splendida, and Areca Verschaffeltii; 2d, to the same. for a collection containing Calamus Verschaffeltii, Zalacca Wagneri, and Latania glaucophylla. The finest large Palm: 1st, Baronnesse Sixma van Heemstra, for Phœnix dactylifera; 2d, M. Geibner, Planitz, for Klopstockia cerifera.

6 Cycads: 1st, M. A. Verschaffelt for Cycas Riuminiana, Dion edule, Zamia Lehmanni, villosa, Caffra, and Altensteinii; 2d, M. Glijm.

25 Ferns: 1st, M. Willink, Amsterdam; 2d, M. Witte. 12 New Ferns: 1st, M. Linden, for Alsophila aquatica, denticulata and gigantea; Asplenium alatum, membranaceum, myriophyllum, philippense, and rachirhizon; Diplazium sp., Doryopteris Alcyonis and nobilis, and Lomaria gibba. 6 Tree Ferns: M. Willink. The finest Tree Fern: 1st, M. A. Verschaffelt, for Cyathea dealbata.

12 New Azalea indica: 1st and 2nd, M. Dom. Vervaene père, for Madame Dom. Vervaene, Dom. Vervaene, Coloris nova, Madame de Cannart d'Hamale, Guillaume 1, Gloire avant tous, Honneur de Gand, La Déesse, Incomparable, Etna, Souvenir de Meyerbeer, Honneur d'Hollande, Coquette de Gand, Princesse Mathilde, Linné, Souvenir de Van Peene, Liliiformis, Triomphe de Ledeberg, Madame Dom. Vervaene, Punctulata variegata, Empéreur Maximilien, Duchesse de Brabant. Seedling Azalea presented in flower for the first time: 1st, M. Dom. Vervaene for Roi d'Hollande; 2nd, M. Maenhaut for Reine des Pays-Bas.

6 New Camellias: 1st, M. Dom. Vervaene père, for Bella Romana, Tricolor imbricata, Casilda, Tosa di Magio, Imbricata striata, Humboldti; 2nd, to the same.

The foregoing were a few of the awards, chiefly for novelties, selected from amongst the 200 classes under which the subjects were exhibited, a mere list of which, if complete, would take more space than we can spare. Among the special prizes we find a gold medal was awarded to Mr. Veitch for his three new Rhododendrons, Princess Alexandra, Princess Helena, and another which is unnamed.

The Banquet to which the jurors and members of congress were invited, took place on the 8th and was well attended.

Societies.

Royal Botanic: *April* 8 (*Second Spring Show*).—A brilliant little assemblage of gay spring flowers was gathered together on this occasion; and, the day being warm and unusually bright, the many excellences which they possessed, both in the shape of form and colour, were brought out to good advantage.

Roses, especially a collection in pots from Mr. Wm. Paul, were wonderful productions; the plants individually, both as regarded size and amount of bloom, having more the appearance of specimens set up at the early summer shows than in the middle of April. Conspicuous among those from Mr. Wm. Paul were Celine Forestier, a beautiful yellow, in fine condition; John Hopper; Princess of Wales, rich crimson; Pierre Notting, dark crimson, slightly shaded with violet; Mrs. Wm. Paul, a glorious high-coloured variety; Jules Margottin, Beauty of Waltham, Madame Derreux Donville, rosy lilac; Paul Delameilleray, glowing crimson; Senateur Vaisse, General Jacqueminot, Vainqueur de Goliath, dazzling shaded red; Madame Clemence Joigneaux, rose shaded with lilac; Madame de Cambacérès, Madame Boll, Madame Caillat, bright rosy red; Madame de St. Joseph, Souvenir d'un Ami, Victor Verdier, Madame Alfred de Rougemont, a good white hybrid perpetual; Alba rosea, beautiful, especially in the bud state; and Madame Damazin, buff richly suffused with fawn. Messrs. Paul & Son's plants, though smaller, were also good examples of skilful cultivation. Among them were President, Madame Willermoz, Lord Clyde, Anna Alexieff, Alba rosea, Maurice Bernardin, and Le Rhone, the last a fine rich high coloured variety. The same exhibitors also contributed good cut Roses in boxes, in which were Lord Clyde, Lord Herbert, and Senateur Vaisse, all in fine condition; as were also Peter Lawson, François Lacharme, Enfant de Lyon, a pale sulphur Tea; Marquise de Foucault, buff shaded with fawn; Safranot and Madame Falcot, a great improvement on the last, especially in the bud state. Mr. Wm. Paul likewise contributed cut blooms, among which were fine examples of Vicomte Vigier, Alba rosea white, delicately tinged in the centre with rose; Le Rhone, finely incurved; President, and others.

Among New Roses by far the most important was Maréchal Niel, a glorious addition to Yellow Teas, the colour being as rich and deep as that of the old Yellow Provence, and the flowers, which are globular, are about as large and full; in growth the plant is said to be vigorous. This valuable acquisition came from Mr. Wm. Paul. From Messrs. Paul & Son came another new Rose, named Princess Mary of Cambridge, a large delicate pink hybrid perpetual, flushed in the centre with rose, but scarcely promising to be an acquisition.

Azaleas made a fine display. Mr. Turner, as usual, had considerably the best plants, which were covered with bloom, with just sufficient foliage to afford an agreeable relief to the eye tired with looking at the more gaudy colours of the flowers. The varieties consisted of Iveryana, Holfordii, Criterion, Prince Jerome, Flower of the Day, and Empress Eugenie. From Mr. Williams, of Holloway, came, among others, Delecta; Countess of Stamford, rich salmon scarlet; Double Red, and Model. Messrs. Lane, in addition to a group of six plants, furnished a highly interesting miscellaneous collection of Azaleas, in which were Rubens, orange scarlet; Perfection, soft shaded rose; President Chèvy, salmon broadly edged with white; and last, but not least, some extremely neat little bushes of A. amœna, the little round purple hose-in-hose blossoms of which are very pretty. Some of these plants however ought to have been kept at home till they had covered their "shapes."

In the amateurs' class Mr. Todman, Mr. Wheeler, and Mr. Young all showed good plants.

In the class of New Azaleas Mr. Turner stood in the first rank with Mars, a more brilliant orange-scarlet even than Prince of Orange, large and striking, and beautifully spotted in the upper petals; Madame A. Verschaffelt, a gay spotted and somewhat frilled variety; and Advancer, rosy crimson. Messrs. Lane were next in point of merit with the two last-named varieties and Duke of Cambridge, a glowing deep salmon-coloured flower, blotched and spotted in the upper petals. Mr. Todman showed Flag of Truce, the best double white we yet possess; Prince of Orange, spotless orange scarlet; and Madame A. Verschaffelt.

Hyacinths were again exhibited in good condition by Mr. Wm. Paul and Messrs. Cutbush, who moreover contributed groups of Tulips and Narcissi. Messrs. E. G. Henderson again furnished a charming collection of Cyclamens; Lily of the Valley came from Mr. Bartlett; and an interesting little group of British Ferns from Mr. Holland, to whom a First-class Certificate was awarded for Asplenium Trichomanes Harovii, a variety with bright green delicate incised fronds of great beauty. We also remarked flowers and leaves of the large Russian Violet called The Czar, and a pot of Oxalis Acetosella from F. J. Graham, Esq.

Cinerarias came from Messrs. Dobson, James, and Marcham. Conspicuous among the varieties were Lord Elgin, rosy purple self; Miss Smith, white with dark disc and broad violet blue tip; Duke of Cambridge, good dark crimson self; and Snowflake, pure white with dark disc. From Mr. Marcham, gr. to E. Oates, Esq., Hanwell, came a highly promising seedling named Lord Amberley, a violet plum-coloured sort, large, and valuable on account of its rich colour, which is scarce among Cinerarias, as well as for the great substance and breadth of its florets.

Miscellaneous flowering and fine-foliaged plants were exhibited by Messrs. Lee, Williams, Wheeler, and Young, and comprised Hedaromas, Azaleas, Erica-mons, Epacrises, Tetratheca ericæfolia, Vanda tricolor, Yuccas, Dracænas, Dicksonia antarctica, Cyathea Smithii, Cordyline indivisa, Maranta zebrina, and Pandanus javanicus variegatus. Fine-foliaged Begonias were shown by Mr. Young, Mr. Wheeler, and Mr. Marcham. Camellias and a collection of Dracænas came from Mr. Bull; together with Achyranthes Verschaffelti, the striped variety of Polygonatum verticillatum, and the beautiful Bertolonia margaritacea. To the last a First-class Certificate was given; and a similar award was made for Camellia bicolor de la Reine, delicate rose edged with white. Mr. Williams had First-class Certificates for Colocasia longiloba, described by us in a former report, and Alsophila latebrosa, a Tree Fern, with handsome spreading fronds.

United Horticultural: *April* 11.—The first exhibition held under the auspices of this new Society took place on Tuesday last at the Albion Hall, Moorgate Street, a place by no means large enough to accommodate a good exhibition, and a large attendance of visitors; but on this occasion it served the purpose for which it was intended. Of plants there was a fair display; but visitors, especially those who paid, seemed to be scarce. Messrs. Paul & Son furnished Roses, both cut and in pots, among which was their new Seedling Princess Mary of Cambridge; the rare Dendrobium xanthophlebium and other Orchids came from Mr. Wilson, gr. to W. Marshall, Esq.; and Mr. Baker, gr. to A. Bassett, Esq., also had Orchids, among them the charming Odontoglossum Pescatorei. A handsome deep rosy crimson Seedling Azalea called Duke of Buccleuch, was contributed by Mr. Turner of Slough. Heaths well grown and finely bloomed were contributed

by Mr. Rhodes; and from Messrs. Glendinning came the pretty variety of Heath called Sindryana, some cut blooms of Camellias, and various coniferous plants. Mr. Williams showed an interesting collection of stove and greenhouse plants, as did also Mr. Wheeler and Mr. Fraser; and from Messrs. Lane came the collections of Azaleas mentioned in another column. Mr. Shirley Hibberd had Hyacinths still in good condition; and Cinerarias, the brilliant Salvia Regla?, one or two Anæctochili, and other plants were shown by other growers. Fruit and Vegetables came from Mr. Newton, of Enfield; Strawberries from Mr. Kaile, gr. to Lord Lovelace; and Seakale from Mr. Scott. Upon the whole it may be added that the experiment of holding a Flower Show in the heart of London has not met on this occasion with very marked success.

Notices of Books.

Handbook of the British Flora. By George Bentham, F.R.S., President of the Linnean Society. Parts XXIII.—XXVIII. 1864, 1865. London: Lovell Reeve & Co.

We have already on two occasions noticed this excellent work, and have now to congratulate our readers on its successful termination. The Parts before us comprise the important orders of Cyperaceæ and Graminaceæ, with those vascular Cryptogams which come within the prescribed limits of the author. In scarcely any genus is a nice discrimination of species more necessary for the student than in Carex, which is in general supposed to be but little subject to variation, but which in reality, when taken as a whole, and followed out through the complete geographical range of the species, presents perhaps as many puzzles as those genera which are more confessedly perplexing. It is now many years since we were almost bewildered over the difficulty of reconciling the species which occurred in our rambles through districts which swarmed with various forms, with the figures and characters of authors, and we now see at a glance how completely our perplexity would have vanished had we had such a guide before us.

It is not to be objected to the author, that without reason or due consideration he has wildly demolished a host of good species proposed on sufficient grounds by other labourers in the same field. This is far from being the case, and it is but fair to let him speak for himself on this subject.

"The great reduction in the number of supposed species adopted in the Handbook has been severely criticised and strongly condemned by botanists of eminence, chiefly amongst those who have devoted themselves to the investigation of the Flora of Europe alone or of its separate States. On the other hand, the author has more than ever reason to believe that the line he has adopted is in strict conformity with the views of several of the first botanists of the day, who have been in the habit of considering each species with reference to the forms it may assume over the whole extent of its area. There is no doubt that in the case of a large number of common and widely-spread plants, such as the Water Crowfoots, the Briar Roses, the Brambles, Hawkweeds, Willows, &c., there are numerous races of greater or less permanency, which are more or less positively distinct, and well worthy of being studied as such by those who have leisure and patience to devote themselves to the subject, and which should by no means be neglected by the botanist who would be thoroughly grounded in his knowledge of plants; yet it is believed that with the general advance of science, the conviction is gradually spreading, that the raising these races to the rank of species is giving them an undue importance, and that it is at once more philosophical and more practically convenient, as well to the general botanist in the higher branches of the science as to the mere superficial amateur, to retain for the meaning of a species the limits affixed by the original principles of Linnæus."

In these sentiments we entirely concur, and we do not hesitate to express an opinion that few things can be more detrimental to botany as a high branch of science than the practice of proposing a number of species which arise and perish in a day, without the slightest pretension to any enlarged notions of the limits of the species, and much less without an attempt to follow out the various forms which a species may assume through nearly half the circumference of the globe. We can look with some interest at a deep study of a species such as Erophila verna, though it ends in the splitting up of a single favourite into fifty-three species, because at any rate it shows the limits within which a species may vary, and the degree of permanence which certain characters may assume; and even were not this the case, it would at any rate afford one some amusement; but we have no compassion for purposeless subdivisions, however much anxiety they may have cost to frame something plausible in the way of specific characters. After the observations of Wimmer and Wichura on the genus Salix, the veriest hairsplitter may be content to rest upon his pen a little, and he would do well at the same time to take a philosophical view of the matter for deep reflection which Mr. Darwin has opened out in his wonderful observations of dimorphism in certain Phænogams, observations which are daily extended, and which must materially modify our notions of the individuals of which the vegetable kingdom is composed.

It is well for the student, as a matter of mental discipline, to be led to see differences, but it is no less important that he should observe resemblances as well, and we believe that a far higher tone of thought will be ensured by a proper combination of the two than by the most acute discrimination of distinctive characters.

The Apiary.

As the time of the year approaches when the majority of bee-keepers, who have been so fortunate as to find themselves possessed of strong and healthy colonies, after the perils of a long and inclement winter, look to their multiplication by the usual means of Natural Swarming, it may not be out of season to give our readers the details of a plan by which many advanced and scientific apiarians dispense with the anxieties and uncertainties contingent upon waiting for the issue of natural swarms, and succeed in keeping their apiaries in a high state of prosperity. This is effected by carrying out the principle of Artificial Swarming. It is now our object to explain how this can be most successfully accomplished. We will suppose the apiarian who feels inclined thus to try his hand, to be possessed of some little skill in the manipulation of bees and the interior of their hives; or at any rate to be one who is ready and willing to learn.

There are some persons so circumstanced that the inconveniences attendant on natural swarming—the necessity for keeping a watch on the hives for days and weeks together, and the difficulty of having the swarms properly hived during the busiest part of the day—are so great as to render the keeping of bees to them almost impossible. There are some labouring under these disadvantages who will nevertheless have their apiaries. By attempting to prevent the issue of any swarms, working their hives for honey alone, and supplying any deficiencies in their numbers by the occasional purchase of stocks or swarms, these bee-keepers contrive to rub on, having, however, continually to bear the disappointment of finding fine swarms to have issued and been lost from their best colonies. We know one bee-keeper who, last summer, thus had to lament the loss of six swarms, the majority of which emigrated from hives which were filling large supers, and which had abundant space afforded them.

It is doubtless known to the majority of our readers that the same egg which, if deposited in an ordinary worker-cell, would become developed into a common worker or neuter bee, will, if deposited or nurtured in a royal cell, and by a different course both of treatment and of food, become transformed into a creature possessing very different functions. Acting on this knowledge, a queen may be removed from a hive, leaving no royal cell whatever, in course of progress or otherwise. Provided there is comb containing eggs, or very young worker larvæ, the operator need be under little fear for the loss of his stock, always supposing that drones exist in or near his apiary. On discovering the loss of their queen, the bees usually become very excited, rushing over the combs, and in and out at the entrance of their hives. Gradually the excitement cools down, and they proceed to the adoption of measures for rectifying the great loss they have sustained. Some eggs or young grubs of suitable age are selected, the cells adjoining which are torn away, and remodelled into those suitable for royal larvæ. Food, which varies very considerably from that which is supplied to worker larvæ, is profusely given, and in a much shorter time than would have been the case if the worker grub had been allowed to be developed into a neuter, a perfectly formed princess emerges from one of the cells. Why it is that a cell of different form, and food of a different character, should thus effect such a marvellous change, we may not, if we could, now stop to consider.

The scientific operator in bee-culture will not always choose to wait for the chances and uncertainties attending natural swarming. He sees a way of increasing his stocks to an extent utterly impossible by following the old system. To carry out the principle of artificial swarming to the greatest advantage, however, the bee-master must have his hives constructed with moveable frames or bars, by which the interior can always be examined, and the combs separated to any extent. It is very important that every frame or bar shall fit any place in any hive in the apiary. In describing the necessary manipulations, it must be borne in mind that we are now speaking of hives managed on this principle. Subsequently we may show how artificial swarms may be taken from common or other hives.

We may be supposed to have a strong colony in a frame hive, A, from which it is desired to force an artificial swarm. On a fine day each comb is lifted out and examined, in order to discover the whereabouts of the queen. When found, the comb, with her majesty, and the bees adhering to it, is placed in an empty box, B. The combs in A are brought together, so as to allow of no empty space in the centre of the hive, for, as a rule, queenless bees are very apt to construct drone comb, which, in that situation, would be decidedly injurious to the prosperity of the hive. B is placed on the stand of A, and receives the returning bees. The old stock A is removed to a distant garden at once; or having confined the bees, to a cool dark room for 24 hours, at the end of this time it may be located in a new position in the same garden. The bees, after the discovery of the loss of their queen, will soon commence the formation of royal cells, usually fixing on very young grubs for the purpose. In 12 or 14 days a queen arrives at maturity, and on gaining her liberty immediately endeavours to destroy all her rivals in the other cells. The careful operator may, if he be vigilant, generally prevent this destruction by a timely removal of the superfluous royal cells, and these may be made available in the formation of other artificial swarms. By the adoption of this system a great saving of the time and resources of the hives deprived of queens is effected, and an astonishing number of swarms may be made.

The following plan will, if carefully carried out in all its details, be found very successful. Some small boxes are provided, capable of containing four of the same frames or bars only; these are styled *nucleus* boxes. As before, the cover of the stock hive is taken off (a little smoke may be puffed in under the cover previously, if liked), a side comb is first extracted, and examined to see that the queen is not on it; this comb is put down by itself. The next comb is taken out, examined, and, if not containing eggs or brood of a suitable age, is slipped down into the place previously occupied by the frame first removed. When a comb suitable in every respect is found, vigilant search must be made to ascertain if the queen is on it. If not to be seen, it is advisable to look through the stock until the queen is discovered, so as to be certain that she is not on the comb which is selected. This, with the bees clustering on it, is now placed in the nucleus box, and a few hundreds of bees, chiefly very young ones that have not yet taken their first flight abroad, are brushed off some of the combs into the nucleus. Two combs, either empty or containing honey, are added; the bees are confined, and the box taken within doors until the evening. Proper ventilation must be afforded to the prisoners. This nucleus may stand in any position in the apiary. As in the former case, an empty frame must be given to the old stock, but as the queen is still at its head it may either take the place of the comb removed or may occupy the side, the others being pushed up together.

The nucleus should be examined in a few days, for the double purpose of ascertaining whether royal cells have been commenced, and also if there be a sufficient population. If the bees are very few in number, the same stock may be visited, and a brood comb, in which the young bees are in the act of emerging from the cells, may be selected, which, with the bees clustering upon it, having again ascertained that the queen is not among them, is added to the nucleus, and placed in juxtaposition to the brood comb previously given. Or, instead of the brood comb being inserted, the bees may be brushed off from it on the tops of the frames, and the whole confined for a few hours. When the royal cells are sealed, if there should be more than two constructed, the surplus may be carefully cut out and fresh nuclei formed. To effect this a comb containing brood in an advanced stage of development is selected. An aperture corresponding in size to the piece of comb to which is attached the royal cell or cells, is cut out, and the latter carefully inserted, using the utmost caution not in any way to bruise or injure the cells containing the royal embryos. Bees must be obtained as before.

It will be obvious that a great saving of time is thus effected, as the queens in the two nuclei will issue forth nearly at the same date. Or these superfluous royal cells may be advantageously used in being fixed in the hives from which the queen has been removed, as in the case of A, first described. It is a very good plan to raise some royal cells in a nucleus prior to any general making of artificial swarms, as an immense help is afforded to the colonies deprived of their queens by substituting sealed cells from which the young princesses are nearly ready to emerge.

To return to the nucleus boxes. These small swarms, as soon as the queens begin egg-laying, may be shifted into boxes containing seven, eight, or more frames or bars, and again strengthened with brood combs from any hive in the apiary. No adult bees should, however, be added, or the lives of the queens may be put in jeopardy. It is desirable, when possible, that a frame containing empty worker comb should always be slipped into the space from which the other was removed. The old queen will usually, in a very few days, have filled the empty comb with eggs. Thus are her enormous powers of fecundity encouraged and stimulated to the utmost. This mode of procedure, that is, of raising queens in nuclei, and gradually building up the diminutive swarms into populous stocks, has been found very successful, and is by no means difficult of accomplishment with hives suitable for the purpose.

If a swarm of considerable strength at starting is desired, the object may be effected by removing half the frames, with the queen and clustering bees, which are placed in a second box. One of these is allowed to occupy the old stand, the other is shut up and removed to a cool dark place, or to a garden at least a mile distant. Care must be taken that each division possesses a sufficient population to properly cover and nurse the brood, or a great deal of it will be sacrificed, probably to the permanent injury of the hive. This rule must always be borne in mind by the operator in the formation of artificial swarms. There are other ways in which artificial swarms may be made, but they need not now be particularised. Enough has been said to explain

the *rationale* of the system as usually carried out with the improved frame or bar hives. Next week we intend to explain how artificial swarming may be most successfully adopted in connection with ordinary hives and boxes.

Miscellaneous.

Cultivation of Broomrapes.—About ten years since Herr Tittelbach published a pamphlet in which he showed that it was possible to cultivate several species of Orobanche. He has continued his experiments since leaving Schœneberg for Berlin, and he now informs us that the seeds of annual species must be sown at the same times with those of the plants on which they are parasitic, or a short time after. Thus, for example, the seeds of Orobanche ramosa must be sown with Hemp seed, those of O. Picridis with the seeds of the Ox-tongue, &c. The perennial species succeed, if the strong roots of the mother plant are exposed in autumn, and powdered with the seeds as soon as they are ripe. M. Durieu de Maisonneuve, director of the Botanical garden at Bordeaux, has equally succeeded. The perennial species form the first year a sort of scaly bulb, filled with nutritious matter, which produces the spikes of flowers the following spring. Orobanche Hederæ, which has long been cultivated at Paris, affords a good example. Several species also are cultivated at Louvain. The young plants are at first independent, but soon attach themselves to the smaller roots. When they are cultivated in pots it is well to scatter the seed principally in the circumference of the pot, whence it is washed down to the roots, which run especially over the inner surface. *La Belgique Horticole, June* 1864.

New Kind of Gunpowder.—We learn from the *Athenæum* that Captain Schultze, of the Prussian Artillery, has recently patented a new kind of gunpowder, which possesses some remarkable peculiarities. It consists principally of wood reduced by a very ingenious process to very minute cylinders or grains, deprived of all their constituents other than cellulose, and steeped in a solution of nitrate of potash and nitrate of barytes. The explosive effect of this new powder is stated to be as great as that of gun-cotton, while it does not possess the great disadvantages of the latter substance.

Calendar of Operations.

(*For the ensuing week.*)

Another week of uniformly fine weather has had a highly invigorating effect upon vegetation, causing deciduous trees to progress considerably towards leafing, and Almond trees to push suddenly into full flower. Under such circumstances wall trees will require strict attention in the way of protection. If not already done, half hardy shrubs must now have any remaining portions of winter covering still on them removed. Any dead pieces of wood may also be pruned off, and everything connected with them rendered neat and clean.

FLOWER GARDEN AND PLANT HOUSES.

Besides the permanent specimens in Conservatories, many choice plants in pots will be required to keep a succession of gay flowers throughout the summer. Amongst the finest for this purpose are Brugmansias, Erythrina Crista-galli, Thunbergias, Achimenes, Ipomœas, Heaths and Pelargoniums. Let these have all possible attention, and bring them forward in several lots, so that one set may succeed another.

Achimenes.—A succession of these intended to flower late, should now be placed in heat. Some of those of former successions may be potted for hanging vases, for which A. longiflora and cupreata are particularly adapted. Pans or broad shallow pots are preferable for their general cultivation, and, as they require an abundant supply of moisture when they are in flower, let the drainage be very perfect, that they may be freely watered without running the risk of stagnating the soil.

Annuals.—Patches of some of the more showy of the hardy varieties should now be sown in vacant places, which usually exist in herbacous beds and in the edges of clumps and borders in the Shrubbery.

Bedding Plants.—Lose no time in potting off, or pricking out into frames or boxes, young cuttings as soon as they are sufficiently rooted, and seedlings as soon as they will bear handling. As the potted off plants become established with new roots, they should be gradually inured to the open air. The hardier kinds if in pots may be set upon a bed of coal ashes, or plunged in the open air, and protected at night by hoops and mats. If plunged in old tan, ashes, or some other light material, much of the labour of watering will be saved, and the plants will be in a better state than they otherwise would be when the planting out season arrives. The most economical plan however is to plant them out in frames, and, at the proper season, to remove them to the beds with good balls of soil attached to them.

Camellias.—Plants which have just done flowering should be kept a little warmer than usual till they have made their wood and set their flower-buds. A moist top heat of 60° will suit them while they are growing; they need no bottom-heat. Whether they require repotting or not can only be determined by inspection; but if they are not repotted, a little weak guano water given them now and then will be found to prove of service to them.

Polyanthuses.—As soon as these and Primroses have done blooming, they should be removed from the beds, of which they have been the ornament, in order that the ground may be prepared for its summer crop. The plants which are taken up should be parted and planted in some nice loamy soil in the reserve garden, watered, and shaded with evergreen branches till their roots are re-established; in this situation they will prepare themselves for a repetition of their duties next spring. Those who do not possess a stock of these useful plants cannot perhaps commence to get one together at a better time than this.

Tropæolums and Convolvuluses.—It is a good plan to sow Tropæolum aduncum or Canary-flower, Convolvulus major, and some other half-hardy climbing annuals, in a frame, in such a manner that they can be easily removed to their permanent situations at the usual season. The best method is to lay some turves into the frame, with the grassy side downwards. After beating them till quite flat, the seeds should be pressed into the smooth surface, 2 to 4 inches apart, and then covered with a little light soil. When ready for moving to the borders, cut the turves with an edging-iron into small squares, containing one, two, or more plants in each. In this way they will experience little or no check, and will start into the new soil with much greater freedom than if they had been confined in pots.

Violets.—These are everybody's flowers, and therefore well worth a little attention. A frame of light rich compost, consisting of loam and leaf-mould under the shade of a north wall, should be prepared for their summer quarters; as in such a situation they are more easily preserved from the ravages of red spider, which will certainly attack them if they are exposed to scorching sunshine. In this frame the offsets from the old beds should be planted about 4 inches asunder, and the sashes placed over them till they have begun to form new roots. The best varieties for indoors are the Neapolitan and the Tree Violet.

FORCING GARDEN.

Figs.—These require an abundance of air, with free exposure to light; and without these essentials, a plentiful crop of good fruit need not be hoped for. A moist atmosphere, and a liberal supply of water to the roots are also necessary; and if the roots are confined within reasonable limits, every alternate watering during the swelling of the fruit should be of liquid manure. As the fruit begins to ripen, however, the atmosphere should be kept rather drier, to prevent its rotting; and in damp dull weather, sufficient fire heat should be used to permit the superabundant vapour to escape. Let the later successions be brought on gradually at first, in a temperature by night of from 50° to 55°.

Melons.—Excessive moisture must be carefully avoided during the setting of the fruit; and as it is an easy matter to thin the latter after all danger of damping is over, it is a good plan to allow more to set than will be ultimately wanted. Remove the blossoms as soon as they fade, and do not allow more male blossoms to expand than are required, as they tend to weaken the energies of the plant. Seeds should now be sown of some of the best kinds for preserving.

Peaches.—Let all very vigorous growths be stopped as soon as they have made six or eight leaves, in order to divert the flow of sap into the weaker shoots. Avoid a high night temperature, or the fruit, though ripened considerably earlier, will be obtained at a sacrifice of size and flavour.

Pines.—Keep up a brisk day temperature to fruit which is now swelling, and admit air freely, so that a circulation may be produced. If the latter be not attended to, the plants will grow weakly, and have an unhealthy drawn-up appearance; and, with regard to fruiting plants, the crowns will increase in size, instead of the fruit itself, which will be watery and deficient in flavour. Take advantage of every fine afternoon to syringe the pits, and close them for two or three hours before sunset. Remove all gills and useless suckers, that the whole energy of the plant may be occupied in perfecting the fruit.

Vines.—Successional Vines which are just starting may be indulged with a good heat, and particularly Muscats which were ripened late last year, as the wood of such is not generally so well matured as that of the earlier forced Vines; and unless they are encouraged by a temperature rather higher than usual, until their blossoms are fairly set, the shows for fruit, however strong they may be to all appearance, not unfrequently prove abortive. Attend punctually to the stopping and training of the shoots, and thinning of the berries on the Vines, in the earlier stages; maintain a moist atmosphere by evaporation where the berries are swelling, particularly in fine clear weather like the present, but this must be moderated as soon as they begin to change colour, and air must be more freely given.

HARDY FRUIT AND KITCHEN GARDEN.

Lime is well known to be useful for destroying snails and slugs; it is, however, not always at hand in a quick state. Cinder ashes riddled to the size of Radish seeds, all dust being excluded, will therefore be found a good substitute. These strewed over young crops when just emerging from the ground will be found to be an efficient protection. A handful of good Peruvian guano, blended minutely with these ashes, would also prove to be a ready mode of manuring a weak seed bed.

Beans.—Put in succession of these as required. A few French ones may also now be sown on a warm border.

Leeks.—These are fond of moisture, the ground therefore, for this crop should be double dug 18 or 20 inches deep, and the manure laid into the bottom of the trench, which should be previously loosened with a fork.

Onions.—In most places young crops of these will be fairly above ground. The soil between the rows should therefore be well stirred, an operation which may now be performed with advantage, while the ground is comparatively dry.

Raspberries.—Thin suckers from these as early as can be done, leaving four or five to each stool.

Spinach.—Sow some round Spinach for succession in a cool aspect.

Strawberries.—A sloping bank should be prepared, and planted with nice runners of the Alpine varieties as soon as they can be obtained for fruiting in September and October; plant three in a patch, at intervals of 15 inches; the ground between should be covered with slates when the plants are established.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending April 12, 1865, as observed at the Horticultural Gardens

April,	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth. 1 foot deep	Temperature. Of the Earth. 2 feet deep	Winds.	Rain.
Thurs. 6	10	30.283	30.196	63	43	53	47	45	S W	
Friday 7	11	30.183	30.117	65	32	48.5	48½	45½	S W	
Satur. 8	12	30.101	30.086	72	30	51	4[illegible]	45	S.	
Sunday 9	13	30.196	30.192	74	30	52	50	46½	S W	
Mon. 10	14	30.238	30.219	75	29	52	50	47	S W	
Tues. 11	○	30.225	30.116	72	31	51.5	50½	48	E.	
Wed. 12	16	30.051	29.947	66	35	50.5	51	48	E	
Average.		30.179	30.124	69.5	32.8	51.2	49.0	46.5		

April 6—Overcast; exceedingly fine; fine at night.
— 7—Fine; lightly overcast; fine throughout.
— 8—Foggy; cloudless, with bright sun; exceedingly fine.
— 9—Slight fog; fine; very hot, exceedingly fine; cool at night.
— 10—Very fine; hot and dry; very fine; slight frost at night.
— 11—Very fine; hot sun, and very dry air; clear at night.
— 12—Hazy; dry haze; hot and dry; fine throughout
Mean temperature of the week, 5¼ deg. above the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 30 years, for the ensuing Week, ending April 22, 1865.

April.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday..16	57.0	36.4	46.7	24	0.56 in	9	7	3	3	3	9	1	
Mon. ..17	57.8	35.9	46.8	14	0.32	8	7	7	2	1	7	1	1
Tues. ..18	58.6	35.6	47.1	15	0.49	8	6	7	1	4	5	1	1
Wed. ..19	59.5	34.8	47.7	8	0.45	6	12	3	3	2	7	4	—
Thurs. ..20	60.2	34.7	47.4	14	0.39	5	7	6	2	—	2	6	1
Friday ..21	59.0	37.2	48.1	14	0.28	4	6	7	3	2	6	3	1
Satur. ..22	58.6	37.3	47.9	20	0.32	5	9	5	3	1	5	1	1

The highest temperature during the above period occurred on the 19th, 1854—therm. 77 deg.; and the lowest on the 16th, 1862—therm. 20 deg.

Notices to Correspondents.

Cottage Building.—*J L A.* inquires if there is any cheap work on cottage building, giving plans, cost, &c.; and being to be useful to persons intending to build. Can any of the readers recommend such a book from their own experience?

Forcing Pits: *J L A.* For winter we should prefer the lean-to form as being more economically heated. The span-roofed pits would be best placed to range north and south, as the light would then be more equably distributed. As you are in a coal country, and can command cheap fuel, you may safely use sound flues, if you prefer them, but they will require more attention than a good hot-water apparatus. We do not try the hypocaust system described in our last volume at pp. 78 and 964, or use the tank system for bottom heat. Side lights are not necessary, and would in your case only add to the consumption of fuel; four pipes would be better than two; 21-oz. glass safer than 16-oz.; and, at least for winter use, the better of the two qualities would be preferable. We believe the boiler you mention is a very good one.

Fuchsia; *R A R.* It is a curious monstrosity, with the sepals reverting to leaves.

Garden Edgings: *C. Wright.* The vitrified tiles made in various patterns by Rosher, as described in our advertising columns, are the best we know of; and far superior to wood, or to live edgings for a small garden, in which the latter seldom thrive.

Japan Plants: *J Spyker.* Your letter is an advertisement.

Names of Fruits.—*Sir H W B.* 2, Mannington's Pearmain; 3, perhaps Jean de Witte, very sugary; 4, not known, some of the new varieties, exceedingly melting and buttery; 5, White Nonpareil.

Names of Plants: *J Allan.* You have sent no leaves; as far as we can judge from the flowers alone it is Helleborus orientalis purascens.—*M M D.* Oxalis sensitiva. The Cherry appears to be Cerasus borealis; the other is too imperfect.

Oak Leaves: *B W H.* We fear the old leaves of the evergreen sorts will be too harsh, and there is little prospect of getting young leaves for present use. Perhaps some of the other trees might yield a supply, the Hazel for example, which is now budding; or the Birch, Willow, or Poplar. Or a few young Oaks might be put in a forcing house immediately.

Rosa devoniensis: *Mary.* Doubtless any of the Bath Nurserymen can supply the climbing variety of this Rose. We make it a rule never to recommend dealers.

Varnish for Hot water Pipes: *A Constant Reader* asks if any of our correspondents have had experience of the use of a common black varnish on hot water pipes, the component parts he believes being gas tar and Stockholm pitch. In the autumn of last year his employer had the pipes of an early Vinery painted with this mixture. As soon as the Vines and Figs were started, and Strawberries, Roses, &c. were put into the house, they became singed as though they had been over a fire, and either killed or greatly injured. In spite of scraping and the use of chemicals it is still fatal to vegetation when the pipes are made hot; and he would therefore be glad of advice as to its removal. "My employer," he adds, "is of opinion that if the varnish consisted of nothing more than gas tar and pitch it cannot do the mischief complained of." There is no doubt that gas tar would be most injurious.

Zinc: *J H M.* The substance on zinc is not apparently a vegetable production, but some salt of zinc, as indeed the peculiar odour seems to imply. We can make nothing of it under the microscope. *M. J. B.*

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RAYNBIRD, CALDECOTT, AND BAWTREE. Address, 6, Seed Market, Mark Lane; or Basingstoke. Samples and prices on application.

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The best for ensuring the finest and best developed Flowers, Bulbs, Roots, &c.

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PLYMOUTH MEETING.
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The Agricultural Gazette.

SATURDAY, APRIL 15, 1865.

IN appropriate connection with Mr. WILKINS's amusing letter on Agricultural Education in another column, and also appropriately in connection with the seed time of the year, we give the following Table of numbers and weights of grains, Clovers, and Grass seeds. For the samples of Wheat, Barley, Oats, Rye, Beans, Peas, and Vetches we have to thank Messrs. LAWSON, of Edinburgh. For the Clovers and Grass seeds we have to thank Messrs. SUTTON, of Reading.

It will be seen what great variety, almost as two to one, there is in the number of grains of Wheat to a bushel. A considerable variety exists also in the samples of Oats examined. There is in ordinary farm practice, nevertheless, in general, so much of unreasoning routine that the same number of bushels of seeds are thrown in per acre—without regard to the double or half number of seeds which those bushels may contain. These differences explain to us the extraordinary discrepancies existing between the following Table and those published by Mr. RENDLE of Plymouth, Mr. LAWSON, and others, giving the number of seeds in a pound of some of our commoner Grasses. The figures given here are unquestionably true of the samples we have received now from Messrs. SUTTON, and the differences between them and those already published in our columns, ought to make the practice of seeding land more a subject for thoughtful consideration than it is. The same formula may, according to these varieties and discrepancies, bring forth double the number of plants in one case as compared with another.

Of course we are not going to recommend any alteration in the practice which has hitherto been found successful in laying down land to Grass—but it startles the reader to find that the bushel or two of Grass seeds and 10 to 12 lb. of mixed Clover, which he is directed to sow for that purpose per acre, must generally contain at least 30,000,000 seeds, or 5 or 6 to every square inch of the surface sown. Surely it should be possible so to deposit the seeds of the plants we grow as to ensure the growth of a larger proportion than can at present germinate under the existing plan of sowing millions of seeds per acre.

The following are the figures we have obtained by counting:—

GRAINS PRESENTED BY MESSRS. LAWSON.

	Lb. per bushel.	Grains per bushel.	Grains sown per square yd. at various seedings, in bushels per acre. ½	1	1½	2	3
WHEATS							
Hunter's White	61½	731,850	75	15[illegible]	[illegible]	302	453
Shireff's ,,	64	704,000	71	143	214	285	436
Essex ,,	62½	706,250	71	142	213	288	435
Talavera ,,	62½	475,000	49	[illegible]	147	196	294
Red Chaff ,,	61	628,300	6[illegible]	1[illegible]	195	[illegible]60	390
Golden Drop Red	61	555,160	57	114	171	22[illegible]	342
Spalding ,,	60	546,000	56	112	168	224	336
April ,,	63	863,000	89	178	267	356	534
RYE							
Winter	56½	1,198,125	124	247	371	49[illegible]	742
St. John's Day	61	1,177,800	121	240	362	482	723
BARLEY.							
Chevalier	60	426,000	44	88	132	176	264
Annat	56½	434,950	45	90	135	180	270
Victoria Bere	53	503,500	52	104	156	208	312
OATS.							
Potato	44	497,200	50	102	154	204	308
Hopetown	43½	483,050	50	100	150	2[illegible]0	300
Barbachlaw	41½	471,775	48	97	14[illegible]	195	291
Early Angus	44	519,200	53	107	160	214	320
Late Angus	42½	476,000	49	98	147	196	294
Dyock	43½	500,250	51	103	154	206	308
Bertie	44	528,000	55	109	164	[illegible]	329
Winter Dun	44½	441,325	45	91	136	182	272
White Tartary	44½	529,550	55	109	165	[illegible]	330
Black Tartary	41	471,500	48	97	145	195	291
BEANS, &c.							
Mazagan Beans	60	33,600	—	7	11	14	22
Irish Beans	64½	5[illegible],115	—	11	17	23	34
Grey Field Peas	61½	219,337	22	45	67	90	134
Spring Tares	64	678,400	70	140	210	280	420

CLOVERS AND GRASSES PRESENTED BY MESSRS. SUTTON.

	Lb. per bushel.	Seeds per lb.	Seeds per square yard at various seedings, in lb. per acre. 1 lb	4 lb	8 lb	10 lb
CLOVERS.						
Cow-grass	64	612,500	126	378	1008	1260
Broad Red	64	777,000	160	480	1280	1600
Alsike	64	1,872,000	388	1164	3104	3880
Perennial White	64	1,5[illegible]4,000	321	9[illegible]3	2568	3210
White Dutch	64	1,[illegible]50,000	341	1023	2728	3410
Yellow Trefoil	64	700,000	144	433	1156	1445
GRASSES.						
Perennial Rye-grass	24	301,000	62	186	496	620
Annual do.	18	336,000	67	200	536	671
Sutton's do.	32	441,000	91	272	730	912
Italian do.	18	371,000	76	230	612	766
Meadow Fescue	20	560,000	115	345	920	1150
Reddish do.	12	989,000	202	608	1620	2025
Sheep do.	14	1,750,000	361	1085	2890	3615
Hard do.	12	868,000	180	540	1440	1800
Cock's-foot	12	826,050	170	512	1360	1770
Foxtail	5	1,190,000	247	742	1980	2476
Timothy Grass	44	1,2[illegible]5,000	2[illegible]	795	2120	2650
Smooth Poa	14	1,6[illegible]0,000	332	995	2660	3325
Crested Dog's tail	26	1,190,000	247	742	1980	2476
Sweet Vernal	8	770,000	159	477	1272	1590

WE give the utmost prominence to the following letter on AGRICULTURAL EDUCATION by Mr. WILSON, of Edington Mains, Berwickshire.

Mr. WILSON is one of the foremost of Scottish agriculturists—one who has taken perhaps a larger part than any other in the discussion of such social questions as properly come before agricultural societies—and no one is better known or more highly esteemed in the agricultural world. It must certainly strengthen the convictions of those on the Council of the Royal Agricultural Society who have signed the well-considered protest published last week against the course regarding education which the Council has resolved to follow, to find that the leading agriculturists of England and Scotland are unanimously with them, so that even where there is the strongest disposition to look on social well-being as having a higher claim to our regards than mere professional status, men like Mr. WILSON, of Edington Mains, are in entire agreement with them. The following is Mr. WILSON's letter:—

In this district the usual practice of farmers has been to send their boys in the first place to the parish schools, and then—say at 10 years—either to some one of the boarding schools or grammar schools which are to be found in most of our provincial towns, or to Edinburgh, where, as you know, there is ample choice of excellent schools. In addition to English reading and grammar, with writing, arithmetic, and geography, such boys are usually taught Latin and Mathematics, and frequently French or German. Thus the time is occupied until the age of 14 to 16 years, when a few are sent for a session or two to the Edinburgh University; but the majority are put for two or three years into some counting-house or chambers, where they may acquire a knowledge of accounts and of actual business, and where they are subjected to the wholesome discipline of constant occupation during full and regular hours, and of prompt

obedience to the orders of superiors. The places of business selected for the purpose are various; but the preference seems to be given to the chambers of Estate Agents or Factors, as we call them in Scotland, where the whole accounts and business involved in the management of landed property are conducted. Many youths get into the numerous branch banks which are now to be met with all over the country, and many more into the counting-houses of grain merchants, manure factories, and similar places. After a couple of years or so spent in this way the young men either go home to assist their fathers on the farm, and so to get their practical training, or it may be they are boarded for awhile with some farmer, where they can see more than they could do at home.

Although I can remember many farmers of a past generation who were as well educated as any that I see around me, and many who had earned a prominent social position by their energy and success in business, still there can be no doubt that the facilities for obtaining a liberal education are far greater now than heretofore, and also that they are more generally taken advantage of in the farming community than at any former period. It is right also to say that there are many of our farmers now in the prime of their days who are conducting their business in a style not hitherto equalled, and who in social habits must excel the generation that preceded them. Let me also remind you that there are important means of professional education now available through agricultural periodicals and associations, and the facilities of travelling by railways which are peculiar to the present generation. The effects of these can be seen every day in the rapidity with which any improved agricultural practice is made known and generally adopted now.

Such, then, is the mode of general education and professional training which intelligent and observant farmers, availing themselves of such means as are at their command, have been led to adopt for their sons. Tested by its practical results, it must be admitted to be in the main a successful mode. But in my humble opinion it would be a decided improvement if our young farmers had the benefit of spending a couple of years in some well-equipped agricultural college. The fittest time for such a course would probably be after two or three years had been spent on the farm in acquiring a thorough knowledge and expertness in its various operations. I cannot agree with those who think that our great agricultural societies should themselves institute such colleges; but I do think that they can and ought to give efficient aid in calling the attention of farmers to the value of that professional training for their sons which such institutions afford, and in encouraging them to take advantage of it. Let it once be known that there is a demand for such education, and the means for supplying it will not long be wanting. Holding these views I cannot but deplore the course which a party in the Royal Agricultural Society seem at present bent upon. They might do much for agricultural progress by urging and encouraging the more thorough professional training of the rising generation of farmers. They are about, I fear, to dissipate the funds and influence intrusted to them for this purpose in a futile attempt to further common school education. *John Wilson, Edington Mains, Berwickshire, April* 10, 1865.

Two excellent lectures were last week given by Professor Coleman, late of the Royal Agricultural College: the one on Grass land improvement before the London Farmers' Club, the other on Cattle Foods before the Society of Arts. Both of these are topics just now claiming the special attention thus given to them; for on April 3, when Grass lands were the subject of discussion, the lecturer might have said that never had the pastures of the country been so bare as they have lately been; and on April 5 the cattle food discussion might have been introduced by the assertion that there is at this moment less food for live stock in all the Southern and Midland counties than has ever hitherto been known. The half hay crop and scanty green crop of last year have been far earlier consumed than usual, and straw and purchased foods have accordingly had a much larger share in the maintenance of cattle and sheep than ever hitherto. No one is better qualified than Professor Coleman, by practical as well as scientific knowledge, to treat this subject usefully, and we accordingly have in the Journal of the Society of Arts (April 7) one of the most instructive papers that has been ever written, on the actual and relative serviceableness of different foods, both home-grown and imported. We hope hereafter to give the substance of it in our columns, and meanwhile we extract two or three short passages of immediate interest:—

1. *The Palm Nut Kernel Meal* is a gritty meal, of a brownish-white colour, with black specks, which are portions of the skin of the nut. The fatty matter may be seen by rubbing a portion between the fingers, and is evident to the taste, it having rather a nutty flavour. Besides containing from 20 to 25 per cent. of a very feeding oil, we have 15 per cent. of flesh-forming material—about equal to good Barley meal—only 15 per cent. of woody fibre, and a considerable amount of ash. Altogether, then, analysis indicates a most valuable substance, which, when mixed with other materials, will prove an economical food, and this view has been fully confirmed by practical experience. It has been tried for cattle, sheep, and pigs. The effect on milk is remarkable, increasing the quantity and especially the richness of the produce without affecting the flavour of the butter. The dairymen in Leicestershire have used it very largely, and found it of the greatest service during last winter to help out the natural produce. For sheep it has also been successfully used. Indeed, it is useful for any stock, whether growing or fattening, provided we mix with it other food. The only point requiring care is in getting stock to take it. Animals that are in high condition and have been accustomed to oil-cake do not take to it so readily as poor stock, but a little patience and perseverance will soon overcome this difficulty, and when once accustomed they will eat it readily. Mr. Clarke, steward to Mr. Edward Holland, M.P., tells me that his Short-horn heifers, which received the best oil-cake through the summer, have done quite as well upon the same weight of Palm-nut meal; and when we compare the prices of the two, 6*l.* a ton for nut meal, and 11*l.* to 12*l.* for Linseed-cake, we can understand the value of this new feeding material. Messrs. A. M. Smith & Co., of Kent Street, Liverpool, are the only English makers. I look upon Palm-nut meal as the best substitute for Linseed-cake that has yet been offered to the public. Its large amount of ready-made fat supplies a most valuable material, of which our home-grown foods are all deficient. Its reasonable price renders it a decidedly cheap food, that will compare favourably with grain, even at its present low price; and from an extensive experience, I recommend it to the agricultural public as a valuable feeding material.

2. *Formulæ for Feeding.*—It is with considerable hesitation that I venture to submit for your consideration the following mixture of food as likely to prove economical.

For animals growing and fattening at the same time (this will apply to the animal when weaned till killed), the amount of such food depending upon age:—

Linseed cake, or cotton cake	2 lbs.
Barley, or Wheat meal, or Palm-nut meal, or a mixture of all three	4 ,,
Beans or Peas, or mixture	2 ,,
Locust Beans or malt	1 ,,

In the above mixture we get a good proportion of the flesh-forming and fat-forming food. We might, in the later stages of feeding, increase the quantities of the Linseed-cake, and reduce or do away with the Beans.

For sheep a mixture of the fat-producing food—such as Linseed-cake or Palm-nut meal—with Peas and Oats crushed, in equal proportions, would make a good mixture easy to be used; whilst for pigs a mixture of Barley-meal, Indian Corn if cheap, Palm-nut meal, and Beans, Peas, or Lentils may be used. Suppose we give Barley one-third, Indian Corn and Palm-nut meal, in equal quantities, one third, and Beans, &c., one-third.

A great point in feeding is not to give a larger amount of artificial food than the animal can assimilate. A great distinction, then, must be drawn between the supply of generous food suitable for developing the frame and growing bone, flesh, and fat in proper proportions, and the wasteful practice of stuffing an animal under a sort of idea that there cannot be too much of a good thing. Thus calves, during their first year, will not require daily more than from 1 to 2 lbs. of the first-named mixture; from the first to the second year from 2 to 3 lbs.; and to be finished up with say 4 to 5 lbs., for we ought to have our animal, which has been growing and fattening ever since it saw the light, fit for the butcher at about 2½ years old.

In the case of sheep, we may begin artificial food as soon as the lamb can eat. At about a month old a mixture of fine dust oilcake, bran, crushed Oats, and finely bruised Peas, may be used with good effect. The quantity consumed at this time is very small, but the animal learns how to eat, and when thrown upon its own resources, after weaning, runs to the corn trough and feeds freely through the summer; and until the lamb goes on Turnips, ¼ lb a day of artificial food is ample, ½ lb. from this time until Christmas, then ¾ lb., and possibly, during the last month or two of feeding, we may give as much as 1 lb. a head daily. Stock lambs—those intended for breeding—should be fed like the others during summer, and will generally do well on a fair quantity of roots and dry food, without other helps during the winter.

With regard to pigs it is more difficult to lay down any rules. The pig should have about as much as he can eat. There is one peculiarity in the habits of the pig that should be noticed—they are sure to do best on sour food. Cooking will answer for the pig better than for ruminants: indeed, I do not approve of cooking food for cattle or sheep. We may, in some instances, do well to prepare a soup of boiled cake, meal, &c., and pour it over dry chaff, or, what is better, we may use our waste steam to pass through a mixture of chaff, pulped roots, and the artificial food we are using. Such a process must, however, be carried on every day, as beasts do not relish such food when it becomes stale. The mixture of chaff and pulped roots, in properly constructed bins, leads to a gentle fermentation, which adds to the value of the food; and such a mixture will keep good for at least 24 hours, so we may prepare one day's food in advance. This is, I believe, the best and the most economical plan that can be adopted. The quantity of roots will depend upon a variety of circumstances, which time will not allow me to discuss. To show the change in our practice, I may mention that a large bullock formerly ate 1½ to 2 cwts. of Swedes per diem. Now, a better result is obtained by using three quarters of a cwt. pulped, with a mixture of hay, straw, and chaff; and, in many instances, animals are well fed upon 56 or 60 lbs. a day. Sheep still eat according to their live weight an immense weight of roots—in many instances as much as 20 lbs. a day. Now, this is not a perfect plan of feeding, and I believe the time is not far distant when a great change will take place, and sheep will be treated to pulped roots and chaff just as cattle are, only with a smaller proportion of straw and more roots. In this way an increased quantity of sheep will be kept in a healthier and, at any rate, in a more economical manner.

THE COTTESWOLD SHEEP.—No. I.

The Cotteswold sheep possess a historic interest as well as an unequalled present value. Not only do they yield perhaps the largest quantity of good flesh and of wool that cannot be excelled by any modern breed, but to so remote a period do inquiries into their history take us, that we propose first to offer a few remarks on the somewhat vexed question as to whether, previous to the invasion of Julius Cæsar, sheep existed in this island at all. The evidence makes it plain that if sheep did exist in England at that time they were in very small numbers.

It is somewhat singular, if there were any sheep, that Julius Cæsar does not notice them, because he does notice the horse, cattle, dogs, the wild boar, wolves, and geese and hares.

Although Dr. Henry Bird, in the course of his researches into the tumuli or burying places of the ancient Britons, found there the bones of the horse, the pig, the ox, the reindeer, yet he has not by any chance discovered the bones of a sheep. The absence of such bones renders the conjecture probable that the reason Cæsar did not mention the sheep is because there were none. The state of the country and the condition of its inhabitants at the time of the invasion by the Romans, would lead us to suppose sheep, at least in a domesticated state, could hardly be valued if supported. The ancient Britons are described as being in a state of semi-barbarism; wearing little raiment. And such rare instances as exist of surviving vestiges of their raiment, show, according to Dr. Bird, that the material of which it was made was not wool, but hair. Although the sheep has been the companion of man in all ages, yet do we not discover that it has been domesticated by men in such a condition as to civilization as the ancient Britons lived in.

In England, then "a forest island" without drainage, and in many places a morass, the sheep could not have flourished, and to give an idea of the enemies the sheep must even in the 10th century have had, we quote the following lines:—

"Raw to devour—
The sallow kite,
The swarthy raven
With horny rib,
And the hoarse vulture,
With eagle swift
To consume his prey,
The greedy gos-hawk,
And that grey beast,
The wolf of the weald."

Athelstan's Song of Victory.

And Buffon's remarks would induce the same conclusion:—

"Nevertheless, if one considers the weakness and stupidity of the sheep; if one reflects at the same time that this animal, without the means of defence, cannot even find safety in flight; that it has for its enemies all the beasts of prey which seem to seek it by preference, and to devour it with satisfaction; and besides that this species is not very productive and that each individual lives only for a limited period, we shall be tempted to imagine that from the beginning the sheep was confided to the guardianship of man—that it owes his protection in order to subsist, and his care to multiply; since in fact we find no wild sheep in the deserts where man does not govern, and the lion, the tiger and the wolf reign by force and cruelty; that these animals of blood and carnage live much longer and multiply much more than sheep; and that finally if we abandon at the present time in our land, the numerous flocks of this species which we have caused to multiply so greatly, they would soon become destroyed before our eyes, and the entire species annihilated by the number and voracity of enemies."

These considerations, it is presumed, are enough to show that the then inhabitants of our island had not the same uses for sheep as a more civilised people would have. They made use of the flesh of swine and cattle as food, and those who did use raiment covered their bodies with skins, and thus the sheep was not required either for its wool or flesh. The state of the country, abounding as it did with wild animals, "the bear and the wolf, and beavers," * the enemies to sheep, its condition as a forest or a morass, and what is of greater weight, the fact that no bones of sheep are found in the burying places of the ancient Britons, must go far to prove that if any sheep existed in this country at the time of the invasion by the Romans they were very few.

However, after the Romans, "the civilisers of the world," invaded this country and introduced the arts and luxuries of life, we soon get evidence of the most conclusive kind that sheep existed and were valued, as they always had been, by civilised people; for not only have sheep bones been discovered in the Roman remains† in abundance, but we have the fact that cloth was manufactured at Winchester and Gloucester by the Romans. Indeed, to such an extent, that at Cirencester, Tacitus informs us in writing on Cirencester, "great attention was paid to the good condition and cleanliness of the roads, which were prepared by the proprietors of the adjacent houses; carriages with heavy burdens were prohibited, and nothing was to be thrown out before the shops, except a fuller hung his cloth out to dry." (*Fosbrooke's Translation.*) This statement shows the importance and antiquity of the clothing trade at Cirencester, which commenced probably early in the first century of the Christian era. From these facts it will be apparent that sheep existed in this locality at this early date, and this is probably the earliest information we have of the domestication of the sheep in this island.

Having thus proved the early existence of sheep on the Cotteswold hills, one would like to trace their history from this early period; but this is a matter of considerable difficulty, for at this time of war and desolation even matters of higher moment are not chronicled with accuracy. Nevertheless we can, by ascertaining the state of the locality, whether favourable or not to the growth of the sheep; by knowing the tastes and habits of the inhabitants who lived in that locality, as well by tracing the existence of sheep and the establishment of the art of manufacturing the fleece, get proof more conclusive than if it depended upon the assertion of one doubtful historian.

If we take for granted that the sheep was not a domesticated animal of the ancient Britons, to what quarter of the globe may we look for its origin? As confirming the most probable hypothesis we mention some circumstances that point to their importation either by the Phœnicians, or somewhat later, which we think is the most probable, by the Romans; and we assert that the present improved Cotteswolds are the nearest sheep in England to the original type. Camden says that these

* Sharon Turner's "Anglo-Saxon," vol. i. p. 58.
† Dr. Bird.

sheep give the name to hills upon which they exist—Cotes meaning houses in which they formerly were housed, and Wold being a wild open country, such as their habitation must in its primitive time have been. The use of the word Cote, applied only to sheep on the Cotteswolds, is very significant, as implying their Eastern origin, for such a practice as "cotting" sheep we get from the very earliest times in the East. In Scripture we find it, particularly in the patriarchal times, frequently spoken of. David "comes to the sheep-cotes by the way where was a cave," 1 Samuel, xxiv. 3. "I took thee from the sheepcote, from following the sheep," 2 Samuel, vii. 8. Hezekiah had "Stalls for all manner of beast and cotes for flocks," 2 Chronicles, xxxii. 28.

There is another remarkable coincidence between the ancient sheep and the sheep of the present day. All sheep of Scripture are depicted as horned, and in the 30th chapter of Genesis, xxx., 32, we have the first notice of parti-coloured sheep: "I will pass through all thy flock to-day, removing from thence all the speckled and spotted cattle and all the brown cattle among the sheep." Now, if we turn to the first description of the duties of shepherd, and the illustration from the Cotton. MSS., Nero, c. 4 (Pict. Hist. of England, vol. i., p. 279), both of which support our hypothesis, the shepherd's duties were—"Lest his flocks should be attacked by wolves, he watched over its safety, attended by his dogs. The sheep were folded, and the folds were at times changed. Twice a day the ewes were milked and the cheese and butter were prepared by the shepherd." Notwithstanding all the care and attention adopted by modern breeders for years, yet it is impossible in any breed of sheep altogether to avoid parti-coloured lambs, or to escape occasional indications of horns appearing, although no parti-coloured or horned sire or dam have ever been used in the flock.

The facts that the sheep of the East were parti-coloured and horned, and that even now the sheep of our day to some extent show a "trick of the wild blood" by exhibiting the same characteristics, though suppressed as much as possible, and that the practice of "cotting" or "folding" was adopted, similar to the Eastern custom, especially on the Cotteswolds, prove pretty strongly that our sheep spring from the East.

The more man advances in civilisation the more highly is the sheep valued. The following facts regarding prices bear* this out:—

	£	s.	d.
In A.D. 712, a ewe with her lambs is worth 1s. till 13 nights after Easter.			
In 1000, a sheep	0	1	0
1120, a ram or ewe	0	0	4
1145, 76 sheep	1	0	0
1185, a ram	0	0	4
1298, at Scarborough, Yorkshire, an ox	0	6	8
a cow	0	5	0
a heifer	0	2	0
a sheep	0	0	1
1302, a fat sheep	0	1	0
a ewe sheep	0	0	8
1314, at Oxford, a fat mutton unshorn, corn-fed	0	1	8
a fat mutton shorn	0	1	2
1336, a fat sheep, 6d. to	0	0	8
1343, a fat mutton	0	0	4
an ewe	0	0	3
a lamb	0	0	2
1360, a stone of wool	0	0	9
1390, a stone of wool, 3s., 2s.,	0	1	8
1425, 21 lambs	0	4	0
wool 9s. 6d. per tod.			
1449, sheep	0	2	5
1533, beef per lb.	0	0	0¼
mutton	0	0	0¾
1533, a fat wether	0	3	4

From these prices it will be seen sheep were what appears to us exceedingly low in price, and did not command that attention which they, with the increase of population, have subsequently done.

Having, we think, shown that sheep have flourished at a very early period in the history of this country on the very seat of the present renowned Cotteswold sheep, and indicated their probable origin, it is now our task to follow them from this period unto the present time. Until within the last century the appellation of race or breed was unknown. The scientific breeding of our domesticated animals was not discovered. The fundamental truth of all successful efforts in the improvement of the modern live stock, that "like produces like," was not known, and the hereditary transmission of acquired habits would doubtless have appeared to the farmers of that day a myth. Yet, as will be hereafter shown, the sheep of the Cotteswolds have claimed conspicuous notice either by their wool, the early date at which manufactures were established in the district, or the early exportation of the sheep or their wool, more (particularly after the conquest of the Normans) than any other sheep in this country.

It may here be well to note the many conditions more favourable to the existence of sheep in this Cotteswold district at an early time than in many other parts of this country.

In the first place the Roman remains which abound on the Cotteswolds, new and important sites of which are almost yearly discovered, show how thickly populated must have been the colony which the Romans founded here. To such a people, advanced in civilisation so far beyond what we know the ancient Britons were, sheep for their wool and flesh would have been an indispensable necessity; whilst the nature of the soil (for it was here cleared to a greater extent than in many parts of the country), would have allowed them ample range, and lying high and dry, whilst the country was mostly in the state of a forest or a morass, would have provided sanitary conditions that would have given the sheep a place of healthful existence. Even at the present time, although the country is cleared, enclosed, and drained, sheep cannot in some places be kept because of the disease called the rot. Thus we have the most important and indispensable requisites for sheep flourishing on the Cotteswolds at this remote period in a people that knew their value, both for the raiment their wool would give, and also for their flesh for food; and the locality was such as permitted the healthful existence of this animal.

Accordingly, writes a most trustworthy authority, "there is abundance of historical evidence to prove that Gloucestershire was the earliest trading district for native wool in England. While London was only a burgh, Gloucester and Winchester had become important cities in consequence of wool and other traffic being carried on. Gloucester had its trade companies and guild and a guildhall a quarter of a century before one was established in London. There is no doubt that cloth making was carried on at Gloucester in the Saxon era, for the Saxons chronicle that when royalty and its attendants visited Gloucester, the citizens presented the King and his nobles with clothing of their own manufacture, a fact significant as illustrating the advanced state of local trade at that early period" (*Goding*). *J. M. R.*

* Rev. S. Lysons.

AGRICULTURAL EDUCATION IN ESSEX.

There cannot be a doubt but the education of farmers is very inadequate to their requirements; and that consequently the farm lands of the United Kingdom produce the very wretched returns they do of Wheat, according to the inquiries of Mr. Caird 9-fold only, and according to some which I myself made, a little over 10-fold, but whichever was nearer the mark, it proves, as clearly as figures are capable of doing, that the British farming of the present day is as low as it was in times past. And my own convictions are, that if farmers were adequately educated, and trained to their profession as other men are to theirs, the lands of England would be made to support all the inhabitants of England, but from a lack of such education and training, if it were not for the manufacturers by means of commerce exchanging their manufactured goods for foreign-grown corn and other articles of food, England with all its wealth would be nearly depopulated by dearth and famine; of this there cannot be a doubt in the mind of any man who is capable of thinking on the subject.

I am aware that comparisons are not pleasing, but compare the education of a manufacturer with that of a farmer, and the professional training of a manufacturer with that of a farmer, and it will at once be seen why the former makes the princely fortune he does, and why the manufacturers, as a body, can supply all the wants of the world with their goods, whilst the farmers, as a body, cannot supply half their own country with a sufficiency of bread. But we hear continually speechmakers and writers lauding up to the skies the wonderful perfection to which farming in England has now attained, a perfection which produces 9 bushels of Wheat for every bushel of seed sown, and which enables farmers to allow the essence of the manures they make in their own farmyards to run into ditches and brooks, and finally into the ocean, whilst they give 12*l.* or more a ton for foreign manures, the best of which for a permanency not being equal to their own; and much that they purchase, and at high rates, not being worth carting on their lands; and many other proofs of perfection might, if space permitted, be easily produced. But to pursue our comparison: manufacturers always send their sons to the best schools, pay reasonable terms for their education, which is always a liberal one, and then, when their schooling is finished, the boys are placed in the factories and practically learn to perform every operation their business requires to be done—or such was the training those received and underwent who have been chiefly the means of raising the power and wealth of this country to what it now is, and has given them the overwhelming influence in the State which they now possess, guiding and controlling almost everything; but of this to give one example only, namely, Mr. Gladstone, who in his own single self has the power of taxing all his fellow-countrymen, and to any extent he pleases, and as to the farmers, so completely has he all of them in his power, that they dare not even use a quarter of Barley of their own growth without first putting into his budget the sum of 1*l.* 1*s.* 8*d.*, or something more, I forget exactly; but he dares not attempt, or through brotherly affection he does not attempt, to make the manufacturer of woollen cloths pay the same sum, or any adequate one, before his cloth is made into a coat, or the cotton manufacturer before his wife has a gown made of the calico he makes. No such thing—but why does he not? because with him and the manufacturer it is diamond cut diamond, and the tool each uses is the same, namely, education; and so with them it is, if you tickle me, Toby, I will tickle you; but Mr. Gladstone will not tickle a farmer unless with a currycomb, or some instrument of the same kind.

But why not tickle one as well as the other? or not use the currycomb on the hide of one as well as on the other? The reason is transparent in the latter case, and it is this: because he dares not; for were he to currycomb the hides of the manufacturers, or even attempt to do so as he does those of the farmers, he would not be Chancellor of the Exchequer 24 hours afterwards.

It is quite clear, therefore, that it is education in general, but not always, but in general nevertheless, that lifteth men from the dunghill and setteth them among princes, or it has been education that has enabled commercial men and manufacturers to possess the almost despotic power they now do in the affairs of our country, and it is the lack of it which renders farmers to be mere ciphers, and in reality to have no power in the State at all. But have not farmers—and here I mean both landlords and tenants, but chiefly those who live by farming, and not those who receive liberal educations—have they not a higher character, and justly so, for general intelligence and improved conduct than they formerly had? Most certainly in these respects they are very much improved, but this has not been caused by improved education, but is the consequence of the general improvement of the age in which we live, and this extends through all ranks of men, from the highest down to the lowest, or, if there be an exception, it is in the lowest. Thus in my remembrance a drunken country gentleman was not very uncommon, but now one is very uncommon, indeed so much so I do not recollect the time when I saw a man in the rank of a gentleman intoxicated by wine; and the same may justly be said of farmers, than whom a more sober race now scarcely exists, and as to their labourers, judging from those of my own parish, they are nearly as sober as their masters, as I have not seen a drunken labourer in my parish for several years; but when I first came to it most painful were the drunken scenes I had continually to witness.

But still these happy effects have not been caused by any improved education or training among farmers and their sons, but from various other causes, and I will mention two, but them only. The new poor laws bring farmers as guardians into the company of well educated gentlemen, magistrates, and clergymen, and others of that class as *ex-officio* guardians, and this co-mixing at least once a week with the well educated and imperfectly educated together, and the polished manners and less polished, must have a very excellent general effect on society at large, and especially on farmers, who in the country are in general guardians. Railway travelling, also, in my opinion, has in the same way a very beneficial effect upon the middle ranks of society, as by it those ranks see much more of polished society, and are brought into more social contact with it than they formerly could be, though it may at the same time rather tend to the levelling system; but still on farmers the effect must be beneficial.

But still the education of farmers, and their training for the profession they have to follow is, in my opinion, woefully defective. For example, what is the education of their sons? Just the same as is that of boys in union workhouses and national schools, and very frequently not so good, as they are taught nothing more than boys in such schools are taught, and in general what they do learn is not so perfectly. And when farmers' sons leave school and return home, what training have they to fit them for their profession? None. Formerly, 30, 40, 50, and more years since, the sons of farmers were sent into the fields with the labourers, and there practically to learn the various operations required to be done on a farm; but now, to see a farmer's son at the plough-tail, or reaping, or mowing, is a rare sight indeed. But manufacturers' sons are compelled to practically perform every operation required to be done by them, just as the operatives themselves are. A divine, barrister, lawyer, physician, surgeon, &c., must undergo a severe training before he commences to practise on his own account. But all the preparation a young farmer receives is to follow in the track of his father who had followed in the track of his father, and so on until you get back to when Adam delved and Eve spun, or to that enlightened period when we are told gorillas and not men cultivated the earth, and when the pre-Adamite drag was the improved machine wherewith cereal and pulse seeds were put into the ground. But to give an example or two between the training of manufacturers and that of farmers, if you ask a boy of the former soon after he has left school how many threads there are in a square foot of cotton or woollen cloth which his father makes, he will at once inform you; but if you ask a young farmer how many seeds of any kind of cereals or pulse, you might as well ask a young man-milliner, for the boy had never thought about it, and all he knows is that his father puts in bushels or sacks of seed an acre; but how many seeds these bushels and sacks will put into each square foot of ground the young farmer again knows no more than the young man-milliner, or the gorilla farmer did, whose fore-fathers, according to the Development theory, were the only husbandmen the earth possessed until accident rubbed off their tails and reduced their feet into hands and they became men, invented the pre-Adamite drag, which until lately was a tool in great vogue in a certain part of Gloucestershire, and by which a man is enabled to get into the ground seven times more seed than men of common intellects had found to be necessary and better than more. *G. Wilkins, Wix, near Manningtree.*

PAINLESS EXTINCTION OF LIFE.

If you will have the kindness to permit me a little space, I should like to make a few notes upon the letter of my friend Mr. Hibberd. Mr. H. says: "That the eating of blood was prohibited by the Mosaic law is most true, but are we bound by that law in these times?" I reply, no, we are not; and if Mr. H. will refer to my letter, he will perceive that I took my stand upon higher ground than the Mosaic law, and quoted the command as it was given to Noah, 857 years earlier than those repetitions of it we find in the Levitical law; and as the whole human race were included federally in Noah and his three sons, it is only fair to conclude that whatever injunctions or commands were laid upon them, were intended to be binding upon the whole of their posterity. The positive nature of the command, given as it is without any kind of qualification, precludes everything in the shape of hesitation as its reception as a Divine command; and its unmistakable plainness is such, that there is no room left for equivocation as to whether we will receive it in its entirety, or not. It may be remarked, that all the more force attaches to the command, because it seems to have been the only one given on the occasion, and surely, He who gave the permission to use "every moving thing" for food, has the most perfect right to accompany this permission with the adjunct, "But flesh with the life thereof, which is the blood thereof, shall ye not eat," without having either the reasonableness or goodness of the provision called in question. It may further be remarked, that the command forbidding the eating of blood is analogous to that by which the first human pair were forbidden the use of the fruit of the tree of knowledge of good and evil, and the breach of which command resulted in such woful consequences. That the breach of the law forbidding the eating of blood is not lightly estimated by Him who gave it, we gather from Leviticus xvii. 10, where, although the offence is not made cognisable by any human laws, He takes the case of the offender into His own hands. Hence we find, "And whatsoever man there be of the house of Israel or of the strangers that sojourn among you, that eateth any manner of blood, I will even set my face against that soul that eateth blood, and will cut him off from among his people." In whatever the sin of eating blood may consist, it is certainly not a sin by a man against his neighbour; there seems to be great wisdom therefore in the arrangement that God should deal with the delinquents himself, and are not His eyes still "open upon all the ways of the sons of men; to give every one according to his ways, and according to the fruit of his doings." (Jeremiah xxxii. 19.)

For the purpose of encouragement, I think it is at present unnecessary to mention the repetition of the command as given to the Jews, further than to say, that as they were selected from among the nations for the purpose (among other reasons) of showing an example of perfect obedience to all the requirements of God's law, in contra-distinction to the idolatry and general depravity of the surrounding nations, it was necessary that every moral obligation should be enforced upon their attention. Hence we find, that there might be no manner of excuse for their disobedience, that every moral precept (as well as every ceremonial direction) was committed to writing, now for the first time, and the Levites were commanded to bring them periodically before the attention of the people.

I therefore pass on to the New Testament phase of the question. My friend Mr. Hibberd says, "As for the New Testament declarations, they appear to represent the remaining prejudices of Jewish converts—nothing more." If Mr. H. will refer to Acts xv. he will find that the subjects brought before the attention of the assembled Apostles appear to have been lengthily, freely, and calmly discussed, and the result he will find to be that the converts to Christianity were entirely exonerated from the observance of every merely Jewish observance. But let us note what really was said and done there. Peter said, * * * "Now therefore, why tempt ye God to put a yoke upon the neck of the disciples, which neither our fathers nor we were able to bear? * * *" After Barnabas and Paul had spoken, James, summing up, says, "Wherefore my sentence is that we trouble not them, which from among the Gentiles are turned to God: but that we write unto them, that they abstain from pollution of idols and from fornication, and from things strangled and from blood." Mr. H. will not say that the two first items in this sentence were not moral obligations binding on all men throughout all time. A reference to Gen. ix. 4., shows the fourth item to be of equal obligation, and, by parity of reason, the third also, although not expressly mentioned to Noah. And, further, we find, that when the Apostles did actually write, so anxious were they to impress the minds of the converts that their salvation did not depend upon the observance of any merely Jewish rite, that we find them wording their epistles thus:— * * * "For it seemed good to the Holy Ghost and to us, to lay upon you no greater burden than these necessary things; that ye abstain from meats offered to idols, and from blood and from things strangled, and from fornication, from which if ye keep yourselves, ye shall do well."

"The only question then is, whether this apostolic decree hath been since repealed; and this will best appear by considering the arguments for this repeal, produced by the advocates for eating blood: which I come now to examine.

"First, then, it is said that this decree of the Apostles was only temporary, to prevent giving offence to the Jews, in the infancy of the Christian religion; and, consequently, the reason of it is long since ceased; and that cessation is a virtual repeal.

"In answer to this, I desire it may be considered whether the reasons now mentioned for abstaining from blood do not equally extend to all ages and nations of the world; and if they do, it is evident this injunction of the Apostles had no peculiar relation either to the infancy of the Christian religion, or to the people of the Jews—unless it be thought that the Jews are the only people in the world who are obliged to abstain from cruelty to the creatures, or to recognise God as the author and giver of life; or that this nation only were entitled to the atonement made by blood; and, if so, how came sacrifices to be instituted immediately after the Fall? And how came blood to be prohibited to all the sons of Noah, before there was any such thing as a Jew in the world? This pretence, then, seems very ill-founded." (Revelation Examined with Candour. Dr. Delaney). I really find the subject so full of interest, that I feel afraid of trespassing too much upon your space. I must, however, remark upon the statement I made in a former letter: "it was not always that the flesh of animals was permitted as food for mankind,"—that although Mr. Hibberd thinks I am "probably wrong," if he will turn to Gen. i. 29, he will read thus:—"And God said, Behold, I have given you every herb bearing seed which is upon the face of all the earth, and every tree, in the which is the fruit of a tree yielding seed; to you it shall be for meat." This before their expulsion from Paradise. After which, when it might be supposed that their physical nature was somewhat deteriorated, and they would require more substantial aliment, we find it to have been most explicitly directed, "Thou shall eat the herb of the field" (Gen. iii. 18).

The possession of flocks of sheep, &c., by Abel, Jabal, &c., can very easily be accounted for, because these were required for sacrifice, it being an unchangeable principle from first to last, in God's moral government of mankind, that "without the shedding of blood there is no remission" (Heb. ix. 22), and the difference between clean and unclean indicated those animals proper for sacrifice, and those that were not. The Divine law, no doubt, having been clearly made known on this subject.

Further, Mr. Hibberd says: "Suppose, for instance, we find that the blood is *not* the life; what will Mr. Chitty and those who hold similar views say to it?" Well, I congratulate myself, and all who, like myself, are more conversant with the spade and the pruning-knife than the pen, that the researches of scientific men from time to time do prove to us, that the statements of our Bible are in accordance with the soundest and strictest philosophy. And that blood is the life of the flesh, Dr. Hunter clearly proves by experiment, as mentioned in my former letter. I cannot tell precisely where he will find the detail, though I have been examining by proxy his ponderous volumes at the British Museum, for many days past; but Dr. J. Corrie mentions it in his book, as having been the blood of a chicken experimented with, and as having become distinctly and decidedly vascular (page 16 of the volume mentioned in my former letter). The quotation I gave was from Dr. Clarke, who prefaces that statement and a number of similar ones, with "To support this opinion, Dr. Hunter proves, &c." He evidently had carefully read and compared the statements of the great anatomist. Still further, Dr. Hunter remarks: "I shall now consider the simple act of coagulation abstracted from causes. Coagulation I conceive to be an operation of life; and I imagine it to proceed exactly upon the same principle as the union by the first intention: it is particle uniting with particle by the attraction of cohesion, which in the blood forms a solid, and it is this coagulum uniting with the surrounding particles which forms the union of the first intention, for union by the first intention is no more than the living parts when separated, whether naturally or by art, forming a reciprocal attraction of cohesion with the intermediate coagulum, which immediately admits of mutual intercourse, and as it were, one interest." (Works, Longman & Co., London, 1835, page 34). There appears to be a perfect fitness therefore in the prohibition to eat blood. It may not be eaten, not simply because of the positive command to that effect, but because it is not adapted to the purpose of nutrition, and I think it will be difficult for either Mr. M'Cormack or Mr. Hibberd to persuade those plain and candid people who, receiving without hesitation all the sayings of the Divine word, and valuing them in a ten-fold degree when confirmed by the light of science, cannot very easily be convinced that there is any waste of nutritious food in pouring out that blood, the eating of which has been so positively forbidden.

Only once more, let me ask my friend Mr. Hibberd to recall and reconsider the statement—"if people like black-puddings, they may eat them without violating any law of God." Such teaching is undoubtedly in opposition to one of the most distinct commands to be found within the volume of Inspiration. Apologising for my very long letter. *William Chitty, Stamford Hill, March* 8.

Home Correspondence.

Agricultural Education.—As to the usual education of the sons of farmers in Dorsetshire, it has been the custom to send them when about nine years old, or as soon as they are considered sufficiently strong, to a school in the neighbouring town, and I much fear that it has not been the custom to make very minute inquiries respecting the school; the argument very often made use of is something after this manner: "Oh! A. B.'s sons went there, and they stick to farming, so I'll send my boys." There the boys go, and there they stay until they are about 14 or 15 years old, when they remain at home, and are supposed to acquire the training that is to fit them for gaining a livelihood on a farm. These country schools vary so that I hesitate to give an opinion about them. At some boys acquire a really good grounding, at others they are pushed on too fast—supposed to know everything, literally know almost nothing. In the principal towns, *e. g.*, Dorchester and Weymouth, there are good Grammar Schools, where I believe a really good sound education is imparted, but the school I would now mention in particular, as it is supposed to be chiefly for the benefit of the sons of farmers, is the Dorset County School. I believe the encouragement the promoters of it have received has exceeded their expectations, considering the short time it has been in existence. This fact, too, proves that the farmers are alive to the advantages of education, and ready to profit by them. I believe the present generation of farmers in the county of Dorset to be a rising generation in every sense of the word. My own opinion respecting the best education for the sons of tenant farmers is this,—start the young boy at the neighbouring school, but when he is 11 or 12 years old send him to a large and well-known school, where he may acquire a good classical and general education (the Dorset County School, to which I have just alluded, appears to offer these advantages); if he can here obtain some knowledge of chemistry and botany so much the better, for at the age of 15 or 16 I would have him removed to an Agricultural College, where, then, his time and energies may be more devoted to a special and professional training. If instead of, or after, residing at an agricultural college, he should be placed with a good scientific and practical farmer, it is in my opinion a great point that the man with whom the youth is to reside, of whom he is to learn, and from whom he is to acquire a certain tone—it is of the greatest consequence that this man should be himself well educated; and though his professional knowledge will be actually the first consideration, still he should be able to see something besides a farm, do something besides farm, and talk something besides farming; this last year or two is a time of vast importance, and then a young man may acquire or lose that tone which makes him a desirable member of society, as well as that bearing which makes him honourable and respected in his business. *W. J. P.*

On Killing Animals for Food.—Something has been said upon the best and most humane manner of killing animals for food. The present system of depriving them of existence, whether by bleeding only, or by stunning first, if properly done is so rapid, that scarcely any other plan would answer the purpose so well. Pithing or pricking the spinal marrow would no doubt be instantaneous, but a failure would inflict far more torture on the poor brute than the usual operation now in practice; chloroform, to dull pain, might be used in some cases with advantage, yet the danger of trusting this deadly liquid to ignorant hands, might be more prejudicial to man and beast than the gain of slight relief afforded to the animal about to be killed. The blow given by either the poleaxe or knife is so quick and deadly, and the loss of sensation so rapid, a prolongation of agony can only be caused by carelessness or barbarity on the part of the butcher. However, there are other matters connected with animals destined for the shambles which require to be looked into, and may be considered more cruel as producing a greater amount of suffering than their destruction by experienced men; take, for instance, the shameful way in which dumb brutes are beat about the legs and joints, to force them into trucks, where they have to stand for hours, crowded together, unable to change their position, with aching bones, and without a mouthful of water to quench their burning thirst. Into what disgusting places are they often thrust before slaughter! If means were adopted to mitigate these horrors, the last blow which releases them from misery, would be a trifle in comparison to the unnecessary rough treatment they are subject to, from the savage conduct of men and boys. Children are naturally inclined to torment insects and small animals: this wicked propensity, allowed to grow with their growth, is certain to produce hard, bad men and women. To suggest visionary plans to shorten the last moments of oxen, sheep, and pigs, already extremely limited in the hands of a skilful butcher, is useless. Would it not be better to teach all classes and all ages, and further make them understand, that "the merciful man is merciful to his beast," and also that those who do not show mercy, even to animals, cannot expect to receive mercy hereafter? *Falcon.*

Labourers' Cottages.—A strong argument in favour of the motion discussed in the House of Commons, to convert Unions into large parishes for all purposes relating to the relief of the poor, is the probability

under the new system, of obtaining better accommodation for labourers' cottages within a reasonable distance of their work, in which the separation of the sexes can be observed, instead of crowding them together, like animals, regardless of common decency, to the disgrace of the country and the demoralisation of the people. There are reformatories, ragged schools, refuges, parochial schools, reading rooms, tea-drinkings, penny readings, &c., all excellent, and tending to reclaim and instruct; yet what benefit can be anticipated from such valuable institutions when the great majority of those who attend to receive sound teaching, kind advice, and substantial assistance, go home to live in a state entirely opposed to the precepts inculcated? Clergymen complain of immorality in their parishes; guardians complain of the increase of illegitimate children in the Unions. Statistics tell of the fearful amount of drunkenness amongst the elder members of the working classes, and also point out the early depravity appearing in children of 14 or 15 years of age. These are truths which every one must know who is in the habit of mixing with and visiting the labouring classes: melancholy features in the great family of the United Kingdom, capable of alleviation, but wickedly neglected. In common convertation, when persons lament the sad neglect of public worship, and suggest an organised plan to remedy the evil, they are informed the Gospel is preached every Sunday in the Church, the people have an opportunity of attending, it is their own fault if they neglect their duty. It is true the beautiful services of our Church are read, but often so indistinctly as to be heard only a few feet from the reading desk. Then follows the sermon, not very intelligible to the uneducated if the sounds reached their ears, but often the weak voice of the officiating minister does not half fill the building; mechanical religion is not the thing—we require the substance, not the shadow. *Falcon.*

Ireland.—There appears to be something faulty in the constitution of the majority of the Irish peasants, which satisfies them to remain in a state just above want, when common exertion would raise them on the social ladder, or at least enable them to provide their families with many comforts conducive to health and cleanliness. Here, women and children are often in rags, which a few needles full of thread, and a button or two, would keep together. More industry and economy on the part of the women, with the use of soap and water, would add to the respectability of the household arrangements, and teach the children habits so essential to their happiness in after life. The accumulation of filth in and around the dwellings of the farmers and labourers is disgusting — not from necessity, because there is no means of removing the dirt, neither is it from the scarcity of material for mending and constructing roads. Nor is there any ostensible reason for feeding pigs and poultry in the rooms appropriated to domestic purposes. Nevertheless, all the above objectionable things exist, showing carelessness and idleness to be a common failing of Irish men and women. There is usually a natural desire in the breast of the human animal to advance his prospects in life under adverse circumstances, even those almost beyond the control of man. But when advantages are to be obtained by the simple practice of industry and prudence, it is a mystery that employers and employed do not eagerly seize upon the opportunities offered, and pick the fruit within their reach. Nor is the extraordinary apathy pervading the agricultural interest to be accounted for. Of course there are praiseworthy exceptions in a few localities, which perhaps increases the astonishment that average farming is not rather the rule than otherwise. When wages were low, and little money passed between master and man, and Potatos with salt formed the principal food of the labourer, there might be some excuse for the moral and physical character of individuals presenting a darkened aspect. However, things have now changed for the better—railroads and steam navigation give a facility of intercourse between the markets of England and Ireland, beneficial to both countries if carried on in a business-like manner. Knowledge and capital are the requisites to insure success in agricultural pursuits. A man may have read many books, and have the reports of the Royal Agricultural Society by heart, and possess a fair amount of practical experience into the bargain, and may yet be powerless to enter upon a farm without available money at his banker's, though he may have a chance of taking 200 acres of the best land in England or Ireland. To venture upon such an undertaking without cash to carry on trade would end in bankruptcy to the tenant, and destruction to the farm. The man would be obliged to draw the very strength out of the soil, without returning anything to it, to enable him to provide for himself and his family for two or three years, after which ruin and poverty would stare him in the face, and throw him back upon society more discontented than ever, blaming everybody and everything for the disasters solely to be attributed to his improvidence and ignorance. During the Potato mania in Ireland a bit of land just sufficient to grow a certain quantity of the favourite root, was considered a fortune. The desire to obtain an acre or two for a garden induced men to give higher rents than they could afford, which did not go directly into the pocket of the landlord, or rather owner of the property, but passed through other hands before it reached him, suffering in its progress a diminution, bearing hard upon the tenant. From what little has been said, it may be inferred that many obstacles stand in the way of satisfactory farming in Ireland, a few of which may be enumerated, viz., small holdings; the want of capital; the absence of independent resident families and large landowners—in fact, a money-spending population to consume the produce of the land within reach of the farmers; a profitable market on the spot, instead of sending away, at a heavy charge for carriage, grain which should be consumed by the animals on the premises, and returned to the land in another shape. Emigration is not caused by there being no room for more hands to till the soil, which, in many cases, is only half cultivated. The real cause is obvious: men cannot starve at home, and though work enough might be done with advantage, yet the farmers have not the means, if they had the inclination, to employ labourers. Much of the land therefore remains, during the winter, impervious to the sun and air, and loses the fertilising properties of the atmosphere, so essential to insure vigorous growth. *Falcon.*

Farmers' Clubs.

Framlingham.—*How to Remedy or Ameliorate the present Deficiency of Hay and Roots.*—A paper on this subject by Mr. W. Raynbird, of Hengrave, was lately read, from which we extract as follows:—

1. *Climate and Continental Practice.*—We are too apt to complain of the faults of our much-abused climate, yet it is worthy of attention that when from any cause it deviates from the average, so as to approach either in cold or dryness to the continental, we have great cause to regret the change, and find that we have difficulties sometimes almost insurmountable to contend with. Thus, take into consideration the severe cold, so destructive to vegetable life, that occurred a few years back. Severe as it was, it was merely an accidental approach to the Russian or Northern climate. Let us think for a moment what would be the result, not only on our agriculture, but on our position as a nation, of a winter that should compel us permanently to house our flocks and herds, that should almost confine ourselves to our houses, and that should drive nearly all our agricultural population out of employment. And until the fact was enforced by such a drought as we experienced last year, we were apt to forget that to our insular position, and consequently moist climate, we owe our heavy crops of roots, our fine crops of hay, our green meadows, and our flourishing herds of oxen and flocks of sheep, in which points we excel all continental nations. Last year we had the continental climate, dry and sunny—resulting in continental produce, corn crops of fine quality; but this more than counterbalanced by meadows burnt, and our root crops reduced to a continental standard. We can now readily understand how it is that the Turnip is little grown and less liked on the continent, for a few years of such weather would gradually convert our best Swedes into ill-shaped small roots, in fact into Rape, from which it is probable cultivation originally produced them. Having thus suffered the effects of a continental season, it is probable that we might learn a few lessons—at least take a few points from the ordinary management of our neighbours. Skimming over various accounts of continental modes of feeding and fattening, I extract the following, which may serve to amuse if not to edify:—

Italy: Piedmont.—By the best feeders extraordinary care is taken. The cattle are tied up in stalls, bled once or twice, cleaned and rubbed with oil, afterwards combed and brushed twice a-day. Their food in summer is Clover or other green herbage; in winter a mixture of Elm leaves, Clover hay, and pulverised Walnut-cake, over which boiling water is poured, and bran and salt added: when grains can be procured they are also given. In a short time the cattle cast their coats, and grow smooth and flat. *Flanders.*—In the dairies the summer feed is pasturage day and night. In winter, hay, Turnips, Carrots, grains from the breweries, cakes of Linseed and Rapeseed, Bean and other meals, and the white drink mentioned below. The food for one cow in winter, for 24 hours, is straw, 18 lbs., Turnips 60 lbs. Some farmers boil the Turnips for them, others give them raw, chopping them with the spade; one or other operation is necessary to obviate the risk of the animal being choked, where the Turnips, as is usually the case in Flanders, are of too small a size. In lieu of Turnips, Potatos, Carrots, and grains are occasionally used. Bean straw is likewise given, and uniformly a white drink, prepared both for cows and horses, consisting of water in which some oilcake has been dissolved, whitened with Rye-meal, Oat-meal, or the flour of Buckwheat. *Germany: In Prussia and Saxony* cows and sheep are housed and fed on Potatos and chopped straw. Many Cabbages are grown and made into sauer kraut, with a less proportion of salt than when prepared as food for man. This is found to be very good for cows, and favourable to the increase of their milk, when no green food nor anything but straw can be obtained. *France.*—Arthur Young praises the Limoisine cattle, and recommends a plan there followed of giving them drink soured by means of Ryemeal, which, he says, hastens the process of fattening. A remarkable feature in the agriculture of France, and of most warm countries, is the use of leaves of trees as food for cattle. Not only are Olive, Mulberry, Poplar, Vine, and other leaves gathered in autumn, when they begin to change colour and acquire a sweetness of taste, but spray is cut green in July, dried in the sun, or in the shade of trees in woods, faggotted, and stacked for winter use. During that season they are given to sheep and cattle, like hay, and sometimes boiled with grains or bran, to cows. The astringency of some sorts of leaves, as the Oak, is deemed medicinal, especially for sheep.

Can we learn anything practically from these modes, differing as they do so much from ours? I think we might. We might learn from Flanders how to economise food by boiling, though our more equable climate does not, like the continental, require shelter from the heat of summer and the cold of winter. We might take a lesson from the Piedmont system, in keeping the coats of our cattle clean and healthy; and it is satisfactory to learn that this oiling and brushing is not the whimsy of an amateur, but the practice of farmers, although only foreigners. I think, too, that we might introduce the Walnut-cake with advantage, and that we should find it safer, and as nutritive as Cotton-cake. From Flanders we may learn how to economise our root-crops, and may also take a useful hint from their system of white drinks, either soured or fresh: they must be more nutritive than mere water. The German use of sauer kraut only proves to us that their climate is too severe for keeping them any other way; and their practice with this, and with Potatos and straw, shows us that both sheep and cattle may be fed without hay or Turnips. As for leaves, we in England only use the spray as food for deer. Fortunately we do not require to use them for cattle. However, in cases of emergency, they might be useful; and we already know how beneficial crushed Gorse or Furze is for feeding, on the poor land on which it abounds.

2. *Existing Means.*—My paper naturally divides itself into two parts—the first, how to make the best of such means as we now possess and can procure; the next, how to provide against future similar emergencies, and, in particular, whether we could now supply any to-be-feared deficiency in spring and early summer. And first, how to make the best use of our present means.

Let us mentally retrace our steps through a few years, and we shall perceive how great the additions to our feeding materials have been. Probably some of the senior members present may remember when Linseed-cake itself was considered as an injurious fattening material, one creating blubber rather than fat, and the meat resulting fit neither for the digestion nor the palate of gentility. The metropolitan papers have hardly yet forgotten to taunt our graziers on this point, although (in the eastern counties, at least) there is hardly a beast but what is more or less cake fed. Be this as it may, those comparatively young may call to mind the time when Rape-cake was only thought fit to manure Wheat, and when Locust Beans, Cotton cake, Indian Corn, and Egyptian Lentils were alike unimported and unknown.

Did we so please, our fattened stock might be far more independent of home produce than our population. These last must purchase our milk, butter, and fresh meat; but in the case of our stock everything might, and in many cases has been, of foreign produce, except the straw and water. In nothing has the great advance in the principles of feeding been shown more than in the increased value set upon straw; whether given dry, or steamed and fermented, and mixed with more nutritious substances. Had it not been for this, the difficulties caused by the failure of hay and roots would have been immensely increased. Had it been our practice to have allowed our straw stacks to remain unthatched, as using them solely for litter, we should probably have still wasted or have been unable to turn to good purpose what has this year proved a real succedaneum. And fortunately the fine harvest and the continental summer has produced a straw crop which, with the exception of Beans and of late Peas, is unequalled in quality. I have said that the modern use of straw in feeding originated, and is practised mainly in the eastern counties, of which Suffolk is not the most backward. A few remarks will prove this. Mr. Mechi's employment of it might have been deemed an amateur's experiment; but when we see the practice of such men as Samuel Jonas, who stores up whole barns full of straw chaff (cut by steam-power) to improve by age, and of the late Mr. Phillips, of Santon Downham, near Brandon, who introduced the steaming and fermentation of straw-chaff on a large scale, and when we consider how many of our Suffolk farmers have followed these practices, and substituted straw for hay in successfully feeding horses, cattle, and sheep, we must allow that a real and great advance has been made. How this straw can be rendered more nutritious by admixture is a problem that has been solved by many agriculturists. Thus some have practised making a kind of soup or tea of Linseed, pouring it over chaff, and allowing the mass to remain a short time before using, to cool, incorporate, and ferment. Some (and among them I think I may mention Mr. Welton, of Wickham Market) have employed diluted treacle for this purpose; and the reduced rate of duty on low sugars and molasses ought to induce a further trial of this nutritive saccharine. Others have supplied roots to bullocks in a pulped condition, thoroughly mixing them with the chaff, and allowing a slight fermentation to take place before using them. Nor must I omit the pudding system of the late Mr. Warnes, of Finningham—the feeding with Linseed compounds, of which the late lamented Chairman of this Club exhibited so fine an example at Broadwater. As the details of this and of the cattle compound system are doubtless well known to all my hearers, and are (if I may be allowed to mention it) fully described in the "Agriculture of Suffolk," I shall proceed to methods which may possess greater novelty to us, and be equally worthy of our attention. And, first, I would refer to Mr. Horsfall's system of feeding cows, as detailed in two long articles in the Royal Society's Journal for 1856 and 1857. Those papers are well worth careful perusal. I quote from them merely to show how much use Mr. Horsfall made of steamed Bean-straw chaff, an article often used merely as litter for pigs to pick over, or even for lighting ovens. His system was to give 5 lbs of Rapecake and 2 lbs. of bran to each cow, mixed with a sufficient quantity of Bean-straw, Oat-straw, and shells of Oats, in equal proportions; to supply them three times a day with as much as they will eat. The whole of the materials are moistened and blended together, and after being well steamed, are given to the animals in a warm state. The attendant is allowed 1 lb. to 1½ lb. per cow (according to the circumstances) of Bean-meal, which he is charged to give to each cow in proportion to the yield of milk, those in full milk getting 2 lbs. each per day, others but little; it is dry, and mixed with the steamed food on its being dealt out separately. When this is eaten up, green food is given, consisting of Cabbages from October to December, Kohl Rabi till February, and Mangel till Grass time. With a view to nicety of flavour, I limit the supply of green food to 30 lbs. or 35 lbs. per day for each. After each feed 4 lbs. of meadow hay, or 12 lbs. per day, is given to each cow. They are allowed water twice per day to the extent they will drink. As several of these materials are not commonly used as food, I may be allowed some observations on their properties. Bean-straw uncooked

is dry and unpalatable; by the process of steaming it becomes soft and pulpy, emits an agreeable odour, and imparts flavour and relish to the mess. The analysis proves it to contain double the amount of albuminous matter (especially valuable for milch cows) of meadow-hay. Bran also undergoes a great improvement in its flavour by steaming. Mr. Horsfall's system has, it will be seen, the merit of using but little root or green crops or hay, the very articles in which we are now deficient; and it is equally applicable to fattening stock as to cows, for his system is to sell the cows fat after they become dry. The Oat shellings we could not obtain in Suffolk, as they are the refuse of the Oats in its manufacture of oatmeal for human food. Use of treacle: If it could be purchased for 1½*d.* to 1¾*d.* per lb., it would make good straw, equal for feeding purposes to good hay, at much less cost than the difference in the market value of the two. Mr. Birkett, of Suffolk, has related his experience. He says, "That the experience of farmers in the eastern counties proves molasses to be a safe and economical meth d of feeding bullocks, sheep, young stock, and cart horses, and for milking cows to a certain extent. Bullocks have been kept in equally good fattening condition by using 1 lb. of treacle per day with cut straw, thereby saving 1¼ bushel of roots. It is considered best used with roots cut small and a little meal well mixed, together with cut straw or inferior hay, and it is therefore more economical to spend a shilling on a fattening bullock after the following scale: 4*d.* roots, 5*d.* corn and cake, 3*d.* treacle and chaff, than to give either more root or corn. The main object should be to make straw or inferior hay, equal in quality to good hay by means of molasses. At this year's prices the account may stand thus:—

			£	s.	d.
450 lbs. of good hay, at 5*l.* 10*s.* a ton			1	2	0
450 lbs. good Wheat straw, at 1*l.* 10*s.* a ton	6	0			
72 lbs. of treacle, at 1¾*d.* per lb.	10	6			
Cost of cutting straw with chaff and mixing treacle	1	0			
			0	17	6
			£0	4	6

Or rather over 1*l.* a ton in favour of the use of treacle. The malt and Linseed compound is now in the market, and many farmers have already tried it with success. No doubt it is a first-rate condiment for mixing with other and less palatable substances, especially for stock out of condition or off their feed. It is a considerable object to obtain so excellent a saccharine product for an article of our own growth, as our moist climate renders it difficult to obtain this substance in sufficient quantity in the ordinary food. But as an article of common use without admixture I think it bears a higher price in proportion to its real value than many others. At 12*l.* a ton it is dearer than the best oil cake, and probably not so fattening a food, and certainly not so improving to the manure. The question often arises, What is gained or lost by the conversion of Barley into malt? This I will show in a few words. From Dr. Thompson's comparative analysis of Barley and Malt he found

	Barley.	Malt.
Gluten	8	1
Sugar	4	16
Gum	5	14
Starch	83	69
	100	100

Showing that about 20 parts of the starch in Barley is converted into sugar and gum, and that in our malt only one-sixth part is of a saccharine nature, the rest being unconverted starch, gum, &c. The question then is whether we could not procure this saccharine substance far cheaper and in a more concentrated form in the shape of molasses or Locust Beans? and of this I think there is no doubt. Next we must inquire what Barley loses in weight by the process? From Mr. Lawes's careful experiments it appears that 100 lb. of Barley made 77½ lb. of fresh malt, the loss in dry substances was about 10 per cent. only, the rest being mere water. The loss in nitrogen Mr. Lawes states at 13½ per cent., and the loss in mineral matters at about the same; yet, by including the malt dust and kiln dust, he found that there was only a loss of 0.22 of mineral matter, and 3.63 of nitrogen, instead of 18½. He also found that the amount of nitrogen in malt dust was one-ninth as much as was contained in the whole amount of malt produced. The general conclusion which Mr. Lawes came to was, that steeped Barley is decidedly superior to malt in its feeding qualities, and to Barley in a dry state. However, Mr. Hudson, of Castleacre, states, as the result of his experience, that one peck of malt per day would lay on more flesh than 14 lb. of oilcake or 1½ peck of Barley meal, when given to beasts of 60 stones weight, with the same quantity of hay and Swedes. It is probable, Dr. Voelcker, the eminent chemist, thinks, that malt has far more nutritious properties than its saccharine analysis shows. An infusion of malt (as brewers well know) changes a large quantity of starch into gum and sugar, substances more easily digestible. This action, it is probable, takes place in the stomach of the animal just the same as in the vat of the distiller. Therefore, all the starch in the food is converted into soluble substances, and digested, instead of much of it passing through the body. If this is the case, we ought to supply the malt in small quantities, and always mixed with other starchy food. We might also with advantage use the infusion, or wort, poured on chaff. Some continental experiments, in which small quantities of malt mixed with mashed Potatos improved the feeding value of the food to an extraordinary degree, seem to prove the correctness of Dr. Voelcker's views. Indeed, the subject of the conversion of starch to sugar, and of the result of the acetic and vinous fermentations, in relation to cattle and stock feeding, has not yet received the attention it deserves. The amount of sugar in our common crops may be taken thus: Mangel and Beet, 10 to 12 per cent.; Carrots, 6½ per cent.; Turnips 2 to 5 per cent. By which it will be seen how greatly Beet exceeds other crops in this valuable property. With reference to the use of Wheat as food, probably all present will remember the interesting letter of Mr. Frere, the Editor of the Royal Agricultural Society's Journal, advocating the use of Wheat and Barley-straw chaff for feeding stock, particularly sheep. A letter of his, published so recently as January 2, corroborates his practice. [Already published in No. 1 of this year's *Agricultural Gazette.*] Cheap as Wheat is, I do not think many Suffolk farmers have yet followed Mr. Frere's plan, other feeding articles being still cheaper and safer to use. Some years ago, when Wheat was nearly as cheap, it was extensively used boiled in the feeding of hogs. If we examine the manufactured foods, I think we shall find that none stood higher than those of Beach, of Dudley, the successor of Simpson. However, even these are too dear in price, viz., 15*s.* and 25*s.* a cwt., although no doubt they could hardly be afforded cheaper with the commission and advertising charges, and the extensive business and long standing of the proprietor gives a guarantee as to their genuine character. But why should not the farmer prepare his own foods? With an American grist-mill it would be easy, and as this machine is capable of reducing Locust Beans (the cheapest ingredient for saccharine matter) into a meal, a cheap food might be made of an equal mixture of Bean-meal, Locust Beans, and green Rape-cake, the cost of which, including manufacture, would only be 8*l.* or 9*l.* a ton. Or perhaps a still better mixture would be one that we are now using for cattle and sheep at Hengrave, viz., equal portions of Bean-meal, of the new malt mixture, and of Smith's of Liverpool Palm-nut meal, the last being, as Dr. Voelcker observes, very rich in oil and fatty matter, and containing more than double the amount of ready-made fat than any of the foreign samples of Palm-nut meal or cake. The cost of this mixture per ton (taking the malt at 12*l.* a ton, the Beans at 8*l.*, and the Palm meal at 6*l.* the cost, and railway charges 25*s.*) is 7*l.* 5*s.*, so that the whole, allowing for grinding and mixing, could very well be afforded at 10*l.* a ton.

3. *Future Emergencies.*—My next heading to this paper was, "How to provide against future emergencies;" but I must here be very brief, and must confine myself merely to hints, trusting that my hearers will supply much of the deficiency, and correct anything that may appear erroneous.

In the first place it must be asserted that there is no crop that has more often disappointed the expectations of the farmer, and occasioned greater losses, than the Turnip crop. The fly, the caterpillar, and the grub have alike destroyed it; and the too frequent cultivation, and, perhaps, the selecting small-topped fine-shaped roots, has made it so delicate that it is the most precarious crop grown. Even with our numerous artificial manures we cannot attain the size and health of former years; in fact, such manuring seems to hasten the decay of the plant, and render it more injurious to the animals feeding on it. But the question is—what we could substitute for them on a large scale, as most of the Brassica tribe are subject to the same diseases? Beet, excellent as it is, is too tender to stand the frost; Carrots and Parsnips are too expensive in their cultivation. We must still cultivate Turnips, but we must learn not to place too much dependence upon them. Perhaps we might grow with advantage the large Cattle Potatos—the Yam and the French Chardon for example; perhaps even the Jerusalem Artichoke might be usefully grown on a small scale. It is a garden plant, we know, but we also know that a garden plant—nay, what was considered a mere flower, the Lupine—has been a real boon to our light lands since its introduction by Mr. Crisp a few years back. In fact, I know of crops that have been as valuable as the land they grew on. In lieu of some of the worst of our pastures, it would, I think, be very beneficial to grow some perennial plant on the convertible system of husbandry, and use the produce principally for soiling. Of these plants Sainfoin takes the first place, and I have no doubt it would succeed on all mixed soils that contain calcareous matter. Lucerne would be excellent on better land, Chicory, so extolled by Arthur Young on poor land, and perhaps the Prickly Comfrey (which I have seen grown at Cirencester) would be very useful on small occupations.

Mr. D. Smith, jun., observed that last year he foresaw that there would be a great scarcity of hay, and he took the precaution to mix straw with his hay, and he found that plan to answer, for the straw was as palatable and sweet as the hay, and he cut it up with all the Pea and Bean straw he grew on his farm, mixed with Barley straw, to make it go as far as he could. He fed his bullocks to about forty stones, and allowed them each three quarters of a peck of meal, consisting of a third each of Indian Corn, Barley, Peas, and Beans. He also gave them all the chaff he could make them eat, and about two or three peck-skeps of roots, whilst there was always a rack full of Barley straw before them, and he found them eat it greedily this year.

Mr. Barthropp said he found if Bean straw was cut up to chaff, horses and cattle ate it in preference to anything else, and did very well on it. He had no convenience for steaming it, but that he had no doubt would much improve it by rendering it more digestible. It had been remarked to him by small people who kept cows that if they had Bean straw they gave a great deal more butter than when they had hay. This year, when there was so great a scarcity of hay, treacle was very advantageous. The London dairymen bought the very worst hay they could get, and had a mixture of treacle and hot water in a large tub, into which a truss of hay was dipped; it was then allowed to drain, and given to the cows. They found it most economical food. He (Mr. Barthropp) used a great deal of treacle in that way. He gave each animal a pint or a little over each day; it depended on the amount of straw they wanted to be consumed, that they made the "tea" strong or weak. He used to give about 14*l.* 10*s.* a ton for this scum treacle.

Mr. Goodwyn believed that the failure of a root crop was no injury at all, because he had always found that the shorter the root crop the better the health of his sheep. When he had had to resort to a great deal of dry food, his losses of sheep had been 15 to 20 per cent. less.

Mr. Barnes (Framlingham) reminded Mr. Goodwyn that when there was a heavy root crop there was a wet season, and probably the season had something to do with the health of the sheep.

Mr. Barnes (Kettleburgh) said his plan had always been to economise the roots by cutting up the straw. At the present time he had ten bullocks, to which he gave a bushel and a-half of chaff, and two bushels of Beet, and found that they did better than if they had more Beet. He grazed them to from 50 to 60 stones. He also gave them half a peck of Pea meal and half a peck of oilcake. He used one of Gardner's machines. He considered that he made the profit upon the muck, but none at all upon the flesh of the beasts. He had had these bullocks 18 months, and last June was offered 14*l.* each for them, and perhaps now they were not worth more than 25*l.*, and he would leave them to guess where the profit was. The muck was made in the open yard, and without being watered, and he had put a clay bank round it that it might not drain away. He found each bullock made about 10 loads in two months. He really found that these bullocks had cost him 26*l.* 10*s.* each, and he very much questioned whether he should make more than that money and 10*s.* or 1*l.* in addition.

Reviews.

Science and Practice in Farm Cultivation. By Prof. J. Buckman. *No. 4, How to Grow good Corn.* R. Hardwicke, 192, Piccadilly.

We have here chapters on "the Nature of Corn;" on Wheat and *Ægilops*; on the Wild Oat; on the supposed origin of Barley and Rye; on the Blights of Corn crops; on their Insect Enemies; on Manures; on Thin Seeding; and on Harvesting. There are thus collected a number of short and suggestive references to many topics of great agricultural interest. And without giving anything like an exhaustive or fully detailed agricultural account of the several subjects named, the book, which is coming out in a series of shilling parts, will do good service in the agricultural world by directing attention to what is often buried out of ordinary sight under lifeless routine.

The Quarterly Journal of Science. No. 6. J. Churchill & Sons.

The Chronicle of Agriculture in the present number of this periodical enumerates the Malt Tax agitation, the "Locomotives on Highways" question, the Society of Arts on Cottage Building, and Baron Liebig on Sewage, as the topics of the past quarter.

Besides the Quarterly Chronicles of Science, the Journal contains a number of very interesting papers on more general subjects; and we cannot imagine a periodical more likely both to gratify and stimulate the curiosity of thoughtful and intelligent men, of whom certainly we have a large number in the agricultural world.

Miscellaneous.

Uniformity in Land Drainage.—Take any two cases of soil and climate, as different as this island furnishes, and yet it must be admitted that the particulars in which these cases resemble one another are much more important and influential than those in which they differ from each other. They may be respectively clay and sand, pasture and arable, with an annual fall of rain respectively of 25 and 50 inches—but in both cases you have a living plant capable of sending its roots some 4 or 5 feet downwards and around it—a stationary plant, nevertheless, whose food must be brought to it if it is to grow—a plant incapable of absorbing anything by the roots but things soluble, and probably indeed dissolved in water. In both cases you have a porous soil—there are no such things as non-porous clays, as they have been called—a soil which in virtue of this porosity holds water—a soil containing matter soluble in water; and which in virtue of the quantity of internal surface, so to speak, which its porosity confers upon it, possesses, in proportion to the fineness of its particles and the smallness of its pores, an increasing power of attraction and retention over the water which it holds. In both cases you have rain-water traversing the air and dissolving soluble matter out of it, acquiring thereby greater powers of dissolving what is soluble in the soil—falling evenly upon the land, and lodging on and under the surface of it—carrying air and other substances into the soil and through it—capable also of evaporating from the soil and so producing cold—capable, in virtue of its fluidity, of running through the soil or over it. In all these particulars all soils in all cases resemble one another. Their differences are differences of degree, not differences of kind. And the rules of practice which the land drainer finds efficient under one set of circumstances prove very generally efficient under others. Nevertheless, there is hardly a speaker on the subject at agricultural meetings now-a-days who does not think it incumbent upon him to insist upon the propriety of adapting his practice to the circumstances of his case. Some soils are clays and uniform to a great depth, others are a patchwork of clays and sands and full of springs—others are laid upon a subsoil built of alternate layers of rock and earth—what an absurdity, he justly says, to lay down artificial rules which shall apply uniformly over tracts of country where uniformity is not the natural rule. Of course there is a certain truth in this, and the gridiron plan, as it is in derision termed, consisting of parallel drains at regular intervals and uniform depth, is not universally applicable; nevertheless, the cry against this uniformity is now extravagant; and I have never yet seen the drainage plans of a skilful drainage engineer—the map on which his work has been laid down—that did not, after all his outcry against gridiron uniformity of parallel lines, represent in many, at all events, of the fields of the estate, the pattern of just as good a gridiron as any man might wish to see. His practical good sense had, notwithstanding his outcry against theoretical uniformity, led him to adopt parallelism of drains at intervals of greater or less distance according to the natural facility of the soil for permitting the passage of water through it. And we must not forget one tolerably uniform feature in the natural conditions of the case—viz., the fall of rain-water on the several fields of an estate. *Morton's Farmer's Calendar.*

Calendar of Operations.

April.—*Mangel Wurzel.*—The latter end of this month is the best seed time for the crop. We extract the following, somewhat abridged, from Sutton's Farm Seed List:—

"A good distance for Mangel is 2 feet 6 inches from row to row, and 20 inches from plant to plant in the row. This will produce a greater weight per acre than can be obtained when the drills are 3 feet apart. The best mode of sowing is with the drill. If dibbling is adopted, care must be taken not to set the seed more than half an inch below the surface, or it will not germinate freely, but comes up at various times, the seeds most deeply sown coming much later than those nearer the surface, and thus producing an uneven crop. For this reason land intended for Mangel should be ploughed early, and settled down firm before the seed is sown. After sowing, the land should be rolled, especially if it is light or the weather be dry. It may be sown from middle of April to middle of May, but the end of April is best. If sown earlier, and the summer should be hot, it is liable to be too forward and run to seed. As the weather at the sowing season is so uncertain, it is good policy to sow thickly to make sure of a full plant.

The following is a letter from Mr. Adkins, of Milcote, to a friend who had applied to him for instructions on the cultivation of Mangel Wurzel:—

"My practice in preparing the soil for growing Mangel is so similar to your own that one description of the operation might serve for both. Wheat is always the preceding crop. The farmyard manure, previously drawn and slightly fermented in a heap, is spread and the land ploughed before Christmas, if possible, but at any rate soon enough to ensure a frost for the thorough disintegration of the surface deep enough to form a good bed of free mould. So soon in April as weather permits the land is well harrowed as deep as it will work freely. By this plan the moisture is retained, and thereby the seed induced to vegetate. By deeper cultivation and evaporation the soil is often rendered so dry that the germination of the seed is dependent on rain. Many a plant of Mangel has been lost in a dry spring by giving the land what you so well describe as 'the orthodox amount of spring tillage,' instead of permitting it to remain in the state which a Warwickshire farmer would call 'stale furrow.' The seed (about 7 lb. per acre) is drilled on the flat at 28 inches from row to row, and deeper than is usually recommended—fully an inch. As soon as the thistles appear I *dig* them to the depth of the plough, and the after cultivation of the crop is the usual one of repeated hoeings by hand and horse labour. When the rows appeared there was not a gap on the whole area, but as a little Swede Turnip was mixed with the Mangel seed we have had difficulty to avoid leaving a few of them, and consequently there is a sprinkling of Swedes amongst the other roots."

Lucerne.—The present is the seed time for this crop. It is drilled in rows about 12 inches apart (15 to 18 lb. per acre), on any deeply tilled land in good heart. Land with a calcareous subsoil is to be preferred.

Notices to Correspondents.

Failed Clover Lea: *Agricola.* You had better sow Italian Rye-grass—if any Rye-grass at all—as early as possible, in order to a crop at midsummer. But it would in general be better policy, we imagine, to plough it up and put in Vetches.

Gas Lime: *W J S.* It is a common practice to apply a waggon load of gas lime or even two per acre for Potatos in Gloucestershire. It should be mixed up in compost and turned over and over, or spread thinly over the land for a month or two before the crop is planted.

Irish Yew: *J. R.* asks if the Irish Yew possesses the same poisonous quality as the English Yew. [Can any one state an experience on this subject?]

Park Paling: *R. C.* Six feet close oak park fencing, split oak rails, on three-bar framing, costs about 10*s.* a yard running measure.

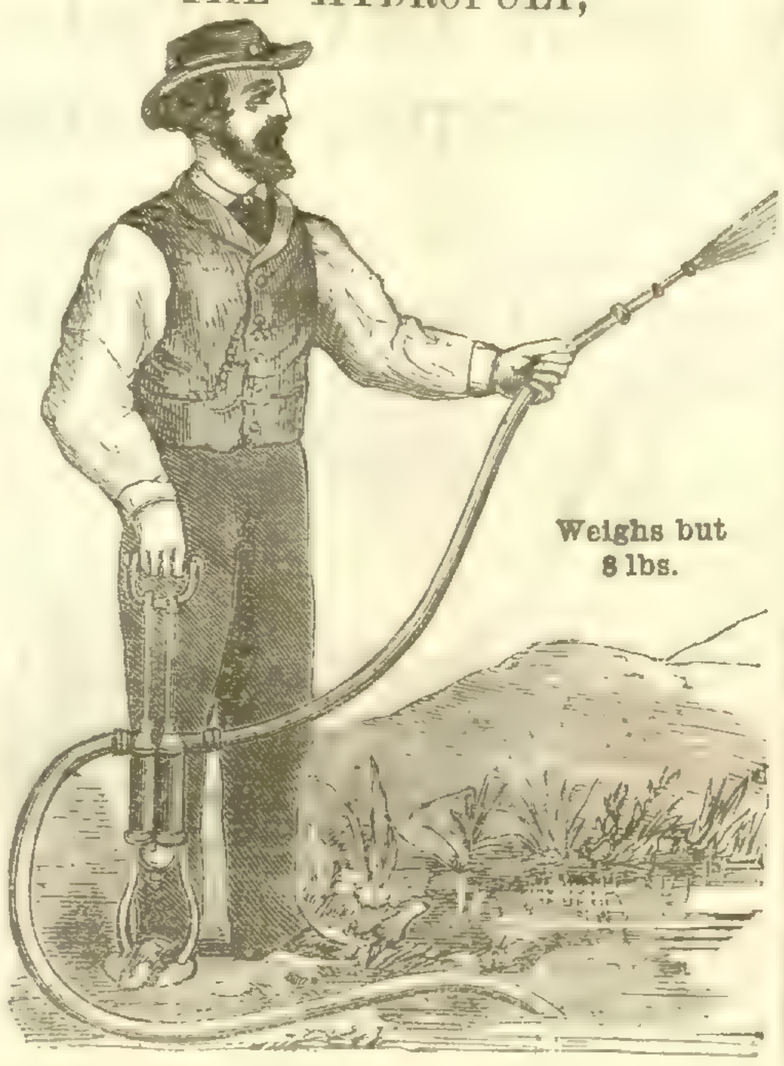
Seeds: *A. L.* The quantity of seed to be purchased is to be obtained by multiplying the following quantities per acre by the number of acres to be sown. Wheat, 1½ to 2 bushels; Barley, 2 to 3 bushels; Oats, 3 to 4 bushels; Beans, 1½ to 3 bushels; Peas, 2 to 3 bushels; Vetches, 2½ to 3 bushels; Sainfoin, 4 bushels (of the rough seed); Turnips, 3 lbs.; Mangel Wurzels, 6 to 8 lbs.; Carrots, 6 to 7 lbs.; Parsnips, 5 to 7 lbs. Mixed Grass seeds, 40 to 50 lbs.

Shelter for Sheep: *Farmer.* The following is the theory of this subject, and we hardly know in the whole compass of the art a more satisfactory instance of scientific explanation. One hundred sheep in the Turnip-field during the four winter months from November to February will inhale about 1,400,000 cubic feet of air at an average temperature of perhaps 38°, weighing therefore 100,000 lb., which will burn within them about 6000 lb. of carbon, corresponding to 100,000 lb. of Turnips, or 40 per cent. of their whole consumption, and thus maintain the heat of their bodies. Now, if this heat was maintained artificially, or to speak within bounds, if the waste of it by excessive external cold were diminished by shelter against wintry winds, the necessity for this enormous loss by combustion within the lungs of these animals would also be diminished, and a great saving of food would follow. And not only the necessity but the possibility also of so great a consumption would be avoided; for as shelter and confinement produce warmth, they will rarify the air breathed, and even supposing the animals to inhale an equal bulk of it, this will no longer represent an equal weight, or a quantity of equal ability to burn up the food they consume.

Superphosphate of Lime: *G M.* Acid to the amount of from a quarter to a third of the weight of bones, is used. If you only want a small quantity made, you had better sift the bone-dust and put the coarser fragments into the mixed acid and water first, and get this thoroughly done, and then add the fine dust and mix it in. Otherwise the coarse fragments are likely to escape the action of the acid. Use 20 lbs. of acid and 20 lbs. of water mixed in a cask; then put in the 40 or 50 lbs. of fragments sifted out of 100 lbs. of bone-dust, and afterwards put in the bone-dust and mix up the whole, and if necessary add ashes, &c., to make the mass dry.

Wheat as Cattle Food: *L.* Mr. Frere's note recently published, gives the most recent illustration of the subject. It is now some years since Mr. Hudson, of Castleacre, said:—"The very low price of Wheat has induced us to feed our cattle upon Wheat on a large scale, it being cheaper than linseed-cake. I never remember so large a quantity of Wheat consumed by cattle as there has been during this season, and a great deal is being made into malt instead of Barley." At a meeting of the Oxford Farmers' Club, Mr. Osborne said:—"He was in favour of Wheat for sheep, as it was well adapted for producing mutton and wool. He never found the slightest harm or loss from using it. He commenced by taking his sheep home, and starving them down till they became used to bran and water, and when that had gone through their system, then he used Wheat. He gave them a pint, or 1 lb. per head per day; and if they adopted the plan of starving them down to it, they would find no loss; but if they did not do so, and threw in a quantity, some of the sheep would, perhaps, take a quart, which would do them an injury, while others would get none." Mr. J. Williams, of Northcourt, Abingdon, had watched a flock for some months that had been consuming half a pint of Wheat per day; they thrived quickly, and came very heavy to the scale; but there was a tendency to scour, and the shepherd told him he was obliged to leave off the Wheat because it scoured the lambs, and for the last month he had given them Clover, hay, and Turnips, upon which they made the same progress; but he doubted whether they did so well without corn as with it. He could not advocate using Wheat alone; and was of opinion that a mixture of one-third Wheat, one-third cake, and one-third old Beans would be preferable, as the cake would produce fat, Beans made muscle, while Wheat would give strength to the general frame.

THE HYDROPULT,



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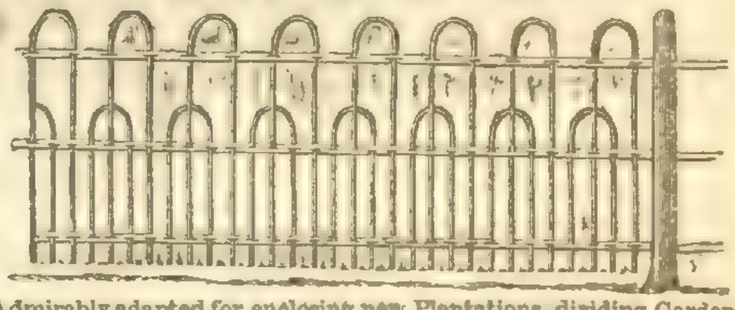

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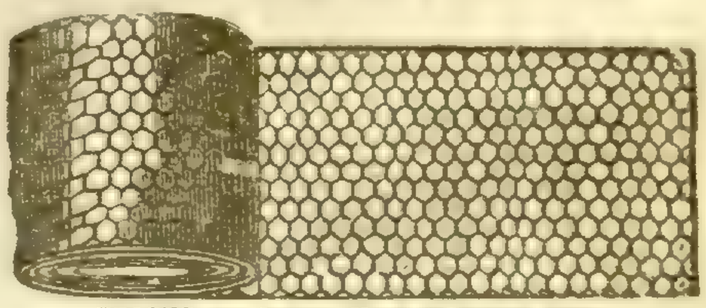

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1½ in.	Small Rabbits, Hares, &c.	0 4	0 4½	0 4½	0 6	0 5½	0 7	0 7	0 9
1½ in.	Smallest Rabbits ..	0 5	0 6	0 5½	0 7	0 7	0 9	0 9	0 11
1 in.	Pheasantries, &c. ..	0 9	0 11	10½	1 1½	1 3	1 6	1 9	2 0
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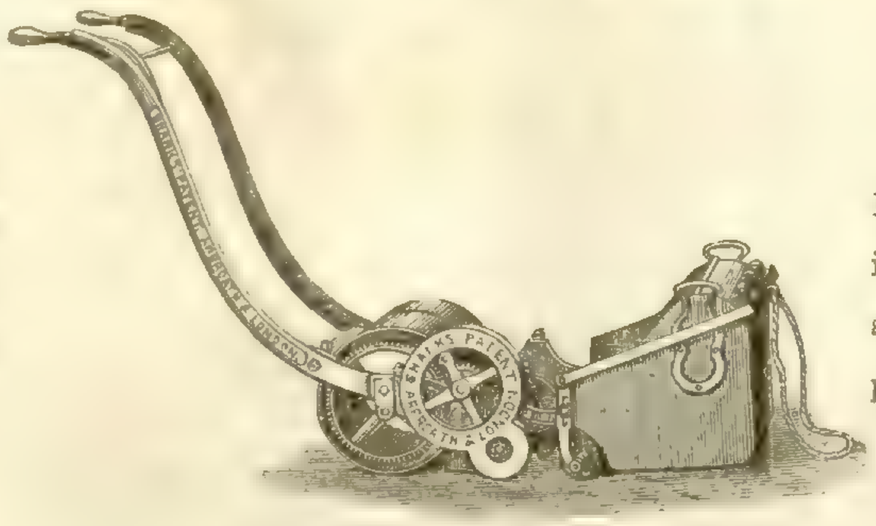

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The Right Hon. the Earl of Dartmouth
The Right Hon. the Earl of Guildford
The Right Hon. Earl Spencer
The Right Hon. Earl Fortescue
The Right Hon. Earl Vane
The Right Hon. Earl Nelson
The Right Hon. the Countess of Stair
The Right Hon. Countess de Morella
The Right Hon. the Countess of Waldegrave
The Right Hon. the Countess of Cottenham
The Right Hon. Viscountess Milton
The Right Hon. Viscountess Castlereagh
The Right Hon. Viscount Seaham
The Right Hon. Viscount Duncan
The Right Hon. Viscount Eversley
The Right Hon. Viscount de Vesci
The Right Hon. Viscount Boyle
The Right Rev. the Lord Bishop of Durham
The Right Rev. the Lord Bishop of Ripon
The Right Rev. the Lord Bishop of Killaloe
The Right Rev. the Lord Bishop of Melbourne
The Right Rev. Lord Bishop Nixon
The Right Hon. Lord Bagot
The Right Hon. Lord Monck
The Right Hon. Lord Hatherton
The Right Hon. Lord Kinnaird
The Right Hon. Lord Lovat
The Right Hon. Lord Rollo
The Right Hon. Lord Braybrooke
The Right Hon. Lord Blantyre
The Right Hon. Lord Berwick
The Right Hon. Lord Hulliburton
The Right Hon. Lord Churchill
The Right Hon. Lord Ossulston
The Right Hon. Lord Portman
The Right Hon. Lord Vernon
The Right Hon. Lord Willoughby de Broke
The Right Hon. Lord Cremorne
The Right Hon. Lord Dalrymple
The Right Hon. Lord Inchiquin
The Right Hon. Lord Rokeby
The Right Hon. Lord Rayleigh
The Right Hon. Lord Ashtoun
The Right Hon. Lord Stanley
The Right Hon. Lord James Murray
The Right Hon. Lord Berners
The Right Hon. Lord Harris
The Right Hon. Lord Kingsdown
The Right Hon. Lord Rivers
The Right Hon. Lord Taunton
The Right Hon. Lord Oranmore
The Right Hon. Lord Wharncliffe
The Right Hon. Lord Bateman
The Right Hon. Lord Lilford
The Right Hon. Lord Sudeley
The Right Hon. Lord John Thynne
The Right Hon. Lord Cavan
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The Right Hon. Lord Dunfermline
The Right Hon. Lord Abercrombie
The Right Hon. Lord Castlerosse
The Right Hon. Lord Carrington
The Right Hon. Lord Dufferin
The Right Hon. Lord Poltimore
The Right Hon. Lady Leighton
The Right Hon. Lady Rashleigh
The Right Hon. the Ladies Boyle
The Right Hon. Lady Holland
The Right Hon. Lady M'Taggart
The Right Hon. Dowager Lady Clinton
The Right Hon. R. C. Nesbitt Hamilton
The Right Hon. Lord Crewe
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The Right Hon. Lord Binning
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The Hon. Major Murray
The Hon. Chief Baron Sir Frederick Pollock
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The Hon. Percy Barrington
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The Hon. and Rev. A. G. Campbell
Hon. and Rev. C. A. Harris
Hon. and Rev. W. H. Spencer
Sir John Neeld, Bart.
Sir Arthur Elton, Bart.
Sir Arthur Halkett, Bart.
Admiral Sir Philip Hornby
Sir J. H. Crewe, Bart.
Sir J. M. Steel Graves, Bart.
Sir Charles Taylor, Bart.
Sir George Edmondstone, Bart.
Sir Lydstone Newman, Bart.
Sir Coleman Rashleigh, Bart.
Sir John R. Carnac, Bart.
Sir Philip Egerton, Bart.
Sir William Maxwell, Bart.
Sir Archibald Dunbar, Bart.

Shanks' Patent Lawn Mowers are warranted to give ample satisfaction, and if not approved of may be at once returned.

☞ A. S. & Son *beg to intimate that their Warehouse at* 27, *Leadenhall Street, is the only place in London where intending purchasers of Lawn Mowers can choose from a stock of from* 150 *to* 200 *Machines. All sizes are kept in stock, whether for Horse, Pony, or Hand Power, and orders are executed on the day they are received.*

PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N. B.
LONDON OFFICE and SHOW ROOMS, 27, LEADENHALL STREET, E.C.

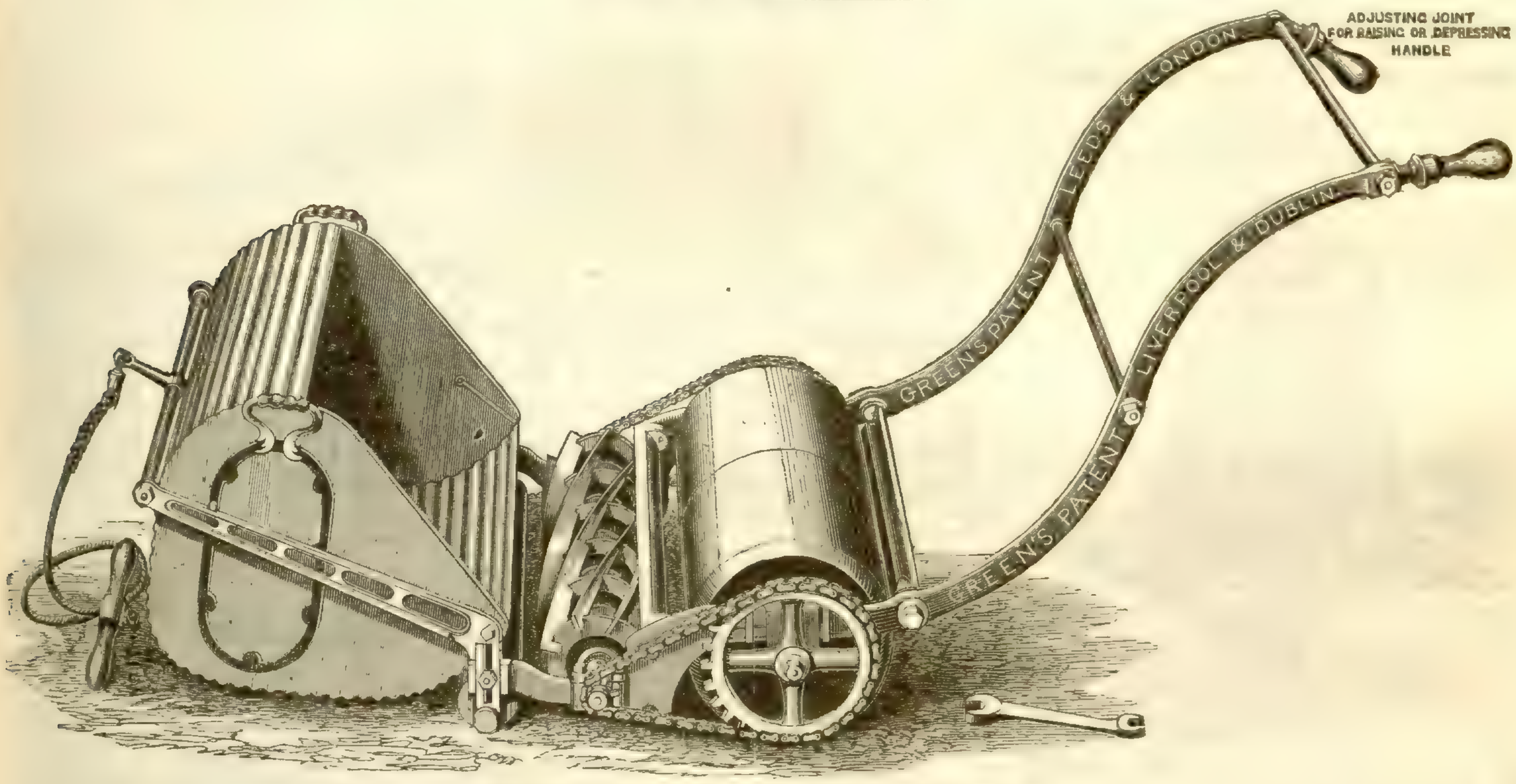
GREEN'S PATENT SILENS MESSOR,

OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

BY SPECIAL APPOINTMENT,
SOLE MANUFACTURER

TO HER MOST GRACIOUS MAJESTY
THE QUEEN.



IMPROVED PATENT LAWN MOWER FOR 1865,

AS RECOMMENDED BY THE JUDGES OF THE ROYAL HORTICULTURAL SOCIETY'S SHOW HELD JULY 20, 1864.

GREEN'S PATENT LAWN MOWERS have proved to be the best, and carried off every Prize that has been given in all cases of competition. The Judges at the Royal Horticultural Society's Show, held July 20, 1864, awarded them a First-class Certificate (no Prizes were given), and, at the same time, suggested a slight alteration, which has been done, and Messrs. T. G. & Son consider their MACHINES now as near perfect as possible.

Messrs. T. G. & Son beg to state that, owing to the great demand for their MACHINES in past years, they have been unable to execute orders with that despatch due to their numerous customers, but are now happy to inform them, that they have made such alterations and arrangements in their premises, whereby they trust to be in a position to send off all orders the day they are received.

PRICES OF HAND MACHINES.

To cut 10 inches	£3	10	0	*Suitable for a Lady.*	To cut 18 inches	£7	10	0	*Suitable for One Person.*
" 12 "	4	10	0	" "	" 20 "	8	0	0	*Suitable for Two Persons.*
" 14 "	5	10	0	*Suitable for One Person.*	" 22 "	8	10	0	" "
" 16 "	6	10	0	" "	" 24 "	9	0	0	" "

Packing Cases are charged at the following low rates, viz.: for the 10 and 12 inches Machine, 3*s.*; 14 and 16 inches, 4*s.*; 18 and 20 inches, 5*s.*; 22 and 24 inches, 6*s.* Parties providing themselves with Lawn Mowers are recommended to purchase the Cases in which to stow them away, when not in use, to prevent them from getting damaged; if returned, two-thirds will be allowed for them.

PRICES of HORSE, PONY, and DONKEY MACHINES, including Patent Self-delivery Box; Cross Stay complete; suitable for attaching to ordinary Chain Traces or Gig Harness.

To cut 26 inches	£13	0	0	*Leather Boots for Donkey, 18s.*	To cut 30 inches	£21	0	0	*Leather Boots for Pony, 22s.*
" 28 "	15	0	0		" 36 "	24	0	0	
" 30 "	17	0	0		" 42 "	27	0	0	*Leather Boots for Horse, 26s.*
					" 48 "	30	0	0	

The 26, 28, and 30 inches can easily be worked by a Donkey, or by Two Men, on an even Lawn, the 30 and 36 inches by a Pony, and 42 and 48 inches by a Carriage Horse; and, as the MACHINES make no noise in working, the most spirited animal can be employed without fear of its running away, or in any way damaging the MACHINE.

Both the HORSE, PONY, DONKEY, and HAND MACHINES possess (over all other Makers) the advantage of self-sharpening: the cutters being steel on each side, when they become dull or blunt by running one way round the cylinder, can be reversed again and again, bringing the opposite edge of the cutter against the bottom blade, when the MACHINE will cut equal to new. Arrangements are made that the cylinder can be reversed by any inexperienced person, in two or three minutes.

The above MACHINES are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England; are warranted to give satisfaction, and, if not approved of, can be at once returned unconditionally.

THOMAS GREEN AND SON,

SMITHFIELD IRON WORKS, LEEDS; 2, FARRINGDON ROAD, HOLBORN HILL, LONDON, E.C.;

19, EDEN QUAY, DUBLIN; and HADWIN'S BUILDINGS, TITHEBARN STREET, LIVERPOOL.

NEW TARIFF OF GLASS AND HORTICULTURAL GOODS.

THOMAS MILLINGTON,

GLASS AND COLOUR MERCHANT,

87, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

HAND GLASSES.

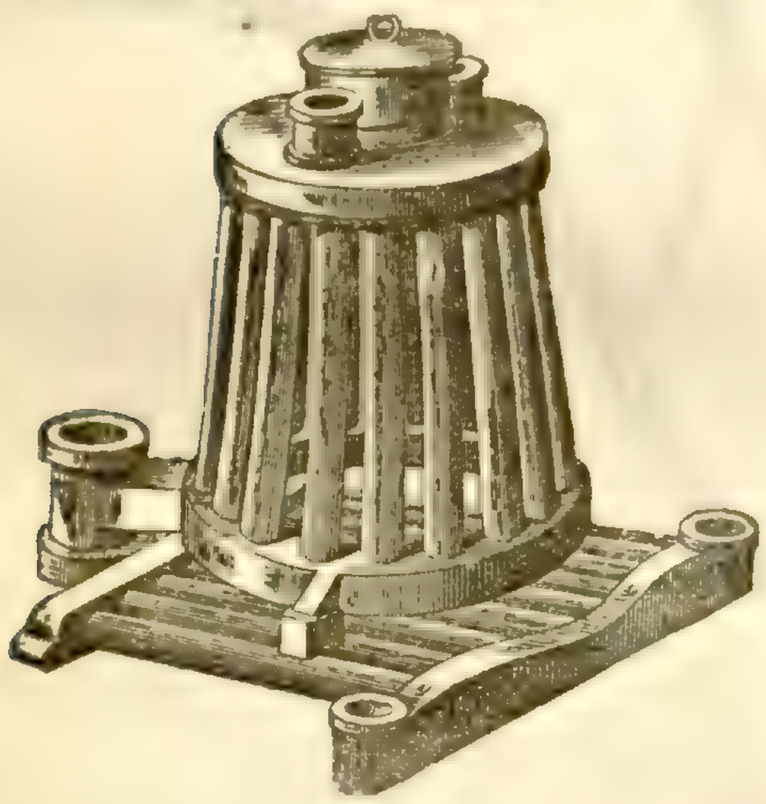
PRESERVE JARS.

REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.

MILK PANS.

See Advertisement the first week in the month, or on application.

BY HER MAJESTY'S ROYAL LETTERS PATENT.



ORMSON'S

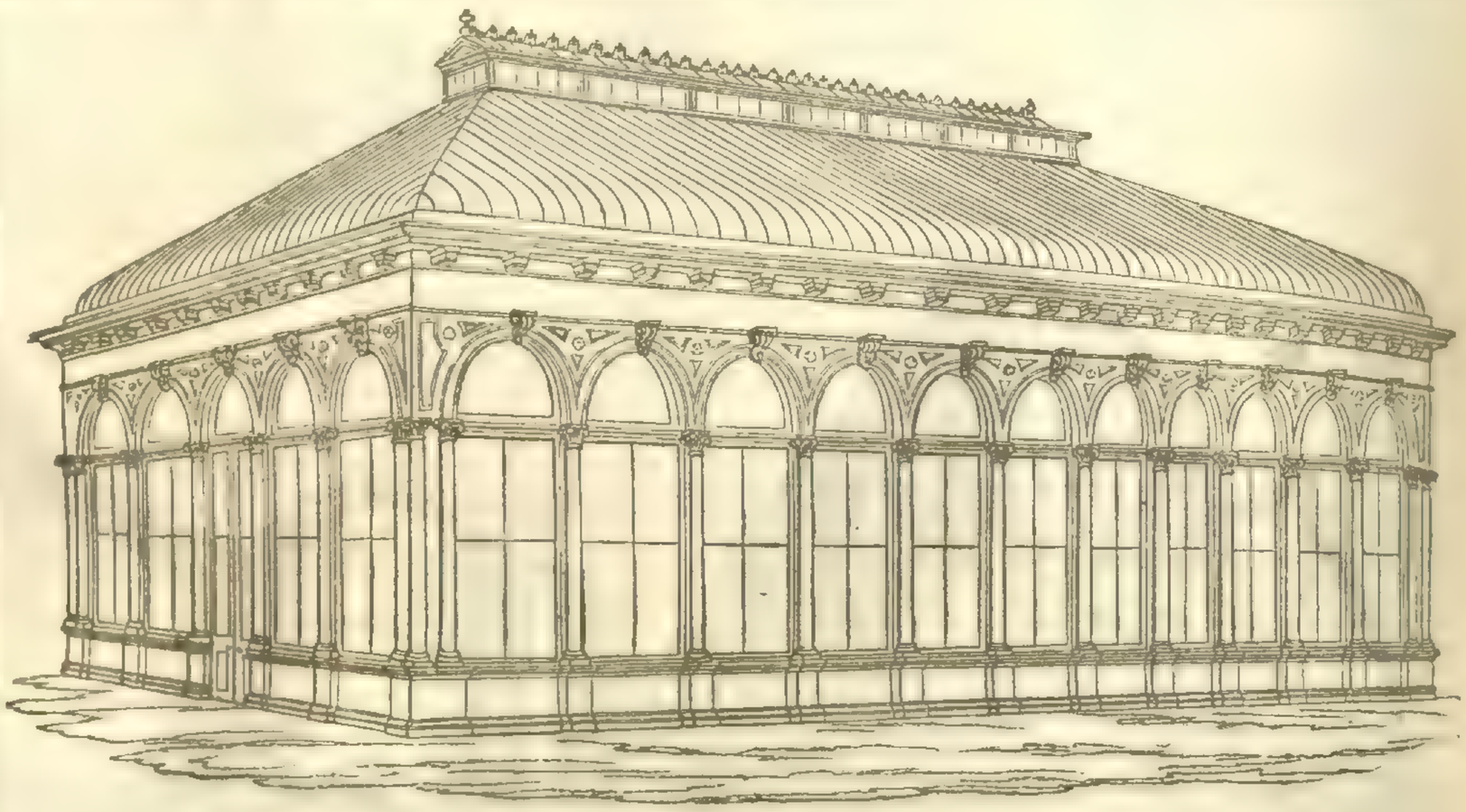
PATENT JOINTLESS TUBULAR BOILER

HAS NOW GAINED the highest standing reputation for Power, Efficiency, Safety, and Economy of Fuel. There is not a single joint exposed to the action of the fire, which renders these Boilers far more safe than any other Tubular Boiler ever invented.

May be seen in successful operation in the Gardens of many of the Nobility and Gentry in England, Ireland, and Scotland.

They are made of various sizes. Prices on application.

HENRY ORMSON,
Stanley Bridge, King's Road, Chelsea, S.W.



HORTICULTURAL BUILDINGS

MANUFACTURED BY STEAM POWER MACHINERY.

LOWEST PRICES AND BEST MATERIALS.

DESIGNING, BUILDING, HEATING, AND VENTILATING ON THE MOST APPROVED AND SCIENTIFIC PRINCIPLES.

Plans, Specifications, and Estimates on application.

HENRY ORMSON,

HORTICULTURAL BUILDER, AND HOT-WATER APPARATUS MANUFACTURER,
STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

SAMUELSON & CO.'S

LAWN MOWING AND ROLLING MACHINES.

EVERY MACHINE WARRANTED.

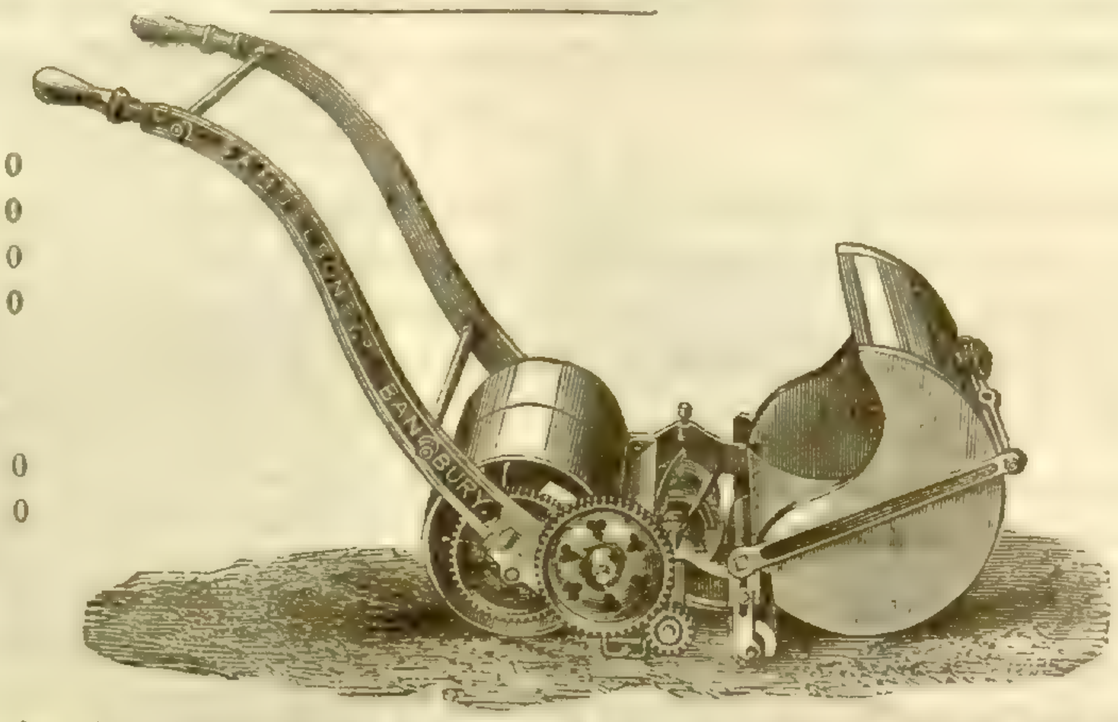
PRICES of MANUAL POWER MACHINES.

To Cut 12 inches, suitable for a Lady	£4 10 0
To Cut 16 inches, suitable for One Boy	6 0 0
To Cut 19 inches, suitable for One Man and Boy	6 10 0
To Cut 22 inches, suitable for Two Men ..	7 10 0

PRICES of PONY POWER MACHINES.

To Cut 25 inches	£11 10 0
To Cut 30 inches	14 14 0

These Prices include Free Delivery to any Railway Station in Great Britain.



THESE

MACHINES

ARE IN DAILY USE

AT THE

ROYAL GARDENS,

CRYSTAL PALACE GARDENS, &c.

In again submitting these MACHINES to the notice of purchasers, Messrs. Samuelson & Co. wish to state that they do not make annual changes in the principle of their LAWN MOWERS. Experience has fully proved that the general design on which their MACHINES have been built for many years past is the best, and their attention has been given therefore rather to substantial improvements in manufacture, reduction of the draught, and increase of durability by the use of malleable iron in place of cast metal, than to the production of ephemeral novelties. Their LAWN MOWERS are superior to all others for lightness of draught, elegance, and efficiency under all circumstances of ground and weather, being self-cleaning, and not liable to derangement in the gearing.

Illustrated Price Lists, with Selections from several thousand Testimonials, free by post on application.

SAMUELSON AND CO., BRITANNIA WORKS, BANBURY.

LONDON OFFICES: 18, CANNON STREET, E.C. WAREHOUSE (where Stock is kept): 10, LAURENCE POUNTNEY LANE, E.C.

AND OF ALL SEEDSMEN AND IRONMONGERS.

GRAY'S OVAL TUBULAR BOILER.

INTERNATIONAL EXHIBITION, Class IX., No. 2119.

Mr. Gray begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his

NEW OVAL TUBULAR BOILER,

acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in Gardeners' Chronicle *of International Exhibition, May* 24, *page* 476.

"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. Gray's variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so, the change, though a slight one, is no doubt an improvement."

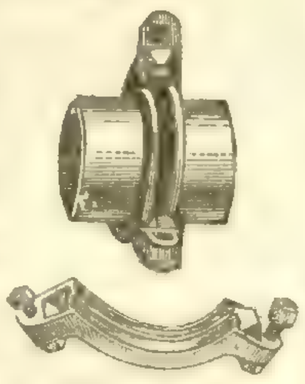
They are made of all sizes, which, with prices, may be had on application.

JAMES GRAY, HORTICULTURAL WORKS,
DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.

PORTABLE HOT-WATER APPARATUS,

WITH TRUSS'S PATENT JOINTS FOR HEATING CONSERVATORIES, HOTHOUSES, &c.

T. S. TRUSS



Begs to offer complete HOT-WATER APPARATUS for GREEN-HOUSES (consisting of 4-inch Pipes and Joints, Saddle Boiler, Fire Doors, Bars, Soot Doors, Damper, Supply Cistern, Feed and Air Pipes, Pipe Stands, &c., of the best quality), delivered to any Railway Station in England, and to erect the same within 25 miles of London, at the following prices:—

4-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection.
16 feet by 8 feet	£8 10 0	£2 0 0	30 feet by 12 feet	£11 15 0	£2 10 0
20 feet by 10 feet	8 17 6	2 0 0	40 feet by 15 feet	15 0 0	2 15 0
25 feet by 12 feet	10 5 0	2 5 0	50 feet by 15 feet	18 0 0	3 0 0

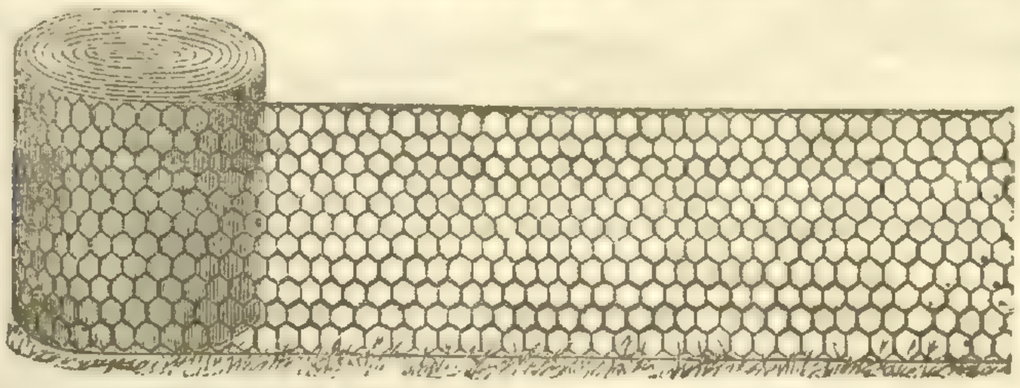
Erections beyond 25 miles of London, Railway Fare for one Man charged extra.

By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints.

Estimates and Plans forwarded on application to
T. S. TRUSS, C.E., 53, GRACECHURCH STREET, LONDON, E.C.

NEW IMPROVED PREMIUM WIRE NETTING.

GREAT IMPROVEMENT,



WITH REDUCED PRICE.

PRICES PER LINEAL YARD, 24 INCHES HIGH.

Size of Mesh.	Mostly used for	Light.		Medium.		Strong.		Extra Strong.	
		Japanned.	Galvanized.	Japanned.	Galvanized.	Japanned.	Galvanized.	Japanned.	Galvanized.
2¼ inch	Hares, Dogs, Poultry ..	3d.	4d.	3¾d.	5d.	4½d.	6d.	5½d.	7d.
2 inch	Game or Poultry Netting	3½d.	4¼d.	4d.	5d.	5d.	6½d.	6½d.	8d.
1¾ inch	Small Rabbits, Hares, &c.	4d.	4¾d.	4¾d.	6d.	5½d.	7d.	7d.	9d.
1½ inch	Smallest Rabbits	5d.	6d.	5¾d.	7d.	7d.	9d.	9d.	11d.

Quantities of 100 yards or upwards delivered free at nearly all the principal Railway Stations and Shipping Ports in England; and 200 yards or upwards delivered free to most parts of Scotland and Ireland.

*** *Every description of Netting warranted to give satisfaction, and if not approved will be exchanged or may be returned unconditionally.*

J. B. BROWN and CO. Offices: 18, CANNON STREET, CITY, LONDON, E.C.,
Nearly opposite St. Swithin's Lane and London Stone, and near London Bridge.
WAREHOUSE (where Netting is kept in stock), 148, UPPER THAMES STREET, E.C., opposite the City of London Brewery, and close to the London Bridge Steam Boat Pier.

ST. PANCRAS IRON WORK COMPANY,

OLD ST. PANCRAS ROAD, LONDON, N.W.

IRON HURDLES, FENCING, AND GATES.

	Each.—s.	d.
SHEEP HURDLES, 3 ft. high, 6 ft. long, 4 Bar ..	4	0
Ditto ditto ditto, 5 do.	4	5½
Ditto ditto ditto, ⅝ Top Bar	4	8
CATTLE HURDLE, 3 ft. 6 in. high, 6 ft. long ..	4	11½
Ditto ditto ditto strong	5	9
OX HURDLE, 4 ft. high, 6 ft. long	7	0½

DR. SPRATT'S PATENT LOCK.

The simplest and best Fastening for Field, Wicket, Swing, and Railway Gates. Particulars and Prices on application.
PATENT WROUGHT-IRON STABLE FITTINGS, CONSERVATORIES, &c. Lists Free.

ST. PANCRAS IRON WORK COMPANY, OLD ST. PANCRAS ROAD, LONDON, N.W.

CARTER'S GARDENER'S VADE-MECUM is now ready.

Caution to Gardeners.—When you ask for

SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark Saynor, also the corporate mark Obtain Warranted, without which none are genuine.

S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by sellers and makers.

S. & C.'s Pruning and Budding Knives are the best and the cheapest in the market.

Paxton Works, Sheffield. Established upwards of 125 years.

Glass for Garden Purposes.

JAMES PHILLIPS AND CO.
beg to submit their prices as follows:—

PROPAGATING

GLASSES.

	Each.—s.	d.		Each.—s.	d.
2 inches in diameter ..	0	3½	12 inches in diameter ..	1	9
3 " " ..	0	4½	13 " " ..	2	0
4 " " ..	0	5½	14 " " ..	2	6
5 " " ..	0	6½	15 " " ..	3	0
6 " " ..	0	8	16 " " ..	3	6
7 " " ..	0	10	17 " " ..	4	0
8 " " ..	1	0	18 " " ..	5	0
9 " " ..	1	2	19 " " ..	6	0
10 " " ..	1	4	20 " " ..	7	0
11 " " ..	1	6			

HAND GLASSES,

WITH OPEN TOPS.

	Each.—s.	d.		Each.—s.	d.
12 inches	6	6	18 inches	9	6
14 "	7	6	20 "	10	6
16 "	8	6	22 "	11	6
			24 "	12	6

Painted and Glazed with 16-oz. Sheet Glass.

BEE GLASSES.

	Each.—s.	d.		Each.—s.	d.
4 inches in diameter ..	0	6	9 inches in diameter ..	1	8
5 " " ..	0	8	10 " " ..	2	0
6 " " ..	0	10	11 " " ..	2	6
7 " " ..	1	1	12 " " ..	3	0
8 " " ..	1	4			

CUCUMBER GLASSES.

	Each.—s.	d.		Each.—s.	d.
24 inches long	2	0	16 inches long	1	4
22 " "	1	10	14 " "	1	2
20 " "	1	8	12 " "	1	0
18 " "	1	6			

London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.

LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS, PAINTS of various colours ground ready for use.
180, Bishopsgate Street Without, London, E.C.

Horticultural Agent and Valuer.

MR. A. CHANDLER (of the late Firm of Chandler & Sons, Vauxhall) continues to undertake all VALUATIONS connected with Horticulture.

He is also open to engagements as JUDGE at HORTICULTURAL EXHIBITIONS, having for many years acted in that capacity.
1, Devonshire Terrace, Fulham Road, S.W.

PURE BRED BERKSHIRE PIGS for SALE.
G. M. Allender, Lee Grange, Winslow, Bucks.

Epsom.

TO BE SOLD, with Immediate Possession, the LEASE, STOCK, and GLASS of the old-established EPSOM NURSERY, in consequence of the decease of Mr. George S. Dods, the late Proprietor. The Ground contains about 5 Acres, with Greenhouses and Pits, completely and economically Heated with Hot-water; also the valuable NURSERY STOCK, Greenhouse and Bedding Plants, Seeds, and other effects. The whole may be taken at a valuation.

For particulars apply to Protheroe & Morris, Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

FARM to LET on LEASE, suitable for Sheep and Dairy Stock.—HOLLY-BUSH, SAINT HILL ESTATE, 1½ miles from East Grinstead Station, Brighton Line, Sussex, 230 Acres, including Shooting and Sporting, at £280. 90 acres Pasture and Meadow, 122 acres Arable and Gardens, 18 acres Wood; good Farm House and Buildings, Three excellent Cottages, pure Spring Water, bracing Climate, good Roads; Land sound, and in good condition. Tithes and Rates about 3s. 9d. per acre. No half Tillages or half Dressings, easy and liberal entry. Immediate possession.

Apply to Mr. Thos. Scott, Land Agent, 18, Parliament Street, London, S.W.

Sales by Auction.

To Market Gardeners, Nurserymen, and Others.
Sands End, Fulham, near the Chelsea Gasworks.
Owner Leaving the Premises.

MR. W. T. ATWOOD will SELL by AUCTION, on THURSDAY, April 20, on the Premises, the LIVE and DEAD STOCK, comprising Light Spring Van, excellent Spring Waggon, useful Cart, Brougham, and Active Nag Horses; 26 Three-Light Boxes and Lights, and Lettuce Plants, Dog and Tumbril Carts, large quantity of Manure, Hoof Parings, Patent Plough and Chaff Machine, Harness, Tubs, Baskets, Tools, and Binding Boards, and other useful articles.

Catalogues had in the London Markets; and of the Auctioneer, Mortlake, Surrey.

Sale of first-class Carnations, Picotees, and Pinks, Standard Roses, Fruit Trees, &c.

MESSRS. PROTHEROE AND MORRIS will SELL, at the City Auction Rooms, 38 and 39, Gracechurch Street, City, E.C., on SATURDAY, April 22, at 12 for 1 o'clock precisely, a first-class Collection of CARNATIONS, PICOTEES, and PINKS, from a celebrated Grower; a choice Assortment of Standard and Dwarf ROSES, fine AZALEA INDICA, and other Plants in bloom; selected AMERICAN PLANTS, FRUIT TREES, some fine Bulbs of LILIUM LANCIFOLIUM RUBRUM, VERBENAS, FUCHSIAS, DAHLIAS in dry roots, &c.

On view the Morning of Sale. Catalogues may be had at the Rooms as above, and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

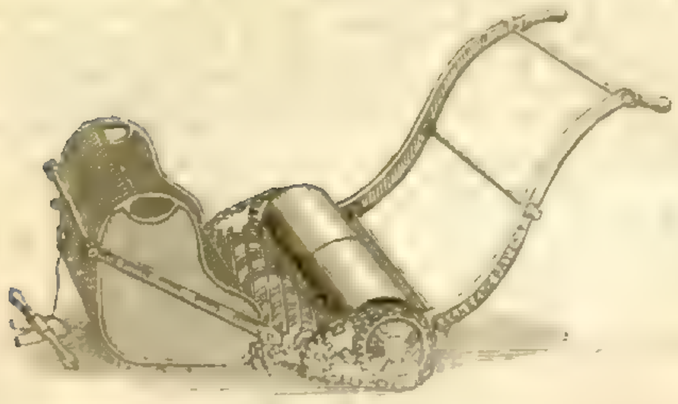
Siddington House, Cirencester.
Important Sale of Short-horned Cattle.

MR. STRAFFORD is favoured with instructions from E. Bowly, Esq., of Siddington House, Cirencester, to announce for SALE by AUCTION, without any Reserve, on THURSDAY, April 27 NEXT, about 40 HEAD of First-class SHORT-HORNS, from his very celebrated Herd, which consists of the entire Lady Byron family, and the whole of one or two other well-known tribes, as well as some young and valuable BULLS. They are chiefly by Fourth Duke of Oxford (11,387), Earl of Walton (17,787), and Seventh Duke of York (17,754). The young Stock are very promising, especially the Bulls, which are of good size and substance, rich in colour, full of fine hair, with mellow handling, and plenty of style and character. The whole of the Animals are in good healthy condition, and mostly reared on the Farm, where some of the tribes have been for nearly 30 years.

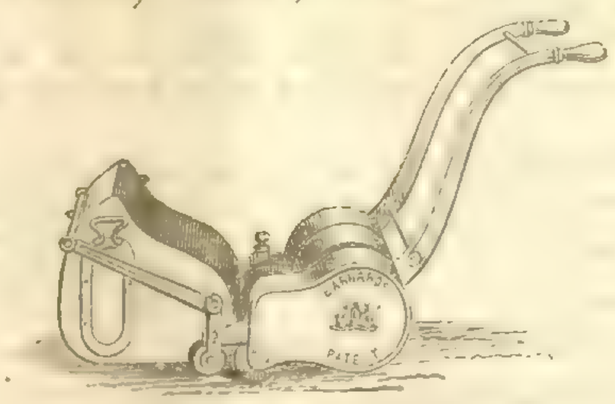
Catalogues, with Pedigrees, may be had on application to Mr. Strafford, 13, Euston Square, London, N.W.; or of Mr. Bowly, Siddington House, Cirencester.

LAWN MOWING MACHINES FOR 1865.

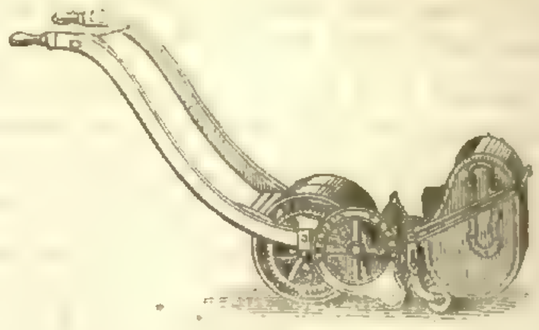
J. B. BROWN & CO., 18, CANNON STREET, CITY, E.C.



GREEN'S MACHINE.



BARNARDS' MACHINE.



SHANKS' MACHINE.

THE MOWING MACHINE IS NOW SO INDISPENSABLE, THAT NO ONE WHO DESIRES TO HAVE A WELL-KEPT LAWN (AND FEW THERE ARE WHO DO NOT), WOULD FOR ONE SEASON BE WITHOUT ONE.

These Machines Mow the Grass, Wet or Dry, on Lawns uneven or otherwise, in a much neater manner than the Scythe, and at Half the Expense.

J. B. Brown & Co., as is well known, having had their name prominently connected with LAWN MOWING MACHINES, and having constantly bestowed close attention to every peculiarity of detail affecting the successful working of all the various LAWN MOWERS, have most probably sold more of these MACHINES than any other firm in England; and they may be permitted to add, with a certain degree of gratification, that no Machine they ever offered to the public has failed to give the most entire and hearty satisfaction. They have always acted on the one proper principle of selecting the best Machine, the one they could confidently guarantee, and then prominently placing it before the public, and sparing no pains, nor expense, in pushing it into notice. These well-directed efforts have, as might be expected, been attended with complete success. **The number of LAWN MOWERS they sold during last season was much larger than they ever sold in any season previous.**

J. B. B. & Co. have resolved not to place before the public [illegible] ur Lawn Mowing Machine. They are desirous, in these circumstances, earnestly to solicit an extension of the confidence which has always been so kin[illegible] d would beg that all those naturally anxious to have the best Lawn Mower, would confide their orders to them to select a really good and useful Machine for them—*o[illegible] hat will do its work well, is easy and pleasant in working, and may at all times be depended on, not liable to get out of order and need repairs, and that will last in such condition for years—these points being all essential to a really good and economical Machine.* All business thus kindly entrusted to them, they would beg to assure their friends and the public, will be faithfully executed; and in order to insure more perfect confidence they will guarantee the Machine they send to be *perfectly satisfactory in every respect; and if not found to be so, they will either exchange it for a Machine of any other size or description, or of any other Maker, or the Machine may be at once returned unconditionally.* Orders entrusted to J. B. B. & Co. for the Machines of any particular Maker, will **have most careful attention in every respect.**

*** Owing to the early pressing demand for LAWN MOWERS, even before the season commences for the New Mowing Machines, J. B. B. & Co. would esteem it a great favour could orders be forwarded to them with as little delay as possible, say to be executed if so desired at any time named.

GREEN'S HAND MACHINE.

Size.	Easily Worked.	Price.	Size.	Easily Worked.	Price.
10-inch	By a Boy ..	£3 10 0	18-inch ..	By a Man ..	£7 10 0
12-inch		4 10 0	20-inch	By Two Men	8 0 0
14-inch		5 10 0	22-inch		8 10 0
16-inch ..	By a Man ..	6 10 0	24-inch		9 0 0

BARNARD'S MACHINE.

Size.	Easily Worked.	Price.	Size.	Easily Worked.	Price.
8-inch ..	By a Child ..	£2 10 0	16-inch	By a Man ..	£6 0 0
10-inch ..	By a Lady ..	3 5 0	18-inch		6 10 0
12-inch	By a Boy ..	4 10 0	20-inch ..	Man and Boy ..	7 0 0
14-inch		5 0 0	22-inch ..	Two Men ..	7 10 0

SHANKS' HAND MACHINE.

(Silent Movement, 4*s.* to 7*s.* 6*d.* extra. Tool Boxes, 5*s.* extra.)

Size.	Easily Worked.	Price.	Size.	Easily Worked.	Price.
		£ s. d.			£ s. d.
10-in.	By a Lady	3 10 0	19-in. ..	Man and Boy	7 12 6
12-in.		4 10 0	22-in.	By two Men	8 7 6
14-in. ..	By a Boy ..	5 10 0			
16-in. ..	By a Man ..	6 12 6	24-in.		8 17 6

SHANKS' PONY and DONKEY MACHINE.

Size.	Price.	Extras. Patent Delivery.	Extras. Silent Movement.	Boots for
	£ s.	s.	s. d.	
25-in.	12 10	25	12 6	Donkey, 16*s.*
28-in.	14 10	30	12 6	Pony, 21*s.*
30-in.	15 15	30	12 6	

SHANKS' HORSE MACHINE.

Size.	Price.	Extras. Patent Delivery.	Extras. Silent Movement.	Boots for Horses.
	£	s.	s.	s.
30-in.	19	30	20	24
36-in.	22	30	20	24
42-in.	26	40	20	24
48-in.	28	40	20	24

J. B. Brown & Co., have had the honour of supplying LAWN MOWING MACHINES, not only in every part of the United Kingdom, but throughout Europe, and also in India, Australia, America, and other countries. Among their numerous distinguished and well-known patrons for these Machines, may be mentioned:—

Her Most Gracious Majesty the Queen, for the Royal Gardens
His Majesty the Emperor of the French
His Royal Highness the Prince of Prussia
His Royal Highness the Viceroy of Egypt
His Royal Highness Halim Pasha
His Excellency the Belgian Minister
His Excellency the Count de Tasca, Italy
His Excellency the Count Papadopoli, Italy
His Grace the Duke de Praslin, France
His Grace the Duke of Devonshire
His Grace the Duke of Portland
His Grace the Duke of Buckingham and Chandos
The Most Hon. the Marchioness of Londonderry
The Most Hon. the Marquis of Winchester
The Most Hon. the Marquis of Exeter
The Most Hon. the Marquis of Lansdowne
The Most Hon. the Marquis of Aylesbury
The Right Hon. the Earl of Leicester
The Right Hon. the Earl of Shannon
The Right Hon. the Earl of Abergavenny
The Right Hon. the Earl of Ashburnham
The Right Hon. the Earl of Winchelsea
The Right Hon. the Earl of Lindsay
The Right Hon. the Earl of Harrowby
The Right Hon. the Earl of Westmorland
The Right Hon. the Dowager Countess Granville
The Right Hon. Viscount Eversley
The Right Hon. Lord Hatherton
The Right Hon. Lord Calthorpe
The Right Hon. Lord John Chichester
The Right Hon. Lord Tredegar
The Right Hon. Lord Willoughby de Broke
The Right Hon. Lord Rokeby
The Right Hon. Lord Berners
The Right Hon. Lord Harris
The Right Hon. Lord Kingsdown
The Right Hon. Lord Rivers
The Right Hon. Lord Taunton
The Right Hon. Lord Oranmore
The Right Hon. Lord Wharncliffe
The Right Hon. Sir J. T. Coleridge
The Hon. C. L. Butler
The Hon. C. S. Cowper
The Hon. Captain Duncombe
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The Hon. E. Coke
The Hon. Captain Drummond
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The Hon. John Ashley
The Hon. Captain Arbuthnott
The Hon. Sir Edward Butler, Bart.
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The Hon. Henry Petre
The Hon. Percy Ashburnham
The Lord Chief Baron Sir Frederick Pollock
Hon. and Rev. C. A. Harris
Hon. and Rev. W. H. Spencer
The Right Hon. Lady Alice Peel
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The Right Hon. Lady Julia Lockwood
Sir Augustus Clifford, Bart.
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Sir John Kirkland, Bart.
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Sir Edward Colebroke, Bart.
Sir Philip Duncombe, Bart.
Sir Archibald MacDonald, Bart.
Sir Edward Walker, Bart.
Sir James Duke, Bart., M.P.
Baron de Woelmont, Holland
The Count Harrach, Hungary
Baron von de Dicker, Germany
Baron Meyer Rothschild
Admiral Sir Phipps Hornby
Major-General Huyshe, C.B.
Colonel the Hon. Heley Hutchinson
Captain Polhill Turner
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BESIDES NUMBERS OF OTHER WELL KNOWN AND DISTINGUISHED PERSONS BOTH IN THIS COUNTRY AND ABROAD.

A specimen of each of the best Machines which have been brought out for the season will always be on view at their Offices, 18, Cannon Street, and their New Warehouse, 148, Upper Thames Street, quite close to the Offices, for the inspection of those who may wish to select for themselves in preference to leaving the selection to J. B. B. & Co. A stock of Machines will also be kept on hand, from which orders can be at once executed.

*** *Every Machine sent out is Warranted to give ample satisfaction, and, if not approved of, may be exchanged for any other size of Machine, or for the Machine of any other Maker, or may be at once returned unconditionally.*

☞ Messrs. Brown & Co. beg to make the announcement, so important to all those who use MOWING MACHINES, that they now EXECUTE REPAIRS of all MACHINES in LONDON. All REPAIRS and ADJUSTMENTS of MACHINES promptly executed at moderate fixed rates. NEW IMPROVED HORSE, PONY, and DONKEY BOOTS made in the best style, WHOLLY of LEATHER, delivered free at prices as quoted above.

J. B. BROWN AND CO., OFFICES, 18, CANNON STREET, CITY, LONDON, E.C.

NEARLY OPPOSITE ST. SWITHIN'S LANE and "LONDON STONE," and near LONDON BRIDGE.

WAREHOUSE (where Machines are kept in Stock), 148, UPPER THAMES STREET, E.C.

OPPOSITE the CITY of LONDON BREWERY, and close to the LONDON BRIDGE STEAM BOAT PIERS.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 16.—1865.] SATURDAY, APRIL 22. {Price Fivepence. STAMPED EDITION, 6*d*.

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ROYAL BOTANIC SOCIETY, REGENT'S PARK.—EXHIBITIONS of PLANTS, FLOWERS, and FRUIT, WEDNESDAYS, May 24, June 14, and July 5. AMERICAN PLANTS, MONDAYS, June 5 and 12. Tickets to be obtained at the Gardens on Vouchers from Fellows of the Society, price on or before May 13, 4*s*.; after that day 5*s*.; or on the Exhibition days, 7*s*. 6*d*. each. The LAST SPRING EXHIBITION will take place on SATURDAY NEXT, April 29; tickets 2*s*. 6*d*. each.

BEDDING-OUT PLANTS. Ready in May.
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WINDOW JARDINETS for the LONDON SEASON, Furnished or Empty.
BARR & SUGDEN, 12, King Street, Covent Garden, W.C.

J. IVERY AND SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

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E. G. HENDERSON AND SON can now supply LA TRAVIATA, ANNA BULLEYN, MARVELLOUS, and TROUBADOUR, at 10*s*. 6*d*. each; the set, 30*s*.
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Choice Primula Seed.
WILLIAMS' SUPERB STRAIN, the finest Fringed and best Coloured Flowers in Cultivation. In sealed packets, Red, White, or Mixed Seed, 2*s*. 6*d*., 3*s*. 6*d*., 5*s*.
Paradise and Victoria Nurseries, Holloway, London, N.

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GEORGE EDWARDS, Clarence Nurseries, Haxby Road, York.

SAMUEL COX, SEED MERCHANT and GROWER, Ludlow, offers 12 Packets of beautiful FLOWER SEEDS for out of doors, post free, for 18 stamps; 24 do. for 30 stamps.

GERMAN FLOWER SEEDS.—Superb varieties of ASTER, STOCK, BALSAM, WALLFLOWER, PHLOX DRUMMONDI, PORTULACA, LARKSPUR, ZINNIA, &c. For prices, see DESCRIPTIVE SEED LIST.
RICHARD SMITH, Seed Merchant, Worcester.

FLOWER SEEDS.—Twenty beautiful, showy, and distinct varieties, named, with height, time of flowering, habit of growth, colour, and hints on cultivation, printed in full on each packet. Post free for 5*s*.
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JOHN SALTER is now sending out the NEW CHRYSANTHEMUMS of 1865. His DESCRIPTIVE CATALOGUE of Chrysanthemums, Double Pyrethrums, Scarlet Geraniums, Hardy Variegated Plants, &c., will be sent on receipt of Two Stamps.
Versailles Nursery, William Street, Hammersmith Turnpike, W.

Beck's New Pelargoniums.
B. S. WILLIAMS has much pleasure in stating that he is now distributing strong Plants of New and Choice Varieties for this season. DESCRIPTIVE CATALOGUE, post free on application.
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SEED FARMERS AND MERCHANTS,
89, Seed Market, Mark Lane; and Basingstoke.
Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

WANTED, 350 CHRISTINE GERANIUMS, in or out of pots, for Bedding (state price).
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CATALOGUES on application.
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CAULIFLOWER PLANTS, 4*s*. per 100. Package and carriage free to all London Stations. Post-office Orders payable Upper Holloway.
St. John's Nursery, bottom of John Street, Upper Holloway, London.

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SEED GROWERS and MERCHANTS, Wisbech.
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DOBSON'S Prize CINERARIA, 1*s*., 2*s*. 6*d*., and 5*s*.
DOBSON'S Unsurpassed PRIMULA, 1*s*., 2*s*. 6*d*. and 5*s*.
DOBSON'S Superb 8 BALSAMS, 2*s*.
J. DOBSON & SONS, Woodlands Nursery, Isleworth, W.

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NEW GRAPE, "ROYAL VINEYARD," the best late White Grape extant. Strong planting Canes, 21*s*. each; strong fruiting, 42*s*. each.
B. S. WILLIAMS, Paradise and Victoria Nurseries, Holloway, London.

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B. S. WILLIAMS begs to announce that he has a fine Stock of the above, including all the best kinds. Prices on application.
Paradise and Victoria Nurseries, Holloway, London, N.

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Apply to JAMES MARTIN, Finsbury Park Nursery, Seven Sisters Road, Holloway, N.

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WILLIAM HOOPER'S stock of the above is very extensive, and in the finest health.
Prices in May, £8 per 1000, £1 per 100, 3*s*. 6*d*. per dozen.
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Strong Plants the first week in May, at 5*s*. each, or six for 25*s*., with the usual discount to the Trade.
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DESCRIPTIVE LIST, with prices and particulars as to free delivery, &c., post free upon application.
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NEW and GENUINE AGRICULTURAL, GARDEN, and FLOWER SEEDS.
Special prices and advantageous offers on application to
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Seed Growers and Merchants, 7, Borough Market, London, S.E.

Genuine Garden and Agricultural Seeds.
JAMES CARTER AND CO.,
SEED FARMERS, MERCHANTS, and NURSERYMEN,
237 and 238, High Holborn, London, W.C.

Agricultural Seeds.
CLOVER, RYE-GRASS, and all other AGRICULTURAL SEEDS (Genuine) at Market Prices. Purchasers of large quantities supplied on liberal terms.
RICHARD SMITH, Seed Merchant, Worcester.

BROMUS SCHRADERI.
For particulars of above see *Gardeners' Chronicle*, April 8, 1865.
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Laying down Land to Pasture,
AND IMPROVEMENT OF GRASS LANDS.
MR. MARTIN SUTTON'S ESSAY on the above subject, revised and enlarged from the Journal of the Royal Agricultural Society, may be had post free for 6 stamps on application to SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

GIANT ASPARAGUS ROOTS, 2*s*. 6*d*. per 100.—This delicious vegetable does not require half the expense usually incurred in planting it. For instructions, see RICHARD SMITH'S SEED LIST for 1865. Strong Transplanted SEA KAIL, 2*s*. per doz.
RICHARD SMITH, Nurseryman, Worcester.

THE INVINCIBLE SCARLET SWEET PEAS are now SOLD OUT.
STEPHEN BROWN, Seed Grower, Sudbury, Suffolk.

NEW LETTUCE, THE LONGSTANDER.—Most remarkable for duration without running, crisp and excellent. Packets 1*s*. each.
STEPHEN BROWN, Seed Grower, Sudbury, Suffolk.

SEED POTATOS (Two Tons of FLUKES). Price on application to
JAMES BIRD, American Nurseries, Downham Market.

EARLY CABBAGE PLANTS.—A few Thousands of EARLY BATTERSEA and NONPAREIL CABBAGE PLANTS to dispose of, at 5*s*. per 1000, on application to
W. VIRGO & SON, Wonersh Nursery, near Guildford.

ON SALE, for a few days only, a few hundred thousand DRUMHEAD or SCOTCH CABBAGE PLANTS, at 3*s*. per 1000; ENFIELD MARKET, 3*s*. 6*d*. ditto.
CHRISTMAS QUINCEY, Seedsman, Peterborough.

NEW SEA KAIL SEED for SALE.
Apply to G. BAGLEY,
Market Gardener, West Drayton, Middlesex, W.

THE GARDENER'S and AMATEUR'S FRIEND.
In canisters, at 1*s*. 3*d*. and 2*s*. 6*d*. each. See page 359.

SEED CORN from the CHALK.—All the most approved varieties supplied by
RAYNBIRD, CALDECOTT & BAWTREE. Address, Basingstoke; or 89, Seed Market, Mark Lane, London, E.C.
*** Samples and prices on application.

CARTER'S GARDENER'S VADE-MECUM is now ready

RICHARD SMITH'S SEED CATALOGUE contains a Calendar of Time for Sowing, particulars of Collections, with Prices, Directions for Cropping well and economically, Soil, Manure, Depth, Distance, Season, Hardiness, Duration, Form, Height, Colour, Storing, Use, Flavour, and other qualities described. This List Free by Post for one stamp. Seeds direct from the Growers the surest way to success.

RICHARD SMITH, Seed Merchant, Worcester.

New Dahlias.

JAMES COLLIER begs to announce that he intends sending out early in May the following NEW DAHLIAS. Received Eight Certificates at Crystal Palace, Brighton, &c.

A LIST with full descriptions can be had on application.

PRINCESS ALEXANDRA, rich orange, striped with bright crimson.

MISS BUTLER, creamy white, tipped with rosy purple.

ANNIE, maroon crimson, tipped with white.

131, Gosset Street, Hart's Lane, Bethnal Green Road, London, E.

New Dahlias for 1865.

JOHN KEYNES has great pleasure in offering the undermentioned First-class DAHLIAS for distribution. They have obtained 61 First-class Certificates at the principal Exhibitions in the Kingdom, and have all been proved and grown in 1864 by J. KEYNES. Fine Plants in May.

CATALOGUES on application, and special prices quoted when the set is taken.

Edward Spary (Keynes')	Lady Gladys Herbert (Keynes')
Lady Marie Herbert (Keynes')	Matilda Keynes (Keynes')
Queen of Primroses (Keynes')	Annie Weeks (Keynes')
Hamlet (Keynes')	Champion (Thorncroft's)
George Rawlings (Keynes')	Bird of Passage (Church's)
George Wheeler (Keynes')	Purple King (Rawling's)

FANCY FLOWERS.

Striped Perfection (Keynes')	Queen of Sports (Goodwin's)
John Salter (Keynes')	Prosper (Goodwin's)
Hercules (Keynes')	Ebor (Goodwin's)
Startler (Keynes')	Mrs. Rent (Eckford's)

Salisbury.—April 22.

BEATON'S GERANIUMS.

NOTICES OF THE PRESS.

"Among scarlets passing off in one direction towards orange and yellow, and in the other towards purple rose and magenta, the bedder-out will have acquired amongst Pelargoniums a variety of tints which must be invaluable to him, especially in seasons like the present: the flowers, moreover, having in many cases a play or glow of colouring, which gives them extraordinary richness and brilliancy."—*Gardeners' Chronicle*, August 20, 1864.

"There is a decided novelty in their colour and style, which will render them indispensable in every collection."—*Journal of Horticulture*, July 5, 1864.

"The like have never been obtained; possessing as they do not only novelty, but singular beauty of colour, and remarkable profusion of bloom."—*Journal of Horticulture*, September 20, 1864.

"The acquisition of new colours amongst the varieties of so popular and useful a flower cannot be otherwise than agreeable to those who follow up the parterre system of flower gardening. * * * Many of them combine the prolific bloom of the Nosegay race with the better-shaped blossoms of the more ordinary kinds. * * * Indispensable to those who, in the matter of flower gardening, wish to keep pace with the times."—*The Florist*, January, 1865.

ALEXANDRA.—Top petals of flowers crimson, lower petals magenta, the combination of colours producing a most beautiful glow or play of colour, very free and effective. Price, 5s. each.

AMY HOGG.—Flowers bright purplish rose, the trusses of immense size, very abundant, and standing up well above the leaves. A strong free-growing Hybrid Nosegay, of spreading habit, the leaves slightly zonate, very distinct and attractive. Price, 5s. each.

"A grand acquisition."—*The Florist.*

"It was the admiration of all who saw it."—*Journal of Horticulture.*

"Very distinct and attractive; * * stands in the front rank."—*Gardeners' Chronicle.*

BEATON'S INDIAN YELLOW.—Flowers orange scarlet, with a strong glow of yellow, quite a novel and pleasing colour; the trusses, which are of medium size, are produced in extraordinary abundance; a Hybrid Nosegay, of dwarf but free habit, with zonate leaves, a distinct and first-rate bedding variety, and very effective. Price, 5s. each.

"A most unexpected and valuable addition to the materials for *parterre* gardens."—*Gardeners' Chronicle.*

"Quite novel in colour."—*Journal of Horticulture.*

"All the more welcome as being the first of this colour which will be placed within reach of the flower gardener."—*The Florist.*

BLACK DWARF.—Flowers crimson scarlet, the trusses of medium size and very abundant, leaves darkly zonate; a true Nosegay, of close dwarf habit. Grown at the Crystal Palace on trial, although not before offered for sale. Price, 2s. 6d. each.

"Extremely useful for small beds or the margins of ribbon borders, on account of its close dwarf habit."—*Gardeners' Chronicle.*

DONALD BEATON.—Flowers clear orange scarlet, of immense size and fine form, trusses also large; a strong free-growing kind, excellent for bedding. Price, 5s. each.

"A thoroughly good variety."—*Gardeners' Chronicle.*

DUCHESS.—Flowers soft rosy lake, of good size and form, trusses also good and abundant. A very free-flowering kind, of dwarf habit, invaluable for bedding. Price, 3s. 6d. each.

FULGENS.—Flowers vivid scarlet, with large clear white eye, truss large and compact, forming a perfect globe, horse-shoe leaf. Price, 3s. 6d. each.

GLOWWORM.—Top petals of flowers fiery scarlet, lower petals of magenta flushed with crimson; the trusses are good and abundant, very erect, standing well above the foliage; the habit is dwarf and compact. This variety promises to be one of the most novel and beautiful plants recently introduced for beds, the combination of colours producing a rich and peculiar glow quite unique in the Geranium. Price, 5s. each.

"Quite a novelty."—*Journal of Horticulture.*

"Another remarkable flower."—*Gardeners' Chronicle.*

"Remarkable for the glow of colour."—*The Florist.*

MAGENTA QUEEN.—Flowers magenta, top petals crimson, with large white eye; a Hybrid Nosegay, of strong free habit, very distinct and pleasing. Price, 5s. each.

ORANGE NOSEGAY.—Flowers bright orange, trusses very large; a true Nosegay, with deep green leaves, and of free habit, quite new in colour, very effective. Price, 5s. each.

"A great acquisition; * * the flowers differ from all others we have seen in their decided bright orange tint."—*Gardeners' Chronicle.*

"In this the yellow tint is also strongly marked."—*The Florist.*

PILLAR of BEAUTY.—Flowers brick-red, scarlet eye, immense truss, half-climbing habit, invaluable for clothing the pillars or walls of the conservatory or flower garden. Price, 5s. each.

PRINCESS LICHTENSTEIN.—Flowers salmon pink, beautiful soft colour, very smooth, perfect form and fine close habit. Price, 5s. each.

SALAMANDER.—Flowers brilliant scarlet, white eye, fine compact habit, horse-shoe leaf. Price, 3s. 6d. each.

SCARLET GEM.—Flowers bright orange scarlet with white eye, a profuse bloomer, dwarf habit, with dark horse-shoe leaves, invaluable for the mass of colour it produces. Price, 3s. 6d. each.

MRS. WM. PAUL.—Flowers clear delicate rose-pink, very large and of perfect form, habit dense, dwarf, and strong; a plant of great promise for out-door culture. Price, 5s. each.

"In respect to size and form far in advance of all the rose-pink varieties we have yet seen; * * flowers larger than a crown-piece; * * quite circular; * * exceedingly delicate and beautiful."—*Gardeners' Chronicle.*

WALTHAM SEEDLING.—Flowers fine, full, dark crimson, very large truss, horse-shoe leaf; a Hybrid Nosegay, raised from Stella, but much darker than that variety. Price, 5s. each.

Good Plants ready for delivery in May next. Early orders are respectfully solicited.

WILLIAM PAUL, Waltham Cross, London, N.

The Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

A CHOICE and EXTENSIVE COLLECTION of STOVE and GREENHOUSE PLANTS always on view. Also FRUIT TREES, SHRUBS, and ORNAMENTAL TREES, from the Country Branches of the Firm.

The SEED and GENERAL NURSERY BUSINESS is carried on here, and Packages are delivered free at the various London Railway Stations.

BRANCHES.

EALING NURSERY, G. CANNON, Manager.

Ten minutes' walk from the Ealing Station on the Great Western Railway Main Line.

FRUIT TREES, ROSES, and SHRUBS, are here extensively and successfully cultivated in some of the finest Loam in the County.

FELTHAM NURSERY, R. HIGHAM, Manager.

Ten minutes' walk from Feltham Station.

EVERGREEN and DECIDUOUS SHRUBS, and CONIFERÆ, are here largely grown in a free Loam, well suited to their habits.

At SION LANE and WOOD LANE NURSERIES, ISLEWORTH. ORNAMENTAL TREES are in a healthy and thriving state, and GENERAL HARDY PROPAGATION is here carried on.

The Stock in the above Nurseries is well worth the inspection of purchasers. The prices are very moderate, and the Plants are frequently transplanted to ENSURE SAFE removal.

The following CATALOGUES are published, and will be forwarded Post Free on application:—

CATALOGUE of KITCHEN GARDEN, FLOWER, and AGRICULTURAL SEEDS.
CATALOGUE of STOVE and GREENHOUSE PLANTS.
CATALOGUE of SOFT-WOODED and BEDDING PLANTS.
CATALOGUE of FRUIT TREES and FRUIT TREES in POTS.
CATALOGUE of HARDY SHRUBS and TREES.
CATALOGUE of DUTCH BULBS, published in August.
CATALOGUE of ROSES.

JOHN & CHARLES LEE, Proprietors, Hammersmith, London, W.

Vine Duchess of Buccleuch.

NEW SEED AND PLANT CATALOGUES, &c.

ROBERT PARKER has much pleasure in offering this distinct and valuable early GRAPE, which will supply the long-felt desideratum of a White Grape with Muscat flavour that may be grown and ripened with the Black Hamburgh. Strong Planting Canes, 21s. each; extra strong Fruiting Canes, 42s. each.

The following Certificates and Prizes have been awarded at various London and other Exhibitions.

Two Certificates of Merit.

Three First-class Certificates.

Two First Prizes in open competition for the finest flavoured Grape of any colour. Chasselas Musqué, Muscat of Alexandria, and Frontignan competed for these prizes. For further description see Hogg's *Gardeners' Year Book for* 1865, page 32, and *Gardeners' Chronicle* of October 1st and 22d, 1864, pages 943 and 1008.

Also New SEED CATALOGUE, containing Select Priced and Descriptive Lists of the best varieties of Vegetable, Flower, and Agricultural Seeds; and New GENERAL PLANT CATALOGUE, containing Priced and Descriptive Lists of Miscellaneous, Greenhouse, Hardy, and Stove Plants, Azalea indica, Conifers, Ferns, Fruit Trees, Grapes, Rhododendrons, Roses, Dutch and other Bulbs, &c., which will be forwarded to applicants.

Exotic Nursery, Tooting, Surrey, S.

BEDDING PLANTS, 2s. 6d. per dozen, or out of pots 16s. per 100.—Arabis albidus variegatus, Variegated Daisy, Stachys lanata, Cerastium tomentosum and Biebersteinii, Nepeta Cresia, Antennaria margaritacea, Koniga maritima, Vinca major var., and many sorts of Variegated Geraniums, selections left to me; 150 sorts of Chrysanthemums, to name, 2s. 6d. per dozen; and 200 sorts of Verbenas, turned out of pots, 16s per 100; and above 100,000 of all the best Flower Garden Plants, for summer and autumn show, now ready.

Having disposed of my Branch Nursery, near Yeovil, all orders should be addressed to me at Merriott, Somerset, and Seed orders to my Stores, Yeovil, Somerset.

BEDDING PLANT CATALOGUE, 78 pages, now ready, at 7d. See Advertisement in to-day's paper.

JOHN SCOTT, Merriott, Somerset.—April 22.

PHYCELLA sp. NOVA.—Lately received from Chili, with dazzling orange-scarlet yellow-throated flowers, 2 to 3 inches across; borne in clusters of 2 to 6, on stalks 9 to 15 inches high. Leaves linear, deep green; deciduous during the heat of summer. The flower spikes are formed in winter or early spring, after the leaves are matured. The texture of the blossom is firm, promising long continuance, and the lustre resembles that of the orange-scarlet Sophronitis grandiflora superba, exhibiting just the same gold spangling upon a brilliant orange ground. As a new and invaluable ornament for the greenhouse we can recommend it with full confidence, and there is every probability that it may prove hardy for our open borders. It was awarded a First-class Certificate by the Royal Horticultural Society. 10s. 6d. each.

HEPATICA ANGULOSA.—It has been our good fortune to import this grand addition to our spring flowers—a true Hepatica with blossoms more than double the size of the largest "Single Blue Hepatica," of a clear and vivid sky-blue. Leaves five-lobed, hairy. Flowers on stalks 6 to 12 inches high, rising well above the foliage. Also awarded a First-class Certificate. 3s. 6d. each.

JAS. BACKHOUSE & SON, York Nurseries.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages) including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

*** Part II. (Exotic Ferns) will be issued as early as possible.

Foot's Cray Nursery, S.E.

Russell's Pyramid Primulas.

GEO. CLARKE is now prepared to send out in packets, price 2s. 6d. each, this, the finest breed of PRIMULAS in cultivation. The Seed now for sale has been saved from selected plants, so that it is believed the produce will be even superior to that of former years.

Printed instructions for raising and growing the plants sent with each packet. Stamps received in payment.

Nursery, Streatham Place, Brixton Hill, London, S.

Magnificent Double Hollyhocks.

H. J. HARDY'S LIST is now ready, and will be sent post free. All the varieties (including upwards of 50 new ones, and some extra Dwarf Novelties) are Exhibition Show Flowers, good strong well-grown plants, price 6s. to 18s. per dozen; Seedlings price on application. All Carriage paid to London, and for 1½ Dozen to any Railway Station.

Stour Valley Seed Grounds, Bures, Essex. Established 1804.

Abies Douglasii.

WILLIAM BARRON begs to offer beautiful well-grown plants of the above, with good leaders and capital roots (never having been in pots), 15 in. to 18 in., 60s. per 100; 2 ft. to 2 ft. 6 in., 100s. per 100. As an ornamental timber tree, the Douglas Fir stands unrivalled. The noble specimen shown in the International Exhibition in 1862 was, when cut down, 300 feet high. The strength of the Timber considerably surpasses the Larch and best red Deal, and was only approached by the Pitch Pine. See *Gardeners' Chronicle*, June 17, 1863. Elvaston Nurseries, Derby.

E. PIERCE, Yeovil Nurseries, Somerset, offers 150 CEDARS of LEBANON, 8 to 10 feet, well rooted, 100s. per dozen.

2300 GREEN HOLLIES, three times transplanted, 60s. per 100.
2000 AMERICAN ARBOR VITÆ, 5 feet, 50s. per 100.
1000 CHINESE ARBOR VITÆ, 4 feet, 50s. per 100.
1000 RED CEDAR, 4 feet, 50s. per 100.
2000 PORTUGAL LAUREL, 2½ feet, 40s. per 100.

TO THE TRADE.

1-year Seedling ARBUTUS, 40s.
1-year Seedling ARBOR-VITÆ, CHINESE, 15s.
3-year Seedling " " AMERICAN, 15s.
1-year Seedling BERBERIS DARWINII, 40s.
1-year Seedling BROOM, WHITE PORTUGAL, 15s.
1-year Seedling " YELLOW SPANISH, 15s.
1-year Seedling PICEA NORDMANNIANA, 100s.
1-year Seedling PORTUGAL LAUREL, 15s.
1-year Seedling YEWS, ENGLISH, 15s.

BEDDED ARBOR-VITÆ LOBBII, 80s.
" BOX, NEW BROAD-LEAVED, 40s.
" HEMLOCK SPRUCE, 100s.
" PERNETTYA MUCRONATA, 70s.
" PORTUGAL LAUREL, 6 to 9 inches, 40s.
" PICEA PINSAPO, 2 yr., 100s.
" RETINOSPORA ERICOIDES, 80s.
" RHODODENDRONS, 3 yrs., very fine hybrids from best named sorts, 60s.
" THUJOPSIS BOREALIS, 3 to 5 inches, 70s.
" YEW, ENGLISH, 5 to 7 inches, 70s.

RICHARD SMITH, Nurseryman, Worcester.

New Plants now ready for Sale.

AMBROISE VERSCHAFFELT, NURSERYMAN, Ghent, Belgium, begs to offer the following Novelties:—

STOVE PLANTS.	£ s. d.
ABUTILON VEXILLARIUM (tricolor), strong	0 [illegible]
AMORPHOPHALLUS NIVOSUS (so much admired at the Grand Show of Brussels)	0 12 [illegible]
SMILAX MACROPHYLLA MACULATA	0 15 0
GREENHOUSE PLANTS.	
CAMELLIA ARCHIDUC ETIENNE	0 15 [illegible]
RHODODENDRON GRAND DUC DE BADE	0 15 [illegible]

All these Plants are figured in VERSCHAFFELT'S "ILLUSTRATION HORTICOLE."

J. LINDEN'S CATALOGUE for 1865 is just published, and contains many splendid Novelties, among which we mention the following New Introductions:—

Anthurium magnificum	Cissus amazonica
Asplenium alatum	Coccocypselum metallicum
" philippense	Franciscea Lindeniana
Asterostigma zebrina	Mappa fastuosa
Begonia magnifica, extra fine plants for the open ground	Pteris leucophylla
Calathea pavonina	Rogiera gratissima
	Sphærogyne cinnamomea

Also several New Cattleyas, Lælias, Odontoglossums, &c.

Usual Discount to the Trade.

Apply for this Catalogue to J. LINDEN'S Agents in London, Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, E.C.

Brussels Royal Zoological and Horticultural Gardens.—April, 1865.

AGRICULTURAL SEEDS.

MESSRS. JOHN & CHARLES LEE,

SEEDSMEN TO THE QUEEN,

BEG TO OFFER THE

FOLLOWING CAREFULLY SELECTED STOCKS,

WHICH THEY CAN WARRANT TO BE OF THE VERY BEST QUALITIES.

Mangel Wurzel.

FISHER HOBBS'S ORANGE GLOBE
LARGE YELLOW GLOBE
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ELVETHAM LONG RED
LONG RED
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Carrot.

WHITE BELGIAN
GREEN-TOP YELLOW BELGIAN
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WHITE SILESIAN
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Swedish Turnip.

SKIRVING'S KING of the SWEDES
HALL'S WESTBURY SWEDE
ASHCROFT SWEDE
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DALE'S HYBRID
YELLOW TANKARD
ORANGE JELLY

White-flesh Turnips.

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POMERANIAN WHITE
WHITE GLOBE
RED TANKARD
STUBBLE STONE
GREY STONE

Miscellaneous.

PURPLE KOHL RABI
GREEN KOHL RABI
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FURZE
MUSTARD
ESSEX DWARF RAPE

A COMPLETE CATALOGUE of AGRICULTURAL SEEDS sent post free on application.

ROYAL VINEYARD NURSERY and SEED ESTABLISHMENT,
HAMMERSMITH, LONDON, W.

SEEDS.

Thomas Gibbs & Co.

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MEADOWS and PASTURES.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND — THOS. GIBBS & Co. Corner of HALF-MOON St PICCADILLY, London. (APPOINTED APL. 3, 1844.) THE SEEDSMEN

CORNER of STREET.

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KITCHEN GARDEN

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FLOWER.

Catalogues forwarded post free to any address on application.

CARNATIONS, PICOTEES, and PINKS.

ROYAL NURSERIES, GREAT YARMOUTH.

YOUELL & CO.

Beg to offer to the Nobility, Gentry, and Trade generally, their EXTENSIVE and SUPERB COLLECTION of the above, which are this season unusually strong and healthy, at the undermentioned prices.

New Scarlet Clove Carnation, Garibaldi.

YOUELL & Co. have much pleasure in offering the above magnificent variety, far surpassing any in cultivation; colour intense vivid scarlet, large and bold flowers, fine pod free from bursting; the delicious clove scent which it possesses is not to be equalled in any of its class. 5s. per pair; if 12 pairs are ordered, £2 10s.

New White Clove Carnation, Princess Alice.

Y. & Co. beg to offer a few pairs of the above desirable variety, which possesses the same properties as Garibaldi, only differing in colour, being of the finest snowy white. 5s. per pair; if 12 pairs are ordered, £2 10s.

Perpetual Flowering or Tree Carnations,

FLOWERING SUMMER AND WINTER.

This deservedly popular class has of late received many additions to its hitherto general favourites. They cannot be too strongly recommended, not only for their delightful fragrance but the brilliant display they afford, during the Autumn and Winter months, either in the Greenhouse, Conservatory, or open Garden during the Summer months. 12s., 18s., and 24s. per dozen plants.

Carnations and Picotees.

Y. & Co.'s collection of these is probably the most extensive in the Trade, and having for a series of years paid special attention to their cultivation, introducing the best of the new varieties, they are enabled to offer them at the following prices for fine strong well-rooted plants:

CARNATIONS, finest first-class varieties, by name, 18s. and 24s. per dozen pairs.

PICOTEES, finest first-class varieties, by name, 18s. and 24s. per dozen pairs.

Ditto, on yellow grounds, 20s. and 30s. per dozen pairs.

Finest mixed BORDER CARNATIONS and PICOTEES, 9s. per dozen pairs.

True old CRIMSON CLOVE CARNATION, 12s. per dozen pairs.

YOUELL'S FIRE KING, very brilliant, 18s. per dozen pairs.

New Italian Yellow Carnations.

YOUELL & Co. have succeeded in importing 25 very choice, distinct, and beautiful varieties of the above—the ground colours being a rich yellow, striped and suffused with various shades of scarlet, crimson, purple, plum, and blue; they are extremely hardy, very strong growers, highly fragrant, and will give general satisfaction. Price 3s. 6d. per pair, or 40s. per dozen pairs, of the most distinct kinds.

PINKS.

Their very extensive and unrivalled Collection of all the leading kinds in cultivation, in Strong Plants, 9s. to 12s. per dozen pairs; fine mixed Border varieties, 6s. per dozen pairs.

ROYAL NURSERIES, GREAT YARMOUTH.

BARR & SUGDEN

12 KING ST. COVENT GARDEN

SEED AND PLANT MERCHANTS.

Orders amounting to 21s. sent Carriage Paid.

LILIUM AURATUM, Third Consignment this season from Japan.
3s. 6d., 5s. 6d., and 7s. 6d. each.

GLADIOLI, Surplus Stock.
50, in 50 beautiful varieties, 21s.; 25, in 25 do., 10s. 6d. Varieties for Massing, 2s., 3s., and 4s. per dozen; 10s. 6d., 15s. 6d., and 21s. per 100.

FLOWER SEEDS, Hardy, Half Hardy, or Tender, in Collections, Post Paid.
3s. 6d., 5s. 6d., 7s. 6d., 10s. 6d., to 21s.

VEGETABLE SEEDS, in Collections, Carriage Paid, 21s. and upwards.
10s. 6d., 15s. 6d., 21s., 42s., to 63s.

FINE LAWN GRASS SEED, for Renovating or Laying Down New Lawns, 1s. per lb.

FARM SEEDS amounting to 21s. and upwards sent Carriage Paid.

Agents, Wholesale and Retail, for London and Home Counties for

STANDEN'S "GARDENERS' AND AMATEURS' FRIEND."

(*The long-sought desideratum for Flowers, Fruits, and Vegetables.*)

Sold in Canisters, at 1s. 3d. and 2s. 6d.

The "Gardeners' and Amateurs' Friend" is a highly Concentrated Inodorous Artificial Manure, far surpassing in value any article of this description hitherto introduced; its effect is extraordinary in promoting a healthy vigorous growth in Camellias, Azaleas, Franciscеas, Ixoras, Boronias, Eriostemons, Polygalas, Dipladenias, Pimeleas and Orchids, also for all other Greenhouse and Stove Plants in general. For Fruit Trees in pots, Vine Borders, Lawns, Pleasure Grounds and Kitchen Garden Crops, the "Gardeners' and Amateurs' Friend" is invaluable.

In addition to the high Testimonials in a previous Advertisement, we may add an extract from a letter received from "ALPHA":—

"When Standen's Manure first came under my notice, I was anxiously engaged in pushing on a collection of Azaleas for exhibition. I tried it to one of these, which was in a hard and stunted condition, and it soon wrought a surprising improvement in the plant. I have since repeatedly used it in growing Azaleas. I apply it first when they begin to push their bloom buds, and again when they are placed in the house where they are to make their growth, which will be about two months after the first application. In the autumn, if a plant does not swell its bloom buds to my mind, I give it another half dose. To Camellias I apply it in about the same proportions, and at the same stage of growth, while to Pimeleas, Eriostemons, Polygalas, and other strong-growing hard-wooded greenhouse plants I give it only once at the season, just as they are starting into growth, while half the quantity is probably as much as a Boronia will require. To Ixoras and Franciscеas I give it in larger doses. I think half as much more than Azaleas or Camellias require is perfectly safe for these. I also administer it to Ixoras when they are starting into growth, and again as soon as they are fairly set for bloom. Allamandas should be dosed when they are set for bloom (giving it earlier would probably cause them to grow too woody), so with Dipladenias, but these should not have too large a dose at once. I have also used it upon many other stove plants, and proved it to answer admirably. Although it is perfectly suitable for many soft-wooded plants, I would recommend that it should be given to these in small quantities. I used it in small quantities for many Orchids, and never found that it injured them; indeed they all seemed to enjoy it much. I have never made much use of it, save for plants in pots, but I have watered Vine-borders with it just as the Grapes were beginning to colour, and have no doubt about its value for these. For Roses and all kinds of Vegetable Crops which require abundance of manure it will, I think, be found all that can be wished.

"ALPHA."

BARR AND SUGDEN, SEED MERCHANTS, 12, KING STREET, COVENT GARDEN, W.C.

RICHARD SMITH'S LIST of all the EVERGREEN FIR TRIBE suitable for Britain, giving size, price, popular and botanical names, derivations, description, form, colour, foliage, growth, timber, use in arts, native country and size there, situation, soil, and other information, with copious Index of their synonymes. Enlarged Edition, Free by Post for 12 postage stamps.
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PRIZE MANGEL WURZEL AND TURNIP

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FOR PRICES, SEE

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GEO. BAKER AND SON beg to announce they have an extensive collection of the best hardy RHODODENDRONS in cultivation, fine healthy plants, at very moderate charges. Also a large collection of general NURSERY STOCK. Prices on application.

American Nurseries, Bagshot, Surrey, about 1 mile from Sunninghill Station, South-Western Railway.

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JOHN HOLLAND begs to intimate to his friends and patrons that he has TAKEN into PARTNERSHIP his Son-in-Law Mr. FREDERICK JONES. That the Business will in future be continued by the Firm of HOLLAND & JONES, Bradshaw Gardens, Chadderton, near Manchester.

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1st, Mr. T. Todman, Gr. to R. Hudson, Esq., Clapham Common, £2.

CLASS 3.—6 AZALEAS, distinct kinds. (Open.)

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2d, Mr. J. Butcher, 1, South Street, Camberwell, £1.

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Solicitors—Messrs. PATTISON & WIGG, 50, Lombard Street, London.
Secretary—Mr. RICHARD DEAN.
General Manager—Mr. ARCHIBALD HENDERSON, late Gardener to His Grace the Duke of Sutherland, at Trentham.

PROSPECTUS.

This Company is formed for the purpose of establishing and carrying on the business of Fruit Growing and Market Gardening at Great Ilford, in the County of Essex, and for growing on an extensive scale Fruit, Vegetables, and Flowers for the supply of the Metropolitan and other Markets.

The Directors have provisionally agreed for a Lease, with immediate possession of about 135 Acres of Land at Great Ilford, with Agricultural Buildings, for a term of 21 years, with power of renewal.

The property to be leased is most eligibly situate at a distance of about 7 miles from the Royal Exchange by road, 400 yards from the Ilford Station of the Great Eastern Railway, and about 1½ mile from the Barking Station of the London and Tilbury Line. Each of these Lines runs constant Trains, and by means of the proposed Metropolitan and Great Eastern Extensions, the property will be brought into immediate communication with all parts of London. The Free Wharf at Barking and the Wharf at Ilford also afford every facility for the delivery of Manure and Coals at the cheapest possible rate.

The lands lie open to the South, and are belted by Trees on the northern and eastern boundaries. They have been farmed by the present owner for several years, and are now in excellent condition. The soil is a rich loam, and is thoroughly drained, both naturally and artificially.

The vast extent of the Trade in the Metropolitan and Provincial Markets in Fruits, Flowers, and Vegetables is well known; and the enormous consumption consequent on the growth of the Metropolis, and the great commercial prosperity of the country generally, is increasing so rapidly, that the home supply is unequal to the demand. To meet this demand large quantities of the more delicate Fruits, Vegetables, and Salads are imported from foreign countries, though it is a well-known fact that English-grown Fruits and Vegetables find the readiest sale and command the highest prices, proximity to the markets contributing greatly to the wholesomeness and consequent value of these articles. Whilst the demand for Market Garden produce is steadily on the increase, the cost of horticultural buildings is very much reduced.

The supply of the Metropolitan Markets with Fruit, Flowers, and Vegetables is an object peculiarly suited to the scope of a Joint Stock Company; and as the profits of this business are known to be very large, it cannot fail to be highly remunerative when backed by the capital of a Company. The facts above stated furnish the best evidence of the extended field which awaits the operations of the Company, and of the large returns which, with ordinary care and vigilance, may be confidently expected from the capital.

The scale on which the proposed operations will be carried on will make the Gardens an object of interest to the proprietary; and the proximity of the property to London will render it a favourite place of resort to those Shareholders who take an interest in high-class Gardening.

There will be no charges whatever for promotion, and the preliminary expenses up to and inclusive of registration will be on the most moderate scale.

If no Allotment of Shares be made to the applicant, the deposit will be returned in full.

Prospectuses and Forms of Application for Shares may be had of the Solicitors; or by sending the annexed Form to the Bankers of the Company with a remittance for the deposit.

FORM of APPLICATION for SHARES.

To the DIRECTORS of the ILFORD HORTICULTURAL and MARKET GARDEN COMPANY, LIMITED.

GENTLEMEN,—Having paid the sum of £ , being 10s. per Share on Shares, I request you to allot me Shares in the Ilford Horticultural and Market Garden Company, Limited; and I hereby agree to become a Member of the said Company, and to accept such Shares or any less number that may be allotted to me, and to execute the Articles of Association when required; and I request you to place my name on the Register of Members in respect of the Shares allotted to me,—I am, Gentlemen, your obedient Servant,

Name (in full) .....
Address (in full) .....
Profession (or Business) .....
Date .....

Carnations, Picotees, &c.

CHARLES TURNER'S stock of the above is very extensive, and in the finest health.

For prices see CATALOGUE, now ready.

PELARGONIUMS "JOHN and MARY HOYLE."—These and other new varieties in the finest plants; also the best established varieties at very moderate prices.

See CHARLES TURNER'S CATALOGUE now ready.

VERBENAS.—All the best kinds now ready, and Perry's beautiful new varieties ready 1st May, described in C. TURNER'S CATALOGUE.

The Royal Nurseries, Slough.

ACCLIMATISATION SOCIETY of GREAT BRITAIN.
3, Duke Street, Adelphi, London, W.C., April 10, 1865.

The COUNCIL of the Acclimatisation Society GIVE NOTICE, That, in accordance with No. 3 of the Society's Rules, they hereby SUMMON a SPECIAL GENERAL MEETING, to be held in the Council Room of the Royal Horticultural Society at South Kensington, on MONDAY, April 24, at 3 o'Clock P.M., to ELECT his Royal Highness the PRINCE of WALES as President of the Society, in the room of their late President, his Grace the DUKE of NEWCASTLE, deceased. By Order of the Council,

B. WATERHOUSE HAWKINS, Honorary Secretary.

The Gardeners' Chronicle.

SATURDAY, APRIL 22, 1865.

MEETINGS FOR THE ENSUING WEEK.

SATURDAY, April 29 { Royal Horticultural (Weekly Show), at South Kensington .. .. .. 2 P.M.
Royal Botanic (last Spring Exhibition) .. .. 2 P.M.

THERE is nothing more agreeable, and, we may add, more instructive than a cool and good-natured discussion of any subject connected with natural history between men whose only desire is to discover truth, in order that the discovery may be applied to the art of plant culture in our gardens. In a Leading Article at p. 1034 (1864) we drew the attention of our readers to M. PORTE's observations upon the habits of Phalænopsis Schilleriana, and supported his observations by our own experience regarding the situations in which P. amabilis is usually found growing in the Philippine Islands. We stated that the latter species is commonly met with growing on the branches of the Mango tree, in the cleared parts of the woods near the cottages of the natives, and sometimes on the tops of very tall trees where it is fully exposed to the sun.

Our correspondent "R. H.," who resided for some time in Jamaica, brings forward other examples to show that EPIPHYTAL ORCHIDS are frequently found luxuriating under the direct rays of the sun. "Trees at the margins of woods," he says, "were evidently their favourite habitats. Amongst the glories, however, of the lowlands of the West India Islands, most assuredly stands first the lovely Broughtonia sanguinea, the location of which—with my preconceived notions of how Orchids grew—struck me as being remarkably strange, being none other than the nearly perpendicular scarped face of a limestone rock, facing the south-west, and in a notoriously dry district where rain very seldom fell." Another talented correspondent, Mr. GOSSE, corroborates the above statement, and gives other examples of Orchids which appear to delight in situations where they enjoy the full blaze of the sun. Amongst these he names Oncidium luridum, Brasavola nodosa, an Ionopsis, and others. There is, therefore, no doubt that many species of this beautiful family of plants grow naturally in exposed situations, and not under the dense shade of tropical woods, as many persons, at one time, supposed they all did.

We come now to the practical part of the subject, and ask if it would be safe to follow Nature in our mode of cultivating these plants in our stoves. We may answer the question by asking another. Can we do so? Have we the same amount of sunshine, or can we give the same atmosphere and the same seasons as our favourite plants enjoy in those sunny tropical countries which Nature has destined to be their home? With all our knowledge and skill we cannot accomplish this; we can follow Nature, it is true, but we must always be left at a considerable distance behind her. However well we may be able to cultivate Orchids in our gardens in this country—and we do certainly bring them to a high state of perfection, as the magnificent specimens seen in many collections and brought to our Exhibitions abundantly testify—yet most travellers will support us when we remark that few of these plants are so vigorous and robust under cultivation with us, as they are met with in their native habitats. No one has ever seen the Phalænopsis amabilis in this country in a state to be compared with the specimens found growing in the Island of Luzon. The large plant which used to be one of the "Lions" in the Chiswick Garden for many years, gave but a faint idea of the size and vigour of the species in

its own home. When that plant was first obtained it was necessary to reduce it much in size in order to send it to England, and it was loaded with hundreds of blossoms. And what is true as regards this Phalænopsis is equally true as to the majority of Orchids—however healthy and vigorous they may be under our artificial treatment, we can never expect to have them in the state they are met with in those countries to which they are indigenous. It follows, therefore, as a matter of course, that as we cannot give them all their requirements in an artificial state in this country, it may prove injurious to cultivate, without shade at certain times, even those species which are known to luxuriate in the tropics under the sun's rays. And here experience and close observation are necessary in order to enable the cultivator to determine how far he can copy Nature in one way when he cannot do so in every other respect.

As bearing upon the subject under discussion, we have great pleasure in drawing the attention of all Orchid growers to the excellent article on "Orchids and their Cultivation" (p. 76) by our Correspondent, Mr. Anderson, of Meadowbank. "All exotic Orchids," says Mr. Anderson, "whether epiphytal or terrestrial, when caged up in an artificial structure, and subjected to an atmosphere somewhat foreign to their nature, even when best imitated, require more or less shade from a scorching sun. The very plants that will thrive under a variety of circumstances in the countries where they are indigenous, might succumb to similar treatment here. It is well enough to know—indeed such information is most valuable—the range of temperature, the degree of moisture, the exposure, whether shady or open, of all plants under cultivation; but it is not so desirable for growers to imitate to the very letter the precise habitat." We cordially endorse these remarks for the reasons we have given above, and offer them to the careful consideration of all who are interested in the cultivation of Orchids in Europe.

Mr. Anderson brings forward particular instances to prove the truth of his theory. He remarks: "There are some epiphytes which, doubtless, are growing in their native country pretty much exposed to sun heat, as witness for example 'R. H.'s' allusion (1864, p. 1061) to Brougitonia sanguinea and some other species not named, which grow in Jamaica, 'exposed to the light and heat of the sun.' Bring these home, however, tie them upon blocks, get them as well established as possible before you suspend them close to the glass, in the face of a full meridian sun, in the months of June, July, and August,—and what is the consequence? Evaporation goes on so rapidly from the leaves and pseudobulbs, that your artificial climate fails to provide the necessary food for assimilation, the leaves get scorched, the plant sickens, and unless remedial measures be resorted to it may die." Exactly so; the plants want that vigour which they have in their native country, and they will not bear the exposure.

Although many of the tribe of plants to which we are alluding, and which seem to prefer light and sunny situations in their native countries, may not bear, without injury, the full blaze of sunshine in an English hothouse, yet we must take care not to run to an opposite extreme by placing them in dark houses, or by giving too much shade, particularly at certain seasons. Orchid houses ought to have plenty of light, as much as we can give them in this climate. If at certain seasons our plants require shade, this can easily be given by canvas or other substances. We quite agree on this point with our correspondent Mr. Anderson, who says, "no plant is more impatient [than the Orchid] of shade during a season of rest, and in dull weather during the height of growth. This assertion, if correct, demonstrates beyond doubt the propriety of using the most transparent glass at command, so as to have light in abundance when light is required."

If, then, the knowledge of the natural habitats of Orchids be not a perfect guide to cultivators in this country, it is certainly of great value to them. What the possessor of such knowledge has to guard against in applying it is, to take care not to use too freely in cultivation one of the natural conditions which his plants enjoy in their native country, if he is not able to command all the other conditions likewise. But a cultivator with the knowledge in question has an immense advantage over those who do not possess it. The earliest Orchid growers in this country have to confess that to a want of the knowledge of the natural habitats of their plants, particularly of those kinds now called "Cool Orchids," is to be ascribed the loss of many well-known valuable species. *F.*

—— Among hardy Conifers there are few which can vie in beauty with the charming Cupressus Lawsoniana, which in its native country, California, is said to reach 100 feet in height. In such trees the branches are stated to bend upwards towards the ends like those of a Spruce, and to hang down at the tip like an ostrich feather. The top shoot droops like that of a Deodar. The spray is most graceful, resembling more that of a Fern than a Conifer. In the south of England, at least, this handsome Cupressus is now in full flower, and our object in referring to it is to point out how much its beauty is enhanced by the thousands of male blossoms with which its branches are studded, looking like so many garnets set in a field of green. Into how many beautiful combinations might not these light and feathery branches, laden with their sparkling treasures, be woven by the skilful artificial decorator? For ornaments for bonnets, or even in a natural state for intermixing with bouquets, nothing could well be more suitable; while for placing on dishes under fruit, their appearance would be equally effective. The female flowers are paler and therefore less striking. It may be added, that this fine Cupressus has singularly small cones, which succeed the flowers in great abundance, and from which seedling plants may be raised in any quantity. For cutting from, therefore, an operation to which it readily submits, abundance of plants might easily be obtained.

—— Professor Vogel has recently laid before the Academy of Sciences of Munich a paper on the Transformation of Amylon by Germination. The experiments on this process were conducted with particular care and detail; the special observations here referred to being made on Potatos. The change of the starch began when germination first showed itself. In about 10 weeks it had completely disappeared in black soil, and had been reduced to 44 per cent. in sand. In reference to the transformation of starch into sugar, the general results were, that in the first beginning only sugar was found; this in the progress of the growth of the plant became inappreciable, in consequence of the conditions of the nutrition and the development of the plant.

—— The beauty of the Dielytra spectabilis is now well known; and perhaps it is not too much to say in its favour that no better hardy plant has come to us from the far East. Hitherto, however, we have only been familiar with the pink variety—a variety, nevertheless, which, grown as a hardy perennial in the continental gardens, assumes almost a crimson hue. A white variety was, it appears, raised on the continent some two or three years since; and in the spring of last year this or some similar form appeared for the first time under the name of D. spectabilis alba, but it was too weakly to judge of its true character. Now, Mr. Bull by whom it was introduced to this country, has again brought it under our notice, and we are glad to be able to record that it proves to be a good addition to the group of plants to which it belongs. The flowers are white, not pure white certainly, though they open nearly so, for they become a little tinged with blush as they get old, but really white by comparison with even a pallid condition of the old plant, and quite white enough to make the D. spectabilis alba useful for growing as a contrast. We may get from it a purer white hereafter, but in the meantime this is well worth having. The stems are pale green, not tinted with red.

SPRING FLOWERS AND SPRING GARDENING.

I had once thought of inflicting a list upon the reader, but lists of spring flowers have been given a thousand times in garden literature; and it is perhaps not so much a knowledge of choice and beautiful spring flowers that is required in the first instance to be spread among our gardeners, as a scheme which will encourage them to grow plenty of the more easily obtained and popular spring flowers, and then the taste for adding an odd "good thing" will soon develope itself. The system of filling the beds which contain the bedding plants in summer with spring plants in autumn, and pulling these out again in spring, is a bad and unsatisfactory one, because, as a rule, the very best of our spring flowers show very little of their beauty when treated in this manner. For instance, how vast the difference between established plants of Alyssum saxatile, the perennial Iberises, &c., and those that we frequently see where this twice-a-year mutilation system is carried out, and where they look in fact but the ghosts of what they ought to be, and in consequence bring spring gardening into disrepute.

Now I would have thousands of spring flowers in every garden in the country; but this plan of making a great annual effort to fill up all spaces occupied by summer flowers is to be deprecated, for "Oh! Spring, child of the year, thou art like many another youth, a premature failure, an elaborate mistake!" and all this labour and expense may be thrown away by a merciless March—like the late memorable one. A great many summer flower gardens too, are so flat and exposed that they are the best possible places for those not-to-be-forgotten breezes that blow from north to east to cut the very life out of our evergreen spring-flowering plants. On the contrary, the shelter afforded by shrubberies, mounds, hollows, &c., which of course are to some extent present in most British gardens, offers just the conditions for 9 out of 10 of our spring plants, and around, on, and in these they should be planted in quantity—being for the most part able to take perennial care of themselves afterwards. "I like spring flowers," said a gardener, "but they interfere so much with my summer ones." Around him were shrubberies and clumps of which the summer aspect would have been immensely improved by their being gradually mingled with the turf by means of masses of the excellent evergreen and everhardy species of Iberis, by Megaseas and the finer Saxifrages, by Alyssums and Aubrietias, which if mingled with the lovely Crocuses—now so varied and so cheap, with Orobus vernus and other plants which Mr. McNab grows in lines in the Edinburgh garden, with Primroses and Squills, and the dozens of other fine hardy things which would grow on and on if only planted and spared from being cut off when green, or tied into barbarous bundles when in full leaf, as is so commonly done with the Crocus, would in spring make the place a very Paradise, without ever interfering with an inch of the ground devoted to "bedding" plants.

A garden is, or ought to be, a concentration and combination of the beauty which plants exhibit in their native homes; but it will be admitted that the charms often spread forth in the shape of Primroses, Squills, and many other wild flowers in our wild woods are often totally absent from the capital situations that are to be had for them about most gardens and pleasure grounds. But when it is considered that in addition to our own much admired spring flowers, the British gardener has it in his power to add to them many still more beautiful and equally hardy free-growing foreign plants, then it will be seen what a mistake we make by not taking advantage of all these, and producing thereby a beauty and interest in the morning of the year when flowers are most grateful, that could not fail to add greatly to the pleasure of employers, and the fame of gardens and gardeners. All this could be done at a comparatively trifling expense, without interfering in any way with summer decoration—of which I should be very sorry to see our gardens deprived—and without anything like the annual labour which is imperative in the case of bedding-out.

Half sheltered among shrubs, &c., many of our finest herbs and strong alpines do very much better than when exposed in open beds, or in the monotonous arrangement of a botanic garden. Hardy bulbs also much enjoy the shelter which enables them to thoroughly develope their leaves, so essential to a "good bloom." This mode of growing both, while the best for the growth of the plants, is moreover that by which they may be seen to the greatest advantage, relieved and backed by evergreens and shrubs. The many fine varieties of Polyanthus, with the Primrose, Bluebell, and other shade-loving plants, are the very easiest things to grow along the sides of walks through shady shrubberies, &c.—which when once established should not be dug over annually as is too often the case, though for no very apparent reason except to prevent a chance of any pretty native plant becoming established.

There has recently arisen a very hopeful taste for spring flowers; and it may be well to tell those who have not proved it for themselves, that it is impossible to see our best spring and early summer hardy plants in all their beauty, if treated on the autumn-plant-and-spring-root-up principle. Indeed, as we sometimes see this performed, it is enough to make people for ever give up spring gardening: the continuance of which proves that the love of spring flowers is deep and ineradicable—soon I hope to be fully gratified.

Then again many first-class hardy plants bloom just about the time the "flower garden proper" must be cleared for bedding out, and consequently, to be grown at all in private gardens, they must be grown as suggested—by taking advantage of and beautifying spaces which in most places at this day of the year, and perhaps every other day, are utterly destitute of floral charms or interest. The plants selected for this work should be few comparatively, but first rate—nothing of the delicate alpine or ragged herbaceous type. I propose to follow up this paper by a short list, in which none but suitable plants shall be mentioned.

But in addition to growing the free and shrubby in this way, it will be necessary to have a special spring garden in all places where spring flowers are taken to in earnest. The garden should be a little one in some thoroughly sheltered part of the grounds with a warm aspect. The beds should be small, and filled with a very light sandy earth—deep too. It should be so surrounded that at no season should a look of nakedness prevail, and in summer neat and delicate annuals, such as the beautiful Rhodanthes and Clintonia pulchella, as lovely as the spring subjects they succeed, should be sown or dibbled in out of pots where the spring bulbs &c. have gone to rest. Some of the most exquisite of the Grasses, too, might grace it in summer and autumn—Agrostis nebulosa and Airopsis pulchella for example. What a case of humming birds is to one of pheasants, doves, &c., so can this little garden—I would be satisfied with 12 beds—be made as compared with any other species of outdoor garden commonly seen in this country.

I will follow with a short and select list for this bijou garden, but append one example of the planting of a bed to show that I am not talking of impossibilities.

The centre of a 6-foot bed a mixture of the fine Crimean Snowdrop Galanthus plicatus, and the little bulbous Iris reticulata, which presents, especially when the flower is opening, the most surprising and lovely contrast of rich purple and gold ever seen in a flower; with a sprinkling of Bulbocodium vernum, which would push up its handsome large flower-buds as early or earlier than Crocus susianus. The inner edging of the bed blue Hepatica, to be again surrounded by the bright Draba aizoides, which, when well done, is one of the prettiest and most telling little plants that pass muster in the 1-inch high corps of vegetation. This garden, I repeat, should not displace a single bedding plant, nor should it be near the bedding garden, if possible. It would be too refined for such an association. *William Robinson.*

NEW MODE OF HEATING.

Encouraged by your reply to the inquiry I ventured to make on the subject of heating horticultural buildings (1864, p. 1204), I now send a rough sketch of a supposed ground plan of an orchard house, 42 feet long and 18 feet wide, span-roofed, and of ordinary height, and of the mode in which I propose that it should be heated. I assume that the same system might be applied to houses of various dimensions.

I propose that the entrance door shall be at the side, in order to admit of a furnace being placed at one end and the chimney at the other end, a brick flue of 12 inches square passing up the centre from the furnace to the chimney, with an air drain, also of 12 inches square, on each side, the air of which must necessarily become heated as it passes along each side of the centre flue; the flues to be executed with the very best fire-brick and tiles, with the best workmanship. I have ascertained by an experiment made for another purpose that the air can be heated in such flues to 100° Fahr. and upwards, which is probably as high as might ever be required, in order to diffuse a moderate heat.

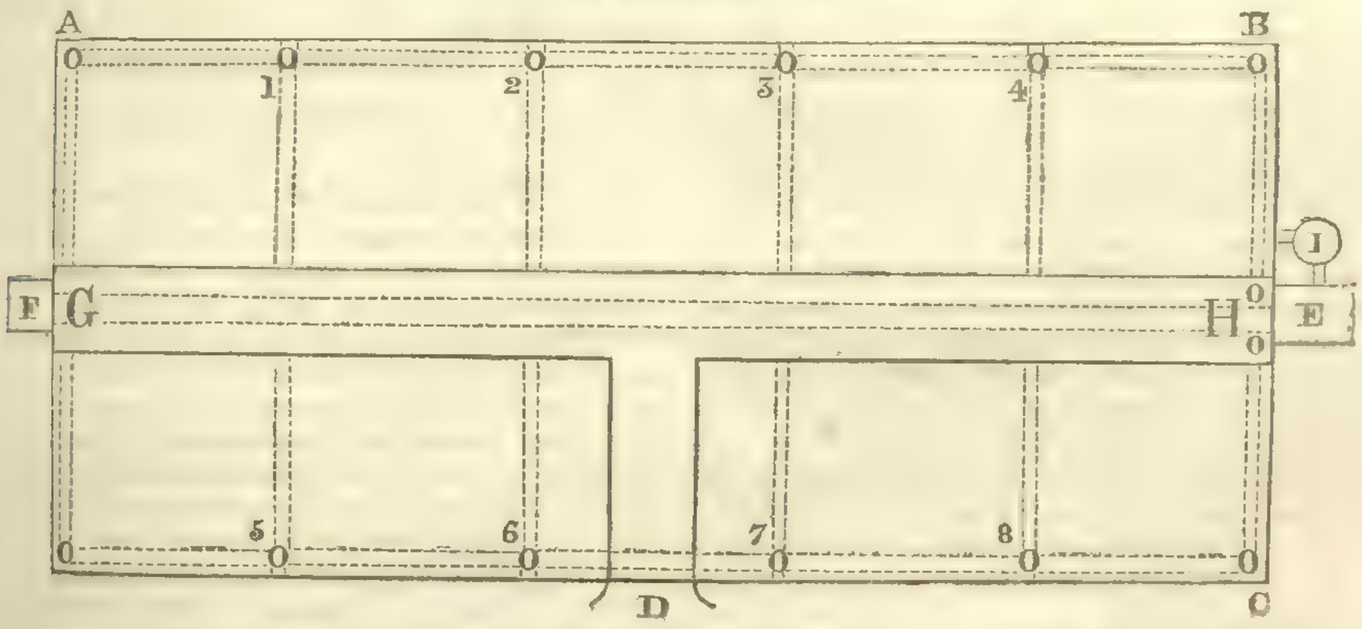
From these air drains I propose that earthenware pipes of 3 or 4 inches bore (in fact, superior draining tiles, with spigot and faucet ends, but only placed one into the other, and in no way cemented) shall be conducted on the floor of the house, under the beds, and inside the outside walls (as indicated on the plan), having perpendicular upcast pipes along the inside of the outer walls issuing into the atmosphere of the house, the pipes with the open joints imparting heat to the border, and bottom heat to the plants, modified as wanted, and sending up from the numerous joints warm air into the body of the house.

It is thought that this system of diffusing heat in the border and throughout the house could readily be regulated and modified, and be entirely under control, by the regulation of the furnace, and stopping the apertures of the perpendicular pipes, more or less, and in the simplest manner.

The whole of the bricks, tiles, and pipes would become heated and retain and give out heat in any required degree, and experience could alone determine their exact action and regulation.

Thus far it would only be dry heat; but water applied to the surface of the house and border, and especially to the tiles (having a breadth of 3 feet up the centre), would speedily be converted into vapour. But it will be seen that in the bottom of the air drains it is proposed to place a second tile over the actual bottom tile, continuously along the whole length of the air drains, leaving a cavity such as may be found sufficient, in fact a shallow trough, which would of course acquire the heat of the other bricks and tiles,

Figure I.—Ground Plan.

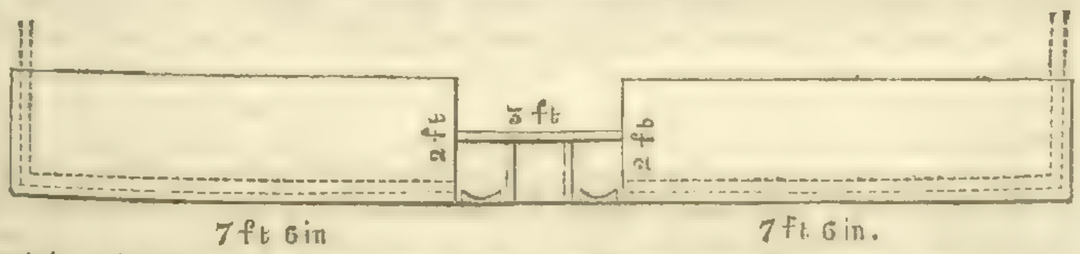


References to Figures.

A B, a length of 42 feet; B C, an inside width of 18 feet; D, entrance door; E, furnace; F, base of upright chimney; G H, central passage, with side passage to D, both 3 feet wide, and laid with best flooring tiles, having a centre flue of 1 foot square from furnace E to chimney F, and on each side of flue an air drain built in brick side walls, 1 foot square. Nos 1, 2, 3, 4, 5, 6, 7, 8 mark the line of 8 rows of 3-inch pipes, spigot and faucet, not cemented (*i. e.* open at the joints), but with an angle curve upwards at the point O, standing up on surface of beds to convey hot air into the house, the pipes being brought from the air drain on the side of the flue. I, a well, say 10 feet deep, into which water from furnace pit shall sink, and into which water from outside the house may be brought; a pump being placed on well, so that water can be had for air drain, and for watering plants.

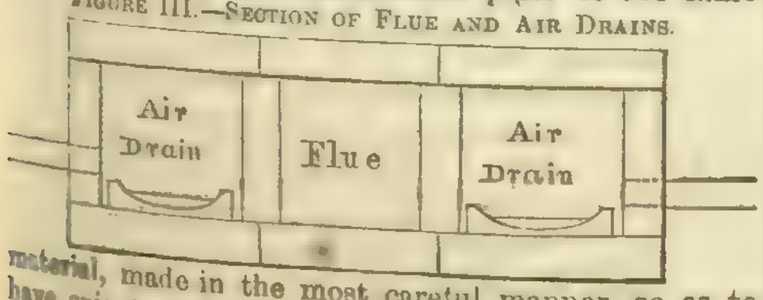
this trough to be supplied with water at one end, speedily filling the whole length of the trough, and being vaporised according to the degree of heat applied. It is obvious that the air would be moistened, passing up through the pipes and their joints into the borders among the roots of the plants, and into the general atmosphere of the house through the perpendicular pipes. Here also experience and practice could alone determine the regulation of the system; but it seems to be obvious that no long time would be required to ascertain safe rules of action, beginning with moderation in all particulars, and increasing in any direction which practice should point out.

Figure II.—Section of B C.



Such is a rough description of the arrangement in reference to the skeleton plan sent herewith; and if the arrangement be at all adequate to its objects, the mode of construction is simple and economical, the whole materials consisting of tiles and bricks made of the best fire-clay and earthenware pipes of the same material, made in the most careful manner, so as to have spigot and faucet joints, open pipes 14 inches long, and 2, 3, 4, or 6 inches in the bore, so as to suit houses of smaller or greater size; probably 3-inch bore would be sufficient for houses of moderate size, seeing that it is proposed to place them at short distances across the border and round the inside of the outer walls.

Figure III.—Section of Flue and Air Drains.



The whole construction can be made at a small expense of workmanship and materials. For the house spoken of, my belief is that the whole could be done for 10*l.* or 12*l.*, which, compared with the cost of a hot-water apparatus, is a small sum.

It might be an improvement that the square F, representing the base of the chimney, should be placed inside instead of outside the house, as its height would be about 12 feet inside, and the whole heat from the shaft would thereby be retained in the house.

A wooden framework might be laid upon and along the central flue and air drains, so that their heat should not be unpleasant to the feet in walking along them.

The entrance into the house is placed at the side instead of the end as is usual, in order to admit of the furnace being placed at one end and the chimney at the other, the flue thereby running straight up the middle of the house. There seems to be no inconvenience in the door being placed at the side instead of the end, although the short passage from it is a small loss of space.

Such are the ideas which have occurred to me in consequence of an experiment I have lately made in converting the arched cellar of an ancient castle into a Mushroom house, and a place for raising Seakail; although a little different for these purposes. I have persuaded myself that the scheme I propose might be made very useful for the growth of fruit under glass, in orchard houses; and probably a vineyard under glass, upon Mr. Rivers's plan, of Vines grown in the inside border, perpendicular, and fixed to iron rods, would succeed. By the means I propose, Vines might have bottom heat, dry or moist, and an atmosphere tempered in any way required, and all compatible with the freest ventilation.

If the heat were too great, the cross-pipes might be omitted, and the heat made to depend solely on the air drains and the pipes along the whole outside walls of the house. *Heat.*

DESSERT ORANGE CULTURE.

On Christmas Day, 1864, I had the pleasure of adding to my dessert, Saint Michael's, Tangierine, and Maltese Blood Oranges, all from my Orange-house, and also some fine fruit of the first and second from Covent Garden; the third sort I could not procure, as they had not arrived. Now came that most interesting period in after-dinner chit-chat — comparison. The Saint Michael's from "the Garden" were very fine fruit, but their flavour was flat, and not at all first-rate. The Tangierines, called in Covent Garden Mandarins, were juicy and good but not rich. The home-grown Saint Michael's were plump, crisp, and bursting with juice, their flavour much more aromatic than the foreign ones. The Tangierines from the same house were rather over-ripe, but very rich. The Maltese Blood, from trees growing alongside the two varieties above-mentioned, were scarcely ripe, but their flesh was of that deep red which has given them their disagreeable name, and peculiarly crisp, juicy, and aromatic. After due deliberation the family jury gravely decided that Oranges of finer quality can be grown in England than any imported; their superiority consisting in that crispness and high aroma which imported Oranges have not, probably from their being always gathered before they are fully ripe.

Home-grown Oranges are no novelty, for Evelyn (I quote from memory) tells us in his Diary, that in February, 1660, he "ate as good China Oranges as ever he ate in his life;" these were from his neighbour's Orangery, and since then good home grown Oranges have been eaten by many persons. Still, oddly enough, no one has ever attempted to systematise their culture, owing probably to the cheapness and fine quality of those imported—a fact not to be disputed, for imported Oranges in spring for two months are of great excellence. Still, this ought not to deter cultivators, for are not finer Peaches often offered for sale in Covent Garden than are grown in private gardens? and the same with other kinds of fruit, yet they are not eaten with the zest that one feels for fruit from one's own garden, for have we not watched them and taken pleasure in their growth? So is it with Orange culture, and as far as I have seen, there is no fruit culture calculated to give equal pleasure. One great source of satisfaction is the agreeable semi-tropical climate required to cultivate successfully Oranges as fruit-bearing trees.

There is no doubt but that the Orange is a tropical tree, if judged by the perfection its fruit attains in the West Indian Islands and in South America, but it may be grown in England in great perfection in a climate we may for convenience sake call semi-tropical, *i. e.*, a temperature averaging from 45° to 50° in winter, and with sun heat from 80° to 90° in summer. One great necessity is constant warmth to the roots of the tree.

Before I describe the method of culture which is so successful here, I may as well state that dessert Oranges may be grown in a cooler temperature, but they are then more slow in ripening, and are not rich and full-flavoured. Tangierine, Mandarin, and St. Michael's Oranges, if grown in a conservatory or greenhouse, will blossom some time in May or June, and their fruit will in most cases ripen the following summer. In a heated Orange-house the trees blossom in February, and ripen their fruit the following autumn, up to Christmas, the delicious little Tangierine leading the van, and generally ripening in October, just as the last Peaches are finished. As far as my experience has gone, this sort is often confounded with the Mandarin, apparently of the same race, but with larger and more flattened fruit; and if I may judge from the sorts I have received from Malta and China under that name, the tree has larger and thicker foliage, not so pointed as the Tangierine; the latter is more juicy than it, and has a richer flavour. The method of cultivating dessert Oranges here, is to a certain extent original, for I find none of the gardeners' books mention it—in fact no horticultural writer seems to have thought it feasible except McIntosh, who recommends Orange trees, if cultivated for their fruit, to be trained on a trellis under glass, after the manner of Peach trees. Thompson, in his Gardeners' Assistant, seems not to have thought of dessert Orange culture; and so, as with orchard-house culture years ago, one has to advance without the experience of the past.

The Orange-house here, in which many of the trees were lately in full bloom, and some of the St. Michael's with ripe fruit on them, is a span-roofed structure 60 feet by 12, heated by eight 4-inch hot-water pipes. A path is in the centre, and on each side is a raised border of slates, on which are placed the trees in pots. The slates form the roof of a shallow heated air-chamber, formed by placing iron bars across from a 4-inch brick wall, along the side of the path to another wall running along the side of the house. The slates should have a lap of 1 inch, and be bedded down either with mortar or clay. Two 4-inch hot-water pipes are laid horizontally along the centre of each border close to the ground, and the slates placed on the iron bars so as to be about 3 inches from the pipes; the warm air is thus regularly diffused over the whole undersurface of the slates, making a warm floor of a temperature from 70° to 80° the year through. The width of this heated floor must depend upon the width of the house; if it be 12 feet wide the central path should be 3 feet wide, and each border 4½ feet wide; if 14 feet wide, each

border should be 5½ feet wide. For houses of these widths two 4-inch pipes to heat the floor in each chamber, and two on each side next to the outer wall to heat the surface air of the house, will be sufficient. Span-roofed houses of the above widths are of sufficient dimensions for moderate-sized gardens, but for large establishments houses of 20 and 24 feet wide would form Orange gardens of great beauty. In such large houses, if a broad central walk is made, and wide heated chambers for the trees on each side, sixteen 4-inch pipes would be required, four for each chamber and four on each side to heat the air of the house. In such large houses the trees may be planted out with excellent effect, but the borders must be heated with the same number of pipes, for root-heat is one of the necessaries of dessert Orange culture—the *sine quâ non*.

I have thus far thought it requisite to point out what may be done in this interesting department of fruit culture. I will now in a few words state what is and what has been done here. Finding last summer that the roots of my trees became too dry on the bare warm slates, each pot was placed on a layer of cocoa-nut fibre, about three inches thick—old tan or light mould would do equally well—and in these little mounds the trees all the past season have continued to flourish.* It is indeed quite refreshing to visit the house, so vivid is the green of their young leaves, so fragrant their flowers. The root-heat has never been discontinued, but about the end of May the water was turned off the pipes that heat the air of the house, as the weather was hot, and not turned on again till the end of July, when extra heat was required to ripen the fruit. Much, however, must depend on the nature of the summer: if cloudy and wet, root-heat and surface-heat will both be required all the year; if warm, surface-heat may be discontinued for some weeks, but root-heat never. The great charm of this Orange-ripening climate is its refreshing airy warmth, for in sunny weather abundance of air is given from low ventilators on each side of the house.

As usual when much pleasure is derived from any peculiar mode of culture, much care is required. The leaves are apt to be affected with a black powdery substance, probably some species of Fungus; this must be washed off with a sponge and warm water. Again, that most intolerable pest, scale, is always on the *qui vive*, and so rapid in propagation, that as a young German who is here said the other day, "they are daughters and grandmothers all in one day." There are many efficacious nostrums to kill this persevering enemy, but after trying all, we have come to the conclusion that syringing the trees once a day in the winter—avoiding the blossoms—and twice a day in the summer is a preventive; and carefully watching the trees and picking off every scale as soon as it can be seen is a sure cure. A sharp-eyed boy soon becomes very sharp in finding scale, and if kept under they give but little trouble; the constant syringing seems to make them feeble and unhappy.

With regard to the varieties of Oranges to be cultivated, we have yet much to learn. There are in the Azores some 50 or 60 sorts cultivated, many of them said to be very distinct in flavour, and of great excellence. It seems to me a very interesting feature, that of placing on our tables Oranges of our own growth, varying in colour, size, and flavour. At present the three sorts of which we have no doubt are the Tangierine, the St. Michael's, and the Maltese Blood, which when gathered dead-ripe is found to be full of its delicious juice. This kind requires the warmest part of the Orange house, as it is slow in ripening; but if the summer be warm and sunny, it will ripen about Christmas. A well-arranged Orange-house will give ripe fruit from early in October till June, commencing with the Tangierine, and ending with the Maltese, reminding one of the length of time Grapes may be gathered from one Vinery.

Although I have confined myself to describing how dessert Oranges should be cultivated in a house devoted to them, I must not omit saying that in a heated Vinery or Pinery they may be grown successfully.

What I wish to convey is the beauty and interest attached to an Orange-house, where the trees are kept in fine health. It is indeed such a source of pleasure, that I feel I can give but a faint idea of it; it is perpetual summer, a realisation of the Gardens of the Hesperides. The trees are evergreen, almost ever-blooming, and are most certainly an ever-giving source of delight to a mind alive to the beauties of Nature. *T. R.*

* This has been found preferable to covering the heated floor entirely, as the bare slates radiate much heat in severe weather.

Home Correspondence.

Exhibitions and Membership of Council.—I am sorry to differ with Mr. Fleming, but it appears to me that it is a wise rule that Members of Council should not take prizes. However honest a man may be, in framing a schedule he is naturally led to form it in accordance with what he is himself interested in, and therefore strongest; it is like the old story of the kind-hearted lady of the house who would always help her guests to what she preferred and not what they liked. Surely exhibition, in the case of a person who stands so high in his profession as to be selected to the honourable position of a Member of Council of the Royal Horticultural Society, is not so absolutely a question of pounds, shillings, and pence as to make it necessary to add money to the honour! I think not, I hope not, and I am confirmed in that feeling by the expense incurred by such first-class men as Mr. Veitch in reference to foreign shows, where the prize is a medal and the honour; and yet the expenses attending such a meeting are far, far beyond the cost of a few vans for a London show. I think a person in such a high position as Member of Council ought to show in the same manner as a juror in the international exhibitions—"Not for competition, Mr. —— being a Member of Council." *D.*

Melon Judging.—No class of fruit perhaps is more difficult to judge than Melons, and I have no hesitation in stating that Melon showing is on this account rendered a mere lottery; it is indeed hardly possible to select the best Melon shown from among perhaps the hundred which are staged sometimes at our great London exhibitions. It is true that the judges are at liberty to cut and taste them; some however are passed over in consequence of their uninviting appearance; others are overlooked because the name they bear is known not to represent a first-class variety; and a third group, no doubt are disregarded for other reasons—but even admitting that they have all been tasted as well as cut, what with some being inferior, some good, and some middling in flavour, the mouth gets sadly out of order before arriving at the hundredth or last specimen. Melon judging as I have stated therefore becomes quite a lottery. I do not say however that this is always the case, for there is no rule without an exception. Some prizes must be awarded, and although there are many losers, still there must be some winners. Having been at various exhibitions myself, I can faithfully assert that Melons which have been awarded prizes by one set of judges would not have got any award at all from others. So much for taste; and as every man's taste is not alike, how is it possible to believe that the best Melons always obtain the proper prizes? I do not for a moment insinuate unfairness—quite the contrary; it is merely a matter of taste. What we want is some standard to guide us; to judge by taste alone is not sufficient, for I have seen Melons awarded 1st prizes at our great exhibitions so ludicrously small that I should have been ashamed to have sent them to my employer's table. Indeed, at Malvern some years ago, I saw a gardener actually take a Melon (Queen Anne's pocket variety, I should imagine) out of his waistcoat pocket, and place it on a plate for exhibition. I am of opinion that moderate size and weight, thin skin, thick melting flesh, and handsome appearance, should have the preference over small size. In one respect Melons are like Potatos; some varieties are good in certain places, and under some particular course of culture, while the same kinds in other places are poor and insipid. Some three years ago we put up a new Melon-house at Osberton, which answers admirably, the crops in it being very abundant. In this house I have tried a great many of the Melons now in cultivation, and from experience I have come to the conclusion I have just stated, viz., that the same variety, under different conditions, varies very much in flavour. Empress Eugenie, Scarlet Perfection (Downie & Co.), and Bramham Hall, with me are three splendid Melons. In modern books I find Melon lists so overburdened with names, that in the case of beginners it would be a difficult thing to make a selection of any one particular variety; how different is this from years gone by, when my father was gardener to the late Marquis of Camden at Wilderness Park—the Beechwood and Cantaloupe were then the two principal favourites. The Princess Alexandra is a valuable late Melon. It is quite a distinct variety of green-fleshed, the outside having a rich yellow appearance while growing, and it may be termed a very handsome variety. I have now grown it two seasons; the first year I sent it to table on Christmas Day, New Year's Day, and old Christmas Day. During the past season I had it ready at Christmas, and should have had fruit much later had not an alteration in the heating apparatus prevented my last crop of it from coming to maturity. Now, I doubt if there is any other good variety of Melon known that could be sent to table so late in the season. So-called winter varieties I consider generally only fit for cattle. Although I do not think it very remarkable to send Melons so late to table, I make the statement just recorded in order to encourage others to try this variety where late Melons are in requisition. As a summer fruit, too, it is excellent, and it is certainly one of the best late-keeping varieties in cultivation with which I am acquainted. *Edward Bennett, Gr. to G. S. Foljambe, Esq., Osberton Hall, Worksop.*

Violets.—Two dear little children insisted, the other day, on my wearing eight or 10 of their Violets in my button-hole. Coming home some two hours after, I threw the Violets into my water-jug, and left them there till the morning. I took them out crisp and saturated, but almost scentless; on going, however, to wash in the water they had floated on it was decidedly perfumed by them. I wish, therefore, to inform your readers that there is thus an innocent and delicious luxury in store for them, and one which will be available for some time to come, and at no cost. *An Original Subscriber, Bath.*

Rhododendron Thomsonii.—Having observed last spring that the attention of your readers was directed to this Sikkim Rhododendron having bloomed in the south of England, it has occurred to us that it might interest you to hear that it has flowered profusely on the banks of the Tay. We send you by this post a truss of it. We may mention that we have had it standing out, without any protection, since 1854. It flowered with us for the first time last spring, and this year we have two plants of it carrying each about 15 such trusses of bloom as we now send you specimen of. *W. P. Laird & Sinclair, Dundee.* [It was a fine truss bearing nine blossoms.]

Peas.—While I cannot accept all the conclusions at which "A Seed Merchant" has arrived (see page 317), I must beg to thank him for the kindliness that pervades his remarks, which contrast pleasingly with some insolent comments on my efforts that have reached me through another medium. Our points of difference are not necessarily "mistakes" on my part; they may be errors of judgment in observation, or deductions drawn from unreliable information, but I have reason to believe that my opinions are held by many capable of forming a strong and independent judgment on the matter. I had noticed one or two unintentional errors, such as Fairbeard's Surprise being stated to be a white instead of a blue Pea; and the reference to Fairbeard's Nonpareil (if an error at all), which reads a little differently from what I had intended. I notice that in the catalogues of several of the retail seed houses the height of Fairbeard's Nonpareil is stated to be 3 feet, and in one or two instances, 4 feet; and now-a-days all retail seedsmen are "seed merchants." My simple aim has been to get together the most apparently reliable information I could obtain in regard to Peas, a design I have never before seen so fully attempted; and with the assistance of "A Seed Merchant," and any one else who can supply the required knowledge, this may be done, and by a courteous interchange of ideas the thanks of the gardening community will be gained, while in regard to the fulfilment of our purpose "each to-morrow" shall

"Find us farther than to-day."

Quo.

Foreign Correspondence.

Exhibition of the Société Royale Néerlandaise pour l'Encouragement de l'Horticulture.—(*Continued from p.* 342).—It remains to describe briefly the contents of the minor halls already mentioned. One of these had a Latania borbonica and a Date Palm on either side the doorway, both very fine specimens. On a large central table were ranged ornamental stands raised on pedestals, and filled with choice Ferns. Below them on either side of the table, was a magnificent display of bouquets and floral decorations. The bouquets were very tastefully made up of beautiful flowers, comprising Orange blossoms, Violets, Orchids, Roses, Camellias, &c. The large decorations for the table, together with wreaths and head-dresses for ladies, displayed like the bouquets the most exquisite taste. The first prize wedding bouquets were thus made up:—a central white Camellia was surrounded by successive circles of Orange blossom, white Azalea, white Lilac, and white Camellias, with a dash of green amongst the first and third rows of flowers; they were shown by M. W. A. Zalme of Gravenhage. The best of the dinner-table decorations had crimson Roses with their foliage above, Pansies below, and golden-veined Honeysuckle twined up the stem; this, with its two dissimilar and incongruous side pieces, came from M. Ant. Bernard of Paris. The end of this room was well set off with Palms, Tree Ferns, Pandanuses, Dracænas, Begonias; and on each side were flowering plants. Among the latter Amaryllids of the Hippeastrum section were conspicuous. There were several fine collections, and among them some most distinct and beautiful varieties, such as Jean Paul, a splendid crimson, beautifully veined, of large size and fine form: Elfride, light-green centre with crimson tips, veined with a lighter colour, and fine in form: Fidelio, of splendid form, with a creamy-white centre, veined and tipped with crimson; Etoile du Nord, green centre with crimson tips; Ernestine, light green centre with crimson tips, and fine in form; Arnoldine, a very fine light flower, beautifully veined with crimson; Mademoiselle Carlotta Patti, fine form, light ground veined with crimson; Laura, a very distinct and beautiful veined flower; Prince Guillaume, fine scarlet, distinct. These would all be worth adding to our collections in England, and, indeed, it is much to be desired that we should see more of these fine plants produced at our home shows. On the same table were some beautiful Rhododendrons, finely spotted, but being early kinds, many of them were not suited for our climate, though fine early decorative subjects. Further on were some new Azaleas, many of them very striking additions to our collections. One especially, Roi de Hollande, was of fine form, and of a rich scarlet, unlike anything else in the exhibition. With these were some Camellias, among which imbricata alba striata was well formed, with good petals, flesh colour striped with pink; Fanny Tucari, a light red, also of fine form; Duval, fine peach colour; Bella Romana, flesh colour marked with red, in the way of Princess Frederic William of Prussia, and of fine shape; and the well known and always welcome Valtevaredo. In this hall was abundant accommodation in the way of seats, refreshments, &c., always most necessary adjuncts to a gathering of this kind.

Another hall leading from this was warmed for the

accommodation of tender plants, such as Orchids and Novelties, a very necessary precaution at this early part of the season. This was arranged with three tables the length of the room, and foliage plants and Tree Ferns at each end. Among the latter were: Alsophila contaminans with a stem 7 feet high and a head of its lovely fronds 10 feet across; Alsophila radens with a 6 feet stem, the finest plant we have seen; and a very handsome Alsophila australis; a grand specimen of Areca Verschaffeltii; Theophrasta imperialis 10 feet high, with noble dark green leaves; and a very fine Cycas revoluta. Here was a collection of Anthuriums with their dark green foliage; the curious cut-leaved Philodendron pertusum; and a beautiful specimen of the glossy-leaved Pandanus elegantissimus.

Of Orchids there were some fine single specimens, amongst them a noble Vanda tricolor and a Vanda insignis, each with seven spikes, the last named 6 feet high. A very fine Cypripedium villosum bore 16 finely coloured flowers. M. Linden had a very creditable collection of 15, including Cypripedium hirsutissimum with 8 fine blooms, C. villosum; Lycaste Skinneri a pale variety with 7 flowers; Phalænopsis Schilleriana; good plants of Vanda insignis, tricolor, and Cathcartii, the latter very distinct, the flowers large, chocolate colour banded with yellow: it is seldom seen, as there are we believe only four plants in Europe; Ada aurantiaca, curious from its apricot-coloured flowers; Miltonia cuneata, a rare plant worth a place in any collection; and a few others. Mr. A. Verschaffelt's plants were some of them damaged by cold during transit, so that he could only show a group of 10, which contained Brasavola Digbyana; Phalænopsis Schilleriana, amabilis, and grandiflora; Cattleya Trianei, shown under the name of amabilis, which is a very different thing; Dendrobium albo-sanguineum; and the beautiful Cypripediums, villosum and hirsutissimum. The Anæctochili were well represented by four collections, some of them very well grown; and comprising A. Lowii, good; several large masses of Petola; intermedius, xanthophyllus; javanicus, very rare; Veitchii, well grown; Lobbii, argenteus, and a good variety of setaceus. Some were grown under bell-glasses, others in cases; some were planted in chopped moss and sand, in which they seemed to root very freely.

Of New Plants, which were numerous, some good things which will be acquisitions were shown amongst both foliage and flowering plants; but in our opinion the judgment was faulty. This was especially the case in the class of single plants, wherein Mr. Veitch showed the lovely Maranta Veitchii, a plant far superior to that which was placed first; the latter was not at all ornamental, and never can become popular, while the former will be a favourite for years to come. Among the other novelties M. Linden had Maranta roseo-picta from the Upper Amazon, with dark velvety leaves beautifully marked with red; this will prove an acquisition among foliage plants. Another Maranta, eburnea, was in the way of vittata, but not nearly so good. Anthurium magnificum, from Columbia, was a handsome plant with light green leaves having still lighter veins, too much like cordifolium we fear, though M. Linden says it is quite distinct. Also Urospatha maculata with arrow-shaped variegated leaves like a Caladium; and U. marmorea variegated in a similar way; both from the Rio Negro. Aralia Mitsde fol. variegatis was a lovely plant, small as yet, but the leaves were of a beautiful variegated silvery colour intermixed with a little green. Remijia candida was not in bloom, but promises to be good, looking like a white Jasmine in foliage and bud. Franciscea Lindeniana was not well in bloom, but as seen at M. Linden's it proved to be a fine plant, the colour very bright. Echites rubro-venosa was too much like nutans in its present small state. Cissus amazonica was not very showy, but worth growing as a climber; Sphærogyne cinnamomea was a promising new plant; and Dendrobium intermedium with white flowers, was a mere variety of nobile. Mr. Veitch showed some fine things, among them Maranta Veitchii, which with its dark green beautifully mottled leaves, is one of the best of recent introductions, and one which will be anxiously looked for by growers; two species of Polystichum, both distinct, which will make good greenhouse Ferns; a species of Sonerila, with dark green leaves marked with white spots, very promising; Urceolina aurea (or pendula) a fine Amaryllid, with leaves like Eucharis, and very distinct drooping yellow flowers tipped with green; Selaginella sp. in the way of Lyallii, but much finer, and likely to be a favourite; a beautifully variegated Schismatoglottis, with green leaves and beautiful silvery markings; Bertolonia pubescens, a dwarf plant with dark-coloured foliage edged with a paler colour, and covered with fine hairs; and Rhododendrons Princess Alexandra and Princess Helena, very desirable greenhouse shrubs, the former with white, the latter with pink jasminiflorum-like flowers. Mr. Veitch also had a splendid plant of Aucuba japonica, covered with glossy berries and the leaves nicely variegated. What a fine thing this will be for our shrubberies when we can get it berried like this! M. A. Verschaffelt also had some remarkable novelties, Verschaffeltia splendida already adverted to, and a very distinct Palm. Cibotium regale, in the way of princeps, but distinct, and one of the noblest of Ferns, the stem clothed with reddish wool-like hairs; Dieffenbachia gigantea, with a spotted stem, and green leaves nicely blotched with white; Maranta splendida, with dark green foliage and light markings; Dracæna rubra, a very distinct plant, but too small to judge of its real merit, though likely to become a great favourite; Dieffenbachia nobilis, with large green leaves marked with yellow, very distinct; Dracæna lentiginosa, also distinct. M. A. Verschaffelt also showed Abutilon vexillarium, a promising free-blooming greenhouse plant, with yellow and scarlet flowers. Messrs. Groenewegen exhibited some interesting plants, but most of them were too small to give a fair idea of their value—among them Cycas pandanifolia, a promising plant; and Syphonium divaricatum, a Caladium-like plant in the way of Lowii, not so dark in the foliage, but likely to be a good plant. Mr. J. Verschaffelt had Agave schidigera ignescens, but the plant was too small to show whether it would prove superior to the A. schidigera itself; also a variegated Camellia, which promised to be good. Several interesting plants came from the Leyden Botanic Garden, including Cyrtandra discolor, with largish leaves of a bronzy hue.

Many other rare plants were exhibited, such as Agave Verschaffeltii var. princeps, a very fine compact dwarf grower of a glaucous colour, with long black spines; Yucca striata, with glaucous leaves; Aralia Sieboldii aurea variegata, a promising plant with green and yellow leaves; Pandanus ornatus, with green leaves and white spines at the edge; Amaranthus versicolor, a dark green plant marked with red, promising as an edging plant for the flower garden; and Zamia grandis, a very distinct species of its noble family. A collection of Billbergias suggested that this family of plants deserves to be grown more frequently than it is, being not only distinct from other familiar things, but very ornamental with its coloured bracts.

Outside one of the entrances was a fine collection of Coniferæ, including a very large Wellingtonia; Abies Nordmanniana, amabilis, and Pinsapo; some splendid plants of Thuja gigantea and aurea; Araucaria imbricata, and Cupressus Lawsoniana. Close by were some fine Hollies, both variegated and green; fruit trees in pots, promising well for bloom; fine specimen Box trees, green and variegated; and many other hardy plants and trees.

The managers deserve the best thanks of horticulturists for the spirited and successful manner in which this exhibition was conceived and carried out. It seemed as though the right men were in the right place. We were glad to see so good an attendance of visitors, numbering 7995 on the first day, and 11,538 on the second. The building in which the show took place was built in 1863 for an international exhibition, at a cost of 200,000*l.*, and when the adjacent ground is laid out, as is intended, as an ornamental garden, the whole will be a credit to the country. *W.*

Societies.

Royal Horticultural: *April* 15 (*Second Spring Show*).—Roses, both old and new, cut and in pots, were contributed on this occasion in considerable numbers, and in excellent condition; of miscellaneous stove and greenhouse plants, two well varied collections were exhibited; and among new plants were one or two striking and highly interesting acquisitions.

Azaleas came from Mr. Todman, gr. to R. Hudson, Esq., of Clapham, who received a first prize for good examples of Criterion, Triumphans, Eulalie, The Bride, Dr. Livingstone, Princess Mathilde, and Coronata. To the same exhibitor was also awarded a first prize for a single specimen of Duchesse Adelaide de Nassau, a brilliant salmon-coloured kind, boldly flushed in the upper petals with violet purple.

Conspicuous among Roses was a magnificent plant of the Tea Rose called President, from Mr. Wm. Paul, of Waltham Cross. This was a beautifully grown bush, ornamented with some two dozen noble expanded blossoms, each measuring nearly half a foot in diameter, of a deep nankin colour, richly suffused with bright salmon. To this was awarded, as it well deserved, a first prize. The same exhibitor also received a first prize for a collection of nine Roses, among which were Beauty of Waltham, Paul Ricaut, Marquise de Foucault, Souvenir d'un Ami, Madame Willermoz, Celine Forestier, Victor Verdier, and Charles Lawson, the last one of the most suitable of all Roses for pot culture. Messrs. Paul & Son contributed a second collection, in which were Virginal and Madame Alfred de Rougemont, two light-coloured Hybrid Perpetuals; of these the last is by far the most hardy and vigorous, but the blossoms of the former possess so charming a tinge of rose in them, that despite the less robust habit of the plant it will always be a favourite. New Roses were shown, both by Mr. Wm. Paul and Messrs. Paul & Son, to whom prizes were awarded in the order in which the names stand. Foremost among the different varieties were Pierre Notting, rich violet-shaded crimson, faultless in shape; and Madame Victor Verdier, bright rosy crimson, both excellent additions to the Hybrid Perpetual class; as is likewise Kate Hausberg, a showy large bright cherry. Duke of Wellington is as bright and effective as General Jacqueminot, but as shown it did not appear to be very double. To light-coloured Hybrid Perpetuals, a class of Roses at present much behind the crimsons and scarlets of that section, Madame Emile Boyau, rosy blush, large and showy, is a step in the right direction, as is also Princess Lichtenstein, another light-flowered sort of more globular outline. Princess Mary of Cambridge was shown again, and on this occasion in rather better condition than at Regent's Park.

Cinerarias came from Messrs. Lacey, Marcham, and Cox. In addition to kinds noticed at Regent's Park (see p. 342) we observed Adam Bede, rose self; Eclipse, white, with broad rosy crimson edge; and Miss Eyles, rose, with white ring round the disc. With the exception of Lord Amberley, which was exhibited again by Mr. Marcham, no seedlings of particular merit were shown. One, however, named Flower of the Day, white, broadly edged, with purplish plum, between which and the white was a well-defined ring of red, is worthy of notice on account of the additional ring of colour just named, a feature as yet detected in only a very few varieties.

Pansies, both in pots and in a cut state, were furnished by Mr. Hooper, of Bath; and a few badly grown Auriculas and Polyanthuses came from Mr. Butcher of Camberwell.

Among new plants were some charming Japanese Primulas from Mr. Veitch. They consisted of P. cortusoides amœna, which, although shown and described by us before, was reproduced on this occasion in much more beautiful condition than we have ever yet seen it; along with it were two others from the same country; one of them named P. cortusoides grandiflora had large drooping saucer-shaped blossoms, pinkish lilac outside and pale inside; the other, which was named P. cortusoides alba, was considerably lighter in colour than either of the preceding; to each of them was awarded a First-class Certificate. Rhododendron Princess Alexandra, likewise shown by Mr. Veitch, received a similar award, as did also a useful looking orange-scarlet flowered trailing Manettia named micans, which promises to be valuable for hanging baskets. The same exhibitor likewise had Azalea Stella and Anthurium Scherzerianum, both still in excellent condition. A small-flowered Azalea named Etna, remarkable for the high colour of its blossoms, was shown among others by Messrs. Smith, of Dulwich; and Mr. Cooling of Bath had cut blooms of his Verbena called Annie, which is one of the best of the red and white striped class. J. H. Vivian, Esq., Singleton, sent cut blooms of Rhododendron Thomsoni, and a variety of campanulatum; the lilac-flowered R. Fortunii, and a cream-coloured sort named Princess of Wales, came from Mr. Sandbach. The garden of the Society furnished a finely grown plant of one of Mr. Weir's Peperomias, with ample bright green leaves overlaid with a beautifully silvery variegation.

Among Miscellaneous Stove and Greenhouse plants from Messrs. Lee were Ixora Griffithii, beautifully in flower; Acacia Drummondii, Dendrobium Dayanum and others; Beauty of Reigate Azalea, Tremandra ericifolia covered with lilac blossoms; Hedaromas and Camellias. Mr. Bull's group consisted of Palms, Ferns, among which was a noble mass of Trichomanes radicans; Orange trees; various red-leaved and other Dracænas; Camellias, among which was the beautiful sort called Countess of Orkney; Araucaria gracilis, and other plants. Mr. Beadon, North Stoneham, furnished very pretty small blooms of Camellias from plants growing in the open air, and Mr. Bartlett had Lily of the Valley, and one or two Cyclamens.

April 18.—Another fortnightly meeting for scientific discussion took place at South Kensington on Tuesday last, and was in all respects highly successful. W. Wilson Saunders, Esq., presided. The Rev. M. J. Berkeley favoured the meeting with a few comments on such points of interest as presented themselves. Among others he adverted to a large collection of Apples from Mr. Rivers, unusually high-coloured and in an excellent state of preservation, conditions stated to have been induced by the late dry summer, and by keeping them cool during winter, the temperature of the cellar in which they were kept never being allowed to be higher than 44°. Fruit of the Loquat (Eriobotrya japonica), from Lady Dorothy Nevill, next occupied attention. Among the different plants exhibited was an example of Nardoo (Marsilea macropus), on the fruit or sporangia of which Wills' and Burke's expedition is reported to have chiefly subsisted during its disastrous explorations in Central Australia. Spores, it was stated, were allied in their nature to the pollen of Phænogams, and it was remarked that cakes made of the pollen of a species of Typha were sold in the bazaars of the East. Allusion was then made to some pretty variegated Yuccas shown by Mr. Williams, in reference to which it was stated that if grown in heat and afterwards removed to a cooler temperature, the variegation comes out much more perfectly than under ordinary treatment, in consequence of the chlorophyll being better developed in a cold than in a hot atmosphere. In reference to Gymnogramma Parsonsii, a plant of which was exhibited, it was stated that spores taken from parts of this or other Ferns in the normal condition usually produced seedlings in a normal condition, while spores taken from abnormal portions of the plant produced plants exhibiting the abnormal conditions. Salvadora persica, from Mr. Bull, said to be the Mustard Tree of Scripture, next came under review. Mr. Berkeley stated that he entertained some doubt as to this being really the plant alluded to in the parable, for the name of one plant was sometimes in course of time transferred to another; thus the old Primrose was our Daisy, and the old Eglantine was certainly not our Sweetbriar. Dr. Royle, who had bestowed much

attention on the plants of Scripture, however, considered that under notice to be the true Mustard tree of Scripture. By the Lake Tiberias, where the parable in question was spoken, it certainly attains the stature of a small tree; but Mr. Berkeley stated that the balance of evidence was nevertheless in favour of the Mustard of Scripture being the same as our own.

Mr. Wilson Saunders then related his experience in reference to the growth of Aloes, which he stated under liberal treatment acquired a size and beauty unknown to plants treated on the dry starving system to which they are usually subjected. Mr. Saunders' remarks were illustrated by a highly interesting group of Aloes and other plants, to which a Special Certificate was awarded. The same gentleman also sent a leaf of Remusatia vivipara, remarkable for its striking colours, large size, and short time which it lasts in perfection. It is rolled up like a piece of paper when it first starts into growth, it expands and acquires solidity in two or three days, but in six weeks the plant dies down.

Major Trevor Clarke, who has one of the finest collections of Cotton plants in England, then gave a short account of his mode of growing them under glass in this country. For cultural purposes, he remarked, our great Cotton family may be divided into two distinct races—one occupying the eastern, the other the western world, each being again divisible into two sections, viz, early and late flowering sorts. The early kinds of the South American type, Gossypium barbadense, most likely to fall into the hands of amateurs, were stated to be the true Sea Island Cotton, with bright yellow tubular blossoms, the Egyptian apparently an inferior type of the same, and the rougher leaved New Orleans. To this type may also be referred the magnificent robust-growing Vine Cotton, and lastly the sort called nankinense. No great difficulty, it was stated, would be found in the cultivation of this section, the seeds of which should be sown as early as February and even January, in order to get the plants up strong and woody before they begin their work of reproduction—a consideration on which future success very much depends. A light soil, he said, suits them best at first; but when they have become established they like a strong rich loam, in which, other circumstances being favourable, they will be found to grow with great vigour. Red spider, to which they are liable, must be kept in check by the maintenance of a moist atmosphere. If only a pod or two on each plant is desired, small pots will answer. In short, with the exception of the Vine Cotton, which well deserves pots of tolerably large size, the great requisites to success, as far as early Cotton is concerned, are early sowing, potting in 10-inch pots, and a moist atmosphere while growing, which induce firm wood, short laterals, and well-filled pods. Plants treated thus will come into flower about Midsummer, and will continue flowering and ripening till late in autumn. They may then either be thrown away, or retained for a second year. They will remain dormant all winter, and may be cut down to the firm wood in spring. Late sorts will show a flower or two in November, and perhaps set a fruit, ripen it imperfectly, and then go to rest for three months, breaking into fresh growth in the spring. These require to be sown somewhat later than the early sorts—say in April; and then grown quietly the first season, and fruited in 10-inch pots the next year. The sorts comprised in this category were said to be the green seed family of the West Indies, with its allied race the Mexican Gulf Hill Cotton; the Bourbon, the Kidney Cotton (G. acuminatum), and all the Peruvian family (Pernambuco Cotton). The great Oriental family, G. indicum, requires more heat than any other. The drainage should also be good, as this tribe is impatient of too much moisture; the soil light. The small sorts in this family make pretty stove plants, and are well worth cultivation for their beauty alone. The very interesting Assam sort of Dr. Forbes Watson, and the valuable Dhollerah Cotton were stated to be quickly flowered, and to be both distinct and remarkable plants.

A collection of plants raised from Jungle earth imported from India was exhibited by Major Clarke, a method preferred by him to that of importing the usual 'collections' of Indian seeds; but their young condition rendered it impossible to say to what genera they belonged.

The Rev. Mr. Dix exhibited a branch of Araucaria imbricata, the Monkey puzzle, barked, as he had been informed, by rabbits; others, however, considered the Araucaria in question too formidable a subject to be attacked by rabbits, and suggested that the real depredators might be squirrels. Mr. Graham stated that if rabbits were at fault they might easily be kept off by painting the trees a certain distance up with train oil, asafœtida, and sulphur, a mixture which he had found effectual in all cases in which he had applied it.

The following candidates were elected Ordinary Fellows, viz.:—

Mrs. Addison, Mrs. Birt, Mrs. Blair, Mrs. Brown, E. Dyson, Esq., Mrs. Elliot, Lady Augusta Fiennes, G. Grant, Esq., Mrs. Holmes, H. Huth, Esq., Mrs. Langford, P. Rawson, Esq., Mrs. Savage, Mrs. Schneider, Mrs. Summer, E. Wilson, Esq., and Lady Young.

April 18 (*Floral Committee*).—Mr. Turner, of Slough, contributed on this occasion a finely-flowered group of Azaleas, for which he was awarded a Special Certificate and a Silver Banksian Medal. From the same exhibitor likewise came two seedling Auriculas, to one of which, named Godfrey, a First-class Certificate was awarded; the other, which was named Harry, received a Second-class Certificate. Mr. Turner also received a First-class Certificate for a new Bougainvillea, with brick red coloured bracts; this was believed to be a cross between B. glabra and B. speciosa, examples of both of which were furnished by the same exhibitor. To Mr. Bull was awarded a First-class Certificate for two of his new hose-in-hose Mimuli, named M. duplex Andersonii and National, of which some account was given by us last week at p. 339. A variegated Sempervivum from the same exhibitor received a Second-class Certificate. From Messrs. Osborn came a pretty little Bletia from Japan, for which a First-class Certificate was awarded. It was believed to be identical with the Chinese B. hyacinthina, and if so it may be considered all but hardy, Mr. Leach, of Clapham, having grown that species for years in an open border at the bottom of a south wall, with no other protection than that of some ashes placed over the roots in winter. To Messrs. Low & Son was awarded a Special Certificate for an interesting collection of Orchids, among which was a fine variety of Dendrobium Dalhousianum, which received a First-class Certificate. A similar mark of distinction was also conferred on a new Heath imported from the Cape by Messrs. Low, called E. fragrans, a handsome kind with pink blossoms arranged in whorls round the shoots in the way of suaveolens. Mr. Marshall, of Enfield, received a First-class Certificate for a charming collection of Orchids, in which was a prettily flowered example of the new Odontoglossum Bluntii, which was stated by Dr. Reichenbach, who was present, to be quite distinct from O. Alexandræ. This received a First-class Certificate, as did also Gymnogramma Parsonsii, from Mr. Parsons, gr. to W. J. Blake, Esq. Messrs. Backhouse, of York, received a First-class Certificate for an extremely brilliant velvety deep crimson Anemone from the mountains of Greece; it was named A. fulgens, but it was stated that it was probably a variety of A. stellata. From Mr. Williams, of Holloway, came an extensive and beautiful collection of plants, to two of which, Amaryllis refulgens, and Pteris serrulata angusta, Second-class Certificates were awarded. The same exhibitor also received a Special Certificate for a charmingly-flowered example of the rich orange-scarlet Sophronitis grandiflora, which, when well grown and flowered as this was, is one of the most interesting of all small Orchids for hanging blocks. A Special Certificate was also given for a truss of magnificent blooms of the fine Bhotan Rhododendron Nuttallii, from the same skilful cultivator. Mr. Veitch received First-class Certificates for his three Japanese Primulas mentioned in another column; and a Special Certificate for a fine collection of other plants, among which were Rhododendron Princess Alexandra and R. Henryanum, Cattleya Dominiana, a magnificent specimen of the ivory white-blossomed Cymbidium eburneum, and Lælia elegans. From Mr. Ayres, Nurseryman, Biggleswade, came some Seedling Conifers, apparently Retinosporas, to two of which First-class Certificates were awarded. Azalea King of the Doubles, and other plants were contributed by Mr. Robson, gr. to G. Cooper, Esq. In a small group of highly interesting plants from Messrs. A. Henderson & Co. was a handsome specimen of Oreopanax dactylifera, the young leaves of which when just expanded are unusually pretty. From Messrs. Jackson, of Kingston, came two varieties of Pelargonium, said to be good sorts for forcing; and one or two other plants were also shown by other growers.

Linnean: *Feb.* 16.—George Bentham, Esq., President, in the chair. The following papers were read:—1. *Notes on Pueraria, DC., correctly referred by the Author to Phaseoleæ.* By the President.——2. *Notice of some Vegetable Monstrosities*; and 3. *Note of Observations and Experiments on Germination.* By George Dickie, M.D.——4. *Descriptions of some New and Remarkable Species of Aristolochia, from Western Tropical Africa.* By J. D. Hooker, M.D.——5. *The Diatomaceæ of Hayo, New Zealand.* By W. Lauder Lindsay, M.D.

March 2.—George Bentham, Esq., President, in the chair. B. W. Foster, M.D., and J. Jenner Weir, Esq., were elected Fellows. The following papers were read:—1. *On the Surface Fauna of Mid Ocean: No. 1. Polycistina and allied Rhizopods.* By Capt. S. R. I. Owen; communicated by Dr. Baird.——2. *On a new Dye-wood of the Genus Cudranea, from East Tropical Africa.* By John Kirk, M.D. This dye-wood is the heart-wood of a species of Cudranea which Dr. Kirk proposed to name C. mosambicensis. The inner bark and white wood abounds in a yellowish milky juice; the heart-wood is of different shades of red, very heavy, and full of pores. It yields a colouring matter somewhat between quercitron bark and fustic. The plant is a climbing shrub, bearing edible fruit; the branches armed with strong spines, the leaves ovate or oblong, the heads of male flowers about the size of a pea, white, and deciduous, and those of the females eventually forming a compound fruit about the size of a Walnut, uneven on the surface, of a yellowish cream colour, with seeds embedded in an agreeable pulp, having somewhat the flavour of an insipid Custard-apple. The natives of Sena call the plant Pambuku.——3. *Letter from Mr. C. A. Wilson, containing Observations on the Natural History of South Australia*; communicated by the Secretary.

March 16.—G. Bentham, Esq., President, in the Chair. Isaac Anderson Henry, Esq., J. W. Morris, Esq., and E. M. Williams, Esq., were elected Fellows. The following papers were read:—1. *Notes on Lichens collected by Sir John Richardson in Arctic America.* By the Rev. W. A. Leighton; communicated by Dr. Hooker.——2. *Palms of East Tropical Africa.* By Dr. Kirk. The Palms of this region, so far as yet explored, were stated to belong to the genera Cocos, Elæis, Phœnix, Borassus, Raphia, and Hyphæne. The Cocos (nucifera) was stated to be extremely rare beyond 60 miles inland, but Dr. Kirk had met with a few trees bearing fruit at Zete, and at a distance of 300 miles from the sea. The Elæis of the Central Lakes of Tropical Africa was identified with E. guineensis, though the author thought it probable that further research might establish its distinctness therefrom. Seen from a distance the Oil Palm has much the appearance of a Date, having a clean cylindrical stem 30 feet high, surmounted by a crown of feathery fronds. As yet the Elæis is only known from the Lake regions, but not from the sea coast, of the eastern side of Africa. The African Borassus has been separated by authors under the name of B. æthiopum, from B. flabelliformis, on account of its fewer flowers in each catkin, its swollen stem, and its geographical position; but the African plant, it appears, produces normally as many flowers as the Indian; the swelling of the stem, seen in many Palms, is in this case, although usual, far from universal; and many other African trees have been found also in Asia. On these grounds the author reunites B. æthiopum with B. flabelliformis. It is the largest of East African Palms, sometimes attaining 80 feet in height, such a tree at 5 feet from the ground having a girth of about 6 feet. The ventricosity of the stem most commonly takes place at from 35 to 40 feet from the ground, and when it occurs seems to mark the first flowering of the plant. The thickest part of the stem is at the base, above this it quickly diminishes in the first 5 feet, reaching the minimum girth at 20 feet, and above this again thickening towards the ventricose part. The wood was described as hard outside, and soft and pithy within, but when kept dry durable and resisting the attacks of termites. Both negroes and elephants suck the outer coat of the fruit, which has an agreeable smell and a fine orange colour, but a mawkish taste. The gelatinous interior of the albumen is eaten, and the young shoots are cooked as a vegetable and esteemed both by the natives and the Portuguese. Palm wine also is made from this species. Of Phœnix spinosa the split leaf is made into fine mats and caps. The fruit remains long attached to the tree without ripening, but the green bunches immersed for 12 hours in water suddenly assume a rich scarlet hue, and their astringent pulp at the same time becomes sweet. The Hyphænes were pointed out as difficult to subdivide into satisfactory species, some being dichotomous, as the Doum Palm of Egypt, some cylindrical throughout, and some ventricose. Dr. Kirk limits the Zambesi species to these: H. coriacea, a maritime plant, with dichotomous stem, pyriform fruit, and oblique ligule; H. crinita, an inland plant, with cylindrical stem, oblong fruit, and equilateral ligule; and H. ventricosa, a new species from the Central districts, with ventricose stem, spherical fruit and unilateral ligule. H. thebaica was stated to differ from H. coriacea in the form of its fruit, which is larger at the base than at the apex. Of H. coriacea there are two forms; one 30 feet high, the trunk many times divided, and one much smaller, seldom divided more than once, and often occurring as a bush with a very short stem.——3. *Descriptive List of Plants of the Anamallay Hills, in the Madras Peninsula,* by Capt. R. H. Beddome; communicated by Dr. Thomson. The Anamallays rise to an elevation of nearly 9000 feet, their base being about 1000 feet above the sea. They contain Teak forests of great extent, the finest Teak being found between 1500 and 2500 feet elevation; some trees occur measuring 20 feet in circumference. These forests are dry and comparatively open, being annually swept by fires. The moist forest forms large tracts, and has quite a different vegetation; the trees are often of gigantic size, Euphorbiaceæ, Urticaceæ, and Anonaceæ, being plentiful, their trunks covered with epiphytic Orchids, and Ferns and Balsams abounding, while the chief under-growth consists of Acanthaceæ.

Notices of Books.

Dr. Webster's Complete Dictionary of the English Language. Revised by C. A. Goodrich, D.D., and Noah Porter, D.D., Professors in Yale College. In 12 Parts, price 2*s.* 6*d.* each. Bell & Daldy; Longman & Co. 1865.

Judging from the single Part which is before us, this work promises to be an extremely cheap, valuable, and most comprehensive dictionary. It is printed in rather small type, with three columns to the page, and, as is now usual in works of this kind, the first words are not in capital letters, but are printed in a larger and darker type to catch the eye. Two or three small unpretending woodcuts adorn nearly every page. These are generally chosen with great good sense to illustrate such words as "amphora," "ampulla," the Egyptian god 'Anubis,'

&c.; in some cases, however, less discrimination has been shown, for nobody would care to have the picture of an "anvil" or an "ass."

The programme sets forth that "care has been taken to preserve those obsolete words which are found in the writings of such authors as are still read," and accordingly we find a great many such words. There is a sprinkling also of the vulgar tongue: a "blow out," for instance, is a significant but not very elegant expression. The popular writers, both of England and America, indulge in far too many slang terms. If accuracy and conciseness of definition are a merit, Dr. Webster's Dictionary may lay claim to that merit in a high degree, and the moderate price of the present edition brings this deservedly popular work within the reach of our humbler classes, who ought to possess a good dictionary of their own language. We may notice that the pronunciation appears to be excellent, and all that can be desired, with the single exception of the nasal sound which occurs in the French words *bon-bon* and *bon mot*. This is a sound very difficult to the Englishman's organs of speech, and we don't know how to express it in English letters, but certainly it must not be pronounced "bong," unless the sound of the g is quite subdued.

The Astronomical Observer. A Handbook to the Observatory and the Common Telescope. By Rev. W. A. Darby, of Manchester, F.R.A.S. Pp. 104, 4to. Robert Hardwicke, Piccadilly. 1864.

These few pages possess a very high order of merit, and will be most welcome to the small class of persons for whom they are written. Unlike the Nautical Almanack, which is essential to the commerce of the world, and is in the hands of every sea-captain, this hand-book is intended for professional and amateur observers, who wish to direct their attention to the very interesting nebulæ, clusters, and double stars, which are to be found in the heavens, if people only knew where to look for them. It is in fact a catalogue of such objects, with directions whereby the possessor of a properly mounted common astronomical telescope may find any such known object of interest, in its proper place, in its own proper constellation. We have the best authority for speaking in high terms of "The Astronomical Observer."

In the Introduction Mr. Darby states concisely the views of the early astronomers Pythagoras, Euclid, Ptolemy, Copernicus, Kepler, and Newton; and then the labours of modern observers, whose names need not be mentioned. He explains the use of an ingenious Iris Diaphragm, and the proper adjustments of an equatorial instrument, and concludes the Introduction with a noble quotation from Sir John Herschel to this effect:—

"The stars are the landmarks of the universe. Every well-determined star, from the moment its place is registered, becomes to the astronomer, the geographer, the navigator, the surveyor, a point of departure which can never deceive or fail him; the same for ever and in all places; of a delicacy so extreme as to be a test for every instrument invented by man, yet equally adapted for the most ordinary purposes; as available for regulating a town clock as for conducting a navy to the Indies; as effective for mapping down the intricacies of a petty barony, as for adjusting the boundaries of trans-Atlantic empires. When once its place has been thoroughly ascertained and carefully recorded, the brazen circle with which that useful work was done may moulder, the marble pillar totter on its base, and the astronomer himself survive only in the gratitude of posterity, but the record remains, and transfuses all its own exactness into every determination which takes it for a groundwork, giving to inferior instruments, nay, even to temporary contrivances, and to the observations of a few weeks or days, all the precision attained originally at the cost of so much time, labour, and expense."

The second volume of *Harvey's Thesaurus Capensis*, a most useful series of figures of new or rare S. African plants, indispensable to students of the Cape Flora, is brought to a close with the 4th number recently issued. Amongst the novelties included in the present part are Zehneria Wyleyana, a graceful little Cucurbit with pedatifid leaves, and great ovate sinuately-toothed bracts; a curious new Asclepiadaceous genus Sarcocyphula, almost the double of Sarcostemma viminale, from which it differs in its singular cup-like corona; and four species of Gomphocarpus, some of which look as though they would be worth cultivating, especially G. Gerrardi, with linear-lanceolate leaves, and great umbels of large campanulate flowers. The Epiphora of Lindley is figured under the name of Polystachya Lindleyana, the author observing that he does not find any distinguishing character in the structure of its pollinia, as was supposed to be the case.

Since our last notice of the *Botanical Magazine*, the following subjects have been published in its pages:—*Epidendrum dichromum amabile*, a beautiful rose-coloured Orchid from Bahia, and a most welcome addition to the genus, the lip being of a deep crimson with a light margin.—*Morenia fragrans*, an elegant pinnate-leaved small Palm akin to Chamædorea, and to which M. Wendland has given the name of M. Lindeniana.—*Agave Saundersii*, a fine succulent greenhouse plant from the collection of W. W. Saunders, Esq. It is supposed to be Mexican, and stemless, with horizontally spreading, distantly spined leaves, and a scape 14 feet high, with numerous subglobose fascicles of green flowers distributed along the upper part. These fine plants seem to be making their way again into popular favour.—*Cœlogyne fuscescens brunnea*, a rare Moulmein Orchid, with yellowish flowers, having the lip stained with reddish brown.—*Manettia micans*, a fine hothouse climber, introduced by Mr. Veitch from Peru; it is stouter in habit than M. cordifolia, and bears drooping leafy panicle-like lateral branches of bright orange-red flowers, even more ornamental than in the favourite species already mentioned.—*Arisæma papillosum*, a tuberous Aroid from Southern India and Ceylon, with pedately-parted leaves, and green flower spathes. The large tuberous roots are used as a medicine by the Cingalese, and are sometimes called Snakeroot.—*Alocasia Lowii picta*, which, however, appears to be the Caladium (?) Veitchii described in our volume for 1859, p. 740, and considerably different from though bearing a certain likeness to A. Lowii itself.—*Lælia præstans*, a beautiful dwarf Orchid, with large flowers, related to what is often called Cattleya pumila.—*Iresine Herbstii*, the crimson-leaved plant recommended for summer bedding, and named in Belgium Achyranthes Verschaffeltii. The plant has flowered with Mr. Herbst, and the terminal panicles of yellowish green contrast strikingly with the colour of the leaves.—*Aglaonema marantæfolium maculatum*, the blotched-leaved white-spotted Aroid, which has been repeatedly shown under the name of A. commutatum,—*Acropera armeniaca*, with apricot-coloured flowers, and the most ornamental species of its singular genus.—*Billbergia olens*, a Bromeliad, with short erect crimson floral leaves and purple flowers, almost hidden in the heart.—*Astelia Solandri*, a greenhouse Liliaceous plant from New Zealand, with long linear-subulate two or three-ribbed leaves, and yellowish panicled flowers.—*Cattleya quadricolor*, a beautiful New Grenada plant, with white flowers, having the lip beautifully variegated with yellow lilac and purple. Mr. Bateman, by whom it is described, concludes that there would seem to be a high probability that the six so-called species—labiata, Mossiæ, pallida, Warscewiczii, Trianæi, and Wageneri, are in reality varieties of a single form that spreads itself like Epidendrum ciliare and cochleatum, over the whole Orchid growing region of tropical America.—*Masdevallia tovarensis*, a charming dwarf white-flowered Orchid from Columbia, with its smaller dorsal and larger confluent lateral sepals all caudate, the minute petals and lip almost lost in the cup-like base of the connate sepals.—*Monochætum dicrananthérum*, a small shrubby Melastomad from the lofty Andes of South America, a foot to 18 inches high, with elliptic lanceolate leaves and small rose flowers, the stems red and "the upper half of the plant consisting of a series of small flowering panicles, collectively forming an oblong multiflorous large panicle." It flowers in October.—*Arisæma Wightii*, a South Indian species, with roundish tubers, quinate leaves, pale green incurved spathes, and the spadix ending in an exserted subulate appendage six inches long, curved below, but erect above.

Florists' Flowers.

The Hollyhock.—I was much gratified at noticing at p. 319 a column devoted to florists' flowers, containing an excellent article on the Pansy, by the well-known grower and judge, Mr. Dean, of Shipley, the harbinger, I trust, of many more interesting contributions from our principal florists and amateurs, on the treatment and cultivation of their several favourites. As example is ever better than precept, I lose no time in offering my mite in the shape of a few jottings on the Hollyhock, a flower which promises next to the Rose in a few years to divide with the Gladiolus the suffrages of the floral world. In the few hasty remarks I am about to make I address myself entirely to beginners. Old friends of the flower need no such hints. Would only they would favour us with a little of the lore experience has taught them. The season is travelling on so fast, and planting-out time is so near at hand, that any suggestions on the propagation and treatment of the plant during the autumn and winter months would be now out of place; but should no other friend of the flower favour us with his advice on these points, I will gladly give the results of my own experience later on.

The Hollyhock can be had in bloom from the end of July in the south, and beginning of August in the north till the frost sets in. Old plants and summer and early-struck autumn ones will be at their best about the middle of August; in succession to these, those struck in early spring will come in; and for blooms for the later shows in September, cuttings put in to strike the first half of March will answer. As no flower has so much work to do in a short time as the Hollyhock, it must be fed accordingly. Let the ground be well trenched to the depth of 2 feet, and plenty of manure put in.

As to the manner and disposition of the plants the most effective plan is to have them in an alternate double row; the longer the rows the greater the effect—a yard from each other in the rows, and 2 to 2½ feet between; if set rather wider apart it would be better for the strength of growth, but the nearer the more telling they are at a distance. When intended solely for exhibition, I grow them in a square piece, in rows 4 feet apart, and a yard between the plants. For garden decoration I usually had a double row, but lately have planted out about a hundred of the best and most effective varieties divided into three rows, a yard apart all ways, and over them, when just breaking into bloom, I have an awning extended; the supports of Larch, 10 feet apart, and the roof as light as possible, made principally of tiling laths. A friend, at my recommendation, intends this season having a double row of a hundred each, with a background of evergreens, and in front half-a-dozen ribands of Pelargoniums, Calceolarias, &c. This bed, when at its best, will be gorgeous in the extreme.

Having tried early and late planting, I think that generally the second week in April is the best time for placing out the first lot; and the planting may be continued till the middle of May, as the plants in succession become ready; but before planting out all must be well hardened off. When first put out, large flower-pots should be placed over them at night till they are well established, or have outgrown their protectors. When the plants are about 6 to 9 inches high, if at all spindly, they ought to be tied to small sticks as a temporary stay, and when they have attained to about 12 inches, the proper stakes ought to be inserted a few inches from the plants, and driven well home: they need not be more than 2½ to 3 feet out of the ground. When old plants are grown, only one stem should be allowed to go to spike. A little water only is advisable at first, but as the season advances they can scarcely have too much. From the quantity they and their cousins the Dahlias can imbibe, they may be fairly entitled aquatic or rather amphibious plants. As mulching is strongly recommended by most of the great authorities on the flower, I have tried it at various times, as well as for Dahlias and Roses, but have now given up the practice. No doubt it is beneficial, and conduces to a healthy and vigorous growth, but it is neither seemly to the eye nor pleasant to the feet, and is withal very untidy. From the moisture causing the mulch to abound with worms, the blackbirds and thrushes are ever at work, with a perpetual scratching.

If that gardener's pest the red spider, to which I regret to say they are sadly liable, should attack them, they must be well syringed, particularly the under part of the leaves. During the growing season a little liquid manure or weak guano water may occasionally be given. Should strong winds prevail when the plants are about half grown they must be carefully watched, and stakes of greater length set diagonally across the weakest as an extra temporary support. At that period their growth is very rapid and succulent, and in a high wind they are very liable to be broken short off. As the season advances the spikes become more woody and fibrous, and will then resist the strongest gales.

I have frequently been asked for a list of the best varieties, but a satisfactory selection is difficult to give unless the principal object of their cultivation be first known. Like most other flowers, the varieties most telling for garden decoration do not find the most favour on the exhibition table, though the Hollyhock, after all, in this respect, has the advantage of most other florist flowers. One great drawback to a more extended cultivation of this noble flower is its expense, caused principally by the difficulty of its propagation. New varieties generally come out at from 10*s.* 6*d.* to 15*s.*, and unlike Dahlias, which may be purchased for a shilling the next season, they diminish but gradually in value. Some varieties are so shy in throwing out cuttings, and these so difficult to strike, they become scarce and dear. Nevertheless the flower has made such rapid strides during the last few years that very fine selections can now be obtained at a moderate cost. But I must reserve lists of varieties and any further remarks for a future opportunity. *Edward Hawke, Willingham Rectory.*

The Apiary.

The system of Artificial Swarming, as detailed in page 343, was that best adapted for being carried out with improved hives or boxes. We have now to consider the best mode of effecting the same objects with the old-fashioned common straw hives. It is well, if possible, to commence about 10 days before it is intended to operate on the stock hives, by raising some royal cells in a nucleus, as described in our last. This is by no means necessary, but a very great gain of valuable time is afforded to the parent stock from which the bees are to be driven. We will imagine the bee-keeper to be in the possession of three stocks of bees in common hives, which we will call A, B, C. It is important that the condition of a hive, from which it is desired to *force* a swarm, should be as nearly as possible the same as that of one which will be ready to throw off a natural swarm in the course of a few days. That is to say, the population should be abundant; drones should have made their appearance, and there should be a large quantity of brood in all stages of development.

A fine day should be chosen for the operation, and there should be a large proportion of the adult bees on the wing to and from the hive. Gently lift up A,

blowing a little smoke in at the bottom, which will drive the bees up among the combs. Invert the hive on a bucket, place an empty straw hive over it, and secure the edges with a cloth, to prevent the escape of bees. Now place an empty hive on the old stand, to act as a decoy, or to amuse the returning foragers. Gently beat the sides of the full hive with short sticks or the hands, and generally within a few minutes the bees may be heard in the act of ascending into the empty hive. This being the case, the cloth may be removed, and the progress of the bees upwards may be watched. When they have all ascended, the hive with the driven bees must be placed on the old stand, allowing these in the decoy hive to unite with them. Then, if royal cells are available, carefully fix one or two among the combs; but whether or not, proceed as soon as possible to remove a populous hive C to another part of the garden, and stand the driven stock A in the position which C occupied. The bees returning home will, after hovering about a little, settle quietly in A, and, provided no royal cells have been added, will very soon commence their construction, and the transformation of worker grubs into royal princesses. These returning bees, together with those now rapidly hatching out from the brood-combs, will soon again render A very populous.

In about ten days after forcing A, proceed with B in the same manner, this time removing A to another stand, and putting B in its place. There need now be no difficulty in the procuring of spare royal cells, or young queens for the purpose of fixing in B. Soon after this, C, the first hive transposed to afford a population for A, will have become full of bees. A swarm may be driven from it, and it may be placed on B's stand, to obtain the bees necessary for hatching out the brood and carrying on the stock. The hives are now exactly doubled in number, and this ought to satisfy every apiarian who desires to possess strong colonies in the best condition for collecting honey. But if his object should be the greater increase of his stocks, he may go back over the same course again, taking care not to weaken his colonies too much.

The foregoing plan is available where there is more than one hive at disposal; but if it is intended to force a swarm from a single stock without assistance from any other, a very different plan must be followed. Proceed as before to expel all the bees from the hive, having placed a decoy hive on the old stand. When the bees have ascended into the empty domicile, tie a coarse cloth round the bottom of the hive and remove within doors until evening. Restore the old stock to its proper position, returning to it the bees which have collected in the decoy hive, or are still flying about unsettled. This will ensure a sufficient population. The new swarm may be located in a part of the same garden as far as possible from the place the old hive occupied; or, all the better if it can be taken away a distance of more than a mile.

It will be seen that this plan is in accordance with many of the principles which operate in natural swarming. If deferred to a period when a swarm may reasonably be expected in the course of a few days, there will most probably be a sufficiency of royal larvæ in various stages of maturity. The foragers which were absent at the time of the expulsion of the bees, will be in almost all respects analogous to the returning bees, which remain to people the hive after the departure of a natural swarm.

To those who desire to stock any favourite hive on an improved principle, this plan may be very advantageously adopted. If the preservation of the straw hive be not desired, all the bees may be expelled from it at the end of three weeks from the time of the first driving, and the bees united to those already domiciled in the new hive. This is a much better plan than that of attempting to transfer combs and bees from common hives to boxes, which is so often desired by apiarian novices.

It is not possible in the space of two short papers to treat the subject of artificial swarming as it deserves. We therefore invite inquiry from our apiarian readers who may desire further information on this, or on any other subject connected with *The Apiary*.

Garden Memoranda.

Mr. Williams' Nursery, Holloway.—A magnificent tree of the Bhootan Rhododendron Nuttallii is now in full bloom in Mr. Williams's noble show-house, or rather Conservatory, at the entrance of his new Victoria Nursery, Holloway. At present it has no fewer than 100 fully expanded blossoms on it, each of which measures 6 inches in diameter. They are of a delicate white colour, flushed in the throat with lemon, and they possess the good property of being deliciously fragant. Such a tree, laden as it is with its multitudes of huge trumpet-shaped blossoms, is worth travelling miles to see; and all who are fond, not only of Rhododendrons, but of other flowering shrubs and plants tastefully associated with Tree Ferns, Aloes, and fine kinds of Yucca, of which Mr. Williams has perhaps the best collection in the country, should lose no time in paying this establishment a visit. The rich collection of Orchids, in which some glorious species are now in bloom, will also afford much interest and variety, and will well repay inspection.

Miscellaneous.

Rafflesia.—It is well known that the greatest flower in the world is that of Rafflesia Arnoldi, which is parasitic on the roots of certain species of Cissus in the isles near the Sunda Strait, especially those of Cissus scariosa. M. Teysmann has tried, in the garden of Buitenzorg, in the isle of Java, to sow the plant which produces these gigantic flowers on the roots of Cissus, after having made an incision to divide the bark. The experiment has been perfectly successful, and at the end of 18 months, M. Teysmann has had the satisfaction of seeing many flower buds of Rafflesia burst from the roots, whose size varied from that of a Pea to that of a middle-sized Apple. From the observations which the Dutch gardener has had an opportunity of making on spontaneous Rafflesiæ, these buds will require a year or more before expanding the flowers, which are frequently not less than a metre in diameter. It has also established this singular fact, that the parasites spring some distance above or below the point at which the seeds were inserted. We may then hope to obtain in a cultivated state this remarkable vegetable, whose discovery at Sumatra by Dr. Arnold in 1818 was quite an event in the scientific world. *La Belgique Horticole, June*, 1864.

Vegetable Flannel is now largely manufactured in Germany from the Pinus sylvestris. A great number of persons are employed in the various processes of separating the fibre from the oil. The fibre, locally called wold-wold, is spun, knitted, and woven into various fabrics. It is said to be highly efficacious in restoring the function of the skin to its normal condition. *Athenæum.*

Calendar of Operations.

(*For the ensuing week.*)

The weather, though bright during the day, still continues cold at night. Calceolarias and other bedding plants pricked out in turf pits to harden must therefore still be covered up at night. Any protection that may have been afforded to fine specimens of Standard Laurustinus, or other shrubs, should however now be wholly removed.

FLOWER GARDEN AND PLANT HOUSES.

Thorough-dress all beds and borders; prepare stations on lawns for extraordinary specimens of ornamental plants, as large Fuchsias, &c., putting drainage in the bottom, and good turfy and mellow compost above. Trim and prune all climbers on out-door trellises, or conservative walls; and prepare stations for plants to fill up blanks. Cold pits will now be occupied with some of the early struck or potted off stock, hardening for the flower garden.

Annuals. — Half hardy sorts should now receive attention. The best method of raising them is to sow them in pans or boxes now, or in a bed about 3 inches thick, of light soil, placed on a gentle bottom-heat, furnished by means of stable manure or vegetable refuse, and protected with a frame. Water sparingly, and give plenty of air when the plants appear; thin out or prick off in small pots, and be careful to get the plants well inured to the weather previous to planting in the open border, and also to give water as may be necessary, after planting, until they become established.

Azaleas.—Specimens now in full blossom must be shaded from bright sunshine. Plants that have been kept in heat to bring them into flower will now require pretty liberal supplies of water. Great attention should be paid to ventilation, particularly in guarding against cold currents of wind. Young plants will grow rapidly if shifted and placed in a moist warm temperature; see that they are clear of insects.

Calceolarias.—Those intended to make large specimens will have received their final shift. As the season advances, so must the grower be more watchful to keep down insects. A very mild moist temperature is the best suited for the Calceolaria at this season.

Camellias.—Plants that have done blooming should be placed in heat to make their growth; shift any that require it; syringe them daily. Water freely plants now in bloom, and occasionally with weak liquid manure.

Cinerarias.—These should now have all the air possible on every favourable opportunity, avoiding cold draughts. Pick off decaying leaves and blooms, and look well to mildew.

FORCING GARDEN.

Cucumbers.—Get those intended for ridges hardened forthwith, preparatory to turning out, and let trenches be prepared for them. A trench thrown out 3 feet wide and 2 feet deep, and filled to a foot above the ground level with such materials as litter, Grass mowings, or leaves, with a little hot manure, all thoroughly blended, will make an excellent bed. When completed, raise mounds of soil 3 or 4 feet apart, to receive the hand glasses.

Figs.—As the season advances gradually raise the temperature of the house. Syringe mornings and afternoons. Keep a moist atmosphere. When the borders require watering, give them a good soaking. Plants in pots and tubs should have some weak manure water occasionally.

Peaches and Nectarines.—Continue to keep the shoots well tied-in in the early house, and be careful not to get them crowded. In disbudding, the bearing wood of the present year should be divested of all shoots except the terminal one and those near the base. When a deficiency occurs in any part of the tree, more may be tied in. Ventilate freely in fine weather, and be careful to close up early in the afternoon. Syringe once or twice daily, and keep a moist atmosphere by throwing plenty of water on the pathways, borders, &c.

Pines.—See that good mellow turfy soil is ready under cover for the shifting process; also materials for thorough drainage, such as broken crocks, rough bones, charcoal, &c. Use clear liquid manure to swelling fruit, when necessary; and keep up a lively heat, with plenty of atmospheric moisture.

Vines.—Late Grapes, such as West's St. Peter's, Lady Downes' Seedling, Black Damascus, Muscats, &c., will now or soon be breaking. Let disbudding, tying, stopping, &c., be duly attended to, according to principles laid down for the earlier houses.

HARDY FRUIT AND KITCHEN GARDEN.

Disbudding wall trees should be commenced early in order that the energies of the trees may not be expended in producing superfluous wood. In the final regulation of the shoots do not allow more to push into wood than can be conveniently trained in. When working at wall trees avoid treading upon the soil; a plank and a few bricks moved along as the work proceeds will obviate the evil just named, and will yield more comfort to the workman.

Lettuces.—After this time it is best to sow these where they are to remain. Drills for them should be drawn 10 or 12 inches apart, and a few seeds dropped in at intervals of about 8 inches asunder; as soon as the plants are fairly up these patches should be thinned to one plant.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the Week ending April 19, 1865, as observed at the Horticultural Garden

April.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth. 1 foot deep.	Temperature. Of the Earth. 2 feet deep	Wind	Rain.
Thurs. 13	17	29.923	29.914	69	35	52.0	51	48	S.W	.00
Friday 14	18	29.972	29.913	62	42	52.0	51	48	S.W	.09
Satur. 15	19	30.149	30.101	57	34	45.5	51	49	N.E	0
Sunday 16	20	30.160	30.030	69	46	57.5	51	49	N.E	.36
Mon. 17	21	29.925	29.860	71	45	58.0	51½	49	S.W	.02
Tues. 18	22	29.982	29.878	69	40	54.5	52	49	S.W	.02
Wed. 19	23	30.132	30.103	64	42	53.0	53	50	N.E.	.00
Average.		30.034	29.971	65.8	40.6	53.2	51.5	48.7		.29

April 13—Very fine and warm throughout.
— 14—Fine; overcast; rain; showery and mild.
— 15—Densely overcast; fine at night.
— 16—Partially overcast; very fine; overcast; rain.
— 17—Slight haze and fine; very fine; slight rain.
— 18—Densely overcast; fine; overcast at night, rain.
— 19—Hazy, overcast; fine; overcast and warm.
Mean temperature of the week, 6½ deg. above the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 39 years, for the ensuing Week, ending April 29 1865.

April.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday..23	58.6	36.7	47.7	20	0.52 in	2	8	6	1	4	5	5	7
Mon. ..24	58.3	40.8	49.6	15	0.60	5	6	4	8	2	3	2	3
Tues. ..25	59.4	37.3	48.3	16	1.40	5	8	6	3	7	5	3	3
Wed. ..26	59.6	35.9	47.8	17	0.53	4	9	3	3	1	10	3	6
Thurs. ..27	58.2	35.6	46.9	16	0.14	11	3	8	2	5	3	4	1
Friday ..28	60.2	35.6	47.9	16	0.64	4	7	6	4	5	5	5	3
Satur. ..29	58.4	37.7	48.0	13	0.75	4	4	8	2	4	9	1	7

The highest temperature during the above period occurred on the 28th, 1840—therm. 81 deg.; and the lowest on the 24th, 1861, and 29th, 1861—therm. 18 deg.

Notices to Correspondents.

Ants: *Sub.* Guano strewed in their runs and haunts is stated to drive them away.

Apricots: *G O L.* We are of opinion that the decay of Apricot trees is accelerated by excessive dryness at the roots, by sun-scorching of the stems, and by mildew on the leaves. The first of these evils should be guarded against by watering, so as to thoroughly soak the subsoil; but in doing this take care that the water is warmer than the border, otherwise the fruit will either drop or swell badly. Scorching may be obviated by shading the exposed parts of the stem during very bright weather, and for mildew sulphur is the best remedy. Let it be applied when the leaves are wet.

Books: *Sunderland.* Consult Duncan's Catalogue of Plants in the Royal Botanical Garden in the Mauritius. There is no better work of the kind, and we think no other so complete. —*J L A.* A correspondent recommends the undermentioned cheap works on Cottage building, giving plans, &c.:—1. Strickland on Cottage Construction and Design; and 2, A little book of Plans, by Lady Caroline Kerrison.

Camellias: *T W.* The best additions to this family which we have seen this season are Prince Camille, a closely imbricated deep carmine, of fair size, with small close petals, and very full; and one named Princess Mary, a very smooth thick-petaled crimson, with fine broad foliage, apparently inclined to reflex when full blown, but very effective when less advanced.

Diseased Vine Leaves: *O M.* The Vine leaves are not attacked by a Fungus, but are covered on the under side with little excrescences, which are a sort of hypertrophy of the cellular tissue. We have generally observed that they appear on leaves where the roots have been kept too dry. We do not think that they are of any consequence, as they do not appear on the fruit. The very similar spots on Pear leaves, on the contrary, sometimes attack and spoil the fruit. *M J B.*

Names of Fruits: *T S.* We never heard of a Pear named *Buryardi.* Perhaps this strange name may be a transformation of Beurré Hardy, a good Pear, which will bear as a standard.‖

Names of Plants: *D M'Farlane.* One of the prickly-fruited species of Medicago—which, we cannot say without more complete materials.—*Botanicus.* Arachis hypogæa, very extensively cultivated in warm climates.—*F W.* Not recognised; send it when in flower.—*Morna.* 1, Pteris aquilina in a seedling form; 2, Allosorus crispus; 3, Epimedium macranthum.

Shading: *Hibernicus.* McKellar's plan of shading (see p. 196), has, we understand, been fitted to the roof of a house belonging to Mr. Dennis, of Chelmsford, which is to be shown at the Dublin Exhibition. It may therefore be seen in operation there.

Watering: *H C R.* Never water during sunshine, unless to avoid the greater evil of death from drought. The rapid evaporation induced has the effect of chilling the roots, especially if the plant is in an exposed pot.

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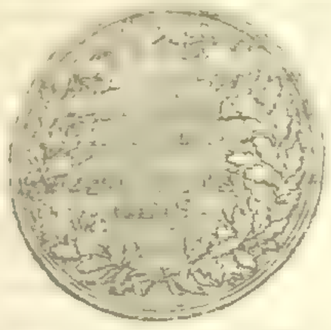

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J. C. WHEELER & SON, Seed Growers, Gloucester.

CARTER'S GARDENER'S VADE-MECUM is now ready.

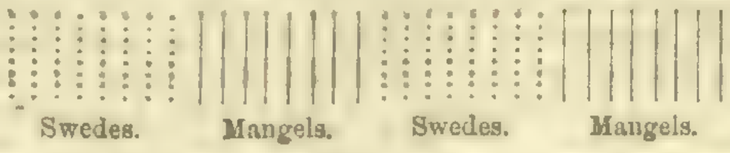
ROYAL AGRICULTURAL SOCIETY of ENGLAND.
PLYMOUTH MEETING.
LAST DAY for ENTRY of IMPLEMENTS, MAY 1.
All Certificates received after that date will be returned to the Senders.
H. HALL DARE, Secretary.
12, Hanover Square, London, W.

The Agricultural Gazette.

SATURDAY, APRIL 22, 1865.

As the time is fast approaching when the farmer will be getting in his main root crops, a few notes on some experiments in the growth of Mangels and Swedes during the extraordinary season of last year may not be out of place.

Having determined upon a crop of roots to succeed a field of Barley of 1863, we broke up the stubble with the horse plough to a depth of 7 inches, as soon as possible after the Barley had been harvested. This had been previously dressed with such manure as we had at hand, and partially folded at nights with the sheep; and after lying up for the winter was cultivated by steam in the first week of March, 1864, and afterwards dragged and chain-harrowed, and entirely cleaned of a very large accumulation of Couch (Agrostis stolonifera), which was burnt, and the ashes afterwards used in drilling the roots. On the 17th and 18th of March the field of 24 acres was cropped in the following manner, with alternate stetches of eight rows each of Mangels and Swedes.



Before sowing we applied artificial manure in the manner to be described. Experience has amply taught the great value of honestly prepared artificial manures, and where these are really manufactured by respectable men, of which in the present day we believe there are not a few, the farmer's money is not unwisely spent upon them. Our experiments were performed with a special manure, prepared by Messrs. PROCTOR & RYLAND. And now for the experiments themselves.

The field of 24 acres was divided as follows:—

1	2	4	3

1.— 6 acres in which the artificial manure, 3 cwt. to the acre, was drilled with seeds.
2.— 6 acres, in which an extra dressing of rotten farm-yard manure was used, but no artificial.
3.—10 acres with artificial manure, at the rate of 3 cwt. per acre, sown broadcast.
4.— 2 acres, without any extra farm-yard for artificial manure, but sown upon a fresh ploughing of the land.

24 acres.

With regard to No. 4, we should state that these two acres in nearly the middle of the field were set apart at the instance of the bailiff, who joined issue with the neighbouring farmers in deprecating the value of artificial manures in this land; he had no "faith in this trade stuff—one more ploughing was worth it all." Well then, these two acres were ploughed and rolled and drilled with the rest, and the result of the four plots was as follows:—

	Of Swedes.	Of Mangels.
	Tons.	Tons.
No. 1, per acre, about ..	20	22
No. 2, per acre, about ..	17	19
No. 3, per acre, weighed ..	23	25
No. 4, per acre, about ..	9	10
Average	17.1	19

The best of these results is not very favourable considering the nature of the soil and the care and expense in the cultivation. Still for 1864 they contrasted favourably with those of farms for some miles around, and we may state that had it not been for the destruction caused by the caterpillars of the Noctua, 824 of which were hand-picked from three rows of Swedes of 324 yards each, we should in all probability have had no bad crop for the average of seasons.

The Plot 3, then, will be found to be much better than Plot 1, a result which is quite in accordance with Professor VOELCKER's teaching, and our own experiments and observations, namely that the best results from manures can only be obtained by their being intimately mixed with the soil. Here then the sowing the manure broadcast upon the well-tilled soil, and the subsequent drilling and harrowing in the seed, and the subsequent rolling answered well; whilst powerful manures in the drills with the seed, though they may stimulate it into germination, will yet cause much to die prematurely; and as the fibrils spread they seek in vain for that gradual and equable supply of nutrition which we may conceive to be as important to a plant as to an animal.

As regards Plot 4, it was simply a failure, but it served to show what might have been the fate of the whole field had we only followed Practice; but having taken Science to our counsel, we think that to the union of Science with Practice, we are indebted for our happiest results.

Now, on reviewing the action as herein described, we must confess that while it shows us the advantage of experimental farming, yet it is plain that the man who only acts in every position what he has been taught in one, must ever be experimenting, whilst he who acts upon principles, all of which are generalisations from observed facts, is not after all the wild experimenter he is sometimes considered. *B.*

WE promised our readers some time ago a description of the Wheats shown at the Agricultural Hall, Islington, in December last, by Mr. PATRICK SHIRREFF, Haddington, who has longest and most persistently and intelligently of British agriculturists directed his attention to the improvement of our cereals. This collection of British Wheat was grown at Haddington in 1864, under a parity of circumstances and for the purpose of comparison. It consists of 72 varieties, 43 of them having been selected and raised by himself, the latter being distinguished by an asterisk *.

The Wheats were shown in nine cases, containing eight compartments each, and having a medium sized ear, sample of grain, the name, and length of straw of each variety. We shall commence our

description on the left side of Case No. 1, and proceed in this order to the end of the collection.

Case 1.

1. *Amber**.—A handsome light-red bearded ear, with translucent reddish grain. Straw, 4 feet 6 inches.
2. *Hunter's*.—A white ear, tapering at the apex; grain whitish-brown, elongated and glossy. Straw, 4 feet 10 inches.
3. *Smith's**.—A bearded white ear; grain whitish, tapering at both ends, smooth, glossy, eye prominent. Straw, 4 feet 7 inches.
4. *Fenton*.—A white ear, brownish grain. Straw, 4 feet 5 inches.
5. *Shirreff's Bearded White**.—A handsome white-bearded ear; grain white, roundish, glossy, and transparent. Straw, 4 feet 7 inches.
6. *Red Chaff White*.—A red ear, with small white grain, and depressed eye. Straw, 4 feet 7 inches.
7. *Gibson's**.—A broad bearded red ear, with white elongated smooth shining grain. Straw, 4 feet 3 inches.
8. *Hepburn's**.—A red bearded ear; grain white, short, glossy, and fine. Straw, 4 feet 7 inches.

Case 2.

9. *Howden's**.—A bearded white ear, with large white grain. Straw, 4 feet 7 inches.
10. *Mungoswell's**.—Ear white, with brownish grain. Straw, 4 feet 9 inches.
11. *Hopetoun**.—A white ear and white grain. Straw, 5 feet.
12. *Red Straw*.—Ear white, with white glossy grain. Straw, 4 feet 10 inches.
13. *Pringle's**.—A bearded white ear, with white grain. Straw, 4 feet 10 inches.
14. *Tauntondean*.—A white ear; grain dull white, large and long. Straw, 4 feet 11 inches.
15. *Tom's**.—A bearded white ear, with large long brownish-white grain. Straw, 4 feet 5 inches.
16. *Trump*.—A whitish ear, and the grain white, shining, and fine. Straw, 4 feet 11 inches.

Case 3.

17. *Creeping*.—A narrow wide-set ear; grain elongated, glossy, and red. Straw, 4 feet 11 inches.
18. *Lammas White*.—A red ear; grain rough-skinned, white. Straw, 4 feet 7 inches.
19. *Lammas Red*.—A red ear; with long glossy red grain. Straw, 4 feet 7 inches.
20. *Spalding's*.—Chaff red, with dull yellowish seeds. Straw, 4 feet 10 inches.
21. *Shirreff's Bearded Red**.—A bearded red ear; grain long, shining, and red. Straw, 4 feet 7 inches.
22. *Kessingland*.—A handsome broad creamy ear, and coarse yellowish seeds. Straw, 5 feet.
23. *Aconbury Red**.—A bearded red ear, with tapering glossy fine red grain. Straw, 4 feet 9 inches.
24. *Browick*.—Close-set red ear; grain shining, fine and red. Straw, 5 feet.

Case 4.

25. *Northrigg**.—A bearded white ear, and yellowish coarse grain. Straw, 4 feet 5 inches.
26. *Dunstable*.—A handsome broad ear, and short red grain. Straw, 4 feet 5 inches.
27. *Raynbird's Hybrid*.—A red ear, with large coarse red grain. Straw, 4 feet 6 inches.
28. *Peter's Red**.—A bearded white ear, with round, glossy, dark-red grain. Straw, 4 feet 6 inches.
29. *Bradley's Red*.—A white ear, with red grain.
30. *Nursery Red*.—A narrow white ear; seeds small, glossy, tapering at both ends, and fine in quality. Straw, 4 feet 5 inches.
31. *James's Red**.—A bearded broad red ear; elongated red grain. Straw, 4 feet 6 inches.
32. *Linton Red**.—A bearded dark-red ear; tapering red grain. Straw, 4 feet 9 inches.

Case 5.

33. *Thomson's Woolly**.—A close-set white woolly ear; grain white, small, round, transparent. Straw, 4 feet 4 inches.
34. *Old Woolly*.—A white close-set woolly ear, grain white, elongated; eye prominent. Straw, 4 feet 4 inches.
35. *Aconbury Woolly**.—A close-set white woolly ear; with short beard; grain white, elongated; and prominent eye. Straw, 4 feet 4 inches.
36. *Glocester Woolly*.—A white woolly ear; grain white and elongated. Straw, 4 feet 4 inches.
37. *Hereford Woolly**.—A white woolly ear, with long beard; grain white. Straw, 4 feet 5 inches.
38. *Russell's Woolly**.—Ear white and woolly; grain white and large. Straw, 4 feet 7 inches.
39. *Cornor's Woolly*.—Resembles Old Woolly, No. 34.
40. *Dun Woolly**.—A dunish-brown woolly ear; grain white. Straw, 4 feet 7 inches.

Case 6.

41. *Prora**.—A bearded white ear, with white grain. Straw, 4 feet 9 inches.
42. *Brodie's*.—Ear white; grain small and very white. Straw, 5 feet.
43. *Chedham*.—A white ear, with grain white, transparent, and fine. Straw, 4 feet 11 inches.
44. *Henry's**.—A bearded white ear; grain white and fine.
45. *Grace's*.—A white ear: grain white, and marked with a line across the upper surface. Straw, 4 feet 7 inches.
46. *Rough Skin**.—Ear white and bearded; grain white, with an indented rough surface. Straw, 4 feet 7 inches.
47. *Edwin's**.—A bearded white; grain white, smooth and fine.
48. *Druid*. A white ear, with dullish white grain. Straw, 4 feet 7 inches.

Case 7.

49. *Talavera*.—A very wide-set white ear; grain white, very large, oval, and extra fine. Straw, 4 feet 3 inches.
50. *Richard's**.—A cross between Talavera and Shirreff's Bearded White; ear cream-coloured and closer set than Talavera; grain white, oval, and a little smaller than Talavera. Straw, 5 feet.
51. *Matchless*.—A very close-set white ear; grain white, large, and coarse. Straw, 5 feet.
52. *Archer's Prolific*.—Ear white, with elongated brownish grain. Straw, 4 feet 10 inches.
53. *Gregorian*.—A cream-coloured ear, with round brownish grain. Straw, 4 feet 8 inches.
54. *Harperdean**.—A bearded white ear, and white grain. Straw, 4 feet 7 inches.
55. *Andalusian*.—A white ear, with small white grain. Straw, 4 feet 10 inches.
56. *Gigenhill**.—Ear bearded white; grain large, elongated, clear and brownish-white. Straw, 4 feet 5 inches.

Case 8.

57. *Hickling's**.—A very close-set white ear; grain brown, dull, and coarse. Straw, 4 feet 7 inches.
58. *William's**.—A white bearded ear, with white grain. Straw, 4 feet 7 inches.
59. *Charlie's**.—Ear white, with brownish-white grain. Straw, 4 feet 3 inches.
60. *Elder's**.—A bearded white ear, and white grain. Straw, 4 feet 6 inches.
61. *Tiny**.—A white bearded ear, and white grain. Straw, 3 feet 5 inches.
62. *Rosehall**.—A wide-set bearded white ear; grain elongated, large, and whitish. Straw, 4 feet 9 inches.
63. *Gilmerton*.—A white bearded ear, with reddish transparent grain. Straw, 4 feet 10 inches.
64. *Robb's**.—A wide-set bearded white ear; grain long and white. Straw, 4 feet 7 inches.

Case 9.

65. *Kilsduff**.—Ear bearded white; grain white and fine. Straw, 4 feet 6 inches.
66. *Deans's**.—A handsome light-red bearded ear, with white, translucent, extra fine grain. Straw, 4 feet 8 inches.
67. *Ormiston**.—A bearded white, handsome ear: grain white, round, smooth, and superfine. Straw, 4 feet 8 inches.
68. *Niell's**.—A handsome bearded red ear, with white, transparent, extra fine grain. Straw, 4 feet 7 inches.
69. *Rennie's**.—A semi-woolly bearded white ear; grain white and fine. Straw, 4 feet 6 inches.
70. *Muirton Red**.—A handsome short-bearded close-set red ear; grain red, smallish, and extra fine. Straw, 4 feet 8 inches.
71. *Mitchell's**.—A handsome woolly-bearded white ear; grain white and very fine. Straw, 4 feet 7 inches.
72. *Haill's*.—A bearded red ear; grain white and small. Straw, 4 feet 7 inches.

We place these descriptions on record here, but it is manifest that the few words giving an account of each variety are altogether insufficient for its identification, and a great service would be rendered by Mr. Shirreff, than whom there is no one more competent to lead us out of the labyrinth of synonyms which confuse all plant descriptions, if sets of well-established varieties of Wheat and Oats and Barley were placed by him in the hands of our leading Agricultural Societies. Perhaps we rather ought to say good service would be done by the Societies if they would commission Mr. Shirreff to undertake a task involving so much labour and responsibility.

In such a collection every grower of Wheat could select a variety with grain, ear, and straw, to suit his fancy, but there would be nothing to determine relative value beyond the appearance of the samples.

The number, combined with quality, of quartern loaves from a given quantity of Wheat may be taken as the best measure of value, but to test in this manner all Mr. Shirreff's new varieties is too much to expect from a private individual. Judging by the samples, Shirreff's Bearded White (5), Gibson's (7), Hepburn's (8), Deans's (66), and Niell's (68), deserve attention from their fine grain and uniformity of type.

Of the woolly-ear or rough-chaff varieties, Thomson's (33) and Mitchell's (71) are high-class Wheats, and have no resemblance to any of our rough-chaff varieties in cultivation.

Amongst the red kinds, Shirreff's Bearded (21), Aconbury (23), Peter's (28), and Muirton (70), will favourably compare with the old sorts.

Ormiston (67) and Richard's (50) are particularly attractive, the latter being, so far as we know, the most successful attempt at crossing cereals in Britain. Hitherto this Wheat has come true from seed, and its large white grain and stout straw are remarkable features.

—— Mr. Strafford will on Thursday next (April 27) dispose of a portion of the herd of pure-bred Short-horns belonging to Mr. Bowly, of Siddington, near Cirencester, Gloucestershire.

We condense the following from an account of the herd in *Bell's Weekly Messenger*:—

"In advertising for sale by public auction on the 27th of this month 37 members of his valuable herd of Short-horns, Mr. Bowly is anxious to have two points clearly understood; that his sale is a genuine sale of entire families, not merely a *selection* from families—and that if personal feeling, rather than considerations of what seemed to him due to the public, had regulated his determinations, many of the number which appear in the catalogue would have been retained at Siddington. The animals are disposed of for no faults; indeed, one, Sunbeam, in whom symptoms appeared which rendered her future breeding at least doubtful, was withdrawn from the list, and is put aside for fattening. The public may rest fully assured—and those who know Mr. Bowly personally *will*—that no trap of any sort, direct or indirect, is laid for them; that the sale is literally and in the most comprehensive sense of the term a *bonâ fide* sale; and that parties purchasing will be dealt with by Mr. Bowly precisely as Mr. Bowly, the cases being reversed, would desire that he should be dealt with by them. This we have great satisfaction in saying, because we know it to be true. In the whole range of Short-horn breeders, there is not a man whose reputation for truthfulness and honour rests upon a more impregnable foundation. With the exception of four females and one bull, all the lots offered for sale were bred at Siddington. Of the females 16 represent three families; the *Lady Byron* family alone consisting of 11 females. *Lady Byron* and her daughter *Ada* were purchased in 1837, and have proved a most successful family, possessing irreproachable constitutions, and being regular breeders and good milkers. Many of the tribe have been sold to go to Australia and America. There is not an indifferent animal in the whole lot, and some of them are admirable.

"With the exception of Lots 1 and 3 (Cows), the animals offered by Mr. Bowly represent more or less the blood which Mr. Bates's distinguished position as a breeder has made so famous. Eight of the 22 females are by 4th Duke of Oxford, the grand old bull that did so much for Mr. C. W. Harvey's herd; six by Earl of Walton, a son of Kirklevington 7th by Earl of Derby; one by Imperial Oxford, now the property of Mr. Hegan; three by 7th Duke of York; many—not fewer than eight—are three-quarters Bates, having two final Bates crosses in succession; several are as near as may be three-quarters; and all that are old enough to breed, with one exception, are bulled by 7th Duke of York, undeniably one of the finest sires of the day. Some of the *bulls* are even still more strongly impregnated with Bates blood. Earl of Walton, but for a slight dash of Cherry blood, is entirely Bates; 4th Baron Oxford, and Duke of Flanders, are above three-quarters; Bates Tertius, and 2d Bates Tertius (incomprehensible appellation), seven-eighths. Two of the bulls, we may add, are by 4th Duke of Oxford, and nine by 7th Duke of York."

ALBERT MIDDLE-CLASS COLLEGE, SUFFOLK.

I hope you will permit me a space in your columns to describe the reception of the 150 boys into this College, selected as the eldest of the number nominated, which I have this day witnessed in my official capacity. A similar number of younger lads will be admitted next Monday, and will take possession of all the remaining accommodation of the College; this fact proves at once the public appreciation of such establishments, and the soundness of the opinions and advice of the late much lamented Prince Consort, whose aim it ever was to induce every class to improve the education of the rising generation. The parents paid the school fees for one term in advance; this system of pre-payment precludes all possibility of contracting bad debts, to the detriment of those who pay punctually. The boys just admitted are all purely of the middle class, that is, they are the sons of farmers, business, and professional men. It is impossible, sir, for me to tell you how gratified I felt at seeing these parents come forward so gladly at the very first commencement of this Institution, with the fullest confidence in the judgment that had directed the movement. It was also a great pleasure to witness the intelligence and cheerfulness of the boys themselves, who seemed fully to appreciate the feeling which has placed them there, and I have no fear but that they will by their perseverance and good conduct render themselves worthy of the great advantages offered them. It has already been announced that the public ceremony of unveiling the statue of the late Prince Consort will not take place till the end of the present term. Then will be the fitting time to sketch more fully the history of a movement which affords such a splendid memorial to this great and good man; I cannot, however, conclude this brief account without signifying my high approbation of the judgment displayed by the Governors in their selection of their architect, Mr. J. Peck; their head master, Rev. Albert Daymond, and their matron, Miss Burrell. Mr. Peck's work is now near completion, and I cannot too highly compliment him on his great success. I feel that a public tribute is due to the very liberal and persevering spirit with which he has personally superintended, not only the erection of the building, but also the arrangements for water, light, washing, cooking, and heating, and in short, all the furnishing details of the establishment. Mr. Daymond's work is but just commencing, but I am perfectly sure that he will show himself worthy of the honourable preference of the Governors, and prove, like Mr. Peck, the "right man in the right place." *Rd. Garrett, Hon. Secretary, Carlton Hall, Saxmundham.* [We have received a second letter from Mr. Garrett, just as we are going to press, which must be postponed till next week.]

COTTESWOLD SHEEP.—No. II.

Having in a previous paper identified and traced these sheep, both by their wool and its manufacture, from the earliest times, we propose to continue their history, which will leave no doubt of the present improved Cotteswolds being the descendants of the original sheep of the Roman period, and perhaps the type from which all our domesticated sheep have sprung.

In the Saxon period Alfred was expert at spinning; Edward the Elder "sette his sons to scole and his daughters he sette to woll-werke." In Edward the Confessor's time at Cirencester "the Queen had the wooll." *Domesday Book.*

It seems, however, that in these early days the milk and the wool of the sheep were the more valuable, the flesh not being held in much esteem.

At the time of William the Conqueror, writes Goding, a fulling mill existed at Cockleford, and previous to 1175, Dugdale, according to the same authority, states that the military monks, the Knight Templars, had two fulling mills at Temple Guiting, a parish in the midst of the Cotteswolds.

The practice of "fulling" would imply, according to our notions at present, that the wool grown upon these hills was at this particular time of the short-

woolled description. In our day a "fulled" material would signify that the material used was fine and short in the fibre, capable of making what is now better known by woollen goods, in contradistinction from the "comber's" material, which is not "fulled" or "milled," and which is known as worsted goods, and for which the long-wool is in request. We make no attempt at present to reconcile this apparent anomaly, but content ourselves with the fact of "fulling mills" being in use at this remote period, as showing that the manufacture of wool must have been in an advanced state to have had a "mill" to accomplish the purpose which was previously done by the hands and feet. Some idea may be formed of the enormous flocks of sheep kept on these hills from "Goding's History of Beverstone" in the 13th century: —"The quantity of sheep, nearly 6000, kept at Beverstone is remarkable, but it is accounted for by Fosbrooke, on the ground that sheep rearing formed part of feudal education." Again: "Hugh Despenser was seized, at his death, of 59 manors and 28,000 sheep." *Bennett.*

Cirencester had two markets in the week, one for corn, &c., on Monday, and "one on Friday, chiefly for wool, for which commodity it is the greatest market in England." *Atkyn's Hist. of Gloucestershire.*

In 1264 the King (Henry III.) having lost the city in one of the many struggles with his turbulent Barons, and retaking it, was once more deprived of it by a bold and curious stratagem. We learn that two of the rebel knights, Sir John Giffard, of Brimpsfield, and Sir John de Balum, covered with cloaks, and riding upon two woolpacks like woolmongers, were let into the town at the west gate, and that being admitted they leaped from their horses, threw away their cloaks, and appeared in complete armour, and having obtained the keys from the affrighted warders, threw open the gates and let in their ambushed followers. It is clear, therefore, that to bring packs of wool into the city was at this time an ordinary matter of business, and consequently the trade in wool was in full operation. Gloucester, a century before this time, had trade companies formed, so it is evident that either in the Roman or Saxon times the conversion of wool into cloth was known and practised. The immense quantity of wool cultivated in the county during the reign of Edward III. is apparent from the fact that 30,000 sacks of our native Cotteswold wool was the annual quantity granted from this county for the King's household. He gave the whole of one year's grant to his Queen Philippa, in aid of discharging her debts and of in part paying the sum due thereof for bills on her wardrobe. *Goding's Ancient Trade of Wool and Cloth.*

About the 14th century the Florentines imported largely into this country.

"In return for these they carried away wool and cloth, which they were accustomed to travel to Cotteswold to buy up. They sometimes, it is asserted, would buy on credit and then sell the goods at Bruges for ready money 5 per cent. under what they had cost, for the sake of having the money to lend out to usury during the interval before it should become due." —*Pictorial History of England.*

It would seem that in the 15th century certain sheep of the Cotteswold stock were sent from England to Spain. Stow says: "This year, 1464, King Edward IV. gave licences to pass over certain Cotteswolde sheep into Spain; by reason whereof, it has come to pass at this day that the staple of the wools of Spain, except at Baydes (Bruges) in Flanders, is so great that our staple is not comparable to it." Baker says—

"King Edward IV. enters (1468) into a league with John, King of Arragon, to whom he sent 20 Costal ewes and four rams; a small present in show, but great in the event, for it proved of more benefit to Spain, and more detrimental to England than could at first have been imagined."

"Now the Cotteswold Sheep were then as they are now, of the long-woolled breed." *Martin.*

"In 1437 Don Duarté, King of Portugal, and brother-in-law to the King of Castile, applied to Henry VI. for permission to export 60 sacks of Cotteswold wool in order that he might manufacture certain cloths of gold at Florence for his private use. This cloth was intended for a species of cloth of light and delicate fabric."

The fine short Spanish wool was not adapted to this manufacture; and England contained no long wool to be compared with that of the Cotteswold breed. In the reign of Queen Elizabeth, Markham describes the Cotteswold sheep as a long-woolled and large-boned breed; and previously to her reign large exports of wool, decidedly long wool, were exported from our coasts:—

"Cotteswold, which takes its name from the hills and sheep cotes. Upon these hills are fed large flocks of sheep having long necks and square bodies, by reason, it is supposed, of their hilly and short pasture, whose fine wool is much valued in foreign nations.

"Where Cotteswold hillocks famed for weighty sheep—
With golden fleeces clothed." *Camden's Britannia.*

One other quotation, and we will conclude the ancient notices these sheep have received. The old poet Drayton says:

"To tell
How Evesham's fertile vale at first in liking fell
With Cotteswold, that great King of Shepherds,
T whom Sarum's plain gives place, though famous
for her flocks,
Yet hardly does she tythe our Cotteswolds' wealthy locks."

Thus it will be seen from the very earliest times the Cotteswold sheep, when no other sheep were noticed, commanded conspicuous observation.

Having shown throughout all periods the high estimation in which these sheep have been held, there is another question relating to the origin of the present breeds of sheep, upon which we are tempted to offer a few observations.

As man is the creature of circumstances, so are the sheep what man has made them. Soil, climate, management, and the skill of the breeder all operate to cause great changes in their form and appearance. The question is, were the original sheep of this country of the long or short-woolled breed? The whole of the evidence, duly considered, we are of opinion goes very far to prove that they were of the long-woolled sort, and the Cotteswolds are the original type from which decidedly the long, and, in all probability, the short or middle-woolled sheep sprung. Dyer, in his "Fleece," writes:—

"If any wool peculiar to our isle
Is given by Nature, 'tis the comber's lock—
The soft, the snow-white, and the long-grown flake."

Our information upon this branch of the inquiry must necessarily be derived at least previous to the 15th century, from the uses to which this wool was applied, for at this early date, as we before said, distinctive breeds were not mentioned. The feature which distinguished the long from the short wool, was the power of "felting" or "combing" which the wool possessed.

"Felted," "fulled," or "milled" cloth indicates a fine description of wool. It is a well-known fact that the fibres of wool are made up of small serratures, the which, when properly treated, latch into or interlock with each other and cohere, and thus form more or less a felted material. Its power of perfectly forming a felt is determined by the fineness of the fibre; the short or fine-fibred wool having the greatest number of serratures, is by this means the better adapted for making woollen cloth, whilst the long-woolled having fewer serratures is not so capable of being worked up into a "fulled" material, but is essentially adapted for worsted goods, and is therefore called "combing" wool.

The fact of there being "Fullers" at Cirencester in the first century, and also the frequent mention of "fulling" mills in various parts of this county at a very early date, besides that at Winchester, where cloth was manufactured for the Roman army, has been thought by some to imply that the sheep of this country were of the Short-woolled type.

This we hold to be fallacious. It may be correct that the wool of that time was shorter and finer in the staple than it now is. For when we bear in mind that the management of sheep was little understood; that the food (for there were no artificial Grasses nor roots) upon which they lived was of the coarsest kind, with little or no winter provision of forage wherewith to keep them—knowing also the effect of food in promoting the growth of wool—there cannot be a doubt but that the wool borne by the long-woolled sheep under such circumstances must have been very much finer in texture than that of the present day.

Again, notwithstanding the stimulus given by Edward III. to manufacturers by causing the immigration of numbers of Flemings, who were then known to be the most expert in the art of cloth making, yet the English manufactured cloth was of the coarsest description. So that, as the wool was finer, and therefore better adapted for cloth, and the art of manufacturing was less perfected, there is no difficulty in believing that the cloth made at the period we allude to was from the long-woolled breed of sheep. Indeed this view is fully confirmed by the fact that the ancient family of the Cripps at Cirencester, within the memory of men now alive, manufactured cloth largely from the Cotteswold wool to supply the army. As a further proof of the long-woolled sheep being the original breed, we quote from the "Farmer's Library":—

"History proves the antiquity of our long-woolled races; the enormous weight of wool from time to time exported is in itself a demonstration of its character; for example, in 1390, no less than 130,000 sacks of wool were exported from our island, and this, reckoning 364 lb. to the sack, would amount to 47,320,000 lb. "Where," says Mr. Youatt, "were the number of the short-woolled sheep to be found that would supply this immense quantity of wool, besides that which was required for home manufacture!"

It thus appears conclusive that the long-woolled sheep were the original sheep of this country.

Improved husbandry, greater attention to the breeding of sheep and the manufacture of a finer material in cloth, from the middle of the last until the commencement of the present century, so altered the character of the wool by increasing its length and coarseness as as to cause a fear at the time lest short wool fitted for the woollen cloth trade should be lost, for even the short-woolled became longer, and liable to lose its "felting" qualities, so that, strictly speaking, no short-woolled sheep are grown in this country, but for the fine broad cloths the manufacturer has to depend upon the wool from the merino breed supplied originally from Spain, and latterly from Germany, and to a great extent from Australia. Indeed Sir Joseph Banks and Lord Somerville, as also King George III. took a lively interest in the introduction of the merino breed into this country; and under the auspices of the late Samuel Lysons, Esq, of Rodmarton, the experiment was tried by a Mr. Day, of Tarlton: but they were unsuited there, as elsewhere, for the climate, and soon disappeared without leaving a trace behind them.

The Southdowns, Lincolns, and Leicesters, have all, at various times, had their patrons upon the Cotteswold hills, but the extreme cold of the winter season soon banishes them, and notwithstanding that those who come from a distance to farm on the Cotteswold Hills often bring with them other breeds, a change to the Cotteswold sooner or later follows, because of the inexorable climate and poverty of the soil.

During the great rage for Leicesters, about the latter end of the last century, they were used upon the Cotteswold hills more frequently in experiments than any other strange breed, but they soon shared the fate of all others, and at the present time a Leicester sheep is not heard of among the Cotteswolds; indeed one of the oldest flocks (that of the Garnes') can be traced back for a century and a half without the slightest admixture of any other blood besides that of the Cotteswold, and this date would carry us back long before the Leicesters were heard of, and a comparison of specimens of this flock which are known to be unadulterated, with others of a more recent date, shows at once that the present Cotteswold sheep are pure from the admixture of other breeds. Their appearance at any of the agricultural shows exhibits a marked and unmistakable difference from any other variety of sheep.

Having thus pursued our inquiries from the earliest period of history, it is now necessary to deal with the more practical and essential part of our subject—the present value of these animals in supplying flesh and clothing for this and other countries to an economic advantage.

It is somewhat remarkable that so peculiar a race of sheep should never have had a great patron to extol their good qualities, and who could thereby, regardless of expense, attach to them a name and prestige by bringing them prominently before the public. Yet so it is; for whilst a rage was created in favour of the Merinos by Lord Somerville and Sir Joseph Banks; for the Southdowns, originally by Mr. Ellman, and these could count amongst their patrons no end of dukes and lords; also for the Leicesters under their inventor, as it were, Mr. Bakewell, followed by the most eminent agriculturists of the day—the oldest, and, as we think, the most valuable breed of sheep have been left to force their way by their own inherent merits.

Until Disraeli noticed them last autumn, we have never heard of any one likely to cause a rage for the Cotteswolds, or of having patronised them previously.

The Cotteswold sheep have therefore continued in the hands of the tenant farmer, who uses them for the receipts they produce.

From what we gather from recorded history and tradition, the original unimproved Cotteswold sheep was a large flat-sided somewhat leggy animal, with long heavy wool. *J. M. R.*

GENTLEMAN-FARMING.

How is it that the gentleman-farmer usually complains of sustaining a loss by farming? It may be conceded that the complaint is heard sufficiently frequently to make the inquiry a useful one. There may be some instances in which the complaint is not well founded, no adequate accounts having been kept, and loss is only surmised and feared; no satisfactory account having been kept of what has gone into the house and stables for consumption, or what may have gone to the workmen or servants in part payment of wages. I refer to the butter, cream, milk, eggs, poultry, pork, mutton, beef, Wheat for flour, Oats and hay for the carriage or riding horses, which may not only redeem the loss spoken of, but really leave a profit to the farm.

But to come to the question: doubtless in many cases an accurate account has been kept where the complaint is urged. How, then, is this loss sustained? It cannot be disputed, of course, that the bulk of ordinary farmers who continue on their farms from year to year, paying rents and taxes, and supporting themselves and families, do not make a loss, but must realise a profit to that extent at least. Some, however, do move; for it is known that they save money, and that a few have even amassed fortunes. I do not intend to intimate that farming is a lucrative business: it is not usually so. The fortunes made are quite the exception to the rule; still there are many, happily, who improve their circumstances by farming; and they may be met with in most districts of the country. The great mass of farmers, however, probably do no more than make a bare living; but is not the reason to be found in the very inadequate capital and the appliances employed? and the consequence is that they have to wait for the slow process of Nature, to supply in some sort the deficiency. What other business can be successfully carried on without adequate means? The result is usually even more disastrous when attempted; for Heaven assists the farmer in the ordinary processes of nature, supplying to some extent his want of capital, by so far renewing his land by the fertilising elements derived from the atmosphere and other processes as to enable him again to break it up at intervals without bestowing anything upon it. In this way the land is ploughed and robbed, and kept down to poverty point.

Farming, then, it will be allowed, is not necessarily a losing game, and there are, no one can doubt, country gentlemen who have gone fairly into the business, either for recreation or to acquire that kind of knowledge that would enable them to improve their estates, who have kept accurate accounts, and have been able at the end of each succeeding year to show a balance sheet exhibiting a fair amount of profit,

and probably in an increased ratio, as their land has risen in condition, and their stock improved in quality and condition by judicious breeding and better keep.

Would it not be well if gentlemen farmers would allow their tenants and neighbours an inspection of the detail of such accounts, with every information connected with them? It would not only be very useful to them, but tend to silence those common and very injurious remarks by which they endeavour to satisfy and console one another; such as, "Oh, yes, the squire's crops are always fair and usually good, we must acknowledge, and his stock is handsome and very improved, and his farm in good trim; but no thanks to him, money will do anything in that way. No doubt he loses scores, if not hundreds, a year. I have heard neighbour So-and-so say that he is sure he must lose money, and he is a pretty good judge." But if the balance is really on the wrong side of the sheet, it matters not, of course, how attractive or good the appearance of the farm of stock, for it is true anything of that kind can be done with money. Such farming should not be followed, for it must do much more harm than good. Much less should it be held up as a model: for in doing so it would be holding out a false light, that might lead some frail bark upon the rocks. A farm without a satisfactory balance-sheet is certainly worse than useless.

To pursue the inquiry, then, I would ask—if farming properly carried on does and must in the nature of things give a profit, how is it that the complaint is so frequent from the gentleman-farmer that he sustains a loss? It must be granted that he does labour under some important disadvantages, which I will endeavour to point out; at the same time, I think he possesses some advantages, which shall be named, and I will endeavour to be brief. The first disadvantage I shall mention is a most obvious one, and that is, whereas the ordinary farmer is continually in his business, directing and economising all its operations, and frequently giving a considerable amount of personal labour, the gentleman-farmer is only occasionally on his farm, and does nothing (or very little) in the way of personal labour. This "occasionally," however, with many gentlemen amounts to a good deal, for they feel so much interest in their farms and stock as to bestow a large share of their time and attention to them, and arrange a sufficient superintendence when they are absent. Where little personal attention is given to the farm, the personal interest will usually be small in proportion; and the management devolve upon a person usually called the farm bailiff, who is in fact, the farmer, and who should certainly be expected to make some return of profit, after charging the farm with a fair rent and the payment of all outgoings. If he professed to be a model farmer, no crops, however good, or fine-conditioned stock, or arrangements, however convenient and perfect, will compensate for a defective balance-sheet. It not unfrequently happens, however, where a bailiff is employed that the employer retains as much interest in his home farm as to have plans and ideas of his own respecting it; and it is very natural that he should. These may sometimes run counter to the plans of the bailiff, who, I need hardly say, will have the good sense to respectfully give way, and who will of course, so far but no further, be exonerated from the consequences.

The next disadvantage I shall name, to which the gentleman-farmer is liable, is that of an excess of payment for labour. He cannot always apportion out the work daily, and keep at the head or tail of his people, like the ordinary farmer, and there will be more or less of doing nothing, or of misapplied labour, which is still worse. The labour on a farm should always be directed to a profitable return, excepting a certain amount of what may be called dead work, necessary to keep the farm in good, tidy finished order; such as hedging, ditching, repairing roads, &c., and these should be kept within due limit, as the temptation is strong to go beyond mere effectiveness, and even to the ornamental in these. In the latter case the extra cost should be charged to the estate account. Perhaps the female labour will be the most difficult to manage, and this will be a considerable item where a rotation of crops is carried on, and roots come regularly into succession. To the praise of the Welsh women be it spoken, that they are ever ready to work and earn something, as well as the male branches of the family. A large Norfolk farmer, who was lately staying a little in this county, and favoured me with a call, noticed this with approbation, and remarked that it was not so in his county—that they could procure but little work from the women, and none at all after they were married; for, said he, they spent all their time in carrying about their babies, and gossiping from cottage to cottage. How convenient, especially now that male labour is so dear, to be able to muster a good number of women and girls to despatch the work, not only during the hay and corn harvest, but occasionally throughout the year, for such jobs as cleaning the land, spreading dung or mixing artificial manures, singling Swedes and Mangels, and weeding them two or three times after the horse hoe, then topping, tailing, and storing the roots in autumn, and threshing at times through the winter. All this work comes to so large a sum that it has sometimes rather surprised me when making the annual account; but it cannot be done without, and therefore must be looked well after, or the gentleman-farmer will have great waste and loss in it. They should never be sent to work without a man with them to superintend, and one who knows how to manage them; otherwise not half a day's work will be done. I speak advisedly, not half a day's work. To single or weed a root crop, for instance, I have always found it best to have a good number of girls, so as to despatch the work; each takes a separate ridge, and they work in a row, none being allowed to remain behind, and a man follows with a dibble in his hand, filling up the blanks with Mangel, Kohl Rabi, or Cabbage plants. If it is wished to ascertain whether full work is doing, or to give it out in piece work, the plan to follow is to remain with them for a given time—say an hour (any less time will do), and measure, by stepping, the number of yards done in an hour, and that multiplied by nine will give the number they should do in a day. I then step the whole length of the ridges from headland to headland, and count the number of ridges in the field, which, multiplied together, will give the number of yards in the field or piece, and, divided by the number of yards that should be done in the day, will give the number of days' work in the field. If, for instance, it is found that there is 20 days' work, and there are 10 women employed, they should do the whole field in two days. The real value of the work per acre may be found in the same way.

The tables, with prices of work per acre, given in agricultural books, I have found to be of little use. Without some check of this kind it will not pay at all to employ a number of girls. As I said, they will really sometimes not do half work, for 'tis chatter, chatter, chatter, all day long. I have been perfectly surprised (when near at hand and not seen), and wondered what it could be all about. Again, the country gentleman is much more accustomed to leave home on journeys of business or pleasure than his neighbour the farmer; and, however careful he may be in arranging and allotting to each their work, there will probably be some loss on that account, and without care and foresight the loss or misapplication of labour will be considerable. And how difficult to provide for every contingency!—change of weather, to wit. On large farms, or estates where much labour is employed, a room or outhouse with a fire in it, where the people can take shelter and warm their tea, coffee, or other food, will conduce not only to their comfort, but will on that account really assist the work, inasmuch as they will return to it with more spirit and nerve than if they had been obliged to take their meal under a hedge, or sitting on a log of wood in the cold, perhaps in a storm of rain or snow.

Where "dairying" is carried on to any extent, an unproductive one will be a sad drawback. In fact, a large part of the produce of the farm—the Grass and hay—will be lost. Such a state of things should not be tolerated even for a week. There must be either very defective management or pilfering—perhaps both. I know by sad experience that the whole of the dairy department must have the closest supervision, both as to keeping up the full amount of produce and the safety of it afterwards. May I just intimate what that produce should be, under fair management? A butter dairy should not average less than 250 lbs. per cow per annum, on a farm with Grass land of moderately good quality, and where roots are grown for winter feed, and the cattle of medium size, such as Ayrshire, Alderney, or good Welsh. On rather inferior soils it should not fall below 200 lbs. per cow. I know a gentleman farmer in Buckinghamshire, who had for many years invariably exceeded an average of 300 lbs. per cow per annum. His cattle are Alderneys. The gentleman-farmer is rather apt to give fancy prices for his cattle and other stock, and may be a little out of pocket on that score. But with a practical knowledge of the principles of breeding improved stock, and the exercise of judgment, it will probably be a profitable hobby; for well bred and conditioned animals always meet with a good and ready market, and frequently fetch very extra prices as breeding stock.

I know long lectures are by no means acceptable here, and I shall do little more than name some of the disadvantages under which I conceive the gentleman-farmer may labour. Does he not frequently keep a larger assortment of expensive implements and machines than his farm requires? This, may, however, be partly for the benefit of his tenants and neighbours; and for their sake, too, as well as his own, he may experiment in the use of artificial and chemical manures, and lose something in that way; but, on the other hand, each of these may turn to profit. Is it not to be suspected, too, that he sometimes sustains loss from the misapplication or waste of expensive food in the feeding or fattening of animals, through the ignorance or carelessness of servants. As, according to Mr. Banting, sugar is of such a fattening nature, if the gentleman-farmer finds himself getting too stout he can leave off his sugar and give it to his fattening animals, to their mutual advantage. But the gentleman-farmer is not only addicted, as I intimated just now, to buy dear, but to sell cheap. He frequently does not go to the fair or market himself, but sends his stock or produce by a servant, who, if we allow to be honest, and not even open to take a gratuity or favour his friends, may think he has done well in realising his master's limit, although with vigilance he might have got a higher price, or his master might have told him to sell at all events, as he was overstocked.

But I must not, and need not, enumerate further sources of loss: the holes in a riddle may be small, but they are numerous, and will let a great deal through. A want of practical knowledge, and a good deal of theoretic and speculative, which is unfortunately too often the case, will tend to aggravate these disadvantages; but, on the other hand, with a good understanding of what should be done, and how to provide against them, they will be considerably lessened or entirely overcome. But the gentleman-farmer is not without some advantages peculiar to his position. His superior education, reading, and leisure will probably have enabled him to acquire much useful information, to acquaint himself with the nature of the soils of his locality, from the geological strata on which they lie, and their chemical composition by analysis, ascertaining what elements they want to add to their fertility, or to neutralise anything that may be injurious; or information valuable to him in the acquiring and breeding of improved stock; or as to the best principles of drainage as applied to his land. If he farms his own land, and has succeeded in bringing it to a higher state of productiveness, and so raising its annual value, the same course may be more or less applicable to the other parts of his estate; and probably it is here that he will derive the greatest advantage from having himself become a practical enlightened farmer: Mr. Coke, afterwards Lord Leicester, for example.

In conclusion, let me very briefly recapitulate. If the gentleman-farmer is liable to such excessive expenditure under the heads of labour, implements, manures, stock, &c.; if he is addicted to buy dear and sell cheap; and if, after all, he has, through bad management or neglect, poor crops, deficient dairy produce, and inferior and ill-conditioned stock, no wonder that he complains of sustaining a loss, and sometimes a heavy one, by farming. But if, on the other hand, notwithstanding some extra unavoidable expenditure, he is, by good management, resulting from an attentive practical knowledge of the operations of his business, able to reap (according to the nature of his farm) harvests of corn and hay—say worth from 8*l.* to 12*l.* per acre; to carry on a productive dairy, producing from 200 to 300 lbs. of butter per cow per annum; and breeds, rears, and feeds stock of various kinds, that command a ready market from its superior quality and condition, he will doubtless be able to write a fair balance on the right side of the sheet, and into the bargain enjoy all the pleasure and health to be derived from such an avocation, and all the luxury, too, of a table well supplied with all the fresh productions of his farm. Still, it is to be questioned whether the gentleman-farmer can vie in the point of actual profit with the intelligent, thriving tenant farmer, who lives by his business, who is always in it, observing, managing, economising, and turning everything to the best account. If he is desirous of competing with him, he must follow the tenant farmer's steps—he must live like a farmer, work like a farmer, feel like a farmer, and screw like a farmer. *Mr. Buckley, at the Carmarthen Farmers' Club.*

Home Correspondence.

Dr. Mackenzie and the Malt Tax.—If the Dr. Lees to whose writings Dr. Mackenzie refers me be the itinerant lecturer on teetotalism, I beg to say that I have not read his writings. I consider him to be too blinded by what Bacon calls "the idol of the Den," to be capable of forming a correct opinion upon the subject in question. To refer to Dr. Lees on such a question would be like referring to the Pope for a philosophic opinion on the Immaculate Conception; or asking a Jew his opinion of the nutritious properties of pork. Dr. Mackenzie states that alcohol causes certain worn-out tissues to be retained in the system which should be thrown out. As a medical man he knows well that the proper use of good beer checks the wearing out, and is to the poor labourer a far more useful beverage than tea. I am no partisan. I prefer the opinions of men who are not fanatics but philosophers, and will therefore quote the recent writings of the most experienced observers on food of the present day. Dr. Edward Smith, Fellow of the Royal Society, who has experimented largely upon himself and others, writes (the italics are his own), "*Tea is hurtful* to the poor and ill fed, to the spare and to the young." Again, before the Philosophical Society he says:—"Beers are especially suited to those who have deficient powers of assimilation, as well as defective force of the heart." It is universally admitted that the Tartars have become a degenerate race since they became a tea-drinking nation, and paralysis and nervous diseases have doubled in England since tea drinking has become general; but I prefer to quote the opinions of more able men than myself, and therefore will conclude my correspondence with Dr. Mackenzie with a quotation from a work on Food just written and published by Dr. Erasmus Wilson, Fellow of the Royal Society. This gentleman addressed the Medical Officers of Health of London, but afterwards published his remarks as follows:—"Improper food produces insanity, imbecility, consumption and sudden death. If this be true, and I believe it to be so, the subject is worth our attentive consideration; and to give it more extensive

publicity than that which belongs to a medical journal, I have ventured to print the address in a separate form. It would seem as if the roast beef and the barley brew of Old England were the natural medicine of our climate and the soul of our existence." Thus does Science confirm what political economy, general experience, and common sense have long taught—namely, that the products of our own cultivated fields should not be taxed for the more ready admission of foreign and injurious beverages. The vital energies of the English as a race are not so vigorous as they were half a century ago, and Mr. Edwin Brown, one of the most acute observers I have ever known, asks, "May not the enervating effects of tea have something to do with this decadence? May not the general use of tea as a beverage have contributed to the cases of paralysis by the lowering effect of the theine, and by the astringent and constipating effects of the tannic acid?" Sure am I that green tea acts as a virulent poison to *J. H.*

The Repeal of the Malt Tax.—The agitation for the repeal of the Malt Tax which has at last set in, though it may be at the eleventh hour, is at least sufficient evidence that the farmers are in earnest in their endeavour to shake off such a burthen, which so long as it remains may fairly be termed a disgrace to the whole agricultural community; inasmuch as so long a period as nearly 20 years having elapsed since the great doctrine of free trade became established, nearly every other tax in relation thereto having become altered, modified, or altogether repealed, and yet the odious Malt Tax remains in full force and existence. A correspondent in one of the excellent letters you have given on the education of farmers' sons, &c., draws attention to this matter in most expressive terms:—"And I would here allude to that great loss of moral power amongst us as a class for want of a higher order of education and intelligence; see our abortive attempts to get a repeal of that unjust imposition the Malt Duty. Would the manufacturing and commercial classes have rested so long under such a burthen? If farmers knew how to set about it they would be certain of success, but the mass, with a few exceptions, are an easy, apathetic, nonpolitical body, who will not nor cannot be aroused. It is impossible to organise them even for their own good; hence their helpless and almost powerless position." It is a gratifying fact that the agitation for the repeal has assumed sufficient importance to enlist the public journals more or less in favour, and it only requires a spirit of determined energy and perseverance to crown the labour with success; and there exists not the slightest desire on the part of the agricultural interest that the movement should become a party question in the House of Commons. It is true that attempts have been lately set up to disprove the feeding quality of malt as compared with Barley, and that beer instead of nourishing the body has a contrary effect of devitalising the digestive fluids of the stomach, or some such twaddle. Who cares anything for this, and of what value are such experiments, and how do they affect the question at issue? Is the credulity affecting the agricultural body so great as to be put off with experiments from the Board of Trade, contrary to their own experience, and the English people invited to eat pork instead of beef and mutton, and to become a nation of tea and water drinkers, in face of the many millions expended annually in the consumption of beer and porter alone—which, according to the theory of recent medicinal teaching, is not drink but poison! It is not necessary to suppose for one moment that such suggestions are likely to be of the least weight; they may be dismissed with the observation that the difference in occupation must be taken into account, and that while a light drink may be very proper for those who have horses and carriages at command, it is quite another matter when proposed for those who toil many hours of hard labour and bodily exercise. What were the arguments used at that memorable time, the repeal of the Corn Laws? That the duty on corn had practically the effect of shutting out the supply of food from other countries, while at the same time it was perfectly well known England did not grow anything like sufficient to feed her increasing population; thereby granting to the corn growers a kind of monopoly which virtually had the effect of raising the price of bread, and became a cruelty and injustice which could not be borne by an intelligent population. The farmers must submit and alter their style of farming for the good of the country, &c., &c. Now this was perfectly in accordance with the rules of common sense and justice, but what the farmer complains of is simply this: that while such a clamour was raised about the bread, so little has been urged with respect to the tax on beer. These are not the palmy days of farming, when Young wrote "that his table should be furnished with plenty of plain things, a bottle of port wine every day after dinner, and at least a hogshead of it in his cellar." I doubt whether there are many farmers who have their cellars stocked in this way; neither would it be right or proper for their digestive organs to indulge in such luxurious living; but it certainly does appear rather a hard case while called upon to compete with all the world—with higher rents, the natural consequence of competition and increasing wealth in the country, reducing the farmer's profits to the lowest possible ebb, and entailing as a positive necessity the feeding and rearing of increased stock to keep up the condition of his land—there should still exist a tax which has the unnatural effect of shutting out a most important portion of his produce for feeding his cattle in its most approved state; contributing to the injury of the public by helping to form a tax on meat, and lastly, forming a most unjust tax on the only beverage within the reach of the hard-working, hard-earning labourer. *W. S.*

Societies.

East Lothian: *The Best Mode of Feeding Sheep.*—Mr. Harper, of Snawden, on this subject, referring first to the recent discussion on the alteration which prices indicated in farm practice, saying that it seemed to be the opinion of Mr. Douglas and others, that more profit would be obtained by deviating somewhat from the present system of cropping, and keeping a greater breadth of land in Grass, said:—My object in rising is to deprecate any sudden or violent change of cropping as now practised, so far as regards the lower part of this county. Its being intersected by a railway whose termini may be said to be London and Inverness—the dryness and earliness of its climate—the richness of its soil—the heavy crops which in a favourable season are obtained—the great demand which always exists both for seed and flour from its cereals—the comparatively high price which the red soil Potatos always bring—these and other advantages render it peculiarly adapted for the present system of cropping. Coming to the subject more immediately before us, I would say, so far as regards the lower part of the county, that all stock should only be kept and fed off within a twelvemonth. Of course there are exceptional cases, such as Fenton Barns, where there is a good deal of links and waste land. I do not care whether the sheep be Lincolns, so strongly recommended by Mr. Hamilton Nisbet; Hampshires, as recently introduced by Mr. Shirreff; or Cotswolds—although I do not fear that our own native breeds will still keep their own ground. The nature of the land itself is more adapted for feeding than breeding, and when so much attention has hitherto been paid to the growth of the cereals—feeding as against breeding will be found to be the most remunerative. To the generality of the farmers of this county, I would say that hoggs would be attended with less trouble than ewes, because they do not require the aid of so experienced a shepherd. The amount of cake or Oats used must depend largely on the number of sheep, and the quantity of Turnips. Not less than 1 lb. of these per day will be found to save Turnips. At any rate, they should be supplied with something like this, within a month or six weeks of leaving the Turnips, both in the way of preparing them for the butcher, and of teaching them to eat this before being put to Grass. By neglecting this last year, I found some difficulty at first on putting them on young Grass, in getting them to eat cake. Hoggs thus fed, should be ready for the market shortly before or after being clipped. If the markets be good, and if there is a prospect of the Grass failing, the greater number may be sent off, thus easing the Grass and preparing it for another flock of lambs. But the choice between draft ewes and hoggs, or older sheep, must of course depend on the judgment of the farmer, and the soil and circumstances of his farm.

Mr. Durie, Barneymains, said: In many districts with which he was acquainted, they were enabled to keep an extra number of sheep from the nature of the country. They had a great quantity of land which it was necessary to break up and drain, and they turned it into young Grass and for producing Turnips, and were thus able to keep a large number of sheep with great profit. In this county they had no room for this, as they had not much unreclaimed land. The place to which they must look for the greatest increase of sheep in the county was from the hills—from the land that had not as yet been ploughed. The question, however, which the Club had to discuss was—how could they, arable farmers, keep more sheep? He thought there was just one practical way that suggested itself as to how that could be done; and that was by increasing their growth of Grass and Turnips, and they could increase the Grass by growing less grain, and the Turnips by growing less Beans and Potatos. Of course the Potato growers would be all up in arms and say, "No; we cannot decrease Potatos"—that was to say, if men made money by them; but a number like himself had not made much money from them, and there would be no difficulty in restricting their breadth. There were few men that had had the fortune to grow Beans who ever had had much from them; and by turning the Bean brakes into Turnips they would have a great increase of Turnips for their stock. Instead of remaining in Grass for only one year they could pasture the land for two or three years, and farm by the 8-course shift instead of the 6-course shift. In a 400 acre farm they might have 150 acres Grass, 100 Turnips, and 150 acres grain. He did not mean that they should give up growing grain altogether, but he held that, as a rule, if they grazed their land well for three years they would grow as much grain in the three years, as if they had 200 acres of grain; and get Grass through rotation on the 150 acres, so that they would not have much less grain after all. Then, again, the Turnips, as a rule, would eat better than Beans, and they would have an increased number of stock kept. An imperial acre of good Grass would keep an ox a season of 24 weeks. 24 tons of Turnips would keep two beasts (at 10 cwt. per week) for the same time. 9 bolls, 6 stones of Wheat (at 18 stones per boll), would keep one beast, 8 bolls 16 stones of Beans (at 19 stones per boll) ditto; 5 qrs. 8 stones of Barley (at 56 lbs. per bushel), ditto; 7 qrs. Oats (at 42 lb. per bushel) ditto; each animal eating 7 stones of grain per week. That showed that two acres of green crop kept as many cattle as three acres of white crop. They could keep a beast for a certain time on 14 lb. of corn and straw, the same as with Turnips, but supposing they put these together, they could keep a great deal more cattle with Corn and Turnips along with Grass, than they could if they were to feed them upon any of these articles alone. That proved distinctly the question before the Club, that they could keep more cattle and sheep by increasing the Turnips and Grass than by the present plan, and that they could do so profitably. This year he had used very little cake, but a great deal of corn—Wheat, Barley, and Oats—and fed the cattle with these principally mixed together, and he found that it was much better to do that than to spend money upon foreign produce. Besides the suggestion he had thrown out that they might increase their Turnips and Grass by diminishing their Beans, Potatos, and grain, he would diminish the grain a little further. Instead of sowing all his lea with Oats, he would sow some of it with Tares, and Mr. Hope had been talking of Tares being a substitute for Grass. He did not think this should be done at all, but he thought the Tares might be made an auxiliary to the Grass, and that they could come in when the Grass in the county was giving way. It would be for being so used then that he would sow the Tares. Then they had roots of different kinds, and other articles in a smaller way, such as Rape, Cabbages and so forth, which could be gone into to a small extent; and then, if they liked, instead of making Grass into hay, they might cut it green and top-dress it highly (he found, however, that they must give the stock also a good deal of cake in soiling, or they would not do as well as pasturing cattle) and thereby keep a great deal more stock than even pasture. He was practising that himself. Whenever he had got good Grass he let it lie three years. He used to be a great Bean grower, but he had only 10 acres this year. He thought that means could be taken for practically and profitably increasing in the county the number of sheep.

Mr. Hope said he certainly possessed a considerable extent of grazing and link land near the sea (but it was not part of Fenton Barns farm) and this he partly used for rearing lambs, which he kept for hoggs, disposing of the ewes fat in autumn, a plan which he recommended to the consideration of the Club at the meeting when they discussed whether it would be profitable to keep an increased number of sheep. He did not think it was right to dogmatise as to the best way of keeping increased numbers of sheep on any particular farm. That must be left to the owner, who must judge for himself, though certain principles or facts might be noticed which should guide all in forming their opinions. What Mr. Durie had said was quite true, that to keep larger numbers of sheep you must on most farms have more land in Grass. This in the first place diminished the amount of the annual gross produce of the farm; but in the next place, if the sheep were fed with cake and corn as they ought to be, a white crop after three years old Grass would not be worth much, as almost to a certainty it would be too luxuriant and lodge. He took a crop of Potatos after his old pasture, with a little guano only, and they paid well. He was one of those who began early to plant large breadths of Potatos, and as yet he was not disposed to dispense with this crop. But he did not say they could go on even in that way, to be as well paid as in an ordinary six-course shift without adopting a more lengthened rotation, say for eight or 10 years, and in the course taking two white crops in succession. He liked to have a portion of every kind of crop; and in regard to Beans they were a very valuable crop, and had paid him handsomely for several years past. This last crop they had left him more than Wheat, though this was owing to his having Tares mixed amongst them, for which he obtained upwards of 60s. per quarter. It was impossible to keep profitably an increased quantity of stock of any kind without a more liberal use of grain and feeding cakes for both sheep and cattle. In place of having all his cattle on full Turnips and feeding for the butcher, he had a portion on cake and cut straw, and this winter it had been meal and cut straw. If in spring there are any Turnips to spare, a few are given to them pulped. This saved a lot of Turnips which are devoted to feeding sheep. The cattle thus wintered top the Grass fed with sheep and keep down the Rye-grass, and are in forward condition for feeding off the following winter. It improved the pasture to have a few cattle grazing with the sheep. Some farmers were in the habit of buying in young cattle for feeding, but he thought if they kept them for 12 months before they fed them, they would obtain more profit.

Mr. Scot Skirving said: With regard to this day's discussion he felt somewhat disappointed. He stood with many people in this position, that they tried the style of farming Mr. Harper recommended—the old East Lothian style on the low ground—and found that

now it would not pay. He had always been ashamed to say how much he lost from farming every year, as the inference to be drawn from it would be that he could not farm. But having now farmed during a large portion of two leases, and having made a handsome profit every year by the first, he was the more entitled to say it was not his fault that he was some 400*l.* the worse every year of the second lease; and if he was to go on as Mr. Harper recommended, with no change in the system, he saw no prospect but that of dragging on to the wretched end of the term, which would come at last, and he could only hope he would not be quite ruined when it came. He had made one effort to increase the quantity of his sheep this season. They were aware that in the lower part of the county, there were sandy soils in which the farmers generally grew Dalmahoy Potatos, and sold them at about 20*l.* or 24*l.* an acre on the ground. This had always been restricted to a narrow acreage—higher up they could not compete with them. He had tried it last year, though he was certain that if he had planted Regents, he would have had 5*l.* an acre more than he got for the Dalmahoys; but the object was to get what was called a stolen crop, and sow the ground with Rape the instant the Potatos were removed. If the Potatos were very highly manured with about 15 tons of farmyard manure, and about 6 cwt. of portable manure per acre, he expected after that to get a luxuriant crop of Rape, which he would use for his ewes in autumn when the rams were first introduced to them; and then a second crop either for hogge or ewes and lambs in spring, after which he would break up the land for Barley. In that way he hoped to increase the amount of food for sheep, which was the object of this day's meeting. In regard to Beans, he had heard before that Mr. Hope, who had now left the meeting, had made profit of them; but the fact was it was not the Beans that did that at all, but the Vetches, and it required a particular soil to follow that husbandry. He did not think he could do it. They must have the soil very fine and free from annual weeds. It was done on the English system. That was by sowing them close together. It was a sort of cultivation that was local in its application. Kohl Rabi he had tried, but found it a total failure. Mangel he had tried to perhaps a greater extent than any man in this country, as he had grown 35 acres in a year. That year it was a fine crop, but since then it had dwindled away and was very precarious. He would advise nobody to cultivate it. The inducement to grow it was to get a great deal of milk, and to get food to be used in May for ewes and lambs. But the fact was that their climate was too cold for Mangel. He saw in a newspaper that a new variety of Gourd had been grown with success in several parts of England, and that it had produced a heavier crop per acre than either Mangel or Turnips, and that stock ate it freely. The same varieties of Gourds grew well in Scotland; this species might require more heat, but it was worth trying. Speakers who were to follow might take up the matter of artificial food which had not been discussed, and it would be interesting to hear of any experiments which members might have tried. They knew that chemistry showed that Rape-cake and oilcake were nearly equal, but it generally required hunger to make stock eat the former. He had given up buying Cotton-cake, because though sheep were fond of it, it had made the wool come off on every occasion he had used it, but perhaps it was more suitable for cattle.

Mr. Sadler, Ferrygate, said he thought it would be a great advantage if they could follow out the plan adopted in England of having a combination of two crops of Tares—a crop of winter Tares to be eaten off by sheep, followed by a mixture of Tares and Rape—thus having two crops of Tares in one year, while they left the land in rich condition for Wheat. But before they were able to consider that system and follow it out in this country they must get the landlords—and it would take nothing out of their pockets—to abolish the ground game. He was as proud as any one could be to see his landlord shooting over his farm, but when he thought of the struggles they had to pay their rents in these times, and the fact of their crops being eaten up by ground game, he thought they were suffering an injustice—an injustice which would not continue. Considering what they knew themselves, and what they heard from Mr. Skirving, who had had long practice in farming, as to the result of their operations, things must change in some way or other. If they could get the landlords merely to repress and abolish the ground game, they could still engage in the pursuit of pheasants and other birds, which were not so destructive to the crops.

Mr. Durie then moved that the result of the discussion should be embodied in the following motion:—"That an increase of the acreage in Grass, Turnips, and Tares is the best way of keeping an increased number of sheep."

Mr. Skirving moved that the meeting do not put their opinions in the form of a motion.

Mr. Skirving's proposal seemed to meet the wishes of the majority of the members of the Club, and it was therefore agreed to.

Royal Dublin: *April* 19.—The Spring Cattle Show opened to-day. In the absence of a full report this week, we extract the following particulars from the *Times*:—

"Nothing can be better than the accommodation which this Society is now enabled to give for an agricultural exhibition. A large and beautiful Agricultural Hall was erected some time ago, which has been used more than once for exhibitions of industrial art. More recently an immense structure, the Shelbourne Hall, supported by iron pillars and covered with glass, has been arranged for the reception of stock by Mr. Corrigan, who ably superintends the agricultural department of the Society's operations. The Short-horns are placed in the Agricultural Hall, fat cattle, sheep, and swine being consigned to the Shelbourne Hall. Hand machines and the smaller classes of agricultural implements are placed in the galleries of the former hall; while the larger machinery is exhibited in the courtyard. There is a portion of the building set apart for poultry and various other productions of the farm. The prizes are worthy of the society, and excite by their value and by the honour of winning them a very spirited competition. The 'blue riband' of the Show is the *Irish Farmers' Gazette* Challenge Cup. This prize was originally presented by Messrs. W. S. E. Purdon, the proprietors of the *Irish Farmers' Gazette*, to be awarded to the animal in the breeding classes of neat cattle which, in the opinion of the judges, possessed the greatest merit. For several years it went through a variety of vicissitudes of ownership, but was at length permanently won by Colonel Towneley, of Towneley Hall, Lancashire. The gallant gentleman, who always took a deep interest in the prosperity of the Society's shows, determined that this cup should be replaced by a plate with which the name of the *Irish Farmers' Gazette* should be associated, and accordingly he contributed the sum of 100 guineas for this purpose, to which the Society added 50*l.*, thus raising the value to 155*l.* In 1864 the plate was awarded to Mr. Thomas Butler, of Ballycarron, Golden, county of Tipperary, for his Short-horned bull Soubadar. This time it has been won by Mr. Andrew Mulholland, of Ballywalter, for his Short-horned roan bull Defender, calved January 11 1862. This bull also won the bronze medal and 10*l.* for the best animal in the section. The Irish Railway Challenge Cup, of the value of 150*l.*, is the result of the joint subscription of Irish railway companies. It is to be awarded, in the terms of the conditions, to "the best bull, of any breed, over two years and under five years of age, the owner to produce satisfactory proof to the Committee of Agriculture, by a certificate from the owners of the cows, that the bull had got 20 calves within the 12 months preceding the show." Mr Thomas Barnes, of Westland, Moynalty, carried off this cup last year by his Shorthorned white bull Dr. M'Hale the Second. This year it has been won by Defender, the same bull that carried off the two prizes just mentioned. Mr. James Ganly, of the firm of Ganly, Sons, and Parker, the eminent stock salesmen, also presented a challenge cup, valued at 50*l.*, for the best yearling bull, of any breed, which was won in 1864 by Mr. W. Talbot Crosbie, of Ardfert Abbey, Tralee, for his Short-horned bull Ravenswood. It wrs carried off yesterday by the Short-horned roan bull Brilliant Lamp, calved March 13, 1864, the property of Mr. Anderson, of Grace Dieu, Waterford.

The exhibitors of Short-horned Stock include the names of nearly all the noblemen and gentlemen that have been familiar to us for years as exhibitors at this great agricultural gathering:—Among the English exhibitors are Lady Pigot, Mr. R. Tennant, and the Hon. G. E. Lascelles.

Among the gentlemen acting as judges in the various departments are:—John Thomson, Anlaby, Hull; Stiles Rich, Didmarton, Chippenham, Wiltshire; James Bult, Dodhil House, Kingston, near Taunton; Henry Haywood, Blackmore House, Hereford; Robert J. Wiley, Winterfield, Catterick, Yorkshire.

Farm Memoranda.

Forth Mountain: County Wexford.—A few years ago I reported in a short notice circumstances relating to the reclamation of mudlands from the overflowings of sea-water, in the vicinity of the town of Wexford. The scale of operations there was very large, and the successful results have been already correspondingly great. The details of some reclamation of high-lying land of very opposite qualities from those of the soil which has been wrested from the encroachments of the sea, and under widely different courses of management, may not be useless.

In the southern portion of this county there is a range of rocky hill, dignified in the local geography with the name of Forth Mountain, though but a few hundred feet in height above the sea level; it extends however between four and five miles in the entire length, from its low extremity at the southern spur, whence it tends towards the north-east, and thence diverges towards the north-west.

This portion is very picturesque, especially in its serrated conformations on the summit, where three detached and rugged rocks are conspicuous above all the other eminences: from this part of the range are seen the town and harbour with the beautiful environs, and the windings of the river Slaney, with mansions, villas, woods, plantations, and verdant meadows all along its course to Enniscorthy and farther, with a remote back view of real mountains, culminating in Mount Leinster, which boasts of the altitude of 2600 feet. Immediately below the 'Three Rocks' there is a very pretty little demesne (with a suitable house) commanding that view, on what was 30 years ago a barren surface of stones, which were removed by Mr. Jeffares, whose wealth enabled him to convert a barren base into ornamental ground. But my business is not with the ornate or picturesque in land or architecture, but with the plain and practical.

Until the last survey of Ireland the parochial limits of a great area of this mountain district were undefined; and no previously existing landlord claims to the moorlands around these hills or on them, barred their occupancy by squatters, who built huts and cleared a little land for Potatos and Oats. Several families acquired comparatively large possessions by active industry, and purchasing the assumed rights of small occupiers, of whom many emigrated when the franchise ceased, and subsequently from the effects of the Potato failure. Yet even now the number of dwellers on the extensive common is considerable. These perhaps still bear the distinguishing appellation of "Lords" and "Commons;" the owners of 20 or 30 acres being the "Lords," the small holders the "Commons." Many of the latter lived (and some still dwell) in cabins of a miserable description, widely apart, almost inaccessible to strangers, and preferred as locations from their solitude and difficulty of access. There was at least one Chancellor of the Exchequer among them when a friend of mine accidentally entered a chamber in which some of the operations of the Mint were being carried on.

At the commencing period of the famine, Alderman Richard Welsh became possessed of about 60 acres of the lowest spur of the range, which, with an unbroken frontage of a mile in length, and an average breadth of 500 yards, from an excellent high road which runs parallel with the crest of the range, presented a surface of boulders, small rocks, and stones, which had periodically slid down from the precipitous heights, or attained the possession of the ground which they so lately covered, at the unknown period of the primeval disturbance which caused these hills to arise. Mr. Welsh humanely gave employment to any of the surrounding labourers who sought it, in freeing some of this tract from the rocks and stones (of quartz, green stone, and clay slate, and conglomerates unknown to my defective geology) by means of crow-bar, pickaxes, and spades. The cost of this was from 8*l.* to 10*l.* per acre. The larger stones were used to make admirable fences, 5 feet in height, and from 2 to 2½ feet in breadth, not only on the road side but for dividing the land into fields of regular form, for farm buildings. Where clearances were thus made a few years ago, a very green sward of close and kind sheep pasture, or drills of Swedish Turnips are now visible from a considerable distance. Passing along this new and cheerful-looking farm, there are a few neat cottages belonging to mechanics and a labourer or two, who possess a few acres each, and seem to have taste for improvement. Well-built boundary fences separate their properties from that of Alderman Welsh on one side and that of Mr. O'Reilly on the other. The latter individual, who is an admirable type of the class of practical farmers occupying from 150 to 200 statute acres, has reclaimed after Mr. Welsh's method 30 acres from boulders and stones partly covered with heath at the average cost of 7*l.* per acre, by which means he has gained a good loamy soil from 10 to 18 inches deep, which is about to be manured with lime, and cropped with Barley, Oats, Potatos, and Turnips; a small proportion of Wheat and Rye is experimentally sown. All this land will be in due course laid down under Grass for sheep feeding, and after a few years put through another rotation of tillage if heath or furze should re-appear. Further on towards the north of this allotment, freehold farmers, long established there, have holdings of 30 or 40 acres, reclaimed by slow and patient industry, but not possessing those features of regular and systematic improvement and uniformity of enclosures, which are conspicuously shown on the lands above described.

But Mr. O'Reilly's present work, and prospective operations in draining, clearing away irregular and unsightly fences, and forming new ones, deserve more comment. He occupies an excellent house, with a few trees and other evidences of reclamation of old standing, which he purchased from the preceding owner and occupier, 30 acres more of mountain soil, which he is now thoroughly draining and otherwise improving from a defective, though not entirely uncultivated or neglected state. He has also acquired possession of a tract of lowland adjoining this mountain land towards the south, on a lease of 999 years at a very low rent. On the entire area of these contiguous farms he has the opportunities, without the difficulties which high rents, uncertainty of tenure, freedom from debt, want of capital, or obligations of any nature to landlords interpose between a tenant's desire to make permanent improvements and his ability to do so. The pleasant consciousness of being the *owners*, though of but apparently barren land, led the two improvers whom I have introduced into this paper as exemplars for imitation [under similar advantages] to expend what would be considered an amount of outlay disproportionately great for the extent of reclamation attained, to undertake the work which they have accomplished. Though the humane wish to employ

starving labourers was the motive impulse which actuated Mr. Welsh's first operations on such an unpromising field for labour, he would not have commenced his work, and continuously proceeded in it, if he had not a certain perpetuity of interest in the results of improvements obtained. Fortunately for the public, this gentleman, who has large means at command and holds two or three large farms, has a laudable taste for making improvements—he cannot help indulging it. If he have an irregular fence, it will soon be made straight and perfect; or an undrained field, it will soon be rendered dry; or anything out of order, and it will quickly be set right. But this gentleman is not depending for income on the profits of husbandry, and although the amount of the capital he has employed on the mountain would probably have fructified more surely on the reclamation of low land farms moderately rented, and with a lease of even but 21 years, Mr. Welsh has no reason to regret his purchase on the hill of Forth. The farm there is as it were a creation of his. But Mr. O'Reilly's case is quite different in important points. He is a farmer, living by husbandry; he has no ships or commerce to convey fresh capital to him if his farming be unsuccessful. The experiments, therefore, which a man so circumstanced has made in mountain cultivation under great natural impediments, if successful, stand out in high relief for imitation. I believe that Mr. O'Reilly's work will prosper. Such a cultivator is invaluable in a district which pre-eminently calls for one who will afford a good practical model. There are thousands of acres surrounding the mountain of Forth which require but thorough draining, subsoiling, and in some parts an easily effected clearance from stones, in order to be rendered altogether fertile, as may be expected from the evidences afforded by frequent patches of dark and friable mould cultivated for Potatos and Oats by freeholders of the Commons, or by tenant farmers in the plains below.

The perverseness of human nature in not using opportunities when in our power, for accomplishing things which are easy, and yet in desiring to do things which are difficult, is exemplified in the conduct of the farmers who will not drain lands which from their position invite the operation, and the industrious cultivators who will almost remove mountains to obtain a surface of earth.

I have a little more to say of Mr. O'Reilly. Thirty years ago he was employed by Mr. Dargan, to whose talents, enterprise, and patriotic liberalities Ireland is deeply indebted, as a clerk and superintendent of works at a canal connecting Lough Neagh and Lough Erne, in the north of Ireland, which were undertaken by Mr. Dargan, who also undertook the embankment of sloblands in Lough Foyle, where he succeeded in reclaiming 1800 acres; Mr. O'Reilly thus gained useful experience. Afterwards he became under Mr. Dargan's patronage a superintendent of railroad work, and of a pier at Arklow. Subsequently Mr. Dargan employed him as a superintendent of the Company's operations in reclaiming the sloblands of Wexford harbour. His opportunities of acquiring skill in such works, and habits of order and regularity in business, pre-eminently qualified him for his present occupations in making farm improvements, and conducting their operations in detail.

He has a very good farmhouse on the south side of the road above referred to on a part of the Common long since in cultivation, but only in course of thorough draining and other improvements since he purchased the possession of it; this much larger farm also slopes down to the southward, inviting thorough drainage, for which, if he chooses to borrow money from Government under the Land Improvement Act, he has an available fund. Again, besides these freeholds, he has lately obtained from Mr. Redmond, M.P., a large farm—all declining to the south—at a very low rent, for the term of 999 years. He will drain, subsoil, and refence all of it. The encouraging and now effective Act provides in his case the needful financial facilities, and the example of this most deserving and industrious farmer will probably have its stimulating effect on the great and little farmers occupying a shallow and wet clay soil in the vicinity of Mr. O'Reilly's low land farm. It will appear that this improver of land has the great advantage of being (by purchase however) rent free to a considerable extent, and under very moderate and fixed rent for the remainder, which he may be said to possess in perpetuity.

The facilities afforded by the amended Land Improvement Act for obtaining capital wherewith to drain and otherwise improve land, if rightly understood and made fully known, will I hope induce many of the freeholders to whom my observations have applied, and a large proportion of the owners and occupiers of great and small farms throughout the country, to avail themselves of the benefits which that Act is designed to promote. I wish there were strong grounds for hope, that the number of those land occupiers who are excluded from those proposed benefits, from want of leases of satisfactory duration and those encouragements and facilities which landlords may afford, are but few. Many tenant farmers are dull and drowsy, and many landlords indulge in "lazy apathy," though the note which summons to "progress" sounds throughout the land. *Martin Doyle.*

Calendar of Operations.

April.—The work of preparing for Mangel Wurzel and for the coming Turnip seed time is proceeding. Such a remarkable change as the last few days have exhibited in the weather is rarely seen, even in our changeable climate. The land is now full of warm rain, and the air alternately damp and sunny—all conspiring to bring on one of the most rapid springs we have ever known. Lent corn is all in, Grass seeds are everywhere sown, the corn and Grass fields are all rolled and harrowed where necessary. Hoeing is proceeding both by hand and by machine among Wheat, and Beans, and Peas. Potato planting is about finished, and work in general is extremely forward. This at any rate represents the state of things in the southern counties. Young Clovers are generally very defective, Wheats are recovering fast.

Kohl Rabi may be sown, and it has proved itself a useful crop in such season as that of last year, where Turnips were a failure. The following is a passage from Mr. Sutton's account of its cultivation:—

"The principal sorts are the large Green and large Purple Kohl Rabi. The cultivation may be described as nearly resembling that of the Turnip—the principal difference being in its earlier seed time. The land receiving as much autumn cultivation as possible, may be ribbed up and well dunged in the drills, the dung being covered by the splitting of these drills before winter. If guano (two or three cwt.) and superphosphate (also two or three cwt. per acre) be spread broadcast over this land in March, and the intervals between the drills be then horse-hoed, and the ridgelets moulded up again by the double mould-board plough, it will then be ready for the seed. Of this, three or four pounds per acre may be drilled in the rows in April or March. The rows in which the dung was placed should be at least two feet apart, and the plants on becoming large enough are to be singled out from 12 to 14 inches apart. The crop will in favourable seasons, on good adhesive loams, thus richly manured and well cultivated, reach 20 to 30 tons per acre. It is all above the ground, and it is thus admirably adapted for folding sheep upon it. The seed has hitherto been costly, and therefore it has been more common to grow plants in a seed bed. Half a pound of seed on about two perches of land will furnish ample plants for an acre. The bed is prepared and sowed in March, and the land for the main crop is prepared either in drills as described, or on the flat, the manure being then ploughed in broadcast—and the plants will be ready to transplant in May. If there be a succession of sowings at monthly intervals, as in March, April, May, on successive seed-beds, the plants will be ready for transferring in May, June, and July respectively, and the crop will be ready for consumption in October, and on through winter. The plants may be set out, if on the flat, in rows two feet apart, to allow of the horse-hoe being used between them, and they should be about 15 to 18 inches apart in the rows. It is rather more costly to put the crop in by the drilling machine, because so much more seed is used per acre, which is scarce and dear at present. This, however, will no doubt cheapen as the crop comes more largely into use, and the drilling of the crop where it is to grow will probably ultimately be the usual plan of cultivation."

Notices to Correspondents.

Agricultural Education: *Clere.* The following is a bit upon the subject from Mr. Hoskyns' vigorous pen. "*Why* do you think—why does everybody think—that he can farm without having learned how; that agriculture (if you like that word best) is an exception to every other human labour or pursuit, a contradiction to all natural law, and will bring a livelihood without study, cost, or apprenticeship: that to be able to gabble over the pet jargon about the 'ignorance' of our forefathers—&c., &c."

Bitter Butter: *R.* Put a bit of saltpetre, about the size of a nut, to every quart of cream, as soon as it is taken off the milk; and then, the day before you churn, put the whole crock to stand in a turnpot of boiling water for half an hour, stirring it frequently while it is in the hot water, and afterwards till it is cold. There are many other recipes. A good deal depends on the hot water and steaming to get rid of the aroma.

Blowing Sands: *Ireland.* The following is a letter written to this Journal 20 years ago by Lord Palmerston, on this subject (see *Agricultural Gazette*, February 17, 1845):—"I found a small quantity of bent growing upon the sands; and by transplanting annually, for many years past, a sufficient quantity of the younger plants, I have covered with a close coating of bent the whole surface of the formerly blowing, but now fixed and stationary sand; and the result is, that the bent affords shelter and food for young cattle, while Trefoil begins to grow spontaneously on the sand between the tussocks of the bent. I have for the last three or four years sown seeds of the Pinus maritima, from Bordeaux, among the bent on some portion of the sand, and the young plants are growing well, though hitherto they have been more occupied in striking their roots deep into the sand than in throwing shoots upwards. I have also tried young Oaks in the sand, and they seem as yet to thrive in it even better than the Pine. The sand is the broken-down rock of the old or lower sandstone formation. The spot on which these experiments have been tried, is a tract of sand extending from the neck of the promontory of Mullaghmore southward, to the entrance of Wilk harbour.'

Drainage: *T C.* The sole operating cause in land drainage is the weight of the water; a deep drain is more efficient than a shallow one, just because a greater weight of water is thus pressing its way out of the exit hole.

Low Prices of Wheat: *H E* Thanks. Next week.

Moss: *Cor.* The Grass should be harrowed and a compost of lime spread on it—this will help to destroy the moss. Any ammoniacal manure, as sulphate of ammonia (1 cwt. per acre), will have the same tendency by increasing the growth of the Grass.

Palm Meal: *Sir W M.* Mr. Coleman, of Wandsworth, S.W.

Poultry: *Old Subscriber.* Sorry we have not been able to get an answer for you this week.

THE HYDROPULT,

An Invention for Throwing Water by Hand Power

(Secured by Royal Letters Patent).

PRICE LIST.

	£	s.	d.
Complete with Brass Cylinders and Japanned Stirrup	1	12	6
Complete with Brass Cylinders and Copper Stirrup	2	2	0

The Price "Complete" as above, includes 2½ feet Suction and 3 feet Delivery Hose, Galvanised Wire Strainer, Rose and Small Jet.

THE HYDROPULT
is invaluable for use in the
GARDEN for
WATERING BEDS,
SPRINKLING PLANTS,
DROWNING OUT INSECTS,
CLEANSING TREES FROM SMUTS,
DRESSING WITH LIQUID MANURE,
&c. &c

THE HYDROPULT
is desirable in every
HOUSEHOLD for
WASHING WINDOWS,
WETTING SIDEWALKS,
SPRINKLING STREETS,
WASHING CARRIAGES,
EMPTYING CISTERNS,
FILLING BARRELS,
A SPRAY BATH,
&c. &c.

ORDERED by the WAR DEPARTMENT as FIRE ENGINES.

Robert Hogg, LL.D. and F.L.S., Rev. H. H. Dombrain, A.B., Shirley Hibberd, Esq., F.R.H.S., Thomas Rivers, Esq. (the eminent Florist), and other well-known gentlemen, recommend the Hydropult as an invaluable Garden Implement.

The Hydropult will draw water horizontally, if necessary, through Two Hundred Feet Suction Hose, and force it through Delivery Hose to an altitude of One Hundred Feet.

THE
GREENHOUSE AND CONSERVATORY HYDROPULT.
A NEW AND BEAUTIFUL IMPLEMENT,
Weighing scarcely 5 lbs.
AND SPECIALLY ADAPTED FOR USE IN THE GREENHOUSE AND CONSERVATORY.
Price 35s.,
Complete, with Brass Cylinders and Copper Stirrup, 2½ feet Suction and 3 feet Delivery Hose, Strainer, Rose, Jet, and Fan.

This NEW IMPLEMENT must necessarily supersede Syringes and other devices of the kind, for it will be found much more effective in its operation.

A LADY CAN WORK IT FOR HOURS WITHOUT FATIGUE.

CAUTION.

Important to the Public.—The extensive sale of the Hydropult has excited the cupidity of so-called respectable, but in reality unprincipled Manufacturers, who are now palming on the Public worthless imitations of the Hydropult, and through their connections are enabled to place said devices on exhibition, and for sale, in many of the principal Ironmongery and Seed Establishments throughout the city and provinces. These devices resemble in many respects the Hydropult in appearance, and are calculated to deceive the unsuspecting. The Proprietor therefore issues this Caution, and respectfully intimates that parties wishing to purchase the Hydropult should examine the machine offered for sale, and see if it has attached thereto a label, with the following words:—"The Hydropult, Vose's Patent, manufactured only by Griffiths & Browitt, Birmingham. Charles Pomeroy Button, Proprietor, 142 and 143, Cheapside, London." Unless this label is attached, the Machine is not the Hydropult.

Prospectuses, with Testimonials, on application.

HYDROPULT SHOW ROOM, 142 & 143, CHEAPSIDE, LONDON.
CHARLES POMEROY BUTTON, Proprietor.

Manures and Feeding Stuffs.

RAYNBIRD, CALDECOTT, AND BAWTREE.
Address, 89, Seed Market, Mark Lane; or Basingstoke.
Samples and prices on application.

Great Bargains in Manures.

MR. POTTER, in RETIRING from BUSINESS, offers the above at from 30 to 40 per cent. under usual prices.
Address 2, Bernard Villas, Upper Norwood, S.

Kensington's Concentrated Horticultural Manure.

THIS MANURE is adapted for the Growth of all kinds of Fruit, Flowers, and Vegetables, and can be used either in a liquid or dry state.
In casks 28 lbs. each, 5s.; in casks 56 lbs. each, 10s. Free to rail.
Moolham Chemical Works, Ilminster.

GOULDING'S HORTICULTURAL MANURE,
Manufactured by
W. & H. M. Goulding, Manure Manufacturers,
108, Patrick Street, Cork; 22, Westmoreland Street, Dublin.
One Shilling per Box.
The use of it ensures the finest and best developed Flowers, Bulbs, Roots, &c.
Agents, Wholesale and Retail:
Messrs. James Carter & Co., Seed Merchants, 237, High Holborn.
" Butler & McCulloch, Covent Garden.

THE LONDON MANURE COMPANY
have now ready in fine condition—
DISSOLVED BONES,
SUPERPHOSPHATES of LIME,
TURNIP MANURE,
BLOOD MANURE for Barley and Roots,
URATE,
MANGEL MANURE, &c. &c.
They also continue to supply GIBBS' PERUVIAN GUANO NITRATE of SODA, SULPHATE of AMMONIA, FISHERY SALT, and all Fertilisers of known value.
Works, Plough Wharf, Isle of Dogs.
Offices, 116, Fenchurch Street, E.C. E. Purser, Secretary.

LAWES'S MANURES.—The Manures manufactured by J. B. Lawes for the present Season of 1865 are now ready for delivery at his Factories, at the following prices:—
LAWES'S PATENT TURNIP MANURE, and BONE SUPERPHOSPHATE of LIME, £6 6s. per ton.
LAWES'S SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES, £5 5s. per ton.
LAWES'S WHEAT, BARLEY, GRASS, and MANGEL MANURES, £8 per ton.
CONCENTRATED CORN and GRASS MANURE, £12 per ton.
These Manures can be obtained of Mr. Lawes, or through his appointed Agents, in all parts of the United Kingdom, at prices varying according to cost of carriage.
Genuine PERUVIAN GUANO direct from the Importers.
NITRATE of SODA, SULPHATE of AMMONIA, and other Chemical Manures. AMERICAN and other CAKES at market prices.
Address John Bennet Lawes, 1, Adelaide Place, London Bridge, E.C.; and 22, Eden Quay, Dublin.

ODAMS'S BLOOD MANURE for CORN,
ODAMS'S BLOOD MANURE for ROOTS,
ODAMS'S SUPERPHOSPHATE of LIME.
Manufactured by

THE PATENT NITRO-PHOSPHATE or BLOOD MANURE COMPANY (Limited),
Consisting of Tenant Farmers occupying upwards of 30,000 Acres of Land.
Chairman.—John Clayden, Littlebury, Essex.
Managing Director.—James Odams.
Particulars of these standard Manures may be obtained at the Offices, or of the Local Agents.
C. T. Macadam, Secretary.
Chief Office: 109, Fenchurch Street, London, E.C.
Western Counties Branch: Queen Street, Exeter.
Manufactories: Plaistow, Essex; and Elford, near Topsham, Devonshire.

Important Notice to Gardeners.

EATON AND CO.'S GENUINE CHEMICAL MANURE, prepared expressly for Garden Plants and all Bulbous Roots, is acknowledged by thousands to be the finest and strongest Manure manufactured. 12s. 6d. per cwt.
A Sample Canister can be had for trial, sufficient for 1000 plants, for 24 stamps.
Address, E. Cooke, 3, Alfred Street, Victoria Docks, London, E.
Agents wanted upon a first-class commission.

Linseed Cake and Oil Mills, Henley-on-Thames.

R. BURNISTON begs to inform Consumers of Linseed Cake that he is now supplying GENUINE LINSEED CAKE, Manufactured by himself from the finest Calcutta Linseed, at the lowest market price consistent with quality, viz., £11 5s. per Ton, free on Rail. It will be found more economical and far superior in Feeding and Manurial qualities to lower priced and inferior Cakes.
The finest PALE LINSEED OIL at 3s. 6d. per Gallon, in quantity of 10 Gallons; a larger order supplied at a lower price.
Samples by post free.

COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 2s. per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the Patent Cocoa Fibre Company, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. Barsham & Co.

Barsham's BRUSHES and MATS are sold in every town.

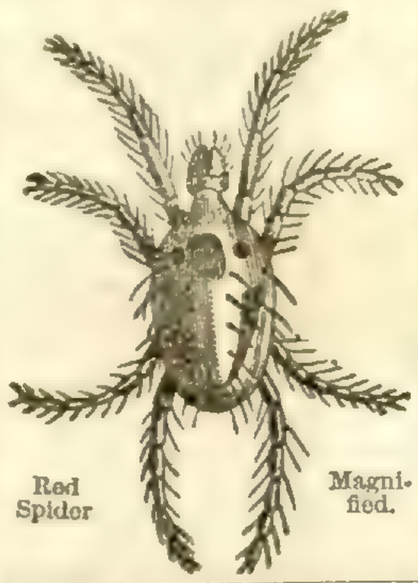
Caution.—Every Brush is stamped, J. Barsham's Patent.

Patronised by 70,000 Stock Breeders.

DAY, SON, AND HEWITT, Sole Inventors of the Celebrated STOCK-BREEDER'S MEDICINE CHEST, containing as follows:—
Six Bottles (at 2s. 6d. each) of the UNIVERSAL CHEMICAL EXTRACT, match less for penetrating, mollifying, and assuaging pain in all wounds, kicks, cuts, strains, &c., in horses and cattle; straining in ewes lambing, and swollen and inflamed udders in cows and ewes; sore feet in cattle, sheep, and dogs.
One Dozen Bottles (value 20s.) of the GASEOUS FLUID or BLACK MIXTURE, unmatched in the known world for curing diarrhœa or scouring calves, sheep, and lambs; for ewes weakly and exhausted after lambing; for horses and cows exhausted and sickly, and for the fret, colic, or gripes in horses and cattle. An instantaneous remedy for blown cattle and sheep.
One Dozen Packets (value 13s.) of the RED DRENCH or INFLAMMATION POWDER, for cleansing after calving or lambing, for straining in ewes, and for removing all feverish symptoms in cows and ewes after calving or lambing; for yellows in oxen, and for colds, chills, and all inflammatory cases in horses, cattle, and pigs.
One Dozen (value 7s. 6d.) of the RED PASTE or CONDITION BALLS (for horses). These Balls give vigorous health, purify the system, and produce a mole-like sleekness of coat.
Price of Chest complete, with Shilling Key to Farriery, 2l. 16s. 6d. securely packed, and carriage free. Sample case, usefully assorted 16s. 6d. Messrs. D., S., & H. respectfully urge their friends to send their orders early, so that no purchaser may be kept waiting.
Either preparation may be had separately in boxes, carriage paid.
Address—Day, Son, & Hewitt, Animal Medicine Manufactory, 22, Dorset Street, Baker Street, London, W.; or Wantage, Berks.
Testimonials from all parts of the United Kingdom and Ireland sent free on application.
Established over One Quarter of a Century.

TOBACCO PAPER, first-rate quality.
Price on application to
Charles Brown, Greenhoys, Manchester.

ROLL TOBACCO CLOTH.—The cheapest and best article for Fumigating Greenhouses and destroying the Fly, price 1s. 4d. per lb.; over 10 lbs. 1s. 1d.
Joseph Baker, 10, Gough Square, Fleet Street, London, E.C.
Post Office Orders payable Fleet Street.



Red Spider Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes, 1s., 3s., and 10s. 6d. each.

Wholesale by
PRICE'S PATENT CANDLE COMPANY (Limited).

TOOGOOD'S (late Page & Toogood's) IMPROVED BLIGHT COMPOSITION introduced in 1850, has been manufactured under W. Toogood's sole directions since that period. He has made great improvements in it, and by reducing the price 25 per cent., it is one of the cheapest and has always been the most efficacious remedy extant. To publish the Testimonials no newspaper would give space, but Messrs. Cutbush & Son, the eminent Nurserymen, say:—"It is the best thing for the purpose we can find, and does not appear to injure the young foliage like Gishurst does. This is our experience after 10 years' trial."
"February 24, 1864."

Mr. E. Sage, *Gardener to* Lord Howe, *says*:—
"Will you please send us 15 gallons of your Blight Composition. I see you have reduced the price, and trust that you may some day be able to make another reduction, and I feel assured that no 'Gishurst,' will be used by practical men."
"We hereby Certify that during the whole time we were Warehousemen in the Establishment of B. Page & Co., and subsequently Page & Toogood, that we Manufactured the Blight Composition under Mr. Toogood's *sole directions, and that he alone knew the proportions of the various ingredients.*
Signed John Morley,
Henry Drew,
Henry Sheerman,
George Isaacs."
"July 13, 1863."
Extra strong, 3s. per gallon (sufficient to make 4 gallons fit for use), 10 gallons and upwards carriage free to London.
May be obtained of the principal Nurserymen and Seedsmen in the Trade, and of W. Toogood, Royal South Hants Seed Establishment, Southampton.

SMITH, BECK, AND BECK'S GREENHOUSE and HOTBED THERMOMETERS.—These Instruments are of the very best construction, and at moderate prices
31, Cornhill, E.C.

CARTER'S GARDENER'S VADE-MECUM is now ready.

SHAW'S TIFFANY,
For samples and prices apply to
J. Shaw & Co., 29, Oxford Street, Manchester.

THE best MOWING and REAPING MACHINES on the lowest terms.
For Drawings, prices, and particulars apply by letter to
Mr. Nathaniel Rix, Jun., 3, Robert Street, Adelphi, London, W.C.
A Pamphlet on important improvements gratis and post free.

Hydraulic Suction Pumps, Garden Engines, Syringes, &c.

Caution.—The well-known reputation of
READ'S ENGINES, MACHINES, and SYRINGES, has led to the nefarious practice of Manufacturers selling and advertising weekly Syringes as "Read's Patent."
R. Read begs to caution the Public against being deceived by such false representations, as many of these instruments, upon trial, will be found defective and useless.
READ'S SYRINGES have the Royal Arms, and address, 35, Regent Circus, London, W. Descriptions post free.

THE PATENT CONCRETE STONE COMPANY (Limited), are now the Proprietors of the Patents for the Manufacture of the beautiful material known as RANSOME'S PATENT CONCRETE STONE, which for durability, cheapness, and beauty of appearance, stands unrivalled. It is especially applicable for Fountains, Vases, Jardinets, Balustrades for Terraces, Gate Piers, Edgings for Borders, and all other Ornamental Requisites for Parks, Gardens, Conservatories, &c.
Illustrations and Prices furnished upon application at the Offices of the Patent Concrete Stone Company, 2, Queen Street Place, Southwark Bridge, E.C.

GARDEN BORDER EDGING TILES, in great variety of patterns and material, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.
GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.
F. & G. Rosher, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.
Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.
Also TESSELATED PAVEMENTS of more enriched designs than the above.
WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cements, &c.
To be obtained of F. & G. Rosher, at their Premises as above.

SILVER SAND (REIGATE, best quality), at the above addresses—14s. per Ton, or 1s. 3d. per Bushel; 2s. per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less.
FLINTS, BRICK BURRS or CLINKERS, for Rockeries and Grotto Work.
F. & G. Rosher.—Addresses see above.
N.B. Orders promptly executed by Railway.

Glass for Garden Purposes.

JAMES PHILLIPS AND CO
beg to submit their prices as follows:—

PROPAGATING GLASSES.

	Each.—s. d.		Each.—s. d.
2 inches in diameter	0 3½	12 inches in diameter	1 0
3 " "	0 4½	13 " "	1 6
4 " "	0 5½	14 " "	2 0
5 " "	0 6½	15 " "	2 6
6 " "	0 8	16 " "	2 9
7 " "	0 10	17 " "	3 6
8 " "	1 0	18 " "	4 0
9 " "	1 2	19 " "	5 9
10 " "	1 4	20 " "	6 9
11 " "	1 6		7 0

HAND GLASSES, WITH OPEN TOPS.

	Each.—s. d.		Each.—s. d.
12 inches	6 6	18 inches	9 6
14 "	7 6	20 "	10 6
16 "	8 6	22 "	11 6
		24 "	12 6

Painted and Glazed with 16-oz. Sheet Glass.

BEE GLASSES.

	Each.—s. d.		Each.—s. d.
4 inches in diameter	0 6	9 inches in diameter	1 5
5 " "	0 8	10 " "	2 0
6 " "	0 10	11 "	2 6
7 " "	1 1	12 "	3 0
8 " "	1 4		

CUCUMBER GLASSES.

	Each.—s. d.		Each.—s. d.
24 inches long	2 0	16 inches long	1 4
22 " "	1 10	14 " "	1 2
20 " "	1 8	12 " "	1 0
18 " "	1 6		

London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.
LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS, PAINTS of various colours ground ready for use.
180, Bishopsgate Street Without, London, E.C.

TANNED NETTING for the PROTECTION of FRUIT TREES, at 1d. per square yard. Cotton Netting, Woollen Netting, Scrim Canvas, and Tiffany. Greenhouse Shades, &c.
Be particular, John Edgington & Co., 48, Long Lane, Smithfield, E.C.; 18, Piccadilly, W.; and 108, Old Kent Road, S.E.

Preserve your Trees and Seed Beds.

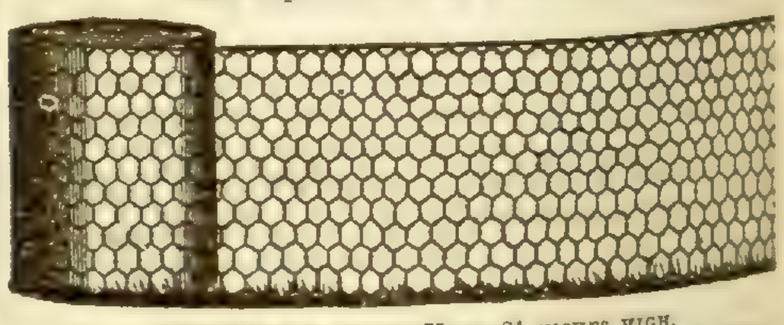
BENJAMIN EDGINGTON, of 2, Duke Street, Southwark, S.E., has a large Stock of NEW and REPAIRED TANNED NETTING, COTTON BUNTING, HALL'S COTTON NETTING, POULTRY and SHEEP NETTING, &c. Samples free by post. Marquees, Tents, and Temporary Rooms on hire; lined, boarded, lighted, and comfortably warmed.
Address, Benjamin Edgington (only), 2, Duke Street, London Bridge, S.E. No other Establishment.

NETTING for FRUIT TREES, SEED BEDS, RIPE STRAWBERRIES, &c.—TANNED NETTING for Protecting the above from Frost, Blight, Birds, &c., 2 yards wide, 3d. per yard, or 100 yards, 20s.; 4 yards wide, 6d. per yard, or 50 yards, 20s.
NEW TANNED NETTING, suited for any of the above purposes, or as a Fence for Fowls, 2 yards wide, 6d. per yard; 4 yards wide, 1s. per yard; ¼-inch mesh, 4 yards wide, 1s. 6d. per yard. Can be had in any quantity of
Eaton & Deller, 6 & 7, Crooked Lane, London Bridge, E.C.

EDGINGTON'S GARDEN NETTING, the cheapest and most durable, 1d. per square yard, or in quantities of 250, 500, or 1000 yards, carriage free.
EDGINGTON'S MARQUEES and GARDEN TENTS are the prettiest. [capacious.
EDGINGTON'S MARQUEES for hire are the most handsome and
EDGINGTON'S RICK CLOTHS for 60 years have maintained their celebrity as the best.
HAYTHORN'S and BRITTAIN'S NETTINGS.
Sample of material free on application.
Be particular—Frederick Edgington & Co., Thomas Street, Old Kent Road, London, S.E. A liberal discount to the Trade.
International Exhibition, 1862, Class XIX., Honourable Mention.

W. S. UNDERHILL'S NEW PATENT IRON FENCE for GARDENS, LAWNS, &c.
Manufactory: Newport, Salop.
Warranted the strongest and most durable Fence ever offered at corresponding prices. It is easily repaired if broken from accidents, can be rolled up most compactly when not in use, is admirably adapted for exportation, and can be had of any height and mesh required, at prices from 4d. to 1s. 6d. per yard and upwards.
For further particulars apply at the Manufactory; or of the London Agent, Mr. R. Winder, 18, Abingdon Street, Westminster, S.W.

NEW IMPROVED PREMIUM WIRE NETTING.
Great Improvement with Reduced Price.



PRICES per Lineal Yard 24 inches high.

Size of Mesh.	Mostly used for	Light. Jap	Light. Gal	Medium Jap	Medium Gal	Strong. Jap	Strong. Gal	Extra Strong. Jap	Extra Strong. Gal
		s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
2½ in.	Hares, Dogs, Poultry	0 3	0 4	0 3½	0 5	0 4½	0 6	0 5½	0 7
2 in.	Game or Poultry Netting	0 3½	0 4½	0 4	0 5	0 5	0 6½	0 6½	0 8
1⅞ in.	Small Rabbits, Hares, &c.	0 4	0 4½	0 4½	0 6	0 5½	0 7	0 7	0 9
1½ in.	Smallest Rabbits ..	0 5	0 6	0 5½	0 7	0 7	0 9	0 9	0 11
1 in.	Pheasantries, &c. ..	0 9	0 11	10½	1 1½	1 3	1 6	1 9	2 0
¾ in.	Aviaries, &c.	1 0	1 3	1 3	1 6	1 6	1 9	..	..

Quantities of 100 yards or upwards delivered free to nearly all the principal Railway Stations and Shipping Ports in England; and 200 yards or upwards delivered free to most parts of Scotland and Ireland.
*** Every description of Netting warranted to give satisfaction, and if not approved will be exchanged, or may be returned unconditionally
IRON HURDLES, CONTINUOUS BAR FENCING, IRON and WIRE FENCING, FENCING WIRE, FIELD and ENTRANCE GATES, GARDEN ENGINES, GARDEN ROLLERS, GARDEN SEATS and CHAIRS, CAST IRON VASES, and every description of HORTICULTURAL and AGRICULTURAL MACHINES, TOOLS and appliances.
Lists Free on application. Every article guaranteed to be satisfactory.
J. B. Brown & Co. Office: 18, Cannon Street, City, London, E.C., nearly opposite St. Swithin's Lane and "London Stone," and near London Bridge.
Warehouse (where Netting is kept in stock), 148, Upper Thames Street, E.C.; opposite the City of London Brewery, and close to the London Bridge Steam Boat Piers.

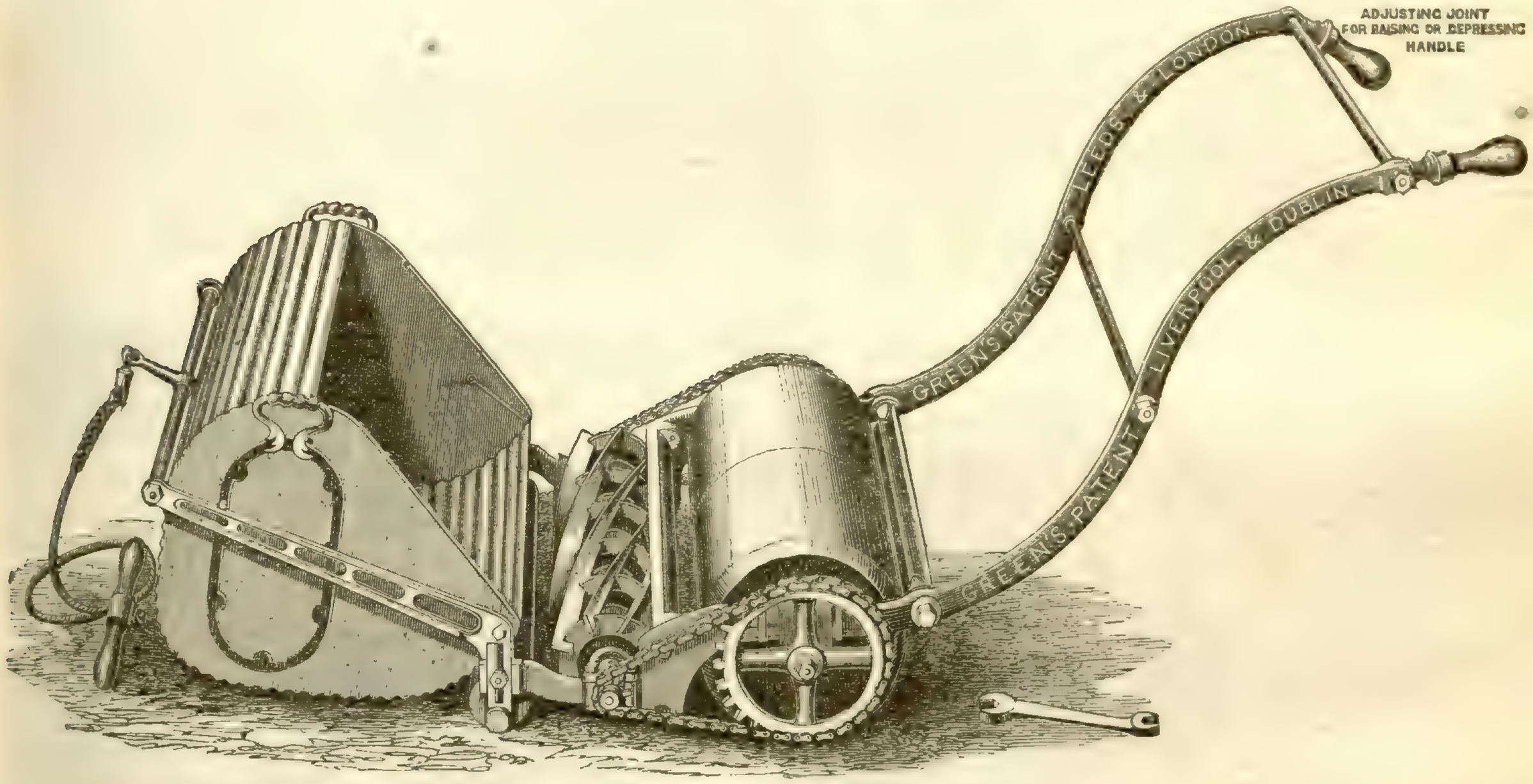
GREEN'S PATENT SILENS MESSOR,

OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

BY SPECIAL APPOINTMENT,
SOLE MANUFACTURER

TO HER MOST GRACIOUS MAJESTY
THE QUEEN.



IMPROVED PATENT LAWN MOWER FOR 1865,

AS RECOMMENDED BY THE JUDGES OF THE ROYAL HORTICULTURAL SOCIETY'S SHOW HELD JULY 20, 1864.

GREEN'S PATENT LAWN MOWERS have proved to be the best, and carried off every Prize that has been given in all cases of competition. The Judges at the Royal Horticultural Society's Show, held July 20, 1864, awarded them a First-class Certificate (no Prizes were given), and, at the same time, suggested a slight alteration, which has been done, and Messrs. T. G. & SON consider their MACHINES now as near perfect as possible.

Messrs. T. G. & SON beg to state that, owing to the great demand for their MACHINES in past years, they have been unable to execute orders with that despatch due to their numerous customers, but are now happy to inform them, that they have made such alterations and arrangements in their premises, whereby they trust to be in a position to send off all orders the day they are received.

PRICES OF HAND MACHINES.

To cut 10 inches	£3 10 0	*Suitable for a Lady.*		To cut 18 inches	£7 10 0	*Suitable for One Person.*
" 12 "	4 10 0	" "		" 20 "	8 0 0	*Suitable for Two Persons.*
" 14 "	5 10 0	*Suitable for One Person.*		" 22 "	8 10 0	" "
" 16 "	6 10 0	" "		" 24 "	9 0 0	" "

Packing Cases are charged at the following low rates, viz.: for the 10 and 12 inches Machine, 3*s.*; 14 and 16 inches, 4*s.*; 18 and 20 inches, 5*s.*; 22 and 24 inches, 6*s.* Parties providing themselves with Lawn Mowers are recommended to purchase the Cases in which to stow them away, when not in use, to prevent them from getting damaged; if returned, two-thirds will be allowed for them.

PRICES of HORSE, PONY, and DONKEY MACHINES, including Patent Self-delivery Box; Cross Stay complete; suitable for attaching to ordinary Chain Traces or Gig Harness.

To cut 26 inches	£13 0 0	*Leather Boots for Donkey*, 18*s.*		To cut 30 inches	£21 0 0	*Leather Boots for Pony*, 22*s.*
" 28 "	15 0 0			" 36 "	24 0 0	
" 30 "	17 0 0			" 42 "	27 0 0	*Leather Boots for Horse*, 26*s.*
				" 48 "	30 0 0	

The 26, 28, and 30 inches can easily be worked by a Donkey, or by Two Men, on an even Lawn, the 30 and 36 inches by a Pony, and 42 and 48 inches by a Carriage Horse; and, as the MACHINES make no noise in working, the most spirited animal can be employed without fear of its running away, or in any way damaging the MACHINE.

Both the HORSE, PONY, DONKEY, and HAND MACHINES possess (over all other Makers) the advantage of self-sharpening: the cutters being steel on each side, when they become dull or blunt by running one way round the cylinder, can be reversed again and again, bringing the opposite edge of the cutter against the bottom blade, when the MACHINE will cut equal to new. Arrangements are made that the cylinder can be reversed by any inexperienced person, in two or three minutes.

The above MACHINES are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England; are warranted to give satisfaction, and, if not approved of, can be at once returned unconditionally.

THOMAS GREEN AND SON,

SMITHFIELD IRON WORKS, LEEDS; 2, FARRINGDON ROAD, HOLBORN HILL, LONDON, E.C.;
19, EDEN QUAY, DUBLIN; and HADWIN'S BUILDINGS, TITHEBARN STREET, LIVERPOOL.

BROWN'S FLORAL SHADINGS.
Prices and samples on application to
Charles Brown, Greenheys, Manchester.

CLAYTON, SHUTTLEWORTH, AND CO., Engineers, Manufacturers of PORTABLE and FIXED STEAM ENGINES, Machinery for Pumping, Hoisting, Grinding, Sawing, &c., Engines for Steam Cultivation, Self Moving Engines for Common Roads and Agricultural Purposes generally.
Stamp End Works, Lincoln, and 78, Lombard Street, London; also at Lowengasse, No. 44, Landstrasse, Vienna; and Gegenüber dem Bahnhof, Pesth.
Descriptive, Illustrated, and Priced Catalogues, Free per Post.
Special Drawings when required.
[*The best Steam Threshing Machinery made.*]

PRIZE ROLLERS for PARKS.
PRIZE ROLLERS for LAWNS.
PRIZE ROLLERS for CRICKET GROUNDS.
PRIZE ROLLERS for GARDENS.
PRIZE ROLLERS for ROADS.
PRIZE ROLLERS for the FARM.

The Best and Cheapest are the PATENT WATER BALLASTING ROLLERS, made only by the Inventors, Ames, Barford, & Co., Queen Street Iron Works, Peterborough, who will forward Price Lists and all particulars on application.

EARTH CLOSETS AND COMMODES.
(Moule's Patent.)
MANUFACTURED SOLELY BY
WHITE & CO.,
29, BEDFORD STREET, STRAND, LONDON, W.C.

The peculiar Advantages of these Closets and Commodes over the ordinary Water Closet are:—

First.—That the deodorising material (dry surface earth, or clay, or other subsoil) is the best for the purpose, and at the same time is the cheapest and within the reach of all classes.

Secondly.—The supply of such material to any house or premises may be much easier than the supply of water by a forcing pump, and its removal after being used may be entirely without offence.

Thirdly.—Its application by the means provided in these Closets is immediate and effective; so immediate that no offensive smell need escape into the room or building in which they are used; and so effective that all fermentation and all escape of noxious gases are entirely prevented.

Fourthly.—The expense of these Closets, in comparison with that of Water-Closets, is, as to the first cost, trifling, and as to repairs almost nothing. For instance, there is no expensive cistern required, and there are no lead pipes to burst in frosty weather.

Lastly.—In all large Establishments, such as Hospitals, Union Houses, Schools, Gaols, and Asylums, a very considerable sum may be saved annually in the production of a valuable manure.

The efficiency of these Closets is so great as to be scarcely credible to those persons who either have not used them or seen their mode of action.

*** *The different forms of Closets may be seen at the address above; and Prospectuses will be forwarded on application.*

JOHN WARNER & SONS, LONDON, MANUFACTURERS.

J. WARNER AND SONS
Have much improved the construction of their
GARDEN ENGINES
in some important particulars for this Season.

They may be obtained of the Trade generally throughout the Kingdom at the following prices:—

No. 547. WARNER'S best ENGINES, in Wood Tubs, and fitted with Warner's Registered Spreaders—

24 Gallons, £6 10s.
14 ,, £5 10s.

No. 547A. WARNER'S strong ENGINES, in Galvanised Iron Tubs, well painted—

10 Gallons	£2	19	0
16 ,,	3	14	0
24 ,,	4	19	0
28 ,,	5	10	0

No. 579½. WARNER'S WATER BARROWS, thoroughly Galvanised and well painted—

20 Gallons	£2	2	0
30 ,,	2	13	0
38 ,,	3	17	0
50 ,,	5	12	0

The 50-Gallon Barrow is made extra strong throughout, and fitted with handle for two men.

No. 568½, AMERICAN ENGINE, is now well known and appreciated. It throws a continuous stream, and is complete in itself. £2 2s.

SYRINGES in great variety, from 7s. 6d. to 18s. 6d.

The DISC SYRINGE, No. 557A, will recommend itself by the ease with which it is filled, and non-liability to get out of order. Price 9s.

WARNER'S AQUAJECT
Is this season first introduced to the notice of horticulturists as possessing the following advantages:—It is simple in construction, portable, and easily worked. It throws a continuous stream, and is low in price.
The Aquaject, 30s.

The small AQUAJECT is the most perfect form of Syringe yet introduced. It throws a continuous stream, with very slight movement, and with it blight, &c., is readily washed from the under side of foliage. 18s.

No. 35. WARNER'S IRON PUMPS for Wells not exceeding 25 feet in depth — 2½-in., 28s. 6d.; 3-in., 41s.; 3½-in., 46s.; short barrel do., 21s.

No. 36. IRON FORCE PUMPS for raising water above their level, or watering yards, gardens, &c., through hose—2½-in., 59s.; 3-in., 65s.; 3½-in., 77s.; 4-in., 89s.

No. 36½. FORCE PUMP on BARROW, recommended for its great portability and simplicity of construction. £5 10s.

No. 42. WARNER'S PORTABLE PUMPS on Folding Legs, are of a superior construction.

Price 55s.; Rubber Suction, 2s. 6d. per ft.

No. 597A. BRANCH PIPES with Cocks and Roses — ½-in., 3s. 6d.; ⅝-in., 5s.; ¾-in., 6s.

No. 599. TAPES BRANCH PIPES—½-in., 4s. 9d.; ⅝-in., 5s. 3d.; ¾-in., 6s.; 1-in., 7s.

RUBBER HOSE in all sizes.

FOUNTAIN JETS in great variety, from 8s. to 25s.

DESCRIPTIVE PRICE LISTS forwarded on application.

HORTICULTURAL TOOLS.—LAWN MOWERS, GARDEN ENGINES and ROLLERS, Tools of all kinds. Improved WIRE NETTING, Prize CHURN, &c. Delivered carriage free.
Price Lists per post on application.
Jeffries & Kay, 95, Newgate Street, E.C. Works: Brentwood, Essex.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society &c.

PROTECTION from COLD WINDS and MORNING FROSTS.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever fixed, a fixed temperature. It is adapted for all horticultural and agricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from blighting frosts. To be had in any required lengths.

Two yards wide .. .. 1s. 9d. per yard run.
Four yards wide.. .. .. .. 3s. 6d. per yard.
An improved make, 2 yards wide .. 1s. 9d. per yard.
An improved make, 3 yards wide .. 2s. 8d. per yard run.

Also "Frigi Domo" Netting, 2 yards wide, 1s. 6d. per yard run.

Elisha Thomas Archer, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, and of all Nurserymen and Seedsmen throughout the kingdom.

"It is much cheaper than Mats as a covering."

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be seen at Work in every Agricultural County in England. For particulars apply to

John Fowler & Co., 28, Cornhill, London, E.C.; and Steam Plough Works, Leeds.

PATENT GUTTA PERCHA SOLES.—Important to Gardeners.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. Glenny, Esq., the celebrated Florist:—

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles.—Your obedient servant, "G. Glenny."

Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Calbotype trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town or country.

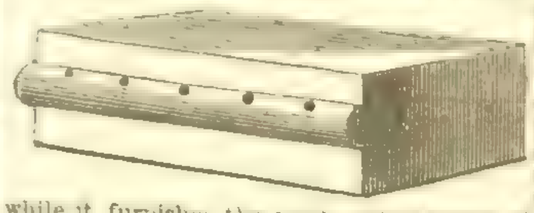
The Gutta Percha Company, Patentees, 18, Wharf Road, City Road, London, E.C

CARTER'S GARDENER'S VADE-MECUM is now ready.

BENJAMIN LAMB, 243, Tottenham Court Road, London, W., Manufacturer of RUSTIC HORTICULTURAL GOODS.—Rustic Fern Stands, Flower Vases, Ornamental Flower Pots, Mignonette Boxes, Stag's-head Brackets, Oak do., Suspending Pots, Crocus do., Glass Shades and Stands. Prices on application.

By Royal Letters Patent.

FOXLEY'S CORRUGATED or BEADED BRICKS for GARDEN WALLS.—The most complete remedy against all the evils attending the present system of Training Wall Fruit Trees, &c. no Nailing required, or Trellis. The plan is very simple and most effective, entirely doing away with all complication, while it furnishes the most perfect means of Training at less cost and trouble than by any other means.



J. Foxley, Patentee, Stoney Stratford, Bucks.
London Agents: Messrs F. & G. Rosher, Old Jamaica Wharf, Upper Ground Street, Blackfriars, S.

AUSTIN, SEELEY, AND CO.'S
Stock now comprises—

206 different kinds of VASES.
94 STATUES and FIGURES of CHILDREN.
70 FIGURES of ANIMALS and BIRDS.
About 200 FOUNTAINS, at prices from £10 to £400.
15 BASKETS from 1 to 10 feet diameter.
17 FLOWER BOXES for WINDOWS, &c.
6 GARDEN SEATS.
22 SUN-DIAL PEDESTALS.
22 ORNAMENTS for GATE PIERS.
And a great variety of BALUSTRADING and PEDESTALS.
369 to 375, Euston Road, Regent's Park, N.W.

Horticultural Agent and Valuer.

MR. A. CHANDLER (of the late Firm of Chandler & Sons, Vauxhall) continues to undertake all VALUATIONS connected with Horticulture.

He is also open to engagements as JUDGE at HORTICULTURAL EXHIBITIONS, having for many years acted in that capacity.
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MR. EDWIN COOLING,
Horticultural Valuer,
Mile Ash, Derby.

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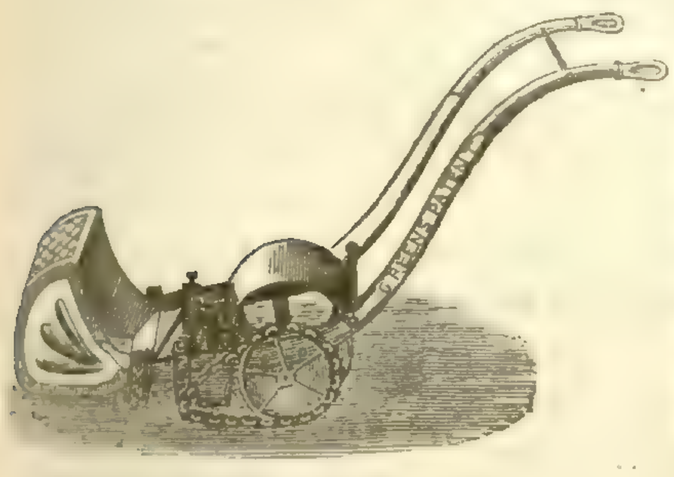
NURSERY BUSINESS to be DISPOSED OF.—An old established Business to be Sold in consequence of the death of the Proprietor. Twenty years Lease of the ground unexpired. For particulars apply to
Mr. R. Pinnock, Newport, Isle of Wight.

Epsom.

TO BE SOLD, with Immediate Possession, the LEASE, STOCK, and GLASS of the old-established EPSOM NURSERY, in consequence of the decease of Mr. George S. Dods, the late Proprietor. The Ground contains about 5 Acres, with Greenhouses and Pits, completely and economically Heated with Hot-water; also the valuable NURSERY STOCK, Greenhouse and Bedding Plants, Seeds, and other effects. The whole may be taken at a valuation.

For particulars apply to Protheroe & Morris, Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

DEANE AND COMPANY'S HORTICULTURAL TOOLS.



LAWN MOWERS.

GREEN'S PATENT | SAMUELSON'S PATENT
SHANKS' PATENT | BARNARD'S PATENT.

DEANE'S MOWING MACHINES, with Patented Improvements, 50s., 70s., 90s., 140s.
GARDEN ENGINES, Galvanised Iron. Prices 55s., 65s., 78s., 90s., 100s., 110s.
GARDEN ENGINES, Wood, 90s., 110s., 138s.
GARDEN ROLLERS, 1l. 10s., 1l. 14s., 2l., 2l. 7s. 6d., 2l. 12s. 6d., 3l. 2s. 6d.
GALVANISED WIRE NETTING, all sizes.
GARDEN SEATS, elegant patterns.
CAST-IRON ORNAMENTAL FLOWER STANDS, to hold Seven Vases, 27s.
GREENHOUSE SYRINGES, 8s., 10s., 18s. 6d.
BOYD'S SELF-ADJUSTING SCYTHE, 10s. 6d.
ORNAMENTAL WIRE WORK, FLOWER STANDS, &c.

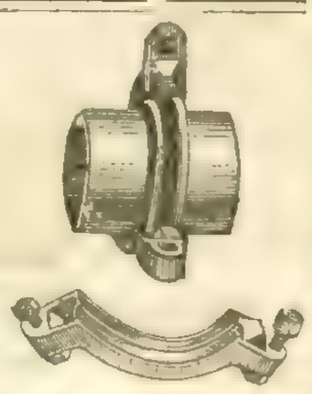
Every Implement for Garden use on the lowest terms.

DEANE'S NEW ILLUSTRATED HORTICULTURAL LIST POST FREE ON APPLICATION.

DEANE AND CO., 46, KING WILLIAM STREET, LONDON BRIDGE, E.C.

HOT-WATER APPARATUS,

WITH TRUSS'S PATENT PIPE JOINTS.



T. S. TRUSS, C.E.,

53, GRACECHURCH STREET, LONDON, E.C.

By means of these Joints the work is executed in less than half the time required for Socket Joints, and alterations can at any time be made, or the entire Apparatus removed and erected elsewhere with the greatest facility. A considerable saving in cost is also effected.

These Joints have been used for several years, giving entire satisfaction, and may be seen in use at the Royal Horticultural Society's Gardens, Chiswick, and many other places in Horticultural and Public Buildings. They are also exhibited at the Society's Gardens, South Kensington.

For a few prices, see last week's Advertisement.

ESTIMATES, PLANS, AND PRICE LISTS FORWARDED ON APPLICATION.

HOTHOUSES FOR THE MILLION.

AWARDED A PRIZE MEDAL, 1862.

INVENTED AND PATENTED BY

SIR JOSEPH PAXTON, M.P.

Manufactured for the Agent, in London; Newton in Cartmel, Lancashire; Gloucester, Coventry, Aberdeen, and Paisley ONLY.

"Nothing can be more easy than to build them, nothing more simple than to remove them."—*Daily News*, May 22, 1862.

COMBINE SIMPLICITY, CHEAPNESS, AND DURABILITY.

FULFIL ALL THE REQUIREMENTS OF HORTICULTURE.

SPAN-ROOF HOUSES, with two ends and doors, can be supplied, Painted and Glazed, ready for fixing, 21 ft. by 16 ft., 32l.; 42 ft. by 16 ft., 54l.; 54 ft. by 19 ft., 88l.; 64½ ft. by 22 ft., 130l., &c., &c.

ILLUSTRATED CIRCULARS, with Prices, can be had on application to

SAMUEL HEREMAN, Agent, 7, PALL MALL EAST, LONDON, S.W.

A HANDBOOK of VINE and FRUIT TREE CULTIVATION, as adapted to the above Patent Hothouses, may be had of Mr. Hereman. Second Edition, price 1s.; post free, 1s. 1d.

Sales by Auction.

Lilium auratum and L. Thunbergianum from Japan.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, May 4, at half-past 12 o'clock precisely, several thousand sound BULBS of LILIUM AURATUM, LILIUM THUNBERGIANUM, and other varieties, in first-rate condition, from Japan. For Sale without the least reserve.

On view the Morning of Sale, and Catalogues had.

Sale of first-class Carnations, Picotees, and Pinks, Standard Roses, Fruit Trees, &c.

MESSRS. PROTHEROE AND MORRIS will SELL, at the City Auction Rooms, 38 and 39, Gracechurch Street, City, E.C., on WEDNESDAY, April 26, at 12 for 1 o'clock precisely, a first-class Collection of CARNATIONS, PICOTEES, and PINKS, from a celebrated Grower; a choice Assortment of Standard and Dwarf ROSES, fine AZALEA INDICA, and other Plants in bloom; selected AMERICAN PLANTS, FRUIT TREES, some fine Bulbs of LILIUM LANCIFOLIUM RUBRUM, VERBENAS, FUCHSIAS, DAHLIAS in dry roots, &c.

On view the Morning of Sale. Catalogues may be had at the Rooms as above, and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

Sale of the Magnificent Collection of
Azaleas, Greenhouse and other Plants, Greenhouses, Garden Lights, &c.,
The Property of Mr. James Chaffin.

MESSRS. BECKET AND SONS have the honour to announce that they are favoured with instructions from Mr. Chaffin, who is leaving the Premises, to SELL by AUCTION, (without reserve), at the Garden adjoining St. Saviour's Church, Larkhall, Bath, on WEDNESDAY, May 3, and two following days, commencing each day at 12 o'clock precisely, the whole of his Valuable and Choice COLLECTION of GREENHOUSE and other PLANTS, comprising 60 Superb Specimen Azaleas, including those magnificent Plants, of exquisite growth and symmetry, which obtained the Gold Medal at the Royal Botanic Society's Exhibition, Regent's Park, 1864, and for many years past the First Prize at the Bath Floral Fêtes; 50 Half Specimen Azaleas, in the highest state of cultivation; 50 smaller size ditto, all finely flowered; 50 Specimen Pelargoniums, 200 Half-specimen ditto, and 1000 smaller size ditto, of the very best and newest sorts. 200 Specimen and Half-specimen Fuchsias, embracing the leading Exhibition varieties. A small but choice collection of Camellias. A beautiful assortment of upwards of 100 Specimen Roses in Pots, set with Bloom. Several Thousand Bedding Plants. Four capital Greenhouses, one of which (27 ft. long, and 24 ft. wide), fitted with Hot Water Apparatus, has only been recently erected. Slate Cisterns, Garden Lights, &c.

On view the day preceding the Sale, from 10 o'Clock till 4, and Catalogues (6d. each) may be obtained one week previous on application to the Auctioneers, 10, Quiet Street, Bath.

Important Sale of Greenhouse Plants, Vines in Pots, and Bedding Plants,
Great Bealings Place, near Woodbridge, Suffolk.

MR. ALFRED RODD, Successor, &c., will SELL by AUCTION, upon the Premises, by direction of John Newson, Esq., who is leaving, on WEDNESDAY, May 10, at 12 o'Clock, some fine specimen AZALEAS, CAMELLIAS, ORANGE TREES, NERIUMS, CORONILLAS, &c.; a few Stove Plants; 20 Grape Vines with ripe fruit; 40 year-old Vines; and upwards of 7000 Bedding Plants, all in fine condition.

Catalogues of the Gardener upon the Premises; at the Crown and Anchor and White Horse Inns, Ipswich; Bull Inn, Woodbridge; and of the Auctioneer, Rochford, Essex.

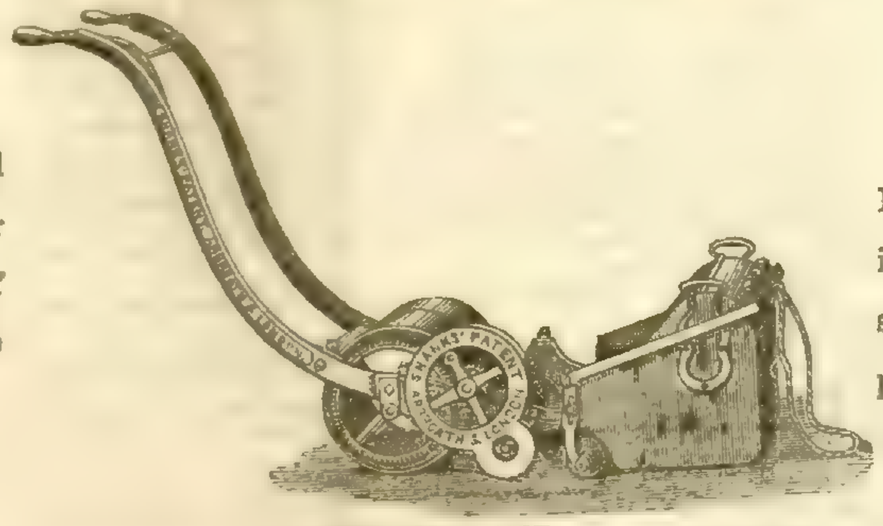
SHANKS' NEW IMPROVED PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1865.

PATRONIZED ON FIVE SEPARATE OCCASIONS DURING THE SEASON OF 1864 BY

HER MAJESTY THE QUEEN.

Alexander Shanks & Son are gratified to find that in the large and increasing demand for their celebrated MACHINES, they receive a conclusive proof that their merits are every season becoming more appreciated by the Practical Gardener.



HAND MACHINE.

A. S. & Son, in introducing Improvements into their MACHINES, have been careful that the advantages in point of durability, simplicity of construction, and superiority in the work executed, which have all along been peculiar to SHANKS' MACHINES, should still remain.

SHANKS' PATENT LAWN MOWERS are in daily use in the ROYAL GARDENS at KEW, WINDSOR, BUCKINGHAM PALACE, HAMPTON COURT, OSBORNE, and BALMORAL; in the GARDENS of the ROYAL HORTICULTURAL SOCIETY at KENSINGTON; in the GROUNDS of the CRYSTAL PALACE COMPANY at SYDENHAM; in VICTORIA PARK; in BATTERSEA PARK; and in many hundreds of the principal Gardens in the Kingdom, as well as abroad, where their merits have been fully proved and their success established.

PRICES—including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom.

SHANKS' NEW PATENT HAND MACHINE for 1865.

Width of Cutter.		
10-inch Machine	£3 10 0	*Easily Worked by a Lady.*
12-inch Machine	4 10 0	
14-inch Machine	5 10 0	*Ditto by a Boy.*
16-inch Machine	6 12 6	*Ditto by a Man.*

Silent Movement for the five smallest sizes, 4*s.* extra; for the other sizes, 7*s.* 6*d.* extra.

SHANKS' NEW PATENT HAND MACHINE for 1865.

Width of Cutter.		
19-inch Machine	£7 12 6	*Easily Worked by a Man and Boy*
22-inch Machine	8 7 6	*Ditto by Two Men.*
24-inch Machine	8 17 6	

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus
25-inch Machine	£12 10 0	25*s.* extra.
28-inch Machine	14 10 0	30*s.* „
30-inch Machine	15 15 0	30*s.* „

Silent Movement, 12*s.* 6*d.* extra; Boots for Pony, 21*s.* per set; Ditto for Donkey, 16*s.* per set.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus
30-inch Machine	£19 0 0	30*s.* extra.
36-inch Machine	22 0 0	30*s.* „
42-inch Machine	26 0 0	40*s.* „
48-inch Machine	28 0 0	40*s.* „

Silent Movement, 20*s.* extra; Boots for Horse's Feet, 24*s.* per set.

A. S. & Son have pleasure in submitting the following List from among the hundreds of distinguished individuals, both in this country and abroad, whose patronage they have had the honour to receive:—

HER MOST GRACIOUS MAJESTY THE QUEEN,

For the Royal Gardens at Kew, Windsor, Buckingham Palace, Hampton Court, Osborne, and Balmoral.

HIS MAJESTY THE EMPEROR OF THE FRENCH
HIS MAJESTY THE KING OF SAXONY
HIS ROYAL HIGHNESS THE PRINCE OF PRUSSIA
HIS GRACE THE ARCHBISHOP OF CANTERBURY

His Grace the Duke of Bedford
His Grace the Duke of Newcastle
His Grace the Duke of Marlborough
His Grace the Duke of Rutland
His Grace the Duke of Sutherland
His Grace the Duke of Buccleuch
His Grace the Duke of Devonshire
His Grace the Duke of Leinster
His Grace the Duke of Athole
His Grace the Duke of Norfolk
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His Grace the Duke of Argyll
His Grace the Duke of Northumberland
His Grace the Duke of Roxburghe
His Grace the Duke of Wellington
His Grace the Duke of Buckingham
The Most Hon. the Marquis of Normandy
The Most Hon. the Marquis of Bute
The Most Hon. the Marquis of Winchester
The Most Hon. the Marquis of Exeter
The Most Hon. the Marquis of Breadalbane
The Most Hon. the Marquis of Westminster
The Most Hon. the Marquis of Lansdowne
The Most Hon. the Marquis of Stafford
The Most Hon. the Marquis of Kildare
The Most Hon. the Marquis of Abercorn
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The Most Hon. the Marquis of Ailsa
The Most Hon. the Marquis of Tweeddale
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The Right Hon. the Earl of Meath
The Right Hon. the Earl of Leicester
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The Right Hon. the Earl of Abergavenny
The Right Hon. the Earl of Morley
The Right Hon. the Earl of Durham
The Right Hon. the Earl of Lauderdale
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The Right Hon. the Earl of Northesk
The Right Hon. the Earl of Glasgow
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The Right Hon. the Earl of Aberdeen
The Right Hon. the Earl of Aberdour
The Right Hon. the Earl of Ashburnham
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The Right Hon. the Earl of Galloway
The Right Hon. the Earl of Hopetoun
The Right Hon. the Earl of Mansfield
The Right Hon. the Earl of Milltown
The Right Hon. the Earl of Selkirk
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The Right Hon. the Earl of Zetland
The Right Hon. the Earl of Minto
The Right Hon. the Earl of Kintore
The Right Hon. the Earl of Seafield
The Right Hon. the Earl of Southesk
The Right Hon. the Earl of Kinnoul
The Right Hon. the Earl of Airlie
The Right Hon. the Earl of Bessborough
The Right Hon. the Earl of Brownlow
The Right Hon. the Earl of Howe
The Right Hon. the Earl of Lindsey
The Right Hon. the Earl of Rothes
The Right Hon. the Earl of Ranfurly
The Right Hon. the Earl of Strathmore
The Right Hon. the Earl of Rosslyn
The Right Hon. the Earl of Harrowby
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THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 17.—1865.] SATURDAY, APRIL 29. {Price Fivepence. STAMPED EDITION, 6*d*.

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ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON.
The FLORAL and FRUIT COMMITTEES will meet on TUESDAY NEXT, the 2d of May, at 12. Scientific discussion at 3. Admission 1s.

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HANDSWORTH HORTICULTURAL SOCIETY, 1865. OPEN TO ALL THE WORLD.
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ALEXANDER FORREST, Queen Chambers, Cherry Street, Birmingham.

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High Beech, Essex.
JAMES CRAWFORD begs to inform his Patrons and the Public generally that he has RESIGNED his BUSINESS to JAMES DICK and THOMAS FINCH, who intend carrying it out in every branch.
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Startler (Keynes')	Mrs. Reid (Eckford's)

Salisbury.—April 29.

JOHN HOLLAND begs to intimate to his friends and patrons that he has TAKEN into PARTNERSHIP his Son-in-Law Mr. FREDERICK JONES. That the Business will in future be continued by the Firm of HOLLAND & JONES, Bradshaw Gardens, Chadderton, near Manchester.

CATALOGUES of FLORIST FLOWERS, ROSES, FRUIT TREES, &c., on application.

HOLLAND AND JONES have ready for delivery a large and Choice Collection of

CARNATIONS, fine first-class show varieties, 9s. to 18s. per doz. pairs.
PICOTEES, " " " 9s. to 18s. " "
YELLOW GROUND PICOTEES, the largest collection in Europe, 9s. to 18s. per dozen pairs.
BORDER CARNATIONS and PICOTEES, 6s. per dozen pairs.
PANSIES, good varieties, 4s. to 6s. per dozen plants.
The Heaviest LANCASHIRE SHOW GOOSEBERRY TREES, 3 and 4 years old, 4s. to 6s. per dozen.

A remittance required from unknown correspondents.

American Plants.

AS EXHIBITED IN THE ROYAL HORTICULTURAL GARDENS, KENSINGTON.

WATERER AND GODFREY'S PRICED and DESCRIPTIVE CATALOGUE of RHODODENDRONS and other AMERICAN PLANTS will be forwarded on application. The Catalogue also gives a GENERAL Summary of their Stock, which contains probably the most extensive choice of all the Hardy and finest Evergreens and Conifers.

Knap Hill Nursery, Woking, Surrey.

New Dahlias.

JAMES COLLIER begs to announce that he intends sending out early in May the following NEW DAHLIAS. Received Eight Certificates at Crystal Palace, Brighton, &c.

A LIST with full descriptions can be had on application.

PRINCESS ALEXANDRA, rich orange, striped with bright crimson.
MISS BUTLER, creamy white, tipped with rosy purple.
ANNIE, maroon crimson, tipped with white.

131, Gosset Street, Hart's Lane, Bethnal Green Road, London, E.

J. LINDEN'S CATALOGUE for 1865 is just published, and contains many splendid Novelties, among which we mention the following New Introductions:—

Anthurium magnificum	Cissus amazonica
Asplenium alatum	Coccocypselum metallicum
" philippense	Franciscea Lindeniana
Asterostigma zebrina	Maypa fastuosa
Begonia magnifica, extra fine plants for the open ground	Pteris leucophylla
Calathea pavonina	Rogiera gratissima
	Spherogyne cinnamomea

Also several New Cattleyas, Lælias, Odontoglossums, &c.
Usual Discount to the Trade.

Apply for this Catalogue to J. LINDEN'S Agents in London, Messrs. R. SCHERRAD & SON, 5, Harp Lane, Great Tower Street, E.C.
Brussels Royal Zoological and Horticultural Gardens.—April, 1865.

To Noblemen and Gentlemen.

LAPAGERIA ROSEA to be DISPOSED OF, a splendid Plant in tub, measuring 7 feet high, 2½ feet through, in fine condition.

On view at W. H. PEACE, Esq., 13, Gloucester Villas, Warwick Road, Maida Hill, W.; or particulars can be had of Messrs. JAMES CARTER & Co, Seedsmen, 237 and 238, High Holborn, W.C.

RICHARD SMITH'S SEED CATALOGUE contains a Calendar of Time for Sowing, particulars of Collections, with Prices, Directions for Cropping well and economically, Soil, Manure, Depth, Distance, Season, Hardiness, Duration, Form, Height, Colour, Storing, Use, Flavour, and other qualities described. This List Free by return post on receipt of one stamp. Seeds direct from the Growers the surest way to success.

RICHARD SMITH, Seed Merchant, Worcester.

E. G. HENDERSON & SON'S

SPRING CATALOGUE FOR 1865

WILL BE PUBLISHED EARLY IN MAY, AND FORWARDED POST FREE ON APPLICATION.

NEW PLANTS FOR 1865.

Messrs. E. G. HENDERSON & SON have much pleasure in calling the attention of Amateur Cultivators and others to the following NOVELTIES possessing great merit, and which will prove as valuable acquisitions for the Flower Garden as many others they have previously sent out. Among the eminent Raisers from whom they have purchased the property or stock of each, are the following, many of whom stand foremost in their special attention to the individual flowers to which their names are prefixed, and are sufficiently known to cultivators generally to inspire a reliant confidence in their respective merits:—

FUCHSIAS	EDWARD BANKS, Esq.
VERBENAS	Mr. WILLS, Mr. EDMONDS, EVANS, and Others.
VARIEGATED GERANIUMS	Mr. GRIEVES.
TROPÆOLUMS	Mr. KERLER and Mr. GEORGE.
ZONALE and NOSEGAY GERANIUMS	SPARY & CAMPBELL and Mr. TAYLOR.
WHITE PERFECTION GERANIUM	Mr. CHATER.
PETUNIAS	Mr. GRIEVES.
LOBELIA ERINUS	Mr. PEARCE.
BEDDING DAHLIAS	Mr. PEARCE.
CHRYSANTHEMUMS	Mr. GEORGE and Messrs. SPARY & CAMPBELL.
ANTIRRHINUM, CHEIRANTHUS, THUJA, DELPHINIUMS	CONTINENTAL PROTECTION.

New Fuchsias for 1865.

LIGHT HEART	FATHER IGNATIUS	WAR EAGLE,
LUCY MILLS	ENOCH ARDEN	ROSE of DENMARK
The VILLAGE PET	LADY of the SEA	RODERICK DHU

CONSOLATION.

Centaurea ragusina compacta.

This very effective and beautiful plant is an improved form of the well-known C. ragusina (syn. C. candidissima) in being a variety of much neater growth, and, as its name implies, of a more compact dwarf habit. It differs from its prototype in having shorter and comparatively broader leaves, not so coarsely and deeply lobed at the margin, the terminal lobe also being rounder. One most desirable and prominent distinction from the original species consists also in its purer white leaf surfaces, the under as well as the upper one, by which it yields a very beautiful silvery feature and contrast with opposite dark green and chocolate-coloured leaf-tints. It is also free from the wide spreading outline of the leaves observed in the mature summer growth of C. ragusina. This desirable plant by its greater adaptation for ribbon rows and marginal effect in border culture, apart from its snowy whiteness in warm seasons, will eventually supersede the older kind hitherto used in flower gardens.

New Dwarf Belting Verbenas.

Type "VELVET CUSHION."

The following varieties are comprised in the new section of Verbenas, hybridised with V. venosa, and distinguished by its sub-perennial habit, and neat dwarf style of growth, of which the variety sent out last season as "Velvet Cushion" is the type, and which was universally admired for its attractive features and adaptation for front belts, ribbon rows, &c. The improved constitution wrought into these varieties by alliance with a hardier species, will intimately produce the desirable results of diminishing the too prevalent scandent habit, and exuberant leaf-growth, by the production of a denser growth peculiar to many perennial species. Those now offered will be found valuable for garden decoration, where a more compact habit is required for extensive front margins, belts, or curved outlines, &c.

ORIEL | CORDELIA | HELENA | JULIET.

New Lobelias.

PRINCE ALBERT.—A beautiful dwarf bedding variety, in the section of L. speciosa Paxtoni, having a better constitutional habit for continuous growth and bloom; its more robust and compact growth, with rich glossy green foliage, is literally covered by its profusion of large bright azure-blue flowers with a conspicuous large white centre, throughout the summer and early autumn. For decorative effect in medium beds or groups, broad margins, and extensive front ribbon lines, this is the best variety in its section yet offered. Each, 1s.; 12 plants, 9s.; 100 plants, 50s.

PRINCESS ALEXANDRA.—This is equal to the foregoing in growth, beauty, and effect, forming a densely compact habit, yielding a fine effect in contrast with the blue ones, or any other of uniform growth and opposite colour. As a white-flowered variety it is admirably adapted for extensive margins, ribbon lines, and groups. For front effect to edgings of dwarf Heath, or evergreen shrubs of similar dwarf style, it is a beautiful and appropriate plant; and the best white broad-lobed variety of L. speciosa. Each, 1s.; 12 plants, 9s.; 100 plants, 50s.

New Dwarf Tropæolums.

The following fine varieties are Seedlings of 1863, and have thus been tested by the growth of two successive years. Many of the varieties hitherto have been but the mere seminal productions from well-known kinds, and prematurely sold as distinct and permanent in habit. The two first offered have the strain of T. elegans in constitution, and of T. Tom Thumb in growth, retaining their remarkably dwarf, compact, and vigorous habit throughout the summer months, without deviation of growth or bloom, colour, or effect. The leaves never rise above an average and uniform height, and the bloom being alike in profusion and continuance throughout the whole season.

T. COMPACTUM COCCINEUM.—Habit of growth uniform with the foregoing, equally vigorous and compact; stems tinted red, leaves small dark green, obscurely pilose or hairy on the under surface; flowers growing scarlet self colour, good form, style of T. Eclipse, but larger, expanding uniformly and in profusion, forming very beautiful patches of 12 or more inches across, and producing a brilliant effect by a rich contrast to darker crimson varieties, or colours to match in extensive ribbon rows, belts or margins, beds or borders in select flower gardens, or extensive terrace groups. For decorative purposes it exceeds all other varieties of a similar habit, in its remarkably close and miniature habit of growth, filling up to the centre, and yielding a long continued succession of bloom. Admirably adapted for reserve and succession beds of scarlet, throughout the summer and early autumn months. Each 1s.; if 12 plants, 9s.; if 100 plants, 50s.

T. COMPACTUM LUTEUM.—Forms a densely low and almost level circular style of growth, from 6 to 8 inches in height, short jointed and vigorous, leaves comparatively small, light green, stems slightly hairy, flowers brilliant orange-yellow, with picturesque crimson spots in centre, rising in profusion just above the leaves. It is finely adapted for decorative effect in extensive ribbon rows, and medium sized beds, groups, &c. Each, 1s.; if 12 plants, 9s.; if 100 plants, 50s.

ELEGANTISSIMUM.—This fine variety is an improvement upon the well known T. Eclipse and Elegans, being brighter in colour than the former, and the profusion of bloom rising well above the foliage being combined with a dwarfer growth, and smaller leaf. Unlike T. elegans the plants are more easily preserved over winter. The prolific bloom, good form, and low habit will prove, it to be valuable for general decoration in beds, ribbon rows, beds, or border groups. Each 5s.

New Anemone-flowered Pompon Chrysanthemums.

PRINCESS DAGMAR. | MRS. CAMPBELL.

Miniature-flowered Fuchsia.

FAIRY.

Cheiranthus Marshallii variegata.

A very elegant dwarf suffruticose evergreen half-hardy herbaceous plant, 4 to 6 inches in height, forming a very neat and compact line or crown of sub-erect spathulate-lanceolate leaves, 2 to 3 long, by one-third of an inch broad, which are uniformly bedecked golden yellow. As a decorative plant it is one of the most interesting and permanent forms of variegation amongst herbaceous plants, well adapted by its lively aspect for blending with low plant-groups in the cool Greenhouse or Conservatory, where it forms a pretty feature in contrast with the rich verdure of others.

New Double Antirrhinum,

GENERAL LEE.

New Bedding Dahlias.

TOUCHSTONE | GLADIATOR | TROUBADOUR

Variegated Geraniums.

SILVER STAR	PRINCESS DAGMAR	BICOLOR SILVER DENS
RED ROVER	CINDERELLA,	MRS. LONGHURST
TWILIGHT	QUEEN of NOSEGAYS	

MRS. MAXWELL HUTTON.

Double-flowered Petunias.

PÆONY-FORMED type, "PRINCESS of WALES."

MRS. BOFFIN	WARRIOR
CENTURION	DANE JOHN
TWILIGHT	OUR MUTUAL FRIEND
DICK TURPIN	GIPSY GIRL.

Epacris hyacinthiflora fulgens.

A beautiful variety of the well-known type of E. hyacinthiflora, large Hyacinth-like flowers, with a more freely-branched habit, an improvement in its style of growth, and corresponding free bloom. Its rich-coloured flower tubes (colour of E. coccinea Vicomtesse Hill) being produced in more compact spike-like [illegible] during the spring and early summer months, it forms a desirable addition to one of the most valuable sections of spring-flowering greenhouse plants.

Verbena Lady Binning.

A first-class bedding variety, and the leading flower for extensive decoration of the present year. Colour a very brilliant shade tinted scarlet, with a conspicuous creamy-white centre; free in fine average-sized, full-centred, and well-expanded truss. Habit of growth compact, with a profusion of bloom. Proved of the highest merit by receiving a First-class Certificate from the Floral Committee of the Royal Horticultural Society, and forming the [illegible] feature of attraction in Verbenas at the Oulton Park Gardens [illegible] the past summer.

New White Bedding Geranium,

WHITE PERFECTION.

E. G. HENDERSON & SON respectfully offer the above-named variety of Zonale Geranium, of which they have purchased the entire stock of Mr. J. F. Chater, of Braintree, who forwarded plants of it to the Gardens of the Royal Horticultural Society in the summer of 1864, for trial in competition with other white-flowered varieties, the opinion of the Floral Committee of the Society, which was in favour of its high merit is given below. Two extra Certificates also awarded to it in consideration of its superior quality exhibited by Mr. Chater during the past summer.

The most desirable features in White Perfection consist in its less exuberant and more slender growth than is found in other varieties allied to the type of Madame Vaucher, as indicated by smaller leaves and dwarf freely-branched habit of the [illegible].

Its more obvious features of difference from others in the section are also seen in the remarkably rich vernal-green colour of the foliage, and by the broad medium brown leaf zone bounded by a narrow, yet distinct outer margin of the same tint. These features will be readily admitted as the most [illegible] for garden effect and contrast, between the masses of snow bloom above, and the rich emerald-green verdure beneath. [illegible] commended as a valuable variety for garden groups and beds, as [illegible] as for terrace-decoration in vases, and for pot-culture in cool [illegible] tories, where it produces a succession of bloom during the [illegible] and autumn months.

The following decision is quoted from the published report of the Floral Committee upon the merits of Geraniums tested in the Horticultural Gardens at Chiswick:—

"GERANIUM 'WHITE PERFECTION', * * * J. F. C.—This is of first-class quality, as indicated by the above triple name; flowers being pure white, of good shape, and thrown well up.

"Among White Geraniums, the best is Perfection, a variety of good habit."—Report in *Gardeners' Chronicle*.

Cultivators having had repeated opportunities of seeing it whilst growing in the Royal Horticultural Society's Gardens, [illegible] thus of it: "A very free bloomer, with good trusses of a very white, more so than Madame Vaucher, and differing from that in its habit, being more slender, and less gross in growth."

Thuja plicata pygmæa.

A neat dwarf densely branched variety of Arbor-vitæ, from 12 inches in height, having a remarkably robust and compact [illegible] with brown tinted stems in the mature growth, and rich [illegible] plicately formed upper branches. Well adapted for [illegible] select collections of Conifers and Arboretums generally, [illegible] well with the distinct yet miniature forms of Abies and [illegible] either in miscellaneous groups, or as parallel specimens in [illegible] metrical angles of pleasure ground designs. 21s. each.

THE WELLINGTON NURSERY, ST. JOHN'S WOOD, LONDON, N.W.

NEW AZALEA INDICA "STELLA."

This magnificent NEW AZALEA, universally acknowledged to be the finest variety ever offered for Sale, has received the following Awards:—

FIRST-CLASS CERTIFICATE, ROYAL HORTICULTURAL SOCIETY, SPRING 1864.
FIRST-CLASS CERTIFICATE, ROYAL BOTANIC SOCIETY, SPRING 1864.
FIRST-CLASS CERTIFICATE, ROYAL HORTICULTURAL SOCIETY, March 25, 1865.
FIRST-CLASS CERTIFICATE, ROYAL HORTICULTURAL SOCIETY, April 4, 1865.
FIRST-CLASS CERTIFICATE, ROYAL HORTICULTURAL SOCIETY, April 15, 1865.

The flowers are large, of fine substance and perfect form, of a bright orange-scarlet colour, with a rich violet stain on the upper segments of the corolla, where it is also profusely spotted with lake.

Good Plants, 31s. 6d. each.

OPINIONS OF THE PRESS.

"A beautiful variety, quite the gem of the season."—*Proceedings Royal Horticultural Society*, 1864, vol. iv.

"From Mr. Veitch came the magnificent Azalea Stella."—*Proceedings Royal Horticultural Society*, 1865, vol. v.

"Great admiration was bestowed upon Mr. Veitch's new Azalea Stella."—*Proceedings Royal Horticultural Society*, 1865, vol. v.

"The splendid new violet-blotched orange-scarlet Azalea Stella in fine bloom came from Mr. Veitch.—*Gardeners' Chronicle*, April 1, 1865.

"Azalea Stella, from Mr. Veitch, was very conspicuous."—*Journal of Horticulture*, April 11, 1865.

JAMES VEITCH, ROYAL EXOTIC NURSERY, CHELSEA, S.W.

EXTRA IMPROVED TURNIP SEED.

THOMAS KENNEDY & CO.

HAVE THIS SEASON A FAIR SUPPLY OF THEIR

EXTRA IMPROVED VARIETIES OF TURNIP SEED,

Carefully grown from their own Selected Stock; but as the peculiar merits of these are every year becoming better known and appreciated, it is possible that the present supply may fall short of the demand, as was the case last season; and to prevent any disappointment, they take this early opportunity of reminding their regular customers that they may secure in good time what they are likely to require.

T. K. & Co. have, in addition to these, a large stock of the Ordinary Varieties of TURNIP SEED of very superior quality.

A CATALOGUE, containing PRICES of TURNIP and other FARM SEEDS, will be furnished on application.

Free Delivery as formerly.

DUMFRIES.—April, 1865.

BARR & SUGDEN
12 KING ST. COVENT GARDEN

SEED AND PLANT MERCHANTS.

Orders amounting to 21s. sent Carriage Paid.

Mr. BULL's peculiar Strain of AURICULA-EYED VERBENA, comprising nearly every shade of colour: rich claret, puce, maroons, brilliant vermilion, &c. Mr. BULL from this Strain has from time to time sent out very many superb varieties. The seed we offer is Mr. BULL's own saving, and is certain to produce fine flowers. 3s. 6d. per packet.

Mr. BULL's selected Strain of ZONALE PELARGONIUMS, embracing all the newest colours, 2s. 6d. per packet.

Mr. BULL's selected Strain of MIMULUS MACULOSUS, embracing the most beautifully spotted varieties, 1s. per packet.

LILIUM AURATUM, Third Consignment this season from Japan.
3s. 6d., 5s. 6d., and 7s. 6d. each.

GLADIOLI, Surplus Stock.
50, in 50 beautiful varieties, 21s.; 25, in 25 do., 10s. 6d. Varieties for Massing, 2s., 3s., and 4s. per dozen; 10s. 6d., 15s. 6d., and 21s. per 100.

FLOWER SEEDS, Hardy, Half Hardy, or Tender, in Collections, Post Paid.
3s. 6d., 5s. 6d., 7s. 6d., 10s. 6d., to 21s.

VEGETABLE SEEDS, in Collections, Carriage Paid, 21s. and upwards.
10s. 6d., 15s. 6d., 21s., 42s., to 63s.

FINE LAWN GRASS SEED, for Renovating or Laying Down New Lawns, 1s. per lb.

FARM SEEDS amounting to 21s. and upwards sent Carriage Paid.

Agents, Wholesale and Retail, for London and Home Counties for

STANDEN'S "GARDENERS' AND AMATEURS' FRIEND."

(*The long-sought desideratum for Flowers, Fruits, and Vegetables.*)

Sold in Canisters, at 1s. 3d. and 2s. 6d.

The "Gardeners' and Amateurs' Friend" is a highly Concentrated Inodorous Artificial Manure, far surpassing in value any article of this description hitherto introduced; its effect is extraordinary in promoting a healthy vigorous growth in Camellias, Azaleas, Franciscеas, Ixoras, Boronias, Eriostemons, Polygalas, Dipladenias, Pimeleas and Orchids, also for all other Greenhouse and Stove Plants in general. For Fruit Trees in pots, Vine Borders, Lawns, Pleasure Grounds and Kitchen Garden Crops, the "Gardeners' and Amateurs' Friend" is invaluable.

In addition to the high Testimonials in a previous Advertisement, we may add an extract from a letter received from "ALPHA":—

"When Standen's Manure first came under my notice, I was anxiously engaged in pushing on a collection of Azaleas for exhibition. I applied it to one of these, which was in a hard and stunted condition, and it soon wrought a surprising improvement in the plant. I have since repeatedly used it in growing Azaleas. I apply it first when they begin to push their bloom buds, and again when they are placed in the house where they are to make their growth, which will be about two months after the first application. In the autumn, if a plant does not show its bloom buds to my mind, I give it another half dose. To Camellias I apply it in about the same proportions, and at the same stages of growth, while to Pimeleas, Eriostemons, Polygalas, and other strong-growing hard-wooded greenhouse plants I give it only once in the season, just as they are starting into growth, while half the quantity is probably as much as a Boronia will require. To Ixoras and Franciscеas I give it in larger doses. I think half as much more than Azaleas or Camellias require is perfectly safe for these. I also administer it to Ixoras when they are starting into growth, and again as soon as they are fairly set for bloom. Allamandas should be dosed after they are set for bloom (giving it earlier would probably cause them to grow too woody), so with Dipladenias, but these should not have too large a dose at once. I have also used it upon many other stove plants, and proved it to answer admirably. Although it is perfectly suitable for many soft-wooded plants, I would recommend that it should be given to these in small quantities. I used it in small quantities for many Orchids, and never found that it injured them; indeed they all seemed to enjoy it much. I have never made much use of it, save for plants in pots, but I have watered Vine-borders with it just as the Grapes were beginning to colour, and have no doubt about its value for these. For Roses and all kinds of Vegetable Crops which require abundance of manure it will, I think, be found all that can be wished.

"ALPHA"

BARR AND SUGDEN, SEED MERCHANTS, 12, KING STREET, COVENT GARDEN, W.C.

HOOPER AND CO. offer healthy and strong plants of the following NEW and RARE FERNS, at the affixed low prices:—
ADIANTUM TINCTUM, 5s. each.
ATHYRIUM FILIX FŒMINA PLUMOSUM (most lovely), 3s. 6d. to 7s. 6d. each.
ATHYRIUM FILIX FŒMINA VERNONIÆ 5s. each.
POLYSTICHUM ANGULARE PLUMOSUM, 15s. each.
Covent Garden Market, London, W.C.

New Plants now ready for Sale.

AMBROISE VERSCHAFFELT, NURSERYMAN, Ghent, Belgium, begs to offer the following Novelties:—

	£	s.	d.
STOVE PLANTS.			
ABUTILON VEXILLARIUM (tricolor), strong	0	8	0
AMORPHOPHALLUS NIVOSUS (so much admired at the Grand Show of Brussels)	0	12	0
SMILAX MACROPHYLLA MACULATA	0	16	0
GREENHOUSE PLANTS.			
CAMELLIA ARCHIDUC ETIENNE	0	16	0
RHODODENDRON GRAND DUC DE BADE	0	16	0

All these Plants are figured in VERSCHAFFELT'S "ILLUSTRATION HORTICOLE."

NEW HARDY LATE-FLOWERING RHododendrons.

PRINCE of WALES.—Bright rose shaded with purple, divided black marking on the upper petals, free grower, profuse blooner, hardy, and the latest Hybrid Rhododendron grown. One-year grafted plants, 10s. 6d. Two-year ditto, strong, 21s. Larger plants, 31s. 6d. to 42s. each.

PRINCESS of WALES.—Deep magenta edge, pure white centre, primrose flake on the upper petals, slightly spotted with brown, totally distinct from any variety at present known, and when in bloom may be readily distinguished from all others; it is a beautiful and first-class Rhododendron. One-year grafted plants, 10s. 6d. Two-year ditto, strong, 21s. Larger plants, 31s. 6d. to 42s. each.

The usual Discount to the Trade.

The above beautiful Rhododendrons were first introduced to the public last year by M. Y., and he has again much pleasure in calling attention to them; they are both most distinct varieties, the colour and marking of the Princess of Wales being quite a fresh type, and unlike any other Rhododendron. They have both been proved in the open ground for several years, capable of withstanding our most severe winters, and being very late bloomers escape the spring frosts, frequently so fatal to the earlier blooming kinds. They are confidently recommended as most desirable additions to this favourite class of plants.

Coloured Plates, by ANDREWS, will be forwarded on application for 13 stamps each, or the two for 25 stamps.

MAURICE YOUNG, Milford Nurseries, near Godalming, Surrey.

Preston Road Nursery, Yeovil, Somerset.

"Having Disposed of my Yeovil Nursery to my late Superintendent, Mr. P. DRUMMOND, I have to thank the Public for the liberal patronage bestowed upon me in this branch of my Business, and now solicit for the present Proprietor a kind share of that favour which he most honourably merits.—(Signed) "JOHN SCOTT."

"Yeovil, April 15, 1865."

PETER DRUMMOND having Purchased the above NURSERY with the entire STOCK IN TRADE, begs to inform the Nobility, Clergy, Gentry, and Public in general, that for the last seven years he has had the entire management of the above Nursery, and the arranging and planting of the whole, having annually planted out upwards of 30,000 Bedding Plants for display and trial; also for many years previous he was Foreman of the Mortfott Nurseries. He takes this opportunity of thanking all Patrons for the encouragement shown him, and trusts that the knowledge he has acquired in the science of Gardening and Nursery business in all its branches, will enable him to give satisfaction in the execution of all orders entrusted to him, which shall always receive his prompt and careful attention.

The Business will be carried on under the Firm of PETER DRUMMOND & Co., and it is particularly requested that all letters, orders, &c., be addressed in full, Messrs. PETER DRUMMOND & Co., Preston Road Nursery, Yeovil, Somerset.

P. D. & Co. have now ready for Sale upwards of 150,000 BEDDING PLANTS, all well established and extra fine, in 2½ and 3-inch pots, mostly 2s. per dozen or 15s. per 100. Priced Lists post free on application.

	Per dozen.—s.	d.
FUCHSIAS, in 100 choicest varieties	2	6
GERANIUMS, in 50 best Bedding varieties	2	0
GERANIUMS, Variegated, in 24 best Bedding varieties	2	0
HELIOTROPIUMS, in 6 best varieties	2	0
LANTANAS, in 18 choicest varieties	2	0
LOBELIAS, in 6 choicest varieties	2	0
PENTSTEMONS, in 24 best varieties	2	0
VERBENAS, in 200 choice varieties	2	0

MISCELLANEOUS BEDDING PLANTS, see List on application.

FROSTED-LEAVED PLANTS for Flower Garden Decoration.

	Per dozen.—s.	d.		Per dozen.—s.	d.
Antennaria margaritacea	1	6	Cineraria maritima	2	0
Arctotis repens, or Silvery Arctotis	2	0	Diotus maritimus	3	0
Cerastium Biebersteinii	2	0	Gnaphalium lanatum	2	0
Cerastium tomentosum	1	6	Santolina incana	3	0
Centaurea candidissima	6	0	Stachys lanata	1	6

VARIEGATED-LEAVED PLANTS.

	Per dozen.—s.	d.		Per dozen.—s.	d.
Agathæa cœlestis variegata	2	0	Lonicera aureo-reticulata, or Variegated Honeysuckle	2	0
Ageratum variegatum	2	0	Sedum carneum variegatum	2	0
Arabis alpina variegata	1	6	Vinca major variegata	2	0
Glecoma hederacea ditto	3	0	Veronica Andersoni ditto	2	0
Koniga maritima variegata	2	0			

	Per dozen.—s.	d.		Per dozen.—s.	d.
Ageratum nanum floribund.	2	0	Gazania splendens	2	0
Ageratum Prince Alfred	2	0	Lobelia speciosa, true from cuttings	2	0
Convolvulus mauritanicus	2	0	Senecio purpurea grandiflora	2	0
Gazania regens	2	0			

P. D. & Co. can supply many of the leading varieties of Verbenas, Lobelias, Petunias, Heliotropes, Gazanias, &c., at 10s. per 100 in store pots, strong and well-rooted plants.

P. D. & Co. beg to call special attention to Mr. J. Scott's well-known collection of Variegated-leaved Geraniums (upwards of 20,000 alone), Centaureas, and all kinds of Variegated and Frosted-leaved Plants. Priced Lists now ready, and may be had free on application.

PETER DRUMMOND & Co., Preston Road Nursery, Yeovil, Somerset (late John Scott's Yeovil Nursery).

NEW and SELECTED SEEDS.

CARPENTER'S MAGNUM BONUM PEAS.—The Largest and Best Tall Variety grown. 5s. per quart.

CARPENTER'S MULTUM IN PARVO PEAS.—The Best Dwarf Variety grown. 5s. per quart.

CARPENTER'S MONSTROUS WHITE COS LETTUCE,
CARPENTER'S MONSTROUS GREEN COS LETTUCE,
CARPENTER'S MONSTROUS BROWN COS LETTUCE,
are the three best LETTUCES in cultivation. 1s., 2s. 6d., and 5s. per packet.

CARPENTER'S PREMIER SWEDE.—Superior in size, shape, and quality to any other Swede grown. (Sow 3 lb. per acre.) 3s. per lb.

A remittance from unknown correspondents is requested.

CATALOGUES on application to EDWARD CARPENTER, Seed Merchant and Grower, Brighton and Sussex Seed Warehouse, 96, St. James's Street, Brighton.

A Boon to the World.

PRINCE of WALES' KIDNEY POTATO.—A new Seedling, remarkably handsome, fine eating, and the most prolific in the world. Testimonials:—

From Professor LINDLEY (Editor of the *Gardeners' Chronicle*).

"I have this morning had the Seedling Potatos examined. The crop is very extraordinary, and the Potatos themselves are very handsome, and quite ripe."

From SHIRLEY HIBBERD, Esq. (Editor of the *Gardeners' Weekly Magazine*).

"The Seedling Potato (Prince of Wales), I have found to be wonderfully productive, excellent flavour, handsome, and such a one as the world ought to have the benefit of."

To be had of Mr. JAMES VEITCH, Royal Exotic Nursery, King's Road, Chelsea, S.W.; Messrs. BARR & SUGDEN, King Street, Covent Garden, W.C.; DOWNIE, LAIRD & Co., Forest Hill, S.E.; JAMES CARTER & Co., 237, High Holborn, W.C.; SUTTON & SONS, Reading.

Price 12s. per bushel.

N.B. They may be planted up to the end of May.

40,000 Dwarf Roses, in Pots, for Bedding or Greenhouse Culture.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

WM. WOOD AND SON have much pleasure in offering the following, in well-grown Plants, viz.:—

BOURBON and TEA-SCENTED ROSES, 12s. to 18s. per dozen.
CHINA, NOISETTE, and HYBRID PERPETUAL, 9s. to 12s. per dozen. Cheaper by the 100.
HYBRID PERPETUAL and TEA-SCENTED ROSES, established in 6-inch Pots, for Greenhouse Culture, 24s. to 30s. per dozen.

Seedling Roses.

WM. PAUL (Son and Successor to the late A. Paul) begs to offer the following FIRST-CLASS NEW HYBRID PERPETUAL ROSES, at present exclusively in his possession, and which are specially recommended. Good plants will be ready for delivery in May next.

ELIZABETH VIGNERON.—Flowers fine rosy pink, very large and full, in the style of Leelia, but fuller, fresher, and brighter in colour than that superb variety; form perfectly finished, constitution hardy, growth vigorous. Price 7s. 6d. each.

GLORY of WALTHAM.—Flowers resplendent crimson, very large and full, a seedling from Leveson Gower, larger, brighter, darker, and of better form than the parent. A superb Rose, of hardy vigorous growth, producing shoots 6 feet long in one season, and of the thickness of the little finger. Price 7s. 6d. each.

MADAME EMILE BOYAU.—Flowers soft rosy flesh colour, changing to blush, of a pleasing colour, sufficiently large, perfect in form, moderate in growth, hardy in constitution, good and distinct. Price 5s. each.

PRINCE DE JOINVILLE.—Flowers light crimson, a fine large showy Rose, of vigorous and hardy habit, quickly forming a highly decorative bush, standard, or pillar Rose, of great beauty. Price 5s. each.

PRINCESS LICHTENSTEIN.—Flowers white, globular, large and full. A good hardy white Rose, of compact growth, flowering abundantly. Price 5s. each.

The best of the NEW FRENCH ROSES, 36s. to 42s. per dozen. Last year's kinds, 24s. to 30s. per dozen. Older kinds, 9s. to 18s. per dozen.

William Paul, Waltham Cross, London, N.

BEDDING PLANTS.

VERBENAS, fine selections, 100 in 50 vars., 18s.
CALCEOLARIAS, best bedding varieties, 3s. and 4s. per doz.
SENECIO ELEGANS NANA (new dwarf Jacobæa), very dwarf, bushy, and splendid, only 4 to 6 inches high, in 3 varieties, 4s. per doz.
SENECIO ELEGANS CUPREATA NANA (newest), fine crimson red, 9s. per doz.
MIMULUS, three beautiful new vars., Aurantiaca, Cupreus Major, and Gem, 1s. 6d. each.
GAZANIAS, three fine new vars., 1s. each.
GAZANIA SPLENDENS, 4s. per doz.; 25s. per 100.
Finest FUCHSIAS, PENTSTEMONS, PHLOX, LOBELIAS, PETUNIAS, DAHLIAS, &c., &c.
CATALOGUES free on application.
Stephen Brown, Seed and Nursery Establishment, Sudbury, Suffolk.

St. Mary's Nursery,

Near the Church and Railway Station, and adjoining the Compasses Inn, Hornsey, N.

BEDDING PLANTS, from 2s. per dozen; all other Plants equally cheap. ROSES and FLOWERING PLANTS in pots for immediate planting. The Nursery and Grounds are always open to the inspection of visitors.

CATALOGUES sent free by post on application to Mr. Thos. Townsend, as above. A liberal discount to the Trade.

Cheap Bedding Plants—Mostly 2s 6d. per Dozen.

J. SCOTT, Merriott, Somerset, has just Published the 14th Edition of his FLOWER GARDEN DIRECTORY and CATALOGUE of BEDDING PLANTS; it is full of matter interesting to lovers of flowers, such as Selections of all the best plants for decorative purposes, with ample directions how to Plant, Arrange, and Cultivate them, in Ribbons, Circles, Squares, &c. It also enters largely into WINTER and SPRING GARDENING, with full Directions thereon, and giving Lists of all the best Early Flowers, and their Cultivation. Price 7d.

BEDDING PLANTS, 2s. 6d. per dozen, or out of pots 16s. per 100.—Arabis albidus variegatus, Variegated Daisy, Stachys lanata, Cerastium tomentosum and Biebersteinii, Nepeta Cæsia, Antennaria margaritacea, Koniga maritima, Vinca major var., and many sorts of Variegated Geraniums, selections left to me; 150 sorts of Chrysanthemums, to name, 2s. 6d. per dozen; and 200 sorts of Verbenas, turned out of pots, 16s per 100; and above 100,000 of all the best Flower Garden Plants, for summer and autumn show, now ready.

Having disposed of my Branch Nursery, near Yeovil, all orders should be addressed to me at Merriott, Somerset, and Seed orders to my Stores, Yeovil, Somerset.

BEDDING PLANT CATALOGUE, 78 pages, now ready, at 7d. See Advertisement in to-day's paper.

John Scott, Merriott, Somerset.—April 29.

500,000 Bedding Plants

At 1s. 3d. per dozen, or 220 for £1; grown in pots, 2s. 6d. per dozen, or 110 for £1. (All orders £1 and upwards packed and sent Carriage Free to any Railway Station in England or Scotland).

GEORGE McRAE AND COMPANY, Nurserymen, Seedsmen, and Florists, Tredegar Nursery, Bow, London, E., respectfully inform their numerous customers that they have this season their usual Large Stock of BEDDING PLANTS, at the unprecedented low price as above, consisting of the following sorts:—Calceolarias, Verbenas, Petunias, Lobelias, Heliotropes, Salvias, Cineraria maritima, Alyssum variegatum, Antirrhinums, Cupheas, Delphinium formosum, Fuchsias, &c. Scarlet Geraniums, 1s. 6d. per dozen, or 10s. 6d. per 100.

The above are in first-class condition (principally autumn-struck), and will be sent all true to name. Also a very large stock of Stella Nosegay Geraniums, at 20s. per 100.

Russell's Pyramid Primulas.

GEO. CLARKE is now prepared to send out in packets, price 2s. 6d. each, this, the finest breed of PRIMULAS in cultivation. The Seed now for sale has been saved from selected plants, so that it is believed the produce will be even superior to that of former years.

Printed instructions for raising and growing the plants sent with each packet. Stamps received in payment.

Nursery, Streatham Place, Brixton Hill, London, S.

New Catalogue for 1865.

GEO. SMITH begs to announce that his PRICED and DESCRIPTIVE CATALOGUE, containing the Newest and most Approved Varieties of Show, Spotted, and Fancy PELARGONIUMS; Zonale and Variegated GERANIUMS, FUCHSIAS, VERBENAS, PETUNIAS, DAHLIAS, CHRYSANTHEMUMS, BEDDING PLANTS, &c., is now ready, and will be forwarded in exchange for one postage stamp.

*** Coloured Illustrations by Mr. Andrews, free by post, in exchange for 12 postage stamps, of FUCHSIAS GENERAL LEE, DIADEM, and FANTASTIC, the three finest Fuchsias G. S. has ever had the pleasure to offer, for description of which see Catalogue.

Tollington Nursery, Hornsey Road, Islington, London, N.

British and Exotic Ferns.

A. STANSFIELD AND SONS, Nurserymen, &c., Todmorden, beg respectfully to announce that their new GENERAL FERN LIST will be ready for issue in May next. The list will be sent, post-free, for three penny postage stamps.

The BRITISH SECTION, comprising some 500 varieties, with practical hints upon the Culture of the different species, is now ready, and will be forwarded post-free for two penny postage stamps. Gratis to all previous purchasers of Ferns. Note full address.

A. Stansfield & Sons, Vale Nurseries, Todmorden, Lancashire.

DWARF BEDDING SCARLET GERANIUM LADY COWPER.—The above Geranium is unquestionably the best Dwarf variety that has yet been sent out. In habit it is unique, being exceedingly dwarf, never attaining more than 6 or 7 inches in height; its colour is bright scarlet, with a clear white eye, and in contrast to the leaf, which is a pale bright green, is very striking; it is also a most profuse bloomer.

D., Deal, in his criticism on the New Geraniums of last year, speaks of it as following:—

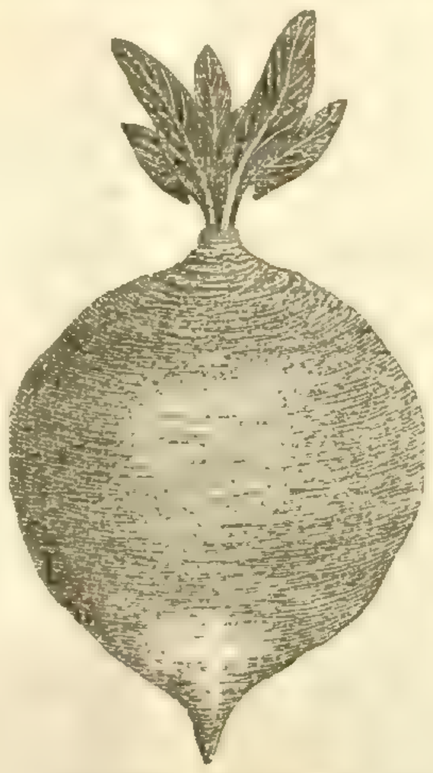
"Lady Cowper, a perfect little gem, and quite distinct from anything I have seen. It does not grow above 6 or 7 inches high, is very free-flowering, the flowers bright scarlet, and as an edging, for scarlet beds invaluable. Its leaf is so small and fine, that it hardly looks like a Geranium."

Price, strong plants, 12s. per doz. Price to the Trade on application.

Edward P. Francis, The Nurseries, Hertford.

SUTTON'S PRIZE MANGEL SEED, saved exclusively from fully-developed Roots.

LARGE YELLOW GLOBE MANGEL.



9d. per lb. Cheaper by the cwt.

For prices of SUTTON'S SELECTED YELLOW GLOBE, ELVETHAM LONG RED, LONG YELLOW, RED GLOBE, and other choice Sorts, see SUTTON'S NEW FARM SEED LIST, which may be had gratis and post free on application.

Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

Wheeler's Imperial Swede

WHEELER'S IMPERIAL SWEDE, one of the Hardiest, Finest, and Most Nutritious Swedes in cultivation. Won the First Prize at the Gloucestershire Root Show, and several valuable Silver Cups.

1s. per lb., 45s. per bushel.

Carriage free by rail, and 5 per cent. discount for cash.

J. C. Wheeler & Son, Seed Growers, Gloucester.

SUTTON'S
CHAMPION SWEDE.

A large Purple-top Yellow variety, perfectly hardy, very productive, stores exceedingly well, and rarely if ever suffers from Mildew.

For six years successively SUTTON'S CHAMPION SWEDE has gained TWELVE SILVER CUPS, presented by his Late Royal Highness THE PRINCE CONSORT, to the Royal East Berks and South Bucks Agricultural Societies, making a total of THREE HUNDRED GUINEAS in Twelve Prizes.

The following are Extracts from Letters received quite unsolicited respecting SUTTON'S CHAMPION SWEDE:—

From Henry Harwood, Esq., *Amberley Castle, Arundel.*

"March 16.—I grew some extraordinary Swedes from the Seed I had of you last year, the best I ever saw. They were your Champion Swede."

From Mr. Large, *Bailiff to the* Right Hon. Lord Berners.

"October 28.—The Champion Swedes, from seed Lord Berners purchased from you, are far superior to any other we have grown. I can confidently say they are many tons per acre heavier than any other Swedes growing on his lordship's farm."

From John Dalton, Esq., *Cardiff.*

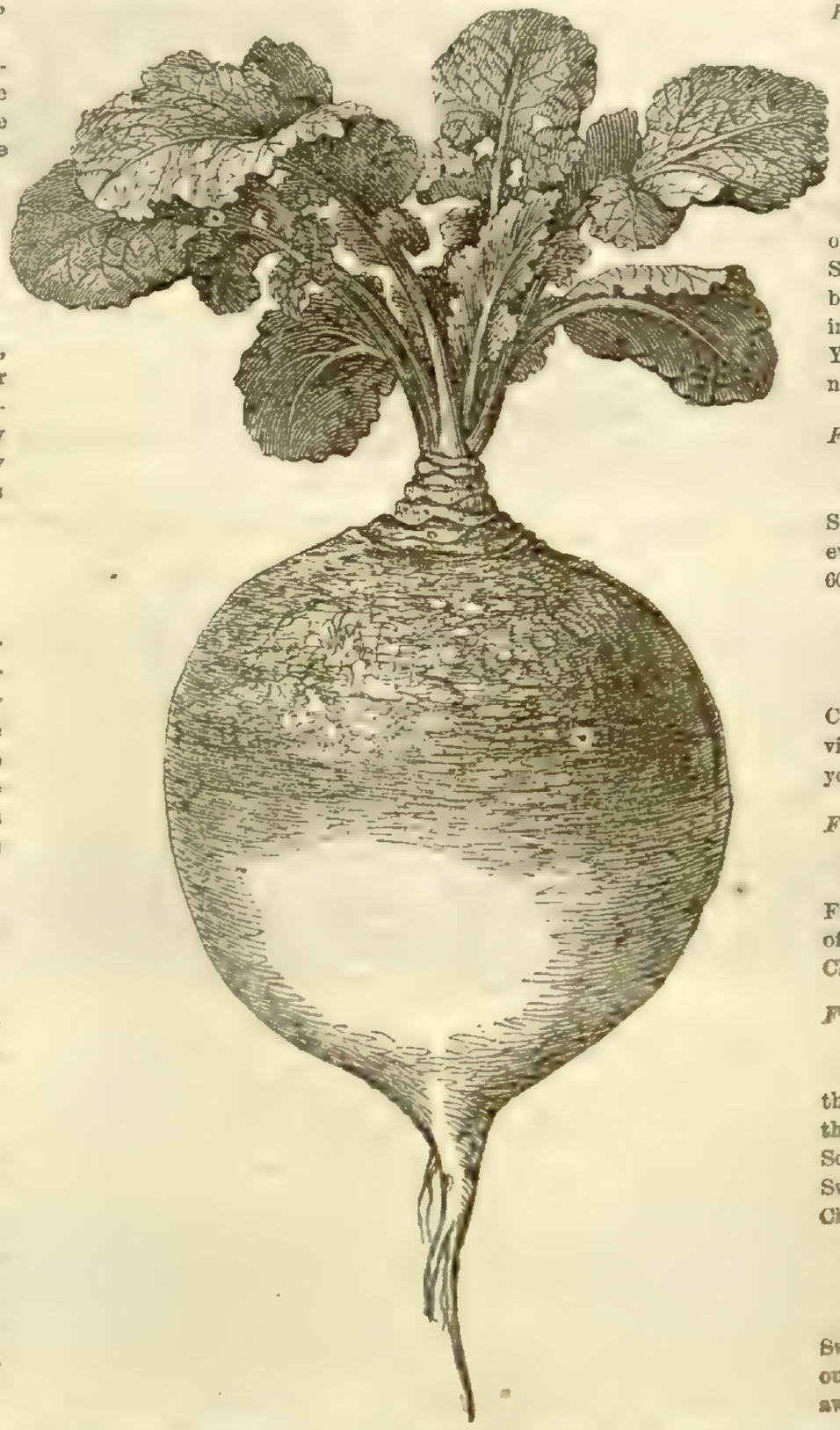
"March 22.—I tried your Champion Swede last year for the first time, and was greatly pleased with them. I had above 31 tons per acre, some above 44 inches in girth. They are now, some in clamp and others on the land, as sound and as perfect as any bulb can be."

From Dr. Way, *Deip River, Cape of Good Hope.*

"November 27.—I had the satisfaction of taking the Prize for Swede Turnips at the Agricultural Show with your Champion."

From Edward M. Gawne, Esq., *Kentraugh, Isle of Man.*

"March 24.—The best Swede Turnip I had this year was some of your Champion. I had several other framed sorts in the same field, all good, but not to be compared for size and beauty of formation to yours."



From Mr. Richard Powell, *Hall House, Benson.*

"April 12.—I tried your Champion Swede against the Hardy Purple-top; yours beat it altogether for feed and hardiness. After trying many sorts for some time, my opinion is that your Champion Swede is properly named, as it beats every other sort, and is indeed the Champion of Swedes. You will see by my order I do not intend to sow any other."

From Mr. J. F. Johnson, *Aykley Heads, Durham.*

"April 4.—Last year your Swedes were the admiration of everybody, being estimated at 60 tons per acre."

From Samuel Field, Esq., *Thame.*

"March 10.—I sowed your Champion Swede against Skirving's King of the Swedes, and yours was the best."

From Mr. Jno. Mead, *Lulworth Farm, Wareham.*

"January 21.—I took the First Prize for the best 1/4 acre of Swedes grown from your Champion seed."

From Mr. Jno. Henstock, *Saxondale, Notts.*

"February 24.—I obtained the Silver Cup, value £6, from the Bingham Agricultural Society, for the best 4 acres of Swede Turnips, with your Champion."

From J. S. Willesley, Esq., *Madeley.*

"April 29.—The Champion Swede was entered by me for our district prize, and it was awarded them."

Present price of Seed, 1s. per lb., or cheaper by the Bushel, carriage free.

PRICED LISTS of TURNIP, MANGEL, and other FARM SEEDS may be had gratis and post free on application.

SUTTON AND SONS, ROYAL BERKSHIRE SEED ESTABLISHMENT, READING.

New Plants.

MR. WILLIAM BULL begs to announce that he is now offering the following beautiful and remarkable NEW PLANTS for the first time:—

AUBRIETIA PURPUREA VARIEGATA.—This remarkable and highly interesting novelty is a well-defined variegated form of the well-known Aubrietia purpurea; every leaf is broadly margined with white, thus making it an extremely effective object; indeed, the harmony of its pretty lavender blue flowers and neat variegation makes a most pleasing impression. This will be a useful plant for spring gardening, rockwork, &c., and is unquestionably one of the prettiest novelties of the season. The entire stock has been purchased from Mr. D. Wood, Brough, Yorkshire. Price 10s. 6d., or six for 31s. 6d.

ASPLENIUM MYRIOPHYLLUM.—Without any exception this is the most elegant of the whole family. Price 5 guineas.

AZALEA INDICA GRANDE DUCHESSE DE BADE.—Colour orange-scarlet, finely-formed large flowers, one of the best high-coloured varieties ever offered. Price 21s. and 31s. 6d.

ANTHURIUM CORDIFOLIUM.—This is the marvellously beautiful plant introduced by the Royal Horticultural Society, through their Collector, Mr. Weir. Its large cordate leaves in mature specimens are about 2 feet in diameter, the ground colour of a bright olive green, the veins intersecting throughout are white; the leaves when young are of a coppery-pink hue. Price 63s.

CISSUS AMAZONICA.—A pretty variegated-foliage climber, with glabrous leaves, silvered on the surface and red beneath. Introduced from the Amazon. Price 21s.

DIOSCOREA ANÆCTOCHILIS.—A distinct species, leaves marbled with gold. Price 42s.

VARIEGATED-FOLIAGED NEW CHRYSANTHEMUM, SENSATION.—This very novel feature in a Chrysanthemum makes it a plant of the most useful and ornamental character for decorative purposes; in the variety here offered the variegation is most distinct and striking; every leaf being broadly margined with silvery-like variegation in the most regular and constant manner. Either for greenhouse, conservatory, or open garden decoration, this plant will stand unrivalled; and for ribbon borders unexceptionable, for whether in or out of flower it is extremely handsome. The blossoms are the Pompon type, Ranunculus-like, of a pure white, exquisite in form, and full to the centre; one of the very best novelties of the season, and a plant for every garden. The entire stock has been purchased from Mr. George Smith, of Walworth. Price 10s. 6d. each, or 6 for 31s. 6d.

VARIEGATED-FOLIAGED NEW VERBENA, POPULAR.—All the adjectives in the English language have been exhausted at one time and another on new Verbenas—what then shall we say of this variety? It really is one of the most novel, striking and attractive kinds ever sent out; the foliage is of a dark green colour, irregularly and prettily interspersed with bright golden yellow variegation, so that without any flower, for it is of a free compact growth, it will make a beautiful and effective bed in the flower garden, and one of the best summer edging plants extant. Apart from the above feature to recommend it, this variety is one of the brightest of scarlets, producing its blossoms in the most redundant manner. The entire stock has been purchased from Mr. John Boff, of Islington. Price 10s. 6d. each, or 6 for 31s. 6d.

ECHINUS MOLLE.—Californian Pepper Tree. A handsome weeping evergreen hardy shrub. Price 10s. 6d.

FRANCISCEA LINDENI.—A free-flowering, attractive variety; producing very large violet-mauve flowers; introduced from the interior of the province of St. Catherine's, Brazil. It is the best Franciscea ever offered. Price 31s. 6d.

NEW VERBENAS.—Six distinct and handsome varieties. These have been proved as good bedders, are free bloomers, of distinct colours, and can be recommended for general excellence. Price 31s. 6d. For names and descriptions *vide* Mr. W. B.'s Spring List.

LASTREA ERYTHROSORA.—A distinct hardy Fern from Japan. Price 10s. 6d.

PTERIS CRETICA SERRULATA VARIEGATA.—A pretty variegated hybrid, intermediate between P. serrulata and P. cretica albo lineata. Price 10s. 6d.

ATHYRIUM FILIX-FŒMINA SAGITTATUM.—An interesting and pretty variety of the hardy Lady Fern. Price 5s.

ROGIERA GRATISSIMA.—The flowers of this plant will be perfect gems for bouquets. They are produced in elegant corymbs of a delicate pink colour. It blooms so freely that it is nearly always in flower, added to which it is deliciously fragrant, and the habit of the plant is neat and compact. Price 31s. 6d.

NEW FUCHSIAS.—Seven distinct varieties are now offered for the first time. They are all of sterling merit, short-jointed, abundant bloomers, the flowers possessing variety both in form and colour, and the habit of each both compact and good. Price 10s. 6d. each. For names and descriptions *vide* Mr. W. B's Spring List.

NEW PETUNIAS.—Eleven kinds are now offered. They will all be found to maintain the high reputation of the kinds that have been previously sent out by Mr. W. B. Price 3s. 6d. each.

SARRAUJA SARAPIGIENSIS.—One of the most noble ornamental stove plants extant, a worthy rival of Cyanophyllum magnificum and Sphærogyne latifolia. Price 63s.

SPHACELE CŒRULEA.—This plant produces its pretty blue flowers all through the winter in the most abundant manner. It belongs to the Labiatæ. Price 10s. 6d.

NEW ZONALE PELARGONIUMS.—(Extract from the *Gardeners' Weekly Magazine*, July 23, 1864, p. 236.

"Mr. William Bull, of King's Road, Chelsea, has sent out more good Zonale Pelargoniums than any other trade cultivator in the country."

Seven new kinds are now offered, all of which are in advance of the many good kinds sent out by Mr. W. B. Price 7s. 6d. each. For names and descriptions *vide* Mr. W. B.'s Spring List.

NEW SPOTTED PELARGONIUMS.—Five beautiful varieties are now offered for the first time, at 21s. each. For names and descriptions *vide* Mr W. B.'s Spring List.

POLYGONATUM VERTICILLATUM AUREUM STRIATUM, }
" " ARGENTEUM STRIATUM. }

The above are two pretty variegated-foliaged hardy plants, one having the leaves striped with white, and the other with yellow. These have been introduced from Japan by Mr. Fortune. Price 31s. 6d. each.

SALVADORA PERSICA (the Mustard Tree of Scripture).—This remarkably interesting plant is now offered for the first time in this country. It requires to be cultivated in a stove. Plants 5 guineas each

VARIEGATED-FOLIAGED NEW PETUNIA JOSEPH HAUDRECHY.—Beautifully variegated leaves, and single violet-crimson flowers. Price 10s. 6d. each.

Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

HARDY FLOWER SEEDS.

An assortment of 100 splendid varieties	..	..	20s. 0d.
" 50 "	..	..	10s. 0d.
" 36 "	..	..	7s. 6d.
" 24 "	..	..	5s. 0d.

Carriage free.

Richard Smith, Seed Merchant, Worcester.

Magnificent Double Hollyhocks.

H. J. HARDY'S LIST is now ready, and will be sent post free. All the varieties (including upwards of 50 new ones, and some extra Dwarf Novelties) are Exhibition Show Flowers, good strong well-grown plants, price 6s. to 18s. per dozen; Seedlings, price on application. All Carriage paid to London, and for Two Dozen to any Railway Station.

Stour Valley Seed Grounds, Bures, Essex. Established 1804.

CHOICE VARIEGATED GERANIUMS for BEDDING or POT CULTURE.

Mrs. Pollock	Golden Tom Thumb	Rainbow
Yellow Belt	Golden Vase	Glow-worm
Mrs. Milford	Fontainebleau	Burning Bush
Golden Harkaway	Miss Emily Domville	Snowflake

The above 12 varieties will be sent on receipt of a remittance for 21s., by Alfred Fryer, Nurseryman, Chatteris, Cambridgeshire.

Carnations, Picotees, &c.

CHARLES TURNER'S stock of the above is very extensive, and in the finest health.

For prices see CATALOGUE, now ready.

PELARGONIUMS "JOHN and MARY HOYLE."—These and other New Varieties in the finest plants; also the best established varieties at very moderate prices.

See CHARLES TURNER'S CATALOGUE now ready.

VERBENAS.—All the best kinds now ready, and Perry's beautiful New Varieties ready 1st May, described in C. TURNER'S CATALOGUE.

The Royal Nurseries, Slough.

Established Upwards of a Century.

BUTLER AND McCULLOCH,

Seed Merchants, Covent Garden Market, W.C.

GENUINE NEW VEGETABLE SEEDS.

Orders amounting to 21s. and upwards sent Carriage Free.

COMPLETE COLLECTIONS for ONE YEAR'S SUPPLY.

No. 1.	No. 2.	No. 3.	No. 4.	No. 5.
3l. 3s.	2l. 2s.	1l. 10s.	1l. 1s.	10s. 6d.

BUTLER AND McCULLOCH'S NOVELTIES for 1865.

	Per packet—s.	d.
BUTLER'S SUPERFINE DWARF CAULIFLOWER.. ..	2	6
BUTLER'S CLIMAX MELON..	2	6
BUTLER'S PRESIDENT MELON	2	6

FLOWER SEEDS (sent Post free).

Assortments of	100 vars.	50 vars.	30 vars.	25 vars.	15 vars.
ANNUALS—Hardy	20s.	10s.	5s.	..	2s. 6d.
" Half Hardy	30s.	15s.	.	7s. 6d.	4s. 0d.
PERENNIALS (Hardy) ..	25s.	12s. 6d.	..	6s. 6d.	3s. 6d.
" Half Hardy		..	..	7s. 6d.	4s. 0d.

NOVELTIES in FLOWER SEEDS.—See Descriptive Catalogue.

BULBS for SPRING PLANTING.—Gladioli, Liliums, including the splendid new L. auratum; Tigridias, Anemones, Ranunculus, and other bulbs suitable for spring planting, in great variety. Special quotations at low rates per 100 or 1000 on application.

AGRICULTURAL SEEDS, saved from pure Stocks, and received direct from the Growers, including all the best kinds of Turnips, Swedes, Carrots, Mangel Wurzel, Grasses, &c.

PRICE LIST just published, and may be had gratis on application.

Agents for

GOULDING'S HORTICULTURAL MANURE, 1s. per canister.

Sole Agents, Wholesale and Retail, for

MURRAY'S APHIS PASTILS,

A new invention, and the most effectual in existence for Fumigating Plant Houses.

In packets, 1s. and 2s. each.

Butler & McCulloch, Covent Garden Market, W.C.

NEW ZONALE PELARGONIUMS.

Two of the Gems of the Season.

Saltmarsh's "LITTLE TREASURE." (First-class Certificate.)

Saltmarsh's "LUNA."

For Description and Price see previous Advertisements. Liberal Discount to the Trade.

Saltmarsh & Son, Moulsham Nurseries, Chelmsford.

The Choicest Strain in Cultivation.

DOBSON'S Unequalled CALCEOLARIA, per packet, 1s. 6d., 2s. 6d., 3s. 6d., and 5s.

DOBSON'S Prize CINERARIA, 1s., 2s. 6d., and 5s.
DOBSON'S Unsurpassed PRIMULA, 1s., 2s. 6d. and 5s.
DOBSON'S Superb 8 BALSAMS, 2s.

J. Dobson & Sons, Woodlands Nursery, Isleworth, W.

ACCLIMATISATION SOCIETY of GREAT BRITAIN, 3, Duke Street, Adelphi, London, W.C., April 22, 1865.

The Council HEREBY GIVE NOTICE, that the ANNUAL GENERAL MEETING of the Members of this Society will be held in the Great Room of the Society of Arts, 18, John Street, Adelphi, on FRIDAY, the 5th of May, 1865, at 3 o'clock P.M., to receive the Report of the Council, the audited balance-sheets of the Treasurer, and to elect officers.—By order of the Council,

B. Waterhouse Hawkins, Hon. Sec.

Horticultural Bazaar.

THE ROYAL HORTICULTURAL SOCIETY, South Kensington, has assigned a portion of the Arcades for the EXHIBITION and SALE of all kinds of IMPLEMENTS and DECORATIVE WORKS for HORTICULTURE, and FLOWERS, &c. The following productions are now Exhibited there:—

HEATING APPARATUS and VASES—J. Jones & Son.
TERRA COTTA and IRON WORKS—Coalbrookdale Co.
ARTIFICIAL STONE, VASES, &c.—F. & G. Rosher.
TERRA COTTA, DRAIN-PIPES, &c.—H. Millichamp.
HEATING APPARATUS, BOILERS, &c.—J. Weeks & Co.
CONSERVATORIES, HEATING APPARATUS, &c.—H. Ormson.
TERRA COTTA FOUNTAINS, &c.—J. Pulham.
WIREWORK and GARDEN IMPLEMENTS—C. R. Watts.
PATENT HOT-WATER PIPE JUNCTIONS—T. S. Truss.
WATERING POTS, &c.—J. Oakley.
BOILERS and HEATING APPARATUS—J. Taylor & Sons.
LAWN MOWERS, &c.—T. Green & Son.
SLATE WORKS of EVERY DESCRIPTION—A. Brady.
RUSTIC WORK of EVERY DESCRIPTION—J. Greeves.
PATENT CORRUGATED BRICKS—J. Foxley
WINDOW GARDENS, PATENT—H. Hayman.
GARDEN POTTERY—Whitwich Colliery Co.
ARTIFICIAL STONEWORK—Patent Concrete Stone Co. (Limited)
ETRUSCAN POTTERY, &c.—Hooper & Co.
FERN CASES, POTTERY, &c.—Barr & Sugden.
BAROMETERS, THERMOMETERS, &c.—L. Casella.
KAMPTULICON HOSE, MATS, &c.—Britannia Rubber Co.
ORNAMENTAL IRON WORK—R. Helbronner.
ORNAMENTAL IRON WORK—R. Holliday.
FERN CASES and FLOWER VASES—Claudet & Houghton.
FANCY GLASS and POTTERY—Melliship & Harris.
CUT and FANCY GLASS—Naylor & Co.
SWISS CARVED WORK—Lichtenstein.
Etc., Etc., Etc.

Applications for vacant space to be made to Mr. Fox, Royal Horticultural Society, South Kensington.

FLORAL DECORATION SHOW.—SPECIAL PRIZES, the Gift of one of the Fellows of the Royal Horticultural Society, will be awarded at the Society's Show, on the 24th of JUNE, 1865, for the most tastefully decorated Dinner Table.

First Prize, Gold Medal, or £10 10s.; Second Prize, Large Silver Medal, or £7 7s.; Third Prize, Small Silver Medal, or £3 3s.

Beautiful arrangement of the Fruit, Flowers, and China will be the test of merit in this Exhibition; valuable Fruit or Flowers or China are therefore not required.

It is not necessary that the Flowers or Fruit should be grown by the Exhibitor.

Ladies are invited to join in the competition.

Each Exhibition will be shown on a separate table.

Each table to be laid as if for a Dinner "*a la Russe*" of 10 persons. Table must not exceed 9 feet long; may be square, or oval at the ends, or be a round table.

Plain deal tables of the form wished will be provided by the Society for those who give a fortnight's notice to the Superintendent of the Horticultural Society.

Competitors may use such China, Glass, Metal, or other Ornaments as they please; may or may not combine Fruit and Flowers together; may use Sèvres, Chelsea, Worcester, Dresden, Staffordshire, or any other China for their plates; may use coloured or white glasses, or both; may use coloured or plain damask: may, in short, study their own tastes.

The Prizes will be awarded by a Jury of Ladies, assisted by Members of the Royal Academy.

Competitors will be allowed to arrange their tables in the Garden any time after 7 on the morning of the 24th of June, but must have everything complete by 11 o'clock, when the Jury assemble, and Exhibitors must withdraw whether their tables are ready or not. Exhibitions left unfinished will be regarded as disqualified. This rule cannot be relaxed.

No person will be admitted to see the display until the Jurors have finished their labours, which will probably be about 1 o'clock.

Exhibitors will be permitted to have the help of two assistants or servants to arrange their table.

The Gardeners' Chronicle.

SATURDAY, APRIL 29, 1865.

MEETINGS FOR THE ENSUING WEEK.

Tuesday,	May	2	Royal Horticultural (Floral and Fruit Committee), at S. Kensington.. Noon
			Do. (Scientific Meeting) .. .. 3 P.M.
Thursday,	—	4	Linnean .. .. 8 P.M.
Saturday,	—	6	Royal Horticultural (Weekly Show), at South Kensington .. .. .. 2 P.M.

In connection with the Exhibition of Flowers, held under the auspices of the Royal Horticultural Society of the Netherlands, at Amsterdam, which has already been noticed in our columns, was a Congress of Botanists and Horticulturists, truly described as International, for hardly a country in Europe was unrepresented. A large number of the most eminent botanists and horticulturists met in the quaint old city, to discuss matters concerning their respective crafts.

It may be questionable whether much direct advantage to science or practice accrues from such gatherings, but there can be no question as to the indirect effects. The Congress afforded an opportunity for botanists and horticulturists assembled from every quarter of Europe to renew and cement old acquaintances, and to form new ones. Young botanists had the pleasure of meeting and associating with the veterans and leaders of their order, while practical horticulturists came in contact with the leading men of their profession. Our readers, who may happen to know how ardently horticulture is practised in the Low Countries, with what zeal, and with what success,

PHYCELLA sp. NOVA.

Lately received from Chili, with dazzling orange-scarlet yellow-throated flowers, 2 to 3 inches across; borne in clusters of 2 to 6, on stalks 9 to 15 inches high. Leaves linear, deep green; deciduous during the heat of summer. The flower spikes are formed in winter or early spring, after the leaves are matured. The texture of the blossom is firm, promising long continuance, and the lustre resembles that of the orange-scarlet Sophronitis grandiflora superba, exhibiting just the same gold spangling upon a brilliant orange ground. As a new and invaluable ornament for the Greenhouse we can recommend it with full confidence, and there is every probability that it may prove hardy for our open Borders. It was awarded a First-class Certificate by the Royal Horticultural Society.

10s. 6d. each.

HEPATICA ANGULOSA.

It has been our good fortune to import this grand addition to our Spring Flowers—a true Hepatica with blossoms more than double the size of the largest "Single Blue Hepatica," of a clear and vivid sky-blue. Leaves five-lobed, hairy. Flowers on stalks 6 to 12 inches high, rising well above the foliage. Also awarded a First-class Certificate.

3s. 6d. each.

A CATALOGUE of STOVE, GREENHOUSE, and BEDDING PLANTS, FERNS, ALPINES, &c., will be published in the ensuing week.

JAS. BACKHOUSE AND SON, YORK NURSERIES.

will not fail to realise the interest of a gathering where so many of the *élite*, as well as of the rank and file of the botanical and horticultural world, were collected together.

On this ground we look upon the Congress as one of the most successful things connected with the Exhibition, and earnestly recommend to our own authorities a similar gathering here, when the proposed show takes place next year. There is little doubt that with judicious management we could produce a show of flowers more extensive, and in many points superior to that recently displayed in Amsterdam, but we have to learn from our Continental friends two great points, the art of arranging the objects exhibited to the best advantage, and the art of making the exhibitions more generally interesting than our own are. Quartz pebbles properly arranged may be made more interesting and effective than an ill-assorted heap of diamonds. And if, as we presume few will doubt, it is in our power to rival or excel our continental friends in the beauty and extent of our flower show, why should we not try to rival them in a scientific Congress? We have botanists in England—botanists whose names, as we experienced in Amsterdam, are as well known there and as much respected as among ourselves. We have nurserymen of first-rate eminence, and we have gardeners of first-rate ability and in great numbers. We have all the materials for a Congress, why then should we not have one? We are not deficient in hospitality, nor would our foreign friends be disinclined to accept our invitation.

But we fancy we hear the cavillers say, "What is the good of the Congress?—of what value are the papers read?—are any practical suggestions thrown out?" Now, without in the least intending to admit that no direct practical value attaches to such meetings and such deliberations, we hold that any immediate effect produced by such gatherings is as little compared with the indirect and future benefits that may and will arise from the social gathering of so many men interested in the same pursuits, and following the same occupations. Looking at the matter in a pure pounds shillings and pence view, will no benefit accrue to trade and traders from the meeting of merchants from all parts?

To revert to the Amsterdam Congress: of which we will now give a slight account. The meeting was inaugurated by an address from Professor Oudemanns, delivered first in the Dutch, then in the French language, for the benefit of the foreigners present. This was mainly an address of welcome and an explanation of the reasons for selecting Amsterdam as a meeting-place on account of its geographical position, its facilities for strangers, its services to Science in the introduction of new plants, and the encouragement it has afforded to botanists and horticulturists. Afterwards the various officers were appointed, and the meeting divided into sections, one for pure Botany and one for applied Botany and Horticulture. The Botanical Section was presided over by Professor Fée, of Strasburg; that of Horticulture by Professor Koch, of Berlin. Both sections sat for several days, and were well attended—the Horticultural Section especially. The speakers used the language most familiar to them, and their remarks, when necessary, were interpreted into French for the benefit of those unacquainted with the language of the speaker. A great number of topics were marked for discussion, but, owing to the absence of some of the disputants, the number actually entered upon was comparatively small. Upon some of these topics we may hereafter have occasion to write more at length, meanwhile we briefly notice some of the matters proposed for deliberation.

M. Belhomme, of Metz, announced that he had observed two forms of Hemp seeds, the one elongated, the other spherical; when sown, the latter produced female plants, the former males. If this observation be confirmed in the case of other diœcious plants, the results will not be unimportant. Professor E. Morren, who formed an admirable Secretary to the Botanical section, treated of variegated plants and double flowers. Professor Caspary spoke at some length on the very interesting question of hybridisation produced by grafting, adducing in illustration of this little understood and most curious point, the Cytisus Adami, as well as certain Roses and Oranges. He exhibited drawings of the latter—a piebald fruit, so to speak, having the characters of two distinct kinds blended into one. Professor Willkomm spoke on the various kinds of Cork Oak, and their distribution in Spain and Portugal. Mr. Warner's contribution on double-glazing for plant-houses has already found a place in our columns. A mere enumeration of the many subjects brought under the notice of the Congress would, however, have little interest for our readers. But we may mention, as showing the class of men which took part in these meetings, the names of Regel, of St. Petersburg; Fenzl, of Vienna; Miquel, of Utrecht; Chatin, of Paris; Morren, of Liège; Koch, of Berlin; Fée, of Strasburg; Triana, of Paris; Caspary, of Konigsburg; Willkomm, of Tharand; Passerini, of Parma; Meissner, of Basle; Lemaire, of Ghent; Cohn, of Breslau; Reichenbach, of Hamburgh; Hasskarl, of Cleves; Oudemanns, of Amsterdam; and many others.

As we were the loudest last year to condemn the proceedings of the Royal Horticultural Society when we considered them inimical to the interests of Horticulture, so are we ready to acknowledge the efforts now being made, to put the vessel on a safe and proper tack.

One great fault of the past no doubt has been a lavish expenditure of money on things *not* horticultural; and a neglect of those horticultural aids which might have been had for little more than the asking. Things were not prized according to their power of advancing the primary object of the Society—Horticulture, but in proportion to the money they cost. When that great and good Prince, the late President of the Society, said, at the opening of the gardens—"That which last year was still a vague conception is to-day a reality, and I trust will be accepted as a valuable attempt, at least, to re-unite the science and art of gardening to the sister arts of architecture, sculpture, and painting," horticulturists, one and all, were ready to put their shoulders to the wheel, and perform in good faith the part of the task assigned to them. And we hesitate not to express the belief that if the programme then and there laid down had been fairly carried out, the gardens would now be more creditable to the national character, and the state of the Society's exchequer more satisfactory.

But it is useless to dwell on the past further than to draw from it a caution in the future. The present change in the efforts of the Society has brought a change of programme, full of hope and promise. The revival of the scientific meetings is a large and important concession to Horticulture; and the glorious display of spring flowers which now set the gardens at Kensington aglow — the like of which has never before been seen in London, if in England—are steps in the right direction. And be it remembered that these things have been obtained at trifling cost. Again, the announcement that the Council intend to engage the services of a second practical horticulturist "to superintend the operations at the experimental garden at Chiswick," must be highly gratifying to horticulturists, and will surely bring a full reward.

So far then the recent proceedings are deserving of high praise; they have been well judged, well done, and should be held to in the future. But if the present Council would inaugurate a success, they must not stop here. A bolder policy is demanded of them. While the Society—or at least Horticulture as connected with it, has been standing still at South Kensington, it has elsewhere been advancing; and only by long and vigorous strides, by a policy of *invention* rather than of *imitation*, can the lost ground be recovered.

Well! what shall that policy be? On glancing over the field before us many objects arrest the attention which seem worthy of being examined and weighed. But one stands forth pre-eminently. It is the hidden and unemployed horticultural talent, which those who are best versed in this science know well to exist. We call on the Council to collect into a focus the scattered rays of horticultural light, and if they do not care to assume the responsibility of directing them when so collected, to hold them in reserve till some skilful hand and inventive brain shall have pointed out how they may be turned to good and profitable account. We know there are those who hold that things horticultural cannot be made remunerative, and point to the experience of the past as evidence of the soundness of this view. But we demur to this, and repeat, we seek not a policy of imitation but of *invention*. We do not ask the Council to do what others have *done*, but what others have *failed to do*. Would a merchant expect to realise profitable results from his heads of departments, if he treated them as menials, or if before setting them to work he were to bind them hand and foot? Or would he expect any branch of his business *to pay* that was at once the first object of his professions, and the last of his thoughts?

We know further that there are those who would persuade us that there is no spirit or life or fire in Horticulture. But we hold the reverse of this. What mean the full and attentive audiences at Mr. Wm. Paul's opening lecture on "Spring Flowers," and at the resuscitated scientific meetings? What mean the Horticultural companies, Horticultural societies, and Horticultural clubs daily springing up amongst us? Are not these reasonable and earnest endeavours to call into active existence this latent fire, to give embodiment to this spirit, and energy to this life? We may err in judgment, but remembering how many far-fetched and expensive experiments have been tried and *failed*, we say here is one lying close to the root of the primary object of the Society, at which the cost will be small. We say let this experiment be tried; the cost to the Society will be small, and we have no doubt the increase of subscribers resulting from it will be great. We believe the Society now numbers in its ranks some 4000 Fellows. But what is this from the population of Great Britain? Some of our London nurserymen have as many customers; and while there are many nurserymen, there is but one Horticultural Society. Why should not the Society embrace a *wider range of class*, and be made so inviting that every lover of plants and flowers should wish to join it? If we consider the increasing taste for this pursuit, there seems no reason why the number of Fellows should not be raised to 10 or even 20,000. Amateur horticulturists with their friends, nurserymen with their customers, and gardeners with their employers, have the power of adding largely to the number of Fellows, but the Society must possess their confidence, before they can be expected to stir.

In advocating these views we do not forget that many of the present Fellows may have joined the Society for the sake of the agreeable promenade which the gardens afford, or for reasons other than those springing from any strong horticultural tastes or sympathies. Far be it from us to ignore the rights of these. Their tastes are justly entitled to consideration; and what we propose need not in the least interfere with the progress of work necessary for their gratification.

One word more. We observe that the proceedings of this Society are indifferently and irregularly reported by that portion of the press which devotes itself exclusively to the arts and sciences. We know not where the fault of this omission lies, but doubtless the remedy is within reach. Horticulture is both an art and a science, and as such fairly entitled to this recognition.

—— Some flowers of a seedling Chinese Primrose have been sent to us by Mr. Earley, which present one or two peculiarities worthy of notice. In the first place the bracts are converted into leaves, which gives the truss a very peculiar appearance; and not only is this the case, but, secondly, the five divisions of the calyx in some of the flowers have also assumed the form of leaves, showing most distinctly at the base the five main nerves which distinguish their origin. In other flowers in the same truss, though the divisions instead of being five only vary from 14 to 18, all distinct trace of the nerves is lost, though there are irregular nerves going to the different divisions. A third peculiarity consists in the production at the base, besides the main truss, of single flowers, a circumstance which is extremely common in some of the forms assumed by our ordinary Oxlip. It is in these flowers more especially that the sepals become foliaceous, exactly after the manner of a variety of the common Primrose which is not rare in gardens. Mr. Earley informs us that the variety is reproduced from seed, and that the later flowers are generally solitary. The flowers themselves are large and of a deep colour, and the variety is worth cultivation from its peculiar habit. *M. J. B.*

—— Among other objects of interest that we hear are expected at the South Kensington Scientific Meeting on Tuesday next may be mentioned a remarkably fine example of the Macleania, of which we gave a representation in this Journal some little time ago. This plant will form the basis of a paper by Mr. Bateman on the ornamental capabilities of the tropical or semi-tropical Vaccineæ, which are as yet very imperfectly appreciated. Messrs. Hugh Low & Co. will also send an entirely new Phalænopsis (called P. Luddemanniana by Professor Reichenbach), that is now in flower at Clapton, and which in the exquisite colouring of its blossoms will rival, if indeed it do not excel, any species of that charming genus that has yet been introduced to this country. We may also mention that the garden itself is just now well worth visiting for the purpose of witnessing the gorgeous effect produced by the Bedding Tulips planted therein by Messrs. E. G. Henderson & Son.

CULTURE OF THE NUT.—No. I.

The Nut enters so largely into the economy of the dessert, and is found to be so useful an auxiliary during the dull season of the year, that it may be well to draw the attention of those to whom the subject is not familiar to some of the principal points to be observed with a view to its profitable cultivation. I am well convinced that whether Nuts are cultivated on a large scale as a profitable investment for sale in the market, or on a smaller scale for the supply of the dessert in individual families, they are equally worthy of the greatest attention of the cultivator. That this is not always accorded to them many of us are well aware, for very often indeed we find the trees planted in any out-of-the-way corner, and left to take their chance, uncared for, and only pruned in a general way when they exceed certain prescribed limits—any idea of subjecting them to a systematic course of pruning and management being utterly unthought of. Or else they are planted as a kind of supernumerary crop, unworthy of a better place, in the intervening spaces between the rows of trees in Apple orchards, where, although subjected to a system of pruning from the necessity of keeping them within bounds, yet, owing to the shade from the orchard trees, and that deficient supply of food which invariably follows when two exhausting crops are planted on a space which is only calculated to bring one to perfection, they seldom produce even half of what may be obtained from them under more favourable conditions. What those conditions are will best appear as we proceed.

I would here observe that I am alluding to cultivation as taken in its broadest sense, and the principle is applicable to many other subjects besides that of the culture of the Nut tribe. It is not to be concluded, because we are dealing with a tree which is very accommodating in its habits, and will grow and flourish tolerably well under a variety of conditions, that when a good site is selected, the trees carefully planted, and regularly and systematically pruned, that we have done all that is necessary. On the contrary, we shall find that the ground must be well cultivated, and liberally dressed—in fact farmed high; and there is no doubt on my mind, reasoning from much experience, that this system is in the long run by far the cheapest, whether applied to a limited supply for home consumption, or to a large one for market purposes.

The soil comes naturally as the first great consideration, and in reference to it I would observe that where planting for market sale is contemplated on a large scale, it would be unwise to plant on any but a suitable soil, and what is of equal importance, a suitable subsoil. It is quite possible in a gentleman's garden so to improve soils naturally unfavourable as to render the culture remunerative, but there are so many minor conditions necessary to produce a fruitful state of growth, (and it is only by attaining that fruitful state they can pay,) that unless those conditions combine in the proposed site, the results which would follow on the great outlay necessary in extensive plantations would not be at all commensurate thereto. Much disappointment will therefore be obviated by using the necessary caution in the first instance in selecting a site for planting.

The soil in which the Nut is found to attain the greatest perfection is a deep loam on a dry substratum of a porous gravelly nature; in many cases even rocky bottoms have been found favourable when there is a sufficient depth of staple soil. I do not say but that they may be found to flourish on soils which do not come up to these conditions, because, as I before observed, the tree is very accommodating in its habits, and will grow almost anywhere; but we are looking at its cultivation as a source of profit, and I say that with regard to depth of soil, and the nature of the subsoil, the above may be taken as a type of the necessary conditions, and means should be used to ensure as near an approach to them in their essential points as possible.

I have laid great stress on the necessity of a dry subsoil, because I believe it to be the foundation of a fruitful habit of growth; and although they will certainly grow very well on stronger soils with even clay subsoils, yet in that case the habit is generally gross, long-jointed, and more inclined to produce an unfruitful and strong woody growth than slender and fruitful twigs for bearing and spurring. But then again clay soils and subsoils vary very much, and I am familiar with some on which the Nut tree flourishes well and produces heavy crops; in these cases, however, it is found upon analysis that although called clays they contain upwards of 70 per cent. of pure silex; and when subsoils of this nature can be laid thoroughly dry by efficient drainage, and there is a good depth of staple soil, no doubt profitable plantations may be reared upon them.

With regard to the necessary depth of soil, I consider 18 inches as a medium depth. It may be deeper with advantage, and it may be less, but in the latter case much more attention will have to be paid to surface dressing.

In the preparation of the soil for planting, the first consideration should always be to ensure efficient drainage. If the subsoil is sufficiently open and porous to carry off in a reasonable time all superfluous water, so much the better, but I do not know of many such favourable sites, and believe that there are not many in which drainage will not be an improvement, while in some it is absolutely necessary. In all cases where drains are laid in under growing trees, I recommend the use of a good depth of moderate sized stones to form the drains in preference to draining pipes. These may be used in combination with stones, if expense is no object, because they assist the free circulation of air through the drains, which is a point of great importance to what may be called the draught of the drains; but pipes alone are almost, if not quite useless after the lapse of a very few years, because the roots are sure to penetrate the earth which is loosened in making the drains, and in this way to choke them.

The next course of preparation will be the trenching to the depth of two feet, or as far as there is good soil to work upon. If that is shallow, the bottom must be well broken up. This operation is rather expensive, but when the trenching is performed in the season previous to planting, the ground may with great advantage be cropped with Potatos, and under such favourable conditions these will be (barring accidents of season or disease) a highly remunerative crop, which will cover expenses, and leave something for future operations.

The preparation of the young trees for planting in their permanent situations is a work of time, and ought always to be done in nursery beds. I am aware that many practical cultivators object to this, and assert that the suckers should be planted in their permanent places at once, and be trained out in the required form, but I cannot but consider this as a very great disadvantage, inasmuch as to make it pay expenses the ground must be heavily cropped with other produce, and I hold that this can only be done at a loss both to the crops and the trees. I am not at all in favour of catch crops—as they are called—amongst trees intended to occupy a space of ground permanently, and should only recommend it in connection with heavy manuring, so that the trees may reap a little benefit; and then only under great pressure for want of space. Therefore, if the ground intended to be planted must be cropped, why, let it be done in a regular course without the trees, and let them be brought forward into a bearing condition on a limited space in nursery beds.

For this purpose select strong well-rooted suckers, and remove with a sharp knife all the buds on the stem to the length of 12 or 14 inches from the base, and head back the shoot at 6 inches above that height. This should give four or five shoots to form the base of the radiating branches. They should be planted in the nursery in rows 2 feet apart, and the plants at 18 inches in the rows for the first two years. At the end of the first year of growth remove all suckers, both from the roots and the base of the stem; remove also any side shoots which may have started below the main branches. These latter must be shortened back to 3 inches, after which the ground should be pricked up and mulched with rotten manure. During the second year of growth these shortened shoots ought to produce a sufficient number of strong shoots to form the base of the main branches of the future tree.

And here I must observe that a free circulation of air amongst the branches is a very important object to be secured, and therefore they must not be crowded; and more than that, the centre must be kept quite open. Now as Nuts, in common with most other trees, possess an innate tendency to fill up in the centre and grow upright, the work of training must be commenced during this period of their growth, and whilst the shoots are young and pliable. On a small scale they may be tied out equally to stakes thrust into the ground, but in large beds this would be tedious, and nearly the same end is attained by cutting off all the shoots which point to the centre of the tree; and by taking care that in all future prunings the shoots are shortened to an outside bud. *John Cox.*

POINSETTIA PULCHERRIMA.

Ornamental flowering plants are much needed through the winter months; and on account of its glowing scarlet bracts, resembling a crown of scarlet leaves, the Poinsettia may be considered one of the best. It is a plant that can be flowered of any height or size, from 6 inches to 6 feet; but plants from 12 to 36 inches high prove very useful for decorative purposes. July is about the time the old plants should be started into growth. This will be done by placing them in strong heat, air, and light, and by giving them sufficient water, and syringing them once or twice a day. When they have made shoots three or four inches long, take these off as cuttings, removing them with a little heel, as in the case of a Dahlia cutting, and having some dry sand at hand in which to place them immediately, so as to stop their bleeding. These cuttings are to be potted into small pots, singly, in sandy peat, each having a little silver sand in the centre to receive the cutting. Then they should be plunged in strong bottom heat, under large bell-glasses, or in a glass frame. Shading will be required to keep them from shrivelling. When they are rooted they should be taken out and placed in a frame where a little air is admitted, and they must be syringed over head two or three times a day, to keep them from flagging. In three or four days they will be sufficiently rooted and hardened to be placed in the stove, with a little shade; and in about a week or ten days they should be repotted in 4 or 5-inch pots. They must have little water at first—only just sufficient to prevent the soil from getting dry. They should now be placed at the coldest end of the stove, where they can receive plenty of light and air, and sufficient shade only to prevent them from burning. As they attain say from 5 to 6 inches in height, they should be removed to a warm greenhouse or frame, giving them plenty of top air every warm day, and at the same time allowing sufficient distance from plant to plant to prevent them from drawing. As soon as they require re-potting, give them their final shift into 6, 8, or 9-inch pots, these being useful sizes for the purposes of decoration.

If a large specimen is required for any particular object, select as many of the strongest plants as will fill a large pot without over-crowding; and after potting them keep each plant tied out so that it may have plenty of space for its development. A specimen grown in this way will generally produce larger bracts than an old plant cut back and grown on a second time.

When the plants become well rooted give them manure-water occasionally. They should never be allowed to get soddened, nor on the other hand must they be permitted to get too dry. About the beginning of October they will have formed their flower-buds, when they should be removed back into the stove, for after the flower-buds are formed they will grow but very little in height; at the same time they require plenty of heat and moisture to bring out their bracts to perfection.

As the plants pass out of flower let them go dry, and in this state they may be stored away beneath the stage. The best soil for them is fibrous sandy loam and vegetable mould. The pots should be well drained.

There is a variety with whitish bracts, P. pulcherrima alba, not so showy as the scarlet, but useful as a contrast to mix with the other, and therefore worth growing. *Thos. Brown, Tooting.*

KITCHEN GARDEN PLANTS.—No. III.

The Pea.

The varieties of Knight's Marrow Pea, viz., the tall and dwarf white, and the tall and dwarf green, are either fast dying out or else they are gradually becoming superseded by later introductions. They have acquired a famous history, but as regards distinctive character, "their glory has departed." Occasionally, true stocks of the original types may be met with, but often, Champion of England and Climax represent the tall and dwarf green kinds; while British Queen and Alliance are made to do duty for the two white varieties.

Among "tall-growing late Peas," as they are sometimes termed, the earliest appears to be the Victoria, or Waterloo Marrow, which is also known as Thurston's Reliance. This is a prolific cropper, producing fine and well-filled pods: the Peas are of a good flavour—in height it reaches from 6 to 7 feet. There was once a variety known as the Victoria Marrow, which grew only about 4 feet in height, with seeds hardly so large as those of the tall-growing kind, and yet, to the best of my recollection, both were identical in other respects. I do not know whether or not this is still in cultivation. The Victoria Marrow appears to be the only representative we have of the round-seeded Peas classed in this section.

The late wrinkled Marrows are often classed according to the colour of the Peas when dry, viz., seeds white, olive, and olive and white. I find, however, that some of these Peas possess characteristics common to those whose seeds in a dry state differ from them in colour. I shall not therefore adhere to this arrangement, as it might lead to mistakes. As, when sown together, these late kinds invariably come into bearing about the same time, I will confine my remarks to their respective merits, and to comparisons of them with other sorts.

One of the best, if not *the* best, of all the tall wrinkled Peas is Ne Plus Ultra, a variety which seems to suit all climates, and that satisfies to the full the wishes of every grower of it. Its average height is about 7 feet; it is very prolific, bearing a profusion of large green pods well filled with Peas of excellent flavour. This variety is in great demand in the London and large provincial markets. The colour of the pods, the tenderness of the Peas when cooked, even when somewhat old, added to a rich flavour, always command for it a good price. When dry some of the Peas are of a pale olive colour, the majority however are white. To this excellent Pea I assign a marked individuality which it is likely to maintain for years to come. Round it cluster a number of synonyms, some of which shall be noticed presently.

British Queen is another Pea of this class, which has very large white seeds when in a dry state. Its height is also about 7 feet; the pods are large and well filled, and the flavour rich and full. This, too, has its quota of synonyms.

The third representative Pea is the Tall Green Mammoth, the seeds of which are entirely olive or green when dry. It greatly resembles Ne Plus Ultra in habit, but it is generally considered to be inferior to it in quality.

Payne's or Jeyes' Conqueror partakes of the character of Ne Plus Ultra, and is considered to be identical with it; at all events the latter is often supplied for it.

General Wyndham is another form of Ne Plus Ultra, but perhaps a little later when sown at the same time. Except in reference to this point its character appears to be the same in every respect.

Champion of Scotland, though very much like it, was not so good as British Queen when grown by its side; the latter is commonly sent out for it. The same may be said of Oxford Tom, now extinct, the original type of which, did not fill well in the pod. Competitor is but the "other self" of Tall Green Mammoth in growth; the same may be said of Sutton's Berkshire Hero. Ward's Incomparable and Great Britain, when true, are like Tall Green Mammoth in character, while the dry seeds resemble those of British Queen. Strathmore Hero and King of the Marrows appear to be identical; the seeds are larger than those of Ne Plus Ultra, but they do not grow quite so tall. They are great croppers, and the Peas are of delicious flavour. Bunyard's Kentish Hero and Raper's Champion of the World are nearly, if not quite, identical in character with Ne Plus Ultra; the seeds of the former also resemble it, while those of the last are almost entirely blue or olive. Carter's Victoria and Carter's Wonder of the World appear to resemble British Queen; the last was an inferior stock of its type as I saw it last summer.

Some other new Peas are announced, such as a blue Early Emperor; Princess of Wales, said to be a very prolific early white Marrow, an emanation from Dr. Maclean; Albert Edward, a tall green Marrow, as early as the Emperor, and growing 5 feet in height; Harrison's Royal Blue, a dwarf and perfectly distinct variety; and Caractacus, a first early, sent out by Waite & Co., of Holborn. It is to be hoped that some record of these will be made public, as at present the Pea lists are far too plethoric, and a judicious weeding would be an acceptable benefaction. The simple aim of these papers has been to conduce to such a result, whatever may be the shortcomings or imperfections that have characterised them. *Quo.*

Home Correspondence.

Churchyards and Spring Flowers.—I beg to thank your Correspondent, Mr. Robinson, for his article published at p. 362, and I will look out for the short and select list which he promises. Popular feeling will not now, I believe, support the clergyman in taking in the butcher's sheep and cattle at — per head, to eat the Grass in the churchyard, and to tread down the mounds of the graves; and there is some hope that flowers, if planted over the remains of departed friends, may be left undisturbed till the surface must be removed to make way for another occupant. As a Welshman I love to see the graves decked with flowers on Palm Sunday, which falls never earlier than the 15th of March, nor later than the 15th of April; and, if I knew how, I would carry my scheme out permanently with rooted plants instead of with fading blossoms. Our rector is very fond of Church decorations, and the squire's shrubberies and his own are hardly sufficient to furnish the necessary evergreens. Can any of your readers give me a list of evergreen shrubs that may be kept low to plant on each side of the church, in the space (say 6 feet to 9 feet from the walls) which ought to be kept clear of graves; distinguishing perhaps those shrubs which are best adapted to each aspect (N., S., E., W.)? Mr. Robinson's spring flowers will then fill in the intervals. I have already made a trial of planting in the turf Crocus vernus (which I found wild in a neighbouring pasture), Snowdrops, Daffodils, Garden Crocus, Tulips, Jonquils, Snowflakes, &c. The first-named three plants will, I expect, come up and multiply year after year, as I have observed them frequently in pastures and orchards. But the rest, I have been told, become more rare yearly, and finally disappear altogether. Can any of your correspondents tell me whether the case of my friend, who told me this, was an exceptional case? And, if not, how I can preserve the bulbs year after year with the least disturbance of the turf? *A Parish Clerk.*

Royal Horticultural Society's Scientific Meetings.—I was delighted with the last Tuesday meeting. What a change in a short time! It reminded me of the past, to see such gorgeous flowers, for some of the Orchids and Azaleas were grand, and the new plants were good; besides which there were some welcome old faces. The extreme pleasure of having met these is entirely owing to the existence of these meetings, for in all probability they would have faded away before the shows came round. It is gratifying to see brought out in this way good old things that have nearly been lost to the country. On this occasion there were several plants of extreme interest, of which I will mention two or three. I was particularly struck with a fine specimen of Aspasia lunata, with eight expanded flowers. There was also Cymbidium eburneum, with several splendid ivory-white blossoms, I should think the finest ever exhibited—at least I have never seen one so fine. Then the glorious flowers of Sophronitis grandiflora! What a lovely contrast that—the white Cymbidium eburneum, and the glowing orange-scarlet Sophronitis! These two alone were worth coming to see; and as to the Aspasia I believe it has not appeared in public for 10 years. Again, I say, it is pleasant thus to meet old faces; they bring to one's mind agreeable reminiscences of scenes and times now well-nigh forgotten. I feel persuaded this change in the right direction will bring back to the Society many of the old Fellows, and these on their return will probably bring new ones with them. We do not often see a Society like this go down if things are carried on in a proper way; and the only way is to have at the helm practical men who take a lively interest in and have some knowledge of horticulture, as well as being able to talk about it. There are plenty to do the talking part, but we have latterly had few to take to the practical part of the work. *B. W.*

Pear Trees in Pots.—I certainly agree with "T. R." when he recommends all lovers of Pears to grow them in pots, at least during the first 8 or 10 years of their existence, as pyramids, even if there are no "glass-roofed sheds or orchard houses" for the protection of their blossoms. I would, however, plunge them in the open ground. With such trees there is no more risk from spring frosts than there is in the case of trees planted in the ground as standards and on trellises, and the certainty of a crop of fruit is much greater. Trees in pots are quite under command; they can be easily kept in form; artificial food can either be supplied to them or withheld. They can be conveniently moved from one place to another at any season, whether they are at rest or in blossom, without risk of injury. Nice compact pyramidal trees, 18 inches or 2 feet in diameter and 4 or 5 feet high, bearing a couple of dozens of fruit (and many here last season bore 3 and 4 dozens, and are again studded with blossom buds), are very ornamental, and would not disgrace even conspicuous places in arboretums or shrubberies contiguous to a gentleman's mansion. About 100 are grown in 13-inch pots here; this is the sixth season they have been cultivated in that way, and they are now fine healthy well-furnished pyramids. About 50 were planted in the ground when the others

were potted—the former are trained along with Plums, Cherries, and Apples against wooden walls, 4 feet high. This last mode of growing Pears has not proved satisfactory here—50 in pots have furnished as much fruit in the year as 50 in the ground have yielded in five. It is only fair, however, to state that some of those in pots are grown under glass, but those out-of-doors in pots have never failed to yield a crop. The treatment they receive is similar to that recommended by "T. R" They get no surface dressing, but they are regularly watered twice a week with liquid manure from the farm-yard tank, from the time the fruit is set till it has done swelling, and the trees are syringed every afternoon, Sundays excepted, at about 5 o'clock, from March till September. Peaches, Nectarines, Apricots, Cherries, and Plums are all treated in the same way. Apricots are the only kinds of fruit that have failed here under pot-culture; they, however, promise well this season. Fruit trees in pots, when plunged, in the borders of an Orchard-house, or in the open ground, speedily root through the bottom of the pots. These roots require cutting off once at least every season. If the tree is in fruit and firmly plunged the operator is apt to break the side shoots or shake the fruit in lifting a heavy pot. The accompanying contrivance is used here for lifting the tree out of the hole, and swinging it while the operator cuts off any roots there may be through, afterwards lowering it into the hole again. This quite obviates any danger that may arise from lifting by the hand. The chain is drawn a little too long, but it can be made short if desired. *J. H.*

Renanthera coccinea.—I have at present this beautiful plant with 24 blooms open on it, and in the course of nine or ten days more it will be in full flower. Has it ever blossomed at this season before? It showed bloom about the same time last year, but I had it standing in a cold Vinery, when one of the severe frosts about New Year's week got inside and killed the flower spike, and also damaged several other plants, which were more than 2 feet further from the glass than the Renanthera. The latter was not injured in the least, with the exception of the flower spike, although the top of the plant was not more than 3 inches from the glass. *James Smith, Gardener to S. H. Norris, Esq., Altrincham, near Manchester.*

Crickets.—How can I most effectually get rid of these—to me—annoying pests? Since I started my Cucumber and Melon pits this season their depredations have been so great as to nearly ruin my crops, although they looked highly promising before they were attacked. As soon as the first flower opens, Mr. Cricket commences at its centre and eats out the stamens and styles; the young fruit then dwindles and dies. By means of much attention I however got a few set, and they are progressing nicely. My enemies have, however, I find, attacked even these, working along the fruit, thereby giving it a cankerous scabby appearance, which destroys its value. I trust, therefore, that some body will kindly assist me with some advice in the matter. *J. P.*

Calceolarias.—At p. 368 it is stated that Calceolaria cuttings ought still to be covered at night. This is a mistake, as they are better without cover. They will stand almost any degree of cold; what they suffer from is damp. I tried some experiments this severe winter that proves this; I put a quantity of cuttings in the open ground under a north wall, only leaning an old glass light against the wall over them, but leaving the ends open. They are now by far the strongest and healthiest plants I have, and I did not lose one. *H. T., Nuneaton.*

Ground Vineries.—I find that what have been humbly called 10-feet lights here for at least 10 years are now honoured with a patent, and fine names such as Curate's Vinery, &c. True, they have not been used to grow Grapes in, nor have they had loose bricks for a foundation, but they have a 9-inch deal to rest upon—they are always in use for Early Peas, Dwarf French Beans, Winter Lettuce, Ridge Cucumbers, &c. I believe my late master, T. White, Esq., was the first to invent them; and if Mr. Rivers will look over his notes for say 1855, he will find the measurement of them. I well remember the eulogium he passed upon them at the time. I think his plan of glazing an improvement; but the hinges a move in the wrong direction. *John Morris, Gardener to T. G. G. White, Esq., Manor House, Braintree.*

Lady Birds.—Unusual quantities of these pretty little insects have appeared here early this spring. They are busy hunting for aphis on Roses, Gooseberry and Currant bushes; and I observed quantities of them crawling about long before vegetation had commenced to furnish them with any food. Last year they swarmed in countless numbers in the Grass fields, and everywhere amongst bushes where aphis abounded. An interesting experiment may be made by capturing a few and letting them loose on an infected shoot of a Rose or Currant bush. It is astonishing how soon they will set to work and devour the green fly or any kind of aphis in their way. *William Tillery, Welbeck.*

New Zealand Spinach.—Catalogues direct this to be raised in heat, or sown in the open ground so late as May. Here it always sows itself, and appears at the end of March, being fit for use in May. The plants are generally killed by frost in winter, and the seed remains exposed on the bed, when a little covering is cast over it in February; occasionally, even this care is neglected, and sometimes the old plants survive and expand themselves considerably. It has kept possession of a border near a wall looking west for years. It is a most useful and wholesome vegetable, and superior to any Spinach [?] The purchased seeds from which this stock sprung, were grown with difficulty in heat. The profusion with which the seed grows naturally seems connected with exposure to the rain in winter, which causes the hard shell to decay. *H. C. B., Dungarvan, Co. Waterford.*

Black Varnish.—Allow me to inform your Correspondent who requests information respecting a varnish for hot-water pipes, that I have for years used a quantity of Hill & Smith's black varnish for painting iron fencing, and as it has a glossy appearance, and answers well for that purpose, I determined to use it for painting the pipes in a range of newly-erected forcing houses. It was also applied to the wood forming the covering of a large tank for supplying water to the same houses, the tank being inside, and so formed as to have a return pipe pass through the water to warm it. It being then autumn time, the houses were soon filled with bedding plants, Primulas, &c., and although the smell of tar was hardly perceptible, the plants soon showed signs of suffering—Primulas and others would soon have been killed. Under these circumstances, therefore, we set to work and painted the pipes with a thick coating of whitewash made with strong fresh slaked lime. Next day this application was washed and scraped off, repeating the operation of painting and scraping off several times. The wood over the tank was taken up and replaced by Oak planks which had not been painted, and in about a fortnight the house was sweet again. If, therefore, your correspondent's varnish was the same as mine, and if he uses the same means as I did, he will soon get rid of it. *John Stevens, Gardener, Malvern Hall, Solihull.*—I can from experience caution every one against the use of black varnish in any shape. I put up some hot-water apparatus in my Vineries, and covered the pipes with black varnish, forgetting that the component parts were gas-tar. After killing all that year's crop of Grapes, and all my flowers, I tried every chemical means to remove it, but without effect. I then tried scraping and filing, but with no better success; as a last resource, I took all the pipes through three houses to pieces, made a large furnace of 1 or 2 cart-loads of coal, and heated them red-hot. This I found to be the only effectual cure. *H. T.*

Foreign Correspondence.

Cinchona Cultivation at Darjeeling.—Dr. Anderson, who is in charge of Cinchona cultivation at Darjeeling, has addressed to the Secretary to the Government of Bengal, a very favourable statement of the progress made since July, 1864. He has also commenced a series of monthly reports, containing besides an account of the operations of the month, a tabular statement of the progress of certain carefully measured plants of different species of Cinchona grown in the ground, in the open air, without shelter of any kind, in five plantations which have been formed at different elevations above the sea. From the Report for the month of January we make a few extracts:—

In July, 1864, the cultivation was carried on in conservatories, and in glazed frames at Lebong. The success attending the small open-air plantation at Rungbee, led, however, to the removal in November and December, of all the Cinchona plants from Lebong to Rungbee. The frames also, about 40 in number, were taken to Rungbee and were filled with the smallest plants, while all the lately rooted cuttings, but which were still in pots, were transferred to open-air beds formed in parallel lines on a gentle slope. The plants were placed nine in a row at 6 inches between each plant, each bed being about 200 feet long.

Three such beds were filled with young plants of Cinchona officinalis by the 15th of December. It was found better to remove all shade from the plants, and to expose them fully night and day. The plants in these beds will be grown to yield cuttings. It is intended to keep 20,000 plants of each species for this purpose. After this number of stock-plants has been completed, all plants produced will be placed for a short time in beds situated near the ground to be permanently planted. After remaining two or three months in these beds, or until they are 12 inches high, the plants will be placed in the permanent bark-yielding plantations at a fixed distance from each other, probably 5 feet apart. 19,329 plants of Cinchona officinalis exist at Rungbee, so that the number of stock-plants of that species has been almost attained. These stock-plants will be allowed to grow for some time before cuttings are taken from them to form bark-yielding plants. The number of the other species is still so far below what is required for stock purposes that all the cuttings obtained during the next five months at least will be added to the number of cutting-yielding plants.

The reports of the value of Cinchona Pahudiana are so conflicting that it does not appear advisable to abandon entirely the cultivation of this species. Sir William Hooker, in a letter of the 8th January, 1865, writes that some well-known chemists seem to think more favourably of it now, and that Professor Miquel has informed him that Cinchona Pahudiana and Cinchona carabayenes are the same. This important identification, which was pointed out to me two years ago by Mr. A. A. Black, of the Royal Herbarium at Kew, on my forwarding to Kew flowering and fruiting branches of Cinchona Pahudiana from Java, adds nothing to the commercial value of this plant.

The Government plantation at Darjeeling contained on the 1st of February, 1865, of C. succirubra, 4780 plants, cuttings, and seedlings; of C. Calisaya, 23; of C. micrantha, 944; of C. officinalis, including varieties, 19,329; and of C. Pahudiana, 5092; making a total of 30,168.

Dr. Anderson adds a table showing the rate of growth of the different Cinchonas at Rungbee near Darjeeling, from which it appears that at the first plantation (altitude 5500 feet), the growth of C. officinalis during January was from ¼ to ¾ of an inch; and of C. Pahudiana from ¼ to ½ an inch. At 4350 feet the same species grew respectively from ½ to ¾ of an inch; and from ¼ to ½ an inch. At 3715 feet C. succirubra grew ¼ of an inch, C. micrantha from ½ to 1 inch, C. officinalis from ¼ to 1½ inch, and C. Pahudiana from ¼ to ¾ of an inch. At 2500 feet all four species grew from ¼ to ¾ of an inch. At 1825 feet, C. succirubra grew from ¼ to 1¾ inch, C. micrantha from ¼ to 1¼ inch, C. officinalis from ½ to 1½ inch, and C. Pahudiana from ¼ to 1½ inch, during the month.

Societies.

Entomological: *March* 6.—F. P. Pascoe, Esq., in the chair. Mr. F. Bond exhibited some specimens of a remarkable kind of Gall, found on a Willow tree, 50 feet high, near Cambridge, which resembled a full-blown Rose, the leaves of the extremities of the twigs being prematurely developed in whorls, and continuing persistent through the winter. He also exhibited two varieties of Vanessa Urticæ and Coleas Edusa, taken in Suffolk, remarkable for having the wings, especially the hinder pair, blotched with dusky markings. Mr. T. W. Wood also exhibited a variety of Apatura Iris, wanting the white markings on the upper side of the wings. Professor Westwood made some observations on the early stages and sexual distinctions in the Dog-tick, Ixodes plumbeus, exhibited by Captain Cox at a previous meeting. He also directed attention to a remarkable memoir by Dr. Schiodte, recently published, in which the author introduced some new views with reference to the primary divisions of Coleopterous insects, and drew a parallel between the merits of Fabricius and Latreille to the disparagement of the latter, as general entomologists, an opinion which Professor Westwood considered erroneous. The President also opposed Dr. Schiodte's views. He further read some notes in opposition to the practice, daily gaining ground, of overthrowing generic names which happen to possess a greater or less similarity of sound with other generic names previously established; and Professor Westwood went so far as to consider it unadvisable to change generic names, even if absolutely identical with the names of genera employed in other classes of the animal or vegetable kingdoms. Mr. McLachlan read a paper entitled "Trichoptera Britannica," a monograph of the British species of Caddis flies, comprising 124 species, arranged in 43 genera. The President announced that, as an inducement to the study of Economic Entomology, the Council had resolved to offer two prizes of the value of five guineas each, to be awarded to the authors of memoirs of sufficient merit, and drawn up from personal observation, on the anatomy, economy, or habits of any insect or group of insects especially serviceable or obnoxious to mankind, to be illustrated with figures of the insects in their different states, and (if the species be noxious) which must detail the result of actual experiments for preventing their attacks, or the destruction of the insects themselves. The memoirs must be sent to the Secretary, at No. 12, Bedford Row, London, with fictitious signatures or mottoes, on or before the 31st December, 1865, when they will be referred to a Committee, to decide upon their merits; each must be accompanied by a sealed letter, endorsed with the fictitious signature or motto adopted by the writer, and enclosing his real name and address. The prize essays to become the property of the Society, by whom they will be published.

April 3.—F. P. Pascoe, Esq., F.L.S., President, in the chair.—The President exhibited a Bolboceras, apparently new, captured by Mr. Odewahn, at Gualor, near Adelaide, South Australia, which he had obtained by digging it out of its burrows in the hard roads near that place. The President had also himself noticed a similar economy in the French species, B. gallicus. He also drew attention to a letter which had appeared in the *Athenæum* relative to the Rose-like galls on Willows, exhibited by Mr. Bond at a previous meeting, suggesting that these galls afforded an explanation of the supposed mediæval miracle of the Willow blossoming like a Rose at Christmas. Mr. F. Moore exhibited a collection of Lepidoptera, collected by Captain Lang in the North-Western Himalayas; also two moths from Darjeeling, the bodies and wings of which were covered with slender elongated Fungi, found by A. E. Russell, Esq. Mr. Janson also exhibited a large collection of Lepidoptera from Bengal and the Himalayas, including some very fine new species, collected by the last-named gentleman. Mr. William Wilson Saunders exhibited several interesting species of galls, collected in Syria by Mr. B. T. Lowne. The President mentioned that in crossing Monte Moro in July last he had observed on the surface of the snow many small cylindrical holes, the size of a wine cork, at the bottom of each of which was generally found a Dipterous or Ichneumonideous insect, which having fallen on the surface of the snow and become chilled by the cold, had probably gradually sunk, the hole being caused by the radiation of heat from the surface of the bodies of the insects, an explanation which, however, was not considered satisfactory by some of the members present. Professor Westwood made some critical remarks on the recently published memoir on the Chigoe by Dr. Karsten, contending that the generic synonymical name Rhynchoprion ought not to be employed in preference to that of Sarcopsylla proposed by himself nearly 30 years ago. Mr. Bates read a memoir containing descriptions of 16 new species, from the Amazon district, of the interesting genus Agra, of which the number of known species now amounts to 140.

Acclimatisation of Great Britain.—A general meeting of this Society was held in the Council Room of the Royal Horticultural Society at South Kensington, on Monday last, Mr. Edward Wilson, V.P., in the chair. After having stated the object of the meeting, the chairman called upon Mr. B. Waterhouse Hawkins to read the correspondence which had led to the receipt of a letter from Lieut.-General Knollys, conveying the gratifying intelligence that H.R.H. the Prince of Wales had graciously consented to become the President of the Society. The following resolution was then put from the Chair:—"That the Acclimatisation Society of Great Britain gladly availing themselves of the distinguished honour so graciously conceded in the acceptance of H.R.H. the Prince of Wales of the Presidency of the Society, proceed to elect his Royal Highness to that office, and he is hereby duly elected." This was carried by acclamation, and the usual vote of thanks having been given, the meeting separated.

Miss Burdett Coutts has kindly presented a medal to the Society to be awarded for distinguished services.

Notices of Books.

Canada: its Defences, Condition, and Resources. By W. H. Russell, LL.D. Bradbury & Evans.

This book makes its appearance at a time when more than common interest has been aroused on the subject of Canada, and for this reason alone it will doubtless be eagerly read; while the name of its author is quite sufficient to ensure its being favourably received and studied.

Dr. Russell's powers of observation and description are so well known that it is needless to dwell on them; suffice it to say, that although his stay in Canada was but short, forming, in fact, merely an episode in his American visit, yet his book is full of interest for the general reader, and contains many valuable hints to those who seek more particular information on many subjects. The special point to which he turned his attention was the state of the defences of Canada; and he makes very clear and uncompromising statements with regard to the defenceless state of what ought to be strong points, and also on the apathy displayed by the Canadians; although they are at the same time credited with a strong attachment to England, and an aversion to the American rule. From the fact of their former successful resistance to the Americans, Dr. Russell draws a hopeful augury for the future; but it is evident that unless they bestir themselves in fortifying their at present weak points, although victory may ultimately remain with them, yet the contest must be severe. Let them be warned in time!

It is well known that although Canada lies in a more southern latitude than England, yet that the climate in winter is far more severe; and as the visit of Dr. Russell was made during that season, we meet with many vivid little pictures of the delights of sleighing, skating, &c. The amount of snow seems to be something of which we in England can form but a faint idea; the streets are described as being piled with it, and those who drive into the country appreciate the difficulty of "making tracks" in a desert of universal whiteness. Four months of snow and frost are, however, compensated for by warm and fine summers; and, as in all extreme climates, plants grow and ripen with a rapidity unknown in more equable regions. Many of our readers doubtless remember the varied riches displayed in the Canadian Department at the International Exhibition of 1862.

The following is Mr. Russell's account of the agriculture of the country:—

"Notwithstanding the long winter, Upper Canada yielded, according to late averages, 21 bushels of winter Wheat and 18½ bushels of spring Wheat to the acre. Lower Canada, where agriculture has not received the same development, yields a smaller proportion to the acre, but the Wheat is of excellent quality. In Upper Canada the yield of Oats is about 30 bushels to the acre; in Lower Canada it is 23 bushels. Barley is a little less in Upper, and about the same as Oats in Lower Canada, and Indian Corn is about as much as Oats. The Potato yields from 125 to 176 bushels per acre."

Horticulture flourishes equally with agriculture:—

"From the head of Lake Ontario, round by the Niagara frontier, and all along the Canadian shores of Lake Erie, the Grape and Peach grow with luxuriance, and ripen to perfection in the open air without the slightest artificial aid. The island of Montreal is distinguished everywhere for the fine quality of its Apples; and the island of Orleans, below Quebec, is equally celebrated for its Plums. Over the whole of Canada, the Melon and Tomato acquire large dimensions, and ripen fully in the open air, the seeds being planted in the soil towards the latter end of April, and the fruit gathered in September. Pumpkins and Squashes attain gigantic dimensions; they have exceeded 300 lb. in weight in the neighbourhood of Toronto. Indian Corn, Hops, and Tobacco, are common crops and yield fair returns. Hemp and Flax are indigenous plants, and can be cultivated to any extent in many parts of the Province. With a proper expenditure of capital, England could be made quite independent of Russia, or any other country, for her supply of these valuable products."

Nor is Canada less rich in mineral treasures than in the products of human industry.

"Save and except coal, the want of which is to a considerable extent compensated by the vast stores of forest, of bog, and of mineral oils in the Provinces, Canada is very rich in many minerals of the first importance. Iron is deposited in exceeding abundance in the Laurentian system; lead, plumbago, phosphate of lime, sulphate of barytes, and marbles are found in the same wide-spread formation of gneiss and limestone. The Huron system of slate, &c., contains copper, silver, and nickel, jaspers, and agates. The Quebec group in the east promises to be equally valuable. The basis of metallic and ochreous pigments, every description of marble and slate, minerals, and substances useful in chemistry, in arts, in agriculture, in architecture, are scattered throughout the land, from Lake Superior to Gaspé."

Possessed of so many natural advantages, is it to be wondered at that the population should have increased so rapidly that "Upper Canada exhibited in 40 years nearly four times the increase of the United States in 50 years!" and this, although "the Germans and the Irish have rather sought the United States. The emigrating powers of Scotland are rapidly decreasing, and the few English who emigrate prefer Australia, New Zealand, even the States of the Union, to a country which suffers from the early neglect of the Home Government, the studied aspersions and misrepresentations of powerful agencies, and the ignorance of the

poorer classes who seek to improve their condition by going forth in search of new homes."

Dr. Russell describes many of the Canadian cities which he visited as being remarkably fine. Let his account of Montreal serve as a specimen. "The quays of Montreal are of imperial beauty, and would reflect credit on any city in Europe. They present a continuous line of cut-stone from the Lachine Canal along the river-front before the city, leaving a fine broad mall or esplanade between the water's edge and the houses. The public buildings, built of solid stone, in which a handsome limestone predominates, are of very great merit. Churches, court-houses, banks, markets, hospitals, colleges, all are worthy of a capital; and these would present a very different appearance to an invader from that which was offered by the poverty-stricken and insignificant Montreal of 1812."

The question of defending Canada appears for the present to be settled in the affirmative; and it certainly seems a pity that such a magnificent country should be lost to England. After all, however, it is probably merely a question of time; sooner or later, colonies inevitably drop off and assume their independence; but, as Mr. Russell urges, what a different aspect such a disunion would present when accomplished in amity, from what it would do if brought on through disagreements and quarrels, by which the colonists become alienated from the parent country, and ripe for an alliance with its rivals.

The Summer of 1865: *founded on the Vernal Equinox. With Observations on the Summers of England.* By Thomas Du Boulay. London: Rogerson & Tuxford. A pamphlet, pp. 16.

Since 1860, the author has annually given a forecast of the summers founded on the characters of the respective vernal equinoxes, or the state of the weather from the 18th to the 25th of March. He has laid down as a general rule in his previous writings, that "an ordinary equinox is followed by an ordinary summer, and predicts it; and an extraordinary equinox predicts, and is followed by an extraordinary summer, and one like it in character."—"It is not likely," he says, "that many accustomed observers would consider the vernal equinoctial weather just passed through, to be what is quite usual for the time. There may be some grounds for viewing it in its main characteristics, as simply an exaggeration of the weather which prevailed about the same period of last year, thus implying for this year the same probable result as for the last, viz., general dryness and fineness in the weather, and early maturity of crops." So one is bound to conclude, if there is any truth in the rule above referred to. But he goes on to say, "this is not, however, the light in which it is going to be viewed in this forecast. It was evidently a result of a great aërial movement in the higher regions of the atmosphere, passing over nearly all Europe." The author confesses that he has had very great difficulty in coming to a conclusion as to the light that it (the vernal equinoctial weather) throws on the probable future, because he has never seen its real parallel before; but thinks it right to speak without fear, what is finally thought about it.

It is considered then, to be significant of a summer remarkable for its extreme coldness, thereby throwing back the crops for their full time of maturing and housing, into the period of the autumnal rains. The whole period of their growth will be probably rendered unkindly for them, by the presence of unwonted cold, accompanied in the early portion of their growth by great dryness, and at a later period by much wet. "Night frosts, also, and boisterous winds are contingencies which certainly threaten danger, whether they come to pass or not;" but we may be allowed to ask how these can *certainly* threaten danger, when in the next sentence there is an adjunct implying *uncertainty* as to whether they may be experienced or not. According to our author "the whole season is likely to be rendered unkindly and blighting by cold, whether it is present at all times, or whether it comes as night frosts, violently contrasting with the heat and sunshine of the day. A sort of season seems to promise that would not be kindly for anything." This augurs badly, for cold nights may injuriously affect horticultural productions of exotic origin. Nevertheless some of the best grain crops ever known in England have been produced under the influences of cold nights and very warm days. In coming to a conclusion on the subject, the author says, "the great doubt was whether the later part of summer should be dry or wet; the balance is thought to turn in favour of wet." Mr. Du Boulay's forecasts are evidently entangled with doubts and fears.

At p. 463 of our volume for 1864 we pointed out that the summers do not invariably take their characters from the vernal equinox. On the contrary, in 1851 1½ inch of rain fell in the equinoctial week, and the months of May, June, July, August, and September, which that period should typify according to the author, ought to have been excessively wet, but instead of that the weather on the whole was fine, and the quantity of rain was less than usual. In that year the precarious basis of the forecast completely gave way. The next year, 1852, it was not more fortunate. March of that year was remarkably dry, for in the whole month there fell only ¼-inch of rain, and in the equinoctial week not a drop. Judging from this a very dry summer and a short crop must have been predicted. What followed? In June there were only four dry days, the amount of rain for that month being nearly five inches, or double the usual quantity; in July the supply was ample; in August and September the quantity was again much above the average. In short, the five months typified to be exceedingly dry proved on the contrary to be excessively wet; whilst the previous season, typified by the equinoctial week to be very wet, proved to be excessively dry. These two successive seasons were in fact diametrically opposite to what they should have been according to the rules which the author of the forecasts has laid down. This year he seems to speak more doubtfully than usual on the subject; and in this we think he acts wisely. After carefully perusing the pamphlet, we are left in doubt whether the summer will prove good, bad, or indifferent.

The Chrysanthemum: its History and Culture. By John Salter, F.R.H.S., with coloured illustrations and engravings on wood. London: Groombridge & Sons, 1865. 8vo, pp. 75.

When Mr. Salter discourses on Chrysanthemums, it is the Oracle that speaks. No one we believe could be found more thoroughly competent to give the "complete history of the Chrysanthemum from the period of its first introduction into England in 1764 up to the present date," which is what is here promised, for it has been with the author an almost life-long study; and no one with Chrysanthemum sympathies about him could read the account given without finding much both of instruction and of interest. We content ourselves with stating that Mr. Salter's is a good book; and with the further remark, that on the points which he has thought necessary to the full development of his subject, the uninstructed reader may turn to his treatise with confidence, pass on to glean a few historical scraps from its pages.

To begin at the beginning: in 1764 a plant of the small yellow Chrysanthemum was growing in the Apothecaries' Garden, at Chelsea. In 1789, M. Blancard, of Marseilles, imported three varieties from China, one only—a purple—reaching France alive. To him, therefore, belongs the honour of introducing the large-flowered variety to Europe; in 1790 this purple variety found its way to England; in 1795 it bloomed at Mr. Colville's nursery, at Chelsea, and was afterwards figured in the Botanical Magazine. Between 1798 and 1808 eight varieties were introduced; in 1820 twelve distinct varieties were known in England; and in 1826 forty-eight sorts were growing at Chiswick. Up to this time the varieties were all imported, but in 1830 seed was saved in the south of France, and a new race of varieties sprang up, and soon became numerous. To the Chevelier Bernet, of Toulouse, belongs the honour of having raised the first European seedlings, and some of these are still prized, as for example, Maréchal Duroc, Insigne, Christine, and Chevalier Domage. The first *bonâ fide* English seedlings were raised in Norfolk by Mr. Short and Mr. Freeston, 30 years ago. Then followed the Channel Islands; and eventually, Mr. Salter himself, at his nursery at Versailles, produced a series of fine varieties, culminating in 1847 in one called Queen of England, acknowledged to be the finest Chrysanthemum extant. Since then the varieties have increased amazingly in number, and a high general standard of quality has been reached.

The second and third chapters are devoted to the garden culture of the Chrysanthemum; the fourth, fifth, sixth, and seventh, to specimen growing, including the production of standard plants; the eighth to growing cut blooms for exhibition: the ninth to sports; the tenth to classified lists; the eleventh to a most useful, succinct calendar of operations; and the twelfth to an alphabetical descriptive list of varieties known at the present time. For these various matters, the reader must consult the book itself.

The Chorale Book for England, with a Supplement containing English Hymns with appropriate Tunes. Longman & Co. 1865.

Some few years ago a clerical gentleman, well-known for his musical talents, was asked for a hint on the training of a village choir. A grim smile flickered for a moment in the corners of his mouth, as he delivered the following oracular response:—"Ascertain what have been the favourite hymns and tunes in your parish church for the last few years, and—banish them." This advice seemed harsh, but it was founded in good sense, for choirs will get into mannerisms and vulgarisms, which there is no hope of curing, and to these they cling most obstinately.

An excellent Chorale Book was published some time ago, bearing the distinguished names of Miss Winkworth, Dr. Sterndale Bennett, and Otto Goldschmidt. The tunes in it were new to English congregations—indeed, one-half of the tunes were expressly stated to be "original." Moreover, the words were necessarily new, being translations from the German. Our clerical friend would have chuckled to see his advice so literally followed. Many persons, however, regretted this banishment of hymns which they had known from childhood, and the old tunes which had at least the charm of early association to recommend them. To meet their reasonable wishes, the choicest of these hymns are now published in a Supplement, with the old tunes; some of them being very slightly altered in accordance with Professor Bennett's ideas of good taste. The Supplement to the Chorale Book will now be very generally considered the best part. It may be had separately, the congregational edition of the Supplement containing 66 pages, at the price of 1s.

The Irrationale of Speech. Longman & Co.

This very able paper on Stammering is reprinted from "Fraser's Magazine." The writer, who signs himself "C. K.," begins by directing attention to the marvellous faculty of speech with which man is endowed. He observes that children perform the complicated task which we call speaking, unconscious of its difficulty, and long before their little brains can be supposed to reason: and when people tell him that "man possesses the faculty of imitation," so far from being satisfied with such an explanation, "C. K." is more puzzled than ever. If we mistake not, he has himself known something of the misery of stammering, and with thankful heart he tells the world that this painful affliction may be cured.

It seems that a shrewd, observant undergraduate, when at Cambridge, set himself in earnest to try and cure his stammering friend, and met with so much success that he made that art the study of his life. The profession barked at his presumptuous intrusion, but Sir John Forbes and the great Liston were his staunch friends through life. The latter writes, "I have with much pleasure witnessed Mr. Hunt's process for the removal of stammering. It is founded on correct physiological principles, is simple, efficacious, and unattended by pain or inconvenience, &c." Such testimony is conclusive.

Mr. Hunt, by dint of good sense, patience, and perseverance, made many discoveries, and determined that his son and assistant should enjoy the advantage of a thorough surgeon's education, which the father never had. Dr. James Hunt has made the cure of stammering the *ergon* of his life.

Books Received.—*The Geological Magazine*, Parts 5, 6, 7, and 8, edited by T. Rupert Jones, F.G.S., and Henry Woodward, F.G.S., contain original articles on subjects of geological interest, reports and proceedings of societies, and reviews of books. That of Mr. Marsh's book, called "Man and Nature," treats of the inevitable result of destroying forests in Canada, the draining of lakes like that of Haarlem, and the fixing of sand plains by planting. Mr. Hunt's "Mineral Statistics of Great Britain" gives the consumption of coal for household purposes, manufactures, iron works, and exports, valued altogether at more than 20 millions sterling. Some papers relating to the thermal springs of Bath, and read there last year, are noticed. Reviews of Mr. Prestwich "On the Geological Position and Age of the Flint-implement-bearing beds, and of the Loess of the S.W. of England and N.W. of France;" and of Prof. Desor on the Lacustrine habitations of the Neufchatel Lake, will be read with interest. We regret to notice the death of the veteran geologist Professor Silliman, of Yale College, at the advanced age of 84.—*The Wild Garland;* by I. J. Reeve. Part I. Price 6d. Pitman, Paternoster Row. This has nothing to do with the flowers which Nature strews the world withal, but is in fact a collection of all the whims and oddities of poetry, the freaks and eccentricities, odds and ends, alliterative and macaronic effusions of wild brains, arranged in some sort of order. There is, for instance, our old friend, "An Austrian army awfully arrayed," where the words of each line are confined to a single initial letter. There are rhyming alphabets, univocal poems, *et id genus omne*, Horace Smith's famous L E G, Leonine verses, &c. Those who care for such things must invest 6*d.*—*The Watchtower*, Vol. I., No. 1, being the first number of a new religious shilling periodical, published at 158, Fleet Street. The first article is by the Rev. Capel Molyneux.—*The Day of Rest*, a new weekly penny religious publication.

Florists' Flowers.

The Report, dated last December, of the Trial of plants grown during 1864 at Chiswick, has just been published in the *Proceedings of the Royal Horticultural Society*, and from it we abstract that portion concerning Bedding Pelargoniums, which relates to those varieties adjudged worthy of three marks, considered equivalent to a First-class Certificate:—

I.—Plain-leaved Varieties.

Flowers scarlet.

Eleanor.—Dwarf, free habit; flowers large, scarlet, of good quality. As a pot-plant, under glass it proved dwarfish and free, with bright scarlet flowers in large trusses.

Faust.—Vigorous habit; flowers very bright scarlet, large, and of first-rate shape, borne in large trusses. It proved a very showy plant when grown under glass, producing immense heads of flower.

Lady Rokeby.—Moderately vigorous habit; flowers light scarlet, in fair trusses. This proved good as a pot-plant, but not so good as a bedder.

Little Major.—Dwarf habit; flowers light scarlet. This variety maintained its previous character as a good dwarf bedder.

Punch.—Vigorous habit; flowers large in bold ample trusses, bright scarlet, and very showy. The best of the large-growing plain-leaved scarlets in the whole collection.

Trentham Scarlet.—Moderately dwarf; flowers bright scarlet, in good trusses, free. One of the best of the dwarfer-growing scarlets for bedding purposes, and commonly grown as Tom Thumb.

Waltham Pet.—Very dwarf compact habit; flowers light scarlet, of good shape, with a small white eye. A good dwarf bedder.

In this scarlet-flowered series Achilles was awarded two marks.

Flowers cerise or rosy-scarlet.

Lady Middleton.—Moderately vigorous; flowers in large trusses, of good size and form, bright cerise. Also called Trentham Rose and Shrubland Rose.

One called Visitor received two marks.

Flowers rose-pink.

Christine.—Moderately vigorous habit; flowers rose-pink, freely produced, and of good form. Both this and Rose Queen hold their place in the first rank of bedding varieties.

Rose Queen.—Moderately vigorous habit; flowers rose-pink, with the base of the upper petals paler, freely produced, and of good form.

II.—Zonate Varieties.

Flowers scarlet.

Adonis.—Dwarf, free bold habit; leaves with a dark submarginal zone; flowers large, well-formed, in fair trusses, light scarlet with a white eye.

Amiral Protet.—Moderately vigorous in habit; leaves with an indistinct zone; flowers large, deep scarlet, of fine shape, and produced in bold effective trusses. It proved a very showy pot-plant, under which circumstances only it was grown.

Attraction.—Moderately vigorous; leaves with an indistinct green zone; flowers abundant, bright scarlet, in fine trusses, of good form and moderate size. Also called Scarlet Perfection, Sutton's Perfection, Old Perfection, Boule de Feu, and Montfordi.

Clipper.—Moderately vigorous habit; leaves with broad dark zone; flowers bright scarlet, large, and of fine shape, produced in good trusses. Equally good as a pot-plant, under glass.

Garibaldi.—Very dwarf close habit; leaves small, flat, with a broadish well-defined dark zone near the edge; flowers bright scarlet, of good shape, in compact trusses. A beautiful plant for small beds or margins.

Martin Gireau.—Vigorous habit; leaves with broad dull zone; flowers large, in fine trusses, of good form, light scarlet.

Victor Emmanuel.—Vigorous habit; leaves with broad dull zone; flowers large, in bold trusses, and of fine quality, very similar to those of Punch. One of the best of the zonate scarlets.

Vivid.—Moderately vigorous habit; leaves with broad dull zone; flowers of fine form in bold trusses, of a bright scarlet. A very fine sort, one of the best as to the shape of the flowers, and equally good as a pot-plant.

Volcano.—Moderately vigorous habit; leaves with indistinct green zone; flowers light orange-scarlet, large, in bold trusses, and freely developed.

Besides these, two marks were assigned to Cheshire Hero, Commissioner, Cottage Maid, Emperor of the French, Harry Hieover, Lucien Tisserand, Persian, Princess of Prussia, Red Riding Hood, and Rev. Joshua Dix.

Flowers cerise, rosy scarlet, or rose.

Hector.—Moderately vigorous habit; leaves marked with a dark well-defined zone; flowers of good shape, in compact trusses, and of a bright cerise. It resembles Bonnie Dundee, but is decidedly better. It proved equally good as a pot-plant.

Herald of Spring.—Vigorous habit; leaves with a broad dark vandyked zone; flowers of fine form, large, in compact trusses, cerise scarlet. A fine variety, larger and paler than François Chardine.

Lord of the Isles.—Moderately vigorous habit; leaves with broad dull zone; flowers rosy scarlet.

Monsieur Martin.—Moderately vigorous habit; leaves with dark vandyked zone; flowers cerise scarlet, of fine form, in bold trusses. A very fine sort for pot-culture.

Nora.—Of fine and rather vigorous habit; leaves with a broad dull zone; flowers large and of good form, rosy scarlet, in compact trusses. A fine variety out-of-doors, and of nearly equal merit under glass.

Roi d'Italie.—Dwarf and vigorous habit; leaves marked with a bold dark zone; flowers freely produced, large, of excellent form, salmony or cerise scarlet. A very fine variety for all purposes.

Umpire.—Vigorous spreading habit; leaves with an indistinct and unequal zone; flowers of fine shape, large, in bold trusses, rosy scarlet. A beautiful pot-plant.

Two marks were adjudged to Aspasia, Beauty, Bonny Dundee, Cecilia, Comte de Morny, Effective, François Chardine, Giralda, Paul Labbé (not Paul l'Abbé, as so frequently written), and Pink Pearl.

Flowers salmon, or flesh-colour.

Aurora.—Dwarf habit; leaves distinctly dark-zoned; flowers free, flesh-colour.

Princess Mary.—Vigorous habit; leaves broad and flat with a very broad dark zone: flowers in the way of those of Prince of Hesse, shaded salmon-pink, of fine form, and produced in good trusses. A seedling raised at Chiswick.

St. Fiacre.—Rather dwarf habit; leaves with a deep dull zone; flowers abundant, salmon-pink, deeper in the centre. Also free, showy, and of the first quality as a pot-pot.

The two-mark varieties were:—Auricula, Fanty, Prince of Hesse, Rosamond, Souvenir du 8 Juin.

Flowers white.

Madame Voucher.—Vigorous habit; leaves with dark zone; flowers in good trusses, white changing to blush. The most useful of the whites grown in the collection.

White Perfection.—Vigorous habit; leaves marked with a broad zone of dull brown; flowers blush-white. Under glass this proved of the first quality, the flowers being pure white, of good shape, and thrown well up.

Flowers white or pale-coloured with salmon eye, i. e. oculate.

Amelina Grisau.—Moderately vigorous habit; leaves marked with a broad dark zone; flowers large, of fine shape, white, with a bright salmon eye. Altogether a very fine sort, with the colours bright and well-defined.

Beauty.—Moderately vigorous habit; leaves marked with a dark zone; flowers of very fine shape, white, with a salmon-coloured eye forming an edging to the base of the petals. One of the best of the race.

Eugenie Mezard.—Moderately vigorous habit; leaves with a broad dark zone; flowers white at the edge, with salmon centre, showy, well formed, and produced in good handsome trusses. This was received also under the name of Madame Rudersdorff. It was of the first degree of merit as a pot-plant.

François Desbois.—Moderately vigorous habit; leaves with a dark submarginal zone; flowers white, with a bold deep salmon eye, freely produced. A good pot-plant, but not equal to Amelina Grisau.

Leonie Nicolet.—Moderately vigorous; leaves broad, marked with a dark zone; flowers of good form, white, with salmon eye, in fine trusses. It proved also to be a first-rate pot-plant, with fine elevated trusses of salmon-flesh flowers, paler and whitish towards the edges.

To Marie Labbé two marks were awarded.

Flowers rose-pink.

Eve.—Of rather vigorous habit; leaves marked with a broad dull zone near the centre; flowers large, in large trusses, of fine shape, light rosy pink with white base. A very fine pale variety in the open borders, and of nearly equal merit as grown in pots.

Flora.—Moderately vigorous habit; leaves with an indistinct green zone; flowers large, pale rosy pink or peach, white at the base, and of fine shape. A fine large pale peach-coloured sort, grown only under glass, under which conditions it was of first-class quality.

Helen Lindsay.—Of rather vigorous habit; leaves with a broad indistinct zone near the centre; flowers abundant, in fair-sized trusses, deep bright rose pink. A very lively and bright-coloured variety.

Rose Rendatler.—Moderately vigorous habit; leaves with a dark vandyked zone near the centre; flowers lively rose pink, with white base, of good shape, and borne in compact trusses. A fine sort both for beds and pot culture.

Here Amy, Madame Cassier, and Minnie received two marks.

III.—Marbled-leaved Zonate Varieties.

Sheen Rival.—Moderately vigorous habit; leaves darkly zoned and marbled with light green; flowers bright light scarlet, of good form, in fine trusses.

IV.—Nosegay Varieties.

Leaves zonate.

Cybister.—Full vigorous habit; leaves large, with a dull olive zone; flowers in large trusses, well thrown up, narrow-petaled, scarlet. It is of a very effective colour, brighter and lighter than Stella, but with longer and narrower petals.

Merrimac (French).—Moderately vigorous; leaves with a broad dull zone; flowers in immense heads, deep cerise or carmine-rose, the blossoms broad-petaled for one of the Nosegay race. It was grown only in pots, and was in this way quite first rate.

Stella.—Vigorous habit; leaves with dark zone; flowers in bold trusses, broader-petaled than Cybister, and of a deeper scarlet. One of the finest of all Pelargoniums for effect.

Leaves variegated with white.

Variegated Nosegay.—Moderately dwarf habit; leaves whitish at the edge, cupped; flowers abundant and effective, but loose, cerise-pink.

Two marks were assigned to Lady Cullum, Lord Palmerston, Magenta, Merrimac (Carter), and Monitor.

V.—Silver Variegated Varieties.

Leaves zonate and marginate.

Margins white.

Argus.—Moderately vigorous habit; leaves with whitish edge and indistinct pink zone; flowers very bright light scarlet, well formed, and in good trusses.

Countess of Warwick.—Vigorous free habit; leaves whitish at the edge and with a dark red zone; flowers abundant, scarlet.

Fontainebleau.—Dwarf habit; leaves with a whitish margin and a faint pink zone; flowers cerise.

Picturatum.—Dwarfish habit; leaves flat, with whitish edge and well marked pink zone; flowers light scarlet.

St. Clair.—Free and moderately vigorous habit; leaves cupped, whitish at the edge, and having a dull zone; flowers rather narrow-petaled, in fine trusses, pale cerise pink. Also grown as Victoria.

In addition, Julia and Silver Chain, in the white-margined series, received two marks.

Leaves marginate, not zonate.

Margins white.

Alma.—Moderately vigorous habit; leaves with a broad whitish edge; flowers deep scarlet. Of free healthy growth.

Bijou.—Moderately vigorous; leaves flat, with a whitish edge; flowers of good form, scarlet. Considered better than Jane, but of a more compact growing habit.

Jane.—Moderately vigorous habit; leaves whitish at the margin, rather cupped; flowers scarlet. Of good free habit, covering the ground well.

Queen of Queens.—Moderately dwarf; leaves whitish at the edge; flowers scarlet. A free grower, and dwarfer in habit than Jane.

Margins cream-coloured.

Flower of Spring.—Moderately vigorous compact habit; leaves broadly edged with cream colour; flowers large, of good form, deep cerise-scarlet.

Silver Queen.—Vigorous habit; leaves large, round, scarcely lobed, flat, with a well-defined broadish creamy edge; flowers abundant, loose, rose-pink.

Besides these, Annie and Meteor, in the cream-margined series, had two marks assigned to them.

VI.—Golden Variegated Varieties.

Leaves zonate and marginate.

Mrs. Pollock.—Vigorous habit; leaves flat with a broad yellow border, and zone of deep red; flowers scarlet. A very beautiful variety.

Sunset.—Dwarfish and spreading habit; leaves smooth, flat, with a broad yellow border and distinct zone of light orange-red; flowers cerise scarlet. A very beautiful variety.

Leaves marginate, not zonate.

Cloth of Gold.—Dwarf habit; leaves flat, downy, deep yellow, with small bright green disk; flowers deep scarlet.

Golden Chain.—Spreading habit; leaves broad, flat, rounded with a deep yellow edge; flowers deep cerise-scarlet.

Golden Fleece.—Dwarf spreading habit; leaves flat, yellow, with green disk; flowers abundant, bright scarlet. Appears to be of freer habit than Cloth of Gold.

Two marks were awarded to Golden Harkaway, a dwarf variety of the series with the leaves marginate and not zonate.

The Apiary.

"An Amateur" writes: "I have two stocks of bees in common straw hives, one of which is tolerably strong, and the other rather weak. Pollen is carried in by the bees of both hives, so I presume breeding is being proceeded with. I have purchased two Woodbury frame hives, and am very anxious to have them stocked at once. I therefore intend to transfer the bees and combs into the new boxes, but do not know how to carry out the necessary operations. I should be much obliged if you would inform me,—first, if there be any serious objection to my attempting the transfer; second, how best to proceed in the, I must confess, to me formidable affair."

In reply to these queries, we are much inclined to say, do not attempt the transference of bees and combs into your frame hives. To "an amateur," the necessary manipulations are not easy: though to the more experienced apiarian they are by no means very formidable. With the most skilful there is a considerable amount of risk, and owing to the waste of material consequent on the fitting of combs, varying in size, into the frames, the result is often that the season is very far advanced before the transferred bees become numerous and prosperous.

We should advise the bees being allowed to remain as they are, until after they have thrown off swarms. Let the swarms be hived as usual into the frame hives. If it is desired that the straw hives should be done away with, exactly three weeks after their swarms have issued, drive out all the bees from the old stocks, and unite them to their relative first swarms. The reason for waiting three weeks is that all the brood may have been hatched out, so that as little may be lost as possible.

But as "An Amateur" has almost determined on attempting the transference, we will endeavour to describe the proper mode of proceeding. In the first place we should be inclined to unite the two colonies of bees into one frame box, one of the stocks being a weak one. If the weak stock be placed in a box by itself, nearly the whole summer will have passed before the bees will have recovered the effects of the disturbance, and filled up all the vacant places.

Let every article that can possibly be required be at hand; these consist of a large knife, the curved comb-knives, clamps made of strips of stout zinc, about 4 inches long, to bend over the frames, for keeping the combs parallel with the centre of the frames; some strong binding wire and thin laths of deal for tightening combs, when too shallow, up to the bars (Mr. Neighbour, in his useful Manual, recommends tape for this purpose, but we have never tried it); a basin of water for rinsing the hands; feathers for brushing off any bees that may be about the combs; and any other articles that may be at all likely to be wanted. A large deal table will be necessary; a loose thin board of about 16 inches by 10 will be found very useful for turning over the combs, so as not to loosen them in the frames. The timid operator will not forget his bee-dress and gloves; for the last, India-rubber gloves will be found very useful.

Having everything in readiness, drive out all the bees from the straw hive, in the manner detailed in our last Number at p. 368, placing the hive containing the bees on the old stand. Then remove the stock hive to a place likely to be free from molestation by robber bees, where the operation of the transfer is to be carried on. Carefully cut out the combs, placing one of these on the small board; mark with the frame, cutting it rather larger, so as to ensure as tight a fit as possible; secure from shifting with the zinc clamps, or if not deep enough to fill the whole frame, draw up the comb by means of the slips of wood sustained by the binding wire; and pare away any unduly thick comb. If some of them are crooked, they may be flattened by gently warming before the fire, and applying gentle pressure on a flat surface until the combs become sufficiently cooled to allow of being handled. Care must be taken not to bruise the cells which contain the brood. Having attached in the frames all the combs that can be made available, place them in their proper position. Then gently lift up the hive which contains the expelled swarm, set down the new box in its place, remove the cover, and with a sharp concussion between the hands dislodge all the bees on to the upper surface of the frames; they will quickly descend among the combs. The cover may be gently slipped or pushed on (it must not be placed right down on the top of the box, or many bees will be crushed), and the hive allowed to take its chance. Two days afterwards the hive must be visited, each frame lifted out, any points of union or too projecting parts of the combs must be pared away, and the supports and clamps may be removed from all combs which have been firmly and properly secured by the bees. If any are not so secured, the supports must be left for a day or two. No irregularity of comb should be permitted, and they must be pared away wherever they have been in too close proximity, and have been united by the bees.

So far "An Amateur" has been instructed how to proceed with a transfer of a single stock. As he is circumstanced we have recommended him to effect a union of the weak with the strong, which may be done as follows:—Drive the second hive and fix the combs in the frames in the way already described. Place two of the brood combs in the second frame box, and dislodge the bees among them. Insert the largest and best of the remaining combs in the box first operated on, putting all the brood near the centre. A few hours, or the next day after, the second box may be examined and the queen secured or destroyed, the combs with the bees clustering on them may be transferred into the box, making room for them adjoining to the other brood combs. It is better for the two hives to have been located pretty near together, or some bees will be lost from returning to their old stand.

A little smoke puffed in among the bees at the time of uniting them, and inserting the brood-combs, may generally be used advantageously; and sometimes a little sweetened water flavoured with peppermint prevents much loss of life from fighting. It will be well to inspect the hive in a day or two, to remedy any irregularities, straighten crooked combs, and more especially to ascertain that the queen is safe, and has not been sacrificed during the excitement consequent on the forced union. It is very likely that the two stocks made into one and transferred into a frame hive, will, should the season be pretty favourable, very quickly fill up all deficiencies, and be in a condition for working a large-sized super; whereas, if they were shifted into separate boxes, neither would be sufficiently populous to take full advantage of any fine honey harvest. No greater mistake can be made by apiarians, who look for ample returns of honey rather than an increased number of swarms, than that of hesitating to unite weak stocks either to each other or to more populous colonies.

Garden Memoranda.

M. Willink's, Amsterdam.—At a short distance from the fine building in which the Horticultural Exhibition took place, by the side of the river Amstel, stands a substantial mansion belonging to this gentleman. It is backed by trees, which, taken in connection with the view of the river and ships sailing to and fro, have a charming effect. This place is remarkable for its fine collection of Orchids and Ferns; the latter is stated to be the best in Holland. M. Willink has grown Tree Ferns for several years, and it is astonishing to see the rapid growth they have made; some of the stems are 6 feet high. One house contained a surprising number of specimens, exquisitely arranged. The building being lofty, the larger growing Ferns were placed at the back. In this way they had a good effect, their graceful fronds towering above the smaller growing kinds. The houses are what are termed "lean-to's." The first is small and used for propagating and growing a few cool Orchids. Among the latter were some fine plants of Odontoglossum pulchellum and grande; and Oncidium Phillipsianum, an extremely useful kind for winter and spring flowering. Associated with these were several plants of the lovely Pogonia discolor, with velvet-like leaves, and beautifully grown. Cultivators here seem to have hit upon the correct way of propagating this plant, viz., dividing the bulbs when at rest. This plant is seldom seen in this country, but it is, nevertheless, well worth attention. It would thrive along with Anæctochili, in the same material, with the exception of a little peat, which should be mixed therewith.

Among Ferns there was a grand plant of Alsophila contaminans, with lofty stem and exquisitely graceful foliage, 10 feet in length; A. australis, very fine; Cibotium Schiedei and princeps, two of the best Ferns that can be cultivated in a cool house; Platycerium grande, with fronds resembling a stag's-horn issuing from a flat block on which it was growing; the rare Hemiteha Karsteniana, a fine-looking Fern, with a tall stem; a beautiful new Marattia; Angiopteris evecta, together with splendid specimens of Alsophila radens, and Goniophlebium subauriculatum, the last with drooping fronds more than 3 feet in length, and a fine Fern for cultivating in baskets. In this house were likewise a few Orchids. The next house contained a collection of miscellaneous greenhouse plants, for which there does not exist so much fondness on the Continent as with us.

A span-roofed house with a stage up the centre, and a platform on each side and end, contained Orchids. It is not, however, so well adapted for their cultivation as it might be; the heating is defective, there being too few pipes; strong fires have therefore to be kept up, in order that the house may have the right temperature. This produces a dry heat, which causes many of the leaves to shrivel. The pipes used are of copper, about 3 inches in diameter, and only two pass round the house. If these were removed and three rows of 4-inch iron pipes substituted, the house would then be much more suitable for the plants. Notwithstanding the faulty heating apparatus, fine plants may nevertheless be found in this house, but great care must have been bestowed upon them in watering to keep up a nice growing atmosphere. Among kinds in flower were Cypripedium villosum and hirsutissimum; C. barbatum; a fine plant of Cropedium Lindeni, with several flowers on it; Vanda suavis; V. tricolor, 6 feet high; Aerides virens; and Cypripedium javanicum, with beautifully variegated leaves. Along with these were moreover Aerides roseum, a plant which takes a long time to grow into a fine specimen; Lælia superbiens, well grown and apparently free-flowering; Saccolabium curvifolium, and Cypripedium Schlimmii, a very rare and difficult plant to cultivate, in excellent condition.

In the centre of this house were hanging in baskets some fine Orchids, among which was the new Phalænopsis violacea, on a block, but not in good health. Under the Orchids were grown a nice assortment of Ferns, which had a pretty effect, and were in a suitable situation, the moisture arising from them being of benefit to the Orchids. Among the Ferns were the beautifully variegated Doryopteris nobilis; Hymenodium crinitum, with its broad distinct hairy leaves, 2 feet in height; Cibotium Schiedei, and some beautiful Lycopodiums, of which there is here a good collection.

Anæctochili are well grown in this establishment; they are kept under glass in the Orchid house, and appear to increase as freely as a Pelargonium They are cultivated in Moss, sand, and charcoal, and are not kept so close as is often the case with this class of plants; indeed, we are of opinion that with us they are generally too much coddled. If, on the contrary, people would follow the plan just recorded, they would find that their plants would thrive much better. M. Willink has his potting-shed adjoining his Orchid house, but instead of having it at the back, out of the way, it is placed at the entrance. To Orchid-houses there should always be a glass lobby for climbers and a few hardy plants, so that the inner door may open into the house; this would be of great benefit to tender plants, by preventing the ingress of cold draughts, especially so in Holland, where the winters are long and cold. Out of doors was a good collection of hardy Ferns, which seemed to be starting very freely; they were well shaded with trees in summer, which is very requisite for this class of plants. Roses were well cultivated here, as were also fruit trees, such as Pears, Apples, &c, which do surprisingly well in such a damp country. Their stems are green with Moss, but they promise, nevertheless, to produce a good show of blossom, and they are stated to bear abundance of fruit, and of good quality. They have a hot summer to ripen the wood in, which is of great advantage to them. *W.*

Calendar of Operations.

(*For the ensuing week.*)

During the present bright warm weather the ventilation or rather aëration of glass houses will demand increased attention. In summer, more especially, it is the one thing which requires to be secured in order to render our artificial climates natural. Under an unskilful system of aëration ill health, with its attendant evils, is sure to present itself, rendering the best directed cultural efforts in other respects abortive. When it is remembered, in short, that the two great operations of leaf feeding and perspiring depend very much upon it, its importance will not, we think, be disregarded. The planting out of bedding plants is another matter to which attention must now be directed, in order to prevent disappointment hereafter. During the months of April and early in May the skies are often so propitious, that we cannot but believe the winter has quite departed. With warm nights and sultry days we banish every thought of frosts and bleak winds; all hands are set to work to turn out our Pelargoniums and other plants intended to decorate our flower beds during the summer, and we flatter ourselves that we shall have a long and brilliant display of floral beauty. But north and east winds return, night frosts re-assert their iron rule, and a few hours blast the labours of a whole winter. Be therefore in no hurry to turn delicate plants out of doors for a week or two yet to come.

FLOWER GARDEN AND PLANT HOUSES.

Climbing or trained plants while growing will require constant attention in the way of thinning and stopping. Air must also be freely admitted, and pot plants, especially fine specimens, should be allowed abundance of room. Maintain a moist temperature, and see that nothing suffers from want of water. Inspect carefully young stock, especially that for blooming next winter. Early-sown Chinese Primroses and Cinerarias may be had in flower in October and November. Out of doors mowing, rolling, and cleaning will require attention.

Annuals.—When these are large enough to handle, they must be thinned. If the plants are allowed space, they will develop themselves properly, which cannot be the case when they are crowded together. Such kinds as Nemophilas, Clarkias, Eschscholtzias, Erysimums, and others, which are not only beautiful but well known, may be freely thinned out.

Carnations and Picotees.—Before the plants have made large roots place sticks to them. When deferred to a later period, thrusting in the stick often destroys some of the roots. Attend to watering, which must always be done effectually, taking care that the soil does not shrink from the sides of the pot, so as to allow the water to drain away without benefiting the roots.

Dahlias.—Soil for these should be rich and well worked, preparatory to planting out. See that the young plants do not get pot-bound.

Pinks.—Place small neat sticks to these, and top-dress the beds with good decomposed manure.

Polyanthuses.—Shade and moisture are absolutely necessary for these at this season. Save seed from the best-formed flowers.

Ranunculuses.—Water between the rows—not often, but when it is done, let it be well done. Keep the beds free from weeds, and occasionally flood the walks round them.

Tulips.—Early varieties will now be in full bloom; attend to them with water, and keep the beds in which they are growing neat and clean.

FORCING GARDEN.

Melons.—Where early fruit is swelling, the soil should be kept in a properly moist state, and every means should be taken to preserve the foliage in perfect health. Keep the Vines thin, and prevent their being encumbered with useless laterals; remove any decaying leaves at once, as these when left only serve as a harbour for insects.

Pines.—Where these are grown on the planting out system, it should be remembered that the soil ought to be entirely renovated once in three or four years; the time for this operation must be left to the judgment and convenience of the cultivator; but if all or nearly all of the older plants in any pit have perfected their fruit, such is an excellent opportunity for the purpose, and this is a very favourable time of year for the operation. The younger plants (which have been put in, one after another, as vacancies occurred) after being well watered, may be carefully lifted with balls, and set in a close shed while the soil is being changed. But if any remain of those which have already shown fruit, they may be left standing, with a small mound of earth about their roots. Or if they are not very far advanced, they may, for appearance sake, be removed with balls to the back row; as they do not suffer if it be carefully done. The soil should consist of about one-third of the best peat that can be obtained, and two-thirds of rich turfy loam, with an admixture of sand, according to the requirements of the other materials. The plants of the back row should be planted before the soil is put in for the second one; and the remaining rows proceeded with in the same order, that none of the soil be needlessly compressed. If the new soil is moderately moist, it will be better to withhold water from the roots for a few days, to allow the plants to make an effort of their own; and until they are thoroughly re-established a moister atmosphere must be kept up, and the pits shaded rather more than usual.

Vines.—A liberal supply of air is the best preventive of scorching. In regulating late crops, rather more berries should be cut away than from those intended for earlier use, that the bunch when ripe may hang looser. This will detract a little from their appearance, but the free circulation of air amongst the berries will do much to preserve them from injury in damp weather.

HARDY FRUIT AND KITCHEN GARDEN.

Water where necessary, and keep down weeds among growing crops.

Lettuce.—Prick out or sow as wanted; when old crops are done with remove them, and manure and dig the ground.

Onions.—An occasional dusting with soot, on damp evenings, has been found highly beneficial to these. Thin out, and hoe between the rows.

Peas.—Continue to sow for successional crops.

Potatos.—Stir the soil between the rows, and earth up as requisite.

Radishes.—Turnip-rooted and others may be sown now. The Black Spanish where liked is best for winter use.

Turnips.—Sow for successional crops. The Snowball, Orange Jelly, and Stone, are excellent.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.
For the Week ending April 26, 1865, as observed at the Horticultural Garden.

April.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth 1 foot deep.	Temperature. Of the Earth 2 feet deep.	Wind	Rain.
Thurs. 20	24	30.172	30.149	67	39	53.0	53	50½	N.E.	.00
Friday 21	25	30.136	30.058	76	40	58.0	54	51	N.E.	.00
Satur. 22	26	30.118	30.078	78	32	55.0	55	51½	N.E.	.00
Sunday 23	27	30.173	30.107	78	30	54.0	54	51½	N.E.	.00
Mon. 24	28	30.235	30.182	74	32	53.0	55	52	N.E.	.00
Tues. 25	●	30.205	30.117	71	30	50.5	54½	52	N.E.	.00
Wed. 26	1	30.116	30.093	80	35	57.5	54½	52	N.W.	.00
Average		30.164	30.112	74.8	34.0	54.4	54.3	51.5		.00

April 20—Very fine throughout.
— 21—Overcast; very fine, with dry air; fine at night.
— 22—Very fine, very dry air; cool at night.
— 23—Very fine; exceedingly fine; at freezing at night.
— 24—Clear; cloudless and very fine throughout.
— 25—Slight haze; cloudless; hot sun; cool at night
— 26—Very fine, hot and dry with bright sun; hotter, with one exception, than any day in April for the last 38 years.

Mean temperature of the week, 6.4 5th deg. above the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 39 years, for the ensuing Week, ending May 6, 1865.

April and May.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds.											
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	N.	N.E.	E.	S.E.
Sunday..30	61.4	39.5	50.5	16	0.31 in	6	3	8	2	3	7	3	3				
Mon. .. 1	61.7	39.7	50.7	14	0.51	4	7	7	4	5		4	1				
Tues. .. 2	62.9	39.5	51.1	14	0.72	4	9	10	1	5	6	3	2				
Wed. .. 3	61.8	40.3	51.0	18	0.58	2	8	10	1	4	7	3	5				
Thurs. .. 4	62.2	38.5	50.3	14	0.70	6	10	8	1	6	4	3	1				
Friday .. 5	62.4	38.8	50.6	20	1.26	5	11	4	4	8	5	1					
Satur. .. 6	61.7	38.9	50.3	15	0.68	7	11	5	5	4	6	3	2				

The highest temperature during the above period occurred on the 6th, 1862—therm. 84 deg.; and the lowest on the 2d, 1855—therm. 20 deg.

Notices to Correspondents.

Fuchsia: *R A R.* Your flowers afford a good illustration of the replacement of sepals by leaves; two of the sepals in the present flower being completely foliaceous, and the other two partially so. The remaining parts of the flower do not appear to have undergone any change.

Fungi: *J P.* Your Fungus is the common esculent Morelle *M. J. B.*

Hollyhocks: *E H.* Thanks. Pray do as you propose.

Names of Plants: *J Allan.* The paler one is H. orientalis, the other appears to be H. purpurascens.—*C B.* Pyrostria polymorpha.—*E L.* 1, Pleopeltis pustulata; 2, Onychium lucidum; 3, Polystichum capense; 4, Platyloma rotundifolium.—*C W.* Sparmannia africana.—*D M.* 1, Adiantum pubescens; 2, A. cuneatum; 3, A. Capillus veneris; 4, Nephrolepis pectinata.—*A.* 1, Pteris hastata; 2, Pteris geranifolia; 3, Lastrea intermedia.—*Henery* 1, Platyloma flexuosum; 2, Pleopeltis pustulata; 3, Polystichum capense.

Peach Leaves: *J P.* It is probable that the tips of your Peach leaves wither from a chilly draught of air when they are wet. We have seen something of the kind occur simply from opening a light above a Peach tree. There is a very minute white Fungus on the withered patches, but as it is confined to them, it is in all probability an aftergrowth. *M. J. B.*

Violets: *D B & Co.* The double white variety which you propose to call Queen of Violets appears to be an acquisition. The flowers are large, full, a little tinted, but deliciously sweet. The property of flowering in autumn as well as in spring, will make it all the more useful.

Water Cresses: *M T W.* Water which is impregnated with oxide of iron is not prejudicial to the growth of Water Cresses, but if the oxide is present in such large proportions as to form a thick scum on the surface of the water, it is then a very difficult matter to get them clean, and the flavour is not so good; but where the stream flows sufficiently fast to prevent either scum or sediment, the presence of the oxide will not affect the possibility of obtaining a good crop. The cultivation is easy where there is a command of a gently flowing stream, and a depth of from 3 to 6 inches of water can be secured. If the bottom is of mud it must be removed, and a new bottom of gravel or chalk substituted. The best time to form beds is May and June for autumn use, and September and October for spring use, at which time select strong well-rooted cuttings, and fasten them to the bottom of the stream on the gravel, by means of a stone placed on each cutting. The rows in shallow water should be 18 inches apart, but if the stream is very deep, 4 or 5 feet is not too much. Care should be taken in gathering the crop not to disturb the plants; hence it is always best to use a knife instead of breaking them off.

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GENUINE FARM SEEDS.

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To Market Gardeners and Seedsmen.

RICHARD WALKER, SEED GROWER, &c., Biggleswade, Bedfordshire, begs to offer the following for cash:—
YELLOW GLOBE MANGEL WURZEL, 32s. per cwt.
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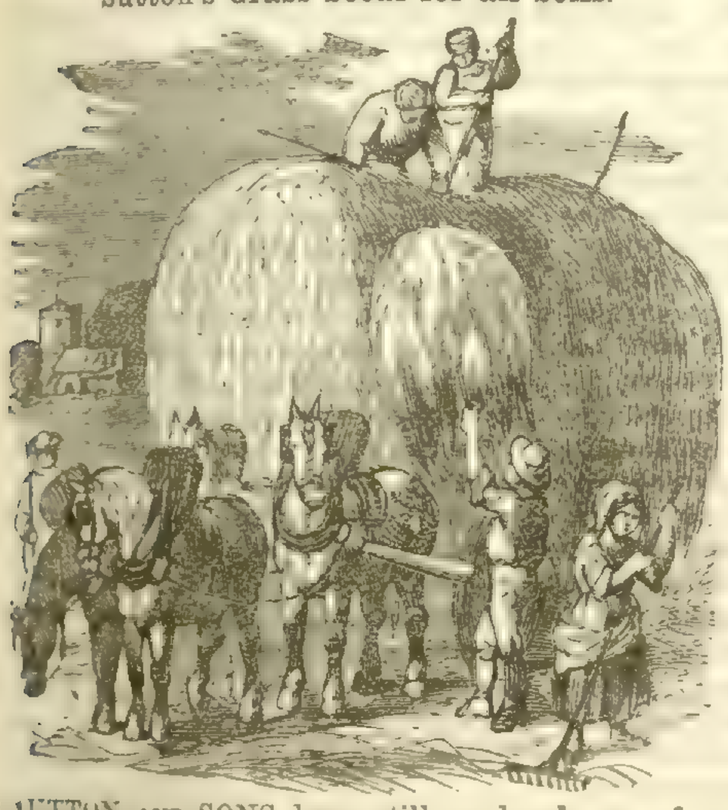
Sutton's Grass Seeds for all Soils.



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Two yards wide	1s. 9d. per yard run.
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An improved make, 2 yards wide ..	1s. 9d. per yard.
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Rates of Postage for the Transparent Cloth Sample Bags:—Under 4 oz., 2d.; above 4 oz. and under 8 oz., 4d.; above 8 oz. and under 16 oz., 8d.; above 16 oz. and under 24 oz., 1s.
No Parcel to be more than 24 oz. in weight, or over 2 feet long.

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For further information please apply to Mr. G. LÜBEKE, of the firm of Lübeke & Hornemann, Wismar.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.
PLYMOUTH MEETING.
LAST DAY for ENTRY of IMPLEMENTS, MAY 1.
All Certificates received after that date will be returned to the Senders.
H. HALL DARE, Secretary.
12, Hanover Square, London, W.

The Agricultural Gazette.

SATURDAY, APRIL 29, 1865.

MR. ALDERMAN MECHI has been good enough to forward to us for publication a letter which he has received from Baron LIEBIG on an old subject—THE EXHAUSTION OF ENGLISH SOIL. It has been written in consequence of the assertion in an anonymous pamphlet on the sewage question that facts belie the German theory on this subject. And, very fairly recommending Englishmen not so to deny the possibility of danger as that when it really occurs they shall be found like the ostrich, hiding their head in ignorance, the writer gives an example of what he considers to be an illustrative fact on the question.

It appears that since Dr. SCHNEIDER commenced, 10 years ago, as Agent of the Rhenish Agricultural Society in the Grand Duchy of Hesse, to lecture on the principles of the so-called Mineral Theory, 57 depots of artificial manures have been established within an area of "25 geographical miles square," which we suppose to mean 25 geographical (German) square miles, or nearly 340,000 acres. During 1863, 90,000 tons of artificial manure, more than 5 cwt. per acre over the whole of this area, were used, which is 3600 tons per German geographical mile, 10 times as much as LIEBIG calculates it. In consequence rents have risen so much during 10 years as to represent an increased capital of 10,000,000*l.* over the district—equal to 30*l.* per acre in gross, or at least 20*s.* per acre in annual value.

This is what LIEBIG considers "a proof that the state of agriculture in a land is really improving." We have abundance of such illustrations in this country. Mr. R. SCOT SKIRVING speaks, in the current Number of the English Agricultural Society's Journal, of 10 years' experience in East Lothian, which at the commencement of the period was the model district of the island, the historian then being able to speak of perfect agricultural prosperity. In 1855 farms were let at an increase varying from 20 to 100 per cent. upon their former rental. Since then, notwithstanding much lower prices for grain and Potatos, indeed rather perhaps in consequence of them, the quantity of purchased manures has largely increased. In 1853 a leading farmer, Mr. HOPE, of Fenton Barns, is quoted as purchasing 1*l.* worth of manure for every acre he farmed, but now, besides a large increase of artificial food consumed by stock, the manure bill has risen upon all the best managed farms to nearly 2*l.* per acre.

Mr. HENDERSON, of Long Niddry, states that on 750 acres he expends annually from 1200*l.* to 1400*l.* on portable manures, and 1000*l.* on feeding stuffs, together nearly 70*s.* an acre. Moreover the wages during the past 20 years have been nearly doubled. On farms where, 15 years ago, the monthly account for female and casual labour amounted to 10*l.*, the charge may now be safely estimated at 30*l.*

The plants cultivated, the live stock kept, the implements employed, all bear witness to a more energetic agriculture; and together, they form a body of testimony greatly superior to that which is afforded by the two items of manure and rent which are referred to by Baron LIEBIG. And East Lothian is but one of many similar districts. We cannot, indeed, show 340,000 acres in one plot, applying 5 cwt. per acre of artificial manure over the whole area, but taking purchased cattle food and manure together (and we look upon the former as an even more substantial fertiliser than the latter) the expenditure over a much larger area on the whole is even greater per acre in this country than that which Dr. SCHNEIDER, as quoted by LIEBIG, describes.

There is however sufficient inconsistency in the statement which the letter conveys to make us somewhat doubtful of its real meaning, and we should be glad to know whether the fact stated really is that by the use of 5 cwt. of imported manure per English acre, rents have risen 20*s.* during the last 10 years.

The statistical inquiry which LIEBIG recommends is one of which the importance has been often insisted on in these columns. And we should be heartily glad to see it prosecuted here, whether it should diminish our self-esteem or not. There is a prospect this year, we believe, of some inquiry of the kind being undertaken by the Government.

Meanwhile it appears that in the Rhenish Provinces of Hesse it is possible to find an example of agricultural progress satisfactory to the great German chemist, notwithstanding that it seems to depend solely on that use of artificial manure which as seen in England is an outrage on common sense, a proof that JOHN BULL is blind, so that in his ignorance he robs and ransacks the rest of the world, hanging on it 'as a vampire,' for that of which in his cesspools and sewers he has abundance at home. We should be glad to have the full statistics of the agricultural manure question in England, and of the sewage question in Hesse, in order that a full and fair comparison of the two agricultures might be made.

The following is LIEBIG's letter:—

"*Munich, April* 10, 1865.

"MY DEAR SIR,—Some weeks ago I received a pamphlet 'The Agricultural Value of the Sewage of London,' (Edwd. Stanford, Charing Cross) in which is the following passage to which I should like to direct your attention:—'Still more recently Baron LIEBIG authoritatively stated that the soil of England under the modern system of farming is becoming impoverished, and reduced to the state of barrenness which afflicted the Roman States in the latter days of the Empire; but, challenged to point out a single example, he has remained silent, facts being notoriously opposed to the Professor's theory.' With regard to the condition of the English soil, I am well aware that English opinion is but too disposed to believe it supremely satisfactory, but I have grounds for believing that a statistical investigation would greatly shake the pleasant reliance, and the suggestion I intended was that in the case of a real or only probable danger it is assuredly not wise to act like an ostrich, which, to avoid a threatening danger, buries her head in the sand. I shall try to make you understand by an example what kind of facts are to be regarded as proofs that the state of agriculture in a land is really progressing. I transcribe from the official report of Dr. SCHNEIDER, published in the *Augsburg Gazette* of July 3d, 1864, No. 185:—

"'I have been employed,' says Dr. SCHNEIDER, 'in

the service of the Rhenish Agricultural Society (Grand Duchy of Hesse) since 1854, and it has been my duty to hold lectures from time to time in every parish of the province, and my chief endeavours have been directed to disseminate the principles of the so-called mineral theory, and the instructions required for its proper application. Since that time in the little province, but 25 geographical miles square in area, there are now 57 depôts of artificial manure, 39 of which are under the control and supervision of the Agricultural Society; whilst during the year 1863, 90,000 tons of artificial manures, including 75,000 tons of superphosphate, were sold from them, making 355 tons, or 7100 cwt. for a mile square.

"'In consequence of this large importation of manure, the land rent, on an average of 10 years, has risen to such an amount as to represent an increase of capital of 120,000,000 florins, or 10,000,000*l.*—or, for a square mile, of 5,000,000 florins.'

"The population of the Rhenish Province of Hesse represents 9595 persons to the mile; in England proper it is 8076. The country greatly resembles England in its physical character.

"If England, with an area of 2359 geographical square miles, had in 1863 employed imported manures in the proportion used by the German province, the quantity would have reached 8,500,000 tons.

"Taking the amount of imported guano and other manure used in England proper to be 400,000 tons, we get an average of 5 tons to the square English mile, or something less than 28 lb. per acre.

"This simple statistical fact shows how very small comparatively is the augmentation of the conditions of fertility in the English soil by the importation of manure. On the other hand, the loss of manure suffered by agriculture by the waste of town sewage is notorious, and may be found far exceeding the amount made good by importation; and thus the inevitable conclusion remains, that as a whole the soil of England, instead of gaining, must actually decline in productive power.

"In the presence of such facts, and with a population continually increasing, it is I think an imperative duty to look an actual or probable peril in the face, and not to wrap it up by empty phrases. Let an evil be but once recognised, and I feel convinced that the English people will of all men be the readiest and most fitted to meet and overcome it.

"I am, dear Mr. Mechi,

"Yours very sincerely,

"J. von Liebig."

We published last December (p. 1210) the letter of a clergyman to his parishioners, proposing that some of their Winter evenings should be spent by men, women, and children, at home, in handiwork of various specified kinds; the results to be collected in the following Spring for show and sale at a Parochial Industrial Exhibition.

The Rev. R. E. Blackwell, of Amberley, Gloucestershire, by whom the scheme was originally proposed, now reports its entire success. The problem he has desired to solve is how labouring men and their families may find interesting and profitable employment *at home* during the winter months, under the circumstances in which each is placed, and with only the tools which each may possess. Penny readings, lectures, music, &c., are all very well in their way; but it seems to him, and to many others, that to these there should be addenda, and in particular that amusement should be obtainable *at home*. It is not a wholesome thing that labouring men or their wives or children should look for pleasure invariably away from the home and family.

The Amberley exhibition, the result of the winter's work thus organised, which has been held during the past week, has been a very great success. There have been more than 200 contributors to it in a parish of, we should imagine, not more than 600 or 700 inhabitants. The catalogue before us includes needlework and knitting, from specimens of darning and patchwork up to shirts and ornamental lace, and from stockings up to counterpanes—all manner of toys, kites, dolls, boats, models, draught-boards, &c.—articles of utility, mats, rugs, baskets, garden-lights, tools, clothing, furniture, &c.—articles of taste and beauty and general interest, paintings, sculpture, collections in natural history, &c. In some instances, examples of professional ability, as specimens of cloth, of boots and shoes, of carpenters' work, &c., have been contributed; but more frequently the articles exhibited are specimens of the work of leisure hours, as where a learned man has sent a cabbage-net, the clergyman a fleet of small ships, a woollen manufacturer many beautiful specimens of ivory turning, and the busy mother of a family of nine a little book—and a capital little book it is, on Family Government—a subject quite in keeping with the whole scope and intention of the exhibition, which has been to strengthen and refine the family tie. And that this object has been most encouragingly served there is very fair evidence to show. Sixty pounds worth of things thus made within a small parish during the winter evenings have been sold at this exhibition. So good an example cannot fail, we think, of being generally copied.

—— On Wednesday evening Mr. Holland's Locomotives on Highways Bill passed through Committee with very few alterations. A clause giving power to towns of a certain population to make such regulations within their jurisdiction as they may think proper in the matter, notwithstanding the facilities and directions sanctioned by the Bill, is to be added before it passes through the Commons.

THE COTTESWOLD SHEEP.—No. III.

Erratum: In the first article by "J. M. R.," on the Cotteswold sheep, a mistake has been made in describing the bones found among ancient remains. Instead of "reindeer" bones it should have been "red deer's" bones.

Notwithstanding the high estimation in which the Cotteswold sheep were held up till the latter part of last century, it would seem their popularity was for a time overshadowed by the favour and attention obtained from the public by the Southdowns, and especially the new Leicesters of that day.

Always in the hands of tenant farmers, who pursue farming as a business, and without any great patron who as a "hobby" or "fancy," regardless of expense, might bring them before the world, the Cotteswold sheep, when left to themselves, remained obscure on the hills of their native home until the desire for agricultural improvement manifested itself in the establishment of agricultural shows; for notwithstanding that few of the Cotteswold breeders care about or exhibit specimens of their stock, yet we imagine it is to these exhibitions that the rapid dispersion of the Cotteswold sheep is mainly due: else we cannot conceive how it is possible they could have been known and spread so widely as they are at the present time.

For, wherever they are exhibited, their immense size, grand appearance, and perfect form, not only attract the attention of agriculturists, but form the great feature in every show where sheep are exhibited to the general visitors.

Doubtless, therefore, it is their appearance in public that has regained for them the high standing they formerly had. So slow, however, were their just claims of being recognised in high places, that it was not until the Royal Agricultural Society's Meeting at Battersea, that there was a distinct class for the Cotteswolds at our National Show. Whatever may be urged against the competitive trials as applied to live stock, in effecting their improvement by agricultural exhibitions, there cannot be a doubt but that an immense improvement has taken place in the live stock of this country since the prize system has been adopted.

At the same time we by no means think that the present system is perfect, for it still only represents what by dint of training—in the highest degree artificial—an animal may be brought to without the slightest regard to cost, or to the natural state under which the same class of animal has to exist when in the farmer's hands. Besides, if we mistake not, to some extent the show system induces an incorrect standard of excellence; for in order to win prizes the aim seems to be to get a small-sized animal with small bones, not showing, even in the males, that coarseness and masculine appearance which we hold to be desirable as most suitable to propagate stock adapted to our variable climate. We then overload this somewhat tiny and delicate animal with fat, and thus obtain prizes. The consequence is, that this prize animal is used for the name he has secured; and as "like produces like," the offspring, not indulged by high feeding, but having to seek for their living on scanty pasturage, exposed to cold and wet, become constitutionally weaker than their forefathers. On the evils attending over-feeding every portion of the agricultural press enlarges, but we incline to the belief that writers are often ignorant of the cause of this obesity in show animals, and therefore attach blame in the wrong quarter, and apply the wrong remedy.

To the breeders is attached all blame of high feeding, but if the breeders of stock could as well dispose of their stock without being thus made up, doubtless they would do so, and thus save the cost of the extra food as well as get rid of the extra risk of life and barrenness that too often attends the preparation of stock for the show yard or even for ordinary sale. Breeders, like other manufacturers, only produce the goods they trade in in that form that best suits the tastes of purchasers. It is therefore a delusion to suppose that the breeders of animals are in fault for the excessive fat we see on animals exhibited at shows and for sale. Whoever saw at the Royal show a prize awarded to a poor animal? Consequently it is the judges at these shows that are responsible, and the public, who require educating on the subject, to discern the good animal when in stock condition from the pampered and trained ones.

Besides, the present system does not answer the end desired. At present it is indispensably necessary, in order to give beast or sheep the chance of success, that it should be trained in the most artificial manner from the time it is dropped, quite regardless of expense or trouble.

So far are these means from raising stock to endure the hardships of indifferent feeding and inclement seasons, and supply the hungry stomachs of the people at large, that one has no hesitation in arriving at the reasonable conclusion that they are defective. Even amongst the Cotteswolds it is frequently remarked that the show system has had the tendency to reduce the sheep in size and hardiness by making them smaller in the bone, and to carry less lean meat.

These considerations convey our conviction that the prize system does not accomplish the object sought, inasmuch as it does not give the cost of obtaining the result attained.

It has often occurred to us, as this country is now circumstanced, with a short supply of animal food, together with a people whose tastes incline them to a freer use of meat than formerly, whether the Government or agricultural societies should not take into their hands the experiment of ascertaining the animals that give the largest amount of valuable food at the least expenditure. The show system only tells us what may be done with an animal most artificially treated, and without the most remote relation to cost.

Whereas, it seems to us what agriculturists and the public wish to have, is the animal that will yield the most meat with the least cost for food. Important and valuable as are those experiments made by Mr. J. B. Lawes as bearing upon this branch of the subject, still they lack confirmation by being repeated; and they were all tried under similar conditions, whereas to make such experiments of the greatest value they should be made to assimilate as near as possible to the ordinary conditions under which the animals experimented upon are kept in the natural state.

Neither was Mr. Lawes in all particulars correctly informed, inasmuch as he speaks of the Downs as a hardier sheep than the Cotteswolds; whereas the Cotteswolds are infinitely more hardy than the Downs or Cross-breds. It is unfortunate that in these valuable experiments by Mr. Lawes, the breeds of sheep were not tried side by side and in one season, instead of extending over two or three years, because the difference in prices in different years vary, and it is particularly unlucky that when the Cotteswolds were sold, the market was exceedingly heavy.

Nevertheless those experiments of Mr. Lawes, as detailed in the Royal Agricultural Society's Journal, Nos. 29 and 35, are by far the most valuable data we have in elucidating the economic value of our different breeds of sheep, for with the exceptions just enumerated, all the conditions under which these experiments were made, were equal, every morsel of food being charged to each lot of sheep, and the returns accurately ascertained.

It would, however, be tedious to attempt here to give the whole of those elaborate tabulated statements by which Mr. Lawes arrived at his conclusions, and therefore we only note those facts which are connected with the subject of our remarks.

These experiments were commenced at Rothamstead in November, 1850, and ended April, 1853. The sheep experimented upon were Hampshire Downs, Sussex Downs, Cotteswolds, Leicesters, Cross-bred wethers, and Cross-bred ewes.

The grand results of these experiments show that, in comparison with the Down sheep, "the Cotteswolds consumed the least food to produce a given amount of increase."

In regard to the wool borne, "it appears that the long-woolled Cotteswold sheep gave more than half as much again wool per head as either the Hampshire or Sussex sheep."

Again, "taking the items of comparative interest somewhat in the order in which they stand in this tabulated summary, it is seen that of the six lots that have been experimented upon, the Cotteswolds give by far the largest average weekly increase per head; indeed, half as much more than either Sussex, Leicester, or Cross-bred sheep, and nearly one-fourth more than the Hampshires, which are second in order of rates of increase per head per week."

With respect to the wool, it is seen that the long-woolled Cotteswolds and Leicesters gave the greatest weight both per head and per 100 lb. live weight of animal. Next in order come the Cross-breds; and lastly, the Hampshire and Sussex Downs. The order of the highest amount of wool per head is—

Cotteswolds.	Cross-bred wethers.
Leicesters.	Hampshires.
Cross-bred ewes.	Sussex Downs.

"Indeed, it seems however that the Cotteswolds, although fed six weeks shorter time, gave a higher percentage of carcase than either the Hampshire or Sussex Down. Indeed, the Cotteswolds had more the tendency to increase and fatten in carcase for the food they consumed than any of the other sheep."

These extracts from the reports published by Mr. Lawes, are most satisfactory as regards the Cotteswold sheep.

Another set of those experiments was tried by Lord Kinnaird, an account of which was published in the *Agricultural Gazette*, where Cotteswolds were bred

against Leicesters, and the result was that from eating the same quantity and value in food, the Cotteswolds gained in value 17*s.*, and the Leicesters 11*s.* 8¼*d.*

J. M. R.

THE LOW PRICE OF WHEAT.

It appears by official returns that the imports of foreign Wheat (including flour, reduced to quarters of corn) averaged about five millions of quarters a-year for several years, until the close of 1860. The great increase which swelled the imports of the next three years, was owing principally to our deficient harvests of 1860 and 1862, and to large crops in some of the chief exporting countries. The crops in America, which are in general far more variable than our own, had been abundant up to last year, when they were variously estimated at from 20 to 40 per cent. less than the average of the previous four years.

Notwithstanding our great harvest of 1863, foreign arrivals have, until last year, continued on the same large scale, and with the usual effect of over-production upon our markets. This condition of the corn markets appears to be passing away. The crops of 1864, as shown by the returns from the counties, published in the *Agricultural Gazette*, were on the whole deficient; but the Wheat crop was reported to be an average in quantity, and more than an average in quality.

The rapidly declining imports of Wheat indicate reduced stocks in several exporting countries. But for the present the general opinion of buyers seems to be that the heavy stocks of Wheat, in the hands of our own growers, will insure a continuance of the present low and unremunerative price. This appears to be the general opinion, or perhaps I ought to say, the general feeling, since an opinion is supposed to be founded on ascertained data, or on a previous train of reasoning.

There are no direct means of calculating, even with approximate accuracy, the average crop of the country. If the usual estimate of an annual consumption of 24 millions of quarters of Wheat, be correct, it follows that when importations average 6 millions, the crop of the United Kingdom would be 18 millions, after deduction for seed. During the three months of the present year that importations of Wheat have almost ceased, our ordinary consumption will have disposed of one-third of the crop of 1864; twice the quantity of the estimated surplus of the crop of 1863, remaining on hand last harvest.

With respect to this much-talked-of surplus—if so large a stock of old Wheat was held last July, when prices were 6*s.* per qr. higher than they are now, it cannot be expected that the growers will part with the present superior quality at the present price.

Admitting the fact of large stocks of old Wheat last harvest, there is no reason to suppose that present stocks are sufficient to prevent a serious rise in prices, if the prospects of the growing crop become unfavourable. And under no conceivable circumstances is it probable that the surplus, such as it now is, can come into consumption at the present price.

Then there is a weight in the opposite scale, which probably balances the "great surplus" of 1863. I refer to the enormous consumption of Wheat in stock feeding. On this point there are no accurate data; we must again be guided less by conclusive judgment, than by general and vague impressions. Low prices of grain and dear meat have done much to encourage the use of home prepared food. Wheat is now used to some extent by almost every farmer for feeding stock. Being 40 per cent. lower in price than Linseed cake, there is, in point of economy, no comparison between the two.

Animals deprived of their usual supply of succulent vegetables, are better satisfied with Wheat, as a substitute, than with any other sort of corn. Peas and Beans, which are always largely used by those farmers who like to feed their stock with their own produce, were almost as great a failure last year as the root crop.

The steam engine is at work here five days a-week preparing food for stock. One of the most useful machines driven by it is the American grist mill. And when I watch this mill at work, grinding 40 qrs. of corn, chiefly Wheat, in 10 hours; and reflect how many other farmers, under pressure of the unparalleled scarcity of roots, and stimulated by the high price of meat, have put the new grist mill to the same economic use, I cannot but feel that the consumption of Wheat in this way must be beyond all precedent.

If our estimated 28 millions of sheep, eight millions of cattle, and four millions of pigs, have, like some other populations, acquired a habit of eating Wheat instead of Oatmeal, Rye, &c., the effect on its consumption will prove enormous. To what extent this has been the case it is impossible to judge.

The owners of threshing machines in this district consider they have less than their usual work in prospect. Millers and merchants say this may be true; but at the same time, they have a strong feeling that farmers have only threshed out their stacks for the straw (for chaff and litter), and that much of the grain is in their granaries. I wish as a farmer I could feel that the straw was the only portion of last year's crop that I had need of.

Few farmers of 300 acres have safe and sufficient storage for 100 qrs. of grain. When Wheat is kept by farmers it is, as a rule, kept in stack; and it is not an approved practice to thresh it and keep it "lying about."

The fact seems to be that five or six millions of the Wheat threshed in the last four months have not been stored, but consumed by man, and a large, but unknown, quantity has been given to stock.

One example may be noticed here of the way in which the foreign trade becomes interrupted, or diverted into new channels. Egypt, instead of exporting corn largely as heretofore, now grows Cotton instead of corn, and imports the latter to a considerable amount.

England derived from that country in the first seven months of 1863, 401,000 qrs. of Wheat, and in the corresponding period of 1864 only 84,650 qrs.

These various considerations (and chiefly the broad facts of enormous consumption and declining importations) indicate the rapid subsidence of what may be called the recent Wheat-flood. A cessation of ample foreign supplies is not predicated; but there is no reason to expect a continuance either of the exceptionally abundant importations of the last few years, or of the present unsatisfactory price of Wheat.

The following statistics compiled from official papers will throw more light on our subject:—

Population in 1861.

England and Wales	20,119,496
Scotland	3,062,294
Ireland	5,798,967
Total	28,980,757

IMPORTS.

	1852.	1853.	1854.	1855.	1856.	1857.	1858.	1859.	1860.	1861.	1862.	1863.	1864.
Wheat .. .. qrs.	3,060,268	4,915,430	3,431,227	2,667,762	4,072,838	3,437,957	4,241,710	4,600,927	5,886,978	6,912,815	9,469,270	5,622,501	5,265,519
Other kinds of Corn .. .. qrs.	3,581,461	3,932,178	3,419,271	3,061,539	4,124,420	5,107,225	5,946,545	5,277,762	7,125,661	7,366,259	6,905,922	8,234,898	5,400,000
Flour of Wheat .. .. cwts.	3,865,173	4,621,566	3,646,505	1,964,224	3,970,106	2,178,148	3,856,127	3,728,324	5,686,220	6,152,938	7,207,113	5,218,977	4,552,939
Oxen, Bulls, Cows, Calves .. .. .. No.	93,061	125,253	114,338	97,527	83,506	92,662	89,001	85,677	104,569	107,696	97,857	150,898	281,734
Sheep and Lambs	230,037	259,420	183,436	102,642	145,059	177,267	184,487	250,580	320,219	312,923	299,472	430,788	496,243
Bacon and Hams .. .. cwts.	81,436	205,667	443,510	241,494	372,792	366,984	195,085	177,251	527,166	515,955	1,345,691	1,877,813	1,069,490
Beef	124,693	183,285	192,274	230,755	187,838	151,174	165,558	219,589	262,194	152,055	189,761	288,369	302,860
Potatos .. .. cwts.	773,619	1,133,609	16,446	58,261	109,838	955,657	1,721,953	588,979	560,762	185,446	1,354,636	1,540,166	742,384
Wool .. .. lb.	93,761,458	119,396,449	106,121,995	99,300,446	116,211,392	129,749,898	126,738,725	133,284,634	148,596,577	147,172,841	171,943,472	177,377,064	206,473,045
Flax and Linseed .. .. qrs.	799,402	1,035,335	828,513	755,971	1,180,180	1,051,113	1,017,844	1,270,911	1,350,623	1,160,270	1,088,472	1,104,578	1,434,973
Oilseed cake .. .. tons	53,939	64,475	76,230	80,959	84,556	99,265	83,629	95,258	108,826	113,735	101,156	88,566	105,570

AVERAGE PRICES

Consols	99⅝	97 3-16	91⅝	90 3-16	93 9-16	92 1-16	97	94 1-16	93 13-16	91¾	93¼	92¾	90¼
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Wheat .. .. per qr.	40 9	53 3	72 5	74 8	69 2	56 4	44 2	43 9	53 3	55 4	55 5	44 9	40 2
Barley .. .. ,,	28 6	33 2	36 0	34 9	41 1	42 1	34 8	33 6	36 7	36 1	35 1	33 11	29 11
Oats .. .. ,,	19 1	21 0	27 11	27 5	25 2	25 0	24 6	23 2	24 5	23 0	22 7	21 2	20 2
Beans .. .. ,,	32 0	40 0	47 0	46 4	43 11	43 1	41 11	42 8	44 7	42 4	39 10	..	35 3
Peas .. .. ,,	30 7	38 6	45 0	43 6	41 8	41 4	42 11	39 8	40 6	41 3	40 2	..	34 0

The average price of Wheat for the 19 years since 1846, was 53*s.* per qr. In four years only has the average price approached its present low level, viz., in 1850, 1851, 1852, and 1864; and in two of those years, '50 and '64—there was a considerable rise between March and August. *H. Evershed, Gosfield, Halstead, Essex, March* 11*th*, 1865.

AGRICULTURAL WANTS IN IRELAND.

Englishmen who trust for their information regarding Ireland to the conflicting statements of, and demands on the Government made by the writers in and conductors of Irish newspapers, must be led to conclude, that in as far as the general interest of the British empire is concerned, it would be better to have Ireland blotted out of the map of the world, or, as was more than once insinuated by the *Times* newspaper, to have the whole island for at least 24 hours immersed under the waters of the Atlantic Ocean. We are said, by those who know us not, and I am sorry to say not without reason [!], to be a lot of incapables at home, but equal to any other men when we leave it. This libel, for such it is, has been often sought to be gainsaid, but seldom more successfully than by a late correspondent of yours, "An Irish Landlord." Judging by his letter, of which I can now only speak from memory, having sent the Paper containing it to America, the writer is an Englishman who had to combat, and all should be glad to see conquered, "the Irish difficulty," as many others whom I could name in various parts of the country have done, and are doing by means similar to those adopted by him. By such means, which I will reduce to three in number, the whole "wants" of Ireland, no matter how much, and variously magnified. They are (1), security for the investment of capital; (2), the capital to invest; and (3), the skill necessary to apply it judiciously. All these three are quite indispensable to insure success. If any one of them be wanting, the other two will be found useless. How can they be all secured? Simply by unity of action. Let me now say a few words on the means of securing each respectively.

(1.) *Security.*—The time is most opportune for obtaining it. Our new Lord-Lieutenant tells us we can have it by "self-reliance." Sir Robert Peel suggests an excellent panacea, in as far as it goes, in the general drainage of land; whilst *pari passu* with these, one of the most able and astute lawyers, one of the most upright judges, and one of the greatest political economists of the age, the Hon. Judge Longfield, tells us what, though already well known to many, cannot be too often repeated.

"When a tenant takes a lease of a farm which he finds he cannot cultivate properly without an expenditure in making drains, fences, and buildings, which in England would be defrayed by the landlord, he does suffer a grievance, and has a just cause of complaint. If, and this is what generally happens, he declines to make improvements of which the landlord is to reap the benefit, he suffers, and the country suffers by having the operations of an energetic tenant crippled, and the productive powers of his land undeveloped for want of those improvements which the landlord will not, and the tenant under the state of our laws and customs cannot, permanently make.* * * But the legislature has been too timid; it has done too little, for fear of doing too much; it has done no good, for fear of doing a slight mischief. At present a landlord frequently cannot afford to make the necessary improvements in his estate, and if the estate is in settlement, he cannot enter into a valid contract with a tenant to allow him the slightest compensation. This ought to be altered.

"No settlement should be sanctioned which would produce a result contrary to natural justice. I would give every landlord, however limited or incumbered his estate might be, power to contract to give his tenant, at the expiration of his lease, compensation to the full value for any improvements he might place upon the land. For many years the policy of the laws appears to have been intended to induce landlords to be indifferent to the character and circumstances of their tenants." That is a true picture of Ireland, given by a most trustworthy witness, and the simple remedy of a wise upright man. Now, sir, if the English people feel that interest in the prosperity of Ireland which should be mutually felt by all, they will take up this question and aid such Irishmen as have influence in the Parliament and know how to exercise it, and have a simple law passed for the sale and transfer of landed property in Ireland, beneficial to both landlord and tenant; it will afford the necessary security for the judicious investment of capital. But where is the capital to be got? There is plenty of it even in Ireland, but it will not be so invested, because of the absence of such security. Yes, capital is sent out with English capital to all other parts of the world, to be invested in improvements where security exists, although in no place could such an investment pay a higher rate of interest than in Ireland, as could be shown in many other instances than that noted by your Correspondent "An Irish Landlord."

He has shown you an increased rent of 5*s.* an acre, merely on good farming, without reference to any other improvements. We have in Ireland in round numbers 15,000,000 acres of arable land; some much better and some worse in quality than the land he describes. But for illustration let us suppose that his land is a fair average of the whole, and requiring no extraordinary outlay in drainage, subsoiling, bog or mountain reclamation, and assuming, what is a fact, that by judicious management, such as he has adopted, the value of the land can be enhanced 5*s.* an acre, we will have 3,750,000*l.*, or an interest according to the supposed present rental of Ireland of 25 to 30 per cent. If, in addition to this, we take into account the drainage of such parts as require it of this arable land, and which, to my certain knowledge, fully amounts to 6,000,000 acres, and estimate its increased value at the low standard set down by Sir Robert Peel of 10*s.* an acre, we have an increase of 3,000,000*l.* more. If we

go further still and reclaim the now comparatively valueless, because neither arable nor even pasture land worthy the name of arable, we have 6,000,000 acres more. I am prepared to prove, as I have in former letters hinted at proving, what I know from practical experience, that such lands by judicious reclamation can be enhanced in value fully 15s. an acre, or in all 4,500 000*l.*, and ultimately we will have:

1. By better management on lands as they are ..	£3,750,000
2. By drainage of arable land	3,000,000
3. By reclaiming the waste or nearly worthless land	4,500,000
Making a total of	£11,250,000

or nearly the computed rental, or perhaps fully the paid-up rental of all land in Ireland.*

Let no one say to me that this calculation is assumptionally high; it is no such thing; it is far below the standard to which such can be raised; and in speaking thus I speak but the sentiments of every practical and scientific man in the island capable of judging such matters correctly. Yes, and it is well known to capitalists in England as well as in Ireland and Scotland.

2. *Skill.*—Believing that a more extended and an ample security must be given, because without imminent danger to the nation it cannot much longer be withheld, and feeling, as I have reason to believe, that capital will be forthcoming, of what avail will either or both united be, if we remain without the skill indispensably necessary to be applied with both? No use in the world, for, no matter how good the security, or how abundant and cheaply obtained the capital, for investment, or such security, all such attempts will be not only useless, but mischievous, if the parties seeking to take advantages of such accommodations lack either the scientific or practical skill required to develope our vast, but dormant agricultural resources.

Can we count on having within our reach the acquirement of such skill? I feel quite confident we can, if the National Board of Education in Ireland be not crippled or circumscribed in their operations by a niggard Parliament, through the supineness, or ignorance if you will, of our Irish representatives, or the jealousy of penny-wise and pound-foolish English members. And it interests the Scotch members too, as many of their countrymen, both in Scotland and Ireland, are benefited by the prosperity of Ireland. We have in Ireland now for the first time every hope of having agricultural education what it ought to be. The Commissioners of Education have given a good earnest of their intentions to have it so, by appointing Mr. Baldwin not alone as Inspector, but better still Director of such education, than whom they could not find a man anywhere more fit.

I have watched with more than ordinary anxiety the course adopted by the Board of Education from its formation, but more especially since the year 1843. I have made myself intimately acquainted with its perfections and carefully noted its faults, and to a degree perhaps greater than was done by any other man unconnected with the Board. I have watched such proceedings even with a degree of jealousy which your readers could not, nor is it now necessary they should understand. I will not say more on this all-important question now, than that if the Commissioners of Education be not moved by the causes already alluded to to tie down Mr. Baldwin with "red tape," their agricultural operations will be well directed; and that if an adequate security be given, capital for investment will be forthcoming, and ample skill provided for its economical application. *Edward Carroll, College Hotel, College Street, Dublin,*

PAINLESS EXTINCTION OF LIFE.

IF your readers are not weary of this discussion, it is quite time it was closed for other reasons. One of the customs of polemics has been duly honoured, and the foundation of Mr. Chitty's last letter is a misrepresentation of mine. "I took *my* stand upon higher ground than the Mosaic law," and dealt with the case as it was put, and I endeavoured to present a spiritual interpretation of Gen. ix., 4. It is therefore only repeating himself for Mr. Chitty to call attention again to the command given to Noah. Another custom of polemics has been duly honoured in that expression, "I congratulate myself, and all who like myself," &c.; which I take to mean that my friend supposes himself the sole possessor of a feeling of veneration for the Divine Word, and as sharing with gardeners alone a perception of the "accordance of our Bible with the soundest and strictest philosophy." I shall avoid giving occasion for any further expression of this sort, by saying all I have to say at once, and there, so far as I am concerned, making an end of the matter.

In order to prevent confusion, it seems desirable to group my observations under three heads—1. The Command to Noah; 2. The Teachings of the New Testament; 3. Physiological Considerations.

1. *The Command to Noah.*—It does not appear reasonable to consider the prohibition of Gen. ix. 4, as applicable to the present age, because we are distinctly assured that all the ceremonies observed antecedent to the Christian era were "shadows of things to come." The rite of circumcision was instituted at least 400 years before the giving of the law at Sinai, but it gave place to baptism after our Lord's work was done, and the circumcision of the heart came to be regarded as of more importance than any mark in the flesh. It is fair to assume that the whole economy of ceremonial observances was done away when the veil of the Temple was rent, and that thenceforth the law and the commandments were all comprised in our Lord's words—"Thou shalt love the Lord thy God with all thy heart, and thy neighbour as thyself." In my communication of Feb. 18, I said, "By taking a higher, that is to say a spiritual and not a carnal view of the subject, we may understand that the eating of blood was prohibited, because it was the symbol of the precious blood of Christ, which was hereafter to be shed for the salvation of the world." I do not expect that this spiritual interpretation will be generally accepted, but I dare say many who have studied the Holy Scriptures as I have done, in a spirit of defiance to all sectarian views, and with more regard for the spirit which giveth life than the letter which killeth, will consider it at least worthy of the small place it occupies in this discussion. But as my friend has overlooked the fact that I dealt with the command to Noah in this way, I will come to his hard literalism in order to see what it is worth. The greatest objection to a literal rendering, is that it makes the Scriptures assert that which Science contradicts, so that to effect a reconciliation another act of violence must be done, and Science is made to affirm that which Nature contradicts. The text before us is purely moral in its purport, but by forcing a physical meaning from it, it immediately becomes necessary to talk nonsense about the blood, and make facts for the purpose out of Hunterian phantasms. Now, there is no need for this at all, and he is an enemy to religion—however good his intentions may be—who clutches at a physiological falsity in order to eke out a vicious theory of Biblical interpretation. I turn to Dr. John Gill's Commentary, and I find under this head the following:—"This is the only exception to the eating of flesh—it was not to be eaten with the blood in it, which is said to be its life; not that the blood is of itself the life, but because it is a means of life, and that being exhausted, the creature must die, and because the animal and vital spirits appear to us most vigorous in it; yea, it is the aliment and support of them, and which furnishes out the greatest quantity of them; or rather it may be rendered 'the flesh with its life in the blood;' whilst there is life in the blood, or whilst the creature is living; the meaning is, that a creature designed for food should be properly killed, and its blood let out; that it should not be devoured alive, as by a beast of prey; that raw flesh should not be eaten, as since by cannibals, and might be by riotous flesh eaters before the Flood; for notwithstanding this law, as flesh without the blood might be eaten, so blood properly let out, and dressed or mixed with other things, might be taken, for aught this says to the contrary." I did not expect to find, in one of the most learned commentaries existing, so direct a confirmation of my black-pudding doctrine as is contained in the last paragraph of the above quotation, the whole tenor of which is to strengthen my view of the proper interpretation of the text, and weaken the necessity for physiological inventions in order to establish an adulterous intercourse between Science and Religion.

Dr. Gill further remarks that "the design of this was to restrain cruelty in men, and particularly to prevent the shedding of human blood, which men might be led into were they suffered to tear living creatures in pieces, and feed upon their raw flesh and the blood in it." It is one thing to interpret the meaning of a command that has been cast into an almost infinite variety of forms during the 4000 or more years which have elapsed since it was uttered, and quite another to receive it as it comes to us with all its literary imperfections, and upon these imperfections to establish sanitary usages and physiological laws. The Targum of Jonathan and the Jewish writers generally, and especially Maimonides (Hilchot Melachim, c. 9, sec. 1), understand the prohibition to apply wholly and solely to the eating of an animal while the life is in it, as intended to encourage the decencies of civilised life, the proper killing of animals, and the proper cooking of their flesh afterwards. It is true the Jews did, and still do, endeavour to remove the blood from flesh by "divers washings," but it is never wholly removed; it is impossible to eat flesh without partaking of some portion of the blood, and therefore if we are impelled by conscience to a literal acceptance of the text as it stands, there is no alternative but the practice of vegetarianism. I once held the same view as Mr. Chitty, and I also saw that the complete removal of blood from flesh was impossible, and during a period of about three years I abstained from flesh eating, and will do the same again whenever I shall be convinced that the eating of blood is unlawful.

2. *New Testament Teachings.*—My friend's case is weak in the first instance, because he can only quote from the Apostles. They had no commission to institute customs or to bind the consciences of any, and they full well knew the limits of their ministry, which was to preach the Gospel. Does not Paul chide the Corinthians for regarding their spiritual leaders as possessed of larger authority than they claimed for themselves—"for whereas there is among you envying, and strife, and divisions, are ye not carnal, and walk as men? For while one saith, I am of Paul, and another, I am of Apollos, are ye not carnal? Who then is Paul, and who is Apollos, but ministers by whom ye believed, even as the Lord gave to every man?" (1 Cor. iii., 3.) The object of the rebuke had already been set forth, "that your faith should not stand in the wisdom of men, but in the power of God." (1 Cor. ii., 5.) With these passages in my mind I turn to Acts xv., as directed by Mr. Chitty, and I find that in consequence of an attempt made by some believers of the sect of the Pharisees, to compel the converts to Christianity to submit themselves to circumcision, "the apostles and elders came together for to consider of this matter" (v., 5, 6). and it was advised by James to write to the "Gentiles which from among men are turned to God," to guard them against the commission of the heinous sins, namely idolatry and fornication, to which in that day and in their circumstances they would perhaps be more strongly tempted than to any others. I ask the reader to reflect upon the moral condition of society in the great States at that time, and I think he will agree with me that the reference to blood in the passage bears upon local circumstances only, and in no respect upon the usages of society in the present day. I repeat that we are not bound to follow any of the customs of the early Christians, or adopt any of the regulations which they framed for the government of their own societies or members; let us be thankful for all the light they afford us in their spiritual teachings, and not lay upon them a burden which they cannot bear.

That the epistle contained in Acts xv. had a particular as well as a general meaning is evident from other passages in the writings of the Apostles. Paul says—"one believeth that he may eat all things; another, who is weak, eateth herbs. Let not him that eateth despise him that eateth not; and let not him that eateth not judge him that eateth: for God hath received him." (Rom. xiv., 2, 3). It was because of the lingering of Jewish prejudices in the minds of many of the early Christians that Paul was compelled to descend to such matters, the hardest thing then, as now, being for believers to understand "the liberty wherewith Christ hath made us free." That this liberty extends to the eating of blood by those who are so minded is distinctly taught by the apostle Paul, in a passage which makes an end of this part of the discussion—"Whatever is sold in the shambles, that eat, asking no question for conscience sake: for the earth is the Lord's, and the fulness thereof." Nay, more than this; he enjoined his followers to eat with unbelievers if it suited them to do so, and even when offered to idols might be eaten, and of course the blood with it, and all other accessories of heathen cookery, provided they did not know when eating it what was its history and origin. "If any of them that believe not bid you to a feast, and ye be disposed to go; whatsoever is set before you, eat, asking no question for conscience sake. But if any man say unto you, This is offered in sacrifice unto idols, eat not for his sake that shewed it, and for conscience sake: for the earth is the Lord's, and the fulness thereof," (1 Cor. x. 25 to 28). I hope Mr. Chitty will ponder over these very distinct injunctions of the Apostle, and take heed also of the advice given to Timothy (1 Tim. iv.) to guard against those who have departed from the faith, commanding to abstain from meats which God hath created to be received with thankfulness: for though I do not think he has yet gone from the faith, it does begin to appear that he is under a cloud, and in bondage to the elements of the world.

But we have higher teaching than that of the Apostles. They knew their infirmity and confessed their liability to error, and when most directly under the guidance of inspiration, they were earnest in defence of the freedom and fulness of the Gospel, desiring that above all things the hearts of the saints should "be established with grace; not with meats, which have not profited them that have been occupied therein." It is worthy of attentive observation that our Lord never confirmed the Jewish laws of eating and purifying; but he did condemn the hard literal acceptance of them as ceremonies without meaning, when he denounced those who make clean the outside of the cup and platter "but within are full of extortion and excess." It seems to me that Christ abrogated all ceremonial observances and all restrictions upon articles of food, when he said to the multitude, "Not that which goeth into the mouth defileth a man; but that which cometh out of the mouth, this defileth a man," Matt. xv. 11. "Whatsoever thing from without entereth into the man, it cannot defile him; because it entereth not into his heart, but into the belly, and goeth out into the draught, purging all meats?" (Mark vii., 18, 19). Will it be said that the great Teacher omitted from his precepts one of such awful importance as would have been needful had it been the will of God to continue to this day the Jewish observance of an attempted abstinence from blood? I trust my faith in Christ will ever preserve me from the presumption that any part of His work was left undone.

3. *Physiological Considerations.*—It is an amusing part of this discussion that the only name of any authority which Mr. Chitty quoted in support of his peculiar physiological doctrine should happen in this particular instance to be a Will-o'-the-wisp. It shows how needful it is to be acquainted with other things beside the spade and pruning knife, to say nothing of the policy of abstaining from a covert sneer at those who wield the pen, in order to take part in a discussion in which scientific principles are to be appealed to in support of any particular interpretation of Scripture. Surely I was not hard upon my friend when I asked for the source of the statement of John Hunter's views on the coagulation of the blood. I guessed my friend was dabbling in second-hand quotations, but it would have been rude to say so. Now that he has searched diligently and found only another second-hand quotation of Hunter through Dr. Corrie, and another through Dr. Clarke, we are called on to contemplate the wonderful harmony established between religion and science by what Hunter "conceived" and "imagined" of the phenomena of coagulation. Commentators and reconcilers have a logic of their own, they ignore altogether the "logic of facts," and clutch at anything which they think will serve to patch up a reconciliation which is not needed at all. The greatest enemies of religion are to be found amongst those who trifle with truth in order to attach their own cold, carnal, and narrow interpretations to the beautiful utterances of Scripture, and who in doing so bewilder and delude their own disciples, and themselves incur the ridicule of thoughtful men.

When blood is removed from the body it soon begins to undergo the change to which is applied the term coagulation. Hunter nursed an hypothesis of his own, but not such an hypothesis as would serve Mr. Chitty's purpose, even if he knew all about it. Hunter supposed the existence of a "vital principle," which, asserting its existence in the blood, caused it to act when removed from the body as in some respects an independent existence. Mr. Chitty's quotations give us the very pith of Hunter's ideas, but it happens that they are only ideas, for the process of coagulation is now known to be purely physical; it is in fact the first stage of decomposition; it is the result of the solidification and separation of fibrin, and the escape of carbonic acid from the mass. What Hunter supposed to be the formation of vessels in a coagulum, or as stated by Mr. Chitty a coagulum becoming vascular, was simply the effect of carbonic acid, which, in escaping, forms channels which have for the time a vascular appearance. Majendie and Flourens long ago shattered Hunter's idol, and subsequent inquiries have satisfactorily proved that every change the blood undergoes, when removed from the body, may be accounted for in a purely physical manner. If the blood of a chicken became vascular, it would be well to observe if, in the course of time, it developed itself into the form of a second chicken. It ought to, or the life of a coagulum is a great mockery. Those who wish to study the case at length, may best do so in Dr. Richardson's Astley Cooper Prize Essay on the "Cause of the Coagulation of the Blood" (Churchill, 1858), which I have before me, with half a dozen other ponderous tomes on the same subject. For the benefit of those who cannot make references for themselves, I submit a few extracts (first hand). "In relation to coagulation of blood, the vital hypothesis is entirely disproved; nay, it would never have been advanced but for the coincidence that the phenomenon occurs in blood newly drawn, and without man's interference,"—Richardson 47. Blood may be frozen and thawed three times in succession, and then coagulate; this one fact makes the vitality theory look ridiculous. "Fresh blood may be held fluid for weeks by the addition of certain salts, and may then be made to coagulate by the addition of water. 'Some horse's blood,' says Gulliver, 'which I had kept fluid with nitre for 57 weeks, readily coagulated when diluted with water.' Did this blood, kept fluid 57 weeks, coagulate from the presence or from the abstraction of the vital principle? With this query the hypothesis of the vital force may be safely left to its advocates for once and for good."—Richardson, 48. "Coagulation consists in the passage of the blood from the soluble to the insoluble state, in which transition it is not formed into an amorphous coagulum, but into a network of fibres more or less definitely marked out.'—Dr. Carpenter, quoted by Richardson, 34. "The coagulation of the blood is dependent entirely upon the presence of the fibrine. This fact has been demonstrated in various ways."—Dr. John Dalton's Treatise on Human Physiology, Philadelphia, 1856, page 191. "The experiments of Hunter and of many others showed that the coagulation of the blood depends mainly on the cessation of the motion to which it is constantly subjected in the course of the circulation, for this condition alone suffices to make it coagulate even in the interior of the vascular system, and we are of opinion that the great physiologist just quoted erred in attributing vital properties to the blood."—D. H. Milne Edwards, in Todd's Cyclopædia of Anatomy and Physiology, article "Blood," p. 418. I suppose none of the readers of this will be in fea-

* The poor-law valuation for 1862, which is the latest valuation I have seen, is 12,567,491*l.*, which will give your English readers an idea of what may be the rental of Ireland. Now if that valuation was doubled by the means hinted at, would it not help to ease taxation in England and Ireland by affording the Chancellor of the Exchequer a higher source of taxation in Ireland, because of our undeveloped resources, already, and as most people believe, by far too heavily taxed. *E. C.*

that if they eat any portion of blood which has been some time kept by the butchers, and has then been submitted to an intense heat by the cook, it will nevertheless require a long time to lie in their stomachs. It would be entertaining in its way to prove first that blood has no vitality of its own, and next that whatever vitality it may have must be destroyed in the cooking. If any commentator were to set about it in a disquisition on Gen. ix., 4, he would find many to admire his ingenuity and accept his conclusions, and denounce as infidels all who did not agree with them. I admire the unction with which my friend says—"The researches of scientific men from time to time do prove to us that the statements of our Bible are in accordance with the soundest and strictest philosophy"—but may God defend us from such philosophy as Christians are usually contented with!—philosophy which begins by perverting the meaning of the sacred text, and next perverting the teachings of science, in order that the perverted things may agree together.

I have to thank you for the space afforded me for this lengthened paper, and to ask the reader to forgive me if I have afflicted him to weariness. I shall not again address you on the subject unless I am compelled by some urgency of circumstances. *Shirley Hibberd, Stoke Newington, April* 15.

Home Correspondence.

Albert Middle-Class College, Suffolk.—Permit me again to trouble you with a few lines as regards the above College, in order to say how fully the anticipations in my letter of last week have been realised. The remainder of the pupils nominated for admission were received on Monday last. The total number in residence is now about 270, and in the course of a few days every bed will be occupied, there being several boys whose attendance on the day named was prevented by illness or some other legitimate cause. The perfect success of the Institution thus far may be looked upon as a great fact. Nothing could exceed the enthusiasm with which parents brought their sons for the purpose of securing to them an education equal to their wants—one which will put them in a fair way to adorn the position in life which they occupy. This readiness on the part of the middle classes of Suffolk to avail themselves of the advantages here offered, eminently proves how great a desideratum has now been supplied, and we cannot too earnestly hope that all our expectations with regard to it may be fulfilled; and that other counties may be stimulated to follow the noble example set them in Suffolk, and provide for the youth of the middle classes generally, the means of obtaining a sound and practical education at the lowest possible cost. *Rd. Garrett, Hon. Sec., Carlton Hall, Saxmundham.*

"Falcon."—Your correspondent "Falcon" appears to be on the wing, up and doing. First, we find him soaring across St. George's Channel and looking down upon the Irish peasantry, but finding so much listless apathy and indifference amongst them, he just touches upon their rags and filth, and looking in upon the pigs and poultry feeding contentedly in the rooms appropriated to domestic purposes, he appears to be satisfied with his bird's-eye view, and without pausing to notice the better part of Ireland, starts off again to England, darting his talons into the unhappy clergy who are not fortunate enough to possess a strong voice, and in a great measure attributing to them the cause of any existing immorality. Perhaps "Falcon" may be prevailed upon to extend his flight from the farm labourer's cottage to the habitations provided for men in the coast-guard service; he may find one small bed-room, one small sitting-room, and sometimes a very small pantry, and if in any way he can "be down" upon Government, and make them open their eyes and set a good example, he may effect even more good than by trying to make the clergy speak out. The miserable state of the habitations of the poor is indeed a crying evil, and to that may undoubtedly be attributed much of the immorality to which "Falcon" alludes. There is also one other thing to which I would draw "Falcon's" attention when he next starts on his philanthropic errand; it is this: can he either frighten away the birds which worry the farmer at seed time?—or can he, from his lofty position and quick sight, put us up to a thing by which they can be kept away, without pressing those wretched little children of four or five years old into this cruel service? I thoroughly believe that the custom of using children as scare-crows hinders their education more than any other kind of employment; when so employed they can neither profit by the Sunday school nor the day school; and this happens, too, when they are of an age to be well grounded, and when the amount they receive for their services is very small. Perhaps "Falcon" will kindly put on his considering cap, and be enabled to suggest some remedy; if so, he will indeed acquire a new feather for it. *W. J. P.*

The Cotteswolds.—Your Correspondent, "J. M. R.," contributes an interesting article on Cotteswold sheep; he, however, states that the produce of long-wool sheep being sent to the "fulling mill" is an "apparent anomaly;" but in point of fact, though long wool is chiefly used as a combing wool, on account of its length of staple allowing of its being drawn to a small even thread as worsted, there is no difficulty whatever in "fulling," "milling," or "felting" it: these are equivalent terms. There can be no doubt that the more generous food now supplied to sheep has tended to increase the length of staple, and also at the same time the diameter of the fibre, rendering the wool "coarser." The fine wools of Germany, from which the finest dressed cloths are made, are the produce of sheep of the Merino breed, kept sparely fed, and never exposed even for a single night to the influence of the weather. But the reason that these wools make the finest cloth is not that they "felt" better than a coarser wool, but that the fibres being so fine, there are more ends of fibres presented on a given surface of the dressed cloth, thus constituting a more even velvety face. *C. P.*——In your Number of April 15, the sense of the quotation from Althelstan's "Song of Victory" is much marred by the word "rib" in the fourth line instead of "nib," the latter word, or "neb," being the old Saxon for "beak." The fine description of the raven then becomes complete—"The swarthy raven with horny nib." *A. L., Monkstown, Dublin, April* 22.

On Consolidating the Surface of the Soil for the Wheat Plant.—Notwithstanding the severity of protracted frosts during autumn, winter, and early spring, and the fears generally entertained therefrom, summer weather on the approach of April set in with unusual splendour, and the last week's invigorating sunshine, with but few clouds intervening to intercept its beneficial influences, also with but little frost by night, has so completely warmed the earth as to give new life to all nature and vegetation. The pastures particularly present an enlivening green, so much needed for cattle, from the scarcity and dearness of provender, owing to last year's failure of crop. All kinds of fruits being backward, may from their very lateness be said to be benefited, and are now past danger from frosts. Above all, the Wheat plant has renovated to a remarkable degree, and all are apparently progressing favourably, promising a precocious, if not an abundant harvest. All that need be feared at present in the Wheat plant is, that most of it may have been planted too thickly for the best of results. Also that the continued frosts having rendered the surface of heavy land too puffy, for the late-sown especially, may encourage the wireworm to commit its ravages during this and next month. Under those unfavourable circumstances it will be more liable to be rootfallen after coming into ear than in seasons when the surface is more encrusted, thus diminishing the produce and sample even on the best of lands. The only remedy I can suggest is to provide all possible means to consolidate the surface of the land by a heavy roller during the ensuing week from this date; and not later, lest the blade be beginning to spindle into ear, and thereby much mischief should be incurred, as has often been the case from the expedient not being performed earlier. Notwithstanding that the Wheat plant unmistakeably requires a deep and soft mouldy subsoil bed for its roots to gambol in without molestation, yet it loathes a soft or puffy surface, or rather it often suffers, in wet and stormy seasons especially, from many causes arising from it. In dry seasons, however, as in 1863, this puffy surface is beneficial to keep in moisture. I know of no specific expedient to prevent a soft or puffy surface of land for the Wheat better than planting it rationally and singly as to thickness, also as early as circumstances will admit of it, thus giving it the best chances of rooting deeply in strong tillered stools before Christmas. The land is then rendered more hard on the surface by autumnal rains. The writer has some Wheat at the present time in two varieties, the dwarfest and most gigantic extant, planted in single grains, at 1 foot apart, on 1st September, or at about 2 quarts per acre, branched so considerably, and so completely covering the ground, as to astonish all beholders except himself, and promising to be in full ear by the time next month is out, and producing from 20 to 80 perfect ears on each plant or stool, or 1000 to 4000 fold, as he has before often grown them—a contrast from 15 or 20 fold generally grown. From past experience in similar crops, he doubts not but that each plant has roots which have been searching for, and partaking of pabula for their winter's support and sustenance during the severest part of the winter 3 feet in the subsoil, whilst those planted late have roots scarcely 2 or 3 inches deep, which, being sown too thickly, will be not able to stand up with a heavy and perfect ear, should an unpropitious, wet, and boisterous summer prevail. Experience has taught me, a correspondent writes, that the erroneous notion I used to entertain of hoeing deeply or horse-hoeing of Wheat, is a fallacy, and is not essential to its welfare, more detrimental than otherwise, inasmuch that it causes it to tiller too late in spring or summer, as every time the ground is stirred deeply (not so with most other crops, but far otherwise), to make efforts to tiller, or produce lateral weak ears, which cannot mature, and which spoils the sample. It cannot however tiller or branch too much; but it should be before winter, when all ears will be more perfected and able to stand all vicissitudes which may follow. The object of hoeing fleetly must not be lost of, which should be simply, but determinedly, to scrape off as it were from every inch, all seedling weeds, and for nothing else, but for finding full employment for the labourer, and producing a sample free from filth, and to free the land of obnoxious seed weeds in after years. *Experimenter, Maldon, April* 12.

Societies.

Royal Dublin.—At the Spring Show of this Society, 400*l.* in money, and three very fine pieces of plate of almost equal value, are offered as prizes, and generally attract a very large collection of Short-horns. This year's exhibition in the Short-horn class has been unusually numerous and good. The following account of it is abridged from the *Dublin Farmers' Gazette*:—

The yearling bulls, of which there were 98 altogether, furnished a picked lot which could not be easily matched anywhere, and during the two hours and a half spent by the judges over that section, those who leaned over the gallery rails, or looked on from the level of the hall, had settled it among themselves how things were to go: the first favourites, not only on Tuesday morning, but also on Monday evening, when the animals were placed under their respective numbers, hailing from Westland and Kingsfort. It is not the first time, however, that favourites have not been placed as their backers expected; and when the decisions became known, it was found that two which had certainly been placed by outsiders somewhere amongst those which would carry home ribbons, although not, indeed, the challenge plate "green," had been put first and second on the list, with, of course, the Gauly Cup to the former. The lucky man who bred and owns the pair is Mr. James Anderson, Grace Dieu, County Waterford, whose "Roses" have at past shows made him a leading winner in the heifer sections, both of the Royal Dublin and Royal Agricultural Societies. His 1st prize and, therefore, cup bull, The Brilliant Lamp, is by a son of the celebrated Lamp of Lothian, out of a Soubadar dam which he got from Mr. Wallis, Drishane. The second yearling, Mercury, is by Master Harbinger, a bull bred by Mr. Barnes. Whatever opinions may be entertained regarding the placing of Brilliant Lamp, we cannot agree with the judges in thinking that Mercury was the second best bull in the section; nor can we, after looking him over repeatedly, perceive the grounds upon which this award was made. Mr. Anderson has been a very spirited breeder from the first, and deservedly successful, which makes it all the harder a task to object to any award whatever in his favour. The third yearling was Mr. Tynte's Bob, a large sappy, good ribbed bull of Booth blood, as found in Mr. Challoner's former herd, at the sale of which in 1860 Bob's dam, Belladonna, was secured for Tynte Park. One of the public favourites, Mr. Challoner's British Sailor, came next as fourth—a very wealthy bull, with a capital back, and uncommonly good loin, deep flank, and full quarters. Mr. Riall lost no time in picking him up, and very lucky he was in having done so when he did it, for there were half-a-dozen customers waiting anxiously at the time to get their hand in. The other favourite, Mr. Barnes's Navigator, also by British Flag, and come of the old Lady Sarah by Satellite tribe, was put next in order to British Sailor; that is, fifth on the judges' book, or with an H. C. ribbon to mark his position to the public. Navigator is a bull of nice points, with a very good back and rib, and a touch and style which ought to please anybody. He, too, was very soon secured; Mr. Meade, who, like Mr. Riall, can judge for himself without the aid of judges, having bought him for Sir George Colthurst.

Thirty-six entries made up a capital Two-year-old section, headed by Mr. Jones's Felix, another of Master Harbinger's gets a level, good-backed bull, with equally good underlines, and of that deep red colour which many prefer. Felix's supporter as second was Mr. Cosby's Ravenswood, which, when shown last year by his breeder, Mr. Crosbie, Ardfert, was the winner of the Gauly Cup. Ravenswood still retains the sweetness and beautiful quality he possessed as a yearling, as well as the nice rib and loin he had at that time. The third 2 year old was Lord Drogheda's Champion, bred by Mr. Anderson, and got by Lord Clyde out of the old Peahen by Favour, which, first Mr. Welsted's property, then the late Captain Ball's, and finally Mr. Anderson's, has produced so many winners and the dams of winners. Champion was a highly-commended yearling last year in Kildare Street, and is an upstanding bull of good constitution. Mr. Massy's Gwynne of Lothian, a bull with a deal of substance, bred by Mr. Crosbie, and got by Lamp of Lothian, was put fourth, or first of the H. C.'s, followed by Mr. Wallis's Count Montijo, the second prize yearling of 1864. He was shown in great feather, and is a thick, compact animal, grown into a very useful style of bull since last year, as we said he would do.

Eleven three-year-olds made up the muster of that particular section, the first on the list, Mr. Mulholland's Defender, from the county of Down, "born and bred," being the one selected by the judges as that which they delighted specially to honour; for, besides putting him first in his section, with the gold medal as the best of all the prize bulls of any age or breed, they gave him also the Railway Cup as the best of all the bulls over two and under five years old, together with the *Farmers' Gazette* Plate, as the best breeding animal, male or female, in the yard; so that he now stands in the place formerly occupied by Soubadar. This accumulation of honours naturally led to his being exposed to abundance of criticism, which was not always favourable, especially as regards the award of the *Farmers' Gazette* Plate. He has a great fore end, but still he is a bit flat on the rib, and wanting much in his quarters to bring him equal to what he is forward. Defender was bred by Mr. Maxwell of Finnebrogue, and was got by Dillon, a son of Musician, Dillon's dam being by Lord Eglinton, a son of Mr. St. George Gray's Rose de Meaux. On his dam's side Defender goes back to Young Usurer, a son of the Kingsfort Bon-Bon. Defender has been a winner at the North-East shows, and his first appearance in Dublin—for we think it was his first—has put him to the top of the tree, and as high as he can get. The second in the section was Young Prince, belonging to Mr. Robert Tennant, Scarcroft Lodge, Leeds, a very useful bull, with a good back and rib, but having a snubby, cowish head which tells against him. White Chieftain, a thick, good backed bull belonging to Mr. Moffatt, Ballyhyland, came in third, with an H. C. to Mr. Cooke's Gorilla, bred by Mr. Marjoribanks, and a commended card to Mr. Challoner's Lord Lyons, a deep, short-legged Booth-blooded bull; a similar honour being awarded to Mr. Meadow's Fortunatus.

The aged bulls—that is, all over three years old—were 14 in number, Mr. Anderson's Lord Clyde, the sire of so many winners, filling appropriately the first place in the section, and looking like enough winning again at a future time. Lord Clyde looks what he is—a very useful bull, with a good fore-end, a deep rib, capital quarters, and, being a beautiful roan, shows "cloth and colour" of the best sort. Mr. Vesey's Gray Friar, a thick-bodied bull, bred by Mr. Barnes, and got by Dr. M'Hale out of a Sir Samuel dam, was second in the section; with Mr. Barton's Red Knight as third or highly commended. Red Knight has not appeared in Kildare Street since he was shown as a yearling in 1861 by his breeder, Mr. Richardson, of Glenmore, when he was placed next to Colonel Leslie's Victor Emmanuel, afterwards well known as a winner when in the possession of Lord Talbot de Malahide. Mr. Barton secured Red Knight at that time, and has since kept him at Straffan, where he has left a deal of useful stock.

The twenty yearling heifers exhibited were, taken altogether, a more even lot than that section has sometimes been in Kildare Street; a particularly good section, much more difficult to judge than at some previous spring meetings. Mr. Tennant, Scarcroft Lodge, Leeds, was the leading winner with his Miss Farewell, bred by Colonel Towneley, a nice heifer all over, with a beautiful bosom and back, good flesh, and capital hair. Mr. Jones, with his Lunette, another of the formidable Master Harbinger gets, and a very level, sweet heifer, with a neat head, a nice rib, and good back, took the second prize in the section, the third best of the lot being Mr. N. M.

Archdall's Rose, a good fleshed, nice topped heifer, which looks as if she will come out well as she gets older.

The 2-year olds formed another good lot; led off by Mr. Welsted's grand heifer, Anita, which stood second in the yearling section at the spring show of '64. On Tuesday she beat the heifer to which she was second on the occasion we have named, as, indeed, she has always done wherever the two have competed against each other, since Easter twelvemonths. Last year we said "she has a very pretty head and muzzle, a beautiful bosom and fine shoulder, with a grand flank and full twist." She has all those points, and more; for she has developed into an uncommonly grand heifer all over, of great thickness for her age, girthing fully 7 feet 9 inches, and showing substance and style more than sufficient to have secured for her the *Farmers' Gazette* plate, which there is very little doubt she ought to have had. She got the gold medal, as a matter of course, as the best of all the prize heifers, but the *Gazette* plate would have put her in her right position as the best of all the prize breeding animals, of any age, sex, or breed. Anita's position as first in the 2-year-old section on Tuesday was supported by Mr. Massy's Woodbelle. Woodbelle has a great fore-end and rib, but she has not improved in her quarters, which was her weak point when a year younger. Another pair from Captain Ball's herd, but now belonging to Mr. Anderson, namely, Pride of the South and Rosalie, followed suit, one being Highly Commended and the other Commended, with a similar honour to Sir Robert Paul's very fine heifer Silk; those three animals retaining the same position that they held last year in the judges' books.

The 3 year-old heifers being short in number, and otherwise but middling, Mr. Jones's Lady Spencer, a winner of something or other wherever she has been shown, had a walk over for the first prize in that section, the second being awarded to an Emperor heifer shown by Mrs Smythe, Drumcree.

Generally speaking, the cow section of the spring shows is usually but indifferently filled, and it was an agreeable surprise, therefore, to find this year the best display in that section which we have seen, at least since Stanley Rose's year; and this reminds us that although Lady Pigot's name appears in the list we give of entries taken from the catalogue, the Branches Park "contingent" did not cross the Channel. Mr. Tennant's Frederick's Farewell, bred by Col. Towneley, and the dam of the prize yearling heifer, was put at the head of the cow section. She is a robust-looking cow, with a good bosom and grand rib, but a bit light in the quarters. The well-known Recherché, looking as well, if not better, than ever she did, was second. Recherché, as many of our readers know, was bred by the late Capt. Ball, and when in his possession was invariably a winner wherever she was shown. She is now the property of Mr. Smith, Islanmore, who appears resolved not to allow the prestige of the county of Limerick to decline, so far as Short horns are concerned.

Reviews.

Sewage of Towns. Third Report, and Appendices, of the Commission to Inquire into the best Mode of Distributing the Sewage of Towns, and applying it to Beneficial and Profitable Uses. Her Majesty's Stationery Office.

We notice the publication of this volume full of most elaborate and detailed reports of experiments at Rugby, Edinburgh, and elsewhere, that our readers may learn where they may obtain full and trustworthy information on a subject which is occupying so much attention now; and also that we may extract the following conclusions at which the Commissioners arrive as the result of their long experience. The following is the substance of the Report to the Treasury which has been issued:—

"Since the date of our last report (August 1861) we have through a committee of our number, consisting of Mr. Lawes and Professor Way, continued at Rugby the experiments which were undertaken in 1861 on the application of sewage to land. The report of that committee, which we append, contains the results for the three years 1862-4.

"Your Lordships will observe that these experiments have not been confined to the application of sewage in different quantities to land, but have extended to the consumption by cattle of the produce so obtained, and to the production of meat and milk, and have been accompanied by a careful record of the quantities and market value of the products, and by numerous analyses of the sewage before and after irrigation, as also of the Grass and of the milk.

"It appears to us that these experiments have solved many of the difficulties which have hitherto attached to the question of the agricultural application of sewage, and that they leave no reasonable doubt of the practicability and advantage of so employing the sewage of towns.

"We have also continued to give our best attention to all kindred experiments and inquiries which have been going on elsewhere.

"As the results of our labours, extending over eight years, we have confidence in submitting to your lordships the following conclusions:—

"1. The right way to dispose of town sewage is to apply it continuously to land, and it is only by such application that the pollution of rivers can be avoided.

"2. The financial results of a continuous application of sewage to land differ under different local circumstances; first, because in some places irrigation can be effected by gravity, while in other places more or less pumping must be employed; secondly, because heavy soils (which in given localities may alone be available for the purpose) are less fit than light soils for continuous irrigation by sewage.

"3. Where local circumstances are favourable, and undue expenditure is avoided, towns may derive profit, more or less considerable, from applying their sewage in agriculture. Under opposite circumstances there may not be a balance of profit; but even in such cases a rate in aid, required to cover any loss, need not be of large amount.

"Finally, on the basis of the above conclusions, we further beg leave to express to your lordships that, in our judgment, the following two principles are established for legislative application:—First, that wherever rivers are polluted by a discharge of town sewage into them, the towns may reasonably be required to desist from causing that public nuisance. Second, that where town populations are injured or endangered in health by a retention of cesspool matter among them, the towns may reasonably be required to provide a system of sewers for its removal.

"And should the law as it stands be found insufficient to enable towns to take land for sewage application, it would, in our opinion, be expedient that the Legislature should give them powers for that purpose."

Agriculture, Ancient and Modern, a Historical Account of its Principles and Practice, exemplified in their Rise, Progress, and Development. By the Old Norfolk Farmer. J. S. Virtue.

The four numbers of this work which have appeared since the beginning of the year, include the remainder of the Part VI. on Farm Implements—Part VII. on Drainage, Manure, the Dairy, Irrigation, Soils, Seeds, &c.—and Part VIII. the Seasons and their enjoyments. There is a somewhat unintelligible mixture and occasional reduplication of subjects in the arrangement which has been adopted. Part VII., for instance, discusses a perfect medley of topics, and is followed by a series of sections in which the details of the whole field of agriculture are presented as in a Calendar, after having been discussed in more general terms before. We are glad to find the Old Norfolk Farmer doing justice to a fellow-countryman of his own, whose merits as an agricultural chemist have not had full justice done to them. Mr. Grisenthwaite, then a young chemist at Wells or Lynn, published his "New Theory of Agriculture" in 1818, and forestalled in it many of the discoveries which have been attributed to Liebig. His work, of which a second edition was published in 1830, is well worth reading still. The application of special manures, founded on an examination of the ash of the plants cultivated, was well understood by the author long before it was discussed by the many writers on the theory of agriculture, who have published during the past quarter of a century.

In the "Part" describing the work of the several seasons, many a detail is given which had been omitted in the previous systematic discussions of the several topics which from week to week during the former years occupy his attention. And the practical character of the work is thus redeemed.

Miscellaneous.

Poultry at Paris.—We described the great poultry competition at a late monthly dinner of agriculturists at Paris. The competition was then adjourned in consequence of the absence of a link in the evidence as to the relative merits of the competitors, and the whole affair had to be "eaten" over again. Certainly this Parisian agricultural "mess" seems in luck's way. Thus the solemn business at the last meeting was to taste and ponder over fat fowls from the districts of Normandy and the Bresse, and precautions were taken to place the competitors in identical conditions, so as to enable their respective weights to be appreciated. Some breeders of Houdan fowls applied also for leave to enter into competition with their Norman and Bresse rivals, while M. de Béhague sought to demonstrate the delicacy of the flesh of young Southdown sheep. M. Leopold Javal, who had promised some oysters from his property at Arés, in the Arcachon basin, added to his present some eels taken from waters on his estate; and M. Leonce de Lavergne also took measures for procuring one of those famous leporides—a half-hare half-rabbit — the existence of which is so strongly disputed. Finally, the associated proprietors of Burgundy resolved to show the delicacy of wines taken directly from their cases. A party of 79 were exact at the rendezvous, there being a fair sprinkling of press men among the rest; M. de Lavergne presided. The oysters, eels, and wines were pronounced excellent, but with these we have not much to do. The sheep sent by M. de Behague was found to be of capital quality, very tender, and at the same time very savoury. It was a Southdown-Berrichon, not more than eight or nine months old, and it weighed in net meat about 45 lb., the rates of net product to living weight being 53 per cent. The party were much struck with the production in so short a time of meat of such quality, and the fact appeared favourable to the improvement of old French breeds by their alliance with more precocious races. M. de Lavergne had written to M. Roux, of Angoulême, to obtain from him a leporide. The animal arrived in time to enable it to be tasted. The flesh was very white, without any taste of game, and was more like veal than anything else. But the great feature of the dinner was, of course, the fat poultry. There were no less than 46 birds on the tables, viz., 18 Bresse specimens, sent by the Comte Léopold de Hen; 12 Normans, sent by the Comte de Kergorlay; and 16 from Houdan. It was M. Beumier, mayor of Gambais, in the Seine-et-Oise, who organised among the principal Houdan breeders, rewarded at the recent exhibition of fat fowls at the Palace of Industry at Paris, the representation of a district which is proud of its products. The canton of Houdan and the arrondissements of Mantes and Dreux were represented at the dinner also by several "considerable" agriculturists. M. Barral, in giving some information on the importance of the fowl trade in the three districts, the products of which were in competition with each other, showed that official statistics drawn up some time since on the production of French poultry-yards were exceedingly inexact. Thus it was stated in these statistics that the production of Houdan fowls only amounted in value to 24,000*l.* per annum; while some data collected by M. Delafosse showed that the fowls sold annually in the markets of Houdan, Dreux, and Nogent-le-Roi were of the following value:—Houdan 76,800*l*, Dreux 96,000*l.*, and Nogent 67,200*l.*, total 240,000*l.* The specimens of the three breeds were roasted, and severed cold and warm, each breed being submitted as nearly as possible to the same culinary *régime.* All the guests were enabled to taste the three breeds with their various accompaniments; and in order to make a comparative experiment which could be tabulated, five head of each breed were weighed. The weight of the Bresse birds averaged 3.070 kilogrammes (50 kilogrammes make an English cwt.), that of the Houdan birds 2.382 kilogrammes, and that of the Norman birds 2.144 kilogrammes each. Their weight was then taken after they had been prepared for roasting, and the average weight of each bird was found to be as follows:—Bresse 2.426 kilogrammes, Houdan 1.904 kilogrammes, and Norman 1.765 kilogrammes. Finally they were roasted under similar conditions and circumstances, and when they had cooled they were weighed again. The result was then as annexed:—The average weight of each of the Bresse birds was 1.439 kilogrammes, of the Houdan birds 1.356 kilogrammes, and of the Norman birds 1.262 kilogrammes. It results from these very careful and curious tests that the trimming occasioned a loss of 20.98 per cent. in the Bresse fowls, of 20.32 per cent. in the Houdan fowls, and of 17.58 per cent. in the Norman fowls. The total loss resulting from trimming and roasting was thus 52.51 per cent. in the case of the Bresse fowls, 44.32 per cent. in the Houdan fowls, and 40.95 per cent. in the Norman fowls. The Norman fowls, accordingly, always weighed less than their competitors, but it will be also seen that they lost less weight as well in the dressing as in the roasting process. The Bresse fowls probably give more fat—we say probably, only because this fat could not be collected. This fat has a notable value, and it is the same with the intestines. A guest from the south regretted the absence from the dinner of the fowls of that part of France, which, according to him, have a very superior flavour to all coming from the centre and north. The fowls of the Bresse were much remarked for the whiteness and delicacy of their flesh. It was unanimously admitted, also, that the flesh of the Norman birds had a remarkable flavour. The Houdan breed has the advantage of furnishing fowls of very great precocity: thus fine young pullets, known under the name of *poulets à la Reine*, appear in the Paris market at the commencement of April, although they are hatched between December 15 and January 15. Fifteen weeks suffice to enable them to attain their development, and the fattening required to bring them to a perfect state only lasts 18 or 20 days. This fattening is effected with Barley flour mixed with milk, the birds allowed nothing to drink: the cost for each pullet ranges from 1*s.* 0½*d.* to 1*s.* 3*d.* The price of Houdan fowls, purchased in the breeding districts, is the same as the selling price on the market of the Vallée, at Paris. This arises from the fact that fowl merchants are skilful in utilising the accessory products. The trade in Houdan fowls acquires every day greater importance, as is proved in the progressive augmentation in the duties levied on the Houdan market. In 1848 the selling places in the market were rented at 228*l.* per annum, while now they produce upwards of 400*l.* per annum, the increase being entirely due to the larger number of persons who come to offer their products for sale. The repast was admirably served, and at its close M. de Lavergne proposed the well-known French toast *A la poule au pot*, highly complimenting all the producers who had contributed to the success of the agreeable testing process which had been pursued, and especially insisting that the simple cultivator who contributes so much to the wealth and power of France ought never to be forgotten. M. Barral then discreetly summed up the results of the weighty trials made. He insisted on the desirability of not seeking to conclude, from what he had seen and tasted, that this or that breed was superior to the other. All the products tested were each in their way of great value. Our readers will admit that this was just the language to send every guest—especially after a good dinner—on his way rejoicing. And this indeed was the case. *Mark Lane Express.*

Calendar of Operations.

May.—The Dairy.—The following is an abridgement of the remarks by "A Gloucestershire Dairywoman" published many years ago in these columns with reference to the work of May:—

The work of the dairy can now be conducted with regularity. The calves not being expected to interfere with it, as in all well-regulated dairies they are now old enough to do without much milk, and the cows having the advantage of pasturage, the cheese is expected in this month to be of prime quality. If any of the cows should be late calving, their milk should not be used

for cheese for at least a fortnight, new milk always having a tendency to make it heave. Cheese is now made twice a day. The cheeses pass through three presses in order, advancing a step in their progress at each meal or making, till at last, in four or five days, they come out of the presses, and are put upon the shelves. They are generally salted 24 hours after they are made, though this is done by some at the end of 12 hours; the cheese after this is returned to the vats and put under the press, care being always taken, according to what has been said, to put the newest cheese lowest in the press and the oldest uppermost. The brine, which drops from it when in the last press before it is taken out and placed on the shelves for drying, is quite clear; the quantity is small, and it ought to be put into the rennet jar perhaps every two or three days, which keeps up the quantity, and is thought an improvement to the cheese.

When the cheeses are taken from the salting-presses they are put on shelves in the dairy for a day or two, where they are turned once in 12 hours. They are then taken to the cheese-loft to make way for the new ones. In the cheese-room they are turned once every day; and in general in a month, or less in dry weather, from the time they are taken out of the vat, they are ready for scraping. This is accomplished with a common knife, first moistening the cheese with a wet flannel, and must be done carefully all over the cheese so as to take off the roughness that may be left upon it from the cloth or any other cause, leaving it quite smooth on the surface and sharp at the edges; the sooner this can be done the better. In order to get cheese into a state of forwardness for the factor, it will only require wiping round the edges and an inch within them once a week after this scraping; and it should be turned over twice a week, or even oftener in damp weather. Care should be taken to allow the blue coat to remain on the top of the cheese; this blue coat is considered a sign of richness by the factors. In some districts it is customary to paint the outside of the cheese with Indian red; this should be mixed with warm water to a thin paste and rubbed on with a piece of flannel, and should be done immediately after the cheese is scraped, before any grease arises upon it, and the same treatment should be adopted as if not painted. In most cases it is better to postpone making thick cheeses which weigh about four or five to the cwt. till at least the month of June.

Food for Cows.—The milking cows by this time may be turned to the most forward Grass in the richest pastures, and as their supply of this food must be variable, depending very much on the season being a forward one or otherwise, a good dairy farmer should provide a supply of Rye or Italian Rye-grass, so that a little given in the yards when the cows come to be milked will give them abundance of green food, as it is found they refuse hay. Even when they have not a full supply from the pastures, they will not readily make a good meal of dry food after tasting the green; and if it is not sufficient to satisfy them, they roam about restless and uneasy, and of course fail to yield anything like a full supply of milk; and as the produce this month is considered very good in quality, the quantity should be by all means secured to be as great as possible.

It is of great importance that good water should be supplied to dairy cows. A stream that has been some little while exposed to the air after rising from the spring before running through their pastures, is considered the best water, and the drinking place should have the soil removed and filled with clean gravel or sand, so that the water may pass through pure and fresh. Cows much prefer drinking from a narrow trough or hole, and are shy of going to a large surface of water, though there should be abundant access and egress to and from the watering place, or the master cows will often damage the others in meeting them.

Food for Calves.—The weaning calves should get fed now as described last month, the only difference being in the case of the older ones, which may be gradually getting a diminished quantity of Linseed or oatmeal; this of course being less needful for them as they become stronger and more able to eat other food provided for them. They should have a sunny field to run in by day, with some Grass to pick from it, but through this month it has been found that they do better on finely-cut Swedes or Mangel Wurzel and good hay, on which they will feed plentifully, having the moisture of a little skim-milk or the mixture of Linseed or oatmeal, which, though much diminished in quality, should be given a little warm, though it should become gradually cooler as the calves get older. Should Grass be supplied at this time as their staple food, it is found to produce too great looseness in the bowels, to which calves are particularly liable, and carefully guarding against this is very essential to their starting into strong growth. They have been found to do far better in small numbers together, on account of their great disposition to feed and lie constantly very close together; and their readily taking any infectious disorder renders careful attention to what may appear trifles in the rearing of calves very desirable. A strong, healthy herd of dairy cows, which have been proved to be far more useful and profitable when weaned or reared on the farm than if purchased at market, and brought on the farm at almost any age, will be thus obtained. They should have warm sheds by night, in which to receive their hay and roots, and it has been found a very good plan to tie them up to give them their milk, as it makes the animals quiet; and each one then gets its proper quantity undisturbed, and if convenient to allow them to remain tied for a short time afterwards until they like to eat their hay after having their liquid food, all the better; as it prevents their sucking each other's ears or skins, which is often productive of much harm.

Swine.—It is calculated that about one pig can be reared on the sour whey for every two cows in the dairy. Supposing a dairy to consist of 50 cows, three breeding sows, reckoning that each one would have eight young pigs, might be kept, giving them a run in any rough Grass under orchard trees not much used for other purposes: their pigs receiving as much of the sour whey as they will drink, will make strong growing pigs. The whey is much better for pigs' food when old, or at least some mixture of it should be so; and if it be used daily from the vat, which is as often getting replenished from the dairy, it makes a very wholesome drink for pigs, on which they will grow and do remarkably well. And as the pigs are small to begin upon it, and do not drink so much as afterwards, a stock collects for their larger appetites, and this, with the wash which large farm-houses must supply, with garden refuse thrown in it in the summer in addition, is found enough to keep the number of pigs mentioned, viz., about one of the age and description given to every two dairy cows in milk.

Notices to Correspondents.

*** Full price will be given for No. 12 of the *Gardeners' Chronicle and Agricultural Gazette*, published March 25, 1865.

Accidents in Feeding Cattle: *Sub.* Hoove, hoven, or blasting, consists of distention of the rumen. Liberate the confined gases, or condense them by chemical re-agents. The hollow flexible probang, if at hand, should be passed into the stomach, so that the gas may escape; and give the following draught:—

Powdered ginger..	3 drachms.
Hartshorn..	1 ounce.
Water	1 pint.

If these are not at hand, give lime water, or two drachms of chloride of lime dissolved in a quart of water. Choking by a piece of Turnip or a Potato: A little oil or lard should be administered by the horn, and the probang should be lubricated. Use rather a large probang, with a knob at the end, cut obliquely, and this, passed along the roof of the mouth, enters the œsophagus. When it has reached the obstructing body, use firm and moderate pressure; alternately raise and depress the head: impatience has killed scores.

Clay Land: *Theorist.* The following extract from a past *Agricultural Gazette* states the case:—In hiring clay land you take not only the groundwork of a manufactory, as it were, but you have access to a mine. You have a depth of soil beneath the surface which the chemist tells you is full of valuable matter, much fuller than the sand-soil is, which only needs skill for its extraction. The picklock to this treasure-house is land-drainage. Once give rain free passage through this soil, and let it take air through and through it in its train, and an immense quantity of the raw material will be at once provided from the natural supplies. No guano at 13*l.* to 16*l.* a ton is needed. The material which for light land you must bring from the ends of the earth is already here beneath the surface, and it only needs, for the attainment of fertility, that air, and rain, and light be brought to bear upon it, and free passage of soil-water be provided as the carrier of it all to the roots of plants.

Erratum: In the first line of the 2d paragraph of the letter on the Painless Extinction of Life, p. 348, col. *a*, where Mr. Chitty is made to say, "For the purpose of encouragement," read, "For the purpose of our argument."

Exhaustion of Land: *R.* Land cannot be exhausted by the application of manure; the idea is altogether a mistake. The exhaustion, if it takes place at all, is due, not to the manuring but the subsequent disposal of the crops grown. Apply guano to your land; you cannot by *that* exhaust it, and neither can the heavy crops which it may thus be made to yield, provided they be consumed on the land again.

Farmyard Dung: *Student.* The following is an answer from Mr. Lawes:—"On a farm of 400 acres, 100 tons of hay, and 50 acres of roots, and all the straw, are consumed at the homestead. This will result in a quantity of dung containing 574,645 lbs. of dry matter, 53,040 lbs. of mineral matter, 9497 lbs. of phosphoric acid, 10,236 lbs. of potash, 12,209 lbs. of nitrogen, or 14,825 lbs. of ammonia. But farmyard manure in the fresh state contains about 70 per cent. of water, or 7 parts of water to 3 parts of dry matter. The 574,645 lbs of dry matter would thus be combined with 1,340,838 lbs of water, making together 1,915,483 lbs. = 855 tons (or an average of about 8½ tons for each of the 100 acres of root-crop) of *fresh undecomposed dung.* In this state, its composition per cent. and per ton would be as follows:—

	Total Dry Matter.	Total Mineral Matter.	Phosphoric Acid reckoned as Phosphate of Lime.	Potash.	Nitrogen.	Nitrogen calculated as Ammonia.
Per cent.	30·0	2·77	0·50	0·53	0·64	0·77
Per ton	lb. 6·72	lb. 62·0	lb. 11·1	lb. 12·0	lb. 14·3	lb. 17.3

This is the composition of the fresh undecomposed dung, calculated from the average composition of the matters which are supposed to enter into it.

Italian Rye-Grass: *Reader.* "The Italian Rye-Grass is own brother to Couch," so exclaimed a disappointed cultivator of it at the recent meeting of a farmer's club. "Of all the plants cultivated by the farmer there is none which will profitably repay so liberal a treatment, such large dressings of manure, as the Italian Rye-grass." That is the other *dictum* on the subject. We pin our faith to the latter statement of the two; and believe that there is no crop known to English agriculture from which a larger produce can be obtained per acre in a season by suitable cultivation.

Scab: *J. L.* It is owing to the presence of minute insects called acari, which burrow under the skin and produce excessive irritation, causing the animal to seek relief by rubbing against any hard object. This friction removes the wool, produces sores, and the animal loses flesh and becomes a miserable object. Powdered sulphur, 4 oz.; fish oil, 12 oz.; oil of turpentine, 2 oz.; white hellebore, 2 drachms, are to be well mixed together and rubbed into the affected parts; or mercurial ointment diluted with four times its weight of lard.

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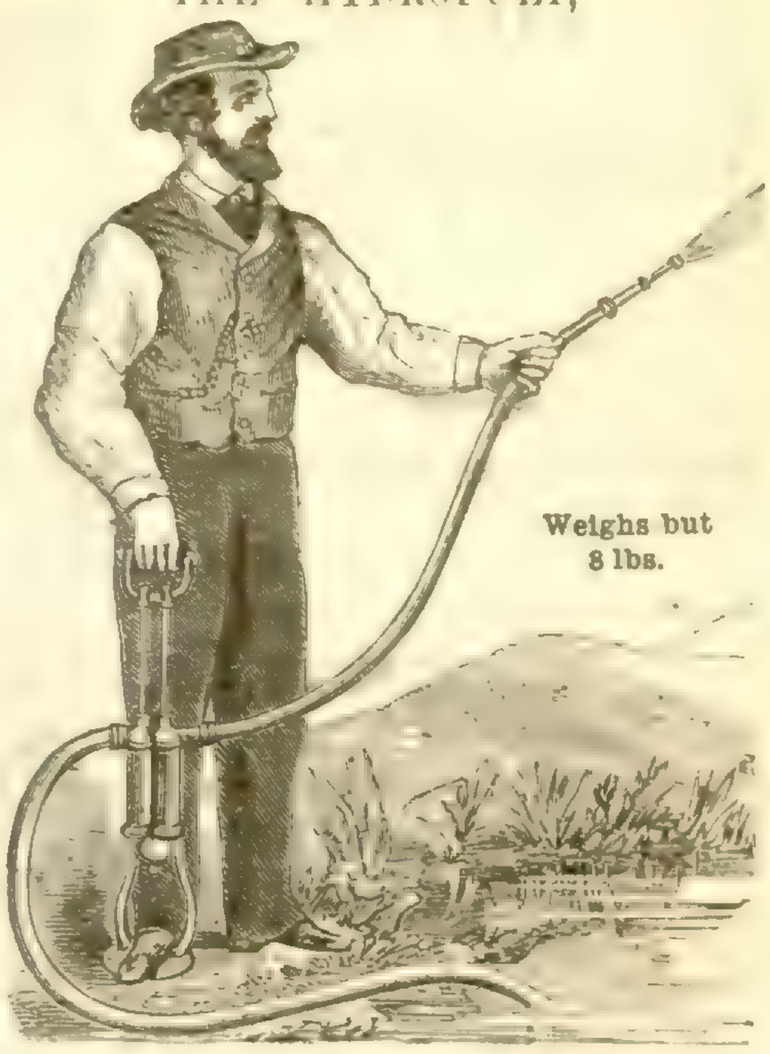

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TURNIP, MANGEL, and POTATO MANURES have produced results of the most satisfactory and remunerative character on every description of tillage land.
WHEAT, OAT, and BARLEY MANURES strengthen the straw, increase the quantity, and improve the quality of the grain in a very marked degree.
BONE SUPERPHOSPHATE of LIME has been proved to be the most economical source of Phosphates for the growth of luxuriant root and corn crops.
GRASS MANURES, for mowing or grazing land, are very effective in improving the herbage. The preparation of Grass Manures is regulated according as they may be required to be more or less permanent in their character.
Offices: Corn Exchange Buildings, Carr's Lane, Birmingham.
Manufactories: Birmingham, Warwick, Bristol, and Chester.

Important Notice to Gardeners.

EATON AND CO.'S GENUINE CHEMICAL MANURE, prepared expressly for Garden Plants and all Bulbous Roots, is acknowledged by thousands to be the finest and strongest Manure manufactured. 12s. 6d. per cwt.
A Sample Canister can be had for trial, sufficient for 1000 plants, for 24 stamps.
Address, E. COOKE, 3, Alfred Street, Victoria Docks, London, E.
Agents wanted upon a first-class commission.

Manures and Feeding Stuffs.

RAYNBIRD, CALDECOTT, AND BAWTREE.
Address, 89, Seed Market, Mark Lane; or Basingstoke.
Samples and prices on application.

Linseed Cake and Oil Mills, Henley-on-Thames.

R. BURNISTON begs to inform Consumers of Linseed Cake that he is now supplying GENUINE LINSEED CAKE, Manufactured by himself from the finest Calcutta Linseed, at the lowest market price consistent with quality, viz., £11 5s. per Ton, free on Rail. It will be found more economical and far superior in Feeding and Manurial qualities to lower priced and inferior Cakes.
The finest PALE LINSEED OIL at 3s. 6d. per Gallon, in quantity of 10 Gallons; a larger order supplied at a lower price.
Samples by post free.

REIGATE SILVER SAND.—Best Kent and Surrey PEATS, LOAMS, SPHAGNUM, ROCK SANDSTONE, London-made FLOWER POTS, &c.
N.B. Loaded Trucks can be sent direct on all the Railways.
W. SHORT, Sand and Peat Depôt, Reigate, Surrey.

COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 2s. per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

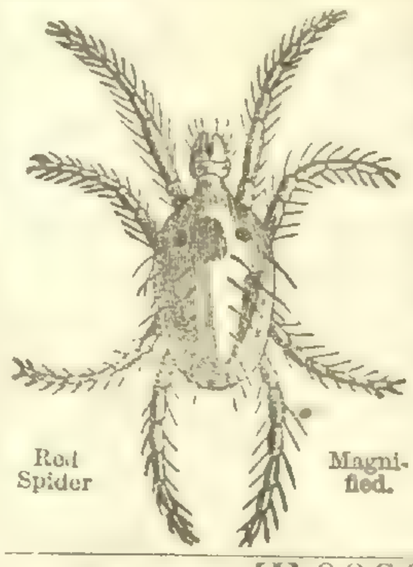
BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped, J. BARSHAM'S Patent.

Caution to Gardeners.—When you ask for

SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the corporate mark OBTAIN WARRANTED, without which none are genuine.
S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by sellers and makers.
S. & C.'s Pruning and Budding Knives are the best and the cheapest in the market.
Parton Works, Sheffield. Established upwards of 125 years.

ROLL TOBACCO CLOTH.—The cheapest and best article for Fumigating Greenhouses and destroying the Fly, price 1s. 4d. per lb.; over 10 lbs. 1s. 1d.
JOSEPH BAKER, 10, Gough Square, Fleet Street, London, E.C.
Post Office Orders payable Fleet Street.



GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes, 1s., 3s., and 10s. 6d. each.

Wholesale by
PRICE'S PATENT CANDLE COMPANY (LIMITED).

TOOGOOD'S (late PAGE & TOOGOOD'S) IMPROVED BLIGHT COMPOSITION introduced in 1850, has been manufactured under W. TOOGOOD'S sole directions since that period. He has made great improvements in it, and by reducing the price 25 per cent., it is one of the cheapest and has always been the most efficacious remedy extant. To publish the Testimonials in newspaper would give space, but Messrs. CUTBUSH & SON, the eminent Nurserymen, say:—"It is the best thing for the purpose we can find, and does not appear to injure the young foliage like Gishurst does. This is our experience after 10 years' trial."
"February 24, 1864"

Mr. E. SAGE, *Gardener to* Lord HOWE, *says*:—
"Will you please send us 15 gallons of your Blight Composition. I see you have reduced the price, and trust that you may some day be able to make another reduction, and I feel assured that no 'Gishurst,' will be used by practical men."
"We hereby Certify that during the whole time we were Warehousemen in the Establishment of B. PAGE & Co., and subsequently PAGE & TOOGOOD, that we Manufactured the Blight Composition under Mr. TOOGOOD'S *sole directions, and that he alone knew the proportions of the various ingredients.*
Signed JOHN MORLEY, HENRY DREW, HENRY SHEERMAN, GEORGE ISAACS."
"July 13, 1863."
Extra strong, 3s. per gallon (sufficient to make 4 gallons fit for use), 10 gallons and upwards carriage free to London.
May be obtained of the principal Nurserymen and Seedsmen in the Trade, and of W. TOOGOOD, Royal South Hants Seed Establishment, Southampton.

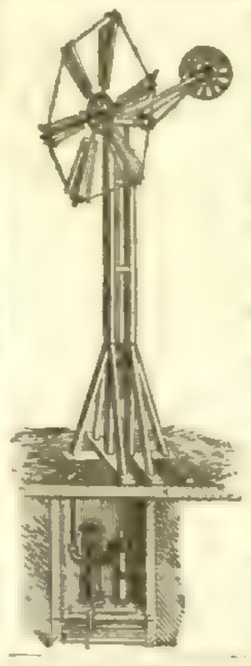
Patronised by 70,000 Stock Breeders.

DAY, SON, AND HEWITT, Sole Inventors of the Celebrated STOCK-BREEDER'S MEDICINE CHEST, containing as follows:—
Six Bottles (at 2s. 6d. each) of the UNIVERSAL CHEMICAL EXTRACT, matchless for penetrating, mollifying, and assuaging pain in all wounds, kicks, cuts, strains, &c., in horses and cattle; straining in ewes lambing, and swollen and inflamed udders in cows and ewes; sore feet in cattle, sheep, and dogs.
One Dozen Bottles (value 20s.) of the GASEOUS FLUID or BLACK MIXTURE, unmatched in the known world for curing diarrhœa or scouring calves, sheep, and lambs; for ewes weakly and exhausted after lambng; for horses and cows exhausted and sickly, and for the fret, colic, or gripes in horses and cattle. An instantaneous remedy for blown cattle and sheep.
One Dozen Packets (value 15s.) of the RED DRENCH or INFLAMMATION POWDER, for cleansing after calving or lambing, for straining in ewes, and for removing all feverish symptoms in cows and ewes after calving or lambing; for yellows in oxen, and for colds, chills, and all inflammatory cases in horses, cattle, and pigs.
One Dozen (value 7s. 6d.) of the RED PASTE or CONDITION BALLS (for horses). These Balls give vigorous health, purify the system, and produce a mole-like sleekness of coat.
Price of Chest complete, with Shilling Key to Farriery, 2l. 16s. 6d. securely packed, and carriage free. Sample case, usefully assorted 16s. 6d. Messrs. D., S., & H. respectfully urge their friends to send their orders early, so that no purchaser may be kept waiting.
Either preparation may be had separately in boxes, carriage paid.
Address—DAY, SON, & HEWITT, Animal Medicine Manufactory, 22, Dorset Street, Baker Street, London, W.; or Wantage, Berks.
Testimonials from all parts of the United Kingdon and Ireland sent free on application.
Established over One Quarter of a Century.

To Flockmasters.

LONG'S NON-POISONOUS SHEEP DIPPING COMPOSITION is a thorough cleanser of the skin, effectually destroys all Ticks and other vermin in the animal, thus tending greatly to improve the Flock and prevent fly striking. The Composition, in its use, leaves the fleece as white as snow, free from any stain, and the skin soft and oily. It is sent out in tin cans, from one gallon to four gallon size. When mixed, one gallon with 80 gallons of cold water, it makes a bath of a perfect white and soapy appearance; it mixes readily, leaves no sediment on the bottom or scum on the top, and the cost is about one penny per head. When used as pouring Composition for Scab or destruction of Tick, mix one gallon with 40 gallons of water.
LONG'S MAGGOT LOTION.—This lotion will instantly Kill every Maggot, Heal the Wound, and prevent Fly Striking, as well as Destroy all Fleas and other Vermin in Dogs or Cattle; is sold in pint bottles at 22d. per pint. One pint strong enough to mix with 40 pints o water—ready for use.
LONG'S GREEN-FLY LOTION.—This lotion is prepared purposely for Horticultural purposes, and when diluted, one pint to 40 pints of water, will Kill every Green-fly and other Insects that infest Roses, Fruit Trees, Shrubs, &c., and prevent Blight in Hops or Vines. Sold in half pint bottles at 20d. each bottle.
LONG'S TURNIP-FLY LOTION.—This Lotion has been J. LONG'S study for many years, and he can now confidently recommend it as a thorough Preventive and Destroyer of the Turnip pest, at a cost of from 6s. to 10s. per acre.
Wholesale Agents, S. & E. RANSOME & Co., Essex Street, Strand, W.C.

PATENT GUTTA PERCHA SOLES.—IMPORTANT TO GARDENERS.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. GLENNY, Esq., the celebrated Florist:—
"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles.—Your obedient servant, "G. GLENNY."
Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Calbotype trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town or country.
The GUTTA PERCHA COMPANY, Patentees, 18, Wharf Road, City Road, London, E.C



As Exhibited at Royal Agricultural Shows—
WORCESTER, 1863; NEWCASTLE, 1864; and PLYMOUTH, 1865.

WIND ENGINE (Patent Self-Regulating), for PUMPING, CHAFF CUTTING, PULPING, GRINDING, THRESHING, OAT CRUSHING, SAWING, or DRIVING other MACHINES.
Powers, from ½ to 12 Horses.
For Farm Purposes most economical, costing nothing to work. Erection simple and cheap.
For Pumping invaluable, working day and night, requiring no watching.

BURY AND POLLARD,
Sole Manufacturers,
PARK IRON WORKS,
17, New Park Street, Southwark, London,
Where a Wind Engine that has been at work seven years may be inspected.
Prices, with Testimonials, by post for one stamp.

TANNED NETTING for the PROTECTION of FRUIT TREES, at 1d. per square yard. Cotton Netting, Woollen Netting, Scrim Canvas, and Tiffany. Greenhouse Shades, &c.
Be particular, JOHN EDGINGTON & Co., 48, Long Lane, Smithfield, E.C.; 18, Piccadilly, W.; and 108, Old Kent Road, S.E.

TANNED GARDEN NETTING for preserving Seed Beds, Fruits, Strawberries, from Frost, Blight, Birds, &c., and as a Fence for Fowls, &c.. 1 yard wide, 1½d.; 2 yards, 3d.; 3 yards, 4½d.; and 4 yards, 6d. per yard run in any quantity, may be had at CHAS. WRIGHT'S, 376, Strand, W.C.
VARNISHED FLOWER STICKS:—1 foot, 3d.; 1½, 4d.; 2, 5d.; 2½, 7d.; 3, 10d.; 4, 1s. 6d. per dozen. DAHLIA do., per dozen:—3 feet, 1s 6d.; 4, 2s. 3d.; 5, 3s.; 6, 3s. 6d. An allowance to Nurserymen.

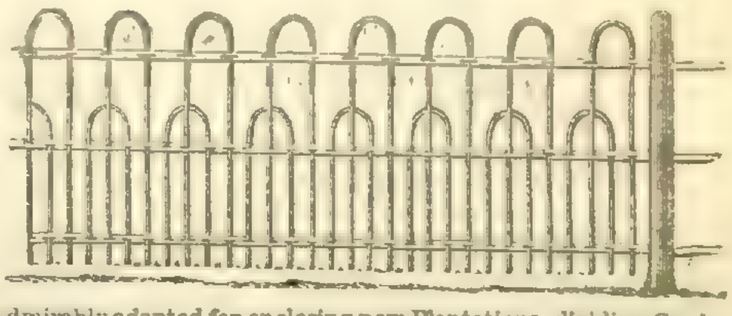
NETTING for FRUIT TREES, SEED BEDS, RIPE STRAWBERRIES, &c.—TANNED NETTING for Protecting the above from Frost, Blight, Birds, &c., 2 yards wide, 3d. per yard, or 100 yards, 20s.; 4 yards wide, 6d. per yard, or 50 yards, 20s.
NEW TANNED NETTING, suited for any of the above purposes, or as a Fence for Fowls, 2 yards wide, 6d. per yard; 4 yards wide, 1s. per yard; ¾-inch mesh, 4 yards wide, 1s. 6d. per yard. Can be had in any quantity of
EATON & DELLER, 6 & 7, Crooked Lane, London Bridge, E.C.

Preserve your Trees and Seed Beds.

BENJAMIN EDGINGTON, of 2, Duke Street, Southwark, S.E., has a large Stock of NEW and REPAIRED TANNED NETTING, COTTON BUNTING, HALL'S COTTON NETTING, POULTRY and SHEEP NETTING, &c. Samples free by post. Marquees, Tents, and Temporary Rooms on hire; lined, boarded, lighted, and comfortably warmed.
Address, BENJAMIN EDGINGTON (only), 2, Duke Street, London Bridge, S.E. No other Establishment.

EDGINGTON'S GARDEN NETTING, the cheapest and most durable, 1d. per square yard, or in quantities of 250, 500, or 1000 yards, carriage free.
EDGINGTON'S MARQUEES and GARDEN TENTS are the prettiest. [capacious.
EDGINGTON'S MARQUEES for hire are the most handsome and
EDGINGTON'S RICK CLOTHS for 60 years have maintained their celebrity as the best.
HAYTHORN'S and BRITTAIN'S NETTINGS.
Sample of material free on application.
Be particular—FREDERICK EDGINGTON & Co., Thomas Street, Old Kent Road, London, S.E. A liberal discount to the Trade.
International Exhibition, 1862, Class XIX., Honourable Mention.

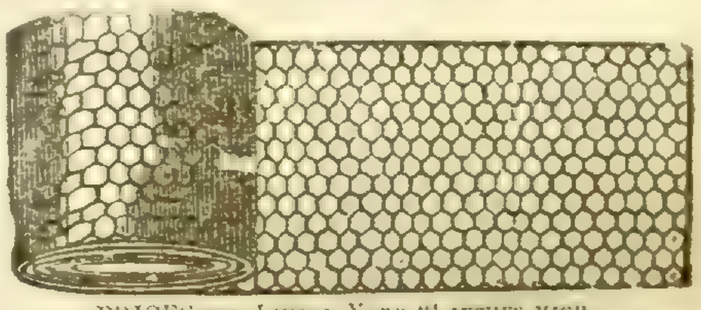
W. S. UNDERHILL'S Patent WROUGHT IRON GAME and POULTRY FENCE.



Admirably adapted for enclosing new Plantations, dividing Gardens, &c. It effectually prevents trespass, and is low in price (varying from 6d. to 1s. 6d. per yard and upwards), neat in appearance, strong and durable.
Manufactory, St. Mary's Works, Newport, Salop. London Agent, Mr. R. WINDER, 18, Abingdon Street, Westminster, S.W., where Samples may be seen.

GALVANISED WIRE CABLE STRAND FENCING, for FARMS, PARKS, and GARDENS.
The ORIGINAL INVENTORS and MANUFACTURERS.

The CHEAPEST, STRONGEST, and NEATEST FENCING in USE.
THOUSANDS of MILES of this FENCING have been SUPPLIED by us at home and abroad. It sustains no injury by being trespassed upon.
Price, with five lines of Strand and Iron-pronged Standards, and one straining post, stay and screw bolts to every 120 yards, 1s. per yard.
Five lines of Cable Strand and Staples for wooden posts, 6d. per yard.
HURDLES, HURDLES, HURDLES, 1s. 9d. to 3s. 9d. per yard.
CONTINUOUS IRON FENCING, GATES of all kinds.
PATENT STRAINING PILLARS, &c.
GALVANISED WIRE NETTING for POULTRY, &c.



PRICES PER LINEAL YARD 24 INCHES HIGH.

Size of Mesh.	Mostly used for	Light. Jap	Light. Gal	Medium Jap	Medium Gal	Strong. Jap	Strong. Gal	Extra Strong. Jap	Extra Strong. Gal
		s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
2½ in.	Hares, Dogs, Poultry	0 3	0 4	0 3½	0 5	0 4½	0 6	0 5½	0 7
2 in.	Game or Poultry Netting	0 3½	0 4½	0 4	0 5	0 5	0 6½	0 6½	0 8
1½ in.	Small Rabbits, Hares, &c.	0 4	0 4½	0 4½	0 6	0 5½	0 7	0 7	0 9
1¼ in.	Smallest Rabbits ..	0 5	0 6	0 5½	0 7	0 7	0 9	0 9	0 11
1 in.	Pheasantries, &c. ..	0 9	0 11	1 0½	1 1½	1 3	1 6	1 9	2 0
¾ in.	Aviaries, &c.	1 0	1 3	1 3	1 6	1 6	1 9	..	..

MOTLEY & GREEN, late H. J. MORTON AND CO.
Illustrated Catalogues and Estimates free on application.
12, Great George Street, Leeds.

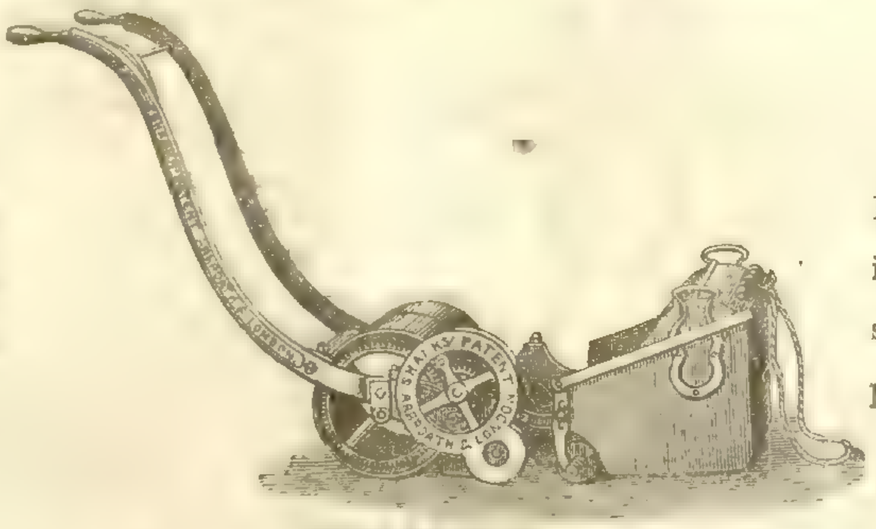
SHANKS' NEW IMPROVED PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1865.

PATRONIZED ON FIVE SEPARATE OCCASIONS DURING THE SEASON OF 1864 BY

HER MAJESTY THE QUEEN.

Alexander Shanks & Son are gratified to find that in the large and increasing demand for their celebrated MACHINES, they receive a conclusive proof that their merits are every season becoming more appreciated by the Practical Gardener.



HAND MACHINE.

A. S. & Son, in introducing Improvements into their MACHINES, have been careful that the advantages in point of durability, simplicity of construction, and superiority in the work executed, which have all along been peculiar to SHANKS' MACHINES, should still remain.

SHANKS' PATENT LAWN MOWERS are in daily use in the ROYAL GARDENS at KEW, WINDSOR, BUCKINGHAM PALACE, HAMPTON COURT, OSBORNE, and BALMORAL; in the GARDENS of the ROYAL HORTICULTURAL SOCIETY at KENSINGTON; in the GROUNDS of the CRYSTAL PALACE COMPANY, SYDENHAM; in VICTORIA PARK; in BATTERSEA PARK; and in many hundreds of the principal Gardens in the Kingdom, as well as abroad, where their merits have been fully proved and their success established.

PRICES—including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom.

SHANKS' NEW PATENT HAND MACHINE for 1865.

Width of Cutter.		
10-inch Machine	£3 10 0	*Easily Worked by a Lady.*
12-inch Machine	4 10 0	
14-inch Machine	5 10 0	*Ditto by a Boy.*
16-inch Machine	6 12 6	*Ditto by a Man.*

SHANKS' NEW PATENT HAND MACHINE for 1865.

Width of Cutter.		
19-inch Machine	£7 12 6	*Easily Worked by a Man and Boy*
22-inch Machine	8 7 6	*Ditto by Two Men.*
24-inch Machine	8 17 6	

Silent Movement for the five smallest sizes, 4*s.* extra; for the other sizes, 7*s.* 6*d.* extra.

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
25-inch Machine	£12 10 0	25*s.* extra.
28-inch Machine	14 10 0	30*s.* ,,
30-inch Machine	15 15 0	30*s.* ,,

Silent Movement, 12*s.* 6*d.* extra; Boots for Pony, 21*s.* per set; Ditto for Donkey, 16*s.* per set.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
30-inch Machine	£19 0 0	30*s.* extra.
36-inch Machine	22 0 0	30*s.* ,,
42-inch Machine	26 0 0	40*s.* ,,
48-inch Machine	28 0 0	40*s.* ,,

Silent Movement, 20*s.* extra; Boots for Horse's Feet, 24*s.* per set.

A. S. & Son have pleasure in submitting the following List from among the hundreds of distinguished individuals, both in this country and abroad, whose patronage they have had the honour to receive:—

HER MOST GRACIOUS MAJESTY THE QUEEN,

For the Royal Gardens at Kew, Windsor, Buckingham Palace, Hampton Court, Osborne, and Balmoral.

HIS MAJESTY THE EMPEROR OF THE FRENCH
HIS MAJESTY THE KING OF SAXONY
HIS ROYAL HIGHNESS THE PRINCE OF PRUSSIA
HIS GRACE THE ARCHBISHOP OF CANTERBURY

His Grace the Duke of Bedford
His Grace the Duke of Newcastle
His Grace the Duke of Marlborough
His Grace the Duke of Rutland
His Grace the Duke of Sutherland
His Grace the Duke of Buccleuch
His Grace the Duke of Devonshire
His Grace the Duke of Leinster
His Grace the Duke of Athole
His Grace the Duke of Norfolk
His Grace the Duke of Hamilton and Brandon
His Grace the Duke of Argyll
His Grace the Duke of Northumberland
His Grace the Duke of Roxburghe
His Grace the Duke of Wellington
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The Most Hon. the Marquis of Normandy
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The Most Hon. the Marquis of Exeter
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The Most Hon. the Marquis of Westminster
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The Most Hon. the Marquis of Kildare
The Most Hon. the Marquis of Abercorn
The Most Hon. the Marquis of Londonderry
The Most Hon. the Marquis of Ailsa
The Most Hon. the Marquis of Tweeddale
The Most Hon. the Marquis of Aylesbury
The Right Hon. the Earl of Tankerville
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The Right Hon. the Earl of Carnarvon
The Right Hon. the Earl of Northesk
The Right Hon. the Earl of Glasgow
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HIS EXCELLENCY THE LORD-LIEUTENANT OF IRELAND
HIS EXCELLENCY THE BELGIAN MINISTER
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THE RIGHT HON. LORD PALMERSTON

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The Right Hon. Lord Braybrooke
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The Hon. C. S. Cowper
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Shanks' Patent Lawn Mowers are warranted to give ample satisfaction, and if not approved of may be at once returned.

☞ A. S. & Son *beg to intimate that their Warehouse at 27, Leadenhall Street, is the only place in London where intending purchasers of Lawn Mowers can choose from a stock of from* 150 *to* 200 *Machines. All sizes are kept in stock, whether for Horse, Pony, or Hand Power, and orders are executed on the day they are received.*

PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N. B.
LONDON OFFICE and SHOW ROOMS, 27, LEADENHALL STREET, E.C.

Exhibition Prize Medal, 1862.

HOTHOUSES for the MILLION.—On the principle invented and patented by Sir Joseph Paxton, M.P., combining strength, cheapness, excellence, and durability. SPAN-ROOF HOUSES, painted three coats, and glazed with English Sheet Glass, can be supplied ready for fixing, 21 ft. by 13 ft., 24*l.*; 43 ft. by 19 ft., 37*l.* 5*s.*; 64 ft. by 25 ft., 161*l.*

Illustrated Circulars, with Prices, can be had on application to SAMUEL HEREMAN, 7, Pall Mall East, London, S.W.

Also, A HANDBOOK on VINE and FRUIT TREE CULTIVATION, 2d Edition, price 1*s.*; post free, 1*s.* 1*d.*

JAMES WATTS AND CO., HOTHOUSE BUILDERS and HOT-WATER APPARATUS MANUFACTURERS,
353, Old Kent Road, London S.E.

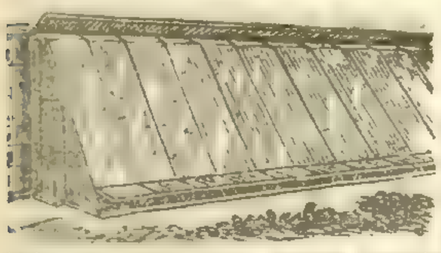
200 CUCUMBER and MELON BOXES and LIGHTS, all sizes, Glazed and Painted Complete, ready for immediate use, packed and sent to all parts of the kingdom.

Strong ZINC HAND GLASSES, all sizes.

References to the Nobility, Gentry, and Trade in most of the Counties in England.

Under the Patronage of Her Majesty.

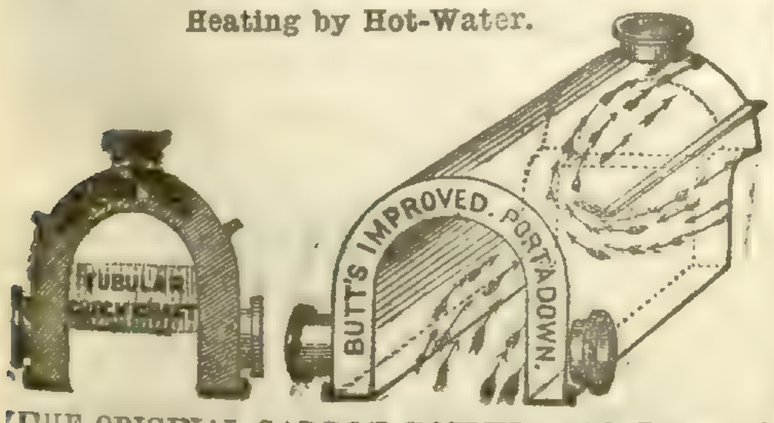
CLARK AND HOPE (LATE CLARK) 55, Lionel Street, Birmingham, MANUFACTURERS of METALLIC and WOODEN HOTHOUSES, CONSERVATORIES, VERANDAHS, &c., COPPER and WROUGHT IRON SASHES, SKYLIGHTS, &c., and HOT WATER APPARATUS for Horticultural and Domestic purposes.



C. & H. beg to call attention to their NEW TREE COVER, or Continuous Glass Covering for Garden Walls; which is constructed of Cast and Wrought Iron, glazed with or without putty, and fitted together with bolts and nuts, constituting a Tenant's Fixture. It can be made 6, 7, or 8 feet wide, and 10, 12, or 14 feet high; the Lights being opened together, by means of simple and durable machinery, in lengths of about 50 feet; and the cost does not exceed that of a wooden structure.

Further particulars, with prices, forwarded upon application; and on receipt of the amount in postage stamps, a Book of Designs, plain 1*s.* 6*d.*, coloured 2*s.* 6*d.*, for Horticultural Buildings, &c.

Heating by Hot-Water.



THE ORIGINAL SADDLE BOILER, with Improved Tubular Check Draft, Flued Ends, and Ribbed Sides, for Heating Greenhouses, Vineries, Forcing Pits, Public Buildings, &c. These Boilers possess increased heating surface capacity, power, economy in fuel, and are the only class of Boilers, all points considered, when properly fixed, that can be relied upon with safety for Heating Greenhouses, &c., of any extent, by Hot Water, and at a moderate price.

Gardeners interested in such work should write for List of Testimonials, sent Post Free on application to FREDERICK WILLIAM BUTT (late of London), Portadown, Ireland.

Greenhouses—Heating Apparatus.

DENNIS' PATENT METALLIC HORTICULTURAL BUILDINGS are made from the best wrought iron, upon an entirely new principle. The combination of Iron and Glass under this Patent is perfect; the possibility of fracture is prevented, and a permanently water-tight roof insured. The leading practical advantages are extreme smallness of framing, admitting a maximum of light and heat, and perfectly neutralising atmospheric conduction.

They are thoroughly ventilated, exceedingly strong and durable, are speedily erected, and whilst maintaining their established superiority for Conservatories of the highest order, are acknowledged by the most eminent Horticulturists of the day to be the "desideratum of perfection," promoting perfect symmetry of growth and richness of colour, both for Fruit and Flowers.

From the complete adjustment of the constructional parts of these patent buildings, their manufacture is so facilitated that a comparison in point of cost with perishable wooden structures is most favourable.

THE GARDENER'S OWN GREENHOUSE
(Lately known as Dench's Patent) is a Tenant's Fixture.

The Patent, Plant, Business, Machinery, and all connected with the above, have been transferred to T. H. P. DENNIS, who has determined to supply these really useful buildings at such a reduced scale of prices that every one desiring a Greenhouse may possess one.

NOTE.—A No. 1 Lean-to, 12 ft. 6 in. by 9 ft., including honest 16-oz. Glass, £16 12*s.* 6*d.*

T. H. P. D. has introduced most important improvements in their finish and construction, and after numerous experiments has succeeded in arranging them as a TENANT'S FIXTURE, which he feels sure will be valued by gentlemen having limited tenures. With Mr. Rivers' adaptation they make excellent Orchard-houses, and afford all that can be desired in a profitable building.

Wood structures at the lowest price consistent with sound work.

Prospectuses and Estimates on application to T. H. P. DENNIS, Horticultural Builder, Hot-water Engineer, &c., Chelmsford, Essex.

Exhibition Prize Medal, 1862.

MUSGRAVE'S PATENT SLOW COMBUSTION STOVE.

This Stove is the nearest approach to Warming by Hot Water.

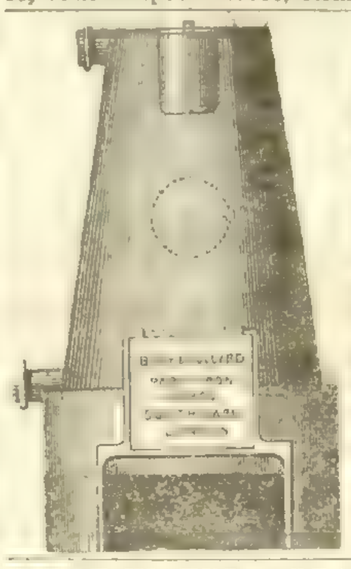
It will burn in Churches from Saturday till Sunday evening, without attention during the hours of worship. In Halls will burn day and night for weeks, with little care. Capable of Warming a large Apartment for 24 hours, at a cost of 3*d.*; and deserving of special attention, because of its safety, healthfulness, durability, and extreme simplicity.

It is also made for small Conservatories, with a vapour chamber.

For particulars of the above, and of MUSGRAVE'S PATENT STABLE and COW-HOUSE FITTINGS, which attracted so much attention at the Exhibition, address,

MUSGRAVE BROTHERS, Ann Street Iron Works, Belfast.

This Stove can be seen in operation at Messrs. Cox & SON, 38, Southampton Street, Strand, W.C.



HEATING by HOT WATER—Public and Private Buildings, Manufactories, Conservatories, &c., heated on the most improved system, combined with perfect Ventilation.

These BOILERS are adapted for setting in Brickwork, or as shown in sketch they require NO BRICKWORK.

BURY AND POLLARD
(Successors to John R. Peill),
Sole Manufacturers of the Improved CONICAL BOILERS, which are in general use, and which Boilers have for their durability and economy attained a celebrity far surpassing any other Boilers ever invented.

Park Iron Works, 17, New Park Street, Southwark, London, S.E.

N.B. Patent WINDMILLS for Pumping and Driving Farm Machinery, from half-Horse Power upwards. To be seen daily at work as above.

HOT-WATER APPARATUS for Greenhouses, Hothouses, Vineries, &c. Estimates on application.
J. JONES & SONS, 6, Bankside, London, S.E.
For List of Prices see *Gardeners' Chronicle*, February 25, 1865.

Heating by Hot Water.

W. J. HOLLANDS, IRON MERCHANT,
31, Bankside, London, S.E.

HOT WATER PIPES, from Stock, per yard:—2-inch, 1*s.* 4*d.*; 3-inch, 2*s.*; and 4-inch, 2*s.* 7*d.* BENDS, from Stock 1*s.* 7*d.*, 2*s.* 6*d.*, and 3*s.* 3*d.* each. THROTTLE VALVES, 10*s.* 6*d.*, 13*s.* 6*d.*, and 15*s.* each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day. A discount to the Trade.

Horticultural Agent and Valuer.

MR. A. CHANDLER (of the late Firm of CHANDLER & SONS, Vauxhall) continues to undertake all VALUATIONS connected with Horticulture.

He is also open to engagements as JUDGE at HORTICULTURAL EXHIBITIONS, having for many years acted in that capacity.
1, Devonshire Terrace, Fulham Road, S.W.

WANTED to RENT, either in Town or Country, a SMALL NURSERY and SEED BUSINESS.
J. HANNAM, 3, Clarence Place, Park Road, Regent's Park, N.W.

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NURSERY BUSINESS to be DISPOSED OF.—An old established Business to be Sold in consequence of the death of the Proprietor. Twenty years Lease of the ground unexpired. For particulars apply to
Mr. R. PINNOCK, Newport, Isle of Wight.

Epsom.

TO BE SOLD, with Immediate Possession, the LEASE, STOCK, and GLASS of the old-established EPSOM NURSERY, in consequence of the decease of Mr. George S. Dods, the late Proprietor. The Ground contains about 5 Acres, with Greenhouses and Pits, completely and economically Heated with Hot-water; also the valuable NURSERY STOCK, Greenhouse and Bedding Plants, Seeds, and other effects. The whole may be taken at a valuation.

For particulars apply to PROTHEROE & MORRIS, Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Sales by Auction.

Important Sale of Plants from a well-known Grower.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, May 3, at half-past 12 o'Clock precisely, a Collection of first class CARNATIONS, PINKS, and PICOTEES, BULBS, Fuchsias, Auriculas, Violets, Hollyhocks, Pansies, Gloxinias, Delphiniums, Yuccas, Pentstemons, Asparagus, Dahlias, Chrysanthemums, Clematis, &c.

On view the Morning of Sale, and Catalogues had.

Lilium auratum and L. Thunbergianum from Japan.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, May 4, at half-past 12 o'clock precisely, several thousand sound BULBS of LILIUM AURATUM, LILIUM THUNBERGIANUM, and other varieties, in first-rate condition, from Japan. For Sale without the least reserve.

On view the Morning of Sale, and Catalogues had.

Rustic Garden Seats, Fern Stands, Vases, Pots, Carnations, Pinks and Picotees, Shrubs, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, May 6, at half-past 12 o'clock precisely, 1000 Pinks, Picotees and Carnations, Gladioli, Laurels, Honeysuckles, Cypress, Arbor-Vitæ, Oaks, Arbutus, &c Rustic Garden Seats, Tables, Baskets, Stools, Chairs, Fern Stands, Flower Pots, &c. Geraniums, first-class varieties for present planting, Calceolarias, Verbenas, &c.

On view the Morning of Sale, and Catalogues had.

A Choice Collection of Ferns, the Property of a Gentleman, and some fine Established Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, May 11, at half-past 12 o'clock precisely, a valuable Collection of FERNS, consisting of fine plants of Aspleniums, Todeas, Davallias, Polypodiums, Oleandras, Platyceriums, Pteris, Adiantums, Lomarias, Blechnums, Polystichums, Gymnogrammas, &c., including many fine Specimen Plants, and some in Baskets. And a Collection of Established ORCHIDS, including Cypripediums, Cœlogynes, Cattleyas, Saccolabiums, Aerides, Dendrobiums, Cymbidiums, Lælias, Oncidiums, Trichopilias, Calanthes, Odontoglossums, Brassias, Epidendrums, Anguloas, Stanhopeas, &c.

On view the Morning of Sale, and Catalogues had.

Redleaf, near Penshurst, Kent.

IMPORTANT SALE OF SHORT-HORNED CATTLE.

MR. STRAFFORD begs to announce for SALE by AUCTION, without reserve, on THURSDAY, May 25, at Redleaf, near Penshurst, Kent, the entire HERD of SHORT-HORNED CATTLE belonging to W. Wells, Esq., which consists of between 30 and 40 head of Bulls, Cows, and Heifers, that have been bred from some of the most fashionable strains of blood.

After which will be Sold the small but select HERD of PURE-BRED SHORT-HORNS, the property of E. W. M. Waldo, Esq., of Stonewall Park, Edenbridge.

Catalogues, with Pedigrees, may be had on application to Mr. STRAFFORD, 13, Euston Square, London, N.W.; or of Mr. CROSBIE, the Bailiff, at Redleaf, Penshurst, Kent.

To Gentlemen, Nurserymen, and Others.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., on SATURDAY, May 6, at 12 o'Clock precisely, a first-class collection of CARNATIONS and PICOTEES, of fine growth, the surplus stock of a celebrated Grower, also handsome Azalea indica, Ericas, Pelargoniums, Roses, and other Plants in bloom; Scarlet and Variegated Geraniums, Verbenas, Fuchsias, Dahlias, and other Ornamental Plants for bedding-out.

May be viewed the Morning of Sale. Catalogues had at the above Rooms; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Camberwell.—Sale of Bedding Plants.

MESSRS. PROTHEROE AND MORRIS are directed by Mr. Joseph Steward to SELL by AUCTION on the Premises, Old Beehive Nursery, 1, Picton Street, Camberwell, S., on THURSDAY, May 11, at 12 o'Clock, 5000 choice GREENHOUSE and BEDDING PLANTS, including the usual assortment.

May be viewed three days prior to the Sale. Catalogues had on the Premises; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, E.

Great Sale of Bedding and Greenhouse Plants.

TO GENTLEMEN, PROPRIETORS OF PUBLIC GARDENS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS respectfully announce that they will hold a Large SALE of BEDDING and GREENHOUSE PLANTS, at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., on FRIDAY, May 12, at 12 o'Clock, including Show, Fancy, and Scarlet Geraniums, Azalea indica, Roses, Shrubby and Herbaceous Calceolarias, Heliotropes, Verbenas, Fuchsias, Ageratum, Petunias, Cupheas, Intermediate Stocks, Carnations and Picotees, Dahlias in dry roots, &c.

May be viewed the Morning of Sale. Catalogues may be had at the Rooms, as above; and of the Auctioneers, Leytonstone, Essex, N.E.

SALE OF THE MAGNIFICENT COLLECTION OF

Azaleas, Greenhouse and other Plants, Greenhouses, Garden Lights, &c.,

THE PROPERTY OF MR. JAMES CHAFFIN.

MESSRS. BECKET AND SONS have the honour to announce that they are favoured with instructions from Mr. CHAFFIN, who is leaving the Premises, to SELL by AUCTION, (without reserve), at the Garden adjoining St. Saviour's Church, Larkhall, Bath, on WEDNESDAY, May 3, and two following days, commencing each day at 12 o'clock precisely, the whole of his Valuable and Choice COLLECTION of GREENHOUSE and other PLANTS, comprising 60 Superb Specimen Azaleas, including those magnificent Plants, of exquisite growth and symmetry, which obtained the Gold Medal at the Royal Botanic Society's Exhibition, Regent's Park, 1864, and for many years past the First Prize at the Bath Floral Fêtes; 50 Half Specimen Azaleas, in the highest state of cultivation; 50 smaller size ditto all finely flowered; 50 Specimen Pelargoniums, 200 Half-specimen ditto, and 1600 smaller size ditto, of the very best and newest sorts. 200 Specimen and Half-specimen Fuchsias, embracing the leading Exhibition varieties. A small but choice collection of Camellias. A beautiful assortment of upwards of 100 Specimen Roses in Pots, set with Bloom. Several Thousand Bedding Plants. Four capital Greenhouses, one of which (27 ft. long, and 24 ft. wide), fitted with Hot Water Apparatus, has only been recently erected. Slate Cisterns, Garden Lights, &c.

On view the day preceding the Sale, from 10 o'Clock till 4, and Catalogues (6*d.* each) may be obtained one week previous on application to the Auctioneers, 10, Quiet Street, Bath.

To Noblemen, Gentlemen, and Others.

W. H. TREEN, F.R.H.S., begs to announce that he is honoured with instructions to offer by PUBLIC AUCTION at the Town Hall, Rugby, on WEDNESDAY, May 10 the magnificent Collections of STOVE, GREENHOUSE, and BEDDING PLANTS, the properties of S. S. Burton, Esq., Churchill House, Wetton; J. Jenkins, Esq., Mr. Moore, and others. The Collections comprise many thousands of Bedding Plants, Geraniums, Calceolarias, Verbenas, and Edging Plants, also Show and Fancy Geraniums, Fuchsias, Specimen Azaleas, Ericas, Ornamental Plants, Alocasia metallica, Polygalas, Marantas, Chrysanthemums, &c., in fine health. Catalogues with full particulars will shortly be ready, and sent on receipt of three postage stamps, on application to the Auctioneer at his offices, Daventry or Rugby.

Sales to commence at half-past 10 o'Clock, on account of the number of the lots.

Auction and Estate Offices, Daventry and Rugby.

The Hasells, Sandy, Beds.

TO GENTLEMEN, FLORISTS, NURSERYMEN, AND OTHERS.

MESSRS. CONDER AND SON will SELL by AUCTION, upon the Premises, The Hasells, by order of THOMAS DE LA RUE, Esq., who has left the same, on FRIDAY, May 5, at 11 o'Clock, a first-class Collection of STOVE and GREENHOUSE PLANTS, Ferns, Fruiting and other Pines, Orchard Houses, Standard and Dwarf Fruit Trees, and Vines in pots, Bedding Plants, Garden Tools, &c. The Auctioneers with confidence call the attention of all persons interested in Horticultural pursuits to the above important Sale, as the Collection has been formed regardless of expense, and contains a Choice Assortment of about 550 Stove and Greenhouse Plants and Ferns: as also of 170 Peach, Nectarine, Apricot, Pear, Plum and Cherry Trees, and 15 Vines for Orchard-house Culture: 23 Fruiting Queen Pines; 132 Succession ditto; 750 Pots of Strawberries; and about 2000 Bedding Plants of the newest kind; the Range of Orchard Houses, Aviaries, &c., which have been erected and stocked within the last four years; Garden Implements and Tools.

The Plants and Trees may be viewed (by tickets only) from the Auctioneers, two days before the Sale. The whole Collection will be described in Catalogues to be obtained at The "Swan Hotel," Bedford; The "Sun," Hitchin; The "Salisbury Arms," Hertford; The "Rose and Crown," Baldock; The "Cross Keys," St. Neots; The "George," Huntingdon; "Bull," Royston; and the "Red Lion," Cambridge; of the Gardener at The Hasells; of Mr. CONDER, 43, Southampton Buildings, Chancery Lane, London, E.C.; or of Messrs. CONDER & SON, Estate and Land Agents, Auctioneers, &c., Biggleswade, Beds.

Hadham, Herts, near the Railway Station.

VALUABLE FREEHOLD NURSERY GROUND, COTTAGE, AND BUILDINGS.

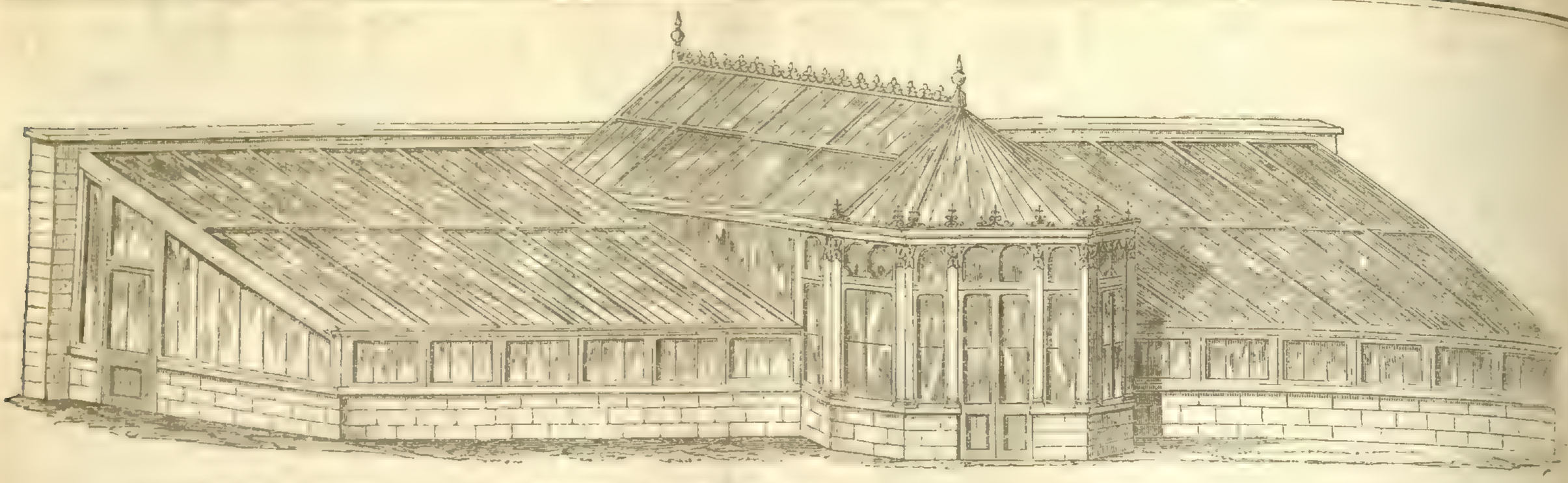
MESSRS. NORTON AND TRIST have received instructions to offer for SALE, at the Guildhall Coffee-house, near Guildhall, on WEDNESDAY, May 17, at 1 o'Clock precisely, a VALUABLE FREEHOLD PROPERTY, eligibly situate at Much Hadham, only a few minutes' walk from the Hadham Station on the Buntingford Branch of the Great Eastern Railway, in a very pleasant part of the county of Herts. It consists of a comfortable Cottage and Outbuildings, and about 5 acres of Market Garden and Nursery Garden, with a thriving Orchard and enclosure of Arable Land; let on lease to and for many years occupied by the late Mr. Wright, at a very low rent of £20 per annum. The property has an important frontage to the high road of about 300 feet, a considerable portion of which might be built upon without interfering with the business.

May be viewed, and particulars had on the Premises; at the Inns at Ware, St. Margaret's, Hertford, and Broxbourne; of Messrs. JANSON, COBB, & PEARSON, Solicitors, 4, Basinghall Street, E.C.; and of Messrs. NORTON & TRIST, 62, Old Broad Street, Royal Exchange.

Nursery Land and Market Garden in Hertfordshire.

MESSRS. NORTON AND TRIST have received instructions from the Executors of the late Mr. Wright to offer for SALE, at the Guildhall Coffeehouse, on WEDNESDAY, May 17, at 1 o'Clock, after the Sale of the Freehold, the LEASE, for 17 years unexpired, at a very low rent of £20 per annum, of the OLD-ESTABLISHED and WELL-CULTIVATED NURSERY and MARKET GARDEN GROUND, situate close to the Station at Hadham, Herts, comprising a Cottage containing sufficient accommodation for a small family, with Shop, Cellars, &c., barn, shed, and premises, Cucumber houses, Pits, and large Vineries, all heated by hot-water pipes, and planted with choice Vines; productive Orchard, and an enclosure of Arable Land, the whole well supplied with water, and comprising about Five Acres. The late owner carried on a very successful trade up to his death, and the premises being near the village, and close to the railway station, present a favourable opportunity to any enterprising man of business with only a moderate capital, desirous of having early possession of a small but old-established trade.

May be viewed, and particulars had at the *Gardeners' Chronicle* Office, W.C.; on the Premises; at the Inns in the neighbourhood; and of Messrs. NORTON & TRIST, 62, Old Broad Street, Royal Exchange.



HORTICULTURAL BUILDINGS, COMBINING STRENGTH AND DURABILITY,

MANUFACTURED BY STEAM POWER MACHINERY.

LOWEST PRICES AND BEST MATERIALS.

HENRY ORMSON, F.S.A.,

HORTICULTURAL BUILDER and HOT-WATER APPARATUS MANUFACTURER,

STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.,

Truly grateful for the very liberal and kind patronage bestowed upon him, begs most respectfully to inform the Nobility, Gentry, Nurserymen, &c., that it is his determination to spare no pains to merit a continuance of their favours; and that he may be enabled to execute his extensive and increasing orders punctually, and at the lowest possible cost (agreeably with the best Materials and Workmanship), he has erected a most complete set of Steam Power Machines, peculiarly adapted for the purposes of his Trade.

H. O. begs to call attention to his superior manner of erecting every description of Horticultural Building, and he trusts by unremitting personal attention to the details of his business, by using only the very best materials, by employing the most skilful and efficient workmen, and by the most moderate possible charges, to merit a continuance of the patronage so kindly and so liberally bestowed on him for many years past.

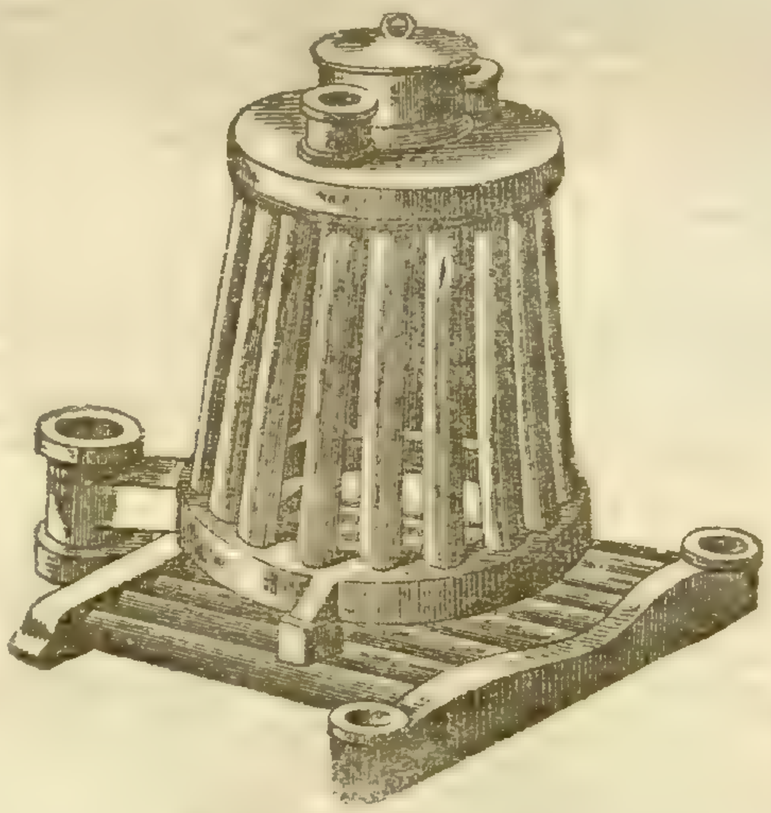
In the **BUILDING DEPARTMENT** his object will be to adapt all erections to the particular purposes for which they are required. He will devote equal attention to the plain, inexpensive, practical erections of Pits, Orchard Houses, Greenhouses, Vineries, &c., as to the more elaborate and architectural erections of Conservatories, Winter Gardens, &c., either in wood or iron.

The **HEATING DEPARTMENT** always engages his special personal attention, and he feels justified in saying that in simplicity, safety, durability, and economy of fuel, combined with thorough effectiveness, his system cannot be surpassed.

VENTILATION.—Knowing the absolute necessity for thorough Ventilation, he makes it a matter of first consideration.

H. O. having competent Draughtsmen and an efficient Office Staff, he is prepared and will be happy to forward Plans, Estimates, and Specifications by post or otherwise, and to wait personally on any Ladies or Gentlemen who may desire to see him on their Grounds.

FIRST CLASS PRIZE MEDAL
FOR ORMSON'S CONSERVATORY,
At the International Exhibition.



FIRST CLASS PRIZE MEDAL
FOR ORMSON'S PATENT JOINTLESS TUBULAR BOILER,
At the International Exhibition.

ORMSON'S

PATENT JOINTLESS TUBULAR BOILER

Has now gained the highest standing reputation for Power, Efficiency, Safety, and Economy of Fuel. There is not a single joint exposed to the action of the fire, which renders these Boilers far more safe than any other Tubular Boiler ever invented. May be seen in successful operation in the Gardens of many of the Nobility and Gentry in England, Ireland, and Scotland. They are made of various sizes. Prices on application.

Plans, Specifications, and Estimates on application.

HENRY ORMSON,

HORTICULTURAL BUILDER TO HER MAJESTY, AND HOT-WATER APPARATUS MANUFACTURER TO THE COMMISSIONERS OF HER MAJESTY'S ROYAL PALACES AND PUBLIC BUILDINGS AND TO THE ROYAL HORTICULTURAL SOCIETY,

STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

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THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 18.—1865.] SATURDAY, MAY 6. {Price Fivepence. STAMPED EDITION, 6*d*.

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ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON.
A SPECIAL SHOW of ORCHIDS on SATURDAY, May 13. Band of Royal Horse Guards from 3.30 to 6.0. Tickets to Fellows' friends, 2*s*. 6*d*.; Public, 3*s*. 6*d*.; or, if bought on the day, 5*s*. each.

ROYAL BOTANIC SOCIETY, REGENT'S PARK.—EXHIBITIONS of PLANTS, FLOWERS, and FRUIT, WEDNESDAYS, May 24, June 14, and July 5. AMERICAN PLANTS, MONDAYS, June 5 and 12. Tickets to be obtained at the Gardens, and of the Society's Clerk; AUSTIN'S Ticket Office, St. James's Hall, on Vouchers from Fellows of the Society. Price on or before Saturday next, May 13, 4*s*.; after that day 5*s*.; or on the Exhibition days, 7*s*. 6*d*. each. The NEXT MEETING for the Election of New Subscribers is Saturday, May 13.

CRYSTAL PALACE.—The GREAT FLOWER SHOW, SATURDAY, May 20.
The Schedule of Prizes may be had on application to
GEO. GROVE, Secretary.

GRAND FLORAL GALA, ROSE SHOW and BAND CONTEST at STAMFORD, on WEDNESDAY, June 28. Open to All England. The Schedules, with Rules, are now ready, and will be forwarded on application to O. B. SHORE, M.D., } Hon.
Stamford, May 6. F. A. HEWITT, } Secs.

HANDSWORTH HORTICULTURAL SOCIETY, 1865.
OPEN TO ALL THE WORLD.
SCHEDULES of PRIZES for the whole of the SOCIETY'S EXHIBITIONS for the present year (including the great Fruit Show, at which Four Silver Cups and other valuable Prizes will be awarded), may be obtained of the Secretary,
ALEXANDER FORREST, Queen Chambers, Cherry Street, Birmingham.

EXHIBITORS' SOCIETY.—At a Meeting of the Exhibitors' Society, held on the 6th April, it was unanimously resolved,—"To return the Subscriptions of the Members that exhibited at the Royal Horticultural Society's Spring Meeting on the 15th March, after signing a protest pledging themselves not to do so 'unless the arrangements for the Exhibitions of the Royal Horticultural Society are modified,' and requesting the said Members to withdraw from the Exhibitors' Society."—Signed on behalf of the Meeting.
C. TURNER, Chairman.
O. RHODES, Hon. Sec.

J. IVERY AND SONS' fine Collection of AZALEA INDICA are NOW in BLOOM, and will continue until the middle of June. J. I. & Sons' Collection of Hardy Ferns are also well worthy an inspection. Dorking, May 6.

H. AND F. SHARPE, SEED GROWERS and MERCHANTS, Wisbech.
SPECIAL PRICED LIST of NEW SEEDS on application.

Genuine Garden and Agricultural Seeds.
JAMES CARTER AND CO., SEED FARMERS, MERCHANTS, and NURSERYMEN, 237 and 238, High Holborn, London, W.C.

RAYNBIRD, CALDECOTT, AND BAWTREE, SEED FARMERS and MERCHANTS, 89, Seed Market, Mark Lane; and Basingstoke.
Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

Pines.
B. S. WILLIAMS begs to announce that he has a fine Stock of the above, including all the best kinds. Prices on application
Paradise and Victoria Nurseries, Holloway, London, N.

NEW GRAPE, "ROYAL VINEYARD," the best late White Grape extant. Strong planting Canes, 21*s*. each; strong fruiting, 42*s*. each.
B. S. WILLIAMS, Paradise and Victoria Nurseries, Holloway, London.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

Fox and Game Covert.
MAULE AND SONS can supply 2-years old ENGLISH FURZE and BROOM at 10*s*. per 1000.
The Nurseries, Bristol.

Transplanted Quick.
CHARLES SHARPE AND CO., Sleaford, have a quantity of well-rooted Transplanted QUICK to offer. Price on application.

Cheap Green Hollies and Aucubas.
FIELD BROTHERS, Boughton Nursery, Chester, have a large quantity of the above to offer of the following sizes: HOLLIES, 1, 1½, and 2½ feet, very fine and well rooted. AUCUBAS, 1½ and 2 feet, ditto. Prices on application.

Bedding Plants, Bedding Plants, from 1s. per Dozen.
MARSH AND PERKINS offer the above, fine strong plants.
CATALOGUES may be had on application at 42, Drapery, Northampton.

Bedding Plants.
JAMES DICKSON AND SONS offer all the leading varieties in strong vigorous Plants to give immediate effect. Of MRS. POLLOCK GERANIUM they have several thousands, with others in like proportion. A DESCRIPTIVE PRICED CATALOGUE on application.
The "Newton" Nurseries, Chester.

NEW ROSES of 1865.—For the BEST SELECTION of the year, see PAUL AND SON'S DESCRIPTIVE LIST.
"Old" Cheshunt Nurseries, Cheshunt, N.

ROSES in POTS for BEDDING, by the Dozen, Hundred, or Thousand. The months of April and May are very eligible for planting out Roses from pots.
WM. WOOD & SON have many thousands of Strong Plants to offer at a very reasonable rate. CATALOGUES gratis on application.
Address Woodlands Nursery, Maresfield, Uckfield, Sussex.

TO AMATEURS, EXHIBITORS, and OTHERS.—Immense Stock of fine healthy Plants, of the cream of New and Approved ROSES, VERBENAS, PETUNIAS, FUCHSIAS, &c., especially adapted to the purposes of the above, can now be supplied. CATALOGUES Gratis on application to W. KNIGHT, Floral Nursery, Hailsham.

Shrubs, Roses, Fruit Trees, &c.
WM. CUTBUSH AND SON'S GENERAL NURSERY STOCK is the best near London.
GLADIOLI, fine, from 4*s*., 6*s*., 9*s*., & 12*s*. per dozen.
CATALOGUES on application.
Highgate Nurseries, London, N.

HOLLAND AND JONES' CATALOGUE of BEDDING, GREENHOUSE, and STOVE PLANTS is now ready, free on application.
Bradshaw Gardens, Chadderton, near Manchester.

CARTER'S GARDENER'S VADE-MECUM PLANT SUPPLEMENT is now ready.

New Plants for 1865.
JAMES CARTER AND CO.'S CATALOGUE of NEW and CHOICE BEDDING, GREENHOUSE, and STOVE PLANTS, is now ready, and will be forwarded gratis and post free on application.
JAMES CARTER & Co., 237 & 238, High Holborn, London, W.C.

Selected Garden Seeds.
PAUL AND SON'S PRICED CATALOGUE contains descriptive list of FINE-FOLIAGED PLANTS for Sub-tropical Gardens. Free by Post. All Seeds Carriage paid.
"Old" Cheshunt Nurseries, Cheshunt, N.

Chrysanthemums.
ADAM FORSYTH begs to acquaint his friends and the public that he is now sending out strong and well-rooted PLANTS from his Large and Choice Collection, at 5*s*. and 6*s*. per dozen. First Prizes Stoke Newington and Agricultural Hall, 1863 and 1864. CATALOGUES for one stamp.
Brunswick and Shacklewell Nurseries, Stoke Newington, London, N.

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E. G. HENDERSON AND SON can now supply LA TRAVIATA, ANNA BULLEYN, MARVELLOUS, and TROUBADOUR, at 10*s*. 6*d*. each; the set, 30*s*.
Wellington Nursery, St. John's Wood, London, N.W.

SIX COLOURS, RIBBON BORDER SEEDS, post free, 2*s*. Sow now in open ground.
ROBT. H. POYNTER, Seedsman, Taunton.

SAMUEL COX, SEED MERCHANT and GROWER, Ludlow, offers 12 Packets of beautiful FLOWER SEEDS for out of doors, post free, for 18 stamps; 24 do. for 30 stamps.

FLOWER SEEDS.—Twenty beautiful, showy, and distinct varieties, named, with height, time of flowering, habit of growth, colour, and hints on cultivation, printed in full on each packet. Post free for 5*s*.
J. C. WHEELER & SON, Seed Growers, Gloucester.

CALCEOLARIA AMBASSADOR (SANG'S).—Strong plants, in single pots, of this magnificent Bedding-out Calceolaria are now ready, price 12*s*. per dozen. The Trade supplied on the usual terms.
EDWARD SANG & SONS, Nurserymen and Seed Merchants, Kirkcaldy

FERNS.—A few nice Specimens of the MAIDEN HAIR FERN for Sale or Exchange.
T. SEWELL, Isleworth House Gardens, Isleworth, W.

DAHLIAS and other BEDDING PLANTS.—CATALOGUES of the above, including all the new and best varieties, post free on application to
JAMES FAIRHEAD & SON, 7, Borough Market, London, S.E.

DWARF PURPLE ZELINDA DAHLIA, for large beds or Ribbon borders, the best yet out.—Ground roots, full of eyes, strong and in good condition, at 8*s*. per dozen, packing included.
CHARLES SHILLING, Hill Nursery, Hartly Row, Winchfield, Hants.
Post Office orders payable at Winchfield.

New Dahlias.
HENRY LEGGE begs to state that he has purchased the Stock of Mr. Hopkins, of his two splendid DAHLIAS named BRUNETTE and BLACK HERO, which he intends sending out in May, with his own fine varieties, which he is sure will give satisfaction to the most limited grower.
A DESCRIPTIVE CATALOGUE can be had on application.
Edmonton, N.

PELARGONIUM MRS. POLLOCK.
Good established plants for Bedding, 36*s*. per dozen.
SALTMARSH & SON, Moulsham Nurseries, Chelmsford.

NEW ZONALE PELARGONIUMS.
TWO OF THE GEMS OF THE SEASON.
SALTMARSH'S "LITTLE TREASURE." (First-class Certificate.)
SALTMARSH'S "LUNA."
For Description and Price see previous Advertisements. Liberal Discount to the Trade.
SALTMARSH & SON, Moulsham Nurseries, Chelmsford.

J. IVERY AND SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

NEW CARMINE-STRIPED VERBENA ANNIE.—This is the finest and most distinct variety ever sent out.
Strong Plants the first week in May, at 5*s*. each, or six for 25*s*., with the usual discount to the Trade.
GEORGE COOLING, 18, Broad Street, Bath.

Choice Primula Seed.
WILLIAMS' SUPERB STRAIN, the finest Fringed and best Coloured Flowers in Cultivation. In sealed packets, Red, White, or Mixed Seed, 2*s*. 6*d*., 3*s*. 6*d*., 5*s*.
Paradise and Victoria Nurseries, Holloway, London, N.

VERBENAS and LOBELIAS.—Purple King, Foxhunter, Lord Raglan, Mrs. Woodroffe, Brillant de Valse, &c., in Pots at 16*s*. per 100; out of pots, 14*s*. Lobelia speciosa true, 12*s*. per 100 for cash. Remarkably fine Plants can be had of
GEORGE EDWARDS, Clarence Nurseries, Haxby Road, York.

Lilium auratum—The Golden-Rayed Japan Lily.
E. G. HENDERSON AND SON having imported between 2000 and 3000 bulbs of the above-named Superb LILY, offer them in good roots, from 5*s*. and upwards each. For description see E. G. H. & SON'S SEED CATALOGUE, which will be sent post free on application.
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Notice.
BEATON'S GERANIUMS.—Those who wish to participate in the FIRST DISTRIBUTION of these magnificent Novelties, should order AT ONCE of any Nurseryman, or direct from the present sole Proprietor,
WILLIAM PAUL, Waltham Cross, London, N.

BEATON'S GERANIUMS.—These splendid Novelties are NOW in BLOOM, and may be seen daily at
Mr. WILLIAM PAUL'S Nurseries, Waltham Cross, London, N.
Entrance from the Platform, Waltham Station, Great Eastern Railway. Half an hour's ride from London.
The first distribution of Plants will take place on the 10th of May.

VARIEGATED-LEAVED GERANIUMS.—Extra strong PLANTS for Bedding, of the following varieties, viz., Mrs. Pollock, Golden Chain, Fairy Nymph, Flower of the Day, Bijou, and Snowflake. Price on application.
LUCOMBE, PINCE, & Co., Exeter Nursery, Exeter.

To the Trade.
CUPRESSUS LAWSONIANA SEED, warranted crop of 1864. May be obtained of THOMAS CRIPPS, Nurseryman, Tunbridge Wells. Price 10*s*. per oz.; 4 ozs., 30*s*.

Bedding Plants, Bedding Plants.
JAMES HOLDER can supply strong Plants of Scarlet GERANIUMS, VERBENAS, CALCEOLARIAS, HELIOTROPES, DAHLIAS, LOBELIAS, KONIGAS, CUPHEAS, BLUE SALVIAS, and SENECIOS, at £1 per 100; or, 50 plants for 10*s*. 6*d*., hamper included. A remittance to accompany each order.
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NEW and GENUINE AGRICULTURAL, GARDEN, and FLOWER SEEDS.
Special prices and advantageous offers on application to
JAMES FAIRHEAD & SON,
Seed Growers and Merchants, 7, Borough Market, London, S.E.

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CLOVER, RYE-GRASS, and all other AGRICULTURAL SEEDS (Genuine) at Market Prices. Purchasers of large quantities supplied on liberal terms.
RICHARD SMITH, Seed Merchant, Worcester.

BROMUS SCHRADERI.
For particulars of above see *Gardeners' Chronicle*, April 8, 1865.
JAMES CARTER & Co., 237 & 238, High Holborn, London, W.C.

Laying down Land to Pasture,
AND IMPROVEMENT OF GRASS LANDS.
MR. MARTIN SUTTON'S ESSAY on the above subject, revised and enlarged from the Journal of the Royal Agricultural Society, may be had post free for 6 stamps on application to SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

NATURAL GRASSES: their Names and Derivations; Quality, Produce, Elevation, Situation, Soil, Use, Peculiarity, Season, Growth, Increase, Time of Flowering, Price, &c. Free for One Postage Stamp.
RICHARD SMITH, Seed Merchant, Worcester.

SCARLET RUNNER BEANS for SALE, 40*s*. per bushel, cash, sound English Seed, 1864.
Apply to ROBT. H. POYNTER, Seedsman, Taunton.

SCARLET RUNNERS.—WHITE SEEDED SCARLET RUNNERS and DWARF FRENCH KIDNEY BEANS, can still be had from MINIER, NASH, & NASH, 60, Strand, London, W.C. Prices on application.

GIANT ASPARAGUS ROOTS, 2*s*. 6*d*. per 100.—This delicious vegetable does not require half the expense usually incurred in planting it. For instructions, see RICHARD SMITH'S SEED LIST for 1865. Strong Transplanted SEA KALE, 2*s*. per doz.
RICHARD SMITH, Nurseryman, Worcester.

MUSHROOMS ALL the YEAR ROUND.—An APPENDIX of great importance to the Second Edition can now be had by inclosing 3*d*. in Stamps. MUSHROOM SPAWN, per bushel 5*s*. Pamphlet on ditto, with Appendix, 1*s*. 3*d*.
JAMES CUTHILL, Camberwell, London, S.

BEDFORDSHIRE LONG RIDGE CUCUMBER SEED, excellent sample. May be had of
Mr. A. WILKIN, Tiptree, Kelvedon, Essex.

To Gentlemen, Nurserymen, and Others.
GLOBE ARTICHOKES.—Good strong Globe Artichokes now ready at 25*s*. per 100. Post-office Orders payable to JOHN GAINES, Herbalist and Seedsman, Covent Garden Market, London, W.C.

DRUMHEAD CABBAGE PLANTS (Strong); also TRANSPLANTED CAULIFLOWER PLANTS, autumn sown. Can be supplied cheap by
H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

EARLY CABBAGE PLANTS.—A few Thousands of EARLY BATTERSEA and NONPAREIL CABBAGE PLANTS to dispose of, at 5*s*. per 1000, on application to
W. VIRGO & SON, Wonersh Nursery, near Guildford.

Mottled Globe or Grey Stone Turnip.
SUTTON AND SONS have a very choice stock of this excellent NEW TURNIP. It grows to a very large size, and is strongly recommended. Price of seed, 1*s*. per lb., cheaper by the bushel, carriage free.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

The Best Early Turnip for Field Culture is the Pomeranian White Globe.
SUTTON AND SONS can supply fine New Seed of the POMERANIAN WHITE GLOBE TURNIP at 10*d*. per lb., or cheaper by the bushel. Carriage free except small parcels.
PRICED LISTS of TURNIP SEEDS post free.
Royal Berkshire Seed Establishment, Reading.

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HOOPER & Co., Seed Merchants, Covent Garden Market, London.

St. Mary's Nursery,

Near the Church and Railway Station, and Adjoining the Compasses Inn, Hornsey, N.

BEDDING PLANTS, from 2s. per dozen; all other Plants equally cheap. ROSES and FLOWERING PLANTS in pots for immediate planting. The Nursery and Grounds are always open to the inspection of visitors.

CATALOGUES sent free by post on application to Mr. Thos. Townsend, as above. A liberal discount to the Trade.

Cheap Bedding Plants.

2s. per dozen, or 15s. per 100, well established in pots.
Strong plants, in cutting pots, 10s. per 100.

PETER DRUMMOND AND CO. have at least 150,000 of the above, which, for variety, size of plants, and price cannot be surpassed in the kingdom, all clean and healthy, for the decoration of the Flower Garden, consisting of GERANIUMS, Scarlet and Variegated, VERBENAS, HELIOTROPES, LOBELIAS, PETUNIAS, CALCEOLARIAS, DAHLIAS, &c., also Frosted and Variegated-leaved Plants.

See large Advertisement in *Gardeners' Chronicle*, No. 17, p. 383.

PRICED CATALOGUE post free on application.

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VERBENAS, fine selections, 100 in 50 vars., 18s.
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MIMULUS, three beautiful new vars., Aurantiaca, Cupreus Major, and Gem, 1s. 6d. each.
GAZANIAS, three fine new vars., 1s. each.
GAZANIA SPLENDENS, 4s. per doz.; 25s. per 100.
Finest FUCHSIAS, PENTSTEMONS, PHLOX, LOBELIAS, PETUNIAS, DAHLIAS, &c., &c.
CATALOGUES free on application.

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Cheap Bedding Plants—Mostly 2s. 6d. per Dozen.

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BEDDING PLANTS, 2s. 6d. per dozen, or out of pots 16s. per 100.—Arabis albidus variegatus, Variegated Daisy, Stachys lanata, Cerastium tomentosum and Biebersteinii, Nepeta Cassii, Antennaria margaritacea, Koniga maritima, Vinca major var., and many sorts of Variegated Geraniums, selections left to me; 150 sorts of Chrysanthemums, to name, 2s. 6d. per dozen; and 200 sorts of Verbenas, turned out of pots, 16s per 100; and above 100,000 of all the best Flower Garden Plants, for summer and autumn show, now ready.

Having disposed of my Branch Nursery, near Yeovil, all orders should be addressed to me at Merriott, Somerset, and Seed orders to my Stores, Yeovil, Somerset.

BEDDING PLANT CATALOGUE, 78 pages, now ready, at 7d. See Advertisement in to-day's paper.

John Scott, Merriott, Somerset.—May 6.

LOBELIA COMPACTA USHERII.—This variety of Lobelia is the very best we, the undersigned, have ever seen, being very compact and neat in growth, and, whenever we saw it, it was one mass of the most exquisite blue. It is well adapted and neat for edging. Mr. Usher, Gardener to Major Sykes, of West Ella (the eminent Calceolaria grower), says there is nothing to equal it; also Mr. T. S. Rew, Gardener to J. Bedell, Esq.; Mr. G. Hales, Gardener to Mrs. Flint, Anlaby; and Mr. Geo. Featherstone, Gardener to F. Hoare, Esq., Tranby Park, Hessle. Price per dozen 6s., per hundred 40s., on application to Martin & Son, Market Place, Hull, and Cottingham.

POLYANTHUS SEED, saved from the very best kinds, 2s. per pkt.
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CLERODENDRON BALFOURII	5	0
CORDYLINE INDIVISA	10	6
FRANCISCEA CALYCINA	10	6
GOODYERA PUBESCENS	1	6
RHODODENDRON COUNTESS of HADDINGTON	10	6
" JAVANICUM	2	6
" NUTTALLII	2	6
TRITOMA GRANDIS	3	6
" UVARIA GLAUCESCENS	1	6
VINE DUCHESS of BUCCLEUCH	21s. and 42	0
YUCCA ALBO SPICA	42	0
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Exotic Nursery, Tooting, Surrey, S.

40,000 Dwarf Roses, in Pots, for Bedding or Greenhouse Culture.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

WM. WOOD AND SON have much pleasure in offering the following, in well-grown Plants, viz.:—

BOURBON and TEA-SCENTED ROSES, 12s. to 18s. per dozen.
CHINA, NOISETTE, and HYBRID PERPETUAL, 9s. to 12s. per dozen. Cheaper by the 100.
HYBRID PERPETUAL and TEA-SCENTED ROSES, established in 6-inch Pots, for Greenhouse Culture, 24s. to 30s. per dozen.

Seedling Roses.

WM. PAUL (Son and Successor to the late A. Paul) begs to offer the following FIRST-CLASS NEW HYBRID PERPETUAL ROSES, at present exclusively in his possession, and which are specially recommended. Good plants will be ready for delivery in May next.

ELIZABETH VIGNERON.—Flowers fine rosy pink, very large and full, in the style of Lælia, but fuller, fresher, and brighter in colour than that superb variety; form perfectly finished, constitution hardy, growth vigorous. Price 7s. 6d. each.

GLORY of WALTHAM.—Flowers resplendent crimson, very large and full, a seedling from Leveson Gower, larger, brighter, darker, and of better form than the parent. A superb Rose, of hardy vigorous growth, producing shoots 6 feet long in one season, and of the thickness of the little finger. Price 7s. 6d. each.

MADAME EMILE BOYAU.—Flowers soft rosy flesh colour, changing to blush, of a pleasing colour, sufficiently large, perfect in form, moderate in growth, hardy in constitution, good and distinct. Price 5s. each.

PRINCE DE JOINVILLE.—Flowers light crimson, a fine large showy Rose, of vigorous and hardy habit, quickly forming a highly decorative bush, standard, or pillar Rose, of great beauty. Price 5s. each.

PRINCESS LICHTENSTEIN.—Flowers white, globular, large and full. A good hardy white Rose, of compact growth, flowering abundantly. Price 5s. each.

The best of the NEW FRENCH ROSES, 36s. to 42s. per dozen. Last year's kinds, 24s. to 30s. per dozen. Older kinds, 9s. to 18s. per dozen.

William Paul, Waltham Cross, London, N.

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COLLECTION of STOVE and GREENHOUSE PLANTS

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Ten minutes' walk from Feltham Station.

EVERGREEN and DECIDUOUS SHRUBS, and CONIFERÆ, are here largely grown in a free Loam, well suited to their habits.

At SION LANE and WOOD LANE NURSERIES, ISLEWORTH,

ORNAMENTAL TREES are in a healthy and thriving state, and GENERAL HARDY PROPAGATION is here carried on.

The Stock in the above Nurseries is well worth the inspection of purchasers. The prices are very moderate, as the Plants are frequently transplanted to ENSURE SAFE removal.

The following CATALOGUES are published, and will be forwarded Post Free on application:—

CATALOGUE of KITCHEN GARDEN, FLOWER, and AGRICULTURAL SEEDS.
CATALOGUE of STOVE and GREENHOUSE PLANTS.
CATALOGUE of SOFT-WOODED and BEDDING PLANTS.
CATALOGUE of FRUIT TREES and FRUIT TREES in POTS.
CATALOGUE of HARDY SHRUBS and TREES.
CATALOGUE of DUTCH BULBS, published in August.
CATALOGUE of ROSES.

JOHN AND CHARLES LEE, Proprietors, HAMMERSMITH, LONDON, W.

BARR & SUGDEN 12 KING ST. COVENT GARDEN

SEED AND PLANT MERCHANTS.

Orders amounting to 21s. sent Carriage Paid.

Mr. Bull's peculiar Strain of AURICULA-EYED VERBENA, comprising nearly every shade of colour: rich clarets, puce, maroons, brilliant vermilion, &c. Mr. Bull from this Strain has from time to time sent out very many superb varieties. The seed we offer is Mr. Bull's own saving, and is certain to produce fine flowers. 3s. 6d. per packet.

Mr. Bull's selected Strain of ZONALE PELARGONIUMS, embracing all the newest colours, 2s. 6d. per packet.

Mr. Bull's selected Strain of MIMULUS MACULOSUS, embracing the most beautifully spotted varieties, 1s. per packet.

LILIUM AURATUM, Third Consignment this season from Japan.

3s. 6d., 5s. 6d., and 7s. 6d. each.

GLADIOLI, Surplus Stock.

50, in 50 beautiful varieties, 21s.; 25, in 25 do., 10s. 6d. Varieties for Massing, 2s., 3s., and 4s. per dozen. 10s. 6d., 15s. 6d., and 21s. per 100.

FLOWER SEEDS, Hardy, Half Hardy, or Tender, in Collections, Post Paid.

3s. 6d., 5s. 6d., 7s. 6d., 10s. 6d., to 21s.

VEGETABLE SEEDS, in Collections, Carriage Paid, 21s. and upwards.

10s. 6d., 15s. 6d., 21s., 42s., to 63s.

FINE LAWN GRASS SEED, for Renovating or Laying Down New Lawns, 1s. per lb.

FARM SEEDS amounting to 21s. and upwards sent Carriage Paid.

Agents, Wholesale and Retail, for London and Home Counties for

STANDEN'S "GARDENERS' AND AMATEURS' FRIEND."

(The long-sought desideratum for Flowers, Fruits, and Vegetables.)

Sold in Canisters, at 1s. 3d. and 2s. 6d.

The "Gardeners' and Amateurs' Friend" is a highly Concentrated Inodorous Artificial Manure, far surpassing in value any article of this description hitherto introduced; its effect is extraordinary in promoting a healthy vigorous growth in Camellias, Azaleas, Franciseeas, Ixoras, Boronias, Eriostemons, Polygalas, Dipladenias, Pimeleas and Orchids, also for all other Greenhouse and Stove Plants in general. For Fruit Trees in pots, Vine Borders, Lawns, Pleasure Grounds and Kitchen Garden Crops, the "Gardeners' and Amateurs' Friend" is invaluable.

In addition to the high Testimonials in a previous Advertisement, we may add an extract from a letter recently from "Alpha":—

"When Standen's Manure first came under my notice, I was anxiously engaged in pushing on a collection of Azaleas for exhibition; I applied it to one of these, which was in a hard and stunted condition, and it soon wrought a surprising improvement in the plant. I have since repeatedly used it in growing Azaleas. I apply it first when they begin to push their bloom buds, and again when they are placed in the house where they are to make their growth, which will be about two months after the first application. In the autumn, if a plant does not swell its bloom buds to my mind, I give it another half dose. To Camellias I apply it in about the same proportions, and at the same stages of growth, while to Pimeleas, Eriostemons, Polygalas, and other strong-growing hard-wooded greenhouse plants I give it only in the season, just as they are starting into growth, while half the quantity is probably as much as a Boronia will require. To Ixoras and Franciseeas I give it in larger doses. I think half as much more than Azaleas or Camellias require is perfectly safe for these. Allamandas should be administer it to Ixoras when they are starting into growth, and again as soon as they are fairly set for bloom. Dipladenias, but these should not after they are set for bloom (giving it earlier would probably cause them to grow too woody), so with Dipladenias, but these should not be too large a dose at once. I have also used it upon many other stove plants, and proved it to answer admirably. Although it is perhaps suitable for many soft-wooded plants, I would recommend that it should be given to these in small quantities. I used it in small quantities for many Orchids, and never found that it injured them; indeed they all seemed to enjoy it much. I have never made much use of it for plants in pots, but I have watered Vine-borders with it just as the Grapes were beginning to colour, and have no doubt about its value for these. For Roses and all kinds of Vegetable Crops which require abundance of manure it will, I think, be found all that can be wished. "Alpha."

BARR AND SUGDEN, SEED MERCHANTS, 12, KING STREET, COVENT GARDEN, W.C.

NEW AZALEA INDICA "STELLA."

This magnificent NEW AZALEA, universally acknowledged to be the finest variety ever offered for Sale, has received the following Awards:—

FIRST-CLASS CERTIFICATE, ROYAL HORTICULTURAL SOCIETY, SPRING 1864.
FIRST-CLASS CERTIFICATE, ROYAL BOTANIC SOCIETY, SPRING 1864.
FIRST-CLASS CERTIFICATE, ROYAL HORTICULTURAL SOCIETY, March 25, 1865.
FIRST-CLASS CERTIFICATE, ROYAL HORTICULTURAL SOCIETY, April 4, 1865.
FIRST-CLASS CERTIFICATE, ROYAL HORTICULTURAL SOCIETY, April 15, 1865.

The flowers are large, of fine substance and perfect form, of a bright orange-scarlet colour, with a rich violet stain on the upper segments of the corolla, where it is also profusely spotted with lake.

Good Plants, 31s. 6d. each.

Inspection of the Plants NOW in BLOOM at the Nursery is solicited.

OPINIONS OF THE PRESS.

"A beautiful variety, quite the gem of the season."—*Proceedings Royal Horticultural Society*, 1864, vol. iv.

"From Mr. Veitch came the magnificent Azalea Stella."—*Proceedings Royal Horticultural Society*, 1865, vol. v.

"Great admiration was bestowed upon Mr. Veitch's new Azalea Stella."—*Proceedings Royal Horticultural Society*, 1865, vol. v.

"The splendid new violet-blotched orange-scarlet Azalea Stella in fine bloom came from Mr. Veitch.—*Gardeners' Chronicle*, April 1, 1865.

"Azalea Stella, from Mr. Veitch, was very conspicuous."—*Journal of Horticulture*, April 11, 1865.

JAMES VEITCH, ROYAL EXOTIC NURSERY, CHELSEA, S.W.

E. G. HENDERSON & SON'S

SPRING CATALOGUE FOR 1865

WILL BE PUBLISHED EARLY IN MAY, AND FORWARDED POST FREE ON APPLICATION.

The Trade can have a copy of desirable Novelties immediately, with prices on application.

NEW PLANTS FOR 1865.

Messrs. E. G. HENDERSON & SON have much pleasure in calling the attention of Amateur Cultivators and others to the FOLLOWING NOVELTIES possessing great merit. Among the eminent Raisers from whom they have purchased the property or stock of each, are many who stand foremost in their special attention to the individual flowers to which their names are attached in the Catalogue.

New Fuchsias for 1865.

LIGHT HEART | FATHERIGNATIUS | WAR EAGLE,
LUCY MILLS | ENOCH ARDEN | ROSE of DENMARK, 15s.
The VILLAGE PET | LADY of the SEA |
RODERICK DHU | CONSOLATION. 10s. 6d. each.

Centaurea ragusina compacta, 3s. 6d. each.

This very effective and beautiful plant is an improved form of the well-known C. ragusina (syn. C. candidissima) in being a variety of much neater growth, and, as its name implies, of a more compact dwarf habit. It differs from its prototype in having shorter and comparatively broader leaves, not so coarsely and deeply lobed at the margin, the terminal lobe also being rounder. One most desirable and prominent distinction from the original species consists also in its purer white leaf surfaces, the under as well as the upper one, by which it yields a very beautiful silvery feature and contrast with opposite dark green and chocolate-coloured leaf-tints. It is also free from the wide spreading outline of the leaves observed in the mature summer growth of C. ragusina. This desirable plant by its greater adaptation for ribbon rows and marginal effect in border culture, apart from its snowy whiteness in warm seasons, will eventually supersede the older kind hitherto used in flower gardens.

New Dwarf Belting Verbenas.

Type "VELVET CUSHION."

The following varieties are comprised in the new section of Verbenas, hybridised with V. venosa, and distinguished by its sub-perennial habit, and neat dwarf style of growth, of which the variety sent out last season as "Velvet Cushion" is the type, and which was universally admired for its attractive features and adaptation for front belts, ribbon rows, &c. The improved constitution wrought into these varieties by alliance with a hardier species, will ultimately produce the desirable results of diminishing the too prevalent scandent habit, and exuberant leaf-growth, by the production of a denser growth peculiar to many perennial species. Those now offered will be found valuable for garden decoration, where a more compact habit is required for extensive front margins, belts, or curved outlines, &c.

ARIEL | CORDELIA | HELENA | JULIET.

New Dwarf Tropæolums.

The following fine varieties are Seedlings of 1863, and have thus been tested by the growth of two successive years. Many of the varieties hitherto have been but the mere seminal productions from well-known kinds, and prematurely sold as distinct and permanent in habit. These have the strain of T. elegans in constitution, and of T. Tom Thumb in growth, retaining their remarkably dwarf, compact, and vigorous habit throughout the summer months, without deviation of growth or bloom, colour, or effect. The leaves never rise above an average and uniform height, and the bloom being alike in profusion and continuance throughout the whole season.

T. COMPACTUM COCCINEUM.—Habit of growth uniform with the foregoing, equally vigorous and compact; stems tinted red, leaves small dark green, obscurely pilose or hairy on the under surface; flowers glowing scarlet self colour, good form, style of T. Eclipse, but larger, expanding uniformly and in profusion, forming very beautiful patches of 12 or more inches across, and producing a brilliant effect by a rich contrast to darker crimson varieties, or colours to match in extensive ribbon rows, belts or margins, beds or borders in select flower gardens, or extensive terrace groups. For decorative purposes it exceeds all other varieties of a similar habit, in its remarkably close and miniature habit of growth, filling up to the centre, and yielding a long continued succession of bloom. Admirably adapted for reserve and succession beds of scarlet, throughout the summer and early autumn months. Each 1s.; if 12 plants, 9s.; if 100 plants, 50s.

T. COMPACTUM LUTEUM.—Forms a densely low and almost level circular style of growth, from 6 to 8 inches in height, short jointed and vigorous, leaves comparatively small, light green, stems slightly hairy, flowers brilliant orange-yellow, with picturesque crimson spots in centre, rising in profusion just above the leaves. It is finely adapted for decorative effect in extensive ribbon rows, and medium sized beds, groups, &c. Each, 1s.; if 12 plants, 9s.; if 100 plants, 50s.

New Lobelias.

PRINCE ALBERT.—A beautiful dwarf bedding variety, in the section of L. speciosa Paxtoni, having a better constitutional habit for continuous growth and bloom; its more robust and compact growth, with rich glossy green foliage, is literally covered by its profusion of large bright azure-blue flowers with a conspicuous large white centre, throughout the summer and early autumn. For decorative effect in medium beds or groups, broad margins, and extensive front ribbon lines, this is the best variety in its section yet offered. Each, 1s.; 12 plants, 9s.; 100 plants, 50s.

PRINCESS ALEXANDRA.—This is equal to the foregoing in growth, beauty, and effect, forming a densely compact habit, yielding a fine effect in contrast with the blue ones, or any other of uniform growth and opposite colour. As a white-flowered variety it is admirably adapted for extensive margins, ribbon lines, and groups. For front effect to edgings of dwarf Heath, or evergreen shrubs of similar dwarf style, it is a beautiful and appropriate plant; and the best white broad-lobed variety of L. speciosa. Each, 1s.; 12 plants, 9s.; 100 plants, 50s.

New Anemone-flowered Pompon Chrysanthemums.

PRINCESS DAGMAR. | MRS. CAMPBELL.

Miniature-flowered Fuchsia.

FAIRY.

Cheiranthus Marshallii variegata.

New Double Antirrhinum,

GENERAL LEE.

New Bedding Dahlias.

TOUCHSTONE | GLADIATOR | TROUBADOUR

Variegated Geraniums.

SILVER STAR | PRINCESS DAGMAR | BICOLOR SPLENDENS
RED ROVER | CINDERELLA, | MRS. LONGFIELD
TWILIGHT | QUEEN of NOSEGAYS |
MRS. MAXWELL HUTTON.

Double-flowered Petunias.

PÆONY-FORMED type, "PRINCESS of WALES."

MRS. BOFFIN | WARRIOR
CENTURION | DANE JOHN
TWILIGHT | OUR MUTUAL FRIEND
DICK TURPIN | GIPSY GIRL.

Epacris hyacinthiflora fulgens.

Verbena Lady Binning.

A first-class bedding variety, and the leading flower for extensive decoration of the present year. Colour a very brilliant crimson-tinted scarlet, with a conspicuous creamy white centre; forming a fine average-sized, full-centred, and well-expanded truss. Habit of growth compact, with a profusion of bloom. Proved of the highest merit by receiving a First-class Certificate from the Floral Committee of the Royal Horticultural Society, and forming the highest feature of attraction in Verbenas at the Oulton Park Gardens during the past summer.

New White Bedding Geranium,

WHITE PERFECTION.

Thuja plicata pygmæa.

THE WELLINGTON NURSERY, ST. JOHN'S WOOD, LONDON, N.W.

Established Upwards of a Century.

BUTLER AND McCULLOCH,

SEED MERCHANTS, Covent Garden Market, W.C.

GENUINE NEW VEGETABLE SEEDS.

Orders amounting to 20s. and upwards sent Carriage Free.

COMPLETE COLLECTIONS for ONE YEAR'S SUPPLY.

No. 1.	No. 2.	No. 3.	No. 4.	No. 5.
3l. 3s.	2l. 2s.	1l. 10s.	1l. 1s.	10s. 6d.

BUTLER AND McCULLOCH'S NOVELTIES for 1865.

	Per packet—s. d
BUTLER'S SUPERFINE DWARF CAULIFLOWER..	2 6
BUTLER'S CLIMAX MELON..	2 6
BUTLER'S PRESIDENT MELON	2 6

FLOWER SEEDS (sent Post free).

Assortments of	100 vars.	50 vars.	30 vars.	25 vars.	15 vars.
ANNUALS—Hardy	20s.	10s.	5s.	..	2s. 6d.
" Half Hardy	30s.	15s.	..	7s. 6d.	4s. 0d.
PERENNIALS (Hardy) ..	25s.	12s. 6d.	..	6s. 6d.	3s. 6d.
" Half Hardy ..	..	..	..	7s. 6d.	4s. 0d.

NOVELTIES in FLOWER SEEDS.—See Descriptive Catalogue

BULBS for SPRING PLANTING.—Gladioli, Liliums, including the splendid new L. auratum; Tigridias, Anemones, Ranunculus, and other bulbs suitable for spring planting, in great variety. Special quotations at low rates per 100 or 1000 on application.

AGRICULTURAL SEEDS, saved from pure Stocks, and received direct from the Growers, including all the best kinds of Turnips, Swedes, Carrots, Mangel Wurzel, Grasses, &c.

PRICE LIST just published, and may be had gratis on application.

Agents for

GOULDING'S HORTICULTURAL MANURE, 1s. per canister.

SOLE AGENTS, Wholesale and Retail, for

MURRAY'S APHIS PASTILS,

A new invention, and the most effectual in existence for Fumigating Plant Houses.

In packets, 1s. and 2s. each.

BUTLER & McCULLOCH, Covent Garden Market, W.C.

HARDY FLOWER SEEDS.

An assortment of 100 splendid varieties	..	..	20s. 0d.
" 50	"	..	10s. 0d.
" 26	"	..	7s. 6d.
" 24	"	..	5s. 0d.

Carriage free.

RICHARD SMITH, Seed Merchant, Worcester.

J. W. WIMSETT, Ashburnham Park, King's Road Nursery, Chelsea, S.W., begs to offer to the Trade—

IRESINE HERBSTII, strong plants fit for bedding, 6s. per doz.; also COLEUS VERSCHAFFELTII, 4s.

Fine LOBELIA SPECIOSA and PAXTONI, in 48 pots, 5s.

CENTAUREA CANDIDISSIMA and GYMNOCARPA; ZONALE GERANIUMS, Scarlets; HELIOTROPES, FUCHSIAS, CALCEOLARIAS, TROPÆOLUMS, PETUNIAS, and VERBENAS; all the above strong healthy plants at equally low prices to the Trade.

SELAGINELLA FORMOSA, DICHOTOMA, CÆSIA, and DENTICULATA, very fine, in 48's.

Carnations, Picotees, and Pinks.

ROYAL NURSERIES, GREAT YARMOUTH.

YOUELL AND CO. beg to offer to the Nobility, Gentry, and Trade generally their extensive and superb Collection of the above, which are this season unusually strong and healthy, at the undermentioned prices:—

NEW SCARLET CLOVE CARNATION GARIBALDI.

YOUELL & Co. have much pleasure in offering the above magnificent variety, far surpassing any in cultivation; colour intense vivid scarlet, large and bold flowers, fine pod free from bursting; the delicious Clove scent which it possesses is not to be equalled in any of its class. 5s. per pair; if 12 pairs are ordered, £2 10s.

NEW WHITE CLOVE CARNATION PRINCESS ALICE.

Y. & Co. beg to offer a few pairs of the above desirable variety, which possesses the same properties as Garibaldi, only differing in colour, being of the finest snowy white. 5s. per pair; if 12 pairs are ordered, £2 10s.

PERPETUAL FLOWERING or TREE CARNATIONS, FLOWERING SUMMER AND WINTER.

This deservedly popular class has of late received many additions to its hitherto general favourites. They cannot be too strongly recommended, not only for their delightful fragrance but the brilliant display they afford, during the Autumn and Winter months, either in the Greenhouse, Conservatory, or open Garden during the Summer months. 12s., 18s., and 24s. per dozen plants.

CARNATIONS and PICOTEES.

Y. & Co.'s collection of these is probably the most extensive in the Trade, and having for a series of years paid special attention to their cultivation, introducing the best of the new varieties, they are enabled to offer them at the following prices for fine strong well-rooted plants:

CARNATIONS, finest first-class varieties, by name, 18s. and 24s. per dozen pairs.

PICOTEES, finest first-class varieties, by name, 18s. and 24s. per dozen pairs.

Ditto, on yellow grounds, 20s. and 30s. per dozen pairs.

Finest mixed BORDER CARNATIONS and PICOTEES, 9s. per dozen pairs.

True old CRIMSON CLOVE CARNATION, 12s. per dozen pairs.

YOUELL'S FIRE KING, very brilliant, 18s. per dozen pairs.

NEW ITALIAN YELLOW CARNATIONS.

YOUELL & Co. have succeeded in importing 25 very choice, distinct, and beautiful varieties of the above—the ground colours being a rich yellow, striped and suffused with various shades of scarlet, crimson, purple, plum, and blue; they are extremely hardy, very strong growers, highly fragrant, and will give general satisfaction. Price 3s. 6d. per pair, or 40s. per dozen pairs, of the most distinct kinds.

PINKS.

Their very extensive and unrivalled Collection of all the leading kinds in cultivation, in Strong Plants, 9s. to 12s. per dozen pairs; fine mixed Border varieties, 6s. per doz pairs.

Royal Nurser Grea, Yarmouth.

New Dahlias.

JAMES COLLIER begs to announce that he intends sending out early in May the following NEW DAHLIAS. Received Eight Certificates at Crystal Palace, Brighton, &c.

A LIST with full descriptions can be had on application.

PRINCESS ALEXANDRA, rich orange, striped with bright crimson.

MISS BUTLER, creamy white, tipped with rosy purple.

ANNIE, maroon crimson, tipped with white.

131, Gosset Street, Hart's Lane, Bethnal Green Road, London, E.

New Dahlias.

LEAH.—"This stands first and foremost amongst the new flowers, and may be regarded as a gem. If I were to buy but one new Dahlia it would be this. Its form and outline are beautiful, and the colour a rich yet soft golden yellow."—*Gardeners' Chronicle*, December 17, 1864.

Also MISS ROBERTS, NE PLUS ULTRA, and STELLA COLAS, 10s. 6d. each. With a full collection now ready.

See CHARLES TURNER'S CATALOGUE, which may be had on application. The Royal Nurseries, Slough.

New Dahlia Ambassador.

GEO. WHEELER, NURSERYMAN, Warminster, is now prepared to send out strong healthy plants of the above-named fine Dahlia.

COLOUR—Puce, shaded with claret; exquisite shape, finely cupped petal, high full centre, and one of the most constant, being always good.

Was awarded Five Certificates during the past season—4 feet. Price 10s. 6d.

☞ A liberal Discount to the Trade. Early orders requested.

New Dahlias for 1865.

JOHN KEYNES has great pleasure in offering the undermentioned First-class DAHLIAS for distribution. They have obtained 61 First-class Certificates at the principal Exhibitions in the Kingdom, and have all been proved and grown in 1864 by KEYNES. Fine Plants in May.

CATALOGUES on application, and special prices quoted when the Set is taken.

Edward Spary (Keynes')	Lady Gladys Herbert (Keynes')
Lady Maude Herbert (Keynes')	Matilda Keynes (Keynes')
Queen of Primroses (Keynes')	Annie Weeks (Keynes')
Hamlet (Keynes')	Champion (Thornycroft's)
George Rawlings (Keynes')	Bird of Passage (Church's)
George Wheeler (Keynes')	Purple King (Rawling's)

FANCY FLOWERS.

Striped Perfection (Keynes')	Queen of Sports (Goodwin's)
John Salter (Keynes')	Prospero (Goodwin's)
Hercules (Keynes')	Ebor (Goodwin's)
Startler (Keynes')	Mrs. Reid (Eckford's)

Salisbury.—May 6.

New Catalogue for 1865.

GEO. SMITH begs to announce that his PRICED and DESCRIPTIVE CATALOGUE, containing the Newest and most Approved Varieties of Show, Spotted, and Fancy PELARGONIUMS; Zonale and Variegated GERANIUMS, FUCHSIAS, VERBENAS, PETUNIAS, DAHLIAS, CHRYSANTHEMUMS, BEDDING PLANTS, &c., is now ready, and will be forwarded in exchange for one postage stamp.

*** Coloured Illustrations by Mr. Andrews, free by post, in exchange for 12 postage stamps, of FUCHSIAS GENERAL LEE, DIADEM, and FANTASTIC, the three finest Fuchsias G. S. has ever had the pleasure to offer, for description of which see Catalogue.

Tollington Nursery, Hornsey Road, Islington, London, N.

Golden Chain Geraniums, &c.

WILLIAM HUSSEY begs to offer the above fine autumn-struck plants at 21s. per 100, and TOM THUMBS at 14s. per 100, in pots. GOLDEN CHAIN, from store pots, 16s. per 100; also TOM THUMB, from store pots, 8s. per 100; and a fine collection of SILVER LEAF, of sorts, in pots, at 21s. per 100; out of pots, 16s. per 100.

Mile End Nursery, Eaton, Norwich.

DWARF BEDDING SCARLET GERANIUM LADY COWPER.—The above Geranium is unquestionably the best Dwarf variety that has yet been sent out. In habit it is unique, being exceedingly dwarf, never attaining more than 6 or 7 inches in height; its colour is bright scarlet, with a clear white eye, and in contrast to the leaf, which is a pale bright green, is very striking; it is also a most profuse bloomer.

D., Deal, in his criticism on the New Geraniums of last year, speaks of it as follows:—

"Lady Cowper, a perfect little gem, and quite distinct from anything I have seen. It does not grow above 6 or 7 inches high, is very free-flowering, the flowers bright scarlet, and as an edging, for scarlet beds invaluable. Its leaf is so small and fine, that it hardly looks like a Geranium."

Price, strong plants, 12s. per doz. Price to the Trade on application.

EDWARD P. FRANCIS, The Nurseries, Hertford.

New Plants now ready for Sale.

AMBROISE VERSCHAFFELT, NURSERYMAN, Ghent, Belgium, begs to offer the following Novelties:—

	£	s.	d.
STOVE PLANTS.			
ABUTILON VEXILLARIUM (tricolor), strong	0	8	0
AMORPHOPHALLUS NIVOSUS (so much admired at the Grand Show of Brussels)	0	12	0
SMILAX MACROPHYLLA MACULATA	0	16	0
GREENHOUSE PLANTS.			
CAMELLIA ARCHIDUC ETIENNE	0	16	0
RHODODENDRON GRAND DUC DE BADE	0	16	0

All these Plants are figured in VERSCHAFFELT'S "ILLUSTRATION HORTICOLE."

DISSOLUTION of PARTNERSHIP.—The Undersigned begs to inform his kind Friends and Patrons that the Firm carried on until now as STELZNER AND MEYER has been DISSOLVED. All accounts due to or by the said Firm will be settled by Mr. A. STELZNER, who has purchased the business, which will in future be carried on under the name of ADOLPH STELZNER.

While returning thanks for the liberal support hitherto received, A. S. respectfully solicits a kind continuance of the same.

Ghent, Belgium, May 1, 1865. A. STELZNER.

A. S. begs to offer fine plants of—

OSMUNDA REGALIS CRISTATA, good characterised, £4 per 100.

DAVALLIA TENUIFOLIIS STRICTA, strong plants of this very fine Fern, £5 per 100.

ATHYRIUM FIL. FŒM. FRIZELLIÆ, very strong, £3 10s.

A. STELZNER, Ghent, Belgium.

NEW HARDY LATE-FLOWERING RHODODENDRONS.

PRINCE of WALES.—Bright rose shaded with purple, divided black marking on the upper petals, free grower, profuse bloomer, hardy, and the latest Hybrid Rhododendron grown. One-year grafted plants, 10s. 6d Two-year ditto, strong, 21s. Larger plants, 31s. 6d. to 42s. each.

PRINCESS of WALES.—Deep magenta edge, pure white centre, primrose flake on the upper petals, slightly spotted with brown, totally distinct from any variety at present known, and when in bloom may be readily distinguished from all others; it is a beautiful and first-class Rhododendron. One-year grafted plants, 10s. 6d. Two-year ditto, strong, 21s. Larger plants, 31s. 6d. to 42s. each.

The usual Discount to the Trade

The above beautiful Rhododendrons were first introduced to the public last year by M. Y., and he has again much pleasure in calling attention to them; they are both most distinct varieties, the colour and marking of the Princess of Wales being quite a fresh type, and unlike any other Rhododendron. They have both been proved in the open ground for several years, capable of withstanding our most severe winters, and being very late bloomers escape the spring frosts, frequently so fatal to the earlier blooming kinds. They are confidently recommended as most desirable additions to this favourite class of plants.

Coloured Plates, by ANDREWS, will be forwarded on application for 13 stamps each, or the two for 25 stamps.

MAURICE YOUNG, Milford Nurseries, near Godalming, Surrey.

NEW PLANTS FOR 1865.

JAMES CARTER & CO.

HAVE MUCH PLEASURE IN

CALLING ATTENTION TO THE UNDERMENTIONED

FIRST-CLASS NEW BEDDING GERANIUMS, &c.

WHICH THEY ARE NOW PREPARED TO SEND OUT.

BEATON'S HYBRID BEDDING GERANIUMS.

The four following very distinct and splendid varieties which we offer were selected by us from Mr. Beaton's immense stock, only a few days previous to his death, but of which we were unable to propagate a sufficient quantity to allow of our sending them out at the same time as Cybister, Lady Colum, and the other well-known and universally appreciated varieties distributed by us last year. We have much pleasure in drawing particular attention to these, which we are confident are worthy of equal notice, and will be as much in request for general bedding purposes as the many introduced by us from so well-authenticated a source.

Beaton's Perfection (Beaton).

This is one of three rose-coloured Nosegay varieties selected at same time as Lady Colum, which it somewhat resembles, but is of a much softer rose, freer in growth, and of a more robust habit, attaining double the size in one season, and producing its blooms in greater profusion. It has a perfectly plain leaf, and throws the bloom well up above the foliage; is well adapted for single specimens in vases on lawns, or for conservatory decoration, as well as general bedding purposes. Price 5s. each.

Premier (Beaton).

A Nosegay variety, colour intermediate between that of Lord Palmerston and Lady Colum, with deeply marked zonale leaf, free robust habit, large trusses, thrown well above the foliage; a very desirable bedding variety, also a fine vase or pillar plant.

Price 5s. each.

Forester (Beaton).

A zonale variety, of extraordinary fine and compact growth, producing immense globular trusses of well-formed flowers, of great substance, and perfect form; colour, vivid orange scarlet, shaded with deep crimson towards the centre of the bloom. This will be a favourite variety for single specimens and for centres of beds.

Price 5s. each.

Wild Charlie (Beaton).

A plain-leaved variety, with deep salmon-coloured bloom, produced in great profusion in large trusses, very free habit, and will be a first-class bedding variety; continues in bloom until very late in the season. Price 5s. each.

New Variegated Tricolor Bedding Geranium Sunrise (Carter).

A strong-growing tricolor-leaved variety, with well expanded large leaves, lively green centre, surrounded by a deep zone of rosy lake, margined with clear sulphur; trusses of immense vivid crimson scarlet coloured flowers; of a most free habit, and will undoubtedly be a first-rate bedding variety. We have much pleasure in offering this beautiful variety (of which we have purchased the entire stock) for the first time to the public.

Price 7s. 6d. each.

☞ The Set, 1 plant of each of the above, 21s.

New Tropæolum Double Tom Thumb.

We last year succeeded in raising a splendid double orange scarlet variety of the now well-known Tom Thumb Nasturtium, which we are sure will be a most desirable bedding plant. It has the same very dwarf compact habit as its parent, with perfectly double well formed flowers, 1½ to 2 inches in diameter, well filled up in the centre; a most free bloomer, and as easily perpetuated by cuttings as the Lobbianum varieties.

Price 2s. 6d. each; per dozen, 18s.; per 25, 30s.; per 50, 50s.

Nasturtium King of Tom Thumbs.

The great usefulness and beauty of the Tom Thumb Nasturtiums are now very generally appreciated throughout the whole Horticultural world, and any improvement on them is very desirable. This variety now offered is by far the finest of all, and we much question whether any bedding plant of any kind can equal it in effect; the lustrous blue green foliage, contrasting vividly with the intense scarlet of the blossoms, produces an unequalled blaze of brilliance. The plant must become a favourite; may be propagated same as above variety most freely from cuttings.

Price 1s. 6d. each; per dozen, 12s.; per 25, 20s.

NEW CLOVE CARNATIONS.

General Lee.

The above, of which we have but a very limited stock, is undoubtedly the most splendid scarlet variety ever offered, being of most vigorous habit, and producing immense blooms often 3 inches in diameter possesses the delightful perfume of the old Clove in all its intensity.

Price 5s. each.

Goliath.

This is beyond doubt the freest and strongest-growing Carnation in existence, the original plant having grown 2 feet in height, and about 4 feet in circumference in a single season, and produced more than 60 fine blooms; colour light crimson, blossoms double and well formed, and richly clove scented.

Price 5s. each.

Astelma lanata.

A new half-hardy perennial herbaceous plant, with beautiful lanceolate leaves 6 to 8 inches long, thickly covered with silvery down, will make a nice plant in contrast foliage planting, or for rows and margins; flower deep golden yellow.

Price 1s. 6d. each; per dozen, 12s.

New Single Petunias.

The following have been selected from tens of thousands of seedlings which bloomed at our Seed Farms last season, and may be relied upon as a first-rate collection for bedding purposes; they cannot fail to give satisfaction to lovers of this, one of the most rapid-growing and constant tribe of summer-blooming plants.

Nos.

1. ARABELLA, light rosy lake, white throat, a novel and most beautiful colour.
2. BEATRICE, rose edge, very dark throat, exquisitely pencilled.
3. CHRISTABEL, splendid deep crimson, fine for a bed entirely of this colour.
4. DINORAH, white margin, and flaked with deep crimson.
5. EMMELINE, very compact habit, free bloomer, bright rose, pencilled dark throat.
9. FREDERICA, crimson, in the way of Magna Coccinea, but more substance.
12. GERTRUDE, large rose, of exquisite form, white throat.
14. HELEN, deep lilac, pencilled with black, fine novel colour.
15. ISABEL, immense flower, with white ground, striped and flaked purple.

Price, each, 1s. 6d.; the set, 10s. 6d.

NEW PLANTS OF 1864.

WE ARE NOW ABLE TO OFFER SOME OF THE MOST DESIRABLE NOVELTIES SENT OUT IN 1864, AT THE FOLLOWING VERY REDUCED PRICES:—

Beaton's Cybister Geranium.

This is undeniably the finest Nosegay ever sent out. After a trial of two seasons, and again last season by the general public, we believe our assertion will be endorsed by every one who has tried it—that, for general effect, it has no equal in its colour among bedding Geraniums, giving satisfaction by its long continuance in bloom, free robust habit, and splendid appearance. Knowing this, we used every endeavour to work up a large stock to meet the demand, and can now offer it at the following low prices.

Price 1s. each; 9s. per dozen; 30s., 50; 50s., 100.

Ornithogalum thyrsoides album.

SEE PLATE IN "VADE MECUM," PART IV.

The bulbs from which we raised our stock of the above were sent to us from a correspondent in Natal, planted at once in pots, and placed in a cool Vinery. They soon started into vigorous growth, and about Christmas some of the most forward showed signs of blooming, throwing up stems from 1 to 1½ foot high, having a fine thyrse of pure white flowers, with a bronze-yellow centre opening from the bottom, and having in most cases 90 to 100 flowers on each spike, two-thirds of which were generally expanded at one time, and surpassing in loveliness any known white half-hardy bulb. We have seen the bloom continue expanding for three weeks, if not exposed to too much sunlight; and cut blooms will keep in full beauty for a month in water. For conservatory decoration, we know of nothing to equal it if grown three to five bulbs in a pot, and introduced among the dark foliage of the Camellias, or any groups of conservatory plants, being of a character so distinct from most other plants in bloom at that time of year. We believe, with judicious management, it may be had in bloom from January to the end of June; it is of most easy culture, succeeding well in a mixture of sandy loam and leaf-mould; and if potted up in autumn, and started in a cool Vinery, will, without any unusual attention, succeed perfectly. We have a splendid show of this plant on bloom at our Nursery.

Price 2s. 6d. to 3s. 6d. each.

Iresine Herbstii.

SYN. ACHYRANTHUS VERSCHAFFELTI.

A beautiful ornamental-foliaged plant, having dark crimson leaves, with ribs and stem of a bright carmine. This plant will be found to excel the charming Amaranthus melancholicus ruber as a bedding plant, being much hardier, and is easily kept in a cool greenhouse during winter. This should not be planted out until end of May.

Price 1s. each; 9s. per dozen.

Lilium auratum.

We have much pleasure in announcing that we were very large importers last season of this most beautiful of all Lilies, direct from Japan, having received, by overland mail, at different times, between 4000 and 5000 bulbs, collected especially for us by a native botanist, the bulk said to include many much finer varieties than had ever before been sent to this country.

The following description scarcely conveys an adequate idea of this most gorgeous of Lilies:—Belonging to a tribe of garden plants which boasts of possessing more grace and beauty combined than any other, this charming species appears as its most regal representative. In unrivalled delicacy, magnificent proportions, and peerless symmetry of bloom, surpass verbal description, whilst the marvellous features of its blossom in their exquisite odour, and golden surface tints, having far exceeded all known descriptions of distinguished travellers concerning its real worth, may justify its acquisition among garden flowers as a grand illustration of perfection in beauty, and its rising appreciation by all lovers of fine flowers will soon prove it to be the most valuable addition of its kind to English gardens. It has narrow, lanceolate, dark green, glossy leaves. In mature specimens the flowers are produced in terminal many-flowered racemes, as in L. lancifolium (speciosum); the individual blossoms are from 6 to 10 inches in width, formed of 6 broad lobes or petals, assuming a salver-like outline, with revolute tips, previous to their full expansion. The ground colour is pearly white, often suffused with a golden tint from the centre outwards, elegantly studded over with spots of a rich chocolate crimson colour, whilst the beauty of the flower is still further enhanced by each lobe or petal being richly decorated with a golden ray or stripe running through the centre of each.

Strong Flowering Bulbs established in pots, 5s., 7s. 6d., and 10s. 6d. each; Small Bulbs, 3s. 6d. each.

*** J. C. & Co.'s CATALOGUE of NEW and CHOICE PLANTS is just published, and will be forwarded Gratis and Post Free on application.

JAMES CARTER AND CO., SEED MERCHANTS and NURSERYMEN,

237, 238, & 261, HIGH HOLBORN, W.C.;

CRYSTAL PALACE NURSERY, PERRY HILL, SYDENHAM, S.E.; DEDHAM and ST. OSYTH, ESSEX.

New Plants.

MR. WILLIAM BULL begs to announce that he is now offering the following beautiful and remarkable NEW PLANTS for the first time:—

AUBRIETIA PURPUREA VARIEGATA.—This remarkable and highly interesting novelty is a well-defined variegated form of the well-known Aubrietia purpurea; every leaf is broadly margined with white, thus making it an extremely effective object; indeed, the harmony of its pretty lavender blue flowers and neat variegation makes a most pleasing impression. This will be a useful plant for spring gardening, rockwork, &c., and is unquestionably one of the prettiest novelties of the season. The entire stock has been purchased from Mr. D. Wood, Brough, Yorkshire. Price 10s. 6d., or six for 31s. 6d.

ASPLENIUM MYRIOPHYLLUM.—Without any exception this is the most elegant of the whole family. Price 5 guineas.

AZALEA INDICA GRANDE DUCHESSE DE BADE.—Colour orange-scarlet, finely-formed large flowers, one of the best high-coloured varieties ever offered. Price 21s. and 31s. 6d.

ANTHURIUM CORDIFOLIUM.—This is the marvellously beautiful plant introduced by the Royal Horticultural Society, through their Collector, Mr. Weir. Its large cordate leaves in mature specimens are about 2 feet in diameter, the ground colour of a bright olive green, the veins intersecting throughout are white; the leaves when young are of a coppery-pink hue. Price 63s.

CISSUS AMAZONICA.—A pretty variegated-foliage climber, with glabrous leaves, silvered on the surface and red beneath. Introduced from the Amazon. Price 21s.

DIOSCOREA ANÆCTOCHILIS.—A distinct species, leaves marbled with gold. Price 42s.

VARIEGATED-FOLIAGED NEW CHRYSANTHEMUM, SENSATION.—This very novel feature in a Chrysanthemum makes it a plant of the most useful and ornamental character for decorative purposes; in the variety here offered the variegation is most distinct and striking; every leaf being broadly margined with silvery-like variegation in the most regular and constant manner. Either for greenhouse, conservatory, or open garden decoration, this plant will stand unrivalled; and for ribbon borders unexceptionable, for whether in or out of flower it is extremely handsome. The blossoms are the Pompon type, Ranunculus-like, of a pure white, exquisite in form, and full to the centre; one of the very best novelties of the season, and a plant for every garden. The entire stock has been purchased from Mr. George Smith, of Walworth. Price 10s. 6d. each, or 6 for 31s. 6d.

VARIEGATED-FOLIAGED NEW VERBENA, POPULAR.—All the adjectives in the English language have been exhausted at one time and another on new Verbenas—what then shall we say of this variety? It really is one of the most novel, striking and attractive kinds ever sent out; the foliage is of a dark green colour, irregularly and prettily interspersed with bright golden yellow variegation, so that without any flower, for it is of a free compact growth, it will make a beautiful and effective bed in the flower garden, and one of the best summer edging plants extant. Apart from the above feature to recommend it, this variety is one of the brightest of scarlets, producing its blossoms in the most redundant manner. The entire stock has been purchased from Mr. John Boff, of Islington. Price 10s. 6d. each, or 6 for 31s. 6d.

ECHINUS MOLLE.—Californian Pepper Tree. A handsome weeping evergreen hardy shrub. Price 10s. 6d.

FRANCISCEA LINDENI.—A free-flowering, attractive variety; producing very large violet-mauve flowers; introduced from the interior of the province of St. Catherine's, Brazil. It is the best Franciscea ever offered. Price 31s. 6d.

NEW VERBENAS.—Six distinct and handsome varieties. These have been proved as good bedders, are free bloomers, of distinct colours, and can be recommended for general excellence. Price 7s. 6d. For names and descriptions *vide* Mr. W. B.'s Spring List.

LASTREA ERYTHROSORA.—A distinct hardy Fern from Japan. Price 10s. 6d

PTERIS CRETICA SERRULATA VARIEGATA.—A pretty variegated hybrid, intermediate between P. serrulata and P. cretica albo lineata. Price 10s. 6d.

ATHYRIUM FILIX-FŒMINA SAGITTATUM.—An interesting and pretty variety of the hardy Lady Fern. Price 5s.

ROGIERA GRATISSIMA.—The flowers of this plant will be perfect gems for bouquets. They are produced in elegant corymbs of a delicate pink colour. It blooms so freely that it is nearly always in flower, added to which it is deliciously fragrant, and the habit of the plant is neat and compact. Price 31s. 6d.

NEW FUCHSIAS.—Seven distinct varieties are now offered for the first time. They are all of sterling merit, short-jointed, abundant bloomers, the flowers possessing variety both in form and colour, and the habit of each both compact and good. Price 10s. 6d. each. For names and descriptions *vide* Mr. W. B.'s Spring List.

NEW PETUNIAS.—Eleven kinds are now offered. They will all be found to maintain the high reputation of the kinds that have been previously sent out by Mr. W. B. Price 3s. 6d. each.

SAURAUJA SARAPIGIENSIS.—One of the most noble ornamental stove plants extant, a worthy rival of Cyanophyllum magnificum and Sphærogyne latifolia. Price 63s.

SPHACELE CŒRULEA.—This plant produces its pretty blue flowers all through the winter in the most abundant manner. It belongs to the Labiatæ. Price 10s. 6d.

NEW ZONALE PELARGONIUMS.—

Extract from the *Gardeners' Weekly Magazine*, July 23, 1864, p. 236.

"MR. WILLIAM BULL, of King's Road, Chelsea, has sent out more good Zonale Pelargoniums than any other trade cultivator in the country."

Seven new kinds are now offered, all of which are in advance of the many good kinds sent out by Mr. W. B. Price 7s. 6d. each. For names and descriptions *vide* Mr. W. B.'s Spring List.

NEW SPOTTED PELARGONIUMS.—Five beautiful varieties are now offered for the first time, at 21s. each. For names and descriptions *vide* Mr W. B.'s Spring List.

POLYGONATUM VERTICILLATUM AUREUM STRIATUM, } " ARGENTEUM STRIATUM. }

The above are two pretty variegated-foliaged hardy plants, one having the leaves striped with white, and the other with yellow. These have been introduced from Japan by Mr. Fortune. Price 31s. 6d. each.

SALVADORA PERSICA (the Mustard Tree of Scripture).—This remarkably interesting plant is now offered for the first time in this country. It requires to be cultivated in a stove. Plants 5 guineas each.

VARIEGATED-FOLIAGED NEW PETUNIA JOSEPH HAUDRECHY.—Beautifully variegated leaves, and single violet-crimson flowers. Price 10s. 6d. each.

Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

ROYAL BOTANIC SOCIETY of LONDON, REGENT'S PARK.

THE THIRD SPRING EXHIBITION.

LIST of AWARDS, April 29, 1865.

6 ROSES. (Amateurs.)

4th Prize to Mr. G. Wheeler, Gr. to Sir F. H. Goldsmid, Bt., Regent's Park

6 ROSES. (Nurserymen.)

1st, Mr. C. Turner, Slough, Bucks
2d, Mr. W. Paul, Waltham Cross
3d, Messrs. Paul & Son, Cheshunt, Herts

3 NEW ROSES.

1st, Mr. C. Turner
2d, Mr. W. Paul
3d, Messrs. Paul & Son

24 ROSES, Cut Blooms.

1st, Messrs. Paul & Son

Boxes of CUT ROSES.

1st, Messrs. Paul & Son

6 PELARGONIUMS. (Nurserymen.)

1st, Mr. C. Turner

6 PELARGONIUMS. (Amateurs.)

1st equal, Mr. J. Wiggins, Gr. to W. Beck, Esq., Worton Cottage, Isleworth
1st equal, Mr. J. Weir, Gr. to Mrs. Hodgson, The Elms, Hampstead

6 AURICULAS. (Nurserymen.)

1st, Mr. C. Turner

6 AURICULAS. (Amateurs.)

1st, Mr. J. Butcher, 1, South Street, Camberwell
2d, Mr. J. James, Gr. to W. F. Watson, Esq., Isleworth

24 PANSIES, Cut Blooms.

1st, Mr. H. Hooper, Nurseryman, Widcombe Hill, Bath
2d, Mr. F. Ayres, Nurseryman, Biggleswade, Beds.
2d, Mr. J. James, Gr. to W. F. Watson, Esq.

6 MISCELLANEOUS PLANTS.

1st, Mr. B. S. Williams, Nurseryman, Holloway
2d, Mr. G. Wheeler, Gr.
3d, Mr. J. Stone, Gr. to Mrs. H. Foster, The Holme, Regent's Park

ORNAMENTAL STANDS.

2d, Miss Williams, Holloway

MISCELLANEOUS.

Silver Gilt Medal to Messrs. H. Lane & Son, Nurserymen, Great Berkhampstead, for Collection of Roses
Silver Medal to Mr. W. Bull, Nurseryman, Chelsea, for Collection of Palms
Small Silver Medal to Messrs. H. Lane & Son, for Collection of Azaleas
Small Silver Medal to Mr. C. Turner, for Collection of Auriculas
Bronze Medal to Messrs. H. Lane & Son, for Collection of Rhododendrons
Bronze Medal to Messrs. J. Dobson & Son, Nurserymen, Isleworth, for Collection of Calceolarias
Bronze Medal to Mr. J. James, Gr. to W. F. Watson, Esq., for Collection of Calceolarias
Bronze Medal to Mr. R. Parker, Nurseryman, Tooting, for Rhododendron Countess of Haddington
Bronze Medal to Messrs. F. & A. Smith, Nurserymen, Dulwich, for Collection of Azaleas
Small Bronze Medal to Messrs. F. & A. Smith, Nurserymen, Dulwich, for Collection of Greenhouse Plants
Small Bronze Medal to Mr. J. Wiggins, Gr. to W. Beck, Esq., for Collection of Cinerarias
Small Bronze Medal to Mr. J. James, Gr. to W. F. Watson, Esq., for Collection of Cinerarias
Small Bronze Medal to Mr. R. Parker, for 6 Amaryllis
Small Bronze Medal to Messrs. J. Dobson & Son, for 6 Azaleas
Small Bronze Medal to Mr. W. Paul, for Deutzia crenata fl. pleno
Small Bronze Medal to Mr. G. Wheeler, Gr., for 6 Greenhouse Plants

NEW PLANTS and FLORIST FLOWERS.

First-class Certificate of Merit to Mr. W. Paul, for Raphiolepis ovata
First-class Certificate of Merit to Mr. C. Turner, for Bougainvillea new red
First-class Certificate of Merit to Mr. C. Turner, for Auricula John Leech
First-class Certificate of Merit to Mr. C. Turner, for Auricula Titian
First-class Certificate of Merit to Mr. C. Turner, for Pelargonium Silver Mantle
First-class Certificate of Merit to Mr. C. Turner, for Pelargonium Sunrise
First-class Certificate of Merit to Mr. F. Ayres, for Retinospora obtusa prona
First-class Certificate of Merit to Mr. F. Ayres, for Retinospora obtusa aurea
First-class Certificate of Merit to Messrs. E. G. Henderson, for Hydrangea japonica alba
First-class Certificate of Merit to Messrs. Backhouse & Son, for Narcissus juncifolius
First-class Certificate of Merit to Messrs. Backhouse & Son, for Andromeda hypnoides
First-class Certificate of Merit to Messrs. Backhouse & Son, for Primula ciliata
First-class Certificate of Merit to Messrs. Backhouse & Son, for Primula farinosa acaulis
First-class Certificate of Merit to Mr. W. Bull, for Rhododendron thibaudioides
First-class Certificate of Merit to Mr. W. Bull, for Aubrietia purpurea variegata
First-class Certificate of Merit to Mr. W. Bull, for Mimulus duplex
First-class Certificate of Merit to Mr. W. Bull, for Salvadora persica
First-class Certificate of Merit to Mr. W. Bull, for Primula intermedia
First-class Certificate of Merit to Mr. W. Bull, for Woodsia polystichoides Veitchiana
First-class Certificate of Merit to Mr. Thompson, for Aubrietia græca
First-class Certificate of Merit to Mr. B. S. Williams, for Phœnicophorium seychellarum
First-class Certificate of Merit to Mr. B. S. Williams, for Peperomia arifolia
First-class Certificate of Merit to Mr. B. S. Williams, for Anthurium magnificum
First-class Certificate of Merit to Mr. B. S. Williams, for Gymnogramma Parsonsii
First-class Certificate of Merit to Mr. B. S. Williams, for Asplenium alatum
First-class Certificate of Merit to Messrs. F. & A. Smith, for Rhododendron Queen of England
Second-class Certificate of Merit to Mr. B. S. Williams, for Smilax macrophylla maculata
Second-class Certificate of Merit to Mr. C. Turner, for Auricula Master Hole
Second-class Certificate of Merit to Mr. C. Turner, for Auricula Rev. J. Bramhall.

NOW READY.

CATALOGUE of CHOICE and RARE PLANTS,

NEW FUCHSIAS, NEW PETUNIAS, NEW GERANIUMS, ETC., ETC.

B. S. WILLIAMS

WILL BE HAPPY TO FORWARD, POST FREE TO ALL APPLICANTS, HIS

DESCRIPTIVE AND PRICED CATALOGUE OF THE ABOVE,

Including all NOVELTIES of MERIT of the present Season.

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.

American Plants.

AS EXHIBITED IN THE ROYAL HORTICULTURAL GARDENS, KENSINGTON.

WATERER AND GODFREY'S PRICED and DESCRIPTIVE CATALOGUE of RHODODENDRONS and other AMERICAN PLANTS will be forwarded on application. The Catalogue also gives a General Summary of their Stock, which contains probably the most extensive choice of all the Hardy and finest Evergreens and Conifers.

Knap Hill Nursery, Woking, Surrey.

To Noblemen and Gentlemen.

LAPAGERIA ROSEA to be DISPOSED OF, a splendid Plant in tub, measuring 7 feet high, 2½ feet through, in fine condition.

On view at W. H. PLACE, Esq., 13, Gloucester Villas, Warwick Road, Maida Hill, W.; or particulars can be had of Messrs. JAMES CARTER & Co, Seedsmen, 237 and 238, High Holborn, W.C.

Russell's Pyramid Primulas.

GEO. CLARKE is now prepared to send out in packets, price 2s. 6d. each, this, the finest breed of PRIMULAS in cultivation. The Seed now for sale has been saved from selected plants, so that it is believed the produce will be even superior to that of former years.

Printed instructions for raising and growing the plants sent with each packet. Stamps received in payment.

Nursery, Streatham Place, Brixton Hill, London, S.

RICHARD SMITH'S LIST of all the EVERGREEN FIR TRIBE suitable for Britain, giving size, price, popular and botanical names, derivations, description, form, colour, foliage, growth, timber, use in arts, native country and size there, situation, soil, and other information, with copious Index of their synonymes. Enlarged Edition, Free by Post for 12 postage stamps.

RICHARD SMITH, Nurseryman, Worcester.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

*** Part II. (Exotic Ferns) will be issued as early as possible.

Foot's Cray Nursery, S.E.

12 LOBELIA PAXTONII, 12 do. SPECIOSA, 24 VERBENAS (sorts), 24 GERANIUMS (sorts), GNAPHALIUM LANATUM (6), 12 GAZANIA SPLENDENS, 12 PELARGONIUMS (choicest kinds to name). Hamper and package free for 26s.; half the quantities 14s. cash.

ROBT. H. POYNTER, Nurseryman, Taunton.

CHOICE VARIEGATED GERANIUMS for BEDDING or POT CULTURE.

Mrs. Pollock	Golden Tom Thumb	Rainbow
Yellow Belt	Golden Vase	Glow-worm
Mrs. Milford	Fontainebleau	Burning Bush
Golden Harkaway	Miss Emily Domville	Snowflake

The above 12 varieties will be sent on receipt of a remittance for 21s., by ALFRED FRYER, Nurseryman, Chatteris, Cambridgeshire.

FLORAL DECORATION SHOW.—SPECIAL PRIZES, the Gift of one of the Fellows of the Royal Horticultural Society, will be awarded at the Society's Show on JUNE 24, 1865, for the most tastefully decorated Dinner Table.

First Prize, Gold Medal, or £10 10s.; Second Prize, Large Silver Medal, or £7 7s.; Third Prize, Small Silver Medal, or £3 3s.

Beautiful arrangement of the Fruit, Flowers, and China will be the test of merit in this Exhibition; valuable Fruit or Flowers or China are therefore not required.

It is not necessary that the Flowers or Fruit should be grown by the Exhibitor.

Ladies are invited to join in the competition.

Each Exhibition will be shown on a separate table.

Each table to be laid as if for a Dinner "*a la Russe*" of 10 persons. Table must not exceed 9 feet long; may be square, or oval at the ends, or be a round table.

Plain deal tables of the form wished will be provided by the Society for those who give a fortnight's notice to the Superintendent of the Horticultural Society.

Competitors may use such China, Glass, Metal, or other Ornaments as they please; may or may not combine Fruit and Flowers together; may use Sèvres, Chelsea, Worcester, Dresden, Staffordshire, or any other China for their plates; may use coloured or white glasses, or both; may use coloured or plain damask; may, in short, study their own tastes.

The Prizes will be awarded by a Jury of Ladies, assisted by Members of the Royal Academy.

Competitors will be allowed to arrange their tables in the Garden any time after 7 on the morning of the 24th of June, but must have everything complete by 11 o'clock, when the Jury assemble, and Exhibitors must withdraw whether their tables are ready or not. Exhibitions left unfinished will be regarded as disqualified. This rule cannot be relaxed.

No person will be admitted to see the display until the Jurors have finished their labours, which will probably be about 1 o'clock.

Exhibitors will be permitted to have the help of two assistants or servants to arrange their table.

The Gardeners' Chronicle.

SATURDAY, MAY 6, 1865.

MEETING FOR THE ENSUING WEEK.

SATURDAY, May 13 { Royal Horticultural (Special Show of Orchids), at South Kensington 2 P.M.

IF the splendour of the Orchids that were exhibited at South Kensington on Tuesday last is to be taken as a gauge of what may be expected at the GREAT ORCHID SHOW that is to be held there on Saturday next, the latter must be brilliant indeed! Never before were the glorious old Dendrobes seen in such variety or beauty, and never—as may be gathered from our report in another page—were so many novelties in this charming family brought forward on a single occasion. This fact in itself might almost justify the bold step taken by the Council of the Horticultural Society in departing from established precedent, and devoting one of their principal show-days to the illustration of a single tribe. The day itself may perhaps not be very happily chosen, indeed there appears to be a growing disinclination on the part of exhibitors to the holding of *any* shows on a Saturday—but this drawback, which may easily be remedied another year, need not prevent full justice being done to a fresh and original idea, which will introduce an element of variety into what was fast becoming a mere matter of routine. Nor can it be denied that there were already unmistakable signs of weariness on the part of the public, for whom three or four Societies conceived themselves bound to provide annually we know not how many "great shows," differing

from each other in nothing but the liberality of the prizes that they offered, or the locality in which they were held. For all this there appeared to be no better remedy than a move in some such direction as that now taken by the Horticultural Society, and for which we desire all the success that so bold an experiment deserves.

The tribe selected for their first essay in an untried field would seem to be judiciously made, for while no other family has a more steady grasp on public favour, neither is there any that can hold out the promise of a more constant succession of novelties for many years to come. Ere long the system of cool treatment will itself be found to have at least doubled the number of S. American species in cultivation, while an equal accession to our lists may be looked for from Africa, from various parts of India, and from the Islands of the Eastern Archipelago. When all these shall have been compelled to yield up their Orchid-treasures, an Orchid show will be a very "great" affair indeed.

A very interesting paper on the Germination of Marsileæ has just appeared in Pringsheim's *Journal*, by Herr Hanstein. A very little information on the subject had been obtained by Hofmeister relative to the condition of the large spores before impregnation, and that evidently very imperfect, while absolutely nothing was known of the further development of the smaller spores which produce the spermatozoa. This gap in our knowledge of these Cryptogams has now been filled up by Herr Hanstein, and, as might be supposed, the different phenomena are much the same as those which have been observed in the allied genus Pilularia.

Our author received half a dozen sporangia from Australia of the Nardoo, which had supported for some weeks the members of Burke's expedition into the centre of New Holland, for which purpose they were adapted notwithstanding their harsh innutritious coat, by the quantity of starch, gluten, oil, and protein which enter into the composition of the spores. The species of the genus, which, however, vary considerably, are known indifferently under the name of Nardoo, and cover vast tracts of land, which are probably under water when vegetation is most active. The strong analogy between pollen grains and spores might lead one, *a priori*, to suspect that the spores might prove nutritious, and it would be interesting to compare chemically with the Nardoo spores the pollen of Typha, of which little cakes are made and sold in some of the bazaars in Northern India.

The species which afforded Hanstein most of his observations was Marsilea salvatrix, but M. Drummondii and M. elata also came in aid; and occasionally it was not possible to determine precisely to which of the species particular spores belonged. This, however, was of the less consequence, as the mode of development seems extremely uniform in all the species which have at present come under observation.

The rapidity with which important changes take place, both in the larger and smaller spores, when sown is quite surprising, though both are capable of remaining a long time in a quiescent state if moisture is not present. The smaller spores, according to the observations of Hofmeister, do not retain their vegetative power so long as the larger.

The larger spores produce a few hours after being sown, besides a number of cells immediately beneath the cuticle, one large one in the centre, which ultimately, after impregnation, gives rise by cell division to the young plant. Four cells are then produced at the apex, which form the archegonium or organ through which the spermatozoa are introduced. At first, however, there is no passage, but between the base of these cells and the central embryonic cell noticed above a gelatinous mass is secreted, which ultimately works its way between the four cells, and forces a passage where they meet in the centre.

In the meanwhile cell division takes place in the smaller spores, and each cell when perfect produces a curious conical spiral thread, which is thicker at the base, and is clothed with long cilia, and which is attached for some time to the mother sac. These make their way down to the embryonic cell, which after impregnation first becomes covered with a distinct membrane, and then undergoes a system of cell division, the result of which is the development on one side of a nearly horizontal root, and at the other of a leaf, both of which burst through the cellular mass. The first leaf is filiform, the three next are expanded above into a lanceolate lamina, the fifth and sixth have the lamina bifid, the seventh and eighth quadrifid but still vertical, and it is only in the ninth that the divisions become horizontal, and form a sort of quatrefoil. The rhizome, meanwhile, extends horizontally, roots being given off beneath. Even the first filiform frond has a few scattered stomates. These are the only details which are intelligible without figures, but the whole memoir is worth an attentive perusal. *M.J.B.*

The following letter on the subject of the Proposed New Road through the Gardens of Park Square, east and west, to which reference was made at p. 890 of our last volume, has been sent to us for publication :—

"3, York Terrace, Regent's Park, N.W.
"April 12, 1865.

"My dear Sir,—Regarding the Park Square scheme, the point seems to me to be this—that it in no way interferes with pedestrians, but gives them the choice of a new road, besides those already existing—while to those who can afford to ride or drive, the loss of a quarter of a minute is inappreciable. Indeed it must be a very bad cab horse that will entail this.

"If the Paving Board will only view the matter in this light, the grand effect to be obtained from opening out an avenued vista upwards of a mile and a-half in length will surely be sufficient inducement to go on with the scheme. Perhaps the best idea of what the result would really be is foreshadowed in the view from the drinking fountain down the Avenue towards the central smoking tower of the Langham Hotel at the end of Portland Place. Only the scenic effect the reverse way, owing to the spacious street in the foreground, and the proposed avenue of intermediate breadth through the Park Square Gardens (like a graduating link aiding the perspective) would be infinitely finer, and form a magnificent entrance to the Regent's Park, in strong contrast to the sneaking entrances so universally adopted in our parks, as if the parks were ashamed of the town, or the town ashamed of the parks.

"Now the inhabitants seem willing to sacrifice a portion of their gardens if the privacy of the existing roads be secured to them as a compensation. In the extreme case of a person proceeding from the Portland Road to the North side of the Park, it should be remembered that there are outlets from Albany Street in communication with the Park, and, if necessary, a new one might be added almost immediately above the Park Square Gardens, near St. Andrew's Place. This would obviate all difficulties, and give London, as the *Times* said, 'a feature unsurpassed in any capital of Europe.'—I am, dear Sir, yours very faithfully, "Markham Nesfield."

"The Right Hon. Wm. Cowper, M.P., &c."

We heartily wish the scheme success, as it seems to us not only a capital opportunity but a very inexpensive one, of realising one of the grandest features of metropolitan improvement, and enabling London to hold its own in this age of progress. We may further remark that as Regent Street is the handsomest street in the metropolis, anything that tends to enhance its beauty is well worthy of very serious consideration.

—— Messrs. E. G. Henderson & Son, of St. John's Wood, deserve the best thanks of the Royal Horticultural Society, and of all lovers of spring flowers, for the magnificent Exhibition of Tulips they have produced this season in the garden of the Society at South Kensington. Rarely is such a treat provided for the inhabitants of the metropolis, and we are somewhat surprised that the crowds that came to see the Tulip show were not much greater than they were. If the exhibition is to be got up another year, we would suggest a different arrangement of the bulbs in order to render the colours more effective. On the present occasion each kind had been planted in a row, and the colours of one row were made to contrast well with the colours of its neighbours, and in this way a bed of many colours was produced. Tastes, of course, differ, but we think a far better effect would have been produced by having the colours in masses; indeed, a few beds were arranged in this way, and the difference in the effect was most striking. This is the great charm which the Dutch gardeners at Haarlem use; those broad and brilliant masses of colour which one sees in the bulb fields in the vicinity of that old town, are very enjoyable, and make an impression on the mind which is not easily effaced. *F.*

New Plants.

286. Phalænopsis Lüddemanniana, *Rchb. fil. in Mohl & Schl. Bot. Zeit.*, 1865.

Aff. sumatranæ Korth. & Rchb. fil. (zebrinæ H. Bog.) et violaceæ Teijsm. & Binn.; sepalis oblongis acutis, petalis subminoribus, labello ab ungue lato tripartito, laciniis lateralibus ligulatis apice exciso bidentatis, extus oblique carinatis, erectis, lacinia media ab ungue angusto oblonga ante apicem angulata seu serrulata, fornicata, apiculo sursum inflexo, squamulis seriatis in disco inter laciniias laterales, callis forcipatis duobus antepositis, carina serrulata in basi ac in apice laciniæ anticæ, pilis multis antice circumjectis, columna utrinque supra basin angulata.

The column and lip are of an amethyst colour; the sepals and column white at the margin, elsewhere amethyst, and covered with transverse brown simple or lobed bars. The lateral partitions of the lip have yellow blotches. Though improbable, yet it is possible that connecting links may be discovered between this plant and the two species above alluded to.

The habit is nearly that of Phalænopsis equestris (rosea), but the flower-stalk is much shorter and stronger, and few-flowered. The flowers reach the dimensions of those of a moderate-sized P. Schilleriana, and are, we venture to say, among the most interesting of Orchids, in consequence of the quite uncommon combination of amethyst with brown zebra-like stripes, reminding one of Vanda Cathcartii.

The species has been introduced from the Philippines, and was first flowered by Mr. Lüddemann, of Paris, to whom it is dedicated. To Messrs. Low & Co. is due the merit of having introduced it to England. We saw a very fine specimen, with two flower spikes, with Dr. Pattison, St. John's Wood (10, Cavendish Road), and also a good flowering plant in the rich collection of John Day, Esq., High Cross, Tottenham, grown by Mr. Stone. At Mr. Low's nursery some fine specimens are blooming, under the care of Mr. Bullen, and we hear that this lovely novelty is flowering in the stoves of other gentlemen.*

287. Phalænopsis Parishii, *Rchb. fil. l. c.*

Sepalo summo oblongo-ligulato subacuto, sepalis lateralibus semiovato-triangularibus extus carinatis, petalis late spatulatis subacutis, retusiusculis, labelli cum pede columnæ angulati laciniis lateralibus ligulatis acutis intus lobuloso-callosis, lacinia media unguiculata ab isthmo dilatata triangula utrinque obtusa, callo ligulato erecto apice quadriseto in basi, anteposito vallo semilunato lobo pluriseto, columna erecta utrinque angulato-dilatata, rostello bifido elongato, columna apice utrinque dilatata.

We learn from a letter of Mr. Anderson, that the spikes are simple, the flowers alternating, about 1 inch apart, and that there are 4—6 on a spike. The plant is said to resemble Ph. Lowii, but the leaves instead of being acuminate, are blunt and greenish; while the flower is cream-coloured, with a very nice deep purple-violet lip, and some yellow and brown spots on the base of the lip and column.

The credit of introducing this little gem belongs to Mr. Low, through whose kindness we have been enabled to examine a spike from the garden of T. Dawson, Esq., grown by Mr. Anderson. We have since seen a plant with two flower spikes in Mr. Day's garden, grown by Mr. Stone. We feel highly pleased to dedicate this pretty species to the Rev. C. S. Parish, of Burmah, who was its discoverer. *H. G. Rchb. fil.*

THE MITCHAM HERB GARDENS.

The medicinal plants principally cultivated at Mitcham are:—Lavender, Peppermint, Chamomile, Roses, Liquorice, and Henbane; large quantities of Poppies, Rosemary, Squirting Cucumber, Belladonna, and Pennyroyal are also cultivated; and smaller quantities of Spearmint, Marshmallow, Horehound, Foxglove, Stramonium, &c. The amount of ground laid out for the cultivation of medicinal plants varies every year. The total acreage under cultivation at present is 736 acres, and consists of:—

	Acres.
Chamomile (Anthemis nobilis duplex)	55
Roses (Rosa gallica and damascena)	119
Peppermint (Mentha piperita)	219
Lavender (Lavandula vera)	172
Henbane (Hyoscyamus niger)	[illegible]
Liquorice (Glycyrrhiza glabra)	[illegible]
Sundries	100

The sundries consist of:—Stramonium (Datura Stramonium), Horehound (Marrubium vulgare), Savin (Juniperus Sabina), Pennyroyal (Mentha Pulegium), Mallow (Althæa officinalis), Spearmint (Mentha viridis), Rosemary (Rosmarinus officinalis), Squirting Cucumber (Momordica Elaterium), Belladonna (Atropa Belladonna), Foxglove (Digitalis purpurea), Poppy (Papaver somniferum), Rue (Ruta graveolens), Celandine (Chelidonium majus), Elecampane (Inula Helenium), Balm (Melissa officinalis), Wormwood (Artemisia Absinthium), Hyssop (Hyssopus officinalis), Tansy (Tanacetum vulgare), and others of less importance.

The greater portion of the Lavender and Peppermint is distilled for the oils. Formerly a considerable quantity of Chamomile, Rosemary, Pennyroyal, Rue, and Spearmint, was cultivated for distillation, but they are now merely dried. The yield of oil per acre varies with the season, and the soil on which the plants are raised. Scarcely ever does it happen that two acres turn out alike; hence different growers obtain different amounts of oil. The average yield of oil from Lavender is from 10 lb. to 12 lb. per acre. One grower informed me that it averaged from 12 lb. to 24 lb. per acre. I have been assured by a distiller that even more than 24 lb. of oil were obtained from Lavender some years ago, and that the plants remained good for four or five years; but the maximum yield of even the best summers of late years is about 12 lb. per acre. The Lavender plants are now renewed after three years; and it is a singular fact, due, no doubt, in part to a want of skill in planting and slipping the plants, that the yield of oil, even from the third year's growth, is scarcely sufficient to repay for the labour and expense of distilling—the yield of oil from plants

* This very elegant plant was shown in flower on Tuesday last at South Kensington from the gardens of Dr. Pattison; J. Day, Esq.; R. Barnett, Esq.; S. Rucker, Esq.; and Messrs. Low & Co.; and P. Parishii from Mr. Day's collection.

of the second year's growth being greater in every case than either that of the first or third year's.

The yield of oil per acre from Peppermint likewise varies with the season. The yield obtained by different growers is from 8 lb. to 12 lb. The effects produced by the qualities of the soil are more striking in the case of Peppermint than in any other plant. Two crops of Peppermint standing side by side indicate, when distilled, considerable difference in the yield of oil; and the smaller quantity is not unfrequently obtained from that crop which had the most promising appearance. It has been remarked by many growers, both at Carshalton and Mitcham, that Peppermint plants raised at Mitcham, and laid out at Carshalton, an adjoining parish, yield a very different product when distilled, both in the aroma of the oil and the quantity obtained. I may observe, that equal care is taken both in tillage and cultivation, and that the superiority of the Mitcham produce is due to some peculiarity of the soil alone.

I examined a sample of Chamomile flowers which the grower informed me he cultivated entirely for distillation, and which, as dried flowers, he had a difficulty to dispose of. I could see no difference, further than that the flowers were fuller and more expanded. It is not improbable that the oil receptacles might have an abnormal development by manuring and particular care. I do not believe that it is a distinct variety. The yield of oil per acre from this kind is 8 lbs. The yield of Chamomile flowers per acre is about 4 cwt.

Pennyroyal yields about 12 lbs. of oil per acre. So extremely variable is this plant in its yield of oil, that one grower informs us that he obtained only 5 ounces from a quarter of an acre; of course he ceased to cultivate Pennyroyal for distillation.

The Provence Rose is extensively cultivated for the production of rose-water. Large quantities are also dried for the London markets. The Damask Rose is cultivated by a few growers for drying, and is never distilled. During a favourable season 300 bushels of Roses are produced per acre. If all the Lavender and Peppermint cultivated were distilled, the amount of oil supplied by Mitcham will be about 2190 lb. Ol. Mentha Pip., and about 2060 lb. Ol. Lavand.; but as a considerable quantity of Lavender is "bunched" and dried, the amount of oil supplied must be much less. Between 30,000 and 40,000 bushels of Roses are annually produced in Mitcham, and about 11 tons of Chamomile flowers.

Great care is taken in gathering and drying these flowers. The Roses are collected before sunrise. They are dried in ovens heated by air, and are maintained at a constant temperature of 100° Fahr. by a regulating arrangement. After the Chamomiles are dried, they are "picked." This operation consists in separating the darker flowers. The "bunched" plants are dried in open sheds, secluded from the action of direct sunlight.

The stills are of very large capacity, holding from 1000 to 2000 gallons. There is a peculiar fragrance and delicacy in the oil first obtained, which is decidedly wanting in the product which comes over towards the end. I find that a much less proportion of camphor exists in the Mitcham oils than in oils generally. The oils generally are of very light specific gravity, and their refractive power is very great.

The soil of Mitcham is generally a good holding one, that is, retains moisture well, and is naturally rich. It varies in depth, even on the same estate, being in some places only a few inches, whilst in others it is several feet. Most growers supply large quantities of manure to their land, but evidently do not supply the elements abstracted by the growing crops, as the yield is continually diminishing. They do not lay out for two successive seasons the same plants on the same ground. This is axiomally admitted by them to be as desirable as the rotation of agricultural crops. Some growers plant Potatos, &c., after Peppermint; and, after renewing the soil with manure again plant Peppermint. This plan is considered highly beneficial to the production of good crops. The uncertainty of the seasons in England, and the introduction of foreign produce have considerably reduced the annual production of Mitcham. A large farm, consisting of more than 1000 acres, which was a few years ago laid out with Lavender, Peppermint, Roses, Chamomiles, Caraways, and Henbane, is now employed entirely for the production of cereal crops; and most growers, rather than meet with the disappointment of a failure, lay out a large proportion of their land with culinary vegetables. The flowers obtained during a very dry season, such as the past, yield a larger proportion of oil than the flowers obtained during an ordinary summer, but from the combined effects of the frosts during the latter part of May, less oil will be obtained this year than for years past. The yield of oil of Lavender will be from 4 lb. to 5 lb. per acre. *T. P. B. Warren, in Pharmaceutical Journal.*

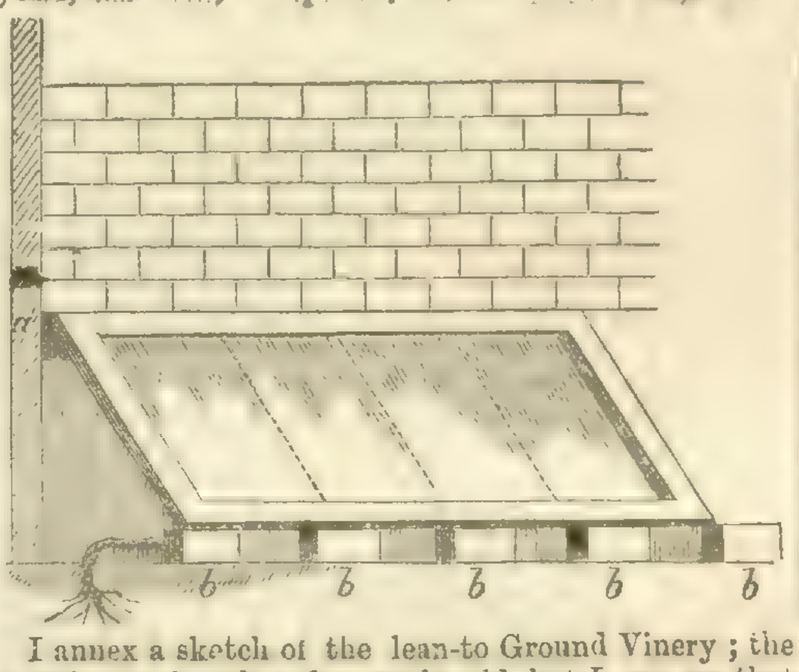
GROUND VINERIES.

Since I wrote the article thus headed, and which you have given at p. 316, I have read Mr. Bell's lecture delivered at the meeting of the Society of Arts, March 31st. If he had known Ground Vineries and their uses he might have given some valuable instruction to his audience and to the world. A 7-feet length of Ground Vinery, closed at each end, but having a hole about 2 inches in diameter, close under the gable at each end, to let off the hot air, would make the most complete little greenhouse for the leads of the house if large enough, or for the courtyard and small garden if sunny, of the clever mechanic. It should stand on the bricks all the year round, except during severe frost, for the low apertures admit air free from blacks, and thus the plants, being able to breathe, would grow and blow.

In severe frost the bricks may be removed, and the Vinery placed on the flat surface, either in the garden or on the leads. And now I have to point out the most valuable feature in these structures—the most severe frost may be kept out of them, if they are placed on the ground, or on any solid structure that will not admit the frost from beneath. To do this, old woollen cloths, carpets, and all such things may be heaped on—no matter how thick if the weather be very severe—and the frost most effectually kept out. The slow but sure radiation of heat from the earth is kept in by the glass, and thus assists in keeping out frost.

In the country we use dry straw, which, if heaped on thickly enough, will resist the most severe frost, but straw is not adapted to small town gardens. I need not point out to that large class of amateur gardeners—the lovers of bedding plants—the great benefit they may derive from using Ground Vineries to preserve them during winter. No fire and its botherations are required—it is covering, and that only, which will carry them through the winter; in mild weather the Vinery should always rest on its ventilating bricks, and in frost be placed on the ground and thickly covered. If thus managed every small gardener may preserve his bedding plants.

The roof-gardener referred to by Mr. Bell in his lecture may make the Ground Vinery placed on bricks a charming little greenhouse, in which, during the summer, he may have many gems. In giving the description and sketch of the barless Ground Vinery (p. 316), I quite forgot to state that two cordon trees may be grown in one Vinery, side by side; I have planted two rows of trees, 12 inches apart row from row, in one I have recently fitted up. I have reason to believe that they will find room enough for some years, and then, if required, one row can be removed.



I annex a sketch of the lean-to Ground Vinery; the contrivance is only a few weeks old, but I can see that much may be done with it. It is glazed after the same method as the span-roofed; should be placed on bricks in front, and kept from resting closely against the wall by a block of wood 2 inches in diameter nailed or screwed on inside and at each end of the top bar; a small hook and staple are placed outside the top bar at each end to prevent its being disturbed by a violent gale of wind. I may also add that although my span-roofed Ground Vineries stand on a hill much exposed to wind, and have never been upset, but merely slightly displaced, there may be situations in which the wind would set them flying; in such places they should be secured by driving four short stakes into the ground, one at each corner.

The above sketch is a 7-feet length of a lean-to barless Ground Vinery resting against a brick wall:—*a*, is a block of wood 2 inches square, of which there must be one at each end; *b*, *b*, *b*, are bricks placed endwise, 4 to 6 inches apart. To whatever length these lean-tos extend, each end should be closed.

It will be seen that the ventilation of these structures is strictly in accordance with Nature's law: the cool heavy air enters below, becomes rarefied, ascends, in its upward progress gives life and health to the plant, and then escapes by the vacant space between the upper bar and the wall; the law of gravitation is taken advantage of, and the result is success. How different to the old mode—pulling down a light to aërate a house! *T. R.*

EXTRACTS FROM SIR W. J. HOOKER'S REPORT ON KEW GARDENS.

Royal Gardens, Kew, W., January 1, 1865.

The number of visitors to the Royal Gardens during the past year presents an increase of 72,246 over that of 1863; and was distributed as follows:—

Total number on Sundays	218,308
Total number on week days	254,999
	473,307
Greatest monthly attendance (July	115,575
Smallest monthly attendance (February) ..	1,760
Greatest week-day attendance (May 16)	16,307
Smallest week-day attendance (March 9).. ..	1
Greatest Sunday attendance (July 10)	18,958
Smallest Sunday attendance (January 17) ..	28
Good Friday (March 25)	8,214

Botanic Gardens.—The most important change which I have to mention in this department, and indeed in many respects the most important that has occurred since 1841, when I was appointed Director, has been the retirement (owing to an affection of the eyes) of our able and highly valued Curator, Mr. John Smith, who for upwards of 30 years has superintended all departments of the Royal Gardens, and whose services and fidelity have been recognised by the Treasury in granting him the highest scale of pension. Indeed, previous to my taking office, Mr. Smith's services to the Gardens and to science were mentioned with approbation by the Commissioners, whose report on the condition of the Royal Gardens was presented to Parliament in 1838; and they especially drew attention to the fact, that to Mr. Smith alone (then a foreman) was due the credit of having named any of the plants whether for the interest of science or the instruction of the public.

As may well be supposed, it has been found impossible to obtain another Curator who combines with the necessary amount of skill as a cultivator, and efficiency as a general manager, that knowledge of rare, curious, and useful plants which our late Curator so eminently possessed. But his successor (also Mr. John Smith), late head gardener to his Grace the Duke of Northumberland at Syon House, not only bears the highest testimonials for skill and ability as a horticulturist and as a general manager, but has further long been known to myself and other botanists as having that special fondness for the cultivation of tropical and economic plants, for which the Syon gardens have long been celebrated throughout Europe.

I have only to add that Mr. Smith, who entered upon his office on the 16th of May, has proved himself eminently qualified for the curatorship, and is rapidly acquiring that special knowledge for which his predecessor was distinguished, and which experience alone can bring.

No change of any importance has taken place in the general arrangement or disposition of the Garden grounds or houses, but many improvements are being introduced in the plantations, lawns, and walks; the lawns especially, being devoted to the cultivation of named specimens of rare shrubs and trees, interspersed with clumps of shrubs, or planted for protection amongst them, occupy our men during the winter season.

The original Arboretum near the entrance gates, being now worn out, has been replenished with a collection of scarce and ornamental flowering trees, Conifers, &c., amongst which, near the paths, clumps of herbaceous plants will be introduced, together with named Aloes, Cycads, Yuccas, and such other tender greenhouse and stove plants as will stand exposure to the climate during the summer.

Owing to the change of curators, the foreign and colonial correspondence and interchange of plants has been in some degree suspended; but many valuable collections of living plants and seeds have been received. Of these by far the most considerable is a collection of many hundreds of Cape bulbs, &c., from Wilson Saunders, of Hillfield, Reigate, Esq., F.R.S., imported by a collector sent out principally at that gentleman's expense. This is only one of many valuable gifts made by Mr. Wilson Saunders to the Royal Gardens.

About 4000 live plants and 4600 packets of seeds have been distributed.

Steps are being taken to introduce the Ipecacuanha into Ceylon and India. Young plants have been received from Mr. C. H. Williams, of Bahia, and are being propagated for transmission. Several young gardeners, who have held responsible charges here, have been appointed to colonial and other Government establishments. Mr. Mann, who spent three years on the west coast of Africa, collecting for the Royal Gardens, and whose collections and return in good health were alluded to in my last year's report, has taken charge of the Cinchona plantations in the Himalaya under Dr. Anderson; Mr. Prestoe, foreman of the Fern department, has succeeded Dr. Crüger as Superintendent of the Botanic Garden of Trinidad. At the desire of the Admiralty, I have recommended Mr. Cron to take charge of the plantations on Ascension Island, whence we continue to receive encouraging accounts of the increased fertility and moisture of the island consequent on the extension of the plantations, which we continue to supply with young trees, &c. in Ward's cases.

The Cork Oaks, mentioned in my last report as having been sent out at the request of the Government of South Australia, have arrived in excellent condition, and are thriving. Under the direction of George Macleay, Esq., similar cases of live Cork Oaks have been sent to Victoria, Sydney, and Queensland; of these the second alone has failed, and other cases are now preparing to be sent there; those sent to Victoria and Queensland have arrived in good condition.

Most flourishing accounts of the Cinchona plantations continue to arrive from India.

In the Nilgherries Sir Wm. Denison informs us, that though the country had in April last suffered from 112 days' drought, yet the Cinchona plantations had not been damaged; and that the plants were being propagated at the rate of 30,000 to 40,000 monthly. From Ceylon Mr. Thwaites writes that in September last he had 190,000 plants, the tallest 6 feet high;—that applications had been received for 28,500 plants, of which 9000 had been supplied; and that he expected to issue 20,000 monthly.

Jamaica still needs a proper person to superintend a Cinchona plantation. The capability of the island for its growth has been abundantly proved by Mr. Wilson, of the Botanic Garden, who under every discouragement has planted out 400 plants in a suitable locality, which, however, being at a great distance from the Botanic Garden, require a good resident practical gardener for their superintendence and increase.

Pleasure Grounds.—The most important work commenced here during the past year has been the revision, &c. of the Arboretum; the pleasure grounds being devoted to the cultivation of a complete named collection of all the trees and shrubs that will stand our climate. During the past 12 years upwards of 3000 species and varieties of these have been planted, arranged in groups according to the natural system; besides many thousand ornamental or interesting specimens for the decoration of the grounds. The time has now arrived for showing how far the choice of plants and their disposal has been satisfactory, and for rearranging, replanting, or giving better soil where necessary; as also for revising the names and renewing the tallies. The condition of the collection is exceedingly unequal, owing to the summer droughts, the sterility of the sandy and gravelly soil over large tracts of the grounds, and the injurious effects of the roots of the old trees with which the grounds are in many places encumbered; the actual available amount of good sites for the above-mentioned purpose is comparatively small; and we have further proved that to raise vigorous trees at all these should have the protection of clumps of shrubs when young.

During the past season about half the collection has been examined, the beds dug over, and copious supplies of leaf-mould and better soil added to every bed and tree which it has been thought advisable to retain in its present position. Upwards of 1500 plants from our own nursery have been planted out, either for ornament or to replace the deficiencies in the collection; many species which prove too tender, or otherwise unsuited for cultivation in our grounds, have been removed, and the remainder have been examined and named.

Beds have been made round the Deodars along nearly the whole length of the Pagoda vista, and most of them planted with shrubs to encourage the Deodars by affording protection to their roots.

The side arches of the picturesque ruin near the Richmond

Road have been opened, and the environs planted with a collection of hardy Ferns, named collection of Ivies, &c.

A small heated pit for raising plants for the Winter Garden has been built in the Nursery, which is being rearranged and greatly improved.

Extensive works for the supply of water to the Royal and Crown property at Richmond and Kew are in progress, in connexion with the lake, which is still in an unfinished state.

The Nursery for the supply of the parks is stocked with young trees, of which 1665 have been supplied to the Deer Park and Richmond Park, and a large stock is about to be sent to the metropolitan parks.

Museums.—The arrangement of the collection of woods in Museum No. 3, has been proceeded with; the floor has been matted; the wall specimens protected by a hand-rail; a great number of the largest specimens have been repolished, and all reticketed; the Welwitschias enclosed in a glass case; and the central timber trophy rearranged.

Valuable contributions have been received, as follows:—

His Excellency the late Duke of Malakoff; a large collection of Algerian woods.

Messrs. Pies-e & Lubin; vegetable substances used for scenting Tea in China.

Dr. Welwitsch; a very valuable named collection of Benguela and Angola woods, fruits, &c.

Captains Speke and Grant; Central African seeds, &c.

His Grace the Duke of Somerset; Japan Pine cones.

D. Hanbury, Esq.; Manna of Briançon.

J. Haast, Esq.; a specimen of the vegetable sheep of the New Zealand Alps.

Messrs. Haag & Schmidt, of Erfurt; cones of Pinus Peuce, which have enabled us to prove that this rare plant, which in Europe is confined to a single mountain in Turkey, is the same as the Himalaya P. excelsa.

Dr. Kotschy of Vienna; a beautiful named collection of oriental acorns.

Right Hon. E. Cardwell, and his Grace the late Duke of Newcastle; cones of Araucaria Bidwillii.

Prof. Brewer, of California; a magnificent photograph of the Wellingtonia forest.

Mrs. Boott; portrait in oils of Michaux, the author of "The American Sylva;" and a bust of the late Sir J. E. Smith, the founder of the Linnean Society and formerly possessor of the library and collection of Linnæus.

Herbarium and Library.—The scientific duties of the Royal Gardens continue to be the most onerous connected with the establishment; owing to the incessant demands for the names of plants in our own and other gardens, and of those collected by travellers and explorers on Government and other expeditions; and for information as to economic plants and vegetable products; in addition to the extensive and ever increasing colonial and foreign correspondence and publications.

The principal works done in this department, or in connection with it, have been—

1. The publication of the second volume of the Flora of the Australian colonies, by G. Bentham, Esq., assisted by Dr. Mueller, of Victoria, who continues to send his own Herbarium for examination, and all the newly discovered plants as they are received by him, with notes and observations, for this work. The third vol. is in progress; published under the authority of the several Australian Governments.

2. The Flora of the Cape Colony. British Caffraria, and Natal, by Dr. Harvey, F.R.S., of Dublin, and Mr. Sonder, of Hamburgh. The third vol. of this will shortly appear, published under the authority of the Cape Government.

3. Dr. Grisebach's West Indian Flora is completed in one thick volume, and was published under the authority of the Secretary of State for the Colonies.

4. Mr. Thwaites' Enumeration of Ceylon Plants is completed and published.

5. The first volume of a Hand-book of the New Zealand Flora, prepared by Dr. Hooker at the desire of the Government of that colony, is now published; and the second volume is in course of preparation.

6. The 90th annual volume of the "Botanical Magazine," being the 24th prepared at Kew, has been published by the Director, with 72 coloured plates of new and rare plants that have flowered in the Royal and other British gardens.

Of other works in preparation the most important are:—

7. The Flora of British India, by Dr. Thomson, F.R.S., under the auspices of the Secretary of State for India.

8. The Outlines of the Flora of Tropical Africa, by Prof. Oliver and Dr. Hooker.

9. Dr. Mueller, of Geneva, has spent three months at Kew, for the purpose of describing the Euphorbiaceæ for M. De Candolle's Prodromus.

10. M. C. De Candolle of Geneva has described the natural order of Peppers for the same work.

11. Mr. Lowne has named and arranged his large Palestine and Lebanon collections, made during the Rev. Mr. Tristram's expedition.

12. Dr. Kirk has rendered us great service in arranging and naming his own and other East African collections, and the Mauritius ones of the late Dr. Ayres, Judge Blackburn, and others.

13. Mr. Spruce is residing at Kew for the purpose of arranging his Andean, &c., collections.

14. Dr. Triana of Bogota was for several months engaged on his Flora of New Grenada, published for the Government of that Republic.

15. The Japanese and Korean collections of Mr. Oldham, amounting to about 13,000 specimens, have been named and distributed to various public museums.

16. The distribution of the great Herbarium of the East India Company has been proceeded with; and that of the Kashmir, Punjaub, and Himalayan collections of Dr. Falconer commenced.

The principal contributions to the Herbarium and Library have been:—

1. The collection of specimens, drawings and MSS. of Carices, of the late Dr. Francis Boott, F.L.S., formerly Treasurer of the Linnean Society; presented by his widow. It is impossible to over estimate the value of this gift. Dr. Boott devoted the greater part of his life to the study of this particular and very difficult tribe of plants; he formed a complete and beautifully arranged and named collection of the species from all parts of the world; and was for 30 years the standard authority for their nomenclature. At his own expense he caused to be prepared in Paris and London a superb series of folio drawings of all the species, of which upwards of 400 were published, with descriptions in three volumes, and privately distributed, also at his own expense. The entire number of drawings amounts to upwards of 700.

2. The Herbarium and MSS. of the late Dr. P. B. Ayres, colonial surgeon of Mauritius; presented by his widow. Dr. Ayres spent upwards of 10 years in the Mauritius, during which time the whole of his leisure was employed in exploring its botany, and describing the plants for a Flora which he intended to publish. This Herbarium, which is a very considerable one, together with the MSS., will prove of great use in the event of a Flora of Mauritius being published, which is in contemplation by the Colonial Government.

As Director of the Royal Gardens, I have annually to state that we continue to receive the most cordial assistance from her Majesty's Secretaries of State for India and the Colonies, from the Lords Commissioners of the Admiralty, from most of the Governors of our colonies and foreign possessions, and from many of our Consuls; as also that we are under special obligations to the Royal Steam Packet Companies and the Peninsular and Oriental Company for facilities in transmitting packages of seeds and plants free of expense.

Home Correspondence.

Tiles for Blocking Orchids.—In the report of a scientific meeting of the Royal Horticultural Society held on the 4th ult. it is stated that Mr. Bateman has made "models of branches of trees in pottery" for the attachment of Orchids, instead of wooden blocks. Every Orchid grower knows the annoyance of these latter, decaying so rapidly as they do in a damp house, and gladly hears of any substitute. Logs of the Cork Oak are sometimes employed, and these are more durable; but they are very difficult to obtain. I have for some time used the flat slabs of cork, as imported, 1½ and 2 inches thick, cutting out pieces of the dimensions required. But even these begin to manifest decay in about three years, softening so that the suspending hook and the tacks to which the binding wires are fastened are liable to draw, to the peril of the plant. Mr. Bateman further stated that Mr. Rucker had also employed pottery for Orchids in the shape of drain tiles. I beg to propose for consideration a form of the same material, which may in some circumstances be handier than either of these. A mass of Dendrobium aggregatum in my possession was, when I first obtained it, clinging to a round block, probably a piece of the branch on which it had grown in the Indian forest. The bark had, however, latterly become much decayed, so as readily to separate in a sheet from the worm-eaten wood as soon as the binding wires were loosened, retaining sufficient tenacity to hold together, with some care in handling, yet so tender as to flatten out easily. I removed it then, and prepared to refix the mass on a new material. Taking a common flat roof-tile, 12 inches by 6 inches, and half an inch thick, I bored a hole with a gimlet near the middle of one end, into which I securely fixed a loop of strong wire for suspension. Then with a file I made a row of notches, 1½ inch apart, along each edge, to afford hold for the binding-wire. The tile being thus prepared, I laid it before me on the potting-bench, placed on it a thin layer of peat fibre, on this a sprinkling of charcoal-dust, and over this again a layer of coarse Moss. All this formed a convex surface, extending not quite to the edge of the tile on either side, on which I now spread out the bark of the old block, to which was clinging the Dendrobium (a mass of about 120 bulbs), with scarcely a root disturbed. Then, having a quantity of growing Moss, which we strip off in sheets from stones, and which I always keep by me, I spread suitable bits all around the edges of the bark, covering every spot not occupied by bulbs, and firmly wired-down the whole, crossing and recrossing the mass with copper-thread, passing it through the notches at the edge of the tile, and bringing it round and round behind. When finished, the plant was so firm that one could not tell that it had not grown there; while the Moss, when the whole had been dipped in the tank and drained, almost concealed the wire, and presented the appearance of a natural growth. Thus I had my plant on an imperishable basis, of an agreeable hue (so much of it as could be seen, which was very little), and of a porous texture, to which the new roots will doubtless cling, as readily and lovingly as we often find, to our trouble, they do to the interior of a flower-pot when we wish to shift our Orchids. Mr. Bateman's imitations of gnarled blocks in pottery would no doubt be very elegant, but I presume, being made to special order and pattern, they would be costly, and would surely be very heavy. [No, not specially so, for they are made hollow.] Mr. Rucker's drain-tiles would be so unwieldy as to be suitable only for large houses and very large plants, and their weight, I presume, must be great. My tiles hang flat to the wall, are of no great weight, are very cheap, and are suited for small neat plants, whose area does not exceed the dimensions just mentioned. If they are wanted smaller, they can be cut with a saw almost as readily as an oak board; while the notching and the perforating are performed in five minutes. It would however, be an advantage, if the proposal be adopted by others, to have tiles made on purpose, of various sizes pierced with holes all round the margin before the burning: a process which would add very little to their cost. I will only add that I think the appearance of such specimens as I have treated in this way, much neater and prettier than that of those growing on split or round blocks or cork slabs. *P. H. Gosse, F.R.S., Sandhurst, Torquay.*

Black Varnish Paint.—Your correspondents, Mr. John Stevens and "H. T.," state that this ruins plants and Grapes in houses when applied to hot-water pipes; allow me, therefore, to record my experience in the matter. Last January I applied Messrs. Tonge & Co.'s Liquid Black Varnish Paint, which I have been in the habit of using for some years for all out-of-door work (iron and wood), to some new iron pipes put up in a new greenhouse, and in an old Vinery. The plants were put into the greenhouse three or four days after the pipes had been painted. The Vines, of course, at the time were cut back; I found no ill effects whatever; all smell vanished 48 hours after the paint was applied. The iron ought to be warm when painted, and the paint put on thin. *H. M. Hammersley, Ridgeway, Lymington.*

Late Melons.—Mr. Bennett (see p. 364) states that the Princess Alexandra Melon is the only late variety worth cultivation, as the so-called winter Melons are only fit for cattle. Surely Mr. B. has been dozing for some time in the woods at Osberton, or he would have heard of the fine winter hybrid Melon exhibited at S. Kensington, which is only one of a new race of varieties that will make its appearance next winter. Mr. B. states that his hot-water apparatus got out of order about Christmas, which stopped the supply; but winter Melons should be matured and cut by the end of October and placed in a dry room. In this way, by good management, a succession of fruit of excellent quality can be sent to table up to March, and that without trouble or expense in the dead of winter. *Potato Ned, Fulham.*

Rhododendron Nuttallii.—This magnificent Rhododendron is now in fine bloom at Well Head, near Halifax, Yorkshire, the residence of John Waterhouse, Esq. The plant is about 8 feet high and had 10 trusses of bloom on it, some of them remarkably large, with flowers fully 5 inches in diameter. The latter are of a creamy white colour, of very stout texture, and with a short wide tube of a bright yellow colour inside, containing black anthers. I have never before seen or heard of a plant of the same size blooming so freely, and in such a state it is a most valuable conservatory shrub. It is growing in a pot in the spacious conservatory, in company with Glycine sinensis, G. sinensis alba, and Clianthus puniceus, now in full bloom. Close by are fine examples in full flower of Illicium religiosum and Illicium floribundum, two plants now seldom met with in such good condition. Well Head is famous for its rich collection of hardy and exotic Ferns, new and rare plants, and Orchids, and well deserving a visit at any time. *D.*

Aubrietia purpurea variegata.—A well and decidedly variegated form of this beautiful and popular spring-flowering Aubrietia purpurea, one would imagine must be a flower-garden gem. And such it proves to be on making acquaintance with it. What a charming edging it will make, more particularly when its numerous blue flowers are elevated above the half-whitened compact foliage. *R. P.*

Garden Embellishment.—Fine-leaved and gracefully habited plants, Palms, Yuccas, &c., mingled with conservatory Araucarias and specimen flowering plants, make, if well arranged, a very pleasing indoor group at any season. Amid scenes like this one often wonders why a combination of varied and beautiful plants is not more frequently attempted out of doors, where it could be done with much less trouble and expense, and where, too, additional verdure and the absence of tubs and walls would help to beautify the arrangement. We have abundance of hardy plants to do it with; and that it will be thoroughly well done yet, there cannot be the slightest doubt, though sciolists in garden embellishment, sticking to rule of thumb, and with no higher ideas on the matter than those derived from the "system" they talk about, may by delicately and cloudily deprecating "any mixture" retard the movement a little. What has this system or "philosophy" had to do with the creation of Mr. Bewley's unrivalled Fernery, which has astonished and delighted the élite of the gardening community, as well as the most unlearned of non-gardening visitors? Other unique scenes might be mentioned, produced by an equal divergence from the beaten path—convenient, perhaps, for the plodding operator, but tending not nearly so much to show us in their best aspects the wondrously graceful, dignified, and beautiful plants with which Nature has blessed our earth. *W. R.*

Rats.—Ten pounds a year has often been paid to ratcatchers who promised to keep the farms in this neighbourhood free of these vermin, but they rather increased than diminished. A new plan has been tried with good effect, which is this:—Every man, woman, or child, who brings a rat to the bailiff of the largest landed proprietor in the village, receives a penny. This sum at the end of the year amounted to 2*l.* 10*s.*, and all the farmers, &c., are contented with the result, and willingly pay their share. The rats were of course carefully disposed of, so that they could not be brought a second time. *Anna Shawe, Brantingham.*

Carter's First Crop Pea.—Permit us to state that our First Crop Peas were fairly in blossom on the 1st of May, at our Seed Farm at St. Osyth; they are grown under "field" cultivation, and are open for inspection to any one who may wish to see them. *James Carter & Co., High Holborn.*

Crickets.—I am acquainted with a cottage in this village which was infested with these pests; so much so, that they were very destructive, eating holes in worsted stockings and any other articles of clothing they could get at. The inmate of the cottage told me that she had quite got rid of them by placing some thin slices of bread and butter, with some of Batley's vermin killer paste on it. This was put in the closet which was their head-quarters. They ate the bait greedily. Two pennyworth would poison thousands of these insects. *Anna Shaw, Brantingham, Brough, E. Yorkshire.*——If your Correspondent will sink in his Melon and Cucumber frames, level with the surface, a few overhanging wide-mouthed jars with a little treacle in them, he may soon reduce the number of his jumping pests. I have tried arsenical bread crumbs, phosphorus paste, &c., but I give the preference to the treacle jars. *W. C.*——At night a hedgehog will destroy crickets. *M. L.*

Societies.

Royal Botanic: *April 29 (Third Spring Show).*—With this very neat and interesting exhibition the Spring Shows at the Regent's Park have been brought to a close for the present season. There was a good attendance on this occasion, notwithstanding the wintry wind which contrasted keenly with the weather of the few preceding days.

The chief feature of the Show was the Roses, of which admirable specimens were staged. In the competition classes, both of 6 plants in pots and 3 new varieties of 1863-5, Mr. Turner, Mr. W. Paul, and Messrs. Paul & Son took the prizes in the order in which their names stand; and a good miscellaneous group was contributed by Messrs. Lane & Son. Mr. Turner had a very fine plant of Gen. Jacqueminot, a good Souvenir de Malmaison, Lord Clyde in fine condition and very handsome, Mrs. W. Paul refined and brilliant, and Alba rosea a beautiful blush-coloured Tea-scented variety. Mr. W. Paul showed a magnificent bush of Souvenir d'un Ami; and amongst the most noticeable in Messrs. Paul & Son's groups were a Paul Ricaut in charming bloom, Juno a handsome blush, and a pale-coloured John Hopper. The last-named exhibitors showed two lots of Cut Roses.

Next to the Roses the Azaleas were the most attractive subjects, though the plants were not large. A group from Messrs. Lane & Son contained Flower of the Day, a striped white, showing fine quality; Souvenir du Prince Albert, semi-double rose, with white margin, larger-flowered and better looking than we have previously seen it, and likely to be a good decorative sort; Rosea albo-cincta, another fine white-edged rose; and Madame Ambroise Verschaffelt, which, though rough and thin, was, as always, bright and attractive. Messrs. F. & A. Smith had a collection consisting partly of seedlings, in which several plants of Flag of Truce were particularly handsome. Of the seedlings the best was Richard Cobden, a bright rose with spots, and of good form, but the plant was too small; while Galatea a light red, Beatrice a pale salmon, White Perfection a greenish washy white, Mr. Marnock a deep orange-red, and Maculata a spotted red, were of inferior quality, the best of them having the defect of being whole-coloured, or without the spotting which gives richness to those varieties that possess it. Messrs. Lane had a large group of dwarf plants of hardy Rhododendrons; Mr. Parker, of Tooting, sent six finely-bloomed plants of Rhododendron Countess of Haddington, a really fine thing, whose character is now well established; and Messrs. F. & A. Smith a seedling Rhododendron called Queen of England, remarkable for its large Lily-like bells of a semi-translucent white, very stout in texture, the tube about 4 inches long, and the limb as much in expanse, the leaves elliptic and lepidote, the flowers four or five in a truss, and the habit free. It was further remarkable for having a large number of stamens.

Some very pretty plants of Pelargonium were shown by Mr. Turner, including several of the spotted and French kinds. Mr. Wiggins, gr. to Walter Beck, Esq., also showed a very well-flowered group, mostly French; and Mr. Weir, gr. to Mrs. Hodgson, The Elms, Hampstead, had a beautiful collection of Fancies. Besides these, two Seedling Fancies were shown by Mr. Turner, and gained First-class Certificates, namely Sunrise, a deep rich rosy carmine heavily belted; and Silver Mantle, light rose with slightly spotted white lower petals, both remarkable for compactness and vigour of growth. Showy groups of Calceolarias, better grown than those beautiful plants are now generally seen, came from Messrs. Dobson and Mr. James of Isleworth; Cinerarias, rather small-flowered, from Mr. Wiggins and Mr. James; and half-a-dozen Amaryllids from Mr. Parker.

Miscellaneous collections were contributed by Mr. Williams; Mr. Wheeler, gr. to Sir F. H. Goldsmid, Bart.; and Mr. Stone, gr. to Mrs. Foster, that from the former exhibitor containing a magnificent Todea africana, the too seldom shown Tetratheca ericifolia, and Adenandra fragrans, and a fine Croton variegatum. Mr. Wheeler had a good Eriostemon; and Mr. Stone a handsome Croton longifolium. From Mr. Bull came a group of Palms exceedingly ornamental in character, among them Areca aurea, Brahea dulcis, Attalea excelsa, Euterpe edulis, and Latania rubra.

A few Auriculas were shown; Mr. Turner being the only exhibitor among nurserymen, and Mr. Butcher, of Camberwell, and Mr. James the only competitors amongst amateurs. Mr. Turner's flowers were, many of them, very fine. His six comprised Headley's George Lightbody, Turner's Mr. Marnock, Strong's Sir Isaac Newton, Chapman's Sophia, Spalding's Jessie Bell, and Negro, the two last selfs. A large miscellaneous collection contained many beautiful flowers. Mr. Turner also had two lovely Alpine seedlings, John Leech, a charming shaded bronzy plum with bright yellow paste, and of faultless proportions; and Titian, similar in character but of a lighter red tint. These both gained first-class awards; while to Master Hole, a maroon self, and Rev. J. Bramhall, gray-edged, also from the Slough collection, Second-class Certificates were granted.

Of novelties not already mentioned a good many were shown. Mr. Bull had, amongst many others, the very well marked Aubrietia purpurea variegata, everywhere edged with white, and evidently a good flower-garden plant; also his curious Mimulus duplex; the Salvadora persica; a Rhododendron thibaudioides, with clusters of Correa-like cylindrical tubular flowers, orange with yellow tips; Primula intermedia, a purple-flowered Alpine in the way of ciliata; and Woodsia polystichoides Veitchiana, a curious pinnate scaly Fern from Japan. Messrs. Backhouse & Son had four gems of the rare class, namely, Narcissus juncifolius, a dwarf yellow species; Andromeda hypnoides, with pure white bells; Primula ciliata, a mass of rosy purple; and a dense cæspitose Primula called farinosa acaulis, with pink stalkless flowers. Mr. Thompson, of Ipswich, sent Aubrietia græca, a good rock plant, with deep purple flowers. Mr. Williams had the fine Palm Phœnicophorium seychellarum, already noticed by us; Anthurium magnificum, with cordate white-veined leaves, very very like Mr. Weir's cordifolium; Gymnogramma Parsonsii, the crested Gold-Fern, mentioned at p. 366; Asplenium alatum, a good pinnate stove Fern for baskets, with a winged rachis and proliferous tips; and a pretty maculate Smilax, besides one or two others less fully developed. A white-flowered Hydrangea, called japonica alba, but apparently quite distinct from the garden japonica, was contributed by Messrs. E. G. Henderson. It had cordato-ovate acuminate serrated leaves, and some of the outer flowers of the cymose inflorescence neuter, pure white, consisting of three serrated segments.

Royal Horticultural: *May 2.*—At the fortnightly scientific meeting held on this occasion, such a magnificent display of fine plants was produced, and the attendance of Fellows and their friends was so great, as to give unmistakeable evidence that the tide of success had set in in favour of the Society, and that its ancient popularity was fast reviving. Mr. Wilson Saunders occupied the chair. The Rev. M. J. Berkeley adverted to one or two plants exhibited at the last meeting; a cut specimen of an unnamed Ardisia, furnished on that occasion, he now pronounced to be A. acuminata var. decipiens of De Candolle. In reference to the Nardoo he stated that Dr. Hanstein had caused the sporangia to germinate, a fact which he had gleaned from an interesting paper by that gentleman published in Pringsheim's Journal (see p. 410). After alluding to the differences presented by seedlings raised from nearly the same parents in the genus Rhododendron, and speaking of R. thibaudioides, which has more the appearance of a Thibaudia than that of a Rhododendron, Mr. Berkeley made a few observations on the poisonous qualities possessed by the genus, stating that R. cinnabarinum was one of the most virulent of poisons. The nearly related genus Gaultheria, he remarked, also contained poisonous species, though some of them furnished good esculent fruit. The broad-leaved Kalmia moreover was poisonous, and he added that birds fed upon its fruit were unfit to eat. Among other plants to which he directed attention was the Wellingtonia, a cone of which he exhibited from very young trees growing in the grounds of the Marquis of Huntley at Orton Longueville, near Peterborough.

Mr. Bateman next addressed the meeting, first in reference to Vaccineæ, and then in regard to Orchids. The former, he remarked, were plants hitherto comparatively hid in obscurity. They were inhabitants of both the Old and New World, being found in Peru, New Grenada, Central America, Japan, and the Indian Archipelago. They were not unknown to botanists; but almost entirely so to horticulturists. "Pœppig and Endlicher's Nova Genera and Species" was stated to be the work which first induced Mr. Bateman to pay attention to the family, which was reported by Dr. Pœppig to clothe the Peruvian forests in a mantle of flame. So glowing a statement (which seemed open to doubt, but which, when the brilliant colouring of the young leaves and shoots is considered, is nevertheless perfectly true) led Mr. Bateman to attempt to get a collection of these showy plants together, and he succeeded in obtaining many kinds, one of which (Macleania speciosissima, beautifully grown and flowered by his gardener at Biddulph Grange, Mr. Jas. Stanton) he exhibited. Dr. Hooker, in his work on Himalayan Plants, Plate XV., figured two of these plants, viz., Vaccinium serpens, and V. salignum, which he had found growing along with the beautiful Rhododendrons of that Alpine region. Taking a hint from this fact, Mr. Bateman therefore commenced to grow his Vacciniaceous plants on the ground under glass, with Rhododendrons, but soon discovered that mode of treatment did not suit them; that in fact, owing to their drooping habit of growth, they required to be elevated, so that their branches might hang down, like those of Indian Dendrobiums, and he found that for the decoration of brackets or niches in walls, where shade and moisture could be afforded, nothing was more suitable than these tropical Vaccineæ, among the genera belonging to which Thibaudia was one of the most important. Another member of the family, named Cavendishia nobilis, in honour of the late Duke of Devonshire, a plant he believed not yet introduced, was also adverted to in high terms of praise, and he hoped that Mr. Veitch, or some other of our large nurserymen would soon make an effort to obtain it.

Orchids were shown on this occasion in great numbers, and to these Mr. Bateman next directed attention. He began by alluding to the Cypripedia present, which, though few in number, showed great diversity of aspect, and in that respect confirmed what was said on a former occasion, that this genus alone was well worthy of cultivation by those whose means did not permit them to grow Orchids on a more extended scale. He mentioned, in reference to C. caudatum, that the tails belonging to that species are not present in the flower buds, but that they are developed after the blossoms open, increasing in length at the rate of from 1½ to 2 inches a day until their full extension is acquired.

The different Dendrobia exhibited next occupied attention. Concerning these, Mr. Bateman stated that when this charming genus first came under his notice, he considered D. Pierardi to be one of its most splendid species; by degrees handsomer kinds were introduced, and among others came Mr. Gibson's D. Devonianum, which Dr. Lindley designated the king of Dendrobes. What, however, he added, shall we say of D. Wardianum, which turns out to be quite different from D. Falconeri obtusum, and to have glorious spikes of blossoms at least 5 feet in length? This truly must be a magnificent species. After stating that D. macrophyllum, anosmum, and Dayanum were forms of the same species, Mr. Bateman passed on to the Phalænopsis Lüddemanniana, described at p. 410, which was exhibited for the first time at this meeting simultaneously by several growers. It was mentioned that Messrs. Low, who first had the whole of the stock of this fine species, let it slip through their fingers, thinking that it was nothing else than P. rosea, which it somewhat resembles. It has however much larger and finer flowers than those of that kind, and is altogether a much more remarkable plant; the little spikes furnished by it on this occasion, with two flowers on each, will, it was stated, probably produce when established ten times that number.

The following candidates were elected, viz:—

Mrs. Col. Adair, Col. F. Baring, W. Wyndham Burrell, Esq.; Mrs. Caird, Miss Feetum, Mrs. W. Kuhr, H. Liggins, Esq.; Earl of Normanton, Mrs. Owen, Hon. and Rev. Augustus Phipps, T. Rawlings, Esq.; D. Serrell, Esq.; J. Swan, Esq.; Mrs. Walker, Sir T. W. Waller, Bart.; Mrs. Whitter, and Mrs. R. Wilson.

May 2 (Floral Committee).—First-class Certificates were awarded to Mr. Williams for his fine Palm Phœnicophorium seychellarum, and for his beautiful Fern Asplenium alatum. The same exhibitor likewise received a Special Certificate for his tailed Lady's Slipper (Cypripedium caudatum) and other interesting plants. A similar mark of distinction was conferred upon Messrs. Low for their fine collection of Orchids, in which were Dendrobium Dalhousianum, and D. chlorops, the latter with white starry flowers. To the same firm was also awarded a First class Certificate for the charming Philippine Phalænopsis Lüddemanniana, a plant of which was likewise shown by Dr. Pattison, of St. John's Wood, who received a similar award for it. For a little gem, Phalænopsis Parishii, from Moulmein, a First-class Certificate was awarded to Mr. Stone, gr. to J. Day, Esq., of Tottenham, who also furnished a splendid collection of Orchids, in which was a magnificent specimen of Dendrobium densiflorum, with no fewer than 70 spikes of charming orange-yellow blossoms on it; also D. densiflorum album, like the last in all respects except colour; D. albo-sanguineum; and the rare D. eburneum, the last with 14 pure white flowers on it, exquisitely stained in the centre with red; Cypripedium Lowii, with nine fully expanded flowers; one for two Saccolabiums, and other plants. For this fine exhibition a special Certificate was awarded, as also for the Dendrobe. Mr. Lawrence, gr. to the Bishop of Winchester, furnished a beautiful example of Epidendrum prismatocarpum, for which a First-class Certificate was awarded. On W. Marshall, Esq., of Enfield, whom Mr. Bateman characterised as a rising star in the Orchid world, was conferred a similar award, for Dendrobium tortile roseum, one of the most beautiful of the distinguished genus to which it belongs. Mr. Veitch, in addition to special Certificates for the large and fine collection of miscellaneous plants which he exhibited, received First-class Certificates for the following, viz., Gymnogramma flexuosum; Rhododendron Henryanum, a hybrid of which R. Dalhousiæ is stated to be one of the parents; the orange-blossomed Saccolabium curvifolium; the charming Odontoglossum Pescatorei; and Primula cortusoides alba, the last a pretty pure white addition to the fine Japanese Primulas described by us in former reports, examples of which were reproduced on this occasion. From the same exhibitor also came a well-flowered plant of the white Glycine; Dracæna nigra, a very dark-leaved species, introduced from New Caledonia by Sir Daniel Cooper; Bomaria Caldasii, a half-hardy climber, bearing many-flowered terminal umbels of orange red blossoms; the canary-coloured Amaryllidaceous plant, called Urceolina aurea; Mr. Dominy's beautiful hybrid Calanthe; Odontoglossum gloriosum, and O. superbum; Lælia grandis; a fine plant of Odontoglossum nævium majus; Aerides Warneri; the splendid group of Anthurium Scherzerianum, formerly exhibited, still in perfection; Marianthus Drummondianus; Azaleas and other interesting plants. To Mr. Bull two First-class Certificates were awarded for Aubrietia purpurea variegata, and Woodsia polystichoides Veitchiana, mentioned in another column. The same exhibitor also had Rhododendron thibaudioides, Anthurium cordifolium, and other handsome-leaved plants. From

Mr. Noble of Bagshot came examples of the double white-blossomed Clematis Fortuni and the charming C. Standishii, the last literally a mass of rich violet-purple blossoms, some of which measured 5 inches in diameter on plants not many more inches in height. For the introduction of these Clematises, to which a Special Certificate was awarded, we are indebted to Mr. Fortune, and judging by their extreme beauty a glorious future may be anticipated for them, especially as they are stated to be hardy. Mr. Pilcher, gr. to S. Rucker, Esq., received First-class Certificates for Phalænopsis Lüddemanniana, and for the handsome Cattleya amabilis. To Messrs. Backhouse was given similar awards for Narcissus juncifolius, the pretty Primula ciliata, P. farinosa acaulis, and Andromeda hypnoides, described in our report of the Royal Botanic Society's meeting in another column. Mr. Wm. Paul received a Special Certificate for examples of the late Mr. Beaton's varieties of Nosegay Pelargonium, alluded to by us last year (see p. 791). Mr. Lloyd, gr. to Mr. Caldecott, of Rugby, received a Second-class Certificate for a prettily variegated-leaved variety of Pelargonium lateripes, called Silver Gem, which looked as if it would be a useful plant for edgings and vases. Mr. Turner exhibited Auriculas from his unrivalled collection now in flower at Slough; also beautiful groups of Pelargoniums, Roses, Azaleas, and other plants, for all of which Special Certificates were awarded. From among the Auriculas, John Leech and Meridian were selected for First-class Certificates, and Titian for a Second-class Certificate. These, with the exception of Meridian, a warm red-edged Alpine, will be found described in another column. From Mr. Parker came cut blooms of Rhododendron Countess of Haddington. A group of finely variegated plants came from Messrs. E. G. Henderson. It may be added that some fine Orchids were shown from Mr. Bateman's garden at Knypersley, where they are grown in great perfection by his gardener, Mr. Sherratt. Plants of Cypripedium caudatum and C. superbiens, together with cut spikes of Dendrobium Dalhousianum and several other Orchids, were also sent by Mr. Cullen, gr. to W. Wentworth Buller, Esq., of Strete Raleigh, Exeter; but they unfortunately arrived too late for exhibition. The C. caudatum was grown in a cool house, and was sent as an illustration of what cool treatment will do for some of our most favourite Orchids.

May 2 (*Fruit Committee*).—The fruit shown on this occasion consisted of a well-ripened Queen Pine-apple, a dish of Apples, and a pot of excellent Passion-flower Jelly, made according to the following receipt kindly furnished by Lady Dorothy Nevill, to whom the jelly in question belonged:—Peel and cut the fruit before it gets over-ripe; cover with spring-water; allow the fruit to boil till quite tender; then strain through a jelly bag; measure the juice, and add half a pound of loaf-sugar to one pint of juice, the rind of four lemons and the juice of six, and a small piece of alum; then boil very quickly till stiff enough to turn out of the mould.

Notices of Books.

The Philosophy of Health. By Southwood Smith, M.D. Eleventh edition, revised and enlarged. Pp. 395. Longman & Co. 1865.

The Philosophy of Health was one of the first efforts made to render the main truths of physiology familiar to unprofessional persons. It met with the most marked success—a success sufficiently indicated by this 11th edition. In his ordinary practice as a physician, the philanthropic doctor could not bear to witness the immense amount of misery and disease arising from a neglect of the most common sanitary maxims. He felt that it was useless to try and stem the tide of disease by medicine, while the fountains of corruption were allowed to spread infection all around; so he turned Sanitary Reformer, and used all his endeavours to rouse the country and the Legislature to a sense of responsibility in this matter. After a time it was very generally agreed that prevention is better than cure. A machinery was set in motion which has done great things already, and will do more. Meanwhile modern investigations and the use of the microscope had thrown increased light upon the primary tissues of animal and vegetable life, and the Dr. commenced rewriting a portion of his book, endeavouring still to make the new discoveries simple enough for the unlearned, whilst thoroughly scientific in all points. Death stopped the venerable physician's hand before the work was finished, and on his grandson devolved the task of seeing this latest edition prepared for the press.

The Philosophy of Health is written in a remarkably simple, lucid, forcible style, by one who was evidently a master and lover of his subject, and one moreover who possessed the art of clearly expressing to others what he wished to lay before them. The first chapters on the organisation of animal and vegetable bodies are beautiful examples of this; and his proofs that pleasure is "the direct, the ordinary, and the gratuitous result of the actions of the human organs," are indicative of a highly philosophic and pious mind.

He affirms "that every organ in the animal body is so constructed as to bring about, directly or indirectly, a state of pleasurable consciousness or well-being; that to this object the action of every organ is subservient, and that in this, every such action, when natural and sound, ultimately terminates." Now, that pleasure should be the result of the action even of the organic organs, although one character by which they are distinguished is that they are unattended with consciousness, is singular enough; but Dr. S. Smith shows that by a special provision, consciousness is *indirectly* connected with the processes of this class, limited in extent indeed, and uniformly terminating at a certain point, but the extent and the limitation alike conducing to the pleasurableness of its nature. In fact there are two distinct sets of nerves: the one, which is destitute of sensation, presiding over all the organic processes, and these processes go on without any exertion on our part; the other presiding over sensation and voluntary motion. These two sets of nerves however communicate with one another, and the result is a consciousness—but not of the organic process going on, nor is it simple sensation, but a pleasurable consciousness that all is going on well and properly—it is in fact the pleasurable consciousness which constitutes the feeling of health.

We must quote a few lines on a matter connected with this subject:—"Wholesome food is grateful; the satisfaction of the appetite for food is pleasurable. Food is necessary to the support of life; but it is not indispensable to the maintenance of life that food should be agreeable. Appetite there must be, that food may be taken, but the act of eating might have been secured without connecting it with pleasure.

"Pleasure, however, is connected with it; first, directly, by the gratefulness of food; and secondly, indirectly, by the due digestion of the food. And the annexation of pleasure in this two-fold mode to the performance of the function of nutrition is another case of the gratuitous bestowment of pleasure, another instance in which pleasure is communicated for its own sake, and rested in as an ultimate object. Pleasures of this class are sometimes called low; they are comparatively low; but they are not the less pleasures, because they are exceeded in value by pleasures of a nobler nature. Organs of sense, intellectual faculties, social affections, moral powers, are superadded endowments of a successively higher order; at the same time, they are the instruments of enjoyment of a nature progressively more and more exquisite."

Dr. S. Smith's description of the complicated processes of mastication and deglutition is singularly beautiful. It is, however, too long for us to more than glance at.

"Mastication, a rough operation, capable of being accomplished only by powerful instruments, which act with force, is carried on in the very same spot with sensation, an exquisitely delicate operation, having its seat in soft and tender structures, with which the appropriate objects are brought into contact only with the gentlest impulse. The agents of the coarse and the delicate, the forcible and the gentle operations are in close contact, yet they work together not only without obstruction, but with the most perfect subserviency and co-operation."

"Without some degree of attention to the process of eating, and some distinct perception of its gratefulness, the food cannot be duly digested. When mastication is completed, and the next process, the first stage of deglutition, has begun, the agency of volition and sensation ceases. Beyond this the function of digestion is wholly an organic process."

"Mastication, a voluntary process, may be performed slowly or rapidly, perfectly or imperfectly, without serious mischief; but life depends on the passage of the food through the pharynx with extreme rapidity and with the nicest precision. It is, therefore, taken out of the province of volition, and intrusted to organs which belong to the organic life, organs which carry on their operations with the steadiness, constancy, and exactness of bodies whose motions are determined by a physical law."

The last chapter contains an elaborate account of the nervous system, and in these the results of the later discoveries of modern science are embodied. There is a great abundance of plates, which are principally new. The work is, as we have stated, perfectly adapted for a popular treatise, and has the great merit of being such as the most refined ladies might peruse without the slightest discomfort.

The New Testament, illustrated by a plain explanatory Commentary, and by authentic views and photographs. Edited by Archdeacon Churton and Rev. W. Basil Jones, Prebendary of York. 2 vols., small 4to, pp. 796. John Murray. 1865.

A good and well-printed neatly-bound portable New Testament, with a simple, brief, but trustworthy commentary, such as an ordinary reader of the Scriptures requires, and where the explanations may be found without having to turn over a quantity of pages, has long been a great desideratum.

Mr. Murray has just published a work of this kind in two attractive-looking volumes, which are pretty sure to meet with the approbation of the very large class of persons for whose special use they are intended. There are two features of it which are especially deserving of notice: the first, respecting the commentary itself and the general arrangement; the second, respecting the skilful use of photography for giving Western nations some idea of Eastern scenery and customs.

As regards the first point, we all know that the Biblical student must work with his Greek Testament before him, and must be ready to consult a variety of authors, and to weigh their often contradictory comments one against another. But this is not the case with the ordinary English reader, who is quite satisfied with the authorised version, and would only be bewildered by a multiplicity of explanations, each more unsatisfactory than the preceding. He would much prefer that the learned should settle matters of criticism and interpretation amongst themselves, and that the general drift and result of their labours should be gathered up in a few words for his instruction and guidance. The object which the editors had in view is extremely well expressed in the preface. "It was intended to supply a plain explanatory comment for private or family reading, that the reader might find any difficulty in the sacred text, as it is represented in our faithful authorised version, removed or elucidated by a brief paraphrase, a comparison of a parallel passage, or a short inference of implied truth in doctrine or practice. It was desired especially to avoid the fault which almost invariably besets more lengthened commentaries—that of inviting attention to the gloss rather than the text. It was wished that any chapter, or portion of a chapter, selected for daily reading might be found so far historically, critically, or doctrinally interpreted, as to leave the words of the sacred lesson itself first and last in the reader's mind."

This intention has been well carried out. The text is beautifully printed, and the short commentary is supplied in the form of notes, on the very page where they are wanted. These are printed in smaller but very clear and beautiful type, and contain less matter, and occupy far less space than the text. We have carefully looked at several important and difficult passages in the Gospels, the Epistle to the Romans, and the 1st of Corinthians, and our impression is that they are sound, clear, concise, and sensible.

The position and character of the editors will be a sufficient guarantee to satisfy most people, that matters of controversy and deep scholarship have been treated with practical judgment, in a work which is intended to be popular rather than critical. Archdeacon Churton edits the Gospels, the Rev. W. Basil Jones, Prebendary of York, the Acts of the Apostles and the Epistles. We observe that Dr. Smith's Dictionary of the Bible is occasionally referred to, and that the table of parallel dates is that which was drawn up by the present Archbishop of York.

The illustrations with which these volumes are adorned demand a special notice. They are very numerous, amounting to about 120, and are taken, a few of them from pictures by Overbeck and Laborde, many from sketches made on the spot by the Rev. S. C. Malan, but for most of them we are indebted to that beautiful art which enables the photographer to represent the scenery of foreign lands with absolute truthfulness. It was a happy idea, to say the least of it, to think of familiarising the English reader with those scenes which must ever have a peculiar interest for the Christian, and to carry out the plan by means of sun-pictures. We cannot all visit the Holy Land and see Bethlehem where the Saviour was born, or Nazareth the scene of his early life, the banks of the Jordan, or the shores of the Sea of Galilee, which were so often trodden by his feet; but all these localities, still bearing as they do the general natural aspect that they wore in those days, are vividly brought before one's mind in the sketches of Mr. Malan, and the yet more beautiful photographs of Mr. Graham. We need say no more to recommend this work.

Railways. A Plan for their Reform. Pp. 175. Longman & Co. 1865.

The writer of this pamphlet says he was a member of the House of Commons when railway history began, and he then urged six standard points, viz., uniform gauge, 1*d.* a mile maximum charge, &c. He vigorously opposed the first Great Western Railway Bill, and flatters himself it was the "hardest, longest, and costliest contest" in the annals of such Bills. He thinks that the companies then needed protection against the exactions of landowners. Now, however, the case is quite altered, and the public needs protection against the exactions of a gigantic monopoly. Most people will so far agree with the venerable M.P. The honourable gentleman still sticks to his original six points, and is fortified in his opinions by the signal success of the penny postage, which it seems was always a hobby of his, and indeed forms the staple of his pamphlet. From the postage statistics he proceeds to draw analogies on which to found his calculations, though he candidly admits that they can only be rude approximations. Thus, whereas the increase of letters was 122¼ per cent. in the first year after the reduction of postage, and so much per cent. in the next year—he assumes that the increase in the number of passengers in the first year of a reduced rate of railway fares would be 100 per cent., and so much in the next year. So that, if the railway companies lost rather over three millions in the first year, in consequence of the reduction which he recommends, things would very soon right themselves, as has been the case with the Post Office. Again, he finds that reduced postage gives 21 letters to each individual in the kingdom, and does not see why reduced railway fares should not cause two-thirds of the population to travel 20 times in a year.

We all admit that railway matters need reform, and must have it before long; but surely to ground such changes as he would make in our gigantic railway interest upon the mere assumed analogy of letters and postage, is an abuse of arithmetic, figures, and statistics.

In the *Transactions of the Scottish Arboricultural Society* (vol. iii. part 2) is a capital article on the Introduction and Cultivation of the newer Coniferæ and other Forest trees, by Mr. Hutchison of Carlowrie, from which we shall endeavour to make some extracts shortly. The writer is of opinion that far too little attention is paid to the habits and requirements of such trees; and that arboricultural knowledge is at a low ebb amongst foresters and gardeners. "A little more encouragement given when intelligent oversight and successful or skilful management are displayed, would, as in other branches of industry, give such an impetus to forestry as would place the science of tree-growing in the position which its importance to landed proprietors and its national commercial value demand."

The Apiary.

"I HAVE," says "J. B.," a correspondent, "read with much interest your Apiarian articles, and will feel obliged by a little more information respecting ARTIFICIAL SWARMING. This spring I lost all my Bees but one hive, a large old-fashioned straw one, which is now very strong. I want to increase them as much as possible by making them swarm. Can I turn to account some hives in which the bees died this spring? One is full of nice clean combs, with ever so much honey in them; another is about half full of combs, with very little honey in them. They are both large straw hives. I suppose the operator must have his hands and face carefully covered when performing the operations you describe, as the bees would be more spiteful than when they swarm naturally. Any hints on the subject will be thankfully received."

If, as "J. B." says, the combs in the two deserted hives are tolerably clean and good, the hives can be used with great advantage. It must be ascertained that there are no dead bees, forming a putrid mass near the crown of the hive. Owing to the long-continued inclement weather, many stocks have perished from damp and cold; the bees are generally clustered as in life, but with many in the cells, and all in a state of decomposition. If such should be the state of the hives, cut out all the combs so tainted, but if otherwise, by all means make use of them as they are.

Our correspondent can very advantageously adopt the plan of artificial swarming, having two hives already furnished with nice clean combs. As soon as any drones are perceived on the wing from the strong stock, the first artificial swarm may be forced. Follow the directions for DRIVING, given at page 367, with this difference: having only one stock to operate on, it is not necessary to be particular to drive out every bee from the hive we will call No. 1. The old stock may be returned to its usual stand. The hive with the expelled bees may be tied up in a coarse cloth, giving plenty of air underneath, and removed to a cool dark place until evening. When nearly dusk, a cloth may be spread on the ground, two sticks laid at proper distances, the bees knocked out with one sharp blow on the sticks, and the hive into which it is desired the bees should be transferred placed gently over them, resting on the two sticks. Some bees may still be left in the empty butt, these must be shaken out near the rest. The bees will quickly find their way among the combs, and may be removed to their destined position in the apiary. Should the operator by any chance have failed in obtaining the queen, the bees will return during the following day to their old hive. Even should her majesty be among the driven lot, it is probable that many will find their way back to their old home. Therefore it is well, if possible, to send the expelled bees to a distance of a mile or more; from whence they may be brought back in a few weeks. Supposing all to be right, in about three weeks from the time the hive No. 2 was peopled, the tenanting of the other hive No. 3 may be proceeded with. There are various ways of effecting this object. The experienced apiarian would be guided by the strength of the two hives in his subsequent operations. One plan is to drive out the bees from No. 2, following the same course as adopted with the first swarm made, leaving a sufficient number, with the young bees now rapidly emerging from the cells, to hatch out the brood. This hive will now have to raise a queen, and it will hardly be safe to attempt any further increase from it.

A second plan would be to expel all the bees from No. 2. They may be at once driven into the hive of empty combs, which will save another operation. The new swarm, No. 3, is allowed to occupy No. 2's stand, so that all the bees are saved to it. The first driven stock, No. 1, is now to be removed to another part of the garden, and No. 2 is take its place; a sufficient number of foragers will return to hatch out the brood, and raise a queen. The chief objection to this plan is that the young queen which has been reared in No. 1 may not have succeeded in the object of her matrimonial flights, and may, on the next occasion of her leaving her hive, return to the locality with which she is familiar. It is not likely that any injury would accrue to herself, as she would return among her own bees, but as there would be no brood or eggs in the hive from which she came, no new queen could be raised, and the loss of the hive would be the result.

A third mode of effecting the desired object would be, in four or five weeks after No. 1 was first driven, when in all probability the young queen will have commenced her egg laying, to again drive out a great part of the bees, which, with the young queen at their head, will form No. 3, into a nice stock. No. 1 must remain on its own stand, and the new hive, No. 3, had better be tied up in a coarse cloth and removed within doors for 24 hours. If this third plan is adopted for finding a population for No. 3, a swarm may very shortly be taken from No. 2 which will increase the apiary to four hives.

If the original hive No. 1 is sufficiently populous to allow of the first operation being performed early in the season, a second edition of artificial swarms may be made later on in the summer when the first batch of hives shall have become populous. If such an increase is desired, the bee-keeper must not only not expect to obtain any honey harvest, but must be prepared to feed some of the later swarms very liberally should the summer turn out an indifferent honey year. The later swarms would have no advantage from combs already built for their use. The two first artificial swarms, from being supplied with combs, will be in a state to afford an additional increase in a few weeks after their formation. Unless a large number of hives is required, we would recommend "J. B." to be satisfied with an increase of three or four only from the original stock. The apiarian with only one stock labours under a greater relative disadvantage than with two original stocks, as he cannot carry out the transposing system as detailed in our former paper. And again, he who manipulates with bar or frame hives has an infinite superiority over the former. He has the power of making available any supernumerary royal cells, or of forming small artificial swarms with a single brood comb and a few bees.

If "J. B." should fear to carry out the foregoing instructions, he can probably attain nearly all he desires by trusting to the chances of natural swarms. Let the hive which is about half filled with combs, be tenanted with the first swarm. If a second swarm should issue, let that be hived into the other. The first swarm will most likely throw off a swarm in about four weeks, which may be placed as usual in an empty hive. If there should be any further issues the bees can be united to one of the other swarms. This will give four good stocks, with which one ought to be content. It is well to have the face and hands protected, at least during the early part of the operation of driving, but after being subjected to a few minutes drumming the bees usually are so subdued that all protections may be thrown off—and the rest of the manipulations effected without them. The best bee-dress is a simple bag of black net, just large enough to go over a broad-brimmed hat and be tucked in under the waistcoat collar. Sleeves of the same are neither required nor useful. The gloves may be of some woollen material, to which are attached the leg portions of woollen stockings or socks, to be drawn over the sleeves of the coat. The best gloves are those of india-rubber, such as are used by photographers. The only objection to them is that of confining the perspiration, and making the hands uncomfortably hot. In operating on vicious bees it will be necessary to tie round the bottom of the trousers. We should advise the beginner to be well protected, as the feeling of perfect security tends to confidence and the proper performance of all that may be required.

R V., Exeter. No time should be lost if you wish to remove your hives to another garden. A month earlier would have been preferable. As you say the distance will be at least a mile and a half between the old and the new localities, it is not likely that many bees will return to their old stands. The apertures in the crown boards of your hives, as well as the entrances, should be covered with perforated zinc, to ensure proper ventilation.—*Amateur.* On no account use chloroform for the purpose of transferring your bees from common into frame hives. It is most uncertain in its results: we have known many stocks of bees totally destroyed from its effects. "Driving bees" is by no means so difficult as you imagine—persevere, and try again; when you have once succeeded in it you will never resort to any means of fumigation or stupefaction for the purpose of dislodging bees from their combs.

Garden Memoranda.

MR. BULL'S NURSERY, CHELSEA.—Straying in here a few weeks since, on the look-out for winter flowers and charms, I soon found myself absorbed in the contemplation of new plants. To begin with the stoves. Here I found a little plant, itself as hardy as Watercress, which somewhere or other had taken a freak and become distinctly variegated, and by somebody or other had been sent to Chelsea, to be steamed and roasted at such a rate for the purposes of propagation as never before could have happened to our little friend since those days, ages ago, when the great flood of heat came down, softening and genialising our then ice-bound latitudes, and driving all tiny subjects that liked to "take it coolly" to the hill and mountain tops. The plant is the popular spring flower Aubrietia purpurea with a distinct marginal variegat on, which is thoroughly constant in the plants, whether in the stoves, greenhouses, or cold pits. Only fancy what a charming edging this will make, more particularly when the numerous blue flowers are elevated above the half-whitened compact foliage. The Cruciferæ have afforded us some capital variegated and edging plants, but in most cases the colour of the flowers comes much too near that of the variegation—here we have a "true blue" for a contrast. As far as I could judge, it is likely to be most useful and desirable for all gardens.

One might think that it is almost time for this comparatively insignificant little planet of ours to be exhausted of startling novelties for the plant-house, so much has it been ransacked of late; and when one does meet with a very "distinguished party" like the Cyanophyllum or Sphærogyne, a shabby little suspicion will sometimes come to the surface and say, "we shall not wonder at your like again," but the cry is "still they come," and a sad day it will be for horticulturists when it is otherwise.

But the "after ourselves the deluge" people need have little misgiving about a supply of new plants during our day and generation, as may be seen here. What fine-looking batch of young plants are these with large leaves, the young ones of a pleasant reddish tint, the midrib in all the leaves of a bright reddish pink—looking very striking in the older and greener leaves, and almost every portion covered with short thick stiff hairs? It is Sauranja sarapigiensis, a plant worthy of association with the Sphærogyne and Cyanophyllum. Leaves on one older plant were 20 inches long and 8 to 9 across. With our good plant growers they will probably be more. Pachycentra Walkerii, from Ceylon, with sparsely ciliated leaves dusted over with minute crystal-like spots, and the habit of a scandent Ficus, is said to flower and "bract" in the way of Medinilla. Cupania undulata, from South America, is a plant with pinnate leaves, their edges very wavy—a graceful subject altogether. A new Sphærogyne! and a very fine one too, with the stem densely covered with short woolly matter, the leaves large, and of a light green, unlike the other species, is named S. cinnamomea.

Passing by a new Maranta, Van den Heckei, several fine new Figs, and numbers of their companions in novelty, I come to a class of plants said to be new to science—the genus Urospatha, of which Mr. Bull has a large stock—the species not yet named. They have creeping rhizomes, like some Ferns. There are hundreds of rhizomes starting into growth, and an odd plant in leaf here and there, just sufficient to give one an idea of their distinct aspect. The leaves are of a firm leathery texture, mostly fretted and spotted over with pink; in their present state not large, but probably they are not nearly so quick-growing as the Caladiums, the more especially as they are leaves that remain on all through the winter. They are mostly of a singular sagittate form—those of one kind looking exactly like a cordate leaf that had been cut from its centre to the middle of each shoulder with a pair of scissors. In others the basal lobes become enlarged after receding from the apex of the petiole, and taper again into an acuminate point. The lobes in this and another species being much larger than the apical portion, seem to have the effect of causing the leaves to hang with the basal lobes downwards, so that if distillation takes place in this section of the Arum family, it will probably be by a double channel and a reversed outlet.

Here again *is* a plant! Its name is Bertolonia margaritacea, and it is furnished with leaves 4 to 5 inches long and 3 to 4 broad, of a purplish-olive colour, with a narrow gleam of purple along the ribs, somewhat of a Cyanophyllum hue, and on the leaves are regular rows of spots of snowy whiteness, just exactly like those on the best marked Sonerila, but a much magnified Sonerila would hardly be so beautiful. If asked to indicate its merit, as is frequently done by laying down the number of miles worth travelling to see it, I would scarcely know where to stop. And this is an introduction of Mr. Weir's, whom I have heard accredited with sending home "nothing but rubbish!" It was sent out by the Horticultural Society at a stage when its beauty could not be seen, and has, I believe, been lost by most people to whom it was sent—probably not being sufficiently established at the time. Did Mr. Weir introduce nought else, it is sufficient to make his journey remembered.

Many things, such as the excellent Cycas Riuminiana; the Silver Palm, Calamus dealbata; the Weeping Willow of Australia, Dammara Moorei; the ivory-stemmed Dieffenbachia; a Japanese Ardisia, with roundish variegated leaves, and numerous other plants exhibited last season, though all new, are yet passed by as comparatively old in this place, in consequence of the advent of still newer subjects, among which is Allamanda Hendersonii, which is said to be a remarkably free-flowering kind, in addition to other distinctions; a batch of new Dioscoreas, with silver-blotched purplish leaves; and a goodly collection of Pandanuses, including P. ornatus, in the way of P. elegantissimus, but smaller and even more graceful; P. Biancoi, with very long arching leaves; P. latissimus, the handsomest of the broad-leaved section; P. Vandermeerschi, a dwarf, graceful, light green species. Also Phrynium macula-

tum, with delicate though distinct yellow marblings; and the fine Anthurium cordifolium.

There are tubers beginning to grow of one species of the highly curious genus Amorphophallus, and another is soon to follow, but it is perhaps wiser to see the plants developed before saying anything of them. Judging from the plate in *L'Illustration Horticole* they look like gigantic arborescent specimens of Arum Dracunculus. A spiny-leaved Hibiscus, the true H. ferox, is more like a sturdy Solanum or shrubby Nettle; and what a very odd Xanthosoma is this, with a little attempt at a leaf, situated on the midrib on the under side of the large normal leaves. These little hooded abortions occur regularly on every leaf, and give the plant a very singular character.

Among Ferns, of which there are many new here, Asplenium myriophyllum is one that will become widely spread, for its habit is exceedingly graceful and refreshing, many as are the lovely Ferns we have seen; and its divisions are very minute. There is also a new seedling Gymnogramma like G. Wetenhalliana, but golden; Ophioglossum palmatum, an extremely rare Fern, though known to botanists for a century and a half; Lastrea varia, a distinct and fine Fern; and a curious Fern which Mr. Bull, supposing it to be a hybrid between Pteris serrulata and P. cretica, calls P. serrulata cretica variegata; it is well variegated, and larger than P. serrulata.

Before leaving the stoves, however, I must mention a maculated Dracæna called picta; a new Cyanophyllum; and the fine Amaryllis procera, also called Empresse des Brazils, the flowers of which are blue; the Golden Latania; some new Solanums in the "sub-tropical" direction—one, S. crinitum, said to produce leaves 2 to 3 feet across. Also the true Mangosteen, and the Mustard Tree of Scripture; and a fine lot of Rohdeas, striated and variegated quite differently from the common form—one, called R. japonica aureo-marginata, is twice the size of the old margined Rohdea, and quite erect and rigid.

The new Aucubas are at present one of the chief attractions here. The collection is a very remarkable one, and no doubt destined to work no small improvement in our shrubberies. There are half-a-dozen well-blotched variegated varieties, several with the leaf, except a narrow margin of green, of a clear lemon yellow; and free and excellent looking varieties without any variegation. These I am inclined to think will prove most valuable, especially for towns, for it is reasonable to expect that they should thrive where the variegated form does "pretty well." Of these, Aucuba japonica macrophylla is a fine plant, with leaves of a lighter green than its very dark-hued neighbour, latifolia, which has also very large leaves, and promises to make another noble shrub: maculata is a very fine spotted variety, with broad leaves, quite flat; elegantissima is a great-leaved variety, with one immense blotch of clear yellow, and the remaining green portion lightly dappled over with small yellow spots; elegans is rather deeply serrated, with a broad centre of yellow and dark green margin; sulphurea has the variegation suffused all over the leaf, and is quite distinct from the other strikingly-marked kinds; marginata has the variegation round the leaf margins; and oblonga is another green form, almost sure to make a noble shrub. The Himalayan, Fortune's, the normal male and female forms, and other Aucubas, are all here, Fortune's maculated male being a most likely subject, and yielding more and better pollen than any of the other males. Great as is the immediate pleasure of introducing such fine plants, it is very little compared to what we should experience a dozen years hence when they shall have done much to embellish our islands. I have omitted the "mascula" in naming them, but almost all spoken of are male forms.

I cannot now go over the florist flowers, but must mention a new strain of Mimulus, with hose-in-hose flowers; and so bid good bye to this fine collection of novelties. *W. R.*

Miscellaneous.

The "Great Orchid Show."—Among gentlemen who are not usually in the habit of exhibiting their plants, but who are likely to be worthily represented on Saturday next, the 13th inst., we have heard mentioned the names of Mr. Rucker, Mr. Day, and other eminent growers.

Window Gardens—The idea of "window gardens" is now become general in London, and as it undoubtedly contributes to the cheerful aspect of the exterior of our dull dreary-looking houses, and also to the healthy state of the rooms within, it is well to afford every possible facility for this plan. The impediment generally is, want of width of the window-sill on which to place the flower-pots; also want of some protection to prevent the wind from blowing them down into the street. If builders of houses for all classes, whether rich or poor, would make a wide window-sill with an iron rail, it would be all that is required for a window-garden; and moreover it would enable many a poor family to have the benefit of fresh air from an open window without fear of the little children falling out, which is often a reason for not opening the window. *Athenæum.*

Calendar of Operations.

(*For the ensuing week.*)

The genial rains which have fallen during the last few days will be of great benefit to outdoor vegetation. Indoors however additional attention to watering will be necessary, and great care will be required in its application especially to plants newly potted, in order to keep the soil from becoming soddened and soured. When any plant is observed to be in that state, it should be shaken out, repotted in fresh soil, and more carefully watered for the future. But if this operation is to be of any service in any particular case, it must be performed without delay, as roots are speedily injured and destroyed if allowed to remain in contact with unwholesome soil.

FLOWER GARDEN AND PLANT HOUSES.

In conservatories and other show houses, Rhododendrons and Azaleas will now be in full bloom, and by judicious arrangement both borders and shelves may be rendered extremely gay. If a few red and white coloured Azaleas in the shape of standards are introduced among dwarf plants, either of the same or of other kinds, the general appearance of the house will be greatly improved. Standard plants of Deutzia gracilis, now in full blossom, as well as Cinerarias, and things of that description, will likewise be found useful for purposes of decoration, as will also forced Roses, the blossoms of the scarlet varieties of which are most brilliant. Highly dressed ground should be mown at least once a week after this period, for a well-kept lawn is always a pleasing object.

Annuals.—In the planting out of those which have been raised in frames, it must not for a moment be supposed that when they are placed in the ground they may take their chance. Choose if possible showery weather for the operation; it will save much trouble and disappointment. Dry and keen winds are seriously detrimental to plants of the description we now allude to; and the trouble of previously potting in small pots, and gradually hardening, will be amply repaid by their size and vigour during the summer; for it will be apparent to every one, that the annual which can be placed where it is to flower, with a ball of soil and a mat of roots. will have great advantage over one which has hardly a particle of earth attached to its fibres when planted.

Auriculas.—After these have done flowering they should receive all the air possible; they must also be kept clear of insects, and protected from heavy rains.

Camellias.—Keep such as are making growth well syringed. Should black-fly appear on the young shoots, a good washing with tobacco water will soon destroy it.

Carnations and Picotees.—If not already done these must now be staked in order to keep them from being broken by wind. Remove decaying foliage, if any, and water as often as may be necessary.

Cinerarias.—Remove to a cool shady house such as are required for a late display. Weak liquid manure may be given liberally, say two or three times a week. Look well to seedlings, and place approved sorts apart from the more common kinds for seed.

Dahlias.—Let ground be put in order for these; but do not plant out yet, more especially if the plants can be kept growing on without check. Repot, therefore, as often as the pots they occupy are filled with roots. Give them plenty of air so as to keep them hardy, as they should not be risked out of doors before the end of May.

Pelargoniums.—A slight shade will now be necessary for a few hours on bright days; green fly is occasionally very injurious to them at this season, and therefore the plants should often be fumigated; tie and regulate the shoots according to previous instructions.

Tulips.—Protect the best bed, if not already done, with canvas. Stir the surface between the bulbs when it is in the best state for the operation, *i. e.* between wet and dry.

FORCING GARDEN.

Peaches.—When the fruit is fairly stoned a slight increase of temperature may be allowed, and water may be more liberally applied to the roots. The trees should also be well washed with the engine. Attend to training in the succession house.

Pines.—Early potted suckers or young succession plants will soon have filled their pots with roots. Where such is the case, give them a liberal shift. When dry they had better be watered occasionally with weak liquid manure, *i.e.*, after the plants shall have become sufficiently established to enable them to receive it with advantage.

Strawberries.—These will want abundance of water. They must not be allowed to flag by any means, and if the weather proves warm and bright, they will succeed best in a comparatively cool situation, where they will rarely be attacked by red spider, an evil to which plants forced late are liable.

Vines.—The fruit from pot Vines will now be cut, and in many places that upon permanent Vines will be ripe. Let it, therefore, be remembered that a tolerable amount of dryness in the atmosphere is necessary, in order to obtain good flavour. A free and wholesome circulation of air early in the morning and continued until evening, will be found to increase both colour and flavour. Be very moderate in fire-heat until late Vines approach the period of blossoming. Keep the syringe employed morning and evening until the flowers begin to open; after that it must be discontinued.

HARDY FRUIT AND KITCHEN GARDEN.

Thinning out and hoeing between progressing crops will now be the principal work in the vegetable department. As regards wall trees, disbudding, stopping, and keeping down insects must receive attention.

Broccolies.—Where these are turning in too fast some of the plants may be removed before the heads are too far advanced, to a cool situation, so as to prolong the supply.

Cabbages.—Now that we have had rain, the soil between the rows of growing plants should be well stirred up, and a little drawn to the stems of the plants.

Cucumbers.—Stations should now be prepared for plants to be grown under hand-glasses.

Kidney Beans.—Sow for succession; a few may also be raised in pans to fill up vacancies.

Lettuces.—Sow regularly for succession, and tie up Cos varieties to enable them to heart.

Radishes.—Keep sowing as often as may be thought necessary, both Turnip rooted and other kinds, and water beds from which they are to be drawn for use.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending May 3, 1865, as observed at the Horticultural Gardens.

April and May.	Moon's Age.	Barometer.		Temperature.					Wind	Rain.
				Of the Air.			Of the Earth			
		Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep		
Thurs. 27	2	30.096	29.981	82	42	62.0	55	52½	W.	.00
Friday 28	3	30.004	29.917	77	37	57.0	56	53	W.	.00
Satur. 29	4	30.036	29.973	65	30	42.5	55	53	E.	.00
Sunday 30	5	29.985	29.975	53	23	39.5	54	52	N.E.	.00
Mon. 1	6	29.950	29.924	61	38	49.5	53	52	E.	.00
Tues. 2	7	29.970	29.910	67	36	51.5	53½	51	S.W	.00
Wed. 3	8	29.972	29.846	70	47	58.5	53	52	S.W	.04
Average.		30.002	29.936	66.8	36.1	51.5	54.2	52.3		.13

April 27—Very fine; unusually hot for the season, and very dry, fine at night.
— 28—Uniform haze; very dry with slight haze; overcast.
— 29—Dusky and white clouds; fine; slight frost at night.
— 30—Light clouds; fine; cold N. E. wind; sharp frost toward morning.
May 1—Overcast; cloudy; fine; rain at night.
— 2—Cloudy; fine: windy; fine, with dry air.
— 3—Very fine, with clouds, rain at night.

The 27th was the hottest day that has occurred in April for at least 50 years.

Mean temperature of the week, 2 deg. above the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 39 years, for the ensuing Week, ending May 13 1865.

May.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds.							
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday.. 7	59.4	39.7	49.6	17	0.80 in	6	7	6	2	6	7	4	2
Mon. .. 8	61.4	39.2	50.3	16	0.62	2	6	9	–	6	6	6	4
Tues. .. 9	61.7	39.7	50.7	16	0.60	3	10	8	1	4	11	2	–
Wed. ..10	62.0	40.0	51.0	17	0.33	6	8	6	2	5	7	3	2
Thurs. ..11	62.2	40.8	51.5	17	0.52	6	7	9	1	5	5	3	4
Friday ..12	63.0	41.2	52.1	18	1.14	2	11	6	2	3	8	4	3
Satur. ..13	63.9	38.9	51.4	18	0.66	3	9	8	1	4	8	4	2

The highest temperature during the above period occurred on the 12th, 1833—therm. 81 deg.; and the lowest on the 8th, 1855—therm. 21 deg

Notices to Correspondents.

*** 2s. each will be given for Numbers 6, 9, 18, and 23 for the year 1861.

Boiler: *J L A.* Enquire at Edinburgh or Dalkeith.

Diseased Pelargonium Leaves: *S. Z.* It is the common Geranium spot. The cause is doubtful, but we believe that it often arises from the pots having been allowed to get so dry as to destroy many of the spongelets, in consequence of which the roots get into a bad condition. *M. J. B.*

Ferns from Spores: *Old Subscriber.* There is very little difficulty in raising Ferns from spores, if you really sow spores and not empty spore-cases, as is often done. Various plans may be followed, but a simple one is to fill firmly with sandy soil a well-drained pot, to within an inch of the rim; scatter the spores over the surface; cover with a flat piece of glass resting equally and closely on the pot rim, and set in a pan of water, which is to be kept replenished. A warm place must be selected if for stove Ferns, but a cold frame or any close quiet corner will do for hardy ones. The green scales which are the first visible results of germination will soon show themselves.

Harebell: *C E P.* Dr. Prior, who is one of our best authorities on the popular names of British plants, and has published a very interesting volume on the subject, says that the Harebell is Campanula rotundifolia, according to most English writers—the name being, he suggests, in all probability a corruption of some other wood, perhaps Heather-bell: but that in Scotland, and some English works, including Parkinson, it is given to the Blue-bell, Hyacinthus non-scriptus, alias Scilla nutans, Scott's 'slight Hairbell' which 'raised its head elastic' from the 'airy tread' of Helen, could hardly have been this latter, but more probably, as Hooker states, the Campanula rotundifolia, Harebell or Hairbell seem to be used indifferently; and the same remark applies to some extent also to Blue-bell.

Lead Roofs: *H.* writes:—"Part of my house has a flat roof covered with lead, for the purpose of enjoying a splendid view. Hence this inconvenience, that the upper part of the house is subject to the changes of temperature, being in winter very cold, in summer oppressively hot. Can any of your Correspondents assist me and others similarly circumstanced to a remedy? Would Cocoa-nut fibre, or open planks, or bass matting be a relief, probably a remedy? I shall feel much obliged by information from any fellow sufferer who has hit on an easy means of relief."

Names of Plants: *B M, Torquay.* Aponogeton distachyon, not a native plant.—*M C W.* Brachysema lanceolatum; 2, crushed.—*C E F.* Cystopteris fragilis.—*A J.* The heath-like plant is Fabiana imbricata.—*H C B.* Orchis mascula.—*Faber marinus.* Hakea oleifolia and H. pugioniformis; Acacia Riceana; and the larger one A. leprosa. They were not numbered.—*Primula.* It is P. cortusoides, an old garden plant, of which some very beautiful large-flowered varieties have lately been introduced from Japan.—*C E F.* Athyrium Filix-fœmina.

Out-door Grapes: *Old Subscriber.* Royal Muscadine, Early White Malvasia, Early Saumur Frontignan, white; Black Cluster, Miller's Burgundy, Esperione, black. Any of these will answer your purpose.

Regent's Park Flower Shows: *A E.* We believe that admission tickets for the Royal Botanic Society's Shows can only be obtained through an order from a Fellow.

Robinia Decaisneana: *G R.* You will find a notice of this tree at p. 124. Its fine rose-coloured flowers must make it a very desirable ornamental tree. We are not aware whether it is obtainable yet in this country, but as M. Villevielle offered gratis last spring, no doubt some of our nurserymen will have plants by the next planting season.

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Recommend those who are about to Lay Down or Improve their Pastures or Lawns, to send them full particulars of the nature of the soil to be dealt with, and to state if the land is drained or undrained. They have made the most careful selections for the following MIXTURES, which cannot fail to produce the required effects :—

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30*s*. per acre.

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8 to 12 lb. per acre; 9*d*. per lb., 80*s*. per cwt.

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Mangel Wurzel.
FISHER HOBBS'S ORANGE GLOBE
LARGE YELLOW GLOBE
LARGE RED GLOBE
ELVETHAM LONG RED
LONG RED
LONG YELLOW

Carrot.
WHITE BELGIAN
GREEN-TOP YELLOW BELGIAN
LARGE RED ALTRINGHAM

Beet.
WHITE SILESIAN
LARGE CRIMSON

Swedish Turnip.
SKIRVING'S KING of the SWEDES
HALL'S WESTBURY SWEDE
ASHCROFT SWEDE
MARSHALL'S PURPLE-TOP SWEDE
LIVERPOOL SWEDE
GREEN-TOP YELLOW SWEDE

Yellow-fleshed Turnips.
PURPLE-TOP YELLOW BULLOCK
GREEN-TOP YELLOW BULLOCK
DALE'S HYBRID
YELLOW TANKARD
ORANGE JELLY

White-flesh Turnips.
HARDY GREEN ROUND
WHITE ROUND
POMERANIAN WHITE
WHITE GLOBE
RED TANKARD
STUBBLE STONE
GREY STONE

Miscellaneous.
PURPLE KOHL RABI
GREEN KOHL RABI
LUCERNE
FURZE
MUSTARD
ESSEX DWARF RAPE

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EXTRA IMPROVED VARIETIES OF TURNIP SEED,

Carefully grown from their own Selected Stock; but as the peculiar merits of these are every year becoming better known and appreciated, it is possible that the present supply may fall short of the demand, as was the case last season; and to prevent any disappointment, they take this early opportunity of reminding their regular customers that they may secure in good time what they are likely to require.

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DUMFRIES.—May, 1865.

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From Professor LINDLEY (Editor of the *Gardeners' Chronicle*).
"I have this morning had the Seedling Potatos examined. The crop is very extraordinary, and the Potatos themselves are very handsome, and quite ripe."

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"The Seedling Potato (Prince of Wales), I have found to be wonderfully productive, excellent flavour, handsome, and such a one as the world ought to have the benefit of."

To be had of Mr. JAMES VEITCH, Royal Exotic Nursery, King's Road, Chelsea, S.W.; Messrs. BARR & SUGDEN, King Street, Covent Garden, W.C.; DOWNIE, LAIRD & Co., Forest Hill, S.E.; JAMES CARTER & Co., 237, High Holborn, W.C; SUTTON & SONS, Reading.
Price 12*s*. per bushel.
N.B. They may be planted up to the end of MAY.

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BLUNDELL'S CATTLE MELON.—Heavy crops of this Fruit may be grown by the same cultivation and manure as required for root crops, and ready for feeding purposes before the root crops are ripe. Time of sowing, the months of April and May.
Seed of last year's growth is now ready for delivery at 2*s*. 6*d*. per packet of 50 Seeds, with full instructions for cultivation.
Cash remittances from unknown correspondents.
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Small quantities of Seed may be obtained for experiment from PETER LAWSON & SON, The Queen's Seedsmen, 28, King Street, Cheapside, E.C.

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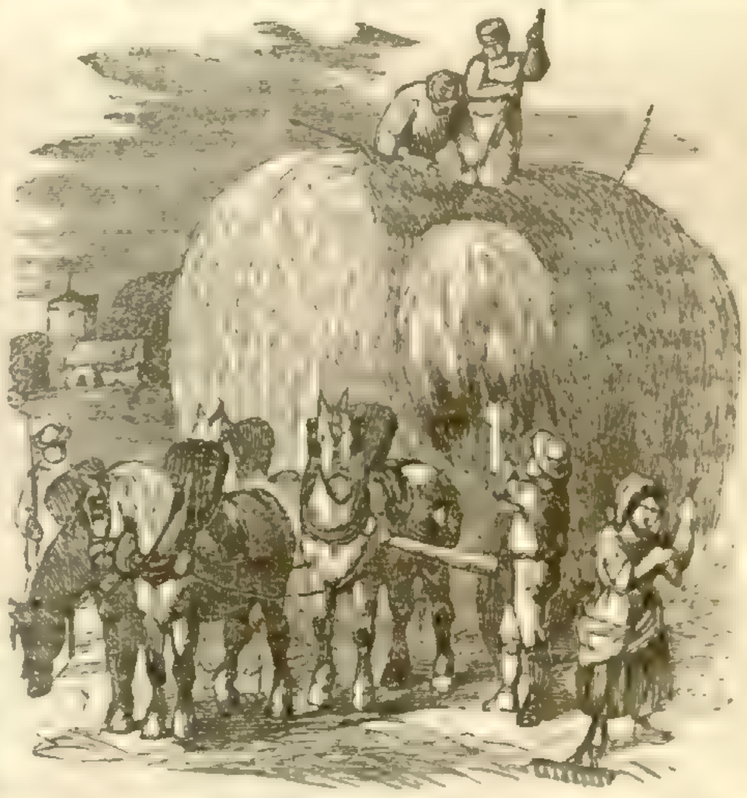

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ROYAL AGRICULTURAL SOCIETY of ENGLAND.
PLYMOUTH MEETING.
LAST DAY for ENTRY of STOCK, JUNE 1.
All Certificates received after that date will be returned to the Senders. H. HALL DARE, Secretary.
12, Hanover Square, London, W.

The Agricultural Gazette.

SATURDAY, MAY 6, 1865.

MEETING FOR THE ENSUING WEEK.

WEDNESDAY, May 10 { Royal Agri. Society of England—Noon. (Mr. Beale Brown on Flax.)

THE effects of manure upon a crop depend so much upon climate—upon the consequent interval between seed time and harvest—upon the consequent tendency to succulent and leafy or to hard woody growth—upon the opportunities afforded for a more or less easy solution and distribution through the soil—that the experience of one locality is by no means necessarily an index or a guide to that of another. And when the localities are so far apart as the Lothians and the Southern counties, it is not at all certain that the results from various manures which the Scottish farmer obtains will follow the corresponding applications here.

Several members of the East Lothian Club have for several years carefully prosecuted a number of comparative trials of various combinations of guano, superphosphate, bone dust, sulphate of ammonia, &c., with and without farm-yard dung—ascertaining the results of each in the case of both grain crop and root crop; and the annual comparison of the several trials, especially interesting to the farmers of the localities concerned, may be less useful and instructive to Southern farmers. We are glad, nevertheless, to take the following particulars from the published report of the East Lothian meeting held two months ago, and especially from Mr.

Melvin's account of them, and of his own contribution to the general report.

The following are the results of three years' trial on his farm at Ratho :—

Lot.	1862.		1863.		1864.		Total.		Three Years' Average.		Produce beyond 10 Tons 9 cwt.		Cost of Manure.		Cost of the excess of produce per Ton.		Lot.
	Tons	cwt.	Tons	cwt.	Tons	cwt.	Tons	cwt.	Tons.	cwt.	Tons.	cwt.	s.	d.	s.	d.	
E	22	2	24	5	26	2	72	9	24	3	13	14	122	0	8	10	E
D	19	14	21	0	21	6	62	0	20	13⅓	10	4⅓	90	0	8	10	D
C	19	14	21	0	21	6	62	0	20	13⅓	10	4⅓	90	6	8	10½	C
B	19	2	21	5	23	14	64	1	21	7	10	18	90	0	8	2½	B
A	19	18	20	0	23	8	62	16	20	18⅓	10	9⅓	100	0	9	7	A
0	6	17	10	2	14	8	31	7	10	9	0	0					0
1	19	8	19	0	24	0	62	8	20	16	10	7	75	0	7	1	1
2	15	12	15	15	24	6	55	13	17	11	8	2	95	0	11	8	2
3	18	0	19	10	21	6	58	16	19	12	9	2	91	6	10	0	3
4	19	8	18	5	22	10	60	3	20	1	9	17⅔	75	0	7	9	4
5	19	11	17	15	20	14	58	0	19	6⅔	8	13⅔	76	3	8	10	5
6	19	12	17	5	22	16	59	13	19	17⅔	9	8⅔	75	0	7	1¼	6
7	19	10	16	0	21	12	57	2	19	0⅔	8	11⅔	73	9	8	5	7
8	19	14	15	0	19	16	55	10	18	10	8	1	79	3	9	7	8
F					18	6					3	18	72	0	18	4	F

The following Table both brings out the results in the order of the cost of Turnips per ton, as obtained by deducting the produce where nothing was applied from that of the several different manures; and it intimates the quantities and kinds of manures that were the subject of experiment.

Manures used—Three Years' Average.

Lot.	Cost per Ton.		Per Imperial Acre.
	s.	d.	
1	7	1	6 cwt. Peruvian guano.
4	7	9	3 cwt. Peruvian and 5 cwt. Bolivian guano.
6	7	11	3 cwt. Peruvian and 5 cwt. dissolved bones.
B	8	2½	6 cwt. Peruvian and 2 cwt. Bolivian guano.
7	8	5	3 cwt. Peruvian and 5 cwt. bone-ash superphosph.
D	8	10	6 cwt. Peruvian and 2 cwt. dissolved bones.
E	8	10	4 cwt. Peruvian and 12 tons dung.
5	8	10	3 cwt Peruvian and 5 cwt. bone-meal.
C	8	10½	6 cwt. Peruvian and 2 cwt. bone-meal.
A	9	7	8 cwt. Peruvian guano.
8	9	7	2½ cwt. nitrate of soda, 2 cwt. dissolved bones, 2 cwt. bone-dust, 2 cwt. Bolivian guano.
3	10	0	Sulphate of ammonia and phosphates, equal to 6 cwt. Peruvian guano.
2	11	8	Nitrate of soda and do. do.
F	18	4	12 tons dung. (One year.)

It may be mentioned that the crop was Waugh's Swedish Turnip, and that the field in which the experiments in 1864 were made had been in pasture for three years previous to 1861, in which year it was Oats followed by Beans in 1862, and Oats again in 1863. In other respects, as to soil, exposure, drainage, and condition, it was similar to the previous trial plots.

The following are the details of cultivation :—Ploughed in November, 1863; grubbed 5 inches deep in the first week of May, 1864; again 7 inches on the 11th; harrowed smooth, drilled up into 27-inch rows on the 13th; manure sown, dung applied, drills split, and seed sown on the 14th.

That which most strikes the Southern farmer on looking at these figures is the enormous quantities of the so-called "light" manures which the Lothian farmer uses. Nevertheless, the result of their application is declared to be profitable. Mr. Melvin values the Swedish Turnip as grown in his county at 10*s.* a ton, which is a good deal more than it is worth as grown, for instance, in Berkshire or in Hampshire; but it will be seen that in almost all the above instances the excess of Turnips due to artificial manure was obtained at a lower cost than 10*s.* a ton. Indeed, as Mr. Melvin states :—

"Of the importance of the application of light or hand manures, there can be but one opinion. Universal agricultural experience has settled that. The fact that 25 years ago a few hundred pounds would have paid for all these substances imported into Leith, whereas now it would require a quarter of a million to do so, is conclusive as to this. Mr. Harvey has estimated that 100,000*l.* is annually spent in your county on manures. On many farms, taking into account the manure made and bought, this item equals the rent, and in certain cases exceeds it."

Mr. Melvin adds,—"In going over the experiments for the three years by Mr. Shirreff, Mr. Smith, Mr. Richardson, and myself, I find the following to be the results per imperial acre:—

	Aggregate Grown.		Average of three Years.		Cost of Each.		Value of crop at 10s. per Ton.			Surplus after paying for Manures.			Gross Produce in order.		
	T.	C.	T.	C.	s.	d	£	s.	d.	£	s.	d.	T.	C.	
E	91	10	22	17	122	0	11	8	6	5	6	6	22	17	E
D	86	6	21	11	90	0	10	15	6	6	5	6	21	13	B
C	83	18	20	19½	90	6	10	9	9	5	19	3	21	11	D
B	86	13	21	13	90	0	10	16	6	6	6	6	21	1	1
A	83	17	20	19	100	0	10	9	6	5	9	6	21	1	4
1	84	4	21	1	75	0	10	10	6	6	15	6	20	1[illegible]¼	C
2	80	11	20	3	95	0	10	1	6	5	6	6	20	19	A
3	82	5	20	11	91	6	10	5	6	5	14	0	20	16	7
4	84	5	21	1	75	0	10	10	6	6	15	6	20	16	8
5	82	19	20	15	76	9	10	7	6	6	11	3	20	15	5
6	82	11	20	13	75	0	10	6	6	6	11	6	20	13	6
7	83	5	20	16	73	9	10	8	0	6	14	3	20	11	3
8	83	5	20	16	79	3	10	8	0	6	8	9	20	3	2

To deduct the cost of the manure from the value of the crop is perhaps the readiest way in which we come to ascertain the profit to be derived. Proceeding in that manner, and estimating the value of Turnips at 10*s.* per ton, we find that the following are the profits derived in each experiment :—

Results in Order of Profit.

1. 6 cwt. Peruvian guano	£6	15	6
4. 3 cwt. Peruvian and 5 Bolivian	6	15	6
7. 3 cwt. do. and 5 bone-ash	6	14	3
6. 3 cwt. do. and 5 dissolved bones	6	11	6
5. 3 cwt. do. and 5 bonemeal	6	11	3
3. 2½ nitrate of soda, 2 cwt. dissolved bones, and 2 Bolivian guano	6	8	9
B. 6 cwt. Peruvian guano, 2 Bolivian	6	6	6
D. 6 cwt. do. 2 B bones	6	5	6
C. 6 cwt. do. 2 bonemeal	5	19	3
8. Sulphate of ammonia and phospho] equal to 6 cwt. Peruvian guano	5	14	6
A. 8 cwt. Peruvian guano	5	9	6
2. Nitrate of soda and phosphates equal to 6 cwt. Peruvian guano	5	6	6
E. 12 tons dung and 4 Peruvian guano	5	6	6

It will thus be seen that what they bring out is that 6 cwt. of Peruvian guano is the most profitable application in the Lothians; but the same result is also brought out with 3 cwt. of Peruvian and 5 cwt. of Bolivian guano. It is clear from this, therefore, that natural guanos are more profitable than dissolved bones and the other substances named.

It is hardly likely that this would be found true here. There seems to be more need of ammoniacal manure in the North than in the South. We find in the Southern counties that superphosphate is as effective for the Turnip crop as Peruvian guano.

HORSE RACING A MECHANICAL PROCESS.

Some subjects, it is said, require to be written the one half as an apology for the other half, and most probably our readers may feel disposed at first sight to conclude that the one we have chosen to discuss at this time belongs to the number. But be this as it may, we shall proceed as if the contrary were the case, on the ground that a horse is a machine, and locomotion a mechanical process. Doubtless, the horse is one of those domesticated animals upon whose merits a greater portion of the general public consider themselves qualified to pass an unbiassed judgment than upon any other. To determine the merits of beasts and sheep, on the contrary, belongs almost exclusively to the practical farmer. Very few of the manufacturing and commercial classes, or even of landowners, will pass an unqualified opinion upon them. But the case is very different with the horse, for who is it that does not know the good from the bad? And the obvious reason of this is the simple fact that the horse is the obedient humble servant of all.

Swiftness of progression is natural to the horse. Hardly has the foal got upon its legs than it begins to gallop, as if to prove the soundness of the proposition experimentally; and both in a domesticated and wild state the same normal characteristics are exemplified, not only in early life but throughout the whole period of his existence, so that there is more than a faint shadow of a reason for the old conclusion that his natural function is to carry the lord of creation (man) across the country at the gallop, either upon his back or in a carriage or chariot. In point of fact such was the practice of the early inhabitants of the world, the horse being then almost exclusively employed for either the one or the other, or both these purposes, as occasion required.

Mankind, however, have made many discoveries, and amongst others the application of the strength of the horse in hauling implements, &c. Hence the existence of two methods of testing his utilitarian value—the one by "a race," and the other by "a pull in a cart" or the like. In this paper we shall mostly confine our observations to the former, "horse racing," and some of its anomalies, from a mechanical point of view.

Saddle horses, and those intended to run in harness, as in carriages, cabs, dog-carts, &c., have all to show their mettle and movements in a race, and most draught horses, too. The plan is natural, and although some farmers who breed horses largely are opposed to horse racing in a certain sense, yet when brought alongside a near neighbour in going to or coming from market they are just as willing to show a good whip hand in a "trotting match," as those who go the whole length and breadth of the turf on the Derby Day. The test as to which is the best horse comes naturally, as we have said, and therefore it cannot be helped, let the result be a victory or its contrary.

Walking, trotting, cantering, and galloping are mechanical processes differing very widely the one from the others, and all who have any useful experience in horses are familiar with the fact that animals whose function is to walk, as farm horses, ought not to be trotted or galloped; that those whose function is to trot, ought not to be galloped; and that horses whose function is to gallop seldom or never do well in harness. They are also familiar with the fact that horses are subject to physical training, so as to excel in any of these several locomotive processes; but when we enter upon the mechanical and physiological data upon which these facts are based, a lack of information is generally experienced—hence the opinions, prejudices, and anomalies that arise about the improvement and deterioration of breed, and so forth.

It is an established mechanical law that "speed can only be gained at the expense of power"—other things being equal; and this law applies with equal force to the mechanical construction of the horse as to that of any inanimate machine. Into the details of the normal mechanism of the horse we cannot enter, as that inquiry would do more than fill our limits as to space. Suffice it for the present occasion to say that the mechanism of a draught-horse, whose speed has been physically trained to three miles an hour, is different from that of the carriage horse whose speed is ten miles an hour; and that walking and trotting horses differ from the hunter and race horse, whose respective speeds are, the former 20 miles an hour, and the latter a mile per minute; and that these differences are recognisable by any tyro in animal mechanics, simply from the external anatomy and symmetry of the horse. These degrees of speed the reader will readily perceive are off-hand, even numbers intended rather to illustrate principle than actual practice, save in a few exceptional examples to which they may apply.

Of the nature of the muscular power or contractile force of the muscles that actuate the levers or bones in walking, trotting, and galloping, comparatively little is known with that degree of certainty necessary to solve the physical question involved. So far as it is a purely mechanical process, it is subject to the established laws of mechanics, every contraction and elongation being attended with a certain amount of tear and wear, so that the active muscles decrease in power during the time of a journey. The amount of tear and wear in a given time is also as the velocity or speed of the horse and quality of the muscle—these and other mechanical data involved are determined, but when we enter upon the chemico-physiological data, hardly anything conclusively can as yet be said that is worthy of credence. Authorities, it is true, talk of "irritability," of "electricity," of "nervous action," of arterial action from the lungs, and so forth, but when they have each and all told their respective stories the reader is left about as enlightened as before. The probability is that there is some degree of truth in the most unlikely of them; so that until discovery makes farther progress, the physical *rationale* may be considered a conjoint affair—an hypothesis which is sufficient to exclude opinions and prejudices contrary to the several branches of physical science thus involved.

The reader will perceive that these mechanical and chemico-physiological data support the views of those practical men who contend that the breeders of thorough-bred horses at our national "Derby-days," &c., at Epsom, Ascot, &c., are carrying horse racing to an extreme injurious to the true type of the blood horse considered as the normal standard of his race. A very sober share of common sense, to say nothing at all about animal mechanics and physiology, ought to satisfy the most enthusiastic member of the Turf that the whipping of such a highly spirited animal to a mile per minute is carrying the process of physical training to acquire an increase of velocity at the sacrifice of muscular power many degrees too far. But it is, practically speaking, the experimental solution of the problem—how best eventually to convert the locomotive symmetry of the blood horse into that of the hare, is borne out by the increasing number of weedy animals that everywhere abound. No doubt a limit ought not to be set to physical training in a certain sense, that is to the greatest possible speed that can be attained for the express purpose of the racecourse; but the objection does not apply to any useful purpose to which the services of the horse are required, and therefore it falls to the ground, for it was never intended that man should cross the country on horseback at the rate of a mile per minute! And what is perhaps a more conclusive practical refutation of that absurd theory of speed is the fact that a breeding stock up to this speed has never yet been attained, the contrary being invariably the ultimate result, which unquestionably proves it to be a degree of speed unnatural.

The physical data thus taught by experience, so far as gone, indicate (1) that the natural speed of the horse is sufficient for any useful purpose; (2) that to increase the speed beyond the natural rate the normal mechanism or symmetry is sacrificed, together with muscular power, and consequently durability of action; and (3) that to increase normal muscular power by physical

training we also gain durability of action, but lose speed, as in the case of the dray horse.

It will, doubtless, be no easy matter to make these general conclusions harmonise with the peculiar opinions of some of our readers relative to the management of horses, more especially as regards the improvement and deterioration of breed, about which so much has recently been said. But this suggests the propriety of practical men reconciling their opinion and their differences by a closer acquaintance with the physical data in question, so as to be able to trace physical changes in mechanism and muscular power to the physical causes that produce them, and *vice versâ* to trace the effect produced by certain physical causes to its ultimate result when change continues to go on by the unremitted action of the primary cause for a length of time.

In the controversy now being prosecuted relative to the deterioration of the breed of horses for saddle and carriage purposes, a common error fallen into is the attributing the deterioration of breed to breeding from inferior stock. This is manifest, for breeding from inferior stock is not the physical cause in question, the physical cause being on the contrary that which produces the inferior stock bred from. Hence the nature of the fallacy; the very contrary of the dogma thus taught being true, the *vis medicatrix Naturæ* always having a tendency to restore deteriorated organism to its original normal state. The deteriorating cause may be either the food, climate, or management, or two or more of these acting conjointly or otherwise.

This fallacious dogma relative to the deterioration of breed is neither less nor more than a futile attempt to father our own misconduct on to the shoulders of Nature. Can anything be more unjustifiable than this? Certainly not; and the following apposite case as negative proof will further illustrate its objectionable character. Thus, if for the sake of argument we assume that the opinionative dogma is true, then the improvement of breed becomes impossible, and deterioration as a matter of necessity must continue to go on until it has attained the minimum limit in this retrograde direction. But the contrary of this hypothesis is true, for the best blood horses obtained from the East were greatly deteriorated as compared with the original stock, so that by breeding from them (a deteriorated stock), we have greatly improved the breed; while by a still more improved practice or physical means, the blood horse may be advanced much nearer to his original standard of excellence than has yet been attained.

Another error is to attribute to exercise in physical training what does not belong to it. Although exercise, for example, is essentially necessary to the growth of bone, nerve, and a healthy normal state of the fluids, as well as to the brawny development of muscle, it nevertheless follows that unless this exercise is natural, and the food, climate, and other conditions are also natural, the very reverse of physical training, and the normal development of parts will be the inevitable result. In point of fact, the physical effect produced by exercise is the tear and wear of the several parts thus exercised as already shown. It is the greater stimulus or counter action that follows natural exercise that produces the extra development of parts, which is a chemico-physiological and not a mechanical question.

The only other error that we can individualise at this time out of the many which remain unnoticed has reference to fallacious opinions as to the best food for horses. Thus, one thinks this mixture, another that, while both are equally far from the natural requirements of their respective studs. Two others, again, are agreed, and give consequently each identically the same kind of dietary, although the climates and other conditions that indicate a difference of diet are very different. We have here two classes of erroneous practices, and it were difficult to say which is farthest from the physiological requirements of the horse, or which is the most calculated to deteriorate breed.

If breeders would learn to distinguish between chemical and mechanical processes and causes, they could hardly fail to discover their errors, and thereby be able to reconcile their jarring opinions with the physical data exemplified in the facts of the case. Exercise, if natural for example, is auxiliary to sending the arterial blood from the heart and the capillaries, and of withdrawing the venous blood therefrom, also of excreting from the system refuse matter unfit to be returned into the circulation. So far the four mechanical processes harmonise, but the effect produced by their individual and joint action is a certain amount of tear and wear upon the parts exercised. Hence the chemical processes of separation that follow, in which Nature, to fortify parts for a similar amount of exercise, makes the parts stronger. It is the arterial blood that supplies these chemical processes with fresh materials for the reparatory work, and these fresh materials are in their turn derived from the daily food consumed. If the latter, the food, is deficient of nutritive element, the deterioration of the parts subject to tear and wear inevitably takes place. If the food is deficient of certain elements in an available form, but contains an extra proportion of others, the blood and development of parts will also become abnormal; a similar effect will be produced if the food and blood are natural, but the exercise unnatural, as when a race horse is forced to carry a heavy weight at a pace greatly exceeding his normal speed. To supply the blood with the elements required to meet the peculiar demands of extra tear and wear from race-course velocities would render it abnormal, and thereby produce disease; hence the apparent limit in this direction. At the same time, it is manifest that the blood does undergo physical changes, corresponding to the different breeds of horses. Thus, although in our present state of chemico-physiological knowledge, we cannot tell the difference between the blood of a thoroughbred Arabian and that of a Suffolk, Cleveland, or Clydesdale, yet there is manifestly a difference, and that this difference has assumed a normal type capable of being transmitted to posterity in the latter cases of draught horses as in the former, the blood horse, is a universally acknowledged fact. On the other hand, although no progress is being made towards a higher velocity than that possessed by blood horses originally, even that must be left an open question, because we do not know what the normal speed of the blood horse is. The more useful and utilitarian problems, therefore, relate to the organisms best adapted for walking and trotting, and also for galloping as required by hunters and cavalry horses. That our present practices of breeding and physical training of farm, carriage, cavalry, and saddle horses are each subject to improvement is a proposition too self-evident to require a proof. In the case of the blood horse, instead of sacrificing symmetry and durability of action to gain a few minutes extreme speed, let us endeavour to cultivate the natural speed by natural means, and the result will unquestionably be a complete success. In the other examples of heavy draught horses, farm horses, carriage horses, cavalry horses, hunters, and saddle horses, there are three methods of improvement open to practice. First, to increase mechanical and muscular power and durability by physical training at a sacrifice of speed. This applies to blood horses and other breeds of high speed. Second; the next is the common practice of crossing breeds to gain either speed or muscular power at a sacrifice of muscular power or speed as the case may be. And the third method is to work up our heavy farm-horses of various breeds to their original type of a higher speed at a sacrifice of weight and mechanical power as to leverage, but with a gain of available muscular power for useful purposes. *W. B.*

BREEDING AND MANAGEMENT OF SWINE.

[The following is abridged from the valuable paper lately read by Mr. John Fisher, of Carhead Farm, near Leeds, before the Newcastle Farmers' Club.]

IN laying in a stock of pigs, little outlay is required; they multiply very rapidly, are easily reared, and easily fattened, and if there is not a ready market for them near home, it may always be found at any of the large manufacturing towns, whither they may be sent by railway in a short space of time, and at a very trifling cost; and if consigned to a respectable cattle salesman they are certain to be sold at market value, and the money remitted by the next post.

I think few people who are in the habit of frequenting the manufacturing districts will have failed to observe the great increase in the number of the pork shops which have sprung up on every hand, when besides these, almost every grocer, butcher, and provision dealer drives a brisk trade in the ham and bacon line, and the general complaint among the pork butchers is, that they are badly supplied both as regards quantity and quality. These pork shops are a great boon to the labouring classes. Here they can at all times purchase in any quantity, from a flitch to an offal or penny slice of pork or bacon, according to their wants or means of supplying them; and they very much prefer the home-fed and home-cured, if they get less of it for their money. During the spring of 1863, when the provision markets were glutted with American products, clean American sides of the best Cumberland cut, or the C. C. brand, as it is called, could be bought in Liverpool at 35*s.* per cwt., and inferior brands at under 30*s.* per cwt., when at the same time our home-feds found a ready sale at 56*s.* per cwt. by the carcase.

The market value of a lot of fat pigs may be ascertained by weighing them alive separately, in the same way as sheep are weighed, and is easily done by placing them in a crate, and deducting the tare of the crate from the gross weight, when they will give from 75 to 76 per cent. of their live weight, according to fatness, and if very fat, with small bone and offal, they will give 80 to 82 per cent., while some of the small breeds, when excessively fat, or what has been called "superlative specimens of obesity," will give over 90 per cent. of their live weight.

And I tell you that our cottagers, who have all their pig food to buy in from the miller and shopkeeper, do not consider that their pigs have done well, if with present prices they are not worth 10*l.* each, at 10 months old. Many of them far exceed this, of which numerous instances might be given, but I shall confine myself to giving you one of them only, which, having occurred lately, is the last that has engaged my attention, and for the truth of which I can vouch.

A neighbour of mine, who is a small dairy farmer, killed his pig on the 2d February last, it being exactly 49 weeks and two days old at the time, and it weighed 491 lb., or 35 stones 8 lb., and was worth, at market price, over 13*l.* at a little over 11 months old; but it had had a good deal of skim milk during the summer, and had done well. And although I do not hold out hopes that every lot of pigs will average anything like that weight, still it shows that with proper care and attention pigs are capable of making a good deal of money in a short space of time, which is a matter of no small importance at all times, and from which I think we may reasonably conclude that there is a fair prospect of pigs paying their way if kept on a more extended scale than has hitherto been adopted in the large corn-growing districts, which, if true, the next question that suggests itself for our consideration will be. .

1. Which are the best and most profitable breeds to keep?

In answer to this question, I have no hesitation in stating it to be my opinion that, whether breeding for sale as stores of a few weeks old, or for fattening for pork or bacon, the improved large and medium sized breeds will be found the most profitable for the farmer to keep, whatever the name or colour of the breed may be: and they possess the capability of giving a large amount of good flesh, with a small amount of offal, in return for the food and care bestowed on them, the name or colour of the breed will be a matter of little consequence.

In selecting pigs for breeding purposes, we prefer such as possess good size, combined with activity, and a general robustness of character, and consider the following to be the most desirable points for them to possess.

The forehead should be wide, and the nose moderately short; that the amount of offal may be small, the ears should be thin and erect, and pointed forward. When the ears hang down over the eyes, they cannot so readily see objects that may approach, and are therefore more liable to accidents of various kinds. The under jaw should show an inclination to roundness, even when in low condition, as indicating a disposition to thrive well. The back should be slightly arched, and not too long, as very long pigs are unwieldy, and have great difficulty in laying down and rising, and as mothers they are very apt to overlay and kill their young before they are strong enough to take care of themselves. The loins should be strong and muscular, and the hind quarters only slightly drooping, with the tail placed well up, for if otherwise, and the legs are drawn too much under the body, there will be great difficulty in getting the sows served by the boars. The hams should be wide, and well rounded, and well let down to the houghs. The flank should be placed low, and only slightly arched, and the belly deep and thick, that the flitches may cut thick in the thin parts, if I may be allowed to use the expression. The legs should be straight, and small in the bone, and not sink so much at the fetlocks as to throw the weight on the heels and pasterns; the feet should be fine and small, and the gait light and nimble. A good coat of long, bright, vigorous hair, of not too soft a quality, is very desirable, not only as indicating a large amount of lean meat, in proportion to the fat in the carcase, of which it is the truthful index, but also as a protection from the sun in summer, and the cold in winter, as well as for preventing the skin from being so easily acted upon whenever subjected to a little rough usage, or even when sent to market, a practical illustration of which may be seen almost any market day by those who will take the trouble to look through the pig pens, when they will find that those which have the least hair on them will be covered with abrasions and unseemly scratches, which gives them a shivering and uncomfortable appearance, causing them to show to a disadvantage, and which will as certainly be thrown into the scale against the seller, whenever he disposes of them, which is of itself sufficient reason to make it desirable to breed them with good useful coats on their backs.

The above remarks will apply to both boars and sows, but with the exception of great size, should be more fully insisted on in the choice of the boar, as his influence may extend to a great number of sows, and, consequently, may be of the greatest importance; but as we seldom meet with all these good and desirable qualities combined in the same animal, we shall frequently have to be satisfied if we can procure such as possess a fair share of them, and should not hesitate to use strong healthy animals of either sex, if we were certain that they were well descended on both sides for several generations back, and, if properly mated, we should expect to meet with much that is desirable in the produce that they did not themselves possess, as many of our best and most successful sires are only mean in appearance, when not in high condition, as the test of symmetry consists in the way in which they pack their flesh as they fatten, and the question should be how few weak, rather than how many strong points, do they possess?

When the sows are large, with an inclination to coarseness, they will be best mated with a boar of a smaller size, and possessing more of the properties of the small breed; whereas, if they are undersized, they may be safely put to a boar of the improved large breed, with the certainty of getting more size in the produce, although, if they are getting aged, and are forward in condition, it might be more profitable to feed them off, and supply their places with young ones of a larger sort.

We invariably find that, when the weight of the forehand greatly preponderates over that of the hind quarters, or what is called "good in the crest and crops, but rather light behind," whether it be in the boars or sows, they are never good and fortunate breeders.

2. Having expressed my opinion as to the principles which should direct us in the selection of pigs for breeding purposes, I will now proceed to make a few remarks on their after-management, and, in doing so, shall confine myself to a simple statement of our every day practice, with some of the reasons which induced us to adopt and continue it.

I am a decided advocate for early breeding and early feeding, and consider October or November the best time for putting sows to the boar for the general cross, as it may be called. They will then bring their litter in March, and get them weaned, and take the boar again early in May, so that their second litter may get strong enough to stand the winter; and if the young sows bred in March have been liberally fed, and allowed plenty of exercise during the summer, they will be quite ready to take the boar in November, and bring their first litter at twelve-months old. And we consider this the best way either to commence or increase a stock of breeding pigs, and should not indorse the claim to early maturity in any breed of pigs, if they were not unfit to rear a litter of young at 12 months old. If young sows are allowed to run until they are 12 or 15 months old before they are put to breeding, they are very apt to miss their way altogether; and we find that the most successful breeders are those which are put to, when young, and are kept regularly breeding, consequently we do not disappoint them, but allow them to bring two litters a year. After their first litter we keep them sparingly, except when suckling. When they have weaned their spring litter, and have taken the boar again, they are turned into a Grass field, in which there is a large shed, with rails across the doorway to prevent cattle entering. In this shed they sleep at night, or retire in rainy

weather. If the Grass is not very plentiful, we give about a pint each of Indian Corn per day, scattering it on the Grass, and they can drink water from a stone trough which is fed by a spring, and placed near the ground that they may reach it conveniently. But they mostly gain so much flesh from being well fed while suckling, that they require little more than Grass; and some which have had nothing else, have done as well as we could wish them. During last winter our breeding sows have been kept on Oat dust, which costs 3*s.* 6*d.* per sack, and damaged Rice, costing 6*l.* per ton, in the proportion of one sack of Rice to three of dust. This is mixed together in a large tub, and steeped with cold water. On this food they cost about 1*s.* 2*d.* per head per week, feeding them twice a day, and they sleep in a large well-sheltered open shed, with the free range of the Grass field whenever they choose to go out, which most of them will do every day when the weather is fine. Under this treatment they have done remarkably well, the young falling very strong, and are on their legs and at the teat directly, giving no trouble, and requiring no assistance.

And here I must inform you that we have no arable land attached to Carlhead Home Farm, having laid it all down to Grass four years ago. We have no corn or root crops, consequently we have to purchase all our pig food, and no doubt but the price we pay for dust is beyond its feeding value. Still, as we can buy nothing so low in price (except, perhaps, brewer's grains, of which we are only able to get a load now and then), and as they do well on it, it is cheaper in the end than a better food, on which they would get too fat, and probably not do so well when they come to farrow.

3. We usually let them remain on that diet until they want about a week of farrowing, when they are taken to the breeding house, which, with your permission, I will endeavour to describe by giving the dimensions and particulars of one we have had in use for several years, and have had every reason to be satisfied with it.

The Breeding house is 10 feet square, the floor is flagged, and falls slightly towards the door, the lowest part being the corner behind the door, where there is a moveable iron grate, with a small well below, to catch the sediment, and a trapped drain leading to the manure tank. Thorough ventilation is secured by slits in the top part of the door, and a large loophole in the opposite wall, 5 feet from the floor, both of which can be closed or opened at pleasure. It has a glazed window, 3 feet by 2 feet, to admit the light, and a wooden sleeping bench, 6 feet 6 inches wide, extending across the house, on the side opposite the door, the object being to secure a dry comfortable lodging, with quietude, and plenty of light and fresh air. The benches are composed of wooden bars, 4 inches broad, and 1¼ inch thick, nailed to similar bars, placed at right angles, leaving a space of 1 inch between each bar. They are then laid down on loose sleepers 6½ feet long, and 2 inches square, placed crosswise on the floor. It has a horizontal rail 9 inches from the wall, and the same distance above the bench, to prevent the sow from laying up to the wall and crushing her young. The rails can either be fixed into the wall, or by uprights having one end into the floor, and the other end fixed to the spars of the roof, so that they can be removed when not required. Any joiner who understands what is wanted will be able to devise means by which they can be put up or taken down as required. It also has a 9 inch board placed edgewise on the front of the bench to prevent the young from straying off the bench when the sows are left to farrow by themselves. This board allows the sows to step over it when they want to feed, and is removed after the first two nights. The bench is taken up, and the dirt which accumulates underneath is cleared away every time it receives a fresh lodger, and it is lime-washed twice a year.

Having described the breeding house for the sows to farrow in, I must say a few words on the boar house, which may be of equal importance wherever a boar is kept. The boar house need not be large, but should be dry and well sheltered from the wind, and should have a flagged or well paved and drained yard of about 10 or 12 feet square attached to it, with a strong 5 feet wall round it, the door of the yard being the same height as the wall, and lined with sheet iron to prevent it being eaten away, and the sows should be taken to this yard when in season, and removed as soon as served.

Boars, like all male domesticated animals, should receive kind and gentle treatment, and very careful management. And if they are brought from the sties to the sows, they will frequently refuse to be sent back again, when force has to be resorted to, and perhaps dogs, whips, and broomsticks brought to bear on them, which makes them savage and unsafe to run at large, besides which they work much better when confined by themselves, and the sows always given to them at the same place, and, if fed sparingly, they will take exercise enough in the sty to keep themselves active. Old boars should have their tusks cut back once a year, for which purpose they should be secured with a strong rope, and the tusks carefully cut off with a small iron saw, such as is used for cutting iron.

4. Having described the breeding house and the boar house, it is not my intention to enter further into the subject of piggeries, for provided they have a dry, well-sheltered lodging, it does not much signify whether it has a south or a northern aspect, although, of course, we should prefer the former for choice; but as that is mostly required for other purposes, for which it is of more importance, we willingly concede it, and proceed to describe.

The treatment of sows at farrowing, and during the time they are suckling their young.—When the sows are brought into the breeding house, they are at once put on the same kind of food as will be continued to them while they are suckling. They are turned out for a few minutes twice a day, before feeding, which keeps the bowels in proper order, and the house dry and sweet, for it is very important that the bowels are open at this time, for, if constipated, the milk will not come freely, and the young seldom do well; besides which, it interferes with the free passage of the urine, causing great uneasiness, and, if not removed, it would lead to serious consequences, for which purpose we give frequent injections of warm water, and walk the patient carefully out, for a few minutes at a time, until we see that the obstruction has passed. Sometimes we mix a little common soap in the warm water, and have never experienced much difficulty when these means have been used.

We give a moderate bed of short straw three or four days before they are expected to farrow, that it may become soft by the time they are due, which, as the time approaches, they will collect on a heap, and place themselves upon it in such a manner that by raising the body it assists them in their efforts during parturition, and this, as well as most other matters at this time, we leave entirely to themselves, believing that they can mostly manage their own business best without our interference. And except with very fat sows, or during very cold weather, we do not remain with them while farrowing, but give an occasional eye to them to see that there is no unusual delay.

When sows are very fat and sluggish, they are then indifferent, and not easily disturbed. Their young also generally partake of their sluggishness, and then a skilful hand may be useful in getting them to the teat, and assisting them in inducing the mother to let down her milk, for which she will often have very little inclination. Also in very cold weather, if the sow will remain quiet and allow it, he may get them to her as they drop, and by covering them with a dry rug keep them alive, when, if they had been left alone, they might have been lost; but these are exceptional cases which breeders should endeavour to avoid, for although they may have been saved at the birth, it by no means follows that they will be reared, and that anything has been gained by it, for under such circumstances it is much easier to save them then than to rear them afterwards.

(To be concluded next week.)

Home Correspondence.

Progress of English Agriculture.—I think you are unwittingly doing harm to British agriculture by "patting it on the back." No doubt we have many brilliant instances of agricultural progress, but the painful fact remains that with about 60,000,000 of available acres, landlord's measure, we are unable to feed our 30,000,000 of population, and have probably to depend for the balance upon some 20,000,000 or more of foreign acres, so that with our present general system of farming, it requires nearly 3 acres to feed each individual of the population, or the gross produce may be taken at about 3*l.* to 3*l.* 12*s.* per acre. This humiliating fact is discreditable to us as a nation, for I know that if as much food were produced annually as on my farm (and it is below the average of the kingdom in natural quality) our population could not consume more than one-half of it. We ought, therefore, to feel indebted to Baron Liebig, or any one else who recommends a higher system of farming, and a greater use and economy of manure. There is really an enormous scope for agricultural progress, dependent quite as much upon the landowner as upon the tenant. In the mere management and shelter and feeding of our live stock, the system might be vastly improved as well as in a hundred other ways, which I need not here reiterate, but which must be obvious to every close observer of our general agricultural practice. I shall always look upon Baron Liebig not only as gigantic in mental power, but as one of the greatest of benefactors to mankind. *J. J. Mechi, May* 3.

P.S. I do hope that agriculturists will give up their absurd objection to statistical returns, so that we may really know our exact agricultural position and condition.

Agricultural Education, Lincolnshire.—Some of the most successful men I am acquainted with have had but very little schooling, merely that of being able to read and write—not but that they were very intelligent and observing men in all matters of business, some of them men employing a very large amount of capital, but keeping no accounts, the only book they looked to being the banker's passbook. Our business being mostly ready-money transactions, a knowledge of book-keeping is not so essential as to a tradesman. We have no public school in this district; the generality of the boys are sent to private academies, where nothing having a particular application to our business is taught. In the adjoining counties of Northampton and Rutland there are large schools at Oundle, Oakham, and Uppingham, but from what I have known of boys educated there I do not consider they are better fitted for farmers than those who have been in much humbler establishments. Farmers as a rule are the sons of farmers, and almost universally obtain their instruction at home. In the cultivating of the soil they can get a great deal of their knowledge from the operations of others, as well as from what they see at home, but in the more important part—the management of stock and the marketing the same—it depends very much more on those they are placed with. We are, I fear, too apt to take credit we are an improvement upon the past generation. Generally, I believe, there is more intelligence, a taste for reading and general information, which was not common to past times, but we have so many advantages compared with them it is only reasonable to expect it. Within my own time, say 30 years, there has been a very marked improvement in the cultivation of the soil and the management of live stock, the application of artificial manure, the use of improved implements, all going to prove that as a class we are progressing in knowledge. Many who condemn us as slow in adopting what they term improvements, are apt to forget it generally requires a year or more to test what they consider so very evident. As to the education of youths intending to be tenant farmers, I don't see any reason for a special course of instruction, with the exception of a practical knowledge of surveying and veterinary, especially the latter; the being able to administer a simple remedy or to bleed when required are so very essential to a farmer who may be located many miles from a good practitioner. A taste for and knowledge of live stock is, I think, the most difficult part of our business; if with this knowledge the young farmer acquires the tact of being a good market man, he will have learnt his business thoroughly. *X.*

Malt and Beer.—Using any substance which it is even fancied may check the natural, God-appointed wearing out of our tissues, cannot be wise. God orders them all, in due time, to waste and be thrown out of our bodies, their place being supplied by new tissues. "J. H." recommends us to destroy the food sent to us by God to renew these tissues, and form it into a substance that he thinks will prevent such arrangements being carried out! I decline going into the merits or demerits of tea, which are quite foreign to the subject. I do not use tea, but I will have nothing to do with the mere opinions or theories of A., B., or C., or even those of "J. H." I appeal to chemical facts, admitted by every man of science, to show the iniquity of entreating and receiving food from God, which we instantly and utterly worse than withhold from ourselves and others by destroying it, and thus invite the people, as Solomon did, to curse us. *J. Mackenzie, M.D.*

Loss of Sheep from eating the Leaves of the Rhododendron.—An instance has lately come under the attention of the writer in which a number of sheep, between 20 and 30, were destroyed by eating the leaves of the above plant under the following circumstances. One hundred Hampshire and cross-bred tegs had had for some time the range of a large park in South Hampshire; which, however, during the late severe weather was completely bare of feed. They were, however, doing extremely well on dry food, consisting of corn, cake and chaff with a supply of hay, and they had access to a pond of water. In the same field, during the last ten days, there were also twenty ewes which consorted pretty much together. On the shepherd a few weeks since visiting the sheep soon after daylight, he found several amiss, standing apart, staggering about, and coughing frequently, and apparently attempting to vomit. These last symptoms increased rapidly and soon extended to other sheep. After a time they would fall forwards, and in a few hours several died, and others were killed to prevent this result. A post-mortem examination revealed a quantity of the leaves of the plant in the inner or first stomach, partially masticated, in all the affected sheep, and some portion in the gullet. There was no appearance of ulceration or of any violent inflammation such as a mineral poison would produce, but there was considerable injection of the vessels of the gullet and larynx, and this appearance of ecchymosis was perceived in various parts of the body and slightly in the brain. The sheep had access to a large Rhododendron plant near the mansion, the leaves of which they had eaten rather extensively. And although it is very strange that such should be the case, yet if we consider the remarkable bareness of the pasture, we can understand in some measure why they should have rushed promiscuously at anything green, when at another time they would not have done so, or if they had previously cropped a few leaves, probably not to such an extent as to be hurtful. The ewes, older and perhaps wiser, were not affected, which proved that the injury did not arise from the dry food, as they had access to the same troughs. Many of the tegs were drenched with Linseed oil and recovered. *W. C. S.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

Monthly Council: *Wednesday, May* 3.—Present: Sir E. C. Kerrison, Bart., M.P., in the chair; the Earl of Shrewsbury and Talbot, Earl Cathcart, Lord Berners, Lord Tredegar, Lord Walsingham, Major-General the Hon. A. N. Hood, the Hon. A. Vernon, Sir J. V. B. Johnstone, Bart., M.P.; Sir Massey Lopes, Bart., M.P. Sir A. Macdonald, Bart.; Sir T. Western, Bart.; Sir Watkin Wynn, Bart., M.P.; Mr. Acland, M.P.; Mr. Arkwright, Mr. Raymond Barker, Mr. Barnett, Mr. Bramston, M.P.; Mr. Bowly, Mr. Burgess, Mr. Cantrell, Colonel Challoner, Mr. Clayden, Mr. Dent, M.P.; Mr. Druce, Mr. Brandreth Gibbs, Mr. Fisher Hobbs, Mr. Holland, M.P.; Mr. Hoskyns, Mr. Hudson, Mr. Humberston, M.P.; Mr. Hutton, Mr. Jonas, Colonel Kingscote, Mr. Lawes, Mr. Lawrence, Mr. Milward, Mr. Pain, Mr. Pope, Mr. Randell, Mr. Rigden, Mr. Sanday, Mr. Shuttleworth, Mr. R. Smith, Mr. Turner, Mr. Torr, Mr. Wallis, Mr. Wells, Mr. Henry Wilson, Professor Wilson, Professor Simonds, and Dr. Voelcker.

Twenty-nine new members were elected.

Sir Massey Lopes, Bart., M.P., was unanimously elected a Member of Council, in the room of the late Mr. Buller, on the nomination of Mr. Torr, seconded by Mr. Turner.

Finances.—Major-General the Hon. A. N. Hood presented the report of the Committee, from which it appeared that the Secretary's receipts during the past month had been examined by the Committee, and by Messrs. Quilter, Ball, & Co., the Society's accountants, and were found correct. The balance in the hands of the bankers on April 30 was 1981*l.* 17*s.* The Committee recommended that 2000*l.*, part of 3000*l.* now on deposit, be invested in the New Three per Cents. This report was adopted.

Discussions.—The following arrangements for the Weekly Meetings of the Council were announced: Wednesday, May 10, Mr. Beale Browne on Flax; Wednesday, May 17, Mr. Morton on Agricultural Education; Wednesday, May 24, Professor Voelcker on Irrigation; Wednesday, June 14, Mr. W. Budd on Pigs.

Journal.—The President opened the motto paper of the writer adjudged to be the successful competitor for the prize of 25*l.* offered for the best paper on the Increase of Sheep Stock, who was found to be Mr. John Coleman, South Fields, Wandsworth, S.W.

Plymouth Meeting.—Mr. Fisher Hobbs reported that the Committee had settled the programme, which would be forwarded to every member of the Society. Arrangements had been entered into with two respectable tradesmen for an efficient supply of refreshments in the Show-yard. The Secretary had reported the fees for Implement entries to exceed in value those of last year, while the number of exhibitors was also

greater. An additional grant of 50*l.* was recommended to be made to the Local Committee for further improvements in the carriage drive to the entrances, on condition that the road be made close up to the entrances. The Committee recommended that a book be kept at the Secretary's or Director's Office at this and subsequent meetings, to be called the Steward's remark book, in which any suggestions for improvements and in the details of the different departments of the Show may be entered. It had been arranged that fresh butter entered for competition should be received up to 2 P.M. on Monday, the 17th July. This report was adopted.

VETERINARY.—Mr. Raymond Barker, Chairman, presented the Report, which stated they had considered the terms of the extract from the will of the late Mr. William Brown, forwarded from the University of London, referred to them by the Council, and recommended that the Secretary should address a letter to the Senate of the University, stating that this Society had referred it to their Veterinary Committee, who have forwarded it to the Royal Veterinary College, to which body this Society makes an annual grant of 200*l.*, in order that they may express their opinion thereon, and place themselves in communication with the Senate of the University of London. The Committee had received the seventh Report of the Belgian Commission on Inoculation for Pleuro-pneumonia, forwarded by the Secretary of State for Foreign Affairs. This report was adopted.

COUNTRY MEETING OF 1866.—The report of the Committee appointed to inspect the various sites offered to the Society at Bury St. Edmunds, Ipswich, King's Lynn and Norwich, having been read, the Council were favoured by the attendance of four deputations.

BURY DEPUTATION.—Lord Augustus Hervey, M.P.; Major Parker, M.P.; A. J. Hardcastle, Esq., M.P.; the Mayor; the Deputy Mayor; F. M. Wilson, Esq.; P. Huddlestone, Esq.; the Rev. E. R. Benyon; E. Greene, Esq.; G. P. Clay, Esq.; Mr. R. Boby; the Town Clerk (Mr. W. Salmon), Mr. Wm. Biddell, Sir Charles Clifford.

IPSWICH DEPUTATION.—Right Hon. Lord Henniker, Member for the County; Sir Fitzroy Kelly, Member for the County; S. H. Cowell, Esq., Mayor of Ipswich; J. C. Cobbold, Esq., Member for Ipswich; Captain Henry Jervis White Jervis, Member for Harwich and Deputy Chairman of the Great Eastern Railway Company; Hon. R. T. Rowley, Member for Harwich; James Goodson, Esq., Chairman of the Great Eastern Railway Company; R. Moseley, Esq., Manager of the Great Eastern Railway Company; J. A. Ransome, Esq.; E. Packard, Esq; Hasell Rodwell, Esq.; E. Grimwade, Esq.; G. Sexton, Esq.; S. A. Notcutt, Esq., Town Clerk; E. R. Turner, Esq.: H. Biddell, Esq.; J. A. Hempson, Esq.; R. C. Ransome, Esq.; R. Bond, Secretary to the Committee; E. Goddard, Esq.

LYNN DEPUTATION.—Wm. Monement, Mayor; Wm. Seppings, Walter Moyse, William Burkitt; Thos. G. Archer, Town Clerk; Edwin Durrant, Borough Treasurer.

NORWICH DEPUTATION.—Edw. Howes, Esq., M.P.; Sir Wm. Russell, Bart., M.P.; the Sheriff of Norwich; Dr. Dalrymple; William Birkbeck; the Town Clerk.

These gentlemen having communicated to the Council the fullest local information connected with their respective districts, and having answered satisfactorily the inquiries made of them by the Council, the President expressed to them the best thanks of himself and the Council for their kindness in having attended the meeting that day, and for the deep interest they had evinced in promoting the objects of the Society.

The deputations having withdrawn, the Council proceeded to the consideration of the particular locality best suited, under all circumstances, for holding the Country Meeting next year; and after some discussion of the respective advantages of each position to which their attention had been called, it was decided in favour of Bury St. Edmund's by 21 votes to 17.

HOUSE LIST.—Agreeably with the bye-laws the Council arranged by ballot an election list to be recommended by them for adoption at the ensuing General Meeting on the 22d inst.

Mr. Milward having moved that the Society hold their Country Meeting for 1867 in the district comprising the counties of Derby, Leicester, Lincoln, Nottingham, and Rutland, it was seconded by Lord Berners, and adopted.

A notification was received of the postponement of the opening of the International Agricultural Exhibition at Cologne to the 2nd June, when the Ceremony of Inauguration has been fixed to take place.

The Council having resolved not to hold a weekly meeting on the 31st inst. (Derby Day), adjourned to their weekly meeting on the 10th inst.

Farmers' Clubs.

LONDON: *May* 1.—*Importance of Shelter at the Homestead.*—Mr. BAILEY DENTON read a paper on this subject, from which we make the following extracts:—

Shelter for Dairy Stock.—I regret my present inability to show the value of shelter in the field, the more as it was the treatment of stock prevailing in the grazing, dairy, and cheese-making districts of the western side of England that led me first to think of tracing the importance of shelter from the hill and the field to the yard and the homestead, believing that, although the value of each is theoretically admitted, the money value of shelter to the farmer is not likely to be generally credited, until the evils of exposure and the benefits of shelter are made patent by discussion.

To those who live on, and are constantly in the habit of crossing, the high grounds of Cornwall, or of Devon, or Somerset, or of North or South Wales, or the hills of the northern counties, and are accustomed to the prevalent practices of those districts, the cruel effects of exposure of stock in all weathers may not be so apparent as they are to those whose practice leads them to protect their animals from the winter's cold and biting winds in fold-yards and sheds. Long custom having fortified the practice, its continuance is not questioned as a matter of economy, though instances are not wanted in those districts of efforts being made, by planting and walling, to modify the cruelty with signal benefit and profit. As I am not prepared, however, at this moment to deal with advantages of shelter on the hills and high grounds, I will not provoke discussion upon it; but I cannot resist calling attention to the practices of the cheese-making and dairy districts of Cheshire and Shropshire, the physical characteristics of which are not dissimilar to the general condition of England in any other respect than in the heavy rainfall peculiar to them, where the cattle, from the cow in-milk to the calf only a few months old, are for the most part of winter exposed to the wettest and coldest weather in the field, to the great abuse of the pastures, as well as the depreciation of the stock themselves. I am not now speaking of the hills. I am speaking generally of the practices of the whole of the north-western cheese-making districts, in which, of course, some exceptions, as in all general customs, may be seen.

I believe I am right in saying that, in 19 out of 20 farms in Cheshire and neighbouring counties, there are no fold-yards whatever for stock; the cows are therefore always either in the fields or in the stalls, and the store stock are generally in the fields. In the majority of farmsteads the cow stalls are low, close, and cramped, with a view to appropriate, under a false plea of economy, as much space as possible to hay in the lofts above—an arrangement which not only spoils the stalls, but involves the tainting of the hay by the steam from the cows. The stalls are rendered by this arrangement oppressive to all animals occupying them, although efforts are frequently made to secure ventilation by giving a direct draught across the buildings, which I need hardly say is only making bad worse, as nothing can be much more pernicious to health than direct currents of cold air passing through a building otherwise overheated by animals cramped and huddled together in low, narrow stalls. The cows, when they leave the stalls for the fields, are necessarily in a heated condition; and as the soil and climate of the north-western counties are affected by the excessive rainfall peculiar to them, and a full share of cold winds and frosts, they generally have to face a chilling atmosphere, with their feet and legs plunging into the ground already trodden into a mire. To a person accustomed to modern buildings, and the healthy comfort afforded therein to milking cows, the building accommodation given in the cheese-making districts is very striking. It is true that the cows are generally small, and it is fortunate that they are so, for a full-sized Short-horn or Hereford cow could not stand in the majority of the cow-houses. Speaking of the management of the dairy stock of Cheshire, Mr. Hayward, of Northampton, writes to me saying that he finds "the heifers are generally put to the bull when they are 18 months old; but some of the smaller farmers put them to the bull as yearlings, which of course is very much against their becoming large cows. They are then taken up at nights about the end of October, and have cut straw up to about a month of calving, when they have hay mixed with the straw; and after calving they generally have pulped Turnips mixed with the chaff. About the average size of the stalls in the shippons is 6 feet by 6 feet, but two cows are tied up in one stall. There, generally speaking, is only a 3-feet way or passage up between the rows of cows, and in some shippons I have seen as many as 30 or 40 cows, which makes the place fearfully hot and close at times, some of the shippons being very low indeed; but of course there are cases where the buildings are much better. Generally speaking, the cows have a little straw to lie on in the stalls; but in some cases they have nothing but a little sand thrown over the stones, and I think that is done more for the purpose of cleaning the stalls out with greater facility. When the cows are turned out in the cold winter season I have often noticed that they hang round the gate of the field into which they are turned, waiting to get back for shelter again; and instead of looking like Grass for some distance from the gateway the field is nothing but a bed of mud. The cows feel the cold so much after being out of the close shippons, that they are all the time hanging about the gate to get back again. There are many cases, of course, where the cows have more airy places, and more room in the stalls than others." This partial shelter given to the cows I need hardly say is not the shelter which can be approved. I believe the veterinarian would say that it is worse than no shelter at all, as the sudden change from heat to cold cannot fail to render them susceptible of epidemic diseases. The young and store stock are no better off than the cows in milk. In the coldest weather, and in the bleakest position, these animals will be found treading and kneading the pastures when the surface is not hard with frost, with hay and straw as supplemental food to what they can pick off the ground; and this state of things is considered right by many farmers. I have often heard those who adopt it declare that all stock do better, *i.e.*, they thrive in health, and grow quicker in the fields than they would do in a fold-yard. It is more than probable than this is said rather from prejudice than experience. In the south-western dairy and grazing districts, where the climate is much milder, and there would consequently be less reason for shelter, we find more attention paid to it; while in the north-western districts the better descriptions of homesteads have no enclosed yard: the only resemblance to a yard being the space in front of the buildings, in which the manure is collected, and exposed in heaps as it is brought from the stalls. The better homesteads in the south-western districts are in the form of a quadrangle, with the buildings so placed on its sides as to keep out the prevailing winds, and afford shelter to the space within.

Shelter on Arable Farms.—If we pass from the western to the eastern side of England, the same conditions do not exist. Much the larger proportion of the land is arable, and the quantity of straw is great. Corn is the first consideration, instead of stock; and the rainfall of the east does not amount to two-thirds of the rainfall of the west.

On the eastern side it is frequently a question with farmers how they can best "get rid" of the great bulk of straw they produce; and, though every one admits the value of shelter from cold winds, few farmers at present are disposed to acknowledge that shelter should extend to the covering of yards, to exclude rain, which is considered essential to the decay of the straw. I think we may conclude that the only tangible reason which can be held against the covered system is the difficulty of consuming the straw produced on heavy-land farms, where the conditions of the tenancy require that all the straw produced shall be consumed on the premises, always supposing that the extra expense of covering, beyond the cost of open yards and shedding, is exceeded by the advantages to be gained from it. With respect to this difficulty, it should always be remembered that the profitable appropriation of straw as fodder is daily becoming greater. The increasing use of chaff, the progress of pulping, and the growing practice of mixing corn-meal with chaff, all serve to make its use as fodder better appreciated and more largely practised. The actual value of straw as food, when compared with other feeding-stuffs, has been put at 35*s.* per ton; and if we accept, for illustration, this value, and compare it with the value of straw as manure, which has been put at 12*s.* 6*d.* per ton, we see that we gain 23*s.* 6*d.* per ton by changing the use of it from litter to fodder. Hence, where there is stock sufficient to appropriate the straw or capital at command to purchase stock so as to consume it in the most economical way, it would appear better to reduce its use as litter to a minimum and increase its application as fodder to a maximum, were it not for the fact, which I believe is generally admitted, that straw in the composition of manure is of value for its mechanical effects in the ground; and where the soil is of a stiff and tenacious character it serves to lift and aërate it, and so admit from the atmosphere fertilising elements which are thus added to that of the straw itself. In support of improved quality in lieu of greater quantity, it should be remembered that the cost of carting manure and the time taken up by it are always heavy items on every tillage farm, though we seldom trouble ourselves to ascertain the real cost in money of the labour and time consumed. It is manifest that the better the manure the farther it will go, and the less the cartage involved in it; and if the statements of those who use the two dungs—*i. e.*, dungs made in open yards, and that made under cover—may be taken as our guide, we may assume that one load of the latter goes as far as one load and a half of the former. Dr. Voelcker, who has paid much attention to this subject, and who I hope will favour us with his view on this point to-night, supported this estimate in a letter he wrote me some time back, in which he said:—"Speaking generally, I am of opinion that the manure in covered yards is worth fully half more than manure made in open yards under otherwise similar circumstances." Lord Kinnaird (see Transactions of the Highland Society), in his experiments, showed the following results from the application of equal quantities of the two descriptions of manure: First year—7 tons 12 cwt. Potatos per acre from uncovered dung, and 11 tons 5 cwt. from covered dung; second year—42 bush. of Wheat and 156 stones of straw per acre from uncovered dung, and 54 bushels of Wheat and 215 stones of straw per acre from covered dung. These figures appear to me to supply the most conclusive reasons for making dung with stock at home under cover; and when we read of our Scotch friends, Messrs. Hope and Henderson, laying out 2*l.* an acre in "portable manures," we cannot fail to feel the full force of the several arguments used in favour of covered yards. I remember several years ago Mr. Clarke, of Hormead, in Hertfordshire, telling me in graphic terms that he regarded his covered dung as strong beer and his open-yard dung as small beer, and that while it was quite possible to take too much of the former, in the case of the latter a considerable portion went for nothing. Now, applying these views and experiments to the item of carting, we may fairly conclude that 13 or 14 loads of covered yard-manure will go as far as 20 yards of ordinary dung, if we regard the matter simply in its chemical aspect. The carting of seven loads of dung per acre is not a small matter, coming as it may in unpropitious weather. Can it be valued at less than 7*s.* per acre? Having laid this stress upon the only tangible objection that has been raised against the covering of yards, let us now consider the very material item—the cost of covering—and see if we may not safely strike a balance of profit. [The discussion of this point will be given next week.]

Reviews.

High Farming without Manure: Six Lectures on Agriculture, delivered at the Experimental Farm at Vincennes. Pp. 112. By M. George Ville. W. Oliver, 3, Amen Corner, Paternoster Row.

It is quite true that we have in this little volume six lectures delivered at Vincennes by the Professor of Vegetable Physiology at the Museum of Natural History, Paris—but it is very far from true that these lectures describe a system of High Farming without Manure. That is, we presume, the mere catch title of the volume, adopted by Mr. C. Martel, the translator. The principle on which M. Ville proceeds, apparently, is to fertilise the soil to begin with, and thereafter to apply to successive crops only the special fertiliser required by each, and this, we are informed, he has ascertained by ten years' experiments to be *nitrogen* for cereals, *potash* for leguminous plants, and *phosphates* for roots. But all this has been long known here; and his plan is just that which is adopted by all good farmers. They, too, try to keep the land in good heart; first, and chiefly, by economical management of the dungheap, and thereafter by applying nitrogen, as in guano, ammonia salts, nitrate of soda, &c., to Wheat, and phosphates, as in superphosphate of lime, bone dust, &c., to roots. The fifth lecture of the series is an interesting account of the several ingredients of a general manure and their natural sources—as of nitrogen in the air, in cubic nitre, in coal, and in sewage—of phosphoric acid in chalk, bones, so called *nodules* (a word which is used as if it was either the trade or scientific name for the contents of the phosphatic beds below the chalk)—also in coprolites and guano—of potash in sea water, in the waste of common salt, in felspars, &c.

Of the concluding chapter the following is the published analysis:—

"Comparison of the new system with past traditions and practice.—The dunghill the manure *par excellence.*—Analysis of its chemical constituents proves that it contains the four essential fertilising agents: phosphoric acid, lime, potassa, and nitrogenous matter.—An exact balance with regard to these four agents exists among all the systems of cultivation, *i.e.* between the quantities supplied by the manure and that carried away in the crops.—Results of the triennial rotation of crops.—Results of the five years' system.—Mean annual return of the two systems.—Results of various cultivations.—Beet-root.—Colza.—Advantages of the new system; maintains the fertility of the soil unimpaired, whatever crops are continuously grown, without rotation.—Comparison of the quantities of the four fertilising agents contained in various crops and in the complete manure.—Power of production of the old processes of cultivation, compared with those of the new system.—Law which regulates the new system, which throws down the barriers that have hitherto limited production.—Estimate of

the results of its adoption in France.—Conclusion.—Results of the harvest of 1864, on the new system."

The four principal agents in a complete manure are phosphoric acid, lime, potash, and nitrogenous matters. And the following passage describes the new agricultural system as M. Ville declares it to be:—

"Although the presence of the four agents of fertility in the soil is necessary and indispensable for all plants, the exigencies of various cultivations are not the same with regard to the quantities of each of these agents—or in other words, each crop has its leading one.

"Thus, nitrogenous matter is the dominant agent for Wheat and Beetroots, potash for vegetables, phosphate of lime for roots, &c.

"Suppose we undertake the cultivation of a piece of poor land. We begin by giving it the complete manure, in order to create a sufficient provision of the four agents of fertility. We raise one or two crops of cereals upon this manure: then we continue the culture by giving to the soil, each year, the dominant element of the crop we propose to raise.

"If we adopt a rotation of four years with such crops that, at the end, [the land] has received the four agents, we can continue thus indefinitely without ever requiring the complete manure. The same system is applicable to a fertile soil; only we may dispense with the first dose of complete manure, and commence immediately by the dominant element of the first crop we desire to raise.

"If, on the contrary, it be desired to continue the same crop indefinitely, we content ourselves generally with the employment of its dominant; but taking care to resume the application of the complete manure, immediately that a slight reduction in the weight of the crop points out the necessity for so doing.

"By these simple combinations we are in possession of a new agriculture, immeasurably more powerful than its predecessor."

We are at a loss to know in what respect this is a new agriculture, or different from the system already in full practice here.

Farm Memoranda.

West Buckland, South Molton.—[The following is the report of the Rev. J. L. Brereton on Stocking Land in the *Agricultural Society's Journal.*]

My glebe consists of about 30 acres of Grass land, which used to let at a rent of 55*l.* I have farmed it for some years in connection with various parcels of land which I have temporarily rented in the neighbourhood. The general result has been that from keeping an extra quantity of stock, and particularly from folding sheep with corn upon my Grass, its value has been considerably increased. It would be perhaps a fair account of previous improvement to value its gross rent for the present year at about 3*l.* per acre, or 100*l.* In order to make myself as free as possible of tillage farming, I have for some time used sea-sand instead of straw as bedding for cattle. I have also used a compound meal (the ingredients of which I subjoin*) as the principal accessory to the Grass and hay. The Turnips I have purchased were all used for the sheep; none for the bullocks and horses. The Oats and straw bought were for the stables. My practice has been to charge the whole cost (including labour) of the stables to the farm, and to credit the farm with 12*s.* per week for every horse used for riding or carriage. In order to increase my hay crop, I hired some other Grass land, the rent for which is included in the charge for fodder.

Statement of Farm Accounts on the Glebe, West Buckland, from Oct. 1st, 1863, to Oct. 1st, 1864.

A. Cost of Stock.

By Valuation Oct. 1863:—

	£ s. d.	£ s. d.	£ s. d.
Bullocks.			
2 Kerry cows in calf	16 0 0		
4 Devons	40 0 0		
3 Yearlings	19 10 0		
1 Calf	3 0 0		
		78 10 0	
Horses.			
2 Brood mares..	62 0 0		
2 Cobs, 4 and 5 years ..	66 0 0		
2 Carriage ponies	40 0 0		
1 4-year old filly	25 0 0		
3 3-year old fillies	76 0 0		
2 2-year-old (colt and filly)..	30 0 0		
2 Yearling colts	20 0 0		
5 Sundry ponies	37 0 0		
		359 0 0	
Sheep.			
45 Ewes, at 59*s.*	..132 15 0		
32 Old ewes, at 50*s.* ..	.. 80 0 0		
41 Ewe-lambs, at 35*s.* ..	.. 71 15 0		
40 Ram-lambs, at 60*s.* ..	..120 0 0		
3 Rams, at 100*s.* ..	.. 15 0 0		
		419 10 0	
			848 0 0
By Purchase during the year:—			
Bullocks.			
7 Dairy cows and 4 calves..			113 2 6
Carried forward			£961 2 6

	£ . d.	£ s. d.
Brought forward ..		961 2 6
Horses.		
1 Pony	12 0 0	
Sheep.		
4 Kentish ewes. at 40*s.*		
77 Devon Nott. ewes, at 49*s.*		
80 ,, 50*s.*		
30 ,, 57*s.*		
1 Cotteswold ram, at 25*l.*		
1 Lincoln ,, 25*l.*		
1 ,, ,, hired 30*l.*		
Journeys and expenses for rams, 12*l.*	574 3 0	
		586 3 0
		£1547 5 6

B. Expenditure during the Year.

		£ . d.	£ s. d.
Rent and taxes..		£100 0 0	
Labour		251 6 10	
Manures:—			
Sea-sand for bedding ..	57 17 11		
Other manures	26 16 0		
		84 13 11	
Purchased Food:—			
Hay by valuation, Oct. 1863	90 0 0		
Cattle-food	300 0 0		
Roots	100 0 0		
Straw, Oats and hired keep	167 4 7		
		657 4 7	
Tradesmen's bills		36 6 9	
		1129 12 1	
Hay and Turnips in stock, Oct. 1st, 1864, by valuation		305 0 0	
			824 12 1
			£2371 17 7

C. Sales and Valuation.

		£ s. d.	£ s. d.
Sales:—			
Bullocks.			
4 Bullocks and 1 calf.. ..	77 17 6		
Milk at 11*d.* per gallon..	140 1 0		
		217 18 6	
Horses.			
Brood mare and 2 cobs ..	130 0 0		
2 Ponies	17 0 0		
Keep of 3 stable-horses, at 12*s.* per week	96 12 0		
		243 12 0	
Sheep			
31 Rams by auction	184 17 6		
64 Draft ewes	149 19 6		
Sheep killed for the house	21 3 0		
		356 0 0	
			817 10 6
Valuation:—			
Bullocks.			
12 Cows, 1 yearling and 4 calves ..		193 16 0	
Horses.			
1 Brood mare	£25		
2 Carriage ponies . ..	30		
1 5-year-old mare	35		
3 4-year-old mares ..	150		
2 3-year old ,, ..	50		
2 2-year-old ,, ..	40		
4 Sundry ponies	47		
		377 0 0	
Sheep.			
210 Ewes, at 63*s.*			
21 Fat sheep, at 50*s.*			
37 Ewe lambs, at 45*s.*			
32 Ram ,, at 80*s.*			
1 Cotteswold ram, 25*l.*			
1 Lincoln ,, 25*l.*			
4 "New Devon" rams, 20*l.*			
Wool, 150*l.*			
		1144 15 0	
			1715 11 0
			£2533 1 6
Farm—Creditor			2533 1 6
,, Debtor			2371 17 7
Balance			£161 3 11

Showing a profit of 161*l.* 3*s.* 11*d.*, in addition to the manure, which is valued at "not less than 200*l.*"

I am aware that the above statement is open to many challenges; but being an accurate account of transactions recorded and classified for my own satisfaction, and not for publication, it may perhaps be the most suggestive form in which to put before your readers the gross result of farming on the principle of purchasing corn, &c., to feed stock. I will add a few explanations in anticipation of some of the queries that may be raised. [These must be given next week.]

* *Cattle Food.*—I have for four or five years been in the habit of buying Linseed, Wheat, Peas, Beans, Maize, Barley, and Oats, and grinding them in about equal proportions with one cwt. per ton of Aniseed and Fenugreek. The present cost of my mixture is about 11*l* per ton.

Calendar of Operations.

May.—*Arable Farm.*—Wheats, if "proud," may be mown, taking care not to cut too low. Weed and hoe Wheat, Oat, and Barley fields.

Beans may require horse-hoeing and hand-hoeing this month. The ridge-plough or double-winged share with two mould-boards, may be safely worked between the rows, at the close of the hoeings. This operation slightly hills up the rows on each side; great care being taken to prevent much mould attaching to the stalks, as it causes them to decay. Although a few plants are broken down at the ends in turning, the earth so strengthens the crop, and the whole summer cultivation is of such great benefit, that this may be reckoned an exceedingly profitable mode of growing Beans—especially favourable to the development and "setting" of a great quantity of pods.

Potatos will need horse or hand-hoeing in May, the latter being done with a heavy hacker, and costing 6*s.* to 8*s.* per acre, and in an early season they may be earthed up towards the end of the month. This is done with the double-mouldboard plough in horse husbandry, and if by hand with a broad hoe, costing about 4*s.* per acre.

Carrots should be hoed during this month, or towards the end of it, between the rows; horse-hoed where the ridge cultivation is adopted, and hand-hoed on the flat.

Mangel Wurzel should also be horse-hoed towards the end of May, and the ridges should then be hoed clean with the hand-hoe, children following the hoers and singling out the bunches. In doing this they seize the best plant in the bunch, and saving it with the left hand, they tear all the rest away at a stroke with the right. Blanks may be filled with these plants.

Turnip Culture.—Swedish Turnips should be got in during the early part of the month in Scotland, and in South England during the latter part of it, and in June. The land, after the cultivation already received, may be reduced to a sufficient tilth, and will probably be sufficiently cleaned by once using the cultivator or scarifier, which is to be followed by the harrows, and then by women to gather weeds, pick stones, &c. The land is then to be ridged up in drills, about 26 inches wide; the dungcart passes up every third furrow, the man behind it pulling out the manure as the horse proceeds, so that the load shall be emptied in a length of from about 50 to 100 yards, according as the quantity to be applied is from 40 to 20 loads per acre. The filling of the manure may be let by contract; it may be let at ¾*d.* per cubic yard. The manure thus delivered is divided, by a man who follows, amongst the three drills to which it belongs, and the share of each is spread evenly by three women or boys following the man. If no guano, or especially superphosphate of lime, has been mixed with the dung in the heap, now is the time to apply it broadcast over the field, so that on the splitting of the drill it may be covered with the manure, and at the same time mingled with the earth which is to act as seed bed. In some cases bones and artificial manures are all that the Turnip crop receives; in this case the drills may be opened as before, the manure sown by hand along the furrows, and mingled with the soil by a horse-hoe following the sower. In either case it will be understood that in order to avoid the loss of moisture, &c., both from the soil and the manure, the ploughs which are at work in the field, after opening up about 12 drills on which the dungcart or manure sower is at work, keep working round and round the parties thus engaged, opening furrows on the one side for receiving the manure, and closing them on the other side, thus covering their contents. The sowing machine is immediately to follow all, sowing from two or three pounds per acre in the North, where fly is hardly known, to as much as five pounds per acre where the crop has to run this risk, and where we must sow enough and to spare. The only safe remedies for this scourge to trust to, are a good and rich cultivation and abundant seeding, which all tend to force the young plant rapidly through the season of its danger. It is well to have 12 or 14 drills ready for the sowing machine on the evening before you commence sowing, that there be no loss of time in the morning. When the seed is sown, it is advisable, if the weather be dry, to pass a light roller over the ground, so as to complete the process by keeping out the drought; but when the ground is damp enough, or a threatening weather, this should not be done. A piece of common Turnips may also be sown this month, as an early root crop for consumption in September. Land that has been broken out of old pasture, which received its first shallow ploughing in April, should be cross-ploughed now, and may be again worked with grubber, harrows, and roller, until in sufficiently fine tilth for Turnips. It is advisable to plough shallow at the first furrow, and cross-plough deep afterwards, both because the operation of reducing to tilth is better done thus piecemeal, a few inches at a time, and because the ashes which were spread on the surface are thus not buried too deep in the land. Let the surface of an open book represent that on which the ashes were spread; the act of shutting it, which represents the first ploughing, buries them half the book's depth from the new surface; and it will be seen that the act of turning the book over, which illustrates the second ploughing at double the depth of the first, still leaves the ashes at half the book's depth from the surface exposed to the air. No doubt the ashes do not occupy any such definite position as this illustration would signify—they are scattered through the whole depth of the land, but this is much better than being placed below the whole depth of it, as they would be if they were turned under by a deep ploughing to begin with. Crosskill's clod-crusher will be found useful this and next month.

Rye, all through this month, and Vetches during part of it, will have been supplying cattle, sheep, and horses with food. The land which bears these crops is to be ploughed as soon as cleared. In this and all other similar cases, the roller must immediately follow the plough, to keep all the moisture in the soil.

Cabbages may now be drawn from the seed beds and transplanted in the fields, the land having been prepared, as for any other green crop, by deep and clean cultivation, and plentiful manuring. Planting Cabbages is best done in wet weather. The large Drumhead Cabbage seldom requires a less space than 27 by 24 inches; on very rich or highly manured land the distance between the rows may be as much as three feet; and on stiff clays, which require summer pulverisation, as much as four feet, to give room for continual ploughing and cultivation during the season.

Lucerne will furnish a succession of cuttings through the summer.

Flax is to be carefully hand-weeded by women and children, who go on the land on their knees, facing the wind, that the bent plants may be blown upright again.

Fences.—Holly may still be planted, if not all done last month. The roots should be puddled, and well watered. Keep all newly planted hedges clear from weeds.

Buckwheat.—One bushel of seed per acre should be sown in rows 12 inches apart, in the middle of this month, on any light soil ploughed early in spring, and now cleaned and reduced to a tilth by the action of scarifier and harrows.

Chicory.—Having well worked the land where it is intended to cultivate Chicory for its roots, and reduced it to a very fine mould, the seed may be drilled (3 or 4 lb. per acre) in rows 9 to 12 inches apart.

Hemp.—Early in this month, about two bushels of bright heavy seed should be sown on the land prepared for it—in rows about 30 inches apart.

Hops.—The ground during this month ought either to be "becked" or dug a second time. About the second week the bines, or young shoots, will be long enough to tie to the poles. This work is performed by women. Three bines are usually tied to each pole with rushes; but if there is likely to be a redundancy of bine, two instead of three will be preferable.

TIPTREE HALL FARM: *May* 1, 1865.—Crops: Wheat, 42 acres; Barley, 11¾; Oats, 14½; Beans, 17½; Peas to pick for market, 8; Red Clover, 13½; Italian Ryegrass, 12; Pasture, 15; Mangel, 16½; Cabbages, 1¾; Tares, 6; ready for Swedes, 1½. All the crops look most promising, and a full plant. The Wheats have all been horse-hoed, hand-hoed, harrowed, and rolled. The Beans have been harrowed with heavy iron harrows, and are now being horse-hoed. The Mangels were put in in April. Every foot of land is cropped, and the work forward. The stock are doing well. We have 180 sheep and lambs and 52 head of calves and yearlings. The fat bullocks have been all sold. We have sold some lambs to the butcher at 40*s.* each. Our lambs have done well. During the severe weather they were properly sheltered. The ewes after lambing kept in the barn for some days with their lambs. We have abundance of last year's Mangel, and have sold 20 tons to our neighbours at 18*s.* per ton; also sold a Clover stack for 90*l.*, not requiring it for our own use. This was the first cut off 9 acres. The root land was all heavily manured and trench ploughed before winter. The Bean land also well manured and ploughed before winter. The peck an acre of Wheat did not this year plant well, but it is now branching. Most of my Wheat at 1 bushel to 5 pecks per acre looks very thick, some too thick. *J. J. Mechi.*

GLOUCESTERSHIRE.—The weather has been dry, the wind blowing mostly from the north and east. Yesterday, however, it changed to the west, and with this change the atmosphere has become milder, and some slight showers have fallen, but as yet there are no indications of much rain. Stock generally presents a very poor appearance, showing most palpably the effects of a long winter with a shortness of food. About a fortnight to three weeks since the mutton and beef sold much lower than it had done for weeks previously. Now, however, the scarcity seems to be again felt, and at Cirencester on Monday we scarcely ever knew fat stock realise such high prices. Mutton sold at from 9*d.* to 10*d.* per lb., and beef fetched relatively as much money. The Wheat plant has suffered much from what we suppose the alterations of temperature during the months of March and the early part of April. But whatever the cause, fields which looked moderately at the beginning of March have become so thin as to be replanted. These remarks apply to a considerable percentage of the plant. It is not the wireworm, neither is it from what the Wheat plant suffers from—being heaved out of the ground by the land being frozen and then thawed, so as to throw the roots of the plant above ground, but this season the plant seems killed in the ground. Spring corn planting has been done with more than usual success, and is looking very promising. Mangel Wurzel is being planted more extensively than in many seasons, and all field-work seems forward. Fruit is blossoming well. Being kept back by the cold easterly winds until this time, many argue in favour of there being an abundant crop, because the chances are it will not be cut off after this time by severe weather. Farmers are greatly disappointed that Mr. Gladstone should in his Budget not have given them any relief in regard to the repeal of the malt tax. Surely, however, one of the principal articles of consumption cannot much longer remain taxed to nearly its value.

Miscellaneous.

Messrs. Sutton's Seeds.—A silver medal has been awarded by the Western Province Agricultural Society to Messrs. Sutton and Sons, the well-known seedsmen, of Reading, in Berkshire, for the collection of seeds sent by them to the Society, and exhibited at the Paarl Exhibition. They are to find a place in the Society's economic museum, and, with the aid of the Colonial Botanist as expounder, the farmers, meeting either at the Society's rooms or at stated places in some of our country towns, may learn from actual observation the relative merits of all, and turn the knowledge thus gained to good account. *From the Cape and Natal News.*

Notices to Correspondents.

CANADA FARMING: *H. G.* Next week; many thanks.

CATTLE CONDIMENTS: *Feeder.* Mr. Lawes' experiment was described thus by himself: "The question is, how much food does it take to produce 100 lbs. increase of flesh in an animal? I found that, without Thorley's food, it required 274 lbs. of Clover chaff, 137 lbs. of Linseed cake, and 3824 lbs. of Swedes; and with Thorley's food, 285 lbs. of Clover chaff, 107 lbs. of Linseed cake, 3980 lbs. of Swedes, and 35 lbs. of Thorley's food; the one being 4236 lbs. without Thorley's food, and the other 4409 lbs. with Thorley's food. That is to say, 200 lbs. more with the condiment. The sheep have not yet been killed. Still 16 weeks' experiments are sufficient to give a tolerable idea of what will be the result. Taking a gross amount of food to produce an increase of 100 lbs. of meat, I find it amount to 4536 lbs. without Thorley's food, and 4576 lbs. with that food. The difference, you perceive, is not much; nevertheless, in both cases a larger quantity of food is required to give the same increase of flesh when Thorley's food is added. And this is the result which science would predict. There is nothing in science to predicate that an article which has great tonic and stimulating properties is likely to increase the assimilation of food. You may make a large quantity of food pass through the stomach of an animal, but you cannot make him assimilate those foods. If, therefore, you regard these things as food for animals which are in good health, they are not to be recommended at all. Call them medicines, if you like. I have no doubt they have considerable medicinal properties, and do enable animals to digest their food where otherwise they would not do so.'

CEMENTS: *J Thomson.* Lime and egg cement is frequently made by moistening the edges to be united with white of egg, dusting on some lime from a piece of muslin, and bringing the edges into contact. A much better mode is to slack some freshly-burned lime with a small quantity of boiling water; this occasions it to fall into a very fine, dry powder, if excess of water has not been added. The white of egg used should be intimately and thoroughly mixed by beating, with an equal bulk of water, and the slacked lime added to the mixture, so as to form a thin paste, which should be used speedily, as it soon sets. This is a valuable cement, possessed of great strength, and capable of withstanding boiling water. Cements made with lime and blood, scraped cheese, or curd, may be regarded as inferior varieties of it. Cracked vessels of earthenware and glass may often be usefully, though not ornamentally, repaired by white lead spread on strips of calico, and secured with bands of twine. But, in point of strength, all ordinary cements yield the palm to Jeffrey's Patent Marine Glue, a compound of India-rubber, shell-lac, and coal-tar naphtha. Small quantities can be purchased at most of the tool warehouses, at cheaper rates than it can be made. When applied to china and glass, the substances should be cautiously made hot enough to melt the glue, which should be then rubbed on the edges, so as to become fluid, and the parts brought into contact immediately. When well applied to the stem of a common tobacco-pipe it will break at any other part, in preference to the junction. The colour of the glue prevents its being used for china.

GREAT CHEESE: *Somerset.* The following are the particulars:—The inhabitants of West Pennard, a village near Glastonbury, Somerset, in order to evidence their loyalty, resolved that a cheese should be made from the milk of all the cows in the parish, and, when ripe, should be presented to the Queen. In order to carry out this resolution, an immense vat was constructed with the royal arms, and many other rich embellishments carved upon it. On the anniversary of the Queen's coronation, about 50 of the wives and daughters of the subscribers assembled at the house of Mr. G. Nash, with one meal's milk from 737 cows which were kept in the parish. This amounted to upwards of 20 hogsheads, and occupied the contributors from morning to night to turn into curd. When finished it measured 9 feet in circumference, 3 feet 1 inch in diameter, and 1 foot 10 inches deep. It was presented to the Queen at Buckingham Palace, February 19, 1841.

HORSES *versus* STEAM: *X.* A team of horses, such as we have in England for clay-land tillage, will weigh, with men and plough, at least two tons, and over every 10-inch width, from end to end of every field, this 40 cwt. must tramp or slide in the effort to lift and *loosen* (!) each 10-inch strip of earth. Of course a hardened floor is formed. What a contrast to the operation of Fowler's 4-furrow plough resting on two large wheels, and weighing altogether some 27 cwt., drawn once to every 40 inches width, by which a deeper and more thorough ploughing is effected. In the former case every operation created the need of another. The horses and the tool together hardened a floor, below which water could not penetrate; or if engaged in harrowing, they hardened the earth they were attempting to reduce to tilth, and so made another operation needed.

LIFE OF SEEDS: *Cor.* In connection with the table of Seeds per lb., given some time ago in these columns, we now quote the results of experiments by the Kelso Club on the vitality of samples. The following is a portion of their last report. In a table, which shows the results of the experiments made with Clover seeds, it is seen that

	Per cwt.		Per 100 seeds.
1. White Clover	at 83*s.*	produced, of three trials,	50 plants.
2. Alsike	at 178*s.*	,,	68 ,,
3. White	at 72*s.*	,,	52⅔ ,,
4. Alsike	at 160*s.*	,,	66 ,,
5. White	at 80*s.*	,,	86 ,,
6. Alsike	at 130*s.*	,,	92⅔ ,,
7. Red	at 64*s.*	,,	80⅓ ,,
8. Yellow	at 28*s.*	,,	73⅓ ,,
9. White	at 84*s.*	,,	42⅓ ,,
10. Yellow	at 26*s.* 6*d.*	,,	38 ,,

The percentage of weeds found in each sample is stated, and experiments were made to ascertain their nature.

MR. BOWLY'S HERD. The sale of certain families from the Siddington Herd realised fair prices:—*Fair Lady*, a three-year-old roan by Earl of Walton, was bought for Mr. Blyth at 66 gs.; BARON OXFORD, a yearling, fetched 66 guineas; *Pensive*, a 4th DUKE OF OXFORD cow, was bought for 60 gs.; *Fame*, for 55 gs; *Duchess of Walton*, for 52 gs.; *Peaceful*, 61 gs.; SECOND BARON WETHERBY went to Coleshill at 64 gs.; BATES DUET to Mr. Blackstock, of Hayton Castle, in Cumberland, for 65 gs. The total realised by the sale of 38 animals was 1555*l.* 1*s.*; and the average 40*l.* 18*s.* 5*d.* The 23 females averaged 41*l.* 8*s.*; and the 15 bulls and bull calves averaged 40*l.* 3*s.* 7*d.*

POTASH: *E R J.* Dr. Voelcker's lecture merely stated that the lowest quality of Potash-bearing earth, containing 20 to 24 per cent. of sulphate of potash, sells in Germany (Strassfurth), for 3*l.* a ton. The qualities containing 60 to 80 per cent. of chloride of potassium, are brought to England and sold at 7*l.* to 12*l.* a ton. No doubt you can have it of the London Manure Company.

THE HYDROPULT,

An Invention for Throwing Water by Hand Power

(SECURED BY ROYAL LETTERS PATENT).

PRICE LIST.

	£	s.	d.
COMPLETE WITH BRASS CYLINDERS AND JAPANNED STIRRUP	1	12	6
COMPLETE WITH BRASS CYLINDERS AND COPPER STIRRUP	2	2	0

The Price "Complete" as above, includes 2½ feet Suction and 3 feet Delivery Hose, Galvanised Wire Strainer, Rose and Small Jet.

THE HYDROPULT
is invaluable for use in the
GARDEN for
WATERING BEDS,
SPRINKLING PLANTS,
DROWNING OUT INSECTS,
CLEANSING TREES FROM SMUTS,
DRESSING WITH LIQUID MANURE,
&c. &c

THE HYDROPULT
is desirable in every
HOUSEHOLD for
WASHING WINDOWS,
WETTING SIDEWALKS,
SPRINKLING STREETS,
WASHING CARRIAGES,
EMPTYING CISTERNS,
FILLING BARRELS,
A SPRAY BATH,
&c. &c.

ORDERED by the WAR DEPARTMENT as FIRE ENGINES.

ROBERT HOGG, LL.D. and F.L.S., Rev. H. H. DOMBRAIN, A.B., SHIRLEY HIBBERD, Esq., F.R.H.S., THOMAS RIVERS, Esq. (the eminent Florist), and other well-known gentlemen, recommend the HYDROPULT AS AN INVALUABLE GARDEN IMPLEMENT.

The Hydropult will draw water horizontally, if necessary, through Two Hundred Feet Suction Hose, and force it through Delivery Hose to an altitude of One Hundred Feet.

THE
GREENHOUSE AND CONSERVATORY HYDROPULT.
A NEW AND BEAUTIFUL IMPLEMENT,
Weighing scarcely 5 lbs.
AND SPECIALLY ADAPTED FOR USE IN THE GREENHOUSE AND CONSERVATORY.
Price 35s.,
Complete, with Brass Cylinders and Copper Stirrup, 2½ feet Suction and 3 feet Delivery Hose, Strainer, Rose, Jet, and Fan.

This NEW IMPLEMENT must necessarily supersede Syringes and other devices of the kind, for it will be found much more effective in its operation.

A LADY CAN WORK IT FOR HOURS WITHOUT FATIGUE.

CAUTION.

IMPORTANT TO THE PUBLIC.—The extensive sale of the Hydropult has excited the cupidity of so-called respectable, but in reality unprincipled Manufacturers, who are now palming on the Public worthless imitations of the Hydropult, and through their connections are enabled to place said devices on exhibition, and for sale, in many of the principal Ironmongery and Seed Establishments throughout the city and provinces. These devices resemble in many respects the Hydropult in appearance, and are calculated to deceive the unsuspecting. The Proprietor therefore issues this Caution, and respectfully intimates that parties wishing to purchase the Hydropult should examine the machine offered for sale, and see if it has attached thereto a label, with the following words:—"The Hydropult, VOSE'S Patent, manufactured only by GRIFFITHS & BROWITT, Birmingham. CHARLES POMEROY BUTTON, Proprietor, 142 and 143, Cheapside, London." Unless this label is attached, the Machine is not the Hydropult.

Prospectuses, with Testimonials, on application.

HYDROPULT SHOW ROOM, 142 & 143, CHEAPSIDE, LONDON.
CHARLES POMEROY BUTTON, PROPRIETOR.

SUTTON'S PRIZE MANGEL SEED, saved exclusively from fully-developed Roots.

LARGE YELLOW

GLOBE MANGEL.

9*d.* per lb.

Cheaper by the cwt.

For prices of SUTTON'S SELECTED YELLOW GLOBE, ELVETHAM LONG RED, LONG YELLOW, RED GLOBE, and other choice Sorts, see SUTTON'S NEW FARM SEED LIST, which may be had gratis and post free on application.

Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

SUTTON'S CHAMPION SWEDE, perfectly hardy, very productive, stores exceedingly well, and rarely if ever suffers from mildew.

THREE HUNDRED GUINEAS IN 12 PRIZES.

For Six Years successively his late Royal Highness the Prince Consort's Prize Cups have been awarded to SUTTON'S CHAMPION SWEDES at the Royal East Berks and South Berks Agricultural Societies, and many other valuable Prizes in various parts of the kingdom.

From Mr. Large, *Bailiff to the Right Hon. Lord Berners*:—

"The Champion Swedes from seed Lord Berners purchased of you are far superior to any other we have grown. I can confidently say they are many tons per acre heavier than any other Swedes growing on his lordship's farm."

Price of Seed 1*s.* per pound, or cheaper by the bushel.
SUTTONS' NEW FARM LIST gratis and post free.
Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

To Market Gardeners and Seedsmen.

RICHARD WALKER, Seed Grower, &c., Biggleswade, Bedfordshire, begs to offer the following for cash:—
YELLOW GLOBE MANGEL WURZEL, 32*s.* per cwt.
WHITE SPANISH ONION, 1*s.* 6*d.* per lb.
RED CABBAGE PLANTS, extra strong, 5*s.* per 1000.
EAST HAM DITTO, fine, 3*s.* per 1000.

WAITE, BURNELL, AND CO. have great pleasure in recommending the following:—

	s.	*d.*
BRUSSELS SPROUTS—RICHMOND'S COMPACT, selected for its very dwarf and compact habit; in sealed packages, per ounce	2	6
BROCCOLI—DANCER'S IMPREGNATED EARLY WHITE, per lb.	10	0
CABBAGE—BURNELL'S KING of the DWARFS, the earliest grown; very dwarf, growing close to the ground; very fine and sweet flavour; in sealed packages, per ounce	2	6
CUCUMBER NORBITON GIANT, the finest, longest, and most prolific Cucumber in cultivation; per packet	2	6
POTATOS—ERIN'S QUEEN DWARF ASHLEAF, very dwarf in the haulm, foliage of a dark green colour, very early, and invaluable for frames (vide Circular); per bushel	15	0
CONVOLVULUS TRICOLOR SPLENDIDISSIMUS, colour reddish purple, very distinct; per packet	1	0
POLYANTHUS, selected from the finest laced flowers by that eminent florist John Keynes, of Salisbury (strongly recommended); per packet 2*s.* 6*d.* and	5	0
PRIMULA SINENSIS FIMBRIATA, the choicest grown; per packet, 2*s.* 6*d.* and	5	0

Seed Warehouse: 181, High Holborn, London, W.C.

Wheeler's Imperial Swede.

WHEELER'S IMPERIAL SWEDE, one of the Hardiest, Finest, and Most Nutritious Swedes in cultivation. Won the First Prize at the Gloucestershire Root Show, and several valuable Silver Cups.

1*s.* per lb., 45*s.* per bushel.
Carriage free by rail, and 5 per cent. discount for cash.
J. C. Wheeler & Son, Seed Growers, Gloucester.

Tankard-shaped Swede, 1s. per lb.

JAMES DICKSON AND SONS, Seed Merchants, 102, Eastgate Street, Chester.
A full LIST of FARM SEEDS on application.

PELARGONIUM MRS. POLLOCK.—Small Plants in 60-pots at 2*s.* 6*d.* each; Larger Plants well established in 48-pots, 4*s.* and 5*s.* each.

VARIEGATED-LEAVED PELARGONIUMS.

Per dozen.	*s.*	*d.*	Per dozen.	*s.*	*d.*
Cloth of Gold	3	0	Variegated Nosegay	6	0
Golden Fleece	2	6	Countess of Warwick	4	0
Golden Chain	2	6	Alba marginata	6	0
Bijou	3	0	Alma	3	0
Shottesham Pet	3	6	Eva	3	6
Jane	3	6	Bridal Wreath	4	0
Flower of the Spring	3	6	Daybreak	4	0
Julia	3	6	Scintillatum	6	0
Beaton's Silver Nosegay	6	0	St. Clair	3	6

ZONATE and PLAIN-LEAVED VARIETIES.

Per dozen.	*s.*	*d.*	Per dozen.	*s.*	*d.*
Madame Vaucher	6	0	Punch	3	0
Christina	3	0	Countess	3	0
Rose Queen	3	6	Aurora	6	0
Blackheath Beauty	3	6	Lady Middleton	3	0
Paul Labbé	3*s.* 6*d.*				

All the above are strong autumn-struck Plants, well hardened, ready for bedding out.

Alfred Fryer, Nurseryman, Chatteris, Cambridgeshire.

Calceolarias.

ISAAC DAVIES begs to offer the following Hybrid Shrubby Varieties, which he raised last year, and which are now offered for the first time. They have all the habit of Aurea floribunda, and are equally good for bedding:—

GARIBALDI, crimson scarlet
CRIMSON KING, fine crimson
RUBRA FLORIBUNDA, red mottled
AUREA SUPERBA, fine yellow
NAPOLEON, bright crimson
NEGRO, very dark
OTHELLO, dark crimson
CONSTELLATION, yellow spotted
NOVELTY, buff
COMET, orange scarlet
OPTIMA, dark crimson
GENERAL LEE, bright crimson
LEVIATHAN, orange, large truss

Price 18*s.* per dozen; second size, 12*s.* per dozen. The usual discount to the Trade.

Larkfield Nursery, Wavertree, near Liverpool.

BEATON'S GERANIUMS.

Notices of the Press.

"Among scarlets passing off in one direction towards orange and yellow, and in the other towards purple rose and magenta, the bedder-out will have acquired amongst Pelargoniums a variety of tints which must be invaluable to him, especially in seasons like the present; the flowers, moreover, having in many cases a peculiar glow of colouring, which gives them extraordinary richness and brilliancy."—*Gardeners' Chronicle*, August 20, 1864.

"There is a decided novelty in their colour and style, which will render them indispensable in every collection."—*Journal of Horticulture*, July 5, 1864.

"The like have never been obtained; possessing as they do not only novelty, but singular beauty of colour, and remarkable profusion of bloom."—*Journal of Horticulture*, September 20, 1864.

"The acquisition of new colours amongst the varieties of so popular and useful a flower cannot be otherwise than agreeable to those who follow up the parterre system of flower gardening. * * * Many of them combine the prolific bloom of the Nosegay race with the better-shaped blossoms of the more ordinary kinds. * * * Indispensable to those who, in the matter of flower gardening, wish to keep pace with the times."—*The Florist*, January, 1865.

ALEXANDRA.—Top petals of flowers crimson, lower petals magenta, the combination of colours producing a most beautiful glow; play of colour; very free and effective. Price, 5*s.* each.

AMY HOGG.—Flowers bright purplish rose, the trusses of immense size, very abundant, and standing up well above the leaves; a strong free-growing Hybrid Nosegay, of spreading habit, the leaves slightly zonate, very distinct and attractive. Price, 5*s.* each.

"A grand acquisition."—*The Florist.*

"It was the admiration of all who saw it."—*Journal of Horticulture.*

"Very distinct and attractive; * * stands in the front rank."—*Gardeners' Chronicle.*

BEATON'S INDIAN YELLOW.—Flowers orange scarlet, with a strong glow of yellow, quite a novel and pleasing colour; the trusses, which are of medium size, are produced in extraordinary abundance; a Hybrid Nosegay, of dwarf but free habit, with zonate leaves, a distinct and first-rate bedding variety, and very effective. Price, 5*s.* each.

"A most unexpected and valuable addition to the materials for *parterre* gardens."—*Gardeners' Chronicle.*

"Quite novel in colour."—*Journal of Horticulture.*

"All the more welcome as being the first of this colour which will be placed within reach of the flower gardener."—*The Florist.*

BLACK DWARF.—Flowers crimson scarlet, the trusses of medium size and very abundant, leaves darkly zonate; a true Nosegay in close dwarf habit. Grown at the Crystal Palace on trial, although not before offered for sale. Price, 2*s.* 6*d.* each.

"Extremely useful for small beds or the margins of ribbon borders, on account of its close dwarf habit."—*Gardeners' Chronicle.*

DONALD BEATON.—Flowers clear orange scarlet, of immense size and fine form, trusses also large; a strong free-growing kind, excellent for bedding. Price, 5*s.* each.

"A thoroughly good variety."—*Gardeners' Chronicle.*

DUCHESS.—Flowers soft rosy lake, of good size and form, trusses also good and abundant. A very free-flowering kind, of dwarf habit, invaluable for bedding. Price, 3*s.* 6*d.* each.

FULGENS.—Flowers vivid scarlet, with large clear white eye, truss large and compact, forming a perfect globe, horse-shoe leaf. Price, 3*s.* 6*d.* each.

GLOWWORM.—Top petals of flowers fiery scarlet, lower petals magenta flushed with crimson; the trusses are good and abundant, very erect, standing well above the foliage; the habit is dwarf and compact. This variety promises to be one of the most novel and beautiful plants recently introduced for beds, the combination of colours producing a rich and peculiar glow quite unique in the Geranium. Price, 5*s.* each.

"Quite a novelty."—*Journal of Horticulture.*

"Another remarkable flower."—*Gardeners' Chronicle.*

"Remarkable for the glow of colour."—*The Florist.*

MAGENTA QUEEN.—Flowers magenta, top petals crimson, with large white eye; a Hybrid Nosegay, of strong free habit, very distinct and pleasing. Price, 5*s.* each.

ORANGE NOSEGAY.—Flowers bright orange, trusses very large; a true Nosegay, with deep green leaves, and of free habit, quite new in colour, very effective. Price, 5*s* each.

"A great acquisition; * * the flowers differ from all others we have seen in their decided bright orange tint."—*Gardeners' Chronicle.*

"In this the yellow tint is also strongly marked."—*The Florist.*

PILLAR of BEAUTY.—Flowers brick-red, scarlet eye, immense truss, half-climbing habit, invaluable for clothing the pillars and walls of the conservatory and flower garden. Price, 5*s.* each.

PRINCESS LICHTENSTEIN.—Flowers salmon pink, beautiful self colour, very smooth, perfect form and fine close habit. Price, 5*s.* each.

SALAMANDER.—Flowers brilliant scarlet, white eye, fine compact habit, horse-shoe leaf. Price, 3*s.* 6*d.* each.

SCARLET GEM.—Flowers bright orange scarlet with white eye, a profuse bloomer, dwarf habit, with dark horse-shoe leaves, invaluable for the mass of colour it produces. Price, 3*s.* 6*d.* each.

MRS. WM. PAUL.—Flowers clear delicate rose-pink, very large and of perfect form, habit dense, dwarf, and strong; a plant of great promise for out-of-door culture. Price, 5*s.* each.

"In respect to size and form far in advance of all the rose-pink varieties we have yet seen; * * flowers larger than a crown-piece; * * quite circular; * * exceedingly delicate and beautiful."—*Gardeners' Chronicle.*

WALTHAM SEEDLING.—Flowers fine, full, dark crimson, very large truss, horse-shoe leaf; a Hybrid Nosegay, raised from Stella, but much darker than that variety. Price, 5*s.* each.

Good Plants ready for delivery in May next. Early orders are respectfully solicited.

William Paul, Waltham Cross, London, N.

NEW and SELECTED SEEDS.

CARPENTER'S MAGNUM BONUM PEAS.—The Largest and Best Tall Variety grown. 5*s.* per quart.

CARPENTER'S MULTUM IN PARVO PEAS.—The Best Dwarf Variety grown. 5*s.* per quart.

CARPENTER'S MONSTROUS WHITE COS LETTUCE,
CARPENTER'S MONSTROUS GREEN COS LETTUCE,
CARPENTER'S MONSTROUS BROWN COS LETTUCE,
are the three best LETTUCES in cultivation. 1*s.*, 2*s.* 6*d.*, and 5*s.* per packet.

CARPENTER'S PREMIER SWEDE.—Superior in size, share, and quality to any other Swede grown. (Sow 3 lb. per acre.) 3*s* per lb.

A remittance from unknown correspondents is requested.

CATALOGUES on application to Edward Carpenter, Seed Merchant and Grower, Brighton and Sussex Seed Warehouse, 9, St. James's Street, Brighton.

COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 2*s.* per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 25th March, 1863; or apply to the Patent Cocoa Fibre Company, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. Barsham & Co.

Barsham's BRUSHES and MATS are sold in every town.

Caution.—Every Brush is stamped, J. Barsham's Patent.

TO THE TRADE.

1-year Seedling ARBUTUS, 40s.
1-year Seedling ARBOR-VITÆ, CHINESE, 15s.
3-year Seedling " " AMERICAN, 15s.
1-year Seedling BERBERIS DARWINII, 40s.
1-year Seedling BROOM, WHITE PORTUGAL, 15s.
1-year Seedling " YELLOW SPANISH, 15s.
1-year Seedling PICEA NORDMANNIANA, 100s.
1-year Seedling PORTUGAL LAUREL, 15s.
1-year Seedling YEWS, ENGLISH, 15s.
BEDDED ARBOR-VITÆ LOBBII, 80s.
" BOX, NEW BROAD-LEAVED, 40s.
" HEMLOCK SPRUCE, 100s.
" PERNETTYA MUCRONATA, 70s.
" PORTUGAL LAUREL, 6 to 9 inches, 40s.
" PICEA PINSAPO, 2 yr., 100s.
" RETINOSPORA ERICOIDES, 80s.
" RHODODENDRONS, 3 yrs., very fine hybrids from best named sorts, 60s.
" THUJOPSIS BOREALIS, 3 to 5 inches, 70s.
" YEW, ENGLISH, 5 to 7 inches, 70s.
RICHARD SMITH, Nurseryman, Worcester.

Kensington's Concentrated Horticultural Manure.

THIS MANURE is adapted for the Growth of all kinds of Fruit, Flowers, and Vegetables, and can be used either in a liquid or dry state.
In casks 28 lbs. each, 5s.; in casks 56 lbs. each, 10s. Free to rail.
Moolham Chemical Works, Ilminster.

Potash for Agricultural Purposes.

THE LONDON MANURE COMPANY have arranged for a supply of very high quality of MURIATE of POTASH, which they offer at from £13 to £14 per ton.
Offices: 116, Fenchurch Street, E.C. EDWARD PURSER, Sec.

THE LONDON MANURE COMPANY have now ready in fine condition—
DISSOLVED BONES,
SUPERPHOSPHATES of LIME,
TURNIP MANURE,
BLOOD MANURE for Barley and Roots,
URATE,
MANGEL MANURE, &c. &c.
They also continue to supply GIBBS' PERUVIAN GUANO NITRATE of SODA, SULPHATE of AMMONIA, FISHERY SALT, and all FERTILISERS of known value.
Works, Plough Wharf, Isle of Dogs.
Offices, 116, Fenchurch Street, E.C. E. PURSER, Secretary.

Great Bargains in Manures.

MR. POTTER, in RETIRING from BUSINESS, offers the above at from 30 to 40 per cent. under usual prices.
Address 2, Bernard Villas, Upper Norwood, S.

GOULDING'S HORTICULTURAL MANURE,
Manufactured by
W. & H. M. GOULDING, Manure Manufacturers,
106, Patrick Street, Cork; 22, Westmoreland Street, Dublin.
One Shilling per Box.
The use of it ensures the finest and best developed Flowers, Bulbs, Roots, &c.
Agents, Wholesale and Retail:
Messrs. James Carter & Co., Seed Merchants, 237, High Holborn.
" Butler & McCulloch, Covent Garden.

LAWES'S MANURES.—The Manures manufactured by J. B. LAWES for the present Season of 1865 are now ready for delivery at his Factories, at the following prices:—
LAWES'S PATENT TURNIP MANURE, and BONE SUPERPHOSPHATE of LIME, £6 6s. per ton.
LAWES'S SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES, £5 5s. per ton.
LAWES'S WHEAT, BARLEY, GRASS, and MANGEL MANURES, £8 per ton.
CONCENTRATED CORN and GRASS MANURE, £12 per ton.
These Manures can be obtained of Mr. LAWES, or through his appointed Agents, in all parts of the United Kingdom, at prices varying according to cost of carriage.
Genuine PERUVIAN GUANO direct from the Importers.
NITRATE of SODA, SULPHATE of AMMONIA, and other Chemical Manures. AMERICAN and other CAKES at market prices.
Address JOHN BENNET LAWES, 1, Adelaide Place, London Bridge, E.C.; and 22, Eden Quay, Dublin.

ODAMS'S BLOOD MANURE for CORN,
ODAMS'S BLOOD MANURE for ROOTS,
ODAMS'S SUPERPHOSPHATE of LIME.
MANUFACTURED BY
THE PATENT NITRO-PHOSPHATE or BLOOD MANURE COMPANY (LIMITED),
Consisting of Tenant Farmers occupying upwards of 30,000 Acres of Land.
Chairman.—JOHN CLAYDEN, Littlebury, Essex.
Managing Director.—JAMES ODAMS.
Particulars of these standard Manures may be obtained at the Offices, or of the Local Agents.
C. T. MACADAM, Secretary.
Chief Office: 109, Fenchurch Street, London, E.C.
Western Counties Branch: Queen Street, Exeter.
Manufactories: Plaistow, Essex; and Elford, near Topsham, Devonshire.

Manures and Feeding Stuffs.

RAYNBIRD, CALDECOTT, AND BAWTREE.
Address, 89, Seed Market, Mark Lane; or Basingstoke.
Samples and prices on application.

Linseed Cake and Oil Mills, Henley-on-Thames.

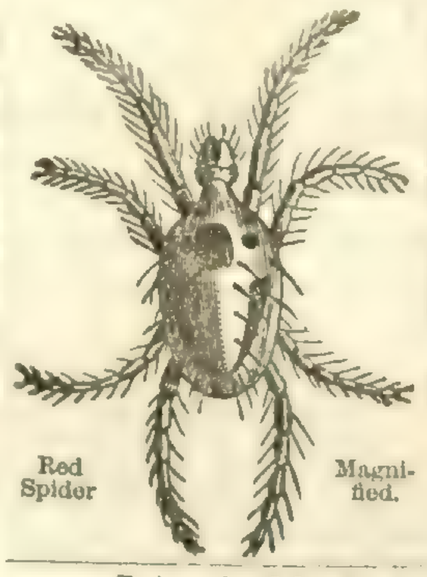
R. BURNISTON begs to inform Consumers of Linseed Cake that he is now supplying GENUINE LINSEED CAKE, Manufactured by himself from the finest Calcutta Linseed, at the lowest market price consistent with quality, viz., £11 5s. per Ton, free on Rail. It will be found more economical and far superior in Feeding and Manurial qualities to lower priced and inferior Cakes.
The finest PALE LINSEED OIL at 3s. 6d. per Gallon, in quantity of 10 Gallons; a larger order supplied at a lower price.
Samples by post free.

TOOGOOD'S (late PAGE & TOOGOOD'S) IMPROVED BLIGHT COMPOSITION introduced in 1850, has been manufactured under W. TOOGOOD'S sole directions since that period. He has made great improvements in it, and by reducing the price 25 per cent., it is one of the cheapest and has always been the most efficacious remedy extant. To publish the Testimonials no newspaper would give space, but Messrs. CUTBUSH & SON, the eminent Nurserymen, say:—"It is the best thing for the purpose we can find, and does not appear to injure the young foliage like Gishurst does. This is our experience after 10 years' trial."
"February 24, 1864."
Mr. E. SAGE, *Gardener to* Lord HOWE, *says*:—
"Will you please send us 15 gallons of your Blight Composition. I see you have reduced the price, and trust that you may some day be able to make another reduction, and I feel assured that no 'Gishurst,' will be used by practical men."
"We hereby Certify that during the whole time we were Warehousemen in the Establishment of B. PAGE & Co., and subsequently PAGE & TOOGOOD, that we Manufactured the Blight Composition under Mr. TOOGOOD'S *sole directions, and that he alone knew the proportions of the various ingredients.*
Signed JOHN MORLEY,
HENRY DREW,
HENRY SHEERMAN,
GEORGE ISAACS."
"July 13, 1863."
Extra strong, 3s. per gallon (sufficient to make 4 gallons fit for use), 10 gallons and upwards carriage free to London.
May be obtained of the principal Nurserymen and Seedsmen in the Trade, and of W. TOOGOOD, Royal South Hants Seed Establishment, Southampton.

REIGATE SILVER SAND.—Best Kent and Surrey PEATS, LOAMS, SPHAGNUM, ROCK SANDSTONE, London-made FLOWER POTS, &c.
N.B. Loaded Trucks can be sent direct on all the Railways.
W. SHORT, Sand and Peat Depôt, Reigate, Surrey.

GENUINE TOBACCO PAPER, in 4-lb. packets.
Price on application to
HENRY APPLEBY, Foreman to Messrs. Ivery & Son, Dorking, Surrey.

ROLL TOBACCO CLOTH.—The cheapest and best article for Fumigating Greenhouses and destroying the Fly, price 1s. 4d. per lb.; over 10 lbs. 1s. 1d.
JOSEPH BAKER, 10, Gough Square, Fleet Street, London, E.C.
Post Office Orders payable Fleet Street.



GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.
Sold Retail by Nurserymen and Seedsmen, in boxes, 1s., 3s., and 10s. 6d. each.
Wholesale by
PRICE'S PATENT CANDLE COMPANY (LIMITED).

Patronised by 70,000 Stock Breeders.

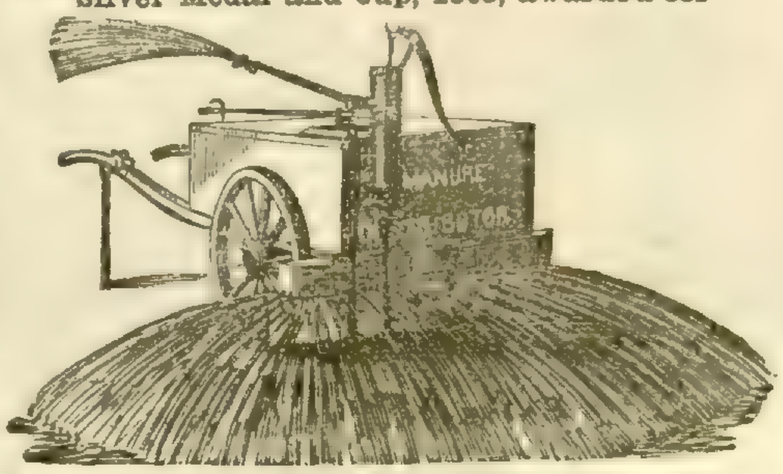
DAY, SON, AND HEWITT, Sole Inventors of the Celebrated STOCK-BREEDER'S MEDICINE CHEST, containing as follows:—
Six Bottles (at 2s. 6d. each) of the UNIVERSAL CHEMICAL EXTRACT, match less for penetrating, mollifying, and assuaging pain in all wounds, kicks, cuts, strains, &c., in horses and cattle; straining in ewes lambing, and swollen and inflamed udders in cows and ewes; sore feet in cattle, sheep, and dogs.
One Dozen Bottles (value 20s.) of the GASEOUS FLUID or BLACK MIXTURE, unmatched in the known world for curing diarrhœa or scouring calves, sheep, and lambs; for ewes weakly and exhausted after lambing; for horses and cows exhausted and sickly, and for the fret, colic, or gripes in horses and cattle. An instantaneous remedy for blown cattle and sheep.
One Dozen Packets (value 13s.) of the RED DRENCH or INFLAMMATION POWDER, for cleansing after calving or lambing, for straining in ewes, and for removing all feverish symptoms in cows and ewes after calving or lambing; for yellows in oxen, and for colds, chills, and all inflammatory cases in horses, cattle, and pigs.
One Dozen (value 7s. 6d.) of the RED PASTE or CONDITION BALLS (for horses). These Balls give vigorous health, purify the system, and produce a mole-like sleekness of coat.
Price of Chest complete, with Shilling Key to Farriery, 2l. 16s. 6d. securely packed, and carriage free. Sample case, usefully assorted 16s. 6d. Messrs. D., S., & H. respectfully urge their friends to send their orders early, so that no purchaser may be kept waiting.
Either preparation may be had separately in boxes, carriage paid.
Address—DAY, SON, & HEWITT, Animal Medicine Manufactory, 22, Dorset Street, Baker Street, London, W.; or Wantage, Berks.
Testimonials from all parts of the United Kingdom and Ireland sent free on application.
Established over One Quarter of a Century.

To Flockmasters.

LONG'S NON-POISONOUS SHEEP DIPPING COMPOSITION is a thorough cleanser of the skin, effectually destroys all Ticks and other vermin in the animal, thus tending greatly to improve the Flock and prevent fly striking. The Composition, in its use, leaves the fleece as white as snow, free from any stain, and the skin soft and oily. It is sent out in tin cans, from one gallon to four gallon size. When mixed, one gallon with 80 gallons of cold water, it makes a bath of a perfect white and soapy appearance; it mixes readily, leaves no sediment on the bottom or scum on the top, and the cost is about one penny per head. When used as pouring Composition for Scab or destruction of Tick, mix one gallon with 40 gallons of water.
LONG'S MAGGOT LOTION.—This lotion will instantly Kill every Maggot, Heal the Wound, and prevent Fly Striking, as well as Destroy all Fleas and other Vermin in Dogs or Cattle; is sold in pint bottles at 22d. per pint. One pint strong enough to mix with 40 pints of water—ready for use.
LONG'S GREEN-FLY LOTION.—This lotion is prepared purposely for Horticultural purposes, and when diluted, one pint to 40 pints of water, will Kill every Green-fly and other Insects that infest Roses, Fruit Trees, Shrubs, &c., and prevent Blight in Hops or Vines. Sold in half pint bottles at 20d. each bottle.
LONG'S TURNIP-FLY LOTION.—This Lotion has been J. LONG'S study for many years, and he can now confidently recommend it as a thorough Preventive and Destroyer of the Turnip pest, at a cost of from 6s. to 10s. per acre.
Wholesale Agents, S. & E. RANSOME & Co., Essex Street, Strand, W.C.

RICK CLOTHS, New and Second Hand.
RICK CLOTHS, with Poles and Pullies complete.
Address, BENJAMIN EDGINGTON (only), 2, Duke Street, London Bridge.

Silver Medal and Cup, 1863, awarded for



JAMES'S FIRST PRIZE MANURE CART, which has been awarded 20 PRIZES. Is now fitted up to answer for LIQUID MANURE, for supplying the STEAM PLOUGH, for WATERING STREETS, or for a FIRE ENGINE. Nearly 300 already sold.

Washing.

The last great improvement in Washing Machines is in JAMES'S new Patent PRIZE WASHING, WRINGING, and MANGLING MACHINES, awarded several FIRST PRIZES. Will Wash 20 Shirts in 20 Minutes, with much less injury than with the hand. More than 300 Sold.
Address, I. JAMES, Tivoli Works, Cheltenham.

Caution to Gardeners.—When you ask for

SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the corporate mark OBTAIN WARRANTED, without which none are genuine.
S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by sellers and makers.
S. & C.'s Pruning and Budding Knives are the best and the cheapest in the market.
Paxton Works, Sheffield. Established upwards of 125 years.

TERRA COTTA GALLERIES, No. 1, South Wharf, Praed Street, Paddington, W., are NOW OPEN with a fresh stock of VASES, FOUNTAINS, TAZZAS, FLOWER POTS, GARDEN EDGINGS, and other Architectural goods.

BENJAMIN LAMB, 243, Tottenham Court Road, London, W., MANUFACTURER of RUSTIC HORTICULTURAL GOODS—Rustic Fern Stands, Flower Vases, Ornamental Flower Pots, Mignonette Boxes, Stag's-head Brackets, Oak do., Suspending Pots, Crocus do., Glass Shades and Stands. Prices on application.

THE PATENT CONCRETE STONE COMPANY (LIMITED), are now the Proprietors of the Patents for the Manufacture of the beautiful material known as RANSOME'S PATENT CONCRETE STONE, which for durability, cheapness, and beauty of appearance, stands unrivalled. It is especially applicable for Fountains, Vases, Jardinets, Balustrades for Terraces, Gate Piers, Edgings for Borders, and all other Ornamental Requisites for Parks, Gardens, Conservatories, &c.
Illustrations and Prices furnished upon application at the Offices of the Patent Concrete Stone Company, 2, Queen Street Place, Southwark Bridge, E.C.

AUSTIN, SEELEY, AND CO.'S
Stock now comprises—

296 different kinds of VASES.
94 STATUES and FIGURES of CHILDREN.
70 FIGURES of ANIMALS and BIRDS.
About 200 FOUNTAINS, at prices from £10 to £400.
15 BASKETS from 1 to 10 feet diameter.
17 FLOWER BOXES for WINDOWS, &c.
6 GARDEN SEATS.
22 SUN-DIAL PEDESTALS.
22 ORNAMENTS for GATE PIERS.
And a great variety of BALUSTRADING and PEDESTALS.
309 to 375, Euston Road, Regent's Park, N.W.

GARDEN BORDER EDGING TILES, in great variety of patterns and material, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.

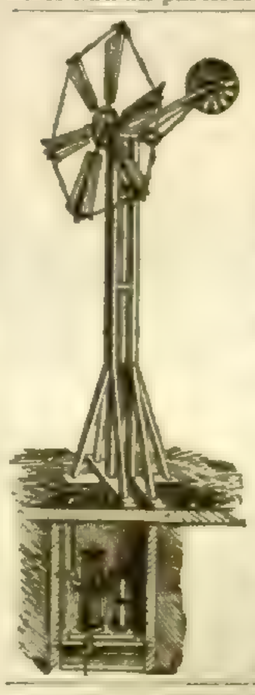
GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.
F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.
Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.
Also TESSELATED PAVEMENTS of more enriched designs than the above.
WHITE GLAZED TILES, for Lining Walls of Dairies, Larders Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cements, &c.
To be obtained of F. & G. ROSHER, at their Premises as above.

SILVER SAND (REIGATE, best quality), at the above addresses—14s. per Ton, or 1s. 3d. per Bushel; 2s. per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less.
FLINTS, BRICK BURRS or CLINKERS, for Rockeries and Grotto Work.
F. & G. ROSHER.—Addresses see above.
N.B. Orders promptly executed by Railway.

PRIZE ROLLERS for PARKS.
PRIZE ROLLERS for LAWNS.
PRIZE ROLLERS for CRICKET GROUNDS.
PRIZE ROLLERS for GARDENS.
PRIZE ROLLERS for ROADS.
PRIZE ROLLERS for the FARM.

The Best and Cheapest are the PATENT WATER BALLASTING ROLLERS, made only by the Inventors, AMIES, BARFORD, AND CO., Queen Street Iron Works, Peterborough, who will forward Price Lists and all particulars on application.



As Exhibited at Royal Agricultural Shows—
WORCESTER, 1863; NEWCASTLE, 1864; and PLYMOUTH, 1865.

WIND ENGINE (Patent Self-Regulating), for PUMPING, CHAFF CUTTING, PULPING, GRINDING, THRESHING, OAT CRUSHING, SAWING, or DRIVING other MACHINES.
Powers, from ½ to 12 Horses.
For Farm Purposes most economical, costing nothing to work. Erection simple and cheap.
For Pumping invaluable, working day and night, requiring no watching.
BURY AND POLLARD,
Sole Manufacturers,
PARK IRON WORKS,
17, New Park Street, Southwark, London,
Where a Wind Engine that has been at work seven years may be inspected.
Prices, with Testimonials, by post for one stamp.

Oil Paint no longer necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.
Sold in casks of about 30 gallons each, at 1s. 6d. per gallon, at the Manufactory, or 1s. 8d. per gallon paid to any Station in the kingdom.
Apply to HILL & SMITH, Brierley Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C. from whom only it can be obtained.

NEW TARIFF OF GLASS AND HORTICULTURAL GOODS.

THOMAS MILLINGTON,

GLASS AND COLOUR MERCHANT,

87, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.

THE AGRICULTURAL HALL, ISLINGTON, CONTAINING AN ACRE OF GLASS, WAS SUPPLIED BY ME.

Mr. RIVERS and the leading men in the Horticultural profession, as well as the Nobility, Gentry, and Merchants, have favoured me with Orders for Home use and for Exportation.

SHEET GLASS.

In Cases for Cutting up, averaging from 6 to 9 feet super.

AVERAGE THICKNESS, 15 TO 16 OZ.

4ths quality	.. ..	per 300 feet case	32s. 6d.	or about	1½d.	per foot.
3ds ,,	.. ..	,,	41 0	,,	1¾	,,
2ds ,,	.. ..	,,	60 0	,,	2½	,,
Best ,,	.. ..	,,	92 0	,,	3¾	,,

AVERAGE THICKNESS, 21 OZ.

4ths quality	.. ..	per 200 feet case	33s. 6d.	or about	2d.	per foot.
3ds ,,	.. ..	,,	42 0	,,	2½	,,
2ds ,,	.. ..	,,	63 0	,,	3¾	,,
Best ,,	.. ..	,,	89 0	,,	5¼	,,

AVERAGE THICKNESS, 26 OZ.

4ths quality	.. ..	per 200 feet case	44s. 6d.	or about	2¾d.	per foot.
3ds ,,	.. ..	,,	56 0	,,	3½	,,
2ds ,,	.. ..	,,	84 0	,,	5	,,
Best ,,	.. ..	,,	116 0	,,	7	

SHEET SQUARES, Cut to Order.

AVERAGE THICKNESS, 15 to 16 oz.

	Under 1 foot super.	Under 2 feet super.	Under 3 feet super.	Under 4 feet super.	Under 5 feet super.	Under 6 feet super.
4ths quality	1½d.	1¾d.	2 d.	2¼d.	2½d.	2¾d.
3ds ,,	1¾	2	2¼	2¾	3	3½
2ds ,,	2	2½	2¾	3	3½	4
Best ,,	2½	3	3½	4	4½	5
AVERAGE THICKNESS, 21 OZ.						
4ths quality	2¼d.	2¾d.	3 d.	3¼d.	3½d.	3¾d.
3ds ,,	2¾	3	3¼	3¾	4	4½
2ds ,,	3	3½	3¾	4½	4½	4¾
Best ,,	4	4½	5	5½	6	7
AVERAGE THICKNESS, 26 OZ.						
4ths quality	3d.	3½d.	3¾d.	4 d.	4¼d.	4½d.
3ds ,,	3¾	4	4¼	4¾	5	5½
2ds ,,	4½	5	5½	5¾	6	6½
Best ,,	5¼	6½	7	7½	8	8½

15 oz. Squares usually kept in Stock, &c.

32 oz., 36 oz., and 42 oz. are also supplied in various quantities.

EXTRA WHITE or CRYSTAL SHEET GLASS, very superior for Pictures and best Glazing.

RUBY, GREEN, BLUE, YELLOW, COLOURED, ENAMELLED, GROUND, and FLUTED GLASS.

15 oz. Squares usually kept in Stock, packed in 100 ft. and 100 ft. Boxes.

Stock Squares.

				4ths.	3rds.	2nds.	Best.
6 by 4	7 by 5	8 by 6	9 by 7	9s. 6d.	10s. 9d.	12s. 6d.	14s. 8d.
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½				
10 by 8	12 by 9	12½ by 10½	14½ by 10½				
10½ by 8½	12½ by 9½	13 by 10	15 by 10				
11 by 9	13 by 9	13½ by 10½	13 by 11	10s. 6d.	12s. 0d.	14s. 8d.	17s. 3d.
11½ by 9½	12 by 10	14 by 10	14 by 11				
15½ by 10½	16 by 10	14½ by 11½	15 by 11	11s. 6d.	13s. 6d.	16s. 0d.	18s. 0d.

Stock Squares.

					Per 100 feet. 4ths.	3rds.	2nds.	Best.
15½ by 11½	14 by 12	17 by 13	22 by 16					
16 by 10	14½ by 12½	18 by 13	24 by 16					
14½ by 11½	15 by 12	23 by 13	20 by 17					
15 by 11	15½ by 12½	18 by 14	22 by 17					
15½ by 11½	16 by 12	22 by 14	24 by 17	..	11s. 6d.	13s. 6d.	16s.	[illegible]
16 by 11	16½ by 12½	24 by 14	20 by 18					
21 by 11	17 by 12	22 by 15	22 by 18					
13 by 12	18 by 12	24 by 15	24 by 18					
13½ by 12½	22 by 12							

ORCHARD HOUSE SIZES,

As recommended by and supplied to Mr. Rivers, and the leading Horticulturists of the day.

AVERAGE THICKNESS, 15 TO 16 OZ.

		4ths.	3rds.	2nds.	Best.
16½ Inches by 12½ Inches.					
20 ,, 12 ,,					
20 ,, 13 ,,					
20 ,, 14 ,,	Per 100 feet ..	11s. 6d.	13s. 6d.	16s.	18s.
20 ,, 15 ,,					
20 ,, 16 ,,					
20 ,, 17 ,,					

AVERAGE THICKNESS, 21 OZ.

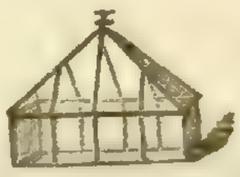
		4ths.	3rds.	2nds.	Best.
20 Inches by 12 Inches.					
20 ,, 13 ,,					
20 ,, 14 ,,	.. .. ..	14s. 6d.	18s. 6d.	24s.	27s. [illegible]
20 ,, 15 ,,					
20 ,, 16 ,,					
20 ,, 17 ,,					

The above prices are only for the sizes stated, but if a quantity of any other size is required, they can be supplied at about 5 per cent. additional, provided time is allowed to manufacture them.

I have also a GREEN TINTED GLASS, which I can strongly recommend. In Summer it gives a cool appearance and in Winter a warm one.

PROPAGATING GLASSES.

3 inches diam.	0s. 4d.	each.
4 ,, ..	0 5	,,
5 ,, ..	0 6	,,
6 ,, ..	0 7	,,
8 ,, ..	0 10½	,,
10 ,, ..	1 2	,,
12 ,, ..	1 6	,,
14 ,, ..	2 3	,,
16 ,, ..	3 0	,,
18 ,, ..	4 6	,,
20 ,, ..	6 0	,,



HAND GLASSES.

12 inches diam.	5s. 6d.	each.
14 ,, ..	6 6	,,
16 ,, ..	7 6	,,
18 ,, ..	8 6	,,
20 ,, ..	9 6	,,
22 ,, ..	10 6	,,
24 ,, ..	11 6	,,

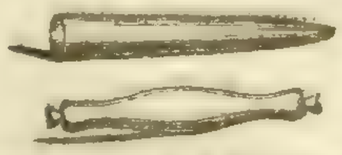
If removable tops, 1s. extra.

Painted and Glazed with Sheet Glass.

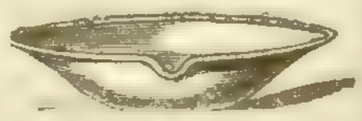
PRESERVE JARS.

In. diam.	Without. Lids.	With Lids.	
3 ..	0s. 4d. ..	0 6	each.
4 ..	0 5½ ..	0 8	,,
5 ..	0 7 ..	0 10	,,
6 ..	0 9 ..	1 1	,,
7 ..	0 10½ ..	1 2	,,
8 ..	1 2 ..	1 6	,,
9 ..	1 6 ..	2 0	,,
10 ..	1 10 ..	2 4	,,

These will be found preferable to any other kind of Jar.



CUCUMBER TUBES. Ins. long.	each.	ROLLING PINS. each
12 ..	0s. 10d.	1s. 3d.
13 ..	0 11	1 4
14 ..	1 0	1 6
15 ..	1 1	1 8
16 ..	1 2	1 9
17 ..	1 3	1 10
18 ..	1 4	2 0
19 ..	1 5	2 2
20 ..	1 6	2 3
22 ..	1 7	2 4
24 ..	1 9	2 8



MILK PANS.

6 inches diam.	0s. 5d.	each.
8 ,,	0 8	,,
10 ,,	0 10½	,,
12 ,,	1 1	,,
14 ,,	1 6	,,
16 ,,	2 0	,,
18 ,,	2 5	,,
20 ,,	2 10	,,
22 ,,	3 4	,,
24 ,,	4 0	,,

Intermediate sizes in proportion.

FISH GLOBES.

In. diam.		Qts.	[illegible]
8	¾ filled,	3..1s.	[illegible]
9	,,	4..2s.	[illegible]
10	,,	6..2s. 6d.	[illegible]
11	,,	8..3s.	[illegible]
12	,,	9..3s.	[illegible]
13	At same average according to weight.		7s. per [illegible]
14			
15			
16			

If on feet, 9d. per lb.

GLASS TILES, in SHEET and ROUGH PLATE. PLATE GLASS, PATENT PLATE, and HARTLEY'S IMPROVED ROUGH PLATE.

PAINTS, COLOURS, VARNISHES, &c.

GENUINE WHITE LEAD, 30s. per Cwt.
SECONDS ditto, 28s. per Cwt.
LINSEED OIL PUTTY, 9s. per Cwt.
PINE OAK VARNISH, 10s. to 12s. per Gallon.
,, CARRIAGE ditto, 12s to 14s. per Gallon.
,, CRYSTAL or PAPER, 10s. to 12s. per Gallon.

WHITE ZINC PAINT, 34s. per Cwt.

One hundred weight of pure Zinc Paint, with 3 gallons of Linseed Oil, will cover as much as one hundred weight and a half of White Lead and 6 gallons of Linseed Oil. Special Dryers for this paint.

GROUND PATENT DRYERS, 3d. to 4½d. per lb.
,, OXFORD OCHRE, 3d. to 4½d. per lb.
,, RAW UMBER, 4½d. to 6d. per lb.
,, BURNT Ditto, 6d. to 9d.
GREEN PAINT, all shades, 28s. to 60s. per cwt.
BLACK PAINT, 24s. to 36s. per cwt.

STUCCO PAINT, 24s. per cwt.

This paint adheres firmly to the walls, resists the weather, and is free from the glossy appearance of oil paint, resembling a stone surface, and can be made any required shade. It is mixed with rain or pure river water.

LINSEED OIL, 3s. 9d. per gallon
BOILED OIL, 4s. 3d. per gallon.
TURPENTINE, 7s. per gallon.
MINERAL Ditto, 3s. 6d. per gallon.
PREPARED OIL for ANTICORROSION, 4s. 6d. per [illegible]
BRUSHES for Ditto.

IMPROVED ANTICORROSION PAINT, 28s. to 34s. per [illegible]

Anticorrosion Paint is extensively used for all kinds of work in exposed situations, in Brick, Stone, Composition, Iron Bridges, Conservatories, Greenhouses, &c., and is easily laid on by any ordinary workman.

MILLED LEAD in Sheet and Pipe of all Sizes. OLD LEAD bought or taken in exchange. LIFT PUMPS, WATER CLOSETS, & PLUMBER'S BRASS WORK of all kinds.

NETT CASH.

Card.

SAMUEL N. McGERROW,
GENERAL HORTICULTURAL BUILDER,
Knotty Ash, near Liverpool.

Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

Heating by Hot Water.

W. J. HOLLANDS, IRON MERCHANT,
31, Bankside, London, S.E.

HOT WATER PIPES, from Stock, per yard:—2-inch, 1*s.* 4*d.*; 3-inch, 2*s.*; and 4-inch, 2*s.* 7*d.* BENDS, from Stock 1*s.* 7*d.*, 2*s.* 6*d.*, and 3*s.* 3*d.* each. THROTTLE VALVES, 10*s.* 6*d.*, 13*s.* 6*d.*, and 15*s.* each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day. A discount to the Trade.

Heating by Hot Water.

HOT-WATER PIPES, at Reduced Wholesale Prices, with Elbows, Syphons, Tee Pipes, and every other connection; Wrought and Cast-iron Boilers, Saddle, Conical, Cylinder, TUBULAR, and Elliptic, from 24*s.* each. Improved Boilers and Iron Stands to use without brickwork, 56*s.* each. Valves from 10*s.* 6*d.* each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Castings of every description in stock, at

Mr. LYNCH WHITE'S Iron Wharf, Upper Ground Street, Blackfriars Bridge, London, S. Price List on application.

Midland Steam Power Horticultural and Hot-water Works, Loughborough.

T. G. MESSENGER, the Proprietor of the above Works, finding it necessary (through the great demand for his Horticultural Buildings and Heating Apparatus) to make large additions to his Premises, and to Fit the same with an entire set of STEAM-POWER MACHINERY, is now enabled to execute any Orders entrusted to him with the greatest dispatch, and at the lowest possible price consistent with good and substantial work.

Illustrated Catalogues, Working Model, Plans and Estimates, free on application.

Exhibition Prize Medal, 1862.

HOTHOUSES for the MILLION.—On the principle invented and patented by Sir Joseph Paxton, M.P., combining simplicity, cheapness, excellence, and durability. SPAN-ROOF HOUSES, painted three coats, and glazed with English Sheet Glass, can be supplied ready for fixing, 21 ft. by 13 ft., 24*l.*; 43 ft. by 10 ft., 37*l.* 5*s.*; 64 ft. by 25 ft., 161*l.*

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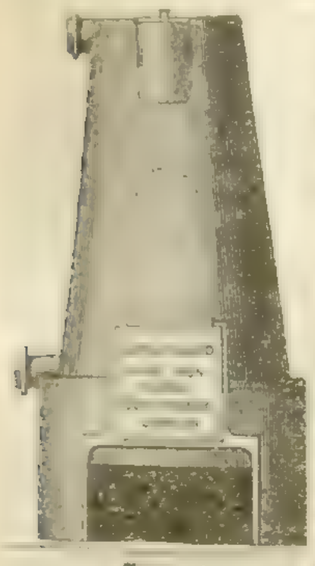
Also, A HANDBOOK on VINE and FRUIT TREE CULTIVATION, 2d Edition, price 1*s.*; post free, 1*s.* 1*d.*



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From the complete adjustment of the constructional parts of these patent buildings, their manufacture is so facilitated that a comparison in point of cost with perishable wooden structures is most favourable.

THE GARDENER'S OWN GREENHOUSE
(Lately known as Dench's Patent) is a Tenant's Fixture.

The Patent, Plant, Business, Machinery, and all connected with the above, have been transferred to T. H. P. DENNIS, who has determined to supply these really useful buildings at such a reduced scale of prices that every one desiring a Greenhouse may possess one.

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Wood structures at the lowest price consistent with sound work.

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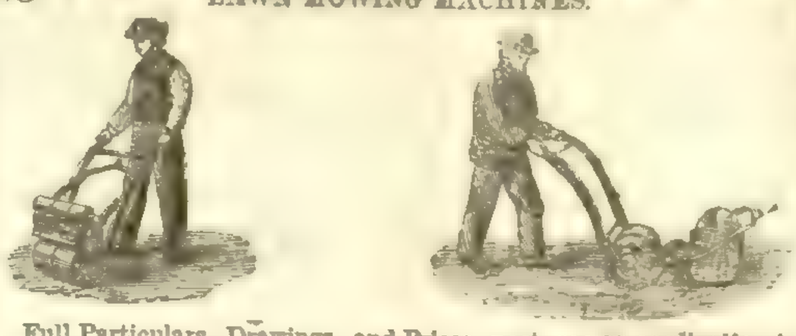

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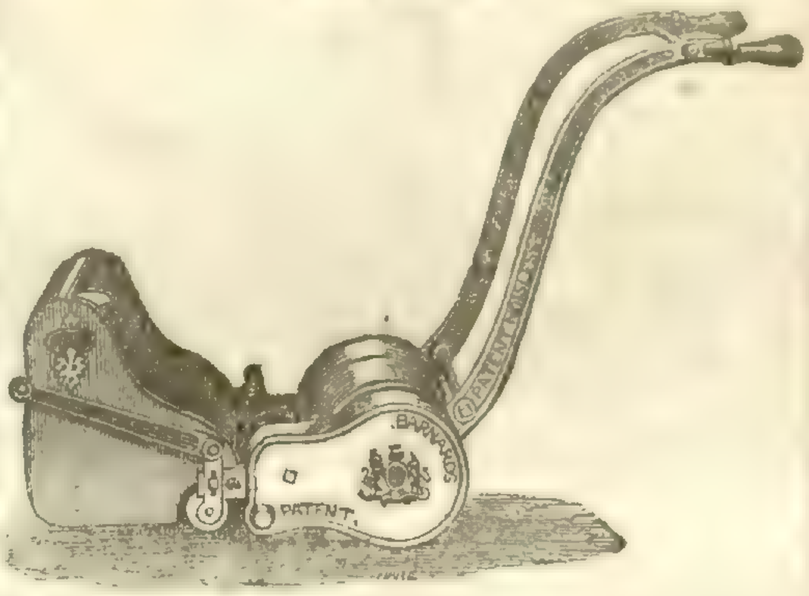

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Suitable for the very smallest grass plots or edgings.	
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The CHEAPEST, STRONGEST, and NEATEST FENCING in USE.

THOUSANDS of MILES of this FENCING have been SUPPLIED by us at home and abroad. It sustains no injury by being trespassed upon.

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Five lines of Cable Strand and Staples for wooden posts, 6*d.* per yard.

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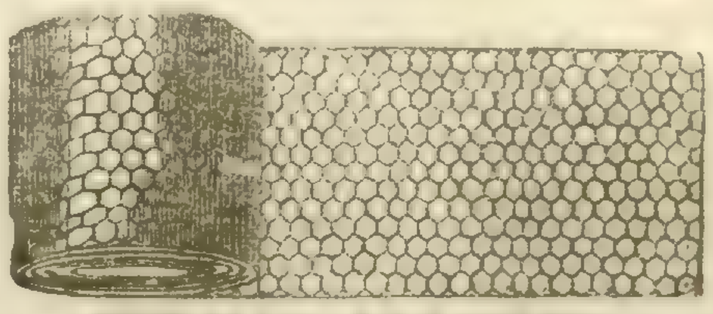

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2½ in.	Hares, Dogs, Poultry	0 3	0 4	0 3½	0 5	0 4½	0 6	0 5½	0 7
2 in.	Game or Poultry Netting	0 3½	0 4½	0 4	0 5	0 5	0 6½	0 6½	0 8
1½ in.	Small Rabbits, Hares, &c.	0 4	0 4½	0 4½	0 6	0 5½	0 7	0 7	0 9
1¼ in.	Smallest Rabbits ..	0 5	0 6	0 5½	0 7	0 7	0 9	0 9	0 11
1 in.	Pheasantries, &c. ..	0 9	0 11	10½	1 1½	1 3	1 6	1 9	2 0
¾ in.	Aviaries, &c.	1 0	1 3	1 3	1 6	1 6	1 9	..	..

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SECOND-HAND GREENHOUSES, in good condition, to be Sold cheap.—One house, 25 ft. by 15 feet., price £25; Ditto, 28 ft. by 7 ft. 6 in., price £14; Ditto, 14 ft. by 9 ft. 9 in., price £12. Also a quantity of PIT LIGHTS.

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TO BE DISPOSED OF (7 miles from London), the LEASE and CROPS of SEVEN ACRES, including above 100 Fruit Trees, together with Cottage, Barn, and other conveniences.

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TO BE SOLD, on very easy terms, a first-class Small WELL-STOCKED NURSERY, in one of the best towns in the Midland Counties, with a good Seed Business attached. There are Eight splendid Glass Houses, two of them each 100 feet in length; Ranges of Pits, and every convenience, and stocked with fine Plants. Sold in consequence of Proprietor having come into an income from another source.

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TO BE LET on LEASE, or SOLD, in such Lots as may be arranged, a large TRACT of LAND on the Mountains in the Isle of Man, well adapted for SHEEP WALKS.

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NURSERY BUSINESS to be DISPOSED OF.—An old established Business to be Sold in consequence of the death of the Proprietor. Twenty years Lease of the ground unexpired. For particulars apply to

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TO BE SOLD, with Immediate Possession, the LEASE, STOCK, and GLASS of the old-established EPSOM NURSERY, in consequence of the decease of Mr. George S. Dods, the late Proprietor. The Ground contains about 5 Acres, with Greenhouses and Pits, completely and economically Heated with Hot-water; also the valuable NURSERY STOCK, Greenhouse and Bedding Plants, Seeds, and other effects. The whole may be taken at a valuation.

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TO BE LET on LEASE, with Immediate Possession, a MARKET GARDEN containing 3½ Acres, well stocked with Fruit Trees, Strawberries, &c., with Dwelling-house, Stables, Sheds, all in good order.

For further particulars apply on the Premises, opposite the Prince Albert Inn, Sunbury Common, Middlesex, and five minutes' walk from the Sunbury Station, Thames Valley Railway.

Sales by Auction.

SALE THIS DAY AT HALF-PAST TWELVE PRECISELY.

Rustic Garden Seats, Fern Stands, Vases, Pots, Carnations, Pinks and Picotees, Shrubs, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, May 6, at half-past 12 o'clock precisely, 1000 Pinks, Picotees and Carnations, Gladioli, Laurels, Honeysuckles, Cypress, Arbor-Vitæ, Oaks, Arbutus, &c. Rustic Garden Seats, Tables, Baskets, Stools, Chairs, Fern Stands, Flower Pots, &c. Geraniums, first-class varieties for present planting, Calceolarias, Verbenas, &c.

On view the Morning of Sale, and Catalogues had.

A Choice Collection of Ferns, the Property of a Gentleman, and some fine Established Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Steeet, Covent Garden, W.C., on THURSDAY, May 11, at half-past 12 o'clock precisely, a valuable Collection of FERNS, consisting of fine plants of Asplenium, Todeas, Davallias, Polypodiums, Oleandras, Platyceriums, Pteris, Adiantums, Lomarias, Blechnums, Polystichums, Gymnogrammas, &c., including many fine Specimen Plants, and some in Baskets. And a Collection of Established ORCHIDS, including Cypripediums, Coelogynes, Cattleyas, Saccolabiums, Aerides, Dendrobiums, Cymbidiums, Lælias, Oncidiums, Trichopilias, Calanthes, Odontoglossums, Brassias, Epidendrums, Anguloas, Stanhopeas, &c.

On view the Morning of Sale, and Catalogues had.

Bedding Plants.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, May 13, at half-past 12 o'Clock precisely, a fine assortment of BEDDING-OUT PLANTS, consisting of Lobelias, Cerastiums, Cinerarias, Perillas, Amaranthus, Tropeolums, Petunias, Alyssums, Fuchsias, Geraniums, Calceolarias, Salvias, Gazanias Cupheas, Verbenas, &c.

On view the Morning of Sale, and Catalogues had.

Camberwell.—Sale of Bedding Plants.

MESSRS. PROTHEROE AND MORRIS are directed by Mr. Joseph Steward to SELL by AUCTION on the Premises, Old Beehive Nursery, 4, Picton Street, Camberwell, S., on THURSDAY, May 11, at 1 o'Clock, 5000 choice GREENHOUSE and BEDDING PLANTS, including the usual assortment.

May be viewed three days prior to the Sale. Catalogues had on the Premises; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

Great Sale of Bedding and Greenhouse Plants.

TO GENTLEMEN, PROPRIETORS OF PUBLIC GARDENS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS respectfully announce that they will hold a Large SALE of BEDDING and GREENHOUSE PLANTS, at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., on FRIDAY, May 12, at 12 o'Clock, including Show, Fancy, and Scarlet Geraniums, Azalea indica, Roses, Shrubby and Herbaceous Calceolarias, Heliotropes, Verbenas, Fuchsias, Ageratum, Petunias, Cupheas, Intermediate Stocks, Carnations and Picotees, Dahlias in dry roots, &c

May be viewed the Morning of Sale. Catalogues may be had at the Rooms, as above; and of the Auctioneers, Leytonstone, Essex, N.E.

Little Eversden, Cambridgeshire.

MESSRS. MANN AND RAVEN have received instructions from the Executor of the late William Leete, Esq., to SELL by AUCTION, THIS MONTH, all that VALUABLE ESTATE situate at Great and Little Eversden, consisting of about 20 acres of rich Orchard, Pasture, and Arable Land. Particulars are in course of preparation.

Cambridge.—May 6.

Sale No. 349.—Clapham, Surrey.

TO CONTRACTORS, NURSERYMEN, GARDENERS, AND OTHERS.

MR. STEVENS having Sold the Lease of the Premises, is instructed by Mr. Hare to SELL by AUCTION, at North Villa Nursery, Park Road, Clapham, on TUESDAY, May 9, at 11 for 12 o'Clock precisely, the entire STOCK in TRADE of a NURSERYMAN, and the PLANT of a CONTRACTOR, comprising about 9000 Bedding-out Plants, Evergreens, Ornamental Wirework, Garden Tools, Rollers, &c.; eight large Pits, in good condition, Hot Water Pipes, &c.; strong built Contractor's Office; four Dobbin Carts, three Tumbler Carts, Truck, Planks, and Barrows, 20 Yards of Gravel, and Sundries; two capital Cart Horses and Harness, Pony Chaise and Harness, and General Effects.

On view the day prior to Sale, and Catalogues on the Premises, and at the Auctioneer's Offices, Clapham Common, S.

25,000 Bedding Plants.

HENRY MANLEY begs to announce his instructions to SELL by AUCTION on WEDNESDAY, May 24, at The Gardens, Combermere Abbey, Cheshire, the magnificent COLLECTION of PLANTS, consisting of Humea elegans, Lantanas, Geraniums, Verbenas, Calceolarias, &c. In lots to suit purchasers. Descriptive Catalogues obtained one week prior to the Sale by inclosing one stamp to the Auctioneer, Aston, Nantwich.

Commissions executed.

Redleaf, near Penshurst, Kent.

IMPORTANT SALE OF SHORT-HORNED CATTLE.

MR. STRAFFORD begs to announce for SALE by AUCTION, without reserve, on THURSDAY, May 25, at Redleaf, one mile from Penshurst Station, S.E.R., the entire HERD of SHORT-HORNED CATTLE belonging to W. Wells, Esq., consisting of between 30 and 40 head of Bulls, Cows, and Heifers, which have been bred from some of the most fashionable strains, amongst them some choice specimens of the Booth blood, from Mr. Douglas, of Athelstaneford, and others from the famed herds of Messrs. J. C. Adkins, Harvey Combe, and Jonas Webb. They have since been crossed with first-class Bulls.

After which will be Sold the small but select HERD of PURE-BRED SHORT-HORNS, the property of E. W. M. Waldo, Esq., of Stonewall Park, that have been bred from Mr. Barnes' Gem and Violet, Mr. Sanday's Fathom, and some choice Gwynnes. Duke of Leinster (17,724), and Baron Hopewell (14,134) have been used. The Cows and Heifers are in calf to The Druid (16,981).

Catalogues, with Pedigrees, may be had on application to Mr. STRAFFORD, 13, Euston Square, London, N.W.; and of Mr. CROSBIE, the Bailiff, at Redleaf, Penshurst, Kent; or of Mr. KILLICK, at Stonewall Park, Edenbridge, Kent.

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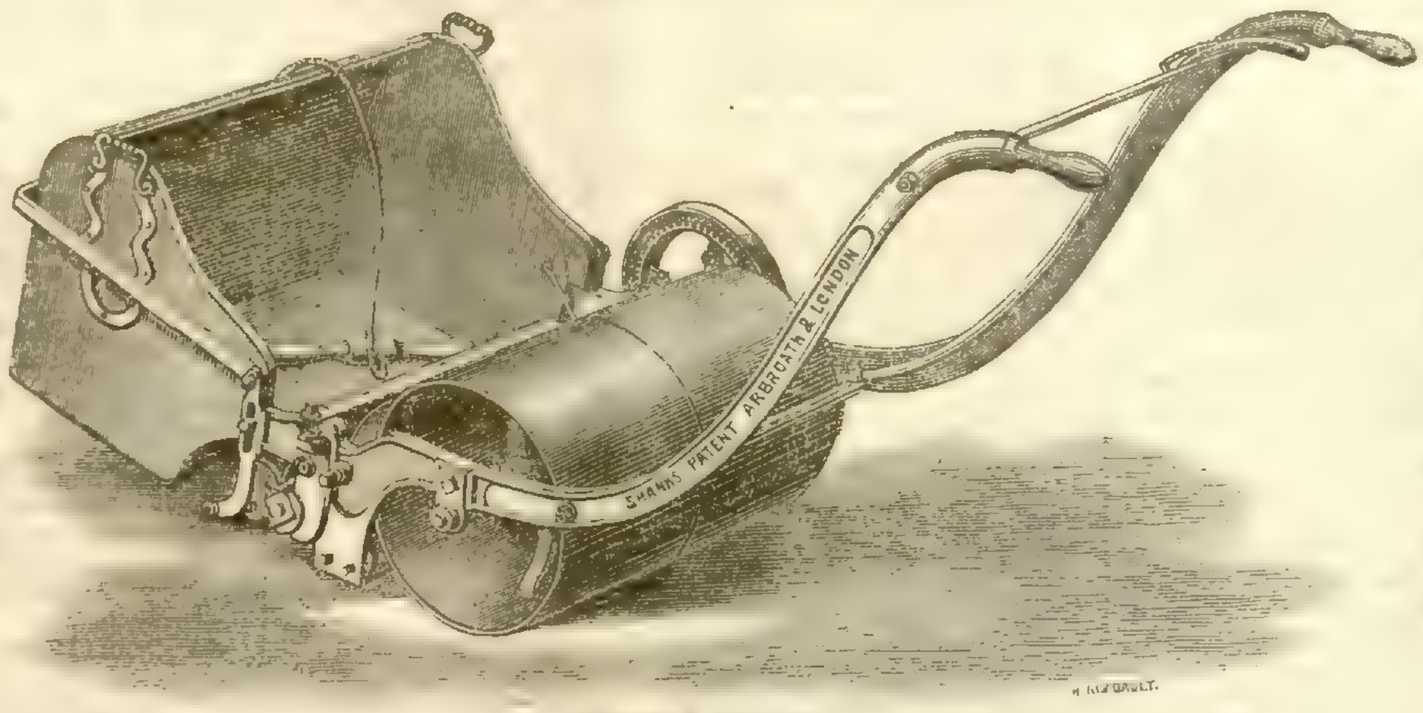

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A. S. & Son, in introducing Improvements into their MACHINES have been careful that the advantages in point of durability, simplicity of construction, and superiority in the work executed, which have so along been peculiar to SHANKS' MACHINES, should still remain.

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Width of Cutter.		
10-inch Machine	£3 10 0	*Easily Worked by a Lady.*
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Silent Movement for the five smallest sizes, 4*s.* extra; for the other sizes, 7*s.* 6*d.* extra.

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For the Royal Gardens at Kew, Windsor, Buckingham Palace, Hampton Court, Osborne, and Balmoral.

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The Hon. C. S. Cowper
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Shanks' Patent Lawn Mowers are warranted to give ample satisfaction, and if not approved of may be at once returned.

☞ A. S. & Son *beg to intimate that their Warehouse at 27, Leadenhall Street, is the only place in London where intending purchasers of Lawn Mowers can choose from a stock of from 150 to 200 Machines. All sizes are kept in stock, whether for Horse, Pony, or Hand Power, and orders are executed on the day they are received.*

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THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 19.—1865.] SATURDAY, MAY 13. {Price Fivepence. Stamped Edition, 6d.

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ROYAL BOTANIC SOCIETY, REGENT'S PARK.—FIRST EXHIBITION of PLANTS and FLOWERS, WEDNESDAY, May 24. Tickets to be obtained at the Gardens, and of the Society's Clerk; Austin's Ticket Office, St. James's Hall, on Vouchers from Fellows of the Society. Price 5s.; or on the Exhibition days, 7s. 6d. each.

ROYAL BOTANIC SOCIETY of LONDON.—Notice to Exhibitors at the Spring Exhibitions of 1866.—ROSES to be grown and exhibited in pots not larger than 10 inches across. R. Marnock, Esq.

CRYSTAL PALACE.—The GREAT FLOWER SHOW of the Season will be held on SATURDAY NEXT, May 20. Exhibitors are requested to send in their Schedules without delay. By order.

LINNEAN SOCIETY, BURLINGTON HOUSE, PICCADILLY, LONDON.—May 10, 1865. The ANNIVERSARY MEETING of the LINNEAN SOCIETY of LONDON will be held here on WEDNESDAY, the 24th of May, at 3 o'clock precisely, for the ELECTION of a COUNCIL and OFFICERS for the ensuing year. George Busk, Secretary.

GRAND FLORAL GALA, ROSE SHOW and BAND CONTEST at STAMFORD, on WEDNESDAY, June 28. Open to All England. The Schedules, with Rules, are now ready, and will be forwarded on application to O. B. Shore, M.D., } Hon. F. A. Hewitt, } Secs. Stamford, May 6.

BIRMINGHAM ROSE SHOW. — The NEXT EXHIBITION is fixed for THURSDAY and FRIDAY, July 6 and 7. For Prize List, &c., apply to Alexander Forrest, Secretary, Queen Chambers, Birmingham.

SOUTH ESSEX HORTICULTURAL SOCIETY.—The FIRST GRAND FLOWER and FRUIT SHOW will take place at Southend, Essex, on FRIDAY, July 7, 1865. Prizes open to All England. Special Prizes for the best arrangement of Flowers and Fruit in groups for the Dinner Table, and for Single Bouquets. Schedules and other particulars may be obtained of the Secretary, Mr. Ellis Kerry, Southend, Essex.

HANDSWORTH HORTICULTURAL SOCIETY, 1865. OPEN TO ALL THE WORLD. SCHEDULES of PRIZES for the whole of the SOCIETY'S EXHIBITIONS for the present year (including the great Fruit Show, at which Four Silver Cups and other valuable Prizes will be awarded), may be obtained of the Secretary, Alexander Forrest, Queen Chambers, Cherry Street, Birmingham.

Notice of Removal.

ALFRED LEGERTON, Seed Grower and Merchant, begs to inform the Trade and public generally, he has REMOVED from Shalford, near Braintree, Essex, to spacious premises, situated at No. 5, ALDGATE, LONDON, E.C., where he intends carrying on the same business as heretofore, and where all communications are requested to be addressed.

J. IVERY and SONS' fine Collection of AZALEA INDICA is NOW in BLOOM, and will continue until the middle of June. J. I. & Sons' Collection of Hardy Ferns is also well worthy an inspection. Dorking, May 13.

J. IVERY and SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

New Chrysanthemums, Pyrethrums, &c.

JOHN SALTER is now sending out the NEW CHRYSANTHEMUMS of 1865. His DESCRIPTIVE CATALOGUE of Chrysanthemums, Double Pyrethrums, Scarlet Geraniums, Hardy Variegated Plants, &c., will be sent on receipt of Two Stamps. Versailles Nursery, William Street, Hammersmith Turnpike, W.

Chrysanthemums.

ADAM FORSYTH begs to acquaint his friends and the public that he is now sending out strong and well-rooted PLANTS from his Large and Choice Collection, at 5s. and 6s. per dozen. First Prizes Stoke Newington and Agricultural Hall, 1863 and 1864. CATALOGUES for one stamp. Brunswick and Shacklewell Nurseries, Stoke Newington, London, N.

SIX COLOURS, RIBBON BORDER SEEDS, post free, 2s. Sow now in open ground. Robt. H. Poynter, Seedsman, Taunton.

ROSES in POTS for BEDDING, by the Dozen, Hundred, or Thousand. The months of April and May are very eligible for planting out Roses from pots. Wm. Wood & Son have many thousands of Strong Plants to offer at a very reasonable rate. CATALOGUES gratis on application. Address Woodlands Nursery, Maresfield, Uckfield, Sussex.

NEW ROSES of 1865.—For the BEST SELECTION of the year, see PAUL and SON'S DESCRIPTIVE LIST. "Old" Cheshunt Nurseries, Cheshunt, N.

Shrubs, Roses, Fruit Trees, &c.

WM. CUTBUSH AND SON'S GENERAL NURSERY STOCK is the best near London. GLADIOLI, fine, from 4s., 6s., 9s., & 12s. per dozen. CATALOGUES on application. Highgate Nurseries, London, N.

BEDDING-OUT PLANTS in great variety. WINDOW JARDINETS, Empty or Furnished, in variety. The "Gardeners' and Amateurs' Friend," see page 432. Barr & Sugden, 12, King Street, Covent Garden, W.C.

Bedding Plants, Bedding Plants.

JAMES HOLDER can supply strong Plants of Scarlet GERANIUMS, VERBENAS, CALCEOLARIAS, HELIOTROPES, DAHLIAS, LOBELIAS, KONIGAS, CUPHEAS, BLUE SALVIAS, and SENECIOS, at £1 per 100; or, 50 plants for 10s. 6d., hamper included. A remittance to accompany each order. Crown Nursery, Reading, Berks.

Bedding Plants.

JAMES DICKSON and SONS offer all the leading varieties in strong vigorous Plants to give immediate effect. Of MRS. POLLOCK GERANIUM they have several thousands, with others in like proportion. A DESCRIPTIVE PRICED CATALOGUE on application. The "Newton" Nurseries, Chester.

DAHLIAS and other BEDDING PLANTS—CATALOGUES of the above, including all the new and best varieties, post free on application to James Fairhead & Son, 7, Borough Market, London, S.E.

Dahlias.

T. and A. ANSELL beg to announce that they have a large stock of the above to offer, including all the new and best varieties. CATALOGUES post free on application. Address, Camden Nursery, Grafton Road, Kentish Town, N.W.

First Quality.

CALCEOLARIA, PRIMULA, CINERARIA, CARNATION, PICOTEE, PINK, AURICULA, VERBENA, MIMULUS, ZONALE GERANIUM and PELARGONIUM. Each 2s. 6d. per packet. Barr & Sugden, 12, King Street, Covent Garden, W.C.

The Choicest Strain in Cultivation.

DOBSON'S Unequalled CALCEOLARIA, per packet, 1s. 6d., 2s. 6d., 3s. 6d., and 5s.
DOBSON'S Prize CINERARIA, 1s., 2s. 6d., and 5s.
DOBSON'S Unsurpassed PRIMULA, 1s., 2s. 6d. and 5s.
DOBSON'S Superb 8 BALSAMS, 2s.
J. Dobson & Sons, Woodlands Nursery, Isleworth, W.

HOLLAND and JONES' CATALOGUE of BEDDING, GREENHOUSE, and STOVE PLANTS is now ready, free on application. Bradshaw Gardens, Chadderton, near Manchester.

CARTER'S GARDENER'S VADE-MECUM PLANT SUPPLEMENT is now ready.

New Plants for 1865.

JAMES CARTER and CO.'S CATALOGUE of NEW and CHOICE BEDDING, GREENHOUSE, and STOVE PLANTS, is now ready, and will be forwarded gratis and post free on application. James Carter & Co., 237 & 238, High Holborn, London, W.C.

Selected Garden Seeds.

PAUL and SON'S PRICED CATALOGUE contains descriptive list of FINE-FOLIAGED PLANTS for Sub-tropical Gardens. Free by Post. All Seeds Carriage paid. "Old" Cheshunt Nurseries, Cheshunt, N.

Decoration of the Summer Garden.

EDWIN COOLING'S NEW LIST of PLANTS for SUMMER GARDENING, with height, colour, price, and full description of the most desirable kinds, is now ready, and will be forwarded gratis and post free on application. Mile Ash Nurseries, Derby.

NEW JAPANESE PLANTS. — A DESCRIPTIVE PRICED LIST of upwards of 100 varieties of recent introduction. Gratis and post free. Edwin Cooling, Mile Ash Nurseries, Derby.

A. VAN GEERT, Nurseryman, Ghent, Belgium, begs to announce that he has published a SUPPLEMENT to his last CATALOGUE, which may be had on application from his Agents, Messrs. R. Silberrad & Son, 5, Harp Lane, London.

GERANIUM MRS. POLLOCK.—Our stock of this Geranium is very large and fine. Price per dozen, or per 100, also general LIST of BEDDING PLANTS upon application. James Dickson & Sons, The Newton Nurseries, Chester.

Verbenas.

T. and A. ANSELL have a large stock of the above for Bedding purposes at 12s. per 100 in pots, and 10s. per 100 out of pots, for cash. Address, Camden Nursery, Grafton Road, Kentish Town, N.W.

TO BOTANISTS.—Fresh Specimens of some Species of the ORCHIS from the Chalk Hills can be supplied. A small payment will be required. The proceeds to be given to the Fund for the restoration of Chichester Cathedral. Apply to L. C., care of Mr. Groom, 37, Wigmore Street, Cavendish Square, W.

WANTED, SCARLET LOBELIA ST. CLAIR. State quantity and trade price to E. Cooling, Derby.

Fruiting Montserrat Pines.

WANTED, 20 strong Plants, to be perfectly clean and healthy. Apply with cash price to A. B., care of William Dean, Bradford Nursery, Shipley, Yorkshire.

Pines.

B. S. WILLIAMS begs to announce that he has a fine Stock of the above, including all the best kinds. Prices on application. Paradise and Victoria Nurseries, Holloway, London, N.

NEW GRAPE, "ROYAL VINEYARD," the best late White Grape extant. Strong planting Canes, 21s. each; strong fruiting, 42s. each. B. S. Williams, Paradise and Victoria Nurseries, Holloway, London.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS. Richard Smith, Nurseryman and Seed Merchant, Worcester.

Fox and Game Covert.

MAULE and SONS can supply 2-years old ENGLISH FURZE and BROOM at 10s. per 1000. The Nurseries, Bristol.

Transplanted Quick.

CHARLES SHARPE and CO., Sleaford, have a quantity of well-rooted Transplanted QUICK to offer. Price on application.

Sutton's Grass Seeds for all Soils.

SUTTON and SONS have still on hand some of each of the best kinds of GRASS and CLOVER SEEDS for every description of soil, and can supply them at the same prices as heretofore. Royal Berkshire Seed Establishment, Reading.

NATURAL GRASSES: their Names and Derivations; Quality, Produce, Elevation, Situation, Soil, Use, Peculiarity, Season, Growth, Increase, Time of Flowering, Price, &c. Free for One Postage Stamp. Richard Smith, Seed Merchant, Worcester.

ITALIAN RYE-GRASS SEED.—A few Quarters left at 23s. to 26s. per quarter, as in quality. Apply early to J. Dixon, Seedsman, Kendal, Westmoreland.

BROMUS SCHRADERI. For particulars of above see *Gardeners' Chronicle*, April 8, 1865. James Carter & Co., 237 & 238, High Holborn, London, W.C.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO., Seed Farmers, Merchants, and Nurserymen, 237 and 238, High Holborn, London, W.C.

H. AND F. SHARPE, Seed Growers and Merchants, Wisbech. SPECIAL PRICED LIST of NEW SEEDS on application.

NEW and GENUINE AGRICULTURAL, GARDEN, and FLOWER SEEDS. Special prices and advantageous offers on application to James Fairhead & Son, Seed Growers and Merchants, 7, Borough Market, London, S.E.

New Fuchsias.

E. G. HENDERSON and SON can now supply LA TRAVIATA, ANNA BULLEYN, MARVELLOUS, and TROUBADOUR, at 10s. 6d. each; the set, 30s. Wellington Nursery, St. John's Wood, London, N.W.

Lilium auratum—The Golden-Rayed Japan Lily.

E. G. HENDERSON and SON having imported between 2000 and 3000 bulbs of the above-named Superb LILY, offer them in good roots, from 5s. and upwards each. For description see E. G. H. & Son's SEED CATALOGUE, which will be sent post free on application. Wellington Nursery, St. John's Wood, London, N.W.

CALCEOLARIA AMBASSADOR (Sang's).—Strong plants, in single pots, of this magnificent Bedding-out Calceolaria are now ready, price 12s. per dozen. The Trade supplied on the usual terms. Edward Sang & Sons, Nurserymen and Seed Merchants, Kirkcaldy.

Choice Primula Seed.

WILLIAMS' SUPERB STRAIN, the finest Fringed and best Coloured Flowers in Cultivation. In sealed packets, Red, White, or Mixed Seed, 2s. 6d., 3s. 6d., 5s. Paradise and Victoria Nurseries, Holloway, London, N.

To the Trade.

CUPRESSUS LAWSONIANA SEED, warranted crop of 1864. May be obtained of Thomas Cripps, Nurseryman Tunbridge Wells. Price 10s. per oz.; 4 ozs., 30s.

12 LOBELIA PAXTONII, 12 do. SPECIOSA, 24 VERBENAS (sorts), 24 GERANIUMS (sorts), GNAPHALIUM LANATUM (6), 12 GAZANIA SPLENDENS, 12 PELARGONIUMS (choicest kinds to name). Hamper and package free for 26s.; half the quantities 14s. cash. Robt. H. Poynter, Nurseryman, Taunton.

PELARGONIUM MRS. POLLOCK. Good established plants for Bedding, 30s. per dozen. Saltmarsh & Son, Moulsham Nurseries, Chelmsford.

NEW ZONALE PELARGONIUMS. Two of the Gems of the Season. Saltmarsh's "LITTLE TREASURE." (First-class Certificate.) Saltmarsh's "LUNA." For Description and Price see previous Advertisements. Liberal Discount to the Trade. Saltmarsh & Son, Moulsham Nurseries, Chelmsford.

To Noblemen and Gentlemen.

LAPAGERIA ROSEA to be DISPOSED OF, a splendid Plant in tub, measuring 7 feet high, 2½ feet through in fine condition. On view at W. H. Place, Esq., 12, Gloucester Villas, Warwick Road, Maida Hill, W.; or particulars can be had of Messrs. James Carter & Co, Seedsmen, 237 and 238, High Holborn, W.C.

GIANT ASPARAGUS ROOTS, 2s. 6d. per 100.—This delicious vegetable does not require half the expense usually incurred in planting it. For instructions, see Richard Smith's SEED LIST for 1865. Strong Transplanted SEA KALE, 2s. per doz. Richard Smith, Nurseryman, Worcester.

BEDFORDSHIRE LONG RIDGE CUCUMBER SEED, excellent sample. May be had of Mr. A. Wilkin, Tiptree, Kelvedon, Essex.

Sutton's Ringleader Pea.

SUTTON and SONS have the pleasure of announcing that their new EARLY PEA RINGLEADER has proved itself this season to be forwarder than any other Pea in cultivation. To prevent disappointment Sutton & Sons are now receiving Orders for the New Supply of Seed, price 2s. 6d. per quart. Sutton & Sons, Royal Berks Seed Establishment, Reading.

New English Scarlet Runners and Dwarf Kidney Beans.

JAMES FAIRHEAD and SON, 7, Borough Market, London, S.E., offer a Surplus Stock of the above, of fine samples. Crop 1864. Terms on application.

To Gentlemen, Nurserymen, and Others.

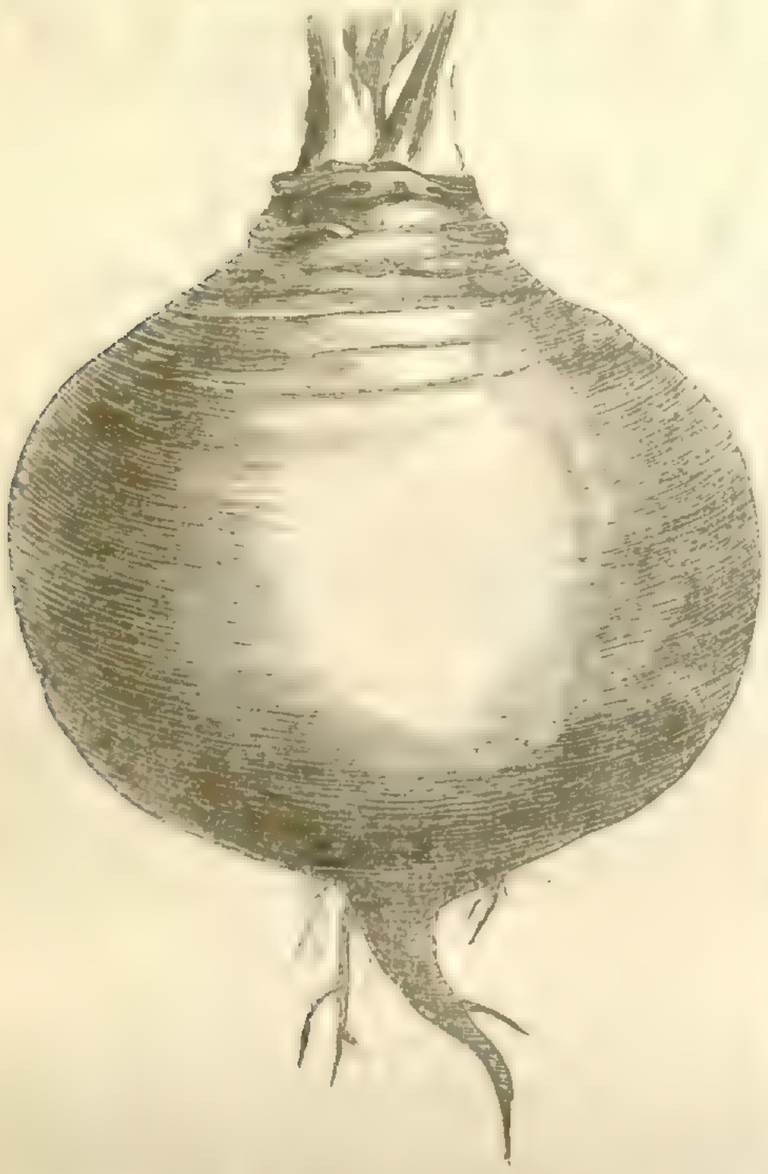
GLOBE ARTICHOKES.—Good strong Globe Artichokes now ready at 25s. per 100. Post-office Orders payable to John Gaines, Herbalist and Seedsman, Covent Garden Market London, W.C.

DRUMHEAD CABBAGE PLANTS (Strong); Can be supplied cheap by H. & R. Stirzaker, Skerton Nurseries, Lancaster.

EARLY CABBAGE PLANTS.—A few Thousands of EARLY BATTERSEA and NONPAREIL CABBAGE PLANTS to dispose of, at 5s. per 1000, on application to W. Virgo & Son, Wonersh Nursery, near Guildford.

MANGEL WURZEL.—Pure Stock (extra selected), ELVETHAM LONG RED; ditto ditto YELLOW GLOBE. Each 9d per lb. Hooper & Co., Seed Merchants, Covent Garden Market, London.

Wheeler's Imperial Swede.



WHEELER'S IMPERIAL SWEDE, one of the Hardiest, Finest, and Most Nutritious Swedes in cultivation. Won the First Prize at the Gloucestershire Root Show, and several valuable Silver Cups.

1*s.* per lb., 45*s.* per bushel.

Carriage free by rail, and 5 per cent. discount for cash.

J. C. Wheeler & Son, Seed Growers, Gloucester.

Grass Seed for all Soils.

RICHARD SMITH offers the best selection that can be made of PERMANENT MEADOW GRASS and CLOVER at 30*s.* per acre, consisting of 2 bushels light and 12 lbs. heavy seed. The kinds and quantities are chosen for their early growth, crop, nutritive qualities, reproductiveness, and permanency, and can be had separately or properly mixed to suit heavy, light, or medium soil.

Richard Smith, Seed Merchant, Worcester.

NEW FORAGE PLANT: BROMUS UNIOLOIDES var. SCHRADERI; SCHRADER'S BROME GRASS, sometimes called NEW ZEALAND GRASS and PRAIRIE GRASS.—This Grass was introduced into Great Britain many years ago by Mr. Charles Lawson, sen., of Edinburgh, and was shown and described at the Great Exhibition of 1851. It is now attracting considerable attention, from the enormous cuttings of green food it has lately produced on the Continent and elsewhere. It is undoubtedly a most productive plant, especially under irrigation or liquid manure.

Small quantities of Seed may be obtained for experiment from Peter Lawson & Son, The Queen's Seedsmen, 28, King Street, Cheapside, E.C.

RAYNBIRD, CALDECOTT, AND BAWTREE,
Seed Farmers and Merchants,
89, Seed Market, Mark Lane; and Basingstoke.
Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

SUTTON'S CHAMPION SWEDE is perfectly hardy, very productive, stores exceedingly well, and rarely if ever suffers from mildew.

THREE HUNDRED GUINEAS IN 12 PRIZES.

For Six Years successively his late Royal Highness the Prince Consort's Prize Cups have been awarded to SUTTON'S CHAMPION SWEDES at the Royal East Berks and South Berks Agricultural Societies, and many other valuable Prizes in various parts of the kingdom.

From Mr. Isaac, *Bailiff to the* Right Hon. Lord Berners.

"The Champion Swedes from seed Lord Berners purchased of you are far superior to any other we have grown. I can confidently say they are many tons per acre heavier than any other Swedes growing on his Lordship's farm."

Price of Seed 1*s.* per pound, or cheaper by the bushel.

SUTTONS' NEW FARM LIST gratis and post free.

Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

Mottled Globe or Grey Stone Turnip.

SUTTON AND SONS have a very choice stock of the excellent NEW TURNIP. It grows to a very large size, and is strongly recommended. Price of seed, 1*s.* per lb., cheaper by the bushel, carriage free.

Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

NEW and SELECTED SEEDS.
CARPENTER'S MAGNUM BONUM PEAS.—The Largest and Best Tall Variety grown. 5*s.* per quart.
CARPENTER'S MULTUM IN PARVO PEAS.—The Best Dwarf Variety grown. 5*s.* per quart.
CARPENTER'S MONSTROUS WHITE COS LETTUCE,
CARPENTER'S MONSTROUS GREEN COS LETTUCE,
CARPENTER'S MONSTROUS BROWN COS LETTUCE,
are the three best LETTUCES in cultivation. 1*s.*, 2*s.* 6*d.*, and 5*s.* per packet.
CARPENTER'S PREMIER SWEDE.—Superior in size, shape, and quality to any other Swede grown. (Sow 3 lb. per acre.) 3*s.* per lb.
A remittance from unknown correspondents is requested.
CATALOGUES on application to Edward Carpenter, Seed Merchant and Grower, Brighton and Sussex Seed Warehouse, 8, St. James's Street, Brighton.

A Boon to the World.

PRINCE of WALES' KIDNEY POTATO.—A new Seedling, remarkably handsome, fine eating, and the most prolific in the world. Testimonials:—

From Professor Lindley (Editor of the *Gardeners' Chronicle*).

"I have this morning had the Seedling Potatos examined. The crop is very extraordinary, and the Potatos themselves are very handsome, and quite ripe."

From Shirley Hibberd, Esq. (Editor of the *Gardeners' Weekly Magazine*).

"The Seedling Potato (Prince of Wales), I have found to be wonderfully productive, excellent flavour, handsome, and such a one as the world ought to have the benefit of."

To be had of Mr. James Veitch, Royal Exotic Nursery, King's Road, Chelsea, S.W.; Messrs. Barr & Sugden, King Street, Covent Garden, W.C.; Downie, Laird & Co., Forest Hill, S.E.; James Carter & Co., 237, High Holborn, W.C.; Sutton & Sons, Reading. Price 12*s.* per bushel.

N.B. They may be planted up to the end of May.

New Cattle Food.

BLUNDELL'S CATTLE MELON.—Heavy crops of this Fruit may be grown by the same cultivation and manure as required for root crops, and ready for feeding purposes before the root crops are ripe. Time of sowing, the months of April and May. Seed of last year's growth is now ready for delivery at 2*s.* 6*d.* per packet of 50 Seeds, with full instructions for cultivation.

Cash remittances from unknown correspondents.

Address, Joseph Blundell, Bursledon, Southampton.

To Seed Merchants.

MR. A. WILKIN, of Tiptree Heath, Kelvedon, Essex, invites your inspection of his growing crops of Seed, some of which are very luxuriant and promising.

20 acres of CABBAGE SEED: CATTLE, LONDON MARKET, COLEWORT, RED DUTCH, COTTAGER'S KALE, and DRUMHEAD SAVOY.

30 acres of CARROT SEED: ALTRINGHAM, JAMES' EARLY HORN.

30 acres of PARSLEY, MIGNONETTE, SWEET PEAS, CUCUMBER, &c.

The stocks are of the best and purest quality.

Terms cash on delivery.

DWARF BEDDING SCARLET GERANIUM LADY COWPER.—The above Geranium is unquestionably the best Dwarf variety that has yet been sent out. In habit it is unique, being exceedingly dwarf, never attaining more than 6 or 7 inches in height; its colour is bright scarlet, with a dark white eye, and in contrast to the leaf, which is a pale bright green, is very striking; it is also a most profuse bloomer.

D., Deal, in his criticism on the New Geraniums of last year, speaks of it as follows:—

"Lady Cowper, a perfect little gem, and quite distinct from anything I have seen. It does not grow above 6 or 7 inches high, is very free-flowering, the flowers bright scarlet, and as an edging, for small beds invaluable. Its leaf is so small and fine, that it hardly looks like a Geranium."

Price, strong plants, 12*s.* per doz. Price to the Trade on application.

Edward F. Francis, The Nurseries, Hertford.

LOBELIA COMPACTA USHERII.—This variety of Lobelia is the very best we, the undersigned, have ever seen, being very compact and neat in growth, and, whenever we saw it, was one mass of the most exquisite blue. It is well adapted for edging. Mr. Usher, Gardener to Major Sykes, of West [illegible] (an eminent Calceolaria grower), says there is nothing to equal it. Mr. T. S. Rew, Gardener to J. Bedell, Esq.; Mr. G. Hales, Gardener to Mrs. Flint, Anlaby; and Mr. Geo. Featherstone, Gardener to F. Hoare, Esq., Tranby Park, Hessle. Price per dozen [illegible], per hundred 40*s.*, on application to Martin & Son, Market Place, Hull, and Cottingham.

POLYANTHUS SEED, saved from the very best kinds, 1*s.* 6*d.* per pkt.

PRIMULA SINENSIS FIMBRIATA, Mr. Usher's selected, choice, 2*s.* 6*d.* per pkt.

Martin & Son, Market Place, Hull, and Cottingham.

MEADOW AND PASTURE GRASS SEEDS.

JOHN & CHARLES LEE,

SEEDSMEN TO THE QUEEN,

Recommend those who are about to Lay Down or Improve their Pastures or Lawns, to send them full particulars of the nature of the soil to be dealt with, and to state if the land is drained or undrained. They have made the most careful selections for the following MIXTURES, which cannot fail to produce the required effects:—

MIXTURES for LAYING DOWN LAND to PERMANENT MEADOW or PASTURE, carefully selected to suit various soils. 30*s.* per acre.

MIXTURES to LAY DOWN PARK or FIELD LAWNS; all coarse-growing kinds carefully excluded. 32*s.* per acre.

MIXTURES for ORCHARDS or LAND SHADED with TREES. 30*s.* per acre.

MIXTURES for RENOVATING OLD PASTURES. 8 to 12 lb. per acre; 9*d.* per lb., 80*s.* per cwt.

MIXTURES for RECLAIMED MARSHES and HEATH LANDS. 20*s.* to 24*s.* per acre.

MIXTURES of GRASSES and CLOVERS for ALTERNATE HUSBANDRY, for One, Two, or Three Years' Lay. 18*s.*, 20*s.*, and 22*s.* per acre.

MIXTURES for MAKING NEW or IMPROVING OLD GARDEN LAWNS, 18*s.* per bushel.

A Complete CATALOGUE of AGRICULTURAL SEEDS sent post free on application.

ROYAL VINEYARD NURSERY and SEED ESTABLISHMENT,
HAMMERSMITH, LONDON, W.

PETER LAWSON & SON,

THE QUEEN'S SEEDSMEN,

28, KING STREET, CHEAPSIDE, LONDON, E.C.; and at EDINBURGH.

LISTS OF ALL SORTS OF SEEDS AND PLANTS SENT FREE ON APPLICATION.

New Dahlias.

JAMES COLLIER begs to announce that he intends [illegible] early in May the following NEW DAHLIAS. [illegible] Certificates at Crystal Palace, Brighton, &c.

A LIST with full descriptions can be had on application.

PRINCESS ALEXANDRA, rich orange, striped with bright [illegible]

MISS BUTLER, creamy white, tipped with rosy purple.

ANNIE, [illegible] crimson, tipped with white.

[illegible] Street, Hart's Lane, Bethnal Green Road, London, E.

New Dahlia Ambassador.

GEO. WHEELER, NURSERYMAN, Warminster, is now [illegible] to send out strong healthy plants of the above-named [illegible]

COLOUR—Pure, shaded with claret; exquisite shape, finely cupped [illegible], high full centre, and one of the most constant, being always [illegible]

[illegible] Five Certificates during the past season—4 feet. [illegible]

A liberal Discount to the Trade. Early orders requested.

New Dahlias.

LEAH.—"This stands first and foremost amongst the new flowers, and may be regarded as a gem. If I were to buy but one new Dahlia it would be this. Its form and outline are beautiful, and the colour a rich yet soft golden yellow."—*Gardeners' Chronicle*, December 17, 1864.

Also MISS ROBERTS, NE PLUS ULTRA, and STELLA [illegible] each. With a full collection now ready.

See CHARLES TURNER'S CATALOGUE, which may be had on application. The Royal Nurseries, Slough.

New Dahlias for 1865.

JOHN KEYNES has great pleasure in offering the undermentioned First-class DAHLIAS for distribution. They have obtained 61 First-class Certificates at the principal Exhibitions in the Kingdom, and have all been proved and grown in 1864 by [illegible]. Fine Plants in May.

CATALOGUES on application, and special prices quoted when the set is taken.

Edward Spary (Keynes')	Lady Gladys Herbert (Keynes')
Lady Maude Herbert (Keynes')	Matilda Keynes (Keynes')
Queen of Primroses (Keynes')	Annie Weeks (Keynes')
Hamlet (Keynes')	Champion (Thornycroft's)
George Rawlings (Keynes')	Bird of Passage (Church's)
George Wheeler (Keynes')	Purple King (Rawling's)

FANCY FLOWERS.

Striped Perfection (Keynes')	Queen of Sports (Goodwin's)
[illegible] Salter (Keynes')	Prospero (Goodwin's)
[illegible] (Keynes')	Ebor (Goodwin's)
[illegible] (Keynes')	Mrs. Reid (Eckford's)

Salisbury.—May 13.

New Catalogue for 1865.

GEO. SMITH begs to announce that his PRICED and DESCRIPTIVE CATALOGUE, containing the Newest and most Approved Varieties of Show, Spotted, and Fancy PELARGONIUMS; Zonale and Variegated GERANIUMS, FUCHSIAS, VERBENAS, PETUNIAS, DAHLIAS, CHRYSANTHEMUMS, BEDDING PLANTS, &c., is now ready, and will be forwarded in envelope for one postage stamp.

*** Coloured Illustrations by Mr. Andrews, free by post, in exchange for 12 postage stamps, of FUCHSIAS GENERAL LEE, MADAME, and FANTASTIC, the three finest Fuchsias G. S. has [illegible] the pleasure to offer, for description of which see Catalogue.

Islington Nursery, Hornsey Road, Islington, London, N.

New Plants now ready for Sale.

AMBROISE VERSCHAFFELT, NURSERYMAN, Ghent, Belgium, begs to offer the following Novelties:—

STOVE PLANTS.	£	s.	d.
ABUTILON VEXILLARIUM (tricolor), strong	0	8	0
AMORPHOPHALLUS NIVOSUS (so much admired at the Great Show of Brussels)	0	12	0
SMILAX MACROPHYLLA MACULATA	0	16	0
GREENHOUSE PLANTS.			
CAMELLIA ARCHIDUC ETIENNE	0	16	0
RHODODENDRON GRAND DUC DE BADE	0	16	0

All these Plants are figured in VERSCHAFFELT'S "ILLUSTRATION HORTICOLE."

The Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

A CHOICE and EXTENSIVE COLLECTION of STOVE and GREENHOUSE PLANTS always on view. Also FRUIT TREES, SHRUBS, and ORNAMENTAL TREES, from the Country Branches of the Firm.

The SEED and GENERAL NURSERY BUSINESS is carried on [illegible] and Packages are delivered free at the various London Railway Stations.

BRANCHES.

EALING NURSERY, G. CANNON, Manager.
Ten minutes' walk from the Ealing Station on the Great Western Railway Main Line.

FRUIT TREES, ROSES, and SHRUBS, are here extensively and successfully cultivated in some of the finest Loam in the County.

FELTHAM NURSERY, R. HIGHAM, Manager.
Ten minutes' walk from Feltham Station.

EVERGREEN and DECIDUOUS SHRUBS, and CONIFERÆ, are here largely grown in a free Loam, well suited to their habits.

PESTON LANE and WOOD LANE NURSERIES, ISLEWORTH.
ORNAMENTAL TREES are in a healthy and thriving state, and GENERAL HARDY PROPAGATION is here carried on.

The Stock in the above Nurseries is well worth the inspection of Purchasers. The prices are very moderate, and the Plants are carefully transplanted to ENSURE SAFE removal.

The following CATALOGUES are published, and will be forwarded on application:—

CATALOGUE of KITCHEN GARDEN, FLOWER, and AGRICULTURAL SEEDS.
CATALOGUE of STOVE and GREENHOUSE PLANTS.
CATALOGUE of SOFT-WOODED and BEDDING PLANTS.
CATALOGUE of FRUIT TREES and FRUIT TREES in POTS.
CATALOGUE of HARDY SHRUBS and TREES.
CATALOGUE of DUTCH BULBS, published in August.
CATALOGUE of ROSES.

JOHN & CHARLES LEE, Proprietors, Hammersmith, London, W.

NEW HARDY LATE-FLOWERING RHODODENDRONS.

PRINCE of WALES.—Bright rose shaded with purple, divided black markings on the upper petals, free grower, profuse bloomer, hardy, and the latest Hybrid Rhododendron grown. One-year grafted plants, 10s. 6d. Two-year ditto, strong, 21s. Larger plants, 31s. 6d. to 42s. each.

PRINCESS of WALES.—Deep magenta edge, pure white centre, primrose flake on the upper petals, slightly spotted with brown, totally distinct from any variety at present known, and when in bloom may be readily distinguished from all others; it is a hardy and first-class Rhododendron. One-year grafted plants, 10s. 6d. Two-year ditto, strong, 21s. Larger plants, 31s. 6d. to 42s. each.

The usual Discount to the Trade.

The above beautiful Rhododendrons were first introduced to the public last year by M. Y., and he has again much pleasure in calling attention to them; they are both most distinct varieties, the colour and marking of the Princess of Wales being quite a fresh type, and [illegible] any other Rhododendron. They have both been proved in the [illegible] for several years, capable of withstanding our most severe winters, and being very late bloomers escape the spring frosts, frequently so fatal to the earlier blooming kinds. They are confidently recommended as most desirable additions to this favourite class of flowers.

Coloured Plates, by ANDREWS, will be forwarded on application for [illegible] stamps each, or the two for 25 stamps.

MAURICE YOUNG, Milford Nurseries, near Godalming, Surrey.

Cheap Bedding Plants.

J. SCOTT has still on hand a few hundred copies of his celebrated FLOWER GARDEN DIRECTORY and CATALOGUE of CHOICE BEDDING PLANTS, which he will forward free on application, inclosing one stamp.

100,000 fine Plants now ready, well hardened off.

A fine stock of the lovely new purple-leaved ACHYRANTHES VERSCHAFFELTII, 6s. per dozen; the finest of all the purple-leaved plants for out-door cultivation.—May, 1865.

St. Mary's Nursery,

NEAR THE CHURCH AND RAILWAY STATION, AND ADJOINING THE COMPASSES INN, HORNSEY, N.

BEDDING PLANTS, from 2s. per dozen; all other Plants equally cheap. ROSES and FLOWERING PLANTS in pots for immediate planting. The Nursery and Grounds are always open to the inspection of visitors.

CATALOGUES sent free by post on application to Mr. THOS. TOWNSEND, as above. A liberal discount to the Trade.

Cheap Bedding Plants.

2s. per dozen, or 15s. per 100, well established in pots.
Strong plants, in cutting pots, 10s. per 100.

PETER DRUMMOND AND CO. have at least 150,000 of the above, which, for variety, size of plants, and price cannot be surpassed in the kingdom, all clean and healthy, for the decoration of the Flower Garden, consisting of GERANIUMS, Scarlet and Variegated, VERBENAS, HELIOTROPES, LOBELIAS, PETUNIAS, CALCEOLARIAS, DAHLIAS, &c., also Frosted and Variegated-leaved Plants.

See large Advertisement in *Gardeners' Chronicle*, No. 17, p. 388.

PRICED CATALOGUE post free on application.

PETER DRUMMOND & Co., Preston Road Nursery, Yeovil, Somerset (late J. Scott's Yeovil Nursery).

BEDDING PLANTS.

VERBENAS, fine selections, 100 in 50 vars., 18s.
CALCEOLARIAS, best bedding varieties, 3s. and 4s. per doz.
SENECIO ELEGANS NANA (new dwarf Jacobæa), very dwarf, bushy, and splendid, only 4 to 6 inches high, in 3 varieties, 4s. per doz.
SENECIO ELEGANS CUPREATA NANA (newest), fine crimson red, 9s. per doz.
MIMULUS, three beautiful new vars., Aurantiaca, Cupreus Major, and Gem, 1s. 6d. each.
GAZANIAS, three fine new vars., 1s. each.
GAZANIA SPLENDENS, 4s. per doz.; 25s. per 100.
Finest FUCHSIAS, PENTSTEMONS, PHLOX, LOBELIAS, PETUNIAS, DAHLIAS, &c., &c.

CATALOGUES free on application.

STEPHEN BROWN, Seed and Nursery Establishment, Sudbury, Suffolk.

BEDDING PLANTS, BEDDING PLANTS.—

The following are now ready and will be sent out, well-rooted, in single pots:—

	Per doz.	Per 100.
DAHLIAS	3s. 0d.	20s. 0d.
GERANIUM CYBISTER	8 0	60 0
" GOLDEN CHAIN	2 6	20 0
" STELLA	2 6	20 0
CALCEOLARIA AUREA FLORIBUNDA	2 6	16 0
LOBELIA PAXTONIANA	2 0	12 0
" PAXTONI MAJOR	2 6	16 0
SALVIA PATENS	3 6	24 0
CERASTIUM TOMENTOSUM, out of pots	1 6	8 0

Address, J. C. PADMAN, Providence Nurseries, Boston Spa, near Tadcaster. Post-office orders payable at Boston Spa.

Russell's Pyramid Primulas.

GEO. CLARKE is now prepared to send out in packets, price 2s. 6d. each, this, the finest breed of PRIMULAS in cultivation. The Seed now for sale has been saved from selected plants, so that it is believed the produce will be even superior to that of former years.

Printed instructions for raising and growing the plants sent with each packet. Stamps received in payment.

Nursery, Streatham Place, Brixton Hill, London, S.

J. W. WIMSETT, Ashburnham Park, King's Road Nursery, Chelsea, S.W., begs to offer to the Trade—

IRESINE HERBSTII, strong plants fit for bedding, 6s. per doz.; also COLEUS VERSCHAFFELTII, 4s.

Fine LOBELIA SPECIOSA and PAXTONI, in 48-pots, 5s.

CENTAUREA CANDIDISSIMA and GYMNOCARPA; ZONALE GERANIUMS, Scarlets; HELIOTROPES, FUCHSIAS, CALCEOLARIAS, TROPÆOLUMS, PETUNIAS, and VERBENAS; all the above strong healthy plants at equally low prices to the Trade.

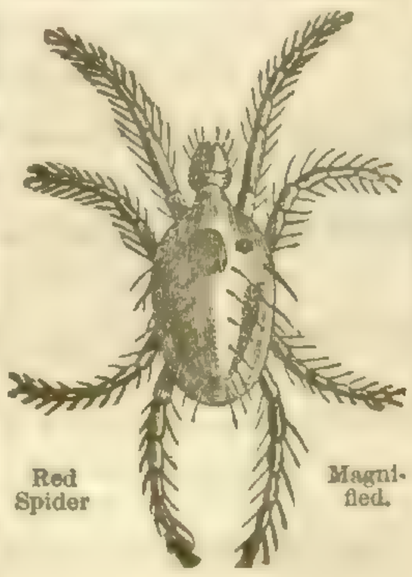
SELAGINELLA FORMOSA, DICHOTOMA, CÆSIA, and DENTICULATA, very fine, in 48's.

TO THE TRADE.

1-year Seedling ARBUTUS, 40s.
1-year Seedling ARBOR-VITÆ, CHINESE, 15s.
3-year Seedling " " AMERICAN, 15s.
1-year Seedling BERBERIS DARWINII, 40s.
1-year Seedling BROOM, WHITE PORTUGAL, 15s.
1-year Seedling " YELLOW SPANISH, 15s.
1-year Seedling PICEA NORDMANNIANA, 100s.
1-year Seedling PORTUGAL LAUREL, 15s.
1-year Seedling YEWS, ENGLISH, 15s.

BEDDED ARBOR-VITÆ LOBBII, 80s.
" BOX, NEW BROAD-LEAVED, 40s.
" HEMLOCK SPRUCE, 100s.
" PERNETTYA MUCRONATA, 70s.
" PORTUGAL LAUREL, 6 to 9 inches, 40s.
" PICEA PINSAPO, 2 yr., 100s.
" RETINOSPORA ERICOIDES, 80s.
" RHODODENDRONS, 3 yrs., very fine hybrids from best named sorts, 60s.
" THUJOPSIS BOREALIS, 3 to 5 inches, 70s.
" YEW, ENGLISH, 5 to 7 inches, 70s.

RICHARD SMITH, Nurseryman, Worcester.



Red Spider — Magnified.

COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 2s. per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped, J. BARSHAM'S Patent.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes, 1s., 3s., and 10s. 6d. each.

Wholesale by

PRICE'S PATENT CANDLE COMPANY (LIMITED).

REIGATE SILVER SAND.—Best Kent and Surrey PEATS, LOAMS, SPHAGNUM, ROCK SANDSTONE, London-made FLOWER POTS, &c.

N.B. Loaded Trucks can be sent direct on all the Railways.

W. SHORT, Sand and Peat Depôt, Reigate, Surrey.

ROLL TOBACCO CLOTH. The cheapest and best article for Fumigating Greenhouses and destroying the Fly, price 1s. 4d. per [illegible], [illegible] 10 lbs. 1s. 1d.

JOSEPH BAKER, 10, Gough Square, Fleet Street, London, E.C.

Post Office Orders payable Fleet Street.

TOOGOOD'S (late PAGE & TOOGOOD'S) IMPROVED BLIGHT COMPOSITION introduced in 1850, has been manufactured under W. TOOGOOD'S sole directions since that period. He has made great improvements in it, and by reducing the price 25 per cent. it is one of the cheapest and has always been the most efficacious remedy extant. To publish the Testimonials no newspaper would give space, but Messrs. CUTBUSH & SON, the eminent Nurserymen, say:—"It is the best thing for the purpose we can find, and does not appear to injure the young foliage like Gishurst does. This is our experience after 10 years' trial."

"February 24, 1864."

Mr. E. SAGE, *Gardener to* Lord HOWE, *says*:—

"Will you please send us 15 gallons of your Blight Composition. I see you have reduced the price, and trust that you may some day be able to make another reduction, and I feel assured that no 'Gishurst,' will be used by practical men."

"We hereby Certify that during the whole time we were Warehousemen in the Establishment of B. PAGE & Co., and subsequently PAGE & TOOGOOD, that we Manufactured the Blight Composition under Mr. TOOGOOD'S *sole directions, and that he alone knew the proportions of the various ingredients.*

Signed JOHN MORLEY, HENRY DREW, HENRY SHERRMAN, GEORGE ISAACS."

"July 13, 1863."

Extra strong, 3s. per gallon (sufficient to make 4 gallons fit for use), 10 gallons and upwards carriage free to London.

May be obtained of the principal Nurserymen and Seedsmen in the Trade, and of W. TOOGOOD, Royal South Hants Seed Establishment, Southampton.

TERRA COTTA GALLERIES, No. 1, South Wharf, Praed Street, Paddington, W., are NOW OPEN with a fresh stock of VASES, FOUNTAINS, TAZZAS, FLOWER POTS, GARDEN EDGINGS, and other Architectural goods.

THE PATENT CONCRETE STONE COMPANY (LIMITED), are now the Proprietors of the Patents for the Manufacture of the beautiful material known as RANSOME'S PATENT CONCRETE STONE, which for durability, cheapness, and beauty of appearance, stands unrivalled. It is especially applicable for Fountains, Vases, Jardinets, Balustrades for Terraces, Gate Piers, Edgings for Borders, and all other Ornamental Requisites for Parks, Gardens, Conservatories, &c.

Illustrations and Prices furnished upon application at the Offices of the Patent Concrete Stone Company, 2, Queen Street Place, Southwark Bridge, E.C.

AUSTIN, SEELEY, AND CO.'S

Stock now comprises—

296 different kinds of VASES.
24 STATUES and FIGURES of CHILDREN.
70 FIGURES of ANIMALS and BIRDS.
About 200 FOUNTAINS, at prices from £10 to £400
15 BASKETS from 1 to 10 feet diameter.
17 FLOWER BOXES for WINDOWS, &c.
6 GARDEN SEATS.
22 SUN-DIAL PEDESTALS.
22 ORNAMENTS for GATE PIERS.

And a great variety of BALUSTRADING and PEDESTALS.

369 to 375, Euston Road, Regent's Park, N.W.

GARDEN BORDER EDGING TILES, in great variety of patterns and material, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.

F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.

Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also TESSELATED PAVEMENTS of more enriched designs than the above.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cements, &c.

To be obtained of F. & G. ROSHER, at their Premises as above.

SILVER SAND (REIGATE, best quality), at the above addresses—14s. per Ton, or 1s. 3d. per Bushel; 2s. per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less.

FLINTS, BRICK BURRS or CLINKERS, for Rockeries and Grotto Work.

F. & G. ROSHER.—Addresses see above.

N.B. Orders promptly executed by Railway.

PATENT GUTTA PERCHA SOLES.—IMPORTANT TO GARDENERS.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. GLENNY, Esq., the celebrated Florist:—

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles.—Your obedient servant, "G. GLENNY."

Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Calbotype trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town or country.

The GUTTA PERCHA COMPANY, Patentees, 18, Wharf Road, City Road, London, E.C.

40,000 Dwarf Roses, in Pots, for Bedding or Greenhouse Culture.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

WM. WOOD AND SON have much pleasure in offering the following, in well-grown Plants, viz.:—

BOURBON and TEA-SCENTED ROSES, 12s. to 18s. per dozen.
CHINA, NOISETTE, and HYBRID PERPETUAL, 9s. to 12s. per dozen. Cheaper by the 100.
HYBRID PERPETUAL and TEA-SCENTED ROSES, established in 6-inch Pots, for Greenhouse Culture, 24s. to 30s. per dozen.

Seedling Roses.

WM. PAUL (Son and Successor to the late A. Paul) begs to offer the following FIRST-CLASS NEW HYBRID PERPETUAL ROSES, at present exclusively in his possession, and which are specially recommended. Good plants will be ready for delivery in May next.

ELIZABETH VIGNERON.—Flowers fine rosy pink, very large and full, in the style of Lælia, but fuller, fresher, and brighter in colour than that superb variety; form perfectly finished, constitution hardy, growth vigorous. Price 7s. 6d. each.

GLORY of WALTHAM.—Flowers resplendent crimson, very large and full, a seedling from Leveson Gower, larger, brighter, darker, and of better form than the parent. A superb Rose, of hardy vigorous growth, producing shoots 6 feet long in one season, and of the thickness of the little finger. Price 7s. 6d. each.

MADAME EMILE BOYAU.—Flowers soft rosy flesh colour, changing to blush, of a pleasing colour, sufficiently large, perfect in form, moderate in growth, hardy in constitution, good and distinct. Price 5s. each.

PRINCE DE JOINVILLE.—Flowers light crimson, a fine large showy Rose, of vigorous and hardy habit, quickly forming a highly decorative bush, standard, or pillar Rose, of great beauty. Price 5s. each.

PRINCESS LICHTENSTEIN.—Flowers white, globular, large and full. A good hardy white Rose, of compact growth, flowering abundantly. Price 5s. each.

The best of the NEW FRENCH ROSES, 36s. to 42s. per dozen. Last year's kinds, 24s. to 30s. per dozen. Older kinds, 9s. to 18s. per dozen.

William Paul, Waltham Cross, London, N.

Established Upwards of a Century.

BUTLER AND McCULLOCH,

Seed Merchants, Covent Garden Market, W.C.

GENUINE NEW VEGETABLE SEEDS.

Orders amounting to 21s. and upwards sent Carriage Free.

COMPLETE COLLECTIONS for ONE YEAR'S SUPPLY.

No. 1.	No. 2.	No. 3.	No. 4.	No. 5.
3l. 3s.	2l. 2s.	1l. 10s.	1l. 1s.	10s. 6d.

BUTLER AND McCULLOCH'S NOVELTIES for 1865.

	Per packet—s.	d.
BUTLER'S SUPERFINE DWARF CAULIFLOWER..	2	6
BUTLER'S CLIMAX MELON..	2	6
BUTLER'S PRESIDENT MELON	2	6

FLOWER SEEDS (sent Post free).

Assortments of	100 vars.	50 vars.	30 vars.	25 vars.	15 vars.
ANNUALS—Hardy	20s.	10s.	5s.	..	2s. 6d.
„ Half Hardy	30s.	15s.	..	7s. 6d.	4s. 0d.
PERENNIALS (Hardy) ..	25s.	12s. 6d.	..	6s. 6d.	3s. 6d.
„ Half Hardy ..	..	..	..	7s. 6d.	4s. 0d.

NOVELTIES in FLOWER SEEDS.—See Descriptive Catalogue.

BULBS for SPRING PLANTING.—Gladioli, Liliums, including the splendid new L. auratum; Tigridias, Anemones, Ranunculus, and other bulbs suitable for spring planting, in great variety. Special quotations at low rates per 100 or 1000 on application.

AGRICULTURAL SEEDS, saved from pure Stocks, and received direct from the Growers, including all the best kinds of Turnips, Swedes, Carrots, Mangel Wurzel, Grasses, &c.

PRICE LIST just published, and may be had gratis on application.

Agents for

GOULDING'S HORTICULTURAL MANURE, 1s. per canister.

Sole Agents, Wholesale and Retail, for

MURRAY'S APHIS PASTILS,

A new invention, and the most effectual in existence for Fumigating Plant Houses.

In packets, 1s. and 2s. each.

Butler & McCulloch, Covent Garden Market, W.C.

PELARGONIUM MRS. POLLOCK.—Small Plants in 60-pots at 2s. 6d. each; Larger Plants well established in 48-pots, 4s. and 5s. each.

VARIEGATED-LEAVED PELARGONIUMS.

	Per dozen.—s.	d.		Per dozen.—s.	d.
Cloth of Gold	3	0	Variegated Nosegay	6	0
Golden Fleece	2	6	Countess of Warwick	4	0
Golden Chain	2	6	Alba marginata	6	0
Bijou	3	0	Alma	3	0
Shottesham Pet	3	6	Eva	3	6
Jane	3	6	Bridal Wreath	4	0
Flower of the Spring	3	6	Daybreak	4	0
Julia	3	6	Scintillatum	6	0
Beaton's Silver Nosegay	6	0	St. Clair	3	6

ZONATE and PLAIN-LEAVED VARIETIES.

	Per dozen.—s.	d.		Per dozen.—s.	d.
Madame Vaucher	6	0	Punch	3	0
Christina	3	0	Countess	3	0
Rose Queen	3	6	Aurora	6	0
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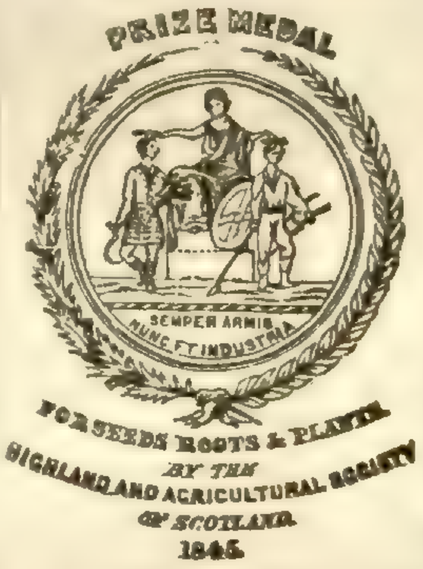

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Mr. Bull's peculiar Strain of AURICULA-EYED VERBENA, comprising nearly every shade of colour: red, clarets, puce, maroons, brilliant vermilion, &c. Mr. Bull from this Strain has from time to time sent out very many superb varieties. The seed we offer is Mr. Bull's own saving, and is certain to produce fine flowers. 3s. 6d. per packet.

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Beaton's Perfection (Beaton).

This is one of three rose-coloured Nosegay varieties selected at same time as Lady Colum, which it somewhat resembles, but is of a much softer rose, freer in growth, and of a more robust habit, attaining double the size in one season, and producing its blooms in greater profusion. It has a perfectly plain leaf, and throws the bloom well up above the foliage; is well adapted for single specimens in vases on lawns, or for conservatory decoration, as well as general bedding purposes. Price 5s. each.

Premier (Beaton).

A Nosegay variety, colour intermediate between that of Lord Palmerston and Lady Colum, with deeply marked zonale leaf, free robust habit, large trusses, thrown well above the foliage; a very desirable bedding variety, also a fine vase or pillar plant.
Price 5s. each.

Forester (Beaton).

A zonale variety, of extraordinary fine and compact growth, producing immense globular trusses of well-formed flowers, of great substance, and perfect form; colour, vivid orange scarlet, shaded with deep crimson towards the centre of the bloom. This will be a favourite variety for single specimens and for centres of beds.
Price 5s. each.

Wild Charlie (Beaton).

A plain-leaved variety, with deep salmon-coloured bloom, produced in great profusion in large trusses, very free habit, and will be a first-class bedding variety; continues in bloom until very late in the season. Price 5s. each.

New Variegated Tricolor Bedding Geranium Sunrise (Carter).

A strong-growing tricolor-leaved variety, with well expanded large leaves, lively green centre, surrounded by a deep zone of rosy lake, margined with clear sulphur; trusses of immense vivid crimson scarlet coloured flowers; of a most free habit, and will undoubtedly be a first-rate bedding variety. We have much pleasure in offering this beautiful variety (of which we have purchased the entire stock) for the first time to the public.
Price 7s. 6d. each.

☞ The Set, 1 plant of each of the above, 21s.

New Tropæolum Double Tom Thumb.

We last year succeeded in raising a splendid double orange scarlet variety of the now well-known Tom Thumb Nasturtium, which we are sure will be a most desirable bedding plant. It has the same very dwarf compact habit as its parent, with perfectly double well formed flowers, 1½ to 2 inches in diameter, well filled up in the centre; a most free bloomer, and as easily perpetuated by cuttings as the Lobbianum varieties.
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The great usefulness and beauty of the Tom Thumb Nasturtiums are now very generally appreciated throughout the whole Floricultural world, and any improvement on them is very desirable. The variety now offered is by far the finest of all, and we much question whether any bedding plant of any kind can equal it in effect, the lustrous blue green foliage, contrasting vividly with the intense scarlet of the blossoms, produces an unequalled blaze of brilliance. The plant must become a favourite; may be propagated same as above variety most freely from cuttings.
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General Lee.

The above, of which we have but a very limited stock, is undoubtedly the most splendid scarlet variety ever offered, being of most vigorous habit, and producing immense blooms often 3 inches in diameter; it possesses the delightful perfume of the old Clove in all its intensity.
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This is beyond doubt the freest and strongest-growing Carnation in existence, the original plant having grown 2 feet in height, and about 4 feet in circumference in a single season, and produced more than 60 fine blooms; colour light crimson, blossoms double and well formed, and richly clove scented.
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A new half-hardy perennial herbaceous plant, with beautiful lanceolate leaves 6 to 8 inches long, thickly covered with silvery down, will make a nice plant in contrast foliage planting, or for rows and margins; flower deep golden yellow.
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Nos.
1. ARABELLA, light rosy lake, white throat, a novel and most beautiful colour.
2. BEATRICE, rose edge, very dark throat, exquisitely pencilled.
3. CHRISTABEL, splendid deep crimson, fine for a bed entirely of this colour.
4. DINORAH, white margin, and flaked with deep crimson.
5. EMMELINE, very compact habit, free bloomer, bright rose, pencilled dark throat.
9. FREDERICA, crimson, in the way of Magna Coccinea, but more substance.
12. GERTRUDE, large rose, of exquisite form, white throat.
14. HELEN, deep lilac, pencilled with black, fine novel colour.
15. ISABEL, immense flower, with white ground, striped and flaked purple.

Price, each, 1s. 6d.; the set, 10s. 6d.

NEW PLANTS OF 1864.

WE ARE NOW ABLE TO OFFER SOME OF THE MOST DESIRABLE NOVELTIES SENT OUT IN 1864, AT THE FOLLOWING VERY REDUCED PRICES:—

Beaton's Cybister Geranium.

This is undeniably the finest Nosegay ever sent out. After a trial of two seasons, and again last season by the general public, we believe our assertion will be endorsed by every one who has tried it—that, for general effect, it has no equal in its colour among bedding Geraniums, giving satisfaction by its long continuance in bloom, free robust habit, and splendid appearance. Knowing this, we used every endeavour to work up a large stock to meet the demand, and can now offer it at the following low prices.
Price 1s. each; 9s. per dozen; 30s., 50; 50s., 100.

Ornithogalum thyrsoides album.

SEE PLATE IN "VADE MECUM," PART IV.

The bulbs from which we raised our stock of the above were sent to us from a correspondent in Natal, planted at once in pots, and placed in a cool Vinery. They soon started into vigorous growth, and about Christmas some of the most forward showed signs of blooming, throwing up stems from 1 to 1½ foot high, having a fine thyrse of pure white flowers, with a bronze-yellow centre opening from the bottom, and having in most cases 90 to 100 flowers on each spike, two-thirds of which were generally expanded at one time, and surpassing in loveliness any known white half-hardy bulb. We have seen the bloom continue expanding for three weeks, if not exposed to too much sunlight; and cut blooms will keep in full beauty for a month in water. For conservatory decoration, we know of nothing to equal it if grown three to five bulbs in a pot, and introduced among the dark foliage of the Camellias, or any groups of conservatory plants, being of a character so distinct from most other plants in bloom at that time of year. We believe, with judicious management, it may be had in bloom from January to the end of June; it is of most easy culture, succeeding well in a mixture of sandy loam and leaf-mould; and if potted up in autumn, and started in a cool Vinery, will, without any unusual attention, succeed perfectly. We have a splendid show of this plant on bloom at our Nursery.
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A beautiful ornamental-foliaged plant, having dark crimson leaves, with ribs and stem of a bright carmine. This plant will be found to excel the charming Amaranthus melancholicus ruber as a bedding plant, being much hardier, and is easily kept in a cool greenhouse during winter. This should not be planted out until end of May.
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Lilium auratum.

We have much pleasure in announcing that we were very large importers last season of this most beautiful of all Lilies, direct from Japan, having received, by overland mail, at different times, between 4000 and 5000 bulbs, collected especially for us by a native botanist, the bulk said to include many much finer varieties than had ever before been sent to this country.

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The Directors will allot Shares in the order of application, and the list will shortly be closed.

The Gardeners' Chronicle.

SATURDAY, MAY 13, 1865.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY,	May 16	Royal Horticultural (Floral and Fruit Committee), at S. Kensington .. Noon
		Do. (Scientific Discussion) .. .. 3 P.M.
SATURDAY,	May 20	Royal Horticultural (Weekly Show), at South Kensington .. .. .. 2 P.M.
		Crystal Palace Horticultural Exhibition .. .. Noon

WHEN inviting attention at p. 315 to Mr. BELL's lecture on Window Gardening, we purposely omitted to refer to a point of some importance in reference to TOWN GARDENS generally, with the view of returning to it at an early opportunity. The point in question is the advantage of elevation in the cultivation of plants in town gardens—not the kind of elevation we so commonly see in our mismanaged public squares, where a hedge or a group of shrubs is set to starve on the top of a barren ridge or hillock, but a lifting up as it were of the surface of the garden to the influences of air and sunshine, without cutting off the supplies of moisture, as must too commonly happen in the cases to which we refer. Let Mr. BELL say what his experience has been:—"I mentioned elevation as favourable to the growth of flowers and plants in public places in cities, and I will now offer a few remarks as to the same situations in smaller areas as regards domestic gardening. Window gardening is most valuable, evidently, where there is no other space for the purpose, and as affording to almost every one who has a window the opportunity of horticulture on a limited scale. But in many localities, even without going far into the suburbs, there are small garden plots attached to the houses, and in alluding to them as part of my subject, I cannot do better than follow Miss MALING's observations, in which mention is made of the great advantage which arose in her experience from giving elevation to the situation of the plants.

"I have already mentioned what occurred in the Horticultural Gardens from an elevation of only 4 feet, and I found the same advantage in my own, which is contracted and hedged round with walls and lime trees. Here, also, I placed an iron receptacle the same height against the wall on one side, in which I found Mignonette grow much more freely than in the borders near, and a Genista especially increased five-fold in the course of the season, during which it flowered continuously. This led me to the idea of a general raising of all the beds of a small contracted

garden, so as to afford them a freer circulation of air and more sun. No doubt this is in some degree expensive, but in a small garden would be no great matter, and, I believe, would ensure the growth of plants and flowers in situations where they would not thrive at the usual level, for every foot of elevation gives an improved stratum of atmosphere. It is evident that something of this treatment is seen in the planting and growth of flowers in large vases, and on trunks of trees sawn into blocks, and on rockwork; but in these cases not at all the same amount of earth or equality of drainage is provided for. In deep-rooted plants this plan would not be efficacious, probably, as they would hardly change their habits to suit this mode of culture; but for most plants and flowers, such as are usually sown or bedded out in parterres, 9 inches, or at most a foot, in depth of earth, with 2 inches of broken pots below for drainage, would be sufficient. The receptacles for these, whether of iron, terra-cotta, or masonry, would be nearly flat-bottomed, and elevated on ornamental standards; and having made some little sketches of the general effect, although too slight to be used as illustrations, I conceive that the elevation of all the parterres of a small garden in a regular pattern in this manner, is capable of much elegance and convenience, as well as advantage to the growth of the plants. It would probably be productive of some novel effects in appearance, and would be without precedent, but so much the better for that.

"I have spoken of its convenience, which would be particularly the case as regards lady visitors and lady gardeners. The crinolines would then find ample space to sweep under the parterres instead of over them, as they often do, to the detriment of the flowers in a small garden, where the walks were not originally laid out in contemplation of that remarkable personal embellishment. As regards stooping, also, it does away with the necessity of this, either for sowing, planting, tending, or examining the flowers; and evidently their bloom and fragrance are more directly available. Mignonette, for instance, when placed in the ground, you would hardly perceive the scent of in walking by; but raise it some 3 or 4 feet, and let it grow there, and it will welcome you with its fragrance whenever you go near. Thus will you be better repaid for your care, and the plant will be much obliged to you.

"As it appears to me, this is a plan which might be well adopted in the suburbs, which the closer and loftier march of bricks and mortar is now invading in all directions; and the thus raising the parterres in this artificial manner a yard or so in elevation, would be tantamount in effect upon the plants to removing them a mile or so into the country. I acknowledge that the building activity in my own neighbourhood gave rise to this idea in my mind, and although my little garden is by no means yet in the condition to require this general hoisting, yet I confess I hold it in reserve with some satisfaction for the possible time when I may think it expedient, for as far as I have tested the plan I have found it to be attended with success."

There can be no doubt that there is more in this question of elevation in its relation to town gardens than at first sight appears. What, speaking generally, are town gardens, with their party walls, essential to our English notions of privacy,—what are they but a series of pigeon holes filled with stagnant air and sooty vapour, and with more or less of their surface doomed to perpetual gloom. It is not reasonable to expect plants to succeed in these dismal prison-cells, from which Mr. Bell's suggestion, already shadowed forth by Miss Maling in one of her contributions to our pages, should at once set them free. The first time, observes Miss Maling, "I tried the plan of growing my plants lifted up from the ground, it was that there was a back garden, deep down and well-like, in which not a thing would grow. A little breakfast-room window looked out upon this 'dampery,' and there I got my boxes fixed, raised above the level of the surrounding walls, the plants enjoying the free current of air that now passed round them. The way in which that garden throve attached me for life to this plan." And such will be the result, we venture to say, with all who try it intelligently, avoiding the opposite evil of exposing the plants to the draughts or fierce air-currents, which form another of the malignant influences to which town-grown plants are more or less exposed.

In the month of March last we had an opportunity of paying a visit to the Royal Botanic Garden of Edinburgh, and we need scarcely say that we found it, as usual, full of subjects of great interest to all lovers of herbaceous plants, shrubs, and trees. Amongst other things worthy of notice we were more particularly struck with the effect produced there in early spring by Snowdrops on the Lawns. The roots of this spring favourite had been planted in patches in the green sward, and it had burst forth into full bloom on the melting of the late snow. The effect was most pleasing at this early period of the year. We believe the idea of using the Snowdrop in this way first suggested itself to Mr. McNab a few years ago, and his example is now followed in many other parts of Scotland.

It may appear, at first sight, that the scythe or mowing machine would eventually prove fatal to the Snowdrop by the destruction of its leaves. This, however, is not the case. The leaves are formed very early in spring, and have performed their functions before the Grass requires to be cut; a store of nourishment has already been laid up, and the bulbs lie dormant under the sward until the following year, when at the proper season they again throw up their leaves and stems, and burst into bloom. Any bulbs which require a summer to ripen their leaves or form their secretions, would not be suitable for the purpose to which the Snowdrop is applied in the Edinburgh Garden.

In bringing this style of gardening to the notice of our readers, we may remark that our own taste would not lead us to scatter the flowers regularly or indiscriminately over the surface of the lawn. We would rather have patches of them in nooks and corners of it, or on banks and under trees. In such situations they could not fail to be interesting and attractive. We are perfectly aware that many persons object to having Daisies on the lawn, and these persons would probably also object to having Snowdrops. Yet we cannot help thinking that in the positions we have indicated, the latter would be very pretty and very enjoyable, particularly at a season when out-door flowers are rare.

Snowdrops, Violets, Primroses! What a strange fascination these spring flowers have for the inhabitants of those kingdoms. The love of them seems to be born with us,—as children we love them, and prefer them to the most rare and costly exotic. And never is that love so strong as when we are far away from our native land. We well remember a Ward's case full of Daisies arriving at one of the ports of the far East. How fair ones coveted them, and potted them, and shaded them from the intense heat of an Oriental sun, we will leave our readers to imagine, but we may mention one little circumstance concerning them—we mean of course the Daisies—that may excite the surprise of the florist, or perhaps cause some one to smile. Amongst them were double Daisies, having flowers of several shades of colour, but the one of all most sought after and most prized, was the little Bellis perennis, the wild Daisy of our English lawns. *F.*

—— We once more remind our lady readers that the prizes for Indoor Gardening, offered by the Proprietors of this Journal, are to be competed for on the 24th of June, and that notice of intention to exhibit must be sent to South Kensington by June 19. The full particulars of the competition will be found at p. 100. We trust that our fair friends will not again, as last year, be faint-hearted, but will furnish abundant and convincing proofs of their floricultural prowess.

—— We learn that the Birmingham Rose Show, which is always looked forward to with interest by the growers of this flower, has been fixed to take place on July 6th and 7th. The prize list has, we are informed, been settled, and will shortly be put in circulation.

—— A discussion has been going on in some of the monthly Journals as to the advantage or otherwise of Heating Vine Borders. As an argument against the necessity for, or even the advantage of, applying heat in this way, the fine Hamburghs, and Barbarossas, and Alicantes shown by Mr. Meredith of Garston, and the Barbarossas of Mr. Miller of Combe Abbey, all grown in unheated borders, are confidently referred to. These are certainly strong cases; nevertheless one is hardly prepared to admit theoretically the disadvantage of bottom-heat to plants having the constitution of the Grape Vine, though the practical disadvantage may be shadowed forth in the remark of Mr. Wills, that "if piping in any quantity is used under the borders, after a few years it will have a tendency to dry all the moisture out of the whole of the bottom part of the border," and "when 18 inches or 2 feet of the bottom part of a Vine border becomes dry, how are we to get water to it?" But is not this rather suggestive of defects in the mode of applying the heat, than conclusive against the use of heat at all?

—— The *Journal of Botany* states, in reference to recent Botanical Appointments, that Dr. Schleiden, who was named Professor of Botany at Dorpat, has since resigned, his scientific opinions being considered of so advanced a nature as to have brought him into unpleasant contact with the Church party. Dr. Hanstein, formerly Keeper of the Berlin Herbarium, has been appointed to succeed Dr. Schacht as Professor of Botany at Bonn; and Dr. Garcke has been appointed as his successor in the charge of the Berlin Herbarium, with Dr. Ascherson as assistant.

—— Some further records have been made as to the Influence of Stocks on grafted Vines in the pages of the *Florist*. It is stated that the Lady Downes Grape grafted on Gromier du Cantal, furnished fruit remarkably fine both as to bunch and berry, but with very hard firm flesh. The same variety grafted on the Black Eagle, a small black variety, though not so large, proved infinitely superior in flavour, the flesh being tender and delicate, sweet and remarkably rich.

New Plants.

288. Phalænopsis Lüddemanniana, *Rchb. fil.*

Three varieties of this species are now before us, all coming from Mr. Lüddemann. The type already described is no doubt a glorious plant. One variety is much more delicate in growth and has much narrower stripes of cinnamon on the white ground of the sepals and petals, the amethyst colour being confined to their very base, forming a triangle. Both lip and column are amethyst. We propose to call this var. delicata. A second variety has the texture of the original form, grows as large as it, but is highly curious from having all the stripes of the sepals and petals of a light ochre colour. We propose for it the name of var. ochracea. The apex of the labellum in this species is subject to such remarkable and highly curious variations as would induce many botanists to propose several new species. We have seen it entire; three lobed with obtuse lobes; and three lobed with sharp toothleted lobes.

A most careful comparison of all our materials has persuaded us that the two species with which this was compared (*supra*, p. 410) are really very different. P. sumatrana, Korth. & Rchb. fil. (zebrina Hort. Bog.) has a fringed anther-bed, a saddle-like anther with a tumour in the centre, and none of the small numerous filiform teeth between the posterior divisions of the lip. P. violacea, Teijsm. & Binn., has the sepals keeled on the outside, and a dilatate lobulate apex to the lip, without any hairs. P. pallens, Rchb. fil., a much smaller thing, has, according to a sketch for which we are indebted to Dr. Lindley, an oblong bidentate plate at the base of the lip.

289. Dendrobium senile, *Parish MS.*

(Eudendrobia chrysantha), caulibus fusiformibus vaginis hirtis vestitis superne triphyllis, foliorum laminis cuneato-ligulatis acutis hirtis, racemis uni- seu bifloris ex pseudobulbis vetustis, sepalis ligulatis acutis, petalis cuneato-oblongis acutis, labello medio trilobo, lobis lateralibus semiovatis obtusis, lobo medio acuto, callo subtiliter trisulcato in basi, disco anteposito velutino, columna apice tridentata.

One of the most curious of Orchids recently introduced by Messrs. Low & Co., and discovered by the Rev. C. S. Parish in Burmah. We are anxious to attach to this plant the name so very happily suggested by its discoverer, and which is truly descriptive of it. We took a sketch of the plant, which elicited close scrutiny on account of its peculiar hairy bulbs, perhaps never higher than 4–5 inches, in the splendid stoves of Mr. Day, at High Cross, Tottenham. The flower is described from a dried one kindly communicated by Mr. Low. We are not certain whether the furrows of the callosity on the base of the lip are found only on the dried plant.

290. Plocoglottis Lowii, *Rchb. fil.*

Sepalo summo oblongo subacuto, sepalis lateralibus deflexis semiovatis obliquis supra apicem introrsum rotundatum, petalis lanceolatis acuminatis, labello subquadrato, basi rotundato, extus ciliato serrato, antice retuso tridentato, cornuculis duobus ante apicem reflexum, columna clavata pilosa.

The genus Plocoglottis was for many many years a Dutch mystery, confined to the Museum of Leyden, where so many fine things lurked inaccessible. At length specimens, coming from Junghuhn, Zollinger, Cuming, and others, found their way to our herbaria. But it was no little surprise to us to find the living plant in Europe. Messrs. Low & Co. flowered it for the first time last year at Upper Clapton, under the care of Mr. Bullen. It had been introduced from Borneo, whence it was sent by Mr. Hugh Low. Just now it has been flowering with Mr. Day, cultivated by Mr. Stone. It has ob-pyriform bulbs, a great cuneate broadly oblong acute thickish leaf, and a long radical finely puberulous peduncle, bearing a raceme of from 6 to 9 ochre-coloured brown-spotted flowers as large as those of Cattleya luteola. It is dedicated to Mr. Low.

291. Bolbophyllum Dayanum, *Rchb. fil.*

Rhizomate repente, pseudobulbis turbinatis (rugosis) distantibus, folio breve petiolato, abrupte rotundato oblongo apiculato, racemis paucifloris, sepalis oblongis acutis toto limbo pulchre pilosis, petalis ligulatis acutis toto limbo pilosis, labello a rotundata basi trifido, laciniis basilaribus triangulis serrulatis abbreviatis, lacinia media [illegible] oblonga subacuta serrulata, carinis semiovatis [illegible] duabus in basi, lineis novenis papularum acutarum [illegible] discum, columna apice utrinque unidentata, ceterum serrulata circa androclinium, anthera umbonata.

When we had the good fortune to describe Bolbophyllum balaniceps of Consul Schiller's collection, we believed we had before us the greatest Bolbophyllaceous wonder; but that species will now find a most dangerous and gorgeous rival in B. Dayanum, for

flowers of which we have to thank our excellent correspondent Mr. Day, who obtained the plant we believe from among the many Burmah treasures imported by Messrs. Low. Imagine a dense capitate raceme of flowers as large as those of Bolbophyllum psittacoglossum; the sepals concave, somewhat cochleate, olive green, with streaks of purple spotted lines; the sepals and petals fringed with long shining yellow hairs; and amidst all the great yellowish purple-streaked lip, elastically moving with all the diligence of an assiduous workman. We are very glad to have the opportunity to dedicate it to Mr. Day, whose drawing of this remarkable species will soon appear in "Xenia Orchidacea." *H. G. Reich. fil.*

SPRING GARDENING AT CLIVEDEN.

Spring gardening is a fact! Leaving the Great Western at Taplow Station, my eye was at once caught by a few beds in front of a very pretty cottage, gay as those in autumnal gardens, and far more chaste and graceful, being filled with the wood Forget-me-not, Collinsia verna a charmingly-coloured and useful plant, and other beautiful spring-flowering things. This, I thought, is surely the cottage of the great spring gardener himself; but I soon found that was two or three miles away, and that I was admiring the spring gardening of Mr. Rogers, gr. to Mr. Noble, whose place has been so charmingly laid out by Mr. Marnock. It was, however, an example of "radiation from a common centre," and a capital hint of what one might expect there. Yes, every garden—small or great—around Cliveden has its quantities of the flowers of spring, and what greater compliment could be paid to the system pursued there, than that it should be so largely adopted by those who know it best. Why, even the very gate-keepers have their beds of Myosotis sylvatica! But of course the influence will radiate till stopped by the Atlantic and the German Sea.

I went to Cliveden with a not very flattering picture of spring gardening as carried on there, in my mind's eye, a picture suggested by the results of the same system as carried out elsewhere; but I came back converted, and fully convinced that as much may be done in any place where a favourable soil exists. And when I say favourable, I know many soils which would be quite as congenial to the flowering growth, and health of the plants employed; but that is not the greatest and most necessary condition for them. What is wanted is a dry soil, a well-drained soil, which will keep the annuals and biennials in a ripe and hardy state during the winter season—after that they are safe; and such exists at Cliveden. As was well said in a review of Mr. Fleming's book on Spring Gardening, which appeared in this Journal a year or two ago, it would be well to bear in mind that where all this success has been obtained was in an elevated situation and pure air. And so it will; and after considering that, I am confident the thing is practicable in eight out of twelve of British gardens.

I have not to describe Cliveden, for it has been done before, and had I the congenial task of fully describing its beauties, long space and time would be required. But who could stand on that noble woody slope overlooking the river—there so much more beautiful than nearer London—and the happy country beyond, without expressing his delight? Noble Lichen-covered trees left to Nature's own arranging, and not thinned out and trained into proprieties by the forester—veiled from head to foot in many instances with sweeping robes of Travellers' Joy; precipitous lung-exercising walks through over-arched groves of Yew, as old as the British Constitution; goat paths along the brow of chalk by foxes' dens, and looking down here and there upon Poplars and other trees with globular bunches of Mistleto by the dozen among their branches, with now and then a peep at the "exulting and abounding river," and anon a glimpse upwards through a steeply rising vista, making one feel on mountain side.

And the Yew trees on this steep declivity of hill really look as if they had been peering above some precipice and been thrown back again on their sides by the gale; for they are the most curiously growing Yew trees I have seen, springing horizontally, and even with down-sweeping heads from the banks. And instead of sending roots straight into the ground like respectable Yews, they radiate them from the base for many feet out of the ground altogether, and inarching one with the other, even much more than the branches of Yew are wont to do, form a gigantic web-foot often 20 feet in diameter.

The presiding genius at Cliveden deserves as much praise for taking loving care of our wild flowers, and encouraging them, as for the most successful beautifying of the "trim gardens." At Cliveden Nature is so little interfered with as regards the cutting of the "fringes of the hills," "the pillars of the valleys," as Mr. Ruskin beautifully has it, that by no stretch of the imagination can it be conceived that here took place the scene suggested by the plaintive cry "Woodman, spare that tree," but it is hardly possible to walk about the semi-wild places where almost every wild flower is in perfection, without imagining how often Mr. Fleming must have said:—"Mower! spare that flower, touch not a single spray." Many places are not mown at all, and the flowers are allowed to run riot there. Others are not mown till the leaves of Primrose, and Squill, and Crocus, and Snowdrop are fully developed or quite at rest; and in other places, where mowing is indispensable, the scythe is carefully guided round a solitary bunch of Primroses, mass of Bluebell, or chance family of the wood Forget-me-not. Along walks dark and shady, thousands of beautiful Polyanthuses, coloured Primroses from Devonshire, Asperula odorata, and many such plants are met with. Snowdrops are freely planted here and there; so are the Bluebells, as if the Bluebell was not sufficiently plentiful in the woods around. One sloping bank of great length, near the large flower garden, is entirely covered with the common Bluebell; and what could produce a more delightful effect?—for though the flowers are "as thick as they can stand," yet it is not the colour of the "massing system" you get, nor can it by any means be adduced in favour of that system, for millions of Grass blades and Wood Anemone leaves tone the "mass" down to the point of fascination. Anemone apennina is planted about the woods with a view to naturalise it, and I know of no plant better worth the trouble of treating thus. Mr. Fleming is actually fanatical enough to take a pocket-full of seeds of his best things about the woods to scatter here and there, instead of keeping his good things wholly in the gardens. I was delighted to see Solomon's Seal and abundance of Violets, as much cared for as any others. And the birds! such a chorus of them. I was forcibly reminded of the words of one who loved Nature with his whole heart.

> "Fantastically tangled, the green hills
> Are clothed with early blossoms; through the grass
> The quick-eyed lizard rustles, and the bills
> Of summer birds sing welcome as ye pass;
> Flowers fresh in hue and many in their class,
> Implore the pausing step, and with their dyes
> Dance in the soft breezes in a fairy mass;
> The sweetness of the Violet's deep blue eyes,
> Kiss'd by the breath of Heaven, seems coloured by its skies."

But I have no space to speak of half the beauties of the place, not even of its moonlight aspect, for the evening of my visit was a lovely one, and the joy experienced standing in one of the deep dells with a great irregular wall of noble trees around, and no view except that of "the clear moon and beauty of the heavens," with Mr. Fleming at my side, whispering a discourse on spring flowers, fearful of disturbing a *posse* of nightingales that sang in the woods around, was the nearest approach to the seventh heaven of rural felicity with which I have yet been blessed.

During a hurried run through the houses I noticed considerable preparation for "sub-tropical gardening," which has been done at Cliveden to some extent for a good many years; and a magnificent Bougainvillea, all flower, in a cool intermediate house, planted in a box, and allowed to root into brick rubbish in the floor beneath—no further trouble taken.

Now for the gardens. The Duke's garden is a quietly enclosed unpretending little one just under one side of the mansion, the ground sloping naturally from it down a steep bank to a hollow, richly planted, and between the slope and the first little beds a few Tulips planted in the Grass, just to mingle the wild and the cared for. Some of the little beds here contain the choicest mixtures at Cliveden. Among the best and most beautiful I will name one of Magpie Pansy, edged with a belt of white Daisy, both literally a sheet of bloom, the effect pleasing beyond description. Again, Primula Auricula in variety, mixed with Tulips and Primroses, and edged with Crocuses, Squills, and Arabis lucida variegata. I need not remark what a continuance of spring flowers these mixtures yield. The names of the plants tell that. But the perfect bloom and colouring of the beds was beyond anything to be seen in an autumnal garden! For Mr. Fleming's Pansies are far easier of arrangement as to height, and carry their flowers much more "bravely" than any of the summer plants. The same is true of the several kinds of Daisies, and for a blue what can equal the wood Forget-me-not? Poor Purple King is a rag compared to it, either closely examined or seen in the distance! One very showy and yet chaste bed was edged with a band of red Daisies around a centre of white Daisies, both a mass of bloom, with here and there through the white Daisies, but an inch or two beneath them, a fully expanded flower of Gentiana acaulis. I became quite pathetic about this bed, walked to and fro around it, and my motions must have looked to Mr. Fleming much like those of a monkey when presented with a mirror for the first time. The effect of the fine flowers of the Gentian through the white was quite unique: you only saw them fully when over the bed, and stepping back a few yards they gradually receded from sight altogether. There were many mixtures in this garden, and all good. For instance, Tulips and Poet's Narcissus growing up here and there through beds of Iberis and white Pansy, to be cut away when out of flower, which happens when the groundwork is coming in, and so you get several aspects of beauty from these beds during a few months!

The mixed border—"that antiquated affair" as it has been unwisely called—is well represented at Cliveden, the plants all spring-flowering, and arranged in very close lines, the leaves of Narcissi, Squills, &c., giving the mass of Wallflowers, Pansies, Silene, &c., a very desirable grace. The vases on the terrace were all planted with Pansies, as usual a mass of flower, and never have I seen vases look so well. "How do you like the Pelargoniums, &c., in these, Mr. Fleming, when your Pansies are gone?" Mr. F. shakes his head as he replies, "I can never fill them so charmingly with any other plants." And this applies to all his beds. He says he cannot produce the pleasing colours or satisfactory combinations with the flowers of summer, that he does with those of spring. A lesson for us all, truly!

The effect of a wavy ribbon border beneath the terrace, with capital shelter and aspect, was of surpassing loveliness. It is a slightly raised border, with the edge covered by Ivy, next the Ivy Russian Violet (past, and scarcely noticeable) then a belt of pink Daisy (about three rows), next a belt of white Daisy, then a line of Cliveden Yellow Pansy, then one of Cliveden Blue, and beyond it one of Cliveden dark, followed by Silene pendula, and behind all Wallflowers and Stocks: everything being in full and perfect bloom, every flower of the Pansies looking straight to the visitor, and the slope from front to back of border as nicely graduated as if done with Minton's tiles—a graduation which is by no means easy to obtain with the later bedding plants. Small circular beds opposite each bay of this wavy border were filled with Anemone, Tulip, Crocus, and Narcissus.

From the terrace the effect of the great flower garden stretching away towards the river is very fine, and the colouring exquisite. The great circle is this year planted with a central row of Honesty—which is one of the most useful plants employed by Mr. Fleming—then a band of Wallflower on each side; next on each side is white Myosotis, then a broad belt of Silene pendula, and lastly, a beautiful band of Myosotis sylvatica. The most gorgeous effect afforded by any of the great triangular beds is that of a wide belt of a yellow single Wallflower raised by Mr. Fleming, spotted over by the flowers of Tulip Rex Rubrorum—the mixture from the terrace looking as gorgeous as the robe of an Eastern king. Among the Roses in this garden, Tulips red and yellow are planted and left permanently—a good plan. A rather curious though beautiful colour is that afforded by a mixture of the most useful Silene pendula and red Tulip. The Tulips, I should add, are not planted thickly through the Silene or Wallflower, say about 18 inches apart, or more: in the distance they look like balls of colour suspended over the groundwork. Tulips look far better mixed in this or indeed with any other plant, than alone. For loveliness of colour in this great garden I think the palm must be given to Myosotis sylvatica. There are immense quantities of it in wide belts, and elsewhere in the place it is abundant; it is good for cutting, beautiful to look upon, and the "effect" from the terrace or from a little way off on any side is as blue, aye as heavenly a blue as that of the depths of a southern sky. In large stone vases or baskets "Honesty" takes the central place, surrounded by Wallflowers, and Alyssum, with Iberis, falling over the edges in snowy wreaths; or mixtures of some other subjects previously mentioned. Some small round beds with Honesty, Forget-me-Not, and Tulips and Daisies mixed, were very tasteful and attractive.

This system of beautifying our gardens when they ought to be most beautiful, so happily and extensively practised by Mr. Fleming, is a far cheaper one than any other—except the system of nothingness; is capable of producing most exquisite colouring—showy enough too for the loudest taste; employs moreover for the greater part fragrant plants. Therefore it should be adopted at once in all gardens wherever a light and dry soil exists, unless there is some special reason for the exclusion of spring flowers. *William Robinson.*

ORCHARD HOUSES.

If any man ever had cause to congratulate himself on a numerous progeny, Mr. Rivers must do so when he sees the multitudes of Orchard-houses, of which he is the father, springing up on all sides. I will not enter upon the vexed question as to whether these houses are, or are not, preferable to walls. Suffice it to say, that they possess at least some peculiar advantages, and can often be erected in places where a wall is an impossibility. But those who build them, often doubt whether it is advisable to add some heating apparatus, and a few lines tending to solve that doubt may not be without interest at the present time.

After some experience both of heated and unheated houses, I have come to the same conclusion as Mr. Pearson, viz., that under ordinary circumstances an unheated house is preferable. If we define an Orchard-house to be a glass structure for the better protection of hardy fruits, and for the production of those which are half-hardy; and if, in such a structure, Grapes and Peaches can be ripened as perfectly without heat as with it, the question seems at an end. There need be some special object beyond the mere ripening of the above-named fruits, to induce any one to incur not only the first expense of a heating apparatus, but the further continued cost of repairs and fuel. In addition to the mere financial question, the increase of labour and the risk of neglect must not be lost sight of. Besides, in a heated house there is always a temptation—first, to introduce plants which are not inmates of an orchard-house proper; and, secondly, to attempt a compromise between the requirements of those plants and the fruit trees. Such a compromise can hardly be effected without injury to the latter. When, however, there is a particular

demand for some one fruit, and a desire to prolong its season, or when the owner is away from home during the usual period of ripening, the application of heat for the purpose of acceleration becomes not only expedient but necessary.

The writer, some years ago, heated a house for prolonging the season of Figs, and this fruit is peculiarly suited to this treatment, because, with a little assistance, it produces two crops annually. Assuming that Brown Turkeys against a wall are in perfection from August 25 to September 20, it is easy under glass, with moderate heat, to produce a first crop which shall precede this period, and from the same trees a second which shall succeed it. To do this, the trees may rest till 1st March. Fires are then lighted, but on cold days only; and this treatment is continued until settled warm weather in June. During the succeeding months the sun's heat is sufficient, but about the 10th September, when there is usually a marked fall of temperature, fires are recommenced and lighted daily until the beginning of November. At no period are the fires kept up during the night.

In regulating the heat in the three spring months, my object was to imitate the climate of Lisbon, which is about 12° higher than our own; and upon referring to my memoranda, I find that, taking the average of four years, the actual temperatures in the house during March, April, and May were 55°.2, 62°.6, and 67° respectively, while the out-door temperatures at Chiswick were 42°.9, 47°.3, and 52°.6. The average daily maximum was 17°, and the minimum 11°.8 in excess of Chiswick, and this gives a general difference of 14°.4. The number of fires each spring averaged 35, two half days being counted as one whole.

The result was that the first crop of Brown Turkeys commenced ripening about the middle of July, and was nearly over when the out-door crop was ready. The second in-door crop carried on the succession until the beginning of November.

I name the Brown Turkey as the best. For if in size it yields something to the Brunswick, in luscious sweetness to the White Marseilles, and in delicacy of flavour to the White Ischia, yet for a combination of desirable qualities, including hardiness and productiveness, it excels all known varieties. Nevertheless a few plants of White Marseilles are useful, for they come in early, about a week before the Brown Turkey, and they often ripen a second crop even in an unheated house. The Early Violet, though small, is very rich; and the White Ischia deserves a place, though it requires heat, and even then gives only one late but abundant crop. In Italy it does no more.

I may add, that in the Fig-house described above Cattley's Guava ripened perfectly, and though often classed as a stove plant, stood, on two occasions, a temperature of 36° without the slightest injury. *S. B.*

Home Correspondence.

International Horticultural Exhibitions.—I am glad to learn from your leading article (p. 386) that you are of the same opinion as myself respecting Continental Congresses. I have been an eye-witness of two of them in successive years, and I have been delighted with them. That held at Amsterdam this year, suggested to my mind many things that should be encouraged in this country. In fact we must set to work to reform our exhibitions, for which we have materials to make a grand display. I mentioned the other day that we should arrange our shows in the manner pursued by our Continental neighbours, but the reply I received was, "we have not the plants to do it with." This is however a mistake, and if proper prizes were offered, plants hitherto hidden in obscurity for years would doubtless reappear. English perseverance is well known both here and abroad, and when the proposed International Show takes place next year, as I hope will be the case, we must not be found behindhand. In 1851 we had our first great "International Exhibition," of which the building that now stands at Sydenham, planned by one of our most distinguished gardeners, is a proud memento; and in 1866 why should we not have an International Horticultural Congress? A question suggests itself, viz., where is the money to come from to defray expenses? There will, however, I believe, be no difficulty about that, for we always find that when anything is being carried out for the public good, there are plenty who come forward to lend a helping hand. Let us hope that our efforts may be a credit to the country, so that foreigners who may come over to see us, may return to their respective homes and say to their friends, "If you wish to see things done as they should be, you must pay England a visit." Nowhere is gardening carried on to such an extent as it is here; it is increasing annually, and is likely to continue to do so, for glass being cheap almost all can have hothouses, a circumstance which greatly increases our love for plants. You are right in saying that we have a large number of botanists and first-rate gardeners. I have, therefore, no doubt that a horticultural meeting on the continental plan will do a great deal of good. It will bring persons of the same profession together, and from the free interchange of thought, improvement cannot fail to result. How different was gardening a few years ago to what it is at present! By a friendly intercourse with all nations, we shall doubtless see plants and fruit shown here that we have never seen before. All therefore must, as a matter of course, feel interested in the projected undertaking of an International Congress. *B. W.*

New Early Peas.—Having made several sowings in different situations of each of the new Early Peas advertised in your columns, it is a great satisfaction to us to find that Sutton's Ringleader came into bloom several days before either of the other new sorts, though all were sown on the same day and under exactly similar circumstances. From our observations of last season we have confidence that the podding and ripening will be still more in advance of all others. *Sutton & Sons, Reading.*—I see (p. 412) that Messrs. Carter's First Crop Pea was in flower on the 1st of May. I beg to inform the growers of early Peas that the Brighton Express Pea was in flower here a week before that date, viz., on the 24th of April. *M. B., Woodfield Cottage, Harrow Road.*——I sowed a row of Messrs. Carter's earliest Peas on the 24th of February last, and they began to show blossom on the 1st of May. The whole row is now out in full flower, and promises to produce an early crop. *J. W. Gidney, Windsor House, Putney, May* 11.

Farfugium grande.—It may be interesting to know that this pretty Coltsfoot has withstood the late severe winter unprotected out of doors, in the neighbourhood of Manchester. *D. C.*

Lead Roofs.—If "H." (see p. 416) can without trouble lift his lead, he will find a great difference in the temperature by covering the whole surface under the lead with very thick common felt. I covered the whole of my house with it some years ago; I have no doubt that since then it has been cooler in summer and warmer in winter. *D.*

Fruit-tree Weevils.—I have sent you a few insects which I have caught upon young fruit trees in the open air. They have been very destructive indeed, eating away the bark at those parts which have been cut with the knife in pruning, and in many instances they have also eaten away the bud. The remedy I have hitherto adopted is to pick them off with the aid of a lantern at night, when they can readily be found feeding upon the bark. Another method is to make the earth at the foot of the tree in which they bury themselves fine, and to place a clod upon it, under which they are found in the day time, though not very readily, as their colour so much resembles that of the soil itself. Have any of your correspondents been troubled with the same pests?—and can you suggest any better remedies than those just related? *Richard Locke, Foreman, Kingsholm Nursery, Gloucester.* [The insects which have done the mischief are the destructive weevil, Otiorhyncus sulcatus. A very good remedy for their destruction is to spread a large white sheet on the ground under the trees in the day, and visit it after nightfall, by which time the weevils will have mounted the branches, which must be shaken; the insects fall on the sheet, and must be collected and destroyed. *W.*]

Spiræa Thunbergii.—I saw a specimen of this beautiful spring-flowering shrub in full bloom a few days ago at Messrs. F. & A. Dickson & Sons, Upton Nurseries, Chester. It was about 2½ feet in height, and about 3 feet in diameter, and was literally covered with wreaths of snow-white blossoms. This is apparently still a scarce Spiræa, inasmuch as it is seldom to be found in trade catalogues; and yet for purposes of spring decoration it is unsurpassed by any other of the genus. If gently forced, its long snowy wreaths of flowers would be invaluable in the conservatory, where, flowering very early, it would form a good companion to Deutzia gracilis. It is perfectly hardy, having withstood without injury the rigours of the past winter. The well-known double-flowered Spiræa prunifolia flore-pleno is also highly effective at present at the nursery just named; the flowers are pure white with a slight tint of green in the centre, and are formed in wreaths of from 2 to 3 feet in length. These are both Spiræas which deserve to be more common than they appear to be. *R. D., Dee Banks, Chester.*

Castle Kennedy Fig.—In the Fig-house at Castle Kennedy most of the leading sorts are grown, and all of them are doing well; but the trees of the Castle Kennedy Fig have the most striking appearance, having an abundant crop of larger fruit on them than any of the others; or, indeed, any variety with which I am acquainted. The present crop of Grapes, too, is very fine; perhaps no finer can be seen anywhere, and as for the pleasure grounds, Nature and Art have done much for them. They contain a large collection of Coniferæ and American plants. The Conifers in most of the avenues of the Pinetum are from 20 to 30 feet in height. *T. S.*

Disbudding Peach Trees.—In reference to Peach trees, many say, "in disbudding dress off or remove every bud except the leading or terminal ones, and those at or near the base of the wood made last season, or the fruit-bearing wood of the present year." So far good; but there are doubtless some who may not know what number of buds ought to be left at the base, and it is not easy to decide this matter without seeing the trees. As a rule two should be left, one on either side, and sometimes three, according to the amount of wall to be covered. Those most easily tied in should be selected; every bud that forms between the branch and the wall, except (which is rarely the case) it can be made by training either up or down to fill a gap or naked part of the tree, should be disbudded, and instead of removing every bud except those just referred to, I would leave one or two, according to the length, between the leading bud and those at the base of last year's growth, to form, by stopping, spurs. Those intended for this purpose should be such as grow away directly from the face of the tree, and which, therefore, cannot be conveniently tied in. They should be stopped about the third leaf, and the operation should be performed two or three times during the season, on the principle recommended by Mr. Rivers in the case of trees in pots. I have seen quite as fine fruit grown upon spurs as upon ordinary fruit-bearing wood; and I am confident that if that plan were practised in moderation we should not see so many long naked stems and branches in Peach and Nectarine trees as we do at present. Most people will, I think, allow that spurs have an advantage over tied-in shoots, inasmuch as they give light and air, so essential to setting and ripening, free access to the tree. Some may say that none but experienced persons should be allowed to disbud; but those who have not had experience must have a beginning, and I hope that the remarks I have just made on the subject may be of use to them. *A. S. K.*

Late Melons.—In replying to your correspondent's remarks (p. 412), it is requisite for me to quote such portions of my letter as bear upon the subject, and I will endeavour to explain clearly what I have previously stated. In the first place I am reported to have said that "Princess Alexandra is the only late variety worth cultivation, as the so-called Winter Melons are only fit for cattle." What I meant was that Princess Alexandra as a summer fruit is excellent, and that it is certainly one of the best late-keeping Melons in cultivation with which I am acquainted. I sent this variety to table as late as Old Christmas Day, and I doubt if there is any other good variety of Melon known that could be sent to table so late in the season; so-called winter varieties I consider generally to be only fit for cattle. In the second place it is asserted that I must have been dozing, or I should have heard of a fine hybrid Winter Melon exhibited at South Kensington, which is only one of a new race of varieties that will make their appearance next winter. I recollect perfectly seeing an account representing that such a Melon was exhibited last autumn, and that is all I know about it. Surely people are not expected to write about subjects they have merely heard of. The Melon in question has not been tried by me; perhaps it is not even yet distributed to the public. How many things have been highly spoken of when first exhibited that have afterwards proved worthless? In the third place your correspondent states that my heating apparatus got out of order about Christmas, which stopped my supply of fruit. I wrote "I have now grown this variety two seasons; the first year I sent it to table on Christmas Day, New Year's Day, and Old Christmas Day. During the past season I had it at Christmas, and should have had fruit much later had not an alteration in the heating apparatus prevented my last crop coming to maturity." Nothing is said in this paragraph about the heating apparatus being out of order at Christmas. The houses here are warmed on the one-boiler system, and in consequence of a leakage, a new boiler had to be set last autumn—during the three weeks we had no fires, damp got into the Melon-house and spoiled the greater portion of the crop; this was about the beginning of October. Thus far I have set your correspondent right, and I trust for the future that he will read more carefully before he criticises. He states that Winter Melons should be cut and matured by the end of October and placed in a dry room; this is my own practice, and that of my grandfather, but I own myself fairly beaten when your correspondent talks by good management of keeping up a succession of fruit of excellent quality which can be sent to table up to March. I hope he will exhibit fruit of that description next season, and let us know how it tasted. Melons may possibly be kept up to that time, but their reported excellence of quality appears to me to be doubtful. *E. Bennett, Osberton, Worksop.*

Crickets (see p. 412).—The most effectual plan of getting rid of these I ever adopted was to plunge some little jars baited with about an inch deep of treacle and water, made to the consistency of thin cream, in the soil, leaves, or whatever the beds were made of, up to their brims. The crickets are attracted by the smell of the treacle, and when once they are in they cannot get out. Where there was no convenience for plunging the jars, I placed them in any corner, and put pieces of turf, brick, or anything else at hand, about them, to enable the crickets to get into the traps, which should be cleared of the pests every morning. When the treacle begins to ferment they do not like the smell of it, it should therefore be replaced by fresh material. Another way is to lay down a few crumbs or pieces of boiled Potatos, to cover them very thinly with hay before going to bed, and to take a watering-pot full of boiling water, with a coarse rose on it, and to pour the contents upon the hay and Potatos. If the covering is removed before the water is applied, they escape. Turpentine will drive them from one place to another, but I cannot say whether it will kill them or not. In many places the ashes from the Hall are brought to be burnt in the garden, and by this transference the enemy is brought amongst our Cucumber and Melon pits. By the means just described, however, I have destroyed thousands of these little pests. *A. S. K.*

Flower Shows.—You say we have two points to learn in reference to these, viz., how to arrange objects exhibited to the best advantage, and how to make our exhibitions generally more interesting than they hitherto have been. Certain it is if we do not

alter our style of plant growing, horticultural exhibitions will ere long be amongst things forgotten. Some say it is impossible to arrange our shows as foreigners do them, but this I cannot understand. True, our continental friends take a long time to arrange their plants, but the operation might be effected in a much shorter time, provided proper arrangements were made beforehand, and persons possessed of taste and tact appointed to place the plants—persons who can appreciate a graceful-growing plant with fine foliage as well as a stiffly-trained flowering plant. Both are good in their respective places, and one helps to set off the other to increased advantage. I have long wished to see a change in our English flower shows, which are too brilliant to the eye to be looked on with pleasure. Some decided relief is needed, for when one part of this continual blaze has been inspected, one does not care to see the other. I cannot understand why managers of shows do not bestir themselves to alter the arrangement of them; the operation might be effected without adding much to the expense. The formality of our London shows is proverbial; even some of the country displays are much more interesting, as a greater variety of subjects is exhibited at them than at our metropolitan exhibitions. *W.*

Phalænopsis Lüddemanniana.—In your report (p. 413) respecting this fine Phalænopsis you have omitted, among those who obtained First-class Certificates at the Committee meeting of the Royal Horticultural Society, the name of my gardener, Mr. Charles, which is rather hard on him, inasmuch as our specimen (that held up at the meeting by Mr. Bateman) was beyond comparison the finest plant in the room, and in the highest cultivation. It had six leaves, three of them fully 6 inches in length, and two spikes of bloom, one with four flowers, two fully expanded, and the other with three flowers, one expanded. I am sure you will be glad to correct this omission, and as I mean to send the plant to the Show on the 13th, you will be able to judge whether I have exaggerated the merits of my gem. *Robt. Barnett, Blackheath Park.* [At the meeting in question Odontoglossum gloriosum and its variety superbum were stated to have been furnished by Mr. Veitch. They were, however, exhibited by Messrs. Low, who imported them. Mr. C. M. Caldecott's address, which is Holbrook Grange, near Rugby, was also omitted.]

Spring Flowers.—I am glad to see you directing attention to the more general use of spring-flowering plants. My terrace-garden, in spite of the late frosts, is now a blaze of beauty, and will continue so till we are obliged to shift to make way for Verbenas and other bedding plants. The best plants for spring ornamentation are the following, which may be easily prepared in the reserve garden or in cold frames till wanted:—1. Alyssum, yellow, makes a most brilliant bed; 2. Wallflower; 3. Common Pansies; 4. Virginian Stock; 5. Saponaria calabrica; 6. Nemophila insignis—the latter should be sown in autumn, and potted off early. The effect of these last spring was most beautiful. *T. P.*

Whortleberry Gathering.—The master of the National School near my residence, in the west of Somersetshire, having informed me in the beginning of August, 1864, that the attendance of the children had lately been very thin, owing principally to the "Whortleberries" (the fruit of Vaccinium Myrtillus, the "Blaeberries" of Scotland), which had been unusually abundant, and that he had been at some pains to inquire whether the parents were gainers by the "Wort-gathering," he found that some of the children had earned in the month of July sums varying from 15*s.* to 27*s.* One girl, 10½ years old, had received as much as 25*s.*, the greater part of which was laid out in clothing for herself. He could not therefore be surprised that they stayed away from school for the purpose. I requested him to endeavour to collect fuller statistics on the subject, and I forward you the result of his inquiries, thinking that it may be of interest to some of your readers. This district, which is only one of several which occur in Somersetshire, extends for several miles westward, from the neighbourhood of Nettlecombe towards Exmoor, and is principally seated on the heathy or wooded slopes and spurs of the Brendon Hill slate formation. A Wort-gathering presents an interesting and lively scene; the gatherers, principally women and girls, are scattered about in groups, busily employed, the varied colour of their garments contrasting with the surrounding foliage, and the merry laugh and shout ringing through wood or over moor. The fruit is purchased in large quantities for the town markets, by men who come from a distance with donkey-carts, and who are known as "Wort Jowders." They buy up the Worts in the evening, and travel during the night to Taunton and Bridgewater, returning for a fresh supply in the morning. One half of the gathering is probably thus disposed of; the rest is sold to local purchasers, or consumed by the gatherers, in tarts, or in the shape of preserves, used during the winter when butter is scarce. Those first gathered are sometimes worth 6*d.* a quart, but the average price is about 2½*d.*; and when the crop is plentiful, an active woman will gather from 12 to 15 quarts a-day, and some children from 8 to 10 quarts. The season commenced in the end of June, and lasted a month or six weeks. The master could not get accurate information as to the number of persons engaged in the work, but, judging from our own small parish of Nettlecombe, he thinks that fully two-thirds of the women and children go out at one time or another; and the money brought into the district by their industry must be very considerable, amounting in a good season to several hundred pounds, and a great boon, where the average wages of agricultural labourers is from 7*s.* to 8*s.* a week for men and considerably less for women. *W. C. Trevelyan.*

The late Mr. Johnson of Strathfieldsaye.—This excellent man served the late and present Duke of Wellington during a period of nearly 30 years, and all who had the advantage of his acquaintance know that a better gardener, in the general acceptation of the term, never lived in this country. Although 70 years of age, he entered into any discussion upon modern gardening or garden architecture with more than the enthusiasm of youth. I have often been delighted to hear him relate anecdotes of his interviews with distinguished men, some of whom are now dead; he appeared however always most animated when he spoke of the late Mr. Loudon and Mr. Parkes the eminent draining engineer, whose experiments he greatly aided when the late Duke employed him to drain his park and garden at Strathfieldsaye. Finally, he was an excellent example for the rising generation of gardeners to follow. He was a man of untiring energy, notwithstanding severe bodily affliction, and to the last he was most devotedly fond of his business. These remarks I am sure will be read with sympathy by all who publicly knew him, and will be endorsed by a numerous circle of private friends. *J. C. Dwerrihouse, Heckfield.*

Foreign Correspondence.

Verbena Disease.—*United States: April* 20, 1865.—In your Paper of March 11, p. 220, it is stated that gardeners in England are suffering from a disease in Verbenas. In America a similar evil has been very prevalent for these last three years, and being a "Britisher" myself I feel a pleasure in giving my countrymen a little advice as to the best means of eradicating it. I am propagator to one of the most extensive florists in America. We therefore have a very large demand for Verbenas, and for two seasons past we have not had one worth looking at, which has been a great loss to my employer. Feeling satisfied that something was wrong in regard to treatment, I resolved that something must be done. In September I raised 1500 plants, and a similar number in October. All looked well until dull cold days set in, when black rust began to make its appearance. This led me to think that we were going to be as badly off for plants as ever. I had my stock on the lower shelves in the greenhouses. I then fixed shelves along the top of the houses, just far enough away from the glass to keep the plants from touching it. The upper part of the house is, I need not say, warmer than the lower, and I feel satisfied that any sudden change or stagnation in growth will cause rust. Verbenas, however, do not require a high temperature; from 40° to 45° in winter are quite sufficient for them, and there should always be plenty of air given on all favourable occasions. Cold east winds must be studiously avoided. I had 1000 Italian Verbenas, which I certainly thought were past recovery. I could not get even one cutting from them. These I put on the top shelves. I then got half a peck of lime in the shell state, added 1 lb. of sulphur, and poured enough boiling water over it to thoroughly slack the lime and dissolve the sulphur. The whole was in a barrel, the top of which I kept closely covered in order to confine the steam. When cold I added sufficient water to enable me to draw off 4 gallons of pure liquor. To a third of this I added two-thirds of pure water, syringed the plants with it once a week for three weeks, and the rust disappeared. If there should be any signs of its reappearing, do not neglect to syringe at once, but let the operation be performed at a time when the plants do not want water; for if you water directly after the mixture has been applied, you wash the solution off. This process I found to be effectual; the plants got clean and produced plenty of cuttings, which I put in the propagating bed, and as soon as they were rooted I turned off the bottom-heat for about a week in order to harden the roots before potting. I use as soil two shovels-full of good old loam, one of peat, a sprinkling of well decomposed manure, and a slight sprinkling of sand to keep the soil porous; then, after potting, I place them on the shelves, and after they have made a good start I remove the tops, which serve for another batch of cuttings; the plants then make good stocky growth. I have now a house 100 feet long, with a flat stage in it 6 feet wide, with some finely sifted mould on it to keep the bottoms of the pots cool and moist, and at present this stage is filled with as fine healthy a lot of Verbenas as could possibly be seen in any country. If these directions are attended to, I feel sure that Verbena rust will vanish for ever. *J. Robinson.*

Societies.

Linnean: *April* 6.—G. Bentham, Esq., President, in the chair. T. W. V. Beckett, Esq., Capt. S. R. J. Owen, R. Milne Redhead, Esq., and Capt. Willoughby J. Rooke, were elected Fellows. The following papers were read:—1. *Notes on the Flora of the Desert of Sinai*, by R. Milne Redhead, Esq. These notes were collected during a tour in the East, in February, March, and April, 1864. The paper contained some very interesting remarks on the plants observed during the journey, but does not admit of extract. At Cairo everything was then suffering from recent severe frost, a most unusual occurrence. The Plantains and Sugar Canes were almost destroyed. The desert was generally devoid of vegetation; while in the sandy wadys, which in rainy seasons are water courses, a variety of plants appeared more or less profusely—among them the Retem, Spartium monospermum, supposed to be the Juniper bush of the prophet. Near a pool of bitter water, called 'Ain el Hawâra, and supposed to be the Marah of Scripture, were a few Palms and thick tufts of a prickly shrub, the Nitraria tridentata, the Gharhûd of the Arabs, which produces small oval scarlet berries, with a sub-acid flavour. The camels eat this plant greedily. At night the air was laden with the delicious perfume of Mathiola odoratissima. As regards Ferns, Adiantum Capillus-veneris was stated to grow abundantly at the Pools of Solomon, in an old well on the Mount of Olives very luxuriantly, also at Aceldama; Ceterach officinarum on rocks and walls near Bethlehem; Cheilanthes fragrans in profusion at Beth Jala and in the valley of Hinnom near En rogel; Nothochlæna lanuginosa on rocks between Jaffa and Jerusalem; Gymnogramma leptophylla on Mount Gerizim, and Lastrea Filix-mas at Banias—making in all six species seen in Palestine.——2. *On the Vegetation of the Western and Southern Shores of the Dead Sea*, by B. F. Lowne, Esq.; communicated by Dr. Hooker.

April 20.—George Bentham, Esq., President in the chair. The following papers were read:—1. *On Gripidea, a new genus of Loasaceæ, with an account of some peculiarities in the structure of the seeds of that family.* By John Miers, Esq.——2. *Lahul, its flora and vegetable products, &c., from communications received from the Rev. H. Jaeschke, of the Moravian Mission.* By J. E. T. Aitchison, M.D.

May 4.—G. Bentham, Esq., President in the chair. Mr. R. Milne Redhead exhibited dried specimens of plants collected in Palestine and the Desert of Sinai; also specimens of Anastatica hierochuntica living and in the dry state. Dr. F. Welwitsch and W. Woolls, Esq., were elected Fellows. The President announced that a new part of the Transactions of the Society, consisting of Mr. Wallace's paper "on the phenomena of Variation and Geographical distribution, as illustrated by the Papilionidæ of the Malayan region," was now ready for distribution. The following papers were read:—1. *On Two Species of Guttiferæ.* By Thos. Anderson, M.D. Among the many rare species cultivated in the Botanic Garden of Calcutta, which have escaped the devastation of the Cyclone of the 5th October last, there were stated to occur two species of Guttiferæ of considerable interest. The first of these, Calysaccion siamense of Miquel (Mammea birmanica, Anderson), the author now described from living specimens, under the name of Mammea siamensis. M. Teijsmann says that the Siamese make necklaces of the flowers, and also offer them to the images of Boodh. The second was a Garcinia from the eastern coast of Africa, and named G. Livingstonei. The author stated that it was remarkable on account of its very peculiar habit, and also though a true Garcinia, for its departure from one or two of the characters of the genus. The plants were raised from seeds sent to Dr. Thomson by Dr. Livingstone in 1859. This year one small tree has produced a great profusion of pseudo-hermaphrodite flowers, and another has produced a few flowers of the same character. This fruitless flowering was said to occur among other species of Guttiferæ while in a young state, or at least during the first years of flowering, fruit-producing plants being those only that have arrived at full maturity. According to Dr. Livingstone the natives about the Zambesi eat the fruits, which are about the size of a Walnut.——2. *Descriptions of some new Genera and Species of Tropical Leguminosæ.* By G. Bentham, Esq.

Notices of Books.

Heat Considered as a Mode of Motion. By J. Tyndall, F.R.S. &c. Second Edition, with additions and illustrations. 8vo. 1865. Pp. xx. and 532.

This book, the first edition of which was noticed by us some time since, is far more entertaining than any novel. The hackneyed novel reader after the first page or two is perfectly aware of everything that is to follow, and either throws down the book in disgust, or after glancing at the last chapter roves from page to page, extracting a drop of honey here and there if by chance there is any to be found. In the work before us, which has soon reached a second edition, almost every thing is new and unexpected, and if sensational matter is wanted, there is enough to satisfy the most exacting reader.

It is written moreover in such plain and lucid language, and the illustrations and experiments are so neat and pertinent, that a reader of average abilities, with common attention, can have little difficulty in mastering the argument; or even, should he not have perseverance enough to follow the author throughout, or if he looks principally to the experiments, which in fact to the most observant relieve the strain put upon the attention by carefully following the argument step by step, it is quite impossible for him to help feeling something of the same delight with which they

were received by those who were eye-witnesses of their exhibition.

To most minds heat presents itself as something material, and the notion prevailed at one time amongst philosophers. Bacon, however, had a glimpse of the truth, and Locke, as our author remarks, stated a similar view with singular felicity. Heat, he says, "is a very brisk agitation of the insensible parts of the object, which produces in us that sensation from whence we denominate the object hot; so that what in our sensation is heat, in the object is nothing but motion." In later times Davy and Rumford more or less distinctly advocated the same notion. There have been other labourers moreover in the same field, but nowhere has the matter been presented in so complete and convincing a view to the student as in the treatise before us.

We shall not attempt to give an abstract of the volume, which is far too full of matter to admit of our doing so within any reasonable limits. We shall content ourselves with giving almost in the author's own words, which are as remarkable for energy as clearness, some of the main points.

Heat, then, is not the clash of winds; it is not the quiver of a flame, nor the ebullition of water, nor the rising of a thermometric column, nor the motion which animates steam as it rushes from the boiler, in which it has been compressed. All these are mechanical motions, into which that of heat may be converted; but heat itself is a molecular motion. This motion is propagated from molecule to molecule, and heat is thus conducted to neighbouring bodies, and becomes a source of power. Thus steam is merely the apparatus through the intermediation of which the atomic is converted into the mechanical motion. The moving energy is derived from the clashing atoms in the furnace. The motion of these atoms is communicated to the boiler, thence to the water whose particles are shaken asunder, and fly from each other with a repellant energy commensurate with the heat communicated.

The motion, moreover, which is generated can reproduce its parent. Take up the curled iron shavings which the planing tool has pared off; you cannot hold them in your hand, they are so hot. Here the moving force is restored to its first form; the energy of the machine has been consumed in reproducing the power from which that energy was derived.

When the mind is once familiar with the dynamical view of heat as a mode of motion, the material theory which supposes it to be a subtle fluid stored up in the interatomic spaces of bodies, at once seems to lose every shadow of probability, and still more when we realise the fact of the exact agreement of the work which is actually done in any case with the amount of heat which is developed. "For every stroke of work done by the steam engine, for every pound that it lifts and for every wheel that it sets in motion, an equivalent quantity of heat disappears. A ton of coal furnishes by its combustion a certain definite amount of heat. Let this quantity of coal be applied to work a steam-engine, and let all the heat communicated to the machine and the condenser, and all the heat lost by radiation and by contact with the air, be collected, it will fall short of the quantity produced by the simple combustion of the ton of coal by an amount exactly equivalent to the work performed."

Such are a few, and a few only, of the points which are discussed at large, but there are some matters of peculiar interest to the cultivator which we shall now extract, without particular attention to the context.

We should have liked to have given the whole of what is said about the formation of snow flowers, both in a state of freedom, as they sometimes fall upon our clothes as we walk along in winter, and may be observed with a lens if care is taken not to disturb them with our warm breath; or as they exist in ice, where with their central spot-like vacuum they still more closely resemble flowers, and especially that particular form of Primula sinensis known by the name of clarkiæflora. We must, however, refer those who are interested in the subject to the work itself.

We turn to matters of more immediate interest; and first, as regards climate.

The vast influence which the ocean must exert as a moderator of climate here suggests itself. The heat of summer is stored up in the ocean, and slowly given out during winter. Hence one cause of the absence of extremes in an island climate. The summers of the island can never attain the fervent heat of the continental summer, nor can the winter of the island be so severe as the continental winter. In various parts of the Continent fruits grow which our summer cannot ripen; but in these same parts our evergreens are unknown; they cannot live through the winter cold. Winter in Iceland is, as a general rule, milder than in Lombardy. A pound of water in losing one degree of temperature would warm about 4.2 lbs. of air one degree. But water is 770 times heavier than air; hence, comparing equal volumes, a cubic foot of water in losing one degree of temperature would raise $770 \times 4.2 = 3234$ cubic feet of air one degree. We see therefore at once how powerful the effect of the large expanse of ocean must be on the neighbouring atmosphere.

Another mean by which climate is modified, is the distribution of heated air from place to place, in contradistinction to what is called conduction, a subject which is familiar to all who ever give the subject a moment's thought, and heat is distributed in a similar way through fluids.

To choose however another subject of a rather different kind, we may call attention to the manner in which vital heat is preserved in woody plants by the circumstance that heat is conducted through various bodies with unequal energy in different directions. Heat for instance is conducted far more energetically in a direction parallel to the fibrous tissue of trees, or in other words to the axis: in a far less degree in a direction perpendicular to the fibre and to the concentric layers, while its effect is still less when perpendicular to the fibre and parallel to the woody layers, in consequence of which, combined with the fact of the bark being a bad conductor, a tree is able to resist sudden changes of temperature which would probably be prejudicial to it; it resists alike the sudden abstraction of heat from within, and the sudden accession of it from without. Thus again the tree preserves within it the warmth which it receives from the soil.

We must next enrich our extracts with one which in fact is taken from Dr. Wells' Theory of Dew, which, as Mr. Tyndall says, has stood the test of all subsequent criticism, and is now universally accepted.

It is an effect of chilling by radiation. "The upper parts of the Grass radiate their heat into regions of empty space, which consequently send no heat back in return; its lower parts, from the smallness of their conducting power, transmit little of the earth's heat to the upper parts, which, at the same time, receiving only a small quantity from the atmosphere and none from any other lateral body, must remain colder than the air, and condense into dew its watery vapour, if this be sufficiently abundant in respect to the decreased temperature." The vapour itself being a powerful radiant is not so quickly chilled as the Grass, as it has not only its own heat to discharge, but also that of the large mass of air by which it is surrounded.

We must however in conclusion turn to another subject, which cannot be omitted in a journal like the present, viz., the connection between heat as a mode of motion and promoter of vegetable growth on the one side, and the immense quantities of mechanical energy on the other hand to which vegetable substances give rise when burnt.

In the building of plants carbonic acid is the material from which the carbon of the plant is derived, while water is the substance from which it obtains its hydrogen. The solar beam winds up the weight; it is the agent which severs the atoms, setting the oxygen free, and allowing the carbon and the hydrogen to aggregate in woody fibre. If the sun's rays fall upon a surface of sand, the sand is heated, and finally radiates away as much heat as it has received; but let the same beams fall upon a forest; then the quantity of heat given back is less than that received, for a portion of the sunbeams is invested in building up the trees. Without the sun the reduction of the carbonic acid and water cannot be effected; and in this act an amount of solar energy is consumed exactly equivalent to the molecular work done. Combustion is the reversal of this process of reduction, and all the energy invested in a plant reappears as heat when the plant is burned; the oxygen again unites with its carbon, and an amount of heat is given out, equal to that originally sacrificed by the sun to form the vegetable.

It is time however to bring our extracts to an end, and we feel sure that the little we have given will induce many of our more intelligent readers to go to the fountain head and see the grounds on which these striking facts are founded.

The recent Numbers of the *Florist and Pomologist* have contained representations of the following plants, namely:—*Verbena Annie*, a red and white striped sort, and the most beautiful striped Verbena yet seen; *Waitzia grandiflora*, a very fine Swan River Everlasting with yellow flowers, and ranking with the best of the Immortelles; *Aucuba japonica*, the green-leaved form in fruit; and three of Mr. Parsons' new *Achimenes*—*Rose Queen*, *Aurora*, and *Stella*, the most advanced of the improved small-flowered race, rivalling the larger type in size, and outvying them in richness of colouring, which however is unfortunately not brought out in the illustrations. There are many capital papers in these numbers.

The *Floral Magazine* for February figures *Rose Bernard Palissy*, one of the expanded class; *Petunias*—*Jubilee* and *Charming*; *Azalea Fascination*, a fine rosy-tinted white-edged variety, here shown too pale in colour; and *Fuchsias*—*Lucrezia Borgia* and *Fantastic*. In the March Number are *Achimenes*—*Pink Perfection* and *grandis*, two of Mr. Parsons' varieties; *Verbena Popular* with variegated leaves; *Chrysanthemums*—*Golden Ball* and *Venus*, two of Mr. Salter's novelties; and *Begonia Digswelliensis*, a free-flowering pink-flowered hybrid. The April illustrations are *Rose Maréchal Niel*, a very beautiful yellow Tea Rose; *Hovea pungens major*, one of the finest of greenhouse shrubs; *Variegated Chrysanthemum Sensation*, a white Pompon with white-edged leaves; and *Verbenas*—*George Tye*, *Charles Turner*, and *Queen of Pinks*, some of Mr. Perry's fine varieties, but most unaccountably stated to require a Cucumber frame for their cultivation, a statement which, as Mr. Perry informs us, is entirely without foundation. The May Number has figures of *Odontoglossum Pescatorei splendens*; *Camellia Contessa di Gonda*, pink with carmine stripes; *Hyacinth Thorwaldsen*, one of the newest pale blues, with large bells and *Clarkia pulchella integripetala flore-pleno*, a double form of the whole-petaled Clarkia, which, if permanent, will be an acquisition.

In *Seemann's Journal of Botany* has recently been figured *Sphærodendron angolense*, a remarkable new African Araliaceous tree discovered by Welwitsch, peculiar from its perfectly globular crown, and planted as a boundary to fields, its quick growth adapting it for that purpose. According to Welwitsch it grows gregariously, and even forms entire woods; *Sciadopanax Bovini*, another new African genus of Araliaceæ; *Tuber excavatum*, and *Boletus cyanescens*, two British Fungi; and some malformed Narcissi and Campanulas. Among the more important papers are the continuation of the Editor's account of the Hederaceæ (Araliaceæ), and Mr. Cooke's descriptions of British Truffles.

Books Received.—The new edition of *Brande's Dictionary of Science, Literature, and Art* (Longmans), of which Parts I. and II, extending as far as Cofferdam, are issued, differs from the former in the use of a larger and more legible type, in the reduction of the extreme length of some of the old articles, and in the addition of a large number of new ones. These changes at once recommend themselves as improvements, and add considerably to the value of this standard library book.—*The Handbook of Dining*: by Brillat-Savarin, translated by L. F. Simpson (Longmans), is an amusing exposition of the art of Dining. Tell me what you eat, says the author, and I will tell you what you are. "Animals feed; man eats; the man of intellect alone knows how to eat."—*A Manual of the Domestic Practice of Medicine*: by W. B. Kesteven (Longmans), supplies information which may be often turned to good account in cases of ordinary ailments, while the reader is properly advised not to tamper with those of a more serious class, by attempting to dispense with the skilled knowledge of a professional attendant. The chapters on hygiene, accidents and poisoning are of a particularly practical character, and likely to be extremely useful to the class for whose use the book is intended.

Catalogues Received.—*John Scott's Flower Garden Annual Directory* is one of the most complete lists of bedding plants we have met with, and contains a variety of very useful hints about planting.—*J. Jacques Paris'* (*Genève*) *Prix Courant des Végétaux de Plein Air et de Serres* contains among other things the names of a good many succulent plants. The extensive list of Alpines is very conveniently arranged in three groups: those which bear exposure and moderate dryness, those which prefer shade and a cool soil, and those which require very abundant moisture during vegetation.—*W. Bull's New Plants*, is a brief list of novelties just about to be sent out, including the new variegated Aubrietia.—*Auguste Van Geert's Supplément au Prix Courant* is a brief list of choice plants, interspersed with novelties.—*Messrs. T. & A. Ansell's Catalogue of Dahlias, &c.*, comprises an extensive selection of these popular autumn flowers, and various other florists' matters.—*B. S. Williams' Spring Catalogue of New and Rare Plants* is also entirely occupied by new plants of the present season, amongst which is Azalea Fascination.—*J. & C. Lee's Catalogue of Hardy Trees and Shrubs*, and *Catalogue of Pelargoniums and Bedding Plants*, comprise: the first all the best hardy trees, Conifers, &c., and the second a good selection of all kinds of bedding and garden-decoration plants. We may remark that most of these trade catalogues adopt the meaningless distinction of applying the name Pelargonium to the indoor varieties of that flower, and Geranium to the family of Scarlets; whereas, in fact, neither of them are Geraniums, and certainly the one not more than the other.

Florists' Flowers.

The poor Zonal Pelargonium is not, we fear, sufficiently appreciated as an exhibition plant. In the schedule of the Leeds Horticultural Society for a show which is to take place on the 8th and 9th of June, and in which generally the prizes seem to be fairly distributed, we notice these two items:—

12 Pelargoniums, distinct varieties, Fancies excluded:—
12*l.*, 8*l.*, 5*l.*

12 Distinct Bedding Geraniums, Zonal or Variegated:—
2*l.*, 1*l.* 10*s.*, 1*l.*

With such small encouragement as this, which is but one sample amongst many, it must be a labour of love to work these plants up to that position which they are capable of taking, and which we have no doubt they will some day take, at summer flower shows. We may hope for better results at South Kensington, where amateurs are offered as a first prize 4*l.* for 6 kinds, and nurserymen 6*l.* for 12 kinds.

The production of Sports, that is to say of flowering or leafy branches differing in some obvious feature from those of the parent stem, is one of the most remarkable phenomena to be observed amongst cultivated plants. Mr. Barnes has shown at p. 28 of our last volume to how great an extent we are indebted to this tendency for some of our best varieties of Indian Azaleas. In like manner, as is well known, many of our favourite Camellias and Pelargoniums, especially the variegated kinds of the latter, have originated in this way, and other examples are not wanting. The

remarkable fact however is not so much after all that plants sport, as that sports are to a great extent permanent when once obtained, though the alteration may be so great, that, as in some variegated sports, the parentage would never be suspected. Mr. Salter has some very interesting remarks which we venture to quote, on the sporting of Chrysanthemums—another family in which the tendency is very strongly developed, in his recent book on this popular flower, noticed by us at p. 390. He observes:—

Sports are accidental changes in the colour of leaves or of flowers, and appearing without any apparent cause in an entire stem, or in a single branch, without in the least affecting the other parts of the plant. As a general rule, sports are much more likely permanently to retain and perpetuate their changes when propagated from the branch which has undergone the alteration, than when the propagation takes place from seed; in fact, in the latter case, very little, if any, dependence can be placed on the result. Many plants are known to be subject to these diversities, but none to so great a degree as the Chrysanthemum; and as the phenomenon has been going on for many years, it is but natural to conclude that the Chrysanthemum is particularly liable and favoured in this respect.

This mutability was observed so long ago as when the first importations from China took place, when it was noticed that the buff, the sulphur, and the rose were more or less subject to it; but these sports differed widely from those which occur in the present day, inasmuch as instead of being fixed or permanent, as they are now, as, for instance, in Golden Queen, Golden Trilby, Golden Cedo Nulli, &c., they were so uncertain and erratic, that it was extremely difficult to tell which was the original colour and which was the sport. The variety called Changeable Buff is a remarkable instance of this, and has been known to produce on the same plant buff as well as rose-coloured flowers; another season the blooms from the same root have been entirely buff, while the following year every flower has been rose. The same mutability occurred in the sulphur variety, which was apt to change either wholly or in part to Golden Yellow, and after a lapse of time to return to its original colour, as is now sometimes the case with Formosum. It is to be regretted that although these and others having a similar tendency are still found in China, they are no longer cultivated in England, consequently precluding the possibility of experimentally arriving at any solution of the nature and cause of such diversified effects.

All varieties have not the same tendency to sport; some have it far more than others, and the most singular instance of a distinct change has occurred of late years in Queen of England, which has given no less than six different and permanent sports from the original blush, two of them being produced from the same root during two successive years. The first change was from blush to rose, the second to golden yellow, the third blush pencilled rose, the fourth to ivory white, the fifth to pure white, the sixth to variegated foliage, to which might be added several other alterations of minor importance. Another variety, Cedo Nulli, has undergone four changes; Dr. Brock, three; Bob, three; and many that could be cited, one. In the majority of cases the sport has been yellow, from which it may be inferred that they, like seedlings, are prone to return to the typical colour. As before noticed, it has become a theory with some that sports usually appear after hot, dry summers, but so uncertain is the result that no one can foretell either the time or manner of their coming. Many instances might be adduced in proof of this; but the following, which occurred in 1864, will suffice. Two cuttings of Beverley having been potted to grow for cut blooms, one plant produced the true white flowers, while those on the other were golden yellow. In 1863 Dr. Brock gave a striped sport, which was propagated, and in 1864 most of the plants retained the stripe, but some produced bright yellow flowers. In 1863 Rose Trevenna gave a beautiful white sport; in the following year some of the plants propagated from it continued to produce white flowers, while others returned to the original rose, thus proving that no sport should be considered permanent until after a good trial during two or three seasons; in fact, many of the changes have in this way been proved to have such a transient duration, that the year following their appearance they have altogether ceased to exist.

At times these sports take place in suckers, and then the whole stem becomes affected, but more frequently they occur in the side branches; in any case, however, it is desirable to propagate them as soon as possible, as there is always a difficulty in rooting side branches if the wood is hard.

So common have sports now become that scarcely a year passes without additions being made to those already in cultivation, but none are of any use unless the colour be bright and distinct from any variety of the same description.

Every sport should be thoroughly tested in different soils before it can be really considered fixed, as many have been known to run back when planted in rich compost, but when sufficient care and time are expended in proving, there will exist little danger of subsequent disappointment, several of the specimen plants and cut blooms which are now exhibited being nothing more than sports from well-known varieties.

The Apiary.

As the month of May is a season of great importance to the apiarian, a few remarks on Practical Management may not be out of place. The following somewhat desultory hints are chiefly intended for the benefit of those who may consider themselves novices in the art of bee-keeping. They are not brought out as new ideas, but simply as reminders of what may be done to assist the bees for their own benefit and that of their masters.

By this time the majority of stocks that have survived the winter will pretty well show whether they are in a condition for taking the best advantage of any favourable period during the coming summer. Those which are weak in population now, will be likely to effect but little either in the honey or the swarming line. If swarms are thrown off at all from such hives they will be late, and perhaps unable to store sufficient for their winter consumption. If honey be the chief object of the apiarian, he will generally do well to unite his weak stocks together, taking care not to sacrifice any of the brood. This operation is very easily performed with frame or bar-hives, and so that no loss of brood need result, but is rather difficult to effect properly with common hives. Earlier than the present time all the stocks should have been visited and lifted from their respective floor-boards, which should be either thoroughly cleaned, or exchanged for clean ones. This is a great help to the bees, more especially where they are not very numerous. After such a winter as the last, the accumulation of dirt and rubbish in some of the hives has been immense, not only entailing a very large amount of labour on the bees, but also tending to disgust them with their habitation. We have frequently observed a greatly increased activity in hives after they have been assisted in this way. Even now it may not be too late, particularly with those which are not very strong.

It should now be determined by the bee-keeper whether he requires his hives to produce swarms or honey. If the former, he need do but little more than watch for them as the time for swarming approaches. This time varies so much in different localities, that it is useless to lay down any rule as to when swarms may be expected. Usually the appearance of a large number of drones may be taken as a sign that the time is not far off. Hives should be prepared in readiness; this should not be left, as it too often is, until the swarm is actually on the wing. Cottagers will frequently take any old skep, from which the bees have died out, and which, perhaps, is actually falling to pieces from rottenness, for their first or prime swarms, intended to stand as stock hives; while for their second and third, or comparatively worthless swarms, nice new skeps or butts are obtained. Care should be taken that the hives are internally clean, all little ends of straw or of the binding material should be snipped away. No dressing is required, or if any be used, let it be composed of sugar-syrup or honey—and avoid all those horrid messes of herbs which are so frequently applied, and which only cause the bees a vast deal of unnecessary labour in their efforts to get rid of it. The entrances to these new hives should be cut in the floor boards; if any are already cut in the substance of the hives, let them be filled up and the hives reversed, so that they stand at the back, opposite to the proper board entrances. So soon as a swarm is shaken into its new domicile, and the bees have become tolerably quiet, let it be at once taken to its destined stand. The bees after settling in, very quickly begin to fly and ascertain the bearings of their new situation, so that if they are allowed to remain until evening of the day they issued, great numbers will return to the spot on the following day, and after losing much time in searching for their home, will perhaps fly back, not to their proper companions, but to the parent stock.

It is recommended by some apiarians that the swarm should be put where the old stock stood, and that removed to a new locality. This is done for the purpose of obtaining swarms of great numerical strength. It usually prevents the old stock throwing off any further casts. Where the chief desideratum is to obtain a swarm of great strength, and the prosperity of the parent hive is a matter of indifference, this plan is a very good one, but it is hardly to be recommended for general adoption. So large a number of bees vacate the stock that there are not enough left to cover and feed the brood, so that a great deal of it dies or remains unhatched. It is decidedly opposed to the natural habits of bees. A swarm usually comes off during the busiest working part of the day, when a large proportion of the population is absent on foraging purposes. Some of these, on their return, will join the emigrants; the rest arriving too late, will remain with the parent-stock, and with the young bees rapidly leaving their cells barely form a sufficient number to cover the brood, and sustain the internal temperature, necessary for hatching it out. How then can it be expected that a hive will be in a fair condition to prosper, if nearly every adult bee is thus compelled to desert it for the new swarm?

The hives with their new tenants should be properly protected as soon as possible. It is too frequently the custom to throw an old sack or some equally ineffective material over them until the autumn. This is injudicious, as they are neither sheltered from rain nor sun.

If it is desired that the swarms should be domiciled in boxes or improved hives, it is often the better plan to shake them as usual into common straw hives, and transfer them the same evening into their permanent quarters. The way to do this was explained by us last week at page 415.

Where bars or frames are intended to be used, it is always desirable, if possible, to attach to them small pieces of clean worker-comb in the proper position. This not only insures due accuracy, but is a very considerable help to the bees, and enables the queen to commence her egg-laying much sooner than she otherwise could do.

No hives or boxes should be painted; it is absolutely detrimental to the prosperity of the bees, as such hives become much more affected by internal moisture. The outer coverings or cases, if any, will require to be painted. Avoid green or other dark colours: white or light stone-coloured paint is the best, as being cooler under a hot sun. Whatever kind of shed or case may be used for protection, let there be ample ventilation.

Garden Memoranda.

Ashton Court, the Seat of Sir J. H. G. Smyth, Bart.—This ancient and noble demesne is situated in the county of Somerset, a county not less remarkable for its extensive pasture lands than for their great variety of surface. Near the sea, it is true, low grounds abound; but the more inland portions of this fine south-western county are decidedly hilly, and include several well-defined ranges. Among these are the Mendip Hills, between which and the town of Bristol lies this charming estate, which is now connected with Clifton by means of the beautiful suspension bridge lately thrown over the river Avon. The higher grounds of Somerset in general exhibit strata of oolite and lias, the lower grounds new red sandstone.

The gardens and mansion are situated in the middle of a remarkably fine deer park containing some 1200 acres, delightfully undulated and well-wooded. Many of the Oaks and Elms with which this park is furnished are unique of their kinds—very old and of wonderful size, some of them having trunks rough and time-riven, measuring as much as 30 feet in circumference at 3 feet from the ground.

On the south side of the house is an extensive lawn decorated with flower-beds, and cut off from the park partly by means of a sunk fence, and partly by an ancient wall of peculiar form, against which are trained plants of an ornamental character. In a compartment of this garden, at a lower level than that just referred to, is a little circular basin and fountain, surrounded by Grass, on which are some very fine examples of Chinese Arborvitæ, Taxodiums, and other Conifers, under the shade of which recreation can be taken with comfort, even in the hottest days of summer.

Close to this delightful retreat, which has lately been somewhat opened up and greatly improved in appearance, has just been erected a charming range of glass houses, by Messrs. Weeks, of King's Road, Chelsea. It consists of large Vineries and plant houses, separated from each other by neat corridors, the roofs of which are raised above those of the adjoining houses, so as to furnish variety, and in some measure to break up the sameness of aspect which so long a flat roof would inevitably present. In these corridors are grown climbers, and that in the centre of the range has a fine raised border of flowering plants in it, surrounding a handsome stage well furnished with choice specimens, which are inspected from a pathway tastefully paved with variously coloured tiles. At the east end of this range, and placed at a right angle with it, is a beautiful lean-to conservatory, 90 feet in length, the shelves and bed of which are a blaze of floral beauty, enhanced here and there by Ferns, Dracænas, and other plants remarkable for the beauty of their foliage.

On the back wall of this house are such climbers as Cobœas and Tacsonias, &c., and from the roof hang festoons of elegant evergreen drapery. The paths consist of differently coloured tiles edged with Bath stone, and in the centre, opposite the principal entrance, is a raised oblong square stage with the corners cut off, consisting of what may be called a series of boxes, the front panels of which are made of Minton's ornamental tiles, surmounted by a white wooden kerb. These are filled with plants in flower, and the pots in which they are growing being hidden behind a richly coloured screen, the whole has an exceedingly good effect.

In the angle formed by the junction of this conservatory with the other houses has been erected an elegant smoking room from designs furnished by Mr. Deal, Messrs. Weeks' manager, to whom the erection of the houses here has been entrusted. It is octagonal in shape, with a glass lantern at top, round the base of which are representations of a deer chase in imitation fresco work. The colour of the walls of this temple is light grey and gold, relieved here and there with bands of a warm brown, and they are furnished with niches for statuary. From this charming arbour, in which are placed a beautiful Oak table, sofas, and chairs, a fine view of the conservatory with its rich and judiciously varied contents can be obtained.

In front of these houses, all of which are efficiently

warmed with hot water in 4-inch pipes, hidden behind ornamental iron work, and planted with the best kinds of Vines, from most of which good crops will be cut this year, is a terrace garden which in summer is a perfect blaze with Pelargoniums and other bedding plants. This is cut off from an ornamental garden at a lower level just completely remodelled, by a dwarf Yew hedge, which is placed along the top of a beautiful grassy slope. This lower garden is traversed through its whole length by a broad gravel walk, which reaches the higher level of the flower garden in front of the mansion by means of a flight of Pennant stone steps, of a slate colour, very hard and durable.

The kitchen garden, which is wholly new, is placed at some distance from the mansion. It contains nearly 4 acres within the walls, against which are planted thriving young fruit trees in well-made borders. Near the side furthest from the entrance are placed the glass houses in the form of a square, two large Vineries separated from each other by a roomy corridor occupying the back row, at right angles with which are two long span-roofed houses, forming other two sides of the square, the centre being filled up with rows of span-roofed pits, the whole having a compact and neat appearance. These houses, like those already adverted to, have all been put up by Messrs. Weeks, and are heated with hot water from two of their tubular boilers, which are reported to answer most satisfactorily. In the large houses the Vines are planted inside, in excellent borders covered with a wooden platform in order to prevent them from being trampled upon in the ordinary operations connected with their culture. When necessary these platforms can be elevated so as to become stages for plants, a point of considerable importance in places where plants are required in large numbers as they are here. In other compartments are Cucumbers, Melons, French Beans, and Strawberries, together with Vines and Peaches and Nectarines in pots, Pine Apples, both in pots and planted out, all in excellent condition—a fact which will be easily understood when we state that they are under the care of so skilful and experienced a gardener as Mr. Dodds, who was so many years with Colonel Baker, of Salisbury. Behind, *i. e.* on the north side of the principal Vineries, are the boiler, propagating and Mushroom houses. The latter is fitted up in the usual way with slate shelves, one tier being placed above the other; below the undermost shelves Sea Kail is forced under wooden shutters, which fit over it sufficiently close to exclude light.

In pits under skeleton lights, on which mats or other covering are thrown at night and in severe weather, Potatos are grown; and the same contrivances are useful afterwards for hardening off bedding plants, and for many other purposes. Strawberry-pots packed sideways in ashes form good side protections for these temporary shelters.

Mr. Dodds' plan of making manure water may not be without interest. In one case he has a large tank, divided in the middle, in which is a filter, the manure being put into one compartment, and the clear liquid being drawn from another. In another instance he fills a long upright wire cage full of manure, and lets it down into a barrel of water by means of a rope run over a pulley. In this way the manure is also kept from mixing with the water, which can be drawn off in a clear state from the bottom of the cask. Amateurs and others with little convenience will doubtless find this a very useful mode of making liquid manure.

Instead of shading with canvas or other material of that character, it may be mentioned that the glass inside the plant-houses is frosted, as it were, with a mixture of skim-milk and hot lime, daubed on with the point of a painter's brush. This has the appearance of ground glass, and it is easily washed off in winter when shade is not required.

Miscellaneous.

Vegetable Flannel (see p. 368).—Those of your readers who take an interest in the manufacture of vegetable flannel from the Pinus sylvestris, may like to have the additional information that since about 1860 there are two establishments near Breslau, in one of which Pine leaves are converted into wool, while in the other, for invalids, the waters used in the manufacture of Pine wool are employed as curative agents. The process for converting the Pine needles into wool was discovered by Mr. Pannewitz. In the hospitals, penitentiaries and barracks of Vienna and Breslau, blankets made from that material are now exclusively used. One of their chief advantages is that no kind of vermin will lodge in them. The material is also used as stuffing, closely resembles horse-hair, and is only one-third its cost. When spun and woven, the thread resembles that of hemp, and is made into jackets, spencers, drawers and stockings, flannel and twill for shirts, coverlets, body and chest warmers and knitting-yarn. They keep the body warm without heating, and are very durable. The factories are lighted with gas made from the refuse of the above manufactures. *Athenæum.*

The Jardin des Plantes.—The permanent commission of inspection appointed by the Minister of Public Instruction to examine into the state of the various museums of the Jardin des Plantes has just presented its report. From this document it appears that the sum required to defray the expenses of the establishment during the year 1864 was 582,380 f.—viz., salaries, 308,380 f.; travelling expenses, 25,000 f.; stock, 249,000 f. Regarding the collections the commission complains of the great want of space, which has forced the administration to exhibit many specimens in highly inconvenient places. The hothouses are also insufficient for the 974 plants possessed by the administration; the nurseries are well provided, comprising 4393 trees, 2534 grafts, 712 tubercles, 2335 perennials. The botanical section, moreover, possesses 61,116 bags of seeds. *Galignani.*

Calendar of Operations.

(*For the ensuing week.*)

The purest of all pleasures may be derived from a garden; but in order that we may enjoy these in their fullest extent, high keeping and order must form one of its distinguishing features. Gardens frequently get into bad condition from the want of method in the management of the labour employed. We often find better dressed gardens where only one man is kept, than in others of greater pretensions, and this is easily accounted for. The one man relies on no other person to do the work for him; he knows that if it is not done by his own hands, it must be left undone; he cannot fall back and lay the blame upon another. Of course, one man can only do one man's work; but those who have experience in these matters will understand what a man of system can do compared with one of no system. The first rule to be observed, is to do everything in proper time. Suppose a few rows of Peas are to be staked, or a row of Scarlet Runners, a box of Cucumbers or Melons that require stopping or thinning; if these are left for a few days beyond the period when they ought to have been attended to, we well know the result; delay, therefore, not only tends to defeat the object of cropping, but it also so affects appearance and kindly growth, that the real interest which gardening pursuits afford is blighted in the bud. Therefore let everything requiring special attention be done in proper season, remembering the old adage "that delays are dangerous."

FLOWER GARDEN AND PLANT HOUSES.

Out of doors work up arrears with all possible speed. Rolling and mowing should be proceeded with unremittingly. Newly laid turf should be beaten and thoroughly rolled while the ground is in a damp state, in order that an even and smooth surface may be obtained. Pot all stove or greenhouse plants which require it, in order that they may have the advantage of the next two months in which to produce a vigorous growth; and have time for ripening it before winter. Many free growing plants which were potted early will now require larger pots, with which they should be supplied, unless it is wished to flower them in their present sizes, and somewhat earlier than their usual season. In the latter case occasional waterings of liquid manure of moderate strength will be useful, both in maintaining the present vigour of the plants, and in assisting the future development of their flowers.

Azaleas.—Specimens now in full blossom must be shaded from bright sunshine. Plants that have been kept in heat to bring them into flower will require pretty liberal supplies of water. Great attention should be paid to ventilation, particularly in guarding against cold currents of wind. Young plants will grow rapidly if shifted and placed in a moist warm temperature; see that they are clear of insects.

Bedding Plants.—If it is wished that half-hardy plants should make rapid progress when planted out, it is absolutely necessary that those taken from indoor protection should undergo a hardening process for at least a week. To be well established in their pots, and well hardened, is to insure success. Many, however, do not use pots after a certain stage of growth has been attained; on the contrary they prick out the struck cuttings from their store pots into beds about 3 inches apart, and hoop them over and cover with mats at night. Thus treated they lift with good balls of soil, and when transferred to their final destination receive little or no check. Do not plant out until all danger from frost is over.

Tulips.—As seedlings expand they must be marked, either for trial a succeeding season, or to be discarded altogether; it is useless, for instance, to preserve those which have either ill-formed or stained cups.

FORCING GARDEN.

Figs.—As the season advances, gradually raise the temperature of the house. Syringe mornings and afternoons. Keep a moist atmosphere. When the borders require watering, give them a good soaking. Plants in pots and tubs should have some weak manure water occasionally.

Melons.—If there be any room to spare on herbs or over back flues of houses "at work," some of the finer Melons may be placed thereon in pots or boxes. These, however, should be roomy and filled with mellow turfy loam, out of which the loose soil has been separated.

Peaches and Nectarines.—Continue to keep the shoots well tied in the early house, and be careful not to get them crowded. In disbudding, the bearing wood of the present year should be divested of all shoots except the terminal one and those near the base (see an article in another column, page 436.) Where a deficiency occurs in any part of the tree, more may be tied in. Ventilate freely in fine weather, and be careful to close up early in the afternoon. Syringe once or twice daily, and keep a moist atmosphere by throwing plenty of water on the paths, borders, &c. Attend to the disbudding and thinning of the fruit in the second house.

Pines.—Let shifting take place as soon as the plants have filled their pots. Give air freely to all growing stock, and above all plenty of atmospheric moisture.

Vines.—Let late Vines now breaking freely have every attention in regard to disbudding, &c. The litter or dung covering should now be removed from all borders, whether early or late. Litter in an unfermenting state keeps the soil cool instead of imparting warmth in the early part of summer.

HARDY FRUIT AND KITCHEN GARDEN.

Continue to disbud wall trees, and to keep them free from insects.

Broccoli.—If not already done, sowings of the best kinds may now be made. Ward's Superb, a late form of Knight's Protecting, is a good late spring white. Snow's Superb, as a winter white, and Mitchinson's Penzance for early spring, are also excellent.

Onions.—These will now or soon require thinning, and if a sufficient breadth has not been sown, a bed should be prepared for transplanting those into which are thinned out of the principal bed. Make a sowing of the silver-skinned variety, moderately thick, to produce small bulbs for pickling.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending May 10, 1865, as observed at the Horticultural Garden

May.		Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth. 1 foot deep.	Temperature. Of the Earth. 2 feet deep.	Wind	Rain in inches
Thurs.	4	9	29.848	29.782	68	50	59	54½	52	S.	[illegible]
Friday	5	10	29.713	29.650	74	42	58	54½	54	S.	[illegible]
Satur.	6	11	30.004	29.927	71	29	50	54	54	W.	—
Sunday	7	12	29.980	29.889	60	32	46	56	53½	S.E.	[illegible]
Mon.	8	13	29.944	29.755	70	48	58	55	53	N.E.	[illegible]
Tues.	9	14	29.592	29.542	72	40	56	55½	53	S.W.	[illegible]
Wed.	10	○	29.485	29.485	52	42	47	56	53½	N.E.	[illegible]
Average.			29.799	29.718	66.7	40.1	53.4	55.3	52.9		[illegible]

May 4—Overcast; rain; showery; warm at night.
— 5—Very fine with warm S. wind; fine at night, rain.
— 6—Very fine; low white clouds and deep blue sky in the intervals; very fine; slight frost.
— 7—Dry haze; showery; very fine at night; rain.
— 8—Slight fog; slight haze and fine, overcast.
— 9—Foggy; low white clouds; very fine; thunder and lightning, with heavy rain at night.
— 10—Rain; showery; rain at night.
Mean temperature of the week, 1.2 5ths deg. above the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 39 years, for the ensuing Week, ending May 20, 1865.

May.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday..14	63.7	41.0	52.3	15	0.46 in	4	11	3	2	8	8	2	1
Mon. ..15	65.3	41.2	53.2	14	0.45	6	6	[illegible]	—	2	1	[illegible]	[illegible]
Tues. ..16	66.5	43.0	54.7	15	0.34	2	8	4	1	4	2	4	1
Wed. ..17	65.9	41.7	53.8	15	0.58	2	7	4	2	4	1	4	4
Thurs. ..18	65.7	42.8	54.3	17	0.17	2	9	5	3	3	11	0	1
Friday ..19	66.6	43.1	54.8	13	0.50	2	8	7	3	4	3	2	1
Satur. ..20	66.8	43.4	55.1	19	0.44	2	7	7	3	4	1	1	1

The highest temperature during the above period occurred on the 15th and 17th, 1833—therm. 86 deg., and the lowest on the 15th, 1830—therm. 25 deg.

Notices to Correspondents.

Berberis stenophylla: *Fisher & Co.* The plant mentioned at p. 400, 1864, under this name is wondrously beautiful; but it is very near Darwinii. It is sweet-scented.

Books: *E O.* The Micrographic Dictionary would probably give you the information required.—*M T.* Lindley's Elements of Botany, including the Glossary.

Climber for Vase: *D C.* For a creeping stove plant, corresponding in habit with Pothos argyræa, with a dark brown or chocolate coloured leaf, to train round a wire vase filled with Moss, we recommend Cissus porphyrophyllus.

Diseased Peaches: *E J W.* In the absence of specimens it is impossible to say what is the exact nature of the malady in your Peaches. We know of two cases similar to yours, both of which have been recorded in the *Gardeners' Chronicle*, and in neither of these do we see any probability of a remedy. *M. J. B.*

Dr. Lindley: *G R S.* An admirable likeness has just been taken by Mr. Edwards, of Baker Street, one of our most distinguished photographic artists.

Govenia: *P H G.* No such thing as Govenia splendens is known to botanists. There are only two at present in cultivation, i.e., G. superba, with orange flowers; and G. liliacea, with white flowers. Both are fine things, and will thrive under—and only under—*cool* treatment.

Grapes: *C W W.* It is the most aggravated state of rust we ever saw (combined with spot), and simulating the worst states of Vine mildew, though there is no mildew about your specimens. There must have been intensely cold draughts of air to produce the former, and the roots cannot be in a good condition, or such young Grapes could not be spotted. *M. J. B.*

Lawns: *A Subscriber.* By all means purchase a machine. It will save quite half the expense in labour, and do the work much better.

Names of Plants: *Old Subscriber.* Exochorda or Spiræa grandiflora.—*M S.* Very imperfect: they appear to be Cyanotis vittata, Allamanda nerifolia, and Jasminum Sambac.—*K.* Senecio mikanioides.—*C E P.* 1, either Athyrium Filix-fœmina or Polypodium alpestre, there is no evidence which; 2, Athyrium Filix-fœmina; 3, Lastrea spinulosa.—*F T H.* Bignonia speciosa.—*H H, Hillingdon.* The specimens are too incomplete.—*A C W.* Cerasus Padus and Amelanchier florida

Narcissi: *W B.* The varieties are very beautiful, especially those with the white and sulphur flowers, with both long and short cups, and those with enlarged short cups, edged with orange. Such results are very encouraging. The hardy Narcissi are worthy of far more attention than they generally receive.

Rhododendrons: *P P P.* It is a mistake to consider all manures injurious to Rhododendrons, for nothing suits them and all such plants better than thoroughly rotted cow-dung. A good dressing of this will be found to benefit your plants amazingly.

Sea Myrtle: *K.* asks what is the name of the Sea Myrtle. We do not know any such plant.

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The Agricultural Gazette.

SATURDAY, MAY 13, 1865.

MEETING FOR THE ENSUING WEEK.

WEDNESDAY, May 17, { Royal Agri. Society of England .. .. Noon. (Mr. J. C. Morton on Agricultural Education.)

THERE was a very interesting and instructive discussion on FLAX CULTURE at the Royal Agricultural Society's Rooms last Wednesday. Mr. BEALE BROWNE, who owns land both in Gloucestershire and Kerry, gave us his 10 years' experience as a grower of this crop; and Mr. MARSHALL, of Patrington and Leeds, related his experience as a manufacturer of it. Professor COLEMAN called attention to the difficulties which ordinary agricultural routine puts in the way of its extended culture. Mr. MAGUIRE, M.P., stated what was doing in the county of Cork to introduce the Flax manufacture into the purely agricultural districts. The President, Sir E. KERRISON, gave a most practical account of the difficulties and probabilities of Flax cultivation in England, evidently based upon ample personal experience in the county of Suffolk. And from Professor WILSON we had a full scientific *resumé* of the whole subject, with suggestions for altered management in many particulars.

Unfortunately the Flax-seed time is over for 1865; and Mr. BROWNE's discussion thus comes too late to be of immediate utility, but we cannot doubt that his experience, and that of Sir E. KERRISON, which we proceed to describe, will be influential on the crop another year.

According to the former, who has grown Flax on the Cotswolds, as well as on recently reclaimed peat lands in Kerry and Tipperary—a Flax soil need not be calcareous. There is plenty of lime in the Cotswolds, where they cannot grow good, *i.e.*, abundant fibre; and, on the other hand, the Irish soils he referred to, which will grow nothing else whatever until they have been limed, will grow a couple of good crops of Flax succeeding one another immediately after their reclamation without any such help; and thus afford the means to the cultivator of buying a dressing of lime, by which the soil is at once fitted for a regular rotation of crops. As to seed, the preference so generally alleged for Riga seed is altogether unfounded. Irish seed, a second or third generation from the Russian, is, in fact, better than the fresh imported seed. The main difficulty in the way of Flax cultivation on old arable land is its liability to being smothered by weeds; the remedy for this is to skim the land just before seed time. The best place for the crop in the rotation is after Wheat, on a well cultivated Wheat stubble. If the seed be sown on a stale furrow the crop will be a failure owing to the weeds; but if the surface of the land be skimmed a week or so before sowing, this evil is greatly diminished, if not altogether abated.

Flax should not be pulled till the seed is ripe. It may be stacked away at once, and the seed taken out in spring; this is best done by beating it with a flat beetle on a floor. Heckling removes the bolls, but they have to be beaten again to get the seed; and the whole process is done at once if the Flax itself be beetled as it is laid on a level floor. As to machinery, there has been no improvement worth adopting during the past 10 years; the old scutching stocks are still the best.

The failure of the crop in Ireland has been owing to the lack of local machinery and the unsystematic way in which the retting and sale of the straw has been carried on. There is little use in attempting its cultivation unless there be a ready and systematic sale for the straw to local Flax mills.

The profit depends principally upon the skilful handling of the straw after it has been grown; the very same produce will yield fibre worth 35*l.* a ton, or 60*l.* a ton, according to the manner in which it is manipulated. Another great obstacle to a profitable result for the small grower is that he is in the hands of the local dealer, who will not give a full market price. Mr. BROWNE's experience has been, that, taking one year with another, the crop taken after Wheat pays better than the Wheat which it succeeds; and in Gloucestershire during the past dry year, where the straw will be used for thatching purposes only, and the seed alone is sent to market, the Flax crop has paid 50 per cent. better than the Wheat crop.

Dr. VOELCKER, who spoke next, expressed the opinion that it was the presence of clay in excess in the Cotteswold soils, and not the presence of lime that rendered them unfit for growing Flax.

Professor COLEMAN suggested that the subject of most interest to the English Agricultural Society was not the Irish experience but that of English farmers; and he pointed out how, seeing that the profit depended upon the skilful handling of the fibre, it was almost impossible to bring the crop into the regular routine of English cultivation, except where a ready sale for the unworked straw was guaranteed by the establishment of local mills.

Mr. MAGUIRE, M.P., described the beginning which had been made near Cork in the systematic promotion of Flax culture by the establishment of such Flax mills, worked by a Company with which he was connected.

Mr. MARSHALL referred to the Belgian experience in the growth of Flax, as well as that of England and Ireland; also to his own experience as a buyer of it from all countries. The climate and circumstances of the three countries led him to believe that while the best Flax was grown in Belgium, the next best ought to be produced in England.

Sir E. KERRISON, who has a large rettery on his property in Suffolk, told us that the cultivation of Flax had in consequence increased from 5 acres to 3000 acres in his county during the last few years. Loamy soils with clay subsoils are the best adapted for its cultivation, but the lighter class of soils are all available; and soil has more to do with the result than climate. A comparatively small rainfall will suffice, and wherever Wheat and Beans will grow, Flax will flourish. It is, however, impossible to obtain a fair result unless the cultivator be near a rettery. In Ireland, where every little grower rets his crop in the neighbouring ditch, and does it in consequence unevenly and imperfectly, no wonder that fibre cannot be produced of even or good quantity. But retted in large quantities in properly constructed tanks, whether on SCHENK's warm-water system or on the natural plan as adopted in the Lys in Belgium, the result is satisfactory. Thus, at Calne a Flax Company has been established, and they are giving from 12*l.* to 17*l.* an acre for the crop, and its cultivation during the past year has accordingly extended three-fold; 1½ ton of straw and 16 bushels of seed are a fair produce per acre. The seed is capital food for either store or fatting stock; mixed with Bean-meal it is more valuable than oilcake, and an instance was given where 300 breeding ewes were kept in capital order without hay or roots for thirteen weeks on one bushel

of Linseed steeped and 1 bushel of meal daily along with cut straw. Sir E. Kerrison expressed the hope that the restrictions which still in some districts hinder the growth of the crop may be removed. Flax is certainly not a scourging crop, except, perhaps, for itself; and, in fact, now-a-days, with our unlimited resources as to manure, the words "scourging" and "exhausting" are no longer properly applicable to crop cultivation.

The discussion was closed by a summing-up from Professor Wilson. Climate has less to do with the crop than soil, cultivation, and subsequent handling. Belgium, which produces the best Flax, is a drier climate than our own, and better Flax is grown in the drier east than in the wetter west of Ireland. Moreover the Flax plant is less of a "thirsty" nature than any crop we have. It is provided with a larger apparatus of absorbent roots in the soil than any other in proportion to the quantity of its evaporating surface in the air.

Professor Wilson recommended the trial of a close-cutting reaping machine on a properly rolled surface as likely to result in a better quality of the fibre; seeing that the separation of the root from the pulled plant is one great difficulty in the way of the proper handling of the crop. He believed that if the period were properly chosen, the crop might be cut and harvested in this way without the loss of the seed from shaking, and of course with a great saving of expenditure at harvest time.

The thanks of the Society are due to Mr. Browne for his address, and for the excellent discussion which it has elicited.

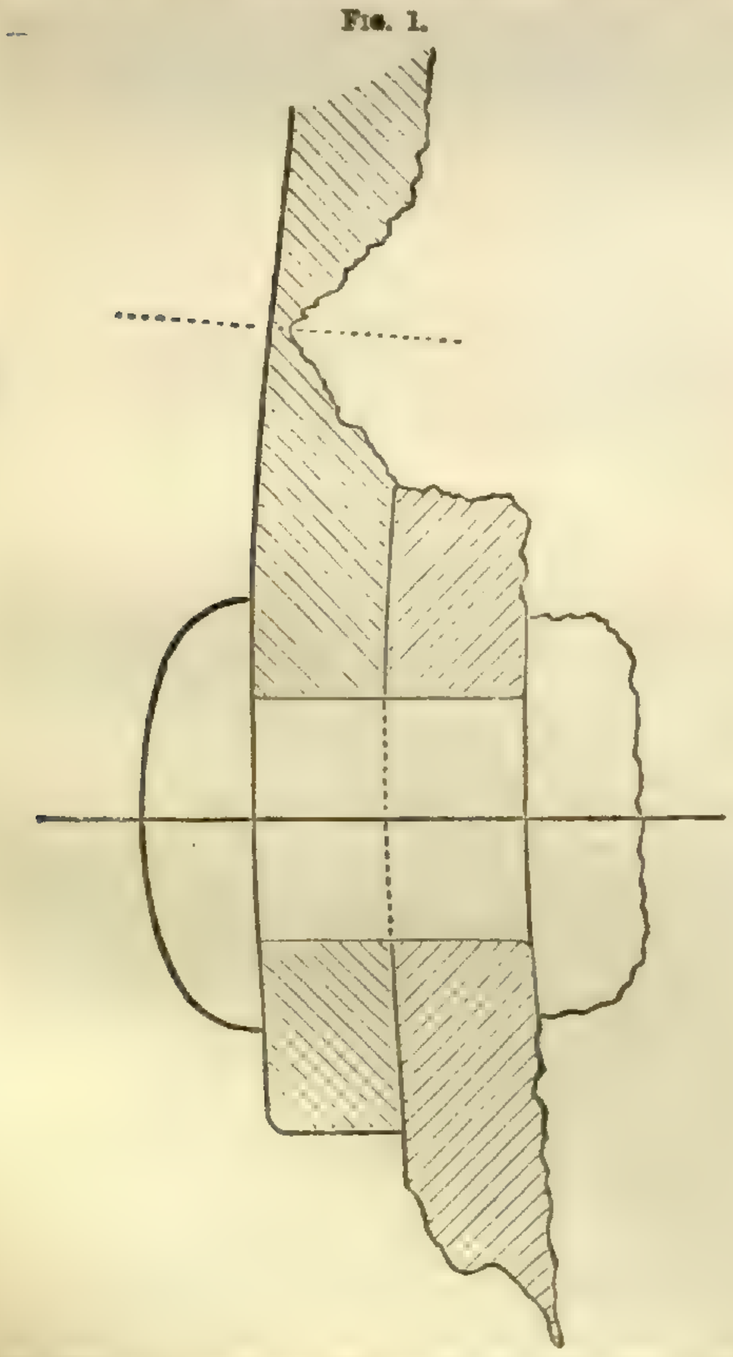
On Wednesday of last week Mr. F. A. Paget, C.E. (18, Adam Street, Adelphi, W.C.), who has frequently in these columns discussed such questions of Engineering as agriculturists are interested in, read a very instructive paper before the Society of Arts on the wear and tear of Steam Boilers, which is now more than ever a matter of great agricultural importance.

We select such passages from this paper as give the substance of the author's views on what is *now* a strictly agricultural subject; and we have to thank him for the loan of illustrative wood engravings:—

1. *On the Effects of Steam Pressure.*—In calculating the working strength of a cylindrical boiler, the plates are assumed to be under a steady load, and to be submitted to a tensile strain. The former of these assumptions is seldom, and the second is never correct. There are two principal causes that tend to exert impulsive strains on the sides of the boiler:—1. The sudden checking of the current of steam on its way from the boiler to the cylinder; 2, quick firing, attended with too small a steam room; and both may sometimes be found to act in combination.

From 1850 to 1864, 40 locomotive explosions causing a loss of

Fig. 1.



(Full size cross section of the furrowed longitudinal joint in the fire-box ring of a boiler which exploded at Overton Station, on the 30th May, 1864. It does not differ from other furrows.)

human life have occurred in the United Kingdom. The Board of Trade reports in the Bluebooks presented to Parliament, and more especially those by Captain Tyler, R.E., probably form the most valuable and connected series of records extant on boiler explosions. This is more especially the case with regard to wear and tear caused by the direct action of steam unmasked by the effects of the fire, as the barrel and outside fire-box of a locomotive cannot be said to be under the direct action of the heat. Perhaps the vibration of the boiler through the motion on the line may intensify this action, but it is clear that vibration cannot be a primary cause. The majority of the reports are illustrated by careful drawings. Eighteen of the 40 boilers gave way at the firebox—11 from the crown of the inside fire-box being blown down upon the tube plates; seven from the shells or sides giving way. Twenty burst at the barrel; and two may be ascribed to miscellaneous causes, from an originally defective plate, and from running off the line. Leaving out all those which occurred at the fire-box, as the majority of these might be ascribed to other influences than direct pressure, all the 20 explosions of the barrel could be traced either to internal furrows or to cracks, both running parallel with one of the longitudinal joints of one of the rings forming the barrel. All the joints which thus gave way were lap joints; and the furrows or the cracks (and the formerly greatly preponderate in number) occur at the edge of the inside over-lap, and, therefore, just at the point where the diminution of diameter caused by the lap-joints would be most affected by the pressure of the steam. (See Fig. 1.)

The plate at the channels shows distinct traces of lamination through the cross-bending, and it is probable that plate of a good material will gradually laminate, while inferior metal will crack through in much less time. Nor are these furrows found with only lap-joints. Butt-joints, with a strip inside the boiler, and thus destroying the equilibrium of internal pressure, have been found to be attended with similar furrows. Channels of exactly the same character have been observed in locomotive boilers with lap-joints which have exploded in Germany.

2. *On the Mechanical Effects of the Heat.*—While it is certain that boiler plates can assume very high temperatures, even up to red heat, authorities differ as to the diminution of ultimate strength which is caused by heat, while its effect on the elasticity of the plate has been scarcely attended to. The experiments on the ultimate tenacity of iron at high temperatures, conducted by Baudrimont, Seguin, and the Franklin Institute, can scarcely be looked upon as of much value, for they were made on a very small scale, and with no regard to the temporary and permanent elongations—or to the effect of heat on the elasticity and ductility.

Mr. Fairbairn observed no effect on the strength of plate iron up to almost 400° F. At a "scarcely red" heat the breaking weight of plates was reduced to 16.978 tons from 21 tons at 60° F.; while at a "dull red" it was only 13.621 tons. MM. Trémery and P. Saint Brice, aided by the celebrated Cagniard Latour, found that at nominally the same temperature (*rouge sombre*), a bar of iron was reduced in strength to one-sixth of its strength when cold. This is much greater diminution of strength than that found by Mr. Fairbairn. Apart from other causes, this might easily be due to the fact that incandescent iron affords a different tinge during a dull day to what it does in a clear light. In fact, the great impediment to all these investigations is the want of a thermometer for high temperatures: but M. Trémery's result is perhaps more conformable with daily experience. Mr. Fairbairn's data would show that the ultimate strength of wrought iron is reduced to about one-half; but M. Trémery's result explains the generally instantaneous collapse of flues when red hot, and which have been of course originally calculated to a factor of safety of six.

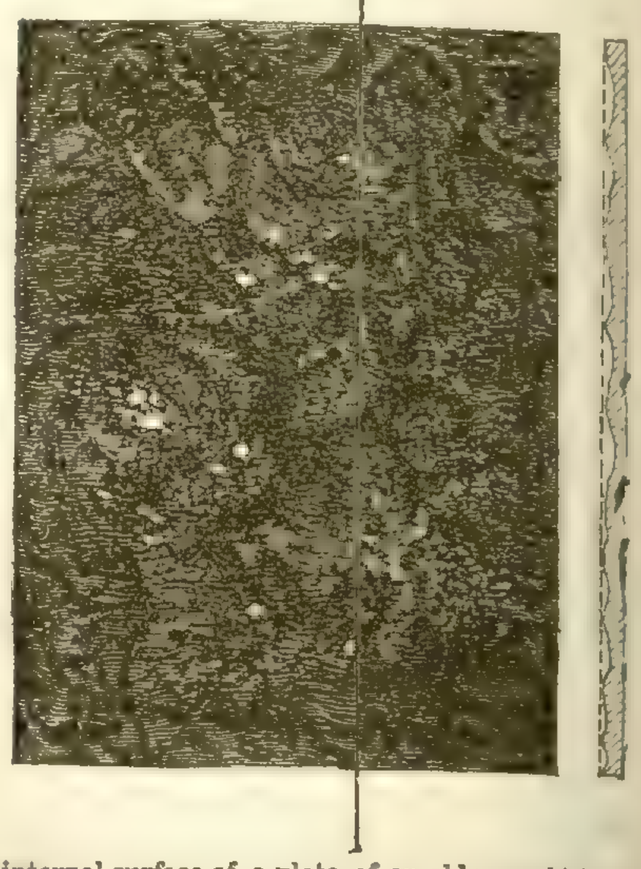
A number of experiments by Lieut.-Colonel H. Clerk, of Woolwich, on wrought iron cylinders and plates, bear distinct evidence to a dilatation of volume in wrought iron, when repeatedly heated and suddenly cooled. In experiment 7, for instance, "two flat pieces of wrought iron, each 12 inches long, 6 inches deep, and half an inch thick, were heated and cooled twenty times, one being immersed to half, and the other to two-thirds, its depth in water. That immersed one-half contracted or became indented on the ends fully .3 inch; the other had similar indentations, but only to one-half the amount. They both turned up into the form of an arc," the convex side of which appeared in the portion heated and cooled. Unfortunately, the specific gravities of the different portions were not tried by Colonel Clerk. A succession of trials of the kind produced cracks in the metal, thus explaining how boiler plates are cracked by imperfect circulation and by cold feed-water let in near the fire; and, the thicker the plate, the more permanent dilatation of volume and consequent danger. Mr. Kirkaldy found that "iron highly heated and suddenly cooled in water, is hardened," being injured, in fact, if not afterwards hammered or rolled. This permanent dilatation of volume must be necessarily accompanied with a diminution of specific gravity, thus affording another close analogy between straining iron by loads in excess of the mechanical elastic limits, and straining by heat. Lajerhelm found long ago that the specific gravity of iron is diminished by strains in excess of the limit of elasticity, and this result has been completely confirmed by Mr. Kirkaldy's numerous experiments. The smith calls iron "burnt" which has been rendered brittle in working through the often repeated applications of heat, or through too high a temperature. Iron rendered brittle by strains in excess of the limit of elasticity has been long popularly termed "crystallised." Both these states are accompanied with a dilatation of volume and attendant hardness and brittleness, and both seem to be referable to very similar causes.

3. *On the Chemical Effects of Red-hot Fuel.*—Whatever physical changes may be induced in iron by the long continuance of a high temperature which is not succeeded by the application of the impact of the hammer or the pressure of the rolls, it is certain that long-continued red heat leads to the loss of its metallic consistency. Its surface gets converted to a greater or less depth into forge scales, which, according to Berthier, consist of a crystallised compound of peroxide and protoxide of iron. The mechanical action of the gases—and especially of the free oxygen contained in every flame—forced at a high velocity by the draught past the more or less heated plates, would also aid these chemical combinations—upon the same principle as iron filings, thrown through a gas flame, burn in the air; and upon the same mechanical principle as the incandescent lime is worn away by the flame of the oxyhydrogen blow-pipe. These actions would take place with any fuel, even with pure charcoal. But when mineral fuel, which mostly contains more or less iron pyrites, is used, there is much more danger to the plates, especially over the fire, in getting red hot, as the flames would then hold sulphurous acid, and often volatilised sulphur. A familiar illustration of an action of this kind is afforded by the fact that a piece of red-hot iron plate can be easily bored through by means of a stick of sulphur, the combination forming sulphide of iron.

Universal experience proves that the thicker the plate the easier does it get red-hot; and these chemical facts also point to the desirability of a minimum of thickness. In fact, the wearing away of the plates through these causes, if mechanically strong against pressure, often gets arrested at a certain thickness. In Germany and France, some of the best manufacturers still make the plates over the fire of, for instance, inside flues, slightly thicker than anywhere else; but the combined chemical and mechanical actions of the heated fuel cause most wear and tear in a thick plate, and thus justify American practice in this respect. In that country, fire-box plates of good charcoal iron are made only $\frac{5}{16}$ or $\frac{1}{4}$ of an inch thick, and, with stays four inches apart, give good results under nearly 150 lbs. steam pressure.

4. *On the Effects of the Feed-water.*—The presence of a concentrated solution of an acid or alkaline character, kept at a high temperature for years in contact with iron plates, would be sufficient to account for much corrosion. But the internal corrosion of steam boilers has many features of such a mysterious character, that no accredited explanation of its attendant phenomena has yet been put forward. In the first place, plates thus attacked show a number of irregular holes like a pock-marked human face, or like the small craters seen on the moon's surface. (See Fig. The writer has also

Fig. 2.



(The internal surface of a plate of an old wrought iron boiler, showing, one quarter of the full size, the ordinary appearance of pitting.)

sometimes observed two or three little irregular excavations like this in a plate otherwise showing a large surface quite intact. Sometimes the plate is most pitted round a projecting bolt; at others, one plate will be perfectly sound, while that rivetted to it will be almost eaten away, both having been the same time at work, and under, of course, apparently exactly similar conditions. With locomotive boilers this pitting has been ascribed to galvanic action between the brass tubes and the iron plates. But it is notoriously well-known to locomotive superintendents, that boilers with iron tubes are often worse pitted than those which have run the same distance with brass tubes. Besides, all iron boilers, with or without brass, whether used for stationary, locomotive, or marine purposes, are subject to pitting.

An explanation which seems to meet all the circumstances of the case is the following:—Mr. Mallet, in a report addressed to the British Association some years ago, showed that wrought iron and steel (blister steel probably), "consist of two or more different chemical compounds, coherent and interlaced, of which one is electro negative to the other." In fact ordinary wrought iron, being also welded up from differently worked scrap, is far from being an electro-homogeneous body. In a boiler, the hot water, more or less saturated with chemical compounds, is the exciting liquid, and the electro-positive portions of the plates are thus quickly removed to a greater or less depth. This explanation meets most of the known circumstances with respect to pitting; it even, in a great measure, explains how plates above the level of the water, especially in marine boilers, get very rapidly corroded in portions, while another part of perhaps the same plate is scarcely affected. The concentrated water in a marine boiler is known to be generally acid.

The crucial test of this explanation of pitting would be the observation of the absence of the phenomenon from plates of an electro-homogeneous character. This homogeneity could

Fig. 3.

(From a photograph of surface of corroded plate cut from one of the two boilers that exploded on Wednesday, February 17th, 1864, at Aberaman Iron Works, Aberdare. The corrosion was internal, and in some parts the plate was not more than one-eighth thick. Thirteen persons were killed, and many others seriously injured.)

only be expected from fused metal, such as cast-steel. Accordingly, while the writer was in Vienna a short time ago, he was assured by Mr. Haswell, the manager of the Staatsbahn Locomotive Works, that some locomotives made of cast steel plates in 1859, for the Austrian Staatsbahn, had been working ever since without showing signs of pitting, though under similar conditions iron plates had severely suffered in this way. Pitting may thus be fairly defined as a form of corrosion localised to particular spots by voltaic action. It is also probably aggravated through the motion of the plate by mechanical action, and the expansions and contractions through alternations of temperature. All boilers are most

pitted near the inlet for the feed water, and with inside cylinder locomotive boilers there is generally more pitting at the smoke-box end—no doubt caused by the more or less racking action on these plates. A state of corrosion at particular spots would probably be kept up to a greater intensity by the incrustation being mechanically thrown off. With a quicker galvanic action, caused by any unusual intensity of the exciting liquid, the sides of the cavities in the plates would be sharper and less rounded off; as in the case of the boiler fed with mineral water from ironstone workings, which exploded last year at Aberaman, South Wales. (See Fig. 3.)

On the General Management of Boilers.—It may thus be said that there are three distinct plans for the general management of steam boilers:—1. There is the continental plan; 2. The free English and American mode; 3. What may be termed the Manchester system. The continental mode consists in a strict supervision, sometimes ruled by formulæ, of the original construction, and there its action may be said, for the most part, to end. It does not, and cannot, without periodical inspections, take into account the effects of wear and tear. It may even be doubted whether the old French law, for instance, did not do more harm than good as regards construction. The official formula, according to which were calculated the thicknesses of the plates, founded as it was upon the assumptions that a cylindrical boiler formed an exact circle, and that a plate, however thick, conducted the same amount of heat to the water, was obviously incorrect. What may be termed the ordinary English and American plan throws the onus of proof of the negligence of the owner on those damaged by an explosion. This system is subject, besides other difficulties, to all the objections that exist against the trial of scientific questions by a jury, not composed of experts, and unaided by scientific witnesses. The continual occurrence of explosions in those cities and States of America in which boilers are used without any supervision by the authorities, and their undue occurrence in England with boilers that are not subjected to systematic inspection, sufficiently prove that steam boilers cannot be worked at hap-hazard. On the other hand, the system of organised inspection by the English boiler companies, and the similar system according to which the passenger vessels are inspected by Government officers, have given universal satisfaction. A proper estimate of the value of the Manchester and Board of Trade system, compared with the continental and with the *laissez faire* plans could only be well based on numerous statistics. Unfortunately, such do not appear to have been formed. It is stated, however, that in an average of 277 boilers, there were two explosions in the French department of the Haut-Rhin within 10 years; and, from 1856 to 1861, or within five years, there were only two explosions in an average of 1371 boilers, under the care of the Manchester Association. About four explosions occur annually amongst the 6500 locomotives of the United Kingdom; three have already taken place this year. In an average of 600 passenger vessels inspected under the Steam Shipping Acts, only three explosions occurred since 1846-7 in Great Britain; viz.: one at Lowestoff, in the *Tonning;* another at Southampton, in the *Parana;* and a third at Dublin. These last results speak very highly for the care and abilities of the Engineer Surveyors of the Marine Department; and the continental system is thus clearly inferior to that adopted by the Board of Trade. What is evidently wanted is that the system of skilled periodical inspection should spread over the kingdom. To a certain extent this is taking place, but this progress is slow, and needs some stimulus, while it is doubtful whether, in out of the way districts, the mere expense of inspection is not a great bar. What seems to be needed is that in the event of a fatal explosion the coroner of the district should be enabled to write to the Home Office for scientific assistance in arriving at the originating cause. The Secretary of State might then call upon any competent engineer for a report on the matter, when he could be examined as a witness before the jury. The mere knowledge that any explosion would be strictly investigated by an expert, might, in many cases, be sufficient to counterbalance the too prevalent tendency to prefer risk to expense.

BONEDUST AS MANURE.

THE coming season of Turnip sowing suggests the utility of making known any practice which may be useful in reference to that most important crop, as regards the feeding of stock. All farmers are aware, now-a-days, of the value of crushed bones as a manure for Turnips where there may not be an abundance of farm-yard manure, with the aid perhaps of superphosphate to give early vitality to the plant, relying on the more substantial bones for a supply of food in the later stages, and for the subsequent benefit of the land. It is in connection with the use of bones that it is believed that something useful may be suggested. What is recommended is, that whenever a supply of crushed half-inch bones is procured (which lying in a heap will immediately heat, and in so far exhaust themselves) small charcoal in a very dry state shall be added to the bones, probably in the proportion of two quantities of the charcoal to one quantity of bones (or equal quantities might do), and the whole carefully incorporated and mixed. The effect will be that the charcoal will absorb and retain all the valuable gaseous matter which bones alone, unmixed, will give off. Their entire substance will be preserved and given out to the Turnip crop, gradually and as wanted, and all waste of the virtue of the bones will be prevented, which in too many cases takes place to a great extent. The charcoal will in itself have a beneficial and future action in the soil in many ways, even after the vegetation shall have extracted all the manurial value of the bones. It is believed that on the same principle charcoal might be beneficially added to the ordinary farmyard manure heap, so as to arrest and fix the smoking vapours which are often seen to ascend from it, and which are nothing less than the absolute essence of the dung heap.

But it will be said,—where and at what cost can this small charcoal be procured, of similar granular size to the bones themselves, what is usually called half-inch bones, but in fact both a little finer and a little coarser than the half-inch size? Such charcoal can be made in almost all places at a very small cost and in a very simple manner. All clippings of hedges and loppings of trees, which are too small to be of any other use, are the suitable material for such charcoal, and an expense is usually incurred in destroying such refuse, for that useless process, except to clear the ground, costs some money. But a small additional expense will convert those otherwise valueless materials into a most useful charcoal, of the proper fineness for mixture with bones and for any purpose of disinfecting; and it will deodorise the foulest substances, absolutely and instantly a careful mixture is made. In order to make it, all that is required is to set fire to a large heap of loppings of trees and clippings of hedges, and while the combustion is going on to apply water, which, if properly applied, arrests the burning of the wood at the point of charring, and before ash is produced. The smaller twigs will of course be charred before the larger are, and would be reduced to ash and lost as charcoal, unless the water be applied at the proper moment for them, and this must be done to save the finer charcoal, the larger fragments, not yet sufficiently charred, being raked and shovelled out of the burning heap and burned farther by a fresh supply of branches and twigs. In this way large heaps of charcoal can be made, by a little careful manipulation, from materials which are otherwise worthless, and which, as before stated, it usually costs something merely to destroy. Charcoal is a light and therefore bulky article, probably twice the bulk of bones; and the drier it is the lighter it is. In its use it is most important that it should be absolutely dry, and all its pores empty and open; so that instead of being filled with water and vapour, they shall be open to absorb and receive, with all their natural avidity to do so, all gases and liquids impregnated with matters of manuring value. In a wet state it is of comparatively no value, but under cover there is no difficulty in drying it, however wet it may be in making, and may have become from exposure to rain. As to cost, that must depend on circumstances of locality, being able to make it where the materials can be collected at little cost, and where water can be had and bucketed to the burning heaps with little labour; a drain or a ditch can sometimes be dammed up, so as to create a supply, at no expense. If the cost of merely destroying a quantity of suitable materials might be 2*s.* or 3*s.*, its conversion into charcoal in convenient places would not cost more than 4*s.* or 6*s.* Such prices are assumed when the materials are reasonably at hand. If such charcoal were generally appreciated and wanted in parts of the country where such wood refuse did not abound, it might speedily become an article of manufacture in such localities as produced the raw material, and sent in a prepared state, like any other commodity, wherever a demand might have arisen. *K.*

RAW OR MALTED BARLEY FOR STOCK FOOD.

[The following account of Mr. Lawes' experiments is given in the *Economist.*]

AN effort has been made by the Board of Trade to ascertain whether there is or not any truth in the assertion that malt is far superior to raw Barley as food for live stock. The well-known agricultural experimentalist, Mr. John Bennet Lawes, of Rothamsted, Herts, was commissioned to make a series of experiments to test the comparative values of malt and Barley as stock food, and we have now his preliminary report of the results of his experiments.

First, he took 70 quarters of Barley "of fair but not first-class malting quality," of which "one-half was malted and screened in the usual way." The other half of this Barley was used raw. The process of malting increased the measure of 280 bushels by 10 bushels, but reduced the weight per bushel from 54 lb. 10 oz. to 41 lb. 10 oz., making a total reduction of 100 Barley to 81.1 when converted into malt.

A second lot of Barley "of fair feeding quality" was dealt with in the same way. The measure was increased from 280 to 284, and the weight reduced from 100 Barley to 77.8 malt. In short, the second lot of Barley was of the sort farmers say it would best answer their purpose to make into malt for their stock.

Experiments were made with milking cows to show the effect of malt on the production of milk; on oxen, sheep, and pigs, to test its feeding quality as compared with Barley. The cows were selected from a large herd belonging to Mr. J. A. Campbell, of Rugby, 10 cows in each of two lots. The exact experiment commenced on the 21st December, 1863, when the animals were weighed, and it was continued for 10 weeks to the 29th February, 1864. Both lots received the same food as they had previously been fed on,—*i.e.*, 5 lb. Rape-cape and 2 lb. Bean-meal per day, and a mixture of Clover-chaff, straw-chaff, and Swedes, which averaged of Clover-chaff about 14 lb., of straw-chaff between 7 and 8 lb., and of Swedes about 50 lb. per head per day, except, that Lot 1 had 3 lb. of Rape-cake per day replaced by 3 lb. of Barley; and Lot 2 had 3 lb. of cake replaced by the amount of malt and malt-dust produced from 3 lb. of Barley. Tabular results in great detail are given, of which, as relating to the cows, the following is a summary:—"The 10 Barley-fed cows gave, during the 10 weeks, 10 lb. less increase in live weight, but 1067 lb. or more than 100 gallons more milk than the 10 malt-fed cows. More of every description of food was required to be consumed for the production of 100 lb. of milk by the malt-fed than by the Barley-fed cows." As to the quality of the milk, a "mixed sample of the milk of each lot was tested once a week, morning and afternoon, by the lactometer, and that from the Barley-fed invariably showed the higher proportion of cream."

The oxen consisted of two lots of 3 years old polled Scots, 10 in each lot, so selected as to render each lot as nearly alike as possible. These animals were fed on Clover-chaff and Swedes *ad libitum.* On the 1st December, 1863, they were weighed, and the exact experiment commenced, which was continued for 20 weeks to April 19, 1864. During that period Lot 1 had 4 lb. of Barley of the 2d class above mentioned, and Lot 2 the malt and malt-dust produced from 4 lbs. of the same Barley. The results as to the oxen were, that both lots "gave more than an average amount of increase, whether reckoned in proportion to a given live-weight within a given time, or to a given amount of food consumed; but the 10 having the unmalted Barley gave during the 20 weeks 408 lb. more increase in live weight than those having an equivalent of the same Barley malted. Less of every description of food was required to be consumed to produce a given amount of increase in live weight by the Barley-fed than by the malt-fed oxen."

Five lots of Down wethers, consisting of 12 in each lot, were selected and weighed on the 2d of December, 1863, and the experiment was continued to the 20th April, 1864. They were fed under cover and on rafters, receiving 1 lb. of Clover chaff per head daily, and cut Swedes *ad libitum.* In addition, Lot 1 had unmalted Barley, for 16 weeks ¾ lb., and for four weeks 1 lb. per head per day. Lot 2, malt and malt-dust, produced from equivalent quantities of Barley and malt respectively, from the second quality Barley. Lot 5 had a mixture of Barley and malt, the daily weight per head being the same.

"All five lots of sheep gave an average amount of increase, reckoned both in relation to a given live-weight within a given time, and to the amount of food consumed. Nor was there much difference in the result obtained with unmalted as compared with malted Barley. Such as it was, however, it was, upon the whole, in favour of the unmalted."

Pigs were bought and divided into six lots of eight each, and the experiment, as detailed, was continued for 10 weeks, from the 24th December, 1863, to the 3d March, 1864. The pigs fed on unmalted Barley, or on only a small proportion of malted Barley, "gave fully an average increase," but those fed on malted Barley entirely gave a defective result, "both in relation to their weight within a given time, and to the amount of food consumed. . . . . Where not more than one-sixth or one-seventh of the total food was in the form of malted Barley, more food was required to produce a given amount of increase, than where the whole of the *ad libitum* food was unmalted Barley." The general result was, that with the exception of one lot of sheep, "all the other comparative trials, whether with oxen, sheep, or pigs, the advantage was with the unmalted Barley; and it was so in a greater degree than it was against it in the single instance quoted."

The general conclusion drawn by Mr. Lawes from these experiments is, "that a given weight of Barley is more productive both of milk (of cows) and of increase in live weight of fattening animals, than the amount of malt and malt-dust that would be produced from it. There is, besides, the cost of the malting process to be taken into account." For ordinary dairy or feeding animals there is, according to these experiments, no advantage in malting Barley, but the reverse. This agrees with the experiments made by Drs. Thomas and R. D. Thomson with cows and oxen in 1845-46, and by Mr. Lawes himself with sheep in 1848-49. Whether malt may be useful as a kind of condiment for young or weakly animals, or in making them up for exhibition or for sale, irrespective of economy, is thought by some persons to be another question. That for general and economical feeding purposes malt is inferior to raw Barley, these experiments scarcely leave room for doubt.

BREEDING AND MANAGEMENT OF SWINE.

[The following is the conclusion of Mr. Fisher's paper, commenced last week, p. 419.]

4. I WILL pass on now to the matter of feeding and rearing.

As we have to purchase all our pig food, we are to some extent guided by the state of the market as to what we use, but we generally give the suckling sows, as well as the weaned stores, a mixture of ground Wheat and Barley, with a little bran or pollard added to it, and moistened with cold water, giving any milk that can be spared to such as we want getting forward as fast as possible. In winter we use warm water for the young ones. With this they are fed morning and evening, and at noon they have a little Indian Corn or Locust Beans to masticate, which, by keeping them on their legs for some length of time, is conducive to activity and a healthy growth. When a litter of pigs are about two days old, their tails will often become sore and red by coming in contact with the straw when sucking, while the skin is soft and tender. Indeed this soreness mostly commences with the first attempt at sucking, only it is seldom observed for the first day or two. If this redness extends quite round the tail so as to destroy the skin, the tail is lost, and will die and drop off. To prevent this, we allow them only a little soft well trodden straw, and on the first appearance of soreness, we touch the part slightly with a caustic pencil, or apply goulard water, with a small paint brush, two or three times a day while sucking, and we do not lose one tail in a hundred. Such as have the least hair on them are the most liable, as well as the most difficult to save. They usually begin to eat along with the mother when about three weeks old, but may be taught much younger if a little warm milk be given them two or three times a day, while the sow is removed from them for a few minutes. About the time they begin to eat they frequently suffer from diarrhœa, which, if it continue for any length of time, will weaken them very much. This disorder will sometimes be caused by allowing the mother to eat Grass or other green food when turned out, or even by a change from one kind of meat to another, for which reason we avoid as far as

we can any change of food during the time they are suckling, and continue the same to the young after they are weaned. And as it is very difficult as well as dangerous to administer medicine to them by force, we do not attempt to relieve them by that means, neither can they be induced to take it if mixed with their food, for they will not eat at such times, but depend entirely on the teat, for which reasons we diet the mother carefully, and allow as much small coal as she will eat, throwing a shovelful upon the bed, that the young ones may eat a little if they like: we also strew the floor with sawdust to prevent bad smells, keeping them warm, and giving as much fresh air as possible. If the purging continues, we change them to a fresh sty, taking care that it is dry and warm, and well aired. If young pigs can be allowed a run out with the mother for half an hour in the morning and evening, they will grow all the faster for it; but the middle of the day, when the sun is hot, should be avoided, for if their backs get much scorched it will retard their growth for awhile

All such as are not required for breeding purposes, should be castrated at from four to five weeks old, that they may recover before they are weaned. Pigs which are castrated always thrive and fatten better than those that are not, and give much less trouble; besides which, there is less danger in the bacon not taking salt properly, and which ought to be taken into consideration by the breeder and feeder, although he may not intend to cure them himself. There are two ways of doing most things, and the best way is generally the easier, and always to be preferred, and in catching young pigs for castration, or any other purpose, great care should be used, as they are easily lamed, and having covered the window and closed the door to exclude the light, the operator should allow them to settle quietly in a corner, and taking the right hind leg with his right hand, then with his left hand he should lay firmly hold of the same leg, above the hough joint, and quickly passing his right hand forward, and under the chest, lay firmly hold of the left fore leg, and raise the pig with his right hand, using as little force as possible on the hind legs, and never hold them up by the heels, as the intestines are liable to get twisted if held in that position.

We usually wean at from 7 to 10 weeks old, and separate the boars from the sows soon after. We seldom keep more than five or six together in the same sty, and as they grow larger, we reduce the number, in proportion to the size of the sty.

The feeder commences in the morning about 7 o'clock, beginning at one end, and regulating the food according to circumstances, and as he goes on, he rouses every pig up, and sees that all come to take their breakfast; should any refuse he reports the case, and having finished feeding he takes his barrow, fork, shovel, and besom, and proceeds in the same order to clean the sties; for, on being roused up, after laying still all night, they empty themselves while eating, and this becomes habitual and keeps their beds clean and dry, which is a matter of great importance to us, as we have all our straw to buy at a dear rate, and have to economise it accordingly, for which reason most of our sties are provided with wooden sleeping benches similar to that given in the description of the breeding-house. So proceeding to No. 1, he turns the occupants out, shakes up the bed, sweeps all clean, and taking up with the shovel what had to be removed, he places it in the barrow, returns them to their sty again, and passing on to No. 2, treating them in the same way, and so on to the end. By this means the sties are kept clean during the greater part of the day; while out, they have free access to a heap of small coal, which is kept in a corner of the yard entirely for their use, of which they seldom fail to avail themselves, whenever they have an opportunity; there is also a trough with water, of which they sometimes drink a little.

To enable pigs to thrive properly, they must be kept in a state of robust health, for which purpose, proper shelter and a certain amount of exercise, is quite as necessary as good feeding, and all dark, damp, crampy sties should be avoided. There is no place in which young growing stores do better than a good straw-yard during the winter months. With liberal treatment the large improved sorts will make excellent pork at three to four months old, and at six or eight, very superior bacon, which, if well cured and preserved, will be very fine and mild in flavour, as well as tender. All feeding stores should be ready for the market and disposed of by the time they are 12 months old, as they then bring the highest price, and will generally pay the feeder better than carrying them on to greater weights.

5. *Health.*—With the exception of diarrhœa, to which I have already alluded, and from which we sometimes lose a few pigs when about a month old, we have never had any serious disease in the Carhead sties; consequently I have very little to say on the diseases of pigs, but will briefly allude to such cases as are of common occurrence in a large herd, and will frequently require attention, although they may often be regarded as the result of accident rather than of disease.

Pigs will occasionally catch cold, especially when in low condition: but, if taken in time, and placed in a warm sty by themselves, with a little extra nursing, such as warm milk and water, with a little bran or pollard, not forgetting the warm water injections if the bowels get out of order, they will mostly be right again in a few days. If the case be a bad one, and accompanied by much fever, and the patient will lie still, we cover up with a wet rag, leaving only the nose out, pouring cold water on to saturate it thoroughly, and then cover up with two or three sacks to keep the steam in, and have found this bath give very great relief. Pigs have a very great objection to any kind of restraint, as well as a strong dislike to physic, and if held for the purpose of administering it, they struggle and scream so much, that they do themselves more harm by it, than the medicine is likely to do them good; besides, if not done in a careful manner, there is a great danger in forcing any liquid into their mouths, for if introduced while they are screaming, they are almost certain to be choked by it, so that the operator must wait until they have done screaming, which will mostly be when they are out of breath, and cannot go on any longer, for which reason we have not used medicine for several years past. They have also a very decided objection to strangers being admitted into their society; even if one of their fellows leave them for a few days, on their return they are beset and worried in a most unfriendly manner; and if the intruder cannot find means of retreat, they will often get cut and gored a good deal; where the teeth penetrate beyond the skin, swellings will arise, which if they become very large, may be carefully opened with a lance, or sharp pointed knife, on the lower side, directing the point upwards, that the matter may escape, when they will soon heal without further trouble.

Fat heavy pigs are easily lamed in the hind quarters or hind legs, and should be very carefully driven over slippery or uneven ground. When so lamed, the butcher is the best remedy, and the sooner the better, as they lose flesh fast, when they come to lie and cannot rise easily. They are also subject to rheumatic attacks, especially in the hind legs, which may easily be mistaken for accidental lameness; sometimes they will suddenly become lame in one leg, and then the lameness will as suddenly change to the other, or perhaps leave them altogether. I consulted Professor Simonds, of the Royal Veterinary College, on this disease, and he recommended a strong stimulating liniment, or liquid blister to be applied to the hough joint, and well rubbed in, and I have used it with very beneficial results; also, if confined for any length of time where the wet litter is allowed to accumulate under them, their hoofs grow to a great length, and the feet become unsound and full of clefts, when the hoofs should be shortened, for which purpose we use a pair of strong wire clipping-pinchers taking care not to injure the sensitive part of the foot, and trim with a shepherd's knife; and for diseased feet we have found nothing so good as a bran poultice, with two or three spoonfuls of fresh brewer's yeast mixed with it, and put into a strong bag or boot, into which the foot is introduced, and secured with a string when the animal is laid down. It may be kept wet by pouring water on it two or three times a day, and changed daily.

Pig ringing is anything but a pleasant operation, and most people have a great dislike to it, still unrung pigs are not to be tolerated in Grass fields, and nothing can be more barbarous than the usual way of doing it—by thrusting a nail or piece of wire through the nose, and twisting the ends to prevent it from falling out again, and which enables the animal to hook itself to everything it comes in contact with, keeping it constantly sore, until at last it tears it out altogether, and has to be repeated, perhaps two or three times a year, with precisely the results. Not long ago, we heard of two pigs hooking themselves together by their rings during the night, when their loud cries not only awakened the owner, and brought him out in his night shirt, but disturbed a rural policeman and brought him to the spot, who, by the aid of his bull's eye lantern, disclosed how matters stood, and it was only by cutting one of the rings out that they were liberated, and a stop put to the nocturnal concert. I have tried several ways of performing this operation of pig-ringing in a less objectionable and more effective manner, and have lately been favoured by a gentleman in Cumberland with a ring, from which I have taken a hint, and having made some important alterations in it, I think it is now everything that can be desired; it is easily fixed, and possesses the merit of only requiring to be done once. It has a comfortable appearance, and looks more like a badge of honour, than an instrument of torture. It has proved very effective, so far as I have tried it, but I intend giving it a more lengthened trial with the sows in the Grass fields before I recommend it for general use.

6. And now, gentlemen, having freely expressed my opinion on the subject before us, and before I ask you to do the same, I will take the liberty of giving you a bit of advice, bearing directly upon it—not that I think there is any necessity for me to do so; but, if in case there should be, it might be worth more than all I have said before—it is this, if ever you have an extra good lot of fat pigs, don't let the Long Firm have them. These gentlemen have strong leanings towards fat pigs, and will be almost sure to find them out—they generally write from the suburbs of London, Manchester, Liverpool, or Bristol, but may turn up anywhere at a distance, and a stiff price does not make them wince—they always want them forwarded by railway, and will sometimes quietly suggest that you will pay carriage, as a slight reduction on the great price they are *going* to pay. If you ask anything about their banker, they will most likely refer you to their wine merchant, and cash down is the readiest way of silencing them.

And now, before I sit down, I wish to say a word on behalf of the labouring man's pig, and hope, that where it is necessary to provide better cottage accommodation for the agricultural labourer, a dry, well-sheltered sty for his pig, and a garden for growing vegetables will not be overlooked; for however much we may admire the pretty Rose bushes and Honeysuckles in the foreground, we are better pleased to find that the pig and the culinaries are not neglected, for we give a decided preference to that kind of teaching which induces the working man to grow two Cabbages rather than one Dahlia, for the same reason that we are better pleased to find a well fed, home-cured flitch of bacon in his cottage, than that his taste runs on a fiddle or a bird-cage; and we have known many farmers find it to their advantage in securing the services of an industrious, trustworthy labourer, to sell him a well bred pig in the spring of the year, and a sack or two of meal, at market price, to fatten it on; and for which he has paid with his harvest wages, thereby keeping him out of the market and the miller's books. In many cases such acts of kindness, which cost nothing, will go farther than any supervision, in attaching his zeal and devotion to the interests of his employer, and which are as imperfectly represented by any amount of wages that he may receive, as it is impossible to foretel the advantages that may accrue from the improved moral and social condition of his family, for there is a deep current of truth running through that homely expressed maxim which says, "It is a poor house where they never kill a pig."

Home Correspondence.

Liebig on Agricultural Exhaustion.—I have read with great interest Dr. Liebig's letter to Alderman Mechi, and your remarks upon it; I wish to make a few notes upon the subject. There can be no doubt that the majority of farms in England being, it is believed, in the occupation of small capitalists, who not only do not purchase artificial manures, but what is far worse, keep an inadequate quantity of stock, the quality of the land in their occupation, apart from the market price, is stationary, if not deteriorating. Living on the borders of Surrey, some 12 miles from any market town, in a district where the farms do not average 60 acres, and the mean unborrowed capital may be reckoned by as many pounds, it is not difficult to form an opinion on the subject, even if the new valuations (if any reliance can be placed on them) did not show that land, even in the hands of owners, is assessed at the same rents as it was 25 years ago! Still, I demur with you at Professor Liebig's conclusions. It may be simply a proof of commercial prosperity when people are found who give a high price for land. Guano, it is well known, does not permanently improve land—and so with some other artificial manures. On the other hand there are strict covenants in England that all hay and straw are to be consumed on the land. If this is done, and stock kept commensurate with the fodder theory supposes a corresponding addition to the fertility of the land, at any rate sufficient, with the aid of the atmosphere in a well drained soil, to prevent any great deterioration. It is no proof, then, that land is deteriorating, that no artificial manures are purchased. For some 6000 years the world seems to have done without them. All this is quite apart from the question of the folly of wasting the human excrement stored up in towns. *J. P. H.*

A Pet Lamb.—I went the other day to see a widow woman who has a tiny farm; Mr. H. gave her a lamb a month ago, and this lamb is quite a sight, for it was put into a "pightle" with a cow, and soon smelt out the milk, and helped itself whenever it had a fancy. The woman wondered to see the lamb growing such a monster, and could not think what had come to the cow that it yielded less milk than usual; at last she began to suspect something was wrong, for the cow was always licking the lamb, and kept it as white as driven snow; so she set a watch, and soon caught the lamb sucking, whereupon she separated them, and by such work with them she did not know what to do. The cow was frantic and would neither eat nor sleep, but ran about like a wild thing, whilst the lamb cried night and day, and the woman had to pet it and nurse it herself. So there it is running about at the woman's heels quite a pet, and such a monster for its age; she says it would break her heart and that of her children to sell the lamb, so she intends keeping it, and one day making money of *its* lambs. *B.*

Foreign Correspondence.

Farming in Canada.—In your Paper of the 30th January last, under the head of "Foreign Correspondence," you insert a letter addressed to Mr. Alderman Mechi, dated from the township of Dawn, Canada West, and sent you for publication. In this letter the writer states that he has been grievously disappointed with the country, that after many years of toil he has utterly failed in his attempt to make a living by farming and pay for his land as well, and that there are many thousands of settlers in the same position as himself.

I have taken some little trouble to ascertain who Mr. Alderman Mechi's correspondent is, and I find that he is a lessee of the Canada Company, a very worthy and respectable man in his way, but utterly unfitted by his previous training and habits for engaging in bush-farming, or in agricultural pursuits at all. The contrast between his farm, which is in a neglected condition, with buildings of an inferior description, and the well cultivated fields and buildings and unmistakeable indications of prosperity upon many of the farms around him, shows this conclusively. He has certainly been unfortunate on several occasions in the loss of his crops and cattle, but his neighbours have been exposed to the same casualties, and have had to contend with similar difficulties, yet the evidences of general prosperity which now meet the eye, prove that, in spite of occasional bad harvests and loss of stock, industry, perseverance, and skill will in the long run as certainly insure success in Canada as in any other part of the world.

The writer of the letter, soured and disappointed, it would seem, by his losses, has committed himself to statements in reference to the prospects of settlers in Canada, and to the capabilities of the country, which are altogether erroneous.

In spite of occasional bad harvests, and the various hardships which settlers in a new country (many of them totally unprepared by any previous training for their new mode of life) have always to contend with, the large majority of settlers have either already acquired, or are by degrees acquiring for themselves and their children comfortable homesteads on what but a few years ago was an unbroken forest.

As to the inducements which Canada offers to emigrants, it may be asserted, without fear of contradiction, that few countries present so many openings for agricultural settlers of all classes.

The Land Companies of Canada have wild lands in almost every part of the province suited to the means of all classes of emigrants, the poor but hardy and industrious settler, as well as the man possessed of capital. There are also wild lands of excellent quality belonging to the Government to be had on certain localities by way of free grant, and in others again at prices varying from 3*s.* to 15*s.* sterling per acre, according to the soil and situation.

In the older settlements, emigrants with capital will find excellent opportunities for investing in improved farms, and many a tenant farmer in Britain might obtain the freehold of a cleared farm in Canada for a sum equal to from three to five years rental of the land he occupies at home.

Lastly, the statements of the writer as to the produce of the land, length of time for bringing it into cultivation, profit on stock and liability to loss, however they may accord with his own unfortunate experience, do not fairly or correctly represent the facts as they exist throughout the country generally. In particular localities the settlers have suffered losses from murrain and from the ravages of the fly in Wheat,

and for the last three years the harvests have not yielded the average of former years, but these drawbacks are exceptional, and are such as agricultural communities in the most favoured parts of the world are more or less liable to. I assert distinctly that Canada does offer an advantageous home to "the hard-working agriculturist" whose labour is his only capital, as well as to "the man of moderate means," and the farmer with large capital. Each may find here opportunities for the acquisition of land suited to his means, and all may look forward with reasonable certainty to comfort and independence in their adopted country as the ultimate reward of persevering industry and judicious management. *A Canadian, March* 25.

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

The following is the list of members and table of attendance omitted from last week's report:—

Atkinson, William, Iver, Uxbridge, Bucks
Bellew, J. Froude, Stockleigh Court, Crediton
Bodley, John, Stockley Pomeroy, Crediton
Brogden, Alexander, Ulverstone
Carlisle, Edward, Penrith
Charles, James, Home Farm, Hemsley Park, Winchester
Coleman, Henry S., Chelmsford
Dewdney, George, Baccamoor Farm, Plympton
Dudfield, Benjamin, Kinley, Bewdley
Edmonds, William J., Southrope, Lechlade
Elliot, Edwin D., Sugar Refinery, Plymouth
Goodwin, E. John, Wateringbury, Maidstone
Gripe, William, Compton Knoll, Plymouth
Hambly, G. E., Blabell, St. Issey, Wadebridge
Hawes, Owen, Hayes, Slinfold, Horsham
Hersee, Fanny, Chichester
Jenkin, H. Barrow, Cotton Farm, Whitchurch, Salop
Lewthwaite, George, Broadgate, Broughton in Furness
Mackay, A. S. H., Charlton House, Wraxall, Bristol
Marriott, J. Lewis, Narborough, Brandon
Milford, Frank P., Kenn, Exeter
Nunnerley, Thomas, Bradley Green, Whitchurch
Olver, Thomas, Penhallow, Grampound
Pridham, Samuel, Poole Farm, Cheriton Fitzpaine
Ryall, George, Plymouth
Swindley, J. E. Major, Wyndsor House, Castlebar, County Mayo
Trotter, Caleb, Sherwell House, Plymouth
Waterpark, Lord, Doveridge, Uttoxeter
Webb, Henry, West Wickham, Linton.

ATTENDANCES (FROM THE RISING OF THE WORCESTER MEETING, IN 1863, TO THE PRESENT TIME).

NAMES.	Monthly Councils. Total, 15.	Weekly Councils. Total, 17.	Committees. No. of Meetings.	Committees. Attendances.
Acland, Thomas Dyke, M.P., Sprydoncote, Exeter, Devon	10	4	18	12
Barnett, Charles, Stratton Park, Biggleswade, Beds	8	..	43	16
Burgess, William, Victoria Works, Brentwood, Essex	4	2	..	..
Cantrell, Charles S., Riding Court, Datchet, Bucks	13	1	23	20
Cathcart, Earl, Thornton-le-Street, Thirsk, Yorkshire	4	2	8	4
Clayden, John, Littlebury, Saffron Walden, Suffolk	10	1	5	2
Dent, John D., M.P., Ribston Hall, Wetherby, Yorkshire	11	4	34	20
Hamond, Anthony, Westacre Hall, Brandon, Norfolk	2	1	12	2
Hudson, John, Castleacre Lodge, Swaffham, Norfolk	7	..	3	1
Kingscote, Colonel, M.P., Kingscote, Wootton under Edge, Gloucestershire	8	2	21	8
Lopes, Sir Massey, Bart., M.P. (Elected *May* 3, 1865), Maristow, Devon	..	..	..	..
Milward, Richard, Thurgarton Priory, Southwell, Notts	9	2	28	17
Pain, Thomas, Ugford Cottage, Salisbury, Wilts	10	1	26	15
Pope, Edward, Great Toller, Maiden Newton, Dorset	2	..	20	2
Ridley, Sir Matthew White, Bart., M.P., Blagdon, Cramlington, Northumberland	7	3	17	7
Rigden, William, Hove, Brighton, Sussex	9	..	6	5
Torr, William, Aylesby Manor, Great Grimsby, Lincolnshire	14	1	41	41
Turner, George, Beacon Downes, Exeter, Devon	3	1	9	3
Vernon, Hon. Augustus, Sudbury, Derby	6	1	10	6
Wallis, Owen, Overstone Grange, Northampton	7	2	17	8
Western, Sir Thomas Burch, Bart., Felix Hall, Kelvedon, Essex	8	2	..	..
Wilson, Henry, Stowlangtoft Hall, Bury St. Edmunds, Suffolk	3	3	..	..
Wilson, Jacob, Woodhorn Manor, Morpeth, Nothumberland				
Wilson, Professor John, Iver, Uxbridge, Bucks	7	10	6	3
Wynn, Sir Watkin Williams, Bart., M.P., Wynnstay, Rhuabon, Denbighshire	5	..	11	2

BATH AND WEST OF ENGLAND.—At the last Monthly Meeting of the Council, the Hereford Meeting, which commences on the 5th of June, was represented by those entrusted with the arrangements as promising in many respects to excel any former exhibition of the Society. The cattle classes, especially those for Herefords, are likely to be unusually well filled, and the show of horses will probably be one of the very best hitherto witnessed in the provinces. The entries of the more important agricultural machines and implements are considerably in advance of those at any former meeting of the Society, and the demand for shedding is unprecedentedly large.

Farmers' Clubs.

LONDON: *May* 1.—*Importance of Shelter at the Homestead.*—The following is the conclusion of Mr. BAILEY DENTON'S paper read last week:—

It has been advanced by several advocates of the covered system, that in the construction of new homesteads it is possible so to design the required accommodation as to avoid a considerable quantity of the external walls involved in ordinary farm buildings, and thereby save sufficient money to pay for the additional covering of the yards. If this were so, there would be no difference in the cost of the two systems; but practice does not support this view altogether, though the actual difference in the cost of homesteads with and without covering, suitable for farms of 300 acres and upwards, is comparatively small. Let me here say a few words, which I hope will elicit the opinions of those present on a very important point, materially influencing the question of cost. I refer to the space actually required for the health and comfort of stock. The opinions of men vary considerably. In some of the best open fold-yards of Lincolnshire the space allotted to full-grown Shorthorns is 200 square feet each, and I have known of more. In the majority of instances 150 square feet is found ample; but experiments have been made which show, however, that stock will do quite as well on less space, and that the manure made by them will be proportionately better the less space given. In covered yards, where all the animals in them fare alike for shelter, and where the straw is economised, 100 square feet is found quite sufficient for full-grown stock; but in my own practice I am always disposed to recommend the space of 100 square feet as the mean space required for all the horned stock of the farm, including yearlings and two-year-olds, giving to each class a space varying in size according to age. The cost of covering any space in a substantial manner, excluding external walls on which to rest the roof, but including internal supports, will vary from 8½d. to 13½d. per square foot of ground, covered according to the materials used and the special circumstances of the case; and if we adopt, for the purpose of better comprehending the matter, that the mean space required is the 100 square feet of ground, *i. e.*, 10 feet by 10 feet, which I have just stated it is my own practice to allot to each animal, the cost per head will vary from 3*l.* 15*s.* (corrugated iron) to 5*l.* 15*s.* (timber and iron frames with slates). These figures are given with a knowledge that some persons are of opinion that covered yards may be constructed for less money. Indeed, there appears in the last Journal of the Royal Agricultural Society of England an excellent article by Mr. Moscrop, of Kirkleatham, in which he gives particulars of a roof, the cost of which is stated to be only a fraction above 3*l.* per "square" of surface. But I feel I should be guilty of deception if I quoted any less figures than those I have given (though I do not doubt for a moment that Mr. Moscrop is correct in his particular case), and I prefer to test the question before us by figures any one can corroborate, rather than by isolated examples. It will be found that the covering of existing yards, having external walls ready for the roofing, will cost on an average 5*l.* per 100 square feet, or 1*s.* per foot of surface covered; the extra cost of covering yards where all is new, and the arrangement for covering is provided for in the architect's design of the buildings, will approximate very closely half that amount, *i. e.*, 2*l.* 10*s.* per 100 square feet, or 6*d.* per square foot covered. To repay the cost of such covering in 31 years, with interest, will require 6 per cent. on the outlay; and thus in the one case it will require 6*s.* per annum per 100 square feet, and in the other 3*s.* per annum, to discharge the cost. Applying this specifically to a farm where the number of neat cattle of all ages kept is 100, and where it is desired to accommodate 50 of that number in yards under cover, it will take 5000 feet of surface to provide the required space, say 2 yards, 50 feet square: the total cost when a new covering is given to an existing yard will be 250*l.*, and the charge to repay it 15*l.* per year; while the extra cost of covering when the original buildings were designed to recover it, will be 125*l.*, and the charge for repayment 7*l.* 10*s.* per year.

It is not necessary for us to go into a scientific disquisition to satisfy ourselves that warmth of the body is essential to the profitable appropriation of food.

No animals can exercise their feeding functions with the effect which all good stock farmers desire if the food given them is unduly appropriated for the maintenance of respiration and heat. It is quite clear, however, that those farmers of Cheshire who leave their stock unsheltered in the fields during the coldest winters, are not fully alive to the fact that warmth saves food; they evidently ignore the truth that less food given to animals in a proper state of bodily comfort, goes as far as a greater quantity supplied to them when exposure to cold winds and frost has reduced that warmth to a minimum. The necessary heat of all animals is maintained by respiration, which in winter becomes more rapid in proportion as the atmosphere abstracts heat from the body; and as respiration itself can only be maintained by the process of combustion which the carbonaceous matter contained in food undergoes in the stomach, it follows that the colder the atmosphere the more food those animals require to keep up the necessary vital heat. To discuss this point would indicate a doubt of the first principles upon which animal nutrition depends. It would be far better, if it were possible, to give in figures the value of shelter and warmth by actual results. But I am able to do very little in this way. I have pointed out what I consider are the effects of exposure in the stunted growth and the lean condition which characterises the stock of the districts in which the stock is most exposed; I have referred also to the prevalence of epidemics in those districts, and I will now do my best to show the advantages of covering to stock in a growing and store state, as well as to animals fattening for the butcher. I am sorry to say it is the case in this instance, as in most others in which farming is concerned, no precise statistics of the actual profit derived from covering are to be obtained, although I have written on the point to a considerable number of gentlemen who have covered yards. All my correspondents concur that they are more or less valuable, but none have tested their experience by accurate accounts. I have endeavoured myself to arrive, by a careful experiment, at the money value of covering for young stock, having in the autumn of one year purchased a number of yearlings, which were carefully and evenly divided, and half placed in an open yard with shedding, and half in a covered one. Both lots were fed exactly alike, and in the following spring they were sold, and the result showed that the superior shelter of a covering brought me 10*s.* 5*d.* per head over and above what I realised from the stock of the open yards. They were just 20 weeks making this difference, so that 6*d.* per week each head represented the value of the extra warmth of a covering. You will probably have observed that Mr. Moscrop, in his paper in the "Journal," states that he gained nearly 1*s.* per week return in his experiments with fat stock. His experiments were for 10 weeks only; and as all those who have tried covered yards, with one or two exceptions, concur in their superior comfort for stock, and the security they afford against sickness, it cannot be an extravagant estimate to value the additional warmth afforded by covering at a mean of 7*s.* 6*d.* per head on horned stock of all ages. Though the following extracts from a letter from Mr. Dent Dent, M.P., explains more generally than statistically his experience, I will venture to read them, as they not only represent the views of many other gentlemen besides himself, and are expressed with all the force of a personal interest in the matter, but they serve to corroborate the estimate I have given:—"I fear that I can give you no accurate statistics as to the money value to me of my covered yard. I can tell you how we have used it, and in what way I think it has proved of great advantage to me. Last year I put into it twelve bullocks, which did remarkably well, half going off in January, the other half in March. But this year I turned the shed, which had been part of the yard when uncovered, into five loose boxes, and I found that I could by this means accommodate 15 good-sized bullocks instead of 12, and I got my fat bullocks off a month sooner than usual, since which time my 2-year-olds have occupied the yard, and are looking exceedingly well on pulped roots and chaff with a little meal. The comfort to the beasts in cold wet weather I can scarcely sufficiently describe. My other yards have good sheds, but then some or other of the beasts always is driven out into the rain and wind. In the covered yards all are protected, and lie about in every direction. We are now getting out the manure, and putting it directly into the land, ridged up for Mangel, and at a very small depth it comes up rotted and short, and in the very best condition. When the days lengthen, and the sun becomes powerful, I often think the open yard is the best, and I should like to take the cover off, as the young beasts do so much enjoy the warmth; but when I take the winter through, there can be no question as to the comfort and luxury of a covered yard. For feeding beasts, and for young stock alike, the advantage of warmth is untold. My calves, which for some winters ran in an open yard, and which now occupy boxes containing three each, are worth more by a couple of pounds a head in the month of May than they were in the open fold. This is partly from the warmth, partly from judicious separation and classification." If your experience and knowledge of the benefits of shelter shall enable you to support Mr. Dent's views, we shall have no difficulty in placing to the credit of covering, as a means of adding flesh and fat to animals by the simple power of warmth, the sum of 7*s.* 6*d.* per head, and this amount will be due (by the rule I have before explained, in which 100 square feet is apportioned to each head of stock) to every 100 square feet covered. Now let us turn again to the comparative value of dung made under cover and in open yards, excluding from our minds for the moment the complex question raised by large tillage straw-producing farmers. I have stated, upon the best information to be obtained, that 1 yard of covered dung is found to be equal in manurial value to 1½ yard of open-yard dung. It is also uniformly admitted by all who have fairly tried the two descriptions of dung when properly made, that the covered dung is always in a fit condition for application to the land, while the open yard dung most frequently requires to be placed in a heap to undergo fermentation before it can be spread on the land. I may here remark in passing, that I have, on several occasions, observed in covered yards that the dung is not properly made; that too much straw has been littered at one time, and the dung is mouldy and dry. But this defect arises from a desire to "get rid" of straw, in the hope that by increasing the litter more manure will be made, and the failure which results is therefore not attributable to the system itself, but the mode of adopting it. If the effect of covering is to make 1 cubic yard of dung made under it as productive as 1½ yards of open yard dung, and each beast in the yard, taking the average of age and size, will raise a layer of dung 1 yard deep, *i. e.* 6 inches a month for six months in the year, it follows that between 10 and 11 cubic yards will be made in every 100 square feet of surface covered. The saving effected by this result will appear in several ways. First, there is the saving of straw, which if not consumed as litter becomes available as fodder; second, by the straw thus saved being used as chaff mixed with other food, there is the saving of hay; third, the reduced quantity of manure involves, as already shown, a saving in the cartage; and fourth, there is the advantage of always having the dung in a condition for application, which secures a saving of time and labour, often at a critical period. Can these advantages be valued in the aggregate at less than 5*s.* per 100 square feet of space covered? If you concur with me that this is the least amount we can place to the credit of the covering as means of securing the best manure with the least expenditure of straw, we have then, with the 7*s.* 6*d.* due from stock, an annual income of 12*s.* 6*d.* per 100 square feet on the credit side of the account, and a maximum sum of 6*s.* per 100 square feet on the debtor side as the charge to repay the cost (with interest) of the roofing. Hence the profit in the transaction is equal to the cost where roofing is put to existing yards, and three times the cost where the original buildings were planned for its adoption. I place this little bit of book-keeping before you as a balance-sheet of very simple and truthful figures. They are not the result of any dogmatical fancies of my own, and are presented with a view of eliciting discussion of the most important of all points connected with the subject, I mean the commercial view of it. Personally, I am of opinion that the time will come when the western districts of England, the stock-keeping, pasture preponderating, and rainy districts, will resort to covered yards as a necessity, if they are to keep pace with the growing intelligence of the country; but when uttering this prediction it may be interesting as a matter of statistics to state that, whereas I am personally acquainted with at least fifty instances on the eastern side of England, in which the covered system has been adopted, I have not yet been able to find half-a-dozen cases in which covered yards exist in the western counties, where they are most wanted.

It was my intention to have gone into the question of the value of permanent roofing for corn-stacks, but I have not had time to ascertain the opinions of practical men upon it, and I must therefore beg you to excuse the omission.

The following is an abridgment of the discussion which ensued upon Mr. Denton's paper:—

Dr. VOELCKER had given some attention to the most profitable use of straw, both as litter and as a means of preserving the valuable properties of common farmyard dung. In considering this question, they ought to bear in mind, in the first place, that in straw there resided little or no manuring properties—that was to say, straw contained very little of those manuring constituents which conferred value upon the excrements of animals, and which gave value also to artificial manures. In fact, straw, as a direct manuring agent, was not worth carting to the field. In the second place, he would say that straw possessed a very considerable value as food—a value which he did not think was over-estimated by the figures which Mr. Bailey Denton had given them, namely, 37*s.* a ton. He thought that some kinds of straw were considerably above that value, as for example, Oat straw, and Pea straw which was not too ripe. Straw had an important mechanical effect when carried to the field, but it was questionable whether that effect might not be realised by other means at a cheaper rate. He believed it could. It was very well known that by mechanical means, such as deep ploughing, they could produce the same effect. In fact, he thought the mechanical effect of straw as a manuring agent had been over-estimated. But at the same time straw could not be totally dispensed

with as a means of making manure, because it not merely produced a mechanical effect in the preparation of manure, but also produced an important chemical effect. When straw gradually decomposed, it produced a number of acids, which had the power of preserving ammonia; and it fixed them with such force, that no chemical fixer, such as vitriol or gypsum, required to be used in the preparation of farmyard manure. This was certainly a very valuable property which straw displayed in the manufacture of farmyard manure. It was, however, a quality which it only displayed when it rotted gradually. Straw in dung, when over-heated, ceased to be a fixer of manure. When the temperature of farmyard manure was increased a little above 180°, the desired effect ceased. He mentioned this particularly, in order to give them a useful hint as to what amount of straw they ought to use in the preparation of farmyard dung. If they used too much straw in preparing it, there would not be enough liquid, whether it were urine or rainfall; the fermentation became too strong and the heat increased beyond the proper temperature, in consequence of which ammonia flew off. It was quite possible by an excessive use of straw to make bad manure under cover, as well as in open yards; it was therefore a matter of practical importance to regulate properly the quantity of straw in the stalls or fattening boxes. He need not speak of the superior value of the liquid over the solid excrementitious matters of dung, for that was well known to intelligent farmers: but there was a chemical point to which he must be permitted to direct attention, and it was this—the liquid portion of rotten dung had a most active power of dissolving the more valuable fertilising matters of the solid excrements of animals. They knew, for instance, that phosphate of lime—the material on which principally the value of bone-dust depended—was insoluble in pure water, but he found it to be soluble to a great extent in liquid manure. As the liquid in rotten dung dissolved a large proportion of the more valuable constituents of the solid excrements, they would now see an additional reason for preserving their liquid manure, for in so doing they would not only retain the fertilising matters in urine, but they would also prevent the waste of the most valuable constituents of the solid excrements. He had dwelt on that chemical point, because it had come under his notice especially, in consequence of an examination of the liquid portion of dung, sent to him by Mr. Campbell, of Buscott Park. In that liquid he found a very large proportion of phosphate of lime, which was otherwise insoluble.

Mr. T. F. Wilson (Althorne, Maldon) said—The question of ventilation seemed to him to have a very close connection with the success and healthiness of covered homesteads or shelter. No doubt if they could fatten an animal without food they would thereby greatly increase the profit of farming. Therefore any system that would save an expenditure of food must in proportion be of immense advantage. Those who heard Dr. Daubeny's lectures many years ago might remember that he symbolised, or put into a short space, the question of exercise in its bearing upon food, and showed that all exercise created exhaustion, and *pro tanto* exhaustion required reparation. Consequently any system by which that source of loss could be avoided must be an advantage to the farmer as regarded the expense of feeding animals. In reality, the whole question of profit in farming was very closely connected with economical consumption of food. He had been lately watching the operations of a friend of his, who had got 36 fine Aberdeen stots. That gentleman had imagined that exercise in an open yard was a material advantage, and he had therefore since October had his animals walking and rollicking about in the straw up to their knees, and scarcely able on some cold nights, with all the food he had given them, to keep themselves warm. It appeared to him that that was a perfect absurdity, involving as it did a great waste of food. Mr. Bailey Denton, or any other gentleman who taught the farmer to avoid waste of food by exposure to a cold atmosphere, would no doubt be conferring an enormous benefit upon that class. As regarded expense, he had put up a galvanised covering as an experiment, and he really believed that if a farmer were to place a certain number of animals in an open yard, and the same number in a covered yard, and then compare the results, the greater rapidity of fatting the beast, the less quantity of food consumed, and the greater value of the manure made, he would find that in four years he would save all the money which had been expended in the covering, so that in fact at the end of that time he would have got his shed for nothing.

Mr. Charles Howard (Biddenham, Bedford) said:—The lecturer seemed rather to censure the practice adopted by Cheshire farmers of turning out cattle in the winter months. Now, he knew it was the practice of many breeders of Short-horns to turn out their animals all the year round, and he believed that the system was a correct one. Where there was a sufficient extent of Grass land for the animals to walk upon, they got exercise, and retained that coat on their skin which appeared to him so desirable. The practice was carried out generally, and he thought it was one which was not to be condemned. The question of the comparative value of covered yards or open yards ought to be considered, he thought, with reference to what sort of stock a man intended to keep. If they intended to fat off their animals before the spring, a covered homestead was very desirable; but if they had young stock, which had to be grazed during the coming summer, the case was different. He was sure his friend Mr. Congreve, and other breeders in the Midland counties, would not like to have animals without any hair upon them; and if they put an animal under cover the hair very soon fell, and the animal became too tender for summer grazing. He thought they were much indebted to Mr. Bailey Denton for calling the attention of landed proprietors generally to the importance of providing good homesteads. He had always contended that the farmer who had a bad homestead ran a very unequal race with the farmer who had a good one. It had been said that the Farmers' Club was confined principally to land-valuers and land-agents. Supposing such to be the case, it would make it of the greater importance that Mr. Denton should have laid his paper before us, for it depended in a great degree upon such persons whether farmers have good homesteads or not. He lived in a county where they had the privilege and great advantge of good homesteads. He alluded particularly to the estate of his Grace the Duke of Bedford, who had not only, as every one knew, erected some of the best cottages in the kingdom, but had also given his tenants some of the best homesteads.

Mr. John Thomas (Bletsoe, Beds) assured the meeting that having been a farmer for something like 30 years, he had made it a point to study this question more than most farmers had done. He had what were termed boxes for feeding stock; and he found that the manure in them was much better than what is made in stalls, and exposed by being thrown out in the yards (the stock being fed on the same food). He could therefore corroborate the statement of Mr. Denton as to the value of manure so managed; it was at least 20 per cent. better than the manure made in the open yard. With regard to covered homesteads for young stock, a good deal depended upon the ventilation, which should always be from the top, and not from below. Mr. Congreve had told them, and he (Mr Thomas) agreed with him, that he liked bullocks with plenty of hair on them, and sleekness of coat. He believed with Mr. Bailey Denton that the best and strongest bullocks remained under the shed, from whence they drove the weaker bullocks into the yard to starve. Every gentleman who studied stock would be forced to the conclusion that where there is a large yard a greater quantity of food is required to keep stock in condition. He found from experience that stock did best in small yards. In large yards they would always see stock with their backs stuck up; they could not be kept in condition; but where they had small yards they were so far sheltered that there was less draught, and they did not feel the effects of exposure as they did when in larger yards. In many cases one yard made into two or three would be an improvement. He had lately in that way had some of his made smaller, with the greatest benefit. It had been stated to-night that straw could not be consumed with economy in covered yards. He could not understand that. If they found it too dry he would recommend the use of the water-cart. If they had covered homesteads, they could make the straw into manure easily enough if they kept plenty of bullocks. A few years ago some people spent large sums of money in making tanks to catch the liquid manure, which was taken on to the land in water carts; but experience had convinced them that it did not pay, consequently that plan was now given up. He was of opinion that if farmsteads were properly laid out, it would cost but little extra to cover them in. Independently of that, he was satisfied that it would more than answer the purpose of any tenant-farmer to pay interest on the outlay for such buildings.

Mr. T. Congreve (Peter Hall, Coventry) said: Having been referred to as a grazier, he must express his cordial concurrence with almost everything Mr. Denton had advanced. His experience convinced him that a load of manure made under cover or in stalls or boxes was of much greater value than manure made in the open yard. They should recollect that in all probability the animals in covered stalls or sheds were higher fed than those in open yards. He was a grazier, and for graziers in such a county as Mr. Smithies came from, he must say that if the breeders took to covering their yards they must keep their stock at home.

Mr. Smithies: No, no!

Mr. Congreve meant that if the breeders of Shropshire had covered yards, and sent their cattle to the graziers with sleek skins on them, in the months of March, April, and May, they would be of no use to the graziers. There was an old and a true observation in their county, "that on such animals nothing grows but the hair;" therefore, he would suggest that in a breeding county there should be a division of the shedding, one part to be covered and the other uncovered. The portion of the stock to be sold to the grazier should be kept in the uncovered yards, for they would be no use to them if they were kept in the covered ones. He did not think the most perfect ventilation would keep the hair on the animals in covered sheds. He believed the natural state was the only state which would stand the frosty morning; and it was reasonable to suppose that coming out of covered sheds the difference would be so great as to tell on their constitutions, and make the cattle do badly. In fact, Mr. Denton wrapped the whole question up in one little sentence when he said that, "in the western counties the yards were almost invariably uncovered." A considerable quantity in the eastern counties probably were covered; but the land there was chiefly arable, and what they breed or keep they feed. The north-western counties, on the contrary, were grazing, and what they kept they grazed off in the summer. The cattle that did the best for the graziers came out of open yards, or what they called "open hovels" in the Grass-field, in which the animals could go in at night if they pleased, and come out in the morning and seek their food. It had been stated by Mr. Denton that he had been unable, from want of time, to ascertain the good produced by hovels; but in his county they considered the hovels a most valuable arrangement, both as to economy of food and advantage to the animals. The bullocks put into these hovels consumed less hay during the winter. They would go into the sheds at night, and leave them in the day-time; and they always were found in such places in a better state than by any other arrangement. He should like to ask Mr. B Denton a question as to the experiment he carried out with 10 bullocks in a covered, and 10 in an uncovered yard, which did the best next summer?

Mr. B. Denton: I did not keep them till next summer.

Mr. Congreve: Then I venture to say that those from the covered yards did not fetch so much money as the others if sold for paying purposes.

The Chairman, in closing the discussion, said he had 28 boxes and some yards with three sides covered, and he found from experience that his beasts fed much better in the boxes than anywhere else. The boxes were cleared out twice a-year, and it took about 20 weeks for an ox weighing from 60 to 80 stones to make nine loads of dung, in a box. He had always found dung that came out of a box much longer than any that came out of the yard, and it was exceedingly strong. The dung cost something considerable. He had found that during 20 weeks bullocks consumed daily a bushel and a half of good Turnips, from 10 to 12 lb. of cake, and from half to three-quarters of a peck of corn; each bullock thereby producing nine loads of dung.

Mr. Congreve: No wonder it is rather strong.

The Chairman continued: Something had been said about pulping Turnips. A neighbour of his had a curious case in that respect, which was rather against the practice of pulping. He had one or two cows which he was feeding on sliced Turnips. He fed his young stock on pulped Turnips mixed with straw; and his man induced him to feed the cows in the same way. The result was that the milk decreased. The old plan of feeding with sliced Turnips was then adopted, and the result was that the cows yielded the same quantity of milk as before. He would add that in a statement made last year, I think, by Mr. Hope, of Fenton Barns, that gentleman said that he fed all his animals on whole Turnips.

Mr. B. Denton replied. In the observations which had been made that evening, nothing struck him with greater wonder than what fell from his friend Mr. Charles Howard. He (Mr. Denton) remembered going to his well-managed farm some time ago, and seeing brought out from a covered building one of the best animals he ever saw. He well remembered Mr. Howard attributing its excellent condition to the covering it had enjoyed. As to the effects of covered buildings on animals mentioned by some of the speakers, he must say that he did not believe that if covered yards were properly ventilated the stock would become too tender. If properly ventilated he believed it was impossible to make an animal too tender when they had sufficient exercise in the covered yard. He understood Mr Congreve to say that as a grazier he would have nothing to do with animals which were brought up under cover by those who reared them. He (Mr. Denton), however, could tell him that he often found animals produce very different skins under precisely the same circumstances, and he had just turned out of his yard animals which had been treated exactly the same, and yet their coats were as different as possible. Mr. Charles Howard might tell him that he had not the right sorts, and probably that explained the whole thing.

Farm Memoranda.

West Buckland, South Molton.—[The following is the conclusion of the report of the Rev. J. L. Brereton on Stocking Land, given last week from the *Agricultural Society's Journal.*]

The Valuations.—The first of these was made by myself and my bailiff, towards the end of 1863. It was afterwards revised, item by item, by the late Mr. George Burden, of Kerscott, who was esteemed as one of the best farmers, and I must add, in memory of his recent death, one of the best men in North Devon. The second valuation was made by Mr. Mortimore, of Warkleigh, whose judgment and experience both as a farmer and valuer are recognised with great confidence throughout the district. The standard of the two valuations is not, I believe, very different. I mean that the excess of the later valuation is not to be attributed to any exceptional rise in prices, but to the increased value of the animals themselves, owing to the sheep to careful drafting, and in horses, sheep, and bullocks, to the growth of young stock, and to their generally improved condition in consequence of the liberal expenditure on food and attendance.

The Labour.—This item will appear less exceptionally high if viewed in reference to the capital rather than the acreage with which it is connected. It represents the whole expense of supervision, attendance on the stock, cartage of manure, haymaking, &c. I have, it is true, paid higher wages than the neighbourhood, but have, I think, had a proportionate return of cheerful work. In attendance upon stock, it is of course possible to reduce the cost of labour very much by organisation and regularity. In this I acknowledge that I see how very great improvement might be made on my farm; but I have been much occupied in other matters myself, and the importance of these things is not always perceived, and very seldom enforced by subordinates. It is the coachman only who is likely to see that all the harness is adjusted to the team. The uninterrupted attention required to ensure economy either in a small or large farm is generally the secret of the real farmer's success and the amateur's failures; in my own case, if I do not quite acknowledge failure, I can see daily that my affairs might have been much more economically managed; but my only means of controlling waste has been a steady adherence to certain principles. I have thought that the true economy of labour was to be found, not in lower wages, but in a higher quality of workmen.

The following analysis of my labour-bills may give some explanation of the amount incurred:—

		£	£ s. d.
Weekly labour..	Stables (approximately) ..	36	163 17 11
	Sheep	32	
	Bullocks	32	
	Steam engine, hay, and manure	64	
Supervision			49 0 0
Horse labour (hired)			45 12 9

Sand.—Passing to the next item of expenditure, the principal manure purchased has been sea-sand. This has been used as bedding for bullocks, horses, and sheep, instead of straw. It cost me 6*s.* 8*d.* per ton, as I have to draw it eight miles. Speaking roughly, I think that for bedding purposes the ton of sand goes as far as the ton of straw, while the latter costs me 30*s.* per ton. Except in the stables, I do not like to see any straw used for litter, though it has not been easy to break through the feeling of the attendants that the comfort of the animals required its use. The economy, however, of converting straw into food instead of litter seems so great, that I have persevered in the use of the sand; and I think my bailiff and men would generally now give it the preference. The effect of the manure has been very striking: in the last very dry summer, 22 acres yielded fully 45 tons of hay: the quick action of the sand-manure has been noticed much by the neighbouring farmers; it has also been found that the sheep can be pastured upon the ground very much sooner after the sand than after straw manure. This distinction may depend upon the salt which it contains. The remarkable healthiness of my stock, in spite of the number kept to the acre, may perhaps be attributed to the free use of this sand; though something is due to the high situation on the borders of Exmoor, and much to the healthy action of the slaty subsoil.

Quantity of Stock to the Acre.—The balance sheet does not of itself explain the number of stock kept on the 30 acres, because it does not give the dates of all the purchases, or the quantity of extra land, the temporary hire of which is included in the general charge for purchased food. But I think I can say with certainty that the average number of sheep kept during the year upon the 30 acres has been 150. For a few weeks there were less than this number, in order to favour the hay crop; but after the hay season there were, for some weeks, as many as 300 on the glebe.

As a general rule, the ewes have a range of about six acres to 80 head. During the winter they have chaff, Turnips, and a little meal. The present allowance (the highest in the year) is, for 80 ewes on the glebe,—

½ lb. of meal each, at 1¼*d.*...	4*s.* 2*d.*	a day.
½ ton of roots, 14 lb. apiece, at 12*s.*	6 0	"
90 lb. of chaff (¾ hay, at 4*l.* 10*s.*, ¼ straw, at 30*s.*..	3 0	"
	13 2, or 2*d.* a day for each ewe.	

Another lot of ewes in better condition, and having a better range of pasture, are receiving only ½ lb. of meal and 5 lb. of roots, without any chaff. During the summer months the ewes graze in large folds, frequently changed, so as to allow the Grass to freshen behind them. According to the weather, they will lie in the same plot from six days to three weeks. My own judgment is, that by constantly interchanging the fold and the scythe, the necessary range, even of breeding ewes, may be very much lessened. In wet weather we have trouble with their feet if they are allowed to tread the ground overmuch. But I am gradually forming yards to be asphalted, in which I propose to

have them always fed in very wet weather, allowing them the open pasture at other times. I think the scythe or mowing machine should be constantly at work; during the past year I was cutting Grass with the machine from the beginning of May to the middle of November. In the spring and autumn the mown Grass has been further cut into chaff, with straw for the bullocks and horses; but the sheep have had it carried to their troughs fresh cut.

The 70 lambs were with their mothers to the beginning of June: I then hired a piece of Clover for them for one month. On the 1st of July they came back to the glebe, and have ever since been upon it in two pens, 38 ewes and 32 rams. Since the 1st of July, the ewe lambs have been over about 10 acres of ground, in part twice (the scythe intervening), in folds of ⅛ to ¼ of an acre: the ram lambs have been kept rather closer. The ewe lambs had about ¼ lb. of meal each from June to October, then ⅓ lb., and since Christmas ½ lb., the maximum allowed to ewes. The rams began with the same quantity, but were pushed forward more quickly, and from October to the present time have been getting rather more than 1 lb. each. On the day I write (Jan. 21), I have ascertained that the following are the actual allowances:—

	s.	d.	
32 ram hoggs:—			
8 cwt. of roots, at 12s. ..	3	0	a day.
26 lb. meal, at 1¼d. ..	3	9	,,
15 lb. chaff	0	6	,,
	7	3, or 2¾d. per sheep a day.	
37 ewe hoggs:—			
7 cwt. of roots	3	0	a day.
18 lb. meal	1	10½	,,
15 lb. chaff	0	6	,,
	5	4½, or 1¾d. per sheep a day.	

Attendance on—
80 ewes.
32 ram hoggs.
37 ewe hoggs.

149 sheep. One man's wages, 12s. a week, or 1d. a week per sheep.

These allowances represent the highest cost of keep during the year; and I find that they correspond very nearly with the allowance at the corresponding period of last year. The bullocks are having 10 lb. of the mixed food, and the horses 4 lb., with hay and straw chaff, but no roots.

The following memorandum of the consumption of food on the 14th of October will represent very nearly the average consumption of meal in the year:—

20 fatting ewes	28 lb.
32 ram lambs	36
38 ewe lambs	12
6 bullocks	60
2 ditto	9
5 horses	20
	165

Milk.—The charge for milk, 11*d.* per gallon, is, I am told, higher than the average price of new milk. I have found that in buying or selling new milk in small quantities in this village, the price has been generally 3*d.* a quart; but as the greater part was used or converted into butter in my own family, and the skim-milk consumed by lambs, colts, &c., was charged to the farm at 3*d.* a gallon, the price of 11*d.* may perhaps be higher than the average, and so represent on my balance-sheet an unreasonable profit. But if so, it explains itself.

The cows have generally been bought fresh calved, and milked so long as their milk seemed to pay for their food, and then fatted. We have thought that, fed upon meal, they lay on more fat while milking than when fed on roots. In one case I fatted a cow and some sheep on meal and water alone, but without very accurately noting the comparative cost. The cow, however, was considered to have done remarkably well, and the beef was unusually juicy. Her allowance was 12 lb. of food, with water *ad libitum*. I mean to repeat this experiment, and have ordered two cows just dry to be put on the same allowance; their cost would be 15*d.* per day, besides attendance. My bailiff thinks they require a small quantity of chaff in addition to the meal, in order to assist them in raising the cud; but not for the sake of bulk, which is sufficiently supplied by water—as nutriment is by the various ingredients of the meal.

Roots.—The Turnips purchased during the year have cost about 12*s.* 6*d.* per ton, and about 150 tons have been consumed on the glebe. This quantity had been thought by my bailiff necessary both for the ewes, and more especially for the rams he was preparing for sale, but I think that the same money expended in meal would have gone further. I have not, however, wished to depart too abruptly from the track of experience; though it is clear that the circumstances of the case are so altered by the relative cheapness of corn and dearness of cattle that the cautious observers of precedents may be more likely to mislead than the more adventurous.

Thus much I think I can assert as to the result of some persevering experiments in the new direction:—

1. That it is quite possible to feed animals on purchased food alone.

2. That a mixture of the common grains and Pulse, *e.g.*, Linseed, Peas, Beans, Wheat, &c., may be made for 10*l.* per ton, which will fatten any animal.

3. That the addition of seasoning (Aniseed and Fenugreek are those that I have used for five years) at an additional cost of 1*l.* per ton, appears to pay well in the added relish and the improved condition of the animals.*

4. That doubling the quantity of Linseed, though raising the price, probably gives quite a proportionate increase to the value of the mixture.

5. That by the use of this meal the farmer may fearlessly increase his stock without adding to his acres; and yet, by that increase of stock, must greatly increase the productiveness of his farm. This consideration both suggested and replied to the following exclamation of a neighbouring farmer: "Mr. Brereton, if you'm doing all this on 30 acres, I'm thinking what's to become of the landlords."

6. That the use of sea-sand as bedding will enable the farmer either to dispense with straw, or to use it more profitably as food; and that besides possessing, according to its quality, manurial properties, the sand acts as a purifier of the land, and seems to allow of a closer herding of stock than might be otherwise safe.

7. That sheep may be folded on Grass with great advantage, if some shelter and dry treading is provided in adjacent yards during excessively wet weather; but the bullocks and horses do best in yards and sheds, the Grass grown after the fold being cut by the scythe and carried to them.

Calendar of Operations.

West Sussex: *May* 8.—After many changes of weather we have at last got all that we can wish for. March was very cold and dry, April very warm and rather dry. May came in dry enough, and fears were beginning to be entertained that we should have a short crop of hay, but on the 4th we had a little rain, and on the 7th it came down in torrents, and to-day has been clear and very warm, so that there is every prospect of Grass and corn, or at any rate of straw. Mangel has been all got in, and in good order, and now will soon be up; and Swedes may be put in soon if wished, but many dislike putting them in before the beginning of June, though last season those that had them in early had the best, and they were the only ones that had any crop of Swedes, but early Turnips nearly all rotted. The Wheat can hardly be said to look very well; it is backward and patchy; where thin and regular the colour is good, where thick it is rather yellow, but no doubt will improve with the weather that we have now got. Barley and Oats look very well, though in some cases the wireworm, as usual, has got at some of it, and the land being so light was rather favourable to its ravages. Peas perhaps never looked better or cleaner; it is a characteristic of the season that all land is comparatively clean, and we never had an easier season to get through the work. Cattle are now being turned out, and there will be abundance of food, and prices, that have never been low, will no doubt rise. Though our market has been well supplied with all kinds of stock, prices have been high, and at the best they can leave but a small profit to the feeder, and with our coast-land farmers times cannot be very good, as corn, which they have chiefly depended on, is low, and as they do not breed, but buy their stock, and prices have been so high, they could not make much of them. But with the stock farmer it must be better, as what he has lost in corn he must have gained on stock.

Owing to the short supply of roots there have been fewer lambs bred for fatting hereabout, and as they have had more corn than usual they are all ripe for the butcher sooner, and will be sold off earlier, so that we may expect them to rise rather than fall in price as the season advances. Our market last week was well supplied, and the quality was good, and sold at from 36*s.* to 41*s.* each. And mutton was in good supply and as dear as formerly. There have been few labourers out of work, though perhaps there have been fewer hands employed during the winter, and should the crops come on rapidly there will be more work than we shall find hands for, and reapers, mowers, and hay-making machines will have to come more into use from necessity. And by and by we shall have all the modern improvements in use, and the whole system will be changed. For there does seem something wanted when agricultural labourers get only 11*s.* or 12*s.* a week, while others are on strike because they cannot get from 8*s.* to 21*s.* a day. *G. S.*

Notices to Correspondents.

Drought: *Hawick.* We have no hesitation in saying that hard and undug soils will not resist drought so well as ground that has been trenched and thoroughly pulverised.

Poultry: *An Old Subscriber.* The dissection of several fowls that have died under circumstances similar to those mentioned by you, has shown disease of the liver and great enlargement of the gall bladder. Over feeding on Indian meal, or similar food, will frequently cause death at this time of year, when the hens are naturally fat and laying; the intestines become covered with fat, so that the egg passage is much compressed, and in the act of laying the hens frequently die from the rupture of a blood vessel internally. Entire change of food is always beneficial when birds get out of condition, a little wormwood put in their water, or soaked in the water with which their food is slaked, will do them much good, or if you think the birds are too fat, reduce their food if at liberty; if in confinement give more green food, and feed entirely on soft Oat or Barley meal for a week or ten days, letting them have plenty of gravel and grit to scratch in.

Wild Garlic: If your meadow is infested it must be broken up, fallowed, and cultivated for a year or two, and relaid.

* Two years ago, when I was at some pains to test the value of Fenugreek on two lots of six bullocks, the Fenugreek *appeared* to do good; but the weigh-bridge did not justify this appearance, which probably rested on a keener appetite and greater consumption of straw-chaff. *P. H. F.*

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Robert Hogg, LL.D. and F.L.S., Rev. H. H. Dombrain, A.B., Shirley Hibberd, Esq., F.R.H.S., Thomas Rivers, Esq. (the eminent Florist), and other well-known gentlemen, recommend the Hydropult as an invaluable Garden Implement.

The Hydropult will draw water horizontally, if necessary, through Two Hundred Feet Suction Hose, and force it through Delivery Hose to an altitude of One Hundred Feet.

THE
GREENHOUSE AND CONSERVATORY HYDROPULT.
A NEW AND BEAUTIFUL IMPLEMENT,
Weighing scarcely 5 lbs.
AND SPECIALLY ADAPTED FOR USE IN THE GREENHOUSE AND CONSERVATORY.
Price 35s.,
Complete, with Brass Cylinders and Copper Stirrup, 2½ feet Suction and 3 feet Delivery Hose, Strainer, Rose, Jet, and Fan.

This NEW IMPLEMENT must necessarily supersede Syringes and other devices of the kind, for it will be found much more effective in its operation.

A LADY CAN WORK IT FOR HOURS WITHOUT FATIGUE.

CAUTION.

Important to the Public.—The extensive sale of the Hydropult has excited the cupidity of so-called respectable, but in reality unprincipled Manufacturers, who are now palming on the Public worthless imitations of the Hydropult, and through their connections are enabled to place said devices on exhibition, and for sale, in many of the principal Ironmongery and Seed Establishments throughout the city and provinces. These devices resemble in many respects the Hydropult in appearance, and are calculated to deceive the unsuspecting. The Proprietor therefore issues this Caution, and respectfully intimates that parties wishing to purchase the Hydropult should examine the machine offered for sale, and see if it has attached thereto a label, with the following words:—"The Hydropult, Vose's Patent, manufactured only by Griffiths & Browitt, Birmingham. Charles Pomeroy Button, Proprietor, 142 and 143, Cheapside, London." Unless this label is attached, the Machine is not the Hydropult.

Prospectuses, with Testimonials, on application.

HYDROPULT SHOW ROOM, 142 & 143, CHEAPSIDE, LONDON.
CHARLES POMEROY BUTTON, Proprietor.

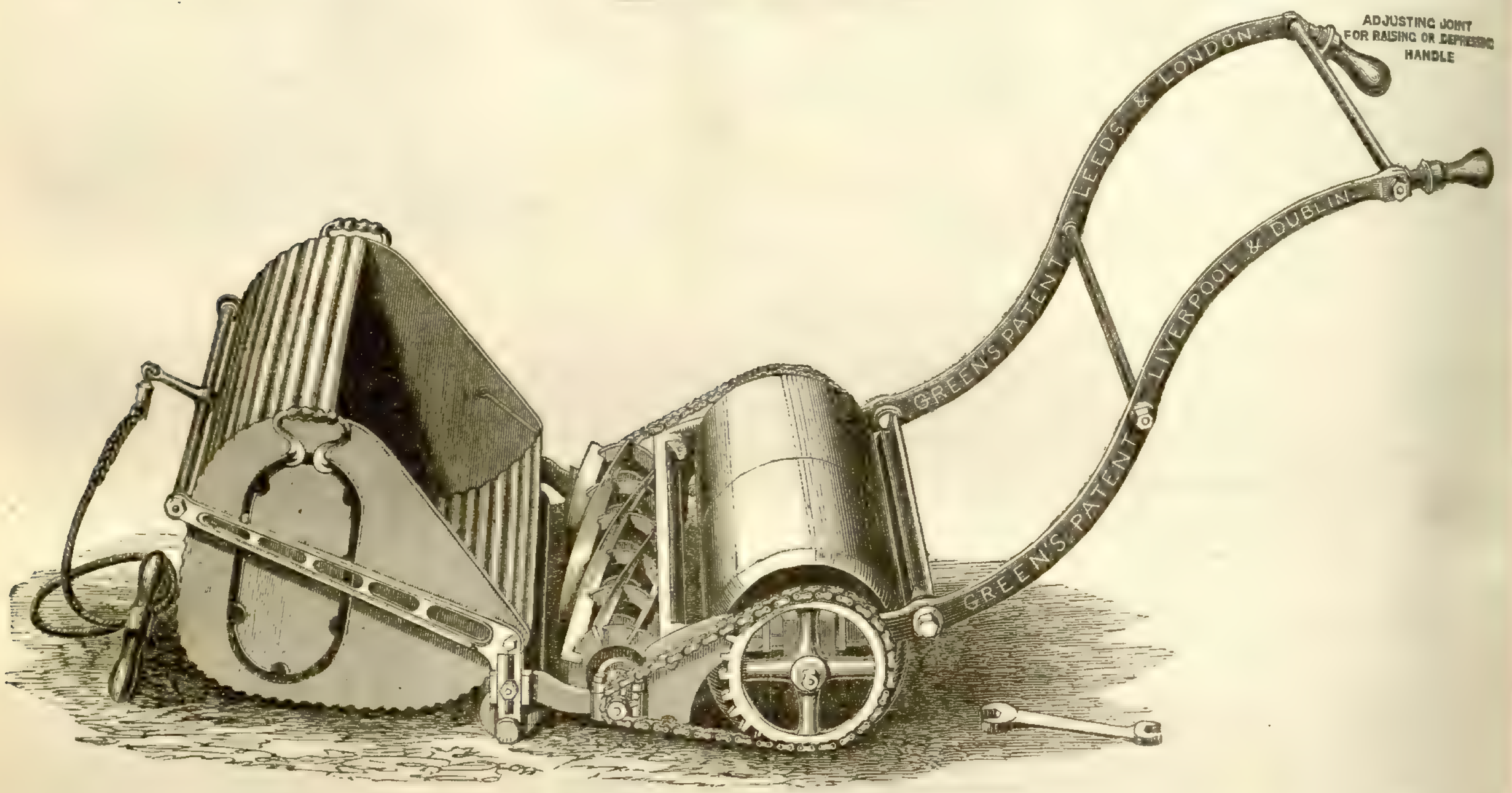
GREEN'S PATENT SILENS MESSOR,

OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

BY SPECIAL APPOINTMENT,
SOLE MANUFACTURER

TO HER MOST GRACIOUS MAJESTY
THE QUEEN.



IMPROVED PATENT LAWN MOWER FOR 1865,

AS RECOMMENDED BY THE JUDGES OF THE ROYAL HORTICULTURAL SOCIETY'S SHOW HELD JULY 20, 1864.

GREEN'S PATENT LAWN MOWERS have proved to be the best, and carried off every Prize that has been given in all cases of competition. The Judges at the Royal Horticultural Society's Show, held July 20, 1864, awarded them a First-class Certificate (no Prizes were given), and, at the same time, suggested a slight alteration, which has been done, and Messrs. T. G. & Son consider their MACHINES now as near perfect as possible.

Messrs. T. G. & Son beg to state that, owing to the great demand for their MACHINES in past years, they have been unable to execute orders with that despatch due to their numerous customers, but are now happy to inform them, that they have made such alterations and arrangements in their premises, whereby they trust to be in a position to send off all orders the day they are received.

PRICES OF HAND MACHINES.

To cut 10 inches	.. .. ..	£3 10 0	*Suitable for a Lady.*	To cut 18 inches	.. .. .. £7 10 0 *Suitable for One Person.*
„ 12 „	.. ..	4 10 0	„ „	„ 20 „	.. .. .. 8 0 0 *Suitable for Two Persons.*
„ 14 „	.. ..	5 10 0	*Suitable for One Person.*	„ 22 „	.. .. .. 8 10 0 „ „
„ 16 „	.. ..	6 10 0	„ „	„ 24 „	.. .. .. 9 0 0 „ „

Packing Cases are charged at the following low rates, viz.: for the 10 and 12 inches Machine, 3*s.*; 14 and 16 inches, 4*s.*; 18 and 20 inches, 5*s.*; 22 and 24 inches, 6*s.* Parties providing themselves with Lawn Mowers are recommended to purchase the Cases in which to stow them away, when not in use, to prevent them from getting damaged; if returned, two-thirds will be allowed for them.

PRICES of HORSE, PONY, and DONKEY MACHINES, including Patent Self-delivery Box; Cross Stay complete; suitable for attaching to ordinary Chain Traces or Gig Harness.

To cut 26 inches	.. .. ..	£13 0 0	*Leather Boots for Donkey*, 18*s.*	To cut 30 inches	.. .. .. £21 0 0 *Leather Boots for Pony*, 22*s.*
„ 28 „	.. ..	15 0 0		„ 36 „	.. .. .. 24 0 0
„ 30 „	.. ..	17 0 0		„ 42 „	.. .. .. 27 0 0 *Leather Boots for Horse*, 26*s.*
				„ 48 „	.. .. .. 30 0 0

The 26, 28, and 30 inches can easily be worked by a Donkey, or by Two Men, on an even Lawn, the 30 and 36 inches by a Pony, and 42 and 48 inches by a Carriage Horse; and, as the MACHINES make no noise in working, the most spirited animal can be employed without fear of its running away, or in any way damaging the MACHINE.

Both the HORSE, PONY, DONKEY, and HAND MACHINES possess (over all other Makers) the advantage of self-sharpening: the cutters being steel on each side, when they become dull or blunt by running one way round the cylinder, can be reversed again and again, bringing the opposite edge of the cutter against the bottom blade, when the MACHINE will cut equal to new. Arrangements are made that the cylinder can be reversed by any inexperienced person, in two or three minutes.

The above MACHINES are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England; are warranted to give satisfaction, and, if not approved of, can be at once returned unconditionally.

THOMAS GREEN AND SON,

SMITHFIELD IRON WORKS, LEEDS; 2, FARRINGDON ROAD, HOLBORN HILL, LONDON, E.C.;

19, EDEN QUAY, DUBLIN; and HADWIN'S BUILDINGS, TITHEBARN STREET, LIVERPOOL.

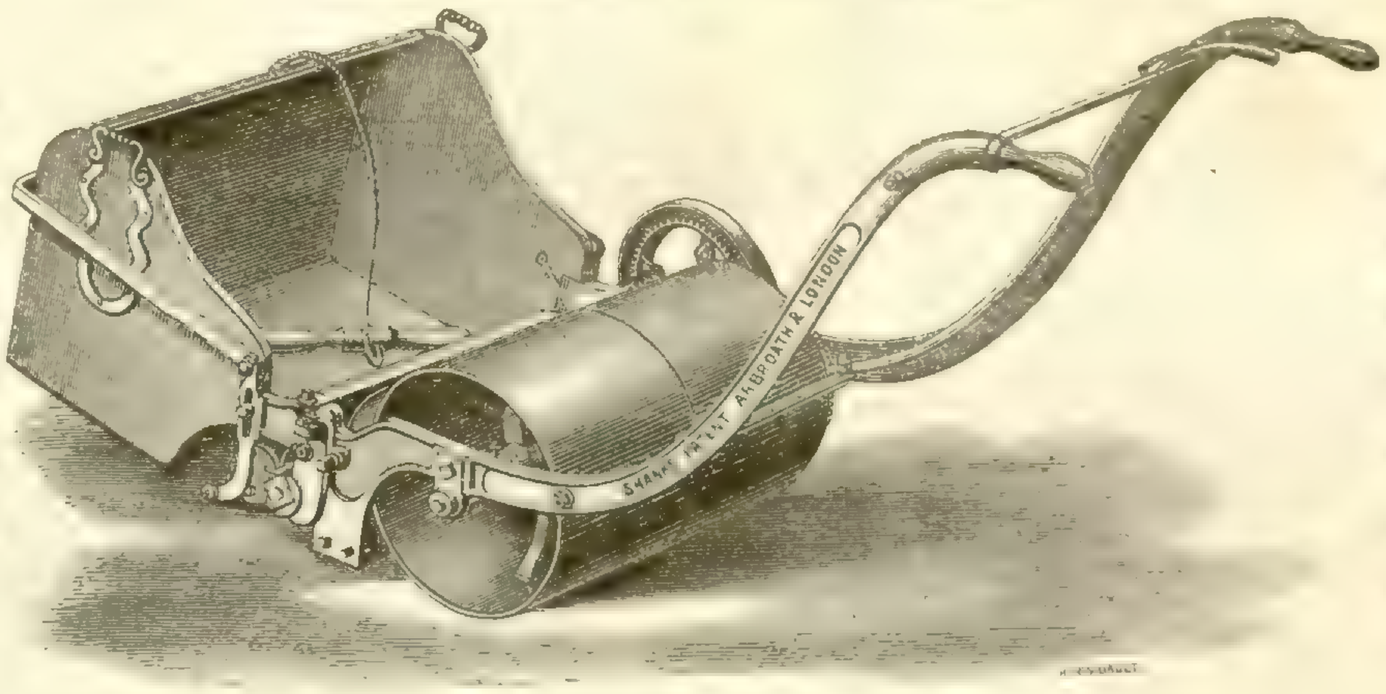
SHANKS' NEW IMPROVED PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1865.

PATRONIZED ON FIVE SEPARATE OCCASIONS DURING THE SEASON OF 1864 BY

HER MAJESTY THE QUEEN.

ALEXANDER SHANKS & SON are gratified to find that in the large and increasing demand for their celebrated MACHINES, they receive a conclusive proof that their merits are every season becoming more appreciated by the Practical Gardener.



HAND MACHINE.

A. S. & SON, in introducing Improvements into their MACHINES, have been careful that the advantages in point of durability, simplicity of construction, and superiority in the work executed, which have all along been peculiar to SHANKS' MACHINES, should still remain.

SHANKS' PATENT LAWN MOWERS are in daily use in the ROYAL GARDENS at KEW, WINDSOR, BUCKINGHAM PALACE, HAMPTON COURT, OSBORNE, and BALMORAL; in the GARDENS of the ROYAL HORTICULTURAL SOCIETY at KENSINGTON; in the GROUNDS of the CRYSTAL PALACE COMPANY at SYDENHAM; in VICTORIA PARK; in BATTERSEA PARK; and in many hundreds of the principal Gardens in the Kingdom, as well as abroad, where their merits have been fully proved and their success established.

PRICES—including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom.

SHANKS' NEW PATENT HAND MACHINE for 1865.

Width of Cutter.		
10-inch Machine	£3 10 0	*Easily Worked by a Lady.*
12-inch Machine	4 10 0	
14-inch Machine	5 10 0	*Ditto by a Boy.*
16-inch Machine	6 12 6	*Ditto by a Man.*

Silent Movement for the five smallest sizes, 4*s.* extra; for the other sizes, 7*s.* 6*d.* extra.

SHANKS' NEW PATENT HAND MACHINE for 1865.

Width of Cutter.		
19-inch Machine	£7 12 6	*Easily Worked by a Man and Boy*
22-inch Machine	8 7 6	*Ditto by Two Men.*
24-inch Machine	8 17 6	

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
25-inch Machine	£12 10 0	25*s.* extra.
28-inch Machine	14 10 0	30*s.* ,,
30-inch Machine	15 15 0	30*s.* ,,

Silent Movement, 12*s.* 6*d.* extra; Boots for Pony, 21*s.* per set;
Ditto for Donkey, 16*s.* per set.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus
30-inch Machine	£19 0 0	30*s.* extra.
36-inch Machine	22 0 0	30*s.* ,,
42-inch Machine	26 0 0	40*s.* ,,
48-inch Machine	28 0 0	40*s.* ,,

Silent Movement, 20*s.* extra; Boots for Horse's Feet, 24*s.* per set.

A. S. & SON have pleasure in submitting the following List from among the hundreds of distinguished individuals, both in this country and abroad, whose patronage they have had the honour to receive:—

HER MOST GRACIOUS MAJESTY THE QUEEN,

For the Royal Gardens at Kew, Windsor, Buckingham Palace, Hampton Court, Osborne, and Balmoral.

HIS MAJESTY THE EMPEROR OF THE FRENCH
HIS MAJESTY THE KING OF SAXONY
HIS ROYAL HIGHNESS THE PRINCE OF PRUSSIA
HIS GRACE THE ARCHBISHOP OF CANTERBURY

His Grace the Duke of Bedford
His Grace the Duke of Newcastle
His Grace the Duke of Marlborough
His Grace the Duke of Rutland
His Grace the Duke of Sutherland
His Grace the Duke of Buccleuch
His Grace the Duke of Devonshire
His Grace the Duke of Leinster
His Grace the Duke of Athole
His Grace the Duke of Norfolk
His Grace the Duke of Hamilton and Brandon
His Grace the Duke of Argyll
His Grace the Duke of Northumberland
His Grace the Duke of Roxburghe
His Grace the Duke of Wellington
His Grace the Duke of Buckingham
The Most Hon. the Marquis of Normandy
The Most Hon. the Marquis of Bute
The Most Hon. the Marquis of Winchester
The Most Hon. the Marquis of Exeter
The Most Hon. the Marquis of Breadalbane
The Most Hon. the Marquis of Westminster
The Most Hon. the Marquis of Lansdowne
The Most Hon. the Marquis of Stafford
The Most Hon. the Marquis of Kildare
The Most Hon. the Marquis of Abercorn
The Most Hon. the Marquis of Londonderry
The Most Hon. the Marquis of Ailsa
The Most Hon. the Marquis of Tweeddale
The Most Hon. the Marquis of Aylesbury
The Right Hon. the Earl of Tankerville
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The Right Hon. the Earl of Leicester
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The Right Hon. the Earl of Shannon
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The Right Hon. the Earl of Morley
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The Right Hon. the Earl of Westmoreland
The Right Hon. the Earl of Dalhousie
The Right Hon. the Earl of Portarlington
The Right Hon. the Earl of Kilmorey
The Right Hon. the Earl of Dartmouth
The Right Hon. the Earl of Guildford
The Right Hon. Earl Spencer
The Right Hon. Earl Fortescue
The Right Hon. Earl Vane
The Right Hon. Earl Nelson
The Right Hon. the Countess of Stair
The Right Hon. Countess de Morella
The Right Hon. the Countess of Waldegrave
The Right Hon. the Countess of Cottenham
The Right Hon. Viscountess Milton
The Right Hon. Viscountess Castlereagh
The Right Hon. Viscount Seaham
The Right Hon. Viscount Duncan
The Right Hon. Viscount Eversley
The Right Hon. Viscount de Vesci
The Right Hon. Viscount Boyle

HIS EXCELLENCY THE LORD-LIEUTENANT OF IRELAND
HIS EXCELLENCY THE BELGIAN MINISTER
HIS GRACE THE ARCHBISHOP OF YORK
THE RIGHT HON. LORD PALMERSTON

The Right Rev. the Lord Bishop of Durham
The Right Rev. the Lord Bishop of Ripon
The Right Rev. the Lord Bishop of Killaloe
The Right Rev. the Lord Bishop of Melbourne
The Right Rev. Lord Bishop Nixon
The Right Hon. Lord Bagot
The Right Hon. Lord Monck
The Right Hon. Lord Hatherton
The Right Hon. Lord Kinnaird
The Right Hon. Lord Lovat
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The Right Hon. Lord Braybrooke
The Right Hon. Lord Blantyre
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The Right Hon. Lord Halliburton
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The Right Hon. Lord Cremorne
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The Right Hon. Lord Rokeby
The Right Hon. Lord Rayleigh
The Right Hon. Lord Ashtoun
The Right Hon. Lord Stanley
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The Right Hon. Lord Berners
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The Right Hon. Lord Sudeley
The Right Hon. Lord John Thynne
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Sir Coleman Rashleigh, Bart.
Sir John R. Carnac, Bart.
Sir Philip Egerton, Bart.
Sir William Maxwell, Bart.
Sir Archibald Dunbar, Bart.

Shanks' Patent Lawn Mowers are warranted to give ample satisfaction, and if not approved of may be at once returned.

☞ A. S. & SON *beg to intimate that their Warehouse at 27, Leadenhall Street, is the only place in London where intending purchasers of Lawn Mowers can choose from a stock of from 150 to 200 Machines. All sizes are kept in stock, whether for Horse, Pony, or Hand Power, and orders are executed on the day they are received.*

PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N. B.

LONDON OFFICE and SHOW ROOMS, 27, LEADENHALL STREET, E.C.

SMITH, BECK, AND BECK'S GREENHOUSE and HOTBED THERMOMETERS.—These Instruments are of the very best construction, and at moderate prices.
31, Cornhill, E.C.

Caution to Gardeners.—When you ask for SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the corporate mark OBTAIN WARRANTED, without which none are genuine.

S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by sellers and makers.

S. & C.'s Pruning and Budding Knives are the best and the cheapest in the market.

Paxton Works, Sheffield. Established upwards of 125 years.

E. T. ARCHER'S "FRIGI DOMO." — Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.

PROTECTION from COLD WINDS and MORNING FROSTS.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.

Two yards wide	1s. 9d. per yard run.
Four yards wide..	3s. 6d. per yard.
An improved make, 2 yards wide ..	1s. 9d. per yard.
An improved make, 3 yards wide ..	2s. 8d. per yard run.

Also "Frigi Domo" Netting, 2 yards wide, 1s. 6d per yard run.

ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, and of all Nurserymen and Seedsmen throughout the kingdom.

"It is much cheaper than Mats as a covering."

EARTH CLOSETS AND COMMODES.

(Moule's Patent.)

MANUFACTURED SOLELY BY

WHITE & CO.,

29, BEDFORD STREET, STRAND, LONDON, W.C.

THE PECULIAR ADVANTAGES OF THESE CLOSETS AND COMMODES OVER THE ORDINARY WATER CLOSET ARE:—

First.—That the deodorising material (dry surface earth, or clay, or other subsoil) is the best for the purpose and at the same time is the cheapest and within the reach of all classes.

Secondly.—The supply of such material to any house or premises may be much easier than the supply of water by a forcing pump, and its removal after being used may be entirely without offence.

Thirdly.—Its application by the means provided in these Closets is immediate and effective; so immediate that no offensive smell need escape into the room or building in which they are used; and so effective that all fermentation and all escape of noxious gases are entirely prevented.

Fourthly.—The expense of these Closets, in comparison with that of Water-Closets, is, as to the first cost, trifling, and as to repairs almost nothing. For instance, there is no expensive cistern required, and there are no lead pipes to burst in frosty weather.

Lastly.—In all large Establishments, such as Hospitals, Union Houses, Schools, Gaols, and Asylums, a very considerable sum may be saved annually in the production of a valuable manure.

The efficiency of these Closets is so great as to be scarcely credible to those persons who either have not used them or seen their mode of action.

**** The different forms of Closets may be seen at the address above; and Prospectuses will be forwarded on application.*

JOHN WARNER & SONS, LONDON, MANUFACTURERS.

J. WARNER AND SONS

Have much improved the construction of their

GARDEN **ENGINES**

in some important particulars for this Season.

They may be obtained of the Trade generally throughout the Kingdom at the following prices:—

No. 547. WARNER'S best ENGINES, in Wood Tubs, and fitted with WARNER'S Registered Spreaders—

24 Gallons,	£6 10s.
14 ,,	5 10s.

No. 547A. WARNER'S strong ENGINES, in Galvanised Iron Tubs, well painted—

10 Gallons	£2	19	0
16 ,,	3	14	0
24 ,,	4	19	0
28 ,,	5	10	0

No. 579½. WARNER'S WATER BARROWS, thoroughly Galvanised and well painted—

20 Gallons	£2	2	0
30 ,,	2	13	0
38 ,,	3	17	0
50 ,,	5	12	0

The 50-Gallon Barrow is made extra strong throughout, and fitted with handle for two men.

No. 568½, AMERICAN ENGINE, is now well known and appreciated. It throws a continuous stream, and is complete in itself. £2 2s.

SYRINGES in great variety, from 7s. 6d. to 18s. 6d.

The DISC SYRINGE, No. 557A, will recommend itself by the ease with which it is filled, and non-liability to get out of order. Price 9s.

WARNER'S

AQUAJECT

Is this season first introduced to the notice of horticulturists as possessing the following advantages:—It is simple in construction, portable, and easily worked. It throws a continuous stream, and is low in price.

The Aquaject, 30s.

The small AQUAJECT is the most perfect form of Syringe yet introduced. It throws a continuous stream, with very slight movement, and with it blight, &c., is readily washed from the under side of foliage. 18s.

No. 35. WARNER'S IRON PUMPS for Wells not exceeding 25 feet in depth — 2½-in., 28s. to 3-in., 41s.; 3½-in., 46s.; short barrel do., 21s.

No. 36. IRON FORCE PUMPS for raising water above their level, for watering yards, gardens, &c., through hose—2½-in., 59s.; 3-in., 65s.; 3½-in., 77s.; 4-in., 89s.

No. 36½. FORCE PUMP on BARROW, recommended for its great portability and simplicity of construction. £5 10s.

No. 42. WARNER'S PORTABLE PUMPS on Folding Legs, are of superior construction.

Price 55s.; Rubber Suction, 2s. 6d. per ft.

No. 597A. BRANCH PIPES with Cocks and Roses — ½-in., 3s. 6d.; ⅝-in., 5s.; ¾-in., 6s.

No. 599. TAPER BRANCH PIPES—½-in., 4s. 9d.; ⅝-in., 5s. 3d.; ¾-in., 6s.; 1-in., 7s.

RUBBER HOSE in all sizes.

FOUNTAIN JETS in great variety, from 8s. to 25s.

DESCRIPTIVE PRICE LISTS forwarded on application.

Glass for Garden Purposes.

JAMES PHILLIPS AND CO. beg to submit their prices as follows:—

PROPAGATING GLASSES.

	Each.—s.	d.		Each.—s.	d.
3 inches in diameter ..	0	3½	12 inches in diameter ..	1	9
3½ " " ..	0	4½	13 " " ..	2	0
4 " " ..	0	5½	14 " " ..	2	6
4½ " " ..	0	6½	15 " " ..	3	0
5 " " ..	0	8	16 " " ..	3	6
6 " " ..	0	10	17 " " ..	4	0
7 " " ..	1	0	18 " " ..	5	0
8 " " ..	1	2	19 " " ..	6	0
9 " " ..	1	4	20 " " ..	7	0
10 " " ..	1	6			
11 " "					

HAND GLASSES, WITH OPEN TOPS.

	Each.—s.	d.		Each.—s.	d.
12 inches	6	6	18 inches	9	6
14 "	7	6	20 "	10	6
16 "	8	6	22 "	11	6
			24 "	12	6

Painted and Glazed with 16-oz. Sheet Glass.

BEE GLASSES.

	Each.—s.	d.		Each.—s.	d.
4 inches in diameter ..	0	6	9 inches in diameter ..	1	8
5 " " ..	0	8	10 " ..	2	0
6 " " ..	0	10	11 " ..	2	6
7 " " ..	1	1	12 " ..	3	0
8 " " ..	1	4			

CUCUMBER GLASSES.

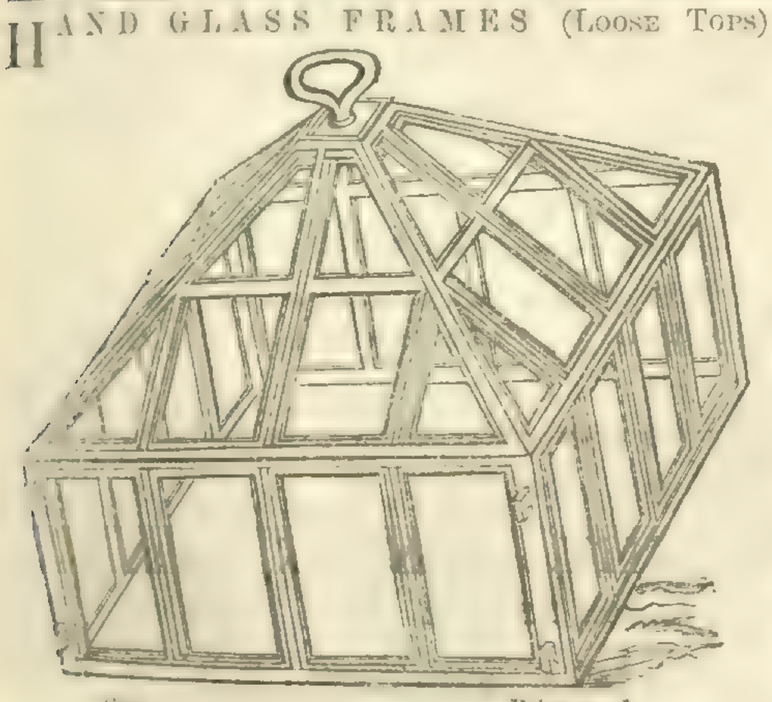
	Each.—s.	d.		Each.—s.	d.
24 inches long	2	0	16 inches long	1	4
22 " "	1	10	14 " "	1	2
20 " "	1	8	12 " "	1	0
18 " "	1	6			

London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.

LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS, PAINTS of various colours ground ready for use.

180, Bishopsgate Street Without, London, E.C.

HAND GLASS FRAMES (LOOSE TOPS).



Size	Price s.	d.	
14 by 14	4	0	Each.
18 by 18	5	9	"
20 by 20	6	6	"
22 by 22	7	6	"
24 by 24	8	6	"

Delivered Free to any Station in England if 12 or more are ordered.

J. JONES & SONS, 6, Bankside, London, S.E.

PRIZE ROLLERS for PARKS.

PRIZE ROLLERS for LAWNS.

PRIZE ROLLERS for CRICKET GROUNDS.

PRIZE ROLLERS for GARDENS.

PRIZE ROLLERS for ROADS.

PRIZE ROLLERS for the FARM.

The Best and Cheapest are the PATENT WATER BALLASTING ROLLERS, made only by the Inventors, AMIES, BARFORD, AND CO., Queen Street Iron Works, Peterborough, who will forward Price Lists and all particulars on application.

Heating by Hot Water.

W. J. HOLLANDS, IRON MERCHANT, 31, Bankside, London, S.E.

HOT WATER PIPES, from Stock, per yard:—2-inch, 1s. 4d.; 3-inch, 2s.; and 4-inch, 2s. 7d. BENDS, from Stock 1s. 7d., 2s. 6d., and 3s. 6d. each. THROTTLE VALVES, 10s. 6d., 13s. 6d., and 15s. each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day. A discount to the Trade.

Heating by Hot Water.

HOT-WATER PIPES, at Reduced Wholesale Prices, with Elbows, Syphons, Tee Pipes, and every other connection; Wrought and Cast-iron Boilers, Saddle, Conical, Cylinder, TUBULAR, and Empire, from 24s. each. Improved Boilers and Iron Stands to set without Brickwork, 56s. each. Valves from 10s. 6d. each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Castings of every description in stock, at

Mr LYNCH WHITE'S Iron Wharf, Upper Ground Street, Blackfriars Bridge, London, S. Price List on application.

Oil Paint no longer necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for coal tar on all out-door work, and is fully cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the Lands at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

"From the Hon. RD. CAVENDISH, *Thornton Hall, Stony Stratford.*

"I can now reply to your letter of the 25th of February, and pronounce your patent Black Varnish to be unequalled."

Sold in casks of about 30 gallons each, at 1s. 6d. per gallon, at the Manufactory, or 1s. 9d. per gallon paid to any Station in the kingdom.

Apply to HILL & SMITH, Brierly Hill Iron Works, near Dudley, and 32, Cannon Street West, E.C., from whom only it can be obtained.

TRADE MARK.

ENTERED AT STATIONERS HALL

WALTER CARSON AND SONS, of Great Winchester Street, respectfully notify that they have removed their principal office to their Warehouse in LA BELLE SAUVAGE YARD, Ludgate Hill, E.C. (three doors East of Railway Viaduct), and have discontinued their West-end Office, 31, St. James's Street.

CARSON'S ANTI-CORROSION PAINT, specially manufactured for out-door work, is the best and cheapest. All colours. Is simple in application, so that any person can use it. Is twice as durable as genuine white lead. See Testimonials sent with patterns and prices post free.

Three cwt. carriage free to any station in England and Wales, and most Seaports of the United Kingdom.

CARSONS' ANTI-CORROSION PAINT used by nearly all the eminent Horticulturists, the Nobility and Gentry, for their Gardens.

CARSONS' PAINT for CONSERVATORIES.

CARSONS' PAINT for GREENHOUSES.

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CARSONS' PAINT for PARK FENCING.

CARSONS' PAINT for FARM BUILDINGS.

CARSONS' PAINT for IRON HURDLING.

CARSONS' ANTI-CORROSION PAINT will keep for years in a dry place. All orders to be sent direct to WALTER CARSON & SONS, La Belle Sauvage Yard, Ludgate Hill, E.C. Three doors East of Railway Viaduct.

Patronised by 70,000 Stock Breeders.

DAY, SON, AND HEWITT, Sole Inventors of the Celebrated STOCK-BREEDER'S MEDICINE CHEST, containing as follows:—

Six Bottles (at 2s. 6d. each) of the UNIVERSAL CHEMICAL EXTRACT, matchless for penetrating, mollifying, and assuaging pain in all wounds, kicks, cuts, strains, &c., in horses and cattle; straining in ewes lambing, and swollen and inflamed udders in cows and ewes; sore feet in cattle, sheep, and dogs.

One Dozen Bottles (value 20s.) of the GASEOUS FLUID or BLACK MIXTURE, unmatched in the known world for curing diarrhœa or scouring calves, sheep, and lambs; for ewes weakly and exhausted after lambing; for horses and cows exhausted and sickly, and for the fret, colic, or gripes in horses and cattle. An instantaneous remedy for blown cattle and sheep.

One Dozen Packets (value 15s.) of the RED DRENCH or INFLAMMATION POWDER, for cleansing after calving or lambing, for straining in ewes, and for removing all feverish symptoms in cows and ewes after calving or lambing; for yellows in oxen, and for colds, chills, and all inflammatory cases in horses, cattle, and pigs.

One Dozen (value 7s. 6d.) of the RED PASTE or CONDITION BALLS (for horses). These Balls give vigorous health, purify the system, and produce a mole-like sleekness of coat.

Price of Chest complete, with Shilling Key to Farriery, 2l. 16s. 6d. securely packed, and carriage free. Sample case, usefully assorted 16s. 6d. Messrs. D., S., & H. respectfully urge their friends to send their orders early, so that no purchaser may be kept waiting.

Either preparation may be had separately in boxes, carriage paid.

Address—DAY, SON, & HEWITT, Animal Medicine Manufactory, 22, Dorset Street, Baker Street, London, W.; or Wantage, Berks.

Testimonials from all parts of the United Kingdom and Ireland sent free on application.

Established over One Quarter of a Century.

To Flockmasters.

LONG'S NON-POISONOUS SHEEP DIPPING COMPOSITION is a thorough cleanser of the skin, effectually destroys all Ticks and other vermin in the animal, thus tending greatly to improve the Flock and prevent fly striking. The Composition, in its use, leaves the fleece as white as snow, free from any stain, and the skin soft and oily. It cost out in tin cans, from one gallon to four gallon size. When mixed, one gallon with 80 gallons of cold water, it makes a bath of a perfect white and soapy appearance: it mixes readily, leaves no sediment on the bottom or scum on the top, and the cost is about one penny per head. When used as pouring Composition for Scab or destruction of Tick, mix one gallon with 40 gallons of water.

LONG'S MAGGOT LOTION.—This lotion will instantly Kill every Maggot, Heal the Wound, and prevent Fly Striking, as well as Destroy all Fleas and other Vermin in Dogs or Cattle; is sold in pint bottles at 22d. per pint. One pint strong enough to mix with 40 pints of water—ready for use.

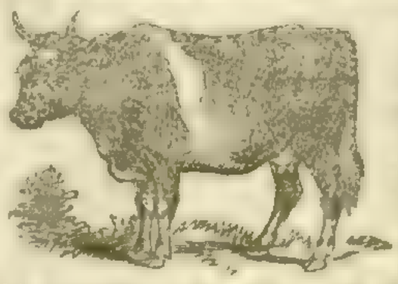
LONG'S GREEN-FLY LOTION.—This lotion is prepared purposely for Horticultural purposes, and when diluted, one pint to 40 pints of water, will Kill every Green-fly and other Insects that infest Roses, Fruit Trees, Shrubs, &c., and prevent Blight in Hops or Vines. Sold in half pint bottles at 20d. each bottle.

LONG'S TURNIP-FLY LOTION.—This Lotion has been J. Long's study for many years, and he can now confidently recommend it as a thorough Preventive and Destroyer of the Turnip pest, at a cost of from 6s. to 10s. per acre.

Wholesale Agents, S. & E. RANSOME & Co., Essex Street, Strand, W.C.

Carhead Pigs for Sale.

MR. WAINMAN has YOUNG BREEDING PIGS of his Large White and Middle-sized Breeds for Sale. Now ready. Apply to Mr. FISHER, Carhead, Cross Hills, Yorkshire.



BRETONNE COWS.—The Nobility, Gentry, and others, are respectfully informed that they can be supplied with the above beautiful and profitable little animals in any number at the shortest notice. The great success and encouragement which has attended the efforts of the importer in introducing the Pure Breed of this useful and hardy Cow into the country, has induced him to extend his connection abroad, by appointing experienced Agents throughout Brittany, and he is now enabled to offer the public a constant supply of the choicest stock that can be obtained, at prices which defy all competition. The low cost, together with the high Milking qualities of this Breed, rendering them of great value to the Cottager, as well as the fancy Stock-keeper and Dairyman, the importer has made arrangements to keep a large stock always on view.

For further particulars, apply to Messrs. ROBERTSON & Co., 38, Crutched Friars, London, E.C.

Crown Lands.—Isle of Man.

TO BE LET on LEASE, or SOLD, in such Lots as may be arranged, a large TRACT of LAND on the Mountains in the Isle of Man, well adapted for SHEEP WALKS.

For Plans and particulars apply to the Hon. J. K. HOWARD, the Commissioner in Charge, Office of Woods, Whitehall Place, London; Mr JAMES GRIFFITH, 4, Whitehall Place; or to Mr. GEORGE MOORE, Belle Vue, Douglas, Isle of Man.

F. W. SEARLE, HORTICULTURAL AGENT and AUCTIONEER, 23, Coleman Street, E.C., begs to intimate to his friends and the Trade generally, that he undertakes the realisation by Auction of entire or Surplus Stocks of BEDDING STUFF, &c. &c., at very moderate charges (including all expenses.)

Sales by Auction.

Important Sale of Hardy Japanese Plants.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, May 25, at half-past 12 o'Clock precisely (without the least reserve), a portion of the COLLECTION of JAPANESE PLANTS introduced by Mr J. G. Veitch. Amongst others may be found:—

Planera acuminata	Juniperus rigida
Prumnopitys elegans	Osmanthus ilicifolius
Pteris serrulata cristata	" " aureus
Retinospora squarrosa	" " variegatus nanus
Abies Alcoquiana	Pinus Koraiensis
" firma	Raphiolepis ovata
" microsperma	Retinospora lycopodioides
" polita	" obtusa
Aucuba japonica vera	" plumosa
" limbata	" obtusa aurea
" longifolia	" pisifera aurea
" maculata	Sciadopitys verticillata
Cryptomeria elegans	Thujopsis dolabrata
Camellia japonica variegata	" " variegata
Euonymus japonicus	" heterophylla
" " aureus variegatus	" Standishii, &c., &c.

All fine healthy well established Plants in pots, lotted to suit private buyers and the Trade.

On view the Morning of Sale, and Catalogues had.

Sale of First-class Bedding and Greenhouse Plants.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at 38 and 39, Gracechurch Street, City, E.C., on SATURDAY, May 20, at 1 o'clock precisely, a choice assortment of Fine SHOW, FANCY, and SCARLET GERANIUMS, CALCEOLARIAS, ERICAS, AZALEA INDICA, EPACRIS, &c.; with a large variety of ORNAMENTAL PLANTS for Bedding, including the usual assortment, DWARF and CLIMBING ROSES in Pots, HYB. RHODODENDRONS, KALMIAS, CARNATIONS, and PICOTEES, &c.; together with a collection of Ornamental CHINESE FLOWER POTS and GARDEN SEATS.

On view the Morning of Sale. Catalogues had at the Rooms as above, and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

Mile End Nursery.

ANNUAL SALE OF 10,000 BEDDING AND OTHER PLANTS.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, Mile End Nursery, Bow Road, Middlesex, E., on WEDNESDAY, May 24, at 12 o'clock, about 10,000 BEDDING and GREENHOUSE PLANTS, consisting of Handsome Show, Scarlet, and Variegated Geraniums, Azaleas indica, Herbaceous and Scarlet Calceolarias, Verbenas, Fuchsias, Heliotropes, Petunias, Lobelias, Alyssum, &c.; fine Intermediate Stocks, Climbing and other Roses, Tropæolums, Eccremocarpus, Maurandyas, Lophospermum, Cobœa, Pompon Chrysanthemums, &c.; with Rustic Seats, Baskets, Tables, &c., 50 dozen Painted Dahlia Stakes, &c.

May be viewed prior to the Sale. Catalogues had on the Premises, and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

Herne Hill.

SALE OF ABOUT 5000 GREENHOUSE AND BEDDING PLANTS.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr Charles Pittman to submit for unreserved SALE by AUCTION, on THURSDAY, May 25, at 12 o'Clock, on the Premises, No. 1, Herne Place, within three minutes walk of the Herne Hill Railway Station on the London, Chatham, and Dover Line, about 5000 choice GREENHOUSE and BEDDING PLANTS, including the usual miscellaneous assortment.

May be viewed four days prior to the Sale. Catalogues had on the Premises, and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

Brixton.

CLEARANCE SALE OF BEDDING AND GREENHOUSE PLANTS, GREENHOUSES, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, Vassall Road, Brixton, S., on SATURDAY, May 27, at 1 o'clock, without reserve, by order of Mr. D. Townsend, the land being taken for Building purposes, the whole of the GREENHOUSE and BEDDING PLANTS, including the usual Assortment; also 2 Greenhouses, 4 Pits, and sundry Effects.

May be viewed three days prior to the Sale. Catalogues had on the Premises, and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Tottenham.—Sale of Roses, Bedding and Greenhouse Plants.

MR. A. RICHARDS will SELL by AUCTION, on TUESDAY, May 16, on the Premises, Hale Farm Nurseries, Tottenham, N., 1000 Choice GREENHOUSE and BEDDING PLANTS, including the usual assortment.

May be viewed Day of Sale, and Catalogues had on the Premises and of the Auctioneer, Tottenham, N.

FOR SALE, THE MAGNIFICENT COLLECTION OF

Azaleas, Camellias, Orchids, Stove, Greenhouse, and Bedding Plants,

The Property of the Rev. FREDERIC FITZPATRICK.

MR. GEORGE GRAHAM has the honour to announce that he has been favoured with instructions from the Rev. Frederic Fitzpatrick to SELL BY AUCTION, at Cloon Rectory, on TUESDAY, May 16, at 2 o'Clock, and following days, the greater portion of his far-famed and valuable COLLECTION of PLANTS, comprising the entire of his superb Collection of Stove Plants, many of which are handsome specimens, suited for exhibition; a large quantity of Greenhouse Plants; a small but choice collection of ORCHIDS; AZALEAS, in the newest and best varieties; CAMELLIAS, in 100 do. The above Azaleas and Camellias consist of superb exhibition and specimen plants in the highest state of training and cultivation, together forming a collection unequalled in Ireland. PELARGONIUMS, in 200 sorts; BEDDING PLANTS in endless variety. A Lawn Mowing Machine by Green, in perfect order.

Sleeping Accommodation and Board will be supplied to all Gardeners attending the sale.

Every assistance will be given in packing and transfer. Railway communication to all parts of Ireland. Cars will attend the Trains at Dromod Station, on the Midland Great Western Line.

For Catalogues and further particulars apply to Mr. BERNARD M'CABE, The Gardens, Cloon Rectory, Mohill.

Surplus Stock of Bedding Plants of the usual description, and sundries.

MR. F. W. SEARLE will SELL by AUCTION, at the rear of Norfolk Lodge, Norfolk Road, Shacklewell, N.E., on TUESDAY, May 23, at 2 o'Clock, the above

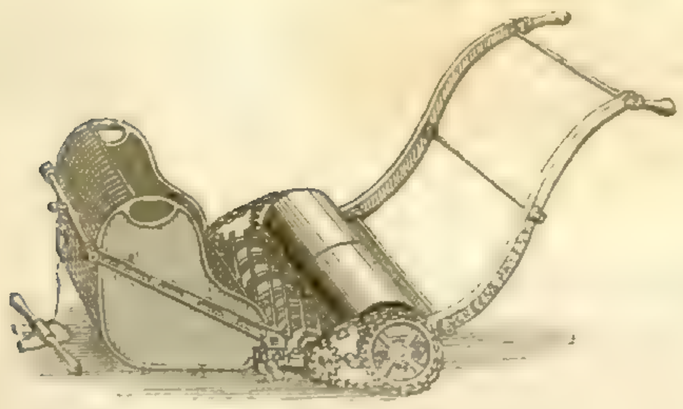
On view the Morning of Sale. Catalogues of F. W. SEARLE, Auctioneer to the Trade, 23, Coleman Street, E.C.

25,000 Bedding Plants.

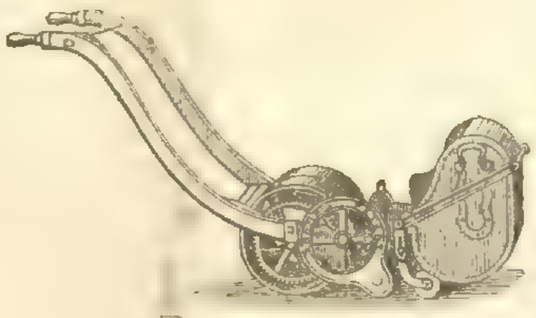
HENRY MANLEY begs to announce his instructions to SELL by AUCTION on WEDNESDAY, May 24, at The Gardens, Combermere Abbey, Cheshire, the magnificent COLLECTION of PLANTS, consisting of Humea elegans, Lantanas, Geraniums, Verbenas, Calceolarias, &c. In lots to suit purchasers. Descriptive Catalogues obtained one week prior to the Sale by inclosing one stamp to the Auctioneer, Aston, Nantwich.

J. B. BROWN & CO., 18, CANNON STREET, CITY, E.C.

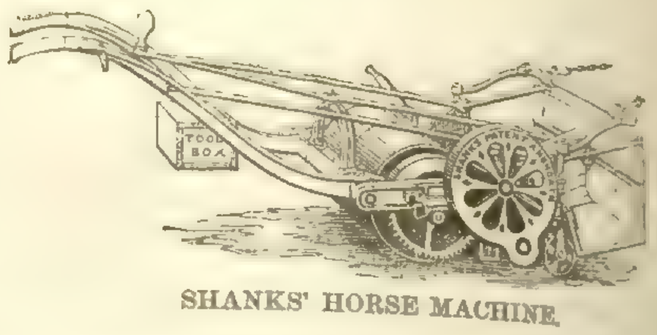
LAWN MOWING MACHINES FOR 1865.



GREEN'S MACHINE.



SHANKS' MACHINE.



SHANKS' HORSE MACHINE.

*** Owing to the early pressing demand for LAWN MOWERS, even before the season commences for the New Mowing Machines, J. B. B. & Co. would esteem it a great favour could orders be forwarded to them with as little delay as possible, say to be executed if so desired at any time named.

GREEN'S HAND MACHINE.

Size.	Easily Worked.	Price.	Size.	Easily Worked.	Price.
10-inch	*By a Boy* ..	£3 10 0	18-inch ..	*By a Man* ..	£7 10 0
12-inch		4 10 0	20-inch	*By Two Men*	8 0 0
14-inch		5 10 0	22-inch		8 10 0
16-inch ..	*By a Man* ..	6 10 0	24-inch		9 0 0

SHANKS' HAND MACHINES.

(Silent Movement, 4*s.* to 7*s.* 6*d.* extra. Tool Boxes, 5*s.* extra.)

Size.	Easily Worked.	Price.	Size.	Easily Worked.	Price.
10-inch	*By a Lady* ..	£3 10 0	19-inch ..	*Man and Boy* ..	£7 12 6
12-inch		4 10 0	22-inch	*By Two Men* ..	8 7 6
14-inch ..	*By a Boy*	5 10 0	24-inch		8 17 6
16-inch ..	*By a Man*	6 12 6			

SHANKS' HORSE MACHINE.

Including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom, and Directions for use.

Size.	Price.	Extras. Patent Delivery.	Extras. Silent Movement.	Boots for Horses.	Easily Worked.
48-inch	£28 0	40*s.*	20*s.*	24*s.*	*By a Horse.*
42-inch	26 0	40*s.*	20*s.*	24*s.*	
36-inch	22 0	30*s.*	20*s.*	24*s.*	
30-inch	19 0	30*s.*	20*s.*	24*s.*	*Horse or strong Pony.*

SHANKS' PONY and DONKEY MACHINE.

Size.	Price.	Extras. Patent Delivery.	Extras. Silent Movement.	Boots for
25-inch	£12 10	25*s.*	12*s.* 6*d.*	*Donkey, 16s.*
28-inch	14 10	30*s.*	12*s.* 6*d.*	*Pony, 21s.*
30-inch	15 15	30*s.*	12*s.* 6*d.*	

A specimen of each of the best Machines which have been brought out for the season will always be on view at their Offices, 18, Cannon Street, and their New Warehouse, 148, Upper Thames Street, quite close to the Offices, for the inspection of those who may wish to select for themselves in preference to leaving the selection to J. B. B. & Co. A stock of Machines will also be kept on hand, from which orders can be at once executed.

*** *Every Machine sent out is Warranted to give ample satisfaction, and, if not approved of, may be exchanged for any other size of Machine, or for the Machine of any other Maker, or may be at once returned unconditionally.*

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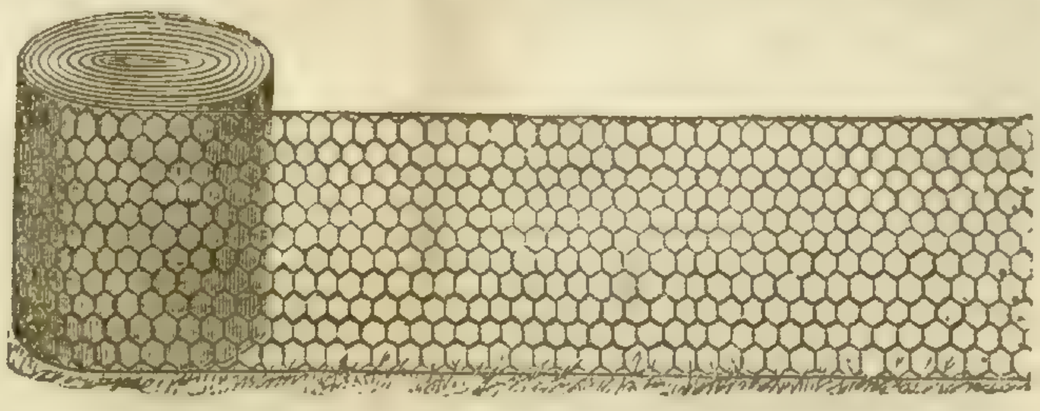
WAREHOUSE (where Machines are kept in Stock), 148, UPPER THAMES STREET, E.C.

OPPOSITE the CITY of LONDON BREWERY, and close to the LONDON BRIDGE STEAM BOAT PIERS.

NEW IMPROVED PREMIUM WIRE NETTING.

GREAT IMPROVEMENT,



WITH REDUCED PRICE.

PRICES PER LINEAL YARD, 24 INCHES HIGH.

Size of Mesh.	Mostly used for	Light. Japanned.	Light. Galvanised.	Medium. Japanned.	Medium. Galvanised.	Strong. Japanned.	Strong. Galvanised.	Extra Strong. Japanned.	Extra Strong. Galvanised.
2¼ inch	Hares, Dogs, or Poultry	3*d.*	4*d.*	3¾*d.*	5*d.*	4½*d.*	6*d.*	5½*d.*	7*d.*
2 inch	Game or Poultry Netting	3½*d.*	4½*d.*	4*d.*	5*d.*	5*d.*	6½*d.*	6½*d.*	8*d.*
1⅝ inch	Small Rabbits, Hares, &c.	4*d.*	4¾*d.*	4¾*d.*	6*d.*	5½*d.*	7*d.*	7*d.*	9*d.*
1½ inch	Smallest Rabbits	5*d.*	6*d.*	5¾*d.*	7*d.*	7*d.*	9*d.*	9*d.*	11*d.*
1 inch	Pheasantries, &c.	9*d.*	11*d.*	10½*d.*	1*s.* 1½*d.*	1*s.* 3*d.*	1*s.* 6*d.*	1*s.* 9*d.*	2*s.*
¾ inch	Aviaries, &c.	1*s.*	1*s.* 3*d.*	1*s.* 3*d.*	1*s.* 6*d.*	1*s.* 6*d.*	1*s.* 9*d.*	..	..

Quantities of 100 yards or upwards delivered free at nearly all the principal Railway Stations and Shipping Ports in England; and 200 yards or upwards delivered free to most parts of Scotland and Ireland.

*** *Every description of Netting warranted to give satisfaction, and if not approved will be exchanged, or may be returned unconditionally.*

IRON HURDLES, CONTINUOUS BAR FENCING, IRON and WIRE FENCING, FENCING WIRE, FIELD and ENTRANCE GATES, LAWN MOWING MACHINES, GARDEN ENGINES, GARDEN ROLLERS, GARDEN SEATS and CHAIRS, CAST IRON VASES, and EVERY DESCRIPTION of HORTICULTURAL and AGRICULTURAL MACHINES, TOOLS, and APPLIANCES. Lists free on application. Every article guaranteed to be satisfactory.

J. B. BROWN AND CO., OFFICES, 18, CANNON STREET, CITY, LONDON, E.C.

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WAREHOUSE (where Netting is kept in Stock), 148, UPPER THAMES STREET, E.C.

OPPOSITE the CITY of LONDON BREWERY, and close to the LONDON BRIDGE STEAM BOAT PIERS.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by WILLIAM BRADBURY, of 13, Upper Woburn Place, in the Parish of St. Pancras, in the Co. of Middlesex, and FREDERICK MULLETT EVANS, of No. 11, Bouverie Street, in the Precinct of Whitefriars, City of London, Printers, at their Office, Lombard St., Precinct of Whitefriars, City of London, and Published by them at the Office, No. 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said Co.—SATURDAY, MAY 13, 1865.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 20.—1865.] SATURDAY, MAY 20. {Price Fivepence. Stamped Edition, 6*d*.

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ROYAL HORTICULTURAL SOCIETY.—OPENING of the GRAND RHODODENDRON SHOW, under the Great Tent THIS DAY. Band of Royal Horse Guards, 3.30 to 6. Admission, 2*s*. 6*d*. The Exhibition is made by Messrs. Waterer & Godfrey, Knap Hill, Woking.

ROYAL BOTANIC SOCIETY, REGENT'S PARK.—FIRST EXHIBITION of PLANTS and FLOWERS will take place on WEDNESDAY NEXT, May 24. Tickets to be obtained at the Gardens, and of the Society's Clerk; Austin's Ticket Office, St. James's Hall, on Vouchers from Fellows of the Society. Price 5*s*.; or on the day of Exhibition, 7*s*. 6*d*. each. Gates open at 2 o'clock.

GREAT FLOWER SHOW and FASHIONABLE PROMENADE of the Season, THIS DAY (Saturday). Open at Ten. Show open from about Twelve until Six.

CRYSTAL PALACE.—The GUINEA TICKETS Admit Free to the GREAT FLOWER SHOW, THIS DAY, to the OPERA CONCERTS, and to the other Great Fêtes announced in the Programme.

Note.—It will facilitate the purchase of Season Tickets at the Entrances to the Palace, if Visitors intending to purchase them will kindly come prepared with card, or written name and address.

BIRMINGHAM ROSE SHOW.—The NEXT EXHIBITION is fixed for THURSDAY and FRIDAY, July 6 and 7. For Prize List, &c., apply to
Alexander Forrest, Secretary, Queen Chambers, Birmingham.

J. IVERY and SONS' fine Collection of AZALEA INDICA is NOW in BLOOM, and will continue until the middle of June. J. I. & Sons' Collection of Hardy Ferns is also well worthy an inspection. Dorking, May 20.

New Double Pyrethrums.

JOHN SALTER begs to announce that his extensive COLLECTION of these attractive Flowers is NOW in BLOOM. The Gardens are open every day except Sunday.
Versailles Nursery, William Street, Hammersmith, W. (near Kensington Railway Station).

New Chrysanthemums, Pyrethrums, &c.

JOHN SALTER is now sending out the NEW CHRYSANTHEMUMS of 1865. His DESCRIPTIVE CATALOGUE of Chrysanthemums, Double Pyrethrums, Scarlet Geraniums, Hardy Variegated Plants, &c., will be sent on receipt of Two Stamps.
Versailles Nursery, William Street, Hammersmith Turnpike, W.

Chrysanthemums.

ADAM FORSYTH begs to acquaint his friends and the public that he is now sending out strong and well-rooted PLANTS from his Large and Choice Collection, at 5*s*. and 6*s*. per dozen. First Prizes Stoke Newington and Agricultural Hall, 1863 and 1864. CATALOGUES for one stamp.
Brunswick and Shacklewell Nurseries, Stoke Newington, London, N.

BEDDING-OUT PLANTS in great variety. WINDOW JARDINETS, Empty or Furnished, in variety.
The "Gardeners' and Amateurs' Friend," see page 454.
Barr & Sugden, 12, King Street, Covent Garden, W.C.

Bedding Plants.

JAMES DICKSON and SONS offer all the leading varieties in strong vigorous Plants to give immediate effect. Of MRS. POLLOCK GERANIUM they have several thousands, with others in like proportion. A DESCRIPTIVE PRICED CATALOGUE on application
The "Newton" Nurseries, Chester.

Bedding Plants, Bedding Plants.

JAMES HOLDER can supply strong Plants of Scarlet GERANIUMS, VERBENAS, CALCEOLARIAS, HELIOTROPES, DAHLIAS, LOBELIAS, KONIGAS, CUPHEAS, BLUE SALVIAS, and SENECIOS, at £1 per 100; or, 50 plants for 10*s*. 6*d*., hamper included. A remittance to accompany each order.
Crown Nursery, Reading, Berks.

HOLLAND and JONES' CATALOGUE of BEDDING, GREENHOUSE, and STOVE PLANTS is now ready, free on application.
Bradshaw Gardens, Chadderton, near Manchester.

DAHLIAS and other BEDDING PLANTS.—CATALOGUES of the above, including all the new and best varieties, post free on application to
James Fairhead & Son, 7, Borough Market, London, S.E.

Dahlias.

T. and A. ANSELL beg to announce that they have a large stock of the above to offer, including all the new and best varieties. CATALOGUES post free on application.
Address, Camden Nursery, Grafton Road, Kentish Town, N.W.

New Dahlias.

HENRY LEGGE begs to state that he has purchased the stock of Mr. Hopkins's two splendid DAHLIAS named BRUNETTE and BLACK HERO, which he is now sending out with his own fine varieties, and he is sure they will give satisfaction to the most limited grower. A DESCRIPTIVE CATALOGUE can be had on application.
Edmonton, N.

Notice of Removal.

ALFRED LEGERTON, Seed Grower and Merchant, begs to inform the Trade and public generally, he has REMOVED from Shalford, near Braintree, Essex, to spacious premises, situated at No. 5, ALDGATE, LONDON, E.C., where he intends carrying on the same business as heretofore, and where all communications are requested to be addressed.

PAUL and SON'S NEW HYBRID PERPETUAL ROSE, PRINCESS MARY of CAMBRIDGE.—Colour beautiful rose, shaded at the edges with white, fine imbricated form, bright green foliage and vigorous habit. The Advertisers guarantee it to be a most beautiful and distinct flower.
Strong plants, 7*s*. 6*d*. each, 1st July. Early orders are solicited.
The Old Cheshunt Nurseries, Cheshunt, N.

Shrubs, Roses, Fruit Trees, &c.

WM. CUTBUSH and SON'S GENERAL NURSERY STOCK is the best near London.
GLADIOLI, fine, from 4*s*., 6*s*., 9*s*., & 12*s*. per dozen.
CATALOGUES on application.
Highgate Nurseries, London, N.

Fox and Game Covert.

MAULE and SONS can supply 2-years old ENGLISH FURZE and BROOM at 10*s*. per 1000.
The Nurseries, Bristol.

CARTER'S GARDENER'S VADE-MECUM PLANT SUPPLEMENT is now ready.

New Plants for 1865.

JAMES CARTER and CO.'S CATALOGUE of NEW and CHOICE BEDDING, GREENHOUSE, and STOVE PLANTS, is now ready, and will be forwarded gratis and post free on application.
James Carter & Co., 237 & 238, High Holborn, London, W.C.

WILLIAM HOOPER has much pleasure in announcing that his SPRING CATALOGUE is now ready, and may be had post free on application.
St. John's Hill Nursery, near Clapham Junction Station, S.W.

J. IVERY and SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

TOM THUMB SCARLET GERANIUMS.—Good plants, 2*s*. 6*d*. to 3*s*. 6*d*. per dozen.
Mr. Child's, Blenheim Nursery, Rye Lane, Peckham, S.

VARIEGATED-LEAVED GERANIUMS.—Extra strong PLANTS for Bedding, of the following varieties, viz., Mrs. Pollock, Golden Chain, Fairy Nymph, Flower of the Day, Bijou, and Snowflake. Price on application.
Lucombe, Pince, & Co., Exeter Nursery, Exeter.

BEDDING GERANIUMS.—Mrs. Pollock, Golden Fleece, White Tom Thumb, Madame Vaucher, Christine, François Desbois, Perfection, and other varieties.
See William Hooper's PRICED DESCRIPTIVE CATALOGUE, St. John's Hill Nursery, near Clapham Junction Station, S.W.

Hollyhocks.

W. WITTY and SON have to offer the above in fine strong plants, good sorts and true to name, at from 6*s*. to 9*s*. per doz. The Nurseries, Cottingham, near Hull.

The Choicest Strain in Cultivation.

DOBSON'S Unequalled CALCEOLARIA, per packet, 1*s*. 6*d*., 2*s*. 6*d*., 3*s*. 6*d*., and 5*s*.
DOBSON'S Prize CINERARIA, 1*s*., 2*s*. 6*d*., and 5*s*.
DOBSON'S Unsurpassed PRIMULA, 1*s*., 2*s*. 6*d*. and 5*s*.
DOBSON'S Superb 8 BALSAMS, 2*s*.
J. Dobson & Sons, Woodlands Nursery, Isleworth, W.

Decoration of the Summer Garden.

EDWIN COOLING'S NEW LIST of PLANTS for SUMMER GARDENING, with height, colour, price, and full description of the most desirable kinds, is now ready, and will be forwarded gratis and post free on application.
Mile Ash Nurseries, Derby.

VERBENAS and LOBELIAS.—Purple King, Foxhunter, Lord Raglan, Mrs. Woodroffe, Brillant de Vaise, &c., in Pots at 16*s*. per 100; out of pots, 14*s*. Lobelia speciosa true, 12*s*. per 100 for cash. Remarkably fine Plants can be had of
George Edwards, Clarence Nurseries, Haxby Road, York.

12 LOBELIA PAXTONII, 12 do. SPECIOSA, 24 VERBENAS (sorts), 24 GERANIUMS (sorts), GNAPHALIUM LANATUM (6), 12 GAZANIA SPLENDENS, 12 PELARGONIUMS (choicest kinds to name). Hamper and package free for 26*s*.; half the quantities 14*s*. cash.
Robt. H. Painter, Nurseryman, Taunton.

First Quality.

CALCEOLARIA, PRIMULA, CINERARIA, CARNATION, PICOTEE, PINK, AURICULA, VERBENA, MIMULUS, ZONALE GERANIUM and PELARGONIUM.
Each 2*s*. 6*d*. per packet.
Barr & Sugden, 12, King Street, Covent Garden, W.C.

CALCEOLARIA AMBASSADOR (Sang's).—Strong plants, in single pots, of this magnificent Bedding-out Calceolaria are now ready, price 12*s*. per dozen. The Trade supplied on the usual terms.
Edward Sang & Sons, Nurserymen and Seed Merchants, Kirkcaldy.

NEW JAPANESE PLANTS.—A DESCRIPTIVE PRICED LIST of upwards of 100 varieties of recent introduction. Gratis and post free.
Edwin Cooling, Mile Ash Nurseries, Derby.

Japanese Clematis.

MR. FORTUNE'S magnificent CLEMATIS STANDISHII and FORTUNII, doubtless two of the most important introductions of late years, received the unusual honour of Special Certificates at the Meetings of the Royal Horticultural Society, April 29 and May 2 last.
Strong Flowering Plants may be obtained of Charles Noble, Bagshot.

Pines.

B. S. WILLIAMS begs to announce that he has a fine Stock of the above, including all the best kinds. Prices on application.
Paradise and Victoria Nurseries, Holloway, London, N.

NEW GRAPE, "ROYAL VINEYARD," the best late White Grape extant. Strong planting Canes, 21*s*. each; strong fruiting, 42*s*. each.
B. S. Williams, Paradise and Victoria Nurseries, Holloway, London.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
Richard Smith, Nurseryman and Seed Merchant, Worcester.

TO BE SOLD, Two very handsome Specimen Plants of LAPAGERIA ROSEA, in 18-inch pots, trained on wire balloons, measuring 3 feet through, in fine health; also Four large PEACH TREES in Tubs, and Two MOOR PARK APRICOTS.
Apply B. Crane, 4, Lily Terrace, Warwick Road, Kensington, W.

NATURAL GRASSES: their Names and Derivations; Quality, Produce, Elevation, Situation, Soil, Use, Peculiarity, Season, Growth, Increase, Time of Flowering, Price, &c. Free for One Postage Stamp.
Richard Smith, Seed Merchant, Worcester.

Sutton's Grass Seeds for all Soils.

SUTTON and SONS have still on hand some of each of the best kinds of GRASS and CLOVER SEEDS for every description of soil, and can supply them at the same prices as heretofore.
Royal Berkshire Seed Establishment, Reading.

Laying down Land to Pasture,
And Improvement of Grass Lands.

MR. MARTIN SUTTON'S ESSAY on the above subject, revised and enlarged from the Journal of the Royal Agricultural Society, may be had post free for 6 stamps on application to Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

Genuine Garden and Agricultural Seeds.

JAMES CARTER and CO.,
Seed Farmers, Merchants, and Nurserymen,
237 and 238, High Holborn, London, W.C.

RAYNBIRD, CALDECOTT, and BAWTREE,
Seed Farmers and Merchants,
89, Seed Market, Mark Lane; and Basingstoke.
Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

H. and F. SHARPE,
Seed Growers and Merchants, Wisbech.
SPECIAL PRICED LIST of NEW SEEDS on application.

NEW and GENUINE AGRICULTURAL, GARDEN, and FLOWER SEEDS.
Special prices and advantageous offers on application to
James Fairhead & Son,
Seed Growers and Merchants, 7, Borough Market, London, S.E.

CRYSTAL PALACE, ROYAL BOTANIC, and ROYAL HORTICULTURAL FLOWER SHOWS.
At these PLANT CASES will be exhibited in great variety, furnished with the Choicest Exotic Fern and Foliage Plants, arranged by Barr & Sugden, of 12, King Street, Covent Garden, W.C.

INTERMEDIATE STOCK, COVENT GARDEN and VICTORIA VARIETIES.
Scarlet, Purple, White, or Mixed COVENT GARDEN INTERMEDIATE STOCK, each, 1*s*. per packet.
Scarlet, White, or Mixed VICTORIA INTERMEDIATE STOCK, very floriferous, and more robust than the Covent Garden varieties, each 2*s*. 6*d*. per packet.
Barr & Sugden, 12, King Street, Covent Garden, W.C.

PELARGONIUM MRS. POLLOCK.
Good established plants for Bedding, 30*s*. per dozen.
Saltmarsh & Son, Moulsham Nurseries, Chelmsford.

NEW ZONALE PELARGONIUMS.
Two of the Gems of the Season.
Saltmarsh's "LITTLE TREASURE." (First-class Certificate.)
Saltmarsh's "LUNA."
For Description and Price see previous Advertisements. Liberal Discount to the Trade.
Saltmarsh & Son, Moulsham Nurseries, Chelmsford.

Russell's Pyramid Primulas.

GEO. CLARKE is now prepared to send out in packets, price 2*s*. 6*d*. each, this, the finest breed of PRIMULAS in cultivation. The Seed now for sale has been saved from selected plants, so that it is believed the produce will be even superior to that of former years.
Printed instructions for raising and growing the plants sent with each packet. Stamps received in payment.
Nursery, Streatham Place, Brixton Hill, London, S.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
*** Part II. (Exotic Ferns) will be issued as early as possible.
Foot's Cray Nursery, S.E.

GIANT ASPARAGUS ROOTS, 2*s*. 6*d*. per 100.—This delicious vegetable does not require half the expense usually incurred in planting it. For instructions, see Richard Smith's SEED LIST for 1865. Strong Transplanted SEA KALE, 2*s*. per doz.
Richard Smith, Nurseryman, Worcester.

Sutton's Ringleader Pea.

SUTTON and SONS have the pleasure of announcing that their new EARLY PEA RINGLEADER has proved itself this season to be forwarder than any other Pea in cultivation.
To prevent disappointment Sutton & Sons are now receiving Orders for the New Supply of Seed, price 2*s*. 6*d*. per quart.
Sutton & Sons, Royal Berks Seed Establishment, Reading.

Carpenter's Express Pea—the Earliest Grown.

EDWARD CARPENTER would be greatly obliged by being informed by those who are growing the above-named PEA this season the Dates of Blooming and Gathering.
Brighton and Sussex Seed Warehouse, 96, St. James's Street, Brighton.

NEW ENGLISH SCARLET RUNNERS.—A few Bushels to be Sold Cheap for Cash.
Apply to Thos. Sherman, Seedsman, Newington Butts, S.

New English Scarlet Runners and Dwarf Kidney Beans.

JAMES FAIRHEAD and SON, 7, Borough Market, London, S.E., offer a Surplus Stock of the above, of fine samples. Crop 1864. Terms on application.

EARLY CABBAGE PLANTS.—A few Thousands of EARLY BATTERSEA and NONPAREIL CABBAGE PLANTS to dispose of, at 5*s*. per 1000, on application to
W. Virgo & Son, Wonersh Nursery, near Guildford.

The Best Early Turnip for Field Culture is the Pomeranian White Globe.

SUTTON and SONS can supply fine New Seed of the POMERANIAN WHITE GLOBE TURNIP at 10*d*. per lb., or cheaper by the bushel. Carriage free except small parcels.
PRICED LISTS of TURNIP SEEDS post free.
Royal Berkshire Seed Establishment, Reading.

MANGEL WURZEL.—Pure Stock (extra selected), ELVETHAM LONG RED; ditto ditto YELLOW GLOBE. Each 9*d*. per lb.
Hooper & Co., Seed Merchants, Covent Garden Market, London.

E. G. HENDERSON AND SON'S SPRING CATALOGUE of PLANTS contains Notes, among other Plants, of the following:—

50 ORNAMENTAL-LEAVED PLANTS for Summer-garden Decoration.

ARUNDO DONAX, finely variegated; GYNERIUM ARGENTEUM fol. VARIEGATUM; GYNERIUM ARGENTEUM ELEGANS.

ORNAMENTAL-COLOURED FOLIAGE PLANTS for BEDDING.

IRESINE HERBSTII, rich red leaves and stems. 6s. per dozen.
SALVIA OFFICINALIS GRANDIFLORA AUREA, yellow margined.
COLEUS MARMORATUS, brighter than C. Verschaffelti.
CENTAUREA RAGUSINA (syn. C. candidissima), 9d. and 1s. each.
CENTAUREA RAGUSINA COMPACTA. 3s. 6d. each (fine variety).
" GYMNOCARPA. C. ARGENTEA.

FUCHSIAS.—The following are Mr. Banks's special varieties for the present season:—

LIGHT HEART	ENOCH ARDEN	WAR EAGLE
The VILLAGE PET	LADY of the SEA	RODERICK DHU

CONSOLATION | ROSE of DENMARK (15s.)
Seven varieties, 10s. 6d. each.

CENTAUREA RAGUSINA COMPACTA, 3s. 6d. each.—This very effective and beautiful plant is an improved form of the well-known C. ragusina (syn. C. candidissima) in being a variety of much neater growth, and, as its name implies, of a more compact dwarf habit. It differs from its prototype in having shorter and comparatively broader leaves, not so coarsely and deeply lobed at the margin, the terminal lobe also being rounder. One most desirable and prominent distinction from the original species consists also in its purer white leaf surfaces, the under as well as the upper one, by which it yields a very beautiful silvery feature and contrast with opposite dark green and chocolate-coloured leaf-tints. It is also free from the wide spreading outline of the leaves observed in the mature summer growth of C. ragusina. This desirable plant by its greater adaptation for ribbon rows and marginal effect in border culture, apart from its snowy whiteness in warm seasons, will eventually supersede the older kind hitherto used in flower gardens.

NEW DWARF BELTING VERBENAS (Type "Velvet Cushion").
The following varieties are comprised in the new section of Verbenas, hybridised with V. venosa, and distinguished by its sub-perennial habit, and neat dwarf style of growth, of which the variety sent out last season as "Velvet Cushion" is the type, and which was universally admired for its attractive features and adaptation for front belts, ribbon rows, &c. The improved constitution wrought into these varieties by alliance with a hardier species, will ultimately produce the desirable results of diminishing the too prevalent scandent habit, and exuberant leaf-growth, by the production of a denser growth peculiar to many perennial species. Those now offered will be found valuable for garden decoration, where a more compact habit is required for extensive front margins, belts, or curved outlines, &c.

ARIEL | CORDELIA | HELENA | JULIET.

NEW DWARF TROPÆOLUMS.

The following fine varieties are Seedlings of 1863, and have thus been tested by the growth of two successive years. Many of the varieties hitherto have been but the mere seminal productions from well-known kinds, and prematurely sold as distinct and permanent in habit. These have the strain of T. elegans in constitution, and of T. Tom Thumb in growth, retaining their remarkably dwarf, compact, and vigorous habit throughout the summer months, without deviation of growth or bloom, colour, or effect. The leaves never rise above an average and uniform height, and the bloom being alike in profusion and continuance throughout the whole season.

T. COMPACTUM COCCINEUM.—Habit of growth uniform with the foregoing, equally vigorous and compact; stems tinted red, leaves small dark green, obscurely pilose or hairy on the under surface; flowers glowing scarlet self colour, good form, style of T. Eclipse, but larger, expanding uniformly and in profusion, forming very beautiful patches of 12 or more inches across, and producing a brilliant effect by a rich contrast to darker crimson varieties, or colours to match in extensive ribbon rows, belts or margins, beds or borders in select flower gardens, or extensive terrace groups. For decorative purposes it exceeds all other varieties of a similar habit, in its remarkably close and miniature habit of growth, filling up to the centre, and yielding a long continued succession of bloom. Admirably adapted for reserve and succession beds of scarlet, throughout the summer and early autumn months. Each 1s.; if 12 plants, 9s.; if 100 plants, 50s.

T. COMPACTUM LUTEUM.—Forms a densely low and almost level circular style of growth, from 6 to 8 inches in height, short jointed and vigorous, leaves comparatively small, light green, stems slightly hairy, flowers brilliant orange-yellow, with picturesque crimson spots in centre, rising in profusion just above the leaves. It is finely adapted for decorative effect in extensive ribbon rows, and medium sized beds, groups, &c. Each, 1s.; if 12 plants, 9s.; if 100 plants, 50s.

NEW LOBELIAS.

PRINCE ALBERT.—A beautiful dwarf bedding variety, in the section of L. speciosa Paxtoni, having a better constitutional habit for continuous growth and bloom; its more robust and compact growth, with rich glossy green foliage, is literally covered by its profusion of large bright azure-blue flowers with a conspicuous large white centre, throughout the summer and early autumn. For decorative effect in medium beds or groups, broad margins, and extensive front ribbon lines, this is the best variety in its section yet offered. Each, 1s.; 12 plants, 9s.; 100 plants, 50s.

PRINCESS ALEXANDRA.—This is equal to the foregoing in growth, beauty, and effect, forming a densely compact habit, yielding a fine effect in contrast with the blue ones, or any other of uniform growth and opposite colour. As a white-flowered variety it is admirably adapted for extensive margins, ribbon lines, and groups. For front effect to edgings of dwarf Heath, or evergreen shrubs of similar dwarf style, it is a beautiful and appropriate plant; and the best white broad-lobed variety of L. speciosa. Each, 1s.; 12 plants, 9s.; 100 plants, 60s.

VERBENA LADY BINNING.—A first-class bedding variety, and the leading flower for extensive decoration of the present year. Colour a very brilliant crimson-tinted scarlet, with a conspicuous creamy-white centre; forming a fine average-sized, full-centred, and well-expanded truss. Habit of growth compact, with a profusion of bloom. Proved of the highest merit by receiving a First-class Certificate from the Floral Committee of the Royal Horticultural Society, and forming the highest feature of attraction in Verbenas at the Oulton Park Gardens during the past summer.

The Wellington Nursery, St. John's Wood, London, N.W.

PELARGONIUM MRS. POLLOCK.—Small Plants in 60-pots at 2s. 6d. each; Larger Plants well established in 48-pots, 4s. and 5s. each.

VARIEGATED-LEAVED PELARGONIUMS.

	Per dozen.—s.	d.		Per dozen.—s.	d.
Cloth of Gold	3	0	Variegated Nosegay	6	0
Golden Fleece	2	6	Countess of Warwick	4	0
Golden Chain	2	6	Alba marginata	6	0
Bijou	3	0	Alma	3	0
Shottesham Pet	3	6	Eva	3	6
Jane	3	6	Bridal Wreath	4	0
Flower of the Spring	3	6	Daybreak	4	0
Julia	3	6	Scintillatum	6	0
Beaton's Silver Nosegay	6	0	St. Clair	3	6

ZONATE and PLAIN-LEAVED VARIETIES.

	Per dozen.—s.	d.		Per dozen.—s.	d.
Madame Vaucher	6	0	Punch	3	0
Christina	3	0	Countess	3	0
Rose Queen	3	6	Aurora	6	0
Blackheath Beauty	3	6	Lady Middleton	3	0
Paul Labbé	3s. 6d.				

All the above are strong autumn-struck Plants, well hardened, ready for bedding out.

Alfred Fryer, Nurseryman, Chatteris, Cambridgeshire.

New Dahlia Ambassador.

GEO. WHEELER, Nurseryman, Warminster, is prepared to send out strong healthy plants of the above-named fine Dahlia.

Colour—Puce, shaded with claret; exquisite shape, finely cupped petal, high full centre, and one of the most constant, being always good.

Was awarded Five Certificates during the past season.—Price 10s. 6d.

☞ A liberal Discount to the Trade. Early orders requested.

NEW FORAGE PLANT: BROMUS UNIOLOIDES var. SCHRADERI; SCHRADER'S BROME GRASS, sometimes called NEW ZEALAND GRASS and PRAIRIE GRASS. This Grass was introduced into Great Britain many years ago by Mr. Charles Lawson, sen., of Edinburgh, and was shortly after described at the Great Exhibition of 1851. It is now attracting considerable attention, from the enormous cuttings of great food it has lately produced on the Continent and elsewhere. It is undoubtedly a most productive plant, especially under irrigation or liquid manure.

Small quantities of Seed may be obtained for experiment from Peter Lawson & Son, The Queen's Seedsmen, 23, King Street, Cheapside, E.C.

NOW READY.

CATALOGUE of CHOICE and RARE PLANTS,

NEW FUCHSIAS, NEW PETUNIAS, NEW GERANIUMS, ETC., ETC.

B. S. WILLIAMS

WILL BE HAPPY TO FORWARD, POST FREE TO ALL APPLICANTS, HIS

DESCRIPTIVE AND PRICED CATALOGUE OF THE ABOVE,

Including all NOVELTIES of MERIT of the present Season.

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.

SEED AND PLANT MERCHANTS.

Orders amounting to 21s. sent Carriage Paid.

Agents, Wholesale and Retail, for London and Home Counties for

STANDEN'S "GARDENERS' AND AMATEURS' FRIEND."

(The long-sought desideratum for promoting the growth of Flowers, Fruits, and Vegetables.)

Sold in Canisters, at 1s. 3d. and 2s. 6d. each.

For Testimonials from Mr. Charles Turner of Slough and other eminent cultivators, see former Advertisements.

The "Gardeners' and Amateurs' Friend" is a highly Concentrated Inodorous Artificial Manure, far surpassing in value any article of this description hitherto introduced; its effect is extraordinary in promoting a healthy vigorous growth in Camellias, Azaleas, Francisceas, Ixoras, Boronias, Eriostemons, Polygalas, Dipladenias, Pimeleas and Orchids; also for all other Greenhouse and Stove Plants in general; considerably increasing the size of the flowers as well as heightening their colour. For Fruit Trees in pot, Vine Borders, Lawns, Pleasure Grounds and Kitchen Garden Crops, the "Gardeners' and Amateurs' Friend" is invaluable.

CHOICE SEEDS.

Mr. Bull's peculiar Strain of AURICULA-EYED VERBENA, comprising nearly every shade of colour: rich clarets, puce, maroons, brilliant vermilion, &c. Mr. Bull from this Strain has from time to time sent out very many superb varieties. The seed we offer is Mr. Bull's own saving, and is certain to produce fine flowers. 3s. 6d. per packet.

Mr. Bull's selected Strain of ZONALE PELARGONIUMS, embracing all the newest colours, 2s. 6d. per packet.

Mr. Bull's selected Strain of MIMULUS MACULOSUS, embracing the most beautifully spotted varieties, 1s. per packet.

LILIUM AURATUM, Third Consignment this season from Japan.
3s. 6d., 5s. 6d., and 7s. 6d. each.

FLOWER SEEDS, Hardy, Half Hardy, or Tender, in Collections, Post Paid.
3s. 6d., 5s. 6d., 7s. 6d., 10s. 6d., to 21s.

VEGETABLE SEEDS, in Collections, Carriage Paid, 21s. and upwards.
10s. 6d., 15s. 6d., 21s., 42s., to 63s.

FINE LAWN GRASS SEED, for Renovating or Laying Down New Lawns, 1s. per lb.

FARM SEEDS amounting to 21s. and upwards sent Carriage Paid.
WINDOW JARDINETS, BEDDING-OUT PLANTS, &c.

BARR AND SUGDEN, SEED MERCHANTS, 12, KING STREET, COVENT GARDEN, W.C.

CHOICE ORCHIDS.

HUGH LOW & CO.

Have on hand a very LARGE STOCK of ORCHIDS, as will readily be inferred from the fact that at their Nursery, Ten Houses, each of considerable size, are devoted to the culture of this very interesting Class of Plants. The Collection is regularly augmented by importations received from Correspondents in Brazil, Venezuela, Borneo, the Philippine and West India Islands, the Tennasserim Provinces, and the Malayan Archipelago, as also from the various collectors of the Firm: in New Granada, Central American States, and Mexico.

H. L. & Co. take advantage of the opportunity to remark, that the Orchids they offer being mainly the produce of seeds self-sown in the various countries, it is tolerably certain that amongst the plants of the same species many varieties will be found. H. L. & Co. have had abundant proof that such is the case; as for instance, in Calanthes, Cattleya elegans, Cattleya Leopoldi, Cattleya amethystina, Cattleya Mossiæ, Cattleya amethystoglossa, Limatodes rosea, Saccolabium Blumei, Aerides Lobbii, Aerides suavissimum, Odontoglossum gloriosum; many of which have flowered, and scarcely two plants of any one species resemble each other, the difference in colour and marking being very remarkable. This fact adds additional interest to the culture of imported Orchids.

The Plants offered are all in fine health and very vigorous, and an inspection is respectfully solicited.

CLAPTON NURSERY, LONDON, N.E.

The Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

A CHOICE and EXTENSIVE COLLECTION of STOVE and GREENHOUSE PLANTS always on view. ALSO FRUIT TREES, SHRUBS, and ORNAMENTAL TREES, from the Country Branches of the Firm.

The SEED and GENERAL NURSERY BUSINESS is carried on here, and Packages are delivered free at the various London Railway Stations.

BRANCHES.

EALING NURSERY, G. CANNON, Manager.
Ten minutes' walk from the Ealing Station on the Great Western Railway Main Line.

FRUIT TREES, ROSES, and SHRUBS, are here extensively and successfully cultivated in some of the finest Loam in the County.

FELTHAM NURSERY, R. HIGHAM, Manager.
Ten minutes' walk from Feltham Station.

EVERGREEN and DECIDUOUS SHRUBS, and CONIFERÆ, are here largely grown in a free Loam, well suited to their habits.

AT SION LANE and WOOD LANE NURSERIES, ISLEWORTH. ORNAMENTAL TREES are in a healthy and thriving state, and GENERAL HARDY PROPAGATION is here carried on.

The Stock in the above Nurseries is well worth the inspection of Purchasers. The prices are very moderate, and the Plants are frequently transplanted to ENSURE SAFE removal.

The following CATALOGUES are published, and will be forwarded Post Free on application:—

CATALOGUE of KITCHEN GARDEN, FLOWER, and AGRICULTURAL SEEDS.
CATALOGUE of STOVE and GREENHOUSE PLANTS.
CATALOGUE of SOFT-WOODED and BEDDING PLANTS.
CATALOGUE of FRUIT TREES and FRUIT TREES in POTS.
CATALOGUE of HARDY SHRUBS and TREES.
CATALOGUE of DUTCH BULBS, published in August.
CATALOGUE of ROSES.

JOHN & CHARLES LEE, Proprietors, Hammersmith, London, W.

Seedling Roses.

WM. PAUL (Son and Successor to the late A. PAUL) begs to offer the following FIRST-CLASS NEW HYBRID PERPETUAL ROSES, at present exclusively in his possession, and which are specially recommended. Good plants will be ready for delivery in May next.

ELIZABETH VIGNERON.—Flowers fine rosy pink, very large and full, in the style of Lælia, but fuller, fresher, and brighter in colour than that superb variety; form perfectly finished, constitution hardy, growth vigorous. Price 7s. 6d. each.

GLORY of WALTHAM.—Flowers resplendent crimson, very large and full, a seedling from Leveson Gower, larger, brighter, darker, and of better form than the parent. A superb Rose, of hardy vigorous growth, producing shoots 6 feet long in one season, and of the thickness of the little finger. Price 7s. 6d. each.

MADAME EMILE BOYAU.—Flowers soft rosy flesh colour, changing to blush, of a pleasing colour, sufficiently large, perfect in form, moderate in growth, hardy in constitution, good and distinct. Price 5s. each.

PRINCE DE JOINVILLE.—Flowers light crimson, a fine large showy Rose, of vigorous and hardy habit, quickly forming a highly decorative bush, standard, or pillar Rose, of great beauty. Price 5s. each.

PRINCESS LICHTENSTEIN.—Flowers white, globular, large and full. A good hardy white Rose, of compact growth, flowering abundantly. Price 5s. each.

The best of the NEW FRENCH ROSES, 36s. to 42s. per dozen. Last year's kinds, 24s. to 30s. per dozen. Older kinds, 9s. to 18s. per dozen.

WILLIAM PAUL, Waltham Cross, London, N.

NEW HARDY LATE-FLOWERING RHODODENDRONS.

PRINCE of WALES.—Bright rose shaded with purple, divided black marking on the upper petals, free grower, profuse bloomer, hardy, and the latest Hybrid Rhododendron grown. One-year grafted plants, 10s. 6d. Two-year ditto, strong, 21s. Larger plants, 31s. 6d. to 42s. each.

PRINCESS of WALES.—Deep magenta edge, pure white centre, primrose flake on the upper petals, slightly spotted with brown, totally distinct from any variety at present known, and when in bloom may be readily distinguished from all others; it is a beautiful and first-class Rhododendron. One-year grafted plants, 10s. 6d. Two-year ditto, strong, 21s. Larger plants, 31s. 6d. to 42s. each.

The usual Discount to the Trade

The above beautiful Rhododendrons were first introduced to the public last year by M. Y., and he has again much pleasure in calling attention to them; they are both most distinct varieties, the colour and marking of the Princess of Wales being quite a fresh type, and unlike any other Rhododendron. They have both been proved in the open ground for several years, capable of withstanding our most severe winters, and being very late bloomers escape the spring frosts, frequently so fatal to the earlier blooming kinds. They are confidently recommended as most desirable additions to this favourite class of plants.

Coloured Plates, by ANDREWS, will be forwarded on application for 13 stamps each, or the two for 25 stamps.

MAURICE YOUNG, Milford Nurseries, near Godalming, Surrey.

W. WITTY AND SON, NURSERYMEN, Cottingham, near Hull, have much pleasure in sending out the following NEW VERBENAS, which were raised by Mr. C. CORLAS, of Hull, who has been so successful a Grower and Exhibitor for so many years. The following New Varieties were exhibited by him this last year, at the undernamed Shows:—

1st prize, Beverley; 1st, Hull; 1st, Bridlington; 1st, Leeds; 1st, Cottingham; 1st, Withernsea; 1st, Hedon; 1st, Hornsea.

CONSTELLATION, rosy lake tinged with violet, large yellow eye, fine shape, large truss, distinct.
EUPHEMIA, deep rose, dark eye, encircled with white, extra large truss.
KINGSTON, pale rosy lilac, deep centre, fine truss, effective.
LUCRECE, bright rosy pink, carmine centre.
MODESTY, pink tinted purple, canary eye.
TRIUMPH, rich rosy pink, tinted blue, carmine centre, bold broad petals, fine truss, extra.
CON-AMORE, claret tinted maroon, extra large white centre, very pretty. Price 3s. 6d. each, or 21s. the Set.

New Hardy and Rare Climbers.

CLEMATIS JACKMANNI, large deep bright violet.
CLEMATIS RUBRO-VIOLACEA, maroon shaded reddish violet.
Awarded Two First-class Certificates by Royal Horticultural Society.

MESSRS. GEORGE JACKMAN AND SON, Woking Nursery, Surrey, can with confidence recommend to the public, their beautiful rich-coloured, free-flowering and vigorous-growing CLEMATISES, that now occupy a very high position in climbing plants. On application a circular will be forwarded free, giving extracts of their "sterling merits" from the following leading Horticultural Papers:—*Proceedings of Royal Horticultural Society, The Gardeners' Chronicle, Journal of Horticulture, Floral Magazine,* and *Florist and Pomologist.*

Plants of the following varieties will at once be sent out at the under-mentioned prices:—

CLEMATIS JACKMANNI, a few strong plants of 1864, 14s. each.
" " fine plants of 1865, 7s. 6d. each, 84s. doz.
" RUBRO-VIOLACEA, a few strong plants of 1864, 14s. ea.
" " fine plants of 1865, 7s. 6d. each, 84s. doz.
" FORTUNEI (Japan), large double white, 7s. 6d. each.
" STANDISHI (Japan), beautiful violet blue, 5s. each.
" HYBRIDA SPLENDIDA, a fine deep violet, 5s. each.
" LANUGINOSA CANDIDA, large handsome white, 7s. 6d. each.
" LANUGINOSA NIVEA, fine pure white, 7s. 6d. each.
Besides other good old kinds.

A Circular with a special offer to the Trade will be sent free on application.

NEW and SELECTED SEEDS.

CARPENTER'S MAGNUM BONUM PEAS.—The Largest and Best Tall Variety grown. 5s. per quart.
CARPENTER'S MULTUM IN PARVO PEAS.—The Best Dwarf Variety grown. 5s. per quart.
CARPENTER'S MONSTROUS WHITE COS LETTUCE,
CARPENTER'S MONSTROUS GREEN COS LETTUCE,
CARPENTER'S MONSTROUS BROWN COS LETTUCE,
are the three best LETTUCES in cultivation. 1s., 2s. 6d., and 5s. per packet.
CARPENTER'S PREMIER SWEDE.—Superior in size, shape, and quality to any other Swede grown. (Sow 3 lb. per acre.) 3s. per lb.
A remittance from unknown correspondents is requested.
CATALOGUES on application to EDWARD CARPENTER, Seed Merchant and Grower, Brighton and Sussex Seed Warehouse, 96, St. James's Street, Brighton.

WAITE, BURNELL, AND CO. have great pleasure in recommending the following:—

	s.	d.
BRUSSELS SPROUTS—RICHMOND'S COMPACT, selected for its very dwarf and compact habit; in sealed packages, per ounce	2	6
BROCCOLI—DANCER'S IMPREGNATED EARLY WHITE, per lb.	10	0
CABBAGE—BURNELL'S KING of the DWARFS, the earliest grown; very dwarf, growing close to the ground; very fine and sweet flavour; in sealed packages, per ounce	2	6
CUCUMBER NORBITON GIANT, the finest, longest, and most prolific Cucumber in cultivation; per packet	2	6
POTATOS—ERIN'S QUEEN DWARF ASHLEAF, very dwarf in the haulm, foliage of a dark green colour, very early, and invaluable for frames (vide Circular); per bushel	15	0
CONVOLVULUS TRICOLOR SPLENDIDISSIMUS, colour reddish purple, very distinct; per packet	1	0
POLYANTHUS, selected from the finest laced flowers by that eminent florist JOHN KEYNES, of Salisbury (strongly recommended); per packet 2s. 6d. and	5	0
PRIMULA SINENSIS FIMBRIATA, the choicest grown; per packet, 2s. 6d. and	5	0

Seed Warehouse: 181, High Holborn, London, W.C.

TURNIP SEEDS.

	Per lb.—s.	d.
WORCESTERSHIRE SWEDE	0	10
SKIRVING'S KING of the SWEDE	0	9
HALL'S WESTBURY SWEDE	0	10
YELLOW TANKARD or SWEDISH	1	6
YELLOW BULLOCK or ABERDEEN	0	10
GREEN ROUND or GLOBE	0	8
GREEN BARREL	0	9
LINCOLNSHIRE RED GLOBE	0	8
DEVONSHIRE GREY STONE	0	10

PRICED LIST of AGRICULTURAL SEEDS on application.

RICHARD SMITH, Seed Merchant, Worcester.

New Cattle Food.

BLUNDELL'S CATTLE MELON.—Heavy crops of this Fruit may be grown by the same cultivation and manure as required for root crops, and ready for feeding purposes before the root crops are ripe. Time of sowing, the months of April and May.

Seed of last year's growth is now ready for delivery at 2s. 6d. per packet of 50 Seeds, with full instructions for cultivation.

Cash remittances from unknown correspondents.

Address, JOSEPH BLUNDELL, Bursledon, Southampton.

A Boon to the World.

PRINCE of WALES' KIDNEY POTATO.—A new Seedling, remarkably handsome, fine eating, and the most prolific in the world. Testimonials:—

From Professor LINDLEY (Editor of the *Gardeners' Chronicle*).

"I have this morning had the Seedling Potatos examined. The crop is very extraordinary, and the Potatos themselves are very handsome, and quite ripe."

From SHIRLEY HIBBERD, Esq. (Editor of the *Gardeners' Weekly Magazine*).

"The Seedling Potato (Prince of Wales), I have found to be wonderfully productive, excellent flavour, handsome, and such a one as the world ought to have the benefit of."

To be had of Mr. JAMES VEITCH, Royal Exotic Nursery, King's Road, Chelsea, S.W.; Messrs. BARR & SUGDEN, King Street, Covent Garden, W.C.; DOWNIE, LAIRD & Co., Forest Hill, S.E.; JAMES CARTER & Co., 237, High Holborn, W.C.; SUTTON & SONS, Reading.

Price 12s. per bushel.

N.B. They may be planted up to the end of May.

To Seed Merchants.

MR. A. WILKIN, of Tiptree Heath, Kelvedon, Essex, invites your inspection of his growing crops of Seed, some of which are very luxuriant and promising.

20 acres of CABBAGE SEED: CATTLE, LONDON MARKET, COLEWORT, RED DUTCH, COTTAGER'S KALE, and DRUMHEAD SAVOY.

30 acres of CARROT SEED: ALTRINGHAM, JAMES, and EARLY HORN.

30 acres of PARSLEY, MIGNONETTE, SWEET PEAS, CUCUMBER, &c.

The stocks are of the best and purest quality.

Terms cash on delivery.

Grass Seed for all Soils.

RICHARD SMITH offers the best selection that can be made of PERMANENT MEADOW GRASS and CLOVER at 30s. per acre, consisting of 2 bushels light and 12 lbs heavy seed. The kinds and quantities are chosen for their early growth, crop, nutritive qualities, reproductiveness, and permanency, and can be had separately or properly mixed to suit heavy, light, or medium soil.

RICHARD SMITH, Seed Merchant, Worcester.

REIGATE SILVER SAND.—Best Kent and Surrey PEATS, LOAMS, SPHAGNUM, ROCK SANDSTONE, London-made FLOWER POTS, &c.

N.B. Loaded Trucks can be sent direct on all the Railways.

W. SHORT, Sand and Peat Depôt, Reigate, Surrey.

REIGATE SILVER SAND, 12s. per ton, at Swan Place; delivered 5 miles, or to any London Railway, 16s. per ton, or 1s. 6d. per bushel (sacks at cost price, or on hire).

KENTISH and other PEATS, YELLOW LOAM, LEAF-MOULD, SPHAGNUM MOSS, and COCOA FIBRE REFUSE

J. KENNARD, Swan Place, Old Kent Road, London, S.E.

COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 2s. per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

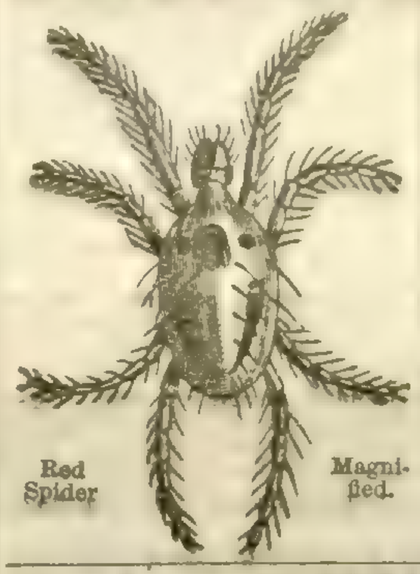
Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped, J. BARSHAM'S Patent.

GENUINE TOBACCO PAPER, in 4-lb. packets. Price on application to

HENRY APPLEBY, Foreman to Messrs. Ivery & Son, Dorking, Surrey.



Red Spider Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes, 1s., 3s., and 10s. 6d. each.

Wholesale by

PRICE'S PATENT CANDLE COMPANY (LIMITED).

TOOGOOD'S (late PAGE & TOOGOOD'S) IMPROVED BLIGHT COMPOSITION introduced in 1850, has been manufactured under W. TOOGOOD'S sole directions since that period. He has made great improvements in it, and by reducing the price 25 per cent., it is one of the cheapest and has always been the most efficacious remedy extant. To publish the Testimonials in newspaper would give space, but Messrs. CUTBUSH & SON, the eminent Nurserymen, say:—"It is the best thing for the purpose we can find, and does not appear to injure the young foliage like Gishurst does. This is our experience after 10 years' trial."

"February 24, 1864."

Mr. E. SAGE, *Gardener to* Lord HOWE, *says*:—

"Will you please send us 15 gallons of your Blight Composition. I see you have reduced the price, and trust that you may some day be able to make another reduction, and I feel assured that no 'Gishurst,' will be used by practical men."

"We hereby Certify that during the whole time we were Warehousemen in the Establishment of B. PAGE & CO., and subsequently PAGE & TOOGOOD, that we Manufactured the Blight Composition under Mr. TOOGOOD'S *sole directions, and that he alone knew the proportions of the various ingredients.*

Signed JOHN MORLEY,
HENRY DREW,
HENRY SHEERMAN,
GEORGE ISAACS."

"July 13, 1863."

Extra strong, 3s. per gallon (sufficient to make 4 gallons fit for use), 10 gallons and upwards carriage free to London.

May be obtained of the principal Nurserymen and Seedsmen in the Trade, and of W. TOOGOOD, Royal South Hants Seed Establishment, Southampton.

GARDEN HOSE, GARDEN HOSE, GARDEN HOSE, with Brass Fittings complete.—The London India-Rubber Company, Limited, Manufacturers of MECHANICAL RUBBER, 9, Ironmonger Lane, London, E.C.

SHAW'S TIFFANY,

For samples and prices apply to

J. SHAW & Co., 29, Oxford Street, Manchester.

RICK CLOTHS, with Poles, Pullies, and Lines. New and Second-hand. All Sizes now ready.

BENJAMIN EDGINGTON, Marquee, Tent, Rick Cloth, and Flag Manufacturer, by Special Appointment, to Her Majesty.

Pavilions and Marquees on Hire, for Fêtes and Parties.

Address BENJAMIN EDGINGTON (only), 2, Duke Street, London Bridge, S.E. No other Establishment.

TABER'S PREPARED TURNIP SEED AGAINST THE FLY.

WORTHY THE ATTENTION OF ALL TURNIP GROWERS.

G. TABER has succeeded in DRESSING TURNIP SEED AGAINST the FLY, which the following Testimonials will bear witness to:—

"Porter's Hall, Stebbing, May 12, 1865.

"DEAR SIR,—I have for three years used your Prepared Turnip Seed against the fly, and with perfect success. Until I used your dressed Seed, I frequently lost my plant of Turnip from the fly; since I have used it, I have not had to sow a second time, and have much pleasure in giving my testimony to its benefit.—Yours truly, JOHN HUTLEY."

"To Mr. Taber."

"The Boarded Barns, Chelmsford, May 5, 1865.

"DEAR SIR,—I have used some of your Turnip Seed prepared against the ravages of that destructive insect known as the Turnip Beetle, and can testify to its intended efficacy.

"Yours truly, W. F. JOSLING."

"To Mr. Taber."

"Inworth Hall, June 29, 1864.

"DEAR SIR,—I am happy to inform you that I have a very good plant of Swedes from the Prepared Seed you sent me (for about three pints of Seed per acre), and the flies have not, as you said, touched them. I will thank you to send me by bearer, a peck of the best White Seed you have, prepared against the fly for spring feeding. You are at liberty to make whatever use you please of this note, as I feel that I and the public are much indebted to you for having found out this remedy, for the safety of our plants.

"I am, dear Sir, yours truly, J. S. SUBRIDGE."

"To Mr. Taber."

SKIRVING'S IMPROVED PURPLE-TOP SWEDE.
GREEN-TOP SWEDE.
EAST LOTHIAN PURPLE-TOP.
YELLOW TANKARD, for Early Feeding.

WHITE GLOBE.
RED GLOBE.
GREEN ROUND.
HEREFORDSHIRE WHITE.

Prepared Turnip Seed, 1s. per pint, bags included.
Not Dressed, 9d. per pint, bags included.

GEORGE TABER, RIVENHALL, ESSEX.

N.B. A remittance from unknown Correspondents, per Cheque or Post-office Order, payable at Witham, Essex.

ROBERT PARKER begs to offer the following, all of which are well-grown, clean, and healthy plants:—

	s.	d.
CLERODENDRON BALFOURII	5	0
CORDYLINE INDIVISA	10	6
FRANCISCEA CALYCINA	10	6
GOODYERA PUBESCENS	1	6
RHODODENDRON COUNTESS of HADDINGTON	10	6
" JAVANICUM	2	6
" NUTTALLII	2	6
TRITOMA GRANDIS	3	6
" UVARIA GLAUCESCENS	1	6
VINE DUCHESS of BUCCLEUCH	21s. and	42 0
YUCCA ALBO SPICA	42	0
" TRECULEANA	42	0

PRICED and DESCRIPTIVE CATALOGUES of Greenhouse, Hardy, and Stove Plants, Seeds and Bulbs, are published, and will be forwarded to applicants.

Exotic Nursery, Tooting, Surrey, S.

New Plants.

MR. WILLIAM BULL begs to announce that he is now offering the following beautiful and remarkable NEW PLANTS for the first time:—

AUBRIETIA PURPUREA VARIEGATA.—This remarkable and highly interesting novelty is a well-defined variegated form of the well-known Aubrietia purpurea; every leaf is broadly margined with white, thus making it an extremely effective object; indeed, the harmony of its pretty lavender blue flowers and neat variegation makes a most pleasing impression. This will be a useful plant for spring gardening, rockwork, &c., and is unquestionably one of the prettiest novelties of the season. The entire stock has been purchased from Mr. D. Wood, Brough, Yorkshire. Price 10s. 6d., or six for 31s. 6d.

ASPLENIUM MYRIOPHYLLUM.—Without any exception this is the most elegant of the whole family. Price 5 guineas.

AZALEA INDICA GRANDE DUCHESSE DE BADE.—Colour orange-scarlet, finely-formed large flowers, one of the best high-coloured varieties ever offered. Price 21s. and 31s. 6d.

ANTHURIUM CORDIFOLIUM.—This is the marvellously beautiful plant introduced by the Royal Horticultural Society, through their Collector, Mr. Weir. Its large cordate leaves in mature specimens are about 2 feet in diameter, the ground colour of a bright olive green, the veins intersecting throughout are white; the leaves when young are of a coppery-pink hue. Price 63s.

CISSUS AMAZONICA.—A pretty variegated-foliage climber, with glabrous leaves, silvered on the surface and red beneath. Introduced from the Amazon. Price 21s.

DIOSCOREA ANÆCTOCHILIS.—A distinct species, leaves marbled with gold. Price 42s.

VARIEGATED-FOLIAGED NEW CHRYSANTHEMUM, SENSATION.—This very novel feature in a Chrysanthemum makes it a plant of the most useful and ornamental character for decorative purposes; in the variety here offered the variegation is most distinct and striking; every leaf being broadly margined with silvery-like variegation in the most regular and constant manner. Either for greenhouse, conservatory, or open garden decoration, this plant will stand unrivalled; and for ribbon borders unexceptionable, for whether in or out of flower it is extremely handsome. The blossoms are the Pompon type, Ranunculus-like, of a pure white, exquisite in form, and full to the centre; one of the very best novelties of the season, and a plant for every garden. The entire stock has been purchased from Mr. George Smith, of Walworth. Price 10s. 6d. each, or 6 for 31s. 6d.

VARIEGATED-FOLIAGED NEW VERBENA, POPULAR.—All the adjectives in the English language have been exhausted at one time and another on new Verbenas—what then shall we say of this variety? It really is one of the most novel, striking and attractive kinds ever sent out; the foliage is of a dark green colour, irregularly and prettily interspersed with bright golden yellow variegation, so that without any flower, for it is of a free compact growth, it will make a beautiful and effective bed in the flower garden, and one of the best summer edging plants extant. Apart from the above feature to recommend it, this variety is one of the brightest of scarlets, producing its blossoms in the most redundant manner. The entire stock has been purchased from Mr. John Boff, of Islington. Price 10s. 6d. each, or 6 for 31s. 6d.

ECHINUS MOLLE.—Californian Pepper Tree. A handsome weeping evergreen hardy shrub. Price 10s. 6d.

FRANCISCEA LINDENI.—A free-flowering, attractive variety; producing very large violet-mauve flowers; introduced from the interior of the province of St. Catherine's, Brazil. It is the best Franciscea ever offered. Price 31s. 6d.

NEW VERBENAS.—Six distinct and handsome varieties. These have been proved as good bedders, are free bloomers, of distinct colours, and can be recommended for general excellence. Price 31s. 6d. For names and descriptions *vide* Mr. W. B.'s Spring List.

LASTREA ERYTHROSORA.—A distinct hardy Fern from Japan. Price 10s. 6d.

PTERIS CRETICA SERRULATA VARIEGATA.—A pretty variegated hybrid, intermediate between P. serrulata and P. cretica albo lineata. Price 10s. 6d.

ATHYRIUM FILIX-FŒMINA SAGITTATUM.—An interesting and pretty variety of the hardy Lady Fern. Price 5s.

ROGIERA GRATISSIMA.—The flowers of this plant will be perfect gems for bouquets. They are produced in elegant corymbs of a delicate pink colour. It blooms so freely that it is nearly always in flower, added to which it is deliciously fragrant, and the habit of the plant is neat and compact. Price 31s. 6d.

NEW FUCHSIAS.—Seven distinct varieties are now offered for the first time. They are all of sterling merit, short-jointed, abundant bloomers, the flowers possessing variety both in form and colour, and the habit of each both compact and good. Price 10s. 6d. each. For names and descriptions *vide* Mr. W. B.'s Spring List.

NEW PETUNIAS.—Eleven kinds are now offered. They will all be found to maintain the high reputation of the kinds that have been previously sent out by Mr. W. B. Price 3s. 6d. each.

SAURAUJA SARAPIGIENSIS.—One of the most noble ornamental stove plants extant, a worthy rival of Cyanophyllum magnificum and Sphærogyne latifolia. Price 63s.

SPHACELE CŒRULEA.—This plant produces its pretty blue flowers all through the winter in the most abundant manner. It belongs to the Labiatæ. Price 10s. 6d.

NEW ZONALE PELARGONIUMS.—

Extract from the *Gardeners' Weekly Magazine*, July 23, 1864, p. 236.

"Mr. William Bull, of King's Road, Chelsea, has sent out more good Zonale Pelargoniums than any other trade cultivator in the country."

Seven new kinds are now offered, all of which are in advance of the many good kinds sent out by Mr. W. B. Price 7s. 6d. each. For names and descriptions *vide* Mr. W. B.'s Spring List.

NEW SPOTTED PELARGONIUMS.—Five beautiful varieties are now offered for the first time, at 21s. each. For names and descriptions *vide* Mr W. B.'s Spring List.

POLYGONATUM VERTICILLATUM AUREUM STRIATUM, } " " ARGENTEUM STRIATUM. }

The above are two pretty variegated-foliaged hardy plants, one having the leaves striped with white, and the other with yellow. These have been introduced from Japan by Mr. Fortune. Price 31s. 6d. each.

SALVADORA PERSICA (the Mustard Tree of Scripture).—This remarkably interesting plant is now offered for the first time in this country. It requires to be cultivated in a stove. Plants 5 guineas each.

VARIEGATED-FOLIAGED NEW PETUNIA JOSEPH HAUDRECHY.—Beautifully variegated leaves, and single violet-crimson flowers. Price 10s. 6d. each.

Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

New Plants for 1865.

JAMES CARTER AND CO. have much pleasure in calling attention to the undermentioned FIRST-CLASS NEW BEDDING GERANIUMS, &c., which they are now prepared to send out.

BEATON'S HYBRID BEDDING GERANIUMS.

BEATON'S PERFECTION (Beaton). Price 5s. each.
PREMIER (Beaton). Price 5s. each.
FORESTER (Beaton). Price 5s. each.
WILD CHARLIE (Beaton). Price 5s. each.
NEW VARIEGATED TRICOLOR BEDDING GERANIUM SUNRISE (Carter). Price 7s. 6d. each.

☞ The Set, 1 plant of each of the above, 21s.

NEW TROPÆOLUM DOUBLE TOM THUMB. Price 2s. 6d. each; per dozen, 18s.; per 25, 30s.; per 50, 50s.
NASTURTIUM KING of TOM THUMBS. Price 1s. 6d. each; per dozen, 12s.; per 25, 20s.

NEW CLOVE CARNATIONS.

GENERAL LEE. Price 5s. each.
GOLIATH, Price 5s. each.
ASTELMA LANATA. Price 1s. 6d. each; per dozen, 12s.

Nos. NEW SINGLE PETUNIAS.

1. ARABELLA, light rosy lake, white throat, a novel and most beautiful colour.
2. BEATRICE, rose edge, very dark throat, exquisitely pencilled.
3. CHRISTABEL, splendid deep crimson, fine for a bed entirely of this colour.
4. DINORAH, white margin, and flaked with deep crimson.
5. EMMELINE, very compact habit, free bloomer, bright rose, pencilled dark throat.
9. FREDERICA, crimson, in the way of Magna Coccinea, but more substance.
12. GERTRUDE, large rose, of exquisite form, white throat.
14. HELEN, deep lilac, pencilled with black, fine novel colour.
15. ISABEL, immense flower, with white ground, striped and flaked purple.

Price, each, 1s. 6d.; the set, 10s. 6d.

NEW PLANTS of 1864.

We are now able to offer some of the most desirable Novelties sent out in 1864, at the following very reduced prices:—

BEATON'S CYBISTER GERANIUM. Price 1s. each; 9s. per dozen; 30s. 50; 50s., 100.
ORNITHOGALUM THYRSOIDES ALBUM (See Plate in "Vade Mecum," Part IV). Price 2s. 6d. to 3s. 6d. each.
IRESINE HERBSTII (Syn. Achyranthes Verschaffelti). Price 1s. each; 9s. per dozen.
LILIUM AURATUM. Strong Flowering Bulbs established in pots, 5s., 7s. 6d., and 10s. 6d. each; Small Bulbs, 3s. 6d. each.

For descriptions of above see J. C. & Co.'s CATALOGUE of NEW and CHOICE PLANTS, just published, and which will be forwarded Gratis and Post Free on application.

James Carter & Co., Seed Merchants and Nurserymen, 237, 238, and 261, High Holborn, W.C.; Crystal Palace Nursery, Perry Hill, Sydenham, S.E.; Dedham and St. Osyth, Essex.

Established Upwards of a Century.

BUTLER AND McCULLOCH,

Seed Merchants, Covent Garden Market, W.C.

GENUINE NEW VEGETABLE SEEDS.

Orders amounting to 21s. and upwards sent Carriage Free.

COMPLETE COLLECTIONS for ONE YEAR'S SUPPLY.

No. 1.	No. 2.	No. 3.	No. 4.	No. 5.
3l. 3s.	2l. 2s.	1l. 10s.	1l. 1s.	10s. 6d.

BUTLER AND McCULLOCH'S NOVELTIES for 1865.

	Per packet—s.	d.
BUTLER'S SUPERFINE DWARF CAULIFLOWER	2	6
BUTLER'S CLIMAX MELON	2	6
BUTLER'S PRESIDENT MELON	2	6

FLOWER SEEDS (sent Post free).

Assortments of	100 vars.	50 vars.	30 vars.	25 vars.	15 vars.
ANNUALS—Hardy	20s.	10s.	5s.	..	2s. 6d.
" Half Hardy	30s.	15s.	..	7s. 6d.	4s. 0d.
PERENNIALS (Hardy)	25s.	12s. 6d.	..	6s. 6d.	3s. 6d.
" Half Hardy	..	..	..	7s. 6d.	4s. 0d.

NOVELTIES in FLOWER SEEDS.—See Descriptive Catalogue.

BULBS for SPRING PLANTING.—Gladioli, Liliums, including the splendid new L. auratum; Tigridias, Anemones, Ranunculus, and other bulbs suitable for spring planting, in great variety. Special quotations at low rates per 100 or 1000 on application.

AGRICULTURAL SEEDS, saved from pure Stocks, and received direct from the Growers, including all the best kinds of Turnips, Swedes, Carrots, Mangel Wurzel, Grasses, &c.

PRICE LIST just published, and may be had gratis on application

Agents for

GOULDING'S HORTICULTURAL MANURE, 1s. per canister.

Sole Agents, Wholesale and Retail, for

MURRAY'S APHIS PASTILS,

A new invention, and the most effectual in existence for Fumigating Plant Houses.

In packets, 1s. and 2s. each.

Butler & McCulloch, Covent Garden Market, W.C.

New Plants now ready for Sale.

AMBROISE VERSCHAFFELT, Nurseryman, Ghent, Belgium, begs to offer the following Novelties:—

STOVE PLANTS.	£	s.	d.
ABUTILON VEXILLARIUM (tricolor), strong	0	8	0
AMORPHOPHALLUS NIVOSUS (so much admired at the Grand Show of Brussels)	0	12	0
SMILAX MACROPHYLLA MACULATA	0	16	0
GREENHOUSE PLANTS.			
CAMELLIA ARCHIDUC ETIENNE	0	16	0
RHODODENDRON GRAND DUC DE BADE	0	16	0

All these Plants are figured in VERSCHAFFELT'S "ILLUSTRATION HORTICOLE."

Cheap Bedding Plants.

J. SCOTT has still on hand a few hundred copies of his celebrated FLOWER GARDEN DIRECTORY and CATALOGUE of CHOICE BEDDING PLANTS, which he will forward free on application, inclosing one stamp.

100,000 fine Plants now ready, well hardened off.

A fine stock of the lovely new purple-leaved ACHYRANTHES VERSCHAFFELTII, 6s. per dozen; the finest of all the purple-leaved plants for out-door cultivation.—May, 1865.

Cheap Bedding Plants.

2s. per dozen, or 15s. per 100, well established in pots.
Strong HELIOTROPES, in store pots, 8s. per 100.

PETER DRUMMOND AND CO. have at least 150,000 of the above, which, for variety, size of plants, and price cannot be surpassed in the kingdom, all clean and healthy, for the decoration of the Flower Garden, consisting of GERANIUMS, Scarlet and Variegated, VERBENAS, HELIOTROPES, LOBELIAS, PETUNIAS, CALCEOLARIAS, DAHLIAS, &c., also Frosted and Variegated-leaved Plants.

See large Advertisement in *Gardeners' Chronicle*, No. 17, p. 382.
PRICED CATALOGUE post free on application.

Peter Drummond & Co., Preston Road Nursery, Yeovil, Somerset (late J. Scott's Yeovil Nursery).

BEDDING PLANTS, BEDDING PLANTS.—The following are now ready and will be sent out, well rooted, in single pots:—

	Per doz.	Per 100
DAHLIAS	3s. 0d	20s. 0d
GERANIUM CYBISTER	8 0	60 "
" GOLDEN CHAIN	2 6	20 "
" STELLA	2 6	20 "
CALCEOLARIA AUREA FLORIBUNDA	2 6	16 "
LOBELIA PAXTONIANA	2 0	12 "
" PAXTONI MAJOR	2 6	16 "
SALVIA PATENS	3 6	24 "
CERASTIUM TOMENTOSUM, out of pots	1 6	9 "

Address, J. C. Padman, Providence Nurseries, Boston Spa, near Tadcaster. Post-office orders payable at Boston Spa.

BEDDING PLANTS.

VERBENAS, fine selections, 100 in 50 vars., 18s.
CALCEOLARIAS, best bedding varieties, 3s. and 4s. per doz.
SENECIO ELEGANS NANA (new dwarf Jacobæa), very dwarf, bushy, and splendid, only 4 to 6 inches high, in 3 varieties, 4s. per doz.
SENECIO ELEGANS CUPREATA NANA (newest), fine crimson red, 9s. per doz.
MIMULUS, three beautiful new vars., Aurantiaca, Cupreus Major, and Gem, 1s. 6d. each.
GAZANIAS, three fine new vars., 1s. each.
GAZANIA SPLENDENS, 4s. per doz.; 25s. per 100.
Finest FUCHSIAS, PENTSTEMONS, PHLOX, LOBELIAS, PETUNIAS, DAHLIAS, &c., &c.

CATALOGUES free on application.

Stephen Brown, Seed and Nursery Establishment, Sudbury, Suffolk.

Mottled Globe or Grey Stone Turnip.

SUTTON AND SONS have a very choice stock of this excellent NEW TURNIP. It grows to a very large size, and is strongly recommended. Price of seed, 1s. per lb., cheaper by the bushel, carriage free.

Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

Wheeler's Imperial Swede.

WHEELER'S IMPERIAL SWEDE, one of the Hardiest, Finest, and Most Nutritious Swedes in cultivation. Won the First Prize at the Gloucestershire Root Show, and several valuable Silver Cups.

1s. per lb., 45s. per bushel.

Carriage free by rail, and 5 per cent. discount for cash.

J. C. Wheeler & Son, Seed Growers, Gloucester.

BEATON'S GERANIUMS.

THE LATEST PRODUCTIONS OF THIS SUCCESSFUL HYBRIDIST.

A SPECIAL CERTIFICATE WAS AWARDED TO BEATON'S GERANIUMS BY THE ROYAL HORTICULTURAL SOCIETY ON THE 2ND MAY LAST.

A Set of 10 Varieties, new style and colours, £2 0 0

Order at once of any Nurseryman, or direct from

WILLIAM PAUL, WALTHAM CROSS, LONDON, N.

Where the varieties may be seen in Bloom. For full descriptions see SPRING CATALOGUE.

EXTRA IMPROVED TURNIP SEED.

THOMAS KENNEDY & CO.

HAVE THIS SEASON A FAIR SUPPLY OF THEIR

EXTRA IMPROVED VARIETIES OF TURNIP SEED,

Carefully grown from their own Selected Stock; but as the peculiar merits of these are every year becoming better known and appreciated, it is possible that the present supply may fall short of the demand, as was the case last season; and to prevent any disappointment, they take this early opportunity of reminding their regular customers that they may secure in good time what they are likely to require.

T. K. & Co. have, in addition to these, a large stock of the Ordinary Varieties of TURNIP SEED of very superior quality.

A CATALOGUE, containing PRICES of TURNIP and other FARM SEEDS, will be furnished on application.

Free Delivery as formerly.

DUMFRIES.—May, 1865.

SUTTON'S

CHAMPION SWEDE.

A large Purple-top Yellow variety, perfectly hardy, very productive, stores exceedingly well, and rarely if ever suffers from Mildew.

For six years successively SUTTON'S CHAMPION SWEDE has gained TWELVE SILVER CUPS, presented by his Late Royal Highness THE PRINCE CONSORT, to the Royal East Berks and South Bucks Agricultural Societies, making a total of THREE HUNDRED GUINEAS in Twelve Prizes.

The following are Extracts from Letters received quite unsolicited respecting SUTTON'S CHAMPION SWEDE:—

From HENRY HARWOOD, Esq., *Amberley Castle, Arundel.*

"March 16.—I grew some extraordinary Swedes from the Seed I had of you last year, the best I ever saw. They were your Champion Swede."

From Mr. LARGE, *Bailiff to the* Right Hon. Lord BERNERS.

"October 28.—The Champion Swedes, from seed Lord Berners purchased from you, are far superior to any other we have grown. I can confidently say they are many tons per acre heavier than any other Swedes growing on his lordship's farm."

From JOHN DALTON, Esq., *Cardiff.*

"March 22.—I tried your Champion Swede last year for the first time, and was greatly pleased with them. I had above 31 tons per acre, some above 44 inches in girth. They are now, some in clamp and others on the land, as sound and as perfect as any bulb can be."

From Dr. WAY, *Deip River, Cape of Good Hope.*

"November 27.—I had the satisfaction of taking the Prize for Swede Turnips at the Agricultural Show with your Champion."

From EDWARD M. GAWNE, Esq., *Kentraugh, Isle of Man.*

"March 24.—The best Swede Turnip I had this year was some of your Champion. I had several other framed sorts in the same field, all good, but not to be compared for size and beauty of formation to yours."

From Mr. RICHARD POWELL, *Hall House, Benson.*

"April 12.—I tried your Champion Swede against the Hardy Purple-top; yours beat it altogether for feed and hardiness. After trying many sorts for some time, my opinion is that your Champion Swede is properly named, as it beats every other sort, and is indeed the Champion of Swedes. You will see by my order I do not intend to sow any other."

From Mr. J. F. JOHNSON, *Aykley Heads, Durham.*

"April 4.—Last year your Swedes were the admiration of everybody, being estimated at 60 tons per acre."

From SAMUEL FIELD, Esq., *Thame.*

"March 10.—I sowed your Champion Swede against Skirving's King of the Swedes, and yours was the best."

From Mr. JNO. MEAD, *East Lulworth Farm, Wareham.*

"January 21.—I took the First Prize for the best 10 acres of Swedes grown from your Champion seed."

From Mr. JNO. HORSEPOOL, *Saxondale, Notts.*

"February 24.—I obtained the Silver Cup, value £6, from the Bingham Agricultural Society, for the best 4 acres of Swede Turnips, with your Champion."

From J. S. WILKINSON, Esq., *Madeley.*

"April 29.—The Champion Swede was entered by me for our district prize, and it was awarded them."

Present price of Seed, 1s. per lb., or cheaper by the Bushel, carriage free.

PRICED LISTS of TURNIP, MANGEL, and other FARM SEEDS may be had gratis and post free on application.

SUTTON AND SONS, ROYAL BERKSHIRE SEED ESTABLISHMENT, READING.

Seeds from Choice Strains.

B. S. WILLIAMS can now supply good Seeds of the following:—

CINERARIA (Weatherill's extra choice strain).—B. S. W. has secured at a great expense the entire stock and right of exclusive sale from Mr. Weatherill, of his, the best strain of Cineraria in existence, and can now offer packets at the following prices:—2s. 6d., 3s. 6d., and 5s.

CALCEOLARIA (Herbaceous), from a fine strain, 2s. 6d. and 3s. 6d. per packet.

PRIMULA (Williams' superb strain), the finest fringed and the best coloured flowers in cultivation. Red, White, or Mixed Seed, 2s. 6d., 3s. 6d., and 5s. per packet.

Paradise and Victoria Nurseries, Holloway, London, N.

New Catalogue for 1865.

GEO. SMITH begs to announce that his PRICED and DESCRIPTIVE CATALOGUE, containing the Newest and most Approved Varieties of Show, Spotted, and Fancy PELARGONIUMS; Zonale and Variegated GERANIUMS, FUCHSIAS, VERBENAS, PETUNIAS, DAHLIAS, CHRYSANTHEMUMS, BEDDING PLANTS, &c., is now ready, and will be forwarded in exchange for one postage stamp.

*** Coloured Illustrations by Mr. Andrews, free by post, in exchange for 12 postage stamps, of FUCHSIAS GENERAL LEE, DIADEM, and FANTASTIC, the three finest Fuchsias G. S. has ever had the pleasure to offer, for description of which see Catalogue.

Tollington Nursery, Hornsey Road, Islington, London, N.

ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON.

ORCHID SHOW, May 13, 1865.

AWARDS of the JUDGES.

CLASS 1.—4 AERIDES, VANDA and SACCOLABIUM, 3 distinct kinds. (Open.)
1st Prize, Messrs. Maule & Son, The Nurseries, Bristol, £4.

CLASS 2.—4 CATTLEYA and LÆLIA, 3 distinct kinds. (Open.)

CLASS 3.—4 ONCIDIUM, MILTONIA, and ODONTOGLOSSUM, 3 distinct kinds. (Open.)

CLASS 4.—3 CYPRIPEDIUMS. (Open.)
1st, Messrs. Maule & Son, The Nurseries, Bristol, £3.
2d, Mr. George Culley, Gr. to W. W. Buller, Esq., Strete Raleigh, Exeter, £2.

CLASS 5.—6 ANÆCTOCHILUS, distinct kinds. (Open.)

CLASS 6.—MISCELLANEOUS, 12 distinct kinds. (Nurserymen.)
1st, Messrs. W. Maule & Son, The Nurseries, Bristol, £9.
2d, Messrs. J. & C. Lee, Vineyard Nursery, Hammersmith, £7.
3d, Mr. Robert Parker, Exotic Nursery, Tooting, £5.

CLASS 7.—MISCELLANEOUS, 9 distinct kinds. (Amateurs.)

CLASS 8.—MISCELLANEOUS, 6 distinct kinds. (Amateurs.)
1st, Mr. J. Robson, Gr. to G. Cooper, Esq., Alpha House, Coburg Road, Old Kent Road, S.E., £6.

CLASS 9.—MISCELLANEOUS, 3 distinct kinds. (Open.)
1st, Messrs. W. Maule & Son, The Nurseries, Bristol, £3.

CLASS 10.—SPECIMEN PLANT. (Open.)
1st, Mr. J. Hill, Gr. to R. Hanbury, Esq., The Poles, Ware, Herts, for Vanda suavis (Veitch's var.), £2.
2d, Mr. J. Smith, Gr. to S. H. Norris, Esq., Altrincham, near Manchester, for Renanthera coccinea, £1.
Extra, Mr. Thomas Charles, Gr. to R. Barnett, Esq., Blackheath Park, for Phalænopsis Lüddemanniana, £2.
Extra, Mr. J. Robson, Gr. to G. Cooper, Esq., Old Kent Road, S.E., for Phalænopsis Luddemanniana, £1.

MISCELLANEOUS.
Extra, Messrs. J. & C. Lee, Vineyard Nursery, Hammersmith, for a Collection of Stove and Greenhouse Plants, £5.
Extra, Mr. William Paul, Waltham Cross, N., for a Collection of Beaton's Geraniums, £1 10s.
Extra, Messrs. H. Low & Co., Nurserymen, Clapton, N.E., for 2 Orchids, Phalænopsis Lüddemanniana, £1.
Extra, Mr. G. Wilson, Gr. to J. Wilson, Esq., Dulwich, S., for Cattleya Mossiæ superba, £1.

The £5 Prize offered by Mr. Wilson Saunders, Honorary Secretary, for the Finest Orchid Exhibited, either in collection or separately, was awarded by Mr. Bateman to Mr. J. Hill, Gr. to R. Hanbury, Esq., Poles, Ware, Herts, for Vanda suavis (Veitch's var.).

The Gardeners' Chronicle.

SATURDAY, MAY 20, 1865.

MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY,	May 24	Royal Botanic (First Great Exhibition)	2 P.M.
		Linnean (Anniversary)	3 P.M.
SATURDAY,	— 27	Royal Horticultural (Weekly Show) at South Kensington	2 P.M.

THE second part of the first volume of the GENERA OF PLANTS by Mr. BENTHAM and Dr. HOOKER, is now so far advanced, having already been printed beyond the completion of Leguminosæ, that a few remarks in anticipation of its publication, illustrative of its peculiar character and objects, will not be considered ill-timed or superfluous, while many of our readers will be rejoiced to hear that they will have shortly another instalment towards the completion of a work whose importance is acknowledged by every competent botanist.

The theory of the stability of species, whether in the animal or vegetable kingdom, though till very lately almost an article of theological faith, has from time to time been rudely shaken, but has within a few years been still more forcibly invaded by the speculations of Mr. DARWIN, whose views, whether altogether or only partially received, have opened the eyes of many a botanist and zoologist to a more just and philosophical apprehension of the mutual relations of the organised beings which surround us. So long as Herbaria or other collections of natural history were poor in specimens, and were made rather with a view to number than intrinsic worth, while the important bearings of geographical disposition were neglected, the theory was tenable enough; though even then the distinctions which separated one recognised species from another were often sufficiently slender to excite more than a passing doubt as to their absolute validity. But when specimens were procured from every possible locality, definitions which before seemed valid lost their apparent precision, such as it was; and it became at once evident that old notions must in great measure be

abandoned, and that not only the primary groups, but each succeeding division, must be defined rather by the predominance of certain characters, capable in particular forms of great modification or even of occasional suppression, than by anything like mathematical formulæ. Even those genera in which the species seem at first most clearly distinguished from each other by nature, as, for example, Carex, present on a more close but general examination instances enough of the poet's "endless seeming confusion." The transitions, indeed, in the genus just mentioned, are so gradual, and the relations of forms so intimately blended, that those who, like the late Dr. BOOTT, have made them an especial study, have been compelled to confess that they hardly know where to draw the line of separation between species and species. It is easy enough, indeed, to do this in almost any genus so long as the materials are scanty; and instances might be quoted where a single specimen, in different parts of which the leaves or other organs have assumed a different form, has given rise to two or more spurious species; but those who have larger views and have ample data before them, are compelled every day to take a still wider range. Examples might be given of startling unions of supposed species in the Flora of Tasmania, published only a few years since, but great as is the reduction effected in that excellent volume, Mr. BENTHAM, when at work on the Australian Flora, found a decided tendency in his labours to reduce the estimate still further.

Our business is not, however, at present so much with species as genera. These, at least, ought in the popular estimate to present marks of stability, if they fail to such an extent amongst species. But even here something will be found of the same poet's complaint, "that every form is alike, though none resembles the other," and that the more natural the groups, the greater the difficulty of definition.

We are not, it may be observed, speaking now of such ill-grounded theories as those which are reproduced from time to time, respecting the supposed transmutation of Oats into Wheat or Barley, which spring up again with fresh vigour, though always refuted, according to the proverb as old as Solomon, "Though thou shouldest bray a fool in a mortar amongst Wheat with a pestle, yet will not his foolishness depart from him." Nor have we in view the inevitable proposal of such genera as Monachanthus and Myanthus, the fertile and hermaphrodite state of Catasetum, which can only be reduced to their right category when accident, or intuition like that of DARWIN, has demonstrated their real significance. Nor, again, do we allude to the supposed origin of Wheat from Ægilops, but of things which lie much nearer the surface. Take for instance, such a case as that of Polypodium rugulosum, which, when provided with an involucre, is Hypolepis tenuifolia, a fern which exhibits at least six widely different conditions of that organ, while Darea is confluent with Asplenium, and our own Athyrium Filix-fœmina, when destitute of an involucre, becomes a Polypodium.

Or if a general rather than a particular instance be more illustrative, take the natural group of the gill-bearing Fungi, for we know of none more exactly to the purpose, a group consisting of at least 2000 species. A study of 40 years has not enabled FRIES—who is more intimately acquainted with them than any other botanist, and whose powers of judicious combination and distribution are acknowledged everywhere—to divide the large mass of Mushrooms into anything like well-defined genera; and even where particular groups present something like sufficient characters, the most distinctive occasionally fail, while in those genera which differ most widely in the nature of their gills, there is such uncertainty, that the same species in different states might not only be referred to three different genera with equal justice, apart from natural habit; but the same specimen may exhibit distinctly in different parts, the characters of the three genera, while individuals might be thrust entirely out of the group, and referred to another primary division of Fungi, of which that which produces the Amadou of commerce is a well-known example.

And such is the case everywhere, where the groups are truly natural. Besides, it must be remembered that the value of generic distinctions must vary with increased knowledge, because it is more or less arbitrary. Some genera—as Rosa, Salix, &c.—are in themselves objective, and no one disputes their limits; while others, as all the Grasses, Umbelliferæ, or Compositæ, are subjective, and no two botanists agree about their limits, because no two have the same materials, or regard them from the same point of view.

Still, in the present state of knowledge, if only for convenience sake, and to help the memory, it is indispensable that some judicious limits should be fixed, or else the "seeming confusion" will become absolute, and we shall be able to take no comprehensive view whatever of the relations of natural objects, as they exist at the present moment, or as they have existed at different periods of the formation of the earth. For, let their origin be what it may, our business is to take such a view as may be consistent with truth, while it enables us to distinguish accurately for the necessary purposes of life, and for the due estimation of the relations borne either by groups or individuals to the various questions which may arise in the several branches of science. It is obvious, therefore, that a work like the "Genera"—which is at once comprehensive and particular, and which embodies all that is at present known as to the relations of plants—must be one of immense importance, if conducted on sound principles by authors for whose conscientious love of truth and powers of accurate discrimination there is a perfect guarantee both in their character and publications, provided at the same time they are in such a situation as will enable them fully to carry out their views.

Now, it is quite needless to speak of their qualifications, of which no botanist of any pretensions can possibly be ignorant, as their publications are received everywhere as classical; nor can the favourable circumstance under which they are placed, for the execution of such a work, be questioned. Not only have they at their command the richest and most varied collection which was ever made, together with a very perfect botanical library; but as the herbaria are connected with a singularly rich botanical garden, they cannot run the risk of being mere herbarium botanists, incapable, as is too often the case with many a species maker, of recognising the plants they describe except when dry. Dr. HOOKER, moreover, has studied nature in a great portion of the world, and has made larger collections in their native haunts than almost any other botanist; while few persons have a more extensive knowledge of species in all their minutest details than Mr. BENTHAM.

The want of such a work is recognised by every practical botanist. Many years have elapsed since the publication of "ENDLICHER," which, whatever its merits may have been,—and these are undoubtedly great,—must be regarded rather as a laborious and clever compilation than a book of original research, and the same may be said of that of MEISNER.

It is clearly of great importance that working botanists should be supplied with a good book, in which genera should be compared one with another, as well as accurately defined; and that this work, like that of LINNÆUS, should be throughout elaborated by the authors themselves, except in the few instances where the original materials are not accessible. Without such a book, it is quite impossible that authors on geology and geographical distribution should be able to work accurately. Besides which, even had the merits of former works on genera been greater than they are, it is desirable to bring the state of botany up to the present time and to eliminate a world of trashy matter, which can serve only to perplex and disgust students, and to make them disbelieve in botanists altogether. Take, for example, a work like that of KLOTZSCH on "Begonia," or the numberless treatises on species and genera which teem from the German press, where new species are proposed from individual specimens without the slightest inquiry whether they have been described before; and where genera are founded on minute points which can barely serve to separate species, especially in such books as those of KÜTZING, in which a single species forms materials for several genera. If an especial example of botanical confusion is needed, we have only to refer to the fact demonstrated a year or two since before the Linnean Society by one of our authors, that a single species of Oak has been described under ten or more distinct names, and in many cases entirely without excuse.

But not only is it necessary to destroy a number of bad genera, but multitudes of good new genera exist in herbaria which it is desirable to record, because every new genus, if well defined, gives a fresh datum for the formation of correct general estimates, and is sure, more or less, to confirm or modify previous views.

Besides all this, it is most needful to fix, if possible, approximately the limit of the generic term in the series of forms from variety up to class, a limit that can only be obtained by taking a general view of the whole vegetable kingdom. The elaboration, moreover, of such a work can scarcely fail to result in juster notions as to the true position and circumscription of natural orders and their comparative dignity—points which are at present confessedly imperfectly ascertained, system after system being almost purely artificial. Doubts which exist respecting many proposed divisions arise simply from imperfect knowledge; and till the limits and relation of orders are firmly established, we can scarcely expect to obtain good general notions of the distribution of the several members of the vegetable world.

One of the most distinctive and important features of the volume, and one which has never before been so uniformly carried out, is the estimation of the exact number of known good species in every genus, and of their geographical distribution—a matter which has not been obtained empirically, but which is the result of especial labours, the enormous extent of which may be estimated from the partial example afforded by the introduction to the "Flora of New Zealand."

No needless delay will, we are sure, take place in the preparation of succeeding parts of this work, each of which, however, is complete in itself. We trust confidently that not merely botanists, but all who wish to have a complete library, will encourage a publication of such great importance, as it is most desirable that it should at least pay its way, and not prove a loss to its authors. *M. J. B.*

WE have little doubt that the Royal Horticultural Society will in the end have cause to congratulate itself that its 'GREAT ORCHID SHOW' of Saturday last was an undeniable failure. Had it been otherwise the Society might have been tempted to persevere for a while longer in its battle with difficulties against which no amount of energy could have ultimately prevailed. First of all there was a numerous band of professed exhibitors bound together under a solemn compact that they would not again show their plants on Saturdays, let the inducements to do so be never so great. Then there were in the suburbs a well known phalanx of eminent growers, who, though not professed exhibitors, have latterly evinced a disposition to befriend the Society by sending some of their choicest treasures to the Tuesday shows, but on Saturday these parties can render little or no assistance, as the last day of the week is usually set apart for the reception of their own friends, to whom, rather than to the promiscuous public, they naturally wish to exhibit their plants. Then, again, there was another class, who, residing at a distance from the metropolis, could not send up their plants for exhibition and receive them back without encroaching on the rest of the Sabbath day, a step to which they very reasonably and very properly objected. Here then we have a combination of adverse circumstances—each in itself enough to have seriously impaired the success of any show—all arrayed against the Horticultural Society on last Saturday, but from which the adoption of a more convenient day would at any time set them free. We do not profess to be in the secret of the Society's councils, but we do confess we were glad to hear, on what we conceived to be good authority, that another season no further attempts will be made to hold any of the more important shows on what is now sufficiently proved to be an impossible day. But although the Saturday *shows* may be abandoned, we have not the slightest doubt that the Saturday *promenades* will continue to advance in popularity; indeed, already a Saturday lounge in the gardens at South Kensington, to hear good music, meet pleasant people, and buy pretty bouquets, has become one of the "fashionable arrangements" for the week among the most aristocratic circles of this gay metropolis. In proof of this we need only point to the brilliant gathering that crowded the Gardens on the occasion to which we have referred, and who did not appear to be in any way disconcerted on finding that the Orchid-show—which it was supposed they had come to see—was by no means up to the mark.

While, however, we speak of Saturday's show of Orchids as having on the whole disappointed expectations, we cannot but admit that it contained many interesting plants. The specimen of Vanda suavis exhibited by Mr. HILL, gr. to R. HANBURY, Esq., The Poles, near Ware, and to which Mr. SAUNDERS's 5*l.* prize for the best Orchid was adjudged, well deserved the honour. Mr. RUCKER's Trichopilia crispa was a charming object, and

proved to demonstration that it is not only quite distinct from T. coccinea—with which it was once confounded—but at the same time vastly superior to that species in beauty. Cœlogyne pandurata, from Mr. BATEMAN, came loaded with spikes of its strange green and black flowers; while that still more extraordinary Orchid, Cypripedium caudatum, exhibited in high perfection by Mr. WENTWORTH BULLER, furnished a striking illustration of the advantages of the cool system under which it had been grown. Messrs. MAULE and Messrs. LEE each exhibited extensive and interesting collections, which would, however, have appeared to far greater advantage had some feeble specimens—no doubt introduced to make up the number required by the schedule—been altogether eliminated. But by far the most remarkable object on the stage was the specimen of Renanthera coccinea, of which we have already (pp. 198, 988; 1864) given some account, and which, now that Mr. SMITH, gr. to S. NORRIS, Esq., Altrincham, has taught us how to grow it, we shall hope to see again at more than one of the 'Great Orchid Shows'—which we are sure will not belie the name—of the ensuing year.

—— A CORRESPONDENT asks if the light transmitted through GROUND GLASS is injurious to vegetation in a house devoted to Ferns and allied plants. We answer no; but it may possibly at certain seasons be deficient. The effect of using ground glass is just that of shading; a certain amount of subdued light is admitted, and the only question is whether this amount is sufficient for the wants of the particular kinds of plants cultivated under such circumstances. Now Ferns, it is well known, as a general rule prefer gloom and shade; and though there are seasons at which the constant gloom of a ground glass roof may not be necessary, we are not prepared to say it would be in any case practically injurious. Of course it is altogether different with the majority of plants which have to elaborate flowers; for such plants perpetual shade would induce perpetual barrenness. Our correspondent observes that some of his Ferns grow freely, while others are unhealthy—a sufficient proof that in the ground glass there is nothing inimical to such vegetation, the partial unhealthiness of which must be sought for in other directions—probably in the soil, or the temperature.

—— The LIVERPOOL CHRYSANTHEMUM SHOW is announced to take place on the 22nd of November in St. George's Hall. We observe it is required that the plants must be all grown one in a pot, "the stem to be distinctly seen above the soil,"—a very good rule calculated to avoid disputes. Another very wholesome rule is that "each exhibitor must deliver to the Secretary before commencing to stage any collection of plants, flowers or fruit, a correct list of the plants, &c. in each collection. No alteration of this list can be permitted, and any collection or specimen not corresponding with the list will be disqualified." It is well known that the arrangements are frequently thrown back by certain exhibitors deferring to stage their collections until they can see what their opponents produce. This practice is neither fair as between the exhibitors themselves, nor convenient as regards the management; and the rule in question should operate to prevent it. Prizes are offered for groups of three Poinsettias, which should make a very good display at an autumn show.

—— It is announced that the JOURNAL OF THE ROYAL HORTICULTURAL SOCIETY, the management of which is placed in the very competent hands of our valued contributor, the Rev. M. J. BERKELEY, is to appear in parts of 80 pages each, with two or more woodcuts or lithographs; and that the volume, consisting of four such numbers, will be issued to subscribers at the cost of 20s. Two numbers are to appear in the present year, and from two to four in future years.

ORCHIDS AND THEIR CULTIVATION.—No. V.

IT seems tolerably clear from the scrutinising and careful examination to which the leaves of affected plants have been subjected by "M. J. B." (see pp. 147, 172), that there are at least three different forms of spot, and these forms seem to be all diseases independent of Fungi. In the fourth form which I submitted for examination, which was due in my opinion to the effects of fumigation, and which presented in some examples features very similar to the worst form of spot, "M. J. B." discovers in another specimen which I sent him Fungus in its perfect state. All the specimen leaves, however, of the Mexican plants submitted under the so-called fourth form were certainly injured by fumigation, as was abundantly evident to me the next day, and the day following the evening on which the house was fumigated. Such a mishap occurring, and causing a chlorotic appearance, is not inconsistent with, but rather goes a certain way to show that some parts of the leaves, more than others, were rendered impotent by some influence such as the appearance of Fungi.

By way of further illustrating these diseases, it may be well to notice the plants most liable to attack, and the practice which has a tendency to mitigate it, or arrest and eradicate the evil. It is only by striking fairly, fully, and openly at the misfortunes in practice which baffle our skill, and by calling to our aid the accumulated wisdom of scientific minds, that we can hope to arrive at sound deductions as to cause and cure. Some may consider it to be more prudent to adopt a reticent style of writing in treating of failures in practice, for generally we have all the good recorded, with as little of the bad as possible; but I prefer getting at the root of the malady which, in a greater or less degree, stares every Orchid grower in the face. Notwithstanding all the examples I have submitted, the Meadowbank collection is singularly clear of spot; for out of nearly 2000 plants, there are not more than three per cent. affected with either one or all of the forms combined. I have seen and had to do battle with it, giving me much uneasiness of mind, when there were three times three; and even now, with such an insidious enemy to deal with, it would be foolish to indulge in self-gratulation.

The No. 1 form of spot seems entirely to confine its ravages to plants grown in a tropical house, which is chiefly constructed and reserved, where the collection is numerous, for the cultivation of the great subdivision of Vandeæ. Singularly enough the very genera that stand unrivalled among all oriental flowers—Phalænopsis, Saccolabium, and Aerides, are most liable to attack. I have never seen here or elsewhere a single instance of this pulpy muculent disorder in any Vanda. Were this disease only to make a partial encroachment upon the leaf or leaves at the first onset, there might be some hope of arresting its progress, probably by some simple abstersive lotion, such as Mr. Radclyffe suggests; but it often first affects the internal portion of the stem, and layer after layer of tissue is destroyed, the leaves sometimes falling off comparatively uninjured. It is difficult to know how to act in such a case. Fortunately there is only a very small percentage of plants attacked in this way, else the consequences, pecuniarily speaking, would be very serious; and those that are so visited are often the most vigorous among their fellows. It might be said that this was caused by some sudden change of temperature, by inefficient ventilation, by the want of a proper degree of light, and hence the whole system would be improperly consolidated. This indeed would be a formidable array of circumstances, likely enough to induce evils of no inconsiderable character, but the effects produced would be more uniform than what is invariably the case in all well-managed collections, for plants equally vigorous, of the same species—in fact, duplicates of the same, treated exactly in the same way, grow on uninjured. This is not a form of disease, so far as my observations lead me to judge, to which the plants can be predisposed like the others I shall presently treat upon, so that one would be inclined rather to set it down to some constitutional derangement common to this high order of plants. The animal system is subject to diseases which occur independently of a system of living which may be pronounced by the highest authorities to be unexceptionable, and which occasionally baffle their united skill to counteract. Surely then it is too much to expect one to practise so successfully, from the physiological point of view we are discussing, as to prevent the propagation of diseases, and counteract them after they have appeared. I should much like to know whether this or any other form of disease occurs in the plants in their native habitat. Another point of importance which I cannot speak confidently upon is whether this disease is infectious or not. I have once or twice thought so from the fact of more than one plant being affected after the disease appeared, and have on all occasions deemed it prudent to move them to another house which forms a hospital for such patients.

The second and third forms of disease are so intimately connected one with the other as to appear very much alike. Nevertheless, in my opinion, which is fortified by the microscopical examination of "M. J. B.," they are essentially distinct and due to totally different causes. The No. 2 form is very common to all East Indian and Brazilian Orchids, and is unquestionably due to a variety of causes over which the gardener has a certain control. The more artificial heat that we require to apply to provide a suitable climate for successful culture, the more liability there is to this form of spot. Undoubtedly there are varieties of certain species whose system is much more easily deranged than others; but upon the whole practical men have ascertained that, under certain treatment, this malady never appears so formidable in collections as to excite much uneasiness. Before discoursing upon the counteracting medium which has a beneficial influence, I may name the plants that are most liable, even under the best treatment, to this form of spot. These are—Oncidium Lanceanum and ampliatum; Aerides crispum and Fieldingii, Phalænopsis of sorts, Cattleya lobata, Dendrobium densiflorum, and its allies. As I said before too much heat without a proper and proportionate degree of moisture predisposes to this spotting. We have been told that as soon as spot made its appearance we should keep our houses and plants under a dry *regime*. The interpretation of this leaves the novice very much to his own deductions, and, in nine cases out of ten, he is sure to err upon the wrong side. If there is the least tendency to aridity, instead of subduing the disease you aggravate its spread tenfold; but it is exceedingly difficult to strike a proper balance, far more so to propound a given ratio, so that those in charge must rely with this caution upon their own experience. For the illustration of this point, if the growing of a plant belonging to a more temperate region in a tropical house is persisted in, however well the house may be supplied with moisture, it will be attacked with this form of spot. One case in point will be sufficient to convince the most incredulous. We had a large plant of Acineta Humboldtii, which was growing in a stove house kept rather above an intermediate temperature. Not only the leaves but the pseudobulbs of the plant were affected with the spot. I had it cut up into six different pieces, and potted each piece into a hanging pot perforated round the sides. Three of these plants were placed in the Cattleya house, and the other three in the Mexican house. There is a considerable difference of temperature in these houses, and the moisture is in proportion. Now that the plants have completed their growth, and the pseudobulbs are thoroughly matured, I find that those in the Mexican house are half as large again as those in the Cattleya house, and more than that the former have outgrown spot, as there is not the slightest trace of it on either leaves or bulbs; while the latter still show it on the young pseudobulbs, although not of so virulent a character. In a word, because we shall come to treat more fully upon these questions when considering cultivation, all extremes of heat, cold, moisture, aridity, stagnant air, impurous material for root action—anything which has a tendency to excite or retard overmuch the functions of the plant, should be carefully avoided, because all such like experimentalising or treatment in an artificial climate, is productive of the worst consequences to the general well-being of the plant; unless in such instances as was cited of Dendrobium speciosum, which is a shy bloomer under ordinary treatment. All these practical maxims taken together, indirectly make up an atmosphere suited to these exotics: and it is mainly, although probably not absolutely, due to the non-observance of one or all that disease is generated. The only direct remedy that I ever applied was charging the atmosphere with sulphurous vapour, the water pipes being painted with flowers of sulphur. If this has not been productive of great results, at all events it did no harm, and I am inclined to look upon its influence much in the same way as the confiding patient does the prescription of his medical adviser. Prevention is better than cure, and if there is such a thing as Fungus existing in the atmosphere, the casual doses thus administered should subdue it.

The third form of spot, although sometimes detected on examples visited with the second form, is rather due to constitutional weakness, induced in most cases that have come under my observation at an early stage of the growth of the plant, than to any sudden check or incidental cause. The affected parts are more longitudinal than orbicular, running more in parallel lines than in concentric circles, and the lamina is often destroyed in such a way as to greatly disfigure the plant. Unlike the second form, it has never such a powerful effect as to destroy the vitality of the leaf, but in some instances it takes years to subdue. I have had several plants under my charge of this kind, some of which are now producing leaves quite free from spot, and others growing gradually out of it. Generous treatment, with the view of propagating roots, is what should be aimed at with all such subjects. Vanda cœrulea seems to me to be an exceptional case in favour of this kind of spot. It is rarely you will find a plant completely free from it, and this by most people is set down to the credit of its being grown in too high a temperature. Being found in the mountainous regions of Khasya, it will be doubtless very much exposed, which may be partly the reason for its refusing to luxuriate in a climate where we cannot afford at all seasons to introduce rapid air currents. This reminds me that I saw at least six plants in the very fine Orchidaceous collection of M. Guibert, Passy, without a single spot on either of them. The smallest of them would be a foot high, clothed with leaves to the rim of the pot, and each leaf broad and vigorous. On asking Mons. Leroy his mode of treating them, he intimated that it was precisely similar in its character to that of others of the Vanda and Aerides tribe, only he kept them a few degrees cooler, and gave them more liberal ventilation. There will always be instances of a like character, so anomalous as not to be easily accounted for; and although the mode generally carried out in treating this Vanda, should, according to my dicta, rather induce the second form, this nevertheless presents more the appearance of the third. *James Anderson, Meadowbank.*

KITCHEN GARDEN PLANTS.—No. IV.

BEET.

CONSIDERABLE difficulty is often experienced in getting Beets true to name. They are so nearly alike in many respects that one variety is often sent out for another. In addition to this much confusion arises from the fact that every seed establishment now-a-days has its own "Selected" or "Improved" Beet, which not unfrequently is a reliable stock of some

known variety, the re-handling of which is also sometimes accompanied by a corresponding advance in price. It may thus happen that a seedsman may send out this year under his own name, Nutting's Dwarf Red, while next season it may be Henderson's Pine Apple, or some other kind.

There was a time when Oldacre's Superb Red, a variety raised at Stoke, near Windsor, and the Castlenaudery Dwarf Red were largely in demand, and were in fact staple varieties. Both have now died out, or they have become incorporated with others. Really perceptible differences of character can be claimed for some four or five varieties only, viz., Whyte's Black, a very dark coloured root, often of indifferent quality; Henderson's Pineapple, originally sent out by Mr. Turner, of Slough, as Short's Pineapple, deep crimson in colour, tender, sweet, and well-flavoured, dwarf and compact in habit, and generally uniform and fixed in character. This variety was, I believe, raised by Mr. Charles Short, gr. to Sir W. B. Proctor, Bart., Langley Park, Norwich. Another is Carter's St. Osyth, the origin of which is due to Mr. W. H. Dunnett of Dedham, now a partner in the firm of Messrs. James Carter & Co. This last is a very fine Beet, large, high coloured, sweet and tender, the roots generally being of good shape. Closely resembling this is a very fine red Beet locally designated Covent Garden Red, a kind much esteemed in Covent Garden Market, being high coloured, tender, mild and sweet in flavour. The roots are of fair size and symmetrical. The stock of this is to a great extent in the hands of Mr. A. Dancer of Fulham. Nutting's Dwarf Red has achieved a widespread popularity as a first-class Beet. I think it was in 1859 that it was pronounced to be the best in trials made with Beet at the Royal Horticultural Society's grounds at Chiswick. "The flesh is deep crimson, of smooth close texture, remarkably sweet and well flavoured, and without the earthy flavour of which many kinds of Beet partake." This is the character given of it at the trial in question, and I have no reason to think that it has altered.

A very good dwarf variety of continental growth is largely imported into this country. I have no doubt that in many instances this does duty for "Small Selected Blood-red," "Fine Dwarf Red," "Short-topped Small Crimson," &c. of the catalogues. I have seen a remarkably fine stock of this "foreign importation." I imagine this also represents Cattell's Dwarf Blood-red, Sang's Crimson, and one or two others which have attained something more than a local notoriety. The great requisites to be sought for in Beet are depth of colour, fineness of texture in the flesh, mildness, sweetness, and freedom from earthy taste. As a vegetable it is highly nutritious, as well as exceedingly wholesome. Dr. Lyon Playfair states that a good brown bread may be made by rasping down this root with an equal quantity of flour.

The Green or White Beet, known also as Perennial Spinach Beet, is cultivated wholly for its leaves, which are dressed as Spinach. It cannot be said to be a popular vegetable, though it is cultivated to a considerable extent in some parts of the country.

The Silver or Seekale Beet is grown for its leaf-stems and heart, which are used like Sea Kail. A greatly improved variety, the leaves of which are beautifully curled, while the stalks are much whiter, has recently been sent out by Messrs. Beck, Henderson & Child, of Upper Thames Street. As a vegetable it is said to be very delicious, being particularly tender and delicate when appropriately dressed. The Scarlet Brazilian is cultivated solely for decorative purposes, its leaves being of a good colour.

The White Silesian Sugar Beet is almost if not entirely employed for agricultural purposes. It is by no means largely grown in this country, though cattle greedily devour its sweet and juicy leaves. On the Continent however large tracts of land are devoted to its cultivation, especially in France, Germany, Belgium, and Russia, for the manufacture of sugar. It is said that a root contains often as much as a tenth part of its weight of sugar. It has been computed, that, at the present time, not less than 362 millions of lb. of Beet Sugar are manufactured on the Continent. *Quo.*

HEATING ORCHARD HOUSES.

I communicated to you last week (p. 435) some of the results of heating an orchard house, but said nothing as to the mode of heating. The stove used was a brick Arnott, placed inside the house. Nothing could be more economical; but it took up space, and was unsightly. I wished, therefore, for something better; and having perused with much interest the account given by Mr. Wykeham Martin of his hypocaust, determined upon trying such a modification of it as would suit my own house.

In order to make myself intelligible, I must premise that the house in question is 48 feet long and 12 broad, and is placed nearly E. and W. The roof is hipped, the back angle being 60°, and the front 22½°. The foundations are of brick. The central path is on the ground level, and stops within 5 feet of either end of the house. Thus 20 square feet of border are gained. The house is divided into two equal portions by a glass partition. One-half only is heated. The entrance door is at the back of the unheated portion, and close to the glass partition. A few feet outside the door is a pump, which works from a tank filled by the rainfall on the roof of the house.

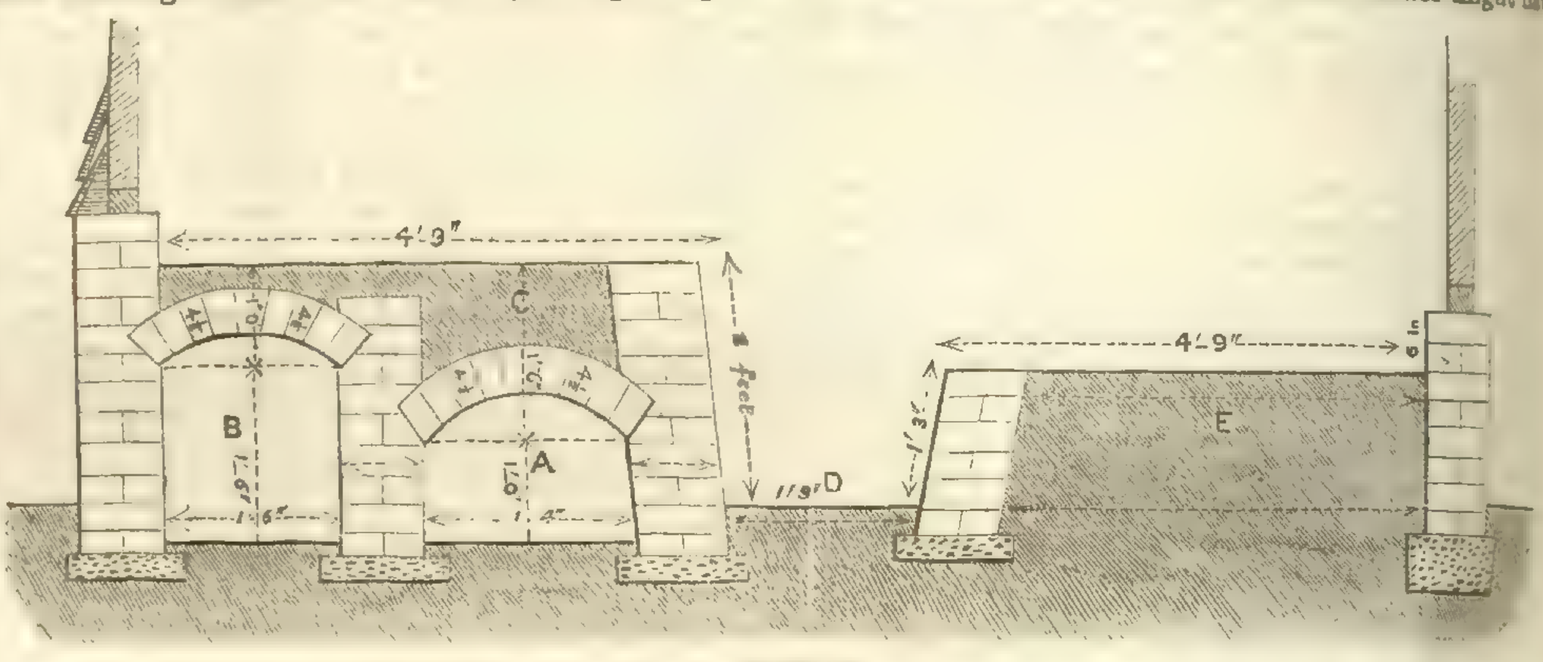
The heated portion of the house, to which alone I need call your attention, presents then a parallelogram of 24 by 12. The front border is made 9 inches lower than the back; 1st, to give more head room to the trees, and 2dly, to prevent their shade falling on the back border. The brickwork supporting the borders is made to slope slightly from the path upwards, but by bedding the upper courses with a little extra mortar at the back, the top course, which is laid in cement, is perfectly flat.

And now for the heating. A stove (see ground plan) is placed under the N.E. corner of the back border, and approached by steps from outside. The door of the stove is flush with the back wall of the house. The back border is formed of two arched flues, the supporting walls being of 9-inch work, and the arches of 4½. The whole is braced together by three iron ties. Each of these flues is on a dead level, but the level of the top of the back one is 6 inches higher than that of the front one. The two communicate by an aperture in the parting wall at B. The smoke is first discharged into the front flue, and passing into the back one by B, finally escapes by the chimney C, built outside and provided with a damper. The northerly wall of the back flue, which is the back wall of the house, is cemented outside. Both flues are parged inside, and grouted at the top outside. The same thick iron plate which forms the top of the stove forms also part of the bottom of the back flue, but to prevent this creating too great a draught and escape of heat, a few tiles are imbedded over it, and are gradually sloped downwards to the bottom of the flue, and upwards to the chimney. The back border is covered with coal ashes, of which there are about 8 inches above the hotter flue, and two above the cooler. Thus the heat is equalised, and yet the border kept flat. By a contrivance scarcely worth detailing, the 5-feet border gained by shortening the path is connected with the flue.

Thus the back border is a hotbed retaining its heat long after the fire is extinguished, and any part of it covered with a hand-glass can be used for striking cuttings. The heat also is principally applied to the plants just where they need it, namely, at the roots.

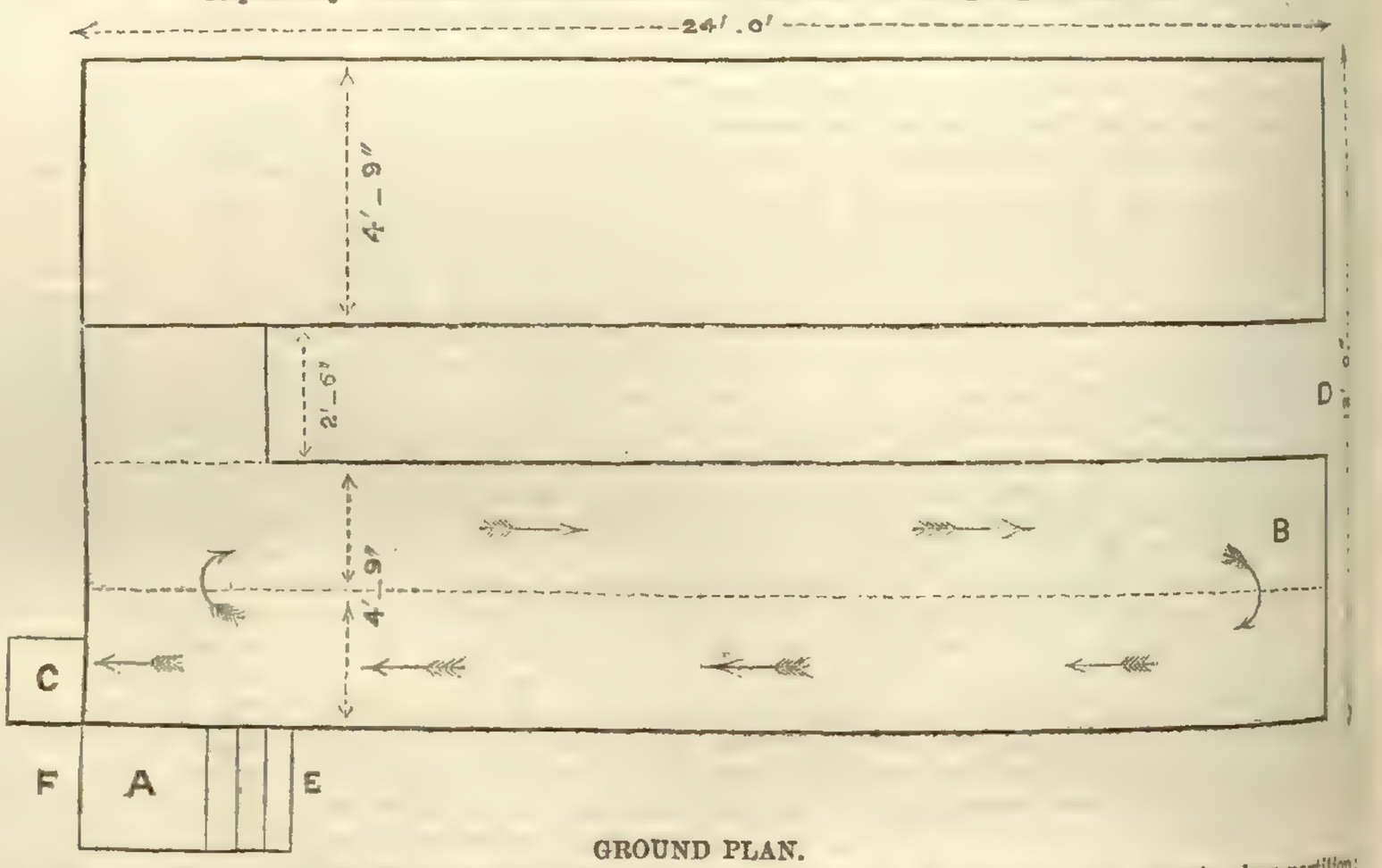
It may occur to some of your readers that with almost the same expense the front border might have been heated as well as the back; for if a single arched flue had been carried under each border, the smoke might first have been discharged into the front flue, and then crossing the path might have passed into the back flue. Such indeed was my first plan, but it was given up in consequence of the necessity of sinking the stove inconveniently low, and of surrounding the outside wall of the front flue with the damp earth of the garden.

The arrangements here described have, up to the present time, given perfect satisfaction, and therefore perhaps you may think them worth recording in your Journal. *S. B.*



SECTION.

A, is the discharge flue; B, the return flue; C, bed of ashes; D, path; E, front border. The flues are respectively 1 foot and 1 foot 6 inches from their base to the spring of their arch.



GROUND PLAN.

A, is the door of the stove; B, the aperture connecting the two flues; C, the chimney; D, door in glass partition; E, steps down to stove; F, place for coke, excavated and covered over.

Home Correspondence.

Collinsia verna (Nuttall's).—This beautiful spring-flowering annual has been in bloom with me for nearly six weeks past. I received my plants from Mr. Thompson, of Ipswich, in February last. They were taken from the open ground and planted immediately in a south-west border, where they have succeeded remarkably well. In spite of the hot dry weather of last month they made short stout plants, which threw out a quantity of side shoots. The lower division of the flowers is bright blue, the upper pure white. The seed of this annual should be sown in autumn, for it will not vegetate if kept till spring. Thus treated it will be out of bloom in time for the planting out of bedding plants. Nuttall's C. verna must not be confounded with C. verna introduced from North America in 1826. The flowers of the latter are pale blue and purple; it can, however, hardly be met with true, as grandiflora, a summer-flowering variety, is often sold for it. During winter, when severe weather prevails, a little loose litter might be strewn over the plants with advantage. *Quo.*

Blind Strawberries.—I potted 200 Strawberry plants last autumn for forcing. This spring they were strong healthy plants, with good crowns. The first lot I put into the Vinery about the first week in January; these showed well and promised a heavy crop, but I was greatly disappointed to find that they all turned out to be blind. The second lot was put into the front of the Peach house, and these also showed for a heavy crop; in fact they were the admiration of all who saw them, but I was again disappointed, for they also went blind. Nothing could have been more healthy and promising, without spot or blemish on foliage or flower, with the one exception, that the anthers appeared to be brittle. In the front of the Peach-house they had full command of light and air, and the pots were placed on moss, to retain moisture; and being entirely under my own care they were well attended to. The plants were wintered in front of a south wall, and were stacked up with layers of straw between them. If any of your readers can throw any light upon the cause of such a failure I should feel much obliged. *A Constant Reader.*

Dendrobium anosmum, D. Dayanum, and D. macrophyllum.—I trust I may be permitted to correct an inaccuracy in your report of what I said at South Kensington on the subject of the above plants. My object was to prove that the so-called D. Dayanum of our gardens was none other than the true D. anosmum

of Lindley, and that the plant which had of late years usurped the latter name was nothing but a variety of D. macrophyllum. In your report I am made to say the reverse of this. *J. B.*

Japan Lilies.—Large numbers of bulbs of the different varieties of these are annually imported from Holland by seedsmen, and always apparently in excellent condition. During the past three years I have heard purchasers of these imported bulbs complain that they invariably rot. The evil commences at the base first, and gradually extends to the apex, leaving only the mere shell. This season I have made an experiment with two imported bulbs, and four of English growth. The two first rotted completely through soon after they were potted, while the home-grown bulbs are all growing rapidly and are in robust health. Within the last few days I have received an unexpected confirmation of my own experience. A gentleman potted eight bulbs of Dutch production, and the same number of English growth. Every one of the latter have done well, but of the former only one has vegetated, the rot referred to having consumed the remainder. Can any of your readers account for this? *Quo.*

Cottage Vineries.—I am sure Mr. Rivers will not object to my attempt to convert his "Curate's Vinery" into a "Cottage Vinery" by further simplifying the construction, already, as he says, so simple. I want to show a cottager that he may easily make them himself, and that he may obtain the materials for about 6*s.* for each 7 ft. frame. If he has not a carpenter's plough, he may nail to the edge of the upper bar two thin strips of ¼-inch deal, leaving the groove for his glass between, rubbing in a little white paint to keep out the wet. The side and bottom bars may be left square, as they are better without any groove. I make my frame the right width to receive the glass, and slipping the pane into the groove in the top bar, I bore with a bradawl two holes in the bottom bar, under each pane (nearly as large as the nail itself) into which I press two zinc slating nails, upon which the pane will rest, and keep so firmly in its place, as not to be moveable, without withdrawing the nails. By this plan there is no putty required, and there is no lodgment for wet. I have just had four 7-feet frames made, and will tell my poor neighbours how to proceed. Buy from a timber yard a 19-feet yellow deal 9 inches by 3 inches; have a cut put into the middle of it; it will then form two 1½-inch boards. Cut each of these into four strips of 2¼ inches wide; each strip will then make half a frame, 7 feet 4½ inches long, and 2 ft. ½ in. deep, with a slight foot to rest on. Then screw the two sides firmly together at top, and brace the ends together near the bottom with a piece of tiling lath. My carpenter charged me 4*s.* each frame for making, painting, and glazing it, I finding all materials; but when he had got his hand in he offered to make, paint, and glaze me a dozen more at 3*s.* 6*d.* each. The cost stands thus:—

	£	s	d.
19 feet yellow deal, at 4*d.* per foot	0	6	4
1 cut in ditto	0	0	4½
100 feet of common orchard-house glass, bought of Thos. Millington, 87, Bishopsgate Street (case included); size of the 60 squares it contained, 20 inches by 12 inches	0	11	6
Carriage of ditto	0	2	0
10 oz. zinc slating nails, 1¼ inch long, at 8*d.* per lb.	0	0	5
20 small screws to each frame and 4 large.. ..	0	1	6
2½ lb. white paint, 1*s.* 10½*d.*; knotting, 2*d.* ..	0	2	0½
	£1	4	2

Or 6*s.* 0½*d.* per frame without making.

Why should not a cottager treat his family to a few bunches of fine Grapes, when their culture may be managed at so trifling cost? *Amicus, Sudbury.*

Melons.—What has become of the report which was promised by the Royal Horticultural Society of the comparative merit of different varieties of Melon, for which seeds were solicited? I forwarded seeds, but have heard no more of them. *T. P.*

The Hedgehog.—A hedgehog, turned into a small flower garden last September, has done some service in reducing the number of woodlice and earwigs; the sharp nose thrust night after night into each perennial tuft did its work well and without damage; not so with the Mignonette and the beautiful Saponaria calabrica, which were threaded through and through and spoiled. There were some other drawbacks. This curious creature forms tracks like the rabbit, from which it is not easily diverted, and with all its timidity and shyness has some love of frolic; the walks, in the morning, clean swept of gravel, showed that it had spent some time in racing round at speed. It has been returned to its native hedgerows. As the hibernation of this animal has been of late disputed, it may be stated confidently that it took place in this instance. It retired late in December to its lair in a small rubbish-heap, where the decaying leaves afforded, most likely, a little warmth. A few days before this its weight had been noted. Its foot-prints did not reappear in its old tracks, which had been carefully raked over, till the 5th of April last. It had been dormant more than three months, and lost in that time nearly three ounces, about one-seventh of its total weight, which in an animal so made up of spines and bristles is not inconsiderable. The hedgehog, it may be observed, contributes to our rural sounds; when hunting for insects at night it sometimes purrs gently. In spring, in the day-time, at intervals, it makes a low melodious clucking noise; and when approached while basking in the sun on a summer's day, salutes the intruder with a single husky snap or snarl, loud enough to make him pause and wonder, the invisible cause, though close under foot, not being suspected. *S. S., Brighton.*

Rose Weevils.—Having noticed that my Roses have been considerably devoured by some insect, and in one or two instances I fear killed, I determined to watch at night (not being able to discover the marauder by day), and the result is that I found as many as five or six of the enclosed beetles on those Roses which were most injured, and where the damage was less I could only find one or two feeding. I should esteem it a boon if you would kindly give me the name and also inform me if I can take any measures to destroy or guard against their attacks other than the one I am now adopting, viz., that of looking each Rose over carefully and removing any that I can catch. *W. F. J.* [Your Rose trees are attacked by the same kind of weevil as attacked the fruit trees in the Kingsholm Nursery, Gloucester. See p. 436, May 13, 1865. *W.*]

Carter's First Crop Pea.—I can fully corroborate the short notice of the above at p. 436. A row was sown in my garden at the end of February, and by the third week in April the first bloom appeared. At the present moment the appearance of the row is very fine; the haulm is strong and vigorous with bloom at the axil of every leaf; the foliage is good, indicative of an excellent constitution; the height, now about 18 and 20 inches, is uniform all along the row, thus showing that the first qualities of a good Pea are obtained. A row of Sangster's No. 1, sown a month earlier, is at present behind the First Crop, except in height, which it exceeds by a few inches. *Adolphus H. Kent, Blechingley, May* 12.——Carter's First Crop Pea is the earliest with me; it is now one complete mass of bloom from top to bottom. I sowed it on the 28th of January, and it was in full bloom on the 1st of May. All who have seen it say that it is the best Pea they ever saw for early work. If sown in a warm situation it must be much earlier than with me. It promises to prove, moreover, a great cropper, which is important as well as its earliness. *H. Godfrey, Oak Leigh, Sunninghill, Staines.*

Societies.

Botanical of Edinburgh: *March* 9.—Dr. Dickson, President, in the chair. The following members were elected:—Resident: T. Robson, Esq. Non-resident: J. Stewart, Esq., Nateby Hall. Among the additions to the Herbarium announced were specimens of Hierochloe borealis, collected at Thurso, from Mrs. Ross, of Pitcalnie. Specimens of Lepidodendron and Lepidostrobus, which have been added to the museum at the Botanic Garden, were exhibited. It was agreed that all the members should be asked to contribute their *cartes de visite* for insertion in the Society's album, now in progress of formation. The following communications were read:—1. *Notice of Rare Plants collected in the South-west of England.* By F. Naylor, Esq.——2. *Notice of Esparto.* By the Right Hon. the Lord Provost. The Lord Provost communicated the following letter from Mr. Hislop, of Lisbon:—"I have made the inquiry you wished relative to the 'Esparto,' and find there are thousands of tons annually shipped from Alicante and Carthagena. In Alicante I found three large vessels loading the goods for England, and discovered that last year 4000 tons were shipped to the following countries—England, France, Belgium, and Sweden. Its use is for the manufacture of paper. The fibres are used in the Scotch carpet trade, Kidderminster, and Brussels. The Grass is grown in a dry soil. It is not grown from seed; when planted it spreads rapidly. It is not cut, but torn up by the roots—a very easy process when ripe. The fibre makes a paper with a fine surface, and strong. A process is employed for extracting the glue-like matter in it, leaving the fibre clean and fit for use after drying." The Lord Provost suggested that the plant might perhaps be cultivated in some of the milder parts of this country.—Dr. Balfour remarked that the plant was Macrochloa tenacissima, and grew on sandy shores, like Bent. The common name of the Grass is derived from the Latin spartum, the appellation given to a plant from which the ancients made bands to tie Vines and ropes for ships. In some of the Latin dictionaries it is said to be a kind of Broom, but this is a mistake. Specimens of Spart in various states were exhibited. ——3. *Note on the Discovery of Neotinea intacta in Ireland.* By A. G. More, F.L.S.; communicated by Dr. Balfour. The plant was discovered by Miss More, in April, 1864, at Castle Taylor, about six miles inland from the Bay of Galway. In the same field with the plant occurred a rare species of hawk moth, Anthrocera minos. It is remarkable that in Killarney Arbutus Unedo is associated with two local species of insects, Notodonta bicolora and Hydralia Banksiana. A mollusk, Geomalacus maculosus, is also peculiar to the Killarney district.—Dr. White stated that Anthrocera minos had also been met with in Argyllshire.——4. *Summary of some of the more interesting Botanical Papers published in France since July,* 1864. By G. M. Lowe, Esq.——5. *Report on Vegetation in the Open Air.* By Mr. M'Nab. The long duration of the recent snowstorm had greatly retarded the flowering of many plants which, previous to last year, 1864, were usually recorded as being in bloom. With the exception of Nordmannia cordifolia, they were exactly the same as those recorded in flower on the 10th of March last year. A remarkable feature in the flowering of certain plants this year was the progress made by some of them under the snow. Immediately after the snow disappeared, the Snowdrops were found to be 2 inches high, and in full bloom on banks where no appearance of them was observable previous to being covered up. A bed of Eranthis hyemalis had about 18 or 20 blooms open previous to being covered with the snow; the day the snow disappeared the whole were found to be in full bloom, having been covered up for nearly a fortnight by the last snowstorm. Erica herbacea, Arabis albida, Galanthus plicatus, and Hepatica triloba were also in bloom when the snow melted.——A letter was read from Mr. W. Robson, who went from the Edinburgh Garden to India, dated January 8, 1865. He had visited Ceylon, and procured Cinchona plants from the Garden at Peradenia, near Kandy, where Mr. M'Nicoll has cultivated the plant successfully from cuttings. At Ootacoomund, on the Neilgherries, he found Mr. M'Ivor cultivating Cinchona very extensively. Orders have been given to him to plant 130 acres yearly; some of the specimens which had been planted two years previously were 5 feet high. The climate was remarkably fine, and suited to the cultivation of all sorts of vegetables and flowers. Mr. Robson left Calcutta on 1st December last, and on the 21st reached his destination, about five or six miles from Darjeeling, and about 2000 feet lower. The country is very beautiful, and the climate excellent. There are upwards of 900 acres of Tea cultivation at the place, and some plantations of Cinchona.——A letter was read from Dr. John Anderson, dated "Calcutta, December 23, 1864," in which he says:—"There are many encouragements for gardeners to come out here. Their outfit and passage money are paid, and after 15 years' service they are entitled to a third of their pay, calculated on the rate of the last five years of service, as pension. John Scott (from the Edinburgh Botanic Garden) arrived here on the 21st, and my brother at once appointed him head gardener at Darjeeling. He is to be in charge of the Cinchona cultivation, and leaves this for Darjeeling in three days. I am to be appointed for two months to make observations on the age of timber. The materials for such an investigation afforded by the late cyclone are immense, and as the ages of a great many of the destroyed trees are on record, we hope to be able to arrive at some definite conclusions as to the value of concentric rings in a country like India, as an index of the approximate age of various species. I have been to Darjeeling, and can assure you no words can convey the faintest conception of the magnificence of the snow range as seen from that station. The Cinchona cultivation is progressing capitally; there are 15,000 plants in the open air. The damage done to this garden by the cyclone was very great. All the finest trees, 2000 in all, were destroyed, and now the garden is entirely without shade. Formerly there were splendid avenues of Teak, Mahogany, and Casuarinas, but now they are entirely gone. It is one of the most painful sights I have witnessed."——Dr. Lowe, Balgreen, sent specimens of flowers of Hepatica triloba, vars. alba and nivalis. One of the flowers had pink anthers, the other white; the latter dries with a pink tinge on the petals, while the former continues of a pure white.

Royal Horticultural: *May* 13 (*Special Show of Orchids*).—Some account of the more important features connected with this exhibition will be found in another column (p. 458.)

In the class specially set apart for Vandas, Aerides, and Saccolabiums, Messrs. Maule & Son, of Bristol, were the only exhibitors. They furnished good examples of Aerides crispum and Fieldingii, the latter with a gracefully pendent spike nearly 2 feet in length; also Veitch's variety of Vanda suavis and Saccolabium guttatum giganteum, the last a fine specimen placed on the top of an imitation tree-stump pot made of pottery-ware, about 3 feet in height, and some 20 inches in diameter at the base. Examples of this new description of pot, of various heights and widths, were also employed by Messrs. Maule for other Orchids, and with good effect; the colour, that of rough aged bark, associating better with the graceful habits of this charming class of plants than the brick-red of the ordinary pots or pans.

Cypripediums, a genus of Orchids specially invited by the schedule, to be shown separately on this occasion, were produced in wonderfully fine condition by Messrs. Maule, who had C. calycinum (shown as C. Pearcii), a species with pale green flowers, having short tails in the way of C. caudatum; also C. barbatum purpuratum and multiflorum in pans, measuring fully 2 feet in diameter, literally masses of floral beauty, sustained by young plants, each surmounted by a flower, placed in rows sufficiently close together to yield collectively a fine head of bloom. Mr. Cullen, gr. to Wentworth W. Buller, Esq., Strete Raleigh, Exeter, furnished the fine Cypripedium caudatum mentioned elsewhere (see p. 458), with tails nearly 2 feet in length; likewise a very fine plant of C. multiflorum, and a beautiful variety of C. barbatum, in wonderfully fine health.

In Miscellaneous Groups, Messrs. Maule again occupied a conspicuous position. They had magnificent

panfulls of Cypripedium barbatum nigrum, a very dark and fine variety of Bearded Lady's Slipper; Vandas of different kinds; Aerides crispum and the Foxbrush sort; Saccolabium retusum and ampullaceum; Dendrobium nobile, the charming D. Devonianum, and Oncidium divaricatum, one of the most useful of all Orchids for furnishing materials for bouquets. Messrs. Lee contributed Cypripedium Hookeriæ, hirsutissimum and others; three species of Dendrobium, among which was D. Dayanum, now stated to be the true D. anosmum of Lindley; also Phalænopsis grandiflora and amabilis, one or two varieties of Cattleya Mossiæ, and Oncidium altissimum. From Mr. Parker, of Tooting, came a third collection, in which were three kinds of Vanda; Phalænopsis grandiflora and its variety called aurea; Trichopilia coccinea; a fine plant of Lycaste Harrisoniæ, with 15 fully expanded blossoms on it; Cattleya intermedia, and three fine varieties of Cattleya Mossiæ.

Among collections of six Orchids the best came from Mr. Robson, gr. to G. Cooper, Esq., who furnished Cattleya amethystina, the useful Lycaste Skinneri, a beautifully flowered plant of Oncidium sphacelatum, Phalænopsis grandiflora, a fine variety of Vanda tricolor, and Cattleya Mossiæ. From Mr. Robson also came another collection, in which were the sweet-smelling Burlingtonia fragrans, the singular-looking Epidendrum dichromum, and that universal favourite Sophronitis grandiflora, quite a little scarlet gem.

In the class devoted to three kinds of Orchids, Messrs. Maule showed Trichopilia crispa, Foxbrush Aerides, and the delicate-looking Oncidium triquetrum.

Foremost among single specimens was the magnificent Vanda suavis from Mr. Hanbury's gardener, mentioned at p. 458. Next came the singular-looking Cœlogyne pandurata from Mr. Sherratt, gr. to J. Bateman, Esq., and the Chinese Renanthera from Mr. Smith, gr. to S. Norris, Esq., both noticed in the page just quoted. Phalænopsis Lüddemanniana was exhibited again in excellent condition for so young a plant by Mr. Charles, gr. to R. Barnett, Esq., Blackheath Park, to whom an extra prize was deservedly awarded; and examples of the same highly promising Orchid also came from Mr. Robson, gr. to G. Cooper, Esq., and Messrs. Low of Clapton, who had two flowering plants of it in very small square baskets. Mr. Wilson, of Dulwich, showed some of the many varieties of Cattleya Mossiæ. The Society's Garden furnished Cypripedium Hookeriæ and C. barbatum nigrum; a new Physurus from Mr. Weir, with dark green leaves prettily marked with white; and one or two other pla..ts. Last, but by no means least, must be mentioned the beautiful specimen of Trichopilia crispa from Mr. Pilcher, gr. to S. Rucker, Esq., referred to at p. 458. This was a glorious plant, which did credit to the great collection from which it came; and had it not been labelled "not for competition," it doubtless would have received a high award.

Unconnected with the exhibition of Orchids, but in the same arcade with it, was an extensive display of Stove and Greenhouse Plants contributed by Messrs. Lee, of Hammersmith. It consisted of fine-leaved plants, such as Rhopalas, variegated Yuccas, Alocasias, Cordylines, Dracænas, and Tree Ferns, intermixed with flowering plants of Azaleas, Heaths, Pimeleas, Boronias, Leschenaultias, Chorozemas, and Clematises, the whole set up with such taste and skill as to produce an excellent effect. From Mr. Bull also came an extremely interesting group of plants, in which were Cibotium princeps, Asplenium myriophyllum, Gleichenia flabellata, Orange trees in fruit, Yellow Rhododendrons in the way of R. Jenkinsoni, Dracænas, Azaleas, examples of the new hose-in-hose Mimuli, Zonal Pelargoniums, the ample leaved red-veined Saurauja sarapigiensis, Anthurium cordifolium, Bertolonia margaritacea, and other plants. Examples of Beaton's Nosegay Pelargoniums, of which favourable notice has already been taken in our columns, were shown by Mr. Wm. Paul, who also had a plant of the new Hybrid Perpetual white, or rather blush Rose, named Madame Emile Boyau.

May 16 (*Fortnightly Tuesday Meeting*).—His Grace the Duke of Buccleuch in the chair. The Rev. M. J. Berkeley, adverting to a prettily variegated Sedum shown by Mr. Bull at the last meeting, now said that it appeared to be the S. azoides of De Candolle's Plantes Grasses. He stated that it was reported to have come originally from Madeira; but that Mr. Lowe, who had spent 20 years in that island, had never been able to detect it there. It was, he added, an old plant which at one time was common in the windows of cottagers, but which of late years seems to have been neglected and nearly lost. The Nardoo, of which some notice will be found at p. 464, next occupied attention. Among Orchids present, Odontoglossum cordatum, a cool-house kind, Mr. Bateman's Cœlogyne pandurata, and the glorious Dendrobium Wardianum, a small specimen of which was shown, all came under review, as did also Orchis fusca from the south of Europe, which was stated to differ but slightly from our own. Some remarks were then made respecting the different parasitic Fungi which infect Orchid leaves, a subject which has already been pretty fully discussed in our columns. Concerning root Fungi, Mr. Berkeley said that most cultivators were now aware how much damage was done by them. Of two Deodars planted near Sir W. Hooker's house at Kew, one grew, the other did not, and it was afterwards discovered that where the latter had been planted an old Cherry tree had been cut down; the inference therefore was that the Fungi on the dead wood left had attacked the living roots of the Deodar, causing the tree to fall into ill health. This, rather than exhaustion of soil, Mr. Berkeley thought was the true explanation why one tree often refused to grow where another had stood before, and several instances confirmatory of this fact were adduced. Among variegated plants present, a Fuchsia with creamy blotched leaves; Ilex crenata, of which good and handsome hedges are made in Japan; and Arundo Donax argentea, all occupied attention; as did also Podocarpus macrophyllus, the young shoots on which sometimes come wholly white. These perfectly white shoots, it has been considered, could not be propagated, but it was related on French authority that a portion of Ground Ivy, wholly white, did strike root, and that it ultimately assumed the ordinary green colour. Certain parts of plants, naturally white, were next adverted to, as, for instance, the bracts or floral leaves in Mussænda frondosa, and the beautifully white calyx in Clerodendron Thomsonæ, examples of both of which were exhibited. Passing over Mr. Veitch's hybrid Orchids, mentioned hereafter, and certain fine-leaved plants in the room, Mr. Berkeley said, in reference to Rhododendrons, that in fertilising, with the view of getting improved crosses from them, Mr. M'Nab had obtained better results from using pollen from short stamens than from employing that from longer ones, a fact perhaps worth remembrance by hybridisers. At the last meeting the poisonous properties of this genus were adverted to. Mr. Berkeley, however, mentioned that a jelly was made in India of the boiled down flowers of R. arboreum. A plant of Begonia from Mr. Earley, of Digswell, producing young plants from the petioles of the leaves; the Portuguese Tulip, which promises to be a decorative outdoor plant, from Mr. Berkeley's own garden; and one or two observations on other plants, concluded the scientific discussion on this occasion.

May 16 (*Floral Committee.*)—From Mr. Veitch came beautiful collections of Orchids and other plants, for which Special Certificates were awarded. Among the former were Cypripedium villosum and barbatum majus in very fine condition; Odontoglossum cordatum, to which a First-class Certificate was awarded; excellent Lælias, Vandas, and other plants, together with some singular crosses effected by Mr. Dominy between Goodyera and Anæctochili, whereby the more hardy constitution of the former has been infused into the latter. From among these hybrid forms Goodyera Veitchii and Anæctochilus Dominii were selected for First-class Certificates. The former is a hybrid between Goodyera discolor and Anæctochilus Veitchii, and the latter is reported to have a similar parentage, except that in this case A. xanthophyllus was employed instead of A. Veitchii. If, as is stated, these hybrids will withstand rougher usage than the Anæctochili, whose beauty they in a great measure inherit, they cannot fail to be great acquisitions to our stoves. Among other plants Mr. Veitch had charming examples of Chinese Azaleas, among which one named Marie Vervaene, white, flaked with crimson, has well formed flowers of great substance; and little standards of another light variety, named Dr. Redel, also attracted considerable attention. Mr. Veitch, moreover, showed an interesting group of variegated-leaved Pelargoniums; also a handsome Pleroma; various examples of the dwarf golden-coloured variety of Retinospora obtusa; and Bertolonia guttata and B. pubescens, two charming species, to all which First-class Certificates were awarded; and a fine-leaved Philodendron, on which was conferred a similar mark of distinction. The same establishment also furnished among other things Rhododendron Veitchii, a valuable sweet-scented variety, to which a Special Certificate was awarded. From Mr. Salter came Polygonum filiforme, and Sedum Telephium, two useful hardy variegated plants, to both of which First-class Certificates were awarded. A similar award was also made to Mr. Smyth, gr. to Lord Sondes, for a white-blossomed variety of Boronia Drummondi, named alba Smythii. From Mr. Bull came, among other plants, Calonyction sanguineum, a vigorous climber with cordate bronzy-red leaves, and Ficus Porteana, to both of which First-class Certificates were awarded. The last has handsome coriaceous leaves, which, like those of the India-rubber plant, withstand great vicissitudes both of temperature and exposure. From Messrs. Backhouse came the extremely interesting Alpines Myosotis rupicola, one of the most lovely of Forget-me-Nots, from the Teesdale mountains; Androsace Chamæjasma, and Andromeda fastigiata from the Himalayas, another gem somewhat like A. hypnoides, shown at last meeting, to which First-class Certificates were awarded. Orchis fusca and the pretty little Primula farinosa also came from the same establishment. Mr. Thompson, of Ipswich, received a First-class Certificate for Aquilegia cœrulea, a species resembling A. glandulosa, but differing somewhat from that kind in the length of the spur and certain other particulars. Large and brilliant collections of Tulips and Azaleas, the former consisting of no less than 160 blooms, representing upwards of 60 of the finest varieties, and to both of which Special Certificates were awarded, were contributed by Mr. Turner; and a similar award was conferred on a group of a rare and interesting Arads, from Mr. Green, gr. to W. Wilson Saunders, Esq. Mr. Williams, in addition to the Mussænda and Clerodendron Thomsonæ mentioned above, communicated good plants of Heaths, the Double Azalea called Glory of Sunning Hill, Pimeleas, and Everlastings. For these a Special Certificate was awarded. From Mr. Wilson, gr. to W. Marshall, Esq., came a white-flowered Cattleya slightly stained in the throat with yellow. Golden Queen, a useful-looking yellow-leaved Pelargonium, came from Mr. Southby, of Clapham. Messrs. E. G. Henderson received Special Certificates for collections of plants, in which were Retinospora leptocladon, Centaurea ragusina, and other grey-leaved edging plants of that description; the pretty Jasmine-flowered and other Rhododendrons; Fuchsia aucubæfolia, and the gold-variegated small-leaved Ilex crenata, often called Fortunii in gardens. Handsome boxes of cut Roses came from Messrs. Paul & Son, and Mr. Earley, to the former of which a Certificate was awarded.

May 16 (*Fruit Committee*).—Apples formed the chief subjects of exhibition on this occasion. Of these the best exhibition came from Mr. Earley, of Digswell, who contributed well-kept examples of Cluster Golden Pippin, Wheeler's Russet, Golden Russet Nonpareil, Cockle Pippin, Sturmer Pippin, and King of Pippins. Of these the Golden Russet Nonpareil, which was also shown as Golden Reinette, was by far the best in flavour. Norfolk Beefing and Dumelow's Seedling also came from the same exhibitor. From Mr. Cox, of Redleaf, came a handsome unnamed Kitchen Apple, apparently a sound keeper, acid and solid. We also observed good specimens of Gloria Mundi and Golden Harvey. M. De Jonghe, of Brussels, furnished Beurré Mai and Poire Basiner, both late Pears, the last of which somewhat resembles Beurré Rance in firmness and crispness of flesh. Neither of these were better than kinds already in cultivation. Among Apples from M. De Jonghe the best were Pigion de Bruxelles, and De Jonghe's Roozen Apfel—the former a good keeping variety, the latter possessing a slight Fennel flavour, and a handsome appearance.

Notices of Books.

The Applications of Geology to the Arts and Manufactures: Being Six Lectures on Practical Geology, delivered before the Society of Arts, as a part of the Cantor Series of Lectures for 1865. By Professor D. T. Ansted, M.A., F.R.S. 8vo, pp. iv. and 300, with numerous woodcuts. Hardwicke, 1865.

It would be very unreasonable to expect anything like a perfect treatise on such an extensive subject within the course of six lectures, or to look for much novelty in matter intended for general instruction. What we have, however, a right to expect is a careful statement of well-known facts in such a manner as not to float above the heads of the hearers, that such general statements should in all cases be free from objection, that the matter should always be really practical, and that the facts adduced should always be correct. Acknowledging the extreme difficulty of the task even in the hands of a person who is so well known for his researches and publications relative to geology, in fact, a master of the science, we do not think that these lectures come up exactly to the mark in the points which we have specified.

To begin with the statement at p. 9: "Every kind of vegetable soil was once rock, which, by the unintermitting action of heat and cold, air and water, has been broken down by degrees into smaller and smaller fragments, until at last it is reduced to a kind of powder, dust, or mud."

If we go to the primary origin of living beings, when the earth was first cooled and rendered capable of supporting them, such a statement might just perhaps be within the bounds of truth; but no sooner had the first organisms begun to decompose than the case would be materially altered, and in a practical point of view at the present time it is quite untrue. Take, for example, the sterile sands of Les Landes, which are brought into cultivation by sowing a mixture of Broom and Pine seed, the first leaves of the Broom falling down and forming a thin coat through which the young Pines protrude, which gradually increase the mass of vegetable mould by their falling leaves. It is possible, indeed, that the words are used in the sense of soil in which vegetables grow, but if so it is not the popular use of the term, and therefore not adapted for the occasion. And such a use is scarcely compatible with what is said of the composition of productive soils at p. 14. The name of humus or humic acid for the portion which is derived from the decomposition of organic bodies is a very loose term, inasmuch as it consists of various chemical substances.*

Again, when speaking at p. 49 of aqueous vapour being "constantly carried along by the winds with the other air," the lecturer is quite above the general hearer, who has no notion of aqueous vapour apart from mist or cloud, and much less of its existence in a gaseous form as implied in the passage, which, however, we have not quoted textually. Nor, indeed, does it

* Properly speaking, supposing only one acid to be formed, the brown precipitate which is derived from vegetable mould boiled with alkalies on the addition of acids, should alone have the name of humic acid, which, as Gregory says, is generally admitted to be a product of the action of the alkali on decayed vegetable matter, and the name of humus is given to the substance which is believed to yield the humic acid. Mulder considers three different acids as concerned in the precipitates, viz., mould acid, humic acid, and ulmic acid.—See Greg. Org. Chem., p. 392, Ed. 3. It is possible too that Crenic and Apocrenic acid, which are found in some waters, are derived from vegetable mould.

seem to us correct to speak of "an atmosphere of aqueous vapour," while a person utterly ignorant of the subject would imagine from the passage that none of this aqueous vapour was condensed at sea before it reached the land.

It will, perhaps, be thought hypercritical if we remark that such a passage as the following is above the comprehension of most of the persons intended to profit by the lecture, though literally true: "Water as it falls from the clouds, and after passing through vegetable soil, is always sufficiently charged with carbonic acid to render it a ready solvent of carbonate of lime in all its forms." To the uninstructed this would seem a mystery, and to our apprehension it would have been much better to have told in some easy way, and in a very few words, how the carbonate of lime takes up another particle of the acid and forms soluble bicarbonate, and how this is driven off again by ebullition, so that a deposit of carbonate is left behind.

We complain also of a statement so very much in arrear of the actual state of science as that the flinty casts of Diatoms in the mealy deposits of Tripoli are due to infusorial animals. It is now 20 years or more since it was clearly shown by Mr. Thwaites that Diatoms are really vegetables, and it can only be by blinding the eyes to the resemblance of their conjugation with that of Zygnema, that any instructed zoologist could for a moment think of referring them to the animal kingdom, unless wedded to the old doctrines of Ehrenberg.

The part relative to draining might again have been rendered far more useful by showing that though clay is in a certain sense impermeable it is not really so, and that in consequence drain tiles through a stratum of clay may really improve the superincumbent soil. The notion of geological maps being published which should in every case show the nature of the subsoil, considering the change which takes place in this respect in different parts of the same field, seems to us quite Utopian, and if practicable, not likely to be of any real use to the farmer unless in a very advanced stage of education.

Our remarks have been confined to the two first lectures, which relate more immediately to matters of agricultural interest, but we have been surprised at one or two statements in the fourth lecture. It is said, at page 157, that of ordinary limestones that of Barnack, amongst others, is one of those best known and most used in London and its neighbourhood. The fact is that no stone quarries are worked at Barnack now of any good quality. A small mason sells some "bastard rag" in neighbouring villages, but none is sent by railway. Clipsham stone, in a neighbouring county, is of much the same formation and quality, and is highly valued. Though Barnack stone had once a very extensive use, it was quite in mediæval times, and it is found only in the older parts of ecclesiastical buildings.

Casterton stone, it is said, is believed to be equally good with Barnack, but it is of a very different character, and far inferior to Ketton, which commands a far higher price. Colley Weston slate again deserved a little more notice. Before blue slate was brought into the country by canals and railroads, its use was almost universal through a large district, and it is known that the pits were worked by the Romans, the only difference in the use being that the slates were fastened with iron instead of wooden pins.

These and other points to which we forbear adverting, have struck us in reading the volume, which we are far from saying does not contain a vast body of information on a great variety of topics, though we cannot help thinking that the lecturer might have made the lectures far more useful to the general hearer and reader than they are in their present form.

Catalogues Received.—*E. G. Henderson & Son's Catalogue of Plants* is a very full list of soft-wooded plants, including many novelties. We observe a list of 44 kinds of Ivy, and a very useful set of coloured and ornamental-leaved plants for garden decoration.—*J. Carter & Co.'s Vade-Mecum, Part 3; and F. & A. Dickson & Sons' Catalogue of Bedding Plants*, are both extensive lists of summer bedding and other soft-wooded plants.

Florists' Flowers.

Roses.—I very willingly contribute a few words for the space allotted to flowers chiefly in a floral point of view. There is nothing, however, new in what I have written; it can only be called—to use a legal term—a "refresher." My knowledge of flowers is very limited indeed. With the exception of a few Violets, I have no other, and want no other flower than the Rose about the place. It affords me pleasure, and a daily exhibition, for 7 months in the year.

1. *Substance of Petal.*—I put this first, not because it is the first thing to look to, but because with me it is a *sine quâ non*. In Rose growing constitution is the first thing to be looked to. Still of what use, admitting its constitution, is a poor flimsy-petaled Rose that is spoiled by a few drops of rain or by the rays of the sun? Flowers, generally, are apt emblems of our own withering and mortality, but some are much more so than others, even in the same tribe. For our gardens, for our drawing-rooms, for our button-holes, and still more so for exhibitions, we want Roses with substantial petals. A Rose needs substance of petal more than any other flower, because, as soon as it unfolds, it is at its zenith, and at once begins to decline. I wish hybridisers would attend to this a little more than they do. Roses with substantial petals usually hold colour best, and certainly travel best, and last longer than flimsy tinsel ones. Now that we have become a Rose-exhibiting nation, this is a most important matter. Think of the trial a Rose-bloom has to undergo when it leaves, say Rushton, before the judges in London have made their final award. Think also of the withering heat, that, in addition to the sultry weather, it has to submit to from the pressing multitude!

The very best for substance of petal that I know of are Charles Lefebvre, Senateur Vaisse, Prince Leon, Gloire de Santenay, Maurice Bernardin, Duc de Rohan, Duchesse d'Orleans, Triomphe de Rennes, Gloire de Dijon, Souvenir de la Reine d'Angleterre, all fine Roses, and with good general attributes. More Roses might be named. The character of the petals of summer varieties is not generally so good as that of the autumnals; but there are some that wear well, namely, Paul Ricaut, Coupe d'Hébé, Charles Lawson, and Madame Zoutman. The last is the finest of the white Roses, and though the character of her petals is papery, she is an admirable wearer in either wet or hot weather. The three preceding her have petals similar to and equal to most of our autumnals.

To substance of petals we must add depth, roundness, velvetiness, and smoothness of the edges of the petals.

2. *Form.*—Whether a Rose be globular, or cupped, or any other shape, it should be symmetrical, have a correct outline, and be sufficiently full to the centre, without being crowded or confused. For garden purposes some of the "presque pleine," and also the peony-formed Roses, whose petals lie somewhat in disorder, are effective, and they please those minds that admire irregularity in flowers. I admire most the globular and cupped forms, but I am not adverse to others. Maurice Bernardin and Duc de Rohan may be taken as fine specimens of globular Roses, and Madame Furtado, a bad grower and delicate Rose here, as the very best specimen of a cupped Rose. Where it succeeds, it is one of the very finest show Roses. Whatever the shape of the flower may be, florally speaking, it should present a level aspect. I do not know finer specimens of what Rose plants and Rose blooms should be (I speak only of later varieties), than Charles Lefebvre and Senateur Vaisse. Taken at all points I think they are the most perfect of the Hybrid Perpetuals. Cecile Chabrillant and W. Griffiths have all points of perfection except the holding of colour in certain weather. These two and Senateur Vaisse are the most perfectly folded of all known Roses.

3. *Fixity of Colour.*—This is also an essential thing. Usually, but not invariably, when the petals are substantial the colours abide. There are some Roses that are beautiful on opening, as La Brillante, but, as soon as the sun rises and reigns, they are "gone." The best to hold colour of the high-coloured Roses are Senateur Vaisse, M. Bernardin, and Duc de Rohan. As very dark Roses, none will wear so long as Prince Camille de Rohan and Duc de Cazes—*Arcades ambo*. C. Lefebvre does not hold its native colour well, namely, brilliant crimson, but then it changes to a rich deep crimson sometimes dappled with pretty mould spots.

4. *The true Basis.*—Constitution is the true basis, or in three words, fine foliage, vigorous growth, and hardihood. If the foliage is bad, or even materially injured early in the year, the plant will suffer great damage, and probably will not last long. Bad foliage either proceeds from or leads to a bad constitution. A good Rose-bloom with bad foliage or none at all, is defective. Good foliage and health are identical. Did growers keep their Rose-leaves constantly syringed, the health of the tree and its life would be prolonged. I need hardly observe that if a Rose plant does not grow freely; or, if growing freely, it is not hardy, it cannot last long in England. Freedom of growth and hardiness however, do not invariably go together.

Lastly, Free-bloom.—A Rose may have all the preceding qualifications, but if it will not open it is useless. I know of no better first-class Roses that rarely have a defective bloom, and that invariably open, than C. Lefebvre, Senateur Vaisse, Triomphe de Rennes, and Cecile Chabrillant. *W. F. Radclyffe, Tarrant Rushton.*

The Apiary.

We commenced, last week, a few hints on the practical Management of Bees at this important period, and, having recommended the apiarian to decide fully in his own mind as to whether he desired his several hives to furnish him with honey or swarms, our remarks were directed to the consideration of the best course to be pursued, supposing that swarms were the chief object of his requirements. It now remains to us to afford some information to the apiarian novice on certain modes of management, best calculated to the attaining of a plentiful supply of pure honey-combs.

If the apiary consists of common straw hives, it is comparatively easy to transform them into very efficient honey producers. Many persons possessing such hives imagine them to be totally unsuited for the supply of nice supers of pure honey. Slightly altered, even when already tenanted by bees, they may be made almost as well adapted for the purpose, as the majority of hives and boxes of far greater pretensions to utility. A small board of inch deal, 14 inches square, well clamped to prevent warping, and having a hole in the centre of 2½ inches in diameter, must be provided. Work up some putty into a very soft state, and form a ring on the under side of the board, of about 4 or 5 inches in diameter. If a little paint be previously applied just where the putty may be attached, it will ensure a much more firm adhesion. This being done, a small piece of glass may be placed over the central hole in the board. With a rather narrow-bladed and sharp pocket knife next cut down between the bands of straw so as to separate a piece of the crown of the hive of at least 3 inches in diameter. At one part the knife will have to be passed diagonally through the band of straw. The knife must be kept upright and well down, and care taken that the piece to be removed is perfectly detached. Apply the paint brush to the crown of the hive, corresponding to the ring of putty on the board. Next prize up the loosened piece of the top of the hive, and with a sudden jerk pitch it away; quickly but carefully adjust the board level and square, working the putty down by gentle pressure. The glass covering the aperture enables the operator to ascertain if the board is in the right position. See that the board be perfectly level; and substitute a block of wood for the piece of glass. This operation, which is by no means a formidable one, had better be effected in the day time, when the bees are fully at work. The very fracture of the combs tends to keep the bees from showing any resentment, as they are intent on filling themselves with the honey.

The next matter for the exercise of the judgment of the owner, must be as to the time of affording the bees additional room. It is advisable not to open the communication with a super until the bees are sufficiently numerous to take possession of it almost at once. But it is more important still that this be not delayed until the bees shall have made preparations for swarming by the formation of royal cells.

A super may be either of glass or wood, and should be of a size capable of holding from 20 lbs. upwards. If of glass, it should be about 12 inches in diameter, by 6 or 7 inches in height. A ventilating tube is unnecessary, and is useless for the object intended; but it will serve as a good point from which to start the comb building. If possible, pieces of clean worker comb should be attached to it to induce the bees to work in the direction desired, and to commence earlier than might otherwise be the case. An octagonal box made of a light mahogany frame, neatly glazed, furnished with a separate frame with glass for a cover, and fitted with bars, is almost as pretty and useful a super as can be used. A good size is 13 inches diameter by 7 inches deep, inside measure (this applies to all measurements given either of hives or supers), the glass being let in from the inside, with which it must be as nearly flush as possible. The bars are eight in number, and are let down in notches, so as to be level with the upper surface of the box, having a bearing of $\frac{3}{16}$ths of an inch at each end. The cover is constructed of sufficient thickness to allow the glass, when fixed, to be half an inch from the top of the bars. This prevents the disfigurement of the glass with lines of propolis, and allows the bees free access to all parts of the super. No ventilating aperture is required. Some bits of clean worker comb should, if available, be attached to some of the bars. The bars will be better if made on the plan invented by Mr. Woodbury, which consists of a central rib of ⅛ of an inch in breadth and depth being added to the under side of each, the lower angles of the bar being slightly rounded off. By coating the central rib with melted wax, the formation of straight combs is usually insured. When only a portion of the bars can be supplied with pieces of clean comb, they should be alternated with ribbed bars treated as described.

All glass supers must be well wrapped up in cloths or flannel, not only to exclude light, but to protect them from sudden changes of temperature.

The bee master must not fondly imagine that, because the bees of any particular hive are fairly at work, rapidly constructing combs in the super, he is perfectly safe from the chances of the issue of a swarm. Such is the glorious uncertainty of bee-keeping, as well as of the law, that even under such favourable conditions no immunity from evil can be surely calculated upon. It is advisable that a good watch be kept upon the hives, or a swarm may suddenly issue, with little or no warning, which, whether saved and successfully hived, or lost altogether, can under the circumstances be only considered as a misfortune.

Garden Memoranda.

Ambrose Basset's, Esq., Stamford Hill.—The Azaleas and Roses for which this fine suburban residence is celebrated are at present in great beauty, and an hour or two spent in admiring and criticising the different qualities of the various kinds contained in the two large houses devoted to the Azaleas, and in the Rose-house adjoining, afford a great treat. In one of the houses behind the Azaleas are some fine plants of Camellias, just making growth. As regards Azaleas the following short list of the best and most striking kinds, the height and diameter occasionally being inserted to

show the size to which the plants have attained, may not be uninteresting:—

Bride of Abydos (Barnes), 4 feet by 3 feet, is white, occasionally flaked with violet, and a fine variety for exhibition or decorative purposes. Gledstanesii, 6 feet in height and as much through, is literally a mass of flower in true character. Coronata, the original plant, about 30 years old, forming a bush of some 7 feet in diameter, is a magnificent spectacle; its bright, vivid rosy purple flowers being in great perfection. Sinensis alba, a somewhat scarce variety, has as many as 30 flowers in a truss. Roi Leopold, 5 feet by 3 feet, is a mass of showy blossoms; and Madame Miellez, white, flaked with purple, is quite a gem. Exquisita, a magnificent plant, 5 feet by 5 feet, has every flower on it perfect; and Sir Henry Havelock, rosy crimson, with deeper spots, has blossoms of wonderful substance. Juliana, orange scarlet, is still one of the best of its class. President, 3 feet by 2 feet, is light rose with lake spots, and the flowers are beautifully formed. Chelsonii, bright scarlet, is still one of the very best and showiest of the group to which it belongs. Kinghornii has deep rose-coloured blossoms of fine shape; and Duchesse Adelaide de Nassau, reddish crimson with violet shading in the upper parts, is a very large and attractive variety. Flag of Truce is still the best of double whites; and Glory of Sunning Hill is certainly the finest of double reds, or rather salmon-coloured kinds. Without Flower of the Day, white with crimson flakes, no collection can be said to be perfect. Extrani is a most beautiful rose; Sir Charles Napier, 6 feet by 4 feet, is a perfect gem; and Perfecta elegans we thought the finest crimson scarlet variety in the collection. Souvenir de l'Exposition is white shaded with rosy purple. Iveryana Improved, white flaked with crimson, is a flower of great substance. Crispiflora, 4½ feet high and as much in diameter, is a perfect blaze of bloom. Alba magna is one of the finest of white kinds. Leopold Premier, deep rosy pink with red spots, has large flowers of extra fine substance. Etoile de Gand, salmon edged with white, when well grown and flowered as this was, is very effective. Bernhard André, splendid rosy purple, is semi-double and altogether a fine variety for decorative purposes. Brilliant, glowing orange scarlet with bright crimson spots, is fine in shape and good in substance. President Lemaire, pink margined with salmon, with the upper petals clouded and spotted with deep crimson lake, is a novel and showy variety. Murrayana, 5 feet by 6 feet, is a complete blaze of bloom. Carminata is also in equally fine condition. Semiduplex maculata, 5 feet by 5 feet, is magnificent; as are also Delecta rosy pink, Criterion, and Eulalie Van Geert. Model, spotted rose, shaded with crimson, is a fine new variety. Rubens, glowing crimson, and very large, is a splendid kind; as are also Duc de Nassau, large deep purple; Alexander II., white occasionally flaked with crimson; Duc de Brabant, semi-double, light pink, shaded with crimson; Comte de Hainault, semi-double; Speciosissima and Gledstanesii formosa, the last white flaked with crimson. Petuniæflora, rosy pink, is a favourite with everybody.

Amongst the Azaleas was a fine plant of Rhododendron Dalhousiæ, with about 70 trusses of flowers on it, just beginning to develope themselves. Near the Azaleas is a roomy span-roofed house filled with Tea, Hybrid Perpetual, and other Roses, at present in full bloom. The plants are in excellent health, and the flowers individually very beautiful and perfect. The following were in fine condition, viz., Beauty of Waltham; Madame Willermoz, with fifty superb flowers on it; François Lacharme; President, magnificent, as grown here the finest Tea Rose in cultivation; Paul Perras, 6 feet by 5 feet, full of flower and buds; Triomphe des Beaux Arts, Souvenir d'un Ami, Vicomtesse Decazes, most beautiful yellow; Madame de St. Joseph, the finest scented of all the Teas; Charles Lawson; Madame Damaizin, 5 feet by 3 feet, with about 60 expanded flowers on it; Senateur Vaisse; Lælia, beautiful pink, fine under glass; Devoniensis; Madame Campbell d'Islay; Mrs. Bosanquet; Chénédolé; Anna Alexieff; Blairii No. 2; General Jacqueminot; Brilliant, beautiful in colour; Pierre Notting, scarcely open, but evidently one of the finest of new Roses; Prince Camille de Rohan; Niphetos, superb in the bud; Coupe d'Hébé; Victor Verdier, 5 feet by 4 feet; and Madame Victor Verdier, the last a fine new Rose.

Mixed with these and the Azaleas were plants of a fine strain of Calceolaria, and also some early-flowering Pelargoniums, which served to afford variety; last, but not least in this establishment, is the magnificent collection of Orchids which Mr. Basset, with the taste of a connoisseur, has been collecting for years. Vandas, Saccolabiums, Aerides, Dendrobiums, Cattleyas, Lælias, Ondontoglossums, Cypripediums, &c., in great variety, are here cultivated by Mr. Baker, the gardener, in wonderful perfection. Being vigorous and healthy, they promise to bloom in the greatest profusion, and no doubt at the coming exhibitions some of them will be brought out in fine style. Amongst more remarkable kinds we noticed Odontoglossum Pescatorei, Phalænopsis Schilleriana, very fine; P. amabilis, with leaves 17 inches long and 5 inches across; Chysis Limminghii and Vanda teres, all finely in bloom. In one of the houses was a nice lot of new Odontoglossums, breaking strongly; and a group of Oncidium crispum; a splendid plant of Cypripedium Veitchii, together with some superb varieties of Cattleya Mossiæ. *H.*

Miscellaneous.

The late Mr. Alexander Smith.—We have to announce with regret the death, at the early age of 33, of Mr. A. Smith, of Kew, son of the late Curator of the Royal Gardens, which took place on the 15th inst. Those of our readers who may have come in contact with Mr. Smith during the time he held the appointment of Curator of the Kew Museum, or latterly in the Herbarium department, and who have thus had an opportunity of knowing his intelligent and obliging disposition, will, we are sure, with ourselves, greatly lament his loss.

The Parks.—From the estimates for the current year, we learn that our national parks and pleasure gardens cost 99,090*l.* This sum is thus distributed:—For Kew Botanic Gardens, 15,358*l.*; for St. James's, Green and Hyde Parks, 24,774*l.*; for Kensington Gardens, 5956*l.*; and for Battersea Park, 8345*l.*

Calendar of Operations.

(*For the ensuing week.*)

Bedding plants should now be placed in their summer quarters with all possible expedition. It having been determined what each bed or border is to be filled with, use every means for securing their safety and success, in order that they may produce a full display of flowers as early as possible. The chief points are to plant in good soil, and to protect for the first fortnight from extremes of heat, cold, or drought. When it is necessary to water, it should be done in the morning, as the plants are liable to be injured by late frosts if watered at night. They should be well watered, however, immediately after planting, taking care to moisten the bed thoroughly. If a fine early display be desired, the beds should be planted sufficiently thick to produce immediate effect, and as the season advances it is easy if necessary to thin out. Seldom however have we seen masses too thickly planted, but we have often observed the ill effects of beds planted too scantily. It is a common fault to plant too near the 'edges,' in consequence of which the outside plants have to undergo a constant mutilation to keep them within bounds. Where the young plants have been pricked out into frames of soil, as most of them doubtless will have been, attention should be paid to lifting them with a sufficient ball of earth and roots to prevent their receiving any check, and also to safely conveying them to their destination, and replanting them as quickly and with as little injury as possible.

FLOWER GARDEN AND PLANT HOUSES.

Conservatories should be gay with Azaleas and other showy plants, of which there ought to be now no scarcity. Out of doors, in addition to planting out as just directed, let lawns be kept closely mown, walks cleaned and rolled, and edgings put into proper repair.

Camellias.—Keep such as are making growth well syringed. Should black-fly appear on the young shoots, which sometimes will happen, a good washing with tobacco-water will soon destroy it.

Pelargoniums.—A slight shade will be necessary for a few hours on bright days; green fly is occasionally very injurious to them at this season, and therefore the plants should often be fumigated; tie and regulate the shoots of late plants according to previous instructions.

Pinks.—After this time, if the weather continues dry, these will require careful attention in the way of watering.

FORCING GARDEN.

Cucumbers.—Stop, thin, and water freely. See that the ball of earth, in such as are newly put out, is well soaked with water previous to planting.

Peaches.—If red spider should make its appearance, wash repeatedly with the engine until it becomes thoroughly eradicated. Thin the fruit immediately the crop is stoned, leaving no more on than the trees can bring to perfection. Give air freely to houses in which the crop is ripening; but at the same time exclude if possible cold winds.

Pines.—Attend carefully to the bottom-heat. Where much fire is used, it requires some experience to be able to keep the soil in a proper state as regards moisture, but this must be effected at any expense of attention if success is to be insured. Maintain a thoroughly moist atmosphere, but do not push young stock too fast. Avoid allowing water to lodge in the hearts of plants showing fruit, and spare those in bloom while syringing. Pot off or plant out suckers as they can be obtained sufficiently strong, and attend to keeping up regular successions.

Vines.—Attend to disbudding and stopping, &c., as may be necessary, in succession houses, and see that inside borders are kept properly moist, giving tepid manure-water as may be necessary to effect this, and do not be afraid of giving too much of it to Vines in pots.

HARDY FRUIT AND KITCHEN GARDEN.

Kidney Beans.—Full crops of these may now be sown, and also of Scarlet Runners.

Leeks.—These may be transplanted as soon as they are large enough for that purpose. Let the rows be 18 inches apart, and the plants 9 inches asunder in the rows.

Lettuces.—Keep up successional sowings.

Peas.—Let these be earthed up and sticked as they may require it, and others sown for succession. The latter need not be sown so thickly as those for earlier crops.

Potatos.—Fork up the soil between the rows, which will not only be of benefit to the Potatos, but will help to keep down weeds.

Root Crops.—If young plants of these are attacked by snails or slugs, give the ground about them a good dose of soot and lime. The best time for doing this is either at dusk in the evening, or early in the morning.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the Week ending May 17, 1865, as observed at the Horticultural Gardens.

May.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth. 1 foot deep.	Temperature. Of the Earth. 2 feet deep.	Wind.	Rain.
Thurs. 11	16	29.703	29.485	57	41	49	55	52½	N W	
Friday 12	17	29.943	29.799	63	28	45.5	54	52½	S W	
Satur. 13	18	29.979	29.943	66	38	52	55	53	S W	
Sunday 14	19	29.896	29.851	53	33	43	54½	53½	S W	
Mon. 15	20	29.667	29.603	58	29	43.5	54½	54	S W	
Tues. 16	21	29.704	29.697	64	39	51.5	54½	53½	S W	
Wed. 17	22	29.905	29.858	65	38	51.5	55	53½	S	
Average.		29.828	29.748	60.8	35.2	48.0	54.6	53.1		

May 11—Rain, cloudy and showery; cloudy.
— 12—Cloudy; low dusky white clouds, very fine, frost at night.
— 13—Fine; masses of white clouds; very fine.
— 14—Overcast; very fine, fine throughout.
— 15—Slight drizzle; densely clouded, very fine, slight frost.
— 16—Very fine; cloudy; very fine.
— 17—Cloudy and fine; slight rain; overcast at night.

Mean temperature of the week, 4½ deg. below the average.

STATE OF THE WEATHER AT CHISWICK

During the last 39 years, for the ensuing Week, ending May 27, 1865.

May.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds.							
Sunday..21	68.3	45.0	55.6	17	0.36 in	3	8	1	2	5	1		
Mon. ..22	65.7	42.9	54.3	17	0.30	6	8	4	3	3	1		
Tues. ..23	67.6	44.5	56.0	13	0.53	1	8	1	3	3	4	1	
Wed. ..24	68.1	43.7	55.4	11	0.51	4	8	1	1	5	2		
Thurs. ..25	66.5	43.7	55.1	15	0.64	4	11	3	2	1	1		
Friday ..26	66.9	42.9	54.9	17	0.48	3	11	4	1	3	2		
Satur. ..27	65.9	45.1	55.5	21	0.63	2	1	5	3	2	1		

The highest temperature during the above period occurred on the 22d, 1847—therm. 89 deg.; and the lowest on the 23d and 25th inst. and 23d, 1864—therm. 26 deg.

Notices to Correspondents.

Ageratum: *H R C.* We fear the variegation is of too neutral and undecided a character to render the plant effective as a variegated plant. All depends upon what it will become under free summer growth, and this it is impossible to guess.

Ants: *J W P.* Try the effect of strewing guano in their runs.

Books: *C E.* McIntosh's Book of the Garden is sold in two volumes, the prices of which appear from time to time in our advertising columns. We do not know if it is still to be had in parts.—*J B.* Lindley's Theory and Practice of Horticulture.—*T T.* Paul's Rose Garden will give you the desired information.

Cabbage Seed: *Enquirer.* You should sow immediately to get the plants grown on freely before winter. Take care they are well removed from all other Brassicaceous plants at flowering time.

Insects: *B H C.* The insect sent is certainly the bed bug! Well grown.—*J S* and *S.* The beetle which has attacked a young Larch plantation is the large weevil Curculio (Hylobius) Abietis, which is sometimes exceedingly injurious. Care must be taken to keep the ground at the roots of the plants clean; all refuse lying there should be burnt, as the weevils hide there by day.—*A M.* The Pear twigs sent are badly infested by the Muscle Scale, Coccus conchiformis. The best thing will be to cut off the twigs infested to the extent of those sent; the other parts of the trees should be scrubbed with hot soapsuds. *W.*

Names of Plants: *A D.* 1, Acer striatum; 2, Pyrus chamæmespilus; 3, Ribes multiflorum.—*Arbor.* Acer rubrum is a very handsome tree.—*Flos.* The Chestnut is one of the plants which are regarded as doubtful natives.—*L C K.* The plants are Staphylea trifolia, white, and Forsythia viridissima, yellow.—*I E F.* Your pod appears to be that of Catalpa syringæfolia.—*W E.* Habrothamnus elegans.—*E.* Apparently Cyrtomium caryotideum, and Blechnum lanceolatum. The flower is Dendrobium nobile, or something closely allied to it.—*C M F.* Staphylea pinnata.—*E* ... *Clonmel.* The specimen is not enough developed.—*J D* ... Veronica serpyllifolia.

Nardoo: *J H.* Marsilea salvatrix is described as having the frond nearly smooth. Your plant is far from smooth, and is probably Marsilea Drummondii. It is, however, doubted by some good botanists whether all the supposed species, amounting to nearly 40, are not mere forms of the old M. quadrifolia. *M. J. B.*

Roses: *D M.* The first week in June will probably be the best time to see the Roses in bloom in the neighbourhood of Paris.

Strawberries: *S F.* With some sorts it is necessary, and with all it is no doubt preferable, to propagate from plants in a bearing state.—*W Y L.* From the fact of your strawberries rotting off at the stem at the period of ripening we suspect that you have grown them in a very close and moist atmosphere. During all the stages of their growth free ventilation is an absolute necessity. This of course dissipates the moisture from the leaves and stems, and hardens the system of the plant. A stagnant and very moist atmosphere, combined with a strong heat, would draw them out weakly, and they would be very liable to be affected by any sudden changes, such as a cold cutting draught or a sudden gleam of bright hot sunshine, either of which would be likely under such circumstances to produce the effects you have described. It is probable, also, that very strong manure water might produce analogous effects, particularly if used without good ventilation, which we think is probably the principal cause of your trouble. Presuming that all is right as regards the soil and preliminary preparation, we should advise you to place your plants as near the glass as possible, to afford them a free ventilation, and to force them gradually, commencing with a temperature but little above 50°, and rising by degrees until the leaves are well developed to a temperature of 60°, which is the highest point to which it should be allowed by fire heat. Of course when the sun shines brightly the temperature will increase, but any excessive effects are kept down by a free circulation of air. The plants should be syringed twice a day before the fruit changes colour, and when in free growth will require an abundant supply of water.

Vines: *G O L.* So far as we understand the arrangement you propose to adopt, we doubt if the use of tiles, red or slate, will cause your Muscats to ripen and colour better than they do at present; but we are not sure that we understand how you propose to apply them. White would probably be better than red or blue.

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BATH and WEST of ENGLAND SOCIETY, for the Encouragement of Agriculture, Arts, Manufactures, and Commerce.
Patron—H.R.H. The PRINCE of WALES, K.G.
HEREFORD MEETING, 1865.
President—The Rt. Hon. LORD TAUNTON.
The ANNUAL EXHIBITION of STOCK, IMPLEMENTS, POULTRY, WORKS of ART, HONITON LACE, and HORTICULTURAL SPECIMENS will take place at Hereford, on the 5th, 6th, 7th, 8th, and 9th JUNE, 1865.
By Order of the Council,
HENRY ST. JOHN MAULE, Secretary,
May 10, 1865. 2, Wood Street, Bath.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.
PLYMOUTH MEETING.
LAST DAY for ENTRY of STOCK, JUNE 1.
All Certificates received after that date will be returned to the Senders. H. HALL DARE, Secretary.
12, Hanover Square, London, W.

The Agricultural Gazette.

SATURDAY, MAY 20, 1865.

MEETING FOR THE ENSUING WEEK.

MONDAY, May 24 { Royal Agri. Society of England (General Meeting) .. .. Noon
WEDNESDAY, — 24 { Royal Agri. Society of England .. Noon (Dr. Voelcker on Irrigation.)

THERE are several important agricultural topics which have occupied attention during the past week, which are very inadequately represented in our columns to-day. The long paper on AGRICULTURAL EDUCATION read before the Royal Agricultural Society last Wednesday, which we are anxious to give entire in one impression, has taken up almost the whole of our available space; and thus the report of the Society of Arts on Cottages for Labouring Men, and the debate which turned mainly on the same subject the other evening in the House of Commons; the lecture before the Hungerford Farmers' Club, by Mr. HENRY CORBET, on the operation of the Game Laws, and recent discussions of the same question before Farmers' Clubs in Scotland; and the lately published amusing correspondence between Baron LIEBIG and Messrs. NAPIER and HOPE upon the Sewage question, must remain over for comment and report until another week.

The conduct of the agricultural education movement by the English Agricultural Society is likely to be discussed before the general meeting on Monday, and we make no apology, therefore, for filling our columns with the subject to-day, even though so many other topics are thus displaced. The purpose of Mr. MORTON'S paper is to urge upon the Society the importance of taking steps for the prosecution of professional education, which hitherto it has avoided doing; and we give it with the discussion following it entire, in order that it may, perhaps, be seen and read by members who shall attend Monday's general meeting for the purpose of taking part in the discussion which is sure then to arise.

—— On Thursday next Mr. STRAFFORD is to sell by auction Mr. WELLS's herd of pure-bred Shorthorns at Doubleton Farm, close by the Penshurst Station on the South-Eastern Railway. It includes a few choice animals of the BOOTH blood, and others bred from the stock of Messrs. ADKINS, HARVEY COMBE, and JONAS WEBB. Thus 10 out of the 33 animals of which the herd consists are descendants of *Stately* by PURITAN, bred by HARVEY COMBE; and 5 others are from *Rosa*, one of the celebrated MARMADUKE yearlings, sold at his sale in 1859. *Princess Matilda*, again, and 3 others are of BOOTH blood, through the stock of Mr. DOUGLAS, of Athelstaneford. And there is not only first-class pedigree, but good and vigorous stock of great individual excellence, to be sold next Thursday. Mr. WALDO's small herd is also to be disposed of at the same time and place. It contains animals of the *Gwynne* family; and among others, *Fathom*, a 6-year-old cow, descended from Mr. RICHARD BOOTH's celebrated cow *Farewell*, and bought a heifer at Mr. SANDY's sale for 180 guineas.

We may add, that on June 7, Mr. STRAFFORD will sell at Willis's Rooms, King Street, St. James's, the herd of "Grand Dukes and Duchesses," the property of the late Mr. HEGAN, of Dawpool. To this we shall refer next week more fully.

AGRICULTURAL EDUCATION.

[The following paper was read last Wednesday before the Royal Agricultural Society, by Mr. J. Chalmers Morton.]

THE paper to be read this morning is, I fear, of a very different order from those which generally and most worthily engage attention at the weekly meetings of this Society, for I have no unusual agricultural experience to relate, nor any new facts or observations to describe. It is indeed an argument rather than a history which I have ventured upon—one, too, which is, I believe, liable to be considered, either on the one hand as too general and discursive for an audience of practical agriculturists, or, on the other, as too pointedly levelled at the recent resolutions of the Council on its subject, to be within the competence of a mere ordinary member of the Society at any except our annual general meetings. On this point, however, I must at once declare that it has not been my wish to discuss this subject controversially at all, and that I shall make no reference whatever to what the Council have, after their ample and prolonged discussion of it, thought it right to do.

I hope, indeed, that I may be allowed at the close of my statement to point out where and how, as it seems to me, the influence of the Royal Agricultural Society in the promotion of agricultural education may be most usefully applied, but this I shall do with no reference whatever to the plan which has been already adopted, and no desire to bring that plan under discussion now. The *object* of this paper principally has been to determine and place in the order of their relative importance the elements of a good agricultural education; and especially to ascertain and indicate where it is that the existing agricultural education thus appears to be deficient. And the *plan* of the paper accordingly has been—1st, so to describe the business of the farmer as to illustrate the abilities and qualities he must possess and exercise during its successful prosecution; 2d, to consider the educational process by which these abilities and qualities may be best acquired; 3d, to give such illustrations as I have been able to collect of the progress and existing state of agricultural education among us; and 4th, to consider what may be practicable or desirable in the further promotion of it.

THE OCCUPATION OF THE FARMER.

1. *First then of the Occupation of the Farmer.*—Agriculture is an art or manufacture. It is also a business or a trade. And people have of late years got into the habit of calling it a science. By this last designation it can however of course be meant only that the facts which make up the experience of the farmer—like those indeed of every other experience whatsoever—are recognised by men of science as in perfect keeping with the known laws of Nature. There is nothing in the field or feeding house of which a thousand examples in other departments of observation have not been studied and recorded. To the physiologist, the chemist, the botanist, and entomologist, the "mystery" of agriculture, thus, has disappeared. Everything is the illustration or fulfilment of a general law, of which examples are seen everywhere. Agriculture, then, though not a science, has at length become a museum, as it were, of facts, and instances, and specimens, in the classification of which students of all the sciences have been successfully at work, so that every part has now the light upon it of well-defined relationship with scientific truth.

If this be a correct account of agriculture as a so-called science, how is it with agriculture as a trade? There is here an even more complete explosion of the idea of anything exceptional or mysterious. The relationship of the farmer to him of whom he hires the land, which is

his manufactory—to those of whom he purchases the labour he directs—to those who are his customers—and to those of whom he is the customer—is of the ordinary kind, dependent for its establishment and maintenance on the ordinary principles of human nature, and requiring only such protection from without as an equitable administration of the law secures for it. There is no longer any idea that, beyond the mere administration of justice between man and man, the Commonwealth requires any other protection of this or any other industry than Nature has afforded it, whether in the soil, the climate and position of the country, or in the energy, the conscience, and the self-interest of its inhabitants. The differences, however, between agriculture and other trades, though they may be only matters of detail, are very considerable indeed. They are dependent mainly on the fact that to the farmer harvest comes but once a year; that, indeed, several years are generally needed before the full return from many agricultural investments can be realised—that landlord, tenant, and labourer live here in closer conscious *neighbour*-hood, than landlord, tenant, and labourer in the case of any other industry; and generally, that the business is territorial, dealing with the whole surface of the country, and often the sole provision for its inhabitants. The perishable nature of agricultural products is another circumstance impressing some degree of peculiarity on the trade in them. But apart from, and indeed in spite of all these peculiarities, the fact remains that the business relations of the farmer are and ought to be similar to those of all other tradesmen, and that he depends for his success in his dealings with his customers, upon the very same qualities of industry, and honesty, good judgment, resolution, promptitude, which secure success elsewhere.

But agriculture is especially a manufacture and an art, dependent on professional intelligence and skill; and here, of course, we come upon the essential features which distinguish it. I believe that I am right in saying that its chief and ruling characteristics have arisen from the fact that throughout it has to do with LIFE. A great deal hinges upon this. A higher than any merely material force is indeed thus wielded by the farmer, but in effect it rather limits and defines his powers than widens them. He is not an artist or a manufacturer, the only limit to whose handiwork is his fancy or his will. He is hedged about by forces which are beyond him to resist; many of them beyond him to control or even guide. All that he can do is to prepare, and watch, and help. Nature outside pursues her course—rain and sunshine, heat and cold, come and go regardless of his purpose. The seeds of weeds, of parasites, of diseases, of mischiefs of all sorts, are everywhere; and always ready for a fitting seed-bed, where they will grow to his great injury or even ruin. *His* seeds, and the plants and animals he breeds from them, are not only the prey of all these mischiefs—not only subject to all the influences of our ever-changing climate, but they themselves are living creatures independent of him, possessing as species and even as individuals, characters and tendencies which are realised and carried out one may say in spite of him. All indeed that seems to remain his own is his power of choice—the power of selecting the objects he shall cultivate—the power of choosing the times and seasons of the various operations by which after long experience of their natural history, he finds that he can promote their growth. This perhaps is rather understating his ability, but the distinguishing features of his occupation certainly are those which I have named. It has to do with living things, having tendencies and characters and wills as you may almost say of their own, feel, too, not only artificially but by Nature, responding sensitively to natural as well as artificial influences, and thus susceptible not only of injury but of nourishment, recovery and cure, through circumstances and forces which the farmer cannot guide, for which indeed he does little more than make ready, watch and wait.

To be a good and successful agriculturist, therefore, needs not only familiarity with the ordinary routine of farm practice, and both industry and promptitude in its direction; it needs especially (1), the quality of patience by which her full share of the farm work is given to Nature to accomplish; and it needs especially, (2), the exercise of quick-sighted observation by which the earliest natural indications of what is going on, the earliest intimations of the natural tendency and movement whether to the good or bad, are detected in the living creatures which the farmer cultivates. Intelligence, activity, and promptitude in carrying out the routine of operations are necessary in every other business as well as that of farming; but none other, unless it too have equally to do with life, so needs the exercise of quick-sighted, careful, habitual observation for its successful prosecution—and in none other is there so much need of patience. I do not mean contentment, but a willingness and ability to wait for the full effect of the costless influences of Nature. A quick and watchful eye, and prompt activity at the proper time, have to be united with the faculty of waiting till the proper time in order to good agriculture.

Many an example, both mere incidents and whole lives, could be quoted in illustration of the need of both these qualities. Many of us have, I daresay, seen men of strong will—of course not bred to the business, or experience would have taught them better—tearing resolutely on in pursuit of the object which they had set themselves; regardless of weather, prejudices, habits; enforcing the material result by steam if horses would not do, by imported hands if the home-bred labourers were insufficient—in the end correcting at great cost their blunders, and confessing that the knot had been generally cut rather than untied—that difficulties had been swept out of the way rather than overcome, that the mere enemy, so to speak, and not the enmity had been conquered, and that the natural method by which men as well as mere material are converted, and by which things of themselves come round, hinging satisfactorily on the new element which may be introduced, is not only the cheapest but the most efficient in the end. On the other hand of course it must be confessed that every neighbourhood will furnish instances enough, and those too of men who have been bred to the business, where the natural method, as I have called it, has tended to listlessness and idleness, and ended in Nature not being *used* at all, but left almost altogether to herself.

These remarks have indicated and suggested rather than described the well-educated agriculturist. He needs, first, such a perfect and detailed acquaintance with the treatment of the soils, the plants, the animals which he cultivates, as experience, and in fact apprenticeship, can alone confer. And when you consider how many agencies he employs—working cattle, steam-power, labourers—what a magazine of mechanism there now is in agricultural machinery—on what a variety of soils, under what a variety of climates in this country he is placed—of how many plants and animals he needs to know the cultivation—how quickly in order to their successful management he needs to recognise and act on every aspect which they severally present under every variety of condition as to disease or health—how patiently, moreover, he has to deal with the living creatures which he thus has under his care, it must be plain to you that long and habitual practice and experience can alone confer the ability, or rather aptitude, which as a practical agriculturist he needs.

Then, as to the business arrangements which he has to conduct:—there is, as I have said, his relationship to be defined with the owner of the land, by which the returns for investments, bearing fruit often many years after the expenditure, may be secured to him; and there is the relationship to be maintained with the labourer, so that willing and intelligent services on one side may be secured by reasonable, firm, and friendly bearing on the other; and there is the market skill, by which especially the right articles for purchase are selected, and also by which they are fairly bought and sold: and thus in the business of the farmer there is ample scope for judgment and resolution, for both decision and kindliness of character, and for a skill and promptitude which are to be acquired of course in full only by experience, but which are needed from the very beginning of his career.

Lastly, there is the light of science, in the midst of which he ought to walk—no longer a slave to mere routine, but a freed man, acting intelligently within the known limits imposed by Nature's laws—perceiving the scope and tendency of every act that he directs—able therefore himself to suggest the improvements of which his art is capable, or at any rate to judge aright of those helps and alterations which others may offer or suggest.

It is however undoubtedly significant—partly perhaps of the existing educational status prevalent amongst farmers, certainly of the fact that barely a single generation has yet passed away since so many whose life work have been labouring in the field of agriculture, and certainly also of the paramount importance of technical and commercial ability, that is of skill and shrewdness for success in farming—that while we have amongst us maxims which insist on the importance of knowing the details of the business both in the field and in the market, there are none that I know of which urge the value of scientific knowledge.

I have heard often enough that there is a "rent" difference between the words "go" and "come" in agriculture, so that the farmer hiring land who can show and teach his labourers how to do it, is as well off as the yeoman owning the land he cultivates, who depends upon a bailiff. And we often hear, too, of the rent of a farm being "picked up outside the fences," i.e. made by market ability. But there is no such maxim in assertion of the commercial value of an acquaintance with the agricultural relations of the sciences. The tendency is still the other way. More than once, for instance, I have overheard that "a farmer with a chemical head is sure to have an empty pocket." Of course such an idea has arisen from examples where the failure has been owing, not to a knowledge of chemistry, but to an ignorance of agriculture—examples, too, most probably where there has not been much greater knowledge of science than of practice.

If I may conclude this part of my paper by referring to an illustrative example of what I have attempted to set forth, I would say that I don't know any one who has more perfectly exemplified the attitude of the well-educated agriculturist in the midst of the natural and artificial aids and difficulties around him than the late Jonas Webb, of Babraham. No one knew better than he the limits imposed by Nature on the agriculturist, and few accomplished more within those limits or did it better. The condition both of his farm and of his stock bore ample witness here. A wonderfully quick, almost instinctive insight, as it seemed, guided him in the management of both; and the energy of his character and tenacity of his resolution, by which it was that Babraham, neither a pastoral nor a grazing farm by Nature, nevertheless became celebrated for its flocks and herds, were tempered by kindliness and wisdom, the fruit both of natural cordiality and of experience. I may refer to him too as an example of success not only in the art of agriculture but in the business of farming. No one ever commanded more willing service from his labourers, and no one could ever have received more cordial co-operation from his neighbours. And power to engage the sympathies of others in this way is of first-rate importance in the professional character of the agriculturist. And I will add that his intelligent and cordial admiration of the successful efforts of men of science to throw light on the experience of the farmer was not only of direct advantage to him by the freedom from prejudice which it conferred; but it, and his genial manly bearing together—also the fruit of education—gave him a weight and influence with others which is certainly one of the most valuable educational results that can be named, and one from the want of which farmers have suffered, perhaps more than any other class.

The Educational Process.

2. *Agricultural Education.*—I come now, in the second part of my paper, to consider the educational process by which the agriculturist is to be qualified for his profession. How can those faculties be best educated, that knowledge be best conferred, that skill be best acquired, which the farmer needs? This is the question for consideration. I must, however, confess that notwithstanding the attempt just made to define in a systematic manner the equipment which the farmer thus requires, no sooner do we begin to consider the way in which it is to be obtained than all this speculation fails us, and we are back to fall back on actual experience as offering the only safe guidance to the answer which is sought. Of course the boy must go to school, whatever may be his future occupation; and, no doubt, the discipline, both of school life and of school work—the habits, on the one hand of obedience and regularity, and on the other of perseverance and resolution which thus arise—together with the acquirements in knowledge and ability which remain with him through life to his great advantage, whether he is to be a farmer or not. I do not pretend to discuss the relative merits in these respects of the various plans of scholastic training which have been advocated. Their bearing on a future good manhood is, of course, a far higher subject than the one which occupies us now. I presume, however, that in this room we have to do not with good manhood, but with the much humbler subject of good agriculture; and the elementary schooling of the boy can have but little direct or special relationship to the ultimate profession of the farmer. But, even if this were otherwise, I should not suppose school, especially for farmers' sons, or for those of their sons who are to be farmers, to be at all desirable. There surely, is some advantage in boys of town and country origin, commingling in school life. Rather than have the sons of farmers educated as a class, it would be better they should go where the peculiarities and self-consciousness of home life may be rubbed off, and some knowledge be acquired, from the beginning, that good sense and agreeable companionship exists where professions are as well as agriculture.

Neither ought we to forget that agriculturists are a very various body, socially. The so-called class of tenant farmers does indeed include differences almost as great in their way in regard to social position as the so-called "class" of landlords, which includes upon its lower ranks the freeholders. The school education therefore of the boy who is to be a farmer, would, of course, ought always to be as good and liberal as circumstances at after life, may necessarily be extremely various, according to the wealth and position of his parents, and the consequent social position, wealth, and leisure which he himself may ultimately command.

On all these grounds it appears to me that elementary, general, and so-called middle-class education, is scarcely an agricultural subject at all; and the only remark I shall venture to make upon it, whether it is intended as an introduction to the agricultural profession, is that an ordinary good school training affords perhaps less scope for encouraging the habits of observation than is desirable in the education of a boy intended to be a farmer, and yet (to put it solely on professional grounds) cultivating the intellectual relations which most obtain amongst agriculturists, there is probably less attention generally paid to learning French and German than there might be. As to the former point I think it would be a useful supplement to the ordinary school exercises, if the study of Botany and Entomology were encouraged and directed from a pretty early age, and the practice of drawing from Nature taught. A boy who, besides acquiring a certain acquaintance with the features, the history, the habits and relations of certain plants and insects, has actually produced a series of drawings of both from Nature in every stage of growth from seed and egg respectively, must have gone through a very useful—agriculturally useful—training of his powers of observation.

I leave, however, the subject of mere school training and come to the question before us. And the first remark to be made is that agricultural education to be perfect must begin early on a farm. Let me here say, by the way, that while there is doubtless some good

done by a discussion of this subject on a public occasion of this kind, yet I believe it to be good chiefly as influencing the 2 or 3 per cent.—a mere leaven, but still no doubt a leaven—who enter agriculture as a profession from other walks of life. And indeed, in my humble opinion, the influence of the Royal Agricultural Society over this great subject, as a whole, is most likely altogether overestimated. It will certainly be greater, for example, in the case of the intelligent and well educated tenant than in that of the "smock-frock" farmer of 50 acres, who is little more than a labourer; but taking the former case, let us ask ourselves whether such a man, with the 14 or 16 years' experience upon a farm of what is necessary for agricultural success, which he has had since his marriage, is likely to ask for guidance or advice from any one whatever as to the education (I am speaking now strictly of agricultural education) which he shall get or give his son whom he destines to succeed him, and whose requirements for such a position he must know so much better than any other person. The fact is, that in agriculture, far more than in any other trade or occupation, the present generation of practitioners has been bred and educated by the last, and is engaged in the education of the next.

There are more now probably than ever who are entering agriculture as the business of their life from other ranks and occupations, but it still is true, and probably will be always true, that the bulk of farmers have been bred by farmers; and whatever faults there may be in the consequent upbringing of so large a portion of the middle-class population in this country, I must confess my belief that it is a fortunate thing for all who are dependent on the cultivation of the land for their support that this is so. I would, indeed, state it as the keynote of pretty nearly all I have to say upon this subject, that I believe it to be a fortunate thing for landowners, a fortunate thing for labourers, and a fortunate thing for the next generation of tenant farmers, that the education of farmers from childhood upwards is almost entirely in the hands of farmers—*that is* under their direction.

There is perhaps no one who would hesitate—certainly none who would hesitate less than I should—to accept the picture which any large-hearted public-spirited owner of, say, half a county, might draw to himself of a model body of tenantry—I say few would hesitate to accept such a picture drawn by such a man as truly representing the chief end and goal of real agricultural progress; but even for him and for the accomplishment of his benevolent desires I believe it to be a fortunate thing that the education of the future generation of his tenantry, who are to be so many steps onwards in the progress to that goal, is directed and determined not by himself but by the present generation of his tenantry, whom he may believe to be still far short of the goal in question. For, before all things, it is necessary that whatever education be adopted for them, it should, as its result, confer professional ability and skill. The education he might desire for them might turn out unselfish gentlemen, able, intelligent, courageous; but in addition to all this it must turn out farmers who can pay their rent and make their business answer also for themselves and for their labourers, or the whole thing will be a failure. And it is, I feel certain, therefore, well that the education of the next generation of farmers is almost entirely in the hands of, *i. e.* determined by, men who must know better than any other class what is needed for professional success. It is of such men certainly that I would in the first place take counsel in reference to the professional education of any son of mine whom I destined for a farmer. It is their judgment that should determine the time when he must close his school life and begin his life upon a farm; and all I should contend for (if necessary against them, though I believe I should have universal acquiescence from them) would be, *first*, such an arrangement of his school life as should, with a certain degree of educational completeness, (on the importance of which Mr. Dyke Acland has long since most usefully insisted) make the best possible use of the school term allowed him; and, *secondly*, such an arrangement of his life upon the farm as should, without interfering with his acquirement of habits of skill and judgment in dealing with the details of farm practice, leave room and time for his acquirement of that larger, more liberal, and in fact scientific mastery of the various subjects which the practice of the farm includes, which will lift him from the rank of a mere journeyman cultivator to that of a Master Agriculturist.

It is to the second of these points that I have now to confine myself; and, as I said, the life upon a farm needs to begin early in order to perfect agricultural education. I do not attempt to prove this by an induction of examples—for it is impossible to collect the 10,000 instances which would be necessary for this purpose—but the opinions of experienced men are the result of just such an induction, however unconsciously they may have been arrived at. And some such opinions I proceed to quote.—The late John Smith, of Bowldown farm, near Tetbury, in Gloucestershire, farmed between 1760 and 1800. His annual journals and letters, which I have seen, prove him to have been a shrewd, intelligent, and leading man among the agriculturists of that time, and he enjoyed a correspondence with men in ranks much higher than his own. In a letter of his to Major Ogilvie, of Forfarshire, there occurs the following passage, which, however extravagantly worded, is, I think, worth quoting on this subject. He says simply enough:—

"I never knew a learned man who was a good farmer, and therefore I never lamented the want of an education. The time of life to make men scholars is the time for observation in the farming line, and it rarely happens that a man can be a proficient in that business unless he be trained to it from his youth." This was written, let us recollect, long before the agricultural relations of the sciences had been worked out. He even adds, "I would take a man that can neither read nor write to make a farmer sooner than I would the most learned man. The former has no knowledge but what comes from Nature, and of good natural parts. The latter prides himself upon his reading and his education, by which he thinks of pulling Nature out of her course, and so of outdoing everybody."

I quote this as the utterance of a shrewd, intelligent, and successful farmer, notwithstanding the utter absurdity and folly of which many will pronounce it guilty, simply because of the trustworthy good sound sense which I contend that it also displays. If I were addressing agricultural students, or felt in any degree responsible for their success in after life, as, if their teacher, I should be, I would not utter one word in praise of scientific instruction, if they were to infer from it that it could in any degree dispense with the absolute and paramount necessity of practical knowledge and skill, and of that long-continued patient observation of Nature and of practice from early years by which they can be best secured. But it is plain that the old farmer, however right he was to insist upon the need of a knowledge "that comes from Nature," could have known little of science, which he here refers to under the words "learning" and "education," if he supposed that its tendency was to make men try to put Nature out of its course, and so outdo everybody. Science, which teaches us the limits imposed by Nature, is, on the contrary, the guarantee of true modesty and humility.

I quote now a more modern example of a judgment on the point under discussion. The following story was told me long ago by the Rev. J. C. Clutterbuck, of Abingdon, and it has always seemed to me full of useful truth on the subject of agricultural education. It is some years since I first put it into print, and it then immediately went the round of the papers; nevertheless I tell it once more:

A young man fresh from the University, who had taken cordially to the position of a country gentleman—and, among other occupations, had adopted that of agriculturist—was riding round his land one morning with a neighbour of long experience and well-proved practical ability and judgment as a farmer. He listened with docility and good-will to the instruction and advice that were given to him; and, struck by the wisdom and good sense of his companion's discourse, he at length exclaimed, 'Ah Mr. ———, I wish I knew as much as you do.'—'Make yourself perfectly easy on that score, my dear fellow,' was the reply—'You never will.'—The one was fresh from the schools, and the other had spent all his life in the fields, and yet there was neither mock modesty in the speech of the one, nor arrogance in the answer of the other. Mr. ——— did not finish his reply:—'I have been accustomed,' he might have said, 'to be amongst plants and animals, constantly riding and walking on the soil which supports them both, since I was a child. Ever since I can remember I have had to do with the tillage of the land, the cultivation of crops, the management of live stock. There is not an aspect of weather, land, or life, so far as the live stock of the farm are concerned, which I have not habitually witnessed, realised and studied. That of which instances and striking cases may be observed by you is foreseen or recognised by me in its first beginnings almost as if by instinct. Long familiarity with the details of my occupation, beginning, too, with the mind of a child which has hardly any other impression on it to weaken the sensitiveness with which its early knowledge is received, gives me, almost unconsciously, and without the effort of any special attention such as you must exercise, those intimations of fitness or of unfitness, of quality and condition, whether of soil, or crop, or animal, on which the right direction of our business of course depends.' Mr. ——— was perfectly correct; it is an immense advantage to an agriculturist, as to the follower of any other occupation, to learn that occupation young.

Take now the recently declared opinions on this subject of living men. One of the most intelligent and successful farmers in the West of England tells me:—

I left school myself before I was fourteen, and went at once to assist in every operation that might be going on, taking the milking pail morning and evening, seeing the cattle foddered properly, and lending a helping hand. I have never found a boy in the way after leaving school; and should quite despair of his making a man of business unless he had to mix with every thing that moved before he was 16 or 17.

A North Lincolnshire farmer, who has had 40 years' experience of the life of a tenant-farmer, and is well known and respected in his county, says:—

"I attribute my success, under the good providence of God, in the first place to getting to know the practical part of farming in my youth, and following that up with tolerably industrious habits."

A leading Norfolk farmer says:—

"I have not been unsuccessful, but I attribute that success in a great measure to the thorough practical knowledge obtained during apprenticeship."

An experienced Kentish farmer writes:—

"My experience confirms the opinion that boys who begin early to learn the practical part of farming have great advantages over those even who are 16 or 17 before they leave school." He adds:—"I invariably answer [requests for advice about the education of a boy who is to be a farmer] send the lad as near as you can to the place you think he is likely to settle in as a farmer. Select the man who has the character of being the best farmer in his locality, and if you can find such a thing as a money-making farmer in the present day, get him to take him and treat him as one of his family."

Lastly, Mr. Clare Sewell Read, whose name is well known in this room, says:—

"My individual experience is simply this: I was sent for six years to a common commercial school at Norfolk, and when I was just 15 I left school, and passed the next 5 years in learning farming at home. From 20 to 28 I was engaged in managing farms and estates in various parts of the country, and I fancy in those eight years I gained more information, and a better knowledge of practical agriculture, than I should if I had passed my whole life in Norfolk."

And similar testimony to any extent could be quoted from every county in the kingdom—but, indeed it is not wanted, for surely it must be easy to convince a man that a sound agricultural education not only includes but *is* instruction in the art and business of agriculture.

Of course I would not say that this is all that is desirable, but it is the thing that is required. And if there be any displeasure at my occupying the time of this meeting with the assertion of a truth so obvious as this, I must say that, obvious as it is, it has seemed to me as if it were sometimes in danger of being forgotten. I venture therefore to submit to those who are interested in this subject of agricultural education, that the young men whom they are anxious to equip aright for their agricultural career, have to gain their living by it; and that therefore the aim and end of agricultural education must be professional ability. I picture to myself the case of a young man with the 2000*l.* or 3000*l.* on which he is to depend as a farmer, well educated—guaranteed as such by all the distinctions that the universities can award him, a proficient even in the various sciences with which agriculture is directly connected—he must be upwards of 20 years of age. He is not yet a farmer, and taking him, as for the purpose of this argument I am entitled to do, to be an average specimen of human nature, I venture with some confidence to tell him that a thorough good farmer he never will be. For agriculture is an art and not a science, and the years he has spent till now on schooling chemistry, and botany ought most of them to have been devoted to his apprenticeship to the business by which his 3000*l.* are to maintain him and his future family. A large and liberal education is, I know (or, I should rather say, I have no doubt), an immeasurable benefit to any man; but it is simply mischievous and cruel—and will ultimately come to be so judged by the young man whose case I have supposed—to attach to the words "agricultural education," as a professional guidance for him and such as he is, any other than the simply professional meaning which they bear. I entirely agree, therefore, with the authorities already quoted, in insisting on the need of an early apprenticeship to farming as being the essential substance of an agricultural education.

The testimonies I have quoted are, however, mere extracts from fuller statements, and the writers would, I believe, all agree with me in adding a good deal to the bare assertion of such a truism as this; and perhaps the best way of making such additions will be to point out the difference between the Norfolk and the Kentish farmer last quoted. The latter would send his boy into the district where he is ultimately to farm; Mr. Sewell Read would send him to a distance from home, and he attributes the chief advantage of his own agricultural education to its having been obtained in many different parts of the country. I believe in the latter statement, and the advice which it conveys, as the safer and the better of the two. And seeing that it is generally impossible to obtain in this way that wider experience which is desirable, it becomes the more necessary that the agricultural student should learn the inner truth which underlies the varying particulars and shades of agricultural and all other experience, so that the essence of every act that he directs, and of every fact that he observes, may be understood apart from the wrapping of mere circumstances which disguises it. This inner truth is the subject matter of scientific teaching. The sciences of dead and living matter—chemistry, botany, physiology, and others—thus certainly are part of a sound agricultural education, because they include and classify and thus truly represent the facts with which the farmer daily has to do. Any agriculturist who is also to a certain extent a botanist, a chemist, a physiologist, has his mind as well as his mere hands and eyes occupied with his business, and his judgment is surer, safer, and more confident in unusual or untried circumstances, not only because it acts upon this inner truth which circumstances disguise to the mere outward eye—but also because by larger exercise and freedom it has thus itself become an instrument of greater aptitude and power. I ought perhaps to beg pardon for occupying your time with truisms of this kind, and I will therefore conclude this part of my statement with a short reference to the way in which the practical and scientific parts of a complete agricultural education may be best obtained. It is the desirableness of uniting the two that makes institutions of the class of the Royal Agricultural College so valuable. Such institutions should, in my opinion, be not scientific but agricultural colleges. Their purpose, aim, and end are to turn out agriculturists; their business is to teach agriculture—agriculture, certainly, and therefore anything that will throw light on agriculture also. It is, however, difficult, and perhaps impossible, to give that preponderating importance to instruction in farm practice in any scheme for the arrangement of the time of 60 or 80 young men at an institution of this kind, and therefore I am inclined to think that the best result will be obtained where such colleges receive young men after three or four years' residence upon a farm at home or elsewhere. They would at the College have for a year or two opportunities of becoming acquainted with the sciences, and their relation to the art and business of the farmer, while at the same time the routine of work upon the College farm would keep fresh their familiarity already acquired with the practical details of farming. Failing

this, the alternative is that such institutions as the Cirencester College should be placed in districts, such as Norfolk and East Lothian, which are full of young men learning farming, and where perhaps Mr. Paget's half-time system might be brought to bear, so that a certain portion of time being devoted to practical work upon the several farms, a remainder would be available during which students of agriculture could assemble from all the farms around as students of the several sciences taught at one central institution for the purpose.

I may mention that in Scotland it is not uncommon, and it is desirable everywhere, for young men having become acquainted by several years' practice with the work of the farm, to enter the office of an accountant at Edinburgh for a year or more, where they have opportunities of attending scientific classes at the university and elsewhere—thus uniting the two most influential additions that can be made to the equipment of a thoroughly accomplished agriculturist.

I am well aware this is but scanty treatment of my subject; but indeed no other is possible within the time allowed me; and I have accordingly done little more than aim at a certain degree of *fairness* in my discussion of it, by giving that same prominence here, in the scheme for the education of the farmer, to the importance of practical instruction and skill, which it most assuredly has in the actual experience of life. Had there been time I could have urged at greater length, and of course with much greater force, the professional advantages, both direct and indirect, *i. e.*, both as actually affecting the operations of the farm, and as giving a higher social and professional influence and standing to the farmer—of that more liberal and scientific knowledge of agriculture which can be obtained only by a union of scientific with practical instruction. To this especially, however, though also, no doubt, to the correction of the many other faults and imperfections of this paper, the discussion following it will in all probability be directed; and all therefore that I shall at present add is the following conclusion to which I think this complete consideration leads.

A young man of 21 or 22 about to enter on a farm is unusually well qualified both to make his business answer for himself, and to make it respectable in the eyes of others, who, having up till 15 or 16 been well educated at a school, has since that time been resident on a farm, or what is better, been resident on more than one farm, obtaining a practical acquaintance both in the field and in the market-place with all that the farmer orders and his labourers *do*; and who during the last year or two has been at such a college as Cirencester; especially if during all this time upon these farms he has been taking some interest in those sciences taught there to which agriculture is especially related, —and especially, also, I will add, if all along he has also taken a *reasonable* degree of interest in all the social as well as strictly professional duties, occupations, and enjoyments of country life.

Perhaps even now he had better go for a year with a salesman, accountant, or other professional man, and learn by practice the order, economy, and punctuality of a well conducted business before he enters on business for himself. And I do not doubt that, supposing a young man to have no more than 2500*l.* or 2600*l.* at his disposal, it will have nevertheless ultimately well answered his purpose, though so much as 500*l.* or 600*l.* has been spent by him if necessary in this way, and his capital thus diminished to this extent.

3. *The Existing State of Agricultural Education.*—Our third subject is the existing state of agricultural education in this country. If this is to be measured by results, a great advance may be generally claimed as having been achieved during the past 30 or 40 years. No doubt there are exceptional poor clay land districts of small farms in the country, whence neither landlord, tenant, nor labourer—neither producer nor consumer—get much more per acre than they did half a century ago. But it is impossible for any agricultural historian to avoid the conclusion that on the whole the productiveness and fertility of the country have largely increased within living memory. And accordingly the pictures which our agricultural historians—Mr. Thompson and the late Mr. Pusey—have drawn are sufficiently indicative of the fact that more bread and meat are now grown annually in England than it has ever before yielded.

By way of datum line for comparison, I may here give a short account of what might be called, from all I have heard of it, one of the example farms of Europe—the Wilhelmina Polder, in the province of Zeeland, Holland, which includes 3000 acres, and was enclosed from the sea nearly 60 years ago. Mr. Vanden Bosch, a shareholder in that property from the beginning, and all the time the resident manager of it, who is himself both a highly educated gentleman and a good practical farmer —has all along kept accurate accounts of this thoroughly well organised estate. The land is alluvial, and nearly all more or less clayey; it is all arable, and is cultivated in six farms upon the plan of a long and carefully observed rotation of crop, in which, besides our annual English crops, Madder occupies an important place. From the decennial averages which have been struck, it appears that the property is gradually increasing in fertility. Thus, comparing the 10 years 1821—30 with the 10 years 1851—60, 30 years asunder, I am told that the average produce of Wheat per acre has increased from 31 to 36 bushels, of Rye from 31 to 35, of Oats from 61 to 62, of Barley from 50 to 55 bushels; while the returns of Beans and Peas have been stationary. It is, perhaps, necessary to add that some considerable additions of rather poorer soil have been made to the original area during the interval, so that the average increase of the same soil ought properly to be put somewhat higher than these figures represent. It must be admitted also that an alluvial soil, naturally fertile, is not the best on which to look for increased returns; nevertheless, I am inclined to think that there are few districts in this country, though generally managed in a much less systematic manner, where, owing to land drainage, guano, artificial manures, and purchased cattle food, the increased fertility is not much greater than it has been observed to be on this, one of the largest and best managed farms upon the Continent. If, for example, the Cotswold district be taken for comparison—where we have a comparatively poor thin soil,—benefited but little by land drainage, which is undoubtedly the greatest fertiliser of all—there is ample evidence to prove that the Wheat crop, for instance, which in the early part of this century did not exceed 2 quarters an acre, is now more nearly 3½ over the whole area; and Mr. Bowly states that the produce of mutton in that district is double what it used to be, the sheep being brought out at a year old weighing as much as they used to do at two years old. So much for produce. Rents on the other hand have doubled within 50 years, and the expenditure on labour, taking for example a particular and fairly characteristic farm of 6000 acres within the district, of which I have the figures since 1774, has increased fourfold. On this farm it was 8*s.* an acre up to 1787, 10*s.* 6*d.* an acre up to 1794, 13*s.* an acre up to 1800, and between 1853 and 1863 it has averaged 30*s.* an acre, besides beer.

This is but a scanty illustration of a great subject; but I do not think it is necessary to lead a laboured proof by collecting the multitude of examples which would easily be forthcoming to show the increased productiveness of English agriculture during the present century. This will be easily admitted by every one; and if professional agricultural education is to be measured by results of this kind, we may fairly put in a claim for considerably increased professional ability during the period in question. Unfortunately, however, for the optimists, it is extremely difficult to draw with accurate discrimination the proper inference on this point from the facts before us. We have had land drainage very extensively adopted as a fertiliser, and we have had some millions of tons of guano added to the soil, and some millions also I presume of artificial manures applied during the period under review. There can be little doubt that experience has, during this period, taught farmers the policy of greater liberality and outlay in the treatment of the land than used to be considered the safe and proper thing; but the increased produce thus obtained cannot be put down altogether to increased professional ability or to better agricultural education.

For there are three things contributing to this result:—1st, the natural quality of the land; 2d, the character of the machinery and material available for its proper cultivation; and 3d, the quality and character of the judgment, skill, and mind brought to bear on the management of the whole. The quality of the land, notwithstanding Liebig's warnings, may be safely pronounced at least as good as ever it has been. The machinery and material available for its cultivation have wonderfully increased in efficiency and value, and this alone would account for the increased produce obtained, even though the professional ability of the tenant farmers of the present day should be pronounced no higher than that of their immediate predecessors. I therefore leave any attempt at determining the point under discussion by reference to results, and fall back on testimony. And I submit it, as at least deserving the serious consideration of all who are interested in improved agricultural education, that while the testimony of experienced men, many of whom can speak from personal knowledge of two preceding generations, is quite unanimous and clear as to the immense strides made by the general body of farm tenantry in general education, intelligence, and social position, there is not by any means such certainty or unanimity as to their standing in respect of professional education and ability —in short, as to whether the sons are better *farmers* than their fathers. The general impression among those whom I have consulted is that the professional and technical ability when much inferior means were at the disposal of the farmer was at least as great in days gone by as it is now.

I have been in the habit for 20 years and more of troubling those whom I have known to be the leading agriculturists and the leading agricultural authorities in every county in the kingdom with circular questions on pretty nearly every agricultural subject whether of annual or only occasional interest that has arisen during that period; and the question of agricultural education has been the subject of a correspondence of this kind during the past few weeks—so that I am able to speak with some confidence of the existing status, on the scale both of general education and of professional ability, of the great body of English agriculturists, according to the best men among themselves. And I repeat it—the universal testimony is that while there are large districts in this country where the tenantry have long been well educated men, yet over the whole country the general advance of the tenantry on the score of general intelligence, education and social standing, has been very great during the past two generations. The following are examples of the replies which I have received.

Mr. Fewster, of Nailsworth, Gloucestershire, whom I have known all my life both as a public-spirited philanthropist, and as a man in constant business relations with the Cotswold farmers, says—

"Looking back from my point of view, embracing a retrospect of two generations, the advance of the agriculturist in education, in general intelligence, and in social standing is enormous, and the advance is still progressive. Comparing the present generation with their fathers, the mental and moral improvement is very striking."

In the same district another, himself a tenant farmer, says—

"I consider the present tenant farmer, in point of education, social standing and real intelligence, to be far superior to the past generation of farmers; of unassuming manners and little exterior show, he is too often looked down on with slight and contempt by his professional or mercantile and trading neighbour, who himself perhaps possesses but a very small share of the other's sound sense and real intelligence, and employs less than one-eighth of the capital in his calling."

From Kent I hear—

"The present generation of farmers is far superior in education (but not in wealth) to the last. Most of our poor-law unions in this part of Kent have farmers as chairmen and vice-chairmen of the boards of guardians. The same may be said of the different highway boards, and we cannot be said to be purely an agricultural district. These are facts, and will show you better than an opinion, that the education of farmers has kept pace with that of other classes."

Mr. Spearing, of Oxford, says—

"There is no doubt, I think, but that the farmers of the present generation are better educated and more alive to the advantages of a good education than the last."

Mr. Burbery, of Kenilworth, says—

"I believe the past generation of farmers gave their sons greater educational advantages than they had had the benefit of themselves, and I observe farmers of the present day who have the means are desirous of giving their sons a useful general education."

In Warwickshire, Mr. Adkins, of Milcote, says:—

"There are countless instances where the son's intelligence or social bearing is in no degree superior to his parent's; but speaking generally, the present generation of farmers is far in advance of the last generation in education and therefore in intelligence."

In Norfolk Mr. Clare Sewell Read declares:—

"There can be little doubt, that as far as education and general intelligence are concerned, farmers of the present day are greatly in advance of the past generation."

From North Lincolnshire I hear—

"No doubt the present generation are much better educated than any former, particularly the smaller farmers, though many of the more respectable class of last generation were well educated men, and their social standing has not so much altered as in some counties."

In Yorkshire, Mr. Stevenson, of Thirsk, writes—

"My opinion is that the farmers of the present generation are considerably superior to those of the past—more intelligent, better educated, and occupying a higher social position."

And Mr. Outhwaite, of Bainesse, Catterick, writes:—

"The present generation of farmers in this neighbourhood are both far better educated, and much more anxious for general information than the last. Forty years ago the tenant farmers could read very imperfectly, kept very inaccurate accounts, and never left their homes except to market. Now, every farmer of 50 or more acres of land takes at least one newspaper weekly, attends some club or reading room, and is ready to take part in any discussion that may arise at the market dinner table on agricultural subjects. I remember the time when any order, however absurd, sent from the landlord or his steward would be implicitly obeyed. Now, it would be read over, considered, and discussed, and if found injurious to the tenant farmer, petitioned against and published in newspapers."

Lastly, I quote Mr. Dods and Mr. Grey, of Dilston, as to Northumberland. The former says—

"The present generation of farmers are better educated, and more alive to the benefits of education, and have better opportunities of conferring these advantages on their sons than any previous generation."

And Mr. Grey, of Dilston, than whom no one in this country is better entitled to the respectful regards of English agriculturists for his long and honourable agricultural career, speaking of the Hexham Farmers' Club, which he many years ago established, says:—

"The existence of such a Club in a rural district, comprising 221 members, with a library of 489 volumes, besides several agricultural periodicals, is a strong fact in proof of the better education and increased knowledge of the present generation.

"We've fallen on better times; men read and think;
Our good forefathers used to fight and drink."

At least so it was with the dwellers on the Borders, the cultivation of whose fields and stock is now thought to be somewhat exemplary."

Very many more testimonies of equal authority and identical character could be quoted to prove, that the farmers of this country have put and still place the greatest value upon a good school education, and want no guidance or incentive on that point at all. Only let their business be profitable, enabling them to obtain for their sons the education they would gladly give them, and the next generation of tenant farmers will be still better educated than the present, without any external help. It is for this reason that I believe the owner of any large estate has the best security for the character of the next generation of his tenantry, both for general intelligence and for professional ability, in the fact that their education is in general almost entirely in the hands of the present generation of his tenantry, who know better than anybody else what is best for the circumstances in which they are placed. And it is for this reason, too, that I firmly believe the

promotion of good general and liberal preliminary education for farmers' sons to be best served by those who are urging increased attention to that professional agricultural education on which farm profits depend. Make these certain, and there need be no fear of a school bill being grudged.

If however there is ample testimony to the fact that the general education of the present generation of farmers and their sons is higher than that of the preceding generation—there is no such universal belief that professional education is being equally attended to. On the contrary it would appear that there is a great and growing lack of practical and professional knowledge in young farmers or young men who are to become farmers. They are very apt to take to their horse, and dog, and gun, and to the pleasures of a country life, and shirk the practical apprenticeship to it which used to be more generally insisted on.

Thus Mr. Dudding, of Wragby, Lincolnshire, who believes in the superior intelligence of the present generation, adds:—

"That the practical part of the business of a farmer is in advance I do not believe. The young men of my father's time, 40 or 50 years ago, were accustomed to ploughing, grooming their own horse, and attending to a certain quantity of stock—in fact, taking part in any of the practical work on the farm. Now this is very different: not one in ten of the higher class of farmers would be capable upon commencing business of directing from his own practical experience the various operations on his farm."

Mr. Ruston, of Chatteris, Cambridgeshire, says:—

"As far as my own observation enables me to form an opinion, I should say farmers' sons are far better versed in mathematics, in mental and moral philosophy, and even the higher departments of a good general education, than they are in the scientific branches of agriculture. I consider the requirement of the present day is professional education, and it needs to be thorough. A farmer ought to have an intelligent reason for everything he does, and not, as is often the case, 'leap in the dark.' To possess this he must be educated accordingly."

Mr. Clare Sewell Read, of Norfolk, comparing the younger of the present generation with the past, says:

"As sound practical farmers, I don't think they are much improved; but of course their knowledge of the principles and science of agriculture must be greater."

And in Sussex, Mr. Ellman says:—

"I believe that the present race of farmers are not so well informed upon the general working of the land as the last generation, but we possess many appliances which formerly were unknown."

He adds:—

"I may say that I know of no young man in this neighbourhood, of the age of 22, who is capable of conducting a large farm to advantage unless entirely trusting to an experienced bailiff. Even at a maturer age, few who are liberally educated can manage of themselves. I am quite prepared to prove my assertion, that any education which entices the mind from the avocations of a farm must inevitably weaken the object, and mislead the practitioner into a labyrinth of difficulties."

It thus appears to be the general opinion that the present generation of young men among the tenantry to whom, on the score of general intelligence, every body concedes a much higher social position than their fathers had, possess no such superiority as regards that professional ability or skill to which one is at first disposed to attribute the advance which English agriculture has undoubtedly of late years exhibited.

AGRICULTURAL SOCIETIES.

There are two other indices of which I have thought as likely to point out the truth on this subject. The one is the statistics of agricultural societies in this country, which however have but a doubtful relationship to it; and the other is the amount of sales which publishers have obtained for agricultural works. Of the first, connected with which I have collected a lot of information, which, however, is still unfortunately incomplete, I will here only say that the great number and success of local agricultural societies, and especially of the discussional Farmers' Clubs, is to be taken as an indication rather of the interest in and anxiety for professional information which prevails—than as a proof that there is nothing more to be desired or required in the professional education of the farmer. I see, for example, that Dr. Voelcker and Professor Coleman, Professor Buckman too, and others, are frequently applied to by local clubs for lectures on various departments of agricultural science and practice. Professor Church, of the Agricultural College, has, I see, undertaken to teach a class of members of the Kingscote Farmers' Club, who have sought his help, so much of the science of chemistry as explains agricultural experience. Of course one soon learns that these clubs are very often the result of public spirited effort on the part of comparatively few individuals in each county; yet, even so, their existence proves that there is already spread over the country an agency which this Society may, if it chooses, use in any effort it may make for the prosecution of professional agricultural education. For this reason I have persevered during the last few weeks in the collection of information regarding these Societies. I have now full information regarding about 120 such Societies in England—not one-third probably, however, of the existing number—and I will endeavour to make the list complete before sending it to Mr. Hall Dare, in case for this or any other purpose of communication with the great body of English farmers it should be found useful here.

SALES OF BOOKS.

On the question of the sale of agricultural books, —which of course affects the question of general education quite as much as it does that of professional education—(and I hope I need not say that while anxious above everything that this Society should do what it can to promote professional agricultural education, I have sought for information at large, and simply in order to ascertain the truth, and am most cordially willing to hear the lessons which it teaches, whatever they may be)—on the question of agricultural book sales, I have information from Messrs. Black, of Edinburgh; Blackie, of Glasgow; Fullerton, of Edinburgh; Longmans, Ridgway, and Routledge, of London. I also applied for information to Messrs. Blackwood, of London and Edinburgh, who are the publishers of Mr. Henry Stephens's valuable agricultural works, and I am very sorry indeed that I have not information on this subject from them, because I cannot add to my list Mr. Stephens's Book of the Farm, which is one of our standard agricultural works, and has doubtless as large a circulation as any book of its class.

I also applied to Mr. Churchill, one of the leading publishers of medical works, for information of the sales of professional works to the members of a thoroughly well educated profession, that I might have some standard of comparison by which to estimate the indication afforded by the figures of the agricultural publishers. Twenty years ago Mr. Churchill brought out a set of professional manuals on Anatomy, Surgery, Chemistry, Physiology, Materia Medica, &c., by such men as Golding Bird, Erasmus Wilson, Ferguson, Taylor, Fownes, Carpenter, and Royle. The number in the census tables connected with the medical profession in England and Wales in 1861 was about 36,000, of whom, however, only 15,000 or thereabout are doctors, surgeons, and apothecaries. The sale of Mr. Churchill's seven manuals up to the present time has been in all 103,500, or on an average 14,800 of each. They were all designed for the medical student. This is the only fact which I shall quote in illustration of the relation of the publisher to a thoroughly well educated profession. I doubt not the experience of Messrs. Churchill is paralleled by that of other publishers of medical books.

But compare this with the experience of the publishers of agricultural books, who have so much larger a constituency. First, however, what is their public? There were 30,000 landowners, 250,000 farmers, 16,000 farm bailiffs, and 500 (so-called) agricultural students in England and Wales in 1861. But many landlords fill public offices, under which they are returned, and so the tabular number is in this case declared defective.

It is probable, however, that there may be some of the class who might be better described as small farmers cultivating their own land, and this would perhaps diminish the number of the class on whom the agricultural publisher would depend. I therefore take 30,000 as the true number. As to farms—of every 1000 holdings in ten English counties, there were only 220 over 100 acres each. I take therefore only 20 per cent. of the whole number in the census returns to be available for publishers. To 30,000 landowners, therefore, add 50,000 farmers, and some 10,000 farm bailiffs and agricultural students, and you have 90,000 altogether. If to this there be added the corresponding numbers in Scotland and Ireland, we may assume that the "public" of an agricultural publisher in this country numbers at least 120,000 person.

Now what are the sales of agricultural books? Messrs. Longman have sold about 9000 copies of Loudon's Cyclopædia of Agriculture since 1825. Fullarton has sold 9500 copies of his Rural Cyclopædia, published 1848-52, in 4 vols. at 20*s.* each; and 5500 of his Farmers' Cyclopædia, published in 1853-6, price 40*s.* Blackie has sold 8500 copies of the Agricultural Cyclopædia, published in 1856 in 2 vols., for 3*l.* 16*s.* Of Professor Low's excellent book on Practical Agriculture, the first edition of which was published in Edinburgh, Longmans have since sold 5091 copies up to June, 1864

Of other books I add the following list:—

	Price.	Sold.	Published
Messrs. A. & C. Black.	*s. d.*		
Mr. Wilson's British Farming	..	800	1860
Messrs. Blackie & Co.			
Webb's Farmers' Guide	3 6	11,000	1839
The Agriculturist's Calculator ..	8 0	10,000	1851
Professor Wilson's Farm Crops ..	13 0	3,000	1859
New Farmers' Almanac	..	9,000	Annually
Messrs. Fullarton.			
Farmers' Cash-book	7 6	1500	
Messrs. Longman.			
Handbook of Dairy Husbandry ..	1 6	2000	
,, of Farm Labour.. ..	1 6	1000	
Low's Domesticated Animals ..	..	300	
,, Landed Property	..	1300	
,, Breeds of Domesticated Animals	..	200	
The remainder of the Editions of Professor Low's work have been disposed of to Bohn.			
Messrs. Ridgway.			
Mr. C. W. Johnson on Fertilisers .		about 6000	1844
Rev. S. Smith's books on Lois-Weedon Husbandry ..	..	7000	1849 & 1856
Squarey's Agricultural Chemistry..	..	750	1841
Main's Farmers' Manual	..	2000	1847
Morton on Soils	..	2000	1837
Cottage Farmers' Assistant.. ..	..	4000	1845
Johnson & Shaw's Farmers' Almanac during 37 years, 373,000; averaging	..	15,570	p. annum

	Price.	Annual Sale.
Messrs. Routledge.	*s. d.*	
Sibson's Agricultural Chemistry ..	1 6	420
The Sheep, the Pig, and Cattle (each) .	1 0	750
The Horse, by Cecil and Youatt ..	1 0	1500
Small Farms, by Martin Doyle	..	600
Feeding and Manures, by C. Sibson .	1 0	850
The Horse, by Stonehenge	18 0	500
Mr. Meeds's How to Farm Profitably .	5 0	500
Young's Farmers' Calendar . .	10 6	300

I beg to thank the publishers of these works for so frankly giving me these illustrations of the demand for agricultural works. Of course there is a large number of other books addressed to farmers which have not had anything like the success of these. But I think that even here, considering the very large public to which these books are addressed, and the contrasted demand for professional books in the medical world, we have evidence rather of an imperfect than of a satisfactory state of professional education in that of agriculture. If I lay the burden of the smallness of the reading public for agricultural books to the account of professional rather than general education, it is partly because that public includes 30,000 landowners as well as 60,000 English farmers.

And I believe the result of the whole inquiry to be, that it is the promotion of professional rather than of general education that is most needed in the English agricultural world.

WHAT CAN THE AGRICULTURAL SOCIETY DO?

4. *The Relations of the Agricultural Society to the Subject.*—I come lastly to consider how this Agricultural Society may best promote the improvement of agricultural education in this country; and I shall not tax your patience for more than five minutes longer.

Three and twenty years ago a lecture on the importance of professional education for agriculturists was delivered by the late Robert Jeffries Brown of Cirencester, before the local Farmers' Club at Fairford, and a most admirable result ensued upon his advocacy and subsequent energetic labours. The Royal Agricultural College has long been at once a splendid illustration of the power of a local farmers' club when once its interest is aroused, and a most useful educational agency for the advantage of the agricultural community, for which we have to thank not only the intelligence and energy of its founders, but much public spirit and self-denial since. I do not refer at any length to its past services or present efficiency, for both are related by Mr. Lawrence in the current number of our Journal, but its history certainly may be cited as a proof that our local farmers' clubs may be most usefully taken into alliance with this Society in connection with the work of agricultural education which is before it.

What has to be done? There are probably 30,000 farms of 200 acres and upwards in this country; occupied therefore by men of a certain substantial middle-class in society, whose sons may thus command a fair middle-class education. If their professional life average as much as 30 years, then 1000 young men of this class are every year draughted in this country from the rank of agricultural student or apprentice to that of professional agriculturist. Now we may assume that there is at least a period of three or four years in the student or apprentice life of each when educational stimulus and guidance would be professionally useful; and it thus appears that there is always a constituency of 3000 or 4000 young men in England open to that educational influence, which this Society might, and, as I believe, ought to exert. To apply the rein and spur to this large body therefore is the work which has to be done.

How is it to be done? I know no other way of offering the stimulus and guidance which are needed than the old-fashioned plan of offering prizes to candidates and determining their relative merit by examination. It is hardly possible, no doubt, for any dispassionate observer to avoid the conclusion that the guidance of experience and the stimulus of desired professional success, and of looked-for good social position, are really the guidance and the stimulus by which agricultural education is, and will always be, efficiently promoted in this country. Nevertheless, it is consistent with all experience, both that valuable prizes and distinctions to be won at competitive examinations are an effective addition to the natural rewards which education confers upon the student; and that the programme of trustworthy examiners is an effective addition to the natural guidance which experience confers upon instructors.

I have, indeed, heard it asserted, that this system of examination and reward is wholly inapplicable to the agricultural student or apprentice. It is alleged that there is no possibility of testing agricultural knowledge and efficiency except in actual practice. The objection might be made with exactly equal force to those examinations through which naval officers take their successive steps in rank, and there certainly it is altogether untenable. But indeed I am quite certain that all who have had any experience in agricultural examinations, whether they be professors determining the industry and capacity of a student before he is passed, or agents ascertaining the ability and qualifications of a bailiff before he is engaged, must admit the power of an examiner to ascertain whether any candidate for the

rewards at his disposal has been a diligent and successful agricultural student or apprentice.

In order then to carry out a system of examinations of this kind, which I believe would be perfectly efficient in agriculture as it is in other professions, I would have this Society seek the alliance of the leading local farmers' clubs. The whole country is divided into eight or 10—I do not know how many—districts, which the Society visits in rotation. There are in each active farmers' clubs, with lots of vitality and energy. The Hexham, Newcastle, and Penrith Farmers' Clubs in the north, the Wirral Farmers' Club in Cheshire, the Midland Farmers' Club in Birmingham, the Kingscote Farmers' Club in Gloucestershire, the Hungerford, the Dorchester, the Botley, the Maidstone Farmers' Clubs, and many others in the south. Any of these, I am persuaded, or where there is more than one in any of the Society's districts—then two or more united—could, and I believe would, readily accept a commission from this Society in connection with this subject. It is surely not an extravagant supposition that in every one of the districts on the Society's list 100*l.* could be annually collected through the local clubs in each from landowners and others interested in agricultural property, to be awarded by the Society's examiners in substantial scholarships and prizes to the most intelligent agricultural students belonging to each district. If only ten or a dozen young men in every district should at first come forward to claim these rewards, great good would be done. But I cannot doubt that, stirred up by the local agencies, which would secure just that kind of publicity which the scheme requires, largely increased numbers would ultimately strive for the honours and substantial advantages of success before the local Royal Agricultural Society's professional examinations.

I do not, however, pretend to discuss this matter in any detail. No doubt there are plenty of difficulties in the way, but none insuperable, as I believe. At any rate, I earnestly hope that this great Society, which has successfully accomplished one most serviceable piece of professional education during its career—I mean, educated the great body of the landowners of this country into a taste for agricultural pursuits—will make the effort which is expected from it to promote the professional education of those who are still more directly dependent upon the cultivation of the land for their support.

We add the following report of the discussion which ensued:—

Mr. RAYMOND BARKER thought the meeting should express its obligations to Mr. Morton for the very valuable information which he had laid before it. He had great pleasure in proposing a vote of thanks to him for his varied and interesting lecture.

Mr. DENT, M.P., seconded the motion. There could be no question as to the very great value, and to the equally great fairness of the lecture. The remarks in the early portion of it as to the requisites for making a good farmer were especially valuable. He cordially concurred in what the lecturer said about quick-sighted observation being only to be obtained by experience or apprenticeship, and about business habits being requisite to make a man a good farmer. The great difficulty was so to educate farmers as to enable them to cultivate land with ability, and at the same time to pay their rent and make a living for themselves. Having been for a short time upon the Education Committee of the Society, he must say that the more they studied the question the greater were the difficulties by which it appeared to be surrounded. The chief difficulty was that while they wished to impart a good education on general subjects at school, they desired also that early habits of observation should not be impaired, but if possible strengthened during the school period, and he could quite understand that to keep a boy too long at school might tend to injure his powers of observation. Speaking, however, from his own experience of farmers—not small farmers, but men who farmed from 200 to 250 acres—he thought very few of them kept their children at school for a sufficient time, and a very large number of the sons of such farmers left school as early as the children of labourers; and, as a natural consequence, their education was of a very meagre and indifferent description. The worst feature in the case was perhaps that when these boys left school it was merely to go to their fathers' farms; they were thus unable to obtain any experience of farming beyond the limits of a circle, say of 10 or 12 miles. If after leaving school they could go out for a time and see what was going on at a distance from their homes, it would be a great point gained. It seemed to him that the better way for the Society to encourage education was to establish scholarships rather than give prizes. A suggestion upon that point had been thrown out by Mr. Morton, and the same idea had occurred to another active member of the Society, who was also on the Education Committee—that they should call in the assistance of farmers in different localities—in fact that scholarships should be instituted by local authorities acting in conjunction with the Council of the Society. Within the last 20 years he had seen twelve young men either succeeding to farms or preparing to succeed to them, and he believed he was right in saying that not one of them ever went away from his father's farm to learn the business of farming. He had endeavoured to impress upon the farmers in his neighbourhood the advantages to be derived from parents pursuing a different course in this respect, and giving to their sons a wider range of observation, but he was always met with the remark that they could not be spared, as they were so useful, so steady and reliable; and that character of them he (Mr. Dent) could from personal observation justly endorse. He did not deny that there had been considerable improvement in the farms he alluded to of late years, for there unquestionably had, but he could not help thinking that it would have been a great advantage to the young farmers if they had spent a year or two away from home in obtaining a wider range of experience. In some letters published in the *Agricultural Gazette* on this subject he found the writers making great complaints that the young farmers of the present day were too fond of amusement, and did not stick sufficiently to their work. He did not see how the Society could cure that, which was rather, he feared, a general tendency at the present day. Farmers were increasing in numbers; many young men embraced farming as a pleasant occupation, and having plenty of capital it was not unnatural that they should regard as the most agreeable part of the farming life the amusements of the hunting field, and this possibly might have given rise to the statement.

Mr. HOLLAND, M.P., after expressing the pleasure he had felt in listening to Mr. Morton, whose observations were as practical as they were lucid, remarked that all must, he thought, agree with that gentleman as to the connection which should exist between the Royal Agricultural Society and the local Societies. The education of the future farmers of this country was of course in the hands of their relations—the present farmers; but if, through its connection with various local societies, the Royal Agricultural Society was enabled to send examiners through the country, those examiners would, more or less, be guided by the relatives, who were generally members of the local Societies, and thus that Society and the local Societies acting in concert would carry out the educational views which had been agreed upon, without requiring any new machinery, but merely taking advantage of that which already existed. Allusion had been made by Mr. Dent to the fact that while young men were employed in farming they took their recreation like other people who lived in the country. He could not see any harm in that—on the contrary he thought good would emanate from men meeting together and passing over parts of the country which perhaps otherwise they might never see. But there was another circumstance which affected the future agriculturist. Education in some shape or other was now entering more largely into agriculture than it had ever done before, and in this country it invariably happened that a large additional amount of capital was employed in any trade into which improved education entered. Capital and education combined were entering into the farming business, and one result of this must inevitably be a diminution in the number of small farms. Men of capital and education would not be satisfied with farms of 100 or 150 acres, and it would be found that the introduction of machinery requisite for the working of large farms, and the appliances of science in connection with agriculture, must have full and fair play. If therefore the Society desired to be prepared for the great changes which were taking place in the agricultural world, it must either by co-operation with local societies, or in some other manner, aim at improving the education of the farmer. The demands upon them in this respect were becoming more urgent. If they looked to the advantage of the future farmer they must endeavour to supply him with science in connection with agriculture to a much greater extent than it had been hitherto supplied. Although, as Mr. Morton remarked at the commencement of his lecture, the harvest only came round once in the year, yet the preparation for the harvest, the gathering in of the harvest, and the preparation for the after crops, would be advanced to such an extent by the improvements that were now being made, that the inconveniences of weather and many of those evils to which farmers had hitherto been subject, would perhaps, ere long, be in a great degree, if not entirely, avoided. On these grounds he thought they ought all to aim at securing an improved education for the sons of farmers.

Dr. CRISP remarked that until an agricultural college was established by the Government, which must be the case ultimately, there would never be a proper system of education for the agriculturists in this country. He would like to see such a college in London, with a regular staff of professors, where students would be enabled to take a degree, and he had no doubt that the beneficial effects of such an institution would extend throughout the country. The advantage of giving prizes was very doubtful. At Guy's Hospital the prize system had been discontinued, because it was found that when a student had to work himself up almost exclusively on any special subject, the devotion of so much time to that subject was injurious to him in after life.

Professor COLEMAN entirely concurred in that part of the lecture in which Mr. Morton discussed the requirements of the farmer. He believed it was a tendency of the present day rather to forget that a man must be educated in the practical details of farming. But unless he was brought up to understand every single point, he was very likely to make no profit, which was after all the great thing to be arrived at. While therefore he admitted that students should be enabled as far as possible to see a variety of practices, and not left entirely to the farm on which they were brought up, a knowledge of scientific principles was equally important. If a man was to keep ahead in the present day, if he was to be well up in the great discoveries which were being made, he must understand the reasons for every detail of practice, and look carefully at every new process in farming. Having had much to do with the education of many young men in the institution to which Mr. Morton had referred, he had observed the great difficulties under which those young men laboured, from the want of that general preliminary education that would enable them to grasp the scientific truths that were there presented to them. He had seen, especially in the earlier days of that institution, young men entering who left the general school at something like the age which Mr. Morton suggested as the right one, viz., 14 or 15, having afterwards lived for three or four years on their fathers' farms, and he was afraid spent a large portion of their time in hunting and shooting. They came to the institution perfectly unprepared to take advantage of the opportunities there offered to them, and the knowledge which they ought to have acquired passed completely over their heads. Therefore, while admitting the importance of agricultural details, he held it to be of great moment that there should be a good general education, and that boys should not leave school to gain a knowledge of the practical details of farming at so early an age as Mr. Morton had suggested.

Mr. MOORE did not agree with some of the previous speakers as to young men who intended to be practical farmers spending their time in the hunting field, and similar amusements. When they went to farming they should stick to it: and for himself, he never took a pupil without stipulating that there should be no sporting while he remained with him. When he was down at the Agricultural College at Cirencester the other day, Mr. Constable told him that arrangements had been made by the local farmers' club at Kingscote for a course of lectures to be delivered by Mr. Church, the chemist of the Royal Agricultural College. This appeared to him to be an admirable plan in the way of promoting agricultural education, and he hoped it would be imitated in other places. Sometime ago he (Mr. Moore) was instrumental in establishing an agricultural library at Faringdon, at which he was happy to say the average attendance was now between 50 and 70. Books were also lent to members to take home, which had proved very beneficial.

Sir W. STIRLING observed that they could not dispense with practical industry by setting up scientific acquirement as if that was to be the *primum mobile* of the agricultural system. He had generally found that gentlemen farmers were failures. It was the same in commerce, in which men of great education seldom succeeded. Inversely, the late Mr. Cobden was a remarkable example of this.

Mr. HOLLAND, M.P., suggested that where there were agricultural libraries there should be a short abstract of the contents sent round with the several books.

The CHAIRMAN said that the question of agricultural education was now almost of national importance. There was a Commission now sitting to consider the whole subject of middle-class education, and of course agricultural education would be included. He did not agree with Dr. Crisp that it was desirable to establish a Government College of Agriculture—on the contrary, he thought the less the State interfered with agricultural education the better. He considered that Mr. Morton had scarcely allowed sufficient time for the early education of the boys, for in his opinion a good general education was of more importance in the case of farmers' sons, seeing that they had not the same advantages as were possessed by other classes in literary societies, libraries, and other means of education after the period of leaving school. The whole question was, however, very fairly and ably argued in the lecture, and he was sure they were all much indebted to Mr. Morton for it.

The motion of thanks was then put and carried unanimously, and the proceedings terminated.

Home Correspondence.

The Repeal of the Malt Tax.—The recent agitation for the repeal of the malt tax having for the present Session of Parliament proved abortive, it now remains for the farmers to redouble their exertions in the endeavour, in the ensuing general election, to send such members to Parliament who are favourable and pledged to do their utmost to obtain the repeal. It is not too much to say the farmers feel greatly disappointed with the Budget; it would have been better and more palatable to have stated at once it was not the intention to deal with the malt tax, than to indulge in a strain of sophism or gloomy prediction as to the future in respect to its bearing on the principle of indirect taxation. In having failed to acknowledge the claim to a partial remission of the duty, with a handsome surplus at command, the agricultural interest has been once more "snubbed," or as Mr. Wilkins has it, "has been dressed with the currycomb for the benefit of other classes who have been merely tickled." How long this drubbing process is to be endured time will show, but I must repeat, that so long as the unjust malt tax remains in force it is a disgrace to the whole agricul-

tural community. It is some satisfaction to feel that it was found necessary to expend a very considerable amount of attention to the subject, but in one or two points the Chancellor of the Exchequer appears beaten on his own arguments, for he shows that in spite of the mischievous operation of the tax, the price of Barley has a tendency to increase, and it therefore may very properly be asked, to what extent has this tendency to rise been checked, or what would have been the present prices of Barley, had the Malt Duty some time ago been repealed? And to contend that in consequence of the increased consumption of beer which will follow the remission of the duty, the Revenue is likely to suffer, is to endeavour to show that the man who now consumes wine or spirits will go back to beer; about as likely as in consequence of the high price of butchers' meat, the public will refrain and commence upon a fresh diet of pork and bacon. It is not however necessary to enlarge upon these points—the Budget has become a thing of the past and accepted as being satisfactory to the country. Ever since the repeal of the Corn Laws, now nearly some 20 years, the farmer has not stood in his proper position with respect to other classes in the operation and working out of the great principle of Free Trade. Condemned at the onset by the most eminent statesmen of that period as being inconsistent and unjust to the agricultural interest, the repeal or partial remission of the tax cannot much longer be delayed, and it is none other than a loss of time and useless display of oratory on the part of this or any future Chancellor of the Exchequer to attempt to explain away by specious comparison with other duties, or to use argument in favour of its retention; the loss to the Revenue has been throughout the great obstacle, aided on the part of the public by an imaginary fear that it would simply be a shifting of the public burthen of taxation. With a clear sweep of between three and four millions of taxation, the farmers are to be congratulated on having such an open field before them, hitherto blocked up with the claims of opposing interests, and whether or no the abolition of the Malt duties be the signal or the "death warrant of indirect taxation," certain it is it now stands singularly alone in all its huge proportions to mark the amount of ease, apathy, weakness, and, I could almost add, the ignorance of that class of men directly interested, in having allowed all other questions as affecting taxation to take priority, when common sense and justice would plainly point out this to be the foremost as a slight compensation to British husbandry, when in consequence of the change in the commercial policy of this country, it has been placed in competition with all the corn-growing countries in the world. *W. Simmonds.*

Grasslands.—My object is to obtain a good permanent pasture on a 24-acre field, which produced under heavy artificial manure a large crop of Turnips last year, fed off with sheep during winter. It was ploughed lightly, and about the beginning of April sown with four bushels Oats and Grass seeds, now brairding very nicely. As stated before, my object being permanent pasture, would it not be better to feed the whole off with sheep, beginning before the Oats shoot, or let the latter ripen, and be harvested in the usual way. Should the former be adopted, might not the young Grasses be injured by close feeding? I may further mention I have no farmyard manure, nor is such to be bought in this neighbourhood, and you will confer a favour by stating what artificial manure is best for promoting a thorough good permanent Grass. *Francis Maxwell, Dumfries.* [To this we reply by giving the experience of Mr. Thompson, M.P., as stated in a paper published in the Agricultural Society's Journal some years ago:—Mr. Thompson's paper, devoted to the consideration of the best method of treating newly laid-down Grass, states that after repeated failures in the attempt to establish a pasture by folding sheep year after year on the young Grass, he "became satisfied that to graze sheep on young seeds intended for permanent pasture was a mistake." He now sows a liberal allowance of the hay seeds of the district, with a sprinkling of Cow-grass and white Clover; with a crop of Wheat (one of the short-strawed varieties); he mows the first year, and as soon as the hay is removed gives a good dressing of farmyard manure, and then for some years pastures it with cattle, beginning for the first year or two with young stock, until the turf is close and strong enough to bear the treading of heavy cattle.]

Societies.

SOUTHERN COUNTIES ASSOCIATION *for the Encouragement of Agriculture, Arts, Science, Manufactures, and Commerce. Fourth Council Meeting.* Held at the Society of Arts, Adelphi, May 3, 1865.—Present, his Grace the Duke of Richmond, President, in the chair; the Marquis Camden, Viscount Sydney, Viscount Eversley, Sir Wm. Jolliffe, Bart., M.P.; Sir J. Clarke Jervoise, Bart., M.P.; Mr. Benyon, M.P.; Mr. Melville Portal, Mr. W. Barrow Simonds, Mr. Walter, M.P.; Mr. Druce, Mr. Middleton, Mr. Spiers, Mr. Clutton, Mr. Lyall, M.P.; Mr. Ramsden, Colonel Barttelot, M.P.; Mr. Rigden, Mr. Woodman, Lieut.-Colonel Deedes, Lieut.-Colonel Lennard, Mr. Wykeham Martin, and Mr. Punnett.

The minutes of the preceding Council having been read and confirmed, the copy of the Byelaws, as arranged by the Special Committee, was presented and taken into consideration, and some progress made in the examination and revision of it.

The question of outlay in the purchase of plant and shedding was then brought on, and a letter read from Mr. Jonathan Gray, of Bath, with reference to the mode adopted in the Bath and West of England Society, when it was resolved to hire and not to purchase. A long discussion then ensued as to the amount of capital necessary to start with, and the following resolution was finally adopted unanimously:—"That members be invited to give donations to meet the current expenses of the Society until the annual subscription become due, January 1, 1866."

On the motion of Lord Eversley, the following Members of Council were appointed the Finance Committee for the current year, viz., Mr. Benyon, M.P.; Colonel Lennard; Mr. Lyall, M.P.; Mr. Melville Portal, and Mr. Rigden.

Thanks having been voted to his Grace the Chairman, the meeting was adjourned to Wednesday, the 24th inst., at 12 o'clock. *G. B. H. Shute, Secretary.*

BIRMINGHAM: *Institution of Mechanical Engineers.*—At the late meeting of this Institution the first paper read was "On the application of Steam Power to Cultivation" (by the late Mr. John Fowler and Mr. David Greig, of Leeds), giving the results of Mr. Fowler's experience in steam cultivation during the last eight years, in continuation of a previous paper read by him upon the same subject.

The difficulties that have been met with in applying steam power to cultivation have arisen from the irregularities in the level of the ground, the changes necessary in the position of the machinery on the ground, the necessity for moving heavy engines where there are no roads, the want of a rope of sufficient strength and elasticity, and the different states of the soil from changes of weather. To attach the moving power direct to the implement, as is done in the case of horses, was found not suitable with a steam engine, from the loss of power in moving such a heavy weight over inequalities of the ground, and from the compression caused by its travelling over the soil to be cultivated. Hence the use of a rope driven by the engine became requisite for working the implement. The rope is held up from touching the ground by a number of rope porters or carrying pulleys, mounted on wheels, and placed at intervals along the entire course of the rope; those supporting the portion of the rope that is attached to the implement are withdrawn and placed again by boys each time that the implement passes across the field. The earlier arrangements of leading the rope from a stationary engine, round the corners of the field and along the headlands, or diagonally across the field in a triangular plan, have now been generally superseded by the improved system of direct pull, in which the implement is pulled backwards and forwards across the field by a rope passing across direct from the engine on one headland to an anchor on the opposite headland, both the engine and anchor being made to travel slowly along the headlands each time of the course of the implement being reversed. The rope was at first driven by two drums fixed under the engine, being wound up on one drum and unwound off the other alternately. Afterwards the length of the rope was diminished by the use of an endless rope, driven by friction by passing round a grooved driving pulley instead of being wound on and off a drum; but the different plans first adopted for the purpose of obtaining the necessary adhesion for driving were attended with serious difficulties, from the wear and tear of the rope and the grooves of the driving pulley.

These difficulties have now been effectually surmounted by the valuable mechanical contrivance known as the "clip drum," in which a sufficient bite is obtained by only half a turn of the rope round the driving drum. This very ingenious apparatus consists of a series of pairs of jaws or clips, hinged round the circumference of the driving drum close together in a continuous line, forming a complete groove all round the drum, in which the rope works. As the rope comes in contact with the drum, each pair of clips in succession closes upon it and seizes hold of it, and continues to grip it throughout the half revolution until the rope leaves the drum, the force of grip being in all cases proportionate to the pull on the rope, and such as effectually to prevent any slipping. The width of opening of the two rows of clips is adjusted for working with different sizes of ropes, by having one row centered upon the body of the drum itself, while the other row is centered upon a ring, which is screwed upon the body of the drum by a thread chased round its entire circumference, so that by turning round this ring in either direction the distance between the two rows of clips is simultaneously increased or diminished to exactly the same extent in every pair of clips. A working model of the clip drum was exhibited, and a full size specimen of one of the pairs of clips.

In order to allow for working fields of irregular boundary, the implement is provided with an arrangement of slack gear for taking up the slack of the rope, as the working length of the rope becomes reduced by the narrowing of the boundaries. This consists of a pair of barrels geared together with a relative speed of five to one; so that the pulling rope, in drawing off one foot length of rope from the one barrel, winds up five feet length on the other; and thus all the slack is taken up and the rope drawn tight before the implement can start to work. For getting heavy engines moved about over ground where no roads exist, the whole of the machinery is made so strong that it cannot be broken by the full steam power, the steam itself being thus the weakest part of the whole machine; and the width of the carrying wheels is increased to such an extent as to ensure carrying the engine over the wettest and softest ground, the width of carrying wheel having been made as much as 2½ feet in special cases. A pair of engines of smaller size and weight are also used in some instances, placed on the opposite headlands of a field, and both constantly in action, drawing the implement backwards and forwards between them, instead of a single heavy engine at one side of the field with an anchor at the opposite side, as previously described. The first rope used for steam cultivation was made of iron wire; but this was so unsatisfactory, from its softness and want of durability, and also from its great weight and the power consequently absorbed in dragging it, as to check for a time the application of steam power to cultivation. Steel wire was then introduced for the purpose; and in consequence of its great strength and lightness, and the great improvements that have been effected in the machinery by which the ropes are driven, and also in the quality of the wire itself, one steel wire rope now lasts for the cultivation of from 2000 to 4000 acres, according to the nature of the soil and the width of the implement used. The steel wire rope at present used, of which a specimen was exhibited, is 11-16ths inch diameter, and weighs about 2 lb. per yard, running on an average 9000 miles under a tension of 25 cwt., and costing about 2½*d.* per mile run. The difficulties that would arise in working engines and tackle in wet weather, from the sticky condition of some land in a half wet state, particularly clay land, are met by the power that steam gives of performing the work altogether while the land is dry; which is impossible on a clay farm with horse power alone, from the want of sufficient power to break through the hard ground until softened by rain.

For applying steam power to cultivation the use of rotary implements has been much advocated; but these must have the serious defect of striking on the hard surface of the land, and thus absorbing much power in entering it; and the work is found to be more economically done by shares or tines entering in the softer soil below and wedging the earth off to a loose side. By the aid of steam the ordinary plough shares can now be driven at such a speed as to throw the earth sideways in a manner quite equal to the effect of any digging by hand. The principal mechanical conditions essential to the success of steam cultivation appear to be an engine of simple construction, ample power, and sufficient width of bearing surface; a hauling apparatus with a horizontal drum of large diameter, avoiding any sharp bends of the rope; a direct pull upon the implement, with a rope of good quality and of as short a length as possible; a means of keeping the rope always tight and clear of the ground; an implement which wedges off the soil to a loose side, by means of shares or tines following each other consecutively; and lastly, as small an amount of manual labour as is practicable. In the use of horses for ploughing a large portion of their power is wasted in merely undoing the effect produced by their weight in treading down the soil, but with the steam plough the weight travelling over the field is less than one-third that of the horses; and is carried upon broad bearing wheels; and in consequence of a very much greater amount of force being brought to bear on the implement, the work is performed with much greater expedition, and far more effectually than by horse labour, ensuring an adequate crop in all years

Reviews.

The Cultivation of the Turnip and Swede, with some Remarks on the Conditions which Promote their Successful Growth. Pp. 26. By Proctor & Ryland. W. Hodgetts, 22, Cannon Street, Birmingham.

This pamphlet is no doubt a trade circular, whose main purpose is to promote the sale of Messrs. Proctor & Ryland's excellent Turnip manure, but it is also a very good and useful account of the other conditions of successful Turnip culture; and the original object, which is very likely to be attained by it, is no reason why we should not call the attention of our readers to it as a very useful essay upon the subject which is this month occupying the attention of all arable farmers. We extract a passage on sowing Turnip seed, which is a fair specimen of the way in which the author has accomplished his task:—

"In ordinary seasons the usual method of sowing the seed, as soon as the tillage operations are completed, appears to answer satisfactorily; but when the seasons are unusually dry there is a great advantage gained by modifying this mode of procedure, and it is a practice which has been extensively adopted on many of our best-managed light-land farms. The land having been ridged and rolled, the manure is spread over the surface, and the ridges are then split back again and rolled ready for receiving the seed; but, instead of sowing the seed immediately, as is the general custom, it is delayed for 12 or 14 days. There are one or two reasons for this practice which are worthy of notice. The chief inducement is to give time, so as to enable the natural moisture of the land to rise into the recently-worked soil. If you examine land shortly after it has been worked in dry weather, you find a moist layer of earth on the surface of the ridge which covers up a dry layer of earth beneath. When the seed is sown upon such a ridge the moisture of the upper soil causes the seed to sprout; and, as its roots pierce into the ground beneath, they enter a drier soil, from which they can procure no moisture, and, therefore, no nourishment. This causes a check in the growth just when the Turnip beetle is busy at its work; and unless there should happen to be a fall of rain, the crop is sacrificed, or, at any rate, seriously injured. But when the ridges have been ready for sowing 12 or 14 days, generally the moisture of the soil will have risen into the ridge, and no such check can arise, but if the land should be too dry for the seed to sprout there it waits for rain, and when the supply comes it grows as if it were in a hot bed. Under such circumstances it is a matter of no importance how dry the surface may be at the time of sowing. Should the surface soil be moist enough to make the seed sprout, its roots find an increasing supply of moisture the deeper they go. We have known a similar system most successfully carried out when the Turnips were going to be sown on the flat; and the secret of its success is that the seed cannot grow before the soil beneath it is ready to secure it from any check in its early growth.

"There is, however, another inducement for adopting this practice. It often happens that two or three weeks before the usual time for sowing, the weather is dry and admirably suited for finishing the land for the seed, but hesitation is felt about doing it, because the more usual custom is to sow the seed as soon as the work is done. On these light farms it has been proved that advantage may be taken of such favourable weather, and, the preparatory tillage being completed, the land may be allowed to rest until the days fixed for the sowing."

Calendar of Operations.

MERSE OF BERWICKSHIRE: *May* 15.—Wintry weather, extending far into March, delayed the sowing of spring corn; but seldom have we seen a more rapid and vigorous braird. April was bright and warm, with some rain about the middle of the month, which inter-

fered with Potato planting, and on the 25th the protected thermometer marked 72°, the air being warm and growing. The merry May, however, was ushered in by the inevitable frosty nights which produce what is called Maydew, and since that we have been enjoying a most unseasonable week of rain and cold north winds. The downfall of two months amounts to 4 inches. Wheat fields are few and far between, but they have lost no plant, and may be rather thick in the ground. Barley is, in some light land, damaged by wireworm; but Oats seem to have escaped the grub. Small patches of Beans are to be seen, brairding well but late. We have a splendid show of Clover generally; but a piece that failed was ploughed up and sown with Tares and Beans, which will come in as a fine change for weaned lambs. Our ewe flock was lambed on Turnips and corn, and there was not a case of inflammation, but the casualties among the lambs were very numerous, and have reduced an otherwise great crop.

Hoggs have done capitally with full Swedes and a little corn; and the half of them are away to market, after three weeks young Grass, prime quality of mutton, but leaving lighter fleeces perhaps. Last week's rain has largely prevented clipping, and some we know must have gone three weeks since washing. Cattle are pretty well sold out; but there is still on hand a part of 2-year olds getting Swedes, hay, cake, and meal; with good promise of cut Clover to fall back upon next month, if prices do not please.

Corn of all kinds has measured poorly, and been difficult to sell all winter; and the rise in price has come too late to be of any use to farmers; but we trust a healthier feeling in the trade has set in, and will help the next crop.

It is now high time that we had begun to sow Swedes, but none but the lightest soils can be touched just now, and the weather is far from promising. The operation will be at least a week behind the usual time. *J. T.*

Notices to Correspondents.

Brahma Cock: *J W R.* Your question is an advertisement. Apply to any poulterer.

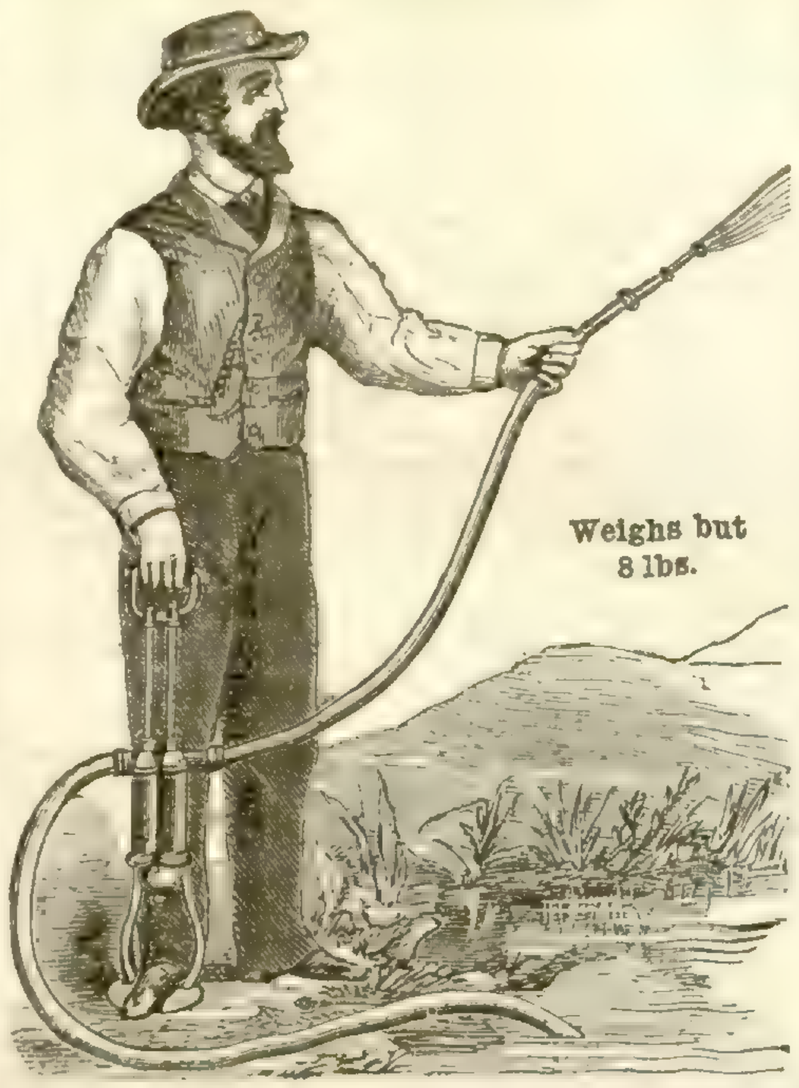
Disease in Lambs: *A Constant Subscriber, at Wallingford,* says:—I should feel obliged if any of your readers or correspondents could inform me as to the cause, or prescribe a remedy for the great loss I have had this season in lambs. Out of 80 I have lost 10 in about a month; they appear to be seized suddenly, droop their heads, shut their eyes, stand motionless, or if they try to walk appear to have no strength, fall on their knees, pitch on their nose, and then fall sideways. They can take no food, and it is with much difficulty you can open their mouth to apply any remedy; they generally foam, or rather slobber at the mouth, sometimes have the scour also, though not invariably. The finest lambs are taken. Shepherds in the neighbourhood cannot account for it. My butcher can find no cause why death should ensue, and all the consolation I can get from any one is, "Lambs always did die on this ground," and they think there must be some poisonous weed or plant, or something that kills them. I should say part of the ground where they have been folded was flooded the beginning of February last, though I have lost them where the flood has not been, as well as where it has. The lambs and ewes have been on Trifolium, the ewes having Mangels and hay and straw-chaff, half and half, but now having all hay, Mangels, and Trifolium. The Lambs have hay, Linseed-cake, crushed Beans, and Barley, equal parts. [The symptoms certainly assist the idea that some poisonous plant might be indigenous to the soil—either that or determination of blood to the brain from too much stimulating food, or indigestion arising from the use of Barley, which has been known to produce similar effects. This, a *post mortem* examination should have revealed. Change of situation and of food, with oily purgatives, offer the only cure that can be suggested. *W C S*]

Size of Farms in Scotland: *L.* The following table illustrates it:—

	The Number of Tenants who pay Rents ranging						
	From 100*l.* to 200*l.*	From 200*l.* to 300*l.*	From 300*l.* to 400*l.*	From 400*l.* to 500*l.*	From 500*l.* to 700*l.*	From 700*l.* to 1000*l.*	Above 1000*l.*
Haddingtonshire	58	50	40	33	57	46	41
Berwickshire	87	72	54	56	84	67	41
Roxburghshire	170	115	95	58	71	59	30
Dumfriesshire	537	209	92	47	41	17	3
Perthshire	944	382	165	80	47	27	9
Kinross-shire	70	39	27	11	5	4	..
Forfarshire	415	223	131	74	91	34	13
Kincardineshire	262	78	44	18	17	7	1
Total	2543	1168	648	377	413	261	138

Wages: *Statist.* The following are the results arrived at in a paper by Mr. Purdy some time ago before the Statistical Society:—Mr. Purdy's paper concluded by bringing the principal facts for the different parts of the United Kingdom together. It was shown that men's wages in England and Wales averaged 11*s.* 6*d.*; in Scotland, 12*s.* 9*d.*; and in Ireland, 7*s.* 1*d.* That in 23 years the rise in the English wages had only been 12 per cent.; but that in Scotland, at an interval of 20 years, the rise was 42½ per cent., and in Ireland over 57 per cent. It was strenuously maintained that the English wages were kept down by two causes, viz., the cruel and impolitic settlement laws, and the large expenditure for out-door relief. Is it not manifest that when we distribute in England 3,000,000*l.* a year as untested relief among the labouring population by the hands of the employers of labour, we place at the disposal of the latter an instrument as powerful as it is pernicious for depressing the fair wages of the workman? It is well known that the lowest wages in England are paid in the most pauperised counties. But in Ireland, where there is no out-door relief, the least and the most pauperised provinces are on a par as regards the wages of independent labour. In Ulster, men's wages are 7*s.* 3½*d.*, and that province has fewest paupers; and in Munster, the most pauperised, the wages are only 1½*d.* a week less. Taking corresponding districts in England, we find that in Northumberland wages are 14*s.*, while in Dorset they are only 9*s.* 4*d.*, or 30 per cent. less. Is there any escape from the conclusion?

THE HYDROPULT,



An Invention for Throwing Water by Hand Power.
(Secured by Royal Letters Patent).

PRICE LIST.

	£	s.	d.
Complete with Brass Cylinders and Japanned Stirrup	1	12	6
Complete with Brass Cylinders and Copper Stirrup	2	2	0

The Price "Complete" as above, includes 2½ feet Suction and 3 feet Delivery Hose, Galvanised Wire Strainer, Rose and Small Jet.

THE HYDROPULT
is invaluable for use in the
GARDEN for
WATERING BEDS,
SPRINKLING PLANTS,
DROWNING OUT INSECTS,
CLEANSING TREES FROM SMUTS,
DRESSING WITH LIQUID MANURE,
&c. &c.

THE HYDROPULT
is desirable in every
HOUSEHOLD for
WASHING WINDOWS,
WETTING SIDEWALKS,
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ORDERED by the WAR DEPARTMENT as FIRE ENGINES.

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The Hydropult will draw water horizontally, if necessary, through Two Hundred Feet Suction Hose, and force it through Delivery Hose to an altitude of One Hundred Feet.

THE
GREENHOUSE AND CONSERVATORY HYDROPULT.
A NEW AND BEAUTIFUL IMPLEMENT,
Weighing scarcely 5 lbs.
AND SPECIALLY ADAPTED FOR USE IN THE GREENHOUSE AND CONSERVATORY.
Price 35s.,
Complete, with Brass Cylinders and Copper Stirrup, 2½ feet Suction and 3 feet Delivery Hose, Strainer, Rose, Jet, and Fan.

This NEW IMPLEMENT must necessarily supersede Syringes and other devices of the kind, for it will be found much more effective in its operation.

A LADY CAN WORK IT FOR HOURS WITHOUT FATIGUE.

CAUTION.

Important to the Public.—The extensive sale of the Hydropult has excited the cupidity of so-called respectable, but in reality unprincipled Manufacturers, who are now palming on the Public worthless imitations of the Hydropult, and through their connections are enabled to place said devices on exhibition, and for sale, in many of the principal Ironmongery and Seed Establishments throughout the city and provinces. These devices resemble in many respects the Hydropult in appearance, and are calculated to deceive the unsuspecting. The Proprietor therefore issues this Caution, and respectfully intimates that parties wishing to purchase the Hydropult should examine the machine offered for sale, and see if it has attached thereto a label, with the following words:—"The Hydropult, Vose's Patent, manufactured only by Griffiths & Browitt, Birmingham. Charles Pomeroy Button, Proprietor, 142 and 143, Cheapside, London." Unless this label is attached, the Machine is not the Hydropult.

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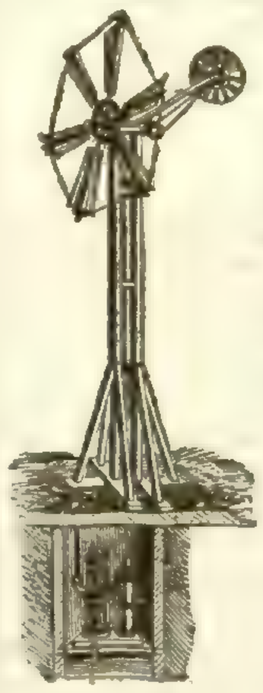
Special Drawings when required.
[*The best Steam Threshing Machinery made.*]



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Worcester, 1863; Newcastle, 1864; and Plymouth, 1865.

WIND ENGINE (Patent Self Regulating), for PUMPING, CHAFF CUTTING, PULPING, GRINDING, THRESHING, OAT CRUSHING, SAWING, or DRIVING other MACHINES.

Powers, from ½ to 12 Horses.

For Farm Purposes most economical, costs nothing to work. Erection simple and cheap.

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"Enclosed you have Post-office Order for £2 19*s.* 6*d.*, in payment of your bill for the cask of Black Varnish received in April. Having used it for out-door purposes almost daily since its receipt, I have no hesitation in speaking of it in the most favourable terms. I consider it fully comes up to the recommendation given it on itself in your illustrated catalogue, which first called my attention to it. In 'that it requires no mixing,' 'that it can be applied by an ordinary labourer,' 'that it dries in fine weather under half an hour,' 'that its cost is less than one-third of an ordinary quality paint,' and on wire fencing and metal spouting it has a more lasting appearance than oil paint. I am much pleased with it, and I shall send an order for another cask so soon as my present one is exhausted."

Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, or 1*s.* 8*d.* per gallon paid to any Station in the Kingdom. Manufactory, near Dudley.

Apply to Hill & Smith, Brierly Hill Iron Works, near Dudley, or 22, Cannon Street West, E.C., from whom only it can be obtained.

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BY SPECIAL APPOINTMENT.
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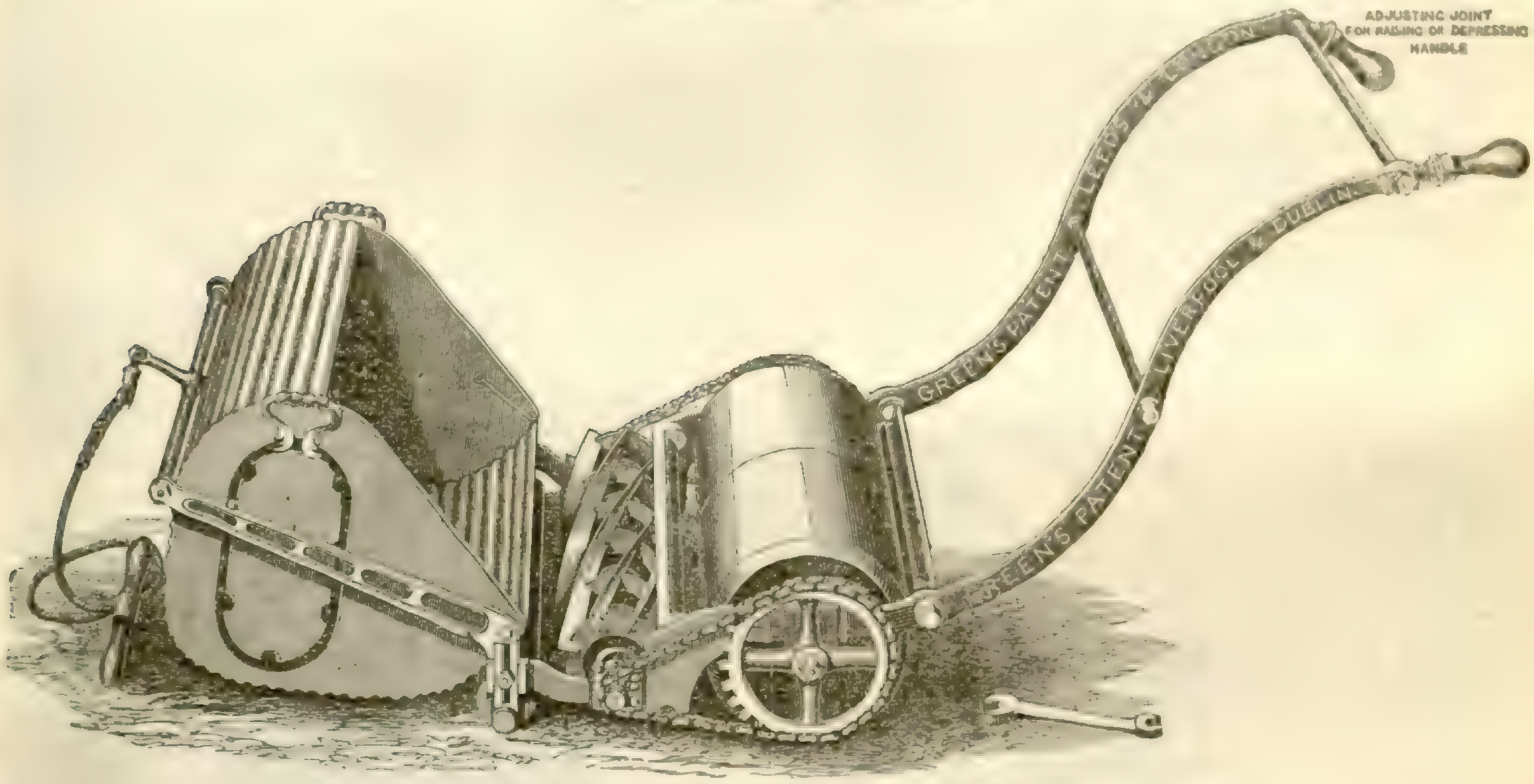

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Messrs. T. G. & SON beg to state that, owing to the great demand for their MACHINES in past years, they have been unable to execute orders with that despatch due to their numerous customers, but are now happy to inform them, that they have made such alterations and arrangements in their premises, whereby they trust to be in a position to send off all orders the day they are received.

PRICES OF HAND MACHINES.

To cut 10 inches	£3 10 0	*Suitable for a Lady.*	
" 12 "	4 10 0	"	"
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Packing Cases are charged at the following low rates, viz.: for the 10 and 12 inches Machine, 3s.; 14 and 16 inches, 4s.; 18 and 20 inches, 5s.; 22 and 24 inches, 6s. Parties providing themselves with Lawn Mowers are recommended to purchase the Cases in which to stow them away, when not in use, to prevent them from getting damaged; if returned, two-thirds will be allowed for them.

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To cut 26 inches	£13 0 0	*Leather Boots for Donkey, 18s.*
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To cut 30 inches	£21 0 0	*Leather Boots for Pony, 22s.*
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The 26, 28, and 30 inches can easily be worked by a Donkey, or by Two Men, on an even Lawn, the 30 and 36 inches by a Pony, and 42 and 48 inches by a Carriage Horse; and, as the MACHINES make no noise in working, the most spirited animal can be employed without fear of its running away, or in any way damaging the MACHINE.

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The above MACHINES are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England; are warranted to give satisfaction, and, if not approved of, can be at once returned unconditionally.

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19, EDEN QUAY, DUBLIN; and HADWIN'S BUILDINGS, TITHEBARN STREET, LIVERPOOL.

£1000 UPON the WOOLSTON TACKLE against the NEWCASTLE "best application."
WILLIAM SMITH, Woolston, Bletchley Station.

Caution to Gardeners.—When you ask for SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the corporate mark OBTAIN WARRANTED, without which none are genuine.

S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by sellers and makers.

S. & C.'s Pruning and Budding Knives are the best and the cheapest in the market.

Paxton Works, Sheffield. Established upwards of 125 years.

E. T. ARCHER'S "FRIGI DOMO." — Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.

PROTECTION from COLD WINDS and MORNING FROSTS.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.

Two yards wide	1s. 9d. per yard run.
Four yards wide..	3s. 6d. per yard.
An improved make, 2 yards wide ..	1s. 9d. per yard.
An improved make, 3 yards wide ..	2s. 8d. per yard run.

Also "Frigi Domo" Netting, 2 yards wide, 1s. 6d per yard run.

ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, and of all Nurserymen and Seedsmen throughout the kingdom.

"It is much cheaper than Mats as a covering."

EARTH CLOSETS AND COMMODES.

(Moule's Patent.)

MANUFACTURED SOLELY BY

WHITE & CO.,

29, BEDFORD STREET, STRAND, LONDON, W.C.

THE PECULIAR ADVANTAGES OF THESE CLOSETS AND COMMODES OVER THE ORDINARY WATER CLOSET ARE:—

First.—That the deodorising material (dry surface earth, or clay, or other subsoil) is the best for the purpose and at the same time is the cheapest and within the reach of all classes.

Secondly.—The supply of such material to any house or premises may be much easier than the supply of water by a forcing pump, and its removal after being used may be entirely without offence.

Thirdly.—Its application by the means provided in these Closets is immediate and effective; so immediate that no offensive smell need escape into the room or building in which they are used; and so effective that all fermentation and all escape of noxious gases are entirely prevented.

Fourthly.—The expense of these Closets, in comparison with that of Water-Closets, is, as to the first cost, trifling, and as to repairs almost nothing. For instance, there is no expensive cistern required, and there are no lead pipes to burst in frosty weather.

Lastly.—In all large Establishments, such as Hospitals, Union Houses, Schools, Gaols, and Asylums, a very considerable sum may be saved annually in the production of a valuable manure.

The efficiency of these Closets is so great as to be scarcely credible to those persons who either have not tried them or seen their mode of action.

Price of Apparatus without woodwork, 20s. per set.

*** *The different forms of Closets may be seen at the address above; and Prospectuses will be forwarded on application.*

JOHN WARNER & SONS, LONDON, MANUFACTURERS.

J. WARNER AND SONS

Have much improved the construction of their

GARDEN ENGINES

in some important particulars for this Season.

They may be obtained of the Trade generally throughout the Kingdom at the following prices:—

No. 547. WARNER'S best ENGINES, in Wood Tubs, and fitted with WARNER'S Registered Spreaders—

24 Gallons, £6 10s.
14 „ 5 10s.

No. 547A. WARNER'S strong ENGINES, in Galvanised Iron Tubs, well painted—

10 Gallons	£2	19	0
16 „	3	14	0
24 „	4	19	0
28 „	5	10	0

No. 579½. WARNER'S WATER BARROWS, thoroughly Galvanised and well painted—

20 Gallons	£2	2	0
30 „	2	13	0
38 „	3	17	0
50 „	5	12	0

The 50-Gallon Barrow is made extra strong throughout, and fitted with handle for two men.

No. 568½, AMERICAN ENGINE, is now well known and appreciated. It throws a continuous stream, and is complete in itself. £2 2s.

SYRINGES in great variety, from 7s. 6d. to 18s. 6d.

The DISC SYRINGE, No. 557A, will recommend itself by the ease with which it is filled, and non-liability to get out of order. Price 9s.

DESCRIPTIVE PRICE LISTS forwarded on application.

WARNER'S AQUAJECT

Is this season first introduced to the notice of horticulturists as possessing the following advantages:—It is simple in construction, portable, and easily worked. It throws a continuous stream, and is low in price.

The Aquaject, 30s.

The small AQUAJECT is the most perfect form of Syringe yet introduced. It throws a continuous stream, with very slight movement, and with it blight, &c., is readily washed from the under side of foliage. 18s.

No. 35. WARNER'S IRON PUMPS for Wells not exceeding 25 feet in depth — 2½-in., 28s. 6d.; 3-in., 41s.; 3½-in., 46s.; short barrel do., 21s.

No. 36. IRON FORCE PUMPS for raising water above their level, for watering yards, gardens, &c., through hose—2½-in., 59s.; 3-in., 65s.; 3½-in., 77s.; 4-in., 89s.

No. 36½. FORCE PUMP on BARROW, recommended for its great portability and simplicity of construction. £5 10s.

No. 42. WARNER'S PORTABLE PUMPS on Folding Legs, are of superior construction.

Price 55s.; Rubber Suction, 2s. 6d. per ft.

No. 597A. BRANCH PIPES with Cocks and Roses — ½-in., 3s. 6d.; ⅝-in., 5s.; ¾-in., 6s.

No. 599. TAPER BRANCH PIPES—½-in., 4s. 9d.; ⅝-in., 5s. 3d.; ¾-in., 6s.; 1-in., 7s.

RUBBER HOSE in all sizes.

FOUNTAIN JETS in great variety, from 8s. to 25s.

MR. EDWIN COOLING,
HORTICULTURAL VALUER,
Mile Ash, Derby.

Card.

SAMUEL N. McGERROW,
GENERAL HORTICULTURAL BUILDER,
Knotty Ash, near Liverpool.

Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

Heating by Hot Water.

W. J. HOLLANDS, IRON MERCHANT,
31, Bankside, London, S.E.

HOT WATER PIPES, from Stock, per yard:—2-inch, 1s. 4d.; 3-inch, 2s.; and 4-inch, 2s. 7d. BENDS, from Stock 1s. 7d., 2s. 6d., and 3s. 3d. each. THROTTLE VALVES, 10s. 6d., 13s. 6d., and 16s. each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day. A discount to the Trade.

Heating by Hot Water.

HOT-WATER PIPES, at Reduced Wholesale Prices, with Elbows, Syphons, Tee Pipes, and every other connection; Wrought and Cast-iron Boilers, Saddle, Conical, Cylinder, TUBULAR, and Elliptic, from 24s. each. Improved Boilers and Iron Stands to go without brickwork, 40s. each. Valves from 10s. 6d. each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Castings of every description in stock, at

Mr LYNCH WHITE'S Iron Wharf, Upper Ground Street, Blackfriars Bridge, London, S. Price List on application.

Greenhouses and Conservatories.

H. FREEMAN, Horticultural Works, Hackney, N.E., Established 20 years. Good substantial made GREENHOUSES, Glazed, ready for fixing. 42 feet by 13 feet, 50*l.*; 21 feet by 13 feet, 28*l.*; 12½ feet by 10 feet, 15*l.*

A handsome CONSERVATORY for Sale, 36 feet by 19 feet. Price 110*l.* A Large Assortment kept.

Midland Steam Power Horticultural and Hot-water Works, Loughborough.

T. G. MESSENGER, the Proprietor of the above Works, finding it necessary (through the great demand for his Horticultural Buildings and Heating Apparatus) to make large additions to his Premises, and to Fit the same with an entire set of STEAM-POWER MACHINERY, is now enabled to execute any Orders entrusted to him with the greatest dispatch, and at the lowest possible price consistent with good and substantial work.

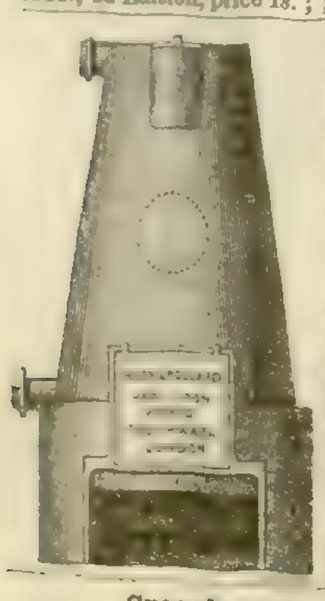
Illustrated Catalogues, Working Model, Plans and Estimates, free on application.

Exhibition Prize Medal, 1862.

HOTHOUSES for the MILLION.—On the principle invented and patented by Sir Joseph Paxton, M.P., combining simplicity, cheapness, excellence, and durability. SPAN-ROOF HOUSES, painted three coats, and glazed with English Sheet Glass, can be supplied ready for fixing, 21 ft. by 13 ft., 24*l.*; 42 ft. by 19 ft., 37*l.* 5s.; 64 ft. by 25 ft., 161*l.*

Illustrated Circulars, with Prices, can be had on application to SAMUEL HERKMAN, 7, Pall Mall East, London, S.W.

Also, A HANDBOOK on VINE and FRUIT TREE CULTIVATION, 2d Edition, price 1s.; post free, 1s. 1d.



HEATING by HOT WATER—Public and Private Buildings, Manufactories, Conservatories, &c., heated on the most improved system, combined with perfect Ventilation.

These BOILERS are adapted for setting in Brickwork, or as shown in sketch they require NO BRICKWORK.

BURY AND POLLARD
(Successors to John R. Peill),
Sole Manufacturers of the Improved CONICAL BOILERS, which are in general use, and which Boilers have for their durability and economy attained a celebrity far surpassing any other Boilers ever invented.

Park Iron Works, 17, New Park Street, Southwark, London, S.E.

N.B. Patent WINDMILLS for Pumping and Driving Farm Machinery, from half-Horse Power upwards. To be seen daily at work as above.

Greenhouses—Heating Apparatus.

DENNIS' PATENT METALLIC HORTICULTURAL BUILDINGS are made from the best wrought iron, upon an entirely new principle. The combination of Iron and Glass under this Patent is perfect; the possibility of fracture is prevented, and a permanently water-tight roof insured. The leading practical advantages are extreme smallness of framing, admitting a maximum of light and heat, and perfectly neutralising atmospheric conduction.

They are thoroughly ventilated, exceedingly strong and durable, are speedily erected, and whilst maintaining their established superiority for Conservatories of the highest order, are acknowledged by the most eminent Horticulturists of the day to be the "desideratum of perfection," promoting perfect symmetry of growth and richness of colour, both for Fruit and Flowers.

From the complete adjustment of the constructional parts of these patent buildings, their manufacture is so facilitated that a comparison in point of cost with perishable wooden structures is most favourable.

THE GARDENER'S OWN GREENHOUSE
(Lately known as Dench's Patent) is a Tenant's Fixture.

The Patent, Plant, Business, Machinery, and all connected with the above, have been transferred to T. H. P. DENNIS, who has determined to supply these really useful buildings at such a reduced scale of prices that every one desiring a Greenhouse may possess one.

NOTE.—A No. 1 Lean-to, 12 ft. 6 in. by 9 ft., including honest 16-oz. Glass, £16 12s. 6d.

T. H. P. D. has introduced most important improvements in their finish and construction, and after numerous experiments has succeeded in arranging them as a TENANT'S FIXTURE, which he feels sure will be valued by gentlemen having limited tenures. With Mr. Rivers' adaptation they make excellent Orchard-houses, and afford all that can be desired in a profitable building.

Wood structures at the lowest price consistent with sound work.

Prospectuses and Estimates on application to T. H. P. DENNIS, Horticultural Builder, Hot-water Engineer, &c., Chelmsford, Essex.

PATENT GUTTA PERCHA SOLES.—IMPORTANT TO GARDENERS.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. GLENNY, Esq., the celebrated Florist:—

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles.—Your obedient servant, "G. GLENNY."

Every variety of Gutta Percha articles, such as Mat Bands, Tubing, Soles, Sheet, Pump Buckets, Fire Buckets, Basses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Calhotype trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town or country.

The GUTTA PERCHA COMPANY, Patentees, 18, Wharf Road, City Road, London, E.C.

Tenders for Sewage of the Metropolis, South Side.

THE METROPOLITAN BOARD of WORKS hereby give Notice, that on FRIDAY, the 7th July next, they will be prepared to receive TENDERS for the UTILISATION and LEASE or otherwise of the SEWAGE discharged by the Main Outfall Sewers on the South side of the Thames. All Tenders must contain a full description of the Works proposed, and be accompanied by Plans and Sections showing their several details. Full information must also be given of the manner in which the Sewage is to be treated and employed, and, if by Irrigation, the Mode of Distribution, the Quantity and Locality of the Land over which it is to be distributed, the Points at which the Sewage is to be taken, the Daily Quantity to be used, the Heights of the various Lifts, if any, and the Pumping Power to be employed; also the mode of effecting Junctions or Communications with the Board's Sewers, the provisions against Floods, Failure of Pumping Power, or other Defect in the Company's Works, the Mode of Deodorisation or otherwise preventing the Sewage from becoming a Nuisance or injurious to health. The Board will also require an Estimate in detail of the cost of the contemplated Works, the Capital proposed to be invested, and how and in what manner it will be raised; also the Terms on which it is proposed to Purchase or take on Lease the Sewage, and, if a Tender be made for a Lease, the Rent, Royalty, or Mode of Payment to be made to the Board. The Tender must contain the Names of Two or more Sureties, to be approved by the Board, who shall be jointly and severally bound in a Competent Sum for the due performance of the Contract, and for the efficient execution of the Works in accordance with the Provisions and subject to the Limitations of the Metropolis Local Management and Main Drainage Acts, and for indemnifying the Board against all Loss, Damage or Injury, Claims or Compensation or Legal Proceedings arising out of the said Works or other operations of the Contractors. The Board will not bind itself to accept the highest or any Tender.

The Plans and Sections of the Sewers can be seen, and all information obtained at the Office of the Engineer of the Metropolitan Board of Works, at their Office in Spring Gardens, between the hours of 9 A.M. and 4 P.M., or on Saturdays between 9 A.M. and 2 P.M.

The Tenders are to be addressed to the Clerk of the Board, and must be delivered at this Office before 4 o'clock on Thursday, the 6th day of July next, and no Tender will be received after that hour.

By Order. JOHN POLLARD, Clerk of the Board.

Spring Gardens, May 11.

Berks.

TO be LET, by TENDER, the FARM of TUBNEY, comprising 162 acres of Arable, and 16 acres of Pasture partly irrigated. The House and Buildings are good, and conveniently situated, being 4½ miles from Abingdon and 7 from Oxford. Tenders to be sent to the BURSAR, St. John's College, Oxford, on or before the 20th of June. To view, apply to Mr. MARTIN, Fyfield, Abingdon.

Berks.

TO be LET, by TENDER, the MANOR FARM of FYFIELD, comprising upwards of 400 acres of light and heavy land. This farm will eventually be increased by 300 acres, the greater part of which will be added at the end of two years. Tenders to be sent to the BURSAR, St. John's College, Oxford, before the 20th of June. To view, apply to Mr. MARTIN, Fyfield, Abingdon.

To Market Gardeners and Others.

TO BE LET on LEASE, 64 Acres of excellent GARDEN GROUND, in the best part of the Vale of Evesham, with a very good Modern-built Family House, and all necessary Buildings.

For particulars apply to F. P. WEBB, Esq., Surveyor, Evesham.

Carhead Pigs for Sale.

MR. WAINMAN has YOUNG BREEDING PIGS of his Large White and Middle-sized Breeds for Sale. Now ready. Apply to Mr. FISHER, Carhead, Cross Hills, Yorkshire.

Sales by Auction.

25,000 Bedding Plants.

HENRY MANLEY begs to announce his instructions to SELL by AUCTION on WEDNESDAY, May 24, at The Gardens, Combermere Abbey, Cheshire, the magnificent COLLECTION of PLANTS, consisting of Humea elegans, Lantanas, Geraniums, Verbenas, Calceolarias, &c. In lots to suit purchasers. Descriptive Catalogues obtained one week prior to the Sale by inclosing one stamp to the Auctioneer, Aston, Nantwich.

To Managers of Public Gardens, Nurserymen, and Others.

MR. JOHN BURFORD will SELL by AUCTION, in the Grounds of Fairfield Lodge, 6, Addison Road South, Notting Hill, W., on TUESDAY, May 30, at 12 o'clock, almost unreservedly, a CONSERVATORY or ORCHARD HOUSE of large dimensions, being about 50 feet long by 18 feet 6 inches wide, with Arched Roof, constructed by Messrs. Cottam & Hallam in Iron and Glass, with Warming Apparatus. Ornamental Iron Stages, and complete Fittings, which must be removed previous to Midsummer day.

May be viewed by cards, and particulars had of the Auctioneers, 20, Throgmorton Street, E.C.

Fiskerton and Morton, near Southwell.

DESIRABLE INVESTMENT.

TO MARKET GARDENERS, CAPITALISTS, AND OTHERS.

MR. WM. MOSS will SELL by AUCTION, on THURSDAY, June 8, at 4 o'clock in the afternoon, at the Waggon and Horses Inn, in Fiskerton, in the following or such other Lots, and subject to such Conditions of Sale, as shall be then and there declared, the following valuable FREEHOLD ESTATE, situate in Fiskerton and Morton aforesaid, or one of them, consisting of

LOT 1.—All that Messuage, with the Fruithouse, Stables, Cowsheds, and other Outbuildings adjoining thereto; and also all that Close of valuable Meadow, Pasture, and Arable Land adjoining, in a high state of cultivation, and containing, with the site of the Buildings, 8 acres 3 roods (more or less)

LOT 2.—All that valuable and productive Garden and Orchard adjoining the last described Lot, and containing 4 acres 18 poles (more or less), planted with a selection of the choicest Pear, Plum, Apple, and Cherry Trees, just approaching their most profitable age, and containing also upwards of 2000 Gooseberry and Currant Trees, and other select and remunerative Garden Produce.

It is in a high state of cultivation, is thoroughly well drained, and is inclosed in a ring fence. It is in the occupation of Mr. Thomas Harvey, the owner, and being close to the Fiskerton Station, the Produce can be conveyed by the Railway to Nottingham, Newark, and other large towns.

Further particulars may be had on application to Mr. HARVEY, the Auctioneer, Newark; or at the Offices of Messrs. FALKNER & NEWBALD, Solicitors, Newark.

Important Sale of Japanese Curiosities and Works of Art.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, May 23, at half-past 12 o'Clock precisely, an importation from Japan of valuable BRONZE and CHINA VASES, INCENSE BURNERS, DISHES, BLACK and other LACQUER WARE, in the shape of Cabinets, Boxes, Trays, &c. Large Crystal Ball, Painted Screens, Carved Ivory and Wood Curiosities, Agate Beads, &c. Also 20 Cases of very choice JAPANESE TEA, all received direct from Japan, and to be sold without the least reservation.

On view the day prior and Morning of Sale, and Catalogues had.

Important Sale of Hardy Japanese Plants.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, May 25, at half-past 12 o'Clock precisely (without the least reserve), a portion of the COLLECTION of JAPANESE PLANTS introduced by Mr. J. G. Veitch. Amongst others may be found—

Phanera acuminata	Juniperus rigida
Prunnopitys elegans	Osmanthus ilicifolius
Pteris serrulata cristata	" " aureus
Retinospora squarrosa	" " variegatus nanus
Abies Alcoquiana	Pinus Koraiensis
" firma	Raphidopsis ovata
" microsperma	Retinospora lycopodioides
" polita	" obtusa
Aucuba japonica vera	" pisifera
" limbata	" obtusa aurea
" longifolia	" pisifera aurea
" mascula	Sciadopitys verticillata
Cryptomeria elegans	Thujopsis dolabrata
Camellia japonica variegata	" " variegata
Euonymus japonicus	" lateverens
" " aureus variegatus	" Standishii, &c., &c.

All fine healthy well established Plants in pots, lotted to suit private buyers and the Trade.

On view the Morning of Sale, and Catalogues had.

Lilium auratum from Japan, just arrived in splendid condition.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on FRIDAY, May 26, at half-past 12 o'clock precisely, without reserve, about 5000 sound BULBS of LILIUM AURATUM, just arrived, in capital condition, from Japan.

On view the Morning of Sale, and Catalogues had.

Bedding Plants.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, May 27, at half-past 12 o'Clock precisely, a first-rate assortment of BEDDING and FANCY GERANIUMS, CALCEOLARIAS, LOBELIAS, PETUNIAS, FUCHSIAS, PERILLAS, TROPÆOLUMS, CUPHEAS, AGERATUMS, VERBENAS, AMARANTHUS, &c. Also some RUSTIC FLOWER POTS, FERN STANDS, &c.

On view the Morning of Sale, and Catalogues had.

Upper Holloway.

IMPORTANT SALE OF ABOUT 40,000 FINE BEDDING PLANTS.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. John Pyle, Jun., to SELL by AUCTION, on the Premises, St. John's Nursery, John Street, Upper Holloway, on TUESDAY NEXT, at 11 for 12 o'Clock precisely, about 40,000 Choice BEDDING PLANTS, including 8000 Variegated, Pink, and Scarlet Geraniums; 6000 Aurea floribunda, Kayii, and Prince of Orange Calceolarias; 1000 Pelargoniums, 500 Gazanias, 1000 Intermediate Stocks, 300 Senecio, 1000 Fuchsias, 1500 Lobelias, 4000 fine Verbenas, 500 Salvias, 200 Heliotropes, &c. Presenting a capital opportunity to the Trade and Proprietors of Public Gardens from the unusual large quantity and quality of the Stock.

May be viewed prior to the Sale. Catalogues may be had on the Premises, and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Mile End Nursery.

ANNUAL SALE OF 10,000 WELL-GROWN BEDDING AND OTHER PLANTS.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, Mile End Nursery, Bow Road, Middlesex, E., on WEDNESDAY, May 24, at 12 o'Clock, about 10,000 BEDDING and GREENHOUSE PLANTS, consisting of very Handsome Show, Scarlet, and Variegated Geraniums, Azalea indica, Herbaceous and Shrubby Calceolarias, choice Verbenas, Fuchsias, Heliotropes, Petunias, Lobelias, Alyssum, &c.; fine Intermediate Stocks, Climbing and other Roses, Tropæolums, Eccremocarpus, Maurandyas, Lophospermum, Cobœa, Pompon Chrysanthemums, &c.; with Rustic Seats, Baskets, Tables, &c., 50 dozen Painted Dahlia Stakes, &c.

May be viewed prior to the Sale. Catalogues had on the Premises, and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

Herne Hill.

SALE OF ABOUT 8000 GREENHOUSE AND BEDDING PLANTS.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Charles Pittman to submit for unreserved SALE by AUCTION, on THURSDAY, May 25, at 12 o'Clock, on the Premises, No. 1, Herne Place, within three minutes walk of the Herne Hill Railway Station on the London, Chatham, and Dover Line, about 8000 choice GREENHOUSE and BEDDING PLANTS, including the usual miscellaneous assortment.

May be viewed four days prior to the Sale. Catalogues had on the Premises, and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

Brixton.

CLEARANCE SALE OF BEDDING AND GREENHOUSE PLANTS, GREENHOUSES, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, Vassall Road, Brixton, S., on SATURDAY, May 27, at 1 o'clock, without reserve, by order of Mr. D. Townsend, the land being taken for Building purposes, the whole of the GREENHOUSE and BEDDING PLANTS, including the usual Assortment; also 2 Greenhouses, 4 Pits, and sundry Effects.

May be viewed three days prior to the Sale. Catalogues had on the Premises, and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Sale of First-class Bedding and Greenhouse Plants.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at 38 and 39, Gracechurch Street, City, E.C., on SATURDAY, May 27, at 1 o'clock precisely, a choice assortment of Fine SHOW, FANCY, and SCARLET GERANIUMS, CALCEOLARIAS, ERICAS, AZALEA INDICA, EPACRIS, &c.; with a large variety of ORNAMENTAL PLANTS for Bedding, including the usual assortment, DWARF and CLIMBING ROSES in Pots, HYB. RHODODENDRONS, KALMIAS, CARNATIONS, and PICOTEES, &c.; together with a collection of Ornamental CHINESE FLOWER POTS and GARDEN SEATS.

On view the Morning of Sale. Catalogues had at the Rooms as above, and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

Redleaf, near Penshurst, Kent.

IMPORTANT SALE OF SHORT-HORNED CATTLE.

MR. STRAFFORD begs to announce for SALE by AUCTION, without reserve, on THURSDAY, May 25, at Redleaf, one mile from Penshurst Station, S.E.R., the entire HERD of SHORT-HORNED CATTLE belonging to W. Wells, Esq., consisting of between 30 and 40 head of Bulls, Cows, and Heifers, which have been bred from some of the most fashionable strains, amongst them some choice specimens of the Booth blood, from Mr. Douglas, of Athelstaneford, and others from the famed herds of Messrs. J. C. Adkins, Harvey Combe, and Jonas Webb. They have since been crossed with first-class Bulls.

After which will be Sold the small but select HERD of PURE-BRED SHORT-HORNS, the property of E. W. M. Waldo, Esq., of Stonewall Park, that have been bred from Mr. Barnes' Gem and Violet, Mr. Sanday's Fathen, and some choice Gwynnes. Duke of Leinster (17,724), and Baron Hopewell (14,134) have been used. The Cows and Heifers are in calf to The Druid (16,981).

Catalogues, with Pedigrees, may be had on application to Mr. STRAFFORD, 18, Euston Square, London, N.W.; and of Mr. CROSBIE, the Bailiff, at Redleaf, Penshurst, Kent; or of Mr. KILLICK, at Stonewall Park, Edenbridge, Kent.

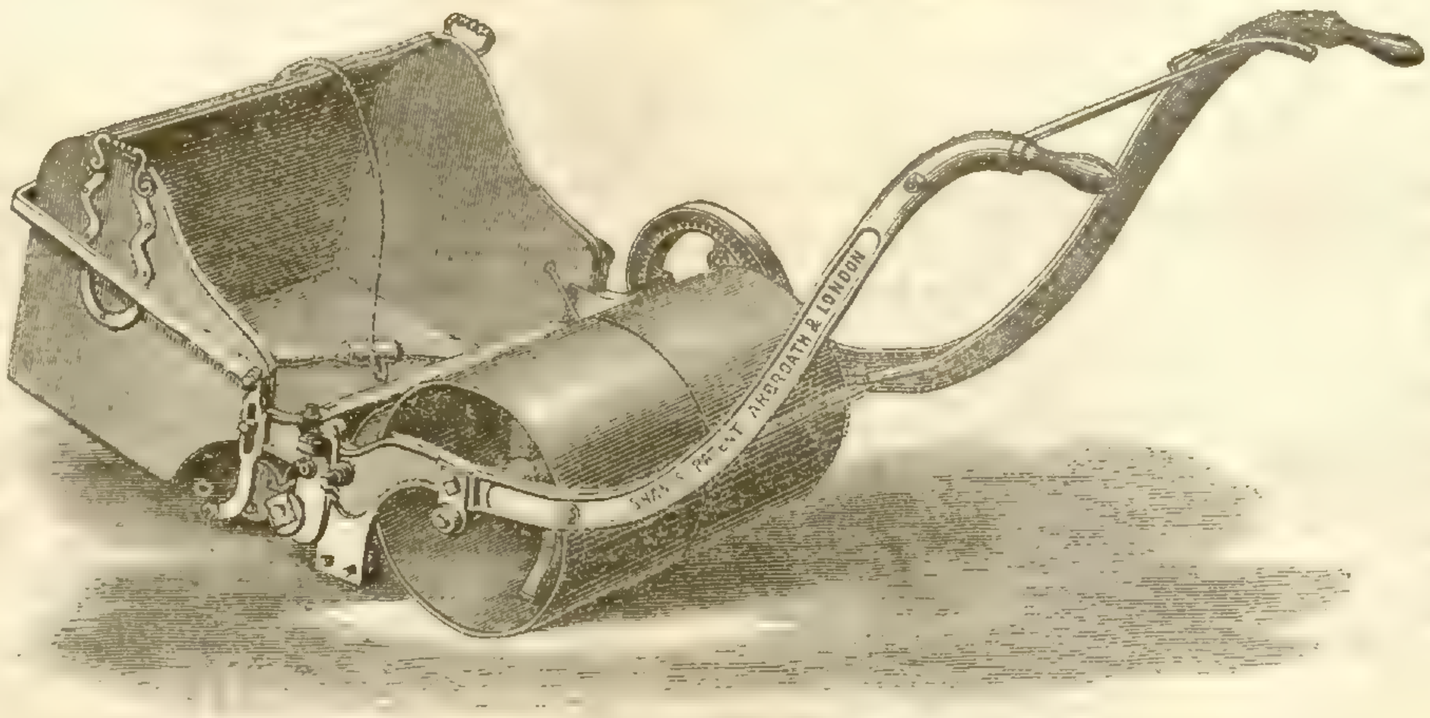
SHANKS' NEW IMPROVED PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1865.

PATRONIZED ON FIVE SEPARATE OCCASIONS DURING THE SEASON OF 1864 BY

HER MAJESTY THE QUEEN.

Alexander Shanks & Son are gratified to find that in the large and increasing demand for their celebrated MACHINES, they receive a conclusive proof that their merits are every season becoming more appreciated by the Practical Gardener.



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14-inch Machine	5 10 0	*Ditto by a Boy.*
16-inch Machine	6 12 6	*Ditto by a Man.*

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☞ A. S. & Son *beg to intimate that their Warehouse at 27, Leadenhall Street, is the only place in London where intending purchasers of Lawn Mowers can choose from a stock of from 150 to 200 Machines. All sizes are kept in stock, whether for Horse, Pony, or Hand Power, and orders are executed on the day they are received.*

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ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N. B.

LONDON OFFICE and SHOW ROOMS, 27, LEADENHALL STREET, E.C.

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THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 21.—1865.] SATURDAY, MAY 27. {Price Fivepence. Stamped Edition, 6*d*.

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ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON.
The FLORAL and FRUIT COMMITTEES will meet on TUESDAY NEXT, the 30th of May, at 12. Scientific discussion at 3. Admission 1*s*.

ROYAL HORTICULTURAL SOCIETY.—SPECIAL SHOW of PELARGONIUMS on SATURDAY, June 3. Royal Horse Guards' Band 3.30 to 6. Tickets to Fellows' Friends, 2*s*. 6*d*.; the public, 3*s*. 6*d*.; on the day, 5*s*.
*** Messrs. Waterer & Godfrey's magnificent SHOW of RHODODENDRONS (under the Great Tent) are now in the highest state of perfection.

ROYAL HORTICULTURAL SOCIETY. FIRST GREAT SHOW, SATURDAY, June 10. Tickets to Fellows Friends, 3*s*. 6*d*.; the Public, 5*s*.; on the day, 7*s*. 6*d*.

UNITED HORTICULTURAL SOCIETY.—The NEXT HORTICULTURAL FETE will be held on WHIT-TUESDAY, June 6, in the Gardens of Finsbury Circus, under the immediate Patronage of the Right Hon. the Lord Mayor and Lady Mayoress. Admission from 12 o'clock till 3 by ticket, 2*s*. 6*d*.; from 3 till 7, 1*s*.
Tickets to be had at Keith, Prowse & Co., Cheapside; Mitchell's Library, Old Bond Street; W. Sprague, 7, Finsbury Circus; and of the principal Seedsmen.
Robert Pince Glendinning, Hon. Sec., Chiswick Nursery, W.

LEYTON and WALTHAMSTOW FLORICULTURAL SOCIETY.—The FIRST EXHIBITION of this Society will take place on WEDNESDAY, June 7, 1865, in the Pleasure Grounds of J. G. Barclay, Esq., Knott Green, Leyton.
For Cards of Admission apply to E. Goad, Honorary Secretary, or Mr. J. Fraser, Nurseryman, Lea Bridge Road, N.E.

LEICESTER and LEICESTERSHIRE FLORAL and HORTICULTURAL SOCIETY.
President—The Right Hon. Earl Howe.
The GREAT ROSE SHOW of the above Society (open to all England) will be held on the 4th and 5th JULY NEXT.
A SHOW of CAGE BIRDS will be held on the same days (open to all England).
For programme and particulars apply to the Secretary,
Wm. Penn Cox, Market Place, Leicester.

Exhibition of American Plants.
WATERER and GODFREY beg to state that the AMERICAN PLANTS at Knap Hill are NOW in GREAT BEAUTY. The Nursery is readily reached by train to Woking; Conveyances are always at that station. Their Exhibition of RHODODENDRONS at the Horticultural Gardens, South Kensington, is now in perfection, and may be seen daily.
Knap Hill Nursery, Woking, Surrey.

Royal Botanic Gardens, Regent's Park.
JOHN WATERER begs to announce his COLLECTION of HARDY, SCARLET, and other choice RHODODENDRONS, &c., is NOW on VIEW at the above Gardens, and may be seen Daily (Sundays, Wednesdays, and Mondays, June 5th and 12th, excepted).
Orders of Admission granted by Fellows of the Society, and by the Advertiser. Address as above.
☞ By production of Card, admittance can also be obtained at Waterer's Gate without Orders, the above days excepted.

J. IVERY and SON'S fine Collection of AZALEA INDICA is NOW in BLOOM, and will continue until the middle of June. J. I. & Son's Collection of Hardy Ferns is also well worthy an inspection. Dorking, May 27.

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*** Part II. (Exotic Ferns) will be issued as early as possible.
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BEDDING-OUT PLANTS in great variety. WINDOW JARDINETS, Empty or Furnished, in variety.
The "Gardeners' and Amateurs' Friend," see page 454.
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Good established plants for Bedding, 30*s*. per dozen.
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J. SCOTT has still on hand a few hundred copies of his celebrated FLOWER GARDEN DIRECTORY and CATALOGUE of CHOICE BEDDING PLANTS, which he will forward free on application, inclosing one stamp.
100,000 fine Plants now ready, well hardened off.
A fine stock of the lovely new purple-leaved ACHYRANTHES VERSCHAFFELTII, 6*s*. per dozen; the finest of all the purple-leaved plants for out-door cultivation.—May, 1865.

HOLLAND and JONES' CATALOGUE of BEDDING, GREENHOUSE, and STOVE PLANTS is now ready, free on application.
Bradshaw Gardens, Chadderton, near Manchester.

DAHLIAS and other BEDDING PLANTS.—CATALOGUES of the above, including all the new and best varieties, post free on application to
James Fairhead & Son, 7, Borough Market, London, S.E.

Dahlias, surplus stock, at 24s. per 100.
C. E. ALLEN can supply a few hundreds of all the leading varieties. Selections left to himself at the above prices. Package included where one hundred are taken.
CATALOGUES forwarded on application.
Shacklewell, near London, N.E.

New Dahlias.
HENRY LEGGE begs to state that he has purchased the stock of Mr. Hopkins's two splendid DAHLIAS named BRUNETTE and BLACK HERO, which he is now sending out with his own fine varieties, and he is sure they will give satisfaction to the most limited grower. A DESCRIPTIVE CATALOGUE can be had on application. Edmonton, N

New Dahlia Ambassador.
GEO. WHEELER, Nurseryman, Warminster, is now prepared to send out strong healthy plants of the above-named fine Dahlia.
Colour—Puce, shaded with claret; exquisite shape, finely cupped petal, high full centre, and one of the most constant, being always good.
Was awarded Five Certificates during the past season—4 feet. Price 10*s*. 6*d*.
☞ A liberal Discount to the Trade. Early orders requested.

Russell's Pyramid Primulas.
GEO. CLARKE is now prepared to send out in packets, price 2*s*. 6*d*. each, this, the finest breed of PRIMULAS in cultivation. The Seed now for sale has been saved from selected plants, so that it is believed the produce will be even superior to that of former years.
Printed instructions for raising and growing the plants sent with each packet. Stamps received in payment.
Nursery, Streatham Place, Brixton Hill, London, S.

The Best Early Turnip for Field Culture is the Pomeranian White Globe.
SUTTON and SONS can supply fine New Seed of the POMERANIAN WHITE GLOBE TURNIP at 10*d*. per lb., or cheaper by the bushel. Carriage free except small parcels.
PRICED LISTS of TURNIP SEEDS post free.
Royal Berkshire Seed Establishment, Reading.

Turnip Seeds.
CHARLES SHARPE and CO., Seed Growers, Sleaford, have fine stocks of the above to offer, of their own saving, from transplanted and selected roots. List of prices on application.

Rape Seed for Sowing.
CHARLES SHARPE and CO., Seed Merchants, Sleaford, have English-grown Seed of the above to offer, of good quality. Price on application.

MANGEL WURZEL.—Pure Stock (extra selected), ELVETHAM LONG RED; ditto ditto YELLOW GLOBE. Each 9*d*. per lb.
Hooper & Co., Seed Merchants, Covent Garden Market, London.

New Hardy and Rare Climbers.

CLEMATIS JACKMANNI, large deep bright violet.
CLEMATIS RUBRO-VIOLACEA, maroon shaded reddish violet.
Awarded Two First-class Certificates by Royal Horticultural Society.

MESSRS. GEORGE JACKMAN AND SON, Woking Nursery, Surrey, can with confidence recommend to the public, their beautiful rich-coloured, free-flowering and vigorous-growing CLEMATISES, that now occupy a very high position in climbing plants. On application a circular will be forwarded free, giving extracts of their "sterling merits" from the following leading Horticultural Papers:—*Proceedings of Royal Horticultural Society, The Gardeners' Chronicle, Journal of Horticulture, Floral Magazine*, and *Florist and Pomologist*.

Plants of the following varieties will at once be sent out at the under-mentioned prices:—

CLEMATIS JACKMANNI, a few strong plants of 1864, 14*s.* each.
" " fine plants of 1865, 7*s.* 6*d.* each, 84*s.* doz.
" RUBRO-VIOLACEA, a few strong plants of 1864, 14*s.* ea.
" " " fine plants of 1865, 7*s.* 6*d.* each, 84*s.* doz.
" FORTUNEI (Japan), large double white, 7*s.* 6*d.* each.
" STANDISHI (Japan), beautiful violet blue, 5*s.* each.
" HYBRIDA SPLENDIDA, a fine deep violet, 5*s.* each.
" LANUGINOSA CANDIDA, large handsome white, 7*s.* 6*d.* each.
" LANUGINOSA NIVEA, fine pure white, 7*s.* 6*d.* each.
Besides other good old kinds.

A Circular with a special offer to the Trade will be sent free on application.

E. G. HENDERSON AND SON'S SPRING CATALOGUE of PLANTS contains Notes, among other Plants, of the following:—

50 ORNAMENTAL-LEAVED PLANTS for Summer-garden Decoration.

ARUNDO DONAX, finely variegated; GYNERIUM ARGENTEUM fol. VARIEGATUM; GYNERIUM ARGENTEUM ELEGANS

ORNAMENTAL-COLOURED FOLIAGE PLANTS for BEDDING.

FRESINE HERBSTII, rich red leaves and stems. 6*s.* per dozen.
SALVIA OFFICINALIS GRANDIFLORA AUREA, yellow margined.
COLEUS MARMORATUS, brighter than C. Verschaffelti.
CENTAUREA RAGUSINA (syn. C. candidissima), 9*d.* and 1*s.* each.
CENTAUREA RAGUSINA COMPACTA. 3*s.* 6*d.* each (fine variety).
" GYMNOCARPA. C. ARGENTEA.

FUCHSIAS.—The following are Mr. Banks's special varieties for the present season:—

LIGHT HEART	ENOCH ARDEN	WAR EAGLE
The VILLAGE PET	LADY of the SEA	RODERICK DHU

CONSOLATION | ROSE of DENMARK (16*s.*)
Seven varieties, 10*s.* 6*d.* each.

CENTAUREA RAGUSINA COMPACTA, 3*s.* 6*d.* each.—This very effective and beautiful plant is an improved form of the well-known C. ragusina (syn. C. candidissima) in being a variety of much neater growth, and, as its name implies, of a more compact dwarf habit. It differs from its prototype in having shorter and comparatively broader leaves, not so coarsely and deeply lobed at the margin, the terminal lobe also being rounder. One most desirable and prominent distinction from the original species consists also in its purer white leaf surfaces, the under as well as the upper one, by which it yields a very beautiful silvery feature and contrast with opposite dark green and chocolate-coloured leaf-tints. It is also free from the wide spreading outline of the leaves observed in the mature summer growth of C. ragusina. This desirable plant by its greater adaptation for ribbon rows and marginal effect in border culture, apart from its snowy whiteness in warm seasons, will eventually supersede the older kind hitherto used in flower gardens.

NEW DWARF BELTING VERBENAS (Type "Velvet Cushion"). The following varieties are comprised in the new section of Verbenas, hybridised with V. venosa, and distinguished by its sub-perennial habit, and neat dwarf style of growth, of which the variety sent out last season as "Velvet Cushion" is the type, and which was universally admired for its attractive features and adaptation for front belts, ribbon rows, &c. The improved constitution wrought into these varieties by alliance with a hardier species, will ultimately produce the desirable results of diminishing the too prevalent scandent habit, and exuberant leaf-growth, by the production of a denser growth peculiar to many perennial species. Those now offered will be found valuable for garden decoration, where a more compact habit is required for extensive front margins, belts, or curved outlines, &c.

ARIEL | CORDELIA | HELENA | JULIET.

NEW DWARF TROPÆOLUMS.

The following fine varieties are Seedlings of 1863, and have thus been tested by the growth of two successive years. Many of the varieties hitherto have been but the mere seminal productions from well-known kinds, and prematurely sold as distinct and permanent in habit. These have the strain of T. elegans in constitution, and of T. Tom Thumb in growth, retaining their remarkably dwarf, compact, and vigorous habit throughout the summer months, without deviation of growth or bloom, colour, or effect. The leaves never rise above an average and uniform height, and the bloom being alike in profusion and continuance throughout the whole season.

T. COMPACTUM COCCINEUM.—Habit of growth uniform with the foregoing, equally vigorous and compact; stems tinted red, leaves small dark green, obscurely pilose or hairy on the under surface; flowers glowing scarlet self colour, good form, style of T. Eclipse, but larger, expanding uniformly and in profusion, forming very beautiful patches of 12 or more inches across, and producing a brilliant effect by a rich contrast to darker crimson varieties, or colours to match in extensive ribbon rows, belts or margins, beds or borders in select flower gardens, or extensive terrace groups. For decorative purposes it exceeds all other varieties of a similar habit, in its remarkably close and miniature habit of growth, filling up to the centre, and yielding a long continued succession of bloom. Admirably adapted for reserve and succession beds of scarlet, throughout the summer and early autumn months. Each 1*s.*; if 12 plants, 9*s.*; if 100 plants, 50*s.*

T. COMPACTUM LUTEUM.—Forms a densely low and almost level circular style of growth, from 6 to 8 inches in height, short jointed and vigorous, leaves comparatively small, light green, stems slightly hairy, flowers brilliant orange-yellow, with picturesque crimson spots in centre, rising in profusion just above the leaves. It is finely adapted for decorative effect in extensive ribbon rows, and medium sized beds, groups, &c. Each, 1*s.*; if 12 plants, 9*s.*; if 100 plants, 50*s.*

NEW LOBELIAS.

PRINCE ALBERT.—A beautiful dwarf bedding variety, in the section of L. speciosa Paxtoni, having a better constitutional habit for continuous growth and bloom; its more robust and compact growth, with rich glossy green foliage, is literally covered by its profusion of large bright azure-blue flowers with a conspicuous large white centre, throughout the summer and early autumn. For decorative effect in medium beds or groups, broad margins, and extensive front ribbon lines, this is the best variety in its section yet offered. Each, 1*s.*; 12 plants, 9*s.*; 100 plants, 50*s.*

PRINCESS ALEXANDRA.—This is equal to the foregoing in growth, beauty, and effect, forming a densely compact habit, yielding a fine effect in contrast with the blue ones, or any other of uniform growth and opposite colour. As a white-flowered variety it is admirably adapted for extensive margins, ribbon lines, and groups. For front effect to edgings of dwarf Heath, or evergreen shrubs of similar dwarf style, it is a beautiful and appropriate plant; and the best white broad-lobed variety of L. speciosa. Each, 1*s.*; 12 plants, 9*s.*; 100 plants, 50*s.*

VERBENA LADY BINNING.—A first-class bedding variety, and the leading flower for extensive decoration of the present year. Colour a very brilliant crimson-tinted scarlet, with a conspicuous creamy-white centre; forming a fine average-sized, full-centred, and well-expanded truss. Habit of growth compact, with a profusion of bloom. Proved of the highest merit by receiving a First-class Certificate from the Floral Committee of the Royal Horticultural Society, and forming the highest feature of attraction in Verbenas at the Oulton Park Gardens during the past summer.

The Wellington Nursery, St. John's Wood, London, N.W.

Seeds from Choice Strains.

B. S. WILLIAMS can now supply good Seeds of the following:—

CINERARIA (Weatherill's extra choice strain).—B. S. W. has secured at a great expense the entire stock and right of exclusive sale from Mr. Weatherill, of his, the best strain of Cineraria in existence, and can now offer packets at the following prices:—2*s.* 6*d.*, 3*s.* 6*d.*, and 5*s.*

CALCEOLARIA (Herbaceous), from a fine strain, 2*s.* 6*d.* and 3*s.* 6*d.* per packet.

PRIMULA (Williams' superb strain), the finest fringed and the best coloured flowers in cultivation. Red, White, or Mixed Seed, 2*s.* 6*d.*, 3*s.* 6*d.*, and 5*s.* per packet.

Paradise and Victoria Nurseries, Holloway, London, N.

New Catalogue for 1865.

GEO. SMITH begs to announce that his PRICED and DESCRIPTIVE CATALOGUE, containing the Newest and most Approved Varieties of Show, Spotted, and Fancy PELARGONIUMS; Zonale and Variegated GERANIUMS, FUCHSIAS, VERBENAS, PETUNIAS, DAHLIAS, CHRYSANTHEMUMS, BEDDING PLANTS, &c., is now ready, and will be forwarded in exchange for one postage stamp.

*** Coloured Illustrations by Mr. Andrews, free by post, in exchange for 12 postage stamps, of FUCHSIAS GENERAL LEE, DIADEM, and FANTASTIC, the three finest Fuchsias G. S. has ever had the pleasure to offer, for description of which see Catalogue.

Tollington Nursery, Hornsey Road, Islington, London, N.

The Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

A CHOICE and EXTENSIVE COLLECTION of STOVE and GREENHOUSE PLANTS always on view. Also FRUIT TREES, SHRUBS, and ORNAMENTAL TREES, from the Country Branches of the Firm.

The SEED and GENERAL NURSERY BUSINESS is carried on here, and Packages are delivered free at the various London Railway Stations.

Branches.

EALING NURSERY, G. Cannon, Manager.
Ten minutes' walk from the Ealing Station on the Great Western Railway Main Line.

FRUIT TREES, ROSES, and SHRUBS, are here extensively and successfully cultivated in some of the finest Loam in the County.

FELTHAM NURSERY, R. Higham, Manager.
Ten minutes' walk from Feltham Station.

EVERGREEN and DECIDUOUS SHRUBS, and CONIFERÆ, are here largely grown in a free Loam, well suited to their habits.

At SION LANE and WOOD LANE NURSERIES, ISLEWORTH. ORNAMENTAL TREES are in a healthy and thriving state, and GENERAL HARDY PROPAGATION is here carried on.

The Stock in the above Nurseries is well worth the inspection of purchasers. The prices are very moderate, and the Plants are frequently transplanted to ensure safe removal.

The following CATALOGUES are published, and will be forwarded Post Free on application:—

CATALOGUE of KITCHEN GARDEN, FLOWER, and AGRICULTURAL SEEDS.
CATALOGUE of STOVE and GREENHOUSE PLANTS.
CATALOGUE of SOFT-WOODED and BEDDING PLANTS.
CATALOGUE of FRUIT TREES and FRUIT TREES in POTS.
CATALOGUE of HARDY SHRUBS and TREES.
CATALOGUE of DUTCH BULBS, published in August.
CATALOGUE of ROSES.

John & Charles Lee, Proprietors, Hammersmith, London, W.

BEDDING PLANTS, BEDDING PLANTS.—The following are now ready and will be sent out, well-rooted, in single pots:—

	Per doz.	Per 100.
DAHLIAS	3*s.* 0*d.*	20*s.* 0*d.*
GERANIUM CYBISTER	8 0	60 0
" GOLDEN CHAIN	2 6	20 0
" STELLA	2 6	20 0
CALCEOLARIA AUREA FLORIBUNDA	2 6	16 0
LOBELIA PAXTONIANA	2 0	12 0
" PAXTONI MAJOR	2 6	16 0
SALVIA PATENS	3 6	24 0
CERASTIUM TOMENTOSUM, out of pots	1 6	8 0

Address, J. C. Padman, Providence Nurseries, Boston Spa, near Tadcaster. Post-office orders payable at Boston Spa.

New Carmine-striped Verbena Annie.

GEORGE COOLING, of Bath, has great pleasure in offering this really novel and beautiful VERBENA, the best striped variety ever raised. It is an excellent grower, of very compact pretty habit, and produces in great profusion immense trusses of carmine and white striped blossoms, of perfect form and fine substance, which are remarkable for the length of time they last in bloom. Altogether it is a most desirable acquisition, and a variety thoroughly distinct from any in cultivation. For bedding purposes it will be unique, and no exhibition stand will be complete without it. It has obtained a First-class Certificate from the Floral Committee of the Royal Horticultural Society, in addition to five First Prizes and Certificates elsewhere. See report to correspondence and editorial remarks in *Gardeners' Chronicle*, July 16, Sept. 17, Dec. 31; in *Journal of Horticulture*, and other provincial papers; it is also figured in the *Florist* for February.

Strong Plants now ready at 5*s.* each, or six for 25*s.*; with the usual discount to the Trade.

18, Broad Street, Bath, near the York House; Nursery, Bathesston, near Bath.

NEW HARDY LATE-FLOWERING RHODODENDRONS.

PRINCE of WALES.—Bright rose shaded with purple, divided black marking on the upper petals, free grower, profuse bloomer, hardy, and the latest Hybrid Rhododendron grown. One-year grafted plants, 10*s.* 6*d.* Two-year ditto, strong, 21*s.* Larger plants, 31*s.* 6*d.* to 42*s.* each.

PRINCESS of WALES.—Deep magenta edge, pure white centre, primrose flake on the upper petals, slightly spotted with brown, totally distinct from any variety at present known, and when in bloom may be readily distinguished from all others; it is a beautiful and first-class Rhododendron. One-year grafted plants, 10*s.* 6*d.* Two-year ditto, strong, 21*s.* Larger plants, 31*s.* 6*d.* to 42*s.* each.

The usual Discount to the Trade.

The above beautiful Rhododendrons were first introduced to the public last year by M. Y., and he has again much pleasure in calling attention to them; they are both most distinct varieties, the colour and marking of the Princess of Wales being quite a fresh type, and unlike any other Rhododendron. They have both been proved in the open ground for several years, capable of withstanding our most severe winters, and being very late bloomers escape the spring frosts, frequently so fatal to the earlier blooming kinds. They are confidently recommended as most desirable additions to this favourite class of plants.

Coloured Plates, by Andrews, will be forwarded on application for 13 stamps each, or the two for 25 stamps.

Maurice Young, Milford Nurseries, near Godalming, Surrey.

NEW and SELECTED SEEDS.

CARPENTER'S MAGNUM BONUM PEAS.—The Largest and Best Tall Variety grown. 5*s.* per quart.
CARPENTER'S MULTUM IN PARVO PEAS.—The Best Dwarf Variety grown. 5*s.* per quart.
CARPENTER'S MONSTROUS WHITE COS LETTUCE,
CARPENTER'S MONSTROUS GREEN COS LETTUCE,
CARPENTER'S MONSTROUS BROWN COS LETTUCE,
are the three best LETTUCES in cultivation. 1*s.*, 2*s.* 6*d.*, and 5*s.* per packet.
CARPENTER'S PREMIER SWEDE.—Superior in size, shape, and quality to any other Swede grown. (Sow 3 lb. per acre.) 2*s.* per lb.

A remittance from unknown correspondents is requested.

CATALOGUES on application to Edward Carpenter, Seed Merchant and Grower, Brighton and Sussex Seed Warehouse, 96, St. James's Street, Brighton.

Mottled Globe or Grey Stone Turnip.

SUTTON AND SONS have a very choice stock of the excellent NEW TURNIP. It grows to a very large size, and is strongly recommended. Price of seed, 1*s.* per lb., cheaper by the bushel, carriage free.

Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

SUTTON'S CHAMPION SWEDE is perfectly hardy, very productive, stores exceedingly well, and rarely if ever suffers from mildew.

THREE HUNDRED GUINEAS IN 12 PRIZES.

For Six Years successively his late Royal Highness the Prince Consort's Prize Cups have been awarded to SUTTON'S CHAMPION SWEDES at the Royal East Berks and South Berks Agricultural Societies, and many other valuable Prizes in various parts of the kingdom.

From Mr. Large, *Bailiff to the* Right Hon. Lord Berners.

"The Champion Swedes from seed Lord Berners purchased of you are far superior to any other we have grown. I can confidently say they are many tons per acre heavier than any other Swedes growing on his Lordship's farm."

Price of Seed 1*s.* per pound, or cheaper by the bushel.
SUTTON'S NEW FARM LIST gratis and post free.
Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

TURNIP SEEDS

	Per lb.—*s.*	*d.*
WORCESTERSHIRE SWEDE	0	10
SKIRVING'S KING of the SWEDE	0	9
HALL'S WESTBURY SWEDE	0	10
YELLOW TANKARD or SWEDISH	1	0
YELLOW BULLOCK or ABERDEEN	0	10
GREEN ROUND or GLOBE	0	8
GREEN BARREL	0	9
LINCOLNSHIRE RED GLOBE	0	9
DEVONSHIRE GREY STONE	0	10

PRICED LIST of AGRICULTURAL SEEDS on application.

Richard Smith, Seed Merchant, Worcester.

A Boon to the World.

PRINCE of WALES' KIDNEY POTATO.—A new Seedling, remarkably handsome, fine eating, and the most prolific in the world. Testimonials:—

From Professor Lindley (Editor of the *Gardeners' Chronicle*).

"I have this morning had the Seedling Potatos examined. The crop is very extraordinary, and the Potatos themselves are very handsome, and quite ripe."

From Shirley Hibberd, Esq. (Editor of the *Gardeners' Weekly Magazine*).

"The Seedling Potato (Prince of Wales), I have found to be wonderfully productive, excellent flavour, handsome, and such a one as the world ought to have the benefit of."

To be had of Mr. James Veitch, Royal Exotic Nursery, King's Road, Chelsea, S.W.; Messrs. Barr & Sugden, King Street, Covent Garden, W.C.; Downie, Laird & Co., Forest Hill, S.E.; James Carter & Co., 237, High Holborn, W.C.; Sutton & Sons, Reading.

Price 12*s.* per bushel.

N.B. They may be planted up to the end of May.

Wheeler's Imperial Swede.

WHEELER'S IMPERIAL SWEDE, one of the HARDIEST, FINEST, and MOST NUTRITIOUS Swedes in cultivation. Won the First Prize at the Gloucestershire Root Show, and several valuable Silver Cups.

1s. per lb., 45s. per bushel.

Carriage free by rail, and 5 per cent. discount for cash.

J. C. WHEELER & SON, Seed Growers, Gloucester.

New Cattle Food.

BLUNDELL'S CATTLE MELON.—Heavy crops of this Fruit may be grown by the same cultivation and manure as required for root crops, and ready for feeding purposes before the root crops are ripe. Time of sowing, the months of April and May.

Seed of last year's growth is now ready for delivery at 2s. 6d. per packet of 50 Seeds with full instructions for cultivation.

Cash remittances from unknown correspondents.

Address, JOSEPH BLUNDELL, Bursledon, Southampton.

To Seed Merchants.

MR. A. WILKIN, of Tiptree Heath, Kelvedon, Essex, invites your inspection of his growing crops of Seed, some of which are very luxuriant and promising.

20 acres of CABBAGE SEED: CATTLE, LONDON MARKET, COLEWORT, RED DUTCH, COTTAGER'S KALE, and DRUMHEAD SAVOY.

30 acres of CARROT SEED: ALTRINGHAM, JAMES, and EARLY HORN.

30 acres of PARSLEY, MIGNONETTE, SWEET PEAS, CUCUMBER, &c.

The stocks are of the best and purest quality.

Terms cash on delivery.

NEW FORAGE PLANT: BROMUS UNIOLOIDES var. SCHRADERI; SCHRADER'S BROME GRASS, sometimes called NEW ZEALAND GRASS and PRAIRIE GRASS.—This Grass was introduced into Great Britain many years ago by Mr. Charles Lawson, sen., of Edinburgh, and was shown and described at the Great Exhibition of 1851. It is now attracting considerable attention, from the enormous cuttings of green food it has lately produced on the Continent and elsewhere. It is undoubtedly a most productive plant, especially under irrigation or liquid manure.

Small quantities of Seed may be obtained for experiment from PETER LAWSON & SON, The Queen's Seedsmen, 28, King Street, Cheapside, E.C.

REIGATE SILVER SAND, 12s. per ton, at Swan Place; delivered 5 miles, or to any London Railway, 16s. per ton, or 1s. 6d. per bushel (sacks at cost price, or on hire).

KENTISH and other PEATS, YELLOW LOAM, LEAF-MOULD, SPHAGNUM MOSS, and COCOA FIBRE REFUSE.

J. KENNARD, Swan Place, Old Kent Road, London, S.E.

REIGATE SILVER SAND.—Best Kent and Surrey PEATS, LOAMS, SPHAGNUM, ROCK SANDSTONE, London-made FLOWER POTS, &c.

N.B. Loaded Trucks can be sent direct on all the Railways.

W. SHORT, Sand and Peat Depôt, Reigate, Surrey.

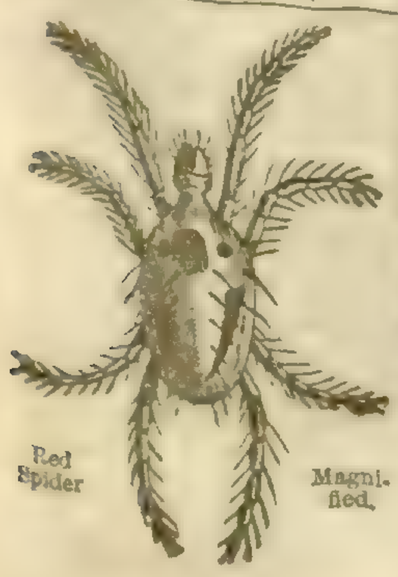
COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 2s. per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped, J. BARSHAM'S Patent.



Red Spider — Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes, 1s. 3s., and 10s. 6d. each.

Wholesale by

PRICE'S PATENT CANDLE COMPANY (LIMITED).

TOOGOOD'S (late PAGE & TOOGOOD'S) IMPROVED BLIGHT COMPOSITION introduced in 1850, has been manufactured under W. TOOGOOD'S sole directions since that period. He has made great improvements in it, and by reducing the price 25 per cent., it is one of the cheapest and has always been the most efficacious remedy extant. To publish the Testimonials no newspaper would give space, but Messrs. CUTBUSH & SON, the eminent Nurserymen, say:—"It is the best thing for the purpose we can find, and does not appear to injure the young foliage like Gishurst does. This is our experience after 10 years' trial."

"February 24, 1864."

Mr. E. SAUL, *Gardener to* LORD HOWE, says:—

"Will you please send us 11 gallons of your Blight Composition. I see you have reduced the price, and trust that you may some day be able to make another reduction, and I feel assured that no 'Gishurst,' will be used by practical men."

"We hereby Certify that during the whole time we were Warehousemen in the Establishment of B. PAGE & CO., and subsequently PAGE & TOOGOOD, that we Manufactured the Blight Composition under Mr. TOOGOOD'S *sole directions, and that he alone knew the proportions of the various ingredients.*

Signed JOHN MORLEY,
HENRY DREW,
HENRY SHEERMAN,
GEORGE ISAACS."

"July 13, 1863."

Extra strong, 3s. per gallon (sufficient to make 4 gallons fit for use), 10 gallons and upwards carriage free to London.

May be obtained of the principal Nurserymen and Seedsmen in the Trade, and of W. TOOGOOD, Royal South Hants Seed Establishment, Southampton.

GARDEN BORDER EDGING TILES, in great variety of patterns and material, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.

F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.

Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also TESSELATED PAVEMENTS of more enriched designs than the above.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cements, &c.

To be obtained of F. & G. ROSHER, at their Premises as above.

SILVER SAND (REIGATE, best quality), at the above addresses—14s. per Ton, or 1s. 3d. per Bushel; 2s. per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less.

FLINTS, BRICK BURRS or CLINKERS, for Rockeries and Grotto Work.

F. & G. ROSHER.—Addresses see above.

N.B. Orders promptly executed by Railway.

SHAW'S TIFFANY.

For samples and prices apply to

J. SHAW & Co., 29, Oxford Street, Manchester.

GARDEN HOSE, GARDEN HOSE, GARDEN HOSE, with Brass Fittings complete.—The London India-Rubber Company, Limited, Manufacturers of MECHANICAL RUBBER, 9, Ironmonger Lane, London, E.C.

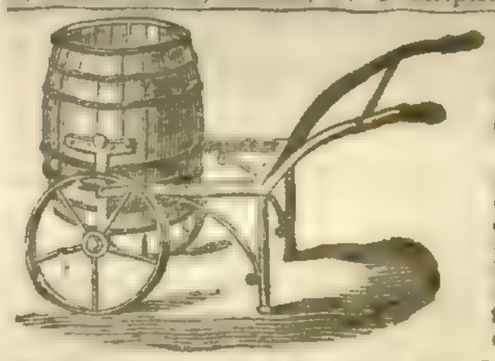
Hydraulic Suction Pumps, Garden Engines, Syringes, &c.

CAUTION.—The well-known reputation of

READ'S ENGINES, MACHINES, and SYRINGES, has led to the nefarious practice of Manufacturers selling and advertising weekly Syringes as "READ'S PATENT."

R. READ begs to caution the Public against being deceived by such false representations, as many of these instruments, upon trial, will be found defective and useless.

READ'S SYRINGES have the Royal Arms, and address, 35, Regent Circus, London, W. Descriptions post free.

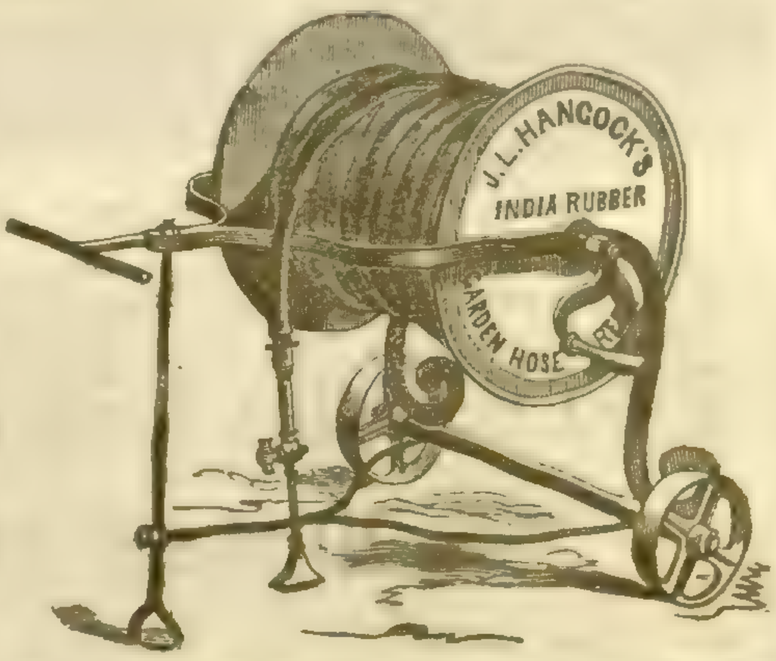


SWING WATER BARROW, to hold 36 Gallons, price 12s., carriage paid to any Station on the Great Eastern Line.

This is the best and cheapest article yet introduced; the water may be dipped out, or the tub tilted and poured out, or by merely raising the handle it can be placed on the ground and the frame detached.

Manufactured by W. S. BOULTON, Rose Lane Iron Works, Norwich.

HANCOCK'S INDIA-RUBBER HOSE for WATERING GARDENS, LAWNS, &c., &c., made in 60-feet lengths of any size.



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BRASS FITTINGS, STOP-COCKS, SPREADERS, HAND BRANCHES, JETS, &c. Illustrated Price Lists on application.

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Bee Hives.

PRIZE MEDAL and HONOURABLE MENTION AWARDED to G. N. & SONS, for BEE HIVES and HONEY at the VARIOUS EXHIBITIONS.

NEIGHBOUR'S IMPROVED COTTAGE BEE HIVE, as originally introduced by GEORGE NEIGHBOUR & SONS, with all the recent improvements, three Glasses and Thermometer, price 35s., securely packed for the country.

Several important novelties are [illegible] this season, including the Wednesbury Straw and Bar-and-Frame Hive, [illegible] the Improved Pressing Racket for the extraction of Juices in the construction of Honey-comb in the hives, and the Pressed Wax Sheets, to assist in the formation of Comb.

Address, GEORGE NEIGHBOUR & SONS, 127, High Holborn, W.C., or 192, Regent Street, London, W.

Their newly-arranged Catalogue of other Improved Hives, with drawings and prices, sent on receipt of two stamps.

AGENTS:—Liverpool: James Cuthbert, 12, Clayton Square. Manchester: J. Wilson, 10, King Street. Birmingham: J. H. Cottrell, 15, Bull Ring. Dublin: Edmondson Brothers, 10, Dame Street. Glasgow: Austin & McAslan, 16, Buchanan Street.

Oil Paint no longer necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

From JOHN BEASLEY, Esq., *Agent to the Right Hon. the Earl Spencer and Lewis Loyd, Esq., Chapel Brampton, Northampton.*

"SIRS,—I have used your Black Varnish to a considerable extent, and can strongly recommend it as a substitute for paint for all out-door purposes, on wood or iron. I have used one of your Heating Barrows, which I consider a most useful article, and should always be had with the Varnish. Please to send one of your Barrows and a cask of Varnish to Lewis Loyd, Esq., Overstone Park, Northampton."

Sold in casks of about 30 gallons each, at 1s. 6d. per gallon, at the Manufactory, or 1s. 8d. per gallon paid to any Station in the kingdom.

Apply to HILL & SMITH, Brierly Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C., from whom, only it can be obtained

TRADE MARK.

ENTERED AT STATIONERS' HALL.

WALTER CARSON AND SONS, of Great Winchester Street, respectfully notify that they have removed their principal office to their Warehouse in LA BELLE SAUVAGE YARD, Ludgate Hill, E.C. (three doors East of Railway Viaduct), and have discontinued their West-end Office, 31, St. James's Street.

CARSONS' ANTI-CORROSION PAINT, specially manufactured for out-door work, is the best and cheapest. All colours. Is simple in application, so that any person can use it.

Is twice as durable as genuine white lead. See Testimonials sent with patterns and prices post free.

Three cwt. carriage free to any station in England and Wales, and most Seaports of the United Kingdom.

CARSONS' ANTI-CORROSION PAINT used by nearly all the eminent Horticulturists, the Nobility and Gentry, for their Gardens.

CARSONS' PAINT for CONSERVATORIES.

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CARSONS' ANTI-CORROSION PAINT will keep for years in a dry place. All orders to be sent direct to WALTER CARSON & SONS, La Belle Sauvage Yard, Ludgate Hill, E.C. Three doors East of Railway Viaduct.

Caution to Gardeners.—When you ask for

SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the corporate mark OBTAIN WARRANTED, without which none are genuine.

S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine article, which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by sellers and makers.

S. & C.'s Pruning and Budding Knives are the best and the cheapest in the market.

Paxton Works, Sheffield. Established upwards of 125 years.

Seedling Roses.

WM. PAUL (Son and Successor to the late A. Paul) begs to offer the following FIRST-CLASS NEW HYBRID PERPETUAL ROSES, at present exclusively in his possession, and which are specially recommended. Good plants will be ready for delivery in May next.

ELIZABETH VIGNERON.—Flowers fine rosy pink, very large and full, in the style of Lælia, but fuller, fresher, and brighter in colour than that superb variety; form perfectly finished, constitution hardy, growth vigorous. Price 7s. 6d. each.

GLORY of WALTHAM.—Flowers resplendent crimson, very large and full, a seedling from Leveson Gower, larger, brighter, darker, and of better form than the parent. A superb Rose; of hardy vigorous growth, producing shoots 6 feet long in one season, and of the thickness of the little finger. Price 7s. 6d. each.

MADAME EMILE BOYAU.—Flowers soft rosy flesh colour, changing to blush, of a pleasing colour, sufficiently large, perfect in form, moderate in growth, hardy in constitution, good and distinct. Price 5s. each.

PRINCE DE JOINVILLE.—Flowers light crimson, a fine large showy Rose, of vigorous and hardy habit, quickly forming a highly decorative bush, standard, or pillar Rose, of great beauty. Price 5s. each.

PRINCESS LICHTENSTEIN.—Flowers white, globular, large and full. A good hardy white Rose, of compact growth, flowering abundantly. Price 5s. each.

The best of the NEW FRENCH ROSES, 36s. to 42s. per dozen. Last year's kinds, 24s. to 30s. per dozen. Older kinds, 9s. to 18s. per dozen.

William Paul, Waltham Cross, London, N.

New Plants now ready for Sale.

AMBROISE VERSCHAFFELT, Nurseryman, Ghent, Belgium, begs to offer the following Novelties:—

STOVE PLANTS.	£	s.	d.
ABUTILON VEXILLARIUM (tricolor), strong	0	8	0
AMORPHOPHALLUS NIVOSUS (so much admired at the Grand Show of Brussels)	0	12	0
SMILAX MACROPHYLLA MACULATA	0	16	0
GREENHOUSE PLANTS.			
CAMELLIA ARCHIDUC ETIENNE	0	16	0
RHODODENDRON GRAND DUC DE BADE	0	16	0

All these Plants are figured in VERSCHAFFELT'S "ILLUSTRATION HORTICOLE."

New Plants for 1865.

B. S. WILLIAMS, Paradise and Victoria Nurseries, Holloway, London, N., begs to announce that he is now prepared to supply strong PLANTS of the undermentioned Novelties, which he has much pleasure in offering for the first time:—

NEW FUCHSIAS.

The following four Fuchsias are the most novel and distinct yet offered, and cannot fail to give satisfaction. The first is the production of Mr. Wyness, Gardener to Her Majesty, Buckingham Palace, by whom it was exhibited during the past season, and received certificates of merit. Amongst novelties and acquisitions introduced of late, this undoubtedly is the most distinct, but at present it must not be looked at in the light of a florist flower, but as the type of an entirely new race, producing its clusters of flowers quite erect. Its habit is superior to the light varieties of the ordinary drooping kinds, and it blooms profusely throughout the season, thus making it a very valuable decorative plant, and invaluable for supplying cut flowers. In Nos. 2, 3, and 4, will be found great improvements on those previously sent out. No. 2, a well-formed flower, with great width of sepal. No. 3 is the finest proportioned double flower yet offered. No. 4, quite distinct on account of its serrated petals.

No. 1. FUCHSIA ERECTA, var. NOVELTY.—Tube and sepals pure white, medium size; sepals cordate, gracefully recurved; corolla soft rose, shading to a white base. A very nice proportioned flower, its habit good, producing large clusters of bloom; leaves marbled and veined; a decided acquisition.

No. 2. FUCHSIA AGAMEMNON.—Rich scarlet sepals, broad, and of great substance; corolla very double; colour dark plum, flaked towards the base with fiery crimson; habit first-class.

No. 3. FUCHSIA MAJESTIC.—Carmine scarlet sepals, tube of great substance, and well reflexed; corolla bluish-violet, flamed or feathered to the base. Undoubtedly the finest double Fuchsia yet raised.

No. 4. FUCHSIA SERRATIPETALA.—Corolla barrel shape, rich mulberry colour, each petal evenly serrated; scarlet tube and sepals, the latter reflexed to the tube, showing the feathered base of the corolla. A grand flower for exhibition purposes.

Price 7s. 6d. each.

NEW SINGLE PETUNIAS.

STRIATA PERFECTA (Holland).—The production of Mr. Holland, of Isleworth, the successful raiser of Royalty and Duchess of Northumberland, the favourites of the past season. The variety now offered is quite distinct in character, having blush-white ground and four pure magenta stripes evenly diverging from the centre. The flowers are of a medium size, good shape, and constant. The seedling plant when exhibited was about 2 feet high, and as much through, covered with flowers, thus showing its first-class habit and constancy. Received First-class Certificates from the Royal Botanic and Royal Horticultural Societies, July, 1864. Price 5s.

SPLENDIDA (Williams).—Very large and distinct flower, pure white ground, having four bars or club-shaped stripes of rich carmine diverging from the centre; the outline occasionally broken by a small blotch; good free branching habit. Received First-class Certificate. Price 5s.

PURPLE BEDDER.—A very superior variety; being of medium height, with free branching habit, requiring no pegging down. B. S. W., feeling assured that it will be found the best bedding Petunia yet offered, has prepared a large stock to supply at moderate prices. Price 1s. 6d. each; 12s. per dozen.

NEW CALCEOLARIA.

BIRD of PARADISE.—Colour bright orange-red, with a margin of yellow, the whole flower minutely spotted, medium in size, good truss, free branching habit, giving a good succession of flowers, suitable either for bedding or pot culture. When grown as a pot plant, its flowering season may be prolonged up to Christmas, a time when such a striking colour will be most acceptable. Figured in *Floral Magazine*. Price 5s.

Now ready, post free, a NEW and DESCRIPTIVE CATALOGUE of CHOICE and RARE PLANTS.

BEATON'S GERANIUMS.

THE LATEST PRODUCTIONS OF THIS SUCCESSFUL HYBRIDIST.

A SPECIAL CERTIFICATE WAS AWARDED TO BEATON'S GERANIUMS BY THE ROYAL HORTICULTURAL SOCIETY ON THE 2nd MAY LAST.

A Set of 10 Varieties, new style and colours, £2 0 0

Order at once of any Nurseryman, or direct from

WILLIAM PAUL, WALTHAM CROSS, LONDON, N.

Where the varieties may be seen in Bloom. For full descriptions see SPRING CATALOGUE.

NEW PLANTS FOR 1865.

JAMES CARTER & CO.

HAVE MUCH PLEASURE IN

CALLING ATTENTION TO THE UNDERMENTIONED

FIRST-CLASS NEW BEDDING GERANIUMS, &c.

WHICH THEY ARE NOW PREPARED TO SEND OUT.

Beaton's Hybrid Bedding Geraniums.

BEATON'S PERFECTION (Beaton). Price 5s. each.
PREMIER (Beaton). Price 5s. each.
FORESTER (Beaton). Price 5s. each.
WILD CHARLIE (Beaton). Price 5s. each.
NEW VARIEGATED TRICOLOR BEDDING GERANIUM SUNRISE (Carter). Price 7s. 6d. each.

☞ The Set, 1 plant of each of the above, 21s.

NEW TROPÆOLUM DOUBLE TOM THUMB. Price 2s. 6d. each; per dozen, 18s.; per 25, 30s.; per 50, 50s.
NASTURTIUM KING of TOM THUMBS. Price 1s. 6d. each; per dozen, 12s.; per 25, 20s.

New Clove Carnations.

GENERAL LEE. Price 5s. each.
GOLIATH. Price 5s. each.
ASTELMA LANATA. Price 1s. 6d. each; per dozen, 12s.

New Single Petunias.

Nos.
1. ARABELLA, light rosy lake, white throat, a novel and most beautiful colour.
2. BEATRICE, rose edge, very dark throat, exquisitely pencilled.
3. CHRISTABEL, splendid deep crimson, fine for a bed entirely of this colour.
4. DINORAH, white margin, and flaked with deep crimson.
5. EMMELINE, very compact habit, free bloomer, bright rose, pencilled dark throat.
9. FREDERICA, crimson, in the way of Magna Coccinea, but more substance.
12. GERTRUDE, large rose, of exquisite form, white throat.
14. HELEN, deep lilac, pencilled with black, fine novel colour.
15. ISABEL, immense flower, with white ground, striped and flaked purple.

Price, each, 1s. 6d.; the Set, 10s. 6d.

NEW PLANTS OF 1864.

We are now able to offer some of the most desirable Novelties sent out in 1864, at the following very reduced prices:—

BEATON'S CYBISTER GERANIUM.
Price 1s. each; 9s. per dozen; 30s., 50; 50s., 100.

ORNITHOGALUM THYRSOIDES ALBUM.
See Plate in "Vade Mecum," Part IV.
Price 2s. 6d. to 3s. 6d. each.

IRESINE HERBSTII (Syn. Achyranthes Verschaffelti).
Price 1s. each; 9s. per dozen.

LILIUM AURATUM.
Strong Flowering Bulbs established in pots, 5s., 7s. 6d., and 10s. 6d. each; Small Bulbs, 3s. 6d. each.

*** For descriptions of above see J. C. & Co.'s CATALOGUE of NEW and CHOICE PLANTS, just published, and which will be forwarded Gratis and Post Free on application.

JAMES CARTER and CO., SEED MERCHANTS and NURSERYMEN,
237, 238, & 261, HIGH HOLBORN, W.C.;
CRYSTAL PALACE NURSERY, PERRY HILL, SYDENHAM, S.E.; DEDHAM and ST. OSYTH, ESSEX.

TABER'S PREPARED TURNIP SEED AGAINST THE FLY.

WORTHY THE ATTENTION OF ALL TURNIP GROWERS.

G. TABER has succeeded in DRESSING TURNIP SEED AGAINST the FLY, which the following Testimonials will bear witness to:—

"Porter's Hall, Stebbing, May 12, 1865.
"Dear Sir,—I have for three years used your Prepared Turnip Seed against the fly, and with perfect success. Until I used your dressed Seed, I frequently lost my plant of Turnip from the fly; since I have used it, I have not had to sow a second time, and have much pleasure in giving my testimony to its benefit.—Yours truly, John Hutley."
"To Mr. Taber."

"The Boarded Barns, Chelmsford, May 5, 1865.
"Dear Sir,—I have used some of your Turnip Seed prepared against the ravages of that destructive insect known as the Turnip Beetle, and can testify to its intended efficacy.
"To Mr. Taber." "Yours truly, W. F. Josling."

"Inworth Hall, June 29, 1864.
"Dear Sir,—I am happy to inform you that I have a very good plant of Swedes from the Prepared Seed you sent me (for about three pints of Seed per acre), and the flies have not, as you said, touched them. I will thank you to send me by bearer, a peck of the best White Seed you have, prepared against the fly for spring feeding. You are at liberty to make whatever use you please of this note, as I feel that I and the public are much indebted to you for having found out this remedy, for the safety of our plants.
"To Mr. Taber." "I am, dear Sir, yours truly, J. S. Surridge."

SKIRVING'S IMPROVED PURPLE-TOP SWEDE.
GREEN-TOP SWEDE.
EAST LOTHIAN PURPLE-TOP.
YELLOW TANKARD, for Early Feeding.

WHITE GLOBE.
RED GLOBE.
GREEN ROUND.
HEREFORDSHIRE WHITE.

Prepared Turnip Seed, 1s. per pint, bags included.
Not Dressed, 9d. per pint, bags included.

GEORGE TABER, RIVENHALL, ESSEX.

N.B. A remittance from unknown Correspondents, per Cheque or Post-office Order, payable at Witham, Essex.

PETER LAWSON & SON,

THE QUEEN'S SEEDSMEN,

28, KING STREET, CHEAPSIDE, LONDON, E.C.; and at EDINBURGH.

LISTS OF ALL SORTS OF SEEDS AND PLANTS SENT FREE ON APPLICATION.

ROBERT PARKER begs to offer the following, all of which are well-grown, clean, and healthy plants:—

	s.	d.
CLERODENDRON BALFOURII	5	0
CORDYLINE INDIVISA	10	6
FRANCISCEA CALYCINA	10	6
GOODYERA PUBESCENS	1	6
RHODODENDRON COUNTESS of HADDINGTON	10	6
" JAVANICUM	2	6
" NUTTALLII	2	6
TRITOMA GRANDIS	3	6
" UVARIA GLAUCESCENS	1	6
VINE DUCHESS of BUCCLEUCH	21s. and 42	0
YUCCA ALBO SPICA	42	0
" TRECULEANA	42	0

PRICED and DESCRIPTIVE CATALOGUES of Greenhouse, Hardy, and Stove Plants, Seeds and Bulbs, are published, and will be forwarded to applicants.

Exotic Nursery, Tooting, Surrey, S.

W. WITTY AND SON, NURSERYMEN, Cottingham, near Hull, have much pleasure in sending out the following NEW VERBENAS, which were raised by Mr. C. CORLAS, of Hull, who has been so successful a Grower and Exhibitor for so many years. The following New Varieties were exhibited by him this last year, at the undernamed Shows:—

1st prize, Beverley; 1st, Hull; 1st, Bridlington; 1st, Leeds; 1st, Cottingham; 1st, Withernsea; 1st, Hedon; 1st, Hornsea.

CONSTELLATION, rosy lake tinged with violet, large yellow eye, fine shape, large truss, distinct. [truss.
EUPHEMIA, deep rose, dark eye, encircled with white, extra large
KINGSTON, pale rosy lilac, deep centre, fine truss, effective.
LUCRECE, bright rosy pink, carmine centre.
MODESTY, pink tinted purple, canary eye.
TRIUMPH, rich rosy pink, tinted blue, carmine centre, bold broad petals, fine truss, extra.
CON-AMORE, claret tinted maroon, extra large white centre, very pretty. Price 3s. 6d. each, or 21s. the Set.

BEDDING PLANTS.
VERBENAS, fine selections, 100 in 50 vars., 18s.
CALCEOLARIAS, best bedding varieties, 3s. and 4s. per doz.
SENECIO ELEGANS NANA (new dwarf Jacobæa), very dwarf, bushy, and splendid, only 4 to 6 inches high, in 3 varieties, 4s. per doz.
SENECIO ELEGANS CUPREATA NANA (newest), fine crimson red, 9s. per doz.
MIMULUS, three beautiful new vars., Aurantiaca, Cupreus Major, and Gem, 1s. 6d. each.
GAZANIAS, three fine new vars., 1s. each.
GAZANIA SPLENDENS, 4s. per doz.; 25s. per 100.
Finest FUCHSIAS, PENTSTEMONS, PHLOX, LOBELIAS, PETUNIAS, DAHLIAS, &c., &c.
CATALOGUES free on application.
STEPHEN BROWN, Seed and Nursery Establishment, Sudbury, Suffolk.

Cheap Bedding Plants.
PETER DRUMMOND AND CO. have a Surplus Stock of the undermentioned BEDDING PLANTS, which they offer at the very low prices named. The Plants are extra fine and well-established in single pots.

	Per doz.—s.	d.		Per doz.—s.	d.
Ageratums	1	6	Heliotropes	2	0
Convolvulus Mauritanicus	2	0	Heliotropes in store pots	1	0
Dahlias of sorts	2	0	Lantanas	2	0
Fuchsias of sorts	2	0	Pentstemons	2	0
Gazanias	2	0	Tritomas	2	0
Geraniums, Variegated, in 24 sorts	2	0	Verbenas in 100 varieties per 100,	15	0
Arctotis repens	2	0	Sedum carneum variegatum	1	0
Antennaria margaritacea	1	3	Stachys lanata	1	0
Centaurea candidissima	4	0	Agathæa cœlestis variegata	2	0
Cerastiums, sorts	1	3	Arabis alba variegata	1	3
Cineraria maritima	2	0	Veronica Andersonii variegata	2	0
Diotis maritima	2	0	Vinca major variegata	2	0
Santolina incana	2	0			

A Choice Selection of many other varieties at equally low prices.
PETER DRUMMOND & Co., Preston Road Nursery, Yeovil, Somerset.

ROYAL BOTANIC SOCIETY,

REGENT'S PARK.

FIRST EXHIBITION of PLANTS and FLOWERS, WEDNESDAY, MAY 24.

LIST OF AWARDS.

EXTRA GOLD MEDAL.

To Mr. B. Peed, Gr. to Mrs. Tredwell, St. John's Lodge, Norwood, for 16 Stove and Greenhouse Plants
To Mr. G. Baker, Gr. to A. Bassett, Esq., Stamford Hill, for 20 Exotic Orchids

LARGE GOLD MEDAL.

To Mr. F. Whitbread, Gr. to H. Collyer, Esq., Dartford, Kent, for 16 Stove and Greenhouse Plants
To Mr. R. Bullen, Gr. to A. Turner, Esq., Bowbridge House, Leicester, for 20 Exotic Orchids

MEDIUM GOLD MEDAL.

To Messrs. H. Lane & Son, Nurserymen, Great Berkhampstead, Herts, for 10 Roses in pots
To Mr. W. Kaile, Gr. to Earl of Lovelace, East Horsley Towers, Ripley, Surrey, for 16 Stove and Greenhouse Plants
To Messrs. J. & C. Lee, Nurserymen, Hammersmith, for 10 Stove and Greenhouse Plants
To Mr. H. Chilman, Gr. to Mrs. Smith, Ashtead House, Epsom, for 10 Stove and Greenhouse Plants
To Mr. J. Veitch, Nurseryman, Chelsea, for 8 Greenhouse Azaleas
To Mr. S. M. Carson, Gr. to W. R. G. Farmer, Esq., Nonsuch Park, Cheam, Surrey, for 8 Greenhouse Azaleas
To Mr. T. Page, Gr. to W. Leaf, Esq., Park Hill, Streatham, for 20 Exotic Orchids
To Mr. C. Penny, Gr. to H. H. Gibbs, Esq., St. Dunstan's, Regent's Park, for 12 Exotic Orchids
Mr. T. Bailey, Gr. to T. T. Drake, Esq., Shardeloes, Amersham, Bucks, for 10 Pelargoniums

GOLD MEDAL.

To Mr. J. Fraser, Nurseryman, Leyton, Essex, for 10 Stove and Greenhouse Plants
To Mr. T. Page, Gr., for 10 Stove and Greenhouse Plants
To Messrs. J. & C. Lee, for 15 Foliage and Flowering Plants
To Mr. O. Rhodes, Nurseryman, Sydenham Park, Kent, for 10 Cape Heaths
To Mr. B. Peed, Gr., for 8 Cape Heaths
To Mr. J. Fraser, for 8 Greenhouse Azaleas
To Mr. G. Wheeler, Gr. to Sir F. H. Goldsmid, Bart., St. John's Lodge, Regent's Park, for 8 Greenhouse Azaleas
To Mr. B. Peed, Gr., for 20 Exotic Orchids
To Mr. W. Wilson, Gr. to W. Marshall, Esq., Clay Hill, Enfield, for 12 Exotic Orchids
To Mr. W. Paul, Nurseryman, Waltham Cross, for 10 Roses in Pots
To Mr. C. Turner, Nurseryman, Slough, Bucks, for 12 Pelargoniums

LARGE SILVER GILT MEDAL.

To Mr. O. Rhodes, for 10 Stove and Greenhouse Plants
To Mr. A. Ingram, Gr. to J. J. Blandy, Esq., High Grove, Reading, Berks, for 10 Stove and Greenhouse Plants
To Mr. W. Kemp, Gr. to Earl Percy, Albury Park, Guildford, Surrey, for 6 Stove and Greenhouse Plants
To Mr. B. S. Williams, Nurseryman, Holloway, for 15 Stove, Greenhouse, and Foliage Plants
To Messrs. T. Jackson & Son, Nurserymen, Kingston, for 10 Cape Heaths
To Mr. T. Page, Gr., for 8 Cape Heaths
To Mr. O. Rhodes, for 8 Greenhouse Azaleas
To Mr. T. Page, Gr., for 8 Greenhouse Azaleas
To Mr. C. Penny, Gr., for 6 Greenhouse Azaleas
To Mr. C. Turner, for 6 Greenhouse Azaleas
To Messrs. T. Jackson, for 6 Exotic Orchids
To Mr. G. Young, Gr. to W. H. Stone, Esq., Leigh Park, Havant, Hants, for 12 Exotic Orchids
To Mr. J. Wiggins, Gr. to W. Beck, Esq., Worton Cottage, Isleworth, for 6 Exotic Orchids
To Messrs. Paul & Son, Nurserymen, Cheshunt, Herts, for 10 Roses in Pots
To Mr. T. Terry, Gr. to A. G. Puller, Esq., Youngsbury, Ware, Herts, for 6 Roses in Pots
To Mr. J. Fraser, for 12 Pelargoniums
To Mr. J. Wiggins, Gr., for 10 Pelargoniums

LARGE SILVER MEDAL.

To Mr. J. Wheeler, Gr. to J. Philpott, Esq., Stamford Hill, for 6 Stove and Greenhouse Plants
To Mr. H. Chilman, Gr., for 6 Exotic Orchids
To Mr. T. Todman, Gr. to R. Hudson, Esq., Clapham Common, for 6 Greenhouse Azaleas
To Mr. J. Veitch, for 6 Greenhouse Azaleas
To Mr. J. Fraser, for 6 Fancy Pelargoniums
To Mr. T. Bailey, Gr., for 6 Fancy Pelargoniums

SILVER GILT MEDAL.

To Mr. R. Baxendine, Nurseryman, Guildford, Surrey, for 10 Stove and Greenhouse Plants
To Mr. S. M. Carson, Gr., for 10 Stove and Greenhouse Plants
To Mr. C. Smith, Gr. to A. Anderson, Esq., Norwood Grove, Norwood, for 6 Stove and Greenhouse Plants
To Mr. R. Baxendine, for 10 Cape Heaths
To Mr. J. Wheeler, Gr., for 6 Cape Heaths
To Mr. T. Whitbread, Gr., for 8 Greenhouse Azaleas
To Mr. A. Ingram, Gr., for 6 Greenhouse Azaleas
To Messrs. H. Lane & Son, for 6 Greenhouse Azaleas
To Mr. A. Ingram, Gr., for 12 Exotic Orchids
To Mr. J. Wheeler, Gr., for 6 Exotic Orchids
To Mr. J. Fraser, for 6 Fancy Pelargoniums
To Mr. J. Weir, Gr., for 6 Fancy Pelargoniums
To Mr. J. James, Gr. to W. F. Watson, Esq., Isleworth, for Collection of Calceolarias
To Mr. E. P. Francis, Nurseryman, Hertford, for 10 Roses in pots

SILVER MEDAL.

To Mr. G. Wheeler, Gr., for 10 Stove and Greenhouse Plants
To Mr. G. Young, Gr., for 6 Stove and Greenhouse Plants
To Mr. C. Smith, Gr., for 6 Cape Heaths
To Mr. A. Ingram, Gr., for 6 Cape Heaths
To Mr. W. Kaile, Gr., for 6 Greenhouse Azaleas
To Mr. J. Fraser, for 6 Greenhouse Azaleas
To Mr. H. Chilman, Gr., for 6 Exotic Orchids
To Messrs. Paul & Son, for Boxes of Roses
To Mr. W. Paul, for Boxes of Roses
To Mr. C. Turner, for Collection of Pot Roses
To Messrs. H. Lane, for Collection of Azaleas

SMALL SILVER MEDAL.

To Mr. H. Chilman, Gr., for 6 Greenhouse Azaleas
To Mr. B. S. Williams, for 6 Greenhouse Azaleas
To Mr. J. Robson, Gr. to G. Cooper, Esq., Coburg Road, Old Kent Road, for 6 Exotic Orchids
To Mr. G. Wheeler, Gr., for 6 Cape Heaths
To Messrs. F. & A. Smith, Nurserymen, Dulwich, for 6 Cape Heaths
To Messrs. Downie, Laird, & Laing, for 36 Pansies
To Mr. J. James, Gr., for 24 Pansies
To Messrs. J. Ivery & Son, for Collection of Ferns

BRONZE MEDAL

To Mr. H. Hooper, Nurseryman, Bath, for 36 Pansies
To Mr. D. Kingston, Bath, for 24 Pansies
To Mr. C. Turner, for Collection of New Azaleas
To Messrs. Downie, Laird, & Laing, for 36 Fancy Pansies

CERTIFICATE.

To Mr. C. Turner, for Lilium auratum
To Mr. W. Bull, for Collection of Palms

FIRST-CLASS CERTIFICATES of MERIT.

To Messrs. J. Veitch & Son, Chelsea, for Dieffenbachia grandis
To Messrs. J. Veitch & Son, Chelsea, for Anthurium cordifolium
To Messrs. J. Veitch & Son, Chelsea, for Maranta Veitchii
To Messrs. J. Veitch & Son, Chelsea, for Peperomia acuminata
To Messrs. J. Veitch & Son, Chelsea, for Retinospora obtusa nana
To Messrs. J. Veitch & Son, Chelsea, for Bertolonia pubescens
To Messrs. T. Jackson & Son, Kingston, for Columnea erythrophlæa
To Messrs. T. Jackson & Son, Kingston, for Clerodendron Thomsonæ
To Mr. W. Bull, Chelsea, for Asplenium myriophyllum
To Mr. W. Bull, Chelsea, for Sphærogyne cinnamomea
To Mr. W. Bull, Chelsea, for Anthurium cordifolium
To Mr. W. Bull, Chelsea, for Retinospora leptoclada
To Mr. W. Bull, Chelsea, for Calonyction sanguineum
To Mr. W. Bull, Chelsea, for Ficus Porteana
To Mr. W. Bull, Chelsea, for Aucuba japonica mas.
To Mr. W. Bull, Chelsea, for Aucuba japonica macrophylla
To Mr. W. Bull, Chelsea, for Aucuba japonica longifolia fœm.
To Mr. W. Bull, Chelsea, for Aucuba jap. longifolia fœm. var.
To Mr. W. Bull, Chelsea, for Aucuba japonica mas. variegata
To Mr. W. Bull, Chelsea, for Aucuba japonica mas. angustata
To Mr. W. Bull, Chelsea, for Aucuba japonica mas. bicolor
To Mr. W. Bull, Chelsea, for Maranta Van den Heckei
To Mr. W. Bull, Chelsea, for Woodsia polystichoides Veitchiana
To Mr. W. Bull, Chelsea, for Cupania undulata
To Mr. W. Bull, Chelsea, for Athyrium Filix-fœm. Vernoniæ
To Mr. W. Bull, Chelsea, for Pelargonium lateripes Silver Gem
To Mr. W. Bull, Chelsea, for Aubrietia purpurea variegata
To Mr. W. Bull, Chelsea, for Bougainvillea species
To Mr. W. Bull, Chelsea, for Bertolonia margaritacea
To Messrs. E. G. Henderson & Son, for Centaurea ragusina compacta
To Messrs. H. Low & Co., Clapton, for Erica insignis
To Messrs. J. Ivery & Son, Reigate, for Athyrium F.-f. ramosum cristatum
To Messrs. J. Ivery & Son, Reigate, for Scolopendrium vulgare variegatum
To Mr. W. Bull, for Dieffenbachia grandis
To Mr. W. Thompson, for Aquilegia cœrulea
To Mr. W. Thompson, for Pentstemon acuminatum var. Fendleri
To Mr. W. Nye, Gr., Clewer Manor, for Pelargonium Elegans
To G. W. Hoyle, Esq., Reading, for Pelargonium Charles Turner
To G. W. Hoyle, Esq., Reading, for Pelargonium William Hoyle
To G. W. Hoyle, Esq., Reading, for Pelargonium Lady of Quality
To Mr. C. Turner, for Pelargonium Clytie
To Mr. W. Bull, for Mimulus duplex

SECOND-CLASS CERTIFICATES of MERIT.

To Messrs. J. Ivery, for Asplenium Adiantum-nigrum microdon
To Messrs. J. Ivery, for Scolopendrium vulgare fissum latum
To Messrs. J. Ivery, for Athyrium F.-f. Fieldiæ compositum
To Mr. W. Bull, for Pandanus glaucescens
To Mr. W. Bull, for Lomatia elegantissima
To Mr. W. Bull, for Lychnis Senno variegata
To Mr. W. Bull, for Aralia heteromorpha
To Mr. W. Bull, for Amorphophallus zebrinus
To Mr. W. Bull, for Pharus vittatus
To Mr. W. Bull, for Ligustrum ovalifolium variegatum
To Mr. W. Bull, for Sedum aizoides variegatum
To Mr. W. Bull, for Ophiopogon Juburan variegatum
To Mr. W. Bull, for Saurauja saurapigiensis
To Mr. J. Veitch, for Peperomia maculosa
To Mr. J. Veitch, for Schismatoglottis species
To Mr. J. Veitch, for Peperomia arifolia
To Mr. J. Veitch, for Odontoglossum cordatum
To Mr. J. Veitch, for Adiantum species

COMMENDATION.

To Mr. W. Bull, for Cissus amazonica
To Mr. W. Bull, for Podocarpus macrophyllus fol. var.
To Mr. W. Bull, for Abutilon striatum fol. var.
To Mr. W. Bull, for Viburnum Lantana fol. var

PELARGONIUM MRS. POLLOCK.—Small Plants in 60-pots at 2s. 6d. each; Larger Plants well established in 48-pots, 4s. and 5s. each.

VARIEGATED-LEAVED PELARGONIUMS.

	Per dozen.—s.	d.		Per dozen.—s.	d.
Cloth of Gold	3	0	Variegated Nosegay	6	0
Golden Fleece	2	6	Countess of Warwick	4	0
Golden Chain	2	6	Alba marginata	6	0
Bijou	3	0	Alma	3	0
Shottesham Pet	3	6	Eva	3	6
Jane	3	6	Bridal Wreath	4	0
Flower of the Spring	3	6	Daybreak	4	0
Julia	3	6	Scintillatum	6	0
Beaton's Silver Nosegay	6	0	St. Clair	3	6

ZONATE and PLAIN-LEAVED VARIETIES.

	Per dozen.—s.	d.		Per dozen.—s.	d.
Madame Vaucher	6	0	Punch	3	0
Christina	3	0	Countess	3	0
Rose Queen	3	6	Aurora	6	0
Blackheath Beauty	3	6	Lady Middleton	3	0

Paul Labbé .. .. .. 3s. 6d.

All the above are strong autumn-struck Plants, well hardened, ready for bedding out.
ALFRED FRYER, Nurseryman, Chatteris, Cambridgeshire.

GRAND FLORAL FETE and ROSE SHOW at YORK, JUNE 14 and 15. Prizes nearly £400.
EXTRACT from SCHEDULE.

PLANTS, Open to all.—12 Stove and Greenhouse Plants in Bloom, distinct varieties (Orchids excluded), 1st Prize, £12; 2d, £8; 3d, £6; 4th, £4. 6 Orchids, distinct varieties, 1st, £6; 2d, £4; 3d, £2. 12 Ornamental, Fine Foliage, or Variegated Plants, 1st, £6; 2d, £4; 3d, £3; 4th, £2. Heaths, 1st, £6; 2d, £4; 3d, £2. 12 Pelargoniums, 1st, £10; 2d, £6; 3d, £4; 4th, £2. 9 Pelargoniums, Fancies, 1st, £6; 2d, £4; 3d, £2; 4th, £1. Single Specimen New Stove Plant, 1st, £1; 2d, 10s. Do. do. New Greenhouse Plant, 1st, £1; 2d, 10s. Do. do. New Fern, 1st, £1; 2d, 10s. Do. do. New Hardy Plant, 1st, £1; 2d, 10s.

PLANTS, Open to Amateurs and Gentlemen's Gardeners.—6 Stove and Greenhouse Plants, in Bloom, distinct varieties (Orchids excluded), 1st, £6; 2d, £4; 3d, £3; 4th, £2. 3 do. do. do., 1st, £3; 2d, £2; 3d, £1 10s.; 4th, £1. 6 Ornamental, Fine-foliage or Variegated Plants, 1st, £3; 2d, £2; 3d, £1 10s.; 4th, £1. 6 Pelargoniums, in pots, distinct varieties, 1st, £5, 2d, £3; 3d, £2; 4th, £1. For the best single specimen Orchid, 1st, £3.

ROSES, Open to all.—6 distinct varieties of Roses, in pots, 1st, £6; 2d, £4; 3d, £3. 9 do. do. do., 1st, £4; 2d, £3; 3d, £2. Open to Amateurs and Gentlemen's Gardeners.—6 distinct varieties of Roses, in pots, 1st, £3; 2d, £2; 3d, £1. 3 do. do. do., 1st., £1 10s.; 2d, £1; 3d, 15s.

ROSES, CUT BLOOMS, Open to all.—48 distinct varieties of Roses, single blooms, 1st, £6; 2d, £4; 3d, £3. 36 distinct varieties of Roses, single blooms, 1st, £5; 2d, £3; 3d, £2. Open to Amateurs and Gentlemen's Gardeners.—18 distinct varieties of Roses, single blooms, 1st, £2; 2d, £1 10s; 3d, £1. 12 distinct varieties of Roses, single blooms, 1st, £1; 2d, 15s.; 3d, 10s. 6 distinct varieties of Roses, single blooms, 1st, 10s.; 2d, 7s. 6d.; 3d, 5s. Open to all.—Best 24 distinct varieties of Roses, in trusses of three, with foliage, 1st, £5.

Schedules and Forms of Entry may be had on application to JOHN WILSON, Secretary, Committee Room, 13, New Street, York.

THE ROYAL HORTICULTURAL SOCIETY.—PRIZES OFFERED to EXHIBITORS at the Fellows' SATURDAY WEEKLY SHOWS, 1865:—

A 1st Gold Banksian Medal for every 20 First-class Certificates gained by an Exhibitor.

A 2d Gold Banksian Medal for every 20 Second-class Certificates gained by an Exhibitor.

A Silver Flora Medal for every 20 Commendations gained by an Exhibitor.

A Gold Medal, to be termed the Prince Consort's Medal, to the Exhibitor who shall, during the course of the year, gain the greatest number of marks, reckoning a First-class Certificate as 7 marks, and a Second as 5 marks.

PRIZES OFFERED BY HIS GRACE THE DUKE OF BUCCLEUCH, PRESIDENT OF THE SOCIETY.

A Prize of £15 to the Exhibitor who, during the year, shall have obtained the greatest number of First-class Certificates.

A Prize of £10 to the Exhibitor who, during the year, shall have obtained the greatest number of Second-class Certificates.

The Gardeners' Chronicle.
SATURDAY, MAY 27, 1865.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY,	May	30	Royal Horticultural (Floral and Fruit Committee), at S. Kensington	Noon
			Do. (Scientific Discussion)	3 P.M.
THURSDAY,	June	1	Linnean	8 P.M.
SATURDAY,	—	3	Royal Horticultural (Special Exhibition of Pelargoniums), at S. Kensington	2 P.M.

A FEW weeks ago, when attention was drawn to several kinds of SPOT IN ORCHIDS, one affection was pointed out which is more speedy in its operations than all the rest, and which attacks more especially the young leaves in the centre of the plant, reducing the finest specimens to a hopeless state in the course of a few days. The cause of this was quite uncertain, for though in some individuals a Fungus appears on the fox-coloured diseased leaves, yet in some of the most virulent cases there is no trace of any parasite.

After these remarks were published, we received information that Mr. RUCKER's valuable collection of Orchids was suffering from a minute parasite which attacked the roots, and we have subsequently received a specimen from his gardener which shows that the disease is identical, at least as far as can be judged from outward appearance, with the virulent affection mentioned above. The leaf is covered with a white byssoid web studded with little snow-white balls, which is said to run over the Sphagnum in which the plants are grown, as well as the Orchid. This circumstance alone made us at once doubtful whether the fungous matter in question was the real enemy, and on examining the parasite itself we are still more doubtful, as it has no perfect fruit, and can be regarded only as a mycelium, and probably is a condition of some Agaric. We know indeed that such productions are often injurious, but as the disease appears to be specific, and is unfortunately far from being confined to one establishment, we hesitate to form any final judgment till we ascertain what the ultimate development of the mycelium may be, and whether the same Fungus appears in other collections.

It is needless to enter here into the minute structure of the parasite, sketches illustrative of which have been exhibited at the Horticultural

Society, accompanied by the expression of a wish that Orchid growers would turn their attention to the subject.

While on this matter it may not be uninteresting to state that the spotted leaves communicated by Major Clark, demonstrating the fact that spot occurs on Orchids in their native place of growth, now they are dry are covered with black specks, each of which indicates the position of a fungous cyst in the parenchym of the leaf. *M. J. B.*

Amongst the many useful and ornamental forest trees which have been introduced to Europe from foreign countries, the Douglas Fir is certainly one of the most important. It is perfectly hardy in our climate, it forms a beautiful tree on our lawns, or in our pleasure grounds, it attains a gigantic size, and its timber is of very superior quality. Such being the case, it becomes a matter of the first importance to ascertain, if possible, the reason why those plants of this and other valuable Conifers, which have been raised from seeds ripened in Britain, often become unhealthy, and appear as if their existence would be limited to a very few years. Mr. McNab, of the Royal Botanic Garden, Edinburgh, produced evidence of the strongest kind, and laid it before the Botanical Society (see p. 222), to prove that seedlings raised from seeds produced in Scotland had invariably become sickly in the Edinburgh Garden, and were evidently dying out, while others, which had been raised from Californian seeds, were in a healthy and vigorous condition, although growing under the same conditions and in the same soil. The original trees in the Botanic Garden (introduced by Douglas) as well as those recently raised from seed direct from the American Continent, it was observed, are of a rich green colour, having straight clean stems, "while the majority of those raised from British-ripened seeds have their leaves somewhat shortened, and are of a yellowish-green tint, with bare undulated stems, and branches more or less covered with resinous warts. Many of the plants raised from home-ripened seeds have a sickly look and a stunted appearance, notwithstanding that many of them had reached the age of from 14 to 15 years. The soil of the Botanic Garden is naturally of a light sandy description, and it may seem curious that the trees of the Douglas Pine of foreign introduction should do well, while the British seedlings in so many instances should dwindle away."

We have lately had an opportunity of examining many of the seedling trees in the Edinburgh Garden, to which Mr. McNab alluded in his paper, and unfortunately there can be no question as to the correctness of his observations. There can be no doubt of this being a fact, viz., that all the plants raised from home-saved seeds are in an unhealthy state, and appear as if they would never form trees of any value, either for ornament or for timber. We found some beautiful trees of the same species in the most robust health, which had been raised from seed which had been imported from California many years ago by the Horticultural Society of London through Mr. Douglas himself, who was the Society's collector in that country.

Nor is it the Douglas Pine only which appears to degenerate in this country. Abies Menziesii, A. nobilis, and others, when raised from home-saved seeds, show early symptoms of weakness and disease. Plants raised from the seed of the former, which had been produced by a tree growing in the Keillour Muir Pinetum, Perthshire, the property of William Thomson, Esq., of Balgowan, and which had been presented by that gentleman to the Edinburgh Garden, do not exhibit the health and vigour of the parent tree. Of A. nobilis Mr. McNab remarks:—"The seedlings vary much, but none of them possess the vigour of foliage exhibited by the large tree now growing in the Botanic Garden, raised from seed originally sent home by Mr. Douglas, or even the plants reared from layers and cuttings taken from the original trees. The British seedlings look well till they get about 1 foot high, at which size they begin to assume a yellowish tint, and finally decay. Many of the seedlings are now dead, the largest having attained the height of 3 feet."

Our correspondent, Mr. C. W. Strickland, whose letter we published a short time ago (see p. 292) thinks that other causes may be to blame for the effects to which we have just alluded. He informs us he has found "these kinds of Fir exceedingly capricious as to the soil in which they will grow. Neither the Douglas Fir nor the Abies nobilis will live upon an oolitic soil. They turn yellow and die, exactly as is described in the paper referred to [Mr. McNab's]. But they will both thrive upon the sandy loam, which belongs to the beds of calcareous grit." And Mr. Strickland proves his statement by giving us examples of his own experience. He had a number of plants of the Douglas Fir, grown from English seed, which were dying as fast as they could do on the oolite. When removed to soil which suited them they soon recovered; their foliage is now of a healthy green colour, and they are growing vigorously.

Mr. Strickland's observations are exceedingly valuable to planters, and we can only hope that those who follow his example may meet with the same amount of success. Still, however, we have one of Mr. McNab's facts which cannot be explained on this theory. Whatever may be the nature of the subsoil in the Edinburgh Garden, it will be observed from the statements already made, that all the trees which have been raised from imported seeds, or propagated from them by cuttings or layers, are in a healthy condition, while those raised from home-saved seeds are fast dying out.

Granting it to be proved that seeds of these Pines saved in this country are liable to produce a diseased and short-lived progeny, it may be that there are two causes, either of which might produce the effects in question. The blossoms of the trees may have been fertilised with the pollen of other species growing in the same neighbourhood, and then a weak variety, differing from the original, may have been produced; or, as stunted unhealthy specimens are generally the first to produce seeds, they may have communicated their own constitution to their offspring. It is true that the specimen of Abies Menziesii growing in the Keillour Muir Pinetum cannot be charged with being unhealthy, for Mr. McNab tells us, it is without exception, one of the healthiest and finest trees in Europe, but he acknowledges at the same time that it is probable the female blossoms may have been fertilised with the pollen of other allied trees. And then, with reference to the noble specimens of the true Abies Douglasii which are growing in the Edinburgh Garden, they have not as yet produced perfect seeds; they are in high health, and if means can be used to have their blossoms fertilised with their own pollen when they are in flower, the progeny might throw some light on the important subject under discussion.

Mr. Gorrie, of Edinburgh, who has made Conifers a special study for many years, made some practical observations upon the subject at the meeting of the Botanical Society, which cannot fail to be acceptable to our readers. As to Abies Douglasii, he argued that it varied much in colour of foliage as well as in habit and vigour of growth, even when raised from Californian seeds. This, he said, was the case with plants raised from Douglas's seed, as well as from every supply of native seed he had seen grown. He was of opinion that weakness in the seedlings arose from the weaker or worst-growing subvarieties having produced the first and greatest quantity of seed in this country. And then he brought forward a fact that we have already mentioned, namely, that a robust, dark green, free-growing plant in the Royal Botanic Garden—one of Douglas's original plants—had not yet yielded perfect seed, but only two or three abortive cones. And until it, which he considered one of the right sort, produced good seed yielding a weak progeny, he could not admit that British-grown seeds necessarily produced degenerate plants.

The matter we have been discussing is really of considerable importance. Can we depend on home-grown seeds of these favourite Fir trees, or must we import them from abroad? There must be many persons in this country who are able to give the results of their observations on this point. What is the experience of the gentlemen planters in England, Scotland, or Ireland? or what say our professional men, such as Mr. Barron of Elvaston, Mr. Frost of Dropmore, Mr. Barnes of Bicton, and others who have long been rearing seedlings from the magnificent specimens in the collections under their charge? *F.*

—— Now that the energies of Exhibitors have begun to be directed towards Great Summer Shows, we trust that there may be no relaxation of the efforts hitherto made, with such excellent results, to render the South Kensington Scientific Tuesday Meetings so thoroughly interesting as to induce a large number of the Fellows and their friends to support them by their presence. Doubtless it will have occurred to many, as it has to ourselves, that it would be an improvement were a little more time allowed for the inspection of the numerous interesting novelties which are exhibited. At present ladies and others who take special interest in the subjects brought forward, can scarcely make their examination in comfort, for the room is generally crowded during the whole time the plants remain. We understand that some slight changes are in contemplation, with the view of affording greater facilities for a more complete examination than is now often possible; and we cannot but regard this as an improvement, which will not really inconvenience any one.

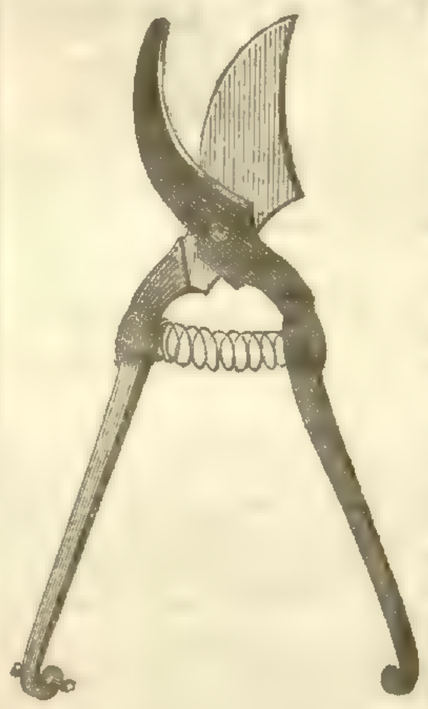
We understand that on Tuesday next Mr. Bateman will give some account of Cuitlauzinia pendula, and of a new African Angræcum brought home by Capt. Grant.

—— In the schedule of the Downpatrick Horticultural Show, which is to take place on the 31st of August next, is a section open to "children of the working classes, under 13 years of age, attending any school within the bounds of the Downpatrick Union." The subjects to be shown are chiefly Fuchsias, Pelargoniums, Mignonette, and Annuals, and the prizes vary from 1*s.* to 3*s.*

—— We understand that the African and Brazilian Collections of Plants, made by the late Dr. Burchell, have lately been presented to the Kew Herbarium by that traveller's surviving sister. The collections are stated to be large, and the specimens fine, and accompanied by a Geographical Catalogue.

SÉCATEUR LECOINTE.

We have already given representations of one or two forms of the Sécateur, a useful pruning instrument. But the Sécateur Lecointe now figured, from a sketch in the *Revue Horticole*, appears to have some advantages over them in the substitution of a coiled spring for the ordinary flat spring previously adopted. The inventor was led to devise this kind of spring in order to avoid the annoyance arising from the frequent breakage of the form usually employed.



It is said that this form of spring secures an easy and gentle action of the instrument, and has the advantage of lasting longer than others, from not being so liable to break, while it secures a firmness and evenness in working which is not otherwise attained. A further improvement is pointed out in the fastening, which consists of a stop which catches when the two handles are drawn together, a projecting portion on the outside acting as a spring which is to be pressed when the instrument is required to be opened. M. Lecointe, of Laigle, is the inventor.

SPRING AND EARLY SUMMER FLOWERING PLANTS.

It is very easy to write a list, but it is also easy to do a good deal of harm by so doing, for if a novice is induced to adopt certain plants, and then finds them worthless as objects of ornament, even in their best state, it is ten to one but he will throw up the experiment in disgust. I have seen the commonest and the most inconspicuous British and European weeds recommended in lists of spring flowers, with things that have never been introduced to the country! One can scarcely wonder why good hardy plants are so rarely seen, when such wretched advice is given about them. Fancy a confiding gardener making a bed of Nepeta Glechoma—the Ground Ivy! Here I will endeavour to make out a useful list, passing many good things of necessity, but, I hope, mentioning none unworthy of cultivation or uncultivable. I will not go through a large catalogue, such as that of Kew, *seriatim*, because the temptation to name every really good thing would be too strong, and would result in a list of inordinate length and variety, too long and varied to be useful.

To begin with the most useful genera. Iberis is the very best; at least three species are of great excellence, and should be in every garden. They are as hardy as Willows, and thrive as well in country gardens as in the neighbourhood of London. Nothing can surpass, nothing equals, the beauty of established plants of these, covered with a sheet of snowy blossoms. They require no care whatever after planting, will edge clumps of shrubs, &c., with a neat evergreen verge, and flower as freely at the end of April and beginning of May as the most free-blooming annual. They will bear any amount of clipping. Any place where the natural rock crops up, or half-wild stony ground exists, could be beautified to a surprising degree by these plants; but they grow in any soil or situation, stand the London smut unharmed, luxuriate on rockwork, and thrive well on level ground. Dwarf hedges, 9 inches to a foot high, of young Larch, Oak, &c., are sometimes used to surround clumps. Let any one contemplating such edgings try a closely and firmly planted margin of Iberis Garrexiana or saxatilis, and he will find that while it requires no clipping, nor ever looks an abortion, it will add greatly to the beauty of the garden in spring. Iberis corifolia and gibraltarica

are among the best species. The last named goes under many names in gardens, being generally named corifolia and correæfolia in the nurseries, where it is getting popular, but its right name is I. gibraltarica, for which I have the authority of Mr. Niven, of Hull, the great don amongst Alpine plant cultivators. "It is thoroughly hardy," says Mr. Niven, "though catalogued as tender, and lasts longer in bloom than any of the other species." It is the latest flowering kind, and all the more valuable for that, coming in when the others are past their best. On stiff cold soil it does not assume the neat habit of the others, but on rockwork, banks, and light soils, it is of a neat growth. I. Garrexiana is, I think, the most useful species of all, being the largest next to gibraltarica, of the freest growth, and literally covered with pure white flowers. I. saxatilis comes next in size and merit, coming in flower after Garrexiana. The Coris-leaved Iberis is the most compact of all, and becomes full of flower too, but it has not the snowy whiteness of the other species, as may be seen when large clumps of them are grown together, though well worth growing with the other three species. These plants should be plentifully planted in every garden: none are so valuable for dotting along the margins of shrubberies, edging clumps, &c. With these alone and a sprinkling of Daphne Cneorum, Aubrietias, Alyssum saxatile, Arabis albida, Erica carnea, Scilla campanulata and its fine white var., and Narcissus poeticus, a charming and telling display might be made in any out-of-the-way place, as they are all of the freest growth, and cannot easily be destroyed, except wilfully.

Phlox is, I think, next worthy of being recommended to the spring gardener, after Iberis—not the tall species, but the dwarf spreading and mossy ones that are covered with flowers in the early part of May. They should be largely grown. The old Phlox verna of gardens is a valuable plant, and where it does well, very showy and beautiful. For covering the little circles around standard Roses, for rockwork, for edgings round neat beds of shrubs, &c., this plant and its pigmy congeners are invaluable. At Glasnevin they use these little Phloxes about the Standard Roses, &c., but as they are evergreen, hardy, and tolerable to the eye at all seasons, the uses to which gardeners in private places might put them, are many. Phlox frondosa, lying on the ground with its dense branches thickly set with nearly sessile flowers, is one of the prettiest of spring flowers. P. Nelsoni, procumbens, and subulata are also first-rate.

Orobus, if it only contained a single species—vernus, is a fine genus for the gardener who wishes to make his place as beautiful as it should be in the end of April. This Mr. McNab grows, several fine varieties of it, in lines and in quantity in the Edinburgh garden. It makes beautiful round masses, smothered in flower in any good soil. At Kew it may be seen in fine trim at the proper season. It is one of the very best of all early flowering plants. Orobus, or Platystylis cyaneus, is another fine thing with blue flowers, large for a little plant, and flowers with its congener. O. flaccidus may also be recommended with these as first rate.

Anemone of course furnishes some of the loveliest ornaments of our spring, perhaps the best of which is A. apennina. In the open bed or border, in shade, in shrubbery or thin wood, it grows easily, and is one of the loveliest of all hardy plants, the fine blue flowers standing so prettily over the dense dwarf and pleasing foliage. It is one of the most desirable of all plants to "naturalise" in our shrubberies and semi-wilds—wilds, too, if possible. Then there is a light blue variety of the Wood Anemone, somewhat larger than the normal one; it is an exquisite plant, but, perhaps, too rare to recommend with the easily attainable subjects of this paper; one day it will be in the front rank of spring flowers. Of course other beautiful species might be mentioned were I not endeavouring, for the present, to deal with subjects that take care of themselves, and require almost as little care as the lawn Daisies. The Hepaticas need be only named—those who don't grow *them* can scarcely say they grow spring flowers at all.

For the margins of water or boggy moist ground, or, indeed, in almost any soil, Caltha palustris, the Marsh Marigold, and its fine double variety, which is sometimes brought to Covent Garden, are excellent plants, their lustrous golden colour not being equalled by any exotic. Let us fancy this is the first of May, and we are on the margin of the water: what is the most beautiful hardy herb in flower? Menyanthes trifoliata undoubtedly. There are Primulas and Dodecatheons in flower, and very lovely; Narcissus Bulbocodium, the distinct and finely coloured Hoop Petticoat; N. dubius, with cup and all of the purest white; N. poeticus, perhaps the queen of the genus; Phloxes, with myriads of flowers on a mossy carpet; and Trillium grandiflorum, with flowers nearly as large as those of the White Lily, and as white as—ah, I should like to know what is as white as Trillium grandiflorum where grown as it should be, in deep peat and nicely shaded. But the palm must be given to the Bog Bean, with its rosy buds and singularly beautiful expanded flowers, throwing its spikes abundantly and well above the water, above the leaves of Villarsia and Potamogeton, and peering here and there on the margins, through the Sedges and water Grasses. And this plant can be grown in every pond or muddy pool or ditch, or even moist spot. It may even be grown as a herbaceous plant, but that is not desirable, and can very rarely be necessary.

The many fine herbaceous Peonies are very useful, particularly where very showy flowers are prized; they will grow in almost any situation in a garden, and consequently fall in with my present subject. The Auricula in its common forms, and all the pretty Primulas, single, double, &c., will of course always hold a leading place among the floral beauties of April and May; but the best things in the family for the sort of gardening I am advocating are the many pretty and vigorous varieties of Polyanthus, and the finely coloured varieties of Primrose, which may be had so readily from seed, and do so well in shady places and shrubbery borders. There is one little plant I would particularly recommend for neat evergreen perennial edgings—Silene alpestris. It will furnish a mass of pretty pure white flowers, and is as hardy as Watercress. It would perhaps agree better with my select lot for the choice spring garden. But as it can be grown as easily as the Aubrietias, it might be advantageously associated with those most useful plants.

Clumps of Narcissus are very effective, and what is not always the case with "effective" plants, the flowers of some species beautiful and fragrant when closely examined. Among the best of those that are thoroughly hardy, and require moving only about as often as we take the census, N. maximus, of the finest golden colour throughout, N. poeticus, and N. odorus may be named. Scilla campanulata and its fine white variety are excellent plants to peep forth among low shrubs, &c. Of Tulips I should say the best is Gesneriana—it is certainly the strongest and most showy, and its varieties, the freest and most easily got of them, are at least as desirable for the early garden as the varieties of T. scabriscapa, which are now so common, and which it succeeds. Some species of Iris do finely among shrubs—I. ochroleuca to wit, and other large species too; and is the best Cattleya flower more beautiful than a bloom of such fine species as florentina, pallida, or the varieties of germanica?

It is almost impertinence for one to recommend the Crocus, for surely if it is difficult to paint the Lily, it is no less so to gild the "large yellow Crocus," or lay a delicate tint on "Sir Walter Scott?" But there are many gardens, and fine ones too in other respects, without Crocuses, and if not, with none but the common one. This could never be the case if people generally only knew what exquisite effects are produced by mixing the finer varieties in lines, edgings, &c. Nothing seen in the flower garden in autumn can equal the colouring produced by an equal mixture of Sir W. Scott, the large yellow, and the blue Crocus vernus. And afterwards you can mix your blue and white, and white and gold, and La Majestueuse and gold. Just consider how charmingly a neat geometrical garden might be embellished by a series of edgings of the kind; but these fine Crocuses will look even better near the indefinite margins of shrubs and spring-flowering evergreen herbs.

Cheiranthus ochroleucus and aurantiacus are two fine May-flowering plants, and the old double Wallflowers are better still for spring work, because they can be grown much more easily, are difficult to extinguish on light soils, and do well on banks and dry mounds, even on the heaviest. I have seen Omphalodes verna in Ireland, running wild among Lilies of the Valley in woody places, moist, and with a peaty soil. Doubtless, it would in many situations make a very pretty early spring-flowering naturalised subject. Lupinus polyphyllus, Galega officinalis alba and orientalis are noble and very useful early summer flowering plants, which will grow in shrubberies, &c., with about as much attention as is usually required by the Dandelion; they are moreover, useful for cutting. Forget-me-Nots are often grown, but the most satisfactory result I have seen from these was yielded by Myosotis palustris, flourishing with quite unwonted vigour and beauty amongst American plants in peat beds, in a moist and somewhat elevated district; and by Myosotis sylvatica, treated as a biennial, and used to a great extent in the spring bedding at Cliveden.

And now a word about the effect to be had from spring-flowering herbs. It is quite a mistake to suppose it cannot be had from them. If well done and permitted to establish themselves, they yield an effect superior to any early flowering shrubs or trees that I am acquainted with. We have no right to expect evergreen herbs like Iberis or Alyssum to flourish and bloom as they ought, when "pulled about," though they are worth growing even on that system. Erica carnea, Iberis Garrexiana, Alyssum saxatile, Aubrietia purpurea, and the new one now in the Wellington Nursery, if tastefully associated either as clumps or masses as usual on mixed shrubbery borders, or ranged in lines, would alone afford more effective colouring than any plants of the summer garden. Scarlet is absent, to be sure, but there is no white bedding plant can compare with established Iberis, no yellow with Alyssum, and "Purple King" the universal, monarch of summer blue, is inferior to Aubrietia for yielding masses of colour. Neither should we lack loud colour as long as the fine varieties of Anemone coronaria were to be had. Lathyrus Sibthorpii is a very fine early-flowering Everlasting Pea, grown by Mr. Baxter of Oxford.

I have omitted many plants for the sake of brevity, but those mentioned, if grown as I suggest, are quite sufficient to make a garden highly beautiful and interesting in spring, and as "gay" too, as could be desired. Annuals are far inferior to them for spring gardening, being as a rule too ragged, flimsy, transient, and troublesome. I know there are places where they sow bands of annuals round the shrubberies, which results in having the said shrubberies display an ugly naked margin for more than half the year, but by using the perennials mentioned, the borders are neatly furnished at all times, and the plants flower freely in due season. I may some day furnish the names of a hundred or so of the very best hardy herbaceous plants in the country, of varied size, capabilities, and times of flowering, knowing as I do that the want of a really good selection—one not containing a second-rate plant—is the great cause of these fine plants not being oftener seen. *Wm. Robinson.*

Home Correspondence.

Early Peas.—I have this week gathered a few very nice Peas from Sangster's No. 1. The seed was sown in the second week of December, and the plants have not received the slightest protection during the winter. *Thomas Woodford, Gardener to the Right Hon. the Earl of Winchilsea and Nottingham, Eastwell Park, Ashford, Kent, May 24.*

Names of Peas.—It is highly desirable that the number of sorts of Peas and other vegetables should be reduced by discarding those which are (though not identical) too similar to others. Your correspondent "Quo" has therefore undertaken good work, in which seedsmen and gardeners should be equally willing to assist him, but it is by no means an easy task. It should be attempted only by those who are well acquainted with the sorts already in cultivation, and all new kinds, or those offered as new, should be obtained direct from the parties offering them. This latter precaution could not have been taken in all cases by your correspondent "Quo," or he would not have fallen into the errors published at p. 388, wherein he says "Strathmore Hero and King of the Marrows appear identical," whereas the former is a white-seeded Pea and the latter a blue; and again, that Berkshire Hero is but a self of Tall Green Mammoth, whereas the former is much taller than the latter, with larger pods than any other Pea, and smooth seed of a dark olive colour, while the latter is blue wrinkled. Again, King of the Marrows and Tall Green Mammoth, which "Quo" names as two Peas, are really identical. We would not imply that the sorts named above are so distinct that all should be retained—quite the contrary; but that in justice to seedsmen who have sent them out in good faith as being new varieties, no such varieties should be declared identical, because they were discovered to be somewhat similar. In illustration of the importance of this principle, we may refer to two new varieties of early Peas introduced this season, "Sutton's Ringleader," and "Carter's First Crop," both of which are known by their raisers to have come from different stocks; yet they may some day be considered too similar to be both of them necessary in one garden. In our trial grounds Sutton's Ringleader came into bloom two days earlier than Carter's First Crop sown on the same day, under the same circumstances, and the pods on Ringleader are somewhat fuller than on Carter's First Crop. Nor is this the case in one trial only; yet we hear of another trial elsewhere in which the two sorts appeared to be equally forward, and in other respects also very similar, while both of them are considerably forwarder than the other Early Peas recently introduced. When it is satisfactorily ascertained which is the earliest and best of these two very early Peas, and which of them keeps most true to its character, gardeners will grow the one and discard the other as unnecessary, but it would be unjust to the seedsmen to declare them to have been but one Pea introduced under two names. An intelligent and judicious "weeding" of the numerous varieties of Peas now in cultivation would be as advantageous to seedsmen as to their customers, and none would be more willing to assist your correspondent "Quo" in the attempt than ourselves. *Sutton & Sons, Reading.*

Blind Strawberries.—The term "blind" is often applied to Strawberries when the flower-buds do not make their appearance much above the crown of the plant, and when they have apparently a great struggle to expand, doing so imperfectly, owing probably to the plants not being thoroughly ripened in the autumn. This immaturity will occur when the plants are potted late in the season, especially if placed in too large pots. Too much water at the roots will do the same thing, whether it be applied artificially, or when the plants are allowed to stand upright during heavy rains. This does not seem to be your correspondent's case, for we are given to understand that the flowers fully developed themselves and were in good health. The failure then may be attributed not to any deficiency in their management the autumn previous but to immediate causes, probably too much water overhead whilst in flower; this they are apt to get in a Peach-house or a Vinery, especially if they are set in front of the house, as your correspondent states his were. If placed on a shelf, however, against the back of the house, this can be avoided, and when thus placed few can say that they have failed to set them. Did your correspondent fumigate the house whilst they were in flower? or did he give them too much water overhead after the expansion of the flowers? If so, the difficulty is solved. If he has not committed himself in any of these ways, there is something novel in the failure. *W. P. R., Shrubland.*

[We may remind our correspondent that the term

"blind" is also commonly applied to Strawberry flowers when the corolla is present but the stamens are either defective or absent.]

How to Grow Celery.—Prepare a bed 6 to 12 feet wide, and as long as required; throw out the soil on each side to the depth of 6 or 9 inches, and fill up the trench nearly to its surface with thoroughly decomposed manure; thoroughly incorporate soil and manure together; plant out the plants 9 inches by 12 apart on this surface, and thoroughly soak the whole with water; if hot weather, shade for a few days. Next form an embankment 12 inches high all around this trench, and keep it constantly saturated with water—if manure water, so much the better, for depend upon it "good things come out of good conditions." As the plants grow, keep them loosely tied up, and rub off all suckers that grow out at the base of the leaves, which if left on would waste the substance and deteriorate the growth. The trench must not be allowed to become dry; it should be always like what the boys call "puddle." If proper attention is paid to this point, and also to planting it out early, Celery can be grown to a very large size before November. It should not be earthed up at all till about three weeks before it is required for use; four weeks' time at the utmost will blanch it as white as a Lily. In order to blanch it, the soil from the sides is thrown between the plants and nearly up to the tops of the leaves. So soon as the leaves fall from the trees, the beds should be covered entirely over with them, about 12 or 18 inches thick. You can then dig sweet crisp Celery all the winter, not a particle of frost reaching it. This is an American mode of culture. How would it answer here? *S. N.*

Foreign Correspondence.

French Gardens: *Paris, May* 23.—There is rather a good story told here of a man named Victor, who was set to straighten a piece of fencing that separates the public footpath from the Garden flanking either side of the Avenue de l'Imperatrice. Victor went to his task zealously and indefatigably; and there can be no doubt that previous to the commencement of his labours, the line of fence was in a very wibble-wobble state, and as it probably required a week's work or so, it was considered quite unaccountable that it should not have been attended to sooner; but strange to say, although it is nearly two years since he commenced it, he may still be seen daily rivetting and shifting, being apparently as far as ever from its completion; for as fast as one end of the line is set right, he always finds the other end has been getting out of order.

M. Barillet seems to experience much the same difficulty with his gardens as poor Victor with his fence. The Bois de Boulogne, Monceau, Vincennes, and numerous public gardens and squares, are continually taxing his ingenuity, and though ably supported by subordinates, as M. Laforcade (Gardener to the Bois), Béreau and others, it is quite impossible under the circumstances that he can give that individual attention to each which we are accustomed to see bestowed upon the beddings-out in England; especially with so small an annual allowance as 10,000*l*. In general the gardening tactics for the year may be said to be a fac-simile of those in vogue during the last season, and while still adhering to my former remarks on the subject, I may take this opportunity of explaining that though Parisian gardening is good, the landscape gardening, as relates to the laying out of gardens, is bad; if, indeed, the volcanic surface of shrub-capped mounds, and grassy hollows, undulating like the swing of a pendulum, is worthy of being classed under that name. Nor is Baron Rothschild's place, laid out by the painter Lami, a brilliant exception to this rule, for though there is a French garden, it is a representative of the tamest form, applied without any knowledge of the art, and in too weakly a condition to come within the pale of criticism; while the English portion can only be admired in the want of something better. I should be glad if I could praise it, and hope the park at Vincennes, as yet in progress, may prove an exception, but it would be premature to come to any conclusion on its merits, until matters are further advanced. Referring again to the bedding out, where there were beds of Caladiums last year are now Aralias, Cannæ have changed place with India-rubbers, Solanums with Abutilons, &c., though in many instances among the Pelargoniums, Chrysanthemums, and Roses, the arrangements have been in no way altered. Some of your readers will cry out at this, but I do not think it a matter of the first consequence, provided the arrangements are good; and it matters still less in the case before us, as the whole of the beauty in Parisian bedding out depends upon the plants themselves, and not upon any skill exercised in their juxta-position. Trees come out with the same kind of foliage every year, and it never struck me they were any the less beautiful. To be sure I can't sympathise with the extreme views adopted by some writers, of mixing everything together in a sort of floral "hodge podge." For all tricks and antics of this kind there should be no licence given. On the contrary such carelessness and eccentricity should be subject to the severest censure. As an instance of the effect of mixing, I saw at Passy—though there were merely a reserve bed—a mass of Pansies, blue, yellow, and brown, some 50 feet square, and in full flower. Speaking theoretically one might be inclined to pronounce such a combination extremely beautiful, but whether it was the quality of the brown that introduced the element of discord—and I think it was, for purple and yellow contrast excellently—or whether it was that horticulturists have succeeded in eliminating colours that Nature won't have anything to do with (I submit this to the consideration of Elizabethan professors) the effect was intensely disagreeable, reminding one of an ugly carpet in an antiquated lodging-house.

In the Tuileries Gardens there is nothing new to note. Still dusty and unpalatial, they have as little keeping up as is well possible. In the Champs Elysées the groups of Ponticum Rhododendron make a fine show, and afford another illustration of the benefit arising from homogeneous planting, though there is nothing so exquisite in a garden as combination, where such combinations are picturesque and harmonious in colour.

I shall shortly be visiting the most wonderful gardens in the world, some of Nature's planting amidst the glories of the Alps. We cannot imitate them, the scale precludes that. Nor do we want to; but we may take a hint from the broad masterly treatment of the masses; from the beauty and endless variety of the detail, which however charming in itself, is yet always subordinate to the magnificence of the general scene.

Societies.

Crystal Palace: *May* 20 (*First Great Show*).—Although this was a large and on the whole a good exhibition, it was nevertheless, with one or two exceptions, deficient in subjects of striking excellence, such as have sometimes characterised displays of this kind held here in former years. The day was one of the brightest and finest which has been experienced this season, and there was in consequence a very large attendance of visitors.

Miscellaneous Stove and Greenhouse Plants.—Of these there were extensive exhibitions, consisting for the most part of well-grown plants. Prominent among the latter was an example of Allamanda grandiflora from Mr. Peed, covered with blossoms of large size, fresh and beautiful. That universal favourite Stephanotis floribunda was also in excellent condition in several collections, as were likewise Everlastings, Eriostemons, Pimeleas, Ixoras, and Chorozemas. Of Medinilla magnifica, loaded with long drooping clusters of pink inflorescence, set off by ample deep green foliage, there were one or two noble specimens. Acrophyllum venosum was also shown in good style in more than one collection, and we likewise noticed a good plant of Clerodendron Thomsonæ, the white calyx of which forms a striking contrast with the scarlet corolla. This effect was, however, comparatively lost in the present instance by the flowers not being fully expanded. Combretum purpureum, an old-fashioned but really showy plant, was well represented on this occasion; and of Rhododendron formosum we noticed a beautiful bush, covered with blossoms of as pure a white as those of the white Indian Azalea, for which at first sight it might easily be mistaken. Rhynchospermum jasminoides was shown in good condition, and among other plants was an example of Mahernia incisa, with the appearance of which most of us are familiar.

Awards.—16: 1, Mr. Peed; 2, Mr. Whitbread; 3, Mr. Kaile. 10 (Nurserymen): 1, Messrs. Lee; 2, Mr. Fraser; 3, Mr. Rhodes; 4, Mr. Baxendine. 10 (Amateurs): 1, Mr. Carson; 2, Mr. Page; 3, Mr. Chilman; 4, Mr. Wheeler. 6: 1, Mr. Kemp; 2 Mr. Smith.

Fine-foliaged and Flowering Plants.—These associate charmingly together, and when arranged with taste form a prominent feature of an exhibition. Among the fine-leaved plants present we noticed Cordyline indivisa, with handsome rich orange midribs; the fine Tree Fern Cyathea Smithii, and other arborescent species; Theophrastas; Oreopanax dactylifera, with deeply cleft foliage, which in the young state is particularly handsome; and last but not least, a magnificent specimen of Alocasia metallica in an elegant terra cotta vase, with leaves of unusual size and beauty. This fine example of good plant cultivation came from Messrs. Lee, of Hammersmith.

Awards.—12: 1, Mr. Williams; 2, Messrs. Lee; 3, Mr. Young; 4, Mr. Rhodes.

Heaths.—With the exception of two handsome hybrids, apparently belonging to the aristata breed, there was little novelty among these; there were, however, some well-grown plants of well-known sorts, among which may be mentioned ventricosa magnifica, depressa, and Sindryana, the last unusually well-grown and flowered.

Awards.—10: 1, Mr. Rhodes. 8: 1, Mr. Peed; 2, Mr. Page. 6: 1, Mr. Wheeler; 2, Mr. Chilman; equal 3, Mr. C. Smith and Messrs. F. & A. Smith; Extra, Mr. Kaile.

Azaleas.—These occupied conspicuous corners at the intersection of the nave and transept, and being large in size and full of flower they had an extremely effective appearance. Many of the light-coloured kinds showed an unusual disposition to sport, a fact which did not escape the observation of visitors, who seemed delighted with the many different colours which in some instances presented themselves on one bush. Magnificent examples of well-known kinds were abundant, and both Mr. Turner and Messrs. Ivery showed new varieties, some of the best of which will be found noticed in another column.

Awards.—8: 1 and 2, Mr. Turner; 3, Mr. Fraser; 4, Mr. Rhodes. 8, (Amateurs): 1, Mr. Carson; 2, Mr. Page; 3, Mr. Whitbread; 4, Mr. Wheeler. 6: 1, Messrs. Lee; 2, Messrs. Lane; 3, Mr. Williams. 6 (Amateurs): 1, Mr. Penny 2, Mr. Peed; 3, Mr. Smith; 4, Mr. Kaile; Extra, Mr. Chilman.

Orchids.—Of these Mr. Bullen, gr. to A. Turner, Esq., of Leicester, showed a beautiful collection, in which the plants were not so remarkable for large size as for clean healthy growth and fine flower. From Mr. Baker, gr. to A. Basset, Esq., Stamford Hill, also came a well-managed collection, and the same remark is equally applicable to a fine group from Mr. Penny, gr. to H. Gibbs, Esq., of Regent's Park. With the exception of Phalænopsis Lüddemanniana, little novelty was observable.

Awards.—20: 1, Mr. Bullen; 2, Mr. Baker; 3, Mr. Page; 4, Mr. Peed. 10: (1 and 2 withheld); equal 3, Messrs. Lee & Mr. Parker. 12: 1, Mr. Penny; 2, Mr. Wilson; 3, Mr. Young. 6: 1, Mr. Bullen; 2, Mr. Wiggins; equal 3, Mr. Wilson and Mr. Chilman; equal 4, Mr. Robson and Mr. Wheeler.

Pelargoniums.—Few new varieties appeared in the different collections of these shown on this occasion; but of well-known kinds there was no scarcity of finely grown and charmingly flowered plants, both in the class of Fancies and ordinary sorts. Mr. Fraser's plants were literally bouquets of flower, and those from Mr. Turner were nearly equally fine. The collections from the latter, as well as those from several others, were however not sufficiently advanced in bloom, multitudes of buds being unexpanded. Among new kinds, Hoyle's Charles Turner, bright scarlet, with a dark top and white eye, received a First-class Certificate, as did also Turner's Marion, rose, with a white eye and very dark top, both flowers of good shape, size, and substance. Elegans, crimson flushed rose, with white eye and dark top, also from Mr. Turner, received a Second-class Certificate. There were also one or two other promising varieties.

Awards.—12: 1, Mr. Fraser; 2, Mr. Turner. 10: 1, Mr. Wiggins. Fancies, 6: 1, Mr. Fraser; 2, Mr. Turner.

Roses.—Early in the morning these were all that could be wished; but as the day advanced they suffered from the intense heat and bright light, the plants being in many instances exposed to direct sunshine, which soon proves fatal to the beauty of full-blown Roses. They will stand and even require sunshine when in the bud state to give them colour; but in their more advanced stages perfect shade is indispensable. Owing to the want of this they did not as a whole look nearly so fresh and beautiful as they usually do at a first May show. Mr. Wm. Paul's group and that of Messrs. Lane were, however, greatly admired, as was also a collection of plants in small pots from Mr. Turner. Messrs. Paul & Son had good collections and also charming boxfuls of cut blooms.

Awards.—10 in 13-inch pots: 1, Mr. William Paul; equal 2, Messrs. Lane and Messrs. Paul & Son. 6: 1, Mr. Terry. 12 in 8-inch pots: 1, Mr. Turner; 2, Messrs. Paul & Son; 3, Mr. W. Paul.

New Plants.—An extensive and highly interesting collection of these was shown by Mr. Bull, who had, among others, examples of the new Japanese Aucubas; double-flowered Mimuli; his variegated-leaved Verbena and Chrysanthemum; the handsome Asplenium myriophyllum; the silver-striped Polygonatum verticillatum; Azalea Souvenir du Prince Albert, deep rose edged with white; the variegated Podocarpus macrophyllus; Retinospora leptoclada; the variegated variety of Aubrietia purpurea; Maranta Vanden Heckei, and several other plants to which attention has been lately directed in our reports of the Floral Committee of the Royal Horticultural Society. From Messrs. Ivery came two pretty varieties of Athyrium, viz., Filix-fœmina compositum and Filix-fœmina ramo-cristatum; also a similar number of Scolopendriums, one of which, named variegatum, had a beautiful pale green or rather golden tinge in the fronds. The white double-flowered Deutzia crenata came from Mr. Shenton; Clematises from Mr. Townsend; Beaton's Nosegay Pelargoniums from Mr. William Paul; and Lilium auratum from several exhibitors.

Miscellaneous Subjects.—Among these may be mentioned a fine display of neatly filled and well constructed plant cases from Messrs. Barr & Sugden; a beautiful stand of Tulips from Mr. Turner; and charming varieties of Fancy Pansy from Messrs. Downie Laird & Laing.

Fruit.—Of this there was but a limited display. A good Providence Pine Apple came from Mr. Mills, gr. to Lord Carrington; Mr. Page had a Cayenne, weighing 6 lb., and a Queen 4 lb. A Queen of similar weight also came from Mr. Barnes of Bicton. Mr. Standish furnished a good Smooth-leaved Cayenne, and likewise a variety called Abacachi, which was stated on the label to be "one of the most luscious of all Pine Apples." Black Grapes were shown in excellent condition by Mr. Clements and Mr. Hill. Among Muscats were some fine bunches, which were however all more or less unripe. The best came from Mr. Cawkell, Mr. Horwood, and Mr. Tansley. Three very fine bunches of Foster's Seedling, quite ripe, were contributed by Messrs. Lane; and from Mr. Embrey and others came Buckland Sweetwater. Peaches, apparently Royal George, were shown by Mr. Horwood, Mr. Turner, and Mr. Farrance; and of Nectarines the only dish—a good one for the season—came from Mr. Turner. Among Melons the best, a hybrid green-fleshed, and a hybrid scarlet-fleshed, came from Mr. Enstone; Mr. Horwood and Mr. Lynn had, however, also examples of good Melon growing. May Duke Cherries were contributed by Messrs. Jackson, of Kingston. Strawberries formed one of the most remarkable features of the show; of these Mr. Smith, of Twickenham, had as usual wonderfully

fine dishes; and some well-grown fruit was also shown by Mr. Standish. Mr. Horwood, Mr. Kaile, and others likewise showed good fruit. The sorts consisted of Sir C. Napier, British Queen, La Constante, Empress Eugenie, and Oscar; along the top of the stage was a fine row of well-fruited plants in pots. Among Miscellaneous fruit was an extremely fine cluster of Musa Cavendishii, weighing no less than 79 lb. This came from Mr. Carr, gr. to P. Hindes, Esq., Byfleet, from whom also came several yellow and red-fruited kinds of Capsicum.

Royal Botanic: *May* 24 (*First Great Show*).—This Exhibition was in all respects quite equal to, if not superior to its predecessors of former seasons. Orchids were numerous and beautifully in bloom; stove and greenhouse plants were all that could be desired; Azaleas were "mountains of flower," without that extreme formality of shape of which we had to complain last year; Roses in pots were magnificent, and Pelargoniums considerably exceeded our most sanguine expectations; while of new plants there was an extensive and interesting assemblage.

Miscellaneous Stove and Greenhouse Plants.—Of these Mr. Peed, gr. to W. Tredwell, Esq., Norwood, had the best collection, conspicuous in which were Ixora Griffithii, with ample healthy foliage and glorious heads of rich salmon-coloured flowers; Allamanda grandiflora in wonderfully fine condition; Chorozema cordatum; and a well flowered Erica depressa. From Mr. Whitbread, gr. to H. Collyer, Esq., came, among other large and fine plants, Clerodendron splendens, richly crowned with crimson-scarlet blossoms; a finely-flowered plant of Stephanotis floribunda; two species of Allamanda, and some well-grown Cape Heaths. Various Heaths of unusual size and excellence were likewise furnished by Messrs. Lee, who had, moreover, Acrophyllum venosum, charmingly in flower; Hedaroma tulipiferum; Aphelexis macrantha purpurea, remarkable for its unusually large amount of colour; Ixora coccinea, loaded with bouquets of scarlet flowers; and Stephanotis floribunda, the sweet smelling blossoms of which had a host of admirers. From Messrs. Fraser came an admirable specimen of Clerodendron Thomsonæ, 4 feet in height, and 3 feet in diameter, loaded with elegant feathery spray, thickly studded with white and crimson-scarlet blossoms; Prostanthera lasianthos, equally fine; Erica Bergiana, loaded with multitudes of rich crimson flowers; also some other beautiful Heaths and Epacrises. Mr. Rhodes furnished a charmingly-flowered plant of a variety of the yellow Chinese Azalea; also Chorozema cordatum; the yellow-blossomed Erica affinis, and Dracophyllum gracile. From Mr. Baxendine came Erica depressa, with numerous little drooping bunches of flowers, looking like garnets set in frosted silver; Hoya Paxtoni; Rhynchospermum jasminoides, in beautiful condition both as regards growth and bloom; Clerodendron Thomsonæ, and Bignonia grandiflora, the last well furnished with showy orange-scarlet blossoms. In the amateurs' class Mr. Chilman had, among other well-managed plants, Adenandra fragrans rosea, Everlastings, Acrophyllum venosum, and Chorozema varium nanum, all in excellent condition. Among other groups were Allamanda Aubletii, some very fine examples of Stephanotis, Franciscea confertiflora, Aphelexis macrantha purpurea; Rhynchospermum jasminoides, and Clerodendron Thomsonæ; the last, which was fully expanded and altogether in beautiful condition, came from Mr. Ingram, gr. to J. J. Blandy, Esq., of Reading. In the class of six plants Mr. Kemp, gr. to Earl Percy, contributed Combretum purpureum, Stephanotis floribunda, and Allamanda neriifolia; and good plants of a similar description came from Mr. Wheeler and Mr. C. Smith.

Awards.—16: 1, Mr. Peed; 2, Mr. Whitbread; 3, Mr. Kaile. 10: 1, Messrs. Lee; 2, Mr. Fraser; 3, Mr. Rhodes; 4, Mr. Baxendine. 10 (Amateurs): 1, Mr. Chilman; 2, Mr. Page; 3, Mr. Ingram; 4, Mr. Carson; 5, Mr. Wheeler, gr. to Baron Goldsmid. 6: 1, Mr. Kemp; 2, Mr. Wheeler; 3, Mr. C. Smith.

Fine-foliaged and Flowering Plants mixed.—Messrs. Lee again showed in this class the beautiful Alocasia metallica mentioned in another column, together with a strikingly variegated variety of Ananassa sativa, in fruit; a noble specimen of Cibotium princeps, the stately Theophrasta imperialis, a grand plant of Pandanus elegantissimus, Cordyline indivisa, in admirable condition; and one or two variegated Yuccas. From Mr. Williams, of Holloway, came a magnificent specimen of the beautiful Gleichenia semivestita, the white and violet-stemmed Colocasia albo-violacea, Cordyline indivisa, a large Cycas revoluta, and several variegated Yuccas, of which Mr. Williams has a large and beautiful collection. From Messrs. A. Henderson & Co. came a fine assemblage of plants, which were, however, disqualified owing to their having in one instance more than one plant in a pot. Conspicuous in this group were Anthurium leuconeurum, a very fine example of Croton angustifolium, Alsophila australis, Rhopala De Jonghi; a variety of Caladium bicolor, with large green leaves, copiously suffused with red; Pandanus utilis, and a very fine plant of the variegated variety of Alocasia macrorhiza. These and the other collections just named were lit up as it were, with such flowering plants as Allamandas, Medinillas, Statices, Azaleas, and Heaths, an intermixture at once effective and pleasing.

Awards.—15: 1, Messrs. Lee; 2, Mr. Williams.

Azaleas.—These were produced on this occasion in wonderfully fine condition, the amount of bloom being all that could be desired, while the protrusion of a few green leaves here and there served to furnish contrast and relief to the eye. A more free and natural habit of growth is also evidently being permitted, the result of which is already a visible improvement in the general appearance of the plants. Mr. Veitch's admirable collection of eight, and Mr. Turner's group of six, both contained specimens which measured not less than 7 or 8 feet in height, and nearly as much in diameter at the base. Of other plants, too, though not so large, there was abundance, and being placed not only in the centre of the exhibition, but also at its different salient points, the effect at first sight was one which we imagine all who were present will not soon forget. The names of Mr. Veitch's plants were Extrani, Criterion, Rosea superba, Chelsoni, Trotteriana, Mrs. Fry, Variegata, and Gledstanesii. Mr. Turner's six were Gem, Illustris nova, Coronata, Barclayana, Arborea purpurea, and Italiana. From Messrs. Lane came a large collection of well-flowered and extremely pretty little pyramidal plants, consisting for the most part of new kinds. Small groups of the latter also came from Mr. Turner and others. These contained President, a striking novelty, with large rich salmon-coloured flowers of great size and substance; Louise von Baden, white, occasionally striped with purple, also a useful sort, large in size and good in substance; and others, such as Kinghornii, Perfection, Advance, Mars, Sir C. Napier, and Roi Leopold. Of these descriptions have already appeared in our columns.

Awards.—8: 1, Mr. Veitch; 2, Mr. Fraser; 3, Mr. Rhodes. (Amateurs): 1, Mr. Carson; 2, Mr. C. Wheeler; 3, Mr. Page; 4, Mr. Whitbread. 6: 1, Mr. Turner; 2, Mr. Veitch; 3, Messrs. Lane; 4, Mr. Fraser; 5, Mr. Williams. (Amateurs): 1, Mr. Penny; 2, Mr. Todman; 3, Mr. Ingram; 4, Mr. Kaile; 5, Mr. Chilman.

Orchids.—The most conspicuous feature among these was a magnificently-flowered plant of Dendrobium densiflorum, from Mr. Bullen, gr. to A. Turner, Esq., of Leicester. This measured upwards of 3 feet in diameter and some 2 feet in height, and was literally covered with gracefully drooping racemes of rich orange-yellow blossoms. On one of the best varieties of Bearded Lady's Slipper, were some four dozen fine blooms, and the same grower had also good examples of C. Hookeræ, different varieties of Cattleya Mossiæ, Lælia purpurata, Saccolabiums, and Vandas. In a collection from Mr. Baker, gr. to A. Basset, Esq., which was first in point of merit, his flowers being on the whole in greater perfection than those on the Leicester plants, were Saccolabium retusum, with six fine spikes of bloom on it; the rare and beautiful Phalænopsis Schilleriana, with nearly 20 flowers on it; P. grandiflora, with blooms measuring quite 3 inches across; the rich orange-scarlet Saccolabium curvifolium; Cypripedium villosum and others; two excellent Vandas; the bright rosy-blossomed Trichopilia crispa; a variety of Sobralia macrantha, named splendens, with a large showy purple flower on it; the dark brown-flowered Oncidium crispum, various Dendrobiums, Vandas, and other plants. From Mr. Page, gr. to W. Leaf, Esq., Streatham, came a well-flowered example of Brassia verrucosa, with some 15 or 16 spikes of pale-green flowers on it; Oncidium ampliatum majus, a mass of large clear yellow blossoms; the orange-stained white-flowered Dendrobium formosum giganteum, and the rare Cypripedium Stonei. Mr. Peed furnished, among other plants, Cypripedium Hookeræ, with a greater amount of colour in it than usual. Mr. Penny, gr. to H. Gibbs, Esq., contributed a beautiful collection, in which were the white-flowered variety of Dendrobium densiflorum, the rare Odontoglossum Phalænopsis, with nine flowers on it, remarkable both for size and delicacy of colouring; the Brassia-like Odontoglossum nævium, a well-flowered plant of Cypripedium caudatum, and the rosy-crimson Trichopilia crispa. From Mr. Wilson, gr. to W. Marshall, Esq., Enfield, came the rare and beautiful Dendrobium infundibulum, fully noticed in our volume for last year (p. 269); Phalænopsis Lüddemanniana; Cattleya Aclandiæ; one of the best varieties of Cattleya Mossiæ with unusually large and fine flowers; and Cypripedium caudatum, with two blooms on it, each having petals at least 2 feet in length. In a group from Mr. Young, gr. to H. Stone, Esq., Leigh Park, was Cyrtopodium punctatum, which, although in good condition, was nevertheless by no means so fine as we have seen it from the same establishment twenty years ago. The beautiful Cattleya Aclandiæ and Dendrobium Devonianum were shown by Mr. Ingram, gr. to J. J. Blandy, Esq. Mr. Wiggins, gr. to Walter Beck, Esq., furnished a small collection of well-grown plants; as did also Messrs. Jackson, Wheeler, Chilman, and Robson. In these we noticed Phalænopsis Lüddemanniana; and Dendrobium primulinum, with pink sepals and petals and sulphur lip.

Awards.—20: 1, Mr. Baker; 2, Mr. Bullen; 3, Mr. Page; 4, Mr. Peed. 12: 1, Mr Penny; 2, Mr. Wilson; 3, Mr. Young; 4, Mr. Ingram. 6: 1, Mr. Wiggins; 2, Mr. J. Wheeler; 3, Mr. Chilman; 4, Mr. Robson. 6 (Nurserymen): 1, Messrs. Jackson.

Cape Heaths.—These, though comparatively unattractive, were nevertheless well grown and flowered. Among the different varieties were good examples of fastigiata lutescens, some of the better varieties of eximia, tortulæflora, the bright crimson Westphalingia, the different varieties of ventricosa, among which magnifica is one of the best; Devoniana, Webbiana, elegans, some of the different varieties of tricolor, gemmifera, and denticulata moschata. It is to be regretted that so little attention is still paid to the raising of new varieties in this once fashionable class of plants.

Awards.—10: 1, Mr. Rhodes; 2, Messrs. Jackson; 3, Mr. Baxendine. 8: 1, Mr. Peed; 2, Mr. Page. 6: 1, Mr. Chilman; 2, Mr. J. Wheeler; Equal 3, Mr. C. Smith and Mr. Ingram; Extra, Mr. C. Wheeler and Messrs. F. & A. Smith.

Roses.—Seldom have we seen these shown in such charming condition as they were on this occasion, a remark which does not apply to one group only but to all. Indeed some of the plants in Messrs. Lane's collection, to which was justly awarded the 1st prize, have perhaps never been equalled either as regards fine growth, or size and quality of bloom. Time was, and that not long ago, when plants drawn to "a face" were considered the acme of perfection. Now, however, it is evident that a better taste has been induced, and that a plant to be first-rate must not only be fine on one side, but all round. This was conspicuously the case with Messrs. Lane's plants, among which Madame Willermoz, loaded with remarkably fine blooms; Paul Perras, Vicomtesse Decazes, Victor Verdier, and Niphetos were models of skilful cultivation. From Mr. William Paul also came a beautiful collection, in which were Senateur Vaisse, M. Willermoz, in beautiful condition; Souvenir d'un Ami, and Lælia, the last with remarkably large blooms. Gloire de Dijon in Messrs. Paul & Son's group was finely flowered, as was also Charles Lawson, which is one of the best of all Roses for pot culture. From Mr. Fraser also came well-grown and finely bloomed plants. Charming Roses in 8-inch pots were likewise shown by Mr. Turner; and among boxes of cut flowers, which came from Messrs. Lane, Mr. Wm. Paul, and others, were many magnificent Roses, but none equalled Alba rosea, which measured at least 5 inches in diameter, and came from Mr. Turner.

Awards.—10: 1, Messrs. Lane; 2, Mr. Wm. Paul; 3, Messrs. Paul & Son; 4, Mr. Fraser. 6 (Amateurs): 1, Mr. Terry.

Pelargoniums.—Never before have such magnificent Pelargoniums been seen as were shown at this exhibition by Mr. Bailey, gr. to H. Drake, Esq., Shardeloes, near Amersham, Bucks. So unusually fine were they, and so completely did they outstrip the whole of their associates in point of high cultivation, that the judges raised the 7*l.* prize offered for them in the schedule to 10*l.*, in order to mark their appreciation of their extraordinary merit. These were managed exactly in the way described by Mr. Bailey in the papers which he published in our columns on the growth of the Pelargonium (see pp. 725, 843), and to which young cultivators will do well to refer. The plants, which measured between 4 and 5 feet across, consisted of Lord Clyde, Spotted Gem, Guillaume Severyns, Etna, Rose Celestial, The Bride, Sir Colin Campbell, Sanspareil, Fairest of the Fair, and Lady Canning. Among these the last was the finest, and Spotted Gem, a kind usually considered a shy flowerer, was one mass of blossoms, as were, indeed, all the others. From Mr. Turner came beautiful plants of Butterfly, Lady Canning, Fairest of the Fair, Royal Albert, Guillaume Severyns, Prince of Prussia, Lord Clyde, Desdemona, Garibaldi, Fair Rosamond, Pizarro, and Rembrandt. Of Fancy kinds the same excellent grower had Roi des Fantasies, Lady Craven, Ellen Beck, Modestum, Undine, and Delicatum. Mr. Fraser, Mr. Wiggins, and others also showed well-flowered plants.

Awards.—10: 1, Mr. Bailey; 2, Mr. Wiggins. 12 (Nurserymen): 1, Mr. Turner; 2, Mr. Fraser. Fancies, 6: 1, Mr. Turner; 2, Mr. Fraser. 6 (Amateurs): 1, Mr. Bailey; 2, Mr. Weir.

Calceolarias.—Both large and small plants, wonderfully full of flower, and consisting of good and showy kinds, came from Mr. James, of Isleworth.

New Plants.—Messrs. E. G. Henderson showed several grey-leaved plants suitable for edgings, among which the best was Centaurea ragusina compacta. Mr. William Paul had a large showy Rose called Cœur de Lion. From Messrs. Veitch came Dieffenbachia grandis, with ample leaves and mottled stems; Anthurium cordifolium; a Peruvian Adiantum, and Leptopteris superba, both beautiful Ferns, the last with dense finely cut fronds. Associated with these were also Maranta Veitchii; Bertolonia pubescens, a comparatively small growing species, with dark brown leaves, prettily margined with green; the silvery marked Peperomia maculosa; also P. acuminata, a small species with green leaves striped down the centre with white; Retinospora obtusa nana aurea; and a Schismatoglottis with leaves mottled with white; other plants, previously noticed, also came from the same establishment. Mr. Ivery again showed his new hardy Ferns mentioned above; also small plants of Asplenium Adiantum-nigrum microdon, which we hope to see again when larger. From Mr. Bull came, among other things, the different kinds of new Aucubas, all of which have been already fully noticed by us; a slightly variegated variety of Lychnis Senno; Viburnum Lantana, with leaves blotched and mottled with yellow; Ophiopogon Jaburan, having leaves striped like those of variegated Digraphis; Saurauja sarapigiensis, Ficus Porteana, Calonyction sanguineum, and Podocarpus macrophyllus variegatus, all noticed by us in former reports. The same exhibitor also showed Sphærogyne cinnamomea, with large Melastoma-like green leaves and cinnamon-coloured stems and leaf-stalks; Amorphophallus zebrinus with mottled stems; a yellow variegated Privet; the hand-

some Aralia heteromorpha and other plants. From Mr. Thompson, of Ipswich, came Aquilegia cœrulea. Messrs. Jackson, of Kingston, sent a variety of Clerodendron Thomsonæ called Balfourianum, an improvement not only as regards the size of the white calyx, but also that of the scarlet corolla.

Seedlings.—These were confined chiefly to Pelargoniums, among which the following received Certificates, viz., Wm. Hoyle, maroon with light eye and dark top; Lady of Quality (Hoyle), clouded crimson, with a light eye and dark top; Clytie, a fancy from Mr. Turner, delicate pink suffused with rose; Charles Turner, vivid crimson scarlet, noted above; and Elegans (Foster), pencilled crimson with a large white eye and dark top. King of Nosegays, from Mr. Watson, had well-marked horseshoe leaves. Mr. Bull again showed cut blooms of his double Mimuli.

Miscellaneous Subjects.—Foremost amongst these was a magnificent wreath of Bougainvillea speciosa, which being fastened to the roof of the tent in which it was shown, hung down in gay festoons, which were the admiration of everybody. This came from Mr. Fleming, of Cliveden, who has succeeded in flowering it thus beautifully without the aid of bottom-heat. Of his plan of proceeding some further account will be given next week. Mr. Ivery furnished an interesting group of hardy Ferns; Mr. Bull fine collections of Palms; and Messrs. Downie Laird & Laing and Mr. Hooper, Pansies. Some admirable examples of artificial flowers came from Miss Annie Brunies, of 6, Percy Circus, King's Cross Road.

Among Fruit, for which no awards were offered on this occasion, were Strawberries from the garden of H.R.H. the Prince of Wales at Sandringham; fine examples of Granadillas from Mr. Mart, Oxford Street; a Pine-apple, a few Grapes, two Melons, and large and fine looking fruit of Castle Kennedy Fig, which has often been alluded to in our columns. This last came from Mr. Fowler, gardener at Castle Kennedy.

Entomological: *May* 1.—H. T. Stainton, Esq., F.L.S., Vice-President in the Chair. The Secretary read a notice of the satisfactory attempts made in America to utilise the silk of the Bombyx Polyphemus, which possesses a strong lustre, and of which each cocoon affords not less than 1500 yards of tissue. As many as seven waggon loads of the cocoons had been sent to the Technological meeting recently held at Boston. Mr. S. Stevens exhibited a Cassida which had arrived alive from India in a case of Orchids. Mr. F. Smith read a communication from India received from Dr. Jerdon, who had discovered the nest of the remarkable genus Dorylus, which proves to be an anomalous tribe of ants, the workers having been already described under the generic name of Typhlopone; the females still remain unknown. Mr. Stainton exhibited the nest of an unknown insect found upon Beech trees. The Rev. Hamlet Clark mentioned the occurrence of vast quantities of woodlice in a garden in which several months ago a quantity of peat was introduced, the insects being found in that part of the garden. Mr. Saunders considered however that peat was not particularly acceptable to insects as a place of residence. Mr. Smith read the descriptions of a number of new Hymenopterous insects, one of which, from Swan River, Australia, allied to the leaf cutter bee, was very remarkable from possessing antennæ resembling those of a butterfly, with a knob at the tip of each. Mr. Hamlet Clark made some observations on the disadvantages resulting from the publication of descriptions of detached species of insects instead of monographs, and also read the descriptions of some new Phytophagous beetles allied to the genus Haltica. Mr. Bates read descriptions of four new species of Agra from the collection of W. Wilson Saunders, Esq. Mr. Stainton gave a notice of a remarkable memoir just published by Mr. Walsh in America, on the insects of different orders found in galls upon Willow trees, amongst which were not fewer than seven Lepidopterous insects, namely, three species of Gelechia and four Tortricidæ. It did not appear however, that these moths were the makers of the galls, but that their larvæ took up their abode in and fed upon them.

Notices of Books.

Handbook of the New Zealand Flora, &c., by J. D. Hooker, M.D., F.R.S., &c. Part I. Published under the authority of the Government of New Zealand. 8vo. Reeve & Co. 1864. Pp. lxviii and 392.

Few more important steps have been taken towards the general advancement of Botanical knowledge than that which was recommended a few short years since by Sir W. J. Hooker of the publication in a uniform series of the Floras of all the British Colonies. Several have already been published or are in progress, and we may now expect the appearance of the most important of all, a complete account of the vegetable productions of British India, which was in vain projected, so long as our Eastern possessions were in the hands of the East India Company, though an admirable commencement was made by those most competent to carry out the work successfully.

To render the present Handbook more complete, Dr. Hooker has included the plants of the outlying islands, which properly belong to the New Zealand group, viz., the Chatham and Kermadec Islands, those of Lord Auckland's group and Campbell's Island, together with Macquarrie's Island. Dr. Hooker had already published in the New Zealand and Antarctic Floras a large number of the species included in the present volume, but the accession has been considerable since their publication, and it is probable much remains to be done, though the Flora can never be a very rich one as regards Phænogams. About a dozen genera have been added besides those which belong to the islands above-mentioned, and it is perhaps surprising that the accession has been rather in species than genera, as in the original New Zealand Flora the predominance was rather on the side of genera as compared with many other Floras.

As regards the relation of the species and genera recorded in the volume, compared with those of other countries, the following remarks extracted from the Preface are of considerable interest.

"Of the 303 New Zealand genera of Flowering Plants described in this Part, about 252 (containing 222 species and 51 representatives) are common to Australia; 174 (containing 11 species and 32 representatives) to South America; 31 are peculiar to the group (comprising 59 species); and six (with 20 species) are found in the Pacific Islands and elsewhere, but not in Australia or South America.

"Again, of the 935 species of flowering plants, 677 are peculiar to the islands; 222 are Australian and 111 American. There are further 51 Australian representative, and 32 American representative species.

"Comparing New Zealand with Europe, these countries have 115 genera, and 58 species in common, the latter including many water-plants and several land plants which are doubtful natives. Of these European genera the Veronicas and Ligusticum are the only ones that appear to be vastly more numerous in New Zealand than in Europe."

Dr. Hooker, in conjunction with Mr. Bentham and Dr. Thomson, has long been employed on the collation of spurious genera and species, and the reduction of both within rational limits. The author of the present volume is not without personal knowledge of the vegetation of New Zealand in its native country, but still he feels it necessary to apologise for many imperfections which may have arisen from a large portion of the species described being known to him only as herbarium specimens. But he says this is not the only difficulty with which he has had to contend. "It is now admitted that one and the same species may be represented by two or more permanently distinct forms in one district; in other districts by but one of these forms, and in still other districts by forms which unite the characters of the most distinct forms of the first district; and moreover that these forms are usually permanent under cultivation. It hence follows that the several characters will have different values in the estimation of the observers in each district, and that there must always be differences of opinion regarding the claims of such forms to take specific rank. The other great source of error is of more real importance, as it relates to facts and not at all to opinions; it is that in examining dried specimens important and constant characters are often overlooked, unimportant and transient ones exaggerated, and that errors accumulate in the successive process of examining so many organs, in applying technical terms to them, and in describing, transcribing, printing, and even in correcting the press."

To this we may add the fact that the judgment of man is not always uniform, and that the same specimen may at two distant periods be regarded from two totally different points of view, the arguments in favour of some particular conclusion being in themselves equally cogent, but capable of modification when the two sets of arguments are combined. At least we can answer for ourselves that such is the case, and that we have sometimes wondered on the re-examination of a specimen at the conclusion at which we had formerly arrived, as we thought on good and certain grounds.

The volume is preceded by the Outlines of Botany which were drawn up by Mr. Bentham for the Flora Australiensis, and which were intended to accompany the Colonial Floras, in order that botanists at a distance from home might have some uniform principles from which to start.

To facilitate research, moreover, classifications of the order and genera are given in short and simple terms, both according to the Linnean and Natural methods, together with an artificial key to the genera, as well as a natural classification, where it is thought, as in Orchideæ, likely to obviate real difficulties. Finally, the plants which are clearly naturalised are given in a little appendix at the end of each natural order or genus, as may be most convenient.

We have reason to believe that the concluding Part is already nearly completed.

The British Arms in North China and Japan. By D. F. Rennie, M.D., Senior Medical Officer of the Forces in the North of China, &c. Pp. 408, 8vo. John Murray, Albemarle Street, 1864.

An intelligent medical man attached to a corps engaged on active service in such a country as China, and with just leisure enough to keep a diary of events as they occurred, was sure to write an interesting volume, if he ever lived to return to England. There is something in the profession which quickens the observing powers; the medical officer has duties which lie in so many directions, and he comes in contact with so many different classes and characters, that he has peculiar opportunities of picking up information. Dr. Rennie availed himself of these, and can give a very clear account of scenes which he witnessed; he is not afraid to tell the world how little progress has yet been made in sanitary science, which comes particularly under his province, nor does he fear to speak the truth about the effect produced by Armstrong guns, or any other matters that come fairly under his notice.

He commences the volume with a brief account of the disaster at the Taku Forts, how he volunteered his services, and arrived at Hong Kong, where, or rather at Kowloon, a Coolie corps was being organised to do the hard work of the army. He says, "Their uniform consists of an ordinary Chinese shirt, made of nankin, with the number and section to which they belong stamped on it, front and back. Their head-dress is a conical-shaped wicker-work hat, made after the fashion of those worn by the Chinese troops. They all appeared on parade with fans, which they use vigorously: some pulling up their shirts and fanning their chests and backs alternately, others pulling up the legs of their capacious under garments for the same purpose. At first the rascals were always deserting, but eventually they became the most attached and efficient of servants and burthen-bearers."

The Doctor does not much like the English soldier's way of carrying his ammunition, and is much disgusted to find that the "Zouave" cattle ship arrived with 85 oxen out of the 250 that were put on board some 10 days before. "This result," he says, "I have little doubt is to be traced to the ignorance of the requirements of animal life which has characterised their shipment, the form of disease being of that pestilential type which dense overcrowding seldom fails to generate." Then he speculates as to whether these 85, probably saved from a death of disease by the butcher's knife, are likely to prove wholesome aliment for the troops—a most important question.

Peh-tang, where the troops landed near the Taku Forts, was found to be the most filthy foul-smelling locality that can be conceived, situated on the bank of a river, with nothing but vast mud flats for miles around; but strange to say the troops were more healthy there than in the beautiful climate and pure atmosphere of Talien-whan. Whence the Dr. opines that endemic disease is attributable less to the external air that soldiers breathe, than to the internal. Even in the most healthy localities crowded tents appear constantly to have generated disease.

At the Peiho, "just as an Armstrong had been fired, the *Times* Correspondent rode up and exclaimed, 'What a magnificent shot! it has dismounted a gun.' Sir John Michel turned round and said, 'There has not a single shot gone near the battery; I have watched with my glass the effect of every one that has been fired.' This was confirmed by another officer who was standing with General Michel, and had watched the course of the shot." When Brigadier Stavely examined the Chinese battery, the day after, the guns were all in position, and there was no sign of one of them having been struck. Where the shots actually went was found out long afterwards. They went right over the battery, and unintentionally did good service among some retreating Tartars, who had been dislodged by the French.

On the 18th of August two isolated cases of true Asiatic cholera appeared. Strange that this choleraic influence should not have spread among "10,000 men in an atmosphere supersaturated with the foulest of odours, and the men in the 1st Division revelling in unripe fruits and raw vegetables from the luxuriant orchards and well-stocked gardens in the neighbourhood."

Several seemingly paradoxical cases came under the Doctor's notice. Soldiers residing in malarious localities and in low situations did not appear to suffer; but when removed to the heights and freely exposed to the breeze, they were struck with agues and fevers. These and similar cases which occurred again and again led the Doctor to conclude, that the low situations produced a debilitating effect, and a predisposition to fever, which attacked the weakened men directly they were exposed to currents of air; and thus, that which would have been found invigorating to persons in health, these men in their debilitated state could not endure. A very singular, but in all probability a true solution of the paradox.

The occupation of Tien-tsin, the advance towards Tung-chow, the treacherous seizure of 26 British and 12 French subjects, their horrible treatment, and the consequent death of 20 of the number, are circumstances well known. When the Chinese refused to surrender the prisoners, the forces were marched upon Peking, and the Imperial Summer Palace, the Yuen-Ming-Yuen, was plundered and burnt. "The city of Peking consists of two divisions, a Chinese and a Tartar one, enclosed by upwards of 20 miles of wall, averaging about 50 feet high and over 40 feet thick. These two cities are separated from each other by 4 miles of wall of similar dimensions, making a total of 24 miles of investing wall. Within the Tartar city there is a third or Imperial city, likewise enclosed by a high wall. The Imperial palace is in the centre of this third city.

When the Chinese had been brought to reason, the greater part of the force was removed to Tien-tsin, and

a terribly cold winter they had, with the thermometer standing at 5°, and once at even —5°. Here Dr. Rennie had time to make many observations on the manners and customs of the natives. One very cold night the Tien-tsin fire brigade was called out to extinguish a fire, and its admirable organisation elicited praise. At a public bathing establishment the cost of a bath was less than a farthing, a great advance in civilisation, and for 100 cash, *i. e.* about 5*d.*, a tub with hot-water and other appliances is carried to private houses. One day the cold was so intense that the 60th Rifles carried their ration porter from the commissariat in sacks and baskets, for it was issued to them in a frozen state. Some deaths occurred among the soldiers from sheer cold.

Among other records carried off from the Imperial library, a statistical fact has been ascertained, about which much doubt had previously existed, viz., the actual population of China. These papers make it 413,000,000 in China Proper and Manchuria, exclusive of Formosa and some other outlying possessions.

Dr. Rennie writes—"March 9th, 1861. It is worthy of observation that while sickness and mortality amongst the European troops are very considerable, the Seiks are wonderfully healthy. Their usual half pound of meat per week, since the cold weather set in, has been increased to a whole pound. The bulk of their diet consists of wheaten flour baked into unleavened bread."

A few days after this, Dr. Rennie left Tien-tsin for Peking, as Surgeon to her Majesty's Legation. In one year from that time the forces were withdrawn, with the exception of a small detachment which continued to hold the Taku Forts.

We have exceeded the usual limits of a review, and must, therefore, pass over Dr. Rennie's experiences in Japan, which are written in much the same style, and are as interesting and as well worth reading as we hope the North China part of the volume will be judged to be, from the notice and brief extracts here given.

Florists' Flowers.

In Mr. Perry's remarks on Winter Variegated Pelargoniums at p. 244, he ascribes to me the merit of having raised Burning Bush. This, out of justice to the raiser, I must beg to disclaim. It was raised by Mr. Basket, gardener at the Ranger's house, Blackheath, at present the establishment of H.R.H. Prince Arthur, and from Mr. Basket I received the original plant, and distributed its offspring to the trade. I fully agree with Mr. Perry that it possesses, along with its other merits (which I am quite satisfied to leave to the judgment of the public), the property of early excitement, and this constitutes it the earliest of any variety I know in exhibiting its brilliancy of colour as a red-zoned variegated kind.

Having, since the distribution of Burning Bush, paid considerable attention to zonal and variegated Pelargoniums, I may, while the pen is in my hand, give a few of the results of my observations. In doing so I may haply chance to scatter a thought-spore or two on the surface of some more fertile brain, there to germinate and develop into forms of grace and beauty.

To begin with the zone or horse-shoe mark, which is the foundation for the more beautiful characters of fine foliage. What is the zone, and what purpose does it answer in the economy of the plant? If we take a sharp penknife, when the leaf is in full vigour and the zone well developed, and carefully remove the transparent skin on the upper side of the leaf, within the limits of the zonal mark, carefully avoiding to go deeper, we shall find a bright red liquid overlying the chlorophyll (or green matter), and in separate cells. This may be proved by gathering a little on the edge of the knife, and it will be found to stain white paper, or the white edge of a variegated leaf, with red. As I shall have occasion often to refer to this substance, and as I know nothing of its chemical nature, except that it acts as an acid (I only deal with it as a natural leaf-pigment), I will call it for convenience the zonal matter.

My observations have led me to believe that the zone is a store for this zonal matter, acting as any other vegetable store, either in the leaf, stem, or root, whether for hybernatory purposes, provision against periods of drought, or any other requirements. And in the same manner as we have hard and soft-bulbed Onions, and Welsh Onions with no bulbs at all, so we have in the Pelargonium deeper and less defined zones, and those with no zones at all. I think it will be found that the native habitat of those with deep zones will be where only periodical supplies of food for zonal matter occur, while that of the plain-leaved kinds will be where a more uniform supply prevails. Certain it is that by the application of stimulants the store of zonal matter for a certain period may be very much increased. Afterwards it will decrease by diffusion throughout the leaf and stem; and if the stimulant be discontinued, or its effects weakened, the zone will often entirely disappear.

In variegated Pelargoniums with zones, the area of the zone is generally most free in its growth and expansion, the green parts being moderately so, and the white parts least so. Hence the white portion becomes contracted, and the zone bulges out, frequently giving either a cup-like or umbrella-like form to the leaf. Where a flat spreading leaf is required, those with strong-ribbed leaves, able to resist this tendency, should be selected for hybridising. I have, however, seen some of those with umbrella-formed leaves very beautiful when the zone has been bright, and the leaves have imbricated well one over the other. As the breadth and depth of the zone is a principal desideratum in the higher-coloured variegated Pelargoniums, it becomes necessary, with this end in view, to hybridize with those having the deepest, thickest, and broadest zones. But there are many white-edged kinds used for bedding purposes in which we do not require zones; these should be crossed with none but plain-leaved varieties; and those with thin washy-looking zones should be at once discarded as injurious in either case.

I never could understand why botanists should have made two distinct species of these Pelargoniums: one under the name of zonale, and the other under that of inquinans. These distinctions appear to me very trivial, the only difference being, that in one kind an exuberant quantity of zonal matter is stored up at certain seasons in a part of the leaf, while in the other there is none of this exuberance, but what matter is present is equally distributed throughout the whole of the leaf. As I have already stated, the store of zonal matter may be considerably increased for a certain period by the judicious application of stimulants. For this purpose I have found nothing better than sheep-dung, either used as liquid manure, or applied whole just under the surface of the mould. Next to this stand fresh horse droppings used in the same way; cow-dung I have not found so efficient. But sunlight is the great generator of zonal matter out of these manures, as it is of chlorophyll.

If for exhibition, or other purposes, it is desired to have the greatest amount of colour in the zone at a certain period, it should be contrived that the plants should be in a comparative state of rest, say from four to six weeks previous, according to their degree of excitability in this respect—for some are much more excitable than others. And this rest should have been so timed that they may have pretty well exhausted the soil. Then, after a fortnight's rest, apply the manure, and give them all the sun and air that can be afforded, keeping them as near the glass as possible. They will immediately begin to improve in colour, which they will continue to do for three weeks or a month, after which time the zonal matter will again begin to become dissipated. And now the sun, which has assisted so much in the formation of colour, will contribute also in its dissipation, both being perfectly healthy processes. So that when the leaves have been got to their highest point of colour, if it is wished to keep their colour for any length of time, shading from the sun's rays must be resorted to, and in order to keep the plants in health the application of stimulants must be abated. I find the different kinds vary exceedingly in their obedience to artificial treatment. Some are extremely capricious, so that the directions I have given must only be taken in a general way, and experience must decide the rest. I shall next have something to say as to variegation. *John Hally, Blackheath.*

The Apiary.

Some judgment must be exercised by the bee-master in the subsequent Management of his Hives and Supers (see p. 463). These should be inspected at least every night and morning. If the supers, after having been well filled with bees, appear deserted, it may be usually inferred that a swarm has departed. The emigrants from a stock which has fairly commenced building combs in its super, frequently leave so quietly and suddenly that they are very liable to be lost altogether. If there should be every appearance of a swarm having gone off, it should not at once be given up as lost, but search made in that and the adjoining gardens.

We have many times recovered swarms which had given no notice of their departure in the evenings as late as 7 and 8 o'clock, next morning at 6 o'clock, the bees having hung suspended to the trees all night. These were discovered by finding the supers quite deserted by the bees, and a search being instituted. A super, or other means of affording additional accommodation, will not necessarily prevent swarming. It would appear as if some colonies are much less disposed to swarm, having sufficient room afforded them, than others treated under precisely similar circumstances. We have hives which, year after year, have filled fine supers of honey without having once swarmed; and we have others which have as often worked vigorously for some time in supers, and almost invariably have thrown off swarms, when they were about two-thirds filled with combs and honey. In the first instances it is probable that the queens have been changed, when worn out, by the bees themselves; as, after six or seven years, we could discover no falling off in the strength and prosperity of the stocks, and the queens, when we had an opportunity of personally inspecting them, exhibited all the outward signs of youth and health.

In our last we said that a swarm leaving a hive engaged in filling a super, could only be considered as a misfortune. This, perhaps, expresses rather more than we really intended to convey. It certainly is a misfortune to have a partially worked super left with little prospect of being completed; but if the owner succeed in securing the swarm, he must be thankful for an undoubted boon, though it be not exactly that which he would have chosen. Should a swarm issue tolerably early in the honey season, under such circumstances, in about 10 days or a fortnight after being located in its new domicile, the super may be given to it to be finished. It should not be put on before, or the queen will almost certainly make extensive use of the combs ready for her, and spoil them as honey combs for table use.

When removed at the close of the season, or when filled, it should be carefully ascertained whether the stock has stored a sufficient amount for winter consumption in its own hive, as the bees of a young swarm are very much disposed to store nearly all their honey in the super, making use of the combs in the lower compartment for breeding purposes chiefly. Many a fine colony has been sacrificed from this cause, the proprietor imagining, because he has been fortunate in obtaining a box or glass of fine combs, that the stock hive must necessarily be also fully provisioned. No more common mistake, or one likely to be fatal to the well-being of an apiary managed on the depriving system, can occur. In the wretched bee summer of 1862, one only of all our numerous hives filled a super. This, which weighed 25 lb., was removed with some degree of satisfaction; but on examining the stock from which the golden treasure came, there was almost literally no food stored in it. Much as this solitary supply was required for our own home consumption, we did not hesitate to return the whole to the stock hive, and the following year it repaid the consideration by giving a large quantity of fine honey.

It has been previously stated that perforated tubes, or other means for ventilating supers, are not only not required, but are usually quite useless. This doubtless will be opposed to the views held by a large number of bee-keepers. We can only say that we have obtained supers varying in weight from 10 lb. to 70 lb. which had not been ventilated in the least. The entrances of all supered hives should be very much wider than those usually used. Where large and deep supers are worked, the entrances, in the busiest part of the honey-harvest, may with advantage be 7 inches or more in length. This enables the bees to ventilate the whole range of compartments. To some of our hives we can open entrances of 14 inches in length, but this space is only given occasionally. The usual contracted entrances in cottage hives should be omitted, or filled up if already cut, and entrances hollowed out in the floor-boards of 7 inches in length by ¾ of an inch in depth. These can be contracted at pleasure by moveable blocks or wedges of wood. In a large wooden super, a 2-inch aperture may be made in the top; this may usually be covered with a piece of wood, but if the owner fancies the temperature to have become too high, he may substitute perforated zinc, changing it as the holes become filled up by the bees. But we have come to the conclusion, after many years' experience, that ventilation does more harm than good, always provided that the entrances are extended enough, and that too many boxes, with insufficient communication between, are not piled one on the other.

Supers capable of holding 20 lb and upwards have been recommended, and as a rule, we are convinced that more honey will be obtained by using supers of these dimensions than those which contain only a few pounds. With the latter, the powers of the bees to take full advantage of a good honey harvest are very considerably contracted. By the use of small-sized supers, the apiarian may think himself fortunate in obtaining from any hive a harvest of from 12 lb. to 20 lb., but by using those of the larger dimensions, supplies of 40 lb. and upwards are by no means rare.

Garden Memoranda.

Messrs. Waterer and Godfrey's Rhododendrons.—A magnificent exhibition of some of the very best of these useful and ornamental hardy shrubs is now open daily for public inspection in the Garden of the Royal Horticultural Society at South Kensington, and with the exception of a similar show held here last year, we have seldom seen a much more effective or pleasing display. The plants are arranged under the fine tent put up here purposely for such exhibitions, in much the same manner as they were last season. A straight gravelled promenade, 32 feet in width, passes along the centre, on either side of which are banks of Rhododendrons, encircling walks, and a boundary border, filled with choice Conifers.

As may be imagined where thousands of Rhododendrons are gathered together as they are here, they necessarily comprise many fine kinds. Among scarlets or crimsons, the most brilliant are Blandyanum, Brayanum, atrosanguineum, Archimedes, Vandyke, Barclayanum, and Ornatum. Different shades of rose comprise Titian, Roseum pictum, Giganteum, Sir C. Napier, and Elfrida. Among pale kinds the best are still album elegans, delicatissimum, and album grandiflorum. To salmon-coloured sorts in the way of Lady Eleanor Cathcart, Stella is a splendid addition, the flowers being very large and beautiful. Purples consist of Nero, Lord John Russell, Curricanum, Sir I. Newton, and Ne Plus Ultra. Among Lilacs the best are the semi-double Fastuosum, Onslowianum and Everestianum, the last an old but still useful kind. Of pale centred crimson varieties, a class justly much prized, the best are concessum, Alarm, and Bylsianum.

These are a few of the best and most showy kinds. Worthy of notice among real novelties are H. H. Hunnewell and Charles Dickens, both brilliant crimsons; Lady Clermont, a richly spotted variety; and Alexander Dancer, the last a large showy rosy crimson. We may add that a pure white sort named last year Mrs. Clutton, still maintains its ground as the best of its class; and that Mrs. W. Bovill and Lady F. Crossley, are good additions to the intense crimson varieties, as is also Charles Bagley to brilliant crimsons.

The 9° of frost which occurred on the night of the 30th of April last injured the buds of some of the sorts, and exquisitely fine as the exhibition just alluded to is, it would have been still more glorious had the season been more favourable, or no check been experienced.

As regards the cultivation of this class of plants, little need be said. Three points only require special attention:—1, the soil must be loose and rich; 2, there must be free and constant access of moisture without stagnation; and 3, there must be little or no chalk. In these three rules the whole art of growing Rhododendrons and similar plants well consists. Peat is not now considered indispensable; on the contrary, other substances will answer the same purpose, provided they are in the same mechanical condition. The reason of this is obvious. American plants have delicate hair-like roots, which remain for years without any considerable increase in thickness; such roots cannot force their way through a soil which offers much resistance to their progress. Therefore clays, very stiff loams, and other adhesive compact kinds of earth, are unsuitable to them. Excluding these we have nothing left except sand, very sandy loam, and decayed vegetable matter; and those substances form the very soil that American plants demand. The only value of peat consists in its being a good natural mixture of what is wanted, and where it is readily procurable we need not say that nothing else should be employed. The substances just named will, however, answer where peat cannot be got.

As to manure, nothing suits Rhododendrons better than thoroughly rotted cow-dung well intermixed with the soil in which they are planted, and a mulching of Cocoa-nut fibre will also be found of much service to them, especially in dry seasons. Rhododendrons like a damp situation; there must be free and constant access of moisture, without stagnation. All directions, therefore, which insist upon keeping the level of Rhododendron beds completely below the surrounding surface, when the situation is not naturally damp, are founded upon a correct appreciation of the nature of these plants.

The true difficulty, then, in growing American plants is not, as is generally alleged, the want of proper soil, for that may be made anywhere, but the want of a sufficient supply of pure water; and it may be a question whether a very material difference would not be found in those places where American plants grow badly if rain-water alone were used in watering them, instead of that from pumps and ditches.

Mr John Waterer's Exhibition of Rhododendrons.—This is now in great beauty in the Royal Botanic Gardens, Regent's Park, and is well worth inspection. We hope to be able to give some account of the leading varieties of which it consists, next week.

Miscellaneous.

Newtown Pippin Apple.—I wish to say something in regard to the Newtown Pippin Apple, because some people are for ever crying that this and that variety of fruit is "run out." Each class of fruit requires an appropriate soil, comprising therein the constituents naturally adapted to its development; and there are even varieties of the same species of fruit which require a variation in soil. The Newtown Pippin delights in high culture, with manure and lime, and it is the neglect in culture or the lack of the ingredients that renders the tree deficient in vigour and unproductive. I am well satisfied that this variety can be cultivated with as much success and that it will grow with as much vigour as it ever did, provided it receives the proper attention. It is, however, the natural character of both the varieties to grow slower than many other kinds, and consequently to attain to less size in an orchard than most others of the same age. The roughness of the bark of the green variety, which is the kind mostly cultivated, gives to the trees an unthrifty appearance, when, in point of fact, this is but a natural characteristic. I have felt impelled to make these remarks, after inspecting an orchard planted in 1846—47. This Apple has some peculiarities which I have not seen noticed. One is that the seeds do not come from the core clean, but have more or less particles of the core adhering to them. The quality of the fruit varies very materially according to the soil, climate, and treatment. When in its highest state, it has a thin, smooth and polished skin, with tender flesh; others, grown under less favourable circumstances, have a rough skin, the texture of the flesh more tough and breaking. *W. R. Prince, in American "Horticulturist."*

Calendar of Operations.

(*For the ensuing week.*)

Wasps, which promise to be troublesome this season, are not the only pests with which the gardener is likely to have to contend. Slugs, snails, and insects are doing great mischief. Peas, Carrots, Onions, and fruit-tree leaves are disappearing, and unless some effectual means can be found to stop their advance, a good many people seem likely to have no crops left. We strongly advise all who are attacked by slugs to try the effect of lime-water, which does not at all injure any crop, and immediately destroys the enemy. To make the application efficient it is, however, necessary to use it late in the evening and very early in the morning, say at daybreak, when the slugs are feeding. A couple of applications have sometimes been found to be perfectly effectual. Now is a good time to apply liquid manure to all growing crops. Guano is most useful mixed with water. Over a couple of pounds of it pour as much water as will fill a watering-pot; stir it up, leave it for a few hours to settle, and then use it in a clear state. It answers all purposes for all crops that require manure. The time of applying it is when plants are in active growth, and the best way is to give it in the shape of small quantities at a time and often; under such treatment it is surprising what progress young crops make in a comparatively short space of time.

FLOWER GARDEN AND PLANT HOUSES.

Shrubberies now everywhere have a gay and dressy appearance. See therefore that walks, borders, and lawns are rendered equally attractive by means of good keeping. Indoors shading and watering will require particular attention.

Auriculas.—Those out of flower will not need much water, but still take care that there is a proper supply; gather seed as it ripens, and preserve it carefully.

Calceolarias.—Shade from bright sunshine, and keep clear of insects. Herbaceous sorts ought now to be in full flower.

Carnations and Picotees.—Tie up the flower-stems as they advance; remove dead foliage, and top-dress beds or pots which may require it, using a mixture of good loam and well-decomposed manure.

Chrysanthemums.—Where any scarcity of these useful plants exists, it may be remedied thus: select about this time the tops of the strongest shoots for cuttings, putting four or five round the edge of a 3-inch pot, and placing them in a gentle warmth; when rooted, pot singly in the same sized pot, and keep them in a close frame for a few days, until they have become established; the tops may then be pinched out, leaving five or six joints to remain for lateral shoots; after a few days' hardening off they should be removed to an open situation, allowing the plants a sufficient distance from each other to prevent their drawing, care being observed that they do not suffer from want of water. About the third week in July shift for blooming into 7-inch pots, using a small handful of coarsely broken bones at the bottom.

Fuchsias.—Specimen plants reserved under glass for the purpose of open-air decoration may now be planted out. Those required in pots will well repay any attention bestowed on them now. Supply water liberally, occasionally using liquid manure.

Hollyhocks.—Support such as need it; encourage liberal growth by the usual means, such as stirring the soil and applying weak liquid manure, especially to those for competition.

Pelargoniums.—These will now be finely in flower. Shade is essential to brilliancy of colour and preservation of bloom; keep the house clear of bees. Attend carefully to watering, and maintain as far as possible a moist atmosphere round the plants, by damping the floors, stages, &c., occasionally.

FORCING GARDEN.

Cherries.—Spare lights placed now over trees of May Duke against walls would forward the crop very much without further trouble than drawing the lights a little apart during sunshine, and pushing them close, and closing the ends with canvas during the night. They must, however, be securely fastened during stormy weather.

Figs.—In favourable weather let these have plenty of air during the day, and abundance of water, and, except where fruit is ripening, use the syringe freely.

Melons.—This season has not been unfavourable for early Melons, and with many these will be ripe. A second set of plants may therefore be turned out in the same pit.

Peaches.—Forced trees in pots that have ripened fruit should be kept in the house till the beginning of next month. Give them plenty of water, and syringe once a day.

Pines.—Now is a good time to go through the whole stock of succession Pines, beginning with the largest. Let them be taken out of the pits, and turn them out and examine their roots in order to see if a shift is required. After the larger plants have received attention, follow with those of smaller size, putting them into larger or smaller pots according to the amount of vigour they possess.

Vines.—Houses in which Grapes are ripening should be kept at 90° or even higher, with sun heat, but if allowed to fall down to 70° at night, so much the better. On nights following clear sunny days like the present little or no fire will be necessary; avoid overcropping, and take care to keep red spider in check.

HARDY FRUIT AND KITCHEN GARDEN.

With respect to wall fruits, report says that caterpillars are divesting the trees of their leaves; where, therefore, that is the case, apply the usual remedies before the evil has proceeded beyond hope of recovery.

Cauliflowers.—If beds of these are becoming overcrowded, pull out a few of the larger plants, otherwise the whole will be injured.

Onions.—A bed or border may now be prepared to receive thinnings; and a bed of the Silver-skinned may yet be sown in light poor soil to come in for pickling.

Peas and Beans.—As soon as these show flower, pinch off their tops and stir the ground well between the rows.

Strawberries.—Mulch with some sort of rough litter.

Wall Trees.—Never cut out or otherwise remove too much of the summer growth at once; it is much better to begin in time, and stop the strongest shoots only at first, pursuing the removing process with caution throughout the whole of the growing season.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending May 24, 1865, as observed at the Horticultural Garden

May.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth 1 foot deep	Temperature. Of the Earth 2 feet deep	Wind	Rain.
Thurs. 18		30.189	30.034	70	31	50.5	55	53½	W.	00
Friday 19	24	30.327	30.290	71	37	54.0	56	54	W	00
Satur. 20	25	30.28	30.161	75	48	61.5	57	54½	E	00
Sunday 21	26	30.033	29.940	82	59	70.5	57	54½	E	00
Mon. 22	27	29.950	29.921	76	44	60.0	59	55	S W	00
Tues. 23	28	29.984	29.956	77	45	61.0	60	56	S.	19
Wed. 24	●	30.025	30.025	69	37	53.0	60½	56	S.	18
Average		30.113	30.046	74.3	43.0	58.6	57.8	55.7		69

May 18—Very fine throughout, cool at night.
— 19—Very fine, with dry air.
— 20—Very fine; hot and dry; fine at night.
— 21—Dry haze; very fine; heavy storm, thunder, lightning, and rain at night.
— 22—Sultry; very fine, low, irregular, white clouds, very fine.
— 23—Fine; cloudy, overcast; rain at night, and warm.
— 24—Overcast; exceedingly fine; deep blue sky, and white clouds, very fine.

Mean temperature of the week, 3½ deg. above the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 39 years, for the ensuing Week, ending June 3 1865.

May and June.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday..28	67.6	44.8	56.2	15	0.97 in	6	1	8	1	5	7	5	2
Mon. ..29	66.9	44.3	55.6	13	0.97	3	1	3	2	7	4	4	7
Tues. ..30	67.9	44.8	56.3	16	0.34	3	8	6	4	8	4	4	
Wed. ..31	69.1	45.0	57.1	15	0.48	2	9	7	1	5	8	5	2
Thurs. .. 1	67.9	43.9	55.9	13	0.27	1	12	4	—	5	11	3	3
Friday .. 2	68.2	45.1	56.7	17	0.87	1	4	4	3	3	10	6	3
Satur. .. 3	68.9	44.2	56.6	18	0.91	1	4	6	1	5	14	3	3

The highest temperature during the above period occurred on the 28th, 1847—therm. 91 deg.; and the lowest on the 29th, 1864—therm. 25 deg.

Notices to Correspondents.

Grapes: *W A.* The spots at the back of your Vine leaves are not injurious. The Grapes themselves are affected with rust, which has probably arisen from a sudden chill when they were young by opening a door or light. *M. J. B.*

Melons: *Inquirer.* Many causes may contribute to the production of the effects you describe; among them is one upon which you have not touched, namely, the amount of bottom heat you have at command. Melons will not set well and swell off without a steady and genial moist bottom heat of 70°, and if the heat of the bed has not attained that point, you will probably find this to be one of the causes of your young Melons turning yellow when about the size of Nuts. Again, it is not well to withhold water too much during the flowering season, because a certain amount of moisture is necessary to enable such fruits as are properly impregnated to swell off. After all it may simply arise from perfectly natural causes, because you say some are set and going on well, and therefore probably there are as many set as the strength of the plant is equal to, and when that is the case, all the other fruits must of necessity die off. When the requisite number is set and swelling, the rest should be all pinched off, and a healthy foliage encouraged. Four, or at the most five good fruits, are as many as any one plant is capable of bringing to absolute perfection, so that if you have that number to a plant going on well, you may feel sure that the remainder turning yellow is simply because the strength of the plant is not equal to mature them.

Mussænda frondosa: *W H F.* This plant is neither new nor very rare.

Names of Plants: *E.* The plant is the Mercurialis perennis, or Dog Mercury, and is of a very poisonous and noxious character.—*Chester.* Spiræa hypericifolia.—*R S Yates.* The Rhododendron, which appears to be of great substance, was in the state of pulp when it reached us, so that we are unable to say further than that it is very near if not identical with R. Dalhousiæ.—*A B.* 1, Berberis vulgaris; 2, Cratægus coccinea; 3, A blunt-leaved form of Pyrus Aria.—*G W C.* A Veronica, but there is not sufficient material to say which.—*G H S.* Some at least of them are young Lady Ferns.

Vines: *J B H.* Your Vine leaves seem to have suffered either from exposure to the sun or from radiation. Was your house too hot on the night of the last sharp frost, or had you an awning to protect the leaves from radiation? It is impossible to say what is the exact cause of mischief without personal inspection or inquiry on the spot, but we suspect that you will find a remedy in the direction which we have indicated.—*G E S.* There is no mildew. Your case seems to be exactly the same with that of "J B H." The sulphur is quite useless.—*W B B.* It is a very common affection, and we believe does no real harm. A similar thickening of spots on the leaves occurs in Pears, where it is quite immaterial, except when, as in some cases, it attacks and deforms the fruit. We have never seen this to be the case in Vines. *M. J. B.*

Vine Borders: *W G.* If your object is to grow very fine Grapes we would not advise you to turf over your borders in preference to using shutters, because a certain amount of moisture at the roots is necessary to the well doing of the Vines; and a temporary covering, such as shutters, will give you a much greater command over the amount of root moisture than you would ever possess with a turfed border. But if appearance is to be considered, without reference to a superior production of fruit, there is no reason why you should not turf the borders. We have done so, and the Grapes have flourished tolerably well, but not sufficiently so to induce us ever to recommend the practice, except under very extreme circumstances. The subject is a very interesting one, and we purpose to enter upon it very shortly, much more at large.

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The Agricultural Gazette.

SATURDAY, MAY 27, 1865.

IT will be seen by the report of last Monday's discussion in another page that a general meeting of the Royal Agricultural Society has declared that the efforts of the Society in connection with the educational paragraph in their Charter shall not be "especially directed to the promotion of *professional* (agricultural) education." Mr. ACLAND did indeed point out that the motion to this effect, using as it did the word "professional" alone, might hereafter by a strict interpretation be held to exclude agriculture altogether! but this little bit of mere verbal criticism was the only exception to the consideration which the subject received upon its merits; and yet the motion was refused. The minority included such men as Lord FEVERSHAM, the late President; Lord TREDEGAR, the President elect; General the Hon. A. NELSON HOOD, the Chancellor of our Exchequer; Mr. HOLLAND, M.P., the Chairman of the Education Committee; Mr. WILSON, Professor of Agriculture in the University of Edinburgh; and Mr. FISHER HOBBS, one of the most active of our Vice-Presidents; and it may thus be considered a most efficient protest. But it is not the less—indeed, rather the more remarkable, that a proposal committing the Agricultural Society to a strictly agricultural course should not have been acceded to.

Let us, however, console ourselves by the belief, which those engaged in the management of great bodies such as the Agricultural Society are rather apt to forget, that the real work of the country is being done, not by them, but by each inhabitant of the country for himself. Agricultural education, whether in the sense of the majority or of the minority on this occasion, is proceeding and will proceed pretty much as it has done hitherto. It is the relationship of father and son throughout the country that is the real security for that—the real incentive to it—the real guide of it. And however the Royal Agricultural Society may act or refuse to act, farmers, more alive than ever to the value of education, will do their best for the general education of their children; and more alive also than ever, as they must be, to the difficulties of making a living off the land, they will do their best for the "professional" education of the son or sons intended to succeed them on the farm. It is in the latter point, however, where so great a novelty (comparing the knowledge of one generation with that of another) as the application of science to agriculture is at length making itself felt, that external stimulus and guidance are especially needed. For, notwithstanding the many exceptions which every neighbourhood can show, it is the undoubted fact that the tenant-farmers of this country have risen and are rising more rapidly than any other in that general educational standing and intelligence which the Society have thought proper to take under their especial patronage; but which, as we believe, needs that patronage so much less than the strictly agricultural education which they might have taken up, and with which they are "professionally" connected. And small as the educational influence of the Society over the great body of English farmers may be, it would have been more efficient if brought to bear on their own proper work, in the field which properly belongs to them, and on ground where guidance and incentive are really needed, than it is likely to be when directed to work which is not that of an agricultural society, but of the Universities, the College of Preceptors, and other educational bodies, which moreover is not in a field belonging in any proper sense to an agricultural society, nor on ground where any help is wanted.

This was well pointed out by Mr. EDMUNDS, of Rugby. He said the people are really all interested already, what they want is not guidance nor stimulus, but actual schools. Prizes and programmes are useless; for we are all anxious enough, and we all know what we are at plainly enough; the real difficulty is not that there is no interest, but that there are no schools. Our counties generally have not the schools which Surrey, Suffolk, and Sussex possess. His speech was in fact directed to the distinguished and influential individual men before him, not to the Agricultural Society in which, for a particular "professional" purpose, they had associated themselves. And useful as his remarks were, and doubtless will be, they were clearly out of order in the agricultural rooms at Hanover Square, where certainly no scheme for the erection of county schools, such as Mr. EDMUNDS recommends, can ever properly be entertained.

Notwithstanding the present failure of Mr. MORTON's motion, it is not unlikely that the discussion which ensued upon it may lead the Education Committee more anxiously to examine their ground, with a view to action in the direction which it recommends; and thus, as Mr. HOLLAND explained, the thin end of the wedge may have been efficiently entered, and some useful purpose may have been accomplished, even though at the cost of present failure.

Let us, in conclusion, here give cordial expression to the grateful sense in which everybody regards the conduct of this and the other affairs of the Society during his year of office by the retiring President.

Sir E. KERRISON, in acknowledging the warm vote of thanks to him, moved by Lord FEVERSHAM, congratulated himself on the fact that this educational question had arisen for consideration during his presidency. We are sure that the members of the Society may well congratulate themselves upon it too. No one has more unquestionably than Sir EDWARD KERRISON the right, which actual performances confer, to express an interest in the general education of the middle class in country districts. And the subject of agricultural education—for that doubtless is the direction in which the labours of the Society will henceforth turn—must also ultimately benefit from the energetic spirit of the Education Committee which he has done so much to stimulate and direct.

ON Wednesday, June 7, Mr. STRAFFORD will sell by auction, at Willis's Rooms, King Street, St. James's Square, the "Duchess" herd of the late JOSEPH HEGAN, Esq., of Dawpool, near Birkenhead; and the highest average price that has ever been realised in this country for a whole Short-horn herd will doubtless be realised on that occasion. The 18 animals, then, to be disposed of are all (except IMPERIAL OXFORD) descendants from *Duchess 51st*, purchased by the late Mr. BOLDEN at the Kirklevington sale; and the bulls GRAND DUKE, CHERRY DUKE, and others, used upon her produce, have all contributed to the pure "Duchess" blood, of which this is one of the only two herds of which this country boasts.

The history of the *Duchess* family is the most extraordinary of any in the annals of the Short-horn breed; but it will be more proper to give it when the Dawpool sale shall have added another seal to the wonderful testimony in favour of a pure and uniform descent which it conveys. Meanwhile we quote from Mr. STRAFFORD's advertisement his assertion that this tribe "for purity and length of breeding stands unrivalled. With the

exception of IMPERIAL OXFORD, the entire Dawpool herd is directly descended from the celebrated cow '*Duchess* 51*st*,' bred by Mr. BATES, at Kirklevington, who purchased '*Duchess* 1*st*' at Mr. CHAS. COLLING'S sale in 1810, and he originally obtained the family from the ancestors of the Duke of NORTHUMBERLAND. Animals of this tribe have gained the highest honours in the show yard, and realised the greatest prices ever attained at any public sales."

In illustration of this we may recall the fact that at the Tortworth sale a cow and calf of the *Duchess* family were sold for 1010 guineas; and that 10 animals of the family realised 4420*l.* 10*s.*, or upwards of 421 gs. each.

The small herd to be now either dispersed or disposed of in one lot are descended from Mr. BOLDEN'S 13 GRAND DUKES and *Duchesses* for which Mr. HEGAN paid 5000*l.* three years ago. Some few descendants of this herd have been sold since Mr. HEGAN'S purchase. Thus a yearling bull hired by Colonel PENNANT, with the option of purchase for 500 guineas, remains at Penrhyn; and Mr. MCINTOSH owns another.

If the sale of Wednesday week should take place piecemeal, we cannot doubt that some of the highest prices known to Short-horn history will be realised; and whether it goes in one lot or not, the average price which will be realised will doubtless be the greatest which a single herd has ever made.

—— Mr. STRAFFORD disposed on Thursday last of the herd of pure-bred Shorthorns, the property of Mr. WELLS, of Penshurst. The amount realised for the whole number of 32 animals was 1080*l.* 9*s.*, viz., 831*l.* 6*s.* 6*d.* for 24 cows and heifers, and 244*l.* 2*s.* 6*d.* for 8 bulls and bull calves, being an average of 33*l.* 15*s.* 3*d.* each for the entire herd. Among the principal prices realised was 46 gs. for Lot 4, *Rosa* (Rev. C. MARSHALL); 59 gs. for Lot 8, *Maid of the Valley* (Colonel LESLIE, M.P., Ireland); 70 gs. for Lot 10, *Rosa Bonheur* (J. BLYTH, Berks); 60 gs. for Lot 15, *Maid of the Mist* (J. HEATHCOTE, Hunts); and 46 gs. for Lot 3, bull, also bought by Mr. HEATHCOTE. Immediately after Mr. WELLS' sale, the small herd belonging to Mr. WALDO was disposed of at an average of 35*l.* 1*s.* for the 11 cows and 5 bulls. The highest price was 71 gs. for Lot 5, *Fathom*, bought by Mr. PAWLETT, Beds. It was a fine bright day, and a large company were present, who did ample justice to an admirable luncheon.

A MOST instructive lecture on the qualities of the water available in irrigation was on Wednesday given by Professor VOELCKER, the Consulting Chemist of the Royal Agricultural Society. He first referred to the great variety of opinions which exists as to the way in which water acts in irrigation. Its fertilising influence is attributed to the deposit of matters suspended in it—to the mineral matters dissolved in it—to the carbonic acid present in it—to the warmth which is conveyed by it. The subject, in fact, has been most variously treated; and yet many a point throwing light upon it has been altogether neglected. Thus it is often forgotten that, after all, it is the soil (and the relation of this to the water) to which the Grass produce is due. In some cases water on a sufficiently rich soil is thus more valuable than manure. A shower of rain is often more beneficial than many cart-loads of dung, which would, indeed, be useless without it. And on the other hand there is many a light porous sand, though full of dung, which is rather impoverished than not by a flood.

Professor VOELCKER next discussed what it is that water does to the soil of a water meadow. It carries air *into* the soil; for it is to be understood that in successful irrigation the water goes through the land as well as over it. This air converts the organic matter of the soil into food for plants; this it does chiefly by its oxygen. Moreover, it also converts certain inorganic matters of the soil into food for plants; and this, on the other hand, it does chiefly by its carbonic acid. Again, especially, water carries warmth to the plants of the meadow. This is of great importance during the winter and early spring months, when being warmer than the air it tends to promote the early growth of the Grass. And, lastly, water carries in itself the actual food of plants to them.

The waters ordinarily used may thus be arranged, according to the order of their merit, as follows:—

1st. Sewage-water, containing ammonia, phosphates, and potash.

2d. Drainage-water, which often contains much valuable matter washed out of fertile soils above, and which certainly ought not to be wasted, but used if possible on the lower lands in irrigation.

3d. Water containing the *debris* of rocks, such as the water of the Nile, and also certain warp-depositing tidal waters used on the coast of Lincolnshire and elsewhere.

4th. Spring waters, especially those which are of uniform temperature throughout the year; because that shows that they come from a considerable depth, and having thus traversed a great quantity of earth, they are full of useful mineral matter, dissolved out during their passage. Hard waters are not necessarily prejudicial. The pure chalk waters full of lime, and also containing alkaline matters in solution, are excellent irrigation waters.

On the other hand, there are several bad waters which it is even mischievous to employ in irrigation. Such are bog-waters, not because of the tannin which they contain, but because of the sulphate of iron which they contain in solution. Such also are very saline waters—in particular sea-water, which when it breaks in upon the land renders it infertile for several seasons.

To the discussion which followed Dr. VOELCKER'S interesting lecture, remarks were contributed by Sir JOHN JOHNSTON, who spoke of irrigation as conducted on his estate by Dr. W. SMITH, the father of English geology, in particular instances where the clear spring water from chalk had been beneficially used on the sandy land lower down, and in others when water from the higher moor had, as Dr. VOELCKER stated, actually injured the land over which it had been poured. Sir E. KERRISON called attention to the fact that the re-use of drainage-water which is now so rapidly leaving the uplands, and actually clogging up the outfalls, is one of the most important topics of the day. Not only for irrigation purposes—not only for the use of plants, but actually for the direct use of man and beast, it is becoming a serious question, as Mr. BAILEY DENTON had long been pointing out, how the present waste and injury can be obviated.

THE OBJECTS OF FARMING.—No. I.

WHEN my neighbours are croaking around me, I am perhaps apt to take too sanguine a view of things; but surely it is healthier to laugh as long as one can, and not to sit down and cry. When last year there was a great cry for tenant right, I endeavoured to show in some letters on "Condition" how a tenant might farm highly and at the same time profitably, and secure the return of any capital expended in the improvement of his farm. This year it is the prices of produce that are supposed to be our ruination; but as I cannot, happily for myself, look forward to such an inevitable climax, I again beg for a column or two in the *Agricultural Gazette* to give my reasons for preferring the present range of prices, as being beneficial to the farmer and his farm.

The first and main object when a man takes to a farm is undoubtedly to make a fair return for his capital—I do not say to make his fortune; for it is evident, from the nature of the occupation and on pure commercial principles, that such cannot be the rule.

The landlord is content to let his land at rents producing from 2½ to 3 per cent. on his original outlay. If he could get more, or even as much, by farming his land himself, is it to be supposed that he would incur the risk of taking a tenant who may or may not prove a good neighbour as well as a good farmer, or the annoyance of valuations of damage by game, &c.? Would he not be delighted if to his proud position of owner he could add the influential and attractive feeling of being the master of the whole domain, of employing whom he liked, cultivating as he liked, and improving where he liked? It is because the margin of profit is so small that he is obliged to let, and for the same reason the tenant is obliged to consider his position as part of the ordinary return of his occupation. The freedom of a country life, the variety of employment, the opportunities of an occasional holiday with the hounds or his gun, or at the weekly market—even the duties of the various parish offices, with the sense of power and authority which is attached to them—all these conduce to draw tenants into the profession, and are accepted as equivalents for a low return in money. Nevertheless, the gradual rise in rents, and the progressive improvement both in farmers and in farming, show that a fair return is to be made, and my present aim is to trace out how this is to be secured.

The first object of a man entering on a farm, therefore, would be to find out how to farm it most profitably; and as all his profits must arise from the sale of his produce, he must consider what he can produce cheapest and sell dearest. And this consideration will open up a view of his profession which he probably never contemplated. Whether he is an old-fashioned farmer, or a young man brought up on a farm, or even a townsman who is now realising his first experience in country life, he will probably have looked upon the routine of a four-course or five-course rotation as an agricultural necessity, and that the sowing so many acres to corn, and threshing them out to pay the rent, are as certain to follow as the return of summer and winter. But should he be of an inquisitive and philosophical disposition, and look a little closer into the reason of things, he will soon see that the causes which operated some 50 or 60 years ago to make these rotations so general no longer exist. The price of Wheat was then fixed, as far as Acts of Parliament could fix it, at 80*s.* to 100*s.* the quarter, and other corn in proportion, by which prices our fathers were induced to grow corn as often as they could, and were contented with and repaid by a crop of three or four quarters to the acre; but these prices having passed away, he will soon find reason to think such crops are now no longer remunerative. When he adds up his rent, his tithes, and taxes—say 2*l.* an acre—his labour and other expenses, some 3*l.* per acre more, and finds from Mr. Lawes and others that every quarter of Wheat carted off the land takes away with it 40 lb. of ammonia, the very essence of his manure, and worth at least 1*l.*, or 5*l.* for every load of Wheat sold, he will discover that these three or four quarters of Wheat, which used to pay the rent of the farm, do not now pay their own expenses. Barley and Oats will give nearly the same result, only that Barley, on good Barley land, pays better for malting, and being a shorter time in the ground robs the land less, and any portion of these consumed on the farm will not rob the farm. He will then make the same calculation with respect to the fallow crops—Beans, Peas, Clover, and roots—which he proposes to turn into meat. He will charge them as before, with their proportion of the rent, &c., 2*l.* 8*s.*, expenses 3*l.*, making about 5*l.* per acre; he will add nothing for manure, the carting, &c., being included in the labour. He will then consider what he can sell these crops for to his own beasts, *i.e.*, what they will pay him beyond the 5*l.* per acre for fatting—any sum realised beyond this being his remuneration for time and skill, and interest of capital expended. I will endeavour to show this will promise him much more satisfactory results than his three or four quarters of Wheat. *J. B. M.*

FARM-YARD MANURE.

The following are extracts from one of a short course of lectures lately delivered by Mr. Wallace Fyfe before the Royal Agricultural College.]

As matters at present stand with the farmer, it is only by a liberal supply of manure to land kept properly in heart that he can expect to rear remunerative crops. He must work and he must weed—he must plough, grub, stir, roll, harrow; but unless he puts in the manure he may not be able to calculate on a due reward for his labour. Undoubtedly there is a system, that known as Lois-Weedon, and there are instances of land having, as in ancient and why not ignorant times, been rendered productive by working alone. But science teaches us that the art of cultivating between the rows of Wheat—that the mechanical working and pulverisation of clays, in which year by year crops of Wheat are grown without manures, amounts in reality to nothing but a mode of liberating those elements of fertility in the soil, of which but a limited portion are at one time found available or in a soluble condition, but which by the commingling of ingredients which react on one another, are liberated to a greater extent than ordinary. Combined with this mode of cultivation, it appears to me that the judicious addition of manure would wonderfully improve the present system of cropping, although of course it would be dangerous to omit a proper course of rotations. This last is an important point to be attended to by the agriculturist of whatever grade, whether tenant or proprietor, because we have for centuries been drawing from the land its more valuable constituents, and of course, as this goes on, the cost of cultivation, instead of being reduced in proportion as the powers of production in the soil decline, will rather be increased by the extra efforts we must make to keep up the returns. And this is exactly what is now taking place. The enormous sums expended in fertilisers in British agriculture are however eminently successful in keeping the returns up to and even beyond the mark of expectation. The agricultural chemists have it all their own way. But as doctors differ so do they. You are of course aware that they divide into two grand theories. Liebig favours that known as the "mineral theory," whilst Messrs. Lawes & Gilbert oppose to it the "nitrogen theory." The mineral theory rests its entire reliance on the importance of mineral or saline substances, and maintains that if the inorganic constituents of the plant be sufficiently supplied, the plant will find itself in nitrogen and carbon, the one in the form of nitric acid and ammonia, the other in that of carbonic acid—from the atmosphere. Whereas the nitrogen theory, assuming the existence in the soil of an inexhaustible supply of saline substance, with constant accessions from rocky decomposition and disintegration, holds in fact that there is already a surplus of plant food or pabulum in the soil, requiring only the addition of ammonia to develop the growth of plants. That there are soils more or less destitute of the mineral food of plants this theory does not gainsay; it holds however that in general there exists an excess of this, of which plants are precluded from par-

ticipating because of the difficulty of absorbing ammonia from the air, whilst the addition of ammoniacal salts in the soil supplies the stimulant that enables the crop to become more productive. No doubt the truth lies somewhere betwixt these conflicting theories. It is certain that of an excess of mineral matter the plant cannot take advantage without a corresponding excess of gaseous food; and that this last can only be supplied by adding to the soil substances whence the roots of the plant may obtain it. To this demand we are obliged to conform under an advanced condition of cultivation which asks a yield of thrice or four times the amount with which the farming of only a few years ago would have remained content. In a well cultivated soil the plant, however, finds not only mineral food, but the decomposing remains of plants grown in former years, which supply carbonic acid and ammonia, that add materially to its development. Agricultural chemists formerly thought that whatever was taken up from the soil by the roots of the plant must be soluble in water, and that nothing else was available for the growth of the plant. But Liebig's more recent doctrine is that the roots themselves possess an inherent power of solution over mineral substances, although it is indispensable that water should be present.

Farmyard Manure has been termed by Dr. Voelcker a universal perfect manure, because it contains all the elements to be found in the soil. Manures in the form of cattle dung and ordinary farmyard composts have indeed been known and employed from time immemorial for the purposes of fertilisation. Of the constituents of farmyard manure nitrogen is the first in value, phosphorus the next; and the great object in its economy or management should consequently be to preserve these constituents, which are evolved in the dung-heaps during the process of putrefactive fermentation, and are carried to the soil in the respective forms of ammonia and phosphates. The change which occurs in the fermentation of dung-heaps is this: In

Per Cent.	Fresh Dung.	Rotted Dung.
The organic matter is	83.48	68.24
And the inorganic	16.52	31.76
	100,00	100.00

And were it not that excellent fixers of the ammonia are formed within the heap whilst this is going on, considerable deterioration would ensue from the process. This manure, as we all know, is composed of excrementitious matters of the live stock of the farm, intermixed with straw or other materials used as bedding or litter for the animals. Thus, whilst 100 lbs. of farm-yard manure are considered equal to 125 lbs. of the solid excrements of the cow, they are equal only to 91 lbs. of the liquid excrements of the cow, to 73 lbs. of the solid and to only 16 lbs. of the liquid excrements of the horse. Still it is found that to apply for any length of time any one manure is distasteful to the soil, and such continued application, however rich in nitrogen, is productive of failure and disappointment in the results. It has been estimated, in regard to the production of dung, that one horse or cow yields per annum 10 loads for a two-horse waggon, and a young ox or cow five loads; that one horse fed in the stable yields 15 loads of dung, and one turned out to Grass 7½ loads; so that, calculating at the rate of 20 loads of cattle dung per acre, or 18 of horse dung, an ox may be said to manure half an acre, a young ox a quarter of an acre, and a stable-fed horse as much as five-sixths of an acre. A horse fed, however, principally on corn will yield dung equal in value to one which consumes twice as much weight of hay; and it is quite obvious how the food of the animal affects the excretions, and why the excreta from corn or cake should be vastly superior in value to that of an animal subsisting on straw. The age and character of the animal produce also corresponding results. A full-grown animal abstracts from its food only the materials necessary to replace the waste of its body. A growing animal not only does the same, but moreover the additions required to build up its skeleton, muscles and tissues. The matured animal does not separate the phosphate of lime required for the bones, or so much gluten and nitrogenous compounds for its flesh. Thus, with a full-grown animal the manure may be taken to represent all the constituents present in the food, with exception of the carbon wasted in respiration. All breeding and milk-producing animals severely impoverish the food they receive, and hence their manure is of less value. These facts I adduce to show you that the conditions under which farm-yard manure may be produced, differ so materially as to render analysis useless. Of course, also, the proportions existing between the straw or litter used and food consumed alter and affect its value. Everything depends upon the management. Dr. Voelcker in one experiment found 961 lb. of dry manure reduced in six months to 689 lb., and in one year to 507 lb. The soluble organic matter he at first found to be 70 lb.; in the course of six months it became 86 lb., but exposure to rain in three months reduced it to 50 lb. In other experiments 100 cwt. of fresh dung became reduced to 80 cwt. when half rotted, 60 cwt. when "fat and cheesy," and to about 45 cwt. when completely decomposed: 100 cwt. of dung contains when fresh, 40 lb. of nitrogen; but these are dissipated in the form of volatile ammonia—during fermentation in the first period 5 lb., in the second 10 lb., and in the third 20 lb. Thus it is that theorists maintain that since dung when fully decomposed may suffer a reduction of one-half in bulk and value, it is better to apply it fresh to the land to prevent the loss of its volatile gases and drainings from the heap. Thus also the protected manure formed in the box-feeding plan is contrasted with the farm-yard dung of the open pit, as richer in ammonia and in soluble constituents, both organic and inorganic. According to Dr. Voelcker:—

Box Manure contains.		Common Farm-yard.	
Water	71.04	Water	71.00
Nitrogen = ammonia, 2.87	1.95	Nitrogen = ammonia, 1.70	1.04
Organic matters removable by water ..	6.42	Organic matters removable by water ..	1.82
Inorganic do., viz.:— Phosphoric acid, 0.30.. Potash and soda, 2.00..	4.28	Inorganic do., viz.:— Phosphoric acid, 0.21.. Potash and soda, .80..	2.78
A small quantity of lime and a considerable quantity of silica not determined.		A trace of lime, and a considerable quantity of silica not determined.	

To read a detailed analysis we must have recourse to the market values of fertilisers as set down by Professor Way, (Royal Agricultural Society's Journal, xvi., p. 539), viz., nitrogen 7 $\frac{3}{10}$*d.* per lb., ammonia 6*d.*, phosphate of lime ¾*d.*, soluble phosphate of lime 3¼*d.*, potash 3 $\frac{3}{10}$*d.* Whence we make out the manure when fresh and unfermented to be worth 13*s.* 6*d.* per ton, and worth only 12*s.* 6*d.* when well rotted. But the fertilisers formerly gave in each case 47¾ lbs. to the ton against 6 cwt. 1 qr. 10 lbs. of fresh, and 4 cwt. 1 qr. 27 lbs. of well rotted materials, besides 13 0 26¼ and 15 0 9¼ respectively of water. It may be said then that in farmyard manure the fertilisers exist in a very bulky shape, since we have to carry to the land with 48 lbs. of actual manure from 13 to 15 cwt. of water and from 4 to 6 cwt. of inferior matter. But whilst this may entail a large amount of carriage and labour, the mechanical effect of the mere form of farmyard manure must not be ignored, since we find it exerting an important influence on the mechanical condition of the soil, admitting atmospheric air, admitting changes of temperature, and evolving gases promoting vegetation, as well as by its fermentation yielding the heat which produces germination and growth. It would seem not at all a false opinion that the value of our active manures is considerably increased by their more complete distribution in the soil, and farmyard manure in the form in which it not only supplies but distributes the food of plants, would appear to teach us the lesson that our artificial manures, thoroughly intermixed with other matters, with a view to their more effectual distribution, would prove productive of more advantageous results.

Home Correspondence.

Flax and Cotton Mixed.—As to the mixture of Flax and Cotton to make a middle cloth between the old low price Cotton and linen shirts, allow me to solicit your attention to the fact as to my proposed change in the manufacture of the union to that which I made 25 years ago in Ireland by warp of cotton and weft of Flax, or warp of Flax and weft of Cotton. The Flax yarn being spun through hot water is hard and stiff when dry, so much so that even when boiled and woven with cotton, which is so soft, that when the cloth is bleached, the soft cotton is so much reduced and damaged by the acids, that the linen thread cuts the cotton and falls into holes on being two or three times washed; therefore, to obviate this, my system comes in, a thorough success. First I take the Flax-straw green from the field, and without steeping, I take out all the wood, and that, fortunately, by my new machine without scutching; then I turn on a run of hot water, and having discharged the natural green resin or gum, I wring it at the same end, by two wooden rollers, and from them I place it back in the same machine for the softening or bleaching, as it will be termed, which I do without any acids or chloride of lime. I then in five minutes turn out the Flax, Hemp, or Rhæa, white as snow and soft as silk; it then passes to my hackling machine, then to my cutting machine, which cuts it the exact length of Cotton, from 1½ inch down to ¾ inch, dropping ⅛ each; card all up together, either to be spun on cotton machinery by itself, or mixed with India or Egyptian Cotton, which cannot be spun unless mixed with the strong Cotton of America. *J. H. Dickson*, 117, *Great Dover Street, S.E.*

Are Farmers Increasing in Numbers?—I read in Mr. Dent's part of the discussion on Mr. Morton's paper, read before the Royal Agricultural Society on Wednesday last, "farmers were increasing in numbers." How can that be? Look north, east, south, and west, and see what has been going on for many years. In all those directions farm has been joined to farm in nearly every parish, and it is well known that the number of farms in England is decreasing. Then I say again—how can that be? There never was a time when so many young farmers retired from farming after a few years' practice as there are now. They very seldom (what is called) break, but they retire with empty pockets. Some procure employment as farm bailiffs, others set up jobbing, some go to Australia, or perhaps to New Zealand; some get employment on the railways, some few of the best book-learned of them become writers for the press; the new Highway Act has given a few employment, and some become beggars. There is a pretty picture for you!—yet for all that it is true. There never was a time when the following words of Mr. Dent's would apply with anything like the force as now:—"Many young men embraced farming as a pleasant occupation, and having plenty of capital it was not unnatural that they should regard as the most agreeable part of the farming life the amusements of the hunting field." And there never was a time when so many such "young men" retired from such "a pleasant occupation" after a few years' occupation as there are now. I know some who started with large farms of their own, who have not only sold those farms, but have retired with almost empty pockets; and I know others who have taken large farms and have retired in a very few years with quite empty pockets. What a pretty picture are these "young men," thus painted! They, of course, all kept their bailiffs. There then is the evidence that Mr. Dent is right. Farmer after farmer in both cases are making way, and giving place to others; in the latter case bailiffs and all go: but this is a sad "increasing in numbers." Why is it? It is because they have none of them been brought up as farmers. They have been sent to school to get a little learning, and in some cases a vast little, for the schoolmaster knew full well that the art of his teaching lay in that of pleasing the boys and their mothers. Many mothers now-a-days will not let their boys learn, and the schoolmaster knows it, so he pets the boys to please them, and their mothers to provide himself with bread. As to practical farming, some mothers would think it a disgrace for their sons to learn it. It would hurt their hands, it would soil their shoes, and it would deprive them of all chances of getting a wife to find them in bread; and besides all this, they jump at the conclusion that their sons must be farmers, whether they practise it or not, for they think every fool can farm. So they can; but they are not real farmers who cannot meet the rent day, or are obliged to sell farms and cut. *William Smith, Woolston, Bletchley Station, May* 22.

The Pet Lamb and the Cow.—It may be interesting to know that the lamb (see p. 444), which was removed from the cow, has found out the latter again, and that it renewed its tricks directly. *B.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

The ordinary Annual Meeting of the members took place on Monday at the Institution in Hanover Square, under the presidency of Sir Edward Kerrison, M.P. There were also present, amongst others, the Earl of Feversham, Lord Walsingham, Lord Tredegar, Sir Walter Stirling, Sir T. B. Western, General the Hon. A. N. Hood, Mr. Dent, M.P.; Mr. Holland, M.P.; Mr. T. D. Acland, M.P.; Mr. Raymond Barker, Mr. Beale Brown, Mr. Fisher Hobbs, Prof. Wilson, Prof. Voelcker, Mr. Rigdon, Mr. Claydon, and Mr. Wells.

The retiring members of the Council having been re-elected, and the only vacancy supplied by the election of Mr. J. Wilson,

Mr. Beale Brown said he had a resolution to propose—a resolution in which he thought there was no person in that room, or out of it, who would not cordially join, for it could not be possible to elect a person more suited to be the President, or who would be more popular in that position, than Lord Tredegar. Few men had done more for agriculture than he had done, and that grand Society, which was formed entirely under his lordship's auspices, and at his own expense, was now rivalling some of the large Societies of the day; in fact the agricultural meeting at Newport was getting year after year of still greater importance. He proposed that Lord Tredegar should be elected President for the next year.

Sir W. Stirling could have wished that some one of greater influence and authority than himself had risen to second the motion, but from what he knew of his lordship, and what he had seen going on upon the most liberal plan with the most enlightened intelligence upon his estate, he felt that it was impossible for any one to doubt the admirable fitness of Lord Tredegar for the high and distinguished office of President of the Royal Agricultural Association.

The motion was carried unanimously.

Lord Tredegar: I assure you when my kind friend Mr. Torr at our last monthly Council mentioned my name as a candidate for the office of President, it took me quite by surprise. A few days before he had written me a letter to say that such was his intention, but I begged that on no account would he put my name forward, as my occupations in the country are so very numerous that I could hardly hope to be able to give the attention I could wish to this meeting. But as Mr. Brown and Sir W. Stirling have so handsomely proposed me, and as I have been unanimously elected, I can only say that no one has the interests of this Society more at heart than I have; I have been 40 years a practical agriculturist, and I believe that in my own county I have done what I could to forward the interests of agriculture, and, as far as my humble abilities go, I shall always, as long as I fill the office of President, endeavour to discharge the duties of that office in the manner best calculated to promote the interests of this Society.

The Trustees and Vice-Presidents were re-elected, after which,

Mr. H. Hall Dare (Secretary) read the following Report:—

REPORT OF COUNCIL.

Since the last General Meeting in December 41 members have died; and the names of 220 members have been removed from the list by retirement, nearly the whole number of these having joined the Society for the Newcastle Meeting only; while three governors and 95 members have been elected, so that the Society now consists of

Life Governors	79
Annual ,, ...	81
Life Members	1386
Annual ,, ...	4190
Honorary ,, ...	16
Making a total of	5752

The Council have elected Sir Massey Lopes, Bart., M.P., a member of Council, in the room of the late Mr. Buller, M.P.

The half-yearly statement of accounts to 31st of December, 1864, has been examined and approved by the auditors and accountants of the Society and together with the balance-sheet for the whole year 1864 and a statement of the Country Meeting for Newcastle-upon-Tyne, has been published in the last number of the Journal. The funded capital has been increased by a further investment of 2000*l.*, and now stands at 21,027*l.* 19*s.* 6*d.* in the New Three-per-Cents. 1000*l.* remains on deposit with the Society's bankers, and the current cash balance in their hands on the 1st inst. was 1981*l.* 17*s.* 2*d.*

Members will have observed in the accounts for 1864, the item of a legacy of 10 guineas left by the late Berish Botfield, Esq., M.P., the first instance of a bequest to the funds of the Society.

Papers have been read at the Weekly Meetings by

- Mr. Lawes, on Sewage.
- Mr. Ellman on the Management of a Breeding flock of Sheep.
- Professor Voelcker on Natural Deposits of Potash in Germany.
- Mr. T. Beale Brown on Flax.
- Mr. Morton on Agricultural Education.

The Council, in deciding upon the course of action to be pursued on the important subject of Education, have found it attended with much difficulty; and indeed considerable diversity of opinion has been expressed as to the best mode of procedure. The Council after much deliberation have decided

for this year to limit their prizes to candidates examined at the Local Examinations held by the Universities of Cambridge and Oxford. They consider that sufficient attention has not hitherto been given to the general education of the sons of Agriculturists. A good sound education once obtained, special education may be properly rewarded. The groundwork of Chemistry, Botany, Zoology, Geology, and Mechanics, and the study of Mathematics are included in the subjects for examination both of Cambridge and Oxford. To candidates, who shall be recommended by any member of the Royal Agricultural Society of England, and who must be persons in some way dependent on the cultivation of the land for their support, or intending to make agriculture their profession, the Council offer the following prizes, viz.:—

100*l.* in prizes amongst those who shall pass the Cambridge or Oxford Senior or Junior Examinations.

100*l.* to those at the Cambridge and Oxford Examinations who, having passed the preliminary Examination, shall have distinguished themselves in Mathematics, Mechanics, Chemistry, Physics, Botany, Zoology, or Geology. In addition to these prizes, the Committee are in negotiation with the authorities at Cambridge, in order that papers, bearing upon special subjects connected with Agriculture, may be set at the next examination in December. Should these negotiations be successful, a sum of 60*l.* will be offered for two papers, one on Agricultural Chemistry, and one on Mechanics as applied to Agriculture; which papers will be prepared by gentlemen appointed by the Royal Agricultural Society of England, and reported upon by them. Candidates not exceeding 25 years of age may compete for these special prizes.

The objects which the Council hope to attain are to improve sound general education, and to encourage proficiency in such branches of sciences as are applicable to the study of Agriculture and calculated to prepare the mind of the student for the proper reception of that practical education, which can only be completed by observation of the working of a farm, where he may be enabled to test the value of such theories as may be presented to him.

The Council have resolved that the Implement and Stock Prize sheets for the following year shall in future be prepared at the November Council and reconsidered in December, in order that members and the public may have them at an earlier period than heretofore.

The Contract for the Show-yard Works has been under the attentive consideration of the Committee, and the Council have appointed a surveyor who will form an estimate of the value of the works at Plymouth, and advise the Council as to the desirability of purchasing a large portion of the plant and materials, which are at present hired annually from the Contractor.

The arrangements for the Plymouth meeting, to be held during the week commencing Monday, 17th July, are progressing satisfactorily.

A very large entry is already made of Implements, and the entries for Stock, which will close on the 1st of June, promise to be equally numerous.

The Show-yard will be open as under:—

	s.	d.
Monday	5	0
Tuesday	2	6
Wednesday	2	6
Thursday	1	0
Friday	1	0

The Council have determined that the Country Meeting in 1866 shall be held at Bury St. Edmunds.

The district for the Country Meeting of 1867 will include the counties of Derby, Leicester, Lincoln, Nottingham, and Rutland.

By order of the Council,
H. Hall Dare, Secretary.

The Chairman explained that the 60*l.* prizes were to be given in two half-years, not the whole sum in one payment, as might be inferred from the paragraph in the Report.

Agricultural Education.—Mr. J. C. Morton: I wish to make some remarks in reference to the educational part of the Report, and I am encouraged to do so by the confident belief that the Council are ready not only to receive but to welcome the criticisms of members at their general meetings. I have no doubt whatever that the Education Committee, whose resolutions on this subject have been adopted by the Council, have studied the subject with the anxious desire that the Society should, as our Charter declares, promote "the education of those who are dependent on the cultivation of the land for their support." And yet, had I been a member of that committee, I must, both on the question of order and on the merits of the case, have been one of the minority who opposed the determination to act through the University middle-class examiners which has been arrived at. For, on the question of order, what is the education to which our Charter refers; and on the merits of the case, what education is it the promotion of which is especially needed? I believe that in answer to both of these questions we must name the professional education of the farmer. And my remarks are intended to show that it is this which is referred to in the Charter; and this which in point of fact especially needs our attention. Our Charter specifies several objects for which we are incorporated, and they have all a direct connection with farm practice and agricultural improvement. We are fact a professional body, incorporated for strictly professional purposes. And I submit that this one educational object specified among the others, in the definition of which a certain ambiguity or indefiniteness of expression is laid hold of as sanctioning the idea that it is general and preliminary school training that is referred to, must be read in the light and spirit of the others, which clearly define our position as a strictly professional agricultural body. And to the same conclusion the whole history of the Society plainly points. In the outset, when it was first contemplated, the letter of Mr. Handley to Earl Spencer, and the speeches of these and other noblemen and gentlemen at the preliminary meetings, were all full of reference to the details of farm practice—all pointing to the Society having been established for their improvement. The whole subsequent proceedings of the Society to be read in its Journal, show that this is the idea which its leaders have ever had. And the history of its achievements, written at intervals by Mr. Pusey and Mr. Thompson, plainly shows that the Society has all along been labouring within the strictly defined limits of its professionally agricultural purposes.

It was on these grounds that I declared at the last general meeting, and I confidently repeat it now, that the question of general middle-class education, whether the boys to be stimulated and directed be the sons of farmers or not, is as much outside of us as it is outside of Apothecaries' Hall. In a letter subsequently published, Mr. Dyke Acland has pointed out that the authorities at Apothecaries' Hall do recognise the need of a good preliminary education; for they do not admit students to their professional career except after proof that they possess a certain general educational status. But the efforts of the authorities at Apothecaries' Hall are not directed to the promotion of this preliminary education. Their efforts are directed solely to the promotion of professional education. Their prizes and distinctions are awarded not for proficiency in mathematics, languages, and so on, but for proficiency in the professional departments of study to which the students are thus admitted; and therefore it is that I believe it is exactly as the promotion of general education is outside Apothecaries' Hall, that *so* it is outside of the Agricultural Society. For we too might very well claim from the candidates for our honours and distinctions that they should bring with them sufficient certificates of general educational attainment, notwithstanding that it is not for this but for proficiency in the different branches of an *agricultural* education that our honours and distinctions should be conferred.

But looking simply now to the merits of the case—what is it which the young agriculturists of this country especially need? I feel certain that any one who shall set himself to collect the testimony of intelligent observers in our country districts must arrive at the conclusion that the general educational standard has been rising for many years among agriculturists, and is likely to rise year by year more rapidly. Farmers and farmers' sons are more intelligent and better educated than their fathers were; and no whip or guidance is wanted here at all. On the subject of their sufficient professional education, however, there is no such unanimous belief. As to the practical details of farming, it is said that young men, though better educated generally, are not better farmers than their fathers were. And as regards the so-called agricultural sciences, *their* agricultural relations have been so lately ascertained and worked out that there are very few who can be said to have derived that professional benefit from an acquaintance with them which must ultimately arise. Here, then, is the educational field which is open to the Agricultural Society. Let us appoint examiners to visit any district which may invite us with a view to the award of prizes for proficiency in these two great departments of professional education. We should thus be keeping strictly within the limits of our Charter. No one could accuse us of meddling with what is no affair of ours, and we should at the same time be at work where work is really wanted.

I referred last Wednesday here to the fact that the country is already divided out for the purposes of this Society into eight or ten provinces or districts. I hope ultimately in connection with this subject of agricultural education to see these districts stimulated by their own local societies collecting a sufficient sum annually within their limits for the purpose of educational rewards and scholarships; collecting, moreover, annually the names of a sufficient number of young men—agricultural students—belonging to each, whose general education shall be such as admits them to the competition for these prizes; whose rank in practical skill and proficiency shall be determined by the local authorities, partly, perhaps, by certificates from farmers, partly by actual contests in ploughing, sheepshearing, thatching, hedging, and what not, such as we have for the labouring men, whom they ought as farmers to be able if necessary to teach; and, lastly, whose agricultural intelligence and scientific knowledge shall be determined by the Society's travelling examiners. Surely our connection with some such scheme as this would be keeping more within our own proper field as an agricultural Society than that which has been so far sanctioned and adopted of asking the Universities to award the Society's prizes for general school attainments. I beg, therefore, to move that in receiving the report which has been presented, the Society do desire that their efforts in connection with the 7th object specified in their charter of incorporation be especially directed to the promotion of professional education.

This is almost identical with a motion which I offered at the last general meeting, and which was subsequently withdrawn on the suggestion of Mr. Thompson, that the discussion ought to be satisfactory without a division: and some explanation on that point may be due from me now. Mr. Thompson's suggestion was then assented to, first because the discussion really was satisfactory, and ought, I think, to have had more influence with the Education Committee than it has had. And, secondly, because it was felt at the time that no real progress is achieved by too rapid a decision, and that the discussion of the subject, both indoors and out, which has since been carried out, was really necessary to a fair conclusion. I feel bound to add, in the interests of this motion, which is now repeated, that although I did not venture last December to persevere in an opposition on this subject to such men as Mr. Thompson, Mr. Dyke Acland, and others, yet that it is in no spirit of mere meddling that I press these views again. I have been a member of this Society from the year of its formation, and have never ventured to take any part in its proceedings except in this one instance of agricultural education. And I must add, that although I do not speak with any of that agricultural authority which belongs to a seat at this table, yet I have not been without the means and opportunities of forming a trustworthy opinion on this subject. For twenty-two years it has been the business of my life, my weekly professional duty, to deal with agricultural correspondence from all parts of the country, and to go wherever anything agriculturally noteworthy required examination and report, so that a picture of the actual condition of English agriculture, at least piecemeal and in part, should week by week be published. I submit it to my brother members that an opinion of the condition and wants of English agriculture, formed in such a way as this, is not without a certain degree of trustworthiness. I would beg pardon for this egotism, but it is solely in the interests of my motion that I am guilty of it. I hope that the members of this Society will express the opinion that our operations in connection with every one of the objects specified in our Charter should be directed with especial reference to the strictly professional purposes for which we have been incorporated as a Society. And to this end I have not only stated the reasons which seem to me sufficient for that opinion, but also declared the opportunities I have had of forming a trustworthy opinion of what it may be desirable to do.

I beg to move: "That in receiving the Report which has just been presented to you by the Council, the Society do desire that their efforts in connection with the educational object specified in their Charter of Incorporation be specially directed to the promotion of professional education."

Mr. Beale Brown: I most readily second the motion. I think that education has for the last 50 years been very much at a stand-still, and that among men, even of our own class, there has been a very great mistake in having an education which was not applied to any of the different situations we were afterwards to fill. As regards the education given at the Universities, there is a very great mistake in giving merely a general education, and though I do not like to be egotistical, I must mention a determination which I was once induced to come to, and which I have never had occasion to repent. My son was about being sent to Oxford, and he said he would take his degree or do anything I wished, but that if I allowed him to follow his own inclination he would rather have German masters and learn the living languages than go to Oxford, because a multitude of those who went to the University never afterwards saw a Latin book, and thus their study did no good. I came here one day when some distinguished Germans were present; there was a noble lord in the chair, and several other noblemen sitting at the table, but no one was able to speak to these foreigners. I would then willingly have given 500*l.* if I could have spoken the language. The result of this was that my son had his German teachers, and every one who knows him will testify that the experiment I made has answered beyond expectation. The farmer is placed in a thinly populated locality; the only school within his reach is the school where the labourer goes to, and the consequence is that he is not likely to send his children there. I know many men who ride their hundred-guinea horses; men with large farms and large capital, who cannot, strictly speaking, write a letter. When we have got such material to deal with, we must not attempt too general an education, and the more the system is confined to the pure teaching of agriculture the more advantageous it will be. We are only, I am satisfied, speaking in this the views of nine-tenths of the members who are not present here to-day. We do not want Cirencester Colleges all over the land, but we want to have some teaching of agriculture connected with these schools. I have seen in Ireland some of the young men educated at Cirencester, and can testify that they are men qualified to farm in any country; and in the one or two cases where the system has not been successful, it has been not from want of brains but want of money. I am satisfied from what I have seen of those who have gone forth that they are the pioneers of agriculture in every part of the world where they may be settled.

Mr. Edmunds (Rugby): I think this Society is about to take a step of the utmost importance to the agriculturists of this country. The gentleman who spoke last is much against general education, but if we are not to have a general education, will he tell us what we are to have. What use would be the Cirencester College or any other unless a boy first received a general education? Some speak of a commercial education for certain people, and another education for the higher classes; but I cannot, I confess, see the difference between boys if they have the opportunity of learning. I think the same education should be given to the son of a tradesman as to the son of a peer, up to a certain time, for after all time comes in and cuts the school career of the one short at 16, while the other may go on till he is 19, and then go for a few years more to college. I think what is now proposed to be done by the Society is one of the most important steps it has taken. It was open to them either to acknowledge that education was properly one of their duties, or to say that it was beyond their purpose. I go a long way

with Mr. Morton, but I should not like to reject anything like a good beginning. The Council have acknowledged the subject, but if they tell me that they do not intend to do anything more, I should regret that they offer these few prizes at all. But I still want to impress upon the noblemen and gentlemen present, not that they should give up the prizes, but that they should enable the boys to reap the advantage they ought to possess. In a paper I read before the Farmers' Club I urged this as a duty upon the landowner as well as the tenant farmer, because it must be to the landowner's interest that his land should be well farmed, which cannot be the case unless the farmers are thoroughly educated. The system might do 30 years ago, when produce was protected, but now land is to be made profitable only by intelligence. It is not to be done by running after instruments and new mechanical appliances, but by common sense, and by the knowledge, as the doctors say, of "what to eat, drink, and avoid." Our first duty, not as an Agricultural Society, but as individuals, is for each to see if he cannot in his own locality provide such schools as those in Sussex and Devon and elsewhere for the education of the rising generation. It is not that farmers do not appreciate the value of education, but they have not the means of getting it. Hundreds of men who live 30 miles beyond me, find that their boys do no good at the so-called classical and commercial academies in their neighbourhood, and send them to Hurst in Sussex. I would urge strongly upon noblemen and gentlemen who have influence in their own counties, to see if they cannot establish schools of this class, and if they do so, they will be conferring the greatest benefit, not only upon agriculture, but upon the whole population of the neighbourhood. After looking at the matter in every point of view, I have come to the conclusion that you will do very little good with the prizes you are offering, for I do not see how a proper examination can take place. I do not think the examination at Oxford, Cambridge, and the College of Preceptors is the thing wanted. If your object is to test how far the middle-class education is successful, you will not attain your object by different examinations conducted in different manners; but if you could get the three bodies to meet together and appoint a board of examiners, the competition would be a fair one. But I do not see how this is to serve the cause of general education. If you wanted to interest the people in getting a good education, these prizes might have some effect; but you have already interested the people, and what they now want are the means of getting the education they desire. It was said on one occasion by a gentleman, now present, that prize boys were about as useful as many of your prize bulls, and I am afraid that the proposal in the Report will be as regards agriculture of very little use. If this is only adopted as a means to an end, it has been suggested that you may eventually appoint examiners of your own, or as I think better still, aid in providing a scientific education for boys of 16, at a cost of 40*l.* or 50*l.* a-year, instead of 80*l.* or 90*l.*, as charged at colleges like Cirencester, which is far beyond the means of the agriculturists. There is not a thinking man in the country but must acknowledge that what this Society has effected for agriculture is unequalled, and they will give to the cause a much greater impetus, if they adopt such a scheme as I have mentioned.

The CHAIRMAN explained in reference to the remark of Mr. Edmunds, that by the system of examination proposed, the tests would not be equal in all cases; that the examinations were the middle-class examinations of scholars from all parts of the kingdom, and the prizes were to be awarded separately at each of the Universities.

Mr. T. D. ACLAND said the plan was to award prizes at the close of each half year, and instead of appointing examiners of their own, the Council availed themselves of the examinations conducted by Oxford and Cambridge. The Cambridge boys did not compete with the Oxford boys, but for all practical purposes the standards in the two cases were very nearly the same. The preliminary examination in reading, writing, spelling, history, and geography, had been carefully arranged by the two Universities in concert with the Civil Service Examiners.

Sir JOHN BOILEAU had heartily supported the College at Cirencester, and when it was first set up had lent to it 15,000*l.*, every farthing of which had since been repaid. He must, however, acknowledge that the College had done nothing for the farmer of his county (Norfolk), on account of the heavy expense and its remote position. He was glad to find that a college had been set up in Suffolk, and he should like to see a college or good school in every county. Education was making great way in his part of the country, and he believed if they gave farmers who could not send their children to a good school for agricultural education, the inducement offered by these middle-class examinations, under the patronage of this great Society, it would be a powerful stimulus to education.

The CHAIRMAN submitted that the original intention of the Charter was that the Society should assist in the education of labourers' sons, but as that class was assisted by grants from the State and State examiners, it was thought that the Society might very properly apply some portion of its funds to the encouragement of education amongst middle-class agriculturists. While the mover of the resolution had spoken almost entirely in favour of professional education, the seconder had admitted that in many cases farmers could neither read nor write, a strong argument in favour of providing a liberal and proper education on the basis of professional instruction. It was perfectly true that the matter depended much more upon the establishment of good schools in different counties and places to which agriculturists could send their sons than upon anything the Royal Agricultural Society could do. The examinations tested that which the boys must learn, and they included mechanics, as applied to agriculture, chemistry, and other subjects bearing distinctly upon farming. The Council had not felt themselves in a position, without further deliberation, to appoint examiners of their own, and finding the examinations at Oxford and Cambridge were best adapted to the purpose in view, they had recourse to them, omitting the College of Preceptors, and he trusted that by the next meeting the plan adopted would be shown not to have been unsuccessful. It was only attempted for a year, subject to any modifications that might seem desirable, in the consideration of which attention would be directed to the opinions expressed by Mr. Morton, whose lecture on Wednesday last he recommended every one to read, for he had never in his life listened to anything more practical and good. Of course, a particular examination for farmers could be established, but the question was whether farmers, as a class, would be satisfied with half-a-day's examination as a test of a boy's knowledge of the business into which he was about to enter. They might be stimulated to education by these examinations and also through the influence of agricultural societies throughout the country, a most valuable suggestion of Mr. Morton's. The recommendation of the Council must be regarded as an experiment, and he trusted it would not be condemned till it had been tried.

Mr. MORTON did not object to what had been done: his motion accepted the Report; it declared merely that the educational scheme of the Society should be directed specially to the professional education of the farmer. If they spent 200*l.* upon general education, his motion merely required that they should spend more than 200*l.* in the promotion of professional knowledge.

Mr. HOLLAND, M.P. (Chairman of the Education Committee), did not think the funds of the Society ought to be expended upon general middle-class education, the advantages of which should not be denied to the farmer, but which were open to him outside the Society. In rewarding efficiency at the University examinations, they were giving prizes where prizes and certificates were already provided. As an Agricultural Society, all they had to do with was practical professional education. He referred to the fact that, in Devonshire, a scheme was being developed, whereby local funds would be provided for the award of prizes for proficiency in the various branches of professional agricultural knowledge. The edge of the wedge was thus everywhere being introduced; and he did not despair of the Agricultural Society ultimately directing its efforts in the same direction.

Mr. FOWLER said he was obliged, living in Buckinghamshire, to send his boys into Essex for their education, and he knew many others who were in the same position. He believed there was a growing desire with farmers throughout England to give their sons a good classical and general education as the best foundation for professional acquirements, and the present was an excellent opportunity for the Society to give further encouragement to middle-class agriculturists to have their sons instructed in something beyond reading, writing, and arithmetic. He moved the adoption of the Report.

Mr. HERSEE seconded the motion.

In answer to an appeal from a member that there should be a unanimous vote on the ground that Mr. Morton's motion did accept the Report, and only urged upon the Council the importance of the professional education which all must admit, Mr. ACLAND stated that he too had wished for a unanimous vote—but the word "professional" in the motion was fatal to it—professional education meant special education for the professions of law, medicine, or divinity. We could not consent to be bound by a word which might be interpreted against us in future discussions. The Education Committee had laboured assiduously for a twelvemonth with an anxious desire "to promote the education of those who are dependent upon the cultivation of the land for their support;" and he could not assent to a motion which was in itself a dissent from the conclusions to which the committee had arrived.

Mr. BOTLEY did not think the ample funds of the Society could be applied to a better purpose than the encouragement of schools in counties, and if that were done there would be an increasing number of members from those counties.

After some further discussion, in which General Hood, Mr. Fisher Hobbs, Mr. Grimwade, of Ipswich, Mr. Bracebridge, Lord Walsingham, and others participated, the resolution proposed by Mr. Morton was negatived by 16 to 12, and the Report was unanimously adopted.

On the motion of Lord Feversham, seconded by Mr. Raymond Barker, a vote of thanks was passed to Sir Edward Kerrison, and other complimentary motions having been proposed and carried, the meeting separated.

It was announced at the close of the proceedings that on Wednesday the 24th Professor Voelcker would lecture upon Irrigation.

Farmers' Clubs.

HUNGERFORD: *The Operation of the Game Laws.*—A paper on this subject was read by Mr. Henry Corbet, of the Central Farmers' Club, at a recent meeting of this Club, from which we make the following extracts:—

Mr. Corbet said:—If we are in any way to mitigate the evils associated with an excess of game, we shall achieve this quite as much, or more, by the expression of public opinion as by any interference on the part of the Legislature. In fact, treating the matter as a farmer's question, we find that the law already goes with him. The game on the land is in the outset the property of the occupier, and it is only by his own act and deed that he signs such a right away. Of course I need not tell you that the position is virtually untenable, as one of the very first steps on the part of the owner or his agent will be to reserve such a privilege to himself. Nor, indeed, could I wish it to be otherwise; for, as I have already said in another place, any attempt to do away with our rural sports and pastimes would be a grievous error, as none would oppose such a movement more than the farmers themselves. It is the practice of these pursuits that goes to cement the union between the landlord and his tenant, that teaches the one to regard the other with a feeling something beyond the mere consideration of pounds, shillings, and pence, and that nourishes between them a stronger sympathy, and a healthy tone of good fellowship. In plain truth, a good landlord and a good sportsman should mean much the same thing, and I look upon it as a happy omen for any district where they can thus ring the changes one on the other. You will see in a moment how nice a line there is to draw here. We will admit that in the scramble for a vacant farm the applicant is ready enough to give up his claim to the game; but he does so on the understanding that the landlord will feel himself bound to behave like a sportsman and a gentleman. There is no higher character for an Englishman than that which is embodied in these two congenial qualities; and so long as that character is maintained, so long is the farmer insured. I care little for the influence of laws that may be set aside at every step by private agreement, or be fairly overridden by right of might, so long as our country squires and large landed proprietors will regulate their actions by those principles which we habitually identify with the conduct of gentlemen and sportsmen. And here I am sure you will pardon me if I refer more fully to a paper I read some years since upon this subject, while in doing so it must be understood that I allude to this in no merely egotistical spirit, but rather in corroboration of the somewhat strong terms in which I then expressed myself. That paper has been quoted in many of the London and local journals; it has been read at meetings of farmers' clubs similar to this, and the arguments embodied in it have been adopted by others who have attacked the abuse. In no instance have I found my facts disputed, or the pictures I drew assailed; but, on the contrary, farmers and sportsmen have alike supported the views I took.

The Battue.—I set out by attempting to show what is use and what is abuse; what is fair sport and what is grievous injustice, as, in the first place, I want to ascertain what is thought of the battue by the great body of Englishmen—thank God, there is no English word that deigns to recognise such a pastime; but we borrow its very title, as we do the practice itself, from the foreigner. And what do 999 men out of 1000 think when they read the *Morning Post* paragraph of what the Earl of Wholesale and Retail, and three or four other great Guns, did the day before yesterday at his lordship's magnificent seat, The Slaughter-house—when "in the course of the morning they killed some 200 head of pheasants, 150 hares, 300 rabbits, two woodcocks, and a water hen, seriously wounded a jack snipe, as well as an under-keeper, and half ruined a tenant farmer?" With what kind of feeling is it that we regard such terrible sportsmen who thus blazon forth their wondrous achievements? Is it with respect?—with a certain pride in the prowess and manhood of our English gentlemen? Or, rather with something like disgust, and an inclination to ridicule the whole proceeding? Have they any of the true attributes of sportsmen—the excitement of finding and following their game—the pleasing recollection of how steadily Dido hunted up to her birds—or how old Brush stood to the winged pheasant in the hedge-row? Is theirs the long bracing beat, the healthful fatigue, and the well-worn rest that so gratefully crowns their day's sport? Or, do we picture some half-dozen gentlemen lazily turning out about mid-day, and placed with all due regard to rank and precedent by the head-keeper at certain favoured spots—at the heads of rides, and on to "hot corners"—where they have nothing to do but blaze away as fast as one set of men can load their guns for them, and another gang drive the game up to them? What exercise—what skill—what of the pleasures or the prowess of a sportsman's life is there in this? The lad who gets his three shots a penny at the ring-running hare in our famous home preserves at Cremorne may be quite as good a marksman; and the worthy citizen who sits in his punt under Marlow Bridge, pulling up gudgeon as fast as the boatman can pull them off again, enjoys a vast deal of the same sort of intense excitement and glowing exertion. But it is a question whether the latter be not the keener hand of the two. He does it merely for the fun of the thing, and nothing more. You do not see him, when he has had enough of it, parading Marlow or Maidenhead with a basket on his head, crying "Fine fresh gudgeon at 2*d.* a dozen!" Or, with more dignity, hastening up to town, and thus addressing his butcher: "Now, Mr. Giblets, as I buy my meat of you, I shall expect you to buy your fish of me. One will go to square the other. Come—I have had a very good haul to-day—how many score shall I put you down for?" If the Old English Gentleman we still sing of and talk about—if he, whose pride it was to keep his mansion at a bountiful rate, and, perhaps, whose chief pleasure was to distribute the game he shot amongst his friends and neighbours—if he, I say, could come again amongst us, and see his son, or his grandson, selling his game as systematically as he breeds it—if he could find a noble duke trying to get rid of the poachers by simply underselling them with the fishmonger of his county town—right heartily would he echo the edict that we are but "a nation of shopkeepers;" a country where Right Honourables

and Very Reverends degrade their favourite amusement to purely a matter of business, and undertake a contract to supply Mr. Fluff, the poulterer, the season through, at birds so much a brace, and hares so much a head. Especially careful, too, may they be that no one interferes with their sport when they can tell to a threepenny bit how much they may be out of pocket by it. I never see one of those hospitable notices, that "Trespassers will be prosecuted, and dogs will be destroyed," but I fancy the signboard reads strangely incomplete. Surely it should go on to say that—"Parties can be accommodated on moderate terms on application at the lodge. A large stock always kept on hand; and orders executed with punctuality and despatch. N.B. The trade supplied." I said thus much so far back as the spring of 1860; while it was only during last winter that Mr. Francis Francis, one of the great authorities of *The Field*, and evidently a practical sportsman, expressed himself thus in the columns of that paper. Taking the battue as his text-word he says, "This may be held to be 'excellent sport' by some people, but I look upon it as a desperate and indiscriminate slaughter. What pleasure or sport can there be in firing off one gun after another, without ceasing, as hard as ever two people can be kept at work to load them, while clouds of pheasants, and battalions of hares, and all kinds of game, whirl round one like the colours in a kaleidoscope? Again, I ask, where is the sport in this wholesale murder? I have always considered, and always shall consider, the battue the death-bed of good sportmanship as regards shooting. It requires no sportmanship at all; no expense of brains or thought. You stick a man, with several assistant gunners, a little battery, and a small magazine, in a convenient corner, and tell him to hold straight: that is all he has to do. What sport would there be, for example, in surrounding a covert containing hundreds of foxes with horses and hounds, and chopping up the foxes in the covert indiscriminately? What sport would there be in turning a score of greyhounds into a large yard full of hares? What sport would there be in gaffing hundreds of salmon out of a small pool where they were so closely packed that they had scarce room to move? These are the mere acts of killing, and the necessity for the act of killing is the only disagreeable part of the business. Take away the excitement of the chase, the requirement for using one's ingenuity for the purpose of circumventing the wild bird, beast, or fish; the pleasure in working a well educated dog, and watching the tutored sagacity and instinct displayed in the contest with the natural cunning of the quarry—and what is there left to the shooter but the mere pleasure which exists in being a skilful marksman? What is he, in fact, but a well-trained butcher? To me this mania for slaughter—for I cannot call the modern taste for battues anything else—is positively repulsive, and I do not think the taste is one which should be encouraged by sportsmen. I never was at a battue that I did not feel that I was a very cold-blooded destroyer of life. I grant that the frenzy for killing is very catching; that the emulation to be thought the best shot of the party is apt to lead one away; that the shouts of the beaters, the skurry and rushing of game, and constant fusillade, are all apt to get up an excitement which has as much to do with real sportsmanship as dram-drinking has with good fellowship. Take the highest range of sportsmanship now practised in this country, viz., deer-stalking. The mere act of killing the deer is the least part of the sport, and taken by itself would be a degradation rather than a subject of satisfaction and congratulation. True, it is a necessary consummation; but if it were not for the chase and the toil, the difficulties to be overcome, and the many qualities of mind and body brought into active play, what would that act of killing be? Would any gentleman look upon it as a sport, to walk down to a deer enclosure, and shoot down a poor, wretched, unsuspecting buck while he stands gazing unconsciously around him? I never remember to have felt so sick at heart as when upon an occasion I saw this act done. The poor confiding wretch was not killed by the first shot either, but hobbled off on three legs for a hundred yards or so, and lay down, licking the wound, and sobbing piteously. Another shot put it out of its misery. It was a simple and necessary act of butchery, but it bore no more relation to sport than the knocking down a bullock with a pole-axe does. Yet in what consists the difference between this killing of a buck and killing of tame-bred pheasants? It is only a question of size and the condition of the victim. An animal has to be killed before it can be eaten, but sport comes under a different category. Good sport is, of course, very desirable; but good sport, sufficient to satisfy any reasonable person, may easily be had without the sacrifice of a hecatomb of victims. That the battue is perpetuated is perhaps ascribable to the fact that the majority of gunners are now but indifferent sportsmen; and the really good sportsman who understands his business, can shoot like a sportsman, can hunt his dogs properly, and break them, too, if need be, is becoming a scarce animal." This is speaking out, and to the purpose, and let us always remember the source from which such an expression comes—not from a broken-hearted farmer, a Radical Member of Parliament, or a professional humanity-monger, but from one of the chief men on one of the chief sporting papers of the time, and a journal devoted above all others to the gun and the preserve. We may, then, assume fairly enough that the battue is not sport, but that it is directly inimical to the success of all true sport.

Mr. Corbet then quoted another passage to a similar effect from *Bell's Life;* and continued:—It is a remarkable fact that although, as we gather from fox-hunters, liberal M.P.'s, and others, the farmers are continually crying out against the game, such complaints never appear to reach the ears of their own landlords or country squires. Mr. Newdegate states that "in Warwickshire they were free from the crime of poaching," while "he warned honourable members that there was an under-current of agitation on this subject, under a delusion which had been propagated, particularly among the farming class, which ought not to be increased. The House had been represented as having passed an Act exclusively in favour of large preservers. That, however, was not the case." Warwickshire, from this, would seem to be specially exempt from all the ills which game farms are heir to. There are no poachers; the under-current of agitation should not be increased, as there is clearly no cause for it, and the recent Act is not particularly in favour of the heavy game preservers. So says Mr. Newdegate, as one of the members for Warwickshire; while within the last few weeks I was invited to attend upon a deputation of farmers who came to consult with certain Liberal members upon the evils of the game laws, and more especially upon the unjust operation of the new Act, by which it was argued the tenants paid the landlords' servants. I met these gentlemen, and found they came chiefly from the Midlands, three or four from the county of Warwick, and that one of them was an occupier under Mr. Newdegate himself! I am told, moreover, that the Midland Counties Farmers' Club, which is mainly supported by Warwickshire men, intends to discuss the abuses of the game laws during next autumn, and that a monthly publication will be issued, showing up the acts of injustice continually committed under such a system. So much for there being "no poaching in Warwickshire," and "the under-current of agitation which ought not to be increased," though this is increasing nevertheless. But what is this agitation really worth? It is true enough that the Midland Counties men whom I met in London have all position and character in their own district, as that the practical farmers, who confirmed my views and pointed my arguments at our Central Farmers' Club, are also amongst the first of their order. Unfortunately, however, men who thus dare to think and speak for themselves, and from their own experience, can carry no weight with them—at least so says Mr. Caldwell, himself a landowner, as a quondam member of the Council of the Royal Agricultural Society of England, and who delivered himself to the following effect towards the close of last year, when returning thanks at the Chippenham Show as one of the judges of the day.

"He had no sympathy with the scandalous attacks which had been made upon the Duke of Marlborough and others, in reference to game. Farmers made their own bargains for their farms, and if they went where gentlemen would have their game they could not expect to raise large crops. His opinion was, that if farmers took farms equal to their means, and farmed well, there was not a real English landlord who would turn them out. Let a farmer do a little for himself, and then his landlord would do a great deal more. He must not go to his landlord, and say, 'You must do this,' or 'You must do that;' but he should say, 'Sir, will you help me to do it?' If he did this, he was almost certain to be helped to the utmost ability of the landlord. No good was ever done by writing in an underhand way against this landlord or the other. In spite of *The Times*, the *Mark Lane Express*, or *Bell's Weekly Messenger*, he would assert that if they took the trouble to follow out A. B.—C. D.—E. F., or any other complaining correspondents who did not sign their names, they would find them to be broken-down farmers, who could not farm successfully, even if they had good land at 10*s.* an acre. He hoped that one and all would support their landlords, and not join in any hubbub of the kind: but if, after using their best exertions, either of them met with a failure of any kind, if he ever went to his landlord and said, 'My dear sir, as this has been a very hard time, I hope you will give something back,' he (Mr. Caldwell) was sure that he would be met in a fair and liberal spirit." Now I happen to be in a position to give the most thorough contradiction to the implication conveyed in these remarks. I have not so much taken the trouble to follow out A. B.—C. D.—E. F., or other correspondents complaining of the abuses attendant upon game-preserving, as to have their communications come directly before me in the first instance; and I may say fearlessly that these gentlemen are no more "broken down," but that they occupy quite as respectable positions in Society, if they do not even farm as successfully, as Mr. Caldwell himself. One case in particular, of very recent occurrence, and for which I am partly answerable, is worthy of mention. A tenant-farmer, and the Vice-President of a Farmers' Club, sympathising with the utter ruin of a neighbour, as brought about by a plague of hares and pheasants, wrote a strong letter on the subject to one of those dreadful newspapers—either the *Times*, *Bell's Weekly Messenger*, or the *Mark Lane Express*, never mind which—and to that letter he signed his name, leaving it, however, to my discretion to omit his own signature or not, as I thought fit. I did not hesitate for a moment to erase it, knowing as I did that the fate of "a marked man" might be otherwise in store for him, although the writer himself was willing to brave this danger in his anxiety to secure some assistance for his friend!

According to Mr. Caldwell, "farmers make their own bargains; and if they went where gentlemen would have their game, they must not expect to raise large crops," or in other words, they must take their farms at a rack-rent. Now, if I might offer a word of advice to men with "means and who would farm well," I should say such farms are dear at any price, as that nothing but evil can come of such a bargain. A man, however, who in the nineteenth century tells the agriculturists of this country that they must not expect to raise large crops, is an opponent scarcely worth answering, and we must try to get at something a little more tangible. At another dinner, then, that of the last Coventry Christmas Cattle Fair—Warwickshire, again, Mr. Newdegate!—nearly the whole talk of the evening ran on the evils of game-preservation. Mr. Caldecott, a well-known sportsman and country gentleman, opened the ball by declaring that they wanted the old English sport, and not the present English butchery. The farmers to a man followed this up: but there happened also to be present a candidate for the county, Mr. Bromley, who was not slow to see the feeling of the meeting, and who in his own words confessed "that going, as he did, in fear of his political life, he had much better agree with them on most points. But there was one thing he wished to state, and he was sure they wished him to express his own honest opinion without reference to his political position. He would say that, standing there as their representative in Parliament, he would not give a public pledge to interfere with the game-laws in any way; but he would give a pledge that when he came to live in this county as a Warwickshire landlord, he would stake not only his political existence, but his own existence, that no complaint should ever be heard from a tenant of his of damage being done by game without due compensation being made to him." Now, well-intentioned as this pledge is, in point of fact it is simply impossible. No heavy game-preserver can give due compensation for damage done. The injury he inflicts is beyond reparation, and I do not believe there is a land-valuer or land-agent in England, of any character, who would be prepared to say that he could award anything like due compensation for the continuous injury inflicted by the over-preservation of game. Have you never, in your walks through London, or any other large town, occasionally come, in the midst of a thriving street, across three or four old tumble-down tenements, dusty and dilapidated on the outside, and over-run by vermin within, as carrying in their very appearance the sad truth that they were doing good to no mortal man, and that they were nothing more than eye-sores on the face of the earth? And on inquiry you find that all this good gone to waste is traceable to an eccentric old lady, not quite mad enough to be locked up, but quite obstinate enough to do what she likes with her own: she will neither herself get a fair return for her property, nor suffer others to do so. I never pass through a heavily-preserved estate—I never see those tumble-down tenements—those dilapidated crops, and the whole place over-run with vermin, without thinking of the fusty virgin of Stamford Street. The owner of the property is proportionately eccentric; but, unfortunately, he too is not quite mad enough to be locked up, and he exercises accordingly the glorious privilege of an Englishman by doing what he likes with his own—a right which, being duly interpreted, means eating up his neighbour's substance, and spoiling the fair face of the country by the barren waste begot of his peculiar idiosyncrasy. Can any due compensation be ever awarded for such a state of things as this? I more than doubt it, though at times when farmers have made complaints their claims have been met in a way which can scarcely fail to raise a grim smile at the means employed for ensuring justice. Let us take for example a recent and much discussed case in an adjacent county. The tenant wrote repeatedly to say that he was over-run with game and vermin, which were eating up his crops; while the agent promised to make inquiry, and having done this, wrote again to say the report showed that no injury had been sustained. And by whom do you imagine the inquiry was entered upon, the actual damages estimated, and the report furnished? By the agent himself, possibly? No! he was too impartial a man for that. By the landlord, then, who felt it a duty to look carefully into the case? No! he too, as an interested party, stood aloof. By some respectable land-valuers, no doubt, probably, chosen one and one by either side! No! it was not thought necessary to proceed as far as that; but the tenant's claim for damages was met by a report of the gamekeepers, who had reared and guarded the game, that no damage had been done, and an answer sent accordingly. I really dare not trust myself to comment upon such a "referee," but if we are to take it as a principle of justice that a farmer suffering from an excess of game is to leave it to the gamekeeper to determine the amount of damage done, I almost think it would be preferable for a man to start fair under Mr. Caldwell's plan, and let a tenant pay his half-rent on the understanding that he must not expect to grow large crops.

Mr. Corbet concluded as follows:—Surely the time is coming when the farmer will feel that he ought to be represented; and there is no time like the present, with a general election in July. Moreover, the public will join heartily in such a demonstration; for a system by the influence of which, as we are told, a farmer "must not expect to raise large crops," is not a mere question of landlord and tenant, but one that almost equally concerns the whole community. The people are denied their due participation in the fair fruits of the country, as the practice itself augurs but badly for the national welfare. What, as we learn from history, too surely foreshadowed the decline and fall of those mighty Empires of old? What but the effeminacy and refined cruelties of the nobles? when the Patricians, instead of associating their pastimes with the manly toil and glorious excitement which had characterised the pursuits of their forefathers, hung languidly over the arena to witness the mere shedding of blood, and to count up the hundreds of animals driven together for the purpose, and that were slaughtered without a chance of escape as fast as they could be cut down. And in what do these wholesale cruelties and wanton sacrifices differ from the fashionable amusement of our own Patricians? It is true that we have outlived the brutalities of the bull-ring and cock-pit; but these were at any rate conducive to the display of a certain kind of courage; whereas in the business of the battue we find nothing but what is cowardly, enervating, and debasing—at best but the handiwork of the higgler, who drives his pitiful trade, alike to the damage of the farmer's crops and the sportsman's character.

Miscellaneous.

The Hon. William Wedd Tuxford, of Adelaide, has been elected a member of the Legislative Council of South Australia, one of the most honourable positions in the Colony, and an appointment which he will hold for a period of 12 years without interruption. As consequent upon his election, Mr. Tuxford was called upon to second the Address in reply to his Excellency's speech on opening Parliament. Mr. Tuxford, whose claims depended mainly on his unceasing efforts to advance the agriculture of Australia, is one of the firm of Tuxfords & Co., who conduct a large business in Adelaide, and a brother of the Messrs. Tuxford, of the Strand, London. The final scrutiny took place at the Supreme Court, when Mr. Tuxford stood fourth on the list of 13 candidates, of whom the first eight gentlemen were declared duly elected members of the Legislative Council.

The Tiptree Hall Estate.—An agricultural journal [the *Mark Lane Express*] says:—"It has been understood for some time past that the Tiptree Hall Estate was in the market; but it is now proposed, through a committee of noblemen and gentlemen, to purchase the property and present it to Mr. Mechi, as some appreciation of his services in the cause of agriculture." Essex, we are sure, would be ready to join heartily in such a testimonial to a gentleman who, whatever difference he may have had with them on practical matters, has by his demeanour and general bearing, and earnest love of agriculture, won the goodwill and respect of the farmers of the county.—*Essex Herald, quoted in the Times.*

Pig Feeding Trough Extraordinary.—At the ironmongery establishment of Mr. Robert Hazel, of High West Street, in this town, there may be seen in process of construction, and Mr. Hazel will have ready for exhibition in the course of a fortnight, the largest pig-feeding trough, we should think, upon record. It is making for the inventor, William Manfield, Esq., and is to be fitted with elevators at one end and connected with steam power, for placing the food (previously cooked) in the trough without manual labour, the calculation being that one feeder will be enough for the 2000 animals; whereas it would require ten men in the ordinary way. It is calculated for the use of 2000 pigs feeding and fattening for the market, and presents an aggregate length of 500 feet of feeding trough, arranged in the form of a horse-shoe. The animals are penned in small divisions inside the inner curve, and also outside the larger, so as to obviate all necessity for the subdivisions within the trough, which is cylindrical in form, and fitted together uninterruptedly. This trough, it will be seen, is therefore of great simplicity and accessibility; and independently of the

enormous scale on which it is being constructed, is interesting as an improvement in rural economy. It has no foot-rests, but the cylindrical bottom will be embedded in chalk and steadied in that manner. This immense iron range has been entirely constructed by Mr. Hazel, and does credit to the branch of local industry to which it pertains. On comparing troughs of this construction with several others now in use, we find that they can be produced in Dorchester at two-fifths of the cost charged by the implement houses elsewhere. Mr. Hazel, in the summer of last year, constructed a very novel cooking apparatus, also invented by the proprietor of what the *Times* calls "The English Porkopolis," by means of which many tons of food can be daily cooked, simply by an ingenious method of catching the exhaust steam from the engine which grinds and prepares the corn, pulps the roots, and drives the various machines required for pig-feeding on a large scale. We ought to get pork cheaper, seeing that in one year 10,000 pigs can be fattened at this one trough only in the monster swinery. *Dorset County Express.*

Treacle for Food.—The season of 1864 having been remarkable for its dryness in most parts of England, a serious deficiency in the root crop was the consequence, obliging stock-keepers to substitute other kinds of food in its place. During the past winter I was in a similar predicament myself; and knowing that roots are more indispensable to sheep than to neat stock, I applied the principal part of my crop to the former, having fatted only half my usual number of bullocks; but I have been enabled to convert a large quantity of straw into manure by keeping a number of store bullocks through the whole winter, from the 4th of November last to the present time, without the use of any roots whatever. My plan has been (and is still carried on) to give to each bullock per day (divided into three meals) one pint of treacle dissolved in two gallons of water, and sprinkled, by means of a garden water-pot, over four bushels of cut chaff (two-thirds straw and one-third hay) amongst which a quarter of a peck of meal (Barley and Wheat) is mixed; the animals also having free access to water. The cost of the treacle and meal together is about 3*s.* per bullock per week. My bullocks (two-year-old Shorthorns) have grown and thrived upon the above diet, to my utmost satisfaction; and even during the present dry and warm weather they evince no lingering after roots or Grass. I am well aware that the use of treacle for neat stock is no new discovery of my own, as I learnt the system while on a visit to a friend in Norfolk, where some graziers have used it in combination with roots during many years past. Perhaps Flax-seed (Linseed) boiled into a jelly and used in a similar way, may be a more profitable "substitute for roots" than treacle; but the preparation of it is attended with more expense and trouble. *T. Cooke Burroughes, West Suffolk, May 2, 1865.—Bell's Messenger.*

Calendar of Operations.

MAY.—*Turnip Culture.*—We quote here Mr. Fisher Hobbs's remarks upon the Turnip-fly, made many years ago before the English Agricultural Society. After referring to the advantages of autumn cultivation and deep ploughing then, and of pulverising the soil in spring, in order to let surface weeds grow and be destroyed, he said:—"At the time of drilling the seed it is best for the land to be ploughed (but some prefer scarifying only), and the seed to be immediately deposited. This is so important that I have frequently known total failures from the neglect of so doing. There is another point which I would strongly recommend, that is, in dry and sunny weather to plough and sow early in the morning and late in the afternoon, but never during the heat of the day. I know an instance where the most signal success has for several years attended this mode of operation, and where the manager has never failed to secure a plant, although he is one of the old school, and still sows the seed broadcast with his own hand. This can be confirmed by several large farmers in the neighbourhood, who, strange to say, notwithstanding the example thus placed before them, continue to incur an amount of loss from having to sow two or three times, simply from the obstinacy and prejudice with which they continue to adhere to the customary working hours for their horses and men. At the time of depositing the seed it is my invariable practice to use some description of artificial manure, generally superphosphate of lime, and I likewise add about 30 bushels of ashes per acre, made from hedge trimmings, weeds, &c., collected upon the land at different periods throughout the year. The roller may now be used with great advantage before and sometimes after the drilling. In dry weather I strongly recommend the application of the liquid manure drill. Before or immediately the young plants appear, the horse-hoe should be resorted to for the purpose of destroying the ova or larvæ of the insects to prevent their coming to maturity. When once the plant is well up, the roller may sometimes be applied with much benefit, as it tends still further to disturb the insect tribe, as well as to retain moisture for the young plant, and to consolidate the farm-yard manure where lately applied. At this period the plant requires frequent watching throughout the day, and if the enemy shows itself in any force, set to work quickly to accomplish its annihilation.

"Having described to you briefly my mode of prevention, I will now proceed to give you the cure, which is simply by the application of one or more 'top-dressings.' I have tried various experiments, steeping the seed, and top-dressings for upwards of thirty years, but though sometimes successful, I could not depend on any of them until I adopted my present system; and I think it is only fair that I should state that I derived the chief features as to the use of this top-dressing from my late bailiff, Mr. O. Hawkins, who came to me some nine years since with an especial recommendation on this point: in fact, he himself engaged to secure the Turnip plant from the ravages of the fly; adding, that he was willing to give up his situation immediately if he could not do so. I can only add that for eight years, during the whole time he was with me, he fulfilled all he promised in this respect. The following is Mr. Hawkins's recipe for a top-dressing:—One bushel of white gas-ashes, fresh from the gas-house, one bushel of fresh lime from the kiln, six lb. of sulphur, and ten lb. of soot, well mixed together and got to as fine a powder as possible, so that it may adhere to the young plant. The above is sufficient for two acres when drilled at twenty-seven inches. It should be applied very early in the morning, when the *dew is on the leaf*—a broadcast machine being the most expeditious mode of distributing it, or it may be sprinkled with the hand carefully over the rows. If the fly continues troublesome, the process should be repeated; by this means 200 to 220 acres of Turnips, Swedes, and Rape have been grown on my farms annually for eight or nine years without a rod of ground losing plants. The above is a strong dressing to be used when the fly is very numerous, and has never failed when applied at night. Numerous experiments have been tried, and amongst them I recommend the following in ordinary cases, and intend to use it during the present season if necessary:—fourteen lb. of sulphur, one bushel of fresh lime, and two bushels of road-scrapings per acre, mixed together for a few days before it is used, and applied at night, either by means of a small drill, or strewed along the rows by hand. I have known sulphur mixed with water applied in a liquid state by means of water-carts during the night, and the horse-hoe immediately following the water cart. This has succeeded admirably. In consequence of the dryness of the climate in my neighbourhood (the rain-fall being on the average only about 16 inches annually), I usually sow on the flat; but the dressings above-named are equally applicable to crops sown on the ridge. I would strongly impress the necessity of frequently applying the horse-hoe. I am induced from the results of my experience to conclude that by care and attention the Turnip plant may be as effectually and as certainly freed from the ravages of the fly as seed Wheat has been for upwards of the last twenty years from smut and other destructive Fungi"

Notices to Correspondents.

INTEREST ON OUTLAY: *A Z.* You can raise money for Drainage by a rent-charge for 21 years, and for buildings by a rent-charge for 50 years. It would be fair to charge this rent-charge upon the tenant, who can never reasonably object to the former if the work is ordinarily well done, nor to the latter except in the case of fancy and costly homesteads. Probably 6 to 8 per cent. for drainage, and 5 to 6 per cent. for buildings, are thus fair charges.

MR. HARVEY'S DAIRY AT GLASGOW: *J T.* The following are details:—There are here several distilleries, Mr. Harvey's among the number, and the spent malt (draff) and spent liquor of the stills (pot ale) are good cow food. There has thus gradually grown up in this locality under Mr. Harvey's energetic management one of the largest dairies in the kingdom—probably in the world. Cow byres some 56 yards long, and from 12 to 24 feet wide, according as one or two rows of cows are to be accommodated, stand closely packed, the whole surface of the ground being thus covered by a roof. And from 900 to 1000 cows are pretty constantly in milk. They are fed during winter partly on steamed Turnips, 7 tons being steamed daily in order to give one meal daily to 900 cows—also on coarse hay, of which as of straw they get between 20 and 30 lbs. a day apiece—also on draff, of which they receive half a bushel daily each—also on Indian Corn meal, of which they have 3 lbs. daily each—also on pot-ale, of which they receive three times a day nearly as much as they will take, *i.e.*, from 6 to 10 gallons daily. During the summer they are let out, a byreful at a time, for half a day to grass, and coming in receive their spent malt and still liquor, and hay in addition. They are managed, cleaned, and fed by two men to a byre holding about 100 cows; the milking is done three times a day, by women who take charge of 13 cows in full milk, or double that number in half milk, apiece. Between 4 and 5 o'clock (taking the winter management), the byres are cleaned out, and the cows receive a "big shovelful" of draff apiece, and half their steamed Turnips and meal, and a "half stoupful," probably 2 gallons, of pot-ale. They are also milked thus early. At 7 they receive their fodder-straw or hay. At 10 they get a "full stoupful" (probably 3 or 4 gallons) of pot-ale. They are milked at noon. At 2 P.M., or thereabouts, they are foddered again, and at 4 P.M. receive the same food as at the morning meal. They are again milked at 5 to 6, cleaned out and left till morning. The average produce is stated to be 2 gallons a day over the whole herd.

RATS: *Corn Grower.* The following is a somewhat ludicrous calculation on the idea that there are one rat and 10 mice per acre in the country. The vermin amount thus to 91,116,000 rats, which would consume 182,232 bushels of corn daily, or 4,157,167 quarters and four bushels in the half-year, namely, 182 days and a half; and this would supply 5,831,424 people with a 2-lb. loaf each daily for 6 months, or 2,915,712 people daily with a 2-lb. loaf each the year round.

TO HAUL MANURE: *X.*—The distance is 500 yards. Employ four carts, three men loading at the heap, and one man unloading in the field, in heaps of one to a perch, and of such a number to each cart as the dressing you intend will amount to. One cart will be always in the field, one at the heap, one going full, and one returning empty. The party, if they work with a will, can load, carry, and spread 120 cubic yards in a day, and the best way to make them work with a will is to let the loading to the three men at the heap; it is worth ¾d. per yard.

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An Invention for Throwing Water by Hand Power.

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COMPLETE WITH BRASS CYLINDERS AND JAPANNED STIRRUP	1	12	6
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The Price "Complete" as above, includes 2½ feet Suction and 3 feet Delivery Hose, Galvanised Wire Strainer, Rose and Small Jet.

THE HYDROPULT
is invaluable for use in the
GARDEN for
WATERING BEDS,
SPRINKLING PLANTS,
DROWNING OUT INSECTS,
CLEANSING TREES FROM SMUTS,
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THE HYDROPULT
is desirable in every
HOUSEHOLD for
WASHING WINDOWS,
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THE
GREENHOUSE AND CONSERVATORY HYDROPULT.
A NEW AND BEAUTIFUL IMPLEMENT,
Weighing scarcely 5 lbs.
AND SPECIALLY ADAPTED FOR USE IN THE GREENHOUSE AND CONSERVATORY.
Price 35s.,
Complete, with Brass Cylinders and Copper Stirrup, 2½ feet Suction and 3 feet Delivery Hose, Strainer, Rose, Jet, and Fan.

This NEW IMPLEMENT must necessarily supersede Syringes and other devices of the kind, for it will be found much more effective in its operation.

A LADY CAN WORK IT FOR HOURS WITHOUT FATIGUE.

CAUTION.

IMPORTANT TO THE PUBLIC.—The extensive sale of the Hydropult has excited the cupidity of so-called respectable, but in reality unprincipled Manufacturers, who are now palming on the Public worthless imitations of the Hydropult, and through their connections are enabled to place said devices on exhibition, and for sale, in many of the principal Ironmongery and Seed Establishments throughout the city and provinces. These devices resemble in many respects the Hydropult in appearance, and are calculated to deceive the unsuspecting. The Proprietor therefore issues this Caution, and respectfully intimates that parties wishing to purchase the Hydropult should examine the machine offered for sale, and see if it has attached thereto a label, with the following words:—"The Hydropult, Vose's Patent, manufactured only by GRIFFITHS & BROWITT, Birmingham. CHARLES POMEROY BUTTON, Proprietor, 142 and 143, Cheapside, London." Unless this label is attached, the Machine is not the Hydropult.

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NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

BY SPECIAL APPOINTMENT.
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TO HER MOST GRACIOUS MAJESTY
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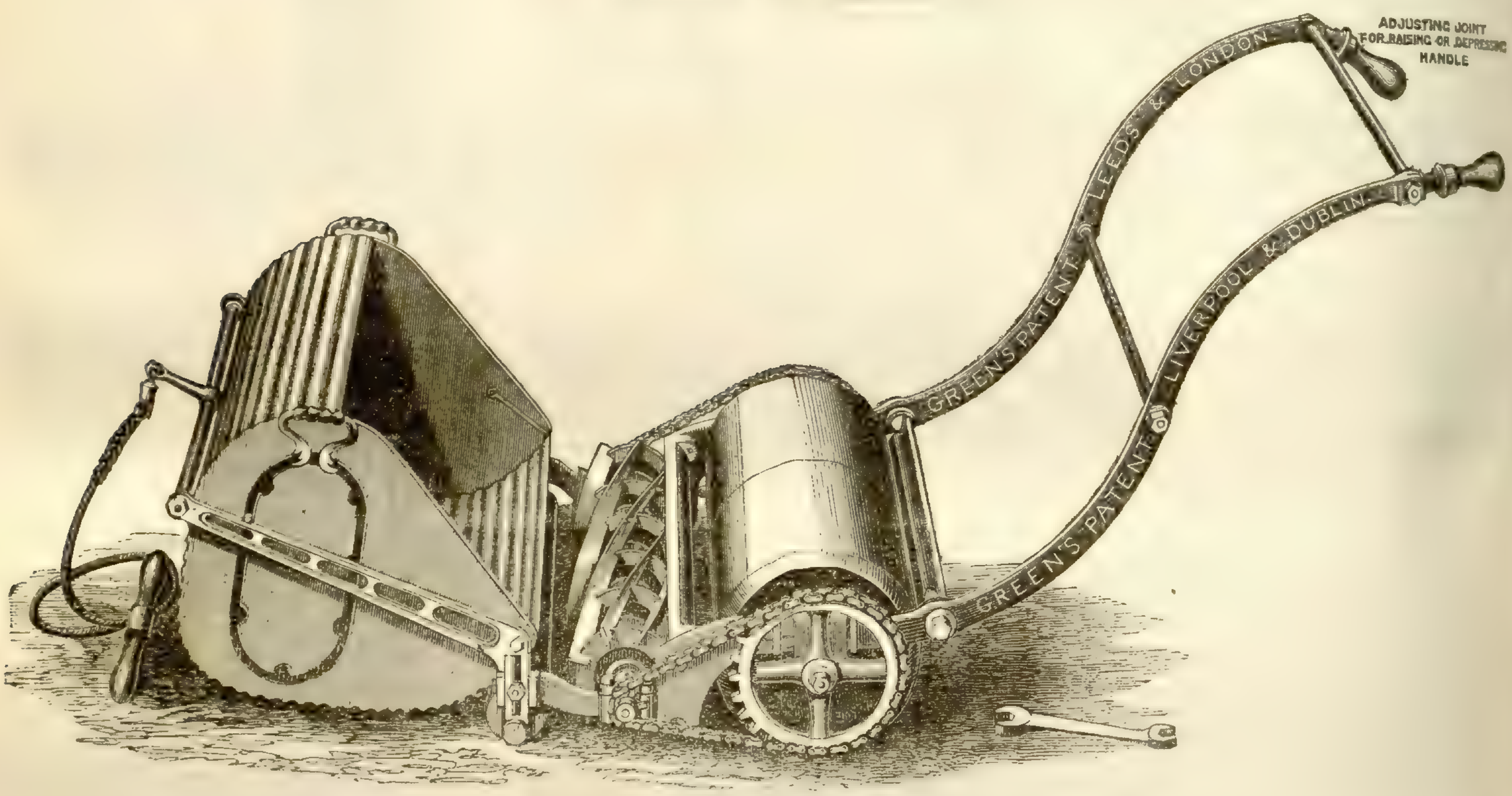

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AS RECOMMENDED BY THE JUDGES OF THE ROYAL HORTICULTURAL SOCIETY'S SHOW HELD JULY 20, 1864.

GREEN'S PATENT LAWN MOWERS have proved to be the best, and carried off every Prize that has been given in all cases of competition. The Judges at the Royal Horticultural Society's Show, held July 20, 1864, awarded them a First-class Certificate (no Prizes were given), and, at the same time, suggested a slight alteration, which has been done, and Messrs. T. G. & Son consider their MACHINES now as near perfect as possible.

Messrs. T. G. & Son beg to state that, owing to the great demand for their MACHINES in past years, they have been unable to execute orders with that despatch due to their numerous customers, but are now happy to inform them, that they have made such alterations and arrangements in their premises, whereby they trust to be in a position to send off all orders the day they are received.

PRICES OF HAND MACHINES.

To cut 10 inches	£3 10 0	*Suitable for a Lady.*	
" 12 "	4 10 0	" "	
" 14 "	5 10 0	*Suitable for One Person.*	
" 16 "	6 10 0	" "	
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" 22 "	8 10 0	" "	
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Packing Cases are charged at the following low rates, viz.: for the 10 and 12 inches Machine, 3*s.*; 14 and 16 inches, 4*s.*; 18 and 20 inches, 5*s.*; 22 and 24 inches, 6*s.* Parties providing themselves with Lawn Mowers are recommended to purchase the Cases in which to stow them away, when not in use, to prevent them from getting damaged; if returned, two-thirds will be allowed for them.

PRICES of HORSE, PONY, and DONKEY MACHINES, including Patent Self-delivery Box; Cross Stay complete; suitable for attaching to ordinary Chain Traces or Gig Harness.

To cut 26 inches	£13 0 0	*Leather Boots for Donkey*, 18*s.*
" 28 "	15 0 0	
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The 26, 28, and 30 inches can easily be worked by a Donkey, or by Two Men, on an even Lawn, the 30 and 36 inches by a Pony, and 42 and 48 inches by a Carriage Horse; and, as the MACHINES make no noise in working, the most spirited animal can be employed without fear of its running away, or in any way damaging the MACHINE.

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The above MACHINES are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England; are warranted to give satisfaction, and, if not approved of, can be at once returned unconditionally.

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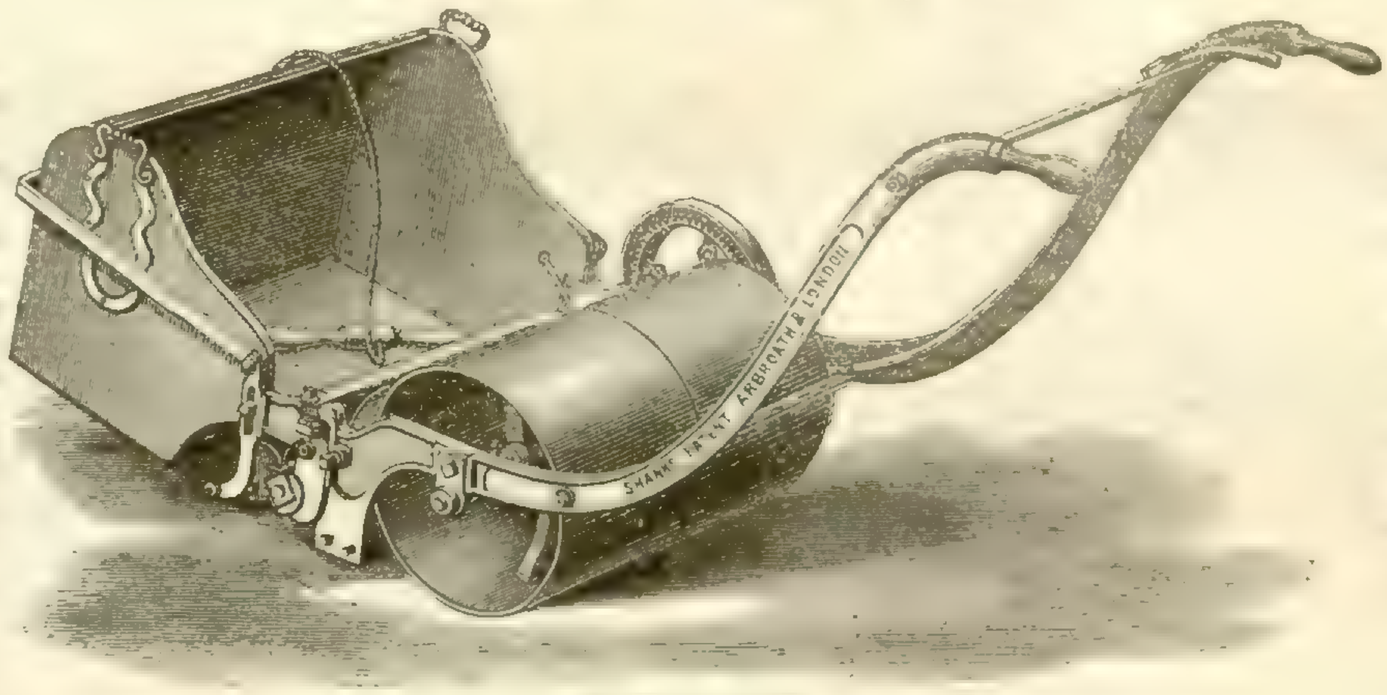
ALEXANDER SHANKS & SON are gratified to find that in the large and increasing demand for their celebrated MACHINES, they receive a conclusive proof that their merits are every season becoming more appreciated by the Practical Gardener.



HAND MACHINE

A. S. & SON, in introducing Improvements into their MACHINES, have been careful that the advantages in point of durability, simplicity of construction, and superiority in the work executed, which have all along been peculiar to SHANKS' MACHINES, should still remain.

SHANKS' PATENT LAWN MOWERS are in daily use in the ROYAL GARDENS at KEW, WINDSOR, BUCKINGHAM PALACE, HAMPTON COURT, OSBORNE, and BALMORAL; in the GARDENS of the ROYAL HORTICULTURAL SOCIETY at KENSINGTON; in the GROUNDS of the CRYSTAL PALACE COMPANY at SYDENHAM; in VICTORIA PARK; in BATTERSEA PARK; and in many hundreds of the principal Gardens in the Kingdom, as well as abroad, where their merits have been fully proved and their success established.

PRICES—including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom.

SHANKS' NEW PATENT HAND MACHINE for 1865.

Width of Cutter.		
10-inch Machine	£3 10 0	*Easily Worked by a Lady.*
12-inch Machine	4 10 0	
14-inch Machine	5 10 0	*Ditto by a Boy.*
16-inch Machine	6 12 6	*Ditto by a Man.*

SHANKS' NEW PATENT HAND MACHINE for 1865.

Width of Cutter.		
19-inch Machine	£7 12 6	*Easily Worked by a Man and Boy*
22-inch Machine	8 7 6	*Ditto by Two Men.*
24-inch Machine	8 17 6	

Silent Movement for the five smallest sizes, 4*s.* extra; for the other sizes, 7*s.* 6*d.* extra.

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
25-inch Machine	£12 10 0	25*s.* extra.
28-inch Machine	14 10 0	30*s.* ,,
30-inch Machine	15 15 0	30*s.* ,,

Silent Movement, 12*s.* 6*d.* extra; Boots for Pony, 21*s.* per set; Ditto for Donkey, 16*s.* per set.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus
30-inch Machine	£19 0 0	30*s.* extra.
36-inch Machine	22 0 0	30*s.* ,,
42-inch Machine	26 0 0	40*s.* ,,
48-inch Machine	28 0 0	40*s.* ,,

Silent Movement, 20*s.* extra; Boots for Horse's Feet, 24*s.* per set.

A. S. & SON have pleasure in submitting the following List from among the hundreds of distinguished individuals, both in this country and abroad, whose patronage they have had the honour to receive:—

HER MOST GRACIOUS MAJESTY THE QUEEN,

For the Royal Gardens at Kew, Windsor, Buckingham Palace, Hampton Court, Osborne, and Balmoral.

HIS MAJESTY THE EMPEROR OF THE FRENCH
HIS MAJESTY THE KING OF SAXONY
HIS ROYAL HIGHNESS THE PRINCE OF PRUSSIA
HIS GRACE THE ARCHBISHOP OF CANTERBURY

His Grace the Duke of Bedford
His Grace the Duke of Newcastle
His Grace the Duke of Marlborough
His Grace the Duke of Rutland
His Grace the Duke of Sutherland
His Grace the Duke of Buccleuch
His Grace the Duke of Devonshire
His Grace the Duke of Leinster
His Grace the Duke of Athole
His Grace the Duke of Norfolk
His Grace the Duke of Hamilton and Brandon
His Grace the Duke of Argyll
His Grace the Duke of Northumberland
His Grace the Duke of Roxburghe
His Grace the Duke of Wellington
His Grace the Duke of Buckingham
The Most Hon. the Marquis of Normandy
The Most Hon. the Marquis of Bute
The Most Hon. the Marquis of Winchester
The Most Hon. the Marquis of Exeter
The Most Hon. the Marquis of Breadalbane
The Most Hon. the Marquis of Westminster
The Most Hon. the Marquis of Lansdowne
The Most Hon. the Marquis of Stafford
The Most Hon. the Marquis of Kildare
The Most Hon. the Marquis of Abercorn
The Most Hon. the Marquis of Londonderry
The Most Hon. the Marquis of Ailsa
The Most Hon. the Marquis of Tweeddale
The Most Hon. the Marquis of Aylesbury
The Right Hon. the Earl of Tankerville
The Right Hon. the Earl of Poulett
The Right Hon. the Earl of Meath
The Right Hon. the Earl of Leicester
The Right Hon. the Earl of Camperdown
The Right Hon. the Earl of Shannon
The Right Hon. the Earl of Abergavenny
The Right Hon. the Earl of Morley
The Right Hon. the Earl of Durham
The Right Hon. the Earl of Lauderdale
The Right Hon. the Earl of Home
The Right Hon. the Earl of Harrington
The Right Hon. the Earl of Carnarvon
The Right Hon. the Earl of Northesk
The Right Hon. the Earl of Glasgow
The Right Hon. the Earl of Stamford and Warrington
The Right Hon. the Earl of Aberdeen
The Right Hon. the Earl of Aberdour
The Right Hon. the Earl of Ashburnham
The Right Hon. the Earl of Haddington
The Right Hon. the Earl of Cawdor
The Right Hon. the Earl of Denbigh
The Right Hon. the Earl of Galloway
The Right Hon. the Earl of Hopetoun
The Right Hon. the Earl of Mansfield
The Right Hon. the Earl of Milltown
The Right Hon. the Earl of Selkirk
The Right Hon. the Earl of Winchilsea
The Right Hon. the Earl of Zetland
The Right Hon. the Earl of Minto
The Right Hon. the Earl of Kintore
The Right Hon. the Earl of Seafield
The Right Hon. the Earl of Southesk
The Right Hon. the Earl of Kinnoul
The Right Hon. the Earl of Airlie
The Right Hon. the Earl of Bessborough
The Right Hon. the Earl of Brownlow
The Right Hon. the Earl of Howe
The Right Hon. the Earl of Lindsey
The Right Hon. the Earl of Rothes
The Right Hon. the Earl of Ranfurly
The Right Hon. the Earl of Strathmore
The Right Hon. the Earl of Rosslyn
The Right Hon. the Earl of Harrowby
The Right Hon. the Earl of Shrewsbury and Talbot
The Right Hon. the Earl of Westmoreland
The Right Hon. the Earl of Dalhousie
The Right Hon. the Earl of Portarlington
The Right Hon. the Earl of Kilmorey
The Right Hon. the Earl of Dartmouth
The Right Hon. the Earl of Guildford
The Right Hon. Earl Spencer
The Right Hon. Earl Fortescue
The Right Hon. Earl Vane
The Right Hon. Earl Nelson
The Right Hon. the Countess of Stair
The Right Hon. Countess de Morella
The Right Hon. the Countess of Waldegrave
The Right Hon. the Countess of Cottenham
The Right Hon. Viscountess Milton
The Right Hon. Viscountess Castlereagh
The Right Hon. Viscount Seaham
The Right Hon. Viscount Duncan
The Right Hon. Viscount Eversley
The Right Hon. Viscount de Vesci
The Right Hon. Viscount Boyle

HIS EXCELLENCY THE LORD-LIEUTENANT OF IRELAND
HIS EXCELLENCY THE BELGIAN MINISTER
HIS GRACE THE ARCHBISHOP OF YORK
THE RIGHT HON. LORD PALMERSTON

The Right Rev. the Lord Bishop of Durham
The Right Rev. the Lord Bishop of Ripon
The Right Rev. the Lord Bishop of Killaloe
The Right Rev. the Lord Bishop of Melbourne
The Right Rev. Lord Bishop Nixon
The Right Hon. Lord Bagot
The Right Hon. Lord Monck
The Right Hon. Lord Hatherton
The Right Hon. Lord Kinnaird
The Right Hon. Lord Lovat
The Right Hon. Lord Rollo
The Right Hon. Lord Braybrooke
The Right Hon. Lord Blantyre
The Right Hon. Lord Berwick
The Right Hon. Lord Halliburton
The Right Hon. Lord Churchill
The Right Hon. Lord Ossulston
The Right Hon. Lord Portman
The Right Hon. Lord Vernon
The Right Hon. Lord Willoughby de Broke
The Right Hon. Lord Cremorne
The Right Hon. Lord Dalrymple
The Right Hon. Lord Inchiquin
The Right Hon. Lord Rokeby
The Right Hon. Lord Rayleigh
The Right Hon. Lord Ashtoun
The Right Hon. Lord Stanley
The Right Hon. Lord James Murray
The Right Hon. Lord Berners
The Right Hon. Lord Harris
The Right Hon. Lord Kingsdown
The Right Hon. Lord Rivers
The Right Hon. Lord Taunton
The Right Hon. Lord Oranmore
The Right Hon. Lord Wharncliffe
The Right Hon. Lord Bateman
The Right Hon. Lord Lilford
The Right Hon. Lord Sudeley
The Right Hon. Lord John Thynne
The Right Hon. Lord Cavan
The Right Hon. Lord Middleton
The Right Hon. Lord Calthorpe
The Right Hon. Lord Dunfermline
The Right Hon. Lord Abercrombie
The Right Hon. Lord Castlerosse
The Right Hon. Lord Carrington
The Right Hon. Lord Dufferin
The Right Hon. Lord Poltimore
The Right Hon. Lady Leighton
The Right Hon. Lady Rashleigh
The Right Hon. the Ladies Boyle
The Right Hon. Lady Holland
The Right Hon. Lady M'Taggart
The Right Hon. Dowager Lady Clinton
The Right Hon. R. C. Nesbitt Hamilton
The Right Hon. Lord Crewe
The Right Hon. Lord Elibank
The Right Hon. Lord Binning
The Right Hon. Lord Hume
The Hon. Mrs Howard
The Hon. Gerald C. Talbot
The Hon. Hely Hutchinson
The Hon. C. L. Butler
The Hon. C. S. Cowper
The Hon. Captain Duncombe
The Hon. Ashley Ponsonby
The Hon. E. Coke
The Hon. Captain Drummond
The Hon. Francis Drummond
The Hon. John Ashley
The Hon. Captain Arbuthnott
The Hon. Sir Edward Butler, Bart.
The Hon. Sydney R. Curzon
The Hon. J. J. Carnegie
The Hon. Wm. Maule
The Hon. Major Murray
The Hon. Chief Baron Sir Frederick Pollock
The Hon. Percy Ashburnham
The Hon. Percy Barrington
The Hon. L. H. K. Hannan
The Hon. H. Petre
The Hon. and Rev. A. G. Campbell
Hon. and Rev. C. A. Harris
Hon. and Rev. W. H. Spencer
Sir John Neeld, Bart.
Sir Arthur Elton, Bart.
Sir Arthur Halkett, Bart.
Admiral Sir Philip Hornby
Sir J. H. Crewe, Bart.
Sir J. M. Steel Graves, Bart.
Sir Charles Taylor, Bart.
Sir George Edmondstone, Bart.
Sir Lydstone Newman, Bart.
Sir Coleman Rashleigh, Bart.
Sir John R. Carnac, Bart.
Sir Philip Egerton, Bart.
Sir William Maxwell, Bart.
Sir Archibald Dunbar, Bart.

Shanks' Patent Lawn Mowers are warranted to give ample satisfaction, and if not approved of may be at once returned.

☞ A. S. & SON *beg to intimate that their Warehouse at 27, Leadenhall Street, is the only place in London where intending purchasers of Lawn Mowers can choose from a stock of from 150 to 200 Machines. All sizes are kept in stock, whether for Horse, Pony, or Hand Power, and orders are executed on the day they are received.*

PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N. B.

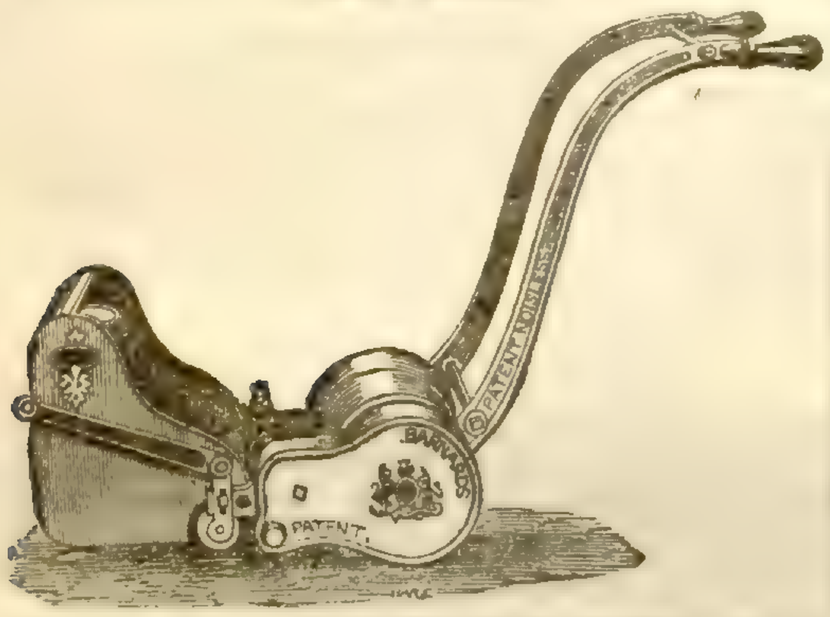
LONDON OFFICE and SHOW ROOMS, 27, LEADENHALL STREET, E.C.

SMITH, BECK, AND BECK'S GREENHOUSE and HOTBED THERMOMETERS.—These Instruments are of the very best construction, and at moderate prices.
31, Cornhill, E.C.

SHAW'S PATENT FLEXIBLE SELF-ADJUSTING LAWN MOWING MACHINES.

Full Particulars, Drawings, and Prices, post free on application to the Patentee and Manufacturer,
JOHN SHAW, Junction Works, New Wortley, Leeds.

BARNARD'S PATENT NOISELESS LAWN MOWER.



THE MINIATURE LAWN MOWER CUTS 8 INCHES ..	£2 10 0
Suitable for the very smallest grass plots or edgings.	
To CUT 10 INCHES (this can be worked by a lady)	3 5 0
To CUT 12 INCHES (suitable for one person)	4 10 0
To CUT 14 INCHES (suitable for one person)	5 0 0
To CUT 16 INCHES (suitable for one person)	6 0 0
To CUT 18 INCHES (suitable for man and boy)	6 10 0
To CUT 20 INCHES (suitable for man and boy)	7 0 0
To CUT 22 INCHES (suitable for two men)	7 10 0

Packed and Delivered Carriage Free to the Principal Railway Stations in England.

All orders should be sent immediately to J. JONES & SONS, Iron Merchants and Horticultural Engineers, 6, Bankside, London, S.E.

Illustrated Catalogues gratis, with prices of Garden Rollers, Chairs, Seats, Vases, Wire Netting, &c., on application.

As Exhibited at Royal Agricultural Shows—
WORCESTER, 1863; NEWCASTLE, 1864; and PLYMOUTH, 1865.

WIND ENGINE (Patent Self-Regulating), for PUMPING, CHAFF CUTTING, PULPING, GRINDING, THRESHING, OAT CRUSHING, SAWING, or DRIVING other MACHINES.

Powers, from ½ to 12 Horses.

For Farm Purposes most economical, costing nothing to work. Erection simple and cheap.

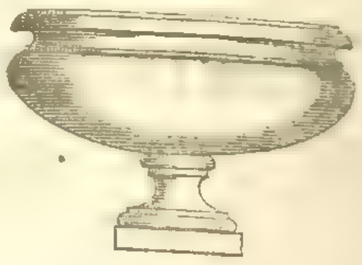
For Pumping invaluable, working day and night, requiring no watching.

BURY AND POLLARD,
Sole Manufacturers,
PARK IRON WORKS,
17, New Park Street, Southwark, London,

Where a Wind Engine that has been at work seven years may be inspected.

Prices, with Testimonials, by post for one stamp.

AUSTIN, SEELEY, AND CO.'S
Stock now comprises—



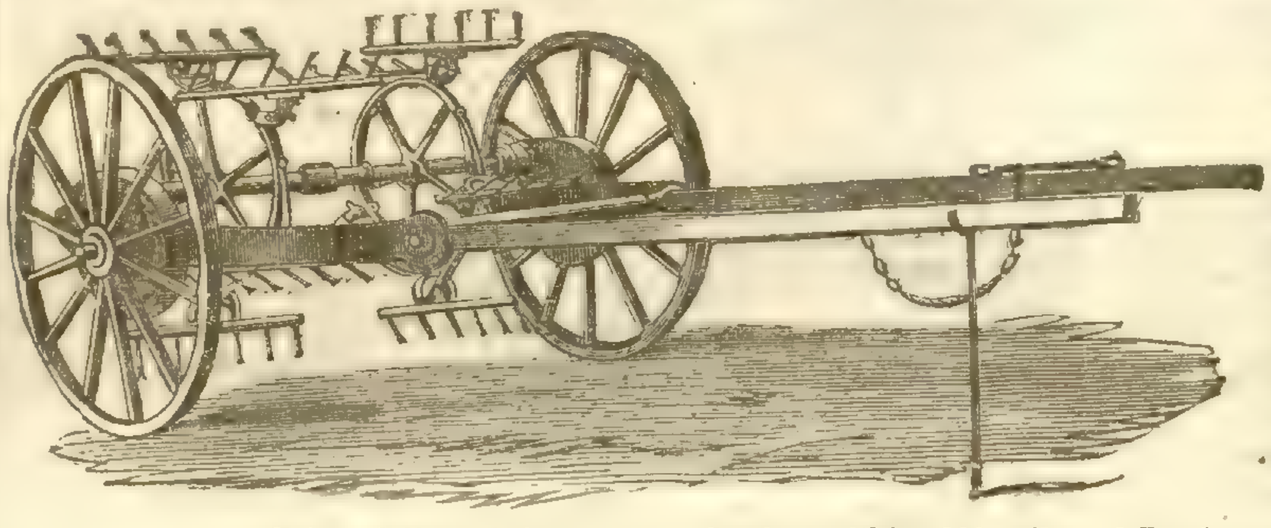
296 different kinds of VASES.
94 STATUES and FIGURES of CHILDREN
70 FIGURES of ANIMALS and BIRDS.
About 200 FOUNTAINS, at prices from £10 to £400.
15 BASKETS from 1 to 10 feet diameter.
17 FLOWER BOXES for WINDOWS, &c.
6 GARDEN SEATS.
22 SUN-DIAL PEDESTALS.
22 ORNAMENTS for GATE PIERS.

And a great variety of BALUSTRADING and PEDESTALS.
369 to 375, Euston Road, Regent's Park, N.W.

BOBY'S PATENT DOUBLE-ACTION HAYMAKING MACHINE

Received at the recent Meeting of the Royal Dublin Society, at Dublin, the FIRST and LARGE SILVER MEDAL (no other Medal was awarded to Haymakers); also,

ELEVEN FIRST-CLASS PRIZES and MEDALS were AWARDED to this MACHINE in 1863 and 1864.



This Machine is extremely simple, and its working is at once understood, as all levers and eccentrics are entirely dispensed with. It is light in draught, and so constructed that it leaves little or no weight on the back of the horse, and guaranteed to work in the heaviest crop. Four Hundred of these Machines have now been sent out, and not a single Machine has been returned as inefficient. The travelling wheels are made of wood, and are very strong.

Price, delivered free to any Station within 200 miles of London, **£14 15s.**

This Machine requires no Roller or Screen to keep the Grass off the front.

Illustrated Catalogues of Haymakers, Corn Screens, &c., will be sent free on application to the

MANUFACTORY: ST. ANDREW'S WORKS, BURY ST. EDMUNDS, SUFFOLK.

NEW TARIFF OF GLASS AND HORTICULTURAL GOODS.

THOMAS MILLINGTON,

HAND GLASSES.

GLASS AND COLOUR MERCHANT,
87, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

PRESERVE JARS.

REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.

MILK PANS.

See Advertisement the first week in the month, or on application.

SAMUELSON & CO.'S
LAWN MOWING AND ROLLING MACHINES.

EVERY MACHINE WARRANTED.

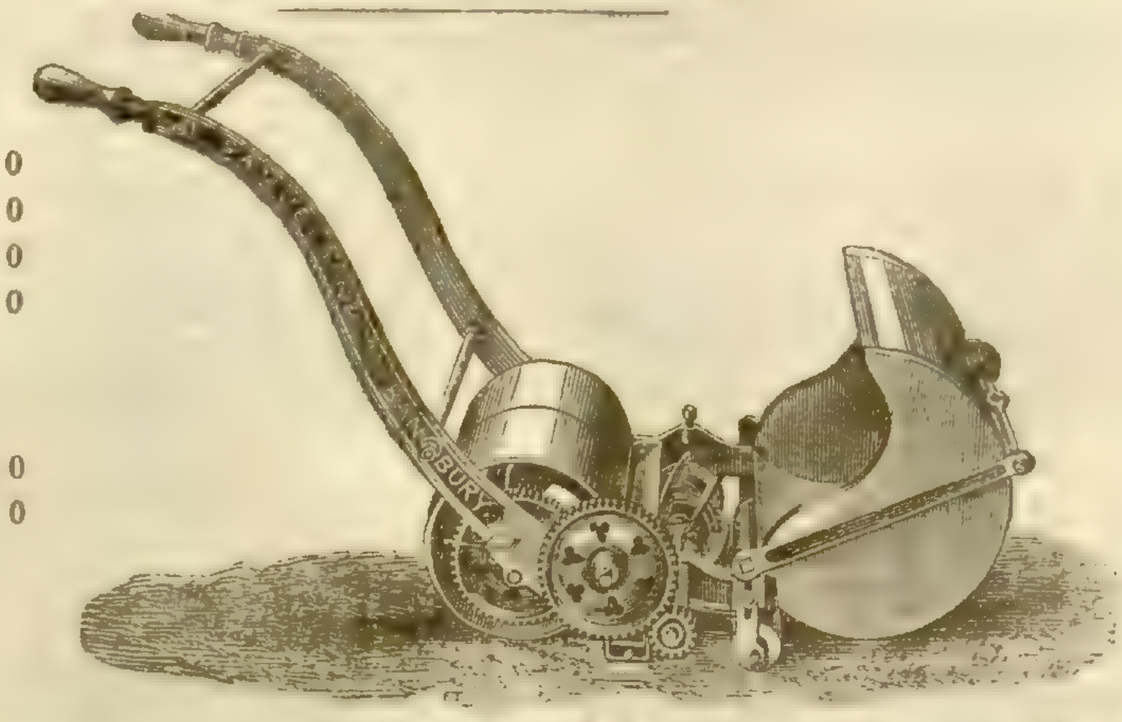
PRICES of MANUAL POWER MACHINES.

To Cut 12 inches, suitable for a Lady	£4 10 0
To Cut 16 inches, suitable for One Boy	6 0 0
To Cut 19 inches, suitable for One Man and Boy	6 10 0
To Cut 22 inches, suitable for Two Men ..	7 10 0

PRICES of PONY POWER MACHINES.

To Cut 25 inches	£11 10 0
To Cut 30 inches	14 14 0

These Prices include Free Delivery to any Railway Station in Great Britain.



THESE MACHINES ARE IN DAILY USE AT THE ROYAL GARDENS, CRYSTAL PALACE GARDENS, &c.

In again submitting these MACHINES to the notice of purchasers, Messrs. SAMUELSON & Co. wish to state that they do not make annual changes in the principle of their LAWN MOWERS. Experience has fully proved that the general design on which their MACHINES have been built for many years past is the best, and their attention has been given therefore rather to substantial improvements in manufacture, reduction of the draught, and increase of durability by the use of malleable iron in place of cast metal, than to the production of ephemeral novelties. Their LAWN MOWERS are superior to all others for lightness of draught, elegance, and efficiency under all circumstances of ground and weather, being self-cleaning, and not liable to derangement in the gearing.

Illustrated Price Lists, with Selections from several thousand Testimonials, free by post on application.

SAMUELSON AND CO., BRITANNIA WORKS, BANBURY.
LONDON OFFICES: 18, CANNON STREET, E.C. WAREHOUSE (where Stock is kept): 10, LAURENCE POUNTNEY LANE, E.C.
AND OF ALL SEEDSMEN AND IRONMONGERS.

HOT-WATER APPARATUS for Greenhouses, Hot-houses, Vineries, &c. Estimates on application.
J. JONES & SONS, 6, Bankside, London, S.E.
For List of Prices see *Gardeners' Chronicle*, February 25, 1865.

Heating by Hot Water.

W. J. HOLLANDS, IRON MERCHANT, 31, Bankside, London, S.E.
HOT WATER PIPES, from Stock, per yard:—2-inch, 1s. 4d.; 3-inch, 2s.; and 4-inch, 2s. 7d. BENDS, from Stock 1s. 7d., 2s. 6d., and 3s. 3d. each. THROTTLE VALVES, 10s. 6d., 13s. 6d., and 15s. each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day. A discount to the Trade.

Heating by Hot Water.

HOT-WATER PIPES, at Reduced Wholesale Prices, with Elbows, Syphons, Tee Pipes, and every other connection; Wrought and Cast-Iron Boilers, Saddle, Conical, Cylinder, TUBULAR, and Elliptic, from 24s. each. Improved Boilers and Iron Stands to save the cost of brickwork, 56s each. Valves from 10s. 6d. each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Fittings of every description in stock, at
Mr. LYNCH WHITE'S Iron Wharf, Upper Ground Street, Blackfriars Bridge, London, S. Price List on application.

Greenhouses and Conservatories.

H. FREEMAN, Horticultural Works, Hackney, N.E., Established 20 years. Good substantial made GREENHOUSES, Glazed, ready for fixing. 42 feet by 13 feet, 50*l.*; 21 feet by 13 feet, 28*l.*; 12½ feet by 10 feet, 15*l.*
A handsome CONSERVATORY for Sale, 36 feet by 19 feet. Price 110*l.* A Large Assortment kept.

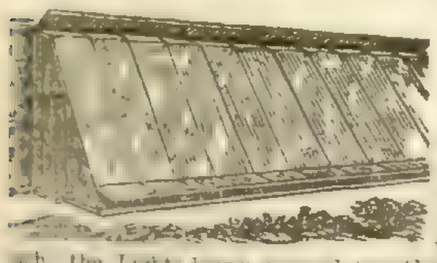
Exhibition Prize Medal, 1862.

MUSGRAVE'S PATENT SLOW COMBUSTION STOVE.
This Stove is the nearest approach to Warming by Hot Water.

It will burn in Churches from Saturday till Sunday evening, without attention during the hours of worship. In Halls will burn day and night for weeks, with little care. Capable of Warming a large Apartment for 24 hours, at a cost of 3*d.*; and deserving of special attention, because of its safety, healthfulness, durability, and extreme simplicity.
It is also made for small Conservatories, with a vapour chamber.
For particulars or the above, and of MUSGRAVE'S PATENT STABLE and COW-HOUSE FITTINGS, which attracted so much attention at the Exhibition, address,
MUSGRAVE BROTHERS, Ann Street Iron Works, Belfast.
This Stove can be seen in operation at Messrs. COX & SON, 18, Southampton Street, Strand, W.C.

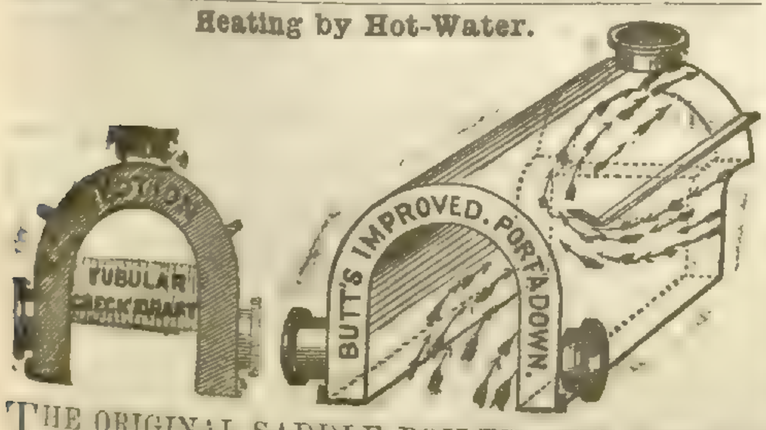
Under the Patronage of Her Majesty.

CLARK AND HOPE (LATE CLARK) 55, Lionel Street, Birmingham, MANUFACTURERS of METALLIC and WOODEN HOT-HOUSES, CONSERVATORIES, VERANDAHS, &c., COPPER and WROUGHT IRON SASHES, SKYLIGHTS, &c., and HOT WATER APPARATUS for Horticultural and Domestic purposes.



C. & H. beg to call attention to their NEW TREE COVER, or Continuous Glass Covering for Garden Walls; which is constructed of Cast and Wrought Iron, glazed with or without putty, and fitted together with bolts and nuts, constituting a Tenant's Fixture. It can be made 6, 7, or 8 feet wide, and 10, 12, or 14 feet high, the Lights being opened together, by means of simple and durable machinery, in lengths of about 50 feet; and the cost does not exceed that of a wooden structure.
Further particulars, with prices, forwarded upon application; and on receipt of the amount in postage stamps, a Book of Designs, plain 1s. 6*d.*, coloured 2s. 6*d.*, for Horticultural Buildings, &c.

Heating by Hot-Water.



THE ORIGINAL SADDLE BOILER, with Improved Tubular Check Draft, Flued Ends, and Ribbed Sides, for Heating Greenhouses, Vineries, Forcing Pits, Public Buildings, &c. These Boilers possess increased heating surface capacity, power, economy in fuel, and are the only class of Boilers, all points considered, when properly fixed, that can be relied upon with safety for Heating Greenhouses, &c., of any extent, by Hot Water, and at a moderate price.
Gardeners interested in such work should write for List of Testimonials, sent Post Free on application to FREDERICK WILLIAM BUTT (late of London), Portadown, Ireland.

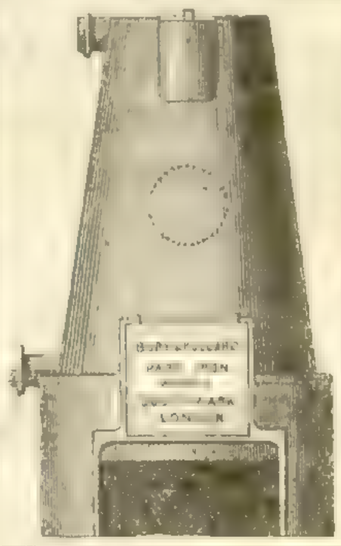
Greenhouses—Heating Apparatus.

DENNIS' PATENT METALLIC HORTICULTURAL BUILDINGS are made from the best wrought iron, upon an entirely new principle. The combination of Iron and Glass under this Patent is perfect; the possibility of fracture is prevented, and a permanently water-tight roof insured. The leading practical advantages are extreme smallness of framing, admitting a maximum of light and heat, and perfectly neutralising atmospheric conduction.
They are thoroughly ventilated, exceedingly strong and durable, are speedily erected, and whilst maintaining their established superiority for Conservatories of the highest order, are acknowledged by the most eminent Horticulturists of the day to be the "desideratum of perfection," promoting perfect symmetry of growth and richness of colour, both for Fruit and Flowers.
From the complete adjustment of the constructional parts of these patent Buildings, their manufacture is so facilitated that a comparison in point of cost with perishable wooden structures is most favorable.

THE GARDENER'S OWN GREENHOUSE
(Lately known as Dench's Patent) is a Tenant's Fixture.
The Patent, Plant, Business, Machinery, and all connected with the above, have been transferred to T. H. P. DENNIS, who has determined to supply these really useful buildings at such a reduced scale of prices that every one desiring a Greenhouse may possess one.
NOTE.—A No. 1 Lean-to, 12 ft. 6 in. by 9 ft., including honest 16-oz. Glass, £16 12s. 6d.
T. H. P. D. has introduced most important improvements in their erect. and construction, and after numerous experiments has succeeded in arranging them as a TENANT'S FIXTURE, which he feels sure will be valued by gentlemen having limited tenures. With Mr. Rivers' adaptation they make excellent Orchard-houses, and afford all that can be desired in a profitable building.
Wood structures at the lowest price consistent with sound work.
Prospectuses and Estimates on application to T. H. P. DENNIS, Horticultural Builder, Hot-water Engineer, &c., Chelmsford, Essex.

Exhibition Prize Medal. 1862.

HOTHOUSES for the MILLION.—On the principle invented and patented by Sir Joseph Paxton, M.P., combining simplicity, cheapness, excellence, and durability. SPAN-ROOF HOUSES, painted three coats, and glazed with English Sheet Glass, can be supplied ready for fixing, 21 ft. by 13 ft., 24*l.*; 43 ft. by 19 ft., 37*l.* 5*s.*; 64 ft. by 25 ft., 161*l.*
Illustrated Circulars, with Prices, can be had on application to SAMUEL HEREMAN, 7, Pall Mall East, London, S.W.
Also, A HANDBOOK on VINE and FRUIT TREE CULTIVATION, 2d Edition, price 1*s.*; post free, 1*s.* 1*d.*



HEATING by HOT WATER—Public and Private Buildings, Manufactories, Conservatories, &c., heated on the most improved system, combined with perfect Ventilation.
These BOILERS are adapted for setting in Brickwork, or as shown in sketch they require NO BRICKWORK.
BURY AND POLLARD
(Successors to John R. Pelll),
Sole Manufacturers of the Improved CONICAL BOILERS, which are in general use, and which Boilers have for their durability and economy attained a celebrity far surpassing any other Boilers ever invented.
Park Iron Works, 17, New Park Street, Southwark, London, S.E.
N.B. Patent WINDMILLS for Pumping and Driving Farm Machinery, from half-Horse Power upwards. To be seen daily at work as above.

Glass for Garden Purposes.

JAMES PHILLIPS AND CO. beg to submit their prices as follows:—

PROPAGATING

GLASSES.

	Each.—s.	d.		Each.—s.	d.
2 inches in diameter ..	0	3½	12 inches in diameter ..	1	9
3 " " ..	0	4½	13 " " ..	2	0
4 " " ..	0	5½	14 " " ..	2	6
5 " " ..	0	6½	15 " " ..	3	0
6 " " ..	0	8	16 " " ..	3	6
7 " " ..	0	10	17 " " ..	4	0
8 " " ..	1	0	18 " " ..	5	0
9 " " ..	1	2	19 " " ..	6	0
10 " " ..	1	4	20 " " ..	7	0
11 " " ..	1	6			

HAND GLASSES,

WITH OPEN TOPS.

	Each.—s.	d.		Each.—s.	d.
12 inches	6	6	18 inches	9	6
14 "	7	6	20 "	10	6
16 "	8	6	22 "	11	6
			24 "	12	6

Painted and Glazed with 16-oz. Sheet Glass.

BEE GLASSES.

	Each.—s.	d.		Each.—s.	d.
4 inches in diameter ..	0	6	9 inches in diameter ..	1	8
5 " " ..	0	8	10 " ..	2	0
6 " " ..	0	10	11 " ..	2	6
7 " " ..	1	1	12 " ..	3	0
8 " " ..	1	4			

CUCUMBER GLASSES.

	Each.—s.	d.		Each.—s.	d.
24 inches long	2	0	16 inches long	1	4
22 " "	1	10	14 " "	1	2
20 " "	1	8	12 " "	1	0
18 " "	1	6			

London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.
LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS, PAINTS of various colours ground ready for use.
180, Bishopsgate Street Without, London E.C.

PRIZE ROLLERS for PARKS.
PRIZE ROLLERS for LAWNS.
PRIZE ROLLERS for CRICKET GROUNDS.
PRIZE ROLLERS for GARDENS.
PRIZE ROLLERS for ROADS.
PRIZE ROLLERS for the FARM.

The Best and Cheapest are the PATENT WATER BALLASTING ROLLERS, made only by the Inventors, AMIES, BARFORD, AND CO., Queen Street Iron Works, Peterborough, who will forward Price Lists and all particulars on application.

BRETONNE COWS.—The Nobility, Gentry, and others, are respectfully informed that they can be supplied with the above beautiful and profitable little animals in any number at the shortest notice. The great success and encouragement which has attended the efforts of the importer in introducing the Pure Breed of this useful and hardy Cow into the country, has induced him to extend his connection abroad, by appointing experienced Agents throughout Brittany, and he is now enabled to offer the public a constant supply of the choicest stock that can be obtained, at prices which defy all competition. The low cost, together with the high Milking qualities of this Breed, rendering them of great value to the Cottager, as well as the fancy Stock-keeper and Dairyman, the Importer has made arrangements to keep a large stock always on view.
For further particulars, apply to Messrs. ROBERTSON & Co., 38, Crutched Friars, London, E.C.

Carhead Pigs for Sale,

MR. WAINMAN has YOUNG BREEDING PIGS of his Large White and Middle-sized Breeds for Sale. Now ready. Apply to Mr. FISHER, Carhead, Cross Hills, Yorkshire.

Sales by Auction.

Imported Orchids from the East Indies, and other parts; and rare Araucarias and other Plants from Sydney.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, June 3, at Half-past 12 o'Clock precisely, valuable imported ORCHIDS, consisting of Saccolabium praemorsum, Saccolabium furcatum, Saccolabium Blumei majus, Vanda cristata, Epidendrum bicornutum, Cymbidium gigantea, Burlingtonia fragrans, Oncidium papilio, Oncidium amplatum majus, and Oncidium bifolium. Also a consignment from Sydney of several hundred plants of Araucaria Cookii, Araucaria excelsa, Phormium tenax variegata, &c.
On view the Morning of Sale, and Catalogues had.

Sale of First-class Bedding and Greenhouse Plants

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at 38 and 39, Gracechurch Street, City, E.C., on SATURDAY, June 3, at 1 o'clock precisely, a choice assortment of Fine SHOW, FANCY, and SCARLET GERANIUMS, CALCEOLARIAS, ERICAS, AZALEA INDICA, EPACRIS, &c.; with a large variety of ORNAMENTAL PLANTS for Bedding, including the usual assortment, DWARF and CLIMBING ROSES in Pots, HYB. RHODODENDRONS, KALMIAS, CARNATIONS, and PICOTEES, &c.; together with a collection of Ornamental CHINESE FLOWER POTS and GARDEN SEATS.
On view the Morning of Sale. Catalogues had at the Rooms as above, and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

To Managers of Public Gardens, Nurserymen, and Others.

MR. JOHN BURFORD will SELL by AUCTION, in the Grounds of Fairfield Lodge, 6, Addison Road South, Notting Hill, W., on TUESDAY, May 30, at 12 o'clock, almost unreservedly, a CONSERVATORY or ORCHARD HOUSE of large dimensions, being about 30 feet long by 18 feet 6 inches wide, with Arched Roof, constructed by Messrs. Cottam & Hallam in Iron and Glass, with Warming Apparatus, Ornamental Iron Stages, and complete Fittings, which must be removed previous to Midsummer day.
May be viewed by cards, and particulars had of the Auctioneers, 20, Throgmorton Street, E.C.

MR. JOHN BURFORD will SELL by AUCTION, in the Grounds of Fairfield Lodge, 6, Addison Road South, Notting Hill, W., on TUESDAY, May 30, at 12 o'Clock, about 130 rare and valuable CACTI, fine CAMELLIA, two large CIRCULAR IRON FRAMES, with glazed domes and copper sash bars; 12 Square Iron Pedestals, Hand Lights, Kale Pots, and Garden Effects.
To be viewed Morning of Sale, and cleared same day. Catalogues at the Auctioneer's Offices, 20, Throgmorton Street, E.C.

Important Sale of Short-horned Cattle
OF THE VERY FIRST CLASS.

MR. STRAFFORD has the honour to announce to the Agricultural world that he is favoured with instructions from the Executors of the late Joseph Hegan, Esq., of Dawpool, Cheshire, to SELL by AUCTION, on WEDNESDAY, the 7th June next, at Willis's Rooms, King Street, St. James's Square, London, the renowned "GRAND DUCHESSES" and "GRAND DUKES," which tribe for purity and length of breeding stands unrivalled. With the exception of Imperial Oxford (18,050), the entire Herd is directly descended from the celebrated Cow "Duchess 51st," bred by Mr. Bates, at Kirklevington, who purchased "Duchess 1st" at Mr. Chas. Colling's sale in 1810, and he originally obtained the family from the ancestors of the Duke of Northumberland. Animals of this tribe have gained the highest honours in the Show Yard, and realised the greatest prices ever attained at any public sales. The opportunity here presented of acquiring Animals of such great merit and excellence is one that rarely occurs, and Mr. STRAFFORD has much confidence in recommending this Sale to the notice of Noblemen, Gentlemen, and Breeders of Short-horned Cattle.
In accordance with the wishes of the late owner, the Executors reserve to themselves the right of selling this Stock either in one, two, or more Lots, particulars of which, with conditions, will be given at the time of Sale.
The Stock will remain at Dawpool until after the Sale, and every assistance will be rendered to the purchaser in conveying them to Birkenhead, Chester, or any intermediate Railway Station. The Cattle may be seen at any time until Tuesday, the 6th June next; and parties wishing to inspect them can do so by an order from the Auctioneer to Mr. Bayne, the Bailiff at the Farm.
Luncheon at 1 o'clock; admission by Ticket.
Catalogues with Pedigrees and other particulars may be had upon application to Mr. STRAFFORD, 13, Euston Square, London, N.W.

Fiskerton and Morton, near Southwell.
DESIRABLE INVESTMENT.
TO MARKET GARDENERS, CAPITALISTS, AND OTHERS.

MR. WM. MOSS will SELL by AUCTION, on THURSDAY, June 8, at 4 o'clock in the afternoon, at the Waggon and Horses Inn, in Fiskerton, in the following or such other Lots, and subject to such Conditions of Sale, as shall be then and there declared, the following valuable FREEHOLD ESTATE, situate in Fiskerton and Morton aforesaid, or one of them, consisting of

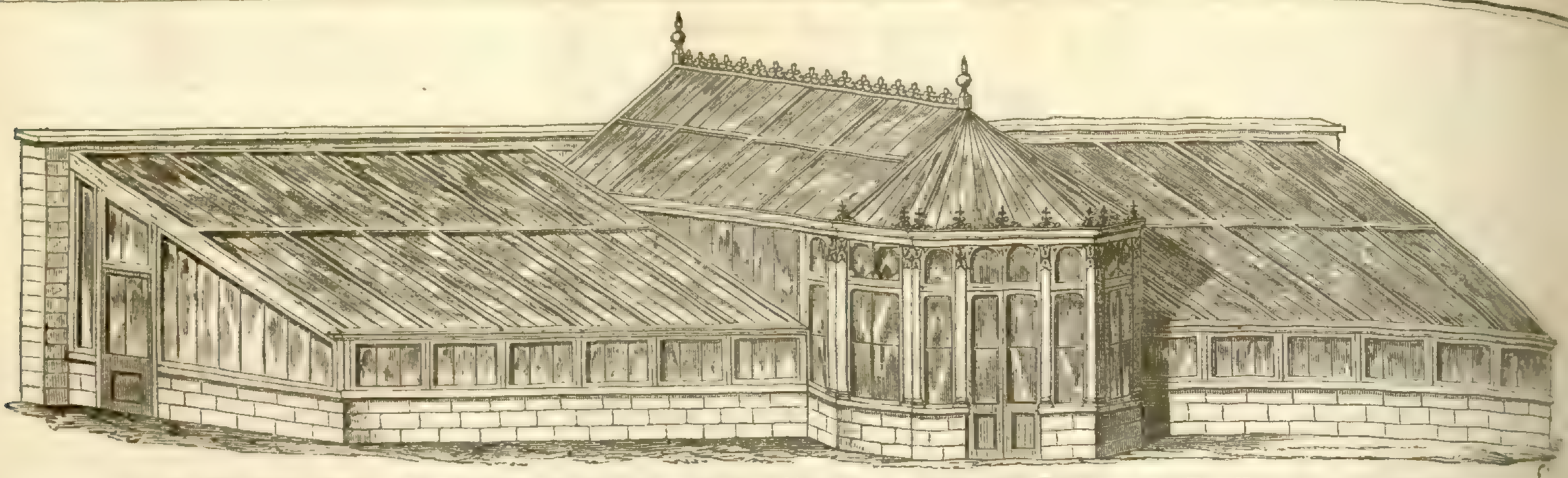
LOT 1.—All that Messuage, with the Fruithouse, Stables, Cow-sheds, and other Outbuildings adjoining thereto; and also all those five Closes of valuable Meadow, Pasture, and Arable Land adjoining, in a high state of cultivation, and together containing, with the site of the buildings, 8 a. 3 r. 0 p. (more or less).

LOT 2.—All that valuable and productive Garden and Orchard adjoining the last described Lot, and containing 4 a. 0 r. 18 p. (more or less), planted with a selection of the choicest Pear, Plum, Apple, and Cherry Trees, just approaching their most profitable age, and containing also upwards of 2000 Gooseberry and Currant Trees, and other select and remunerative Garden Produce.

It is in a high state of cultivation, is thoroughly well drained, and is inclosed in a ring fence. It is in the occupation of Mr. Thomas Harvey, the owner, and being close to the Fiskerton Station, the Produce can be conveyed by the Railway to Nottingham, Newark, and other large towns.
Further particulars may be had on application to Mr. HARVEY, the Auctioneer, Newark; or at the Offices of Messrs. FALKNER & NEWBALD, Solicitors, Newark.

Great and Little Eversden, Cambridgeshire.

MESSRS. MANN AND RAVEN beg to announce that they are instructed by the Trustee of the late William Leete, Esq., to SELL by AUCTION, in Lots, on SATURDAY, June 10, at the Lion Hotel, Cambridge, at 4 for 5 o'clock in the evening, all those famous FREEHOLD ORCHARDS and GARDENS, and Arable and Pasture Land, with the Buildings thereon, situate in the Parishes of Great and Little Eversden, about 1½ mile from the Lord's Bridge Station, on the Bedford and Cambridge Railway, 4½ miles from the Harston Station on the Hitchin and Cambridge Railway, and 6 miles from Cambridge.
MANN & RAVEN beg to call the attention of Capitalists and Speculators to this very valuable Property, feeling fully assured that such an opportunity for investment or occupation seldom occurs.
The produce of these Orchards is said to be the finest and most extensive in England, and is well known in Spitalfields and other markets in London, as well as in Liverpool, Manchester, &c.
Further particulars may be obtained of the Trustee, J. GADSBY, Esq., Cowley Hall, near Uxbridge; upon the Premises; of Messrs. JOHN & J. K. WRIGHT, Solicitors, 25, Bedford Row, London, W.C.; of Mr. PHILLIPS, Virginia Dining Rooms, 4, Newman's Court, Cornhill, London, E.C.; and of the Auctioneers, 6, Hobson Street, Cambridge.



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MANUFACTURED BY STEAM POWER MACHINERY.

LOWEST PRICES AND BEST MATERIALS.

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HORTICULTURAL BUILDER and HOT-WATER APPARATUS MANUFACTURER,

STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.,

Truly grateful for the very liberal and kind patronage bestowed upon him, begs most respectfully to inform the Nobility, Gentry, Nurserymen, &c., that it is his determination to spare no pains to merit a continuance of their favours; and that he may be enabled to execute his extensive and increasing orders punctually, and at the lowest possible cost (agreeably with the best Materials and Workmanship), he has erected a most complete set of Steam Power Machines, peculiarly adapted for the purposes of his Trade.

H. O. begs to call attention to his superior manner of erecting every description of Horticultural Building, and he trusts by unremitting personal attention to the details of his business, by using only the very best materials, by employing the most skilful and efficient workmen, and by the most moderate possible charges, to merit a continuance of the patronage so kindly and so liberally bestowed on him for many years past.

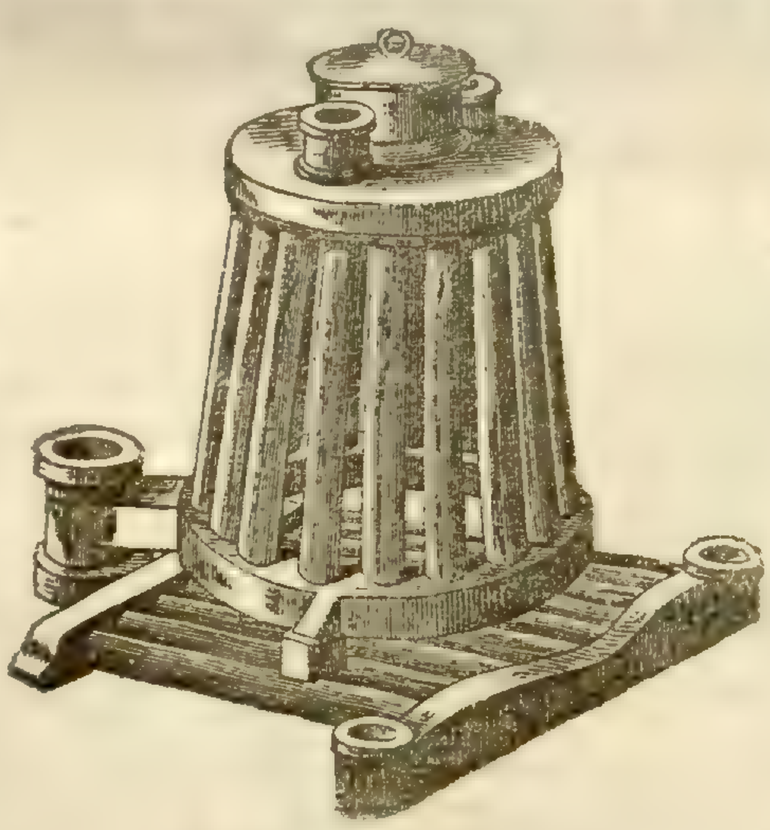
In the **BUILDING DEPARTMENT** his object will be to adapt all erections to the particular purposes for which they are required. He will devote equal attention to the plain, inexpensive, practical erections of Pits, Orchard Houses, Greenhouses, Vineries, &c., as to the more elaborate and architectural erections of Conservatories, Winter Gardens, &c., either in wood or iron.

The **HEATING DEPARTMENT** always engages his special personal attention, and he feels justified in saying that in simplicity, safety, durability, and economy of fuel, combined with thorough effectiveness, his system cannot be surpassed.

VENTILATION.—Knowing the absolute necessity for thorough Ventilation, he makes it a matter of first consideration.

H. O. having competent Draughtsmen and an efficient Office Staff, he is prepared and will be happy to forward Plans, Estimates, and Specifications by post or otherwise, and to wait personally on any Ladies or Gentlemen who may desire to see him on their Grounds.

FIRST CLASS PRIZE MEDAL
FOR ORMSON'S CONSERVATORY,
At the International Exhibition.



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At the International Exhibition.

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PATENT JOINTLESS TUBULAR BOILER

Has now gained the highest standing reputation for Power, Efficiency, Safety, and Economy of Fuel. There is not a single joint exposed to the action of the fire, which renders these Boilers far more safe than any other Tubular Boiler ever invented. May be seen in successful operation in the Gardens of many of the Nobility and Gentry in England, Ireland, and Scotland. They are made of various sizes. Prices on application.

Plans, Specifications, and Estimates on application.

HENRY ORMSON,

HORTICULTURAL BUILDER TO HER MAJESTY, AND HOT-WATER APPARATUS MANUFACTURER TO THE COMMISSIONERS OF HER MAJESTY'S ROYAL PALACES AND PUBLIC BUILDINGS, AND TO THE ROYAL HORTICULTURAL SOCIETY,

STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

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THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 22.—1865.] SATURDAY, JUNE 3. {Price Fivepence. STAMPED EDITION, 6d.

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ROYAL HORTICULTURAL SOCIETY. FIRST GREAT SHOW, SATURDAY, June 10.
Tickets to Fellows' Friends, 3s. 6d.; the Public, 5s.; on the day, 7s. 6d.
*** Messrs. WATERER & GODFREY's magnificent SHOW of RHODODENDRONS (under the Great Tent) are now in their highest state of perfection.

ROYAL HORTICULTURAL SOCIETY. EXHIBITORS are reminded that all Specimens intended for Exhibition at the First Great Show on the 10th inst. must be delivered by half-past 8 A.M., so as to insure being noticed by the Judges.
FLORAL and FRUIT COMMITTEE'S NOTICE.—The Next Meeting will be held June 27, at 11, instead of 12 A.M.; and all future Meetings will take place at 11. Exhibitors are therefore earnestly requested to have their Plants ready by half-past 10.

ROYAL BOTANIC SOCIETY, REGENT'S PARK.—The SECOND GENERAL EXHIBITION of PLANTS, FLOWERS, and FRUIT, WEDNESDAY, June 14. Tickets to be obtained at the Gardens, and of the Society's Clerk; AUSTIN's Ticket Office, St. James's Hall, on Vouchers from Fellows of the Society. Price 5s.; or on the day of Exhibition, 7s. 6d. each.

UNITED HORTICULTURAL SOCIETY.—Next GRAND FLOWER SHOW, under the immediate Patronage of the Right Hon. the LORD MAYOR and LADY MAYORESS, in FINSBURY CIRCUS on WHIT-TUESDAY, June 6. Band of the Victoria Rifles. The Exhibitors include many of those who have lately shown at the Royal Botanic Gardens, Regent's Park, Crystal Palace, and South Kensington.
Admission by Tickets, from 12 to 3 o'clock, 2s. 6d.; 3 to 7 o'clock, 1s. May be had of KEITH, PROWSE, & Co., Cheapside; MITCHELL's Library, Bond Street; Mr. SPAGUE, Finsbury Pavement; and of the Principal Seedsmen.
R. P. GLENDINNING, Hon. Sec., Chiswick Nursery, W.

LEYTON and WALTHAMSTOW FLORICULTURAL SOCIETY.—The FIRST EXHIBITION of this Society will take place on WEDNESDAY, June 7, 1865, in the Pleasure Grounds of J. G. BARCLAY, Esq., Knott Green, Leyton.
For Cards of Admission apply to E. GOAD, Honorary Secretary, or Mr. J. FRASER, Nurseryman, Lea Bridge Road, N.E.

LEICESTER and LEICESTERSHIRE FLORAL and HORTICULTURAL SOCIETY.
President—The Right Hon. EARL HOWE.
The GREAT ROSE SHOW of the above Society (open to all England) will be held on the 4th and 5th JULY NEXT.
A SHOW of CAGE BIRDS will be held on the same days (open to all England).
For programme and particulars apply to the Secretary,
WM. PENN COX, Market Place, Leicester.

BOSTON FLORAL and HORTICULTURAL SOCIETY.—FIRST SHOW will be held on THURSDAY, July 6. Five Pounds, in Two Prizes, will be given for the Best and Second Best 24 Cut Roses.
Schedules, &c., may be obtained of Mr. W. H. BAILES, Solicitor, Boston; or of Mr. JONATHAN COOKS, West Skirbeck Nursery, Boston.

FLORAL and HORTICULTURAL FETE, to be held at PETERBOROUGH, in connection with the Northamptonshire Agricultural Society's Annual Show, on THURSDAY, July 6.
Premiums amounting to more than £200 will be offered for Competition. Open to All England. Prizes to be paid on the day of Exhibition. The Band of the Coldstream Guards, under the leadership of A. D. Godfrey, Esq., has been engaged. There will also be a splendid display of Fireworks in the evening.
Thursday, June 22, is the last day for Entries to the above.
The Schedule and Rules may be obtained of the Secretary, Mr. JOHN FOX, 14, Narrow Street, Peterborough.

Royal Botanic Gardens, Regent's Park.
JOHN WATERER begs to announce that his Collection of HARDY, SCARLET, and other choice RHododendrons, &c., is NOW on VIEW at the above Gardens, and may be seen Daily (Sundays, Wednesdays, and Mondays, June 5th and 12th, excepted).
Orders of Admission granted by Fellows of the Society, and by the Advertiser. Address as above.
☞ By production of Card, admittance can also be obtained at WATERER's Gate without Orders, the above days excepted.

Exhibition of American Plants.
WATERER AND GODFREY beg to state that the AMERICAN PLANTS at Knap Hill are NOW in GREAT BEAUTY. The Nursery is readily reached by train to Woking; Conveyances are always at that Station. Their Exhibition of RHododendrons at the Horticultural Gardens, South Kensington, is now in perfection, and may be seen daily.
Knap Hill Nursery, Woking, Surrey.
The Two Standard Rhododendrons, now so generally admired in Rotten Row, were supplied by Messrs. WATERER & GODFREY.

J. IVERY AND SON'S fine Collection of AZALEA INDICA is NOW in BLOOM, and will continue until the middle of June. J. I. & Son's Collection of Hardy Ferns is also well worthy an inspection. Dorking, June 3.

New Double Pyrethrums.
JOHN SALTER begs to announce that his extensive COLLECTION of these attractive Flowers is NOW in BLOOM. The Gardens are open every day except Sunday.
Versailles Nursery, William Street, Hammersmith, W. (near Kensington Railway Station).

PAUL AND SON'S NEW HYBRID PERPETUAL ROSE, PRINCESS MARY of CAMBRIDGE.—Colour beautiful rose, shaded at the edges with white, fine imbricated form, bright green foliage and vigorous habit. The Advertisers guarantee it to be a most beautiful and distinct flower.
Strong plants, 7s. 6d. each, 1st July. Early orders are solicited.
The Old Cheshunt Nurseries, Cheshunt, N.

Shrubs, Roses, Fruit Trees, &c.
WM. CUTBUSH AND SON'S GENERAL NURSERY STOCK is the best near London.
GLADIOLI, fine, from 4s., 6s., 9s., & 12s. per dozen.
CATALOGUES on application.
Highgate Nurseries, London, N.

WILLIAM DAVIDSON, SEEDSMAN, 20a, St. Andrew Square, Edinburgh.

H. AND F. SHARPE, SEED GROWERS and MERCHANTS, Wisbech.
SPECIAL PRICED LIST of NEW SEEDS on application.

Genuine Garden and Agricultural Seeds.
JAMES CARTER AND CO., SEED FARMERS, MERCHANTS, and NURSERYMEN, 237 and 238, High Holborn, London, W.C.

NEW and GENUINE AGRICULTURAL, GARDEN, and FLOWER SEEDS.
Special prices and advantageous offers on application to
JAMES FAIRHEAD & SON,
Seed Growers and Merchants, 7, Borough Market, London, S.E.

RAYNBIRD, CALDECOTT, AND BAWTREE, SEED FARMERS and MERCHANTS, 89, Seed Market, Mark Lane; and Basingstoke.
Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

CARTER'S GARDENER'S VADE-MECUM PLANT SUPPLEMENT is now ready.

New Plants for 1865.
JAMES CARTER AND CO.'S CATALOGUE of NEW and CHOICE BEDDING, GREENHOUSE, and STOVE PLANTS, is now ready, and will be forwarded gratis and post free on application.
JAMES CARTER & Co., 237 & 238, High Holborn, London, W.C.

Decoration of the Summer Garden.
EDWIN COOLING'S NEW LIST of PLANTS for SUMMER GARDENING, with height, colour, price, and full description of the most desirable kinds, is now ready, and will be forwarded gratis and post free on application.
Mile Ash Nurseries, Derby.

HOLLAND AND JONES' CATALOGUE of BEDDING, GREENHOUSE, and STOVE PLANTS is now ready, free on application.
Bradshaw Gardens, Chadderton, near Manchester.

New Chrysanthemums, Pyrethrums, &c.
JOHN SALTER is now sending out the NEW CHRYSANTHEMUMS of 1865. His DESCRIPTIVE CATALOGUE of Chrysanthemums, Double Pyrethrums, Scarlet Geraniums, Hardy Variegated Plants, &c., will be sent on receipt of Two Stamps.
Versailles Nursery, William Street, Hammersmith Turnpike, W.

Pines.
B. S. WILLIAMS begs to announce that he has a fine Stock of the above, including all the best kinds. Prices on application.
Paradise and Victoria Nurseries, Holloway, London, N.

NEW GRAPE, "ROYAL VINEYARD," the best late White Grape extant. Strong planting Canes, 21s. each; strong fruiting, 42s. each.
B. S. WILLIAMS, Paradise and Victoria Nurseries, Holloway, London.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

DOBSON'S CELEBRATED SEEDS.—The finest strain in the kingdom, and such as Amateur Growers may depend upon.
DOBSON'S HYBRIDIZED CALCEOLARIA, 1s. 6d., 2s. 6d., 3s. 6d., 5s.
DOBSON'S PRIZE CINERARIA, 1s., 2s. 6d., 5s.
DOBSON'S SPLENDID PRIMULA, 1s., 2s. 6d., 5s.
Sealed Packets, all one quality.
J. DOBSON & SONS, Woodlands Nursery, Isleworth, W.

First Quality.
CALCEOLARIA, PRIMULA, CINERARIA, CARNATION, PICOTEE, PINK, AURICULA, VERBENA, MIMULUS, ZONALE GERANIUM and PELARGONIUM.
Each 2s. 6d. per packet.
BARR & SUGDEN, 12, King Street, Covent Garden, W.C.

INTERMEDIATE STOCK, COVENT GARDEN and VICTORIA VARIETIES.
Scarlet, Purple, White, or Mixed COVENT GARDEN INTERMEDIATE STOCK, each, 1s. per packet.
Scarlet, White, or Mixed VICTORIA INTERMEDIATE STOCK, very floriferous, and more robust than the Covent Garden varieties, each 2s. 6d. per packet.
BARR & SUGDEN, 12, King Street, Covent Garden, W.C.

To the Trade.
ASPLENIUM RUTA-MURARIA, and CETERACH OFFICINARUM.—The above Ferns to be had in any quantity, at low prices, on application to
E. ABRAHAM, 28, Patrick Street, Limerick.

British Fern Catalogue.
ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
*** Part II. (Exotic Ferns) will be issued as early as possible.
Foot's Cray Nursery, S.E.

NEW JAPANESE PLANTS.—A DESCRIPTIVE PRICED LIST of upwards of 100 varieties of recent introduction. Gratis and post free.
EDWIN COOLING, Mile Ash Nurseries, Derby.

Japanese Clematis.
MR. FORTUNE'S magnificent CLEMATIS STANDISHII and FORTUNII, doubtless two of the most important introductions of late years, received the unusual honour of Special Certificates at the Meetings of the Royal Horticultural Society, April 29 and May 2 last.
Strong Flowering Plants may be obtained of CHARLES NOBLE, Bagshot.

BEDDING-OUT PLANTS in great variety. WINDOW JARDINETS, Empty or Furnished, in variety.
The "Gardeners' and Amateurs' Friend," see page 474
BARR & SUGDEN, 12, King Street, Covent Garden, W.C.

CRYSTAL PALACE, ROYAL BOTANIC, and ROYAL HORTICULTURAL FLOWER SHOWS
At these PLANT CASES will be exhibited in great variety, furnished with the Choicest Exotic Fern and Foliage Plants, arranged by BARR & SUGDEN, of 12, King Street, Covent Garden, W.C.

J. IVERY AND SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

New Azalea indica.
J. IVERY AND SON have much pleasure in offering the undermentioned Two beautiful Seedlings, as they feel assured they will prove thoroughly distinct, and most desirable kinds.
FORGET-ME-NOT.—Brilliant glossy reddish-purple, 10s. 6d. & 21s.
BEAUTY of DORKING.—White striped and spotted with rose, 10s. 6d. and 21s.
For a full description see CATALOGUE, which will be forwarded post free on application.—Dorking, June 3.

12 LOBELIA PAXTONII, 12 do. SPECIOSA, 24 VERBENAS (sorts), 24 GERANIUMS (sorts), GNAPHALIUM LANATUM (6), 12 GAZANIA SPLENDENS, 12 PELARGONIUMS (choicest kinds to name). Hamper and package free for 20s.; half the quantities 14s. cash.
ROBT. H. POYNTER, Nurseryman, Taunton.

Calceolaria, Cineraria, and Primula.
E. G. HENDERSON AND SON offer Seed of the above, in first-class quality, at 1s., 2s. 6d., and 5s. per packet.
STOCKS for next spring bloom, as SCARLET and WHITE INTERMEDIATE; also the fine ALBERT and ALEXANDRA INTERMEDIATE varieties. See the SEED CATALOGUE, page 44.
DOUBLE GERMAN WALLFLOWER, mixed in varieties, or colours separate, 1s. per packet.
Wellington Nursery, St. John's Wood Terrace, London, N.W.

NEW VARIEGATED GERANIUM CRYSTAL SEA.—Flowers pure white, trusses of good size, and very abundant, standing well above the foliage; dwarf habit; the leaves a beautiful green, edged and striped with white, some of which have a beautiful dark zone, shaded with lively rose; a very distinct and novel variety 10s. 6d. each.
MARTIN & SON, Cottingham; and 7, Market Place, Hull.

PELARGONIUM MRS. POLLOCK. Good established plants for Bedding, 30s. per dozen.
SALTMARSH & SON, Moulsham Nurseries, Chelmsford.

NEW ZONALE PELARGONIUMS. TWO OF THE GEMS OF THE SEASON.
SALTMARSH'S "LITTLE TREASURE" (First-class Certificate)
SALTMARSH'S "LUNA."
For Description and Price see previous Advertisements. Liberal Discount to the Trade.
SALTMARSH & SON, Moulsham Nurseries, Chelmsford.

Cheap Bedding Plants.
J. SCOTT has still on hand a few hundred copies of his celebrated FLOWER GARDEN DIRECTORY and CATALOGUE of CHOICE BEDDING PLANTS, which he will forward free on application, inclosing one stamp.
100,000 fine Plants now ready, well hardened off.
A fine stock of the lovely new purple-leaved ACHYRANTHES VERSCHAFFELTII, 6s. per dozen; the finest of all the purple-leaved plants for out-door cultivation.—June, 1865.

VERBENAS and LOBELIAS.—Purple King, Foxhunter, Lord Raglan, Mrs. Woodroffe, Brilliant de Vaise, &c., in Pots at 16s. per 100; out of pots, 14s. Lobelia speciosa true, 12s. per 100 for cash. Remarkably fine Plants can be had of
GEORGE EDWARDS, Clarence Nurseries, Haxby Road, York.

Now Ready,
JAS. BACKHOUSE AND SON'S LIST of STOVE, GREENHOUSE, and BEDDING PLANTS, FERNS, ALPINES, &c.
The LIST of ALPINES and HARDY PERENNIALS (with descriptive and cultural notes) can be had separately.
York Nurseries.

Russell's Pyramid Primulas.
GEO. CLARKE is now prepared to send out in packets, price 2s. 6d. each, this, the finest breed of PRIMULAS in cultivation. The Seed now for sale has been saved from selected plants, so that it is believed the produce will be even superior to that of former years.
Printed instructions for raising and growing the plants sent with each packet. Stamps received in payment.
Nursery, Streatham Place, Brixton Hill, London, S.

To Market Gardeners and Others.
THREE BUSHELS of SCARLET RUNNER BEANS to be SOLD, at 30s. per bushel. They are a fine sample, and of the growth of 1864.
Apply, by letter, to Mr. F. HILTON, 8, Albert Cottages, James's Grove, Commercial Road, Peckham, S.

The Best Early Turnip for Field Culture is the Pomeranian White Globe.
SUTTON AND SONS can supply fine New Seed of the POMERANIAN WHITE GLOBE TURNIP at 10d. per lb., or cheaper by the bushel. Carriage free except small parcels.
PRICED LISTS of TURNIP SEEDS post free.
Royal Berkshire Seed Establishment, Reading.

Turnip Seeds.
CHARLES SHARPE AND CO., SEED GROWERS, Sleaford, have fine stocks of the above to offer, of their own saving, from transplanted and selected roots. List of prices on application.

Rape Seed for Sowing.
CHARLES SHARPE AND CO., SEED MERCHANTS, Sleaford, have English-grown Seed of the above to offer, of good quality. Price on application.

NATURAL GRASSES: their Names and Derivations; Quality, Produce, Elevation, Situation, Soil, Use, Peculiarity, Season, Growth, Increase, Time of Flowering, Price, &c. Free for One Postage Stamp.
RICHARD SMITH, Seed Merchant, Worcester.

Sutton's Grass Seeds for all Soils.
SUTTON AND SONS have still on hand some of each of the best kinds of GRASS and CLOVER SEEDS for every description of soil, and can supply them at the same prices as heretofore.
Royal Berkshire Seed Establishment, Reading.

Seeds from Choice Strains.

B. S. WILLIAMS can now supply good Seeds of the following:—

CINERARIA (Weatherill's extra choice strain).—B. S. W. has secured at a great expense the entire stock and right of exclusive sale from Mr. Weatherill, of his, the best strain of Cineraria in existence, and can now offer packets at the following prices:—2s. 6d., 3s. 6d., and 5s.

CALCEOLARIA (Herbaceous), from a fine strain, 2s. 6d. and 3s. 6d. per packet.

PRIMULA (Williams' superb strain), the finest fringed and the best coloured flowers in cultivation. Red, White, or Mixed Seed, 2s. 6d., 3s. 6d., and 5s. per packet.

Paradise and Victoria Nurseries, Holloway, London, N.

BEDDING PLANTS.

VERBENAS, fine selections, 100 in 50 vars., 18s.
CALCEOLARIAS, best bedding varieties, 3s. and 4s. per doz.
SENECIO ELEGANS NANA (new dwarf Jacobæa), very dwarf, bushy, and splendid, only 4 to 6 inches high, in 3 varieties, 4s. per doz.
SENECIO ELEGANS CUPREATA NANA (newest), fine crimson red, 9s. per doz.
MIMULUS, three beautiful new vars., Aurantiaca, Cupreus Major, and Gem, 1s. 6d. each.
GAZANIAS, three fine new vars., 1s. each.
GAZANIA SPLENDENS, 4s. per doz.; 25s. per 100.
Finest FUCHSIAS, PENTSTEMONS, PHLOX, LOBELIAS, PETUNIAS, DAHLIAS, &c., &c.
CATALOGUES free on application.

Stephen Brown, Seed and Nursery Establishment, Sudbury, Suffolk

---

Cheap Bedding Plants.

PETER DRUMMOND AND CO. have a Surplus Stock of the undermentioned BEDDING PLANTS, which they offer at the very low prices named. The Plants are extra fine and well-established in single pots.

	Per doz.—s.	d.		Per doz.—s.	d.
Ageratums	1	6	Heliotropes	2	0
Convolvulus Mauritanicus	2	0	Heliotropes in store pots	1	0
Dahlias of sorts	2	0	Lantanas	2	0
Fuchsias of sorts	2	0	Pentstemons	2	0
Gazanias	2	0	Tritomas	2	0
Geraniums, Variegated, in 24 sorts	2	0	Verbenas in 100 varieties per 100,	15	0
Arctotis repens	2	0	Sedum carneum variegatum	1	0
Antennaria margaritacea	1	3	Stachys lanata	1	0
Centaurea candidissima	4	0	Agathæa cœlestis variegata	2	0
Cerastiums, sorts	1	3	Arabis alba variegata	1	3
Cineraria maritima	2	0	Veronica Andersonii variegata	2	0
Diotis maritima	2	0	Vinca major variegata	2	0
Santolina incana	2	0			

A Choice Selection of many other varieties at equally low prices.

Peter Drummond & Co., Preston Road Nursery, Yeovil, Somerset.

ROBERT PARKER begs to offer the following, all of which are well-grown, clean, and healthy plants:—

	s.	d.
CLERODENDRON BALFOURII	5	0
CORDYLINE INDIVISA	10	6
FRANCISCEA CALYCINA	10	6
GOODYERA PUBESCENS	1	6
RHODODENDRON COUNTESS of HADDINGTON	10	6
" JAVANICUM	2	6
" NUTTALLII	2	6
TRITOMA GRANDIS	3	6
" UVARIA GLAUCESCENS	1	6
VINE DUCHESS of BUCCLEUCH	21s. and 42	0
YUCCA ALBO SPICA	42	0
" TRECULEANA	42	0

PRICED and DESCRIPTIVE CATALOGUES of Greenhouse, Hardy, and Stove Plants, Seeds and Bulbs, are published, and will be forwarded to applicants.

Exotic Nursery, Tooting, Surrey, S.

New Hardy and Rare Climbers.

CLEMATIS JACKMANNI, large deep bright violet.
CLEMATIS RUBRO-VIOLACEA, maroon shaded reddish violet,
Awarded Two First-class Certificates by Royal Horticultural Society.

MESSRS. GEORGE JACKMAN AND SON, Woking Nursery, Surrey, can with confidence recommend to the public, their beautiful rich-coloured, free-flowering and vigorous-growing CLEMATISES, that now occupy a very high position in climbing plants. On application a circular will be forwarded free, giving extracts of their "sterling merits" from the following leading Horticultural Papers:—*Proceedings of Royal Horticultural Society, The Gardeners' Chronicle, Journal of Horticulture, Floral Magazine,* and *Florist and Pomologist.*

Plants of the following varieties will at once be sent out at the under-mentioned prices:—

CLEMATIS JACKMANNI, a few strong plants of 1864, 14s. each.
" " fine plants of 1865, 7s. 6d. each, 84s. doz.
" RUBRO-VIOLACEA, a few strong plants of 1864, 14s. ea.
" " fine plants of 1865, 7s. 6d. each, 84s. doz.
" FORTUNEI (Japan), large double white, 7s. 6d. each.
" STANDISHI (Japan), beautiful violet blue, 5s. each.
" HYBRIDA SPLENDIDA, a fine deep violet, 5s. each.
" LANUGINOSA CANDIDA, large handsome white, 7s 6d. each.
" LANUGINOSA NIVEA, fine pure white, 7s. 6d. each.
Besides other good old kinds.

A Circular with a special offer to the Trade will be sent free on application.

PELARGONIUM MRS. POLLOCK.—Small Plants in 60-pots at 2s. 6d. each; Larger Plants well established in 48-pots, 4s. and 5s. each.

VARIEGATED-LEAVED PELARGONIUMS.

	Per dozen.—s.	d.		Per dozen.—s.	d.
Cloth of Gold	3	0	Variegated Nosegay	6	0
Golden Fleece	2	6	Countess of Warwick	4	0
Golden Chain	2	6	Alba marginata	6	0
Bijou	3	0	Alma	2	0
Shottesham Pet	3	6	Eva	3	6
Jane	3	6	Bridal Wreath	4	0
Flower of the Spring	3	6	Daybreak	4	0
Julia	3	6	Scintillatum	6	0
Beaton's Silver Nosegay	6	0	St. Clair	3	6

ZONATE and PLAIN-LEAVED VARIETIES.

	Per dozen.—s.	d.		Per dozen.—s.	d.
Madame Vaucher	6	0	Punch	3	0
Christina	3	0	Countess	3	0
Rose Queen	3	6	Aurora	6	0
Blackheath Beauty	3	6	Lady Middleton	3	0
Paul Labbé	3s. 6d.				

All the above are strong autumn-struck Plants, well hardened, ready for bedding out.

Alfred Fryer, Nurseryman, Chatteris, Cambridgeshire.

NEW HARDY LATE-FLOWERING RHODODENDRONS.

PRINCE of WALES.—Bright rose shaded with purple, divided black marking on the upper petals, free grower, profuse bloomer, hardy, and the latest Hybrid Rhododendron grown. One-year grafted plants, 10s. 6d. Two-year ditto, strong, 21s. Larger plants, 31s. 6d. to 42s. each.

PRINCESS of WALES.—Deep magenta edge, pure white centre, primrose flake on the upper petals, slightly spotted with brown, totally distinct from any variety at present known, and when in bloom may be readily distinguished from all others; it is a beautiful and first-class Rhododendron. One-year grafted plants, 10s. 6d. Two-year ditto, strong, 21s. Larger plants, 31s. 6d. to 42s. each.

The usual Discount to the Trade.

The above beautiful Rhododendrons were first introduced to the public last year by M. Y., and he has again much pleasure in calling attention to them; they are both most distinct varieties, the colour and marking of the Princess of Wales being quite a fresh type, and unlike any other Rhododendron. They have both been proved in the open ground for several years, capable of withstanding our most severe winters, and being very late bloomers escape the spring frosts, frequently so fatal to the earlier blooming kinds. They are confidently recommended as most desirable additions to this favourite class of plants.

Coloured Plates, by Andrews, will be forwarded on application for 13 stamps each, or the two for 25 stamps.

Maurice Young, Milford Nurseries, near Godalming, Surrey.

Surplus Bedding Stuff.

WOOD AND INGRAM offer the following fine AUTUMN-STRUCK PLANTS in 3-inch pots:—Calceolarias Aurea floribunda, Batemanni, Ion, Mrs. Burns, Prince of Orange and Sparkler; Senecio elegans, Gazania splendens, Gnaphalium lanatum, Petunias, named sorts; Nierembergias, Œnothera riparia, Lobelia kermesina and Bellis aucubæfolia, at 2s. 6d. per dozen. Cerastium, two sorts; Lobelia Paxtoni, and Petunias, Purple Seedlings, at 2s. per dozen. Variegated and choice Zonale Geraniums, Chrysanthemum carinatum, Ivy-leaved and Hybrid Bedding Geraniums, at 3s. per dozen. Fuchsias, fine flowering plants, 3s. to 1s. per dozen. And Œnothera macrocarpa, fine 2-year-old plants, at 5s. per dozen.

Nurseries, Huntingdon.—June 3.

REIGATE SILVER SAND, 12s. per ton, at Swan Place; delivered 5 miles, or to any London Railway, 16s. per ton, or 1s. 6d. per bushel (sacks at cost price, or on hire).

KENTISH and other PEATS, YELLOW LOAM, LEAF-MOULD, SPHAGNUM MOSS, and COCOA FIBRE REFUSE.

J. Kennard, Swan Place, Old Kent Road, London, S.E.

REIGATE SILVER SAND.—Best Kent and Surrey PEATS, LOAMS, SPHAGNUM, ROCK SANDSTONE, London-made FLOWER POTS, &c. Moderate Prices.

N.B. Loaded Trucks can be sent direct on all the Railways.

W. Short, Sand and Peat Depôt, Reigate, Surrey.

JAPAN FLAX.—Third Shipment, just arrived.—The cheapest, finest Material ever introduced for tying Plants, Flowers, &c. The highest testimonials from the first-class Gardeners of the United Kingdom. Supplies can be obtained from every Wholesale Seed Firm in London. For Free Samples apply to Importer,

John Allison, 22, Lawrence Pountney Lane, Cannon Street, E.C.

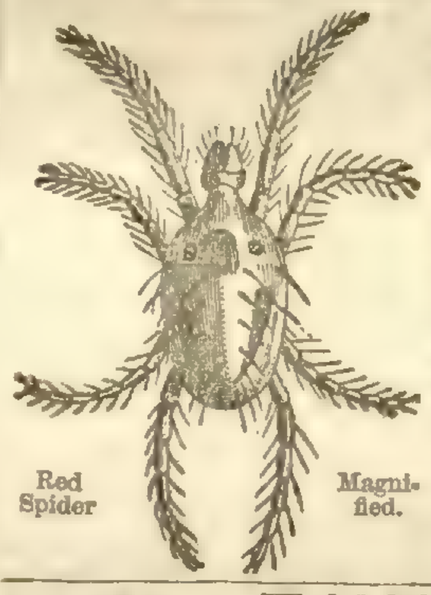
COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 2s. per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the Patent Cocoa Fibre Company, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. Barsham & Co.

Barsham's BRUSHES and MATS are sold in every town.

Caution.—Every Brush is stamped, J. Barsham's Patent.



Red Spider Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes, 1s. 3s., and 10s. 6d. each.

Wholesale by

PRICE'S PATENT CANDLE COMPANY (Limited).

TOOGOOD'S (late Page & Toogood's) IMPROVED BLIGHT COMPOSITION introduced in 1850, has been manufactured under W. Toogood's sole directions since that period. He has made great improvements in it, and by reducing the price 25 per cent., it is one of the cheapest and has always been the most efficacious remedy extant. To publish the Testimonials no newspaper would give space, but Messrs. Cutbush & Son, the eminent Nurserymen, say:—"It is the best thing for the purpose we can find, and does not appear to injure the young foliage like Gishurst does. This is our experience after 10 years' trial."

"February 24, 1864."

Mr. E. Sage, *Gardener to* Lord Howe, *says*:—

"Will you please send us 15 gallons of your Blight Composition. I see you have reduced the price, and trust that you may some day be able to make another reduction, and I feel assured that no 'Gishurst,' will be used by practical men."

"We hereby Certify that during the whole time we were Warehousemen in the Establishment of B. Page & Co., and subsequently Page & Toogood, that we Manufactured the Blight Composition under Mr. Toogood's *sole directions, and that he alone knew the proportions of the various ingredients.*

Signed John Morley,
Henry Drew,
Henry Sheerman,
George Isaacs."

"July 13, 1863."

Extra strong, 3s. per gallon (sufficient to make 4 gallons fit for use), 10 gallons and upwards carriage free to London.

May be obtained of the principal Nurserymen and Seedsmen in the Trade, and of W. Toogood, Royal South Hants Seed Establishment, Southampton.

GARDEN BORDER EDGING TILES, in great variety of patterns and material, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.

F. & G. Rosher, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.

Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also TESSELATED PAVEMENTS of more enriched designs than the above.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cements, &c.

To be obtained of F. & G. Rosher, at their Premises as above.

SILVER SAND (REIGATE, best quality), at the above addresses—14s. per Ton, or 1s. 3d. per Bushel; 2s. per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less.

FLINTS, BRICK BURRS or CLINKERS, for Rockeries and Grotto Work.

F. & G. Rosher.—Addresses see above.
N.B. Orders promptly executed by Railway.

TERRA COTTA GALLERIES, No. 1, South Wharf, Praed Street, Paddington, W., are NOW OPEN with a stock of VASES, FOUNTAINS, TAZZAS, FLOWER POTS, GARDEN EDGINGS, and other Architectural goods.

THE PATENT CONCRETE STONE COMPANY (Limited), are now the Proprietors of the Patents for the Manufacture of the beautiful material known as RANSOME'S PATENT CONCRETE STONE, which for durability, cheapness, and beauty of appearance, stands unrivalled. It is especially applicable for Fountains, Vases, Jardinets, Balustrades for Terraces, Gate Piers, Edgings for Borders, and all other Ornamental Requisites for Parks, Gardens, Conservatories, &c.

Illustrations and Prices furnished upon application at the Offices of the Patent Concrete Stone Company, 2, Queen Street Place, Southwark Bridge, E.C.

AUSTIN, SEELEY, AND CO.'S

Stock now comprises—

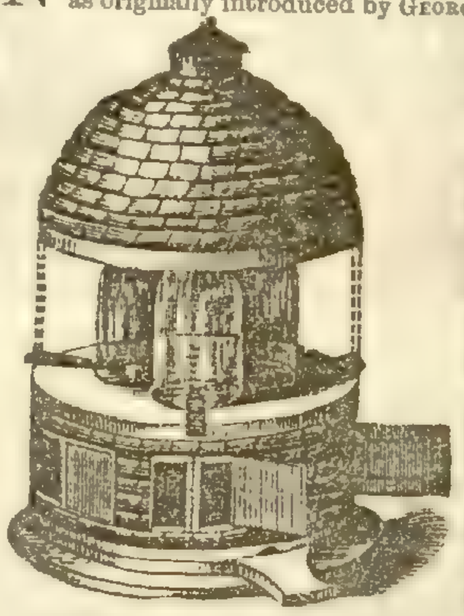
296 different kinds of VASES.
94 STATUES and FIGURES of CHILDREN.
70 FIGURES of ANIMALS and BIRDS.
About 200 FOUNTAINS, at prices from £10 to £400.
15 BASKETS from 1 to 10 feet diameter.
17 FLOWER BOXES for WINDOWS, &c.
6 GARDEN SEATS.
22 SUN-DIAL PEDESTALS.
22 ORNAMENTS for GATE PIERS.
And a great variety of BALUSTRADING and PEDESTALS.

369 to 375, Euston Road, Regent's Park, N.W.

Bee Hives.

Prize Medal and Honourable Mention awarded to G. N. & Sons, for Bee Hives and Honey at the various Exhibitions.

NEIGHBOUR'S IMPROVED COTTAGE BEE HIVE, as originally introduced by George Neighbour & Sons, with all the recent improvements, three Glasses and Thermometer, price 35s., securely packed for the country.



Several important novelties are introduced this season, including the Woodbury Straw and Bar-and-Frame Hives, price 21s., &c. Also the Engraved Pressing Roller, for the guidance of Bees in the construction of Honey-comb on the Bars, and impressed Wax Sheets, to assist in the formation of Cells.

Address, George Neighbour & Sons, 127, High Holborn, W.C.; or 149, Regent Street, London, W.

Their newly-arranged Catalogue of other Improved Hives, with drawings and prices, sent on receipt of two stamps.

Agents:—Liverpool: James Cuthbert, 12, Clayton Square. Manchester: J. Wilson, 50, King Street. Birmingham: J. H. Cottrell, 15, Bull Ring. Dublin: Edmondson Brothers, 10, Dame Street. Glasgow: Austin & McAslan, 16, Buchanan Street.

Caution to Gardeners.—When you ask for SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark Saynor, also the corporate mark Cooke's Warranted, without which none are genuine.

S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by sellers and makers.

S. & C.'s Pruning and Budding Knives are the best and the cheapest in the market.

Paxton Works, Sheffield. Established upwards of 125 years.

PRIZE ROLLERS for PARKS.

PRIZE ROLLERS for LAWNS.

PRIZE ROLLERS for CRICKET GROUNDS.

PRIZE ROLLERS for GARDENS.

PRIZE ROLLERS for ROADS.

PRIZE ROLLERS for the FARM.

The Best and Cheapest are the PATENT WATER BALLASTING ROLLERS, made only by the Inventors, AMIES, BARFORD, AND CO., Queen Street Iron Works, Peterborough, who will forward Price Lists and all particulars on application.

£1000 UPON the WOOLSTON TACKLE against the NEWCASTLE "best application."

William Smith, Woolston, Bletchley Station.

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be seen at Work in every Agricultural County in England. For particulars apply to

John Fowler & Co., 28, Cornhill, London, E.C.; and Steam Plough Works, Leeds.

CLAYTON, SHUTTLEWORTH, AND CO., Engineers, Manufacturers of PORTABLE and FIXED STEAM ENGINES, Machinery for Pumping, Hoisting, Grinding, Sawing, &c., Engines for Steam Cultivation, Self-Moving Engines for Common Roads and Agricultural Purposes generally.

Stamp End Works, Lincoln, and 78, Lombard Street, London; also at Lowengasse, No. 44, Landstrasse, Vienna; and Gegenuber dem Bahnhof, Pesth.

Descriptive, Illustrated, and Priced Catalogues, Free per Post.

Special Drawings when required.

[*The best Steam Threshing Machinery made.*]

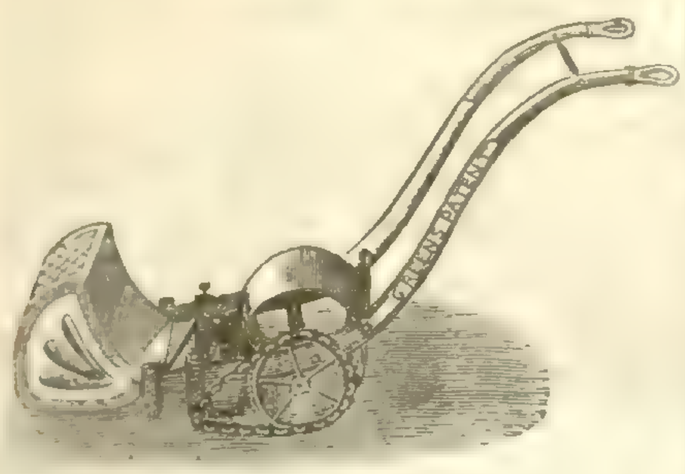
PATENT GUTTA PERCHA SOLES.—Important to Gardeners.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. Glenny, Esq., the celebrated Florist:—

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at a few times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles.—Your obedient servant, "G. Glenny."

Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Calbotype trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town or country.

The Gutta Percha Company, Patentees, 18, Wharf Road, City Road, London, E.C.

DEANE AND COMPANY'S HORTICULTURAL TOOLS.



DEANE'S MOWING MACHINES, with Patented Improvements, 50*s.*, 70*s.*, 90*s.*, 140*s.*
GARDEN ENGINES, Galvanised Iron. Prices 55*s.*, 65*s.*, 78*s.*, 90*s.*, 100*s.*, 110*s.*
GARDEN ENGINES, Wood, 90*s.*, 110*s.*, 138*s.*
GARDEN ROLLERS, 1*l.* 10*s.*, 1*l.* 14*s.*, 2*l.*, 2*l.* 7*s.* 6*d.*, 2*l.* 12*s.* 6*d.*, 3*l.* 2*s.* 6*d.*
GALVANISED WIRE NETTING, all sizes.
GARDEN SEATS, elegant patterns.
CAST-IRON ORNAMENTAL FLOWER STANDS, to hold Seven Vases, 27*s.*
GREENHOUSE SYRINGES, 8*s.*, 10*s.*, 18*s.* 6*d.*
BOYD'S SELF-ADJUSTING SCYTHE, 10*s.* 6*d.*
ORNAMENTAL WIRE WORK, FLOWER STANDS, &c.

LAWN MOWERS.

GREEN'S PATENT | SAMUELSON'S PATENT
SHANKS' PATENT | BARNARD'S PATENT.

Every Implement for Garden use on the lowest terms.

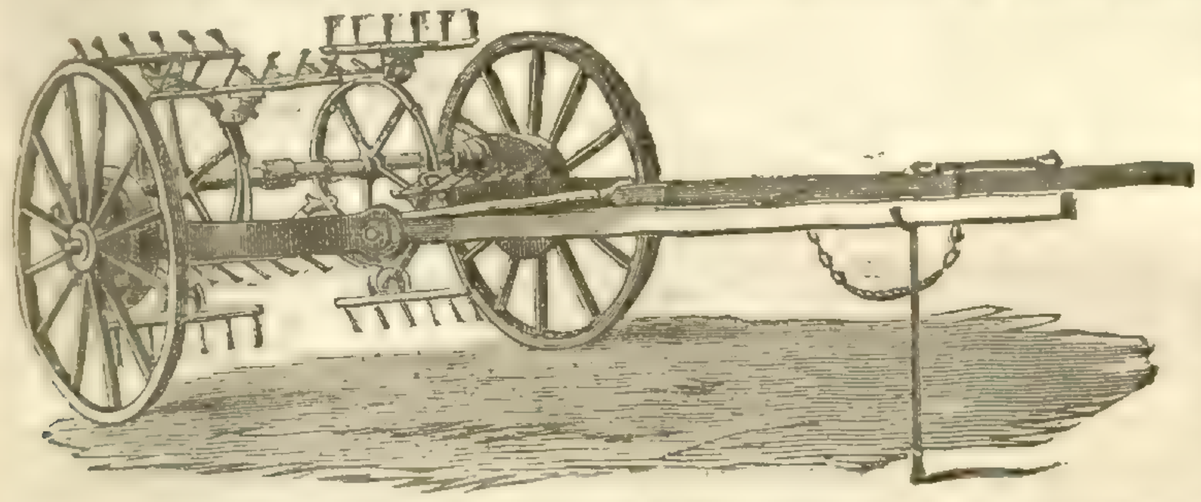
DEANE'S NEW ILLUSTRATED HORTICULTURAL LIST POST FREE ON APPLICATION.

DEANE AND CO., 46, KING WILLIAM STREET, LONDON BRIDGE, E.C.

BOBY'S PATENT DOUBLE-ACTION HAYMAKING MACHINE

Received at the recent Meeting of the Royal Dublin Society, at Dublin, the FIRST and LARGE SILVER MEDAL (no other Medal was awarded to Haymakers); also,

ELEVEN FIRST-CLASS PRIZES and MEDALS were AWARDED to this MACHINE in 1863 and 1864.



This Machine is extremely simple, and its working is at once understood, as all levers and eccentrics are entirely dispensed with. It is light in draught, and so constructed that it leaves little or no weight on the back of the horse, and guaranteed to work in the heaviest crop. Four Hundred of these Machines have now been sent out, and not a single Machine has been returned as inefficient. The travelling wheels are made of wood, and are very strong.

Price, delivered free to any Station within 200 miles of London, **£14 15s.**

This Machine requires no Roller or Screen to keep the Grass off the front.

Illustrated Catalogues of Haymakers, Corn Screens, &c., will be sent free on application to the

MANUFACTORY: ST. ANDREW'S WORKS, BURY ST. EDMUNDS, SUFFOLK.

Hydraulic Suction Pumps, Garden Engines, Syringes, &c.

CAUTION.—The well-known reputation of

READ'S ENGINES, MACHINES, and SYRINGES has led to the nefarious practice of Manufacturers selling and advertising weekly Syringes as "READ'S PATENT."

R. READ begs to caution the Public against being deceived by such false representations, as many of these instruments, upon trial, will be found defective and useless.

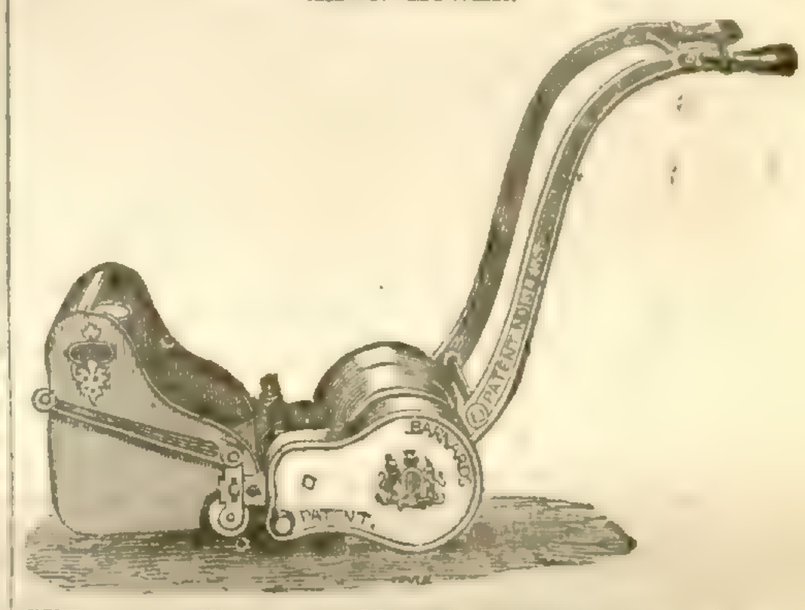
READ'S SYRINGES have the Royal Arms, and address, 35, Regent Circus, London, W. Descriptions post free.

SHAW'S PATENT FLEXIBLE SELF-ADJUSTING LAWN MOWING MACHINES.

Full Particulars, Drawings, and Prices, post free on application to the Patentee and Manufacturer,

JOHN SHAW, Junction Works, New Wortley, Leeds.

BARNARD'S PATENT NOISELESS LAWN MOWER.



THE MINIATURE LAWN MOWER CUTS 8 INCHES .. Suitable for the very smallest grass plots or edgings.	£2 10 0
To CUT 10 INCHES (this can be worked by a lady)	3 5 0
To CUT 12 INCHES (suitable for one person)	4 10 0
To CUT 14 INCHES (suitable for one person)	5 0 0
To CUT 16 INCHES (suitable for one person)	6 0 0
To CUT 18 INCHES (suitable for man and boy)	6 10 0
To CUT 20 INCHES (suitable for man and boy)	7 0 0
To CUT 22 INCHES (suitable for two men)	7 10 0

Packed and Delivered Carriage Free to the Principal Railway Stations in England.

All orders should be sent immediately to J. JONES & SONS, Iron Merchants and Horticultural Engineers, 6, Bankside, London, S.E.

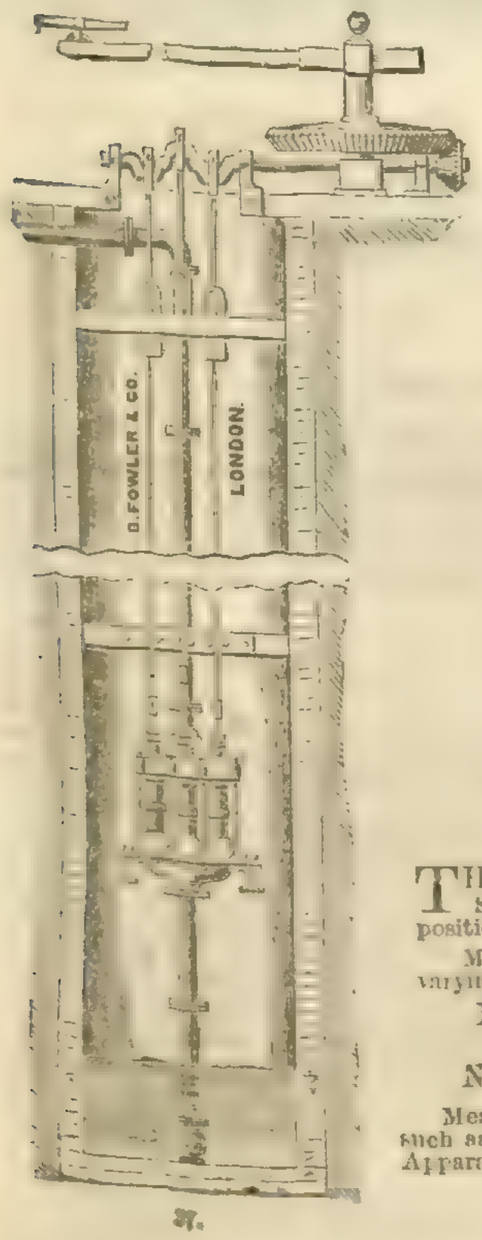
Illustrated Catalogues gratis, with prices of Garden Rollers, Chairs, Seats, Vases, Wire Netting, &c., on application.

SAMUELSON & CO.'S
PATENT LAWN MOWING and ROLLING MACHINES.

TO BE OBTAINED OF ALL RESPECTABLE IRONMONGERS OR SEEDSMEN, OR OF

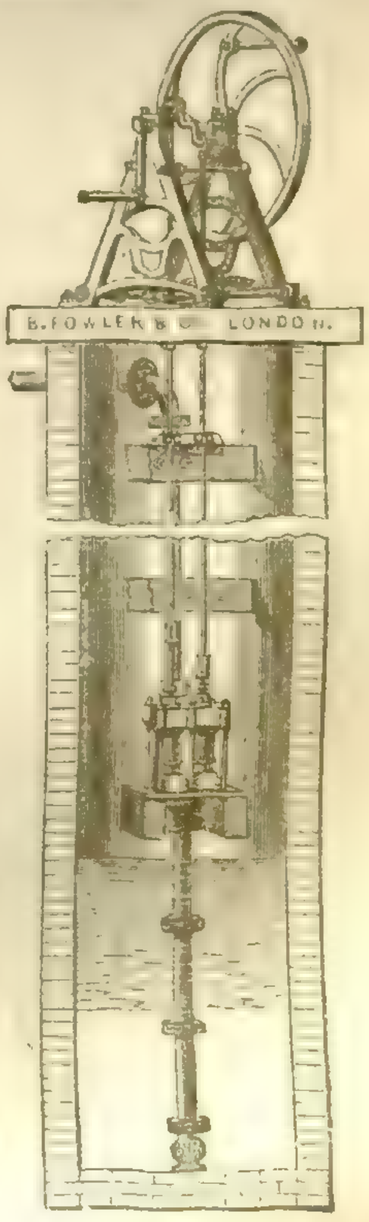
SAMUELSON AND CO., BRITANNIA WORKS, BANBURY.

LONDON OFFICES: 18, CANNON STREET, E.C. LONDON WAREHOUSE (where Stock is kept): 10, LAURENCE POUNTNEY LANE, E.C.



37.

CLINTON & OWENS
(LATE BENJAMIN FOWLER & CO.)
MANUFACTURERS OF
PUMPS AND HYDRAULIC MACHINERY,
WHITEFRIARS STREET, FLEET STREET, LONDON, E.C.



28A.

THE LANDSCAPE SKETCH shows an adaptation of THE IMPROVED HYDRAULIC RAM. This is a simple Self-acting Machine, suited for raising a Supply of Water for use in Public and Private Establishments. Its adoption is not confined to positions as shown, but it is suited for any situation where a Fall can be obtained from a Stream, Brook, or Spring.

Messrs. FOWLER have fixed a great many in various parts of the country for raising from 600 to 6000 or more Gallons per day to elevations varying from 30 to 300 feet, and forcing through main pipes 50 yards to several miles in length.

No. 37. IMPROVED TREBLE BARREL PUMPS with HORSE GEARING for Raising Water from DEEP WELLS for the supply of MANSIONS and PUBLIC BUILDINGS.

No. 28*a*. DOUBLE BARREL PUMPS for HAND-POWER for similar purposes.

Messrs. FOWLER & Co. Manufacture and Erect every description of Engineer's Work required in Public or Private Establishments, such as Pumps for any purpose on the largest or smallest scale, Steam Engines, Water Wheels, Turbines, Warming and Drying Apparatus, Baths, Gas Works and Fittings. Estimates furnished from Plans or on inspection of position.

Price Lists of Pumps, &c. free on application.

E. G. HENDERSON AND SON'S SPRING CATALOGUE of PLANTS contains Notes, among other Plants, of the following:—

50 ORNAMENTAL-LEAVED PLANTS for Summer-garden Decoration.

ARUNDO DONAX, finely variegated; GYNERIUM ARGENTEUM fol. VARIEGATUM; GYNERIUM ARGENTEUM ELEGANS.

ORNAMENTAL-COLOURED FOLIAGE PLANTS for BEDDING.

IRESINE HERBSTII, rich red leaves and stems. 6s. per dozen.

SALVIA OFFICINALIS GRANDIFLORA AUREA, yellow margined.

CENTAUREA RAGUSINA (syn. C. candidissima), 9d. and 1s. each.

CENTAUREA RAGUSINA COMPACTA. 3s. 6d. each (fine variety).

" GYMNOCARPA and C. ARGENTEA.

FUCHSIAS.—The following are Mr. Banks's special varieties for the present season:—

LIGHT HEART	ENOCH ARDEN	WAR EAGLE
The VILLAGE PET	LADY of the SEA	RODERICK DHU

CONSOLATION | ROSE of DENMARK.

The SPRING CATALOGUE will be forwarded post free on application.

The Wellington Nursery, St. John's Wood, London, N.W.

New Plants for 1865.

B. S. WILLIAMS, Paradise and Victoria Nurseries, Holloway, London, N., begs to announce that he is now prepared to supply strong PLANTS of the undermentioned Novelties, which he has much pleasure in offering for the first time:—

NEW FUCHSIAS.

The following four Fuchsias are the most novel and distinct yet offered, and cannot fail to give satisfaction. The first is the production of Mr. Wyness, Gardener to Her Majesty, Buckingham Palace, by whom it was exhibited during the past season, and received certificates of merit. Amongst novelties and acquisitions introduced of late, this undoubtedly is the most distinct, but at present it must not be looked at in the light of a florist flower, but as the type of an entirely new race, producing its clusters of flowers quite erect. Its habit is superior to the light varieties of the ordinary drooping kinds, and it blooms profusely throughout the season, thus making it a very valuable decorative plant, and invaluable for supplying cut flowers. In Nos. 2, 3, and 4, will be found great improvements on those previously sent out. No. 2, a well-formed flower, with great width of sepal. No. 3 is the finest proportioned double flower yet offered. No. 4, quite distinct on account of its serrated petals.

No. 1. FUCHSIA ERECTA, var. NOVELTY.—Tube and sepals pure white, medium size; sepals cordate, gracefully recurved; corolla soft rose, shading to a white base. A very nice proportioned flower, its habit good, producing large clusters of bloom; leaves marbled and veined; a decided acquisition.

No. 2. FUCHSIA AGAMEMNON.—Rich scarlet sepals, broad, and of great substance; corolla very double; colour dark plum, flaked towards the base with fiery crimson; habit first-class.

No. 3. FUCHSIA MAJESTIC.—Carmine scarlet sepals, tube of great substance, and well reflexed; corolla bluish-violet, flamed or feathered to the base. Undoubtedly the finest double Fuchsia yet raised.

No. 4. FUCHSIA SERRATIPETALA.—Corolla barrel shape, rich mulberry colour, each petal evenly serrated; scarlet tube and sepals, the latter reflexed to the tube, showing the feathered base of the corolla. A grand flower for exhibition purposes.

Price 7s. 6d. each.

NEW SINGLE PETUNIAS.

STRIATA PERFECTA (Holland).—The production of Mr. Holland, of Isleworth, the successful raiser of Royalty and Duchess of Northumberland, the favourites of the past season. The variety now offered is quite distinct in character, having blush-white ground and four pure magenta stripes evenly diverging from the centre. The flowers are of a medium size, good shape, and constant. The seedling plant when exhibited was about 2 feet high, and as much through, covered with flowers, thus showing its first-class habit and constancy. Received First-class Certificates from the Royal Botanic and Royal Horticultural Societies, July, 1864. Price 5s.

SPLENDIDA (Williams).—Very large and distinct flower, pure white ground, having four bars or club-shaped stripes of rich carmine diverging from the centre; the outline occasionally broken by a small blotch; good free branching habit. Received First-class Certificate. Price 5s.

PURPLE BEDDER.—A very superior variety; being of medium height, with free branching habit, requiring no pegging down. B. S. W., feeling assured that it will be found the best bedding Petunia yet offered, has prepared a large stock to supply at moderate prices. Price 1s. 6d. each; 12s. per dozen.

NEW CALCEOLARIA

BIRD of PARADISE.—Colour bright orange-red, with a margin of yellow, the whole flower minutely spotted, medium in size, good truss, free branching habit, giving a good succession of flowers, suitable either for bedding or pot culture. When grown as a pot plant, its flowering season may be prolonged up to Christmas, a time when such a striking colour will be most acceptable. Figured in *Floral Magazine*. Price 5s.

Now ready, post free, a NEW and DESCRIPTIVE CATALOGUE of CHOICE and RARE PLANTS.

New Carmine-striped Verbena Annie.

GEORGE COOLING, of Bath, has great pleasure in offering this really novel and beautiful VERBENA, the best striped variety ever raised. It is an excellent grower, of very compact pretty habit, and produces in great profusion immense trusses of carmine and white-striped blossoms, of perfect form and fine substance, which are remarkable for the length of time they last in bloom. Altogether it is a most desirable acquisition, and a variety thoroughly distinct from any in cultivation. For bedding purposes it will be unique, and no exhibition stand will be complete without it. It has obtained a First-class Certificate from the Floral Committee of the Royal Horticultural Society, in addition to five First Prizes and Certificates elsewhere. See report to correspondence and editorial remarks in *Gardeners' Chronicle*, July 16, Sept. 17, Dec. 31; in *Journal of Horticulture*, and other provincial papers; it is also figured in the *Florist* for February.

Strong Plants now ready at 5s. each, or six for 25s.; with the usual discount to the Trade.

18, Broad Street, Bath, near the York House; Nursery, Bathealton, near Bath.

To Seed Merchants.

MR. A. WILKIN, of Tiptree Heath, Kelvedon, Essex, invites your inspection of his growing crops of Seed, some of which are very luxuriant and promising.

20 acres of CABBAGE SEED: CATTLE, LONDON MARKET, COLEWORT, RED DUTCH, COTTAGER'S KALE, and DRUMHEAD SAVOY.

30 acres of CARROT SEED: ALTRINGHAM, JAMES, and EARLY HORN.

30 acres of PARSLEY, MIGNONETTE, SWEET PEAS, CUCUMBER, &c.

The stocks are of the best and purest quality.

Terms cash on delivery.

A Boon to the World.

PRINCE of WALES' KIDNEY POTATO.—A new Seedling, remarkably handsome, fine eating, and the most prolific in the world. Testimonials:—

From Professor Lindley (Editor of the *Gardeners' Chronicle*).

"I have this morning had the Seedling Potatos examined. The crop is very extraordinary, and the Potatos themselves are very handsome, and quite ripe."

From Shirley Hibberd, Esq. (Editor of the *Gardeners' Weekly Magazine*).

"The Seedling Potato (Prince of Wales), I have found to be wonderfully productive, excellent flavour, handsome, and such a one as the world ought to have the benefit of."

To be had of Mr. James Veitch, Royal Exotic Nursery, King's Road, Chelsea, S.W.; Messrs. Barr & Sugden, King Street, Covent Garden, W.C.; Downie, Laird & Co., Forest Hill, S.E.; James Carter & Co., 237, High Holborn, W.C.; Sutton & Sons, Reading.

Price 12s. per bushel.

N.B. They may be planted up to the end of May.

FINE GREENHOUSE ORCHIDS.

NO FIRE HEAT REQUIRED, EXCEPT TO KEEP OUT FROST.

Good healthy Plants of the Six following beautiful species for Three Guineas.

SOPHRONITIS GRANDIFLORA	BARKERIA SKINNERI	ODONTOGLOSSUM GRANDE
LÆLIA SUPERBIENS	LYCASTE SKINNERI	EPIDENDRUM VITELLINUM

A DESCRIPTIVE CATALOGUE may be had for four postage stamps.

JAMES BACKHOUSE AND SON, YORK NURSERIES.

NEW PLANTS FOR 1865.

JAMES CARTER & CO.

HAVE MUCH PLEASURE IN

CALLING ATTENTION TO THE UNDERMENTIONED

FIRST-CLASS NEW BEDDING GERANIUMS, &c.

WHICH THEY ARE NOW PREPARED TO SEND OUT.

Beaton's Hybrid Bedding Geraniums.

BEATON'S PERFECTION (Beaton). Price 5s. each.

PREMIER (Beaton). Price 5s. each.

FORESTER (Beaton). Price 5s. each.

WILD CHARLIE (Beaton). Price 5s. each.

NEW VARIEGATED TRICOLOR BEDDING GERANIUM SUNRISE (Carter). Price 7s. 6d. each.

☞ The Set, 1 plant of each of the above, 21s.

NEW TROPÆOLUM DOUBLE TOM THUMB. Price 2s. 6d. each; per dozen, 18s.; per 25, 30s.; per 50, 50s.

NASTURTIUM KING of TOM THUMBS. Price 1s. 6d. each; per dozen, 12s.; per 25, 20s.

New Clove Carnations.

GENERAL LEE. Price 5s. each.

GOLIATH. Price 5s. each.

ASTELMA LANATA. Price 1s. 6d. each; per dozen, 12s.

New Single Petunias.

Nos.

1. ARABELLA, light rosy lake, white throat, a novel and most beautiful colour.
2. BEATRICE, rose edge, very dark throat, exquisitely pencilled.
3. CHRISTABEL, splendid deep crimson, fine for a bed entirely of this colour.
4. DINORAH, white margin, and flaked with deep crimson.
5. EMMELINE, very compact habit, free bloomer, bright rose, pencilled dark throat.
9. FREDERICA, crimson, in the way of Magna Coccinea, but more substance.
12. GERTRUDE, large rose, of exquisite form, white throat.
14. HELEN, deep lilac, pencilled with black, fine novel colour.
15. ISABEL, immense flower, with white ground, striped and flaked purple.

Price, each, 1s. 6d.; the Set, 10s. 6d.

NEW PLANTS OF 1864.

We are now able to offer some of the most desirable Novelties sent out in 1864, at the following very reduced prices:—

BEATON'S CYBISTER GERANIUM.
Price 1s. each; 9s. per dozen; 30s., 50; 50s., 100.

ORNITHOGALUM THYRSOIDES ALBUM.
See Plate in "Vade Mecum," Part IV.
Price 2s. 6d. to 3s. 6d. each.

IRESINE HERBSTII (Syn. Achyranthes Verschaffelti).
Price 1s. each; 9s. per dozen.

LILIUM AURATUM.
Strong Flowering Bulbs established in pots, 5s., 7s. 6d., and 10s. 6d. each; Small Bulbs, 3s. 6d. each.

*** For descriptions of above see J. C. & Co.'s CATALOGUE of NEW and CHOICE PLANTS, just published, and which will be forwarded Gratis and Post Free on application.

JAMES CARTER AND CO., SEED MERCHANTS and NURSERYMEN,
237, 238, & 261, HIGH HOLBORN, W.C.;
CRYSTAL PALACE NURSERY, PERRY HILL, SYDENHAM, S.E.; DEDHAM and ST. OSYTH, ESSEX.

THE ROYAL VINEYARD NURSERY and SEED ESTABLISHMENT,
HAMMERSMITH, LONDON, W.

A CHOICE AND EXTENSIVE

COLLECTION of STOVE and GREENHOUSE PLANTS

ALWAYS ON VIEW. ALSO

FRUIT TREES, SHRUBS, AND ORNAMENTAL TREES,

FROM THE COUNTRY BRANCHES OF THE FIRM.

The SEED and GENERAL NURSERY BUSINESS is carried on here, and Packages are delivered free at the various London Railway Stations.

BRANCHES.

EALING NURSERY, G. CANNON, Manager.

Ten minutes' walk from the Ealing Station on the Great Western Railway Main Line.

FRUIT TREES, ROSES, and SHRUBS, are here extensively and successfully cultivated in some of the finest Loam in the county.

FELTHAM NURSERY, R. HIGHAM, Manager.

Ten minutes' walk from Feltham Station.

EVERGREEN and DECIDUOUS SHRUBS, and CONIFERÆ, are here largely grown in a free Loam, well suited to their habits.

At SION LANE and WOOD LANE NURSERIES, ISLEWORTH,

ORNAMENTAL TREES are in a healthy and thriving state, and GENERAL HARDY PROPAGATION is here carried on.

The Stock in the above Nurseries is well worth the inspection of purchasers. The prices are very moderate, and the Plants are frequently transplanted to ENSURE SAFE removal.

The following CATALOGUES are published, and will be forwarded Post Free on application:—

CATALOGUE of KITCHEN GARDEN, FLOWER, and AGRICULTURAL SEEDS.
CATALOGUE of STOVE and GREENHOUSE PLANTS.
CATALOGUE of SOFT-WOODED and BEDDING PLANTS.
CATALOGUE of FRUIT TREES and FRUIT TREES in POTS.
CATALOGUE of HARDY SHRUBS and TREES.
CATALOGUE of DUTCH BULBS, published in August.
CATALOGUE of ROSES.

JOHN AND CHARLES LEE, Proprietors, HAMMERSMITH, LONDON, W.

Wheeler's Imperial Swede.

WHEELER'S IMPERIAL SWEDE, one of the HARDIEST, FINEST, and MOST NUTRITIOUS Swedes in cultivation. Won the First Prize at the Gloucestershire Root Show, and several valuable Silver Cups.

1s. per lb., 45s. per bushel.

Carriage free by rail, and 5 per cent. discount for cash.

J. C. WHEELER & SON, Seed Growers, Gloucester.

TURNIP SEEDS.

	Per lb.—s. d.
WORCESTERSHIRE SWEDE	0 10
SKIRVING'S KING of the SWEDE	0 9
HALL'S WESTBURY SWEDE	0 10
YELLOW TANKARD or SWEDISH	1 0
YELLOW BULLOCK or ABERDEEN	0 10
GREEN ROUND or GLOBE	0 8
GREEN BARREL	0 9
LINCOLNSHIRE RED GLOBE	0 8
DEVONSHIRE GREY STONE	0 10

PRICED LIST of AGRICULTURAL SEEDS on application.

RICHARD SMITH, Seed Merchant, Worcester.

NEW and SELECTED SEEDS.

CARPENTER'S MAGNUM BONUM PEAS.—The Largest and Best Tall Variety grown. 5s. per quart.

CARPENTER'S MULTUM IN PARVO PEAS.—The Best Dwarf Variety grown. 5s. per quart.

CARPENTER'S MONSTROUS WHITE COS LETTUCE,
CARPENTER'S MONSTROUS GREEN COS LETTUCE,
CARPENTER'S MONSTROUS BROWN COS LETTUCE,
are the three best LETTUCES in cultivation. 1s., 2s. 6d., and 5s. per packet.

CARPENTER'S PREMIER SWEDE.—Superior in size, shape, and quality to any other Swede grown. (Sow 3 lb. per acre.) 3s. per lb.

A remittance from unknown correspondents is requested.

CATALOGUES on application to EDWARD CARPENTER, Seed Merchant and Grower, Brighton and Sussex Seed Warehouse, 96, St. James's Street, Brighton.

Laying down Land to Pasture,
AND IMPROVEMENT OF GRASS LANDS.

MR. MARTIN SUTTON'S ESSAY on the above subject, revised and enlarged from the Journal of the Royal Agricultural Society, may be had post free for 6 stamps on application to SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

SUTTON'S CHAMPION SWEDE is perfectly hardy, very productive, stores exceedingly well, and rarely if ever suffers from mildew.

THREE HUNDRED GUINEAS IN 12 PRIZES.

For Six Years successively his late Royal Highness the Prince Consort's Prize Cups have been awarded to SUTTON'S CHAMPION SWEDES at the Royal East Berks and South Berks Agricultural Societies, and many other valuable Prizes in various parts of the kingdom.

From Mr. LARGE, *Bailiff to the* Right Hon. Lord BERNERS.

"The Champion Swedes from seed Lord Berners purchased of you are far superior to any other we have grown. I can confidently say they are many tons per acre heavier than any other Swedes growing on his Lordship's farm."

Price of Seed 1s. per pound, or cheaper by the bushel.

SUTTON'S NEW FARM LIST gratis and post free.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Mottled Globe or Grey Stone Turnip.

SUTTON AND SONS have a very choice stock of this excellent NEW TURNIP. It grows to a very large size, and is strongly recommended. Price of seed, 1s. per lb., cheaper by the bushel, carriage free.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

NEW FORAGE PLANT: BROMUS UNIOLOIDES var. SCHRADERI; SCHRADER'S BROME GRASS, sometimes called NEW ZEALAND GRASS and PRAIRIE GRASS.—This Grass was introduced into Great Britain many years ago by Mr. Charles Lawson, sen., of Edinburgh, and was shown and described at the Great Exhibition of 1851. It is now attracting considerable attention, from the enormous cuttings of green food it has lately produced on the Continent and elsewhere. It is undoubtedly a most productive plant, especially under irrigation or liquid manure.

Small quantities of Seed may be obtained for experiment from PETER LAWSON & SON, The Queen's Seedsmen, 28, King Street, Cheapside, E.C.

NEW PLANTS.

TWENTY-TWO FIRST-CLASS CERTIFICATES at the Crystal Palace on the 20th ult.

TWENTY-THREE FIRST-CLASS CERTIFICATES at the Regent's Park on the 24th ult.

The above extraordinary number of Awards (the highest that can be given) were made to Mr. WILLIAM BULL for NEW and RARE PLANTS.

An inspection of the New Plants that received these Awards, and Mr. W. B.'s General Collection of Novelties, is respectfully invited.

Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

The Gardeners' Chronicle.

SATURDAY, JUNE 3, 1865.

MEETINGS FOR THE ENSUING WEEK.

MONDAY,	June	5—Royal Botanic (Rhododendron Show)
TUESDAY,	—	6—United Horticultural (Finsbury Circus), at noon.
SATURDAY,	—	10 { Royal Horticultural (First Great Show) at South Kensington, at 2 P.M.

VARIEGATION in plants has long been considered a disease. It arises frequently in a single shoot without any assignable cause, but when once the affection has established itself, cuttings will propagate it indefinitely, and in some instances it will be communicated by grafts to the stock.

A curious case has just been communicated to us, in which a whole tree suddenly became variegated. There is a small-leaved variety of Elm, which is much used in China for making the celebrated dwarf trees, but which, planted in good soil and left to increase in size at its own pleasure, forms in this country a good-sized tree. It is this Chinese Elm, believed to be a variety of Ulmus campestris, which is the subject of the present notice, a sprig of which, from a tree 30 feet high, has just been sent to us. There was a hard frost some few years since, towards the end of the year, at Cork, which nearly killed some Lombardy Poplars from 60 to 80 feet high, near which stood the Chinese Elm in question. Before the frost this tree had green foliage, but ever since, the whole has been variegated, though unfortunately in such a way as to detract greatly from its beauty, and not to enhance it as in the case of the common Variegated Elm, which is sometimes extremely handsome. Our correspondent wishes to know whether anything can be done to restore it to its former verdure, but we fear that the case is quite hopeless.

Mr. FORTUNE's large importation of variegated plants from Japan has given a new stimulus to the propagation of parti-coloured trees and shrubs. He has stated a curious fact respecting Podocarpus longifolius, which often produces shoots which are perfectly white. In general such shoots are incapable of making fertile cuttings, but in the Podocarpus green or parti-coloured shoots are often developed from these albinos. Monsieur VERLOT, who is the foreman at the Jardin des Plantes, amongst other curious matters in his prize treatise on the production and fixation of varieties, states that if an albino shoot of the common variegated Ground Ivy is planted as a cutting, it will strike freely, but that the result

VERBENA "LADY BINNING."

A first-class Bedding variety, and the leading flower for extensive decoration of the present year. Colour a very brilliant crimson-tinted scarlet, with a conspicuous creamy-white centre; forming a fine average-sized, full-centred, and well-expanded truss. Habit of growth compact, with a profusion of bloom. Proved of the highest merit by receiving a First-class Certificate from the Floral Committee of the Royal Horticultural Society, and forming the highest feature of attraction in Verbenas at the Oulton Park Gardens during the past summer.

Strong Plants, 50s. per 100.

E. G. HENDERSON AND SON, WELLINGTON NURSERY, ST. JOHN'S WOOD, LONDON, N.W.

TABER'S PREPARED TURNIP SEED AGAINST THE FLY.

WORTHY THE ATTENTION OF ALL TURNIP GROWERS.

G. TABER has succeeded in DRESSING TURNIP SEED AGAINST the FLY, which the following Testimonials will bear witness to:—

"Porter's Hall, Stebbing, May 12, 1865.

"DEAR SIR,—I have for three years used your Prepared Turnip Seed against the fly, and with perfect success. Until I used your dressed Seed, I frequently lost my plant of Turnip from the fly; since I have used it, I have not had to sow a second time, and have much pleasure in giving my testimony to its benefit.—Yours truly, JOHN HUTLEY."

"To Mr. Taber."

"The Boarded Barns, Chelmsford, May 5, 1865.

"DEAR SIR,—I have used some of your Turnip Seed prepared against the ravages of that destructive insect known as the Turnip Beetle, and can testify to its intended efficacy.

"To Mr. Taber." "Yours truly, W. F. JOSLING."

"Inworth Hall, June 29, 1864.

"DEAR SIR,—I am happy to inform you that I have a very good plant of Swedes from the Prepared Seed you sent me (for about three pints of Seed per acre), and the flies have not, as you said, touched them. I will thank you to send me by bearer, a peck of the best White Seed you have, prepared against the fly for spring feeding. You are at liberty to make whatever use you please of this note, as I feel that I and the public are much indebted to you for having found out this remedy, for the safety of our plants.

"To Mr. Taber." "I am, dear Sir, yours truly, J. S. SURRIDGE."

SKIRVING'S IMPROVED PURPLE-TOP SWEDE.
GREEN-TOP SWEDE.
EAST LOTHIAN PURPLE-TOP.
YELLOW TANKARD, for Early Feeding.

WHITE GLOBE.
RED GLOBE.
GREEN ROUND.
HEREFORDSHIRE WHITE.

Prepared Turnip Seed, 1s. per pint, bags included.
Not Dressed, 9d. per pint, bags included.

GEORGE TABER, RIVENHALL, ESSEX.

N.B. A remittance from unknown Correspondents, per Cheque or Post-office Order, payable at Witham, Essex.

will be a green and not a parti-coloured plant, a very curious fact, should it be confirmed. The subject is at present a very obscure one, but it is one of considerable interest, and would probably repay a careful series of experiments. *M. J. B.*

We have been reminded in reading Mr. McIvor's pamphlet on Cinchona culture, that there are modifications of some importance to be made in the seemingly simple matter of Packing Plants in Wardian Cases; and though our great commercial gardeners may probably be quite *au fait* at arrangements of this nature, yet to the many persons who have less perfect experience in the matter, we have no doubt the hint Mr. McIvor's practice affords, may from time to time be turned to profitable account.

The difficulty which was experienced in the instance referred to, arose from the great weight of the cases when planted and packed in the ordinary way. It is true this was in India, and bears reference chiefly to land carriage; but the very same difficulties may occur to a collector in the heart of any country, who may have to send plant cases from the interior to the coast for shipment; and thus the question may prove to be of wider interest than would at first sight appear.

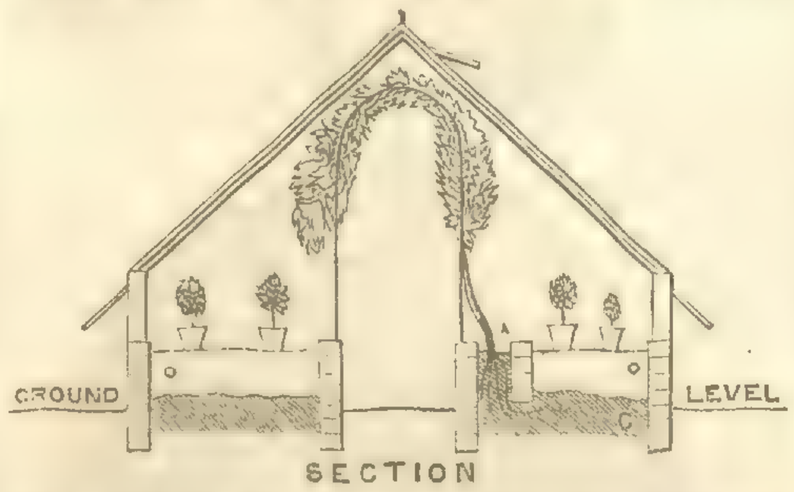
The difficulty, as we have said, arose from the weight of cases when filled with earth, and the comparatively small number of plants which could be accommodated on the planting out system. Hence it was made a special subject of experiment to find out a plan which would obviate the risk and reduce the cost of transit; and the issue of these experiments, Mr. McIvor believes, justifies him in recommending his method of packing Wardian Cases. The plants, it is stated, are found less liable to damp off from excess of moisture when packed in this way; and the weight of the cases being reduced to about one-fifth, they are more easily handled, and less liable to suffer damage in removal; and thus while the cost is reduced, a greater degree of safety is secured.

In the mode of packing which Mr. McIvor thus strongly recommends, the Wardian Cases are filled with Moss instead of earth to a depth of about 6 inches, and the plants, in the pots in which they have been grown, are firmly packed in the Moss, and secured with cross battens, so as to prevent them from becoming displaced if by mischance the cases should be upset. The plants thus secured receive a moderate amount of water, and the sashes are screwed on, the glass being protected by battens, and secured from the direct rays of the sun by a covering of thin cloth, so as to admit a portion of the light. In this way they can be safely conveyed from the Neilgherries to Calcutta or Ceylon, without the cases being opened; but where the journey is likely to be prolonged over a month, it is recommended that the cases should be opened morning and evening, so as to admit more light and air, water being added only when the surface of the earth becomes dry.

The successful manner in which Bougainvillæa speciosa was grown at Swyncombe, under circumstances which seemed to indicate that strong heat, and especially strong bottom-heat, was essential to induce it to produce its inflorescence, has no doubt led to the conclusion, on the part of many cultivators, that some such application of heat is necessary to secure those glorious masses of floral bracts which place this plant in the front rank amongst ornamental creepers. We were agreeably surprised a few days ago to find this same Bougainvillæa blossoming at Cliveden, under circumstances which prove, at least, that a command of heat is not, as was supposed, the clue to its successful treatment. Mr. Fleming's plant was indeed growing in a greenhouse conservatory, *without any bottom-heat whatever*, and yet its branches were most charmingly draped in mauve colour, as those who saw the specimen shown by him at the last Regent's Park show can bear witness. How Mr. Fleming's plant has been treated he shall himself tell, as he has been so obliging as to send us the particulars:—

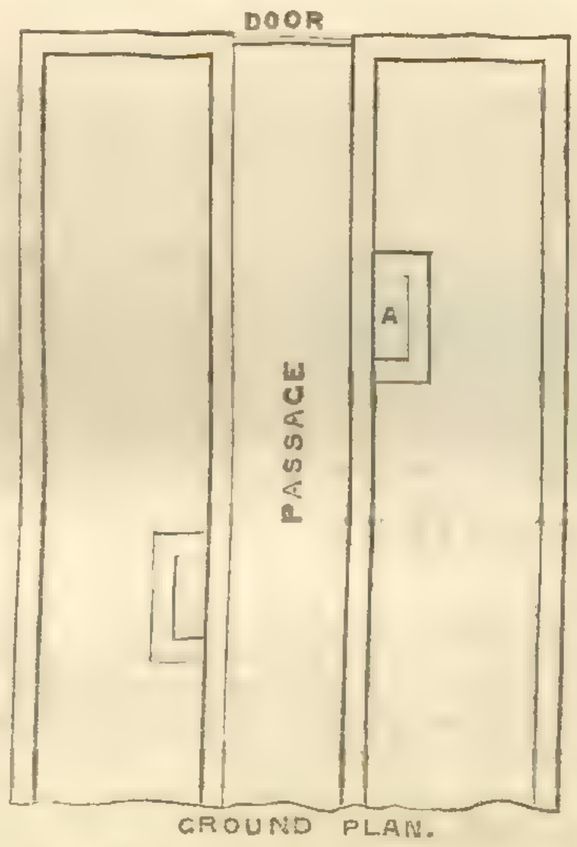
"A few years ago the readers of the *Gardeners' Chronicle* were startled by a glowing Leader on the beauties of Bougainvillæa speciosa. Many I believe up to the present day consider the picture there given to be overdrawn, but those who have been fortunate enough to see the plant under favourable circumstances, will agree with me that not only is that account far exceeded by the real beauties of the plant, but that we ought to be grateful to Dr. Lindley for bringing its merits so prominently before the public. The treatment that had been given to the plant there noticed, and the great heat, both top and bottom, that had been afforded it, have, there is no doubt, deterred many from attempting to cultivate the plant, because they were not possessed of a stove with the command of heat there indicated. It is to encourage such persons to give it a trial that these remarks are made.

"I have found the Bougainvillæa to grow and bloom magnificently in a temperate house, where little more than the frost is kept out in winter, and where no fire is used in summer, and also without the slightest degree of bottom-heat, the only difference being that it blooms much better. It will, I am convinced, prove to be one of our best warm conservatory plants, for when it once gets old and strong in the stem it will carry a great



length of its gorgeous mauve-coloured branches. Even in high-roofed conservatories, where the cold sometimes gets in at the top, I should not fear to grow it, as we have found it uninjured by 3° of frost. It should not, however, be overlooked that when making its growth the house should be kept as close as the health of its other occupants will permit. It will be, perhaps, most easy to explain the treatment given by adding a section of the house.

"The small spaces shown at A are 1 foot wide and 2 feet long, on each side of the pathway, at intervals of 10 feet (see ground plan). It will also be noticed that the plant is trained over the path alone, thus not by any means interfering with



the growth of the other plants on the stages. This plan I recommend as adding great interest to a span-roofed house. Some of our climbers are much more beautiful than many people imagine, but they rarely have the chance of fully developing their beauties under the confining system so frequently applied.

"The soil in the space A was prepared, but below the brick-case the roots were allowed to run all over the bed beneath the stage (C), which is composed of brick rubbish and the soil that accidentally got mixed with this in the alterations. This has no doubt a great deal to do with the success, because it provides a hard surface in the portions of brick for the roots to adhere to, and carries off quickly the repeated doses of weak manure water, besides facilitating the ripening and drying it well off in the cold winter months. Many persons encourage the growth of gross suckers, which the plant will invariably throw up when making its growth; but I find these to interfere with a good display of colour. While the growth is kept to the old stem all the vigour is thrown into the top—by far the best treatment for nearly all climbers. Upon referring to the section of the house it will be seen that a great portion of the plant is always likely to face the glass on the top, and that is where the main portion of the colour is; but to avoid that we are planting several by the columns of a high conservatory, to allow the branches to fall down, which they will do, and form wreaths 10 feet long.

"The Bougainvillæa is a native of the high grounds of South Mexico, but it is almost naturalised in Sicily and around Naples, where it grows in great abundance against walls and cottages, though it rarely shows its colours so finely as it does in our houses, the sun frequently turning the mauve bracts to a dirty white, which also happens with us if not carefully shaded. I may add that it is a most useful plant to cut from for indoor-decoration, standing a long time in the rooms, and retaining its bright colour there. It also travels well if carefully packed; and will continue fully two months in bloom in a temperate house."

—— We announce, with regret, the death of Mr. Charles Waterton, the well-known Naturalist, which took place on the 27th ult., at his residence, Walton Hall, near Wakefield. For many years he has been an occasional contributor to our columns; he may be regarded as an old Oak which will be greatly missed in the world-forest. The dear old Squire died sitting upright on a sofa in the sitting-room. In his death he was, as in his life, full of devotion, devoid of fear, and regardless of pain.

—— Those who may be looking forward to join in the International Horticultural Exhibition which is being organised to take place next year in London, and of which we hope soon to be able to announce the particulars, may shortly have an opportunity to obtain some of the materials for which the foreign exhibitions have become famous, the collection of M. Van den Ouwelant, President of the Horticultural Society of Laeken, being announced for sale on the 12th of June and following days. Many large specimens of Portugal Laurel, Myrtle, Rhododendron, Arbutus, Clethra, Orange, Banksia, Grevillea, Laurustinus, Nerium, Pomegranate, Bay, Araucaria, &c., are catalogued; as well as large collections of specimen Azaleas and Camellias; and less extensive ones of Cycads, Palms, Pandaneæ, Rhopalas, Aralias, Dracænas, Agaves, Tree Ferns, &c., of many of which the dimensions are given. The collection now to be dispersed has won 245 medals at various exhibitions during the past eight years. Those who have attended the foreign exhibitions will no doubt remember the size and excellent condition of most of M. Van den Ouwelant's plants. It is, in fact, in materials such as exhibitors have here an opportunity of procuring, that English shows are generally deficient. We refer especially to the general absence of large telling or effectively-placed specimens characteristic of different types of vegetation, such as would serve the purpose of toning down our own over-display of colour.

—— Of Insect Plagues, the daily papers report that the fields near Echten, in Holland, are being devastated by an immense number of Caterpillars. The insects are unusually large, and of a striped appearance. It is also stated that Palestine and Central Syria have recently been threatened by scarcity both from the visitation of the Locusts and the premature stoppage of rain, the latter being most needful for the preservation of the crops in that country. From Gaza to Mount Lebanon and Anti-Lebanon, the Locusts have literally filled the skies. This scourge, which has weighed upon the land during the whole of the last month, has caused general alarm. But it has fortunately been averted by a strong southerly wind, which has driven past a vast quantity of the destructive insects on their course from the desert along the seaboard from south to north. Those that have escaped destruction at the hands of the natives, have either laid their eggs or proceeded northward.

New Plants.

292. Phalænopsis sumatrana, *Korthals: Rchb. fil. in Otto, Hamb. Gartenzeit.* 1860, 115! *alias* P. zebrina *Hort. Bog. in Annales d'Hortic. et de Bot. ou Flore des Jardins du Royaume des Pays-bas*, 1860, *fasc.* 10, *c. ic.*! P. zebrina *in "Plantæ Nov. in Hort. Bog. Cultæ," auct. T. E. Teijsman et Binnendijk*, 1863, 15!

Acutifolia, pedunculo plurifloro, sepalis oblongis acutis extus non carinatis, petalis cuneato-ligulatis acutis, labello brevi unguiculato tripartito, laciniis lateralibus ligulatis, apice retuso-denticulatis, retrorsum falcatis, extus obliquè carinatis, lacinia media ligulato-pandurata fornicata carnosa, basi implicita, per lineam mediam carinata, antice dense pilosa, ligulis forcipatis duabus deinceps inter partitiones laterales, columna semitereti pandurata, androclinio cucullato denticulato.

The original discoverer of this plant was Korthals who met with it in Sumatra before 1839—Korthals who would have been so happy to have worked on his plants. We saw a sketch of his in 1856 at Leyden, but were not allowed either to take a copy of it or to describe it. A few months later we found a copy of the same sketch at Turnham Green, with Dr. Lindley, and were most liberally allowed to make free use of it. We did so, and a very short description was published by us from the not fully intelligible sketch. But the mishaps with the Zebra Phalænopsid were not at an end. It happened to flower in the botanical gardens at Leyden under the able management of Mr. De Witte; and a very indifferent drawing of it was

published in the *Annales*, sufficiently incorrect to secure its not being understood, for it conveyed the impression that it had two columns or a big knob at the side of that organ, and that it had no hairs. Subsequently we got a single dry flower through Prof. Miquel's well-known kindness. In the meanwhile it was pretty well described at Batavia (where they had the description of P. sumatrana), by Messrs. Teijsman and Binnendijk, again under the name of zebrina. It was said to have been found by Mr. Gersen in the province of Palembang in Sumatra. At length, in April last, we saw a splendid specimen with a strong spike covered with healthy buds, in the collection of J. Day, Esq., of High Cross, Tottenham, cultivated by Mr. Stone; and we have now before us a glorious flower of the *rarissima avis*, which made its first public appearance at the Royal Horticultural Society on Tuesday last. The substance of the large flowers is thick and shining, as in Vanda suavis. The ground colour is a yellowish white, and both sepals and petals have numerous transverse bars and spots of a warm reddish-brown colour, nearly as in Vanda suavis. When the flower fades, these bars and spots turn to orange, a colour retained in the dried state. The lip is white, as is the column. The side partitions of the lip have orange spots, the middle one shows four lines of purplish and brown stripes and blotches; while the hairs at the apex stand quite as dense as in a good hat-brush. In order to render the plant a most disagreeable one to Orchidologists, *un enfant terrible*, it shows a fringed antherlid, as in Trichopilia. There are two varieties, one called Gersenii, with violet stripes; the other lilacina, with lilac stripes and a lilac base to the lip. What a wonderful assemblage would be formed by all these varieties, and those of P. Lüddemanniana, of P. violacea, and last, but not least, of Mr. Low's still unintroduced Panther Phalænopsis, P. pantherina, which boasts large red spots on a yellow ground. The merit of having introduced the species to England again rests with Messrs. Low & Co.;

and among all the many rarities and novelties we have obtained during the past four years out of the Dayan stoves, we dare to say this is one of the most striking. *H. G. Rchb. fil.*

WINTER-BLOOMING LÆLIAS.

Lælia superbiens is a magnificent winter-blooming Orchid. Many growers and admirers of this extraordinary family will remember the splendid specimen that once existed at the Horticultural Gardens at Chiswick, where it grew exceedingly well, and flowered freely for many years. When the Orchids at Chiswick were sold, this splendid specimen passed into the hands of Mr. R. Warner, who has also, I believe, been very successful in its cultivation. This plant produces from six to nine or more flowering spikes at one time, each spike 4 to 5 feet in length, and bearing from 16 to 20 flowers in a large bunch at the end. It blooms about November, and lasts at least three weeks in perfection, if kept in a dryish atmosphere.

Being a strong-growing species, it should be grown on a large block of wood, with a little Sphagnum fastened on by means of wire. Then it should be suspended rather near the glass; but if the block is too heavy for this, the end of it may be put in a large pot, filling up to within 2 inches of the top with broken potsherds, and covering them over with Sphagnum, which should be clipped to give it a neat appearance. It might then be raised on a block or an inverted pot to the required height. The block should be kept well syringed during the growing season, and particularly during hot weather, avoiding to wet the young growth as much as possible, until the pseudobulbs are formed. About August they begin to show their flower spikes, which come on very fast. Towards the end of October, should the weather prove cold, and the temperature of the house become low, I would advise removing the plant into a warmer house, where it may get a few extra degrees of heat, as this will greatly assist in bringing the flowers to perfection. Nevertheless I believe the plant will endure almost as much cold as any of our South American Orchids. In its natural habitat it has been seen, when in flower, quite covered with hoar frost. This, therefore, may be classed amongst those which will do in a cool house, or better, perhaps, is one intermediate between a cold airy greenhouse and a hot humid Orchid house. In summer, during hot weather, it will require no fire-heat, and should have plenty of air and moisture. A north aspect is most suitable, and a lean-to or half-span house, as being less affected by sun heat; it then requires less artificial shade. After blooming give very little water during the winter months. If the temperature does not go below 40° it will not suffer.

As winter-blooming plants are always useful, I may mention a few other species which bloom at that season, and are very beautiful and neat-growing kinds. L. acuminata has the sepals and petals white, and the lip white with dark centre. L. peduncularis is like a variety of the last, but of a purplish rose. L. anceps is a charming species, the sepals and petals rosy lilac, the lip purplish crimson, with a yellow centre striped with crimson. L. autumnalis has the sepals and petals purplish lilac, and the lip rosy purple and white. L. purpuracea is a very beautiful species, in the way of the last, but having the flowers much darker.

The five last-named species produce flower spikes from 10 to 20 inches in length, and these flowers last two or three weeks. They all require to be grown on blocks of wood, with a little Sphagnum, and to be treated generally as recommended for L. superbiens. Many fine Lælias are of the same habit as many Cattleyas, flowering generally with them in the summer months, and requiring similar treatment. Some of these I may refer to at some future time. *Thomas Brown, Exotic Nursery, Tooting.*

THE ROOTS, LEAVES, AND RIND OF PLANTS.

The physiology of plants should be more studied than it is. Phytological lectures should be given. We see miseries in our gardens; and, instead of trying to obviate them and studying their causes, we spend useless time in mourning over them. The same time spent in considering the connection between cause and effect, and also the best remedies for prevention or cure, would be time better spent. Some people see but do not observe; others see and observe, but they do not trace effects to right causes. I admit that in our physiological blindness there is some excuse. Permit me, therefore, to direct attention to the roots, leaves, and rind of plants. "Whoso is wise will observe these things" (Psalm cvii).

The roots of plants are as the foundation of a house. If these die, or do badly, leaves and rind can be of no account. The roots are the mouths and stomachs of plants. Nourishment is taken in by them from the earth by the aid of water, and produces sap. This sap, to be appropriated beneficially, depends on the healthy action of the leaves; insomuch that "good foliage and health are convertible terms." Were I to select Roses without knowing anything more about them, I should select those with the best foliage. The leaves of the plant are its lungs, and perform the same offices as lungs do in an animal. There is a close connection by ascending and descending channels or vessels, between the leaves, and the roots. In winter a plant is in a state of abeyance, and the rind, before the buds burst into leaves, performs sufficiently the functions of the leaves. I suppose this to be the case, because some plants, as Euphorbias, have no leaves. The bark of such plants, therefore, is a whole leaf with only one side exposed. If their bark (or *pro tempore* supply for leaves) were injured, they would suffer much as other plants suffer by summer destruction of, or injury of their leaves. The roots and rind of foliaged plants must suffer, if the foliage suffers before the plants have perfected their annual growth.

In the case of Rose plants the discoloration of the rind, after the leaves have been injured by winds, or other causes, is somewhat different. The rind of Jules Margottin will look as if it had been dappled with red ink; Duchesse de Cambacérès and Madame Boll will be jaundiced in the rind; and others, even the most robust, will be dark speckled. Such wood, or wood that comes out of it, is of no use the next year; you must cut it all away. The winds were quiet here last year, and the Roses having been copiously watered last summer, and straw-protected at the roots in winter, never looked more healthy. I have not lost this severe winter an established Rose, a fresh-planted Rose (including pot plants out of doors), or a budded Rose. People must study more the connection and sympathy between roots and leaves, not forgetting the importance of the rind, which is an intermediary one-surfaced leaf!

If these remarks are important as regards all plants, whether ligneous or otherwise, they are not less important as regards Peach trees. These are generally in England very unhealthy. Here they are the healthiest best-foliaged trees about the place. They came into beautiful bloom a month later than last year, the leaves synchronising with the blooms. This they would always do, and should do, were the roots, rind, and leaves properly protected. The rind should be protected both winter and summer; in the first case from the severity of winter, in the last case from fierce torridity by syringing. Moreover, the rind of the stump should, in such a summer as the last, be watered and covered with a band of straw to prevent the tough surface from cracking. The main wood also last summer wanted copious moistenings, no less than the broiling walls. Three times in a place, at 11 o'clock every day, did my servant syringe the walls. This was beneficial to the fruit, stems, and foliage; it kept off black aphides, which, by destroying the leaves, destroy the branch. By long attention to the health of my three trees, now of European fame, I have cured blister, and I see a good prospect of 500 Peaches, which, if I succeed, will make an average in nine consecutive years of over 4500 Royal Georges. Attend, then, to the "roots, leaves, and rind of plants;" without this attention no plants can long flourish. Any of your readers coming this way are welcome to see the trees. Blistered leaves and frost-bitten rind of this Persian plant are, with starvation and mal-pruning, the main causes of its degeneration. My sheets have been kept on at night all winter, and oftentimes during the day in severe weather. As regards Peach protection, Fir boughs only hang the damp; and covering, short of canvas or glass, that admits rain or dews into the blooms, is futile. Neither can protect the tender young foliage from the cutting winds and hoar frosts. A light covering, in some favourable situations, may save a decent crop of Peaches; but of what avail if the foliage is all blistered? It must all come off; and during the absence of leaves the fruit and the tree must suffer: so true is it, "if one member (the leaves especially) suffer, all the members must suffer with it." *W. F. Radclyffe, Tarrant Rushton.*

CULTURE OF THE NUT.—No. II.

(*Continued from p. 387.*)

At the end of the second year of growth the young trees will require more room, and as lifting them will be a very necessary check to induce a compact habit of growth, and a tendency to a fruitful condition, they should be carefully taken up and replanted in a fresh situation, at 30 inches apart, the ground being pricked up and mulched as before. The shoots must again be cut back to about 6 or 9 inches, according to their strength; and during the following summer the requisite care should be taken to remove all the strong interior shoots, but not the weak ones, as they will form spurs for future bearing.

This brings us to the commencement of the fourth year of growth, and here the foundation of future pruning operations must be commenced by shortening all the leading shoots to the length of 6 or 9 inches as before, and spurring in all the side shoots nearly close to the stem, except where any of the strongest ones are required to fill up a vacant space, so as to keep up an equally balanced head.

In the following autumn the trees will be sufficiently advanced to be lifted, and planted in their permanent situation; but at the same time they may be left another year with very great advantage, and being subjected to the same routine of pruning and management, they will be nearer to a bearing condition, and will the sooner begin to pay. In either case let the planting be performed early in October, and the trees will not then suffer from the moving, if the necessary care in lifting is exercised to preserve all the fibrous roots uninjured. Some of the larger roots may be cut back, and all incipient suckers must be completely removed before planting.

If the ground has been prepared as formerly recommended, by draining and trenching, and has merely had a crop of Potatos taken from it the previous summer, it will only be necessary to clean and level the surface, and then to mark out the stations for the trees in rows at 10 feet apart, and the trees to stand at the same distance apart in the rows; the trees in the second row being placed exactly opposite to the centre between two in the adjoining rows, that is, *quincunx* fashion. As however, when these are planted on a large scale, it may be necessary to use mechanical means for cleaning and tilling the spaces, there is no objection to the trees being planted on the square, but in that case it is advisable to make the stations 12 feet apart every way.

The holes for each tree must be marked out with a greater diameter than the extent of the roots, and the soil removed to the depth of somewhere about 8 inches, more or less according as the roots appear to require it. The guide will be the collar of the stem, which is that point from whence the roots commence to radiate; this should not be buried more than about an inch or two below the surface; therefore, it is easy to regulate the depth by placing the tree in the hole so that the collar is just above the surface of the surrounding level, which will allow of a slight mound. If the ground is fresh and unexhausted by frequent cropping, there will be no necessity for any fresh compost, but if, on the contrary, it is long-cropped old garden ground, it is indispensable to have some maiden soil to put about the roots, and the natural soil may be laid on the top, in quantity sufficient to allow for sinking, and a good mulching of rotten manure will finish the operation.

The trees may thus remain until the pruning season, which is generally in February or very early in March, at which time they should be pruned in the same manner as already directed, and with the same object in view, viz., the formation of an equally balanced head. When the pruning is finished, the whole of the soil between the trees, except that part covered by

the mulching, should be dug over with a steel fork, and if it is determined to take a catch crop between the rows, some manure must be laid on and turned in during the operation of forking over, and for a couple of years, or perhaps more, there is no material objection to planting single or sometimes double rows of such crops as Potatos, Cauliflowers, Broccoli, and the Brassica tribe generally, together with Carrots and Red Beet, or Lettuces, but nothing that would be likely to grow large or tall, so as to shade or in any way interfere with the perfect development of the trees. For this reason, none of the strong-growing Potatos must be planted, but only those varieties which do not run much to haulm, such as Flukes or Ashleaf Kidneys. On no consideration, whatever, would I allow Currant or Gooseberry bushes to be planted between the Nut trees, and yet it is often done, and indeed recommended by some cultivators. That I suppose to be one reason why such of them as are fond of taking their catch crops, advocate the use of small trees in the first instance, because they have thereby greater space to cultivate their favourites, and the trees intended to be permanent are left to struggle onwards through a host of adverse conditions, so that by the time they have driven the usurpers from the field they are often well-nigh exhausted, and very far from being in the condition to which they would have attained under more generous treatment. Let me therefore strongly recommend all who desire to obtain a superior produce from their trees, and to bring them forward in good condition, to fight very shy of these catch crops, even when they are only the succulent vegetables; and if such must be had, to give them their legitimate space by themselves, and not mix the two together to their mutual hurt. *John Cox.*

Home Correspondence.

Failure of British-raised Seedlings from Californian Conifers.—I have raised seedling plants from the Douglas Fir and Lawson's Cypress, and I find as yet no particular symptoms of weakness or disease amongst them. Some plants raised from the Douglas Fir are from 3 to 4 feet high, and in general show as vigorous a habit as those raised from foreign seeds. Young plants of this Fir differ much in colour and vigour, even when raised from Californian seeds. As to the plants raised from Lawson's Cypress here three years ago, they are growing very fast, and have the same healthy colour and habit as a lot raised from seeds sold at Stevens's sales in London. This spring I have sown about 2 lb. of cleaned seed of Lawson's Cypress in the open air, saved from plants growing here, and it is now vegetating thickly in the beds. As British-raised seedlings of these fine Conifers display such differences of appearance in particular soils and localities, it becomes of great importance to planters to try and find out the cause. Some years ago I purchased two seedling Abies nobilis from a nurseryman who had them direct from Mr. Barron, of Elvaston, the raiser. These two plants never showed the fine glaucous appearance and vigorous habit of the true nobilis, when compared with plants of the same age raised from foreign seeds. The nurseryman, who had other plants of the same batch of seedlings to grow himself in his nursery, found that they never looked like the true nobilis, and believed that the cones of nobilis from which they had been raised had been fertilised with some other variety of Fir. Perhaps Mr. Barron could throw some light on raising seeds from the new Californian Conifers, as well as on the diseases attacking them when raised from British-grown seeds. *William Tillery, Welbeck.*

Strawberries.—Last autumn I potted 300 Strawberry plants for forcing this spring. I put them into 6-inch pots, and after they were well-established and had begun to grow, I exposed them fully to the sun in a warm situation. Having them under my own hands, I kept them well attended to. They made vigorous growth, and the foliage was in first-rate health. No suckers were allowed to remain on them, and as autumn advanced I placed them under some old frame lights to throw off heavy rains. About the third week in December I placed the first lot in an early vinery, on a shelf against the back wall, near the glass. Some of them came what is termed blind, which I attribute to too much damp and want of light, the Vines having grown up and shaded them. I am quite satisfied, however, with my first crop. I do not prefer a Peach-house for forcing Strawberries in. My second lot I placed at the back of a later vinery, near the glass, and I kept the Vines away from them, placing the pots all in saucers; and when the fruit was set I kept the saucers filled with liquid manure water. Under this treatment they succeeded perfectly—in fact I could not wish to have a more successful crop of fruit than I had this spring on these plants. All who saw them pronounced them excellent. *H. S.*

Garden Walls.—I purpose building a garden wall facing the south-west with old bricks, the wall to be 18 inches thick. In length it will be about 40 yards. The ground is not level, there being a difference of some 6 feet between the two extremities. Do you think I shall make the wall more serviceable for the growth of wall fruit by building it hollow, and constructing a fire-place at the lower end, with a flue in the wall extending to a chimney at the other end?—and if so, what kind of fire-place would it be best to use? Should there be more than one fire-place in such a length? *James Wintle, Gloster.* [By building your wall hollow, with a common furnace adapted to a flue, you will have the advantage of ripening the wood better than you otherwise could in your northern climate. The slope of the wall will ensure a good draught; nevertheless two fire-places will be better than one in a length of 120 feet.‖]

York Great Flower Show.—Will you allow me to direct the attention of Rose growers in the Midland and Southern counties to the efforts of the Committee of this Society to let us in Yorkshire and the surrounding counties see Roses in perfection, and to beg of them to attend and exhibit. In the open classes, prizes of 6*l.*, 4*l.*, and 3*l.* are given for 48 blooms, and 5*l.*, 3*l.*, and 2*l.*, for 36 blooms. A Silver Cup of 5*l.* for 24 varieties is also given, besides other liberal prizes. I need scarcely refer to the leading trade growers finding it advantageous to exhibit on new ground, but beg, on behalf of the Committee, to solicit the aid of amateurs as well. I would add that the Exhibition generally hitherto has been second only to those seen at the Regent's Park and Crystal Palace, and the liberal prizes again offered for plants must secure a great exhibition. *A Yorkshire Florist.*

Wasps.—Royal wasps, comprising I presume both sexes — kings and queens, are everywhere most abundant this year. I have myself killed 72 during the last few weeks. The course I have pursued with such signal success is simply to protect myself with a pair of kid gloves, and when the wasps enter the tube of a flower, or alight on a Gooseberry or a Raspberry bloom, to instantly close with them, and fearlessly clutch them within my hands. The most timid need have no fear of being hurt, for their stings are powerless to penetrate the glove. *Vespecide.*

The Collinsias.—"Quo" would seem to be slightly mistaken about Collinsia grandiflora, as it is a spring-flowering kind, and a very useful one too, though, of course, it may be sown in spring and flowered in summer like some others. Naturally, it comes up in autumn and flowers in spring. It "sows itself" in fact, and makes a good show of a distinct colour about the beginning of May, when verna is in flower. Collinsia bicolor is also best grown in the same way—by sowing in autumn. The spring-sown plants are not so strong or full of flower as those which have gathered strength during winter and spring. In Mr. Noble's garden, near Maidenhead, bicolor, grandiflora, and verna were all in splendid condition a few weeks since, and till very recently, if not yet, C. bicolor was Mr. Rogers's favourite. C. verna cannot well be dispensed with for the spring garden, it is so thoroughly distinct in colour, the blue being of a striking tint, somewhat like that of the Siberian Squill. These three Collinsias are among the very best of all annual and biennial plants used for spring gardening. *Wm. Robinson.*

Early Peas.—There has been a good deal written lately in your columns about the earliest variety of Pea, some praising one new sort and some another, but I have not read anything in favour of Dillistone's Early, although, so far as my experience goes, there is nothing to beat it in point of earliness. I picked a peck of good eatable Peas of this sort on the 26th of May, a few handfuls of which might have been gathered as early as the 20th, but not enough for a dish. If anyone has tried this variety against Sutton's Ringleader or Carter's First Crop, I should be gratified by knowing the result; also what differences exist between the three. Two persons who last season grew Carpenter's Express by the side of Sangster's No. 1, assured me that they could not perceive any difference between them. There is no doubt that seedsmen sometimes substitute one sort for another, not only of Peas but of other garden seeds, which is one cause of the great amount of confusion now existing. By all means let us do away with three-fourths of the numerous varieties of Peas, Broccoli, Cabbages, &c., which now cumber the seed lists, and are merely a source of confusion and annoyance to seedsmen and to gardeners. Half a dozen sorts of Peas judiciously selected are quite enough for any gardener's requirements, and if growers would take the trouble at the end of the present season to send to your Paper the names of the six sorts which they have found to be the best in quality, and for affording a regular succession, that would be one step towards getting rid of many superfluous varieties. *J. B. Whiting, The Deepdene Garden.* [Mr. Whiting's suggestion is an excellent one. We shall be happy to give full effect to it, by publishing the returns sent to us.] ——Having this year tried Messrs. Sutton's Ringleader with other Early Peas, I find that it comes to table much earlier than other sorts. I made a sowing of it on the 24th of February last, and I gathered it on the 25th of May. The haulm was covered with well-filled pods. *H. Harrison, Gardener, Lower Park, Dedham.* ——I beg to send you a few Peas procured from a customer of mine, who informs me that he sowed them the third week in January. He states that he first gathered from them on the 19th inst., and that they were in blossom on Easter Sunday, April 23, a week before the First Crop or Ringleader is reported to have been in flower; the sort is my selected stock of No. 1 Peas. I may mention that produce from the same stock was offered in our market on Wednesday last, and again to-day, in such quantity, that the retail price is only from 2*s.* to 2*s.* 6*d.* per peck. *Robt. H. Poynter, Taunton, May* 27. [The same sort apparently, grown in Kent, has been plentiful in Covent Garden Market during this and last week.] ——Herewith we send you a dish each of Sutton's Ringleader and Carter's First Crop Peas, both sown side by side and on the same day, early in January last, at our St. Osyth Seed Farm. You will observe that our First Crop Peas are fully matured, and we wish to state that we picked the first gathering on Monday the 15th ult. We may also remark that it is the opinion of those who have seen them growing side by side at St. Osyth that Carter's First Crop Peas are longer in the pod than Sutton's Ringleader, and consequently more prolific. You will, to a certain extent, be able to corroborate this by the samples sent, both of which we pledge ourselves to be true samples according to our trials. We feel called upon to state, in justice to ourselves, that Carter's First Crop Pea is not two days later than Sutton's Ringleader, as mentioned in your columns; on the contrary, it is rather earlier in podding. *James Carter & Co.* [We have tried the two samples of Peas sent—Carter's First Crop and Sutton's Ringleader, but we can discover no decided difference between them, and therefore must consider them too nearly the same.]

Transplanting Machines.—The Scottish Arboricultural Society, it appears, appointed a committee to inspect and report upon certain young trees, from 3½ to 9 or 10 ft. high, transplanted by Mr. M'Glashen's patent transplanting apparatus during the summer of 1863. In reporting favourably of the state of health of the young trees operated upon, these gentlemen did well; but when they add that they have no hesitation in saying that the apparatus invented and patented by Mr. M'Glashen was eminently adapted to the purpose for which it is constructed, and superior in point of utility to any other transplanting machine, their teaching becomes questionable. Have they never heard or read anything of Mr. Barron's transplanting machines, which have been known amongst the most eminent planters for the last 30 years, and still more generally since May, 1852, when diagrams of them were published in Mr. Barron's "British Winter Garden?" Since last December up to April, over 200 large trees, varying from 50 feet high to 15, have been transplanted in Norfolk by Mr. Barron's machines, and every one of them is now growing. If Mr. M'Glashen's apparatus be superior, as the committee say it is, will they be so good as to say where trees of the dimensions above named, and more successfully operated upon, can be seen? It is well known to many professional men that Mr. Barron is the original inventor of this transplanting machine, and by far the most extensive and successful planter of our day. In proof of my statements I may mention that in 1831, at Elvaston Castle, Mr. Barron began his operations by transplanting four Cedars of Lebanon, upwards of 30 feet high: the same trees are now over 60 feet in height. One was 48 feet across the branches, and 6 feet round the stem. The same trees were measured by Mr. Fortune a few months ago, and found to be between 9 and 10 feet in circumference. Since that time Mr. Barron's machines have been in active operation, and have been used in 23 English counties; also in Wales, Scotland, Ireland, France, and Switzerland, and with uniform success when the inventor's instructions have been fully carried out. Mr. Barron has removed Conifers and other trees upwards of 40 feet high upon a limestone formation, where Mr. M'Glashen's spades could not be used, and the second year after removal the same trees have grown 18 inches to 2 feet in the leading shoot. These trees are to be seen at Millichape Hall in Shropshire. I may add that a month ago a large Beech tree was transplanted here by Mr. Barron's machines, and since its removal it has grown already 5 inches. Hollies upwards of 50 feet have also been transplanted successfully. In the face of these and other facts that may be adduced, I cannot but think that the gentlemen composing the committee referred to, owe the public a duty, namely, that of proving the correctness of their statement as regards the superiority of M'Glashen's apparatus. *Alexander Bennett, Forester, Sennore Hall, Fakenham, Norfolk.*

Myosotis montana.—Those who grow this fine plant in soil of ordinary dryness will be led to think it a very worthless thing. For a long time I have not seen it in a good state, but I found it in great luxuriance and beauty in Mr. Farmer's garden at Hornsea a few days since. It was growing, along with numerous other choice hardy plants, about which I may have something to say by-and-by, in a bed of sandy peat, with a little loam, the bed well drained, and kept always moist. It formed healthy bushy tufts, about 16 inches high, and was covered, more than I have seen any other Myosote, with fine large bright blue flowers. Flowering very early, even "with the Snowdrop," and being in perfection now at the end of May, this continuous growth and bloom make it a most desirable species where well grown. *William Robinson.*

Melons.—This season has been favourable for early Melons, and with many these will be ripened, and the crop gathered, thus giving time to admit of a second set of plants being turned out in the same pit. Some of my plants have, however, been affected by canker when such is the case I apply quick-lime to the affected portion immediately the evil is perceived, first scraping off the decayed part, and, under this treatment, my plants have generally recovered their wonted good health. *H. B.*

Caterpillars.—I have some Hawthorn trees in my garden infested with caterpillars. I have tried to

remove them, but failed; a friend recommends tobacco, but this in the open air will be, I fear, of little use. Can you kindly help me in this matter? *J. C. Francis.* [Try the effect of smother-burning rubbish to the windward of the trees, so as to smoke them thoroughly.]

Foreign Correspondence.

Temperature of Loxa during a short sojourn, by Professor Jameson, of Quito. In a letter to Sir W. Hooker.—The Cinchona Condaminea trees grow on hills a short distance from the town; soil rocky, of micaceous schist. The low country is covered with forests, but the hills present a zone of Pteris aquilina, and their low summits are covered with Ericaceous plants, including three species of Befaria:—

Sept.	1,	6 A.M., Therm	60°	2 P.M. 64°. Cloudy.
		10 P.M., "	61°	
"	3,	6 A.M., "	60°	Cloudy.
"	4,	6 A.M., "	61°	Drizzling rain throughout the day.
		3 P.M., "	66°	
		10 P.M., "	61°	
"	5,	6 A.M., "	61°	
		2 P.M., "	65°	
		10 P.M., "	61°	
"	7,	3 P.M., "	66°	
"	8,	6 A.M., "	59°	Rain during the night.
		10 P.M., "	61°	
"	9,	6 A.M., "	60°	Squally, with intervals of rain.
"	11,	2 P.M., "	63°	Squally.
"	19,	2 P.M., "	64°	
"	30,	6 A.M., "	55°	Clear.
		2 P.M., "	68°	
Oct.	1,	6 A.M., "	56°	Cloudy.
"	2,	6 A.M., "	61°	
"	3,	6 A.M., "	62°	Cloudy.
		10 P.M., "	58°	
"	4,	6 A.M., "	55°	Clear.
		3 P.M., "	70°	
"	5,	6 A.M., "	61°	Cloudy.
		2 P.M., "	66°	
		10 P.M., "	62°	

Societies.

Royal Horticultural: *May* 30 (*Fortnightly Meeting*).—J. J. Blandy, Esq., in the chair. Fewer subjects were exhibited on this occasion than at former Tuesday meetings; but in point of interest the display was in no way inferior to its predecessors. The Rev. Mr. Berkeley, adverting to an Amorphophallus shown at the last meeting, remarked that it was fortunate that it was not in flower, or its offensive odour would have driven every one out of the room. The spathes of some of the Arads, to which this genus belongs, are nevertheless remarkable for the brilliancy of their colouring, and in some cases, notwithstanding the poisonous character of the order, the tubers are cooked and eaten like Potatos or Yams. What is called Portland Arrowroot is, he said, made from the fleshy corms of Lords and Ladies (Arum maculatum). As regards offensive odours it was added that the worst were to be found among Fungi, drawings of three of the most beautiful, yet disagreeable smelling of which, were exhibited. The odour of Thelephora fœtida was stated to be insupportable. A specimen of this collected by Mr. Berkeley in Aberdeenshire, and placed in the bed-room where he was staying, caused it to smell, he said, worse than the Tomb of all the Capulets, and it had to be wrapped in as many as 12 folds of stout brown paper before he could attempt to take it home with him. After alluding to a variegated variety of Gardenia radicans which was exhibited, some interesting Alpines from Messrs. Backhouse next came under review. Among them were the dwarf Black Lily of Kamschatka, which was stated to resemble a Fritillaria more than a Lily; the Pyrenees Hyacinthus amethystinus, of a beautiful azure blue, and related to the wild Hyacinth of our woods (H. non scriptus); Ophrys fucifera, the Drone Orchis, from Prussia, a pretty species of a class of plants on the singular structure of whose blossoms Mr. Darwin has offered some interesting observations; Linaria alpina, from Switzerland, a useful plant for rockwork; and the Portuguese Anemone palmata, with large showy yellow flowers, which looked as if they might last long in beauty. The rosy-blossomed Robinia pseud-Acacia Decaisneana, a cut specimen of which was shown by Messrs. Osborn, was now commented on, as were also certain freaks in the sportive genus Cytisus. C. Adami, it was stated, was not a hybrid at all, but the result of "working" C. purpureus on the common Laburnum, the third form, C. Adami, arising from the cells of the first and second, becoming by some accident of growth naturally grafted together. In alluding to certain fruits shown on this occasion from Egypt, Mr. Berkeley embraced the opportunity of offering a few remarks on the caprification of the Sycamore Fig. In Scripture, the prophet Amos is said to be 'a gatherer of Figs, but the term gatherer should, it was stated, be rendered scratcher, caprification being induced by scratching or briskly rubbing the outside of the fruit. An oiled straw thrust into the centre had also the same effect, and sometimes the work of caprification was performed by a species of Cynips.

In reference to Arums, particularly Sauromatum guttatum, Mr. Wilson Saunders remarked that their offensive exhalations were given off immediately on the opening of their spathes, an operation which was always attended by an increase of temperature, amounting to some 4° or 5° higher than that of the house in which the plants were placed, as he had recently ascertained by repeated careful observations.

Mr. Bateman, whose observations were confined to the Orchids present, commenced by stating that Young in his "Night Thoughts" had said that Nature never put on the livery of a mourner, and that pure black was seldom found in flowers; it was however present in the lip of the green-blossomed Cœlogyne pandurata, a species from the reeking swamps of Borneo, and therefore one which he considered would not readily submit to cool treatment. This was shown from the garden of the Society. The next plants noticed were the new and beautiful Phalænopsis sumatrana, shown by Mr. Day, a full account of which, together with a representation of one of its flowers, will be found at p. 506; the yellow-blossomed Promenæa citrina, a plant that has not been seen for years; and one or two species belonging to the African genus Angræcum, in which is a prolongation of the sepals and petals in the shape of tails. Uropedium Lindenii, from Mr. Buller, Strete Raleigh, Exeter, with three tails to each flower—one at each side and a third in front—was next commented on. As regards the uses of tails, Mr. Buller, referring to Mr. Darwin's work on the fertilisation of Orchids, asked if they are not so many ladders to assist insects to reach the blossoms in which they are to operate; Mr. Bateman was, however, of opinion that if he were an insect he would rather ascend by the stems of the flowers than trust to the rickety tails in question. A fine new Angræcum, discovered by Captain Grant during his travels in search of the source of the Nile, was next mentioned in terms of praise by Mr. Bateman. It has fine caudal appendages of great length, but of the beauty of the flowers themselves little could be said, as it was evident from the dried specimens which were exhibited that they had been past their best when gathered. This has been named by Mr. Bateman Angræcum Grantii, in compliment to Captain Grant. The latter gentleman, who was present, explained at Mr. Bateman's request that the species in question was found on trees covered with Lichens in low warm moist grounds within 3° of the equator. Had he known that it was new, more of it would have been procured.

Mr. Bateman then proceeded to give some account of Cuitlauzina pendula, hitherto a "Will of the Wisp" to botanists. Early in the present century, says the learned lecturer in his beautiful work, "A Monograph of Odontoglossum," two Spaniards—La Llave and Lexarza—settled at the Mexican town of Valladolid, in the fertile province of Mechoacan. They were both attached to botany; but the younger of the two, Lexarza, was so attracted by the beauty of the numerous Orchids of the district that to these he devoted himself with an ardour that would have done honour even to the Lindleys and Reichenbachs of our own day. As the result of his labours a little work—"Orchidianum Opusculum" he modestly styled it—presently made its appearance, wherein about 50 species, all at that time new to science, were described with remarkable accuracy and skill. Among the number there was a plant—Cuitlauzina pendula he called it—said to be of surpassing loveliness, and to form an undoubtedly new genus, the distinctive characters of which were minutely given. As time went on and the rage for Orchids developed itself in Europe, a keen desire was naturally felt by cultivators to add so fine a plant to their lists; but although many collectors visited Valladolid, and laid hands on nearly all the other desirable Orchids described by Lexarza, still nothing was heard of the Cuitlauzina, and on the cover of the latest number of Dr. Lindley's "Folia Orchidacea" its name may be found in the list of genera "unknown to the author." About the same time, Dec. 6, 1862, I addressed, says Mr. Bateman, a letter to the columns of the *Gardeners' Chronicle*, urging some adventurous traveller to take ship for New Spain, mainly with the object of instituting another search for the tantalising plant that had hitherto eluded our grasp. Yet all this while Cuitlauzina pendula was amongst us, and indeed had been an established favourite for upwards of 20 years. But if so, it may well be asked, how came it to pass that it was never recognised? For a full reply to this very natural inquiry, Mr. Bateman referred to a most ingenious article in "Bonplandia" by the younger Reichenbach, to whom all the credit is due of having solved a great botanical puzzle, and proved to demonstration that the Cuitlauzina pendula of Lexarza is none other than the Odontoglossum citrosmum of Lindley. The idea, indeed, that Cuitlauzina pendula might possibly be identical with O. citrosmum had more than once occurred to Mr. Bateman; but Lexarza's character of the flower-scape, viz., that it was destitute of bracts, had always proved an insuperable difficulty. It seems, however, that the scapes of the other Odontoglossa that he met with happened to be entirely clothed with large inflated bracts; the present plant, therefore, in which they occur only at long intervals, and are exceedingly minute, may in comparison be said to be almost destitute of them. Under these circumstances, however undesirable the meddling with established names may be, Mr. Bateman said he could scarcely see how, in common justice to Lexarza, we could do otherwise than adopt his specific name of pendula, more especially as it happens that the plant to which he originally gave it remains to this day the only one out of nearly 100 Odontoglossa that has flower stems which are strictly pendulous. Odontoglossum citrosmum, therefore, a charming specimen of which was shown on this occasion by Mr. Pilcher, gr. to S. Rucker, Esq., and a smaller one by Messrs. Jackson, must henceforth bear the name of O. pendulum. Of this there were mentioned some beautiful varieties possessing more or less colour in the lip.

May 30 (*Floral Committee*).—The long comparatively lost Promenæa citrina, mentioned above, was shown by Mr. Williams, who also had a well-managed specimen of the free-flowering and really beautiful Statice profusa. Amaryllis ignescens, a glowing light scarlet variety, striped in the throat with white, and a Maranta with handsome green leaves, spotted at regular distances apart on each side of the mid-rib with black, were shown by Mr. Veitch. From Messrs. Backhouse came, in addition to the plants mentioned above, a Chilian Gleichenia named cryptocarpa, with handsome foliage; a variety of Asplenium inæquale from the Mauritius; Lomariopsis heteromorpha, a neat-growing species, and Pellea Wrightiana. A bright crimson-coloured Verbena, named Princess Victoria, was furnished by Mr. Wills, gr. to Sir P. G. Egerton, Bart.; Clerodendron Thomsonæ Balfourianum from Messrs. Jackson; and the Robinia Decaisneana named above, from Messrs. Osborn. Of Pelargoniums, Elegans was shown by Mr. Nye, gr. to E. B. Foster, Esq., of Clewer Manor, near Windsor; and William Hoyle, Charles Turner, and Progress, by Mr. Hoyle, of Reading. Of these descriptions have been given in former reports. Pelargonium Rising Sun, a dwarf compact-growing variety with buff-coloured leaves, stamped with a well-marked reddish-coloured horseshoe, was contributed by Mr. Turner. Another bedding variety of zonale Pelargonium, named Wiltshire Lass, with fine globular trusses of charming pink blossoms, one portion of which does not decay while the rest of the truss is in perfection, as happens with some kinds, was shown by Mr. Keynes, of Salisbury. The new Phalænopsis sumatrana named above, came from Mr. Stone, gr. to J. Day, Esq.; and the following Rhododendrons, most of which were alluded to last week, are now being exhibited by Messrs. Waterer & Godfrey in the Rhododendron tent, viz., Stella, Mrs. John Clutton, Charles Dickens, H. H. Hunnewell, Lady Clermont, Caractacus, and H. W. Sargent. To these, as well as to all plants just named, First-class Certificates were awarded; and to the following Second-class Certificates were given, viz., Anæctochilus nobilis, with foliage prettily covered with silver veins from Mr. Williams; a neat pink-blossomed Masdevallia, Hyacinthus amethystinus, and "Sarana kamtschatica," alluded to already, from Messrs. Backhouse. For Lomaria gibba, a handsome Fern; Odontoglossum (citrosmum) pendulum, from Mr. Pilcher, gr. to S. Rucker, Esq.; magnificent cut blooms of Cattleya Mossiæ, from Mr. Hodges, gr. to E. Wright, Esq., Birmingham; and cut flowers of Orchids from Mr. Sherratt, gr. to J. Bateman, Esq., Special Certificates were awarded. Mr. Turner contributed a boxful of large and handsome Rose blooms, and plants of Bougainvillea glabra, full of flower, in 5-inch pots—showing with what freedom this species blooms in a comparatively small state. It is not, however, so handsome in colour as B. speciosa.

May 30 (*Fruit Committee*).—Dr. Hogg gave a short account of the different kinds of fruit shown. An oval lemon-coloured Melon from Mr. Miller, gr. to Lord Craven, stated to be a cross between Trentham Hybrid and perhaps the Beechwood, proved, on being cut, not to be good, although it was stated by Mr. Miller to be sometimes excellent. Varieties of this description were, however, stated to be somewhat capricious as to flavour. A Seedling Cherry, from Mr. Ingram of the Royal Gardens, Frogmore, was stated to be worthy of notice on account of its earliness. It ripens 10 days or so before the May Duke. The Belle d'Orleans, a small variety, was, however, said to be even earlier than this. From Mr. Chapman, gr. to his Highness Halim Pasha, came a collection of fruit, &c., from Egypt, in which were Oranges, the quality of which had suffered from travelling, and fair specimens of Sweet Lemon, and Loquats; the latter are sometimes met with in our markets from Malta, but they are not considered so good as those from Egypt and the East. It was stated that both Lord Bagot and Mr. Bateman had succeeded in ripening the Loquat under glass in this country. Mr. Chapman furnished moreover fruit of the Pepper tree, Gram (Cicer arietinum) a kind of narrow-leaved Hemp used for smoking and for making "Hashish;" and other interesting objects. Beautiful fruit of the Castle Kennedy Fig, a fine kind, very different from others now in cultivation, were shown by Mr. Fowler, gr. to the Earl of Stair, at Castle Kennedy. Mr. Fowler, who received a First-class Certificate for his Fig, reported the following important fact in reference to it, viz., that under forcing it ripened in about half the time which others took to come to perfection, all being placed under the same circumstances. Of Apples we noticed specimens of Sturmer Pippin and Winter Greening, still in a good state of preservation; and there were a few Strawberries and other fruit.

The following Candidates were elected Fellows, viz.:—

J. Aird, jun., Esq.; the Countess of Bessborough, Mrs. Bradshaw, R. Bryan, Esq; J. E. Cowan, Esq.; Mrs. G. J. Göschen, W. Hickman, Esq.; Lieut.-Colonel W. Hunter;

G. C. Joad, Esq.; H. W. Maccaughey, Esq.; De Moraes Sarmento Moncorvo, Mrs. Brinsley Nixon, Anthony Salvin, jun., Esq.; Mrs. Martin Ridley Smith, T. S. Tarleton, Esq.; S. Thompson, Esq.; H. Sandys, Esq.; and F. Wood, Esq.

Manchester Horticultural: *May* 17 *and* 18.—This, the first Show of the season, took place in the Botanic Garden, which was thronged with visitors during both days.

Of Orchids nearly 300 specimens were exhibited. A special prize for 15 plants was offered on this occasion, and was won by Mr. Toll, gr. to J. A. Turner, Esq., M.P., with fine specimens. Vanda tricolor superba in this group was 5 feet high, with three spikes of well coloured blossoms; V. insignis had two spikes; Cattleya Skinneri was also excellent, as were likewise Phalænopsis grandiflora, and the rare Odontoglossum nebulosum with seven spikes of bloom on it. Of equal beauty was the lovely Odontoglossum nævium majus, with eight spikes of richly coloured flowers; also the rare O. caudatum, O. citrosmum roseum with several spikes of bloom, and a well-grown specimen of Dendrobium Farmeri with fine green foliage and lovely clusters of flowers. Associated with these were the charming Dendrobium crepidatum, with drooping spikes of white and orange blossoms; a grand example of Cypripedium Lowii, and the curious Uropedium Lindeni with tails 18 inches in length; Trichopilia crispa was also finely in bloom. Mr. Mitchell, gr. to Dr. Ainsworth, produced some fine specimens, which obtained a 2d prize. Among them were Vanda suavis, with two spikes of very large flowers; a splendid plant of Uropedium Lindeni; the lovely Odontoglossum citrosmum roseum, with a magnificent branching spike of blossoms; and Cattleya Skinneri well bloomed, one of the spikes having 14 flowers on it, unusually fine in colour. The collection also contained Oncidium sphacelatum with drooping spikes of bright yellow flowers, Dendrobium nobile, and a fine variety of Cypripedium barbatum with many blossoms. Mr. Kemmey, gr. to T. Jones, Esq., had a well-grown collection, to which an equal 2d prize was awarded. It contained a glorious Saccolabium ampullaceum; Vanda suavis, a noble plant 5 feet high; a charming mass of Phalænopsis Schilleriana with mauve-coloured flowers; Oncidium crispum, with a wonderful spike of blossoms; Odontoglossum nævium majus; Lælia purpurata, well bloomed; and fine plants of Cypripedium barbatum nigrum, and Aerides roseum and Lobbii. In the Class of 8 Orchids, Mr. Stevenson, of Timpley, was 1st with very fine plants, among which was a noble specimen of Saccolabium guttatum giganteum, the charming Dendrobium Schroderii, with wonderful spikes of white and yellow flowers; D. formosum, which is far superior to giganteum; Lælia purpurata; and Cypripedium barbatum superbum, loaded with fine flowers. T. Jones, Esq., was 2d. Among his plants were the charming Trichopilia crispa; Cattleya Mossiæ, with unusually large flowers; Vanda tricolor; Cypripedium barbatum giganteum; Cattleya Lawrenceana, a fine variety, possessing a lovely contrast of colour; and Aerides Fieldingii. Dr. Ainsworth, who was 3d, exhibited a well-bloomed plant of Trichopilia crispa; also Vanda suavis, with two fine spikes; Saccolabium ampullaceum and curvifolium, and Lælia purpurata. T. Baker, Esq., who exhibited some well-bloomed plants, also received a 3d prize. Among his plants were Vanda suavis, V. tricolor, Cattleya Mossiæ, Phalænopsis grandiflora with two fine spikes, Chysis bractescens, and Aerides Fieldingii, the last with a charming spike. Mr. Houghton, gr. to T. Kendal, Esq., who had another 3d prize, showed a wonderfully fine example of Saccolabium retusum, and a good variety of Vanda tricolor; also Phalænopsis grandiflora, with a good spike; and Dendrobium Paxtonii. T. Jones, Esq., had the best single specimen in the shape of a fine plant of one of the best varieties of Cypripedium barbatum. T. Baker, who was 2d, had a good plant of Aerides Fieldingii. A miscellaneous collection of 30 Orchids, shown by T. Jones, Esq., contained many finely-bloomed plants, for which a special prize was given; and J. A. Turner, Esq., M.P., had a similar award for a beautiful collection. Dr. Ainsworth had likewise a good exhibition. T. Baker, Esq., was also a large exhibitor in this class.

Of Stove and Greenhouse Plants there were three collections of ten. Mrs. Cole & Sons, to whom was awarded the 1st prize, exhibited some wonderful plants, among which were Erica Cavendishii, 5 feet high, and as much through; the Blue Leschenaultia; Erica suaveolens superba, 6 feet through; Chorozema varium nanum, Aphelexis humilis grandiflora, and a very fine specimen of Azalea Criterion. A 2d prize was awarded to T. Kendal, Esq., who had some noble specimens, including Azalea Juliana, 6 feet high and 5 feet in diameter; A. variegata, equally large; Dracophyllum gracile, a large specimen of Franciscea confertifolia, Epacris miniata, and other plants, all well bloomed. Mr. Baynes, gr. to H. L. Micholls, Esq., Bowden, was also 2d with some grand specimens, among which were Hedaroma tulipiferum, large, and in fine flower; Azalea Iveryana, 5 feet high and 4 feet through, the finest plant in the show; A. Criterion, equally fine; Bougainvillæa glabra, in splendid condition; and Erica ventricosa coccinea minor, a beautifully grown plant.

In the Class of 6 Stove and Greenhouse Plants the 1st prize was deservedly awarded to Mr. Baynes for fine plants of Azalea magnifica, 4 feet high and as much through; A. Empress Eugénie, equally fine; an Ixora, with 40 heads of bloom on it; Boronia pinnata; and a well-flowered Hedaroma tulipiferum. A 2d prize was awarded to Mr. Houghton, who exhibited a fine plant of Franciscea confertiflora; Epacris miniata splendens, with rich-coloured flowers; Ixora coccinea, and Azalea Empress Eugénie. Mr. Johnson, gr. to H. Micholls, Esq., had a 3d prize for nice specimens of Azalea coronata, and other kinds; and Acrophyllum venosum, well grown and bloomed. In the Class of 8 plants, the 1st prize was awarded to Mr. Baynes, whose plants were well arranged, and had a good effect. In the centre was a noble specimen of Dicksonia antarctica, with gracefully drooping fronds; a high-coloured Croton variegatum; Phajus Wallichii, with five spikes of flowers; Azalea exquisita; Polygala cordifolia, well-bloomed; and some well-grown Sarracenias. Mr. Stevenson was 2d with fine specimens of Aphelexis macrantha purpurea, Croton angustifolium, well-coloured; Dracæna Cooperi, a splendid plant; Pimelea elegans, well bloomed, and seldom seen at our exhibitions; and the beautiful Alocasia metallica. In the Class of 6 Miscellaneous Flowering and Foliaged Plants, the 1st prize was awarded to Mr. Johnson, who had fine specimens of Vanda suavis, a very fine plant, 4 feet high; Dracæna Draco, 5 feet high, clothed with foliage to the pot; Croton variegatum, Dicksonia antarctica, and Phalænopsis grandiflora. Mr. Baynes was 2d with a graceful plant of Aralia leptophylla; a fine mass of Anæctochilus xanthophyllus; a wonderful specimen of Sarracenia purpurea, with large pitchers; and Cypripedium barbatum. S. Roebuck, Esq., who was 3d, had Rhododendron Gibsonii, well bloomed; Ixora coccinea, with fine heads of flowers on it; and Azalea Duke of Devonshire.

In the class of 8 Azaleas Mr. Hanmer was 1st with large specimens, among which were Empress Eugénie, with larger flowers than usual; A. Brilliant, fine in colour; A. Chelsonii, and Juliana well bloomed. In groups of 6 plants the 1st prize was awarded to Mr. Johnson for Illustris nova, Magnificent with very fine flowers, and Juliana. For a specimen Azalea Mr. Hanmer was first with a wonderful plant of Extranii. Mr. Houghton was 2d with a good specimen of Criterion.

Of Ferns Mr. Baynes exhibited some fine specimens. Gleichenia Speluncæ was perhaps one of the best plants ever seen; it was 4 feet high and 4 feet through; also flabellata well grown; Alsophila excelsa, and the lovely Cibotium princeps; Platycerium grande, the Stag's-horn Fern, and others. Mr. Johnson was 2d with Davallia aculeata, 3 feet high, and as much through; Gleichenia flabellata, and Cyathea Smithii, a beautiful Fern. Mr. Roebuck was 3d with clean and well cultivated plants, among which were Cyathea dealbata, the silver Tree Fern; C. medullaris, with distinct black stems; and Cibotium princeps.

Of Cape Heaths Mr. Houghton had fine examples of Hartwellii and ventricosa.

8 Pelargoniums were shown by Mr. Johnson and Mr. Houghton. They were not so large as we usually see them about London, but they were well bloomed.

Cinerarias were shown by Mr. Roebuck.

Among new plants Mr. Baynes showed Anthurium cordifolium; Mr. J. Shaw had a miscellaneous collection, in which were fine specimens, especially of Palms and Tree Ferns.

Mrs. Cole & Sons exhibited collections of Miscellaneous Flowering and Foliaged Plants, well arranged for effect. Mr. B. S. Williams, of Holloway, exhibited a large collection of new and rare plants, which were greatly admired.

A table was set out, as if for a wedding breakfast, by Messrs. T. & G. Clayton, Victoria Street; it was loaded with all kinds of fruit, including Pines, Grapes, Cherries, Strawberries, &c.; also Bouquets and stands of ornamental flowers. For this a special prize was given.

Mr. Toll showed a fine collection of Amaryllis, to which a 1st prize was awarded.

Hardy Ferns were also shown in good condition by R. Thompson, Esq.; and there was a small exhibition of Fruit.

Notices of Books.

Flora Vitiensis: a Description of the Plants of the Viti or Fiji Islands. By Berthold Seemann, Ph.D., F.L.S., &c. London: Reeve & Co. 1865.

The first part of this beautiful quarto book, which is to be illustrated by 100 of Fitch's inimitable drawings, has just been issued. Among the subjects figured in this first number, Hibiscus Storckii, a shrub with elliptic serrated leaves and large rosy flowers; and Elæocarpus Storckii, a tree with obovate oblong leaves, and large showy crimson flowers issuing in racemes from the older wood, would be well worth introducing to our gardens. The systematic portion of the text is varied by many interesting observations on the uses of the plants described. We take as a sample one of these passages relating to Calophyllum Inophyllum:—

"The most valuable oil produced in Fiji is that extracted from the seeds of this tree, the Dilo of the natives, the Tamanu of Eastern Polynesia, and the Cashumpa of India. It is the Bitter Oil, or Woondel of Indian commerce. The natives use it for polishing arms and greasing their bodies, when cocoa-nut oil is not at hand. But the great reputation this oil enjoys throughout Polynesia and the East Indies rests upon its medicinal properties, as a liniment in rheumatism, pains in the joints, and bruises. Its efficacy in this respect can hardly be exaggerated, and recommends it to the attention of European practitioners. The oil is kept by the Fijians in gourd flasks, and there being only a limited quantity made, I was charged about sixpence per pint for it, paid in calico and cutlery. The tree is one of the most common littoral plants in the group; its round fruits, mixed with the square-shaped ones of Barringtonia speciosa, the Pine-cone-like ones of the Sago Palm (Sagus vitiensis, Wendl.) and the flat seeds of the Walai (Entada scandens, Benth.) densely cover the sandy beaches. Dilo oil never congeals in the lowest temperature of the Fijis, as Cocoa-nut oil often does during the cool season. It is of a greenish tinge, and a very little of it will impart its hue to a whole cask of Cocoa-nut oil. Its commercial value is only partially known in the Fijis, and was found out accidentally. Amongst the contributions in Cocoa-nut oil which the natives furnish towards the support of the Wesleyan missions, some Dilo oil had been poured, which, on arriving at Sydney, was rejected by the broker who purchased the other oil, on account of its greenish tinge and strange appearance. On being shown to others, a chemist, recognising it as the bitter oil of India, purchased it at the rate of 60*l.* per tun; and he must have made a good profit on it, as the article fetches as much as 90*l.* per tun. The Dilo grows to the height of 60 feet, and the stem is from 3 to 4 feet in diameter, generally thickly crowded with epiphytal Orchids and Ferns. The dark foliage forms a magnificent crown, producing a dense shade; and when, during the flowering season, it is interspersed with numerous white flowers, the aspect of the whole tree is truly noble. "The leaves are torn in small pieces, soaked in water for a night, and then used for washing inflamed eyes" (Storck). The exudation from the stem is, according to G. Bennett, the Tacamahaca resin of commerce, used by Tahitians as a scent. Carpenters and cabinet-makers value the wood on account of its beautiful grain, hardness, and red tinge. Boats and canoes are built of it, and it is named with the Vesi [Afzelia bijuga, A. Gray] as the best timber produced in Fiji. In order to extract the oil the round fruit is allowed to drop in its outer fleshy covering, and rot on the ground. The remaining portion, consisting of a shell (putamen) somewhat of the consistency of that of a hen's egg, and enclosing the kernel, is baked on hot stones in the same way that Polynesian vegetables and meat are. The shell is then broken, and the kernel pounded between stones. If the quantity be small the macerated mass is placed in the fibres of the Vau (Hibiscus tiliaceus and tricuspis) and forced by the hand to yield up its oily contents; if large, a rude level press is constructed by placing a boom horizontally between two Cocoa-nut trees, and appending to this perpendicularly the fibres of the Vau. After the macerated kernels have been placed in the midst, a pole is made fast to the lower end of the fibres, and two men taking hold of its end, twist the contrivance round and round till the oil, collecting into a wooden bowl placed underneath, has been extracted. Of course the pressure thus brought to bear upon the pounded kernels is not sufficiently great to express the whole of the oil, and there is still much waste."

Dr. Seemann's book, which owes its origin to the Mission to Viti, undertaken by command of Her Majesty's Government, will form a valuable contribution to botanical literature. Of the Fijian or Vitian Flora little or nothing was previously known; but here we have not only the result of the author's own explorations, but there are also included the materials accumulated in this country since Capt. Cook's first voyage to the South Seas, up to the more recent collections of Belcher, Denham, and Home. The whole of the plants of Polynesia moreover, (from lat. 30° N. to 30° S.) have been examined in working up this flora, and the results of this examination are promised to be forthcoming hereafter. This Flora of Polynesia will include the collections of the voyages of Cook, Vancouver, Beechey, Belcher, Kellett, Denham, Erskine, and others.

The Useful Knowledge Society's Family Atlas. Part 19. Imperial 4to. Stanford: Charing Cross.

At length this admirable Atlas has arrived at the last part but one of its issue. Part 19 has appeared, and Part 20 is announced as the completion of the work. Eighty maps have been constructed for it by our most eminent geographers, with the latest discoveries and emendations, including Murchison's Geological Map of England and Wales, Lubbock's Star Maps, and two capital Plans of London and Paris. In addition we find a most useful consulting index to the latitude and longitude of the principal places in the world. The maps are models of beautiful execution, all being most skilfully engraved and carefully coloured. The price, too, for such a work of science and art (only 7½*d.* a plate) places it within the reach of all students of whatever rank. The following maps together constitute this most valuable addition to our libraries:—

World on Mercator's Projection. West and East; Ancient do. Europe. British Isles. England and Wales, Geological, by Sir R. I. Murchison, F.R.S.: North East, North West, East Central, West Central, South East, and South West. Scotland: South, North, and Hebrides, Orkneys, Shetlands. Ireland, North and South. Netherlands and Belgium. France in Provinces; in Departments. Switzerland. Italy, with Sicily, Malta, Sardinia and Corsica. Corsica, Sardinia, Balearic Islands, and Plan of Valetta. Spain and Portugal. Germany, General

Map; Western and Eastern Provinces of Prussia; Bavaria, Wurtemburg, Baden, and the Tyrol; Austrian Dominions Sweden, Norway, and Denmark. Russia in Europe. Turkish Empire and Kingdom of Greece. Asia. Palestine, in the time of our Saviour; Modern. Arabia, Egypt, Nubia, Abyssinia, and Red Sea. Persia. Bokhara, Afghanistan, Beloochistan, and the Valley of the Indus. India. China Malay Archipelago Islands in the Indian Ocean, Madagascar, Mauritius. Japan. Africa, General Map; North and South, Cape Colony, Kaffraria, &c Azores, Canaries, Cape de Verd, &c. America: North, General Map; British; British Columbia, and Vancouver Island; Nova Scotia, New Brunswick (West); Prince Edward Island; Lower Canada, Maine (North), New Brunswick (East), Vermont, and New Hampshire (North); Upper Canada, New York (West); Michigan (East); United States; Yucatan, Belize, Guatemala, Salvador, Honduras, Nicaragua, Costarica, and the Southern States of Mexico. West India Islands. America, South. Polynesia, or Islands in the Pacific. Australia, Double Map. New Zealand. Stars: Vernal Equinox, Summer Solstice, Autumnal Equinox, Winter Solstice, North Pole, and South Pole, by Sir John Lubbock, Bart. Paris, with Views of Public Buildings: Double Map. London: Double Map.

We understand that Part 3 of Mr. Bateman's beautiful "Monograph of Odontoglossum," which is in an advanced state of preparation, will contain O. Lindleyanum, gloriosum, Reichenheimii, Warneri, and stellatum.

The Apiary.

I was a great unbeliever in the existence of Fertile Workers, but the case that I am now going to relate from my note book, for the benefit of your readers, seems to prove that they do exist; but I should be glad if some of your clever correspondents would give us any experience they may have had on this interesting subject.

May 31, 1864.—No. 39 Stock. The young queen was hatched; she is a very large and beautifully marked Ligurian.

June 3. I examined all the combs and saw the beautiful queen, but as there were no drones in the hive, I caught 200 as they came out of the old Ligurian stock, and put them down the hole at the top of No. 39 hive.

June 17. Examined the combs and found no eggs in the hive, nor could I find the queen, now 17 days old.

June 21. Examined the combs and found no eggs nor queen in the hive, but all the brood hatched.

June 24. Examined the combs and could find no eggs in the hive, nor any queen.

July 1. Examined the combs and found a few eggs and larvæ in worker cells in two combs, but none of them were sealed over; and some of the cells contained two or three eggs. I examined almost every bee, but could not find any queen, or worker bees that I thought could have laid the eggs.

July 7. Examined the combs and found a few more eggs laid in worker cells, and the bees had commenced sealing some over, but no queen was visible.

July 9. Examined the combs and found some of the worker cells sealed over with drone covers; the rest of the brood consisted entirely of drones. I could not find any queen.

July 12. Examined the combs and found more worker cells sealed with drone covers, and more eggs laid; some of the cells contained all numbers of eggs, from one to five.

July 14. Examined the combs and found more drone brood sealed, and eggs laid, but could not find any queen. Having received some imported Ligurian stocks, I took a frame out of one of them which contained Ligurian eggs and brood, and put it into the hive that contained the fertile workers.

July 16. Examined the hive and found the bees had commenced two royal cells on the Ligurian brood comb, a convincing proof that there is no queen in the hive, by the bees commencing immediately to raise royal cells.

July 18. Examined the hive and found seven royal cells commenced on the Ligurian comb.

July 23. Found all the seven royal cells sealed up (9th day). A few drones hatched. I removed those combs containing the drone brood raised by worker bees.

July 27. Examined the combs and found the seven royal cells still sealed up (13th day). I cut them out and put them into the combs in other stocks from which I removed their fertile queens, because they were raised from a hybridised Ligurian queen. The seven royal cells were all hatched on the 28th and 29th.

From this patient investigation of this singular case of working bees or undeveloped females producing perfectly developed male bees or drones, I think we must come to the conclusion that fertile workers do exist, the evidence seems so very conclusive.

There is no doubt this queen was lost in her matrimonial excursion, and I was quite certain when I could not find her on the 17th of June that she was not in the hive, as I transferred the combs and bees from one box to another several times, and carefully examined almost every bee, but could never discover any that seemed to have laid the drone eggs. *William Carr, Clayton Bridge Apiary, Newton Hall, near Manchester.*

A. Bayle, of Narberth, wishes to know what hive or hives, with moveable bars, and of moderate price, would answer to carry out the principle of Artificial Swarming, as described in our columns. We reply, that any properly constructed bar hive can be made available for this object, but we decidedly recommend any one who intends to carry out this principle in his management to adopt the frame hives in preference. These greatly facilitate the carrying out of all the arrangements necessary to insure success. There is no better hive for the purpose than the Woodbury Bar and Frame hive. One or two nucleus boxes should be provided, which are made to contain four of the frames The mode of proceeding we have already described fully. Our correspondent is alarmed at the price of the Bar and Frame hive complete, which is set down in Messrs. Neighbour's list at 3*l.* 3*s.* But this includes outside case and super, which, as his object is swarms instead of honey, may be omitted. The hive made of straw, with bars and frames, can be obtained for 1*l.* 1*s.* We do not know the price of the wooden hives, but it is immaterial which are used. We should, however, recommend our correspondent to obtain a Bar and Frame hive complete, with outer case and super. He can then work his hives either for honey or swarming, and if he likes the principle he can have some made at home, following precisely the same dimensions in every particular, at a less cost.

Garden Memoranda.

Mr. Meredith's, The Vineyard, Garston, near Liverpool.—Who has not heard of Mr. Meredith, of his magnificent Grapes, and of the prizes which they have won? In Brussels and Antwerp they stood first against a host of competitors, and in Paris, in addition to the Horticultural Society's Gold Medal as first prize, they received—enviable distinction—a Gold Medal from the Emperor, value 20 guineas, while last season at the London shows they were honoured with no fewer than 11 first prizes! An account of the "Vineyard" from which such glorious productions emanate must therefore necessarily possess unusual interest.

Eight years ago the ground on which Mr. Meredith's establishment stands was a Grass field, selected chiefly on account of its excellent position on by far the most delightful side of Liverpool, from which it is screened by beautiful plantations, enriched with elegant villas, the residences of Merchant Princes of the great seaport. Here Mr. Meredith began to erect his Graperies, which have been destined to show to an admiring public, what the Vine can be induced to produce under skilful cultivation directed by a scientific head. Only three years after planting the Vines, fruit was produced which obtained a first prize at Sydenham; one of the bunches, a Black Hamburgh, shown on that occasion, weighing 4½ lb. Soon after that the same Vines produced a bunch of the same useful variety of Grape, weighing a trifle under 6 lb.! and more recently Child of Hale, a promising seedling of Mr. Meredith's, shown at Sydenham, weighed no less than 8½ lbs., while three bunches of Black Hamburgh shown at the same place last September weighed together 11¼ lbs. Need instances be cited further in illustration of the success of Mr. Meredith's practice?

As regards aspects, the best Grapes which Mr. Meredith ever had were Black Hamburghs grown in a house facing the east, where they received no sunshine after 1 o'clock in the day. On the other hand a house with a west aspect, on which the sun did not begin to shine before 1 o'clock, furnished bunches of Black Hamburgh, Alicante, and Lady Downes, all excellent in their way; but not quite so perfect as those in the vinery just named. Even in a house facing the north, 117 ft. in length, and 19 ft. in width, glazed with rough plate glass, Black Barbarossa, Lady Downes, Alicante, and Child of Hale have been produced, remarkable not only for large size, but for high colour and fine flavour. These are all planted inside in a border made on the "piecemeal system," 2 feet 9 inches in width, and 3 feet in depth. This will therefore be widened as the roots increase in length. The Vines, being all young, were freely cut back last winter, and are this year pushing vigorously.

On a Vine trellis placed along the back of this house Mr. Meredith has had a capital crop of very late Grapes, consisting of Black Alicante and Lady Downes' Seedling in pots. These were started on the 14th January last year, and were ripe on the 1st of the following July. On the 1st of April last, fruit was cut from them in a comparatively excellent state of preservation, and shown at South Kensington, establishing the remarkable fact that, with proper care, Grapes will hang on the Vines ripe during a period of no less than nine months. These Vines have been allowed to remain another year, in order to see what they will produce. In this way a background, at once profitable and ornamental, is secured, and that without any deterioration of the permanent Vines with which the house is furnished.

Concerning the warming of Vine borders Mr. Meredith has instituted an experimental inquiry. In a house 128 feet in length and 17 feet in width, 80 feet of the border, which is elevated 3 feet above the pathway, has been heated by hot water in 4-inch pipes laid in a hollow chamber below the soil; the rest of the border is not heated. The result, therefore, carefully observed and duly recorded, as it doubtless will be, cannot fail to be highly interesting. Other experiments relative to the same subject are also in progress here on a scale calculated to settle the still disputed question as to whether the application of artificial heat to Vine borders is advantageous or not.

In the house just adverted to, most of the best varieties of Grapes in cultivation have been planted side by side in order to test their comparative merits, and to enable purchasers to see what they buy; for it may be remarked that Mr. Meredith's place is essentially a vineyard where—

"The am'rous Vine coils in a thousand sorts,"

and where multitudes of young plants are raised and sold every year. Numberless pits and minor houses are therefore devoted to crops of this description. Of Vines in pots ready for fruiting we observe an amazing quantity, which have, moreover, the advantage of possessing an unusually healthy and vigorous parentage.

Mr. Meredith's houses are chiefly span-roofed, facing north and south, the Grapes on the former aspect ripening quite as soon as those on the latter. They are efficiently heated by hot water, and ventilated both at top and bottom, the latter being so arranged that the air is compelled to pass over the pipes before it enters the house—an indispensable provision, especially in winter. The ventilators are opened and closed in long lengths by means of levers, so rapidly that a house 144 feet in length can be thoroughly ventilated in less than a minute, and so easily that the operation is a pleasure rather than a trouble to the operator. In short, to the facility and speed with which air can be given to his houses Mr. Meredith attributes much of his success; the foliage, which is of the most ample description, thick and leathery, being without speck or blemish arising either from burning or other causes.

A house full of Grapes now colouring promises to produce some extraordinary bunches, distributed with wonderful regularity over the whole of the Vines, which are clad with leaves and fruit quite down to the soil. This house, which is span-roofed, is 65 ft. in length and 23 ft. in width. The Vines are planted inside, but the roots pass into borders outside, raised a little above the ordinary level of the surrounding ground, and covered in winter with straw and glass to throw off superfluous wet or snow. Thus treated, a vigorous root action is maintained, care being taken to keep the soil loose and porous, so as not only to permit water freely to pervade it, but also air, Mr. Meredith's aim being always to imitate natural conditions as much as possible. So impressed indeed is he with the importance of this maxim that, contrary to usual custom, he does not even peel the loose bark off his Vines at winter pruning-time, feeling certain that it not only serves in some measure to shelter the stems from the burning rays of a summer sun shining fiercely through glass, but that it also keeps the stems damp by its retention of moisture. A house of the same size as that last-named full of Muscats promises to be all that can be desired.

What is destined, however, to be, and that at no distant date, the great feature of this place are two parallel span-roofed Vineries, each 144 feet in length and 26 feet in width, with a pathway 6 feet in breadth running down the centres of them, both magnificent Graperies, equalled only by the great Conservatory at Chiswick, and which, when furnished with Vines loaded with fruit such as Mr. Meredith is justly celebrated for, will be well worth a lengthened journey to see. One is planted with white Grapes, the other with black varieties—very young at present, but making a vigorous start. Surely such houses cannot fail not only to be remunerative to their owner, but also highly instructive to less fortunate Grape growers.

Ripe Grapes may be had here all the year round, new fruit and old not only "shaking hands," but keeping company for at least a month together. The first crops are furnished by Vines in pots, which yield fruit proportionately as fine as that from permanent Vines.

As respects borders, the materials of which they are composed are of the most ordinary description, consisting merely of sound fibry loam, mixed with well rotted manure and bonedust. They are, however, afterwards well supplied with liquid manure, whenever its application is considered advisable. Various depths have been tried by way of experiment, and all with equally good results. The secret of Mr. Meredith's success therefore does not lie so much in borders as in general good treatment.

In addition to Grape growing, it may be mentioned that Mr. Meredith is a judicious and skilful hothouse builder, the latter trade being forced upon him by circumstances rather than selected from choice. Noblemen and gentlemen in his immediate neighbourhood seeing what he had accomplished himself, naturally and rightly considered him the most capable person to effect what was wanted by themselves, and the results he has achieved in that way near Liverpool have been so satisfactory, that Vineries and other glass houses are now being erected under his superintendence in all parts of the country. From some of these houses most admirable Grapes have already been shown, and we shall not be surprised if some of these Meredith Vineries yet produce bunches if not superior at least equal to the heaviest furnished by the Vineyard at Garston. Such a result would only add increased brilliancy to the fame already earned by our great Grape grower.

Mr. John Waterer's Rhododendrons.—These are now in great beauty not only at Bagshot, but also in the Royal Botanic Society's Garden, Regent Park, in which a charming exhibition of the very finest of these gay shrubs is submitted to public inspection. Among brilliant crimsons John Waterer still stands in the front rank, and may readily be picked out even at a distance from amid the magnificent mass of bloom with which it is surrounded. Other Crimsons similar to those mentioned last week at p. 487, are also abundant. Nereus, a lavender purple, with black blotch in the upper petals, is well worth notice on account of its colour, which is entirely different from that of most Rhododendrons. Among pure Whites, Chionoides is conspicuous, but Mr. Waterer states that he has a new

seedling which in all respects eclipses it. This, however, we did not see. Among others, Sidney Herbert, crimson; Joseph Whitworth, spotted lake; and Princess Mary of Cambridge, purple with a white eye, are wonderful acquisitions, as are also Mrs. John Penn, crimson, with light centre; the Earl of Shannon, glowing crimson; Annihilator, scarlet, very bright and late; and Mrs. Fitzgerald, dazzling rosy crimson. Madame Carvalho is also well worth attention, as is likewise Faust, a light-coloured variety, spotted in the upper petals with orange. The collection is, moreover, rich in unnamed seedlings, among which are some charming kinds in the way of Fleur de Marie, Concession, Bylsianum, and others of that beautiful class. Among large standards is a magnificent plant of that favourite Rhododendron, Lady Eleanor Cathcart. Notwithstanding 13° of frost, which are said to have been experienced at Bagshot on the night of April 30, this exhibition is all that could be desired. The plants have, however, pushed into bloom so unusually soon this season, that Monday next, the day specially fixed by the Society for their exhibition, should not be forgotten by any who expect to find them in perfection.

Miscellaneous.

The Vine in Australia.—For upwards of 30 years past vineyards have been carefully nurtured and multiplied. No portion of this extensive region as yet under tillage has been found inimical to their culture; and whilst the future is highly promising, as well for Victoria as both South and West Australia, the success already achieved seems mainly due to the earlier operations of the elder settlement of Sydney, where in the lands that stretch from Beechworth to distant Albury the finest vineyards abound, whose productive powers appear to be very considerable. At the former place there is a thriving plantation belonging to Mr. Zimmerman, about an acre and a quarter in extent. It is well managed, and cultivated like a trim garden. In the season of 1863 he cut for table use from 200 three-year old Vines no less than 1600 lb. of the finest Grapes; and as he gets an excellent price on the spot for all the wine he can make, the proceeds of this small estate amply suffice for the comfortable maintenance of himself and family. * * * Vine planting in Adelaide has attained to very respectable dimensions, and the area of cultivation is still annually on the increase. From an official return made to the local legislature, we learn that the land under this class of culture in March 1862 was no less than 3918 acres; the number of Vines in actual bearing, 2,361,574: and the quantity of wine made in the season of 1860-61 is given at 312,021 gallons. * * * Vineyards continue so to extend on every side, that the Grape now ranks next to Wheat in importance. The main impediment to an equally progressive advance in quality is ascribed to the fact, that the demand is so active, there is no keeping the wine till it is properly matured, and its better properties fully developed. The fecundity of the Vine in Australia, under favourable circumstances, is somewhat surprising, and is well exemplified in the working of many individual cases. For instance: at Payneham, situate at a short distance from Adelaide, a plot of 4½ acres was planted in 1852. These Vines yielded in the harvest of 1858 an average of 800 gallons to the acre; and of such a quality as, at 20 months old, to command a ready sale at 7*s.* per gallon. On the Fairford estate, near the river Sturt, within eight miles of Adelaide, may be seen a flourishing vineyard of five acres, which was planted so recently as 1859. The soil here is a stiffish loam resting on a clay-slate formation. The Vines were trained on stakes to standards, the stems being carried 18 inches from the ground. In 1862, from three acres, the only portion then in bearing, 1000 gallons of wine were obtained, remarkable for both richness and delicacy of flavour. And if we may accept the positive statement of the master of Oaklands, a Vinery of two acres only on the banks of the same river, and about two miles nearer Adelaide, brought him 5130 gallons of wine, pure juice of the Grape, against 4000 gallons in the previous year of 1861. This vineyard was planted some 12 or 13 years ago, the soil for the most part being an alluvial deposit of great depth, with a substratum of red clay and limestone; the plants are well sheltered, vigorous, and full of growth. *Denman's Vine and its Fruit.*

Calendar of Operations.

(*For the ensuing week.*)

To preserve plants in flower as long as possible is at all times a matter of the utmost importance. Therefore as soon as their blossoms are perfectly expanded, they should be removed to a cooler atmosphere than that in which they have been grown, and carefully shaded from glaring sunshine. To counteract the drying effects of hot currents of air, which are unavoidable in summer, the air of the house should be kept moist by frequently sprinkling all available surfaces. In dull or damp weather, however, a directly opposite mode of proceeding must be pursued: moisture is then injurious, and must be carefully avoided; and the plants should stand sufficiently far apart to secure a full and free circulation of air amongst them. Let no blossoms remain after they fade, and never allow the energies of a plant to be exhausted in producing seed unless it is positively required. Plants of which it is desired to make large specimens in the shortest possible time, should not be allowed to produce flowers until they have attained the desired size. All specimen plants should have plenty of room, and should be occasionally turned round, in order to prevent their growing one-sided.

FLOWER GARDEN AND PLANT HOUSES.

Among gay shrubs now in flower out of doors, few are more beautiful than the Pyracantha, which is everywhere this season unusually full of blossom, and in autumn its rich coral-coloured fruit is equally ornamental. For walls or for masses on lawns, or for the decoration of the background of rockwork, this plant is equally valuable. As plants in beds progress, some will require pegging down, and others tying up. In performing the first of these operations, the points of the leading shoots should be turned towards the north, as the young laterals will be drawn by the light towards the other points of the compass, and by this means the beds will appear well filled from all sides. All young plants will be considerably benefited by stirring the soil between them, especially when it has been caked over by rain. This will, at the same time, destroy weeds, which must be constantly kept in check at this season.

Asters.—Shift any that may require more room into larger pots, and others may now be pricked out into open beds, protecting them, if possible, from cold winds until they get somewhat established.

Azaleas.—Where these have been forced for the purpose of producing an early winter bloom, they should now be placed in a cooler situation, for if left too long after they have set their flower buds, in a high artificial temperature, they will, in all probability, make a second growth, which is highly detrimental, if not fatal, to the production of next year's bloom. Encourage a free growth in the young stock, and all plants going out of flower, by placing them in a rather high and moist atmosphere.

Cinerarias.—A little shade during the middle of the day will be necessary in order to prolong the season of flowering. Weak liquid manure may be given liberally, say two or three times a week. Look well to seedlings, placing promising kinds apart from the more common sorts for seed.

Dahlias.—No exertion must be spared to promote the growth of these plants, for the quicker the growth the finer the flowers. Let the ground between the plants be forked over occasionally, and in dry weather do not spare the watering pot.

Fuchsias.—Keep these plants well watered, and shaded during bright sunshine. Late-flowering plants should receive a shift when required.

FORCING GARDEN.

Melons.—Encourage those newly planted out with a moist warm atmosphere, so as to get them into full growth as quickly as possible; but plants that are established should be kept cooler, admitting air on every favourable opportunity, in order to secure short-jointed fruitful growth. Keep the shoots thin and regular, pinching out any that are not wanted, but avoid stopping the main shoots until they reach the sides of the pit, when by pinching out the points the laterals will start into growth and show fruit abundantly; and by this time the plants will have gained sufficient strength to set and carry a fair crop. Do not exceed 65° at night, and admit air when the thermometer rises to 75°, but do this very carefully on cold days. Endeavour to maintain a steady bottom-heat of about 80°, and keep the soil in a healthy state as to moisture. See to providing young plants for succession crops.

Pines.—Plants just showing or swelling their fruit will be considerably benefited by receiving liquid manure every alternate watering till the fruit begins to ripen. If the plants, which are just on the point of showing, are in pots, it will be an advantage to shift them immediately into larger ones; to top-dress them with some rich turfy loam, or to turn them out entirely into the soil, which is by far the most preferable method. Where the pot system is pursued, many of the plants, especially of the young stock, will require repotting, and at this time they should receive a large shift, as their most active growing season is now approaching. After potting, a closer and moister atmosphere must be kept up for a few days, till they begin to root into the new soil. No plant stands in greater need of shading during bright sunshine than the Pine-apple; but as it is not only unnecessary, but injurious in dull weather, the canvas should be so adjusted, by means of rollers, that it can be applied or removed at pleasure.

Vines.—If the fruit is all cut in the earliest house, the Vines should again be treated with a moderately warm atmosphere, and syringed daily, to destroy insects, and to keep the foliage in a healthy state as long as possible, that they may have every means of recruiting their energies for next season. At the same time give liquid manure to the roots if they require watering, that they may have every chance of regaining their strength after having been forced at an unseasonable period.

HARDY FRUIT AND KITCHEN GARDEN.

Birds and insects, both of which are now very actively at work, must be kept in check. Old spare roots of Carrots or Parsnips may be turned to good account by planting them in beds infested with wire-worms; these will attract the enemy from other plants, and, if daily examined, will in time clear the ground of this nuisance.

Broccoli.—Sow now some good white kind to supply the table during October and November. Sow also a little more of Knight's Protecting, and a sprinkling of some very late spring Broccoli; it may serve to prolong the succession next spring.

Celery.—These must have abundance of water. Those pricked out from the seed bed should have well prepared beds, the surface of which, for 2 inches deep, should consist of well-rotted manure, soaked with water, and rolled or pressed level previous to pricking out the plants. If the weather proves sunny they should be shaded with boughs.

Strawberries.—If not already done, the soil of beds and borders of these should now be mulched or covered with some clean material, for the double purpose of keeping the fruit free from dirt in wet weather, and of preventing excessive evaporation in a dry or parching summer. Before anything is put on the ground, however, it should be loosened with a fork between the rows, and watered with liquid manure.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending May 31, 1865, as observed at the Horticultural Garden

May.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth 1 foot deep	Temperature. Of the Earth 2 feet deep	Wind	Rain.
Thurs. 25	1	30.107	30.0 3	7[illegible]	35	55.5	61	56½	S.	[illegible]
Friday 26	2	30.008	29.883	77	47	62.0	61	57	S.	[illegible]
Satur. 27	3	29. 62	29.84[illegible]	75	52	63 5	6[illegible] ½	58	S.W	[illegible]
Sunday 28	4	29.943	29.834	74	48	61.0	62	59	S	[illegible]
Mon. 29	5	29.925	29.672	71	44	57 5	62	59½	S	[illegible]
Tues. 30	6	29 902	29.714	69	40	54.5	62	59	S.W	[illegible]
Wed. 31	7	29.893	29.858	71	41	56.0	62	59	S.W	[illegible]
Average		29.943	29.837	71.8	43.8	58.5	61.2	5[illegible].3		[illegible]

May 25—Very fine throughout; cool at night.
— 26—Very fine, with light clouds; fine at night.
— 27—Heavy dew; very fine; deep blue sky and scattered white clouds; overcast; rain.
— 28—Densely clouded, very fine; overcast and warm at night.
— 29—Overcast, warm S. wind, cloudy and fine throughout
— 30—Cloudy and fine; boisterous; low white clouds, whirling winds; overcast.
— 31—Lightly overcast and fine; very fine; cloudy; overcast
Mean temperature of the week, 2½ deg. above the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 39 years, for the ensuing Week, ending June 10 1865

June.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday.. 4	69.2	44.6	56.9	14	0.76 in	2	4	2	2	4	11	8	4
Mon. .. 5	70.7	47.1	58.9	22	0.90	2	8	2	1	6	10	7	2
Tues. .. 6	66.8	47.7	57.2	21	0.28	5	7	2	2	4	11	5	2
Wed. .. 7	68.9	47.2	58.1	15	0.53	3	9	—	4	3	1	4	4
Thurs. .. 8	70.2	46.8	58.5	15	0.45	4	8	1	—	3	1	5	2
Friday .. 9	69.9	47.5	58.7	20	1 48	1	7	3	2	4	16	3	2
Satur. ..10	71.1	47.4	59.2	19	0.95	1	9	3	2	4	8	8	4

The highest temperature during the above period occurred on the 6th, and 7th, 1846—therm. 90 deg.; and the lowest on the 9th, 1842—therm. 34 deg.

Notices to Correspondents.

Books: *Sub* Kemp's How to Lay Out a Garden, Paxton's Botanical Dictionary, and Hibberd's Rustic Adornments will probably suit you. Any bookseller can get them.—*Mary.* The Handbook of British Ferns, published by Groombridge.

Broccoli: *J Cattell.* The specimens of your Eclipse Broccoli were very fine, the heads large and compact, the texture delicate, and the flavour excellent. These qualities, together with the late season at which it comes into use, between the ordinary late Broccolis and Cauliflowers, and its extreme hardiness, which you say is equal to that of any Cabbage, combine to make it a very useful variety.

Insects: *W G K B.* You have sent five or six different kinds of caterpillars, which have no connection beyond feeding on the same plant, the Turnip. The two large ones are unfortunately those of the Heart and Dart Moth, which committed such an immense amount of damage last year. The small ones are those of the Diamond-backed Moth, Cerostoma Xylostella. Those from the hedge are quite distinct, being the caterpillars of the small Ermine Moth.—*D.* The Pomegranate twig has been bored into by the caterpillar of (we believe, from the chrysalis inclosed) the Wood Leopard Moth. When the moth appears we will again answer you. *W.*

Medicinal Herbs: *A Jemmett*, who asks for advice as to the growing of medicinal herbs, will find a good deal of information on the subject in our previous Volumes. We refer him especially to several papers in the Volume for 1862; to pp. 192 and 456 of the Volume for 1860; and to p. 410 of that for the present year.

Names of Plants; *B W S.* One of the forms of Spiræa hypericifolia.—*T S.* 1, Alnus glutinosa; 2, Ulmus montana; 3, Acer platanoides.—*Engineer* 3, Hyacinthus nonscriptus. The leaves are not sufficient for identification.—*R Edmonds.* Cardiospermum Halicacabum.—*W.* The Austrian Briar—*A B.* 1, Acer platanoides laciniatum; 2, Viburnum Opulus; 3, Spiræa Fortunei.

Peach Trees: *Clapham.* The walls and mildewed trees should have been washed with lime and sulphur during the winter, and on the first appearance of the enemy after the glass was put up, or even before its appearance, resort should have been had to sulphur, a healthy genial atmosphere being at the same time kept up. Doubtless the dryness which has permitted red spider to run riot has also favoured the spread of the mildew. The best course will be to cleanse the leaves by alternate washings and sulphur dustings as often as may seem necessary through the summer, and then to wash both the wall and the stems and branches of the trees with sulphur and lime during the ensuing dormant season; being very careful to check any indications of the fungus in the following spring.

Roses: In our report of the Royal Botanic Society's Show (p. 485), it is stated that Mr. Fraser sent well-grown and finely bloomed plants. They however came from Mr. E. P. Francis; Fraser having been inadvertently written for that name, a mistake which we take this opportunity of correcting.

Shrubs: *Dix.* Of three you name, Cotoneaster buxifolia would be quite hardy, either in Norfolk or at Bournemouth. Jasminum revolutum doubtless all but hardy against a wall at the latter place; Philadelphus mexicanus we suppose would be only half hardy, requiring some protection for the roots and stems; and Berberis tinctoria tolerably hardy.

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President—The Rt. Hon. the LORD TAUNTON.

The CATTLE and POULTRY will be Openly Judged, on MONDAY, June 5.

The other Departments will be open as follows:—
Steam Engines and Machinery in Motion; the Arts and Horticultural Departments, MONDAY.
Steam Ploughs and Cultivators, Mowers and Reapers, to work from 10 to 3 o'clock, on TUESDAY and WEDNESDAY.
Horse Shoeing, at Portable Forges, WEDNESDAY.
The Annual Meeting and Banquet, on WEDNESDAY.
The Horses paraded in the Circle at 12 and 4 daily.
The Band of the Royal Marines, Plymouth Division, (by permission of Col. Gascoyne, C.B.,) will play on MONDAY, TUESDAY, and WEDNESDAY; and the Band of the Grenadier Guards, (by permission of Col. Wynyard,) on WEDNESDAY, THURSDAY, and FRIDAY.
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HENRY ST. JOHN MAULE, Secretary, 2, Wood Street, Bath.

The Agricultural Gazette.
SATURDAY, JUNE 3, 1865.

MEETINGS FOR THE ENSUING WEEK.

MONDAY, June 5 to WEDNESDAY, — 7	Meeting of the Bath and West of England Agri. Society at Hereford. Admission, 2s. 6d.	
THURSDAY, — 8	Ditto, ditto,	ditto.
FRIDAY, — 9	Admission, 1s	
TUESDAY, — 6	Essex Agri. Society at Brentwood.	

A CORRESPONDENCE between Baron LIEBIG and Messrs. NAPIER & HOPE has been lately published, arising out of the letters to the LORD MAYOR which LIEBIG had published on the sewage question. These letters, based, it is declared, on ignorant assumptions regarding both the existing agricultural experience of sewage in England, and the plan of Messrs. NAPIER & HOPE for utilising that of London on sands enclosed from the sea, are described by these gentlemen as an uncalled-for attack upon them in a matter of business with which the writer was wholly unconcerned, and calculated to do them infinite damage, having already cost them vast sums of money in parliamentary expenses to meet the opposition which has been thus created. They accordingly invite LIEBIG over to this country to appear before the Committee of the House of Lords which will sit upon the Essex Reclamation Scheme. They say—

"You are aware that our Bill has still to pass through the third reading in the House of Commons; after which it will be again examined by the House of Lords. You cannot be ignorant of the great weight which statements supported by your name carry. You have already confessed to the gigantic mistake of representing the yearly rental as the capital value of the Craigentinny meadow. You cannot desire that any more such monstrous blunders should be sanctioned by your name, and, still less, that we should suffer from such misrepresentations without the power of proving their fallacy.

"Yet, unless you respond to our former invitation, conveyed to you in Messrs. NAPIER's letter of the 3rd ult., and come over to this country to be examined by Parliament, such will inevitably be the result of the line of conduct you propose to follow. We therefore appeal to your honour and sense of justice to appear before the Committee of the House of Lords, and allow us to cross-examine you. We are willing, and hereby bind ourselves to bear the entire expense of your journey, and to add, if you wish it, an *honorarium* of ten guineas *per diem* during your absence from Munich; and in order that no one may accuse us of wishing to buy off your opposition, or you of having sold your opinions, we shall send copies of this letter to the newspapers, so that the transaction may be perfectly open and aboveboard. We think it our duty also to add that if, contrary to your reputed character and to our expectations, you decline this fair proposal, and refuse to submit yourself to cross-examination upon oath, we shall do our very utmost to destroy your reputation in this country, and that we shall do so with every chance of success."

To this LIEBIG replies that he has nothing to do with party or personal considerations; it has all along been his sole wish to give his aid towards the efficient solution of a question of national importance. To this end his efforts have been directed, and he adds:—

"I beg you therefore to believe that in the advice I have given, and the views I have expressed, my object has been to assist yourselves and others in coming to a right decision, and if these intentions and wishes on my part have been misinterpreted by you, I can only regret it.

"All your calculations are founded on an incomplete knowledge of the nature of the Craigentinny meadows, and on that erroneous theory that you can grow Italian Rye-grass in pure sea-sand to which the nutriment is supplied in solution; and if I show that you throw away your money in doing so, I am, as it is my intention to be, your benefactor and not your enemy.

"With respect to your appeal to me to repair to England, I beg to say that I might possibly have accepted an invitation from a Committee of the Houses of Parliament to appear before them, and to give my evidence on the question at issue, but I must decline to appear as the partisan or supporter of any particular scheme; for I cannot allow myself to be drawn within the vortex of party strife on a question of great public interest and utility.

"With respect to the threat contained in your letter, of your intention to do your utmost to destroy my reputation in England, I leave it to the public, before whom this correspondence will be laid, to judge how far passion and intimidation are to prevail against honesty and truth. A scientific reputation which could be so easily destroyed would not be worth defending."

Whereupon Mr. HOPE replies, disclaiming altogether the ridiculous idea of intimidation. It is however no flattery to say that LIEBIG's opinion carries greater weight than that of any other man alive on such a question as the present, and for this reason they cannot pass over his opposition in silence. Were the matter a mere scientific discussion they would not care to put pressure upon him, and would abstain most carefully from every expression that could cause him annoyance; but it is a matter of business, in which they have expended a very large sum of money, and they must protect their own interests.

"If, therefore," says Mr. HOPE, "you still lend the weight of your name to statements destructive of our scheme and at variance with the facts, and refuse to give us a fair chance of either converting you (not from your own chemical theories, but from your erroneous views as to the Craigentinny Sands, and as to the operation proposed by our scheme), or of proving from your own evidence in cross-examination, that your opinions upon our scheme are founded upon hearsay evidence, and are therefore valueless, I say that we must, in self-defence, do our utmost to destroy that reputation which induces people to accept, without question, *as facts*, statements which are wholly devoid of any foundation, and I think it only right to add that such is the love of fair play in this country, that we shall make the attempt with every chance of success."

In his reply LIEBIG calls attention to his past labours in connection with the utilisation of town sewage. The subject is one of public interest, and his opposition to the Essex scheme has had no personal motive. He adds:—

"Besides, no cross-examination, as you seem to suppose, would extract from me any evidence to show that Italian Rye-grass can be produced in pure sea-sand manured with sewage water; for do what you will, Science, after all, can only pronounce a judgment in harmony with the laws of Nature.

"So long as you dispute the very basis of my arguments, it would be useless for me to prolong the discussion, or to enter further into the merits of your plan. Consequently my presence in England, at a considerable sacrifice to myself, would not be of any practical utility or advantage to you.

"If, on the other hand, you recognise the truth of a theory, not invented by me but founded on science, then I should be most ready, even at a personal sacrifice, to give you every assistance in my power. I must beg you, therefore, to accept this statement as a final reply to the threat reiterated in your letter in the shape of a "warning," that you will do your utmost to destroy my reputation, if I should decline your invitation to repair to England.

"Labouring as I have done, so long in the development of science, and especially in its application to agriculture, I shall still faithfully and energetically support and defend those opinions which are founded on the immutable laws of Nature.

"In the metaphor you alluded to, it certainly was not my intention to indulge in a poetical strain; though I cannot but confess, in the scheme proposed, it does seem to me as if

"Hope told a [too] flattering tale!"

The pamphlet which contains this correspondence opens with a communication from Baron LIEBIG to the LORD MAYOR upon the critique which his previous letters had received in a pamphlet addressed to Sir JOHN THWAITES by Messrs. NAPIER and HOPE before they came before Parliament with their scheme. We refer to this communication only for the purpose of quoting a single sentence, which seems to us entirely characteristic of the writer. "The law of Nature," says LIEBIG, "will always prevail, and outweigh the experience of practical men." We venture, with submission, to declare that this, as it stands, conveys an egregious and most unphilosophical fallacy. "The law of Nature" is a mere abstract inference, often drawn from inadequate, and always from imperfect information—"the experience of practical men" is fact. We all know that the course of events is uniform, and that the facts which accurate observers have recorded do constitute or indicate a law. Nevertheless, faith in this law supposes and must follow faith in the facts individually on which the idea of a law is built. And the right way to express the truth would rather be to say:—The law of Nature will prevail, but can never outweigh the experience of practical men." Let us trust to the facts of the practical man, if for no other reason, because on them are built the "natural laws" of the scientific man. There is neither philosophy nor common sense in setting the one against the other. We must credit that

which is indicated by our senses; and the practical man who deals with facts is not likely to be put down by the man of science who deals with the relations which he perceives amongst them. The latter may declare that science can after all only pronounce judgment in harmony with the laws of Nature; the former knows very well that Nature will herself reduce any other decision to absurdity, except that which is in accordance with those "facts" in which clever men believe that they read her laws.

The Society of Arts have issued a valuable report on the Cottage question, which has for many weeks been the subject of discussion before a large committee of their number, whose names have been long before the public for their public-spirited and intelligent services in connection with this subject.

They have not thought it necessary to collect facts to establish the unfitness of the greater part of the dwellings of the labouring classes as habitations for respectable and well-conducted families, or to prove that the excessive overcrowding which now exists in such dwellings promotes crime and immorality, harbours disease, and materially lessens the effective power of the working-classes, by injuring their health and shortening the duration of their lives.

Nor was it considered necessary to inquire into the effect produced by these badly-constructed, ill-ventilated dwellings on the poor-rates, or into the amount of discontent which the admitted want of proper dwellings creates in the minds of the working classes. Considering these facts as fully established, the Committee have discussed the following points:—

(1.) The causes which appear to retard the erection of proper house accommodation, and the improvement of existing houses, for the working classes in town and country.

(2.) The operation of imperial and local taxation on such dwellings; and the expediency of relieving them from all or a portion of such taxation.

(3). The effect of the law of settlement and removal of the poor upon such buildings in country districts.

(4.) The probable effect of extending the area of local taxation in town and country.

(5.) The operation of the laws relating to the transfer of real property in small plots, and the conveyance of chambers and suites of rooms.

(6.) The operation of the destruction of houses by railways and other local improvements.

(7.) The desirability of facilitating the conveyance of labourers to and from their work by railway.

(8.) Whether the provisions contained in the existing Acts of Parliament, for granting loans for the improvement of estates, might not be extended to the building of cottages, and if so, under what special conditions.

(9.) Whether the provisions of the common lodging-house Act, and other statutes relating to the public health, might not be advantageously extended.

(10.) Whether there are any other means by which the Legislature can promote the object in view.

It is with reference to only some of these points that we call attention to the conclusion at which the Committee have arrived. Under the 3d head it is declared that the question of charging the relief of the poor on the parish or on the union is one which peculiarly affects the building of cottages in the country. The present system has long been found one of the greatest obstacles to the proper accommodation of labourers on the estates on which they work; and the Committee were prepared to recommend an amendment of the law by the extension of the chargeability of the poor from the parish to the union. The same views on this important question have been, however, generally recognised by the Legislature, and they are likely to be carried into operation by the Bill now before Parliament. The Committee confidently expect that many good results will follow from the adoption of that measure.

With this exception most of the topics which come under the attention of the Committee affect rather working men in towns than rural labourers, and we do not, therefore, quote at length those paragraphs in the report which relate to demolition of houses by railways, to workmen's trains, and to enforcing the sanitary laws. The following shortly are the results of their deliberations. They recommend to the Council:—

1. That corporations, limited owners, &c., should have increased power to sell land for the erection of dwellings for labourers, under conditions as to proper drainage, ventilation, and sanitary regulations.

2. That the public loan commissioners should be authorised to lend money, at a rate not exceeding 3½ per cent. per annum, for building dwellings for the labouring classes, under suitable guarantees and with due regard to sanitary arrangements.

3. That in all future railway acts, and acts for local improvements, when houses inhabited by the working classes are destroyed under compulsory powers, such companies should be compelled to provide, within a convenient distance, other dwellings in lieu of those destroyed.

4. That the following amendments should be made in our sanitary laws:—

a. That the appointment of inspectors of nuisances throughout the country should be compulsory.

b. That increased power be given to the proper local authorities, to oblige builders of houses to provide adequate drainage and ventilation.

c. That the medical officers of health should be irremoveable without the consent of the Privy Council, and that the amount of their salaries should be subject to the approval of the same authority.

d. That houses in which lodgers are taken, especially where particular rooms in a house are over-crowded, should be brought under more efficient inspection.

—— We understand that the metropolis is to be provided with another Veterinary College, to be established at Chelsea. The following is an extract from its prospectus:—

"A preliminary contract has been concluded for one of the most desirable sites in the West-end of London, adjoining the new Chelsea Barracks, facing the gardens of Chelsea Hospital, situated about a mile from Hyde Park Corner, and in the immediate proximity of Belgravia.

"The great wear and tear amongst horses in the metropolis, their increasing value and number, and the enhanced price of cattle, sheep, and other domestic quadrupeds, for our rapidly increasing population, render it of paramount importance that no effort should be spared to secure the most approved mode of veterinary teaching and practice.

"The number of Veterinary Surgeons in the United Kingdom is lamentably deficient; though this country possesses the finest animals in the world, there are fewer skilled persons to attend to their health than in most parts of Europe.

"Notwithstanding the far greater value of stock in England than in France, we find that the whole of her Majesty's possessions have less than 1500 Veterinarians engaged in their profession, whereas France alone, without her dependencies, has upwards of 3000.

"Owing to the great desideratum of a course of scientific education for agriculturists in the metropolis, arrangements have been made on the plan which has worked so successfully in Paris and elsewhere, of combining a course of agriculture with the curriculum of veterinary studies.

"The Committee have great pleasure in announcing that they have for this purpose secured the services of a gentleman so eminent in the department of agricultural education as Prof. Coleman, late of the Royal Agricultural College, Cirencester.

"It is believed that many interested in farming pursuits, whether in London and its environs or elsewhere, will avail themselves of the great privileges thus afforded them, preparatory to or after a course of practical training in the country, and no effort will be spared to render the agricultural curriculum complete in all particulars."

It is extremely probable that a course of lectures such as Professor Coleman is well qualified to deliver on the Practice and Theory of Agriculture, will be acceptable to a large number who come to London as students of those sciences with which agriculture is especially connected. In Edinburgh a large proportion of the University agricultural class are students of law, to whom a general knowledge of agriculture is important; and we cordially hope that Professor Coleman's lectures will be attended by many besides the regular body of veterinary students for whom the New College is especially designed.

—— The Stettin Show last week appears to have been less satisfactory on the score of business transacted than previous Continental meetings have been to English exhibitors. Lords Walsingham and Sondes took the first and second prizes for Southdown Sheep; Mr. Taylor, of Somersetshire, showed Devon bulls; and Mr. Crisp, of Butleigh Abbey, took prizes for Short-horns, Suffolk Horses, and Pigs. The English Implement makers were in considerable force, and received medals for the machinery exhibited.

Messrs. R. Hornsby & Sons received a Gold Medal for their threshing machine and engine; and Silver Medals were awarded to Messrs. Clayton & Shuttleworth, Ransomes & Sims, and the Reading Iron Works Co. for their similar machines. Silver Medals were also awarded to Messrs. Picksley & Sims for mower, to Messrs. Hornsby & Sons, and Messrs Samuelson & Co. for reapers, to Mr. Robert Boby for haymaker and corn screen, and to Messrs. E. Page & Co., Bedford, for horse-rake and oilcake breaker; also to Messrs. Howards, Bedford, for ploughs.

AGRICULTURAL EDUCATION.

There is an admitted difficulty in inducing people to attend general meetings. What is everybody's business is nobody's business, and unless a man has some very special duty to himself to perform, the routine proceedings of the day are apt to be left a good deal in the hands of the executive. To be sure, an organised body of dissentients will now and then combine to reject a report, or dismiss a director; but agriculturists, as a rule, are not famous for organisation or combination, and the attendance at the annual gathering in Hanover Square on Monday last was very fairly constituted. If anything, there were not so many members of Council present as usual; and, consequently, any one speaking from the outside, as it were, had the greater opportunity of carrying his audience with him. But beyond this, there was clearly a better spirit observable, and a member seems to be no longer looked upon as "taking a liberty" when he ventures to offer an opinion upon their course of action to an assembly of his own fellows. Even Mr. Dyke Acland could hear the policy of putting an agricultural association out at nurse to the Universities questioned without at once rising to resent it in a towering passion; while Mr. Thompson was remarkable for his absence, as the President, with some further experience, has come to a far sounder interpretation of the functions to be discharged from the chair. There is, however, even yet stronger proof of the weight which will come to be attached to any open discussion on the position of the Royal Agricultural Society. Mr. Morton maintained that the Education Committee had made a mistake, and that well-intentioned as might be their labours, they had quite overlooked the object and nature of the institution for which they were acting. Upon a division, eleven other members of the Society were found to be of the same opinion, against sixteen who gave their unqualified support to the Report. Still a dozen or so of people can be easily whipped up, and Mr. Morton may have brought in with him a few country friends from Berkshire, or some literary acquaintance in town, and so readily have made up a respectable show of hands. But it was not so, as we do not believe that Mr. Morton had gone out of his way to canvass a single man in the room, while at least a goodly half of his very memorable minority was composed of members of Council. Amongst those who voted against the Report of the Education Committee was Mr. Holland, of Dumbleton, the chairman of that committee; Lord Feversham, the past President of the Society; Lord Tredegar, the President-elect of the Society; the Honourable General Hood, the Chairman of the Finance Committee; Mr. Fisher Hobbs, a Vice-President of the Society, who may be said more than any other member to represent the farmers on the Council; and Professor Wilson, who has made agricultural education one of his particular studies. If Mr. Morton required any warrant for the course he has adopted, he need only refer to this division list to show how many good men go with him. Conspicuous on the other side was Mr. Edmunds, of Rugby, who, as at the Farmers' Club, spoke at some length and with some ability on the advantages of a general education; but, still utterly oblivious of the class interest he was addressing. His remarks and deductions would have come equally well or far better before a company of country schoolmasters, or a special meeting of the Society of Arts, as in an assemblage of agriculturists they were lamentably deficient in application. Of course, everybody in these times is becoming alive to the necessity of a good sound foundation, and the farmers, we believe, not less than their neighbours; while surely the aim of a class institution should be to point this good grounding to the actual business of life. Let the Royal Agricultural Society take up the lad when the schoolmaster has done with him, only previously prompting the direction of his studies by the rewards held out for proficiency in certain pursuits. Mr. Acland, it will be found, offered some hypercritical objections to the word *professional* as introduced by Mr. Morton in his amendment. Conventionally, no doubt, "a profession," once upon a time, never descended in its dignity beneath Divinity, Physic, or Law; but a professional education in these days means simply no more and no less than preparing a young man for that pursuit his own tastes or his position may lead him to adopt. Engineering, Literature, the Arts and Sciences are all come to rank as Professions, and with these we may reasonably enough now include the art of Agriculture.

For our own part we regard Mr. Morton's minority as a majority; so little do we expect to see follow from the plan recommended by the Education Committee; so much does it read like a way how *not* to do it, and so slowly does the country promise to take to it, that the scheme must die out of sheer inanity. In fact, its fate for the present appears to be sealed. As a correspondent, whose letter will be found in another part of the paper, says:—"It is much to be regretted that the effort made by the Royal Agricultural Society to promote sound education among young farmers should be inoperative for the present year, as far as those who may wish to pass the Oxford examination are concerned. The examination takes place next month, and students desirous of competing should have sent in their names some weeks ago; thus it will be June 1866 before any of the rewards of the Royal Agricultural Society can be bestowed, unless it happens that there should be found among the candidates of this year those who satisfy the requirements. It is a pity that the Society's determination could not have been made public sooner, because there may be students who would gladly have competed in the Oxford examinations, but who will be debarred from doing so in 1866 by being superannuated." From such a muddle as this, it is pleasant to turn to the President's promise of better things:—"It had been thought that the Council might stimulate education by placing itself in communication with various local agricultural societies throughout the country; and it was now on the point of addressing a circular to those societies with that view." So that we are coming to the agricultural phase of the matter after all, and the sooner the better, if the Agricultural Society is to carry this clause in its Charter to any good use. *Mark Lane Express, May 29.*

COTTESWOLD SHEEP.—No. IV.

Perhaps the dispersion of this breed of sheep and their wool over the civilised part of the globe, done too without the aid of any extraneous efforts to push them, is the best guarantee of their value. Success, particularly in this case, is the test of merit, for instead of being forced before the public, the public have had to search after the Cotteswolds. As evidence, therefore, of the greatest value in showing the importance of the Cotteswold sheep, we cannot offer stronger proof than this fact of their gradual inroads into other parts.

Before the Cotteswolds were as much appreciated as they recently have been, there were no ram sales. The practice was to offer them privately for sale or hire. As the demand increased, sales at home by auction were adopted, and this practice has continued until the trade in these sheep has so largely increased as to render it more convenient to adopt the more business system of bringing them to market; indeed, so much has the latter plan taken with both buyers and sellers, that at one market several hundred were offered at Cirencester last season.

The commencement of the ram selling begins about the latter part of July, and for about three weeks the sales at home, sometimes at various places, two or three a day, continue daily.

It would be difficult to guess the number of these rams annually raised, but judging vaguely they must number several thousands.

Formerly these Cotteswolds were considered merely a local breed of sheep. Now, however, they have permeated through almost every county in England, and they are used with varying success in most foreign countries, even so far as the antipodes; for in New Zealand there are established flocks of Cotteswold sheep in great favour in that colony. France, too, encourages Cotteswolds, and has her established flocks. America has established flocks of Cotteswolds under the patronage of Sandford Howard, Esq., of Boston, and Mr. Southam; whilst in Canada Mr. Stone Guelph, Canada West, has long successfully cultivated this breed. Also in Australia, Sweden, Germany, the Cape of Good Hope, Ireland, Scotland, Valparaiso, the Cotteswolds stand in good repute. In England, within a few years, throughout almost every county, have the Cotteswolds been introduced to a surprising extent. In Glamorganshire, Mr. Thomas, of St. Hilary, has had an established flock of Cotteswolds for more than 20 years, and so adapted are these sheep for the lowlands in this county that other breeds of sheep are the exception. Herefordshire, too, has very extensively adopted Cotteswolds, and amongst others the flock of Mr. John Wigmore, of Penyard Ross, stands conspicuous. Norfolk, again, has its established flocks of Cotteswolds belonging to Mr. Brown and Mr. Aylmer, of Dereham.

Perhaps, however, no other circumstance will show the estimation in which the Cotteswold sheep are held for use in other districts so much as the returns of those who sell them, and therefore we give a return of those sold, from information obtained from Mr. Villar, the extensive auctioneer of Cheltenham, last season. From this return we gather that for the season of 1864, for 31 breeders Mr. Villar sold 1014 Cotteswold rams, and these averaged 10*l.* 13*s.* 6*d.* each, and these 1014 sheep went for use into twenty-six counties and countries. This return represents the business done by only one auctioneer, and had we been so fortunate as to get returns from other salesmen, doubtless the wide-spread use of these sheep would have been yet more apparent.

The use of these sheep in other districts and countries, as we before mentioned, has not resulted from any popular caprice, nor from having their good qualities blazoned before the public by the press, neither have they been trumpeted before the agriculturists for merits they do not possess, but the whole of their success has depended entirely upon their own inherent value.

The principal use of them in other districts is for crossing with other breeds. For this purpose they stand pre-eminent, as their undoubted purity of blood enables sheep breeders to calculate with the greater precision the results of a mixture of the Cotteswold blood with other sorts. This consideration is of great consequence now that we have breeds of "Down sheep" of all names and "Long-wools" of all descriptions. It has been alleged that the Cotteswold sheep will not bear the confinement of folding as well as the Down sheep. This impression has arisen in a great measure from the fact that they are seldom folded the year through. But when they are folded their well-doing in hurdles is remarkable, as is instanced at the Ram sales, all of which are always in hurdles.

Since Mr. Ed. Ruck, of Castle Hill, has adopted steam cultivation, nearly all the fences are removed, and therefore it is necessary to fold his sheep all the year round, and he finds the Cotteswolds for this purpose answer admirably.

The use of the Cotteswold sheep so widely and under every possible difference of soil and climate is peculiarly interesting and valuable as showing their adaptability for all seasons and temperatures. It is to such causes as these that we attribute the success of the Cotteswolds in these and other lands. As illustrating the effect of soil and climate as it affects the growth and characteristics of breeds of sheep, we may mention from two authenticated cases the alteration which soil or climate makes.

The one is a case where a Cotteswold sheep was taken as an experiment into Lincolnshire, to cross with that valuable breed the Lincolns. At the time he was somewhat close in the wool, and of course without that peculiarity in the wool—the lustre. After this sheep had been in Lincolnshire for about 12 months, he had acquired the lustre for which the Lincolns are so celebrated, and his wool instead of being thick and close had become long, open, and curly. Another instance we note is that of Lincolns being brought on the Cotteswold Hills by a gentleman who came from Lincolnshire to farm a Cotteswold farm. He brought a flock of well-bred Lincolns with him, which had long, open, and curly wool, and full of lustre. However, in a short time the lustre left the wool, and the wool became close and thick on the Lincolns—just the reverse of what occurred with the Cotteswolds when sent into Lincolnshire.

This shows the effect of soil or climate on the growth of wool, besides which the general appearance had become changed. It is so, perhaps, in every breed or variety of sheep, that the circumstances of soil, climate, and management make sheep of the same breed most unlike each other; yet, notwithstanding such changes, the returns from the Cotteswolds would, it is presumed, be satisfactory, or their extensive use would not have taken place. Still, although the triumph of the Cotteswolds in most districts is complete, yet we find in scarcely any of the established breeds of Cotteswolds, but that occasionally Cotteswold sheep from their native flocks are taken for use, and the distance from which customers come to purchase native-bred Cotteswolds attests the importance attached to the use of those from the original stock.

We have endeavoured to give an account of the dispersion of the sheep, but an account of the wool and its manufacture is scarcely less interesting. From the length and strength of the staple, Cotteswold, in common with the wool from other long-woolled breeds of sheep, is used for what is known as "worsted goods," a term used to distinguish the goods it makes from the woollen cloth trade; the former being combed, and not a milled or felted, fabric, whilst the latter signifies a fabric which is not combed, but "milled" or felted. Strictly speaking, there is no "felted" material made, except such as hats, caps, &c., which are made without spinning or weaving. The woollen cloth is made from the short wool, which is spun and woven, and afterwards "milled." The power possessed by the long wools to form a felt is much less than that of the short wool, because there are fewer serrations in it. The "coombers' wealthy flake" consists entirely of wool from the long-woolled variety of sheep, and is made into worsted goods, consisting of "damasks, cobourgs, camlets, lenos, mottles, and a variety of fancy stuffs of all shades of colours for ladies' dresses for home consumption and for export to France, Germany, North and South America, and the West Indies. It is used largely for making camlets, of which the Chinese and Japanese take a very large quantity. In fact the worsted goods go to all parts of the globe, the inferior parts being made into carpets, rugs, and blankets." *Hallewell.*

James, in his History of the Worsted Manufactures of England, informs us that the markets abroad for worsted goods are more numerous and widely dispersed than for woollen cloth; therefore it seems the long-wool grower, in case one market becomes depressed, has other markets requiring the goods his wool makes, consequently there is no chance of this class of goods wanting a market. Indeed, the fact that such a demand exists and is likely to continue, together with the circumstance that the supply of long wool has been so short as to become of greater value than the short wool, inspires the long-wool grower with reasonable hopes that the long-woolled sheep are likely, for their wool especially, to give permanently remunerative returns.

We have thus, imperfectly we fear, given some particulars of one of the oldest, and, we think, the most valuable sheep of this country; having traced them from the time of Tacitus to all parts of the world, and their wool to some of the least civilised part of its inhabitants—the Japanese. *J. M. R.*

THE AMERICAN CHEESE FACTORY.

We extract the following particulars from the Transactions just received of the New York State Agricultural Society for 1863.

"Cheese factory associations are organised in neighbourhoods of 10 or a dozen or more farmers.

"When it is proposed to start a factory, several persons who are neighbours to each other get together and talk over the matter among themselves. If enough are found willing to turn in their dairies together, so as to make a fair start (say 300 cows), a committee is appointed to look further into the matter, to visit factories, and get all the information on the subject that can be had. A favourable report from the committee being had, they then organise, choose directors, and adopt some general rules or plan for the guidance of the association. The next step will be the selection of some experienced cheese maker as superintendent, and the place for the erection of the factory building.

"Generally some person proposes to put up the buildings on his own account, and to manufacture and take care of the cheese at a fixed price per pound, demanding a contract on the part of the farmers to furnish the milk of the requisite number of cows for a certain number of years.

"The milk of about 400 cows, it is believed, is the smallest quantity that can be employed by the manufacturer (when cheese making is his sole business), in order to obtain a fair living compensation for services, while the milk of a thousand cows can be manufactured at but little extra expense comparatively.

"In choosing the place for the erection of the factory buildings, two requisites are sought—good water and convenience as to access and distance for the dairies furnishing the milk. The site, above all, should command an abundance of pure spring water. This is regarded by those who have had longest experience at the business as imperative.

Even in family cheese making a considerable quantity of water is needed in various ways about the dairy, for cooling milk, cooking the curd and keeping the utensils and buildings clean and sweet; but for the factory the quantity of water should be abundant and unfailing. It is usual to have a considerable stream of water passing under the manufacturing room, so as to carry off the drippings of whey and refuse slop, so that there be no accumulation of filth or taint of acidity hanging about the premises. Where whey and slop are allowed to collect from day to day about the milk room, the stench at times becomes intolerable, and must do great damage to the milk, which absorbs taints of every character with great readiness. Hence means must be taken to have all the refuse matter swept beyond the reach of the premises.

"Some factories are being built where dependence for water is placed upon wells of large capacity, but these are as yet experiments to be tried. At all events, it will be seen that much more labour will be required, with greater liability to taints, than where spring water, passing in a considerable stream under the building, can be had."

"Within a brief period several corporations have been formed for making cheese under the general manufacturing law of New York. The stock is divided into small shares, and generally distributed as much as may be among the dairymen of the neighbourhood, with a view of creating a general desire for the success of the institution, and enlisting efforts to secure patronage.

"The concerns of the association are managed by a board of trustees or directors; the stockholders having no direct voice in the management, beyond the annual election of the trustees. The trustees appoint one of their number president; elect a secretary and treasurer, and form committees to look after the different interests of the company. A superintendent is employed to direct the manufacturing and curing operations.

"The actual cost of conducting the company's business is charged to the patrons in a general account, with a percentage on the amount of capital stock sufficient to pay interest on the investment and cover the wear and decay of fixtures.

"In this account credits are given for all moneys received for cheese, whey, or other produce, and the balance apportioned among the dairymen according to the amount of milk furnished by each. The interest and any surplus of the percentage that may not be necessary for repairs, are divided upon the shares of stock. It is yet to be determined whether this be the more successful and satisfactory method of conducting the business, and whether the division of responsibility will result in want of proper care in management.

"In view of the very general inclination among dairymen to avail themselves of the advantages of the factory system of manufacturing cheese, it is thought a brief statement of the different methods upon which they are conducted would likely interest many of those whom this report may reach.

"Originally the milk received at the pioneer factory was wholly purchased by the manufacturers, it being estimated and paid for by the amount of curd it produced when pressed.

"This plan failed to give entire satisfaction to the dairymen, because of differences of opinion upon its prospective value in the fall market, but furnished sufficient data for determining every item of expense attending the manufacture, and for deducing the cardinal features of the commission method.

"Hence the dairymen were left to accept a price for their milk or curd which the manufacturers felt safe in offering, or allow them one dollar per cwt. of cheese manufactured and the whey, for performing the work of making, curing, preparing for market, selling the cheese, receiving and disbursing the moneys; the dairymen paying all other expenses, as boxes, bandage, salt, rennet, &c.

"These two methods were practised together, each having about an equal number of adherents for a few years, the latter however gradually growing in favour, until it has become the general rule among the older factories. In some instances slight variations in the detail of the original terms have been made."

The following is the report of a comparatively small cheese factory of the kind at "King Settlement," under the management of Mr. N. Leach.

"*King Settlement Cheese Factory.*—Commenced operations on the 14th day of May, 1863, and closed November 10th—191 days.

Greatest number of cows	315	
Average number of cows	290	
Whole number pounds milk received . ..		982 331
Whole number pounds cured cheese		98,474
Average number pounds milk for pound cured cheese		9 lb. 15½ oz.
There was delivered at said factory in the month of May, 90,568 lb. of milk, from which was manufactured 8756 lb. of cured cheese.		
Number pounds of milk to pound of cheese when delivered was		10 lb 5½ oz.
Number pounds milk received in month of June		202,847
Cured cheese manufactured		19,328
Number pounds milk to pound cured cheese ..		10½
,, milk received in July was ..		212,314
,, cured cheese manufactured ..		20,406
,, milk to pound cured cheese ..		10 lb. 6½ oz.
,, milk received in month of August..		182,040
,, cured cheese manufactured ..		17,278
,, milk to pound cured cheese ..		10½
,, milk received in month of September		154,440
,, cured cheese manufactured ..		16,708
,, milk to pound cured cheese ..		9 lb. 3⅜ oz.
,, milk received in month of October		122,391
,, cheese manufactured		13,805
,, milk to pound cured cheese ..		8 lb. 14 oz.
,, milk received in month of November		17,731
,, cheese manufactured		2,193
,, milk to pound cured cheese ..		8 lb. 1⅓ oz.

"In making my report in gross and by the month, the variations from month to month of the percentage of cured cheese from a given quantity of milk (this is occasioned in part from the quality of the milk, and perhaps for want of proper knowledge in the manufactacture) my experience proves to me that a more perfect knowledge is yet to be attained.

"The cheese from this establishment was sold at different times and prices, from 11.50 dollars to 13 dollars per 100.

		Dols.	c.
The gross receipts of said 98,474 lb. of cheese was		10,395	89
Expense Account.	Dols. c.		
Manufacturing 98,474 lb. at 1c.	984 74		
Sacking for same	189 64		
Anatto used	11 00		
Rennets used, 350	31 25		
Salt used	33 00		
Transportation to points of delivery ..	231 48		
Boxing same	224 12		
		1,705	23
Nett proceeds		8,690	66

"*Process of Manufacturing.*—The milk is received morning and evening; the evening milk is strained into the vats, with a current of water passing through the wooden or inner vat, agitating the milk until it is about 65° or 70° of heat; it is then left until morning; the morning's milk is then added and steam is then applied and brought to 80°; rennet is then added sufficient to curdle fit to cut in from 45 minutes to one hour; it is then cut with a steel knife, allowed to stand about 10 minutes, then cut again; the whey is now separating from the curd, and I commence to move or break carefully with the hands or wires prepared for that purpose, easing the heat to 86° or 88°; a portion of the whey is then drawn off, the heat raised to 98° or 100°, as judgment may direct, cutting and working the curd fine until sufficiently cured so that it will not pack; it is then covered with cloth until the whey sours; it is then dipped into the sink or draining vat and salted, 3 lb. to 100 of curd; it is then put into the hoops and pressed three or four hours; turned and bandaged, when it is again pressed for 20 hours; it is then taken from the hoop, dressed and put into the curing room; turned each day and oiled when the surface becomes too dry."

We add, in a tabular form, a resumé of reports of some of the factories whose statistics are given in this volume.

No.	Average number of Cows.	Total lbs. of Milk.	Total lbs. of dry Cheese.	Lbs. of Milk per lb. of Cheese.
	No.	lbs.	lbs.	
1	640	2,406,294	242,588	9.91
3	550	2,122,835	207,313	10 24
5	290	982,331	98,474	9 97
7	307	830,493	78,644	10.56
8	300	955,915	101,694	9.4
9	330	976,378	95,959	10 17
11	435	1,538,204	156,911	9 75
12	416	1,608,811	157,976	10.12
13	180	647,560	66,141	9.79
14	530	1,760,845	174,353	9.81
15	180	636,077	64,862	9.8
16	428	1,410,880	144,502	9 77
19	600	2,010,378	201,686	9.95
21	250	902,524	90,853	9.93
22	700	1,826,050	181,643	10.5
	6136	20,615,525	2,080,599	9.98

The average produce per cow in this Table is 3358 lbs., or only 336 gallons per annum. This is a much smaller yield than we have in English experience per cow; but it is, we presume, unfair to suppose that the quantity of milk named is the whole produce of the number of cows named. For the number of cows stated is that of the several herds whose milk was received at the factory; and how much if any may have been used in other ways at home is not stated. In the Frocester Court Dairy of 80 to 100 cows, Gloucestershire, the yield of milk per cow has varied from 507 to 631 gallons per cow per annum.

Home Correspondence.

Agricultural Education Essential to Agricultural Improvements.—I have read over the statements in reference to agricultural education that appeared in the *Agricultural Gazette* of last week, with great interest. The English farmer occupies a very different position now, relative to those he has to deal with both at the market and also in the field, to what he did a few years ago. To occupy the position that his calling entitles him to, his education must keep pace with that of others that he may have to do with; and indeed, when looking into the future agricultural improvements that will shortly take place throughout the country, it is necessary that there should be a corresponding importance attached to the further enlightenment of the class of men who have to set in motion these several and important improvements. The first and most important object with every farmer should be to increase the produce of the soil he occupies, and also to preserve the produce of his farm from injury, by being for too long a time exposed to the weather in our uncertain climate. Then, to effect these desirable objects, and at the same time to diminish the labour expenses, there must be a greater amount of activity and despatch in the performance of the different operations on the farm; and to effect this, the power must be nearer to the objects it has to operate upon. The arable land should be together, and as near as possible to the farmstead, with a good road passing through it. The steam-power should be hired to perform the heavy portion of the cultivation of the soil, and also to thresh and prepare the produce both for the market and also for the stack. Then, again, the pasture land intended for mowing should also be open and free from high hedges, and as near as possible to the farm, drained and levelled that the mowing machine may work to the best advantage; the off-lying portion of the land should be in permanent pasture for grazing purposes. Had the agricultural mind been more directed to these important matters years ago, the present farming improvements in this country would be in a more advanced and satisfactory state than they now are. *B. Ransley, Perrysfield Farm, Oxted, Surrey, May 27.*

Societies.

Royal Agricultural of Ireland: *May* 25.—At the Monthly Meeting of the Council a communication was received from Lord Donoughmore, intimating his willingness to accept the office of President of the Society for the ensuing year.

It was moved that a Committee be appointed to ascertain whether or not it would be advisable to hold a Show in Dublin next year, and report thereon to the next meeting of Council.

A letter was received from the Secretary of the Tipperary Farming Society, relative to a distemper at present raging among swine in that county.

The Chairman said it was the legitimate business of the Council to attend to such matters as that.

Lord De Vesci said the cases must be numerous and bad when the Secretary of the Farming Society called their attention to them. In a case of this kind no time should be lost; for they did not know the moment an epidemic of this kind might spread over the country. He would propose that Mr. Ferguson should endeavour to find cases in Dublin, but if he did not within say three days, then Captain Thornhill should communicate with the Secretary of the Tipperary Farming Society, requesting him to have cases for Mr. Ferguson's observation, and, on getting that, he should at once go down to Tipperary.

The resolution was then formally put and carried.

Implements at Exhibitions.—Sir Percy Nugent moved "that no agricultural or other implement or machine, having obtained a prize from this Society, can, without material alteration or improvement, compete again at the shows of this Society for a similar prize." He was always of the same opinion with regard to standard cows and standard bulls exhibited at the Shows of the Society. Once they obtained a prize, that was sufficient for their purpose. In the same way with regard to agricultural implements, no more money should be thrown away on them except some visible improvement should take place in their formation. He therefore moved that the Council should take the matter into its serious consideration, and, no matter what was the result, he believed that opening a discussion on the subject, and ventilating the entire thing, would have the effect of preventing persons sending in the same machine for competition year after year.

Lord Clonbrock said he had come to a very different conclusion from that arrived at by Sir Percy Nugent, and, although it was a question of common sense, he was inclined to think the common sense was the other way. If they gave a prize for any implement, their object, he believed, was to procure the best they could get. Now, he did not see how they could refrain from giving a prize for the best implement that came before them the next time if it was the best that was exhibited in the yard. Suppose a man produced the best implement in one of their shows, and that they gave him a prize, were they to strike him out of the list and scratch him next year, although the others exhibited might be inferior? Why, if they did that, they might go on and give a prize year after year for a worse implement, so that at last they would be obliged to say that they were all so bad they could not give a prize at all. It appeared to him to be common sense to give a prize to the best machine. If they adopted such a resolution as that, they would at last be giving prizes to what were confessedly the worst, so that the best machine makers would not come near them. It would, therefore, be a very dangerous abstract principle to affirm, and would be prejudicial to the Society to carry out.

Lord Crofton said he fully agreed with what had fallen from Lord Clonbrock. He thought the champion who held the belt had a right to retain it until he was beaten.

Lord Clonbrock conceived that it would be an absurdity to give a prize to an implement when it was well known that there was a better one in existence. They would be giving prizes to confessedly inferior implements, when every person in the world knew there was a better one in existence.

Labourers' Dwellings.

Captain Vesey brought up the report from the committee on labourers' dwellings, from which it appears that after inspection of cottages in Leinster and Connaught, the Gold Medals were awarded to Lord Digby and Lord Clancarty.

Half-yearly Meeting of the Society.

The half-yearly meeting of the Society was held immediately after the business of the Council had been disposed of.

Captain Thornhill, Secretary, read the report, which referred to the approaching cattle show at Clonmel, on the 16th, 17th, and 18th August, as calculated to be of much service in that locality. It also expressed concern that the competition for the challenge cups and gold medals offered for the improvement of labourers' dwellings and farm buildings has not been more general.

The Professor of Chemistry, Dr. Apjohn, reported that 61 analyses were made for members of the Society; 2[illegible] were superphosphates, 11 guanos, 6 oil-cakes, and 1[illegible] others. The superphosphates were, with a single exception, of excellent quality, as is evidenced by the fact of the mean amount of phosphate of lime used in the manufacture of 100 parts by weight of superphosphate being 38.2, the portion of this rendered soluble being 23.8, and the resulting bi-phosphate amounting to 15.3.

Of the 11 guanos only 4 were Peruvian, and of these three were damaged by contact with water. The remaining 7 were phosphatic guanos, containing but traces of ammonia.

Amongst the six oil-cakes there was one from Palm Nut, and a second from Cotton seed. The former contained a very large amount of oil (25.45), but a small quantity of the nitrogenised or flesh-forming components. The latter, on the contrary, included the normal amount of flesh-producing materials, but was deficient in oil, of which it contained but 3.4 per cent.

It appears that the annual income of the Society has been 2164*l.*, of which 424*l.* has been spent on Local Societies, 805*l.* on the Sligo Show, and 628*l.* on the establishment.

Farmers' Clubs.

Framlingham: *Agricultural Machinery.*—At the last meeting of this Club, Mr. Alderman Mechi introduced the subject of Agricultural Machinery as an Auxiliary to Deficient Manual Labour.

The President, in introducing Mr. Mechi, said: If they wished to know what Mr. Mechi had done he would refer them to his writings, and if they wished to see what he had done, let them go to Tiptree Hall, and remember that that was when he took it the barest and bleakest spot in the county of Essex. Mr. Mechi had not only benefited agriculture in the ways he had mentioned, but he was always ready to render his assistance at meetings of this kind—he was ever ready to lend himself to the instruction of agriculturists, and had never refused his co-operation when asked, and it was to this trait in his character that they were indebted for his presence that evening.

Mr. Mechi said: Had not your able and intelligent President assured me that the subject for this evening was pre-arranged and could not be altered, I should certainly have chosen some other, for really it seems to me to be a bad compliment to Suffolk to doubt that her farmers are not fully alive to the value and economy of the use of machinery. I was led to this conclusion when I considered that Suffolk is almost the cradle of agricultural machine-making, and that the Garretts, Ransomes, Smyths, and other Suffolk firms, have a world-wide and deserved celebrity for their excellent and useful agricultural implements. I can hardly think that in such a case "a prophet hath honour except in his own country." Possibly, however, there may be a few who still doubt, and therefore I will endeavour to convince them by illustration, or analogous reasoning, that machinery, especially steam-worked machinery, is an economic substitute for human labour. In order to appreciate fully the importance of steam as a motive power, we have only to pre-suppose its absence, which would return us to a state of isolation and comparative barbarism. I do not intend, on this occasion, to detail the various implements of agriculture, because they are so well known to you in this county, although in Scotland the use of the drill is not general—for there is still much broad-casting there—and in many other

parts of the United Kingdom the introduction of improved implements would tend to ameliorate cultivation and increase profit. Our great pumping engines (whose work in Cornwall is registered monthly) show that 112 lbs. of coal, worth one shilling, will raise 100 millions of pounds of water one foot high. And the engineers recently examined before the House of Commons' Committee on Sewage, said that by steam power 1000 tons of sewage could be raised 300 feet high for 13*s.* to 14*s.* But if farmers are to provide themselves with delicate and expensive machines, such as steam engines, drills, reapers, threshing machines, hay-making machines, and many others, surely it is the duty, as it must be the interest, of landlords to provide suitable buildings to receive and protect them from the destructive influence of weather. In this respect, as well as regards protection for live stock, I must say that there is immense scope and necessity for amendment. I do not mean that landlords should incur this extra expense without a fair interest on their capital invested, but first-rate farming cannot be properly carried out except by the concurrence of landlord and tenant. Too many of our farmers, even in this county, remain in a primitive and unsatisfactory condition, and do not harmonise with the progression visible in some other districts that I could name. But where is the money to come from? some would say. Money is overflowingly abundant in this country, and can always be had on good security. We seem always to have a large surplus to lend to foreigners to enable them to compete with us in corn growing and manufactures. Why not use it at home? According to Mr. Bailey Denton, one of our best authorities on drainage as well as on farm buildings, we have 20 millions of acres still requiring drainage, at a cost of 5*l.* per acre. Here is employment then for 100,000,000*l.* sterling! Who, then, would venture to deny that this would pay the country infinitely better than any foreign loan. The losses to agriculture arising from the non-use of proper implements are enormous. Many a thousand tons of hay are injured or spoiled for want of the cutter, shaker, and horse-rake. The same may be said of corn and live stock—in fact it would fill many pages to detail the losses arising from the want of proper machinery. A conviction is growing that food for live stock should be duly prepared. It is surely hardly necessary any longer to argue the question of the superiority and economy of machine work as compared with human labour.

Economy of Steam Power.—The mind is overwhelmed when it attempts to grasp the subject of all-powerful Steam in all its multifarious bearings—that mighty monster, compared with whose power the whale or the elephant are but as straws in the wind, and yet so docile and obedient to the hand and guidance of man that it crushes masses of metal or twists the slender fibre at his will and pleasure. The very earth trembles at the approach of the ponderous train as it almost flies o'er the land, and the towering waves of the Atlantic offer in vain their resistance to its overpowering will. Man alone can control it. Steam will, in fact, convert man into a giant of immeasurable strength if he will but be so converted. I have long ago laid down as an agricultural maxim, "never to use a man when you can get a horse, and never to use a horse when steam can be made available." The reasons are obvious—a labourer costs on an average of the year 12*s.* to 13*s.* a week, a horse something less, and yet the latter has eight or more times the power of a man. A man weighs 1½ cwt., a horse 12 to 15 cwt. But mighty steam dwarfs the horse and costs very much less. It never tires if fed with coals and water, and, unlike the horse, does not require food when not in work; it does not catch cold; there is no dying from gripes or inflammation; both in first cost and durability it also compares favourably with horse-power. Having used one for 16 years, I have long since come to the conclusion that, even for so small a farm as one of 150 arable acres, a small steam engine is a necessity. This I know will be doubted by some of my hearers, but remember that I am speaking of intensified farming, where a large quantity of meat is made, and where, in consequence, the crops are abundant and the profits satisfactory. There is nothing now alarming in the cost of an engine. I have seen small two-horse powers costing only 40*l.* or 50*l.*, and requiring little space or cost of fixing. My own is of six horse power, and with it I often thresh 70 quarters of long-strawed Wheat in a day, or a proportionate quantity of Oats or Barley. It has ground as much as 3000 sacks of Barley for my pigs in a year. It hoists all the sacks, cuts the straw and hay of the farm into chaff, pulps and cuts roots, breaks Rape-cake for other cakes, crushes Oats, and works a pair of irrigating pumps that will throw 100 gallons of water per minute—of course it pumps water for all the stock. The cost of the engine and boiler 16 years ago was 150*l.*, and they are now in very useful order. It has certainly done the work of 20 horses, whose first cost would have been at least 700*l.*, and which would have been long since worn out. Work can certainly be done 50 per cent. cheaper by steam. The use of neat little vertical engines is now getting well understood. We see them applied to contractors' works, to use as travelling cranes, pile drivers, pumping, and various other purposes. They abound on the Thames Embankment works, and were in constant use on the Great Metropolitan Sewers. The American farmers are great users of machinery—both horse-power and steam—but particularly the former, because horse feed is cheap and abundant, and horses low-priced, while man commands high wages and soon ceases to be a hired labourer; and steam machinery is dear. In the United States of America, before the war, the average wages of an agricultural labourer were never less than 4*s.* 2*d.* per day, and oftentimes with rations. It is a singular fact that, while in this country straw has been mainly used as litter, in all the eastern countries it is used as food, and while we use threshing machines that will not break the straw, in Spain they insist on having a machine that will so crush and bruise the straw as to render it as soft and available for food as it is when trodden by their cattle in their primitive process of threshing or rather treading out the corn by hoof. As they do not steam their straw, they wish to have it softened by machinery. Acting upon this requirement, I hear that our friends at Leiston are making a straw pulper that will prepare the straw in its dry state ready for consumption. So far as I can judge from an inspection of it to-day, it will answer the purpose admirably. I produce some of the straw pulped and unpulped. I cannot forget that once upon a time I used to be laughed at very much for recommending straw to be used as food rather than wasted as litter. I am glad to find that my friends have changed their opinions. The straw I produce smells like hay, and it is evident that the pulping brings out this quality. The superiority of steam-worked machinery as compared with manual labour is well illustrated in our great London breweries. Take for instance that of our friends, the Garretts; there the whole process goes on comparatively independent without human aid. The water (I beg the brewers' pardon, I should call it liquor), the malt and Hops all find their way to the grinding mill, coppers, hoppers, mash tubs, fermenting vats, and casks by machinery; the mashing is done by machinery: the skimming off the yeast is self-acting, powerful presses extract the beer from the yeast, and thus prepare it for the baker. Self-acting Jacob's-ladders and screws transfer the malt and Hops from place to place as if by magic. Steam instantly cleanses and sweetens the casks. Surely the farmer who supplies all the ingredients for this mighty consumption will take a hint and apply similar means to economise labour, and so cheapen production and increase profit. Before I allude to the appliance of steam power to cultivation I must pay a tribute of respect to the pioneer in this great work—I mean the late John Fowler, whose untimely end sorrowed the minds of his numerous friends and admirers. I am glad to find that Suffolk is taking an active part in the manufacture of improved steam cultivators. Although I have caused the death of many a crooked fence and old worthless pollard, the steam cultivator will make even a much greater clearance and will rectify many of our crooked agricultural ways. The greatest obstacle to the application of steam power to agriculture is our crooked roads and small fields—before we can apply it we must have our roads straight and our fields large and not over encumbered with timber. I could speak for an hour on the enormous loss which occurs to agriculture generally, to the occupiers directly, and afterwards to the landlords, from the want of having the farm buildings in the proper positions and the fields of the proper size and shape. I know what is going on in the way of steam cultivation in different parts of the country, and I know that men who have large heavy-land farms who found great difficulty, formerly, in making both ends meet satisfactorily, have, by the use of large and powerful engines, so altered their position that from men of very moderate means they have become in very easy circumstances; but then they say, "We must have our fields at least 400 yards long and be able to do a larger amount of work, and we must have our roads in a better condition than formerly." For the hard work of breaking up land, it would be absurd to "pit" horses against steam. Deeper and cleaner cultivation and more profit result from the use of steam in cultivation. I don't know of any more important and profitable implement than Garrett's horse-hoe. I have used one for 20 years, and it is still perfect. My man, by getting up early and working late, with two pairs of horses, has sometimes clean horse-hoed 22 acres of Wheat in one day. Compare the cost and effectiveness of this with hand labour! The merely increased depth of cultivation, as compared with the hand hoe, is very advantageous, for weeds appear much sooner after the latter; besides, one does one's work at the critical and required time. I wonder that any farmer can do without it. I cannot. Farmers who do not use iron harrows make a great mistake. They are much more effective and economical, especially on heavy lands, than the wood harrows. I must, in truth, say, that looking through the country at a certain time of year, there is weedy and ample evidence of very imperfect cultivation, and a want of proper machines or implements.

Mr. Mechi concluded his valuable lecture as follows:

I could go on for an hour or two, illustrating the short-comings of British agriculture in a great variety of ways; but as it is all down in my book, and as one subject at a time is best for discussion, I will conclude with expressing my belief that we are, as yet, only on the threshold of agricultural perfection; that in days to come we shall greatly intensify our farming. That immense sums of money will find their way to agriculture for the purposes of improvement; but then, ere this can take place, our landowners, and farmers too, must give up a good many of their old prejudices and affections. Farming must be treated as a business, and set more free from the political or party shackles that now confine and cramp it. Long leases to good men will attract and encourage the investment of capital. More enlightened views will be engendered by the establishment of cheaper and improved education. In this respect all honour is due to your county for the raising of that admirable and elegant structure, the Middle-class College, that now graces the locality in which I read this paper. I know how many good and sagacious men have devoted their time and their money to this noble institution, which will remain a proud and graceful monument to their memories. Agricultural ignorance is not bliss, and I foresee that the power of ready inter-communication and observation, afforded by cheap railway conveyance, by our improved periodical agricultural literature, which now contains a record of the sayings and doings of men forward in agriculture, by ready access to a good library of scientific, mechanical, and practical agricultural books, and more especially by giving to our labourers the power of being able to read and write, which many of them have not at present,—I say that with all these good things in perspective we may safely look forward to a vast improvement in our national agriculture, highly conducive to the requirements of the British stomach and to the strength and welfare of this great nation.

Mr. S. G. Stearn said he would rather not say anything, as if he did he should not agree with Mr. Mechi. He had always stuck up for Mr. Mechi, and it was abominable to ask him for his balance-sheet, for everybody knew which way it must be; but he believed Mr. Mechi had done more than any other man for the farmers as far as dousing the old Pollard trees and enlarging the fields went, but then he was situated perhaps better than anyone else: he had the money to go to to carry out his experiments, and if any one of them turned out a failure he did not say much about it, but if there was one that answered a little there was a great row made about it.

After further discussion, in which many members joined, Mr. Mechi said: he did not expect everybody to believe that he made a profit of farming, but he could tell them honestly he had done so for several years, and he considered that farming was perfectly unworthy of being quoted as an example unless it was profitable. Mr. Stearn had said that he had gone back; but when he told him that in the year before last, which was the year to which Mr. Stearn alluded, he had 50 acres of Wheat which produced six quarters two bushels per acre, and that his other corn crops were equally good—in fact, that they amounted to 640 quarters on 100 acres, and that he had abundance of roots and hay and everything else on his 170 acres of land, they would, he thought, say that did not look like unprofitable farming. He could not afford to grow a small crop or to make a small quantity of meat—he must make a large quantity of meat and manure, and economise labour by the use of machinery, so that he did everything in the cheapest manner. He did not believe he paid his labourers more than the most economical man they could find—he thought it his duty to go to work in the most economical manner, and he always calculated that he must pay himself the improved rent of 40*s.* an acre. The fact was, they must go in for a large crop upon a small space of land, and that could not be done without deep and clean cultivation, proper drainage, and manuring by feeding stock—not letting them run all over the fields, but keeping them properly sheltered, and they might be sure that the old-fashioned system of leaving things to themselves would not answer under the present system of farming. He loved agriculture, and looked upon it as the beginning of all things good and necessary, and having that impression on his mind he was always willing to do all he could to promote its welfare; and they should recollect that whilst they attached great importance to clothing the body, if they gave a fortnight's holiday to the stomach, they would not be troubled to attend any more agricultural meetings and would want no more clothing.—*Abridged from Suffolk Chronicle.*

Reviews.

Catalogue of Samuelson & Co.'s Patent Reaping and Mowing Machines.

This is a trade publication or advertisement, which we notice for the purpose of an extract on the saving of time and labour by reaping by machinery. And, no doubt, although it relates especially to Mr. Samuelson's machines, yet it is to a great extent true of reaping machinery in general:—

"In order properly to exhibit the economy of mechanical harvesting, as compared with hand labour, Messrs. Samuelson & Co. sent a request to each of their customers, on the conclusion of last harvest, begging to be favoured by a statement from each of the actual gain in money and time effected by their machines. A very large number of replies were kindly returned, the whole of which have been carefully abstracted, with the following average result:—

Average actual saving in wages effected by machine—In Reaping, 4*s.* per acre.

Average actual saving in wages effected by machine—In Mowing, 1*s.* 9*d.*

Average actual saving in time effected by machine, 40 per cent.

These figures represent the actual experiences of a large number of practical agriculturists, who have kept an account of their harvest expenses for the purpose of comparing them with the cost of hand labour. But no statement of the saving on wages alone is a fair measure of the economy of machine harvesting. Our correspondents are unanimous in the opinion that there is also a large saving in grain, though this is very variously stated, it being difficult to estimate the exact amount with accuracy. In mowing, however, there seems to be a very general opinion that an extra yield of from 3 to 5 cwt. of hay per acre is gained by the use of the machine.

"With these data to guide us, we take the case of a farmer who cuts, say 100 acres of grain, and say 30 acres of artificial Grass. . . . . The average price at which this work would be let to harvest hands would probably be about 11*s.* per acre for grain, and 3*s.* 6*d.* per acre for Clover—the former tied and stooked, the latter mown. This price is supposed to include beer in those cases where it forms part of the harvest wages.

Cost of Work by Hand-labour.	£	s.	d.
100 acres grain at 11*s.*	55	0	0
30 acres Grass at 3*s.* 6*d.*	5	5	0
	£60	5	0

Cost of Work by Machine, taking the saving in wages at 4*s.* and 1*s.* 9*d* per acre.	£	s.	d.
100 acres grain at 7*s.*	35	0	0
30 .. Grass at 1*s.* 9*d.*	2	12	6
Add for repairs, 10 per cent.	1	13	6
	£39	6	0

The gross saving on the 130 acres would be 20*l.* 19*s.*, or 35 per cent. . . . . Messrs. Samuelson & Co. would again draw attention to the fact that these are not imaginary estimates, but are based on the actual average results obtained by a large number of persons, and under every variety of circumstances, during the past harvest."

Farm Memoranda.

Blennerhasset, near Carlisle, a Food Manufactory.—Blennerhasset is the ancient name of the farm. Perhaps it may be well to state here why we have called it a "Food Manufactory." The various processes conducted upon it are carried on as differently from the old style of farm as it is possible to conceive, and the end of all appears to be to manufacture a given quantity of manure—assisted by the atmosphere and rain—into a certain quantity of food. Towards this end steam has been adopted, in order to put the earth into the fittest state for what it is expected to do—act as the vehicle for this production. We are first taken into a 40-acre field to see the Cyclops at work. Here is one of Fowler's portable steam engines, of 12-horse power, driving a grubber, or cultivator, or scarifier, and doing its work most effectually, though there are some stiffish hills in the field. After the scarifier or grubber—which Mr. Lawson prefers to the plough—has gone through it, the soil is left in a very open state, and in fine condition for future operations. As the enormous machine travels across from side to side in obedience to the wire rope, guided from behind by a boy, it looks as if it were gifted with life, though it is difficult to imagine anything with life forcing itself through the soil with the tremendous power that it goes along with.

We proceed to a larger field, if we may so term it, for

it contains 180 acres. In this Mr. Lawson has had plenty of room to carry out his system. The steam-grubber has been over every part of it, and some of the soil is as finely prepared as if for a garden. The quantity of large stones which were taken out of it was really enormous, and alone cost a nice little sum in the operations of taking out and removing. These stones have been utilised as much as possible, and have entered largely into the construction of a road which Mr. Lawson has constructed through the land. The 180 acres are laid out in a somewhat novel fashion. At first sight it is difficult to make out whether it is intended for a grain crop, or for a market garden, perhaps we are most correct if we say for both, as there seems to be almost every crop except Grass, and indeed there is that in the piece of ground set aside for the orchard. Fifty acres of Turnips, 40 acres of Potatos, 10 acres of Flax, 12 acres of Cabbages, and many acres of fruit trees, Peas, Beans, Gooseberry, Black Currant, Raspberry, Damson trees, Lettuce, and the usual cereals. All look very healthy and promising, some of the Flax particularly so, though we doubt if a great portion of this crop has been put on properly prepared land. Passing through what will, when the trees get up, be the orchard, we come to the farm buildings and farm house. The buildings are all new.

There are no stacks, but one of the best Dutch barns we have seen in this neighbourhood. The shed for cattle, horses, young stock, and pigs is an extensive affair, and covers a large space, though Mr. Lawson already finds it too small for his large number of horses and stock. The interior is divided into avenues, along which are the stalls for the cattle, horses, &c. The floors on which the cattle are placed are raised from the ground, with a hollow space between, so that the asphalte floor can be flushed with water, and cleansed by means of an arrangement of pipes which run along the building, in a few minutes. All these washings are carried off by underground drains into the liquid manure tanks. Metal troughs for food and water run along the fronts of the stalls. Water pipes and taps placed above these will supply the whole of the animals with water in a few minutes. There is room to tie up about 80 beasts. The large quantity of food required by the cattle and their bedding is distributed throughout the building by means of a railroad, along which small waggons run, performing the work in a very expeditious manner. At one side of the shed is the stable, and we were fortunate enough to see the horses in it during their mid-day feed and rest. A better stable of powerful, well-conditioned horses for farm work we have seldom seen. Adjoining this is the house for the steam machinery, the plough, the grubber, the porters, the anchor, &c., and here is quite a storehouse of wheels, shares, and other metal ware, the breakage of which go to swell the "incidental expenses" of steam cultivation.

We proceed to where the power is got which moves all the machinery about the farm buildings, and which is to force the liquid manure on to the land. It is obtained by water, and for this purpose a cutting has been made from the river Ellen, to which a deep underground channel takes the water from the turbine wheel, fixed about 30 feet below the surface of the earth. All is covered in, and a shaft comes up through the ground, putting in motion cogged wheels, other shafts, fly wheels, more cogged wheels, more shafts, drums, bands, cranks, pistons, valves, connecting rods, more drums and bands, until it will—when the whole is completed—pump the water into a large cistern, elevated on a tower which rises above the other buildings, saw the wood if need be, pulp the Turnips, crush the Oats, chop the straw, hay and Grass, thresh the corn, slice the Mangel and Potatos, distribute the liquid manure over the farm, and do other work which an engine with a well-regulated mind, and properly attended to, ought to perform. It didn't need a cicerone to inform us where the two enormous tanks for the liquid manure were situated, owing to the "compound of villanous smells" which greeted us. The arrangements for the distribution of this valuable liquid over the soil are very extensive and complete. Enormous quantities of 6-inch and 8-inch iron piping have been laid down in various parts of the land, radiating from the powerful liquid manure pump now in course of erection by Messrs. Haughton and Thompson, of Carlisle, who fitted up the gas-works, and most other parts of the machinery of the farm buildings, apparently in a most substantial manner. Plugs will be placed at various distances, into which lengths of gutta percha hose will be fixed, and the liquid manure thus be distributed over every part of the land requiring it in a short time. Close to these tanks are the gasworks for supplying the farm-house and farm-buildings, for the Shorthorns here "chew the cud" by the light of coal-gas. All the buildings are well lighted, and all along the cattle stalls and stables there are suspended a large number of gas-pendants. We now look into the granary, which we hope may, large as it is, be found too small for the bountiful crops to result from the spirit and expenditure of its owner.

The dairy next claims our attention, and here we see part of the produce of the Shorthorns we have before looked at. Although they are not giving as much milk as usual, the quantity "set up" looks something enormous. We counted 114 bowls, all filled, and which was the produce of three milkings. Here, as at the other places, all the approved contrivances have been put into use. Most of the milk is made into butter, which Mr. Lawson finds to be the most convenient, as well as the most profitable. Handcock's butter press of the largest size is used. A large room in the upper storey of this part of the building is being fitted up as a laboratory for Mr. Lawson's use. It is large and well lighted, and would answer for lectures, for which indeed we believe he intends to devote it occasionally during the winter season. After another look around the buildings, we now go to another department of Mr. Lawson's operations. On such extensive farms as Brayton and Blennerhasset a large quantity of manure is of course wanted, much of which is bones. In order that he may be certain as to the composition of his bone manures, Mr. Lawson has fitted up a mill to crush, grind, and prepare them himself. He also intends to supply them to other farmers who may need.

Four years ago, Mr. Lawson had not the slightest idea of being a farmer, and it was only after visiting Tiptree Hall, and seeing Mr. Mechi's operations, that he decided upon going into farming on the scale he is doing. He has visited some of the best farming districts in England, and is now making use of the knowledge thus acquired. And now the end and aim of all this. Mr. Lawson, in addition to being an enthusiastic farmer, is also an equally enthusiastic admirer of Co-operation, so is investing all this large amount of capital, making all these extensive alterations, and devoting all his time and attention with the view of putting the principle of Co-operation into force. He has a strong conviction that labour ought to share in the profits of capital, and believes that the best plan of enlisting the co-operation of those employed on the farm is to make them partners. How far he may be right or wrong we cannot say, but we believe the men do not yet seem to be alive to the probable advantages. Probably the lapse of a few years may effect a change. The kind-hearted and single-minded owner of Blennerhassett intends to continue his labours in that direction, and hopes to see his pet project adopted, actuated, as he evidently is, by entirely philanthropic motives. *Abridged from the Wigton Advertiser.*

Miscellaneous.

The Glasnevin Combined Implement for Small Farmers.—This implement, for which the judges awarded a Silver Medal at the Dublin Agricultural Society's show to Mr. Bentall, was brought out at the suggestion of Mr. Baldwin, of Glasnevin. The following description of it is from a communication by Mr. Baldwin in the last published report of the Commissioners of National Education:—There are, however, great difficulties in bringing out an implement that will act as a good plough and a good grubber. As a general rule, a combined implement will not give as much satisfaction at the several works for which it is used as the separate implement. I do not recommend a combined implement of this kind to the large farmer, believing it is far better for him to buy the best plough and the best grubber. But the circumstances of a vast number of Irish small farmers are very peculiar. We have in Ireland upwards of 400,000 farmers, not one of whom holds above 30 acres. The great majority of these do not use a grubber at all. No one can, therefore, doubt the great advantages which a successful combined implement would present to this class of farmers. When Mr. Waldron wrote to me on this subject, it occurred to me at once that of all the implements then in use the one which could be most cheaply adapted to his views was one of Bentall's, Heybridge, Maldon, Essex, which I had frequently seen in England. And accordingly Mr. Bentall was the first—or one of the first—English manufacturers to whom I applied, and I must say he has evinced the greatest desire to meet my views, and adapt his implement to the wants of the small farmers of this country. The combined implement to which I am directing attention has a long beam of wrought iron, a section of which is like a T inverted (⊥). This principle, it is well known, gives great strength, combined with lightness. To the beam are attached two short wooden handles. The shortness of the handles would at first appear to be an objection to the implement, as the ploughman has not the command over it which long handles give him; but there is a wheel in front which enables a ploughman of no great skill to work the implement. The beam and handles are common to all the uses to which this implement is applied. Without the wheel they weigh 4 st. 8 lb. The wheel weighs 18 lb. The implement is converted into a common plough by attaching (by means of six bolts) to the under side of the beam a plough-body (which carries share, mould-board, side-plate, sole-plate, &c., in one piece, capable of being attached or detached at pleasure), and by attaching a coulter to the beam. The weight of these parts being 6 st. 9 lb., the entire weight of the implement mounted as a common plough is 12½ st. The implement is converted into a ridging, or, as we call it, a double mould-board plough, by taking off the coulter and common plough body, and substituting for the latter a ridging body. In this state it weighs 12 stones, and is capable of forming and splitting drills very well at a small expenditure of power. The mould-boards are bolted together at the front, and can be widened out or drawn close, according to the width of drill wanted. By removing the mould-boards and sole-shoe, or "ground," and fitting on two [illegible] either side, and at right angles to the beam, [illegible] attaching a hoeing tine to each of these [illegible] implement is converted into a one-row [illegible] horse-hoe. A small harrow can also be attached [illegible] the hoes at a cost of 9s. extra. By substituting [illegible] vating tines for the hoeing tines the implement [illegible] verted into a small grubber, and a very [illegible] implement this makes. It can also be fitted [illegible] five-tined grubber; but for many Irish farms [illegible] three-tined implement is large enough. The [illegible] is also fitted up as a Potato raiser, by removing [illegible] side tines and putting a brander on the [illegible] Since this was written, Mr. Bentall has given me [illegible] prices of the parts of the combined implement.

He begins with the single ridge [illegible] the price is	[illegible]
To convert it into a double mould-board [illegible] the cost is	[illegible]
To convert it into a three-tined cultivator grubber, the cost is	[illegible]
To convert it into a common plough ..	[illegible]
To convert it into a Potato raiser	[illegible]
Total cost of five implements ..	[illegible]

Proposed Testimonial to Mr. Alderman Mechi.—It is currently reported that the farmers of [illegible] are contemplating the presentation of a testimonial to Alderman Mechi, in token of their appreciation of his eminent services to agriculture. We sincerely [illegible] that the report is well founded, and that the [illegible] farmers will hold to their purpose as pertinaciously as the roots of Wheat and Beans hold to the [illegible] of their fast progressing county. Mr. Mechi's career has been as transparent as glass; the world has had his thoughts and experiences, his inquiries and conclusions, his successes and mistakes, all plainly told, and it may fairly be supposed that there remains nothing to be said respecting his personal history; so far at least as the world has any right to be inquisitive or curious. The story of his perseverance and his success in trade are no less instructive and encouraging to youth than his experiments in farming are instructive and encouraging to farmers and amateurs. If it should be said—as it cannot be said—that he has contributed nothing to the stock of useful agricultural knowledge, it will nevertheless still be true that he has done more to rouse a spirit of inquiry, to quicken discussion, and give a wholesome direction to the speculations and labours of farmers than any man living. He has fought a fierce battle against a host of prejudices and conquered; he has improved the [illegible] cropping, and enlarged the sphere of profitable [illegible] by his able advocacy of the employment of [illegible] manure, and the adoption of stock-feeding in place of corn growing. Let the value of his labours be what may, no one can question the sincerity with which they have been performed, or the sober, far-seeing philosophical patriotism by which he has been animated from first to last, in every stage of his public career, in every act of his public and agricultural life. We cannot wonder, therefore, that the farmers of [illegible] are thinking of making Mr. Mechi a gift of something useful and appropriate to his position amongst them as a scientific farmer. If we are correctly informed, their intention is to buy up the freehold of Tiptree Hall Farm, and present the property to the worthy Alderman, that for the rest of his days he may be his own landlord on the spot which his writings have long since made classic ground. We trust the movement may grow, and that speedily; that the farmers of [illegible] England will lend their hands, their heads, and their hearts to it; and that among the citizens of London, who are supposed to know something of Mr. Mechi, [illegible] may have such support as will suffice to prove that the citizens appreciate personal worth and service, even when it is removed beyond the walls of the City, and has for its principal sphere of operations the [illegible] place of the civic. *City Press.*

Calendar of Operations.

JUNE.—*Turnip cultivation* proceeds this month, indeed, in most parts of this country, this—not May—is the Turnip seed time. The process of cultivation referred to in May: the only point requiring more special attention this month than it did last, is [illegible] to keep the harrows and roller working close behind the ploughs in dry weather. Land that has borne Vetches and Rye may be sown with Turnips towards the end of the month. The order in which the different [illegible] should be sown is that of the hardiness which respectively characterizes them: 1. Swedes; 2. Hybrids; 3. [illegible] yellow Turnips; 4. Soft white Turnips. The earliest Turnips will have come into broad leaf, after which they are to be horse-hoed and singled. Three good men will single an acre of Turnips in a day. Where, however, much seed has been sown, and the plants are crowded in the rows, an acre's singling will be a [illegible] work for as many as four or even five hands: it is of the utmost importance that this operation be well and carefully performed. One horse-hoe will keep [illegible] good hoers. Its use reduces the ridge on which the row of plants is growing to a width of about four inches, raised abruptly about two inches above the general level. The action of the hand-hoe is very [illegible] alternate pushes and pulls bevel off this ridge [illegible] as to give it the true ridge form, and at the same time so as to destroy all the plants except those intended [illegible]

grass, which are left in a neatly executed row, at intervals of about 12 inches, along the ridge line, all lying one way, with half of their roots exposed. This operation is best performed by a party of women, at low wages, headed by a man who assists the laggers, and corrects the deficiencies of the unskilled. The second hoe-hoeing may be performed by the small cross plough, or by the common plough, without its mouldboard. This is taken down each side of the row, throwing the earth from it into the space between the rows, and loosening it to a considerable depth. Two ploughs may be thus employed, and as soon as each interval is thus treated, a drill harrow is to pass up each, in order to bring to the surface any root-weeds that have been cut. The Turnips will receive a second hand hoeing towards the end of next month, and they are to be hand-hoed at intervals during it.

Rape.—The preparation of the land for Rape is similar to that pursued for Turnips, with the exception that on heavy soils in dry seasons the last ploughing should be omitted a fortnight previous to the time of sowing, and the land consolidated as much as possible, retaining a fine tilth. The end of this month and beginning of July is the proper time for sowing it. Where the land is well drained, it may be sown on the flat, the rows being 13 to 14 inches apart. The best method is to drill it upon ridges, as in Turnip culture. About two pts. of seed is quite sufficient per acre.

Mangel Wurzel will require horse-hoeing this month, and the second cleaning by hand-hoe will also take place.

Carrots and *Parsnips* must be singled out early this month, to intervals of from eight inches to one foot, according to the size of the sort and to the space between the rows, which if great will give room for the plants to grow, without their requiring so much between one another, and the hoeings must be repeated through the summer.

Cabbages.—Continue transplanting into rich and tolerably-sheltered soil; if planted now or early in July, they will afford useful food for winter and spring use. The subsequent acts of cultivation they receive consist of hoeing and deep hand hoeings, so long as there is sufficient interval for the purpose between the rows.

Clover and *Grasses* may be mown this month for hay. They are laid in swathes by the scythe, at a cost of from 2s. to 3s. per acre, according to the crop: the swathes are turned over as soon as dry on the top, and next day, if the weather continue dry, they may be broken into small cocks, which on the following day are to be reversed, and towards evening may be thrown several together in larger cocks, where they may remain for a day or two, until ready to carry: they are then to be thrown over after the dew is off in the morning, and carried in the course of the day to the large rick, which should be built near the place of its consumption. Do not fear a little heating: the hay is none the worse for a little fermentation by heat. In July, when the Rye-grass seed is to be harvested, the hay should be bound up in small sheaves, after lying a day or two in the swathe, according to the state of the weather, and placed in stocks of ten or twelve sheaves each, taking care in binding the sheaves to turn the exposed and wet portions of the hay inward. In Scotland and Ireland it may be advisable to put head sheaves on the stocks to keep out rain—especially if the weather be unsettled at the time. Clovers differ from the Grasses in the very fragile and brittle nature of their leaves when dry, which will fall off and be lost, to the injury of the hay, if it receives too much tossing about in the making. If the hay cannot be well made for the weather, it may be put up in alternate layers with the remains of last year's ricks, or with Oat straw, without risk of injury by heating. In any case it is advisable to throw salt over the hay as it is being ricked, at the rate of about 10 or 12 lb. per ton. *Sainfoin* hay may be made next month in the same way.—The winter-sown Vetches will be consumed towards the end of the month: the land they grew upon may be all sown with Turnips, spring Vetches will be ready for use in the beginning of June.

Fallow.—As soon as all the Turnips are sown, the fallow land, which has been already cross-ploughed, must now be well harrowed and ploughed again.

The Orchard.—Attend to summer pruning. Examine ties occasionally, and see that the tying is not too tight, loosen it before this takes place, and tie again gently.

Fences.—The clearing away of weeds, &c., must still be attended to; all grass, weeds, &c., should, before they ripen their seeds, be cut from the hedges.

Beet, if well hand or horse hoeing towards the end of this month.

Onions will require hoeing towards the end of this month, and must then be singled out to six or eight-inch spaces. If depastured, it will be ready for stocking early in the month; and where soiling is adopted, will be ready for cutting all the summer.

Beans.—The plants in the rows may be singled out some time in this month, to about 12 inches apart; and in three or four weeks afterwards, the whole land should receive a thorough cleaning and cultivation with the horse and hand hoe.

Peas.—When the vines are weakly, and the pods few, the latter might now to be exchanged for smaller ones. About the middle of the month the superfluous vines might to be removed, and the plants pitted or earthed up 18 inches high. Whenever the lands seems likely to require it, another coating of manure should be applied; guano, short hair, fleshings, rotten dung, or indeed any manure which will rapidly decompose, is the best to put on as a summer dressing. The ground must be kept frequently moved, and free from weeds.

Tares.—Towards the end of this month the young plants, which will be showing themselves above ground, must be kept clean. And those in the second year, which will soon be flowering, must receive their last operation—light grazing.

White Mustard may be sown after Tares this or next month, for keep of sheep. Seven pounds per acre are sown broadcast; and the crop is eaten down in August and September, before flowering. Turnips are in every respect but one a better crop; they are later, and Mustard may be preferred when an early seed time is desirable for the succeeding Wheat crop.

Notices to Correspondents.

ASPHALTE. *J. L.* Take five or six bushels of broken flints, about [illegible] inch size. If five bushels, add one bushel of gravel stones, all the dust carefully sifted out; spread on a wooden board with side ledges, pour gas tar on little by little, turning over the stones with a shovel until every stone is wet with tar, but having no surplus tar. If [illegible] turned. Add one bushel sharp sand, or enough to make the mixture of the consistence of thick pudding, covering 2 inches in before. Lime may be mixed with the sand if thoroughly slaked and powdered, but not otherwise. The ground on which the mixture is to be laid should be carefully levelled; then lay on the mixture from three to six inches deep; spread a little sand over it, to prevent it sticking to the roller, and roll it down with a heavy iron roller. Where tar may come up in the process, spread a little sand to absorb it. If too much sand is used, or any not wanted by tar, a little is the consequence. It should not be used for a month, and should be rolled every day until hard. It is impenetrable, and costs at most 1s. per yard square, for being 6s. or 7s. per barrel of 12 gallons, and broken flints 1s. or 1s. per bushel.

CABBAGE. *E. F. A.* Early Yorks, sown in July and August, will be ripe in May. Then pull every fourth Cabbage and transplant. Dwarfs sown in February. They will be ready in November, and will keep till January; and if you sow in April again, you may have a crop which will be good food in January and February.

GRANO. *Peruvian*. Guano, if genuine, should not weigh more than 70 to 72 lb. per bushel. By drying and burning Peruvian guano should lose from [illegible] to [illegible] per cent. of its weight. Its ash should be white and should dissolve readily, and without effervescence, in dilute muriatic acid, leaving [illegible] which should not amount to more than 2 per cent. of the weight of the guano. Mixed with quicklime, it should give a strong ammoniacal odour.

HAY-STACKS AND GRASS. *Sub.* When haggard, i.e. not well stacked, of the heavy kind, set against the standing corn, and then gathered into a stack, it ripens more rapidly in the sheaf, and is sooner ready to carry in dry weather. The sheaf is lighter and more rapidly penetrated by the weather, whatever that may be. In the South it is common to lay the sheaves together, two or six of a side, without any head sheaves. In the North it is more common to use head sheaves—the whole stack consisting of 10 or 11 sheaves—five or six of a side, and two over all. These two are laid some to their lower ends, and the two last employed in setting up the sheaves having placed them five and six of a side, turned the ends of those two last sheaves together, and each holding his own sheaf with both hands on the outer side, the two are lifted, the outer side of each is half opened, and each is made to embrace the standing sheaves at either end of the stack. In Warwickshire they set up the sheaves twelve or thirteen of a side, and the two head sheaves are bowed together after being placed above the standing sheaves, so that the whole stack is made one piece; and when the Wheat has been bound and a tolerably large stack built, the sheaves being thrust down upon it, take firm hold of the ground, and are not easily overthrown by wind. And when they are thus tied together with head sheaves they are as impervious to the weather as it is possible to make them—drying slowly, throwing off the rain perfectly—but if ever wetted through, being very difficult to dry again.

HAYMAKING. *Constant Reader*. In your country an early crop may be mown, swathed, and put into "wind" cocks for 10s. an acre. If carried in the new instead, and built and thatched, add 1s. 6d. per acre. Shake the swathes abroad by nine A.M. the first day; turn the grass, and turn it again by four P.M.; then rake it in rows at a good swath, and put it up in small cocks for the night. Next day shake out these cocks in beds five yards wide, with intervals of three or four yards; turn and turn again in the afternoon, and rake each bed into two rows, dividing it down the middle; and put into larger cocks at night. These next morning must again be thrown into beds as before. Turn, and if necessary turn again; then rake each bed into a single row, and it will probably be ready to carry that afternoon.

HOUR OF TRIAL. *Author*. We have not seen your book.

IMPROVEMENT OF GRASS LAND. *Tenant*. If a man owns his poor, wet pasture every year, and hardly dresses it at all—and unfortunately in this we are not supposing an unusual case—he will very soon find it full of Yellow Rattle, Sedge, Hawkweeds, Purging Flax, Devil's Bit, and other weeds; Fescues, Poas and Clovers will dwindle and almost disappear. If he drains it and gives up mowing it, dresses it with farmyard dung and bone dust, if he pulls up Thistles and Docks, and the larger weeds, feeds sheep on it, folding them upon the land if necessary and fattening them with hay in winter, giving also roots and cake, he will soon have good grazing grounds and meadows full of Clovers and Grasses, Rush and Sedge, and weeds will have disappeared.

TURNIPS. *Young Farmer, Perth*. The common compost with 10 or 12 bushels of bone dust per acre will bring up Clovers; the same with one cwt. of nitrate of soda, and two or three cwts. of guano, will promote the luxuriant growth of the Grasses.

WHEAT. *Young Gent*. Wheat weighs 60 to 61 lb. a bushel; three to six pecks are a sufficient seeding per acre, eight to ten are a very common seeding. It prefers an adhesive soil, but is grown on all soils. It is sown in October and November; spring sorts are sown up till April. Tuscan is a spring sown sort. The April Wheat is a bearded red Wheat, the most productive of any for very late sowings. Spalding, Browick, Burrell, Nursery, Lawrence, &c., are good red sorts. Talavera, Velvet Ear, Fenton, Red Straw White, Bridgen, Hunter's, Hopson's, &c., are good white sorts. Pearce's Defiance, Cone, Lowe's Egyptian, &c., are common and coarse sorts of bearded Wheat. The crop may be five or six quarters per acre, more generally four, averaging about three and a half all over England. Fenton's Velvet White and Piper's Tuscan Red are the shortest strawed sorts; Brunswick Red, Rough Chaff, and Bristol Red, are long strawed, long eared, prolific sorts.

THE HYDROPULT.

An Invention for Throwing Water by Hand Power.

[illegible]

PRICE LIST.

	£	s.	d.
COMPLETE WITH BRASS CYLINDERS AND JAPANNED STIRRUP	1	12	6
COMPLETE WITH BRASS CYLINDERS AND COPPER STIRRUP	2	2	0

The Large Complete, as above, consists of 24 feet Suction and 18 feet Delivery Hose, Convenient Wire Strainer, Rose and Small Jet.

THE HYDROPULT

[illegible]

GARDEN IN

WATERING BEDS,
SPRINKLING PLANTS,
DROWNING OUT INSECTS,
CLEANSING TREES FROM SMUTS,
FEEDING WITH LIQUID MANURE,
&c. &c.

THE HYDROPULT

[illegible]

IN DOMESTIC USE IN EVERY HOUSEHOLD FOR

WASHING WINDOWS,
WETTING [illegible],
SCRUBBING STOOLS,
WASHING CARRIAGES,
[illegible],
FILLING BARRELS,
A SHOWER BATH,
&c. &c.

[illegible] to the WAR DEPARTMENT as FIRE ENGINES.

Rev. Hugh Hose, LL.D. and F.L.S., Rev. H. H. Dombrain, A.B., Shirley Hibberd, Esq., F.L.H.S., Thomas Rivers, Esq. (the eminent Florist), and other well-known gentlemen, recommend the HYDROPULT as an invaluable Garden Implement.

The Hydropult will draw water horizontally, if necessary, through Two Hundred Feet Suction Hose, and force it through Delivery Hose to an altitude of one Hundred Feet.

THE

GREENHOUSE AND CONSERVATORY HYDROPULT.

A NEW AND BEAUTIFUL IMPLEMENT,

Weighing scarcely 5 lbs.

AND SPECIALLY ADAPTED FOR USE IN THE GREENHOUSE AND CONSERVATORY.

Price 35s.,

Complete, with Brass Cylinders and Copper Stirrup, 24 feet Suction, and 8 feet Delivery Hose, Strainer, Rose, Jet, and Fan.

This NEW IMPLEMENT must necessarily supersede Syringes and other devices of the kind, for it will be found much more effective in its operation.

A LADY CAN WORK IT FOR HOURS WITHOUT FATIGUE.

CAUTION.

IMPORTANT TO THE PUBLIC.—The extensive sale of the Hydropult has excited the cupidity of so-called respectable, but in reality unprincipled Manufacturers, who are now palming on the Public worthless imitations of the Hydropult, and through their connections are enabled to place said devices on exhibition, and for sale, in many of the principal Ironmongery and Seed Establishments throughout the city and provinces. These devices resemble in many respects the Hydropult in appearance, and are calculated to deceive the unsuspecting. The Proprietor therefore issues this Caution, and respectfully intimates that persons wishing to purchase the Hydropult should examine the articles offered for sale, and see if it has attached thereto a label with the following words:—"The Hydropult, Venn's Patent, manufactured only by Griffiths & Brown, Birmingham. Charles Pomeroy Button, Proprietor, 142 and 143, Cheapside, London." Unless the label is attached, the Machine is not the Hydropult.

Prospectuses, with Testimonials, on application.

HYDROPULT SHOW ROOM, 142 & 143, CHEAPSIDE, LONDON.

CHARLES POMEROY BUTTON, PROPRIETOR.

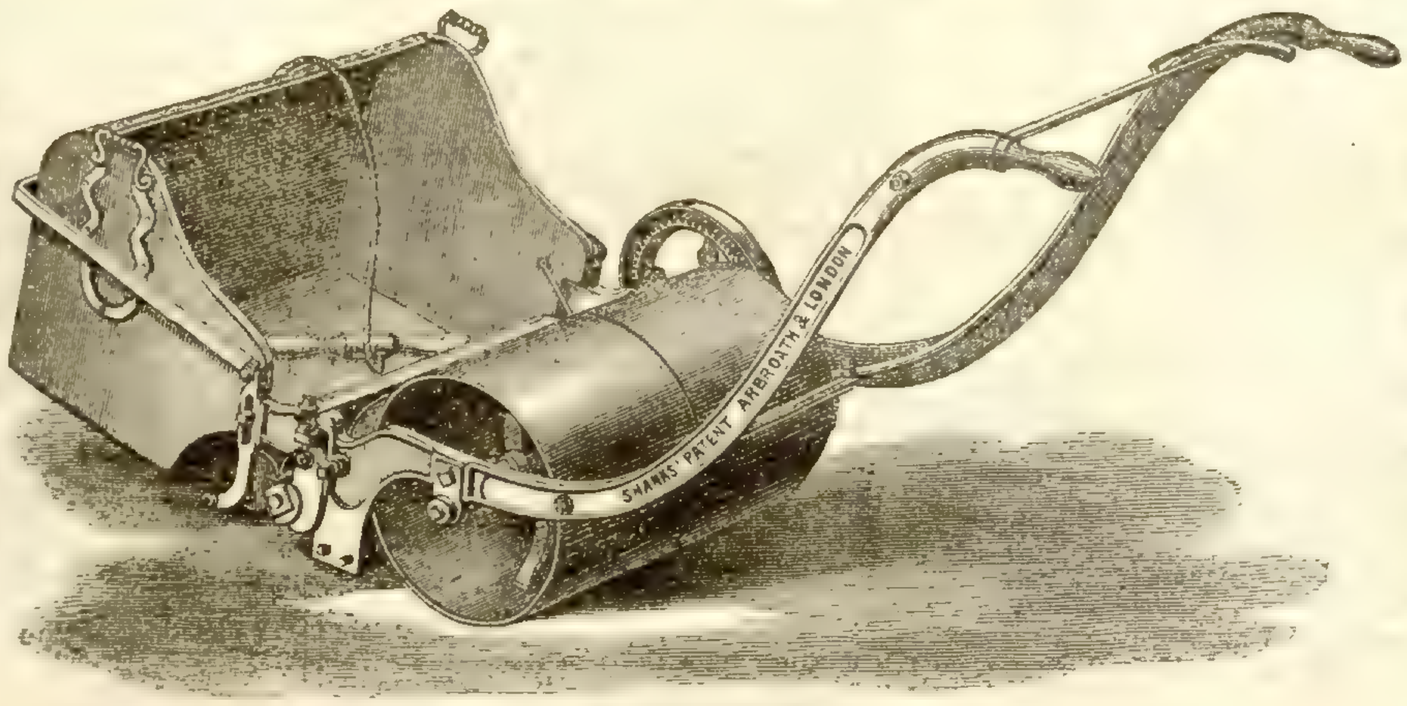
SHANKS' NEW IMPROVED PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1865.

PATRONIZED ON FIVE SEPARATE OCCASIONS DURING THE SEASON OF 1864 BY

HER MAJESTY THE QUEEN.

Alexander Shanks & Son are gratified to find that in the large and increasing demand for their celebrated MACHINES, they receive a conclusive proof that their merits are every season becoming more appreciated by the Practical Gardener.



HAND MACHINE

A. S. & Son, in introducing Improvements into their MACHINES, have been careful that the advantages in point of durability, simplicity of construction, and superiority in the work executed, which have all along been peculiar to SHANKS' MACHINES, should still remain.

SHANKS' PATENT LAWN MOWERS are in daily use in the ROYAL GARDENS at KEW, WINDSOR, BUCKINGHAM PALACE, HAMPTON COURT, OSBORNE, and BALMORAL; in the GARDENS of the ROYAL HORTICULTURAL SOCIETY at KENSINGTON; in the GROUNDS of the CRYSTAL PALACE COMPANY at SYDENHAM; in VICTORIA PARK; in BATTERSEA PARK; and in many hundreds of the principal Gardens in the Kingdom, as well as abroad, where their merits have been fully proved and their success established.

PRICES—including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom.

SHANKS' NEW PATENT HAND MACHINE for 1865.

Width of Cutter.		
10-inch Machine	£3 10 0	*Easily Worked by a Lady.*
12-inch Machine	4 10 0	
14-inch Machine	5 10 0	*Ditto by a Boy.*
16-inch Machine	6 12 6	*Ditto by a Man.*

SHANKS' NEW PATENT HAND MACHINE for 1865.

Width of Cutter.		
19-inch Machine	£7 12 6	*Easily Worked by a Man and Boy*
22-inch Machine	8 7 6	*Ditto by Two Men.*
24-inch Machine	8 17 6	

Silent Movement for the five smallest sizes, 4*s.* extra; for the other sizes, 7*s.* 6*d.* extra.

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
25-inch Machine	£12 10 0	25*s.* extra.
28-inch Machine	14 10 0	30*s.* „
30-inch Machine	15 15 0	30*s.* „

Silent Movement, 12*s.* 6*d.* extra; Boots for Pony, 21*s.* per set; Ditto for Donkey, 16*s.* per set.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus
30-inch Machine	£19 0 0	30*s.* extra.
36-inch Machine	22 0 0	30*s.* „
42-inch Machine	26 0 0	40*s.* „
48-inch Machine	28 0 0	40*s.* „

Silent Movement, 20*s.* extra; Boots for Horse's Feet, 24*s.* per set.

A. S. & Son have pleasure in submitting the following List from among the hundreds of distinguished individuals, both in this country and abroad, whose patronage they have had the honour to receive:—

HER MOST GRACIOUS MAJESTY THE QUEEN,

For the Royal Gardens at Kew, Windsor, Buckingham Palace, Hampton Court, Osborne, and Balmoral.

HIS MAJESTY THE EMPEROR OF THE FRENCH
HIS MAJESTY THE KING OF SAXONY
HIS ROYAL HIGHNESS THE PRINCE OF PRUSSIA
HIS GRACE THE ARCHBISHOP OF CANTERBURY

His Grace the Duke of Bedford
His Grace the Duke of Newcastle
His Grace the Duke of Marlborough
His Grace the Duke of Rutland
His Grace the Duke of Sutherland
His Grace the Duke of Buccleuch
His Grace the Duke of Devonshire
His Grace the Duke of Leinster
His Grace the Duke of Athole
His Grace the Duke of Norfolk
His Grace the Duke of Hamilton and Brandon
His Grace the Duke of Argyll
His Grace the Duke of Northumberland
His Grace the Duke of Roxburghe
His Grace the Duke of Wellington
His Grace the Duke of Buckingham
The Most Hon. the Marquis of Normandy
The Most Hon. the Marquis of Bute
The Most Hon. the Marquis of Winchester
The Most Hon. the Marquis of Exeter
The Most Hon. the Marquis of Breadalbane
The Most Hon. the Marquis of Westminster
The Most Hon. the Marquis of Lansdowne
The Most Hon. the Marquis of Stafford
The Most Hon. the Marquis of Kildare
The Most Hon. the Marquis of Abercorn
The Most Hon. the Marquis of Londonderry
The Most Hon. the Marquis of Ailsa
The Most Hon. the Marquis of Tweeddale
The Most Hon. the Marquis of Aylesbury
The Right Hon. the Earl of Tankerville
The Right Hon. the Earl of Poulett
The Right Hon. the Earl of Meath
The Right Hon. the Earl of Leicester
The Right Hon. the Earl of Camperdown
The Right Hon. the Earl of Shannon
The Right Hon. the Earl of Abergavenny
The Right Hon. the Earl of Morley
The Right Hon. the Earl of Durham
The Right Hon. the Earl of Lauderdale
The Right Hon. the Earl of Home
The Right Hon. the Earl of Harrington
The Right Hon. the Earl of Carnarvon
The Right Hon. the Earl of Northesk
The Right Hon. the Earl of Glasgow
The Right Hon. the Earl of Stamford and Warrington
The Right Hon. the Earl of Aberdeen
The Right Hon. the Earl of Aberdour
The Right Hon. the Earl of Ashburnham
The Right Hon. the Earl of Haddington
The Right Hon. the Earl of Cawdor
The Right Hon. the Earl of Denbigh
The Right Hon. the Earl of Galloway
The Right Hon. the Earl of Hopetoun
The Right Hon. the Earl of Mansfield
The Right Hon. the Earl of Milltown
The Right Hon. the Earl of Selkirk
The Right Hon. the Earl of Winchilsea
The Right Hon. the Earl of Zetland
The Right Hon. the Earl of Minto
The Right Hon. the Earl of Kintore
The Right Hon. the Earl of Seafield
The Right Hon. the Earl of Southesk
The Right Hon. the Earl of Kinnoul
The Right Hon. the Earl of Airlie
The Right Hon. the Earl of Bessborough
The Right Hon. the Earl of Brownlow
The Right Hon. the Earl of Howe
The Right Hon. the Earl of Lindsey
The Right Hon. the Earl of Rothes
The Right Hon. the Earl of Ranfurly
The Right Hon. the Earl of Strathmore
The Right Hon. the Earl of Rosslyn
The Right Hon. the Earl of Harrowby
The Right Hon. the Earl of Shrewsbury and Talbot
The Right Hon. the Earl of Westmoreland
The Right Hon. the Earl of Dalhousie
The Right Hon. the Earl of Portarlington
The Right Hon. the Earl of Kilmorey
The Right Hon. the Earl of Dartmouth
The Right Hon. the Earl of Guildford
The Right Hon. Earl Spencer
The Right Hon. Earl Fortescue
The Right Hon. Earl Vane
The Right Hon. Earl Nelson
The Right Hon. the Countess of Stair
The Right Hon. Countess de Morella
The Right Hon. the Countess of Waldegrave
The Right Hon. the Countess of Cottenham
The Right Hon. Viscountess Milton
The Right Hon. Viscountess Castlereagh
The Right Hon. Viscount Seaham
The Right Hon. Viscount Duncan
The Right Hon. Viscount Eversley
The Right Hon. Viscount de Vesci
The Right Hon. Viscount Boyle

HIS EXCELLENCY THE LORD-LIEUTENANT OF IRELAND
HIS EXCELLENCY THE BELGIAN MINISTER
HIS GRACE THE ARCHBISHOP OF YORK
THE RIGHT HON. LORD PALMERSTON

The Right Rev. the Lord Bishop of Durham
The Right Rev. the Lord Bishop of Ripon
The Right Rev. the Lord Bishop of Killaloe
The Right Rev. the Lord Bishop of Melbourne
The Right Rev. Lord Bishop Nixon
The Right Hon. Lord Bagot
The Right Hon. Lord Monck
The Right Hon. Lord Hatherton
The Right Hon. Lord Kinnaird
The Right Hon. Lord Lovat
The Right Hon. Lord Rollo
The Right Hon. Lord Braybrooke
The Right Hon. Lord Blantyre
The Right Hon. Lord Berwick
The Right Hon. Lord Halliburton
The Right Hon. Lord Churchill
The Right Hon. Lord Ossulston
The Right Hon. Lord Portman
The Right Hon. Lord Vernon
The Right Hon. Lord Willoughby de Broke
The Right Hon. Lord Cremorne
The Right Hon. Lord Dalrymple
The Right Hon. Lord Inchiquin
The Right Hon. Lord Rokeby
The Right Hon. Lord Rayleigh
The Right Hon. Lord Ashtoun
The Right Hon. Lord Stanley
The Right Hon. Lord James Murray
The Right Hon. Lord Berners
The Right Hon. Lord Harris
The Right Hon. Lord Kingsdown
The Right Hon. Lord Rivers
The Right Hon. Lord Taunton
The Right Hon. Lord Oranmore
The Right Hon. Lord Wharncliffe
The Right Hon. Lord Bateman
The Right Hon. Lord Lilford
The Right Hon. Lord Sudeley
The Right Hon. Lord John Thynne
The Right Hon. Lord Cavan
The Right Hon. Lord Middleton
The Right Hon. Lord Calthorpe
The Right Hon. Lord Dunfermline
The Right Hon. Lord Abercrombie
The Right Hon. Lord Castlerosse
The Right Hon. Lord Carrington
The Right Hon. Lord Dufferin
The Right Hon. Lord Poltimore
The Right Hon. Lady Leighton
The Right Hon. Lady Rashleigh
The Right Hon. the Ladies Boyle
The Right Hon. Lady Holland
The Right Hon. Lady M'Taggart
The Right Hon. Dowager Lady Clinton
The Right Hon. R. C. Nesbitt Hamilton
The Right Hon. Lord Crewe
The Right Hon. Lord Elibank
The Right Hon. Lord Binning
The Right Hon. Lord Hume
The Hon. Mrs. Howard
The Hon. Gerald C. Talbot
The Hon. Hely Hutchinson
The Hon. C. L. Butler
The Hon. C. S. Cowper
The Hon. Captain Duncombe
The Hon. Ashley Ponsonby
The Hon. E. Coke
The Hon. Captain Drummond
The Hon. Francis Drummond
The Hon. John Ashley
The Hon. Captain Arbuthnott
The Hon. Sir Edward Butler, Bart.
The Hon. Sydney R. Curzon
The Hon. J. J. Carnegie
The Hon. Wm. Maule
The Hon. Major Murray
The Hon. Chief Baron Sir Frederick Pollock
The Hon. Percy Ashburnham
The Hon. Percy Barrington
The Hon. L. H. K. Hannan
The Hon. H. Petre
The Hon. and Rev. A. G. Campbell
Hon. and Rev. C. A. Harris
Hon. and Rev. W. H. Spencer
Sir John Neeld, Bart.
Sir Arthur Elton, Bart.
Sir Arthur Halkett, Bart.
Admiral Sir Philip Hornby
Sir J. H. Crewe, Bart.
Sir J. M. Steel Graves, Bart.
Sir Charles Taylor, Bart.
Sir George Edmondstone, Bart.
Sir Lydstone Newman, Bart.
Sir Coleman Rashleigh, Bart.
Sir John R. Carnac, Bart.
Sir Philip Egerton, Bart.
Sir William Maxwell, Bart.
Sir Archibald Dunbar, Bart.

Shanks' Patent Lawn Mowers are warranted to give ample satisfaction, and if not approved of may be at once returned.

☞ A. S. & Son *beg to intimate that their Warehouse at* 27, *Leadenhall Street, is the only place in London where intending purchasers of Lawn Mowers can choose from a stock of from* 150 *to* 200 *Machines. All sizes are kept in stock, whether for Horse, Pony, or Hand Power, and orders are executed on the day they are received.*

PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N. B.
LONDON OFFICE and SHOW ROOMS, 27, LEADENHALL STREET, E.C.

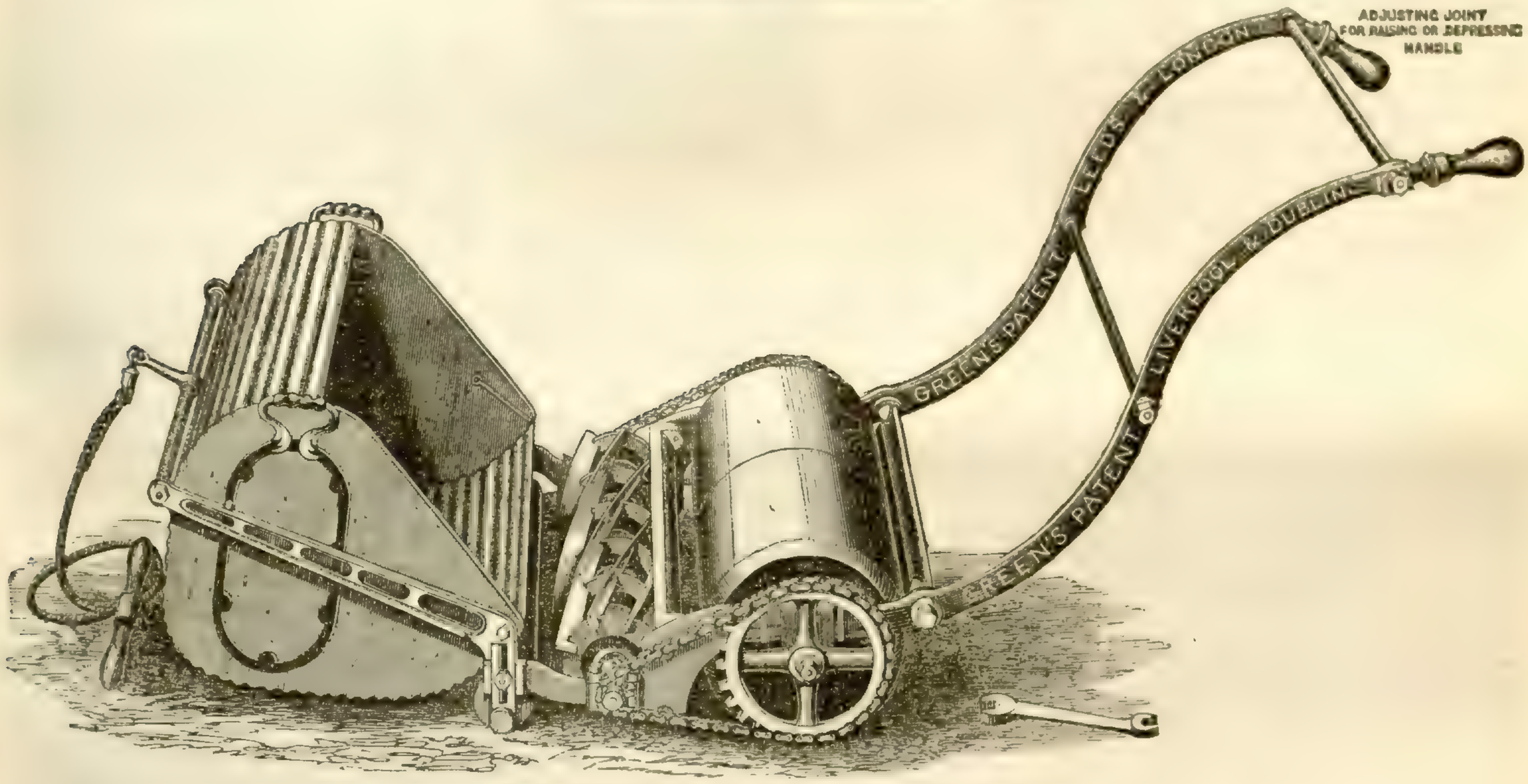
GREEN'S PATENT SILENS MESSOR

OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

BY SPECIAL APPOINTMENT.
SOLE MANUFACTURER

TO HER MOST GRACIOUS MAJESTY
THE QUEEN.



IMPROVED PATENT LAWN MOWER FOR 1865,

AS RECOMMENDED BY THE JUDGES OF THE ROYAL HORTICULTURAL SOCIETY'S SHOW HELD JULY 20, 1864.

GREEN'S PATENT LAWN MOWERS have proved to be the best, and carried off every Prize that has been given in all cases of competition. The Judges at the Royal Horticultural Society's Show, held July 20, 1864, awarded them a First-class Certificate (no Prizes were given), and, at the same time, suggested a slight alteration, which has been done, and Messrs. T. G. & Son consider their MACHINES now as near perfect as possible.

Messrs. T. G. & Son beg to state that, owing to the great demand for their MACHINES in past years, they have been unable to execute orders with that despatch due to their numerous customers, but are now happy to inform them, that they have made such alterations and arrangements in their premises, whereby they trust to be in a position to send off all orders the day they are received.

PRICES OF HAND MACHINES.

To Cut 10 inches	£3 10 0	*Suitable for a Lady.*	
" 12 "	4 10 0	"	"
" 14 "	5 10 0	*Suitable for One Person.*	
" 16 "	6 10 0	"	"
To Cut 18 inches	£7 10 0	*Suitable for One Person.*	
" 20 "	8 0 0	*Suitable for Two Persons.*	
" 22 "	8 10 0	"	"
" 24 "	9 0 0	"	"

Packing Cases are charged at the following low rates, viz.: for the 10 and 12 inches Machine, 3*s.*; 14 and 16 inches, 4*s.*; 18 and 20 inches, 5*s.*; 22 and 24 inches, 6*s.* Parties providing themselves with Lawn Mowers are recommended to purchase the Cases in which to stow them away, when not in use, to prevent them from getting damaged; if returned, two-thirds will be allowed for them.

PRICES of HORSE, PONY, and DONKEY MACHINES, including Patent Self-delivery Box; Cross Stay complete; suitable for attaching to ordinary Chain Traces or Gig Harness.

To Cut 26 inches	£13 0 0	*Leather Boots for Donkey*, 18*s.*
" 28 "	15 0 0	
" 30 "	17 0 0	
To Cut 30 inches	£21 0 0	*Leather Boots for Pony*, 22*s.*
" 36 "	24 0 0	
" 42 "	27 0 0	*Leather Boots for Horse*, 26*s.*
" 48 "	30 0 0	

The 26, 28, and 30 inches can easily be worked by a Donkey, or by Two Men, on an even Lawn, the 30 and 36 inches by a Pony, and 42 and 48 inches by a Carriage Horse; and, as the MACHINES make no noise in working, the most spirited animal can be employed without fear of its running away, or in any way damaging the MACHINE.

Both the HORSE, PONY, DONKEY, and HAND MACHINES possess (over all other Makers) the advantage of self-sharpening: the cutters being steel on each side, when they become dull or blunt by running one way round the cylinder, can be reversed again and again, bringing the opposite edge of the cutter against the bottom blade, when the MACHINE will cut equal to new. Arrangements are made that the cylinder can be reversed by any inexperienced person in two or three minutes.

The above MACHINES are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England; are warranted to give satisfaction, and, if not approved of, can be at once returned unconditionally.

THOMAS GREEN AND SON,

SMITHFIELD IRON WORKS, LEEDS; 2, FARRINGDON ROAD, HOLBORN HILL, LONDON, E.C.

19, EDEN QUAY, DUBLIN; and HADWIN'S BUILDINGS, TITHEBARN STREET, LIVERPOOL.

NEW TARIFF OF GLASS AND HORTICULTURAL GOODS.

THOMAS MILLINGTON,

GLASS AND COLOUR MERCHANT,

87, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.

THE AGRICULTURAL HALL, ISLINGTON, CONTAINING AN ACRE OF GLASS, WAS SUPPLIED BY ME.

Mr. RIVERS and the leading men in the Horticultural profession, as well as the Nobility, Gentry, and Merchants, have favoured me with Orders for Home use and for Exportation.

SHEET GLASS.

In Cases for Cutting up, averaging from 6 to 9 feet super.

AVERAGE THICKNESS, 15 TO 16 OZ.

4ths quality	.. ..	per 300 feet case	32*s.* 6*d.*	or about 1½d. per foot.
3ds ,,	.. ..	,,	41 0	,, 1¾ ,,
2ds ,,	.. ..	,,	60 0	,, 2¼ ,,
Best ,,	.. ..	,,	92 0	,, 3¾ ,,

AVERAGE THICKNESS, 21 OZ.

4ths quality	.. ..	per 200 feet case	33*s.* 6*d.*	or about 2*d.* per foot.
3ds ,,	.. ..	,,	42 0	,, 2½ ,,
2ds ,,	.. ..	,,	63 0	,, 3¾ ,,
Best ,,	.. ..	,,	89 0	,, 5½ ,,

AVERAGE THICKNESS, 26 OZ.

4ths quality	.. ..	per 200 feet case	44*s.* 6*d.*	or about 2¾*d.* per foot.
3ds ,,	.. ..	,,	56 0	,, 3½ ,,
2ds ,,	.. ..	,,	84 0	,, 5 ,,
Best ,,	.. ..	,,	116 0	,, 7

SHEET SQUARES, Cut to Order.

AVERAGE THICKNESS, 15 to 16 oz.

	Under 1 foot super.	Under 2 feet super.	Under 3 feet super.	Under 4 feet super.	Under 5 feet super.	Under 6 feet super.
4ths quality	1½*d.*	1¾*d.*	2 *d.*	2¼*d.*	2½*d.*	2¾*d.*
3ds ,,	1¾	2	2¼	2¾	3	3½
2ds ,,	2	2½	2¾	3	3½	4
Best ,,	2½	3	3½	4	4½	5
AVERAGE THICKNESS, 21 OZ.						
4ths quality	2¼*d.*	2¾*d.*	3 *d.*	3¼*d.*	3½*d.*	3¾*d.*
3ds ,,	2½	3	3¼	3¾	4	4¼
2ds ,,	3	3½	3¾	4¼	4½	4¾
Best ,,	4	4½	5	5½	6	7
AVERAGE THICKNESS, 26 OZ.						
4ths quality	3*d.*	3½*d.*	3¾*d.*	4 *d.*	4¼*d.*	4½*d.*
3ds ,,	3¾	4	4¼	4¾	5	5½
2ds ,,	4¼	5	5½	5¾	6	6½
Best ,,	5¼	6½	7	7½	8	8½

15 oz. Squares usually kept in Stock, &c.

32 oz., 36 oz., and 42 oz. are also supplied in various quantities.

EXTRA WHITE or CRYSTAL SHEET GLASS, very superior for Pictures and best Glazing.

RUBY, GREEN, BLUE, YELLOW, COLOURED, ENAMELLED, GROUND, and FLUTED GLASS.

15 oz. Squares usually kept in Stock, packed in 100 ft. and 100 ft. Boxes.

Stock Squares.				4ths.	3rds.	2nds.	Best.
6 by 4	7 by 5	8 by 6	9 by 7	9*s.* 6*d.*	10*s.* 9*d.*	12*s.* 6*d.*	14*s.* 8*d.*
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½				
10 by 8	12 by 9	12½ by 10½	14½ by 10½	10*s.* 6*d.*	12*s.* 0*d.*	14*s.* 8*d.*	17*s.* 3*d.*
10½ by 8½	12½ by 9½	13 by 10	15 by 10				
11 by 9	13 by 9	13½ by 10½	13 by 11				
11½ by 9½	12 by 10	14 by 10	14 by 11				
15½ by 10½	16 by 10	14½ by 11½	15 by 11	11*s.* 6*d.*	13*s.* 6*d.*	16*s.* 0*d.*	18*s.* 0*d.*

Stock Squares.					Per 100 feet. 4ths.	3rds.	2nds.	Best.
15½ by 11½	14 by 12	17 by 13	22 by 16	..	11*s.* 6*d.*	13*s.* 6*d.*	16*s.*	18*s.*
16 by 10	14½ by 12½	18 by 13	24 by 16					
14½ by 11½	15 by 12	23 by 13	20 by 17					
15 by 11	15½ by 12½	18 by 14	22 by 17					
15½ by 11½	16 by 12	22 by 14	24 by 17					
16 by 11	16½ by 12½	24 by 14	20 by 18					
21 by 11	17 by 12	22 by 15	22 by 18					
13 by 12	18 by 12	24 by 15	24 by 18					
13½ by 12½	22 by 12							

ORCHARD HOUSE SIZES,

As recommended by and supplied to Mr. Rivers, and the leading Horticulturists of the day.

AVERAGE THICKNESS, 15 TO 16 OZ.

		4ths.	3rds.	2nds.	Best.
16½ Inches by 12½ Inches.					
20 ,, 12 ,,					
20 ,, 13 ,,					
20 ,, 14 ,,	Per 100 feet ..	11*s.* 6*d.*	13*s.* 6*d.*	16*s.*	18*s.*
20 ,, 15 ,,					
20 ,, 16 ,,					
20 ,, 17 ,,					

AVERAGE THICKNESS, 21 OZ.

		4ths.	3rds.	2nds.	Best.
20 Inches by 12 Inches.					
20 ,, 13 ,,					
20 ,, 14 ,,	.. .. ..	14*s.* 6*d.*	18*s.* 6*d.*	24*s.*	27*s.* 6*d.*
20 ,, 15 ,,					
20 ,, 16 ,,					
20 ,, 17 ,,					

The above prices are only for the sizes stated, but if a quantity of any other size is required, they can be supplied at about 5 per cent. additional, provided time is allowed to manufacture them.

I have also a GREEN TINTED GLASS, which I can strongly recommend. In Summer it gives a cool appearance and in Winter a warm one.

PROPAGATING GLASSES.

3 inches diam.	0*s.* 4*d.*	each.
4 ,, ..	0 5	,,
5 ,, ..	0 6	,,
6 ,, ..	0 7	,,
8 ,, ..	0 10½	,,
10 ,, ..	1 2	,,
12 ,, ..	1 6	,,
14 ,, ..	2 3	,,
16 ,, ..	3 0	,,
18 ,, ..	4 6	,,
20 ,, ..	6 0	,,

HAND GLASSES.

12 inches diam.	5*s.* 6*d.*	each.
14 ,, ..	6 6	,,
16 ,, ..	7 6	,,
18 ,, ..	8 6	,,
20 ,, ..	9 6	,,
22 ,, ..	10 6	,,
24 ,, ..	11 6	,,

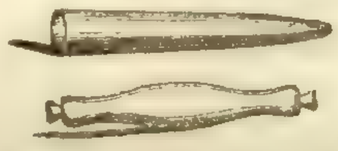
If removable tops, 1*s.* extra.

Painted and Glazed with Sheet Glass.

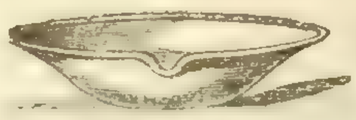
PRESERVE JARS.

In. diam.	Without. Lids.	With Lids.	
3 ..	0*s.* 4*d.* ..	0 6	each.
4 ..	0 5½ ..	0 8	,,
5 ..	0 7 ..	0 10	,,
6 ..	0 9 ..	1 1	,,
7 ..	0 10½ ..	1 2	,,
8 ..	1 2 ..	1 6	,,
9 ..	1 6 ..	2 0	,,
10 ..	1 10 ..	2 4	,,

These will be found preferable to any other kind of Jar.



CUCUMBER TUBES. Ins. long.		each.	ROLLING PINS. each
12 ..	0*s.*	10*d.*	1*s.* 3*d.*
13 ..	0	11	1 4
14 ..	1	0	1 6
15 ..	1	1	1 8
16 ..	1	2	1 9
17 ..	1	3	1 10
18 ..	1	4	2 0
19 ..	1	5	2 2
20 ..	1	6	2 3
22 ..	1	7	2 4
24 ..	1	9	2 8



MILK PANS.

6 inches diam.	0*s.* 5*d.*	each.
8 ,,	0 8	,,
10 ,,	0 10½	,,
12 ,,	1 1	,,
14 ,,	1 6	,,
16 ,,	2 0	,,
18 ,,	2 5	,,
20 ,,	2 10	,,
22 ,,	3 4	,,
24 ,,	4 0	,,

Intermediate sizes in proportion.

FISH GLOBES.

In. diam.		Qts. each
8	¾ filled,	3..1*s.*
9	,,	4..2*s.*
10	,,	6..2*s.* 6*d.*
11	,,	8..3*s.*
12	,,	9..3*s.* 6*d.*
13, 14, 15, 16	At same average according to weight.	7*d.* per lb.

If on feet, 9*d.* per lb.

GLASS TILES, in SHEET and ROUGH PLATE. PLATE GLASS, PATENT PLATE, and HARTLEY'S IMPROVED ROUGH PLATE.

PAINTS, COLOURS, VARNISHES, &c.

GENUINE WHITE LEAD, 30*s.* per Cwt.
SECONDS ditto, 28*s.* per Cwt.
LINSEED OIL PUTTY, 9*s.* per Cwt.
PINE OAK VARNISH, 10*s.* to 12*s.* per Gallon.
,, CARRIAGE ditto, 12*s* to 14*s.* per Gallon.
,, CRYSTAL or PAPER, 10*s.* to 12*s.* per Gallon.

WHITE ZINC PAINT, 34*s.* per Cwt.
One hundred weight of pure Zinc Paint, with 3 gallons of Linseed Oil, will cover as much as one hundred weight and a half of White Lead and 6 gallons of Linseed Oil. Special Dryers for this paint.

GROUND PATENT DRYERS, 3*d.* to 4½*d.* per lb.
,, OXFORD OCHRE, 3*d.* to 4½*d.* per lb.
,, RAW UMBER, 4½*d.* to 6*d.* per lb.
,, BURNT Ditto, 6*d.* to 9*d.*
GREEN PAINT, all shades, 28*s.* to 60*s.* per cwt.
BLACK PAINT, 24*s.* to 36*s.* per cwt.

STUCCO PAINT, 24*s.* per cwt.
This paint adheres firmly to the walls, resists the weather, and is free from the glossy appearance of oil paint, resembling a stone surface, and can be made any required shade. It is mixed with rain or pure river water.

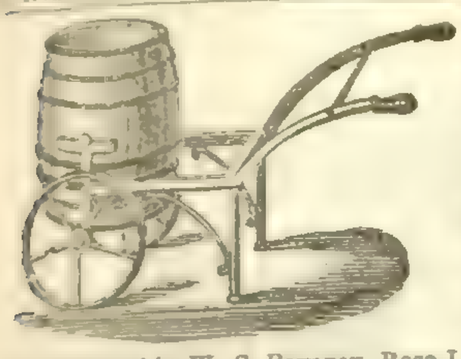
LINSEED OIL, 3*s.* per gallon
BOILED OIL, 3*s.* 6*d.* per gallon.
TURPENTINE, 5*s.* 6*d.* per gallon.
MINERAL Ditto, 3*s.* 6*d.* per gallon.
PREPARED OIL for ANTICORROSION, 4*s.* 6*d.* per gallon.
BRUSHES for Ditto.

IMPROVED ANTICORROSION PAINT, 28*s.* to 34*s.* per cwt.
Anticorrosion Paint is extensively used for all kinds of work in exposed situations, in Brick, Stone, Compo. Iron, Iron Bridges, Conservatories, Greenhouses, &c., and is easily laid on by any ordinary workman.

MILLED LEAD in Sheet and Pipe of all Sizes. OLD LEAD bought or taken in exchange. LIFT PUMPS, WATER CLOSETS, & PLUMBER'S BRASS WORK of all kinds.

NETT CASH.

GARDEN HOSE, GARDEN HOSE, GARDEN HOSE, with Brass Fittings complete.—The London India-Rubber Company, Limited, Manufacturers of MECHANICAL RUBBER, 6 Ironmonger Lane, London, E.C.



SWING WATER BARROW, to hold 36 Gallons, price 42s., carriage paid to any Station on the Great Eastern Line.

This is the best and cheapest article yet introduced; the water may be dipped out, or the tub tilted and poured out, or by merely raising the handle it can be placed on the ground and the frame detached.

Manufactured by W. S. Boulton, Rose Lane Iron Works, Norwich.

Card.

SAMUEL N. McGERROW,
General Horticultural Builder,
Knotty Ash, near Liverpool.

Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

Greenhouses and Conservatories.

H. FREEMAN, Horticultural Works, Hackney, N.E., Established 20 years. Good substantial made GREENHOUSES, Glazed, ready for fixing. 42 feet by 13 feet, 50*l.*; 21 feet by 13 feet, 28*l.*; 12½ feet by 10 feet, 15*l.*

A handsome CONSERVATORY for Sale, 36 feet by 19 feet. Price 110*l.* A Large Assortment kept.

Heating by Hot Water.

W. J. HOLLANDS, Iron Merchant,
31, Bankside, London, S.E.

HOT WATER PIPES, from Stock, per yard:—2-inch, 1*s.* 4*d.*; 3-inch, 2*s.*; and 4-inch, 2*s.* 7*d.* BENDS, from Stock 1*s.* 7*d.*, 2*s.* 6*d.*, and 3*s.* 3*d.* each. THROTTLE VALVES, 10*s.* 6*d.*, 13*s.* 6*d.*, and 15*s.* each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day. A discount to the Trade.

Heating by Hot Water.

HOT-WATER PIPES, at Reduced Wholesale Prices, with Elbows, Syphons, Tee Pipes, and every other connection; Wrought and Cast-iron Boilers, Saddle, Conical, Cylinder, Tubular, and Elliptic, from 24*s.* each. Improved Boilers and Iron Stands to use without brickwork, 56*s.* each. Valves from 10*s.* 6*d.* each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Castings of every description in stock, at

Mr. LYNCH WHITE'S Iron Wharf, Upper Ground Street, Blackfriars Bridge, London, S. Price List on application.

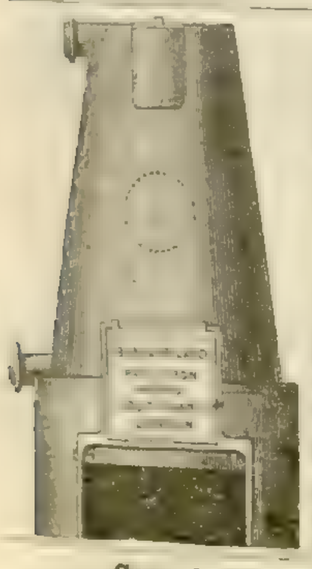
Midland Steam Power Horticultural and Hot-water Works, Loughborough.

T. G. MESSENGER, the Proprietor of the above Works, finding it necessary (through the great demand for his Horticultural Buildings and Heating Apparatus) to make large additions to his Premises, and to Fit the same with an entire set of STEAM-POWER MACHINERY, is now enabled to execute any Orders entrusted to him with the greatest dispatch, and at the lowest possible price consistent with good and substantial work.

Illustrated Catalogues, Working Model, Plans and Estimates, free on application.

CRANSTON'S PATENT BUILDINGS for HORTICULTURE, Highly Commended by the Royal Horticultural Society, South Kensington. Plans and Estimates free on application. Houses of the following sizes always in stock:—Span, 24 by 12 feet; Half-span, 24 by 10 feet; Lean-to, 24 by 8 feet. Stereoscopic Sketch of different houses post free for 6 stamps each.

Descriptive Book, fully illustrated, by post for 20 stamps from the Author and Patentee, James Cranston, Architect, No. 1, Temple Row West, Birmingham.



HEATING by HOT WATER—Public and Private Buildings, Manufactories, Conservatories, &c., heated on the most improved system, combined with perfect Ventilation.

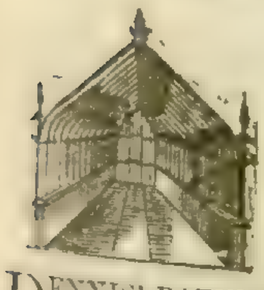
These BOILERS are adapted for setting in Brickwork, or as shown in sketch they require no Brickwork.

BURY and POLLARD
(Successors to John R. Peill),
Sole Manufacturers of the Improved CONICAL BOILERS, which are in general use, and which Boilers have for their durability and economy attained a celebrity far surpassing any other Boilers ever invented.

Park Iron Works, 17, New Park Street, Southwark, London, S.E.

N.B. Patent WINDMILLS for Pumping and Driving Farm Machinery, from half-Horse Power upwards. To be seen daily at work as above.

Greenhouses—Heating Apparatus.



DENNIS' PATENT METALLIC HORTICULTURAL BUILDINGS are made from the best wrought iron, upon an entirely new principle. The combination of Iron and Glass under this Patent is perfect; the possibility of fracture is prevented, and a permanently water-tight roof insured. The leading practical advantages are extreme smallness of framing, admitting a maximum of light and heat, and perfectly neutralising atmospheric conduction.

They are thoroughly ventilated, exceedingly strong and durable, are speedily erected, and whilst maintaining their established superiority for Conservatories of the highest order, are acknowledged by the most eminent Horticulturists of the day to be the "desideratum of perfection," promoting perfect symmetry of growth and richness of colour, both for Fruit and Flowers.

From the complete adjustment of the constructional parts of these patent buildings, their manufacture is so facilitated that a comparison in point of cost with perishable wooden structures is most fallacious.

THE GARDENER'S OWN GREENHOUSE
(Lately known as Dench's Patent) is a Tenant's Fixture.

The Patent, Plant, Business, Machinery, and all connected with the same, have been transferred to T. H. P. Dennis, who has determined to supply these really useful buildings at such a reduced scale of prices that every one desiring a Greenhouse may possess one.

Price—A No. 1 Lean-to, 12 ft. 6 in. by 9 ft., including honest 16-oz. Glass, £16 15*s.* 0*d.*

T. H. P. D. has introduced most important improvements in their finish and construction, and after numerous experiments has succeeded in arranging them as a Tenant's Fixture, which he feels sure will be valued by gentlemen having limited tenures. With Mr. Rivers' adaptation they make excellent Orchard-houses, and afford all that can be desired in a profitable building.

Wood structures at the lowest price consistent with sound work.

Prospectuses and Estimates on application to T. H. P. Dennis, Horticultural Builder, Hot-water Engineer, &c., Chelmsford, Essex.

HAY MAKERS, HORSE RAKES, LAWN MOWERS, GARDEN ENGINES and ROLLERS, and TOOLS of all kinds. Improved WIRE NETTING.
PRIZE CHURN, &c., delivered carriage free.
Price Lists per post on application
Burgess & Key, 95, Newgate Street, E.C.
Works, Brentwood, Essex.

Bath and West of England Society.

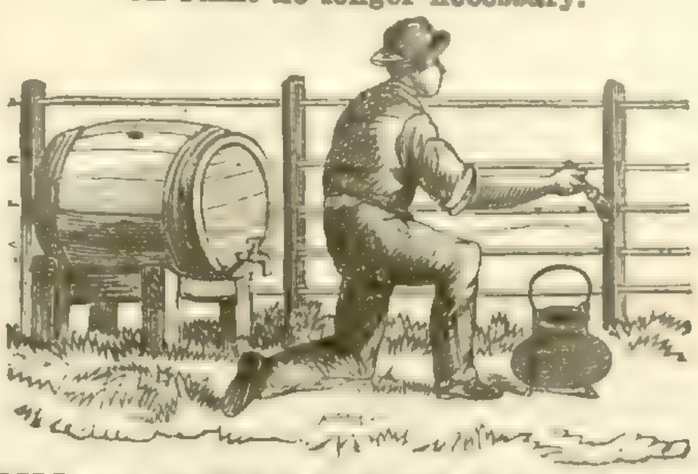
HEREFORD MEETING, 1865.—SHED No. 2: STAND No. 40.

THE IMPROVED LEATHER DRIVING STRAPS for MACHINERY are stronger for a given weight, more effective, more durable, and cost considerably less than any other kind of driving belt.

SPECIAL STRAPS for PORTABLE ENGINES will be shown at work.

Turner's Patent Strap and Hose Company, Armit Works, Greenfield, near Manchester. Warehouse: 81, Mark Lane, London, E.C.
Mr. H. Ferrabee, Agent.

Oil Paint no longer necessary.



HILL and SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which Hill & Smith will forward on application.

From Charles Eversfield, Esq., *Denne Park, Sussex.*

Mr. Eversfield begs to inform Messrs. Hill & Co. that from his experience of their Black Varnish, he is enabled to say that he never used, and cannot imagine the possibility of the existence of a better.

Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the kingdom.

Apply to Hill & Smith, Brierly Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C., from whom only it can be obtained.

TRADE MARK.

ENTERED AT STATIONERS HALL

WALTER CARSON and SONS, of Great Winchester Street, respectfully notify that they have removed their principal office to their Warehouse in LA BELLE SAUVAGE YARD, Ludgate Hill, E.C. (three doors East of Railway Viaduct), and have discontinued their West-end Office, 31, St. James's Street.

CARSONS' ANTI-CORROSION PAINT, specially manufactured for out-door work, is the best and cheapest. All colours. Is simple in application, so that any person can use it.

Is twice as durable as genuine white lead. See Testimonials sent with patterns and prices post free.

Three cwt. carriage free to any station in England and Wales, and most Seaports of the United Kingdom.

CARSONS' ANTI-CORROSION PAINT used by nearly all the eminent Horticulturists, the Nobility and Gentry, for their Gardens.

CARSONS' PAINT for CONSERVATORIES.

CARSONS' PAINT for GREENHOUSES.

CARSONS' PAINT for HOTHOUSES.

CARSONS' PAINT for all OUT-DOOR WORK.

CARSONS' PAINT for WOOD and IRON WORK.

CARSONS' PAINT for BRICK and COMPO.

CARSONS' PAINT for PARK FENCING.

CARSONS' PAINT for FARM BUILDINGS.

CARSONS' PAINT for IRON HURDLING.

CARSONS' ANTI-CORROSION PAINT will keep for years in a dry place. All orders to be sent direct to Walter Carson & Sons, La Belle Sauvage Yard, Ludgate Hill, E.C. Three doors East of Railway Viaduct.

TO BE SOLD, EIGHT EARLY SWARMS of BEES. Apply to James Mills, Swanly, Kent.

Carhead Pigs for Sale.

MR. WAINMAN has YOUNG BREEDING PIGS of his Large White and Middle-sized Breeds for Sale. Now ready. Apply to Mr. Fisher, Carhead, Cross Hills, Yorkshire.

WANTED to PURCHASE, an ESTABLISHED SEED BUSINESS, or a PARTNERSHIP in one. By a Young Man of energy and experience. Could advance £1000 to £1500 of capital.

Apply to S., *Gardeners' Chronicle* Office, W.C.

Berks.

TO BE LET, by TENDER, the MANOR FARM of FYFIELD, comprising about 400 Acres of Light and Heavy Land. This farm will eventually be increased by about 300 Acres, the greater part of which will be added at the end of two years. Tenders, accompanied by names of referees, to be sent to the Bursar of St. John's College, Oxford, on or before the 20th of June.

To view, apply to Mr. Martin, Fyfield, Abingdon. The College does not bind itself to accept the highest or any Tender.

Berks.

TO BE LET, by TENDER, the FARM of TUBNEY, comprising 162 Acres of Arable, and 16 Acres of Pasture partly irrigated. The House and Buildings are good, and conveniently situated, being 4½ miles from Abingdon and 7 to Oxford. Tenders, accompanied by names of referees, to be sent to the Bursar of St. John's College, Oxford, on or before the 20th of June.

To view, apply to Mr Martin, Fyfield, Abingdon. The College does not bind itself to accept the highest or any Tender.

Ilford, Essex, E.

TO BE LET, by Tender, from Michaelmas next, 31 ACRES of MARKET GARDEN LAND, 7 miles from London. The Soil is of excellent quality; it is bounded on three sides by the Public Highway, and is situated within half a mile of the Ilford Station of the Great Eastern Railway, and also of the Wharf.

Tenders to be sent on or before June 24 to William Thompson, Esq., Weymouth, Dorset.

Applications to view the Land and for particulars to be made to the Steward, Mr. John Green, Ilford, Essex, E.

Sales by Auction.

Mile End Nursery.

Annual Sale of 10,000 well-grown Bedding and other Plants.

MESSRS. PROTHEROE and MORRIS will SELL by Auction, on the Premises, Mile End Nursery, Bow Road, Middlesex, E., on WEDNESDAY, June 7, at 12 o'Clock, about 10,000 BEDDING and GREENHOUSE PLANTS, consisting of very handsome Show, Scarlet, and Variegated Geraniums, Azalea indica, Herbaceous and Shrubby Calceolarias, choice Verbenas, Fuchsias, Heliotropes, Petunias, Lobelias, Alyssum, &c; fine Intermediate Stocks, Climbing and other Roses, Tropæolums, Eccremocarpus, Maurandyas, Lophospermum, Cobæa, Pompon Chrysanthemums, &c.

May be viewed prior to the Sale. Catalogues had on the Premises, and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

Upper Holloway.

Important Sale of about 12,000 fine Bedding Plants.

MESSRS. PROTHEROE and MORRIS are instructed by Mr. John Pyle, Jun., to SELL by AUCTION, on the Premises, St. John's Nursery, John Street, Upper Holloway, on THURSDAY, June 8, at 12 o'Clock, about 12,000 Choice BEDDING PLANTS, including Variegated, Pink, and Scarlet Geraniums, Shrubby Calceolarias, Pelargoniums, Gazanias, Senecio, Fuchsias, Lobelias, fine Verbenas, Petunias, Heliotropes, &c

May be viewed prior to the Sale. Catalogues had on the Premises, and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Important Sale of Short-horned Cattle
OF THE VERY FIRST CLASS.

MR. STRAFFORD has the honour to announce to the Agricultural world that he is favoured with instructions from the Executors of the late Joseph Hegan, Esq., of Dawpool, Cheshire, to SELL by AUCTION, on WEDNESDAY, the 7th June next, at Willis's Rooms, King Street, St. James's Square, London, the renowned "GRAND DUCHESSES" and "GRAND DUKES," which tribe for purity and length of breeding stands unrivalled. With the exception of Imperial Oxford (18,050), the entire Herd is directly descended from the celebrated Cow "Duchess 51st," bred by Mr. Bates, at Kirklevington, who purchased "Duchess 1st" at Mr. Chas. Colling's sale in 1810, and he originally obtained the family from the ancestors of the Duke of Northumberland. Animals of this tribe have gained the highest honours in the Show Yard, and realised the greatest prices ever attained at any public sales. The opportunity here presented of acquiring Animals of such great merit and excellence is one that rarely occurs, and Mr. Strafford has much confidence in recommending this Sale to the notice of Noblemen, Gentlemen, and Breeders of Short-horned Cattle.

In accordance with the wishes of the late owner, the Executors reserve to themselves the right of selling this Stock either in one, two, or more Lots, particulars of which, with conditions, will be given at the time of Sale.

The Stock will remain at Dawpool until after the Sale, and every assistance will be rendered to the purchaser in conveying them to Birkenhead, Chester, or any intermediate Railway Station. The Cattle may be seen at any time until Tuesday, the 6th June next; and parties wishing to inspect them can do so by an order from the Auctioneer to Mr. Bayne, the Bailiff at the Farm.

Luncheon at 1 o'clock; admission by Ticket.

Catalogues with Pedigrees and other particulars may be had upon application to Mr. Strafford, 13, Euston Square, London, N.W.

Great and Little Eversden, Cambridgeshire.

MESSRS. MANN and RAVEN beg to announce that they are instructed by the Trustee of the late William Leete, Esq., to SELL by AUCTION, in Lots, on SATURDAY, June 10, at the Lion Hotel, Cambridge, at 4 for 5 o'clock in the evening, all those famous FREEHOLD ORCHARDS and GARDENS, and Arable and Pasture Land, with the Buildings thereon, situate in the Parishes of Great and Little Eversden, about 1½ mile from the Lord's Bridge Station, on the Bedford and Cambridge Railway, 4½ miles from the Harston Station on the Hitchin and Cambridge Railway, and 6 miles from Cambridge.

Mann & Raven beg to call the attention of Capitalists and Speculators to this very valuable Property, feeling fully assured that such an opportunity for investment or occupation seldom occurs.

The produce of these Orchards is said to be the finest and most extensive in England, and is well known in Spitalfields and other markets in London, as well as in Liverpool, Manchester, &c.

Further particulars may be obtained of the Trustee, J. Gadsby, Esq., Cowley Hall, near Uxbridge; upon the Premises; of Messrs. John & J. K. Wright, Solicitors, 25, Bedford Row, London, W.C.; of Mr. Phillips, Virginia Dining Rooms, 4, Newman's Court, Cornhill, London, E.C.; and of the Auctioneers, 6, Hobson Street, Cambridge.

At Middleton, near Yoxford (the Garden of Suffolk).

MESSRS. GIRLING and WHITE are instructed to SELL by AUCTION, the LAST WEEK in JUNE, unless previously disposed of by private contract, all that VALUABLE FREEHOLD NURSERY GROUND and PREMISES, containing 2a. 1r. of good Loamy Soil, well situate for trade, abutting upon a Turnpike Road, and a short distance of the Fashionable Seaport Town of Aldboro, and within an easy distance of two Railway Stations on the Great Eastern line. It is well planted with Saleable Stock (which can be taken by valuation at the option of the purchaser); also a good Greenhouse, Vinery, and Seed Shop; a convenient and substantial Dwelling House, and all necessary out-buildings. The ground is well supplied with water, and have been in the occupation of the present proprietor 40 years, who is retiring from business.

Further particulars in future Paper, and of the Auctioneers, Peasenhall, near Yoxford, Suffolk.

FLOWERING PLANTS of LILIUM AURATUM.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, June 13, at half-past 12 o'Clock precisely, a large number of

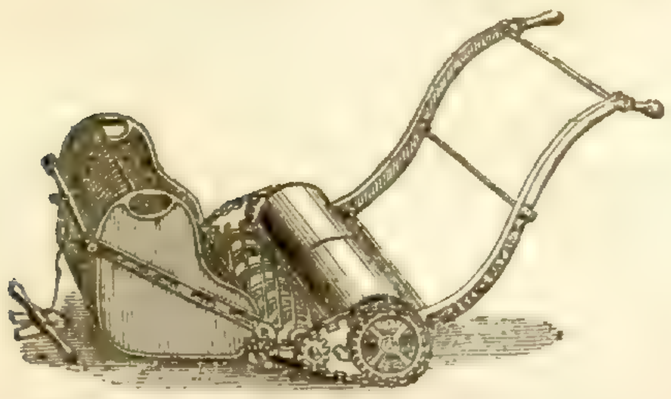
ESTABLISHED PLANTS OF LILIUM AURATUM,

In fine health, and upwards of 50 of them in Full Bloom. Amongst them are probably many New Varieties with red bands similar to those sold last season from the same Collection.

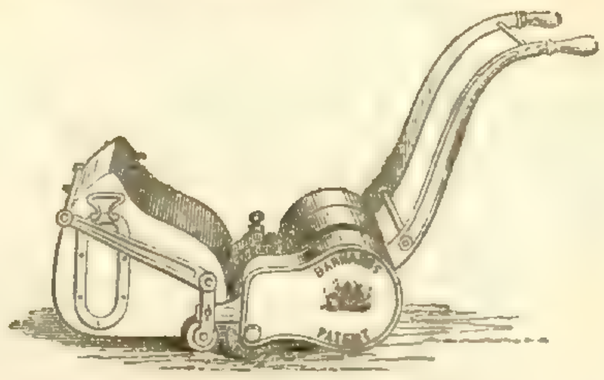
Without Reserve, by direction of Mr. Catleugh, Florist, Chelsea.

On view the Morning of Sale, and Catalogues had.

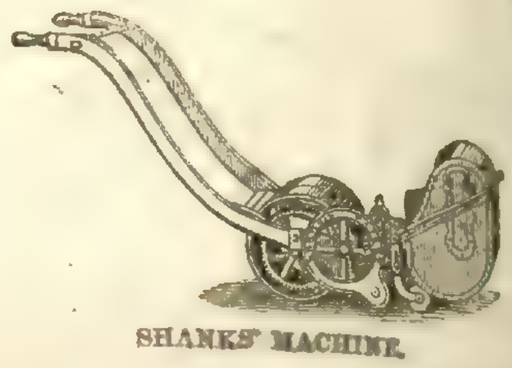
LAWN MOWING MACHINES FOR 1865.



GREEN'S MACHINE.



BARNARDS' MACHINE.



SHANKS' MACHINE.

THE MOWING MACHINE IS NOW SO INDISPENSABLE, THAT NO ONE WHO DESIRES TO HAVE A WELL-KEPT LAWN (AND FEW THERE ARE WHO DO NOT), WOULD FOR ONE SEASON BE WITHOUT ONE.

These Machines Mow the Grass, Wet or Dry, on Lawns uneven or otherwise, in a much neater manner than the Scythe, and at Half the Expense.

J. B. Brown & Co., as is well known, having had their name prominently connected with LAWN MOWING MACHINES, and having constantly bestowed close attention to every peculiarity of detail affecting the successful working of all the various LAWN MOWERS, have most probably sold more of these MACHINES than any one firm in England; and they may be permitted to add, with a certain degree of gratification, that no Machine they ever offered to the public has failed to give the most entire and hearty satisfaction. They have always acted on the one proper principle of selecting the best Machine, the one they could confidently guarantee, and then prominently place it before the public, and sparing no pains, nor expense, in pushing it into notice. These well-directed efforts have, as might be expected, been attended with complete success. The number of LAWN MOWERS they sold during last season was much larger than they ever sold in any season previous.

J. B. B. & Co. have resolved not to place before the public at present any one particular Lawn Mowing Machine. They are desirous, in these circumstances, earnestly to solicit an extension of the confidence which has always been so kindly placed in them; and would beg that all those naturally anxious to have the best Lawn Mower, would confide their orders to them to select a really good and useful Machine for them—*one that will do its work well, is easy and pleasant in working, and may at all times be depended on, not liable to get out of order and need repairs, and that will last in such condition for years—these points being all essential to a really good and economical Machine.* All business thus kindly entrusted to them, they would beg to assure their friends and the public, will be faithfully executed; and in order to insure more perfect confidence they will guarantee the Machine they send to be *perfectly satisfactory in every respect; and if not found to be so, they will either exchange it for a Machine of any other size or description, or of any other Maker, or the Machine may be at once returned unconditionally.* Orders entrusted to J. B. B. & Co. for the Machines of any particular Maker, will have most careful attention in every respect.

GREEN'S HAND MACHINE.

Size.	Easily Worked.	Price.	Size.	Easily Worked.	Price.
10-inch	By a Boy ..	£3 10 0	18-inch ..	By a Man ..	£7 10 0
12-inch		4 10 0	20-inch	By Two Men	8 0 0
14-inch		5 10 0	22-inch		8 10 0
16-inch ..	By a Man ..	6 10 0	24-inch		9 0 0

BARNARD'S MACHINE.

Size.	Easily Worked.	Price.	Size.	Easily Worked.	Price.
8-inch ..	By a Child ..	£2 10 0	16-inch	By a Man ..	£6 0 0
10-inch ..	By a Lady ..	3 5 0	18-inch		6 10 0
12-inch	By a Boy ..	4 10 0	20-inch ..	Man and Boy ..	7 0 0
14-inch		5 0 0	22-inch ..	Two Men ..	7 10 0

SHANKS' HAND MACHINE.

(Silent Movement, 4*s.* to 7*s.* 6*d.* extra. Tool Boxes, 5*s.* extra.)

Size.	Easily Worked.	Price.	Size.	Easily Worked.	Price.
		£ s. d.			£ s. d.
10-in.	By a Lady	3 10 0	19-in. ..	Man and Boy	7 12 6
12-in.		4 10 0	22-in.	By two Men	8 7 6
14-in. ..	By a Boy ..	5 10 0	24-in.		8 17 6
16-in. ..	By a Man ..	6 12 6			

SHANKS' PONY and DONKEY MACHINE.

Size.	Price.	Extras. Patent Delivery.	Extras. Silent Movement.	Boots for
	£ s.	s.	s. d.	
25-in.	12 10	25	12 6	Donkey, 16*s.*
28-in.	14 10	30	12 6	Pony, 21*s.*
30-in.	15 15	30	12 6	

SHANKS' HORSE MACHINE.

Size.	Price.	Extras. Patent Delivery.	Extras. Silent Movement.	Boots for Horses
	£	s.	s.	s.
30-in.	19	30	20	24
36-in.	22	30	20	24
42-in.	26	40	20	24
48-in.	28	40	20	24

J. B. Brown & Co., have had the honour of supplying LAWN MOWING MACHINES, not only in every part of the United Kingdom, but throughout Europe, and also in India, Australia, America, and other countries. Among their numerous distinguished and well-known patrons for these Machines, may be mentioned:—

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His Majesty the Emperor of the French
His Royal Highness the Prince of Prussia
His Royal Highness the Viceroy of Egypt
His Royal Highness Halim Pasha
His Excellency the Belgian Minister
His Excellency the Count de Tasca, Italy
His Excellency the Count Papadopoli, Italy
His Grace the Duke de Praslin, France
His Grace the Duke of Devonshire
His Grace the Duke of Portland
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The Most Hon. the Marchioness of Londonderry
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*** *Every Machine sent out is Warranted to give ample satisfaction, and, if not approved of, may be exchanged for any other size of Machine, or for the Machine of any other Maker, or may be at once returned unconditionally.*

☞ Messrs. Brown & Co. beg to make the announcement, so important to all those who use MOWING MACHINES, that they now EXECUTE REPAIRS of all MACHINES in LONDON. All REPAIRS and ADJUSTMENTS of MACHINES promptly executed at moderate fixed rates. NEW IMPROVED HORSE, PONY, AND DONKEY BOOTS made in the best style, WHOLLY of LEATHER, delivered free at prices as quoted above.

J. B. BROWN AND CO., OFFICES, 18, CANNON STREET, CITY, LONDON, E.C.

NEARLY OPPOSITE ST. SWITHIN'S LANE and "LONDON STONE," and near LONDON BRIDGE.

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OPPOSITE the CITY of LONDON BREWERY, and close to the LONDON BRIDGE STEAM BOAT PIERS.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 23.—1865.] SATURDAY, JUNE 10. {Price Fivepence. Stamped Edition, 6d.

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ROYAL HORTICULTURAL SOCIETY. SPECIAL SHOW of AZALEAS will be held on SATURDAY NEXT, June 17. Band Royal Horse Guards, 3.30 to 6. Tickets to Fellows' friends, 2s. 6d.; to the public, 3s. 6d. Either of the above purchased on the day, 5s.

ROYAL HORTICULTURAL SOCIETY.—A LECTURE on DENDROBIA (Old and New) will be given on WEDNESDAY NEXT, at South Kensington, by James Bateman, Esq., F.R.S., F.R.H.S. Chair to be taken at half-past 3 o'Clock.

ROYAL BOTANIC SOCIETY, REGENT'S PARK.—The SECOND GENERAL EXHIBITION of PLANTS, FLOWERS, and FRUIT, WEDNESDAY NEXT, June 14. Tickets to be obtained at the Gardens, and of the Society's Clerk; Austin's Ticket Office, St. James's Hall, on Vouchers from Fellows of the Society, price 5s.; or on the day of Exhibition, 7s. 6d. each. Gates open at 2 o'clock.

CRYSTAL PALACE.—The GREAT ROSE SHOW of the Season will take place on SATURDAY, June 24. Schedules and Forms of Entry now ready.
Geo. Grove, Secretary.

MANCHESTER BOTANICAL and HORTICULTURAL SOCIETY.—The Council beg to announce that the SECOND EXHIBITION of FRUITS, FLOWERS, and PLANTS will be held at the Gardens, Old Trafford, on FRIDAY and SATURDAY, June 23 and 24. Schedules of Prizes and any further information may be obtained from the Undersigned.—By Order.
Bruce Findlay, Curator.

GRAND FLORAL GALA, ROSE SHOW and BAND CONTEST at STAMFORD, on WEDNESDAY, June 28. Open to All England. The Schedules, with Rules, are now ready, and will be forwarded on application to O. B. Shore, M.D., } Hon.
Stamford, June 10. F. A. Hewitt } Secs.

LEICESTER and LEICESTERSHIRE FLORAL and HORTICULTURAL SOCIETY.
President—The Right Hon. Earl Howe.
The GREAT ROSE SHOW of the above Society (open to all England) will be held on the 4th and 5th JULY NEXT.
A SHOW of CAGE BIRDS will be held on the same days (open to all England).
For programme and particulars apply to the Secretary,
Wm. Penn Cox, Market Place, Leicester.

BOS[illegible] FLORAL and HORTICULTURAL [illegible].—FIRST SHOW will be held on THURSDAY, July 6. [illegible]ounds, in Two Prizes, will be given for the Best and Second [illegible] Cut Roses. Sched[illegible]c., may be obtained of Mr. W. H. Bailes, Solicitor, Boston; [illegible]Mr. Jonathan Cocks, West Skirbeck Nursery, Boston.

BI[illegible]INGHAM ROSE SHOW, [illegible] THURSDAY and FRIDAY, July 6 and 7. PRIZ[illegible]STS may be had of Mr. Alexander Forrest, Queen Chamb[illegible]Cherry Street, Birmingham.
ENTRIES CLOSE, Friday, June 30.

FE[illegible] and HORTICULTURAL FETE, to be held at PETERBOROUGH, in connection with the Northamptonshire Agricultural Society's Annual Show, on THURSDAY, July 6. Premiums amounting to more than £200 will be offered for Competition. Open to All England. Prizes to be paid on the day of Exhibition. The Band of the Coldstream Guards, under the leadership of A. D. Godfrey, Esq., has been engaged.
Thursday, June 22, is the last day for Entries to the above.
The Schedule and Rules may be obtained of the Secretary, Mr. John Fox, 14, Narrow Street, Peterborough.

SLEAFORD HORTICULTURAL FETE.—The Annual Display of FLOWERS, FRUITS, and VEGETABLES will be held on THURSDAY, July 20. Schedules on application to
Frank Warwick, Secretary, North Road Nursery, Sleaford.

Royal Botanic Gardens, Regent's Park.
JOHN WATERER begs to announce that his Collection of HARDY, SCARLET, and other choice RHODODENDRONS, &c., is NOW on VIEW at the above Gardens, and may be seen Daily (Sundays, Wednesdays, and Mondays, June 5th and 12th, excepted).
Orders of Admission granted by Fellows of the Society, and by the Advertiser. Address as above.
☞ By production of Card, admittance can also be obtained at Waterer's Gate without Orders, the above days excepted.

J. IVERY AND SON'S fine Collection of AZALEA INDICA is NOW in BLOOM, and will continue until the middle of June. J. I. & Son's Collection of Hardy Ferns is also well worthy an inspection. Dorking, June 10.

Roses.
H. LANE AND SON, The Nurseries, Great Berkhamstead, beg to inform their Patrons and the Public that their COLLECTION (upwards of 7 acres) is NOW in BLOOM, at the Balshaw Nurseries, 1½ mile from the Station, and will continue during the Season.

New Roses of 1865.
PAUL AND SON solicit orders for MARECHAL NIEL and the other NEW FRENCH ROSES, at 42s. per dozen. To be sent out with their NEW ROSE PRINCESS MARY of CAMBRIDGE, on and after the 1st July. Roses for bedding in quantity on application.
"Old" Cheshunt Nurseries, Cheshunt, N.

WILLIAM HOOPER, Nurseryman, Seedsman, and Florist, St John's Hill, near Clapham Junction Station, S.W. CATALOGUES of BEDDING and CONSERVATORY PLANTS post free on application.

Genuine Garden and Agricultural Seeds.
JAMES CARTER AND CO., Seed Farmers, Merchants, and Nurserymen, 237 and 238, High Holborn, London, W.C.

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NEW and GENUINE AGRICULTURAL, GARDEN, and FLOWER SEEDS.
Special prices and advantageous offers on application to James Fairhead & Son, Seed Growers and Merchants, 7, Borough Market, London, S.E.

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Purple King Verbena.
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BEDDING-OUT PLANTS in great variety. WINDOW JARDINETS, Empty or Furnished, in variety. The "Gardeners' and Amateurs' Friend," see page 454. Barr & Sugden, 12, King Street, Covent Garden, W.C.

CRYSTAL PALACE, ROYAL BOTANIC, and ROYAL HORTICULTURAL FLOWER SHOWS.
At these PLANT CASES will be exhibited in great variety, furnished with the Choicest Exotic Fern and Foliage Plants, arranged by Barr & Sugden, of 12, King Street, Covent Garden, W.C.

To the Trade.
SAMUEL COX, Nurseryman, Ludlow, has a few Thousand CHRYSANTHEMUMS to offer at 10s. per 100, or 500 for 40s., good varieties of New and Old, out of store pots.

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St. John's Hill Nursery, near Clapham Junction Station, S.W.

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For Description and Price see previous Advertisements. Liberal Discount to the Trade.
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First Quality.
CALCEOLARIA, PRIMULA, CINERARIA, CARNATION, PICOTEE, PINK, AURICULA, VERBENA, MIMULUS, ZONALE GERANIUM and PELARGONIUM.
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CALCEOLARIA, CINERARIA, and PRIMULA, saved from the finest strains in cultivation.
2s. 6d. and 5s. per packet.
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A few Seeds of the very choicest quality.
PRIMULA, CALCEOLARIA, CINERARIA, HUMEA ELEGANS, and PANSY, 6d. to 5s. per packet.
GERMAN WALLFLOWER, RUSSIAN WALL-LEAF STOCK fine, SCARLET BROMPTON STOCK fine, WHITE QUEEN STOCK, PURPLE QUEEN STOCK, HOLLYHOCK, 4d. to 2s. per packet.
CARNATION and PICOTEE, ex., 2s. per packet.
12 packets choice BIENNIALS, 36 stamps.
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J. IVERY AND SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

New Azalea indica.
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FORGET-ME-NOT.—Brilliant glossy reddish-purple, 10s 6d. & 21s.
BEAUTY of DORKING.—White striped and spotted with rose, 10s. 6d. and 21s.
For a full description see CATALOGUE, which will be forwarded post free on application.—Dorking, June 10.

WANTED, AZALEA INDICA STOCKS, from 6 to 8 inches, good healthy clean stuff. Any one having these to offer will oblige by stating price per 100 to
Jas. Ivery & Son, Dorking.

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Richard Smith, Seed Merchant, Worcester.

NEW and SELECTED SEEDS.
CARPENTER'S MAGNUM BONUM PEAS.—The Largest and Best Tall Variety grown. 5s. per quart.
CARPENTER'S MULTUM IN PARVO PEAS.—The Best Dwarf Variety grown. 5s. per quart.
CARPENTER'S MONSTROUS WHITE COS LETTUCE,
CARPENTER'S MONSTROUS GREEN COS LETTUCE,
CARPENTER'S MONSTROUS BROWN COS LETTUCE,
are the three best LETTUCES in cultivation. 1s., 2s. 6d., and 5s. per packet.
CARPENTER'S PREMIER SWEDE.—Superior in size, shape, and quality to any other Swede grown. (Sow 3 lb. per acre.) 3s. per lb.
A remittance from unknown correspondents is requested.
CATALOGUES on application to Edward Carpenter, Seed Merchant and Grower, Brighton and Sussex Seed Warehouse, 96, St. James's Street, Brighton.

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New Plants for 1865.
JAMES CARTER AND CO.'S CATALOGUE of NEW and CHOICE BEDDING, GREENHOUSE, and STOVE PLANTS, is now ready, and will be forwarded gratis and post free on application.
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INTERMEDIATE STOCK, COVENT GARDEN and VICTORIA VARIETIES.
Scarlet, Purple, White, or Mixed COVENT GARDEN INTERMEDIATE STOCK, each, 1s. per packet.
Scarlet, White, or Mixed VICTORIA INTERMEDIATE STOCK, very floriferous, and more robust than the Covent Garden varieties, each 2s. 6d. per packet.
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ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
*** Part II. (Exotic Ferns) will be issued as early as possible.
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Strong Flowering Plants may be obtained of Charles Noble, Bagshot.

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GEO. CLARKE is now prepared to send out in packets, price 2s. 6d. each, this, the finest breed of PRIMULAS in cultivation. The Seed now for sale has been saved from selected plants, so that it is believed the produce will be even superior to that of former years.
Printed instructions for raising and growing the plants sent with each packet. Stamps received in payment.
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DOBSON'S HYBRIDIZED CALCEOLARIA, 1s 6d, 2s 6d., 3s. 6d., 5s.
DOBSON'S PRIZE CINERARIA, 1s, 2s. 6d, 5s
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Sealed Packets, all one quality.
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Shrubs, Roses, Fruit Trees, &c.
WM. CUTBUSH AND SON'S GENERAL NURSERY STOCK is the best near London.
GLADIOLI, fine, from 4s., 6s., 9s., & 12s. per dozen.
CATALOGUES on application.
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TO BE DISPOSED OF, by Private Sale, a Collection of clean healthy ORCHIDS: also a quantity of STOVE PLANTS, including some specimens fit for Exhibition. To any person taking the entire, or whole of either lot, they would be sold a very great bargain, as they must be cleared off the premises.
For Catalogue, &c., apply to the Rev. Frederick Fitzpatrick, Streamstown, Mohill

ROBINIA DECAISNEANA.—A new, beautiful, and very free flowering variety of the common ACACIA, with lovely pink flowers. It was awarded a First-class Certificate by the Floral Committee of the Royal Horticultural Society on the 30th May last. J. & C. Lee can now supply healthy plants at 2s 6d. each.
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RAPE or COLE SEED.—A few Quarters to Dispose of.—For price per Quarter apply to
Frank Warwick, Seed Merchant, Sleaford.

Rape Seed for Sowing.
CHARLES SHARPE AND CO., Seed Merchants, Sleaford, have English-grown Seed of the above to offer, of good quality. Price on application.

GOOD BROCCOLI PLANTS, 5s. per 1000, may be had of
Mr. A. Wilkin, Tiptree, Kelvedon, Essex.

The Best Early Turnip for Field Culture is the Pomeranian White Globe.
SUTTON AND SONS can supply fine New Seed of the POMERANIAN WHITE GLOBE TURNIP at 10d. per lb., or cheaper by the bushel. Carriage free except small parcels.
PRICED LISTS of TURNIP SEEDS post free.
Royal Berkshire Seed Establishment, Reading.

DRUMHEAD CABBAGE PLANTS, Autumn-sown, for late planting, can be supplied cheap by
H. & R. Sharpe, Skeffing Nurseries, Leicester.

Now Ready for Planting.
DRUMHEAD CABBAGE and KOHL RABI PLANTS at 3s. 6d. per 1000 for cash, or cheaper by large quantities.
Frederick Gee, Seedsman and Grower, Biggleswade, Beds.

To Market Gardeners, Nurserymen, Farmers, and Gentlemen Gardeners.
SUPERIOR DRUMHEAD CABBAGE PLANTS, 2s. per 1000
CELERY PLANTS, Red and White, 1s. per 100.
KOHL RABI PLANTS, of the finest stock ever offered, 3s. per 1000.
BRUSSELS SPROUTS, 5s. per 1000. SAVOYS, 4s. per 1000.
CAULIFLOWERS, 8s. per 1000. Terms cash.
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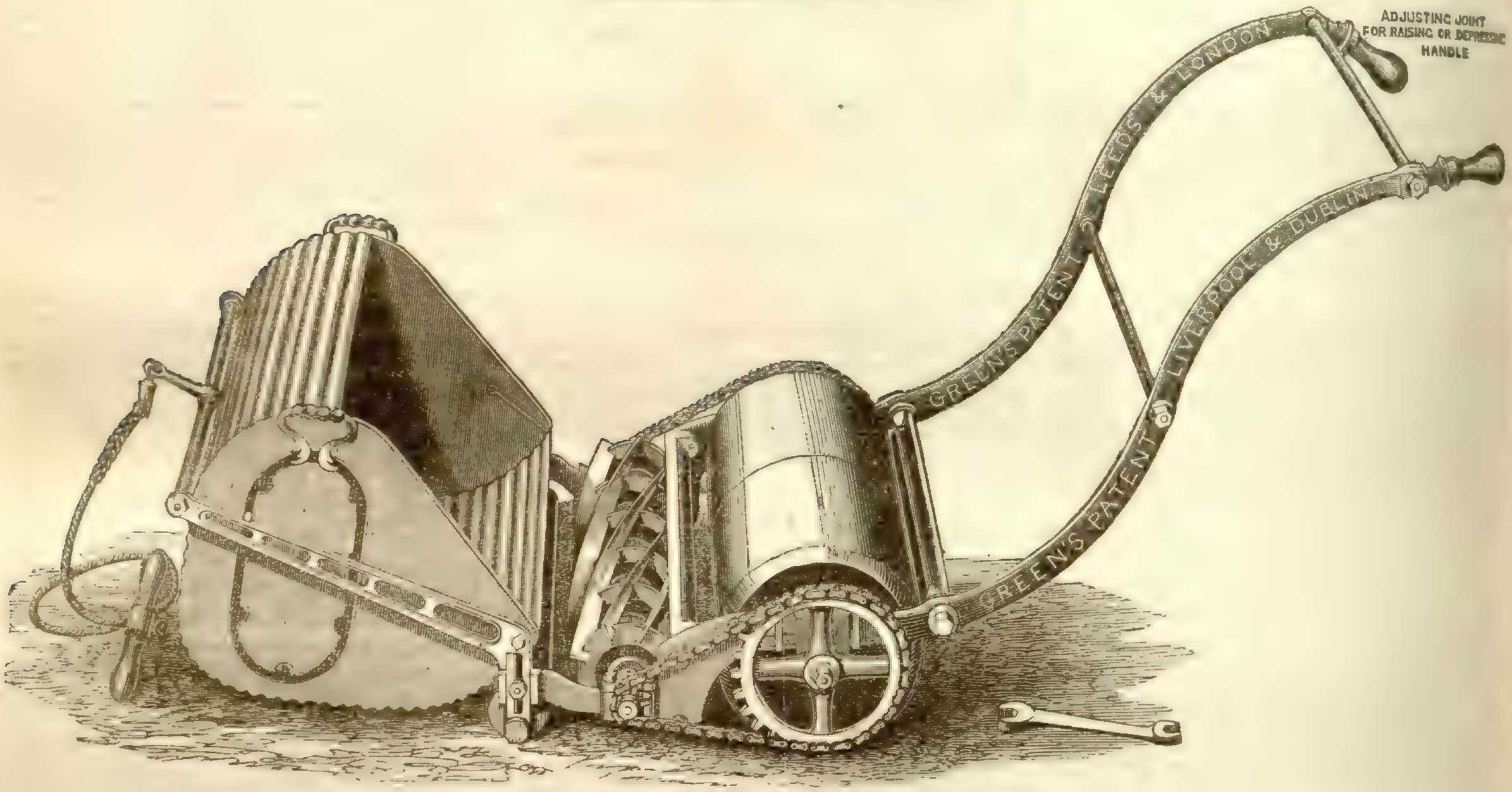
GREEN'S PATENT SILENS MESSOR

OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

BY SPECIAL APPOINTMENT,
SOLE MANUFACTURER

TO HER MOST GRACIOUS MAJESTY
THE QUEEN.



IMPROVED PATENT LAWN MOWER FOR 1865,

AS RECOMMENDED BY THE JUDGES OF THE ROYAL HORTICULTURAL SOCIETY'S SHOW HELD JULY 20, 1864.

GREEN'S PATENT LAWN MOWERS have proved to be the best, and carried off every Prize that has been given in all cases of competition. The Judges at the Royal Horticultural Society's Show, held July 20, 1864, awarded them a First-class Certificate (no Prizes were given), and, at the same time, suggested a slight alteration, which has been done, and Messrs. T. G. & Son consider their MACHINES now as near perfect as possible.

Messrs. T. G. & Son beg to state that, owing to the great demand for their MACHINES in past years, they have been unable to execute orders with that despatch due to their numerous customers, but are now happy to inform them, that they have made such alterations and arrangements in their premises, whereby they trust to be in a position to send off all orders the day they are received.

PRICES OF HAND MACHINES.

To Cut 10 inches	£3 10 0	*Suitable for a Lady.*	
" 12 "	4 10 0	"	"
" 14 "	5 10 0	*Suitable for One Person.*	
" 16 "	6 10 0	"	"
To Cut 18 inches	£7 10 0	*Suitable for One Person.*	
" 20 "	8 0 0	*Suitable for Two Persons.*	
" 22 "	8 10 0	"	"
" 24 "	9 0 0	"	"

Packing Cases are charged at the following low rates, viz.: for the 10 and 12 inches Machine, 3*s.*; 14 and 16 inches, 4*s.*; 18 and 20 inches, 5*s.*; 22 and 24 inches, 6*s.* Parties providing themselves with Lawn Mowers are recommended to purchase the Cases in which to stow them away, when not in use, to prevent them from getting damaged; if returned, two-thirds will be allowed for them.

PRICES of HORSE, PONY, and DONKEY MACHINES, including Patent Self-delivery Box; Cross Stay complete; suitable for attaching to ordinary Chain Traces or Gig Harness.

To Cut 26 inches	£13 0 0	*Leather Boots for Donkey*, 18*s.*
" 28 "	15 0 0	
" 30 "	17 0 0	
To Cut 30 inches	£21 0 0	*Leather Boots for Pony*, 22*s.*
" 36 "	24 0 0	*Leather Boots for Horse*, 26*s.*
" 42 "	27 0 0	
" 48 "	30 0 0	

The 26, 28, and 30 inches can easily be worked by a Donkey, or by Two Men, on an even Lawn, the 30 and 36 inches by a Pony, and 42 and 48 inches by a Carriage Horse; and, as the MACHINES make no noise in working, the most spirited animal can be employed without fear of its running away, or in any way damaging the MACHINE.

Both the HORSE, PONY, DONKEY, and HAND MACHINES possess (over all other Makers) the advantage of self-sharpening: the cutters being steel on each side when they become dull or blunt by running one way round the cylinder, can be reversed again and again, bringing the opposite edge of the cutter against the bottom blade, when the MACHINE will cut equal to new. Arrangements are made that the cylinder can be reversed by any inexperienced person in two or three minutes.

The above MACHINES are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England; are warranted to give satisfaction, and, if not approved of, can be at once returned unconditionally.

THOMAS GREEN AND SON,

SMITHFIELD IRON WORKS, LEEDS; 2, FARRINGDON ROAD, HOLBORN HILL, LONDON, E.C.

19, EDEN QUAY, DUBLIN; and HADWIN'S BUILDINGS, TITHEBARN STREET, LIVERPOOL.

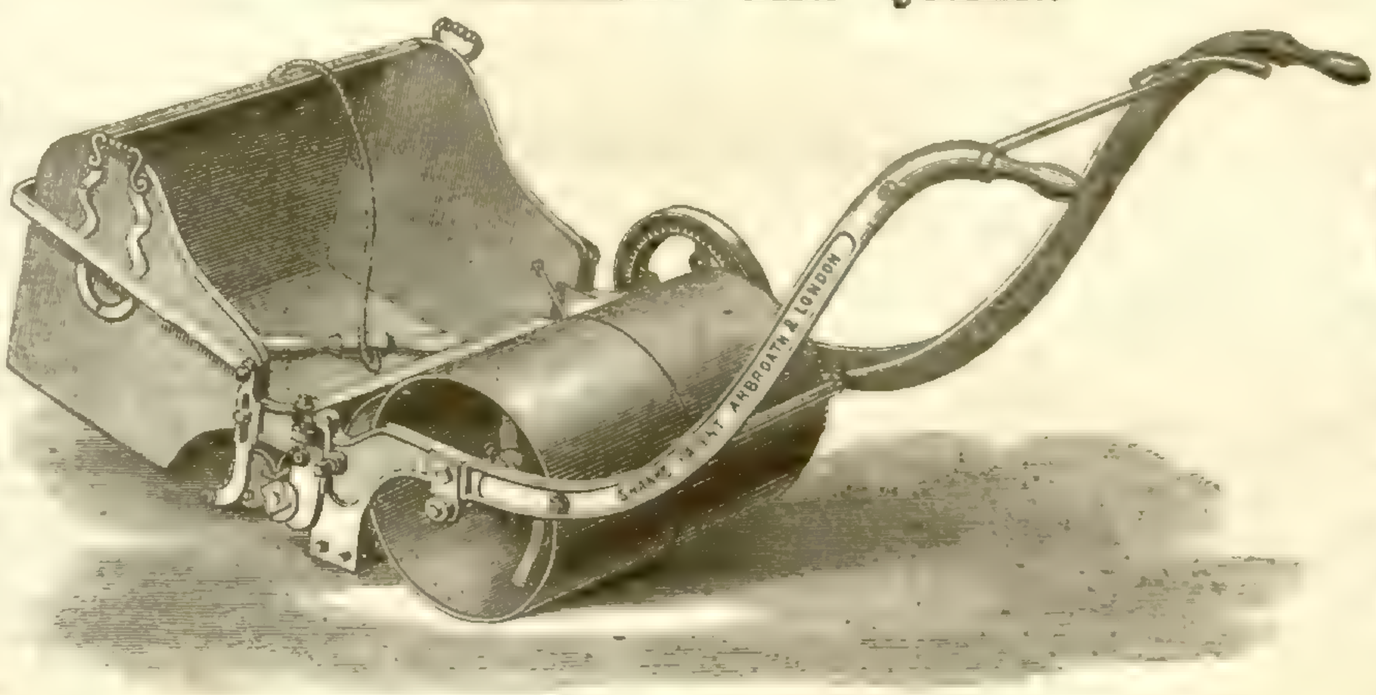
SHANKS' NEW IMPROVED PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1865.

PATRONIZED ON FIVE SEPARATE OCCASIONS DURING THE SEASON OF 1864 BY

HER MAJESTY THE QUEEN.

ALEXANDER SHANKS & SON are gratified to find that in the large and increasing demand for their celebrated MACHINES, they receive a conclusive proof that their merits are every season becoming more appreciated by the Practical Gardener.



HAND MACHINE

A. S. & SON, in introducing Improvements into their MACHINES, have been careful that the advantages in point of durability, simplicity of construction, and superiority in the work executed, which have all along been peculiar to SHANKS' MACHINES, should still remain.

SHANKS' PATENT LAWN MOWERS are in daily use in the ROYAL GARDENS at KEW, WINDSOR, BUCKINGHAM PALACE, HAMPTON COURT, OSBORNE, and BALMORAL; in the GARDENS of the ROYAL HORTICULTURAL SOCIETY at KENSINGTON; in the GROUNDS of the CRYSTAL PALACE COMPANY at SYDENHAM; in VICTORIA PARK; in BATTERSEA PARK; and in many hundreds of the principal Gardens in the Kingdom, as well as abroad, where their merits have been fully proved and their success established.

PRICES—including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom.

SHANKS' NEW PATENT HAND MACHINE for 1865.

Width of Cutter.		
10-inch Machine	£3 10 0	*Easily Worked by a Lady.*
12-inch Machine	4 10 0	
14-inch Machine	5 10 0	*Ditto by a Boy.*
16-inch Machine	6 12 6	*Ditto by a Man.*

SHANKS' NEW PATENT HAND MACHINE for 1865.

Width of Cutter.		
19-inch Machine	£7 12 6	*Easily Worked by a Man and Boy*
22-inch Machine	8 7 6	*Ditto by Two Men.*
24-inch Machine	8 17 6	

Silent Movement for the five smallest sizes, 4*s.* extra; for the other sizes, 7*s.* 6*d.* extra.

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
25-inch Machine	£12 10 0	25*s.* extra.
28-inch Machine	14 10 0	30*s.* ,,
30-inch Machine	15 15 0	30*s.* ,,

Silent Movement, 12*s.* 6*d.* extra; Boots for Pony, 21*s.* per set; Ditto for Donkey, 16*s.* per set.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus
30-inch Machine	£19 0 0	30*s.* extra.
36-inch Machine	22 0 0	30*s.* ,,
42-inch Machine	26 0 0	40*s.* ,,
48-inch Machine	28 0 0	40*s.* ,,

Silent Movement, 20*s.* extra; Boots for Horse's Feet, 24*s.* per set.

A. S. & SON have pleasure in submitting the following List from among the hundreds of distinguished individuals, both in this country and abroad, whose patronage they have had the honour to receive:—

HER MOST GRACIOUS MAJESTY THE QUEEN,

For the Royal Gardens at Kew, Windsor, Buckingham Palace, Hampton Court, Osborne, and Balmoral.

HIS MAJESTY THE EMPEROR OF THE FRENCH
HIS MAJESTY THE KING OF SAXONY
HIS ROYAL HIGHNESS THE PRINCE OF PRUSSIA
HIS GRACE THE ARCHBISHOP OF CANTERBURY

His Grace the Duke of Bedford
His Grace the Duke of Newcastle
His Grace the Duke of Marlborough
His Grace the Duke of Rutland
His Grace the Duke of Sutherland
His Grace the Duke of Buccleuch
His Grace the Duke of Devonshire
His Grace the Duke of Leinster
His Grace the Duke of Athole
His Grace the Duke of Norfolk
His Grace the Duke of Hamilton and Brandon
His Grace the Duke of Argyll
His Grace the Duke of Northumberland
His Grace the Duke of Roxburghe
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The Most Hon. the Marquis of Normandy
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The Most Hon. the Marquis of Westminster
The Most Hon. the Marquis of Lansdowne
The Most Hon. the Marquis of Stafford
The Most Hon. the Marquis of Kildare
The Most Hon. the Marquis of Abercorn
The Most Hon. the Marquis of Londonderry
The Most Hon. the Marquis of Ailsa
The Most Hon. the Marquis of Tweeddale
The Most Hon. the Marquis of Aylesbury
The Right Hon. the Earl of Tankerville
The Right Hon. the Earl of Poulett
The Right Hon. the Earl of Meath
The Right Hon. the Earl of Leicester
The Right Hon. the Earl of Camperdown
The Right Hon. the Earl of Shannon
The Right Hon. the Earl of Abergavenny
The Right Hon. the Earl of Morley
The Right Hon. the Earl of Durham
The Right Hon. the Earl of Lauderdale
The Right Hon. the Earl of Home
The Right Hon. the Earl of Harrington
The Right Hon. the Earl of Carnarvon
The Right Hon. the Earl of Northesk
The Right Hon. the Earl of Glasgow
The Right Hon. the Earl of Stamford and Warrington
The Right Hon. the Earl of Aberdeen
The Right Hon. the Earl of Aberdour
The Right Hon. the Earl of Ashburnham
The Right Hon. the Earl of Haddington
The Right Hon. the Earl of Cawdor
The Right Hon. the Earl of Denbigh
The Right Hon. the Earl of Galloway
The Right Hon. the Earl of Hopetoun
The Right Hon. the Earl of Mansfield
The Right Hon. the Earl of Milltown
The Right Hon. the Earl of Selkirk
The Right Hon. the Earl of Winchilsea
The Right Hon. the Earl of Zetland
The Right Hon. the Earl of Minto
The Right Hon. the Earl of Kintore
The Right Hon. the Earl of Seafield
The Right Hon. the Earl of Southesk
The Right Hon. the Earl of Kinnoul
The Right Hon. the Earl of Airlie
The Right Hon. the Earl of Bessborough
The Right Hon. the Earl of Brownlow
The Right Hon. the Earl of Howe
The Right Hon. the Earl of Lindsey
The Right Hon. the Earl of Rothes
The Right Hon. the Earl of Ranfurly
The Right Hon. the Earl of Strathmore
The Right Hon. the Earl of Rosslyn
The Right Hon. the Earl of Harrowby
The Right Hon. the Earl of Shrewsbury and Talbot
The Right Hon. the Earl of Westmoreland
The Right Hon. the Earl of Dalhousie
The Right Hon. the Earl of Portarlington
The Right Hon. the Earl of Kilmorey
The Right Hon. the Earl of Dartmouth
The Right Hon. the Earl of Guildford
The Right Hon. Earl Spencer
The Right Hon. Earl Fortescue
The Right Hon. Earl Vane
The Right Hon. Earl Nelson
The Right Hon. the Countess of Stair
The Right Hon. Countess de Morella
The Right Hon. the Countess of Waldegrave
The Right Hon. the Countess of Cottenham
The Right Hon. Viscountess Milton
The Right Hon. Viscountess Castlereagh
The Right Hon. Viscount Seaham
The Right Hon. Viscount Duncan
The Right Hon. Viscount Eversley
The Right Hon. Viscount de Vesci
The Right Hon. Viscount Boyle

HIS EXCELLENCY THE LORD-LIEUTENANT OF IRELAND
HIS EXCELLENCY THE BELGIAN MINISTER
HIS GRACE THE ARCHBISHOP OF YORK
THE RIGHT HON. LORD PALMERSTON

The Right Rev. the Lord Bishop of Durham
The Right Rev. the Lord Bishop of Ripon
The Right Rev. the Lord Bishop of Killaloe
The Right Rev. the Lord Bishop of Melbourne
The Right Rev. Lord Bishop Nixon
The Right Hon. Lord Bagot
The Right Hon. Lord Monck
The Right Hon. Lord Hatherton
The Right Hon. Lord Kinnaird
The Right Hon. Lord Lovat
The Right Hon. Lord Rollo
The Right Hon. Lord Braybrooke
The Right Hon. Lord Blantyre
The Right Hon. Lord Berwick
The Right Hon. Lord Halliburton
The Right Hon. Lord Churchill
The Right Hon. Lord Ossulston
The Right Hon. Lord Portman
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The Right Hon. Lord Willoughby de Broke
The Right Hon. Lord Cremorne
The Right Hon. Lord Dalrymple
The Right Hon. Lord Inchiquin
The Right Hon. Lord Rokeby
The Right Hon. Lord Rayleigh
The Right Hon. Lord Ashtoun
The Right Hon. Lord Stanley
The Right Hon. Lord James Murray
The Right Hon. Lord Berners
The Right Hon. Lord Harris
The Right Hon. Lord Kingsdown
The Right Hon. Lord Rivers
The Right Hon. Lord Taunton
The Right Hon. Lord Oranmore
The Right Hon. Lord Wharncliffe
The Right Hon. Lord Bateman
The Right Hon. Lord Lilford
The Right Hon. Lord Sudeley
The Right Hon. Lord John Thynne
The Right Hon. Lord Cavan
The Right Hon. Lord Middleton
The Right Hon. Lord Calthorpe
The Right Hon. Lord Dunfermline
The Right Hon. Lord Abercrombie
The Right Hon. Lord Castlerosse
The Right Hon. Lord Carrington
The Right Hon. Lord Dufferin
The Right Hon. Lord Poltimore
The Right Hon. Lady Leighton
The Right Hon. Lady Rashleigh
The Right Hon. the Ladies Boyle
The Right Hon. Lady Holland
The Right Hon. Lady M'Taggart
The Right Hon. Dowager Lady Clinton
The Right Hon. R. C. Nesbitt Hamilton
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Sir Lydstone Newman, Bart.
Sir Coleman Rashleigh, Bart.
Sir John R. Carnac, Bart.
Sir Philip Egerton, Bart.
Sir William Maxwell, Bart.
Sir Archibald Dunbar, Bart.

Shanks' Patent Lawn Mowers are warranted to give ample satisfaction, and if not approved of may be at once returned.

☞ A. S. & SON *beg to intimate that their Warehouse at 27, Leadenhall Street, is the only place in London where intending purchasers of Lawn Mowers can choose from a stock of from 150 to 200 Machines. All sizes are kept in stock, whether for Horse, Pony, or Hand Power, and orders are executed on the day they are received.*

PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N. B.

LONDON OFFICE and SHOW ROOMS, 27, LEADENHALL STREET, E.C.

To Gentlemen, Nurserymen, & the Trade generally.

TO BE SOLD, very Cheap, several SPECIMEN PLANTS for want of room; also several Hundred VARIEGATED GERANIUMS and other good BEDDING PLANTS, in 48 and 60-Pots.

T. Hawkins, Manor Nursery, Harrow Road, Paddington, W.

Horticultural Gardens, South Kensington, May 24.

NAYLOR and CO., 7, Princes Street, Cavendish Square, London, W., were awarded the First Prize for Dinner Table Decoration for their Newly Designed and Registered EXCELSIOR CORNUCOPIA FRUIT and FLOWER STAND.

GARDEN HOSE, GARDEN HOSE, GARDEN HOSE, with Brass Fittings complete.—The London India-Rubber Company, Limited, Manufacturers of MECHANICAL RUBBER, 9, Ironmonger Lane, London, E.C.

SHAW'S TIFFANY.

For samples and prices apply to

J. Shaw & Co., 29, Oxford Street, Manchester.

TANNED NETTING for the PROTECTION of FRUIT TREES, at 1*d.* per square yard. Cotton Netting, Woollen Netting, Scrim Canvas, and Tiffany. Greenhouse Shades, &c.

Be particular, John Edgington & Co., 48, Long Lane, Smithfield, E.C.; 18, Piccadilly, W.; and 108, Old Kent Road, S.E.

Save your Money.

THE LONDON TWO-YARD TANNED NETTING (of good quality) for Fruit Trees, &c., only 1½*d.* per yard run.

Also good quality SHEEP NETTING, usual depth, 20*s.* per 100 yards run.

Address, G. & D. Hurn, Sack, Rope, Twine, and Net Manufacturers, 13, Dove Street, Norwich, Norfolk. Established 1812.

EDGINGTON'S GARDEN NETTING, the cheapest and most durable, 1*d.* per square yard, or in quantities of 250, 500, or 1000 yards, carriage free.

EDGINGTON'S MARQUEES and GARDEN TENTS are the prettiest. [capacious.

EDGINGTON'S MARQUEES for hire are the most handsome and

EDGINGTON'S RICK CLOTHS for 60 years have maintained their celebrity as the best.

HAYTHORN'S and BRITTAIN'S NETTINGS.

Sample of material free on application.

Be particular—Frederick Edgington & Co., Thomas Street, Old Kent Road, London, S.E. A liberal discount to the Trade.

International Exhibition, 1862, Class XIX., Honourable Mention.

JAPAN FLAX.—Fourth Shipment, just arrived.—The cheapest, finest Material ever introduced for tying Plants, Flowers, &c. The highest testimonials from the first-class Gardeners of the United Kingdom. Supplies can be obtained from every Wholesale Seed Firm in London. For Free Samples apply to Importer,

John Allison, 22, Lawrence Pountney Lane, Cannon Street, E.C.

REIGATE SILVER SAND.—Best Kent and Surrey PEATS, LOAMS, SPHAGNUM, ROCK SANDSTONE, London-made FLOWER POTS, &c. Moderate Prices.

N.B. Loaded Trucks can be sent direct on all the Railways.

W. Short, Sand and Peat Depôt, Reigate, Surrey.

REIGATE SILVER SAND, 12*s.* per ton, at Swan Place; delivered 5 miles, or to any London Railway, 16*s.* per ton, or 1*s.* 6*d.* per bushel (sacks at cost price, or on hire).

KENTISH and other PEATS, YELLOW LOAM, LEAF-MOULD, SPHAGNUM MOSS, and COCOA FIBRE REFUSE.

J. Kennard, Swan Place, Old Kent Road, London, S.E.

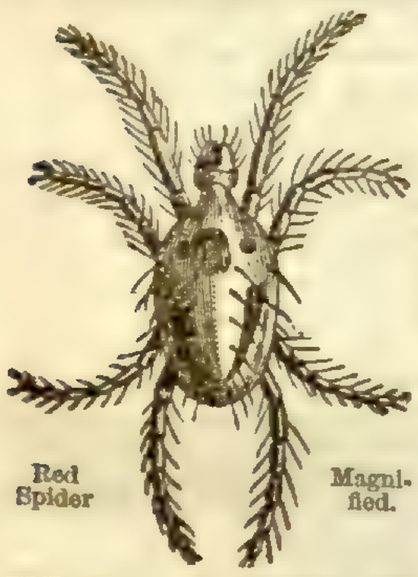
COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 2*s.* per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the Patent Cocoa Fibre Company, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. Barsham & Co.

Barsham's BRUSHES and MATS are sold in every town.

Caution.—Every Brush is stamped, J. Barsham's Patent.



Red Spider — Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes, 1*s.* 3*s.*, and 10*s.* 6*d.* each.

Wholesale by

PRICE'S PATENT CANDLE COMPANY (Limited).

TOOGOOD'S (late Page & Toogood's) IMPROVED BLIGHT COMPOSITION introduced in 1850, has been manufactured under W. Toogood's sole directions since that period. He has made great improvements in it, and by reducing the price 25 per cent., it is one of the cheapest and has always been the most efficacious remedy extant. To publish the Testimonials no newspaper would give space, but Messrs. Cutbush & Son, the eminent Nurserymen, say:—"It is the best thing for the purpose we can find, and does not appear to injure the young foliage like Gishurst does. This is our experience after 10 years' trial."

"February 24, 1864."

Mr. E. Sage, *Gardener to* Lord Howe, *says*:—

"Will you please send us 15 gallons of your Blight Composition. I see you have reduced the price, and trust that you may some day be able to make another reduction, and I feel assured that no 'Gishurst,' will be used by practical men."

"We hereby Certify that during the whole time we were Warehousemen in the Establishment of B. Page & Co., and subsequently Page & Toogood, that we Manufactured the Blight Composition under Mr. Toogood's *sole directions, and that he alone knew the proportions of the various ingredients.*

Signed John Morley,
Henry Drew,
Henry Sheerman,
George Isaacs."

"July 13, 1863."

Extra strong, 3*s.* per gallon (sufficient to make 4 gallons fit for use), 10 gallons and upwards carriage free to London.

May be obtained of the principal Nurserymen and Seedsmen in the Trade, and of W. Toogood, Royal South Hants Seed Establishment, Southampton.

The Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

A CHOICE and EXTENSIVE COLLECTION of STOVE and GREENHOUSE PLANTS always on view. Also FRUIT TREES, SHRUBS, and ORNAMENTAL TREES, from the Country Branches of the Firm.

The SEED and GENERAL NURSERY BUSINESS is carried on here, and Packages are delivered free at the various London Railway Stations.

Branches.

EALING NURSERY, G. Cannon, Manager.
Ten minutes' walk from the Ealing Station on the Great Western Railway Main Line.

FRUIT TREES, ROSES, and SHRUBS, are here extensively and successfully cultivated in some of the finest Loam in the County.

FELTHAM NURSERY, R. Higham, Manager.
Ten minutes' walk from Feltham Station.

EVERGREEN and DECIDUOUS SHRUBS, and CONIFERÆ, are here largely grown in a free Loam, well suited to their habits.

At SION LANE and WOOD LANE NURSERIES, ISLEWORTH. ORNAMENTAL TREES are in a healthy and thriving state, and GENERAL HARDY PROPAGATION is here carried on.

The Stock in the above Nurseries is well worth the inspection of purchasers. The prices are very moderate, and the Plants are frequently transplanted to ensure safe removal.

The following CATALOGUES are published, and will be forwarded Post Free on application:—

CATALOGUE of KITCHEN GARDEN, FLOWER, and AGRICULTURAL SEEDS.
CATALOGUE of STOVE and GREENHOUSE PLANTS.
CATALOGUE of SOFT-WOODED and BEDDING PLANTS.
CATALOGUE of FRUIT TREES and FRUIT TREES in POTS.
CATALOGUE of HARDY SHRUBS and TREES.
CATALOGUE of DUTCH BULBS, published in August.
CATALOGUE of ROSES.

John & Charles Lee, Proprietors, Hammersmith, London, W.

BEDDING PLANTS.

VERBENAS, fine selections, 100 in 50 vars., 18*s.*
CALCEOLARIAS, best bedding varieties, 3*s.* and 4*s.* per doz.
SENECIO ELEGANS NANA (new dwarf Jacobæa), very dwarf, bushy, and splendid, only 4 to 6 inches high, in 3 varieties, 4*s.* per doz.
SENECIO ELEGANS CUPREATA NANA (newest), fine crimson red, 9*s.* per doz.
MIMULUS, three beautiful new vars., Aurantiaca, Cupreus Major, and Gem, 1*s.* 6*d.* each.
GAZANIAS, three fine new vars., 1*s.* each.
GAZANIA SPLENDENS, 4*s.* per doz.; 25*s.* per 100.
Finest FUCHSIAS, PENTSTEMONS, PHLOX, LOBELIAS, PETUNIAS, DAHLIAS, &c., &c.

CATALOGUES free on application.

Stephen Brown, Seed and Nursery Establishment, Sudbury, Suffolk.

Cheap Bedding Plants.

PETER DRUMMOND and CO. have a Surplus Stock of the undermentioned BEDDING PLANTS, which they offer at the very low prices named. The Plants are extra fine and well established in single pots.

	Per doz.—*s.*	*d.*		Per doz.—*s.*	*d.*
Ageratums	1	6	Heliotropes	3	0
Convolvulus Mauritanicus	2	0	Heliotropes in store pots	1	[illegible]
Dahlias of sorts	2	0	Lantanas	2	[illegible]
Fuchsias of sorts	2	0	Pentstemons	2	[illegible]
Gazanias	2	0	Tritomas	2	[illegible]
Geraniums, Variegated, in 24 sorts	2	0	Verbenas in 100 varieties	per 100, 1[illegible]	
Arctotis repens	2	0	Sedum carneum variegatum	1	[illegible]
Antennaria margaritacea	1	3	Stachys lanata	1	0
Centaurea candidissima	4	0	Agathæa coelestis variegata	2	[illegible]
Cerastiums, sorts	1	3	Arabis alba variegata	1	[illegible]
Cineraria maritima	2	0	Veronica Andersonii variegata	2	[illegible]
Diotis maritima	2	0	Vinca major variegata	[illegible]	[illegible]
Santolina incana	2	0			

A Choice Selection of many other varieties at equally low prices.

Peter Drummond & Co., Preston Road Nursery, Yeovil, Somerset.

NEW PLANTS FOR 1865.

JAMES CARTER & CO.

HAVE MUCH PLEASURE IN

CALLING ATTENTION TO THE UNDERMENTIONED

FIRST-CLASS NEW BEDDING GERANIUMS, &c.

WHICH THEY ARE NOW PREPARED TO SEND OUT.

Beaton's Hybrid Bedding Geraniums.

BEATON'S PERFECTION (Beaton). Price 5*s.* each.
PREMIER (Beaton). Price 5*s.* each.
FORESTER (Beaton). Price 5*s.* each.
WILD CHARLIE (Beaton). Price 5*s.* each.
NEW VARIEGATED TRICOLOR BEDDING GERANIUM SUNRISE (Carter). Price 7*s.* 6*d.* each.

☞ The Set, 1 plant of each of the above, 21*s.*

NEW TROPÆOLUM DOUBLE TOM THUMB. Price 2*s.* 6*d.* each; per dozen, 18*s.*; per 25, 30*s.*; per 50, 50*s.*
NASTURTIUM KING of TOM THUMBS. Price 1*s.* 6*d.* each; per dozen, 12*s.*; per 25, 20*s.*

New Clove Carnations.

GENERAL LEE. Price 5*s.* each.
GOLIATH. Price 5*s.* each.
ASTELMA LANATA. Price 1*s.* 6*d.* each; per dozen, 12*s.*

New Single Petunias.

Nos.
1. ARABELLA, light rosy lake, white throat, a novel and most beautiful colour.
2. BEATRICE, rose edge, very dark throat, exquisitely pencilled.
3. CHRISTABEL, splendid deep crimson, fine for a bed entirely of this colour.
4. DINORAH, white margin, and flaked with deep crimson.
5. EMMELINE, very compact habit, free bloomer, bright rose, pencilled dark throat.
9. FREDERICA, crimson, in the way of Magna Coccinea, but more substance.
12. GERTRUDE, large rose, of exquisite form, white throat.
14. HELEN, deep lilac, pencilled with black, fine novel colour.
15. ISABEL, immense flower, with white ground, striped and flaked purple.

Price, each, 1*s.* 6*d.*; the Set, 10*s.* 6*d.*

NEW PLANTS OF 1864.

We are now able to offer some of the most desirable Novelties sent out in 1864, at the following very reduced prices:—

BEATON'S CYBISTER GERANIUM.
Price 1*s.* each; 9*s.* per dozen; 30*s.*, 50; 50*s.*, 100.

ORNITHOGALUM THYRSOIDES ALBUM.
See Plate in "Vade Mecum," Part IV.
Price 2*s.* 6*d.* to 3*s.* 6*d.* each.

IRESINE HERBSTII (Syn. Achyranthes Verschaffelti).
Price 1*s.* each; 9*s.* per dozen.

LILIUM AURATUM.
Strong Flowering Bulbs established in pots, 5*s.*, 7*s.* 6*d.*, and 10*s.* 6*d.* each; Small Bulbs, 3*s.* 6*d.* each.

*** For descriptions of above see J. C. & Co.'s CATALOGUE of NEW and CHOICE PLANTS, just published, and which will be forwarded Gratis and Post Free on application.

JAMES CARTER and CO., SEED MERCHANTS and NURSERYMEN,
237, 238, & 261, HIGH HOLBORN, W.C.,
CRYSTAL PALACE NURSERY, PERRY HILL, SYDENHAM, S.E.; DEDHAM and ST. OSYTH, ESSEX.

TABER'S PREPARED TURNIP SEED AGAINST THE FLY.

WORTHY THE ATTENTION OF ALL TURNIP GROWERS.

G. TABER has succeeded in DRESSING TURNIP SEED AGAINST the FLY, which the following Testimonials will bear witness to:—

"Porter's Hall, Stebbing, May 12, 1865.

"Dear Sir,—I have for three years used your Prepared Turnip Seed against the fly, and with perfect success. Until I used your dressed Seed, I frequently lost my plant of Turnip from the fly; since I have used it, I have not had to sow a second time, and have much pleasure in giving my testimony to its benefit.—Yours truly, John Hutley."

"To Mr. Taber."

"The Boarded Barns, Chelmsford, May 5, 1865.

"Dear Sir,—I have used some of your Turnip Seed prepared against the ravages of that destructive insect known as the Turnip Beetle, and can testify to its intended efficacy.

"To Mr. Taber." "Yours truly, W. F. Josling."

"Inworth Hall, June 29, 1864.

"Dear Sir,—I am happy to inform you that I have a very good plant of Swedes from the Prepared Seed you sent me (for about three pints of Seed per acre), and the flies have not, as you said, touched them. I will thank you to send me by bearer, a peck of the best White Seed you have, prepared against the fly for spring feeding. You are at liberty to make whatever use you please of this note. I feel that I and the public are much indebted to you for having found out this remedy, for the safety of our plants.

"To Mr. Taber." "I am, dear Sir, yours truly, J. S. Scrivener."

SKIRVING'S IMPROVED PURPLE-TOP SWEDE.
GREEN-TOP SWEDE.
EAST LOTHIAN PURPLE-TOP.
YELLOW TANKARD, for Early Feeding.
WHITE GLOBE.
RED GLOBE.
GREEN ROUND.
HEREFORDSHIRE WHITE.

Prepared Turnip Seed, 1s. per pint, bags included.
Not Dressed, 9d. per pint, bags included.

GEORGE TABER, RIVENHALL, ESSEX.

N.B. A remittance from unknown Correspondents, per Cheque or Post-office Order, payable at Witham, Essex.

Seeds from Choice Strains.

B. S. WILLIAMS can now supply good Seeds of the following:—

CINERARIA (Weatherill's extra choice strain).—B. S. W. has secured at a great expense the entire stock and right of exclusive sale from Mr. Weatherill, of his, the best strain of Cineraria in existence, and can now offer packets at the following prices:—3s. 6d. and 5s.

CALCEOLARIA (Herbaceous), from a fine strain, 2s. 6d. and 3s. 6d. per packet.

PRIMULA (Williams' superb strain), the finest fringed and the best coloured flowers in cultivation. Red, White, or Mixed Seed, 2s. 6d., 3s. 6d., and 5s. per packet.

Paradise and Victoria Nurseries, Holloway, London, N.

New Hardy and Rare Climbers.

CLEMATIS JACKMANNI, large deep bright violet.
CLEMATIS RUBRO-VIOLACEA, maroon shaded reddish violet.
Awarded Two First-class Certificates by Royal Horticultural Society.

MESSRS. GEORGE JACKMAN AND SON, Woking Nursery, Surrey, can with confidence recommend to the public, their beautiful rich-coloured, free-flowering and vigorous-growing CLEMATISES, that now occupy a very high position in climbing plants. On application a circular will be forwarded free, giving extracts of their "sterling merits" from the following leading Horticultural Papers:—*Proceedings of Royal Horticultural Society, The Gardeners' Chronicle, Journal of Horticulture, Floral Magazine,* and *Florist and Pomologist.*

Plants of the following varieties will at once be sent out at the under-mentioned prices:—

CLEMATIS JACKMANNI, a few strong plants of 1864, 14s. each.
" " fine plants of 1865, 7s. 6d. each, 84s. doz.
" RUBRO-VIOLACEA, a few strong plants of 1864, 14s. ea.
" " fine plants of 1865, 7s. 6d. each, 84s. doz.
" FORTUNEI (Japan), large double white, 7s. 6d. each.
" STANDISHI (Japan), beautiful violet blue, 5s. each.
" HYBRIDA SPLENDIDA, a fine deep violet, 5s. each.
" LANUGINOSA CANDIDA, large handsome white, 7s 6d. each.
" LANUGINOSA NIVEA, fine pure white, 7s. 6d. each.
Besides other good old kinds.

A Circular with a special offer to the Trade will be sent free on application.

EDWARD TAYLOR, NURSERYMAN, Malton, Yorkshire, offers a surplus STOCK of the following PLANTS at low prices:—Geraniums: Bijou, Brilliant, Auber, Henderson, Little David, Tom Thumb, White Nosegay, Cloth of Gold, Countess of Warwick, Annie, Attraction (variegated), Dandy, Golden Fleece, Lady Plymouth, Gold Ivy Leaf, Mountain of Light, Mountain of Snow, Mrs. Lennox, St. Clair, Gold Leaf, &c. Alyssum montana variegata, Lobelia speciosa and Paxtoni, Cerastium tomentosum, Senecio purpurea, Verbenas of sorts, &c.

CATALOGUES gratis on application.

NEW HARDY LATE-FLOWERING RHODODENDRONS.

PRINCE of WALES.—Bright rose shaded with purple, divided black marking on the upper petals, free grower, profuse bloomer, hardy, and the latest Hybrid Rhododendron grown. One-year grafted plants, 10s. 6d. Two-year ditto, strong, 21s. Larger plants, 31s. 6d. to 42s. each.

PRINCESS of WALES.—Deep magenta edge, pure white centre, primrose flake on the upper petals, slightly spotted with brown, totally distinct from any variety at present known, and when in bloom may be readily distinguished from all others; it is a beautiful and first-class Rhododendron. One-year grafted plants, 10s. 6d. Two-year ditto, strong, 21s. Larger plants, 31s. 6d. to 42s. each.

The usual Discount to the Trade.

The above beautiful Rhododendrons were first introduced to the public last year by M. Y., and he has again much pleasure in calling attention to them; they are both most distinct varieties, the colour and marking of the Princess of Wales being quite a fresh type, and unlike any other Rhododendron. They have both been proved in the open ground for several years, capable of withstanding our most severe winters, and being very late bloomers escape the spring frosts, frequently so fatal to the earlier blooming kinds. They are confidently recommended as most desirable additions to this favourite class of plants.

Coloured Plates, by ANDREWS, will be forwarded on application for 13 stamps each, or the two for 25 stamps.

MAURICE YOUNG, Milford Nurseries, near Godalming, Surrey.

New Plants for 1865.

B. S. WILLIAMS, Paradise and Victoria Nurseries, Holloway, London, N., begs to announce that he is now prepared to supply strong PLANTS of the undermentioned Novelties, which he has much pleasure in offering for the first time:—

NEW FUCHSIAS.

The following four Fuchsias are the most novel and distinct yet offered, and cannot fail to give satisfaction. The first is the production of Mr. Wyness, Gardener to Her Majesty, Buckingham Palace, by whom it was exhibited during the past season, and received certificates of merit. Amongst novelties and acquisitions introduced of late, this undoubtedly is the most distinct, but at present it must not be looked at in the light of a florist flower, but as the type of an entirely new race, producing its clusters of flowers quite erect. Its habit is superior to the light varieties of the ordinary drooping kinds, and it blooms profusely throughout the season, thus making it a very valuable decorative plant, and invaluable for supplying cut flowers. In Nos. 2, 3, and 4, will be found great improvements on those previously sent out. No. 2, a well-formed flower, with great width of sepal. No. 3 is the finest proportioned double flower yet offered. No. 4, quite distinct on account of its serrated petals.

No. 1. FUCHSIA ERECTA, var. NOVELTY.—Tube and sepals pure white, medium size; sepals cordate, gracefully recurved; corolla soft rose, shading to a white base. A very nice proportioned flower, its habit good, producing large clusters of bloom; leaves marbled and veined; a decided acquisition.

No. 2. FUCHSIA AGAMEMNON.—Rich scarlet sepals, broad, and of great substance; corolla very double; colour dark plum, flaked towards the base with fiery crimson; habit first-class.

No. 3. FUCHSIA MAJESTIC.—Carmine scarlet sepals, tube of great substance, and well reflexed; corolla bluish-violet, flamed or feathered to the base. Undoubtedly the finest double Fuchsia yet raised.

No. 4. FUCHSIA SERRATIPETALA.—Corolla barrel shape, rich mulberry colour, each petal evenly serrated; scarlet tube and sepals, the latter reflexed to the tube, showing the feathered base of the corolla. A grand flower for exhibition purposes.

Price 7s. 6d. each.

NEW SINGLE PETUNIAS.

STRIATA PERFECTA (HOLLAND).—The production of Mr. Holland, of Isleworth, the successful raiser of Royalty and Duchess of Northumberland, the favourites of the past season. The variety now offered is quite distinct in character, having blush-white ground and four pure magenta stripes evenly diverging from the centre. The flowers are of a medium size, good shape, and constant. The seedling plant when exhibited was about 2 feet high, and as much through, covered with flowers, thus showing its first-class habit and constancy. Received First-class Certificates from the Royal Botanic and Royal Horticultural Societies, July, 1864. Price 5s.

SPLENDIDA (WILLIAMS).—Very large and distinct flower, pure white ground, having four bars or club-shaped stripes of rich carmine diverging from the centre; the outline occasionally broken by a small blotch; good free branching habit. Received First-class Certificate. Price 5s.

PURPLE BEDDER.—A very superior variety; being of medium height, with free branching habit, requiring no pegging down. B. S. W. feeling assured that it will be found the best bedding Petunia yet offered, has prepared a large stock to supply at moderate prices. Price 1s. 6d. each; 12s. per dozen.

NEW CALCEOLARIA

BIRD of PARADISE.—Colour bright orange-red, with a margin of yellow, the whole flower minutely spotted, medium in size, good truss, free branching habit, giving a good succession of flowers, suitable either for bedding or pot culture. When grown as a pot plant, its flowering season may be prolonged up to Christmas, a time when such a striking colour will be most acceptable. Figured in *Floral Magazine*. Price 5s.

Now ready, post free, a NEW and DESCRIPTIVE CATALOGUE of CHOICE and RARE PLANTS.

ROBERT PARKER begs to offer the following, all of which are well-grown, clean, and healthy plants:—

	s.	d.
CLERODENDRON BALFOURII	5	0
CORDYLINE INDIVISA	10	6
FRANCISCEA CALYCINA	10	6
GOODYERA PUBESCENS	1	6
RHododendron COUNTESS of HADDINGTON	10	6
" JAVANICUM	2	6
" NUTTALLII	2	6
TRITOMA GRANDIS	3	6
" UVARIA GLAUCESCENS	1	6
VINE DUCHESS of BUCCLEUCH	21s. and 42	0
YUCCA ALBO SPICA	42	0
" TRECULEANA	42	0

PRICED and DESCRIPTIVE CATALOGUES of Greenhouse, Hardy, and Stove Plants, Seeds and Bulbs, are published, and will be forwarded to applicants.

Exotic Nursery, Tooting, Surrey, S.

TURNIP SEEDS.

	Per lb.—s	d.
WORCESTERSHIRE SWEDE	0	10
SKIRVING'S KING of the SWEDE	0	9
HALL'S WESTBURY SWEDE	0	10
YELLOW TANKARD or SWEDISH	1	0
YELLOW BULLOCK or ABERDEEN	0	10
GREEN ROUND or GLOBE	0	8
GREEN BARREL	0	9
LINCOLNSHIRE RED GLOBE	0	8
DEVONSHIRE GREY STONE	0	10

PRICED LIST of AGRICULTURAL SEEDS on application.

RICHARD SMITH, Seed Merchant, Worcester.

Mottled Globe or Grey Stone Turnip.

SUTTON AND SONS have a very choice stock of this excellent NEW TURNIP. It grows to a very large size, and is strongly recommended. Price of seed, 1s. per lb., cheaper by the bushel, carriage free.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

SUTTON'S CHAMPION SWEDE is perfectly hardy, very productive, stores exceedingly well, and rarely if ever suffers from mildew.

THREE HUNDRED GUINEAS IN 12 PRIZES.

For Six Years successively his late Royal Highness the Prince Consort's Prize Cups have been awarded to SUTTON'S CHAMPION SWEDES at the Royal East Berks and South Berks Agricultural Societies, and many other valuable Prizes in various parts of the kingdom.

From Mr. LARGE, *Bailiff to the* Right Hon. Lord BERNERS.

"The Champion Swedes from seed Lord Berners purchased of you are far superior to any other we have grown. I can confidently say they are many tons per acre heavier than any other Swedes growing on his Lordship's farm."

Price of Seed 1s. per pound, or cheaper by the bushel.

SUTTON'S NEW FARM LIST gratis and post free.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Paul's Nurseries, Waltham Cross, N.

ENTRANCE FROM THE PLATFORM, WALTHAM STATION, GREAT EASTERN RAILWAY. HALF AN HOUR'S RIDE FROM LONDON.

WM. PAUL (Son and Successor to the late A. PAUL) begs to announce that his COLLECTION of ROSES is just COMING into BLOOM, and comprises many of his own Seedlings, and other novelties not to be found in any other collection. In addition to the Roses, BEATON'S GERANIUMS, and a second and third generation from them, will be blooming throughout the summer and autumn. The Collection of HARDY TREES with FINE FOLIAGE is unrivalled, and many large and perfect specimens of the choicer CONIFERS are now in fine condition for removal, and are well worthy of the attention of gentlemen and horticulturists who contemplate planting. Bearing trees of all the LEADING FRUITS, Dwarfs and Standards, Pyramids and Espaliers, in fine health and true to name. Inspection respectfully invited.

Waltham Cross, London, N.

ROYAL HORTICULTURAL SOCIETY.

SPECIAL SHOW of PELARGONIUMS, SATURDAY, June 3.

AWARDS of the JUDGES

CLASS 1.—12 distinct kinds. (Open.)
1st Prize, Mr. J. Fraser, Lea Bridge Road Nurseries, Leyton, N.E., £8.
2d, Mr. J. Ward, Gr. to G. F. Wilkins, Esq., Leyton, N.E., £6.

CLASS 2.—6 distinct kinds. (Amateurs.)
1st, Mr. J. Ward, £5.
2d, Mr. R. Cox, Gr. to Captain Cahill, Park House, Southall, £4.
3d, Mr. D. Donald, Gr. to J. G. Barclay, Esq., Knotts Green, Leyton, Essex, £3.

CLASS 3.—6 distinct kinds. (Nurserymen.)
1st, Mr. J. Fraser, £4.

CLASS 4.—6 distinct kinds of 1864. (Open.)
1st, Mr. J. Fraser, £2.

CLASS 5.—Specimen Plant. (Open.)
1st, Mr. J. Fraser, £1.

CLASS 6.—6 distinct kinds, Fancies. (Amateurs.)
1st, Mr. D. Donald, £5.
2d, Mr. R. Cox, £4.
3d, Mr. J. Weir, Gr. to Mrs. Hodgson, The Elms, Hampstead, £3.

CLASS 7.—9 distinct kinds, Fancies. (Nurserymen.)
1st, Mr. J. Fraser, £5.

CLASS 8.—6 distinct kinds, Fancies of 1864. (Open.)
1st, Mr. J. Fraser, £2.

CLASS 9.—Specimen Plant, Fancy. (Open.)
1st, Mr. J. Fraser, £1.

CLASS 10.—Seedling of 1865. (Open.)

CLASS 11.—6 Cape species, distinct. (Open.)

MISCELLANEOUS.

Extra. Mr. Wm. Paul, Waltham Cross, N., for a Collection of Cut Roses, £1 10s.
Extra, Mr. Wm. Paul, for a Collection of Beaton's Pelargoniums, £1.
Extra, Messrs. J. & C. Lee, Vineyard Nursery, Hammersmith, for a Collection of Cut Roses, 10s.

TESTIMONIAL to MR. INGRAM.

The Committee for carrying out the above object desire to give Notice that the Subscription List will be closed on the 30th inst., and as several gentlemen have not paid in the amount they proposed to give, the Committee will feel obliged by their sending their contributions to the Honorary Secretary as early as possible, that the form of Testimonial and the time of presentation may be determined upon.

Dr. ROBERT HOGG, Chairman.
EDWARD BROWN, Slough, Bucks, Hon. Sec.

Committee Room, Anderton's Hotel, Fleet Street, London.—June 10.

The amount already received reaches the sum of £211 5s. 6d.

The Gardeners' Chronicle.

SATURDAY, JUNE 10, 1865.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY,	June	13	Royal Horticultural (Lecture on Dendrobiums, Old and New, by Mr. Bateman), at South Kensington .. .. .. 3½ P.M.
WEDNESDAY,	—	14	Royal Botanic (Second Great Exhibition) .. .. 2 P.M.
THURSDAY,	—	15	Linnean .. .. 8 P.M.
SATURDAY,	—	17	Royal Horticultural (Special Show of Azaleas) at South Kensington .. 2 P.M.

IT is with deep sorrow, which will be shared with us by every gardener of high or low degree, that we announce the DEATH of SIR JOSEPH PAXTON, which took place at Sydenham, on the morning of the 8th inst. No word of ours will be needed to increase the regret which will be felt at this sad event by those who had the privilege to know our dear lost friend, of whom it may be truly said that those who knew him best, will the most deeply mourn his loss.

THE peculiar habit of what were formerly known as AIR PLANTS, but which are now more generally called Orchids, has often attracted notice. It was clear that there must be something in their structure which enabled them to derive a sufficient supply of food from the air for the development of such succulent leaves and bulbs, or such magnificent trusses of flowers, and though one function of their aërial roots was clearly to enable them to cling to the substance which they had chosen as their place of growth, it was more than probable that these roots had some other function connected with nutriment, and that there must be something peculiar in their structure. MOHL, SCHACHT, SCHLEIDEN, CHATIN, OUDEMANS, and others, have in their turn recorded something of their structure, and especially the last, who has entered on a comparative view of the subject; and we have now a very complete treatise by Dr. LEITGEB, printed separately from the 24th volume of the Proceedings of the Mathematical and Natural History Class of the Imperial Academy of Vienna.*

The air roots of Orchids in their strictly aërial

* Die Luftwurzel der Orchideen, von Dr. H. LEITGEB. 4to. Wien, 1864, pp. 46. Tab. Lith. 3.

form, for they sometimes enter the soil and change their character, have a peculiar white silvery appearance, shot sometimes with a pale green lustre from the subjacent cells, except at the tip, which for a greater or less distance is uncoated and green.

They consist of five distinct concentric cylindrical strata, which are denominated respectively by Dr. Leitgeb the root-coat (wurzel-hülle), the endoderm, the bark-parenchym (rinden-parenchym), the core-sheath (kernscheide), and the pith. These vary more or less in different species, but the general plan of organisation is much the same in all.

The root-coat consists of a variable number of layers of cells, which ultimately contain air, and many of which have either porous or more or less coarsely or finely reticulated walls, and are destitute of chlorophyll. In a few instances they are filled with a grumous coloured mass, which at length contracts so as to leave them partially filled with air. In an early stage the contents of all are grumous. The origin of these cells has been variously explained. Some have thought they lie above the true cuticle, but our author appears to have made out satisfactorily that they are developments by repeated cell division of the epidermis.

The endoderm consists mostly of a single layer of cells, which are of two kinds, the one thick-walled the other thin-walled, which in their position with respect to the other cells somewhat resemble stomata, and in consequence have given rise to the notion that it is the real epidermis. These cells are generally filled with granular matter. Next to these comes the bark parenchym, consisting partly of parenchymatous, and in a greater or less degree partly of coarsely reticulated cells which abound in chlorophyll, and, as observed before, give a greenish tint through the silvery envelope.

The core-sheath succeeds, consisting of a single layer of cells, some of which have the walls thickened, while others, single or in pairs, are thin-walled. These latter agree in number with the neighbouring bundles of vessels, which are either perfect spirals, scalariform, or reticulated. The pith consists of parenchym, which in old roots sometimes becomes thick-walled with large circular pores, or sometimes from reticulated thickening. Between these there are frequently intercellular passages sometimes filled with a red resinous substance. The granular contents of the cells consist principally of starch, which, however, in some cases only makes its appearance when the roots penetrate the soil, under which circumstances the chlorophyll vanishes.

Besides these structures, we have as in other roots a terminal hood (wurzel-haube) which is thrown off centrifugally from the cuticle, and which when immersed in water becomes gelatinous from a chemical action on the cellulose of which the cells are composed.

The surface of the silvery coat sometimes gives out excrescences or hairs, which latter have often a spiral structure, a fact which confirms the notion of its really being derived from the cuticle. In old roots the coat occasionally peels off, and it sometimes assumes a green tint, which is due to the formation within its cells of minute Algæ, a sure proof that vitality is no longer very active in their walls, if indeed they have not become altogether effete.

It remains only to say a little about their functions. Of these one has been already mentioned. The spongy coat, pierced with holes, having its membranes torn, or pervious from the falling away of hairs, is in close connection with the external air, and probably has properties analogous to spongy platina, charcoal, &c. Chatin states that air containing ammoniacal gas is purified by the air-roots, and Dr. Leitgeb thinks that the beneficial effect consists rather in condensing vapours and gases than in protecting the subjacent tissues from drought, which has been supposed to be the principal function, an office which he believes to belong rather to the endoderm. In some cases, however, it is probable that this is a principal function, and in others that they are reservoirs of moisture, while some of the elongated thickened cells of the endoderm undoubtedly are calculated to prevent evaporation from the bark-cells.

It has been supposed that there is an inverse proportion between the number of layers of cells in the coat of the air-roots and the thickness of the leaves, but though this sometimes holds good, it is far from universal.

It may be observed finally that Orchids are not the only plants in which air-roots occur. They are highly developed in many Arads, where they have in all probability the same functions, and there are analogous growths in some Ferns. *M. J. B.*

Narcissi are amongst the most varied and interesting of early-flowering spring bulbs, and they hybridize freely, giving rise to new varieties of a well-marked character. Our attention has recently been recalled to them by the receipt of a box of seedling flowers from Mr. W. Backhouse, of St. John's, Wolsingham, among which were comprised some of remarkable beauty. Mr. Backhouse has been good enough to send us some details of his experiments in hybridizing these plants, which we are sure will be read with interest, the more especially that spring flowers and spring gardens are now attracting some share of the attention which they so richly deserve. Mr. Backhouse writes—

"The Daffodils Narcissus major, Ajax, Pseudo-Narcissus, minor, and moschatus, cross with one another, and the produce seeds as freely as the parents. The colours are not merely intermediate, but of all shades between the colours of the parents, where these differ as in moschatus. N. bicolor seeds badly, and is deficient in pollen, but from crosses of the other Daffodils with it I have raised some of the largest and finest of the class. These also seed badly, and their produce has a tendency to revert to the Daffodil. The roots of N. bicolor are very much larger, and shaped somewhat differently from the others, and the crosses from it have the same peculiarity; the colours of the seedlings vary from those of the parents, through white with lemon cups to almost pure white.

"From the Daffodils crossed by N. angustifolius the kinds called fœtidus by Dean Herbert are produced, and the cross is intermediate between the parents when N. major and Pseudo-Narcissus are used; but with N. poeticus the variety is greater, and some with very fine expanded cups occur. The variety seems to be also greater when some of the seedling varieties of Daffodil are used. These crosses seed very sparingly, but may occasionally be got to produce seed by a cross with either parent; those with the Daffodil having shorter cups than N. major or moschatus, and those with N. poeticus or angustifolius being intermediate, and with generally a red edge to the cup. Seeds I have sown from plants not artificially impregnated produce the same result, some showing the Daffodil, and others the N. angustifolius type. The orange tints on some of these crosses vary in different seasons. On many the cup will one year be orange-tinted, and the next plain yellow.

"The Daffodils crossed by N. Tazetta produce plants intermediate between the two in general, but sometimes the cup is not longer than in Tazetta; the flowers on each stalk vary—two, four, and up to six occurring. These crosses vary in colour and size, according to the nature of the parent Tazetta, but the produce does not seed with me, except that last year one pod producing one seed occurred from perhaps a couple of hundred flowers. A warmer climate than mine might produce different results. No pollen is to be got from it to cross with the Daffodil parent.

"The percentage of seedlings showing striking peculiarities, is but small from any of these crosses, and the colours only partially follow what might be expected from the parents; the cross from N. moschatus by angustifolius not being always white, and I have from fœtidus by angustifolius some with green flowers.

"Before dusting with pollen I cut out the stamens, except in the kinds which only seed when crossed; but in out of door plants, when there are numerous others about of the same genus, there is no certainty but that sometimes the bees may be the authors of a different cross. I have sometimes tied the mouth of the cup in the Daffodils for a time to prevent access, but in most cases the result shows the intended cross to have taken place."

Such records as these, and those of Dr. Herbert in the *Botanical Register*, and Mr. Leeds of Manchester in the *Gardeners' Magazine of Botany*, lead irresistibly to the conclusion that among Narcissi at least, many of the plants received as species are mere varieties or hybrid forms. "There is no end," writes Mr. Leeds, "to the varieties and elegant forms that may be obtained. It is quite clear however that incomparabilis is no species; I think bicolor is no species; and that the number of species is *very small*." Mr. Leeds adds a remark in which we thoroughly coincide. "I think much remains to be done in the production of fine hybrids of this beautiful tribe of plants; and it may be mentioned these are not ephemeral productions like many modern florists' flowers, but will last for centuries with very little care, as the common kinds have done in our gardens."

—— We again invite the attention of Lady Gardeners to the prizes for Indoor Plant-culture offered by the Proprietors of this Journal, and to be awarded on the 24th of the present month. We hope to see a full competition for them. We may just repeat that one prize will be given for the best Orchid, and one for the best Flowering or Foliage plant grown in a room, the main conditions being that the plants shall have been grown by the exhibitors, and grown in a room for at least six weeks previous to being shown. It is also necessary to give notice to the Garden Superintendent at South Kensington on or before the 19th inst. The full particulars will be found at p. 100 of our present volume.

—— Besides the Insect Plague noticed last week, it appears from the public journals, that in France cockchafers and caterpillars are making sad havoc. They have stripped trees of their leaves in the Bois de Boulogne and Saint Maur; and the hills from Champigny to Sucy which supply the Parisians annually with so many thousands of pounds worth of excellent Apples, Pears, Cherries, and Plums, will, it is said, produce but little this year, thanks to the caterpillars. This is attributed to the fact that the peasants suffer their children to destroy the nests of the small birds, which are the only instruments that can effectually protect trees from caterpillars. It is calculated that there were formerly 10,000 birds' nests in every square league of cultivated land in France. Each nest is supposed to contain on an average four young ones, which the old birds fed with 60 caterpillars a day. The old birds were supposed to eat 60, making 120 caterpillars a day altogether. This multiplied by 10,000 nests will give 1,200,000 caterpillars destroyed every day in a square league of a well-planted country. The peasants, one would suppose, would have sufficient common sense to protect the birds which render them such valuable service, but they appear utterly ignorant on the subject. The only bird respected by the peasants, and especially the Norman peasant, is the wren, and that from a superstitious motive.

—— At Mr. Bateman's lecture at South Kensington on Tuesday next, a plant of Dendrobium Falconeri, superbly in flower, D. Wardianum, and other species will, we believe, be exhibited.

—— We may mention that there is to be another sale of genuine Lilium auratum at Stevens's Rooms, on the 13th inst. A large number of the plants will, we understand, be in full bloom, and several varieties of considerable interest may be looked for amongst them.

—— Among the very best of hardy silvery-leaved herbaceous plants stands Salvia argentea. This fine species has woolly leaves of great size, which lie quite flat on the ground, and look like little silky blankets during the summer and autumn. For edging large beds, especially if anything in the "sub-tropical" way is attempted, for single specimens in the mixed border or for a good rockwork arrangement of plants, it is invaluable. Plants sown about this time last year are those best suited for using with the present season's bedding out. The plant is not rare in botanic gardens or collections, and it is rapidly becoming less so. To get a good stock, sow at once on gentle heat, and grow on in small pots till next spring; then plant out. The seed may be obtained from some of our leading seedsmen. Those who do not catalogue it would do well to substitute it next year for some of the rags of herbaceous plants which, though unfit for gardens, annually swell the lists to an inordinate bulk. No better plant can be recommended to the flower-gardener who wants variety, as it is quite distinct in aspect from any other.

NEW GARDEN FERNS.

Adiantum colpodes, *Moore.*

Fronds ovate, bipinnate, glabrous; pinnules roundish oblong-trapeziform, entire on the lower and basal, slightly lobate on the upper and apical margins; terminal pinnule cuneato-trapeziform; sori numerous on the upper and anterior margins, sunk in the apex of the shallow lobes, and forming a small rounded indentation or bay, rotundly-reniform; indusium entire; stipes and rachides slender shining ebeneous.

The fronds of this Fern are much like those of A. Capillus-veneris in outline and general aspect, and there is also considerable resemblance between the two in the form of the pinnules, but the sori are quite different, and the margin has the appearance of being crenated, from the numerous indentations or bay-like recesses formed by the abundant sori on the anterior and apical margin. The fronds, moreover, are prettily tinted with rose colour in the way of A. tinctum, while in the young state.

It has been raised by Mr. Veitch, of Chelsea, from specimens gathered in Equador by his collector Mr. Pearce. We do not find any published descriptions which agree with it, and have therefore recorded it

under a name which is intended to indicate the bay-like recesses formed by the sori.

Gymnogramma flexuosa, *Desvaux. Hooker, Species Filicum*, v. 129. Cryptogramma retrofracta, *Hook. & Grev. Bot. Misc.* iii. 385, t. 112.

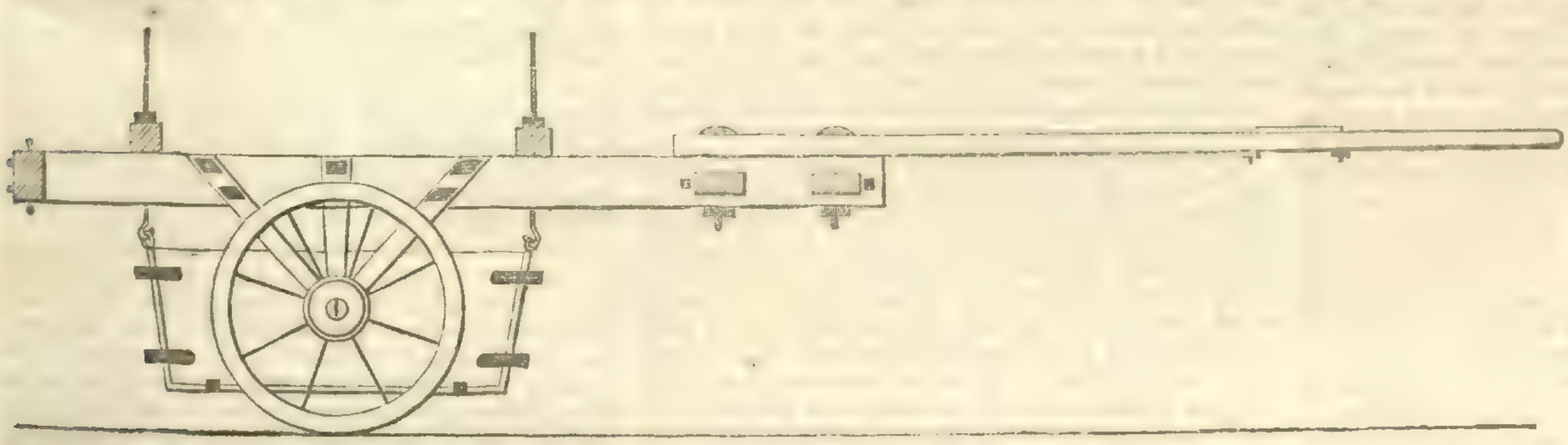
Fronds firm membranaceous sparingly pilose, 3—4 feet long, the stipes purplish-black, glossy, and as well as the rachides flexuose; primary pinnæ 4—5 inches long, retracted, pinnules dichotomo-flabelliform, the segments linear or oblong, more or less elongated, entire forked or emarginate, decurrent so as to form a wing to the ultimate rachides; veins forked; sori elongato-oblong often forked; caudex creeping.

This very handsome Fern, which is of trailing or subscandent habit, and remarkable for its finely cut divisions and its geniculato-flexuose rachis, is widely distributed over tropical America. In the Sierra Nevada it occurs at an altitude of 7000 feet; and in woods near Cuença at from 8 to 10,000 feet, growing on the ground. It has been introduced to our gardens by Mr. Veitch, of Chelsea, by whom it has been recently exhibited, on which occasion a First-Class Certificate was awarded to it. It is a well-marked and thoroughly characteristic species, and will probably prove a good grower, its habit being to produce strong root-fibres; while its elongated fronds with their innumerable narrow segments, will give it a place amongst the most elegant of its race. *M.*

TRANSPLANTING MACHINE.

About two years ago it became an object of considerable importance here to have a suitable machine constructed for the purpose of transplanting trees and shrubs; the latter especially, being large, and consequently too heavy for the management of any number of men who could find standing room for the purpose of lifting them. I therefore had recourse to better means by the construction of an implement similar in formation to the accompanying sketch, which suits the purpose perfectly. But in order that its adaptation may be rightly appreciated, and the mode of operation properly understood, permit me to give a brief description of it.

The box is made up of four equally formed sides,



each being 4 feet 6 inches at top and 4 feet 2 inches at bottom, 1 foot 8 inches in depth and 2½ inches in thickness; these are fastened together at three corners by a ¾-inch iron bolt passing down through strong iron hinges; the remaining corner is furnished with two horizontally placed bolts and nuts, by which the ball of earth may be made tight. In preparing the tree or shrub for removal, the ball must be shaped to fit exactly the interior of the box, each side of which has two square apertures at the lower edge. These are each fitted with two plates of iron—one inside, the other outside. That on the inside has a hole 1½-inch square, and ¾ of an inch from the bottom, that on the outside is cleft to suit the square punch hole inside, and made a fixture by means of screws and nuts, and when the box is adjusted round the ball, 1½-inch square irons, 14 inches in length, are driven into these apertures, entirely doing away with the usual practice of undermining the ball, which often proves to be the most tedious portion of the work of transplanting.

A place having been prepared for the reception of the tree, the next thing to be done is to take off the end bar, and also the two top bars, and push back the remainder of the frame till the wheels are exactly opposite the centre of the box. The end bar should then be adjusted, and the top bars should also be placed on the bearers perpendicular to the box. Two threaded bolts, 1¼ inch in diameter, hooked at the lower end, pass down through each of the top bars, and hook into rings attached to the upper edge of the box. The nuts are then worked till the ball is raised above the felloe of the wheels, and may be removed at once. In most cases, however, the use of the screw may be dispensed with; in short, wherever there is room to let the wheels down to near the level of the bottom of the box, it is only necessary to raise the shafts so that the end bar comes in contact with the edge of the box, when a link or two of chain having a hook may be introduced into the ring. The shafts must now be pulled down as low as possible, fixing at front in the same manner. The shafts can then be brought to the ordinary level, and one or two horses may be used for removal. It will be observed that the axle does not pass through, but is substantially supported by three iron stays, the centre limb being fixed to the inside of the bearers.

In conclusion, I may remark that the whole operation of transplanting is rendered comparatively simple by means of this machine, which invariably does its work well. *John Reid Haigh Hall Gardens.*

GENERAL FLOWER-BEDDING.—No. I.

Although of late years the choice of bedding plants has been wonderfully extended, it is a matter of great surprise to many persons, that instead of a greater variety of plants being used, the number has been diminished every season, and still continues to diminish. A very few years ago there was a much greater variety of plants used for bedding purposes, including many which are now entirely discarded, until for a summer garden, I verily believe that if all the colours could be got from one single genus no other would be generally employed. This is, indeed, easily explained, for of late years outdoor decoration has been confined to one system, which may simply mean planting out in the end of May and taking up in October; and the class of plant that was found to afford most bloom in that short period, and could be most certainly depended upon, became the popular one. Nor do I blame gardeners for thus selecting subjects which always prove certain and satisfactory. We have indeed been travelling on in one undeviating course, and this has brought about a state of things that does not appear to be correct, and which has given rise to much criticism, for which there was certainly some excuse. It is a bad sign at any time when our sharp-sighted critics can find a point to harp upon—although it must in this case be held that they are most effective while they confine themselves to generalities, such as the glowing descriptions of garden perfection that the great Bacon's philosophy could conjure up in the Elizabethan era, when all appears to have been perfection. When they leave the philosophic part of the subject and descend to plain matter of detail, their occupation is gone.

If we are to have only one garden for the summer, and if we compare the material used and the difference of style between the mixed garden and the parterre, the comparison must be greatly in favour of the more brilliant. At the same time it must be admitted that public taste has been seeking a change of late in favour of a more general system, and it therefore becomes necessary to consider how this is most easily to be attained. I cannot agree with those who are continually crying down the extended use of Scarlet Pelargoniums, Calceolarias, &c., in our summer beds and ribbons. They can never be replaced, however much the introduction of variety may improve the general effect. But if we take the first week in June, and the last in September, as indicating the limits of the season for these summer plants, we leave several fine months without any display; and this perhaps is the very cause which has seemed to make some change imperative.

Now there is scarcely any limit to the material for filling up this want, though it takes long practice, and careful observation and experiment, to bring so great a number of different plants into bloom together, in such a way as to be available for our existing arrangements of ribbon beds, with edgings, baskets, and vases. Here we have succeeded to a certain extent in overcoming the difficulties by which the practice is beset. There are, however, drawbacks to encounter. For instance, amongst the lists which have of late been very liberally supplied, indicating the most useful plants for this more general system of bedding, I notice a great many subjects which are not easy to grow, and after a trial or so with them the cultivator will become discouraged. What I wish to impress is, that for this discouragement there is no necessity; for if one plant does not succeed there are others in plenty that will, and a little perseverance will soon discover them.

The system of General Bedding has this advantage, that if some of the early plants continue later in bloom than the usual time of planting, the beds thus occupied may be selected, previous to filling with the spring plant, as the summer beds for the most tender varieties. We frequently find that planting the latter out rather early injures them for the season. Whoever desires to make a beginning in this more general system should at once look to provide a stock sufficient for the beds in autumn. A commencement must be made by sowing seeds of many useful plants in beds or drills in some back part of the kitchen garden. I have sown up to this time Anemone coronaria, mixed, in boxes or borders; Brompton or Queen's Stocks; Cowslips of coloured varieties; Honesty, red and white; Pansies; Polyanthuses; Primroses, of coloured varieties; mixed Wallflowers single red and yellow, and dwarf Italian. This is the progress I have made in seed-sowing up to this time, and one or two weeks of difference will be of small importance either way. To those who may be disposed to adopt the system I shall have more to say in continuation, as to growing and propagating, according to the season. *J. F.*

THE HAMILTON OR CADZOW OAKS.

Arboriculture has, in all times, more or less engaged the attention of proprietors of the soil. The many excellent and aged samples of timber scattered over hill and dale, and the salient positions which many of them occupy as prominent features in the landscape, show that our forefathers gave them much attention. The Oak especially has always been a great favourite; but if not properly attended to in youth, the numerous forms of vegetation with which a forest abounds, and the struggle for existence ending in the discomfiture of the slower-growing plant, would effectually destroy the monarch of the forest. Hence the necessity for the mode of selection adopted by the skilful arboriculturist. Moreover, the commercial value of Oak entitles it to the proud position it occupies; for although such samples as those of which we shall presently speak have never been looked upon in this light by the house of Hamilton, who could have realised a large amount for them in days past, they have had the pleasure of pointing to the forest which they tenant as the only piece of ground which has not been husbanded, and they the only trees in a fertile tract of country not disturbed by the hand of man for more than half a century.

These Oaks stand on what remains of the Caledonian forest *pur et simple*, over which wild cattle of the original breed still browse. The appearance of these animals is not strikingly different from the more common of the domesticated ones. They are all uniform in colour, having pure white bodies, of rather a smooth than a shaggy character, with moderately long black ears, a jet-black muzzle, and black hoofs. I was rather mistrustful of making a minute inspection, judging their character to be somewhat ferocious; but instead of this I found them to be quite as much frightened at my intrusion on their domain, as I was in making their acquaintance. At times, however, as I learned from the workmen in attendance, the bulls are disposed to be ferocious, and then no one would be safe to wander in the forest. This is the period when they have periodical battles among themselves. Curiously enough, when age begins to tell upon their muscular energies, the stronger, despotic-like, assert their position, and any that flinch or waver in the battle are pursued by the conquerors and ultimately gored to death. Like most other wild animals they have an unusual affection for their young, which of course is fostered and increased during the time of suckling to such a degree as would make it practically unsafe for any one to go near them. Their numbers are kept within limits by the gun every season at Christmas, when the poor people of the burgh of Hamilton are regaled with the most excellent and most substantial of all beef from the carcases of these animals.

To return from our digression. These Oaks cover more or less the whole of Cadzow Chase, which is computed at 1500 acres! To estimate the number of Oaks themselves, which still stand, each as a living monument of the past 700 years, over this space of ground, would merely be a speculative statement, but I am safe in saying they exceed 500; they are only, of course, remnants of former greatness, for their wonted vigour is paralysed, the branches have become stunted, limbs innumerable are fast decaying, leaf-buds are not at all prominent, and the stunted appearance of the once vigorous sept-centenarians betokens speedy dissolution. The maiden soil of this remnant of the Caledonian forest may remain untilled and unturned for a hundred, nay, even for a thousand years hence, if the world be then undisturbed; the ancient breed of cattle may still be preserved as they have been heretofore, and browse upon its surface, but these famous old Oaks must die. It is a great pity that young ones were not planted a hundred years ago to take their places; but why not now? "It is never too late to mend."

We are informed that David, Earl of Huntingdon, afterwards King of Scotland, planted these Oaks in the year 1140, which will make the survivors exactly 725 years old. Speaking of age, Dryden must have had a pretty good notion of the longevity of the Oak when he says:—

> "The monarch Oak, the patriarch of the trees,
> Shoots rising up, and spreads by slow degrees;
> Three centuries he grows, and three he stays
> Supreme in state, and in three more decays."

The largest of the Cadzow Oaks measures 21 feet in

circumference at 3 feet above the ground. Another one growing close by its side measures 20 feet 6 inches. Both these Oaks, although fast decaying, are unbroken in the bole. The next largest one that I measured was what is called the Hollow Oak, which will hold six people very comfortably in the interior, and measures 19 feet in circumference at 3 feet above the ground. Several measure from 16 to 13 feet, and in some solitary instances have all the appearance of solidity, but doubtless, if subjected to the test, would be found wanting.

On looking over the large number of these aged specimens I was very much struck by their diversified character. Scarcely two of them are alike in all respects. Some of them are smooth in the bark, and others have knotty protuberances in a greater or less degree, clearly establishing that no tree when increased from seed produces an exact counterpart of itself, either showing a disposition to progress or retrogress from any given desirable sample. The largest specimens alluded to were densely covered with these knots, which detract in some measure from the value of the timber. On putting the tape-line round the bottom of one heavily adorned in this way, I found it to girth 28 feet 6 inches at 1 foot from the ground, but 3 feet higher up it only measured 17 feet. One other example is the Oak called Queen Mary's Oak, under whose branches she and some of her faithful attendants are said to have taken shelter, when pursued to Cadzow Castle. It is yet in a pretty good state, measures 20 feet at 2 feet above the ground, and is one of the cleanest and probably the loftiest specimen in the forest.

These Oaks, so far as girth is concerned, stand favourably in comparison with any of the Scotch Oaks whose dimensions are placed on record. Even Wallace's celebrated Oak in 1771 was just 22 feet. Sir Thomas Dick Lauder, in speaking of the fine Oak forest at Loch Garry, found some prostrate trees measuring 16 feet in circumference; and also speaks of one that was raised from the Caledonian Canal, under 16 feet of gravel, the fragment of which measured 30 feet round; and, what was most interesting, found to be in a good state of preservation. These Cadzow Oaks, however, differ in some respects from the dimensions of many; for although they have girth to attest their longevity, they are not nearly, nor ever have been, the same in respect to altitude, either of bole or branches, which must be entirely owing to the climate, for it is impossible to obtain a better soil for root action than these Hamilton Oaks have all along revelled in. Climate has more to do with the proper growing of timber than many people credit, and it should be an object in the planting of estates in various localities to introduce only such wood as is suitable. Fine as these old Oaks are, and have been, they are dwarfs in comparison with many of the old English Oaks. Queen Elizabeth's Oak, for example, at Huntingfield, we read is 34 feet in circumference 5 feet from the ground; but it is needless to instance Oaks, which are numerous in many of the fine parks of England. I cannot, however, help alluding to what are considered to be the three finest living specimens, now showing exuberant health and general stateliness, as compared with the best of our Scotch Oaks. The "Great Oak," at Panshanger, measures 19 feet in circumference 3 feet above the ground, and is computed to contain 1000 feet of timber. The "Chandos Oak," near Southgate, is very nearly as large, and fully as healthy; and the "Bounds Park Oak," close by Tunbridge, has a straight stem, and measures 22 ft. at 2 ft. above the ground, and slightly tapers to 16 or 17 feet at where the limbs diverge. Of course these Oaks are small compared to many in England, but there they are in the height of vigour, nearly equal in girth to the largest samples of the Cadzow Oaks, which have for the last 300 years been on the wane. *J. A.*

Home Correspondence.

What is a Species?—Species is a word variously applied. Species in algebra are the symbols which represent quantities. Species in commerce are the several pieces of gold, silver, and copper. Species in logic expresses an idea comprised of some general one called a genus. Species in optics is the image imprinted on the retina by the rays of light reflected from an object; but what is "species" botanically? The learned differ in their definition; nor is this to be wondered at. The learned have never yet been able to define what a vegetable is so exactly as to fix the line that distinguishes it from an animal. "Squeers," who taught his boys botany, does not define species. Genus is more easily defined; it is a class of beings comprehending under it many species. Were a genus invested with a voice and reasoning powers, it might address us in reference to species—

> "Thou nam'st a race which must proceed from me,
> Yet my whole species in myself I see."—Dryden.

If this be so, then, however difficult it may be to define species botanically, one thing is certain—that all species must have features, however they may differ from each other, and also from all others, that proclaim them to have descended originally from one, and one only genus. Species I believe to be the subdivisions of a genus. If genus be the parent, species are the offspring, bearing unmistakable relationship to the parent, but bearing differential marks, and also at the same time bearing features of affinity to each other, and their original genus, distinct from all other genera and species. Originally, all plants had the power of reproduction in themselves. What we call species, I suppose are nothing more than hybrids. I have said that the learned have found a difficulty in defining the exact line between a vegetable and animal; nor is this to be wondered at, since their modes of generation and appropriation of food are much the same. Would some learned reader oblige me by defining "species?" A knowledge of it is necessary to floral order or classification. *W. F. Radclyffe, Tarrant Rushton.*

Ants.—Can you do my neighbours and myself a great kindness by suggesting some means of destroying ants which infest our wall fruit trees. I have lost in succession two sets of trees, and this year, although with the best endeavours to prevent it, I fear I shall lose my third planting. The insects congregate by thousands in the leaves, thereby destroying the trees. *Henry St. Auber, North Petherton, Somerset.* [Guano is said to drive them away. Try the effect of giving the worst among your trees a good dusting with it by way of experiment, and give the rest several thorough washings with clean water ejected with force from a powerful garden engine. Guano afterwards strewn along the bottom of the wall may perhaps prevent their reascension.]

Disbudding Vines.—I have often thought that it would be a good thing if the frequent stoppings and restoppings of Vines could be got rid of. This led me to try how disbudding would succeed, and I found to my great delight that it answered capitally. The way I acted was this: I took out every bud down to the one I hoped to prune to at general pruning time, with the exception, of course, of those on branches on which bunches were situated. I never mentioned to any person the experiment I was making, but as the plan proved so successful in its results, and saved me much trouble without any apparent drawback, I venture to record it. The whole of the sap seemed employed in the development of a fine leaf, which was able to elaborate a good supply of proper food, and this again resulted in a good bunch of Grapes. By this plan, moreover, all over-crowding of branches is done away with, the juices of the plant are kept in their proper course, and a most healthy appearance and a well-regulated house of Grapes are the consequences. The best time for disbudding is when a good selection of branch and bunch can be made. *R. T., Gloucester.*

Early Peas.—Neither of the parties who informed Mr. Whiting (p. 508) that they could not perceive any difference between Carpenter's Express and Sangster's No. 1, can have had the Express true. With me, both last year and this, there is a great difference between them. The Express does not grow so tall as Sangster's, and it is a fortnight earlier; it is 10 days earlier than Dillistone's. I grew them all three side by side last year, under precisely the same treatment; and this year the Express has fully sustained its character for earliness. I sowed five rows each of Sangster's No. 1 and Carpenter's Express, on a south-west border, on Nov. 23, 1864; the Express was in bloom on May 1, and I gathered a good dish on the 26th, and nearly two pecks from it on the 30th of that month. I have only gathered the first from Sangster's No. 1 to-day (June 6), and at the same time I gathered a peck from the Express, sown on February 8, while Sangster's No. 1, sown on the same date, is just podding. It is only fair, however, to state that Sangster's No. 1 is the best cropper, as the Express, like Dillistone's, is only a moderate bearer. *James Maxwell, The Gardens, Exton Park, Oakham.*——I have not seen any mention made in your columns of Dickson's Early and Best Pea, a variety invaluable for its earliness—at least I have proved it to be so against other varieties. On account of my garden being low, and the soil cold and stiff, I am obliged to sow in turves cut about a yard long and 6 inches wide. I sowed a quantity of Dickson's Early and Best, and Sangster's No. 1 in turves on the 3d of February, and put them on narrow strips of wood into a Vinery which was started on the 1st of January. When they were about an inch or so high I gradually hardened them off, and finally planted them out on the last day of March on an east border, side by side along with a few rows of McLean's Dwarf Prolific, sown in turves on the 19th of January. The result is, that I began picking from Dickson's April 24th; I could, however, have picked a small dish a week earlier. The first dish of Sangster's was picked on the 28th of April, and McLean's Dwarf Prolific is just coming in, feathered with pods from the top almost to the ground. The three varieties form a good succession. Dickson's is not remarkable as an abundant cropper, but its earliness is sufficient recommendation for it. *J. C. Mundell, Hooley House, Coulsden, Croydon.*——I send you along with this a dozen pods of Sutton's Ringleader Peas, which were sown March 28th, and are now quite ready to gather, having been only about nine weeks growing. Several other sorts were sown at the same time, amongst which were Daniel O'Rourke, which are now just showing flower. *T. Fielder, White Horse, Binfield, Bracknell.*——I have now growing side by side the two early Peas, named respectively Sutton's Ringleader, and Carter's First Crop, and I feel compelled to say, by the strictest investigation, that they are not only similar, but identical. I have carefully examined and compared the two Peas from the day they were sown till the present time, and I consider their identity established in the following particulars:—The form, size, and general colour of the seed; the exact time of appearing above the surface and expansion of the first leaves, and the general appearance of the plants in both cases; the size and length of stem; the general form, size, colour, and mottling of the leaf; the time of coming in blossom; and lastly, the time when the pods were fit to gather. In these particulars I have been able to see no difference whatever. Mr. Sutton says Ringleader was two days in advance, which is very probable as to the appearance of the first blossom, but could the two days be clearly seen by making a careful survey of the whole crop? In any given crop of Peas there must be some difference in the time of coming in blossom, and we ought to be careful how we judge of a whole crop by the appearance of one or two individual plants. My Peas were sown December 14th in a situation very slightly sheltered, and during the latter part of March we were visited in this locality with very severe frosts, so that I should not have been surprised if the crop had been destroyed. They lived on, however, and were in blossom by May 1st, and were in fair condition to gather on the 24th. On the same day (December 14th) and in the same situation I planted Sangster's No. 1, which came in blossom four days later, and during the time between flowering and gathering, First Crop gained four days more, which made a difference of eight days. The distinguishing features of "First Crop" are—1st, its tendency to produce flower-buds in the axils of the lower leaves, and 2ndly, its rapid growth in all its stages, and I am confident that by good treatment this Pea may be made to produce very early. I am acquainted with a gentleman who had the same Pea sown in March, and it was ready to gather about the same time as mine. Doubtless it would be desirable to reduce the number of sorts of Peas to those which are most useful and really distinct; but it is also highly important that the number of names should not exceed the number of distinct varieties, and that care should be taken to retain those names which are most descriptive. Unfortunately many varieties of vegetables are named without the least attention to description. I would suggest the propriety of retaining the name "First Crop" for the Pea under discussion, as eminently descriptive of its real character. *Alpha.*—Permit me to say (May 28) that I have gathered Peas from Wm. Paul's Tom Thumb, sown on the first week in March; the plants have not received the slightest protection. *Thos. Slowe, Gardener to S. G. Shepperd, Esq., Brackley Lodge, Walton-on-Thames.*——I sowed a row of each of the following Peas on the same day, viz. Feb. 6:—Sutton's Ringleader came into bloom on the 29th of April; Carter's First Crop on the 1st of May; Dickson's First and Best on the 5th of May; Dillistone's Early on the 7th of May; and Sangster's No. 1 and Daniel O'Rourke on the 8th of May. Sutton's Ringleader was ready for the table on the 1st of May; Carter's First Crop on the 2d of June; Dickson's might be gathered to-day, the 5th of June; but Dillistone's, Sangster's, and Daniel O'Rourke will not be ready for several days yet. From this trial it appears that the three new sorts of 1865 are all earlier than kinds previously in cultivation, and that Ringleader is the earliest of all. *William Ray, Gardener, Whitley, near Reading, June 5.*

Turfing Peach Borders.—Although you have answered your correspondent "W. G." concerning turfing Vine borders (p. 488), will you allow me to say a word in favour of turfing? My practice does not extend to Vine borders, yet I think it tends in that direction. About 25 years since I had charge of a wall of Morello Cherries, the border of which was turfed over, and better fruit or more healthy trees I never saw before or since. About 1849 I planted a house of Peaches here, and as it was in an out-of-the-way corner, I determined to sow the border down with Grass. It has remained ever since, and I have no hesitation in saying that better fruit than those trees give are not often seen; the foliage is 9 inches long and 2¼ wide, and as healthy as possible. I inclose a leaf [which is a picture of health]. If I had the chance (which I may have soon) I would have all Vine and Peach borders sown down in Grass, because when covered with straw, long manure, or Fern, they become saturated with moisture, but when turfed over the superabundant moisture is absorbed by the Grass, which acts as a non-conductor as well, keeps the frost out, and the heat in, and is also a natural covering. Above all, what looks so well? *J. Stevenson, Gr. to the Earl of Durham, Lambton Castle.*

Yarrow.—This plant is called "Arrow Grass" in my parish, and is used by one old parishioner of mine, in conjunction with gin, as an effective diuretic. Perhaps the diuretic properties of the draught should be altogether assigned to the gin. *H. W. C.*

Wasps.—In your Paper of the 3d inst. "Vespecide" writes that he has destroyed 72 wasps, which he presumes were males as well as females. Now, under the impression that all wasps which appear during the months of April and early part of May were queens, on the 22d of April I offered a premium of 1*d.* to the garden labourers for every wasp they might bring me up to May 1, and the result was the destruction of 1020 wasps, for which I paid 4*l.* 5*s.* I will feel rather vexed to be informed that probably one-half were males. Can you, therefore, kindly satisfy me on that point. I may add that I never saw so many large wasps as

now exist, even though we destroyed about 200 nests last autumn. *J. M., Addington.* [You may make your mind easy respecting the wasps, as males (or kings, as "Vespecide" miscalls them) are only produced in the autumn, and all die before winter sets in. The past and present have been remarkable seasons with reference to the economy of the vespiary. The hot dry summer of 1864 allowed vast numbers of wasps' nests to be formed, and in August the workers swarmed everywhere to an extraordinary extent; but an insidious disease, very similar to that known in the apiary under the name of foul brood, set in at the beginning of the autumn, and entirely destroyed the brood of many nests, so that in September we were nearly freed from the winged insects. Many females must, however, have been produced, since as soon as the warm weather set in in April last great numbers were seen, but May on the whole was cool, and they then appeared in fewer numbers. A considerable number of the small egg-shaped paper-like nests have however, already been brought to me, so that if we do not have heavy rains to swamp the undergound nests, we shall most probably be as much infested in July and August as we were last year. *J. O. W.*]

Bougainvillæa speciosa.—Mr. R. Huxtable, gr. to F. W. Newton, Esq., Barton Grange, Taunton, has flowered a plant of this most perfectly in a Fernery, where the heat during winter is maintained at about 50°. The plant in question is growing in a 12-inch pot; it is about three years old and 6 feet long; it is placed on a front platform, and is led up the rafter of an ordinary "lean-to" house. The soil in which it is growing, as near as I could judge, consists of peat, loam, and leaf-mould, with a little dung. The plant is covered nearly its entire length with the loveliest mauve-coloured leaves or bracts, and is certainly as beautiful an object in its place as it is possible to conceive. Owing to the bracts, &c., growing out from little spur-like growths on the "last year's wood," I should suppose that many plants have failed from the mismanagement of the top rather than the roots, as such wood if cut off or damaged in any way, would in consequence flower either badly or not at all. *Robert H. Poynter, Taunton.*

Roses.—My Tea Roses have done well this year, but the Hybrid Perpetuals are coming false to a degree I never saw before. The evil is apparent in Senateur Vaisse, Madame Caillot, Prince Leon, Charles Lefebvre, Géant des Batailles, General Jacqueminot, Charles Lawson, and some few others. I am fearful, if I am singular, that I shall cut a sorry figure in showing. I suppose the fine weather has forced them too much, but why not the Teas? *John Hollingworth, Turkey Mills, Maidstone.*

Societies.

Royal Horticultural: *June* 3 (*Special Show of Pelargoniums*).—This took place in the eastern Conservatory Arcade, which was well filled with finely grown well-bloomed plants of both ordinary and fancy varieties of this deservedly popular flower. One or two groups of miscellaneous stove and greenhouse plants, various cut Roses, and a little fruit, also gave additional interest to the display.

In the Class of 12 Pelargoniums, Mr. Fraser, Lea Bridge, was 1st with beautiful examples of Festus, Sylph, James Lodge, Candidate, Bracelet, Fairest of the Fair, Guillaume Severyns, Leander, Lord Clyde, Rose Celestial, Beadsman, and Lillie. Mr. Ward, gr. to F. Wilkins, Esq., Leyton, was 2d with Pline, Osiris, Eugénie Legereaux, Peacock, Prince of Hesse, Viola, Achille, Leo, The Bride, Spotted Gem, Picnic, and Etna. In groups of six the same exhibitor was 1st with Lord Clyde, Madame Furtado, Nestor, Rose Celestial, Bracelet, and Patroness. Mr. Cox, gr. to Capt. Cahill; Mr. Donald, gr. to I. Barclay, Esq.; and Mr. Weir, gr. to Mrs. Hodgson, were also exhibitors in this class, as was likewise Mr. Fraser, who was 1st with Roseleaf, very bright in colour, crimson, Empress Eugénie, Sanspareil, Excelsior, Prince of Prussia, and Pizarro.

Of New Kinds of 1864, Mr. Fraser furnished John Hoyle, orange red, with a dark top, edged with rosy carmine; Profusion, rosy pink, with a dark blotch in the upper petals, and white throat; Rozine, rose, with white eye, upper petals maroon, edged with crimson; Coastguard, somewhat in the way of Viola, but with paler upper petals; Exhibitor, rose, white eye, and reddish maroon top; and Rosy Gem, rose and crimson, spotted in all the petals. For these a 1st prize was awarded. Desdemona, large, and beautifully covered with bloom, shown as a single specimen by Mr. Fraser, received a 1st prize.

In Fancy Pelargoniums, Mr. Fraser also stood in the first rank, with fine plants of Delicatum, Bridesmaid, Lady Craven, Cloth of Silver, Clara Novello, Roi des Fantaisies, Hebe, Celeste, and Multiflorum. Mr. Donald had also well-bloomed plants of Cloth of Silver, Decision, Lady Craven, Delicatum, Rosabella, and Queen of the Valley. Mr. Cox and Mr. Weir likewise showed collections.

Of Fancies of 1864, Mr. Fraser had Ann Page, Edgar, Mrs. Dorling, Mrs. Ford, Princess Alexandra, and Blair Athol. Among seedlings, Charmer, from Mr. Bull, was the gem; it is vivid scarlet, with a white eye, having a violet tinge round it, streaked or slightly feathered and blotched in the upper petals, altogether a showy and useful flower, which received and deserved a First-class Certificate. Sparkle, in the same way, is also a pleasing flower. Mr. Bull likewise showed a large collection of new Zonal Pelargoniums, and examples of Beaton's Nosegay kinds came from Mr. Wm. Paul.

Of Miscellaneous Stove and Greenhouse Plants, Messrs. Lee sent a nice group, in which was a large Dicksonia antarctica, Dracæna indivisa, Alocasia metallica, Davallia tenuifolia, Oreopanax dactylifolium, and various flowering plants. From Mr. Bull also came an excellent group, consisting of Dracænas, one of which, D. rubra, was in flower; Palms, Platycerium alcicorne, Peperomia arifolia, Araucaria glauca, and a handsome Gloxinia named A. Bonnard. Of Roses several fine boxes of cut blooms were shown by Messrs. Lee and Mr. William Paul; the latter had a boxful of beautiful blooms of Gloire de Dijon. Another box from the same exhibitor contained single trusses of the yellow Noisette Celine Forestier, each truss having on it some half a dozen fully-expanded blooms. In addition to these Mr. Paul had beautiful examples of Madame Falcot, Madame Villermoz, and Souvenir de la Malmaison. Mr. Catleugh, of Chelsea, furnished Lilium auratum, finely in flower; and from Miss Macdaniel, Upper Norwood, came a frame of dried flowers and foliage, with the colours well preserved. Among them were Pelargoniums, Forget-me-not, Larkspurs, Adiantum, and golden Gymnogramma, the whole having a very pretty appearance. Mr. Ingram, gr. to her Majesty, at Frogmore, had a fine Smooth Cayenne Pine-apple, very good May Duke Cherries, large and fine British Queen Strawberries, and Prince Arthur, a conical-fruited sort; and Mr. Miller, gr. to Lord Craven, Combe Abbey, sent Meredith's Hybrid Cashmere and Combe Abbey Hybrid Melons.

United Horticultural: *June* 6.—An exhibition, held under the auspices of this new Society, took place on this occasion under tents in Finsbury Circus, and was all that could be desired, considering it was held in the very heart of London, almost within a stone's throw of the Bank. The Lord Mayor honoured the display with his presence in the morning, and during the afternoon there was a fair attendance of visitors.

Stove and Greenhouse Plants were shown in large numbers, and in excellent condition, by Mr. Williams, of Holloway. Among them were Statice profusa, Neottopteris australasica, in vigorous health; various fine Variegated Yuccas, Rhynchospermum jasminoides, Alocasia macrorhiza variegata, and other plants, among which were two wonderfully fine specimens of Dracæna lineata, and one of Sphærogyne latifolia, the last with leaves 18 inches long and 15 inches in width. Mr. Wheeler, gr. to Sir F. Goldsmid, Bart., M.P., furnished Ferns, Heaths, and other plants. Mr. Howard, gr. to J. Brand, Esq., Balham, had, among other things, the beautiful variety of Clerodendron Thomsonæ, called Balfourianum; and a group of Stove and Greenhouse Plants also came from Mr. Wheeler, gr. to J. Phillpot, Esq., Stamford Hill. Mr. Peed, gr. to Mrs. Tredwell, of Norwood, and Mr. Rhodes, of Sydenham, contributed beautifully grown and well-flowered Heaths; Azaleas came from Mr. Penny, gr. to H. H. Gibbs, Esq., Regent's Park, and Mr. Baker, gr. to A. Basset, Esq., Stamford Hill. Messrs. Hayes, of Edmonton, showed a large collection of Fuchsias, Pelargoniums, Deutzias, and Hydrangeas, all comparatively small but well-flowered plants. Seedling Pelargoniums were furnished by Mr. Holland and Mr. Turner, and variegated-leaved sorts by Mr. Hally, who had a fine collection, in which were examples of Mrs. Pollock and Sunset, the latter with leaves equally handsome with those of the former. Cut Calceolarias came from Mr. Crute; and from Mr. Forsyth, of Stoke Newington, came quite a small tent full of C. aurea floribunda, charmingly in flower. Various Aucubas were exhibited by Mr. Wilson, gr. to W. Marshall, Esq., of Enfield. From Mr. Williams came the silvery-leaved Peperomia arifolia, Todea superba, the red-veined Eranthemum sanguinolentum, Anthurium cordifolium, and other comparatively new and interesting plants. Mr. Fraser had beautiful exhibitions of Pelargoniums, both fancy and ordinary kinds; Mr. Turner, Messrs. Paul & Son, and A. Smee, Esq., cut Roses. From Mr. Aldred, Kilburn, came Amaranthus tricolor, with green, red, and yellow leaves; and from Mr. Porter, of Epping, came cut blooms of Pansies. A small plant of Lilium giganteum in flower was shown by Mr. Kirtland. Orchids were placed in a tent by themselves, and were intermixed with Ferns and fine-foliaged plants. They were furnished by Mr. Williams; Mr. Wilson, gr. to W. Marshall, Esq.; Mr. Penny, gr. to H. H. Gibbs, Esq.; and Mr. Baker, gr. to A. Basset, Esq., Stamford Hill. In these collections were some extremely fine plants of Cattleyas, Saccolabiums, Aerides, Oncidium, Cypripedium, and Phalænopsis. We also noticed the now seldom seen Broughtonia sanguinea in good condition—Trichopilia suavis, the rare and beautiful Dendrobium infundibulum, and Odontoglossum nævium; the last a mass of handsome Brassia-like flowers. From Mr. Williams came the long lost Promenæa citrina, and some small Anæctochili were shown by Mr. Aldred. Messrs. Barr & Sugden had various handsome plant cases, and Mr. Hooper ornamental pots, Ixias and Sparaxis.

Fruit, consisting of Pine-apples, Strawberries, Apples in a good state of preservation, Cherries, Peaches, Melons, and Cucumbers, was contributed by Mr. Turner, Messrs. Glendinning, Mr. Smee, Mr. Tillery, Mr. Stilwell, and others.

Botanical of Edinburgh: *April* 13.—Dr. Dickson, President, in the chair. The following gentlemen were elected:—Resident: R. Traill, Esq., and W. R. Thomson, Esq. Non-Resident: M. C. Cooke, Esq., London. The following communications were read:—1. *An Account of the Flora of that part of Hampshire called the New Forest.* By Henry Trimen, Esq. The author commenced by describing the situation, boundaries, extent, geology, scenery, and physical geography of the New Forest, and then proceeded to an examination of its botany. He stated that the number of species known to inhabit it now amounted to 723, of which number he had himself collected 530. Having divided the flora of the Forest into three groups—the plants of the heaths and moors, those of the woods, and those of the streams and water-courses, Mr. Trimen enumerated the more important species in each division, and showed specimens of many of the plants he mentioned. Amongst those were specimens of Gladiolus illyricus (Koch), a very handsome plant, only discovered as a native of this country in the New Forest a few years ago. The author then gave a sketch of the flora of the sea-coast, and of the cultivated parts of the district, and remarked on the few species found in those localities. The western type of vegetation was seen to prevail, and this was considered to be due to the damp humid climate. After alluding to the influence of the geological formation of the Forest on its flora, the author concluded his paper by urging collecting botanists to compile complete and accurate lists of the plants of a district, in preference to hunting for varieties. The paper was illustrated by a map of the Forest, and by numerous dried specimens of plants.——2. *Contributions to the Flora of Otago* (New Zealand): *No. 2, Rare Cryptogams.* By Dr. Lauder Lindsay. In this paper the author gave an account of some rare plants belonging to the natural orders Musci, Hepaticæ, and Algæ, which had been collected by him in New Zealand. Most of them had not been previously gathered in that country.——3. *Under the Snow, or the Flowering of Plants in Closed Cases.* By N. B. Ward, Esq. The author remarked—One of my bedroom cases outside the window has been most glorious for the last month or two. According to Mrs. Somerville, closed cases are as old as the creation. She says that any one travelling high up in the Alps in early spring cannot fail to observe Leucojum vernum (Snowflake) and other spring flowers flourishing in little closed cases of snow, with here and there a transparent icy roof, under cover of which the flowers retain their beauty for a very long period. Now, this case of mine is a case in point, but the plants, instead of being surrounded by snow and ice, are surrounded by glass. The minimum temperature, as tested by a self-registering thermometer, is always within one or at the most two degrees of that in the open air, but the immunity from the effects of cold, arising from the perfectly quiet and pure state of the atmosphere, is most striking. One flower of a Cyclamen, which opened the second week in January, has not yet faded, and a double-blossomed Camellia, which flowered most beautifully in the winters of 1863 and 1864, is now covered with flower buds just expanding—not one of the buds has withered or fallen; added to which are ten vars. of Crocus, one or two of Tulips and of Polyanthus Narcissus, the double white Primrose, &c. The Snowdrops are over. I was induced by the successful results of this case to build one of 50 feet in length at Chelsea, for the reception of innumerable lovely plants which do not require any artificial heat in winter, but which do want the protection afforded by the glass cover. This large case has now stood the test of two winters with most gratifying results. The aspect is the same as my own—viz., a little to the southward of east. Several varieties of Camellias, six or seven species of Cyclamen, several species and varieties of Primula, and all the ordinary and extraordinary spring bulbs, fairy Roses, Japan Barberries, Palms, Clematis lanuginosa, &c., are the ornaments of this house, backed by a large number of Ferns, Lycopodiaceæ, &c., retained in their places upon the back wall by galvanised wire. The amount of gardening labour required is most trifling, no pots or tubs being used.——4. *Report on the Flowering of Plants in the Open Air at the Royal Botanic Garden.* By Mr. M'Nab. Mr. M'Nab enumerated 39 species of plants which had come into flower in the open air from the 10th of March till the 12th of April.——A letter was read from Mr. William Bell, dated Botanic Gardens, Saharunpore, 28th Feb., 1865, in which he referred to a species of Loranthus (a parasite) which grows vigorously on many trees in the neighbourhood of Saharunpore; it is most partial to the common Mulberry, while Pinus longifolia and the Casuarina are seldom infested by it. Mr. Bell also gave a description of a species of Orobanche, another parasite, which infests the Turnip roots in the garden; it has a thick, fleshy root-stock, often of a considerable size. He stated that he had recently made more observations on the sexual organs of Ferns and Mosses, and had been led to the belief that the antheridial and archegonial cells are not the true generative organs of

these plants.——Mr. Gorrie exhibited twigs of Cupressus Lawsoniana with male and female flowers, and reported that these trees were this season flowering freely in Messrs. Lawson's nurseries and elsewhere in Scotland. ——Dr. John Anderson, Calcutta, sent photographs exhibiting the condition of many of the trees in the Botanic Garden there, after the late cyclone.

Liverpool Horticultural.—This Society held its first show on Thursday, May 25, and the weather being fine there was a large assemblage of visitors. The tents under which the display took place were pitched in the park adjoining the Botanic Garden, which was open to visitors, and must have afforded a great treat, as the gardens, which are under the superintendence of Mr. Tyerman, were in fine condition—no fewer than 60,000 plants being used in their ornamentation, and arranged with exquisite skill.

As regards the show, all the plants exhibited were grown in the neighbourhood of Liverpool. Among Stove and Greenhouse Plants were some good examples of skilful cultivation, but there were also others of which we cannot speak in such favourable terms. Some of the Heaths, Azaleas, and other hard-wooded plants, were not well bloomed: Gloxinias, however, were magnificent, some of the plants having upwards of 100 blooms on them, charming in colour and well varied. Fuchsias were also lovely: they were shown in the shape of pyramids, covered with fine foliage and flowers down to the rim of the pot—quite a credit to those who cultivated them. Calceolarias were very fine, especially Aurea floribunda, which was well bloomed, and many of the plants measured 3 feet in diameter, without a single stick to support them. These were rightly placed among plants remarkable for the beauty of their foliage. Pelargoniums were also good and well-bloomed. Roses in pots were nice neat plants, furnished with some fine flowers. Ferns and fine-foliaged plants were conspicuous features of the show, being well selected and cleanly grown. Hand bouquets were contributed in great numbers by ladies; though pretty, they were rather too flat, and the introduction of a few more Ferns and some graceful foliage into them would have been a decided improvement. Designs for flower gardens were numerous, and seemed to excite great admiration. Fruit consisted of Nectarines, Grapes, Cherries, Pines, Strawberries, Melons, &c. There were also about 30 brace of nice Cucumbers, of which some were perfect models of fine shape. The chief vegetables were Asparagus, French Beans, &c. Stands of Pansies were shown in good condition. Orchids were small in size and few in number, nearly all the old collections in this neighbourhood having been broken up. There are, however, many new beginners, who promise to keep this gorgeous class of plants well represented in future.

The following is a list of some of the most successful competitors:—

Azaleas.—Six: 1, Mr. Williams, gr. to C. Mozley, Esq.; 2, Mr. Matthews, gr. to J. Robinson, Esq. Four: 1, Mr. Hignett, gr. to C. Rowe, Esq.; 2, Mr. Titherington, gr. to Col. Thompson. Heaths.—Six: 1 and 2, Mr. Davis, Nurseryman. Four: 1, Mr. Leadbetter, gr. to R. D. Holt, Esq. Fuchsias.—Six: 1, C. Rowe, Esq.; 2, J. Robinson, Esq. Four: 1, C. Rowe, Esq.; 2, R. D. Holt, Esq. Pelargoniums.—Eight: 1, J. E. Reynolds, Esq.; 2, R. D. Holt, Esq. Four: 1, J. E. Reynolds, Esq. Six (Fancy): 1 and 2, J. E. Reynolds, Esq. Roses.—Eight (in pots): 1, R. Griffiths, Esq. Four (in pots): 1, Col. Thompson. Verbenas.—Six: 1, Mr. Morris, gr. to W. D. Holt, Esq. Petunias.—Six: 1, Mr. Turner, gr. to W. Preston, Esq. Calceolarias.—Six Herbaceous: 1, J. Robinson, Esq. Shrubby: 1, Mr. Davies, gr. to J. Swainson, Esq. Cineerarias.—Six: 1, J. E. Reynolds, Esq. Gloxinias.—Six: 1 and 2, J. E. Reynolds, Esq. Ferns.—Eight: 1, Mr. Sibley, gr. to S. Machin, Esq. Lycopodiums.—Six: 1, Mr. Fleetwood, gr. to Mrs. Bird. Variegated Plants.—Eight: 1, S. Machin, Esq. Orchids.—Six: 1, S. Machin, Esq. Four: 1 and 2 ditto. Stove and Greenhouse Plants.—Eight: 1, Mr. Newton, gr. to J. B. Leatherbarrow. Four: 1, C. Mozley, Esq.

Specimens: Azalea.—1, C. Mozley, Esq. Heath.—1, Mr. Cahill, gr. to Mrs. W. Roskell. Fuchsia.—1 and 2, C. Rowe, Esq. Pelargonium.—1, Colonel Thompson; Fancy: 1, J. E. Reynolds, Esq. Orchid.—1, J. B. Leatherbarrow, Esq. Calceolaria.—Herbaceous: 1 and 2, J. Robinson, Esq.; Shrubby: 1, J. E. Reynolds, Esq. Lilium.—W. Preston, Esq. Ferns.—S. Machin, Esq. Stove Plant.—1, S. Machin, Esq. Greenhouse Plant.—1, Mrs. W. Roskell. Hardy Shrub.—1, Mrs. W. Roskell. Basket of Plants.—1 and 2, Mrs. W. Roskell. Device of Flowers.—1, Mr. Newton, gr. to J. B. Leatherbarrow, Esq. Model Flower Garden.—1, W. Dagnall, Esq.

In Fruits, the principal prizetakers were Mr. Freeman, gr. to the Earl of Derby; Mr. Smith, gr. to H. Littledale, Esq.; Mr. Clarrin, gr. to Admiral Hornby; Mr. Sorley, gr. to E. Zwilchenbart, Esq. And in Vegetables, Mr. Freeman, Mr. Baldwin, Mr. Playfair, gr. to F. Shand, Esq.; Mr. Earle, Mr. Clarke, Mr. Deacon, and Major Walter.

Notices of Books.

Alpine Plants and Hardy Perennials. James Backhouse & Son. 8vo. York. 1865.

In the present rage for bedding plants, which renders every good and well-kept garden a mere counterpart of any similar establishment, it is quite cheering to a botanist, not to mention a lover of the varied forms which often render the vegetable kingdom so enchanting even to the uninstructed, to have something in view which promises more than a mere blaze of colour, however cleverly the disposition of the different tints may be arranged. Those who have attended the three or four last Tuesday meetings at the Horticultural Society cannot fail to have been charmed with many of the gems forwarded by Messrs. Backhouse. Andromeda fastigiata and hypnoides, Androsace Chamæjasme, Primula farinosa under two distinct forms, Hyacinthus amethystinus, Lilium pulchellum, Narcissus juncifolius, amongst other interesting species, attracted almost universal interest; and to those who admire the more curious freaks of Nature, there were such plants as Ophrys fucifera, Sarana kamtschatica, and others. The difficulty about the cultivation of the more Alpine forms is greatly facilitated by the plan suggested in the introduction to this Trade List, from which we beg leave to make one or two extracts:—

"Very rapid and perfect drainage, combined with an equally rapid and continuous supply of water, are essential to thoroughly healthy development. On rockwork this may easily be accomplished by allowing water to escape from a pipe at or near the highest point in a very slender stream or fast drip, which will keep a large district below both more humid and cooler than when similar effects are aimed at by ordinary watering. Some species, such, for instance, as Eritrichium nanum, Cerastium alpinum, and those plants generally which have silky or cottony foliage, evidently dislike having their leaves wet by artificial means, especially in winter, as in a wild state they are either buried during that season in dry snow, or subjected to frosts which destroy every particle of moisture. These must either be planted where an overhanging ledge protects them from snow and rain, or be grown in pots which can be placed under a glass frame admitting full ventilation in winter. Not that these plants are tender: they are nearly as hardy as the rocks themselves; but their winter alpine atmosphere is dry till the spring thaw sets in.

"Besides the question of moisture and atmosphere, that of soil is generally important. Hundreds of rare Alpines have been sacrificed to the idea that earth is essential to vitality. We find that with many species the less of this they have, the better their chance, especially at first when not established. Grit (coarse sandstone crushed into every imaginable size and shape, from sand upwards) is the life and soul of a large range of Alpines. When merely tinged with a little peat, cocoa refuse or loam (as the case requires), and kept moist artificially by filtration from above, this material exactly suits them, and imparts a vigour that surprises the cultivator. Even river sand unmixed with anything often answers perfectly when the moisture is regular."

It has been a common notion that it was essential to the cultivation of Alpine plants that they should be under a north wall, a situation which certainly suits terrestrial Orchids and some others better than any other. But Messrs. Backhouse do not recommend it for Alpine plants:—

"A very large proportion of the most showy species may be grown in an ordinary border in common soil, and nearly the whole range of Alpine plants may also be well grown in pots, where a garden is devoid of rockwork, which best represents their natural element. Whether cultivated in pots or on rockwork it may be well to state that after long experience and far too much of that kind of misfortune which usually attends experimenting upon new plants, we find that as a rule it is an error to place in the shade in summer for the sake of coolness, those species which inhabit very high mountain regions. These plants, as a class, hate the soft humid 'lifeless" atmosphere which shady situations in low districts afford.

"Living naturally on lofty ridges they are constantly exposed to high winds and an atmosphere of crystalline clearness, through which the sun's rays dart down with a vehemence which often heats the rocks till you can scarcely bear to touch them. This brilliant sunshine in the daytime, alternating with excessively heavy dews or sharp frosts at night, is the summer condition of a large number of the rarest and most beautiful species in their native abodes. And these, born near vast fields of perpetual snow, receive a rapid and permanent supply of moisture at the roots, which is checked only when wintry winds again bind everything in a firm mass."

Florists' Flowers.

Variegated Pelargoniums are getting to be great favourites, and the varieties are increasing in number and improving in beauty. Variegation consists in the absence either partially or wholly of the green matter, or chlorophyll, in certain parts of the leaf. It is a condition of the plant that is at present very little understood, and shows many very curious apparent anomalies.

It is a singular thing that though we have had variegated-leaved Pelargoniums for this century past, or perhaps longer, it is only within a very few years that the zonal matter (see p. 487) has made its appearance in the variegated parts of the leaf. In the older variegated zonal kinds, in common with several of the new ones, it will be seen that in those parts of the leaf where the variegation breaks through the zone, and the zone, if continued, should break into the white part of the leaf, it terminates abruptly, and there is an equal obstruction both to chlorophyll and zonal matter. But latterly some bolder zone has appeared to pass the Rubicon (or rather the Rubicon has passed its bounds), leading the way for others bolder still, until the zonal matter appears as much at home in the absence of chlorophyll as in its presence, thus laying the foundation for our more beautiful forms of red-zoned and tricolor-zoned variegations. I believe it was one of Mr. Kingborn's varieties that first exhibited the pink zone, but I do not now recollect its name.

The two principal divisions under which variegated leaves may be classed are those with white or light-coloured edges and dark centres, and those with light blotches or stars in the centre, and deep green edges. The former would appear to act in connexion with what Dr. Lindley, in his "Theory of Horticulture," terms the superior layer of veins, having their origin from the neighbourhood of the pith; and the latter, with the inferior veins, having their origin in the bark. The former may be traced by a white line down the inside channel of the leaf-stalk, through the liber to the edge of the pith: the latter by lines down the outside of the leaf-stalk, diffusing a light colour through the bark. Besides these there are spotted variegations, as in the case of the Aucuba, a somewhat similar condition frequently occurring in the Camellia, but it has not yet in the latter case, I believe, assumed a permanent character. Something analogous to variegation in the leaf occurs in the stripes and blotches in the petals of flowers. Those in the Camellia flower may be distinctly traced in the young leaves when about half-grown, and while they are semi-transparent. Indeed, so true are they to the character of the flower in point of colour and disposition, that after having raised a great many seedlings, and taking a great interest in them, evinced by close observation, I have been in the habit of marking them when young, and noting down their colours. Of course I do not pretend to judge what the character of the flower will be, or even whether it will be single or double, neither can I detect the white spots on a red petal (these are not permanent, but like the white spots on the leaf, only temporary variegations); but I can, from experience, tell what the permanent colour will be, whether unicolor, bicolor, or tricolor; and if striped or blotched with dark on a lighter ground, exactly how the stripes and blotches will be disposed, and their relative intensity. This condition of the leaf is very evanescent; it soon fills with green matter, and in a few days the markings entirely disappear.

The first tendency to the abnormal condition in variegated plants (however they may be propagated afterwards), I have never known to take place direct from the seed, but always from what is usually termed a sport in some bud; and I have seen sufficient proof to enable me to say that the tendency will sometimes be in the plant and lay dormant for years before it shows itself. As a case in point I may mention that I once marked a branch of Camellia imbricata, the flowers of which were very regularly and prettily spotted. From this branch I grafted several young plants, and marked each of them. They then showed no tendency to variegation, but two years afterwards the spotted variegation to which I have before referred exhibited itself, both in the original branch and each of the young plants simultaneously. Again, the plants of Nosegay Pelargonium Stella have very generally this season exhibited signs of variegation breaking out here and there, the tendency to which must have existed in the stock from which they came. This tendency to variegation seldom takes its true and fixed character at once, but generally begins with a blotch or single stripe in the leaf, which it generally loses again if not encouraged by cutting the plants down to the leaf affected. If this is done, and the bud at the axil breaks and still exhibits the tendency, it should then be stopped again at the leaf which presents the most decided tendency, and so on, repeating the treatment till a fixed character is secured. The shoot thus fixed should be taken off and struck as a cutting, or propagated in some way distinct from the parent plant, and it will then generally keep its character.

The seedlings from the white-edged variegated Pelargoniums, when true, generally come up albinos, without any green parts either in the seed lobes or leaves. These very soon perish; and, to secure permanent and hardy variegated kinds, recourse must be had to crossing with the green varieties. For this purpose, when zonal variegations are required, those with the deepest and broadest zones should be selected; and it will then be found that a large proportion will, if looked after, throw shoots quite variegated enough. However, in raising seedlings crossed between variegated and other kinds, they do not assume their true character for some time, but change about from one form to another, now producing leaves all white and others wholly green, one-half the plant being sometimes pure white or yellow and the other green—looking as if a blotch of sunshine had been photographed on its surface; but after a time the white leaves or shoots will perish and give place to others more regularly variegated. Some will appear with light blotches or stars springing from the centre and radiating towards the edges, and others with light edges and dark blotches in the centre. The former will throw light stripes down the outer side of the footstalk, which will spread over the surface of the young bark and come up again in the centre of the younger leaf; while the latter will throw down a white stripe in the centre of the leaf-stalk to reappear again at the edge of the forthcoming leaf. The character of either form may at this stage be fixed by taking off such shoots as suit the purpose and striking them; and it will often be found that two buds in the same branch are as individually distinct as two neighbours in one street. I have one sportive branch of Pelargo-

pinus Adonis, from which I fully expect to fix several totally dissimilar forms of variegation, some of them quite original. *John Hally, Blackheath.*

The Apiary.

THERE appeared last week (p. 511) a communication from Mr. Carr relative to the existence of FERTILE WORKERS in one of his colonies. That such cases do occasionally occur has been known to scientific apiarians for a very long period,—probably for at least one hundred years. It is, however, very rarely the lot of any bee-keeper, however observant he may be, to be able to ratify the correctness of the assertions of Reim, Huber, and others on this interesting point. Mr. Carr has therefore been fortunate in having the opportunity of closely observing one of these instances, usually so very difficult of ratification. Although I have been an ardent apiarian for nearly twenty years, I have never been able to prove beyond the possibility of doubt the occurrence of any such case in my apiary. But Mr. Woodbury, in a contemporary, in July, 1860, mentions an instance which had lately occurred in his apiary. He says: "The queen-cells in one of my small artificial swarms having turned out abortive, owing to the inclemency of the weather, some among the working bees have taken the opportunity of usurping the functions of royalty by depositing eggs in the breeding-cells. I presume they will produce drones, although laid in the workers' cradles, two or three being deposited in each cell. The depositing a plurality of eggs in a cell is not, however, peculiar to fertile workers, since a prolific queen will often deposit two or more eggs in one receptacle. I am unable to detect the difference in size which is said to distinguish workers which have assumed the functions of royalty."

Writing again in November, 1862, in reply to a correspondent, Mr. Woodbury, after quoting the above, says: "To these particulars, I may now add that the eggs so laid were developed into small drones, as I anticipated, and that although I was never fortunate enough to detect fertile workers in the act of oviposition, nor could I ever identify such as were in that abnormal condition, the circumstances of the case were such as to establish the fact beyond a doubt. Being perfectly satisfied that the eggs in question were really deposited by workers, and not by a small queen which had escaped my scrutiny, I supplied the colony with another sealed royal cell, which arrived at maturity in due course, and the abnormal laying of drone eggs soon came to an end." It is certain that the workers are undeveloped females; and influenced by the knowledge of the effect produced by a different food, combined with a cell varying greatly in its form and size, on the larvæ, which are thereby transformed into perfectly developed queens, it has been usually asserted that some of the worker grubs lying near to these royal cells may receive the benefit of a portion of this royal food, and, as the writer previously quoted states, "the ovaries of these bees proceeding from these larvæ receive thereby a sufficient stimulus to admit of their laying eggs, which being unimpregnated owing to their inability to copulate with the male bee, can only hatch into drones." Notwithstanding Mr. Carr's close observation of the case related by him, yet there are those who may not be disposed to admit that he has proved the matter beyond all possibility of doubt. It is necessary in the promulgation of such facts, that there should not be the slightest loophole which may admit of any doubt being cast upon the deductions arrived at from the premises. It may be said, for instance, that notwithstanding Mr. Carr's inability to discover the presence of a queen, there might still have been one in the hive.

I have little doubt of the correctness of his conclusions, but others may not be so easily satisfied. Some queens raised in my artificial swarms have been so exceedingly small and diminutive as to be overlooked, time after time of eager searching for them. One case I especially remember, where, after having searched for the queen day by day without success, I came to the conclusion that there could be no queen in the stock. At length I noticed a quantity of eggs laid in the cells, and after a further search discovered a queen which was hardly at all larger than an ordinary worker. This queen commenced by laying the eggs of drones, but she was destroyed to make room for a better specimen of royalty.

This fact of the occasional but extremely rare presence of fertile workers is one of the most convincing proofs of the correctness of the theory of Parthenogenesis as applied to bees. The queens or females of this species have the faculty of being able to lay fertile eggs without having been impregnated by the drones or male bees. We are assured by Siebold that the ovaries of the workers cannot by any possibility become fecundated, so that the laying of drone eggs by fertile workers is a convincing proof of Parthenogenesis as connected with the honey bee.

It is almost impossible to distinguish these fertile workers from the rest of the community. Huber asserted that he succeeded in doing so, and in capturing some in the act of laying eggs. Huber states that he and his assistant watched a hive from which the queen had been removed, and in which they had detected the presence of egg-laying workers, with the hope of capturing one of them; and he says, "at length on the 8th of September we had the good fortune to succeed. A bee appeared in the position of a female laying. Before having time to leave the cell we suddenly opened the hive, and seized it. This insect presented all the external characteristics of common bees; the only difference we could recognise, and that a very slight one, consisted in the abdomen seeming less and more slender than that of workers. On dissection the ovaries were found to be double, like those of queens, but more fragile, smaller, and possessed of fewer oviducts. The filaments containing the eggs were extremely fine, and exhibited swellings at equal distances. We counted 11 eggs of sensible size, some of which appeared to have come to maturity. Fertile workers never lay the eggs of common bees; they produce none but those of males." This has always appeared a puzzling fact to apiarians, and would probably for ever have remained a mystery had not Parthenogenesis in the honey-bee been discovered by Dzierzon, demonstrated by Von Siebold, and accepted as undoubted by the majority of scientific apiarians. What has hitherto been involved in a sea of difficulty now stands forth as an additional argument in support of the correctness of that theory. *Apiator.*

Garden Memoranda.

THE COLLEGE BOTANIC GARDEN, DUBLIN.—"If," said a great nurseryman and cultivator, who lives not a hundred miles from Cremorne, while discussing the merits of a group of Sarracenias at one of our great shows last season, "I had a very curious and difficult plant, without any hopes of preserving its life, I would sooner send it to Bain than to any other man I know." This is perhaps the highest compliment that could be paid to a cultivator, but is fully deserved by Mr. Bain, the talented Curator of the Dublin College Botanic Gardens.

In giving some account of this interesting place I do not intend going through the various houses and arrangements, for having to dilate somewhat upon subjects of peculiar interest, there will be little space to spare for indicating the relations which the houses and arrangements bear to the cardinal points, &c. The garden was founded by the late respected and venerable Dr. Mackay, who went to Dublin as assistant botanist to the Trinity College professorship in 1802, and established the garden a few years later—1807. From hence it was that he sallied forth to explore the Flora of Ireland, and to find in it treasures like the Killarney Fern and many other fine plants — more success than will probably ever again fall to the lot of a British botanist, which led to the publication of his list of Irish plants, and eventually to that of his well-known and valuable Flora Hibernica.

The garden is situated to the south-east of the city and adjoining the best part of it, but this advantage is counterbalanced by a slight deposit of city smut, from which Glasnevin, on the opposite and safer side, is free. Adjoining are the Hammersmith works of Mr. Turner, who has erected some of our noblest iron plant-temples, and within 10 minutes walk is the green on which the ever-memorable Donnybrook Fair was held. The chief part of the garden is surrounded by a high stone wall, enclosing a square, but outside of this on two sides there are wide slips of pleasure-ground, divided from the main road by a massive iron railing on a granite base, the whole being about 8 acres in extent. It is not a public garden, nor a show garden, but the private property of the University of Dublin, of which it is a worthy appendage; and surely the founding and supporting of such a garden is highly honourable to that noble institution.

To begin with the outdoor department, I have first to notice what a grand plant Lobelia Tupa is with Mr. Bain—hardy, vigorous, and full of flower. A bush of it 9 feet in diameter and 5 high, which I saw at the time of my visit last autumn, seemed worthy of association with the best Tritomas, and of a front place in any garden. The soil is deep, dark, and free, resting on Calpe limestone, 5 feet of it "rootable," and no doubt this, with the moister climate and shelter, has much to do with the condition of the plant; but anybody who takes as much trouble with it as Mr. Gibson does with his "subtropical" favourites, will succeed and find it a better subject than many of those. I believe it was in the Dublin Gardens that the great merit of the Tritomas was first observed, and—without special preparation—they seem to do better with Dr. Moore and Mr. Bain than I have seen them elsewhere. The walls round the garden are high, extensive, and exceedingly well hidden by climbers and a great variety of fine shrubs, many of which are in some places tender; but Mr. Bain, instead of nailing up his wall plants rigidly and neatly, as is usually done, takes the opposite and much less troublesome course of letting the shoots come freely away and form handsome bushes, which effectually break the monotony of the walls and adjoining garden. Of course the plants protect themselves much better in this way, and when many half-hardy shrubs trained in the usual way are killed by severe winters, these in the College Gardens are quite safe. In addition, scarcely one of the plants but was independent of the main stem, the side shoots being freely layered along the wall, and thus insured from extermination by cold. Mr. Bain is most successful with his layers, and never cuts the wood—nothing but the bark. Magnolias, Escallonias, Ceanothuses, Melianthus, Erythrina, Aster argophyllus, Colletias, Bignonia grandiflora, Chimonanthus, and Edwardsias were finely done in this way, many of them projecting into fine bushes. There is no knack of "the art of grafting or of gard'ning" with which Mr. Bain is not conversant. This I saw many proofs of; for instance, here is an old Maple, which has been badly pruned in youth, and is now gouty and decaying about a foot above the ground. There are two young and strong saplings, planted one on each side the stem; matched to the old plant, above the decaying part, and designed by Mr. B. to act as a pair of young and strong legs, when the old one goes. It was highly instructive and pleasing to see so much of skill in the art of gardening combined with accurate botanical knowledge, and a full acquaintance with the Irish Flora.

Always on the look out for an edible, a poisonous, a fragrant, a fetid, a purgative, or a medicinal plant, I could not miss the quantities of true Jalap that grew away more freely than could the Bindweed among the wall plants. With Mr. Bain it is plentiful enough to give away to his pharmaceutical acquaintances. Here, too, running loosely among the wall plants were the large flowering species of Clematis, and probably such a position is the best for these plants, of which such fine varieties are now being sent out. This specimen of Hodgins's Holly—a smooth large-leaved fine kind—15 feet high and bearing red berries summer and winter, resulting from a habit the plant has of flowering in autumn as well as in spring, is very interesting. From a hundred seeds of the plant I learned that a few might be got true, the rest yielding the common Holly. Interesting and beautiful, too, is this young tree formed by grafting Taxodium distichum var. pendulum on the common form. In that group of Cryptomeria japonica—all grown from layers—the individuals seem perfect and symmetrical of their kind; and Pinus nobilis, from a cutting, is also a perfect-looking specimen. Many of the Pines look dense and wide at the base, fine old specimens of P. excelsa for instance being as much through as high, in consequence of the lower shoots having been trained to lie on the turf, their spray springing from it in dense masses. This system is adopted to counteract the disturbing effects of gales, and the tendency of the plants to grow thin and loose. In some shrubs the habit was induced by layering, and in others, when the plant had become too lanky, by hard cutting back or by bending down the stem and laying the side shoots. A similar system was adopted with some of the house plants, but in no case if the plant from its main stem furnished a good and shapely specimen.

Here we are under a wall with plenty of Orobanche Hederæ growing on Ivy at its base, and a lot of hardy Ferns between the shrubs and wall; among them the original plant of the now widely distributed Athyrium F.-f. Frizelliæ with its variously shaped fronds,—just the same as when Mr. Bain first picked out and propagated those of the peculiar form. Among the Tritomas and Sea Pea—not a despisable plant when luxuriant in the mixed borders, in addition to Lobelia Tupa, may be noted, as well worthy more extended cultivation, Yucca filamentosa variegata; the Santolinas, which are really neat and useful plants for winter or any other season; Œnothera speciosa; Trifolium uniflorum, a distinct and pretty species; Onosma taurica; the fine Anemones, such as A. sulphurea and vitifolia; Agapanthus, doing freely; Veronica Andersoni variegata, forming very handsome bushes a yard high and as much through, and sometimes surviving the winter in that state, but more certain of doing so when in a younger stage; Primula Palinuri, very free and robust, though, perhaps, a common plant in some places; and the white variety of Lathyrus latifolius, a most useful and beautiful plant, flowering, as it does, for a long time, in consequence of rarely or sparsely perfecting the seeds. Planted on the turf and allowed to form a flat snowy mass there, or running up the walls to a great height, this old plant looks one of the best in the garden. But we are again under a wall, on its north side, and again looking at Ferns, this time on the wall. Asplenium Ruta-muraria and A. Trichomanes are both abundant, but Mr. Bain—always trying to humour his seven suspects—has with them, in crevices high up, Asplenium septentrionale and A. germanicum, in the hope of making wall plants of both.

The garden is perfectly flat, and for the greater part divided by wide walks, edged by the neatest Box, into large squares, containing the natural, British, and medical arrangements common to most botanic gardens; trees and shrubs arranged according to the Linnean system, a pond for aquatics, &c. The squares are surrounded by hedges, and in the narrow borders between these and the walks, are the choicest Alpines, in very rare health indeed. The collection is not large or varied, but very select; and in these borders almost confined to pretty flowering species. They are grown in little lines across the border, one species in each, and then perhaps of a favourite plant there may be 6 or 10 lines. There are no stones about, nor any of the usual appurtenances of Alpine plant growing, but never in pots, frames, protected or otherwise, have I seen them more healthy, proving that if Alpines are in the right soil and kept moist enough, they may be grown fully exposed in the open air at all seasons. Mr. Bain is, however, very careful to keep them frequently divided and firm and neat in the ground, as many are disposed to become "leggy," and soon go off if not then attended to. Each time I have called in the autumn I have observed a "herbaceous

man," sage and experienced-looking, dividing these Alpines, and carefully replanting them, putting to or near the roots—wood ashes! an unlikely compound for subjects that dwell far above the trees. Divide, divide, would seem to be quite as common a resort with Mr. Bain as it is in the house that Barry built. What a treat it must be to see those little rows of this exquisite Pink, Dianthus alpinus; they have just been replanted, and are carefully shaded with leaves from the sun for a few days till rerooted. There is a Willow, Salix serpyllifolia, healthy, neat, and spreading, but not more than an inch high, smaller and more delicate in growth than Lycopodium denticulatum. The Soldanellas are very healthy and numerous; there is an abundant little square of the true S. alpina. The choice and curious Petrocallis pyrenaica is plentiful; and so is Androsace Chamæjasme, with Gentiana verna, and a multitude of some of the best dwarf Primulas; while things not so attractive for their flowers, but distinct and curious, like the Megacarpæa, Picrorhiza Kurroa, Carex Fraseriana, Swertia, &c., are also far more abundant than usual—with the exception of the Prangos hay-plant, which is always scarce and oftener absent.

Mr. Bain does not, I think, grow any of his Alpines in frames. The culture of these choice Alpines is evidently one of his favourite objects, and he succeeds to perfection, as with any other things he "takes to." It is, however, a choice thing that "draws him out." Looking over the boundary here the Festucas and Asters did not seem more healthful than usual, but then to grow these well it is hardly necessary to master the "Theory of Horticulture," while, with our Alpine friends, some of the most learned fail. While on this subject it may be remarked that the soft and sweetly coloured Androsace lanuginosa has lived on a warm and sunny border for years, and was full of flower, in front of a mass of Commelyna cœlestis, looking very charming. Without going among the shrubs, of which there is a fine collection, it is easy to see what a neat and distinct one—full of flower too—this Atraphaxis spinosa, a polygonaceous plant, makes. If a rare plant, as I suspect, it deserves to be added to the nursery collections, and made plentiful. *W. R.*

(To be continued.)

Miscellaneous.

Claret.—Under the denomination of wines of the Gironde, part of ancient Gascony, are included the vintages of the districts in the vicinity of Bordeaux, many leagues in extent, and, of all the produce of France, these are most familiar to foreigners. Everywhere else they pass under the generic name of Bordeaux, but in England they are called Claret, which is either derived, as some suppose from Clairac, in Gascony, from whence large supplies were formerly imported, or is a corruption of the word *clairet*, signifying such as are red or rose-coloured. In its integrity Claret is a mixture of several sorts, specially adapted for use in this country, with a small portion of spirits of wine in addition. About 13 leagues to the north of Bordeaux the Médoc estate commences. It extends along the left bank of the rivers Gironde and Garonne, and comprehends the most celebrated growths of the country, including those of Châteaux Lafitte, Margaux, and Latour, as well as the vineyards yielding the secondary wines of St. Estèphe, St. Julien, Pauillac, and some others. Too much stress, however, should not be placed on the value of any particular name, as the varying influences of season, temperature, and other accidental causes often occasion the less esteemed growths to equal, and sometimes even to surpass those in greater repute. A remarkable instance of this occurred in the fine vintage of 1815, wherein a fourth growth in rank on the Margaux estate so far exceeded all the others in high character, that it became almost priceless. The entire crop was purchased by a merchant of Bordeaux, and after 15 years in bottle it was still in such perfection as to surpass in a remarkable degree any other claret ever brought into this country. From the frequent mention of claret wines by old writers, a large proportion of the best red growths was probably of that description. As long as they were drunk without an admixture of water, it was of little moment whether they were of a purple or rose colour; but the modern custom of using all the ordinary kinds in a diluted state has led to a change of practice in this respect, and the farmer strives to supply them as high coloured as possible. To attain this object the fermentation is protracted, and the principal ingredients tampered with; the consequence is, that many of these wines, though abounding in body and colour, retain from the beginning the germs of early decay, and the decomposition of the liquor is accelerated, acidity is prematurely engendered, and notwithstanding they might possess considerable stamina, the major part of such wines do not keep well. Still, many French vintages will continue sound for a considerable number of years: Roussillon has been drunk a century old in high perfection. *Denman's Wine and its Fruit.*

Consumption of Snails in Paris.—The consumption of the Escargot, or Snail, has within the last few years increased to such an enormous extent at Paris that they enter into serious competition with oysters at the wine shops in that metropolis. It is estimated that the breeding grounds in the provinces of Poitou, Burgundy, and Champagne now send every day no less than 400,000 dozen of snails to the Paris markets, where they readily find purchasers. M. Payen, the celebrated analytical chemist, has demonstrated that these molluscs, when boiled, furnish a substance infinitely richer in nutritive matter than that of oysters. *The Grocer.*

Calendar of Operations.

(For the ensuing week.)

Shifting where necessary must now receive attention. A compost, consisting of three-parts fibrous peat, in a lumpy state, one part free turfy loam, and a little silver sand, will suit most kinds of hard-wooded plants, with the exception of Heaths, which succeed best in peat without any admixture except that of a little silver sand. In potting take care to secure thorough drainage, over which may be placed a little broken or pounded charcoal.

FLOWER GARDEN AND PLANT HOUSES.

Now is the time to encourage rapid and sturdy growth in hard-wooded plants. A constant stopping of gross shoots will be necessary, in order to equalise the distribution of sap and encourage the lower parts of the plant to develope themselves. Out of doors, early bulbs now ripening, if turning yellow, should be taken up, or the greater portion of their leaves trimmed away. Verbenas, Petunias, and such things should be frequently pegged down where it is requisite to cover the surface of the beds speadily.

Auriculas.—Let these now occupy a cool shady situation. Green-fly, to which they are subject, must be kept in check. If infected remove the plants to a pit, in order that they may be effectually fumigated.

Balsams and Cockscombs.—These must now be encouraged to grow freely, giving them a little weak liquid manure occasionally, and accommodating them with larger pots as they may require them.

Camellias.—Keep these close, moist, and warm, until their growth is completed, when more air and less moisture should be given in order to cause them to form flower-buds.

Carnations and Picotees.—Let the main shoots of these now be carefully tied to neat stakes. Remove dead leaves and top-dress with fresh sweet soil. Destroy green-fly.

Cinerarias.—Cut down such as are out of flower to within two or three inches of the surface. Stir and top-dress with light soil. A north aspect is the best at this season. Take cuttings as soon as they can be had for early flowering plants.

Dahlias.—Keep these regularly and well watered, and secure them to stakes as they advance in growth.

Globe Amaranthus.—These may receive the same treatment as Balsams and Cockscombs.

Hollyhocks.—Give these a good watering, and then mulch afterwards, giving them a good soaking once or twice a week according to the weather. Tie the plants to strong stakes.

Pansies.—Propagate these whenever cuttings can be obtained. They strike best on a shady border under small hand-glasses.

Pelargoniums.—Plants in flower will require to be carefully shaded. Water freely every morning and give as much air as possible in order to dispel stagnant moisture accumulated during night and dull weather. Stake and neatly tie the later flowering plants. Seedlings should now be selected, discarding any which are not decided improvement on known kinds.

Tulips.—Uncover all out of bloom, but protect from heavy rains, which might be injurious.

FORCING GARDEN.

Figs.—Give abundance of water or liquid manure, if in pots or tubs.

Melons.—Set shy sorts, and sprinkle frequently to keep off red spider.

Mushrooms.—Let old beds be examined as soon as they begin to go out of bearing. If, upon removing the soil, the dung appears decayed or exhausted, the bed should be immediately renovated; but if, as often happens, the beds are found in good order, solid and full of spawn, they should be watered moderately with tepid water, if they are found to require it, and in a day or two afterwards the surface should be covered with 2 or 3 inches of loamy soil. In hot weather the house should be kept as cool as possible, without throwing it open; in order to assist in effecting this, the paths and walls should be sprinkled frequently with cold water, and the evaporation allowed to escape at the top. Continue to collect horse-droppings, and let them be stored up to make new beds, or to renovate old ones.

Peaches.—Give frequent waterings to these in their last swelling; continue to pinch luxuriant shoots, and to use the syringe liberally.

Pines.—In shifting let great attention be paid to having complete drainage; no after-management will compensate for the omission of this. Take care to thin growing stock in due time, giving abundance of room to plants approaching the fruiting period. Pines swelling fruit will now enjoy liberal waterings of clear liquid manure once a week, with fine syringings occaionally, more especially between their stems.

Vines.—Grapes just colouring should be assisted by a high temperature during this fine weather, accompanied, however, by an abundance of air; a moderate amount of fire heat should be provided should the weather become wet or cold.

HARDY FRUIT AND KITCHEN GARDEN.

Give the wood of Peaches a thorough thinning; do not reserve a shoot more than is wanted for next year. This, and keeping down insects, is the way to obtain success.

Celery.—Take advantage of showery weather, should it occur, to prick out young plants.

Peas.—Sow for succession as may be required.

Ridge Cucumbers.—These, Gourds, and Vegetable Marrows may be planted now; the first two in the usual way on prepared beds of rich soil, with the temporary protection of handlights; the last in vacant places where proper stations for vigorous growth can be secured.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending June 7, 1865, as observed at the Horticultural Gardens

June.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth 1 foot deep.	Temperature. Of the Earth 2 feet deep	Wind	[illegible]
Thurs. 1	☽	29.858	29.730	68	50	59.0	62	58½	E	[illegible]
Friday 2	8	29.615	29.577	66	48	57.0	61½	58½	S W	[illegible]
Satur. 3	9	30.071	29.773	74	42	58.0	60½	58½	S W	[illegible]
Sunday 4	10	30.2 0	30.213	76	42	59.0	61	58½	S W	[illegible]
Mon. 5	11	30.30	30.272	78	56	67.0	62	60	W	[illegible]
Tues. 6	12	30.294	30.215	82	49	65.5	63	60½	W	[illegible]
Wed. 7	13	30.424	30.319	75	39	57.0	63½	60½	S E	[illegible]
Average		30.161	30.018	74.1	45.5	60.3	61.9	59.4		[illegible]

June 1—Fine; overcast; very heavy rain at night, and warm.
— 2—Densely overcast; slight rain; overcast; warm rain.
— 3—Uniformly overcast; slight rain; fine.
— 4—Very fine throughout.
— 5—Very fine, with hot sun; warm at night.
— 6—Very fine; hot and sultry; very fine.
— 7—Heavy dew; overcast; hot sun; very fine.
Mean temperature of the week, 3 deg. above the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 39 years, for the ensuing Week, ending June 17, 1865.

June.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds N.	NE	E	SE	S	SW	W	NW	[illegible]
Sunday..11	71.7	48.1	59.9	13	0.47 in	1	6	3	3	6	9	[illegible]	[illegible]	[illegible]
Mon. ..12	70.9	46.4	58.6	19	0.78	—	7	3	2	7	1	[illegible]	[illegible]	[illegible]
Tues. ..13	71.7	48.1	59.9	19	0.56	1	[illegible]	6	1	2	[illegible]	[illegible]	[illegible]	[illegible]
Wed. ..14	72.3	48.6	60.4	18	0.18	1	5	6	1	7	1	[illegible]	[illegible]	[illegible]
Thurs. ..15	72.9	48.5	60.7	17	0.38	1	5	7	2	5	[illegible]	3	[illegible]	[illegible]
Friday ..16	72.5	48.9	60.7	17	0.46	3	3	8	1	10	[illegible]	[illegible]	[illegible]	[illegible]
Satur. ..17	73.0	47.9	60.5	22	0.80	2	4	4	—	7	11	[illegible]	[illegible]	[illegible]

The highest temperature during the above period occurred on the 12th and 13th, 1842—therm. 90 deg.; and the lowest on the 15th, 1836—therm 30 deg.

Notices to Correspondents.

Carrots: *C G R.* In growing Carrots and other tap rooted esculents, the upper soil should be light and porous, and it is no doubt beneficial in preparing the ground to put a good quantity of well-decomposed manure at the bottom of the trench, say a foot below the surface. See a paper on growing Salsafy at p. 53 of our Volume for 1863.

Climbers: *A W.* For a hardy evergreen free-growing climber take Hedera Rœgneriana, or some of the many ornamental varieties of common Ivy. For a greenhouse, Lapageria rosea, Cobæa scandens, Hardenbergia ovata, Jasminum azoricum, Tacsonias, Passionflowers, Tecoma jasminoides, or Zicuya coccinea.

Dielytra: *M M D.* Dielytra spectabilis has a calyx of two small narrow ovate concave coloured scales, very different from the two large gibbous outer petals.

Diseases: *A T.* It is a very common affliction, of which no one knows the cause. It is not injurious as far as our experience goes. *M J B.*

Figs: *J C.* Is not your Fig tree too much shaded? If not, we cannot understand why the new Figs of this year from last year's wood do not ripen. The same cause which prevents their doing so, probably rusts the fruit on the new wood, which appears weak, and your saying that the fruit which does ripen is deficient in flavour appears to indicate the same thing. Perhaps your soil is too good. A mixture of lime rubbish might possibly improve it. *M J B.*

Glass: *Early Sub.* We are sorry to say we cannot assist you; you must consult your solicitor.

Gnats: *J F* inquires what is the best mode of preventing the annoyance of gnats in bedrooms. His house is surrounded by trees, and in summer the abundance of gnats becomes a serious pest.

Insects: *D.* Your young Pears appear to have been gnawed by some Curculio, probably Otiorhynchus striatus, by night. Examine the trees after dark with a lanthorn, and lay sheets under them, over which the branches should be shaken at midnight.—*D L.* Your Ferns are attacked by the insect alluded to in the preceding article. We know of no easier mode of destroying them. If they are found in an inclosed place, toads or a hedgehog would kill and eat them.—*G F.* Your Larch twigs are infested with the Chermes Laricis; we are afraid you have not pulled up a sufficient width to prevent the injury spreading to the sound trees. We give no legal advice on the question you submit.—*J C.* Your Apple, Pear, and Currant leaves have been gnawed off by a weevil, Polydrusus oblongus. Beat the branches with a stick over a sheet or bag net, and burn the leaves and insects.—*H T.* The grubs which proved so destructive to the root crops of last year were the larvæ of a moth (Agrotis segetum). Those you have now sent are the larvæ of the common daddy long-legs, Tipula oleracea. Set children to catch the winged insects as soon as they appear. The grubs are now nearly full grown. *W.*

Mushrooms: *R M.* Many thanks for the photograph. The common Mushroom assumes a variety of curious abnormal forms, of which yours is not the least interesting. *M J B.*

Names of Plants: *J W.* Your plant is a curious aquatic belonging to the Podostemaceæ, of which we will give you an account when we have leisure to examine it.—*A L.* The parasite on Nettle is Æcidium Urticæ.—*J M.* The flowers are those of Vanda teres. At the time of reaching us the sepals and petals were nearly white instead of rose, which is the ordinary colour, but possibly they may have faded.—*S G.* 1, Veronica verna; 2, Veronica arvensis; 3, Asphodelus albus.—*H W C.* Allium ursinum. The other plant is Milfoil or Yarrow, Achillea Millefolium.

Peperomia: *Inquirer.* Peperomia arifolia belongs to the order of Pepperworts.

Seedling Pears: *J Fryer.* Sow the seeds in open beds, covering them with about an inch of soil. Transplant the seedlings after their first season's growth has been completed; and graft the most promising in the second or third year, or as soon as a graft can be obtained, on to some established tree, which will accelerate the fruiting.

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WIRRAL FARMERS' CLUB.—The AGRICULTURAL and HORTICULTURAL SHOW of this Society will be held at BIRKENHEAD, on SEPTEMBER 20.
Prizes to the amount of £400 will be offered for Horses, Cattle, Sheep, Pigs, Poultry, and Pigeons.
For Schedule of Prizes apply to Mr. WM. HENDERSON, Secretary, 2, Market Cross, Birkenhead.

The Agricultural Gazette.

SATURDAY, JUNE 10, 1865.

—— THE short report in another page describes the Hereford Meeting of the Bath and West of England Society as a wonderful success. The weather has been most propitious throughout the week, and the attendance of spectators has been very large. The number present on the three earlier days, when the price of admission was 2*s.* 6*d.*, amounted to no fewer than 16,220. At the annual dinner of the Society on Wednesday a very admirable discussion of the Agricultural Education question took place, to which Mr. HOLLAND, M.P., contributed a telling speech in support of the professional view of the subject.

—— We understand that the LOCOMOTIVES ON ROADS Bill will come before the House of Lords on Monday, June 12. It has passed easily through the House of Commons, assisted especially by the Borough members, whose constituents are the least beneficially interested of any in the powers which it confers. We earnestly hope that there will be no hesitation on the part of the great lords of the land to grant these powers, carefully hedged against abuse as the Bill undoubtedly defines them, on which agricultural progress, in the arable districts of the country, is so much dependent. Noble lords will certainly bear in mind what immense progress has been made by every art and manufacture so soon as steam power has been successfully applied to it. It is the necessary condition of agriculture that steam power for cultivation must be locomotive; and to refuse this Bill is literally to refuse that great advantage to agriculture and to landowners which has been experienced in manufactures and by millowners.

The engine which is to cultivate one field after another, even on the same farm, and still more if upon adjoining farms, must be allowed to traverse the intervening roads during working hours; but let this be permitted under the reasonable restrictions which the Bill imposes. Mr. AVELING's locomotive, shown at Hereford during the past week, came across the island from Rochester without harm to any one. Let any lack of that care which its driver exhibited during his four days' journey be made, as this Bill makes it, a penal offence; but do not let us altogether lose the great advantage of using these steam-engines on our farms, as we shall if any timid magistrate is to retain the power which the existing law confers of stopping them upon our roads.

ON Wednesday last Mr. STRAFFORD disposed of the herd of Shorthorns belonging to the late JOSEPH HEGAN, Esq., of Dawpool, near Birkenhead. The cows and heifers were sold in four lots, of three each. *Grand Duchesses* 5th, 7th, and 8th, realised 1900 guineas; 9th, 13th, and 18th, 1300 guineas: 10th, 15th, and 17th, 1800 guineas; 11th, 12th, and 14th, 1200 guineas,—or 542*l.* 10*s.* apiece! The five bulls fetched 1590 guineas, or 333*l.* 18*s.* each:—the whole 17 animals making 8179*l.* 10*s.*, or 481*l.* 3*s.* each. The cows and heifers were all bought by Mr. E. L. BETTS, of Preston Hall, Kent, who also purchased the American bull IMPERIAL OXFORD for 450 guineas. Mr. BLAND, of Coleby Hall, Lincoln; Mr. WALKER, of Berkswell Hall, Coventry; Captain GUNTER, and the Duke of DEVONSHIRE were the purchasers of the other bulls and bull calves.

With the exception of one of the bulls, IMPERIAL OXFORD, the entire herd is descended from *Duchess* 51, bought by Mr. S. E. BOLDEN, of Lancaster, at the Kirklevington sale in 1850. This cow, besides breeding many high-priced animals, as FOURTH DUKE OF YORK, sold for America for 500 guineas, and others—had no fewer than 13 descendants remaining in Mr. BOLDEN'S herd in 1862, which were then sold to the late Mr. HEGAN for the sum of 5000*l.* She was one of Mr. BATES'S celebrated *Duchess* family, descended from *Young Duchess*, bought by Mr. BATES at CHARLES COLLING'S sale in 1810. This cow was the result of an almost unparalleled "in and in" breeding, to which, indeed, the owners of the original herds of Shorthorns were forced to resort in the comparative absence then of strains of pure blood. This, conducted with consummate judgment and skill, has resulted in conferring on those herds a wonderful power of reproducing in their offspring the qualities which they inherited. The following was the pedigree of Young Duchess:—

Dam and SIRE.		g. dam,	gg. dam, by 252.
Duchess	dam by 252.	by 186.	by 252.
got by			
COMET, 155	sire, 252.	dam by 252.	

The numbers are those of bulls in COATES' Herd Book. No. 252 is FAVOURITE, 186 is DAISY bull, a son of FAVOURITE. It will be seen then that for three generations, excepting DAISY bull, FAVOURITE was the only bull employed, and

Young Duchess was in fact the produce of half brother and sister, the different mothers being themselves related both to one another and to Favourite, the bull to which they were put.

Since the Ketton sale, in 1810, other crosses had been employed by Mr. Bates upon the Duchess blood, but his family of that name was a well-knitted, closely related strain of uniform and characteristic excellence at the time of his death, when among others, *Duchess* 51, the mother of this herd, was sold to Mr. Bolden.

The following are her descendants in the present sale—the cows and heifers in the catalogue being printed in italics, and the bulls being printed in small capitals—the numbers being those of bulls in the Herd Book. The animals printed in common Roman letters are dead or not in the sale.

First Generation	Second Generation	Third Generation	Fourth Generation
G. Duchess by 10,284	*G. Duchess* 7, by 15,095 (1858).	*G. Duchess* 9, by 16,182 (1859).	*G. Duchess* 12, by 18,084 (1862).
			G. Duchess 18, by 18,084 (1864).
			G. Duke 10, by 19,874 (1863).
	G. Duchess 4 by 12,589 (1857).	*G. Duchess* 11, by 16,182 (1861)	*G. Duchess* 14, by 19,874 (1863).
			G. Duke 13, by 18,084 (1861).
		G. Duchess 13, by 16,182 (1863)	
G. Duchess 2 by 10,284	G. Duchess 3 by 12,961 (1856).	*G. Duchess* 10, by 16,182 (1860).	*G. Duchess* 15, by 18,084 (1863).
			G. Duchess 17, by 18,084 (1864).
	G. Duchess 5, by 15,095 (1858).	Grand Duke 9 by 15,095 (1862).	
	G. Duchess 8, by 15,095 (1859).		
	G. Duke 6, by 16,033 (1861).		

And besides these, in the 5th generation from Mr. Bates's cow, there is a young bull calf, Grand Duke 15 by Grand Duke 4 (19,874), which was withdrawn from the sale, making 16 descendants* of *Duchess* 51, which with Imperial Oxford, a 4-year old bull, also with plenty of Duchess blood in him, were sold last Wednesday for 8179*l.* 10*s.*, or 481*l.* 3*s.* apiece—a sum unparalleled, as we foretold on the 27th ult., as the price per head of an entire herd in the previous history of the breed.

It will be seen that the bulls employed by Mr. Bolden and Mr. Hegan were for the first generation Grand Duke (10,284) bred by Mr. Bates—for the second, Prince Imperial, 15,095 (bred by Mr. Bolden from a Booth cow by a pure Bates' bull—Faust, 16,033 (bred by Mr. Bolden also from Booth and Bates blood)—and Cherry Duke, 12,589, another bull mostly of Bates blood. For the third generation the bulls employed were Grand Duke, 16,182, three parts of *Duchess* descent—Prince Imperial, already named—Grand Duke 4th, son of one of the *Grand Duchesses* in the Catalogue, and Lord Oxford, 20,214, descended from another tribe of the Kirklevington herd. For the fourth generation the bull principally employed was Imperial Oxford, 18,084, himself in the Catalogue, one of the young bulls sent across three years ago by Mr. Thorne from New York, another of the Oxford family of Mr. Bates's herd.

Following out these pedigrees, the writer on Short-horns in *Bell's Messenger* gives the following account of the relationship of the Dawpool to the Kirklevington herd. He says:—

It was once said by Dr. Johnson, that if a man should repeat a lie every day for six weeks, not only would everybody who heard the tale believe it, but that the inventor would believe it also. So long and so repeatedly have men asserted that the Dawpool Shorthorns are not "Bates" Shorthorns, but that a large proportion of Booth and Cherry blood has neutralised if it has not overcome the Bates element, and so thoroughly have the majority of the agricultural public accepted the statement, that perhaps the result of a careful examination of each of the pedigrees of the Grand Duchesses and Grand Dukes, presented with reference to the amount of blood derived in each from Booth or Cherry sources, the only sources to which Mr. S. E. Bolden resorted, may be found to be both interesting and important. Mr. S. E. Bolden bought Duchess 51st at the Kirklevington sale in 1850; and from her proceed, with the exception of Imperial Oxford, the animals which are to be sold by Mr. Strafford on the 7th of next month according to advertisement. The following, we believe, is an accurate computation of the amount, in each pedigree, of blood not Bates, subsequently to Duchess 51st. Grand Duchess 5th—one-fourth. Grand Duchess 7th—one-fourth. Grand Duchess 8th—one-fourth. Grand Duchess 9th—one-eighth. Grand Duchess 10th—three-sixteenths. Grand Duchess 11th—one-eighth. Grand Duchess 12th—one-sixteenth. Grand Duchess 13th—one-eighth. Grand Duchess 14th—five parts out of thirty-two. Grand Duchess 15th—three parts out of thirty-two. Grand Duchess 17th—three thirty-seconds. Grand Duchess 18th—one-sixteenth. Grand Duke 6th—three-sixteenths. Grand Duke 9th—three-sixteenths. Grand Duke 10th—five thirty-seconds. Grand Duke 11th (sold to Colonel Pennant on the 11th of this month)—one-eighth. Grand Duke 13th—one-sixteenth. And Grand Duke 15th—one-eighth. These infusions of Booth and Cherry blood—separate to the eye, but mingled in fact—do in truth quite as little detract from the right of a Dawpool pedigree to be called a Bates pedigree, as the words "honour," "dignity," "recompense," and "tantalise," in a sentence taken from an English writer, rob that sentence of its right to be called a piece of English. But more remains to be said; and to this we respectfully invite the reader's best attention. Look at any of the pedigrees of the Grand Duchesses in the Dawpool herd. The last cow bred by Mr. Bates was Duchess 51st, and she is the twelfth female in the line. Of these 12 females, six were bred by Mr. Bates; Duchess 51st, Duchess 41st, Duchess 32d, Duchess 19th, Duchess 12th, and Duchess 4th. The other six supplied him with a ready-laid and capital foundation to build upon, and he built with sagacity and care. Had he lived in these days of mental servility and fear, he might probably have been expected to drop the preliminary crosses, so as to free himself from the charge of taking other men's leavings, and to establish pretensions to originality. He chose to do something quite different. The first cow in the list of dams after Duchess 1st by Comet was Duchess 4th by Ketton 2d (710), a son of Ketton 1st by Favourite, from a dam by a grandson of Favourite. The next cow was by The Earl (646), a yellow red bull, by a bull of Charles Colling's, and from Duchess 3d, a daughter of Duchess 1st; and the next was by Second Hubback (1423), also a son of The Earl. Second Hubback was the sire of the next dam, having been put to his own daughter. Then came Belvedere, bred by Mr. Stephenson, and, after Belvedere, Cleveland Lad. It is remarkable, that up to the time of Cleveland there is only one sire (Second Hubback) in the pedigree of Duchess 51st begotten by a Duchess bull; that Cleveland Lad, like second Hubback, was only half a Duchess bull; and that, accordingly, the chief weight of Duchess power has been added *since Mr. Bates died*. Now just look at the pedigree of Grand Duke 15th, the last bull in the Dawpool catalogue. Since Duchess 51st, there have been five bulls used. Each of these five bulls contains more *Duchess* blood, notwithstanding the admixture of some other blood, than any one of the bulls which precede them. To use an apparent paradox, the Dawpool herd is in truth much more characteristically Bates, than it was when Mr. Bates left Duchess 51st. The latter end of the pedigree, to which Bates men occasionally object as diluted Bates is more truly and emphatically Bates than the former. The former discloses much in-breeding, but in-breeding *in reference to the element of Favourite*; the latter is a piling up of Bates upon Bates, with qualifying intermixtures of Booth and Cherry blood."

The writer proceeds thus to anticipate the sale of last Wednesday. He says:—

As to the average likely to be made by Mr. Hegan's Shorthorns, opinions vary. We adhere to the conviction expressed in these columns three weeks ago, that it will greatly exceed all previous averages at Shorthorn sales. The largest hitherto obtained were at the sales of Mr. Charles Colling's herd in 1810; of Mr. Robert Colling's in 1818; of Lord Ducie's in 1858: and of Colonel Towneley's in 1864. At Charles Colling's, 47 animals averaged 151*l.* 8*s.* 0½*d.* At Robert Colling's, 61 averaged 128*l.* 16*s.* 5½*d.* At Lord Ducie's, 62 averaged 150*l.* 19*s.* 11*d.* And at Colonel Towneley's, 56 averaged 128*l.* 7*s.* 7½*d.* Up to the present date, Charles Colling's tops the list. Lord Ducie's falls short of it only by 8*s.* 1½*d.*; whilst Robert Colling's is just 8*s.* 10*d.* more than Colonel Towneley's.

Mr. Strafford, the Editor of the Herd Book, officiated at Lord Ducie's, as well as at this sale. His name is indeed connected with all the most memorable examples of high-priced Shorthorn stock known to the present generation; and we have now to congratulate him upon the latest illustration he has obtained from Shorthorn breeders, and given to them, of the great market value of well-bred stock.

It will be seen, from the announcement at the head of this article, that the anticipations indulged some weeks ago have been more than verified.

* Besides the animals named in this list, others, chiefly bulls, have to be enumerated in a complete list of the descendants of *Duchess* 51, the mother of the Dawpool herd.

THE OBJECTS OF FARMING.—No. II.

If three or four quarters of Wheat sold off per acre, or their equivalent—four to five quarters of Barley—sold to the maltster, are found not to be paying crops at present prices after deducting the value of the manure taken off with them, let us try a fodder crop by the same criterion. Taking the same average land and the same amount of expenses, viz., 5*l.* per acre per annum, we should reasonably expect to raise an average crop of 20 tons of roots as the produce. What is their value as food? Theoretically they may be said to contain about 4 lb. of nitrogen per ton, and to be capable of producing 20 to 24 lb. of meat (dead weight), at present prices of 8*d.* per lb. equal to 14*s.* to 16*s.* per ton, and instances of such returns may be readily produced; but I prefer to rely on more every day experience, and will take what I think all farmers will allow to be a fair return from cattle or sheep kept warm and dry, and properly attended to, viz., a stone and a-half of increase, or 8*s.* per ton. This will bring in a return of 8*l.* per acre for the 5*l.* expended, and improve instead of impoverishing the condition of the land. The same reasoning will apply to hay, Beans, and other crops, grown generally for stock, the feeding prices of which will be the best guide as to their generally received value as economical foods for cattle, and the prices of which will be found to be generally equally remunerative to the grower, if the value of the dung abstracted by them is returned to the soil, and has not to be charged to the cost of production. Barley is a striking instance of this difference. Malting Barley has been selling for the last few years at a price but little short of Wheat; feeding Barley at some 10*s.* less per quarter. Now, if the common calculation is right that a bushel of Barley will produce a stone of pork, worth now 4*s.* 6*d.*, it is apparent at a glance that the extra 10*s.* per quarter received for 5 quarters of malting Barley sold off is no equivalent for the manure exported therewith, which cannot be reckoned at less than 15*s.* per quarter. As I am not now writing on the subject of stock feeding, I must content myself with these instances of what I am sure is the general conviction, that fat animals will now bring home the feeding price of the food consumed and leave their manure in addition. As long as this is the case it will be evident that these fodder crops are more profitable than Wheat, and I may add will pay where corn sold off will not. Five quarters of Barley will bring in at 28*s.*, 7*l.*; four quarters of Beans about the same; two tons of Clover hay, 6*l.*, besides the after-feed; 20 tons of roots, as above, 8*l.* All these returns are 2*l.* or 3*l.* above the stated outlay of 5*l.* per acre over the whole farm, leaving what must be considered a fair profit on capital, and remuneration for time and management. Let this then be the first object of the present farmer: to produce as much meat as he can, to send his produce to market on four legs instead of four wheels, and not grow any quantity of Wheat for sale until he has so improved and deepened his land by successive fallow crops that he can make sure of a full crop of five or six quarters per acre; and his land is so rich that he can afford to send off with them the 200 lb. of nitrogen which they will have extracted without impoverishing his future crops.

I am, of course, aware that in making these suggestions I am running my head against all the prejudices of the old school, who tell me that the rent must be paid by the Wheat crop, that the land is not robbed if the straw is left in the yards, and that it is well known that animals are but a necessary evil, kept for the sake of treading this straw into dung, but paying nothing for their keep. All I can say is that this is a changeable world; these ideas may have been true when Wheat sold at 100*s.* the quarter, and meat at 4*d.* the lb., and in process of time (I am no prophet) may be true again, but they are very far from true now; and while present prices rule, that man only will succeed who can take advantage of them. He who cannot does not deserve success; if he cannot buy the necessary stock he should not have entered on so large a farm; if he has no accommodation for them he should settle that with his landlord; if he lacks the judgment to buy and sell he is not up to his business; but if he possesses these advantages he will thrive and be content with things as they are, and his land will be yearly in better condition and better prepared for the change, if ever that change should arrive. *J. B. M.*

IS BLOOD LAWFUL FOOD?

[We give insertion to a few passages from Mr. Chitty's reply on this subject to the letter of Mr. Shirley Hibberd, which was published several weeks ago, but it is impossible to find room here for any further discussion of the subject.]

I confess myself to be quite at a loss to know what my friend Mr. Hibberd means when he says,—

"It is one thing to interpret the meaning of a command that has been cast into an almost infinite variety of forms during the two or more years which have elapsed since it was uttered, and quite another to receive it as it comes to us with all its literary imperfections, and upon these imperfections to establish sanitary usages and physiological laws."

It seems to me that it would be an interesting research to look into the ages which have passed away since the eating of blood was first prohibited, and carefully examining through all the sinuosities of philological mystery and chronological embarrassment, to place before us some of the manifold phases this command has been said to have assumed, and the periods when it passed from one phase to another, and how, by a certain sort of involution, it appears to have been understood at certain periods precisely as common-sense people understand it to-day. For instance, there was the period intervening between the communication of the command to Noah, and the repetition of it to Moses, when such alterations might have been made in it as to make it mean something very different from that it bore at first, and it might have passed through a number of these transformations in this period according to Mr. Hibberd's theory, but anyhow it appears in the time of Moses to have reverted to its original form, and to have been understood to mean precisely what it was understood to mean when first enunciated, as the passages I have quoted and referred to in former letters will show. Then, again, Saul, the first king of Israel, appears to have understood the command in all its "hard literalism," as a reference to 1st Samuel xiv. 34 will show. Still farther on one of the prophets reprehends the Jewish people thus,—"Ye eat with the blood." And we have seen that the Apostles in their day insisted upon it as a condition of church membership that its members refrain from the eating of blood. And I suppose the compilers of the authorised version of our English Bible felt themselves quite justified in

giving us the rendering we find there, so that notwithstanding the "infinite variety of forms" through which the command has passed, there have been times when, like a repeating decimal, it has reverted to its original type, and been reverently applied to as a guiding star in the matter to which it refers. Then, as to the literary "imperfections" of the passage in question, what are they? Is brevity an "imperfection"?—if it is, then I for one confess it is very faulty. Is it an "imperfection" that the plainness of the passage is such that the merest child in years or understanding can take in its full import? If so, I will again yield the point. Well, but there may be an "imperfection" after all, for on looking at the text as it lies before me I perceive the two words "which is" have been supplied by the translators; yet, on reading the passage without those two words, I find no abatement whatever of its meaning and force, so that I really am at a loss to know in what "its literary imperfections" consist. Supposing the permission given in the third verse to have been always worded as we at present find it, it is difficult to understand how the fourth verse could ever have sustained any other relation to it, or ever have been made to mean other than that the blood of the animals permitted in the third verse is forbidden by the fourth.

It would be very interesting to us to know how Noah received the command in question; I think we have the key to his whole character in the last verse of Genesis vi, where we find it said of him,—"Thus did Noah; according to all that God commanded him, so did he." So that he appears to have been a man of thoroughly unsophisticated character, of unwavering faith, and unhesitating obedience, and there is no doubt he rendered the requirement the most exact and reverent homage. If Dr. Gill had met with him, and given utterance in his presence to such a perversion of the meaning of the sacred text as that we find in the latter part of the first quotation Mr. Hibberd gives us from his works, that "blood properly let out, and dressed or mixed with other things, might be taken," he would no doubt have met with such severe and stern rebuke, as to prevent him ever after from desiring to intrude his "black pudding" doctrine upon the attention of the patriarch. This brings me to ask Mr. Hibberd why, if he is so uncertain as to the form of the command, he should put any meaning at all upon it. Certainly I cannot understand how, as the command lies before me, a "spiritual interpretation" is to be put upon it. The animals now permitted to be eaten were real animals composed of muscle, sinews, bones, blood, &c., to be used as real food by man, to be masticated with their teeth, to be digested by the juices of their stomachs, and by means of the ordinary processes, to be assimilated to their bodies for their sustenance and growth, and the blood of these animals was real blood, which might not be eaten (but was to be poured upon the earth) for the reason we have so frequently quoted, that "the life of the flesh is in the blood," and as far as I can see, there is not any indication whatever in the passage before us that it can be regarded in any other light than a positive command, requiring unqualified obedience. I apprehend I shall not be considered by the most candid of my friends to have "gone from the faith," or to be "under a cloud" if I continue to view it in that light.

Mr. Hibberd seems to have overlooked the fact that no documents have been watched over and guarded with so much jealousy as the sacred records. We are unable to. If the positive teachings of Scripture are to be tortured, so as to make them utter something quite at variance with their obvious import, I cannot see to what other conclusion we can come.

Again, Mr. Hibberd says,—"It does not appear reasonable to consider the prohibition of Gen. ix. 4 as applicable to the present age, because we are distinctly assured that all the ceremonies observed antecedent to the Christian era 'were shadows of things to come.'" True, but the eating of blood was not a ceremony, it was an interdiction, a prohibition, a something not to be done—no more a ceremony than the ten commandments were ceremonies. If it can be shown that the obligations of the Decalogue are abrogated, exactly the same process of reasoning will suffice to show that the obligation enforced in Gen. ix 4 is abolished.

Under the second heading of the three into which Mr. Hibberd has shaped his letter, he says,—"My friend's case is weak in the first instance, because he can only quote from the Apostles. They had no commission to institute customs or to bind the consciences of any, and they full well knew the limits of their ministry, which was to preach the Gospel." Indeed? then I must have been "under a cloud," foolish man that I am, to have been trusting all these years to the reality of Apostolic teaching, and to have been considering their writings and doings as equal in value, and as much the result of Divine inspiration as any other portion of the sacred records. If the testimony of the Apostles is indeed "weak," as intimated by Mr. Hibberd, I feel myself compelled to ask over again, what are the grounds I have for believing them inspired men, and fitted not only for preaching the Gospel, but for the management and regulation of the Churches that were to be gathered by their preaching.

And be it observed that the Apostles, in deciding upon this matter, did not "institute customs," but only enforced interdictions which had already been in force thousands of years; hence, having met as they did under the influence of the Holy Spirit, and deciding this question under His inspiration, they write to the converted Gentiles, Acts xv., 28-29:—'For it seemed good to the Holy Ghost, and to us, to lay upon you no greater burden than these necessary things: that ye abstain from meat offered to idols, and from blood, and from things strangled, and from fornication: from which if ye keep yourselves, ye shall do well. Fare ye well." Let us note, "necessary things" only were enjoined upon the attention of the Gentile believers.

Now let me ask my friend Mr. Hibberd what were the "local circumstances" to which the item in question applied in the time of the Apostles, together with the other three, and why this item in common with the other three does not, "in any respect," bear "upon the usages of society in the present day." On looking into the account as given in Acts xv., I cannot perceive that there is any intimation that the "sentence" of the Apostles was to become nugatory in any future period of the Church's history, nor yet that its obligations were to be permitted to die out, as it were, by a sort of common consent. By what process of reasoning, by what rule of grammar, by what rule of analysis, by what rule of any sort, will Mr. Hibberd make it apparent that blood may be eaten to-day, while the other interdictions contained in this "sentence" retain their full force.

Let me again ask Mr. Hibberd, when, reasoning from the circumstances which brought the Apostles and Elders together on this occasion, the prohibition to eat blood might be rescinded? This sentence was to be conveyed to those who "from among the Gentiles are turned to God." Are there not men continually being turned to God from among the Gentiles as the result of their preaching and labours?

Again, Mr. Hibberd in his exposition of Christian liberty, says:—"That this liberty extends to the eating of blood by those who are so minded, is distinctly taught by the Apostle Paul in a passage which makes an end of this part of the discussion: 'Whatsoever is sold in the shambles, that eat, asking no questions for conscience sake.'" Why Mr. Hibberd should have quoted this passage in support of the "black-pudding theory," I am at a loss to understand I have, in accordance with Mr. Hibberd's hopes, carefully pondered this passage, and I have also in my younger days pondered such documents as the Odyssey of Homer, and other ancient documents, from which I learn that it was the custom among the ancients, as it is amongst us, to shed the blood of animals designed for food. And there can be no question that the shambles from whence Paul recommended the Corinthian Christians to procure their meat, would contain meat as well fitted for food by the draining of the blood from it, as the shambles of Whitechapel, Leadenhall, or Newgate amongst ourselves.

Further, do we not find that Paul, even after his conversion, was intensely Jewish in his prejudices; and is it likely that his Jewish prejudices, and his regard for the Scriptures of the Old Testament, would allow him to permit the use of blood to Churches to whom he wrote? And was he not so thoroughly a Christian, and so entirely approved of the decision of the assembled Apostles at Jerusalem, that he and Barnabas, Judas and Silas, were commissioned to convey the "sentence" to the Gentile Churches.

Again, I confess to such dulness of apprehension as not to be able to see the force of Mr. Hibberd's remark when he says, "It seems to me that Christ abrogated all ceremonial observances, and all restrictions upon articles of food, when he said to the multitude, 'Not that which goeth into the mouth defileth a man, but that which cometh out of the month, this defileth a man,' &c." Let us examine the context, and see whether it can in the remotest degree apply either to licence or "restriction" in articles of food, or, indeed, to have any relation to such a subject at all. The Scribes and Pharisees had come to Jesus, asking him, "Why do thy disciples transgress the tradition of the Elders? For they wash not their hands when they eat bread." Jesus immediately replies, by reprehending them for their hypocrisy in paying more deference, to the traditions of men than to the laws of God, and calling the multitude to Him, He said to them, "Hear, and understand: Not that which goeth into the mouth defileth a man, &c.," as though He had said, "what if my disciples do take their food with unwashed hands, and some particles of the dirt and filth which has accumulated upon them in the course of the ordinary work of life should attach themselves to their food, and be passed into their stomachs, &c., can that defile them? No, rather, evil thoughts, resulting in evil actions, these are the defiling things." Again, we have abundant evidence that the Saviour by his numerous quotations from them, did give his sanction to the Scriptures of the Old Testament, and we never find him intimating in the least degree, that any of their statements were to be slighted or neglected. He himself was a pattern of perfect obedience to them, and though in the narratives of the Evangelists we have numerous instances of his pardoning the sins of wrong-doers, we have not a single instance of His encouraging or tolerating their sin. His object in coming was not to abrogate any moral obligation, but rather by obedience to them, to render the law "honorable." Hence, we find Him saying, "Think not that I am come to destroy the law, or the prophets: I am not come to destroy, but to fulfil. For verily I say unto you, Till heaven and earth pass, one jot or one tittle shall in no wise pass from the law, till all be fulfilled."

I am very much obliged to Mr. Hibberd for his admission that "Mr. Chitty's quotations give us the very pith of Hunter's ideas." I meant they should, and besides, I feel so confident of the soundness of my position as not to require the assistance of "misrepresentation," of which I am accused in the opening of Mr. Hibberd's letter of April 15, nor yet the assistance of misquotation from the authorities I have quoted; neither does my position require to be bolstered up by "Hunterian phantasms." I take my stand first of all upon the sayings and teachings of the Sacred Scriptures. If, in confirmation of any Scripture statement, or truth, I can derive any additional light from the teachings of science, I avail myself of it." *William Chitty, Stamford Hill.* [It has been impossible to give more than a few extracts from Mr. Chitty's very long letter, and we imagine that our readers are now more than satisfied with the discussion.]

NATURAL HISTORY OF GUANOS.

[The following is a passage from one of a short course of lectures lately delivered by Mr. Wallace Fyfe, before the Royal Agricultural College.

GUANO is the leading article in the artificial manure market. It is a natural enough substance, but classed with the artificials, to distinguish it from home-made manure. It is now 22 or 23 years since the first crop of guano (pronounced Huano) was imported from the Chincha (pronounced Chinka) Islands, on the coast of Peru. These islands comprise three rocks, the joint area of which is under 3000 statute acres; and the quantity of guano still upon these rocks is commonly estimated at 15 millions of tons, valued at more than 100 millions of money. I may cite, however, the following account communicated by my brother, Lieutenant Thomas Wallace Fyfe, now of the East India Service, to Mr. Samuel Parr, the Nottingham chemist, as given in that gentleman's "Letters to Farmers on the Chemistry of Soils and Manures."

"Last year Captain Fyfe visited Peru, and brought over from the Chincha Islands a cargo of guano. His account of these Islands is totally different from any I have ever yet seen published, for instead of the guano being exhausted in 8 or 10 years, which most writers assert, he says that the supply, comparatively speaking, is inexhaustible, the beds of guano being in many places more than 100 feet thick, and two of the three principal islands being yet untouched. On climbing the cliffs an innumerable quantity of skeletons of large marine animals were presented to his view, such as those of the seal and walrus or sea-horse, striking up out of the surface in such quantities that the place appeared to be completely white all over; and these," says Mr. Parr, "account in some measure for the white lumps frequently met with in Peruvian guano, which are no doubt the decomposed skeletons and vertebræ of these animals. Passing along over the island he could scarcely take a step without his foot breaking through into a hole in which the guano bird makes its nest. These holes extend 5 or 6 yards into the bed of the guano, and the birds are continually occupied in fetching fish from the sea to feed their young ones. The number is so immense that the air seems completely alive with them. By this account, on which the most implicit reliance can be placed, you will perceive," continues Mr. Parr, "that guano is not all excrementitious matter, as we have hitherto been led to suppose, but consists of a considerable amount of decomposed animal matter, in addition to the excrement of birds. It is evident, from this brief sketch, that the supply of guano will be at present by no means limited, and therefore it rests with yourselves (meaning the farmers) to petition Government, through your respective members of Parliament, to endeavour to devise means to get it imported into this country at a cheaper rate."

Thus far Mr. Parr. I may add that up to the 1st of June, 1858, the total shipments of guano had amounted to 2,608,659 tons; the losses on shipment were, however, equal to 10 per cent., and the losses at sea to 1½ per cent., leaving the net proceeds, after paying all expenses up to 1856, 4*l.* 16*s.*, and up to 1858, 5*l.* 2*s.* a ton. Now in the year alluded to (1858), the Peruvian Government was guilty of a piece of gross injustice to England, its best guano customer, in selling guano in the United States at 11*l.*, while charging England 13*l.* 5*s.*, making a difference in price of over 400,000*l.* a year. This matter was, however, brought under the notice of Lord Derby's Government by Mr. Kernaghan and Mr. Caird, whereupon Mr. Seymour Fitzgerald had the prices very promptly equalised at 12*l.*; but in 1863 the Peruvian Government again raised them to 13*l.** My brother is absent on an East India voyage—indeed I daily expect to hear of his arrival at Point de Galle, in Ceylon, otherwise I might have had some more special information to offer you regarding the Peruvian monopoly. I find, however, that in a subsequent note to Mr. Parr he has forwarded confirmatory statements respecting his estimate of the supply. He says:—

"It is stated by Mr. B. R. Wilson, the well informed English Consul at Peru, that though it is supposed that about 3000 tons a-year have been carried for centuries from Chincha, one of the islands in question, to the opposite coast, it is estimated that there is still upon the island the enormous quantity of 17 millions of tons, and that the supply in the various islands of the group now alluded to may be safely estimated at above 40 millions of tons. But exclusive of these there are other islands more to the south whence guano is shipped for Arequipa, and which are still far from being exhausted, and vast deposits have been found on the coast of the mainland, near Lamar or Cobiju; so that making every allowance for exaggeration, the supply of Guano cannot, for all practical purposes, be regarded as otherwise than inexhaustible.

(Signed) "THOMAS W. FYFE."

It must be admitted, however, that the imports for British consumption alone represent only about one-third of the guano trade of the country, as carried on by Messrs. Thomson, Bonar, & Co., and formerly by Messrs. Gibbs & Sons, of Liverpool, the agents or lessees of the Peruvian Government. This trade took its existence from the attention which Liebig first directed to the subject of guano. But Messrs. Gibbs & Sons only began their trade in 1842, two years subsequently to the appearance of Liebig's work. Already, however, in 1841 guano had, according to the Report of the Council of the Royal Agricultural Society for that year, been tried on 60 English farms; and these would seem also to have been preceded by a few former trials, extending over the two or three preceding years—several cargoes of guano having been imported and sold at upwards of 20*l.* a ton in these years by Mr. Myers. Gibbs & Sons, in 1862, imported only 182 tons of guano. In 1862, the 20th year from the commencement, the total supplies for foreign, as well as British consumption had, however, reached 435,000 tons for the year; of which from one-third to one-fourth only was retained, however, for the United Kingdom. At the outset of the guano trade the price ranged from 10*l.* to 15*l.* per ton; from 1846-48 it was at its lowest point, 9*l.* a ton; during the next four years, 1849-1853, 9*l.* 5*s.*; it reached 10*l.* in 1854, 11*l.* in 1855, 12*l.* in 1856, and its highest recent point, 13*l.*, in 1857. It has since slightly declined, and in the language of the trade circulars, now rules at about 12*l.*

Not contented with the Chincha deposits, the Peruvian Government are still extending their exploration of the Guano Islands, and constantly bringing valuable deposits to light. We read in the "Commercio" of Lima, June 13, 1863, that the engineers found the guano on the Lobos Islands extend on a large part of the surface to a depth of 10 to 12 feet, and in some parts to as much as 40 feet deep—the guano of the thinner strata being naturally inferior, owing to the influence of the mists, but in the deep deposits the quality is superior. On both islands the first-class guano, value 6*l.* a ton to Peru, is calculated at about three millions of tons; the second-class, value 4*l.*, at about one million. The Macabi group, next explored, near Malabrigo, had the whole guano first-class, not inferior to that of the Chinchas. Here the engineers broke the borer employed in their examinations, after having penetrated with great effort to the depth of 130 feet without touching the foundation rock, and in these excavations found crystallised ammonia at 30 feet depth. All this guano was of first quality, and the stock not less than 1,500,000 tons.

On the Guañape group, opposite the point of St. Helena, the guano was also found to be of the first class, and the stock, judging by the height and extension of the deposits, which commence at the very sea, not less than 2,500,000 tons. The Lobos Islands guano can only be embarked by means of long wharves, but both at Macabi and Guañape groups the depth of water is considerable at the foot of the rocks, so that, as at Chincha, by means of shoots, the loading will be rapid,

* The following figures represent the rate of importation into the United Kingdom since 1858, the importations of that year, 353,541 tons, having been the highest ever known:—

1859	84,122
1860	141,435
1861	178,423
1862	141,635
11th Nov. of 1863	206,690
	752,306

and the guano will not suffer any waste. The data furnished by this exploration may teach us what to expect, perhaps of yet farther discoveries, or what further resources exist, in case of Spain persisting in the seizure of the Chinchas:—

Lobos Islands,	3,000,000 tons,	1st class, value 6*l.*
"	1,000,000 tons,	2d class, value 4*l.*
Macabi Islands,	1,500,000 tons,	1st class, value 5*l.*
Guañape Islands,	2,500,000 tons,	1st class, value 6*l.*

Tons 8,000,000 valued at £46,000,000.

For 2000 years the Peruvians have known and applied this guano, of which our agricultural experience extends over 20, and perhaps it may not be altogether futile to cast a glance at the history of its utilisation in its own country.

Acosta is the earliest historian who notices the method of manuring the land adopted in Peru, at the arrival of the Spaniards. He notices that the ridges amongst the cliffs and hills of the islands contiguous to the coast are so white that one would imagine they were topped with snow. This covering he describes as an uninterrupted heap, often some yards deep, of the excrement of sea fowl; and vessels go solely for the purpose of loading this dung, so great being its efficacy that the land manured with it produces a much larger crop of grain and also an increased quantity of fruit. It is called guano, and Lunaguano in the Peruvian valleys takes its name from its being there more generally used (*Historia Natural y Moral de las Indias*, l. iv. c. 37). Garcilasso de la Vega (*Commentaries*, b. 5, c. iii.) says that "On the sea coast, from the other side of Arequipa as far as Tarapaca, a distance equal to 200 leagues, the inhabitants use no other manure than the dung of marine birds, large and small, which abound on the whole Peruvian coast, moving about in immense flocks." In the time of the Incas no one could land upon the islands during breeding time without incurring the penalty of death, and at no time of the year was it lawful to kill them. Each island was destined for the supply of a particular province, but if large was allotted two or three more. In the neighbourhood of Arequipa and Arica, however, where it seldom rains, Garcilasso mentions that the natives manured with pilchards by putting two Maize seeds into the head of one of them and then burying this in a hole made by a dibble. This was out of no disrespect, however, to the values of the guano, for when the wind blows strongly from the sea, the rising tide on the Peruvian coast brings with it immense shoals of pilchards, which being unable to recede when the ebb ensues, are left scattered in immense numbers on the beach. The great object of the Peruvians being to manure the plant rather than the soil, they abstained as much as they could from indiscriminately scattering their guano on the surface or in any other way using it as a top-dressing; because practice had taught them that a substance so volatile easily evaporates, and consequently loses most of its essential properties when exposed to the action of the air. With the aid of guano the ancient Peruvians were enabled to cultivate the same lands for the same crops (Maize and Millet) and render them permanently productive. To their terraced seed lands no repose was given. In the province of Arequipa, where guano is applied, Maize yields 35 and Potatos 45 for 1, whilst in the same districts Wheat manured with horse dung does not exceed 18. Much depends on the mode of applying the guano. In Frezier's "Exploring Voyage to the South Sea" (1712, 13, 14) it is stated that it fertilises the land so that it yields 400 or 500 for 1 in all sorts of grain—Wheat and Maize and more particularly the Axi (Capsicum baccatum), or red Guinea Pepper, without which ingredient in their stews the Peruvians could not exist. The mode of application to this plant is worthy of recital. The plants are laid slanting on the ground, in order that the trenches for irrigation may bring the water gently to each stem; as much guano is then put to each as will rest in the palm of the hand, a little more when the flower is formed, and, finally, a good handful when the pod appears. As it never rains, great care is taken to have the plants watered, for the undiluted salts in the manure would be apt to burn them. And practically there is nothing different in our modern modes of applying guano, unless that we, perhaps, more frequently apply it in the dry form with sifted earth or ashes for a diluent or vehicle. Feuillee ("Journal des Observations Physiques"), 1714, describes the port of Arica as deriving its best revenues from the ordure of birds called guano; and having storehouses to which the article is brought for loading, in order to be transported to various parts of the neighbouring coast to manure the land. The insupportable smell of the ordure of the immense number of birds on the cliff contributes greatly, he thinks, to the sickness of the town, which, he says, the inhabitants might avoid by firing upon the birds, but they prefer sacrificing their health to sordid gain. Foreigners unaccustomed to the smell appear to be afflicted with headaches. Humboldt notices that it has the effect of causing those unaccustomed to it to sneeze. My brother, I recollect, mentioned that during his visit to the Chincha Islands he never knew what it was to enjoy existence until he could, on a Sunday perhaps, obtain possession of a ship's boat, and pull two or three miles out to sea, beyond the waft of the divine afflatus. The word Chincha, by the way, in Spanish, signifies bug, and the Bug Islands, judging from the shoals of insects I once saw crawling on the sails of a vessel in which one of the first guano cargoes of 1843 was imported into Berwick-upon-Tweed, full well merit the appellation. The Norfolk Howards had escaped from the guano in the hold, and gone aloft for a little fresh air. In "Ulloa's Voyages," part ii., book 1, it is stated that they infuse warmth into the land with the dung of sea-fowls, extremely abundant along the shore, called guanoes, and their dung—guano, a general term among the Indians, and signifying excrement in general. "With the heat of the sun the deposits are formed into a kind of crust, which is daily increased, and as the quantity collected is so exceedingly great, it does not become exhausted, notwithstanding they are constantly carrying it away, because in a short time the deposits are regularly replenished. I have been, he says, on some of these islands when they were loading vessels, and the bad smell emitted was so offensive that it became insupportable. There could be no doubt what the article was. This dung is used on the lands sown with Maize, and by their being served with it the crops are considerably increased. A small quantity is put round each plant, which is afterwards watered." The highest authority on the natural history of this valuable substance is, however, the distinguished naturalist, M. Alcide d'Orbigny, in his "Voyage dans l'Amerique Meridionale." Voyaging along the Bolivian coast, whence, by the way, Professor Anderson, in his speech at Kelso, stated that the best of all guano was exported, and largely exported, although little of it ever reaches this country, d'Orbigny says, "It would be difficult to explain the nature of accumulations so considerable as these by the ordinary quantity of birds which we are in the habit of seeing upon our own shores; but in America this is not the case. There the great number of uninhabited points enables the feathered tribes to roost and nestle in peace, at the same time that this sea, in a virgin state as regards fishing, and perhaps abounding in the finny race more than any other in the world, furnishes them with an easy means of obtaining a subsistence. Hence it follows that these animals there are so numerous that at certain seasons their various tribes actually darken the air as the flocks move along. All these marine tribes, in consequence of their invariably reposing in large societies on the same points and there passing the night, unceasingly augment the strata of guano; and, as it does not rain in that part of the country, the surface is never washed by those heavy showers to which we are accustomed in Europe. These masses, therefore, cannot be removed unless it is with the aid of man." The flocks of birds observed by M. d'Orbigny were of the gull, gannet, pelican, and cormorant, and phaeton families. The island of Iquique, he observes in passing, was formerly frequented only by guaneros, or guano vessels, conveying the bird droppings to the neighbouring mainland. The inhabitants, he remarks, had for three centuries been accustomed to provide themselves on a small island situate to the north of Itaque, and not more than a league in circumference. He adds, as we shall shortly have occasion to see is the fact, that the village in the Island is now rendered more remarkable by the shipment of nitrate of soda. There are however birds to which Dr. Unanue introduces us, as the hicunaes, from whose dung, he says, comes that red earth with a pungent and alkaline smell, used as manure on the lands to increase it three or four hundred fold—a discovery made by the ancient Indians, who were consummate masters in agriculture. Upper Peru, it seems, is studded with lakes, but they afford so little fish that their incalculable myriads of aquatic birds, gulls, herons, ducks, &c., come down to the coast, where they remain till the summer sets in. Guano consequently is not the accumulated droppings of one particular bird, although it takes the name of the kind that would appear to predominate. One writer has been curious enough to calculate the probable rate of accumulation of these deposits. The palmapedes or web-footed tribes, he says, the pelican, cormorant, and gannet are, no doubt, the largest producers, owing to their size and the quantity of food they devour. Supposing then that there might be one million of each constantly at work, and that each bird voided one oz. weight in the course of the night, the aggregate quantity in that case would exceed 90 tons in the 24 hours, or 32,850 tons in the year, to which are to be added the leavings of numerous other tribes. In confirmation of the accessions of another kind mentioned by my brother, it was estimated by the loaders on the S.W. coast of Africa in 1828 that there were half a million carcases of seals lying on Possession Island, and fully as many more on Seal and Penguin Islands within Angra and Piquena Bay, which must either have fallen victims to some dreadful pestilence, or have been destroyed by one of those awful visitations called sandblasts. Sailors have another opinion. Nothing would convince the South Sea whaler that the creatures did not select for themselves a spot ashore to which they resort to die; and who can tell whether such may not be their natural instinct when death is coming on? Some of you may have read perhaps Fennimore Cooper's novel of "The Sea Lions," in which there are graphic pictures of such scenes of marine mortality.

We have already adverted to the circumstances under which guano was introduced into notice in this country in 1841. In July of that year it was that Lord Stanley, now Earl Derby, mentioned it at the dinner of the Royal Agricultural Society, at Liverpool. Cargoes shortly afterwards began to arrive, and in October, Liverpool and London agents were at work with long explanatory circulars recommending it to our agriculturists. An eminent Glasgow merchant, who, unhappily, was in the bit of thrusting many of his letters received in the course of business into his capacious breeches pockets, is said to have received a circular enclosing a sample of the article neat as imported, which of course began to give off fumes of such an insufferable character that the bearer incontinently thrust his fingers in to see what he had got, but the ammoniacal salts had melted the paper, it was soft and tender, and the fingers of the Glasgow merchant encountered what he believed to be the *corpus delicti* of an infamous hoax. He threw the fœtid package away. It was, however, picked up and perused, and laid no small part of the foundation of the impetuous importer's fortunes.

The agricultural, like the mercantile experiments, first made with this extraordinary fertiliser, were only too flattering, and gave rise to a rage of speculation in both directions. In mercantile enterprise some South-western African traders having discovered excrementitious deposits on various secluded points, particularly on the island of Ichaboe, an egg-shaped barren rock, bare of soil, denuded of vegetation, about 1200 yards in circumference, and situated about 3 miles from the mainland, with superficial formations supposed to consist of the accumulated voidances of seal, gannet and penguin (a helpless bird, that will talk and fight with you—hence what the sailors call "talking like a penguin," instead of getting out of the way), commencing from about 6 feet above high water mark, and rising to the configuration of the island—the island in the course of a few seasons was completely cleared. Any guano now obtained from that quarter—and there is still an occasional parcel in the market—consequently consists of the annual deposits mixed with sand and other matters.

The same may be said of the Bolivian already mentioned. At first the importations were equal to Peruvian; now, they are much lower in quality. And, indeed, the only samples of the Lobos Islands qualities which have reached us, are about upon a par with these second-class guanos. Nor can we expect the first-class kinds to appear so long as the chief arrangements exist at the Chinchas. What Professor Anderson said at Kelso last year was this: "Peruvian guano must always be the most important of all artificial manures, because any cessation of the import would have the effect of enhancing the price of all other manures, and more especially sulphate of ammonia and nitrate of soda, which would rise enormously in price. . . . . As regards the supply of phosphated guano, there is little available information. The best is Bolivian, which is imported in large quantities, though little of it comes to us. There is a very valuable kind containing about 60 per cent. of phosphates and 1 or 2 of ammonia, which merits more attention from farmers than it has received. The great objection to these guanos is their want of uniformity, and this tells still more with the interior kinds, such as B[illegible] Kooria Mooria, &c. Mr. Nesbit, whose [illegible] analyses and "History and Properties of the [illegible] Varieties of Natural Guanos" form the best [illegible] the subject, enumerates besides the Peruvian, [illegible] Bolivian, and Lobos Islands guanos, those of [illegible] other sources of importation, giving their [illegible] analyses and an estimate of their value, arrived at [illegible] calculating their organic matter at 1*l.* value per [illegible] phosphate of lime, 8*l.*, and its soluble [illegible] (phosphoric acid), 24*l.* per ton; alkaline [illegible] ton; and more especially nitrogen as equiva[illegible] much ammonia, at 60*l.* per ton. Calculated [illegible] rule, which affords perhaps as near an appro[illegible] of value as practice can require, he places A[illegible] guano at the head of all in point of value; [illegible] fact the much coveted first-class Bolivian so fre[illegible] referred to, and describing it as the most [illegible] deposit of the birds collected by hand with m[illegible] culty and danger from the bare surfaces of pre[illegible] cliffs; having suffered no decomposition it frequent[illegible] tains from 20 to 24 per cent. or more of ammonia. It [illegible] be seen from this statement, however, that it bears [illegible] relation to the other Bolivian. The latest estimate [illegible] value, according to Mr. Nesbit's Tables, is 15*l.* 12*s.* [illegible] but some has been obtained valued at upwards of [illegible] In some cargoes are hard saline lumps, containing [illegible] fact 50 per cent. of common salt; and these lumps [illegible] valued at only 3*l.* 5*s.* 10*d.* The deposits on the [illegible] Islands, the largest in the world, he tells us [illegible] towards the S.W. more exposed to the sea spray, [illegible] have lost a certain amount of ammonia, but [illegible] not yet been imported in quantity; many samples are slightly discoloured, but still equal in value to the paler, having suffered no other change. Of the samples of 50 samples, the values adduced, save those of some damaged samples, are not under 13*l.*, many 14*l.*, [illegible] 15*l.*, and some almost 16*l.* (15*l.* 19*s.* 3*d.*); and the mean of the whole 50, 14*l.* 1*s.* 10*d.*, commercially [illegible] intrinsically speaking. The analytical value of Ichaboe immediately after its first discovery appears to have been 9*l.* 1*s*; common Bolivian ranges from 6*l.* to 7*l.* and even that imported in 1858 to 8*l.* 15*s.* 5*d.* per ton valuation; Lobos 7*l.* 10*s.* in 1853, and 11*l.* 4*s.* 5*d.* in 1858. That from the large deposit of Pavillon de Pisco, on the coast of Peru, the fine 9*l.* 6*s.* 3*d.* and 8*l.* 8*s.* 10*d.*, and the dark 7*l.* 15*s.* 10*d.*; Chilian guano, of much the same character, 7*l.* 4*s.* 8*d.*; Californian, from 7*l.* 10*s.* and 8*l.* 6*s.* 10*d.* down to 3*l.* 17*s.* 8*d.*, all imported in the same year—1858. Patos Island, Lower California, resembling Ichaboe and the Elide Island guanos, and no favourite in the market, have a value of from 8*l.* 8*s.* 8*d.* down to 5*l.* 3*s.* 3*d.* and 5*l.* 2*s.* 3*d.* in the tables. These are the first and second-class guanos. Those of the third class include guanos which have lost nearly all their ammonia, and contain little more than earthy phosphates. Of this class the Saldanha Bay guano has been found useful for Turnips. Its estimate of value is 6*l.* 10*s.*, 5*l.* 8*s.* 10*d.*, and as low as 4*l.* 18*s.* 4*d.* as imported in 1852 and 1854, whilst that imported in 1858 is according to the tables valued at only 3*l.* 3*s.* guano from Algoa Bay at 2*l.* 2*s.*, and the South African 2*l.* 3*s.* The West Indian guano, from the islands of the Caribbean Sea, an atmosphere very different from that of the seaboard of Peru, has its soluble matters washed out by rains and tempests, and left only phosphates of lime and magnesia, sometimes intermixed largely with sand. Pedro Keys Islets, the resorts of birds on the coast of Cuba, furnish the best, valued at 4*l.* 0*s.* 3*d.* West Indian is valued at 2*l.* 5*s.*; Swan Island 2*l.* 17*s.* 8*d.*; but that of Baker Island, West Indies, is equal to 7*l.* 12*s.* 10*d.*; and Newassa, a thickly-wooded island, halfway between Jamaica and St. Domingo, whose guano is found somewhat under the surface, and purely phosphatic, the nitrogenous components having been lost, leaving a value of 5*l.* 15*s.* 10*d.* and 4*l.* 14*s.* 8*d.* A remarkable substance is found on Monk Island, near Maracaybo in the Gulf of Venezuela, in large rocky masses like guano that had undergone a change from volcanic action. It is wholly employed in the manufacture of phosphate of lime, and contains an excess of phosphoric acid beyond other natural phosphates. The values according to the tables stand at 7*l.* 17*s.* 5*d.*, 8*l.*, and 7*l.* 13*s.* 8*d.* Redonda Island lies west of St. Vincent, W.I. Its guano, which is of little manurial value, is estimated at 2*l.* 5*s.* [illegible] per ton. Mexican guanos are also low in character, running from 3*l.* 7*s.* 8*d.* to 2*l.* 9*s.* The Kooria Mooria Islands, Halki, Sarde, Halabi, Deriabi, and the [illegible] Rodando, lie in a line east and west five or six leagues from the coast of Arabia. The values of the guanos obtained thence in 1857 were 6*l.* 7*s.* 3*d.*, 3*l.* 11*s.* [illegible] 6*l.* 3*s.* 8*d.*; and in 1858, 2*l.* 6*s.* 8*d.*, 2*l.* 7*s.* 5*d.*, 2*l.* [illegible] 3*l.* 2*s.* 3*d.*, 2*l.* 12*s.* 8*d*, 3*l.* 12*s.* 10*d.*, and 4*l.* 2*s.* Other varieties of guano come from the Red Sea. Jarvis Island, of five miles in circumference, covered with [illegible] shrubs, underneath which is found guano, lies due south of the Sandwich Islands; the value of its guano is 3*l.* 10*s.* Sombrero guano has excited some attention because of the attempt to imitate Peruvian by manufacturing (and why not?) phospho-Peruvian from the phosphatic matter with ammoniacal additions. The substance itself is not a guano but a mineral phosphate, yet it has been entered at the Custom House as a guano. Sombrero is situated 60 miles distant from St. Thomas, one of the Virgin Isles. The whole, as far as can be ascertained, appears to be one mass of phosphatic and calcareous tufa, with dykes and bosses of solid phos-

phatic matter—the latter in some instances protruding to the surface for thousands of square yards together, or from one half to three-fourths of an acre divested of soil. The colour of the rock is usually a dirty white tint. The colour of the rock is usually a dirty white tint, varying to yellowish green, grey, and even pink. Forty thousand tons of this matter obtained from the Island had been already used up in the United States, simply ground and put upon the land, before we began to import it. In this country it is valued according to the tables at 6*l.* 8*s.*, 6*l.* 9*s.* 8*d.*, 5*l.* 18*s.* 8*d.*, and 6*l.* 1*s.* 5*d.*, and its proper office is conceived to be as a basis for superphosphate of lime. We have still to speak of the Patagonian and Shark's Bay guanos. The former from **Patagonia and the Falkland Islands is necessarily** much deteriorated by rains, but its values are very conflicting; 2*l.* 7*s.* 8*d.* (1856), 5*l.* 3*s.* 10*d.* (1857), 2*l.* 16*s.* 8*d.*, and 6*l.* 0*s.* 10*d.* (1858)—whilst the Shark's Bay, all the way from the islets and rocky coasts of Australia, can only be imported at a freight disproportioned to its values, which in 1851 were 2*l.* 16*s.* 3*d.*; in 1853, 4*l.* 18*s.* 3*d.*; and in 1854, 5*l.* 10*s.* 10*d.* Perhaps the two so-called guanos which at present excite the most attention, but they are not guanos, only the most remarkable bases for the manufacture of superphosphate, are the apatite, which we derive from Arendall in Norway, and the Estremadura phosphate from Spain. The apatite had long been known as a mineralogical curiosity, and as a remarkably pure mineral phosphate of lime. The exigencies of agriculture and the discovery that it was accessible in quantity for shipment from the above-named place in Norway, have introduced it extensively in commerce. But it has met with a most formidable rival in the Spanish Estremadura phosphate, which is finer and more fibrous in its texture than the apatite, the apatite being more crystalline and hard, and therefore less susceptible of solution in sulphuric acid.* The latest news I have to tell you regarding this substance looks so like double dealing on the part of the Government of Spain, that I confess I tremble for the future of those guano supplies on which we have so seriously accustomed ourselves to depend, and feel as if an attempt were about to be made to force us to embrace instead the Estremadura mineral. You may be aware that owing to some financial dispute betwixt Spain and Peru, the Chincha Islands were recently seized by the former in satisfaction of their demands. The information I now have on the subject is that the Spaniards still retain possession, and what is akin to keeping possession is the fact that the labourers have been expelled. In this country, where the use of guano has become unhappily a necessity, the supply seems at this moment therefore on the point of ceasing. Are we then destined to have a guano famine, as we have had a cotton famine, from the sheer force of that commercial spirit which makes and which keeps us dependent for supplies essential to our state of civilisation on other regions of the earth? I do not know. But wisdom enjoins us to look earnestly around for a substitute in case of need. In England itself we possess large beds of phosphatic manures, particularly in the coprolites of the greensand and crag formations of Cambridgeshire. Abroad also, as we have seen at Monk's Island and elsewhere, fresh discoveries of this valuable mineral have been made, but it is this particular conjuncture which the Spanish Government has embraced with a zeal which I confess appears not altogether above suspicion, to force upon our attention the deposits of phosphate of lime which exist at Estremadura. Under their auspices a joint stock company has been formed for the purpose of furnishing supplies of this manure to our farmers, and Professor Way being the chemist of the society in question, I must say it has already gained the confidence of a vast number of our most eminent agriculturists. A railway from Badajoz to Lisbon renders the inland transport to the sea extremely easy; and we may expect to find the substance imported in very large quantities indeed.

Home Correspondence.

Ireland.—The wit of "W. J. P." is rather amusing, but would have been more to the purpose had he made himself acquainted with the subjects about which he seems ignorant. Your jocose correspondent is evidently not a regular reader of the *Agricultural Gazette.* Many years' residence in Ireland at different periods has given me opportunities of knowing something of the island and its inhabitants, and I regret the condition of the working classes has not improved, during that time, so visibly as in other parts of the United Kingdom. Resident landlords, home consumption of agricultural produce, and the settlement of the question of tenant-right, would greatly ameliorate the condition of all classes in Ireland. Looking, as "W. J. P." does, through a cloudy medium, he could not be aware that the subject of labourers' cottages has been discussed for many months in the *Agricultural Gazette*, and taken up by other papers from that Journal, and was first introduced by "Falcon." If "W. J. P." would put on his spectacles and shake himself up, he might perhaps be able to understand that clergymen are not blamed, but the system of instruction. Passing from great things to small, it is quite unnecessary to employ either boys or poison in order to protect newly-sown seed, or to keep birds from the ripe grain. Instead of a "considering cap," as recommended to me, I think "W. J. P." should have taken off his night cap before reading "Falcon's" notes, and writing a critique thereon! I have been an unknown correspondent in the *Gardeners' Chronicle and Agricultural Gazette* for many years, and I intend to remain so. I only beg not to be misrepresented—my desire is to benefit my fellow creatures, and I hope for the assistance of "W. J. P." when he wakes up. *Falcon.*

* Apatite is principally a phosphate of lime; Estremadura a phosphate.

Societies.

ROYAL AGRICULTURAL OF ENGLAND

MONTHLY COUNCIL: *Wednesday, June 7.*—Present, Sir E. C. Kerrison, Bart., M.P., in the chair; the Earl of Powis, Lord Chesham, Lord Feversham, Major-General the Hon. A. N. Hood, Sir Massey Lopes, Bart., M.P., Sir Watkin Wynn, Bart., M.P., Mr. Barnett, Mr. Barthropp, Mr. Bowly, Mr. Bramston, M.P., Mr. Cantrell, Colonel Challoner, Mr. Clayden, Mr. Druce, Mr. Brandreth Gibbs, Mr. Hudson, Mr. Hutton, Mr. Jonas, Colonel Kingscote, Mr. Milward, Mr. Pain, Mr. Randell, Mr. Sanday, Mr. Robert Smith, Mr. Torr, Mr. Turner, Mr. Frere, and Dr. Voelcker.

The following New Members were elected:—

Acton, William, Fern Acres, Slough
Adams, William, Bedford Street, Plymouth
Andrews, John, Ridgway, Ridgway
Bell, Thomas, Braistow, Essex
Boger, Henry, 19, Lower Beaufort Street, Stonehouse
Brown, Nath. M., Fairy Hill, near Limavady, Londonderry
Clark, Richard, St. Budeaux, Plymouth
Cleave, B. W., Newcombe House, Crediton
Clipps, Henry William, Farmer, Henley-on-Thames
Duckering, Richard E., Northorpe, Kirton Lindsey
Edwards, Charles G. Jun., 2, George Street, Plymouth
Elliott, George, Swilley Farm, Plymouth
Emery, Richard Ash, Lostford, Market Drayton
Furguson, Alex., Government Farm, Dartmoor, Harrowbridge
Ford, John S., Luson, Holberton, Ivybridge
Harvey, Richard, George Street, Plymouth
Hatten, R. C., Walsham le Willows, Ixworth
Hawker, John C., Rock, Knockersknowls
Heath, Edward O., 11, Zion Street, Plymouth
Howe, James, Broughton, Huntingdon
Hubbard, Egerton, Ashington Manor, Winslow
Lang, Thomas M., Barrington Court, Ilminster
Larkworthy, J. L., Lowesmoor Iron Works, Worcester
Luscombe, William, Compton Leigh, Plymouth
Matcham, J., Plymouth
Munn, George H., Elm House, Bury St. Edmunds
Oliver, William, Redruth, Cornwall
Rendle, Robert, Catel Farm, Guernsey
Ridley, Matt., Grantham, Lincoln
Roberts, Thomas Bartlett, Marval Farm, Liskeard, Cornwall
Rogers, Francis Tinnswell, Poole, Dorset
Rucker, Martin D., 113, Leadenhall Street
Rundle, Richard, Ford Park, Plymouth
Sampson, Samuel, Broadwood Kelly, Winkleigh
Saunders, Charles, 2, Paper Buildings, Temple, E.C.
Sharman, Warren, Melton Mowbray, Leicester
Smith, Robert, Blyford, Halesworth
Stocre, Lee, Jaques Park, near Dorking
Thyme, Arthur C., Penstowe, Stratton, Cornwall
Wadham, White, Millwood, Dalton in Furness, Lancashire
White, Richard, Plymouth

FINANCES.—Major-General the Hon. A. N. Hood, Chairman of the Committee, presented the report, from which it appeared that the Secretary's receipts during the past month had been examined by the Committee, and by Messrs. Quilter, Ball, & Co., the Society's accountants, and were found correct. The balance in the hands of the bankers on June 30 was 2460*l.* 2*s.* 1*d.* The Committee having taken into consideration the length of service and increase of work of the two clerks of the Society, wish to recommend the Council to raise the salary of James Gale 20*l.*, and T. P. Wilkes 10*l.* This report was adopted.

ESSAY PRIZE.—The successful competitor in Class IV. (1865), On the Rise and Progress of Shorthorns, was announced to be Mr. Henry Hall Dixon, of 10, Kensington Square, W.

PLYMOUTH MEETING.—Lord Feversham, Chairman of this Committee, reported their recommendation that application be made to the Secretary of State for the usual force of Metropolitan Police; that free tickets be granted to the railway officials and to the press; that the Honorary Director be requested to order shedding and hurdles according to the number of entries, and to engage assistants and labourers; that placards and posters in coloured letters be issued: and that a public Dinner be held under the auspices of the Society at Plymouth, the management to be arranged by the Local Committee in accordance with the resolutions of Council of May 5, 1858: "That in future, if any dinner shall be held at the Country Meetings under the patronage of the Society, the entire management shall be vested in the Local Committee; but the Council shall have the option and power of reserving and taking such a number of tickets as they shall think fit, and this Society shall nominate the chairman, and supply the list of toasts, but shall have no other liability connected with it." This report was adopted.

SHOWYARD CONTRACT.—Mr. Randell reported that the Committee recommended that Mr. Manning be requested to deliver to the Secretary the account, both for contract and other work done at Plymouth, not later than Thursday, July 20. That Mr. Manning be requested to send in before the Show to the Secretary an offer of the prices at which he would be willing to sell to the Society the various offices, &c., enumerated in the report of the Committee on April 4, and approved by the Council; the offer to detail the price of each office, &c., separately; the Society to have the option of purchasing either the whole or any part it may deem fit. This report was adopted.

On the nomination of Mr. Bramston, M.P., Mr. George Clive, M.P., of Perrystone Court, Ross, Herefordshire, was unanimously elected a member of Council in the room of Lord Leigh, resigned.

A Committee, consisting of Lord Walsingham, Major-Gen. the Hon. A. Nelson Hood, Mr. Barnett, Mr. Barthropp, Mr. Bowly, Mr. Clayden, Mr. Dent, M.P., Mr. Druce, Mr. B. T. Brandreth Gibbs, Mr. Wm. Fisher Hobbs, Mr. Holland, M.P., Mr. Hudson, Mr. Jonas, Mr. Milward, Mr. Pain, Mr. Pope, Mr. Randell, Mr. Rigden, Mr. Robert Smith, Professor Simonds, Mr. Torr, Mr. Turner, and Mr. Wallis, was appointed to recommend the names of Judges of Live Stock at the Plymouth Meeting, and a committee consisting of Earl Cathcart, Lord Chesham, Major-General the Hon. A. Nelson Hood, Hon. A. H. Vernon, Sir E. C. Kerrison, Bart., M.P., Sir A. K. Macdonald, Bart., Sir W. Miles, Bart., M.P., Mr. Amos, Mr. Arkwright, Mr. Barnett, Mr. Cantrell, Colonel Challoner, Mr. B. T. Brandreth Gibbs, Mr. Hammond, Mr. Wm. Fisher Hobbs, Mr. Holland, M.P., Mr. C. Wren Hoskyns, Mr. Randell, Mr. Sandy, Mr. Shuttleworth, Mr. Thompson, M.P., Mr. Torr, Mr. Owen Wallis, and Professor Wilson, was appointed to recommend the names of judges of Implements to a Special Council which would assemble on the 21st inst.

On the motion of Major-General the Hon. A. N. Hood, seconded by Mr. Druce, the Council decided on permitting Mr. Charles Sturgeon to exhibit two Merino Rams in their wool.

The Common Seal of the Society was affixed to the agreement with the Mayor and Town Clerk of Bury St. Edmund's, that the Country Meeting for 1866 should be held in that town.

The Council then adjourned to Wednesday, the 14th inst., at 12 o'clock, when Dr. W. Budd will deliver a lecture on a Disease in Pigs lately prevalent in the Western Counties.

BATH AND WEST OF ENGLAND AGRICULTURAL.

HEREFORD: *June 8.*—A beautiful week has made this annual gathering not only a professional success but a great social enjoyment. It is more than a merely agricultural meeting—the collection of Paintings and of works of Art, the horticultural show and the music are charming additions to it, which make it much more generally attractive; and thus, though it was hardly to be expected that the numbers attending here would equal those of the previous year in the yard at Clifton, yet the Hereford Meeting is quite one of the especial successes of this energetic Society.

The entries in the live stock department of the Show-yard are as numerous as usual, owing especially to the large and excellent classes of Hereford cattle—as good an illustration of the breed as was ever brought together. And the implements exhibited, though not in competition for the awards of prizes offered by the Society, are the largest and most striking collection of agricultural machinery that has yet been witnessed in the Show-yard of this Society. Taking the several classes in succession, we come first upon the *Devons.* Farther from home than usual, they are a smaller collection, only 28 animals in all, Mr. Azariah Smith's and Mr. Farthing's old bulls being respectively 1st and 2d in the class of old bulls. A remarkably good specimen of the breed, symmetrical and life-like, from the herd of the late J. W. Buller, Esq., is 1st in the 2d class; and a neat little yearling belonging to Mr. Farthing is first in the young class. The cows are a very good class both in number and quality. Mr. Farthing was again 1st and 2d, and Mr. Azariah Smith 3d; and the same names re-appear in the class of yearlings.

The Short-horn Classes, hardly equal to former years in number, make up in the female classes for mediocrity in the bulls. The LORD CHANCELLOR, sold a calf at the Babraham sale—a large and massive but somewhat patchy red and white bull, remarkably good over the loins, is 1st in the old class of bulls. He is exhibited by Mr. Sharpe, of Courtlands, East Grinstead, who takes several prizes into Sussex. The 2d prize bull, exhibited by Mr. J. Read, of Southam, a somewhat flat-sided roan, was literally saved from the butcher for use on a dairy farm and subsequent exhibition here. Mr. Garne's younger bull GONDOMAR, 1st in his class, is a light roan, long bodied, with heavy quarters, and plenty of good hair. The Cow class is an extraordinary collection of good animals, 13 in number, with Mr. Stratton's *Diadem* easily first, round as a barrel, with well sprung rib, splendid bosom, heavily fleshed everywhere; the first and second young heifers by Mr. Logan and Mr. Lynn are also beautiful specimens of the breed. Mr. Stratton and Mr. Sharpe are again first and second respectively in the class of yearling heifers.

The Herefords are a splendid show, exceeding in number, and in some respects in quality, the show of the Royal Agricultural Society in 1863 at Worcester. No fewer than 24 bulls of all ages and 35 cows and heifers compete for the Society's prizes, and 55 entries, 44 of them pairs of heifers, compete for the local prizes. Mr. Baldwin's BATTERSEA, Mr. Taylor's TAMBARINE,

and Mr. Duckham's COMMODORE are retained in the memory after a walk round the classes. The first in particular is a marvellous specimen of even quality and symmetry. The winner in his class at the Battersea Show, he has never failed of winning honours since. At Leominster, Ludlow, and Hereford after Battersea in 1862—at Worcester, Exeter, Warwickshire, Evesham and Hereford in 1863—at Bristol, Newcastle, Warwickshire, and Hereford in 1864, and now again at Hereford in 1865 he has carried off all the prizes, and never looked better than he does at present. COMMODORE is another younger excellent specimen of the breed, with perhaps hardly the size one looks for at his age.

The *Sheep and Pig Classes* must be shortly characterised as many of them unusually good. The long-wools, both Cotswolds and Leicesters, and especially the former, are fairly represented. The Southdowns are generally a poor show; there are fair classes both of Shropshire and of West Country Downs; and the horned classes are pretty well filled. There are 50 entries of Pigs, in which the Berkshire breed is well represented. The prize list is given below.

The *Horse Classes* disappoint, both as to number and quality. The agricultural stallion class contains several powerful specimens of Clydesdale, Suffolk, and other breeds; and one of the classes competing for the local prizes (colts foaled in 1863) contains a few good animals.

In the other departments of the exhibition about 15 entries of wool, half a dozen of Hops, 40 or 50 of perry and cider competed for prizes. There was a tolerable competition for the sheep-shearing prizes, and a comparatively small competition for the horse-shoeing prizes. The Poultry are a large and attractive section, filling a large tent with spectators.

The IMPLEMENT YARDS and trial grounds are crowded with a most interesting collection. All the leading manufacturers are present; the long row of locomotive steam engines engaged in threshing, grinding, sawing, pumping, &c., in the department of machinery in motion, is one of the most extraordinary sights ever exhibited at an agricultural meeting. In the trial grounds, mowers, reapers, hay-tedders, and ploughs and cultivators, worked both by horses and by steam, are shown at work. Messrs. Fowler's steam plough and cultivator, drawn by their so-called 8-horse power steam engine, and Messrs. Howard's steam plough and cultivator, drawn by Clayton & Shuttleworth's 10 horse power engine, made excellent work.

One of the most interesting of the items exhibited in the other trial ground is the self-delivering reaper on Hussey's principle, shown by Messrs. Hornsby; the corn being delivered in sheaves by a set of travelling chains which carry the cut corn at intervals off the flat platform on which it falls, leaving it in well-made sheaves upon the ground well out of the way of the horses.

The following is the Prize List in the live stock department:—

CATTLE.—DEVONS.

CLASS 1. BULLS ABOVE 3 YEARS.—1st, Mr. John Azariah Smith, Bradford Peverell, Dorchester; 2d, Mr. Walter Farthing, Stowey Court, Bridgwater.

CLASS 2. BULLS NOT EXCEEDING 3 YEARS.—1st, the Representatives of the late J. W. Buller, Esq., Downes, Crediton; 2d, Mr. Walter Farthing; 3d, Mr. John Pitfield, Symondsbury, Bridport.

CLASS 3. BULLS NOT EXCEEDING 2 YEARS.—1st, Mr. Walter Farthing; 2d, Mr. John Bodley, Stockley Pomeroy, Crediton; 3d, Mr. John Azariah Smith.

CLASS 4. COWS IN CALF (OR IN MILK) HAVING HAD A CALF WITHIN SIX MONTHS.—1st, Mr. Walter Farthing; 2d, Mr. Walter Farthing; 3d, Mr. John Azariah Smith.

CLASS 5. HEIFERS IN CALF OR IN MILK, NOT EXCEEDING 3 YEARS.—1st, not awarded; 2d, Mr. John Bodley.

CLASS 6. HEIFERS NOT EXCEEDING 2 YEARS.—1st, Mr. Walter Farthing; 2d, the Representatives of the late J. W. Buller, Esq.; 3d, Mr. Walter Farthing.

SHORT-HORNS.

CLASS 7. BULLS ABOVE 3 YEARS OLD.—1st, Mr. R. Sharp, Courtlands, East Grinstead, Sussex; 2d, Mr. John Read, Southam, Cheltenham.

CLASS 8. BULLS NOT EXCEEDING 3 YEARS.—1st, Messrs. T. Garne & Son, Broadmoor, Northleach; 2d, Mr. John King Tombs, Langford, Lechlade; 3d, His Grace the Duke of Sutherland, Lilleshall, Newport, Salop.

CLASS 9. BULLS NOT EXCEEDING 2 YEARS.—1st, Mr. J. Logan, Maindee House, Newport, Monmouthshire; 2d, Mr. W. H. Beever, Pencraig Court, Ross; 3d, Mr. G. Hitchman, Long Ashton, Bristol.

CLASS 10. COWS IN CALF OR IN MILK, HAVING HAD A CALF WITHIN 6 MONTHS.—1st, Mr. R. Stratton, Walls Court, Stapleton, Bristol; 2d, Mr. R. Sharpe, Courtlands, East Grinstead, Sussex; 3d, Mr. John Lynn, Church Farm, Stroxton, Grantham, Lincoln. Commended: Mr. E. Bower, Sezincote House, Cirencester.

CLASS 11. HEIFERS IN CALF OR IN MILK, NOT EXCEEDING 3 YEARS.—1st, Mr. John Logan, Maindee House, Newport; 2d, Mr. John Lynn, Church Farm, Stroxton, Grantham, Lincoln; 3d, Mr. Robert Sharpe, Courtlands.

CLASS 12. HEIFERS NOT EXCEEDING 2 YEARS.—1st, Mr. R. Stratton, Walls Court, Stapleton, Bristol; 2d, Mr. R. Sharpe, Courtlands, East Grinstead, Sussex; 3d, Rev. Wm. Holt Beever, Pencraig Court, Ross, Herefordshire.

HEREFORDS.

CLASS 13. BULLS ABOVE 3 YEARS.—1st, Mr. John Albert Hollings, The Heilend, Hereford; 2d, Mr. William Taylor, Showle Court, Ledbury, Herefordshire. Commended: Mr. John Hungerford Arkwright, Hampton Court, Leominster; Mr. Thomas William, Weston Court, Ross.

CLASS 14. BULLS NOT EXCEEDING 3 YEARS.—1st, Mr. Thomas Duckham, Bagwyllan Court, Ross, Herefordshire; 2d, Mr. William Taylor, Showle Court, Ledbury, Herefordshire; 3d, Mr. Thomas Thomas & Harry, Cowbridge, Glamorganshire.

CLASS 15. BULLS NOT EXCEEDING 2 YEARS.—1st, Mr. Joseph Rawle Paramore, Dunster Court, Hereford; 2d, Mr. Henry Gibbons, Hampton Bishop, Hereford; 3d, Mr. W. Tudge, Adforton, Leintwardine, Herefordshire.

CLASS 16. COWS IN CALF, OR IN MILK, HAVING HAD A CALF WITHIN 6 MONTHS.—1st, Mr. William Perry, Cholstrey, Leominster, Herefordshire; 2d, Mr. James Farr, Pontrilas Farm, Hereford; 3d, Mr. T. Thomas, St. Hilary, Cowbridge, Glamorganshire.

CLASS 17. HEIFERS IN CALF OR IN MILK, NOT EXCEEDING 3 YEARS.—1st, Mr. George Pitt, Chadnor Court, Dillwyn, Leominster; 2d, Mr. John Baldwin, Luddington, Stratford-on-Avon; 3d, Mr. John Longmore, Bucton, Leintwardine, Herefordshire.

CLASS 18. HEIFERS NOT EXCEEDING 2 YEARS.—1st, Mr. Herbert Ridgley, Steventon, Ludlow; 2d, Mr. Philip Turner, Leen, Pembridge, Leominster; 3d, Mr. John Monkhouse, The Stow, Hereford.

SHEEP.—LEICESTERS.

CLASS 19. YEARLING RAMS.—1st, Mr. Joseph Gould, Poltimore, Exeter; 2d, ditto. Highly Commended: ditto. Commended: Mr. Samuel Kingdon, Lynch, Thorverton, Devon.

CLASS 20. RAMS OF ANY OTHER AGE.—1st, Mr. Joseph Gould, Poltimore, Exeter; 2d, the Representatives of the late J. W. Buller, Esq., Downes, Crediton. Highly Commended: Mr. Joseph Gould, Poltimore, Exeter. Commended: the Representatives of the late J. W. Buller, Esq.

CLASS 21. PENS OF YEARLING EWES.—1st, Mr. Joseph Gould, Poltimore, Exeter; 2d, Mr. Samuel Kingdon, Lynch, Thorverton.

COTSWOLDS.

CLASS 23. RAMS OF ANY OTHER AGE.—1st, Mr. Charles Kearsey, Glewstone, Ross, Herefordshire; 2d, Mr. John Gillett, Oaklands, Charlbury, Oxfordshire. Highly Commended: ditto. Commended: Mr. Edward Handy, Sierford, Cheltenham, Gloucestershire; ditto, ditto.

CLASS 24. PENS OF YEARLING EWES.—1st, Mr. John Wells, Hampnett, Northleach, Gloucestershire; 2d, ditto.

OTHER LONG-WOOLS.

CLASS 25.—YEARLING RAMS.—1st, Mr. John Lynn, Church Farm, Stroxton, Grantham, Lincolnshire; 2d, Mr. George Radmore, Court Hayes, Thorverton, Collumpton, Devon.

SOUTHDOWNS.

CLASS 28. YEARLING RAMS.—1st, James John Farquharson, Esq., Langton, Blandford, Dorset; 2d, the Right Hon. the Earl of Radnor, Coleshill, Highworth.

CLASS 29. RAMS OF ANY OTHER AGE.—1st, Ralph Neville Grenville, Esq., Butleigh Court, Glastonbury, Somerset; 2d, the Right Hon. the Earl of Radnor, Coleshill, Highworth.

CLASS 30. PENS OF YEARLING EWES.—1st, the Right Hon. the Earl of Radnor, Coleshill, Highworth.

SHROPSHIRES.

CLASS 31. YEARLING RAMS.—1st, the Right Hon. Lady Willoughby de Broke, Compton Verney, Warwick; 2d, Mr. Thomas Horton, Harnage Grange, Shrewsbury, Salop.

CLASS 32. RAMS OF ANY OTHER AGE.—1st, Mr. Simpson Byrd, the Leese Farm, Stafford; 2d, Mr. Chas. Reynolds Keeling, Yew Tree Farm, Penkridge, Stafford.

CLASS 33. PENS OF YEARLING EWES.—1st, the Right Hon. Lady Willoughby de Broke, Compton Verney, Warwick; 2d, Mr. Thomas Horton, Harnage Grange, Shrewsbury, Salop.

OTHER DOWNS.

CLASS 34. YEARLING RAMS.—1st, Mr. James Rawlence, Bulbridge, Wilton, Salisbury, Wilts; 2d, ditto.

CLASS 35. RAMS OF ANY AGE.—1st, Mr. George Wallis, Old Stadhead, Brampton, Farringdon, Oxfordshire; 2d, Mr. James Rawlence, Bulbridge, Wilton, Salisbury.

CLASS 36. PENS OF YEARLING EWES.—1st, Mr. James Rawlence; 2d, ditto.

SOMERSET AND DORSET HORNS.

CLASS 37. YEARLING RAMS.—1st, Mr. Alfred J. Pitfield, Eype, Bridport, Dorsetshire; 2d, Mr. Thomas Danger, Huntstile, Bridgwater, Somerset.

CLASS 38. RAMS OF ANY AGE.—1st, Mr. J. Pitfield, Eype, Bridport; 2d, ditto.

CLASS 39. PENS OF YEARLING EWES.—1st, Mr. Thomas Danger, Huntstile, Bridgwater; 2d, Mr. Alfred J. Pitfield, Eype, Bridport.

MOUNTAIN SHEEP.

CLASS 40. RAMS OF ANY AGE.—1st, Mr. John Ricketts, Trebarried, Brynllis, Breconshire; 2d, Mr. Edward Parr, Pennywarlod, Hay, Breconshire.

HORSES

FOR AGRICULTURAL PURPOSES.

CLASS 42. STALLIONS NOT EXCEEDING 8 YEARS.—1st, Mr. William Thorn, Godney Farm, Wells; 2d, Mr. John Hyde, Riffin Mill, Bodenham, near Leominster.

CLASS 43. MARES AND FOALS, OR IN FOAL.—1st, Mr. Joseph Belton Fowler, Tunby, near Cirencester; 2d, Mr. William Thorn, Godney Farm, Wells.

CLASS 44. COLTS FOALED IN 1863.—1st, Mr. Henry Hitchcock, Chitterne All Saints, Heytesbury, Wiltshire, a chestnut colt, Albert, aged 2 years; 2d, The Right Hon. the Lady Emily Foley, Stoke Edith Park, Ledbury, Herefordshire, a brown colt, England's Pride.

CLASS 45. FILLIES FOALED IN 1863.—1st, Messrs. James and Frederick Howard, Britannia Farms, Bedford, a dark bay Essex filly, Dapper; 2d, Mr. John Elwin Jones, Springfield, Hereford, a black Leicester filly.

HUNTERS.

CLASS 48. MARES OR GELDINGS FOALED IN 1861.—1st, Mr. Hugh J. Percy, Howsenrigg, Aspatria, Cumberland, a brown gelding, Ingleby.

CLASS 49. FILLIES OR GELDINGS, FOALED IN 1862.—1st, Mr. James White, Lindors, Coleford, Gloucestershire, a bay gelding, Lindors; 2d, Mr. Rhys Lloyd Williams, a half-bred bay, or brown filly, Wren.

CLASS 50. [illegible] FOALED IN 1863.—1st, Mr. James [illegible], Moat House, Hereford, a [illegible].

CLASS 51. FILLIES [illegible] IN 1864.—1st, Mr. [illegible], Woodmanton, Ledbury.

CLASS 52. MARES OR GELDINGS FOR HACKS, NOT EXCEEDING 15 HANDS HIGH.—1st, Mr. Hugh J. Percy, Howsenrigg, Aspatria, Cumberland; 2d, Sir Charles Henry Rouse Boughton, Bart., Downton Hall, Ludlow.

CLASS 54. MARE PONIES OF ANY BREED, NOT EXCEEDING 13 HANDS.—1st, Sir Charles Henry Rouse Boughton.

PIGS.

LARGE BREED.

CLASS 55. BOARS NOT EXCEEDING 2 YEARS.—1st, Mr. Richard Elmhurst, Duckering, Northorpe, Kirton Lindsey, Lincolnshire.

CLASS 56. BOARS NOT EXCEEDING 1 YEAR.—1st, Mr. Wm. Yells, Round Robin Farm, Highworth, Wilts; 2d, Mr. Arthur Stewart, Saint Bridge House, Gloucester.

CLASS 57. SOWS IN FARROW, OR THAT HAVE FARROWED WITHIN 4 MONTHS.—1st, Mr. Richard Elmhurst, Duckering, Northorpe; 2d, Mr. Arthur Stewart, Saint Bridge House.

CLASS 58. PENS OF BREEDING SOWS, NOT EXCEEDING 9 MONTHS.—1st, Mr. John King Tombs, Langford, Lechlade; 2d, Mr. Richard Elmhurst, Duckering, Northorpe.

CLASS 59. BOARS NOT EXCEEDING 2 YEARS.—1st, Mr. Ebenezer Reece, Ross, Herefordshire; 2d, Mr. John Pitfield, Symondsbury, Bridport.

CLASS 60. BOARS NOT EXCEEDING 1 YEAR.—1st, Rev. William Holt Beever, Pencraig Court, Ross, Herefordshire; 2d, Mr. Ebenezer Reece.

CLASS 61. BREEDING SOWS IN FARROW, OR THAT HAVE FARROWED WITHIN FOUR MONTHS.—1st, Mr. Edmund Coles, Stone Farm, Yeovil, Somerset; 2d, ditto.

CLASS 62. PENS OF TWO BREEDING SOWS NOT EXCEEDING 9 MONTHS.—1st, the Right Hon. the Earl of Radnor, Coleshill, Highworth, Wilts; 2d, Mr. Edmund Coles, Stone Farm, Yeovil.

PRIZES OFFERED BY THE HEREFORD LOCAL COMMITTEE.

HEREFORD CATTLE.

CLASS 63. BULL, COW, AND OFFSPRING, THE CALF NOT EXCEEDING 1 YEAR.—1st, Mr. John Baldwin, Luddington, Stratford-on-Avon, Warwickshire.

CLASS 65. PAIRS OF HEIFERS CALVED IN 1862.—1st, Mr. Thos. Roberts, Ivington Bury, Leominster; 2d, Mr. Philip Turner, Leen, Pembridge, Leominster.

CLASS 66. PAIRS OF HEIFERS CALVED IN 1863.—1st, Mr. Thos. Roberts, Ivington Bury, Leominster; 2d, Mr. Philip Turner, Leen, Pembridge.

CLASS 67. PAIRS OF HEIFERS CALVED IN 1864.—1st, Mr. James Wm. James, Mappowder Court, Blandford; 2d, Mr. Thomas Roberts, Ivington Bury.

CLASS 68. PAIRS OF STEERS CALVED IN 1862.—1st, Mr. William Taylor, Showle Court; 2d, Mr. Henry Gibbons, Hampton Bishop.

CLASS 69. PAIRS OF STEERS CALVED IN 1863.—1st, Mr. Thos. Morris, Thorrow, Hay, Brecon; 2d, Mr. Richard Shirley, Barcott, Munslow, Church Stretton.

CLASS 70. PAIRS OF STEERS CALVED IN 1864.—1st, Mr. William Perry, Cholstrey, Leominster; 2d, Mr. Henry Rawlins Evans, Jun., Swanstone Court.

SHEEP.

CLASS 72. YEARLING RAMS (RYELANDS).—1st, Mr. John Bearcroft Downing, Holme-Lacey, Hereford; 2d, Mr. John Bearcroft Downing.

CLASS 73. RAMS OF ANY OTHER AGE.—1st, Mr. John Bearcroft Downing; 2d, Mr. Thomas Smith, Bodenham, Gloucester.

CLASS 74. PENS OF 10 EWES.—1st, Mr. J. B. Downing.

CLASS 75. YEARLING EWES.—1st, Mr. J. B. Downing; 2d, Mr. J. B. Downing.

CLASS 76. YEARLING WETHERS (SHROPSHIRES).—1st, Mr. C. Randell, Chadbury, Evesham, Worcester; 2d, Mr. A. Armitage, Dadnor, Ross.

CLASS 80. YEARLING WETHERS (CLOSE-WOOLLED WHITE FACES).—1st, Mr. J. B. Downing, Holme Lacey, Hereford; 2d, Mr. J. B. Downing.

WELSH MOUNTAIN SHEEP.

CLASS 81. PENS OF 6 EWES.—1st, Mr. Richard Rees, Cadbrook Cottage, Abergavenny.

HORSES.

CLASS 82. COLTS FOALED IN 1863.—1st, Mr. Edward Nicholas Heygate, Buckland, Leominster.

CLASS 83. HACKS NOT EXCEEDING 14 HANDS HIGH.—1st, John Hungerford Arkwright, Esq., Hampton Court, Leominster; 2d, Mr. Edward Parr, Pennywarlod, Brecon.

CLASS 84. PONIES NOT EXCEEDING 13 HANDS, BRED IN WALES OR THE BORDER COUNTIES.—1st, Mr. Thomas Cummins, Glormelrch, Brecon; 2d, Mr. Thomas Lewis Webb, Hagley, Herefordshire.

WOOL.

CLASS 86. LONG WOOL (5 FLEECES).—1st, Mr. Wm. Yeomans, Stretton Court, Hereford.

CLASS 87. RYELAND WOOL (5 FLEECES).—1st, Mr. Wm. Taylor, Showle Court, Ledbury.

CLASS 88. SHROPSHIRE WOOL (5 FLEECES).—1st, Mr. William Taylor, Thingehill Court, Hereford.

HOPS.

CLASS 89. HOPS GROWN IN HEREFORDSHIRE.—1st, Mr. John Brace Vevers, York Hill Court, Ledbury; 2d, Mr. W. Taylor, Showle Court, Ledbury; 3d, Mr. W. Taylor.

CIDER.

CLASS 90. THE PRODUCE OF 1863 (SIX BOTTLES).—1st, Mr. George Palmer, Bellitree, Ross; 2d, Mr. Jas. Slee Bult, Dodhill House, Kingston, Taunton.

CLASS 91. THE PRODUCE OF 1864 (FOXWHELP FRUIT, SIX BOTTLES).—1st, [illegible], Messrs. Herbert and John Yeomans, Canon Frome, Hereford; 2d, Mr. Wm. Hill, Egleton Court, Ledbury, Hereford.

CLASS 92. THE PRODUCE OF 1863 (VARIOUS FRUITS, SIX BOTTLES).—1st, Mr. [illegible], Burton Court, Hereford; 2d, Mr. [illegible], Moor End Farm, Castle Frome, Hereford.

PERRY.

CLASS 93. THE PRODUCE OF 1863 (SIX BOTTLES).—1st, Rev. C. H. [illegible], Lodgeland Rectory, Hereford; 2d, Mr. Thomas Oliver, King's Pyon, Weobly, Hereford.

CLASS 94. THE PRODUCE OF 1864 (SIX BOTTLES).—1st, Mr. William Hill, Egleton Court, Ledbury; 2d, Mr. John Wigmore, Bickerton, Murch Marcle, Dymock, Hereford. Highly Commended; Mr. Thomas Pitt, Free Town, Ledbury.

SHEEP SHEARING.

There were [illegible] 1st and 2d prizes. Together [illegible] The judges were Mr. Henry Ffookes, Whitchurch, Blandford, Dorset, and Mr. Jas. S. Turner, Chyngton Seaford, Sussex. The winners were, 1st, Henry Webb, [illegible], Clifton-on-Teme, 9 Sheep, 21 minutes; 2d, Henry Webb, jun., [illegible], 11 minutes; 3d, Stephen [illegible], Dorset. The prizes were given by C. A[illegible], Esq., of Hereford.

THE JUDGES.

CATTLE.—Mr. James Foster, Lytchett Poole; Mr. John Tapp, Testwood, North Molton; Mr. J. R. Singleton, Pockleton, Mr. Edward Joseph Gravel, Hill, Shrewsbury; Mr. John Ford, Ruishton, Blandford; Mr. Thomas Stamper, Oswald Kirk, York; Mr. W. P. Brown, Shrewsbury.

SHEEP.—Mr. John Clark, Long Sutton, Lincoln; Mr. George [illegible], Boars House, Shrewsbury.

HORSES.—Henry Mayo, Cheere's Farm, Dorchester; Mr. Robert Howard, Temple Bower, Sanford; Mr. H. Thurman, Ryston, Hunstanton, Hasketon, Woodbridge.

PIGS.—Mr. James [illegible], Lewis; Mr. John Wippell, Burton, Exeter.

To this we may add the following Report of the Council, read to the General Meeting on Wednesday:—

There are at present on the official register in all 1190 members, being an increase of [illegible] on the return made at the last annual meeting notwithstanding the removal by death of several valued members, among the late James Wentworth Hartley, Esq., whose long character and eminent services to the Society will long be held in grateful remembrance.

The financial statement made up to the 31st of December last has been printed and circulated. The Society's funded property now amounts to [illegible], and the value of the plant, after making the usual allowance for depreciation, is [illegible]. The increase [illegible] of the Society's [illegible] is important that an ample reserved fund should be maintained. The Council hope that by the efforts of [illegible] members in the various districts comprised within the Society's area of operations, a large addition may be made to the list of permanent subscribing members.

The number and, in several instances, the value of the prizes offered by the Society for breeding stock at Hereford, considerably exceed those at any former meeting. To these must be

added the prizes offered by the Hereford Local Committee, amounting to the very liberal sum of 418*l*. The competition in the cattle classes is highly satisfactory. Of Devons there are 28 entries; Short-horns, 58; and Herefords, including those competing for local prizes, 120,—represented by 166 animals. The total number of entries in the Cattle classes is 201. In the Sheep classes there are of Leicesters 21 entries; Cotswolds, 29; other Longwools, 16; Southdowns, 15; Shropshire, 34; other Downs, 19; Somerset and Dorset Horns, 16; and Mountain Sheep, 3; whilst in the local classes there are of Ryelands, 19 entries; Shropshires, 6; Close-woolled White-faces, 5; and Welsh Mountain Sheep, 4; total 189; represented by 457 animals. The exhibition of Horses confessedly leaves much to be desired; but on the other hand it affords evidence of the good results of the steps taken by the Society, and may fairly encourage the Society to persevere in the same direction. The entries are 81 in number, including 74 horses and 7 ponies.

Of Pigs there are 52 entries, including 32 of the large and 19 of the small breed. The total number of entries in all classes of live stock is 523; the total number of animals, 837. For this unprecedented display the Society is indebted to the enterprise and public spirit of 169 exhibitors, of whom 73 are returned as residing in the county of Hereford: Gloucester, 15; Somerset, 10; Brecon, 8; Shropshire, 8; Wiltshire, 7; Dorset, 7; Devon, 7; Glamorgan, 6; Monmouth, 6; Oxfordshire, 4; Worcestershire, 4; Berkshire, 3; Warwickshire, 3; Buckinghamshire, 1; Bedfordshire, 1; Sussex, 1; Cumberland, 1.

In the Implement Department there is a considerable increase in the number of steam-propelled machines and implements, and of the more important contrivances for economising labour. The Society, without commending the productions of one firm to the depreciation of the value of those of other firms, requires guarantees that all are fairly and honestly exhibited, and assumes that the practical agriculturist is the best judge of his own requirements. That the system works well is attested by the fact that at the present meeting there are not less than 144 exhibitors; there are 46 compartments for machinery in motion; and the demand for shedding is to the extent of 3562 feet run.

The annual meeting for the year 1866 will, as decided by the Council, be held at Salisbury, in the county of Wilts, which, like the county of Gloucester, formed part of the Society's original district. The Society has already held one meeting in the Principality of Wales, and, encouraged by the patronage of the heir apparent to the Crown, looks forward with pleasure to the establishment of a more intimate connexion between the Principality itself and the Border and Western Counties.

To the Chief Magistrate of the city of Hereford, the local committee, and the honorary local secretaries (Messrs. T. Duckham and T. O. Fowler), the Council desire to express their warmest acknowledgments for the liberality with which they have been received and entertained, and for the admirable arrangements that have preceded and accompanied a pre-eminently successful exhibition.

The Council also desire to express their thanks to the Directors and principal officers of the railway companies that have afforded valuable facilities of transit for exhibitors and visitors.

Reviews.

Agriculture, Ancient and Modern — a Historical Account of its Principles and Practice, exemplified in their Rise, Progress, and Development. By the Old Norfolk Farmer.

The 13th Part continues a description of the summer season on the farm. The details of shepherding, of dairying, and of harvesting occupy attention. The culture of early summer and of late-sown crops is described—Early Potatos, Rape, Cabbages, &c. The Pigsty and the Poultry-yard have a chapter to themselves; and Harvest Home is celebrated. The 9th section of the book is then reached, including "various subjects in connection with agriculture"—and thus affording another illustration of the involved plan in which the contents of the whole performance are arranged. These "various subjects" include the "auxiliary plants" — Millet, Canary-seed, Madder, Mustard, Poppy, Saffron, Tobacco, Sunflower, Weld, Carraway, Wood and Teazel; also "Forests and Plantations," a chapter full of interesting anecdote and detail, the conclusion of which must be looked for next month.

Farm Memoranda.

HOME FARM, NEWTOWNBARRY, WEXFORD: *May* 31, 1865.—The month of April was perhaps one of the finest ever known for farming operations. We had not much rain, but the temperature was high, with very heavy dews at night, and although winter only left us with March, it was after all an early spring. Our Mangels, which were sown on the 22d of April, were visible from end to end of the drill by the 29th; the seed (Sutton's Selected Yellow Globe) was not steeped, nor did any rain fall during the week, which speaks well for its genuineness, and contrary to the orthodox method of planting, the seed was deposited two inches deep. The temperature of the present month has been considerably under that of April, with a good deal of wind and cold rain, and the Mangels have not made so much progress as they would had the weather been warmer. But as the soil here is for the most part sharp limestone gravel, the rains were of great service, and all descriptions of cropping are looking well; and as the weather throughout the month has fulfilled the conditions of the first line of the doggrel rhyme of the neighbourhood, which has it, that

"A wet and windy May
Brings plenty of corn and hay,"

we live in hopes that the result will verify the last line. We commenced sowing Swedes on the 13th of May, and finished the whole (30 acres) on the 19th. The land was all prepared in the autumn, and the ridges, or drills as they are called here, made before winter. In one field the only spring preparation required was to run the horse-hoe between the ridges, put on the farm-yard manure, sow the superphosphate broadcast over all, and split the ridges and drill the seed. As the other field was not quite so clean, we first split the ridges, and harrowed them down and hand-picked the weeds. We then spread the compost, which was prepared early in the winter by mixing the deposit of an old open town drain, an old bank in the field, together with all the Couch Grass gathered from the field last autumn, and 100 bushels of lime per statute acre—the artificial manure, phospho-guano (which is coming greatly into use on this side the Channel), was sown broadcast, and the ridges re-made and the seed drilled at once. In passing, I would remark that those who are not in the habit of autumn-tilling their land for the succeeding root crop could scarcely conceive the beautiful condition of the soil; for although, as was before stated, the soil is a sharp limestone gravel, it ploughed up in a manner quite loamy, in consequence of its not having been exposed by spring tilling.

To obviate the difficulty complained of by the Messrs. Proctor & Ryland in their pamphlet, of the surface soil being moister than the layer underneath, we invariably deposit the seed from 2½ to 3 inches deep, and into the dry layer, when such exists, and have never failed to obtain a plant from the above cause, when we have adhered to this rule, but have suffered considerably when the appearance of the weather has led us to depart from it, and the rain has not fallen.

The heavy rains which have fallen within the past week have caused the Swedes to grow rapidly, and they will shortly be beyond the reach of the fly. We have commenced thinning the Mangel, and have a strong regular plant, and as we always act upon the principle that it is easier to cut out twenty plants than to put one in, by liberal seeding, we have no gaps to fill up by transplanting. Sheep shearing was finished on the 15th. The ewes came out of their fleeces in good condition, but not so the hoggets, although they had been well wintered. And here I may remark, that we lost a great many lambs in the autumn with diarrhœa, and those that appeared to recover (for a cure we never found) are a disgrace to the farm, and we have put them in an out-of-the-way field, where we hope no one will see them. I am sorry to say we were not the only sufferers from the same cause, as many others in the neighbourhood lost more than ourselves, and it appears to be a general thing upon the *old* pastures of the limestone gravel after a dry summer. At the time the disease first showed itself the lambs were getting ¼ lb. of Linseed cake a day each, and were as fine a lot as could be found. We have still our wool on hand, and hope to realise a higher price when the market is fairly open, as buyers are active, and we know a neighbour who has already sold a mixed lot, with ewes predominating, at 1*s*. 9*d*. per lb. The last of the fat cattle were disposed of at our fair on the 23d for shipment to England, and as our roots were all consumed by the middle of April we turned them to an early piece of Grass and gave them 4 lbs. Linseed cake and 2 lbs. crushed Oats each per day, and during the last 10 days they received in addition a plentiful supply of Trifolium incarnatum carted to them on the Grass, and being nice weights (about 5 cwt.), and well made up, they just suited the season, and paid us better than those we sent out earlier. Store cattle are easier bought by 1*l*. to 30*s*. a head than they were a month ago, and are now at a price graziers may hope to make a fair return for their summer's Grass. *J. E.*

Miscellaneous.

Bat Guano.—A letter from Vésoul, Haute Saône, France, states that a deposit of guano from bats has just been discovered four leagues from that town, in a grotto belonging to Commandant de Beaufond. It appears that this dark cavern has been for ages frequented by bats, and that the matters accumulated exceed 800 cubic metres. According to the chemical analysis this guano possesses considerable fertilising powers.

How to Apply Guano.—For drilling, it must first be mixed with four to six times its weight of well-sifted mould. Charcoal in powder, either from peat or wood, is also a most excellent article to be mixed with the guano in the proportions indicated. Its great porosity allows it to retain the volatile ammonia, and in dry weather to absorb considerable moisture from the air. This is of material benefit to plants in their early growth. Before mixing, the guano must be finely pulverised, which may easily be done with a common garden roller upon the floor of a barn or shed, or even by beating it with a common shovel. A layer of ashes, &c., is then spread evenly upon the floor, and a quantity of the fine guano sifted over it. This is followed by another layer of mould or ashes, and another of guano, until the requisite quantity of both is used. The whole must then be repeatedly turned with the shovel until thoroughly mixed. If time will permit, it is now preferable to leave the mixture for eight or ten days. It must then be again sifted, when it will be ready for use. In using guano with the drill, care must be taken that the mixture falls below the seed, and that an inch or so of soil intervenes between them, otherwise the strength of the guano will kill the seed. Garrett's, Hornsby's, and other modern drills are well adapted for depositing guano and other concentrated manures. The above mixture is generally sufficiently damp to fall exactly where the hand directs it. When this is not the case, a small quantity of water should be added; the field must be sown with the mixture in the ordinary manner, and the manure harrowed in; the seed is then drilled as usual. Perhaps the preferable mode would be to broadcast two-thirds of the guano applied, and to drill one-third with the seed. The young plants would then have enough manure under the drills to serve the early stages of growth, while the guano sown broadcast would supply the wants of the plants in a more mature state, when the roots would have spread in every direction in the soil. *Nesbitt.*

Calendar of Operations.

JUNE.—*Grass Lands.*—This is a peculiar month to the grazier: his pastures need to be well watched, and to be stocked accordingly. If the season is warm and genial, his pastures will frequently grow with such rapidity as to destroy a great portion of their nutritive value; he must, in that case, crowd on all the stock it will in any way carry, and must ease it in the best way he can devise afterwards. It is a provident plan on any farm to allow some one field to take its course, and become a sort of "make-shift;" if the season should subsequently become dry, and pastures decline, this field is the resource upon which to fall back, and ease the other pastures. The rough Grass will preserve it from drought, and the Grass itself, being well grown, will cause the stock to thrive. It is unpardonable to have Grass lands encumbered with Thistles or weeds, which may be so easily eradicated with common care. As a general rule, Thistles should be spudded in dry seasons, and pulled up by the roots (with "tweezers," or other-wise) in wet ones. The droppings of the beasts, horses, &c., ought never to remain unspread longer than a day or two. In districts, however, where "rookeries" abound, the crows will generally accomplish this operation in looking for insects. The early meadows will this month require mowing.

Live Stock.—Horses will be hard at work now, and, supposing them to have been properly attended to, will have maintained their strength on a full allowance of Oats and green food.

Cattle ought to be thriving on the Clovers, Vetches, &c, brought to them, assisted, as these are, by the daily allowance of oil-cake, or Bean and Linseed meal, given with them. Where the soiling system is not followed, all stock will now be at Grass, and though needing constant attention both from master and shepherd, there is little requiring notice here. It is necessary to relieve the fields by turns, as stock take to the pasturage with increased relish after even a week's rest. It is especially needful to have a field prepared in this way for the lambs when newly weaned.

Sheep must be washed and shorn early this month. Large sheep may be shorn for 3*s*. or 4*s*. per score; or, of course, less, provided their meals be supplied to the shearers, which is the common practice. They should be well washed a few days before shearing. The shepherd must look after them closely during June and following months, as the fly will be active among them. Sheep have been destroyed before now by not more than 12 hours of the undisturbed ravages of a "blow" of maggots. He should have a "mercury stone" to rub into the places where the sheep has been struck; or a dilute solution of arsenic may be applied after the maggots have been dislodged by the shepherd. The little black fly will, in almost all districts, but particularly in a woody one, be very troublesome to the heads and flanks of the sheep. Water, strongly mixed with asafœtida, very thinly mixed white paint, or their own or cows' dung thickly besmeared, are good appliances and preventives; the dung is best for the head, forming a slight cover for a time. The lambs must all be dipped in a prepared mixture of arsenic, soft soap, asafœtida, about three days after the ewes are shorn, the ticks being then nearly all in the fleeces of the lambs. A mixture of consisting of 1 lb. of arsenic, 2 lb. soft soap, and 4 oz. of asafœtida in 20 gallons of water, will suffice, and be very effective. Some of the summer fatting sheep will now be fit for market.

Pigs will continue to be fed in the yards and sties, on Clovers, &c., carried to them, and on the few Mangel Wurzels which may still be left.

Poultry.—You will now be able, at pleasure, either to dispose of chickens, or to put some up for fattening in coops. Keep young birds from the hot sun: let their walk be as much as possible in shady places. Young geese of the first clutch are now ready for table; your succeeding clutch of ducks is now ready for use.

Dairy Farm.—This may be considered the height of the season for dairy produce. Immediately after the change of food from hay to Grass the milk was poor, and a much larger quantity was required to make the same weight of cheese. Now at least 20 gallons less of milk will make a hundredweight of best cheese than was required a month ago. Towards the end of this month hay-making commences, and if any Clover is grown, that is cut at the end of June. The cows should have as frequent a change of pasture as possible; the amount of milk will be increased by change, even though the change be not always for the better. In hot days, when the cattle are teazed by the gad-fly, they should be brought up to the sheds during the day, where they should receive an abundant supply of Rye-grass, or newly cut meadow Grass. The cows are put to bull in this and the following month. Cheese-making is now at its height. The spring cheeses should be carefully attended to, kept clear of mites by rubbing a little sweet oil over them, and regularly turned; they lie

best on a plaster floor, and should at first be slightly covered. The temperature of the cheese-room should be kept at 60° Fahr.; this is best done by hanging wet clothes near the windows or doors. Although hay-making commences in June, the great bulk is made in July; and as on the good or unfavourable weather now, and also on the good or bad management of the farmer, depends entirely the good or bad condition of the cows during winter, that month is thus, of course, one of great importance. Half the farm is usually mown, as it requires about as many acres of hay to keep a given number of cattle through the winter as it does acres of Grass to keep the same number through the summer. As soon as a field is cleared of the hay, the cows are immediately turned into it for a day or two, as a considerable quantity of Grass is left by the mower near the hedges in cases where they are wide and irregular. By the end of July the early mown fields will (provided the weather has been propitious) be found to contain good after-grass. This is greatly valued, as the cows always increase their milk on this food. Through the summer single Glo'ster cheese is ready for consumption at about two months old; consequently the first made will soon be fit for the factor; it is generally sold as soon as possible, as the loss of weight by keeping is very considerable. During this and the foregoing months the cows have access to the bull; this is done either by allowing the bull to run with the cows, in which case he should be tied up at night; or, which is the best and safest plan, he may be tied up, and the cows brought to him. In this, as in the other hot months, great attention must be paid to keeping the milk. For this purpose the dairy should be kept as low in temperature as possible. The milk, as soon as drawn, should be cooled by placing the pails in cold spring water, as otherwise it is apt to sour in a very short time in electrical states of the atmosphere. The greatest care, too, should be taken that the dairy be kept perfectly clean—that no meat be placed in it—that no drains open near it—and that the dairy manager remain in it no longer than is really necessary. If milk should sour, a small quantity of carbonate of soda may be added, and well mixed, to check the souring process and re-dissolve the partially formed curd. And it is a good plan to dissolve a little carbonate of soda in the water with which the dairy utensils are washed.

Highland Sheep Farm.—In good situations and favourable seasons, sheep-shearing may begin towards the end of the month; but as cold wet storms, which would be death to newly-shorn sheep, are not unfrequent in high districts, even at this advanced season, take care not to begin too soon. Hill sheep are generally washed by swimming them repeatedly through a deep pool, about twenty yards broad. Unless the ground be free from earth rubs, the shearing should not be delayed above three days, lest the fleece should get soiled. The lambs are removed previously; they would be hurt in the pens were they beside the ewes. The sheep are "buisted," or marked, with the usual stock letter: at the same time, and to save trouble afterwards, put a mark on those ewes which are to be drafted in autumn. Black-faced hoggs should have a letter burned on their horns now. Be very careful not to shear in warm, close places; such a practice is very apt to produce scab on hill sheep. One man should shear 60 sheep per day. Be careful in the management of the fleece, remembering that the best-managed clip brings the best price. An exact account of all sheep is now taken, and the shepherd's books balanced.

Wedders may be clipped now also.

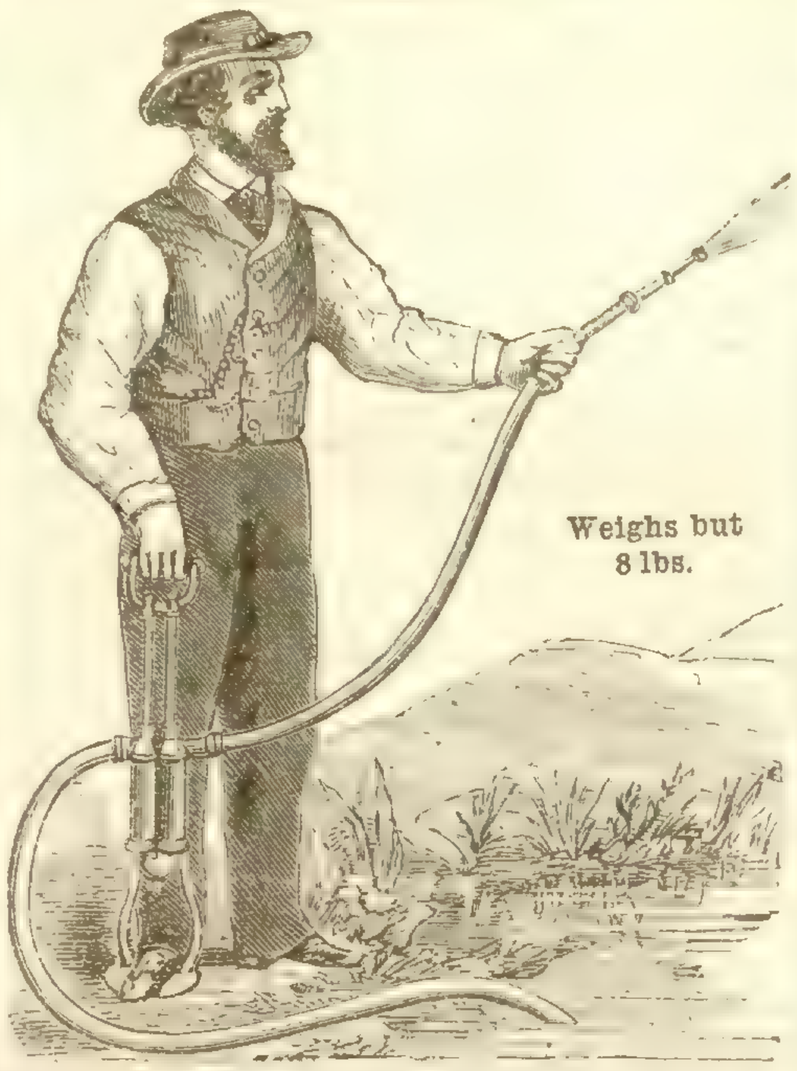
Notices to Correspondents.

Height of Cart: *Loader.* A good labourer, digging a soil of ordinary consistency, will turn over more than 200 square yards, probably 2000 square feet in a day, from 10 to 12 inches deep; he will thus turn over from 80 to 100 tons of earth per diem. The same man, if he had to fill a wheel-barrow, could not lift more than from 16 to 20 cubic yards, while if he had to throw this earth over the side of a cart or a waggon, he could not manage more than one-fifth part of the weight he lifted in the first case; and of course the higher the edge over which the material has to be thrown—the higher the edge of the cart or the waggon that he is filling—the more will be the labour connected with the shifting of a given weight of material. To lower the edge and bed of the vehicle one foot, would lessen the labour of filling it by a fifth or sixth part, a most important difference; and when, as in Stratton's Northampton cart, compared with the waggon, the difference between the levels on which the load is to be carried amounts to nearly two feet, the relative merits of the two, on the score of economy, appear plainly enough.

Land Drainage: *Student.* The following is the late Mr. Paine's description of its results:—1st. Draining obliterates poor, cold clay lands, and converts them into good, workable, and productive land. 2d. It renders the ground fit for subsoiling or deep cultivation. 3d. It removes hurtful matter, and causes a circulation of nutritious matter to the roots of the plant. 4th. It increases the temperature of the soil. 5th. The mechanical texture of the soil is improved by draining. 6th. By draining, moisture is kept in reserve for the plants in dry summers. The soil itself becomes porous and retains moisture in dry weather better than where the soil was entirely impervious.

Salt and Lime: *Clayland.* When the action of the one upon the other is completed, the salt is converted into a much more active substance—carbonate of soda; and of that it would not be advisable to apply more than 1 cwt. or 1½ cwt. per acre, a quantity which would be produced by rather more than its weight of common salt. But the process is not completed; only a small portion of the salt becomes thus decomposed, and therefore you may apply 2 cwt. or 3 cwt. of salt per acre, along with as much lime (within 80 or 100 bushels) as you like. Our plan would be to slake the lime with brine on a covered floor, and turn over for two or three months before use.

THE HYDROPULT,



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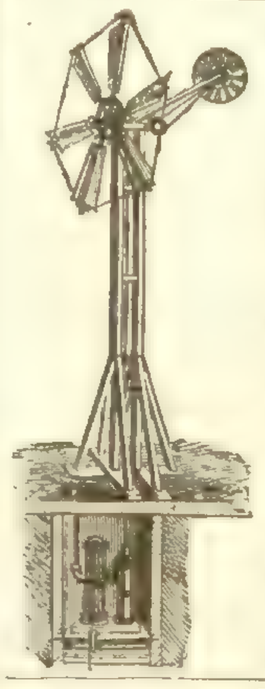

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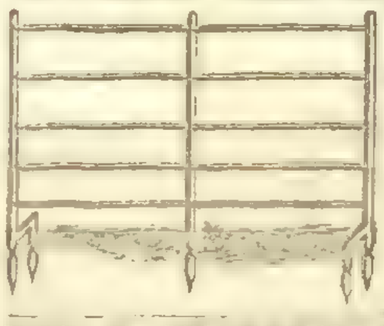

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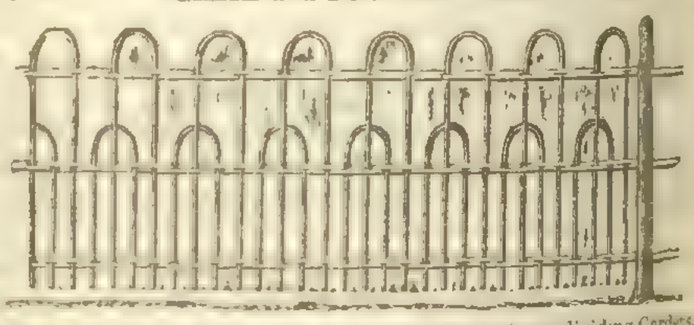

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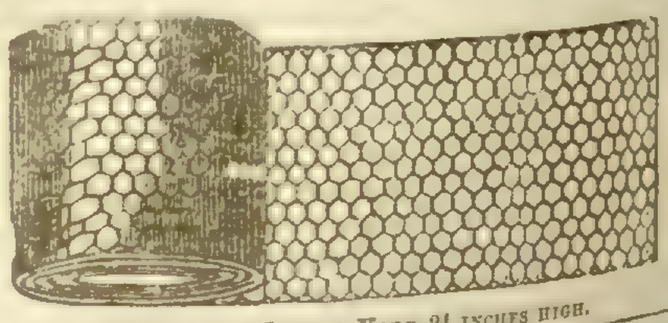

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		s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
2½ in.	Hares, Dogs, Poultry	0 3	0 4	0 [illegible]	0 5	0 4½	0 6	0 5½	0 7
2 in.	Game or Poultry Netting	0 3½	0 4½	0 4	0 5	0 5	0 6½	0 6½	0 8
1½ in.	Small Rabbits, Hares, &c.	0 4	0 4½	0 4½	0 6	0 5½	0 7	0 9	0 11
1¼ in.	Smallest Rabbits ..	0 5	0 6	0 5½	0 7	0 7	0 9	0 9	0 11
1 in.	Pheasantries, &c. ..	0 9	0 11	10½	1 1½	1 3	1 6	1 9	2 0
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No. 547. WARNER'S best ENGINES, in Wood Tubs, and fitted with WARNER'S Registered Spreaders—

24 Gallons,	£6 10s.
14 "	5 10s.

No. 547A. WARNER'S strong ENGINES, in Galvanised Iron Tubs, well painted—

10 Gallons	£2	19	0
16 "	3	14	0
24 "	4	19	0
28 "	5	10	0

No. 579½. WARNER'S WATER BARROWS, thoroughly Galvanised and well painted—

20 Gallons	£2	2	0
30 "	2	13	0
38 "	3	17	0
50 "	5	12	0

The 50-Gallon Barrow is made extra strong throughout, and fitted with handle for two men.

No. 568½, AMERICAN ENGINE, is now well known and appreciated. It throws a continuous stream, and is complete in itself. £2 2s.

SYRINGES in great variety, from 7s. 6d. to 18s. 6d.

The DISC SYRINGE, No. 557A, will recommend itself by the case with which it is filled, and non-liability to get out of order. Price 9s.

DESCRIPTIVE PRICE LISTS forwarded on application.

WARNER'S AQUAJECT

Is this season first introduced to the notice of horticulturists as possessing the following advantages:—It is simple in construction, portable, and easily worked. It throws a continuous stream, and is low in price.

The Aquaject, 30s.

The small AQUAJECT is the most perfect form of Syringe yet introduced. It throws a continuous stream, with very slight movement, and with it blight, &c., is readily washed from the under side of foliage. 18s.

No. 35. WARNER'S IRON PUMPS for Wells not exceeding 25 feet in depth — 2½-in., 28s. 6d.; 3-in., 41s.; 3½-in., 46s.; short barrel do., 21s.

No. 36. IRON FORCE PUMPS for raising water above their level, or watering yards, gardens, &c., through hose—2½-in., 59s.; 3-in., 65s.; 3½-in., 77s.; 4-in., 89s.

No. 36½. FORCE PUMP on BARROW, recommended for its great portability and simplicity of construction. £5 10s.

No. 42 WARNER'S PORTABLE PUMPS on Folding Legs, are of a superior construction.

Price 55s.; Rubber Suction, 2s. 6d. per ft.

No. 597A. BRANCH PIPES with Cocks and Roses — ½-in., 3s. 6d.; ⅝-in., 5s.; ¾-in., 6s.

No. 599. TAPER BRANCH PIPES—½-in., 4s. 9d.; ⅝-in., 5s. 3d.; ¾-in, 6s.; 1-in., 7s.

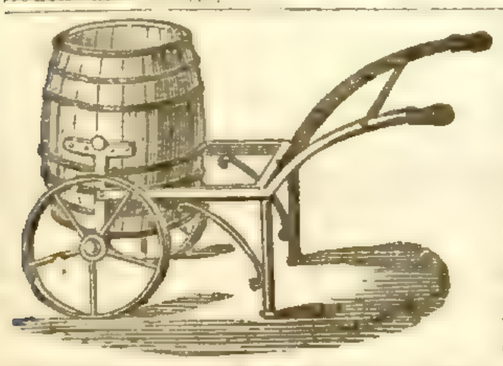
RUBBER HOSE in all sizes.

FOUNTAIN JETS in great variety, from 8s. to 25s.

TERRA COTTA GALLERIES, No. 1, South Wharf, Praed Street, Paddington, W., are NOW OPEN with a fresh stock of VASES, FOUNTAINS, TAZZAS, FLOWER POTS, GARDEN EDGINGS, and other Architectural goods.

THE PATENT CONCRETE STONE COMPANY (Limited), are now the Proprietors of the Patents for the Manufacture of the beautiful material known as RANSOME'S PATENT CONCRETE STONE, which for durability, cheapness, and beauty of appearance, stands unrivalled. It is especially applicable for Fountains, Vases, Jardinets, Balustrades for Terraces, Gate Piers, Edgings for Borders, and all other Ornamental Requisites for Parks, Gardens, Conservatories, &c.

Illustrations and Prices furnished upon application at the Offices of the Patent Concrete Stone Company, 2, Queen Street Place, Southwark Bridge, E.C.

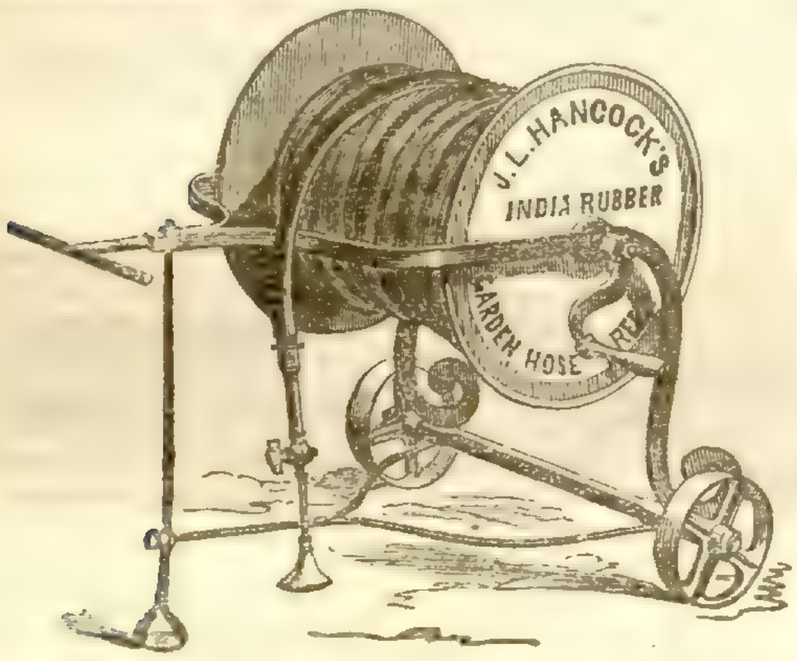


SWING WATER BARROW, to hold 36 Gallons, price 12s., carriage paid to any Station on the Great Eastern Line.

This is the best and cheapest article yet introduced; the water may be dipped out, or the tub tilted and poured out, or by merely raising the handle it can be placed on the ground and the frame detached.

Manufactured by W. S. Boulton, Rose Lane Iron Works, Norwich.

HANCOCK'S INDIA-RUBBER HOSE for WATERING GARDENS, LAWNS, &c. &c., made in 60-feet lengths of any size.



HOSE REELS, of Light Iron, for Winding-up Garden Hose when out of use.

BRASS FITTINGS, STOP-COCKS, SPREADERS, HAND BRANCHES, JETS, &c. Illustrated Price Lists on application.

James Lyne Hancock, Vulcanized India-Rubber Works, Goswell Mews, and 256, Goswell Road, London, E.C.

GRAY'S OVAL TUBULAR BOILER.

INTERNATIONAL EXHIBITION, Class IX., No. 2119.

Mr. Gray begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his

NEW OVAL TUBULAR BOILER,

acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in Gardeners' Chronicle *of International Exhibition, May* 24, *page* 476.

"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. Gray's variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel, and this being so, the change, though a slight one, is no doubt an improvement."

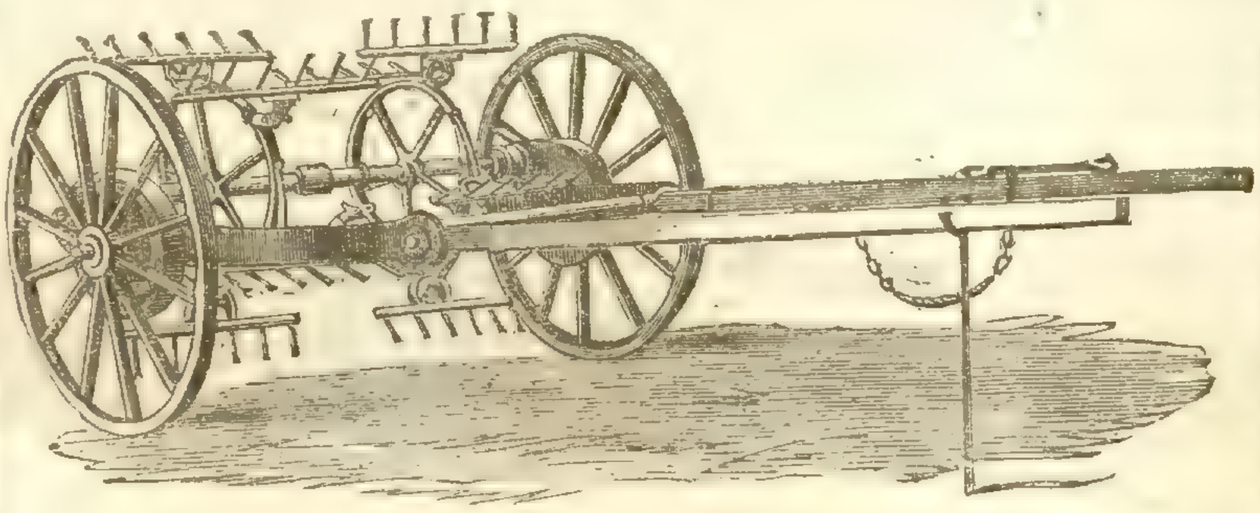
They are made of all sizes, which, with prices, may be had on application.

JAMES GRAY, HORTICULTURAL WORKS,
DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.

BOBY'S PATENT DOUBLE-ACTION HAYMAKING MACHINE

Received at the recent Meeting of the Royal Dublin Society, at Dublin, the FIRST and LARGE SILVER MEDAL (no other Medal was awarded to Haymakers); also,

ELEVEN FIRST-CLASS PRIZES and MEDALS were AWARDED to this MACHINE in 1863 and 1864.



This Machine is extremely simple, and its working, once understood, as all levers and eccentrics are entirely dispensed with. It is light draught, and so constructed that it leaves little or no weight on the back of the horse, and guaranteed to work in the heaviest crop. Hundred of these Machines have now been sent out, not a single Machine has been returned as inefficient. The travelling wheels are made of wood, and are very strong.

Price, delivered free to any Station within 200 miles of London, **£14 15s.**

This Machine requires no Roller or Screen to keep the Grass off the front.

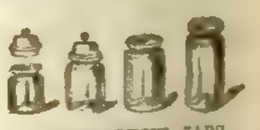
Illustrated Catalogues of Haymakers, Corn Screens, &c., will be sent free on application to the

Manufactory: ST. ANDREW'S WORKS, BURY ST. EDMUNDS, SUFFOLK.

NEW TARIFF OF GLASS AND HORTICULTURAL GOODS.

THOMAS MILLINGTON,

HAND GLASSES.



PRESERVE JARS.

GLASS AND COLOUR MERCHANT,

87, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.

MILK PANS.

See Advertisement the first week in the month, or on application.

SAMUELSON & CO.'S

LAWN MOWING AND ROLLING MACHINES.

EVERY MACHINE WARRANTED.

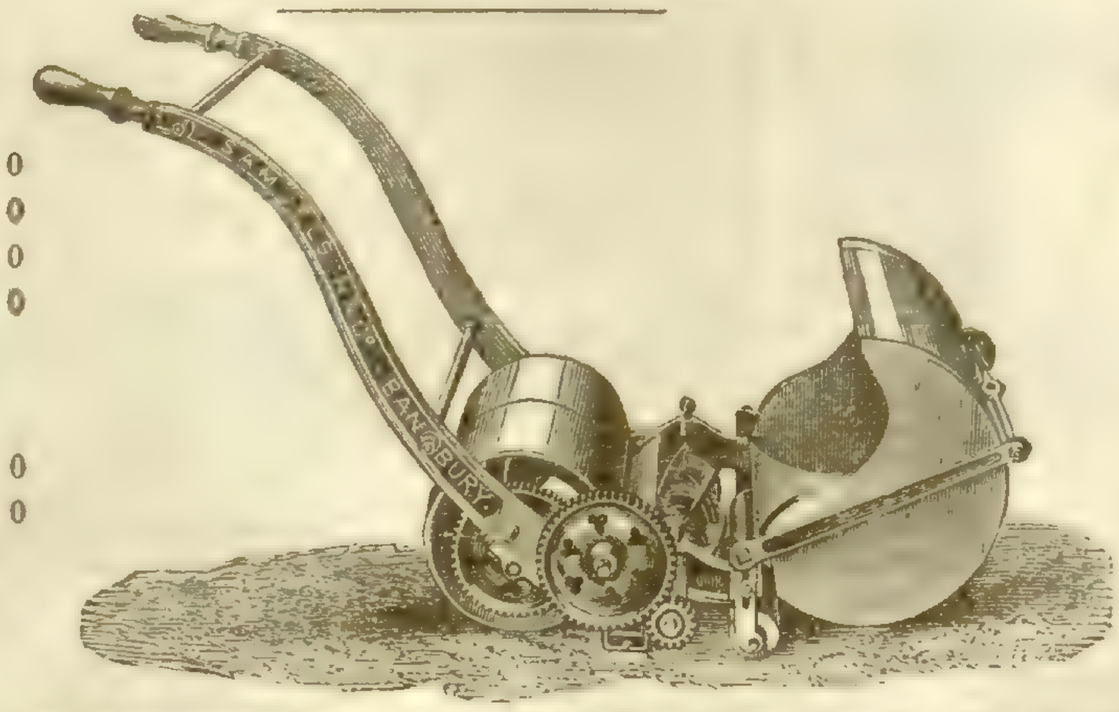
PRICES of MANUAL POWER MACHINES.

To Cut 12 inches, suitable for a Lady	£4 10 0
To Cut 16 inches, suitable for One Boy	6 0 0
To Cut 19 inches, suitable for One Man and Boy	6 10 0
To Cut 22 inches, suitable for Two Men ..	7 10 0

PRICES of PONY POWER MACHINES.

To Cut 25 inches	£11 10 0
To Cut 30 inches	14 14 0

These Prices include Free Delivery to any Railway Station in Great Britain.



THESE MACHINES ARE IN DAILY USE AT THE ROYAL GARDENS, CRYSTAL PALACE GARDENS, &c.

In again submitting these MACHINES to the notice of purchasers, Messrs. Samuelson & Co. wish to state that they do not make annual changes in the principle of their LAWN MOWERS. Experience has fully proved that the general design on which their MACHINES have been built for many years past is the best, and their attention has been given therefore rather to substantial improvements in manufacture, reduction of the draught, and increase of durability by the use of malleable iron in place of other metal, than to the production of ephemeral novelties. Their LAWN MOWERS are superior to all others for lightness of draught, elegance, and efficiency under all circumstances of ground and weather, being self-cleaning, and not liable to derangement in the gearing.

Illustrated Price Lists, with Selections from several thousand Testimonials, free by post on application.

SAMUELSON AND CO., BRITANNIA WORKS, BANBURY.

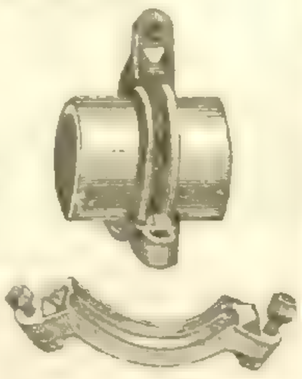
LONDON OFFICES: 18, CANNON STREET, E.C. WAREHOUSE (where Stock is kept): 10, LAURENCE POUNTNEY LANE, E.C.

AND OF ALL SEEDSMEN AND IRONMONGERS.

PORTABLE HOT-WATER APPARATUS,

WITH TRUSS' PATENT JOINTS FOR HEATING CONSERVATORIES, HOTHOUSES, &c.

T. S. TRUSS



Begs to offer complete HOT-WATER APPARATUS for GREEN-HOUSES (consisting of 4-inch Pipes and Joints, Saddle Boiler, Fire Doors, Bars, Soot Doors, Damper, Supply Cistern, Feed and Air Pipes, Pipe Stands, &c., of the best quality), delivered to any Railway Station in England, and to erect the same within 25 miles of London, at the following prices:—

4-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection.
16 feet by 8 feet	£8 10 0	£2 0 0	30 feet by 12 feet	£11 15 0	£2 10 0
20 feet by 10 feet	9 0 0	2 0 0	40 feet by 15 feet	15 0 0	2 15 0
25 feet by 12 feet	10 5 0	2 5 0	50 feet by 15 feet	18 0 0	3 0 0

Erection beyond 25 miles of London, Railway Fare for one Man charged extra.

By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints.

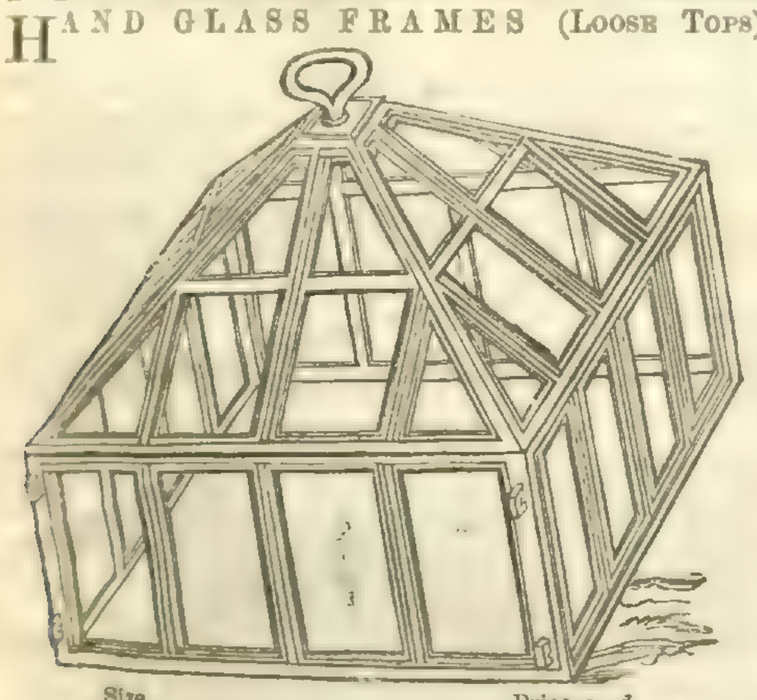
Estimates and Plans forwarded on application to

T. S. TRUSS, C.E., 53, GRACECHURCH STREET, LONDON, E.C.

AUSTIN, SEELEY, AND CO.'S Stock now comprises—

296 different kinds of VASES.
94 STATUES and FIGURES of CHILDREN.
70 FIGURES of ANIMALS and BIRDS.
About 200 FOUNTAINS, at prices from £10 to £400.
15 BASKETS from 1 to 10 feet diameter.
17 FLOWER BOXES for WINDOWS, &c.
6 GARDEN SEATS.
22 SUN-DIAL PEDESTALS.
22 ORNAMENTS for GATE PIERS.
And a great variety of BALUSTRADING and PEDESTALS.
300 to 375, Euston Road, Regent's Park, N.W.

HAND GLASS FRAMES (LOOSE TOPS).



Size.	Price s.	d.	
14 by 14	4	0	Each.
18 by 18	5	9	"
20 by 20	6	6	"
22 by 22	7	6	"
24 by 24	8	6	"

Delivered Free to any Station in England if 12 or more are ordered.
J. JONES & SONS, 6, Bankside, London, S.E.

Glass for Garden Purposes.

JAMES PHILLIPS AND CO. beg to submit their prices as follows:—

PROPAGATING

GLASSES.

	Each.—s.	d.		Each.—s.	d.
2 inches in diameter	0	3½	12 inches in diameter	1	9
3 " "	0	4½	13 " "	2	0
4 " "	0	5½	14 " "	2	6
5 " "	0	6½	15 " "	3	0
6 " "	0	8	16 " "	3	6
7 " "	0	10	17 " "	4	0
8 " "	1	0	18 " "	5	0
9 " "	1	2	19 " "	6	0
10 " "	1	4	20 " "	7	0
11 " "	1	6			

HAND GLASSES,

WITH OPEN TOPS.

	Each.—s.	d.		Each.—s.	d.
12 inches	6	6	18 inches	9	6
14 "	7	6	20 "	10	6
16 "	8	6	22 "	11	6
			24 "	12	6

Painted and Glazed with 16-oz. Sheet Glass.

BEE GLASSES.

	Each.—s.	d.		Each.—s.	d.
4 inches in diameter	0	6	9 inches in diameter	1	8
5 " "	0	8	10 "	2	0
6 " "	0	10	11 "	2	6
7 " "	1	1	12 "	3	0
8 " "	1	4			

CUCUMBER GLASSES.

	Each.—s.	d.		Each.—s.	d.
24 inches long	2	0	16 inches long	1	4
20 " "	1	10	14 " "	1	2
18 " "	1	8	12 " "	1	0
" "	1	6			

London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.
LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS, PAINTS of various colours ground ready for use.
130, Bishopsgate Street Without, London E.C.

Bee Hives.

PRIZE MEDAL and HONOURABLE MENTION AWARDED to G. N. & SONS, for BEE HIVES and HONEY at the VARIOUS EXHIBITIONS.

NEIGHBOUR'S IMPROVED COTTAGE BEE HIVE, as originally introduced by GEORGE NEIGHBOUR & SONS, with all the recent improvements, three Glasses and Thermometer, price 35s., securely packed for the country.

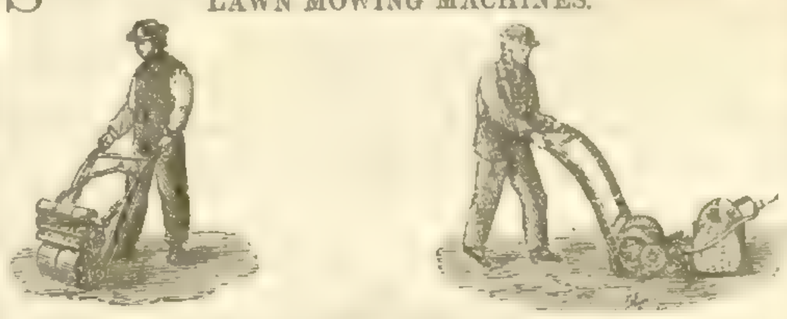
Several important novelties are introduced this season, including the Woodbury Straw and Bar-and-Frame Hive, price 21s., &c. Also the Engraved Pressing Roller, for the guidance of Bees in the construction of Honey-comb on the Bars, and impressed Wax Sheets, to assist in the formation of Cells.

Address, GEORGE NEIGHBOUR & SONS, 127, High Holborn, W.C.; or 149, Regent Street, London, W.

Their newly-arranged Catalogue of other Improved Hives, with drawings and prices, sent on receipt of two stamps.

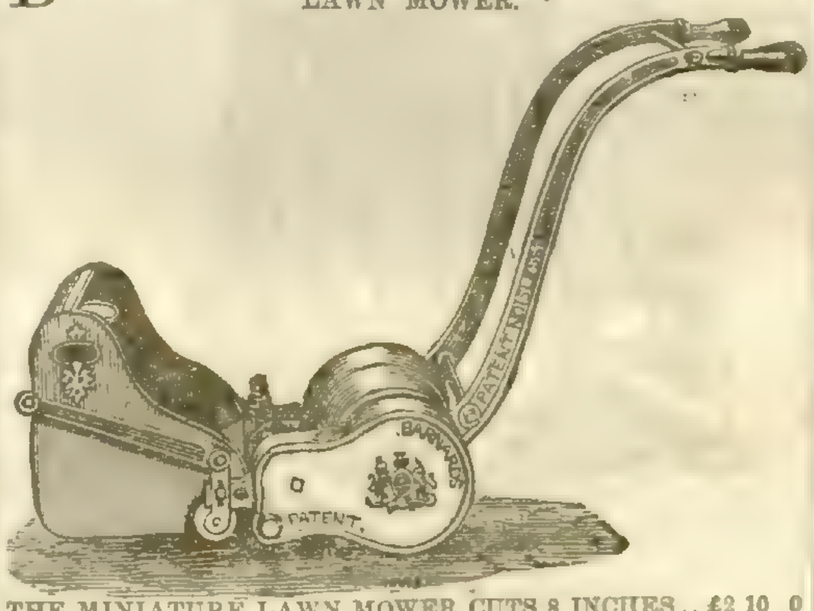
AGENTS:—Liverpool: James Cuthbert, 12, Clayton Square. Manchester: J. Wilson, 50, King Street. Birmingham: J. H. Cottrell, 15, Bull Ring. Dublin: Edmondson Brothers, 10, Dame Street. Glasgow: Austin & McAslan, 16, Buchanan Street.

SHAW'S PATENT FLEXIBLE SELF-ADJUSTING LAWN MOWING MACHINES.



Full Particulars, Drawings, and Prices, post free on application to the Patentee and Manufacturer,
JOHN SHAW, Junction Works, New Wortley, Leeds.

BARNARD'S PATENT NOISELESS LAWN MOWER.



THE MINIATURE LAWN MOWER CUTS 8 INCHES .. Suitable for the very smallest grass plots or edgings.	£2 10 0
To CUT 10 INCHES (this can be worked by a lady) ..	3 5 0
To CUT 12 INCHES (suitable for one person) ..	4 10 0
To CUT 14 INCHES (suitable for one person) ..	5 0 0
To CUT 16 INCHES (suitable for one person) ..	6 0 0
To CUT 18 INCHES (suitable for man and boy)	6 10 0
To CUT 20 INCHES (suitable for man and boy)	7 0 0
To CUT 22 INCHES (suitable for two men)	7 10 0

Packed and Delivered Carriage Free to the Principal Railway Stations in England.

All orders should be sent immediately to J. JONES & SONS, Iron Merchants and Horticultural Engineers, 6, Bankside, London, S.E.

Illustrated Catalogues gratis, with prices of Garden Rollers, Chairs Seats, Vases, Wire Netting, &c., on application.

GARDEN BORDER EDGING TILES, in great variety of patterns and material, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.

F. & G. ROSNER, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.

Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also TESSELATED PAVEMENTS of more enriched designs than the above.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cements, &c.

To be obtained of F. & G. ROSNER, at their Premises as above.

SILVER SAND (REIGATE, best quality), at the above addresses—14s. per Ton, or 1s. 3d. per Bushel; 2s. per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less.

FLINTS, BRICK BURRS or CLINKERS, for Rockeries and Grotto Work.

F. & G. ROSNER.—Addresses see above.
N.B. Orders promptly executed by Railway.

BRETONNE COWS.—The Nobility, Gentry, and others, are respectfully informed that they can be supplied with the above beautiful and profitable little animals in any number at the shortest notice. The great success and encouragement which has attended the efforts of the importer in introducing the Pure Breed of this useful and hardy Cow into the country, has induced him to extend his connection abroad, by appointing experienced Agents throughout Brittany, and he is now enabled to offer the public a constant supply of the choicest stock that can be obtained, at prices which defy all competition. The low cost, together with the high Milking qualities of this Breed, render them of great value to the Cottager, as well as the fancy Stock-keeper and Dairyman, the Importer has made arrangements to keep a large stock always on view. Price from 5 to 10 Guineas each, delivered free to any Railway in London.

For further particulars, apply to Messrs. ROBERTSON & Co., 38, Crutched Friars, London, E.C.

Berks.

TO BE LET, by TENDER, the MANOR FARM of FYFIELD, comprising about 1[illegible] Acres of Light and Heavy Land. This farm will eventually be increased by about 300 Acres, the greater part of which will be added at the end of two years. Tenders, accompanied by names of referees, to be sent to the BURSAR of St. John's College, Oxford, on or before the 20th of June.

To view, apply to Mr. MARTIN, Fyfield, Abingdon. The College does not bind itself to accept the highest or any Tender.

Berks.

TO BE LET, by TENDER, the FARM of TUBNEY, comprising 102 Acres of Arable, and 16 Acres of Pasture partly irrigated. The House and Buildings are good, and conveniently situated, being 4½ miles from Abingdon and 7 to Oxford. Tenders, accompanied by names of referees, to be sent to the BURSAR of St. John's College, Oxford, on or before the 20th of June.

To view, apply to Mr. MARTIN, Fyfield, Abingdon. The College doesn't bind itself to accept the highest or any Tender.

Sales by Auction.

At Middleton, near Yoxford (the Garden of Suffolk).

MESSRS. GIRLING AND WHITE are instructed to SELL by AUCTION, the LAST WEEK in JUNE, unless previously disposed of by private contract, all that VALUABLE FREEHOLD NURSERY GROUND and PREMISES, containing 2a. 1r. of good Loamy Soil, well situate for trade, abutting upon a Turnpike Road, and a short distance of the Fashionable Seaport Town of Aldbro, and within an easy distance of two Railway Stations on the Great Eastern line. It is well planted with Saleable Stock (which can be taken by valuation at the option of the purchaser); also a good Greenhouse, Vinery, and Seed Shop; a convenient and substantial Dwelling House, and all necessary out-buildings. The ground is well supplied with water, and have been in the occupation of the present proprietor 40 years, who is retiring from business.

Further particulars in future Paper, and of the Auctioneers, Peasenhall, near Yoxford, Suffolk.

Sale by Public Auction.

TO BE SOLD by AUCTION, on MONDAY, June 12, and the following days, at Laeken-lez-Bruxelles (Belgium), the beautiful and rich COLLECTION of PLANTS and SHRUBS (the temperate and warm hothouse), the property of Mons. VAN OUWELANT, which contains splendid specimens of Shrubs, such as Rhododendrons, Conifers (which obtained the Gold Medal at the International Exhibition of Belgium in 1864), Camellias, Palm Trees, Rhopalas, Aralias, Bonaparteas, Azaleas, Pandanuses, Yuccas, Cycads, Pincenectitias, Oranges, Tree Ferns, and divers other Plants, &c.

On view, Saturday and Sunday, June 10 and 11, 1865, from 10 A.M. to 4 P.M. Catalogues free on application to ELIOT Notary, Rue Neuve 50, Bruxelles.

Improved and Established Orchids.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, June 21, at half-past 12 o'Clock precisely, 50 nice healthy and well-established Plants of DISA GRANDIFLORA and DISA GRANDIFLORA SUPERBA, many of them showing flower; the property of a gentleman. Also a small collection of established ORCHIDS, being duplicates from a gentleman's collection, including

Phalænopsis Lüddemanniana	Acrides Fieldingii
" amabilis	" [illegible]
" grandiflora	Vanda cœrulea
Cypripedium Stonei	" suavis
Odontoglossum hastilabium	Saccolabium retusum
" Reichenheimii	&c. &c. &c.

Also an importation of four Cases of Orchids from New Granada.
On view the Morning of Sale, and Catalogues had.

FLOWERING PLANTS of LILIUM AURATUM.

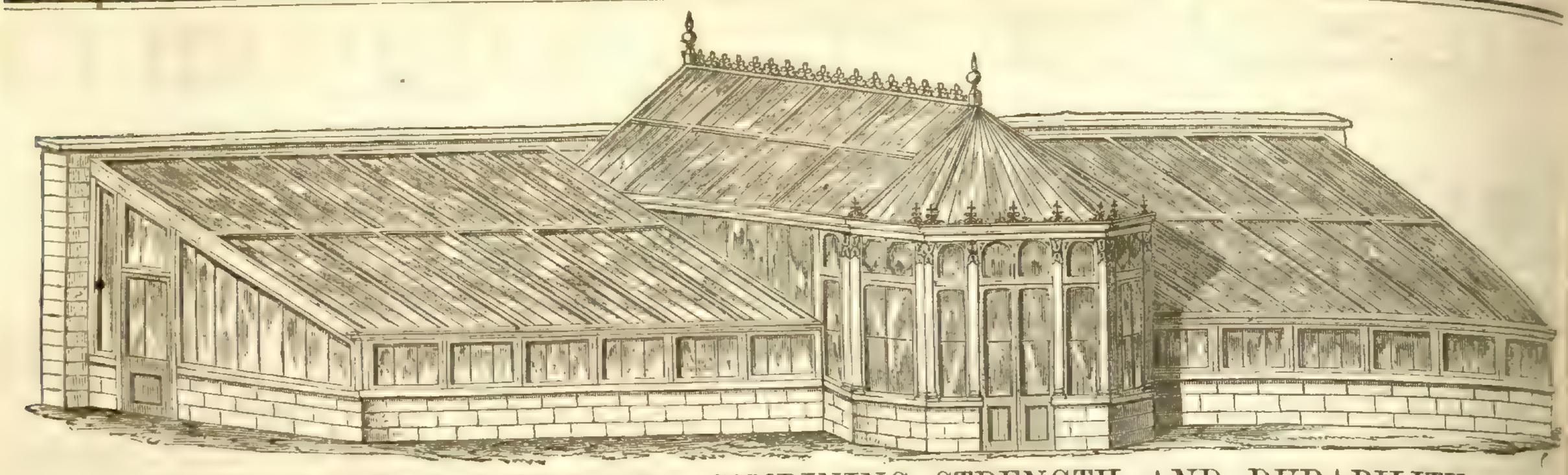
MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, June 13, at half-past 12 o'Clock precisely, a large number of

ESTABLISHED PLANTS OF LILIUM AURATUM,

In fine health, and upwards of 50 of them in Full Bloom. Amongst them are probably many New Varieties with red bands similar to those sold last season from the same Collection.

Without Reserve, by direction of Mr. CATLEUGH, Florist, Chelsea.

On view the Morning of Sale, and Catalogues had.



HORTICULTURAL BUILDINGS, COMBINING STRENGTH AND DURABILITY,

MANUFACTURED BY STEAM POWER MACHINERY.

LOWEST PRICES AND BEST MATERIALS.

HENRY ORMSON, F.S.A.,

HORTICULTURAL BUILDER and HOT-WATER APPARATUS MANUFACTURER,

STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.,

Truly grateful for the very liberal and kind patronage bestowed upon him, begs most respectfully to inform the Nobility, Gentry, Nurserymen, &c., that it is determination to spare no pains to merit a continuance of their favours; and that he may be enabled to execute his extensive and increasing orders punctually, and at the lowest possible cost (agreeably with the best Materials and Workmanship), he has erected a most complete set of Steam Power Machines, peculiarly adapted for the purposes of his Trade.

H. O. begs to call attention to his superior manner of erecting every description of Horticultural Building, and he trusts by unremitting personal attention to the details of his business, by using only the very best materials, by employing the most skilful and efficient workmen, and by the most moderate possible charges, to merit a continuance of the patronage so kindly and so liberally bestowed on him for many years past.

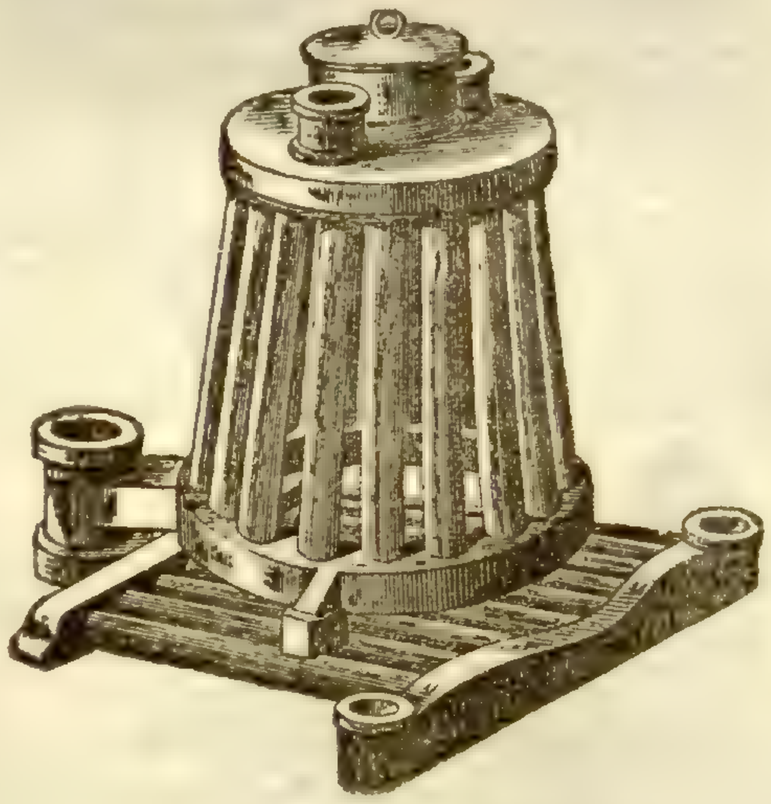
In the **BUILDING DEPARTMENT** his object will be to adapt all erections to the particular purposes for which they are required. He will devote equal attention to the plain, inexpensive, practical erections of Pits, Orchard Houses, Greenhouses, Vineries, &c., as to the more elaborate and architectural erections of Conservatories, Winter Gardens, &c., either in wood or iron.

The **HEATING DEPARTMENT** always engages his special personal attention, and he feels justified in saying that in simplicity, safety, durability, and economy of fuel, combined with thorough effectiveness, his system cannot be surpassed.

VENTILATION.—Knowing the absolute necessity for thorough Ventilation, he makes it a matter of first consideration.

H. O. having competent Draughtsmen and an efficient Office Staff, he is prepared and will be happy to forward Plans, Estimates, and Specifications by post or otherwise, or to wait personally on any Ladies or Gentlemen who may desire to see him on their Grounds.

FIRST CLASS PRIZE MEDAL
FOR ORMSON'S CONSERVATORY,
At the International Exhibition.



FIRST CLASS PRIZE MEDAL
FOR ORMSON'S PATENT JOINTLESS TUBULAR BOILER
At the International Exhibition.

ORMSON'S

PATENT JOINTLESS TUBULAR BOILER

Has now gained the highest standing reputation for Power, Efficiency, Safety, and Economy of Fuel. There is not a single joint exposed to the action of the fire which renders these Boilers far more safe than any other Tubular Boiler ever invented. May be seen in successful operation in the Gardens of many of the Nobility and Gentry in England, Ireland, and Scotland. They are made of various sizes. Prices on application.

Plans, Specifications, and Estimates on application.

HENRY ORMSON,

HORTICULTURAL BUILDER TO HER MAJESTY, AND HOT-WATER APPARATUS MANUFACTURER TO THE COMMISSIONERS OF HER MAJESTY'S ROYAL PALACES AND PUBLIC BUILDINGS, AND TO THE ROYAL HORTICULTURAL SOCIETY,

STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

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THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 24.—1865.] SATURDAY, JUNE 17. {Price Fivepence. Stamped Edition, 6d.

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MANCHESTER BOTANICAL and HORTICULTURAL SOCIETY.—The Council beg to announce that the SECOND EXHIBITION of FRUITS, FLOWERS, and PLANTS will be held at the Gardens, Old Trafford, on FRIDAY and SATURDAY, June 23 and 24. Schedules of Prizes and any further information may be obtained from the Undersigned.—By Order.
Bruce Findlay, Curator.

ENFIELD HORTICULTURAL SOCIETY.—The FIRST SHOW this year will be held in the Grounds of F. B. Adams, Esq., Chase Side, on THURSDAY NEXT, June 22. Admission from 1 till 5, 2s. 6d.; from 5 till 6, 1s.; and from 6 till 7, 6d.
Clay Hill, Enfield. W. Marshall, Hon. Sec.

GRAND FLORAL GALA, ROSE SHOW and BAND CONTEST at STAMFORD, on WEDNESDAY, June 28. Open to All England. The Schedules, with Rules, are now ready, and will be forwarded on application to O. H. Shore, M.D., } Hon.
Stamford, June 17. F. A. Hewitt } Secs.

LEICESTER and LEICESTERSHIRE FLORAL and HORTICULTURAL SOCIETY.
President—The Right Hon. Earl Howe.
The GREAT ROSE SHOW of the above Society (open to all England) will be held on the 4th and 5th JULY NEXT.
A SHOW of CAGE BIRDS will be held on the same days (open to all England).
For programme and particulars apply to the Secretary,
Wm. Penn Cox, Market Place, Leicester.

BOSTON FLORAL and HORTICULTURAL SOCIETY.—FIRST SHOW will be held on THURSDAY, July 6. Five Pounds, in Two Prizes, will be given for the Best and Second Best 24 Cut Roses.
Schedules, &c., may be obtained of Mr. W. H. Bailes, Solicitor, Boston; or of Mr. Jonathan Cocks, West Skirbeck Nursery, Boston.

FLORAL and HORTICULTURAL FETE, to be held at PETERBOROUGH, in connection with the Northamptonshire Agricultural Society's Annual Show, on THURSDAY, July 6.
Premiums amounting to more than £200 will be offered for Competition. Open to All England. Prizes to be paid on the day of Exhibition. The Band of the Coldstream Guards, under the leadership of A. D. Godfrey, Esq., has been engaged.
Thursday, June 22, is the last day for Entries to the above.
The Schedule and Rules may be obtained of the Secretary, Mr. John Fox, 14, Narrow Street, Peterborough.

BIRMINGHAM ROSE SHOW, THURSDAY and FRIDAY, July 6 and 7.
PRIZE LISTS may be had of Mr. Alexander Forrest, Queen Chambers, Cherry Street, Birmingham.
ENTRIES CLOSE, Friday, June 30.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—The TWENTY-SECOND ANNIVERSARY FESTIVAL in AID of the FUNDS of this Institution will take place at the LONDON TAVERN, Bishopsgate Street, London, on FRIDAY, July 7. J. R. Jeffery, Esq., of Woolton Hall, Liverpool, in the Chair.
Tickets, One Guinea each. The Gallery will be opened for the admission of Ladies (Tickets 7s. 6d. each), of which a limited number only will be issued. Dinner to be upon Table at 6 o'clock precisely.
Edwd. Roger Cutler, Secretary.
14, Tavistock Row, Covent Garden, W.C.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—An ELECTION of THREE PENSIONERS on the Funds of this Institution will take place at the Bedford Hotel, Covent Garden, on TUESDAY, the 11th July next. The Chair to be taken at 6 o'clock precisely; the Ballot will close at 8 o'clock.—By Order. E. R. Cutler, Secretary.
14, Tavistock Row, W.C.—June 17.
The Voting Papers have all been delivered. Any Member not having received one is respectfully requested to intimate the same to the Secretary.

Roses in Bloom.
JAMES MITCHELL respectfully informs the Nobility and Gentry his renowned ROSES are NOW in FINE BLOOM.
Pilt Down Nurseries, Maresfield, Sussex, Two and a half Miles from the Uckfield Station.

Roses.
H. LANE and SON, The Nurseries, Great Berkhamstead, beg to inform their Patrons and the Public that their COLLECTION (upwards of 7 acres) is NOW in BLOOM, at the Balshaw Nurseries, 1½ mile from the Station, and will continue during the Season.

PAUL and SON'S NEW HYBRID PERPETUAL ROSE, PRINCESS MARY of CAMBRIDGE.—Colour beautiful rose, shaded at the edges with white, fine imbricated form, bright green foliage and vigorous habit. The Advertisers guarantee it to be a most beautiful and distinct flower.
Strong plants, 7s. 6d. each, 1st July. Early orders are solicited.
The Old Cheshunt Nurseries, Cheshunt, N.

Japanese Clematis.
MR. FORTUNE'S magnificent CLEMATIS STANDISHII and FORTUNII, doubtless two of the most important introductions of late years, received the unusual honour of Special Certificates at the Meetings of the Royal Horticultural Society, April 29 and May 2 last.
Strong Flowering Plants may be obtained of Charles Noble, Bagshot.

NATURAL GRASSES: their Names and Derivations; Quality, Produce, Elevation, Situation, Soil, Use, Peculiarity, Season, Growth, Increase, Time of Flowering, Price, &c. Free for One Postage Stamp.
Richard Smith, Seed Merchant, Worcester.

BEDDING-OUT PLANTS in great variety. WINDOW JARDINETS, Empty or Furnished, in variety.
The "Gardeners' and Amateurs' Friend," see page 454.
Barr & Sugden, 12, King Street, Covent Garden, W.C.

CRYSTAL PALACE, ROYAL BOTANIC, and ROYAL HORTICULTURAL FLOWER SHOWS.
At these PLANT CASES will be exhibited in great variety, furnished with the Choicest Exotic Fern and Foliage Plants, arranged by Barr & Sugden, of 12, King Street, Covent Garden, W.C.

GERANIUMS.—MRS. POLLOCK, GOLDEN FLEECE, MADAME VAUCHER, CHRISTINE, and all the best varieties. See William Hooper's CATALOGUE, post free on application.
St. John's Hill Nursery, near Clapham Junction Station, S.W.

MRS. POLLOCK PELARGONIUM.—Healthy Spring-struck plants, 2s. 6d. each, well hardened for bedding out. The Trade supplied.—Address,
Alfred Fryer, Nurseryman, Chatteris, Cambridgeshire.

First Quality.
CALCEOLARIA, PRIMULA, CINERARIA, CARNATION, PICOTEE, PINK, AURICULA, VERBENA, MIMULUS, ZONALE GERANIUM and PELARGONIUM.
Each 2s. 6d. per packet.
Barr & Sugden, 12, King Street, Covent Garden, W.C.

CALCEOLARIA, CINERARIA, and PRIMULA, saved from the finest strains in cultivation.
2s. 6d. and 5s. per packet.
James Carter & Co., 237 and 238, High Holborn, London, W.C.

Cineraria Seed, New and Good.
W. H. WHEELER begs to state, in reply to numerous inquiries, that he has a good supply of choice CINERARIA SEED, in packets of 1s., 1s. 6d., and 2s. 6d. each.
TEN HIVES of BEES of this season's produce to be sold at 10s. each, if the 10 are taken.
W. H. Wheeler, Florist, &c., Farnham, Surrey.

HOLLAND and JONES' CATALOGUE of BEDDING, GREENHOUSE, and STOVE PLANTS is now ready, free on application.
Bradshaw Gardens, Chadderton, near Manchester.

CARTER'S GARDENER'S VADE-MECUM PLANT SUPPLEMENT is now ready.

NEW and GENUINE AGRICULTURAL, GARDEN, and FLOWER SEEDS.
Special prices and advantageous offers on application to
James Fairhead & Son,
Seed Growers and Merchants, 7, Borough Market, London, S.E.

British Fern Catalogue.
ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
*** Part II. (Exotic Ferns) will be issued as early as possible.
Foot's Cray Nursery, S.E.

RAYNBIRD, CALDECOTT, and BAWTREE, Seed Farmers and Merchants,
89, Seed Market, Mark Lane; and Basingstoke.
Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

Pines.
B. S. WILLIAMS begs to announce that he has a fine Stock of the above, including all the best kinds. Prices on application.
Paradise and Victoria Nurseries, Holloway, London, N.

NEW GRAPE, "ROYAL VINEYARD," the best late White Grape extant. Strong planting Canes, 21s. each; strong fruiting, 42s. each.
B. S. Williams, Paradise and Victoria Nurseries, Holloway, London.

Strawberries. Pines.
WANTED, a few hundred KEEN'S SEEDLING, old forced plants, true to name; and a lot of true QUEEN and BLACK JAMAICA PINE SUCKERS.
State lowest price and quantity to George Profit, Gardener, Upper Avenue Road, N.W.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
Richard Smith, Nurseryman and Seed Merchant, Worcester.

J. IVERY and SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

New Azalea indica.
J. IVERY and SON have much pleasure in offering the undermentioned Two beautiful Seedlings, as they feel assured they will prove thoroughly distinct, and most desirable kinds.
FORGET-ME-NOT.—Brilliant glossy reddish-purple, 10s 6d. & 21s.
BEAUTY of DORKING.—White striped and spotted with rose, 10s. 6d. and 21s.
For a full description see CATALOGUE, which will be forwarded post free on application.—Dorking, June 17.

ROBINIA DECAISNEANA.—A new, beautiful, and very free flowering variety of the common ACACIA, with lovely pink flowers. It was awarded a First-class Certificate by the Floral Committee of the Royal Horticultural Society on the 30th May last. J. & C. Lee can now supply healthy plants at 3s. 6d. each.
Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

CALADIUMS, CALADIUMS.—The following Eleven Varieties of this highly Ornamental Foliage Plant, strong and well rooted, will be sent, hamper and package included, to any address on receipt of a Post Office Order for 12s. 6d., payable at Boston Spa.

WIGHTII	CHANTINI	REGALE
BICOLOR	PELTATA	AMABILE
PICTURATUM	MARMORATUM	TRICOLOR

ARGYROSPILUM, ALOCASIA MACRORHIZA VARIEGATA, and ALOCASIA METALLICA.
J. C. Padman, Boston Spa, Tadcaster, Yorkshire.

Russell's Pyramid Primulas.
GEO. CLARKE is now prepared to send out in packets, price 2s. 6d. each, this, the finest breed of PRIMULAS in cultivation. The Seed now for sale has been saved from selected plants, so that it is believed the produce will be even superior to that of former years.
Printed instructions for raising and growing the plants sent with each packet. Stamps received in payment.
Nursery, Streatham Place, Brixton Hill, London, S.

H. and F. SHARPE, Seed Growers and Merchants, Wisbech.
SPECIAL PRICED LIST of NEW SEEDS on application.

WILLIAM DAVIDSON, SEEDSMAN, 30a, St. Andrew Square, Edinburgh.

Genuine Garden and Agricultural Seeds.
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New Plants for 1865.
JAMES CARTER and CO.'S CATALOGUE of NEW and CHOICE BEDDING, GREENHOUSE, and STOVE PLANTS, is now ready, and will be forwarded gratis and post free on application.
James Carter & Co., 237 & 238, High Holborn, London, W.C.

WILLIAM HOOPER, Nurseryman, Seedsman, and Florist, St. John's Hill, near Clapham Junction Station, S.W. CATALOGUES of BEDDING and CONSERVATORY PLANTS post free on application.

Seeds from Choice Strains.
B. S. WILLIAMS can now supply good Seeds of the following:—
CINERARIA (Weatherill's extra choice strain).—B. S. W. has secured at a great expense the entire stock and right of exclusive sale from Mr. Weatherill, of his, the best strain of Cineraria in existence, and can now offer packets at the following prices:—3s. 6d. and 5s.
CALCEOLARIA (Herbaceous), from a fine strain, 2s. 6d. and 3s. 6d. per packet.
PRIMULA (Williams' superb strain), the finest fringed and the best coloured flowers in cultivation. Red, White, or Mixed Seed, 2s. 6d., 3s. 6d., and 5s. per packet.
Paradise and Victoria Nurseries, Holloway, London, N.

Paul's Nurseries, Waltham Cross, N.
Entrance from the Platform, Waltham Station, Great Eastern Railway. Half an Hour's Ride from London.
WM. PAUL (Son and Successor to the late A. Paul) begs to announce that his COLLECTION of ROSES is just COMING into BLOOM, and comprises many of his own Seedlings, and other novelties not to be found in any other collection. In addition to the Roses, BEATON'S GERANIUMS, and a second and third generation from them, will be blooming throughout the summer and autumn. The Collection of HARDY TREES with FINE FOLIAGE is unrivalled, and many large and perfect specimens of the choicer CONIFERS are now in fine condition for removal, and are well worthy of the attention of gentlemen and horticulturists who contemplate planting. Bearing trees of all the LEADING FRUITS, Dwarfs and Standards, Pyramids and Espaliers, in fine health and true to name. Inspection respectfully invited.
Waltham Cross, London, N.

Shrubs, Roses, Fruit Trees, &c.
WM. CUTBUSH and SON'S GENERAL NURSERY STOCK is the best near London.
GLADIOLI, fine, from 4s., 6s., 9s., & 12s. per dozen.
CATALOGUES on application.
Highgate Nurseries, London, N.

To Nurserymen, &c.
WANTED to PURCHASE, about a dozen Plants of NIGHT-SMELLING STOCK. For price, &c., apply to A. B., 2, Carlton House Terrace, S.W.

GOOD BROCCOLI PLANTS, 5s. per 1000, may be had of
Mr. A. Wilkie, Tiptree, Kelvedon, Essex.

The Best Substitute for Swedes is
SUTTON'S PURPLE-TOP YELLOW HYBRID TURNIP. Price 1s. per pound, or cheaper by the bushel. Carriage free.
Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

The Best Early Turnip for Field Culture is the Pomeranian White Globe.
SUTTON and SONS can supply fine New Seed of the POMERANIAN WHITE GLOBE TURNIP at 10d. per lb., or cheaper by the bushel. Carriage free except small parcels.
PRICED LISTS of TURNIP SEEDS post free.
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Cattle Cabbage Plants, &c.
W. VIRGO and SON, Wonersh Nursery, near Guildford, Surrey, can offer a quantity of the undermentioned, strong and well rooted:—
DRUMHEAD or CATTLE CABBAGE PLANTS, 3s. 6d. per 1000.
DRUMHEAD SAVOY PLANTS, 3s. 6d. per 1000.
RED CABBAGE PLANTS, 5s. per 1000.
RED and WHITE CELERY PLANTS, 5s. per 1000.

To Market Gardeners, Nurserymen, Farmers, and Gentlemen Gardeners.
SUPERIOR DRUMHEAD CABBAGE PLANTS, 3s. per 1000.
CELERY PLANTS, Red and White, 1s. per 100.
KOHL RABI PLANTS, of the finest stock ever offered, 3s. per 1000.
BRUSSELS SPROUTS, 5s. per 1000. | SAVOYS, 4s. per 1000.
CAULIFLOWERS, 8s. per 1000. Terms cash.
Richard Walker, Seed Grower, Biggleswade, Beds.

TURNIP SEEDS.

	Per lb.—s.	d.
WORCESTERSHIRE SWEDE	0	10
SKIRVING'S KING of the SWEDE	0	9
HALL'S WESTBURY SWEDE	0	10
YELLOW TANKARD or SWEDISH	1	0
YELLOW BULLOCK or ABERDEEN	0	10
GREEN ROUND or GLOBE	0	8
GREEN BARREL	0	9
LINCOLNSHIRE RED GLOBE	0	8
DEVONSHIRE GREY STONE	0	10

PRICED LIST of AGRICULTURAL SEEDS on application.
Richard Smith, Seed Merchant, Worcester.

NEW and SELECTED SEEDS.
CARPENTER'S MAGNUM BONUM PEAS.—The Largest and Best Tall Variety grown. 5s per quart.
CARPENTER'S MULTUM IN PARVO PEAS.—The Best Dwarf Variety grown. 5s. per quart.
CARPENTER'S MONSTROUS WHITE COS LETTUCE,
CARPENTER'S MONSTROUS GREEN COS LETTUCE,
CARPENTER'S MONSTROUS BROWN COS LETTUCE,
are the three best LETTUCES in cultivation. 1s., 2s. 6d., and 5s. per packet.
CARPENTER'S PREMIER SWEDE.—Superior in size, shape, and quality to any other Swede grown. (Sow 3 lb. per acre.) 3s. per lb.
A remittance from unknown correspondents is requested.
CATALOGUES on application to Edward Carpenter, Seed Merchant and Grower, Brighton and Sussex Seed Warehouse, 96, St. James's Street, Brighton.

ROBERT PARKER begs to offer the following, all of which are well-grown, clean, and healthy plants —

	s.	d.
CLERODENDRON BALFOURII	5	0
CORDYLINE INDIVISA	10	6
FRANCISCEA CALYCINA	10	6
GOODYERA PUBESCENS	1	6
RHODODENDRON COUNTESS of HADDINGTON	10	6
" JAVANICUM	2	6
" NUTTALLII	2	6
TRITOMA GRANDIS	3	6
UVARIA GLAUCESCENS	1	6
VINE DUCHESS of BUCCLEUCH 21s. and	42	0
YUCCA ALBO SPICA	42	0
" TRICULEANA	42	0

PRICED and DESCRIPTIVE CATALOGUES of Greenhouse, Hardy, and Stove Plants, Seeds and Bulbs, are published, and will be forwarded to applicants.

Exotic Nursery, Tooting, Surrey, S.

The Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

A CHOICE and EXTENSIVE COLLECTION of STOVE and GREENHOUSE PLANTS always on view. Also FRUIT TREES, SHRUBS, and ORNAMENTAL TREES, from the Country Branches of the Firm.

The SEED and GENERAL NURSERY BUSINESS is carried on here, and Packages are delivered free at the various London Railway Stations.

BRANCHES.

EALING NURSERY, G. Carson, Manager.
Ten minutes' walk from the Ealing Station on the Great Western Railway Main Line.

FRUIT TREES, ROSES, and SHRUBS, are here extensively and successfully cultivated in some of the finest Loam in the County.

FELTHAM NURSERY, R. Hogan, Manager.
Ten minutes' walk from Feltham Station.

EVERGREEN and DECIDUOUS SHRUBS, and CONIFERÆ, are here largely grown in a free Loam, well suited to their habits.

At SION LANE and WOOD LANE NURSERIES, ISLEWORTH ORNAMENTAL TREES are in a healthy and thriving state, and GENERAL HARDY PROPAGATION is here carried on.

The Stock in the above Nurseries is well worth the inspection of purchasers. The prices are very moderate, and the Plants are frequently transplanted to ENSURE SAFE removal.

The following CATALOGUES are published, and will be forwarded Post Free on application —

CATALOGUE of KITCHEN GARDEN, FLOWER, and AGRICULTURAL SEEDS.
CATALOGUE of STOVE and GREENHOUSE PLANTS.
CATALOGUE of SOFT-WOODED and BEDDING PLANTS.
CATALOGUE of FRUIT TREES and FRUIT TREES in POTS.
CATALOGUE of HARDY SHRUBS and TREES
CATALOGUE of DUTCH BULBS, published in August.
CATALOGUE of ROSES.

John & Charles Lee, Proprietors, Hammersmith, London, W.

Cheap Bedding Plants.

PETER DRUMMOND AND CO. have a Surplus Stock of the undermentioned BEDDING PLANTS, which they offer at the very low prices named. The Plants are extra fine and well-established in single pots

	Per doz.—s.	d.		Per doz.—s.	d.
Ageratums	1	6	Heliotropes	2	0
Convolvulus Mauritanicus	2	0	Heliotropes in store pots	1	0
Dahlias of sorts	2	0	Lantanas	2	0
Fuchsias of sorts	2	0	Pentstemons	2	0
Gazanias	2	0	Tritomas	2	0
Geraniums, Variegated, in 24 sorts	2	0	Verbenas in 100 varieties per 100,	15	0
Arctotis ropens	2	0	Sedum carneum variegatum	1	0
Antennaria margaritacea	1	3	Stachys lanata	1	0
Centaurea candidissima	1	0	Agathæa cœlestis variegata	2	0
Cerastiums, sorts	1	3	Arabis alba variegata	1	3
Cineraria maritima	2	0	Veronica Andersonii variegata	2	0
Diotis maritima	2	0	Vinca major variegata	2	0
Santolina incana	2	0			

A Choice Selection of many other varieties at equally low prices.

Peter Drummond & Co., Preston Road Nursery, Yeovil, Somerset.

REIGATE SILVER SAND.—Best Kent and Surrey PEATS, LOAMS, SPHAGNUM, ROCK SANDSTONE, London-made FLOWER POTS, &c. Moderate Prices.

N.B. Loaded Trucks can be sent direct on all the Railways.

W. Snow, Sand and Peat Depôt, Reigate, Surrey.

REIGATE SILVER SAND, 12s. per ton, at Swan Place; delivered 5 miles, or to any London Railway, 16s. per ton, or 1s. 6d. per bushel (sacks at cost price, or on hire).

KENTISH and other PEATS, YELLOW LOAM, LEAF-MOULD, SPHAGNUM MOSS, and COCOA FIBRE REFUSE.

J. Kennard, Swan Place, Old Kent Road, London, S.E.

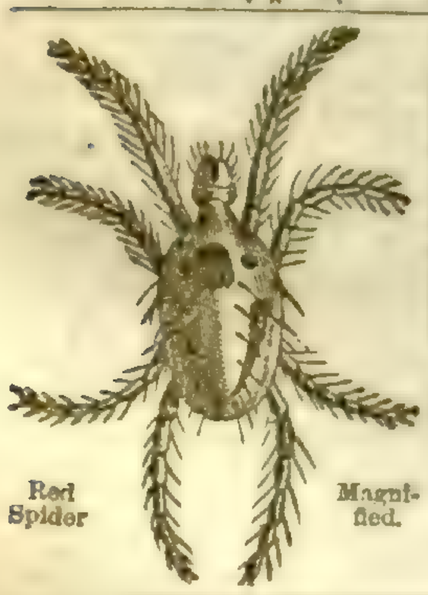
COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 2s. per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the Patent Cocoa Fibre Company, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. Barsham & Co.

Barsham's BRUSHES and MATS are sold in every town.

Caution.—Every Brush is stamped, J. Barsham's Patent.



Red Spider — Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes, 1s. 3s., and 10s. 6d. each.

Wholesale by
PRICE'S PATENT
CANDLE COMPANY
(Limited).

TOOGOOD'S (late Page & Toogood's) IMPROVED BLIGHT COMPOSITION introduced in 1850, has been manufactured under W. Toogood's sole directions since that period. He has made great improvements in it, and by reducing the price 33 per cent., it is one of the cheapest and has always been the most effective as remedy extant. To publish the Testimonials in newspaper would give space, but Messrs. Cutbush & Son, the eminent Nurserymen, say:—"It is the best thing for the purpose we can find, and does not appear to injure the young foliage like Gishurst does. This is our experience after 10 years' trial."

"February 24, 1864."

Mr. E. Sage, *Gardener to* Lord Howe, *says*:—

"Will you please send us 15 gallons of your Blight Composition. I see you have reduced the price, and trust that you may some day be able to make another reduction, and I feel assured that no 'Gishurst,' will be used by practical men."

"We hereby Certify that during the whole time we were Warehousemen in the Establishment of B. Page & Co., and subsequently Page & Toogood, that we Manufactured the Blight Composition under Mr. Toogood's *sole directions, and that he alone knew the proportions of the various ingredients.*

Signed John Morley,
Henry Drew,
Henry Sherman,
George Isaacs."

"July 13, 1863."

Extra strong, 3s. per gallon (sufficient to make 4 gallons fit for use), 10 gallons and upwards carriage free to London.

May be obtained of the principal Nurserymen and Seedsmen in the Trade, and of W. Toogood, Royal South Hants Seed Establishment, Southampton.

Caution to Gardeners.—When you ask for

SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark Saynor, also the corporate mark Obtain Warranted, without which none are genuine.

S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by sellers and makers.

S. & C.'s Pruning and Budding Knives are the best and the cheapest in the market.

Paxton Works, Sheffield. Established upwards of 125 years.

TERRA COTTA GALLERIES, No. 1, South Wharf, Praed Street, Paddington, W., are NOW OPEN with a fresh stock of VASES, FOUNTAINS, TAZZAS, FLOWER POTS, GARDEN EDGINGS, and other Architectural goods.

THE PATENT CONCRETE STONE COMPANY (Limited), are now the Proprietors of the Patents for the Manufacture of the beautiful material known as RANSOME'S PATENT CONCRETE STONE, which for durability, cheapness, and beauty of appearance, stands unrivalled. It is especially applicable for Fountains, Vases, Jardinets, Balustrades for Terraces, Gate Piers, Edgings for Borders, and all other Ornamental Requisites for Parks, Gardens, Conservatories, &c.

Illustrations and Prices furnished upon application at the Offices of the Patent Concrete Stone Company, 2, Queen Street Place, Southwark Bridge, E.C.

AUSTIN, SEELEY, AND CO.'S
Stock now comprises—

206 different kinds of VASES.
94 STATUES and FIGURES of CHILDREN.
70 FIGURES of ANIMALS and BIRDS.
About 200 FOUNTAINS, at prices from £10 to £400.
15 BASKETS from 1 to 10 feet diameter.
17 FLOWER BOXES for WINDOWS, &c.
6 GARDEN SEATS.
22 SUN-DIAL PEDESTALS.
22 ORNAMENTS for GATE PIERS.
And a great variety of BALUSTRADING and PEDESTALS.

369 to 375, Euston Road, Regent's Park, N.W.

GARDEN BORDER EDGING TILES, in great variety of patterns and material, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.

F. & G. Rosher, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.

Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also TESSELATED PAVEMENTS of more enriched designs than the above.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cements, &c.

To be obtained of F. & G. Rosher, at their Premises as above.

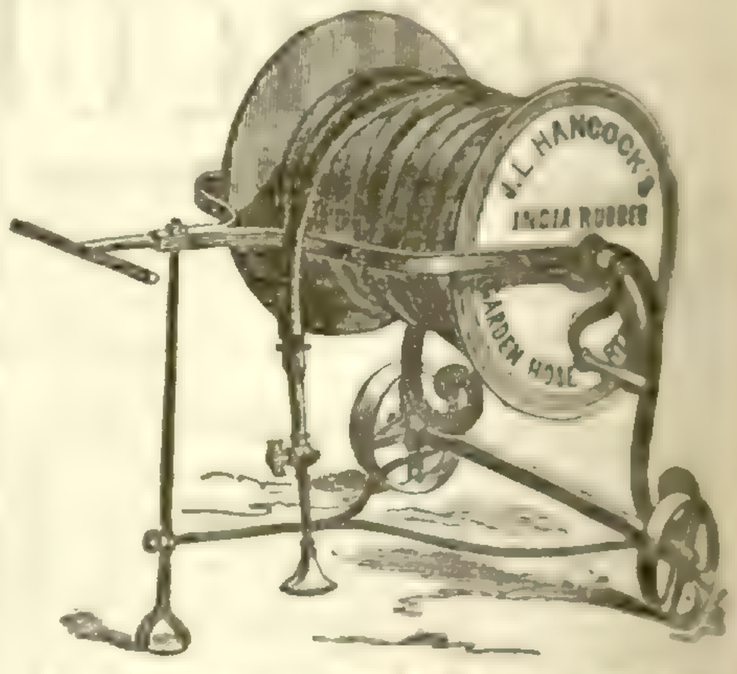
SILVER SAND (REIGATE, best quality), at the above addresses—14s. per Ton, or 1s. 3d. per Bushel; 2s. per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less.

FLINTS, BRICK BURRS or CLINKERS, for Rockeries and Grotto Work.

F. & G. Rosher.—Addresses see above.
N.B. Orders promptly executed by Railway.

GARDEN HOSE, GARDEN HOSE, GARDEN HOSE with Brass Fittings complete.—The London India-Rubber Company, Limited, Manufacturers of MECHANICAL GOODS, 9, Ironmonger Lane, London, E.C.

HANCOCK'S INDIA-RUBBER HOSE for WATERING GARDENS, LAWNS, &c. &c., made in Orders lengths of any size.



HOSE REELS, of Light Iron, for Winding-up Garden Hose when not in use.

BRASS FITTINGS, STOP-COCKS, SPREADERS, HOSE BRANCHES, JETS, &c. Illustrated Price Lists free.

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ENTERED AT STATIONERS HALL

WALTER CARSON AND SONS, of Winchester Street, respectfully notify that they have removed their principal office to their Warehouse in LA BELLE SAUVAGE YARD, Ludgate Hill, E.C. (three doors East of Railway Viaduct), and have discontinued their West-end Office, 31, St. James's Street.

CARSONS' ANTI-CORROSION PAINT specially manufactured for out-door work, is the best as cheapest. All colours. Is simple in application, so that any person can use it.

Is twice as durable as genuine white lead. See Testimonials with patterns and prices post free.

Three cwt. carriage free to any station in England and Wales or most Seaports of the United Kingdom.

CARSONS' ANTI-CORROSION PAINT used by nearly all the eminent Horticulturists, the Nobility and Gentry, for their Gardens.

CARSONS' PAINT for CONSERVATORIES

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CARSONS' PAINT for PARK FENCING

CARSONS' PAINT for FARM BUILDINGS

CARSONS' PAINT for IRON HURDLING

CARSONS' ANTI-CORROSION PAINT will keep for years in a dry place. All orders to be sent direct to Walter Carson & Sons, La Belle Sauvage Yard, Ludgate Hill, E.C.

Three doors East of Railway Viaduct.

Oil Paint no longer Necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used on the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most satisfactory testimonials have been received, which Hill & Smith will forward on application.

From the Right Hon. the Earl of Shannon, *Castle Mary near Cork.*

"Gentlemen,—I have used your Black Varnish for several years and consider it very superior, both for iron and wood work exposed to the weather, to anything I have ever used. I shall always continue to use it. Near the sea it is particularly valuable, as it stands uninjured when paint becomes corroded. I consider the iron Barrow admirable to its use."

Sold in casks of about 30 gallons each, at 1s. 6d. per gallon, at the Manufactory, or 1s. 8d. per gallon paid to any Station in the Kingdom.

Apply to Hill & Smith, Brierly Hill Iron Works, near Dudley, or 22, Cannon Street West, E.C., from whom only it can be obtained.

FINE GREENHOUSE ORCHIDS.

NO FIRE HEAT REQUIRED, EXCEPT TO KEEP OUT FROST.

Good healthy Plants of the Six following beautiful species for Three Guineas.

SOPHRONITIS GRANDIFLORA	BARKERIA SKINNERI	ODONTOGLOSSUM GRANDE
LÆLIA SUPERBIENS	LYCASTE SKINNERI	EPIDENDRUM VITELLINUM.

A DESCRIPTIVE CATALOGUE may be had for four postage stamps.

JAMES BACKHOUSE AND SON, YORK NURSERIES.

SWING WATER [illegible]

F. [illegible] ARCHERS "FRIGI DOMO" — [illegible]

PROTECTION from the OVERPOWERING RAYS of the SUN [illegible]

"[illegible]"

EARTH CLOSETS AND COMMODES.

(Moule's Patent.)

MANUFACTURED SOLELY BY

WHITE & CO.,

29, BEDFORD STREET, STRAND, LONDON, W.C.

THE PECULIAR ADVANTAGES OF THESE CLOSETS AND COMMODES OVER THE ORDINARY WATER CLOSET ARE —

First.—That the deodorizing material (dry surface earth, [illegible] or other [illegible]) is the best for the purpose, and at the same time is the cheapest and within the reach of all classes.

Secondly.—The supply of such material to any house or premises may be much easier than the supply of water by a [illegible] pump, and its removal after being used may be entirely without offence.

Thirdly.—The application by the means provided for [illegible] is immediate and effective; so immediate that no [illegible] and effective; so effective that all fermentation and all [illegible] are entirely prevented.

Fourthly.—The expense of these Closets, in comparison with that of Water-Closets, is, as to the first cost, [illegible]; there is no expensive cistern required, and there are no pipes to burst in frosty weather.

Lastly.—In all large Establishments, such as Hospitals, Union Houses, Schools, Gaols, and Asylums, a very considerable sum may be saved annually in the production of a valuable manure.

The efficiency of these Closets is so great as to be entirely credible to those persons who either have not tried them or seen their mode of action.

Price of Apparatus without woodwork, 25s. per set.

*** *The different forms of Closets may be seen at the address above; and Prospectuses will be forwarded on application.*

JOHN WARNER & SONS, LONDON. MANUFACTURERS.

J. WARNER AND SONS

Have much improved the construction of their

GARDEN ENGINES

in some important particulars for this Season.

They may be obtained of the Trade generally throughout the Kingdom at the following prices:—

No. 667. WARNER'S NEW ENGINES, in Wood Tubs, and fitted with WARNER'S Registered Spreaders.

21 Gallons,	£6 10s.
14 "	5 10s.

No. 547A. WARNER'S strong ENGINES, in Galvanized Iron Tubs, well painted—

10 Gallons	£2	19	0
18 "	3	14	0
24 "	4	19	0
28 "	5	10	0

No. 579½. WARNER'S WATER BARROWS, [illegible] Galvanized and well painted—

20 Gallons	£2	2	0
30 "	2	17	0
[illegible] "	3	17	0
[illegible] "	5	12	0

The 30-Gallon Barrow is made extra strong throughout, and fitted with [illegible] for two men.

No. [illegible]. AMERICAN ENGINE, is now well known and appreciated. It throws a continuous stream, and is complete in itself at 22s.

SYRINGES in great variety, from 7s. 6d. to [illegible].

The DISC SYRINGE, No. 557A, will recommend itself by the ease with which it is filled, and non-liability to get out of order. Price 9s.

WARNER'S

AQUAJECT

is this season first introduced to the notice of horticulturists as possessing the following advantages:—It is simple in construction, portable, and easily worked. It throws a continuous stream, and is low in price.

The Aquaject, 30s.

The small AQUAJECT is the most perfect form of Syringe yet introduced. It throws a continuous stream, with very slight movement, and with a blight, &c., is readily washed from the under side of foliage. 18s.

No. 35. WARNER'S IRON PUMPS for Wells not exceeding 25 feet in depth.—2½-in., 28s. 6d.; 3-in., 41s.; 3½-in., 49s.; short barrel do., 21s.

No. 36. IRON FORCE PUMPS for raising water above floor level, or watering roads, gardens, &c. (Through bore 2½-in., 30s.; 3-in., 65s.; 3½-in., 77s.; 4-in., 83s.

No. 36½. FORCE PUMP on BARROW, recommended for the great facility and economy of transportation. [illegible]

No. 42. WARNER'S PORTABLE PUMPS on Barrow-Legs, are of a superior construction. [illegible] from 55s.; Rubber Suction, 2s. 6d. per ft.

No. 597A. BRANCH PIPES with Cocks and Brass—¼-in., 3s. 6d.; ⅜-in., 5s.; ½-in., 6s.

No. 599. TAPER BRANCH PIPES—½-in., 4s. 9d.; ⅝-in., 5s. 9d.; ¾-in., 6s.; 1-in., 7s.

RUBBER HOSE in all sizes.

FOUNTAIN JETS in great variety, from 8s. to 25s.

DESCRIPTIVE PRICE LISTS forwarded on application.

New Hardy and Rare Climbers.

CLEMATIS JACKMANNI, large deep bright violet.
CLEMATIS RUBRO-VIOLACEA, maroon shaded reddish violet.
Awarded Two First-class Certificates by Royal Horticultural Society.

MESSRS. GEORGE JACKMAN AND SON, Woking Nursery, Surrey, can with confidence recommend to the public, their beautiful rich-coloured, free-flowering and vigorous-growing CLEMATISES, that now occupy a very high position in climbing plants. On application a circular will be forwarded free, giving extracts of their "sterling merits" from the following leading Horticultural Papers:—*Proceedings of Royal Horticultural Society, The Gardeners' Chronicle, Journal of Horticulture, Floral Magazine,* and *Florist and Pomologist.*

Plants of the following varieties will at once be sent out at the under-mentioned prices:—

CLEMATIS JACKMANNI, a few strong plants of 1864, 14*s.* each.
" " fine plants of 1865, 7*s.* 6*d.* each, 84*s.* doz.
" RUBRO-VIOLACEA, a few strong plants of 1864, 14*s.* ea.
" " fine plants of 1865, 7*s.* 6*d.* each, 84*s.* doz.
" FORTUNEI (Japan), large double white, 7*s.* 6*d.* each.
" STANDISHI (Japan), beautiful violet blue, 5*s.* each.
" HYBRIDA SPLENDIDA, a fine deep violet, 5*s.* each.
" LANUGINOSA CANDIDA, large handsome white, 7*s* 6*d.* each.
" LANUGINOSA NIVEA, fine pure white, 7*s.* 6*d.* each.
Besides other good old kinds.

A Circular with a special offer to the Trade will be sent free on application.

Specimen Tree Ferns, Palms, &c.

JAS. GARAWAY AND CO., Durdham Down Nurseries, Bristol, offer as under:—

Two DICKSONIA ANTARCTICA, a splendid pair, 5 feet full from pot to crown, 3 feet circumference at base, 2 feet 2 inches at 2 feet 6 inches high; crown 6 feet 6 inches across.
Two ALSOPHILA AUSTRALIS, a splendid pair, 5 feet from pot to crown; crown full 7 feet across.
One CIBOTIUM PRINCEPS (the handsomest Fern in cultivation), with eight fronds, last 6 feet long.
One CYATHEA MEDULLARIS, with seven fronds, last 8 feet 3 inches long.
One LATANIA BORBONICA (Fan Palm), with 16 leaves, 6 feet high, 7 feet 6 inches across.
One PANDANUS UTILIS, 5 feet high, 6 feet across.
One CARYOTA URENS, with five leaves, last 5 feet 8 inches long.
One CISSUS PORPHYROPHYLLUS, a capital specimen of this beautiful variegated-leaved plant; on pyramid 3 feet by 1 foot 10.

The whole are in first-rate health, and are growing freely, are admirably adapted for conservatory use or for exhibition, and will be sold separately or in one lot.

The Tree Ferns are particularly fine plants, and J. G. & Co. do not think that purchasers will find equally fine and as well established specimens in any other Nursery.

Prices on application. Mounted Photographs of the first six, price 10*s.* 6*d.* the set, free by post on receipt of stamps.

JAS. GARAWAY & Co., Durdham Down Nurseries, Bristol.

NEW HARDY LATE-FLOWERING RHODODENDRONS.

PRINCE of WALES.—Bright rose shaded with purple, divided black marking on the upper petals, free grower, profuse bloomer, hardy, and the latest Hybrid Rhododendron grown. One-year grafted plants, 10*s.* 6*d* Two-year ditto, strong, 21*s.* Larger plants, 31*s.* 6*d.* to 42*s.* each.

PRINCESS of WALES.—Deep magenta edge, pure white centre, primrose flake on the upper petals, slightly spotted with brown, totally distinct from any variety at present known, and when in bloom may be readily distinguished from all others; it is a beautiful and first-class Rhododendron. One-year grafted plants, 10*s.* 6*d.* Two-year ditto, strong, 21*s.* Larger plants, 31*s.* 6*d.* to 42*s.* each.

The usual Discount to the Trade.

The above beautiful Rhododendrons were first introduced to the public last year by M. Y., and he has again much pleasure in calling attention to them; they are both most distinct varieties, the colour and marking of the Princess of Wales being quite a fresh type, and unlike any other Rhododendron. They have both been proved in the open ground for several years, capable of withstanding our most severe winters, and being very late bloomers escape the spring frosts, frequently so fatal to the earlier blooming kinds. They are confidently recommended as most desirable additions to this favourite class of plants.

Coloured Plates, by ANDREWS, will be forwarded on application for 13 stamps each, or the two for 25 stamps.

MAURICE YOUNG, Milford Nurseries, near Godalming, Surrey.

ROYAL BOTANIC SOCIETY,

REGENT'S PARK.

THE SECOND GENERAL EXHIBITION of PLANTS, FLOWERS, and FRUIT,

WEDNESDAY, JUNE 14.

LIST OF AWARDS.

EXTRA GOLD MEDAL.

To Mr. F. Whitbread, Gr. to H. Collyer, Esq., Dartford, Kent, for 16 Stove and Greenhouse Plants
To Mr R. Bullen, Gr. to A. Turner, Esq., Bowbridge House, Leicester, for 20 Exotic Orchids

LARGE GOLD MEDAL.

To Mr. B. Peed, Gr. to Mrs. Tredwell, St. John's Lodge, Norwood, for 16 Stove and Greenhouse Plants
To Mr. G. Baker, Gr. to A. Bassett, Esq., Stamford Hill, for 20 Exotic Orchids

MEDIUM GOLD MEDAL.

To Mr. C. Turner, Nurseryman, Slough, Bucks, for 10 Roses in pots
To Mr. W. Kaile, Gr. to Earl of Lovelace, East Horsley Towers, Ripley, Surrey, for 16 Stove and Greenhouse Plants
To Mr. J. Fraser, Nurseryman, Leyton, Essex, for 10 Stove and Greenhouse Plants
To Mr. H. Chilman, Gr. to Mrs. Smith, Ashtead House, Epsom, for 10 Stove and Greenhouse Plants
To Mr. T. Page, Gr. to W. Leaf, Esq., Park Hill, Streatham, for 20 Exotic Orchids
To Mr. C. Penny, Gr. to H. H. Gibbs, Esq., St. Dunstan's, Regent's Park, for 12 Exotic Orchids

GOLD MEDAL.

To Mr. O. Rhodes, Nurseryman, Sydenham Park, Kent, for 10 Stove and Greenhouse Plants
To Mr. A. Ingram, Gr. to J J. Blandy, Esq., High Grove, Reading, for 10 Stove and Greenhouse Plants
To Mr. O. Rhodes, for 10 Cape Heaths
To Mr. B. Peed, Gr., for 8 Cape Heaths
To Mr. B. Peed, Gr., for 20 Exotic Orchids
To Mr. W. Wilson, Gr. to W. Marshall, Esq., Clay Hill, Enfield, for 12 Exotic Orchids
To Mr C. Turner, for 12 Pelargoniums
Mr. T. Bailey, Gr. to T. T. Drake, Esq., Shardeloes, Amersham, Bucks, for 10 Pelargoniums
To Messrs. H. Lane & Son, Nurserymen, Great Berkhampstead, Herts, for 10 Roses in pots

LARGE SILVER GILT MEDAL.

To Mr. R. Baxendine, Nurseryman, Guildford, for 10 Stove and Greenhouse Plants
To Mr. T. Page, Gr., for 10 Stove and Greenhouse Plants
To Mr. C. Smith, Gr. to A. Anderson, Esq., Norwood, for 6 Stove and Greenhouse Plants
To Messrs. A. Henderson, Nurseryman, Edgware Road, for 10 Foliage Plants
To Messrs. T. Jackson & Son, Nurserymen, Kingston, for 10 Cape Heaths
To Mr. A. Ingram, Gr., for 8 Cape Heaths
To Mr. G. Wheeler, Gr. to Sir F. H. Goldsmid, Regent's Park, for 6 Greenhouse Azaleas
To Mr. J. Veitch, Nurseryman, Chelsea, for 6 Greenhouse Azaleas
To Mr. J. Veitch, for 6 Exotic Orchids
To Mr. A. Ingram, Gr., for 12 Exotic Orchids
To Mr. J. Wiggins, Gr. to W. Beck, Esq., Isleworth, for 6 Exotic Orchids
To Mr. J. Fraser, for 12 Pelargoniums
To Mr. J. Wiggins, Gr., for 10 Pelargoniums
To Mr. T. Bailey, Gr. for 6 Fancy Pelargoniums

LARGE SILVER MEDAL.

To Mr. D. Donald, Gr. to J. G. Barclay, Esq., Knotts Green, Leyton, for 6 Stove and Greenhouse Plants
To Mr. H. Chilman, Gr., for 6 Cape Heaths
To Mr. C. Turner, for 6 Fancy Pelargoniums

SILVER GILT MEDAL.

To Mr. G. Wheeler, Gr., for 10 Stove and Greenhouse Plants
To Mr. J. Wheeler, Gr. to J. Philpott, Esq., Stamford Hill, for 6 Stove and Greenhouse Plants
To Mr. W. Young, Gr. to R. Barclay, Esq., West Hill, Highgate, for 10 Foliage Plants
To Mr. R. Baxendine, for 10 Cape Heaths
To Mr. T. Page, Gr, for 8 Cape Heaths
To Mr. C. Smith, Gr., for 6 Cape Heaths
To Mr. B. Peed, Gr., for 6 Greenhouse Azaleas
To Mr. J. Fraser, for 6 Greenhouse Azaleas
To Mr. B. S. Williams, Nurseryman, Holloway, for 6 Exotic Orchids
To Mr. H. Chilman, Gr., for 6 Exotic Orchids
To Mr. I. Hill, Gr. to R. Hanbury, Esq., The Poles, Ware, Herts, for 12 Exotic Ferns
To Messrs. A. Henderson, for 12 Exotic Ferns
To Mr. E. Gardiner, Gr. to J. Stutter, Esq., Oak Lodge, Clapham Park, for 6 Fuchsias
To Messrs. J. Dobson & Son, Nurserymen, Isleworth, for 12 Pelargoniums
To Mr. J. Fraser, for 6 Fancy Pelargoniums
To Mr. D. Donald, Gr., for 6 Fancy Pelargoniums
To Mr. C. Turner, for 25 Roses
To Mr. W. May, Gr. to C. M. Worthington, Esq., Caversham Priory, Reading, for 25 Roses
To Mr. B. Ruffett, Gr. to Lord Palmerston, Brockett Hall, Herts, for Providence Pine
To Mr. J. Barnes, Gr. to Lady Rolles, Bicton, Exeter, for Queen Pine
To Mr. T. Bailey, Gr., for a Pine
To Mr. A. Fowler, Gr. to Earl of Stair, Castle Kennedy, Stranraer, for Black Hamburgh Grapes
To Mr. M. Henderson, Gr. to Sir G. H. Beaumont, Coleorton Hall, for Black Hamburgh Grapes
To Mr. W. Hill, Gr. to R. Sneyd, Esq., Keele Hall, Staffordshire, for Black Prince Grapes
To Mr. W. Meads, Gr. to R. Currie, Esq., Farnborough, for Black Prince Grapes

SILVER GILT MEDAL.

To Mr. J. Pottle, Gr. to B. D. Colvin, Esq., Bealings, Woodbridge, Suffolk, for White Muscadine Grapes
To Mr. J. Allport, Gr. to A. Akroyd, Esq., Doddington Park, Cheshire, for Dish of Frontignans
To Mr. W. Meads, Gr., for Dish of Grapes
To Mr. J. Joyce, Gr., Brantridge Park, Balcombe, Sussex, for Dish of Peaches
To Mr. W. Lynn, Gr. to Lord Boston, Hedsor, for Dish of Nectarines

SILVER MEDAL.

To Mr. W. Kemp, Gr. to Earl Percy, Albury Park, Guildford, for 6 Stove and Greenhouse Plants
To Mr. W. Kaile, Gr., for 8 Cape Heaths
To Mr. J. Wheeler, Gr, for 6 Cape Heaths
To Mr. W. Kaile, Gr., for 6 Greenhouse Azaleas
To Messrs. J. & C. Lee, Nurserymen, Hammersmith, for 6 Exotic Orchids
To Mr. J. Robson, Gr. to G. Cooper, Esq., Old Kent Road, for 6 Exotic Orchids
To Mr. W. Young, Gr., for 12 Exotic Ferns
To Messrs. Paul & Son, Nurseryman, Cheshunt, Herts, for 25 Roses
To Mr. W. Ingle, Gr. to G. Round, Esq., Birch Hall, Colchester, for 25 Roses
To Mr. T. Bailey, Gr., for Providence Pine
To Mr. T. Godfrey, Gr. to S. Chuck, Esq., Ware, Herts, for Queen Pine
To Mr. J. Standish, Nurseryman, Ascot, for a Pine
To Mr. T. Terry, Gr. to G. A. Puller, Esq., Ware, Herts, for 6 Roses in Pots
To Mr. J. Meredith, Garston, for Black Hamburgh Grapes
To Mr. G. Osborne, Kaye's Nursery, Finchley, for Black Hamburgh Grapes
To Messrs. H. Lane, for Frontignan Grapes
To Mr. T. Horwood, Gr. to E. Graves, Esq., Avonside, Barford, Warwick, for Dish of Grapes
To Mr. J. Pottle, Gr. to B. D. Colvin, Woodbridge, for Dish of Grapes
To Mr. W. Allen, Gr. to J. Hopwood, Esq., for Dish of Peaches
To Mr. H. Holder, Gr. to W. Childs, Esq., for Dish of Nectarines
To Mr. J. Veitch, for Collection of Azaleas

SMALL SILVER MEDAL.

To Mr. G. Wheeler, Gr., for 6 Cape Heaths
To Mr. W. Sutton, Gr. to Lieut.-Col. Jeaks, for 12 Exotic Ferns
To Messrs. J. Ivery, for 12 British Ferns
To Mr. G. Wheeler, Gr., for 6 Fuchsias
To Mr. C. Turner, for 24 Pinks
To Messrs. Downie, Laird, & Laing, for 36 Pansies
To Mr. C. F. Kingston, Bath, for 12 Pinks
To Mr. J. Cholerton, Gr., for 24 Pansies
To Mr. C. Turner, for Lilium auratum
To Messrs. T. Jackson & Son, for 6 Exotic Orchids
To Mr. J. Wheeler, Gr., for 6 Exotic Orchids
To Mr. W. Young, Gr., for 6 Roses in Pots
To Mr. W. Paul, for 25 Roses
To Mr. J. Mitchell, for 25 Roses
To Mr. W. Excell, Gr. to J. Hollingworth, for 25 Roses
To Mr. C. Turner, for 24 Roses
To Messrs. A. Henderson, for 3 Hanging Baskets
To Mr. C. Allen, Gr., for Collection of Peaches
To Mr. W. Allen, Gr., for Collection of Nectarines
To Mr. J. Standish, for Collection of Peaches
To Mr. G. Masters, Gr. to Earl Macclesfield, Oxon, for Providence Pine
To Mr. J. Standish, for 1 Queen Pine
To Mr. J. Stevens, Gr. to F. E. Williams, Malvern Hill, for Queen Pine
To Mr. J. Enstone, Gr. to Sir J. Duckworth, Exeter, for Green-fleshed Melon
To Mr. T. Paton, Gr. to H. Lucy, Esq., Charlcote Park, for Scarlet-fleshed Melon
To Mr. D. Clement, Market Gardener, Barnet, for Black Hamburgh Grapes
To Mr. G. Osborne, for Black Hamburgh Grapes
To Mr. M. Henderson, Gr., for Black Prince Grapes
To Mr. J. Embery, Gr. to J. Drew, Esq., Hornsey, for White Muscadine Grapes
To Mr. W. Ingle, Gr., for Frontignan Grapes
To Messrs. H. Lane & Son, for Dish of Grapes
To Mr. G. Sage, Gr. to Earl Brownlow, Ashridge, for Dish of Peaches
To Mr. C. Turner, for Dish of Nectarines
To Mr. W. Hill, Gr., for Dish of Nectarines
To Mr. C. Turner, for Dish of White Cherries
To Mr. J. Enstone, Gr., for Dish of Black Cherries
To Mr. C. Turner, for 2 Dishes of Strawberries

BRONZE MEDAL.

To Mr. J. Holland, Gr. to R. W. Peake, Esq., Hounslow, for 12 British Ferns
To Mr. W. Young, Gr., for 3 Hanging Baskets
To Mr. F. Whitbread, Gr., for 6 Exotic Orchids
To Miss L. Crawshay, Caversham Park, Reading, for 25 Roses
To Mr. J. Wright, Gr. to Mrs. Ramsden, Twickenham, for 25 Roses
To Mr. S. Evans, Gr. to C. N. Newdegate, Esq., for 25 Roses
To Messrs Paul & Son, for 24 Roses
To Mr. H. Excell, Gr., for 24 Roses
To Mr. W. Bull, for Collection of Pandanuses
To Mr. H. Hooper, for 24 Pinks
To Mr. H. Hooper, for 36 Pansies
To Mr. D. Weymouth, Bristol, for 12 Pinks
To Mr. Porter, Gr. to Hon. J. Ashley, Epping, for 24 Pansies
To Mr. J. Pottle, Gr., for Green-fleshed Melon
To Mr. W. Kaile, Gr., for Scarlet-fleshed Melon
To Mr. J. Wallis, Gr. to J. Dixon, Esq., Cheshire, for Black Hamburgh Grapes

BRONZE MEDAL.

To Mr. W. Allen, Gr., for Black Hamburgh Grapes
To Mr. G. Masters, Gr., for Dish of Peaches
To Mr. H. Holder, Gr., for Dish of Peaches
To Mr. C. Turner, for Dish of Peaches
To Mr. W. Allen, Gr., for Dish of Nectarines
To Mr. R. Ruffett, Gr., for Dish of Black Cherries
To Mr. T. Dawson, Gr., for Dish of White Cherries
To Mr. J. Widdowson, Gr., for 2 Dishes of Strawberries

CERTIFICATES.

To Mr. C. F. Kingston, for 24 Pansies
To Mr. T. Bailey, Gr., for Green-Fleshed Melon
To Mr. W. Allen, Gr., for Green-fleshed Melon
To Mr. T. Dawson, Gr., for Dish of Nectarines
To Mr. S. Evans, Gr., for Dish of Nectarines
To Mr. W. Allen, Gr., for Dish of Nectarines
To Mr. J. Miller, Gr., for Dish of Nectarines
To Mr. T. Dawson, Gr. to Earl Cowper, for Dish of Black Cherries
To Mr. T. Bailey, Gr., for Dish of Black Cherries
To Mr. R. Marcham, Gr., for Dish of White Cherries
To Mr. C. Turner, for Dish of White Cherries
To Mr. J. Pottle, Gr., for 2 Dishes of Strawberries
To Mr. R. Ruffett, Gr., for 2 Dishes of Figs
To Mr. W. Allen, Gr., for 2 Dishes of Figs

FIRST-CLASS CERTIFICATES.

To Mr. W. Bull, Nurseryman, Chelsea, for Rohdea japonica argenteo
To Mr. W. Bull, for Rohdea japonica argenteo-striata
To Mr. W. Bull, for Rohdea japonica aureo-striata
To Mr. W. Bull, for Acorus japonicus fol. striatis
To Mr. W. Bull, for Alsophila contaminans
To Mr. W. Bull, for Aucuba japonica fœm. latifolia
To Mr. W. Bull, for Aucuba japonica mas. viridis
To Mr. W. Bull, for Aucuba japonica picta
To Mr. W. Bull, for Aucuba japonica lancifolia variegata
To Mr. W. Bull, for Aucuba japonica mas elegans
To Mr. W. Bull, for Chrysanthemum Sensation
To Mr. W. Bull, for Polystichum angulare grandiceps
To Mr. W. Bull, for Acer pseudo-platanus Leopoldi
To Mr. W. Bull, for Smilax macrophylla maculata
To Mr. B. S. Williams, Holloway, for Smilax macrophylla maculata
To Mr. B. S. Williams, for Phœnicophorium seychellarum
To Mr. B. S. Williams, for Phalænopsis Lüddemanniana
To Messrs. Ivery, Dorking, for Polystichum angulare decurrens
To Messrs. Ivery, for Polystichum angulare rotundatum
To Mr. B. S. Williams, Holloway, for Gleichenia species
To Mr. B. S. Williams, for Anæctochilus Turneri
To Mr. James Veitch, Chelsea, for Begonia species
To Mr. J. Veitch, for Bertolonia guttata
To Mr. J. Veitch, for Philodendron species
To Mr. J. Veitch, for Urceolina aurea
To Mr. J. Veitch, for Perrania palmata
To Mr. J. Veitch, for Gymnogramma flexuosa
To Mr. J. Veitch, for Maranta species
To Mr. J. Veitch, for Goodyera Veitchii
To Mr. J. Veitch, for Anæctochilus Dominii
To Mr. J. Veitch, for Gymnostachyum species
To Messrs. Downie, Laird, & Laing, for Pelargonium Wiltshire Lass
To Mr. W. Paul, Waltham Cross, for Pelargonium Mrs. W. Paul
To Mr. W. Paul, for Pelargonium Amy Hogg
To Mr. W. Paul, for Pelargonium Waltham Seedling
To Mr. W. Paul, for Pelargonium Duchess
To Mr. W. Paul, for Pelargonium Scarlet Gem
To Mr. W. Paul, for Pelargonium Beaton's Indian Yellow
To Mr. W. Paul, for Pelargonium Pillar of Beauty
To Mr. W. Paul, for Pelargonium Orange Nosegay
To Mr. D. Windsor, Gr. to J. R. Rosenshill, Esq., Walthamstow, for Pelargonium Great Eastern
To Mr. D. Windsor, Gr., for Pelargonium Gladiateur
To Mr. D. Windsor, Gr., for Pelargonium Sir Robert Peel
To Mr. D. Windsor, Gr., for Pelargonium Pink of Perfection
To Mr. D. Windsor, Gr., for Pelargonium Exhibitor
To Mr. W. Bull, for Pelargonium Charmer
To Mr. W. Bull, for Pelargonium Sparkle
To Mr. Nye, Gr. to E. B. Forster, Windsor, for Pelargonium Alabama
To Mr. Nye, Gr., for Pelargonium Gladiateur
To Mr. Nye, Gr., for Pelargonium Atalanta
To Mr. Nye, Gr., for Pelargonium Nero
To Mr. G. Clarke, Streatham Place, for Seedling Petunia Illuminator
To Mr. C. Turner, Slough, for Pink Princess of Wales
To Mr. C. Turner, Slough, for Pink Charles Waterton
To Messrs. E. G. Henderson, for Geranium peltatum elegans
To Messrs. Carter & Co., Holborn, for Tropæolum Tom Thumb flore-pleno

SECOND-CLASS CERTIFICATES.

To Mr. W. Bull, Nurseryman, Chelsea, for Polystichum ordinatum
To Mr. W. Bull, for Costus zebrinus
To Mr. W. Bull, for Pandanus latissimus
To Mr. B. S. Williams, Holloway, for Ficus leuconeura
To Mr. B. S. Williams, for Colocasia longiloba
To Messrs. Ivery & Son, Dorking, for Scolopendrium vulgare flabellatum
To Messrs. Ivery & Son, for Athyrium F.-f. incompletum
To Mr. James Veitch, Chelsea, for Dieffenbachia species
To Messrs. E. G. Henderson, Wellington Road, for Hydrangea japonica rosea
To Messrs. E. G. Henderson, for Cheiranthus Marshalli variegatus
To Messrs. E. G. Henderson, for Richardia hastata
To Mr. Holland, Gr. to W. Peake, Esq, Isleworth, for Pelargonium Rosalie

COMMENDATION.

To Mr. W. Bull, for Pteris cretica serrulata variegata

ROYAL HORTICULTURAL SOCIETY.

GREAT EXHIBITION of PLANTS, FLOWERS, and FRUIT, SATURDAY, JUNE 10.

AWARDS OF THE JUDGES.

Class 1.—12 STOVE and GREENHOUSE PLANTS, in Flower. (Amateurs.)

Class 2.—12 STOVE and GREENHOUSE PLANTS, in Flower. (Nurserymen.)
1st Prize, Mr. J. Fraser, Lea Bridge Road Nurseries, Leyton, £10.
2d, Mr. R. Baxendine, Guildford, Surrey, £7.

Class 3.—6 STOVE and GREENHOUSE PLANTS, in Flower. (Amateurs.)
1st, Mr. W. Kemp, Gr. to Earl Percy, Albury Park, Guildford, £6.

Class 4.—6 STOVE and GREENHOUSE PLANTS, in Flower. (Nurserymen.)
1st, Messrs. J. & C. Lee, Vineyard Nursery, Hammersmith, £5.

Class 5.—12 ORCHIDS, Miscellaneous, distinct kinds. (Open.)

Class 6.—9 ORCHIDS, Miscellaneous, distinct kinds. (Amateurs.)
1st, Withheld
2d, Mr. J. Robson, Gr. to G. Cooper, Esq., Old Kent Road, £7.

Class 7.—9 ORCHIDS, Miscellaneous, distinct kinds. (Nurserymen).
1st, Messrs. J. & C. Lee, £7.
2d, Mr. R. Parker, Exotic Nursery, Tooting, £6.

Class 8.—6 ORCHIDS, Miscellaneous, distinct kinds. (Open.)
1st, Withheld; 2d, Withheld
3d, Mr. J. Robson, £2.

Class 9.—ORCHIDS, single pecimen. (Open.)

Class 10.—9 AZALEAS, distinct kinds. (Amateurs.)

Class 11.—9 AZALEAS, distinct kinds. (Nurserymen.)

Class 12.—6 AZALEAS, distinct kinds. (Open.)
1st, Mr. J. Fraser, £6.
2d, Messrs. J. & C. Lee, £4.

Class 13.—3 AZALEAS, new kinds sent out in 1863 and 1864. (Open.)

Class 14.—AZALEA, single specimen. (Open.)

Class 15.—RHODODENDRONS, distinct kinds, in pots. (Open.)

Class 16.—12 ROSES in POTS, distinct kinds. (Nurserymen.)
1st, Mr. E. P. Francis, Hertford, £10.
2d, Mr. Wm. Paul, Waltham Cross, £7.

Class 17.—6 ROSES in POTS, distinct kinds. (Amateurs.)
1st, Mr. T. Terry, Gr. to G. A. Puller, Esq., Ware, Herts, £6.

Class 18.—6 ROSES in POTS, distinct Hybrid Perpetuals, in 9-inch pots. (Open.)
1st, Messrs. Paul & Son, Old Nurseries, Cheshunt, Herts, £4.
2d, Mr. E. P. Francis, £3.

Class 19.—6 ROSES in POTS, Tea-scented, in 9-inch pots. (Open.)

Class 20.—ROSES in POTS, single specimen, Hybrid Perpetual. (Open.)

Class 21.—ROSES in POTS, single specimen, Tea-scented. (Open.)

Class 22.—6 CAPE HEATHS, distinct kinds. (Open.)

Class 23.—3 CAPE HEATHS, distinct kinds. (Open.)
1st, Mr. W. Kemp, £2 10s.

Class 24.—CAPE HEATHS, single specimen. (Open.)
1st, Messrs. J. & C. Lee, £1 10s.

Class 25.—12 PELARGONIUMS, distinct kinds. (Nurserymen).
1st, Mr. J. Fraser, £8.

Class 26.—9 PELARGONIUMS, distinct kinds. (Amateurs.)
1st, Mr. J. Ward, Gr. to F. G. Wilkins, Esq., Leyton, N.E., £8.
2d, Withheld
3d, Mr. G. Marlow, Gr. to J. Wigan, Esq., Cromwell House, Mortlake, £4.

Class 27.—6 PELARGONIUMS, Fancies, distinct kinds. (Open.)
1st, Mr. J. Fraser, £5.
2d, Withheld
3d, Mr. G. Marlow, £3.

Class 28.—3 PELARGONIUMS, distinct kinds sent out in 1864. (Open.)

Class 29.—6 GERANIUMS, Cape species, distinct kinds. (Open.)

Class 30.—12 PANSIES, distinct kinds in pots. (Open.)
1st, Mr. H. Hooper, Vine Nurseries, Widcombe Hill, Bath, £2.

Class 31.—24 PANSIES, Cut Blooms. (Open.)
1st, Mr. D. Waymouth, Brislington, near Bristol, £1 5s.
2d, Mr. H. Hooper, 15s.

PRIZES OFFERED BY LADY DOROTHY NEVILL.

Class 32.—3 PITCHER PLANTS, Sarracenias. (Open.)

Class 33.—3 PITCHER PLANTS, not Sarracenias. (Open.)

Class 34.—NEW and RARE PLANTS, Tender Plants in Flower. (Open.)
First-class Certificate, Mr. Bull, Chelsea, for Peperomia arifolia
First-class Certificate, Mr. Veitch, Chelsea, for Pleroma sp.
First-class Certificate, Messrs. E. G. Henderson & Son, St. John's Wood, for Richardia albo-maculata
Second-class Certificate, Messrs. E. G. Henderson & Son, for Hydrangea japonica rosea

Class 35.—TENDER PLANTS not in FLOWER. (Open.)
First-class Certificate, Mr. Bull, Chelsea, for Bertolonia margaritacea, Pandanus glaucescens, Anthurium cordifolium, Sempervivum aizoides variegatum, Alsophila contaminans, Acorus japonicus fol. aureo-striatis, Rohdea japonica aureo-striata, R. japonica argentea, R. japonica argenteo-striata, Costus zebrinus
First-class Certificate, Mr. Veitch, Chelsea, for Anthurium cordifolium, Bertolonia pubescens, Maranta sp., Maranta Veitchii, Bertolonia guttata, Gymnostachyum sp., Philodendron sp., Begonia sp., Gymnogramma flexuosa, Adiantum colpodes
First-class Certificate, Messrs. E. G. Henderson & Son, Wellington Road, St. John's Wood, for Centaurea ragusina compacta, Cheiranthus Marshallii variegatus
Second-class Certificate, Mr. W. Bull, Chelsea, for Maranta Van den Heckei, Cupania undulata, Pelargonium lateripes (Silver Gem), Sphærogyne cinnamomea, Calonyction sanguineum, Ficus Porteana, Polystichum ordinatum, Pandanus Blancoi
Second-class Certificate, Mr. J. Veitch, Chelsea, for Dracæna nigra, Peperomia pubifolia, P. maculosa
Commendation, Mr. Veitch, Chelsea, for Peperomia acuminata

Class 36.—NEW ORCHIDS in Flower. (Open.)

Class 37.—HARDY ORNAMENTAL PLANTS. (Open.)
First-class Certificate, Mr. W. Thompson, Ipswich, for Pentstemon grandiflorus and Primula Parryi
First-class Certificate, Mr. W. Bull, Chelsea, for Aucuba japonica mascula maculata, A. japonica mascula varia, A. japonica mascula viridis, A. japonica mascula angustata, A. japonica mascula bicolor, A. japonica mascula elegans, A. japonica macrophylla, A. japonica fœmina latifolia, A. japonica fœmina longifolia, A. japonica fœmina longifolia variegata, A. japonica fœmina viridis, A. japonica picta, A. japonica lancifolia variegata, Athyrium Filix-fœmina Vernoniæ, Woodsia polystichoides Veitchii, Aubrietia purpurea variegata, Ligustrum ovalifolium variegatum, Podocarpus macrophyllus variegatus, Acer polymorphum fol. dissectis roseo-marginatis, A. Pseudo-Platanus Leopoldii, Polystichum angulare grandiceps
First-class Certificate, Mr. Salter, Hammersmith, for Sedum Telephium fol. var.
Second-class Certificate, Mr. Bull, Chelsea, for Viburnum Lantana variegatum
Second-class Certificate, Mr. Salter, Hammersmith, for Polygonum filiforme fol. var.

Class 38.—NEWLY-INTRODUCED PLANTS that have received Special Recognition from the Floral Committee during 1862, 1863, and 1864. (Open).
First-class Certificate, Mr. W. Bull, Chelsea, for Cibotium princeps
Second-class Certificate, Mr. W. Bull, for Gleichenia Speluncæ
Third-Class Certificate, Mr. W. Bull, Chelsea, for Dracæna stricta
Fourth-Class Certificate, Mr. W. Bull, Chelsea, for Dracæna Cooperi

Class 39.—SEEDLING FLORISTS' FLOWERS and GARDEN HYBRIDS. (Open.)
First-class Certificate, Mr. W. Bull, Chelsea, for Chrysanthemum Sensation
First-class Certificate, Mr. Veitch, Chelsea, for Goodyera Veitchii
First-class Certificate, Messrs. E. G. Henderson & Son, St. John's Wood, for Pelargonium peltatum elegans

Class 40.—6 CALCEOLARIAS.

Class 41.—6 ECONOMIC PLANTS used as FOOD.
1st, Withheld
2d, Mr. W. Bull, £1 10s.

Class 42.—6 ECONOMIC PLANTS used as MEDICINE or in MANUFACTURES.
1st, Withheld
2d, Mr. W. Bull, £1 10s.

Class 43.—MISCELLANEOUS. (Open.)
1st, Mr. W. Bull, for Collection of Palms, £2.
Equal 1st, Mr. W. Hurn, Gr. to C. G. Houghton, Esq., Leyton, for Collection of Cacti, £2.
2d, Mr. J. Salter, Hammersmith, for Collection of Variegated Plants, £1 10s.
3d, Mr. J. Salter, for Collection of Scarlet Pelargoniums, £1.
Extra, Messrs. J. & C. Lee, for Collection of Fine Foliage and Flowering Plants, £3
Extra, Messrs. Paul & Son, for Collection of Roses in Pots, £2.
Extra, Mr. W. Paul, for Collection of Cut Roses, £1 10.
Extra, Messrs. Paul & Son, for Collection of Cut Roses, £1.
Extra, Messrs. Barr & Sugden, for Drawing-room Plant Cases filled with Plants, £1.
Extra, Mr. G. Clarke, for Collection of Cut Roses, 15s.
Extra, Mr. H. Hooper, Bath, for Stand of 24 Cut Pinks, 10s.
Extra, Messrs. Paul & Son, for a Box of Herbaceous Pæonies, 10s.
Extra, Mr. W. Gandy, Gr. to the Hon. Miss Eden, Kensington Gore, for a Pan of Hymenophyllum tunbridgense, 10s.

FRUIT.

Class A.—PINE APPLES, any variety.
1st, Mr. R. Ruffett, Gr. to Viscount Palmerston, Welwyn, £3.
2d, Mr. J. Standish, Royal Nursery, Ascot, Berks, £2.

Class B.—GRAPES, White, any variety.
1st, Mr. G. Sage, Gr. to Earl Brownlow, Ashbridge, Great Berkhampstead, £3.
2d, Mr. J. Horwood, Gr. to G. H. Turnbull, Esq., Bromley, Kent, £2.
3d, Mr. M. Henderson, Gr. to Sir G. Beaumont, Bart., Ashby-de-la-Zouch, £1.

Class C.—GRAPES, Black, any variety.
1st, Mr. G. Osborne, Kaye's Nursery, Finchley, £3.
2d, Mr. M. Henderson, £2.
3d, Mr. W. Allen, Gr. to E. J. G. Hopwood, Esq., Hopwood Hall, near Manchester, £1.
Equal 3d, Mr. G. Sage, £1.

Class D.—PEACHES, Single Dish.
1st, Mr. I. Hill, Gardener to R. Hanbury, Esq., The Poles, Ware, Herts, £2.
2d, Mr. W. Allen, £1.
3d, Mr. S. Evans, Gr. to C. N. Newdegate, Esq., Nuneaton, 10s.

Class E.—NECTARINES.
1st, Mr. W. Allen, £2.
2d, Mr. C. Allen, Gr. to J. B. Glegg, Esq., Withington Hall, Chelford, £1.
3d, Mr. J. Horwood, 10s.

Class F.—FIGS, 12 Fruits.
1st, Mr. A. Fowler, Gr. to the Earl of Stair, Castle Kennedy, Stranraer, £1.

Class G.—CHERRIES, Single Dish, 50 Fruits.
1st, Mr. I. Hill, £1.
2d, Mr. R. Ruffett, 15s.
3d, Mr. R. Wilson, Nurseryman, Warwick, 10s.

Class H.—PLUMS, Single Dish.

Class I.—STRAWBERRIES, Single Dish
1st, Mr. I. Hill, £2.
2d, Mr. H. Beasley, Gr. to T. Wood, Esq., Twyford Abbey, Acton, £1 10s.
3d, Mr. J. Miller, Gr. to Lord Foley, Worksop Manor, Notts, £1.

Class J.—MELON, Green-fleshed.
1st, Mr. Isaac Hill, £1 10s.
2d, Mr. J. Wills, Gr. to Sir P. G. Egerton, Bart., Oulton Park, Tarporley, £1.
3d, Mr. J. Gordon, Gr. to J. W. Clayton, Esq., Hampton Wick, S.W., 10s.

Class K.—MELON, Scarlet.
1st, Mr. J. Wills, £1 10s.
2d, Mr. G. Gordon, £1.

Class L.—MISCELLANEOUS
1st, Mr. J. Standish, Royal Nursery, Ascot, for Six Cherries in pots, £2.
2d, Mr. J. Wills, for a Basket of Grapes, £1 10s.
3d, Mr. J. Horwood, for a Basket of Muscat Grapes, £1.
Equal 3d, Mr. W. Allen, Three Dishes Violette Hâtive Peaches, £1.
Equal 3d, Mr. M. Henderson, for Three Bunches of Grizzly Frontignan Grapes, £1.

INTERMEDIATE STOCK, COVENT GARDEN and VICTORIA VARIETIES.
Scarlet, Purple, White, or Mixed COVENT GARDEN INTERMEDIATE STOCK, each, 1s. per packet.
Scarlet, White, or Mixed VICTORIA INTERMEDIATE STOCK, very floriferous, and more robust than the Covent Garden varieties, each 2s 6d. per packet.
Barr & Sugden, 12, King Street, Covent Garden, W.C.

Mottled Globe or Grey Stone Turnip

SUTTON AND SONS have a very choice stock of this excellent NEW TURNIP. It grows to a very large size, and is strongly recommended. Price of seed, 1s. per lb., cheaper by the bushel, carriage free.
Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

LANGPORT FLORAL and HORTICULTURAL FETE.

Patronesses.	Patrons.
Lady Anna Gore Langton	Sir A. P. B. A. Hood, Bt., M.P.
Mrs. Combe	W. H. P. Gore Langton, Esq., M.P.
Mrs. Uttermare	Colonel Pinney, M.P.
Mrs. Coles	G. D. W. Digby, Esq.
Mrs. Scott Gould	R. Neville Grenville, Esq.
Mrs. Hyde	F. H. Dickinson, Esq.
Mrs. Henslowe	R. T. Combe, Esq.
Mrs. Quekett	Rev. E. P. Henslowe
Mrs. E. Bagehot	T. B. Uttermare, Esq.
Mrs. F. M. Eastment	John Wood, Esq.
Mrs. James Parsons	Edward Bagehot, Esq.
Mrs. Warren	F. M. Eastment, Esq.
Mrs. Watson Bagehot	James Parsons, Esq.
Mrs. Wm. J. Hill	Watson Bagehot, Esq.
Mrs. Larcombe	John Larcombe, Esq.

The NEXT GRAND FLORAL and HORTICULTURAL SHOW (Open to All England), will be held in the Grounds of HILL HOUSE, on THURSDAY, the 3d August next, when Two Silver Cups and various other Prizes will be offered for Competition.
By the kind permission of Edward Quekett, Esq., the Museum in the Hanging Chapel will be open to the holders of Tickets for the Fête.
A Military Band will be in attendance.
The Train arrangements will be announced in July.
Inventors or Manufacturers of Garden Implements, or Ornaments are invited to contribute specimens.
Schedules, Tickets, and other information may be obtained of the Secretary.
Vincent Stuckey, President.
Langport, June 17. Frederick Major, Secretary.

FLORAL DECORATION SHOW.—SPECIAL PRIZES, the Gift of one of the Fellows of the Royal Horticultural Society, will be awarded at the Society's Show on JUNE 24, 1865, for the most tastefully decorated Dinner Table.
First Prize, Gold Medal, or £10 10s.; Second Prize, Large Silver Medal, or £7 7s.; Third Prize, Small Silver Medal, or £3 3s.
Beautiful arrangement of the Fruit, Flowers, and China will be the test of merit in this Exhibition; valuable Fruit or Flowers or China are therefore not required.
It is not necessary that the Flowers or Fruit should be grown by the Exhibitor.
Ladies are invited to join in the competition.
Each Exhibition will be shown on a separate table.
Each table to be laid as if for a Dinner "*a la Russe*" of 10 persons. Table must not exceed 9 feet long; may be square, or oval at the ends, or be a round table.
Plain deal tables of the form wished will be provided by the Society for those who give a fortnight's notice to the Superintendent of the Horticultural Society.
Competitors may use such China, Glass, Metal, or other Ornaments as they please; may or may not combine Fruit and Flowers together; may use Sèvres, Chelsea, Worcester, Dresden, Staffordshire, or any other China for their plates; may use coloured or white glasses, or both; may use coloured or plain damask: may, in short, study their own tastes.
The Prizes will be awarded by a Jury of Ladies, assisted by Members of the Royal Academy.
Competitors will be allowed to arrange their tables in the Garden any time after 7 on the morning of the 24th of June, but must have everything complete by 11 o'clock, when the Jury assemble, and Exhibitors must withdraw whether their tables are ready or not. Exhibitions left unfinished will be regarded as disqualified. This rule cannot be relaxed.
No person will be admitted to see the display until the Jurors have finished their labours, which will probably be about 1 o'clock.
Exhibitors will be permitted to have the help of two assistants or servants to arrange their table.

The Gardeners' Chronicle.
SATURDAY, JUNE 17, 1865.

MEETINGS FOR THE ENSUING WEEK.

Saturday, June 24 { Royal Horticultural (Table Decorations and Bouquet Holders), at South Kensington .. .. 2 P.M.
Crystal Palace (Rose Show) .. .. Noon

A SHORT time ago we took an opportunity (p. 482) to draw the attention of our readers to the unhealthy progeny of exotic FIR TREES which had produced their seed in Britain. We return to this important matter to-day, in order to make some observations which seem to have a practical bearing upon the subject.

It appears to be one of Nature's laws that all plants which are destined to have a short period of existence hasten to produce their flowers and seeds in order to perpetuate their kind. Annuals or biennials which are to exist for a year or for two years only, take care to bloom and seed before they die. And, moreover, we may observe that, as a general rule, all trees which produce their seeds early, and while they are yet young, are not

likely to attain a large size, or to have a very prolonged existence. And yet, at the same time, these trees may be apparently in the most perfect health. This remark applies equally to individuals which belong to species naturally long lived, and which attain a large size.

Again, plants which become unhealthy, from whatever cause, may frequently be seen covered with seeds, thus hastening their own death in order to leave behind them representatives of themselves. Indeed the knowledge of this circumstance is often used by gardeners to restore the vigour of unhealthy specimens. They pluck off the blossoms and prevent the plants from exhausting themselves by the production of seeds, and in this way a plant is oftentimes restored to health in spite of itself.

We are accustomed to consider all the plants of a species to be exactly alike, but this is a very mistaken idea. If we suppose, for example, that seeds have been produced by any individual species, which has been even fertilized by its own pollen, yet each seedling will differ in some respects from every other, in the same way that every member of the human family differs from his neighbour. Who ever saw two men exactly alike? The difference consists not only in form but also in constitution. Some are tall, while others are dwarf, some are strong and healthy, while others are sickly or diseased. And as a general rule the peculiar qualities of each will descend to, and be inherited by, its offspring.

Such being the case in this "struggle for life" in the vegetable kingdom, it becomes a matter of the first importance to take care that the seeds of all our plants, and of forest trees in particular, are collected from healthy and vigorous specimens, and in localities where they arrive at the greatest state of perfection. Unfortunately seeds are much more readily and easily procured from plants such as we have alluded to above, than from the more valuable and long-lived individuals. Seed collectors at home and abroad are much more likely to get an abundant and ready supply from individuals that produce seeds while young, or in consequence of ill-health, or from other causes detrimental to the species, than they are from those which we are accustomed to call the true kind, namely, that which attains to the highest state of perfection as regards beauty of form, size, and the production of valuable timber.

It is to be feared that the main object with collectors of seeds is to procure a quantity of that which is good-looking and likely to germinate, without reference to the condition of the trees which have produced it. And yet the condition and constitution of the parent tree—whether it is of its full natural size and in perfect health, or whether it be what we would call an inferior or worthless variety, or a specimen in ill-health—is really of very great importance to those persons who may become the possessors of plants which have been raised from its seeds. We would, therefore, venture to impress upon all who collect Fir seeds, whether in the Highlands of Scotland, or in California and other parts of the world, that it is a matter of the first importance to *select* as well as collect their seeds from specimens which grow in the best localities, and which are healthy in constitution and fully grown.

Whatever may be the ultimate verdict of our experience as to the value of home-grown seeds of exotic Fir trees—whether we may find that owing to climate and other influences they are worthless in this country, or whether in certain localities they may be as valuable as those of foreign growth, as some information from practical men which has come to our knowledge would seem to indicate, we have one thing to look forward to with no little pleasure. In these days of steam transit to every part of the globe, we can have no difficulty in procuring abundant supplies of our favourite Pine seeds direct from the countries to which the trees are indigenous. California and other parts of North America, the Indian Himalayas, together with China and Japan, are all accessible to collectors, upon whom we would once more impress the importance of selecting their seeds from healthy and full-sized trees. *F.*

We have received from the Hon. D. Finch a drawing of a Double Apple Blossom, as completely double as any double Rose could be. The flower seems to have been larger than ordinary, and to have possessed a regular calyx, within which latter were very numerous petals, probably replacing the stamens. No trace of styles or fruit is to be seen. The flower was produced subsequently to the others on the tree. The same tree furnished another malformed flower, which Mr. Finch has been good enough to transmit for our examination. The flower stalk bears at its extremity a circlet of five perfect stalked leaves, smaller than the ordinary ones, and destitute of stipules; within these are two smaller leaves, immediately outside the calyx, whose segments are of the usual form and appearance. The petals also are normal in number and form; there are numerous stamens, and five styles, but no trace of ovary or fruit. The explanation of this second flower seems to be this. An attempt was made to form a leaf-bud in the first instance; the seven leaves outside the calyx are portions of this bud. Then comes the true calyx, and the other organs of the flower minus the fruit. The energy of the plant had been expended in the formation of the leaves outside the flower, and hence the swelling

of the top of the flower stalk, which under ordinary circumstances contributes so much to the formation of the succulent fruit of these plants, has not taken place.

Pomologically these aberrations are extremely undesirable; florally, hardly less so; botanically, they possess much interest. We may note by the way that double Apple blossoms are not mentioned in Dr. Seemann's list of Double Flowers published in the second volume of the *Journal of Botany*.

— A curious plant was lately sent us for determination, which we at once saw was some Podostemad, and the opportunity of a closer investigation seems to show, though the specimens are in a wretched state, that it is that form of Marathrium utile, *Tul.*, which is figured by Tulasne at Fig. 2 of the second plate of his admirable memoir. The species is found in New Grenada, where it is called Gramma de aqua, or Waterweed. In an early stage of growth it has large oblong coarsely lobed and toothed green fronds, which bear at the point of confluence with the rhizome bunches of flowers, the peduncles of which are dilated above and cup-shaped. It derives its specific name from the fact that oxen greedily devour the fronds, while a soothing drink said to be useful in fever and affections of the bowels is prepared from them.

Podostemads are amongst the most remarkable of dicotyledons from their having the habit of Liverworts and Scale Mosses (Jungermanniæ). They are aquatic plants, for the most part attached to rocks or trees in rapids, and sparingly, if at all, supplied with vascular tissue. Some of the species bear so close a resemblance to Cryptogams that one is figured by Willdenow as a Liverwort, under the name of Blandowia striata, while another is given under the same name in Sturm's "Deutschland's Flora," and a third, Dicræa Wallichii, is published as a Liverwort by Taylor in the Transactions of the Irish Academy. Tristicha alternifolia was also described as a Cryptogam by Willdenow.

There has been a good deal of speculation about the affinities of these curious plants. Dr. Lindley considers them as allied to the Elatinaceæ, but some good Botanists regard them as more probably reduced Lentibulariaceæ, an opinion which was unjustly ridiculed in a review by Asa Gray of "The Introduction to Cryptogamic Botany." Tulasne, in his admirable treatise, does not express any distinct opinion on the subject, though he inclines to Geraniaceæ. The species are almost entirely confined to the tropics, and only in a few cases are found in stagnant water, or where water has subsided, and never in lagoons.

Two-thirds of the species at present known are found in America, the others are scattered over Asia, especially the western parts, the Mascaren Islands, Madagascar, and South Africa. Of the extratropical species two occur in South Africa; and one, which has a wide distribution in the east of North America, from the 30th to the 40th degree of north latitude, is said to flourish even where the water is frozen.

Apinagia Preissii is said to have been found in the South of Europe, but this requires confirmation.

— The Apple Crop in Devonshire will, it is said, this year prove a failure, in consequence of the prevalence of what is called "blight." The trees in the orchards are described as presenting a very melancholy appearance, for instead of clusters of young Apples, scarcely anything can be seen but riddled leaves and grey mildew. This destruction of a useful and profitable crop will prove a great loss. The "blight" is caused by the caterpillars of a small winter moth, Cheimatobia brumata. The remedy suggested for getting rid of these agents of destruction is to burn rubbish under the Apple trees in early spring—a practice adopted with great success by Mr. Barnes, gardener to Lady Rolle at Bicton.

— We may remind those ladies who intend to compete for the Prizes for Indoor Plant-culture offered by the Proprietors of this Journal, and to be awarded at the Royal Horticultural Society's Special Show on the 24th of June, that Monday next, the 19th inst., is the last day for giving notice of their intention to the Garden Superintendent at South Kensington. The conditions will be seen in our advertising columns.

— The papers state that M. Haussmann is about to sacrifice the beautiful Garden of the Luxembourg to his hobby of Parisian "embellishments." A large portion of the garden will be taken by the municipality for building purposes.

— Asparagus shoots are very often the subjects of fasciation, a flattened and dilated condition of the stem, due in some cases, but not in all, to the fusion of several shoots into one. Gardeners will be familiar with this appearance in the Cockscomb. Can the gigantic sticks mentioned in the subjoined extract from the "Journal of the Society of Arts," June 9, 1865, be the result of fasciation?:—"Enormous heads of Asparagus have recently appeared in the Paris market, and many guesses have been made respecting the mode of their production. It is said that a large grower was recommended to cultivate the plants not together, as in the ordinary manner, but dispersed amongst other vegetables in his garden, and that the success was beyond all his expectations. The cause of this is not evident, but it may be suggested that probably the experiments were tried in a very warm soil in the south of France, which supplies Paris with an enormous quantity of fruit, Peas, and Asparagus. Having succeeded in obtaining a gigantic growth, the grower tried a further experiment. He placed over each shoot, as soon as it appeared above ground, a glass bottle, or rather a short tube with a bottom to it, pressing the latter down as far as possible into the ground. The consequence of this treatment is the production of enormous heads, each sufficient to make a dish of itself [?], and in some instances weighing nearly a pound. This colossal Asparagus is said to be equal in flavour and as tender as the finest known kinds produced in the ordinary manner."

THE LATE SIR JOSEPH PAXTON.

In the death of Sir Joseph Paxton, which occurred at Rockhill, Sydenham, on the 8th inst., and was briefly noticed in our columns of last week, the country, and the lovers of horticulture and landscape gardening more especially, have lost one who had justly earned for himself an European reputation. He was, indeed, the "Prince of Gardeners" of the present century, and filled the high and honourable position to which he had attained with the greatest courtesy—being alike distinguished for his urbanity and ability, and for the marked success which attended all the works he undertook to perform. We feel confident there is not an individual, high or low, who knew his kind and generous disposition, but heaved a sigh, or let fall a tear of sorrow, on learning that he had been removed by the hand of death from amongst us.

It is now 42 years since the writer of these remarks had the pleasure of making his acquaintance, and while memory retains its place, the happy days he spent in the society of his now deceased friend can never be effaced.

As several erroneous accounts have appeared respecting the early part of Sir Joseph's professional career, we avail ourselves of the present opportunity to correct them, by a brief statement of facts within our own knowledge. He sprang from a good Saxon root at Milton Bryant, Bedfordshire, where his father was a farmer, and where he was born in the year 1801. Having to gain his livelihood by the sweat of his brow, he selected gardening as his profession, and from the age of 15 was for two years employed in the garden of Sir Gregory Osborne Page Turner, Bart., at Battlesden Park, near Milton Bryant. From thence he went to Woodhall Park, near Watton, Herts, the beautiful residence of Samuel Smith, Esq., in whose gardens (then under the charge of Mr. William Griffin—one of the most successful fruit and Pine growers of his day) he continued for three years, and acquired during that

time a thorough practical knowledge of the most important branches of horticulture. On leaving Woodhall he returned to Battlesden, and for two years was gardener there. In the autumn of 1823, being then 22 years of age, he came to London, and found employment in the garden of the Duke of Somerset at Wimbledon. About this time the Horticultural Society obtained a lease of some ground from the Duke of Devonshire, and commenced the formation of the experimental garden at Chiswick, and the erection of the various stoves, greenhouses, and pits that were considered to be necessary for carrying out the objects which the Society had in view. Here an excellent field presented itself for study and improvement to those young men who, like Paxton, had a desire to obtain a thorough knowledge of all the requirements of their profession. Of this Paxton did not fail to take advantage, and, on the recommendation of Joseph Sabine, Esq., who (up to 1830) was the Honorary Secretary of the Horticultural Society, he was admitted on the 13th November, 1823, for improvement in the new garden, and was promoted in 1824 to be foreman of the Arboretum. Here it was that he had the good fortune to become known to his patron and friend, the late Duke of Devonshire, who took great interest in this department of the garden, and frequently applied to Paxton for information respecting such trees and shrubs as seemed new to him, or with which he was unacquainted. The trim and neat appearance by which Paxton was invariably distinguished, combined with his great intelligence, and that genuine manliness of deportment which lies at the root of all good breeding, made a favourable impression upon his Grace, who in 1826 engaged him to superintend his extensive and princely gardens at Chatsworth.

Mr. Paxton had now ample scope afforded him for exhibiting his knowledge and skill as a practical gardener, as well as his natural genius and good taste in landscape gardening and garden architecture. Under his masterly hand, as a contemporary truly observes, "the wild Derbyshire region in which Chatsworth stands became the wonderful place which drew visitors from far and near, and set the example of that princely development of grounds and plaisances which now marks the country seats of our great English families. Its fountains and Italian terraces; its rich woods, laid out and managed with such marvellous care; its hothouses, where the Victoria regia was first compelled to blossom; and the great conservatory, which was the precursor of the Crystal Palaces in Hyde Park and at Sydenham—all are now become familiar objects of admiration. But while Chatsworth attracted the loftiest personages as visitors, its grounds were still left freely open to dense manufacturing populations close at hand, and Paxton used always to dwell proudly upon this trait in the character of "my Duke," as he called him, who was willing to share with the humblest of his countrymen his own passion for flowers."

With the glories of Chatsworth the name of Paxton will long be honourably associated. He had an innate taste for the beautiful in art and nature, but it was one of his great merits that he knew where to stop and let Nature have her own way. Of the truth of this remark abundant evidence will be found in the many beautiful scenes which have been created from his designs, or executed under his superintendence.

But it was not alone in his capacity of a gardener that Paxton gained the favour and esteem of his munificent patron. He had an opportunity of displaying his skill and superior abilities in regard to some financial arrangements which he suggested, and which were attended with so much success, as to induce the Duke to intrust him with the superintendence of his large estates in Derbyshire. With a generous and noble appreciation of his worth the Duke was never weary of speaking in his praise, and hence Paxton's reputation was as great among the aristocracy as amongst those of his own class, who were the best practical judges of his works.

In 1850, when the scheme of the first Great Exhibition was projected, the name of Paxton became a household word. At that time he happened to be erecting a house of peculiar construction, which he had designed for the growth of that most remarkable plant the Victoria regia; and finding that none of the 240 designs that were sent in to the Building Committee accorded with their views of the kind of structure required for the purposes of the Exhibition, it occurred to him to submit a design that would obviate all objections. The result is a matter of history. The fairy structure was erected in Hyde Park, and was the wonder and admiration of all who had the good fortune to witness it, and view the vast amount of valuable articles which it contained. One of the most striking features in the Palace of 1851 was the crystal fountain, and the beautiful transept which covered the two large Elm trees that now remain to mark the spot. It has been reported that the circular roof of the transept was designed by Mr. Barry, and not by Mr. Paxton, but such is not the fact. It is perfectly true that the roof in the original design is flat; but at one of the meetings with the Building Committee it was suggested by them that the transept should include the great trees. Mr. Paxton went direct with Mr. Fox to his office; and while the latter arranged the ground plan so as to bring the trees into the centre of the building, the former was contriving how they were to be covered. At length he hit upon the plan of covering the transept with a circular roof similar to that on the great Conservatory at Chatsworth, and made a sketch of it, which was copied that night by one of the draughtsmen, and shown to Mr. Brunel, whom he had agreed to meet on the ground the next day. We have been thus explicit in order that our departed friend should not be deprived of the merit to which he is justly entitled. For the great services he rendered to the Exhibition her Majesty was graciously pleased to confer the honour of knighthood upon him.

When the time arrived for closing the Exhibition and removing the building, great efforts were made to retain it, and adapt it for a winter garden, or as a place of amusement and recreation for the public; but as this was contrary to the agreement that the Government had made with the residents in the neighbourhood, the idea upon which Sir Joseph had set his mind was reluctantly given up. Nothing daunted, however, he soon obtained a far more eligible site for the purposes he contemplated, and being supported by a powerful Company, he had the gratification of seeing his Crystal Palace reconstructed in a more substantial manner at Sydenham, amidst terraces and fountains, and a glorious landscape of surpassing beauty and extent. This was his crowning work; and we doubt not the millions who may hereafter visit it will regard it as one of the best monuments that could possibly have been raised to perpetuate his memory.

Of late years much of Sir Joseph's time was occupied with other matters than those relating to gardening. He became connected with many of the largest operations of the day, among which perhaps the most conspicuous was the formation of railways; but his greatest delight was to walk through the plant-houses at Chatsworth, and admire the many favourites he cultivated in early life. There he seemed in his element, and his benign countenance—the true index to his large and liberal heart—was always hailed with pleasure by those who had the good fortune to be employed under him. He has been often heard to say that he never took so much interest in the growth of any plant as he did in that of the Victoria regia, of which he obtained a young plant from Kew on the 3d of August, 1849. On the 10th of that month it was consigned to its tank, and by adopting the mode of cultivation which his skill and experience suggested, he had the gratification to perceive a flower-bud on the 1st of November, and was proud to think his name would be associated with this magnificent aquatic, as being the first person who had flowered it in Europe. On the 14th of November a leaf and expanded flower were exhibited to her Majesty and Prince Albert at Windsor; and another flower opened on the 17th, as if to welcome the noble Duke on his return to Chatsworth from Ireland on that day.

Sir Joseph was an industrious writer on horticulture and botany, and, we believe, was also connected with several literary enterprises, among which it may be mentioned that he was one of the founders of the *Gardeners' Chronicle*. He took great interest in the spread of education, and used to attend and give instruction to the young men in his employ, as well as examine and comment on the papers they had prepared for discussion at their evening meetings. Indeed, nothing pleased him more than to lend a helping hand to those who were desirous of improving themselves, and anxious to rise in their profession. He was a Vice-President of the Royal Horticultural Society, a Fellow of the Linnean Society, and a warm friend as well as liberal subscriber to the Gardeners' Royal Benevolent Institution.

In 1854 Sir Joseph Paxton was returned as Member of Parliament for Coventry, and continued to represent that ancient city until his death. He was a Liberal in politics, and voted in favour of every great measure which he thought likely to benefit his fellow man. From the time that he went to Chatsworth, it is not too much to say that the taste for Botany and the pleasing pursuits of gardening received a greater impulse through his exertions, backed as they were by the fostering hand and liberality of his noble patron, than at any former period. The latest improvement for which the gardening world is indebted to Sir Joseph is the introduction of cheap hothouses for the million.

His remains now rest in peace near the beautiful scenes which he loved so well, and did so much to embellish—

> "O'er these his gentle spirit lingers still
> In yon sweet vale, in this enchanted hill;
> Flinging a holier interest o'er the grove,
> Stirring the heart to poetry and love;
> Bidding us prize the fav'rite scenes he trod,
> And view in Nature's beauties Nature's God."

VARIEGATION.

The subject of variegation is so very interesting that I venture to give a little of my experience, and if others do the same, we may arrive at some better knowledge of its causes than we at present possess.

In looking over the various forms of variegated plants, we find they come principally from China and Japan. We ourselves have occasionally home sports, but in those countries it must be a known art. A year or two ago, when the variegated form of Sedum Sieboldi came out, it was stated, if I am not mistaken, by Dr. Siebold, that he had 'made' it, and his experience among plants may be considered that of a great authority. Now, from close observation I have no hesitation in stating my belief that the dwarfing system, so much carried out both in China and Japan, are the chief causes of the profusion of variegation to be found in both countries. Take the Chinese Elm as one example. I have seen this frequently, both at home and on the Continent, labelled as being 400 years old, 2 feet high, very much in shape like a bush on the side of a high hill, which cold wind and poverty had effectually dwarfed, and growing in flat China dishes 2 inches deep, 1 foot wide, and 18 inches long. I have carefully noted one of these that had been on the place for 70 years, and from one small branch of which came invariably every year a variegated shoot. If this shoot was propagated as a cutting the whole variegation left it, and rampant green shoots were formed. But when grafted upon the Dutch Elm, it not only retained its variegation, but was much improved. Take, again, the variegated form of the Elder. This is easily propagated, and retains its variegation to a certain extent; but by comparing a cutting plant and a grafted plant it will be found that the latter is so much better as not to resemble the other.

The variegated forms of Scarlet Pelargoniums may also be taken in illustration. I cannot say that I understand the term "fixing a sport," as applied to these generally, but there are no plants which afford such an ample field for studying the effects of variegation as these. Let us, for example, take the well-known variety Madame Vaucher. The broad black zone in its leaf recommends it as a likely variety to cross with, particularly if we can transform the broad black zone into a red one, and the green ground to yellow. For this purpose we cross it with United Italy, Mrs. Pollock, &c. It is a most prolific seeder, and the result is that in a batch of seedlings we get a quantity of fine-looking variegated plants; these, however, never get beyond the second or third rough leaf. Next to these in interest are a few with two dark green leaves and one white one, and to these I wish to draw attention as being a puzzle in variegation. If the plants are encouraged to grow on, by the time they are a foot high it will be found that on one side there is a stripe similar to a piece of Ribbon Grass, and if the eye is in this, the corresponding leaf will be variegated—it may be one half, or even a stripe of the smallest dimensions, still perfectly true to that portion of the white stripe in which it is placed. It is the same with eyes; when they break, the shoots are either variegated or partly so, according to the position of the eye in the stripe; but it will be found that these variegated buds require a great amount of coaxing to make them grow out. Again, if we plant out a cross of this sort, it will very soon outgrow the variegated part; but the old stem will continue to show where this new growth commenced, and where the stripe appears to have been absorbed in the exuberant growth of the whole plant. This will continue up to the autumn, when the plant is re-lifted; a check then takes place, and the variegation afterwards again makes its appearance. *F.*

TRITONIA CROCATA.

This is now rather an old plant, but few, if any, new plants in its way is so useful for conservatory decoration. That many old plants now lost or neglected are far better than those frequently introduced with high praises and higher prices, is a mere truism among gardeners, but I confess to having oftener looked for these "good old things" than to have found them. However, at Cliveden a short time since, I had a very "lucky find." There, in a long span-roofed house—something between greenhouse and intermediate house—a most brilliant and novel effect was produced by a number of plants of Tritonia crocata, in 48 sized pots. The plants were placed at intervals of a few feet, along the edge of either bench, a few inches from the front and behind the small row of dwarf flowering plants that ran along it. From each small pot sprang about a dozen branched flower-spikes, and of these the heaviest laden and fullest in flower fell over and below the front edge of the bench; others were drooping horizontally, and some were nearly erect, so that the passage straight through the house was most gracefully fringed with flowers of a brilliant orange scarlet—almost as effective a colour as that of Tulipa Gesneriana. The individual flowers too are large, and altogether the plant is more desirable than any of its order that I have seen used for greenhouse ornament. It is a great favourite with Mr. Fleming for basket and drawing-room embellishment, and droops over the edges of vases, &c., very gracefully and effectively.

This Tritonia is readily forced, "and may be had in flower six months of the year." The plants seem to have been cultivated in the simplest manner. They are annually shaken out, after going to rest, and 10 or 12 bulbs replaced with the fresh soil in 48 sized pots. Being of easy propagation, a stock will not take long to get, and that accomplished, say to the extent of from 20 to 100 pots, according to the wants of the conservatory, the gardener will find he has a valuable and distinct subject for its decoration. I may add the flower stems were not staked, and that the plants are grown in cold pits when not in flower or required for forcing. *William Robinson.*

Home Correspondence.

The late Sir Joseph Paxton.—By the death of Sir Joseph Paxton, horticulture has suffered a great loss, and as one of his admirers (though a humble one), I think a fitting tribute ought to be paid to so great a name, by erecting a lasting testimonial to his memory, and selecting for its site the Horticultural Gardens. In making this suggestion, I do not for a moment forget the fact that the great Loudon has been overlooked in this respect. My small mite will be gladly given to carry out an undertaking so deserving of public support. I hope the humble origin of this suggestion will stimulate others abler than myself to work it out. *J. Dale, F.R.H.S.*, 3, *Garden Court, Middle Temple.*

Vespa arborea.—Some of your correspondents would perhaps kindly mention whether or not they have noticed this wasp in unusual quantities this year. Having been asked to collect Queen wasps for microscopic observation, great numbers have passed through my hands, and of these many have been Vespa rufa, and several V. arborea. The former of these is scarce in this neighbourhood (the district of Gloucestershire between the Severn and Wye), but the last so very rare that in the course of many years I have not been fortunate enough to meet with a nest, and only once or twice with a specimen of the wasp. *E. C.*

The Yellows in Peach and other Fruit Trees.—In orchard-houses and in trees in the open borders where chalk is in the ascendant, the leaves of fruit trees of all kinds will occasionally turn to a sickly yellowish hue. With trees in pots this is often owing to the earth being saturated with too much water. In such cases the pots should be placed on bricks, so that the drainage is free. The simple cure is to dissolve 1 oz. of sulphate of iron in a pint of water, then mix this with five gallons of water, and water the trees with it three or four successive evenings; this soon brings on a change to that most pleasing of all tints, bright green—two quarts at each watering to a tree in a pot will suffice. A gallon to a tree planted out will not be too much. This disease, under the name of "chlorosis," has been treated of in your columns; still a few plain directions as to the remedy may not be out of place. *T. R.*

Ants.—I feel much pleasure in being able to give your Correspondent (p. 532) a remedy for ants—a regular ant-killer, at least it has proved so here. I have tried guano, soot, Elder leaves, and nearly all the prescriptions recommended for driving away or killing ants, without effect, with the exception of boiling water poured into their nests, which when they can be found is a sure destructive. I have only recently discovered my present method of ant-killing, and your readers are heartily welcome to it. It is simply the now well-known decoction which as an aphis killer will entirely supersede that disagreeable nauseous compound, the tobacco water of all the gardening calendars, and has more than once appeared in your columns. Take 4 oz. of quassia chips, boil them 10 minutes in a gallon of water, and while cooling dissolve in it 4 oz. of soft soap. Pour it into the ground wherever ants are seen; or if they are in the trees syringe them with it. Numbers will be killed and the rest driven away. I fully believe that quassia water, which is clear and does not stain the leaves, would be efficacious without the soap. As quassia chips are very cheap, a large quantity of the water should always be kept ready either for ants or aphids. In syringing fruit trees when the fruit is at all advanced in growth, care should be taken to wash them well with pure water, within 10 minutes after applying the quassia, or possibly a very bitter Cherry or Plum may be the result. *T. R.*——In order to get rid of these, procure some small birds, open them down the breast, and place them wherever the ants frequent. In a few minutes the birds will be covered with multitudes of ants. Remove these and substitute fresh ones, or shake the ants off the carcase into boiling water and replace the bait. By following this plan up closely every ant will soon be got rid of. *Edward Bennett, Osberton, Worksop.*——Chloride of lime mixed with water, and poured out of a watering pot three or four times a day, or whenever a black ant was seen on the floor of the Grape-house, destroyed them. *M. L.*

Peas.—In accordance with the suggestion of a correspondent, that the best four sorts of Peas for succession should be selected, we would recommend for the purpose Sutton's Ringleader, Dr. McLean's Advancer, Dixon's Yorkshire Hero, and Waite's King of Marrows. Ringleader is selected for sowing first, not merely because it blooms earlier than others, but because it fills its pods and ripens off decidedly quicker than any other sorts, excepting Carter's First Crop, which is the next earliest. In our trials of all the new Early Peas we have found Ringleader ready for gathering first in every instance, and it gains upon its competitors even more in the ripening off than in its earlier stages, so that we have now one crop of Early Turnips, and another of autumn Broccoli coming on on ground from which Ringleader Peas have been cleared. Advancer is recommended for a second crop, it being one of the best and earliest of the wrinkled kinds, though not nearly so forward as the two sorts just named. Yorkshire Hero and King of Marrows are also the finest flavoured wrinkled Marrows, very prolific, and they are larger than any of the preceding. Several sowings made of each of these sorts will ensure a constant supply for a large household. *Sutton & Sons, Reading.*——I have only tried Sutton's Ringleader against Dillistone's Early, both of which have been judged by several intelligent gentlemen's gardeners, all of whom are agreed that there is not the least difference between the two. *William Foster, Stroud.*

The Crops.—With me the first Peas were Carter's, the second Bishop's Long-pod. Potatos planted the last week in November are dead ripe; I believe them to be Wheeler's Gloucestershire Kidney. We began using them on the 1st of this month. They were grown on a bank facing south-east. *W. Taplin, Glantivy, Cardigan, June* 14.

Ladies' Prizes.—As the day of competition for the Ladies' Prize is so near at hand, perhaps you will allow me to suggest that a good deal of leniency must be shown if the prize is to be carried off; for no one but those who have tried the experiment, know the extreme difficulty of preserving a plant in beauty of foliage or flower, when the plant is required to be kept in the house, under the ladies' care, for two months. *A. K.* [We hope no one who has been preparing to compete for these prizes will be discouraged. If faint heart never won fair lady, so neither will faint heart win the Ladies' Prize.]

Societies.

Royal Horticultural: *June* 10 (*First Great Flower and Fruit Show*).—This was held in the Conservatory and adjoining arcades, which were but scantily filled, owing no doubt to the strong objection exhibitors have to showing on Saturdays.

Among Miscellaneous Stove and Greenhouse Plants, Mr. Fraser, of Lea Bridge Road, exhibited a magnificent plant of Phænocoma prolifera, covered with a profusion of bright crimson flowers. In the same collection were also the scarlet Clerodendron Kæmpferi, Stephanotis floribunda, Statice imbricata, a large Boronia serrulata, and Allamanda cathartica. From Mr. Baxendine came Hoya bella, Rhynchospermum jasminoides, and a small plant of Clerodendron Thomsonæ. Messrs. Lee, of Hammersmith, furnished, among other things, a large bush of Erica Cavendishii, Ixora coccinea, a noble Alocasia metallica, Dicksonia antarctica, Imantophyllum miniatum, with two glorious heads of rich orange blossoms, Heaths, Azaleas, and other flowering plants. Mr. Kemp, gr. to Earl Percy, contributed six good plants, among which were the Oleander-leaved Allamanda, and Stephanotis floribunda, in fine condition.

Of Orchids there was a very poor display, and several of the prizes were withheld. Among them were Aerides Lindleyanum and Larpentæ, Calanthe veratrifolia; Phalænopsids, including Lüddemanniana; Vandas, Saccolabiums, a few Oncidiums, Brassia verrucosa, Ladies' Slippers, Cattleya Aclandiæ, and others—in all but a mere handful.

Of Roses there was a tolerable muster, especially of Cut Blooms, which were excellent. Mr. Francis, of Hertford, and Mr. Wm. Paul were the only competitors in the Nurserymen's class. The latter had a charming plant of Comtesse de Barbantanne with about 40 pale flesh-coloured blooms on it; Caroline de Sansal, Paul Perras, and Marquise de Foucault, pale yellow. From Mr. Francis came Souvenir d'un Ami, Chénédolé, Charles Lawson, Paul Perras, La Reine, and others. Mr. Terry, gr. to W. G. Puller, Esq., Youngsbury, also exhibited good plants; and some beautiful Hybrid Perpetuals in 9-inch pots were shown by Messrs. Paul & Son. Of Cut Blooms, Mr. W. Paul exhibited no fewer than 10 boxes; Messrs. Paul & Son, eight; Messrs. Lee, six; Mr. Clarke, Brixton Hill, the same number; and several came from Mr. Cant, Colchester, Mr. Batley, and Mr. Fountain, gr. to Miss Wood, Hanger Hill. Mr. W. Paul contributed beautiful trusses of Gloire de Dijon and Celine Forestier; and from Mr. Cant came a charming boxful of Cloth of Gold, which was deservedly the admiration of all who saw it. Mr. Clarke's Roses, of which several blooms of each kind were shown together, were also very effective.

Pelargoniums, both Fancies and ordinary kinds, were shown in good condition by Mr. Fraser, who contributed Fairest of the Fair, James Lodge, Prince of Prussia, Lord Clyde, Lillie, Mira, Lightning, Bracelet, Mer Polaire, Leander, Angelina, Douglas, and Lizard. In the Amateurs' Class the best exhibition came from Mr. Ward, gr. to F. G. Wilkins, Esq., Leyton, who had Spotted Gem, Bracelet, Patroness, Viola, Lord Clyde, The Bride, Picnic, Rose Celestial, and Madame Furtado. Mr. Marlow, gr. to G. Wigan, Esq., also showed Pelargoniums, but they were not sufficiently in bloom. In Fancies, Mr. Fraser had good plants of Delicatum, Miss in her Teens, Undine, Cloth of Silver, Roi des Fantaisies, and Hebe.

New and Rare Plants were contributed chiefly by Mr. Veitch and Mr. Bull, and formed by far the most interesting part of the Exhibition. Most of them, however, have been already described in our columns. Mr. Veitch had his new Pleroma, which is altogether different in shade of colour from P. elegans; Bertolonia pubescens and guttata, both beautifully spotted in the leaf; Maranta Veitchii; Goodyera Veitchii; Gymnogramma flexuosa from Ecuador, with finely divided fronds; a Peruvian Begonia, with rich velvety leaves veined with white; a species of Philodendron with large deep-green velvety leaves veined with white; Adiantum colpodes; a red-veined Gymnostachyum, one of the most beautiful of handsome-leaved plants of small size; Anthurium cordifolium; Peperomia maculosa, and Dracæna nigra, the latter with very dark-coloured foliage. From Mr. Bull came the beautiful Aucubas sent home by Dr. Von Siebold and others; Athyrium Filix-fœmina Vernoniæ, Cupania undulata, Costus zebrinus with leaves covered with parallel lines of white, Pandanus Blancoi, various Rohdeas with silvery striped leaves, Sphærogyne cinnamomea, Maranta Van den Heckii, Bertolonia margaritacea, Woodsia polystichoides Veitchiana; a variegated Privet, Sedum, Aubrietia, and Viburnum; Ficus Porteana, Peperomia arifolia, Calonyction sanguineum, Anthurium cordifolium, and other plants, chiefly remarkable for the beauty of their foliage. Messrs. E. G. Henderson had a rosy lilac flowered Ivy-leaved Pelargonium, called peltatum elegans, which is a decided acquisition, being a free flowerer, and different in colour from any of its class; also Centaurea ragusina compacta, the variegated-leaved Cheiranthus Marshalli, and a small Richardia with leaves spotted with white; a rose tinted variety of Hydrangea japonica likewise came from the same exhibitors. Mr. Thompson, Ipswich, furnished Primula Parryi, a native of the Rocky Mountains, having beautiful rosy purple flowers; and Pentstemon grandiflorus, also from North America, having large lilac flowers, and glaucous tinted leaves. Mr. Salter, of Hammersmith, had his variegated Sedum Telephium, in which the leaves are yellow edged with green, and a variegated Polygonum filiforme. An Abies, a seedling of A. Douglasii, was shown by Messrs. Dickson & Turnbull, of Perth; and seedling Pelargoniums by Mr. Fraser.

Among Miscellaneous subjects were Palms, Economic plants, Petunias, zonate and other Pelargoniums, from Mr. Bull; Pansies from Mr. Hooper, Bath, and Mr. Weymouth; blooms of herbaceous Pæonies from Messrs. Paul & Son; Cacti from Mr. Hurn; variegated Begonias from Mr. Marlow; an interesting collection of hardy variegated plants from Mr. Salter; and plant-cases, window-boxes, and ornamental garden pottery from Messrs. Barr & Sugden, and Messrs. Hooper & Co., of Covent Garden.

Of Fruit there was little. Mr. Ruffett, gr. to Lord Palmerston, had a good Providence Pine, and Mr. Standish sent Charlotte Rothschild, a Moscow, and Ripley Queen. The best Black Grapes were Black Hamburgh, large and well coloured, from Mr. Osborne, Finchley; Champion Hamburgh, with immense berries, from Mr. M. Henderson; and from Mr. Sage, gr. to Earl Brownlow, and Mr. Allen, gr. to E. Hopwood, Esq., Manchester, were also good bunches. In White Grapes Mr. Sage was 1st with very good Muscats, Mr. Horwood 2d, and Mr. Tansley 3d with Cannon Hall; none of these were, however, ripe. Peaches chiefly consisted of Royal George and Violette Hâtive. With the first-named kind Mr. Hill, gr. to R. Hanbury, Esq., The Poles, was 1st; Mr. Allen 2d; and an Extra Prize was awarded to Mr. Allen for three dishes of Violette Hâtive. In Nectarines, Violette Hâtive, highly coloured, from Mr. Allen, was 1st; and Elruge from Mr. Allen, gr. to J. B. Glegg, Esq., 2d. Mr. Hill had an excellent dish of May Duke Cherries; Mr. Ruffett was 2d with Belle d'Orleans. In Strawberries Mr. Hill was 1st with a good dish of President. R. Wrench, Esq., exhibited Myatt's Pine Apple, a variety remarkable for its fine flavour, but too small to find favour with the multitude. Heckfield Seedling, a pale red variety, came from Mr. Dwerrihouse. The only dish of Figs was one of the Castle Kennedy, of which we have spoken in favourable terms on former occasions. This came from Mr. Fowler. Of Melons, the best Green-fleshed were King's, from Mr. Hill; and Wills's Green Gem, from Mr. Wills, Oulton Park. Scarlet Gem was 1st and 2d.

In the Class of Miscellaneous fruit, Mr. Standish had Cherries in pots, loaded with fruit; among them were Frogmore Early; Cleveland, a tender-fleshed white-fruited kind; Imperatrice, a good bearer, but small; Werder's Early Black, and other early kinds. Mr. Wills sent a fine basket of Black Hamburgh Grapes, weighing 21 lb.; Mr. Horwood, a basket of Muscats; and an extra prize was given to Mr. M. Henderson for Frontignans. Mr. Dwerrihouse exhibited, not for competition, several fruits of Heckfield Hybrid Melon, a fine-looking green-fleshed sort, of good size; and Mr. Hill a brace of Cucumbers.

June 13 (*Mr. Bateman's Lecture on Dendrobia*): Mr. Henry Cole, C.B., in the chair.—After commenting on a few examples of different kinds of Orchids which were furnished by one or two well-known cultivators of that interesting class of plants, Mr. Bateman commenced his lecture on the great Indian genus Dendrobium by reading from Rumphius' old work an extract having reference to Orchids, which he said were divided by that author into two classes, viz., those which grow upon trees, and those which grow upon the ground. The former, from their lofty mode of growth, might be denominated patricians, the latter rustics. It was stated that there was no middle class. To the patrician class Mr. Bateman referred the Dendrobia, to the rustic the pretty little native Orchises we were wont to pluck by the waysides in early years. If it were true, he said, that mankind had its cradle in the mountains of Armenia, between the head waters of the Euphrates and Tigris, he was sure there were no patricians there, and that therefore Milton was right when he placed no tree-Orchids in the Garden of Eden. It was not, he remarked, until

between the 15th and 16th centuries that man began to take any intelligent notice of them. The discoverers of America were too much the followers of Mammon to observe what was growing on the trees under which they passed. Hernandez, a Spanish botanist, early in the 17th century, was stated to be the first to give anything like a figure of a tree Orchid, a rude representation of which may be seen in a frontispiece to his work, and of this Mr. Bateman exhibited a magnified drawing. One of his plants was doubtless Stanhopea tigrina, and another a Lælia, although Hernandez had dragged them from the trees to the ground. They were described under barbarous names—the Lælia, for instance, as Cortico-atzontecaxotchil, which should make us thankful for such names as we now have. Turning from the new to the old world, and again referring to Rumphius, Mr. Bateman said that that author propounded a theory which, if not his own, he endorsed; noticing certain resemblances which Orchids bore to birds, beasts, and insects, it was supposed by him that they had their origin in the droppings of these animals—an ingenious theory, it was said, certainly, but not more singular than some of those promulgated by much more modern writers. Angræcum, a genus confined to Africa, was the name given by Rumphius to all Orchids with which he was acquainted, but names were still wanting for those of the east and west. The latter Linnæus called Epidendrums, or tree livers, from epi, upon, and dendron, a tree; of these he thought, when the world was fully explored, there might be a hundred species, little dreaming that the time would come when we might have that number of genera with twice as many satellites. Another Swedish botanist, Swartz, gave to the Orchids of the Eastern world the name of Dendrobium (tree life), from dendron, a tree, and bios, life, these forming the subjects of Mr. Bateman's discourse. These are to the Eastern world what Epidendra are to that of the West. Orchid-producing countries, Mr. Bateman said, might be advantageously divided into districts similar to those into which Sir Rowland Hill had divided London. Angræcums he placed in Africa, or the S. (South) district; Epidendrums would represent the W.C., or West Central; while Dendrobiums might be said to occupy the E.C., or East Central district. Ground Orchids of more temperate regions might fill up the other letters.

It was long, said Mr. Bateman, doubtful whether Epidendrums or Dendrobiums had the pre-eminence in point of numbers, but now Dendrobiums, he thought, headed the poll. Numbers alone, however, it was mentioned, did not form the standard by which the merits of these two great genera were to be estimated; beauty must be taken into account, and in this respect the Dendrobia have greatly the ascendancy. Of some 40 or 50 Epidendrums which Mr. Bateman had at one time in cultivation, he stated that he had now only three, while of a similar number of Dendrobiums nearly all are still in his Orchid houses.

With regard to these two great genera he said that, independent of other distinctions, the uninitiated might easily know an Epidendrum from a Dendrobium by their different modes of flowering. In the former the blossoms are always produced at the end of the stems, of which the spike that carries them is in fact a prolongation; while those of the Dendrobia invariably issue from the sides of the stems or pseudobulbs. Some produce one bulb with a leaf at top, and a spike of flowers issuing from the side, as, for instance, D. aggregatum; a second class has two leaves at top, as in the Australian D. speciosum; others have four or five leaves and racemes of flowers springing from the sides of the pseudobulbs, as the beautiful D. densiflorum, and there are others again in which the pseudobulb disappears and is replaced by a stem clothed all the way up with leaves and flowers, as in the case of the charming D. Wardianum. The more recently imported species, Mr. Bateman stated, were really the most beautiful, in that respect considerably beating most of the kinds first introduced. They were stated, however, to be exceedingly local. Even in Ceylon, where few would think of looking for novelty, Mr. Thwaites had only the other day discovered Dendrobium Macarthiæ, of which a figure, prepared from dried flowers, had appeared in the Botanical Magazine. Its native name was stated to be "Wis-sak-mal," and Mr. Bateman trusted that some enterprising young officer or collector would soon be fortunate enough to obtain it, and send a good supply of it to Stevens, for sale. He then directed attention to D. Falconeri and D. Falconeri obtusum, but he said the latter had no connection with the former, as he (Mr. Bateman) had long ago suspected, and that in future it should bear the name of D. Wardianum. D. taurinum, or Bull's-head Dendrobium, from the E.C. district, or the Philippines, next came under review, as did also a few kinds, the blooms of which are used in personal adornment. For the latter purpose some Orchids have blossoms that will last twice the length of those of either Camellias or Roses; and it was hoped that ladies would make experiments with the view of ascertaining the kinds best adapted for this purpose. What are called Bridal Orchids, among which Phalænopsis stands at the head, were next alluded to.

Of the 200 or 300 species of Dendrobiums known to botanists, not more than a third are at present in cultivation; a few gems may therefore yet be expected. In New Guinea, a very large island—nearly a continent, a vast number is known to exist, few of which have yet been introduced, and some of these are said to have tails, which, according to Rumphius' theory, they doubtless obtained from the Birds of Paradise which inhabit the island. Mr. Bateman then alluded to D. Hookerianum, a species found in Sikkim Himalaya by Dr. Hooker, and also to D. Falconeri. Turning to Borneo, dried flowers of a large and beautiful species found there were exhibited. Also a leaf, measuring some 15 inches long and a foot wide, of a species discovered in Borneo by Mr. Thomas Lobb, which Mr. Bateman christened at the meeting D. gigas. Of the flowers of this nothing is at present known.

As regards culture, it was stated that Dendrobiums could not be said to belong to the class called cool Orchids, inasmuch as when growing they required a considerable amount of heat and moisture. When their growths are however, made and ripened, they may be kept for many weeks in succession even in a cool Vinery.

With respect to preferences for certain classes of plants, it was mentioned that some had them in one direction, some in another. Mr. Bateman's hobby was Orchids, among which some liked Dendrobiums, others Lady's Slippers, and so on. Of Dr. Klotzsch, who preferred Fungi, or Foongi as he called them, to all other plants, an amusing anecdote was related; and the wisest of men, Solomon, amid the distractions of his Court, found, it was said, interest in plants, even from the Hyssop on the wall to the Cedars that grew on Lebanon. With these, and a few other similar remarks, Mr. Bateman concluded his highly interesting lecture, for which a vote of thanks was moved by Mr. Wilson, and seconded by Mr. Franklin.

Mr. Bateman in returning thanks called attention to some Orchids just imported by Mr. Veitch from the north coast of Australia; one of these was known to bear most beautiful rose-coloured flowers, and the other was D. Hillii, of which a representation is given in the "Botanical Magazine," and which produces a spike of white fragrant flowers resembling an officer's plume.

Royal Botanic: *June* 14 (*Second Great Show*).—One of the finest of summer days induced a large and brilliant company to attend this Exhibition, which, considering the bright days and cold, even frosty nights which we have lately experienced, was in most respects all that could possibly be desired. Of Orchids there was a magnificent assemblage. Stove and Greenhouse Plants were plentiful. Roses, especially those in a cut state, excited universal admiration. Ferns fitly filled up shady nooks; Pelargoniums lit up the centre of the picture with warm and glowing colours, which the Azaleas on this occasion failed to supply; and there was a good display of fine fruit.

Stove and Greenhouse Plants.—Among these were some admirable examples of Allamandas, of which the best was grandiflora, the large clear yellow blossoms of which were very effective. Gompholobium splendens, another yellow-flowered plant, though much less showy, is also well worth growing, as is likewise the old-fashioned Sollya linearis, whose bright blue flowers though small are produced in wonderful profusion. Among fragrant white-blossomed plants nothing has yet been found to supersede or even equal the charming Stephanotis floribunda, of which we noticed several well-bloomed specimens. Rhynchospermum jasminoides was, however, well represented. Rich deep purple of the most charming description was to be found in the round showy blossoms, each as large as a crown-piece, of Pleroma elegans. It is, however, yet rather too early for this fine plant, which may be expected in better condition in July. Phænocoma prolifera appears to be flowering unusually well this year, most of the plants shown being loaded with blossoms, a generally speaking rare occurrence, while in colour they are unusually brilliant, expecially those on a fine plant of this useful Everlasting from Mr. Fraser. The Willow-leaved Ixora, with great heads of charming rich orange-salmon blossoms, formed a good companion for the scarlet-flowered species of that genus, which had moreover a third representative in I. rosea; this is, however, not nearly as showy as either of the two kinds just named. Of the useful genus Kalosanthes we only noticed one plant, the whole of the varieties being autumn flowerers. Of Hæmanthus puniceus, a showy Cape bulbous plant, one specimen was also exhibited, with four fine heads of bloom on it; of Clerodendron Thomsonæ there were several well-flowered plants, together with good examples of Aphelexids, Heaths, Azaleas, and others.

Awards.—16: 1, Mr. Whitbread, Gr. to H. Collyer, Esq.; 2, Mr. Peed, Gr. to Mrs. Tredwell; 3, Mr. Kaile, Gr. to Lord Lovelace. 10: 1, Mr. Fraser; 2d, Mr. Rhodes; 3, Mr. Baxendine. Amateurs: 1, Mr. Chilman, Gr. to Mrs. Smith; 2, Mr. Ingram, Gr. to J. J. Blandy, Esq.; 3, Mr. Page, Gr. to W. Leaf, Esq; 4, Mr. Wheeler, Gr. to Sir F. H. Goldsmid, Bart., M.P. 6: 1, Mr. Smith, Gr. to A. Anderson, Esq.; 2, Mr. Donald, Gr. to J. G. Barclay, Esq.; 3, Mr. Wheeler, Gr. to J. Philpott, Esq.; 4, Mr. Kemp, Gr. to Earl Percy.

Fine-foliaged Plants.—Among plants remarkable for the beauty of their foliage, independent of Ferns, one of the best was Alocasia macrorhiza variegata, with large-sized leaves, one-half of which was in some instances creamy white, the other green, giving the plant as a whole a peculiarly striking appearance. Of Alocasia metallica we also noticed several noble examples; likewise Palms, Dracænas, Cordylines, Marantas, Caladiums, two of the best of which are the white speckled C. Belleymei and the red-flushed C. Chantinii; various Pandanuses, and the graceful Fern-like Grevillea robusta.

Awards.—10: 1, Messrs. A. Henderson & Co.; 2, Mr. Young, gr. to R. Barclay, Esq.

Orchids.—Of these there was a noble bank, which would, however, have been all the more effective had a few of the smaller plants put in to make up groups of twenties been absent. It is evident that, as a rule, 20 kinds are too many for any one exhibitor to furnish in good condition. In Mr. Bullen's group from Leicester were Brassia Henchmanni, with black-spotted pale green flowers; a large Aërides odoratum; Cœlogyne asperata, with cream-coloured flowers and a cinnamon-blotched lip; the clear yellow and orange Dendrobium chrysotoxum; Lady's Slippers and Saccolabiums; Dendrobium Parishii, a Moulmein species, small, but finely in flower; the clear yellow Oncidium ampliatum majus; Uropedium Lindeni, with five flowers, having noble caudal appendages; and Trichopilia crispa, miscalled gloxiniæflora. From Mr. Baker, gr. to A. Basset, Esq., came a beautiful plant of Cypripedium superbiens, miscalled grandiflorum; the slender green-tailed Dendrochilum filiforme; Trichopilia coccinea; and various fine examples of Aerides, Saccolabiums, Phalænopsis, Vandas, and Lælias. Mr. Page, gr. to W. Leaf, Esq., contributed a well-grown plant of the pretty rosy-purple flowered terrestrial Orchis foliosa, which was shown some few years ago in such fine condition by Mr. Williams; the rare Cypripedium Stonei; the yellow-stained white-blossomed Dendrobium formosum giganteum; and the scarce, rather than beautiful, Phalænopsis rosea. The gem of Mr. Peed's collection was Oncidium sessile, a clear yellow-flowered species, seldom seen in such good condition as it was on this occasion; the same exhibitor also had Odontoglossum hastatum, miscalled Oncidium albo-violaceum. Mr. Penny had a beautiful group of 12 plants, among which were Cattleya citrina, with three canary-coloured blossoms; Odontoglossum Phalænopsis in beautiful condition, together with Cattleya Mossiæ, and the pretty Odontoglossum nævium majus. In other groups we noticed Odontoglossum pendulum roseum; Cattleya Aclandiæ, with five richly-coloured flowers; the magenta and crimson-blossomed C. superba; the rare Dendrobium Dalhousianum, and its near relative in point of colour D. moschatum; the beautiful new white and orange D. infundibulum; and Cœlogyne asperata, miscalled C. Lowii. From Mr. Veitch came some charming plants, especially one of Anguloa Clowesii, with no fewer than 16 large clear yellow blossoms on it, the usual number being three or four; an excellent Vanda suavis, Cattleya labiata, Aerides Lobbii, and a fine variety of Lady's Slipper.

Awards.—20: 1, Mr. Bullen, Gr. to A. Turner, Esq.; 2, Mr. Baker, Gr. to A. Bassett, Esq.; 3, Mr. Page, Gr. to W. Leaf, Esq.; 4, Mr. Peed, Gr. to Mrs. Tredwell. 12: 1, Mr. Penny, Gr. to H. Gibbs, Esq.; 2, Mr. Wilson, Gr. to Wm. Marshall, Esq.; 3, Mr. Ingram, Gr. to J. J. Blandy, Esq. 6; 1, Mr. Veitch; 2, Mr. Williams; 3, Messrs. Lee; 4, Messrs. Jackson. Amateurs: 1, Mr. Wiggins, Gr. to W. Beck, Esq.: 2, Mr. Chilman; 3, Mr. Robson, Gr. to G. Cooper, Esq.; 4, Mr. Wheeler, Gr. to J. Philpott, Esq.; 5, Mr. Whitbread.

Ferns.—These consisted of large plants of Cibotium Scheidei, princeps and Barometz, Alsophilas, Platycerium grande, and alcicorne; Pteris cretica, with long narrow grass-like leaves; the variegated P. argyræa; Adiantum curvatum, the red-veined Drynaria morbillosa, Todea africana, and others. Of British kinds Messrs. Ivery, of Dorking, showed an interesting collection, and also some new varieties of Polystichum and Athyrium, to which certificates were given.

Awards.—12: 1, Messrs. A. Henderson & Co. 12 (Amateurs): 1, Mr. Hill, Gr. to R. Hanbury, Esq.; 2, Mr. Young; 3, Mr. Sutton, Gr. to Col. Jeakes. 12 British: 1, Messrs. Ivery; 2, Mr. Holland.

Heaths.—Among these were some well-grown plants, especially in the exhibition furnished by Mr. Rhodes. E. tricolor Wilsoni is still one of the best of the class to which it belongs; few whites beat the old Jasminiflora alba, Shannoni and Vernoni; ventricosa magnifica is still one of the best of the ventricosa section; E. Massoni was well flowered. Of the singular E. viridis one plant was shown, and of the yellow E. Cavendishii and depressa many examples were exhibited. With the exception of Spenceriana, which can now hardly be called new, no novelty presented itself.

Awards.—10: 1, Mr. Rhodes; 2, Messrs. Jackson; 3, Mr. Baxendine. 8: 1, Mr. Peed; 2, Mr. Ingram; 3, Mr. Page; 4, Mr. Kaile. 6: 1, Mr. Chilman; 2, Mr. Smith; 3, Mr. Wheeler; 4, Mr. G. Wheeler.

Roses.—Those in pots were by no means so fresh or good as they were in May, owing doubtless to the sunny weather we have had. Cut blooms were, however, shown in great abundance, and in most instances wonderfully fine. From Mr. May, gr. to C. M. Worthington, Esq., Caversham Priory, Reading, were charming blooms of Triomphe de Rennes, La Boule d'Or, Souvenir d'Elise, Comtesse Cecile de Chabrillant, Souvenir d'un Ami, Madame Bravy, Charles Lefebvre, John Hopper, Madame Victor Verdier, and Devoniensis, all in great perfection. In the Nurserymen's class, Mr. Turner stood greatly in advance of all others. He had noble examples of Senateur Vaisse, Madame Charles Crapelet, Cloth of Gold, Maurice Bernardin, Gloire de

Santenay, and Alpaide de Rotalier, the last a large flower, in colour somewhat like Duchesse d'Orleans.

Awards.—10 in pots: 1, Mr. Turner; 2, Messrs. Lane. 6: 1 and 2, withheld; 3, Mr. Terry; 4, Mr. Young. 24 Single Blooms: 1, Mr. Turner; equal 2, Messrs. Paul & Son, and Mr. Exell. 25: 1, Mr. Turner; 2, Messrs. Paul & Son; equal 3, Mr. Mitchell and Mr. Wm. Paul. Amateurs: 1, Mr. May; 2, Mr. Ingle; 3, Mr. Exell; Extra, Miss Crawshay, Mr. Wright, and Mr. Evans.

Azaleas.—These were greatly past their best, with the exception perhaps of six beautiful plants from Mr. Veitch, most of which were still in full flower.

Awards.—6: 1, Mr. Veitch; 2, Mr. Fraser. Amateurs: 1, Mr. Wheeler; 2, Mr. Peed; 3, Mr. Kaile.

Pelargoniums.—These were good for the season, especially a group of Fancy kinds from Mr. Bailey, to whom the judges again awarded a large silver gilt medal for extraordinary growth. Among them were Delicatum, Clemanthe, Princess Royal, Arabella Goddard, Madame Rougier, and Roi des Fantasies. In the Nurserymen's Class, Mr. Turner had Delicatum, Evening Star, Arabella Goddard, and Zoë. Mr. Fraser's best plants were Madame Sainton Dolby, Delicatum, and Miss in her Teens. Among ordinary kinds Mr. Turner had Fairest of the Fair, Lord Clyde, Viola, Desdemona, Pericles, Ariel, Glowworm, Fair Rosamond, and Guillaume Severyns. Mr. Fraser sent Mer Polaire, a showy kind, rosy-salmon with a white eye, and spotted on all the petals; also Couleur de Rose, a bright rosy-blossomed sort; Matilda, Rose Celestial, and Prince of Prussia. From Mr. Bailey came a magnificent specimen of Sanspareil; also Lord Clyde, Spotted Gem, Lady Canning, Glowworm, Lady Taunton, and Guillaume Severyns. Mr. Wiggins had also prettily grown well bloomed plants.

Awards.—12: 1, Mr. Turner; 2, Mr. Fraser; 3, Messrs. Dobson. 10 (Amateurs): 1, Mr. Bailey; 2, Mr. Wiggins. Fancies.—6: 1, Mr. Turner; 2, Mr. Fraser. Amateurs: 1, Mr. Bailey; 2, Mr. Donald.

Fuchsias.—Of small, tolerably well-grown plants of these we noticed two groups, one from Mr. Gardiner, gr. to J. Stutter, Esq.; the other from Mr. Wheeler, gr. to Sir F. Goldsmid, Bart.

New Plants were numerous; most of them have, however, already been reported on in our columns. Mr. Bull again showed his handsome-leaved Aucubas and silver-striped varieties of Rohdea, Acer pseudo-platanus Leopoldi, the silver variegated-leaved Smilax macrophylla maculata, and other plants. From Mr. Williams came, in addition to the Smilax just named, Ficus leuconeura, a large-leaved kind; Colocasia longiloba, with pale green sagittate foliage; Anæctochilus Turneri, with leaves charmingly veined with gold; and a handsome species of Gleichenia. Mr. Veitch had a valuable collection, in which were Bertolonia guttata, Urceolina aurea, a yellow-flowered bulbous plant; a handsome species of Philodendron, Perrania palmata, Gynogramma flexuosa, and one or two of Dominy's pretty hybrid Anæctochili and Goodyeras. Messrs. E. G. Henderson also furnished new plants, among which were Richardia hastata; the variegated variety of Cheiranthus Marshalli; and Hydrangea japonica rosea.

Seedlings.—These were chiefly confined to Pelargoniums, of which Mr. Bull contributed a large number of zonal varieties, of all shades of colour from white to brilliant scarlet. Mr. Windsor had Exhibitor, rich salmon scarlet; Sir R. Peel, scarlet; Great Eastern, Gladiateur, and Pink of Perfection, all promising kinds. From Mr. Holland came Rosalie, salmony scarlet. Of other sorts, Mr. Nye, gr. to E. B. Foster, Esq., furnished Nero, clouded scarlet, dark top, laced with crimson, and white eye; Gladiateur, a dark kind with a white eye; Atalanta, clean-looking magenta rose, with white eye, and small blotch in the upper petals; and Alabama, rose with white eye and dark top. From Mr. Wm. Paul came various Nosegays, among which were Pillar of Beauty, Gem, Duchess, Mrs. Wm. Paul, Orange Nosegay, and Amy Hogg, all valuable additions to their particular class. Sparkler, a charming kind, was shown by Mr. Bull, and Messrs. Downie, Laird, & Laing had the handsome rose-coloured Pelargonium called Wiltshire Lass. From Messrs. Carter was a very dwarf free-flowering double Tropæolum, called Double Tom Thumb, which looks as if it might be an acquisition. A handsome Petunia with a white star set in brilliant crimson was shown by Mr. Clarke, of Brixton.

Miscellaneous Subjects.—Foremost among these was a grand exhibition of Lilium auratum from Mr. Turner, including at least two very fine varieties of that Lily. One had petals nearly twice the breadth of those of plants in ordinary cultivation, beautifully spotted, and with yellow bands running up the centres of each division of the corolla, of wonderful width and brilliancy. The other had more red in the stripe than is usually met with in this Lily. Others were beautifully spotted, large, and showy. These, as they deserved, were the admiration of everybody. Hanging baskets, well filled, came from Messrs. A. Henderson and Mr. Young, and we also noticed stands of Pinks, Pansies, Verbenas, and cut flowers of herbaceous plants. The last came from Messrs. Paul & Son, and the Pinks and Pansies from Mr. Turner and Messrs. Downie, Laird, & Laing. From Mr. Bull came an interesting group of Pandanus.

Fruit.—Of this there was a good display, especially of Black Grapes, which were excellent; white kinds, however, particularly Muscats, were for the most part green and unripe. It is to be regretted that Grapes of this description, which are never in perfection before the middle of July or so, should be cut so early.

Pine Apples.—These were few in number but good. Providences weighing upwards of 8 lbs. came from several exhibitors, and some good Queens were shown from Bicton and other great gardens.

Awards.—Providence: 1, Mr. Ruffett; 2, Mr. Bailey; 3, Mr. Masters. Queens: 1, Mr. Barnes; 2, Mr. Godfrey; equal 3, Mr. Standish and Mr. Stevens. Any sort: 1, Mr. Bailey; 2, Mr. Standish.

Melons.—These were shown in large numbers. Among hybrid green-fleshed kinds was a seedling from Mr. Pottle, gr. to B. D. Colvin, Esq., which in point of flavour was excellent. It is a fine-looking yellow-skinned variety, evidently related to the Hybrid Cashmere section. Among scarlets Gem is still the best.

Awards.—Green-fleshed: 1, Mr. Enstone; 2, Mr. Pottle; equal 3, Mr. Allen and Mr. Bailey. Scarlets: 1, Mr. Paton; 2, Mr. Kaile.

Grapes.—Three wonderfully fine bunches of Black Hamburgh, weighing together 9 lbs. 3 oz, were contributed from the Earl of Stairs' garden at Castle Kennedy, by Mr. Fowler, to whom a 1st prize was justly awarded for them. Equal with these were placed three bunches from Mr. Montgomery Henderson, and magnificent examples of the same variety also came from Mr. Meredith. Mr. Hill, gr. to R. Sneyd, Esq., and Mr. Meads, gr. to R. Currie, Esq., contended with Black Prince, and each of them was again awarded, as on a former occasion, an equal 1st prize. Mr. Meade's three bunches weighed together 8 lbs. 14 oz. From Mr. Meads also came admirable examples of Trentham Black, a good and useful variety of Grape. From Mr. Allport, gr. to H. Ackroyd, Esq., came Frontignans, black as jet and fine both in bunch and berry. Among White Grapes were three beautiful bunches of Foster's Seedling, from Mr. Lane, long, regular, and handsome in shape, and altogether excellent. Mr. Pottle furnished good Golden Hamburgh, as did also Mr. Fowler, and we remarked several good exhibitions of Buckland Sweetwater, of which one came from Mr. Pottle.

Awards.—Black Hamburgh: Equal 1, Mr. Fowler and Mr. M. Henderson; 2, Mr. Meredith; equal 3, Mr. Osborn and Mr. Clements; extra, Mr. Wallis and Mr. Allen. Black Prince: equal 1, Mr. Meads and Mr. Hill; 2, Mr. Henderson. Any kind: 1, Mr. Meads; equal 2, Mr. Pottle and Mr. Harwood; 3, Messrs. Lane. Muscadine or Sweetwater: 1, Mr. Pottle; 2, Mr. Osborn; 3, Mr. Embrey. Frontignans: 1, Mr. Allport; 2, Messrs. Lane; 3, Mr. Ingle.

Peaches and Nectarines.—These were not very plentiful; but they were for the most part finely ripened and well coloured. The Peaches from Mr. G. Joyce, gr. at Braintridge Park, to which the 1st prize was awarded, were remarkable for their large size. No name was attached to them; we are therefore unable to say with certainty what the variety was.

Awards.—Peaches; 1, Mr. Joyce; 2, Mr. Allen; 3, Mr. Sage; extra, Mr. Turner, Mr. Dawson, Mr. Holder, and Mr. Masters. Nectarines: 1, Mr. Lynn; 2, Mr. Holder; equal 3, Mr. Hill and Mr. Turner; extra, Mr. Allen.

Cherries.—Among these the Black Circassian and Elton were the best in their respective classes. Among other sorts we noticed Belle d'Orleans, and Frogmore Early, both remarkable for their earliness.

Awards.—Black: 1, Mr. Turner; 2, Mr. Ruffett; equal 3, Mr. Dawson and Mr. Bailey. White: 1, Mr. Enstone; 2, Mr. Dawson; equal 3, Mr. Turner and Mr. Marcham.

Strawberries.—These were not first-rate, being dull in colour, and by no means large in size. The best came from Messrs. Turner, Widdowson, and Pottle. Among the varieties were President, Omar Pasha, Empress Eugenie, Eclipse, Keens' Seedling, and Sir Harry. Examples of Sir J. Paxton, a new kind, were also shown; it is said to be as early as Keens' Seedling, on which it is reported to be an improvement both in flavour and size; and it certainly appears to bear carriage better than that still useful variety.

Figs.—Foremost among these were examples of the Castle Kennedy from Mr. Fowler; also White Marseilles, which was better on this occasion than Lee's Perpetual or Brunswick.

Notices of Books.

Essay on the Trees and Shrubs of the Ancients. By Charles Daubeny, M.D., F.R.S. Oxford. 1865.

Some few years since Dr. Daubeny published a series of lectures on Roman husbandry, comprising among other things notices of the plants mentioned in Virgil, Columella, and other Latin authors, as well as a list of plants noticed by Dioscorides. The present volume is intended as a supplement to the one just mentioned, and, from the facilities which Oxford presents for such undertakings, no less than on account of his own scholarship, Dr. Daubeny has produced a volume of much interest to the horticulturist and to the classical student.

We cannot do justice to the author in these columns, but we may briefly allude to some of the topics that come within our scope. One of the most remarkable circumstances alluded to by the Professor is the fact that so many of the fruit trees cultivated in Italy, in those early times, were introduced from other countries—for instance, the Cherry, the Peach, the Olive, the Vine, the Fig, the Pomegranate, and others, for which the climate of Italy is well suited.

Under the head of ἐλατη (*Abies pectinata*) Dr. Daubeny mentions the fact that Theophrastus points out a difference between this and other trees in respect to the circumstance that it is destroyed by having its top cut off, but not by the removal of the entire tree, provided that the stump and root are left, in which latter case it will throw up fresh shoots. Modern writers, says Dr. Daubeny, all agree in considering the lopping of Firs as a prejudicial practice. Can the trees mentioned by Theophrastus be the same as those stated to form a forest in Arcadia, and which when cut down a foot or two above ground, invariably throw out from the old stump a number of symmetrically formed stems?*

Commentators have always been puzzled by the line in Virgil relating to grafting the Pear upon the Ash:—

". . . . Ornusque incanuit albo
Flore pyri."

Dr. Daubeny considers this notion may have arisen from the profusion of white blossoms by which the Ornus is distinguished. We have always considered the near resemblance of the two Greek words μελεα, Pear, and μελια, Ash, as likely to have given rise to a misapprehension on Virgil's part.

Dr. Daubeny's book concludes with a setting forth of the arguments in favour of his notion that species ultimately disappear, just as individuals do, though it is possible to extend their duration by favourable conditions. These opinions of the learned Professor have already been made public by himself in our columns for October, 1864. In an appendix is given a catalogue of the trees and shrubs indigenous to Greece and Italy, with their ancient Greek and Latin synonyms. We earnestly hope that Dr. Daubeny, than whom no one can be better fitted for such research, will continue his labours in this department, and thus clear up many of the uncertainties that still beset the subject.

On Ammobroma, a New Genus of Plants allied to Corallophyllum and Pholisma. By John Torrey. Reprinted from the Annals of the Lyceum of Nat. Hist. New York, vol. viii., June 1864.

Under the name above cited, Dr. Torrey has described a leafless parasite of great botanical interest, and apparently belonging to the Monotropa family. It was found in abundance in a sandy desert near the head of the Gulf of California. The whole plant, except the top, is buried in the sand, and is parasitical on the roots of an unknown shrub. The stem is thick and fleshy, two to four feet in height, of a dull orange colour, and covered with little scales. It expands above into a wide shallow cup or receptacle, which is densely lined with small pedicillate purplish ebracteate flowers.

As this plant is not likely to be cultivated in this country, we omit further details as to its curious botanical structure, but the interest attaching to it is not merely technical, for, writes Colonel Gray, its original discoverer, it supplies, in a terrible desert, one of the most nutritious and palatable of vegetables, and is eaten as such by the Papigos Indians. It is further described as being very luscious when cooked, and resembling in flavour the sweet Potato, than which, however, it is far more delicate.

The Apiary.

"Will you kindly," writes Mr. J. H. Heath, "give me information on the following matter. Early in the morning of the 3d inst. I proceeded to make an Artificial Swarm, following the suggestions in your article of April 15 by removing the queen, with a brood-comb and bees, into a nucleus box of four frames, adding thereto some empty combs, and leaving the parent stock to raise another queen. This morning, the 5th, I find the nucleus doing very well, but on examining the parent hive there are but three royal cells commenced, and those, so far as I can discern after the closest inspection, contain neither egg nor worm. What is the meaning of this? Do the bees in such a case remove the young worms or eggs from other cells and deposit them in the newly formed royal cells? Or, supposing these cells to be abortive, will there be any probability of the bees dying from the bees being incapable of raising royal nymphs from the brood within the hive? If this is the case, what steps ought I to take to remedy the evil? Fearing an untoward result of my first experiment in this line, I shall be anxious for your reply and advice as to how to proceed to insure a favourable termination."

In replying to our correspondent's queries let us ask in the first place whether he is sure that he did follow the directions given at page 343. When the queen is removed from a stock for the purpose of forming an artificial swarm, a sufficient number of bees must be obtained by placing the new swarm on the stand of the parent stock, which latter must be shut up, and removed to a cool, dark situation until night, or for 24 hours, when it must be placed in another part of the apiary. We do not usually form a nucleus in this way because unless the queen is accompanied by a considerable number of bees, her breeding is seriously interfered with and checked, thereby entailing a double loss to the owner in the matter of both nucleus and stock-hive. When the queen is thus removed, we form a good-sized swarm at once, and do not consider it is

* See Dr. Seemann's notice of Picea Reginæ Amaliæ in our columns, 1861, p. 755, and Murray on the Synonymy of various Conifers, Proc. Hort. Soc. Lond., 1863, p. 142. This gentleman considers the tree in question to be a variety of Picea Apollinis.

the light of a nucleus. If our correspondent will read the directions which follow the paragraph to which he refers, he will see that to form a nucleus we recommend a very different plan of proceeding. By allowing the queen to remain in the parent stock, her fecundity remains unchecked; but by placing her with a limited population in a confined space, her energies are sadly paralysed. The plan adopted in this instance by Mr. Heath is a very good one, provided it is carried out in its integrity, so as to obtain a swarm as nearly as possible approaching a natural swarm in strength.

With respect to the three royal cells, which appear to contain no eggs or larvæ, we should suppose them to be abortive. Bees very frequently, in the first stage of their excitement, construct the rudiments only of royal cells. We have had an instance where several royal cells were formed in the centre of a newly-constructed drone-comb, which had been filled with drone eggs by the queen just prior to her removal. The grubs in these royal cells were fed for some time, but, as might have been expected, came to nothing.

Whether eggs or young worms are ever removed by bees from other cells into royal cells, is a matter on which we should not like to speak positively. Some apiarians have asserted that they occasionally are so. We are not disposed to coincide in their views, but in the absence of proof cannot assert to the contrary.

Even if these three royal cells are abortive, there would be, at the time of Mr. Heath's writing, no reason to fear for the ultimate safety of the parent stock. When the queen was removed there were, doubtless, thousands of eggs as well as small worms. As worms three days after leaving the eggs are capable of being transformed into royal larvæ, it is evident that a period of at least five days may elapse from the removal or death of a queen before all hope need be abandoned of royal cells being properly constructed. Before this reply can appear, Mr. Heath will, in all probability, have discovered a fresh batch of royal cells, in each of which he may have been able to discern a minute worm, almost covered with an opaque jelly or custard-like substance, being the food supplied in lavish abundance by the attentive nurse bees.

In the contingency of the bees failing to raise any queen, actually occurring, which we do not for a moment think at all likely, it will be easily remedied by giving a comb, containing eggs and young brood, from the new swarm, from which the bees must be brushed or shaken off, to the stock or queenless hive, in place of a comb containing brood approaching maturity, which may be exchanged for it, and supplied to the swarm. Or, if attainable, a sealed royal cell, carefully cut out from another hive and attached to one of the brood combs, would be better still, as entailing a very considerable saving of time, and hastening on the recruiting of the hive's diminished and still diminishing population.

In a subsequent note, Mr. Heath writes, "I have again examined the hive on the 6th, and found on the same comb three other royal cells, one of which is close adjoining those first constructed, the others on the reverse side of the frame, and in these latter three I can observe a white, opaque jelly, apparently surrounding a tiny worm. The bees are very busy over these cells; there is a constant succession of officious nurses, plunging head and shoulders into them, giving the observer the idea that if there be such a thing as 'killing with kindness,' these embryo princesses are in much danger of such a fate."

Union of Swarms.—One of my stocks dying in the winter, I cut out the dirty comb, and allowed it to remain on its old stand. On the 28th of May a splendid swarm suddenly rose at half-past 9 A.M., and without first attempting to collect anywhere, flew across the lawn, and into the deserted hive. The box was well filled with bees, who went to work merrily. On Tuesday, the 30th, the bees appeared to require room, and a super was prepared to be put on that evening. About midday a swarm rose from another stock, pitched quietly, and were successfully hived in a common straw hive. No sooner was this accomplished, than a fine swarm was discovered on the same row of espalier trees about five yards off. These bees were also secured, but in half an hour they suddenly rose and united with the first. There was no fighting, and the hive was more than filled with bees, large masses of them clustering all over the outside. In the evening the united swarm was dislodged into a large frame-box, which they have almost filled with combs in addition to a large-sized super nearly completed.

The swarm which flew into the box had departed, and being Ligurians, it was easy to see that this was the swarm that had joined the common bees. The next day, seeing a few bees flying in and out of the box, I turned it up. A considerable quantity of honey had been already stored in the combs, and I concluded these bees were robbers. Seeing pollen carried in, I inspected more closely, and found a very small cluster of bees, about enough to form one of the nuclei recommended in your columns for artificial swarms. The queen had undoubtedly remained behind, and having a large proportion of Ligurian blood in her, I was glad to allow her to remain and take her chance. During the day this little swarm received some addition to its numbers from a few stragglers which possibly could not remember the hive they came out from. They worked very assiduously and promised fair to become a tolerable stock by autumn; but being troubled with a superabundance of swarms, I at length added to the box a large-sized second swarm, letting the queens take their chance of sovereignty, so that whether the Ligurian or the black queen has fallen a victim to the irrevocable decree that only one queen can be at large in the same hive must for the present remain doubtful. The Ligurian was aged, or I should have taken more pains to ensure her safety. *Apiator.*

Alexander Bayle, Narberth.—Your swarm which was placed in the Stewarton hive must have been rather a small one to have only filled from one-half to two-thirds of one of the compartments. A good swarm ought to have filled at least two-thirds of two of the boxes. It is usual in Ayrshire to provide the swarm with two of the boxes to begin with, and when tolerably well furnished with combs, a super is put on. It is not, however, very often that a super would be required, or be filled, in the south of England, unless from a large and early swarm. If the hive should become crowded towards the end of the summer, one of the divisions is used as an eke, and placed below all. This should be removed before winter, and if any combs have been commenced, they should be carefully wrapped up and put by for the next season. The caution given in our previous reply, relative to the danger of deferring supering until royal cells should be formed, applied to stocks of a year old and upwards. You need not be afraid of this contingency in the case of a swarm so moderate in size, and which arrived so late as the 8th of June. The two boxes will, if properly filled, hold more than enough for a winter's supply of provisions. The size of your boxes, 14 inches in diameter, is that usually adopted. We never could fully understand the value, or the object, of having the stock comprised of *two* boxes. Perhaps some of our Ayrshire bee-keeping friends can enlighten us on this point. We have preferred our stock-box to be made a little deeper to begin with, and used in the singular number. They can then be supered or eked, in the same way as the Stewarton hives.

Garden Memoranda.

The College Botanic Garden, Dublin.—(*Concluded from p.* 536).—The houses are full of curiosities. In the stove for Palms there is one which is going to lift itself through the roof, and there being no hope of getting a Palm-palace from the Government, it is necessary to devise other means of preserving it, and so it is cut or ringed very deeply all round, a few feet above the soil, the head supported by beams resting on the sides of the house and passing on each side under the head of the plant—and all this in the hope of getting it to emit roots above the incision, so that it may be lowered and preserved from the rubbish heap for ten or a dozen years. I remember having seen a large Dracæna Draco undergoing the same process in this house some years ago.

In a cool airy greenhouse the Killarney Fern, planted in such glazed cases as we send plants abroad in, is growing, and to a very unusual size, and fruiting perfectly and abundantly. This most interesting state of the plant is produced by giving plenty of air at both sides of the top of the glazed cases, keeping the plants sufficiently moist all the while, and I think by not keeping them quite so dark as they frequently are. Mr. B. has long recommended that the plant should be aired as well as kept moist. Here too are plants of the variety Andrewsii and the Waterford var. Blandfordia flammea is very attractive in this house, and the back wall is handsomely covered by the large and fine Ruscus androgynus of the Canaries, with broad leaves and gracefully weeping shoots—the Alexandrian Laurel, according to Mr. Bain. Kingia australis, the Australian Grass-tree, with bold and erect flower-spike, is exceedingly graceful, and perhaps the most valuable plant in the house, as I do not know of its being elsewhere; and the Xanthorrhœa is no less desirable, with its slender and elegant leaves, from those that hang down and hide the pot to the perpendicular ones. These plants, though large, were not old enough to show the stem, but from the youngest stage they are beautiful, and here they were as healthy as the wildest Rush. We grow and exhibit the Bonapartea and many other elegant plants of similar character, but as long as the Kingia and Xanthorrhœa are absent from the benches in a free state, it cannot be said we have the most elegant. Cordyline indivisa is kept very cool, especially in winter, and is a noble plant; and Protea cordifolia, with a neat though free habit and handsome rounded leaves reminding one of the much smaller though fine-leaved Crassula marginalis, seems well worth introducing to the choicest private collection. For the accommodation provided—seven houses, there is a very good collection of miscellaneous botanic garden plants, good Cycads, succulents, &c.; but Mr. Bain is very partial in his attentions to plants, and here is one great favourite—Cephalotus follicularis, proportionately more vigorous and healthful than any Palm succulent or other plant in the house—a cool or intermediate stove. It need not be said the Cephalotus is rarely grown well, but as it is here there is no matching its robustness. Occasionally one may see a plant with a few healthy pitchers, large and green, but here is one in a large 60-pot with such an abundance of them that, like young birds in a nest, they are overlapping each other for want of room, hanging down the sides of the pot—nearly hiding it! and all darkly coloured, with here and there pinkish bars, indicating natural and complete health. There are plants of various sizes, from almost inconspicuous bits with little pitchers less than a quarter inch in length. Now and then Mr. Bain displays a whole panful of the Cephalotus, to the astonishment of rare-plant-loving people. There is no greater proof of merit in a cultivator than to succeed with plants like Cephalotus, and not only succeed in growing, but in propagating them from year to year in abundance; and much more merit than in preserving in the best health any number of plants merely requiring the well-understood routine attentions as to watering, soil, and temperature. We have, I fear, of late years paid all attention to principles, at the cost of often forgetting the peculiarities or idiosyncrasies of individual species; and thus a plant which will not accommodate itself to the conditions so agreeable to the stove, greenhouse, or hardy subjects, perishes, or it may be lives, but never shows its beauty. This is the case with a great many hardy, or reputedly hardy and half-hardy plants. To tell all that Mr. Bain knows of the Cephalotus is out of the question for anybody but himself, for he is perfectly acquainted with its botany, physiology, pathology—in fact with all the ologies that have anything to do with it. He modestly says that anybody can grow it, and I have heard clever people say "if you keep it cool enough it will grow," but the "cold" is plentiful enough, and nobody grows the plant half so well. Preparations had just been made (Sept. 1) for its increase by cutting up roots about as thick as a packing needle into very short pieces, and placing them very thickly, as if sowing seeds, on the surface of peat soil in 48-pots, covering slightly, keeping moist, and placing on the front shelf of the house, where they are slightly shaded by a thick beam. They would begin to grow about the first week in January, and potted on would continue on the same shelf till perfected specimens, unless it is their lot to be sent off to other gardens, for, as this is the only botanic garden in which such plants are freely propagated, very persistent demands for them come in from all sorts of people. For some time during the warmest season Cephalotus is removed to the cool greenhouse; during the rest of the year it lives in the cool stove. Most of the plants were covered with bell-glasses tilted up at the bottom. The house looks to the south-east; but perhaps when I say that Polytrichum commune and other little Mosses grew freely and firmly in the pots, and that the pots themselves were quite green with minute mucous vegetation, this will give the best hint of the conditions that suit it.

Here is Dionæa muscipula, the most curious Venus's Fly-trap, a native of the Southern States of America, and generally as troublesome a subject to tame into subjection as any of its gallant countrymen. It is in quite as perfect health as the Cephalotus, with abundant firm and stubby leaves, and some of the specimens having small collections of insect-life caught in the traps, strong enough to hold small butterflies, centipedes, &c. Grown in peat soil, with a little Sphagnum and very small potsherds, it is kept somewhat cooler than the Cephalotus—"a small, close hothouse destroys it." "It will grow in almost any soil," says Mr. Bain, "if the other conditions are observed." It is sometimes propagated from the leaves and petioles, which give off buds when inserted as cuttings, but the chief mode seemed to be by division of the stem, by which stronger plants are obtained, quicker, though less plentifully than by the leaf-budding process.

From these favourites we must go to larger subjects, wondering, if Dionæa and Cephalotus should ever become common to gardens, what Mr. Bain will find to replace them in his affections. Of course in that case we should not want him to keep up the stock for us. He says these, the Sarracenias, &c., are easily grown, which may be true enough when once their mode of culture is known, but I suspect the amount of skill and plant-lore that he has expended on them before succeeding—the stock of each has been made from a very small beginning—must have been great. The Sarracenias are all beautifully grown, not so large as the Bowden plants, but of a deeper colour and more stumpy habit, presenting more of the natural aspect of the species. S. Drummondii, of which there is a wide and strong specimen with pitchers very large but very dwarf and firm, is grown in the cool stove or warm greenhouse; potted in peat of course, with the lumps of soil raised well above the top of pot, as in the growth of Cattleyas, &c. "It bears heat well. S. flava is of easy culture, but should be slowly grown, and likes a little extra heat in spring." S. rubra, a very distinct one with fragrant flowers, is the easiest of all to cultivate. S. purpurea of which there are beautiful plants, "requires to be kept cool, but may have a little heat in spring, provided there is plenty of air given." S. variolaris and one or two other species were also well managed, and all seemed to be in that moist condition in which Mosses love to vegetate. Mr. Bain has not got the curious Darlingtonia, never having had but a dying morsel to experiment upon; but it would be highly agreeable to him if, from its native country or elsewhere, a few plants with life in them were sent to the College Botanic Gardens, where I doubt not they would soon be seen in natural vigour. In the same house with the Sarracenias, Disa grandiflora was very strongly grown and flowered in a large pot of moist peat, but Mr. Bain considers that a plant which any one can grow.

Having first peeped into a hot pit, in which was being struck from eyes that fine plant Coccoloba pubescens, and in which an attempt was being made to strike the Mangosteen, grown here with the Strychnos, Gutta Percha, Nutmeg, and other hot-country plants, we will look into the Orchid house, which in this garden is always interesting. The house is quite gay with Epidendrum vitellinum—the best variety, and with

Cattleya violacea, both plentiful, the Cattleya being flowered in succession from the beginning of June till Christmas; and the same course being adopted with several other favourite and plentiful species, the result is a more constant supply of flower than is usual. Even Mr. Findlay, who has, I think, the neatest lot of Orchids in any botanic garden, had not so much flower. Apart from arranging such successions of bloom, Mr. Bain is well known to flower his Orchids more freely than other growers. The Vandas are growing in loose lumps of peat, are getting plenty of sun and light, and look very much firmer and dwarfer than we commonly see them—the difference between the leaves made in this house and those formed on some of the plants previous to having been sent here, being very striking. There are fine Saccolabiums, with good specimens of the best sorts of Vanda and Aerides, all apparently in a riper and harder state than usual, which is of course conducive to the free-flowering tendencies spoken of. Mr. Bain says he gets abundance of flower from his Orchids summer and winter by giving plenty of air and light. The Dove plant is blooming very freely; Odontoglossum pulchellum is of twice the usual size; and Epidendrum variegatum is here and there in flower; also a beautiful blue-striped Amaryllid of Brazil, Griffinia hyacinthina, surely better worth growing than many common members of the family. With the Sand-box tree, the Ivory-nut, Calophyllum Inophyllum, Cinchonas, the Clove, and other highly interesting plants among the Orchids in this house, was Ficus nymphæfolia, with handsome large leaves and very distinct aspect, one of the oldest and best of the genus, though uncommon at present.

And here is the Ouvirandra in profusion. When it was first sent out Mr. Bain got a small bit from Mr. Bewley, from which all his plants and all those he has "sent out" have originated. Very soon afterwards he was the only one who could spare a specimen of the plant in the neighbourhood. About London this plant does not—nearer than Kingston—seem to grow vigorously, though at Chelsea and elsewhere much attention has been paid to it, and all sorts of soils and positions given it. Mr. Bain's plants are grown in the purest soft-water, flooded over several times daily, and drawn off by a tap in the bottom of each pan weekly or thereabouts. In Messrs. Jackson's nursery at Kingston the two species are freely grown and bloomed in water with (when I saw it) a green surface, as if it had not been changed for many days, and in large inverted bell-glasses in the Orchid house; so that the water could not be very warm. By Mr. Berry, at Forres, in Morayshire, it is grown, and very freely, in water of a high temperature—not lower than 80°; and at Dangstein and elsewhere in tanks without any special attention; yet in some places, though all these methods and all sorts of soils may be tried, the plants dwindle away and perish. The cause is probably some peculiarity of the water; if not, what else? The plants here are perfectly clean and hard-looking, though not so large as they are in other places where the plant is well managed, the heat in the Orchid-house being, in Mr. Bain's opinion, insufficient to grow it to a large size. There are four earthenware dairy-pans full of Ouvirandra in all stages, from the tiniest morsel half an inch long, upwards, all in free health, and all growing on firm lumps of Dublin mountain peat. Each of the large and established plants could be lifted out with its adherent lump of peat, and underneath these being crocks, of course there was not a particle of mud or any impurity about the plants, as is often considered necessary—some people using river-mud or soil. The pans are shaded well in summer, "to prevent the attacks of conferva;" and this is worth remembering, for that often injures and kills the Ouvirandra. *W. R.*

Miscellaneous.

The Vine in Madeira.—The island obtained its name from the first discoverers, who, finding it thickly studded with trees, called it Madeira (woody). Set on fire by them on landing, a large portion of the forest was consumed by a conflagration that raged, it is said, for a long time, and thus the way was cleared for the reception of the Vine. The Sugar-cane, however, having found its way here from Sicily, Madeira was first distinguished for producing the best sugar known. For a long time this product was the principal commodity which it yielded to commerce; but after the rivalry of the West Indies rendered its culture no longer remunerative, the residents applied their undivided energies to the production of wine. It was not till a much later period that the merits of their vintages became generally known, and acquired that pre-eminence to which their innate excellence justly entitled them. Several varieties are raised, and both quality and flavour are influenced by the peculiarities of site and soil. The north boundary of the island, though sufficiently fertile, being exposed to cold winds and fogs from the sea, is less suitable to Vine culture than the southern part, where all the choice plantations are accordingly located. Most of the red Grapes are appropriated to the manufacture of white wines; but a portion of them are converted into *tinta*, or red wine, which, as long as it retains its colour, is sufficiently agreeable, though generally deficient in the high aroma for which the white sorts are distinguished. The Vines are planted in the grounds fronting the houses on lines of trellis-work 7 feet high, with the branches conducted over the tops so as to lie horizontal to the sun's rays. They thus afford a canopy for those who walk under them, yielding a delightful shade in that ardent climate. On the northern side they are mostly trained up Chesnut trees, to screen them from the violence of the wind, but some of the plants are supported on frames not more than 3 feet high. Fruit ripens as high as 2700 feet of elevation, and wine is made at 2000. On certain rocky grounds, open to the full influence of the sun's action, the celebrated Malmsey is grown. As the Grapes from which it is obtained require to be over-ripe, or partially shrivelled, they are allowed to hang for about a month later than those used in the manufacture of the dry class. Of this wine there are three sorts, the produce of three varieties of the plant: when of the best kind, it is most fragrant and delicious. One farm is appropriated for the exclusive supply of the royal family of Portugal. The very highest quality Malmsey is raised on the south side of the island from "an avalanche of tufa," lodged at the foot of a cliff almost inaccessible. Of this class very little reaches this country. *Denman's Vine and its Fruit.*

Calendar of Operations.

(*For the ensuing week.*)

As unusual activity appears to exist in the insect world this season, see that sickly or badly rooted specimens, if any, are kept free from red spider; also that young stock is not allowed to suffer from want of pot room, and during bright weather like the present attend carefully to watering, giving weak liquid manure to all plants in free growth that are likely to be benefited by it. Such stove plants as may have been removed to conservatories or greenhouses while in bloom should be replaced in heat as soon as their beauty is over, in order to permit their young wood to get ripened before short days set in.

FLOWER GARDEN AND PLANT HOUSES.

Out of doors trimming, staking, and pegging down must be well followed up where neatness and order are essential. See that sufficiently strong stakes are applied to plants with heavy foliage. Keep Roses as much as possible free from insects, and if time can be spared, dead blooms should be removed.

Azaleas.—Shift any of the young growing plants that require more pot room, give plenty of air, shade in hot weather, and syringe daily. Set plants that have done growing out of doors, in some airy situation—to rest and harden their wood.

Camellias.—Plants on which the bloom buds are forward, and that do not require shifting, may be set out of doors in a shaded situation. Shift all that require it. Syringe daily in hot weather.

Poinsettia pulcherrima.—This is so much admired during the winter months, that too much care can scarcely be bestowed on it. Plants of it may now be partially dried off preparatory to their being cut down. As soon as the young shoots have fairly started again, let the plants be taken out of their pots, their balls reduced, and repotted in the same sized pots as before. When the latter are filled with roots, a last shift into 9-inch pots may be given. They may then be placed in a cold pit, and kept close for a short time, after which air may be freely admitted until the beginning of September, when they should be replaced in the stove. The great point is to get the wood well ripened; that secured, a fine display of large brilliantly-coloured floral leaves may with confidence be expected.

FORCING GARDEN

Melons.—In the case of fruit ripening, a dry airy temperature must be kept up to ensure high flavour. Keep the shoots of succession crops thin, pinching off in time all extraneous growth. In watering great caution is necessary; where the fruit is approaching maturity cover the surface of the bed with flat tiles or slates to prevent evaporation.

Pines.—Air should now be given liberally to young stock. The plants should not, however, be exposed to drying winds by giving back and front air while the temperature is below the average, for that would not serve the end in view; but a moderate circulation should be secured whenever the weather is favourable. Thus, with careful attention to the state of the roots, keeping the bottom heat regular, the soil in a nice healthy state as to moisture, and giving a liberal supply of manure water to such as are well rooted, will be found much more conducive to robust growth than exposing the plants too freely, which would probably check and throw them into fruit prematurely.

Vines.—See that bunches for use late in the season are severely thinned, and also that the crop left is not too heavy in proportion to the strength of the Vines. Where the fruit is swelling be careful to maintain a moist state of the atmosphere, and give every possible attention to the roots, keeping the border in a healthy state as to moisture, and if watering is found necessary use good strong manure water. Give abundance of air where the fruit is colouring, and do not allow plants in pots to remain in the house to cause damp. Where the fruit is ripe and expected to hang for some time, the atmosphere of the house should be kept as cool as possible; but a little fire heat will probably be necessary occasionally in order to keep the atmosphere dry.

HARDY FRUIT AND KITCHEN GARDEN.

Thin and stop the young shoots of all trained fruit trees, and now make the final thinnings of Peaches and Nectarines, of course leaving the heaviest crop on the most vigorous trees and strongest branches. As a general rule, no two fruit should be left together. Plums of the large kinds, as well as the finer sorts of Pears, should also be thinned if the crop is too heavy. Young Peach and Apricot trees, when making over-vigorous leaders, should have the points of the branches shortened, to encourage them to make other shoots less vigorous, and of a fruitful character; this will obviate the necessity of shortening them back at the winter pruning.

Lettuces.—These are everywhere very fine this year. Continue to plant out from early sowings, and to keep up successional crops.

Peas.—A sowing or two of these should now be made.

Scarlet Runners.—If not already done, sow at once for a main crop; also a good breadth of French Beans.

Strawberries.—These will require attention. Layer the runners intended for pot culture early, as well as those required for making new plantations. All spare runners may be cut away, and keep the plants free from weeds.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the Week ending June 14, 1865, as observed at the Horticultural Garden

June.		Moon's Age.	Barometer. Max	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth 1 foot deep.	Temperature. Of the Earth 2 feet deep	Wind	Rain.
Thurs.	8	14	30.406	30.221	79	45	62.0	64	60½	E.	.00
Friday	9	○	30.344	30.257	85	46	65.5	64	61	E.	.00
Satur.	10	16	30.167	30.080	79	42	60.5	64	61½	N.W.	.00
Sunday	11	17	30.324	30.142	70	30	50.0	64	6[illegible]	N.E.	.00
Mon.	12	18	30.409	30.395	68	35	51.5	63	61	N.E.	.00
Tues.	13	19	30.381	30.352	81	40	60.5	62	61½	N.W.	.00
Wed.	14	20	30.415	30.344	80	36	58.0	63	61½	E.	.00
Average.			30.349	30.253	77.4	39.1	58.5	63.4	61.2		.00

June 8—Heavy dew; very fine; hot; very fine throughout.
— 9—Clear, quite cloudless; very hot and dry; very fine at night.
— 10—Very fine; overcast; very fine throughout.
— 11—Dry N.E. wind; fine; very fine; below freezing at night.
— 12—Cold and dry, with easterly wind; overcast at night; cool.
— 13—Fine; very fine; hot and dry; fine at night.
— 14—Very fine throughout; cool at night.
Mean temperature of the week, 9-10ths deg. below the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 39 years, for the ensuing Week, ending June 24 1865.

June.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds.							
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday. 18	72.4	49.8	61.1	20	0.84 in	4	2	4	3	6	6	1	3
Mon. 19	71.6	48.9	[illegible]	21	0.62	2	3	3	2	4	13	1	3
Tues. 20	72.2	49.1	60.4	18	0.66	2	4	2	2	6	12	9	2
Wed. 21	73.8	51.8	62.8	16	0.58	1	3	4	3	1	20	4	1
Thurs. 22	71.4	49.6	61.5	13	0.59	—	3	2	1	2	17	9	5
Friday 23	72.3	47.2	59.7	15	0.44	1	2	4	1	3	17	6	3
Satur. 24	73.0	51.1	62.3	15	0.72	1	3	4	1	2	15	10	3

The highest temperature during the above period occurred on the 19th and 22d, 1846—therm. 93 deg.; and the lowest on the 23d, 185[illegible]—therm 35 deg.

Notices to Correspondents.

Fish Parasites: *A Subscriber from January, 1841.* We must refer you to the Intellectual Observer for April, 1864, where you will find a good deal of information respecting the parasites which affect fish, though possibly not the particular one you describe. *M J B.*

Insects: *H H.* Your Silver Fir bark is badly infested with a small species of Coccidæ, allied to Chermes Laricis, of which the young are now being hatched in the shape of minute mites. It is therefore necessary that immediate steps should be taken for their destruction. We know nothing better than scrubbing the bark with hot soap suds or gas tar water and then drenching it with clear water.—*J C.* Your insects are a species of snake Millepedes, belonging to the genus Polydesmus, and which are not natives of this country but have been imported with foreign plants. Their habits are, however, identical with those of the English species, feeding on sickly or incipiently decaying vegetables. Bury slices of Potatos in the places they frequent, and examine them every other morning, as the insects will congregate on the pieces of vegetable. *W.*

Malformed Foxglove: *J L.* The peculiar appearance of your Foxglove is due to the combination of several flowers into one. This is not uncommon in some seasons, and is very frequently attended with median prolification, a condition in which the stem grows through the centre of the flower, and bears on its side other smaller flowers

Names of Plants: *G M.* Rhinanthus Crista-galli, the Yellow Rattle.—*P C.* Cupressus sempervirens.—*G P.*—Salvia verbenaca, which you can get rid of by preventing its seeding and grubbing out the roots. The others next week.—*G M* Helianthemum vulgare.—*G W G.* The Rhododendron appears to be one of the forms of R. calophyllum, but it was in a decayed state when it reached us. The other plant is under examination.

Pear Leaves: *W H.* Nothing is more common than the disease on your Pear leaves, and few things more obscure. We used to think that it was caused by a mite, but of late years we could never detect any parasite. It is unfortunate that it has attacked your fruit, as its presence on the leaves does not seem to be injurious. *M J B.*

Strawberries: *Subscriber.* They have this year gone blind in so many instances, and in such large breadths, that it is probable the season rather than the plants is in fault; and if so there will be no advantage from grubbing them up, if they are young and vigorous; but if they are old beds we should certainly take the opportunity to replace them.

Vines: *A Young Gardener.* It is scarcely possible to answer your question from the mere inspection of a leaf. Have your Vines ever been checked for want of water, or do they suffer from bright cold nights? Other matters might be suggested, but it would only mislead. Look at the condition of the roots. We suspect that the mischief is there. *M J B.*

Water: *R A.* Spring water, speaking generally, is not so good for plants as rain or river water, but whether there is anything specially deleterious in your case can only be determined by examination or analysis. We however hardly think the water can cause the mischief you describe. The best you can do, and this it is quite desirable to do, is to aerate it in wide tanks or flat open vessels for a day at least, before using it.

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This Company is formed for the purpose of purchasing and working the well-known deposits of Phosphate of Lime, situated at the Island of Sombrero, in the West Indies, and at Logrosan, in Estremadura; thus avoiding the serious competition that would necessarily arise if the two properties were in the hands of parties having antagonistic interests.

The business is fully organised, and in active operation; and the benefit of existing contracts for the delivery of nearly 10,000 tons of Phosphate during the next six months will be transferred with the lease of the property to the Company; and it is estimated that the profit upon these contracts will be upwards of £15,000—thus giving a substantial guarantee for the payment of an early dividend. Further contracts of an equally profitable nature for delivery of upwards of 30,000 tons, during the next six years, have been entered into, and these contracts will also be transferred by the present proprietors to the Company.

The consumption of Superphosphate and other Phosphatic Manures in the United Kingdom is estimated at from 200,000 to 300,000 tons annually, and that quantity is probably not applied to one-tenth part of the land which would be benefited by its use.

The purchase-money of the two properties is £250,000, which the vendors agree to take as follows:—£35,000 in debentures, and £50,000 in paid-up shares of the Company, which shares, for the purposes of dividend, are to rank only to the extent of the calls from time to time made on the ordinary shares, until July 1, 1866, after which date, provided the Company shall declare a dividend of 10 per cent. on the Capital then paid up, these shares are to be entitled to participate in future dividends to the full extent of their nominal value. The vendors take the remaining half of the purchase-money in cash by instalments, without interest, extending over a period of twelve months.

In order to meet these instalments, and to provide funds for the due and efficient carrying out of the objects of the Company, calls will be made as follows:—

£5 per Share, being equal to 20 per cent., £1 on application, and £4 payable on allotment.
£5 per Share, being equal to 20 per cent., payable 10th October, 1865.
£5 per Share, being equal to 20 per cent., payable 10th February, 1866.
£2 10s. per Share, being equal to 10 per cent., payable 10th June, 1866.

It is not anticipated that any further Calls will be required. Subscribers will have the option of paying the above calls in advance, or of paying up the whole £25 in full, and on such payments 6 per cent. interest per annum will be allowed from time of payment.

Applications for shares may be forwarded to the Bankers of the Company, with the deposit of £1 per share. If the number of shares allotted be less than the number applied for, the deposit paid will, so far as necessary, be credited towards the payment due on allotment. Should no allotment be made, the deposit will be returned in full.

The articles of association, leases, plans, reports, and valuations, with analyses of the respective products, may be inspected at the Office of the Solicitors.

Full Prospectuses and forms of application for Shares may be obtained of the Brokers, Bankers, Solicitors, and of the SECRETARY, at the Temporary Offices of the Company.

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Gentlemen willing to join the Committee and to subscribe are requested to address to DONALD NICOLL, Esq., "Mechi Testimonial Office," 55, Charing Cross, London, S.W.

The following Bankers have consented to receive subscriptions:—

London and County	Imperial Bank
London and Westminster	Messrs. Barnett, Hoares, & Co.
London and Joint Stock	Messrs. Coutts
Agra and Masterman's	Messrs. Drummond
Union Bank of London	Messrs. Brookes & Co.

Amount Subscribed at the first Meeting of the Committee, £2000. Since then a number of Subscriptions, varying in amount from One Guinea to 100 Guineas, have been received.

A List of Subscriptions and of the names of the Committee will be published in future Advertisements.

HORSE SHOW.—AGRICULTURAL HALL.—PRIZE LISTS and CONDITIONS may be had on application to the Secretary, Agricultural Hall Company (Limited), Islington, London, N. By order, S. SIDNEY, Sec.

HORSE SHOW.—AGRICULTURAL HALL, London.—ENTRIES CLOSE JUNE 24.

HORSE SHOW.—AGRICULTURAL HALL, London.—LAST DAY for ENTRIES, SATURDAY, June 24.

WIRRAL FARMERS' CLUB.—The AGRICULTURAL and HORTICULTURAL SHOW of this Society will be held at BIRKENHEAD, on SEPTEMBER 20.

Prizes to the amount of £400 will be offered for Horses, Cattle, Sheep, Pigs, Poultry, and Pigeons.

For Schedule of Prizes apply to Mr. WM. HENDERSON, Secretary, 2, Market Cross, Birkenhead.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.
JULY, 1865. PLYMOUTH MEETING.
PROGRAMME.
WEDNESDAY, THURSDAY, FRIDAY, and SATURDAY, JULY 12, 13, 14, and 15.
Trial of Field Implements on Woodford Farm, Plympton St. Mary. Distance by rail or road 3½ miles from the Showyard.
SATURDAY, July 15.
The Implement Yard open from 9 A.M. till 6 P.M.; admission, 5s. each person.
MONDAY, July 17.
Cattle Yard open from 8 in the Morning, at which hour the Judges will commence inspecting the Live Stock, and making their awards.
The Implement Yard open from 8 in the Morning.
Admission—Members free; Non-Members, 5s.
The Show Yards will be closed at 6 in the Evening.
TUESDAY and WEDNESDAY, July 18 and 19.
The General Show of Cattle, Horses, Sheep, Pigs and Implements, open to the Public from 8 o'Clock in the Morning till 6 in the Evening; admission 2s. 6d. each person.
THURSDAY and FRIDAY, July 20 and 21.
The General Show of Cattle, Horses, Sheep, Pigs, and Implements, open to the Public from 6 o'Clock in the Morning till 6 in the Evening; admission, 1s. each person.
FRIDAY, July 21.
General Meeting of the Members in the Show Yard at 10 o'Clock.
By order, H. HALL DARE, Secretary.
12, Hanover Square, London, W.

The Agricultural Gazette.
SATURDAY, JUNE 17, 1865.

WHAT has Mr. MECHI done to deserve a testimonial from the hands of his countrymen? It is plain that some people believe him to have laboured and accomplished much; for his Grace the Duke of SUTHERLAND, Lords ESSEX, HOUGHTON, LONSDALE, the Venerable Archdeacon HUXTABLE, Mr. LE NEVE FOSTER, Mr. Alderman SIDNEY, M.P., Sir T. B. WESTERN, Bart., and many others, are a committee for urging his claims; and a dozen men met the other day in a room, and subscribed 2000*l.* towards the satisfaction of them. There are, however, no doubt, a great majority who have looked upon him hitherto merely as an eloquent but random speaker upon agriculture, in whom strong social instinct, imperturbable good nature, confident self-assertion, a ready utterance, and love of country life, have combined to place him upon the surface of recent agricultural progress, and to keep him there during the period of change or even revolution, which has been experienced in British agriculture by the current generation.

If Mr. Alderman MECHI had been merely this—if he had merely followed selfishly—or it may be, unconsciously, for the gratification of his own strong instincts—the bent of natural taste, one might have accepted the results of his speeches, gatherings, publications, multifarious efforts of all kinds without much feeling of indebtedness, simply rejoicing in his prosperity as a man of business and society, or regretting any disaster which had overtaken him, without feeling personally called upon to express in any tangible way the sympathy which either lot excited. Now, it is doubtless true, that a great deal of what Mr. MECHI has accomplished really has been done without much strenuous purpose. We cannot doubt that it has to a great extent been sheer exuberance and overflowing vitality—his own keen enjoyment of agricultural society and life—which, along with a general and indefinite good-will, has been the real groundwork of his achievements—the foundation without which no definite benevolence, however intelligently and powerfully directed, could have been successful. But in addition to all this (no doubt animated by it, but) urgent and effective on its own account, there has been throughout his career a genuine and intelligent philanthropy which has won for him respect even from the most sarcastic of his critics, and which has at length culminated in the success of the great public institution founded by him, whose anniversary was last week celebrated.

Mr. Alderman MECHI has no doubt been in the van of agricultural progress rather as a flag-bearer or a trumpeter than as a regular fighting man; or, if the latter, it has been in guerilla warfare, not according to "the rules of the service," that his principal successes have been achieved. We look upon him in relation to the regular rank and file of the agricultural forces in this country pretty much as a GARIBALDI in relation to those regular armies by which not only victories but their results are consolidated and made sure. He is, however, the more likely on this account to excite strong feeling one way or the other; and there is thus, we are glad to think, the greater probability of success attending the effort which is now being made in his behalf. It is not with the immediate occasion of this effort that we have now to do; or with the circumstances which were about to enforce the sale of the Tiptree Hall Estate. The immediate object which Mr. GARRETT and his other agricultural friends have now in view is to prevent that sale—to raise such a sum as may replace the property in the hands of one who has made it a sort of watchword in the agricultural world.

Mr. MECHI has "served his time" as an agricultural soldier, and has well earned his discharge with more than mere thanks. It is now more than 20 years since his letters describing the purchase of the Tiptree Farm, the condition of the land, and the means proposed for its improvement, were published in these columns. Since then, useful essays in agricultural journals, cyclopædias, and papers—admirable speeches at agricultural meetings all over the East of England, in the North of England, and in the North of Scotland—lectures before the London Farmers' Club and the Society of Arts—continual agitation of the great social and professional questions of good landowning and good farming, good cottages, good drainage, town sewage, &c.,—direct contributions to good social feeling between town and country, and other separated classes, by many hospitable annual gatherings—and last of all a laborious canvass of the country, and the consequent successful foundation of a great benevolent institution for the especial benefit of agriculture—have followed one another without intermission.

In the *manner* of all this—along with plenty of honest inconsistency and lots of rattling volubility, there have been displayed an undisturbed good nature, which has often been severely tried, and as capital an illustration as has been ever seen of straightforward and transparent simplicity both in the man himself and in the voluminous English writings he has published.

As to the *matter* of it all—we cordially agree with the statement in a circular which the Committee of the MECHI Testimonial have published, that:—

Among the various branches of agricultural improvement upon which he has expended so much time and capital, he deserves especial credit for the indomitable energy he has displayed in conducting a series of experiments by which the utilisation of town sewage, the great importance of deep drainage, the clearing hedgerows of useless timber, and the autumn cultivation preparatory to root crops, have been made familiar to all practical farmers. By these efforts, as well as by the lectures he has delivered, and the papers he has read before the Society of Arts and Farmers' Clubs throughout England, a healthy stimulus has been given to agricultural improvement,—the fruits of which are visible on every side in the increased investments of capital, and in the cultivation of the soil.

This statement does not include any reference to the Royal Agricultural Benevolent Institution, which we owe to the energetic benevolence of Mr. Alderman MECHI. Let us quote from the speech of Earl SPENCER, who presided at its anniversary dinner last week, the following statement of what has been accomplished here. Lord SPENCER said:—

"Mr. Alderman MECHI had felt how much an institution of this kind was wanted by the agricultural body with whom he was associated, and he had successfully exerted himself towards the formation of this Society. It was ridiculous to say that the farmers did not require an institution like this; their occupation was a very precarious one, and they must therefore expect to find a great many who had fallen into distress from no fault of their own. Under this conviction the present Institution was founded, and it was one which ought to com-

mand the attention of every farmer in this country, especially as it was well known that there was no class of people who sympathised with each other more than the farmers did. There were three classes who received relief from the charity—males, married people, and females, including orphans. There was one advantage which the promoters of this Institution enjoyed, viz., that they were not subjected to the expense of supporting a building fund, the only bricks and mortar for which they were responsible being an office on a first floor at Charing Cross. In proof that he might congratulate the conductors of this Institution on its prosperous condition, he need only refer the company to the present statistics, which said that, at the first election of pensioners, in 1861, 455*l.* was appropriated to the maintenance of 20 pensioners. At the second election in 1862, 264*l.* was voted for 13 additional pensioners. At the third election in 1863, a further sum of 284*l.* for the support of 13 more pensioners; and in 1864, at the last election, 304*l.* was ordered by the Council for the relief of 14 additional pensioners, making up the total number to 60, and the total expenditure to 1326*l.* The former figure has by deaths been since reduced to 49, and the total expenditure to 1082*l.* The financial progress of the Institution must be considered highly satisfactory. The donations amounted to 1143*l.* 13*s.*, being 379*l.* 13*s.* in excess of last year, and the annual subscriptions reached 2944*l.* 3*s.* 6*d.*, being an increase of 620*l.* 12*s.* In addition to the balance of 725*l.* 14*s.* 11*d.* from last audit, a legacy of 100*l.*, bequeathed by the late Mrs. Lamprell, of Leigh, Essex, has been received, which, together with 255*l.* 15*s.* from dividends, make the total receipts of the year 5046*l.* 7*s.* 8*d.*, of which 2707*l.* 10*s.* have been devoted to the purchase of stock, leaving a credit balance at the banker's of 655*l.* 1*s.* 4*d.*"

The noble Chairman concluded by saying that the success of the Institution was in a great measure due to the continued exertions and ability of their Secretary, Mr. Charles Shaw, and he hoped the company would include his name in the toast he was proposing.—The toast was warmly responded to, and the Secretary read a list of subscriptions amounting to about 3900*l.*

We think enough has been said, both to show that English agriculture is largely indebted to Mr. Alderman Mechi, and to prove that our readers may well sympathise with the effort that is now being made to present him with a substantial token of the good will and respect in which he is held.

Mr. Moule's earth closet is, perhaps, more a horticultural than an agricultural subject—a matter concerning the garden rather than the field—and yet it has received discussion in another column at the hands of an experienced agricultural writer and a good practical man.

The subject of house-sewage is of great importance to cottagers and householders in the country, where a sufficient supply of fertilising matter for the growth of greedy vegetables is a real difficulty, and one which is thus successfully overcome.

We have seen the utmost fertility secured for a considerable area of garden ground by this alone, where some little vigilance has been exercised and interest taken by the master of the house in the subject; and we strongly recommend the use accordingly of the invention which has been patented by Mr. Moule, and is manufactured, as the advertisement declares, by Messrs. White & Co., of 29, Bedford Street, Strand, W.C.

It is quite true, as the advertisement asserts, that the deodorising material (dry surface earth or clay, or subsoil), excellent for the purpose, is at the same time the cheapest, and within the reach of all classes; and that a very considerable advantage, not only in large establishments but in mere cottages, may be thus obtained by the manufacture annually of a large quantity of valuable manure.

It is not in the least probable that earth will ever be substituted for water in dealing with the refuse of whole streets or towns, but wherever there is a detached house, surrounded by a garden, it is plain that the plan of Mr. Moule is at once effective, economical, and remunerative.

AGRICULTURAL EDUCATION.

[The following, from the columns of the *Hereford Times*, is a short report of the discussion which took place last week at the meeting of the Bath and West of England Agricultural Society at Hereford.]

Mr. T. D. Acland, M.P., referring to the subject of the special education of the son of the tenant farmer, observed that in the Dean of Hereford they met a man who was known far and wide as having done more than any other individual to improve the system of education, and who had greatly benefited the agricultural classes. Now that the Dean had laid the foundation of a real and practical education, it was for the parents of children to judge whether it would be best for them to give their children the advantages of the improved system, or place them under the care of ignorant schoolmasters and schoolmistresses. He was sure that the good school would be at once appreciated by the parents, in preference to older and more imperfect systems. In their President (Lord Taunton) they found one whom the Queen had chosen to guide one of the most difficult inquiries ever submitted to a commission for consideration, and intelligence guided him to a happy issue in the very complicated subject submitted for solution. Then there was another gentleman present whose name was closely connected with the progress which had been made in the improvement of systems of education, viz., Mr. Holland, M.P. for Evesham, who he was glad to say had taken up the subject most ably. They did not agree altogether as to details, but they were entirely agreed as to the main object, viz., to assist the farmer in educating his son in a school where he should learn something connected with his business. He did not think Mr. Holland would differ from him, but that what he said would find an echo, viz., that business was business; he meant by that truism to convey to them his idea that business could only be learned in business, and that he did not believe it could be learned in any other way. Still, it was a most difficult matter, and very perplexing to know how best to advance the knowledge of the young farmer, so that he may be enabled to pursue his calling under the most advantageous circumstances, and appreciate when he became older the education which had been imparted to him. First, assuming that the youth was a good, honest, and virtuous Englishman—though how he was to be made that he would not then stop to say—they had to teach him to feed animals, to understand and to do farm work himself, to understand the management of those who had to do it, to teach him to distinguish between theory, crotchets, and practice, and make him a good market man. Upon his being properly instructed in these matters depended his success as a farmer. How this was to be done was the problem which had caused so much difficulty, and he believed that the solution of it was of national importance. It was a subject of intense difficulty for the reason that there were some tenant farmers to whom the expenses of a boarding-school were too heavy to be incurred, and who had no other means of early educating their children. The education must be early in life. The time was come when they ought to think about it, and he believed there was a more general readiness to give the subject the closest attention. The Royal Agricultural Society had taken some important steps in the matter, but they would excuse him if he said that he felt a little proud when he reflected that their Society had given the start to the educational movement; for it was at the Tiverton meeting, in 1855, that the distinguished nobleman, Lord Fortescue, first started the question of improving the education of farmers' sons. Thus they found that their Society laid down the principle in 1855, that skill in business must be acquired in practice. The Royal Agricultural Society has since then been carrying out the principle then laid down. He had to apologise for bringing the subject before their attention, but he was reminded of it by what fell from the worshipful Mayor of Hereford, in his address in the arts exhibition on the first day of the show, viz.:—"That the exhibition was itself a school of instruction."

Mr. Holland, M.P., said they had had that evening many satisfactory speeches in connection with the question of agriculture, and he, who had worked all his life, whether right or wrong he would not say, in connection with it, felt gratified at the way it had been received that evening. He was gratified with the reception the remarks of the various speakers had received, for he knew that it would have been very different some 15 or 20 years ago. At that time agriculturists were satisfied with following in the ways of their forefathers, but now, as Colonel Acland had remarked, they desired all the scientific knowledge relating to their profession. What had brought about that great and important change? That the change in the law had produced a great change in agriculture was manifest, but at the same time agriculture up to a few years ago, was quite an isolated profession, and from the very nature of their trade, agriculturists could not communicate with their fellow men, and could not exchange ideas the same as the manufacturer and the merchant did. Consequently, agriculturists seemed to be an ignorant class. The reverse is the case now. He thought that within a short time agriculture would stand where she ought to stand—on a level with the sister arts and sciences. They had heard from Mr. Acland a good deal respecting what ought to be done in connection with the education of the farmers' sons, and they had also heard from him what ought to be done and what could be done by the Royal Agricultural Society. Now no difference existed on that point between Colonel Acland and himself. They were all of opinion that it was necessary for a youth to have a good general, sound, and religious education, to fit him for any walk in life, and an especial knowledge of that peculiar line in which he would have to pass the greater portion of his time. It elevated him and gave him the advantage he ought to have, and which every enlightened man must have. He (Mr. Holland) thought that the funds of the Royal Agricultural Society ought to be expended on all matters intimately connected with agriculture. They knew that if a man were left to himself and had not the advantage of being able to communicate with his fellow man as to what was going on, he soon became quite an isolated and ignorant person. This had been the case with agriculturists, but this Society, and small local Societies, provided members with the opportunity of interchanging their opinions, and thus brought about a large amount of intelligence. By the introduction of machinery they were able to compare the past with what might now be done, and thus see in what direction their own task lay. Their task was to keep pace with the increasing population and civilisation of the country.

Mr. C. Wren Hoskyns, like Mr. Acland and Mr. Holland, claimed also to be a member of the Council of the English Agricultural Society, which had for many years taken a very deep interest in the subject of special education for the class referred to. There was, as a matter of course, considerable difference of opinion between by different members of the Society respecting details, but in the main they all might be said to agree. He was agreeably surprised recently upon reading a paper written by Colonel Acland on the subject of special education to find that he had come to the same conclusion as he (Mr. Hoskyns) had reached. He believed the more the subject was worked out the more would the truth of Colonel Acland's observation strike them, viz., that a business must be learnt in a business. Of course the man who started with a good general education and an acquaintance with science would make the best farmer; but there could be no doubt that schools of instruction bearing directly upon agriculture would be of great service to the youthful agriculturist. There could, however, be no doubt as to the force of the observation of Mr. Holland that the very earliest education had a great influence upon the whole tenor of a boy's career; but it did not make him a good practical agriculturist.

HOUSE SEWAGE.

When will the subject of sewage, as human excreta are now commonly called, receive a practical and practicable solution? A correspondent has lately revived in an off-hand, but so far as it went very sensible way the question of deodorisation by dry material, and the substance he referred to as a disinfectant was coal ashes. This is not a new idea, as it has long been practised more or less perfectly in town and country offices; but let us see how it can be more generally carried out, as it bears on our health and the fertilising value of the matter to be thus dealt with. In doing this it is not necessary to enter into the vexed question of the liquid sewage which now runs in streams from metropolitan main drains and the minor underground conductors of provincial towns and cities. In the present temper of aldermen, corporate bodies generally, and vestry boards, the more reasonable and practicable any suggestion might be, the less likely would it be to meet with consideration, much less approval. When the facts of the expenditure of 7,000,000*l.* sterling in the metropolis with proportionate sums in smaller towns, and this for the purpose of conveying sewage in a form which, up to where it is of no use, have been fully realised, the practicable suggestions may be made with a chance of a fair hearing. We do not wish, besides, to interfere with the load of responsibility which experimentalists and lecturers, and speechifiers, have heaped on their own shoulders, but prefer to allow them and their admirers to deal with their own difficulties in respect to these investments, for in no other way it appears can their and their extravagances receive that effectual check which they deserve. Nor is it necessary to go into the estimated value of these substances by analysis, for although the agriculturists of this country have been held up to public ridicule and censure for "stopping the way" to profitable sewage utilisation, they do not require two sentences to be said to convince them of the virtues of human excretæ, provided the material be come-at-able in an available form. It is, therefore, only as a reminder to practical men that we say, the whole aim and end of our developing the resources of the soil by tillage, and of fertilising it by bringing guano from Peru and bones and other substances from the utmost ends of the earth, in addition to husbanding our home supplies, is simply for producing food for sustaining human life. Human food, therefore, contains what we may term the essence of all our native productions as well as of the far-and-wide gathered fertilisers with which our fields are partially or fully restored. It is then one of the simplest possible conclusions to realise in our minds that whatever unnecessary waste may take place in our system of domestic economy occurs in allowing the elements of physical life to run to waste when they have done their assigned office in the human system.

The Providential order of Nature under which mankind live, multitudes together, is full of information for our instruction. If it were possible for the inhabitants of London or any other large city to manage as they now do, with the exception of fires; or, to suggest a more simple hypothesis, were it possible to prevent those aërial changes which fires now produce, their health would suffer, and their lives be endangered. So soon as food has lost its carbon by fermentation, or by digestion, and that slow combustion in the animal system which sustains the required heat, then the substances which remain become repulsive, and correspondingly injurious. Of these remaining substances the course need not be here further examined, but their contaminating and volatile and subtle character, cause the confined air of collective dwellings to be highly charged with poisonous compounds which are then generated. It is here where the products of fire become so beneficial to health, for the affinity which these matters have for the carbon driven off in the form of smoke, and the way they are further diluted and neutralised by the carbonic acid produced by the perfect combustion of fuel, cause them to be comparatively

tively harmless to the people who, without such counteracting influences, would have their lives jeopardised. Thus, it may be gratifying to learn that the very atoms, visible and invisible, which we complain of for blackening our linen and making our skin of a sallow hue, are preservatives against pestilential diseases. And thus we may learn how to use similar substances, but which we can easily command and control, in a more health-preserving as well as more profitable way, for the purpose of reproducing human food.

Soot is one of the very best deodorisers we have, while coal dust has some of the same power, at the same time that it is a good absorbent; wood ashes, too, and charred vegetable refuse are equal to soot from coals as disinfectants, while they contain alkalies that are worth husbanding. But the question is deodorisation of offensive and injurious scents. How now do we proceed in a general way? Put soot on the fields at 6*d.* a bushel as it is, and after throwing the dust of our fires in some corner we put them in a manure heap, or on the land direct in any sort of way, and just as it may happen as to place, while we dig a hole or pit for holding out of sight the very valuable material which these residues of fires are so well adapted for making harmless and portable. As we have said, corporate bodies may be left out of our present considerations. But what an amount of waste both of fertilisers and health annually takes place in villages, blocks of houses, and single cottages, by thus overlooking our resources, and not adapting our means to our requirements.

It is possibly clear that if we were to make our cesspools out of the ground, or nearly so, instead of in the ground, the valuable fertilising substances, nearly all of which we now lose, might be saved in their entirety, and this without any offence to the senses or danger to health. In nine houses out of ten, enough calcined refuse and dust arise to make perfectly innocuous the accumulations of ejecta which ordinarily take place. All that is required is to have the daily refuse which now goes to the dust-bin or the dung-heap regularly scattered in the receptacle suggested. This may be formed of plain brickwork and cement where space is of no consequence, and an opening at the back can be conveniently arranged; or, where room is limited, a metallic receptacle for removing bodily when full may be adopted. And where a little expense is no object, a few mechanical arrangements may be adopted for allowing a systematic distribution of this natural deodorising material from a chest or hopper made at the top of the closet.

It is not necessary to go into figures to show the commercial value of the material in question. We know it must be good if taken proper care of; we know too that our fields, from the close cropping some of them have had for several years, either require to be restored by being kept down in pasture, or by having returned to them the elements which have been lost in the way indicated. If we were farming near a village or number of houses, and we were sure of retaining our occupation, from having a lease or other security, for 21 years or so, we would enter into an agreement at once for as many of these places as we could get; and while we would agree to give, by way of encouragement, the owners of them some small sum per annum for their refuse, we would under proper security fit up these closets so as to make them perfectly inoffensive to the inhabitants, at the same time that they would be convenient for carters to empty them with cleanliness and ease to themselves. In ordinary weather nothing would be required but the common ashes of fire-places and the house dust. The soot which accumulates might be reserved for changeable or excessively hot weather; and if this were not sufficient, a small stock of dry powdered clay might be in reserve for allaying any offensiveness or loss of fertilisers from fermentation. The practical part of this system seems to us to be so simple and easy that it is a matter of astonishment it has not spread before now into one of general adoption. The Rev. H. Moule is pressing this subject in Dorsetshire, but he damages the prospect of the more simple plan—that of carrying domestic refuse to the soil in a mixed form instead of separate—by urging such complications as drying sheds and using the same clay five times over! His material (clay) should only be referred to as an auxiliary, instead of which he makes it the main article to be used.

The importance to health of the dry system of deodorisation and removal is something startling to every one who can appreciate the frequent results of cesspools under ground. In villages and at country houses the water for household purposes is generally got from wells. If we only recall to mind that 4-feet drains will draw water in tolerably stiff clay 10 or 12 yards, we may judge of the effect of a heavy rain on a leaky brick and mortar cesspool, and subsequently on the well that may be a less number of yards off, the water of which, too, may be 8 or 10 feet or more deep, leaving the well wall equal to an open drain of that depth. We have frequently seen water in country villages, at farm houses and cottages, green from containing ammoniacal and sulphuretted mixtures. We know villages on flat or low surfaces wherein gastric or typhoid fevers are seldom absent, and which arise solely from the way the liquid of cesspools and water of wells used ebb and flow in subterranean currents according as the surface soil may be overcharged from rains. During the past dry year many clear and distinct cases of poisoning have been traced to the flowing of cesspools into the wells from which families drew their water for domestic uses. This has arisen from there having been enough rain occasionally to flood the cesspool and convey its noxious contents unobserved, from being underground, to the well, while the average of rain has not been enough to so flood the land-springs and well that the amount of matter which had found its way there was not diluted enough to be only injurious, but remained destructive to human life.

If it be only for the latter considerations this subject is worthy of the most serious attention by every family. And when it is considered that if farmers and villagers and other householders would work together, this now common source of destruction to life may be turned to commercial profit; why, then, the question assumes an importance which partakes of the character of a patriotic and otherwise good work. Where this has not been already begun, the present season is a good time to commence, that a stock of compost may be in readiness for the Turnips of the coming summer and the Rape of the following autumn. *W. G.*

AGRICULTURAL EDUCATION.

[The following is the ultimate report of the Education Committee of the Royal Agricultural Society. We publish it, anxious that the experiment it indicates should receive a fair trial.]

1. The Committee have revised the report placed before the Council on the 10th of March, and have again taken into consideration the various subjects which were discussed upon that occasion.

2. In consequence of the late period of the year at which this report has been referred back to them, the Committee cannot recommend any examination in practical agriculture in 1865, and are not prepared to advise the appointment by the Council of a Board of Examiners until a trial has been made of the existing examining bodies.

3. The Committee recommend that a sum not exceeding 100*l.* be given for Society's prizes amongst candidates who have passed the Oxford or Cambridge Senior or Junior Examination.

4. That a sum not exceeding 100*l.* be given for special subjects enumerated below,* to candidates at the Oxford and Cambridge Examinations who have passed the Preliminary Examination.

5. That a sum of 100*l.* be left in the hands of the Committee for additional prizes in connection with these examinations, or for expenses attendant thereon.

6. Every candidate shall be recommended by a member of the Royal Agricultural Society of England; and must be a person in some way dependent on the cultivation of the land for his support, or intending to make agriculture his profession.

7. In the choice of special subjects, the Committee being necessarily restricted to those in which candidates are examined at the Oxford and Cambridge local examinations, have made their selection with a view to the encouragement of proficiency in such branches of science as are applicable to the study of practical agriculture, and calculated to prepare the mind of the student for the proper reception of that practical education, which must ultimately be completed by observation of the working of a farm, and thus enable him to test the value of such theories as may be presented to him.

8. The subjects chosen will be especially useful to machine makers, manure manufacturers, and others who it is hoped will be attracted to these examinations, though more indirectly dependent upon agriculture for their support than the actual cultivators of the soil.

(Signed) Edward Holland, Chairman.

Extract from the Minutes of the Committee, May 16, 1865.

That for the purpose of prizes to be awarded in connection with the Cambridge Local Examination in December, 1865, there be appropriated a sum not exceeding £150

That the said sum be apportioned as follows:—

I. To prizes for candidates who obtain certificates, regard being had to their place in the General Class List.

Juniors, a sum not exceeding £25

Seniors £25

II. To prizes for candidates who (having passed the Preliminary Examination), are distinguished in any of the following special subjects.

Juniors.

Section 7. Pure Mathematics.

Section 8. Mechanics.

Section 9. Chemistry.

Section 10. (*a*) Zoology, or (*b*) Botany.

No Student will be examined in more than one of the two divisions (*a*) and (*b*).

A sum not exceeding £20

Seniors.

Section E. Mathematics.

Section F. Chemistry.

Section G. 1. Zoology, and the Elements of Animal Physiology;

2. Botany, and the Elements of Vegetable Physiology;

3. Geology, including Physical Geography.

No Student will be examined in more than one of these three divisions. (1) (2) (3).

A sum not exceeding £30

III. To prizes for Candidates who answer papers to be set in Mechanics, and Chemistry, as applied to Agriculture. Open to Juniors and Seniors who have passed the Preliminary Examination as above, and also to any young men not exceeding 25 years of age (duly recommended).

A sum not exceeding £30

* The special subjects referred to in paragraph 4 are:—

Mathematics.	Chemistry.
Mechanics.	Zoology, Botany, or Geology.

Extract from the Regulations for Local Examinations.

University of Cambridge, December, 1865.

1. "All candidates will have to fill up a printed form for the University. Application for these forms should be made to the Local Secretary, at the place of examination before October 26. Such application should state precisely whether Forms for Senior or Junior Candidates are required."

The Examinations will probably be held at the following places, and the gentlemen whose addresses are given, kindly act as Local Secretaries for their respective neighbourhoods.

Barnstaple: S. Peatherstone, Esq., Union Terrace School.
Brighton: Barclay Phillips, Esq., 75, Lansdown Place.
Bristol: Rev. E. J. Gregory, 2, Belgrave Place, Clifton.
Cambridge: R. Potts, Esq., Parker's Piece.
Exeter: W. Roberts, Esq., Broadgate.
Hastings: Messrs. Porter & Stewart, West Hill House.
Leeds: Barnet Blake, Esq., Mechanics' Institute, West Riding Educational Board.
Liverpool: N. Waterhouse, Esq., 5, Rake Lane.
London: T. Bodley, Esq., 49, Upper Harley Street, W.
Lutterworth: Rev. W. Berry, Ullesthorpe House.
Northampton: Rev. R. P. Lightfoot, Preston Deanery.
Norwich: Rev. Hinds Howell, Drayton Rectory.
Plymouth: Rev. E. F. Tracey, Ford Park.
Sheffield: Rev. S. Earnshaw.
Southampton: Rev. A. Sells, Polygon House.
Torquay: E. Cockrem, Esq., Directory Office, 10, Strand.
West Buckland: J. H. Thompson, Esq., Devon County School.
Windsor: W. H. Harris, Esq., 4, Osborne Villas.
Wolverhampton: W. Crowther Umbers, Esq., 2, Chronicle Buildings, Market Street.

2. "These forms must be returned by November 1, 1865, to the same Local Secretary, and with them must be remitted the fees, viz., the University fee 1*l.* and the local fee (if any) charged by the Committee at the place of examination."

No fee is required by the Royal Agricultural Society of England.

Candidates for the Society's prizes must be recommended by a member of the Society.

Application for forms of recommendation should be made without delay to the Hon. Secretary, Royal Agricultural Education Committee, 12, Hanover Square, from whom further particulars may be obtained on application.

EXPERIMENTS IN CATTLE FEEDING.

Last spring Mr. A. Smith, Stevenson Mains, who has given much attention of late to the fattening and rearing of stock, having a pretty large quantity of Potatos on hand about the time when he was beginning to feed off his cattle, thought of trying how they would thrive on a Potato diet, with the usual quantity of oil-cake. The cattle were accordingly fed off with the Potatos, and throve so well on them that he resolved on testing the qualities of the root still further this season, by feeding from first to last entirely on Potatos. He at the same time, for his own guidance in carrying out the pulping system, to which he is a convert, made a separate experiment to test its value as against feeding in the ordinary way with sliced Turnips. A lot of cross-bred Short-horn stirks, rising two years old, were bought by him at the Linton October market last autumn, and divided as equally as possible with regard to condition, size, and so forth, among three courts. The lot numbered 20, six of which were to be fed on Potatos, seven on pulped Turnips, and seven on sliced Turnips, with the usual allowance of straw in each case—the pulped-fed cattle getting theirs chopped. From the moment they entered the courts, up to the month of March, when the whole of them for the first time, and in the same proportion, got oil-cake and Barley-meal to finish off, the cattle were kept exclusively to their own kind of diet.

A very short time served to show which was the most nutritive article of food. Almost from the first the Potato-fed cattle took the start of their neighbours, and, to use a racing phrase, were never headed, but came in at the finish a good way in advance of the others. They took to the Potatos with the greatest relish, and never gave the slightest indication of "hoven" all the time they were being fed on them. In fact no beasts could have given less trouble or anxiety from the day they were put into the close till they were taken out in the early part of May—a period of about seven months. While the experiment was thus satisfactory with regard to what we may call the No. 1 court, it was not less so as respects No. 2—the court containing the cattle fed on pulped Turnips. These also, almost from the beginning, evinced a superiority over their neighbours fed on the sliced Turnips. They were decidedly in better condition, and brought more money—perhaps the best test of all that they had been better fed. The cattle, as we have said, when they went into the courts, were placed as nearly as possible on an equality, and their difference of condition at the end of the experiment was solely due to the difference of feeding. The average price obtained for the lot was 17*l.* 5*s.* each. They were sold privately, the value put on them by the purchaser—a dealer of judgment—being as follows:—No. 1 court, 17*l.* 15*s.* each; No. 2 court, 17*l.* 5*s.*; and No. 3 court, 16*l.* 15*s.* In other words, the Potato-fed cattle brought 10*s.* a-head more than those fed in the ordinary way.

The value of the experiment consists of course in the expense of raising the different lots, because if No. 3 court were fed off cheaper than No. 1 court, no inducement is offered to make any change from Turnips to Potatos. This point can be satisfactorily answered. Each of the courts was supplied with a daily allowance of Turnips carefully weighed or measured, and it was found that while in the case of the No. 3 court the seven cattle consumed 11 cwt. of Turnips per diem, those in No. 2 court were well and better fed with 9 cwt., or 2 cwt. per day less. This was a direct saving in the cost of the Turnips, but it

also saved—a matter of some consequence—the expense of carting the extra quantity from the fields, which could be much more easily and profitably eaten off by sheep as they lay in their drills. As a set-off against this, there is, no doubt, to be placed the cost of the pulping, but this is not a very serious matter. Mr. Smith does not employ steam for the purpose at Stevenson Mains, but has a one-horse power machine, which he finds answer extremely well. The amount of work it gets through is large, amounting to about 3 tons per hour—amply sufficient for the wants of a pretty large number of cattle, we should fancy. There is also the wages of the girl who attends the pulping machine, when it is in motion; but making every allowance for these items of expenditure, Mr. Smith is quite convinced, from his experience of the system, that it is, when properly conducted, in every way more profitable to pulp than to give cattle the Turnips simply sliced. His experiment this year seems to prove that not only can they be fed on a less quantity of Turnips, but that they bring a better price when fat than the others.

Taking the value of a ton of Turnips at 10*s.*—the average weekly cost of feeding the No. 2 cattle amounted as nearly as possible to 4*s.* 6*d.* per head, while the No. 3 cost about 1*s.* per head more. The calculation can easily be made, and will be found as stated. But the Potato-fed cattle show a considerably greater saving. The courts were put under the charge of a careful and experienced cattleman, whose instructions were to note down exactly the amounts consumed in each close. From the book which he kept, we find that the six cattle in the No. 1 close only consumed a weekly average of about 15 cwt. of Potatos, which, at 25*s.* per ton, gives 3*s.* 1½*d.* as the expense per week of feeding each beast, and feeding it 1*l.* per head better than with food that costs 2*s.* 4½*d.* more money weekly. It is also to be remarked that the Potatos used were unmarketable, in so far that the first and seconds had been selected from them, and were only available for the starch mill, or for feeding purposes. So satisfied is Mr. Smith with the result of his carefully-conducted experiment in Potato feeding, that he intends continuing it next year on a larger scale. He has no doubt as to its being the most profitable as it is undoubtedly one of the easiest modes of fattening lean cattle for the market.

Home Correspondence.

Agricultural Education.—Permit us who have been very much interested in your papers on this subject to thank you. Although you are in the minority at present, still your advocacy will in the future be appreciated, and your ideas will be practically wrought out, to the advantage both of the tillers of the soil and the landlords. The Highland and Agricultural Society of Scotland is as much at sea in the matter of nursing agricultural education as the Royal Agricultural Society of England, and amongst other propositions for the advancement of theoretical agriculture, a number of letters appeared in the *North British Agriculturist* by a landlord member of the Highland Society, advocating that some of the funds of the Society should be given to this and that parish school, this and that academy, and this and that university. The small pittances proposed, of 10*l.*, 15*l.*, and 30*l.* respectively, provoked a derisive smile in valuing the readings and teachings of the masters of such seminaries at such a low figure, especially when we take into consideration that the teachers (except probably at the Universities) could not have a special fee from the scholars for any of the agricultural branches taught. Upwards of 20 years ago a considerable stir was made in some schools and academies with agricultural classes. The teachers had great difficulty in turning their teachings to an important practical end. We were in daily intercourse with pupils and teachers then, and have watched the progress of the former since they left the agricultural class, and have failed to see any benefit arising therefrom. Indeed we know for a certainty that although they committed to memory the answers to the questions in that admirable little Catechism on Agricultural Chemistry and Geology, by the late Professor Johnston, of Durham, not one has read his valuable "Elements," far less his far more valuable "Lectures" on the same subjects. We are acquainted with one teacher at present who has plots of ground from the principal heritor of the parish, which the teacher hands over to his most deserving pupils, who crop it as they choose, and retain the produce. When the master was asked some time ago if he would like to have more ground, he replied, "I have plenty," although there are only six or eight small plots in a school numbering from 60 to 100 pupils. We state these facts to show the absurdity of wishing to spend money thus, on what would not be of the least benefit to agriculture. Last year we met an academical teacher, who took two or three of his agricultural class pupils many years ago to pass an examination before Professor Johnston or the Highland Society at one of their shows. The boys had been instructed in Johnston's Catechism, and got much praise for their examination. I inquired of the teacher if these boys had become good agriculturists, at which he smiled and said, "Oh, I don't suppose anything of the sort." Such in effect will be the result of the Royal Agricultural Society's examinations at Cambridge or Oxford, so far as the great body of agriculturists are concerned. A number of years ago, after having spent a five years' practical apprenticeship with three different farmers in Berwickshire, we went to Edinburgh to attend the classes of Professors Dick and Low. In our attendance on these teachers we were forcibly struck with the complete arrangements for an effective mastery of the subjects professed to be taught by the former, and the almost uselessness of attending the lectures of the latter. In the veterinary class we had our pathological, anatomical, and pharmaceutical chemical lectures, with such a varied and extensive yard or infirmary practice, as clinched firmly on the student's minds the class-room teachings. The 3000 yearly cases brought before us made a visible impression, while the Professor made us administer, and to the daily cases he invariably referred while we were seated on our benches. The demonstrator of anatomy, with his specimens before him, and his museum a step away, also the dissecting room down stairs, could easily make us practically acquainted with the natural laws spoken of. And the pharmaceutical chemist, with his laboratory, lamps, tubes, tests, &c. &c., on his table, endorsing all he advanced with that tangible and visible illustration which the most obtuse could easily understand. And to crown all, we had weekly class examinations by the teachers on the week's lectures. As for the agricultural class in the university, we had an hour's lecture five days a-week, and nothing more. It is true we had a good museum, or collection of implements, seeds, plants, and paintings of animals to visit as often as we liked; so far as the class teachings and improvement thereon were concerned, we might just as well read Professor Low's text-book in our own rooms, and neither wasted time nor spent class fees on a non-benefit. We much regretted that there was not any farm in the neighbourhood in connection with Professor Low's class, where we could have gone frequently to rivet on our minds the teachings of the Professor. It seems an exceedingly difficult matter for such large and influential Societies as the Royal and Highland Agricultural to do what the individual Professor above referred to has so well accomplished. While we find fault with the present apathy of the two Societies, and do not agree with what is being done to foster the agricultural education status, we hold that there is, in such cities as London and Edinburgh, or indeed in any large city or town, all the elements whereby the practical and theoretical education of agriculture might be most materially advanced, and at a cost within the reach of every farmer of ordinary means, viz., a farm might either be rented, or the *entrée* to a farm at all times, by an arrangement with a first-rate practical farmer at a fixed fee, say ten guineas a-year for each student. Such farm to be situated near the metropolitan cities or other large towns, where the students could attend the classes of accredited teachers of veterinary surgery, agricultural chemistry, botany, and other classes which the Societies may prescribe or the student may desire. The manager of the farm, or the tenant, to be required to give an hour's daily lecture in a room fitted up in the farm, that lecture to be on the business or work of the farm being that day pursued. Weekly examinations to be made by the professors or lecturers, and the diploma of the Societies to be granted to those who pass a creditable examination at the annual meeting. Such a course of agricultural instruction would not cost more than twenty guineas a-year for each student, the student paying these tickets for *entrée* to the farm and class room, and boarding and lodging himself where it may best suit. If the Societies were introducing such a course, which we consider would soon be self-supporting, and if landlords were giving a preference, in choosing tenants for their farms, to those holding diplomas or certificates of a first-class agricultural educational status, they would give a spur to the question, which would much outstrip what is being done. *P. & T.*

Societies.

Essex Show at Brentwood.—The meeting of this flourishing Society was held in the town of Brentwood last week, and all things considered it was the best that has hitherto been held. The entries were very large, the attendance good, and the weather fine. The most striking improvement was exhibited in the cattle classes, particularly the Short-horns. The pigs were very good, and so were the sheep, considering that this is not a breeding county. The horses, although more numerous, were not quite so good as at some preceding shows. There were however some very fine animals, particularly in the cart-horse class. The winner of the prize for all England was a very fine Suffolk with good action, belonging to Mr. C. Boby, and which beat the prize stallion in the Local Classes, which also competed. The latter was a fine iron-grey horse, belonging to Mr. Ellphick, which beat with some difficulty a capital Suffolk, belonging to Mr. Richardson. There was a fine cart mare and three-year-old filly, belonging to Mr. John Ward, which took prizes. The pairs of plough horses were very good. Mr. Pason's pair of Suffolks beat a powerful and active bay and grey, belonging to Mr. Bray.

In Cattle, Mr. John Clayden took several prizes in Short-horns; also Mr. Bramston, M.P.; Mr. Bearblock, Mr. Cristy, Mr. Taylor, and all for good animals.

There was a large entry of Sheep, and a great variety of breeds; amongst them a very successful cross established out of originally four distinct breeds, showing what can be accomplished by vigilance and care in breeding. The Downs of Sir T. Lennard, Lord Braybrooke, Mr. Bramston, Mr. Sewell, Mr. Clayden, and others, were very good. The Longwools of Mr. Gillet and Mr. Sacket were conspicuous.

Mr. Badham had the 1st prize, for a splendid white sow and pigs, which class, although not particularly numerous, was yet very good.

The entries for stock very much exceeded those of previous years, but the implements were very short although very select. The show was held on a very favourable ground, lent for the purpose by the proprietor, Mr. Hill, and the inhabitants of the little town by their efforts in the way of decoration and otherwise gave a welcome reception to the Society. The dinner was well attended, and went off extremely well; the Hon. Mr. Petre in the chair, supported by the members of the Society and the chief landed proprietors.

The following gentlemen officiated as Judges—Cattle: Messrs. Robinson, Garne, and Beaufoy. Sheep and Pigs: Messrs. Henry Woods, Waters, and Little. Cart Horses: Messrs. W. C. Spooner, Jones Thomas, and W. Horn. Riding Horses: Messrs. Henry Thurnal, Aylmer, and Hurrell. Implements: Messrs. Phillip, Hobbs, and F. Whitlock. Wool: Messrs. Thomas, Johns, and Hitchcock.

Farmers' Clubs.

Logie: *Hindrances to Agricultural Improvements*—Mr. Henderson read a paper on this subject at the last meeting of this Club. He referred first to the Law of Entail, the Law of Hypothec, and the Game-laws. Of the first two, suffice it to say that the one has been, and the other is likely soon to be, modified.

The Game Laws stand conspicuous as a hindrance to progress if loss and annoyance can be said to be so. It must be obvious to all, that it is to these laws, and to these alone, that we can attribute such an enormous increase of vermin—if not game properly so called, at least their accompaniments—fostered by a system of game-preserving. It is but small comfort to be told that this and that proprietor is not a game-preserver—one such personage is quite enough in 10 or 15 miles of a district. Hares will travel 5 or 6 miles to get to their favourite food, and crows and wood-pigeons will fly no one knows how far. It is more than enough for the husbandman, in these times, to have the natural difficulties of our changeable climate to contend with—his crops being exposed in all weathers—without having an artificial grievance of this sort to fight against. It is quite incomprehensible to understand how these laws should have been tolerated so long. Is it on reason, that by law a man should be prevented from destroying a wild beast pilfering his property? We can shoot a hare but we dare not touch these wild beasts—for wild beasts they unquestionably are, and belong to no one. The law makes them belong to the person on whose land they are taken or killed, and they belong to many owners in the course of a few hours—but Tom, Dick, or Harry, has an equal right to them provided he catches them on his own lands—so that they actually belong to no one until taken or killed. How should it come to pass, that when other feudal laws are remodelled to suit the times, that the game-laws should every session of Parliament be made stricter and stricter, and that everything should make this grievous yoke more grievous to be borne—such laws being quite at variance with the other laws of this liberal and enlightened nation? It is disgusting to hear men constantly calling out about the loss sustained by game, and yet will do nothing. Now is the time farmers should be prepared to act. Why should a single man be returned from counties who is not pledged to vote for the total abolition of these laws? The farmers have it completely in their power if they choose to take action. We have in Scotland annually about 3½ millions of acres of crop, on which the farmer expends much and toils hard, exposed to the depredations of game—a tax that is levied at all seasons from the time the seed is put into the ground until it goes into the bag for market. To make anything like an estimate of the yearly loss is next to impossible. To say 5*s.* an acre must be far below the mark, but even this would give the large sum of 875 000*l.*

Restrictions on Cropping.—Ignorance of the profession, either on the part of the landlord or tenant, is a particular hindrance in the way of agricultural progress. As to the landlord, a great many hindrances lie at his door, or those who act for him. He or they often cast a stumbling-block in the way at the very outset: the conditions of lease are such that no man can work them out—with obligations to do so and so, and prohibitions not to do so and so. It is nearly of a piece with tying a man hand and foot, and then calling on him to move along. What can be so absurd as a man laying down a rotation for, it may be, a 19 years' lease? Any improvement that has taken place in the way of cropping for the past 100 years has been in direct violation of conditions of lease, and it has been by tolerance that these have been introduced by farmers. And why should the farmer be thus fettered? His own loss, no doubt, as there are always two at a bargain.

Deficient Farm Buildings.—From want of skill, or want of will, we often find the farm-buildings unworthy the name they go by. We all know the great waste of fuel it requires to make a cold damp dwelling-house comfortable. Bad and scant accommodation for stock, besides promoting disease, requires a deal of waste in food to make them thrive, and what will fatten them in other circumstances is all required to keep them alive. Bad arrangement of the houses, by wholly tending to the stock occasions a deal of unnecessary labour, and what is irksome and ill to do we seldom find well done, consequently the stock suffer. No provision made to keep from off the manure, by which the very essence is washed out, or as little made for the collecting of it after being thus exhausted, so that this liquid manure, which is the richest of all fertilizers, is quite lost to the farm. Bad fences and ill-thriving cattle go generally together. Bad roads, by which it requires two horses to do the work of one, besides being hurtful for the horses, waste a deal of time. No assistance given in the way of drains, or other permanent improvement.

Legal Factors.—The man appointed by the landlord is often a hindrance to progress. He tells the farmer he does not know about it himself—he has to consult this and that one—and in the time still losing. It may be about a mere trifle. The factor functionary's great length of lease is often of itself a hindrance—its great length extending to thirty or forty pages, full of it through, and worse to understand; in fact, all the knowledge this man of eminence seems to require is the name of the place, the amount of rent, and names of the parties; and then to slam down all the conditions and clauses he can find in the book on farm leases, the parties being taken bound to abide by the whole. Ignorance on the farmer's part as to what the agreements seems often a great hindrance in the way of p

...ness, by leading to many unpleasant results. In fact, they as a body do not understand the general run of leases. How often do we hear of a man putting his name to a lease he does not understand? Of all classes of the community, the farmer seems the most stupid to comprehend anything that requires any length of writing.

Want of Knowledge, Capital, &c.—Want of knowledge of the profession on the part of the farmer must be a principal hindrance to the progress of improvement. Then as to the value of land. How comes it that no one seems to know the real value of land?—else why such a cry about high rents? Is there no criterion at all by which the value of land can be found out? None can come to any other conclusion than that something is wrong—something awanting—or not properly understood. Farmers are said to be taken aback by the bad seasons. Why is it that some average of the good and bad seasons has not been had long before now for the guidance of people taking land? Want of capital must also be classed among the hindrances to the profitable culture of the soil, but that this amounts to anything like what theorists would make us believe is altogether out of the question; and that from the want of capital there is a want of sufficient manure in the soil to make its culture profitable, is what the best informed practical men will deny. There are many cases, no doubt, where more capital is wanted, and might be profitably employed; but whether as a rule more capital applied would afford an equivalent to the landlord, or profit to the farmer, is very questionable. Another hindrance to the investing of capital in the improving of land is the uncertainty of getting it returned: the farmer well knows that by law, and also in general by his lease, he has no power to assign it, so that should he not be able to get on he will just have to leave the landlord anything he has sunk in the farm. Why should the farm leases not be, by law, the same as leases in towns? It can be no greater hardship for a landlord in the country to submit to the sale of a lease than landlords in town.

The Chairman thought that Mr. Henderson's denunciations about game preserving were too sweeping. If there is no game left in the country, absenteeism will probably prevail to a great extent.

He said, there must be some exercise or sport for country gentlemen and their sons: rides or drives along the high road will not suffice. At the same time, it is doubtless a great mistake preserving great quantities of game, to be shot down as barn-door fowls might be, or tame rabbits, in an enclosure, and to feed these to the great injury of the crops of the industrious farmer. I will now give an instance how a liberal-minded proprietor and his tenants can preserve and shoot a certain quantity of game. I once visited the late Mr. Bonnar, of Kimmerghame, in Berwickshire, and I asked him how he managed about his game. He said his tenants preserved it for him, because when he went out to shoot he used to call at one of the farm houses, and ask the farmer if he was inclined to take a shot at a hare. If the farmer had time, he took his gun, and walked with the laird; if he was occupied, the laird sported by himself, and if successful would leave a hare or pair of birds with the guidwife on his way home—and thus all were kept in good humour, and there was no want of game for the laird's exercise and amusement. Again, as to rotation of crops, which is commented on, if there is no understood rotation of some sort, it is evident the land might be exhausted by a bad tenant, who might also scourge it before the expiry of his lease. But, as stock is now so important an element in profitable farming, the old system of rotation requires to be altered and modified.

Reviews.

Shooting Simplified: a Concise Treatise on Guns and Shooting. Second Edition. By James Dalziel Dougall. R. Hardwicke, 192, Piccadilly.

This is a book of practical description, discussion, and instruction, written in plain English, without waste of words. With no waste of "powder," and with no unnecessary "report" of any kind, Mr. Dougall hits the mark he aims at with his pen as skilfully as he does it with the gun which is the subject of his essay.

Every item of the sportsman's equipment is the subject of a separate chapter, and each is treated definitely and clearly. The work opens with the chapter on the Barrel, and the first words are:—"The barrel of a gun is its essential part. Other parts of the work may be clumsy and deficient—the lock may grate fearfully in its action, nay, may be wanting altogether; the stock may possess neither internal toughness nor external beauty—but without a good barrel, all excellence and virtue are absent. The requisites in a barrel are—strength, lightness, elasticity, balance, and force of shooting. To gain these requisites, it is necessary that the metal used be of superior quality, and be in itself tough, and yet elastic, and also that it be wrought so as to give the grain of the iron the greatest resisting power to the expansive force of the gunpowder."

This is good clear writing, and would suffice as a fair specimen of the style in which, as a mere literary performance, the author has accomplished his task; but we must extract another page from the conclusion of the book, where he sums up his instructions as follows:—

"Carry a gun within your strength. Have the stock as straight as a broom shank, if you can get your eye to it at all. If you require, on lifting the gun, to dodge your head about to catch the centre of the breech with the eye, the gun is worthless to you, although it may be invaluable to a man of different build.

"See that your gun be perfectly clean and free from stoppage at the nipple. N.B.—Carry a nipple-key, with spare nipple, on all occasions.

"In loading, invariably charge the barrel farthest from you first, and when one barrel only is to be charged, place the gun so that that barrel is on the outside. This will prevent all mistakes. In loading one barrel, see that the other lock be on half-cock. Use as little shot and as much powder as the gun can carry properly.

"For wide guns use coarse-grained powder. In moist weather use high-glazed powder. In wet or blowy weather set the top of your powder-flask half a drachm higher. In rainy weather do not shoot at all. Decrease your charge of powder with heavy shot, such as 1, 2, or 3; and increase the quantity of lead.

"Place your wadding firmly over the powder, and slackly over the shot. Use tight wadding for a weak shooting gun, and slacker and thinner wadding for one which scatters.

"Never start immediately after breakfast, unless you have to drive to your ground. Active exercise, within less than an hour after the morning meal, will cost you two hours in the afternoon.

"In the centre of your shootings, keep a piece of ground undisturbed as a nursery for game. Never beat this, and your stock of game will be maintained.

"In all kinds of shooting over dogs, attend to your dogs. Never keep the eye long off them, and trust to them in all cases of doubt, following up a trustworthy animal to the most unlikely places. Always serve a pointing dog. The man who keeps nearest his dogs will make the heaviest bag. Always prefer old dogs to young ones. Walk up quietly to points, and do not get flustered.

"Hunt your widest ranging dogs in the forenoon over grouse ground. Slip about over a single steady old dog in the afternoon, among hollows and sheltered nooks. Give your dogs plenty of dry straw for bedding. Have them rubbed down in the evening. See to their feet for cuts and thorns. Give them animal food when hard wrought on the moors. Altogether, try to bring out their natural sagacity by encouraging and coaxing them, and use the lash as little as possible.

"In taking aim, keep the body well up, the head erect, the gun close to the shoulder, both eyes fixed on the object. You have already chosen a gun by trying it to the eye, but in shooting there must no heed taken of the gun at all. It will come right to the eye, which is fully occupied with the object. The mere muscular action will be governed by the brain, simultaneously with the aim of the eye; the whole producing that correctness which we call 'instinctive,' for want of a better term. Read the motto on the title-page.* The poet is ever the true teacher. A good shot cannot tell how and why he kills.

"At long ranges throw your line of sight in advance of a crossing shot, and above one going right out. At long ranges, throw the head over the gun when the object goes to the right; keep the head straight when the object goes to the left; and keep the head most erect when the object goes right out. These three arrangements compensate for distance and speed by a rule as certain in effect as the sight on a Minié rifle.

"If suddenly overcome with fatigue on the moors, lie down on your back on dry Heather for half an hour without moving. Drink cold tea, and avoid spirits as you would poison. Preserve your strength for the afternoon. In walking, allow your body to swing with the inequality of the ground, and you will lessen your toil by nearly one-half. If your feet become painful and threatened with blisters, shift your stockings, the right to the left, and *vice versâ*; this will alter the points of pressure and relieve the skin. Wear thick woollen stockings.

"In every kind of shooting stick to its rules. For the sake of a heavy bag do not condescend to any mean manœuvre, which will spoil your dogs, lower the pleasure of your sport, and get you a name which will cost you many a pleasant invitation to shoot. The true end of shooting is its recreation. The game is but the object to induce exercise. Call on holders of adjoining ground and make pre-arrangements for following wounded game over the marches, &c. Instruct your gamekeepers to co-operate with their neighbours. Avoid injury to the farmers' crops and cattle. Vigilence, circumspection, and perseverance are the royal rules in shooting."

The book is as interesting to the naturalist as it is to the sportsman; and all countrymen will enjoy the perusal of it.

Wool: its Growth and Management. By F. Maunder, Barnstaple. Pp. 20. H. Allnutt, 200, Fleet Street.

Mr. Maunder gave the substance of this pamphlet in a lecture to the Bideford Farmers' Club some months ago; and in publishing it for general circulation he contemplates chiefly the case of light soil farms in exposed climates, though even to the occupiers of deeper lands in more genial climates, he believes it may suggest useful ideas. The principles on which the author founds his recommendations are (1) the need of adapting the breed of sheep to the climate; (2) the importance of providing abundant food and avoiding overstocking; (3) the avoidance of shearing lambs, which is, it seems, a common practice still in Devonshire. The lecture is the production evidently of an experienced practical man, and we cordially recommend it to our readers.

We take the following extract both as a specimen of the style of the author, and as teaching a truth of great agricultural importance:—

"*The Adaptation of Stock to Climate.*—We have here a principle which lies at the foundation of all stock breeding, and which cannot be too deeply pondered. It is, that the soil and climate of every locality, of every farm if you please, has a tendency to produce an animal that is natural to it—and I will take the liberty of adding, that such animal is the most profitable and desirable the farmer can have; and I will go further and say, that a mistake of no such magnitude is committed by farmers as that of continually bringing upon their farms animals for which their farms are not adapted, and by which, consequently, heavy losses have been made. It is in fact a common evil—either from a laudable but a mistaken zeal for improvement, or from a tinge of ambition to surpass their neighbours, for farmers to procure tups altogether too high bred for their farms, whose progeny is always, from too great delicacy, suffering and receding to that point which is natural to the soil and climate. I say always suffering, for of course if a succession of too highly bred male animals be procured, the struggle against nature being continuous, so must be the suffering; attended with losses from chills and other causes, much beyond what would occur in a flock natural to the soil and climate. It is no doubt gratifying to be able to say, 'I sold my hoggs for so much,' but the answer would be much less flattering in many cases were the question put, 'how many hoggs did you sell?' and yet it is the joint answer of number and price—the cash return, which should alone be regarded as satisfactory. I am aware that in a great number of cases the divergence from the proper course is not very great, still it is a divergence which may as well be corrected; but there are other cases where the evil has been of such vast magnitude as to entail enormous losses—where whole districts, not individual farms, have suffered in this way. One such indeed lies at your very door—is within the range of your own observation. I refer to the district stretching from about 6 miles west of this, away towards Holsworthy and Camelford. What has occurred in this district? A few breeders, possessing choice farms in the parishes of Kilkhampton, Moorwinstow, and the yet warmer climates of Poughill and Stratton (I speak of what was done years ago), set up as breeders of rams, which they reared in large numbers—their flocks as well as their farms were the best in the district, and every farmer who aspired to have a good flock, no matter how poor and exposed his farm, concluded he must resort to them for his male animals—but how were these animals produced? These breeders, zealous for improvement, and equally ignorant of consequences, resorted to the owners of the choice flocks in the warm and rich district around Exeter, who, in their turn, resorted to the most select flocks in the Midland Counties. Well, these West-country breeders turned out each successive year the progeny of these animals so selected, which were spread over the bleak hills, and unfertile weak soils of the district in question—soils in the average of not more than one-fourth the value of the Exeter district—and what was the consequence?—the deterioration, so far as hardihood of constitution went, of the great majority of the flocks, to be followed, when unfavourable seasons came, by the sweeping away of vast numbers of these useful animals, the mainstay of the farmer, by disease; and hence, at the present time, I am informed that the number of sheep in the district in question scarcely exceeds one half what it has been at some former periods—the result of overlooking the great truth, that the first of all considerations is, adapting the animal to the farm."

* "Dost see the mark? Rivet your eye to it!
There let it stick, fast as the arrow would,
Could you but send it there."
Sheridan Knowles.

Farm Memoranda.

Town Dairies: *A Speculation.*—No more than a quarter of a century since the practice of town dairymen was to purchase aged cows, shut them up in any available shed, feed them for the production of a large quantity of milk, and breed from them. The life of a town dairy cow often extended over several years, especially when the feeder, having accumulated capital, was in a position to have a farm, where a certain number of cows could be kept for two or three months prior to the period of the birth of a calf, which was in its turn either to supply the veal market or attain the age of a breeding cow or a fattening bullock.

Contagious diseases were thus unknown. They first appeared about 1833; so that up to that period the cows in town sheds suffered simply from occasional accidents or local diseases. The most malignant affection was that observed in very abundant milkers after a long period of existence in the dark dungeons termed town dairies. That malady was phthisis or consumption—a disease rarely seen now-a-days, owing to the rapidity with which young stock is killed out.

The lung disease—contagious pleuro-pneumonia—brought about a great change in town dairy management. A check was at once given to the accumulation of stock. Cows did not live to breed, and if purchased lean, were soon consigned to the knacker or the sausage shop. Breeding from town cows ceased; and whereas formerly about 10,000 cows would live on for three or four years in London, the same number barely survived ten months after the introduction of foreign plagues in the metropolitan diaries. The bulls which were once kept in the town dairies soon proved unprofitable, and the trade adapted itself by purchasing heavy, young, and fat cows ready for the butcher at any moment, when seized with illness. The mortality has attained such high proportions as to reduce to poverty those who did not alter their practice to suit a new state of things; whereas many discovered that farm cows for the first four or five months after calving always secured such an abundant supply of milk as to meet much of the loss entailed by disease. Milk dilution and other questionable practices soon enabled the dairymen of large cities to carry on thriving businesses, and accumulate wealth.

The diseases, however, continue. Cows which were once worth from 10*l.* to 16*l.*, are now fetching from 14*l.* to 30*l.* The dairy and breeding districts of the country have been thinned. The veal trade has passed entirely into the hands of the foreigner, and instead of increasing our supply of fat stock, it has in no way kept pace with the country's requirements.

There are two means whereby hopes may be entertained of bringing about a beneficial change in these matters.

The first is by adopting adequate legislative means to check the progress of contagious disease, and compelling town dairymen to treat their animals in a proper manner.

The second and more promising method is by demonstrating how animals may be kept in health, and wholesome produce supplied at a cheap rate to the public. This demonstration can be readily and profitably afforded, to the great benefit not only of the milk consumers, but of the British stockowners generally, who have not yet learned how to deal with plagues which are constantly curtailing the farmer's resources.

A rational, enlightened system of farm and dairy management adapted to the wants of our growing population, would confer a lasting boon on British agriculture. It would economise our stock, spare more for breeding purposes, render the cattle-rearer's business less hazardous and more profitable, and enable us to produce a larger quantity of wholesome animal food

than we can so long as the present management continues.

No trade is more profitable than that of a town dairyman. Were it not so, how would the thousands of our cowkeepers have withstood the enormous annual losses they have sustained? These losses can with great certainty be curtailed; and I am not aware of any form of investment which will better pay than that of furnishing adequate capital for an improved method of town dairy management. What this should be may next engage our attention, and it is proposed to divide the subject under various heads:—

First.

a. Position and nature of buildings.
b. Breed and general character of stock.
c. Purchase and sale of stock, and method of preventing contagious diseases.
d. Feeding of cows.
e. Labour.
f. Collection, carriage, and sale of milk.
g. Distribution of manure, liquid and solid.
h. Method of testing the daily supply of milk.

Secondly.

a. Total expenditure in buildings, stock, &c.
b. Do. do in feeding and management.
c. Do. receipts in trade.
d. General results.

a. Position and Nature of Buildings.

It has been proved by the medical officers of health in the metropolis and elsewhere, that human health suffers from cow-sheds being permitted to remain in the heart of any large town surrounded by the houses of the people.

The advantages afforded by railways enable us to secure cheap ground apart from human dwellings, though the distance from town, if possible, should not be large. In fact, suburban districts are sufficiently open to admit of proper dairies being established there, with a view to a direct supply of milk delivered, with the aid of horses and properly-constructed vans.

The building should include spacious, well-ventilated and properly subdivided cow-sheds, divided into various yards. These must afford separate quarantine accommodation for newly bought stock; a second yard for the first transference from the quarantine shed; and, lastly, the stabling for standing stock of cows. Proper stabling for horses and storehouses for provender are essential.

In addition to this, a large well-ventilated dairy, with proper utensils, ample provision for washing and scalding tubs, &c., complete the requirements. It is desirable to have space in the several yards, or adjoining them, for the movement of stock, and moderate-sized paddocks would be desirable.

Whenever a very extensive dairy is established, a manager's house and labourers' cottages would constitute a very necessary part of the buildings to be erected.

All the erections must be of a most economical description, and it is as undesirable as it is unnecessary to spend large sums in solid masonry. It is estimated, in round numbers, that five, or at most six, thousand pounds would cover all the expenditure in providing accommodation for a dairy of 1000 cows and its appurtenances.

b. Breed and General Character of Stock.

The best cows for town dairy purposes are cross-bred Short-horns and pure Ayrshires. Some good Alderneys might be desirable; and excellent cows can be obtained from healthy districts in the north-west of France. There is no objection to Dutch and German cows, except that they would require great attention, with a view to prevent the introduction of the contagious maladies which it is our primary object to prevent.

As a rule, the standing stock of a town dairy should be large sized, of the best milking qualities, in fine condition, not lean or too fat, and of a hardy cross-breed. The pure Ayrshires, Alderneys, and other cows of choice small breeds, are specially useful for the abundant supply of a rich-coloured cream.

c. Purchase and Sale of Stock, and Method of Preventing Contagious Diseases.

Of whatever breed the cows may be, they should be purchased of mature age, rather young than old, and direct from the breeders. Public markets and fairs must be avoided. Healthy breeding districts should be alone resorted to, and the animals conveyed in special trucks thoroughly disinfected, and not with any train by which other cattle may be travelling. It is these precautionary measures at first which will enable any one to avert disease, and buy stock at the lowest price.

All the cows must be bought within a month, and usually within a fortnight, of the period of calving. The travelling is apt to bring on parturition, and when this does not happen, an opportunity is afforded to acclimatise the animal, and prevent that very common disease amongst well-fed good milkers, viz., milk fever.

The newly-bought animals should be subdivided into lots, varying from two to eight at most, in the quarantine sheds, and kept there not less than 40 days. During this period they should all be inoculated, and subjected to other special treatment for the prevention of pleuro-pneumonia.

The cows would then be drafted into the second yard of sheds, where they would also be kept in small lots, not exceeding 20 in one stable; and lastly, they would pass into the regular sheds, whence they would only be removed between the fifth and sixth month after calving to be resold, especially to the country.

Any animal seized with sickness, however slight, should be instantly removed to special infirmary sheds, altogether apart from the establishment in which the general stock is congregated.

The early reselling of cows has been found to be the best policy in town dairies. The expense of accommodation and maintenance is too great to enable a town dairyman to keep on cows when yielding little milk; and in any healthy and properly-conducted establishment all the best cows should be permitted to breed and be sold to farmers who would keep them on to the next period of calving, when they might again return to the dairy whence they were drafted. The period of reselling varies much with different animals, but as a rule it should not exceed the sixth month from the date of calving.

Cows, such as have been here described, would cost on an average somewhat under 18*l.* each, if Ayrshires; and foreign stock from healthy districts are included. Short-horn stock alone would be dearer, if of first quality, as it always should be.

The calves, amounting at least to 90 per cent. on the number of cows, would realise over head from 10*s.* to 1*l.*, and even more.

When the cows are resold, a deterioration in price of 3*l.* or 4*l.* might be calculated upon, so that the cost and loss on the stock would stand thus:—

Cost of 1000 cows, say at 20*l.* each ..	..	£20,000
Sale of 900 calves at 15*s.* each ..	£675	
Sale of 1000 cows, say at 16*l.* each ..	16,000	
		£16,675
Loss on Stock		£3,325

It is not safe to calculate on less than 10 per cent. of casualties of all kinds, which would increase the loss on stock to 5325*l.* This allows a wide margin, as it presupposes that all animals taken ill would die and prove absolutely worthless, whereas undoubtedly the majority would recover.

d. Feeding of Stock.

The staple articles of food in a town dairy must be draff, meal (especially Bean and Palm meal), Turnips, Grass, and straw.

The cost of keep in the vicinity of London would not exceed 14*s.* or 15*s.* per week for each cow, and, taking the largest sum, 1000 cows would cost 750*l.* per week, or 39,000*l.* per annum.

The keep of 16 horses required for the establishment would amount to 750*l.* per annum, making the total annual expenditure in live stock provender 39,750*l.*

e. Management, Labour, Collection, Carriage, and Sale of Milk.

Any extensive dairy requires a shrewd general manager specially acquainted with stock in health and disease. In a company the expenditure attendant on a board of directors must be incurred. Labourers should be calculated at the rate of one man or woman to every six cows, at all events, for milking. In any district a large number of women can be secured at a trifling weekly expenditure to milk the cows, and by this means the cost of labour is reduced. This practice is in force in Edinburgh, Glasgow, and other large cities. Combining the expenditure of management and labour it would amount annually to somewhat under 5400*l.*

The cows would have to be milked twice daily, and the milk in part placed in the dairy, and in part taken off at once. In a large city like London, the sale of the milk might easily be effected directly and indirectly. In either case it would, as in Glasgow, be placed in corked barrels, with a patent stop-cock, so that no dilution or adulteration could be practised. Then either the milk is taken round to houses with a horse and van, or respectable agents are appointed in various districts for the sale of the milk. It may prove best to unite the two systems.

For the purpose of transfer of milk, not only are proper cans or barrels essential, but well-constructed spring vans, to prevent unnecessary jolting and churning of the milk.

1000 cows would yield on an average 61,000*l.* worth of milk per annum. This is calculating the milk at 1*s.* per gallon, which is considerably below the London retail price.

The manure of 1000 cows can readily be distributed in any agricultural district, and would fetch 4504*l.* 10*s.* per annum. *From the Veterinary Review.*

[*The Capital* required appears to be estimated as follows:—

Buildings..	£6000
Cows	20,000
Food for say quarter of year	10,000
Management and labour for do. do.	1,350
Total..	£37,350

The Annual Costs are put at:—

Food	£39,000
Losses	5,325
Management and Labour	5,400
Total..	£49,725

The Annual Returns are estimated thus:—

Milk	£61,000
Manure	4,500
Total..	£65,500

providing ample margin for profit.

On this we have to remark that 61*l.* per annum for the milk of the cow appears to us an enormous over estimate: so also, however, is the cost of food.]

Miscellaneous.

Road-making.—Perfect and complete drainage is essential; without it a road is continually heavy and in a bad state, and requiring constant renewal of materials; outlets into the ditches cannot therefore be too numerous. A road should fall transversely from the centre at the rate of 1 in 24. Then, again, there should never be added more than a stone's thickness at a time, and the stones should not be larger than [illegible] inches. As water is the greatest enemy, so the sun and the wind are the greatest friends to good roads. For the obtaining of these last essentials it is needful that the hedges should be kept low and trees should be trimmed up. Few amongst us care to embroil ourselves with our neighbours, or go to law with them, and least of all in carrying out the duties of a thankless public office, and so it happens that the hapless surveyor suffers the occupiers of land, especially if he chance to be the big men of the parish, to damage the road by their high hedges and overshadowing trees, and to occupy it by their filthy manure heaps, and to encroach upon it by their buildings and new set hedges. Again, the rate for the maintenance of the roads is levied on all without exception, and at the appointed time the inevitable surveyor knocks at *pauperum tabernas regumque turres.* But though all have to contribute to the income, a very large class are entirely neglected and ignored in the expenditure. On an average I traverse twice weekly on foot the two miles of parish road between my house and a neighbouring important village. For half the distance there is no footpath whatever. Over the remaining half there certainly is a footway, but to the best of my belief has not, for three-fourths of the distance, been touched by the surveyors for the last 20 years.

Arterial Drains.—Solomon says, "All the rivers run into the sea." But the grievance is that they do not, for whether or not the oriental streams with which the wise king was familiar may have overflowed at intervals like the Nile and Jordan, it is certain that English fresh waters at the present day seem inclined to linger in the valleys and repose in the meadows, or wander anywhere rather than roll straight down to the sea. *J. A. Clarke.*

Calendar of Operations.

June.—*Haymaking.*—We quote the following from the last edition of Arthur Young's *Farmer's Calendar*, where a full account of the process is given in the words of the Editor, Mr. Baldwin, of Glasnevin, and the author of the report on the Agriculture of Middlesex.

This, in early districts and on irrigated fields, meadow hay, and everywhere for the Clover and Sainfoin crops, is one chief occupation of the month of June. The cost of mowing, hay-making, and building in rick, excluding the labour of the farm-horses in the process, may be put upon an average at 10*s.* an acre, for which the whole work will be undertaken on contract. Of course, however, it is more or less according to the weather, and consequent length and labour of the process. The more costly the work of making hay, the worse of course is the result. Bad hay costs much, and is worth least. Every improvement of farm management by which the extent of Grass land mown for hay may be diminished is therefore to be welcomed. Cattle if kept through the winter otherwise than on hay, will consume the whole produce of our Grass lands in the field during the summer season, when there is no waste in the process of feeding, and when milk, the main produce of our Grass fields, can be most profitably converted. The use of the root pulper, to which reference is elsewhere made in this Calendar, enables the greater consumption of straw in the feeding of stock during winter, and so dispenses in great measure with the need of hay, and there can be no doubt that less hay is year by year being made. The process is, however, laborious and costly enough, as well as sufficiently expensive, to render any cheapening of it that may be possible extremely desirable. And by horse-drawn mowing machines, and hay-tedders, and horse-rakes we have certainly a very material improvement on the old style of management.

There is no recent addition to agricultural machinery of which a more uniformly good report is given than we everywhere receive of the mowing machine. Of a later date, and having to deal with more succulent, and often a more tangled produce than the reaper, it has, nevertheless, at once leaped into almost universal favour, and is everywhere admitted to do its work better than the scythe. Burgess & Key's mower, Wood's mower, Ball's mower, made by Mr. Samuelson, of Banbury (and there are many others as well known), all do admirable work. Having officiated in the judgment of these rival implements when competing for the prizes offered by our great Agricultural Societies, and been often present at their competitive trials before others, we can speak with confidence of the great difficulty of placing them upon the scale of merit; and where the work is in ordinary cases done by all of them better than it is done by hand, the choice will be determined rather by facility of purchase than by any other circumstance. There is a large collection of evidence, all indicating the great advantage of the mower whether in rapid or in difficult harvest weather, published in the 9th volume of the 'Bath and West of England Agricultural Society's Journal.' W.

[illegible] the letters of two of that Society's correspondents. Mr. Harrison, of Frocester Court, Gloucestershire, says:—

"I have used Wood's mower of 1860. It is an excellent implement, and the work done by it is equal to any done with the scythe. It is a simple machine, well designed, and easily managed, but I think too slightly constructed. As to efficiency, a better machine could not be wished. In fine hay making weather, from the Grass being at once tedded and exposed, the labour of hay making is prodigiously diminished, and with the aid of the hay-making machine and horse rake, the chief manual labour consists in gathering it together and securing it in the rick. In catching weather the farmer is much more independent of the weather, as with the knowledge that he can cut down 8 or 10 acres, or even more, per day, he ceases mowing till the weather promises to be fine. Last year (1860) was exceptional, and, excepting the fine fortnight at the beginning of July, it was impossible to make really good hay in our district; but to show the importance of the mowing machine, I know that on more than one estate where they were used, and plenty of hands could be drawn for the occasion from the estate to assist at the hay making, the whole of the hay was secured during the fine weather in first-rate order."

Of Burgess and Key's mower, Mr. Horswell, of Tavistock, says:—

"It answered admirably, and though the season was very bad, I never saved hay in better condition, or with so little labour. During the eight days' uninterrupted fine weather in [illegible] (the only fine weather for the season) when men could be [illegible] obtained, and for the mere labour of cutting 8s. or [illegible] per acre had to be paid, I got in 56 acres with the aid of the mower, hay tedder, and hay gatherer—(the cost of manual labour in getting it ready to be carried did not exceed 1s. per acre), and it had no rain upon it whatever—and there were [illegible] besides with very little damage, all secured before the [illegible] set in. Without the aid of machinery, 20 or 30 of the 56 acres would be the most that I could have [illegible] in good condition. Where the surface is moderately even we can set the machine so low as to cut 4 or 5 cwt. a day per acre more than the best men can do in the ordinary way. Since I have availed myself of the machinery that there is to aid the agriculturist, I can comfortably complete my harvesting with the labourers regularly employed on the farm."

These letters are conclusive testimony to the value of the machine upon the farm at this time of the year. It and the hay-tedder have certainly wonderfully diminished the labour and anxiety of the Grass-land farmer in the summer months. And they have saved his pocket, too, not merely by the larger quantity of good hay he can make, but by the direct saving of wages hitherto paid in the harvest-field, which will now be paid for the more efficient tillage of plough land crops.

A good paper on hay-making was read in 1860 before the Dublin Agricultural Society by Mr. Baldwin, of the Glasnevin College, in which the proper time, method, and cost of hay-making are discussed. The following are one or two of the conclusions he arrives at:—

"As to the Time of Mowing.—As all Grasses do not bloom at [illegible] it is necessary so to time the mowing that the majority of the plants present in the swathe shall be at their best. The following rules are a sufficient guide:—

"In the case of Italian Rye-grass always mow on the appearance of the flowers, as this Grass is such a fast grower, that, if cut at this stage, a second cutting is obtained equal to the first, and, on good land, a third and fourth very little inferior. Perennial Rye-grass may be allowed to produce the flowers. It is best cut when the heads are in full blossom. Mixed Grasses should be mown when the bulk of the herbage is in flower, or when the seeds of the earliest Grasses are fully formed, such as sweet-scented Vernal Grass (Anthoxanthum odoratum), Meadow Fox-tail (Alopecurus pratensis); and the [illegible] Grasses, as Crested Dog's-tail (Cynosurus cristatus), and Meadow Fescue Festuca pratensis), are just beginning to [illegible] the floral organs. With us, Timothy (Phleum pratense), Italian Rye-grass (Lolium italicum), Perennial Rye grass (Lolium perenne), and Cock's-foot (Dactylis glomerata), flower during the latter half of June, which, as these Grasses constitute the great bulk of good meadow land, is our mowing season.

"As to the Cost of Mowing.—This will vary from year to year, according to the crop and the abundance of mowers, more than 100 per cent. It is amazingly cheapened by horse-drawn machines, and the following valuations may be accepted as near the truth. For mowing a heavy crop of Grass:—

1. By manual labour—say		4s. 6d.
2. By mowing machine—		
Manual labour	3½d.	1s. 6½d.
Horse labour	6	
Per centage per acre ..	9	

This gives a gain of 3s. per statute acre. If (says Mr. Baldwin) we assume the saving effected by the machine at 2s. per acre (and any calculation on the subject is only approximate), we find that the introduction of this machine on all the meadow land of Ireland (supposing the ground sufficiently even for the purpose) would effect a national saving of 150,000l. annually! The saving over the greater extent of Grass lands in our own country would, of course, be proportionately large.

"The Making, again, is a process cheapened by the use of the hay tedder and horse-rake—so that from 8s. to 10s. per acre for good hay in good weather, and 16s. and 15s. for inferior crop in bad weather, as the whole cost of it when in the rick—the expense may be reduced 2s. or 4s. where mowing and other horse drawn implements are used. The process essentially consists in so separating and scattering the Grass after mowing that no two blades shall cling together in drying. It is periodically tedded and shaken out as long as it is drying, and gathered together during night or when left for any length of time exposed to the risk of rain; and as soon as dry enough it should be ricked. The practice of letting it remain too long in cocks in the field is injurious to it."

Mr. Baldwin calculates that in the sister-island the loss in this way is something enormous. He says:—

"That a considerable quantity of hay is lost annually, by being allowed to remain too long in cocks in the field, is a fact patent to anybody who has travelled much through the country. Within the last three or four years we have made agricultural tours through 25 of the 32 counties of Ireland; and in [illegible] consideration of the subject, and having in [illegible] used a tape line and weighing machine to [illegible] our judgment, we have come to the conclusion that [illegible] hay crop of Ireland is permitted to rot in field [illegible]. The portion on the ground, as well as that on the outside of the cocks, is too often only fit for manure. And the [illegible] of the subsequent year's crop (if hay or [illegible]) suffers to the extent of from 6d. to 1s. per acre. If [illegible] these sources, the loss sustained annually in this country is something serious to contemplate. On an average for all Ireland, it is not under 20 per cent., or a fifth of the actual value of the crop. We have about 1,500,000 acres under meadow in Ireland, the average produce of which, last year, was 2 tons per acre. The total hay produced was 3,300,000 tons; the value of which, at the current rate, would be, at least, 12,000,000l.; one-fifth of which = 2,400,000l., is, as we have shown, lost by mismanagement to the Irish farmer.

"Of course a similar loss of hay occurs on this side of the Channel, also, wherever loss of time is allowed. The best hay will be made by those who remember that hay-making is merely a process for so treating Grass as that it may be stored in safety. If every blade of Grass could be exposed as soon as cut to a temperature under 200° until perfectly dry, and then packed away under a waterproof roof, the hay would be as good as such Grass could yield. The whole nutriment which the Grass contained would be present in the hay undiminished by wasting or by fermentation; and the nearer that our hay-making approaches this the better will its produce be."

The following passage describes the process as conducted in the Home Counties, where the practice is best understood, and the best hay is made.

"The very early or rich meadows, and the highly manured upland pastures, about great cities, will be ready to mow in June. In executing the work, observe particularly that the labourers cut as close to the ground as possible: Grass never thrives well that is not mown quite close, and the loss in the crop of hay is very considerable; for 1 inch at bottom weighs more than several at top. In the making it into hay, you will be a loser if you have not many hands ready for the work. It should be shaken out directly after the scythe; wind-rowed, that is raked into rows, before the evening, shaken out again next morning, and in the afternoon got into Grass cocks: these should be opened the morning following, and got into the great cock by night; by which time the hay will be well made, if no rain comes; but, in case of bad weather, the process will be more tedious. If successive rains come, so that the hay is damaged, and you are fearful of its turning out unprofitably, by all means salt as you stack it; a peck strewed in layers on the stack to a load of hay: it will have a very great effect in sweetening, however bad it may be, even to blackness; and it has been found by experiment, that horses and horned cattle will eat damaged hay salted, which they would not touch without that addition.

"The following is the process of hay-making in Middlesex.

"In order that the subject may be more clearly understood, I shall relate the particular operations of each day, during the whole process, from the moment in which the mower first applies his scythe, to that in which the hay is secured, either in the barn or in the stack. Before I enter more immediately on this task, I would just premise a few observations—viz.:

"When the Grass is nearly fit for mowing, the Middlesex farmer endeavours to select the best mowers, in number proportioned to the quantity of his Grass, and the length of time it would be advisable to have it in hand; which, having done, he lets it out to be mown by the acre.* About the same time he provides five hay-makers (men and women)† to each mower, These last are paid by the day, the men attending from 6 till 6. but the women only from 8 till 6: for an extra hour or so in the evening, when the business requires despatch, they receive a proportionate allowance.

"The mowers usually begin their work at 3, 4, or 5 o'clock in the morning, and continue to labour till 7 or 8 at night; resting an hour or two in the middle of the day.

"Every hay-maker is expected to come provided with a fork and a rake of his own; but when the Grass is ready, and labourers scarce, the farmer is frequently obliged to provide both; but for the most part only the rake.

"Every part of the operation is carried on with forks, except clearing the ground, which is done with rakes, and loading the carts, which is done by hand. Having premised so much, I now come to the description of the business of the

"*First Day.*—All the Grass mown before 5 o'clock in the morning is tedded (or spread), and great care taken to shake it out of every lump, and to strew it evenly over all the ground. Soon afterwards it is turned with the same degree of care and attention; and if, from the number of hands, they are able to turn the whole again, they do so, or at least as much of it as they can till twelve or one o'clock, at which time they dine. The first thing to be done after dinner, is, to take it into what are called single wind-rows;‡ and the last operation of this day is to put it into grass-cocks.

Second Day.—The business of this day commences with tedding all the Grass that was mown the first day after nine o'clock, and all that was mown this day before nine o'clock. Next, the Grass-cocks are to be well shaken out into staddles (or separate plants) of five or six yards diameter. If the crop should be so thin and light as to leave the space between these staddles rather large, such spaces must be immediately raked clean, and the rakings mixed with the other hay, in order to its all being of an uniform colour. The next business is to turn the staddles, and after that to turn the Grass that was tedded in the first part of the morning once or twice, in the manner described for the first day. This should all be done before twelve or one o'clock, so that the whole may lie to dry while the work people are at dinner. After dinner, the first thing to be done is, to rake the staddles into double wind-rows;§ next, to rake the Grass into single wind-rows; then the double wind-rows are put into bastard-cocks; and lastly, the single wind-rows are put into Grass-cocks. This completes the work of the second day.

"*Third Day.*—The Grass mown and not spread on the second day, and also that mown in the early part of this day, is first to be tedded in the morning; and then the Grass-cocks are to be spread into staddles, as before, and the bastard-cocks into staddles of less extent. These lesser staddles, though last spread, are first turned, then those which were in Grass-cocks; and next, the Grass is turned once or twice before 12 or 1 o'clock, when the people go to dinner as usual. If the weather has proved sunny and fine, the hay which was last night in bastard-cocks will this afternoon be in a proper state to be carried; but if the weather should, on the contrary, have been cool and cloudy, no part of it probably will be fit to carry. In that case, the first thing set about after dinner, is, to rake that which was in Grass-cocks last night into double wind-rows; then the Grass, which was this morning spread from the swathes, into single wind-rows. After this, the hay which was last night in bastard-cocks is made up into full-sized cocks, and care taken to rake the hay up clean, and also to put the rakings upon the top of each cock. Next, the double wind-rows are put into bastard-cocks, and the single wind-rows into Grass-cocks, as on the preceding days.

"*Fourth Day.*—On this day, the great cocks just mentioned are usually carried before dinner. The other operations of the day are such, and in the same order, as before described, and are continued daily until the hay harvest is completed.

"In the course of hay-making, the Grass should, as much as possible, be protected both day and night against rain and dew, by cocking. Care should also be taken to proportion the number of hay-makers to that of the mowers, so that there may not be more Grass in hand, at any one time, than can be managed according to the foregoing process. This proportion, when the hay tedder is not used, is about 20 haymakers (of which number 12 may be women) to four mowers: the latter are sometimes taken half a day to assist the former. But in hot, windy, or very drying weather, a greater proportion of hay-makers will be required than when the weather is cloudy and cool.

"It is particularly necessary to guard against spreading more hay than the number of hands can get into cock the same day, or before rain. In showery and uncertain weather, the Grass may sometimes be suffered to lie three, four, or even five days in swath. But before it has lain long enough for the under side of the swath to become yellow (which, if suffered to lie long, would be the case), particular care should be taken to turn the swathes with the heads of the rakes. In this state it will cure so much in about two days as only to require being tedded a few hours when the weather is fine, previous to its being put together and carried. In this manner hay may be made and stacked at a small expense, and of a good colour, but the tops and bottoms of the Grass are insufficiently separated by it.

"There are no hay-stacks more neatly formed, or better secured, than those of Middlesex. At every vacant time, while the stack is carrying up, the men are employed in pulling it, with their hands, into a proper shape: and, about a week after it is finished, the whole roof is properly thatched, and then secured from receiving any damage from the wind, by means of a straw rope extended along the eaves, up the ends, and near the ridge. The ends of the thatch are afterwards cut evenly below the eaves of the stack, just of sufficient length for the rain-water to drip quite clear of the hay. When the stack happens to be placed in a situation which may be suspected of being too damp in the winter, a trench about 6 or 8 inches deep is dug round, and nearly close to it, which serves to convey all the water from the spot, and render it perfectly dry and secure.

"The Middlesex farmers are desirous of preserving the green colour of their hay as much as possible, though a lightish brown is of no disservice to it. Hay of a deep brown colour, occasioned by its having heated too much in the stack, is said to weaken the horses that eat it, by promoting an excess of urine, and consequently, it sells at a reduced price.*

"In the making of hay, some attention should be paid to the quality of the soil, and the kind of herbage growing on it. The hard, benty hay of a poor soil is in little or no danger of firing in the stack; and should, therefore, be put very early together, in order to promote a considerable perspiration, as the only means of imparting a flavour to such hay, which will make it agreeable to horses and lean cattle, for it will be nearly unfit for every other sort of stock.

"It is the succulent herbage of rich highly manured land that is likely to generate heat: of course, the Grass from such land must have more time allowed in making it into hay. This the Middlesex farmers are perfectly aware of, and, when the weather proves moderately drying, they make most excellent hay. But when very hot or scorching, they, as well as most other farmers under similar circumstances, are sometimes mistaken. In such weather the Grass becomes crisp, rustles, and handles like hay before the sap is sufficiently dissipated for it to be in a state fit to be put into large stacks. But if that be done when it is thus insufficiently made, it generally heats too much, and sometimes becomes mow-burnt."

The above remarks, though written so many years ago, are still essentially applicable. The differences in the process which have since arisen are owing to the more frequent and repeated use of the hay-tedding machine, in place of such a costly staff of hay-makers. This, and the mowing machine and the horse-rake, of course have introduced a great change in the practice of hay-making; though it still depends on a repeated moving of the Grass, so that it shall dry each blade by itself as rapidly as possible.

The cost of haymaking varies exceedingly, according to the quantity of the crop and the nature of the weather. I have in Gloucestershire let hundreds of acres at 10s. an acre, for mowing, and making, and pitching to the waggon. And 10s., with beer, is a common price for ordinary crops; such a contract is, however, a complete speculation on the part of those who undertake it; they will do well, and make good hay, if the weather suits them; but they will do ill, and make bad hay, if the weather is against them. Among the heavy crops of Middlesex farms, a guinea to 25s. and even 30s. are sometimes paid.

As to the practical details of hay-making it is necessary to add that, whether mown by hand or horse, Clover mown for hay must not be shaken abroad. The swathes are turned the second or third day, and, perhaps, again turned the fourth or fifth day after cutting. They are then put in small cocks, and carried with as little rough shaking as possible, so as to retain the leaf unbroken. This rule applies also to the making of Sainfoin hay.

MERSE OF BERWICKSHIRE.—Unseasonable rains delayed Swede sowing until the 20th of May, when we had a few remarkably warm days, reaching 74½° on the 23d, and 2¼ inches of rain from N.E. again drenched the land, and lost us another week. If the weather mend, as it promises this evening, work must proceed on Monday with less nicety, as the season is far gone for Swedes, and little preparation is made for Turnips. It is nine years since there was similar wet weather in the end of May, on which occasion we lost a fortnight entirely; but a wet harvest time helped the Turnip crop. Instead of being half done, we doubt whether one fourth of the break is sown yet. Clippers cannot be got, and we hear that in many cases the fleece has got quite yellow. By housing a lot at night when weather permitted we

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* Each man mows from an acre and a half to an acre and three quarters per day: some there are who do 2 acres per day, during the whole season.

† Including loaders, pitchers, and stackers, and all others: but this is, of course, now altered by the introduction of the hay-tedder.

‡ That is, they all rake in such manner, as that each person makes a row, which rows are three or four feet apart.

§ In doing which, every two persons rake the hay in opposite directions, or towards each other, and by that means form a row between them of double the size of a single wind-row. Each of these double wind-rows are about 6 or 8 feet distant from each other.

* If you would make your hay come out of the stack of a fine colour, and the beauty of the flowers to appear, the hay you have shaken out of bastard-cocks to prepare for carting should be cocked in the heat, and remain till the next morning; then turn and open the cocks, for the air to take away the damp that is collected, which otherwise would heat in the stack, and, of course, the beauty of the colour would be done away.

have not incurred any damage of that sort. Ewes are fat and cast good fleeces, but lambs are scouring from the great rankness of Clover. Lean hoggs are much too dear to buy, even if mutton continue at 8*d.*, and a larger breadth must be mown for hay. The best sort of cattle may have left 1*s.* a day for their Turnips and meal, after paying for cake. Early Barley has fallen off very much these three weeks, and much of it, on strong soils, was little better than red land before Monday's rain. *J. T.*

Notices to Correspondents.

*** It is announced that the entries for the Great Horse Show of July 7—13 at the Agricultural Hall, Islington, close on Saturday next, June 24, before which day, therefore, intending exhibitors must obtain the forms of entry from Mr. Sidney, Secretary, and return them to him at the above address.

Buttercups. *R. B.* They are acrid and bitter weeds, a disadvantage to any pasture. Apply bonedust and guano, and so get Clovers and Grasses to grow, and feed them hard down with sheep and cattle receiving cake. That, after drainage and liming, is the principal way to improve Grass land and get rid of weeds. Burnt ashes and vegetable refuse are generally good for garden ground.

Lamb Disease: *Hereford.* We repeat Mr. Spooner's instructions:—It has been a very prevalent disease, similar in its character to the gapes in chickens, and the hoose in calves, and, as in them, should be treated by adopting means for the destruction of the entozoa, whose presence may perhaps be indirectly ascribed to the wet seasons which prevailed up to the past summer, and the unwholesome provender thereby produced. Any medicine given to destroy worms in the air passages acts by being absorbed into the system. In the case of worms in the windpipe two objects should be sought for—one to destroy the enemy, and the other to strengthen and support the system which is being subjected to such debilitating and exhausting influences. In the case of chickens, some speak of the good effects of tobacco smoke introduced so as to almost produce suffocation, albeit the creatures sometimes die of the remedy. In calves a cure has been effected by administering lime-water, and probably it would be equally effectual for lambs. The dose for a lamb would be about two ounces daily, and about two drachms of salt should be given at another portion of the day. This treatment should be followed for some days. Better still is the plan of administering oil of turpentine, which, being taken into the stomach, is soon absorbed throughout the system. The dose for a lamb is two drachms, which should be given with an ounce of linseed oil, a scruple of ginger, and five drops of oil of caraways, mixed up with two or three tablespoonfuls of linseed gruel. This dose may be repeated if required several times with intervals of some days. The lambs should be allowed half a pound of linseed cake per diem, and should be otherwise carefully tended and liberally fed. By such a course of treatment many valuable animals may be saved.

Laying Down Land to Grass: *Warwick.* Till the land, and get it clean and in good heart, and then some time in moist weather, cart on a lot of bits of turf from a good pasture, three inches square or so; spread them and tread them in their place right side up, one in every square foot. Roll the land, and cart on some compost, and spread it out of the cart, and then sow some Grass seeds, and bush harrow and roll them in: it will sooner be a pasture thus than in any other way, and one acre of good pasture may be made four. If, however, you should resolve to sow and depend on seed alone, you had better use the following mixture for your stiff land, and sow a thin crop of Barley with it:—Aira cæspitosa lutescens, 1 lb.; Alopecurus pratensis 2 lb.; Arrhenatherum avenaceum, 2 lb.; Dactylis glomerata, 3 lb.; Festuca duriuscula, 2 lb.; F. heterophylla, 2 lb.; F. elatior, 2 lb.; F. loliacea, 2 lb.; F. pratensis, 2 lb.; Lolium italicum, 3 lb.; L. perenne, 5 lb.; Phleum pratense, 2 lb.; Poa nemoralis, 2 lb.; P. trivialis, 2 lb.: Trifolium pratense perenne, 3 lb.; T. repens, 4 lb.: in all, per acre, 39 lb.

Linseed for Calves: *R.* In answer to your question we quote the following from a former correspondent:—It should be used with great caution with young calves. A master laying down a rule to his herdsman as to quantity for each calf has been known in some cases to prove fatal; the servant ought to be competent to judge what quantity it will be right to give from the effect produced. My opinion is that no calf ought to have Linseed till over a month old. I find, however, from experience in the rearing of calves, the less Linseed I used the more healthy they were. I believe it very good for matured animals if rightly used, but for calves for breeding purposes there is not that benefit derived that is often imagined. In boiling linseed it sometimes gets too much fire, which renders it too gluey to incorporate well with the milk; the calf turns shy and will not drink it; it is then too often handed over to its neighbour, who drinks more freely and gets a double quantity, and, as you will readily suppose, disorder is the result; hence the propriety of having an efficient man who knows how to treat a sickly appetite. With regard to the preparation of Linseed the plan I have adopted was to crush the seed, place 1 quart of it in a tub, pour on a gallon of cold water and let it stand 24 hours, then add a little warm water, and stir it well together, it is then ready to mix with the milk. That quantity is sufficient for four strong calves, mixed with from 5 to 7 quarts of milk at each end of the day. If 3 quarts new and 4 quarts skim milk could be afforded, abandon the use of Linseed altogether.

Open Boarded-Floors: *Essex.* The following are Mr. Mechi's measures:—*For Bullocks*: The boards must be 4 inches wide, 2½ inches thick, 2 inch openings. *For Sheep and Pigs*: 3 inches wide, 1½ inch thick, 1¼ inch openings. Cross pieces to which the planks are nailed about 2 feet apart. The planks may be rather thinner and narrower, but my experience tells me they are better as above; because there is a great strain with heavy bullocks. I have at present, on boards, 60 calves (1¼ inch openings), 30 bullocks, 150 pigs, 100 sheep. Oak or hard wood is preferable to Fir.

Turnips per Acre: *Reader.* The following table gives the information you desire:—Col. 1 is the distance between the drills; 2, distance between plants in rows; 3, space each plant occupies, or square inches on which they grow; 4, number of Turnips per acre; 5, average weight of each Turnip in lbs., necessary in order to produce the tons and cwts. of crop per acre standing in col. 6.

1	2	3	4	5	6
27	8	216	20030	2	25 18 0
27	12	324	19360	3	25 18 0
27	16	432	14520	4	25 18 0
27	20	540	11616	5	25 18 0
27	24	648	9680	6	25 18 0
27	28	756	8297	7	25 18 0
27	32	864	7260	8	25 18 0
36	27	972	6452	9	25 18 0
36	30	1080	5808	10	25 18 0
36	33	1188	5280	11	25 18 0
36	36	1296	4840	12	25 18 0

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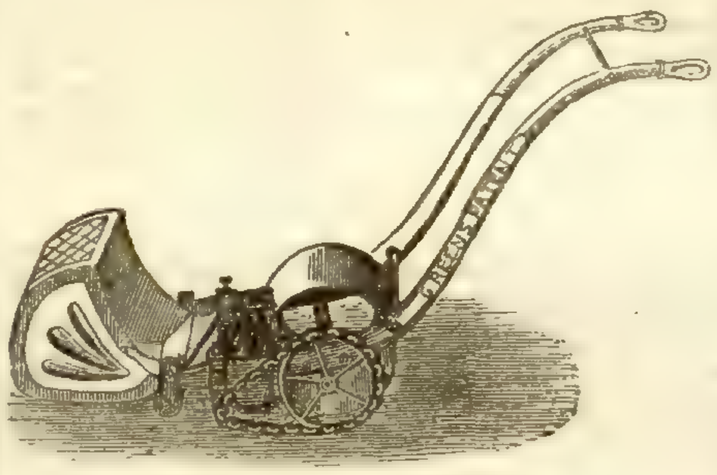

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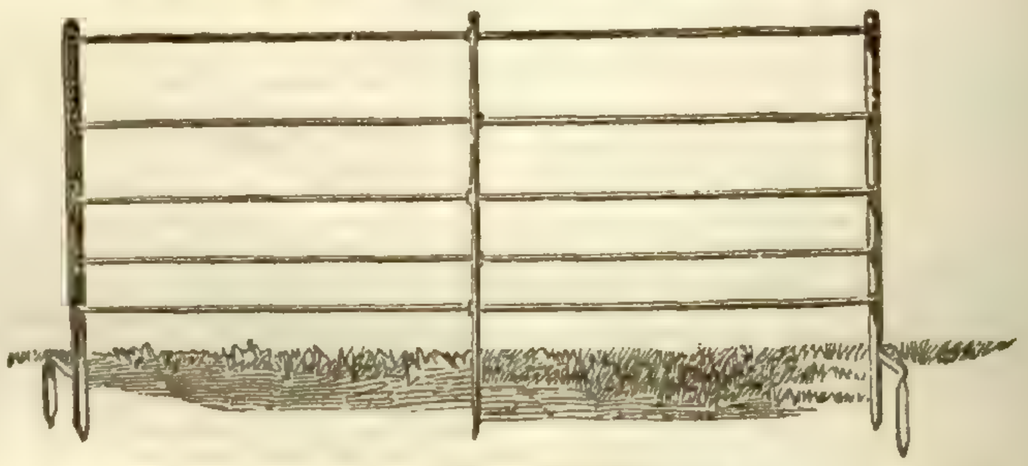

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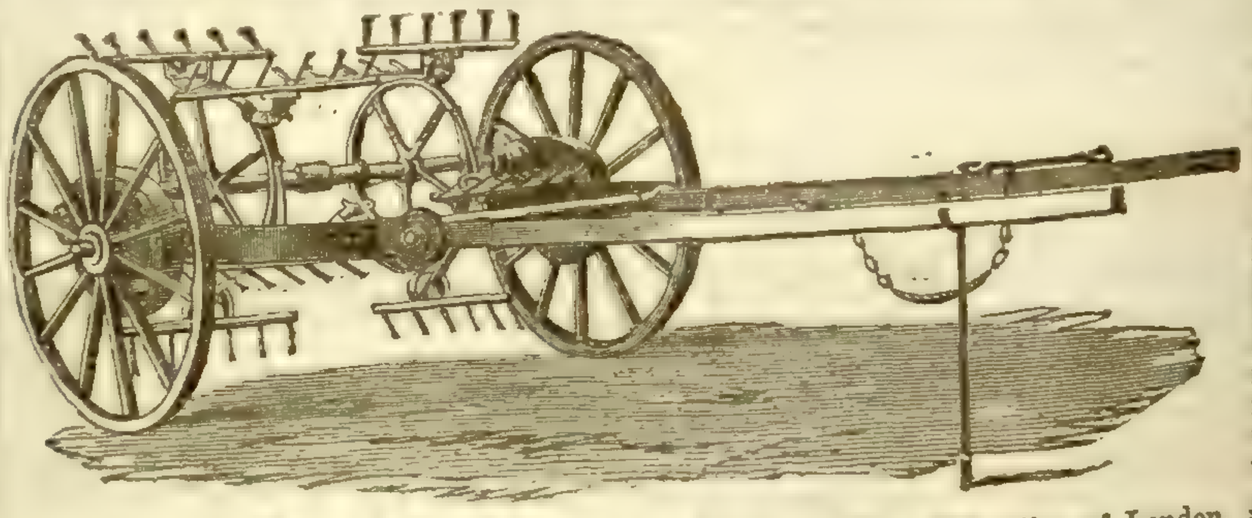

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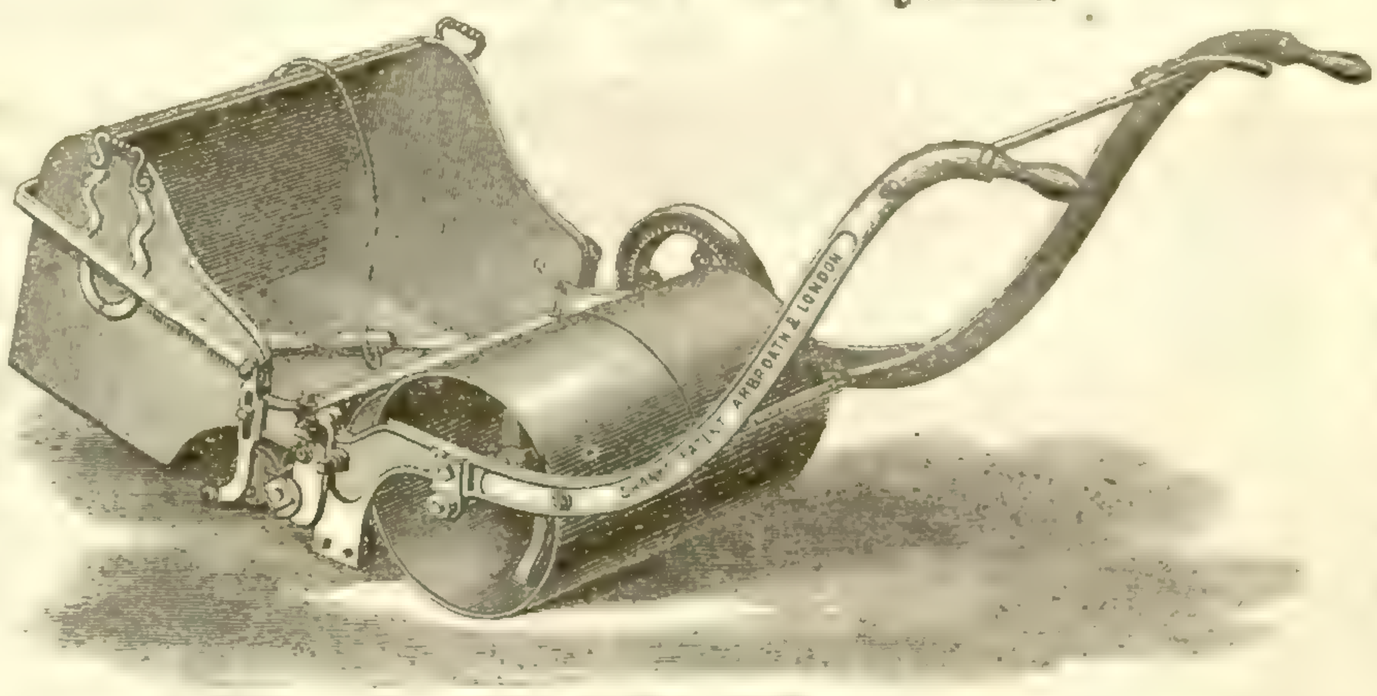

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The Right Hon. Earl Spencer
The Right Hon. Earl Fortescue
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HIS EXCELLENCY THE LORD-LIEUTENANT OF IRELAND
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The Right Hon. Lord Bagot
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Shanks' Patent Lawn Mowers are warranted to give ample satisfaction, and if not approved of may be at once returned.

☞ A. S. & Son *beg to intimate that their Warehouse at 27, Leadenhall Street, is the only place in London where intending purchasers of Lawn Mowers can choose from a stock of from 150 to 200 Machines. All sizes are kept in stock, whether for Horse, Pony, or Hand Power, and orders are executed on the day they are received.*

PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N. B.

LONDON OFFICE and SHOW ROOMS, 27, LEADENHALL STREET, E.C.

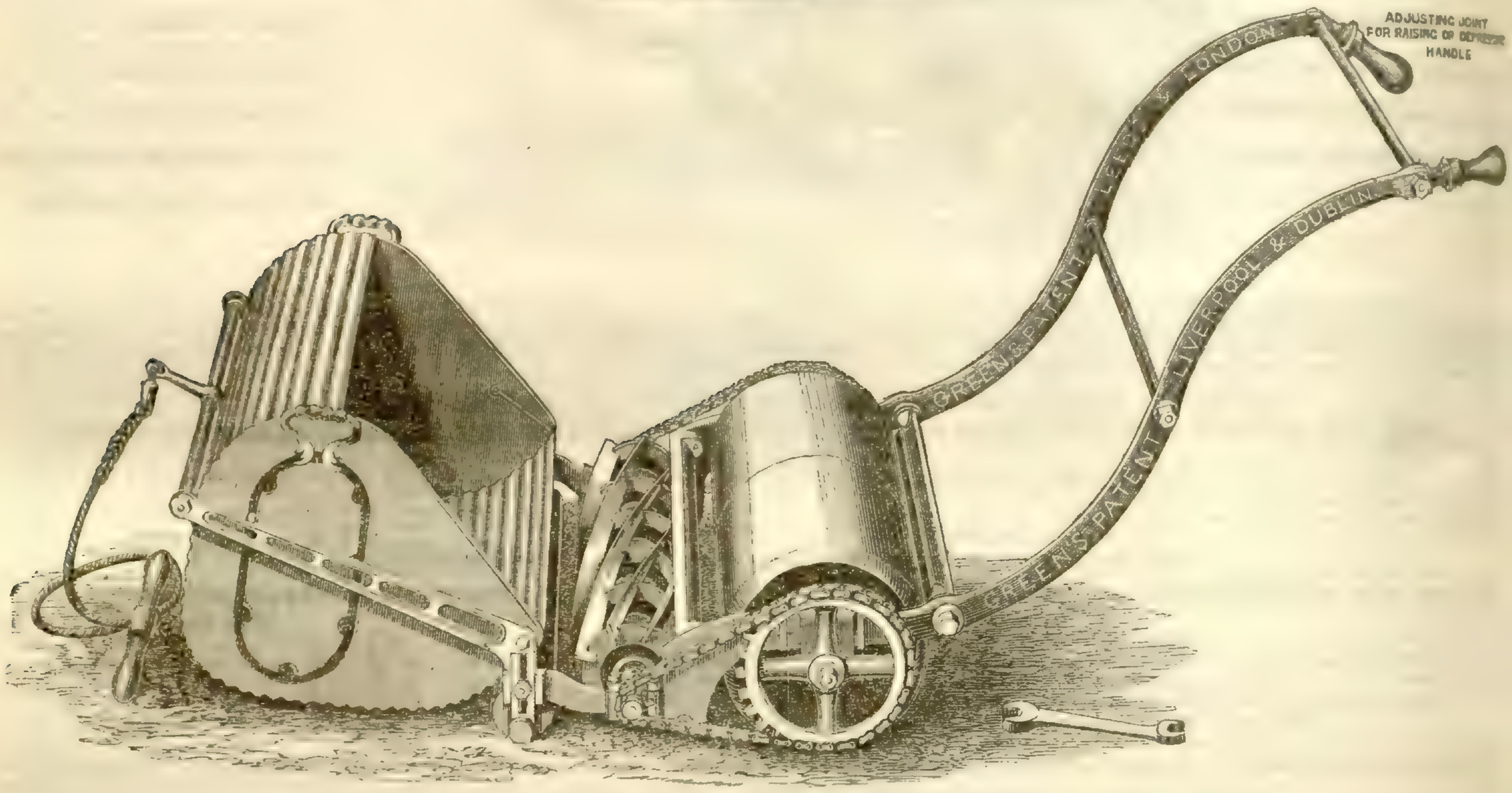
GREEN'S PATENT SILENS MESSOR

OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

BY SPECIAL APPOINTMENT.
SOLE MANUFACTURER

TO HER MOST GRACIOUS MAJESTY
THE QUEEN.



IMPROVED PATENT LAWN MOWER FOR 1865,

AS RECOMMENDED BY THE JUDGES OF THE ROYAL HORTICULTURAL SOCIETY'S SHOW HELD JULY 20, 1864.

GREEN'S PATENT LAWN MOWERS have proved to be the best, and carried off every Prize that has been given in all cases of competition. The Judges at the Royal Horticultural Society's Show, held July 20, 1864, awarded them a First-class Certificate (no Prizes were given), and, at the same time, suggested a slight alteration which has been done, and Messrs. T. G. & Son consider their MACHINES now as near perfect as possible.

Messrs. T. G. & Son beg to state that, owing to the great demand for their MACHINES in past years, they have been unable to execute orders with that despatch due to their numerous customers, but are now happy to inform them, that they have made such alterations and arrangements in their premises, whereby they trust to be in a position to send off all orders the day they are received.

PRICES OF HAND MACHINES.

To Cut 10 inches	£3 10 0	*Suitable for a Lady.*		To Cut 18 inches	£7 10 0	*Suitable for One Person.*
" 12 "	4 10 0	" "		" 20 "	8 0 0	*Suitable for Two Persons.*
" 14 "	5 10 0	*Suitable for One Person.*		" 22 "	8 10 0	" "
" 16 "	6 10 0	" "		" 24 "	9 0 0	" "

Packing Cases are charged at the following low rates, viz.: for the 10 and 12 inches Machine, 3s.; 14 and 16 inches, 4s.; 18 and 20 inches, 5s.; 22 and 24 inches, 6s. Parties providing themselves with Lawn Mowers are recommended to purchase the Cases in which to stow them away, when not in use, to prevent them from getting damaged; if returned, two-thirds will be allowed for them.

PRICES of HORSE, PONY, and DONKEY MACHINES, including Patent Self-delivery Box; Cross Stay complete; suitable for attaching to ordinary Chain Traces or Gig Harness.

To Cut 26 inches	£13 0 0	*Leather Boots for Donkey*, 18s.	To Cut 30 inches	£21 0 0	*Leather Boots for Pony*, 21s.
" 28 "	15 0 0		" 36 "	24 0 0	
" 30 "	17 0 0		" 42 "	27 0 0	*Leather Boots for Horse*, 24s.
			" 48 "	30 0 0	

The 26, 28, and 30 inches can easily be worked by a Donkey, or by Two Men, on an even Lawn, the 30 and 36 inches by a Pony, and 42 and 48 inches by a Carriage Horse; and, as the MACHINES make no noise in working, the most spirited animal can be employed without fear of its running away, or in any way damaging the MACHINE.

Both the HORSE, PONY, DONKEY, and HAND MACHINES possess (over all other Makers) the advantage of self-sharpening: the cutters being steel on each side, when they become dull or blunt by running one way round the cylinder, can be reversed again and again, bringing the opposite edge of the cutter against the bottom blade, when the MACHINE will cut equal to new. Arrangements are made that the cylinder can be reversed by any inexperienced person in two or three minutes.

The above MACHINES are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England; are warranted to give satisfaction, and, if not approved of, can be at once returned unconditionally.

THOMAS GREEN AND SON,

SMITHFIELD IRON WORKS, LEEDS; 2, FARRINGDON ROAD, HOLBORN HILL, LONDON, E.C.

19, EDEN QUAY, DUBLIN; and HADWIN'S BUILDINGS, TITHEBARN STREET, LIVERPOOL.

Exhibition Prize Medal. 1862.

HOTHOUSES for the MILLION.—On the principle invented and patented by Sir Joseph Paxton, M.P., combining cheapness, excellence, and durability. SPAN-ROOF [illegible], painted three coats, and glazed with English Sheet Glass, [illegible] ready for fixing, 21 ft. by 13 ft., 24*l.*; 43 ft. by 19 ft., [illegible] 64 ft. by 25 ft., 161*l.*

Illustrated Circulars, with Prices, can be had on application to Samuel Herman, 7, Pall Mall East, London, S.W.

Also, A HANDBOOK on VINE and FRUIT TREE CULTIVATION, 3d Edition, price 1*s.*; post free, 1*s.* 1*d.*

CRANSTON'S PATENT BUILDINGS for HORTICULTURE, Highly Commended by the Royal Horticultural Society, South Kensington. Plans and Estimates free on [illegible] Houses of the following sizes always in stock:—Span, 24 [illegible], Half-span, 24 by 10 feet; Lean-to, 24 by 8 feet. Stereoscopic [illegible] different houses post free for 6 stamps each.

[illegible] Book, fully illustrated, by post for 20 stamps from the [illegible] Patentee, James Cranston, Architect, No. 1, Temple [illegible], Birmingham.

Greenhouses and Conservatories.

H. FREEMAN, Horticultural Works, Hackney, N.E., Established 20 years. Good substantial made GREEN[illegible], glazed, ready for fixing. 42 feet by 13 feet, 50*l.*; 21 feet [illegible] 28*l.*; 12½ feet by 10 feet, 15*l.*

A handsome CONSERVATORY for Sale, 36 feet by 19 feet. [illegible]. A Large Assortment kept.

Heating by Hot Water.

W. J. HOLLANDS, Iron Merchant, 31, Bankside, London, S.E.

HOT WATER PIPES, from Stock, per yard:—2-inch, 1*s.* 4*d.*; [illegible]; and 4-inch, 2*s.* 7*d.* BENDS, from Stock 1*s.* 7*d.*, 2*s.* 6*d.*, [illegible] each. THROTTLE VALVES, 10*s.* 6*d.*, 13*s.* 6*d.*, and [illegible] each. Other Connexions at equally low prices, and all goods of [illegible] manufacture. Estimates given, and orders by post [illegible] attended to the same day. A discount to the Trade.

Heating by Hot Water.

HOT-WATER PIPES, at Reduced Wholesale Prices, with Elbows, Syphons, Tee Pipes, and every other connection; [illegible] and Cast-iron Boilers, Saddle, Conical, Cylinder, Tubular, [illegible], from 21*s.* each. Improved Boilers and Iron Stands to [illegible] brickwork, 56*s.* each. Valves from 10*s.* 6*d.* each. Patent [illegible], Improved Furnace Doors, Furnace Bars, Supply Cisterns, and [illegible] of every description in stock, at

Mr. LYNCH WHITE'S Iron Wharf, Upper Ground Street, Blackfriars Bridge, London, S. Price List on application.

Midland Steam Power Horticultural and Hot-water Works, Loughborough.

T. G. MESSENGER, the Proprietor of the above Works, finding it necessary (through the great demand for his Horticultural Buildings and Heating Apparatus) to make large additions to his Premises, and to Fit the same with an entire set of STEAM-POWER MACHINERY, is now enabled to execute any orders entrusted to him with the greatest dispatch, and at the most possible price consistent with good and substantial work.

Illustrated Catalogues, Working Model, Plans and Estimates, free on application.

HEATING by HOT WATER—Public and Private Buildings, Manufactories, Conservatories, &c., heated on the most improved system, combined with perfect Ventilation.

These BOILERS are adapted for setting in Brickwork, or as shown in sketch they require no Brickwork.

BURY and POLLARD
(Successors to John R. Peill),
Sole Manufacturers of the Improved CONICAL BOILERS, which are in general use, and which Boilers have for their durability and economy attained a celebrity far surpassing any other Boilers ever invented.

Park Iron Works, 17, New Park Street, Southwark, London, S.E.

N.B. Patent WINDMILLS for Pumping and Driving Farm Machinery, from half-Horse Power upwards. To be seen daily at work as above.

Greenhouses—Heating Apparatus.

DENNIS' PATENT METALLIC HORTICULTURAL BUILDINGS are made from the best wrought iron, upon an entirely new principle. The combination of Iron and Glass under this Patent is perfect; the possibility of fracture is prevented, and a permanently water-tight roof insured. The leading practical advantages are extreme slendiness of framing, admitting a maximum of light, and perfectly neutralising atmospheric conduction. They are thoroughly ventilated, exceedingly strong and durable, easily erected, and whilst maintaining their established superiority for Conservatories of the highest order, are acknowledged by the most eminent Horticulturists of the day to be the "desideratum" for Forcing, promoting perfect symmetry of growth and richness of both for Fruit and Flowers.

From the complete adjustment of the constructional parts of these portable buildings, their manufacture is so facilitated that a comparison of cost with perishable wooden structures is most favorable.

THE GARDENER'S OWN GREENHOUSE (Lately known as Dench's Patent) is a Tenant's Fixture.

The Patent, Plant, Business, Machinery, and all connected with the above, have been transferred to T. H. P. Dennis, who has determined to supply these really useful buildings at such a reduced scale of prices that every one desiring a Greenhouse may possess one.

Note.—A No. 1 Lean-to, 12 ft. 6 in. by 9 ft., including honest 16-oz. Glass, £16 16*s.* 6*d.*

T. H. P. D. has introduced most important improvements in their [illegible] and construction, and after numerous experiments has succeeded in arranging them as a Tenant's Fixture, which he feels sure will be valued by gentlemen having limited tenures. With Mr. D.'s [illegible] adaptation, they make excellent Orchard-houses, and afford a [illegible] that can be desired in a profitable building.

Wood structures at the lowest price consistent with sound work.

Prospectuses and Estimates on application to T. H. P. Dennis, Horticultural Builder, Hot-water Engineer, &c., Chelmsford, Essex.

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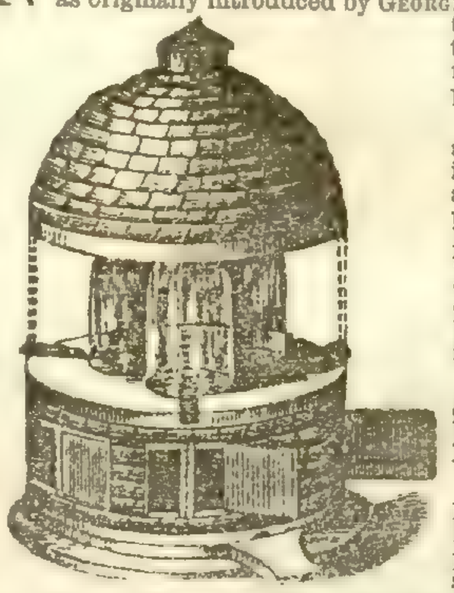
SAMUEL N. McGERROW,
General Horticultural Builder,
Knotty Ash, near Liverpool.

Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

Bee Hives.

Prize Medal and Honourable Mention awarded to G. N. & Sons, for Bee Hives and Honey at the various Exhibitions.

NEIGHBOUR'S IMPROVED COTTAGE BEE HIVE, as originally introduced by George Neighbour & Sons, with all the recent improvements, three Glasses and Thermometer, price 35*s.*, securely packed for the country.



Several important novelties are introduced this season, including the Woodbury Straw and Bar-and-Frame Hive, price 21*s.*, &c. Also the Engraved Pressing Roller, for the guidance of Bees in the construction of Honey-comb on the Bars, and impressed Wax Sheets, to assist in the formation of Cells.

Address, George Neighbour & Sons, 127, High Holborn, W.C.; or 149, Regent Street, London, W.

Their newly-arranged Catalogue of other Improved Hives, with drawings and prices, sent on receipt of two stamps.

Agents:—Liverpool: James Cuthbert, 12, Clayton Square. Manchester: J. Wilson, 50, King Street. Birmingham: J. H. Cottrell, 15, Bull Ring. Dublin: Edmondson Brothers, 10, Dame Street. Glasgow: Austin & McAslan, 16, Buchanan Street.

SMITH, BECK, and BECK'S GREENHOUSE and HOTBED THERMOMETERS.—These Instruments are of the very best construction, and at moderate prices.
31, Cornhill, E.C.

THE NEW MAXIMUM THERMOMETER. Price 2*s.* Invented by T. Twining, Esq., V.P.S.A.

Manufactured by Marratt & Short, Opticians, &c., 63, King William Street, London Bridge, E.C.

A Description with Illustrations sent by post on receipt of stamp, or gratis on application.

IMPROVED GLASS TRAPS for WASPS and FLIES, 6*s.* per dozen. CUCUMBER GLASSES, 12 by 2 inches, 3*s.* per dozen. Elegant GLASS JARS for Preserves, 1*s.* 9*d.* per dozen, ½ pint. Sent free of Carriage and package to any Railway Station in London, on receipt of Post Office Order or other remittance.

J. R. Morley, Tavern Street, Ipswich.

Glass for Garden Purposes.

JAMES PHILLIPS AND CO. beg to submit their prices as follows:—

PROPAGATING GLASSES.

	Each.—s.	d.		Each.—s.	d.
2 inches in diameter ..	0	3½	12 inches in diameter ..	1	9
3 " " ..	0	4½	13 " " ..	2	0
4 " " ..	0	5½	14 " " ..	2	6
5 " " ..	0	6½	15 " " ..	3	0
6 " " ..	0	8	16 " " ..	3	6
7 " " ..	0	10	17 " " ..	4	0
8 " " ..	1	0	18 " " ..	5	0
9 " " ..	1	2	19 " " ..	6	0
10 " " ..	1	4	20 " " ..	7	0
11 " " ..	1	6			

HAND GLASSES, WITH OPEN TOPS.

	Each.—s.	d.		Each.—s.	d.
12 inches	6	6	18 inches	9	6
14 "	7	6	20 "	10	6
16 "	8	6	22 "	11	6
			24 "	12	6

Painted and Glazed with 16-oz. Sheet Glass.

BEE GLASSES.

	Each.—s.	d.		Each.—s.	d.
4 inches in diameter ..	0	6	9 inches in diameter ..	1	8
5 " " ..	0	8	10 " ..	2	0
6 " " ..	0	10	11 " ..	2	6
7 " " ..	1	1	12 " ..	3	0
8 " " ..	1	4			

CUCUMBER GLASSES.

	Each.—s.	d.		Each.—s.	d.
24 inches long	2	0	16 inches long	1	4
22 " "	1	10	14 " "	1	2
20 " "	1	8	12 " "	1	0
18 " "	1	6			

London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.

LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS, PAINTS of various colours ground ready for use.

180, Bishopsgate Street Without, London E.C.

FOUNTAIN JETS.

Fig. 526. JET D'EAU. 18 holes, 5*s.* 6*d.*; 24 do., 5*s.* 9*d.*; 36 do., 6*s.* 6*d.*

Fig. 531. DOME and CONVOLVULUS. 17*s.*

Fig 525. DO 8*s.* 6*d.*

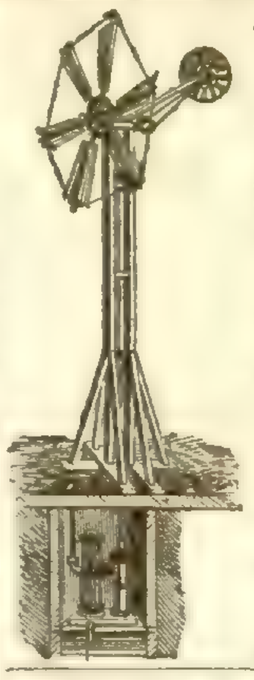
Fig. 523. CONVOLVULUS. 8*s.* 6*d.*

Fig. 521. BARKER'S MILL. 11*s.*

Fig. 522. WIRE BASKET WITH BALL. 10 ins., 16*s.* 6*d.*; 12 ins., 17*s.* 6*d.*; 14 ins., 19*s.* 6*d.*

Connecting Screws to all the above Jets, 1*s.* 6*d.* extra.

J. Tylor & Sons, Manufacturers, Warwick Lane, Newgate Street, London, E.C.



As Exhibited at Royal Agricultural Shows—

Worcester, 1863; Newcastle, 1864; and Plymouth, 1865.

WIND ENGINE (Patent Self-Regulating), for PUMPING, CHAFF CUTTING, PULPING, GRINDING, THRESHING, OAT CRUSHING, SAWING, or DRIVING other MACHINES.

Powers, from ½ to 12 Horses.

For Farm Purposes most economical, costing nothing to work. Erection simple and cheap.

For Pumping invaluable, working day and night, requiring no watching.

BURY and POLLARD,
Sole Manufacturers,
Park Iron Works,
17, New Park Street, Southwark, London,

Where a Wind Engine that has been at work seven years may be inspected.

Prices, with Testimonials, by post for one stamp.

To Flockmasters.

LONG'S NON-POISONOUS SHEEP DIPPING COMPOSITION is a thorough cleanser of the skin, effectually destroys all Ticks and other vermin in the animal, thus tending greatly to improve the Flock and prevent fly striking. The Composition, in its use, leaves the fleece as white as snow, free from any stain, and the skin soft and oily. It is sent out in tin cans, from one gallon to four gallon size. When mixed, one gallon with 80 gallons of cold water, it makes a bath of a perfect white and soapy appearance; it mixes readily, leaves no sediment on the bottom or scum on the top, and the cost is about one penny per head. When used as pouring Composition for Scab or destruction of Tick, mix one gallon with 40 gallons of water.

LONG'S MAGGOT LOTION.—This lotion will instantly Kill every Maggot, Heal the Wound, and prevent Fly Striking, as well as Destroy all Fleas and other Vermin in Dogs or Cattle; is sold in pint bottles at 22*d.* per pint. One pint strong enough to mix with 40 pints of water—ready for use.

LONG'S GREEN-FLY LOTION.—This lotion is prepared purposely for Horticultural purposes, and when diluted, one pint to 40 pints of water, will Kill every Green-fly and other Insects that infest Roses, Fruit Trees, Shrubs, &c., and prevent Blight in Hops or Vines. Sold in half pint bottles at 20*d.* each bottle.

LONG'S TURNIP-FLY LOTION.—This Lotion has been J. Long's study for many years, and he can now confidently recommend it as a thorough Preventive and Destroyer of the Turnip pest, at a cost of from 6*s.* to 10*s.* per acre.

Wholesale Agents, S. & E. Ransome & Co., Essex Street, Strand, W.C

Patronised by 70,000 Stock Breeders.

REGISTERED — DISEASE HAS FOUND ITS MASTER — TRADE MARK.

DAY, SON, and HEWITT, Sole Inventors of the Celebrated STOCK-BREEDER'S MEDICINE CHEST, containing as follows:—

Six Bottles (at 2*s.* 6*d.* each) of the UNIVERSAL CHEMICAL EXTRACT, matchless for penetrating, mollifying, and assuaging pain in all wounds, kicks, cuts, strains, &c., in horses and cattle; straining in ewes lambing, and swollen and inflamed udders in cows and ewes; sore feet in cattle, sheep, and dogs.

One Dozen Bottles (value 20*s.*) of the GASEOUS FLUID or BLACK MIXTURE, unmatched in the known world for curing diarrhœa or scouring calves, sheep, and lambs; for ewes weakly and exhausted after lambing; for horses and cows exhausted and sickly, and for the fret, colic, or gripes in horses and cattle. An instantaneous remedy for blown cattle and sheep.

One Dozen Packets (value 13*s.*) of the RED DRENCH or INFLAMMATION POWDER, for cleansing after calving or lambing, for straining in ewes, and for removing all feverish symptoms in cows and ewes after calving or lambing; for yellows in oxen, and for colds, chills, and all inflammatory cases in horses, cattle, and pigs.

One Dozen (value 7*s.* 6*d.*) of the RED PASTE or CONDITION BALLS (for horses). These Balls give vigorous health, purify the system, and produce a mole-like sleekness of coat.

Price of Chest complete, with Shilling Key to Farriery, 2*l.* 16*s.* 6*d.* securely packed, and carriage free. Sample case, usefully assorted 16*s.* 6*d.* Messrs. D., S., & H. respectfully urge their friends to send their orders early, so that no purchaser may be kept waiting.

Either preparation may be had separately in boxes, carriage paid.

Address—Day, Son, & Hewitt, Animal Medicine Manufactory, 22, Dorset Street, Baker Street, London, W.; or Wantage, Berks.

Testimonials from all parts of the United Kingdom and Ireland sent free on application.

Established over One Quarter of a Century.

MR. EDWIN COOLING,
Horticultural Valuer,
Mile Ash, Derby.

WANTED to RENT, within 30 miles of London, a SMALL NURSERY or MARKET GARDEN with Cottage. Must be near a Railway and in a populous neighbourhood.

Address Delta, Post Office, Gravesend.

To Market Gardeners and Others.

TO BE LET, near Brighton, a GARDEN, in good Cultivation and Stocked, with about Three Acres of Grass Land, Fruit Trees, Two Greenhouses, with Vines, Forcing-pits, and Frames, comfortable Dwelling Houses, and convenient Outbuildings.

Further particulars may be obtained of Mr. Kernan, Seedsman, Great Russell Street, Covent Garden, W.C.; or of Mr. W. H. Bacon, 3, Trafalgar Place, Clapham Rise, S.

Richmond, Surrey—To Gardeners and Others.

TO BE SOLD, by Private Contract, about 12,000 Square Yards of Capital TURF, to be Cut and Removed by the Purchaser.

Apply to Messrs. Driver & Co., Surveyors, Land Agents, and Auctioneers, 4, Whitehall, London, S.W.

Sales by Auction.

Improved and Established Orchids.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, June 21, at half-past 12 o'Clock precisely, 50 nice healthy and well-established Plants of DISA GRANDIFLORA and DISA GRANDIFLORA SUPERBA, many of them showing flower; the property of a gentleman. Also a small collection of established ORCHIDS, being duplicates from a gentleman's collection, including

Phalænopsis Lüddemanniana	Aerides Fieldingii
" amabilis	" crispum
" grandiflora	Vanda coerulea
Cypripedium Stonei	" suavis
Odontoglossum hastilabium	Saccolabium retusum
" Reichenheimii	&c. &c. &c.

Also an importation of four Cases of Orchids from New Granada.

On view the Morning of Sale, and Catalogues had.

Red Hill, near Edenbridge, Kent.

IMPORTANT SALE OF SHORT-HORNED CATTLE.

MR. STRAFFORD begs to announce that he has received instructions from G. M. Tracy, Esq., to SELL by AUCTION, on TUESDAY, July 11, about 30 HEAD of SHORT-HORNED BULLS, COWS, and HEIFERS (which are, with the exception of two Cows and their produce, his entire Herd), and includes some animals of first-rate quality and character. The Young Stock are chiefly by The Baron (13,833), see portrait Vol. XI. "Herd Book," who is well known as a Prize Bull at the Royal Dublin and Highland Societies' Shows, having proved himself one of the best Stock Getters of his time.

Catalogues, with Pedigrees, may be had on application to Mr. Strafford, 13, Euston Square, N.W.; or of Mr. Tracy, Red Hill, near Edenbridge, Kent.

THE HYDROPULT.

NEW SHOW ROOMS, 142 and 143, CHEAPSIDE, LONDON, E.C.

THE HYDROPULT

is invaluable for use in the

GARDEN for WATERING BEDS,

SPRINKLING PLANTS,

DROWNING OUT INSECTS,

CLEANSING TREES from SMUTS,

DRESSING

with

LIQUID MANURE, &c., &c.

THE HYDROPULT

is desirable in every

HOUSEHOLD

for

WASHING WINDOWS,

WETTING SIDEWALKS,

SPRINKLING STREETS,

WASHING CARRIAGES,

EMPTYING CISTERNS

FILLING BARRELS

A SPRAY BATH, &c., &c.

THE HYDROPULT,

PRICE: WITH BRASS CYLINDERS AND MALLEABLE IRON STIRRUP, JAPANNED IN OAK COLOUR,

32s. 6d.,

Complete, with 2½ feet Suction, and 3 feet Delivery Hose, Galvanised Wire Strainer, Rose, and Small Jet. Complete as above, with Copper Stirrup, TWO GUINEAS.

Weighs but 8 lb.

Will throw 8 Gallons of Water per minute 50 feet, when worked by the power of One Man.
It will draw water horizontally, if necessary, through 300 feet of Suction Hose, and force it through Delivery Hose, to an altitude of 100 feet.

ORDERED BY THE WAR DEPARTMENT AS FIRE ENGINES.

In proof of the real utility and efficiency of the HYDROPULT as a Garden Implement, I beg to call the attention of the public to the following unsolicited Editorials from gentlemen whose testimony must have weight with the readers of the *Gardeners' Chronicle*:—

Editorial, *written by* Robert Hogg, LL.D., F.L.S.

The Hydropult.—The great secret of successful indoor gardening consists in the free and judicious use of the syringe. A greenhouse or conservatory that does not enjoy this luxury becomes a miserable lazar house of vegetable incurables. Vermin and filth hold unbounded sway, and people become disgusted with their own want of success. Well do we recollect the former days of plant culture, the days of "collections," when the use of the syringe was yet limited or unknown. What a time for red spider, scale, and greenfly! What fumigations and consumption of tobacco and tobacco paper, washings with tobacco water, and all sort of remedies were resorted to! We regard the introduction of the free use of the syringe as one of the events in modern gardening. To this is due the success of orchard house management, Vine management, and Plant management, but the old syringe with its slow suck and squirt, is now as much out of date in modern gardening as an old stage waggon in modern locomotion. Many are the improvements and complications of the old simple syringe. We have tried several of them, but for ease in working and efficiency in result, we have not yet met with anything equal the Hydropult, sent us by Mr. Button. It is powerful in operation, and so easy and comfortable to work, that one never gets fatigued. With such an instrument plants may be kept in perfect health and quite free from insects and dirt. We first tried it on a few Geraniums in our conservatory which were smothered with greenfly during our temporary absence of ten days, but on our return a few discharge from the Hydropult sent them clean off across some unknown bourne, whence they have never yet returned.

Editorial, *written by the* Rev. Henry H. Dombrain, A.B.

The Hydropult.—When we formerly noticed this instrument, we did so from merely seeing it at the Proprietor's; since then we have had an opportunity of testing it personally, and can bear testimony to the excellence of the invention. The force with which it throws a stream of water is almost incredible; while for syringing a greenhouse, a gentle shower, as fine as that from a hand syringe, with considerably more effect, can be easily given. We have a gardener, quite of the old-fashioned school, who does not generally fall in love with new-fangled notions, but he is perfectly enchanted with the saving of labour and time that the Hydropult will be to him.

Editorial, *written by* Shirley Hibberd, Esq., F.R.H.S.

The Hydropult.—This is an invention introduced in a most spirited manner by Mr. C. P. Button. It is at once a fire engine and a garden engine, is always ready for use at a moment's notice, is neat and portable, weighing only 8 lbs., and can be worked by a boy of moderate strength for some hours in succession without fatigue, the mechanical power employed being economised by combining the action of the hand and the resistance to the foot, between which the instrument is placed and used, as a double action pump. From the sole to the handle the Hydropult measures 24 inches. The two brass cylinders measure 12 inches in length, and 3½ inches in breadth. At the top of these cylinders India rubber tubing is attached, on one side to feed, on the other to discharge the water. It will perhaps surprise the reader to be told that this little contrivance, which is pretty as a toy, and can be carried under the arm as easily as a trumpet, will throw from seven to eight gallons of water per minute a distance of 50 feet. But it will do it, as we know from having tried it, finding the experiment an agreeable exercise, and of special service in washing down a stuccoed wall, which it accomplished quite as well as if we had sent for the parish engine. Gardeners will not need to be told the value of a portable force pump of this simple kind. It can be used to produce a powerful stream to extinguish a fire, or a gentle shower to syringe a whole houseful of plants, without the necessity of moving a single step from the position most convenient for a supply of water. Wherever a pump or syringe is needed the Hydropult can be brought into use, to remove water from a cellar or a boat, to cleanse a stable, wash a pavement, or drench the foliage of trees loaded with soot, or annihilate at one fell swoop the whole insect population of a plantation of Roses. But we will not enlarge upon its merits, these are obvious, and having a Hydropult in use we can say that it will soon pay for its cost in a garden, besides being always at hand in case of an emergency of any kind which may require an immediate removal or discharge of water.

THE GREENHOUSE and CONSERVATORY HYDROPULT.

A NEW AND BEAUTIFUL IMPLEMENT,

Weighing scarcely 3 lbs.,

AND SPECIALLY ADAPTED FOR USE IN THE GREENHOUSE AND CONSERVATORY.

Price 35s.,

Complete with Brass Cylinders and Copper Stirrup, 2½ feet Suction and 3 feet Delivery Hose, Strainer, Rose, Jet, and Fan.
This NEW IMPLEMENT must necessarily supersede Syringes and other devices of the kind, for it will be found much more effective in its operation.

A LADY CAN WORK IT FOR HOURS WITHOUT FATIGUE.

HYDROPULT SHOW ROOMS, 142 and 143, CHEAPSIDE, LONDON, E.C.
CHARLES POMEROY BUTTON, Proprietor.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 25.—1865.] SATURDAY, JUNE 24. {Price Fivepence. STAMPED EDITION, 6*d*.

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ROYAL HORTICULTURAL SOCIETY.—The FRUIT and FLORAL COMMITTEE will meet on TUESDAY NEXT, 27th, at 12; LECTURE and SHOW of FLOWERS and FRUIT at 3 o'clock. Admission 1*s*.

ROYAL HORTICULTURAL SOCIETY.—GREAT ROSE SHOW on SATURDAY, July 1. Bands of First Life Guards and Royal Horse Guards 3.30 to 6. Admission Tickets to Fellows' Friends, 3*s*. 6*d*.; Public, 5*s*., either of which bought on the day, 7*s*. 6*d*.

ROYAL BOTANIC SOCIETY, REGENT'S PARK.—The LAST GENERAL EXHIBITION of PLANTS, FLOWERS, and FRUIT this Season, WEDNESDAY, July 5.
Tickets to be obtained at the Gardens, and of the Society's Clerk; Austin's Ticket Office, St. James's Hall; or Vouchers from Fellows of the Society, price 5*s*.; or on the day of Exhibition, 7*s*. 6*d*. each.

GRAND FLOWER SHOW in FINSBURY CIRCUS, on WEDNESDAY, July 12, by the UNITED HORTICULTURAL SOCIETY. For information apply to
Robert Pince Glendinning, Hon. Sec., Chiswick Nursery, W.

GRAND FLORAL GALA, ROSE SHOW and BAND CONTEST at STAMFORD, on WEDNESDAY, June 28. Open to All England. The Schedules, with Rules, are now ready, and will be forwarded on application to
Stamford, June 24. O. B. Shore, M.D., F. A. Hewitt } Hon. Secs.

BRIGHTON and SUSSEX FLORICULTURAL and HORTICULTURAL SOCIETY.
THE TWELFTH ANNUAL SUMMER EXHIBITION will be held this year, by the kind permission of the Town Council, on the Eastern Lawn, and in the entire suite of splendidly decorated rooms of the Royal Pavilion, on WEDNESDAY and THURSDAY, June 28 and 29, on the same grand scale as on former years.
The Railway Cup, value £10, is offered for the best Collection of Orchids, eight varieties. Schedules of Prizes can be had on application to the Secretary, 96, St. James's Street; or E. Spary, Superintendent of the Exhibition, Queen's Graperies, Brighton.
June 24, 1865. Edward Carpenter, Secretary.

BRIGHTON FLOWER and FRUIT SHOW will be held in the splendid Decorated Rooms of the Royal Pavilion, on WEDNESDAY and THURSDAY NEXT. By the liberality of the London, Brighton, and South Coast Railway, Plants, &c., will be conveyed as usual, free of charge, under the same restrictions as former years.
Edward Carpenter, Secretary.

LEICESTER and LEICESTERSHIRE FLORAL and HORTICULTURAL SOCIETY.
President—The Right Hon. Earl Howe.
The GREAT ROSE SHOW of the above Society (Open to All England) will be held on the 4th and 5th JULY NEXT.
A SHOW of CAGE BIRDS will be held on the same days (Open to All England). For Programme and particulars apply to the Secretary,
Wm. Penn Cox, Market Place, Leicester.

BOSTON FLORAL and HORTICULTURAL SOCIETY.—FIRST SHOW will be held on THURSDAY, July 6. Five Pounds, in Two Prizes, will be given for the Best and Second Best 24 Cut Roses.
Schedules, &c., may be obtained of Mr. W. H. Bailes, Solicitor, Boston; or of Mr. Jonathan Cocks, West Skirbeck Nursery, Boston.

FLORAL and HORTICULTURAL FETE, to be held at PETERBOROUGH, in connection with the Northamptonshire Agricultural Society's Annual Show, on THURSDAY, July 6. Premiums amounting to more than £200 will be offered for Competition. Open to All England. Prizes to be paid on the day of Exhibition. The Band of the Coldstream Guards, under the leadership of A. F. Godfrey, Esq., has been engaged.
The Schedule and Rules may be obtained of the Secretary, Mr. John Fox, 14, Narrow Street, Peterborough.

BIRMINGHAM ROSE SHOW, THURSDAY and FRIDAY, July 6 and 7.
PRIZE LISTS and Forms of Entry may be had of Mr. Alexander Forbest, Queen Chambers, Cherry Street, Birmingham.
ENTRIES CLOSE, Friday, June 30.

DONCASTER HORTICULTURAL SOCIETY. SPECIAL PRIZES.
The GREAT ANNUAL EXHIBITION, open to all, will take place on WEDNESDAY and THURSDAY, the 2d and 3d of August, 1865—the days of the Yorkshire Agricultural Show. £120 offered in Prizes for all descriptions of Horticulture.
Schedules on application to Mr. Appleby, Secretary.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—The TWENTY-SECOND ANNIVERSARY FESTIVAL in AID of the FUNDS of this Institution will take place at the LONDON TAVERN, Bishopsgate Street, London, on FRIDAY, July 7. J. R. Jeffery, Esq., of Woolton Hall, Liverpool, in the Chair.
Tickets, One Guinea each. The Gallery will be opened for the admission of Ladies (Tickets 7*s*. 6*d*. each, of which a limited number only will be issued). Dinner to be upon Table at 6 o'clock precisely.
Edwd. Roger Cutler, Secretary.
14, Tavistock Row, Covent Garden, W.C.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—An ELECTION of THREE PENSIONERS on the Funds of this Institution will take place at the Bedford Hotel, Covent Garden, on TUESDAY, the 11th July next. The Chair to be taken at 6 o'clock precisely; the Ballot will close at 8 o'clock.—By Order.
E. R. Cutler, Secretary.
14, Tavistock Row, W.C.—June 17.
The Voting Papers have all been delivered. Any Member not having received one is respectfully requested to intimate the same to the Secretary.

CARTER'S GARDENER'S VADE-MECUM PLANT SUPPLEMENT is now ready.

New Plants for 1865.
JAMES CARTER and CO.'S CATALOGUE of NEW and CHOICE BEDDING, GREENHOUSE, and STOVE PLANTS, is now ready, and will be forwarded gratis and post free on application.
James Carter & Co., 237 & 238, High Holborn, London, W.C.

CALCEOLARIA, CINERARIA, and PRIMULA, saved from the finest strains in cultivation.
2*s*. 6*d*. and 5*s*. per packet.
James Carter & Co., 237 and 238, High Holborn, London, W.C.

First Quality.
CALCEOLARIA, PRIMULA, CINERARIA, CARNATION, PICOTEE, PINK, AURICULA, VERBENA, MIMULUS, ZONALE GERANIUM and PELARGONIUM.
Each 2*s*. 6*d*. per packet.
Barr & Sugden, 12, King Street, Covent Garden, W.C.

HOLLAND and JONES' CATALOGUE of BEDDING, GREENHOUSE, and STOVE PLANTS is now ready, free on application.
Bradshaw Gardens, Chadderton, near Manchester.

Geranium Crystal Sea.
MARTIN and SON beg to say that the above Geranium will NOT be SENT OUT till AUTUMN, as our present stock will not supply our friends.—Hull, June 24.

To the Trade.
MRS. POLLOCK GERANIUM.—Our Stock is large, and very fine. Price on application to
James Dickson & Sons, the "Newton" Nurseries, Chester.

MRS. POLLOCK PELARGONIUM.—Healthy Spring-struck plants, 2*s*. 6*d*. each, well hardened for bedding out. The Trade supplied.—Address,
Alfred Fryer, Nurseryman, Chatteris, Cambridgeshire.

Japanese Clematis.
MR. FORTUNE'S magnificent CLEMATIS STANDISHII and FORTUNII, doubtless two of the most important introductions of late years, received the unusual honour of Special Certificates at the Meetings of the Royal Horticultural Society, April 29 and May 2 last.
Strong Flowering Plants may be obtained of Charles Noble, Bagshot.

ROBINIA DECAISNEANA.—A new, beautiful, and very free flowering variety of the common ACACIA, with lovely pink flowers. It was awarded a First-class Certificate by the Floral Committee of the Royal Horticultural Society on the 30th May last. J. & C. Lee can now supply healthy plants at 3*s*. 6*d*. each.
Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

CRYSTAL PALACE, ROYAL BOTANIC, and ROYAL HORTICULTURAL FLOWER SHOWS.
At these PLANT CASES will be exhibited in great variety, furnished with the Choicest Exotic Fern and Foliage Plants, arranged by
Barr & Sugden, of 12, King Street, Covent Garden, W.C.

BEDDING-OUT PLANTS in great variety. WINDOW JARDINETS, Empty or Furnished, in variety.
The "Gardeners' and Amateurs' Friend," see page 454.
Barr & Sugden, 12, King Street, Covent Garden, W.C.

WILLIAM DAVIDSON, SEEDSMAN, 30*a*, St. Andrew Square, Edinburgh.

Genuine Garden and Agricultural Seeds.
JAMES CARTER and CO., Seed Farmers, Merchants, and Nurserymen, 237 and 238, High Holborn, London, W.C.

H. and F. SHARPE, Seed Growers and Merchants, Wisbech.
SPECIAL PRICED LIST of NEW SEEDS on application.

NEW and GENUINE AGRICULTURAL, GARDEN, and FLOWER SEEDS.
Special prices and advantageous offers on application to
James Fairhead & Son,
Seed Growers and Merchants, 7, Borough Market, London, S.E.

RAYNBIRD, CALDECOTT, and BAWTREE, Seed Farmers and Merchants, 89, Seed Market, Mark Lane; and Basingstoke.
Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

PTERIS TRICOLOR, CORDYLINE.—WANTED, a good plant of each of the above. Letters, stating size, variety, and price wanted, addressed to Z., at Mr. Warner's, 61, Chancery Lane, E.C., will be immediately attended to.

INTERMEDIATE STOCK, COVENT GARDEN and VICTORIA VARIETIES.
Scarlet, Purple, White, or Mixed COVENT GARDEN INTERMEDIATE STOCK, each, 1*s*. per packet.
Scarlet, White, or Mixed VICTORIA INTERMEDIATE STOCK, very floriferous, and more robust than the Covent Garden varieties, each 2*s*. 6*d*. per packet.
Barr & Sugden, 12, King Street, Covent Garden, W.C.

To the Lovers of Ferns.
MR. MASTERS, F.R.H.S., announces to the Public that he has devoted considerable attention to this most interesting tribe of Plants, and that he possesses a very large stock of them fit for the open Fernery, for Wardian Cases, or for the Greenhouse, &c., for which he solicits commissions.
Exotic Nursery, Canterbury.

British Fern Catalogue.
ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
*** Part II. (Exotic Ferns) will be issued as early as possible.
Foot's Cray Nursery, S.E.

J. IVERY and SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

New Azalea Indica.
J. IVERY and SON have much pleasure in offering the undermentioned Two beautiful Seedlings, as they feel assured they will prove thoroughly distinct, and most desirable kinds.
FORGET-ME-NOT.—Brilliant glossy reddish-purple, 10*s*. 6*d*. & 21*s*.
BEAUTY of DORKING.—White striped and spotted with rose, 10*s*. 6*d*. and 21*s*.
For a full description see CATALOGUE, which will be forwarded post free on application.—Dorking, June 24.

Roses.
H. LANE and SON, The Nurseries, Great Berkhamstead, beg to inform their Patrons and the Public that their COLLECTION (upwards of 7 acres) is NOW in BLOOM, at the Balshaw Nurseries, 1½ mile from the Station, and will continue during the Season.

Roses in Bloom.
JAMES MITCHELL respectfully informs the Nobility and Gentry his renowned ROSES are NOW in FINE BLOOM.
Pilt Down Nurseries, Maresfield, Sussex, Two and a half Miles from the Uckfield Station.

Roses.
JOHN FRASER, of the Lea Bridge Road Nurseries, Leyton, N.E., respectfully invites an inspection of his COLLECTION of ROSES, which are NOW in FLOWER. The Collection contains many new and fine varieties.

Roses in Bloom.
PAUL and SON'S COLLECTION of ROSES is NOW in BLOOM, and particularly worth seeing this season. They would solicit the favour of a visit from all Amateurs.
Trains from Bishopsgate to Cheshunt, one mile from the Nursery, hourly. The Old Cheshunt Nursery, Cheshunt, N.

New Roses of 1865.
PAUL and SON solicit orders for MARECHAL NIEL and the other NEW FRENCH ROSES, at 42*s*. per dozen. To be sent out with their NEW ROSE PRINCESS MARY of CAMBRIDGE, on and after the 1st July. Roses for bedding in quantity on application.
"Old" Cheshunt Nurseries, Cheshunt, N.

Shrubs, Roses, Fruit Trees, &c.
WM. CUTBUSH and SON'S GENERAL NURSERY STOCK is the best near London.
GLADIOLI, fine, from 4*s*., 6*s*., 9*s*., & 12*s*. per dozen.
CATALOGUES on application.
Highgate Nurseries, London, N.

Calceolaria, Cineraria, and Primula.
E. G. HENDERSON and SON offer Seed of the above, in first-class quality, at 1*s*., 2*s*. 6*d*., and 5*s*. per packet.
STOCKS for next spring bloom, as SCARLET and WHITE INTERMEDIATE; also the fine ALBERT and ALEXANDRA INTERMEDIATE varieties. See the SEED CATALOGUE, page 44.
DOUBLE GERMAN WALLFLOWER, mixed in varieties, or colours separate, 1*s*. per packet.
Wellington Nursery, St. John's Wood Terrace, London, N.W.

Pines.
B. S. WILLIAMS begs to announce that he has a fine Stock of the above, including all the best kinds. Prices on application.
Paradise and Victoria Nurseries, Holloway, London, N.

NEW GRAPE, "ROYAL VINEYARD," the best late White Grape extant. Strong planting Canes, 21*s*. each; strong fruiting, 42*s*. each.
B. S. Williams, Paradise and Victoria Nurseries, Holloway, London.

Castle Kennedy Fig.
PETER LAWSON and SON, London and Edinburgh, have made arrangements to send out the above valuable acquisition in OCTOBER NEXT, and are now booking orders, which will be executed in strict rotation as received.
Plants 10*s*. 6*d*. each; a few extra strong at 21*s*. each.
Special terms to the Trade, and circulars with list of awards and further particulars may be had on application.

WANTED, Five large FIG TREES, in pots, 5 to 6 ft. high. They must be large bushy plants for trellis. Apply, stating price and particulars, to
Lucombe, Pince & Co., Exeter Nursery, Exeter.

Strawberries. Pines.
WANTED, a few hundred KEEN'S SEEDLING, old forced plants, true to name; and a lot of true QUEEN and BLACK JAMAICA PINE SUCKERS.
State lowest price and quantity to George Profit, Gardener, Upper Avenue Road, N.W.

W. B. CROSSE, Son-in-law and Successor to the late Elizabeth Ellis, 43, St. John's Market, Liverpool, begs to acquaint Gentlemen and Gardeners that he continues to give best Market Prices for Choice PINES, MELONS, GRAPES, PEACHES, NECTARINES, CUCUMBERS, and other Fruit in Season.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
Richard Smith, Nurseryman and Seed Merchant, Worcester.

The Best Substitute for Swedes is
SUTTON'S PURPLE-TOP YELLOW HYBRID TURNIP. Price 1*s*. per pound, or cheaper by the bushel. Carriage free.
Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

The Best Early Turnip for Field Culture is the Pomeranian White Globe.
SUTTON and SONS can supply fine New Seed of the POMERANIAN WHITE GLOBE TURNIP at 10*d*. per lb., or cheaper by the bushel. Carriage free except small parcels.
PRICED LISTS of TURNIP SEEDS post free.
Royal Berkshire Seed Establishment, Reading.

STRONG PLANTS of the leading best kinds of GARDEN CABBAGE, CATTLE CABBAGE, SAVOY, KAIL, CAULIFLOWER, BROCCOLI, CELERY, LETTUCE, ENDIVE, LEEK, &c., to be had of
John Cattell, Westerham, Kent.
Prices on application.

TURNIP SEEDS.

	Per lb.—*s*.	*d*.
WORCESTERSHIRE SWEDE	0	10
SKIRVING'S KING of the SWEDE	0	9
HALL'S WESTBURY SWEDE	0	10
YELLOW TANKARD or SWEDISH	1	9
YELLOW BULLOCK or ABERDEEN	0	10
GREEN ROUND or GLOBE	0	8
GREEN BARREL	0	9
LINCOLNSHIRE RED GLOBE	0	8
DEVONSHIRE GREY STONE	0	10

PRICED LIST of AGRICULTURAL SEEDS on application.
Richard Smith, Seed Merchant, Worcester.

To Market Gardeners, Nurserymen, Farmers, and Gentlemen Gardeners.
SUPERIOR DRUMHEAD CABBAGE PLANTS, 3*s*. per 1000.
CELERY PLANTS, Red and White, 1*s*. per 100.
KOHL RABI PLANTS, of the finest stock ever offered, 3*s*. per 1000.
BRUSSELS SPROUTS, 5*s*. per 1000. | SAVOYS, 4*s*. per 1000.
CAULIFLOWERS, 8*s*. per 1000. Terms cash.
Richard Walker, Seed Grower, Biggleswade, Beds.

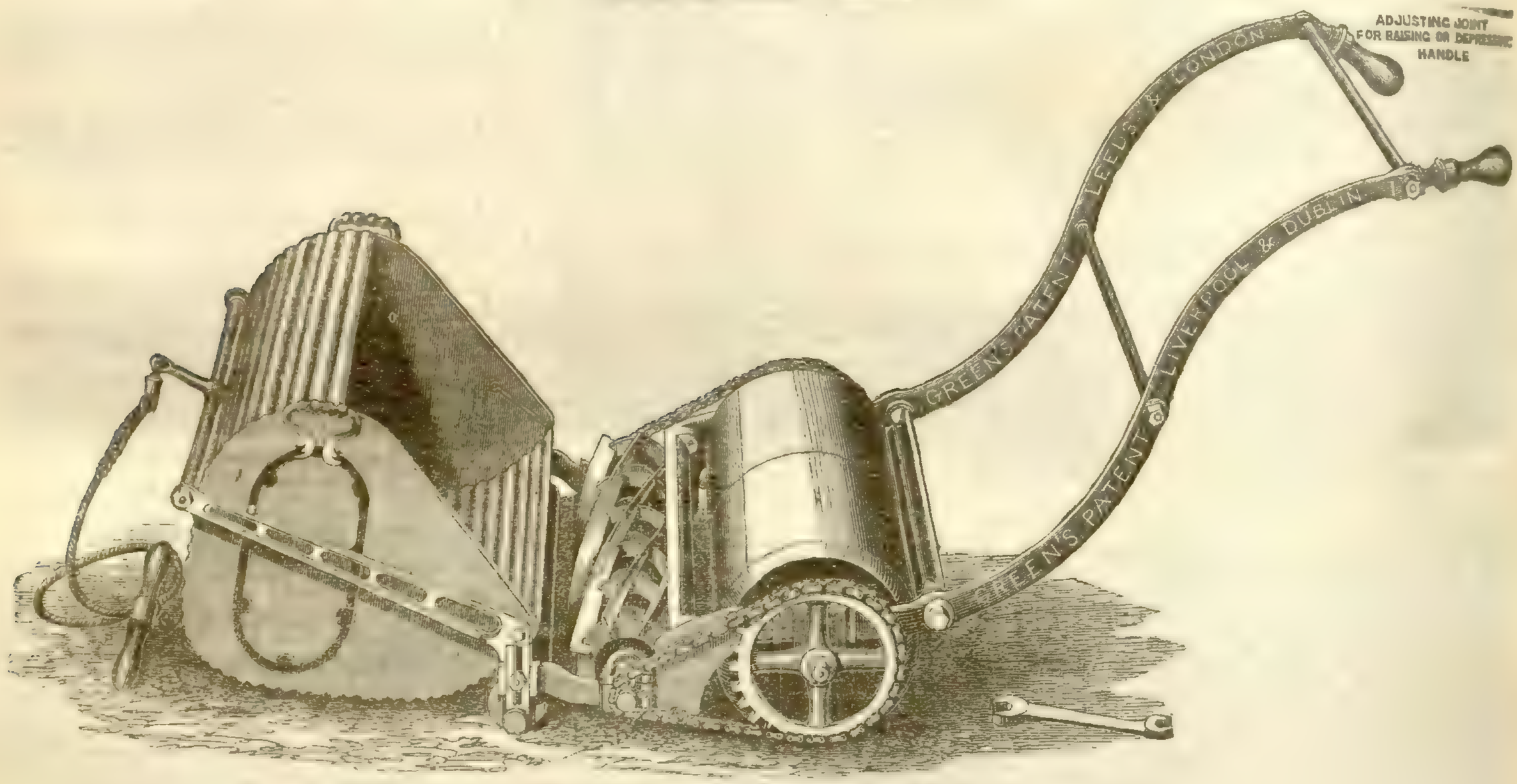
GREEN'S PATENT SILENS MESSOR

OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

BY SPECIAL APPOINTMENT.
SOLE MANUFACTURER

TO HER MOST GRACIOUS MAJESTY
THE QUEEN.



IMPROVED PATENT LAWN MOWER FOR 1865,

AS RECOMMENDED BY THE JUDGES OF THE ROYAL HORTICULTURAL SOCIETY'S SHOW HELD JULY 20, 1864.

GREEN'S PATENT LAWN MOWERS have proved to be the best, and carried off every Prize that has been given in all cases of competition. The Judges at the Royal Horticultural Society's Show, held July 20, 1864, awarded them a First-class Certificate (no Prizes were given), and, at the same time, suggested a slight alteration, which has been done, and Messrs. T. G. & Son consider their MACHINES now as near perfect as possible.

Messrs. T. G. & Son beg to state that, owing to the great demand for their MACHINES in past years, they have been unable to execute orders with that despatch due to their numerous customers, but are now happy to inform them, that they have made such alterations and arrangements in their premises, whereby they trust to be in a position to send off all orders the day they are received.

PRICES OF HAND MACHINES.

To Cut 10 inches	£3 10 0	*Suitable for a Lady.*	
" 12 "	4 10 0	"	"
" 14 "	5 10 0	*Suitable for One Person.*	
" 16 "	6 10 0	"	"
To Cut 18 inches	£7 10 0	*Suitable for One Person.*	
" 20 "	8 0 0	*Suitable for Two Persons.*	
" 22 "	8 10 0	"	"
" 24 "	9 0 0	"	"

Packing Cases are charged at the following low rates, viz.: for the 10 and 12 inches Machine, 3*s.*; 14 and 16 inches, 4*s.*; 18 and 20 inches, 5*s.*; 22 and 24 inches, 6*s.* Parties providing themselves with Lawn Mowers are recommended to purchase the Cases in which to stow them away, when not in use, to prevent them from getting damaged; if returned, two-thirds will be allowed for them.

PRICES of HORSE, PONY, and DONKEY MACHINES, including Patent Self-delivery Box; Cross Stay complete; suitable for attaching to ordinary Chain Traces or Gig Harness.

To Cut 26 inches	£13 0 0	*Leather Boots for Donkey,* 18*s.*
" 28 "	16 0 0	
" 30 "	17 0 0	
To Cut 30 inches	£21 0 0	*Leather Boots for Pony,* 22*s.*
" 36 "	24 0 0	*Leather Boots for Horse,* 26*s.*
" 42 "	27 0 0	
" 48 "	30 0 0	

The 26, 28, and 30 inches can easily be worked by a Donkey, or by Two Men, on an even Lawn, the 30 and 36 inches by a Pony, and 42 and 48 inches by a Carriage Horse: and, as the MACHINES make no noise in working, the most spirited animal can be employed without fear of its running away, or in any way damaging the MACHINE.

Both the HORSE, PONY, DONKEY, and HAND MACHINES possess (over all other Makers) the advantage of self-sharpening: the cutters being steel on each side, when they become dull or blunt by running one way round the cylinder, can be reversed again and again, bringing the opposite edge of the cutter against the bottom blade, when the MACHINE will cut equal to new. Arrangements are made that the cylinder can be reversed by any inexperienced person in two or three minutes.

The above MACHINES are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England; are warranted to give satisfaction, and, if not approved of, can be at once returned unconditionally.

THOMAS GREEN AND SON,

SMITHFIELD IRON WORKS, LEEDS; 2, FARRINGDON ROAD, HOLBORN HILL, LONDON, E.C.

19, EDEN QUAY, DUBLIN; and HADWIN'S BUILDINGS, TITHEBARN STREET, LIVERPOOL.

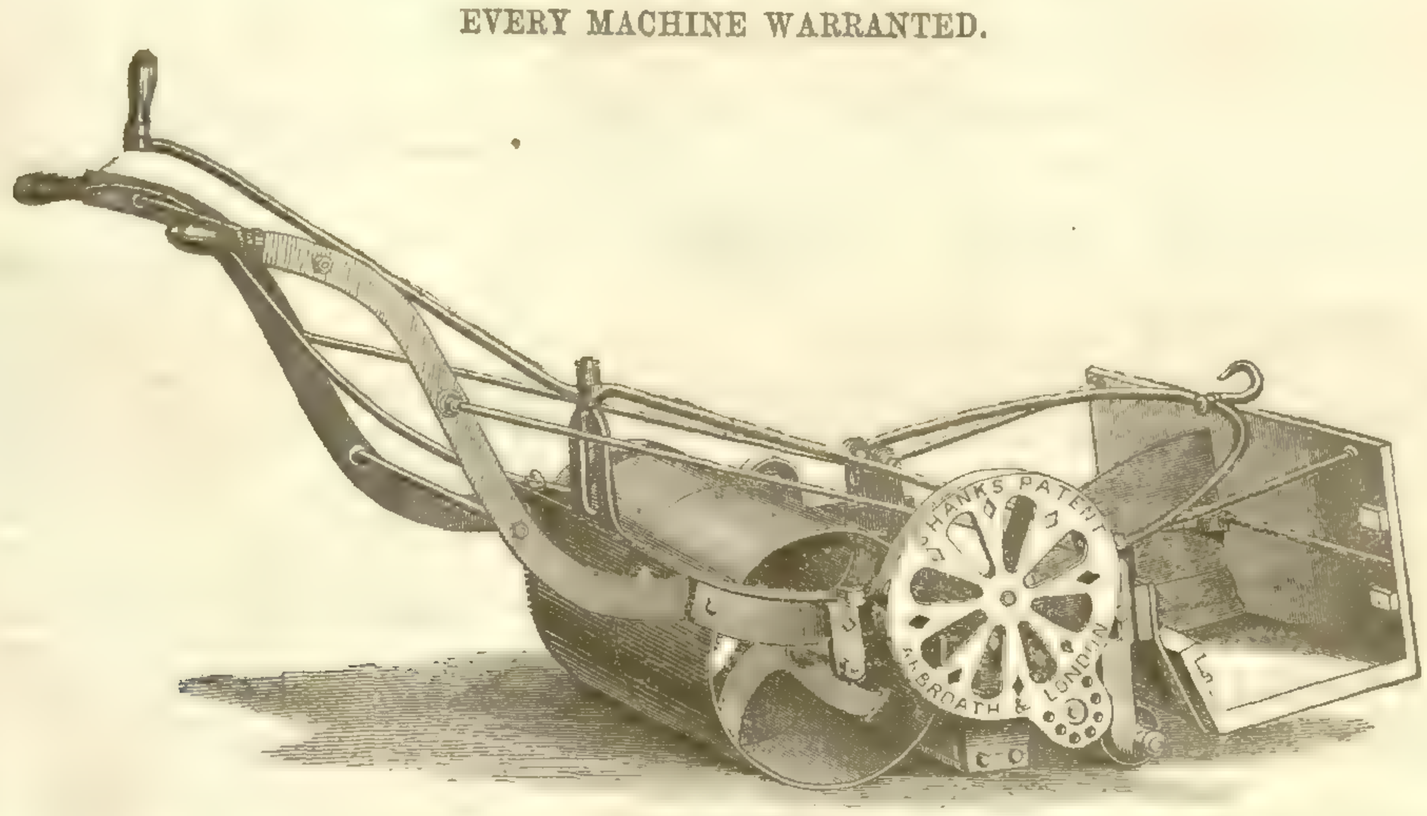
SHANKS' NEW IMPROVED PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1865.

PATRONIZED ON FIVE SEPARATE OCCASIONS DURING THE SEASON OF 1864 BY

HER MAJESTY THE QUEEN.

EVERY MACHINE WARRANTED.



PONY MACHINE.

PRICES—including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom.

SHANKS' NEW PATENT HAND MACHINE for 1865.

Width of Cutter.		
10-inch Machine	£3 10 0	*Easily Worked by a Lady.*
12-inch Machine	4 10 0	
14-inch Machine	5 10 0	*Ditto by a Boy.*
16-inch Machine	6 12 6	*Ditto by a Man.*

SHANKS' NEW PATENT HAND MACHINE for 1865.

Width of Cutter.		
19-inch Machine	£7 12 6	*Easily Worked by a Man and Boy*
22-inch Machine	8 7 6	*Ditto by Two Men.*
24-inch Machine	8 17 6	

Silent Movement for the five smallest sizes, 4*s.* extra; for the other sizes, 7*s.* 6*d.* extra.

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
25-inch Machine	£12 10 0	.. .. 25*s.* extra.
28-inch Machine	14 10 0	.. .. 30*s.* ,,
30-inch Machine	15 15 0	.. .. 30*s.* ,,

Silent Movement, 12*s.* 6*d.* extra; Boots for Pony, 21*s.* per set;
Ditto for Donkey, 16*s.* per set.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
30-inch Machine	£19 0 0	.. .. 30*s.* extra.
36-inch Machine	22 0 0	.. .. 30*s.* ,,
42-inch Machine	26 0 0	.. .. 40*s.* ,,
48-inch Machine	28 0 0	.. .. 40*s.* ,,

Silent Movement, 20*s.* extra; Boots for Horse's Feet, 24*s.* per set.

Shanks' Patent Lawn Mowers are warranted to give ample satisfaction, and if not approved of may be at once returned.

☞ A. S. & Son *beg to intimate that their Warehouse at 27, Leadenhall Street, is the only place in London where intending purchasers of Lawn Mowers can choose from a stock of from 150 to 200 Machines. All sizes are kept in stock, whether for Horse, Pony, or Hand Power, and orders are executed on the day they are received.*

PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N. B.

LONDON OFFICE and SHOW ROOMS, 27, LEADENHALL STREET, E.C.

SAMUELSON & CO.'S

LAWN MOWING AND ROLLING MACHINES.

EVERY MACHINE WARRANTED.

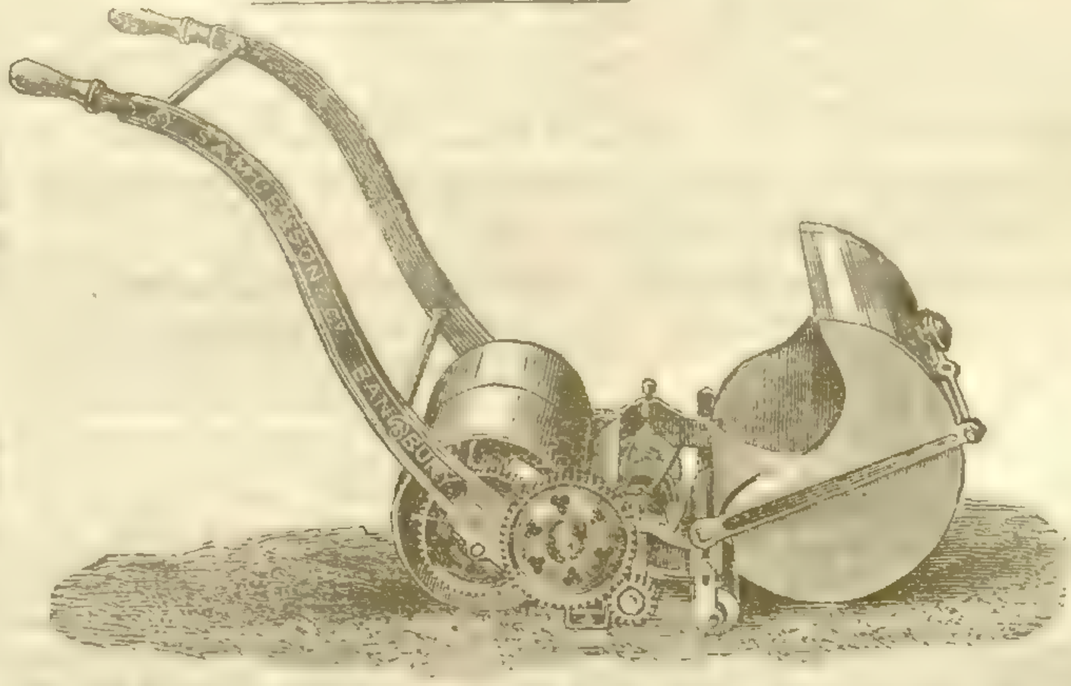
PRICES of MANUAL POWER MACHINES.

To Cut 12 inches, suitable for a Lady	£4 10 0
To Cut 16 inches, suitable for One Boy	6 0 0
To Cut 19 inches, suitable for One Man and Boy	6 10 0
To Cut 22 inches, suitable for Two Men ..	7 10 0

PRICES of PONY POWER MACHINES.

To Cut 25 inches	£11 10 0
To Cut 30 inches	14 14 0

These Prices include Free Delivery to any Railway Station in Great Britain.



THESE

MACHINES

ARE IN DAILY USE

AT THE

ROYAL GARDENS,

CRYSTAL PALACE GARDENS, &c.

In again submitting these MACHINES to the notice of purchasers, Messrs. Samuelson & Co. wish to state that they do not make annual changes in the principle of their LAWN MOWERS. Experience has fully proved that the general design on which their MACHINES have been built for many years past is the best, and their attention has been given therefore rather to substantial improvements in manufacture, reduction of the draught, and increase of durability by the use of malleable iron in place of cast metal, than to the production of ephemeral novelties. Their LAWN MOWERS are superior to all others for lightness of draught, elegance, and efficiency under all circumstances of ground and weather, being self-cleaning, and not liable to derangement in the gearing.

Illustrated Price Lists, with Selections from several thousand Testimonials, free by post on application.

SAMUELSON AND CO., BRITANNIA WORKS, BANBURY.

LONDON OFFICES: 18, CANNON STREET, E.C. WAREHOUSE (where Stock is kept): 10, LAURENCE POUNTNEY LANE, E.C.

AND OF ALL SEEDSMEN AND IRONMONGERS.

NEW PLANTS.

JAMES VEITCH

BEGS TO ANNOUNCE THAT HIS

CATALOGUE OF NEW AND BEAUTIFUL PLANTS

Offered for Sale this Season is now ready, and will be forwarded Post Free on application.

ROYAL EXOTIC NURSERY, CHELSEA, S.W.—June, 1865.

HARDY ORNAMENTAL TREES AND SHRUBS.

OSBORN & SONS

Invite lovers of Ornamental Planting to an inspection of the varied forms and foliage of their unrivalled Collection of the above, to which they have for many years devoted especial attention.

PRICED CATALOGUES, consisting of upwards of 1500 species and varieties, may be had on application.

THE NURSERIES, FULHAM, LONDON, S.W.

GRAY'S OVAL TUBULAR BOILER.

INTERNATIONAL EXHIBITION, Class IX., No. 2119.

Mr. Gray begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his

NEW OVAL TUBULAR BOILER,

acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in Gardeners' Chronicle *of International Exhibition, May* 24, *page* 476.

"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. Gray's variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so, the change, though a slight one, is no doubt an improvement."

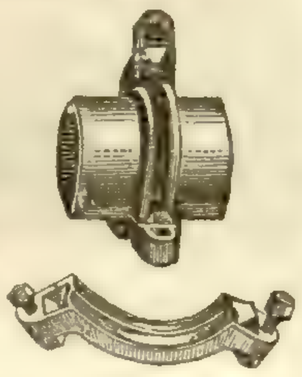
They are made of all sizes, which, with prices, may be had on application.

JAMES GRAY, HORTICULTURAL WORKS,
DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.

PORTABLE HOT-WATER APPARATUS,

WITH TRUSS' PATENT JOINTS FOR HEATING CONSERVATORIES, HOTHOUSES, &c.

T. S. TRUSS



Begs to offer complete HOT-WATER APPARATUS for GREEN-HOUSES (consisting of 4-inch Pipes and Joints, Saddle Boiler, Fire Doors, Bars, Soot Doors, Damper, Supply Cistern, Feed and Air Pipes, Pipe Stands, &c., of the best quality), delivered to any Railway Station in England, and to erect the same within 25 miles of London, at the following prices:—

4-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection.
16 feet by 8 feet	£8 10 0	£2 0 0	30 feet by 12 feet	£11 15 0	£2 10 0
20 feet by 10 feet	9 0 0	2 0 0	40 feet by 15 feet	15 0 0	2 15 0
25 feet by 12 feet	10 5 0	2 5 0	50 feet by 15 feet	18 0 0	3 0 0

Erection beyond 25 *miles of London, Railway Fare for one Man charged extra.*

By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints.

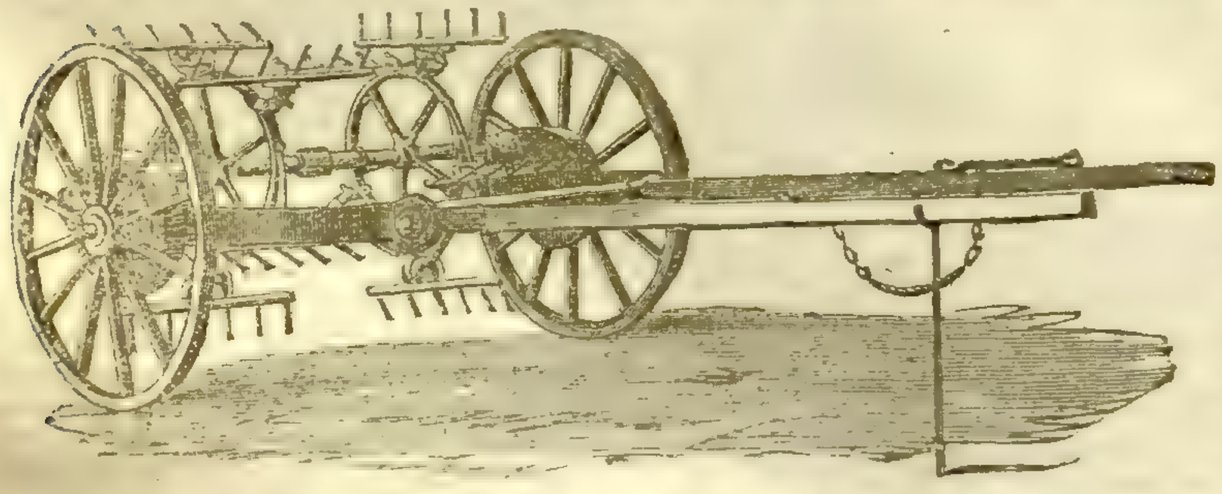
Estimates and Plans forwarded on application to

T. S. TRUSS, C.E., 53, GRACECHURCH STREET, LONDON, E.C.

BOBY'S PATENT DOUBLE-ACTION HAYMAKING MACHINE

Received at the recent Meeting of the Royal Dublin Society, at Dublin, the FIRST and LARGE SILVER MEDAL (no other Medal was awarded to Haymakers); also,

ELEVEN FIRST-CLASS PRIZES and MEDALS were AWARDED to this MACHINE in 1863 and 1864.



This Machine is extremely simple, and its working is at once understood, as all levers and eccentrics are entirely dispensed with. It is light in draught, and so constructed that it leaves little or no weight on the back of the horse, and guaranteed to work in the heaviest crop. Four Hundred of these Machines have now been sent out, and not a single Machine has been returned as inefficient. The travelling wheels are made of wood, and are very strong.

Price, delivered free to any Station within 200 miles of London, **£14 15s.**

This Machine requires no Roller or Screen to keep the Grass off the front.

Illustrated Catalogues of Haymakers, Corn Screens, &c., will be sent free on application to the

Manufactory: ST. ANDREW'S WORKS, BURY ST. EDMUNDS, SUFFOLK.

Paul's Nurseries, Waltham Cross, N.

Entrance from the Platform, Waltham Station, Great Eastern Railway. Half an Hour's Ride from London.

WM. PAUL (Son and Successor to the late A. Paul) begs to announce that his COLLECTION of ROSES is now COMING into BLOOM, and comprises many of his own Seedling and other novelties not to be found in any other collection. In addition to the Roses, BEATON'S GERANIUMS, and a second and third generation from them, will be blooming throughout the summer and autumn. The Collection of HARDY TREES with FINE FOLIAGE is unrivalled, and many large and perfect specimens of the choicest CONIFERS are now in fine condition for removal, and are well worthy of the attention of gentlemen and horticulturists with contemplate planting. Bearing trees of all the LEADING FRUITS, Dwarfs and Standards, Pyramids and Espaliers, in fine health and true to name. Inspection respectfully invited.

Waltham Cross, London, N.

NEW and SELECTED SEEDS.

CARPENTER'S MAGNUM BONUM PEAS.—The Largest and Best Tall Variety grown. 5s. per quart.

CARPENTER'S MULTUM IN PARVO PEAS.—The Best Dwarf Variety grown. 5s. per quart.

CARPENTER'S MONSTROUS WHITE COS LETTUCE,
CARPENTER'S MONSTROUS GREEN COS LETTUCE,
CARPENTER'S MONSTROUS BROWN COS LETTUCE,
are the three best LETTUCES in cultivation. 1s., 2s. 6d., and 5s. per packet.

CARPENTER'S PREMIER SWEDE.—Superior in size, shape, and quality to any other Swede grown. (Sow 3 lb. per acre.) 1s. per oz.

A remittance from unknown correspondents is requested.

CATALOGUES on application to Edward Carpenter, Seed Merchant and Grower, Brighton and Sussex Seed Warehouse, 36, St. James's Street, Brighton.

REIGATE SILVER SAND.—Best Kent and Surrey PEATS, LOAMS, SPHAGNUM, ROCK SANDSTONE, London-made FLOWER POTS, &c. Moderate Prices.

N.B. Loaded Trucks can be sent direct on all the Railways.

W. Short, Sand and Peat Depôt, Reigate, Surrey.

REIGATE SILVER SAND, 12s. per ton, at Swan Place; delivered 5 miles, or to any London Railway, 16s. per ton, or 1s. 6d. per bushel (sacks at cost price, or on hire).

KENTISH and other PEATS, YELLOW LOAM, LEAF-MOULD, SPHAGNUM MOSS, and COCOA FIBRE REFUSE.

J. Kennard, Swan Place, Old Kent Road, London, S.E.

COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 2s. per bag.

For particulars, and how to use it, see long *Advertisement* in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the Patent Cocoa Fibre Company, Kingston-upon-Thames.

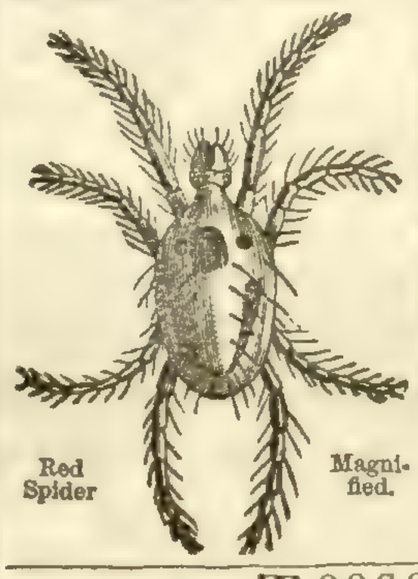
Postage Stamps or Post-office Orders payable to J. Barsham & Co.

Barsham's BRUSHES and MATS are sold in every town.

Caution.—Every Brush is stamped, J. Barsham's Patent.

GENUINE TOBACCO PAPER, in 4-lb. packets. Price on application to

Henry Appleby, Foreman to Messrs. Ivery & Son, Dorking, Surrey.



Red Spider — Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 4s hours before use. This gets rid of smell, and if the Solution is decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes, 1s. 3s., and 10s. 6d. each.

Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited).

ROYAL SOUTH HANTS SEED ESTABLISHMENT. BY APPOINTMENT.

TOOGOOD'S (late Page & Toogood's) IMPROVED BLIGHT COMPOSITION introduced in 1850, has been manufactured under W. Toogood's sole direction since that period. He has made great improvements in it, and by reducing the price 25 per cent., it is one of the cheapest and has always been the most efficacious remedy extant. To publish the Testimonials no newspaper would give space, but Messrs. Cutbush & Son, the eminent Nurserymen, say:—"It is the best thing for the purpose we can find, and does not appear to injure the young foliage like Gishurst does. This is our experience after 10 years' trial."

"February 24, 1864."

Mr. E. Sage, *Gardener to* Lord Howe, says:—

"Will you please send us 15 gallons of your Blight Composition. I see you have reduced the price, and trust that you may some day be able to make another reduction, and I feel assured that no 'Gishurst' will be used by practical men."

"We hereby Certify that during the whole time we were Waggon-housemen in the Establishment of B. Page & Co., and subsequently Page & Toogood, that we Manufactured the Blight Composition under Mr. Toogood's *sole directions, and that he alone knew the proportions of the various ingredients.*

Signed John Morley,
Henry Drew,
Henry Sherman,
George Isaac."

"July 13, 1863."

Extra strong, 3s. per gallon (sufficient to make 4 gallons fit for use), 10 gallons and upwards carriage free to London.

May be obtained of the principal Nurserymen and Seedsmen in the Trade, and of W. Toogood, Royal South Hants Seed Establishment, Southampton.

PATENT GUTTA PERCHA SOLES.—Important to Gardeners.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. Glenny, Esq., the celebrated Florist:—

"Gentlemen,—I have worn Gutta Percha Soles and Heels the two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn parts at times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much wax. I think it the duty of all persons who must occasionally wet their feet to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles.—Your obedient servant, "G. Glenny."

Every variety of Gutta Percha articles, such as Mill Bands, Table Soles, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Baths, Curtain Rings, Galvanic Batteries, Calbotype trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale depôt in town or country.

The Gutta Percha Company, Patentees, 18, Wharf Road, City Road, London, E.C.

Choice Seeds for Present Sowing.

WM. PAUL (Son and Successor to the late A. PAUL) can confidently recommend the following FIRST-CLASS SEEDS:—

	Per pkt.—s. d.
HOLLYHOCK, collection of 12 distinct sorts ..	.. .. 5 0
choice mixed	.. 1s. to 2 6
CALCEOLARIA, finest spotted, mixed ..	1s. 6d. to 2 6
CINERARIA, from finest sorts	1s. 6d. to 2 6
PRIMULA SINENSIS, finest fringed	1s. 6d. to 2 6
ANTIRRHINUM, splendid mixed	.. 1 0
PAUL'S WALTHAM MARKET CABBAGE ..	.. 1 0
PAUL'S WALTHAM GREEN CURLED ENDIVE	.. 1 0
BROCKET HALL BROWN COS LETTUCE ..	.. 1 0
EARLY DWARF ERFURT CAULIFLOWER ..	.. 1 0

All other seeds of best quality at moderate prices.
CATALOGUE free by post.
Waltham Cross, London, N.

Seeds from Choice Strains.

B. S. WILLIAMS can now supply good Seeds of the following:—

CINERARIA (Weatherill's extra choice strain).—B. S. W. has secured at a great expense the entire stock and right of exclusive sale from Mr. Weatherill, of his, the best strain of Cineraria in existence, and can now offer packets at the following prices:—3s. 6d. and 5s.

CALCEOLARIA (Herbaceous), from a fine strain, 2s. 6d. and 3s. 6d. per packet.

PRIMULA (Williams' superb strain), the finest fringed and the best coloured flowers in cultivation. Red, White, or Mixed Seed, 2s. 6d., 3s. 6d., and 5s. per packet.

Paradise and Victoria Nurseries, Holloway, London, N.

Russell's Pyramid Primulas.

GEO. CLARKE is now prepared to send out in packets, price 2s. 6d. each, this, the finest breed of PRIMULAS in cultivation. The Seed now for sale has been saved from selected plants, that it is believed the produce will be even superior to that of former years.

Printed instructions for raising and growing the plants sent with each packet. Stamps received in payment.

Nursery, Streatham Place, Brixton Hill, London, S.

ROBERT PARKER begs to offer the following, all of which are well-grown, clean, and healthy plants:—

	s. d.
RHODODENDRON BALFOURII	5 0
CORDYLINE INDIVISA	10 6
FRANCISCEA CALYCINA	10 6
GODYERA PUBESCENS	1 6
RHODODENDRON COUNTESS of HADDINGTON, 10s. 6d. to	21 0
" JAVANICUM	2 6
" NUTTALLII	2 6
TRITOMA GRANDIS	3 6
" UVARIA GLAUCESCENS	1 6
VINE DUCHESS of BUCCLEUCH .. .. .. 10s. 6d. and	21 0
YUCCA ALBO SPICA	42 0
" TRECULEANA, *cornuta, concava*	42 0

PRICED and DESCRIPTIVE CATALOGUES of Greenhouse, Hardy, and Stove Plants, Seeds and Bulbs, are published, and will be forwarded to applicants.

Exotic Nursery, Tooting, Surrey, S.

The Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

A CHOICE and EXTENSIVE COLLECTION of STOVE and GREENHOUSE PLANTS always on view. Also FRUIT TREES, SHRUBS, and ORNAMENTAL TREES, from the Country Branches of the Firm.

The SEED and GENERAL NURSERY BUSINESS is carried on here, and Packages are delivered free at the various London Railway Stations.

BRANCHES.

EALING NURSERY, G. CANNON, Manager.
Ten minutes' walk from the Ealing Station on the Great Western Railway Main Line.

FRUIT TREES, ROSES, and SHRUBS, are here extensively and successfully cultivated in some of the finest Loam in the County.

FELTHAM NURSERY, R. HIGHAM, Manager.
Ten minutes' walk from Feltham Station.

EVERGREEN and DECIDUOUS SHRUBS, and CONIFERÆ, are here largely grown in a free Loam, well suited to their habits.

ACTON LANE and WOOD LANE NURSERIES, ISLEWORTH. ORNAMENTAL TREES are in a healthy and thriving state, and GENERAL HARDY PROPAGATION is here carried on.

The Stock in the above Nurseries is well worth the inspection of purchasers. The prices are very moderate, and the Plants are frequently transplanted to ENSURE SAFE removal.

The following CATALOGUES are published, and will be forwarded Post Free on application:—

CATALOGUE of KITCHEN GARDEN, FLOWER, and AGRICULTURAL SEEDS.
CATALOGUE of STOVE and GREENHOUSE PLANTS.
CATALOGUE of SOFT-WOODED and BEDDING PLANTS.
CATALOGUE of FRUIT TREES and FRUIT TREES in POTS.
CATALOGUE of HARDY SHRUBS and TREES.
CATALOGUE of DUTCH BULBS, published in August.
CATALOGUE of ROSES.

JOHN & CHARLES LEE, Proprietors, Hammersmith, London, W.

Specimen Tree Ferns, Palms, &c.

JAS. GARAWAY AND CO., Durdham Down Nurseries, Bristol, offer as under:—

Two DICKSONIA ANTARCTICA, a splendid pair, 5 feet full from pot to crown, 3 feet circumference at base, 2 feet 2 inches at 2 feet 6 inches high; crown 6 feet 6 inches across.
Two ALSOPHILA AUSTRALIS, a splendid pair, 5 feet from pot to crown; crown full 7 feet across.
One CIBOTIUM PRINCEPS (the handsomest Fern in cultivation), with eight fronds, last 6 feet long.
One CYATHEA MEDULLARIS, with seven fronds, last 8 feet 3 inches long.
One LATANIA BORBONICA (Fan Palm), with 16 leaves, 6 feet high, 7 feet 6 inches across.
One PANDANUS UTILIS, 5 feet high, 6 feet across.
One CARYOTA URENS, with five leaves, last 5 feet 8 inches long.

The whole are in first-rate health, and are growing freely, are admirably adapted for conservatory use or for exhibition, and will be sold separately or in one lot.

The Tree Ferns are particularly fine plants, and J. G. & Co. do not think that purchasers will find equally fine and as well established specimens in any other Nursery.

Prices on application. Mounted Photographs of the first six, price 10s. 6d. the set, free by post on receipt of stamps.

JAS. GARAWAY & Co., Durdham Down Nurseries, Bristol.

New Hardy and Rare Climbers.

CLEMATIS JACKMANNI, large deep bright violet.
CLEMATIS RUBRO-VIOLACEA, maroon shaded reddish violet.
Awarded Two First-class Certificates by Royal Horticultural Society.

MESSRS. GEORGE JACKMAN AND SON, Woking Nursery, Surrey, can with confidence recommend to the notice, their beautiful rich-coloured, free-flowering and vigorous-growing CLEMATISES, that now occupy a very high position in flowering plants. On application a circular will be forwarded free, containing extracts of their "sterling merits" from the following leading Horticultural Papers:—*Proceedings of Royal Horticultural Society, Gardeners' Chronicle, Journal of Horticulture, Floral Magazine, Florist and Pomologist.*

Plants of the following varieties will at once be sent out at the undermentioned prices:—

CLEMATIS JACKMANNI, a few strong plants of 1864, 14s. each.
" " fine plants of 1865, 7s. 6d. each, 84s. doz.
" RUBRO-VIOLACEA, a few strong plants of 1864, 14s. each.
" " fine plants of 1865, 7s. 6d. each, 84s. doz.
" FORTUNEI (Japan), large double white, 7s. 6d. each.
" STANDISHI (Japan), beautiful violet blue, 5s. each.
" HYBRIDA SPLENDIDA, a fine deep violet, 5s. each.
" LANUGINOSA CANDIDA, large handsome white, 7s. 6d. each.
" LANUGINOSA NIVEA, fine pure white, 7s. 6d. each.

Besides other good old kinds.

A Circular with a special offer to the Trade will be sent free on application.

Mottled Globe or Grey Stone Turnip.

SUTTON AND SONS have a very choice stock of this excellent NEW TURNIP. It grows to a very large size, and is strongly recommended. Price of seed, 1s. per lb., cheaper by the bushel, carriage free.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

ROYAL HORTICULTURAL SOCIETY, SATURDAY WEEKLY SHOWS.—In addition to the Certificates and Medals already offered to Exhibitors at these Shows, MONEY PRIZES for the following subjects will be awarded on the dates mentioned below:—

		£ s. d.
August 5.	For the best Carnations and Picotees. Cut blooms, 6 of each	1 0 0
	For the best 12 Phloxes. Cut blooms	0 10 0
	For the best 6 Petunias in pots	0 10 0
August 12.	For the best 6 Cockscombs in pots	0 15 0
	For the best 6 Verbenas in pots	0 15 0
	For the best 9 kinds of Pentstemons. Cut blooms ..	0 10 0
August 19.	For the best 6 kinds of Achimenes in pots ..	1 0 0
	For the best 6 kinds of Gladiolus. Cut blooms	0 15 0
August 26.	For the best 6 Gloxinias in pots	1 0 0
	For the best 6 kinds of Fuchsias in pots	1 0 0
September 2.	For the best 6 plants of Gesnera in pots ..	1 0 0
	For the best Ixora in pot	0 10 0
	For the best Lapageria in pot	0 10 0
September 9.	For the best 6 Lobelias in pots	0 15 0
	For the best 3 Caladiums in pots	0 10 0
	For the best 12 Hollyhocks. Cut blooms	0 10 0
September 16.	For the best 12 blooms of Roses	0 15 0
	For the best Vallota purpurea in pot	0 10 0
	For the best 12 Zinnias. Cut blooms	0 15 0
September 23.	For the best 6 Cannas in pots	0 15 0
	For the best 12 Dahlias. Cut blooms	0 15 0
	For the best 6 Heliotropes in pots	0 10 0
September 30.	For the best 3 Anthuriums	0 15 0
	For the best Aphelandra in or out of flower	0 10 0
October 7.	For the best 3 Dieffenbachias	0 15 0
	For the best 6 kinds of Selaginellas	0 15 0
October 14.	For the best 6 Solanums, not less than 2 kinds	0 10 0
	For the best 3 Alocasias	0 15 0
October 21.	For the best 3 Eranthemums	0 10 0
	For the best 3 Crotons	0 10 0
October 28.	For the best 6 Begonias	0 15 0
	For the best 6 Pompon Chrysanthemums	0 15 0
November 4.	For the best 6 Chrysanthemums in pots. Large flowering	0 15 0
	For the best 12 Chrysanthemums. Cut blooms ..	0 10 0
November 11.	For the best 3 plants Poinsettia pulcherrima	0 15 0
November 18.	For the best 6 Dracænas of kinds	1 0 0
November 25.	For the best 6 Palms	1 0 0
December 2.	For the best 3 Pandanus	1 0 0
December 9.	For the best 3 Bromeliaceous plants	0 15 0
December 23.	For the best 3 Euphorbias	0 15 0
December 30.	For the best 12 Ferns. Distinct kinds ..	1 0 0

The Gardeners' Chronicle.

SATURDAY, JUNE 24, 1865.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY,	June 27	Royal Horticultural (Floral and Fruit Committee), at S. Kensington .. .. 11 A.M.
		Do. (Scientific Discussion) .. .. .. 3 P.M.
SATURDAY,	July 1	Royal Horticultural (Great Rose Show), at South Kensington .. .. .. 2 P.M.

ONE of the questions proposed for discussion at the Congress to be held at Erfurt next September is "The history of the DEVELOPMENT of SOME IMPORTANT FLOWER, as the Stock, the Aster, &c., from the first beginning to the present condition of its varieties." Few questions can be conceived of more interest either in a botanical or horticultural point of view, but we very much doubt whether any one is competent to give such a complete account as would be really useful. It would be very possible perhaps as regards the Stock, for some German nurseryman or botanical director to show how the smooth-leaved forms originated, or by what steps the strains of what are called German Stocks or Intermediates arose from the Ten-weeks and Brompton; but we doubt very much whether it is now possible to trace the origin of these latter races from their wild parents, any more than we can recover the history of the different varieties of Cabbage which have become so many permanent races. The same may be said of Chrysanthemums, Camellias, and other important plants, fine forms of which were in the first instance imported from the East, where they had been cultivated for ages, though many have been raised by intercrossing in our own country.

Our best chance is to take some plant of more recent introduction, as the Dahlia or Chinese Primrose, as there are several botanists still remaining who can recollect the simple forms under which these beautiful flowers first made their appearance. We can ourselves remember distinctly, some fifty years ago or more, how the single scarlet or lilac Dahlia was prized, and how carefully the tubers were preserved in winter; and forty years will carry us back to the original form of Primula sinensis, as figured in the "Exotic Flora," with its regular calyx and corolla, before any of the sports to which seedlings gradually gave rise had made their appearance.

Changes from the normal to abnormal forms in general take place slowly, and the early changes are seldom accurately observed. We are sometimes, however, in a condition to notice their first indications. An instance or two may not therefore be out of place. Some years since we raised a Tulip from Portuguese seeds, marked Tulipa transtagana, but which turned out something totally different, and as we could not refer it accurately to any described species, we have distinguished it as T. Welwitschii, though we are not certain whether it may not be a wild form of T. suaveolens, though it blows later in the year. We have had this under cultivation for several years, and the flowers now show an inclination to become double. The first indication was an increase in the number of sepals and petals from three to four, with a corresponding increase in the number of stamens, while an additional more distant petal sometimes appeared as a bract on the stem. The stamens now began to vary in number, and then one or more, without, however, any regularity, assumed the nature of petals; and we doubt not that further cultivation will induce further change. These appearances have taken place especially in bulbs which were not placed in the ground till the end of January, and we intend, if possible, to reserve a portion till the same time next year to see if a greater change takes place in these than in bulbs planted, as is usually the case, in November. All the seedlings, without exception, have been self-coloured, but if we mistake not, in some of these late-planted bulbs there are indications of breaking, a condition which may be considered analogous to variegation. It is well-known that change of soil is often conducive to this process in what are called breeders, and it would be extremely interesting to notice whether soil like that of Hounslow Heath, which seems to have a peculiar tendency towards inducing variegation, is equally effective as regards the breaking of Tulips.

Another instance may be adduced in which we are anxiously watching the progress of a variety of Papaver nudicaule received from Vancouver's Island. The bright deep orange petals with their pure yellow base and stamens, make this an attractive plant, and if a good double flower could be procured, it would certainly be a great acquisition. A tendency to become double exists in many of the seedlings, and it is hoped that by insulating the seed, we may at last produce something valuable. This tendency does not appear in any increase of the normal number of petals in the whorl of the corolla, but in the more or less complete conversion of some of the stamens into petals. In some cases a pollen cell still appears on the edge of the new petals, but in others all trace is lost.

We have lately paid some attention to the mode in which Primroses become double, and as far as we have yet been able to observe, it is by an almost constant suppression of the female organs, and an increase in the number of whorls of the stamens, yet in such a way that the new stamens are always opposite to the old, according to one of those exceptional cases which certain French botanists have endeavoured to explain by what they call *dedoublement* (deduplication), as if a new stamen was constantly formed by the splitting or unlining of that which went before.

It is curious that these new petaloid stamens have a tendency to become tubular, and in consequence one or more new individuals are often produced within the tube so as to give the appearance of a quantity of florets with imperfect stamens, and a central abortive style which is itself often tubular. We observe this to be the case in the common white, sulphur and lilac double Primroses of our gardens, as well as in the Chinese Primrose, a variety of which was exhibited at one of the Tuesday meetings of the Royal Horticultural Society in the spring, in which these florets were extremely conspicuous and ornamental.

In the double Pansies we find that the additional petals are partly due to transformation of the stamens, and partly to a disintegration of the ovary, the separate divisions of which become petaloid, but still exhibit ovules at their edges.

The fixation of such forms where they do not admit of propagation by cuttings is a matter of

great importance. No one has done more in this direction than the late Monsieur Vilmorin, an interesting account of several of whose numerous experiments has appeared lately in M. Verlot's Memoir, which obtained the prize at the Congress of 1862, promoted by the French Imperial and Central Society of Horticulture. M. Verlot is well known as the Chief Cultivator at the Jardin des Plantes, and we hope to give some account of his memoir next week, especially as it has an obvious bearing on the question before us. *M. J. B.*

The Root-pruning of ligneous plants in general, and of fruit trees in particular, especially if the latter happen to be at all of a fast living character, has become an established feature of modern practice, and one to which the cultivator has resort with tolerable certainty of a successful issue, if his object is to induce that modified luxuriance of growth which is most favourable to a state of fertility, that is to say, to the development of the floral or reproductive rather than the mere nutrient organs of the plant. It is however, we believe, something new in horticultural practice to apply the principle of Root-pruning to the culture of Bulbous plants with the view of promoting the more perfect development of their flowers, as we learn from the *Revue Horticole* has been done with very marked success by M. Vavin, of Bessancourt, in the case of Hyacinths grown in water.

M. Vavin, it appears, exhibited last year before the Société d'Horticulture of Paris, two Hyacinth bulbs, in glasses, in which they had been planted at the beginning of November. He had found that the leaves and roots grew out freely, but that the flower spike remained stationary, and he therefore determined to cut back the roots to within about an inch and a half from the base of the bulb, after which it seems the flower spike developed itself marvellously, and attained a high degree of perfection; those plants which had been left to themselves, uncut, flowering as usual, many of them very indifferently. At the time these examples were brought forward, the season was too far advanced to submit the new plan to any practical test, but M. Vavin was requested to repeat his experiments again this year, and the result has been to confirm in a very decided manner the utility of this root-cutting process, the leaves being kept dwarf, and the flower spike thrown well up above them. Several varieties were grown according to the new plan, and others were left untouched, and as to the result, it is stated that the former have been most successful, blooming in an irreproachable manner, while the others have presented the usual proportion of failures. M. Vavin's practice may be summed up in these particulars:—

The flower spike is allowed to protrude itself while the plants remain in a place which is not heated, but is exposed to light.

When the flower spike has grown up about 4 inches, the plants, being well established, are exposed to greater heat.

If the leaves overtop the flower spike, the bundle of roots is cut off clean, at about an inch and a half below the bulb.

M. André, from whose account we have gleaned these particulars, accords to M. Vavin the merit of discovering this mode of culture, observing that in horticulture there are no little things, but that this apparently simple fact must have an important bearing on vegetable physiology. No modern book, he observes, indicates the cutting of Hyacinth roots, or offers any innovation in the culture of these plants. Saint Simon only (*La Jacinthe*, 1768) appears to have approached this new mode of culture, when he observed that "roots are absolutely useless to the vegetation of the Hyacinth," an opinion which at the time was strongly combated. "I do not regard," said he, "the roots of Hyacinths as the suction-pumps by which the sap is carried from the ground into the bulb, but on the contrary as the excretory vessels which serve to release the bulb from the too great abundance of sap which is introduced into it by the spongy body placed in the centre of the roots. * * It will not be difficult, I imagine, to make a bulb flower without the help of its roots." Saint Simon came very near to the method of M. Vavin, though he did not actually attain to it.

The explanation of this seeming anomaly may be found in these two facts: first, that in the Hyacinth bulb the flower-spike exists ready formed at the time we plant it, requiring only the stimulus of a little heat to bring it forth; and, secondly, that the real action of the roots is to nourish the leaves and enable them to perfect a flower-spike for the succeeding year. Hence, the leaves being the stronger and more vigorous of the two sets of organs which are in active operation in the developing bulb, and having work of their own to accomplish in co-operation with the roots, naturally to some extent divert the proper nutriment from the weaker or floral organs; and hence, too, it seems to follow, that to give the roots a moderate and timely check, is to place at the disposal of the flowers the whole store of nutriment, or nearly so, which has been accumulated in the bulb for the very purpose of giving them birth. It is, as in our fruit-trees, a conflict between the vegetative and the reproductive systems of the plant, and when we require to have the latter developed beyond the natural mean, we must take care to put the former in check. Let it be remembered, however, that such a practice could only be wisely attempted with bulbs like the Hyacinth, which are not valued after the flowering is over. If there is to be a recurrence of blossom in another season, a juster balance between the two powers we have alluded to, must be struck.

The remarkable failure of the Strawberry Crop, which has occurred in the present season to an unusual extent, is not easily accounted for; even experienced cultivators appear to have only vague conjectures respecting it. We have visited places long celebrated for the production of Strawberries, near Isleworth and Brentford; as well as the extensive tracts of land which once belonged to the Monastery of Syon, land which had been well chosen for gardening purposes, for it is deep, rich, warm, with a good aspect, and is in short in every respect highly favourable for fruit trees and vegetables. Here are heavy crops of Pears on young trees, on middle-aged, and also on some above a hundred years old, which are yet healthy and vigorous, so congenial is the soil to their growth. But as regards Strawberries, the crop even here is considered light, and in the case of certain kinds the failure is complete; so much so, that upwards of 100 acres in the above-mentioned locality have been dug up and the ground filled with other crops. There are two sorts of Strawberries, the names of which will become memorable; one is Sir Harry (Underwood's), the other is called Sir Charles Napier. Both were considered to be good, but latterly Sir Charles has become the greatest favourite, and is planted most extensively. This spring the plants appeared healthy and vigorous; but on 100 acres there is no fruit. The blossoms were not killed by frost, for there were none to kill—no flower scapes were produced; nor could the failure be ascribed to bad soil, for there is none in that locality; it cannot even be attributed to bad cultivation, for that is out of the question with such noted market gardeners as cultivate the land in this district. With their usual promptness and energy they dug down the Strawberry plants as soon as the absence of fructification was observed, and put in other crops. So much for the favourite Strawberry Sir Charles Napier. No variety, perhaps Keens' Seedling not excepted, ever rose so rapidly in the estimation of extensive cultivators, and we believe none has so rapidly fallen. Whether it will again be grown to the same extent as it has been is a question which time must determine; a similar catastrophe may not occur again.

In the meantime however, attention is likely to be directed to Sir Harry. This sort we saw very fine in Mr. Myers' ground; the fruit measured upwards of four inches in circumference, and the crop was abundant. It is a good forcer, and continues in gathering for three weeks, the quality is likewise very good; on the whole this variety is highly deserving of cultivation.

Another sort, the Empress Eugenie, is large and bearing tolerably well; but it is too coarse in appearance, and not well-flavoured.

Scarlet Strawberries are always much in demand for preserving. The Grove End Scarlet, easily distinguished by the wide serratures of the leaves, is even this year bearing most abundantly. It will grow anywhere, and where other sorts will not; it will bear very well between rows of Raspberries. Its cultivation for preserving should not be lost sight of.

Of other fruits Apples are a thin crop. Pears are very plentiful. Plum trees are surrounded with stakes, propping up the branches, which would otherwise be broken by the enormous quantity of fruit they are bearing. In short, with the exception of Apples and Strawberries, all kinds of fruits in these grounds are abundant; and the same remark applies to other districts in the vicinity of London, and also to Kent.

We observed that the cultivation of Black Currants is greatly on the increase. One London house alone takes more than 50 tons. The variety preferred is the Black Naples.

In Essex we are informed that Peas are attacked by mildew. In Surrey they are a scanty crop, and owing to the hot dry weather the crop, such as it is, will soon be over. Strawberries generally did not produce blossoms here any more than they have done in Middlesex; and in instances where they did, the plants are dying off. In consequence of the very hot dry weather Gooseberries have been attacked in some places by a sort of red spider, so as to render it expedient to dig up the bushes. Cherries do not swell nearly so well as they ought in a great many cases. But more unfortunately, the Potatos begin to exhibit some symptoms of disease. ||

—— Mr. Bateman will, we are informed, give an account of the remarkable Rafflesia Arnoldi—the largest of known flowers, and singularly enough borne on a leafless plant—at the meeting of the Royal Horticultural Society next Tuesday.

—— The English seedling Rose Princess of Wales was spoken of in high terms in our columns when it was first submitted to public view, and it has been thought by some rosarians that too much was then said in its favour. We had an opportunity of seeing it again a few days ago in the nursery of the raiser, Mr. W. Paul, of Waltham Cross, and we can aver that no finer blooms, in regard to size, form, and smoothness, than we saw on this occasion, need be desired, while the remarkably vigorous and free-blooming habit pointed it out as a variety particularly adapted to our climate. It is sometimes a little open in the centre, but not always, and as far as we could see this is its only fault. The Rose named Dr. Lindley, by the same raiser, which was also bearing some fine blooms, is remarkable for an intense depth of colour towards the base of the petals, giving a shaded appearance to the flower. We noticed a singular circumstance in the case of the variety named Lord Macaulay, and should be glad to learn if there are many Roses subject to the same kind of freak. When this Rose was first brought out the colour was one of those rosy tints in which a shade of purple is evident. When we saw it a few days ago it was producing blooms of the most glowing crimson without any shade of purple, sometimes on the same plant with blooms of the ordinary colour, and sometimes on different plants. We were informed that these crimson flowers open and die off of this glowing colour, and that the difference is not due to the age of the blossoms as might have been supposed.

New Plants.

293. Odontoglossum gloriosum, *Lind. & Rchb. fil.*
— *Bonplandia*, ii. 278.

Paniculatum, sepalis oblongo-ligulatis acuminatis stellatis, labello a basi cordata ligulato acuminato, basin versus utrinque angulato, ceterum hinc illinc denticulato, calio depresso quadrilobulo nunc quadridentato ante basin, columna clavata apice utrinque cirrho setaceo medio inferne unidentato.

Our friend Linden was the first who declared this to be a very distinct species. When we had named it, we were much reproved by many, who thought it the same as Odontoglossum nævium majus; yet as soon as the

plant had opened its great stellate pallid ochre-coloured brown-spotted flowers, soon after having been introduced to England by Messrs. Low & Co., no one doubted that it was a very distinct species. The colours, indeed, are not quite so delicate as in the unrivalled Odontoglossum nævium; yet the flowers are quite peculiar, and most certainly it ranks among the best of Odontoglots. It flowers, too, in the season of the grand shows, and, since

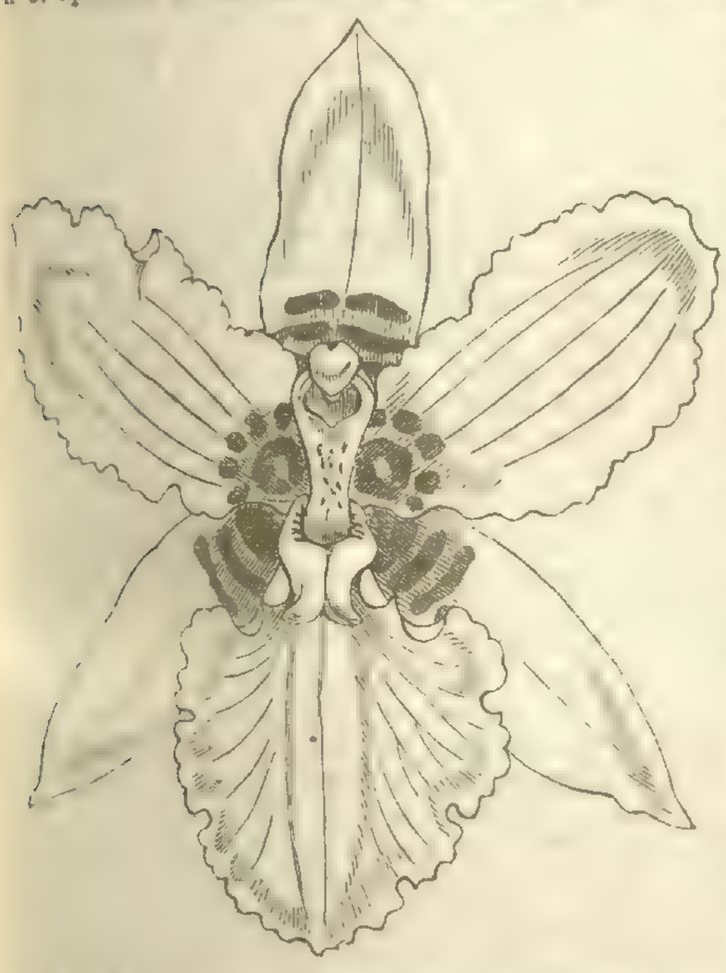
the substance of the flower is very firm, it will no doubt prove to be a good travelling Orchid. All these qualities will make it highly regarded by growers. We saw it in flower both with Messrs. Low & Co., under the care of Mr. Bullen, and with J. Day, Esq., grown by Mr. Stone. There are some varieties; indeed we believe that no two plants will prove to be quite alike.

294. Odontoglossum Warnerianum, *Rchb. fil. in Mohl & Schl., Bot. Zeit.* 1864, 297.

Aff. Odontoglosso maxillari, Lindl. Petalis a basi dilatatis, labelli callo cuneato ovato, antice abrupte trilobo, lobis lateralibus angulatis, lobo medio forcipato bicruri, longiori, lateribus calli a basi versus apicem involutis, lamina cordato-triangula obtusa, margine minute crispula crenulata, columna gracili clavata aptera.

The flowers are as large as those of Odontoglossum nebulosum. The sepals are narrow ligulate pointed cream-coloured, with a few chocolate-brown spots at the base; the petals oblong, of the same colour; the callosity at the base of the lip yellow; the plate of the lip heart-shaped, crenulate, white, with a rosy tint, spotless; the column slender, clavate, wingless.

This pretty plant might be called a connecting link between Odontoglossum nebulosum, Lindl., and O. Rossii, Lindl. It has the slender narrow pseudobulbs of the last, and the broad petals of the first. Let us add, that if O. apterum of Lexarza is a plant known to us, it



must be O. nebulosum; but since our information is very slight, and our hypothesis wanting the last proof—an authentic specimen, we shall do much better to retain Dr. Lindley's name, which we know is authentic.

Odontoglossum Warnerianum was dedicated by us to R. Warner, Esq., of Broomfield, near Chelmsford, who kindly sent us flowers on two occasions. It may come from Mexico or Guatemala; and we learn from J. Bateman, Esq., that it is found in several English collections of living Orchids.

295. Odontoglossum ramulosum, *Lindl. Fol. Orch.* No. 35.

Foliis ligulatis subacutis panicula bene brevioribus, panicula ampla brachyclada, ramulis fractiflexis subsecundifloris, bracteis triangulis ovariis pedicellatis multo brevioribus, sepalo impari unguiculato oblongo acute cucullato, sepalis lateralibus longius unguiculatis oblongis acutis, petalis ab ungue lato acutis, labello ligulato pandurato apiculato, carinis elongatis semioblongis a basi discum versus, antepositis callis quinis, medio falcato producto, lateralibus mediis bilobulis, externis ligulatis extrorsis, columna clavata, alula triangula minutissime utrinque juxta foveae basin.

Alas, not all Odontoglots are swans! And yet this is a very interesting plant bearing a stiff panicle with many stout branches, each bearing a crowd of yellowish honey-coloured flowers, spotted with purple-black. A very careful study of all our materials has persuaded us that the plant belongs to O. ramulosum, Lindl., which comes very near ixioides, Lindl. It is quite new to science that both Odontoglossum ramulosum and O. densiflorum bear little triangular wing-lets at a place where one would not search for them, at the sides of the base of stigmatic cavity. It is one of Messrs. Low & Co.'s New Grenadian introductions. We saw it flowering at High Cross, Tottenham, in one of Mr. Day's splendid stoves. *H. G. Rchb. fil.*

[Under No. 292, p. 506, read Phalænopsis sumatrana, *Korthals and Reichenbach fil.*]

HOME-GROWN FIR SEEDS.

When men impose upon themselves the unthankful office of becoming public teachers, they need not be surprised if they meet with awkward pupils at times; and as some of our worthy Pine doctors have been indulging lately in disseminating both dangerous and erroneous opinions, they must be prepared for consequences. Mere opinions go but a little way with really practical men; but as many of your readers are anxiously feeling their way towards practical knowledge, I think it a duty incumbent on men of known experience to guard them against error. As I have been called upon twice of late in your journal to record what "I have to say" about the impossibility of raising healthy plants of Douglas Fir and Picea nobilis from seeds of home growth, I fearlessly state that there is not an atom of ground for such an opinion to rest upon. Had some of our philosophers read more, and written or said less, it would have been better for us.

This subject was taken up and unanswerably refuted by me in the *Gardeners' Chronicle* of Aug. 20, 1859, six years ago, and you cannot do better than reprint that article. I shall only add that a few facts are worth a cart-load of opinions; but if any, or all of your readers will favour me with a visit to Elvaston Nursery, close to the Borrowash Station, on the Midland Railway, I shall be happy to show them many thousands of facts to prove what I have written, in the shape of the most vigorous and healthy plants that can be seen, both of Douglas Fir and Picea nobilis, and not a diseased or unhealthy plant amongst them. The plants of P. nobilis are of the most lovely glaucous colour imaginable. *William Barron, Elvaston Nursery, Borrowash, Derby.*

[We reprint such parts of the letter referred to as bear directly on this question.]

"I think without egotism I may venture to add, that having been the most extensive grower of Picea nobilis, I have also been the most successful. One reason for my obtruding upon you and your readers is to correct an erroneous report, which I find rather extensively circulated, viz., that 'seedlings of Picea nobilis have been raised by me, which are not true; but hybrids between nobilis and the Silver Fir, or some other species.' Seeing that few people like to acknowledge mistakes, and that the author of this blunder may not favour us with his name, allow me to say that it is untrue, as I never did myself nor allow any one else to fertilise the cones of P. nobilis except with pollen gathered from the same tree.

"The same year (1851) in which I raised my first cones of P. nobilis, I had cones on Pinus monticola, but no male catkins. Having at the same time catkins on P. Lambertiana and P. Ayacahuite, I impregnated the cones on P. monticola with pollen gathered from these trees; and I had as the result three small trees distinct from each other, and from their respective parents. This experiment has been mentioned to several, and the plants have also been shown; whether this may have been confounded with P. nobilis or not I cannot say.

"It is generally admitted, both in the animal and vegetable economy, that unhealthy parents generate a diseased progeny. But I think few have hitherto recognised the possibility of decidedly healthy parents bringing forth a diseased or debilitated offspring. Nevertheless this is the case when certain conditions are not fulfilled, which are indispensable for the production of a healthy progeny. I have long been convinced of the existence of this law in the vegetable, and I believe it equally applies to the animal economy. Having had cones on the Douglas Fir for some years before I could succeed in getting good seeds, I was convinced that either the cones or catkins, or both, were injured by our late spring frosts. Consequently, about 14 or 15 years ago I had an awning raised over a fine healthy tree of Drummond's variety (a much deeper green than the one collected by Douglas*), and at the right time I impregnated the cones, and was repaid by a few hundreds of young plants. Amongst these plants I soon observed a certain number much debilitated, and I found this as time went on to be constitutional debility. The same plants, though now 14 years old, are dwarf stunted unhealthy bushes; whilst those which showed constitutional vigour from the first are now healthy fine trees.

"And amongst my first seedlings of Picea nobilis I had about the same per centage of plants which from the first manifested a constitutional weakness by a stunted growth, and at a certain period of growth the leaves became brown at the margins and tips. I have continued to grow those plants under the most favourable circumstances, and like the Douglas Firs before mentioned they remain unchanged, while those which were healthy, vigorous, and of a good colour from the first, continue so. In a batch subsequently raised I have also a certain number which, from an early stage of growth, have shown the exact appearance already described. These plants are now three years old.

"Having some time ago discovered the true cause of this debility, viz, defective impregnation, I adopted means to secure a more certain and general distribution of good pollen, and now I have a magnificent lot, two years old, free from all debility, without a single exception; some of which I send for your inspection. Be it understood, that in all the other lots I had from the same trees (other circumstances being equal) healthy and vigorous plants, also debilitated and diseased ones. This, I think, solves a problem for arborists, and at the same time explodes a pernicious theory now gaining ground, viz., 'that trees raised from seeds of Douglas Firs of home growth are worthless compared with imported seeds.' P. nobilis has exceeded three feet in growth with me this year and in an avenue composed of Cedars of Lebanon, Araucarias, and Cryptomeria, the large plants of P. nobilis, with their very silvery hue, stand out in bold, and I may say enchanting relief. *William Barron, Elvaston Castle, Aug.* 15. [We endorse this statement. Some seedlings of Abies nobilis which have been submitted to us by Mr. Barron are perfectly genuine and in vigorous health.]"

* These plants are very distinct, and of great value as a contrast to those who plant for pictorial effect. Douglas's variety is of a warm or yellow green, with cones when in a young state with dingy purple scales and bracts. Drummond's variety is of a deep yew green, and silvery under the leaf, with cones having their scales and bracts always green and free from the purple tinge.

CULTURE OF THE NUT.—No. III.

(*Concluded from p.* 508.)

The next great consideration is that of pruning, which combines the continued formation of the main branches according to the rules before detailed, and the general pruning with reference to the production of fruitful wood.

When the side shoots are spurred off pretty close to the main stem, there will frequently spring out five or six slender twigs, often full of female blossoms. Sometimes there will be formed a cluster of buds nearly close to the stem, many of which buds often produce clusters of fine fruit. These conditions are equally desirable, and are the objects specially to be sought for, and towards the attainment of which all pruning operations must be directed. Thus, whilst the formation of the body of the tree by the extension of the leading branches is made one object, the production of fruit-bearing buds by close cutting is the other. In favourable situations, and on dry subsoils, these fruit-bearing buds and twigs are sometimes produced in very large numbers, and if left would soon exhaust the energies of the trees, and hence, in order to keep up the supply, a considerable proportion must be annually spurred in; for it is better to ensure a crop proportioned to the strength of the tree every year, than by taking a glut in one season, to weaken the tree, and probably lose a crop for a year or two afterwards. Care must be taken at the same time to keep the head well furnished with leading branches, as the diameter of the tree increases.

In plantations of limited extent, where the pruning can be got over in the course of a few days, it is best to defer the operation until such time as the male catkins are sufficiently forward to give out pollen. This generally happens towards the end of February, at which time also the female bloom is plainly distinguishable, and the shaking of the trees in the operation of pruning will distribute the pollen, and very much facilitate the setting of the nuts; but in plantations of large extent it is usual, and indeed necessary, unless there is a little army of pruners to be had, to commence pruning much earlier; in fact all through the mild weather after the leaves are off the trees; and there is no objection to this, provided the operator takes care to leave a good supply of the male catkins. A little practice will soon enable the pruner to distinguish which are the most likely buds to produce female bloom, and to regulate his operations accordingly, bearing in mind to keep the tree well open in the centre, and the branches well furnished and equally balanced. All the leading shoots must be shortened every year more or less, according to their strength and the required form of the tree.

During the time occupied in carrying out the above operations there will be considerable management needed about the roots. The Nut tribe is generally very much inclined to throw out suckers, and these must be annually removed down to the roots, an operation which may either precede or follow the pruning, and may very well be done by an ordinary labourer, without taking up the time of the practised pruner. It is customary in some places, when removing the suckers early in winter, to draw away the soil from the roots, and leave them exposed for a time, and previous to covering up again to apply a good dressing of rotten manure. Opinions vary much as to the necessity, or otherwise, of applying manure at all to the Nut tribe, and various reasons are assigned, cogent enough either way, where the culture is on a small scale, and carried on for home consumption and agreeable relaxation; but it is wrong to suppose, where the culture is on a large scale, and expected to be a profitable investment, that there is any land so good in condition, and congenial in its character, as to be able year after year to throw out a remunerative produce without the assistance of manure in some form or other. For this reason I approve of the practice of applying manure as above detailed, but for economical reasons it would be too tedious an affair for plantations reckoned by the acre, in which it is necessary to attain the same end in a less expensive manner, which may very well be done at the annual digging after the pruning is done, by spreading manure and lightly forking it in over the surface of the ground. One of the very best dressings for the purpose, and a lasting one, is woollen rags, which may very well be used alternately with manure that is quicker in its action. The substance called shoddy is also an excellent dressing. A large grower in Kent once told me that he calculated a good dressing of shoddy and woollen rags, on a plantation of 12 acres, increased the value of his crop by 200*l.*; this would probably be three times the amount paid for the dressing, which at the same time would scarcely be half exhausted. He further stated that on more than one occasion he had cleared 500*l.* on the year's crop, after paying every expense, and he concluded that in the long run it beat

Hops, "but," he observes, "you see I farm high, and I always find, that the more I put into the ground, the more I get out of it."

The crop should be taken as soon as the husks have changed colour and become yellow. The nuts should be gathered when quite dry, and spread out on the floor of a dry chamber, where there is a little ventilation. The drying room of a malt-house, or an oast-house is excellent, because it may sometimes in very damp weather be necessary to put on a little heat. They should be frequently turned, and at each turning care must be taken to pick out every one that becomes black. When the husks are dry, and the fear of heating is past, they may be put together in larger quantities, or in barrels open at the top, and be placed in a dry and cool place. Mouldiness is the great thing to guard against, and is the result of the husks not being thoroughly harvested. When put together damp in quantity, heat is generated, and mould follows.

There are several varieties, all more or less well adapted for culture on a small scale where variety is required; but for profitable culture on a large scale the Lambert Filbert, called more commonly the true Kentish Cob, is one of the best, if not the very best variety in cultivation. It is of a large size, a most abundant bearer, and with proper management will keep good for two or three years. Some very fine samples of the Nut tribe were exhibited before the Royal Horticultural Society a few years back by Mr. Webb, of Reading, which struck me as being great improvements on some of the older varieties, and it is probable that some of them may be found to possess such good marketable qualities as to be equal to the above sort for culture on a large scale. Pearson's Nottingham Prolific is also a very good variety, and well adapted for garden culture on account of its dwarf habit; the Nut is of good quality, and the tree an abundant bearer. For early purposes there is none better than the Cosford Nut, which is a thin-shelled early sort, and a great bearer. *John Cox.*

Home Correspondence.

Conifers from Home-grown Seed.—Mr. McNab and others deserve credit for laying their observations respecting Conifers raised from home-saved seed before the public. I find in conversing with those who have had opportunities of specially studying the subject, that considerable diversity of opinion exists regarding it, the majority, however, being unwilling, without more proof than has as yet been produced, to condemn home-grown seedlings. With the majority I agree. I think that it would be well before concluding that home-grown seedlings of many of the finer Coniferæ are useless, to circulate them over the country, in order that they might be tried in different soils and situations. There are certainly some difficulties to clear up in connection with Mr. McNab's experiments; such as how the old Abies Douglasii, its layers, and plants of it raised from foreign seed thrive so well, while plants raised from home-grown seed succeed so badly with him. It is just possible that greater differences may exist in the soil or subsoil than is apparent, or that some other cause not easily discovered may account for the ill health of the home-raised seedling plants. I am induced to make these remarks because the few seedlings we have raised here from home-grown seed are in general thriving as well as those from foreign seed. We have seedlings of Abies nobilis from the old plants both at North Berwick and Riccarton, in full health. We have also seedlings of Abies Douglasii, raised from seed taken from the large tree at Scone Palace. Some of the plants of Douglasii, not in first-rate health on thin poor soil, when removed to richer, damper, and deeper soils, soon became dark green in colour, and grow freely. In Mr. Mitchell's nursery at Stranraer, I saw the other day about 1000 young plants of Abies nobilis in fine health. I was lately conversing with a landed proprietor, whose estate is in a neighbouring county (Kirkcudbrightshire), who told me that he had a large number of Abies Douglasii, very healthy, and making extraordinary growths, all from home-grown seed. With facts like these before us, caution should be exercised before home-grown seedlings are altogether condemned, and excluded from cultivation. I am often surprised at the strong language used by some writers against grafted Conifers, which were greatly disliked some 20 years ago. Mr. Barron, of Elvaston, and many others, have however produced in large numbers as fine specimens from grafted plants as from seedlings. I will be glad to show any one who entertains the slightest doubt about this matter nearly 20 acres planted with the rarer sorts of Conifers, more than half of which have been home-grafted, thriving with all the luxuriance of the finest seedlings we have, and forming in every respect as fine trees, many of them upwards of 20 feet in height. *Archibald Fowler, Castle Kennedy, Stranraer.* —— There can be no doubt that seed gathered from full-grown trees in their native climate will produce more uniform and better plants than those raised from home-saved seed, but good seed of esteemed varieties will always be difficult to procure. There does not seem to be any satisfactory reason why seedlings from home-saved seeds of Conifers well-grown in this country should be unhealthy. I observe that plants from home-grown seed exhibit in a young state more variety than those from imported seed. In the grounds here are healthy young plants of the following sorts, all from home-saved seed, viz:—Pinus insignis, Abies Douglasii, Picea Webbiana, and others. Cupressus Lawsoniana in a young state seeds very freely, a circumstance which indicates that it will not be much of a tree in Britain. Cupressus Goveniana is another most inveterate seed-bearer. Gentlemen interested in proving the merits or demerits of seedlings from home-grown seed of Conifers may, by sending me their addresses, have a pinch of seed from last year's cones of Picea Webbiana grown here. *C. McDonald, Woodstock Park, Inistioge, Leinster.*

Wasps.—In your impression of the 3d inst., "Vespecide" communicates to us the intelligence that he had killed 72 wasps. I have been silent a week or two in the hope that an abler pen than mine might tell "Vespecide" that he had done wrong; instead of that, however, "J. M." tells us that he has committed still greater destruction amongst the wasps, and I can assure "J. M." that his doing so is of infinite benefit to greenfly, bugs, and other insects that infest our fruit trees, Roses, and other plants. Having a nursery of upwards of 80 acres, it may be supposed that I cannot escape the attacks of insects of many kinds, and I find wasps to be my greatest friends in clearing them off. I have seen large quarters of Larch, Spruce, and other plants badly blighted, and every trace of the blight cleared off again in less than a fortnight by wasps, which are amongst the plants by thousands from morning till evening. I take every means to protect and preserve the wasp nests in my grounds, and if every body would do the same we should have less blight, more fruit, and healthier trees. *Excelsior.*

Acacia armata.—Admirers of this pretty Acacia are perhaps not aware that it is wonderfully hardy and frost-proof. We have had two plants of it out all the winter, totally unprotected, and they have this season been beautifully in bloom. *A. L., Monkstown, Dublin.*

Horse-radish.—Will some correspondent have the kindness to inform me whether there is any certain mode of eradicating Horse-radish from my garden, which is quite overrun with it. I have tried digging to a great depth, but have failed, as I find the roots go down into the rock. Is there any known poison, which if applied would kill it? Would boiling-water be effectual? or salt? *Northleach.*

Araucaria imbricata.—I have now in my grounds a tree of this, about 25 feet high, and 18 years old, which has three cones on it; they increase in size very rapidly. *E. B. Curteis, Leasam, near Rye, Sussex.*

Vespa arborea.—If this is the wasp that builds a suspended nest, it would appear to be plentiful here, as within a short distance there is one in a hedge, and another hung from the upper end of a stone trough placed on end. The common wasp seems this year to make its nest projecting out of the ground. Why is this? *C. P., Nailsworth, Gloucestershire.*

Earwigs.—For the last two or three years my bedding plants when first planted in beds in the lawn have been attacked by earwigs so furiously, that sometimes in a single night a bed of Calceolarias is nearly devoured. Last season we destroyed upwards of 7000 of these pests; but this year they appear again in most formidable numbers, and we daily destroy from 80 to 100 of them by trapping them with flower-pots turned upside down on a stick, the pot being about a third filled with Moss. Can you kindly state the best mode of getting rid of these insects, the time of year they breed, the places in which they breed, and the colour of their eggs as well as the number each female produces? The works on entomology that I have seen give but very scant information as to their habits. *G. J. Andrews, South Street, Dorchester.* [The present dry hot spring has produced earwigs in immense profusion, or, to speak more properly, has offered no check to the hatching of the eggs and growth of the young. At the present time (21st June) all the specimens visible (and they swarm even within the Museum here) are in the pupa state, with rudiments of wing-covers. Small bits of Elder twigs with the pith scooped out, laid about the flower-beds or hung against the walls, are excellent traps. The females deposit a comparatively small number of eggs in holes in the earth, and brood over their young when hatched, like a hen over her chickens. *I. O. W., Oxford.*]

The Hamilton or Cadzow Oaks.—I am pleased with "J. A.'s" report of these Oaks (see p. 531). I was very much struck with their fine appearance two years ago, when my friend Mr. D. Mitchell, the gardener at Hamilton Palace, took me and some other friends to see them. They are, as "J. A." says, of large size; in the hollow trunks of some of them plenty of room can be found for a party of six or more large-sized men to go in and stand comfortably. These trees are well worth seeing; they are wonderful old specimens, and to my mind are handsome; for I am a lover of wild natural growth such as is to be found in a forest like this, where wild cattle still graze. All honour, therefore, to the noble Duke, the owner of this primitive forest, for affording us the opportunity of gazing upon such fine wild scenery. I love the Oaks, the brave old Oaks, that live in the forest so green; long may they stand, and be spared from the woodman's axe. *B. W.*

Early Peas.—How anxious all gardeners are to gather the first dish from the open ground we know; and when an advertisement announces something new, that is to arrive, as the "consummation devoutly to be wished," a week before any other, how eager they are to possess it, is but too well known also. At a great price I bought Carpenter's Express, and allow me to express my grief, that, sown the same day in following lines with Sangster's No. 1, they each blossomed on the same day, and were fit to gather simultaneously. *William Masters, Canterbury.*——It was proposed by Messrs. Carter this spring that the early Peas should be carefully tried and proved under our superintendence at Waterloo Nursery, Kilburn, a fine open spot of ground with a subsoil of stiff clay. We communicated our intention to Messrs. Sutton, of Reading, and to Messrs. F. and A. Dickson & Sons, of Chester, both of whom kindly forwarded to us stocks of their early Peas. Messrs. Fairhead, hearing of the experiment, also wished their varieties to be tested. We procured Carpenter's Express and Dillistone's Early Prolific from the raisers. One long row of each of the following sorts were therefore sown side by side on the 15th of March, viz.:—Sutton's Ringleader, Fairhead's Conqueror, Dillistone's Early Prolific, Carter's First Early, Fairhead's Railway, Sangster's No. 1, Carpenter's Express, Fairhead's "Hardy's" Early, and Dickson's First and Best. The following five, viz, Dillistone's Early Prolific, Sutton's Ringleader, Carter's First Crop, Fairhead's Conqueror, and Fairhead's Railway, all proved to be the same Pea; their height (2 feet), time of flowering (13th of May), colour of the foliage, style of growth, measurement of the pods, shape of the latter, number of Peas contained in each pod, peculiar property of producing a mass of pods from bottom to top, the whole crop being fit for use simultaneously, flavour all alike—all fully confirm, as far as our trial and judgment are concerned, the conclusion at which we have arrived. Throughout all the stages of their growth there could not be found a shade of difference. We therefore consider that honour should be given to whom it is due, and beg to assert that to Mr. Dillistone belongs the merit of having sent out the earliest Pea known; for if turned out by machinery these varieties could not be more alike. We now come to Sangster's No. 1, Dickson's First and Best, Carpenter's Express, and Fairhead's "Hardy's" Early; these we treated exactly alike, one long row of each being planted side by side. Except that Sangster's No. 1 and Carpenter's Express have flowers of a whiter colour than the others, there is absolutely not the shade of a difference among these four sorts. They are of the same height (3½ feet), they were in flower on May 20th, and in style of growth, flavour, shape of pods, &c., all are the same. One noticeable feature in these varieties is, that several successive gatherings may be picked from them day after day, *i. e.*, the whole crop does not come in at once. These four sorts are quite 10 days later than the others, the five early varieties being fit for use on the 3d of June, while the four later sorts were not fit for table until the 13th; much however doubtless depends upon locality, snug and warm borders, dry subsoil, and similar contingencies. *A. Henderson & Co., Pine Apple Place, Edgware Road.*——I had Carpenter's Express direct from Mr. Carpenter, and grew it two seasons by the side of Sangster's No. 1, and I could perceive no difference between them. Some 22 or 23 years ago, when Cormack's Prince of Wales was sent out, I remember supplying Mr. Whiting with some seed of the Early May. The two sorts were sown under precisely similar circumstances, and the result was no perceptible difference between them. With all our boasted new sorts, Peas are no earlier now than they were 40 years ago, for I then gathered Peas on the 17th of May, and if our much praised new sorts are so much earlier than the old ones, we ought to gather Peas in April. I have this year grown Sangster's and Dillistone's Early side by side; they were sown on the 15th February, and several pecks were gathered on the 26th of May from an open field, Sangster's being ten days later than Dillistone's. The best Early I conceive to be Sutton's Ringleader; sown on the 12th of March, it was ready to gather at the same time as Sangster's, sown February 15th. As a second Early nothing in my opinion is equal to Nutting's No. 1, a dwarf wrinkled Marrow and free bearer, with large pods and a delicious flavour. *Richard Gadd, Salvington, Worthing.*——Messrs. Sutton's Ringleader ought to be included in every Seed List as a first-crop Pea. I made a sowing of it about the middle of February on a south border; it flowered about the middle of April, and I could have gathered a dish of Peas from it as early as the 18th of May; I did not however do so before the 24th of that month, when the pods were well filled with good Peas. I made another sowing of the same kind the first week in March alongside of several early varieties, and I was gratified by gathering Peas from Ringleader many days before the others. *D. Bain, Gardener, Waresley Park Gardens, St. Neots.*——Messrs. Sutton's four sorts of Peas for succession (p. 556) are good. I would, however, direct attention to another, viz., Turner's Little Gem, which is decidedly one of the most useful of Peas. Sutton's Ringleader, which is properly designated "First Crop," is of medium height, growing according to circumstances from 2 to 3 feet high; it is a good bearer, and is decidedly the earliest Pea in cultivation. It is, however, a round white Pea. Little Gem is a light-blue wrinkled variety, of good flavour and very early. With care it can be made to tread very closely upon the heels of First Crop. It is dwarf, growing from 9 to 15 inches high, according to the nature of the soil, &c.; it begins to bear close to the ground, and the pods are large and well filled.

From what I have seen of this Pea I believe that it will produce as much per acre as any kind grown. Being very dwarf it can be easily protected to save or assist the first blossoms, by which means it can be brought considerably in advance of all other wrinkled Peas. *Alpha, St. Osyth, Essex.*——I do not think that the discussion respecting Early Peas is of any real utility. I imagined that the best test would be sowing the varieties later in the season, say April, or even the beginning of May. Sow the early varieties at the same time, and in the same situation, and then I think we shall get at the "one." I think, again, that the discussion is not to be trusted to on account of the different localities and soils, and varieties of treatment. ——, *Westport.*

Gnats in Bed-rooms (see p. 536).—Your correspondent, "J. F.," should shut his windows before 5 o'clock; on going to rest let him set the light outside the door and leave it there, with the door open, while he shakes the curtains, beats the walls of the room with a towel, and in any other way rouses up the gnats. Then the door may be closed, and, the enemy being in the passage outside, he may sleep undisturbed. *S. S.*

Notes on the Flora of Kildare.—Last year I gave you some account of a number of plants found in that part of Kildare lying contiguous to the counties of Dublin and Meath. I now mention some found in the lower part of the county, or that adjoining the counties of Wicklow, Carlow, and Queen's. The land generally in this district is of a light description, lying on what is known here as corn gravel. Much of this gravel has been dug up in old times and spread on the surface of the land as manure; whether the soil was improved thereby or not is questionable, but the application seems to have favoured the growth of plants seldom found at the other end of the county. Conspicuous among these is the White Campion, Lychnis dioica, which wraps some corn fields in a sheet of white. Common Hemlock and Mugwort are also most common in ditches and on headlands; so also is the Bladder Catchfly. Some of the hedges are fragrant with Sweet Briar, which is by no means common at the north end of the county, and there may also be met with occasionally a plant of both the common and the Mealy Guelder Rose in hedges. Among Ferns, Ceterach officinarum may be gathered by the cartload on old buildings. Asplenium Adiantum nigrum is also quite common, as is also A. Trichomanes. Linaria Cymbalaria is a common weed on many walls in the neighbourhood of Ballytore. London Pride, Saxifraga umbrosa, grows on the roadside from Kilkea to Baltinglass. It seems to be quite indigenous, having no appearance of ever having been planted where I saw it growing. I may just mention in passing that at Baltinglass (in Wicklow, but near the boundary of Kildare) Chelidonium majus literally covers some of the ditches around the town. In a meadow adjoining Kilkea Bridge the aromatic Orchis O. conopsea and Listera ovata are now blooming in the greatest profusion. In this meadow I picked a few very fine specimens of by far the most beautiful and curious of all our native Orchids, viz., Ophrys apifera, or Bee Orchis. The effect of this blooming among the Grass is singularly striking—the rich brownish purple lip, so exactly like a bee, contrasting beautifully with the outstretched wing-like calyx of magenta hue. This little native gem, which maintains the dignity of its princely family in this its Emerald Island home, is well worth cultivating in any garden. *J. Douglas, Kilkea Castle, Kildare.*

Foreign Correspondence.

CINCHONA CULTIVATION IN THE NEILGHERRIES.—The following observations from a recent pamphlet by Mr. McIvor, the Superintendent of the Government plantations, relate his experience on this important subject:—

The Cinchonas require rich forest land, the surface soil consisting of an open black or chocolate-coloured loam of from 2 to 3 feet in depth, resting upon an open subsoil, in order to give efficient drainage. Nothing is so injurious to Cinchonas as stagnant water at the roots. The site must be well sheltered from prevailing winds. The necessity for this arises from the leaves of the red and grey barks being so large and tender when young, that heavy gales of wind act on them with such force as not only to break and damage the leaves themselves, but to twist and seriously injure the plants. The yellow and crown barks, being small-leaved species, bear the wind better, and would grow in more exposed situations.

The aspect of the plantations should be north, or north-west; a north-east exposure will also be found suitable where the winds accompanying this monsoon are not severe. The reason why a northern exposure in these latitudes is beneficial, is from the fact that it is much more moist during the dry season than a southern aspect. On the northern slope the rays of the sun do not penetrate and parch the soil. A northern aspect has also the advantage of preserving a much more uniform temperature than a southern aspect, because the excessive radiation and evaporation on the southern slopes greatly reduces the temperature at night, while in the day they are heated to excess by the action of the sun's rays striking the surface at nearly right angles. All authors agree that Cinchonas delight in an equable temperature, and this has been unmistakeably established by the plants themselves under cultivation; the vital importance of aspect is therefore fully explained. While on this subject it should be observed that a hollow or land-locked valley is also unsuitable to the cultivation of Cinchonas, because the cold air generated at night on the sides of the neighbouring hills, being of greater specific gravity than the warm air, rolls down and fills the valleys, displacing the warm air and reducing the temperature of the valley to an injurious degree.

A moderate amount of rain (from 60 to 100 inches in the year), following uniformly in showers, at not too great intervals, is most beneficial for the growth of Cinchonas. They delight above all things in showers and sunshine. Long continued rain is decidedly injurious, as also continued drought, but of the two the latter is to be preferred, as the plants thrive well under artificial irrigation.

The best range of elevation is from 4500 to 7500 feet, but different species require different elevations—our experience indicating 4500 to 6000 feet as best suited for the red, yellow, and grey barks and their varieties; while from 5000 to 7500 feet promises to be most favourable for the varieties of the Crown Bark. These elevations are named from our observations on the Neilgherries, where an altitude of 4500 feet in a sheltered locality gives a mean temperature of about 66° Fahr., 6000 feet giving a mean temperature of 59° Fahr., and 7500 feet giving a mean temperature of about 53° Fahr. The temperature of any given locality is a more certain guide than elevation.

The only difficulty in the successful management of Cinchona seeds is their impatience of any excess of moisture, and therefore it has been found necessary to take some trouble in the preparation of the soil for their reception. The method which we have pursued with the greatest advantage is as follows:—The soil used, composed of earth produced by rotten leaves, was sifted and mixed with four times its own volume of sand. The leaf-mould was in the first instance exposed to the sun for two or three days, and thoroughly dried; it was then heated to about 212° Fahr., in order to destroy all grubs or larvæ of insects. The leaf-mould and sand in this state of moisture were mixed together, and the pots filled; the surface lightly pressed down, and the seeds sown thereon, being covered with a sprinkling of sand. The pots were then plunged into beds of moist sand on a bottom-heat of about 75° Fahr.; they were never watered in the strict sense of the word, but when the surface became dry they were merely sprinkled with a fine syringe, just sufficient water being given to damp the surface, but never to penetrate or consolidate the soil. Under this treatment the seeds began to germinate very strongly on the sixteenth day after sowing. The least excess of moisture causes the seeds to damp off in thousands. As soon as the seeds germinate they are carefully pricked out into fresh earth, from 25 to 50 seedlings being transplanted into a 5-inch pot, and then treated in every respect the same as the seeds, that is they are never watered, the surface being merely sprinkled and the pots plunged in beds of damp sand, as before stated, to keep the soil in that medium state of moisture in which it was when first placed in the pots. The necessity for this care is to prevent the seedlings from damping off, to which they are very liable when treated otherwise. Treated in this way our seedlings have made an average growth in one year of over 30 inches, while many seedlings raised and grown on a retentive soil have not attained the height of 3 inches in the same period.

As soon as the plants have attained a height of from 10 to 15 inches they are propagated by being layered. In this way they were found to root readily in about six weeks or two months at the latest, and the plants by being bent down, break or throw out shoots from every bud along the whole length of the stem, and not only this, but many latent buds are developed and a fine growth of young wood produced for succeeding layers and cuttings. In this way each branch or shoot is treated as it gains sufficient size. The principle of layering we have adopted is somewhat different from that usually practised, as we found when cut the juice of the Cinchonas flowed so freely that if merely placed in the soil it was apt to cause mildew and rot. To remedy this, a piece of perfectly dry brick is placed into the cut as soon as it is made; this absorbs the juice and effectually prevents the ill effects above mentioned.

Cuttings of from three to five inches in length, if planted in beds in the open air and partially shaded, will form roots in from three to five months, and when a rapid increase of the plants is not an object, this is perhaps the safest and cheapest plan of propagation. With the aid of a propagating house, the youngest wood that can be procured is the best adapted for making cuttings, as young tender shoots, a fortnight or three weeks old, form roots in a very short space of time, the majority of these cuttings being invariably rooted within a month. The earth in which these cuttings are placed is prepared as before described for the seeds; it is, however, kept a little drier. The cuttings on being made are placed around the sides of the pots, the cut end of each being pressed firmly on a piece of dry brick. The cuttings are now carefully watched, the surface and the leaves being moistened by a fine syringe when the atmosphere in the frames appears dry; they are however never watered, it being very necessary to ensure success to avoid this, as we have invariably found that when the earth is once watered it causes the cuttings to damp off, and seriously retards their rooting. When the cuttings are placed in the frames, they are exposed to as much light as they can bear without flagging.

It occurred to me that the plants could be successfully propagated by leaves with the bud attached; and as this method offered very considerable advantages in producing a large number of plants from a limited supply of wood, we resolved to attempt the experiment, which has been carried out most satisfactorily. By this method fine plants are obtained in every respect resembling strong healthy seedlings. The period required to form roots is nearly the same in all the species, varying from three to six weeks. It is not indispensable that a leaf be attached to the bud; this is no doubt a great advantage, although we have struck many buds without any leaf attached.

The usual way in which we prepare the buds is to remove the point of the shoots for a cutting; the stem is then divided near the middle of each internode, split down the centre, and immediately placed upon the brick in the pot; the bud itself being covered with about ¼-inch of soil, while the leaf of course projects above the surface. The pots are then plunged in damp sand, and treated in every respect the same as the cuttings.

The question as to the way in which the land should be prepared for the cultivation of Cinchonas, is one that has been much discussed since the beginning of this experiment. We have advocated that the land should be entirely cleared of forest, at least so much of it as may be planted with Cinchonas. In situations such as are subject to occasional storms and high winds, perhaps it might be well to clear small patches of a few acres in extent here and there throughout the forest, in order to ensure shelter. The only objection to this system exists in the liability of the trees left standing on the borders of the patches to be blown down, and damage the plants within their reach. The system of cultivating Cinchonas in partially cleared land is liable to the same objection, for the forest trees when deprived of a portion of the support upon which they were accustomed to lean, are also liable to be blown down; and moreover this system has the further and more serious objections of shading the plants too much from the sun, while they are subjected to the damaging effects of the drip, during the rains, and the roots of the forest trees immediately fill up and choke the holes into which the Cinchona plants are placed, thus depriving the young plants of all nourishment. In our experiments here, we have planted a considerable extent of land in this way, but I fear with such bad results as will ultimately render it necessary to clear away the remaining forest trees. In the greater part of our operations, the whole of the forest has been felled, and on that which is planted, the growth of the plants has been much more satisfactory than that of those placed under any degree of living shade. I therefore feel convinced that the open system of planting will be the only successful one, especially on the Neilgherries. It is true, that while the plants are young this system has also disadvantages, which should not be overlooked. I refer to the excessive evaporation and radiation during the bright and cloudless season, when our dry and cold weather prevails. We have hitherto combated this difficulty by sheltering the plants with a temporary shading of Bamboo or Fern. Many hundreds of our plants, however, have passed through this dry season without any protection whatever; and although their growth has not been so rapid, their health is quite equal, if not superior, to that of any of those protected by artificial shade, and it is probable that during the spring and rainy season the growth will be more rapid in the plants without shade than in those which have been shaded.

The best season for planting is the early part of the year, or after the ground is well soaked by the first showers; this gives the plants time to be well established before the setting in of the dry weather. If the weather continue dry, the plants should be watered in the mornings or evenings until they become established.

Societies.

ROYAL HORTICULTURAL: *June* 17 (*Special Show of Azaleas*).—Of this it was stated in a notice posted up at the entrances, that "the unusual forwardness of the season has made it impossible to have a full show of Azaleas this day, which therefore will not be considered as a special show day;" and there were only such plants as occurred in a very pretty collection of stove and greenhouse plants and Orchids, from Messrs. Lee, of Hammersmith, who also contributed half a dozen boxes of beautiful cut Roses. A similar exhibition came from Mr. G. Clarke, Brixton Road; and Mr. Bull furnished a numerous collection of new plants, Ferns, Dracænas, &c, and a fine pan of Trichomanes speciosum.

June 20 (*Election of Fellows*).—Sir Wentworth Dilke, Bart., in the Chair. The following candidates were elected Fellows, viz., E. J. Clavering, Esq.; John Crawfurd, Esq., F.R.S.; Mrs. H. M. Cumming; Lord Eliot; Mrs. Fergusson; C. Newton, Esq.; Lady Pigot; Viscount Powerscourt; G. Taylor, Esq.; Walter B. Williams, Esq.; and Mrs. Winsor.

BIRMINGHAM ROSE SHOW.—It will be seen by an advertisement in another column that the last day for intending competitors to make their entries for the forthcoming Show is Friday next, the 30th inst. All Rosarians are necessarily interested in this important

exhibition, which, in consequence of the spirited and judicious management of the committee, is generally quite equal to those held under the auspices of the great Metropolitan Societies, thus affording an agreeable opportunity for professional and amateur Rose growers in the Midland Counties to yearly study the progress made in the cultivation and improvement of the Queen of flowers.

York Horticultural.—An exhibition of Plants and Cut Flowers was held on the 14th and 15th inst. This exhibition is now looked forward to as the great flower show of the North, and the immense attendance on the second day, especially, denotes the interest felt in its success. The sum taken at the gates on the second day, fully 100*l.*, indicates the truth of this statement. Many hundreds of gardeners were present from various districts, even so far away as Newcastle, Darlington, Peterborough, Sheffield, Manchester, Huddersfield, Leeds, Bradford, and other large towns.

The exhibition was in every respect a success, showing a steady improvement in most classes. The stove and greenhouse plants were remarkably fine, and rarely, if ever, has two finer collections been seen than those which took the 1st and 2d prizes. In fact, at the luncheon which followed the adjudication of prizes, Mr. W. Barnes, of Camberwell, one of the judges of plants, remarked, that "although he had attended the London shows for many years, the stove and greenhouse plants at York were superior in every way to what they had had in London."

The general arrangement and decorations were so well done as to secure general commendation, and attention to these details add very much to the interest of a show. The Committee comprise gentlemen of influence in York, who, in conjunction with Mr. Wilson, who is one of the most courteous of secretaries, all work heartily to secure success.

Cut Roses were invited for the first time, and the success of the experiment will no doubt make them a leading feature of future exhibitions.

Orchids were not so good as we hope some day to see them when the Society shall have been able to induce some of the great growers about London to exhibit.

Mr. Baines, gr. to H. Micholls, Esq., Bowdon, took the 1st prize for 12 Stove and Greenhouse Plants. This collection contained admirable plants of Ixora aurantiaca; Acrophyllum venosum, very fine; Genetyllis tulipifera; Dipladenia acuminata; Azalea Gledstanesii, large and well grown; Phænocoma prolifera Barnesii; Ixora javanica; Dipladenia crassinoda; Ixora coccinea, good; Erica tricolor Eppsii, well grown; Allamanda cathartica, with a profusion of its fine yellow flowers; and Azalea Extranii, in good condition. Mrs. Cole and Sons, Manchester, were 2nd; they contributed Ixora alba, very fine; Pimelea mirabilis, good; Leschenaultia biloba major; Ixora coccinea superba; Allamanda cathartica; Azalea Gledstanesii and Juliana; Aphelexis macrantha rosea; Erica Cavendishiana; Aphelexis humilis grandiflora; Polygala Dalmaisiana; and Phænocoma prolifera Barnesii.

For Six Orchids the 1st prize went to Mr. Baines, who had Cattleya Mossiæ and C. M. picta, the latter with 11 good blooms; Oncidium divaricatum, Sobralia macrantha, Oncidium Harrisonianum, and Vanda teres. A single specimen of Lælia purpurata from the same exhibitor also obtained a 1st prize.

The 1st prize for 12 Ornamental Foliage Plants was taken by Mr. Baines, with clean and well-grown plants of Anæctochilus Lowii and xanthophyllus; Sarracenia flava and purpurea; Croton variegatum, a splendid plant; Rhopala corcovadensis; Alocasia metallica; Theophrasta imperialis; a well-coloured Croton angustifolium, &c. The 2nd prize was taken by Mr. Stewart, gr. to W. H. Broadley, Esq.; 3rd by Mr. H. Baines, Museum, York.

In Pelargoniums there was good competition. The 1st prize for 12 plants went to Mr. H. May, nurseryman, Bedale, who had good plants, well flowered, of Desdemona (large), Leander, The Belle, Ariel (good), Gem of Roses, Saracen, Admirable (full of flower), Lord Clyde, Sir Colin Campbell (good), Rose Celestial, and Viola. Mr. Edwards, of York, was 2d. For 6 Spotted Pelargoniums the 1st prize also went to Mr. May, who showed Spotted Gem (fine), Sanspareil, Jung Bahadoor, Beadsman, Thirza, and Cherubim. H. Steward, Esq., of York, was 2d, with King of Purples, Wm. Bull, Peacock, Mr. Beck, Mammoth, and Beadsman. The 1st prize for 6 Pelargoniums (Amateurs) was awarded to H. Steward, Esq., who showed good plants with large flowers, consisting of Viola, Desdemona, Leviathan, Lucifer, Rose Celestial, and Majestic. The 1st prize for 3 Pelargoniums was also given to H. Steward, Esq. In the class for 9 Fancy Pelargoniums, Mr. H. May was 1st, with well grown plants of Acme, Countess of Waldegrave, Evening Star, Hebe, Exquisite, Mrs. Turner, Madame Sainton Dolby (fine), and Rosabella (very handsome and good for exhibition). Mr. J. Foster, gr. to the Hon. P. Dawney, gained the 2d prize; and was placed 1st for 3 Fancy Pelargoniums, namely, Celestial, Cloth of Silver, and Sweet Lucy; Messrs. Backhouse, of York, being 2d; and J. W. Pease, Esq., 3d. H. H. Bradley, Esq., also contributed Fancy Pelargoniums.

For 12 British Ferns, the 1st Prize was won by Mr. Lazenby, gr. to J. Buckle, Esq. In this collection were plants of Athyrium Filix-fœmina varieties coronatum, multifidum and Frizelliæ; Lastrea Filix-mas varieties Bollandiæ and polydactyla nana; Polypodium Dryopteris; Blechnum Spicant ramosum, Polystichum angulare proliferum, Adiantum Capillus-veneris; Scolopendrium vulgare crispum; Trichomanes radicans, good; and Asplenium Trichomanes cristatum. Mr. Baines was 2d; the best in his collection being Scolopendrium vulgare subcornutum, and Athyrium Filix-fœmina plumosum. Mr. Simpson, of Bedale, was 3d. The 1st Prize for 6 British Ferns was also taken by Mr. Lazenby, with a nice collection of good varieties. The principal prizes for Exotic Ferns were taken by Mr. Baines, of Bowdon, and Mr. J. Clark, gardener to Earl De Grey and Ripon. In the Class for Indian Azaleas the leading prize was taken by Mr. T. Baines, of Bowdon; in that for Cape Heaths by Mr. Richards, gr. to Lord Londesborough; and in that for Achimenes by Mr. Davidson, gr. to G. Yarburgh, Esq., Heslington Hall.

Pot Roses were contributed by Messrs. May, Richardson, and Douglas. Among Cut Roses, the 1st prize for 48 was taken by Mr. Keynes with splendid blooms of Lord Macaulay, Victor Verdier, Cloth of Gold, Prince Camille de Rohan, and Baron Gonella; the 2d by Mr. Cant, with good blooms of Souvenir d'Elise, Eugene Appert, Eliza Sauvage; and the 3d by Mr. Francis, conspicuous among whose flowers were Isabella Gray and Cloth of Gold. For 36 Roses, Mr. Keynes was also 1st, showing, amongst others, John Hopper, good; Baronne Adolphe de Rothschild, Vicomte Vigier, and Triomphe de Rennes; Messrs. Treen, Cant, Batley, and Francis, also exhibited. Mr. Keynes was 1st in the class for 24 blooms Cut Verbenas were shown by Mr. C. J. Perry, Birmingham; and Verbenas in Pots by Mr. Edwards, of York. Messrs. Hooper & Co., Covent Garden, contributed Fancy Pots and collections of Sparaxis and Ixias.

The principal prizes for Fruit were awarded as follows:—

Collection 1st, Mr J. Richards, gr. to Lord Londesborough; 2d, Mr. Gray, Upleatham, Redcar. Fruit Trees in Pots: Mr. Freeman, gr. to W. Dove, Esq., York. Pine Apple: Mr. Batzer, gr. to J. Gott, Esq., Leeds; Mr. G. H. Cawkell, gr. to J. G. Riddell, Esq., Worksop, Notts. Grapes (New): 1st, Mr. T. R. Davidson, gr. to G. J. Yarburgh, Esq., York; 2d, Mr. Mitchell, gr. to Lord Wenlock. Black Grapes: 1st, Mr. Stewart, gr. to W. H. Broadley, Esq., Brough. White Grapes: 1st, Mr. Stewart. Strawberries: 1st, Mr. Saul, gr. to Lord Stratton, Knaresborough. Nectarines, and also Peaches: Mr. Allen, gr. to — Hopwood, Esq., Middleton.

Halifax Horticultural.—The first Summer Exhibition this Society has held took place in the Park attached to the residence of John Crossley, Esq., Halifax, where the Prince of Wales resided during his visit to Halifax. The exhibition was a decided success, and many of the plants exhibited were very fine indeed: those from Henry Micholls, Esq., Bowdon, near Manchester, taking the lead. In his various collections were well-grown and flowered Ericas, ventricosa coccinea minor, and tricolor Wilsoni; a fine Phænocoma prolifera Barnesi; a wonderfully well-grown Acrophyllum venosum, in fine health and superbly bloomed; and an unusually fine Genetyllis tulipifera. Mr. Baines, the gardener, seems determined this year to be in the foremost rank, for in ornamental plants he had very fine examples of Sarracenia flava and S. Drummondii, both in fine character; and a very fine example of Dasylirion acrostichum; a gigantic Alocasia metallica in superb condition; Anæctochilus xanthophyllus; a very fine pan of Sarracenia purpurea, Odontoglossum citrosmum roseum, Vanda teres, Cattleya Mossiæ picta, and a new species of Ixora from Moulmein of the habit of coccinea, with colour of crocata. In other collections from Mr. Micholls we observed fine examples of Sarracenia variabilis, Dionæa muscipula, Anæctochilus intermedia, and A. Lowii. In fact, Mr. Baines excels in the culture of Sarracenias, Dionæas, and Anæctochilus. His Azaleas, which took the 1st prize, were very fine, and consisted of Extranii, Stanleyana, Eulalie Van Geert, Chelsoni, Iveryana, and Juliana. John Waterhouse, Esq., Halifax (Mr. Baynes, gr.), had good specimens of Dracæna Cooperi, Anthurium acaule, Phyllagathis rotundifolia, Eranthemum sanguinolentum, and Macodes Petola. Mr. Johnson, gr. to — Micholls, Esq., Manchester, had in his collections fair examples of Saccolabium retusum and Phalænopsis grandiflora, and Bougainvillea glabra in fine condition. One of the best examples of Lilium giganteum we have met with, came from T. Pickerton, Esq.

Of Ferns the 1st collection was contributed by H. Micholls, Esq., and contained a noble example of good old Dicksonia antarctica, with a stem 3 ft. 6 in. high, and fronds 8 to 9 ft. in length, in good condition, proportionate, and handsome. Gleichenia Speluncæ was quite a mountain in size, a charming plant, 3½ ft. high, and some 5 feet across, the whole plant in admirable condition, and one of the best examples of its kind in the country. There were also fair medium-sized plants of Gleichenia flabellata and dicarpa, Platycerium grande, Pteris scaberula, Alsophila excelsa, Davallia bullata, and Cibotium princeps. The 2d Collection, from Henry Micholls, Esq., comprised Cyathea Smithii, with a stem 2 feet high, a tidy and proportionate little plant; some good Gleichenias, amongst which was a fine flabellata; a good example of Cibotium Scheidei, and a creditable Cyathea medullaris. In this collection we were much struck with a splendid plant of Davallia pyxidata. When grown as shown by Mr. Wilson, it is one of the finest Ferns for exhibition that the mind can conceive. The leading features of the 3d Collection, from J. Waterhouse, Esq., were Goniophlebium subauriculatum and Adiantum pedatum, along with some good Gymnograms. The two plants first named were especially good. In the unsuccessful collections we noted a good plant of Gymnogramma Wetenhalliana, which, had it been in good company, might have closely run some of the winning lots.

The British Ferns were very well shown by Mr. Waterhouse's gardener, Mr. Baynes, who took both the 1st and 2d prizes. The best of his plants were Osmunda regalis cristata, A. F.-f. plumosum, and A. F.-f. crispum, a very fine plant. In the other collection there was nothing calling for special note, save small plants of the curious and rare Scol. supralineato-constrictum and A. F.-f. Vernoniæ. We learnt that both plants were raised from spores: these we should suppose, in the case of the former plant, must have been selected from the most affected part of a strongly characteristic plant, resulting in the entire frond being constricted and supralineate. A. F.-f. Vernoniæ only needs to be known to be appreciated, and is unquestionably one of the gems amongst Lady Ferns. Both the plants alluded to were, we believe, shown by Mr. Eastwood, of Luddenden. We have not space for further remarks, except to observe that the exhibition was highly creditable to the committee and exhibitors.

Leeds Horticultural.—The Second Annual Exhibition of this Society took place during the Whitsun week in the Royal Park, Leeds, and it not only drew together a great company, but was really a fine exhibition. The arrangement of the tents and plants is similar to that adopted at York. Here, as at Halifax and York, Mr. Baines, gr. to Henry Micholls, Esq., took the leading prizes in plants, with almost the same specimens as those enumerated in our notice of the Halifax Show, which took place first, but in addition he had very fine specimens of Clerodendron Thomsonæ, superbly bloomed; Ixora javanica, I. aurantiaca, and Theophrasta imperialis, in fine character. The 2d prize for 12 Stove and Greenhouse Plants fell to Mr. G. Houghton, gr. to T. Kendal, Esq., Manchester, in whose lot were fine plants of Pimelea rosea, Aphelexis macrantha purpurea, and Erica Cavendishi. Mr. Stewart, gr. to W. H. Broadley, Esq., Brough, to whom the 3d prize was awarded, had a very fine Dracophyllum gracile. Several fine lots of ornamental plants were shown.

In Roses, Mr. Charles Turner, of Slough, was 1st both with 24 blooms and 48 blooms: amongst them fine samples of George Prince, Baronne Adolphe de Rothschild, Souvenir de Comte Cavour, a fine exhibition Rose; Model of Perfection, soft pink colour and fine form, a beautiful exhibition Rose; Mdlle. Bonnaire; Tea Madame Damazin, Lord Clyde, Cloth of Gold, Prince Camille de Rohan; Alpaide de Rotalier, a very beautiful Rose; Rev. H. H. Dombrain, and Souvenir d'un Ami. Mr. Henry May, of Bedale, took 2d prizes, but it was too early for him. In the Amateurs' Class the leading prizes fell to C. J. Perry, Esq., Birmingham, whose stands, as well as those from Mr. Turner, were greatly admired. Mr. Perry also took the 1st prizes for Verbenas. Mr. W. Dean, Shipley, exhibited four fine seedling Petunias, to two of which, Prince of Wales and Clara Dean, First class Certificates were awarded. A First-class Certificate was also awarded to a seedling white Verbena named Beauty of England, exhibited by Mr. Gill, of Bradford.

Some good Orchids were shown by H. Micholls, Esq., T. Kendal, Esq., and the Rev. W. Richmond; and amongst them were fine examples of Lælia purpurata, Dendrobium formosum giganteum, Saccolabium retusum, Aerides Lobbii, Phalænopsis grandiflora, Oncidium ampliatum majus, and Odontoglossum citrosmum roseum. J. Kendal, Esq., exhibited an unusually fine plant of Genetyllis Hookerii, beautifully cultivated, with a profusion of orange-coloured flowers. In the classes for 6 and 3 Greenhouse Plants, Mr. Richards, gr. to the Right Hon. Lord Londesborough, took first prizes, and Mr. Baines took the first prize with the Ferns shown at Halifax.

Geraniums were well shown, and in the open classes Mr. May, of Bedale, was 1st, and Mr. Edwards, York, 2d. In the first lot, Leviathan, Sir Colin Campbell, Rose Celestial, and Angelina, were the most striking. In the Amateurs' Classes, Mr. C. J. Perry, Birmingham, took the lead with fine plants. Zonale Geraniums in 12 kinds are shown here, and when well done form an attractive feature. They also exhibit well as cut blooms. Some good fruit was exhibited, and for collections the prizes fell respectively to Mr. Richards, gr. to Lord Londesborough, and Mr. Clarke, gr. to the Earl de Grey and Ripon, Studley. Mr. C. Turner, of Slough, carried off the first prize for Peaches and Nectarines. There were many other things specially worth mentioning, but we must be content with congratulating the Committee on the success of their exhibition.

Notices of Books.

Select Orchidaceous Plants. By Robert Warner, F.R.H.S.; the Notes on Culture by B. S. Williams. London: Reeve & Co.

Of this noble work on one of the most popular families of garden plants, Parts 8, 9, and 10, completing the first series, are now before us. We have already spoken in terms of commendation of the earlier Parts of the work, and these later ones are fully equal or even superior to the former, both as regards the selection of subjects and their execution. In the 8th Part are given figures of Calanthe vestita, the yellow-eyed and red-eyed varieties; Odontoglossum Phalænopsis, charmingly rendered from a plant grown by Mr. McMorland; Angræcum sesquipedale, the remarkably long-tailed Madagascar species introduced by the Rev. W. Ellis; and Miltonia Moreliana, less happily represented. The 9th Part contains Anguloa Clowesii with stout erect almost Tulip-like blossoms; Chysis Limminghii, a most delicately and charmingly coloured plant; the well-known Cœlogyne cristata, one of the finest of what Mr. Bateman calls Bridal Orchids, and Mr. Leach's high-coloured Disa grandiflora superba. In the 10th and concluding Part is a good illustration of the rare Galeandra Devoniana; Epidendrum Skinneri, superbum, a fine variety introduced to Mr. Veitch's collection by Mr. Skinner; Arpophyllum giganteum, remarkable for its dense cylindrical spike of small shell-like flowers; and Lælia purpurata, one of the grandest Orchids yet introduced. A particular feature of this book, as distinguished from the somewhat similar one of Mr. Bateman, now publishing, is that the cultivation of the plants is fully explained. We give the remarks on Galeandra Devoniana as a good sample of the kind of information to be found under this head in this charming drawing-room picture-book:—

"Galeandra Devoniana is one of those Orchids which lose their leaves annually. The stems grown in this country are usually about 2 feet in height, and the foliage is of a light-green colour. The flower spikes proceed from the top of the stem when the growth is completed, and bear numerous flowers, whose lip is of a creamy-white, beautifully pencilled with purple. It blooms at different seasons, and continues in perfection for several weeks, if the flowers are kept cool and free from damp. For its growth, it requires a good supply of moisture. We were delighted a short time since to find it thriving beautifully with Mr. Penny, gardener to H. H. Gibbs, Esq., Regent's Park, in a cool house, with Odontoglossum, Lycaste Skinneri, &c. The plant was growing on a block of wood, and seemed to be doing as well as those in pots; but when grown in this way it requires a great deal of water, and the block must be kept moist. This plant had been imported for about a year; but that from which our figure was taken, we have known for several years, and it has always been grown in a pot. The plant requires a good season of rest. Mr. Pilcher, gardener to S. Rucker, Esq., of Wandsworth, informs us that his plant sometimes rests for six months, and during this time he keeps the roots quite dry, or gives but just sufficient moisture to keep the bulbs plump. When the plant commence growing water may be given, but not too freely at first, or the young growths may damp off. By the time they are grown about 6 inches high, more water may be given, and during the period of active growth the plants should never be allowed to get dry. We have known great injuries to be caused by dryness occurring at this stage, the growth becoming in consequence weakly; but after the growth has been completed, less water will suffice. We find it to grow better when kept near the glass, where it may have all the light possible. The growth is then stronger, and this is also the means of bringing the flowers to a larger size. This plant sometimes makes two growths in one year, but does not always flower from both. The second starts before the first is completed. The best material for potting is good fibrous peat and Sphagnum, mixed well together, with good drainage, the pots being half filled with crocks, and then a little Sphagnum put over the crocks to keep them open. The potting material should be carried one or two inches above the rim, and the plant placed on the top and firmly pegged down. This latter is a point of some importance in the cultivation of Orchids, as it causes them to root more vigorously; besides, if loose, the roots are apt to get injured. The best time for potting Galeandras is just as they start into growth, and before they begin to make fresh roots. They require to be repotted when the soil gets in a close or sour state. It should in such cases be shaken away, and the roots washed before repotting. This, indeed, should be done with all Orchids which have got into an unsatisfactory condition. Both Mr. Toll and Mr. Pilcher grow their plants at the cool end of the East Indian house; but we find they will do with less heat, that is, in a temperature of from 50° to 55° in winter, and in a house without fire-heat, except on cold and wet days, during summer."

The plates in the completed volume are 40 in

number, and it is announced that the success of this first series has been such that a second series of 40 plates will be issued.

A Handbook of British Plants, designed especially for Schools, Science Classes, and Excursionists. By W. Lowndes Notcutt. London: Longman & Co.; Cheltenham: Norman & Sons. 12mo. Pp. 213.

The object of this little book is "to supply the want of a brief, simple, and cheap introduction to the study of British plants, especially for the use of classes in schools, and for the Science classes established in various parts of the kingdom under the Department of Science and Art." The contents are arranged under three heads:—Natural Orders, Genera, and Species, each being presented in an analytical form; and by this means, aided by the contraction of oft-repeated words, a very large amount of information respecting our native plants is compressed into small space. This information, moreover, is perspicuously arranged, and appears to be generally trustworthy. Altogether this Handbook, which is of convenient size, will be a very useful companion for the field student. We notice a few misprints, which should be corrected in another edition, such, for instance, as Pœonia, Ænothera, Œgopodium, Ænanthe, Suæda, Lastræa, &c., so that we are unable to say the book is a perfectly trustworthy guide; an Index of Genera, and of English names, would moreover be an improvement, and would not sensibly increase its bulk.

The Apiary.

"I ATTEMPTED," says a Devonshire clergyman, "to form a small ARTIFICIAL SWARM by removing from a frame-hive a suitable brood-comb with the bees clustering on it. I searched carefully for the queen, and was, I thought, certain that she was not on the comb. This with the bees was placed with two empty combs in a small box constructed to hold four frames, and a few young bees that had only just left their cells were brushed off into the nucleus from another brood-comb, which was returned to the parent stock. The small swarm was confined in a dark room for 12 hours, and was then placed on a stand closely adjoining the old hive. I inspected the combs of the nucleus at intervals of two or three days for nearly a week, but no royal cells were commenced. Hardly any bees seemed to leave the hive to work. On calling in the aid of an experienced bee-keeping friend, the reason why no royal cells had been formed was very soon made apparent. He at once pointed out to me a fine queen on one of the combs. The bees were very few in number, not enough to cover all the brood and eggs in one comb. We then proceeded to examine the parent hive, and discovered a few royal cells in an early stage of progress. He explained to me that it was evident the queen's energies were paralysed, and that until a larger population was present, there would be little appearance of work. I was disposed to return the queen to the stock hive, substituting the brood-comb on which we had seen the royal cells. This did not meet the approval of my friend, who advised me to make the best of the present state of affairs, and trust to the plan of gradually increasing the strength of the nucleus by giving a brood-comb occasionally. He said that a very great risk attended the returning the queen to the old stock after so long an interval of absence, and that the probabilities were that she would be at once destroyed by her former subjects, and the hive sacrificed. Deferring to his judgment, matters were allowed to remain *in statu quo*, but I am still inclined to the belief that my plan would have been the best. After his visit I added two sealed brood-combs, but the swarm did not seem to gain much ground. On a subsequent visit of my friend, he informed me that the brood-combs were given too soon and too fast, and on again inspecting the swarm, it was evident that a great deal of the brood was chilled or starved. We now decided on restoring one of the brood-combs with the queen to the stock, and substituting a brood-comb on which were several royal cells. I shall be anxious to see if the queen is destroyed; if this should be the case I fear the stock must perish."

Our Correspondent erred at the commencement in not making himself perfectly certain of the absence of the queen from the brood-comb selected, by previously discovering her presence on a different comb from that and the one from which the young bees were dislodged.

The next error consisted in not obtaining a population sufficient to cover the brood to start with.

Error the third was in placing the nucleus so near the old stock, which tended to lessen the already diminutive population, as many of the bees finding their old domicile so near, would naturally prefer to return to it rather than to the new one.

When it was first discovered that the queen was present in the nucleus, we should have been disposed to give the same advice as our Correspondent received relative to returning the queen to the old stock. We believe that there is a very great risk in returning a queen under such circumstances. Occasionally, it is true, she would be received without hesitation, but bees are not to be depended on at such times; and her loss would have been by no means improbable.

Our Correspondent's friend's advice as to building up the nucleus by the addition of brood-combs was very good, so far as it went, but another great error was committed in giving any additional brood-combs, when there were an insufficient number of bees to hatch out the brood already there. It would have been better to have waited until the majority of the young bees had been hatched out of the comb first placed in the nucleus. Then one from which the bees were actually emerging from the cells should have been added, and a week allowed to elapse before a further addition was made.

When it was found that so much of the brood had become chilled or starved, perhaps it was as well to try the experiment of restoring the queen on the brood-comb to the old stock, substituting a comb with royal cells. Even supposing the queen should be destroyed, it is most probable that other royal cells in a tolerably advanced state would previously have been constructed on other combs in the hive, so that she would soon be replaced. The chief disadvantage accruing from such a result would consist in the cessation of all breeding in both the parent hive and the nucleus. The loss of a queen at such a time involves the loss of many thousands of bees, though the hives themselves may eventually make sufficient progress to be able to stand the succeeding winter. Should the death of the queen occur in consequence of her being returned to her subjects after an absence of more than a week, the chief advantages arising from raising artificial swarms is lost. It must be the fixed object of the apiarian who works on this system in no wise to check the fecundity of the queen at the head of his colonies. If the plan of building up small swarms into stocks sufficiently strong and well provisioned to stand the winter be systematically followed, the utmost breeding power of the queens of all the stock hives will be requisite. If queens are removed with the swarms, such swarms must be sufficiently large to cause but little check to the queen's breeding. We should be glad to hear whether the queen was sacrificed by being returned to the old hive, and the result of the experiment generally.

C. B. F. says—"I don't know whether 'A. Boyle, of Narberth' (see p. 511, June 3), is acquainted with the Grecian Hive recommended by Mr. Golding in his 'Shilling Bee Book' (which, by-the-by, is a book every amateur bee-keeper should possess, but which I was told by a bookseller is now out of print, although I soon afterwards obtained a copy from a book hawker); these hives are made of straw, with moveable bars, and are, I should imagine, in every way adapted to the improved system of bee-keeping. The price is 3*s.* 6*d.* each, and with floor-board and adapter for supering, 3*s.* 6*d.* more. I never saw them anywhere but in Kent." Golding's Shilling Bee Book was the work of a very practical man, and is a useful little manual. He was for years a friend of, and fellow-labourer in apiarian science with the late Dr. Bevan. We had one of his Grecian hives many years since, but were not particularly enamoured of it. We greatly preferred our own bar boxes made on Dr. Bevan's plan. The Bar-and-Frame hive lately introduced is so superior in every respect for all the requirements of the practical and scientific apiarian that we should be very sorry to exchange them for the Golding hive, though we do not at all mean to deny that it is a useful hive, and one that might with advantage be more extensively used. It would not be at all difficult to form artificial swarms by the use of these hives, but it must be evident that they are not nearly so well adapted for that purpose as those from which any comb from any part can be made available, and be capable of being placed in any position in another hive of the same sort.

Garden Memoranda.

MR. VEITCH'S NURSERY, COOMBE WOOD.—Coombe Wood is situated on Kingston Hill, one of the most commanding and not the least beautiful sites in the neighbourhood of London. As a spot of ground for nursery purposes, it is unquestionably one of the finest that could be selected, both as regards soil and situation, as is so clearly testified by the exuberance of the numerous and varied examples of nursery produce which is classified and arranged for the convenience of visitors, presenting as a whole a singularly pleasing effect. It may be said to be one of those fertile valleys with equally fertile slopes on either side, where certain forms of vegetation delight to revel; which neither the parching heat of summer accompanied by drought, nor occasional periods of deluge, materially affect; and where, we opine, the inclemency of winter will not be felt very rigorously. All these things can be easily accounted for and understood when we consider that no stagnant water can remain in such a piece of ground; moreover, the first stratum of soil is six inches of gravel, and the next two feet or more is of that yellow marly loam, intermixed with a certain proportion of grit or sand, among which the roots of Coniferæ, Rhododendrons, and Roses greedily feed. It is of that plastic consistency that it is sufficiently retentive in periods of drought to hold water, and what with the sand with which it is incorporated, and the gravel above, it cannot fail to be thoroughly aërated, and in such a condition as to ensure successful plant-cultivation. It is one of these picturesque dells, nicely surrounded with wood—here and there a dense patch occurring in the landscape, with the broad and flattish green surface of Putney Heath and Wimbledon Common in the distance—such as a landscape gardener or a landscape artist would delight to work upon. Mr. Veitch, influenced by such ideas, contemplates building a villa in an elevated position of the table land, as the square block of ground unplanted testifies, and he has all the immediate surroundings laid out so charmingly as not to disturb the natural undulations of the soil, and yet present a suitable dress-foreground for the contemplated piece of architecture.

Some people say there is "method in madness," and I don't see why there should not be method shown in the arrangement of nursery stock. Coombe Wood is the best example of the kind that has come within my observation; but Mr. Veitch is proverbially a methodical man. The arrangement of what one might call the forest of plant houses at Chelsea, and the unexceptionable order in which every thing is kept, fully convey a resolute determination to have everything done orderly and well. The natural position of Coombe Wood has not been rudely dealt with, else there might have been an attempt to flatten the little undulations and introduce straight walks, and otherwise resort to the strict formula of square and rule. On the contrary, this large amphitheatre-like block of ground is divided up into principal walks, which follow the natural curvature, and are intersected again and again, forming divisions which are planted with nurslings, those that require shade and shelter in suitable positions; and such as are more at home in exposed localities likewise provided for and attended to. Broad mixed shrubbery borders line either side of the principal walks. Along each side of the centre walk, in the dell, the borders have a very imposing effect planted in this way, the back rows lined with Araucaria imbricata, of which there are hundreds of noble examples from 4 to 6 feet high, which would make most excellent individual plants for lawns of all descriptions. In the front of these stand unique plants, of their size, of Picea Nordmanniana and Pinus lasiocarpa, a most noble companion for the former plant, having rather a more silvery appearance, and a little more pendulous habit. Associated with these are numerous plants of the noble Pinus Pinsapo, and an extra fine variety of Picea nobilis, showing a more robust habit and being closer in the branches and denser in the leaves than the older sort. Positively these plants above mentioned are revelling in such a way at Coombe Wood as to resuscitate my old love for Coniferæ. In front of these and close upon the walk is a line of Thuja aurea, running quite 1000 feet without intermission, and appearing in the distance as if these little compact bushes had been dipped in gold, so beautiful was the variegation, and so admirable the contrast from the background of fresh and lively green.

In other borders I noticed the fine dark hue and handsome habit of Abies orientalis, a most beautiful decorative lawn plant, and numerous specimens of the handsome Thuja Lobbii, the branches weighed down, forming graceful festoons with the weight of its numerous seed vessels. Cupressus Lawsoniana, one of the most elegant and one of the hardiest of the Cypress tribe, had flowered and fruited much in the same manner. Thuja elegans is well named, for it is an elegant-growing plant, and it was here, like its fellows, in fine condition. A very fine pyramidal-growing plant, not commonly seen in our parks and pleasure grounds, is Arthrotaxis selaginoides; it is one of the densest growing of our Cypress-like plants, well meriting a place. Another most excellent small-growing plant is the drupaceous-fruited Juniper, having a fine conical habit, like a pigmy Araucaria. Salisburia adiantifolia laciniata is a nice addition, having finely laciniate leaves of a pale green with yellow edges.

Not to be needlessly prolix, let me glance a moment at a few miscellaneous things of an out-of-the-way character. Decidedly the best of the Weigelas I have yet seen was here—Stelzneriana—with flowers half as large again as more common sorts, and colour a deeper tint of rose. The Japan Bambusa, called Metake, is an ornamental plant likely to succeed well in shrubbery borders, and in the vicinity of lakes and such-like places. It has a long grassy Carex-like flower stem, covered with golden glumes. Indigofera flammea is here luxuriating beautifully, showing itself suitable either for a shrub or wall. Cytisus scoparius albus is much the finest and densest bloomer I have seen, and well worthy of general cultivation; so is the beautiful white-flowered Cistus formosus, with its five sanguineous spots, and quite hardy. The evergreen Embothrium coccineum, with its trumpet-like scarlet flowers—a charming companion for the Honeysuckle, coming as it does from Chili, should be nearly if not quite as hardy as that favourite flowering plant. Then, of course, who would not grow Barberis Darwinii, for it is the most free-flowering and the best of all the small-flowered Barberries. Tropæolum speciosum is a fine plant for autumn decoration, and having nice broad leaves looks well throughout the season. I also observed the Californian Fremontia, which was growing and flowering on a wall, producing numerous yellow flowers; it is also said to do well as a shrub; for a sub-climber it is a most useful plant. Rhaphiolepis ovata must not be omitted as one of the most distinguished of the Appleworts, having dense masses of white flowers with pink stamens. Lilium longiflorum variegatum is a very handsome form of the longiflora breed, and looked remarkably well, growing in a low pit. Aralia Sieboldii, with its fine palmate deeply-incised leaves, has stood out unscathed, and if it can be depended upon it will be an acquisition; and last but not least decorative under this paragraph is Pentstemon speciosus, with immense spikes of cœrulean blue, and as close as the beautiful Tritoma Uvaria.

Rhododendrons, Ghent Azaleas, Heaths, Kalmias,

Roses in splendid order, with blooms, such as are not usual this season out of doors, perfect; Hollies of every hue and description, presenting a beautiful variegated appearance as a whole, and every other kind of shrub common to a nursery, from a common Quick to the finest sample of Coniferæ, are here represented, and scarcely a bad plant in the 50 acres that are under cultivation.

With reference to the recently introduced Japanese novelties it may be interesting and useful to say a word upon those which have stood in the trial-ground uninjured all last winter. Of the true Japan Aucuba there cannot be a doubt of its hardiness and its usefulness as a shrub. The limbata variety, which is one of the best, has also stood the test so far. Thujopsis dolabrata, and its variegated form, are unquestionably hardy in the great portion of Britain; so is the celebrated Umbrella Pine (Sciadopitys verticillata), which looks in its younger stages at least very promising. The beautiful Retinosporas, of which the golden pisifera is a splendid representative, apparently indicates sufficient hardiness of habit to stand the ordinary rigours of our climate. Osmanthus and its varieties are great acquisitions, from their free habit and Holly-like appearance. Nor must I omit to note that beautiful dwarf shrub Euonymus and its varieties. It is unquestionably one of the finest introductions in its way from Japan. Several of the Abies tribe from that country are apparently hardy enough, but they are too small to justify a very positive opinion. If these introductions, which have recently flooded our exhibitions, prove hardy enough for our climate, they are worthy of all the rewards that have been heaped upon them. All honour to such men as Veitch and Fortune for the enterprising spirit which characterised their proceedings, and gave to England a batch of novelties, including the glorious Lilium auratum, which was in itself worth a pilgrimage to the most remote parts of Japan. I was very much indebted to Mr. Veitch for his courtesy early in a summer, or rather spring morning, in driving me out to have a peep at Coombe Wood. *A.*

Miscellaneous.

The Preservative Power of Ferns.—Doubtless many of the readers of this journal when passing the shops of large fruiterers in London and elsewhere have observed Apples, Pears, and other fruit packed in hampers containing Fern-leaves, and had they but inquired why these leaves in particular were used, the more intelligent of the vendors would probably have told them they assisted in preserving the fruit from mildew and decay. Some years ago, when residing in the Isle of Man, I noticed that the Bracken (Pteris aquilina) was in large demand for packing the fresh-caught herring forwarded daily by steamboats to the Liverpool markets; and more recently, during a brief sojourn at Frodsham, in Cheshire, Brackens were collected on the Overton hill to line the hampers of new Potatos transmitted to the Manchester markets. Upon my return to the north of England, in a year when the Potato disease was threatening the destruction of that valuable esculent, the rector of a parish in my neighbourhood at my suggestion induced one of his farmers to "hog" his winter Potatos on the ground where they grew, and to cover them with Bracken instead of the customary straw. The farmer, sceptical about the result, only covered half the "hog" with Ferns, leaving the other half protected by straw; earthing and sodding up the mound to exclude rain and frost. Winter arrived, and the "hog" was opened for a fresh supply of tubers, when it was discovered that those Potatos which had been stored in Brackens were sound and good, whilst those protected by straw were so much decayed as to be scarcely worth the labour of removing. To me this experiment was very satisfactory and suggestive. That Ferns contain some peculiar preservative property there can be little doubt. Both the Bracken and Male Fern abound in alkaline matter, which was once used by the manufacturers of soap and glass, and their astringent properties are well known to country people, and the dressers of leather. I believe the aroma from this family of plants to be repugnant to most insects, and inimical to the growth of those species of Fungi known as mould. I cannot now recall to my recollection ever having seen the larvæ of any lepidopterous insect feeding upon the fronds of our common Ferns, nor do I remember having noticed insects of any orders resting upon them unless it were for shelter during a shower of rain. The peculiar odour thrown off by Ferns must be familiar to all who have wandered near their place of growth. Is it due to an essential oil? The Russian leather so much prized in this country for its enduring properties and grateful smell is said to be prepared with oil distilled from the Birch tree, and it has been stated that bales of this valuable leather frequently lie for months in damp warehouses at the London Docks without spotting or being otherwise injured by mildew. That essential oils of all kinds will prevent to a great extent the growth of Fungi, we have but to mix a few drops in our flour-paste, and see how long a time we may keep it unattacked by their sporules. Ferns boiled up with our paste would probably answer the same purpose. Hops, also, possess antiseptic properties, and dead game has been preserved in them for a lengthened period without showing any signs of decomposition. The root of the male Shield-Fern (Lastrea Filix-mas), when administered in the form of powder or decoction, is a powerful anthelmintic, and is frequently made use of for the expulsion of that pest of our race—the tape-worm. The young unexpanded fronds of this Fern when cooked are said to be equal to Asparagus. Dried Ferns make a most enduring thatch for outbuildings on the farm, and should be largely used for the bedding of all animals affected with entozoic diseases—the pig in particular. If in some parts of Germany and Denmark Beech leaves are used to stuff mattresses in which fleas and bugs cannot exist, I think the poor of our own land might profitably collect the dead fronds of our Ferns for the same purpose, and ensure the same immunity from these midnight tormenters. *H. M., in Hardwicke's "Science Gossip."*

Calendar of Operations.

(*For the ensuing week.*)

As daylight and sunshine have now arrived at their climax for this season, stove plants which are in a growing state should be supplied with the maximum amount of heat and moisture, in order that they may the sooner complete their growth, and have a longer period to ripen it in. Water should be freely and frequently sprinkled on every evaporating surface, with a view to counteract the drying effects of abundant ventilation. Incessant exertions must be made to keep insects in check, particularly red spider. The blooming season of many plants may be retarded by pinching off the earliest flowers, thereby husbanding their strength and inducing them to make a longer season of growth.

FLOWER GARDEN AND PLANT HOUSES.

Out of doors the most pressing work at present will be that of high keeping. Walks should be in good order, lawns neatly mown, and flower-beds well attended to both as to watering and the regulation of shoots of vigorously growing plants.

Calceolarias.—Shrubby and half-shrubby kinds that have flowered may be cut back, and placed in a cool place, partly shaded, to make cuttings.

Cinerarias.—Those that were cut down early will now be throwing up suckers. Take cuttings, as soon as ready, and insert them in small pots in a nice sandy compost; place them in a cool frame or under a hand-glass; keep them close and sprinkle occasionally to prevent flagging; pot off as soon as rooted into a light compost, composed of two parts loam and one leaf-mould; add sand liberally.

Dahlias.—A constant attendance to watering and securing the young plants from wind is all that will have to be done for a few weeks. Both the thinning of the side shoots and mulching the plants with rotten manure will have to be attended to at once. Commence destroying earwigs, before there are blooms for them to disfigure.

Hollyhocks.—These should be mulched and then thoroughly watered; the latter operation should be repeated once or twice a week if dry weather should continue.

Pansies.—Take off young cuttings as they are obtainable, and strike them under small glasses in a shady situation.

Pinks.—Water copiously during the time the buds are swelling; weak liquid manure may be applied beneficially.

Pelargoniums.—With many it is now no small matter of anxiety to prolong the bloom of these, and if we can assist them but slightly, that will afford some satisfaction. Many of the finest kinds are probably still in perfection, and it is most desirable that shading should be attended to carefully, for one sunny day may injure the flowers beyond hope of remedy. It is equally desirable that the atmosphere of the house should be kept cool.

FORCING GARDEN.

Cucumbers.—Pay great attention to thinning and regulating the shoots; go over them at least twice a week, as they soon get crowded if neglected a few days. Guard against red spider, by syringing the plants and frequently sprinkling every part of the house. Attend to plants in frames. Keep linings well made up; earth up, peg out, and train shoots of growing plants. Water when necessary.

Melons.—Keep up the top temperature, and a bottom heat of 85°, and a moderately moist atmosphere to the successional plants, and give occasional waterings. Those plants which are ripening their crops will require less water and a drier atmosphere. If it be desired to obtain another crop from them, care must be taken that the soil does not become too dry; water should be given to the under portion of the soil, by means of holes made with a tin tube.

Peaches.—Use the syringe freely to keep down the red spider, and tobacco smoke to destroy thrips. The foliage must be kept healthy, to ensure success in the crops of this and future seasons. Should mildew make its appearance in the late house, dust the plants with sulphur immediately.

Pines.—When the bottom heat is declining, it may be recruited by surfacing the beds with a few inches of new tan; as, independently of its own fermentative power, it absorbs a considerable quantity of heat from the sun, and attracts the roots to the surface, where they revel among the new material. In addition to these advantages, it checks evaporation, economises labour in watering, and keeps the roots in a more equable state of moisture during hot weather. The syringe must be freely used every fine afternoon, and the pits shut close for an hour or two, to compensate the plants for the loss they sustain by evaporation during the day.

Vines.—Let late Vines be supplied with a sufficient amount of heat and moisture to keep them growing at a healthy rate.

HARDY FRUIT AND KITCHEN GARDEN.

Persevere in the system of gradually removing all superfluous shoots from wall fruit trees, and in order that the proper balance between the crop and the capability of producing it may be maintained, it will be necessary to disbud more or less severely according as the trees are vigorous or weakly; for example, vigorous trees, full of life, and evidently having a vast accumulation of sap, must have an outlet, or else there will be a risk of obtaining only strong unfruitful wood. Stop and thin therefore with great caution.

Cabbage.—Sow now for Coleworts. The Rosette is one of the best.

Celery.—Earth up this as it requires it, selecting a dry day for the operation.

Endive.—Sow now for a full crop.

Potatos.—Let these be earthed up as they require it, using a three-pronged hack instead of a sharp draw hoe, which it is a common practice to use, although it is liable to cut off the young strings which lie near the surface of the ground. The soil for earthing should be drawn from the centre of the space between the ridges.

Strawberries.—Of these there is scarcely a third of a crop this season; take care, therefore, of what there is by well attending to the plants with water.

Winter Greens.—See that Brussels Sprouts, Savoys, and Broccoli for autumn use are got in. The main plantings, however, to stand through the winter will be better deferred for some time yet; as when put in too early the plants become gross, and are more liable to suffer from frost.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending June 21, 1865, as observed at the Horticultural Garden

June.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth. 1 foot deep.	Of the Earth. 2 feet deep	Wind	Rain.
Thurs. 15	21	30.373	30.342	76	46	61.0	62½	61	N.E.	00
Friday 16	22	30.379	30.359	80	43	61.5	64	61½	N.E.	[illegible]
Satur. 17	23	30.266	30.225	74	36	55.0	63	61½	N.E.	[illegible]
Sunday 18	24	30.327	30.261	59	47	53.0	63	61½	N.E.	00
Mon. 19	25	30.315	30.280	68	32	50.0	62	61	N.E.	00
Tues. 20	26	30.308	30.275	80	30	55.0	62	60	N.E.	00
Wed. 21	27	30.295	30.274	89	39	64.0	62	60½	S	00
Average.		30.323	30.288	75.1	39.0	57.0	62.5	60.8		00

June 15—Very fine throughout; hot and dry.
— 16—Very fine; low white clouds; dry air; fine at night.
— 17—Overcast; low white clouds in clear sky; cool at night.
— 18—Uniformly overcast; overcast and rather cold; overcast.
— 19—Densely overcast; fine; at freezing at night.
— 20—Very fine; hot and dry; 2 deg. below freezing at night.
— 21—Very fine; excessively hot; cloudless, with hot sun; dry air.
Mean temperature of the week, 4 deg. below the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 39 years, for the ensuing Week, ending July 1, 1865.

June and July.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday..25	72.7	49.7	61.2	20	0.72 in	—	2	6	2	5	14	6	4
Mon. ..26	73.8	49.8	61.8	20	0.69	1	3	4	2	2	14	10	3
Tues. ..27	71.9	48.3	60.1	14	0.80	4	2	2	2	3	17	8	1
Wed. ..28	73.2	49.4	61.3	15	0.65	3	2	6	1	3	12	6	6
Thurs. ..29	72.9	48.7	60.3	11	0.22	3	4	3	1	—	16	6	6
Friday ..30	72.7	48.1	60.4	12	0.80	—	6	4	1	4	11	6	7
Satur. .. 1	72.3	51.5	61.9	18	1.18	3	5	5	4	4	11	6	6

The highest temperature during the above period occurred on the 30th, 1862—therm. 91 deg.; and the lowest on the 28th, 1862, 30th, 1863, and 26th, 1864—therm. 34 deg.

Notices to Correspondents.

Edible Passifloras: *Subscriber.* The fruit of Passiflora laurifolia is edible. Two other useful kinds for fruiting under glass would be P. quadrangularis and P. edulis.

Grapes: *Woodford.* It is not the Grape mildew, but a common case of rust. Sulphur is perfectly useless. Nothing will cure rust. The point is to prevent it by taking care that your young Grapes are not exposed to sudden chill.—*Old Sub.* It is impossible to wash rust off Grapes. It is an affection of the cuticle induced by sudden chill while the Grapes are tender. *M J B.*

Larch Scale: *Larix.* Some information respecting this will be found at p. 560 of our last week's Number.

Kola Nut: *Inquirer.* This nut in the dry state, according to Dr. Attfield's analysis, contains about 2 per cent. of theine. In the fresh state, according to Dr. Daniell, it is largely used as an article of food and medicine by the natives of Western Central Africa. The discovery of theine in the food material of an African people is highly interesting, since Coffee, Tea, Cocoa, Maté, and Guarana, which constitute the beverages of European, American, and Asiatic peoples, are famous for containing this valuable alkaloid. You will find the subject fully discussed in a recent number of the "Pharmaceutical Journal."

Names of Plants: *Miss Wakefield.* Helianthemum vulgare.—*X Y Z.* The flowers appear to belong to one of the many cream-coloured varieties of the Scotch Rose, a flower which is not cultivated so much as it should be. You will, perhaps, get them from some of the Scotch nurserymen.—*M M D.* Cerasus virginiana.—*B B.* Silene quadrifida.—*Bags.* Centaurea Calcitrapa.—*G W G.* Nepeta Mussini.—*G P.* Grevillea sulphurea rosea and G. lavandulacea; they are greenhouse shrubs.—*J W.* Ornithopus perpusillus.

Plantains: *W R S.* Persevere in cutting them out with one of the lawn-weeding spuds, cutting deep. Your young crop is probably a batch of seedlings.

Royal Horticultural Society's Azalea Show: *Quelp.*—You must consult your solicitor.

Erratum.—In the Royal Horticultural Society's advertisement last week, p. 553, under the head "Melon, Green-fleshed," for J. Gordon read "George Gordon."

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ROYAL AGRICULTURAL SOCIETY of ENGLAND.
JULY, 1865. PLYMOUTH MEETING.
PROGRAMME.
WEDNESDAY, THURSDAY, FRIDAY, and SATURDAY, JULY 12, 13, 14, and 15.
Trial of Field Implements on Woodford Farm, Plympton St. Mary. Distance by rail or road 3½ miles from the Showyard.
SATURDAY, July 15.
The Implement Yard open from 9 A.M. till 6 P.M.; admission, 5s. each person.
MONDAY, July 17.
Cattle Yard open from 8 in the Morning, at which hour the Judges will commence inspecting the Live Stock, and making their awards.
The Implement Yard open from 8 in the Morning.
Admission—Members free; Non-Members, 5s.
The Show Yards will be closed at 6 in the Evening.
TUESDAY and WEDNESDAY, July 18 and 19.
The General Show of Cattle, Horses, Sheep, Pigs, and Implements, open to the Public from 8 o'Clock in the Morning till 6 in the Evening; admission 2s. 6d. each person.
THURSDAY and FRIDAY, July 20 and 21.
The General Show of Cattle, Horses, Sheep, Pigs, and Implements, open to the Public from 6 o'Clock in the Morning till 6 in the Evening; admission, 1s. each person.
FRIDAY, July 21.
General Meeting of the Members in the Show Yard at 10 o'Clock.
By order, H. HALL DARE, Secretary.
12, Hanover Square, London, W.

The Agricultural Gazette.
SATURDAY, JUNE 24, 1865.

MEETING FOR THE ENSUING WEEK.
FRIDAY, June 30—Bedfordshire Agricultural Society, at Bedford.

IN some notes which we published in 1862 ON CLOVERS will be found the following remark: "So useful are the species (of Leguminosæ) which we now employ in farming, that it seems to us a fine field for experiment, not only with the view of improving those we already possess, but with the further object of producing new forms, and bringing fresh species into cultivation."

Having ever kept this object in view, it may not be out of place to offer a few remarks upon our experiments and observations connected with this interesting family of plants, so far as they affect the farmer. Our last series of trials were started last spring (1864), in which 120 plots were devoted to the Leguminosæ. These, on account of the soil, which is light and sandy, and the extreme drought of last summer, made but little progress the first season; this year their progress has been very different, and the following Table of some of the agrarian forms, which was made up on the 1st of May (1865), will, it is hoped, be not devoid of interest. It may be remarked that the results were made up on the 1st, because it is just about that time that many forms might be made most useful to the farmer. It will be seen that the figures represent the height to which the various plants had attained on the 1st of May, which it should be explained was made as general and even as possible, and not noted upon a mere extreme case. The weight was estimated by cutting a given space as close to the ground as may be done with a scythe, and weighing the specimens immediately that they were cut.

EXPERIMENTS WITH THE CLOVER ALLIES.

	Botanical Name.	Common Name or Label.	Height in inches.	Weight per acre. t.	c.
1	Trifolium pratense* ..	Broad Red Clover ..	4	2	0
2	var. perenne	Cow Grass Clover ..	4	2	0
3	,, pratense ..	Broad Red	6½	3	0
4	,, hybridum ..	Alsike	5	1	10
5	,, incarnatum ..	French Red	3½	1	10
6	,, repens	Dutch	5	2	5
7	,, medium ..	Zic Zac Clover ..	4	2	0
8	,, frugiferum ..	Strawberry Headed	3	0	15
9	,, minus	Suckling Clover ..	3½	0	10
10	Medicago lupulina	Hop Trefoil	11	4	8
11	,, sativa	Lucerne	8	1	1
12	Onobrychis sativa	Sainfoin	16	5	0
13	var. bifera	Giant Sainfoin ..	18	6	8
14	Poterium sanguisorba† ..	Burnet	17	2	10
15	Anthyllis Vulneraria ..	Ladies' Fingers ..	6	7	0
16	,, ,, ...	Second Plot	8	8	12
17	Vicia cracca‡	Cow Vetch	15	3	1
18	,, Narbonensis‡ ..	Narbonne Vetch ..	12	4	8
19	,, sativa‡	Field Vetch	12	4	0
20	Lathyrus pratensis ..	.. ..	7	1	2
21	,, Aphaca	.. ..	5	1	1
22	Melilotus leucantha	Bokhara Clover ..	13	4	12
23	major				
24	Melilotus leucantha ..	White Melilot ..	8	2	4
25	,, officinalis ..	Yellow Melilot ..	6	2	5
26	Ervum hirsutum	Hairy Tare	7	0	13

This Table refers to as many as 26 examples, which, it should be remarked, were scarcely in flower on the 1st of May; at the same time the height and weight of some of the specimens at that time is sufficiently remarkable to deserve a few notes of comment.

The Clovers as a rule were poor, a circumstance which was then accounted for from the fact that our soil is not well adapted for Clovers of any kind, being in all probability deficient in lime. The poverty of the crop is however also owing to the remarkably large quantity of Orobanche (Broomrape) that is now to be seen in all our plots of Clover. It did not make its appearance in the first year of the growth of the crops, but within the last few days it has so overwhelmed the plants as to make them much less in quantity than on the 1st of May.

The parasite in question is everywhere to be met with, on all our hedge banks and in most Clover fields, but how it got into these plots in such quantities, and how it commences its attacks upon the foster parent, is a great mystery. It is impossible that it could have been derived from the seeds in all the cases, and it thus becomes a curious subject for investigation how so large a plant as the Orobanche first commences its life upon the smaller-stemmed foster parents upon which it is found, and how it adapts itself to plants of such varied forms and properties; for not only is it found on Clovers, but on other plants of very different natural orders, such as Ivy and Compositæ, and we have now a specimen established on an Oak-leaved Geranium in a greenhouse, which was grown from a cutting last year.

The next plots to which we would direct attention are those of the Sainfoins. We were not prepared for such good results on such sandy soil, but they have encouraged us to try it in the field on a larger scale, though we can find no precedent for so doing among the farmers of the district—indeed, few amongst them had ever seen the plant growing.

The light weight of the Burnet as compared with the Sainfoin is a significant hint to buy seed free from this pest, as it soon gets possession of the soil, and yields but a small weight of produce, though it spreads and looks a great deal, which however we should think of a very low nutritive value. The two plots of Ladies Fingers' are remarkable for their mass of produce; the seed was sown thickly, and its thick bottom growth—entirely without flower on the 1st of May—has told in the weight. It is now in fine flower and very vigorous, maintaining its pre-eminence amid our plots, as the Clovers around are ruined by the Broomrape, from which the Ladies' Fingers have been wholly spared.

In some previous notes in these columns on this plant, we dwelt upon its hairiness as against its value as an agricultural plant. Now it is but right to say that these notes were penned from observations upon the wild examples, but as our cultivated specimens are almost devoid of hairs and exceedingly succulent, we are inclined to

* The Clovers for the most part were poor, but this is accounted for in most of the species by the subsequent appearance of Broomrape.
† Introduced into this series by way of contrast.
‡ Free from parasites.

think much more highly of the Anthyllis than formerly.

It certainly has done so well this spring as to induce us to try it in our fields, in the hope that it may take the place of some of the worn-out Clovers, for it may turn out to improve still more in cultivation. My two plots were derived, one from seed from the cultivator who introduced the plant to the notice of farmers, the other from the Messrs. Sutton. Their behaviour is much the same, the difference in quantity being perhaps due to difference in the quantity of seed and in quality of soil, as the two plots are a good distance apart. It should here be mentioned that in these, as in the other cases, no manure was used. The Vetches usually do well on our soil, but they were so injured by birds that the crop was very poor. The Narbonne Vetch has leaves as large as the Horse-bean, and grows at first upright, in the same manner; it might, we think, be drilled in the same manner as Beans, and form a very useful crop either as a winter or spring Tare. We have now a bed sown last April as much as 16 inches high and quite upright. The Vicia Cracca, Cow Vetch, is a handsome plant, now in full flower, and showing every symptom of a good, easily grown, and useful soiling species.

The Melilots, we think, are not made enough use of; we have repeatedly found them to grow most readily, and, indeed, we were so pleased with their mode of growth and flavour as to recommend a small portion of its seed to be mixed with Clovers and Rye-grasses (seeds) for the sake of flavour.

We have this year a 50-acre field of seeds, in which was sown with the Barley of 1864 Rye-grass, Broad Clover, and Hop Trefoil, with 2 ounces to the acre of Bokhara Clover seed. On account of the drought, the Clovers utterly failed; much Barley however came up, not merely from shed seed but from the unexhausted stools of the old plants, and also a sprinkling of the Bokhara Clover, which does not seem to be affected by drought like the common Clovers. The Rye-grass and the young Barley is thus flavoured with Melilot, which though a rough will be a sweet hay, nicely flavoured; and both the Barley and Oats in the young state appear to have much, if not all of the virtues of their respective seeds diffused through the whole structure of the plant, which on drying thus becomes a nutritive hay.

Our experiments on these plants are still continuing, and as we hope ere long to transpose some of them from the more limited space of experimental plots to common field cultivation, in which they will take their rotation in the usual method, we shall be glad, to this end, to hear of the results of any trials in the same direction. *B.*

The provision which Nature makes for the accomplishment of her processes is so abundant that they are rarely made more certain or more perfect by artificial assistance. The work of fertilisation in the Wheat blossom, often carried on in the midst of inclement weather, is one of them. That it is capable of artificial direction is plain, from the success of experiments in hybridising. Cutting out the anthers of one flower before the pollen has escaped, and substituting others full and just ready to burst, you obtain both the natural and an artificial result. It is however obtained by careful individual and timely attention. No wholesale or large-scale process would be efficient, and when M. Hooibrenk declared in the *Journal d'Agriculture Pratique* last year that he had obtained a largely increased crop of Wheat by an artificial fecundation conducted in the very roughest manner, few in this country believed him to have read his experience aright. Mr. Lawes nevertheless submitted his process to an experimental test; and as the season of Wheat blooming is close at hand, we quote the following account of it from his paper in the *Journal of the English Agricultural Society*. In the first place he had plots of land in crop, on which 12 years' experience declared that he might expect identical results from uniform treatment. Over three pairs of the plots his experiment extended, and the following is his statement:—

"The duplicates being again manured exactly alike as in former years, plots 12*a*, 13*a*, and 14*a* were submitted to M. Hooibrenk's process; whilst plots 12*b*, 13*b*, and 14*b* were not so treated. In accordance with the directions given, the mode of proceeding was as follows:—To a rope long enough to stretch across the plot to be operated upon, pieces of woollen twist 2 feet in length were attached so close as to touch each other, thus forming a sort of fringe 2 feet in depth. Before use the wool was smeared with honey, and the rope, thus prepared, was stretched across the plot and trailed over the growing crop when in bloom in still weather. It was thus drawn up each of the plots to be operated upon on July 2, down on July 4, and up again on July 6. The following Table gives the produce obtained with, and without the process of artificial fecundation.

Produce of Wheat per Acre on Duplicate Plots, one Artificially Fecundated and the other not. Harvest 1864.

Plots, &c.	Dressed Corn. Quantity.	Dressed Corn. Weight per Bushel.	Offal Corn.	Total Corn.	Straw (and Chaff).	Total Produce (Corn and Straw).
	bs. pk.	lbs.	lbs.	lbs.	lbs.	lbs.
12*a* Artificially Fecundated..	44 1¾	62.6	99	2881	4315	7196
12*b* Not " ..	44 3	62.4	93	2882	4356	7238
Difference	0 1¼	0.2	6	1	41	42
13*a* Artificially Fecundated..	42 2¾	63.2	88	2786	4480	7266
13*b* Not " ..	43 2¾	63.4	111	2882	4620	7502
Difference	1 0	0.2	23	96	140	236
14*a* Artificially Fecundated..	41 0¼	63.1	149	2740	4003	6743
14*b* Not " ..	41 3¾	62.8	110	2745	4107	6852
Difference	0 3½	0.3	39	5	104	109

"It is seen that in neither of the three trials was any increase of produce obtained by means of the fecundating process. Indeed, there was in each case rather more without it, though the difference was so slight that it might arise from causes unconnected with the treatment.

"It may, perhaps, be said that, as the season was one of much more than average productiveness and the crops were all unusually large, it was unfavourable for such an experiment. In answer to this objection, it may be stated that the land is capable of growing more produce still, and that all of these plots did grow considerably larger crops in the previous year, 1863, as may be seen by reference to the report in a former Number of the Journal, as above referred to.

"In conclusion, it may be remarked that it would seem our neighbours, the French agriculturists, are now going through a stage which in this country was passed through some few years ago. The artificial application of electricity, seed-steeping, and other marvels, which were to double the produce of our fields at little cost, have had their day with us; but the British farmer is still toiling on as formerly, earning his bread by the sweat of his brow and the liberal use of manure, without which he does not find his crops increase."

AGRICULTURAL EDUCATION.

[We gladly give publication to the following forcible utterance on a very important aspect of this subject which has appeared in the columns of the *North British Agriculturist*. We entirely sympathise with the urgency of the writer, in his argument that good farmers can be made only out of good men; and the ludicrous injustice of which he is guilty in his personal criticisms may be readily forgiven for the sake of the energetic assertion of wholesome truth with which they are accompanied. Mr. Morton certainly need not care, for the sake of personal justification, to reply to an attack levelled at the mere man of straw which has been made to bear his name.]

Mr. J. C. Morton more than once in his recent address seems to apologise to his hearers for occupying their time with what he considered truisms. He will perhaps be surprised to learn that at least one practical farmer thinks that his main positions, so far from being truisms, are not truths, and that the whole drift, teaching, and advice of the lecture has been read by that individual with something like heart-sickening and despair.

An awkward misgiving seems to have several times come across Mr. Morton's mind—the thought that he was recommending a training that might make a good ploughman, but would not make a man; but he put it from him and went bravely on. A boy he confessed must be sent to school; there was no help for that; but he must be got out of it at 14 or 15, and sent to learn the practical work of a farm.

You are at present writing articles on hypothec, game laws, and other farmers' grievances—Why do these things exist if farmers think them unjust? Why do they constantly take land, knowing that it is too dear? Why do they give their strength, and their time, and their brains, and their capital, for less remuneration than other people, and either occupy land by the year at the mercy of another, or sign leases with conditions such as those which have been quoted in the *North British Agriculturist*? Mainly, I maintain, because they are educated just as Mr. Morton wants them to be educated. It is singular that Dr. Begg seems to think with Mr. Morton, and in his somewhat too famous address, he advised that Free Church students should be sent to some country minister who had a great gift of preaching to learn to imitate him. I confess I think Dr. Begg's proposal would be still more disastrous in its consequences than even Mr. Morton's. Dr. Begg supported his theory of education by an anecdote which, so far from doing so, goes, in my opinion, a great way towards demolishing it. The driver of a coach from Bristol to Bath was asked by a passenger a great many questions regarding the objects which attracted his attention. "Whose seat is that?" "What is the name of that river?" "What description of manufactory is this?" To all these questions Jehu had but one answer, "Don't know." The passenger, getting nettled, said rather sharply, "Is there anything you do know?" "Yes," said the man, "I knows how to drive the coach." This is Dr. Begg's idea of a clergyman, and Mr. Morton's of a farmer! A more helpless being it is hardly possible to conceive. Even Coachy would find it out when the railway whistle first shrieked in his ear, and gave him shrill notice to quit. Mr. Morton takes care to leave us in no doubt as to his meaning. He says truly that there are as great social differences among farmers as between proprietors, and these vary from a Duke to a forty-shilling freeholder. But it is not the smock-frock farmer he is speaking of, but lads whose fathers can start them with 3000*l.* on a farm. Supposing the youth to have four or five brothers and sisters, it is clear we have to deal with a family possessing no inconsiderable amount of capital. Well, Mr. Morton admits that "a large and liberal education is an unmeasurable benefit to any man; but it is simply mischievous and cruel" in the case of a youth who is to be a farmer. "One of the most intelligent and successful farmers in the West of England"—(children and farmers are constantly called intelligent)—informs Mr. Morton that he "left school himself before he was 14, and went at once to assist in every operation that might be going on, taking the milking pail morning and evening, seeing the cattle foddered, and lending a helping hand." "I have never," he adds, "found a boy in the way after leaving school and should quite despair of his making a man of business unless he had to mix with everything that moved before he was 16 or 17." I confess that the last sentence of the intelligent farmer does not appear very intelligible. A Kentish farmer writes—"Boys who begin early to learn the practical part of farming have great advantages over those who are 16 or 17 before they leave school." He adds—"Send the lad as near as you can to the place you think he is likely to settle in as a farmer. Select the man who has the character of being the best farmer in his locality, and if you can find such a thing as a money-making farmer in the present day, get him to take him and treat him as one of his family." Much more is said and quoted in the same strain—let us see what it all amounts to.

A lad is born in what we must consider easy circumstances and a fair social position. His father is allowed (not I think without some reluctance) to send him to school from I suppose 6 or 7 to 14, or at the very most 15. We know pretty well what amount of education boys of that age generally have, and what it is worth if entirely discontinued. But a liberal education is not for him—he is to be a farmer—it would be mischievous, so at 14 he is made to give up all hope of ever being looked upon by himself or others as in any way a gentleman. He is, on the contrary, to be an ignorant clown, a hard bargain-driving money-making clown it may be, one who knows well how to plough, and sow, and reap, but a clown nevertheless, utterly powerless whenever he has to deal with any subject beyond his farming, which he has been specially taught, and for which he has given up almost everything that makes life worth having.

Not the least hard part of the case too is this, that while still a boy his fate in life is absolutely fixed. His brothers, it may be, to whom a liberal education is not thought mischievous or cruel, may without hurt delay to a riper age the final choice of a profession—law, medicine, the Church, the merchant's office, or the accountant's chambers, may still be chosen among, but at one or two and twenty the farmer lad can be nothing but a farmer. There are hundreds like him, so land must be hired *coûte que coûte*. If it is visibly too dear, so much the worse, but what else can he do? Before, however, he gets the length of sinking his 3000*l.*, what has been the education of this lad from 14 to 20?—for education of some kind he must get. I think I can tell you. He has learned to brown pipes and smoke no end of tobacco. Let us suppose the rare animal has been found—the money-making farmer; and rarer still, that this man who is making money by one thing should take a boarder to make more—is it likely that he will take the trouble to teach, train, and instruct the lad? Is it not more likely he will simply feed him well, and give him the chance of learning what he can, and of observing as he may? The object of Mr. Morton seems to be that the lad should plough like a ploughman, stack like a stacker, shear sheep like a shepherd, and otherwise assist. He will do nothing of the kind. He will at first enjoy the liberty he has so early acquired; he will think himself a man; and after some years of a lazy life, he may be able to manage the practical work of a farm as well, but certainly not one whit better than if, as a well-educated youth, he had gone for a year in early manhood to study farming at a farm, carrying with him a disciplined mind, and the cultivated brain of a man.

The principle *ne sutor ultra crepidam* may be good for the man who is to wear the shoes, but it is not good for the man who is to make them; at least it binds him to manual labour all his days, and makes him end exactly as he began—he will never be a master shoemaker, but a simple journeyman. So with the "no farmer beyond his plough;" he will end as he

begins—a ploughman. Practically, it is utterly untrue that total ignorance is necessary to successful farming. Men may in other times have grown rich without knowing anything beyond the routine of their daily farm life, but even these have in a great measure profited by mechanically following in the steps of more cultivated neighbours.

But the grand argument against Mr. Morton is that every farmer has a right to be a man; and, in cases where Providence has given him the opportunity, an educated gentleman as well. When farmers as a class are educated up to the same level as other classes of men, they will at once take the same level as to social position and social power. I suspect and fear there are men in the Royal Agricultural Society who will applaud Mr. Morton from motives very different from those which induced him to speak. This I believe to be as sincerely well-intentioned, as they are unfortunate and mischievous. "Knowledge is power;" and some people may want to keep both in their own hands. *S., June* 12.

HOW TO INCREASE OUR SHEEP STOCK.

The words of the late Mr. P. Pusey may be applied to this as other branches of agricultural improvement. "If our farmers will inquire what is done by the foremost of them, they will themselves write such a book of agricultural improvement as never was written elsewhere, in legible characters, with good straight furrows on the broad page of England."

First, as to the chief sheep breeding districts,—the chalk and oolitic ranges.

The great sheep markets and the sites of large sheep fairs mark out the chalk and oolitic districts, as those in which natural causes have combined with long established and historic custom and practice, to make them the great, if not the principal, sites for breeding and rearing sheep. Though the natural advantages of soil and climate cannot be extended, it may be found possible to extend the practice, with certain necessary modifications, to other less favoured places. It is well known that the chalk range extends from the coast of Dorsetshire to the Wash, reappears in Yorkshire, is found in Kent and Sussex; and that the oolitic range, including the Cotteswold Hills, covers a large portion of the surface of England in the same direction as the great body of the chalk—that the chief breeds of short and long-woolled sheep are found on the one and on the other, and that the successful breeding of these animals has been carried on for generations—and that so far as any breeds of sheep can be accounted pure, as regards the district in question, they are to be found here, as they, heretofore at least, have formed the staple of the breeds which have been distinguished by the prize awards of the Royal Agricultural Society.

Though the quantity of stock is in arrear of the yearly increasing consumption, it has nevertheless been augmented by an increase in the growth of artificial food, as manifestly essential to this end. Though the wisdom of breaking up our down pastures may be doubted, increased production of stock is its almost invariable result, though it is rather to the improved rotation and culture on arable farms that this may be more surely traced. Taking an individual farm, the quantity of stock must be regulated by the amount of food produced in due and well regulated succession for consumption throughout the year. It is manifest that the whole management and cropping of the land must have reference to this object.

On a Hampshire or Wiltshire farm, as an example, it was at one time deemed essential to a first-rate breeding farm that there should be water-meadows at one end and a Down sheep walk at another, and though these must be always valuable and characteristic of the district—the one found in the valleys through which the chalk streams flow, and the other at one time occupying all the higher ground of the district—it will now be frequently found that on some of the most extensive and best regulated sheep farms there are neither of these advantages, but that by improved husbandry and a liberal treatment of the soil, and the intelligence and skill of the flockmasters, such a succession of summer and winter food is raised that the quantity of the stock and productiveness of the soil have advanced in corresponding proportions. Though as a system this applies in the first instance to the light soils, it may with certain modifications be extended to the stronger also.

Take as an example a Hampshire farm of 800 acres, all under the plough; the soil, a drift of loamy gravel resting on the chalk, the surface of which is sometimes touched by the plough. The sheep stock numbers 600 breeding ewes and about 240 ewe tegs; all the operations of the farm have reference to the maintenance of this flock and its produce. There is nothing peculiar in the tillage. Starting with a breadth of Sainfoin, which may occupy one-eighth part of the whole farm, and is down from two to four years on an average, though the lesser period is considered the best farming; this is broken up by "rafter" ploughing at the end or beginning of the year, in preference to the old and laborious method of breast-ploughing, which the labourers will not now willingly undertake. The Couch and other Grass is stifle burned, and the way prepared for an Oat crop. Turnips follow with or without superphosphate, or some other artificial manure or farmyard dung; next Wheat with Clover, which is followed by Barley or Oats; then Swedes or Turnips next Rape or some other green crop, Wheat, Barley, Sainfoin. Though this is an ascertained rotation, it is varied as the judgment of the farmer, and the wants of the flock suggest. A shift devoted to green crop may be divided into two parts, one part Tares followed by Turnips the same season, the second part backward Tares—then Oats or Barley followed by autumn-sown Rye, or winter Barley, fed and followed by Turnips, thus giving two green crops in one season. Trefoil is often mixed with the Barley-sown Clover. The tenant, as should be the case elsewhere, is not tied to any system of rotation; it is manifest that the land must be kept in good heart, to secure on a soil of no great natural fertility, an unbroken succession of summer and winter food for the sheep stock—the most trying time being that of necessity that begins with the lambing and ends with the yearly sale of the wether lambs and the draft ewes. The latter are sometimes fatted on such farms, but they are usually sold in store condition to be fatted elsewhere, and very often to bring one lamb where it is the practice to buy them to put them for a cross to a Cotswold ram. With exceptions and certain modifications the above is the practice on the Wiltshire and Hampshire, and other sheep-breeding districts. In certain portions, and especially on the higher levels of the chalk range, the land is of a stiffer character, often requiring draining. On such soils the fatting has rather found favour than the breeding and rearing of sheep, a practice deemed best fitted for a heavier soil; but, tempted by the high prices of store stock, many farmers have changed their practice in favour of a breeding flock, often with this difference as compared with that already described: the wether tegs and draft ewes are fatted on the farm, which thus is made to furnish its quota to the consumption of mutton as of wool. This is very often the practice in the richer land of the vales under arable cultivation: such soils will necessarily carry more sheep per acre, though some have the disadvantage of not offering so sound and healthy a lair to the flock, consequently they are retained longer either in the standing fold, or kept in yards in the homesteads.

There is another point which favours the increase of breeding on the stronger soils, as compared with lighter land:—On the latter, though affording the best lair for a flock, it is difficult to secure the growth of sufficient green food during the whole summer, especially in dry seasons. The Clovers burn, the Vetches are stunted, Cabbages, if used, attain no great size, Italian Rye-grass will not grow freely, and but for the crop of Sainfoin, or some such crop, the flock-master will find the greatest difficulty in providing for his flock without any break, however well his rotation may have been previously managed. In soils of a stronger character, when really well tilled and liberally treated, this difficulty will be diminished; and though under the pressure of foul, wet, and ungenial weather it will be impossible to retain the flock in the open field, yet if sheep breeding continue to hold out the prospect of good profit as at present, the increased labour and inconvenience will be amply repaid.

Where the farm has a certain amount of pasture attached to the arable land, the difficulties will be diminished; well-stored root crops, such as the heavier soils will bear, will hold out far into the summer, to the manifest economy of the other green food produced on the farm. On such farms sheep yards will be preferable to the standing fold, though the two may both find a place where the flock may be protected and housed, though a free run is of undoubted advantage where it may be had, and with due supervision and attentive care will obviate the evils to which sheep for a time confined may be exposed. Again, the larger produce of straw on such farms will be an advantage where these arrangements may be found necessary. Draining the land is taken for granted as essential, where required, to every branch of husbandry, whether the land is fitted to carry stock, or whether it be found necessary to adopt a system by which they are maintained elsewhere.

This, as will be seen, has a direct bearing on increased breeding. Take an example of a well managed farm in the vale beneath the chalk hills, on soil known to geologists as the upper green sand, generally forming a low range of hills or undulations under the chalk range. The farm consists of 450 acres, of which 100 are in moderately productive Grass pasture; the rest is cultivated on the four-course system, with modifications to meet the requirements of the stock. The natural fertility of the soil and advantage of climate at a lower elevation, and the 100 acres of Grass, enables the farmer to dispense with any crop such as Sainfoin, by sowing a large breadth of early Tares, winter Oats or winter Barley, or autumn-sown Rye, or Trifolium incarnatum on the Wheat stubbles. He is able after these crops are consumed to follow them the same year with Swedes, Turnips, and sometimes Mangel; or Tares after Rye, as an exception followed by white Turnips, giving three crops on the so-called fallow. As the soil is sufficiently strong to grow Beans, Turnips and Rape are sown between the rows. This quantity of food accounts for the fact that on the 450 acres 300 ewes (large improved Hampshires and great consumers) are maintained throughout the year; that over 50 wether tegs are made off fat. The draft ewes would be fatted also, did not the high price easily obtained by their superior quality cause them to pass in store order into the hands of those who use them to breed another or two more lambs. This is done in addition to the maintenance of over 30 milch or neat stock always kept on the farm, the practice being not to buy artificial food, but to maintain the stock by the produce of the farm.

It is contended that it is by extending systems now in action rather than trying to suggest new plans or untried experiments, that the great object of increased sheep breeding will be accomplished. The same will be true of the best system of breeding, and the maintenance of most stock on a given area, whether it be on the Cotteswold range, the counties of Sussex, Kent, Leicester, Norfolk, Suffolk, Shropshire, or other places where this branch of farming is successfully carried out. *J. C. C.*

(*To be continued.*)

THE GROWTH OF BARLEY.

On Thursday evening of last week Mr. Caird, M.P., thus called the attention of the House of Commons to the merits of the Barley crop in the scheme of English arable farming:—He said that he had declined to offer any opinion on the subject of the Malt Tax in the discussion on the Budget, as he entirely approved the remissions made by the Chancellor of the Exchequer. But the right hon. gentleman, though he had since modified his language, spoke so strongly against the policy of any future reduction of the Malt Tax that he felt desirous of presenting some points on the subject for his consideration. He held that a tax which impeded the growth of Barley was injurious to the agriculture of this country. Of all corn crops, Barley was the most friendly to the farmer. It was the shortest time in the ground, was the least exhaustive of the soil, was sown at the best season for cleaning or cultivating it, while it formed the best preparation for Grass, and was the most suitable to follow green crops. Independent of its own value, Barley farming thus promoted good husbandry, and the growth of those crops which were necessary for the production of meat, dairy produce, and wool. Now the production of meat in this country was becoming every year a matter of increasing importance. Previous to the great development of trade and industry, the consequence of recent financial legislation, a large proportion of the working classes in the country could not afford to eat meat more than once a week. It would be a most moderate computation to say that a million of persons were so circumstanced, and when by better wages these persons were enabled to eat meat daily, the increase of consumption so far became at once sixfold. Prices were thus rapidly rising, and larger demands were yearly being made upon the farmer for fat cattle and sheep. One penny a pound on the price of meat was equal to one million and a quarter sterling on the annual consumption of this metropolis, and if they took that of the United Kingdom they would find that the increase of every penny would cost the people not less than 10 millions sterling. Here was far more than an equivalent for the loss of the Malt Duty to the revenue. If, by a change in our mode of agriculture, we could to some extent meet the increasing demand for butcher's meat, we should be fully compensated. And we must reckon not only on the increasing appetite of the existing population, but on the demands from the increase of population. That went on at a rate which would absorb every three years the whole of the fat stock produced in Scotland. Foreign countries could not meet the demand. The imports of foreign stock seem to have reached their maximum. The same causes were at work abroad as at home in producing an increased demand for butcher's meat. Increased wages everywhere were followed by increased consumption. Now, the substitution of Barley for Wheat in his course of crops would at once enable the farmer to increase his production of meat. In former times, under protective duties, Wheat, from its comparatively high price, was unduly forced into culture. On clay land especially it was looked to exclusively, so much so that many farmers thought such land unsuited to Barley. But the gradual rise in the price of Barley, and the fall in that of Wheat, had encouraged the growth of Barley on clay soil, to the great advantage of the farmer and the more economical and better cultivation of his farm. He could plough and sow in better season, and might grow green crops in many instances, and thus feed sheep and cattle where, under the old Wheat system, that was impossible.

A Barley farmer could scarcely be a bad farmer. His corn crop not only was less severe upon the land, but it was preceded and followed by green crops and Grass, which restored fertility. He, therefore, maintained that it would be an immense advantage to British agriculture, and to the increased production of meat, dairy produce, and wool, if Barley could, to a large extent, be substituted for Wheat. He was quite aware of the fact that Barley had risen in value more than any other kind of corn, and of the force of the argument which the Chancellor of the Exchequer had based upon that fact. From 1800 to 1850 one bushel of Wheat was worth two of Barley. Since 1850 Barley had more nearly approached the price of Wheat, and as Barley yielded a much larger produce than Wheat, a crop of Barley now realised as much as Wheat. It was no satisfactory answer to say that this had been accomplished under the disadvantages of a heavy exceptional tax. The

owners and occupiers of clay land in this country needed all the fair play they could get. The fact that Barley could, even with a heavy malt duty, be grown with more profit than Wheat, was no reason for continuing an exceptional tax. Barley was the wine crop of this country. As the people became better off they took more of it, and that was the reason that the price had risen more than that of any other crop. But it would rise still further, and be still more remunerative but for this heavy duty.

Agriculturists did not ask any class advantage—any return to protective duties They asked simply to be placed on the same footing as the Hop-grower, the Potato-grower, the coalowner, or the ironmaster—that our raw produce should not be subjected to exceptional taxation. With regard to the argument of injustice to Scotland in the matter of the spirit duty, that had not been advanced by any Scotchman. The consumption of whiskey in that country was decreasing, and that of beer steadily increasing. He was informed that the quantity of malt used in Edinburgh in brewing beer had risen from 32,000 quarters in 1854 to 150,000 quarters in 1864, and that from two causes,—first, the increased price of spirits; and, secondly, the improved quality of the beer. A change from raw spirits to beer was one which all wise men commended, and any policy which would tend that way would not be unjust to Scotland. One word with regard to the interests of the consumers of beer. In every country, except England, milk was much used as an article of food by the mass of the people. In Scotland, Ireland, on the Continent, and in North America, milk was much used. But it could not be had by the people of this country, and every year milk was becoming more scarce and dear. Home-brewed ale was an excellent substitute. An hon. friend of his, who had had much experience, told him that he never knew a bad or inefficient labourer who brewed his own beer. He had not the temptation of the beerhouse to spend his money, and take him away from his family. He must for these reasons venture to urge upon the Chancellor of the Exchequer a reconsideration of this question when he should again have a surplus to dispose of. A heavy tax on an article of home growth—the wine of the country—which in England drove the people to the public-house, and which impeded the best and most reproductive system of farming, could not but deserve the most careful consideration of the House.

DRAINING ON LOW-LYING LANDS.

[At the recent quarterly meeting of the Carmarthenshire Farmers' Club, the subject for discussion was "The draining of the low-lying lands in Carmarthenshire, and the best way of converting the same into pasture." Mr. W. E. Gwyn, of Plas Cwrthir, one of the best practical farmers in the county, opened the discussion with the following paper:—]

I BELIEVE it is an acknowledged fact by all practical men, that drains should always be cut with the greatest fall of the land. We should then find out the greatest fall and cut our drains down that line. Then comes the distance between the drains. That is still a moot question, which is likely to remain unsettled, for a time at least. We commonly read that one law only is applicable to the drainage of all lands, independent of the soil or subsoil of those lands. Men are frequently sent down to this country by the Lands Improvement Commissioners—men who are considered experienced and competent—to ascertain whether the land requires draining, and these men lay down rules for draining which can only be successfully applied on certain soils in England. It is a fact that these men, who have sometimes never been in Wales before, lay down and insist upon rules as if this country was as dry as some of the most favoured English counties. They say, for instance, that the drains should not be less than four feet deep, and from thirty-five feet to forty feet apart; and they expect the land to be thoroughly drained in this way. If we refuse to adopt such a rule they will not certify, and the Commissioners decline to advance the money. I mention this to show the fallacy of strangers, who know nothing of our soil and climate, coming here to tell us arbitrarily how to drain our land. We should bear in mind that the depth of the drain does not compensate for distance. From my own experience I conclude that our drains should not be less than 3 feet deep under any circumstances. I say 3 feet, but I go deeper myself; I advocate 3 feet as the minimum depth, and 18 feet to 24 feet as the distance apart, according to the nature of the subsoil—whether porous or otherwise. In this country, where the rainfall is considerable, we require our drains closer than they need be in places where there is less rain. We cannot make our land here too dry. We frequently read and hear that land is sometimes made too dry in England by draining, but that is not the case here. It has been shown satisfactorily, in writing at any rate, that land can be over-drained in England—has been, in fact, made so dry that it could not carry the same quantity of stock for many years as it did before it was drained. I do not think that can ever be the case in this country, where we have a rainfall to the depth of 60 to 70 inches every year. This is not an assumed depth; I keep a rain gauge, and from careful observation I find the rainfall last year—one of the driest summers on record—was 40½ inches. We need not with all this rain ever be afraid of making our land too dry. With beef and mutton, particularly mutton and wool at the present high prices, we cannot make it too dry in any part to carry sheep. I therefore recommend for clay soils, mixed with boulder stones, drains not less than 3 feet 3 inches to 3 feet 6 inches deep, and not further apart than from 18 feet to 21 feet. I do not think a greater depth is required. I have tried a greater depth and greater width apart, and have been obliged to redrain the land. That is the reason why I have been so much bullied by my friends for using pipes in preference to stones. They say, "What is the use of them if you are obliged to redrain your land?" Now, they make a slight mistake here. It is quite true that I have been obliged to redrain a great quantity of land, not because the pipes failed, but because I followed the advice of a man sent down as an inspector from the Lands Improvement Company. I was a young man at the time, without any experience, and I foolishly took his advice, believing him competent and able to advise me, and in every instance the result has been a complete failure. He directed, in fact insisted on the drains being from 33 feet to 36 feet apart, and consequently the land was not more than half drained. I have since cut intermediate drains, reducing the distance to 18 feet, and that land is now all thoroughly drained. Now if this had been properly done at first, the drains would have been about 21 to 24 feet apart, instead of 18 feet apart. As it was I had no alternative; I was obliged to go midway between the old drains, which of course made it more expensive. This land is now well drained, sufficient even for our very wet Carmarthenshire climate. I would make one remark here of great importance. In laying out the drains for a field it is customary to begin three or four or five yards from the hedge. Now I think this is wrong, and I would recommend you to begin by running the first drain through the hedge row, or as close to it as possible. It should not be an open but a covered drain, for if open it would be nothing more than a ditch. If this be not done, the soil near the hedges will always be undrained and produce noxious weeds. Besides, without this the drainage of the land would be incomplete, and that which is worth doing at all is worth doing well and thoroughly. It is important that the ditches should be perfectly dry, for if they are not the water in them will penetrate some distance into the adjoining land, by the force of capillary attraction, and thus spoil it, as there would always be a fringe of wet and undrained soil surrounding the field. I cannot too strongly urge this point on your attention. It will repay you handsomely to attend to the rule that the first drain should run right through the hedge ditch.

I will now proceed to the next point. Nothing has proved a greater stumbling-block in draining than the roots of trees, which continually force their way into the drains. They more readily choke pipe drains than stone drains, because the duct is smaller. Now, I believe I have discovered an excellent and effectual remedy for this in coal tar. Some of my friends have laughed at me, but that does not matter, for I am thoroughly convinced that the remedy is efficacious. We commonly see a fine Oak or Elm tree growing on or near a piece of land requiring draining, and are loth to remove it, as being always very ornamental. But if they are left standing, and a drain is anywhere near them, the roots are almost sure to penetrate it. I discovered my remedy by accident. and I now either paint the pipes with coal tar, or I first cover them with 3 or 4 inches of clay and then paint the clay. I have opened drains painted with tar, and have found roots approach the tar, but never piercing it. They seem to have gone up to it, and then stopped as if they had come into contact with fire. There is great prejudice in this country against pipes, and it is not altogether without foundation, as there have been many utter failures. But then, it should be remembered in all fairness, that where such is the case it is to be attributed to carelessness or ignorance in laying the pipes in the drains. Mr. Wilson, a neighbour of mine, drained a quantity of land under the Lands Improvement Commissioners, I think at the cost of from 2000*l.* to 3000*l.* The drains were marked out by one engineer, and another was employed to see the work properly executed; a man connected with them, receiving from 1*l.* to 1*l.* 5*s.* a week as wages, was employed to lay all the pipes in the drain. I speak now of what took place some 10 or 12 years ago. The men cut two or three perches in the course of a day; and the pipes were at once laid in them, beginning at the bottom. This was the course followed day after day, until the whole was done. Why, I should think the drains in numberless instances were choked before they were half finished. That is one reason why pipes have not answered in this county. For myself I advocate pipes simply on the score of economy. Stones cost from 60 to 70 per cent. more than pipes. Of course pipes must be carefully laid, beginning at the upper end of the drain, not the lower, and then be well covered over with from 5 to 6 inches of clay. If there is no clay in the field it should be carted there. How could the water, it had been asked, enter the pipes if they were covered over with clay? Any man who has taken the trouble to inquire and to observe, will find that the water always enters into the pipes from the bottom. The water rises or is forced into the pipes, by the pressure from above of the air and soil, and finding in the pipe a vacuum, it forces its way into it from beneath. I cover my drains with clays, and tread it down, so that no water can penetrate them from above. I drained half a field in this way, and the other half with stones. The stones were well broken, and laid from 18 to 20 inches thick at the bottom of the drain, the men going again over them with a hammer, and breaking them compact and hard; they were then covered with clay as I have already described, to prevent the soil and roots of Grasses getting into them. There is a great difference in the expense of draining with pipes and that with stones. I find that pipes cost me about 8*d.* a perch on the land. I do not advise the use of pipes with a smaller bore than two inches. It is true we can get ½ inch cheaper, but when we come to consider all the contingencies which may occur, such, for instance, as the slight displacement of a pipe joint, I do not think it advisable to use less than a 2-inch bore. I do not mean to say that so large a duct is at all required to carry the quantity of water that is likely to pass through the pipe; I dare say a half-inch bore would be large enough for that, but it would not be judicious to use so small a pipe. Well then, it costs 8*d.* per perch for 2-inch pipes, or from 58*s.* to 63*s.* per acre; and the laying of them I estimate at a halfpenny per perch. That includes the joints from the laterals into the main drains, which require time and great care in the laying. For instance, the main drains require to be the depth of the pipe lower than the laterals, so that the water should drop freely from one pipe into the other, and there should be a sufficient opening cut or bored into the main pipe to admit the mouth of the pipe of the lateral drain well into it, both then to be well set with clay and made fast and quite impervious to water from above. Then as to the cost of stone drains. At a load of stones to a perch of eight yards, I estimate the cost at 10*d.* per perch, exclusive of cartage. I had to pay 5*d.* for quarrying and 2*d.* to the owner of the quarry, and in addition I gave the men 3½*d.* for breaking and laying them, and about 6*d.* for carting, making together 1*s.* 4*d.* per perch, as compared with 8½*d.* to 9*d.* per perch for pipes. That is a consideration when we have a large quantity of land to drain.

The cost of drainage is the next question, and the most vital part of the whole in some people's opinion, and I know it deters many from commencing to drain. I should be glad if I could pass over this part of my subject in silence, because I must admit frankly that draining is a more expensive improvement, if properly done, than many suppose. Now, assuming that there are 100 perches of eight yards in an acre, as there would be if the drains are 18 feet apart, the cutting, closing, and sodding, at 1*s.* a perch, would amount to 5*l.*—100 perches would require 2500 pipes, allowing a small percentage for breakages, at 25*s.* per 1000, 62*s.* 6*d.*; ½*d.* for pipe-laying, joints, &c., 4*s.* 2*d.*; making a total of 8*l.* 6*s.* 8*d.* for draining one acre of land. To this may be added at least 2*l.* per acre if drained with stones; a very great price I think. I do not come here to-day to advocate any particular system as the best, but merely to suggest some things for your consideration and for discussion to-day. I find, then, that I cannot drain my land satisfactorily at less than from 8*l.* to 8*l.* 10*s.* an acre. I am at this moment draining some peat land, with a blue clay subsoil. I put the drains at 24 feet apart, while my friends the engineers from the Improvement Commissioners would no doubt insist that they should be 100 feet apart, believing that peat is so porous that to drain it thoroughly nothing more is required than a drain at one end of the field.

The next point refers to the formation of oxide of iron in the drains, or, as it is commonly called, red water. This deposit soon chokes the drains, and is in fact a worse obstacle to contend with than roots of trees—already alluded to—whether made of pipes or stones. Small duct pipes are more likely to be deranged by it than stones. Now, I think that covering up the pipes with clay, as I have already described, so as to exclude the air as completely as possible, will lessen if not entirely prevent the deposit of this oxide, which does not exist in the soil nor in the water. It is formed by contact with the air. The water holds iron in solution, and until it is exposed to the air it does not become an oxide. Therefore the less air we admit into the drains the less oxide of iron will be deposited.

I now come to the last point of the subject, the best means of converting this low-lying land into pasture. It is a common thing for those who are guided by theory alone to break up the land after draining, then lime it, and sow it with Grass seeds. Now I entirely dissent from this practice. If you intend it for permanent pasture, as it should be, for it invariably has a small stream running through it, it should on no account be ploughed. If properly drained, dressed, and manured, there will be a good pasture in two or three years; but if it is broken up, it does not matter what treatment it has and what quantity of Grass seeds are put in, it will take seven or eight years, and if the soil be of a peaty nature, two or three years more, to form a good natural sward or surface of Grass. Some say it will take 18 or 20 years, and though I do not go so far as that, I feel sure it will take a great many more years than is commonly supposed. I therefore never put a plough into a field I intend for pasture, but get the Rushes and all other weeds mowed as closely as possible, and keep it in hay the first year, giving it in March or beginning of April a good top-dressing of guano, which forces the Grass to grow quickly and luxuriantly, and in a short time—in fact, in the course

of the first summer, if it be a dry one, the greater part of the Rushes will be smothered out of the land. There are several objections to breaking up an old sward after draining—the first is the expense of ploughing, harrowing, &c.,—and to make a thorough good fallow the land must be exposed to a winter's frost; paring and burning is advocated in the first instance strongly by some experienced men. I am myself far from recommending such; then in addition there is the expense of seeding, which is considerable, as I have to pay my seedsman from 25*s.* to 30*s.* per acre for a good mixture for permanent pasture. Another great objection is, that the surface, particularly if of a peaty nature, is so liable to be damaged and poached by treading of cattle in wet weather, and in the course of three or four years the greater part of the artificial Grasses sown will have to be replaced by the natural ones of the soil. It is therefore to my mind clearly wrong to break up land intended for pasture. First of all I dress it well, as already stated. Early in August, or as soon as the hay crop is off, I put on lime, or lime and earth, in as quick and pungent a state as I can get it on. And here I would remark that I find the application of salt mixed with the compost of lime and earth most valuable as a manure. I put about 5 or 6 cwt. to every 5 or 6 tons of lime, and about 30 loads of soil to every acre. I do not keep the land in hay after the first year, but continuously mow the Rushes, wherever and whenever they appear above the Grass, and stock it heavily with sheep and cattle, giving them during the autumn and winter months a liberal supply of corn, and also roots if near the Turnip field. Linseed-cake I consider better than corn for improving the pasture, but its present price is relatively so much higher than corn, that I cannot recommend its use. Should the land be within a moderate distance of the homestead, a liberal dressing of farmyard manure, applied in the spring following the application of the lime compost, would, I need not tell you, be of immense advantage, but I find the Grasses less coarse, and of much better quality, and the surface firmer after the wintering of sheep. In my own case, giving as I do a large acreage of green crop, I have no quantity of yard manure to spare. I am therefore in a manner compelled to adopt the practice I recommend. I have, however, often, on a small scale, used farmyard manure, and with the result I have mentioned. In this way the land is not only improved by the treading of the sheep, which in itself is most advantageous, but by the liberal use of corn and cake, a valuable nitrogenous dressing of a highly fertilising quality is given it. In these days when corn is so cheap, and meat, wool, and all dairy produce fetch such high prices, it behoves us as members of this Club, and as practical farmers, to convert as quickly as possible every patch of our land that is fit for it into pasture of the highest quality. I say it should be done in the quickest possible way, and that is the reason why I suggested the discussion of this subject to-day.

The following discussion ensued upon Mr. Gwyn's paper:—

Mr. NORTON—There is one point which it is very important to discuss, that is, whether depth does not compensate for distance. For myself I must say that I believe it will. I am not prepared to define what depth will drain a certain distance, but I do not think we should drain at a less depth than 4 feet 6 inches. I am at a loss to know why a drain 3 feet deep and 30 feet apart is better than a drain 6 feet deep and 60 feet apart. Mr. Gwyn has stated that it has cost him from 8*l.* to 9*l.* an acre, and it seems to me that we may lessen the expense by increasing both the depth and distance. In that case fewer pipes would be required, and less labour. I cannot endorse the opinion that pipes are a failure. I have recently drained 20 acres of land. I contemplated breaking it up, but I will not do so now, after what Mr. Gwyn has said. I have carted on to those parts which are peaty about 50 loads of clay per acre, and put in some permanent Grasses.

Mr. BUTLAND did not altogether agree with Mr. Gwyn that the land should not be ploughed. He said: I am satisfied that if we plough it slightly, so as to make it quite even, it will improve it better than if left untouched. The plough destroys the Rushes and noxious Grasses, and they become a manure to the other Grasses. Then, with regard to the price, I was astonished that Mr. Gwyn's draining had cost so much. He mentioned it to me the other day, and we went into the various items, and there is no doubt he is quite right. It is better to drain well and thoroughly at once, even if the work is expensive, than to have the annoyance of re-draining at some period not very remote. Mr. Norton has told us that he drains 4 feet 6 inches in depth, and 10 yards apart, and I believe he will, by and by, find that he has made a mistake. In clay soils depth cannot compensate for distance.

Mr. WARREN—Some time ago I made a garden path of coal tar and gravel mixed into a kind of concrete. This material made a firm, hard, and smooth path, but to my surprise I find that Dandelions and Grass of all sorts grew up through it. That being the case, I cannot understand how coal tar prevents the roots of trees from getting into the drains, as the Grass grows up through the coal tar in the path I have spoken of. The action I should imagine must be purely mechanical and not destructive.

Mr. JONES, Llwyngroes, believed that drains from 3½ feet to 4 feet deep, and from 7 yards to 8 yards apart, would be found sufficient for almost every kind of land. He did not quite agree with Mr. Gwyn in his method of converting land into permanent pasture. Besides, if in Cardiganshire sheep were turned on to it two years after liming and manuring it, every head of them would be killed in a couple of months the first year after draining. He had just drained about 5 acres, from 3½ to 4 feet deep, and 7 yards apart, with stones and pipes. He breast-ploughed the surface, and burnt it, and spread the ashes with some lime over the land, putting some Grass seed in at the same time. He had now a good pasture with an abundance of small Clover, but where the Clover came from he could not tell, for no seed was sown. The draining of this land had paid. He recommended the application of lime and earth to pasture land every three or four years, which has a renovating effect on reclaimed land.

Mr. J. L. PHILLIPS remarked—The question for us all really is, how much money can we afford to spend in draining? No doubt all land should be drained until it is as dry as any upland. I think it is perfectly safe for us to follow an average depth of 3 feet and 6 yards apart. I have drained 40 acres in that way, and taking one soil with another I think it will answer well. That can be done, I believe, for from 5*l.* to 6*l.* an acre. How Mr. Gwyn makes it 8*l.* I cannot exactly tell. He takes a great deal of pains about his drains, perhaps more than is necessary; at any rate he takes more pains about them than I do, and that adds to the expense. My advice is, whenever we get stones near enough to the land we are about to drain, we should use them in preference to pipes. For myself, I prefer stones to pipes for several reasons. I find about a foot sufficient for drains to give room not only for the free passage of the water on ordinary occasions, but after exceedingly heavy rain, when there is a great pressure. Besides, after heavy rains, the water lodges in the ground, and when it cannot force its way into the small duct of the pipes, covered with clay, it will find room in the stone drains, which for a time act as a reservoir. With regard to the red water, as it is called, I would say to every tenant-farmer, "Never think of draining land where there is a great quantity of red water, unless you are prepared to drain it afresh every six or seven years." It is impossible to keep out the air from the pipes as suggested by Mr. Gwyn. The water will not run without the pressure of the air, and besides, the soil becomes aerified by draining, so that the air must always be in contact with the water in the drains. I now come to the question of breaking up drained land for permanent pasture. Mr. Gwyn is no doubt quite right in not breaking up the land on his own farm; but we are bound to break up much of the low-lying land in this county before we can get a proper soil to work upon. Indeed, unless we break it up and pulverise it well we cannot get a good crop. There are some soils, for instance peat, six or seven feet deep, which, if cut up, could not be recovered for many years. But these are exceptions. When the land, such as the peat I have referred to, is too soft for ploughing, it should be left for two or three years to consolidate, and then it should be ploughed, if the season is dry, and well pulverised, and some seed put in. The hay should be allowed to stand and to shed its own seed, and thus in a few years we should have excellent pasture.

Mr. W. JONES—We have not touched upon the important question connected with draining—Who is to do it?

Mr. J. H. THOMAS observed that there is hardly a farm in this county, say of 200 acres, in which there is not some field with a corner of it, or some plots of land that require draining, where sheep get the rot or eat some noxious Grass. He thought it would amply repay the tenant to drain these plots himself. It would cost him only a few pounds, and the improvement would be cheaply purchased.

Mr. GWYN said, in answer to Mr. Jones's question—That is the question—Who is to do it? And I would say, in reply, the landlord, if you can get him to do it, but if he will not, the tenant had better do it himself than leave it undone. But, if the tenant drains to any extent, he should have a lease; he ought not to do it without a lease of 21 years, even if he held the land under his own brother. In the case mentioned by Mr. Warren, the tar was boiled with gravel, making a kind of concrete, and in exposure to the atmosphere it was entirely changed in its character. Besides, it was laid on a walk to make a smooth and hard surface, and would therefore expand and contract with the weather, and in this way would crack sufficiently to permit the growth of Grass or weeds from the soil beneath. Now, if tar is put into the soil and covered over from the action of the atmosphere, it will, I believe, remain unchanged for any length of time. I do not think the tar destroys the roots, as much as by its poisonous nature it prevents them from approaching it. Referring to the remarks of Mr. Phillips, he said experiments had shown that after a fall of rain-pipes discharge a greater quantity of water in a given time than stone drains. The duct is so much narrower and smoother in pipes that the water flows more rapidly and without any obstruction. In some cases, perhaps, stones are preferable to pipes; for instance, when we have stones close at hand. There is one thing I omitted to speak of in my opening address, that is, the sowing of Grass seed. I find it an excellent plan, immediately after top-dressing with lime or compost, to put, say, from eight to ten pounds of Grass seed per acre as a renovating mixture. A great change takes place in the vegetation by removing the surface water, and we should aid nature by supplying these seeds. There is another little matter that escaped my memory. A neighbour of mine drained a plot of land, pared it, and intended burning it, for Potatos, but it came to rain, and continued for some weeks, so that at last the season was too far advanced for planting Potatos. He allowed the land to remain as it was, and in August it was covered with a fine sward of Grass. The surface had not been burnt, nor were there any seeds whatever sown in it; still there was a capital swathe of hay, containing Dutch Clover, Cow-Grass, &c. As to the remarks of Mr. Hughes and Mr. Jones, respecting the injury to sheep on made pasture, some of my best sheep land is fresh made. In fact, my sheep almost prefer it to other land during very wet weather. At first I had them driven down to it in the evening, as the surface was so much more dry, and they soon found out that it was so, and often remained there a considerable time.—*Abridged from The Welshman.*

Home Correspondence.

Locomotives on Public Roads.—[Mr. Smith, of Woolston, thus writes in reply to a letter of Mr. J. A. Clarke on the subject, which had appeared in the *Times*:—] I have read Mr. Clarke's letter upon the above question. I shall not trouble myself to go into the question as to the wisdom of working locomotives on public roads for the sake of making the introduction of steam power to the cultivation of the soil the most costly possible, but I beg that you will allow me to quote and question the following words from Mr. Clarke's letter:—

"I need not say that this contract system is the only means of introducing steam tillage upon small and medium-sized holdings."

In 1860 I addressed a letter to the farmers of England. It was published in our leading agricultural papers, as well as circulated in various other ways; from it I quote thus:—

"Before showing the best practical application, I may state that 5 acres on heavy and 7 on light land have been found to be an average day's work; that September, October, and March are the best months for applying steam power to the cultivation of the soil; that, after deducting Sundays and a few days for threshing and stoppages by rain, the working days for September and October may be put down at 45; this, multiplied by 5 for heavy land and 7 for light, gives 225 acres and 315 acres as the quantity of land that can be cultivated once over with a set of apparatus within those months. By this it is clearly seen that, if steam power is to be generally applied to the cultivation of the soil, every large farmer must possess a set of apparatus of his own. Two or three small farmers may have a set between them, or hire one of another according to arrangement, for September and October will not wait, and if the work is to be done well it must be done in those months."

Now, from the practice I have had since that period, I am fully convinced that not only the large farmers must possess apparatus of their own, but so must the smaller ones. Two whose farms join may join in the possession of a set, or hire one of the other, according to arrangement. To that extent the "contract system" may do, but no further, for "the months of September and October will not wait," and I am the more fully convinced that "if the work is to be done well, it must be done in those months." The days of November, December, January, and February are so short, dirty, and dark that it will never be done well in those months. A little work may be done in March, and that is all, for the land, if farmed well, must during the rest of the year be in crop. Besides those short, dirty, and dark days before referred to, there is another point of vast importance—that of smashing up all the land in September and October as roughly as possible, the larger the lumps the better for the land that is to lay through the winter before seeding, so that it may freely admit the percolation of the water and the action of the atmosphere during the whole of the four winter months. Who are the men or company of men who can find tackle and hire it out only in September and October—about 45 days in a year—and make it pay? By way of retaliation, Mr. Clarke may perhaps be inclined to ask—How can individuals be expected to buy tackle that cannot be worked well for only so short a period during a whole year? They can, for they can find other employment for their engines, in threshing, grinding, &c., during the winter months on their own farms; and where they use common portable engines, the extra outlay for setting up cultivating tackle is but a mere trifle, especially if the sale of horses is taken into account, and it ought to be. We have plenty of evidence to bring to bear upon this point, for there are hundreds of "medium-sized holdings" in this country being worked well by farmers who possess tackle of their own worked by common portable engines. Now, let us contrast this with the hiring or contract system that Mr. Clarke talks about. It has been tried and found wanting. The Gloucester and Durham Companies, for instance—they are things of the past. Private individuals have tried it with locomotive engines, but all that I have heard of have proved failures. It is true we have the Wakefield Company, but where is their regular work? Where are their regularly cultivated farms? They have done a little experimental job work, a bit here and a bit there, and that is all. The fact is, Mr. Clarke has no case whatever for the "contract system;" he jumps at the conclusion that, because some threshing has been done by contract, cultivation must. He might just as well tell us that the "contract system" is the "only one" now-a-days by which the British farmer can stock his farm with oxen and sheep. We all know the man's position who does so—that he is about to quit his farm with an empty pocket. So much for the "contract system" in farming. The day is coming when the farmers of England must be farmers again, by stocking their own farms not only with cattle but with machinery. The hiring or contract system is rotten at the bottom, and the sooner Mr. Clarke gives over crying up a system which proclaims to the world that the farmers of England are so poor that they cannot stock their own farms the better. *William Smith, Woolston, Bletchley Station, June* 12.

Farmers' Clubs.

STAINDROP: *On the Advantages of High Farming.*—Mr. SUSSEX MILBANK said—It is clearly to the advantage of the farmer that he should produce double the yield of his crops on the same acreage as he did in days not far remote: practically he doubles the extent of his farm, whilst he pays only the same rent, same tithes, same rates. It is true that the high farmer employs more labour, more machinery; that he calls in the aid of steam power, both for cultivating his fields and for utility in his homestead; but these are in themselves no small advantages either to the occupier of the land or the country at large. He thus not only circulates more freely the honest penny of labour among the industrious poor, but he diffuses increased intelligence and increased comforts amongst that class. The principal results of high farming are: an increase of crops, both Cereal, Grass, and roots; deep drainage and amelioration of soil; more shelter and better stock; a satisfactory balance-sheet; and a happier and more contented class, from the feeling of having successfully carried out and applied the same sound commercial principles in farming as in any other industrial pursuit. I think it quite necessary for every farmer to keep accounts. I am quite sure for larger profits he must cultivate highly both his pastures and roots. I think pastures are generally too much neglected, not sufficiently drained, and most inefficiently limed. 1. As to roots, say Mangels or Swedes, I am sure greater results would follow a more liberal management. I am quite in favour of autumnal cultivation for roots. I think we should plough in, from 12 to 14 inches deep, 20 loads of best farmyard manure per acre in autumn, and add in the spring, as a refresher, 10 loads per acre of the same in the rows, with an addition of 2 cwt. of bones or superphosphate as a top-dressing. Such is my invariable custom, and I can assure you it pays. Those who saw my Turnip crop this last bad season will bear me out as to the enormous yield I obtained. One acre, which I had measured as a fair sample of 18 others, yielded me 28 tons. I think I had some of the finest and most bulky Swedes I ever saw. I top-dressed

Barley with a mixture of nitrate of soda and common salt, 2 cwt. half and half, with a surprising result. I am aware that I may be met with the observation of the difficulty of having a fine bank of farmyard manure in the autumn on which to draw our future riches. I will tell you how that may be done. Fill your pastures with fattening heifers, and tie them up at night under sheds. Give them their suppers and breakfasts of Bean-meal and cake when you take them in and before they go out in the morning. It is wonderful how quickly they improve from warmth and absence of chill night dews, besides a good residue from their tails (laughter.) You may laugh; but, depend upon it, it is as necessary to attend to the tails as to the mouths of fattening stock. It is an undisputed fact that warmth is part nourishment—that the food goes further to fatten when there is less waste of the tissues by exercise; for less food is required or rather consumed by the flame of life to support animal warmth. Cooking food for cattle is also excellent, especially for milch cows. Food thus prepared is more digestible, and consequently more easily assimilated by the system. In fattening stock I am in favour of giving much less roots than are usually given, and much more cake and meal. The chemist tells us that the Swede contains 75 per cent. of water, and 25 per cent. only of fattening quality. Many farmers give as much as 150 lb. of Turnips per day to each three years old bullock. I much prefer giving only 56 lb. to 80 lb. of roots, and those pulped, so intimately mixed with cut chaff that they consume my straw with avidity. By pulping I save all danger of choking. I add to this 12 lb. of oil-cake and 4 lb. of Bean-meal. I like keeping as many Turnips on my land as I can, upon which to fold my sheep. It saves cartage, and I think it more profitable. Sheep fed off Turnips, well corned and caked on the land, in my opinion prepares the land in a very satisfactory manner for large yields of cereals. I am a great advocate for oilcake. This last year, on 120 acres of land, I have consumed 43 tons of cake, besides having sold to my stock all the corn produce of my farm. I thought it the best and most efficacious way to get my land into prime order. I think turning our cart horses to Grass in summer a most pernicious plan, both as regards the land and the horses. The injury that horses do to the land by their tread, as well as gnarling and biting on good pastures, is incalculable. Good horses have been ruined by kicking each other, and other accidents incidental to galloping and play, both to themselves and often to stock. I am very fond of irrigating an acre or two with liquid manure to produce Italian Rye-grass for my cart horses. This Grass never purges, and is much relished by them. I can easily, by heavy showers of liquid manure delivered by my hose and engine from the tank, get four abundant cuttings. Horse dung is in much request for my garden, whilst the urine replenishes my supply in the liquid manure tank. This is thus saved for useful reproduction, instead of burning the pastures, as it will in summer weather. The horses are also spared the fly pest, and are ready for work at any time. By cutting Grass it is surprising what a number of stock may be maintained in summer. I find in this plan a true economy, by a saving of pasture and also of manure, which would be otherwise partly carried off by this and evaporation. These are some of the advantages of high farming. I am utterly opposed to making meadow land hay. There is an enormous and positive loss thereby. That of ammonia itself is immense. I cannot conceive why juicy Grass should not be considered more nutritious than when dried and sun burnt, often in the north of England badly secured. I think hay may be made from Clover and the artificial Grasses extremely useful; but I am now alluding to haymaking on permanent Grassland. I do not, of course, presume to say but that in certain localities, hill districts for instance, or under peculiar and special circumstances, these observations would have little practical point; but my remarks throughout these pages, of course, allude generally to the agriculture of England, and that of mixed husbandry in particular. I think it should be part of the education of the farmer to have a knowledge of the Grasses, that he may renovate old pastures, and eradicate such inferior herbs as are little better than weeds. It is a great advantage to high farming—the covered-yard system. It is a positive gain that stock should ripen quickly from extra warmth, and that manure of the best description should be made and allowed to accumulate without loss by exposure to rain or other atmospheric influences. I calculate a cartload of average good dung made by animals feeding on cake to be worth 3*s.* 6*d.* per load. I have had mine, made by animals under skylights, analysed by Professor Voelcker. He assured me that he should consider its value to be about 5*s.* per load. The covered-yard system, then, is surely a great advantage in high farming. I think, to achieve any great results in farming, it is necessary to derive the greatest possible advantage from the soil; to obtain which there should be yearly consumed on the farm, oil cakes, by which I include Rape, Cotton, and Linseed; purchased foods, as well as purchased manures, as adjuncts and aids to the yard manure. Perhaps an average of one pound per acre in the purchase of the artificials would command a greater success than many would believe. It is a curious fact worth knowing that Rape-cake possesses at least as great, if not a higher manurial value than Linseed cake. If you are troubled by an over abundance of game, manure more highly, and you have a better chance of defeating the inroads of hares and rabbits. The latter ought, as vermin, to be utterly destroyed. I am decidedly opposed to the free use of nitrogenous manures. I much prefer bones and all the phosphates. Guano and the nitrates should be used sparingly, and chiefly as top-dressings. Professor Voelcker assured me that forcing manures are positively injurious to Grass land, for that wherever there was a quick growth, a rapid development of leaf, the Grass lost much of its nutritious quality and weight. There is still much room for improvement in the poultry department of the farm, and many cottagers might keep barn-door fowls for profit. The country loses annually from 60,000*l.* to 70,000*l.* in the purchase of foreign eggs. Now, I do think that this is hardly creditable, and I cannot but feel surprised, even in the matter of eggs, that John Bull should submit to foreign yoke. However, it is a matter of both reflection and congratulation that high farming is conducive not only to the intellectual progress of the agricultural world, but it also tends to the health and morals of the community. Where intelligent and improving landlords erect new and capacious buildings, arranged on the best and most approved plan, they will command superior tenants, who will consider the comforts and well-being of their farm dependants. A more Christian and God-fearing community, by the force of superior example, set by reflective and educated men, will work a great and beneficial change in rural society. When I see large, well-squared fields, hedgerows free from timber, well-drained land, spacious and commodious buildings, slate-roofed, the tall chimney of the locomotive engine—there I perceive some of the advantages of high farming. I hope the day will come when all our lands will be ploughed by steam. If I have omitted any mention of the sewage question, it is because (being in abeyance) any remarks now would be premature. Still I cannot refrain from expressing a hope that sewage may be utilised. It is a great point gained that sewage water should be diverted from polluting our streams, but it would be an increased blessing if it could fertilise our lands. We know that night-soil from towns under the old system of cesspools was most valuable. It would be a matter of great regret if such valuable deposits as our home guano should, under the improvements of the day, be lost to agriculture. Gentlemen, in concluding, I feel how cursory has been this glance at the advantages of high farming. Still I hope that these truths which you have heard may eventually be more universally acted upon as such, and that agricultural development will extend so as to be able by increased resources to contend with foreign importation, and successfully so, in supplying the ever-increasing demands of our ever-increasing population.

The Vice-Chairman thought they ought to be exceedingly obliged to Mr. Milbank for the very excellent paper he had read; but at the same time he would like to see that gentleman's balance-sheet. It might be all very well to look at agriculture as a science, but he looked at it as a matter of £. *s. d.* Agriculture was not like fox-hunting or growing Pines, but it was a business, and if they did not make it pay they had better let it alone.

Reviews.

The Great London Question of the Day; or, Can Thames Sewage be converted into Gold? By A. B. Granville, M.D., F.R.S., &c. Part I., Historical. E. Stanford, 6, Charing Cross, S.W.

The History of this subject covers now a great many years. The late John Martin drew plans more than a quarter of a century ago which are virtually those since carried out by the Board of Works: and it is to vindicate his right to the credit of much that has since been claimed by others, as well as to bring forward "such a mass of continental information, obtained directly from official sources, and never before published, as will throw a decisive light on questions still perplexing and undecided in the more recent scheme," that Dr. Granville's pages have been written.

John Martin's plan "consisted in excluding all the town or house and street drainage from the river, and receiving it into a grand iron sewer, lying parallel to the river margin on either side, and which, on the northern side, commenced at the bottom of College Street, Westminster, and terminated into a vast receptacle near the Regent's Canal.* The sides of the great sewer were to be constructed of iron caissons—the bottom paved with bricks, the top arched with sheet-iron with sufficient iron ribs; the internal dimensions to be on an average 20 feet wide and 20 feet high; the top to serve as the foundation of a quay connecting the two extremes of London. The whole length would measure 4 miles and 200 yards on the left, and 3¼ miles on the right bank. Two years after (1830) another plan was proposed for preserving the purity of the water in the Thames by constructing covered drains also to receive the sewage. But that plan was evidently a mere reproduction of Martin's idea, which that highly imaginative artist, after having had leisure and opportunity to study it more closely, was called upon to explain more accurately before a Committee of the House of Commons on the 7th of July, 1834.

"Simultaneously with this attempt to remedy the blunders of the despoilers of the Thames, an idea was started that, when properly collected, the excluded foul drainage of London might be applied to useful purposes by converting it into a fertilising agent for the lands. It seemed a simple and natural idea that the earth should receive back, in manure, what is taken away from it in produce; or as Liebig, many years later, said, 'we must restore to our fields what we necessarily abstract from them in the shape of corn and cattle. We must return our sewage to its right place, and then it will be well with us.' A truism, by the bye, which the present author publicly predicated and insisted upon, in a printed report, more than 25 years before the learned Munich Professor had treated of these matters, as will appear in the course of these pages.

"With these impressions, when next under examination before the Sewers Committee in 1834, John Martin threw out a hint that 'it would be highly advantageous to any person who should be of a speculative turn, to form a company for the purpose of farming the sewage to be converted into manure.' But neither himself nor any other person was ready to undertake such a speculation; nor did there exist just then sufficient data published to enable any enterprising individuals to devise the manner and the means of converting the sewage into available manure. Its real value on land was yet to be defined; the price it would fetch could hardly be guessed at. Whether it could be brought together and be rendered manageable without injury to the community were problems yet to be solved."

Having thus shown that Mr. Martin had virtually forestalled both the sanitary and the agricultural authorities who have since discussed the question, Dr. Granville proceeds to enumerate all the plans which have been devised and published and developed since 1821. They are very numerous. Six metropolitan commissions had investigated the subject. "One hundred and sixteen plans were sent in to the second commission for dealing with the whole question; yet not satisfied with such a wealth of projects, the Government appointed referees, who, by means of advertisement, obtained an additional supply from no less than 263 different correspondents, 139 of whom proposed plans more or less elaborate for the drainage of the metropolis." Those which have been at length adopted are based upon that of interception, which Mr. Martin had so long ago suggested.

The fifth section of Dr. Granville's pamphlet describes "a journey of 3500 miles through the central Continent of Europe in search of authentic practical information respecting the use and value of town sewage."

We quote the following passages on the utilization and money value of night-soil as a manure. It describes the experience of Strasburg:—

"At Strasburg, a company of middlemen engages to empty the cesspools, of which every house has at least two (built air and water-tight), once a year for nothing, and pays, moreover, 6 francs per charette, containing 96 baquets of the capacity of 4 gallons each. This quantity the company sells afterwards to the farmers for 10 francs.* Now, as there are 14,000 houses in Strasburg, 10,000 of which have cesspools affording the soil in question (which is always semi-liquid), supposing the latter to be emptied only once a year, and to furnish each three charettes only, at 6 francs, we have $10,000 \times 6 \times 3 = 180,000$ francs which the company pays yearly to the inhabitants of a town having a population of 70,000 souls. But as the company re-sells to the farmer the said soil for manuring purposes at 10 francs per charette, it follows that this article of traffic produces yearly at Strasburg 300,000 francs, or just about 4½ francs for each inhabitant. The average sum, therefore, for each inhabitant of a city, where the mixed contents of cesspools are sold for their benefit, which I have assumed, may be adopted with safety, as founded on fact."

The system of collecting house waste in detail upon the Strasburg plan is no longer possible in our large towns with their combined water supply and improved drainage—but the wholesale process of washing them out by an enormous surplus of water, which is now irrevocably adopted, need not be accompanied by any waste. The water itself may become the carrier of the fertilizing matter directly to the plants, which will convert it into useful vegetable growth; and we do not doubt that at least 4½ francs per head of the population is recoverable in this way, as in the much more cumbrous plan adopted in Strasburg and other continental cities.

Farm Memoranda.

Italian Marshes.—[The following are passages from a recently published Tract on the Marshes of South Italy, by Mr. Bailey Denton†:]

It may be fearlessly stated that all the plains which evolve malaria and maintain brigandage—including the Pontine Marshes themselves—are as capable of drainage and profitable cultivation, as any lands in England, or in Holland of similar character.

But to accomplish the work, it is necessary, in the first place, that the Government and the people of Italy should know what steam and wind have already

* Here is the only fault in Martin's plan. As honest Thom. Cubitt, in his evidence, remarked, "He did not go far enough."

* "The capacity of a charette being to that of a ton as 28,772 ounces are to 35,840, it follows that the price of a ton at Strasburg would be 10*s.*"

† Chapman & Hall.

...ce in raising water from below, and discharging it into the sea above the tidal level; and should admit, from convictions only to be gained by a knowledge of the true effects of drainage, that it is as necessary to draw stagnant water out of land as to prevent surface water from adjacent heights collecting upon it. At present the reverse view prevails, and every effort that has been made has been confined to the surface.

When speaking of the marshes and the malaria arising from them, the most intelligent Italians attribute their existence not so much to the level of the marshes relatively to the sea as to the overflowing of the rivers, and it is not uncommon to hear the observation that "if the rivers were canalised" malaria would cease to exist. Very little consideration appears to be given to the circumstance, that as there is no natural outlet for water when once absorbed by the marshes, it can only escape by evaporation, which is the real cause of the mischief; and that the amount of rainfall, the soakage of the high grounds, and the pressure of the sea, are sufficient of themselves to maintain the injurious evaporation, independently of the waters brought down by the rivers. Thus, the only way of effecting a radical cure—by affording an artificial outlet and propelling the water through the soil which now rests stagnant in it—is passed by and lost sight of.

In the second place, it should be acknowledged when dealing with plains or marshes on a level or on a slight inclination, that compulsory powers are necessary for executing combined works of thorough drainage, by steam or wind, or by any systematic method of reaching the subsoil, and that every owner of land benefited should be rateably charged with the cost.

In the third place, it should be acknowledged that those parishes or communities which possess commons in the marshes should be obliged to contribute to the cost of drainage, and to conform to the rules of management and maintenance which should govern private individuals.

And in the last place, it should be acknowledged that all persons investing their money in the improvement of the marshes should be protected by the military against brigandage, and indemnified against loss.

Until these views are acknowledged by the general intelligence of the country, and tangible facilities for carrying them into effect are given by the Government, no radical improvement can be made in the marshes, nor can British capital be made remunerative, however impulsively it may be subscribed.

EXTRACTS FROM REPORT.

"The following facts and circumstances form the drawbacks to the purchase of ——:

"1. The estate is in close proximity to marsh lands in which malaria prevails; consequently the population is small, and the few people living in the vicinity are feeble and incapable of hard labour. To overcome this evil it will be requisite to drain the marshes, and the operation should not be confined to those lands in immediate proximity to ——, but should include the whole low land district extending from Salerno to Paestum, a district fully capable of becoming highly productive at a comparatively small cost. The soil of these low lands is not altogether of that vegetable and peaty character which we in England associate with the term marsh. A very considerable portion is alluvium and drifted matter, formed of the débris washed down during past ages from higher districts, in which clay forms a considerable element; vegetable matter or peat skirting, which in some instances underlies it. The peat land is on a level, nearly approaching that of the sea; and, as it has no natural drainage, the water brought down from the heights, mixing with the rain falling on the marshes themselves, stands on their surface, or stagnates in the soil until it is evaporated. The water from the hills transports to the marshes a considerable quantity of decaying vegetable matter, which, together with the vegetation growing in the land itself, a large amount of insect life, and the decaying matter of the peat, is evolved as the water is evaporated by the hot meridian sun, and transported by currents of air, always in motion over the surface of this chemical cauldron. In some marshes there is much salt in the subsoil, which is raised in solution to the surface with the under-ground water by attraction, and, I am informed, adds greatly to the deleterious character of the exhalations.

"The several Governments that have ruled the country have felt the necessity of draining these low lands, and of rescuing them and the surrounding country from the evil of 'bad air;' but they seem to have ignored the only principles of proceeding by which it was possible to accomplish the object, and to have contented themselves with lessening instead of eradicating the evil. It is not for an engineer to trace chemically the causes of malaria, a subject which has puzzled high medical authorities, but I may be permitted to point out that, unless water is allowed to descend into the soil, and to find a discharge by percolation through the subsoil, unhealthy evaporation must take place, and that any improvement that does not reach this point fails in the first essentials of success.

"In certain districts rivers have been straightened and new channels cut, under Government directions, to convey the high land water over or through the low lands to the sea, and there discharge it by simple gravity at the level of the sea, while in some few districts the low lands have been raised above the sea level by warping, and have thus obtained a species of natural drainage; but no appreciable effort has been made to collect and lift the water out of the low lands themselves and discharge it into the sea at all times. The greatest difference between high and low water in the Mediterranean is only 18 inches, and therefore the ebb of the tide affords no practical assistance in the drainage of the low land abutting upon the sea.

"Were the level of the water in the marshes lowered by mechanical power, so as to give a sufficient depth of soil for the free passage downwards of surface water in peat land, and allow of underdraining the drifted clay soils, the pernicious effects of the rapid evaporation characteristic of hot countries would be got rid of, for the deleterious matter now evolved would, for the most part, be carried down into the soil for the benefit of vegetation, instead of rising into the air to the injury of human life. But to lift water out of the soil by artificial power, and to make flat clay lands permeable by underdraining and deep surface cultivation, after an outlet has been so obtained, does not appear to have received even a thought in Southern Italy. The only species of drainage which seems to be appreciated, is that obtained by gravity, and as the wide reaches of marsh land bordering on the sea are on a level with it, or on an inclined plane extending down to it, it is not possible to get rid of the water saturating them, unless artificial means are resorted to.

"Entertaining these views, and having seen in the marshes between —— and the sea, a fruitless attempt at drainage—for which some of the estates of the district are already taxed—I am not sanguine about the adoption of any comprehensive system, unless the Government is specially roused to action by convictions, based on a knowledge of the true principles of drainage, and its effects. I should, nevertheless, call your attention to the circumstance that if —— is purchased by the Association, and the timber sold, the mere fact of clearing the surface of the trees (which now act as absorbents of the noxious gases) will increase the necessity of draining the adjacent marshes.

"II. The woods are in possession of brigands, and until they are removed, and personal safety is secured, none but labourers can locate themselves on the property. This objection, at the present moment, is a formidable one, but there will probably be no difficulty in making it a condition of purchase, acceded to by Government, that quiet possession shall be guaranteed. Brigands are only located in districts impoverished by marsh-fever, and in wooded and uncultivated localities, where population is scanty and industry unknown. Get rid of fever and introduce the plough, and the brigands will vanish without the assistance of the military. In the mean time no person with money to lose can show himself in ——, nor in the neighbourhood, without rendering himself liable to be captured by brigands, who will hold him in ransom until the sum they place upon him is paid.

* * * * * *

"The next properties I inspected were those on the banks of the river ——, three in number, and adjoining each other.

"It is not necessary at this moment to describe these estates by precise and technical details. A general view of the circumstances attending them will better enable us to determine whether English money and English enterprise should develop their capabilities.

"These estates form portions of a large tract of flat land of a highly productive quality. They have already been improved by 'Opere di Strade e di Canali esequite dal Re Governo fino all' anno 1856.' but for the reasons already stated when speaking of the marshes surrounding ——, their productive powers have been only partially developed by the Government works, and they still remain subject to all the evils of malaria.

"The 'Demanio di ——' is a type of that class of property now in the market which occupies an eligible position for resale, but which, forming part of a general level, is so mixed up with the interests of neighbouring proprietors, that it could not be improved singly at a remunerative cost, and the obstacles to improvement on a sure and equitable basis—*i. e.* a joint basis of action—would be insurmountable within the period of time which is consistent with the present objects of a cotton-growing Association.

"That thorough drainage would secure a large profit on the outlay may be deduced from the following schedular information:

* * * * * *

"The lands here particularised are marked on the map accompanying this Report It will be seen that No. 10, containing 240 acres, the rent of which is 2*l.* 17*s.* 8*d.* per acre, adjoins No. 11, containing 132 acres, the rent of which is 5*s.* per acre. The difference in the soil itself, irrespective of its wetness, is unappreciable. The real difference is in the condition of the two lands; the surface of the former being slightly above the level of the water (not more than 12 inches), while that of the latter is on the same level and fully saturated. On No. 10 there was, when I saw it, a good crop of Melons, ripe and ready for the market. On No. 11 there was nothing but the sorry prospect of some field sport in the shooting season. If this representation be a true one, there was a return of 2*l.* 12*s.* 8*d.* per acre per annum on the little improvement effected in No. 10.*

"Having laid so much stress on the all-important step of draining the seaboard marshes to a level lower than the surface of the sea, I will now place before you the objections raised to it by Italian engineers. The first objection stated to me was, that the pressure of the sea would drive the sea-water through the sand-banks on the shore into the drains, and overpower any engine used for pumping the water out of the land. It need hardly be said that this difficulty, if it arose, would be overcome by simple engineering.

"The next objection was the great cost of working steam-engines in consequence of the high price of fuel. This is, doubtless, a serious drawback, but it should always be borne in mind that the advantages would be so great that any excess in the cost of fuel would only reduce the profit, without any risk of converting the profit into a loss. Peat, however, is capable of becoming, in the absence of cheap coal, a good and economical fuel, and as it forms in many cases the staple soil to be drained, some facile means may be found of converting it, by compression or otherwise, to such a use. There is one feature in the question of draining the Italian marshes which has not been considered with the attention it deserves. I refer to the use of wind as a motive power. Our Fen lands in England were reclaimed originally by the application of windmills for pumping, and there appears to be every reason, since decided improvement in wind machinery has been recently effected, that as long as the price of coal ranges between 40*s.* and 45*s.* a ton on the Mediterranean shore, wind should be regarded as the chief if not the only motive power to be depended upon. It may be remarked, as a favourable circumstance, that along the Mediterranean coast there is, at certain periods of the day, and with remarkable regularity, a brisk wind off the sea, and at other periods an equally regular wind off the land, both sufficient, with well-made machinery, to do good service.

"It was also stated, as a third objection, that thorough drainage would render the marsh lands too dry for Cotton growing. It is unnecessary to say to Englishmen, that with water pressing in from all sides—with water always standing at a certain depth from the surface, as regulated by drainage—with evaporation necessarily great and capillary attraction equally active—and, moreover, with an atmosphere so charged with moisture as that of Southern Italy, it is not possible to render land too dry for vegetable life. The air of South Italy is like a vapour bath—so great is the proportion of moisture—and as experience has shown that the atmosphere penetrates a drained soil with astonishing freedom, the soil would derive a benefit from the healthy moisture of the atmosphere, instead of the injury arising from stagnant wetness. Irrigation, rightly applied, would supply any conceived deficiency. It cannot, however, be too well understood that Cotton is not an aquatic plant, and though fond of a certain degree of humidity, is averse to a sodden bed. Nature, in fact, has provided the Cotton plant with a mechanism of its own for the exclusion, from its blossom, of rain and dew, at the same time that it has given it an appetite for moderate and warm moisture."

* Perhaps the best evidence of the advantage to be gained by the nation from the drainage of the marshes is to be found in the fact, that in one district, only partially improved by the public works performed by the Government, the number of proprietors of land has increased 1900 in 18 years.

Miscellaneous.

The Dawpool Herd.—The following letter from Mr. McIntosh, of Romford, appears in *Bell's Weekly Messenger*:—The judicious infusion of fresh blood into first-class Short-horns that have been unduly bred in-and-in is of great importance. It is now upwards of 20 years since I first visited Kirklevington, Warlaby, Killerby, Fawsley, and other eminent herds, and passed many agreeable days among them, and I can say that my early impressions have changed but little. I have always admired the grandeur and style of the Bates's, the substance of the Booths, and the neatness of the Knightley sort; yet at Kirklevington, Warlaby, and Fawsley I have seen animals that were too much Bates, too much Booth, and too much Knightley; in other words, too closely bred. To Mr. Bates and Mr. Booth I even dared to say so, and my remarks were received quite as favourably as could have been expected. There is perhaps no man more fond of pure breeding than myself, and I admit that nothing is to me more captivating in a catalogue than a list of renowned sires of the same strain of blood, one following the other; yet to persevere with that, at the expense of perhaps losing in a great measure constitution, form, and breeding power, seems nothing less than absurdity. Accordingly, for some years I have been endeavouring (and I hope successfully) to get a few leading tribes, so as to have the materials within my own reach. I was fortunate enough in the last year or two in securing four of perhaps the purest of the Fawsley blood, and they are breeding well. I have only one Booth, and she has a short pedigree; but I think she is likely to breed well. I have had the most striking proof of the necessity and utility of fresh blood, within my own knowledge. A few years since, I bought a cow, Lady Sale, a small thin-fleshed animal, but very neat, and the blood I wanted to possess. I put her to Bates bulls; and the produce, two heifers, are very good, with plenty of the right sort of flesh, and particularly neat in the offal. I think, from all this, you will readily collect my opinion of the Grand Duchesses with the Booth and Cherry blood. Go where they may, there can be no doubt, if proper judgment, care, and attention be bestowed upon them, as to the result being satisfactory. They are unquestionably a most valuable herd, and scarcely to be met with in a life-time.

Calendar of Operations.

JUNE.—*Flax Culture.*—We fill our column this week with memoranda on the management of Flax Culture, taken from the essay of the Rev. N. M. Brown, in the Journal of the Agricultural Society:—

Weeding.—Flax must be carefully tended from first to last. Neglect at any stage will ruin the crop. All kinds of weeds should be removed before the crop passes 6 inches in height. After that the stem becomes hard and retains the bend or "set" it may get from being trodden upon. Weeders should face the wind, and tread upon the plant with *bare* feet only; and thus treated it will soon rise again from the ground and show no sign that a foot has been set upon its neck. Of all weeds I know of none more injurious than "spurrey." With its merciless tendrils it clasps every stalk, and chokes them almost to death. Worse still, it bids defiance to all weeding.

Pulling and Rippling.—The time to pull Flax is before it is absolutely and completely ripe. Some, however, act foolishly in taking it up whilst it is yet green—thinking that the sample of dressed Flax is more silky and oily. By this they lose much more in quantity than they gain in quality. It is well to allow the under leaves of the stalk to be withered, two-thirds of the stalk to be yellowed and bare, and the capsules to be changed to a light brown before pulling. Then the crop will be most remunerative both in fibre and seed. Eight active hands will be sufficient to pull a Cunningham acre (equal to one and one-third imperial acre) in a day. They should place the handfuls slightly across each other, and separate in the sheaves, to make it the more easy to handle them at the rippling.

In several counties of the North of Ireland farmers ripple none of their Flax. They affirm that the process injures the ends of the "strick," and renders the dressed Flax dry and bristly. In other counties, however, they ripple all, save vast quantities of precious seed for crushing and feeding — and look upon their Flax after all as but little impaired. The climate of Ulster being very damp and changeable, the farmers of that Flax-growing province have never upon a large scale attempted to rear Flax-seed for sowing purposes. For crushing and feeding only have they taken off the bolls. By rippling the Flax at the time

of pulling, the bolls can be conveniently had for these objects, and thus the crop, without being stacked, is ready for the dam or rettory at once.

Where seed for sowing is not the object, the following details as to the speediest and cheapest method of taking off the bolls or capsules may not be uninteresting:—The best rippling-comb is made of round iron three quarters of an inch in diameter. The teeth should be at least 16 inches long, blunt in the point, ¼ of an inch asunder, and set in a row 18 inches long. The following directions for placing or fixing the comb for use may be serviceable. Take a cart to the field when the Flax is being pulled; take off the wheels, and lay the body flat upon the ground; let the comb be fixed to a strong piece of wood like a short plank, bind this plank hard and fast across the box, tying down each end to the arm of the axle that is lying on the ground; then one man can take up his place between the shafts, and another facing him behind, and they can pull their handfuls alternately through the same comb. Twice through is enough for any handful. The seed drops into the box, which can be emptied when full into sacks, and the bolls carted into the open "shed" or "winning" loft. After being rippled the Flax should be carted at once to the steeping-dam. If it be allowed to stand for any length of time, the wounded tops will blacken in the stook, and the fibre will be more or less injured. Whether rippled or not, it is a mistake to allow the pulled Flax to remain for days in the stook. If it were possible it would be all the better to have the whole crop taken up on the same day, and in a few hours rippled and committed to the water. The bolls should be deposited in a dry, airy place, and frequently turned. When dry they can be broken and the seed separated from the husks, which with the refuse seed, make capital food for almost all the animals of the farmyard. If there be no convenient way of drying the bolls, they can be taken at once to a common kiln, dried and ground in a mill, husks and seed together; and in that way, though the seed is lost either for sowing or crushing, yet the very best kind of provender is secured.

In some parts of England the farmers dry or "win" their pulled Flax for some days in the field, in the same manner almost as a white crop, and then put it for a time into narrow stacks, that the seed before being taken off may ripen and mature upon the stalks or straw. Where the quality of the seed is a matter of great importance (as it always is in seed for sowing), this mode of managing the Flax when pulled is to be highly commended. It is the only method in which first-class seed can be secured; and although it is the opinion of some that the quality of the fibre is much impaired by allowing the seed to ripen thus upon the straw, yet it will be found, after sufficient experience, that this is a mistake.

Many again consider that the farmer should go no farther than the pulling of the Flax; that at that stage his skill generally ends, and that then the factor, spinner, or manufacturer, should step in, purchase the Flax when pulled, if not on the foot, and carry through the remainder of its management by his skilled labour. This is an admirable theory, and if it could be got to work satisfactorily, would no doubt be advantageous to all parties. But in Ireland it has been tried and has utterly failed, the merchants who made the attempt having been obliged to give it up. Two crops, as similar as possible on the foot, may be very dissimilar in their yield. Say one is grown upon a very old pasture, or upon ground that never produced Flax previously; the other upon strong well-tilled land, that carried a similar crop some four or five years before. To the eye both seem much alike. The best judge perhaps could not tell which is the better crop, and the proprietor of the one might expect as high a price from the manufacturer as the owner of the other. Yet in reality the crop grown on the ground that till a year ago had been an old pasture, is likely to turn out to be twice as valuable as the other. This one stumbling-block was fatal to the whole scheme.

Moreover the expense of carting Flax-straw to dams or rettories at a great distance, and the difficulty of getting sufficient spreading ground or drying apparatus for great quantities of steeped Flax in any one spot, are additional impediments that stand in the way of the application of the theory.

Notices to Correspondents.

Apatite: *W W F.* The foot note at p. 541 ought to have stated it to be a *phosphite* of lime.

Clover in Pastures: *Enquirer.* Bonedust will bring it, even more certainly than ashes. It is, of course, a dearer but a very efficient Grassland dressing.

Glycerine: *X.* It is in a certain sense a refuse of the candle manufacture, being that part of natural fatty matters the separation of which is one of the objects of the manufacturer. Its non-illuminating power renders its presence undesirable, and its uses for other purposes make its separation a doubly important consideration. Among its uses is said to be its fitness for pig feeding, which is being tested in Edinburgh in comparison with cod-liver oil.

Mowing Machines: *T L J.* We do not know any which lays the Grass in swathes; but in most there is a guide rod, which does put the cut Grass a little on one side.

Stable Dung: *A H.* Five-fanged dung is very much injured. The best way to save the stable dung is to throw every day's portion on to the end of a ridge-formed heap standing on about four yards width of land, and piled up ridgewise as steep as it will lie, covering it up on both sides with earth as it daily lengthens. This is the plan of Mr. Lawrence, of Cirencester. It keeps the manure of its full original goodness, and saves it from the injury of five-fanging, which is owing to excessive local fermentation.

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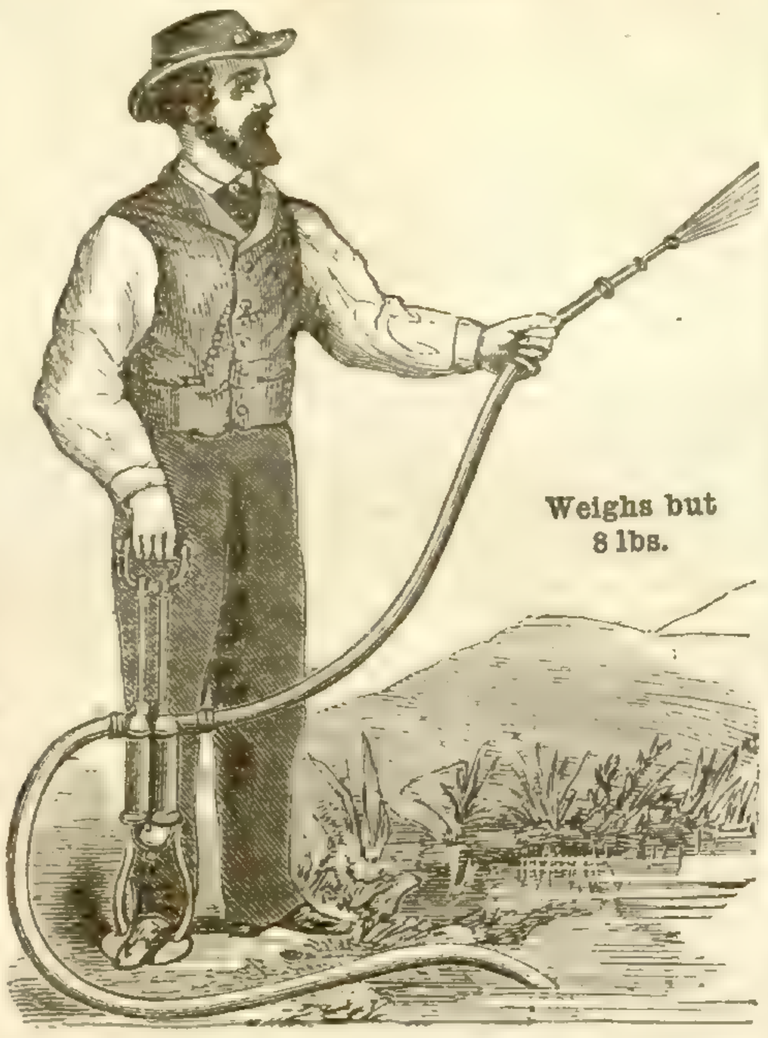

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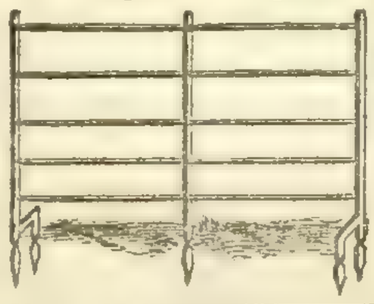

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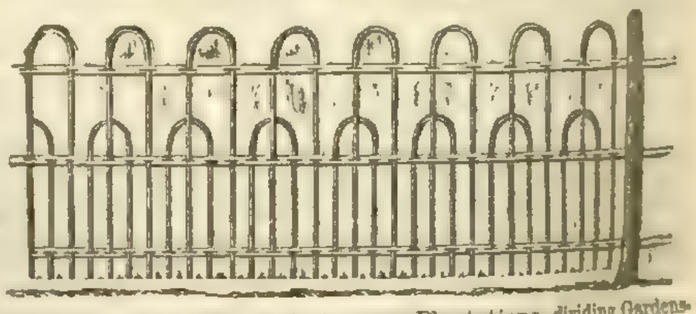

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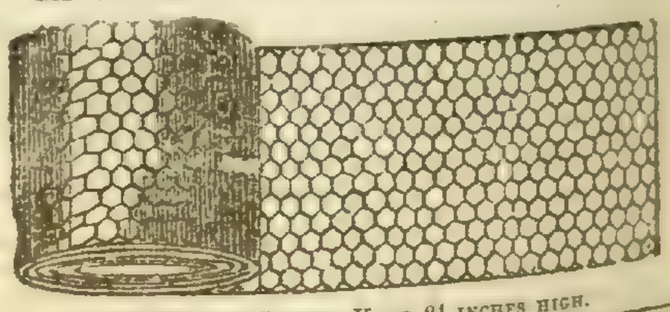

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Size of Mesh.	Mostly used for	Light. Jap	Light. Gal	Medium Jap	Medium Gal	Strong. Jap	Strong. Gal	Extra Strong. Jap	Extra Strong. Gal
		s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
2½ in.	Hares, Dogs, Poultry	0 3	0 4	0 3½	0 5	0 4½	0 6	0 5½	0 7
2 in.	Game or Poultry Netting	0 3½	0 4½	0 4	0 5	0 5	0 6½	0 6½	0 8
1½ in.	Small Rabbits, Hares, &c.	0 4	0 4½	0 4½	0 6	0 5½	0 7	0 7	0 9
1½ in.	Smallest Rabbits ..	0 5	0 6	0 5½	0 7	0 7	0 9	0 9	0 11
1 in.	Pheasantries, &c. ..	0 9	0 11	10½	1 1½	1 3	1 6	1 9	2 3
½ in.	Aviaries, &c.	1 0	1 3	1 3	1 6	1 6	1 9	..	..

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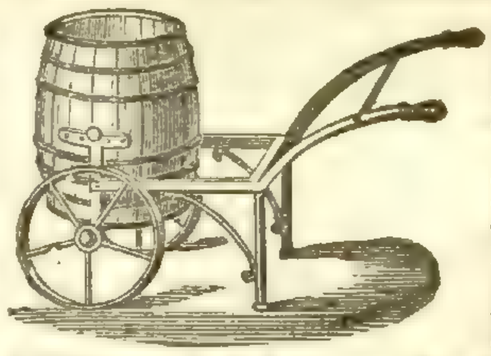
THE PATENT CONCRETE STONE COMPANY, LIMITED, are now the Proprietors of the Patents for the Manufacture of the beautiful material known as RANSOME'S PATENT CONCRETE STONE, which for durability, cheapness, and beauty of appearance, stands unrivalled. It is especially applicable for Fountains, Vases, Jardinets, Balustrades for Terraces, Gate Piers, Edgings for Borders, and all other Ornamental Requisites for Parks, Gardens, Conservatories, &c.
Illustrations and Prices furnished upon application at the Offices of the Patent Concrete Stone Company, 2, Queen Street Place, Southwark Bridge, E.C.



SWING WATER BARROW, to hold 36 Gallons, price 42s., carriage paid to any Station on the Great Eastern Line.

This is the best and cheapest article yet introduced; the water may be dipped out, or the tub tilted and poured out, or by merely raising the handle it can be placed on the ground and the frame detached.

Manufactured by W. S. Boulton, Rose Lane Iron Works, Norwich.

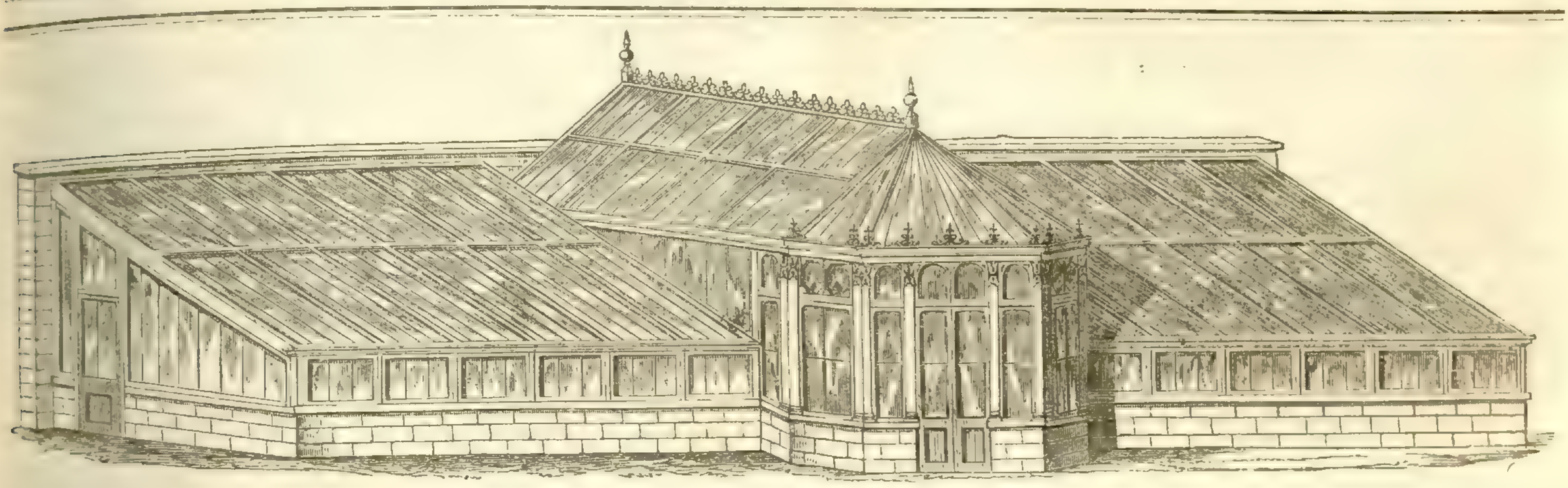
By Royal Letters Patent.

WELLS' PORTABLE FOLDING GROUND VINERY, for Growing and Ripening Grapes without artificial heat.

Awarded a SILVER MEDAL at the International Exposition of Horticulture held at Nice, April 1865.

Drawings and Instructions for Management post free of B. J. Edwards, 25, Bishopsgate Street Within, E.C.

HYDRAULIC SUCTION PUMPS, GARDEN WATERING ENGINES, PAIL MACHINES, CONSERVATORY PUMPS, and GREENHOUSE SYRINGES, with all the latest Improvements, manufactured only by the Patentee,
Richard Read, 35, Regent Circus, Piccadilly, London, W.
Descriptions, with Drawings, post free.



HORTICULTURAL BUILDINGS

MANUFACTURED BY STEAM POWER MACHINERY.

LOWEST PRICES AND BEST MATERIALS.

DESIGNING, BUILDING, HEATING, AND VENTILATING ON THE MOST APPROVED AND SCIENTIFIC PRINCIPLES.

Plans, Specifications, and Estimates on application.

HENRY ORMSON, F.S.A.,
HORTICULTURAL BUILDER, AND HOT-WATER APPARATUS MANUFACTURER,
STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

NEW TARIFF OF GLASS AND HORTICULTURAL GOODS.

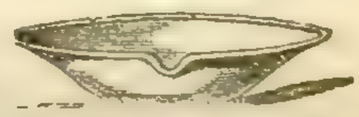
THOMAS MILLINGTON,

GLASS AND COLOUR MERCHANT,
87, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

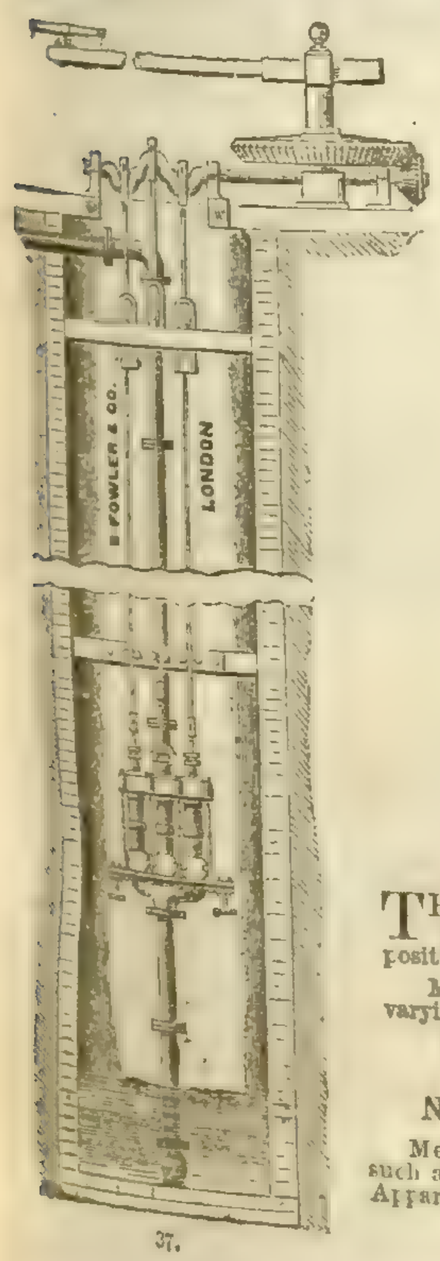
HAND GLASSES.

PRESERVE JARS.

REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.


MILK PANS.

See Advertisement the first week in the month, or on application.



37.

CLINTON & OWENS

(LATE BENJAMIN FOWLER & CO.)
MANUFACTURERS OF

PUMPS AND HYDRAULIC MACHINERY,

WHITEFRIARS STREET, FLEET STREET, LONDON, E.C.

THE LANDSCAPE SKETCH shows an adaptation of THE IMPROVED HYDRAULIC RAM. This is a simple Self-acting Machine, suited for raising a Supply of Water for use in Public and Private Establishments. Its adoption is not confined to positions as shown, but it is suited for any situation where a Fall can be obtained from a Stream, Brook, or Spring.

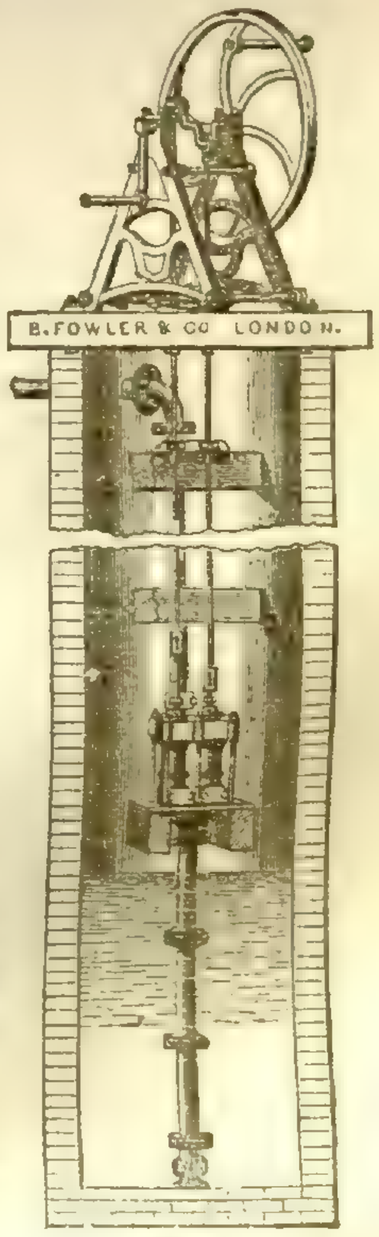
Messrs. Fowler have fixed a great many in various parts of the country for raising from 600 to 6000 or more Gallons per day to elevations varying from 30 to 300 feet, and forcing through main pipes 50 yards to several miles in length.

No. 37. IMPROVED TREBLE BARREL PUMPS with HORSE GEARING for Raising Water from DEEP WELLS for the supply of MANSIONS and PUBLIC BUILDINGS.

No. 28*a*. DOUBLE BARREL PUMPS for HAND-POWER for similar purposes.

Messrs. Fowler & Co. Manufacture and Erect every description of Engineer's Work required in Public or Private Establishments, such as Pumps for any purpose on the largest or smallest scale, Steam Engines, Water Wheels, Turbines, Warming and Drying Apparatus, Baths, Gas Works and Fittings. Estimates furnished from Plans or on inspection of position.

Price Lists of Pumps, &c. free on application.



28A.

Caution to Gardeners.—When you ask for

SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the corporate mark OBTAIN WARRANTED, without which none are genuine.

S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by sellers and makers.

S. & C.'s Pruning and Budding Knives are the best and the cheapest in the market.

Paxton Works, Sheffield. Established upwards of 125 years.

E. T. ARCHER'S "FRIGI DOMO." — Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.

PROTECTION from the SCORCHING RAYS of the SUN.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.

Two yards wide	1s. 9d. per yard run.
Four yards wide..	3s. 6d. per yard.
An improved make, 2 yards wide ..	1s. 9d. per yard.
An improved make, 3 yards wide ..	2s. 8d. per yard run.

Also "Frigi Domo" Netting, 2 yards wide, 1s. 6d per yard run.

ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, and of all Nurserymen and Seedsmen throughout the kingdom.

"It is much cheaper than Mats as a covering."

EARTH CLOSETS AND COMMODES.

(Moule's Patent.)

MANUFACTURED SOLELY BY

WHITE & CO.,

29, BEDFORD STREET, STRAND, LONDON, W.C.

THE PECULIAR ADVANTAGES OF THESE CLOSETS AND COMMODES OVER THE ORDINARY WATER CLOSET ARE:—

First.—That the deodorising material (dry surface earth, or clay, or other subsoil) is the best for the purpose and at the same time is the cheapest and within the reach of all classes.

Secondly.—The supply of such material to any house or premises may be much easier than the supply of water by a forcing pump, and its removal after being used may be entirely without offence.

Thirdly.—Its application by the means provided in these Closets is immediate and effective; so immediate that no offensive smell need escape into the room or building in which they are used; and so effective that all fermentation and all escape of noxious gases are entirely prevented.

Fourthly.—The expense of these Closets, in comparison with that of Water-Closets, is, as to the first cost, trifling, and as to repairs almost nothing. For instance, there is no expensive cistern required, and there are no lead pipes to burst in frosty weather.

Lastly.—In all large Establishments, such as Hospitals, Union Houses, Schools, Gaols, and Asylums, a very considerable sum may be saved annually in the production of a valuable manure.

The efficiency of these Closets is so great as to be scarcely credible to those persons who either have not used them or seen their mode of action.

Price of Apparatus without woodwork, 25s. per set.

*** *The different forms of Closets may be seen at the address above; and Prospectuses will be forwarded on application.*

JOHN WARNER & SONS, LONDON, MANUFACTURERS.

J. WARNER AND SONS

Have much improved the construction of their

GARDEN **ENGINES**

in some important particulars for this Season.

They may be obtained of the Trade generally throughout the Kingdom at the following prices:—

No. 547. WARNER'S best ENGINES, in Wood Tubs, and fitted with WARNER'S Registered Spreaders—

24 Gallons, £6 10s.
14 „ 5 10s.

No. 547A. WARNER'S strong ENGINES, in Galvanised Iron Tubs, well painted—

10 Gallons	£2	19	0
16 „	3	14	0
24 „	4	19	0
28 „	5	10	0

No. 579½. WARNER'S WATER BARROWS, thoroughly Galvanised and well painted—

20 Gallons	£2	2	0
30 „	2	13	0
38 „	3	17	0
50 „	5	12	0

The 50-Gallon Barrow is made extra strong throughout, and fitted with handle for two men.

No. 568½, AMERICAN ENGINE, is now well known and appreciated. It throws a continuous stream, and is complete in itself. £2 2s.

SYRINGES in great variety, from 7s. 6d. to 18s. 6d.

The DISC SYRINGE, No. 557A, will recommend itself by the ease with which it is filled, and non-liability to get out of order. Price 9s.

WARNER'S **AQUAJECT**

Is this season first introduced to the notice of horticulturists as possessing the following advantages:—It is simple in construction, portable, and easily worked. It throws a continuous stream, and is low in price.

The Aquaject, 30s.

The small AQUAJECT is the most perfect form of Syringe yet introduced. It throws a continuous stream, with very slight movement, and with it blight, &c., is readily washed from the under side of foliage. 18s.

No. 35. WARNER'S IRON PUMPS for Wells not exceeding 25 feet in depth — 2½-in., 28s. 6d.; 3-in., 41s.; 3½-in., 46s.; short barrel do., 21s.

No. 36. IRON FORCE PUMPS for raising water above their level, or watering yards, gardens, &c., through hose—2½-in., 59s.; 3-in., 65s.; 3½-in., 77s.; 4-in., 89s.

No. 36½. FORCE PUMP on BARROW, recommended for its great portability and simplicity of construction. £5 10s.

No. 42. WARNER'S PORTABLE PUMPS on Folding Legs, are of the superior construction.

Price 55s.; Rubber Suction, 2s. 6d. per ft.

No. 597A. BRANCH PIPES with Cocks and Roses — ½-in., 3s. 6d.; ⅝-in., 5s.; ¾-in., 6s.

No. 599. TAPER BRANCH PIPES—½-in., 4s. 9d.; ⅝-in., 5s. 3d.; ¾-in., 6s.; 1-in., 7s.

RUBBER HOSE in all sizes.

FOUNTAIN JETS in great variety, from 8s. to 25s.

DESCRIPTIVE PRICE LISTS forwarded on application.

Bee Hives.

Gold Medal and Honourable Mention awarded to G. N. & Sons, for Bee Hives and Honey at the various Exhibitions.

NEIGHBOUR'S IMPROVED COTTAGE BEE HIVE, as originally introduced by George Neighbour & Sons, with all the recent improvements, three Glasses and Thermometer, price 35s., securely packed for the country.

Several important novelties are introduced this season, including the Woodbury Straw and Bar-and-Frame Hive, price 21s., &c. Also the Engraved Pressing Roller, for the guidance of Bees in the construction of Honey-comb on the Bars, and impressed Wax Sheets, to assist in the formation of Cells.

Address, George Neighbour & Sons, 127, High Holborn, W.C.; or 149, Regent Street, London, W.

Their newly-arranged Catalogue of other Improved Hives, with drawings and prices, sent on receipt of two stamps.

Agents.—Liverpool: James Cuthbert, 12, Clayton Square. Manchester: J. Wilson, 50, King Street. Birmingham: J. H. Cottrell, 11, Bull Ring. Dublin: Edmondson Brothers, 10, Dame Street. Glasgow: Austin & McAslan, 16, Buchanan Street.

PRIZE ROLLERS for PARKS.

PRIZE ROLLERS for LAWNS.

PRIZE ROLLERS for CRICKET GROUNDS.

PRIZE ROLLERS for GARDENS.

PRIZE ROLLERS for ROADS.

PRIZE ROLLERS for the FARM.

The Best and Cheapest are the PATENT WATER BALLASTING ROLLERS, made only by the Inventors, AMIES, BARFORD, and Queen Street Iron Works, Peterborough, who will forward Price Lists and all particulars on application.

Glass for Garden Purposes.

JAMES PHILLIPS AND CO. beg to submit their prices as follows:—

PROPAGATING GLASSES.

	Each.—s. d.		Each.—s. d.
2 inches in diameter	.. 0 3½	12 inches in diameter	.. 1 9
3 " "	.. 0 4½	13 " "	.. 2 0
4 " "	.. 0 5½	14 " "	.. 2 6
5 " "	.. 0 6½	15 " "	.. 3 0
6 " "	.. 0 8	16 " "	.. 3 6
7 " "	.. 0 10	17 " "	.. 4 0
8 " "	.. 1 0	18 " "	.. 5 0
9 " "	.. 1 2	19 " "	.. 6 0
10 " "	.. 1 4	20 " "	.. 7 0
11 " "	.. 1 6		

HAND GLASSES, WITH OPEN TOPS.

	Each.—s. d.		Each.—s. d.
12 inches	6 6	18 inches	9 6
14 "	7 6	20 "	10 6
16 "	8 6	22 "	11 6
		24 "	12 6

Painted and Glazed with 16-oz. Sheet Glass.

BEE GLASSES.

	Each.—s. d.		Each.—s. d.
4 inches in diameter	.. 0 6	9 inches in diameter	.. 1 8
5 " "	.. 0 8	10 "	.. 2 0
6 " "	.. 0 10	11 "	.. 2 6
7 " "	.. 1 1	12 "	.. 3 0
8 " "	.. 1 4		

CUCUMBER GLASSES.

	Each.—s. d.		Each.—s. d.
24 inches long ..	.. 2 0	16 inches long ..	.. 1 4
22 " " ..	.. 1 10	14 " " ..	.. 1 2
20 " " ..	.. 1 8	12 " " ..	.. 1 0
18 " " ..	.. 1 6		

London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.

LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS, PAINTS of various colours ground ready for use.

180, Bishopsgate Street Without, London E.C.

IMPROVED GLASS TRAPS for WASPS and FLIES, 6s. per dozen. CUCUMBER GLASSES, 12 by 2 inches, 3s. per dozen. Elegant GLASS JARS for Preserves, 1s. 9d. per dozen, ½ pint. Sent free of Carriage and package to any Railway Station in London, on receipt of Post Office Order or other remittance.

J. R. Morley, Tavern Street, Ipswich.

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be seen at Work in every Agricultural County in England. For particulars apply to

John Fowler & Co., 28, Cornhill, London, E.C.; and Steam Plough Works, Leeds.

GARDEN BORDER EDGING TILES, in great variety of patterns and material, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.

F. & G. Rosher, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.

Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also TESSELATED PAVEMENTS of more enriched designs than the above.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cements, &c.

To be obtained of F. & G. Rosher, at their Premises as above.

SILVER SAND (REIGATE, best quality), at the above addresses—14s. per Ton, or 1s. 3d. per Bushel; 2s. per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less.

FLINTS, BRICK BURRS or CLINKERS, for Rockeries and Grotto Work.

F. & G. Rosher.—Addresses see above.

N.B. Orders promptly executed by Railway.

Patronised by 70,000 Stock Breeders.

REGISTERED DISEASE HAS FOUND ITS MASTER TRADE MARK.

DAY, SON, AND HEWITT, Sole Inventors of the Celebrated STOCK-BREEDER'S MEDICINE CHEST, containing as follows:—

Six Bottles (at 2s. 6d. each) of the UNIVERSAL CHEMICAL EXTRACT, matchless for penetrating, mollifying, and assuaging pain in all wounds, kicks, cuts, strains, &c., in horses and cattle; straining in ewes lambing, and swollen and inflamed udders in cows and ewes; sore feet in cattle, sheep, and dogs.

One Dozen Bottles (value 20s.) of the GASEOUS FLUID or BLACK MIXTURE, unmatched in the known world for curing diarrhœa or scouring calves, sheep, and lambs; for ewes weakly and exhausted after lambing; for horses and cows exhausted and sickly, and for the fret, colic, or gripes in horses and cattle. An instantaneous remedy for blown cattle and sheep.

One Dozen Packets (value 13s.) of the RED DRENCH or INFLAMMATION POWDER, for cleansing after calving or lambing, for straining in ewes, and for removing all feverish symptoms in cows and ewes after calving or lambing; for yellows in oxen, and for colds, chills, and all inflammatory cases in horses, cattle, and pigs.

One Dozen (value 7s. 6d.) of the RED PASTE or CONDITION BALLS (for horses). These Balls give vigorous health, purify the system, and produce a mole-like sleekness of coat.

Price of Chest complete, with Shilling Key to Farriery, 2l. 16s. 6d. securely packed, and carriage free. Sample case, usefully assorted 16s. 6d. Messrs. D., S., & H. respectfully urge their friends to send their orders early, so that no purchaser may be kept waiting.

Either preparation may be had separately in boxes, carriage paid.

Address—Day, Son, & Hewitt, Animal Medicine Manufactory, 22, Dorset Street, Baker Street, London, W.; or Wantage, Berks.

Testimonials from all parts of the United Kingdon and Ireland sent free on application.

Established over One Quarter of a Century.

To Flockmasters.

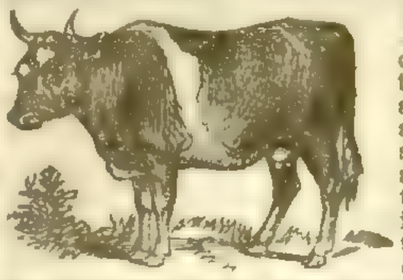
LONG'S NON-POISONOUS SHEEP DIPPING COMPOSITION is a thorough cleanser of the skin, effectually destroys all Ticks and other vermin in the animal, thus tending greatly to improve the Flock and prevent fly striking. The Composition, in its use, leaves the fleece as white as snow, free from any stain, and the skin soft and oily. It is sent out in tin cans, from one gallon to four gallon size. When mixed, one gallon with 80 gallons of cold water, it makes a bath of a perfect white and soapy appearance; it mixes readily, leaves no sediment on the bottom or scum on the top, and the cost is about one penny per head. When used as pouring Composition for Scab or destruction of Tick, mix one gallon with 40 gallons of water.

LONG'S MAGGOT LOTION.—This lotion will instantly Kill every Maggot, Heal the Wound, and prevent Fly Striking, as well as Destroy all Fleas and other Vermin in Dogs or Cattle; is sold in pint bottles at 22d. per pint. One pint strong enough to mix with 40 pints of water—ready for use.

LONG'S GREEN-FLY LOTION.—This lotion is prepared purposely for Horticultural purposes, and when diluted, one pint to 40 pints of water, will Kill every Green-fly and other Insects that infest Roses, Fruit Trees, Shrubs, &c., and prevent Blight in Hops or Vines. Sold in half pint bottles at 20d. each bottle.

LONG'S TURNIP-FLY LOTION.—This Lotion has been J. Long's study for many years, and he can now confidently recommend it as a thorough Preventive and Destroyer of the Turnip pest, at a cost of from 6s. to 10s. per acre.

Wholesale Agents, S. & E. Ransome & Co., Essex Street, Strand, W.C.



BRETONNE COWS.—The Nobility, Gentry, and others, are respectfully informed that they can be supplied with the above beautiful and profitable little animals in any number at the shortest notice. The great success and encouragement which has attended the efforts of the importer in introducing the Pure Breed of this useful and hardy Cow into the country, has induced him to extend his connection abroad, by appointing experienced Agents throughout Brittany, and he is now enabled to offer the public a constant supply of the choicest stock that can be obtained, at prices which defy all competition. The low cost, together with the high Milking qualities of this Breed, rendering them of great value to the Cottager, as well as the fancy Stock-keeper and Dairyman, the Importer has made arrangements to keep a large stock always on view. Price from 8 to 10 Guineas each, delivered free to any Railway in London.

For further particulars, apply to Messrs. Robertson & Co., 38, Crutched Friars, London, E.C.

To Nurserymen and Others.

A FIRST-RATE NURSERY BUSINESS to be PARTED WITH, in the immediate neighbourhood of London, South. No person who cannot command from £2000 to £3000 need apply.

Enquiries to be addressed Mr. Wm. King, 29, Cambridge Street Hyde Park, W.

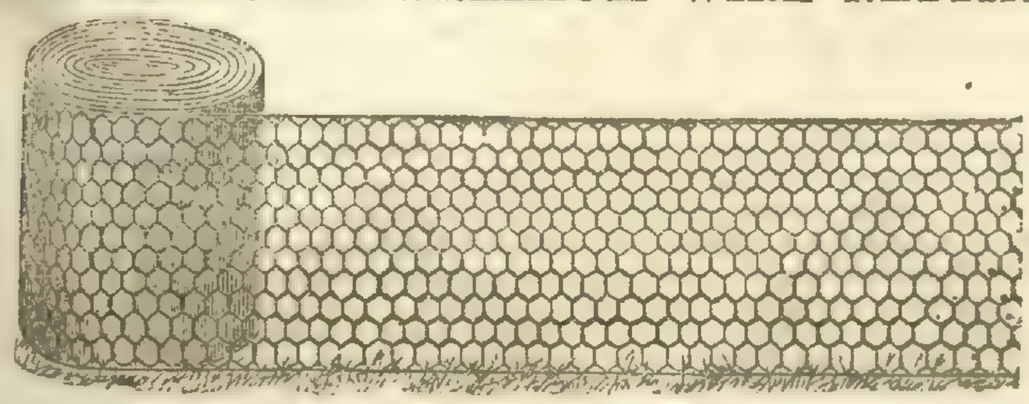
South Coast, Hampshire.

TO BE LET, for a term, a capital FARM of 155 ACRES, with good and pleasant House, &c., and ample and convenient Buildings. The Land is in the highest state of cultivation. Any Gentleman fond of Farming will find this an opportunity rarely to be met with. Good references required. Immediate entry will be given to a tenant who shall be approved by landlord, and who will take all crops, stock, tillage, &c., at the value.

For particulars apply to Mr. Joseph Blundell, Land Agent, Bursledon, Southampton.

NEW IMPROVED PREMIUM WIRE NETTING.

GREAT IMPROVEMENT,



WITH REDUCED PRICE.

PRICES PER LINEAL YARD, 24 INCHES HIGH.

Size of Mesh.	Mostly used for	Light.		Medium.		Strong.		Extra Strong.	
		Japanned.	Galvanized.	Japanned.	Galvanized.	Japanned.	Galvanized.	Japanned.	Galvanized.
1 inch	Hares, Dogs, Poultry ..	3d.	4d.	3¾d.	5d.	4½d.	6d.	5½d.	7d.
¾ inch	Game or Poultry Netting	3½d.	4½d.	4d.	5d.	5d.	6½d.	6½d.	8d.
⅝ inch	Small Rabbits, Hares, &c.	4d.	4¾d.	4¾d.	6d.	5½d.	7d.	7d.	9d.
½ inch	Smallest Rabbits	5d.	6d.	5¾d.	7d.	7d.	9d.	9d.	11d.

Quantities of 100 yards or upwards delivered free at nearly all the principal Railway Stations and Shipping Ports in England, and 200 yards or upwards delivered free to most parts of Scotland and Ireland.

**** Every description of Netting warranted to give satisfaction, and if not approved will be exchanged or may be returned unconditionally.*

J. B. BROWN AND CO. Offices: 18, CANNON STREET, CITY, LONDON, E.C., Nearly opposite St. Swithin's Lane and London Stone, and near London Bridge.

WAREHOUSE (where Netting is kept in stock), 148, UPPER THAMES STREET, E.C., opposite the City of London Brewery, and close to the London Bridge Steam Boat Pier.

ST. PANCRAS IRON WORK COMPANY,

OLD ST. PANCRAS ROAD, LONDON, N.W.

IRON HURDLES, FENCING, AND GATES.

	Each.—s. d.		Each.—s. d.
SHEEP HURDLES, 3 ft. high, 6 ft. long, 4-Bar ..	4 0	CATTLE HURDLE, 3 ft. 6 in. high, 6 ft. long ..	4 11½
Ditto ditto ditto, 5-do.	4 5½	Ditto ditto ditto strong	5 9
Ditto ditto ditto, ⅝ Top Bar	4 8	OX HURDLE, 4 ft. high, 6 ft. long	7 0½

DR. SPRATT'S PATENT LOCK.

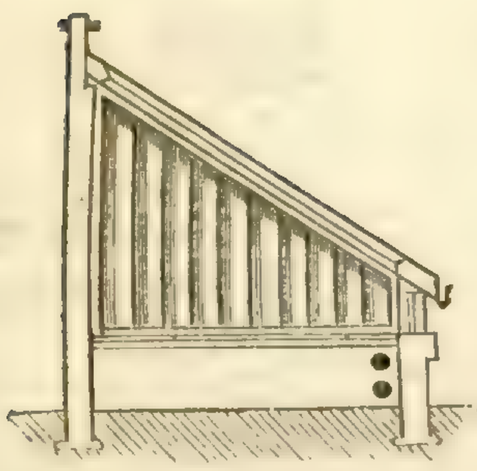
The simplest and best Fastening for Field, Wicket, Swing, and Railway Gates. Particulars and Prices on application.

PATENT WROUGHT-IRON STABLE FITTINGS, CONSERVATORIES, &c. Lists Free.

ST. PANCRAS IRON WORK COMPANY, OLD ST. PANCRAS ROAD, LONDON, N.W.

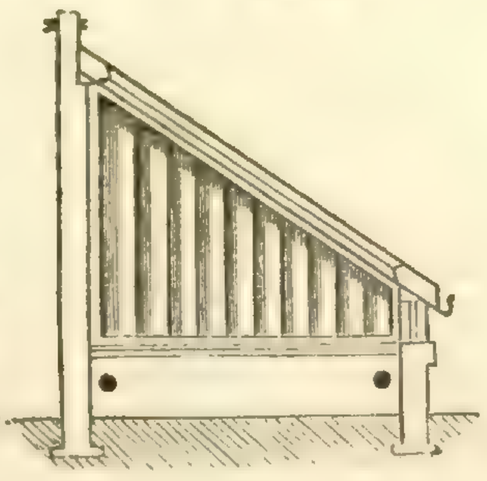
J. JONES & SONS' HOT-WATER APPARATUS.

No. 7.



Size of House.	Price.
20 by 10 feet	£9 0 0
30 ,, 12 ,,	12 0 0
40 ,, 15 ,,	15 0 0
50 ,, 15 ,,	18 0 0
60 ,, 15 ,,	20 0 0
70 ,, 15 ,,	22 0 0
80 ,, 15 ,,	24 0 0
100 ,, 15 ,,	26 0 0

No. 8.



Price.
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26 0 0

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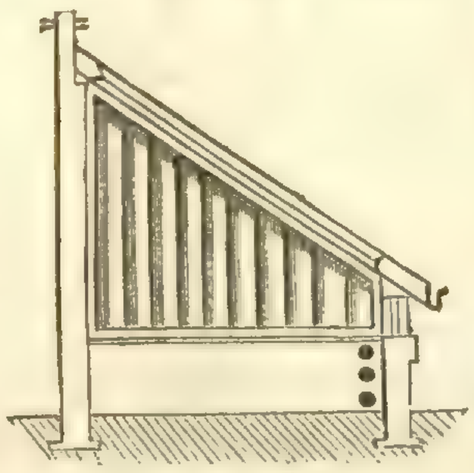

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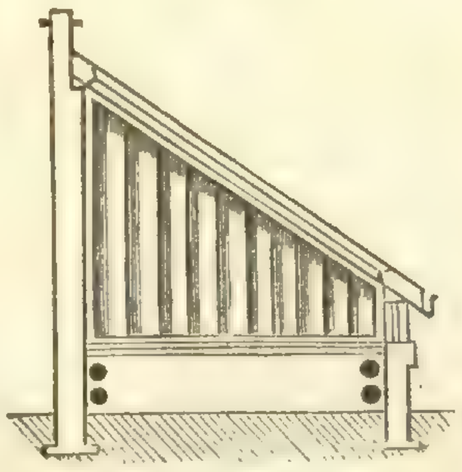

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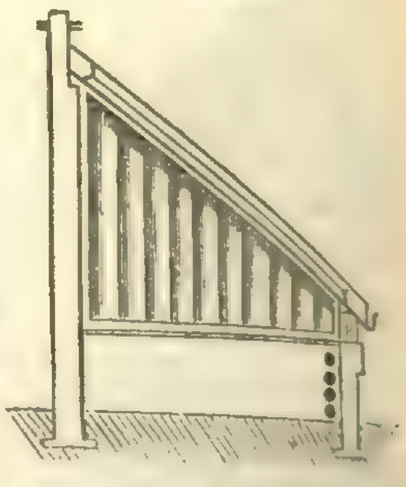

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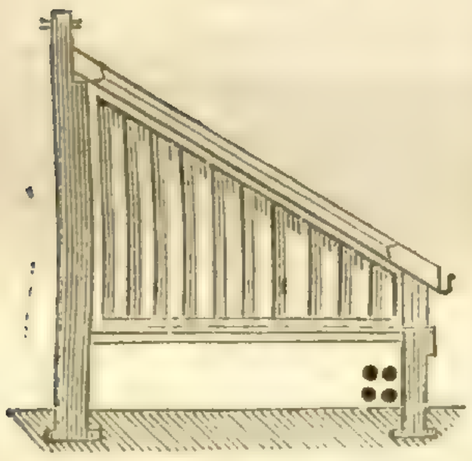

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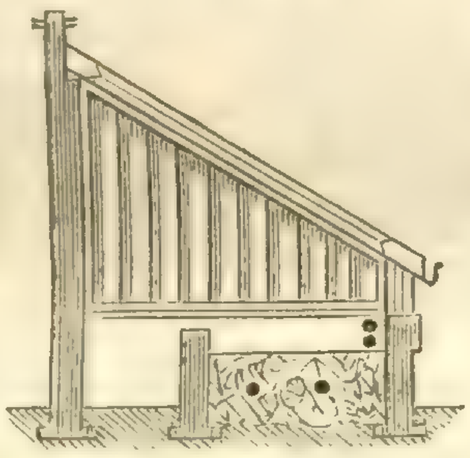

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No. 14.

Price.
Same as No. 11.

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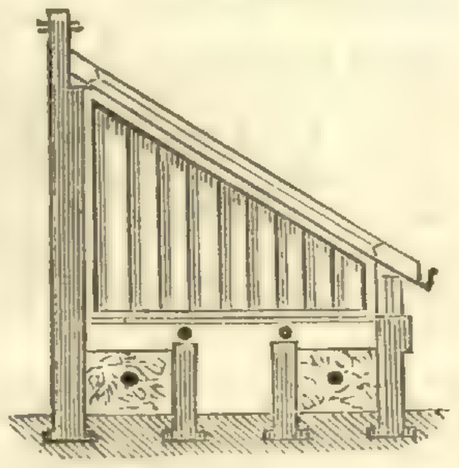

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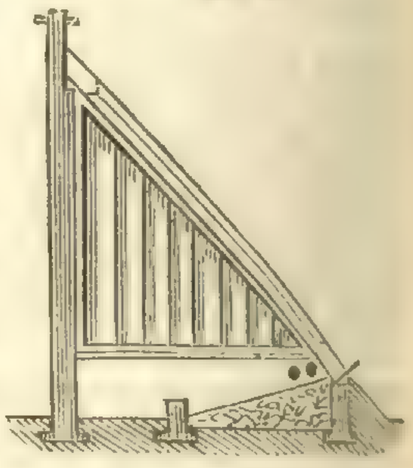

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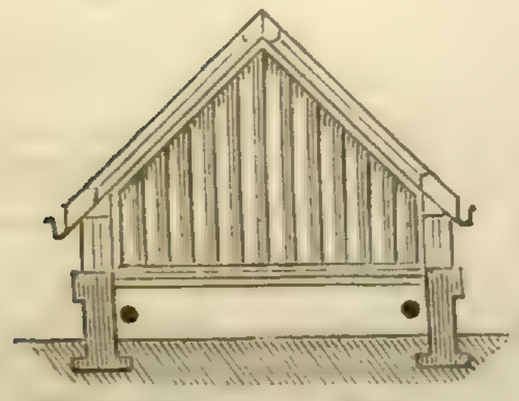

Size of House.	Price.
20 by 10 feet	£9 0 0
30 ,, 12 ,,	12 0 0
40 ,, 15 ,,	15 0 0
50 ,, 15 ,,	18 0 0
60 ,, 15 ,,	20 0 0
70 ,, 15 ,,	22 0 0
80 ,, 15 ,,	24 0 0
100 ,, 15 ,,	26 0 0

No. 18.

Price.
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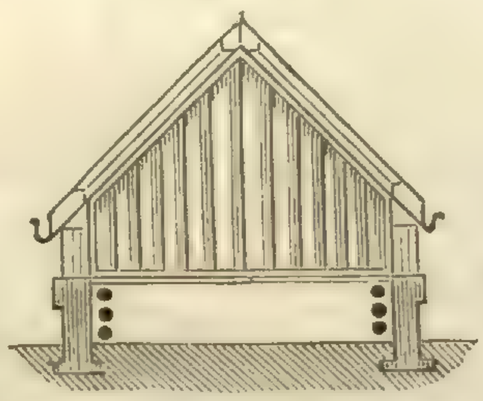

Price.
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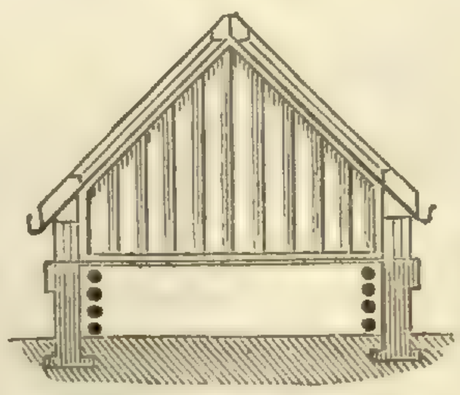

Price.
£23 0 0
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36 10 0
42 10 0
49 0 0
56 0 0
63 0 0
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No. 21.

Price.
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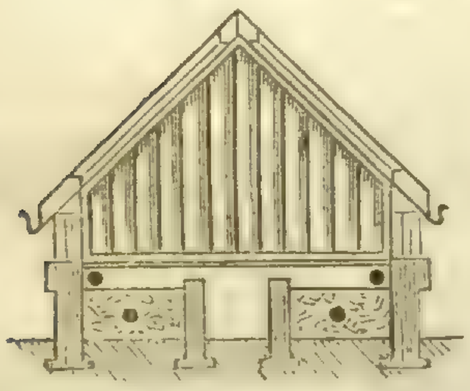
49 0 0
56 0 0
63 0 0
70 0 0

No. 22.



Size of House.	Price.
20 by 10 feet	£15 0 0
30 ,, 12 ,,	21 0 0
40 ,, 15 ,,	25 0 0
50 ,, 15 ,,	29 0 0
60 ,, 15 ,,	33 0 0
70 ,, 15 ,,	37 0 0
80 ,, 15 ,,	41 0 0
100 ,, 15 ,,	45 0 0

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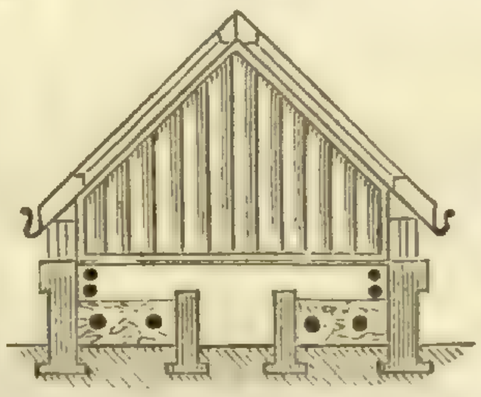

Price.
£25 0 0
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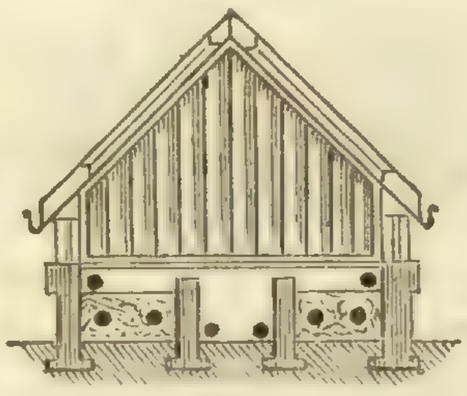
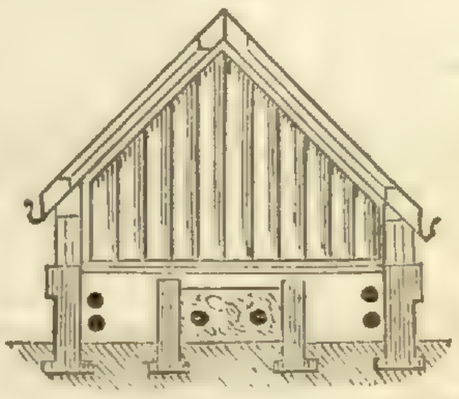
38 10 0
44 10 0
51 10 0
58 0 0
65 0 0
72 0 0

No. 24.



Price.
£25 0 0
32 0 0
38 10 0
44 10 0
51 10 0
58 0 0
65 0 0
72 0 0

No. 25.



Price.
£18 10 0
25 0 0
30 0 0
35 0 0
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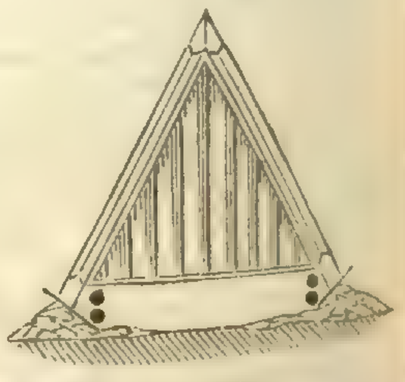
45 0 0
50 0 0
55 0 0

No. 26.



Price.
£14 0 0
19 0 0
24 0 0
28 0 0
32 0 0
36 0 0
40 0 0
44 0 0

J. Jones & Sons will be happy to supply HOT-WATER APPARATUS for HOUSES according to any of the above Plans, delivered Free to any Station in England at the prices named, which include strong CAST-IRON CYLINDER or SADDLE BOILER, FURNACE DOORS, FIRE BARS, SOOT DOORS, CISTERN and DAMPER, 4-inch HOT-WATER PIPES and CONNECTIONS, all of the best quality; or will forward ESTIMATES for WORK erected complete, with WROUGHT or CAST-IRON BOILER of any sort, at a small addition to the above prices.

☞ *The Black Circles on Sections of Houses show the arrangement of Pipes.*

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Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 26.—1865.] SATURDAY, JULY 1. {Price Fivepence. STAMPED EDITION, 6*d*.

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ROYAL BOTANIC SOCIETY, REGENT'S PARK.—LAST GENERAL EXHIBITION THIS SEASON of PLANTS, FLOWERS, and FRUIT, WEDNESDAY NEXT, July 5.
Tickets to be obtained at the Gardens, and of the Society's Clerk; Austin's Ticket Office, St. James's Hall; or Vouchers from Fellows of the Society, price 5*s*.; or on the day of Exhibition, 7*s*. 6*d*. each.
Gates open at 2 o'clock.

BIRMINGHAM ROSE SHOW, in the Town Hall, Birmingham, on THURSDAY NEXT, July 6, commencing at 1 o'clock P.M. precisely; and on FRIDAY, July 7, at 10 A.M.

FLORAL and HORTICULTURAL FETE, to be held at PETERBOROUGH, in connection with the Northamptonshire Agricultural Society's Annual Show, on THURSDAY, July 6.
Premiums amounting to more than £200 will be offered for Competition. Open to All England. Prizes to be paid on the day of Exhibition. The Band of the Coldstream Guards, under the leadership of A. F. Godfrey, Esq., has been engaged.
SATURDAY, July 1, is the last day for Entries to the above.
The Schedule and Rules may be obtained of the Secretary, Mr. John Fox, 14, Narrow Street, Peterborough.

FLORAL and HORTICULTURAL FETE, to be held at PETERBOROUGH, in connection with the Northamptonshire Agricultural Society's Annual Show, on THURSDAY, July 6.
SPECIAL NOTICE.—The Committee beg to offer the following Special Prizes for Fruit, open to all England:—
For the best 2 BUNCHES of GRAPES, £3; Second Prize, £2.
For the best 6 PEACHES, £1.
For the best 6 NECTARINES, £1.
For the best PINE APPLE, £1.
For the best MELON, £1.
Entries for the above Prizes will be received up to 9 o'clock of the Morning of the Show, by JOHN FOX, Secretary, Peterborough.

CARTER'S GARDENER'S VADE-MECUM PLANT SUPPLEMENT is now ready.

New Plants for 1865.
JAMES CARTER AND CO.'S CATALOGUE of NEW and CHOICE BEDDING, GREENHOUSE, and STOVE PLANTS, is now ready, and will be forwarded gratis and post free on application.
JAMES CARTER & Co., 237 & 238, High Holborn, London, W.C.

CALCEOLARIA, CINERARIA, and PRIMULA, saved from the finest strains in cultivation.
2*s*. 6*d*. and 5*s*. per packet.
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First Quality.
CALCEOLARIA, PRIMULA, CINERARIA, CARNATION, PICOTEE, PINK, AURICULA, VERBENA, MIMULUS, ZONALE GERANIUM and PELARGONIUM.
Each 2*s*. 6*d*. per packet.
BARR & SUGDEN, 12, King Street, Covent Garden, W.C.

Calceolaria, Cineraria, and Primula.
E. G. HENDERSON AND SON offer Seed of the above, in first-class quality, at 1*s*., 2*s*. 6*d*., and 5*s*. per packet. STOCKS for next spring bloom, as SCARLET and WHITE INTERMEDIATE; also the fine ALBERT and ALEXANDRA INTERMEDIATE varieties. See the SEED CATALOGUE, page 44. DOUBLE GERMAN WALLFLOWER, mixed in varieties, or colours separate, 1*s*. per packet.
Wellington Nursery, St. John's Wood, London, N.W.

HOLLAND AND JONES' CATALOGUE of BEDDING, GREENHOUSE, and STOVE PLANTS is now ready, free on application.
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MRS. POLLOCK PELARGONIUM.—Healthy Spring-struck plants, 2*s*. 6*d*. each, well hardened for bedding out. The Trade supplied.—Address,
ALFRED FRYER, Nurseryman, Chatteris, Cambridgeshire.

CRYSTAL PALACE, ROYAL BOTANIC, and ROYAL HORTICULTURAL FLOWER SHOWS.
At these PLANT CASES will be exhibited in great variety, furnished with the Choicest Exotic Fern and Foliage Plants, arranged by
BARR & SUGDEN, of 12, King Street, Covent Garden, W.C.

NEW DEUTZIA CRENATA FLORE PLENO, 6*s*. per dozen.
NEW IRESINE HERBSTII, ornamental foliage bedding plant, 6*s*. per dozen.
NEW COLEUS MARMORATUS, 6*d*. each.
NEW LOPHOSPERMUM SCANDENS GRANDIFLORUM, 1*s*. each.
PASSIFLORA CŒRULEA, the hardy Passion Flower, 6*s*. per doz.
GERANIUMS TOM THUMB and FLOWER of the DAY, 15*s*. per 100, 2*s*. per dozen.
The Trade supplied on liberal terms.
JOHN TUCKER, The Manor Nursery, Burnham, Somerset.

Roses.
JOHN FRASER, of the Lea Bridge Road Nurseries, Leyton, N.E., respectfully invites an inspection of his COLLECTION of ROSES, which are NOW in FLOWER. The Collection contains many new and fine varieties.

Roses in Bloom.
PAUL AND SON'S COLLECTION of ROSES is NOW in BLOOM, and particularly worth seeing this season. They would solicit the favour of a visit from all Amateurs.
Trains from Bishopsgate to Cheshunt, one mile from the Nursery, hourly. The Old Cheshunt Nursery, Cheshunt, N.

Roses in Bloom.
JAMES MITCHELL respectfully informs the Nobility and Gentry his renowned ROSES are NOW in FINE BLOOM.
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Roses.
H. LANE AND SON, The Nurseries, Great Berkhamstead, beg to inform their Patrons and the Public that their COLLECTION (upwards of 7 acres) is NOW in BLOOM, at the Balshaw Nurseries, 1½ mile from the Station, and will continue during the Season.

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50,000 Standard and Dwarf Roses now in Bloom.
PROTHEROE AND MORRIS respectfully invite the Public to inspect their Unrivalled COLLECTION of ROSES, which for growth and beauty cannot be surpassed.
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PAUL AND SON'S NEW HYBRID PERPETUAL ROSE, PRINCESS MARY of CAMBRIDGE.—Colour beautiful rose, shaded at the edges with white, fine imbricated form, bright green foliage and vigorous habit. The Advertisers guarantee it to be a most beautiful and distinct flower.
Strong plants, 7*s*. 6*d*. each, 1st July. Early orders are solicited.
The Old Cheshunt Nurseries, Cheshunt, N.

Paul's Nurseries, Waltham Cross, N.
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WM. PAUL (Son and Successor to the late A. PAUL) begs to announce that his COLLECTION of ROSES is just COMING into BLOOM, and comprises many of his own Seedlings, and other novelties not to be found in any other collection. In addition to the Roses, BEATON'S GERANIUMS, and a second and third generation from them, will be blooming throughout the summer and autumn. The Collection of HARDY TREES with FINE FOLIAGE is unrivalled, and many large and perfect specimens of the choicer CONIFERS are now in fine condition for removal, and are well worthy of the attention of gentlemen and horticulturists who contemplate planting. Bearing trees of all the LEADING FRUITS, Dwarfs and Standards, Pyramids and Espaliers, in fine health and true to name. Inspection respectfully invited.
Waltham Cross, London, N.

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WM. CUTBUSH AND SON'S GENERAL NURSERY STOCK is the best near London.
GLADIOLI, fine, from 4*s*., 6*s*., 9*s*., & 12*s*. per dozen.
CATALOGUES on application.
Highgate Nurseries, London, N.

Hardy Ornamental Trees and Shrubs.
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PRICED CATALOGUES, consisting of upwards of 1500 species and varieties, may be had on application.
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B. S. WILLIAMS begs to announce that he has a fine Stock of the above, including all the best kinds. Prices on application.
Paradise and Victoria Nurseries, Holloway, London, N.

NEW GRAPE, "ROYAL VINEYARD," the best late White Grape extant. Strong planting Canes, 21*s*. each; strong fruiting, 42*s*. each.
B. S. WILLIAMS, Paradise and Victoria Nurseries, Holloway, London.

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PETER LAWSON AND SON, London and Edinburgh, have made arrangements to send out the above valuable acquisition in OCTOBER NEXT, and are now booking orders, which will be executed in strict rotation as received.
Plants 10*s*. 6*d*. each; a few extra strong at 21*s*. each.
Special terms to the Trade, and circulars with list of awards and further particulars may be had on application.

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RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

Large Orange Trees for Sale.
JAMES VEITCH has been commissioned by a Gentleman to offer for Sale the following large ORANGE TREES:—
No. 1 measures 9 feet high, including Tub, and is 4 feet 6 inches through the head.
No. 2 measures 9 feet high and 4 feet through the head.
No. 3 measures 8 feet high and 4 feet through the head.
The Tubs in which the trees are, are nearly new, and in capital order.
The Trees are in the neighbourhood of Havant, and may be inspected on application to
JAMES VEITCH, Royal Exotic Nursery, Chelsea, S.W.

J. IVERY AND SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

New Azalea indica.
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BEAUTY of DORKING.—White striped and spotted with rose, 10*s*. 6*d*. and 21*s*.
For a full description see CATALOGUE, which will be forwarded post free on application.—Dorking, July 1.

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The "Gardeners' and Amateurs' Friend," see page 601.
BARR & SUGDEN, 12, King Street, Covent Garden, W.C.

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H. AND F. SHARPE, SEED GROWERS and MERCHANTS, Wisbech.
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NEW and GENUINE AGRICULTURAL, GARDEN, and FLOWER SEEDS.
Special prices and advantageous offers on application to
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Seed Growers and Merchants, 7, Borough Market, London, S.E.

RAYNBIRD, CALDECOTT, AND BAWTREE, SEED FARMERS and MERCHANTS,
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INTERMEDIATE STOCK, COVENT GARDEN and VICTORIA VARIETIES.
Scarlet, Purple, White, or Mixed COVENT GARDEN INTERMEDIATE STOCK, each, 1*s*. per packet.
Scarlet, White, or Mixed VICTORIA INTERMEDIATE STOCK, very floriferous, and more robust than the Covent Garden varieties, each 2*s*. 6*d*. per packet.
BARR & SUGDEN, 12, King Street, Covent Garden, W.C.

Japanese Clematis.
MR. FORTUNE'S magnificent CLEMATIS STANDISHII and FORTUNII, doubtless two of the most important introductions of late years, received the unusual honour of Special Certificates at the Meetings of the Royal Horticultural Society, April 29 and May 2 last.
Strong Flowering Plants may be obtained of CHARLES NOBLE, Bagshot.

To the Lovers of Ferns.
MR. MASTERS, F.R.H.S., announces to the Public that he has devoted considerable attention to this most interesting tribe of Plants, and that he possesses a very large stock of them fit for the open Fernery, for Wardian Cases, or for the Greenhouse, &c., for which he solicits commissions.
Exotic Nursery, Canterbury.

British Fern Catalogue.
ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
*** Part II. (Exotic Ferns) will be issued as early as possible.
Foot's Cray Nursery, S.E.

Russell's Pyramid Primulas.
GEO. CLARKE is now prepared to send out in packets, price 2*s*. 6*d*. each, this, the finest breed of PRIMULAS in cultivation. The Seed now for sale has been saved from selected plants, so that it is believed the produce will be even superior to that of former years.
Printed instructions for raising and growing the plants sent with each packet. Stamps received in payment.
Nursery, Streatham Place, Brixton Hill, London, S.

Seeds from Choice Strains.
B. S. WILLIAMS can now supply good Seeds of the following:—
CINERARIA (Weatherill's extra choice strain).—B. S. W. has secured at a great expense the entire stock and right of exclusive sale from Mr. Weatherill, of his, the best strain of Cineraria in existence, and can now offer packets at the following prices:—3*s*. 6*d*. and 5*s*.
CALCEOLARIA (Herbaceous), from a fine strain, 2*s*. 6*d*. and 3*s*. 6*d*. per packet.
PRIMULA (Williams' superb strain), the finest fringed and the best coloured flowers in cultivation. Red, White, or Mixed Seed, 2*s*. 6*d*., 3*s*. 6*d*., and 5*s*. per packet.
Paradise and Victoria Nurseries, Holloway, London, N.

Newly Imported Orchids from Australia.
MR. VEITCH having received from his Son, Mr. JOHN G. VEITCH, from the North of Australia, a limited number of the TRUE DENDROBIUM HILLII, with two or three other very distinct and interesting-looking Dendrobes, will be glad to show these to any Orchid fanciers who may be pleased to call, and dispose of a few sets of each.
These Dendrobes being collected in a dormant state, were not seen in flower, and consequently no dried specimens were procurable, and no descriptions received with them.
Prices for the three species from Seven to Ten Guineas the set, according to the strength of the plants.
Royal Exotic Nursery, Chelsea, July 1, 1865.

CABBAGE PLANTS.—Fine DRUMHEADS, also DRUMHEAD SAVOYS; also fine EARLY FIELD IMPERIAL, to turn early, for Cattle feed, at 3*s*. 4*d*. per 1000, packed.
THOS. WELLAND, Surrey Gardens, Godalming, Surrey.

STRONG PLANTS of the leading best kinds of GARDEN CABBAGE, CATTLE CABBAGE, SAVOY, KAIL, CAULIFLOWER, BROCCOLI, CELERY, LETTUCE, ENDIVE, LEEK, &c., to be had of
JOHN CATTELL, Westerham, Kent.
Prices on application.

New Turnip Seeds.—Crop of 1865.
SUTTON AND SONS have now harvested New Seeds of all the leading kinds of TURNIP SEEDS, and the same will be ready for delivery in a few days from this date. The sorts are
Lincolnshire Red Paragon.
Hardy Green Round.
Imperial Green Globe.
Grey Stone.
Pomeranian White Globe.
Sutton's Green-top Yellow Hybrid.
Sutton's Early Short-top Sixweeks.
The crops of Seed being good, the prices will be reduced.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

To Market Gardeners, Nurserymen, Farmers, and Gentlemen Gardeners.
SUPERIOR DRUMHEAD CABBAGE PLANTS, 3*s*. per 1000.
CELERY PLANTS, Red and White, 1*s*. per 100.
KOHL RABI PLANTS, of the finest stock ever offered, 3*s*. per 1000
BRUSSELS SPROUTS, 5*s*. per 1000. | SAVOYS, 4*s*. per 1000.
CAULIFLOWERS, 8*s*. per 1000. Terms cash.
RICHARD WALKER, Seed Grower, Biggleswade, Beds.

GARDEN BORDER EDGING TILES, in great variety of patterns and material, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.

F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.

Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also TESSELATED PAVEMENTS of more enriched designs than the above.

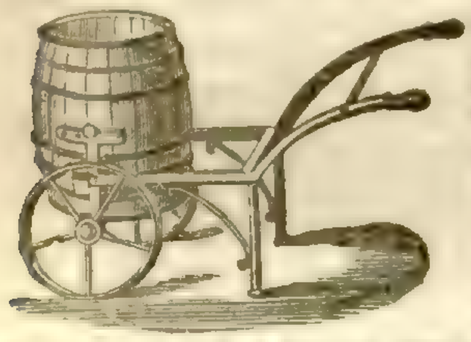
WHITE GLAZED TILES, for Lining Walls of Dairies, Larders Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cements, &c.

To be obtained of F. & G. ROSHER, at their Premises as above.

SILVER SAND (REIGATE, best quality), at the above addresses—14s. per Ton, or 1s. 3d. per Bushel; 2s. per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less.

FLINTS, BRICK BURRS or CLINKERS, for Rockeries and Grotto Work.

F. & G. ROSHER.—Addresses see above.
N.B. Orders promptly executed by Railway.



SWING WATER BARROW, to hold 36 Gallons, price 42s., carriage paid to any Station on the Great Eastern Line.

This is the best and cheapest article yet introduced; the water may be dipped out, or the tub tilted and poured out, or by merely raising the handle it can be placed on the ground and the frame detached.

Manufactured by W. S. BOULTON, Rose Lane Iron Works, Norwich.

Preserve your Hay!

RICKCLOTHS, NEW and SECOND, with POLES, PULLIES, &c., complete.

A PRICE LIST post free on application.

HAY. HAY.

Address, BENJAMIN EDGINGTON (only), 2, Duke Street, London Bridge.
No other Establishment.

Bee Hives.

PRIZE MEDAL and HONOURABLE MENTION AWARDED to G. N. & SONS, for BEE HIVES and HONEY at the VARIOUS EXHIBITIONS.

NEIGHBOUR'S IMPROVED COTTAGE BEE HIVE, as originally introduced by GEORGE NEIGHBOUR & SONS, with all the recent improvements, three Glasses and Thermometer, price 35s., securely packed for the country.

Several important novelties are introduced this season, including the Woodbury Straw and Bar-and-Frame Hive, price 21s., &c. Also the Engraved Pressing Roller, for the guidance of Bees in the construction of Honey-comb on the Bars, and impressed Wax Sheets, to assist in the formation of Cells.

Address, GEORGE NEIGHBOUR & SONS, 127, High Holborn, W.C.; or 149, Regent Street, London, W.

Their newly-arranged Catalogue of other Improved Hives, with drawings and prices, sent on receipt of two stamps.

AGENTS:—Liverpool: James Cuthbert, 12, Clayton Square. Manchester: J. Wilson, 50, King Street. Birmingham: J. H. Cottrell, 15, Bull Ring. Dublin: Edmondson Brothers, 10, Dame Street. Glasgow: Austin & McAslan, 16, Buchanan Street.

Caution to Gardeners.—When you ask for SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the corporate mark Oberon WARRANTED, without which none are genuine.

S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by sellers and makers.

S. & C.'s Pruning and Budding Knives are the best and the cheapest in the market.

Paxton Works, Sheffield. Established upwards of 125 years.

PRIZE ROLLERS for PARKS

PRIZE ROLLERS for LAWNS

PRIZE ROLLERS for CRICKET GROUNDS

PRIZE ROLLERS for GARDENS

PRIZE ROLLERS for ROADS.

PRIZE ROLLERS for the FARM.

The Best and Cheapest are the PATENT WATER BALLASTING ROLLERS, made only by the Inventors, AMIES, BARFORD, and CO., Queen Street Iron Works, Peterborough, who will forward Price Lists and all particulars on application.

PATENT GUTTA PERCHA SOLES—IMPORTANT TO GARDENERS.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. GLENNY, Esq., the celebrated Florist:—

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles.—Your obedient servant, "G. GLENNY."

Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Calbotype trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town or country.

The GUTTA PERCHA COMPANY, Patentees, 18, Wharf Road, City Road London, E.C.

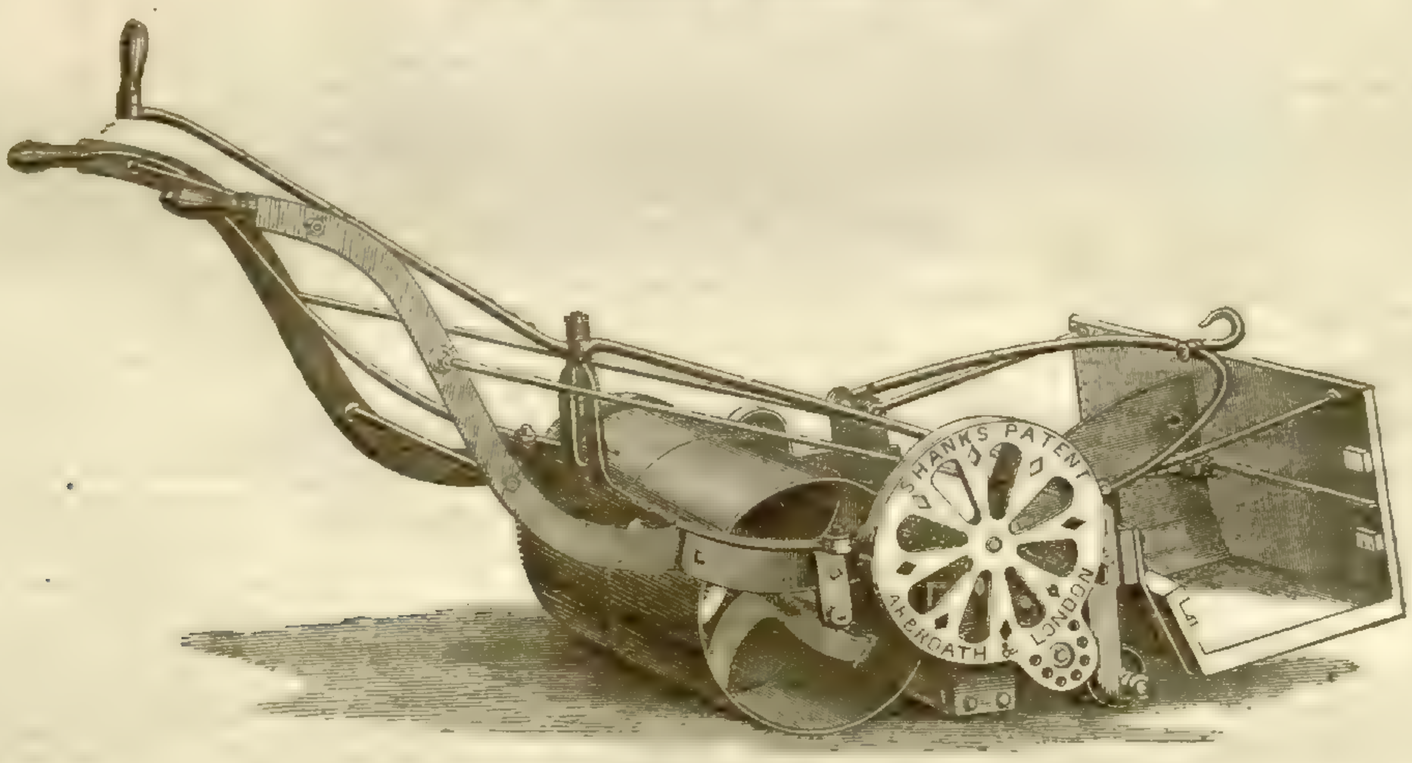
SHANKS' NEW IMPROVED PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1865.

PATRONIZED ON FIVE SEPARATE OCCASIONS DURING THE SEASON OF 1864 BY

HER MAJESTY THE QUEEN.

EVERY MACHINE WARRANTED.



PONY MACHINE.

PRICES—including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom.

SHANKS' NEW PATENT HAND MACHINE for 1865.

Width of Cutter.		
10-inch Machine	£3 10 0	*Easily Worked by a Lady.*
12-inch Machine	4 10 0	
14-inch Machine	5 10 0	*Ditto by a Boy.*
16-inch Machine	6 12 6	*Ditto by a Man.*

SHANKS' NEW PATENT HAND MACHINE for 1865.

Width of Cutter.		
19-inch Machine	£7 12 6	*Easily Worked by a Man and Boy*
22-inch Machine	8 7 6	*Ditto by Two Men.*
24-inch Machine	8 17 6	

Silent Movement for the five smallest sizes, 4s. extra; for the other sizes, 7s. 6d. extra.

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
25-inch Machine	£12 10 0	25s. extra.
28-inch Machine	14 10 0	30s. ,,
30-inch Machine	15 15 0	30s. ,,

Silent Movement, 12s. 6d. extra; Boots for Pony, 21s. per set;
Ditto for Donkey, 16s. per set.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus
30-inch Machine	£19 0 0	30s. extra.
36-inch Machine	22 0 0	30s. ,,
42-inch Machine	26 0 0	40s. ,,
48-inch Machine	28 0 0	40s. ,,

Silent Movement, 20s. extra; Boots for Horse's Feet, 24s. per set.

Shanks' Patent Lawn Mowers are warranted to give ample satisfaction, and if not approved of may be at once returned.

☞ A. S. & SON *beg to intimate that their Warehouse at 27, Leadenhall Street, is the only place in London where intending purchasers of Lawn Mowers can choose from a stock of from* 150 *to* 200 *Machines. All sizes are kept in stock, whether for Horse, Pony, or Hand Power, and orders are executed on the day they are received.*

PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N. B.

LONDON OFFICE and SHOW ROOMS, 27, LEADENHALL STREET, E.C.

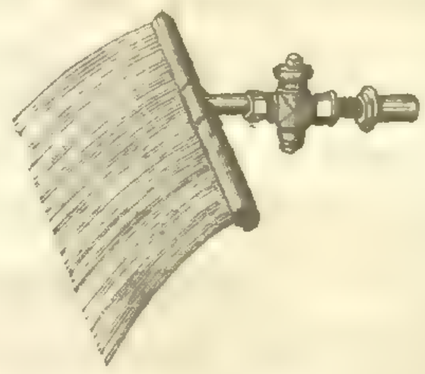
J. B. BROWN & CO.'S GARDEN IMPLEMENTS, TOOLS, &c.

SWING WATER CARRIER,

Of Galvanized Iron, Painted over inside and out.

PRICES—No. 1, 15 gallons, £1 15*s.*; No. 2, 20 gallons, £2; No. 3, 30 gallons, £2 10*s.*; No. 4, 40 gallons, £3; No. 5, 50 gallons, £3 10*s.*; No. 6, 60 gallons, £4.

PERFORATED SPREADER.



Fitted either to the Swing Carrier or the Oak Barrow, for Watering Lawns, Gravel Walks, &c., with Tap and Connections.

PRICE—£1 10*s.*

OAK TUB WATER BARROW.

PRICES—No. 1, 15 gallons, £3 7*s.* 6*d.*; No. 2, 28 gallons, £4 12*s.* 6*d.*

WROUGHT IRON GARDEN ENGINE.

In Galvanized Iron, Painted over inside and out, and with Registered Spreader complete.

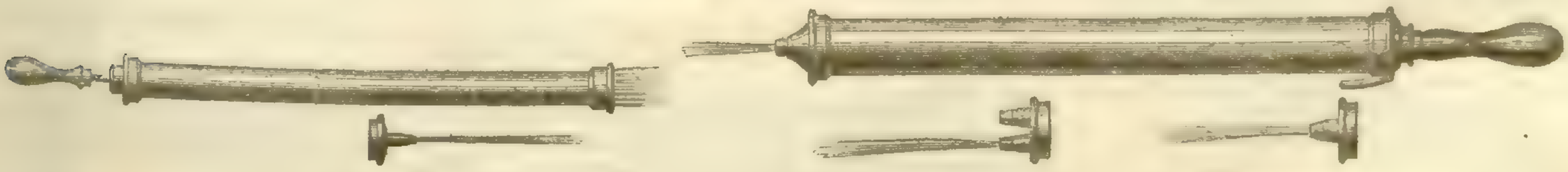
PRICES—To hold 10 gallons, £2 15*s.*; 12 gallons, £3 5*s.*; 16 gallons, £3 15*s.*; 20 gallons, £4 10*s.*; 24 gallons, £5; 30 gallons, £5 10*s.*

OAK TUB GARDEN ENGINE.

In strong Oak Tub, iron bound, Painted inside and out, with Registered Spreader complete.

PRICES—To hold 15 gallons, £5 10*s.*; 24 gallons, £6 15*s.*; 28 gallons, £7.

GARDEN BRASS SYRINGES.



READ'S PATENT.

No. 1.—12 inches long, 1 inch diameter, with Rose and Jet .. .. .. 5*s.* 0*d.*	No. 5.—Extra finish, 15 inches long, 1¾ inch diameter, with Rose and Jet .. 9*s.* 0*d.*
No. 2.—12 inches long, 1¼ inch diameter, with Rose and Jet 6 0	No. 6.—Extra finish, 18 inches long, 1½ inch diameter, with Rose and Jet .. 12 0
No. 3.—14 inches long, 1½ inch diameter, with Rose and Jet 7 0	No. 7.—Extra finish, with T handle, 21 ins. long, 1¾ in. dia., with Rose and Jet 15 0
No. 4.—14 inches long, 1¾ inch diameter, with Rose and Jet 8 6	No. 8.—Read's Patent, 20 inches long, 1½ inch diameter 18 6

GARDEN BRANCH PIPES, with loose screwed Rose and Jet, 12 inches to 24 inches long, and from ⅜ inch to ¾ inch, and Hose, 3*s.* to 12*s.* 6*d.* each.

HAND GARDEN ROLLERS, Single and Double Cylinders, 25*s.* to £7.

PONY and HORSE ROLLERS, £10 to £17 10*s.*

HYDROPULTS, 32*s.* 6*d.*, 35*s.*, and 42*s.*

GARDEN PAIL ENGINES, 27*s.* 6*d.*

PUMPS of every description.

LEATHER, INDIA-RUBBER, and CANVAS HOSE PIPE, UNION HOSE SCREWS, &c.

PRICE LISTS on application.

J. B. BROWN AND CO., OFFICES, 18, CANNON STREET, CITY, LONDON, E.C.

NEARLY OPPOSITE ST. SWITHIN'S LANE and "LONDON STONE," and near LONDON BRIDGE.

WAREHOUSE (where Goods are kept in Stock), 148, UPPER THAMES STREET, E.C.

OPPOSITE the CITY of LONDON BREWERY, and close to the LONDON BRIDGE STEAM BOAT PIERS.

ROBERT PARKER begs to offer the following, all of which are well-grown, clean, and healthy plants:—

	s.	d.
CLERODENDRON BALFOURII	5	0
CORDYLINE INDIVISA	10	6
FRANCISCEA CALYCINA	10	6
GOODYERA PUBESCENS	1	6
RHODODENDRON COUNTESS of HADDINGTON, 10s. 6d. to 21	10	0
" JAVANICUM	2	6
" NUTTALLII	2	6
TRITOMA GRANDIS	3	6
" UVARIA GLAUCESCENS	1	6
VINE DUCHESS of BUCCLEUCH 10s. 6d. and	21	0
YUCCA ALBO SPICA	42	0
" TRECULEANA, *cornuta, concava*	42	0

PRICED and DESCRIPTIVE CATALOGUES of Greenhouse, Hardy, and Stove Plants, Seeds and Bulbs, are published, and will be forwarded to applicants.

Exotic Nursery, Tooting, Surrey, S.

To Farmers, Gardeners, Stock-keepers, and Others.

F. GEE begs to offer the following, for Cash:—

RAPE or COLE-SEED, excellent sample, 13*s.* per bushel.

WHITE MUSTARD, 12*s.* per bushel. An excellent thing for early seed; also for ploughing in, as it will totally destroy many kinds of insects.

EARLY STRATTON GREEN TURNIP, New Seed, 8*d.* per lb.

DRUMHEAD CABBAGE and KOHL RABI plants, extra good, 3*s.* per thousand or cheaper by large quantities.

F. Gee, Seed Grower, &c., Biggleswade, Beds.

REIGATE SILVER SAND.—Best Kent and Surrey PEATS, LOAMS, SPHAGNUM, ROCK SANDSTONE, London-made FLOWER POTS, &c. Moderate Prices.

N.B. Loaded Trucks can be sent direct on all the Railways.

W. Short, Sand and Peat Depôt, Reigate, Surrey.

REIGATE SILVER SAND, 12*s.* per ton, at Swan Place; delivered 5 miles, or to any London Railway, 16*s.* per ton, or 1*s.* 6*d.* per bushel (sacks at cost price, or on hire).

KENTISH and other PEATS, YELLOW LOAM, LEAF-MOULD, SPHAGNUM MOSS, and COCOA FIBRE REFUSE.

J. Kennard, Swan Place, Old Kent Road, London, S.E.

COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 2*s.* per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the Patent Cocoa Fibre Company, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. Barsham & Co.

Barsham's BRUSHES and MATS are sold in every town.

Caution.—Every Brush is stamped, J. Barsham's Patent.

Manures and Feeding Stuffs.

RAYNBIRD, CALDECOTT, AND BAWTREE.

Address, 89, Seed Market, Mark Lane; or Basingstoke.

Samples and prices on application.

ODAMS'S BLOOD MANURE for CORN,
ODAMS'S BLOOD MANURE for ROOTS,
ODAMS'S SUPERPHOSPHATE of LIME.

Manufactured by

THE PATENT NITRO-PHOSPHATE or BLOOD MANURE COMPANY (Limited),

Consisting of Tenant Farmers occupying upwards of 30,000 Acres of Land.

Chairman.—John Clayden, Littlebury, Essex.
Managing Director.—James Odams.

Particulars of these standard Manures may be obtained at the Offices, or of the Local Agents.

C. T. Macadam, Secretary.

Chief Office: 109, Fenchurch Street, London, E.C.
Western Counties Branch: Queen Street, Exeter.

Manufactories: Plaistow, Essex; and Elford, near Topsham, Devonshire.

LAWES'S MANURES.—The Manures manufactured by J. B. Lawes for the present Season of 1865 are now ready for delivery at his Factories, at the following prices:—

LAWES'S PATENT TURNIP MANURE, and BONE SUPERPHOSPHATE of LIME, £6 6*s.* per ton.
LAWES'S SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES, £5 5*s.* per ton.
LAWES'S WHEAT, BARLEY, GRASS, and MANGEL MANURES, £8 per ton.
CONCENTRATED CORN and GRASS MANURE, £12 per ton.

These Manures can be obtained of Mr. Lawes, or through his appointed Agents, in all parts of the United Kingdom, at prices varying according to cost of carriage.

Genuine PERUVIAN GUANO direct from the Importers.

NITRATE of SODA, SULPHATE of AMMONIA, and other Chemical Manures. AMERICAN and other CAKES at market prices.

Address John Bennet Lawes, 1, Adelaide Place, London Bridge, E.C.; and 22, Eden Quay, Dublin.

THE LONDON MANURE COMPANY have now ready in fine condition—

DISSOLVED BONES,
SUPERPHOSPHATES of LIME,
TURNIP MANURE,
BLOOD MANURE for Barley and Roots,
URATE,
MANGEL MANURE, &c. &c.

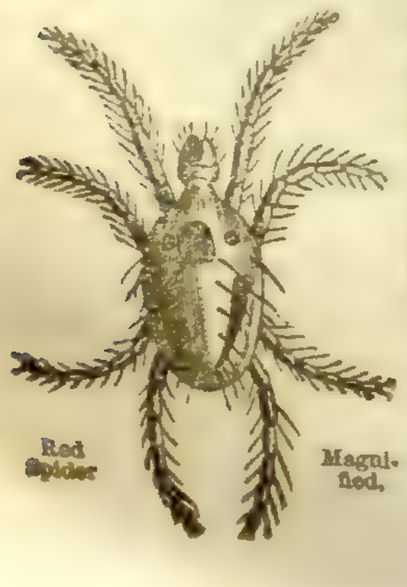
They also continue to supply GIBBS' PERUVIAN GUANO NITRATE of SODA, SULPHATE of AMMONIA, FISHERY SALT, and all Fertilisers of known value.

Works, Plough Wharf, Isle of Dogs.

Offices, 116, Fenchurch Street, E.C. E. Purser, Secretary.

CARBOLIC ACID.—The best qualities of this Acid for Commercial, Agricultural, and Veterinary purposes, may be had from the original Manufacturers, F. C. Calvert & Co., Royal Institution, Manchester.

Price Lists forwarded free on application.



GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes, 1*s.* 3*s.*, and 10*s.* 6*d.* each.

Wholesale by
PRICE'S PATENT
CANDLE COMPANY
(Limited).

NEW PLANTS.

JAMES VEITCH

BEGS TO ANNOUNCE THAT HIS

CATALOGUE OF NEW AND BEAUTIFUL PLANTS

Offered for Sale this Season is now ready, and will be forwarded Post Free on application.

ROYAL EXOTIC NURSERY, CHELSEA, S.W.—July, 1865.

FINE GREENHOUSE ORCHIDS.

NO FIRE HEAT REQUIRED, EXCEPT TO KEEP OUT FROST.

Good healthy Plants of the Six following beautiful species for Three Guineas.

SOPHRONITIS GRANDIFLORA	BARKERIA SKINNERI	ODONTOGLOSSUM GRANDE
LÆLIA SUPERBIENS	LYCASTE SKINNERI	EPIDENDRUM VITELLINUM.

A DESCRIPTIVE CATALOGUE may be had for four postage stamps.

JAMES BACKHOUSE AND SON, YORK NURSERIES.

THE ROYAL VINEYARD NURSERY and SEED ESTABLISHMENT, HAMMERSMITH, LONDON, W.

A CHOICE AND EXTENSIVE

COLLECTION of STOVE and GREENHOUSE PLANTS

ALWAYS ON VIEW. ALSO

FRUIT TREES, SHRUBS, AND ORNAMENTAL TREES,

FROM THE COUNTRY BRANCHES OF THE FIRM.

The SEED and GENERAL NURSERY BUSINESS is carried on here, and Packages are delivered free at the various London Railway Stations.

BRANCHES.

EALING NURSERY, G. CANNON, Manager.

Ten minutes' walk from the Ealing Station on the Great Western Railway Main Line.

FRUIT TREES, ROSES, and SHRUBS, are here extensively and successfully cultivated in some of the finest Loam in the county.

FELTHAM NURSERY, R. HIGHAM, Manager.

Ten minutes' walk from Feltham Station.

EVERGREEN and DECIDUOUS SHRUBS, and CONIFERÆ, are here largely grown in a free Loam, well suited to their habits.

At SION LANE and WOOD LANE NURSERIES, ISLEWORTH,

ORNAMENTAL TREES are in a healthy and thriving state, and GENERAL HARDY PROPAGATION is here carried on.

The Stock in the above Nurseries is well worth the inspection of purchasers. The prices are very moderate, and the Plants are frequently transplanted to ENSURE SAFE removal.

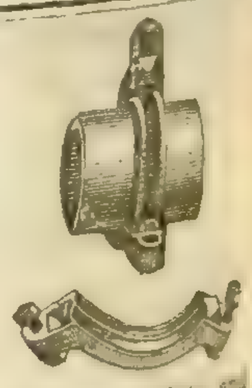
The following CATALOGUES are published, and will be forwarded Post Free on application:—

CATALOGUE of KITCHEN GARDEN, FLOWER, and AGRICULTURAL SEEDS.
CATALOGUE of STOVE and GREENHOUSE PLANTS.
CATALOGUE of SOFT-WOODED and BEDDING PLANTS.
CATALOGUE of FRUIT TREES and FRUIT TREES in POTS.
CATALOGUE of HARDY SHRUBS and TREES.
CATALOGUE of DUTCH BULBS, published in August.
CATALOGUE of ROSES.

JOHN AND CHARLES LEE, Proprietors, HAMMERSMITH, LONDON, W.

HOT-WATER APPARATUS,

WITH TRUSS' PATENT PIPE JOINTS.



T. S. TRUSS, C.E.,

53, GRACECHURCH STREET, LONDON, E.C.

By means of these Joints the work is executed in less than half the time required for Socket Joints, and alterations can at any time be made, or the entire Apparatus removed and erected elsewhere with the greatest facility. A considerable saving in cost is also effected.

These Joints have been used for several years, giving entire satisfaction, and may be seen in use at the Royal Horticultural Society's Gardens, South Kensington and Chiswick, and many other places in Horticultural and Public Buildings.

For a few prices, see last week's Advertisement.

ESTIMATES, PLANS, AND PRICE LISTS FORWARDED ON APPLICATION.

Choice Seeds for Present Sowing.

WM. PAUL (Son and Successor to the late A. PAUL) can confidently recommend the following FIRST-CLASS SEEDS—

	Per pkt.—s. d.
HOLLYHOCK, collection of 12 distinct sorts	5 0
choice mixed	1s. to 2 6
CALCEOLARIA, finest spotted, mixed	1s. 6d. to 2 6
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BROCKET HALL BROWN COS LETTUCE	1 0
EARLY DWARF ERFURT CAULIFLOWER	1 0

All other seeds of best quality at moderate prices.
CATALOGUE free by post.
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DOBSON'S CALCEOLARIA (New Seed).

CALCEOLARIA, UNEQUALLED HYBRIDIZED.—These are unapproached by any other in existence, and have given the greatest satisfaction. Each packet produces an almost endless variety of beautifully formed flowers, richly marked.
Packets, 1s. 6d., 2s. 6d., 3s. 6d., and 5s.
A Coloured Plate by ANDREWS, 1s. and 2s. 6d. each, post free.
J. DOBSON & SONS, Woodlands Nursery, Isleworth, W.

DOBSON'S CINERARIA (New Seed).

CINERARIA.—Saved from our Prize Collection, which obtained Ten First Prizes in 1862; and also from the splendid new varieties offered by us in Autumn 1864. Each packet contains a great variety, and produces superbly formed and richly coloured varieties, varying from white to crimson, and cannot fail to produce Flowers, equal and superior in many cases to named varieties.
Packets, 1s., 2s. 6d., and 5s.
J. DOBSON & SONS, Seedsmen, Isleworth, W.

DOBSON'S SUPERB PRIMULA (New Seed).

PRIMULA SINENSIS FIMBRIATA RUBRA.—Very finest fringed flowers only are selected for seed, and will be found to be very choice.—Packets, 2s. 6d and 5s.
PRIMULA SINENSIS FIMBRIATA ALBA.—This is a very choice strain, having large beautifully fringed flowers.—Packets, 2s 6d and 5s.
PRIMULA SINENSIS FIMBRIATA.—Finest mixed white and red.—Packets, 1s., 2s. 6d., and 5s.
J. DOBSON & SONS, Seedsmen, Isleworth, W

Specimen Tree Ferns, Palms, &c.

JAS. GARAWAY AND CO., Durdham Down Nurseries, Bristol, offer as under:—

Two DICKSONIA ANTARCTICA, a splendid pair, 5 feet full from pot to crown, 3 feet circumference at base, 2 feet 2 inches at 2 feet 6 inches high; crown 6 feet 6 inches across.
Two ALSOPHILA AUSTRALIS, a splendid pair, 5 feet from pot to crown; crown full 7 feet across.
One CYATHEA MEDULLARIS, with seven fronds, last 8 feet 3 inches long.
One LATANIA BORBONICA (Fan Palm), with 16 leaves, 6 feet high, 7 feet 6 inches across.
One PANDANUS UTILIS, 5 feet high, 6 feet across.
One CARYOTA URENS, with five leaves, last 5 feet 8 inches long.

The whole are in first-rate health, and are growing freely, are admirably adapted for conservatory use or for exhibition, and will be sold separately or in one lot.

The Tree Ferns are particularly fine plants, and J. G. & Co. do not think that purchasers will find equally fine and as well established specimens in any other Nursery.

Prices on application. Mounted Photographs of the first six, price 10s. 6d the set, free by post on receipt of stamps.

JAS. GARAWAY & Co., Durdham Down Nurseries, Bristol.

Choice Flower Seeds.

STANDEN'S "GARDENERS' and AMATEURS' FRIEND."

BARR AND SUGDEN, SEED and PLANT MERCHANTS, 12, King Street, Covent Garden, W.C.

CHOICE FLOWER SEEDS, each 2s. 6d. per packet.

CALCEOLARIA (JAMES' Prize), CINERARIA (Prize), PRIMULA FIMBRIATA, MIMULUS (BULL'S), ZONALE PELARGONIUM (BULL'S), VERBENA (BULL'S), CARNATION and PELARGONIUM.

Gardeners and Amateurs who desire to have *the richest coloured Flowers, the finest flavoured Fruits, and the most delicate Vegetables*, should use STANDEN'S "GARDENERS' and AMATEURS' FRIEND," a compound of the richest fertilising agents known.

Nurserymen who wish to have strong Vine Canes for their customers in Autumn, and a *smile* on the face of their plants always, should find STANDEN'S "GARDENERS' and AMATEURS' FRIEND" the article required. Sample Canisters, 1s. and 2s. 6d.; 1cwt. 5s. 6d., 1cwt. 6d., and 21s.

THE PAXTON FUMIGATOR.

The following notice of the PAXTON FUMIGATOR appeared in the "Floral Magazine" for May, 1864.

"The process of fumigation is a very unpleasant one, and it is therefore with considerable satisfaction that we can recommend an improved Fumigating Bellows, recently brought out by BARR & SUGDEN, of King Street, Covent Garden. The case to hold the Tobacco is made of solid Brass, so that there is no fear of its giving way with the heat, and as it is supplied complete for a small sum, it will be acceptable to many Amateurs. We have used it with much effect in our own Greenhouse."

The PAXTON FUMIGATOR, Price 10s. 6d. and 12s. 6d.

BARR & SUGDEN, 12, King Street, Covent Garden, W.C.

Queen's Graperies and Nursery, Park Street, and at 176, Western Road.

NOTICE IS HEREBY GIVEN, that the PARTNERSHIP heretofore subsisting between us the undersigned EDWARD SPARY and EDWARD CAMPBELL, carrying on the Trade or Business of Nurserymen, Florists, Seedsmen, and Grape Growers, under the style of SPARY & CAMPBELL, of Brighton, in the county of Sussex, was DISSOLVED on the 24th day of June instant, by mutual consent. All debts due to or owing from the said Firm will be received and paid by the said EDWARD SPARY. As witness our hands this 27th day of June, 1865.

EDWARD SPARY,
EDWARD CAMPBELL.

Witness: FREDERICK COODE, Solicitor, Brighton.

ROYAL HORTICULTURAL SOCIETY.

JUNE 24, 1865.

SPECIAL PRIZES offered by SIR C. WENTWORTH DILKE, Bart., for the most tasteful ARRANGEMENT of a DINNER TABLE A LA RUSSE for 10 Persons.

AWARDS of the JUDGES.

1st Prize, Messrs. W. P. & G. Phillips, 155, New Bond Street, £10 10s.
2d, Mrs. Dalton, The Haven, Ealing, £7 7s.
3d, A. D. Chapman, Esq., 22, Norfolk Street, Park Lane, W., £3 3s.
Highly Commended, Messrs. Dobson & Pierce, 19, St. James's, Piccadilly, W.
Highly Commended, Mrs. Read, 11, Lower Grosvenor Street, Grosvenor Square.
Commended, Mrs. Naylor, 7, Princes Street, Cavendish Square.

LADIES' PRIZES offered by the PROPRIETORS of the *GARDENERS' CHRONICLE* for the best FINE FOLIAGE or FLOWERING PLANT, and ORCHID GROWN in a ROOM.

AWARDS.

Viscountess Doneraile, 9, Grosvenor Place, S.W., for fine foliage plant, Gymnostachyum Verschaffelti, £10.
Miss A. M. Williams, Sutton House, Highgate, N., for an Orchid in flower, Aerides affine, £10.

IMPLEMENT SHOW.

CLASS 38.—GARDEN MOWING MACHINES DRAWN by HAND.
Second-class Certificate, Messrs. Barnard, Bishop, & Barnard, Norwich, for simplicity of gearing adapted to small machines only.

CLASS 47.—GARDEN ENGINES with TWO WHEELS, ZINC TUB.
First-class Certificate, Mr. R. Read, 35, Regent's Circus, Piccadilly, for good arrangement and excellency of workmanship.

CLASS 53.—SYRINGES of ALL KINDS.
First-class Certificate, Mr. R. Read, for good arrangement and excellency of workmanship.

CLASS 57.—PUMPS for CONSERVATORIES, MOVABLE.
First-class Certificate, Mr. R. Read, for good arrangement and excellent workmanship.

CLASS 60.—GARDEN FLOWER POTS of ALL KINDS in POTTERY-WARE.
First-class Certificate, Mr. Dominy, Foreman to Mr. J. Veitch, Royal Exotic Nursery, Chelsea, for an Orchid pot with false bottom and perforated sides, well adapted for aërial Epiphytes.

CLASS 83.—BOILERS for HEATING.
Commended, Messrs. Pierce & Easton: the peculiarities of this boiler consist in its horizontal elongation in the form of a 9-inch pipe, with smoke flue passing through its centre to absorb all the heat from the fire, and requires no fixing in brickwork.

CLASS 85.—HOT-WATER PIPES SHOWING the DIFFERENT SYSTEMS of JOINTING.
The Judges consider the Pipe Joint exhibited by Mr. Truss merits the opinion passed upon it by the Judges at the Implement Exhibition last year.

LANGPORT FLORAL and HORTICULTURAL FETE.

PATRONESSES.	PATRONS.
Lady Anna Gore Langton	Sir A. P. B. A. Hood, Bt., M.P.
Mrs. Combe	W. H. P. Gore Langton, Esq., M.P.
Mrs. Uttermare	Colonel Pinney, M.P.
Mrs. Coles	G. D. W. Digby, Esq.
Mrs. Scott Gould	R. Neville Grenville, Esq.
Mrs. Hyde	F. H. Dickinson, Esq.
Mrs. Henslowe	R. T. Combe, Esq.
Mrs. Quekett	Rev. E. P. Henslowe
Mrs. E. Bagehot	T. B. Uttermare, Esq.
Mrs. F. M. Eastment	John Wood, Esq.
Mrs. James Parsons	Edward Bagehot, Esq.
Mrs. Warren	F. M. Eastment, Esq.
Mrs. Watson Bagehot	James Parsons, Esq.
Mrs. Wm. J. Hill	Watson Bagehot, Esq.
Mrs. Larcombe	John Larcombe, Esq.

The NEXT GRAND FLORAL and HORTICULTURAL SHOW (Open to All England), will be held in the Grounds of HILL HOUSE, on THURSDAY, the 3d August next, when Two Silver Cups and various other Prizes will be offered for Competition.

By the kind permission of Edward Quekett, Esq., the Museum in the Hanging Chapel will be open to the holders of Tickets for the Fête.

A Military Band will be in attendance.

The Train arrangements will be announced in July.

Inventors or Manufacturers of Garden Implements, or Ornaments are invited to contribute specimens.

Schedules, Tickets, and other information may be obtained of the Secretary.

VINCENT STUCKEY, President.
FREDERICK MAJOR, Secretary.

Langport, July 1.

The Gardeners' Chronicle.

SATURDAY, JULY 1, 1865.

MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY, July 5	Royal Botanic (Last Great Exhibition)	2 P.M.
SATURDAY, — 8	Royal Horticultural (Show of Ornamental and Variegated-foliaged Plants), at South Kensington	2 P.M.

WE give a prominent place to the following letter from a distinguished foreign correspondent, on the question of INTERNATIONAL HORTICULTURAL EXHIBITIONS, as it may convey some useful hints to the promoters of the London meeting of 1866, which is now in course of organisation, as well as to those of others which are to follow:—

"The great International Exhibitions of Brussels and Amsterdam were high garden feasts. Every one who was present will retain a lasting remembrance of the courtesy, kindness, and hospitality shown to them by our excellent friends the Belgians and the Dutchmen. But as there are more of such exhibitions in contemplation, one may hope to do more good for the grand question of gardening by proposing to the judgment of competent men certain alterations for future exhibitions, than by simply repeating once more the gratitude we shall ever feel. We know very well that this task is a disagreeable one. Every one who proposes improvements risks being ranked amongst the dissatisfied and querulous. Nevertheless, our wishes for the general improvement are greater than would be the satisfaction of being acknowledged '*de bons enfans*.'

"Such Congresses combined with exhibitions can only mean the promotion of gardening. Hence our first claim is to see named two Presidents—one a most distinguished practical gardener, or a really intelligent possessor of some garden; the other an excellent botanist, but a garden botanist, a man who understands garden questions. Let the elder of the two be the President, the younger the Vice-President; and name as many Honorary Presidents as you like (or none at all—quite at your convenience), but if so, take them from amongst both practical and theoretical men. We wish once for all to see avoided the appearance of a supremacy of botanists over practicians in these reunions of both.

We regard it a great fault if, as was the case at Amsterdam, the members of the Congress are divided into separate practical and theoretical sections. But if this really must be done, no one will disagree with us that it is still a greater fault to have the meetings of both sections at the same time, so that no one can deal with both. Gardening can only be promoted by the friendly intercourse of gardeners with men of science, botanists, agriculturists, chemists, meteorologists, architects, &c.

"Since liberty is the mother of every good thing, we venture to say that every one should be allowed to speak about what he thinks proper. We should hope that common sense would induce the speakers not to talk the poor auditors to death. The rule, not to speak more than 15 minutes, provided the meeting does not allow more, appears to be a very good one, for "truth may be enclosed in a nutshell." We would not see the Committee involved in responsibility by accepting and publishing the themes beforehand. Experience has proved that many do not attend who had intended to do so; that many are not present when they ought to be; and that many come who could not promise beforehand. Then it must be more agreeable to the Committee to have no responsibility of this sort. How grieved must have felt the excellent Dutch botanists, who are quite *au niveau* of science, when in their programme (p. 9) they were compelled (?) to announce: "critique raisonné et réfutation sur la théorie des boyaux polliniques," proposed by M. LEMAIRE? Surely their grief was only surpassed in intensity by the general silence, full of contempt, which followed M. LEMAIRE's speech. He could not understand how a pollen-tube could penetrate so quickly through a long style! If he could not, why had he not taken some lessons from a botanist? For such extravagancies we claim the sharpest criticisms of the press, whose duty it is to take vengeance for such anachronisms. We demand from every one who takes part in such a meeting, the very basis of all wisdom, to know where one begins to know nothing.

"The greatest prudence should be used in the selection of jurors. What a crowd of jurors did one see at Amsterdam! Were they all competent, and were they well classed? We remarked Mr. V., of a splendid nursery, renowned for the importation of foreign plants, judging Onions. We saw Mr. K., one of the most experienced Orchid growers, judging bouquets. We saw men who are anxious never to expose their precious bodies to the unhealthy heat of stoves, amidst the stove plants,—one even admiring the magnificent "Piperaceæ," whose name he had learned to be Cyanophyllum magnificum.

"Take few jurors but men of experience, knowledge, and good will, and set them to such sections as they really understand. Make one hour's pause after the scrutiny; let the Secretary then read once more the verdict, and give every member of the section the right of asking a second judgment if any doubt has come over him about the justice of the first.

"The jurors should neither be gardeners who have no reputation, nor rich men who possess gardens without having any knowledge, nor such botanists as are not quite *au fait* in garden questions—least of all such as deal only with Cryptogams. Let obscure gardeners improve their experiences; let rich men enjoy their sport; let botanists do their useful or useless work: allow them even to describe the same species in three different genera of one monograph, let them work out splendid memoirs on the botanical physiognomy of lands they have never seen, let them write about plants they do not understand; but never, from an ill-placed courtesy, allow such men to sit in judgment upon the honour and wealth of the exhibitors." *H. G. R.*

No faculty is perhaps so rare as that of being able to look with equal impartiality on both sides of a question. Half the mistakes of systematists arise from this circumstance alone; and in Botany especially we shall still have thousands of false species to lead us astray, till those who propose them, turn their eyes from books and Herbaria to see what takes place in free Nature and under cultivation.

VARIATIONS IN PLANTS arise frequently in

gardens under our eyes, which are at first sight more important than those which are considered quite sufficient for the proposition of a new species. A shoot occurs on a Rose, differing from all others in having opposite leaves (Rosa cannabifolia); branches on the Honeysuckle or Mulberry bear leaves differing strangely from the primitive form; plants with compound leaves, as the Ash or Arum trifoliatum, produce simple leaves; the number of divisions is abnormally increased, as in the five-leaved Strawberry; or trees with spreading or erect branches produce seedlings in which they are curiously drooping. And so on, with respect to a hundred other deviations. It is the horticulturist's business to avail himself of these changes, if they are such as either for ornament or utility suit his purpose. It is to attempts in this direction which date beyond historic times, far more than to hybridisation, as is often alleged, that we owe the greater part of our most esteemed culinary or staple plants; and the great point is to fix the distinguishing properties so as to hand down any new objects of interest to future times. So long as they admit of propagation by grafting, budding, or cuttings, there is comparatively little difficulty about it, as it is simply carrying on what Nature has already effected; but the moment that the only method is by seed, not only admixture by intercrossing with other varieties, but the tendency which all plants under cultivation have to vary, comes in to try the horticulturist's skill. We are greatly indebted to Monsieur VERLOT for the mass of information on this subject which he has brought together in the treatise to which we alluded last week.

In the case of hybrids, the preservation of any particular form in health and purity is a matter of extreme difficulty, as hybrids fertilised with their own pollen, to the exclusion of any other, have in themselves a tendency to increasing weakness and variability. Hybridisation between distinct genera if possible, as the case of Brizanthus erectus, from Menziesia cœrulea and Rhododendron Chamæcistus, and that of a successful crossing between Kalmia latifolia and Rhododendron catawbiense, seem to prove, is not likely to lead to the formation of useful varieties of ornamental plants, as the result is at any rate completely sterile.

The same cannot be said exactly of hybrids between two distinct species, though there is an intimate connection between variability and sterility, as there is a tendency to increased sterility by interbreeding.* In some cases the two specific essences are so loosely intermixed that different plants of the hybrid exhibit separately the characters of the pure parent species in different parts. In a hybrid, for instance, of Datura Stramonium and D. lævis, M. NAUDIN found capsules which were spiny on one side, and smooth on the other. Cytisus Adami cannot be cited as a proof, as its supposed hybrid origin from C. Laburnum and C. purpureus is very doubtful, and it is believed rather to be due to an accidental branch which sprang from C. purpureus grafted on C. Laburnum. True hybrids, it is clear, must be limited by the characters of their parents; and though they may be the source of variations, they are not likely to lead to the creation of races, or of true permanent varieties.

When, however, we have intercrossing between a species and its varieties, we have frequently immense fertility, and an almost unlimited difference of produce, and one of the principal objects of the cultivator is to avail himself of these differences, and either by skilful intermixture to increase any valuable qualities as much as possible, or to make them permanent.

In causing the production of new varieties, those individuals must be selected which depart most from the normal form. A selection again must be made from the second generation with the utmost care to exclude every individual which shows a tendency to reversion; and this process being repeated a certain number of times, we shall obtain a race which has in a great measure lost its hereditary tendencies, and, on the contrary, is extremely subject to vary. Selection can then be made amongst those individuals which possess either the qualities which we propose, or which have some distinguishing merit; and the same course of rigid selection being applied to these, accompanied by as perfect isolation as may be possible to prevent the access of strange pollen, we shall have a tolerably permanent variety, though it will still be necessary to raise the seed with great care to keep it pure, exactly as is the case with our culinary vegetables, which, as almost every one knows, cannot be kept pure from seed raised in small gardens, where there are no opportunities of isolation, and where the scale is not sufficiently extensive to insure a tolerably uniform result; whereas on a large area the plants which exhibit a contrary habit can at once be ruthlessly destroyed. It is in this way that M. VILMORIN succeeded in obtaining many varieties of ornamental plants, which have been of great importance in horticulture.

There is, however, a difficulty, which Monsieur VERLOT states as follows:—

"Such are the rules from which the intelligent florist must not depart. We must add, however, that selection, such as we have indicated, has the grave fault of resting on external characters only, the only ones unfortunately which are appreciable. The observations of M. VILMORIN show that plants perfectly like each other, obtained from the same self-impregnated parent, present different aptitudes for reproducing the parent. The seeds of a certain number of plants of a Camellia Balsam dotted with crimson, which was produced accidentally amongst those of the variety dotted with violet, were collected and sown separately. All presented in the highest degree the characters which M. VILMORIN wished to fix, nevertheless the seed of a certain number of them gave only a mixture with the violet-dotted variety from which they had originally sprung, whilst others reproduced only their parent, and that in perfection. The same was the case with the double Tagetes, which M. VILMORIN only succeeded in obtaining constantly double by sowing separately the seeds of chosen individuals, and propagating from those only which had produced none but double flowers. Out of six plants two only were pure."

So difficult is it to conquer entirely the hereditary tendency.

We must distinguish carefully this fixation of varieties from attempts at fixing the results of hybridising. Where there are other means of propagation, which may be called mechanical, we may succeed, but where they can only be raised by seed, we have to contend against inherent weakness, sterility, and variability. In intercrossing, on the contrary, constant care and intelligence may lead to new races and varieties, which with continued application may be made permanent. *M. J. B.*

* One of our most eminent horticulturists, who has paid particular attention to raising varieties of Azalea, in which he has had great success, has lately informed us that he finds an increasing sterility amongst his plants; and that he has now great comparative difficulty in getting capsules to set when treated with strange pollen, a striking confirmation of Mr. DARWIN's doctrine of interbreeding causing sterility.

—— THOSE of our readers who are interested in Muscology will be glad to know that Dr. SCHIMPER, a great authority amongst the Mosses, is now in this country examining the chief herbaria of these interesting plants, and visiting the localities of the rarer species. He has already been engaged in carrying on his investigations in Ireland, whence he proceeds to Wales, and thence to Scotland. One object of Dr. SCHIMPER'S visit is geological, namely, to ascertain if there is any geological evidence of our island having passed through two glacial periods, with an intervening period in which vegetable life was luxuriant and animal life abundant, as appears to have been the case in other parts of Europe.

—— Mr. BATEMAN has pointed out recently in the *Botanical Magazine* that the Orchid he had called Dendrobium marginatum is properly the DENDROBIUM XANTHOPHLEBIUM described in our volume for 1857 (p. 268). The stems as they get old, lose the sparse clothing of black hairs which are evident during their early stages of growth, and hence the true position of the plant was not ascertained, and this led to a new name being imposed—a name which must give place to the prior one of D. xanthophlebium.

—— We mentioned briefly on a former occasion that the COLLECTIONS OF NATURAL HISTORY, formed in South Africa and Brazil by the late Dr. W. BURCHELL, during his long travels in those countries, have recently been presented by his surviving sister to the National Museum of Botany at Kew, to which we should also have added the New University Museum of Oxford. The botanical collection consists not only of an immense number of specimens, dried in the ordinary manner for the herbarium, but also of seeds, sprigs, branches, sections of wood, &c., illustrating the characters of the various species of plants; whilst the zoological portion consists of the skins, skeletons, horns, skulls, hoofs, &c., of quadrupeds, a large number of bird skins, serpents, fishes, and nearly 20,000 specimens of insects. All these collections have been made with the most minute care with reference to their geographical distribution, times of capture, periods of flowering, &c., accompanied by notes; forming an invaluable illustration of the botany and zoology of these two countries.

—— Mr. BERKELEY has suggested a series of experiments in order to test the EFFECTS OF THE MYCELIUM OF FUNGI upon growing plants. He recommends that young trees, such as Peaches, Plums, &c., should be potted in different composts in which spent soil from Mushroom beds, fragments from the base of faggot stacks, imperfectly rotted leaf-mould, &c., should form part. Some useful results, he believes, might ensue.

New Plants.

296. PHALÆNOPSIS AMETHYSTINA, n. sp.

Aff. P. Wightii, angulo labelli obtusissimo, labelli laciniis lateralibus rotundulis, lacinia media cuneato-obovata sinuato biloba, callo depresso forcipato in basi, carinis a basi in medias partitiones laterales apice libero setaceis, stigmate immerso.

Folia cuneato-obovata acuta, nunc dente prosiliente. Pedunculus viridis paulo incrassatus. Bracteæ triangulares pallidæ minutæ. Flores illis Cleisostomatis latifolii paulo majora; sepala oblongo-ligulata obtusa; petala subæquantia subbreviora; labellum cum mento articulatum triparitum; partitiones laterales cuneato flabellatæ, apice obtusatæ, carinula angulata antrorsum acuminato-setacea liberis in limbis posticis; partitio media cuneato-obovata sinuato biloba s. obcordata, callo depresso bidentato in basi; columna clavata, rostello bidentato; caudicula cuneato-oblonga; polliniis geminis oblongis sulco utrinque exarato bipartitis. Flos lacteus; labellum ac columnæ apex purpurei.

We mistook this species, which is very small-flowered, and yet a pretty thing, for Ph. Wightii, thinking it changed by culture. It was a most happy accident that J. Day, Esq., got in the meanwhile the true Ph. Wightii, and was thus able to point out that the differences we had believed to be accidental were permanent. The flowers are cream-coloured, and have a very pretty amethyst-coloured lip. According to our present knowledge it would appear to be the dwarfest of Phalænopsids, since even Ph. deliciosa and Hebe have larger flowers. Mr. Day suggests it may be of Sondaic extraction, but without being quite sure.

297. PHALÆNOPSIS WIGHTII, *Rchb. fil. in Moll & Schlechtendal B. Z.* 1862, 214.

Angulo labelli acuto calcar mentiente, labelli laciniis lateralibus cuneato-flabellatis retusis, lacinia media cuneato-obovata apice forcipata sinu varie aperto, carina a basi in unguem laciniæ mediæ, bene biseta, carina dorso nodosa apice libero setacea in limbo postico laciniarum lateralium, stigmatis fovea latissime limbata.

When we were looking over Dr. Wight's Indian Orchids, a few species fell in our hands whose acquaintance that zealous botanist had made after the close of his most useful work. These were kindly left to us. Among them was a most interesting though small-flowered Phalænopsis, found both at Quilon and at Colloyan. Its Quilon habitat may suggest the suspicion of its being also Cingalese. Later we obtained quite the same plant from J. Day, Esq., and this proved to be one of Messrs. Low & Co.'s recent introductions from Burmah, through the Rev. C. S. Parish. We have before us sketches of four plants, proving that the shape of the leaves is subject to many variations. They are ligulate elliptic or obovate, even acute; and from a coloured sketch of Dr. Wight's, sometimes brownish. The flowers occur in a simple raceme or in a panicle. They are yellowish white, with some purple spots, or quite white; the lip always amethyst-coloured. The Malabar plant would appear from Dr. Wight's sketch to have more vivid colours than the Burmese one. We have now in England a full dozen of living Phalænopsids, and may expect some more good things to be obtained while these splendid plants are the subjects of so much enthusiasm. *H. G. Rchb. fil.*

KITCHEN GARDEN PLANTS.—No. V.

THE CABBAGE.

IT would seem that a somewhat remote antiquity is claimed for the Cabbage, for although the period of its first cultivation appears to be involved in obscurity, it can with certainty be traced back several centuries. It was extensively cultivated and much esteemed by the Romans while they inhabited this country, and it is considered to be very probable, that like other productions, particularly fruit, some of the more improved varieties of the Cabbage (Brassica oleracea capitata, our common White Cabbage) were brought by these people into this country, and cultivated near their camps, from which they may have been diffused over the country.

The Brassica oleracea, or Wild Cabbage, grows naturally on the cliffs of Dover; in many places on the coast of Dorsetshire, Cornwall, and Yorkshire; and I believe on some of the sea coasts of the Highlands of Scotland. "It may be seen a wild plant with variously indented, much waved, and loose spreading leaves of a sea-green colour and large yellow flowers. In spring the inhabitants collect the leaves of this plant, and, after boiling them in two waters to remove the saltness, use them as a vegetable along with meat." From this have originated all the varieties of Borecoles, Cabbage, Savoys, Brussels Sprouts, Cauliflowers, Broccoli, and Kohl Rabi now in cultivation. Oliver Goldsmith, in his "Animated Nature," says that animals which have been longest under the care and protection of man, are those which have sported into the greatest number of varieties; and certainly few, if any, of our cultivated plants have sported so extensively or differed from the original type, both in appearance and qualities, so much as the many varieties of Brassica oleracea.

I propose in this and a succeeding paper or two to notice some of the best varieties in each of the sections into which the Brassica tribe has been divided. Commencing, therefore, with the Cabbage, the first on the list shall be old Sugarloaf, now not so generally

grown as it was 20 years ago. It has, however yet many admirers. Its peculiar growth makes it a very distinct variety; it is generally classed among the earliest, and is much esteemed when cooked.

Early Combe, Barnes' Early Dwarf, and Green's Early are now almost out of cultivation; the second is most frequently met with. They were dwarf and early varieties, and small in size.

Cotterill's, or Early Champion, is a capital dwarf early Cabbage, forming good close heads. Sealey's Early is also an excellent dwarf early Cabbage, very similar to the foregoing.

Improved Matchless, raised by Mr. Harman, of Durham, near Uxbridge, is a very close and dwarf early variety of fine quality, but scarcely so dwarf as Sealey's and Champion. This is a great improvement on Atkins' Matchless.

Early York is later than the preceding, dwarf, and very close-headed; the leaves rib in a very peculiar manner, and are of a dark colour. This is a good variety for sowing in summer, to plant out in autumn.

Improved Nonpareil is a really first-class early dwarf Cabbage, when a good stock of it can be obtained. It is very early, dwarf, and close-headed, and keeps well. Very similar to this is a Cabbage grown in Herefordshire, Cheshire, and one or two of the neighbouring counties, called Downton Castle Early Dwarf. Many other excellent stocks of early dwarf Cabbages may be met with about the country, like that just mentioned, each having its own local reputation, and generally in the hands of some particular seedsman. Hence, nearly every seed dealer has his own early dwarf Cabbage, and all are invariably of excellent, though not very diversified character.

Pontefract Cabbage is a very fine early dwarf variety, grown largely by the market gardeners in that district. It has however found its way into the hands of one or two of the wholesale seed houses in London, and has no doubt been already catalogued by them.

Beck's Early Premier is a large-sized early Cabbage, and one greatly esteemed in the Midland districts, where large Cabbages are much sought for. It is comparatively new, and was sent out by Messrs. Beck, Henderson, and Child, of London.

Early Battersea, or Fulham, proved to be dwarfer but larger in size, and earlier than the old Nonpareil; it is a very fine variety, which appears to be the same as Sheppard's Early Marrow. London Market is not unlike the foregoing in character, but is wider and looser in growth. Enfield Market, or Mitchell's Prince Albert, also greatly resembles the Early Battersea, but is generally considered to be larger and a little later. It has a world-wide reputation, and it is one of the staple varieties of the present day. Wheeler's Imperial is a well-known early Cabbage, but greatly resembles some of the foregoing. It is undoubtedly a first-class strain.

Shilling's Queen is also a very early dwarf Cabbage, tender, juicy, and excellent in flavour; in the opinion of many gardeners, especially those of the old school, it has not yet been surpassed by any other sort.

East Ham or Vanack is a good dwarf sound early variety, short in the stem, and large in the head; in some districts it will grow to a very great size. It is highly recommended for a general crop.

Large York, Oxheart, or Heart-shaped, is a tall and somewhat loose-growing late Cabbage. Large American, or Imperial, is a very late tall variety, but strongly recommended for cottagers' gardens, as it is one that can be planted closely together.

Blenheim is a large second early, the foliage of which is of a light-green colour, but as it sometimes betrays a tendency to succumb to frost, it should not be planted in exposed situations. Early Plaw, or Emperor, is very much in the way of Blenheim, but the leaves crop more; it is a good second early variety.

Late Battersea and Drumhead or Scotch are very much alike, the former growing a little dwarfer than the last. They are generally employed for agricultural purposes, in common with the Thousand-headed, and the Green and Purple Kohl Rabi or Turnip-rooted Cabbage.

The Coleworts, known as the Green and Rosette, are used for bunching when young in early spring. They are very hardy, and soon form small heads.

Couve Tronchuda or Portugal Cabbage is a tall-growing variety, producing a large loose head, which, when cooked, is as tender and delicious as Asparagus. In the opinion of some it is the Asparagus Kale, and some London seedsmen send the Couve Trouchuda out for it. In the report of trials at the Horticultural Society's garden at Chiswick, as far back as 1852, appears the following passage:—"It may, perhaps, be useful to know that the 'Asparagus Kale' of some nurserymen's seed lists has proved here to be the Couve Trouchuda, or Portugal Cabbage, the white mid-ribs of whose leaves are prepared and eaten something after the manner of Seakale."

Cabbage has been well termed "a voracious vegetable." Blood and offal from the shambles of the butcher, night-soil and the putrefying contents of the cesspool, are not found to be too gross for its gormandizing propensities. This treatment may apply more properly to its cultivation in fields than in gardens, but every gardener finds it to be necessary to richly manure the ground on which he grows his Cabbages. All who wish to have tender and juicy Cabbages ought to trench or dig deeply, bestowing on the ground at the same time a liberal supply of manure, with abundance of liquid manure and water during the prevalence of hot dry weather. It is of great advantage to autumn and early spring-planted Cabbages to be placed in shallow trenches, for the double purpose of shelter and convenience of supplying liquids; when the plants are earthed up the ground is level, and less liable to be injuriously affected in hot weather. The method of growing Cauliflowers in Cheshire, in deep trenches between raised beds of Potatos, is a confirmation of this principle, the large heads thus obtained being much esteemed in the Liverpool and Manchester markets.

It appears that the ancients placed great faith in the medicinal qualities of Cabbages. According to Daubeny's "Roman Husbandry," Cato valued them as a medicine both raw and cooked; and although he does not appear to have been aware of the mode of converting them into sour-kraut, of which Germans are so fond, yet he recommends them to be eaten raw with vinegar before a feast; for, says he, if you wish to eat and drink freely, it removes all the evil consequences of excess. Such appears to have been the general opinion of the ancients. Thus Galen tells us that there is a natural antipathy between Vines and Cabbages, so much so that the one will die in places where the other has grown. Boiled in water, Cabbage acts, Cato says, as a purgative, and macerated in the same, alone if there be fever, or with wine if there be none, it is a cure for the colic. Similar statements may be found amongst the writings of the old herbalists, although we moderns do not attach much importance to the Cabbage in the way of medicine. *Quo.*

THE CRIMEAN IRIS.

THIS beautiful early dwarf spring-flowering plant is found upon the upland flats of the Crimea, and in some parts of Turkey and Austria. During the late war these beautiful Irises, with the now famous Crimean Cowslip, were frequently sent home by the officers and men; and although they are plentiful in the trade, yet a much greater value attaches to certain plants as souvenirs, than to those that can be purchased. They bear the name of Iris pumila, and occur with flowers of various shades of colour, as dark blue (atrocœrulea), red and blue, pale blue, yellow (flavescens), and sometimes spotted.

In some soils these Irises are what are termed miffy growers, but under any circumstances they require greater care than they and many other low-growing border plants generally get in these great bedding days. They will not grow in cold wet soil. To arrive at success the soil should be taken out in a circle, of diameter according to the number of plants, to a depth of 2 feet. From 6 to 9 inches of this space should be filled up with old lime rubbish, rather fine, and on this should be put a piece or two of turf, and the rest filled up with a mixture of good soil, as loam with a little sand and some old dry cow-dung and leaf-mould, well mixed up together.

At the approach of winter each crown should be partly covered with ashes. About the time they come into bloom, say the first week in April, according to the season, the ashes may be sufficiently removed, to prevent their being unsightly. These pretty little plants make fine edgings to small early beds; and they move well unless treated in the ruthless manner adopted with so many of our little spring beauties, when their blooming season is over, as if there was not another spring coming on, and they would be no more wanted to assist in beautifying it. *F.*

Home Correspondence.

The late Sir Joseph Paxton.—Though I give the late Sir Joseph Paxton more credit for tact than talent, still there cannot be a question as to his deserving a lasting Memorial from the million. I believe, however, with the writer of his brief history at p. 555, that he has left a more lasting Memorial erected by himself than his admirers, whatever they may attempt, can accomplish. But to erect this Memorial at poor doomed Chiswick would be folly; while at South Kensington it would be entirely out of place. No; if ever there is a monument erected to the memory of Sir Joseph, let it be in the grounds of the Crystal Palace. There, and there only, can be found that breadth of outline which would have satisfied his eye when alive. Let it be there that the Memorial of our late friend is set up, overlooking the millions enjoying Nature, embellished and arranged by his own handiwork. The site should be the termination of the great central walk, which appears to me to have been left unfinished for the purpose. *F.*

New Early Peas.—On the 7th of February I sowed the following varieties of Peas, viz., Dickson's First and Best, Carter's First Crop, Sutton's Ringleader, Dillistone's Early Prolific, Sangster's No. 1, from Carter's Stock, and Daniel O'Rourke, from Waite of Holborn. On the following day I also sowed Dickson's Favourite, and some of Dr. Maclean's new Peas, viz., Princess Royal, Dwarf Prolific, and Wonderful. Immediately after sowing severe weather set in, and it was at least seven weeks before any of them appeared above ground, which they did in the following order, viz., 1st, Carter's First Crop, and Sutton's Ringleader; 2d, Dickson's First and Best, and Dillistone's Early; 3d, Daniel O'Rourke; 4th, Sangster's No. 1; the other four kinds coming through the soil together a few days later, the time occupied in pushing through the ground being from 12 to 14 days. On the 5th of May, Carter's First Crop and Sutton's Ringleader were fully in bloom; Dickson's First and Best about three days later; and Daniel O'Rourke, and Sangster's No. 1, were about two days later than Dickson's. Dillistone's Early (the seed of which was obtained from Mr. Dillistone, of Castle Hedingham) gave the first indications of flowering immediately on the heels of Dickson's First and Best, and just at this juncture, after a heavy fall of rain, it started into vigorous growth, and, strange to say, reached a height of from 5 to 6 feet, and came into bearing the last of all the Early kinds; it produced a good crop, but the Peas were small. On the 1st of June I gathered a good dish of Peas from Carter's First Crop and Sutton's Ringleader. I also got a few from Dickson's First and Best, from which two days after I was enabled to gather as good a dish as I had previously from the other two. With regard to the general characteristics of these Peas it might not be out of place to state that I fully believe Carter's First Crop and Sutton's Ringleader to be in all respects identical, and this is the opinion of every one who has seen them. It was also noticeable that whereas Dickson's First and Best was entirely free from "rogues," the other two had plenty among them, the character of the "rogues" being the same in each case. These three varieties were grown in good deep loam, well manured last year for Onions. The average height of the three kinds was about 2½ feet. Sangster's No. 1, and Daniel O'Rourke were ready for gathering about a week later than the kinds just named. In excellent succession came Dickson's Favourite, Princess Royal, Wonderful, and Maclean's Dwarf Prolific, all of which are now nicely in bearing. Dickson's Favourite is an abundant bearer, having long pods averaging ten peas in each. With me it grows from five to six feet high. Princess Royal is a large white round marrow Pea, 3½ feet in height, and an abundant cropper, the pods being stout and well filled with Peas of excellent flavour. Wonderful is very similar to the foregoing, excepting that the Peas are wrinkled; these are both first-class varieties and deserve to rank A 1 in seed catalogues. Dwarf Prolific grows about 2½ feet in height; it is an abundant cropper, but has smaller pods than the other two, and is not so hardy. I may mention that I grew Maclean's Advancer largely last year; this season I have seen it growing in the gardens of Sir W. Heathcote, Bart., M.P., at Hursley, Hants, and while I admit its great earliness as a Wrinkled Marrow, it is, nevertheless, so dwarf and so spare a cropper in the drier region of the south, that I do not think it can be long cultivated there. I am also growing Veitch's Perfection, Yorkshire Hero, Hairs' Dwarf Mammoth, Prince of Wales, and Lord Raglan, but they are not yet sufficiently advanced to enable me to say anything about them. By way of reply to Mr. Whiting's suggestion (see p. 508), I would say that the best dwarf Peas for succession or general use are Dickson's First and Best, Sangster's No. 1, Princess Royal, Wonderful, Veitch's Perfection, and Lord Raglan. *Alex. Dean, Maybush, Southampton.*

Anisoplia horticola.—This insect, known here by the name of "Chovy," has been very destructive to Roses in the neighbourhood of Thetford and Brandon, I propose trying to destroy the larvæ in the autumn by common salt to the grass underneath the Rose bushes. Will you inform me what quantity of salt I may safely apply to a perch of ground without risking the destruction of the Grass? and whether that quantity will be best applied by watering the ground with salt-water, or by sowing the salt over the ground and leaving it to the rain to wash it in? *Diss.* [The Chovy beetle is very similar in its habits to the common Cock-chaffer, Melolontha vulgaris, its larva feeding on Grass, and being a soft curved fleshy grub with six short legs near the head. We fear your proposed application of salt will be attended with much danger both to the Grass and Rose trees, even supposing that you are certain that the larvæ are reared in that situation. It would be useless at all events to do this except when the insect is in the larva state at a much later period of the year, and then we would recommend the turf to be carefully pared off and the earth turned up so as the more readily to admit the salt water, or, better still, gas-tar water. *J. O. W.*]

Constitution of Timber Trees.—I am very glad to see that you have again referred to this most important subject. I some time ago mentioned some instances to show that failure of health in young Coniferæ may, and often does, arise from external influences rather than from defective constitution; but I nevertheless fully concur in all that you and your correspondents say, showing how much also depends upon hereditary constitution; and I have long made a practice of only sowing acorns, or other tree seeds, which are gathered from individuals remarkable either for size or beauty of growth. Your remark is very true about the greater productiveness of the stunted and less vigorous individuals; it seems to be a universal law of Nature—witness the way in which children teem in the filthiest courts in this city. But what we much want is some evidence that can be relied upon as to how their tendency to degenerate (or the contrary) affects trees. Now there is one tree, a foreign Conifer too, the Larch, which has been so extensively planted, and in

which these influences have been so long observed and acted upon so far that it is now grown extensively from foreign as well as English seed, that surely there must by this time be some evidence to be obtained as to the comparative merits of seedlings raised from foreign seed, or from the seeds of English trees, whether old or young, healthy and vigorous, or stunted and decayed. Perhaps you might be able to collect information on this subject; at any rate, I hope that any of your readers who have made any observations, however slight, upon the quality of Larch, and the seed which has produced it, will send the results of those observations to you, remembering that one distinct fact (such as that in a certain plantation and under the same conditions as to soil, age, &c, such a percentage of trees from one kind of seed were sound, and such another per-centage of those raised from another kind of seed were not so), is worth a dozen theories or supposed facts. I may add another remark respecting the trees from which seed is collected; that in Coniferæ, especially, it is not at all impossible that the seed from old trees will produce more vigorous plants than that from young trees. Many of these produce cones for several years before they produce a single sound seed, and the proportion of perfect seeds to dead ones in a cone, appears to increase with the age of the tree for a very long time; it may, therefore, very well be that the seed from young trees will not produce such healthy plants as that from old trees, but this, like everything else about the question, can only be decided by evidence, which is no doubt rather difficult to obtain, but which ought to be sought for on account of the great interest and importance of the whole subject. *C. W. Strickland.* [We shall be glad to publish any facts bearing on this interesting and important question, with which our correspondents may favour us.]

Wellingtonia gigantea.—I have a little Wellingtonia, not 3 feet high, with 13 cones on it. Is this rare? I have not seen any before in fruit in so small a state. *D. Ferguson, Hounslow.*

Wasps.—My employer has for many years been in the habit of paying his garden labourers 1*d.* for every wasp or hornet captured and destroyed in or near his garden up to the end of May. And this season I have paid on his account, for 1793 wasps and hornets, 7*l.* 9*s.* 5*d.* Last season the number caught was also large, viz., 1350. The gratifying result of this practice is, that we are seldom much troubled with these destructive insects during the months of August and September, when most gardens are usually infested with them. Last season, during the months mentioned, when complaints of their ravages were heard from all parts of the country, so trifling were their numbers here that although many of the houses contained full crops of ripe Grapes, &c., it was never found necessary to use any means to exclude wasps, nor to in any way protect the fruit from their attacks. Therefore, I think there cannot be a doubt that were the practice of paying a small premium for the queen or female wasps during the spring months to become more general, their numbers would in the course of a very few years be effectually reduced. *P. G., Culford.*

Virgilia lutea.—A specimen of this is growing on the lawn of Colonel Webb, Milford House. Its height is about 40 feet, and the diameter of the head about 36 feet. It has a clear stem of about 5 feet, with a round compact head, which has this year been completely covered with long drooping bunches of pure white flowers, many of them being nearly 18 inches in length, and from 10 to 12 inches wide at the shoulders. The foliage, being of a lively green, contrasted favourably with the pure white blossoms. It is also nicely scented. It is decidedly one of our finest ornamental trees. *Maurice Young, Milford Nurseries, Godalming.*

Culture of Early Peas.—My experience in early Pea growing extends upwards of 20 years. During that period I have grown many sorts, both in Scotland, England, and Wales—such as Early Marrow (now no more), Prince Albert, Early Emperor, Early Frame, Daniel O'Rourke, Sangster's No. 1, Dillistone's, &c. I sow about the end of November or first week in December, in a border with a south aspect. I mark out the ground in 6-feet spaces, leaving 2 feet for a ridge; on this 2-feet space I put a quantity of half-rotten leaves, allowing one barrow load for every 3 feet in length. I dig this deeply in, and mix it well with the soil. It is then formed into a ridge, rising from 9 inches to 1 foot above the natural level of the ground. I then make a shallow furrow on the crown of this ridge with a No. 3 spade (flat), and sow the Peas in this furrow. I have often been troubled with mice and rats getting at my Peas; to prevent the former destroying them, I sow a good quantity of soot on the Peas. Rats are more troublesome: in order to keep them off, for the last three years I have procured a piece of galvanised wire netting, 1½-inch mesh, which I stretch and peg over the ridge. This wire will last many years. I cover the wire with finely sifted ashes, and I do not take it up till I clear the ground of the Peas. The ridge or raised-ground system appears to me to have at least two advantages; it prevents the Peas receiving too much rain in winter, and the roots like to ramble amongst the leaves in spring, when the excessive cold winds which usually occur about that period have no effect on them. This year I have grown three sorts side by side, treated exactly as above. They were sown on the same day, viz., Daniel O'Rourke, Sangster's No. 1, and Dillistone's; the last has beaten the two first by 10 days or a fortnight, and is certainly the earliest Pea I have yet tried. *A. Barclay, Streatham Castle, Darlington.*——I beg to endorse all that Mr. Whiting has said (see p. 508) about the precocity of the Dillistone Pea; after growing it for one season I have taken care ever since never to be without it for a first crop. There can be no advantage in having a Pea in bloom so early as to be killed by frost. What we want is a Pea that shall produce pods fit for use in the shortest time after flowering, and I never met with Dillistone's equal in that respect. I always start and grow my first crop of Peas in a cold frame in open draining tiles up to March. As early in January as I can I make my first sowing: a man, holds two bits of board at each end of the tile into which a little mould is thrown, and upon this the Peas are sown and the tile is filled up, pressing all down together. The tile is then placed in the frame, and others succeed it till the frame is filled up. When all are in, the lights are put on and kept there till the Peas are up, after which air is given upon all favourable occasions, till the lights are removed altogether in March. About the middle of that month a drill or drills are opened to receive the Peas thus prepared, and by putting the hand to one end of the tile and slightly pressing it, the Peas come out bodily, and are placed in the drill, which is then filled up. Sticks are placed to them, and the Peas seem never to feel any ill effects from turning out. Why it should be I am not prepared to say, but I have always thought that this transplanting process has had a very beneficial influence in bringing on the crop. I use tiles so extensively that I have sometimes had the floor of a 10-light vinery covered with them. I prick off into them my tender and half-tender annuals, either in bunches or singly. I, however, take care not to allow the annuals to stay so long in them as to be drawn: in short, as soon as they are ready I remove them to a cooler place, and many of them are put out under walls till wanted. *R. I., Gloucester.*

Conifers.—I have read with interest the letters which have appeared lately on the subject of the cultivation of Conifers. There are, however, some matters which I do not recollect to have seen noticed, and which I think are of importance. 1st. Which of the new Conifers are likely to prove valuable as forest trees? 2d. On what soils are they found to flourish in their native countries, from which we may deduce on what soils to plant them? 3d. In what parts of the British Isles are the several kinds likely to prove hardy? These questions are of small consequence as long as Conifers are planted for ornament in Pinetums, but are of first-rate importance when planted out by the thousand on a hill-side. A great benefit would, therefore, I think, be conferred on your readers if some of your experienced correspondents would answer the questions I have put. *C.*

Ancient Dahlias.—The first Dahlia I remember to have seen was a single purple, at Jenkins' garden in the New Road, Marylebone, near the Yorkshire Stingo. I must then have been between 12 and 15, or in other words it must have been between the years 1803 and 1806. The Dahlia in question was then considered to be a great wonder. *Old Subscriber.*

Foreign Correspondence.

Gardening in Canterbury, New Zealand.—The past summer upon the whole has been a favourable one to vegetation. Although we have rather a scarcity of rain, and have been visited by a few hot Nor'-westers (which, by the by, are of frequent occurrence in New Zealand, doing at times a considerable amount of damage, not on account of their heat alone, but the fury with which they blow), yet, in spite of these drawbacks, everything, with one or two exceptions, has thriven well, and amply repaid the husbandman for his toil. The season of 1864 and 1865 has especially been a good one for fruit, of which, considering the young state of the colony, we have had abundance. Peach trees have been loaded with beautiful fruit. I visited one gentleman's garden after a strong wind about a week ago and saw the ground under the trees literally covered with dead-ripe Peaches. The gardener was giving them away by the peck. The Peach is grown here as standards, the same as Apples are at home. Of Cherries we had a full crop, which sold well at the commencement of the season at 2*s.* 6*d.* per lb. Gooseberries and Currants very good; Strawberries rather scarce; Apples large and fine. The growth of fruit trees in general has been very good, which promises well for next year's bearing, Cherries alone being slightly affected by a species of the Aphis. The kitchen garden crops have been a complete success; every vegetable indigenous to English gardens thrives remarkably well here. Nor must Flora be forgotten. I think we can boast of having nearly all the beautiful varieties of annuals and biennials which you have at home to adorn and grace our flower gardens. The old garden favourites, Pelargoniums, Verbenas, Petunias, Heliotropes, and similar indispensable flowering plants, are now getting quite popular here, and will be found in most of our best gardens. Bulbous plants, as far as my observation has gone, will flourish better in this colony than in the mother country. The hot sun and loamy nature of the soil appear greatly to favour them.

During the past summer we have had three horticultural shows, which would fairly rival many of your best provincial exhibitions. The display of flowering plants in pots justly claimed our warmest admiration; there were on each occasion many well-grown Fuchsias and Pelargoniums of the leading varieties, and many very beautiful, what would be called green-house plants at home, but which thrive admirably here in the open air. The collections of native plants were very interesting. One of them contained no fewer than 72 distinct species, many of them very beautiful. The show of vegetables was very good, especially at the last exhibition, which took place on the second week in March. It was by far the best of the season. There was a collection of plants exhibited by G. Gould, Esq., introduced for the first time into the colony by the ship Glenmark, which lately arrived here from London. Among these were several fine plants, viz., Vallota purpurea, in bloom; two large plants of Farfugium grande, a good show of Achimenes, Fuchsias, Pelargoniums, and other well-known plants. I saw an example of Foxhunter Verbena with a dozen trusses upon it. The show of cut flowers was very good. There was a superb collection of Conifers exhibited by Mr. Hislop, nurseryman, of Christchurch, consisting of 100 species, all in pots; they obtained the 1st prize. The fruit class was well filled up, there being many very good collections. The best tray of fruit contained no less than 33 varieties of Pears, 9 of Apples, 8 of Plums, 4 of Peaches, 3 of Nectarines, 3 of Siberian Crabs, 2 of Cherries, Cape Gooseberries, Mulberries, and Filberts. The Apples and Pears were of a prodigious size, the former measuring 15 inches in circumference, and the latter a little under 14. Each exhibition, both in produce and in a pecuniary point of view, was a complete success. The attendance at the March Show was very limited, it being a wet day, and popular attention is just now turned to the West Coast Gold Fields, to which a rush is taking place; thousands have fled thither to seek their fortunes in the bowels of the earth, with the cry at their tongue's end of "Earth, yield me gold." Undoubtedly the show of plants suffered a little from this cause. These floral exhibitions will tend greatly to the advancement of horticulture, and at the same time will create within us homely recollections—reminiscences of bygone days. A commendable taste for gardening has sprung up among all classes, and each working man, as soon as he has obtained his ¼, ⅓, or 1-acre section of land, and got up his cottage, invariably crops the remainder with garden produce. Within the past year or two many very beautiful and extensive grounds have been laid out in the suburbs by the well-to-do classes of the community. One well deserving of notice I may mention, belongs to one of our chief patrons of gardening—J. Drummond Macpherson, Esq. (whose gardener I have the honour to be), a gentleman whose private virtues are no less conspicuous than his attachment to every noble cause. This gentleman's seat is very beautifully situated about six miles from Christchurch. The park consists of 75 acres, around which is planted an avenue of trees; the park too is planted with trees here and there, which have a very picturesque appearance. The mansion is built in the centre of the park; the garden, which encircles it, occupies 5 acres, 3¾ being pleasure grounds, and the remainder is devoted to the cultivation of fruits and vegetables; the flower garden is laid out with taste and judgment, and is rich in flowering and ornamental trees and shrubs. There are also many beautiful specimens of the Coniferous tribe, among which may be found fine plants of Wellingtonia gigantea, Cupressus Lawsoniana, C. torulosa, C. McNabiana, C. Lindleyana, C. macrocarpa, C. sempervirens, and C. Goveniana; Cedrus Deodara, Chamæcyparis sphæroidea, Juniperus virginiana, J. Oxycedrus, Biota aurea, and Araucaria Cookii. Mr. Macpherson has, at considerable expense, imported from England seeds of the following, which have been sown in season, and at the period I write are doing well, viz., Pinus Pinaster, P. Pinea, P. ponderosa, P. insignis, P. rigida, P. amabilis, P. Lambertiana, Abies excelsa, A. Menziesii, Thuja gigantea, Cedrus Deodara, Juniperus rufescens, J. lycia, Picea grandis, P. Pinsapo, P. Nordmanniana, Cryptomeria japonica, and many others. Of Roses I may name Madame Laffay, Madame Plantier, Duchess of Sutherland, Fulgens, William Griffiths, William Jesse, Cloth of Gold, Queen of Roses, Auguste Mie, Mrs. Elliott, La Tour d'Auvergne, Baronne Prevost, Coupe d'Hébé, Pierre de St. Cyr. There are two beautiful plants of Farfugium grande; and a judicious selection of the best varieties in cultivation of Apples, Pears, Peaches, Apricots, Cherries, Figs, Vines, Plums, Strawberries, Currants, and Gooseberries. The garden is well stocked with vegetables of every description. We have one of Green's patent lawn mowers, and Mr. Macpherson is contemplating erecting a fountain in the centre of the flower garden. Mr. M. has also had directly imported some of our best English songsters and a valuable collection of pigeons. The house is reached from the main road by a carriage drive of one graceful curve through an avenue some 400 yards long. In fact, it is quite a model place, and the spirited proprietor, who is held in great esteem by all who know him, is deserving of the warmest thanks of the gardening fraternity, both of the mother country and the colonies, for the untiring zeal he manifests in the advancement of horticulture in all its branches. It was an article

upon "Gardening in New Zealand" which appeared in your columns, that induced me to cross the dark unfathomed caves of the ocean" in quest of better times, and with pleasure I beg to inform you that my expectations have been fully realised. The working day is from 8 AM. to 5 PM, with one hour for dinner. Wages run from 60*l.* to 80*l.* per year, with board; in some few cases even more than that is obtained. *Walter Tipler, Hawthornden, Christchurch, Canterbury, New Zealand, March* 15, 1865.

Societies.

Crystal Palace Rose Show: *June* 24.—This was not so good as its predecessors of former years, owing doubtless to the unusually long period of dry hot weather which we have this season experienced.

In the Class of 96 varieties, one truss of each, there were several exhibitions, in which we remarked beautiful blooms of Victor Verdier, Madame Vidot, Madame Rivers, the charming yellow Tea Rose Maréchal Niel, Maurice Bernardin, La Ville de St. Denis, Charles Lefebvre, Souvenir de la Malmaison, Gloire de Santenay, Maréchal Forey, Baron Adolphe de Rothschild, Comtesse de Chabrillant, Madame Charles Wood, General Jacqueminot, Lord Clyde, and other favourite kinds.

Awards.—96: 1, Mr. Mitchell; 2, Messrs. Paul & Son; 3, Mr. Keynes; 4, Mr. Cant; 5, Mr. Cattell.

In groups of 48 varieties, three trusses of each, were some good exhibitions, which well withstood the heat of the day amid crowds of admirers. Prominent among them were Louise Margottin, Princess Mary of Cambridge, Caroline de Sansal, Madame Charles Crapelet, Mrs. W. Paul, Alba rosea, Lord Macaulay, Prof. Koch, Madame Caillat, and others.

Awards.—48: 1, Messrs. Paul & Son; 2, Mr. Turner; 3, Mr. Keynes; 4, Mr. Francis.

In the Class of 24 varieties, three trusses of each, the best blooms perhaps were those of Gloire de Dijon, Louise Peyronny, Laurent Descourt, and the yellow Rose, Isabella Gray, of which some fine examples were shown, we think, by Mr. Mitchell.

Awards.—24: 1, Mr. Keynes; 2, Messrs. Paul; 3, Mr. Turner; 4, Mr. Cant; 5, Mr. Mitchell.

Among 24 varieties, one truss of each, we noticed Senateur Vaisse, in beautiful condition; also Olivier Delhomme, Pauline Villot, Louis XIV., François Lacharme, Duc de Rohan, Queen Victoria, and Baron Gonella.

Awards.—1, Mr. Cranston; 2, Mr. Turner; 3, Mr. Treen; 4, Messrs. Paul & Son.

In groups of 12 varieties, one truss of each, were some magnificent examples of Comte de Paris, La Reine, M. Victor Verdier, Souvenir de la Malmaison, Gloire de Dijon, Senateur Vaisse, Lord Clyde, and other high-coloured varieties.

Awards.—12: 1, Mr. Turner; 2, Mr. Francis; 3, Mr. Keynes; 4, Mr. Cant.

Among Collections of New Roses of 1863-4, one truss of each variety, the most conspicuous were Duchesse de Caylus, George Prince, Alpaïde de Rotalier, Duc de Ramano, Rev. H. Dombrain, Pierre Notting, Laurent Descourt, Gabriel Peyronny, Leopold Premier, Claude Million, Lord Herbert, Hamlet, Madame Derreulx, Arles Dufour, and Madame Vallembourg. Of these the first is a promising Rose of a pinkish crimson colour. Arles Dufour is also a fine Rose, as are likewise Louise Margottin, delicate pink; and Gabriel Peyronny, Madame Vallembourg, and Hamlet, and Lord Herbert, crimsons. Duchesse de Morny, shown by Mr. Keynes, is a good Rose; as is also Maréchal Souchet, a fine dark kind. Joseph Fiala is a fine large-petaled variety, and Claude Million a good dark kind. Centifolia rosea is a desirable shade of rose, as is also Baron Pelletan de Rinkelin. Xavier Olibo, from Mr. Cant, is a very rich dark sort.

Awards.—1, Messrs. Paul & Son; 2, Mr. Keynes; 3, Mr. Cant; 4, Mr. Francis.

The Amateurs' Class of 36 varieties, one truss of each, was well supported, and a keen competition, in which some of our very best growers were engaged, was the result. Among the varieties which were not different from those shown by nurserymen, were beautiful blooms of Senateur Vaisse, Lord Clyde, Lord Macaulay, Gloire de Dijon, Alba rosea, Madame Rivers, and other well-known kinds.

Awards.—36: 1, Mr. Hedge; 2, Rev. S. R. Hole; 3, Mr. Ingle; 4, Mr. Exell; 5, Mr. Bristow.

Groups of 24 varieties, one truss of each, were numerous, and among them were some excellent exhibitions, in which we noticed Anna Alexieff, Chas. Lefebvre, François Lacharme, Gen. Jacqueminot, Gloire de Santenay, and Jules Margottin, all in excellent condition considering the season.

Awards.—24: 1, Mr. Ingle; 2, Rev. S. R. Hole; 3, Mr. W. Smith; 4, Mr. Hedge; 5, Mr. Postans. Extra, Mr. Hunt.

In collections of 18 kinds, one truss of each, the best blooms perhaps were Lord Raglan, Madame Furtado, Maurice Bernardin, Madame Vidot, Celine Forestier, Solfaterre, Triomphe de Rennes, Baron Gonella, and Prince Leon.

Awards.—18: 1, Mr. Hedge; 2, Mr. Dennis; 3, Mr. Bristow; 4, Mr. Chard. Extra, Mr. King.

In the Class of 12 varieties, one truss of each, were charming examples of Devoniensis, Gloire de Dijon, Madame Falcot, Madame Willermoz, Narcisse, Maurice Bernardin, Maréchal Vaillant, Victor Verdier, Beauty of Waltham, Baronne Prevost, and other equally well-known kinds.

Awards.—12: 1, Mr. Bristow; 2, Mr. Smith; 3, Mr. Ingle; 4, Mr. Postans. Extra, Mr. Hunt.

Ornamental vases of Roses were furnished by Mr. Ingle, Mr. Turner, Mr. Marlow, and Mr. Vockins. Tasteful arrangement was conspicuous in all of them, more especially in those from Mr. Ingle and Mr. Turner, to which first and second prizes were awarded in the order in which the names stand.

Of Roses in pots there were only three collections, two of which, in good condition considering the weather, came from Messrs. Paul & Son, who had a first prize for 25 in 8-inch pots, and a similar award for 12 sent out in 1864. Mr. Francis was second for a collection of 25.

Royal Horticultural: *June* 24 (*Dinner Table Decorations*).—The following critical remarks concerning these have been kindly furnished by a correspondent possessing much taste and judgment in such matters.

"Sir Wentworth Dilke's prizes for Table Decorations have had a trial for, I think, upwards of four years, during which time considerable improvement has been manifested; but I am sorry to find how few are the number of lady competitors with simple and elegant designs, while the successful exhibitors are generally found among the great professional vendors of china and glass ware, who spare no cost in the getting up of their elaborate displays.

"The 1st prize was awarded to Messrs. Phillips, of Oxford Street and New Bond Street, for a very elegant service of white china, decorated with remarkably good taste, and possessing several features that were novel to me. This service consisted of a centre piece, sufficiently handsome, some very graceful white baskets, and boat-like dishes, with a Cupid at each end, filled with simple summer fruits. Some beautiful glass was also introduced. The novelties I spoke of are these—1st, there were three little holes in the edge of each plate, forming a tiny reservoir of water, into which a single flower, without a stalk, was inserted—pretty enough to look at, but I should say ill-adapted for use, which ought to be the prime characteristic of a plate. 2d, there were small tubes filled with water, into which the stalk of a somewhat larger flower was placed, and the tubes so arranged that the effect produced was that of a festoon hanging from some part of the china vase. This was very pretty.

"The 2d prize was adjudged to a lady (Mrs. Dalton, of Ealing), and I hope you will not think me the possessor of 'green eyes,' when I assure you that her table consisted of a little parterre-like arrangement of small saucers, filled each with some bright-coloured flower—the lines of pink Roses, scarlet Pelargoniums, blue Cornflower, white Roses, bright yellow Coreopsis, and purple Petunias, intersected one another diagonally, and the spaces between them contained a flat dish of Gooseberries and other small fruits. The lady in question had evidently borrowed her idea from some pattern of Berlin-wool work. I quite allow that the colours were good and well arranged, and that the idea admits of as much variety as worsted work in general, but I was vexed to see the flowers so ruthlessly wasted, where wools would have done quite as well, or, if flowers were indispensable at the feast, I would have carried my dishes of fruit to the flower border and shared them with the birds.

"The 3d prize was gained by Mr. Chapman, of Norfolk Street, Park Lane. It consisted of a superb centre-piece, standing upon a large looking-glass base of good shape, with a 3-inch deep trough as an edging, filled with Stephanotis and Roses intermixed with green leaves. This collection was very fine, everything was in good taste, and the whole extremely costly, Orchids being freely used in the decoration of the side pieces.

"Mrs. Read, of Lower Grosvenor Street, had a very pretty white china centre-piece, standing in a large looking-glass platter. It was decorated round the bottom with Ferns and very simple flowers, a tuft of white Pea by the side of some bright yellow flowers, and a tuft of Pelargonium. In a kind of basket above, some Cyperus alternifolius variegatus rose out of a bed of Roses and Ferns. I thought this table worthy of the high commendation which it received, notwithstanding the little mistake of putting flowers into highly-coloured china vases, which is a juxtaposition to be avoided by those who study effect. Messrs. Dobson & Pearce's (of St. James's Street) table was also highly commended. Enclosing the principal group there was a sort of framework of zinc or leaden troughs, each about 18 inches long, and 1 inch wide and deep, the side pieces being straight, the ends curved after the manner of a looking-glass frame. These troughs were filled with Moss, Ivy, and Lycopods, and a few blue Cornflowers. The idea was pretty, but it seemed out of place for a dessert-table.

"One illustration of the manner in which a table should be set off, was remarkable for the introduction of a novelty not altogether to my taste. A crack was made in the handles of some porcelain baskets. In each crack a small quantity of earth was placed, forming a bed for Mosses and Lycopods. I thought the handle of a China-ware basket the last place where one would wish to find earth or Mosses." This came from Messrs. Naylor & Co., 7, Prince's Street, Cavendish Square, whose table, notwithstanding the real blemish alluded to by our correspondent, was nevertheless commended by the judges. It was set out for a Strawberry party, and was furnished with cream and sugar in elegant glass services, while in the middle was a neat device in glass, supported by handsome side pieces filled with flowers. Mr. Goode, of South Audley Street, had an extensive exhibition of elegant white china in the shape of chandeliers, hanging baskets, Fauns, Cupids, &c.; and one little table was ornamented with remarkably good artificial flowers, consisting of Roses and Azaleas made of paper, so well executed that many persons were deceived by the skilful imitation. These came from Miss A. Brunies, of No. 6, Percy Circus. Miss Weatherfield, of Southampton Street, Covent Garden, had a tastefully arranged table, the little finger-basins on which were each furnished with a white Water Lily and small leaf; and we also noticed another table decorated with Lilies, Ferns, and striped-leaved Reeds, on which were handsome red-coloured glasses, and two white china chandeliers filled with blue candles, a bad contrast.

Of the two 10*l.* prizes offered by the Proprietors of this Paper for plants cultivated entirely by ladies, that for the best fine-foliaged plant was won by the Viscountess Doneraile, with a charming mass of Gymnostachyum Verschaffeltii, a beautiful plant with leaves prettily veined with red, and in most excellent health. The same lady also had Alocasia metallica, Dracænas, and other plants, all in very fine condition. To Miss Williams, Sutton House, Highgate, was awarded the prize for the best Orchid, the example contributed by her being a beautiful Aerides affine, with two spikes of flowers on it, and well furnished with green healthy foliage, indicating that to Lycaste Skinneri and other Orchids known to be suitable for rooms this forms a valuable addition. Considerable collections of other plants were also exhibited, all showing how well such things may be grown by ladies who take a pleasure in their cultivation. Foremost among these were a Lycopodium cæsium in beautiful condition, from Mrs. McKenzie, of Alexandra Park; a Maiden-hair Fern (Adiantum cuneatum) in a hanging basket, from Mrs. Dombrain, the lady to whom a 1st prize was awarded last year; and a large specimen of one of the Gold Ferns (Gymnogramma chrysophylla) in robust health, from Miss Hepburn, of Clapham Common. Mrs. Lermitte, of Finchley, had a vigorous Francoa ramosa, throwing up numerous spikes of flowers, about to expand; Todea pellucida and other plants came from Mrs. G. P. Bidder, of Ravensbury Park. An India-rubber tree, one of the most enduring of plants for town windows, came from Mrs. Inwood Jones, of Cadogan Place; and a small group of plants was contributed by Mrs. Bartlett, of Hammersmith. Among Orchids were, in addition to the Aerides just mentioned, Calanthe veratrifolia, a Bearded Lady's Slipper, and Oncidium divaricatum, the last finely in flower and in good health. In a Ward's case were Polypodium Dryopteris and other Ferns, from Mrs. Vallance, Bayswater, in fine health, although stated to have been in their tiny prison house for more than four years.

Among Miscellaneous subjects were beautiful boxes of cut Roses from Messrs. Lee; and Muscat and Black Hamburgh Grapes from Mr. Beasley, gr. to J. Wood, Esq., Twyford Abbey.

June 27 (*Fortnightly Meeting*).—Lord Henry G. Lennox, M.P., in the chair. The Chairman announced that an old friend of the Society, Mr. Strachan, of Teddington, had made a bequest of some valuable books to its library, to which a similar present had also been made by the late Sir Joseph Paxton, whose death was adverted to in terms of deep regret. Mr. Bateman, in the absence of the Rev. Mr. Berkeley, offered a few remarks on the different flowers exhibited, commencing with Messrs. Jackman's charming race of hybrid Clematises, of which two new examples were produced on this occasion, viz.:—Prince of Wales, violet with red bars, and rubella, deep velvety maroon, both large and extremely handsome varieties, to which First-class Certificates were awarded. The lovely C. Jackmanni, Mr. Bateman said, promised to blossom in great profusion on a wall in North Staffordshire, and as plants for situations of that kind nothing could be more beautiful or suitable than these Clematises, which were stated to be perfectly hardy. If intermixed with the pale blue flowers of C. lanuginosa, it was considered that an excellent effect would be produced, owing to the admirable contrast made by the different coloured blossoms. Other high-coloured Clematises similar to those raised by Messrs. Jackman, were also shown by Mr. Townsend, of Hornsey. To the common Snowball tree, it was stated that Mr. Fortune had contributed a most beautiful perfectly hardy rival in Viburnum plicatum, which has whiter flowers than those of the ordinary kind, from which it also differs in other important particulars. Examples of richly-coloured leaves were then introduced, in order to show the effect which a dark background has in setting off to advantage objects of a lighter shade. We have at least three hardy trees which furnish purple or red-coloured leaves, viz., the Purple Nut, Beech, and what deserved to be better known than it is, the Black Maple of Japan. By way of contrast with these deep rich tints, what light ones could be better than those of the Golden Holly, Yew, Ivy, Yellow

Bramble, an effective bush, and Honeysuckle (Lonicera aureo-reticulata)! Others, such as Acer Negundo, a white variegated-leaved tree, and many more, the numbers of which will in course of time be doubled, would doubtless be found. With materials such as these, not tender requiring glass protection, but hardy, beautiful sylvan scenery might be created which even persons with comparatively limited means might afford to provide. Flowers of the broad-leaved Kalmia were next exhibited by Mr. Bateman, who said that they might be found useful for indoor decoration in summer, on account of their ability to withstand heat. Some account of the discovery of the genus Kalmia was then given, together with the effect of its first introduction on Linnæus, who named it after his friend Kalm, its discoverer. Among Orchids shown on this occasion were Palumbina candida; a singular plant called by Prof. Reichenbach Luisia Psyche, with insect-like blossoms placed close to the stem; and a Trichopilia, bought by Mr. Bateman at one of Stevens's sales, under the name of T. Turi-alba, after a snow-capped mountain of that name, at whose foot it was found. This was also shown by Mr. Williams as T. picta, a name which Mr. Bateman said Turi-alba must henceforth bear. Mr. B. remarked that in an evil hour he had been induced to purchase from a continental nurseryman, a plant under the name of T. picta, which, however, turned out, not to be that species at all, but a plant not worth cultivating, while T. Turi-alba, or picta, which has a lemon-coloured lip, spotted with red and yellow sepals and petals, must be considered to be a real gain to our collections of Orchids. Other Orchids shown either in the shape of plants or in a cut state, consisted of a summer-flowering variety of Lycaste Skinneri from Mr. Veitch, Dendrobium Dalhousianum, and D. Pierardii—the latter with five long pendent spikes, on each of which there were some 60 blossoms. This fine specimen was shown by Mr. Day, of Tottenham, from whom most of the Orchids contributed on this occasion came. Mr. Bateman stated that he had known this species of Dendrobium for many years, that it still held its own as regards beauty, and that no collection could be considered complete without it.

Major Trevor Clarke then described a few horticultural "odds and ends" which he had contributed. Among them was a tall stem of Lilium testaceum or excelsum, a perfectly hardy plant, which he had cultivated in his garden in Northamptonshire for years. It was certainly hardier, he said, than the common White Lily, although it has the unjust reputation of being somewhat tender. Another plant to which he directed attention was a specimen of one of the climbing parasitical Aroids of the Tropics, viz., a species of Philodendron, a ripe fruit of which was also exhibited. The latter resembled that of Monstera deliciosa, figured at p. 962 of our last year's volume, but is much smaller. It possesses an ancient jungle-like tropical smell, and it would give, it was said, to cream ice a sensational flavour. The fruit exhibited, it was remarked, has a quality which would prevent it from being a practicable fruit for European palates, being filled with the same irritation spicu'æ which exist in the pip of the Briar. Two very inconspicuous-looking objects were then adverted to, viz, a little garden Stock, and a spike of Gladiolus in a bottle, with three terminal flowers, left, as Major Clarke said, blooming alone like the last Rose of summer. The first was a seedling from a curious old plant, Mathiola fenestralis, crossed with the common garden Stock (M. incana). It has not yet flowered. The Gladiolus was the produce of one of the handsome rose-coloured garden Gladioli, crossed with the brilliant scarlet African G. cardinalis. It is interesting in this case, said Major Clarke, to be able to confirm an observation made by one of our fathers on horticultural science, the Dean of Manchester, to the effect that the splendid colours of cardinalis are not fully transmitted to the offspring, which he attributes to the interbreeding having taken place in a cooler climate. The influence of cardinalis, had, however, produced a favourable effect in the present instance. The seedlings appeared to be early summer flowers, with the large and handsome habit of the autumnals. The two objects in question, he observed, are definite and authentic hybrids between two known plants, and he wished to call upon his brother horticulturists to lose no opportunity of bringing such instances to these Tuesday meetings. No person, he said, who had not really worked at scientific subjects could have a notion how valuable such contributions are—valuable because they are facts. He invited Fellows to bring to these meetings objects of scientific interest of every kind, whether the results of individual experiments or gleanings from hill and valley, river or forest, illustrations of Nature's wild and wondrous changes. Such objects are too rarely seen on the tables of the R. H. Society, a circumstance which he attributed to the horticultual mind, improved as it is in at the present day, not being sufficiently turned in that direction. In the early part of this season, he said, an observation was made by Mr. Bateman that there was a lack of horticulturists at the present day. Now, this remark was, he believed, utterly misunderstood. We have, he added, clever gardeners both in the nursery profession and in the gardens of our country gentlemen—so clever that no country on the face of the earth can find their equal; but the man who will devote time and money during a lifetime to legitimate horticultural experiment, both within and without the walls of this Society—who will from time to time take the trouble to produce his results in this room—who will initiate and perfect revolutions in our art—who will raise generation after generation of the fruits of the earth, season by season, improving and improving—this man will have deserved well of his fellows. These are the men alluded to by Mr. Bateman, and Major Clarke believed with him that they are rare. Such men however are rising—must be rising, in this almost over-intellectual age.

Mr. Bateman then directed attention to that wonder of botanists, Rafflesia Arnoldi, of which Fellows of the Society will recollect a wax model stood under a glass case for many years in a corner of the large meeting room in Regent Street. This singular parasite was discovered in Sumatra by Dr. Arnold, who was attached to Sir Stamford Raffles' staff in that country. After having resided a while in Sumatra, Dr. Arnold was one day met by a Malay servant, who came running to him with wonder in his eyes, saying, "Come, sir, come, a flower very large, beautiful, wonderful!" He went about 100 yards into the jungle, and was shown a flower growing close to the ground under the bushes, which was truly astonishing. Its whole substance was very thick, the petals and nectary being in but few places less than a quarter of an inch in thickness, and in some places three quarters of an inch. The substance of it was very succulent. When first seen a swarm of flies was hovering over the mouth of the nectary, and apparently laying their eggs in the substance of it. It had precisely the smell of tainted beef. The centre of the nectary gave rise to a large pistil, at the top of which were about 20 processes, somewhat curved and sharp at the end, resembling a cow's horns. The most astonishing part was, however, the dimensions of the flower, which measured a full yard across. The petals, which were subrotund, were 12 inches from the base to the apex, and about a foot from the insertion of the one petal to the opposite one. Sir Stamford and Lady Raffles, and Dr. Arnold took immediate steps to be accurate as regards measurement by pinning four large sheets of paper together and cutting them to the exact size of the flower. The nectary would hold 12 pints, and the weight of this prodigy was calculated to be about 15 lb. A guide from the interior of the country said that such flowers were rare, but that he had seen several, and that the natives called them "Krûbût." It takes three months from the first appearance of the bud to the full expansion of the flower, and the latter is said to appear but once a year at the end of the rainy season. It has no stem of its own, but is parasitic on the roots and stems of a ligneous species of Cissus or Vine which winds round the trunks of trees for support. The parasite appears to take its origin in some crack or hollow of the stem, and soon shows itself in the form of a round knob like an egg; it then acquires the size of a Drumhead Cabbage, and after a time the full-blown flower is developed. After making allusion to our columns of March 15, 1862, p. 238, and April 22, 1865, p. 368, where some further account of this plant may be found, Mr. Bateman went on to describe the difference between Parasites and Epiphytes, and concluded by saying that it should be our national ambition to obtain a plant of this wonderful parasite, and called upon the Chairman to use his Parliamentary influence to obtain one for the stoves at Kew.

June 27 (*Floral Committee*).—In addition to Mr. Day's Orchids, Mr. Veitch had Cattleya quinquecolor, a hybrid raised between C. Aclandiæ and C. Forbesii, in appearance almost intermediate between the two. A continuous-blooming bright purple Cyclamen named Peakianum was shown by Mr. Holland, who had also the rare and pretty variety of Asplenium Trichomanes named Harovii. Solanum vescum, a variety in the way of S. laciniatum, from Mr. Macintosh, of Hammersmith, is a promising plant with purplish lilac flowers, which are succeeded by comparatively large ornamental fruit. Mr. Wm. Paul showed some of the late Mr. Beaton's Nosegay Pelargoniums in good condition, especially Indian Yellow, a rich orange-salmon sort, and Duchess, a fine kind with a larger amount of crimson in the blossoms than the last, both charming varieties. From Mr. Smith, of Hornsey, came Pelargonium (zonale) Chieftain, a fine light scarlet with a well-marked horse-shoe stamped on the leaves, and La Grande (Nosegay), a beautiful kind with globular crimson-scarlet floral heads of large size and great substance. From Mr. Batley, of Rugby, came cut Verbenas; and Mr. Gill, of Bradford, showed Beauty of England, one of the best of white kinds, remarkable for the size of its pips and trusses, and the purity of its colour. The Rev. W. H. Girldestone, Ryde, Isle of Wight, furnished a beautiful variety of hardy Fern called Athyrium Filix-fœmina fissidens irregulare, which he had found in the West Highlands. C. M. Walker, Esq, of Hornsey, had Polystichum munitum new to our gardens, and Pleopeltis hastata, with elegant trifid fronds. From Mr. Williams came a brown-spotted small yellow-blossomed Lily from Japan. Mr. Stone, gr. to J. Day, Esq., had Promenæa citrina, with no fewer than 40 yellow blossoms on it; Dendrochilum filiforme, ornamented with some 50 pale green drooping tails; Aerides Lindleyanum, and the curious Phalænopsis Cornu-Cervi. Small plants of Phalænopsis amethystina and Odontoglossum læve were contributed by Dr. Ainsworth, of Lower Broughton, near Manchester. From Mr. Wm. Paul came beautiful boxfuls of cut Roses, among which we noticed Princess of Wales and Dr. Lindley, noticed at p. 578 of our last week's Number, in beautiful condition. To many of the plants just enumerated, either First or Second-class Certificates were awarded.

June 27 (*Fruit Committee*).—Fruit of a seedling Cherry of excellent flavour, called the Frogmore Early Bigarreau, was shown by Mr. Ingram. On a north-east wall this was as early as the May Duke, and it is said to be a heavy cropper. It was awarded a First-class Certificate. A similar award was also made to a Green-fleshed Melon of excellent flavour, contributed by Mr. Wills, gr. to Sir P. G. Egerton, Bart. Among other fruit were some very large and fine British Queen Strawberries, furnished by Mr. Tillery, gr. to the Duke of Portland, at Welbeck. These were the results of planting in small pots, and thinning out the fruit to two or three on a plant. From Messrs. Cutbush, of Highgate, came samples of Princess Alice Raspberry, a seedling from their Prince of Wales, and like that variety promising to be an abundant bearing late kind. Some good Cabbage and Cos Lettuces were shown by Messrs. Osborn, of Fulham.

The following candidates were elected Ordinary Fellows, viz.:—Thos. Dyer Edwardes, Esq., James Mills, Esq., and the Dowager Lady Suffield; and Edward Oppenheim, Esq., Cologne, a Foreign Member.

MANCHESTER HORTICULTURAL.—This second show of the season was held on Friday and Saturday last, in the Botanic Gardens, Old Trafford, and the weather being fine, there was a large attendance of visitors. The gardens are laid out with great taste, and form one of the best places we have ever witnessed for a floral exhibition. The bedding plants, which number some 70,000, promise well for a fine display; they have been arranged so as to produce the best results by Mr. Findley, the Curator, who has shown great taste in the matter. Indoors, too, are ample evidences of skilful supervision and care.

The show itself was held in a noble glass house, built for the accommodation of floral exhibitions. Being lofty it is well adapted for the accommodation of such plants as Araucaria excelsa and Tree Ferns, which are placed in the centre of it, and produce a charming effect. The great attraction of the show was a magnificent display of Orchids, which formed a bank nearly the whole length of the building; and to stand at one end and view the gorgeous collections *en masse* was indeed a sight well worth a journey from London to witness. Saccolabiums and Aerides were magnificent, and their spikes, gracefully intermixing with Lælias, Dendrobiums, &c., had a gorgeous effect. The cotton lords of Manchester must soon be called Manchester Orchid lords, for the number of collections of these graceful plants grown in and around this great town is astonishing.

Stove and Greenhouse Plants on this occasion were not so well represented as usual; they were furnished by some of the best growers in the country, but the great heat of the season has driven the plants out of bloom. Tree Ferns, Palms, Fuchsias, Roses, &c., were abundant; there was also some good fruit.

In Collections of 10 Orchids the 1st prize was awarded to Mr. Toll, gr. to J. A. Turner, Esq, M.P., for noble plants, each of which was a model of perfection in itself. Among them were—Aerides Lindleyanum, 3 feet high, with two branching spikes 2 feet long; a grand specimen of Vanda suavis, 5 feet high; Lælia purpurata, loaded with fine showy flowers of large size and of good colour; Saccolabium guttatum giganteum, with spikes more than 20 inches in length; also a large plant of Saccolabium guttatum, with four splendid spikes; Cypripedium barbatum giganteum, with the finest and largest flowers ever seen. Associated with these were the lovely Barkeria spectabilis, with seven flower spikes; Saccolabium curvifolium, producing a charming effect, its orange-scarlet spikes of bloom being conspicuous even at a distance; Saccolabium ampullaceum, also in fine condition; a noble plant of Dendrobium formosum giganteum, with eleven spikes of lovely white and orange blossoms on it, well backed up with green foliage, which greatly helps to show off their beauty. The 2d prize was awarded to Mr. Mitchell, gr. to Dr. Ainsworth, who produced some well-grown plants, among which were Aerides odoratum majus; Broughtonia sanguinea, a fine plant with ten spikes of high-coloured flowers on it; Aerides affine rubrum, a good variety; Cypripedium Veitchii, a charming species with large flowers; Lælia purpurata making a good show; Aerides Lobbii producing highly-coloured flowers; Aerides Larpentæ, a fine plant; and finally, a well-bloomed Oncidium leucochilum. 3d prize: T. Baker, Esq., who showed some good plants of Lælia purpurata, with several spikes of its lovely blooms; Dendrobium formosum, with five spikes of its charming white and orange blossoms; Phalænopsis amabilis, with a good spike of flowers; and Aerides affine and Lobbii nicely in bloom.

Six Orchids: 1st prize, J. A. Turner, Esq., with six splendid specimens. Vanda Roxburghii cœrulea stood 3 feet high, and produced three fine spikes; Saccolabium guttatum splendens was one of the best varieties we have seen, the spikes nearly 20 inches long; S. guttatum giganteum was also a good plant, with two fine spikes; the rare Barkeria melanocaulon was well bloomed, with fine spikes; Phalænopsis grandiflora, the queen of Orchids, had a charming raceme of flowers, four feet long; Cypripedium Veitchii, a fine plant. 2d prize: Mr. Mitchell, gr. to Dr. Ainsworth, produced a fine plant of Aerides Schrœderi; A. Lobbii, very nicely coloured; and Odontoglossum citrosmum, with its charming white flowers. 3d prize: T. Baker, Esq., who showed the good old Dendrobium chrysanthum, one of the showiest in an exhibition, the rich yellow flowers have a charming effect among the green foliage; alongside of this stood Aerides odoratum majus; Phalænopsis grandiflora, and Oncidium flexuosum, another charming old plant, to be seldom seen in our collections.

For Specimen Orchids the 1st prize was awarded to Mr. G. Toll, who had a magnificent plant of Aerides Fieldingii, producing three branching spikes as many feet long, loaded with beautiful blossoms. G. C. Legh, Esq., M.P., was 2d, with a large mass of Saccolabium guttatum with nine spikes of bloom. T. Baker, Esq., had a plant of Lælia purpurata, for which a 3d prize was awarded.

A miscellaneous selection of 16 Orchids was exhibited by J. A. Turner, Esq, for which an extra prize was awarded. Among them we noticed the lovely Pescatorea cerina, a beautiful plant with white and yellow flowers; Odontoglossum hastilabium, with two spikes; and a wonderfully large plant of the rare Epidendrum vitellinum majus, with 20 spikes on it. Associated with these was the true Lælia Brysiana, with beautiful rose-coloured sepals and petals, veined with darker tints, the lip being of the richest crimson. Anguloa Ruckeri was also in this collection, as were also Cattleya Aclandiæ, the lovely Dendrobium Parishii, and a splendid variety of Oncidium crispum. Mr. B. Findley furnished an interesting collection of

Orchids, and with good taste introduced some Ferns among them, the effect of which was excellent.

In the Class of 8 Stove and Greenhouse Plants, the 1st prize was awarded to Mr. Baines, gr. to H. L. Micholls, Esq., Bowdon. In this collection were very fine specimens, especially one of Pimelea prolifera, which measured 5 feet across, and was well bloomed. Along with this was the showy Allamanda cathartica, loaded with yellow flowers; Ixora aurantiaca, a wonderful plant with 50 heads of showy blossoms on it, and the seldom seen Dipladenia splendens, with magnificently coloured flowers. Also Ixora coccinea, with 25 heads of bloom of large size; Genetyllis tulipifera, also in fine condition; Dipladenia acuminata, well bloomed; and the seldom seen Roellia ciliata, quite a model plant. Mr. Wilson, gr. to J. Fallows, Esq., was 2d with a large specimen of Ixora coccinea, ornamented with fine heads of bloom; Allamanda grandiflora, well grown; and good plants of Aphelexis macrantha and Ixora javanica.

For 6 Stove and Greenhouse Plants the 1st prize was awarded to J. Fallows, Esq., who showed Ixora crocata, 5 feet high and full of bloom; Ixora amboinensis, with showy orange-coloured flowers; and Bougainvillæa glabra, loaded with mauve-coloured inflorescence.

A miscellaneous group of fine-foliaged and flowering plants was shown by Mr. Baines in fine condition, and so arranged as to produce a charming effect. In the centre was a noble specimen of Rhopala corcovadense, 10 feet high; Croton variegatum; a fine example of Alocasia metallica, together with the beautiful Lælia purpurata, Sarracenia Drummondii, and Dionæa muscipula, or Fly-trap, measuring quite 18 inches across. For these a first prize was awarded. A 2d prize was given to Mr. J. Shaw, nurseryman, who exhibited some fine specimens of Eurya latifolia, a beautiful variegated plant, also Latania rubra, and Thrinax elegans, Dicksonia antarctica, and two fine flowers of Lilium auratum.

In collections of 8 Miscellaneous plants, the 1st prize was won by Mr. H. Lee, gr. to — Phillipi, Esq., with Croton variegatum, a fine specimen; also the beautiful Cordyline indivisa, and a good plant of Dendrobium nobile. Mr. Lunt, gr. to J. Ralph, Esq., was 2d with a nice plant of Dracæna terminalis, the showy Mussænda frondosa, and Platycerium grande.

For 8 Fuchsias, the 1st prize was obtained by Mr. Hanley, gr. to G. O. Legh, Esq., with finely grown plants, most of them 8 feet high and loaded with bloom. Mr. D. Capdoville was 2d.

For Gloxinias in sixes, the 1st prize was awarded to J. Ralph, Esq., for some very fine well-bloomed plants; 2d prize, J. C. Legh, Esq.

Variegated Pelargoniums were shown by Mr. Ralph and Mr. Nixon.

In the class of Alocasias and Caladiums the 1st prize was awarded to Mr. Phillipi, who had good plants of Alocasia metallica, A. macrorhiza variegata, and Caladium argyrites; 2d, D. Capdoville, Esq., with Alocasia metallica, Caladium argyrites, and C. Chantini.

For specimen Heaths the 1st prize was assigned to Mr. Baines, who had a fine tricolor Holfordii. Stove plants: 1st, Mr. Luff, gr. to—Carver, Esq., with Hoya bella; 2d, Mr. Phillipi, with Ixora amboinensis. Greenhouse plant: 1st, Mr. Phillipi, with Kalosanthes miniata. An extra prize was given to Mr. Baines for a wonderful example of Sarracenia purpurea, with 50 pitchers on it.

The best Hardy Ferns came from B. Hampson, Esq., who had beautiful plants of Adiantum pedatum, Asplenium septentrionale, and Woodsia hyperborea; 2d, Mr. Bleans.

A collection of Miscellaneous Plants was shown by Mr. Stafford, Nurseryman, in which were very fine Tree Ferns, also Lilium auratum, &c., for which an extra prize was awarded. Mrs. Cole and Sons also exhibited a collection, consisting of Alocasias, Clematis Jackmanni, finely in bloom; also rubro-violacea, and several plants of Azalea, for which an extra prize was deservedly awarded. Mr. Watkinson, nurseryman, also exhibited a miscellaneous group of plants, consisting of fine-foliaged and variegated plants, and several good Orchids, Roses, &c., for which a special prize was given. J. Foulds, nurseryman, exhibited a large collection of Zonal Pelargoniums, which formed a striking feature of the exhibition, as did also several very fine boxes of Cut Roses from Mr. Wm. Paul, of Waltham Cross. Cut Roses were also shown by others.

The best Floral Designs were furnished by Mr. Ralph, Mr. Carver, and Mr. Clements, gr. to J. Heety, Esq.

Hand Bouquets came from Mr. Toll, Mr. Clements, and Mr. Lunt, to whom prizes were awarded in the order in which the names stand.

Among Fruit were Pines, Grapes, both black and white, Peaches, Strawberries, Melons, and Cucumbers. Two attractive features were examples of table decoration, for which a first prize was awarded to Mr. Clayton for tasteful arrangement, his table being set out with choice fruit and flowers. Mr. Whitby, of Stratford Road, also exhibited an example of table arrangement, in which he had good fruit and flowers, for which an extra prize was given.

Notices of Books.

Passages of a Working Life. By Charles Knight. Vol. 3. Pp. 328. Bradbury & Evans. 1865.

This is the third and concluding volume of Mr. Knight's "Passages of a Working Life during Half a Century." It is not so much the autobiography of a great publisher as the running commentary of an acute observer upon the progress of his country during the 50 years in which his attention has been especially directed to the education of the masses. We noticed the first and second volumes, each as it came out. Our readers therefore need scarcely be reminded that Mr. Knight is the spirited and philanthropic gentleman to whom we are indebted for first attempting to supply wholesome and cheap literature for the million. The well-known "Penny Magazine" and "Penny Cyclopædia" marked an era in popular education. They did not prove remunerative to the publisher, but they certainly spread far and wide a taste for profitable reading. That taste has rapidly grown, and at the present time the demand for good, sensible, and useful reading is absolutely enormous, and the supply has hard work to keep pace with it. In Mr. Knight's early days the country was steeped in a kind of brutal ignorance. To this he attributed much of the misery around him. He sought to remedy this dangerous state of things, threw himself with eagerness into various educational movements, never despaired of his country, but clung to the hope that wholesome and interesting literature must eventually be appreciated, and drive out of the field seditious, corrupt, and immoral publications. In the pursuit of this laudable object, Mr. Knight was brought into contact with a number of able men, who were glad to aid him. The list of his fellow helpers in the good work includes the well-known and honoured names of many writers, who have had an influence upon the generation in which they lived; and the passing reminiscences of these worthy men throw a charm around the passages of a working life.

If the third volume should appear less animated than its predecessors, it must be recollected that the period of struggle is always more exciting than the calm which follows after victory. The battle of education has been won, and popular reading is now the order of the day, but there was a time when every step in this direction was cavilled at and dreaded, and floods of ridicule were directed against "the march of intellect," and "the schoolmaster abroad." This state of things is happily past and gone.

The volume before us commences with the year 1844, when Mr. Knight was publishing a series called the "Weekly Volume," but his venture proved a failure for want of purchasers. He tells us that the sale of books at railway stations was then unknown. The publisher, however, learnt a lesson from this failure, viz., that abridgments do not pay. He also came to another important conclusion, viz., that the "system of competition for prize essays, so far from being an encouragement to struggling genius, only holds out a temptation to mediocrity to move out of its proper course." Pictorial works, on the contrary, he found very successful. He thinks they only required a peculiar species of industry to yield a mine of wealth.

In the course of preparing materials for a work called "The Land we Live in," Mr. Knight made pleasant excursions to many places in Great Britain remarkable for historic associations—abbeys, cathedrals, and castles, such places as Stonehenge and Abury, the White Horse and Bannockburn, and he has a pleasant chat about each. This he looked upon as a branch of his own historical education. His "Half Hours with the Best Authors" contains characteristic specimens of 300 various writers, 40 of whom were living when he wrote. This work was accompanied by short biographical notices, and he loves to tell what he recollected of Walter Savage Landor, Samuel Taylor Coleridge, Dr. Arnott, Wordsworth, and Macaulay, as also what he wrote of Tennyson, Douglas Jerrold, Dickens and Thackeray, prognostications which have since been fully verified.

Soon after the famous 10th of April, 1848, Mr. Knight brought out a weekly journal entitled "The Voice of the People." Miss Martineau gave him valuable assistance in this work, but alas! in less than a month this voice of the people was for ever silent.

Soon after the Irish Rebellion Mr. Knight visited the sister country in company with Douglas Jerrold. They were struck with the misery all around, and as much surprised at the intelligence of the little ragged urchins, who came rushing out of school with, "Plase, sir, to hear me my lesson," "Plase, sir, examine me in history." They answered extremely well, and earned sixpence for their pains, when a chorus of voices exclaimed, "I can say it as well as he, sir," "So can I." When the cholera visited London in 1849, and again in 1853, Mr. Knight was publisher to the General Board of Public Health, and drew up an address, homely and practical, which he called "Plain Advice." It had a circulation of above a hundred thousand.

The sale of Shakspeare's house gave rise to some amateur theatrical performances, which will long be remembered among the literary characters who took a part in them. The Exhibition of 1851 naturally calls forth a few remarks upon the progress of the nation, but the Paris Exhibition leads Mr. Knight to speak more fully of his own department—the printing and publishing trades—in the character of a juror. In 1854 a committee was sitting to examine witnesses in reference to the abolition of the newspaper stamp. Before the duty was abolished, Mr. Knight found that there were 261 country newspapers in 120 large towns and cities, but that 350 populous towns had no local newspapers whatever. Eight years after the stamp was abolished, the number of country papers amounted to 679. It seems that some of these were printed on one side in London, and finished up with local news and a local heading in the country. Another, and as he thinks a better plan, was then adopted of sending down stereotyped matter from London at so much per column.

There is much interesting information on the newspaper business, and especially that important part of it connected with the transmission of recent news, and the cream of the leading articles, by telegraph. Mr. Knight always regarded the newspaper as a great educator of the people. But we must draw our remarks to a close. The object of these "Passages" was to trace the progress of popular education and the diffusion of knowledge, and a wonderful tale it is, and extremely well told, by one who was early engaged in the work, had his heart in it, and toiled at it strenuously for half a century. During this time he was brought into contact with a vast number of interesting and remarkable characters, and about most of them he has something pleasant to tell us. There is an index of 550 names of persons who were contemporaries of the author, and Mr. Knight was in some way or other associated with a majority of these.

The 2d Part of Mr. Bateman's splendid *Monograph of Odontoglossum*, which has lately appeared, contains Fitch's exquisite figures of the following species:—O. pendulum, O. hastilabium, O. grande, O. nævium, and O. cariniferum. The first of these is the plant commonly known in our gardens as O. citrosmum, which being identified with tolerable certainty as Lexarza's Cuitlauzina pendula, as noticed at p. 509, the author has christened O. pendulum. O. hastilabium is a New Grenada plant, of which Mr. Blunt has sent specimens with flower stems half an inch thick and 6 feet high; it grows at least 4000 feet above the sea level. Of O. grande there is indeed a grand representation, and the now well-known plant deserves all that has been done and said for it with pen and pencil. Some fine natural masses lately imported by Mr. Skinner are mentioned as being intermixed with creeping Ferns—a very useful hint to cultivators. Of O. nævium, which with its fine spotted flowers, is finely depicted, it is remarked that the var. majus passes insensibly into the ordinary type, while O. gloriosum, which has sometimes been confounded with it, is a perfectly distinct plant (see p. 578). O. cariniferum, a less beautiful species than either of the foregoing, is figured for the first time. It is a Central American plant, has branched panicles of purplish brown flowers, with a yellowish-white reniform lip, and succeeds perfectly under cool treatment both at Farnham Castle and at Wandsworth. The next Part is announced for speedy publication.

The 2d Part of Dr. Seemann's *Flora Vitiensis* carries on the text as far as Myrtaceæ. We select from it a few scraps of popular information on the uses of the plants treated of. The leaves of Colubrina asiatica, it is said, are used by the natives for washing their hair to destroy vermin. Vitis saponaria is put to a similar use; the thicker parts of the stem are cut into short lengths, and roasted on hot stones, and when thus rendered soft they produce a lather almost equal to that of soap. Regarding the Vine, it is mentioned as a popular botanical error, that the plant is supposed not to yield fruit in the lower coast region of the tropics. "In 1864," writes the author, "I saw it at La Guayra, Venezuela, one of the hottest parts of the world, where it was growing well, and producing abundant fruit." Pometea pinnata, the Dawa of the Feejeans, forms entire forests, and not only yields a useful timber but an edible fruit, of the size of a Pomegranate, with rather a glutinous honey-like taste. The most prominent place amongst the native fruits is however assigned to the Wi, Spondias dulcis, whose fruit has a fine Apple-like smell and a most agreeable acid flavour, rendering it highly suitable for pies. Dracontomelon sylvestre produces a fruit esteemed by the natives, but most insipid to European palates. The flowering of the Drala, Erythrina indica, is the general signal for planting the Yams, and one of the natural phenomena upon which the Feejean calendar is based, and hence the tree is found near almost every village, either wild or planted. The roots of Pachyrrhizus trilobus, which grow horizontally to a length of 6 or 8 feet, and the thickness of a man's thigh, and have a slightly starchy but insipid flavour, are eaten like Yams, and are much sought after just before the regular crops come in. The leaves of Derris uliginosa pounded and thrown into water are used for stupefying fish, to facilitate their capture. The Vesi, Afzelia bijuga, one of the sacred trees of the Feejees, produces the best of the woods found in the islands, being almost indestructible. Of Inocarpus edulis, the Feejean Ivi, the kernel is eaten either baked or boiled, or grated and made into puddings or bread. The stem is most singular: when young, fluted like a Grecian column; when old, furnished with buttresses of projecting wood. Acacia Richii yields a hard wood, and supplies the paint which the natives use for blacking their faces when they wish to look particularly smart. A long account is given of Oncocarpus vitiensis, a poisonous tree, with the properties of the noxious species of Rhus, and which bears a name equivalent to Itch-wood. The plates include some fine Araliads of the genera Nesopanax and Nothopanax.

In the May Number of the *Botanical Magazine* the following plants are figured:—*Cypripedium lævigatum*, a handsome Philippine Island species introduced by Mr. J. G. Veitch; it is allied to C. Stonei, and has glossy green unspotted leaves, and 3 to 5-flowered scapes, the flowers having a dull yellow lip, purplish-tinted narrow petals 5 or 6 inches long, and a broad ovate cream-coloured upper sepal striped inside with purple.—*Arum palæstinum*, an Arad found near Jerusalem, and having broad hastate-sagittate leaves, and an elongated spathe, green outside and deep purple within.—*Rhaphiolepis ovata integerrima*, an evergreen shrub with thick obovate obtuse leaves, and terminal panicles of large white odorous flowers; it comes from Japan, Bonin, and the Korean Islands.—*Hypœstis sanguinolenta*, a pretty little Madagascar Acanthaceous plant, known in gardens as *Eranthemum sanguinolentum*; its oblong obtuse leaves show a broad pink line along the course of the principal veins; the flowers are pale purple, with dark spots at the throat.—*Aucuba japonica*.

The Number for June contains a handsome figure of *Cypripedium concolor*, of which some account will shortly be given in our columns. The following subjects are also figured:—*Vellozia candida*, a stove plant of subshrubby habit, and the aspect of Barbacenia, with keeled linear spiny-margined leaves, and white somewhat bell shaped flowers. It is a native of Brazil, and was flowered at Glasnevin by Dr. Moore.—*Dendrobium hedyosmum*, a Moulmein species imported

by Messrs. Low & Co., and having nigro-hirsute stems, short unequally emarginate leaves, and lateral flowers in pairs, white with a rich orange lip, which however is green at first, a colour retained by its side lobes; these flowers are scented like Wallflowers.—*Acanthus montanus*, a rather handsome herbaceous plant from Western Africa, with pinnatifid or sinuate-lobate leaves, and terminal spikes of large rosy lilac flowers; it has been flowered at Glasnevin by Dr. Moore.—*Raillardia ciliolata*, a curious shrubby composite from Hawaii, with nodding heads of yellow flowers having protruding crimson anthers.—*Anemone angulosa*, a beautiful hardy herbaceous plant of the Hepatica group, remarkable for its large blue flowers; it is a native of Hungary, and has been bloomed and exhibited during the past spring by Messrs. Backhouse & Son.

The Apiary.

Bees in New Burlington Street.—"On Wednesday afternoon, about 5 o'clock," says the *Times* of June 23, "not a little excitement and astonishment was caused in New Burlington Street by the circumstance of a swarm of bees alighting on a cab which had just drawn up at a restaurant. A man having procured a hive, set to work, and with assistance succeeded in securing the whole of the unexpected visitors and took them away. A swarm of bees is rarely if ever seen in the streets of London, but it is not an uncommon occurrence for a swarm to stray considerable distances." We have heard from Messrs. Neighbour, of Regent Street, the real facts of this case. Having a swarm of bees on its way into the country, they temporarily placed the hive on the leads of their house, giving the bees their liberty. From some reason best known to the bees, they suddenly issued from the hive, and after flying about for a few minutes, the swarm collected on a cab standing in the neighbourhood, much to the astonishment and dismay of the driver and his fare. A man in the employ of Messrs. Neighbour was fortunately able to secure the bees in a hive, and consign them to a place of safety. The cab-driver was appeased by being liberally compensated for the loss of his fare.

The leading journal having brought this little circumstance conspicuously before the public, it becomes desirable that the real facts of the case should be made known, but there are, we should imagine, but few who would believe that the swarm flew from some distance in the country to alight in the heart of London.

Suffocation of Bees.—The following case of an entire swarm being destroyed by suffocation happened a few weeks since in the apiary of a clerical friend. Having a Nutt's hive, the centre box of which was tenanted by a weak stock of bees, he was desirous of adding to its population, and accordingly very injudiciously hived a swarm in one of the side boxes, with the intention at some future time of effecting a junction between the two families. He saw the bees apparently quietly settled in, and left them, as he thought, all right. He had occasion to go away until the evening, and on his return, to his great grief and mortification, he discovered that the whole of the bees were lying at the bottom of the hive in a state of suffocation. Every means likely to restore them to animation were resorted to, but in vain; they were all dead or dying. Being certain in his own mind that he had given them means of egress and ingress, for a long time he could not account for their dying of suffocation. On examining the hive he found that the entire aperture of the entrance was effectually filled up by Mason Bees, so that all exit was effectually prevented, and no admission of air could take place. The consequence was the loss of a valuable swarm of bees; but my friend was far more affected by the seemingly cruel manner by which they met their death. *Apiator.*

The Rose-cutter Bee in London.—I was waiting the other day at a railway station on one of the lines round London, when I observed a Rose-cutter hovering round one of the gas-lamps which projected from the front of the platform roof, and carrying a piece of leaf for its nest in its mouth. Presently it disappeared up an iron tube of about the thickness of a quill, formed by a strip of sheet iron which covered the ridge at the junction of two sides of the sloping top of the lamp, and which, for the sake of strength, and to make a kind of coping for the ridge, was drawn together, or fluted, so as to present internally a small pipe. The insect after remaining up the pipe a minute or so came down again empty-mouthed, and flew off to some gardens near. Presently it again appeared with a fresh contribution to its nest, and deposited it in like manner. A third piece of leaf was larger than the two previous, and as there was some wind, and the entrance of its hole was so situated that it must fly right into it, there being no space outside for alighting, it tried in vain to hit the aperture, and at length retired, I suppose to "shorten sail;" but as the train for which I was waiting arrived while it was gone, I can say no more of the progress of this somewhat difficult work of insect architecture. *C. J. G., Bury St. Edmunds.*

Alexander Boyle, Narberth.—Many like you are puzzled how to manage the Stewarton hives. Two of the larger compartments are generally used at the commencement. The shallower one is the super, but either may be used. Only one entrance is left open, unless your hive has become tolerably well filled, which, from the small size and lateness of the swarm, we should be inclined to doubt; a super will do more harm than good. At any rate the small one would be the best. Fourteen inches in diameter by eight inches deep for the single octagon stock box. Three feet high inside might do for a bee shed, but a little more room is advisable. Octagons are measured from the parallel sides.

Calendar of Operations.

(*For the ensuing week.*)

Most of the hardier kinds of greenhouse plants out of doors may now be set without any kind of shading. It is a mistake to place established plants behind a north wall, under the shade of trees, or in similar situations; on the other hand, however, it is essential that the pots be protected from the sun. They should be plunged in beds of sifted coal-ashes; and take care to place them far enough apart to ensure a free circulation of air amongst the plants.

FLOWER GARDEN AND PLANT HOUSES.

Calceolarias out of doors, are, we learn, threatened in some places with disease, and the insect world is still unusually active. Close and frequent inspection will, therefore, be required if anything like success is to be attained this season. This is a good time for grafting or inarching Oranges, Camellias, Azaleas, choice Rhododendrons, &c. Until a junction is effected, the plants should be plunged in a close moist heat, rather stronger than that required for growing them in, and carefully shaded.

Achimenes.—Keep up successions of these as long as possible. While growing, they like a warm moist atmosphere; but during their flowering season they do perfectly well in a comparatively cool and dry situation, such as a close greenhouse or conservatory. As regards soil, light turfy loam, peat, leaf-mould, thoroughly decayed cow-dung, and silver sand suits them perfectly.

Amaryllis.—These deserve more than ordinary attention. They succeed perfectly in any light, tolerably rich soil, in which there is a good proportion of fibry loam. Twenty-four sized pots suit them best. Plants in smaller pots should therefore be carefully moved into the size just named.

Annuals.—Late-sown kinds intended for autumn flowering should be thinned out or transplanted, before they crowd one another, and become too weak to support themselves.

Carnations, &c.—Few plants are more generally useful than the hardier kinds of Carnations, Picotees, and Cloves. If pipings of them are taken off about this season, they sometimes strike as freely as Pinks; but the operation will be more certain to succeed if the handlights are set on a slight hotbed, or the pots plunged in a frame where there is a gentle bottom-heat. Points which require special attention are, that the cuttings be taken not later, on any account, than the expanding of the first flower; and that they be carefully shaded from every ray of sunshine. The most certain method of propagating them is by layers; but it is equally important that it should be done early, as the plants root sooner, and thereby become better established before winter.

Chinese Primulas.—Old plants of these should now or soon after their partial repose, be shaken carefully out of the old soil, repotted in light sweet compost, moderately rich, and placed in a warm frame for a few days, till they have begun to produce roots into the new soil, after which they must be removed to a position near the glass in a cold frame, and kept close till the plants are thoroughly re-established. These plants succeed best in moderate-sized pots.

Pelargoniums.—Many of the finest kinds of these are still in perfection, and it is most desirable that shading should be attended to carefully, for one sunny day may injure the flowers beyond hope of remedy. It is equally desirable that the atmosphere of the house should be kept cool.

FORCING GARDEN.

Cucumbers.—Pay great attention to thinning and regulating the shoots; go over them at least twice a week, as they soon get crowded if neglected a few days. Guard against red spider, by syringing the plants and frequently sprinkling every part of the house. Attend to plants in frames. Keep linings well made up, and train shoots of growing plants. Water when necessary.

Peaches.—Admit a free circulation of air through all the houses during dry fine weather; but where the fruit is just ripening, ventilating during the night and in damp weather should be effected by means of the front lights, keeping the top sashes closed to prevent cold dews from settling on the fruit. The foliage in the early houses should be kept in a healthy state as long as possible by syringing, and guarding against insect depredations.

Pines.—Having selected, to meet the demand in winter, those plants which are now showing or flowering, and those which shortly promise to follow their example, a portion of the strongest and best rooted of those remaining should be picked out to succeed them; these should be potted immediately if they require it, and grown on steadily without any check; any of the smaller plants which are in immediate need of potting should also be attended to. Keep up an uninterrupted succession by planting a few suckers occasionally in a brisk bottom-heat. Where the planting-out system is practised, there is no difficulty in keeping up the succession if all vacancies are filled up as they occur with the best plants selected from among the successions.

Vines.—Where crops are swelling let the state of the borders be frequently examined. If the soil is too dry, let the surface be carefully loosened with a fork, and watered with liquid manure. Examine the bunches of swelling crops, thin crowded clusters, and remove small berreis.

HARDY FRUIT AND KITCHEN GARDEN.

Water growing crops freely with liquid manure; this is the best time of year to make use of it, and with the addition of the occasional showers which we are now experiencing, improved growth may be expected to be the result.

Celery.—Now that rain has come plant out for the main crop.

Lettuces.—Successions of these must be kept up as required.

Turnips.—A good breadth of these may now be sown.

Watercresses.—A supply of these for autumn and winter may be easily obtained by planting some strong young tops, about 4 inches long, in a line at the foot of a north wall. The cuttings should be of pieces which have protruding roots from the joints. Watercresses will grow freely in such a situation; and in many places where there are no artificial beds, and where natural ones are a considerable distance off, these will be found useful.

Winter Greens.—Take advantage of the present showery weather to plant out Broccoli, Savoys, Cabbages, Cottagers' Kail, and other winter Greens, if not already done.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending June 28, 1865, as observed at the Horticultural Gardens.

June.		Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth 1 foot deep.	Temperature. Of the Earth 2 feet deep	Wind	Rain.
Thurs.	22	28	30.398	30.125	84	40	62.0	63	60½	N.E.	[illegible]
Friday	23	●	30.181	30.064	89	53	71.0	62½	61	S.W.	[illegible]
Satur.	24	1	30.148	30.078	70	44	57.0	63½	62	N.W.	[illegible]
Sunday	25	2	30.152	30.024	78	47	62.5	64½	62	S.W.	[illegible]
Mon.	26	3	30.050	30.031	68	43	55.5	64	61½	E.	[illegible]
Tues.	27	4	30.212	30.112	77	39	58.0	63	60½	W.	[illegible]
Wed.	28	5	30.055	29.052	78	50	64.0	63	60½	E.	[illegible]
Average.			30.170	30.041	77.7	45.1	61.4	62.8	61.1		[illegible]

June 22—Dry haze; hot and dry; fine at night.
— 23—Very hot with bright sun, and excessively dry air; cloudy.
— 24—Cold dry wind; very fine; dry air; cloudy at night.
— 25—Very fine; overcast; very fine at night.
— 26—overcast, dry haze; fine at night.
— 27—Overcast; very fine, fine at night.
— 28—Overcast, cloudy and fine; slight shower; overcast.
Mean temperature of the week, ½ deg. above the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 39 years, for the ensuing Week, ending July 8, 1865.

July.		Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Calms.
Sunday..	2	73.3	51.4	62.3	15	0.22 in	2	5	3	—	5	10	[illegible]	[illegible]	[illegible]
Mon. ..	3	74.1	50.5	62.3	17	0.78	—	6	2	1	3	12	[illegible]	[illegible]	[illegible]
Tues. ..	4	75.9	50.3	63.1	13	0.33	—	2	4	1	8	12	10	[illegible]	[illegible]
Wed. ..	5	76.4	50.6	63.0	16	0.59	1	5	—	5	6	11	9	[illegible]	[illegible]
Thurs. ..	6	76.2	51.3	63.8	17	0.45	1	1	4	2	5	15	7	[illegible]	[illegible]
Friday ..	7	73.8	51.0	62.4	20	0.34	2	2	4	4	5	14	6	[illegible]	[illegible]
Satur. ..	8	73.9	49.8	61.8	19	0.48	—	3	5	2	2	13	[illegible]	[illegible]	[illegible]

The highest temperature during the above period occurred on the 5th, 1852—therm. 97 deg.; and the lowest on the 7th, 1864—therm. 35 deg.

Notices to Correspondents.

Books: *J C.* There is no practical book on Foreign Ferns similar to Moore's on British Ferns. For the genera, the best accessible guide is the introductory portion of Moore's Index Filicum, and for the species we cannot recommend you anything better than Sim's Catalogue, if your object is to make acquaintance with Ferns merely.

Crimean Iris: *Subscriber* will find some information concerning the treatment of this plant at p. 603.

Cucumbers: *R M.* It is the old disease about which we used to hear so much, but which no one seems to be able to prevent. It is quite useless to suggest anything in respect to cultivation, as the best cultivation fails, and rather Cucumbers suffer as well as those which are treated more delicately. The disease seems to be constitutional, and great care should be taken to get seed from Cucumbers of the most healthy strain if possible. *M. J. B.*

Distorted Rose: *B L.* The distorted appearance of the Roses is due to the ravages of a "worm i' the bud," which has eaten away one side of the cup like receptacle, meanwhile the uninjured side has continued to grow, and the result is a partially inverted or lop-sided flower.

Insects: *C M.* Haltica fuscipes, closely allied to the Turnip flea beetle; common on most Malvaceous plants in this country. *W.*

Name of Plant: *G T S.* Halimodendron argenteum.

Rare Plants: *Sir Edward* ——. You should consult Mr Veitch's Catalogue of Hardy Trees, Shrubs, Conifers, &c. 1864-5, where everything new of any interest is set down with the price. There are the following Cephalotaxi, viz Fortuni (male and female), drupacea, and pedunculata Several varieties of Cupressus Lawsoni. Berberidopsis coralina, Abies Alcoquiana. No fewer than nine sorts of Retinispora, every one of which is first-rate. The charming Sciadopitys or Umbrella Pine is also mentioned at the insignificant price of 5*s.* each.

Walks: *X Y Z.* The best material with which to make white sparkling walks is Derbyshire spar. The foundation of the walk should be 9 inches of brick rubbish, upon that place 3 inches of good binding gravel, or if the gravel is not binding mix with it a little loam of the same colour, so as to ensure its binding well. Upon the gravel place just enough white spar to cover the surface. The white spar might be got from Mr. Masters, Bakewell, Derbyshire.

Yorkshire Shows: *Mr. Baines* informs us, in reference to our report of the Halifax and Leeds shows, that the plants which took 1st prizes in the principal classes were those belonging to Horatio L. Micholls, Esq., Summerfield, Bowdon, Cheshire, and that his brother, Henry Micholls, Esq., of Oxford Road, Manchester, who was also a successful exhibitor, showed principally in the smaller classes. The initials being the same in both cases, some little confusion has arisen in referring to the different collections.

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[illegible] Oldfield	2	2	0
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HORSE SHOW.—AGRICULTURAL HALL, London, JULY 7.

HORSE SHOW.—AGRICULTURAL HALL, London.—OPENING DAY and PUBLIC JUDGING, FRIDAY, July 7. Admission Half-a-Crown. SATURDAY, MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, 8, 10, 11, 12, and 13. One Shilling.

By Order, S. Sidney, Sec.

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By Order, S. Sidney, Sec.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.
JULY, 1865. PLYMOUTH MEETING.

PROGRAMME.

WEDNESDAY, THURSDAY, FRIDAY, and SATURDAY, JULY 12, 13, 14, and 15.

Trial of Field Implements on Woodford Farm, Plympton St. Mary. Distance by rail or road 3½ miles from the Showyard.

SATURDAY, July 15.

The Implement Yard open from 9 A.M. till 6 P.M.; admission, 5*s*. each person.

MONDAY, July 17.

Cattle Yard open from 8 in the Morning, at which hour the Judges will commence inspecting the Live Stock, and making their awards.
The Implement Yard open from 8 in the Morning.
Admission—Members free; Non-Members, 5*s*.
The Show Yards will be closed at 6 in the Evening.

TUESDAY and WEDNESDAY, July 18 and 19.

The General Show of Cattle, Horses, Sheep, Pigs and Implements, open to the Public from 8 o'Clock in the Morning till 6 in the Evening; admission 2*s* 6*d*. each person.

THURSDAY and FRIDAY, July 20 and 21.

The General Show of Cattle, Horses, Sheep, Pigs, and Implements, open to the Public from 6 o'Clock in the Morning till 6 in the Evening; admission, 1*s*. each person.

FRIDAY, July 21.

General Meeting of the Members in the Show Yard at 10 o'Clock.

By Order, H. Hall Dare, Secretary.

2, Hanover Square, London, W.

The Agricultural Gazette.

SATURDAY, JULY 1, 1865.

How to increase our Sheep Stock? This question, to which our correspondent "J. C. C." returns an answer in another column, appears to be one of more than merely national importance. We learn from a Delhi paper that it is the great question of the day in many parts of India as well as here. "The subject of providing mutton rations to the European troops serving in the Indian provinces" is declared to be urgent as a State necessity, and forcing itself on the notice of Government. The subject of providing mutton rations to John Bull and his family at home is equally urgent in the mother country.

There are doubtless two causes in operation to which the increasing price of meat is due at home, one of which at least is also producing its effect in India. On the one hand, there is the increasing demand for it as an article of food, and on the other there is the diminished quantity of the supply which is offered for sale. "For the past six years," says the Delhi paper, "and since the large influx of European soldiers and other meat consumers into the country, sheep have risen threefold in price, and fallen off considerably in quality. Enquire of any manager of a sheep club of some standing, and he will tell you that sheep of six and eight teeth, that is of three and four years of age, are scarcely, and with great difficulty procurable, and then only at a most extravagantly enhanced price."

It is the increased consumption which is the principal operating cause of the enhanced price of mutton in India; and accordingly the remedy proposed by the Indian journalist is that sheep farms should be instituted in all suitable places, and proper officers appointed to superintend sheep breeding and sheep-feeding, on a scale adapted to the increasing wants of the people.

In this country, where the increasing price of mutton must of itself gradually direct increased attention to the meat manufacture, and where Government interference is not wanted, it is probably owing not only to an increasing consumption, but also, and most likely *chiefly*, to a diminished stock of sheep. Our correspondent attributes this for the most part to the increasing prevalence of cross-bred sheep. All ewe lambs, he says, ought to go into the breeding flock, but cross-bred lambs are not adapted for breeding; and thus, he says, in the long run the sheep population of the country has diminished, and the price of mutton accordingly has risen. This may have had some of the influence he attributes to it; and the prevalence of disease in sheep, and of abortion in our breeding flocks, has no doubt also contributed to the result. But as it is not mutton only, but every sort of meat that has risen so materially in price, no explanation can be pronounced sufficient which does not explain the increased price of beef and pork as well as mutton. To the increasing meat consumption of the country, which does affect all kinds alike, and thus offers a suitable explanation of the circumstances, there must therefore be added the scarcity for at least two years in this country of all kinds of food for the livestock of the farm. The showers of the last two days, which have we hope been general throughout the country, may be in time to help the root crops, or at least to save them from the utter destruction which has been threatening them; but the Grass and hay crop of the country is this year even shorter than it was last summer. And the diminished supply of cattle food, the raw material of our meat, has had and must have the very same effect upon the price of the manufactured article that the scarcity and cost of raw cotton have of late years had on that of Calico.

The true remedy for scarcity of meat was elaborately stated so long ago as the 11th volume of the Journal of the Agricultural Society. It consists, first, in good cultivation of the land, and in the increase of its fertility; secondly, in the liberal cultivation of a good rotation of crops, including an ample produce of cattle food; and thirdly, in the right administration of these and other foods to well-bred animals. As long as all the food we grow for cattle is annually consumed by them, the question of cross-bred as against pure-bred flocks does not affect the meat market. It is in the increased growth of cattle food, and the increased use of grain and cake and other auxiliary foods, that the public can alone expect to find a remedy for dear meat, and it is thus that the farmer can alone expect to reap the full advantage of the existing state of the meat market.

In the "Canada Farmer" for March, 1865,* the intending emigrant to that colony has the completest possible information given to him as to what he should do, where he should go, what he should buy, and how he should set to work to make a new home, and to make his occupation in it and around it profitable. It is an elaborate and indeed exhaustive statement on all these topics; and every point, whether implement, machinery, or house, or the progress of the farm from forest land to open field, is fully illustrated with well-executed woodcuts. We have never met with so complete a manual for circulation among intending emigrants to Canada; and being often asked for information by men about to leave us for one or other of the North American colonies, we gladly give this prominent advertisement of a publication where they will find all the advice they want.

There is first an address to the tenant farmers of Great Britain; and this is followed by articles on Canadian climate—on life in the backwoods—on chopping, logging, and burning—on fencing and putting in the first crop—and on "the farm in good order"—on rural architecture—and on many other topics—all liberally illustrated with good engravings. The chopping and clearing of land is rather the work of the native agricultural population—who as soon as they have made a farm out of the bush sell it and go further inland. The following is a passage from the opening address of the Editor to his readers:—

"It is to replace this hardy and adventurous race of primitive settlers, that we require the Tenant-Farmers of England, Ireland, and Scotland. We want parties to take improved land, and to cultivate it with the skill and energy which they have shown in the old country. Men of the class of our earlier settlers are content to sow and reap, and to take what the native richness of the soil will give them. Generally speaking, they know little or nothing of farming as a science. The modern improvements of British husbandry, by which the average yield of land has been doubled, are to them hidden mysteries. All they look for is immediate success. They know that when their

* Supplement to the "Canada Farmer," Vol. II., No. 7. Toronto: March, 1865

present farms fail them, the forest is open to them, and they understand well the process of its subjugation.

"The lands improved by this class of persons can always be purchased, and are well worth the money asked for them. The soil throughout Canada is generally so good, as to be but little permanently injured by the imperfect course of farming it has received. The plough has very seldom gone to a depth of 6 inches, so that, to an old-country man, with his improved machinery and mode of cultivation, there is a mine of richness, close to the surface, which is as yet unexplored. Our soil is such that it yields readily to atmospherical influences, and our climate is such that one year's frost and sun will produce double the effect produced by these agencies in Britain. Hence a course of deep tillage, accompanied by judicious cropping and manuring, will in two or three years give the apparently worn-out farm all the virgin freshness of newly cleared land, and far greater productiveness. The buildings on such properties are generally poor; but they are a beginning, and there is too often around them a store of future wealth in neglected manure, which by its results, when carried out on the land, will go a long way towards renovating the farm steading.

"These older farms are situated in well-improved sections of country, where there are good roads, with mills, manufactories, markets, churches, schools, and all the appliances of civilisation close at hand. Fine healthy situations can always be secured at a moderate outlay. An examination of the letters and statistical information contained in this publication, will show all inquirers the rates at which these advantages can be obtained. Prices vary in different parts of the Province, but it is not too much to say that for from three to four years rent of land in the old country, the freehold of a good improved farm can be purchased in Canada. Nor is it needful to have all the cash in hand for such a purchase. You can always get from five to 10 years' time for paying a large portion of the money. The universal custom of the country is to sell farms with a portion of the money paid down, while the balance is taken in yearly instalments, the unpaid amount being on interest at 6 per cent.

"On the arrival of an emigrant farmer with capital in Canada, he has three courses open to him.

"The first, and most advisable, is to purchase improved property.

"The second is to purchase wild land, and improve it himself.

"The third is to rent a cleared farm.

"We shall proceed to say a little on each of these courses, though they are discussed and contrasted pretty fully elsewhere in these pages. The emigrant farmer need be under no hesitation when, on his arrival in Canada, he sees a farm that he thinks will suit him. Let him at once go up to the house, ask for the owner, and say, 'If this farm is for sale, I should like to buy it.' The owner will of course say that it is not for sale, that he is not at present thinking of selling, and the like. But depend on it, he will sell if he can get his price—he may not sell to-day, or to-morrow; but leave your address, let him understand that you will pay all or a large amount of cash, and in the course of a week or two he will be looking after you. One need never hesitate about asking a man if he will sell his farm, or almost anything that is his in the way of property. The customs of the country allow of it, and the owner of property is flattered by the question even if he perseveringly refuses to sell."

We do not quote at any greater length. This is sufficient to show that the reader is well instructed in these pages as to the best course of proceeding for him on his arrival in the new colony. The prospects of an industrious agricultural family seem to be as good in Canada as in any part of the world.

HOW TO INCREASE OUR SHEEP STOCK.

(*Concluded from p. 587.*)

It is not intended to attempt any description of the various breeds of sheep peculiar to certain localities, or kept or bred by the choice or judgment of the flock-masters of England. Sheep breeders have earned for themselves honoured names, and a strong claim upon the admiration and gratitude of the community. The names of those who are here still, or who have passed away, such as Bakewell, Ellman, the late justly lamented Jonas Webb of Babraham, and others, will never be forgotten. It is to be hoped that the judgment, the skill, and the perseverance which they have displayed may always be found among the farmers of England, and that no temporary prospect of profit will hinder or interfere with that attention to the purity of blood and quality of stock which has raised the reputation of the breeds of English sheep far above that of any other country. It is difficult to trace any effect to its definite and absolute cause. It may nevertheless be suggested that the cross breeding of sheep tends to the reduction rather than the increase of the stock, as purity of breed, aided as it is by judgment and careful selection, tends to its increase.

Though it cannot be denied that judicious crossing, as well as selection, has been the secret of much recent improvement, and has made the sheep stock what it is, yet it cannot be adopted as a system without producing effects (too apparent in many districts) in that variety of type, form, and size which makes a flock, as a flock, not only unsightly, but unfit for breeding purposes, and consequently tending to the very contrary of that which it is desired to further and to recommend.

It may be laid down as a rule, that every ewe lamb that falls should be fitted to be the mother of future generations: we may be content that in such a matter the exception should prove the rule. Take one of the very best instances in favour of this practice, in one of the last recognised crosses, whose fixity of type has so far been allowed as to claim a recognition as a separate class in the prize list of the Royal Agricultural Society—the Oxford Down. In skilful hands, such as those to whom these prizes are awarded, a very fine animal has been produced, and perpetuated through many generations, and they have justly established their claims. But it will not be denied that the peculiar features of the original stock which furnished the cross, the Down and Cotteswold, are too apt to show themselves, so much so that great difficulty is experienced in keeping these effects within bounds, and it is said on good authority that when submitted to judgment they are looked on as cross-bred sheep and no more. This is not said in disparagement of this stock, which is generally allowed to be often a profitable and therefore useful class of sheep, but is spoken of here as tending to prove the position that cross-breeding as a system tends to lessen rather than increase sheep breeding.

Turn from the breeders, whose names are to be found in the prize list of the Royal and other Agricultural Societies, and from their prize animals and splendid flocks, and go into the district which lies between the Cotteswold Hills on the one side and the chalk range on the other, where the cross between these two breeds finds most favour. The first cross, as a rule, is confessedly the best. The question now arises—what is done with the ewe lambs which ought to furnish mothers for future flocks?—as a rule the lambs are sold as they fall, and very generally are bought by those who fat them all. As an instance, a farmer of much experience sold 100 wether tegs at a market away from home, where they were pronounced the best sample of such stock (that is, the first cross between the Cotteswold and Down) that had been seen there. Contrary to his custom he kept the ewes, and was tempted to breed from them; though his rams were well selected the produce was of a very inferior character, and wisely he returned to his former practice, crossing the best draft ewes of the Hampshire breeders with the Cotteswold ram. It might be said breeding from the draft ewe is in itself a gain, sometimes it may be, but what is contended for is that even the best cross breeding leads to the indiscriminate sacrifice of the ewe, which in flocks like those of Sussex, Wilts, Hants, Gloucester, Leicester, &c., is not the case. The half-bred sheep just now is in great request, from the large price of wool and the fatting qualities said to belong to this class of animal. "Breed from the best natives, cross for fatting," is a recorded saying of Mr. Frost, bailiff to H.M. George the Third at a time when the first great movement in the improvement of sheep stock seems to have had its commencement; and the saying, founded on the experience of that day, is true doubtless now. The practice of the eastern counties, so important as sheep districts, is essentially the same as that of the locality taken as an illustration. There are many instances of gentlemen whose parks offer the best opportunity for breeding the Sussex Down, who have been tempted to cross their flock, some with the Shropshire, producing at first at least a creditable animal; others using long-woolled or cross-bred (call them Oxford Downs), or other varieties, all leading in the same direction, producing ewes unfitted for the great purpose of their sex, the increase of their kind. If the Dorset ewe is crossed with a Sussex or other Down sheep, for the purpose of producing, rearing, and fatting off early lambs, the object is easily understood; or if the cross-bred ewe is put to the same purpose the object is understood—the lamb and the mother usually go together to the shambles, and the sacrifice is made to the luxury of the world. The object of dwelling on these various phases of practice is to give prominence to a point not often noticed; and this is done with greater confidence, because the increase of pure breeding as a system must tend to improvement, as general cross breeding tends to the deterioration of the stock, and furnishes such ewes as are best fitted for increased production.

The extension of the practice of breeding may be recommended as leading by natural consequence to an improved and liberal system of cultivation. The chalk range of Bucks and Herts differs very little in soil and climate from that of Wilts, Hants, and Berks; there seems no reason why the farming of the former might not, as to sheep stock, follow the example of the other. Nay, to a certain extent there is a movement in that direction, which ought to receive every encouragement.

Of the stronger soils under the plough, it is rather in the details of management than on any general principle that breeding can be extended. There is sometimes an impression that the laying down some of the stronger soils to permanent pasture would increase the amount of sheep stock; it might, if none were before kept. There are instances of strong soils, on which, in the memory of man, scarcely a sheep was kept—the naked fallow prepared the way for Wheat and Beans, or Clover with Barley and Oats, the land was fertile and productive, and sheep as a stock were not thought of. *Now* on these very farms, by standing folds in the fields, or by a yard at the homestead, some of the earliest lambs of the district (falling before Christmas) are sent to the London market or stores for feeding or breeding on the farm. There are large portions of Essex where the soil is almost as stiff, where scarce any sheep are kept; even there the flock might be so housed during the winter and fed on summer artificial crops. The present season has taught a lesson on this head to the farmers, even of light land, in the almost universal loss of the Turnip crop. Valuable flocks must be kept at any sacrifice rather than be broken up; those who parted with or shortened their flocks in the autumn will regret that this has been done. The difficulties have lessened with the necessity; fortunately all the straw, from the unexampled dryness of the season, is dry and sweet, and with chaff cutting, the use of Barley meal, malt dust, and other ordinary feeding stuff, including in some cases Wheat, the flock, kept throughout the winter in standing folds, or yards at home, have maintained their condition at comparatively moderate cost, have astonished their masters, and it is said led shepherds to express a hope that the next season may be as good as the present.

The decision of this very important question is after all in the hands of the farmers of England—they will naturally and justly follow the guidance of their judgment in the course in which they can anticipate the greatest amount of profit. Landlords, if they be landholders, should do all to foster and encourage, by their example and other means, the extension of sheep breeding, which, under the present aspect and prospects of British agriculture, assumes the character of a national duty, as it must be, as it ever has been, a chief ingredient of agricultural prosperity. *J. C. C.*

OBJECTS OF FARMING.—No. III.

If, then, our usual crop of Wheat is shown to produce a loss, while our forage crops bring in a profit, are we to cease growing corn and to rely entirely on the production of meat for our profits? Theoretically, yes; the market gardener cannot afford to grow Wheat, and the nearer our farming can approximate to gardening the better. But in practice we find several hindrances to such a proceeding; garden produce is consumed off the land, and the necessary manure brought back from the consumers; farm produce has to be eaten on the farm, and we find that overcrowding is even more deleterious to animals than to man. I believe the great mortality among them which we have of late years experienced, especially in the case of pigs, may be traced in a great measure to this cause. Not only our railway trucks and steam boats, but all our hovels and yards have been unduly crowded from the necessity of increasing our stock of fat meat, and forcing it at so early an age into the market. Consequently, unless our sheds are roomy and thoroughly ventilated, the seeds of disease are generated in them, which result in serious loss. Irrespective therefore of the expense of fresh buildings, and the greatly increased capital required, the system of feeding cannot be carried to this excess. Neither is it necessary for our purpose, as our philosophical or inquisitive friend (see No. I., p. 490) will see on a little consideration. When he gives some 12000*l.* for the fee simple of a farm of 400 acres, or an annual rent of 400*l.* a year for the same,* he purchases or rents besides the buildings, roads, fences, and improvements of previous possessors, that annual fall of rain and dew, carbon and nitrogen, heat and light, which a merciful Providence showers down upon him, whether he be a good farmer or a bad one, and whether it be received and used with gratitude by the thrifty, or misused by the unthankful and the evil. This annual out-pouring of fertility may be reckoned at about 40 lb. of nitrogen or ammonia, taking its most valuable constituent, and at its present price of 6*d.* the lb., is worth about 1*l.* a year per acre (a curious approximation to the annual rent), and contains the amount of this substance necessary for the formation of a quarter of Wheat or a ton of hay. Hence a quarter of Wheat per acre, or a ton of hay, may be removed from the farm annually without in any appreciable degree deteriorating the condition of the soil. The original rotation of in-field and out-field of our ancestors was a modification of this, whereby a crop of about 2 quarters was taken off every second year, the land during the alternate year being left fallow to rest. A great advance again on this was the introduction of the modern four-course, or Norfolk system; whereby the land, being kept very clean and deeply cultivated during the alternate years, sufficient manure is made by feeding stock to raise these 2 quarters to 3, 4, or even 5 quarters, according as this manure has introduced 40, 80, or 120 lb. additional of ammonia on each acre—it being now pretty clearly ascertained that on well-cultivated soils the addition of 5 lb. of ammonia

* It would be a curious investigation to separate the value of the buildings, roads, fences, drainage, and other improvements of the soil which are liable to decay, and therefore to depreciation, from the annual increase, which is natural, and as it say, eternal. Mr. Bailey Denton sets the value of the artificial improvements at 10*l.* per acre. If we apply this rule to the 400 acre farm above mentioned, the buildings, roads, drains, &c., would be worth 4000*l.*, and the rent, at 5 per cent., at the least 200*l.* a year, leaving for the natural produce of the 400 acres, *i.e.*, for one quarter of corn or one ton of hay, less the labour and seed, only 10*s.* per acre, or 200*l.* a year, and paying only 2½ per cent. on the remaining 8000*l.*

will produce an extra bushel of corn. Here then we have two axioms on which we can build—1st, That the more meat a farmer can sell the more money he will make. 2d, That he may sell off every year as many quarters of corn or tons of hay as he holds acres, without materially injuring its condition; and upon these, as a foundation, he will be able to construct a rotation of crops best suited to his particular holding.

Of course in the great variety of farms as respects soil, climate, and other contingencies, it is impossible to lay down any invariable rule as applicable to individual circumstances, but I will give as an example of my meaning a moderate farm of 400 acres, half arable, half meadow or pasture, rented at 400*l.* a year, and fairly provided with buildings. We have seen that from such a farm the extreme produce that could be sold off annually without detriment will be 200 qrs. of corn and 200 tons of hay off the Grass land. We have also seen that in the case of the arable land this will not pay the expenses of cultivation. But if he grows 60 or 70 acres of roots, Vetches, Cabbages, &c., and feeds some 50 beasts in his yards and 400 sheep in his fields, giving them in addition 15 ton of oilcake, and a rick of hay cut up and mixed with his straw or chaff, and if he consumes his Barley and tail corn with a little Indian meal in fatting 100 pigs, and keeps the manure from being washed out by the winter rains, the extra produce of corn raised from this amount of manure should be 700 qrs., which added to the 200 qrs. natural produce of the farm would make 900 qrs. in all, or 6 qrs. per acre over 150 acres of land; but making every fair allowance for depreciation of manure through exposure, and for the loss of corn by vermin, birds, &c., we might fully expect to reap 700 qrs. net, or five qrs. over 140 acres. The upshot of this is, that a farmer keeping a large stock of fatting animals, and feeding them on his own corn or an equivalent of imported corn, would not only realise a profit on that corn in the sale of the meat to the butcher at the present price of meat, but would grow an enormously increased crop of corn, viz., 5 qrs. over two-thirds of his land, instead of half that quantity over half the farm, and by cultivating and heavy manuring would grow over the remaining one-third of his land roots and green crops enough for his use, thus leading to a three-course rotation of crops—one year green crops and two years corn—as the most paying as well as the most improving system; and I believe I can show that there are few farms of good average staple and condition on which this rotation would not be a great improvement on those now in vogue. *J. B. M.*

(*To be continued.*)

ON BARLEY AND MALT.

[The following letter has been addressed by Dr Voelcker to the Secretary of the Central Anti-Malt Tax Association]

I BEG to enclose the results of analysis of Barley and malt.

The sample No. 1, I understand, is raw Barley, and samples Nos. 5, 7, and 9 are malted Barley, called cattle malt, of the respective ages of five, seven, and nine days. No. 14 is brewers' pale malt, 14 days and 16 days old, having gone through the whole process of malting. No. 16 is brown brewers' malt.

The samples 5, 7, 9, 14, and 16, I am informed, are all made from the same Barley.

You will observe that the Barley, not having been dried artificially, contains about 3 per cent. more moisture than malt. The greatest differences in the composition of Barley and malt will be found in the amount of sugar which the several samples contain.

In the malt marked No. 5 the proportion of sugar is only about half a per cent. higher than in the Barley from which it is produced.

In the next sample (No. 7) the sugar is perceptibly larger, and in No. 9 it amounts to nearly 8 per cent., whilst No. 14 contains about 9½, and the brown brewers' malt nearly 10 per cent. of sugar. The proportion of sugar, it thus appears, increases in the order in which the different samples are given in the enclosed tabular statement of results.

In the next place, I beg to direct your attention to the column which gives the proportion of flesh-forming matter in Barley and in malt. You will notice that the sample of Barley which you have sent to me for analysis contains somewhat less flesh-forming matter than the sample of malt, which contains the smallest amount of these important constituents, and appreciably less than the sample of malt No. 9, containing the highest proportions of flesh-forming matters.

In the malt marked No. 9 you will notice there is about 1½ per cent. more flesh-forming matters than in the Barley from which it is made. It is interesting that No. 9 contains the highest proportion of flesh-forming matters, and that in the different samples of malt analysed by me a gradual rise in these compounds may be noticed, which reaches its highest point in No. 9, after which the flesh-forming constituents again recede in the succeeding samples. These differences may not be considered very great; still, I cannot help thinking that they are sufficiently marked to warrant the conclusion that the feeding value of malt is likely to vary with the length of time during which the malting process has been carried on.

At all events, theoretically considered, the sample marked No. 9, being richest in flesh-forming matter, should be better than Barley on the one hand, or the four remaining samples of malt on the other, so far as the nutritive value of the different kinds of food is dependent on their relative proportion of flesh-forming matter.

As I have not carried out myself any practical feeding experiments with a view of testing the relative feeding properties of Malt and Barley, I am not in a position to corroborate or refute the theoretical opinion here expressed. I may, however, be permitted to say that, according to the testimony of trustworthy men, malt possesses the valuable property of rendering other food more digestible, and of preserving the health of fattening stock. In order to fatten animals as economically and profitably as possible, it is necessary to supply them liberally with a variety of food. The excess of food conveyed into the system during the fattening period often greatly impairs the digestive powers of the animals, and endangers their health. Malt greatly assists the dissolving action of the stomach, and thus supplies the absorbing vessels readily with liquid food.

According to Payen and Persaz, the eminent French chemists, malt contains but 2·1000ths of diastase, a compound which, not admitting of quantitative determination, is not mentioned in my analytical results.

Notwithstanding this trifling quantity, the diastase of 1 lb. of malted Barley, according to Liebig, is capable of converting into sugar 5 lbs. of starch. I believe, therefore, it will be found that the cellular fibre and husk of grain is more easily and thoroughly exhausted of starch when the crushed grain is mixed with a small proportion of malt than otherwise. The full fattening effects of the grain will then be realised, and none of the starchy particles be carried off with the fæces. We can thus understand why a small proportion of malt produces very striking effects when added to other less digestible food.

I am inclined to think that malt improves materially the feeding value of other less digestible food, not so much on account of the sugar it contains, as in virtue of the peculiar dissolving action which it exercises on other articles of food. Too large an amount of sugar in food, it appears to me, may probably have the effect of nauseating; and as brewers' malt contains much sugar, it is likely that, however beneficial in small doses, such malt ought not to be given to stock in large quantities. In conclusion, I would remark that it is very desirable to institute careful feeding experiments, with a view of ascertaining positively—1. To what extent small doses of malt improve the feeding value of other food. 2. In what quantities malt should be added to the usual allowance of food in order to produce the most beneficial effect; and 3, Whether or not large doses of malt have the effect of acting rather injuriously than beneficially.

The experience of feeders of stock appears to indicate that large doses of brewers' malt produce such an undesirable effect.

COMPOSITION OF BARLEY AND FIVE SAMPLES OF MALT, SENT BY MR. A. KINTREA, FOR THE CENTRAL ANTI-MALT-TAX ASSOCIATION, 18, WARWICK STREET, CHARING CROSS.

	Barley marked	Malt marked				
	No. 1. J.S.G.	No. 5. J.S.G.	No. 7. J.S.G.	No. 9. J.S.G.	No. 14. J.S.G.	No. 16. J.S.G.
Moisture	11.76	8.72	7.43	7.76	8 35	7.06
Sugar	3.75	4.29	5.48	7.85	9.46	9.86
Starch and dextrine.	70.40	71.03	69.70	67.57	67.53	67.67
*Albuminous compounds (flesh-forming matters ..	7.75	8.44	8.81	9 37	8.60	8.31
Woody fibre (cellular)	4.46	5.22	6 38	5.38	4.14	5.11
Mineral matter (ash).	1.88	2.30	2.20	2.07	1.92	1.99
	100.00	100.00	100.00	100.00	100.00	100.00
*Containing nitrogen	1·24	1.35	1.41	1.50	1.38	1.33

AUGUSTUS VOELCKER.

11, Salisbury Square, Fleet Street, E.C.
May 18th, 1865.

[It is well to bear in mind when comparing Barley and Malt—that a given weight of Barley produces a much smaller weight of Malt.]

OF EMIGRANTS AND EMIGRATION.

THERE is—1st, the direct benefit to the emigrant; and 2d, the indirect benefit to the home-stayer.

1. *The Emigrant.*—A competent workman no sooner arrives in any of the colonies than he finds ready and full employment at wages which, if economical and provident in his habits, leave him a large margin between income and outgoings. Taking the agricultural as the lowest type and worst paid of English workmen, the farm labourer on reaching a colony obtains for his work both money payment and ample rations, the former alone generally averaging more than his total highest remuneration at home. He is thus at once relieved from all care on the subject of procuring food. Meat, which in England he tasted perhaps once a week only, he now has every day, and three times a day if he likes; and the weekly wages, which in England had to provide him with food, housing, and clothes, can now be devoted to the purchase of luxuries, or, if prudent, by saving a portion of his income for a time, he can soon reach a position enabling him either to buy a small plot of land for himself, which he can always obtain for a few shillings per acre, or to join in the renting of a sheep-run on shares, thus laying the foundation of a fortune. A few years of more or less rude success, during which the emigrant has learnt self-reliance, and he, who would probably have passed his life at home as a mechanic, or, perchance, risen to the dignity of a foreman, and unless by special fortune never attained to any social or political importance, perhaps never possessed a vote, becomes in the colony a person of means, can afford to purchase a good house, good furniture, to live well, even luxuriously, is entitled to vote for local officials and the legislature enters into the discussion of public matters, and gradually comes to have an opinion of his own, which he enunciates in the press or in speeches at public meetings, and every little place has its newspaper, in which argumentative colonists carry on their discussions. These discussions determine his choice of a member for the legislature, if himself desirous of remaining a simple citizen, but if ambitious, he feels that no impediment exists to his becoming a legislator himself. With character and sufficient education he may succeed in leading a local assembly, but if limited in his oratorical powers he must be content to be a silent member, though not the less useful. Thus men, whose whole life would probably have been restricted to the questions of daily wages and the propriety of strikes, or a low murmur about their exclusion from electoral rights, gradually open their minds to questions of revenue, taxation, political freedom, colonial rights, exploration, harbours, fisheries, boundaries, settlements, education, the improvement of estates, and the general public good. These briefly are some of the advantages which accrue to those who emigrate.

2. *Home-stayers.*—The advantages to those who remain at home are numerous, although apparently less direct. First, there is the withdrawal of a large percentage of competitors from the labour market. The law of supply and demand obtains, in the case of labour, as in that of other commodities. If a given number of employers have need for, say nine men, and ten workmen apply for the work, the employer will reduce the wages of all the nine required to the lowest possible amount; the labourers, in fact, compete with one another as to which one shall be left out of work; but if the employers have work for nine men, and only eight are obtainable, the employers compete with one another for the services of the men by offering inducements, generally in the form of increasing their wages. Hence the importance of emigration, from a labourer's point of view—transferring the competition from the shoulders of the workman to those of the master. That this has been the case during the last 10 or 15 years will be evident, if we investigate the present rate of agricultural wages, and compare it with the rate which prevailed at the former period. I am aware that another cause besides emigration has been operating in the direction to raise wages—I refer to the introduction of machinery into agricultural pursuits. When threshing was done by manual labour, one man was almost as good as another, but the man who can drive, stoke, or feed a threshing-machine is no longer a common labourer but a skilled workman; and unless his wages be raised above those of a mere labourer he will speedily seek some other engagement—his intelligence, his mind, must be paid for. With a diminution of demand, fewer permanent hands being now required upon farms, the great reason for wages being higher at the present time than formerly can only be from the fact of large draughts of men having been enticed from England by the prospect opening to them in our colonies, and by that means withdrawn from the home-labour market.

NUMBER OF EMIGRANTS FROM THE UNITED KINGDOM, DISTINGUISHING THE NATIONALITY AND DESTINATION, FOR THE YEAR 1862.

Destination of Emigrants.	Year.	English.	Scotch.	Irish.	Foreigners.	Not distinguished.	Total.
United States	1862	14,180	1,025	33,521	2,388	7,592	58,706
British North America ..	,,	2,576	2,645	3,107	137	7,057	15,522
Australian Colonies ..	,,	17,827	8,599	12,402	652	2 363	41,843
Other places..	,,	904	327	650	134	3,128	5,143
Total ..	,,	35,687	12,596	49,680	3,311	20,140	121,214

From Mr. Morton's paper, read before the Society of Arts on 8th Dec., 1859, it appears that the wages of agricultural labourers throughout Great Britain have risen, on an average, about 20 per cent. between the years 1849 and 1859. All this proves, says Mr. Morton, that the labouring force in agriculture is better paid than it used to be, and that the enormous extension of machinery and of steam power lately has not been to the injury of the farm labourer.

Not only have wages been largely improved by emigration, but there is another point of influence upon social life which must not pass without mention. Speak to a person in whatever sphere of life we may, it will be almost instantly ascertained that a brother, sister, relative, or intimate friend is settled in some distant colony; and with such emigrants the dwellers at home keep up a correspondence more or less regular, bringing about a knowledge of the world and its varying interests vastly different from that which obtained only a few years ago, when it was not unusual to meet

with persons whose geographical knowledge was bounded by the limits of their native village or town. I speak a fact when I say that within the last 20 years I have myself conversed with a country resident, the proprietor of the farm he cultivated, who, living within 25 miles of a railway, and a seaport to which steamers were running daily, had never seen either a railway, a locomotive, or a steam-vessel, and all my attempts at explanation utterly broke down when I found that his utmost idea of a steam-vessel's mode of propulsion was by sweeps, as he termed them, similar, as he supposed, to the small oars of a boat on the mill pond. The views of the world which the emigrant obtains are scarcely less different than the expansion which is taking place in the minds of the home-stayers on the great interests which affect our country. Further, every man who emigrates may be said to support one at home, by becoming a purchaser of English manufactured goods, and thus are the home-stayers benefited; to how large an extent will be more apparent when we have treated of the commercial results of our colonies. In fine, the physical, moral, and social condition of both these two great parties to which we have referred is rapidly changing, and, I believe, improving. Here are two little incidents which, from their coming under my own notice, I may relate as bearing on this part of the subject. In the depth of a bitter winter a group of labouring men were huddling round an inn fire, at which they were kindly permitted by the host to warm themselves, and on inquiring as to the cause of so many able-bodied men lounging about, I was informed that they could not get work, and were not allowed to go into the Union until they had been out of employment six weeks. They added that there were 40 men in the like distress in that parish, a purely agricultural one, the coveted wages when in full work, for which they were so anxious, being some 8*s*. per week. Incendiary fires were frequent that autumn and winter; if my memory serves me correctly, eight were counted in my evening walks during one and the same week. Is it not appalling to reflect upon such a state of things? Starving men burning abundance. In my own mind I have often contrasted this sad condition of matters with the cheering prospects indicated in the following simple tale, for the accuracy of which I also vouch. When I was in one of our colonies an Irish emigrant once solicited me to write a letter for him to an old friend at home, which I assented to do. "Tell him," said he, "if he has not plenty of work, to come out. Tell him we came out safely and comfortably. Tell him, sir, it is a beautiful country. Tell him there is plenty of work here;" and then he related various domestic pieces of intelligence as to the increase of his family, &c. "Well," said I, after penning all the subjects as he dictated them, "anything more?" Considering awhile, he said, "Nothing, your honour, thank ye;" but, recollecting himself, added, "Oh, please, tell him there is plenty of pork and potatos." A great truth lurks under this last sentence, for our physical well-being is at the foundation of all civilisation, science, art, and the amenities of life.

3. *Who should Emigrate?*—This leads me to offer a few remarks on the great question—Shall I emigrate? Every person falls into one of two classes, desirable or dead-weights. Men with families likely to settle down permanently and become the backbone of the colonies are desirable, and if possessed of moderate capital so much better. Very desirable colonists are those working men who have a sound knowledge of some handicraft, as bricklayers, carpenters, masons, blacksmiths. Farm labourers, shepherds, are also valuable; and subordinate to these, all men enjoying good health, and able to do a hard day's work of any rough kind. Of the female class we should like a supply of country domestic servants, and handy lasses, knowing how to milk, wash, and iron, boil a Potato, make a pudding, and roast a joint. To such we should be quite willing to give high wages as long as we could keep them from the allurements of some prosperous mechanic or successful farmer. Speaking as a colonist, I may say there are whole groups of people we do not want and would much rather be without. Of professional men we have more than enough. Legal men are so abundant at home, and the chances of great success so uncertain and rare, that no wonder the overflowings of the profession seek to obtain advantage of every opening possible in the colonies. Again, when it is remembered that every emigrant vessel must carry a surgeon, it will at once be seen how superabundant must be the members of that profession in some of the colonies. 40,000 emigrants go to Australia every year, conveyed in 160 or 200 ships, and as many of the surgeons do not return, but remain in the colonies, we may form some idea of the yearly addition to the medical branch of the community. The needle-women, the sempstress class, are not of value to us; accustomed to town life, weak, feeble, unenergetic, not used to domestic work, they find little occupation, and are a burthen to us. For young men who have not learnt a trade—men of the pen only, we have but little room; there is always a large supply on hand, and as living is comparatively dearer than at home, they are the most disadvantageously placed of any class in the colonies. They know no trade or handicraft, and are, as a rule, physically unable to do laborious work, and therefore are far worse off than the commonest unskilled labourer. *Mr. Stones, in the Journal of the Society of Arts.*

Home Correspondence.

The Earth Closet.—Allow me, through you, to thank your correspondent, "W. G.," for several very valuable remarks in his article in your Journal for June 17. In particular I would thank him for what he states respecting the importance to health of the Dry System in villages and country houses. From those very causes which he has mentioned, I have known the rate of mortality in one small village in Dorset to have been, on an average of 10 years, 33¼ per thousand. The promotion of health in country districts, therefore, has been from the first my main object; and when I added wealth as a second object to be obtained by the earth system, I had especial reference in all individual cases to the cottager himself. I believed, and still believe, that by using earth as the medium of preserving and moving house manure he would vastly increase the produce of his garden. Indeed, this is no longer a matter of mere belief or opinon; it has become a matter of frequent experience. I object greatly, therefore, to "W. G.'s" idea of the farmer buying up this stock of manure from the cottager. For I know many villages in which the privy vault affords the only chance of his obtaining manure. Let the farmer seek it partly from his own houses, partly from railway stations, and from public institutions, and (notwithstanding your opinion, Sir, to the contrary, I say) let him seek it in towns. For partly from the great and increasing difficulties of the water system, especially in the pollution of rivers, partly from the little cost of the earth system compared with the water system, and now from the greatly increased simplicity in working the former, I feel persuaded that it soon will be in operation in towns. "W. G." says that I am pressing the subject in Dorset. In this, I beg leave to say, he is mistaken. The subject has been pressing itself, aided indeed by the advertisements of Messrs. White & Co., and it is forcing itself not only in England but in various other parts of the world. For instance, the paper which I had the honour of reading before the Society of Arts in the year 1863, has been reprinted by the Supreme Government of India; it has been translated by the Government of the Punjab into the language of that country, and it has been the means of introducing the system into, I believe, every gaol and almost every barrack in our Indian possessions. This does not look much like my having damaged the prospects of the system, as "W. G." says I am doing, by insisting on drying sheds and on using clay, and on the five-fold repetition of the use of it. In this too he is not a little mistaken. I assert that common surface earth and clay, if dry and sifted, are the best deodorisers, and within the reach of every person. That their deodorising capabilities are such that 3 lb. weight of either is sufficient for complete deodorisation in each use of a closet. And this I am sure cannot be said of ashes. At the same time ashes, if not added in a very large proportion, will soon produce fermentation and a very offensive smell. And every one who has tried the two will say that their manurial value is very small compared with that of saturated earth. If people like to use ashes with the earth they can, but I can say from many experiments that they will find several inconveniences arising from them, especially if used in chambers. If they like to use the very small quantity of soot which each house or cottage is likely to produce, I don't forbid it. But they must expect much dust and dirt arising from it, and in a house the smell of soot, even if it should deodorise other matter, is not very agreeable. As to the frequent use of the same earth, that is necessary only where, as in the case of towns, there may be a difficulty in providing a sufficient quantity for the single use, and where it is an object with a view to facility of carriage to condense the power and value of the manure. One remark further as to what "W. G." says as to making our cesspools out of or above ground. There is now no need of this, nor any need of a shed (excepting in some such cases as those above mentioned) for drying and mixing the earth and excrement. Your earth or ashes must be kept under cover, neither is there any need, with very few exceptions, of a mixer. In a steady following up of practical experiment and observation, I have found that the best plan is to fill up the old cesspool to the depth of no more than 3 or 4 feet, and to make in it a bottom of coal ashes and tar, or, if you please, of cement, and in making a new one to observe the same rule. Have an opening to this either behind, or, as in two cases I have, make a trap door in the floor of the privy. Let the deposit of earth and excrement fall into this vault or chamber. Let the earth be applied in detail and occasionally; let a scraper level the deposit, and there never will be the slightest offensive smell, while you may leave it there if you please for a twelvemonth, and within two months from the falling of the deposit even the paper disappears. You say, sir, that the earth closet is a horticultural rather than an agricultural subject. If you could see, indeed, the produce of some gardens in Dorset in which the system has been in use for two, three, and four years, you would say still more decidedly that it is well worthy the attention of every one who has a garden. But if you were to hear the observations of the many agriculturists who have seen the recent improvements made in the machinery of White & Co.'s closets—improvements both in simplicity and efficiency—and who have seen also my arrangements of the vaults on my own premises, and in my parochial schoolroom, you would say it is equally worthy the attention of farmers. One farmer, on seeing a model of the machinery and the arrangement of the vault, said to me, "I had no conception of anything so simple. So soon as this is manufactured I shall have two for my farmyard, and another." Let these models be sent about the country, and every farmer must adopt the plan. *Henry Moule, 29, Bedford Street, Strand, W.C.*

The Proper Quantity of Seed.—Experiment and experience have taught me that the fulness of a crop does not depend upon the quantity of seed sown, but on the quality and condition of the soil; and, in a more limited degree, on climate and the period of sowing. Every agriculturist should, as a question of profit to himself, try on a small scale comparative quantities of seed, and if this were done generally (which I am sure it is not), a vast aggregate saving would accrue to the country at large, and a proportionate gain to the farmer himself. We often hear complaints of losses by a thin crop, but never by a thick one, although the latter too often subtracts considerably from the farmer's profit. I related last year that a peck of seed Wheat per acre, dibbled at intervals of about 4½ inches, one kernel in a hole, produced 58 bushels of heavy Wheat per acre, and 2¾ tons of straw; in fact the thickest and heaviest crop of corn and straw on my farm. It was seen at various periods of its growth by many agricultural and other visitors. During winter, a single stem only having appeared from each kernel, the land at a distance appeared as if unsown, and we were often asked why we had omitted to drill that particular portion of the field. In the spring each stem radiated its shoots horizontally, to the extent in some instances of 30 to 48 stems, and ultimately became the best crop on the farm, and, which is often convenient in harvesting, about four days later than the thick-sown put in in October, at the same time as the rest of the field was drilled with 1 bushel per acre. In October last, rather late in the month, we repeated the experiment on a heavy-land Clover lea, as last year. The ground was rough and hard, and very dry, and although a kernel was placed in each hole, only about one half, or half a peck per acre, came up. Of course we anticipated a partial failure, but spring came, and each stem threw out horizontally a large number of shoots, so that now it is admitted by all who see it that it will exceed in produce the adjoining crop, drilled at one bushel per acre. It appears to be about four or five days later than the rest. I invite all who feel an interest in the matter to inspect this and my general crops in July, because, on public grounds, it is lamentable to waste so much food as we do in useless or injuriously thick sowing, and it teaches us that deeper cultivation, drainage, and unwashed manure have more influence on the crops and on the seasons (whether wet or dry) than most people imagine. In spite of drought my crops promise abundantly. This is a good heavy-land season, and particularly favourable to the stiff cracking clays. Thin hot soils, especially where shallow ploughed, must suffer considerably. A week ago I was in company with some (good) practical farmers who astonished me by saying that, although only within 40 miles of London, they continued to sow 7 bushels of Oats and 4 bushels of Barley per acre!!! As I only put in 6 pecks of Barley and 2 bushels of Oats per acre, I presume that the astonishment was mutual. Even at present low prices a self-taxation to the extent of some 7*s*. or 8*s*. per acre is surely worthy of consideration. I do not wonder at my friends finding gaps in their Clover, caused by prematurely laid crops. According to Mr. Caird, the average increase of our corn crops is 8 for 1—one million quarters of seed to produce nine millions of corn! This is discreditable to us, for surely one good seed in properly cultivated soil cannot produce so little, if it be allowed sufficient space to develop its growth. Forty for one is nearer the increase on my farm. *J. J. Mechi, Tiptree Hall, June 27, 1865.*

A New Clover.—I herewith send you a specimen of a new Clover which I saw yesterday growing on a farm near Biggleswade, and which appears to me to be worthy of notice. Mr. Malden, of Biggleswade, directed my attention to it, and he intends to introduce it next year to the public. Its history is this:—Some years ago, a neighbour of Mr. Malden found it among some Red Clover, the seeds of which had come from France; and as it appeared to be a new variety he saved a little of the seed, and has grown it yearly since that time until the present, having now a 16-acre field entirely under it. It is a remarkable thing, that although there is hardly a good field of Clover in the neighbourhood, this field carries an uncommonly heavy crop; and although the Clover does not appear so succulent as Red Clover, still, all kinds of stock eat it with avidity, and thrive upon it. I suppose it is difficult to say what has caused the numerous failures in the Clover plant this season, whether it is frost, or the land being Clover sick, or what else; but if this new Clover can withstand all such evil influences, it may become of great value to farmers. So far as botanical knowledge enables me to determine, the plant is "Trifolium striatum," being a native of England and Scotland, and grows on dry pastures and fields. The 16-acre field at Biggleswade was sown with it in spring, 1864, on Michaelmas Wheat; and Mr. Malden will be glad to show it to any one who wishes to see it. The farmers

in the neighbourhood are already anxious to procure seed for next year, when the Clover is sure to have a fair trial. Meanwhile, I thought it might interest your readers to bring it under their notice. *Wm. Baxter Smith*, 28, *King Street, Cheapside, London, E.C.*

The Horses at the Norfolk Show.—Amongst the various shows, none perhaps stands so pre-eminent as that of the Norfolk Society lately held in Norwich. Although in respect to the number of visitors, and also with regard to the Herefords and other cattle classes, it fell short of the Bath and West of England held the preceding week at Hereford, yet in respect to a very attractive portion of the Show, the Horses, it was infinitely superior. This indeed appears to be the weak point in the Bath and West of England; either their Council are not horsemen, or we fear they leave the arrangements as to horses too much to a few crotchety gentlemen who override the more practical element, and thus we have such frequent failures. This is more strikingly the case since the Society has been deprived of the services of that most excellent director of the Show, Mr. Widdicombe. The entries of stock in the Norfolk Association numbered 378 (besides extra stock) 98 of which consisted of cattle, 77 in sheep, and 40 in swine; whilst the remaining 162 consisted of Horses, of which the heavy kinds numbered 65, and the hunters 31, the remainder consisting of 54 hackneys, and 25 ponies and cobs. The class for Ponies was exceedingly good, and the competition very close. The winner was a cob pony owned by Mr. Kendle, equal to great weight, and with splendid action. The second prize was a model of symmetry and beauty, a bay pony belonging to that excellent connoisseur, Mr. Allen Ransome, who also owned a commended pony, rather slight, but with capital action. A black pony deserved a prize, and several others well earned their commendations. Of the Cobs two were very good, Mr. Palmer's and Mr. Sexton's. There were not so many Hackney brood mares as there should have been, so that Mr. Aylmer's chesnut had an easy victory. The Hackneys were a large class, and the competition was very good, although several of those that would have taken prizes proved faulty in the forelegs. Mr. John Grant was the owner of the prize winners, and Mr. Badham's grey a highly commended competitor. Amongst the Riding mares and geldings there were several very good animals, Sir W. Foster being the prize winner. The Hackney stallions were a good class; the prize winner, a chesnut, belonging to Mr. Danl. Walne, had white hind legs, but was otherwise almost perfect. Captain Barlow's (four-year-old) black had the 2d prize—a fine goer, a little light in the rib, but only four years old. A splendid bay horse, belonging to Mr. Birkbeck, would have had a prize had he been free for a curb. He was a true specimen of a Norfolk hackney. An old brown stallion (247) was a wonderful goer, but his action was too high and exaggerated for the saddle or for general use, although highly prized in the London parks, and therefore not to be despised by breeders. There was also a fine roan stallion with fine action, rather too long in the carcase, but well adapted for getting harness horses. The thorough-bred stallions were pretty good, and the hunting mares and geldings very good, comprehending some fine weight-carriers. The worked pairs of farm-horses were extremely good; a pair of Suffolks had the 1st prize on account of superior activity, but there were two pair of splendid bay Norfolks. The Norfolks, we consider, are capable of being rendered a first-rate breed, having such good fore-legs, and their colour will admit alliance if necessary with the Clydesdale and the Midland Counties breed. There were a few good Norfolk stallions, but none equal to Old Emperor, who gained the prize in the general stallion class. We find this horse, although eleven years old, still active and fresh on his legs, and the greatest prize winner of his day, upwards of twenty falling to his lot. His success, his legs, and his general appearance justify the opinion of the judge who awarded him his earlier prizes, although for doing this he has been condemned by the Inquisition as having a too great partiality for the Suffolk breed, whilst even in the county itself the awards did not happen to please the admirers of other strains. There were some very good cart mares exhibited. Mr. Wolton gaining the 1st, Mr. Badham the 2d, and Sir E. Kerrison the 3d prize. *W. C. S.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

DISEASE IN PIGS.—At a recent weekly meeting of this Society Dr. BUDD of Clifton gave a lecture on this subject, of which the following is an abridgment:—My first acquaintance with this disorder I owe to Professor John Gamgee, of the Veterinary College, Edinburgh. In August last he wrote me a short note, which stated that a very remarkable and fatal outbreak of true typhoid fever had occurred among the pigs in that neighbourhood; that the disease had been attended by ulcerations of the intestinal canal, the precise counterpart of those attendant on fever in man; that it had been imported into Edinburgh amongst stock brought from Wolverhampton, but had been extinguished by the measures which had been directed against contagion. I heard nothing more of the malady for six or eight months, when a friend of mine, a medical practitioner in the neighbourhood of Bristol, wrote me to say that the pigs in Clifton Main Workhouse were all dying of intestinal fever; that there was a lot of 10 pigs that had taken the disorder, that six had died, and that the remaining four were not likely to recover. Next day I went over to see the patients, and had an opportunity—the only one I have had—of observing the disease in the living subject. I saw them from day to day until they had all died; and with regard to the disease in the living animal I could not give you a better idea of it than by saying that it is the exact counterpart of typhoid fever in man. The phenomena are very nearly alike. There are one or two points of difference to which I shall presently refer; but they resemble one another very closely, only that this disorder in the pig appears to be more rapid in its course and more deadly—killing, in fact, in a much shorter time. The pig began to droop and shivered more or less very distinctly, suddenly became very prostrate, lost its appetite, got thirsty, and seemed very unwilling to be disturbed. The master of the workhouse said he believed that in the first stage of the disorder these pigs suffered from headache; and though this seems to be a curious statement, I have no doubt that it was a correct one. For in studying two of them at that stage of the disorder, one could hardly fail, from their heavy look, the fixed way in which they held their heads, and the resistance they offered to their heads being disturbed, to come to the conclusion that they were suffering from headache. These various symptoms were generally attended by diarrhœa, which from the first was more or less profuse. If it does not invariably occur from the first, in all cases I have observed, diarrhœa never failed. Indeed, it soon became extremely profuse, and one of the leading features of the disease. The discharges were at first of a light yellow, and strikingly resembled the light cherry yellow discharges that belong to typhoid fever in man. As the disease advanced, various modifications in the colour of the evacuations ensued. They became more or less of a dark green, and towards the end in many cases of a deep chocolate or dirty red colour, which tinge arose from the occurrence of hemorrhage in the intestinal ulcerations. There was another symptom, and it is important in a disease like this, where investigations are new, to fix upon outward signs that may lead to its early recognition. This symptom I regret not having witnessed myself; but it occurred in all the pigs, and I am told that it is a constant symptom characteristic of the disorder in its very early stage. I do not know on what day, but apparently it was the second, third, or fourth day, the skin of the pig between and around the ears became of a red colour, passing into various shades of purple or violet. This red tinge gradually spreads over the whole surface of the animal, and is especially conspicuous on the flanks and other parts not much covered with hair; and it appears to have earned for the malady a particular soubriquet. Two or three pig factors visited these pigs, and they at once said, "Oh! we know this disease well enough; we call it the soldier," from a fancied resemblance in the skin of the pig to the military red. As the disease advanced, diarrhœa became very profuse; the prostration increased, and I fancy that delirium intervened. The pigs seemed to me to be quite out of their mind, if one may say so. In the later stages of the disorder many became paralysed in their hinder extremities, and so weak as not to be able to stand.

In the pigs I examined the characteristic alterations were entirely confined to the mucous membrane in the intestinal canal, and they affect two principal types. One is the type in which the disease appears to originate in the isolated follicles or small mucous glands of the intestines; and in that way it occurs in a scattered form. These follicles become the seat of a particular cellular formation, and that stage, which is the first stage before ulceration enters in the stomach, is soon followed by a condition of things in which all the diseased mucous glands pass into ulcers or open sores. In the progress of the disorder, these ulcers assume very peculiar characters indeed. They have been variously likened by friends of mine to different natural objects. For example, to Columba root sliced and stuck on to the intestines, to the marks which the iron used in firing a horse produces on the skin, and to the Lichens which attach themselves to the bark of trees.

Now, these are all the facts that have come immediately within my own knowledge. But if the information which has reached me can be relied upon, there are two points of very great importance in the natural history of the disorder: first, that it is virulently contagious; and, second, that it is quite peculiar to the pig. I have heard of instances where it has swept away all the pigs in the homestead, as if it were a plague; yet no other creature on the farm, whether man or beast, suffered in the slightest way. So that it really seems to be a disorder that is peculiar to the pig. The disease appears to have been known to pig factors in Bristol and its neighbourhood for a considerable number of years: but in their experience until lately it only occurred in isolated, or what doctors technically call sporadic cases. Within the last year or two, however, it has become furiously epidemic. I am almost afraid to repeat all that I have heard about it; but two or three men largely concerned in the pig trade have assured me that from 10,000 to 15,000 pigs have died in the south and south-west of England of this disease in the course of the last 18 months; and if that be the case, surely it is high time that the disorder should be seriously investigated. I would here offer a speculation, but merely as a conjecture, which I think may turn out to be true, as to the causes of this disease having become so rife during the last two years. Within 10 or 15 years the discovery has been publicly announced by Dr. Farr, and generally accepted by the medical profession, that typhoid fever in man is much more prevalent in dry seasons than in wet: in fact, that it never becomes widely epidemic over the whole kingdom, except in very dry seasons. And the reason I believe to be this. All those contagious disorders are caused by organic poisons which are thrown off from the body in various forms, passing by the bowels in a liquid state. In that liquid state all these poisons perish and rot very quickly. But there is a fundamental law which has never been sufficiently dwelt upon in relation to all these epidemic disorders, which is this, that when once these poisons pass into a dried state, if they can be kept dry, they will retain their powers for almost any period. Thus we are all familiar with the fact that dry vaccine matter will keep good for two years. Now my conjecture is that the poisonous germs thrown off in this disorder of the pig within the last two years have passed into the dry state and in that way been rapidly disseminated over the country. In bringing these observations to a close I shall make one or two suggestions of a practical kind; because this is an eminently practical Society, and what you want to do with the knowledge acquired here is to turn it to practical and useful purposes. I venture, therefore, to say a word or two on the subject of Prevention. I have stated in my belief this disease is the counterpart of typhoid fever in man. And this is quite ascertained as a settled thing in the case of typhoid in man, that it is a contagious disorder, but chiefly propagated by discharges from the bowels. Now, if the two diseases are the analogues one of the other, the same would hold good of the disorder in the pig. I believe that it is a contagious disorder, and that it is propagated mainly by the discharges from those sores in the intestines which constitute the very essence of the disease. It is the poison which finds its way through the system of the animal, and is cast out of the system into the soil. If pigs in the early stage of the disorder are sent by steamboat they taint the steamboat; in like manner they taint the market, the stye, and the drains of the stye. The suggestions, then, I would offer are these:—

1. Try to recognise the disorder in its earliest stages.
2. Separate the sick from the uninfected without the least delay.
3. And this is fundamental to my mind, because when once this disorder enters a farmyard it goes through all the swine in the place—immediately slaughter the affected animals.
4. All these precautions will be in vain if you do not destroy the infectious discharges from the intestines of the diseased pigs.

You may separate the sick from the uninfected, but if in dry weather you turn your healthy pigs at the end of two or three weeks into the stye or the yard where the others had been ill, you will find the disorders break out anew.

And now permit me to express a hope that the Royal Agricultural Society will take up this matter, and place the investigation in the hands of my distinguished friend Professor Simonds, than whom there is no man in Europe more competent to conduct such an inquiry. The members of this Society have great opportunities. You know that mankind is infested by that remarkable group of disorders which are called epidemics to a fearful degree—small-pox, scarlet fever, typhoid fever, and typhus fever. Physicians have pronounced them to be inscrutable. You have in animals diseases, epizootic diseases, that are the exact counterparts of these, analogous in their nature, propagated, and destroying life in the same way, and belonging to the same family. But in studying these diseases in animals you have the enormous advantage of all the problems that arise being put to the test of experimental investigation. You know we cannot experiment upon men and women as we can upon pigs and bullocks. I think this disorder among pigs is one of the most interesting of the whole group; and I believe that if it were subjected as opportunity occurs to the test of experimental inquiry, results would come out that would not fail to be of the highest value to the agriculturist; whilst they would also possess great scientific interest in their bearing on kindred diseases in man of a far higher and a far wider range.

Professor SIMONDS said: It was in the early part of 1862 that the attention of the veterinary profession, and of himself in particular, was first called to this matter, in consequence of the virulence of the affection in the county of Berks. The deposits on the intestines were like Fungi on a tree, or the scar on a horse's leg after the operation of firing, or slices of the Columba root alluded to by Dr. Budd. But they were to a far greater extent than any of these similes would convey to the mind. From 1862 to the present time the disease had been extending throughout the whole country, and he did not know a single county that was not suffering more or less from the affection. Certainly it existed in all the southern, midland, and most of the northern counties, for he had seen animals from all

those districts. It was for this reason that in the Report of the Governors of the Royal Veterinary College to this Society last year the following paragraph was introduced:—

"Although what may be called the established epizootics have been less prevalent, a peculiar disease in the nature of diphtheria has affected pigs in several parts of the country. This disease, however, has apparently passed its climax, and seems now to be on the decline. The sanitary measures recommended by the Professor were attended with marked benefit by keeping the malady in check, but further investigations into its pathology are required, and in this, as in other analogous cases, the Governors invite the co-operation of the Society.'

He quoted that passage in order that it might be seen that the Council had not only been alive to the existence and ravages of the disease, but had been exceedingly anxious to receive information and support from the various members of the Society. The disease was there spoken of as being of the nature of diphtheria, and it was so described because he had found that the deposits upon the mucous membrane, when seen in the early stages, bore a close analogy to the deposits which were seen in diphtheria. And he did not see why in a diphtheroid disease those deposits might not be in any part of the intestinal track, as well as upon the fauces. In fact, the poison might exist in various parts of the body. With reference to the contagiousness of the disease he quite agreed with Dr. Budd, and further he agreed that probably in dry seasons it was more contagious than in wet, and for the reason Dr. Budd had explained. He found, however, that it was contagious as well in winter as in summer—that it made as much progress in wet weather as in dry, and that pigs differed considerably in reference to their susceptibility to the affection. In his experience the disease rarely attacked aged pigs. It had in some cases spared all the old pigs on the farm, whilst it had swept off nearly the whole of the young ones. He could not admit, therefore, that the farmer ran the risk when his herd of pigs was attacked of having all his pig stock swept away. Animals that were upwards of six months old resisted the disease in a most remarkable manner. He had seen the disease among pigs that were kept in the best possible manner, and fed upon the best possible food. The animals were washed two or three times a week to keep them clean, and the greatest care and attention were bestowed upon them; they were, in fact, treated just as they would have been if the owner had been going to send them for exhibition to a cattle show. This was a fact of some value—because it indicated that no condition gave security to the animal. It would appear that with regard to susceptibility, it was not management, so much as age, that had to do with it; but why young pigs should be susceptible, whilst old pigs were not, he could not say. The symptoms had been most accurately described by Dr. Budd; and it was important that farmers should early recognise its existence. Regarding the means of preventing the affection, of course the sooner the disease was recognised and the animals subjected to it were got rid of, the better. By that means a large source of mischief was cut off. Cleanliness could not be too strictly insisted on. The places where the pigs had been kept should be thoroughly washed, floors, walls, and drains; and no sound animals should be put there for weeks after the others had left. As a medical means of preventing the disease, he had found great benefit to result from the use of small quantities of a very homely remedy, namely, sulphur, on account of its antiseptic action. It should be put into the animals' food twice or thrice in the week, and sulphite of soda should be used on the alternate days.

Mr. Frere suggested that carbolic acid, being an antiseptic, might be useful.

Professor Coleman mentioned that he had been lately informed of three cases in which it had been used with advantage internally and externally.

Dr. Budd wished to add that he believed this particular disorder was propagated chiefly by the discharges from the intestinal canal, and that persons who got the matter about their shoes were frequently the unconscious mediums of conveying the disease from one place to another. At present the complaint was very rife in the South of Ireland, and it was thence that vast importations of pigs took place into the port of Bristol.

Farmers' Clubs.

Wigton: *June* 13.—*Cultivation of Flax.*—Mr. Wilson said—When Wheat was so unremunerative, it was of much interest to the farmers of this county to study the growth of Flax. Many of his neighbours already grew it, though they grew it only for the seed, and grew it upon all kinds of soil; some of it of very good quality. His friend Mr. Jennings, of Thornby Villa, had grown a quantity for seed only, but he had, in a rough manner, dressed some of it for the fibre, which he had got made into cart and plough ropes, the only fault of which was that they were too long. Mr. Jennings found that the seed he grew was much superior for feeding calves to the seed he could buy. When he boiled it, he made a jelly so stiff that it could be lifted with a fork, while the bought seed produced a thin weak jelly. Mr. Jennings having only grown the Flax for seed, had not made any calculation as to the cost of producing the Flax, for land or labour; but he believed it would be profitable, and it was not observed to exhaust the soil. He (Mr. Wilson) had received a letter from a friend who had grown a quantity of Flax, and had a net profit of from 20*l.* to 40*l.* an acre. He told him that there was no ground for the cry that was raised as to Flax exhausting the soil; it did not exhaust it more than any other crop did. As to the steeping and scutching, they were quite simple operations when they were understood. Mr. Wilson went on to quote from the report on the recent discussion of the subject by the Royal Agricultural Society. He thought rettories and scutching mills would be the great difficulties, so that the farmers need only have to grow the straw and take it to those who would prepare it for the market. The cost of the carriage would be very little indeed.

Sir R. Brisco, Bart., said he did not think there was a more remunerative crop, if it were properly understood—but there was no more losing crop when it was not properly managed. The fermentation of Flax was a very difficult operation. Many preparers of Flax thought they got a fine fibre, but when they came to try it it was unsound. This was not the case with the Flax before him. Now, as to the profitable nature of the crop to the English farmer. In Lincolnshire it was largely grown. The farmers grew it as their Wheat crop, and found it very profitable. Mr. Wilson mentioned that what they wanted was rettories. If this was the case, he feared there was not much likelihood of its being carried out. No one would erect rettories until he could be assured of the regular supply of straw. The farmer could not expect to have rettories erected unless he were to bind himself to grow a regular quantity of straw, and the retter would have to bind himself to keep the rettory going. Still, a farmer might grow it for seed, and when a man had got to growing it for seed, he had got a long way towards producing it for fibre. When it is grown for fibre it must be grown thick; when it was for seed it should be sown thin, so that it might spread. Flax grown for seed produced a coarse fibre. That which was for fibre should be long and fine. It has been said that Ireland could not grow seed, but Ireland could grow seed as well as England, only they did not want to grow seed; they were too cunning to do it. They wanted to have fibre. The climate of Cumberland was well adapted to the growth of Flax. There was just the quantity of moisture wanted. It was not too wet, so as to make the Flax lie down on the ground and be wasted. The great thing was to have machinery to prepare it. One acre of Flax requires about 1½ acre to prepare it upon and dry it. The way to do it would be for each man to prepare what he grew himself. He would have to take land sufficient if he had not enough on his farm. On most farms there would be sufficient water. He did not think it would be any use growing it unless they steeped it, dried it, and scutched it themselves; just as they did with their wool. As for injuring the land, that was a great mistake. He did not think there was any crop which exhausted the land so little as Flax did. They must remember that whatever land they put it upon, it must be ploughed at the back-end of the year, so that they allowed it to have the benefit of lying all the winter. Then after that they came upon it with the roller, and put the seed in, giving it the very lightest touch of the harrow afterwards; drawn over the land by men. A clay bottom was undoubtedly the best, as nobody could doubt, and off good land they would have Flax that hung in the hand as if it was lead. He had grown Flax to be worth 102*l.* per ton, and he had grown it to be worth only 50*l.* per ton; both on the same land; grown in the same way in every respect, but not put into the water at the same time. The watering or steeping made all the difference. There was one thing that was mentioned in the paper he would allude to, which was mowing the Flax. Such a thing could never be done. It could never be separated for dressing if it were mown. The Chairman proceeded to explain and illustrate how the operations of pulling, sheaving, watering and breaking were performed. He said there would be no real difficulty except in watering. How were they to get over it? He thought that a number of farmers in a neighbourhood might unite together and have a man over from Holland to teach them how to manage their crops. That the Flax crop would pay he did not doubt.

Farm Memoranda.

Covered Yards.—*Better Health of Cattle.*—That cattle kept in covered yards enjoy better health than others kept where the cover is only partial is established by abundant evidence.

In support of this view, we quote the following from a communication with which we have been favoured by Mr. J. G. Marriage, of Ham Farm, Red Hill:—"Our buildings are 130 feet by 103 feet, and afford accommodation for 190 head of stock; and to give you an idea of the health they enjoy, I may say that for the last seven years the farrier's bill has not averaged 20*s.* per year."

But there is yet another class of opponents to the covered-yard system, who, while admitting the general well-doing of the cattle kept in them during the winter, argue that what is then gained is lost in early summer, when the animals are turned to Grass, from their great susceptibility on exposure to cold. The writer's own experience, and also that of many others whom he has addressed on this matter, is dead against this view. With much more apparent justice might it be inferred that milch-cows, which are usually kept in a much closer, warmer atmosphere, would catch cold when turned to Grass; yet, as a general rule, such is not the case.

Superiority of the Manure made in Covered Yards.—By far the greater proportion of ordinary farm-yard manure consists of straw and water, the remainder being the excrements of the cattle. Under cover about 20 lb. of straw per diem is found litter sufficient for one animal; in open yards more than twice that quantity is required; and if, as is generally supposed, the excrements give the tone and character to the manure, it will be readily seen why that made under cover is normally much superior to that made in the open air. We say, "normally," because in the one case the original value is maintained, but in the other lost by drainage and waste.

It would be superfluous to dwell on the deteriorating influence exercised by rain-water falling on manure, or the great loss incurred by exposure to its washings. The curious in this matter will find ample information by referring to the researches of Way, Voelcker, and other modern writers on chemistry; the practical men, we opine, will be more gratified by a reference to results. From dressings of equal quantities of manure made under the same conditions as to the food and age of the animals, but in one case under cover and in the other in open yards, Lord Kinnaird obtained the following results:*—

Uncovered Dung.	Per Acre.	*Covered Dung.*	Per Acre.
1st yr. Potatos	7 tons 12 cwt.	1st yr. Potatos	11 tons 5 cwt.
2d yr. Wheat	42 bushels.	2d yr. Wheat	54 bushels.
„ Straw do.	156 stones.	„ Straw do.	215 stones.

Mr. Akers, of Black Bourton, Oxon, in a communication to the writer, says:—"You are aware that I have at my farm an open yard as well as my large covered yard, and when I first used the manure made in the latter I was startled to find my crops for which it had been applied so lodged as to be almost worthless. Since then I have sometimes been at considerable expense to have that made under cover and in the open either mixed or applied conjointly, so as to insure an equable crop; or when the covered-yard manure is used separately, the quantity is invariably reduced, so as to guard against my previous misfortune. I usually manage my covered manure so that it will 'spit' out with the shovel when required for use, so that I have no need to haul it into a field-heap, and I consequently save the usual labour of twice filling, carting, and emptying."

Mr. J. C. Garth, of Haine's Hill, Berks, in reference to the covered yard of his home-farm, writes:—"The manure is first-rate, but as I have not made an actual trial, I cannot decidedly say how much it is better than that made in open yards; but perhaps one of the principal advantages of covered yards is the great superiority of the manure. The cattle should be littered every day, or every other day; the liquid is then all absorbed by the straw. The dung is good and short, and fit to be drawn on to the land without the expense and waste of making dungheaps. I consider this system of manure-making is also more healthy for the cattle, as in open yards the liquid runs about emitting effluvia and tainting the soil, whereas in covered yards it is all taken up by the straw."

Mr. Chancellor says:—"The late Mr. James Beadel always stated, as the result of his lengthened experience (and he might be considered as one of the pioneers of the system), that one load of covered-yard manure was worth more than two loads of open-yard manure. Its tendency to get dried and heated has always been advanced as an argument against covered yards by those who have not tried them, but I never heard it used by any one who had. The truth is, it keeps infinitely moister than in open yards in a dry season. I have often seen the manure when being emptied come out like 'black butter,' and, with perhaps the exception of the top layer, quite fit to put on the land."

Mr. H. S. Thompson says:—"When first I began to use manure made in a covered yard, it was put on for white Turnips in the usual quantity, and they were stimulated by it to an unnaturally rapid growth and excessive size, which were very prejudicial to their keeping qualities. This taught me the lesson, which has since been abundantly confirmed, that manure made under cover is fully one-third stronger than that which has been exposed to the rains of winter in open yards. Before trial it might be supposed that manure made under cover would turn out dry and mouldy, but if the quantity of straw used is in reasonable proportion to the number of live-stock kept, it will be invariably found that the manure turns out in first-rate condition. The explanation is easy, the most common cause of damage to manure being that the fertilising salts it contains are washed out by rain as fast as they are formed by the decomposition of the heap; and when these salts are all retained, the moisture will be retained also."†

The writer's experience fully bears out the above statements. In the case of animals, alike in age and fed alike, but kept in open or in covered yards, it is clear that the difference of value of the manures they make will in a great measure vary with the amount of rainfall, which not only, by its repeated washings, deteriorates the quality, but also entails the necessity for large additions of litter; but on the whole, and under average circumstances, we believe Mr. Thompson's esti-

* Trans. Highland Agricultural Society.
† Trans. Yorkshire Agricultural Society, No. 31.

manure of one-third increased value will be found to be a fair one.

In a trial made on some meadow land thoroughly exhausted by many consecutive years of mowing, the following results were obtained from the separate application of manure made in covered and open yards:—

Uncovered Dung.	*Covered Yard Dung.*
14 loads per acre produced 16 cwt. of hay.	15 loads per acre produced 25 cwt. of hay.

A portion left unmanured barely produced 10 cwt. per acre. Owing to peculiar circumstances, the difference in this case was greater than on an average can be reckoned on; but this and many other similar comparative instances within the range of the writer's experience, clearly prove that the advantage arising from the superiority of the manure made in covered yards is in itself sufficiently important to warrant their very extensive adoption.

Superior Economy in the Application of Manure.—Owing to the lesser quantity of litter used, the excrements of the cattle bear a greater proportion to the whole mass when manure is made in covered yards, and after lying some little time turns out quite fit for direct application for any description of crop, whereby a very material saving of labour is effected. The quality is still further enhanced, and consequently the quantity required is further reduced, by the avoidance of the waste of soluble salts attendant on drainage and leakage after rainfall.

Assuming 20 tons of ordinary open-yard manure to be a fair dressing per acre, and that 13 tons of covered-yard manure would be quite as effective, we in this respect save the cost of the application of 7 tons per acre, which on an average is certainly not less than 3*s.* 6*d.* And besides, in ordinary practice, the open-yard manure would be carted to the fields to ferment in a heap previous to its application, and the labour involved in refilling, carting, and emptying, may be put at 4*d.* per ton, or 6*s.* 8*d.* per acre, showing in the aggregate a saving of 10*s.* per acre; and this we believe to be a very moderate calculation. Moreover, the straw which is saved in the litter becomes available for food; and if there is any truth in estimates which set the feeding value of straw at 35*s.*, and the manurial value of straw at 12*s.* 6*d.* per ton, the gain in this respect must be considerable. *Mr. Moscrop, in English Agri. Soc. Journal.*

GLOUCESTERSHIRE: *June* 28.—The drought (for the long-continued dry weather may almost be termed such) has so operated adversely upon the prospects of the forthcoming crops as to be very serious, if not alarming.

Hay and seed harvest, if such it may be called, is now nearly ended, with a result of, except on the low damp meadow land, less than half a crop.

The Wheat upon the low, rich, heavy lands of the vale is promising to be a full crop; but on the light land, and where thin in the spring, the appearance of the crop is very unsatisfactory, for we do not, however favourable a change may take place, think that there can be anything approaching an average yield.

Oats are yet more unpromising, for the dry weather has so retarded their growth that they are coming in flower not more than 6 inches from the ground, and in some cases the sun has so got into the land that there seems no appearance of some coming into ear at all.

Barley, which stood the hot and burning weather longest, has within the last week or nine days gone off greatly. It seems to have changed its colour, becoming as it were ripe at the bottom of the stem; indeed, we never remember the spring corn, particularly upon the thin land of the hills, to look so badly.

Beans are blooming well, and we hope the blossom may not be destroyed by the heat in causing the flower to drop off.

Keep of all sorts is very scarce; in many places this shortness of provender is felt even more than last year, causing great complaints amongst those who keep dairies of the small quantity of goods made, and all other stock keepers. The mortality amongst lambs has been very great; in some flocks not more than half the number of lambs are now alive which ewes had been intended to breed from. Fat stock sells very high, though store stock, owing to the scarcity of keep, do not sell freely.

The chance of a crop of roots is very precarious; much of the land planted to roots has not, on account of the dry weather, germinated the seed, whilst the fields in which the seed has come up, show a ragged and patchy appearance. Earwigs are said to be making great destruction in some of the young Swede fields, and the grub which so devastated the Turnip fields of last year has in some cases reappeared. The weather-glass is falling, which gives us hopes of rain. *R.*

Miscellaneous.

Leslie's Steam Cultivator.—Ten years ago William Smith of Woolston, the first farmer who cultivated his farm by steam, was thinking of ordering a windlass, and making a beginning. Now there are about 800 or 900 steam-ploughs in Great Britain alone, while numbers are at work, not only on the Continent, but also in Egypt, India, Australia, New Zealand, and America. Ten years ago John Fowler, having drained 10,000 acres with his steam draining plough (which made a slit in the earth, 30 inches to 4 feet deep, with a small circular tunnel at the bottom, into which it drew drain pipes strung on a rope, leaving them embedded in the soil, and completing the drain at a single operation), was beginning to turn his attention to ploughing by steam. Before he died, in the end of last year, the firm of which he was the founder was turning out steam-ploughs at the rate of six per week. Messrs. Howard of Bedford, who began to manufacture some years later, have sold about 400 sets of steam cultivating apparatus, and other manufacturers are now in the field. The progress of steam cultivation, extraordinary as it may appear, is easily accounted for when we consider that its cost is only about one half the cost of cultivation by horse-power, that its quality is superior, and that the crops produced by it are greater, to the extent in many cases of a quarter of grain per acre. The question, indeed, is not why steam cultivation has extended so fast, but why it has not extended faster. Nor is the answer difficult to find: the great retarding cause has been the expense of the apparatus. This we find stated as under in the report of the last great competition of steam cultivators at Worcester in 1863:

Name of Exhibitor.	Price, Including Steam Engine.
John Fowler (one engine)	£540
Do. (two engines, 12-horse power each) ..	1220
Howard	520
Coleman	645
Savory (two engines, 10-horse power each)	1000
Smith	492

From these figures it is evident that the first step to be taken, in order to bring steam cultivation into more extensive use, is to reduce the cost of the apparatus. With this object in view, Mr. Leslie of Turriff recently obtained a patent for "improvements in apparatus for applying steam or other motive power to cultivate the soil, and to actuate wheeled carriages." He has since had a cultivator constructed. He states as the result of his experience that a complete steam cultivating apparatus, exclusive of the engine, may be made for a sum not exceeding 150*l.* A stationary steam engine of 10-horse power may be bought for 190*l.*, making the entire cost of engine and apparatus 340*l.*, upwards of 150*l.* less than the lowest priced steam cultivator above mentioned. He states, moreover, that where there is a fixed steam engine or water-wheel of sufficient power on the farm, it may be used to work the cultivator, the portable or self-propelling engine necessary under all the systems in common use being in these circumstances dispensed with. To show how this is accomplished, it is necessary to explain that, in all these systems, motion is communicated to the ploughs or cultivating implements by making the steam-engine wind up a rope of iron or steel wire to which the ploughs are attached. On account of the weight of the wire rope, and the friction incident to its use, the steam-engine must be placed in or close to the field to be ploughed; a portable, and, in some of the systems, a self-propelling engine is thus rendered necessary. Mr. Leslie dispenses with the use of wire rope, and adopts in its stead the endless hemp rope running at a high speed, first used by Mr. Atkins of Chepstow, in 1843. The hemp rope is not attached to the plough or cultivator, but communicates motion to a horizontal pulley supported on a frame or carriage to which the cultivator is attached. The motion is transmitted by a train of wheels to two propelling wheels, also in connection with the frame, and provided with teeth or spikes for laying hold of the ground. In its transmission the motion is so reduced in speed that the hemp rope runs 20 yards for every yard the cultivator advances. As the speed is reduced, the power is increased, so that if we leave friction out of account, the forward pull of the propelling wheels would be 20 times greater than that of the hemp rope. On account of the comparative lightness of the hemp rope, power may be communicated by means of it to a great distance, and the whole of a moderately sized farm may be cultivated by a steam engine or water-wheel at the steading. Besides the propelling wheels, motion may be communicated to another wheel (also in connection with the frame), which, being mounted in the lower forked part of a vertical spindle, may be turned, so that its axle may be parallel, or at right angles, or at any other inclination to the axle of the propelling wheels, and which is used both for steering and for turning the machine. Usually this wheel is not driven, but when the machine has to be turned, it is placed at right angles to the propelling wheels and thrown into gear; when the turning is complete, it is thrown out of gear, and replaced in a position parallel to the propelling wheels. The machine also raises or lowers the cultivating implement, and it is so arranged that the attendant may, without making any signal to the engine driver, start, stop, or reverse it, and turn it to the right, or left, or completely round, if necessary, the rope running all the time. In this respect it has a great advantage over the common methods of steam cultivation, all of which require the engine to be stopped when the plough has to be stopped, which is, of course, at the end of every furrow. To the frame or carriage above mentioned, propelled and guided by its propelling and steering wheels, which may be called a steam-horse, any cultivating implement may be yoked; and the patentee proposes to use it for drawing carts or waggons for conveying or distributing farm produce or materials over a limited area—thus still further displacing horse power. The inventor claims to have produced the first steam cultivator, driven by rapidly running rope, capable of being efficiently steered or guided, and of being turned completely round when desired. The experimental machine was constructed by Mr. Alexander Lellinghan, machinist, Turriff, and the cultivator or grubber, which is attached to it, by Mr. James Duncan, Bruntsmithy. The cultivator has five tines, with diamond-shaped points, 6 inches broad. With a horse pulling the rope, it is propelled with ease through the hardest ground, breaking it up to the breadth of 4½ feet, and to the depth of 9 to 12 inches. *Banffshire Journal.*

Tillage and Ammonia.—This same gas has one remarkable property among others—it loves those, and falls on those, and blesses those who prepare for it and receive it kindly. It falls with the occasional shower, not to mention the nightly dew, but like that dew it hates a stale surface. On a road, a neglected fallow, on any hard impervious sun-baked surface, it absolutely refuses to perch or settle, so if you wish to attract its sweet and sovereign influences, stir the surface—nay, keep it continually stirred; and no matter how coarse the subsoil you have brought to the top, the quantity of ammonia you may absorb in a single summer is such that, you may laugh—or mourn, as you please—at neighbour Drychaff's dung-cart, that creaking hearse that is carrying to the field the dead body whose departed spirit has descended weeks and months ago upon your acres, by the care you have taken to attract it. You may "call spirits from the vasty deep" and from the dry land, and from every dung-hill, or other mass of decaying animal or vegetable matter for miles around you; and "they will come when you do call for them," which is more to the purpose—if only you will do one thing—keep your soil in the condition to attract, receive, and retain them. *Hoskyns.*

Calendar of Operations.

Wheat and other grain crops are now in full ear, and their productiveness depends on other influences than those which the farmer exercises.

Peas will be ready for harvesting towards August. They are mown, or cut with hook and crook into bundles, and left to dry, being turned daily till ready to carry.

Beans.—The winter-sown crop of Beans will also be ripe by the end of July. They may be let to reapers to cut, tie, and stook, at from 7*s.* to 8*s.* per acre, according to the crop. They are generally "bagged," as it is termed, by a heavy hook, which is struck at the standing corn in successive blows, driving a yard depth of it up against the crop, across perhaps half the width of a ridge, and then employed to gather that which has been cut into a sheaf, which is laid on a band of straw or of Bean-stalks, which had been previously prepared. The Beans should thus lie for a few days, till ready to be tied and shocked. The crop may be cut as soon as the attachment of the seed inside the pod connecting it with the plant has withered. This will be before the stalk is dead, and so much the better, for leafy Bean straw is good fodder. Any Rye that may have been left for seed will also probably be ready for the sickle.

Carrots and Parsnips may receive their last horse-hoeing, or deep hand-hoeing in this month; and children should be employed to go over each row, singling plants that have been left double, and pulling young plants that have appeared since the first hoeing. This is necessary, for the Carrot seed sown in April keeps germinating, and sending up its shoots all through May and June.

Mangel Wurzel must be horse-hoed at intervals during this month.

Turnips must also be hand and horse-hoed. The early part of this month is the period for hoeing the bulk of this crop.

Rape should be hoed as soon as sufficiently high not to be covered during the operation, and then it should be set out as Turnips are, excepting that in "singling" two or even three plants may be left together. You may continue sowing it during this month.

Flax is to be pulled as soon as ready, which is generally by the end of this month, before the seed bolls have ripened. The seed may be separated by rippling in the field at once, or after the Flax has dried in shock, or in the following spring, on the Courtrai method, after remaining in the rick all winter. Rape or autumn Turnips may be grown on Flax stubble after the removal of the crop.

Haymaking concludes this month.

Tares, Lucerne, and Clover continue to furnish keep for stock.

The end of this month will give rather slack work for the horses, which may, therefore, be employed in hauling lime, &c., if any is needed, for spreading over the stubbles after harvest. Draining tiles, too, may be fetched and stored away for use in autumn. They can sometimes be obtained the cheaper for their purchase now. This is also a convenient time for cleaning out rivers and ditches, as the weather is generally sufficiently warm to permit the workmen to stand amongst water and mud without injury.

Hops.—Horses may now be introduced with advantage, for the purpose of moving the earth with the nidget (a kind of scarifier), between the rows of Hops. If the weather be dry the ground cannot be stirred too frequently; in this month, and in dry weather, labour "tells" most effectually on the crop.

Teazles must be kept clean by the use of the spade if they require it. Both the young plants of the first year, and the nearly ripened crop of the second year, must be attended to in this way.

Grass Lands.—All pastures on dry subsoils will require thinning considerably this month; but on cool subsoils they will carry an equal quantity of stock with the preceding month, and the animals will also do far better. This year, however, the drought is making them as bare as they were last July. Great care will be needful to regulate the stocking, so far as to preserve the pasture good. Aftermath must not be stocked until fairly grown.

Live Stock.—Towards the end of the month the labour of the horses being easier, their allowance of Oats may be diminished. The other stock receive a continuance of past treatment. This is the month for weaning the lambs, and no better practice can be adopted than to let them remain for two or three weeks on the best of their own summer pastures, or the run of a field of aftermath during the middle of the day, taking care not to give them access to it until the dew is off the Clover. The ewes, on the contrary, must be placed for a week or two on the worst pasture, in order to cause their milk to dry up.

Fatting Sheep may be drafted as they become fat, and sold. All the flock will need very careful attendance for foot-halt—the ewes for disordered udders, the lambs for "scouring." After weaning, lambs should immediately be salved or dipped to rid them of vermin. The ewes should now be removed to the barest pasture on the farm, and kept rather poorly until near tupping time; but before doing this, they should be carefully examined one by one, and the aged and faulty ones drafted out, that they may be sold.

On the highland farms sheep-shearing ought to be completed by the middle of the month. Crossed lambs, early dropped, may be weaned now. On farms where no lambs except the smallest are sold, but all are kept either for breeding or for wedders, early weaning is desirable. It not only enables the ewes to get into good condition, but the lambs also stand the winter better, if put on their own resources some time before it begins. Those to be kept for stock are earmarked now, and branded on the face, if this is done. If the lambs are kept in a hirsel by themselves during the winter, their ground must be cleared of all stock some time before they are taken to it. Let them be carefully watched at first, in case they break back to their mothers. If they are to graze along with the ewes, keep them at an outside for two or three weeks after weaning, and then allow them to return to the ewes. In some districts heavy loss is frequently sustained among hoggs, from a disease called "sickness." It has nearly disappeared since the old and young sheep were permitted to graze together. The wedder lambs, when weaned, are taken for a month to the highest parts of the farm, where the pasture is now in perfection. Those treated in this way stand the winter best. In the meantime, if ewes have grazed the ground where they are to be wintered, have them removed, that it may be fresh when the hoggs are brought.

Notices to Correspondents.

Bonedust: *Peper Harrow.* Apply 16 bushels per acre of rotten bonedust, making it into a heap with an equal quantity of ashes or sand, and keeping the whole wetted in the first place, in order that the whole may heat and rot. Apply broadcast in September or October.

Early Harvesting: *X.* The following were Mr. Hannam's results:—

No. 1. cut raw. No. 2, cut raw. No. 3, cut ripe.

Quantity of Produce.

	Grain. st. lb.	Flour. st. lb.	Pollard. st. lb.	Bran. st. lb.
1.	15 10	12 6	0 12	2 1
2.	16 6	12 3	1 3	2 5
3.	14 13	10 11	1 9	2 5

Weight per Bushel of

	Grain. lb.	Flour. lb.	Pollard. lb.	Bran. lb.
1.	$62\frac{4}{7}$	$49\frac{5}{7}$	$3\frac{3}{7}$	$8\frac{3}{7}$
2.	$62\frac{23}{59}$	$46\frac{2}{59}$	$4\frac{35}{69}$	$8\frac{56}{59}$
3.	$59\frac{5}{7}$	$43\frac{1}{7}$	$6\frac{4}{7}$	$9\frac{1}{7}$

Weight per Cent. of

	Grain. lb.	Flour. lb.	Pollard. lb.	Bran. lb.
1.	100	79	$5\frac{1}{2}$	$13\frac{1}{2}$
2.	100	$77\frac{1}{3}$	$7\frac{2}{3}$	15
3.	100	73	$11\frac{1}{10}$	16

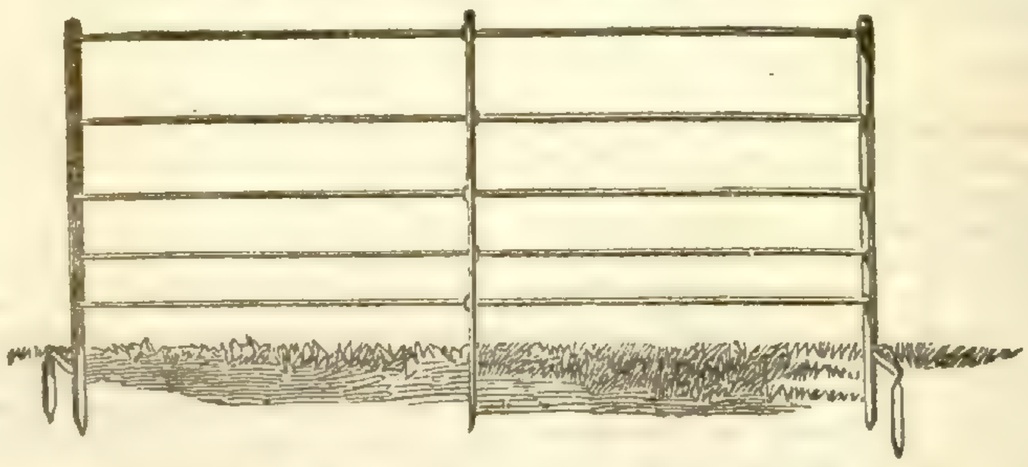
In another case an acre cut 22d August, 29th August, and 6th September respectively produced $2524\frac{1}{2}$ lb., $2407\frac{3}{4}$ lb., and $2347\frac{1}{2}$ lb. of bread respectively; or altogether 15*l.* 2*s.*, 14*l.* 7*s.*, and 13*l.* 19*s.* in money respectively.

The Time of the Ploughman: *Western Counties.* In the North one man tends and works each pair of horses, which are expected to be in some districts nine, in others ten hours out of the stable. The men feed and groom their horses in the morning, being at the stable from half-past four or five for that purpose. They harness them ready to leave the stable at six o'clock, or in some places not till seven. They work them in the field till 11 o'clock, bring them in and feed them in the stable between 11 and 1; work them in the field from one to six, and then bring them in, and clean, bed, and feed them before leaving the stable about seven.

Turnip Fly: *Grower.* Mr. Poppy's scheme consisted in sowing alternate rows or occasional patches of common Turnips or Mustard, in the midst of the Swedish Turnip, under the belief that the fly would confine itself to the former. A letter to Mr. Grey, of Dilston, says:—"One or two pieces of Turnips have been quite destroyed by the fly some time ago, the rest are looking well. It is a curious thing, that in one field where I have tried your experiment of sowing two drills of Turnips together, between the drills of Potatos, the Turnips have entirely escaped the fly, though in all the rest of the field sown at the same time they are completely destroyed."

ST. PANCRAS IRON WORK COMPANY,

OLD ST. PANCRAS ROAD, LONDON, N.W.



IRON HURDLES, FENCING, AND GATES.

	Each.—s.	d.
SHEEP HURDLES, 3 ft. high, 6 ft. long, 4-Bar ..	4	0
Ditto ditto ditto, 5-do.	4	5½
Ditto ditto ditto, ⅝ Top Bar	4	8
CATTLE HURDLE, 3 ft. 6 in. high, 6 ft. long ..	4	11½
Ditto ditto ditto strong	5	9
OX HURDLE, 4 ft. high, 6 ft. long	7	0½

DR. SPRATT'S PATENT LOCK.

The simplest and best Fastening for Field, Wicket, Swing, and Railway Gates. Particulars and Prices on application.

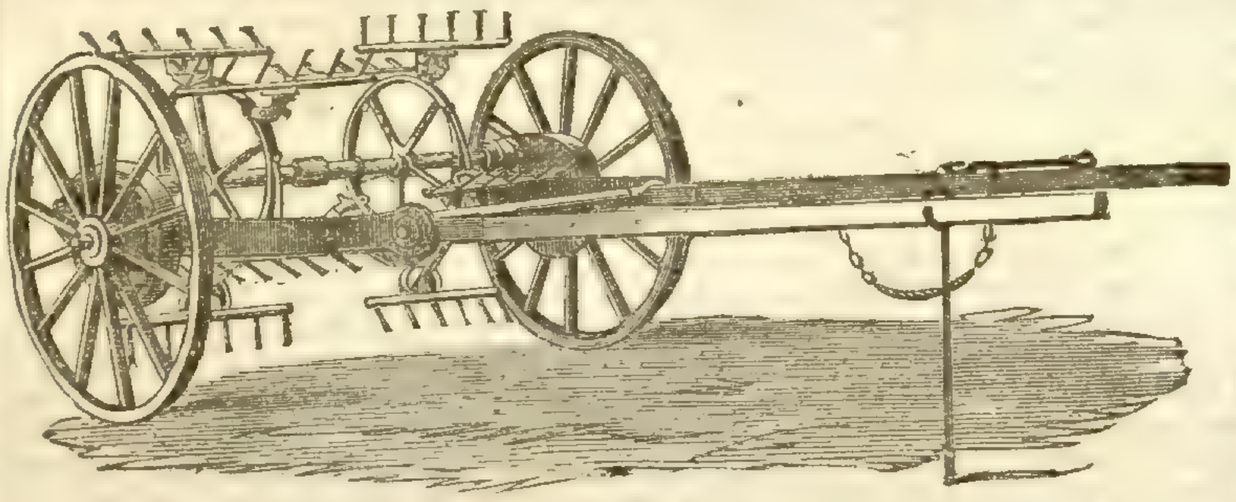
PATENT WROUGHT-IRON STABLE FITTINGS, CONSERVATORIES, &c. Lists Free.

PANCRAS IRON WORK COMPANY, OLD ST. PANCRAS ROAD, LONDON, N.W.

BOBY'S PATENT DOUBLE-ACTION HAYMAKING MACHINE

Received at the recent Meeting of the Royal Dublin Society, at Dublin, the FIRST and LARGE SILVER MEDAL (no other Medal was awarded to Haymakers); also,

ELEVEN FIRST-CLASS PRIZES and MEDALS were AWARDED to this MACHINE in 1863 and 1864.



This Machine is extremely simple, and its working is at once understood, as all levers and eccentrics are entirely dispensed with. It is light in draught, and so constructed that it leaves little or no weight on the back of the horse, and guaranteed to work in the heaviest crop. Four Hundred of these Machines have now been sent out, and not a single Machine has been returned as inefficient. The travelling wheels are made of wood, and are very strong.

Price, delivered free to any Station within 200 miles of London, **£14 15s.**

This Machine requires no Roller or Screen to keep the Grass off the front.

Illustrated Catalogues of Haymakers, Corn Screens, &c., will be sent free on application to the

Manufactory: ST. ANDREW'S WORKS, BURY ST. EDMUNDS, SUFFOLK.

JAMES PHILLIPS & CO.,

HORTICULTURAL GLASS MERCHANTS,

180, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

REDUCED PRICES OF SHEET GLASS FOR HORTICULTURAL PURPOSES.

ENGLISH SHEET GLASS.

Packed in Crates of about 280 feet.

	16-ounce.	21-ounce.
Best	5½*d.*	7¼*d.*
Seconds	3¾*d.*	5*d.*
Thirds	2½*d.*	3½*d.*
Fourths	2¼*d.*	3¼*d.*

HORTICULTURAL GLASS,

Stock Sizes, 16-ounce. In 100 feet Boxes.

These prices only apply to the sizes stated.

	4ths.	3rds.	4ths.	3rds.
11 by 9 12 by 9 13 by 9 14 by 9; 12 ,, 10 13 ,, 10 14 ,, 10 15 ,, 10; 13 ,, 11 14 ,, 11	10*s* 9*d*	12*s* 3*d*	12*s* 6*d*	14*s* 0*d*
14 ,, 12 15 ,, 12 15 ,, 11 16 ,, 11; 18 ,, 12 19 ,, 12 16 ,, 12 17 ,, 12; 16 ,, 13 17 ,, 13 20 ,, 12 21 ,, 14; 19 ,, 13 20 ,, 13 18 ,, 13 ..	11*s* 6*d*	13*s* 6*d*	13*s* 6*d*	16*s* 0*d*
16 ,, 14 17 ,, 14 21 ,, 13 .. ; 19 ,, 14 20 ,, 14 18 ,, 14 ..	14 to 15 ozs. to the foot.		16 to 17 ozs. to the foot.	

FOREIGN SHEET GLASS.

In Cases for cutting up, in Sizes as Manufactured.

	16 oz., 200 ft. £ s. d.	16 oz., 300 ft. £ s. d.	21 oz., 200 ft. £ s. d.
Best	3 7 0	..	5 14 0
Seconds	2 10 0	..	4 13 0
Thirds	..	2 5 0	2 10 0
Fourths	..	1 15 0	2 0 0

GLASS for ORCHARD HOUSES,

As supplied by us to Mr. Rivers, to the Royal Horticultural Society, and to most of the Nobility, Clergy, and Gentlemen of the United Kingdom.

Each Box contains 100 feet.

		14 to 15 ozs.	16 to 17 ozs.	21 ozs.
20 by 12	Fourths	11*s.* 6*d.*	13*s.* 6*d.*	15*s.* 0*d.*
20 ,, 13	Thirds	13*s.* 6*d.*	16*s.* 0*d.*	19*s.* 0*d.*
20 ,, 14	Seconds	..	English.	English.
20 ,, 15	Best	..	18*s.* 0*d.*	23*s.* 0*d.*

The above prices include the Boxes.

We recommend 3rds quality at 16*s.*, or 21-ounce at 19*s.* (as supplied to Mr. Rivers). Best and Seconds are intended only for pictures or dwelling-houses.

SMALL SHEET SQUARES.

In 100 feet Boxes.

6 by 4 .. 6½ by 4½ .. 7 by 5 .. 7½ by 5½ ..	11*s.* 6*d.*
8 ,, 6 .. 8½ ,, 6⅜ .. 9 ,, 7 .. 9½ ,, 7½ ..	12*s.* 6*d.*
10 ,, 8 .. 10½ ,, 8½ ..	

Boxes 2*s.* each, returnable at full price.

All small squares from 6 by 4 to 10½ by 8½ are cut from pieces, consequently there is only one quality.

London Agents for Hartley's Patent Rough Plate.

Perforated Glass for Ventilation.

Glass Shades, Ebony and Gilt Stands, Gas and Lamp Glasses, Chimney and Globes, &c.

Glaziers' Diamonds from 10*s.* to 21*s.* each.

GLASS TILES and SLATES in SHEET and ROUGH PLATE. PLATE GLASS, PATENT PLATE, and HARTLEY'S IMPROVED ROUGH PLATE. PAINTS, COLOURS, VARNISHES, &c.

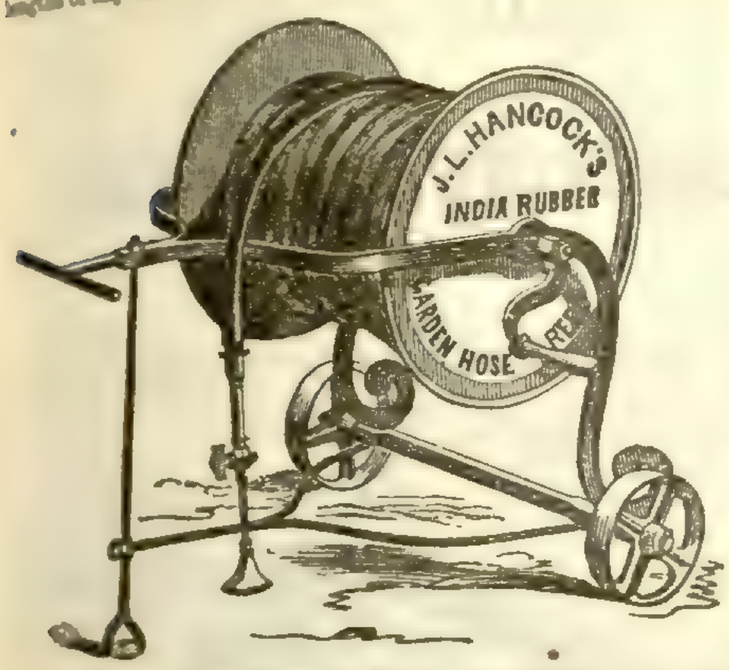
GENUINE WHITE LEAD.
ANTI-CORROSION PAINT.
LINSEED OIL PUTTY.

FINE OAK VARNISH.
" " CARRIAGE.
PATENT DRYERS.

LINSEED OIL.
BOILED OIL.
TURPENTINE.

Lead in Sheets or Cut to Sizes, Lead Pipe, Lift Pumps, Water Closets, and Plumbers' Brass Work of every description.

HANCOCK'S INDIA-RUBBER HOSE for WATERING GARDENS, LAWNS, &c. &c., made in 60-feet lengths of any size.



HOSE REELS, of Light Iron, for Winding-up Garden Hose when out of use.

BRASS FITTINGS, STOP-COCKS, SPREADERS, HAND BRANCHES, JETS, &c. Illustrated Price Lists on application.

JAMES LYNE HANCOCK, Vulcanized India-Rubber Works, Goswell Mews, and 266, Goswell Road, London, E.C.

EARTH CLOSETS AND COMMODES.

(Moule's Patent.)

MANUFACTURED SOLELY BY

WHITE & CO.,

29, BEDFORD STREET, STRAND, LONDON, W.C.

THE PECULIAR ADVANTAGES OF THESE CLOSETS AND COMMODES OVER THE ORDINARY WATER CLOSET ARE:—

First.—That the deodorising material (dry surface earth, or clay, or other subsoil) is the best for the purpose, and at the same time is the cheapest and within the reach of all classes.

Secondly.—The supply of such material to any house or premises may be much easier than the supply of water by a forcing pump, and its removal after being used may be entirely without offence.

Thirdly.—Its application by the means provided in these Closets is immediate and effective; so immediate that no offensive smell need escape into the room or building in which they are used; and so effective that all fermentation and all escape of noxious gases are entirely prevented.

Fourthly.—The expense of these Closets, in comparison with that of Water-Closets, is, as to the first cost, trifling, and as to repairs almost nothing. For instance, there is no expensive cistern required, and there are no lead pipes to burst in frosty weather.

Lastly.—In all large Establishments, such as Hospitals, Union Houses, Schools, Gaols, and Asylums, a very considerable sum may be saved annually in the production of a valuable manure.

The efficiency of these Closets is so great as to be scarcely credible to those persons who either have not used them or seen their mode of action.

Price of Apparatus without woodwork, 25s. per set.

*** *The different forms of Closets may be seen at the address above; and Prospectuses will be forwarded on application.*

JOHN WARNER & SONS, LONDON, MANUFACTURERS.

J. WARNER AND SONS

Have much improved the construction of their

GARDEN

ENGINES

in some important particulars for this Season.

They may be obtained of the Trade generally throughout the Kingdom at the following prices:—

No. 547. WARNER'S best ENGINES, in Wood Tubs, and fitted with WARNER'S Registered Spreaders—

24 Gallons,	£6	10s.
14 "	5	10s.

No. 547A. WARNER'S strong ENGINES, in Galvanised Iron Tubs, well painted—

10 Gallons	£2	19	0
16 "	3	14	0
24 "	4	19	0
28 "	5	10	0

No. 579½. WARNER'S WATER BARROWS, thoroughly Galvanised and well painted—

20 Gallons	£2	2	0
30 "	2	13	0
38 "	3	17	0
50 "	5	12	0

The 50-Gallon Barrow is made extra strong throughout, and fitted with handle for two men.

No. 568½, AMERICAN ENGINE, is now well known and appreciated. It throws a continuous stream, and is complete in itself. £2 2s.

SYRINGES in great variety, from 7s. 6d. to 18s. 6d.

The DISC SYRINGE, No. 557A, will recommend itself by the ease with which it is filled, and non-liability to get out of order. Price 9s.

WARNER'S

AQUAJECT

Is this season first introduced to the notice of horticulturists as possessing the following advantages:—It is simple in construction, portable, and easily worked. It throws a continuous stream, and is low in price.

The Aquaject, 30s.

The small AQUAJECT is the most perfect form of Syringe yet introduced. It throws a continuous stream, with very slight movement, and with it blight, &c., is readily washed from the under side of foliage. 18s.

No. 35. WARNER'S IRON PUMPS for Wells not exceeding 25 feet in depth — 2½-in., 28s. 6d.; 3-in., 41s.; 3½-in., 46s.; short barrel do., 21s.

No. 36. IRON FORCE PUMPS for raising water above their level, or watering yards, gardens, &c., through hose—2½-in., 59s.; 3-in., 65s.; 3½-in., 77s.; 4-in., 89s.

No. 36½. FORCE PUMP on BARROW, recommended for its great portability and simplicity of construction. £5 10s.

No. 42. WARNER'S PORTABLE PUMPS on Folding Legs, are of a superior construction.

Price 55s.; Rubber Suction, 2s. 6d. per ft.

No. 597A. BRANCH PIPES with Cocks and Roses — ½-in., 3s. 6d.; ⅝-in., 5s.; ¾-in., 6s.

No. 599. TAPER BRANCH PIPES—½-in., 4s. 9d.; ⅝-in., 5s. 3d.; ¾-in., 6s.; 1-in., 7s.

RUBBER HOSE in all sizes.

FOUNTAIN JETS in great variety, from 8s. to 25s.

DESCRIPTIVE PRICE LISTS forwarded on application.

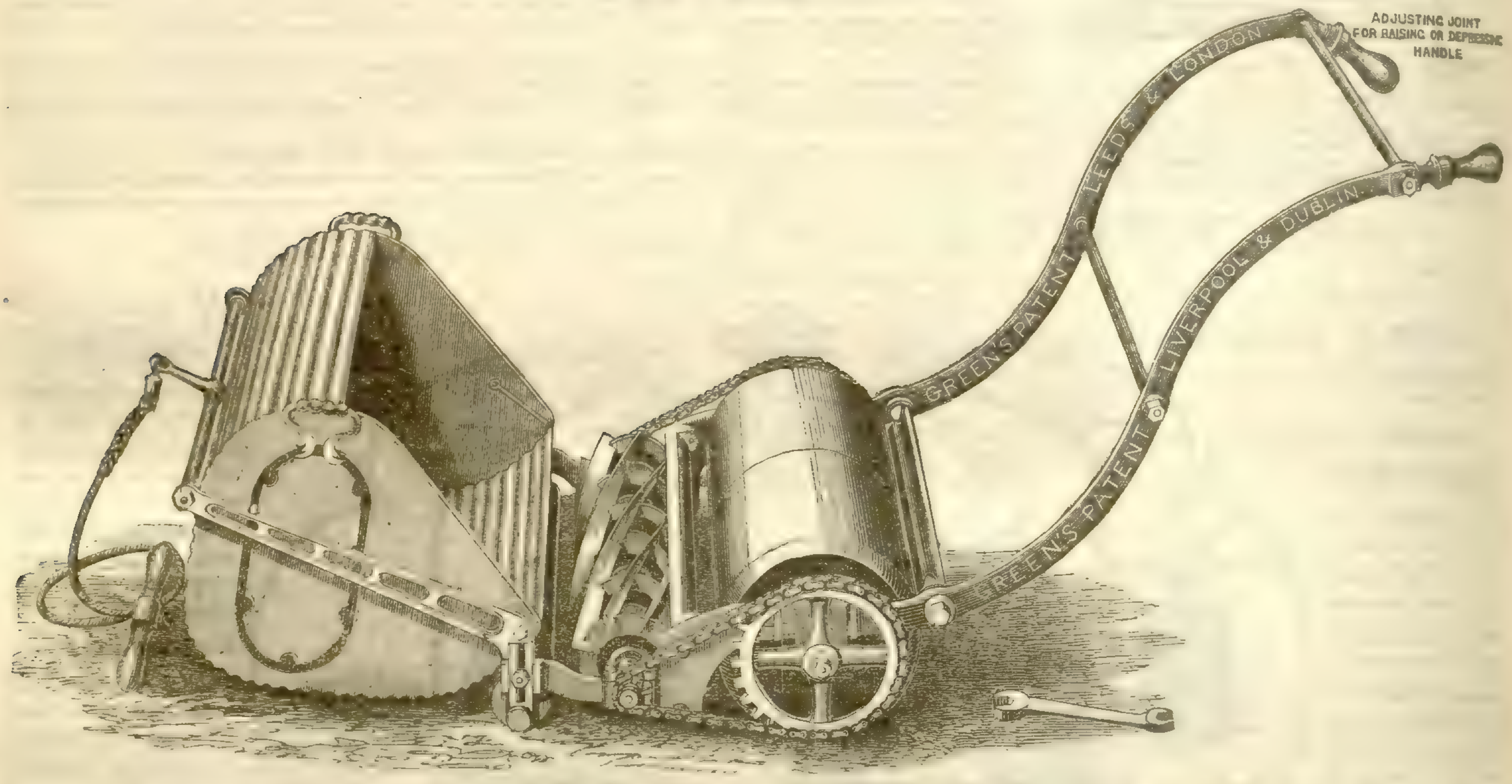
GREEN'S PATENT SILENS MESSOR

OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

BY SPECIAL APPOINTMENT.
SOLE MANUFACTURER

TO HER MOST GRACIOUS MAJESTY
THE QUEEN.



IMPROVED PATENT LAWN MOWER FOR 1865,

AS RECOMMENDED BY THE JUDGES OF THE ROYAL HORTICULTURAL SOCIETY'S SHOW HELD JULY 20, 1864.

GREEN'S PATENT LAWN MOWERS have proved to be the best, and carried off every Prize that has been given in all cases of competition. The Judges at the Royal Horticultural Society's Show, held July 20, 1864, awarded them a First-class Certificate (no Prizes were given), and, at the same time, suggested a slight alteration, which has been done, and Messrs. T. G. & SON consider their MACHINES now as near perfect as possible.

Messrs. T. G. & SON beg to state that, owing to the great demand for their MACHINES in past years, they have been unable to execute orders with that despatch due to their numerous customers, but are now happy to inform them, that they have made such alterations and arrangements in their premises, whereby they trust to be in a position to send off all orders the day they are received.

PRICES OF HAND MACHINES.

To Cut 10 inches	£3 10 0	*Suitable for a Lady.*	
" 12 "	4 10 0	"	"
" 14 "	5 10 0	*Suitable for One Person.*	
" 16 "	6 10 0	"	"
To Cut 18 inches	£7 10 0	*Suitable for One Person.*	
" 20 "	8 0 0	*Suitable for Two Persons.*	
" 22 "	8 10 0	"	"
" 24 "	9 0 0	"	"

Packing Cases are charged at the following low rates, viz.: for the 10 and 12 inches Machine, 3*s.*; 14 and 16 inches, 4*s.*; 18 and 20 inches, 5*s.*; 22 and 24 inches, 6*s.* Parties providing themselves with Lawn Mowers are recommended to purchase the Cases in which to stow them away, when not in use, to prevent them from getting damaged; if returned, two-thirds will be allowed for them.

PRICES of HORSE, PONY, and DONKEY MACHINES, including Patent Self-delivery Box; Cross Stay complete; suitable for attaching to ordinary Chain Traces or Gig Harness.

To Cut 26 inches	£13 0 0	*Leather Boots for Donkey,* 18*s.*
" 28 "	15 0 0	
" 30 "	17 0 0	
To Cut 30 inches	£21 0 0	*Leather Boots for Pony,* 22*s.*
" 36 "	24 0 0	*Leather Boots for Horse,* 26*s.*
" 42 "	27 0 0	
" 48 "	30 0 0	

The 26, 28, and 30 inches can easily be worked by a Donkey, or by Two Men, on an even Lawn, the 30 and 36 inches by a Pony, and 42 and 48 inches by a Carriage Horse; and, as the MACHINES make no noise in working, the most spirited animal can be employed without fear of its running away, or in any way damaging the MACHINE.

Both the HORSE, PONY, DONKEY, and HAND MACHINES possess (over all other Makers) the advantage of self-sharpening: the cutters being steel on each side when they become dull or blunt by running one way round the cylinder, can be reversed again and again, bringing the opposite edge of the cutter against the bottom blade, when the MACHINE will cut equal to new. Arrangements are made that the cylinder can be reversed by any inexperienced person in two or three minutes.

The above MACHINES are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England; are warranted to give satisfaction, and, if not approved of, can be at once returned unconditionally.

THOMAS GREEN AND SON,

SMITHFIELD IRON WORKS, LEEDS; 2, FARRINGDON ROAD, HOLBORN HILL, LONDON, E.C.

19, EDEN QUAY, DUBLIN; and HADWIN'S BUILDINGS, TITHEBARN STREET, LIVERPOOL.

FOUNTAIN JETS.

Fig. 530. JET D'EAU. 4s. 6d.; 24 do., 5s. 6d.; 36 do., 6s. 6d.

Fig. 531. DOME and CONVOLVULUS. 17s.

Fig 525. DOME. 8s. 6d.

Fig. 523. CONVOLVULUS. 4s. 6d.

Fig. 521. BARKER'S MILL. 11s.

Fig. 522. WIRE BASKET WITH BALL. 10 ins., 16s. 6d.; 12 ins., 17s. 6d.; 14 ins., 18s. 6d.

Connecting Screws to all the above Jets, 1s. 6d. extra.

A Tap is required to be fixed in the Pipe to regulate the supply of water to Fountain Jets.

J. TUDOR AND SONS, Manufacturers, Warwick Lane, Newgate Street, London, E.C.

TRADE MARK.

ENTERED AT STATIONERS HALL

WALTER CARSON AND SONS, of Great Winchester Street, respectfully notify that they have removed their principal office to their Warehouse in LA BELLE SAUVAGE YARD, Ludgate Hill, E.C. (three doors East of Railway Viaduct), and have discontinued their West-end Office, 31, St. James's Street.

CARSONS' ANTI-CORROSION PAINT, specially manufactured for out-door work, is the best and cheapest. All colours. Is simple in application, so that any person can use it.

Is twice as durable as genuine white lead. See Testimonials sent with patterns and prices post free.

Three cwt. carriage free to any station in England and Wales, and most Seaports of the United Kingdom.

CARSONS' ANTI-CORROSION PAINT used by nearly all the eminent Horticulturists, the Nobility and Gentry, for their Gardens.

CARSONS' PAINT for CONSERVATORIES.

CARSONS' PAINT for GREENHOUSES

CARSONS' PAINT for HOTHOUSES.

CARSONS' PAINT for all OUT-DOOR WORK.

CARSONS' PAINT for WOOD and IRON WORK.

CARSONS' PAINT for BRICK and COMPO.

CARSONS' PAINT for PARK FENCING.

CARSONS' PAINT for FARM BUILDINGS.

CARSONS' PAINT for IRON HURDLING.

CARSONS' ANTI-CORROSION PAINT will keep for years in a dry place. All orders to be sent direct to WALTER CARSON & SONS, La Belle Sauvage Yard, Ludgate Hill, E.C. Three doors East of Railway Viaduct.

Oil Paint no longer Necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully 50 per cent. cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

From the Right Hon. the EARL of SHANNON, *Castle Martyr, near Cork.*

"GENTLEMEN,—I have used your Black Varnish for several years, and consider it very superior, both for iron and wood work out of doors, to anything I have ever used. I shall always continue to use it. Near the sea it is particularly valuable, as it stands exposure where paint becomes corroded. I consider the iron Barrow essential to a farm."

Sold in casks of about 30 gallons each, at 1s. 6d. per gallon, at the Manufactory, or 1s. 8d. per gallon paid to any Station in the kingdom.

Apply to HILL & SMITH, Brierly Hill Iron Works, near Dudley, and 32, Cannon Street West, E.C., from whom only it can be obtained.

Exhibition Prize Medal, 1862.

HOTHOUSES for the MILLION.—On the principle invented and patented by Sir Joseph Paxton, M.P., combining simplicity, cheapness, excellence, and durability. SPAN-ROOF HOUSES, painted three coats, and glazed with English Sheet Glass, can be supplied ready for fixing, 21 ft. by 13 ft., 24*l.*; 43 ft. by 19 ft., 37*l.* 5*s.*; 64 ft. by 25 ft., 161*l.*

Illustrated Circulars, with Prices, can be had on application to SAMUEL HEREMAN & J. MORTON, Agents, 7, Pall Mall East, London.

Also, A HANDBOOK on VINE and FRUIT TREE CULTIVATION, 2d Edition, price 1*s.*; post free, 1*s.* 1*d.*

Heating by Hot Water.

W. J. HOLLANDS, IRON MERCHANT, 31, Bankside, London, S.E.

HOT WATER PIPES, from Stock, per yard:—2-inch, 1*s.* 4*d.*; 3-inch, 2*s.*; and 4-inch, 2*s.* 7*d.* BENDS, from Stock 1*s.* 7*d.*, 2*s.* 6*d.*, and 3*s.* 3*d.* each. THROTTLE VALVES, 10*s.* 6*d.*, 13*s.* 6*d.*, and 15*s.* each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day. A discount to the Trade.

Heating by Hot Water.

HOT-WATER PIPES, at Reduced Wholesale Prices, with Elbows, Syphons, Tee Pipes, and every other connection; Wrought and Cast-iron Boilers, Saddle, Conical, Cylinder, TUBULAR, and Elliptic, from 24*s.* each. Improved Boilers and Iron Stands to use without brickwork, 56*s.* each. Valves from 10*s.* 6*d.* each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Castings of every description in stock, at

Mr. LYNCH WHITE'S Iron Wharf, Upper Ground Street, Blackfriars Bridge, London, S. Price List on application.

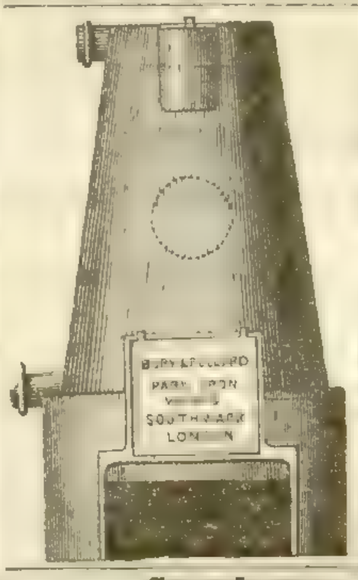
CRANSTON'S PATENT BUILDINGS for HORTICULTURE, Highly Commended by the Royal Horticultural Society, South Kensington. Plans and Estimates free on application. Houses of the following sizes always in stock:—Span, 30 by 15 feet, and 24 by 12 ft.; Half-span, 24 by 10 ft.; Lean-to, 24 by 8 ft. Stereoscopic Slides of different houses post free for 6 stamps each.

Descriptive Book, fully illustrated, by post for 20 stamps from the Author and Patentee, JAMES CRANSTON, Architect, No. 1, Temple Row West, Birmingham.

Midland Steam Power Horticultural and Hot-water Works, Loughborough.

T. G. MESSENGER, the Proprietor of the above Works, finding it necessary (through the great demand for his Horticultural Buildings and Heating Apparatus) to make large additions to his Premises, and to Fit the same with an entire set of STEAM-POWER MACHINERY, is now enabled to execute any Orders entrusted to him with the greatest dispatch, and at the lowest possible price consistent with good and substantial work.

Illustrated Catalogues, Working Model, Plans and Estimates, free on application.



HEATING by HOT WATER—Public and Private Buildings, Manufactories, Conservatories, &c., heated on the most improved system, combined with perfect Ventilation.

These BOILERS are adapted for setting in Brickwork, or as shown in sketch they require NO BRICKWORK.

BURY AND POLLARD (Successors to John R. Peill), Sole Manufacturers of the Improved CONICAL BOILERS, which are in general use, and which Boilers have for their durability and economy attained a celebrity far surpassing any other Boilers ever invented.

Park Iron Works, 17, New Park Street, Southwark, London, S.E.

N.B. Patent WINDMILLS for Pumping and Driving Farm Machinery, from half-Horse Power upwards. To be seen daily at work as above.

Greenhouses—Heating Apparatus.

DENNIS' PATENT METALLIC HORTICULTURAL BUILDINGS are made from the best wrought iron, upon an entirely new principle. The combination of Iron and Glass under this Patent is perfect; the possibility of fracture is prevented, and a permanently water-tight roof insured. The leading practical advantages are extreme smallness of framing, admitting a maximum of light and heat, and perfectly neutralising atmospheric conduction.

They are thoroughly ventilated, exceedingly strong and durable, are speedily erected, and whilst maintaining their established superiority for Conservatories of the highest order, are acknowledged by the most eminent Horticulturists of the day to be the "desideratum of perfection," promoting perfect symmetry of growth and richness of colour, both for Fruit and Flowers.

From the complete adjustment of the constructional parts of these patent buildings, their manufacture is so facilitated that a comparison in point of cost with perishable wooden structures is most favourable.

THE GARDENER'S OWN GREENHOUSE (Lately known as Dench's Patent) is a Tenant's Fixture.

The Patent, Plant, Business, Machinery, and all connected with the above, have been transferred to T. H. P. DENNIS, who has determined to supply these really useful buildings at such a reduced scale of prices that every one desiring a Greenhouse may possess one.

NOTE.—A No. 1 Lean-to, 12 ft. 6 in. by 9 ft., including honest 16-oz. Glass, £16 12*s* 6*d.*

T. H. P. D. has introduced most important improvements in their finish and construction, and after numerous experiments has succeeded in arranging them as a TENANT'S FIXTURE, which he feels sure will be valued by gentlemen having limited tenures. With Mr. Rivers' adaptation they make excellent Orchard-houses, and afford all that can be desired in a profitable building.

Wood structures at the lowest price consistent with sound work.

Prospectuses and Estimates on application to T. H. P. DENNIS, Horticultural Builder, Hot-water Engineer, &c., Chelmsford, Essex.

THE PATENT CONCRETE STONE COMPANY (LIMITED), are now the Proprietors of the Patents for the Manufacture of the beautiful material known as RANSOME'S PATENT CONCRETE STONE, which for durability, cheapness, and beauty of appearance, stands unrivalled. It is especially applicable for Fountains, Vases, Jardinets, Balustrades for Terraces, Gate Piers, Edgings for Borders, and all other Ornamental Requisites for Parks, Gardens, Conservatories, &c.

Illustrations and Prices furnished upon application at the Offices of the Patent Concrete Stone Company, 2, Queen Street Place, Southwark Bridge, E.C.

CLAYTON, SHUTTLEWORTH, AND CO., ENGINEERS, Manufacturers of PORTABLE and FIXED STEAM ENGINES, Machinery for Pumping, Hoisting, Grinding, Sawing, &c., Engines for Steam Cultivation, Self-Moving Engines for Common Roads and Agricultural Purposes generally.

Stamp End Works, Lincoln, and 78, Lombard Street, London; also at LOWENGASSE, No. 44, Landstrasse, Vienna; and Gegenüber dem Bahnhof, Pesth.

Descriptive, Illustrated, and Priced Catalogues, Free per Post. Special Drawings when required.

[*The best Steam Threshing Machinery made.*]

TOOGOOD'S (late PAGE & TOOGOOD'S) IMPROVED BLIGHT COMPOSITION introduced in 1850, has been manufactured under W. TOOGOOD'S sole directions since that period. He has made great improvements in it, and by reducing the price 25 per cent., it is one of the cheapest and has always been the most efficacious remedy extant. To publish the Testimonials no newspaper would give space, but Messrs. CUTBUSH & SON, the eminent Nurserymen, say:—"It is the best thing for the purpose we can find, and does not appear to injure the young foliage like Gishurst does. This is our experience after 10 years' trial."

"February 24, 1864."

Mr. E. SAGE, *Gardener to* Lord HOWE, *says*:—

"Will you please send us 15 gallons of your Blight Composition. I see you have reduced the price, and trust that you may some day be able to make another reduction, and I feel assured that no 'Gishurst,' will be used by practical men."

"We hereby Certify that during the whole time we were Warehousemen in the Establishment of B. PAGE & Co., and subsequently PAGE & TOOGOOD, that we Manufactured the Blight Composition under Mr. TOOGOOD'S *sole directions, and that he alone knew the proportions of the various ingredients.*

Signed JOHN MORLEY, HENRY DREW, HENRY SHEERMAN, GEORGE ISAACS."

"July 13, 1863."

Extra strong, 3*s.* per gallon (sufficient to make 4 gallons fit for use), 10 gallons and upwards carriage free to London.

May be obtained of the principal Nurserymen and Seedsmen in the Trade, and of W. TOOGOOD, Royal South Hants Seed Establishment, Southampton.

To Flockmasters.

LONG'S NON-POISONOUS SHEEP DIPPING COMPOSITION is a thorough cleanser of the skin, effectually destroys all Ticks and other vermin in the animal, thus tending greatly to improve the Flock and prevent fly striking. The Composition, in its use, leaves the fleece as white as snow, free from any stain, and the skin soft and oily. It is sent out in tin cans, from one gallon to four gallon size. When mixed, one gallon with 80 gallons of cold water, it makes a bath of a perfect white and soapy appearance; it mixes readily, leaves no sediment on the bottom or scum on the top, and the cost is about one penny per head. When used as pouring Composition for Scab or destruction of Tick, mix one gallon with 40 gallons of water.

LONG'S MAGGOT LOTION.—This lotion will instantly Kill every Maggot, Heal the Wound, and prevent Fly Striking, as well as Destroy all Fleas and other Vermin in Dogs or Cattle; is sold in pint bottles at 22*d.* per pint. One pint strong enough to mix with 40 pints of water—ready for use.

LONG'S GREEN-FLY LOTION.—This lotion is prepared purposely for Horticultural purposes, and when diluted, one pint to 40 pints of water, will Kill every Green-fly and other Insects that infest Roses, Fruit Trees, Shrubs, &c., and prevent Blight in Hops or Vines. Sold in half pint bottles at 20*d.* each bottle.

LONG'S TURNIP-FLY LOTION.—This Lotion has been J. LONG'S study for many years, and he can now confidently recommend it as a thorough Preventive and Destroyer of the Turnip pest, at a cost of from 6*s.* to 10*s.* per acre.

Wholesale Agents, S. & E. RANSOME & Co., Essex Street, Strand, W.C.

Patronised by 70,000 Stock Breeders.

DAY, SON, AND HEWITT, Sole Inventors of the Celebrated STOCK-BREEDER'S MEDICINE CHEST, containing as follows:—

Six Bottles (at 2*s.* 6*d.* each) of the UNIVERSAL CHEMICAL EXTRACT, match less for penetrating, mollifying, and assuaging pain in all wounds, kicks, cuts, strains, &c., in horses and cattle; straining in ewes lambing, and swollen and inflamed udders in cows and ewes; sore feet in cattle, sheep, and dogs,

One Dozen Bottles (value 20*s.*) of the GASEOUS FLUID or BLACK MIXTURE, unmatched in the known world for curing diarrhœa or scouring calves, sheep, and lambs; for ewes weakly and exhausted after lambing; for horses and cows exhausted and sickly, and for the fret, colic, or gripes in horses and cattle. An instantaneous remedy for blown cattle and sheep.

One Dozen Packets (value 13*s.*) of the RED DRENCH or INFLAMMATION POWDER, for cleansing after calving or lambing, for straining in ewes, and for removing all feverish symptoms in cows and ewes after calving or lambing; for yellows in oxen, and for colds, chills, and all inflammatory cases in horses, cattle, and pigs,

One Dozen (value 7*s.* 6*d.*) of the RED PASTE or CONDITION BALLS (for horses). These Balls give vigorous health, purify the system, and produce a mole-like sleekness of coat

Price of Chest complete, with Shilling Key to Farriery, 2*l.* 16*s.* 6*d.* securely packed, and carriage free. Sample case, usefully assorted 16*s.* 6*d.* Messrs. D., S., & H. respectfully urge their friends to send their orders early, so that no purchaser may be kept waiting.

Either preparation may be had separately in boxes, carriage paid.

Address—DAY, SON, & HEWITT, Animal Medicine Manufactory, 22, Dorset Street, Baker Street, London, W.; or Wantage, Berks.

Testimonials from all parts of the United Kingdon and Ireland sent free on application.

Established over One Quarter of a Century.

Lee, Kent—To Nurserymen and Others.

TO BE LET, with Possession, an excellent NURSERY GARDEN of 3 Acres, most advantageously situated in a main road, and where a considerable Business is now carried on; there is also a good Jobbing Trade connected. The Stock, Plants, Greenhouses, Pits, &c., by Valuation.

Apply to Mr. DYER, Auctioneer and Estate Agent, Blackheath, S.E.

Cotswold Sheep.

MR. T. BEALE BROWNE, of Salperton Park, Andoversford, Gloucestershire, will be glad to see his Friends during the month of JULY. He intends SELLING his RAMS Privately, so that Purchasers may have the opportunity of inspecting the whole of his Flock.

Sale by Auction.

Red Hill, near Edenbridge, Kent.

IMPORTANT SALE OF SHORT-HORNED CATTLE.

MR. STRAFFORD begs to announce that he has received instructions from G. M. Tracy, Esq., to SELL by AUCTION, on TUESDAY, July 11, about 30 HEAD of SHORT-HORNED BULLS, COWS, and HEIFERS (which are, with the exception of two Cows and their produce, his entire Herd), and includes some animals of first-rate quality and character. The Young Stock are chiefly by The Baron (13,833), see portrait Vol. XI. "Herd Book," who is well known as a Prize Bull at the Royal Dublin and Highland Societies' Shows, having proved himself one of the best Stock Getters of his time.

Catalogues, with Pedigrees, may be had on application to Mr. STRAFFORD, 13, Euston Square, N.W.; or of Mr. TRACY, Red Hill near Edenbridge, Kent.

NEW TARIFF OF GLASS AND HORTICULTURAL GOODS

THOMAS MILLINGTON,

GLASS AND COLOUR MERCHANT,

87, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.

THE AGRICULTURAL HALL, ISLINGTON, CONTAINING AN ACRE OF GLASS, WAS SUPPLIED BY ME.

Mr. Rivers and the leading men in the Horticultural profession, as well as the Nobility, Gentry, and Merchants, have favoured me with Orders for Home use and for Exportation.

SHEET GLASS.

In Cases for Cutting up, averaging from 6 to 9 feet super.

Average Thickness, 15 to 16 oz.

4ths quality	per 300 feet case	32s. 6d.	or about 1½d.	per foot.
3ds "	"	41 0	" 1¾	"
2ds "	"	60 0	" 2¼	"
Best "	"	92 0	" 3¼	"

Average Thickness, 21 oz.

4ths quality	per 200 feet case	33s. 6d.	or about 2d.	per foot.
3ds "	"	42 0	" 2½	"
2ds "	"	63 0	" 3¾	"
Best "	"	89 0	" 5½	"

Average Thickness, 26 oz.

4ths quality	per 200 feet case	44s. 6d.	or about 2¾d.	per foot.
3ds "	"	56 0	" 3½	"
2ds "	"	84 0	" 5	"
Best "	"	116 0	" 7	

SHEET SQUARES, Cut to Order.

Average Thickness, 15 to 16 oz.

	Under 1 foot super.	Under 2 feet super.	Under 3 feet super.	Under 4 feet super.	Under 5 feet super.	Under 6 feet super.
4ths quality	1½d.	1¾d.	2 d.	2¼d.	2½d.	2¾d.
3ds "	1¾	2	2¼	2¾	3	3½
2ds "	2	2½	2¾	3	3½	4
Best "	2½	3	3½	4	4½	5

Average Thickness, 21 oz.

4ths quality	2¼d.	2¾d.	3 d.	3¼d.	3½d.	3¾d.
3ds "	2½	3	3¼	3¾	4	4½
2ds "	3	3½	3¾	4¼	4½	4¾
Best "	4	4½	5	5½	6	7

Average Thickness, 26 oz.

4ths quality	3d.	3½d.	3¾d.	4 d.	4¼d.	4½d.
3ds "	3¾	4	4¼	4¾	5	5½
2ds "	4¼	5	5½	5¾	6	6½
Best "	5¼	6½	7	7½	8	8½

15 oz. Squares usually kept in Stock, &c.

32 oz., 36 oz., and 42 oz. are also supplied in various quantities.

EXTRA WHITE or CRYSTAL SHEET GLASS, very superior for Pictures and best Glazing.

RUBY, GREEN, BLUE, YELLOW, COLOURED, ENAMELLED, GROUND, and FLUTED GLASS.

15-oz. Squares usually kept in Stock, packed in 100 ft. and 100 ft. Boxes.

Stock Squares.

				4ths.	3rds.	2nds.	Best.
6 by 4	7 by 5	8 by 6	9 by 7	9s. 6d.	10s. 9d.	12s. 6d.	14s. 8d.
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½				
10 by 8	12 by 9	12½ by 10½	14½ by 10½				
10½ by 8½	12½ by 9½	13 by 10	15 by 10				
11 by 9	13 by 9	13½ by 10½	13 by 11	10s. 6d.	12s. 0d.	14s. 8d.	17s. 3d.
11½ by 9½	12 by 10	14 by 10	14 by 11				
15½ by 10½	16 by 10	14½ by 11½	15 by 11	11s. 6d.	13s. 6d.	16s. 0d.	18s. 0d.

Stock Squares.

					Per 100 feet. 4ths.	3rds.	2nds.	Best.
15½ by 11½	14 by 12	17 by 13	22 by 16					
16 by 10	14½ by 12½	18 by 13	24 by 16					
14½ by 11½	15 by 12	23 by 13	20 by 17					
15 by 11	15½ by 12½	18 by 14	22 by 17					
15½ by 11½	16 by 12	22 by 14	24 by 17	..	11s. 6d.	13s. 6d.	16s.	18s.
16 by 11	16½ by 12½	24 by 14	20 by 18					
21 by 11	17 by 12	22 by 15	22 by 18					
13 by 12	18 by 12	24 by 15	24 by 18					
13½ by 12½	22 by 12							

ORCHARD HOUSE SIZES,

As recommended by and supplied to Mr. Rivers, and the leading Horticulturists of the day.

Average Thickness, 15 to 16 oz.

		4ths.	3rds.	2nds.	Best.
16½ Inches by 12½ Inches.					
20 " 12 "					
20 " 13 "					
20 " 14 "	Per 100 feet ..	11s. 6d.	13s. 6d.	16s.	18s.
20 " 15 "					
20 " 16 "					
20 " 17 "					

Average Thickness, 21 oz.

		4ths.	3rds.	2nds.	Best.
20 Inches by 12 Inches.					
20 " 13 "					
20 " 14 "	.. .. ..	14s. 6d.	18s. 6d.	24s.	27s. 6d.
20 " 15 "					
20 " 16 "					
20 " 17 "					

The above prices are only for the sizes stated, but if a quantity of any other size is required, they can be supplied at about 5 per cent. additional, provided time is allowed to manufacture them.

I have also a GREEN TINTED GLASS, which I can strongly recommend. In Summer it gives a cool appearance and in Winter a warm one.

PROPAGATING GLASSES.

3 inches diam.	0s. 4d.	each.
4 " ..	0 5	"
5 " ..	0 6	"
6 " ..	0 7	"
8 " ..	0 10½	"
10 " ..	1 2	"
12 " ..	1 6	"
14 " ..	2 3	"
16 " ..	3 0	"
18 " ..	4 6	"
20 " ..	6 0	"

HAND GLASSES.

12 inches diam.	5s.	6d.	each.
14 " ..	6	6	"
16 " ..	7	6	"
18 " ..	8	6	"
20 " ..	9	6	"
22 " ..	10	6	"
24 " ..	11	6	"

If removable tops, 1s. extra.

Painted and Glazed with Sheet Glass.

PRESERVE JARS.

In. diam.	Without. Lids.	With Lids.	
3 ..	0s. 4d. ..	0 6	each.
4 ..	0 5½ ..	0 8	"
5 ..	0 7 ..	0 10	"
6 ..	0 9 ..	1 1	"
7 ..	0 10½ ..	1 2	"
8 ..	1 2 ..	1 6	"
9 ..	1 6 ..	2 0	"
10 ..	1 10 ..	2 4	"

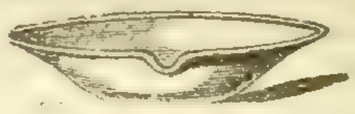
These will be found preferable to any other kind of Jar.

CUCUMBER TUBES.

Ins. long.		each.
12 ..	0s. 10d.	
13 ..	0 11	
14 ..	1 0	
15 ..	1 1	
16 ..	1 2	
17 ..	1 3	
18 ..	1 4	
19 ..	1 5	
20 ..	1 6	
22 ..	1 7	
24 ..	1 9	

ROLLING PINS.

each	
1s. 3d.	
1 4	
1 6	
1 8	
1 9	
1 10	
2 0	
2 2	
2 3	
2 4	
2 8	



MILK PANS.

6 inches diam.	0s. 5d.	each.
8 "	0 8	"
10 "	0 10½	"
12 "	1 1	"
14 "	1 6	"
16 "	2 0	"
18 "	2 5	"
20 "	2 10	"
22 "	3 4	"
24 "	4 0	"

Intermediate sizes in proportion.

FISH GLOBES.

In. diam.		Qts.	
8	¾ filled,	3..	[illegible]
9	"	4..	[illegible]
10	"	6..	[illegible]
11	"	8..	[illegible]
12	"	9..	[illegible]
13	At same average according to weight.		7d. per [illegible]
14			
15			
16			

If on feet, 9d. per lb

GLASS TILES, in SHEET and ROUGH PLATE. PLATE GLASS, PATENT PLATE, and HARTLEY'S IMPROVED ROUGH PLATE.

PAINTS, COLOURS, VARNISHES, &c.

GENUINE WHITE LEAD, 30s. per Cwt.
SECONDS ditto, 28s. per Cwt.
LINSEED OIL PUTTY, 9s. per Cwt.
PINE OAK VARNISH, 10s. to 12s. per Gallon.
" CARRIAGE ditto, 12s to 14s. per Gallon.
" CRYSTAL or PAPER, 10s. to 12s. per Gallon.

WHITE ZINC PAINT, 34s. per Cwt.

One hundred weight of pure Zinc Paint, with 3 gallons of Linseed Oil, will cover as much as one hundred weight and a half of White Lead and 6 gallons of Linseed Oil. Special Dryers for this paint.

GROUND PATENT DRYERS, 3d. to 4½d. per lb.
" OXFORD OCHRE, 3d. to 4½d. per lb.
" RAW UMBER, 4½d. to 6d. per lb.
" BURNT Ditto, 6d. to 9d.
GREEN PAINT, all shades, 28s. to 60s. per cwt.
BLACK PAINT, 24s. to 36s. per cwt.

STUCCO PAINT, 24s. per cwt.

This paint adheres firmly to the walls, resists the weather, and is free from the glossy appearance of oil paint, resembling a stone surface, and can be made any required shade. It is mixed with rain or pure river water.

LINSEED OIL, 3s. per gallon
BOILED OIL, 3s. 6d. per gallon.
TURPENTINE, 5s. 6d. per gallon.
MINERAL Ditto, 3s. 6d. per gallon.
PREPARED OIL for ANTICORROSION, 4s. 6d. per gallon
BRUSHES for Ditto.

IMPROVED ANTICORROSION PAINT, 28s. to 34s. per cwt.

Anticorrosion Paint is extensively used for all kinds of work in exposed situations, in Brick, Stone, Compo, Iron, Iron Bridges, Conservatories, Greenhouses, &c., and is easily laid on by any ordinary workman.

MILLED LEAD in Sheet and Pipe of all Sizes. OLD LEAD bought or taken in exchange. LIFT PUMPS, WATER CLOSETS, & PLUMBER'S BRASS WORK of all kinds.

NETT CASH.

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THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 27.—1865.] SATURDAY, JULY 8. {Price Fivepence. Stamped Edition, 6*d*.

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ROYAL HORTICULTURAL SOCIETY.—SPECIAL SHOW of LILIACEÆ and AMARYLLIDACEÆ on SATURDAY, July 15. Band of Royal Horse Guards 3.30 to 6. Tickets to Fellows' friends, 2*s*. 6*d*.; public, 3*s*. 6*d*.; either of which may be had on the day, 5*s*.

ROYAL HORTICULTURAL SOCIETY.—SECOND GREAT EXHIBITION of FRUIT and VEGETABLES will be held on SATURDAY, July 22. Band of Royal Horse Guards from 3 to 6. Tickets—to Fellows' Friends, 3*s*. 6*d*.; public, 5*s*., either of which bought on the day, 7*s*. 6*d*.

ROYAL HORTICULTURAL SOCIETY.—The FRUIT and FLORAL COMMITTEE will meet on TUESDAY NEXT, 11th July, at 11 o'clock; Scientific Discussion at 3.

City Flower Show.

THE UNITED HORTICULTURAL SOCIETY will hold their NEXT EXHIBITION of FLOWERS and FRUITS under the immediate Patronage of the Right Hon. the Lord Mayor and Lady Mayoress, in FINSBURY CIRCUS, on WEDNESDAY NEXT, July 12. Band of the Victoria Rifles.

Admission by Tickets, from 12 to 3 o'clock, 2*s*. 6*d*.; 3 to 7 o'clock, 1*s*., which may be had of Messrs. Keith, Prowse, and Co., Cheapside; Mr. Mitchell, Library, Bond Street; Mr. Sprague, Finsbury Pavement, and of the Principal Seedsmen.

R. P. Glendinning, Hon. Sec., Chiswick Nursery, W.

H. AND F. SHARPE, Seed Growers and Merchants, Wisbech. SPECIAL PRICED LIST of NEW SEEDS on application.

NEW and GENUINE AGRICULTURAL, GARDEN, and FLOWER SEEDS. Special prices and advantageous offers on application to James Fairhead & Son, Seed Growers and Merchants, 7, Borough Market, London, S.E.

RAYNBIRD, CALDECOTT, AND BAWTREE, Seed Farmers and Merchants, 89, Seed Market, Mark Lane; and Basingstoke. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO., Seed Farmers, Merchants, and Nurserymen, 237 and 238, High Holborn, London, W.C.

CARTER'S GARDENER'S VADE-MECUM PLANT SUPPLEMENT is now ready.

New Plants for 1865.

JAMES CARTER AND CO.'S CATALOGUE of NEW and CHOICE BEDDING, GREENHOUSE, and STOVE PLANTS, is now ready, and will be forwarded gratis and post free on application.

James Carter & Co., 237 & 238, High Holborn, London, W.C.

HOLLAND AND JONES' CATALOGUE of BEDDING, GREENHOUSE, and STOVE PLANTS is now ready, free on application.

Bradshaw Gardens, Chadderton, near Manchester.

Bloemen-Hoven.

MAGAZINE of BULBOUS PLANTS and FLOWER ROOTS of H. T. DYKMAN, Florist, Seedsman, and Nurseryman, Heeren or Haagschen Straatweg, No. 496, at Haarlem, in Holland.

To Exporters.

WILLIAM DAVIDSON, SEEDSMAN, &c., can supply suitable assortments of GARDEN and FLOWER SEEDS, [illegible] upwards, for Shipment to the Colonies. 30a, St. Andrew Square, Edinburgh.

BEDDING-OUT PLANTS in great variety. WINDOW JARDINETS, Empty or Furnished, in variety. The "Gardeners' and Amateurs' Friend," see page 601. Barr & Sugden, 12, King Street, Covent Garden, W.C.

Bedding and Conservatory Plants.

WM. HOOPER offers the above strong healthy Plants, and in great variety. DESCRIPTIVE PRICED CATALOGUE post free on application. St. John's Hill Nursery, near Clapham Junction Station, London.

Lilium auratum.

WM. T. CATLEUGH has a large stock of this beautiful LILY for SALE at 3*s*. 6*d*., 5*s*. and 7*s*. 6*d*. each; a few extra strong at 10*s*. 6*d*.

Terms cash, or references from unknown Correspondents. Hans Street, Chelsea, London, S.W.

Seeds from Choice Strains.

B. S. WILLIAMS can now supply good Seeds of the following:—

CINERARIA (Weatherill's extra choice strain).—B. S. W. has secured at a great expense the entire stock and right of exclusive sale from Mr. Weatherill, of his, the best strain of Cineraria in existence, and can now offer packets at the following prices:—3*s*. 6*d*. and 5*s*.

CALCEOLARIA (Herbaceous), from a fine strain, 2*s*. 6*d*. and 3*s*. 6*d*. per packet.

PRIMULA (Williams' superb strain), the finest fringed and the best coloured flowers in cultivation. Red, White, or Mixed Seed 1*s*. 6*d*., 3*s*. 6*d*., and 5*s*. per packet.

Paradise and Victoria Nurseries, Holloway, London, N.

Roses in Bloom.

PAUL AND SON'S COLLECTION of ROSES is NOW in BLOOM, and particularly worth seeing this season. They would solicit the favour of a visit from all Amateurs.

Trains from Bishopsgate to Cheshunt, one mile from the Nursery, hourly. The Old Cheshunt Nursery, Cheshunt, N.

Roses in Bloom.

JAMES MITCHELL respectfully informs the Nobility and Gentry his renowned ROSES are NOW in FINE BLOOM. Pilt Down Nurseries, Maresfield, Sussex, Two and a half Miles from the Uckfield Station.

Roses.

H. LANE AND SON, The Nurseries, Great Berkhamstead, beg to inform their Patrons and the Public that their COLLECTION (upwards of 7 acres) is NOW in BLOOM, at the Balshaw Nurseries, 1¼ mile from the Station, and will continue during the Season.

Roses.

JOHN FRASER, of the Lea Bridge Road Nurseries, Leyton, N.E., respectfully invites an inspection of his COLLECTION of ROSES, which are NOW in FLOWER. The Collection contains many new and fine varieties.

Roses.

JOHN MANN, Nurseries, Brentwood, begs to inform his Patrons and the Public that his COLLECTION is NOW in BLOOM, ten minutes walk from Brentwood Station, Colchester Line, Great Eastern Railway.

New Roses of 1865.

PAUL AND SON solicit orders for MARECHAL NIEL and the other NEW FRENCH ROSES, at 42*s*. per dozen. To be sent out with their NEW ROSE PRINCESS MARY of CAMBRIDGE, on and after the 1st July. Roses for bedding in quantity on application.

"Old" Cheshunt Nurseries, Cheshunt, N.

Paul's Nurseries, Waltham Cross, N.

Entrance from the Platform, Waltham Station, Great Eastern Railway. Half an Hour's Ride from London.

WM. PAUL (Son and Successor to the late A. Paul) begs to announce that his COLLECTION of ROSES is just COMING into BLOOM, and comprises many of his own Seedlings, and other novelties not to be found in any other collection. In addition to the Roses, BEATON'S GERANIUMS, and a second and third generation from them, will be blooming throughout the summer and autumn. The Collection of HARDY TREES with FINE FOLIAGE is unrivalled, and many large and perfect specimens of the choicer CONIFERS are now in fine condition for removal, and are well worthy of the attention of gentlemen and horticulturists who contemplate planting. Bearing trees of all the LEADING FRUITS, Dwarfs and Standards, Pyramids and Espaliers, in fine health and true to name. Inspection respectfully invited.

Waltham Cross, London, N.

Shrubs, Roses, Fruit Trees, &c.

WM. CUTBUSH AND SON'S GENERAL NURSERY STOCK is the best near London. GLADIOLI, fine, from 4*s*.; 6*s*., 9*s*., & 12*s*. per dozen. CATALOGUES on application. Highgate Nurseries, London, N.

Hardy Ornamental Trees and Shrubs.

OSBORN AND SONS invite lovers of Ornamental Planting to an inspection of the varied forms and foliage of their unrivalled collection of the above, to which they have for many years devoted especial attention.

PRICED CATALOGUES, consisting of upwards of 1500 species and varieties, may be had on application.

The Nurseries, Fulham, London, S.W.

Pines.

B. S. WILLIAMS begs to announce that he has a fine Stock of the above, including all the best kinds. Prices on application.

Paradise and Victoria Nurseries, Holloway, London, N.

NEW GRAPE, "ROYAL VINEYARD," the best late White Grape extant. Strong planting Canes, 21*s*. each; strong fruiting, 42*s*. each.

B. S. Williams, Paradise and Victoria Nurseries, Holloway, London.

CUTHILL'S STRAWBERRY PLANTS will be sent out August 14th:—Black Prince, Princess Royal, Richard II., Highland Mary, Newton Seedling and Everlasting, Prince of Wales, at 5*s*. per 100. If Selected, 7*s*. 6*d*. Dr. Lindley has often said to make sure of a crop have Cuthill's Breed.

SPAWN, per Bushel, 5*s*. Five Garden Pamphlets always on Sale. James Cuthill, Camberwell, London, S.

Castle Kennedy Fig.

PETER LAWSON AND SON, London and Edinburgh, have made arrangements to send out the above valuable acquisition in OCTOBER NEXT, and are now booking orders, which will be executed in strict rotation as received.

Plants 10*s*. 6*d*. each; a few extra strong at 21*s*. each.

Special terms to the Trade, and circulars with list of awards and further particulars may be had on application.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.

Richard Smith, Nurseryman and Seed Merchant, Worcester.

SUPERB SEEDS for PRESENT SOWING, 1*s*., 2*s*. 6*d*., and 3*s*. 6*d*. per packet.

CALCEOLARIA, Scott's splendid hybrid spotted; CINERARIA, from finest named sorts; PRIMULA, choice mixed, 1*s*. and 2*s*. 6*d*.; ex. ex. quality FIMBRIATA, 2*s*. 6*d*. and 5*s*.; INTERMEDIATE STOCK, Scarlet and White, 6*d*. and 1*s*. per packet, at

J. Scott's, Merriott and Seed Stores, Yeovil, Somerset.

Choice Seeds for Present Sowing.

F. AND A. SMITH, The Nurseries, Dulwich, Surrey, S., beg to offer the following from their very superior stocks:—

CALCEOLARIA, from the finest flowers.
CINERARIA, from their extra choice and unequalled strain, which cannot be surpassed by any other.
PRIMULA SINENSIS FIMBRIATA, RED.
" " " WHITE.
" " " KERMESINA.
" " " MIXED.

Price 1*s*., 2*s*. 6*d*., and 5*s*. per packet.

NEW DEUTZIA CRENATA FLORE PLENO, 6*s*. per dozen; NEW IRESINE HERBSTII, ornamental foliage bedding plant, 6*s*. per doz.; NEW COLEUS MARMORATUS, 6*d*. each; NEW LOPHOSPERMUM SCANDENS GRANDIFLORUM, 1*s*. each; PASSIFLORA CŒRULEA, the hardy Passion Flower, 6*s*. per dozen. GERANIUMS TOM THUMB and FLOWER of the DAY, 15*s*. per 100, 2*s*. per dozen. The Trade supplied on liberal terms.

John Tucker, The Manor Nursery, Burnham, Somerset.

CRYSTAL PALACE, ROYAL BOTANIC, and ROYAL HORTICULTURAL FLOWER SHOWS.

At these PLANT CASES will be exhibited in great variety, furnished with the Choicest Exotic Fern and Foliage Plants, arranged by Barr & Sugden, of 12, King Street, Covent Garden, W.C.

J. IVERY AND SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

New Azalea indica.

J. IVERY AND SON have much pleasure in offering the undermentioned Two beautiful Seedlings, as they feel assured they will prove thoroughly distinct, and most desirable kinds.

FORGET-ME-NOT.—Brilliant glossy reddish-purple, 10*s*. 6*d*. & 21*s*.

BEAUTY of DORKING.—White striped and spotted with rose, 10*s*. 6*d*. and 21*s*.

For a full description see CATALOGUE, which will be forwarded post free on application.—Dorking, July 8.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

*** Part II. (Exotic Ferns) will be issued as early as possible.

Foot's Cray Nursery, S.E.

MRS. POLLOCK PELARGONIUM.—Healthy Spring-struck plants, 2*s*. 6*d*. each, well hardened for bedding out. The Trade supplied.—Address,

Alfred Fryer, Nurseryman, Chatteris, Cambridgeshire.

INTERMEDIATE STOCK, COVENT GARDEN and VICTORIA VARIETIES.

Scarlet, Purple, White, or Mixed COVENT GARDEN INTERMEDIATE STOCK, each, 1*s*. per packet.

Scarlet, White, or Mixed VICTORIA INTERMEDIATE STOCK, very floriferous, and more robust than the Covent Garden varieties, each 2*s*. 6*d*. per packet.

Barr & Sugden, 12, King Street, Covent Garden, W.C.

Japanese Clematis.

MR. FORTUNE'S magnificent CLEMATIS STANDISHII and FORTUNII, doubtless two of the most important introductions of late years, received the unusual honour of Special Certificates at the Meetings of the Royal Horticultural Society, April 29 and May 2 last.

Strong Flowering Plants may be obtained of Charles Noble, Bagshot.

New Zonale Geraniums, &c.

F. AND A. SMITH, The Nurseries, Dulwich, S., have the pleasure to intimate that their extensive COLLECTIONS of NEW ZONALE and VARIEGATED GERANIUMS and BALSAMS are NOW in FLOWER, and will repay an inspection, which is respectfully solicited.

Their NEW CATALOGUE for the present season is now ready, and will be forwarded post free on application as above.

First Quality.

CALCEOLARIA, PRIMULA, CINERARIA, CARNATION, PICOTEE, PINK, AURICULA, VERBENA, MIMULUS, ZONALE GERANIUM and PELARGONIUM.

Each 2*s*. 6*d*. per packet.

Barr & Sugden, 12, King Street, Covent Garden, W.C.

Calceolaria, Cineraria, and Primula.

E. G. HENDERSON AND SON offer Seed of the above, in first-class quality, at 1*s*., 2*s*. 6*d*., and 5*s*. per packet.

STOCKS for next spring bloom, as SCARLET and WHITE INTERMEDIATE; also the fine ALBERT and ALEXANDRA INTERMEDIATE varieties. See the SEED CATALOGUE, page 44.

DOUBLE GERMAN WALLFLOWER, mixed in varieties, or colours separate, 1*s*. per packet.

Wellington Nursery, St. John's Wood, London, N.W.

Russell's Pyramid Primulas.

GEO. CLARKE is now prepared to send out in packets, price 2*s*. 6*d*. each, this, the finest breed of PRIMULAS in cultivation. The Seed now for sale has been saved from selected plants, so that it is believed the produce will be even superior to that of former years.

Printed instructions for raising and growing the plants sent with each packet. Stamps received in payment.

Nursery, Streatham Place, Brixton Hill, London, S.

Lettuce Moor Park (True.)

ROBERT PARKER begs to announce that he can supply a few Pounds of Seed (last year's crop), of this valuable kind, the hardiest, best, and most useful Cos variety in cultivation for general purposes. Price per pound to the Trade will be forwarded on application.

Exotic Nursery, Tooting, Surrey, S.

DWARF GREEN CURLED SAVOY.—The attention of Seedsmen is directed to the above, as a Grower will have in a few weeks several quarters thereof for Sale. Application, with a price, to be addressed to

Mr. George Edmonds, Grange Place, Gillingham, Kent.

STRONG PLANTS of the leading best kinds of GARDEN CABBAGE, CATTLE CABBAGE, SAVOY, KAIL, CAULIFLOWER, BROCCOLI, CELERY, LETTUCE, ENDIVE, LEEK, &c., to be had of

John Cattell, Westerham, Kent.

Prices on application.

MONA'S PRIDE, the Earliest Potato in cultivation.—On SALE, the above KIDNEY, true to name, for seed.

Apply at Fargher's Flower Gardens, Douglas, Isle of Man.

New Turnip Seeds.—Crop of 1865.

SUTTON AND SONS have now harvested New Seeds of all the leading kinds of TURNIP SEEDS, and the same will be ready for delivery in a few days from this date. The sorts are

Lincolnshire Red Paragon.	Grey Stone.
Hardy Green Round.	Pomeranian White Globe.
Imperial Green Globe.	Sutton's Green-top Yellow Hybrid.

Sutton's Early Short-top Sixweeks.

The crops of Seed being good, the prices will be reduced.

Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

To Market Gardeners, Nurserymen, Farmers, and Gentlemen Gardeners.

SUPERIOR DRUMHEAD CABBAGE PLANTS, 3*s*. per 1000.

CELERY PLANTS, Red and White, 1*s*. per 100.

KOHL RABI PLANTS, of the finest stock ever offered, 3*s*. per 1000.

BRUSSELS SPROUTS, 5*s*. per 1000. | SAVOYS, 4*s*. per 1000.

CAULIFLOWERS, 8*s*. per 1000. Terms cash.

Richard Walker, Seed Grower, Biggleswade, Beds.

ROBERT PARKER begs to offer the following, all of which are well-grown, clean, and healthy plants:—

	s.	d.
CLERODENDRON BALFOURII	5	0
CORDYLINE INDIVISA	10	6
FRANCISCEA CALYCINA	10	6
GOODYERA PUBESCENS	1	6
RHODODENDRON COUNTESS of HADDINGTON, 10s. 6d. to	21	0
" JAVANICUM	2	6
" NUTTALLII	2	6
TRITOMA GRANDIS	3	6
" UVARIA GLAUCESCENS	1	6
VINE DUCHESS of BUCCLEUCH 10s. 6d. and	21	0
YUCCA ALBO SPICA	42	0
" TRECULEANA, *cornuta, concava*	42	0

PRICED and DESCRIPTIVE CATALOGUES of Greenhouse, Hardy, and Stove Plants, Seeds and Bulbs, are published, and will be forwarded to applicants.

Exotic Nursery, Tooting, Surrey, S.

Specimen Tree Ferns, Palms, &c.

JAS. GARAWAY AND CO., Durdham Down Nurseries, Bristol, offer as under:—

Two DICKSONIA ANTARCTICA, a splendid pair, 5 feet full from pot to crown, 3 feet circumference at base, 2 feet 2 inches at 2 feet 6 inches high; crown 6 feet 6 inches across.

Two ALSOPHILA AUSTRALIS, a splendid pair, 5 feet from pot to crown; crown full 7 feet across.

One CYATHEA MEDULLARIS, with seven fronds, last 8 feet 3 inches long.

One LATANIA BORBONICA (Fan Palm), with 16 leaves, 6 feet high, 7 feet 6 inches across.

One PANDANUS UTILIS, 5 feet high, 6 feet across.

One CARYOTA URENS, with five leaves, last 5 feet 8 inches long.

The whole are in first-rate health, and are growing freely, are admirably adapted for conservatory use or for exhibition, and will be sold separately or in one lot.

The Tree Ferns are particularly fine plants, and J. G. & Co. do not think that purchasers will find equally fine and as well established specimens in any other Nursery.

Prices on application. Mounted Photographs of the first six, price 10s. 6d the set, free by post on receipt of stamps.

JAS. GARAWAY & Co., Durdham Down Nurseries, Bristol.

Choice Seeds.

CHARLES TURNER begs to offer the following CHOICE FLOWER and VEGETABLE SEEDS, all of which are of the finest quality:—

CALCEOLARIA (Hybridized).—For variety, brilliancy of colour, and fine shape, these are unsurpassed and can be highly recommended. Price 2s. 6d. and 5s. per packet.

CINERARIA.—Saved from all the best varieties. Price 2s. 6d. and 5s. per packet.

PELARGONIUM (Large Flowering).—Saved from the newest and best varieties grown at the Royal Nurseries. Price 2s. 6d. and 5s. per packet.

Price to the Trade on application.

PELARGONIUM (Fancy).—Very choice. Price 2s. 6d. and 5s. per pkt.

PRIMULA SINENSIS FIMBRIATA RUBRA.—Finest fringed. Price 2s. 6d. per packet.

PRIMULA SINENSIS FIMBRIATA ALBA.—Finest fringed. Price 2s. 6d. per packet.

PRIMULA SINENSIS FIMBRIATA.—Mixed, very choice. Price 2s. 6d. per packet.

Saved from the finest selected flowers.

STOCK, SCARLET INTERMEDIATE.—Very fine strain. Price 1s. per packet.

CABBAGE, ROSETTE COLEWORT.—Highly recommended; a very small and most useful early Cabbage; should be sown from the middle of June to the middle of July. Price 1s. per packet.

CABBAGE, SUPERB (Bailey).—A first-rate variety; highly recommended for autumn sowing. Price 1s. per packet.

CUCUMBER, HENDSOR WINTER PROLIFIC.—An admirable kind either for house or frame work. The most productive of any and handsome; for winter forcing it has no equal. All who grow winter Cucumbers should give this valuable variety a trial. Price 1s. 6d. per packet.

CAULIFLOWER, THE FROGMORE FORCING, or NEW EARLY MAMMOTH.—Earliest in cultivation, with large white heads, firm and compact, of dwarf habit, and a first-rate variety for out-door purposes. Price 1s. 6d. per packet.

LETTUCE, BAILEY'S IMPROVED BATH.—Saved from a superior stock. Highly recommended for autumn sowing. Price 1s. per packet.

LETTUCE, STANSTED WINTER.—The finest Winter Lettuce known; a superior variety for autumn sowing; hardy, early, and very large. Price 1s. per packet.

The Royal Nurseries, Slough.

To Farmers, Gardeners, Stock-keepers, and Others.

F. GEE begs to offer the following, for Cash:—

RAPE or COLE-SEED, excellent sample, 13s. per bushel.

WHITE MUSTARD, 12s. per bushel. An excellent thing for Early Feed; also for ploughing in, as it will totally destroy many kinds of insects.

EARLY STRATTON GREEN TURNIP, New Seed, 8d. per lb.

DRUMHEAD CABBAGE and KOHL RABI plants, extra good, 3s. per thousand or cheaper by large quantities.

F. GEE, Seed Grower, &c., Biggleswade, Beds.

REIGATE SILVER SAND.—Best Kent and Surrey PEATS, LOAMS, SPHAGNUM, ROCK SANDSTONE, London-made FLOWER POTS, &c. Moderate Prices.

N.B. Loaded Trucks can be sent direct on all the Railways.

W. SHEAR, Sand and Peat Depôt, Reigate, Surrey.

REIGATE SILVER SAND, 12s. per ton, at Swan Place; delivered 5 miles, or to any London Railway, 16s. per ton, or 1s. 6d. per bushel (sacks at cost price, or on hire).

KENTISH and other PEATS, YELLOW LOAM, LEAF-MOULD, SPHAGNUM MOSS, and COCOA FIBRE REFUSE.

J. KENNARD, Swan Place, Old Kent Road, London, S.E.

COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 2s. per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped, J. BARSHAM'S Patent.

GENUINE TOBACCO PAPER, in 4-lb. packets. Price on application to

HENRY APPLEBY, Foreman to Messrs. Ivery & Son, Dorking, Surrey.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.

PROTECTION from the SCORCHING RAYS of the SUN.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.

Two yards wide	1s. 9d. per yard run.
Four yards wide	3s. 6d. per yard.
An improved make, 2 yards wide	1s. 9d. per yard.
An improved make, 3 yards wide	2s. 8d. per yard run.

Also "Frigi Domo" Netting, 2 yards wide, 1s. 6d per yard run.

ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, and of all Nurserymen and Seedsmen throughout the kingdom.

"It is much cheaper than Mats as a covering."

ROYAL AGRICULTURAL SOCIETY,

PLYMOUTH MEETING, 1865.

STAND No. 200.

SUTTON & SONS,

SEEDSMEN TO THE QUEEN,

RESPECTFULLY INVITE THE ATTENTION OF THEIR FRIENDS AND THE PUBLIC GENERALLY TO THEIR

MAGNIFICENT STAND in the SHOW YARD,

Including a Collection of 1000 distinct sorts of SEEDS in Glass Cases, labelled with their Botanical and Popular Names. Specimens of 250 sorts of GRASSES for Permanent Pasture and other purposes, all grown by SUTTON & SONS in their grounds at Reading. A Collection of various kinds of Agricultural Seeds in Canvas Bags. Drawings by an eminent Artist of the principal kinds of Agricultural Roots. Specimens of Sutton's Early Short-top Six-weeks Turnip. A Collection of Seeds in Pots, showing the growth of Sutton's Genuine Home-grown Seeds, &c.

Orders will be received at the Stand for New Turnip Seeds (growth of 1865), &c.

SUTTON AND SONS, ROYAL BERKSHIRE SEED ESTABLISHMENT, READING.

GRAY'S OVAL TUBULAR BOILER.

INTERNATIONAL EXHIBITION, CLASS IX., No. 2119.

Mr. GRAY begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his

NEW OVAL TUBULAR BOILER,

acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in Gardeners' Chronicle *of International Exhibition, May* 24, *page* 476.

"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. GRAY's variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so, the change, though a slight one, is no doubt an improvement."

They are made of all sizes, which, with prices, may be had on application.

JAMES GRAY, HORTICULTURAL WORKS,

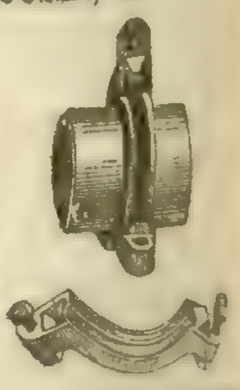
DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.

PORTABLE HOT-WATER APPARATUS,

WITH TRUSS' PATENT JOINTS FOR HEATING CONSERVATORIES, HOTHOUSES, &c.

T. S. TRUSS

Begs to offer complete HOT-WATER APPARATUS for GREEN-HOUSES (consisting of 4-inch Pipes and Joints, Saddle Boiler, Fire Doors, Bars, Soot Doors, Damper, Supply Cistern, Feed and Air Pipes, Pipe Stands, &c., of the best quality), delivered to any Railway Station in England, and to erect the same within 25 miles of London, at the following prices:—



4-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection.
16 feet by 8 feet	£8 10 0	£2 0 0	30 feet by 12 feet	£11 15 0	£2 10
20 feet by 10 feet	9 0 0	2 0 0	40 feet by 15 feet	15 0 0	2 15
25 feet by 12 feet	10 5 0	2 5 0	50 feet by 15 feet	18 0 0	3 0

Erection beyond 25 miles of London, Railway Fare for one Man charged extra.

By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints.

Estimates and Plans forwarded on application to

T. S. TRUSS, C.E., 53, GRACECHURCH STREET, LONDON, E.C.

HOTHOUSES FOR THE MILLION.

AWARDED A PRIZE MEDAL, 1862.

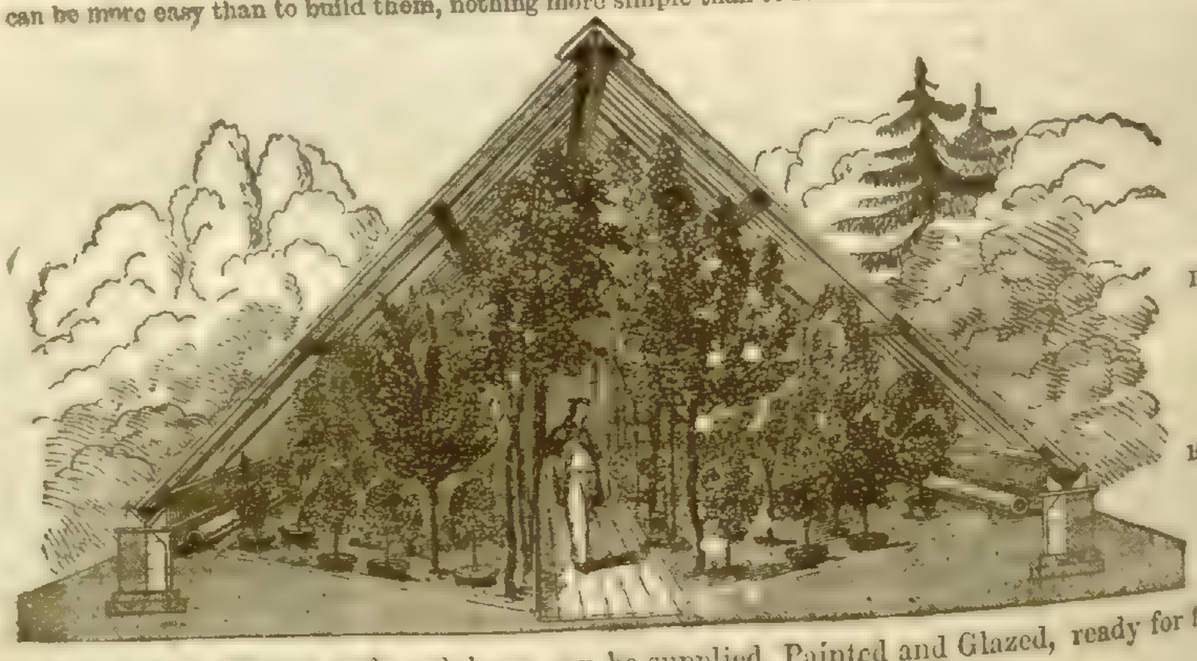
INVENTED AND PATENTED BY

SIR JOSEPH PAXTON, M.P.

Manufactured for the Agent, in London; Newton in Cartmel, Lancashire; Gloucester, Coventry, Aberdeen, and Paisley ONLY.

"Nothing can be more easy than to build them, nothing more simple than to remove them."—*Daily News*, May 22, 1862.

COMBINE SIMPLICITY, CHEAPNESS, AND DURABILITY.



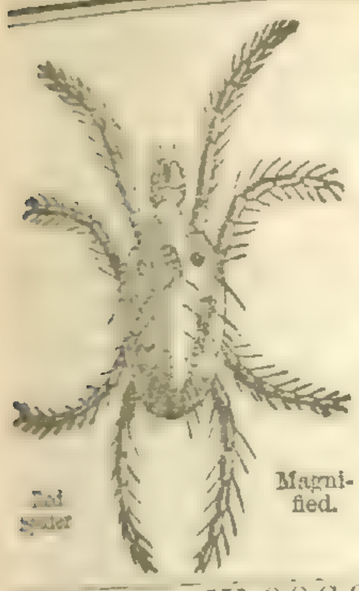
FULFIL ALL THE REQUIREMENTS OF HORTICULTURE.

SPAN-ROOF HOUSES, with two ends and doors, can be supplied, Painted and Glazed, ready for fixing, 21 ft. by 16 ft., 32*l.*; 42 ft. by 16 ft., 54*l.*; 54 ft. by 19 ft., 88*l.*; 64½ ft. by 22 ft., 130*l.*, &c., &c.

ILLUSTRATED CIRCULARS, with Prices, can be had on application to

SAMUEL HEREMAN and J. MORTON, AGENTS, 7, PALL MALL EAST, LONDON, S.W.

A HANDBOOK of VINE and FRUIT TREE CULTIVATION, as adapted to the above Patent Hothouses, may be had of Mr. HEREMAN. Second Edition, price 1s.; post free, 1s. 1d.



GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes, 1s. 2s., and 10s. 6d. each.

Wholesale by

PRICE'S PATENT CANDLE COMPANY (LIMITED).

TOOGOOD'S (late PAGE & TOOGOOD'S) IMPROVED BLIGHT COMPOSITION introduced in 1850, has been manufactured under W. TOOGOOD'S sole directions since that period. He has made great improvements in it, and by reducing the price 25 per cent., it is one of the cheapest and has always been the most efficacious remedy extant. To publish the Testimonials no newspaper would give space, but Messrs. CUTBUSH & SON, the eminent Nurserymen, say:—"It is the best thing for the purpose we can find, and does not appear to injure the young foliage like Gishurst does. This is our experience after 10 years' trial."

"February 24, 1864."

Mr. E. SAGE, *Gardener to* Lord HOWE, *says*:—

"Will you please send us 15 gallons of your Blight Composition. I see you have reduced the price, and trust that you may some day be able to make another reduction, and I feel assured that no 'Gishurst,' will be used by practical men."

We hereby Certify that during the whole time we were Warehousemen in the Establishment of B. PAGE & Co., and subsequently PAGE & TOOGOOD, that we Manufactured the Blight Composition under Mr. TOOGOOD'S *sole directions, and that he alone knew the proportions of the various ingredients.*

Signed JOHN MORLEY,
HENRY DREW,
HENRY SHEERMAN,
GEORGE ISAACS."

"July 13, 1863."

Extra strong, 3s. per gallon (sufficient to make 4 gallons fit for use), 10 gallons and upwards carriage free to London.

May be obtained of the principal Nurserymen and Seedsmen in the Trade, and of W. TOOGOOD, Royal South Hants Seed Establishment, Southampton.

IMPORTANT to GARDENERS, AMATEURS, &c.—The Advertiser offers to Gardeners, Amateurs, and others a certain Preventive against BIRDS DESTROYING either PEAS, SMALL SEEDS, or FRUIT. Having given it a fair trial for two years, he feels confident that the system will be generally adopted. The method is simple, but nevertheless most effective. A Cat being provided, and wherever the above-mentioned Fruits or Seeds are sown, three rows of Peas 70 feet in length, a like space or quantity of Strawberries, Raspberries, Currants, Gooseberries, Seeds, &c., may be thoroughly preserved. The Advertiser will forward Cat's Collar, and the various Irons, &c., with instructions for fixing, packed and carriage paid, on the receipt of 8s.—Post Office Orders made payable to JAMES BATTERS, Post Office, Beccles, Suffolk.

Address J. BATTERS, Gillingham, Beccles.

TANNED NETTING for the PROTECTION of FRUIT TREES, at 1d. per square yard. Cotton Netting, Woollen Netting, Scrim Canvas, and Tiffany. Greenhouse Shades, &c. Particular, JOHN EDGINGTON & Co., 48, Long Lane, Smithfield, E.C.; 1s, Piccadilly, W.; and 108, Old Kent Road, S.E.

NETTING for FRUIT TREES, SEED BEDS, RIPE STRAWBERRIES, &c.—TANNED NETTING for Protecting the above from Frost, Blight, Birds, &c., 2 yards wide, 3d. per yard, 50 yards, 20s.; 4 yards wide, 6d. per yard, or 50 yards, 20s.

NEW TANNED NETTING, suited for any of the above purposes, or as a Fence for Fowls, 2 yards wide, 6d. per yard; 4 yards wide, 1s. per yard; ½-inch mesh, 4 yards wide, 1s. 6d. per yard. Can be had in any quantity of

FATON & DELLER, 6 & 7, Crooked Lane, London Bridge, E.C.

CHEAPEST HOUSE for GARDEN NETTING, only 1½d. per yard in length, medium width. A reduction made in quantities. Also good quality SHEEP NETTING, usual depth, 20s. per 100 yards in length.—Address,

G. & D. HURN, Sack, Rope, Twine, Net, and Waterproof Cloth Manufacturers, 13, Dove Street, Norwich, Norfolk. Established 1812.

EDGINGTON'S GARDEN NETTING, the cheapest and most durable, 1d. per square yard, or in quantities of 250, 500, or 1000 yards, carriage free.

EDGINGTON'S MARQUEES and GARDEN TENTS are the lightest, [capacious.

EDGINGTON'S MARQUEES for hire are the most handsome and

EDGINGTON'S RICK CLOTHS for 60 years have maintained their celebrity as the best.

HAYTHORN'S and BRITTAIN'S NETTINGS.

Sample of material free on application.

Particular—FREDERICK EDGINGTON & Co., Thomas Street, Old Kent Road, London, S.E. A liberal discount to the Trade.

International Exhibition, 1862, Class XIX., Honourable Mention.

Iron Hurdles, Fencing, and Gates.

COTTAM'S HURDLES are made in the best manner of superior Wrought Iron. SHEEP HURDLES, from 4s.; CATTLE HURDLES, from 4s. 11d. each; CONTINUOUS FENCE, from 8d. per foot; FIELD GATES, from 25s. each. Illustrated Price List on application.

ENTRANCE GATES, RAILING, and IRON WORK of every description. Designs and Estimates free of

COTTAM & Co.,
No. 2, Winsley Street
(opposite the Pantheon),
Oxford Street, London, W.

GARDEN HOSE, GARDEN HOSE, GARDEN HOSE, with Brass Fittings complete.—The London India-Rubber Company, Limited, Manufacturers of MECHANICAL RUBBER, 9, Ironmonger Lane, London, E.C.

PATENT GUTTA PERCHA SOLES.—IMPORTANT TO GARDENERS.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. GLENNY, Esq., the celebrated Florist:—

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend everyone to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the sound to the worn parts, as easily as if it were so much dough. I would be the duty of all persons who must occasionally wet their feet to procure a material that completely defies damp. Many a valuable life would escape colds and rheumatism by the use of Gutta Percha Soles.—Your obedient servant, "G. GLENNY."

A variety of Gutta Percha articles, such as Mill Bands, Tubing, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Jars, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Water Beds, Galvanic Batteries, Calbotype trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers throughout the country.

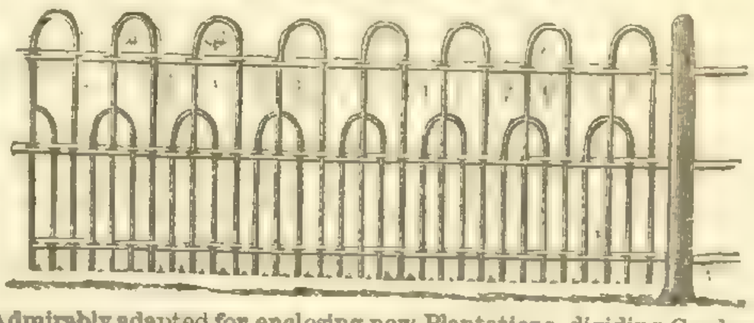
The GUTTA PERCHA COMPANY, Patentees, 18, Wharf Road, City Road, London, E.C.

Card.

SAMUEL N. McGERROW,
GENERAL HORTICULTURAL BUILDER,
Knotty Ash, near Liverpool.

Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

W. S. UNDERHILL'S Patent WROUGHT IRON GAME and POULTRY FENCE.

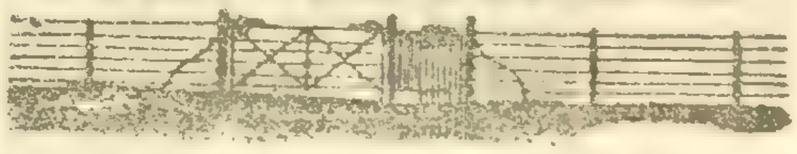


Admirably adapted for enclosing new Plantations, dividing Gardens, &c. It effectually prevents trespass, and is low in price (varying from 6d. to 1s. 6d. per yard and upwards), neat in appearance, strong and durable.

Manufactory, St. Mary's Works, Newport, Salop. London Agent, Mr. R. WINDER, 18, Abingdon Street, Westminster, S.W., where Samples may be seen.

GALVANISED WIRE CABLE STRAND FENCING, for FARMS, PARKS, and GARDENS.

The ORIGINAL INVENTORS and MANUFACTURERS.



The CHEAPEST, STRONGEST, and NEATEST FENCING in USE.

THOUSANDS of MILES of this FENCING have been SUPPLIED by us at home and abroad. It sustains no injury by being trespassed upon.

Price, with five lines of Strand and Iron-pronged Standards, and one straining post, stay and screw bolts to every 120 yards, 1s. per yard.

Five lines of Cable Strand and Staples for wooden posts, 6d. per yard.

HURDLES, HURDLES, HURDLES, 1s. 9d. to 3s. 9d. per yard.
CONTINUOUS IRON FENCING, GATES of all kinds.
PATENT STRAINING PILLARS, &c.
GALVANISED WIRE NETTING for POULTRY, &c.
GALVANISED SWING WATER BARROWS.
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GALVANISED IRON PUMPS.
LAWN MOWERS, GARDEN ROLLERS.
ASPHALTE ROOFING FELT, 1d. per square foot.

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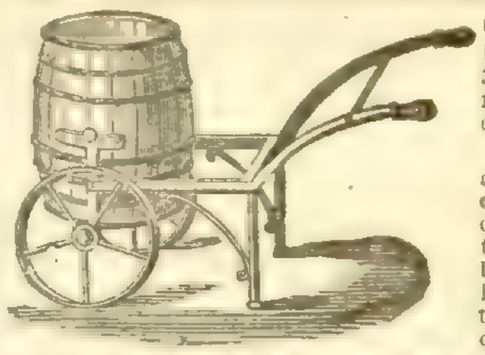

SWING WATER BARROW, to hold 36 Gallons, price 42s., carriage paid to any Station on the Great Eastern Line.

This is the best and cheapest article yet introduced; the water may be dipped out, or the tub tilted and poured out, or by merely raising the handle it can be placed on the ground and the frame detached.

Manufactured by W. S. BOULTON, Rose Lane Iron Works, Norwich.

GARDEN BORDER EDGING TILES, in great variety of patterns and material, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.

F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.

Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also TESSELATED PAVEMENTS of more enriched designs than the above.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cements, &c.

To be obtained of F. & G. ROSHER, at their Premises as above.

SILVER SAND (REIGATE, best quality), at the above addresses—14s. per Ton, or 1s. 3d. per Bushel; 2s. per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less.

FLINTS, BRICK BURRS or CLINKERS, for Rockeries and Grotto Work.

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NEW IMPROVED PREMIUM WIRE NETTING.

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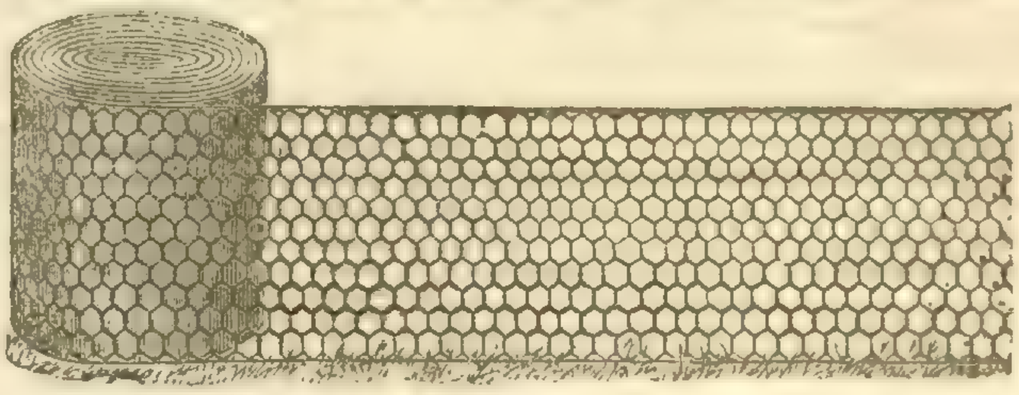

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Size of Mesh.	Mostly used for	Light.		Medium.		Strong.		Extra Strong.	
		Japanned.	Galvanized.	Japanned.	Galvanized.	Japanned.	Galvanized.	Japanned.	Galvanized.
2¼ inch	Hares, Dogs, Poultry ..	3d.	4d.	3¾d.	5d.	4½d.	6d.	5½d.	7d.
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1⅝ inch	Small Rabbits, Hares, &c.	4d.	4¾d.	4¾d.	6d.	5½d.	7d.	7d.	9d.
1½ inch	Smallest Rabbits	5d.	6d.	5¾d.	7d.	7d.	9d.	9d.	11d.

Quantities of 100 yards or upwards delivered free at nearly all the principal Railway Stations and Shipping Ports in England; and 200 yards or upwards delivered free to most parts of Scotland and Ireland.

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WAREHOUSE (where Netting is kept in stock), 148, UPPER THAMES STREET, E.C., opposite the CITY of LONDON BREWERY, and close to the LONDON BRIDGE STEAM BOAT PIER.

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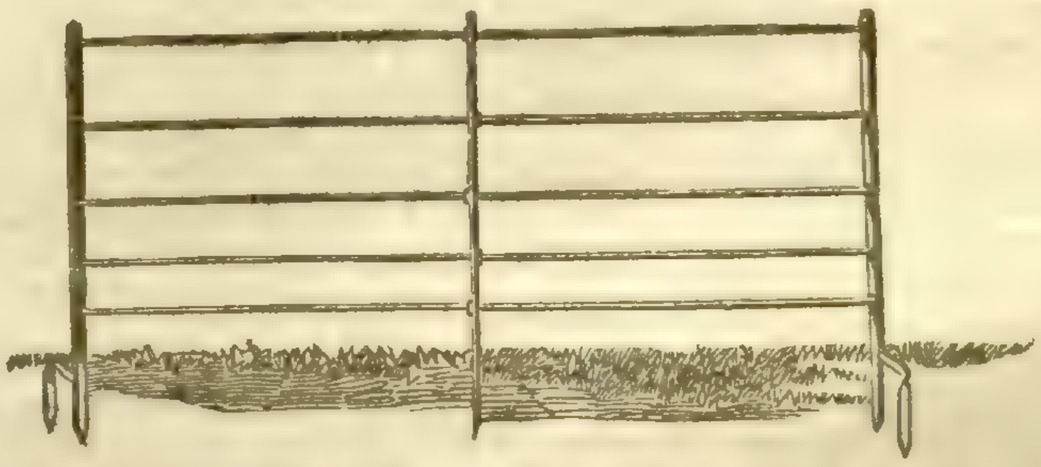
OLD ST. PANCRAS ROAD, LONDON, N.W.



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	Each.—s.	d.		Each.—s.	d.
SHEEP HURDLES, 3 ft. high, 6 ft. long, 4-Bar ..	4	0	CATTLE HURDLE, 3 ft. 6 in. high, 6 ft. long ..	4	11½
Ditto ditto ditto, 5-do.	4	5½	Ditto ditto ditto strong	5	9
Ditto ditto ditto, ⅞ Top Bar	4	8	OX HURDLE, 4 ft. high, 6 ft. long	7	0½

DR. SPRATT'S PATENT LOCK.

The simplest and best Fastening for Field, Wicket, Swing, and Railway Gates. Particulars and Prices on application.

PATENT WROUGHT-IRON STABLE FITTINGS, CONSERVATORIES, &c. Lists Free.

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HUGH LOW & CO.

HAVE ON HAND

A VERY LARGE STOCK OF ORCHIDS,

As will readily be inferred from the fact that at their Nursery, Ten Houses, each of considerable size, are devoted to the culture of this very interesting Class of Plants. The Collection is regularly augmented by importations received from Correspondents in Brazil, Venezuela, Borneo, the Philippine and West India Islands, the Tennasserim Provinces, and the Malayan Archipelago, as also from the various Collectors of the Firm—in New Grenada, Central American States, and Mexico.

The Plants offered are all in fine health and very vigorous, and an inspection is respectfully solicited.

A PRICED CATALOGUE can be had on application.

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ROYAL BOTANIC SOCIETY,

REGENT'S PARK.

THE LAST GENERAL EXHIBITION of PLANTS, FLOWERS, and FRUIT,

WEDNESDAY, JULY 5.

LIST OF AWARDS.

EXTRA GOLD MEDAL.

To Mr. B. Peed, Gr. to Mrs. Tredwell, St. John's Lodge, Norwood, for 16 Stove and Greenhouse Plants
To Mr. R. Bullen, Gr. to A. Turner, Esq., Bowbridge House, Leicester, for 20 Exotic Orchids

LARGE GOLD MEDAL.

To Mr. F. Whitbread, Gr. to H. Colyer, Esq., Dartford, Kent, for 16 Stove and Greenhouse Plants
To Mr. T. Page, Gr. to W. Leaf, Esq., Park Hill, Streatham, for 20 Exotic Orchids

MEDIUM GOLD MEDAL.

To Mr. J. Fraser, Nurseryman, Leyton, Essex, for 10 Stove and Greenhouse Plants
To Mr. H. Chilman, Gr. to Mrs. Smith, Ashtead House, Epsom, for 10 Stove and Greenhouse Plants
To Mr. B. Peed, Gr., for 20 Exotic Orchids
To Mr. C. Penny, Gr. to H. H. Gibbs, Esq., St. Dunstan's, Regent's Park, for 12 Exotic Orchids

GOLD MEDAL.

To Mr. O. Rhodes, Nurseryman, Sydenham, Kent, for 10 Stove and Greenhouse Plants
To Mr. J. Veitch, Nurseryman, Chelsea, for 10 Foliage Plants
To Mr. A. Ingram, Gr. to J. J. Blandy, Esq., High Grove, Reading, for 10 Stove and Greenhouse Plants
To Mr. O. Rhodes, for 10 Cape Heaths
To Mr. B. Peed, Gr., for 8 Cape Heaths
To Mr. W. Wilson, Gr. to W. Marshall, Esq., Clay Hill, Enfield, for 12 Exotic Orchids
To Mr. R. Baines, Gr. to H. Micholls, Esq., Summerfield, Bowdon, Cheshire, for 10 Foliage Plants
To Mr. J. Fraser, for 12 Pelargoniums
To Mr. T. Bailey, Gr. to T. T. Drake, Esq., Shardeloes, Amersham, Bucks, for 10 Pelargoniums
To Mr. G. Sage, Gr. to Earl Brownlow, Ashridge, for Collection of Fruit

LARGE SILVER GILT MEDAL.

To Messrs. T. Jackson & Son, Nurserymen, Kingston, Surrey, for 6 Exotic Orchids
To Mr. J. Wiggins, Gr. to W. Beck, Esq., Worton Cottage, Isleworth, for 12 Exotic Orchids
To Mr. I. Hill, Gr. to R. Hanbury, Esq., The Poles, Ware, Herts, for 6 Exotic Orchids
To Mr. W. Kaile, Gr. to Earl of Lovelace, East Horsley Towers, Ripley, Surrey, for 16 Stove and Greenhouse Plants
To Mr. J. Meredith, Garston, Liverpool, for 3 Dishes of Grapes
To Messrs. J. & C. Lee, Nurserymen, Hammersmith, for 10 Stove and Greenhouse Plants
To Mr. T. Page, Gr., for 10 Stove and Greenhouse Plants
To Mr. J. Wheeler, Gr. to J. Phillpott, Esq., Stamford Hill, for 6 Stove and Greenhouse Plants
To Messrs. T. Jackson & Son, for 10 Cape Heaths
To Mr. J. Wheeler, Gr., for 8 Cape Heaths
To Mr. W. Taylor, Gr. to J. Yates, Esq., Lauderdale House, Highgate, for 10 Foliage Plants
To Messrs. A. Henderson & Co., Nurserymen, Edgeware Road, for 10 Foliage Plants
To Mr. J. Catlin, Gr. to Mrs. Lermitte, East End, Finchley, for 6 Scarlet Pelargoniums
To Mr. W. Miller, Gr. to Earl Craven, Combe Abbey, Coventry, for Collection of Fruit

LARGE SILVER MEDAL.

To Mr. W. Kemp, Gr. to Earl Percy, Albury Park, Guildford, for 6 Stove and Greenhouse Plants
To Mr. J. Barnes, Gr. to Lady Rolles, Bicton, Latterton, Exeter, for Collection of Pine-apples
To Mr. J. Fraser, for 6 Fancy Pelargoniums
To Mr. J. Fraser, for 6 Pelargoniums of 1862 and 1863.
To Mr. R. Ruffett, Gr. to Lord Palmerston, Brocket Hall, Herts, for Collection of Fruit

SILVER GILT MEDAL.

To Messrs. A. Henderson & Co., for 10 Stove and Greenhouse Plants
To Mr. G. Wheeler, Gr. to Sir F. H. Goldsmid, Bt., Regent's Park, for 10 Stove and Greenhouse Plants
To Mr. C. Smith, Gr. to C. Anderson, Esq., Norwood Grove, for 6 Stove and Greenhouse Plants
To Messrs. J. & C. Lee, for 10 Cape Heaths
To Mr. A. Ingram, Gr., for 8 Cape Heaths
To Mr. G. Young, Gr. to W. H. Stone, Esq., Leigh Park, Havant, Hants, for 12 Exotic Orchids
To Mr. A. Ingram, Gr., for 6 Stove and Greenhouse Plants
To Mr. J. Weston, Gr. to D. Martineau, Esq., Clapham, for 6 Fuchsias
To Mr. J. Wiggins, Gr., for 10 Pelargoniums
To Mr. Pettit, Gr. to G. Powney, Esq., Finchley, for 6 Scarlet Pelargoniums
To Mr. C. Turner, Nurseryman, Slough, Bucks, for 50 Roses
To Mr. W. Bull, Nurseryman, Chelsea, for 12 Exotic Ferns
To Messrs Paul & Son, Nurserymen, Cheshunt, Herts, for 50 Exotic Orchids
To Mr. J. Exell, Gr. to J. Hollingworth, Esq., Maidstone, for 25 Roses
To Mr. W. Bull, for 10 Foliage Plants
To Mr. A. Ingram, Gr., for 10 Foliage Plants
To Mr. H. Barnard, Gr. to J. W. Taylor, Esq., River House, Middlesex, for 10 Foliage Plants
To Mr. T. Baines, Gr., for Sarracenias, Dionæas, &c.
To Mr. J. Barnes, Gr., for Collection of Pine Cones
To Mr. T. Young, Gr., for Collection of Pine-apples

SILVER GILT MEDAL.

To Mr. W. Hill, Gr. to R. Sneyd, Esq., Keele Hall, Staffordshire, for 3 Dishes of Grapes
To Mr. J. Osborne, Kaye's Nursery, Finchley, for 3 Dishes of Grapes
To Mr. J. Meredith, for 12 lbs. of Grapes
To Mr. E. Sage, Gr. to Earl Howe, Gopsall Hall, Atherston, for Dish of Hamburgh Grapes
To Mr. W. Allen, Gr. to E. G. Hopwood, Esq., Manchester, for Dish of Black Prince
To Mr. J. Allport, Gr. to H. Akroyd, Esq., Nantwich, Cheshire, for Dish of Grapes
To Mr. J. Meredith, for large Bunch of Black Hamburgh Grapes

SILVER MEDAL.

To Messrs. F. & A. Smith, Nurserymen, Dulwich, for 10 Cape Heaths
To Mr. H. Chilman, Gr., for 8 Cape Heaths
To Mr. F. Whitbread, Gr., for 6 Exotic Orchids
To Mr. O. Rhodes, for 10 Foliage Plants
To Mr. E. Gardiner, Gr. to J. Stutter, Esq., Clapham, for 6 Fuchsias
To Mr. W. Young, Gr. to R. Barclay, Esq., Highgate, for 10 Foliage Plants
To Mr. G. Young, Gr., for 12 Exotic Ferns
To Mr. B. S. Williams, Nurseryman, Holloway, for 12 Exotic Ferns
To Mr. J. Hawes, Gr. to J. Noble, Esq., Forbes' Green, Hornsey, for 6 Scarlet Pelargoniums
To Mr. J. Fraser, for 50 Roses
To Mr. W. Ingle, Gr. to Mrs. G. Round, Birch Hall, Colchester, for 25 Roses
To Mr. C. Turner, for Collection of Picotees
To Mr. C. Turner, for Collection of Carnations
To Messrs. E. G. Henderson, for Collection of Ornamental Plants
To Mr. J. Veitch, for Collection of New and Rare Plants
To Mr. F. Bannerman, Gr. to Lord Bagot, Rugeley, Staffordshire, for Collection of Fruit
To Mr. T. Dawson, Gr. to Earl Cowper, Panshanger, Herts, for Collection of Pines
To Mr. G. Young, Gr., for Providence Pine
To Mr. J. Deville, Gr to Major Martin, Wootton Hall, Ashbourne, for Providence Pine
To Mr. W. Young, Gr. to C. Bailey, Esq., Aberaman Park, Aberdare, for Queen Pine
To Mr. W. Hill, Gr., for 4 Dishes of Peaches and Nectarines
To Mr. J. Carr, Gr. to P. L. Hinde, Esq., Byfleet Lodge, Surrey, for 2 Dishes of Peaches and Nectarines
To Mr. W. Peachey, Gr. to R. Hole, Esq., Quorn Lodge, Loughborough, for 3 Dishes of Grapes
To Mr. J. Meredith, for Dish of Black Hamburgh Grapes
To Mr. C. Turner, for Dish of Muscats
To Mr. G. Hyde, Gr. to C. Bowles, Esq., Waltham Cross, for 1 Dish of Grapes
To Messrs. H. Lane & Son, for Fruit Trees in pots
To Mr. J. Fraser, for Fruit Trees in pots
To Mr. C. Hutt, Gr. to Miss B. Coutts, Highgate, for Vines in pots

SMALL SILVER MEDAL.

To Mr. R. Baxendine, Nurseryman, Guildford, for 10 Cape Heaths
To Mr. J. Carr, Gr., for 10 Foliage Plants
To Mr. W. Young, Gr., for 12 Exotic Ferns
To Messrs. A. Henderson & Co., for 12 Exotic Ferns
To Mr. J. Holland, Gr. to R. W. Peake, Esq., Spring Grove, Isleworth, for 12 British Ferns
To Messrs. A. Henderson & Co., for 3 Hanging Baskets
To Mr. H. Chilman, Gr., for 12 Exotic Orchids
To Mr. J. Wheeler, Gr., for 6 Exotic Orchids
To Mr. G. Green, Gr., Douglas Place, Greenwich, for 6 Fuchsias
To Mr. J. Weir, Gr. to Mrs. Hodgson, Hampstead, for 6 Scarlet Pelargoniums
To Mr. D. Weymouth, Bristlington, Bristol, for 12 Pinks
To Mr. W. Wright, Gr. to Mrs. Ramsden, Twickenham, for 25 Roses
To Mr. C. Turner, for 24 Roses
To Messrs. J. Ivery & Son, Nurserymen, Dorking and Reigate, for Collection of Hardy Ferns
To Mr. J. Fraser, for 6 Kalosanthes
To Mr. J. C. Perry, Castle Bromwich, Birmingham, for Cut Verbenas
To Mr. T. Dawson, Gr. to Earl Cowper, for Collection of Fruit
To Mr. C Allen, Gr. to J. B. Glegg, Esq., Chelford, for Providence Pine
To Mr. W. Davies, Gr. to W. Booker, Esq., Velindra House, Cardiff, for Queen Pine
To Mr. T. Bailey, Gr., for 1 Pine Apple
To Mr. J. Enstone, Gr. to Sir J. Duckworth, Weare House, Exeter, for Green-fleshed Melon
To Mr. G. Gadd, Castle Gardens, Dorking, for Scarlet-fleshed Melon
To Messrs. H. Lane & Son, for Collection of Grapes
To Mr. J. Rawbone, Gr. to C. M. Campbell, Esq., Woodseat, Ashbourne, Derbyshire, for 4 Dishes of Peaches and Nectarines
To Mr. G. Sage, Gr., for 2 Dishes of Peaches and Nectarines
To Mr. J. Roberts, Gr. to the Hon. A. Bury, Charleville Forest, Tullamore, Ireland, for 2 Dishes of Peaches and Nectarines
To Mr. H. Sawkins, Gr. to A. Smith, Esq., Bramfield, Herts, for 2 Dishes of Peaches and Nectarines
To Mr. T. Bailey, Gr., for 4 Dishes of Strawberries
To Mr. J. Wallis, Gr. to J. Dixon, Esq., Astle Park, Congleton, for 3 Dishes of Grapes
To Mr. M. Henderson, Gr. to Sir G. H. Beaumont, Bart., Leicester, for 12 lbs. of Grapes
To Mr. J. Wallis, Gr., for Dish of Black Hamburgh Grapes
To Mr. F. Speed, Gr. to Sir E. Walker, Bart., Berry Hill, Notts, for Dish of Black Hamburgh Grapes
To Mr. M. Henderson, Gr., for Dish of Hamburgh Grapes
To Mr. J. Wallis, Gr., for Black Prince Grapes
To Mr. E. Sage, Gr., for Black Prince Grapes
To Mr. O. Goldsmid, Gr. to Sir W. Farquhar, Bart., Polesdon, Dorking, for Dish of Grapes

BRONZE MEDAL.

To Mr. W. Taylor, Gr., for 12 Exotic Ferns
To Messrs. J. Ivery & Son, for 12 British Ferns
To Mr. W. Young, Gr., for 3 Hanging Baskets
To Mr. J. Logan, Gr. to C. Retley, Esq., Finchley, for 6 Scarlet Pelargoniums
To Mr. H. Hooper, Nurseryman, Bath, for 24 Pinks
To Messrs. Downie, Laird, & Laing, for 36 Pansies
To Mr. J. August, Gr. to Rev. — Bridges, Beddington, Surrey.
To Messrs. Paul & Son, for 24 Roses
To Mr. H. Hooper, for 24 Carnations
To Mr. H. Hooper, for 24 Picotees
To Mr. O. Rhodes, for Collection of Heaths
To Messrs. Hooper & Co., Covent Garden, for Collection of Annuals
To Messrs. Downie, Laird, & Laing, for Collection of Hollyhocks
To Mr. T. Dawson, Gr., for Providence Pine
To Mr. W. Kemp, Gr. to E. H. Bentall, Esq., Maldon, Essex, for Queen Pine
To Mr. F. Godfrey, Gr. to J. & S. Chuck, Esq., Ware, 1 Pine-apple
To Mr. J. Earley, Gr. to F. Pryor, Esq., Digswell, Welwyn, for Green-fleshed Melon
To Mr. J. Weir, Gr., for Scarlet-fleshed Melon
To Mr. M. Henderson, Gr., for Box of Nectarines
To Mr. J. Masters, Gr. to Earl of Macclesfield, for Box of Nectarines
To Mr. J. Osborne, Basket of Peaches
To Mr. J. Enstone, Gr., for 4 Dishes of Peaches and Nectarines
To Mr. J. Ford, Gr. to Rev. J. D. Hudson, for 2 Dishes of Peaches and Nectarines
To Mr. R. Ward, Gr. to F. Martin, Esq., Judah Lodge, Wimbledon, for 2 Dishes of Peaches and Nectarines
To Mr. B. Ruffett, Gr., for 2 Dishes of Peaches and Nectarines
To Mr. W. Robins, Gr. to Sir E. Kerrison, Bart., Oakley Park, for dish of Plums
To Mr. C. Orman, Gr. to R. Holland, Esq., Stanmore, for Dish of Figs
To Mr. R. Ruffett, Gr., for Black Cherries
To Mr. C. Turner, for Black Cherries
To Mr. J. Enstone, Gr., for White Cherries
To Mr. J. Widdowson, Gr. to C. Barnes, Esq., for White Cherries
To Mr. J. Widdowson, Gr., for 4 Dishes of Strawberries
To Mr. H. Sawkins, Gr., for Dish of Black Hamburgh Grapes
To Mr. J. Jackson, Gr., for Dish of Black Hamburgh Grapes
To Mr. O. Goldsmid, Gr., for Dish of Black Hamburgh Grapes
To Mr. W. Peachey, Gr. to R. Hole, Esq., for Dish of Grapes

CERTIFICATE.

To Mr. T. Ford, Millfield Lane, Highgate, 3 Ornamental Baskets
To Mr. H. Hooper, for 36 Pansies
To Mr. J. Fraser, for 24 Roses
To Messrs. E. G. Henderson, for 12 Variegated Geraniums
To Messrs. F. & A. Smith, for 30 Balsams
To Mr. W. Paul, for Collection of Geraniums
To Mr. J. Wallis, Gr., for 12 lbs. of Grapes
To Mr. G. Ottaway, Gr. to W. Nicholson, Esq., for Black Hamburgh Grapes
To Mr. M. Henderson, Gr., for Dish of Grapes
To Mr. G. Sage, Gr., for 2 Dishes of Peaches and Nectarines
To Mr. J. Enstone, Gr., for 2 Dishes of Peaches and Nectarines
To Mr. A. Ingram, Gr., for Dish of Plums
To Mr. E. Sage, Gr., for Dish of Figs
To Mr. C. Hutt, Gr., for Dish of Figs
To Mr. H. Sawkins, Gr., for Black Cherries
To Mr. J. Potter, Gr., for Black Cherries
To Mr. J. Carr, Gr., for Black Cherries
To Mr. R. Marcham, Gr., for Black Cherries
To Mr. C. Turner, Gr., for White Cherries
To Mr. T. Perkins, Gr., for White Cherries
To Mr. C. Ross, Gr., for White Cherries
To Mr. G. Sage, Gr., for White Cherries
To Mr. R. Marcham, Gr., for White Cherries
To Mr. W. Kaile, Gr., for 4 Dishes of Strawberries
To Mr. R. Budd, Gr., for 4 Dishes of Strawberries

FIRST-CLASS CERTIFICATES.

To Messrs. Ivery & Son, Dorking, for Lastrea Filix-mas grandiceps
To Messrs. Ivery & Son, Dorking, for Polystichum proliferum Lobbee
To Mr. W. Thompson, Ipswich, Suffolk, for Trichinium Manglesii
To Mr. B. S. Williams, Holloway, for Dracæna lineata
To Mr. B. S. Williams, Holloway, for Asplenium alatum
To Mr. B. S. Williams, Holloway, for Gleichenia species
To Mr. B. S. Williams, Holloway, for Gymnogramma species
To Mr. James Veitch, Chelsea, for Calathea Veitchii
To Mr. James Veitch, Chelsea, for Cattleya quincolor
To Mr. Morse, Nurseryman, Epsom, for Scolopendrium vulgare Coppardii
To Mr. Smith, Nurseryman, Hornsey Road, for Pelargonium Le Grande
To Messrs. F. & A. Smith & Co., Dulwich, for Pelargonium Glow
To Messrs. F. & A. Smith & Co., Dulwich, for Pelargonium Queen
To Messrs. E. G. Henderson, Wellington Road, for Fuchsia Emma Arden
To Mr. C. Turner, Slough, for Picotee Mrs. Fisher
To Mr. C. J. Perry, Castle Bromwich, for Verbena Cleopatra
To Mr. C. J. Perry, Castle Bromwich, for Verbena Masepps
To Mr. C. Turner, Slough, for Seedling Strawberry Dr. Hogg

SECOND-CLASS CERTIFICATES.

To Messrs. Ivery & Co., Dorking, for Athyrium F.-f. Fieldiæ difforme
To Mr. F. Townsend, Nurseryman, Hornsey, for Clematis Miss Braddon
To Mr. W. Bull, Chelsea, for Pteris cacophylla
To Mr. W. Bull, Chelsea, for Phegopteris sanctæ

ROYAL HORTICULTURAL SOCIETY.

GREAT SHOW of ROSES, SATURDAY, July 1, 1865.

AWARDS of the JUDGES.

CLASS 1.—72 KINDS. 1 truss of each. (Nurserymen.)
1st Prize, Messrs. Paul & Son, Cheshunt Nurseries, Herts, £6.
2d, Mr. J. Mitchell, Piltdown, Maresfield, Sussex, £4.
3d, Mr. J. Keynes, Salisbury, £3.
4th, Mr. B. R. Cant, St. John's Street Nurseries, Colchester, £2.

CLASS 2.—48 KINDS. 3 trusses of each. (Nurserymen.)
1st, Messrs. Paul & Son, £4.
2d, Mr. J. Keynes, £3.
3d, Mr. E. P. Francis, Nurseryman, Hertford, £2.
4th, Messrs. J. & C. Lee, Vineyard Nursery, Hammersmith, £1.

CLASS 3.—24 KINDS. 3 trusses of each. Hybrid Perpetual only. (Nurserymen.)
1st, Mr. J. Keynes, £3 10s.
2d, Mr. B. R. Cant, £2.
3d, Mr. J. Fraser, Lea Bridge Road Nursery, Leyton, N.E., £1 10s.
4th, Messrs. Paul & Son, £1.

CLASS 4.—24 KINDS. 1 truss of each. (Nurserymen.)
1st, Mr. J. Keynes, £2.
2d, Mr. J. Fraser, £1.
3d, Mr. B. R. Cant, 10s.
4th, Mr. George Clarke, Streatham Place Nursery, Brixton Hill, 7s.

CLASS 5.—48 KINDS. 1 truss of each. (Amateurs.)
1st, Mr. J. T. Hedge, Reed Hall, Colchester, £6.
2d, Mr. Wm. Ingle, Gr. to C. G. Round, Esq., Colchester, £4.

CLASS 6.—24 KINDS. 1 truss of each. (Amateurs.)
1st, Mr. Wm. Ingle, £4.
2d, Mr. A. Moffat, Gr. to Viscount Maynard, Dunmow, £2.
3d, Mr. J. T. Hedge, £1.
Equal 4th, Mr. H. Exell, Gr. to J. Hollingworth, Esq., Maidstone, 10s.
Equal 4th, Mr. H. Sawkins, Gr. to A. Smith, Esq., Hertford, 10s.

CLASS 7.—18 KINDS. 1 truss of each. (Amateurs.)
1st, Mr. R. B. Postans, Brentwood, Essex, £3.
2d, The Rev. V. R. Child, Little Easton, Dunmow, £1 10s.
Equal 3d, Mr. Wm. Cruickshanks, Gr. to W. J. Loyd, Esq., Watford, [15s.
Equal 3d, Mr. G. Marlow, Gr. to J. Wigan, Esq., Mortlake, 15s.
4th, Mr. R. Marcham, Gr. to E. Oates, Esq., Hanwell, 10s.

CLASS 8.—12 KINDS. 1 truss of each. (Amateurs.)
1st, Mr. R. B. Postans, £1 10s.
2d, Mr. G. Marlow, £1.
3d, Mr. Wm. Smith, Gr. to F. Moxon, Esq., Leyton, N.E., 10s.
4th, Mr. Wm. Cruickshanks, 7s.

CLASS 9.—18 NEW ROSES of 1863 and 1864. Single trusses, distinct kinds. (Open.)
1st, Messrs. Paul & Son, £2.
2d, Mr. B. R. Cant, £1 10s.
3d, Mr. J. Fraser, £1.
4th, Mr. E. P. Francis, 15s.
NOTE.—Mr. Keynes would have been first, but for putting up two Roses of one kind.

CLASS 10.—12 TRUSSES of any NEW KIND of 1863. (Open.)
1st, Messrs. Paul & Son, £1 10s.
2d, Mr. B. R. Cant, £1.

CLASS 11.—12 TRUSSES of any OTHER KIND. (Open.)
1st, Mr. B. R. Cant, £1 10s.
2d, Messrs. Paul & Son, £1.
3d, Mr. J. Keynes, 10s.
4th, Mr. J. Cattell, Nurseryman, Westerham, Kent, 7s.

CLASS 12.—12 YELLOW ROSES. Single trusses. Not less than 6 kinds. (Open.)
1st, Mr. B. R. Cant, £1 10s.
2d, Messrs. Paul & Son, £1.
3d, Mr. J. T. Hedge, 10s.

CLASS 13.—12 TEA-SCENTED and NOISETTE ROSES. Single Trusses. (Amateurs.)
1st, Mr. H. Exell, £2.
2d, Mr. W. Incle, £1 10s.
3d, Mr. J. T. Hedge, £1.

CLASS 14.—12 TEA-SCENTED and NOISETTE ROSES. Single trusses. (Nurserymen.)
1st, Mr. J. Fraser, £1 10s.
2d, Mr. B. R. Cant, £1.
3d, Messrs. Paul & Son, 15s.

CLASS 15.—12 DISTINCT KINDS. Single flowers. (Open.)
1st, Mr. J. Keynes, £1 10s.
2d, Mr. E. P. Francis, £1.
3d, Mr. B. R. Cant, 15s.

CLASS 16.—DECORATED BASKET or VASE of ROSES. (Open.)
1st, Mr. Wm. Ingle, £3.
2d, Mr. G. Marlow, £2.
3d, Mr. H. Beasley, Gr. to T. Wood, Esq., Acton, £1.

CLASS 17.—6 BOUQUETS of ROSES. 6 distinct kinds. 5 trusses to each bouquet. Each bouquet to be shown separately, in a Hyacinth glass or somewhat similar stand. (Open.)
1st, Mr. J. Keynes, £3.
2d, Mr. E. P. Francis, £2.
3d, Mr. J. T. Hedge, £1.

CLASS 18.—6 KINDS of MOSS ROSE. (Open.)

CLASS 19.—24 ROSES. Not less than 10 distinct kinds. In pots not exceeding 8 inches in diameter. (Open.)
1st, Withheld.
2d, Mr. E. P. Francis, £4.

CLASS 20.—20 NEW ROSES. Not less than 10 distinct kinds. In pots not exceeding 8 inches in diameter. (Open.)

PRIZE OFFERED by MR. KELK, MEMBER of COUNCIL.
CLASS 21.—6 ROSES. Distinct kinds, in 6-inch pots.
1st, Messrs. Paul & Son, £5.

MISCELLANEOUS.
Messrs. G. Jackman & Son, Woking Nursery, Woking, for 4 boxes of Seedling Clematises, £1.

The Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

A CHOICE and EXTENSIVE COLLECTION of STOVE and GREENHOUSE PLANTS always on view. Also FRUIT TREES, SHRUBS, and ORNAMENTAL TREES, from the Country Branches of the Firm.
The SEED and GENERAL NURSERY BUSINESS is carried on here, and Packages are delivered free at the various London Railway Stations.

BRANCHES.
EALING NURSERY, G. CANNON, Manager.
Ten minutes' walk from the Ealing Station on the Great Western Railway Main Line.
FRUIT TREES, ROSES, and SHRUBS, are here extensively and successfully cultivated in some of the finest Loam in the County.
FELTHAM NURSERY, R. HIGHAM, Manager.
Ten minutes' walk from Feltham Station.
EVERGREEN and DECIDUOUS SHRUBS, and CONIFERÆ, are here largely grown in a free Loam, well suited to their habits.
ISLEWORTH.
ORNAMENTAL TREES are in a healthy and thriving state, and GENERAL HARDY PROPAGATION is here carried on.
The Stock in the above Nurseries is well worth the inspection of Purchasers. The prices are very moderate, and the Plants are frequently transplanted to ENSURE SAFE removal.
The following CATALOGUES are published, and will be forwarded Post Free on application:—
CATALOGUE of KITCHEN GARDEN, FLOWER, and AGRICULTURAL SEEDS.
CATALOGUE of STOVE and GREENHOUSE PLANTS.
CATALOGUE of SOFT-WOODED and BEDDING PLANTS.
CATALOGUE of FRUIT TREES and FRUIT TREES in POTS.
CATALOGUE of HARDY SHRUBS and TREES.
CATALOGUE of DUTCH BULBS, published in August.
CATALOGUE of ROSES.
JOHN & CHARLES LEE, Proprietors, Hammersmith, London, W.

New Early Turnip.

SUTTON'S SHORT-TOP SIX-WEEKS TURNIP, for Sowing in July and August.

This excellent Turnip, certainly the quickest in cultivation, if sown in the months of July and August, will be ready for Feeding off in September and October.

Price 1s. per lb.; 42s. per bushel.
Carriage free.

SUTTON & SONS,
Royal Berkshire Seed Establishment,
Reading.

VINES.—Having nearly 2000 Vines, the greater part of which are 7 feet high, and have been stopped at that height some weeks since, we are offering them at the low price of 5s. each, except those priced. Most of them are in fruiting pots, 11 inches wide by 11 deep. The following kinds are grown:—

WHITE GRAPES.

Foster's White	Old White Tokay
Dunmore	Muscat of Alexandria
Chasselas Musqué	Bowood Muscat
,, de Fontainebleau, or Royal Muscadine Napoleon	Canon Hall Muscat
Trovéren Frontignan	Raisin de Calabre
White Nice	White Frontignan
Buckland Sweetwater	Duchess of Buccleuch, 10s. 6d.
	Golden Hamburgh

BLACK GRAPES.

Black Hamburgh	Lady Downe's Seedling
Frankenthal	Trentham Black
Muscat Hamburgh	West St. Peter's
,, ,, grafted on Black Hamburgh, 10s. 6d.	Barbarossa
Black Alicante	Purple Constantia
	Black Morocco

RED GRAPES.

Chasselas Rose Royal	Grizzly Frontignan

J. R. & A. PEARSON, Chilwell, near Nottingham.

DOBSON'S CALCEOLARIA (New Seed).

CALCEOLARIA, UNEQUALLED HYBRIDIZED.—These are unapproached by any other in existence, and have given the greatest satisfaction. Each packet produces an almost endless variety of beautifully formed flowers, richly marked.
Packets, 1s. 6d., 2s. 6d., 3s. 6d., and 5s.
A Coloured Plate by ANDREWS, 1s. and 2s. 6d. each, post free.
J. DOBSON & SONS, Woodlands Nursery, Isleworth, W.

DOBSON'S CINERARIA (New Seed).

CINERARIA.—Saved from our Prize Collection, which obtained Ten First Prizes in 1862; and also from the splendid new varieties offered by us in Autumn 1864. Each packet contains a great variety, and produces superbly formed and richly coloured varieties, varying from white to crimson, and cannot fail to produce Flowers, equal and superior in many cases to named varieties.
Packets, 1s., 2s. 6d., and 5s.
J. DOBSON & SONS, Seedsmen, Isleworth, W.

DOBSON'S SUPERB PRIMULA (New Seed).

PRIMULA SINENSIS FIMBRIATA RUBRA.—Very finest fringed flowers only are selected for seed, and will be found to be very choice.—Packets, 2s. 6d. and 5s.

PRIMULA SINENSIS FIMBRIATA ALBA.—This is a very choice strain, having large beautifully fringed flowers.—Packets, 2s. 6d. and 5s.

PRIMULA SINENSIS FIMBRIATA.—Finest mixed white and red.—Packets, 1s., 2s. 6d., and 5s.

J. DOBSON & SONS, Seedsmen, Isleworth, W.

Choice Seeds for Present Sowing.

WM. PAUL (Son and Successor to the late A. PAUL) can confidently recommend the following FIRST-CLASS SEEDS:—

	Per pkt.—s. d.
HOLLYHOCK, collection of 12 distinct sorts	5 0
,, choice mixed	1s. to 2 6
CALCEOLARIA, finest spotted, mixed	1s. 6d. to 2 6
CINERARIA, from finest sorts	1s. 6d. to 2 6
PRIMULA SINENSIS, finest fringed	1s. 6d. to 2 6
ANTIRRHINUM, splendid mixed	1 0
PAUL'S WALTHAM MARKET CABBAGE	1 0
PAUL'S WALTHAM GREEN CURLED ENDIVE	1 0
BROCKET HALL BROWN COS LETTUCE	1 0
EARLY DWARF ERFURT CAULIFLOWER	1 0

All other seeds of best quality at moderate prices.
CATALOGUE free by post.
Waltham Cross, London, N.

The Gardeners' Chronicle.

SATURDAY, JULY 8, 1865.

MEETINGS FOR THE ENSUING WEEK.

MONDAY,	July 10	Royal Horticultural (Exhibition of Window Gardening by Working Classes), at South Kensington	2 P.M.
TUESDAY,	— 11	Royal Horticultural (Floral and Fruit Committees), at S. Kensington	11 A.M.
		Do. (Scientific Discussion)	3 P.M.
WEDNESDAY,	— 12	United Horticultural, at Finsbury Circus	2 P.M.
SATURDAY,	— 15	Royal Horticultural (Show of Liliaceæ and Amaryllidaceæ), at S. Kensington	2 P.M.

OUR readers are already aware that there exists an intention to hold in London next year an INTERNATIONAL HORTICULTURAL EXHIBITION, which will give English cultivators an opportunity of appearing in friendly rivalry with such of the Continental growers as feel disposed to enter into the competition, and which will give the scientific horticulturists and botanists of the Continent an opportunity of experiencing the hearty welcome with which the Horticulturists of Great Britain have determined to receive them. The movement, we are glad to say, is making very satisfactory progress amongst us; and as the meeting of the General Committee held on Saturday last may be taken to have affirmed the principal features of the scheme, we may briefly state them for the information of those who have not yet given the subject their attention and support.

It has been decided, in the first place, that there shall take place, probably some time in May, 1866, and most likely in the week falling between Epsom and Ascot races, a Horticultural Exhibition on a much more extended scale than those which we are in the habit of witnessing in this country. In order to give this Exhibition, however, a fair chance of financial success, it will be necessary to extend the time during which it is to be kept open beyond the single day to which our shows are at present generally confined; and we believe the committee, as at present advised, have fixed on four days as the most desirable period for its continuance, and have framed their prize schedule, which we hope to see speedily issued, in accordance with this idea. We understand that the prizes are on a most liberal scale, the total amount to be offered considerably exceeding 2000*l.*, and we can have no doubt they will be heartily responded to at the proper time by our cultivators, great and small, throughout the country. In accordance with the plan adopted on the Continent, and in order to give the meeting as much as possible an international character, the leading botanists and horticulturists throughout Europe are to be invited to take part with our own adjudicators in distributing the awards. We trust that no effort will be spared to make this show a thorough success; and that the plant-growers and fruit-growers who have won for England a world-wide fame, will make it their business to see that she does not hold a second place on this great occasion, when the eyes of all Europe will be directed towards the result.

In order to give the distinguished foreign botanists and others who are invited to participate in the exhibition, and our own leading men of science, mutual opportunities of meeting and establishing the friendly intercourse which it is so desirable should exist between those engaged in the same pursuits, and who, though separated by space, are united in purpose, the Committee have decided to hold both morning Congress meetings, and evening Conversaziones or receptions, the details of which have yet to be settled. It has been however adopted as a general principle, that for the morning meetings, of which probably two will be held, papers on subjects determined beforehand, shall be prepared by eminent botanists or horticulturists, and that these papers being previously printed in English and French, and circulated, shall be read, or taken as read, and a discussion on their particular subjects invited.

Other features of the proposed arrangements are, that there shall be a Banquet, at which the foreign visitors will be entertained, and in which ladies also will be invited to share; and further, that Excursions shall be organised to places of interest, especially in a horticultural point of view, or that at least an endeavour should be made to obtain free access for our foreign friends to some of the more accessible and renowned of English gardens.

These are in brief the general features of the proposed London International Exhibition of Horticulture, to which we heartily wish success, because it cannot fail, if only it is judiciously carried out, to tend greatly to the advancement of the interests of gardeners and gardening.

In order to its full success, however, not only is it necessary to obtain the hearty co-operation of British cultivators, but also the hearty support of our wealthy classes. Such a scheme as that now proposed cannot be carried out without considerable pecuniary aid from those who can well afford to give it, and who we are sure need only to have the object fairly pointed out to them, to induce them to render all the aid of this kind which can possibly be required. We therefore commend to the especial notice of our readers, both those who are patrons of gardening and those who are themselves occupied in its pursuit, the two subjoined paragraphs from the prospectus which has been issued by the committee:—

"That a Subscription List be opened for the purpose of obtaining the funds necessary to the formation of a liberal prize-list, the erection or part erection of the necessary exhibition building, the entertainment of foreign visitors, and for the working expenses of the Exhibition and Congress; and that a Guarantee Fund be also entered on.

"That gentlemen subscribing Ten Guineas shall be entitled to one dinner ticket of the value of 3*l.* 3*s.*; to one card of invitation to each of the *soirées*, available for one gentleman and two ladies; and to eight tickets of admission for the opening of the Show, when the admission by payment will be One Guinea each ticket. Subscribers of Five Guineas, or Guarantors of 50*l.*, will receive one card of invitation for each *soirée*, available for one gentleman and two ladies, and four tickets for the first day of the Horticultural Show. Subscribers and Guarantors of smaller amounts will receive in proportion."

We may just add, that a very considerable

number from both the classes of persons we have just alluded to, have already given the Committee promise of material support; and our advice to others is to "go and do likewise."

WHILE the subject of VARIEGATION is receiving the consideration of our readers and correspondents, it may be interesting to invite attention thus briefly to a *brochure** by M. E. MORREN, extracted from the *Bulletin de l'Académie Royale de Belgique* (2me série, tome xix.) in which the subject is discussed. M. MORREN insists that a distinction is to be drawn between true variegation resulting from the absence of colouring matter, and that "coloration" which is due to the presence, in the superficial tissues of the leaf, of fluid colouring matters. It is interesting moreover to notice that a variegated state of the leaves seems to be in some measure incompatible with the production of double flowers, the co-existence of the two phenomena not having been hitherto recorded in any wild uncultivated plant. Among the few instances known of plants with spotted leaves and double flowers, are Kerria japonica (a single flowered specimen of which, with wholly green leaves, was shown at the late Exhibition at Amsterdam), Hemerocallis Kwanso, Camellia japonica, Cheiranthus Cheiri, Ranunculus repens, and Tulipa suaveolens.

TREVIRANUS remarked that variegated plants are of slower growth and of more stunted habit than others of the same species with healthy leaves; moreover, that they are more sensitive to cold, and flower less freely. This is quite in accordance with the remarks of "F," at p. 555, and with the observations of horticulturists in general. No strictly aquatic plant, it appears, has yet been discovered with variegated leaves, a circumstance probably due to the uniform conditions under which such plants live.

Small atrophied seeds give rise occasionally to parti-coloured offspring. This has been shown in the Colocynth, in Rye, &c., while SCHLEIDEN has recorded the fact that young Beech trees whose foliage had been destroyed by slugs, produced the following year spotted leaves.

Variegated plants are usually propagated by means of cuttings, layers, or grafts, and comparatively rarely by seed. In order to make the results more certain, it is desirable to weaken the plant in some way or another, and to remove any green shoots that may be formed as soon as they show themselves. Herbaceous or short-lived plants are more rarely found with variegated leaves than others; and generally only a small proportion of the offspring inherit the peculiarities of the parent—but to this rule Barbarea is an exception.

M. MORREN cites the existence of hereditary variegation in seedlings of Barbarea vulgaris, Symphytum officinale, Borago officinalis, Ligusticum Levisticum, Ægopodium Podagraria, Astrantia media, Veronica madagascariensis, Ilex Aquifolium, Acer pseudo-Platanus, Celtis australis, Alyssum maritimum, Buxus sempervirens, Salvia officinalis, Pelargonium zonale, Cheiranthus Cheiri, &c.—a list that includes plants of very varied habit and affinities, and one, moreover, that might no doubt be greatly extended.

In many of these cases of hereditary variegation the edges of the carpellary leaves bearing the ovules were discoloured; and hence, says M. MORREN, one reason why the new plants produced under such circumstances, are peculiarly liable to inherit the characteristics of the parent, and why greater constancy is displayed in cases where the variegation affects the borders of the leaves in contradistinction to the disc. The influence of the female element is greater than that of the male in perpetuating variegation; and not only is the mottling of the foliage thus handed down from parent to offspring, but also the particular kind of variegation. These circumstances, says M. MORREN very justly, lend support to the theory of Atavism.

—— THE late Mr. CANTY, whose death took place a short time ago in Norton Street, Liverpool, enjoyed an extensive practice as surgeon in that town, where he was much esteemed by all who had the pleasure of his acquaintance. Although his house was in the very heart of Liverpool, and might therefore have been supposed to offer little encouragement to horticultural pursuits, Mr. CANTY contrived to erect three Orchid-houses, of different temperatures, *in his back yard*, where a large number of valuable plants were successfully cultivated. Some of these have already been figured in recent botanical works. Had Mr. CANTY been spared he would no doubt have had the satisfaction of making further contributions to the science that he loved so well, for shortly before his death he received some valuable importations from New Granada and other parts. These are now the property of his son, who happily inherits all his father's love for plants.

—— An Exhibition of WINDOW and HOUSE GARDENING by the working classes is to be held at the Gardens of the Royal Horticultural Society at South Kensington on Monday next. The Society has appropriated 50*l.* to be distributed in prizes. A Committee, which has been formed to carry out this object, has found, on calculation, that if the number of parishes compete, which they have every reason to believe will be induced to do so from the interest felt in the matter by the parochial clergy and others, a sum of at least 400*l.* will be required for this purpose. For this sum the Committee have been making an appeal to those who have the social and moral good of the working classes at heart.

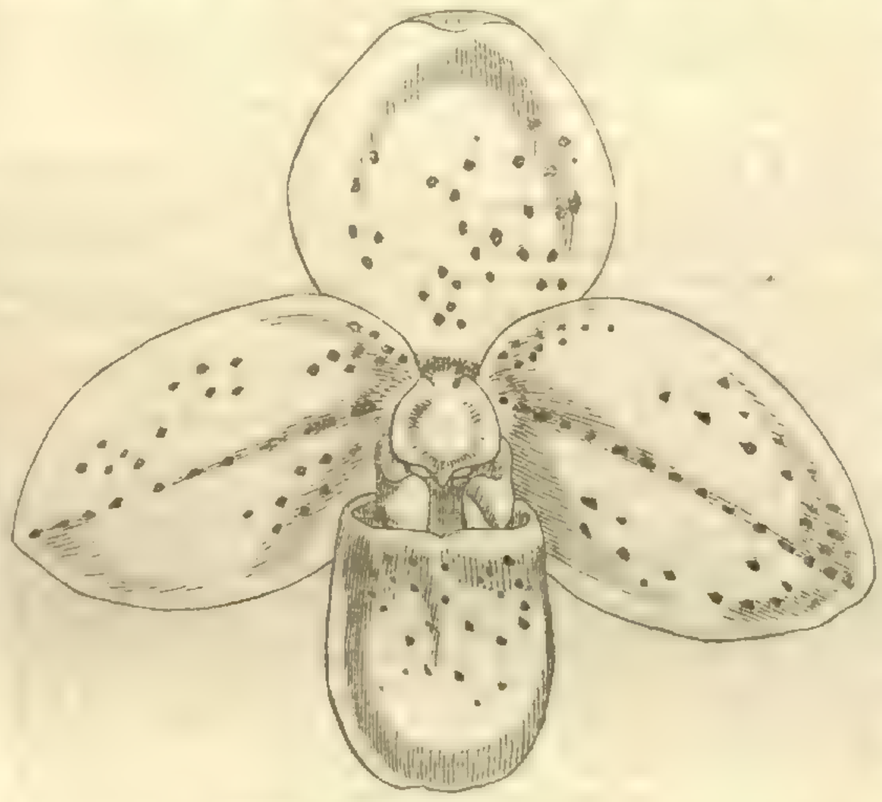
—— We are glad to see that the subject of SOLDIERS' GARDENS is receiving official attention. A War Office return shows that in the military districts of Great Britain and Ireland 48 acres of garden ground have been allotted to troops, and 61 acres to individual non-commissioned officers and others. There is much more, however, yet to be accomplished in reference to Soldiers' Gardens.

New Plants.

298. CYPRIPEDIUM CONCOLOR, *Parish MS.; Bateman, in Bot. Mag.* t. 5513.

(Acaulia corilifolia tessellata) pedunculo puberulo uni- bifloro, bracteis ancipitibus acutis pilosulis ovariis pilosis brevioribus, sepalo superiori lato elliptico, inferiori subbreviori angustiori apice minutissime bidentato, petalis ellipticis obtusis, labelli sacco ostio libero retuso, ceterum amplo obtusato, laciniis posticis lato falcatis in ostio calcei absconditis, staminodio rhombeo ima basi minute bidentato, antice trilobo, lobis lateralibus obtusatis, lobo medio acuto.

The history of this plant is as yet recent. It was discovered on Feb. 13, 1859, on limestone rocks in Burmah, by the Rev. C. S. Parish, who sent a drawing of it, which we were kindly allowed to



examine, to Sir William Hooker, as also a wild flower, dried Feb. 1864. Both show, what we have long since known, that well-managed Orchids are often much finer in our stoves than in their original habitats. More than a year since Messrs. Low & Co. imported living plants, under the name which we are anxious to see attached for ever to the plant, from a feeling of courtesy towards the assiduous discoverer. It is a little plant with the well-known glaucous green leaves of old C. venustum, spotted purplish beneath, and covered with dark green markings on the upper side. The flower itself, standing often two together on a short hairy peduncle, is very large for so small a plant, measuring nearly 5 in. in circumference. It is very distinct from all the related species, in having elliptical blunt petals, such as are found in the American plaited-leaved species, C. spectabile, and passerinum (though not so broad). The colour is a very pallid ochre-yellow, with many little dark purple specks, most aggregated towards the middle line of both sepals and petals. A dark yellow stain marks the centre of the staminode, whose posterior limbs are purple. Let us add that the sepals have a copper-brownish hue outside. The species has neither the showy colours of Cypripedium Hookeræ, nor the curious forms of C. Lowii, Stonei, or philippense, and yet it is so very striking that it must be admitted to every collection. No doubt, as Mr. Bateman so happily suggested the other day, those who have no space for a general collection of Orchids, may at least grow the Cypripedia.

We have to present an apology to our excellent friend and correspondent Mr. Stuart Low. Let us be candid: we suspected from the leaves alone that this species was nothing but a variety of the old C. venustum. Now we are glad the flowering plant has shamed us for having formed this opinion. The first blossoms borne in Europe were produced in the garden of S. Rucker, Esq., under the care of Mr. Pilcher, at Wandsworth. We saw a very good representative of it with J. Day, Esq., and we have now at hand two flowers, both obtained through the kindness of Mr. Day. We also saw at Kew the very nice representation of the plant, which was prepared for the Botanical Magazine, and has since been published. *Rchb. fil.*

GENERAL FLOWER-BEDDING.—No. II.

THERE is a wonderful charm in variety, and there is no place where a little forethought is not capable of developing it in a greater or less degree. It has been considered that the prevailing taste, and a certain necessity of attempting to meet this in the various patterns and forms of our ribbons and beds, have in a great measure excluded variety from our flower-gardens, but these offer no sufficient reason why it should not be found beyond the limits of the formal garden. There is a certain extent of ground and shrubbery attached to almost every place, varying according to its size and pretensions, in and amongst which there is always the means of introducing, at sheltered points, a portion of that variety which we are anxious now to recommend as giving an immense amount of additional interest to a garden establishment.

Let us take a point with plenty of shrubs and not over-much sun. How pleasant to drop upon a little round clump of Eucharis amazonica, with here and there an expanded truss of its noble white flowers, or upon a similar group of the beautiful-leaved Begonias, of Neriums, or of Agapanthus umbellatus; or, if the situation be more shady, of a good group of the beautiful Convolvulus major, rambling up stakes similar to Peas, or a round column of Gourds, with their curious and in many varieties beautiful fruits. Some of the Solanums too are pretty, and may now be had in great variety; and there are Daturas, and such-like things available. There are no doubt parts of England in which all these may not succeed, but some of them will everywhere, if the precaution is taken to trench a little bed of heating material, such as short Grass, horse droppings, leaves, &c., into the ground before they are planted. It is of no use planting them in the cold ground. Their roots cannot penetrate our heavy ungenial earth. Again, where the sun never comes, how beautiful to find a bush of Polypodium aureum, with a good edging of Lycopod, or the ground covered with some low-growing Pteris, that can always be sown beneath the stage in a cold house, and lifted in patches. There is also great variety to be gained by planting out or plunging in sheltered and appropriate places such plants as the Chusan Palm, the Australian Palm, &c. Their effect is surprising; and without detracting at all from the pleasing portion of the general bedding arrangements in which they would be out of place, they are, thus used, great additions to any grounds.

We really make very little use of the fine and, in many instances, noble introductions of late years. Let us instance Tree Ferns. They are becoming plentiful, and this will enable many persons to have them grouped in shaded places, and against architecture how grand their effect! The moving them in and out at stated periods would not involve more labour than the necessary attentions to half-hardy plants. The great point to consider is to keep them from wind. Here we may even in some sense take a liberty with Nature, and imitate what we may imagine to occur in their native wilds when a top gets broken off, viz., that some kindly zephyr will waft a spore or two to the top of the old stem, where it would soon become changed into a vigorous plant—thus converting in a short space of time what is almost the smallest particle in creation having life into a veritable giant.

Summer arrangements of this sort are really very necessary, and easily accomplished, but when autumn comes, unless consideration has been given to make provision to replace them, they may add to the bareness of a place in positions where general bedding is not practised. Still, keeping certain open points of shrubberies adjoining walks in view, even if we have cut into what has become huge hedges of Laurel, &c., our rounds and ovals are much more easily filled and made interesting by successors for the colder months, and beyond these to the early spring and commencement of summer, than most people imagine, and that by our spring flowers, which in their simpleness are so lovely, and bring us after a long dreary winter such hope and cheerfulness as can only be got from the bright and simple harbingers of returning summer-tide, most of which are gone before their more brilliant successors can be allowed to take their places.

Among shrubs, and in such places as have been described, the beautiful Polyanthuses and many-coloured Primroses and Cowslips look most at home; they never appear to so much advantage in our formal beds as when used for these purposes. The colours should be kept distinct, and the seeds also. To increase these the old roots should be divided about this season, and the divisions planted in rows, adding a little mixture of good soil and cow-dung, though any sort of rotten manure will answer. They must be kept shaded for a time, but they soon root freely, and by autumn will be fine plants ready for their winter places. Polyanthuses make the best beds, from their keeping their bloom upright; some of the yellow varieties are very fine, and make good early ribbon rows.

This is also the best time to propagate all the different coloured Pansies for either beds or ribbons; also white Iberis, yellow Alyssum, &c.; also for pricking

* Hérédité de la Panachure (Variegatio). Par M. E MORREN. Bruxelles, 1865. Pp. 13.

but the Anemone, that should be up in boxes. After the rains, a little Myosotis sylvatica, white and blue, should be sown; also some of the M. monticola, where very early bloom is required. *J. F.*

ORCHIDS AND THEIR CULTIVATION.—No. VI.

The extended geographical distribution of Orchids clearly enough shows that cultivators must not confine them to one particular temperature. The ablest practical gardener in the country can never count upon success without thoroughly recognising and acting upon the principle of securing variation of temperature to suit the condition of plants. More plants have perished either through inattention to, or ignorance of, such requirements, than probably through all other causes put together. That is why the great supporters of Orchid cultivation and the foremost of their gardeners have been loudly calling out, in recent times, for the "cool treatment of Orchids." The notes of warning have been proclaimed far and wide through the medium of the press, as well as by other agencies, so that enthusiasts, especially new beginners, have become so enamoured with the "new light" thrown on Orchid culture, that many of the pet plants they practise upon get cooled out of existence altogether. What is the consequence? Disappointment and dismay; an innocent and laudable hobby paralysed; one of the votaries to the shrine of horticulture enlisted, it may be, in some other pursuit—all simply because a good deal of money has been squandered in the carrying out of an impracticable idea, promulgated too, forsooth, by the best friends of horticultural science and progress. This is a pretty state of matters; but the picture is certainly not overdrawn.

Clever practical men can go a certain length in retarding or forwarding the growth of plants, and in keeping them for a time in condition if subjected to either a too high or a too low temperature, but a novice or a beginner is sure to "burn his fingers" with any experiments of the kind. Because a plant will undergo a temporary check in Brazil, Mexico, New Granada, or even China and Australia, from a few degrees of frost, where the climate and habitat are totally different from the best artificial climate we can create, is it wisdom to say we can practise upon its constitution in like manner with impunity? No; even granted that plants will live so circumstanced, I aver that it is one thing to keep a plant alive, and quite another thing to keep it in good condition.

The "cool treatment of Orchids" was an admirable move, calculated to save thousands of plants from destruction; but the tendency is clearly towards the opposite extreme, and it is evidently necessary that the growing evil should be counteracted. How many plants of Odontoglossum Phalænopsis would have been alive to the country if they had not been rescued from an extreme dose of cool treatment? And what of Cattleyas in general, "with the exception of superba," which we are told can occasionally bear a temperature considerably lower than 40°—will they be any the better for what I should call a trying ordeal? Such leading is simply misleading, sure in the end to be attended with lamentable results.

In order that we may thoroughly appreciate both sides of the question, let us suppose a case. A gentleman's taste leads him in the direction of spending 100*l.* on Cattleyas, which is not a very exorbitant sum in the annals of Orchid culture. He obtains a respectable array of the more common sorts, including Mossiæ, Skinneri, Aclandiæ, &c, with the view of setting apart a portion of his greenhouse for their culture. Being a disciple of the cool system, he tells his gardener that the house will be all right if the thermometer does not fall below, we shall say, 36°; and that in any case during the season of rest he must keep the temperature down. In mild winters very little fire heat will be required to keep up this temperature, and I would ask any practical gardener or gentleman who has paid the least attention to Orchid culture, not only if the plants experimented upon would be likely to be healthy, but I would go a step farther, and ask how many of them would be likely to be alive by the 1st of April next? Even the Odontoglossum race, which of all others belongs exclusively to the cool house, would grow and thrive better in a higher minimum temperature than 36°. Only once the cool Orchid house here fell to a lower degree, and that was through mistake, occasioned by a false thermometer. It happened to be a severe night, with something over 20° of frost out of doors, which made it all the more severe for the Odontoglossums; and the consequence was, we lost a few pseudobulbs, and had to shade closely, and keep down the temperature to 42° as nearly as possible for ten days afterwards, else the results might have been more serious. Is not this enough to deter the inexperienced from following such unwise counsels? Recognise this as an axiom, as I told a great London Orchid enthusiast the other day, that it is much safer practice for growers in general, and for beginners in particular, to strike the minimum 5° too high than it is to have the house 5° too low. Is it not indisputable that a cool house at 45° is a better medium for maintaining and promoting the health of valuable plants than a house at 35°? Such at all events has been my experience, and I have always studied to make 40° the minimum, with the balance on, what I consider, the right side. In a future paper I will give the average monthly minimum for a year; meantime it may be said, if the principle I am attempting to inculcate had been wrong, Odontoglossum Karwinskii or O. Reichenheimii would have refused to yield, under my treatment, 60 flowers to the spike; nor would a plant of O. Pescatorei have produced 100 flowers, which have kept in perfection the last 13 weeks; nor would the equally rare O. cordatum have grown to a size to produce 24 spikes, each averaging 12 flowers, just now in the height of beauty.

The great majority of the more rare and valuable Odontoglots evidently belong to what one might call an "alpine" region, and that too in proximity to the equinoctial line. There will be therefore less variation of temperature in that region than in any other quarter of the globe, and any excess of sun heat will be very much qualified by air currents, which must exist at the altitude where the plants are found. It has always been the writer's opinion that want of success in the cultivation of the plants in question was more attributable to summer than to winter treatment, because for four months the pseudobulbs were so dried and shrivelled up in a high and dry heat that no skilful after treatment could induce them to become plump. The young growths are proportionately affected by the sluggishness or partial cessation of the supply of juices which the pseudobulbs are continually giving out to assist the development of fresh leaves and bulbs, and consequently the vitality of the plant is impaired. Let it be thoroughly understood that this is not influenced by the want of nutritive matter at the root, but is simply and solely the want of sufficient humidity in the atmosphere, aggravated as it generally has been by the presence of too much heat. Orchids are so totally different a class of plants from any other, that one requires to be explicit on this point, else some people might suppose that if the vitality of the roots was unimpaired, the leaves, &c., would be right enough. The contrary is the fact; for the leaves and pseudobulbs are often all but irretrievably ruined when the roots are in good condition. It is absolutely essential, therefore, for all Orchid cultivators to study and provide an atmosphere for each kind of plant, whether coming from that extensive hilly range in the interior of New Granada, or the low and flat districts of tropical India.

The difficulty in keeping some of the more choice Odontoglossums cool enough in such a hot summer as this is apparently proving itself to be, is so great that I am not surprised that our Continental brethren have so miserably failed in even getting them to put on a respectable appearance. No amount apparently of artificial moisture and judicious ventilation, with their extremely hot sun and arid atmosphere, can keep up the requisite supply of humidity to prevent shrivelling of the bulbs. I have had the greatest difficulty imaginable in this way with Odontoglossum Pescatorei. I find it to be the most difficult of all the "cool" plants. The bulbs on the Meadow Bank plant are quite the size of those of O. grande, but what with 13 weeks support of 100 flowers, and two vigorous young growths, the demand upon the energy of the plant was almost out of proportion to the supply. I stick to the invariable rule wisely promulgated years ago (by whom I do not know) of having the bulbs and leaves of every Orchid dry during the meridian heat of the day. It is one of the golden rules of Orchid practice, and let it be widely and generally known. How to obviate this shrivelling tendency engaged my attention for days. I have experimented upon dozens of plants, some to good and some to no good purpose, but to experiment upon an unique plant, almost worth its weight in gold, incurred a responsibility of the gravest nature. I resolved to apply a stimulant in the shape of a little liquid manure diluted with tepid water, so weak as not to do any material damage, if the roots refused to absorb the ammonia with which it was charged. To my great relief and joy I saw, after the space of eight days, that it had a beneficial effect; and I have since repeated the doses fortnightly, and the plant is more luxuriant than ever. However, no haphazard appliances of this kind must be resorted to. So long as a plant is doing well, when it requires to be re-potted, or re-basketed or re-blocked, do not disturb the conditions which have commanded success aforetime; by all means let the after management be as similar as possible, for experience has taught me that I have had more losses than gains by attempting to improve the conditions of a plant that was doing well.

Now, and not during winter, is the time to keep what are technically called "cool" Orchids cool. Ventilation should be thoroughly efficient during the day, and partial during the night. Moisture should be applied in abundance both mornings and evenings, so that leaves and pseudobulbs may be thoroughly charged for the heavy perspiration that is going on during the day. Shading from the sun's rays is also equally necessary; though subdued light is of much consequence towards inducing solidity of bulb. *James Anderson, Meadow Bank.*

HARDY ORNAMENTAL PLANTS.—No. I.

It is, I believe, generally admitted that some modification of the monotony of our flower gardens by the introduction to them of a few graceful plants, is, to say the least, desirable; and that it is worth our while to introduce a little more verdure and beauty of form, and thereby heighten the charms of the flowering plants which must always be the important feature of a flower garden. One or two of your correspondents have discussed this important question incidentally, and it must be said obscurely. They beg the question by drawing comparisons between the "old mixed border and the parterre," and of course award the palm to the latter.

Now, as the worst bedding arrangement conceivable is better than the old mixed border, as generally managed, and as nobody has, for some years at all events, advocated the claims of the old mixed border against those of the popular system, this mode of reasoning on the subject is very like building up a house of cardboard for the satisfaction of quickly knocking it down again.

The question, if fairly put, is a very simple one: Is it, or is it not desirable to add more beauty of form to our flower gardens by introducing to them a few good plants of elegant habit, flowering or otherwise, so as to allow of a little more freedom and beauty of leaf to "set off" our brilliant Pelargoniums, Calceolarias, &c., with greenness and grace—either intimately associated with them in the beds, or otherwise? I believe the general answer to this would be "yes, if it can be done well." Then who shall say we have not the plants to do it well?

Mr. Gibson has clearly shown at Battersea what are the capabilities of our house plants in this direction. When discussing his arrangement last summer, I said that many hardy plants might be used with the best effect, and that in fact it would be possible to have some very charming effects without the expense or trouble of wintering and protecting. Some of the "sub-tropical" plants, such as Aralia papyrifera and the Castor-oil, it should be borne in mind, are to be raised in quantity almost as easily as bedding plants themselves.

The suitable hardy plants are of various types of character. I shall begin with a few of Fern-like leaf and aspect.

If Adiantum cuneatum could be grown in "the open" as freely as Stachys lanata, what a beautiful help it would be to the flower gardener! We could scarcely call him clever or ingenious who failed to use it with taste and effect. It is not given to me to propound a nostrum for so growing this beautiful and popular Fern, but we have a plant which bears it as strong a resemblance as it is possible for any not a Fern to do (indeed I am not sure that there is another Fern so like it at first sight), a plant moreover which is as hardy as a paving stone, and will bear any amount of wind, sun, or exposure—Thalictrum minus. It forms compact, roundish bushes, from a foot to 18 inches high, very symmetrical, and of a slightly glaucous hue. It is a British plant and may be grown in any soil. It requires one little attention—to pinch off the slender flower stems that appear in May and June, and that is all. Not alone in its aspect as a little bushy tuft does it resemble the "Maidenhair Fern," as A. cuneatum is often called; but the leaves are almost pretty enough to be passed off on the uninitiated, when mingled with flowers, for those of the Fern; they are stiffer and more lasting, and well suited for mingling with vases of flowers, &c. There are probably several "forms" or vars. of this plant, some of them, it may be, not answering this description, but I have the plants from which it was taken, and they may be propagated to any extent. Within the past few days they have been shown to Mr. Williams, of Holloway, and other good plantsmen, who fully agree with me as to the merits of T. minus.

Quite distinct in habit, and far more beautiful in leaf, is Tanacetum crispum, with gracefully bent leaves, cut as fine and looking as beautiful as those of Todea superba; and green as an emerald. It is as free growing and hardy a subject as any in our gardens; it does best fully exposed, and probably the only way in which it can be benefited after planting—in deep and rather moist soil it is best, but will grow "anywhere"—is by thinning out the shoots in spring, so that each remaining one shall have free room to suspend its exquisite leaves; thinned thus, it looks much better than when the stems are crowded, and of course, if it is done in time, they attain more individual strength and dignity.

Artemisia annua is a plant which has lately come out with a high character from the seedsmen for its gracefulness, and it is an elegant plant as far as I can judge, but quite inferior for distinction or beauty to either of the foregoing, which have the additional advantage of being perennial.

Meum athamanticum is one of the most elegant and gracefully cut plants in an order second to none other for these qualities. The leaves are divided so finely as to appear as if they were made of vegetable hair, and the plant is dwarf and neat in habit, from 6 to 12 inches or thereabouts; easy of growth in ordinary soils, and perfectly hardy and perennial. It is probable that in dry seasons it might "go off" too soon for association with autumnal flowering plants, but for rockwork or mixed arrangements of any sort it is invaluable as a front line, or edge plant.

Dielytra eximia is a dwarf and neatly-habited plant, with a dense and very graceful leafage, far more so than any other plant of the order in cultivation, and valuable as a flowering plant too, as the brightly coloured flowers remain on for a long time in spring and early summer. It generally grows from 12 to 16 inches high.

To go a step higher, few plants are more graceful

than the best Ferulas—glauca, Ferulago, and tingitana; they are very noble objects in any position, but most suitable for such an arrangement as that at Battersea or the margins of shrubberies, &c., for though very beautiful in summer they would probably go off much too soon for the continuous growers of the flower garden. But no doubt the leaves of these and of other Umbelliferous plants might be improved and much retarded by pinching off all flower stems as soon as they appeared. *W. Robinson.*

Home Correspondence.

Strawberries.—I believe, with you (see p. 578), that the failure of the Strawberry crop has been general but not universal. Here it has been very good. I have been picking and giving away Strawberries to Londoners and country people since Whitsunday, beginning with Sir Joseph Paxton. They are still plentiful. Eliza (Rivers') is still the most successful; Wonderful and Eugenie are not yet exhausted, and have borne fine crops. Your occasional Correspondent, Mr. Adolphus Kent, came here on the 26th of June, and I had three good sorts intact for him, besides as many of the three preceding as he was pleased to eat, namely, John Powell, a seedling of my own, and Frogmore Late Pine, all delicious sorts; also some Scarlet Pines, extra delicious, and the highest flavoured and most Pined Strawberry that has ever been here out of more than 130 sorts. I have had all, or almost all of the high-flavoured sorts here except the old Pine, and not one of them is equal to the Scarlet Pine, sent out, I believe, by Dr. Roden. There is no difficulty whatever in accounting for the general failure among Strawberries. The spring frosts cut off a great many blooms and frosted the stems of some that were set beneath the berry. Still this is not the whole cause of failure. People did not water their plantations during fruiting time last year, nor after fruiting. Hence, with the earth as hot as a frying pan, the plantations were injured. I watered mine abundantly during fruiting last season, and close after cropping I cut off what runners there were, and covered the straw with black dung, and watered the plantations copiously. They then made new crowns, established new roots, put on new leaves, which got hardened before winter came, and shot the wet off the crowns and roots, and prevented Zero from doing any mischief. Hence, with no end of water, I have had, notwithstanding spring demolitions, a most abundant crop of fine Strawberries in chalky soil. The Frogmore Pines came out after the severe frosts were over, and they have swelled every berry. They are a fine crop. This variety has superseded all late sorts. When ripe it looks like crimson and gold. Eliza, taken at all points, is still the best Strawberry in England. She has always been my friend, and also that of the public. I have never seen her, year after year, put out by anything. *W. F. Radclyffe, Tarrant Rushton, near Blandford, Dorset.*

The late Sir Joseph Paxton.—The *Daily Telegraph* has told us that the late Sir Joseph Paxton was not a man of genius, and your correspondent "F." (p. 603) gives him "more credit for tact than talent." Tact he undoubtedly possessed in a large degree, but surely he cannot be denied the higher qualities of mind to which are usually applied the words "genius" and "talent." Let me ask what is genius?—what is talent? In Richardson's Dictionary we shall find the words thus defined:—"Genius is applied to the nature, the natural powers or faculties of a man; the powers or faculties with which he is born. The natural bent, disposition, or inclination of the mind; the power or faculty which bears or brings forth or produces, &c." "Talent, the mental wealth or strength; or means or powers of, or skill in acquiring or attaining; faculty, ability, or capacity of mind." Tried by these tests I think it must be admitted that he possessed some genius and much talent. My acquaintance with the late Sir J. Paxton commenced one year prior to the foundation of the *Gardeners' Chronicle*, 25 years ago, and one point in his character strongly impressed me from the first—an honest independence of mind, combined with a natural politeness, which never degenerated into servility, that lowest of human acquirements, too often assumed for the nonce to gain a sinister end. In this I believe consisted his true nobility of character, and this probably contributed largely to his success in life. While on this topic permit me to suggest that a committee of horticulturists and others who appreciated his labours, should be at once formed to raise a suitable memorial to his memory. There cannot be a more fitting place for it than the grounds of the Crystal Palace. I know many horticulturists and others who would gladly contribute their mite in recognition of the services of one whose genius and talent has shed a lustre over gardens and gardening, and the Crystal Palace Company will miss a grand and legitimate opportunity of doing honour to the memory of the designer of the beautiful structure and grounds at Sydenham if they do not lend their powerful influence in aid of the scheme. *William Paul, Waltham Cross, N.* [Hear, Hear.]

Chiswick Garden.—It was with great pleasure I saw some months back an advertisement for a Superintendent of this fine old Garden, which was followed by some excellent and encouraging remarks by yourself, such as led your readers to believe that we were on the eve of great and much needed improvements. The pleasing reminiscences of the old place induced me lately to pay it a visit, as I had not seen it for some years. The collection of fruit trees, no doubt the finest in existence, are in admirable condition, and do the veteran Thompson great credit. The houses, on the whole, were in tolerable condition, but crammed to excess with bedding stuff for South Kensington. The Vines in the large Conservatory were on the decline, and I only wonder they have lasted so long. As for the vegetable or market garden department, the less said the better. The once fine arboretum and grounds are in a state that would disgrace any nursery garden: the shrubs and everything of value that could be moved have gone; and though years have elapsed since they were taken, time has not yet been found to fill up the holes made by the removal of the plants. As the great International Horticultural Exhibition to be held at South Kensington next year, will bring the principal Continental horticulturists to this country, and as the great name of Chiswick will cause many to visit it, it is high time that it was put into a state fit to be seen. The fact of the Exhibition in question being held in connection with the Kensington Gardens, may be the means of redeeming the Society from the bad name it has got with horticulturists. *An Old F.L.S.*

Wasps.—Surely your correspondent "Excelsior" (see p. 580) cannot be in earnest when he tells us that we should protect and preserve wasps' nests. I am afraid if such pests were preserved that gardeners would find it a matter of no small difficulty to send a dish of sound ripe fruit to their employer's table. I mean of course out-door fruit, as there are means, although often difficult of application, of preventing wasps from entering fruit houses. Out of doors the havoc they make among fruit of all kinds is well known. I do not dispute "Excelsior's" information that wasps devour insects of many kinds, as I myself can testify, but the good they do in that way will never compensate for the fearful destruction they make in our fruit crops, and I am sure that every grower of fruit will do well to persevere in destroying every wasp and wasp's nest he can discover. The mischief they commit promises to be even worse this year than last, as there was an unusual quantity of large wasps about during the months of April and May. *G. N.*

Table Decoration.—Will you allow me to offer a few remarks on the table decorations lately exhibited at South Kensington? The matter, as was to be expected, has become a contest between tradesmen, and I wish to hint to them that comfort, convenience, and practicability are just the points not to be ignored but to be considered. In the country flowers can be got easily enough, but people do not want them on their plates, in their finger-glasses, or their napkins. And in London, where they are made up with wires, fingered in the process, and consequently dirty, the idea is the reverse of refined. A few Pelargonium petals in a napkin may spoil an expensive dress, and glutinous Water-lilies in a finger-glass would prevent your using it. People who give one or two parties in a year might go through the labour and expense of covering the table with metal troughs of various shapes filled with small cut flowers, but trouble of this kind cannot be taken often, and the apparatus is too cumbersome where the result is so perishable. Some of the tables were so covered that if you had taken a glass up you could hardly have found a place whereon to put it down again; and others so dotted over with specimen glasses and cut flowers that no one could have reached anything from the table without knocking them down like ninepins. Many persons suffer even from the smell of a moderate quantity of flowers. What would be the fate of such at one of these overwhelming floral displays? I think every one must have been satisfied that the 1st prize was rightly awarded. But oh! the trouble and inconvenience of a set of plates each with three holes for three water vessels for as many flowers! Flowers are always in the way upon one's plate, even if no earwigs and spiders come out of them. Real good taste is always compatible with comfort, and without good taste there can be no true elegance. I do not offer these remarks ill-naturedly, but it seems to me the largest quantity of glass or china, combined with the largest quantity of flowers, is not what the proposer of these prizes had in view. *A Lady Reader who heartily loves Flowers.*

Roses.—As regards these, Lord Macaulay's native colour is rich glowing crimson: it, however, sometimes becomes very dark. It is a highly improved Jacqueminot, being better in colour, better in substance, fuller in the centre, and of erect habit. The growth and foliage are good. It will stand sun well for two or three days, showing the value of substance. Lord Clyde is exactly like it in growth and foliage, and is also of great substance. It is glowing scarlet crimson, and does not alter its colour. Lord Herbert is blooming here; and though not so good for substance, is full, well folded, and beautifully formed; its growth and habit are good. These are three worthy Roses. The following are also first-rate and good in every respect, viz., Madame Victor Verdier, Pierre Notting, and Rushton Radclyffe, of which I have six plants in full and beautiful bloom. These are fine and well worthy of adoption, as are likewise La Duchesse de Morny, and the two crimson purple Roses, Eugene Verdier and Baronne P. de Kinkelin. The varieties just named are, up to this time, the pick of 1864 and 1865. It will, however, take half a century to beat Charles Lefebvre, the best Rose in any family. *W. F. Radclyffe, Tarrant Rushton.*

Foreign Correspondence.

Cinchona Cultivation at Darjeeling.—Dr. Anderson states, in his report for February, 1865, that the month had been less favourable than January, the cold which had been quite as great as in January, having been accompanied by a very dry state of the atmosphere. The slight increase in growth took place almost entirely during the last five days of the month, with the exception of the lowest plantation, where about the 17th the plants began to show the first symptoms of the return of spring. At the first plantation (5500 feet above the sea) the temperature has been very low, causing the destruction of at least three plants of Cinchona Pahudiana, and affecting a few of Cinchona officinalis. At 4350 feet above the sea, hoar-frost occurred in several nights in February, but no damage has been done to any plants at this elevation. Observations on the temperature of the air have been made with more or less regularity during the month at the 3d, 4th, and 5th plantations. At 2550 feet above the sea the maximum and minimum temperature in the shade was recorded every 24 hours during the month. The mean maximum temperature for the month at this elevation was 66°.18, the mean minimum 47°.93, and the monthly mean temperature 57°·05. At the altitude of 1825 feet fewer observations were made, as the plantation was not visited daily by the person observing. The results from the detached observations there give 71°·56 as the mean maximum, and 47°·77 as the mean minimum, and 59°·5 as the mean temperature of the month. The total number of plants, cuttings, and seedlings in the Government plantation at Darjeeling on February 1, 1865, is thus stated:—Cinchona succirubra, 4780; C. Calisaya, 23; C. micrantha, 944; C. officinalis and vars., 19,329; C. Pahudiana, 5092—total, 30,168.

Societies.

Royal Horticultural: *July* 1 (*Great Rose Show*).—An excellent display was produced on this occasion; not only were both sides of the principal promenade in the Conservatory full of gay boxfuls of the Queen of Flowers, but also portions of both the eastern and western arcades; and the weather being somewhat cloudy, the different exhibitions preserved their freshness and beauty unimpaired till the end of the day. This was indeed not only the best show of the season, at South Kensington, but the best by far, of the two Metropolitan Rose Shows.

In the class of 72 kinds, one truss of each, there was close competition between Messrs. Paul & Son and Mr. Mitchell, of Piltdown, for the first place, both collections being nearly equally meritorious as regards first-rate blooms. Messrs. Paul & Son, however, had one or two points in their favour, and therefore carried off the prize. Among their blooms were fine examples of Maurice Bernardin, Gloire de Santenay, Madame C. Crapelet, Lælia, Madame Furtado, Duc de Rohan, Comtesse de Chabrillant, Pierre Notting, Caroline de Sansal, Madame Alfred de Rougemont, Queen Victoria, the new yellow Tea, Maréchal Niel, Auguste Vacher, Gloire de Dijon, Alba Rosea, and Louise de Savoie. From Mr. Mitchell came, in addition to the kinds just named, Madame Masson, Madame Charles Wood, Vicomtesse Douglas, Maréchal Souchet, Madame Julie Daran, Charles Lefebvre, Victor Verdier, Senateur Favre, Madame Boll, Duc Decazes, Madame Caillat, and General Washington. Mr. Keynes had La Reine, Cloth of Gold, Alfred de Rougemont, Louise Peyronny, Devoniensis, and others; and Mr. Cant, and Mr. Fraser, of Lea Bridge, had also excellent exhibitions.

Awards.—1, Messrs. Paul & Son; 2, Mr. Mitchell; 3, Mr. Keynes; 4, Mr. Cant.

Of 48 kinds, three trusses of each, there was a beautiful display. Messrs. Paul & Son, who were 1st, had fine trusses of Devoniensis, Comte de Nanteuil, Vicomte Vigier, Lord Clyde, Maurice Bernardin, Olivier Delhomme, Madame Villermoz, Senateur Vaisse, Madame Furtado, Gloire de Santenay, and Madame Rivers. Mr. Keynes furnished beautiful trusses of Souvenir de la Malmaison, Virginal, Comte de Nanteuil, Alpaide de Rotalier, Lord Macaulay, Vicomtesse Vigier, Triomphe de Rennes, L'Eblouissante, Gloire de Santenay, Madame Rivers, and others. Mr. Francis, of Hertford, and Messrs. Lee, of Hammersmith, also showed in this class.

Awards.—1, Messrs. Paul & Son; 2, Mr. Keynes; 3, Mr. Francis; 4, Messrs. Lee.

In 24 kinds, three trusses of each, Mr. Keynes was 1st with Madame Charles Wood, Madame Boutin, Général Jacqueminot, Madame C. Crapelet, Madame Vigneron, Charles Lefebvre, Maurice Bernardin, Maréchal Souchet, Madame Furtado, and Gloire de Vitry. Mr. Cant had fine examples of Madame Vidot, Madame Furtado, Prince Camille de Rohan, Jules Margottin, John Hopper, Queen Victoria, Colonel de Rougemont, and Général Jacqueminot. From Mr. Fraser came John Hopper, Maréchal Vaillant, Impératrice Eugénie, Madame Vidot, Gloire de Santenay, and Madame Julie Daran. In a collection from Messrs. Paul & Son we noticed Duc de Rohan, very brilliant, Louise Magnan, nearly white, and Madame Vidot.

Awards.—1, Mr. Keynes; 2, Mr. Cant; 3, Mr. Fraser; 4, Messrs. Paul & Son.

Among 24 kinds, single trusses, Mr. Keynes had

charming examples of Senateur Vaisse, Madame Charles Crapelet, Souvenir de la Malmaison, Triomphe de Rennes, Alpaïde de Rotalier, Charles Lefebvre, Louise Peyronny, and Comte de Nanteuil. Mr. Fraser had also some excellent blooms, particularly Beauty of Waltham and Devoniensis.

Awards—1, Mr. Keynes; 2, Mr. Fraser; 3, Mr. Cant; 4, Mr. Clarke.

In the Amateurs' Class of 48 kinds, single trusses, the 1st prize was won by Mr. Hedge, who had, among others, Madame Bravy, Olivier Delhomme, Victor Verdier, George Prince, Caroline de Sansal, Queen Victoria, Gloire de Dijon, Louise Magnan, Niphetos, Madame Boll, President Lincoln, and La Ville de St. Denis. From Mr. Ingle, gr. to G. Round, Esq., also came a good exhibition, in which we noticed Comtesse de Chabrillant, Senateur Vaisse, Beauty of Waltham, Cloth of Gold, François Premier, and others.

Awards.—1, Mr. Hedge; 2, Mr. Ingle.

In the Class of 24 kinds, were good examples of General Washington, Charles Lefebvre, Jules Margottin, Madame Furtardo, Louis XIV., Victor Verdier, and Louise Magnan.

Awards.—1, Mr. Ingle; 2, Mr. Moffat; 3, Mr. Hedge; equal 4, Mr. Exell and Mr. Sawkins.

In the Class of 18, the most conspicuous blooms were Triomphe de Caen, bright purplish scarlet; Senateur Vaisse, Jean Goujon, Duc de Rohan, Madame Vidot, Maurice Bernardin, Vicomte Vigier, and Souvenir de la Malmaison, all fine.

Awards.—1, Mr. Postans; 2, Rev. V. R. Child; equal 3, Mr. Cruickshanks and Mr. Marlow; 4, Mr. Marcham.

In Twelves Mr. Postans produced good blooms of some of the best kinds, as did also Mr. Marlow, of Mortlake.

Awards.—1, Mr. Postans; 2, Mr. Marlow; 3, Mr. Smith; 4, Mr. Cruickshanks.

In the Class of 18 New Roses, we noticed Pierre Notting, deep violet-shaded crimson; Rev. H. Dombrain; Charlemagne, deep rose; Paul de la Meilleray, Maréchal Niel, Alpaïde de Rotalier, Leopold Premier; Maréchal Souchet (Damaizin), rosy carmine; Sœur des Anges, a beautiful pale rose, almost white; George Paul, fine bright red; and Madame Victor Verdier, all fine. Mr. Keynes unfortunately had two blooms of Laurent Descourt, and was therefore disqualified. We moreover remarked Maréchal Souchet (Guillot), a fine deep velvety crimson.

Awards.—1, Messrs. Paul & Son; 2, Mr. Cant; 3, Mr. Fraser; 4, Mr. Francis.

In the Class of Twelve trusses of any new kinds of 1863, Messrs. Paul and Son were 1st with beautiful blooms of Lord Clyde; and Mr. Cant 2d with the same kind.

In the Class of Twelve trusses of any kind, Mr. Cant was 1st with Devoniensis, in most beautiful condition. Messrs. Paul & Son were 2d with François Louvat, fine lilac-shaded crimson; Mr. Keynes 3d with Madame Charles Wood; and Mr. Cattell 4th. Beautiful boxes of Charles Lefebvre, Senateur Vaisse, and John Hopper were shown by Mr. Francis and Mr. Cant.

Among yellows the beautiful new yellow Tea Rose, Maréchal Niel, was conspicuous; others consisted of Louise de Savoie, Cloth of Gold, Vicomtesse Decazes, L'Enfant Trouvé, Narcisse, and Celine Forestier. The exhibitors were Messrs. Cant, Paul & Son, and Hedge.

Among Tea-scented and Noisette Roses, Mr. Exell was 1st with good examples of Isabella Gray, Vicomtesse Decazes, Triomphe de Rennes, Solfaterre, Madame Bravy, Comte de Paris, Niphetos, Madame Villermoz, and Gloire de Dijon. Mr. Ingle was 2d and Mr. Hedge 3d. Messrs. Fraser, Cant, and Paul & Son also showed in this Class.

In examples of single blooms of 12 kinds, Mr. Keynes, who was 1st, had beautiful specimens of Devoniensis, Gloire de Santenay, Alpaïde de Rotalier, Maurice Bernardin, Gloire de Vitry, and Madame C. Wood; Mr. Francis was 2d, and Mr. Cant 3d.

March's stands, decorated with Roses and Ferns, were shown by several exhibitors, and were much admired. Mr. Ingle was 1st, Mr. Marlow 2d, and Mr. Beasley, Twyford Abbey, 3d, Isolepis gracilis being employed by the last named exhibitor in the top dish. In 6 Bouquets of as many varieties, Mr. Keynes was 1st, Mr. Francis 2d, Mr. Hedge 3d; and for Moss Roses, Messrs. Paul & Son were 1st, with, among others, White Bath and Crested, both very good.

Of Miscellaneous subjects Mr. W. Paul sent a collection of Roses raised by him from seed, or introduced by him, consisting of Glory and Beauty of Waltham, Cœur de Lion, Lord Herbert, Prince de Joinville, Princess of Wales, Dr. Lindley, and Lord Macaulay, all different shades of crimson and scarlet; Queen Victoria, delicate pink; Madame Emile Boyau, a promising light hybrid perpetual; and Elizabeth Vigneron, lilac-shaded rose. Messrs. Jackman sent numerous blooms of their beautiful new Clematises; and Messrs. Naylor, glass and table ornaments.

Royal Botanic, Regent's Park: *July* 5 (*Third Great Exhibition*). This display, which closed the season as far as this Society is concerned, was quite equal to its predecessors, more especially as regards fruit, which was plentiful and wonderfully fine, and the weather being favourable there was a brilliant attendance of visitors.

Collections of Fruit.—These were more numerous than usual. The best came from Mr. Sage, gr. to Earl Brownlow. It contained Muscat and Black Hamburgh Grapes, good Peaches and Nectarines, a Queen Pine Apple, Bigarreau Cherries, Brown Turkey Figs, a hybrid Orion Melon, and British Queen Strawberries. Mr. Miller, gr. to the Earl of Craven, furnished beautiful Trentham Black and Muscat Grapes, a Queen Pine-apple, British Queen Strawberries, Violette Hâtive and Grosse Mignonne Peaches, and Combe Abbey Hybrid Melon, an extremely well-flavoured variety, with a skin as thin as that of a Peach. A third collection came from Mr. Ruffett, gr. to Lord Palmerston, who had well-grown Queen and Providence Pine-apples, Black Hamburgh and Muscat Grapes, fine Gallande Peaches and Elruge Nectarines, charming Black Circassian Cherries, Crimson Queen Strawberries, and a Windsor Prize Melon. From Mr. Bannerman, gr. to Lord Bagot, came Black Hamburgh, Golden Hamburgh, and Muscat Grapes; a Queen Pine-apple, Golden Perfection and Hybrid Cashmere Melons, Elruge Nectarines, and Royal George Peaches, and British Queen Strawberries. Mr. Dawson, gr. to Earl Cowper, contributed a Providence Pine-apple, White and Black Grapes, fine Violette Hâtive Peaches, and Downton Nectarines; a Scarlet Gem Melon, and good examples of Frogmore Late Pine Strawberries.

Awards.—1, Mr. Sage; 2, Mr. Miller; 3, Mr. Ruffett; 4, Mr. Bannerman; 5, Mr. Dawson.

Pine-apples.—These, though not particularly remarkable as regards weight, were both numerous and good. Mr. Barnes, of Bicton, furnished several Queens, ripened out of doors, where they are placed immediately after flowering. Mr. Barnes states that specimens ripened in this manner are heavier, compared with their size, than kinds ripened in-doors, to which they are quite equal, and in some instances even superior in flavour.

Awards.—4 Queens: 1, Mr. Barnes; 2, Mr. Young, gr. to W. H. Stone, Esq.; 3, Mr. Dawson. Providence: equal 1, Mr. Young and Mr. Deville, gr. to Major Martin; 2, Mr. Allen, gr. to J. B. Glegg, Esq.; 3, Mr. Dawson. Queens: 1, Mr. Young, gr. to C. Bailey, Esq.; 2, Mr. Davies, gr. to W. Booker, Esq.; 3, Mr. Kemp, gr. to E. H. Bentall, Esq. Other sorts: 1, withheld; 2, Mr. Bailey, gr. to T. Drake, Esq.; 3, Mr. Godfrey, gr. to H. Chuck, Esq.

Grapes.—The glory of these was a bunch of Black Hamburgh shown by Mr. Meredith, of Garston, near Liverpool, weighing no less than 9 lbs. 8 oz. It was shown stalk downwards, and had six shoulders, each equal to the size of an ordinary bunch, the whole forming quite a pyramid of jet-black berries covered with a beautiful bloom. To Mr. Meredith, therefore, belongs the merit of having shown the heaviest bunch of Black Hamburgh Grapes yet recorded, and the judges marked their sense of his marvellous success by awarding him the highest medal at their command. The same exhibitor had also the best Trentham Black ever yet seen, and wonderfully fine Buckland Sweetwater, but the last did not appear to be quite ripe. Mr. Hill, gr. to R. Sneyd, Esq., had splendid bunches of Black Prince, Black Hamburgh, and Meredith's variety of Black Alicante. From Mr. Osborne of Finchley came Black Hamburgh, Buckland Sweetwater, and Snow's Muscat Hamburgh, the last large and finely coloured. Mr. Allport, of Doddington, Cheshire, contributed very fine Black Frontignans and Ingram's Prolific Muscat, the latter bearing a striking resemblance, both in size of bunch, berry, and colour, to the former. Muscats were still green, the ripest of them were only just beginning to change colour; but of Buckland Sweetwater we noticed several bunches with that bright rich golden tinge which it is highly desirable to find in Muscats, but which on this occasion was wholly wanting. Messrs. Lane, who of late years have exhibited excellent Grapes, had fine examples of Chavoush, a new and promising white variety. Mr. Pottle, gr. to B. D. Colvin, Esq., had extremely well-grown specimens of Black Prince, three bunches of which weighed 9 lb. 5 oz.; they were not, however, quite in perfection as regards ripeness. Three very fine bunches of this Grape were also shown by Mr. Hill.

Awards.—3 dishes: 1, Mr. Meredith; equal 2, Mr. Hill and Mr. Osborne; 3, Mr. Peachey, gr. to R. Hole, Esq.; 4, Mr. Wallis, gr. to J. Dixon, Esq. 1 dish: 1, Mr. Sage, gr. to Earl Howe; 2, Mr. Meredith; equal 3, Mr. Wallis, Mr. Speed, gr. to Sir E. Walker, Bart., and Mr. Montgomery Henderson; equal 4, Mr. Sawkins, gr. to A. Smith, Esq., Mr. Jackson, and Mr. Goldsmith, gr. to Sir W. Farquhar; 5, Mr. Ottaway, gr. to W. Nicholson, Esq. Black Prince: 1, Mr. Allen, gr. to E. Hopgood, Esq.; equal 3, Mr. Wallis and Mr. Sage. Muscats: 1, (withheld); 2, Mr. Turner. Other sorts: 1, Mr. Allport; 2, Mr. Hyde; 3, Mr. Goldsmith; 4, Mr. Peachey; 5, Mr. M. Henderson. Baskets of Grapes: 1, Mr. Meredith, 2, Mr. Henderson; 3, Mr. Wallis.

Peaches and Nectarines.—These were good; but in many instances small. Among Peaches we noticed a dozen fine fruit from Mr. James, gr. to the Duke of Leinster, and a good basket of Nectarines from Mr. Masters, gr. to the Earl of Macclesfield. The varieties of both of these kinds of fruit did not differ from kinds shown in former years.

Awards.—Four dishes of Peaches: 1, Mr. Allen; 2, Mr. Hill; 3, Mr. Rawbone, gr. to C. Campbell, Esq.; 4, Mr. Enstone. Two dishes of Nectarines: 1, Mr. Carr, gr. to P. L. Hinds, Esq.: equal 2, Mr. Sawkins, Mr. Roberts, gr. to the Hon. A. Bury, and Mr. Sage, gr. to Earl Brownlow; equal 3, Mr. Ward, Gr. to F. Martin, Esq., and Mr. Ruffett; equal 4, Mr. Ford, gr. to the Rev. T. Hudson, Mr. Young, gr. to W. H. Stone, Esq., Mr. Enstone, and Mr. Budd, gr. to Lord Darnley.

Melons.—These were for the most part deficient in flavour, a circumstance probably attributable to injured foliage through red spider, which during the late hot weather has been unusually troublesome in many places.

Awards.—Green-fleshed: 1, Mr. Enstone, gr. to Sir J. Duckworth, Bart.; 2, Mr. Earley, gr. to F. Pryor, Esq. Scarlet-fleshed: 1, Mr. Gadd, Dorking; 2, Mr. Weir, gr. to Mrs. Hodgson.

Plums.—The best of these were Jefferson and Victoria, the former of which came from Mr. Robins, gr. to Sir G. Kerrison, Bart.; and the latter from Mr. Ingram, gr. to J. J. Blandy, Esq., of High Grove, Reading.

Figs.—Among these we noticed Brown Turkey, Lee's Perpetual, and White Ischia.

Awards.—1, Mr. Orman, gr. to R. Holland Esq.; equal 2, Mr. Sage, gr. to Earl Howe, and Mr. Hutt.

Cherries.—These were shown in excellent condition, especially the Black Circassian, a large black, attractive-looking kind. We also noticed Knight's Early Black, and Black Eagle. Among white sorts Elton and Bigarreau were conspicuous.

Awards.—Black: equal 1, Mr. Turner and Mr. Ruffet; equal 2, Mr. Pottle, Mr. Carr, Mr. Marcham, gr. to E. Oates, Esq., and Mr. Sawkins. White: equal 1, Mr. Enstone and Mr. Widdowson; equal 2, Mr. Turner, Mr. Perkins, gr. to C. Keyser, Esq., Mr. Ross, gr. to C. Eyre Mr. Sage, and Mr. Marcham.

Strawberries.—These consisted of Filbert Pine, Admiral Dundas, Bicton White, Sir C. Napier, Rifleman, Empress Eugenie, Eleanor, Goliath, British Queen, Sir Harry, and Crimson Queen, all good, more especially the four first-named kinds.

Awards.—1, Mr. Bailey; 2, Mr. Widdowson; 3, Mr. Budd; 4, Mr. Kaile.

Miscellaneous Fruit.—Under this head may be classed some Raspberries, Gooseberries, and Red and White Currants, from Mr. Masters, gr. to Earl Macclesfield; and Mr. Lynn, gr. to Lord Boston; Prince of Wales Raspberry from Mr. Cutbush; and two good dishes of Raspberries from Mr. Young, gr. to R. Barclay, Esq.

Orchids.—These were not so good as they were at the last show held here. Among them were Cattleya crispa, with white sepals and petals, and singularly crimped lip; C. superba with five blooms on it; C. Harrisoniæ; a fine Brassia Henchmanni, green, spotted with black; the rare Aerides Schröderi, Trichopilia crispa, and the long-tailed Uropedium Lindeni. These came from Mr. Bullen, gr. to A. Turner, Esq, of Leicester. From Mr. Page, who showed in the class of 20 kinds, were Cypripedium Stonei, Phalænopsis rosea and others, and fine examples of Saccolabium Blumei. In a collection from Mr. Peed, gr. to Mrs. Tredwell, was the same finely-blossomed Oncidium sessile produced at the show held here in June, still in beautiful condition, and the yellow-stained white Dendrobium formosum giganteum. Mr. Penny, gr. to H. H. Gibbs, Esq., stood first in groups of 12 with a fine collection, in which were Anguloa Ruckeri, bearing five blooms; Aerides Lobbii, with fine branching spikes; Cattleya Mossiæ, and the new clear yellow-coloured Trichopilia picta, which promises to be a valuable acquisition. From Mr. Wilson, gr. to W. Marshall, Esq., also came Trichopilia picta, finely in flower; the charming terrestrial Cape Orchid Disa grandiflora; Anguloa Ruckeri, with six clear yellow blossoms on it; Cattleya Schilleriana, with dark velvety sepals and petals, and purple lip; Lælia purpurata; and various fine varieties of Bearded Lady's Slipper. Mr. Wiggins, gr. to Walter Beck, Esq., contributed Cypripedium Veitchii; the yellow-stained white Cattleya Wagneri; Dendrobium tortile, with pale lip and singularly twisted sepals and petals; and Cypripedium Hookeræ, with six blooms on it. From Mr. Young, gr. to W. H. Stone, Esq., came Dendrobium Farmeri, with orange and cream-coloured flowers; the rare D. Dalhousianum; and Epidendrum nemorale majus, with long narrow pinkish lilac sepals and petals, and crimson-veined conspicuous lip. In small groups was a plant in bloom of the Chinese Renanthera coccinea. This came from Mr. Hill, gr. to R. Hanbury, Esq., The Poles, near Ware. The same exhibitor also sent a well-bloomed Calanthe veratrifolia. From Mr. Ingram came the beautiful Cattleya superba; Mr. Whitbread sent some good Vandas, and Lælia purpurata; and Messrs. Jackson & Son, Stanhopea oculata, and various fine Cattleyas and other plants.

Awards.—20: 1, Mr. Bullen; 2, Mr. Page; 3, Mr. Peed. 12: 1, Mr. Penny; 2, Mr. Wilson; 3, Mr. Wiggins; 4, Mr. Young, gr. to W. H. Stone, Esq.; 5, Mr. Chilman, gr. to Mrs. Smith. 6: 1, Mr. Hill; 2, Mr. Ingram; 3, Mr. Whitbread, gr. to H. Colyer, Esq.; 4, Mr. Wheeler, gr. to J. Philpot, Esq. 6 (Nurserymen): 1, Messrs. Jackson.

Stove and Greenhouse Plants.—Of these there was the usual display, enlivened here and there with well-flowered Kalosanthes, than which nothing can be more useful for autumn work. Allamandas, Stephanotis, and Dipladenias are also still charmingly in bloom, as are likewise Ixoras, both white, red, and orange; Mussænda frondosa; Clerodendrons, and Hæmanthus puniceus, the last with 16 fine heads of orange blossoms. This came from Mr. Ingram, gr. to J. J. Blandy, Esq.

Awards.—16: 1, Mr. Peed; 2, Mr. Whitbread; 3 (withheld); 4, Mr. Kaile. 10: 1, Mr. Fraser; 2, Mr. Rhodes; 3, Mr. Lee; 4, Messrs. A. Henderson. (Amateurs) 10: 1, Mr. Chilman; 2, Mr. Ingram; 3, Mr. Page; 4, Mr. Wheeler, gr. to Sir F. O. Goldsmid, Bart. 6: 1, Mr. Wheeler, gr. to J. Philpots, Esq.; 2, Mr. Kemp, gr. to Earl Percy; 3, Mr. Smith, gr. to A. Anderson.

Fine-foliaged Plants.—Some admirable groups of these were exhibited, especially one from Mr. Baines, gr. to Horatio Micholls, Esq., Bowdon, Cheshire, and another from Mr. Veitch. In that from Mr. Baines were

magnificent examples of Alocasia metallica and macrorhiza variegata, the last in splendid health; the stately Theophrasta imperialis in glorious condition; Caladium Lowii (see p. 580, 1863) unusually fine, the leaves of the deepest green, prominently and beautifully veined with white; Gleichenia Speluncæ, and different kinds of Ferns. Mr. Veitch furnished Crotons unusually fine in colour; a grand Theophrasta imperialis; the marbled stemmed Alocasia zebrina; Pandanus javanicus variegatus; Ferns and Palms. From Mr. Yates' garden at Highgate, came various species of Zamia and Encephalartos, Dion edule, Cycas revoluta, Marantas, and the Rush-like Littæa juncea. In other groups we noticed the beautiful red-veined Gymnostachyum Verschaffeltii, wonderful bushes of Croton angustifolium, Anthurium leuconeurum, with large white-veined deep green leaves; the handsome Maranta Porteana, Yuccas, Palms, Dracænas, and Ferns.

Awards.—10: 1, Mr. Baines; 2, Mr. Taylor, gr. to J. Yates, Esq.; 3, Mr. Ingram, gr. to J. J. Blandy, Esq.; 4, Mr. Young; 5, Mr. Carr. (Nurserymen) 10: 1, Mr. Veitch; 2, Messrs. A. Henderson; 3, Mr. Bull; 4, Mr. Rhodes.

Ferns.—Beautiful collections of exotic varieties came from several growers, and after the fatigue of a warm summer's day, a look at their healthy deep green leaves was quite refreshing. Mr. Bull, Mr. Williams, and Messrs. Henderson had each charming groups, which were also contributed in beautiful condition by amateurs; foremost among the latter were collections from Mr. Barnard, gr. to J. Taylor, Esq., and Mr. Young, gr. to H. Stone, Esq. The sorts were not different from kinds shown on former occasions; but being for the most part large in size, the effect they produced was all that could be desired. From Messrs. Ivery, of Dorking, came a very fine collection of British Ferns, consisting of fine varieties of Athyrium, of which they possess so many; Scolopendriums of different kinds, Polystichums, Aspleniums, Lastreas, Polypodium Dryopteris, and one or two varieties of Royal Fern.

Awards.—12 Exotic Ferns: 1, Mr. Bull; 2, Mr. Williams; 3, Messrs. A. Henderson. (Amateurs): 1, Mr. Barnard; 2, Mr. Young, gr. to W. H. Stone, Esq.; 3, Mr. Young, gr. to R. Barclay, Esq.; 4, Mr. Taylor, gr. to J. Yates, Esq.. British: 1, Messrs. Ivery; 2, Mr. Holland, gr. to R. W. Peake, Esq.

Fuchsias.—Of these several collections were shown, consisting of tolerably well-grown, moderately-sized fairly-bloomed plants, but our exhibitions of these want better and younger plants of newer sorts.

Awards.—1 (withheld); 2, Mr. Weston, gr. to D. Martineau, Esq.; Mr. Gardiner, gr. to J. Stutter, Esq.; 3, Mr. Green, East Greenwich.

Pelargoniums.—Ordinary kinds and Fancies were shown in good condition for July, and there was in addition a good display of Scarlet or rather Zonal varieties. Of ordinary kinds Mr. Fraser had Pericles, Lord Clyde, Royal Albert, Bacchus, Bessie, Marabout, Desdemona, Festus, Perdita, Landseer, Prince of Prussia, and Regina formosa. In the Amateurs' class Mr. Bailey had Mdlle. Patti, Etna, Pericles, Guillaume Severeyns, Desdemona, Beadon, Royalty, Conflagration, Regina formosa, and Scarlet floribunda. Of Fancies, Mr. Fraser had Hebe, Miss in her Teens, Cloth of Silver, Madame Sainton-Dolby, Bridesmaid, and Roi des Fantasies. Mr. Fraser also had the best group of the newer kinds. Among Scarlets, the best collection of which came from Mr. Catlin, gr. to Mrs. Lermitte, of Finchley, we noticed Eugenie Mezard, salmon, edged with white; Tom Thumb, Rubens, Scarlet Globe; and Mr. Martin, Mr. Bull, and Messrs. F. & A. Smith, had charming collections of zonal varieties, among which Orion, a new salmon kind, received a Certificate. Mr. Wm. Paul furnished fine examples of his new Nosegay sorts, and Messrs. E. G. Henderson and Messrs. Saltmarsh each showed a group of tricolor-leaved sorts.

Awards.—12 ordinary kinds: 1, Mr. Fraser. 10: 1, Mr. Bailey; 2 (withheld); 3, Mr. Wiggins. 6 Fancies; 1, Mr. Fraser. 6 Scarlets: 1, Mr. Catlin; 2, Mr. Pettit, gr. to G. Powney, Esq.; 3, Mr. Hawes, gr. to J. Noble, Esq.; 4, Mr. Weir, gr. to Mrs. Hodgson; 5, Mr. Logan, gr. to C. Ritley, Esq.

New Plants.—These were not so numerous as they were on the last occasion. Fuchsia Enoch Arden, a good dark variety, with a large wide-spread corolla, came from Messrs. E. G. Henderson, and from Messrs. A. Henderson & Co. came a pale yellow variegated variety of Gardenia florida and other plants. Mr. Geo. Smith had a promising scarlet Nosegay Pelargonium, named La Grande, of which mention has already been made in our columns. From Mr. Veitch came an interesting group of plants, in which were Rhododendrons Princess Royal and Princess Alexandra, the Umbrella Pine (Sciadopitys verticillata); the handsome Fern called Leptopteris superba, Anthurium Scherzerianum, Bertolonia guttata and pubescens, the yellow-flowered bulbous plant Urceolina aurea, the variegated variety of Euonymus radicans, the hybrid Cattleya quincolor, Calathea Veitchii, formerly noticed by us; Osmanthus ilicifolius, and other plants. From Mr. Morse, of Epsom, came the handsome variety of Scolopendrium vulgare called Coppardii, each frond of which branched more or less at the top, thus forming a compact incurved crest-like head. Mr. Ivery had Lastrea grandiceps, Polystichum proliferum Holeæ, Athyrium Filix-fœmina diffissum, all fine varieties of the hardy genera to which they belong. Mr. Bull had a new Radish, in which instead of the root the seed-pods, which have the flavour of a Radish, are eaten. Its pods are stated to grow 3 inches in a night, and when fully grown attain a length of between 3 and 4 feet. It comes from India, but is said to succeed in the open ground during summer in this country. The same exhibitor also had a pretty white and pale blue Lobelia, called Silver Gem; various Ferns, Cycas Riuminiana, from the Philippines; Globba radicans variegata, with long great leaves faintly streaked with yellow; Sphærogyne cinnamomea, with stems covered with cinnamon-coloured hairs, and ample Melastoma-like leaves; the handsome Bertolonia margaritacea; and variegated Verbenas and Chrysanthemums. Trichinium Manglesii, a Swan River Amaranthus-like perennial (see p. 555, 1864), came from Mr. Thompson, of Ipswich, who stated that the woolly, white and crimson-coloured flower heads continue in perfection for several months, and that they may be preserved when cut for a considerable period. This plant, it is said, will succeed in the open ground. From Mr. Williams came Dracæna lineata, a stately plant, Ferns and Aloes.

Roses.—These were confined to cut blooms, of which there was a good display. Among them were beautiful blooms of Maréchal Niel, a new and most valuable addition to yellow Tea Roses; Vicomtesse Decazes, Charles Lefebvre, François Louvat, Madame Charles Wood, Baron Gonella, Madame Charles Crapelet, Maurice Bernardin, Madame Furtado, Pierre Notting, Isabella Gray, Leopold I., Gloire de Santenay, Madame Victor Verdier, Maréchal Vaillant, and Duc de Rohan.

Awards.—50: Equal 1, Messrs. Paul & Son and Mr. Turner; 2, Mr. Fraser. 25: 1, Mr. Exell, gr. to J. Hollingworth, Esq.; Mr. Ingle, gr. to G. Round, Esq.; Mr. Wright, gr. to Mrs. Ramsden. 24: 1, Mr. Turner; 2, Messrs. Paul & Son; 3, Mr. Fraser.

Heaths.—The cultivation of these appears to be better attended to than it hitherto has been, and the result was a fine exhibition on this occasion of finely grown well-bloomed plants. To old well-known varieties, however, nothing new has recently been added.

Awards.—10: 1, Mr. Rhodes; 2, Messrs. Jackson; 3, Mr. Lee: 4, Messrs. F. & A. Smith; 5, Mr. Baxendine. 8: 1, Mr. Peed; 2, Mr. Wheeler; 3, Mr. Ingram; 4, Mr. Chilman.

Miscellaneous Plants.—Among these was an interesting collection of well-grown Sarracenias and variegated Orchids from Mr. Baines, gr. to H. L. Micholls, Esq., of Bowdon. The former consisted of Sarracenia Drummondii, flava, variolaris, and purpurea, the last a fine mass of pitchers; Dionæa muscipula and Anæctochilus Lowii, intermedia, and xanthophylla. Messrs. F. & A. Smith had an exhibition of Balsams; and Messrs. A. Henderson various Caladiums. We also remarked various well-filled hanging baskets, and groups of Kalosanthes and Achimenes. From Mr. Barnes came a collection of Conifer cones, gathered from trees in the admirable Pinetum at Bicton. Magnificent Carnations and Picotees were shown by Mr. Turner, and seedling Verbenas by Mr. Perry. Conspicuous among the latter were C. Turner, pink with crimson eye; Glowworm, scarlet, with yellow eye; Mazeppa, scarlet, with bold white eye; and Cleopatra, rosy crimson, with large white eye. Messrs. Downie, Laird & Laing had very fine blooms of Hollyhocks; and Mr. Hooper, of Covent Garden, cut flowers of Petunias and annuals. Examples of double-flowered Petunias came from Mr. August, Beddington; and Clematis blooms, large and beautiful, were contributed by Messrs. Jackman, of Woking.

BIRMINGHAM ROSE SHOW.—This, the fourth annual exhibition of Roses, was held in the Town Hall on Thursday and Friday last. As a whole the display was most satisfactory, and a decided improvement on that of last year, the competition being well maintained throughout all classes. Taking into consideration the great heat we have experienced during the last few weeks, the blooms were generally remarkable for fine colour and substance of petal; perhaps a greater number of new Roses was produced at this show than we have met with elsewhere during the present season. In Nurserymen's collections of 96 varieties Messrs. Paul & Son were first with a very fine stand, containing among others excellent blooms of Madame Victor Verdier, Maréchal Niel, Eugene Verdier, Lord Clyde, Louis Van Houtte, Laurent Descourt, Pierre Notting, and Charles Lefebvre. Mr. Keynes was second with a good collection, in which were fine specimens of Baronne de Rothschild, Centifolia rosea, Gloire de Vitry, Lord Herbert, Alfred de Rougemont, Mrs. Dombrain, Paul Desgrand, Jaune d'Or, Joseph Fiala, Prince Henri des Pays Bas, and Abbé Raynaud.

Awards.—1, Messrs. Paul & Son; 2, Mr. J. Keynes; 3, Mr. J. Cranston; 4, Messrs. F. & A. Dickson.

In 48 Threes, Mr. Keynes was first with very fine blooms of Alfred de Rougemont, Prince Henri des Pays Bas, La Phocene, Duchesse de Morny, Baronne Gonella, and John Standish. Messrs. Paul & Son, who took the second position, had Arles Dufour, Madame Furtado, Maréchal Niel, Beauty of Waltham, and Lord Herbert, in good condition.

Awards.—1, Mr. J. Keynes; 2, Messrs. Paul & Son.

In Collection of 24 Threes, Mr. Keynes had beautiful blooms of Duc de Rohan, François Lacharme, and John Standish. Mr. Cranston showed good examples of Madame Boutin, Charles Lefebvre, and Baronne Gonella.

Awards.—1, Mr. Keynes; 2, Mr. J. Cranston; 3, Mr. G. Batley; 4, Mr. Richard Smith.

Collections of 24 Single Blooms were well sustained and consisted of many beautiful varieties, the names of which have often been given in our columns.

Awards.—1, Mr. Keynes; 2, Mr. Batley; 3, Mr. R. H. Vertegans; Mr. T. W. Coudrey.

In the class limited to nurserymen residing within 15 miles of Bimingham some good flowers were staged.

Awards.—24 varieties: 1, Messrs. Perkins & Son, Coventry; 2, Mr. J. Parker, Rugby; 3, Mr. Batley, Rugby; equal 4, Mr. R. H. Vertegans and Mr. T. Hewitt, Birmingham. 12 varieties: 1, Mr. Hewitt; 2, Mr. Vertegans; 3, Mr. Parker; 4, Messrs. Perkins & Son.

The Amateurs' Classes were well sustained; in 48 varieties the Rev. S. R. Hole was 1st, with excellent blooms of Maurice Bernardin, Charles Lefebvre, Triomphe de Rennes, Princess of Wales, Turenne, Madame Vidot, Le Rhône, and Vicomte Vigier.

Awards.—1, Rev. S. R. Hole, Newark; 2, Mr. S. Evans, Arbury; 3, Mr. C. J. Perry, Castle Bromwich. 24 kinds: 1, Rev. S. R. Hole; 2, Mr. E. Hunt, Leicester; 3, Mr. E. Sage, Gopsall; equal 4, Rev. P. M. Smythe and Mr. S. Evans. 18 threes: 1, Mr. S. Evans; 2, Mr. C. J. Perry; 3, Mr. E. Hunt. 12 single blooms: 1, Mr. E. Hunt; 2, Rev. S. R. Hole; 3, Mr. E. Sage; 4, Rev. P. M. Smythe. In the classes limited to Amateurs resident within 15 miles of Birmingham, the awards were:—collection of 24: 1, Rev. P. M. Smythe; 2, Mr. Brown, Elmdon; 3, Mr. C. J. Perry; 4, Mr. R. Garnett, Sutton Coldfield. 12 kinds: 1, Mr. W. Brown; 2, Rev. P. M. Smythe; 3, Mr. C. J. Perry; 4, Mr. Garnett. Extra, Mr. T. B. Wright, Great Barr, and Mr. John Moore, Sparkhill. In the class open to amateurs resident within 4 miles of Birmingham, the awards were:—1, Mr. C. Cooper, Moseley; 2, Mr. G. Dymond, King's Heath; 3, Mr. E. W. Field, Balsall Heath; 4, Mr. G. T. Sansome, Moseley; extra, Mr. W. B. Mapplebeck, Moseley.

No portion of a Rose show is more interesting to visitors than the collections of new Roses. On this occasion the 24 from Mr. Keynes were excellent, and far in advance of all other competitors. The most prominent were—Lord Herbert, George Prince, Paul Desgrand, Joseph Fiala, Pierre Notting, Claude Meillon, Laurent Descourt, Eugène Verdier, Senateur Favre, Maréchal Niel, and Prince Henri des Pays Bas.

Awards.—1, Mr. Keynes; 2, Messrs. Paul & Son; 3, Mr. G. Batley; 4. Messrs. Perkins & Son.

In 6 trusses of a new Rose, Mr. Keynes was again 1st with nice blooms of Prince Henri des Pays Bas; Mr. Cranston taking a 2d prize with Madame Boutin; and Messrs. Paul & Son a 3d with Madame Victor Verdier.

Various prizes were given for vases and baskets of Roses, as well as for bouquets for the hand, ladies only being competitors.

The Hall was tastefully decorated with ornamental plants, and the galleries were filled with chaste and elegant designs in glass and wirework.

Notices of Books.

Astra Castra. Experiments and Adventures in the Atmosphere. By Hatton Turnor, The Prince's Own Rifle Brigade. 4to, pp. xxiv. and 530. London: Chapman & Hall, 1865. With numerous woodcuts and photo-zincographed plates.

The curious title Astra Castra (The stars are my Canopy) is part of the motto of the baronets Lindsay (Astra castra, numen lumen), now represented by Sir Coutts Lindsay. The object of the book is to give as complete a history of balloon experiments as the present state of our knowledge on the subject will allow, and this from every point of view, æsthetical, philosophical, theoretical, and practical, not even omitting more strictly amusing matter, and the various sallies of ridicule with which this, like all other useful experiments and projects, has been met by those who find it much easier to laugh than to observe and reflect, and at the same time more paying, as far as any immediate result is involved, in the applause of the moment.

The opening chapter, which treats of the dawn of navigation as compared with the dawn of aërostation, together with the clairvoyance of the poets and early experimentalists, is not without interest. Great pains have been taken to hunt out everything which can by any possibility bear on the subject, not only in classical authors but in those of the middle ages, and afterwards in more modern times, so late as 1783, just before the first successful balloon ascent was made—the year it may be observed in which the composition of water was discovered independently of each other by Watt and Cavendish.

It has been supposed that so early as 1607 some one had made a commencement of sailing over a high steeple in a boat, far less picturesque in all probability than the crescent boat of Wordsworth; but when the evidence comes to be examined, it is far more probable that it was some wheeled carriage borne forward by sails, like that of Mr. Oxenden, which was successfully tried on Newmarket Heath, and some of the adjoining roads in 1820, of which we frequently heard at Cambridge in the following year, from a brother of the projector and builder.

Most amusing accounts are given of the early ascents, shaded now and then by such melancholy events as the death of Rozier and Romaine. This circumstance, which happened in 1786, made a very deep impression, and is thus recorded by an eye witness.

"This first and boldest of aëronauts (Monsieur Rozier) desired to crown his successes by the passage of the Channel, but trivial accidents and contrary winds delayed his start for several months. Meanwhile Blanchard had crossed from England. The many taunts he was subjected to in consequence of continued postponements galled his youthful spirit; and on the 15th June he started at 7 P.M. with Mons. Romaine under unfavourable circumstances; his last tie to earth having been the hand of the Marquis of

Maisonfort, to whom he had refused a seat in his car, in spite of his earnest entreaties, and who remained to write an account of the melancholy death of his friend, and to deliver an eloquent eulogium at the Academy of Sciences.

"Thousands of people watched their flight with peculiar anxiety, for another step would have been gained in the improvement of the aërostat, should the Charlo-Montgolfière succeed. The advocates of the Montgolfière had now had two years controversy with those who thought the Charlière the best; and it was the ambition of Pilâtre de Rozier to combine the two in his bold attempt.

"About 30 minutes only had elapsed since they had left the earth: the S.E. current that carried them out to sea had changed to S.W., that again brought them inland; when a cry arose from those thousands of spectators, maybe more swift than any that ever emanated from so large a multitude, for at the same instant all beheld the machine in flames; and after many swift, wave-like motions, it fell a shapeless mass upon the ground, on reaching which the unfortunate occupants were found dead."

There is an enormous mass of amusing and instructive information respecting all the most remarkable ascents, from these early commencements up to the present time, and of attempts to regulate the course of balloons and other aërostatic machines, as also to put them to some useful purpose. Till some method is found of successful steering, which does not seem likely to take place very soon, they can be only used for local purposes, and the most promising are those which are connected with warfare, either simply as enabling generals to gain a bird's-eye view of an army, or in connection with an electric telegraph as in the late lamentable war in the United States.

We must not forget the cognate subject of parachutes, on which our author gives not only historical but scientific details, his friend Mr. Ottley having appended a note on the comparative resistance of fluids to bodies of different forms. The accidents, like the lamented one of Mr. Cocking, so far as they arise from oscillation, have, however, not depended so much on any defect of form as on a first irregularity impressed upon the machine by the unequal expansion of the parachute during the time immediately succeeding its detachment.

A small portion of the book is taken up by notes on the atmosphere, not immediately connected with aërostation, concluding with some suggestions to the religious mind from the subject at various points of view.

For these, we must refer our readers to the work itself, with the remark that they evidently are the result of a sincere and unaffected tone of mind, though somewhat eccentric perhaps as regards the mode of statement.

By some accident or other a complete description of the numerous plates, many of which were prepared at the Ordnance Survey Office of Southampton, does not appear in the book, with the sources from whence they are derived, though these are given in a few instances. Several are reproduced from old and rare books or prints, while the vignettes, which are in a far more finished style, are due for the most part to the pencil of friends or brother officers, to whose talent in several instances they do great credit. It is invidious to select any, but we think we can distinguish those sketched by Charles Fairfield, of the rapidity and truthfulness of whose pencil we have ourselves been eye-witnesses.

The work, with its various matter from grave to gay, will be found full of interest. Its form, thick paper and heavy binding, it may be observed, make it rather a book for the library table, than for the hand. Its material ponderosity must not however be taken as a measure of its worth, for it is highly creditable, especially to so young an author.

Geology as a branch of General Education. An Address by David Page, F.R.S.E., F.G.S. W. Blackwood & Sons, Edinburgh and London.

Mr. David Page is a capital writer of class-books on Geology, and so long as he keeps to his own department of science, one may be disposed to excuse him for asserting that, "as a theme for mental exercitation, geology is certainly superior to the classics, and is not surpassed either by logic or metaphysics." People cannot help being amused when an enthusiastic gentleman gravely and repeatedly assures them "there's nothing like leather," but they cannot so easily tolerate the sesquipedalian words which Mr. Page delights to string together. It is a great pity that he has dug these out of some Palæozoic deposit, along with his fossils, and never seems tired of ringing the changes upon them.

"Mental exercitation and intellectual enjoyment" is language grandiloquent enough for any audience; but the repetition of the same idea, with or without some slight verbal alteration, and the profuse and pedantic use of long words, detract grievously from the pleasure with which we should otherwise read Mr. Page's address. By all means let geology be made a branch of general education. It has been thus used at Cambridge, and we feel obliged to those who advocate its adoption more generally.

BOOKS RECEIVED.—*Dr. Webster's Dictionary of the English Language*, by Profs. Goodrich & Porter, of Yale College. Parts V. and VI. bring this popular illustrated dictionary very nearly to the end of letter N., and, according to the prospectus, complete one half of the work.—*The Natural History Review*, No. XVIII., contains notices of works on the Zoology of British India, Hall's Life with the Esquimaux, an extremely interesting narrative, written in a charmingly simple style, and adorned with many original sketches, by a kindly American, who won the hearts of the simple folk among whom he lived. A notice of M. Jordan's recent work, gives rise to an article on Species and Sub-species, which will be read with interest; as will also another, by Dr. Thurnam, on Synostosis of the Cranial Bones, for its bearing upon the Neanderthal skull, and anthropological questions connected therewith.—*A Dictionary of Chemistry*, by Henry Watts, F.C.S. Parts XXV., XXVI., XXVII., carry the work from the conclusion of the metals to the end of the oils. We observe that it has been found impossible to limit this comprehensive dictionary to the 3000 pages and three volumes originally contemplated. Chemistry is an ever-growing science, and to do justice to the subject, it has been resolved to extend the work by another thousand pages, forming a fourth volume.—*The Geological Magazine*, Nos. XI. and XII., contain several original articles and reviews of more or less general interest, with the reports and proceedings of the principal geological societies and field clubs, and the first volume of the magazine is announced as ready.

Florists' Flowers.

CARNATIONS AND PICOTEES.—The cultivation of these chaste and beautiful flowers has much declined of late years in the vicinity of London. The seeming difficulty of their cultivation has, perhaps, been the great cause of their disappearance from gardens, but, if so, such should not be the case, for with a little care they may be grown wherever the sun and air has free access, and in the environs of the metropolis they might be a source of much pleasure to the amateur, as well as of profit to the cultivator for sale. No doubt the Rose has been a great antagonist; so have bedding plants, and the gaudy Gladiolus and Aster. Our northern and midland florists grow them largely and to great perfection, but in the south a few stands at the metropolitan exhibitions in July are all we are favoured with, unless we take a trip to the Royal Nurseries at Slough, and there we see them grown in perfection, every bloom a model, and the marking and lacing so delicate and striking that the visitor cannot help falling in love with them. The season being at hand when their blossoms will be in perfection, and their propagation proceeded with, a few words in their favour may be useful.

Their cultivation is simple enough, but to excel, both patience and attention, without which it is impossible to excel in anything, must be exercised. I am inclined to think many cultivators have failed from using richly manured soil, a sad mistake if such has been the case. Pure maiden yellow loam (the top spit from a pasture with all the fibre), some well decomposed leaf-soil, three or four years old, and silver sand, with the addition of a little well-rotted cow manure, five, six, or seven years old, will make a good compost to grow them in, say four parts loam, one part leaf-soil, one part old rotten cow manure, and sufficient silver sand to make the whole porous. These ingredients should be well mixed and allowed to remain in a heap exposed to the winter frost. In frosty weather the crust should be taken off every morning and laid aside until the whole heap has been frozen through. This will assist to destroy the wire-worm, the most destructive enemy of the Carnation and Picotee. These wire-worms should be earnestly sought after every time the compost is turned over and destroyed. If I had the means I should subject every turf of loam to fire-heat in a retort or oven, so as to slightly char it, a safe way of destroying any insects or larvæ deposited in the turf; it would also be much improved by the process, as the plants when potted in charred soil would have the foliage a deep green, almost black, and their vigorous appearance would show they enjoyed it.

In describing their cultivation I will commence with the propagation. From the middle to the end of July is the proper time for this operation. Layering is the mode of propagation usually practised, and is the safest, although when there is a superabundance of Grass some propagate a few from pipings (cuttings) in the same manner as Pinks. Most persons are acquainted with the process of laying, which is simply cutting off the leaves four or five joints from the top of the shoot, and then cutting with a sharp knife obliquely through the joint where the leaf was attached to the stem—in fact, splitting it, commencing with the cut about half-way between the joint, and carrying it a little way through the joint. Some sand and loam, about equal parts of each mixed together, should be in readiness to put under the layers. As soon as cut they should be fixed down with a peg of some kind, so as to open the cut already made rather widely; this will materially assist their rooting. When the whole of the shoots in the pot are covered neatly with the sand and loam, water well with a fine-rose pot. If dry weather sprinkle lightly the young shoots every evening, early, to keep them from flagging. In five or six weeks they will be rooted nicely, and early in September they should be potted off into 4-inch pots, two plants in each pot, and stood out of doors in an open situation fully exposed to sun and air. The compost for this potting should be loam only with sufficient silver sand to keep the soil porous, the drainage should be ample, and the soil pressed tightly into the pots. Early in October they should be placed in winter quarters. Some Melon or Cucumber frames, with the boxes placed so that the lights shall be at an angle of 45°, with shelves inside, will be a capital place for them. The frame should face full south. In watering, use a spout not a rose, and be careful not to allow a drop of water on the foliage during November, December, and January, or they will probably get the spot—a very troublesome disease. Give plenty of air by taking off the lights in fine weather, and tilting them on wet or foggy days. If frosty, a mat should be covered over each light; and if the frost is severe, it must be allowed to remain until a thaw has taken place, and the frost is quite out of the frame. *W. H.*

(*To be continued.*)

The Apiary.

EARLY in the forenoon of June 13, I was rather puzzled at receiving by train, a small box of about 6 inches long, 3 inches wide, and 2 inches deep, covered on one side with perforated zinc, from which a very audible hum proceeded. The box was directed to me, and on the card "By fast train; live bees; with care," was to be seen in large letters. The railway labels, one being pasted over the other, gave me no clue to the place from which the passengers had been started, but at length I made out that they had come from the distant county of Durham, and had travelled so far into the very south of England without losing one of their number. Still, as no letter had arrived apprising me of the intention of the sender, whoever he might be, I was at a loss to know what to do with the emigrants. Being very much occupied that day, I must confess that at first I looked upon them rather in the light of a nuisance than otherwise, as involving the necessity of my devoting to them some of my then valuable time. However, I thought it best to endeavour to ascertain the precise character of the bees thus forwarded to me. By substituting a piece of glass for the zinc cover, I discovered that the bees were Ligurians. "Well," I thought, "some kind friend has sent me a Ligurian queen, intending that it should be placed at the head of a stock of common bees." After looking at the bees, which were about 50 in number, for a minute, I caught a glimpse of the queen, certainly a rather nice-coloured yellow Ligurian; she quickly plunged among her companions, and I could not gain a second view of her. Soon after this the north country post was due, and I waited for a letter which might explain matters more fully. As I expected, a letter arrived, and I recognised the handwriting of an old friend and correspondent. The tenor of his letter was to the effect that he, having a third swarm issue from one of his Ligurian hives which he did not require, had captured the queen in order that the swarm might be returned, and had forwarded her to me, thinking I might be glad of the opportunity of placing her at the head of a colony of common bees. He assured me that the queen was from a pure Ligurian mother, so that I was the more willing to form a small nucleus, and gradually build it up into a respectable stock.

I had only one hive from which a brood-comb could be taken, and from which the young bees were actually emerging. One of this character was selected and placed in a nucleus, the little box with the queen and her 50 subjects was placed over the central aperture in the cover, and the zinc removed, thus allowing the bees to descend among the combs. The nucleus was shut up for about 12 hours within doors, the bees being confined; the following day they were liberated, and flew in and out very actively.

On the 15th, at 1 o'clock, I inspected the combs, and, including those which had hatched out from the brood-comb, there were only about 100 bees present. The queen was not be found, and I began to fear she had succumbed to the perils of her journey, but at length thought it was probable that she might be out on a matrimonial flight. The combs were carefully looked over more than once, but no queen was to be seen. There being so few bees every one could be examined, so that I know the queen was not at home. I looked again at 4 o'clock the same afternoon, she was then present and very active.

On the 16th I had a good view of her majesty, and found her improving considerably in size and colour, so that I began to be pleased at the acquisition, and interested in the experiment of building up this diminutive batch of forced emigrants into a populous colony. Owing to the very small number of bees which were in the box, I found a great deal of the brood to be both chilled and starved; the queen remained active and lively.

On the 17th the stock from which the brood-comb had been taken was again visited. A comb, having on its surface a large number of young bees which had never left the hive, was lifted out, the old bees were got rid of, and the very young bees only were added to those in the nucleus. The cover was put on, and at first all appeared right. But my attention was soon called to a very ominous buzz in the small hive, and the cry of the queen was constantly to be heard. Knowing that she must be in jeopardy I lifted off the lid of the box and soon discovered the princess at the bottom of

the hive, struggling fearfully against the assaults of a lot of the irritated young strangers. In her terror she rushed out at the entrance with two vicious little creatures trying with all their might to sting and disable her. I succeeded in saving her from their attack, and catching her, carried her at once into a close room. She escaped out of my hand in the room, but fortunately could not fly away. I placed her in a small queen box, and put in as companions, a couple of bees which had been brought in on my hand, but in a moment one of them was fastened viciously upon her, and her life saved only by the prompt crushing of the little termagant. Getting rid of the other bee, she was placed alone among the combs in the nucleus box. I was greatly in hopes that this would prove successful in putting a stop to the aggressive policy of the young interlopers, and that time would work a salutary change in their dispostions.

On the 18th the lid of the queen box was slipped off, but the bees were not otherwise disturbed. On the 19th the combs were searched over, but there was no sign of a queen; on looking again more closely, a royal cell was found to be in progress, so then I knew that the fate of the queen had been sealed; probably she had been really stung at the time of the savage assault on her *not* sacred person. The bees seemed very contented, and well pleased with their act of regicide; and the royal cell was evidently the centre of a great amount of attraction, as there was some difficulty in clearing it of bees, so as to see what progress had been made. The work for which the nucleus had been formed having thus failed, I had no further use for it, and the bees and combs were summarily transferred to another artificial swarm, materially adding to its strength. I was sorry at the fate of this queen, and regretted having made the attempt of uniting to a valuable queen, even bees that had never once left their parent hive. There is little doubt that she would have continued to do well had I been content to let the bees hatch out from the comb first given; and eventually to add advanced brood-combs only. It is always too great a risk to the queen to attempt to strengthen a weak nucleus or other swarm by uniting bees to it, but I was hardly prepared for the result which followed the union of young bees that had only just emerged from their cells.

There is nothing like experience, and I trust that no such accident from such a cause may ever again occur in my apiary. *Apiator.*

Alexander Boyle, Narbeth. The reply to your inquiry (see p. 608), should be read thus:—"Only one entrance is left open. Unless your hive has become tolerably well filled, which, from the small size and lateness of the swarm, we should be inclined to doubt, a super will do more harm than good."

Miscellaneous.

The late Duke of Devonshire and Sir Joseph Paxton.—About 20 years ago, by the direction of the late Duke of Devonshire, I copied the following from the original in his Grace's handwriting:—"Joseph Paxton was born the 3d of August, 1803. I made his acquaintance at the Horticultural Society's garden at Chiswick, where he was placed in 1823. He was chiefly employed in training the creepers and newly-introduced plants on the walls there, which first excited my attention; and being in want of a gardener at Chatsworth, I asked Mr. Sabine, who was then at the head of the establishment, whether he thought that young man would do? He said, 'Young and untried,' but spoke so favourably that I had no doubt. The young man had made a large lake in 1822, at Sir Gregory Page Turner's place, near Woburn. He came to Chatsworth in 1826. You shall have it in his own words: 'I left London by the Comet coach for Chesterfield, and arrived at Chatsworth at half-past 4 o'clock in the morning of the 9th of May, 1826. As no person was to be seen at that early hour I got over the greenhouse gates by the old covered way, explored the pleasure ground, and looked round the outside of the house. I then went down to the kitchen garden, scaled the outside wall, and saw the whole of the place, set the men to work there at 6 o'clock, then returned to Chatsworth, and got Thomas Weldon to play me the waterworks, and afterwards went to breakfast with poor dear Mrs. Gregory and her niece; the latter fell in love with me, and I with her, and thus completed my first morning's work at Chatsworth before 9 o'clock.' He married Miss Sarah Brown in 1827. In a very short time a great change appeared in pleasure-ground and garden: vegetables, of which there had been none, fruit in perfection, and flowers. Twelve men with brooms in their hands on the lawn began to sweep, the labourers to work with activity. The kitchen garden was so low, and exposed to floods from the river, that I supposed the first work of the new gardener would be to remove it to some other place, but he made it answer. In 1829 the management of the woods was entrusted to him, and gradually they were rescued from a prospect of destruction. Not till 1832 did I take to caring for my plants in earnest. The old greenhouse was converted into a stove, the greenhouse at the gardens was built, the arboretum was invented and formed. Then started up Orchidaceæ, and three successive houses were built to receive the increasing numbers. In 1835 the intelligent gardener, John Gibson, was despatched to India to obtain the Amherstia nobilis and other treasures of the East. The colossal new conservatory was invented and begun in 1836; the following year Baron Ludwig was so charmed with its conception that he stripped his garden at the Cape of the rarest produce of Africa. Paxton had now been employed in the superintendence and formation of my roads; he made one tour with me to the West of England, and in 1838 contrived to accompany me for an entire year abroad, in which time, having gone through Switzerland and Italy, he trod in Greece, Turkey, Asia Minor, Malta, Spain, and Portugal. In his absence he managed that no progress should be checked at home. A great calamity ruined the expedition he had set on foot to California; the unfortunate Wallace and Banks, young gardeners from Chatsworth, having been drowned in Columbia River. He went with me in 1840 to Lismore, and in that year the conservatory was finished. The village of Edensor was new-modelled and rebuilt between 1839 and 1841, and the crowning works have been the fountains and the rock-garden." After I had copied what precedes, I inquired of the Duke if he knew the amount of wages Paxton was receiving from the Horticultural Society in 1823? The answer was—"Only 18*s.* a-week, as I was informed by Mr. Sabine." As I knew that the Duke of Devonshire (by whom I had been most kindly aided for the last 18 years), would not be offended by the question, I asked what wages he had himself given the young and untried gardener in the first instance? and his reply was, "I think 25*s.* a week, and a cottage." Of course his Grace afterwards rapidly advanced Paxton's wages, and eight or ten years subsequently the young labourer of 18*s.* a week, and the new gardener of 25*s.* a week, was often seen dining at the Duke's table. *J. Payne Collier, in Notes and Queries.*

Calendar of Operations.

(*For the ensuing week.*)

It need scarcely be repeated that a garden can afford but little enjoyment unless good cultivation and cleanliness form its chief characteristics. Roses covered with aphides, Cabbages spoiled by caterpillars, Gooseberry bushes stripped of their foliage by similar means, are matters of but too common occurrence. What possible enjoyment, then, can be derived from such gardening? To reap pleasure, and profit likewise, such things must not be permitted to exist; ordinary attention, combined with a little perseverance, will soon overcome the ravages of such pests. The first evidence of the presence of our foes ought to put us on the alert, and perhaps there is no more effectual or better remedy than hand-picking. In a few hours, in the early stage of the evil, by careful picking, one person will do as much as ten will when the mischief is permitted to exist for only a few days. Distributing freshly slacked lime over the soil will also, to some extent at least, check the migratory movements of caterpillars. Red spider is another of the enemies which deface the foliage of many plants, and particularly those against walls with projecting coping. Although this is not so easily discovered with the naked eye as a caterpillar, it is nevertheless a more destructive and more unconquerable opponent. Still, if it is taken in time, it can also be subdued, and even expelled. Water and sulphur are the only known practical subjugators. If these are applied early and sedulously, no red spider can exist under their influence. Indeed, where it can be applied with impunity through a powerful syringe or garden engine, water alone will completely subdue this tiny pest.

FLOWER GARDEN AND PLANT HOUSES.

Mow, sweep, and roll lawns, and tie or peg down half-hardy plants as they advance in growth. Do not allow any of these to extend themselves outwardly so far as to injure edgings, whether of Box or turf; and in cleaning shrub masses, where herbaceous plants or annuals have been planted or sown in vacant places, take care that the latter are not injured by the encroachments of quick-growing plants. Any annuals or other half-hardy plants, whose season of beauty is past, should be immediately removed, and their place supplied from the reserve garden, planting sufficiently close to produce at once a dazzling display.

Dahlias.—Give these weak liquid manure, and with a small three-pronged fork occasionally stir the surface of the soil. If the plants are required to produce flowers for exhibition, it will be advisable to disbud early, if the variety is at all under-sized, but when the variety is large and coarse, fewer buds should be removed.

Polyanthuses.—Should the weather prove wet these plants may be parted. Do not use a knife in the operation, the ivory handle of a budding knife will be found a suitable instrument. When planted out, in a shady suitable situation, do not let them want for moisture; and a temporary screen will prove highly beneficial till the plants are established.

Roses.—These should be again gone over, removing all gross shoots that are not likely to flower this season, dead flowers, and those which have done flowering. Young strong growths of autumn-flowering Roses in masses should be pegged down; and those of the summer-flowering kinds, as the Moss, Provence, or Gallica varieties, should be layered; the whole surface of the beds should be forked over, and if a good soaking of liquid manure can be given, its effect will be very apparent in the greater permanency of the colours, and in the lengthened period of blooming.

White Lilies.—These should be taken up and replanted once in two years, an operation which should be done as soon as the old stems are decayed. Beds for these plants should be made of rich loamy soil, containing a good portion of sand or burned clay, and charred refuse. In planting, a little sand should be laid above and below the bulbs.

FORCING GARDEN.

Pines.—If the heating apparatus of any of the houses in which these are grown is defective, or even doubtful, the warm weather we are now experiencing affords a good opportunity for making the necessary alterations. It is annoying enough to have the state of things disturbed at any time, but this is not equal to the vexation arising from an old boiler bursting, or a set of pipes or tanks giving way, in the middle of winter; especially when due forethought and careful observation would have prevented the catastrophe. Withhold water from plants which are ripening their fruit; and the soil in which plants in other stages are growing should be frequently examined, to see that the constant syringings do not make it too wet, and thereby endanger the health of the roots. Do not, on the other hand, allow them to suffer from want of moisture, either about the roots or in the atmosphere; and let them be supplied with a bottom heat of 85°.

Vines.—The most important thing at present is to keep red spider in check; where this has been properly attended to during the last three months, and where syringing was not continued too long, the bloom will be uninjured, and the appearance of the fruit will by this be considerably enhanced; besides which, the plants are in a much better condition to perform the functions necessary for ensuring a good crop next season. Let this be kept in view during the rest of the autumn, as it is still more essential that the foliage of late Vines should be kept in the highest health to the latest period possible. Attend, when necessary, to the watering of inside borders, and of those on the outside which may be covered with tarpaulin or other material. A slight mulching of decayed leaves or dung is very useful during summer.

HARDY FRUIT AND KITCHEN GARDEN.

Remove superfluous wood from wall trees, and keep insects in check. In the kitchen garden push forward all kinds of planting while the weather is showery and the soil in good condition for the operation. Liquid manure will be found very useful now; applications of this, together with deep stirring of the ground among growing crops with a fork, is a sure way of realising the best results.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending July 5, 1865, as observed at the Horticultural Gardens.

June and July.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth 1 foot deep.	Temperature. Of the Earth 2 feet deep.	Wind	Rain.
Thurs. 29	6	29.646	29.362	64	52	58.0	64	61	W.	.42
Friday 30	7	30.376	29.262	66	50	58.0	62	60	N.E.	.43
Satur. 1	☽	29.872	29.605	73	39	56.0	61	60	W.	.00
Sunday 2	9	30.052	30.007	80	38	59.0	61	60	S.W.	.00
Mon. 3	10	30.073	30.000	81	41	61.0	62	60½	S.W.	.00
Tues. 4	11	29.969	29.942	84	51	69.0	63	61	S.	.02
Wed. 5	12	30.016	30.011	81	58	69.5	64½	62	S.	.10
Average.		30.000	29.741	75.5	47.4	61.5	62.5	60.6		.95

June 29—Overcast; rain; overcast; heavy rain; warm at night.
— 30—Overcast; constant rain; cloudy; heavy rain.
— 1—Cloudy; fine; very fine throughout.
— 2—Very fine; hot and dry; cool at night.
— 3 Very fine; some low white clouds in clear blue sky; exceedingly fine.
— 4—Very fine; hot and dry with bright sun; cloudy at night.
— 5—Light clouds and fine; exceedingly fine; rain at night.
Mean temperature of the week, ½ deg. below the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 39 years, for the ensuing Week, ending July 15, 1865.

July.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday.. 9	73.8	49.7	61.8	17	0.82 in	4	2	3	1	3	8	11	[illegible]
Mon. ..10	74.6	50.5	62.5	15	0.48	2	3	2	2	4	12	6	[illegible]
Tues. ..11	75.0	50.8	62.9	10	1.07	4	1	5	1	5	9	[illegible]	[illegible]
Wed. ..12	75.7	50.5	63.1	12	1.10	1	2	7	—	5	10	[illegible]	[illegible]
Thurs. ..13	76.5	51.2	63.8	13	0.92	—	4	6	—	2	22	4	1
Friday ..14	76.5	50.7	63.6	14	0.64	—	4	4	1	6	13	10	1
Satur. ..15	76.3	50.3	63.3	20	1.46	1	4	4	—	4	13	6	2

The highest temperature during the above period occurred on the 14th, 1847—therm. 93½ deg.; and the lowest on the 9th, 1863—therm. 33 deg.

Notices to Correspondents.

Diseases: *W D.* The spots on the leaves of your Dracæna have arisen probably from drops of water resting on the leaves after syringing. A great deal has been written on Orchid spotting in the *Gardeners' Chronicle* for this year, to which you had better refer. *M. J. B.*

Himalayan Cedar: *H M G.* Sow the seeds immediately in pure loamy soil of medium texture, in pans, in a cold frame.

Mulberry Silkworms: *G H.* If you will send your address for publication, we may be able to place our readers in communication with you.

Names of Plants: *E M.* 1, Pteris hastata; 2, Doodia caudata; 3, Polystichum angulare; 4, Polypodium Phegopteris.—*G M.* Polygonum amphibium, and Melilotus officinalis.—*J Manley.* Achillea serrata. The bulb is Ornithogalum scilloides.—*F W.* A Photinia, probably P. Lindleyana.—*L H G.* The pod is that of some Acacia.

Orchid-houses: *A D B.* The best sheet glass for an Orchid-house is that 21 oz. to the foot. This is less liable to breakage than that of less weight; but the plants will do equally well under the thin glass. The cause of the Phalænopsis amabilis leaves going off is probably through their being kept in too sunny a place, with too much ventilation. We recommend you to keep the plant in a warm and moist atmosphere, shaded from the sun, and not too far from the glass. The plant will be better for all the light possible; this makes the leaf firm, and less liable to suffer from spot, which often appears when they are grown too sappy.

Royal Horticultural Society: *F L S.* We are not aware that a Superintendent for Chiswick has yet been obtained. You should apply to the Secretary.

Tropæolum: *J Kiley.* The flowers were quite dried up and useless.

Misc.: *Inverness.* Would you kindly furnish us with your name and address?

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MR. C. P. HUMBERT, F.G.S., of Watford, Herts, and formerly Senior Surveyor to the Tithe Commission, a Land Surveyor and Land Agent, more than 20 years established in practice, undertakes the Drainage either at a contract price, or to lay out and overlook the same for a commission of 5s. per acre; and he has at his command a staff of trained workmen. His custom is to charge merely the expenses out of pocket in making the preliminary Survey and Estimate where the works are not carried out.

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ROYAL AGRICULTURAL SOCIETY of ENGLAND.
JULY, 1865. PLYMOUTH MEETING.
PROGRAMME.
WEDNESDAY, THURSDAY, FRIDAY, and SATURDAY, JULY 12, 13, 14, and 15.
Trial of Field Implements on Woodford Farm, Plympton St. Mary. Distance by rail or road 3½ miles from the Showyard.
The Show Ground is at Pennycomequick, about one mile from the Railway Stations at Plymouth and Devenport.
SATURDAY, July 15.
The Implement Yard open from 9 A.M. till 6 P.M.; admission, 5s. each person.
MONDAY, July 17.
Cattle Yard open from 8 in the Morning, at which hour the Judges will commence inspecting the Live Stock, and making their awards.
The Implement Yard open from 8 in the Morning.
Admission—Members free; Non-Members, 5s.
The Show Yards will be closed at 6 in the Evening.
TUESDAY.
Public Dinner, in a Pavilion near the Hoe, at 6 P.M. Tickets, 10s. each.
TUESDAY and WEDNESDAY, July 18 and 19.
The General Show of Cattle, Horses, Sheep, Pigs, and Implements, open to the Public from 8 o'Clock in the Morning till 6 in the Evening. Admission—Members free; non-members, 2s. 6d. each person.
THURSDAY and FRIDAY, July 20 and 21.
The General Show of Cattle, Horses, Sheep, Pigs, and Implements, open to the Public from 6 o'Clock in the Morning till 6 in the Evening. Admission—Members free; non-members, 1s. each person.
FRIDAY, July 21.
General Meeting of the Members in the Show Yard at 10 o'Clock.
By Order, H. HALL DARE, Secretary.
12, Hanover Square, London, W.

The Agricultural Gazette.
SATURDAY, JULY 8, 1865.

MEETING FOR THE ENSUING WEEK.

MONDAY,	July	10	Horse Show at the Agricultural Hall, Islington.
TUESDAY,	—	11	
WEDNESDAY,	—	12	
WEDNESDAY,	—	12	Agricultural Society of England—Trial of Implements at Plymouth.
THURSDAY,	—	13	
FRIDAY,	—	14	
SATURDAY,	—	15	

—— We have great pleasure in announcing that Mr. JAMES CAIRD will succeed the late Mr. WINGROVE COOKE as Commissioner of Enclosures. No appointment could have been more agreeable to the agricultural world, or more conducive to the interests of the country.

—— The great meeting of the Royal Agricultural Society of England will commence on Wednesday next at Plymouth, when the trials of drills, manure distributors, mowing and reaping machines, hay tedders, and horse-rakes—the class of tools which are this year submitted to competition—will commence. Prizes to the amount of 440*l.* will be awarded to these implements, and nearly 3000*l.* will on the Monday following be awarded to the various classes of stock which will then be exhibited. The time of the General Elections will probably coincide more exactly and therefore interfere more directly with the agricultural week at Plymouth than it did even at Lewes 13 years ago, when it very materially diminished the interest which the annual meeting of the Society usually excites. In all probability the same result will follow at Plymouth from the political excitement of the next few weeks. It is to be hoped that under the circumstances care has been taken by the Agricultural Society for the preservation of an accurate record of the exhibition, which will in all probability be witnessed by a comparatively small number of the members; so that in the Journal of the Society, as in the various weekly agricultural papers, as full a picture as possible may be presented of proceedings which lose nothing of their intrinsic interest or importance, although for the time less interest may be taken in them, or less comparative importance may be attached to them.

AN old friend who is engaged in laying down land to Grass in the southern Province of the North Island of New Zealand, wrote to us for some information about Grass seeds. We sent him some abstracts of trade circulars, which supply all that is known about those adapted for cultivation in Great Britain. He was more particularly anxious to have Grasses which would afford good winter keep for sheep in a climate where snow never lies, and frosts rarely occur, and where all the field crops grown in England can be successfully cultivated. Its natural pastures are characterised by a paucity of Grasses and an absence of Leguminosæ, which in other countries afford so much nourishment to herbivorous animals. It is a well-known fact that the natural pastures in South Africa, Australia, and New Zealand are so unproductive that from one and a-half to two and a-half acres are required to keep a sheep. We do not know what steps may have been taken to improve the pastures of Australia near the seats of population, but very marked success has attended the sowing down land to English Grasses in the cooler and moister climate of New Zealand. In the following notes we have endeavoured to keep the interests of these countries in view:—

In ALLEN'S American Farm Book (New York, Saxton, 1863), the author, after expressing his regret that so little has been done to ascertain their numbers and comparative quality, says (page 97):—"Their superior richness and enduringness may be inferred from the health and thrift of the buffalo, deer, and other wild herbivoræ, as well as from the growth and fine condition of our domestic animals throughout the year when permitted to range over the woods and through the natural prairies and bottom lands where these Grasses abound. The writer has seen large droves of French and Indian ponies come into the settlements about Green Bay and the Fox River in Wisconsin in the spring, in good working condition, after wintering entirely on the natural Grasses and browse north of lat. 44°.

Dr. DARLINGTON, of Pennsylvania, who has written on the subject, enumerates the following species in the order of their value:—1, Meadow or Green Grass (the wrongly-named "Blue" Grass of Kentucky), *Poa pratensis;* 2, Timothy, *Phleum pratense;* 3, Orchard Grass, *Dactylis glomerata;* 4, Meadow Fescue, *Festuca pratensis;* 5, Blue Grass, *Poa compressa;* 6, Ray Grass, *Lolium perenne;* 7, Red Top, *Agrostis vulgaris;* 8, Sweet-scented Vernal Grass, *Anthoxanthum odoratum.*

It appears advisable to quote Mr. CAIRD's remarks on the so-called Blue Grass, *Poa pratensis*, which is first on the aforesaid list, from his "Prairie Farming in America" (London, Longmans), page 56:—"The Blue Grass is a rich thick succulent Grass, of a bluish colour, which grows with great success on the limestone soils of Kentucky, and is found to succeed admirably on the Prairies" (in Illinois State) "when laid down as pasture. It improves every year, and yields feed for six months, besides half feed during the winter;" and again at page 72, "The Blue Grass I find everywhere spoken of as best adapted for the prairie. It is sometimes sown on the fresh prairie after the Grass has been burnt off, the ground being first well harrowed. But though this occasionally succeeds, the process of breaking up the prairie and sowing it out after one or two corn crops is preferred." And lastly, at page 82, "The Blue Grass (*Poa pratensis*), which is indigenous on the limestone lands of America, will usurp the place of all other Grasses on such soils in the course of years. It is said to yield a greater return of beef, milk, mutton, wool, or pork than any of the cultivated Grasses."

The Cocksfoot, No. 3 in the list, flourished in all the States bordering the Atlantic as far south as Georgia.

Besides these, ALLEN enumerates the beautiful Ribbon Grass, *Phalaris arundinacea*, valuable in alluvial swamps; Gama Grass, *Tripsacum dactyloides*, valuable on naked sand beaches; Guinea Grass, *Sorghum halepense*, considered by some to be "superior to any other grown at the South." Bermuda Grass, *Paspalum dactylon*, Crab Grass, and Winter Grass are valuable in the Gulf States. "The Muskeet Grass found growing on the plains of Mexico and Texas is considered one of the best of the indigenous Grasses."

"Grama (La Grama, or the Grass of Grasses) is held in the highest estimation by the Mexicans. It attains a medium height, and is deemed the

most nutritious of the natural Grasses in our south-western, frontier prairies, in California, and parts of Mexico. It grows on dry, hard, gravelly soils, on side hills, the swells of the Prairies, and the gentle elevations in the valleys. The principal value is found in the numerous seeds, which are retained in the pots with great tenacity long after they are ripe, serving as a luxurious food for all the granivorous beasts and fowls of the regions where it is grown.

"The Buffalo Grass is found intermixed with the Grama, and seldom grows more than a few inches in height. It forms a thick soft herbage, on which the traveller walks with ease and reposes when weary with delight. It yields a rich sustenance to countless herds of wild horses and cattle, buffaloes, deer, and antelopes."

Tornillo, or Screw Grass, belongs to the table lands of the same region; "it is taller than the Buffalo, with broader leaves;" it is most valuable for its ripened seeds.

"The Prairie Grasses abound in the western prairies, and are of great variety, according to the latitude and circumstances under which they are found. They afford large supplies of nutritive food, both as pasturage and hay. They possess different merits for stock, but as a general rule they are coarse when they have reached maturity, and are easily injured by the early frosts of autumn. Some of the Leguminosæ, or wild Pea vines, which are frequently found among them, yield the richest herbage. We are not aware that any of these Grasses have been cultivated with success.

"The Pony Grass may be mentioned as one of the best of the winter Grasses in our western States. It grows in close, thick, elevated tufts, and continues green all winter. It is easily detected under the snow by animals, from the little hommocs which everywhere indent its surface."

In South America vast herds of cattle and horses are depastured in the Llanoes or savannahs of the basin of the Orinoco, until vegetation is burnt up by the heats of summer; the pastoral riches of the basin of the La Plata are still better known. It is possible that some useful Grasses are to be had from these two localities as well as the slopes of the Andes. Besides these, may we not look to the slopes of the Himalaya Mountains and the boundless plateaus of Central Asia?

It is very evident then that the continent of North America abounds in Grasses and forage plants suitable for domestic animals, and that settlers in South Africa, New Zealand and throughout the whole of the island continent of Australia, from Victoria to the tropical shores of the Gulf of Carpentaria, have a wide field for experiments. If it is possible by a judicious selection of foreign Grass seeds to double or quadruple the present average number of sheep (one to every two or two and a-half acres) in Australia, millions would be added to our national wealth, for colonial and imperial interests are identical.

India, which is awakening to new life under the fostering care of British energy and capital, has its requirements, and one or two good things may be welcomed by the English grazier.

Though the question may at first sight be termed a colonial one, still it is one which the mother country ought to feel an honest pride in originating and faithfully directing. The poor fever-stricken patient will bless the movement which has led to the successful cultivation of the Cinchona in British and Dutch India; and this Grass question, if equally successful, has for its object to feed the hungry, clothe the naked, and fructify commerce in many channels.

Some of the wealthy Australian colonists resident in England should hold a meeting, appoint a committee to collect subscriptions for the preliminary expenses, and try to enlist some leading botanists, in particular the good-will and co-operation of Sir W. Hooker, Director General of Kew Botanic Garden, by asking him to appoint, or sanction the appointment, of a well-qualified Botanist at a liberal salary to examine the books and specimens contained in the library and herbarium, and to make a "report on useful foreign pasture Grasses and forage plants, with notes on such others as may be considered worthy of experiment in the British colonies." Such a report would supply reliable data for all future operations, whether for collecting additional information and seeds by consular agency, or for the proper selection of a productive field for a special collector, after the successful example of the London Horticultural Society, and one or two special associations for the introduction of useful and ornamental trees and shrubs. The committee would then be in a safe position for bringing the subject in a practical form before the public and the Colonial Governments, neither of whom would be likely to withhold pecuniary support from a patriotic association whose preliminary expenses were guided by science and characterised by prudent forethought. P. L. S.

DRY WEATHER AND DEEP CULTIVATION.

How is it that in spite of the long-continued drought my Wheat, Beans, Oats, and Barley, Tares, and Cabbage luxuriate? I attribute this mainly to deep drainage, deep cultivation, and unwashed manure; something is also due to the cold heavy clay, but even on my light lands my advantage is conspicuous. I have 17 acres of Mangel also looking admirably. We are to-day blessed with a very copious rain, which will be of great value to the country. After drainage I attach great importance to deep cultivation—I do not mean bringing to the surface the unaërated and ill-conditioned subsoil, which is almost poisonous, but by breaking it up in the track of the first plough, with a common iron plough (minus the breast) drawn by four strong horses.

Take as an instance a heavy-land field of 7 acres, from which we have just cleared a strong crop of Tares, supported by Wheat; I manure this heavily with shed manure, then by the process of trench-ploughing which I have described, the subsoil and upper soil get partially mixed, the manure falling in among the subsoil, where it is most wanted. I then harrow and roll the land, and now that rain has moistened it shall plant it with strong Cabbage plants out of my seed bed. I thus never fail to have a strong crop of Cabbage after Tares; in fact, two most valuable green crops within the 12 or 13 months. I then guano and get a strong crop of Barley or Oats.

The good effect of this deep cultivation is felt throughout the whole rotation of crops. If you follow and watch the under plough you will see, boiling up as it were from below the ordinary ploughing, a host of roots of strong-growing weeds, which would only have been decapitated by ordinary ploughing, and would soon reappear in competition with the growing crop. In this deep double ploughing lies the secret of my comparative freedom from strong-rooted weeds, and consequently improved crops. By this means we get rid of Couch Grass. Experience has taught me the great value of a crop of Cabbage, and the certainty of a good crop as compared with the uncertainty, in our dry climate, of a Swede crop. I have now a fine crop of Cabbage, planted out in March, which will be ready in harvest, when other green food is scarce.

We pulp all our Cabbage, and then, mixed with chaff, &c., it is a forcing nutritive food—a few London or garden Cabbage come earlier than the Cow Cabbage. People talk of the exhausting nature of Cabbage, but I like exhausting crops that make use of the subsoil, and produce great quantity and good quality. The following corn crop will succeed well if properly manured. It is only where little or poor manure is used that these complaints are heard; with plenty of fat stock manure, and some artificials, there is no fear of exhaustion by any crop.

I have said in former papers that heavy-land farms are really good stock farms. They produce in the driest summer plenty of Beans, Clovers, Tares, and Cabbage, all which, when cut up, are excellent food, and I never miss an abundant crop of Mangel. But then, on such soils, there must be under-cover feeding for bullocks, and proper winter shelter for all stock. The system of turning out bullock stock, either in winter or summer, is a great mistake. This I can assert from long practical experience.

The interest on proper sheds, and the cost of bringing home and cutting up or pulping, is quite overbalanced by the more rapid progress of the animal on a smaller quantity of food, and the superior quality of the shed-made cake manure, which we always cart direct from the shed to the land, thus avoiding dung heaps and twice carting. This manure beats guano completely. With sheep out of-doors in summer we can manage well by folding, and cutting up where the food is long.

In heavy crops animals turned out have truly five mouths, reckoning four feet and the body as destroyers, if not consumers, of food; we certainly require great reform in this matter in our general agriculture. Referring again to the necessity for incorporating the manure with the subsoil, I am a decided believer in Liebig's theory that it is very difficult to get manure through the cultivated soil into the subsoil. The surface soil retains it, and consequently deep-rooted plants that seek their food in the subsoil fail to find it there. It is no doubt owing to the sagacious practice of that bright friend of agriculture, the Rev. Samuel Smith, who turns back the ploughed soil and incorporates the manure with the subsoil, that he grows such enormous and unfailing crops of roots.

Take a vertical section of our ordinary soils and what do we see?—a few inches of dark upper ploughed soil, the under stratum being pale, dense, and showing no sign or colour of the manure, or air having reached it. This proves what I have stated, and urges upon us the propriety of both tilling and manuring the under or subsoil. *J. J. Mechi, Tiptree, July* 1, 1865.

Yesterday's fine rains have done wonders for vegetation. My bailiff said to me, with reference to the heavy crop of Tares and Wheat grown before the Cabbage, "this crop of green food, cut up into chaff, and given with cake, malt combs, &c., will pay more money than any Wheat crop on the farm." And I [illegible] he was right, seeing that we were selling our young fat lambs at 40*s.* each, or 1*s.* per lb., and mutton and beef in proportion.

OBJECTS OF FARMING.—No. IV.

If I withhold my name and address from these communications, I beg to assure the readers of the *Agricultural Gazette* I have no wish to state anything behind the mask of an incognito which I cannot prove to be an accurate fact, or to escape from honest criticism; but I confess to a great objection to the idle questionings of those gentlemen who will not think for themselves, and the unreasoning hostility of others who hate anything new; and being a bad correspondent cannot undertake to answer letters. But I am at all times willing to show to any real searcher after truth who will apply to the Editor, sufficient instances of what I have asserted or may assert, to prove, without compromising my neighbours, that I am no Quixotic amateur, but a real farmer.

Doubtless the last winter and spring succeeding so very small a crop of hay and roots as was grown last summer, have read a very serious, though I hope important, lesson to all stock farmers. Those who were frightened and sold off their stock will not reap the bitter fruits following on yards without manure, and land without condition; while those who persevered and bought food for their usual amount of stock, and eked out by pulping and mixing with straw-chaff their diminished produce, will have realised by this time a fair return for their increased expenditure, and the prospect of future abundance. The present season up to this date (Midsummer Day) bids fair to be a counterpart of its predecessor. Should this be the case, all animal products may be expected to be even dearer than at present, and I would venture to expect my brother farmers to prepare their plans accordingly.

In looking around us we can already see, if we would but open our senses to the voice of Nature speaking to us in colours, how upon land clean, deeply cultivated, and manured, the dark green crops are blowing into full luxuriance; while a little farther the sickly yellow hue, interspersed with the dark Thistle-beds or crimsoned with Poppies, proclaims the idleness, the ignorance, the untidiness, or the poverty of the cultivator, in accents too plain to be misunderstood. What if our summer should continue as it has begun? But to return from these digressions to our 400-acre farm, and first to the 200 acres supposed to be Grass. We saw that 200 tons of hay was the utmost that could be taken off yearly. If near a town or good market where hay is selling at 6*l.* a ton, it will be cheapest to mow the whole, soiling the stock up to midsummer, and restoring to the land by feeding with cake, and by carting on town ashes, composts, &c., a sufficient compensation for what is sold off. If at a distance from such advantages, mowing a part in its turn will probably produce sufficient hay for winter's use, and the rest fed by stock will be yearly improved, bearing in mind always when we calculate the profits on a ton of hay sold off that it has to pay not only rent and taxes and the expenses of making and marketing, but also about 1*l.* per ton for the manure which is carried off by it, and that this 1*l.* is equally taken from the Grass land if the hay is fed in the yards and the manure put on to the arable land, and which must be credited with it. Nevertheless, on the principle first enunciated of selling what is dearest, it will pay handsomely to sell hay at 6*l.* the ton—the present price in towns.

The 3-course rotation of cropping, advocated on the 200 acres of arable, will be looked upon by many a landlord and agent as ruination to the land. I shall endeavour to show that, on the contrary, if fairly and honestly carried out, it improves the condition. Still, keeping in recollection that he cannot sell off more than 200 qrs. of corn net in any year, and that he should sell what is dearest, the farmer will at present prices (if Barley land) grow annually one-third, or 65 acres of Barley, and one-third, or 65 acres of Wheat, and if his land is well cultivated and clean, should reap an average of 5 quarters of each. If of good malting quality, the Barley, thanks to the duty, will fetch a price nearly equal to the Wheat—say 10*l.* an acre, or for 300 qrs. of Wheat and 300 of Barley a total sum of 6000*l.* But he must not sell off more than 200 qrs. net, therefore an equivalent for 400 qrs. has to be returned to the land. This may be done to some extent near a town by bringing back horse manure, or by guano, but the most economical way will be by purchasing cake or cheaper corn for feeding. We stated in the last Number that the roots, Vetches, Cabbages, &c., grown on the remaining one-third of the 200 acres were consumed in fatting 50 beasts, 400 sheep, and 100 pigs, besides the farm horses. The consumption of these animals during the year would probably amount to some 700 tons of roots, 10 acres of Vetches and Cabbages, &c., the former pulped up with the straw of the farm, and some 30 tons of hay, together with some 500 qrs. of tail corn, Indian meal, or mixed corn (dredge), which can be purchased at a little over 1*l.* the qr., and perhaps 10 to 15 tons of cake. A part of this would be spent on the aftermath of the Grass, but by far the largest portion would go to the winter manure heap, and eventually on to the arable land. And I have no hesitation in affirming that at the present and prospective price of fat stock these

foods would be amply paid for by their sale, and that the dung left by them would be a full recompense for the extra 600 qrs. of corn sold off, costing only the carting.

I am broaching no new doctrine. Instances of this system may be found in almost every district in England, and are generally reported as a success. I am only anxious to induce farmers to consider them—to get out of the old ruts that lead straight to ruination, and to keep the objects I have touched upon constantly before their eyes. I feel confident that at present prices of corn and meat, farming is a paying business; I have shown it cannot be more; it requires judgment and constant attention, and will reward the exercise of them even now. And I can well imagine that in the future, should the price of meat return to 4*d.* the lb., and of Wheat to 10*s.* the bushel, the farmers of that day will cry out as we do, and with more reason, for such a change would tend to reduce again the condition of our farms now annually improving to their recent or present productive capacity of 2 or 3 qrs. per acre. *J. B. M.*

AGRICULTURAL EDUCATION AND AGRICULTURAL SOCIETIES.

Of course, the annual Exhibition itself is virtually education. But it has been felt more and more that these miracles of breeding, feeding, and growing, and these wonders of machinery, require that the farmer himself should keep up with the material and scientific progress. A farmer of the 19th century must be of the 19th century, and not an anachronism, like an oil street-lamp, a tinder-box, a stage-coach, or the fine fast-sailing yacht warranted to reach Leith harbour, wind permitting, in seven days. Some of our readers will bestow a passing regret on the old-fashioned yeoman, a practical man, as they suppose; able to get good crops and keep the land in good condition; knowing his business well, but nothing else. But the old English farmer, like the old English gentleman, is to be accepted with large qualifications. There was always a sad mixture in the class. Some were all one could wish—some were tolerable, and some were so-and-so; but there were also idle and stupid fellows among them, as well as profligates, fools, and downright knaves. Any one who can look back a little way and a little wide about will know that old English farming was full of misery and disappointment, and that the class itself was not one to be wished back again. It is the landlords, the best judges of their own interests, who wish to improve the men to whom their lands must be intrusted. They have spent immense sums on farm buildings and other improvements, and they naturally wish the master and manager of the costly enterprise not to be the only unimproved thing on the soil. You would not commit a fine ship, with a costly cargo, to a drunken or blundering captain, or one bigoted to old systems of sailing. It is not less important to see what hands you leave a farm in; and everybody knows how difficult it is to find a good tenant when one happens to be wanted. The land is in good condition; there are excellent farm buildings, perhaps a steam-engine. All will go to wreck if the tenant is wanting in either principle, money, or wits. At all events he must know his business. So the West Country farmers started a magnificent College at Cirencester; at first rather a failure,—now beginning to recover itself. But it is not enough,—for the same reason that Universities are not enough, and Public Schools are not enough, and the strongest building is not enough, if there be no foundation. Everything done for education fails if the groundwork be neglected.

It is most important, but also most difficult, to take the farmer's son in hand at an early age. If he goes to an agricultural college, or to any place where he is to be educated for his profession, the very simplest book that can be put into his hands, or the simplest lecture he can hear, will be all gibberish to him. The ordinary vocabulary of a farm is very limited, and a great number of new words and new ideas are necessary to any advancement upon it. The unprepared pupil, even at 16 or 17, will have to suspend his professional studies in order to pick up the requisite amount of elementary knowledge, and good teachers will be wasting their wisdom upon him till he can acquire ears to hear and eyes to see what they tell him and show him. A boy can go through five years at a good school and three years at a University without learning anything, simply because he is always supposed to understand and take in what he is hearing and reading, when, for want of previous preparation, he is only hearing sounds and seeing signs that to him have no meaning. But important as sound elements are in this case, there is no disguising that the farmer's son, all day in the open air, conversant only with nature in its gross and palpable forms, and with amusements arising directly out of his occupation, suffers a special indisposition to confinement, abstraction, and study. He is a fish out of water, or rather a caged bird, among books and papers. His blood bounds in his veins, his lungs gasp for fresh air, his eyes catch at visible objects, and he exists only for life and movement. His appetites are strong. He can work, and he can enjoy. To him words, sounds, symbols, causes and sequences, concords and declensions, enumerations, classifications, and distinctions are all cobwebs of the brain. You write them on sand, and the next tide of simple emotion and native recollections obliterates every trace. You are building upon quicksand; there is no foundation. This must be first laid. But here is the difficulty. Farmers don't like schools. They don't like the village school; it's all Bible and Catechism, with just a little writing and arithmetic. Neither do they like paying even so little as 30*l.* or 40*l.* a year to find their boy learning nothing they can discover, and the companion of small town tradesmen,—the class they most contemn.

Of course a man may be a good farmer and not able even to read and write. But in that case he will, anyhow, be a narrow-minded man, incapable of improvement, much at the mercy of educated rogues and fools, and entirely out of the question when it comes to scientific agriculture. He will have to lament his want of education a thousand times, for the unlearned farmer is himself the last man to join the cry against learning. Conscious of his natural powers and his merits, he will justly grieve that for want of a little scholarship he has never got his due place. But there are some very ordinary and obvious reasons why a farmer should have the best education he can get compatible with a practical training. He is quite as prone to sensual indulgence, to idleness, to passion, to folly, to pride, and to extravagance as other men, and has as much need as other men of the cheap, easy, and harmless amusement to be found in books. A farmhouse can be very dull, and a farmer can be visited with the "blue devils" like anybody else, and then, if he cannot employ himself or amuse himself, he gets into mischief. The rural homesteads of England are not always the happy innocent places that our poets dream of. They are often solitary, dull, and cheerless. Then solitude itself has its rank and sullen weeds. We wish we could see a way to some system by which the young farmer could be a schoolboy and a farmer still, for, though he wants book-learning, he cannot do with it alone. Neither the ordinary school nor the ordinary farm is a sufficient preparation for an agricultural college, and the objection is thought doubled rather than obviated by the proposal of preparatory schools for farmers' sons. The Royal Agricultural Society meets and meets, and talks and talks, without coming to a solution of this difficulty. The only thing they are agreed upon is that a farmer in these days must be an educated man, and that, in order to derive the least benefit from professional instruction, he must first be well grounded in the rudiments of knowledge. *The Times.*

MANURES AND CROPS.

The following are passages from one of a short course of lectures by Mr. Wallace Fyfe before the Royal Agricultural College.]

MR. LAWES' recommendations regarding the application of artificials in the promotion of specific crops are:—

I. That for plants cultivated for their primary organs—leaf and stem—Meadow Grass, Clover, Cinquefoil, Tares, Cabbages, and other fodder plants—the manures should be substances yielding ammonia rapidly, such as Peruvian guano, sulphate and muriate of ammonia, dung from stall-fed cattle, salts of lime, with phosphate of ammonia, soot.

II. For plants cultivated for their intermediate organs, that is, bulb or tuber, as Turnips, Mangel Wurzel, &c., the proper manures are phosphates, sulphates, and carbon—such as inferior sorts of guano, superphosphate of lime, well rotted dung.

III. For plants cultivated for their ultimate organs, *i.e.*, their seeds, as Wheat, Barley, Oats, Peas, Beans, Tares, Clover seeds, &c., the manures ought to consist of organic matter, slowly yielding ammonia, as, for instance, residuum from highly manured green crops, Rape-cake, dung from stall-fed cattle. Johnston, who tested some of these last applications, found the returns from 1 bushel of—

	Wheat.	Barley.	Oats.	Rye.
Blood	14	16	12½	14
Night soil	..	13	14½	13½
Sheep dung	12	16	14	13
Horse dung	10	13	14	11
Pigeon's dung	..	10	12	9
Cow dung	7	11	16	8
Vegetable manure	3	7	13	6
Without manure	..	4	5	4

A variety of circumstances, some of them failures and some the improvements in agriculture—Clover sickness on the one hand, and deepening cultivation on the other—are driving out our rotations from four to six-shift intervals. We shall, therefore, consider what might be the ordinary application of manures in a six-shift rotation; this would require very little manuring if coming after previously manured green crop, lea, or as frequently happens with this crop, after the breaking up of old pastures, which have been known to yield invariably the largest Oat crops. Mangel and Potatos might follow next; the last would require to be manured with vegetable and animal manure from the previously prepared dung-heap at the rate of from 20 to 30 tons per acre, according to the quality and condition of the soil; the former with a mixture of animal and vegetable matter which should be applied at the same rate per acre in a well decomposed condition. The culture of Wheat after these fallow crops is a simple process, and for manure it would be chiefly dependent on the residue from these, with additions of substances slowly yielding ammonia. For Turnips, Carrots, &c., the land is to be limed at the rate of 30 bags of shells per acre after removal of the Wheat crops.

Lime, although as we shall see presently an important agent in promoting the fertility of the soil by calling into action its nutritive principles, and greatly improving the quality of produce, must be employed, however, in moderation, because over-doses too often inevitably occasion scourging crops and ultimate barrenness. In the six-shift rotation the quantity mentioned can be applied only once, and in this manner. The lime shells are carted to the farm during summer, and there mixed with an equal bulk of earthy matter, Couch grass, and other weeds for decomposition; road scrapings, ditch-scourings, the earth and root fibres of old headlands, and old hedgerows that may have been levelled—everything adds to the variety, and for this purpose there is good in everything. This mixture is of far easier application to the land than mere earth mixture, and the lime more easily managed in windy weather. This application of lime is not, however, manuring for Turnips; it is a mere amelioration of the land for the ensuing rotation. The Turnips are to be manured from the previously prepared and well-decomposed dung-heap at the rate of 25 tons per acre for Swedish and 20 tons for other descriptions laid in heaps in the hollow of every fifth drill at 9-feet intervals; then spread out equally in the hollows of all the five drills with light three-pronged forks, so as to be immediately covered in by the double mould-board plough splitting the drills down the centre. By harrowing across the former drills of root crops a rich soil for Barley is diffused over the undunged intervals, and assists materially its production as fifth in the rotation, since its success, like that of the Grasses, generally depends more on pulverisation than on fresh manuring. Grass for soiling, and hay, having been sown down with the Barley, may be depastured whilst young with one of the most enriching things known, the sheep, whose "golden feet" will do it no injury, whilst those of cattle would poach and destroy the young plants. Nor must sheep be suffered to crop the herbage too bare, since if stinted of food they would eat the crown spikes of the young plants and destroy their vitality.

This is the common and natural mode of applying manures; but few are the farmers who can now-a-days afford to stop here. They must apply in addition and in aid of these old-world manures the artificials of the day, or lag behind in the race of production. In addition to the imported substances treated of in our last lecture, we have the nitrate of soda, a white saline substance found in Peru, applicable as top-dressings to Grass lands and young corn. It is frequently adulterated with common salt, which however will crackle, whilst nitrate of soda as well as nitrate of potash (saltpetre) will simply flare up if a pinch be thrown into a hot fire, so that the adulteration can readily be detected. Nitrate of soda ought to be composed of nitric acid and soda in the proportions of 54 to 31. It is therefore valuable in affording a supply of nitrogen and soda to growing crops when applied in spring, as a top-dressing, at the rate of 1 to 1½ cwt. per acre. The price of this salt has been this season affected, I find, by unremunerative results to the importer and by advancing freights: and a very serious deficiency has consequently occurred in the quantity shipped from Iquique, which, as mentioned in our last lecture, has, from a place of guano export, become one of nitrate shipments. Diminished stocks at Liverpool, together with small supplies on sale, have given rise, in fact, in this as in other articles of commerce so situated, to immense speculation, and prices this spring had advanced from 35*s.* to 40*s.* a ton as compared with last spring. The fact is that this most valuable of all top dressings for Grasses and cereals is not to be had under 15*l.* 10*s.* to 16*l.* a ton; but even at this high rate this powerful stimulant can be confidently recommended for cereal and hay crops, and especially for the latter, used to a profit even at higher prices:—the imports of nitrate of soda since 1851 have run thus:—

	Tons.		Tons.
1852	13,404	1859	25,986
1853	7,189	1860	37,277
1854	20,731	1861	25,632
1855	15,900	1862	30,715
1856	15,486	1863	26,990
1857	17,225	1864 (8 months) ..	22,986
1858	24,249		

With regard to sulphate of ammonia, the recent restricted use of gas in the manufacturing districts of England, consequent upon the distressed state of the cotton manufacture, is stated to have seriously interfered with the use of this salt. But, as exhibited at my last lecture, Prof. Church has kindly provided me from the College Museum two specimens, one of them brighter and more purely crystalline than the sulphate of ammonia of commerce, manufactured from blood, and well calculated to show the innate value of blood manure generally. Sulphate of ammonia is now better understood and more highly esteemed by the farmer as a top dressing for cereal and Grass crops, and as a mixture with phosphatic manures for root crops. Many, indeed, prefer it to nitrate of soda as a top dressing, being considered less injurious to the young plant whilst in a tender state—but the price of late years has been somewhat higher than even nitrate of soda, for we can obtain very little of it in a native state, small quantities only, as Mr. Church informs me, being pro-

curable from the Mediterranean; still there is a downward tendency in the cost of this material from extended consumption and manufacture, which, under existing circumstances, at least place it on a par with nitrate of soda, for which it is readily adopted as a substitute at about the figures quoted for that article.

But next to farmyard and guano, bones are the grand resource of the enterprising British farmer, as their yearly increasing consumption, whether in a raw or manufactured state, completely proves. The imports show an increase in 1863 over previous years of about 10,000 tons; and the great quantities collected in the large towns throughout the United Kingdom are considerably augmented by the daily increase in the use of butcher meat. At present the largest portion of our supplies are drawn from South America, the Mediterranean, and the Baltic ports; and although the Baltic bones are most in demand, because they bulk largely when ground, owing to the barbarous habit of selling bones by measure, and their consequently producing more bushels to the ton, the bones from other quarters are found fully as rich in manurial value. In purchasing by weight instead of by measure, farmers could thus secure a manure as good in all respects at from 5*s*. to 10*s*. less per ton. But bones are on the rise from the increasing demand, having lately advanced 10s. per ton. The imports into the United Kingdom were:—

	Tons.		Tons.
1857	63,951	1861	66,509
1858	85,293	1862	89,170
1859	84,829	1863	77,492
1860	62,321		

Bones may be rendered more immediately active by boiling to remove the fat; and we have in the Museum a specimen of cleaned bones—but nothing is equal to their conversion into superphosphate. With reference to this subject, I cannot help citing the passage from Baron Liebig, to which I referred in a former lecture. It is incredibly fierce:—

"England is robbing all other countries of the conditions of their fertility. Already, in her eagerness for bones, she has turned up the battle-fields of Leipzic, of Waterloo, and of the Crimea; already from the catacombs of Sicily she has carried away the skeletons of many successive generations. Annually she removes from the shores of other countries to her own, the manurial equivalent of three millions and a half of men, whom she takes from us the means of supporting, and squanders down her sewers to the sea. Like a vampire she hangs on the neck of Europe, nay, of the entire world, and sucks the heartblood from nations, without a thought of justice towards them, without a shadow of lasting advantage to herself.

"It is impossible (he proceeds to say) that such iniquitous interference with the Divine order of the world should escape its rightful punishment; and this may perhaps overtake England even sooner than the countries she robs. Most assuredly a time awaits her, when all her riches of gold, iron, and coal will be inadequate to buy back a thousandth part of the conditions of life which for centuries she has wantonly squandered away."

(*To be continued.*)

Home Correspondence.

Present Appearance of the Crops.—We have had a fine soaking rain in this neighbourhood, which fell heavily all Wednesday night last, and continued with little intermission until Friday evening; quite enough to saturate the soil thoroughly; our Turnips and Swedes were just at a standstill, but even in the short time which has elapsed are wonderfully improved, and at present the prospect is fair. Not so, however, with the corn crop; there is some good Wheat, even-headed, with well-filled ears, but it is rare to see a large bulk of straw even on good Wheat lands. On full half the Hampshire soils the straw is very short, the head uneven, and ears small, but apparently well filled; on the light sands and gravel it is decidedly bad, with much Poppy and other rubbish; it will not be an average crop. Barley is very indifferent, short, thin on the ground, and of uneven growth, full one-third under the average. Oats are the worst crop I ever remember during over 40 years' experience; they are generally complained of in this district, and many farmers are feeding off large fields with sheep. I do not hesitate to state my conviction that under the most favourable circumstances this crop will not reach three-fifths of an average. Beans are looking well, and Peas are about an average. I make this calculation, allowing for all the improvement the fine rain can effect; it would have been an awful business for everything had the drought continued a week longer. Potatos are looking very well, and promise an abundant yield. Our hay is of excellent quality, but a very light crop except the Sainfoin, and meadows on a deep soil, which are a good average; but taking the whole crop, we shall not reach more than two-thirds of an average produce. *J. T. Twynam, Winchester, Hampshire, July* 3.——The Wheat crop generally in this district is very thin, having been much injured by the severe and protracted winter and wireworm, and must be below an average, but not so much as might at first sight be supposed, as it is well set, particularly all the early-sown Wheat. Oats are light in the ear and short in the straw. Barley is short in the straw, but will yield well. Beans are under the average; Peas very much so. Mangels are healthy, but want rain. Turnips destroyed by fly. Hay a short crop, but well got. *Frederick F. Hallett, Brighton, Sussex, July* 3.——The crops in this neighbourhood will be on the whole deficient. Wheat a fair crop; bad on the light lands. Barley good. Oats bad, nearly a failure. Beans under average. Peas the same. Hay under average, well saved. Roots promising. We had a fine rain last week, which will very much benefit all crops. Potatos much healthier up to the present time than they have been for some years. When harvest will be here cannot exactly say, but I should think in a month from now. We have had a glorious summer up to the present. *James Eames, Lynch, Midhurst.*

Crops in South Hants District, July 4.—The Wheat crop in most cases where a full plant promises to be an abundant crop, and although in many places the plant is deficient, yet the crop has improved wonderfully and carries a good ear, which under the influence of the present splendid weather will probably yield over an average crop, Oats are everywhere very deficient, in my opinion owing to the dry seed time, and cannot under any circumstances yield an average crop. Barley: This crop exhibits a fair quantity of straw where the land has been done well, but is going off prematurely, is patchy in colour, and not likely to produce a good malting quality, and will barely reach an average crop. Winter Beans are well podded; spring Beans and Peas are in some cases attacked with aphis, but the crops are not damaged like those of last year, and will probably yield an average crop. The crops of hay are very light, both of field and pasture land, but the crop has been well harvested, and will prove of very superior quality. Potatos are looking very healthy; the early crops which have been dug are rather small in size owing to the late dry weather, but seem to be entirely free from disease. The plant and promise of Mangel Wurzel I should say was never better. Swedes and Turnips on the whole are promising, and may yet prove a good average produce. *Joseph Blundell, Bursledon, Southampton.*

Water Economy of Great Britain.—The springs upon which our rivers depend for the latter part of summer and the autumn supply of water are now beginning to decline from their maximum height, obtained from the winter's rain and snowfall. Those who take an interest in meteorological science and its practical relation to the great social question of water supply will, doubtless, have observed and perhaps recorded the height of water in their wells at different periods of succeeding years. Such of your readers as have done so will greatly oblige me, and I trust do some public service by communicating to me any tabulated information they possess, with a view to its use on an inquiry into the water economy of the country. If observations were made and recorded of the height of outbursting springs and of water in wells, we should learn how the winter's fall of rain and snow ruled the subterranean water levels in the water-bearing strata during the summer and autumn seasons; and as the time cannot now be far off when our works of drainage will be designed with some regard to the storage and utilisation of the water we heedlessly discharge in winter, I hope I shall succeed not only in collecting any information in possession of those who have recorded their observations, but inducing others now to observe the height of water in their wells relatively to the height at this time last year; and further, to observe once each month for the remainder of the year the same relative conditions as far as they can. All records will be most thankfully received; and let me remind your readers that the drought of last year and this will in all probability occur again, and that it is the duty of us all to provide against an evil which is being augmented by our own acts. *J. Bailey Denton, Woodfield, Stevenage.* [We shall be glad to publish in these columns any information of the kind for which Mr. Bailey Denton asks.]

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

Monthly Council: *Wednesday, July* 5.—Present, Sir E. C. Kerrison, Bart., in the chair; the Earl of Powis, the Earl of Shrewsbury. Lord Chesham, Lord Tredegar, Lord Walsingham, Mr. Barnett, Mr. Raymond Barker, Mr. Bowly, Mr. Cantrell, Colonel Challoner, Mr. Brandreth Gibbs, Mr. Humberstone, Mr. Jonas, Colonel Kingscote, Mr. Pain, Mr. Randell, Mr. R. Smith, Mr. Torr, Mr. Wilson (of Stowlangtoft), Professor Wilson, Mr. Frere, and Dr. Voelcker.

The following New Members were elected:—

Amery, P. Fabyan S., Druid, Ashburton
Amos, James, Jun., Broomfield, Herne Bay, Kent
Arnott, Thomas Reid, 7, Mersey Chambers, Liverpool
Ashworth, Charles, Fairfield, Manchester
Bacchus, W. Ernest, Thorness, West Cowes, Isle of Wight
Bennett, E. Gasking, Plymouth
Brassey, Henry A., 56, Lowndes Square, London
Brown, Eldred Roberts, Plymouth
Calvert, F. Crace, Royal Institution, Manchester
Chambers, P. Henry, Llys Meirchion, Hewllan, Trefnant
Chase, Henry, Stanton Hall, Ixworth, Suffolk
Chesworth, Joseph, Longslow, Market Drayton
Clark, John Francis, Newmarket, Suffolk
Clay, G. B., Bury St. Edmunds
Collins, Edward, Newton Ferrers, Callington, Cornwall
Cross, John, Broad Street, Bury, Lancashire
Dawe, R. Henry, 7, Caroline Place, East Stonehouse, Devon
Dickin, William, The Lloyd, Market Drayton, Salop
Drew, James, Artiscombe, Tavistock
Eliott, Samuel, Trafalgar House, Plymouth
Gowing, Richard, Ipswich
Guy, G. Fuller, Bury St. Edmunds
Guy, W. George, Bury St. Edmunds
Hambly, A., Bodmin, Cornwall
Hervey, George H. W., Ickworth, Bury St. Edmunds
Hicks, G. H. T., Hillgrove House, Wells, Somerset
Holden, Rev. J. R., Lackford, Bury St. Edmunds
King, Edmund, Ashley Hall, Newmarket
King, James, South-Side Street, Plymouth
Lea, James, Dodecote Grange, Market Drayton
Lywood, Edwin, Middle Week, Andover, Hants
May, Robert, Grendon, Tavistock
Pike, John, Antony, Devonport
Pitfield, John, Symondsbury, Bridport
Rew, James, Mount Plym, Plymouth
Shaw, Rev. G. F. E., Edgeworth Rectory, Cirencester
Smith, John, Deeping Bank, Crowland, Lincoln
Taylor, T. D., Bury St. Edmunds
Walker, E. Claudius, Chester
Williams, Stephen, Mellington, Churchstoke, Salop
Wyndham, Horace R., Cockermouth.

Finances.—Mr. Barnett presented the Report, from which it appeared that the Secretary's receipts during the past month had been examined by the Committee, and by Messrs. Quilter, Ball, & Co., the Society's accountants, and were found correct. The balance in the hands of the bankers on June 30 was 1367*l*. 5*s*. 6*d*. The balance sheet for the quarter ended June 30, 1864, and the statement of subscriptions and arrears, were laid on the table, the amount of arrears then due being 480*l*.

Prize Essay.—The winner of the prize of 20*l*. in Class VI. on Water Supply was announced to be the Rev. J. C. Clutterbuck, Long Wittenham, Abingdon. The papers marked "S" and "Ora et labora" were commended.

Plymouth Meeting.—The complete plan of the show-yard was laid on the table, the contractor having reported the whole of the sheds covered in, and all in readiness for the opening. Colonel Challoner reported the recommendation of the Committee that 50 tickets of 10*s*. each for the Public Dinner to be held in a marquee near the Hoe at 6 p. m. on Tuesday the 18th inst. be taken by the Society. The Steward of Forage having reported the failure of the green crops on which he depended for the supply of the show-yard, the Secretary was instructed to call his attention to the absolute necessity of procuring some green food, at whatever distance it may be growing. The Local Committee were requested to authorise the contractor to close the show-yard immediately where the footpath crosses the yard. This report was adopted. It was moved by the Earl of Powis, and carried, that the President be authorised to present cards of admission to any officers of the French squadron expected at Plymouth, and that the President be authorised to give free admission to any men of the French squadron in their proper dress or uniform that the French Commander may think proper to allow to attend the Show.

House.—Mr. Barnett stated that the Committee recommended that the staircase, hall, and basement be made clean with such whitewashing and painting as may be required; that the secretary's and clerks' offices be thoroughly cleaned, and such other parts of the house as require it.

Show-yard Contracts.—Mr. Randell stated that the Committee reported that no definite reply has been received from Mr. Manning to the request that he would give the prices of offices enumerated in Report of April 4th. The Committee therefore ask for a continuation of the unlimited authority given to them in reference thereto. They regret that the powers of the Surveyor appointed for the purpose of examining and reporting upon Mr. Manning's charges have been to a great extent neutralised by the Secretary having signed an agreement to pay to him the full amount claimed, and they recommend that in future no such contract be signed until it has been submitted to the Surveyor. The Surveyor, notwithstanding such agreement, to be instructed to report fully as to Mr. Manning's bill for the work at Plymouth. This report was adopted.

The following noblemen and gentlemen were appointed on the general Bury Committee:—Sir E. Kerrison, Bart., Chairman; The Earl of Powis, Lord Chesham, Lord Feversham, Lord Portman, Lord Tredegar, Major-General the Hon. A. Nelson Hood, the Hon. A. H. Vernon, Mr. Barnett, Mr. Bowly, Mr. Bramston, the Mayor of Bury, Mr. Cantrell, Colonel Challoner, Mr. Clayden, Mr. Dent, Mr. Brandreth Gibbs, Mr. Greene, Mr. Fisher Hobbs, Mr. Holland, Mr. Wren Hoskyns, Mr. Jonas, Mr. Milward, Mr. Pain, Mr. Randell, Mr. Shuttleworth, Mr. Thompson, Mr. Torr, Mr. Wilson, and Major Wilson.

A letter from the Great Eastern Railway Company, relative to the Society's Meeting at Bury St. Edmunds, in 1866, having been read, a reply was ordered to be sent, pointing out that the Company will be clearly answerable for any accidents which may occur with an overcrowded station, and that there is ample time to take due precautions.

A communication from the Foreign Office, enclosing a report on the growth and treatment of Flax in Belgium, was referred to the Journal Committee.

An application from the Ohio State Board of Agriculture for the Journal, in exchange for their Report, was acceded to.

The following letter was read from the Society's Veterinary Inspector:—

Royal Veterinary College, Camden Town, N. W., July 3, 1865.

My Dear Sir,—I have to report for the information of the Council, that another outbreak of small-pox of sheep has just

taken place. The fact only came to my knowledge on Saturday afternoon, and I thought the matter of so much importance that I arranged to go down and see the sheep on the next day, Sunday.

The flock consists of about six hundred ewes and lambs: and up to the time of my visit, 17 animals were known to be affected, and it was hoped that my examination would not materially increase this number. Such, however, did not prove to be the case, for no less than 48 were found by me to be diseased to a greater or less extent, thus bringing up the number of infected animals to 65.

The outbreak has most unfortunately occurred on the Sussex Downs, amidst large flocks of sheep. The parish is called Southease, and is within a few miles of Lewes, between this place and Newhaven.

I need scarcely say that I shall spare no pains to arrest as quickly as possible the progress of this fatal disease. On Wednesday morning I go down again, and in the meantime I am in communication with the owner and the resident veterinary surgeon.—I am, dear Sir, yours truly,

H. Hall Dare, Esq. J. B. SIMONDS.

The Council then adjourned to Tuesday, the 11th inst., at 12 noon, for the election of Members.

HIGHLAND AND AGRICULTURAL.—At the half-yearly meeting of this Society last week 120 new members were elected.

AGRICULTURAL EDUCATION.

The SECRETARY stated that the directors submitted for the approval of the meeting the following Bye-laws:—

BYE-LAWS.

I. That in terms of a report by the Council on Education, the following Board of Examiners be appointed:—

Science and Practice of Agriculture—Mechanics and Construction—Professor Wilson, George Hope, Fentonbarns; Robert Russell, Pilmuir; and John Wilson, Edington Mains.

Botany.—Professor Balfour.

Chemistry.—Professor Anderson.

Natural History.—Professor Allman.

Veterinary Surgery.—Professor Dick.

Field Engineering and Surveying.—Professor Macquorn Rankine, and David Stevenson, C.E.

Book-Keeping and Accounts—Kenneth Mackenzie, C.A.; and Peter M'Lagan, of Pumpherston.

II. That the examination shall be both written and oral; that the value of the answers shall be determined by numbers; and that the oral examination shall be public.

III. That there shall be two examinations to be styled respectively the "Certificate Examination," and the "Diploma Examination." The first to be open to candidates not less than 18 years of age, the second to those who have completed 21 years.

IV. That to pass the "Certificate Examination" a candidate must be acquainted with farm accounts, mensuration, and surveying, and must possess a good knowledge of practical agriculture, and a general acquaintance with the elements of botany chemistry, and natural history.

V. That a certificate in the following terms, signed by the President or Vice-President of the Council on Education, and by the Secretary, shall be granted to candidates passing this examination:—

"We hereby certify that A. B. has been examined, and has been found to possess a knowledge of farm accounts, mensuration, and surveying, a good knowledge of practical agriculture, and a general acquaintance with the elements of botany, chemistry, and natural history, and that he is therefore entitled to present himself for the further examination, in terms of the regulations, for the Society's diploma."

VI. That to pass the "Diploma Examination," a candidate must be in possession of the certificate, and have attained his 21st year, and must be found to possess a thorough knowledge of the theory and practice of agriculture; of mechanics and mensuration; of the physiology and treatment of domesticated animals; and of the applications of botany, chemistry, and natural history to agriculture.

VII. That a diploma in the following terms, bearing the corporate seal of the Society, and signed by the President or Vice-President of the Council on Education, and by the Secretary, shall be granted to candidates passing the second examination:—

"These are to certify that on the day of A. B was examined in the arts and sciences connected with agriculture, and has been reported to be proficient therein by a Board of Examiners nominated by the Council of the Highland and Agricultural Society of Scotland on Education, in terms and by authority of a Charter, given under the Great Seal, on the 18th day of August 1856."

VIII. That a sum not exceeding 100*l.* per annum shall be placed at the disposal of the examiners to be applied in prizes to candidates who pass with distinguished merit, and on a standard exceeding that required for the diploma.

Mr. HALL MAXWELL said he would avail himself of this opportunity of reporting that the Society's two prizes of 6*l.* and 4*l.* to the students who passed the best and the second examinations in the agricultural class in the University of Edinburgh had been adjudged as follows:—1. To Christian Carl Jacobsen; 2. To Patrick George Craigie.

The CHAIRMAN then formally asked the meeting if they approved of the bye-laws, and an almost unanimous response in favour of the recommendations having been given,

Mr. HOME said he was sorry to say he could not concur in the sentiments of the meeting. He was of opinion that these bye-laws would prove as unsuccessful as previous ones. The reason why the directors had hitherto failed in their laws relating to agricultural education was because there were no students sufficiently prepared to entitle themselves to the rewards offered, as was evidenced from the result of the diploma examinations. During the last eight or nine years how many candidates came forward?—15, of which number only nine or ten received diplomas, and two of the successful candidates were from Scotland. The reason of this was because no preliminary instruction was afforded to the students.

TRANSACTIONS.

Mr. IRVINE, of Drum, reported that the directors, in accordance with what they believed to be the general wish of the members, had resolved to give up the arrangement which had existed for so many years between the Society and Messrs. Blackwood, and under which the Transactions had been printed along with the Journal of Agriculture and given to members at an annual subscription of 8*s.* Under the new arrangement the Transactions would be published independently, and sent free to all members intimating a wish to have them. They would be issued in an annual number, and, as at present, the contents of two years would, along with the list of members, constitute a volume. It was due to the Messrs. Blackwood to report, that they had always discharged their duties to the satisfaction of the directors, who, in a formal resolution communicated to these gentlemen, and recorded in the books of the Society, have stated that they "cannot permit a connection such as has existed between the Society and Messrs. Blackwood since 1828 to terminate without expressing their sense of the able and satisfactory manner in which these gentlemen have invariably discharged their duties, and of the friendly relations which have existed between them and the Society over a period of nearly 40 years."

THE SHOW AT INVERNESS.

Mr. HALL MAXWELL reported that there was every prospect that this exhibition would be carried out in a manner satisfactory both to the directors and to the public. The entries already made were as follows:—325 head of cattle, 125 horses, 850 head of sheep, 38 swine, 288 poultry, 700 implements. It was expected that the implement department would not be so well represented, the locality being so far north; but the entries were already 700.

The Show of 1866 is to be at Glasgow, and that of 1867 is to be at Aberdeen.

CHEMICAL DEPARTMENT AND FIELD EXPERIMENTS.

Professor ANDERSON reported that during the spring months the private inquiries had occupied a greater part of their time this year, and in consequence during these months comparatively little had been done in the more general inquiries. They had had samples of Grass grown in different fields, and had been prosecuting inquiries into the composition of the Bean plant at different periods. He had instituted a considerable number of field experiments, the result of which, he trusted, would be for the interests of agriculture when they had got them completed. This led him to refer to the heading of the programme—field experiments. The subject had been taken up by the directors. Some time ago, in consequence of proposals he had made, a committee had been appointed for the purpose of organising an efficient system of field experiments. The report had been submitted to the directors, and would, he trusted, be adopted and carried out. He might explain that they proposed that the Society should institute experiments in different districts of the country—these experiments to be carried out on a precisely similar plan with any other agricultural experiments. They proposed to commence cautiously in the first instance, and to divide the county into districts in which the experiments will be carried out. It was proposed that a field experiment committee should be appointed by the Society, to take the general supervision of the experiments to be made; that in each of the districts a local committee should be appointed; that the experiments in each district of the country should be under the immediate surpervision of the local committee, who should be answerable to the general committee for their instructions being properly carried out. When the experiments should be completed, the results were to be transmitted to the general committee, who should make the necessary arrangements for their publication. He need scarcely say to those acquainted with agricultural experiments generally, that such inquiries would involve a very considerable amount of labour both to the experimenters and to the committees. They proposed also, that a careful analysis should be made in all matters necessary to elucidate the results, and this would add considerably to the work which, from the intimations he had made, they would see was sufficiently arduous already.

THE VETERINARY COLLEGE.

Sir ALEXANDER GIBSON MAITLAND reported:—It affords the directors much pleasure in being able to report that the Veterinary College, under the able supervision of Professor Dick and his staff, continues to sustain its high character as a public seminary, and to attract students from all parts of the kingdom.

PREMIUMS FOR REPORTS.

Mr. IRVINE of Drum reported that the following premiums had been awarded:—

1. 30*l.* to James Archibald Campbell of Inverawe, Newlands Farm, Rugby, for a report on the results of the application of town sewage to the farm.
2. The Gold Medal to Sir Robert C. Sinclair of Stevenson, Bart., for a report on improvements on the estates of Murkle and Downreay, in the county of Caithness.
3. The Silver Medal to William Reid, Granton, Edinburgh, for water troughs attached to railway trucks.
4. The Silver Medal to George Menzies, Bullions, Dunfermline, for sheaf elevator
5. The Silver Medal to A. Brockie, Fala Mill, for improved guano distributor.

This concluded the business, and the meeting separated at two o'clock.

BEDFORD.—At the annual dinner of this Society, after the very successful meeting held on Friday last, the following remarks were made on Prizes for Labourers, Bedfordshire Agriculture, and Agricultural Education. Mr. Whitbread said:—

At the next meeting, which will be held in October, certain prizes are to be given to agricultural labourers. Of these prizes he took exception to two. One of them was for a labourer who has reared the largest family of children without having recourse to assistance from the parish; the second prize was for those labourers who should have lived the longest time with any one master. After those two followed prizes for skill in draining, ploughing, and thatching. Against the three last he had nothing to say; they were very good. But was it a fair subject for a prize that a man should live 50 years with the same master? Why, there were two to that bargain. Why not consider the master as well as the services of the man? Was it right that a man after 50 years of faithful service—nearly a whole lifetime—should come to this Society and have the opportunity of winning a paltry prize? If it was right to reward him, his master was the right man to do so. Then, as to the other prize, for a man who should bring up the largest family without parochial relief, he would ask any gentleman sitting at that table whether he considered that a prize should be given by this Society under such conditions—whether any one present would accept such a prize. Let them gauge the feelings of the poor man by their own. They ought to have a spirit of independence upon the subject. It seemed to him that these prizes tended to lower the independence of the labourer, and savoured of the time when they looked more to the parish for relief than to their own exertions, and the only house they regarded was the workhouse. After further remarks he said he would make a suggestion. Give prizes to the labourers for their skill. Give them prizes for gardening, for planting, for anything in which they evinced skill, but do not give them prizes for rearing their families. He would suggest that the prizes be given to labourers for cultivating their gardens and allotments; any condition that tended to stimulate a man to exercise his skill and make him industrious would be far better than the present. Let this year pass over; in the meantime he asked them to take the matter into consideration.

Mr. CHARLES HOWARD said: If Mr. Whitbred had mixed with the labourers during the last 20 years as much as he (Mr. H) had done, he would have formed a very different opinion to that to which he had given expression. He had a man who had worked on the farm he occupied for 56 years; he had received all the prizes the Society could give him, and he believed that his conduct and success had very great influence upon the agricultural labourers of the locality. He could assure them that these prizes, to which objection had been made by the honourable gentleman, were greatly appreciated by the labourers. It must be remembered that they were not so highly educated as some other classes of the population, and consequently were not so sensitive upon the points adverted to; perhaps with advancing intelligence the time may come when the question will arise whether other prizes might not be wisely substituted for the present, but so far he believed they had done a vast deal of good amongst those for whom they were intended. He felt very great pleasure in being identified with an association like this. He had travelled through the length and breadth of the land, and he had pleasure in saying that in cultivation this county stood second to none. It will be interesting to those who were not acquainted with the fact that Bedfordshire was the birthplace of all agricultural societies. We go back to the time of Francis Duke of Bedford, the great patron of agriculture, whose sheep shearings at Woburn exercised so remarkable an influence as to attract the aristocracy from all parts of England, and distinguished personages from the Continent. The influence which this great friend of the farmer brought to bear on all matters connected with agriculture, led to the establishment first of the Smithfield Club, then the Royal Agricultural Society, and the various county societies. There was one other point on which he should like to touch for a moment. They were now approaching that period of the year when the crops would be ready for the ingathering. Many, he had no doubt, would view that as a season of joyfulness and freedom from care, but to many of his brother farmers it would be one of great anxiety. He could not disguise the fact, that the farmers would have to suffer from a short supply of labourers, and if they were to compete with all the world, and that was really the case, they ought to avail themselves of the most proper appliances. He would rather some one else had spoken upon the subject to-day; for he was sorry to say that on several estates in this county the scythe and the reaping machine were prohibited implements. He could tell those gentlemen to whom his remarks referred, that one farmer had lost a considerable sum of money in consequence of that prohibition. He could tell gentlemen how this prohibition had arisen; but they might depend upon this, that they must not expect to preserve their game unless they had the farmers with them.

Mr. HENRY CORBET had attended a great many shows in England, Scotland, and Ireland, and he assured them the cart horses for agricultural purposes shown that day were the best he had ever seen; whilst the hunters and hackneys were very good indeed. He had known the Bedfordshire Society some years, and therefore he was qualified to speak of the extraordinary improvement this year. He attended the show at Biggleswade last year, when the stock occupied a little bit of a field, whilst to-day the exhibition was wonderful. After his duties he went round and looked at the other stock, cattle, sheep, and pigs, and found that all were very good. He had heard the remarks of the hon. member for Bedford with respect to certain prizes for labourers. He entirely differed from him, and was quite sure it would be a great mistake if those prizes were discontinued. He had heard gentlemen in London talk very fast about waistcoats and other garments being given as prizes, but he hoped the Committee of this Society would retain the two prizes to which objection had been made in the list.

THE MAYOR (Mr. James Howard).—Speaking of the spread of intelligence reminded him of a subject upon which he had been thinking a good deal lately. During the last 20 or 30 years great efforts have been made to extend and improve the education of the poorer classes, and much, very much good has been accomplished; no corresponding efforts, however, have been made to bring a superior education within the reach of the farmer or other middle-class people in rural districts. If it be a national advantage to give a good education to the labouring classes, surely it is a matter of no inconsiderable importance that the farmer should be able to command a good education at a cheap rate for his sons. In Suffolk, and one or two other counties, the want of a good Middle-class School, where the sons of farmers could receive a superior education at a reasonable charge, has been felt and met. The Suffolk people have built a splendid school of this kind at Framlingham, where about 300 youths are receiving a first-rate and appropriate education, and where the charge for board, lodging, and education is only 25*l.* a year, which for 300 days in a year is just 1*s.* 8*d.* a day. He thought that in Bedfordshire they could soon have a similar school were they to set about it vigorously. He simply mentioned the subject to-day, and commended it to their earnest consideration. He had only one other question to name—that is the prizes to labourers touched upon by Mr. Whitbread. He was an advocate, and a staunch one, for the prize system as applied to skill, but he fully concurred with Mr. Whitbread in his objection to rewarding labourers for length of service and bringing up a large family. He maintained that the offer of any prize should carry with it an incentive to exertion, and he felt confident no gentlemen present would maintain that these questionable rewards offer any incentive whatever to the labourer. If a man is to be rewarded for what have been termed "moral qualities," it ought to be done by his employer and not by an agricultural society.

Mr. JOHN HOWARD maintained that the labourer was highly deserving of commendation, and did not see why he was not as deserving of a prize as a farmer was for fattening pigs, for he set a good example to the other labourers of his village for having admirably performed the duties of a parent under trying difficulties He entirely disagreed with Mr. Whitbread when he said that the prize for a poor man's keeping one situation for 30 or 50 years should in future be discontinued, as he verily believed that it tended to encourage men to be good labourers and so deserve the kind notice and reward of the Society for their long services to their masters and their families.

Farmers' Clubs.

ABERDEEN: *The Game Laws.*—Last week a meeting of tenant-farmers, and others interested in a modification of the game laws, was held here—Wm. M'Combie, Esq., of Tillyfour, presiding. The meeting was very

numerously attended. There must have been about 400 farmers present.

Mr. Copeland, Mill of Ardlethen, moved the first resolution, as follows:—

"That hares and rabbits ought to be excluded from the operation of the game laws; that their preservation being incompatible with good farming, is contrary to the public good, and that, therefore, all contracts having for their object the preservation of hares and rabbits, ought to be declared illegal."

He said—This resolution proposes "that hares and rabbits be excluded from the operation of the game laws;" but although it proposes that they be taken from the game laws, it by no means proposes that they be extirpated—quite the reverse, for we would be extremely sorry to see the day when our proprietors and their friends could not enjoy a good day's sport on our farms; we take a pride in showing them a good head of game; all we wish is, that having hares and rabbits taken from the game list, we may have a legal right to put them down to such an extent as that our crops do not suffer from them. We are all aware that a bad feeling often exists between proprietor and tenant where there is a large stock of game, and this arises in a great measure from a misrepresentation of facts; or, at least, from having them highly coloured by the gamekeeper, who invariably has the ear of his master. Now, if this resolution were carried, and the tenant had an interest in the game, he would be found to be the proprietor's best keeper, and the services of the paid one being dispensed with, this much to be deplored feeling at present existing between these parties, and which is so detrimental to the interest of both, would in a great measure be done away with. The reasons assigned in this resolution for having hares and rabbits excluded from the game list are, "that their preservation being incompatible with good farming, is contrary to the public good." Now it requires me to say a little on the part of the resolution, to a meeting of intelligent farmers such as the present, to show them an overstock of hares and rabbits is incompatible with good farming. What a disheartening thing it is, after he has improved his land by drainage, subsoiling, high cultivation, having the seed put in the ground in good condition, and his hopes under Providence of a remunerative crop, to find morning by morning as he passes over his field, that, instead of benefiting his family and country by making two blades of Grass and corn grow instead of one, he has not been able to make the one grow, for day by day as it springs up, night by night it is nipt off by hares and rabbits. I think it is equally apparent that an overstock of hares and rabbits "is contrary to the public good," for it must be allowed by all that the farmers are the manufacturers, in the raw state at least, of beef and bread. Now, instead of being discouraged by having their Grass, Turnip, and grain crops destroyed, as I have been describing to you, by an overstock of hares and rabbits, ought they not rather to be encouraged to produce as much as possible of both these necessaries of life, so that their price might be kept within the means of a large and fast increasing population. Let us now look at it in a moral point of view. I at once say that with the professed poacher I have no sympathy as a poacher. He may at first be, and often is, an honest industrious man, and a respectable member of society in his own sphere of life: but no sooner does he begin to poach than he throws aside the pick and shovel, as he finds by the quantity of hares and rabbits, that instead of earning 30 pence at his former employment, he can by taking his gun and nets earn 30*s.* per day; finding poaching thus profitable, he continues until he is convicted; once convicted, he loses all self-respect, and ultimately rushes into crime. Now if we could by taking hares and rabbits from the game list take temptation from the poachers, and instead of having them what I have been describing them to you, pests in society, have them honest and industrious men and good members of society, would we not deserve the support of the community in this movement? Gentlemen, this resolution in the last place also states—"and that therefore all contracts having for their object the preservation of game and rabbits ought to be declared illegal." Some may think this rather strong. I answer it may be strong, but it is expedient and necessary; for in my opinion if it is declared illegal to enter into any private contract for the preservation of hares and rabbits, the taking of them from the game list to-morrow is of very little consequence indeed. We can carry it, by being united amongst ourselves, by moderation in discussing it at public meetings, such as the present, and by showing that we are asking only what we are in justice entitled to.

Mr. J. W. Barclay, Auchlossan, seconded. He said—The game laws contribute more than any other cause to breed ill-will and disagreement between landlord and tenant. But for this state of matters I do not blame the landowner so much as the laws which expose the landlord to great temptation. To one tenant he lets the land, to farm, to sow, and to reap the crops, which, as the fruit of his industry and the means of his livelihood, are to belong to him, and yet the law authorises and supports the landlord in leasing the same land to a second tenant to rear animals to feed on the crops, which really and truly belong to the first tenant, which belong to him as really and truly as any property can belong to any man. Can such laws be just, or can there be more flagrant invasion of the rights of property, of which we heard so much in connection with these laws? Many landlords, honour to them, resist this temptation and allow him to kill the game to whom they really belong—the man who feeds and maintains them; but the great majority cannot resist the temptation of an additional rent, which they may think comes from land, but which is in reality wrung from the tenant. As the commercial classes of the nation increase in wealth, and the temptation of high shooting rents increases, it is hard to say where game preserving may stop. There are several phases of game preserving—the first is where the landlord reserves the game for the fair sport of himself and friends, and this, I believe, is what was originally contemplated by the game laws. Were their operation confined to this law, nobody indeed would object. Such visits give opportunities to the landlord for observation and friendly intercourse with the tenant, which cannot fail to be highly beneficial to both. It is not against this phase of game preserving we have met to remonstrate to-day. We do not wish game exterminated, we wish only that they shall not be preserved to excess, and this can only be attained by the modification of the law we propose in the resolution now before the meeting. The second phase is where the landlord lets the shooting to a tenant, who is almost invariably a stranger. When the landlord lets the game he oversteps the fair limit, and places himself in a false position. The land which he has already let he lets a second time to another tenant, who, under the shelter of the game laws, can by means of game eat up and destroy the crops which belong to the first tenant—and the source of his livelihood. The game lives on the farmer—on the crops which belong to him, and the sportsman comes and claims the game as his. Be the laws what they may, it cannot be denied that the landlord, when he lets the shooting on cultivated lands, is reaping where he never sowed. There is still another phase of game preserving, happily unknown, I believe, in this county. I allude to the case where the landlord preserves the game to excess—feeds them on his tenants' crops for the purpose of making a profit by selling them to the game-dealer. Gentlemen, I do not care to characterise this mode of game preserving, its injustice is only equalled by its meanness. The resolution before the meeting affirms that game-preserving is incompatible with good farming, and therefore contrary to the public good, and against the general welfare of the community.

After illustrating these propositions at further length, Mr. Barclay concluded—The question arises—how are we to have this resolution carried into effect? I answer simply by sending to the House of Commons men who really and truly represent our interests and wishes. We have the matter to a great extent in our own hands. How can we expect the game laws to be otherwise, when for generations farmers have been sending to Parliament as the representatives of their wishes and interests men who were repledged by their private interests and by the prejudices of caste to maintain and extend the operation of those obnoxious laws.

The resolution was put to the meeting from the chair, and carried by acclamation.

Mr. Webster, Newlands, Fintray, proposed the next resolution, as follows:—

"That Justices of the Peace ought to have no jurisdiction in game law cases."

After some introductory observations as to the origin of the game laws, Mr. W. proceeded:—No doubt landlords profess that the reservation of the game is part of the rent, but this is not so easily understood when closely examined. They let the ground, but reserve no claim on the produce, and, consequently, can have no claim, because they take an equivalent in money for the use of the ground. And to institute a claim to the wild animals, under such circumstances, is simply to set forth a claim without a justifying reason, and at the same time to form a conglomeration of interests without a possibility either of ascertaining or maintaining the line of justice between the landlords' and the tenants' interest in the soil. Mr. W. referred to the earlier Acts of Parliament, and to those more recently enacted; but maintained that no law could be effectual or permanent when based on an immoral principle. And will any one venture to assert that the laws are based on a moral principle that permits, nay more, protects a landlord—first to let his ground for agricultural purposes, and then to convert it into a game preserve at his own pleasure and for his own profit, or let it to another for that purpose. It is of no uncommon occurrence in Aberdeenshire to find a large district of country all leased to agricultural tenants, with the exception of a few patches of plantation, and the whole let, or what is called "the shooting," set in tack along with the mansion or some ancient seat. In one case which came under my notice, the lease extended to five years. The tenant on entry stationed watchers on every country range or hill-side to see that the tenantry, &c., did not disturb the wild animals whilst feeding on their crops. If any person dared to injure any of those animals called game, then the thunders of a national code of laws were immediately invoked, and executed against that individual. The other part of the watchers' duty was to destroy such animals as might be expected to interfere with the game. In the execution of this part of their duty they trapped cats and poisoned dogs belonging to tenantry close to their own homesteads; and as the game multiplied by the hundred and throve beautifully in the fields, and rats and mice also increased and were unmolested about the house, the feeling of an overtaxed tenantry rose almost to the revolutionary point. By this time the first three years of the lease had passed away. The watchers were then dismissed or converted into trappers to catch the formerly wild animals, and for a considerable time an expert trapper could have easily, and actually did box, hares and rabbits, every night he practised, to the value of 20*s.* for a considerable length of time, which was forwarded to the London market. The whole or nearly the whole money value thus obtained was, in the first place, a sum wrested from the tenantry, but the sum, although handed to the tenants, would not have been equivalent to their loss, because amongst Turnips for example the wild animals seldom eat more and often less than the half of a Turnip, and the remainder is lost. Mr. Webster went on strongly to condemn the practice of introducing clauses into leases binding the tenants, their heirs and successors, to protect hares and rabbits notwithstanding any Act of Parliament to the contrary, giving examples of instances of this sort existing in Aberdeenshire. Mr. W. then read the resolution as above, and proceeded—A change such as that indicated in the resolution is necessary to secure that peace and harmony among the cultivators of the soil which is essential to the public interest and the upbuilding of a united community. After considering the game laws, I am astonished that the proprietors of the soil have not in a body and with one voice demanded to be released from sitting in judgment in game cases. There could not be a more invidious position, than a proprietor adjudging a tenant to pay a penalty for slaying a hare that had fed on the tenant's crops.

Mr. Cochran, Little Haddo, seconded. Surely after what has been written by such an authority as Dr. Barclay, Sheriff of Perthshire, it is time that such powers be taken from the Justices of Peace, and that all cases be tried by the Sheriff of the County on the testimony of not less than two witnesses.

Mr. Campbell, of Blairton, then moved—

"That a committee be appointed for the purpose of taking such steps as to them may seem advisable for carrying into effect the wishes of this meeting, as expressed in the preceding resolution."

In supporting this motion Mr. Campbell said—We are met here as tenant-farmers, met not only for the purpose of protecting our own interests, but also the interests of the community at large, against the bann of all freedom, class legislation; for undoubtedly our game laws are a class law. Under our present system, a farmer's capital is almost smothered in the swaddling clothes of old feudal customs and usages, so that it is no wonder although agriculture should be poor and comparatively unremunerative. We often hear of landlords complaining that they can not get tenants of sufficient capital, so as to give full development to the soil. Now, it is well known that capital is abundant, and always speedily drawn into channels where its course is free and unobstructed, and naturally directed from those encumbered by such restrictions as agriculture is under our present system. I hold that every law or custom that tends to obstruct the producing of food for man from the soil ought to be abolished. In connection with game, the question presents itself—Is our legislature warranted in providing sport for our aristocracy at the expense of food for the million? I have no doubt but landlords would always find a legitimate amount of sport on their estates, without legislative enactment. I think it would be a bright day for agriculture if landlords would trust more to the energy, enterprise, and good faith of their tenantry, and less to the arm of the law to coerce them. To a right-minded proprietor I think the sport would be sweetened with the conviction that he was coursing through his tenants' crops, with his tenants' best wishes, rather than doing so by strength of law. It is certainly not a little surprising that such absurd laws should exist in a nation having a representative Government. As tenant-farmers we have had the franchise in our hands for upwards of 30 years; but I am ashamed to confess that our political movements hitherto have too often been a blind following of our landlords, and a supporting of them in their class legislation. I ask, is there any other class of the community that would allow such laws to oppress them as do the agricultural body at present? Undoubtedly not. I think if anything would arouse us from our lethargy, the Game Act of 1862 might be sufficient to do so. Another subject that I would draw the attention of this meeting to is the large rookeries of crows that are being preserved by sundry gentlemen in this county, and that destroy so much the crops of the neighbourhood in which these gentlemen reside. You talk of the rights of property—is it not an abuse of these rights for any gentleman, merely to gratify a private whim, to be at liberty to nurse a pest that destroys the crops of his neighbourhood? I ask, is that not a subject for legislative interference? A good deal has been said about damages, and tenants claims for the same, but I hold that in the interest of the community at large the crops of this country ought to be protected from damage. In my mind the question assumes a far broader aspect than merely the interests

of landlord and tenant. The decision of the House of Lords on the 13th finally settles the point that a proprietor has the right to all wild animals, whether game or not, killed on his lands, and that he has the power to follow and seize them in the hands of third parties. Such a decision is only another exemplification of the extent they will carry the rights of landed property to. If I understand the Lord Chancellor's decision aright, he converts a wild animal the moment it is killed into real property, belonging to the landlord on whose property it falls. So, after this decision, should any tenant-farmer venture to carry home a rabbit he may have killed amongst his crops, he is liable to be seized as a thief for so doing. I mistake very much the spirit that is now abroad amongst tenant-farmers if these laws are allowed to disgrace our country much longer.

Captain MITCHELL seconded.

Mr. M'COMBIE, Cairnballoch, said—There are many in the country that need to be enlightened on how far this excessive game-preserving is inimical or hostile to the public good. In the first place it limits the produce of the country, and requires us to have recourse to foreign countries to a much greater extent than we might, for I hold that no one is capable of estimating the damage done by wild animals to our crops. It is all fudge to say that at harvest the damages can be estimated. Who shall say how much has been prevented in our corn crops from ever being a plant at all? From the very first time that it springs out of the earth these ravages begin. You may know what has been done after the crop has nearly arrived at maturity, but you cannot know what the crop would have been if it had not been for these animals. But think for a moment what a different state of things obtains in the country since the majority of this meeting can recollect—what a change has there been! I can recollect very well since there were no cattle fattened in Aberdeenshire. Why and wherefore have we been able to fatten cattle? Has it been by the expenditure of the landlord's capital that the change has been wrought? or of the tenant farmer's capital. I say, and I shall be borne out by you—by every one who has farmed light land in Aberdeenshire, that but for those extraneous manures that the capital of the farmer and not the capital of the landlord has brought into the country, great part of the land of Aberdeenshire would by this time have been yielding to the landlords no rent at all. It is 30 years since—if you will excuse me for referring to an incident in my own experience—that in manuring the land one drill of Turnips had been accidentally omitted in the service of bones, and the produce of that drill turned out—to use a colloquialism that expresses the meaning better than an English term—mere *gnasherts*. They were not worth the pulling; and that would have been all the Turnip crop that would have been producible upon all the light lands of Aberdeenshire for the last 20 or 30 years, but for the introduction of guano, bone-dust, and other manures, which you have been applying to the soil. And is it to be endured, I say, by such an intelligent and enterprising class of men as the farmers of this great country, that such ravages should go on, and that we should be rather tolerated to cultivate the soil than encouraged as we ought to be, and protected as we ought to be? Looking at the question as one of public interest, Mr. Caird, in his place in Parliament, has set forth the other day, that an addition of 1*d*. per lb. to the price of meat costs the metropolis one million and a quarter sterling a year: and who shall estimate how much, by its diminished quantity, game preserving contributes to enhance the price of meat, and thus bear against the interest of every consumer of corn and meat within the country.

A vote of thanks to the Chairman and the various speakers concluded the proceedings.

Reviews.

The Home and Foreign Agricultural Miscellany:—The Cow and the Dairy. Part I. A. Fullarton & Co., London and Edinburgh.

This is a compilation professedly based on the celebrated continental treatises of MM. Magne, Thier, Peers, and Joigneaux, "adapted to English practice." The editor has done fairly well his task of re-writing and adapting the materials before him; but what could have induced him to sanction the monstrous caricatures which stand in his pages as representatives of the several breed of cattle? Did ever any one see a Suffolk or an Ayrshire, a Jersey, a Brittany, a Flemish, Schwitz, or Normandy cow like those outlined on pages 7, 8, 12, 14, 17, 19, 20! And the heads upon the frontispiece, Brittany, Suffolk, and nearly all the others, are altogether unrecognisable. Then we have the hideous drawings employed by M. Guenon to illustrate his whim about the relation between the milking properties of the individual cow, and the growth of hair upon the hinder part of the udder, reproduced, as if there was really anything of practical importance in them. We presume that the literary man who is engaged upon the editorship of the foreign works here presented to the English reader is not practically acquainted with the subject of English dairy management as carried out on the great scale, as a systematic and well established industry, over Cheshire, Gloucestershire, Wilts, and other Western and Midland counties; or he would hardly give such undue prominence to the fancies and whimsical discussions of amateurs.

A sensible straightforward account of the practice of the best farmers in our dairy districts would be worth to the English farmer far more than all the novelties and surprises that can be culled from continental writers. Here are 17 out of 100 pages on the cow devoted to a consideration of the "escutcheon," or the patch of upward hair on the buttocks of the cow!

On the other hand we have to report the substantial excellence of the chapter on the buildings of the dairy farm, where the author is evidently much more original and satisfactory.

The following on the cropping of a dairy farm is quoted from Mr. Harding in the Journal of the Agricultural Society:—

"A farm of 150 acres in this county (Somerset), of fair quality, divided into 110 acres of pasture and 40 of arable, would, some years ago, probably have been stocked with 30 cows, 5 or 6 heifers (to keep up the stock), besides a few horses. The arable course would have been 1 fallow, 2 Wheat, 3 Beans, 4 Wheat again, 5 Clover, mown twice, then fallow again, Barley being grown occasionally on suitable soil.* It was thought that on the pasture land no more cows could be kept than the one-half would maintain in summer, the other half being mown for winter keep; that would give (allowing 3 acres per cow) 90 acres for 30 cows, and 20 acres would be left for the young stock and horses. The arable land at this time received the greater part, if not all, of the manure.

"A farm of this description would now keep 50 cows. The larger part of the arable land would be in Grass and roots, corn being grown only on the decay of the Grass plant, which, instead of being mown, would be grazed by the cows, and admit of being stocked a fortnight earlier in spring than the meadow Grass; the straw would be cut into chaff and mixed with roots, meal, oil-cake, or some other substitute to make it equal in nutriment to hay. The roots would be chiefly grown by artificial manures, and a portion of them fed off by dry sheep, so that a considerable part of the yard manure could be spared for the pasture land. Although I have spoken above only of an increase of 20 cows, I know some farms on which the extra number is even larger.

"Where the farm is wholly pasture, as is the case with a large number of the dairy farms in this county, there cannot be as large an increase of produce as is stated above. Yet even here, as the land is made to carry as much stock as possible, the increase in the number kept is considerable. Some farmers will feed nearly all their land and sell the cows in the autumn, looking forward to replacing them in the spring of the year. This seems to be an expensive mode of increasing dairy produce; but where the land produces a large quantity of milk, the Grass is of far more value than the hay.

"Others, again, have adopted the plan of preserving a few acres of aftermath (after being fed once) till the spring; the young Grass is thus drawn up by the shelter which the old affords, and consequently comes to feed earlier than it would otherwise do. This feed is valuable for turning out the cows by day; it thus both lessens the consumption of hay and increases the yield of milk. Among my acquaintance, the farmer who realises the largest amount of profit per cow lives in Leicestershire, and makes both butter and cheese. His farm is a loamy soil, not much affected by drought or wet, so that it is generally in a growing state throughout the summer. He keeps only cows and young stock. The cows have the first feed of every field, the heifers following them in the round of the farm. A man brings up the rear to clean up the droppings, so that the field is clean and fresh for the cows on their next round.

"The building of houses and yards for the accommodation of the cow has not a little tended to an increase of produce, inasmuch as it has enabled us to keep the stock off the land during the winter months. The Grass consequently grows earlier in the spring, and enables us to mow earlier, so as to secure a better feed on the after Grass. The introduction of artificial manures has rendered us great assistance, especially for arable lands, although the pasture likewise feels the effect of the change. Bones have been used on the pasture, but not to such an extent, nor with such success, as in Cheshire. Besides all this, nearly all the wet lands have been drained, and the wide and useless hedgerows grubbed up, so that our atmosphere has become drier and more healthy. Nature has lent a helping hand, and we have in consequence a longer summer and a shorter winter. A large quantity of cheese is made from some of the hills which formerly only fed a few half-starved sheep and cattle. Some of these improvements may seem to be of small importance to the casual reader; but when carried out through a whole district, as in this county, the effect is great, and these, I believe, are the chief causes which have led to the dairy produce of this county being increased within a few years 25 per cent."

The following is Mr. Horsfall's description of the mode adopted by him of managing his permanent pastures, which are heavily stocked during the summer season:—"The home pasture of barely 15 acres carries my 20 milk cows during the day. They are housed during the night. This clearing the pastures by night has in some degree the effect of change of pasture, and prevents their lying so much on the Grass they eat. In addition to the 20 milk cows, 20 ewes, with their lambs, graze and fatten on this home pasture of 15 acres. These ewes are supplied with half a pound of rape-cake each per day. It will be observed that the dung from the cows is likewise enriched by the extra food given to the cows in stall. Several times during the season a labourer is sent round the pastures to spread about the dung; for this operation I prefer wet weather. My other pastures are also rich feeding pastures, and carry a beast and an ewe with her lambs per acre. During July and August the coarse tufts of Grass in the pastures are mown and carried home for fodder for my horses. I prefer this pasture Grass for horses to that from aftermath, which is too relaxing. These pasture mowings more than suffice for the bulky food for four or five horses during July and August. The surplus is partly eaten by the cattle, the remainder being converted into hay, and mixed with cut straw for steaming. After this mowing of the tufts the pastures assume the appearance of aftermath, and the animals graze with appetite over the whole. Late in autumn, and early in spring, the ewes are continued on these pastures, which they graze quite close. They are housed during severe weather and at night on boarded floors, and turned on the pasture during the day through winter in fine weather.

"To these frequent cuttings of my meadows, and close grazing of my pastures, I am in some degree indebted for the excellent quality of their produce.

"My successful use of rape-cake as food has caused my attention to be given to the cultivation of the green Rape plant for fodder, of which I produce two crops during the year. The sowing for one is made towards the close of June or early in July, after early Potatos, or on other vacant ground enriched with the fresh excrement from my cattle. The produce from this sowing is cut towards the close of September, in October, and early in November. To ascertain the quantity, I measured out 400 square yards, which was cut in dry weather; the produce was upwards of 1¼ ton, being more than 16 tons per acre. This cutting was made before the crop had attained its full growth. The average over the whole would be more.

"Towards the close of July, or early in August, I sow Rape in a seed-bed, for which I use the headlands of crops, which are horse-hoed. These plants are taken from the seed-bed, and planted after lifting the Potatos in September or October, and produce a crop during the early part of May. Though the operation of planting out is somewhat tedious, yet the produce being available at a time when green food is scarce, I find its cultivation remunerative. My produce this season is equal to about 7 to 8 tons per acre. This spring crop is cut in time to be followed by Cabbage and Kohl-rabi. The properties of green Rape as food for sheep are well known. In Morton's Cyclopædia I find a complete analysis, showing it to be rich in flesh and fat-forming constituents. Dr. Voelcker characterises it as richer in fatty matter than any other green crop used for food. During the month of October, and early in November, I give it both to my milk and fattening cows; they devour it with relish. I have as yet found no green crop equal to green Rape at that season of the year.

"In cultivating the Cabbage and Kohl Rabi, I find it advantageous to plant them in rows of 4 feet to 4 feet 6 inches apart, with Potatos between each row. As the Potato forms its tubers and expands its foliage, whilst that of Cabbage and Kohl Rabi are comparatively small, I obtain an abundant crop of each. On the Potatos being lifted the Cabbages nearly cover the whole ground.

"The produce of the Cabbage exceeds that of any other vegetable I cultivate; yet on account of its flavour I limit its use to a less quantity than that of any other green food. The Kohl Rabi, though not equally productive with the Cabbage, is in flavour somewhat more agreeable."

We must add that the work is difficult to read by an English farmer, owing to the retention of foreign weights and measures, which ought to have been converted into English terms for English readers.

* Clover is not so much sown on dairy farms as it would be if it could be safely fed by cows.

Miscellaneous.

Curious Accident to a Horse.—A singular accident to a horse of mine and his subsequent recovery are, I am assured, of such interest that I have been requested to ask your insertion of the case. About a month ago the horse in question slipped and fell in his loose box, with his head doubled under him, fracturing the lower jaw across—transversely from behind the tush on the one side to immediately in front of it on the other. In addition there was a deep flesh rent across the gums. An attempt was made with a splint to bring the bones into juxtaposition, but as in ten days there was no evidence of any union, the ends of bone being three-quarters of an inch apart, and the horse having lost condition considerably, I sent him to Mr. Cox, the veterinary surgeon of Mount Street, Grosvenor Square. He at once decided that the only alternative was the removal of the fractured bone. This

he most skilfully effected the same day (19th of June), the horse, of course, being under the influence of chloroform. As he describes the operation to me,—"I first made an incision at the edge of the gum, close to the teeth, and all round, and continued dissection until the broken bone was released. The vessels were then secured, and the jagged ends of the presenting bone sawn off to form a smooth surface, the soft parts made to cover the end, and secured with sutures. Since the operation the horse has shown no evidence of pain or even discomfort, has fed uninterruptedly well, and regained his condition, the wound is all but completely healed, and he will return home towards the end of this week, until which time he may be seen in Mount Street. Although the whole of the lower incisor teeth, and one tush are gone, there is no external deformity resulting, the lips and chin being in natural position. There may be some difficulty in bitting him, but a simple contrivance will no doubt overcome it. Should you think this statement worthy your acceptance, I venture, in acknowledgement of Mr. Cox's skill, to ask your insertion of it in *The Times*. *M. W. Wilson, Cirencester, July 3, in The Times.* The following is a more technical description of the case:—

"On the 19th of June the horse was sent by rail to London, to be submitted to Mr. John Roalfe Cox, veterinary surgeon, of Mount Street, Grosvenor Square, who found the following state of affairs:—A compound fracture of the lower jaw, extending from behind the tush of the one side of the mouth to directly in front of the tush on the opposite. The fractured ends at this time were separated to the extent of an inch, and the soft parts lying under the tongue lacerated the entire length of the fracture—*i. e.*, from tush to tush across the mouth. There was offensive discharge from the wound from the large portion of bone broken off being now dead, and the sloughing condition of the fleshy parts. The pressure of the bandage used in endeavours previously to confine splints had also occasioned deep wounds in the gums. Mr. Cox, determining that union of the fracture could not take place, proposed an operation as the only alternative to save the horse, as he must otherwise have been destroyed. The excellence of the horse decided us to act upon this advice as affording a last chance of saving a good hunter, particularly as it would subject him to no suffering, Mr. Cox purposing to give chloroform, in accordance with his invariable custom in the numerous operations coming under his hands. On the same day of his arrival in London the operation was performed, the horse being fully under influence of chloroform, and completely unconscious of any source of suffering. The incision was first made at the edge of the gum, all round, and close to the teeth, and dissection continued till the broken bone was released. The bleeding vessels were secured, and the jagged and irregular edges of the presenting end of the broken jaw sawn off to form a smooth surface; the soft parts were then made to cover the stump, being confined by sutures, thus completing the operation. The horse on awaking from chloroform gave no indication of suffering, and has continued from that date to do uninterruptedly well, the wound rapidly healing. He has markedly gained condition, and is, to all appearance, free from inconvenience, feeding as heartily as any horse upon corn, hay, and green meat, and having been purposely put on full allowance of nourishment from the first. There is not the slightest external deformity resulting, the lips and chin being in natural position, nor could any one divine from outward appearance that such an operation had been performed. The portion of bone removed embraces all the lower incisor teeth and one of the tushes."

Calendar of Operations.

July.—Summer Feeding for Horses.—The following dietaries for the summer months were contributed to us some years ago, and have since been published in the Journal of the English Agricultural Society:—

It is to be understood that an *asterisk* (*) by any of the figures intimates that the grain was crushed, or the green food cut into chaff; and a *dagger* (†), that the roots were given boiled or steamed. It is a capital practice to cut Rye, as soon as fit, into chaff along with hay or sweet straw, and mix the whole up with crushed Oats and Beans, giving the whole thus mixed in small quantity at a time, and thus gradually accustoming cattle to their change from dry winter food. Vetches cut when young should be allowed to wither before being used in the stable, otherwise they prove at first to be physic rather than food:—

The Work of the Dairy can now be conducted with regularity. The calves not being expected to interfere with it, as in all well-regulated dairies they are now old enough to do without much milk, and the cows having the advantage of pasturage, the cheese is expected in this month to be of prime quality. If any of the cows should be late calving, their milk should not be used for cheese for at least a fortnight, new milk always having a tendency to make it heave. Cheese is now made twice a day. The cheeses pass through three presses in order, advancing a step in their progress at each meal or making, till at last, in four or five days, they come out of the presses, and are put upon the shelves. They are generally salted 24 hours after they are made, though this is done by some at the end of 12 hours; the cheese after this is returned to the vats and put under the press, care being always taken, according to what has been said, to put the newest cheese lowest in the press and the oldest uppermost. The brine, which drops from it when in the last press before it is taken out and placed on the shelves for drying, is quite clear; the quantity is small, and ought to be put into the rennet-jar perhaps every two or three days, which keeps up the quantity, and is thought an improvement to the cheese.

When the cheeses are taken from the salting-presses they are put on shelves in the dairy for a day or two, where they are turned once in 12 hours. They are then taken to the cheese-loft to make way for the new ones. In the cheese-room they are turned once every day; and in general in a month, or less in dry weather, from the time they are taken out of the vat, they are ready for scraping. This is accomplished with a common knife, first moistening the cheese with a wet flannel, and must be done carefully all over the cheese so as to take off the roughness that may be left upon it from the cloth or any other cause, leaving it quite smooth on the surface and sharp at the edges; the sooner this can be done the better. In order to get cheese into a state of forwardness for the factor, it will only require wiping round the edges and an inch within them once a week after this scraping; and it should be turned over twice a week, or even oftener in damp weather. Care should be taken to allow the blue coat to remain on the top of the cheese; this blue coat is considered a sign of richness by the factors. In some districts it is customary to paint the outside of the cheese with Indian red; this should be mixed with warm water to a thin paste and rubbed on with a piece of flannel, and should be done immediately after the cheese is scraped, before any grease arises upon it, and the same treatment should be adopted as if not painted. In most cases it is better to postpone making thick cheeses which weigh about four or five to the cwt. till at least the month of June.

Notices to Correspondents.

Books: *A.* Morton's Dairy Husbandry. Longmans. 1*s.* 6*d.*

Breaking up Pastures: *A W.* In breaking up with the spade pasture on a good sandy and deep loam, if it be naturally or artificially dry, we would dig it in beds a perch wide; and let it lie till spring, when we would hack it over and plant one-third to Beans, one third to Potatos, and one-third to Turnips. You would, however, do better to pare and burn it, and cultivate it afterwards. Where you can get a good sale for Potatos, there is no more profitable rotation of crops than that of Dimmery on Stinchcombe farm (see Agricultural Society's Journal): 1 grain crop, 2 Turnips, 3 Potatos; feeding half the Turnip crop on the land to serve along with 20 bushels of soot per acre (bought), as manure for the Potatos, the other half being carried home to feed in the yard and convert the straw of the grain crop into manure for the next year's Turnip crop. The grain crop may be Wheat; only we have named it Beans the first year, as that is better suited to newly broken up land.

Covered Yards: *The Earl of Essex.* We regret that the letter on this subject failed accidentally to reach the Editor in time for this impression.

Guano: *Arator.* It would probably prove more immediately efficient on a light than on a heavy soil, much of its value being due to substances which require the free access of *air* and water to bring them into the condition of vegetable food. It should have been applied broadcast in April over the young Wheat.

The Weekly Food of a Farm Horse—Spring and Summer.

No.	Name and Address.	Hay.	Oats.	Beans.	Roots.	Sundries.	Pasture.	Weekly Cost. s.	Weekly Cost. d.
		lbs.	lbs.	lbs.	lbs.	lbs.	lbs.		
	The Spring Season.								
1	Professor Low—Elements of Agriculture ..	140	73	..	..	Potatos. 70†	..	9	9
2	— Binnie, Seaton—Highland Soc. 1850 ..	84	70	..	500†	Linseed. 3½	ad lib.	9	9
3	J. Twynam, Botley Farmers' Club	112	84	16	..	..	..	10	3
4	R. Baker, Writtle, Essex	70	70	80	..	..	110	9	0
5	T. P. Dods, Hexham	ad lib.	120*	..	..	..	..	10	6?
6	— Baldwin, Glasnevin	147	98	..	Carrots. 49	Green Rye.	..	11	6
7	C. Howard, Biddenham	ad lib. ½*	42	..	..	ad lib. ½*	..	7	6?
8	A. S. Ruston, Isle of Ely	ad lib. ½*	84	..	..	ad lib. ½*	..	10	0?
9	A. Simpson, Beauly, N. B.	168	70	14	..	..	168	10	0
	The Summer Season.								
1	Professor Low—Elements of Agriculture ..	..	35	..	..	Cut Clover. 1400	..	5	0
2	H. Stephens—Book of the Farm	..	..	..	..	ad lib.	Night.	8	2
3	J. Gibson, Woolmet—H. Soc. 1850	..	50	..	..	5*s.* 3*d.*	..	7	6?
4	— Binnie, Seaton, ditto	..	70	28	..	ad lib.	Night.	9	0
5	— Thomson, Hangingside, ditto	..	84	..	..	ad lib.	..	11	0?
6	— Barthropp, London Farmers' Club, 1853 ..	..	..	48	..	3*s.*	..	9	6
7	J. Morton, Whitfield Farm, 1843	..	70	..	..	7 cwts.	..	6	9
8	W. C. Spooner, Journ. Ag. Soc., vol. ix. p. 274	..	42	..	..	5*s.*	..	8	9
9	T. Baldwin, Glasnevin	..	85	..	..	700	..	8	0
10	J. Coleman, Cirencester	..	42	..	..	ad lib.	..	6	0
11	J. Cobban, Whitfield	..	42*	..	..	ad lib.	Straw. ad lib. Night.	6	6
12	R. W. Moore, Coleshill	..	63	32	..	ad lib.	Pasture. Night.	6	9?
13	S. Rich, Didmarton, Gloucestershire	84*	31½	..	..	1*s.*	2 acres.	10	6?

FOUNTAIN JETS

Fig. 526. JET D'EAU. 18 holes, 5*s.* 6*d.*; 24 do., 5*s.* 9*d.*; 36 do., 6*s.* 6*d.*

Fig. 531. DOME and CONVOLVULUS. 17*s.*

Fig. 525 DOME. 8*s.* 6*d.*

Fig. 523. CONVOLVULUS. 8*s.* 6*d.*

Fig. 521. BARKER'S MILL. 11*s.*

Fig. 522 WIRE BASKET WITH BALL 10 ins., 16*s.* 6*d.*, 12 ins. 17*s.* 6*d.*; 14 ins.

Connecting Screws to all the above Jets, 1*s.* 6*d.* extra.

A Tap is required to be fixed in the Pipe to regulate the supply of water to Fountain Jets.

J. TYLOR AND SONS, Manufacturers, Warwick Lane, Newgate Street, London, E.C.

Oil Paint no longer Necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which Hill & Smith will forward on application.

From the Right Hon. the Earl of Shannon, *Castle Mary, near Cork.*

"Gentlemen,—I have used your Black Varnish for several years and consider it very superior, both for iron and wood work out doors, to anything I have ever used. I shall always continue to use it. Near the sea it is particularly valuable, as it stands exposure when paint becomes corroded. I consider the iron Barrow essential to its use."

Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the kingdom.

Apply to Hill & Smith, Brierly Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C., from whom only it can be obtained.

TRADE MARK.

ENTERED AT STATIONERS HALL

WALTER CARSON AND SONS, of Great Winchester Street, respectfully notify that they have removed their principal office to their Warehouse in LA BELLE SAUVAGE YARD, Ludgate Hill, E.C. (three doors East of Railway Viaduct), and have discontinued their West-end Office, 31, St. James's Street.

CARSONS' ANTI-CORROSION PAINT specially manufactured for out-door work, is the best and cheapest. All colours. Is simple in application, so that any person can use it.

Is twice as durable as genuine white lead. See Testimonials and with patterns and prices post free.

Three cwt. carriage free to any station in England and Wales, and to most Seaports of the United Kingdom.

CARSONS' ANTI-CORROSION PAINT used by nearly all the eminent Horticulturists, the Nobility and Gentry, for their Gardens.

CARSONS' PAINT for CONSERVATORIES.

CARSONS' PAINT for GREENHOUSES.

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CARSONS' PAINT for all OUT-DOOR WORK.

CARSONS' PAINT for WOOD and IRON WORK.

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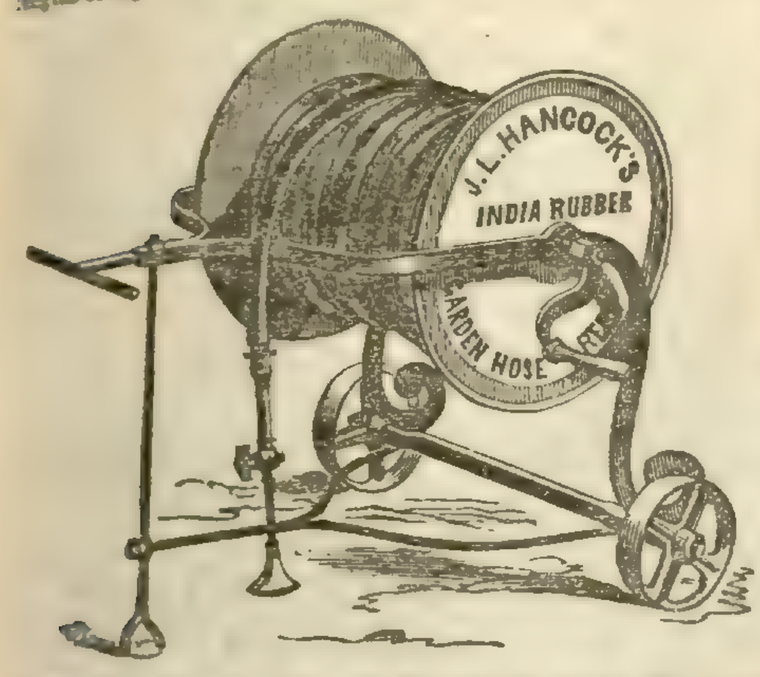
CARSONS' ANTI-CORROSION PAINT will keep for years in a dry place. All orders to be sent direct to Walter Carson & Sons, La Belle Sauvage Yard, Ludgate Hill, E.C. Three doors East of Railway Viaduct.

HANCOCK'S INDIA-RUBBER HOSE for WATERING GARDENS, LAWNS, &c. &c., made in 60-feet lengths of any size.



HOSE REELS, of Light Iron, for Winding-up Garden Hose when out of use.

BRASS FITTINGS, STOP-COCKS, SPREADERS, HAND BRANCHES, JETS, &c. Illustrated Price Lists on application.

JAMES LYNE HANCOCK, Vulcanized India-Rubber Works, Goswell Mews, and 266, Goswell Road, London, E.C.

EARTH CLOSETS AND COMMODES.

(Moule's Patent.)

MANUFACTURED SOLELY BY

WHITE & CO.,

29, BEDFORD STREET, STRAND, LONDON, W.C.

THE PECULIAR ADVANTAGES OF THESE CLOSETS AND COMMODES OVER THE ORDINARY WATER CLOSET ARE:—

First.—That the deodorising material (dry surface earth, or clay, or other subsoil) is the best for the purpose, and at the same time is the cheapest and within the reach of all classes.

Secondly.—The supply of such material to any house or premises may be much easier than the supply of water by a forcing pump, and its removal after being used may be entirely without offence.

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Fourthly.—The expense of these Closets, in comparison with that of Water-Closets, is, as to the first cost, trifling, and as to repairs almost nothing. For instance, there is no expensive cistern required, and there are no lead pipes to burst in frosty weather.

Lastly.—In all large Establishments, such as Hospitals, Union Houses, Schools, Gaols, and Asylums, a very considerable sum may be saved annually in the production of a valuable manure.

The efficiency of these Closets is so great as to be scarcely credible to those persons who either have not used them or seen their mode of action.

Price of Apparatus without woodwork, 25s. per set.

*** *The different forms of Closets may be seen at the address above; and Prospectuses will be forwarded on application.*

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J. WARNER AND SONS

Have much improved the construction of their

GARDEN **ENGINES**

in some important particulars for this Season.

They may be obtained of the Trade generally throughout the Kingdom at the following prices:—

No. 547. WARNER'S best ENGINES, in Wood Tubs, and fitted with WARNER'S Registered Spreaders—

24 Gallons,	£6	10	0
14 „	5	10	0

No. 547A. WARNER'S strong ENGINES, in Galvanised Iron Tubs, well painted—

10 Gallons	£2	19	0
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28 „	5	10	0

No. 579½. WARNER'S WATER BARROWS, thoroughly Galvanised and well painted—

20 Gallons	£2	2	0
30 „	2	13	0
38 „	3	17	0
50 „	5	12	0

The 50-Gallon Barrow is made extra strong throughout, and fitted with handle for two men.

No. 568½, AMERICAN ENGINE, is now well known and appreciated. It throws a continuous stream, and is complete in itself. £2 2*s.*

SYRINGES in great variety, from 7*s.* 6*d.* to 18*s.* 6*d.*

The DISC SYRINGE, No. 557A, will recommend itself by the ease with which it is filled, and non-liability to get out of order. Price 9*s.*

DESCRIPTIVE PRICE LISTS forwarded on application.

WARNER'S **AQUAJECT**

Is this season first introduced to the notice of horticulturists as possessing the following advantages:—It is simple in construction, portable, and easily worked. It throws a continuous stream, and is low in price.

The Aquaject, 30s.

The small AQUAJECT is the most perfect form of Syringe yet introduced. It throws a continuous stream, with very slight movement, and with it blight, &c., is readily washed from the under side of foliage. 18*s.*

No. 35. WARNER'S IRON PUMPS for Wells not exceeding 25 feet in depth — 2½-in., 28*s.* 6*d.*; 3-in., 41*s.*; 3½-in., 46*s.*; short barrel do., 21*s.*

No. 36. IRON FORCE PUMPS for raising water above their level, or watering yards, gardens, &c., through hose—2½-in., 59*s.*; 3-in., 65*s.*; 3½-in., 77*s.*; 4-in., 89*s.*

No. 36½. FORCE PUMP on BARROW, recommended for its great portability and simplicity of construction. £5 10*s.*

No. 42 WARNER'S PORTABLE PUMPS on Folding Legs, are of a superior construction.

Price 55*s.*; Rubber Suction, 2*s.* 6*d.* per ft.

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RUBBER HOSE in all sizes.

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PRIZE MEDAL and HONOURABLE MENTION AWARDED to G. N. & SONS, for BEE HIVES and HONEY at the VARIOUS EXHIBITIONS.

NEIGHBOUR'S IMPROVED COTTAGE BEE HIVE, as originally introduced by GEORGE NEIGHBOUR & SONS, with all the recent improvements, three Glasses and Thermometer, price 35s., securely packed for the country.

Several important novelties are introduced this season, including the Woodbury Straw and Bar-and-Frame Hive, price 21s., &c. Also the Engraved Pressing Roller, for the guidance of Bees in the construction of Honey-comb on the Bars, and impressed Wax Sheets, to assist in the formation of Cells.

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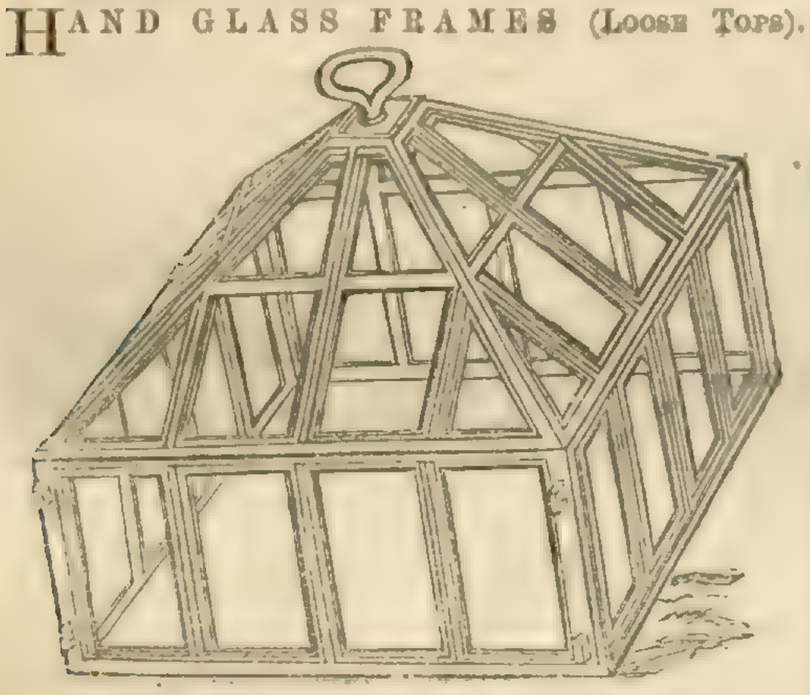
Their newly-arranged Catalogue of other Improved Hives, with drawings and prices, sent on receipt of two stamps.

AGENTS:—Liverpool: James Cuthbert, 12, Clayton Square. Manchester: J. Wilson, 50, King Street. Birmingham: J. H. Cottrell, 15, Bull Ring. Dublin: Edmondson Brothers, 10, Dame Street. Glasgow: Austin & McAslan, 16, Buchanan Street.

HAND GLASS FRAMES (LOOSE TOPS).



Size.	Price s.	d.	
14 by 14	4	0	Each.
18 by 18	5	9	"
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Delivered Free to any Station in England if 12 or more are ordered.
J. JONES & SONS, 6, Bankside, London, S.E.

FLEMING'S SALTING MACHINE for DESTROYING WEEDS in Garden Walks and Court Yards.

PRICES:—

HAND MACHINE to disperse	20 gallons	£9 5 0
" " "	30 gallons	12 0 0
" " "	40 gallons	13 10 0
HORSE " "	100 gallons	23 0 0

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IMPROVED GLASS TRAPS for WASPS and FLIES, 6s. per dozen. CUCUMBER GLASSES, 12 by 2 inches, 3s. per dozen. Elegant GLASS JARS for Preserves, 1s. 9d. per dozen, ½ pint.

Sent free of Carriage and package to any Railway Station in London, on receipt of Post Office Order or other remittance.
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Glass for Garden Purposes.

JAMES PHILLIPS AND CO. beg to submit their prices as follows:—

PROPAGATING

GLASSES.

	Each.—s.	d.		Each.—s.	d.
2 inches in diameter	0	3½	12 inches in diameter	1	9
3 " "	0	4½	13 " "	2	0
4 " "	0	5½	14 " "	2	6
5 " "	0	6½	15 " "	3	0
6 " "	0	8	16 " "	3	6
7 " "	0	10	17 " "	4	0
8 " "	1	0	18 " "	5	0
9 " "	1	2	19 " "	6	0
10 " "	1	4	20 " "	7	0
11 " "	1	6			

HAND GLASSES,

WITH OPEN TOPS.

	Each.—s.	d.		Each.—s.	d.
12 inches	6	6	18 inches	9	6
14 "	7	6	20 "	10	6
16 "	8	6	22 "	11	6
			24 "	12	6

Painted and Glazed with 16-oz. Sheet Glass.

BEE GLASSES.

	Each.—s.	d.		Each.—s.	d.
4 inches in diameter	0	6	9 inches in diameter	1	8
5 " "	0	8	10 "	2	0
6 " "	0	10	11 "	2	6
7 " "	1	1	12 "	3	0
8 " "	1	4			

CUCUMBER GLASSES.

	Each.—s.	d.		Each.—s.	d.
24 inches long	2	0	16 inches long	1	4
22 " "	1	10	14 " "	1	2
18 " "	1	8	12 " "	1	0
16 "	1	6			

London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.

LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS, PAINTS of various colours ground ready for use.

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BENJAMIN EDGINGTON'S RICK CLOTHS. New and Second Hand.
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Full Particulars, Drawings, and Prices, post free on application to the Patentee and Manufacturer.
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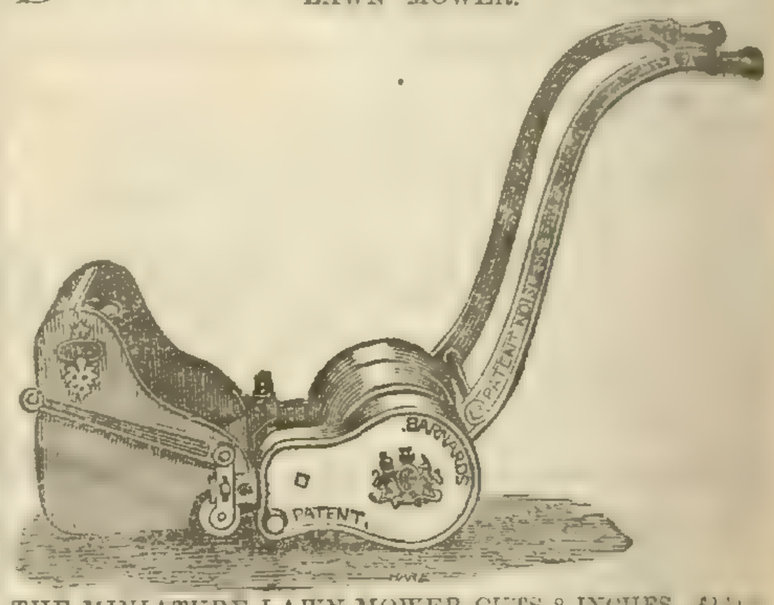
BARNARD'S PATENT NOISELESS LAWN MOWER.



THE MINIATURE LAWN MOWER CUTS 8 INCHES.. £2 10
Suitable for the very smallest grass plots or edgings.

To CUT 10 INCHES (this can be worked by a lady)	3 [illegible]
To CUT 12 INCHES (suitable for one person)	4 10
To CUT 14 INCHES (suitable for one person)	5 0
To CUT 16 INCHES (suitable for one person)	6 [illegible]
To CUT 18 INCHES (suitable for man and boy)	6 1[illegible]
To CUT 20 INCHES (suitable for man and boy)	7 [illegible]
To CUT 22 INCHES (suitable for two men)	7 1[illegible]

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GLASS AND COLOUR MERCHANT,

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HAND GLASSES.

PRESERVE JARS.

REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.

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MANUFACTURED BY STEAM POWER MACHINERY.

LOWEST PRICES AND BEST MATERIALS.

DESIGNING, BUILDING, HEATING, AND VENTILATING ON THE MOST APPROVED AND SCIENTIFIC PRINCIPLES.

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HORTICULTURAL BUILDER, AND HOT-WATER APPARATUS MANUFACTURER,

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By Royal Letters Patent.

WELLS' PORTABLE FOLDING GROUND VINERY, for Growing and Ripening Grapes without artificial heat. Awarded a SILVER MEDAL at the International Exposition of Horticulture held at Nice, April 1865.

Drawings and Instructions for Management post free of R. J. EDWARDS, 25, Bishopsgate Street Within, E.C.

Heating by Hot Water.

W. J. HOLLANDS, IRON MERCHANT, 31, Bankside, London, S.E.

HOT WATER PIPES, from Stock, per yard:—2-inch, 1s. 4d.; 3-inch, 2s.; and 4-inch, 2s. 7d. BENDS, from Stock 1s. 7d., 2s. 6d., and 3s. 3d. each. THROTTLE VALVES, 10s. 6d., 13s. 6d., and 15s. each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day. A discount to the Trade.

Heating by Hot Water.

HOT-WATER PIPES, at Reduced Wholesale Prices, with Elbows, Syphons, Tee Pipes, and every other connection; Wrought and Cast-iron Boilers, Saddle, Conical, Cylinder, TUBULAR, and Elliptic, from 24s. each. Improved Boilers and Iron Stands to use without brickwork, 56s. each. Valves from 10s. 6d. each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Castings of every description in stock, at Mr. LYNCH WHITE'S Iron Wharf, Upper Ground Street, Blackfriars Bridge, London, S. Price List on application.

CRANSTON'S PATENT BUILDINGS for HORTICULTURE, Highly Commended by the Royal Horticultural Society, South Kensington. Plans and Estimates free on application. Houses of the following sizes always in stock:—Span, 30 by 12, and 24 by 12 ft.; Half-span, 24 by 10 ft.; Lean-to, 24 by 8 ft. Slides of different houses post free for 6 stamps each. Descriptive Book, fully illustrated, by post for 20 stamps from the Sole Patentee, JAMES CRANSTON, Architect, No. 1, Temple Street, Birmingham.

Exhibition Prize Medal, 1862.

MUSGRAVE'S PATENT SLOW COMBUSTION STOVE.

This Stove is the nearest approach to Warming by Hot Water.

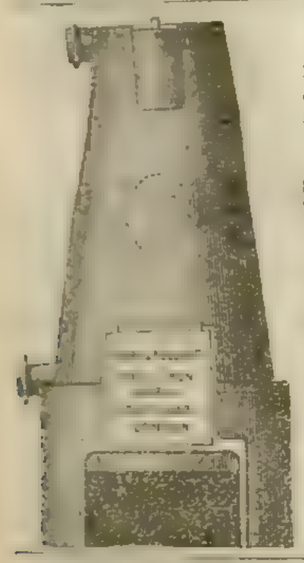
It will burn in Churches from Saturday till Sunday evening, without attention during the hours of worship. In Halls will burn day and night for weeks, with little care. Capable of Warming a large Apartment for 24 hours, at a cost of 3d; and deserving of special attention, because of its safety, healthfulness, durability, and extreme simplicity.

It is also made for small Conservatories, with a vapour chamber.

For particulars of the above, and of MUSGRAVE'S PATENT STABLE and COW-HOUSE FITTINGS, which attracted so much attention at the Exhibition, address,

MUSGRAVE BROTHERS, Ann Street Iron Works, Belfast.

This Stove can be seen in operation at Messrs. COX & SON, 38, Southampton Street, Strand, W.C.



HEATING by HOT WATER—Public and Private Buildings, Manufactories, Conservatories, &c., heated on the most improved system, combined with perfect Ventilation.

These BOILERS are adapted for setting in Brickwork, or as shown in sketch they require no BRICKWORK.

BURY AND POLLARD (Successors to John R. Peill), Sole Manufacturers of the Improved CONICAL BOILERS, which are in general use, and which Boilers have for their durability and economy attained a celebrity far surpassing any other Boilers ever invented.

Park Iron Works, 17, New Park Street, Southwark, London, S.E.

N.B. Patent WINDMILLS for Pumping and Driving Farm Machinery, from half-Horse Power upwards. To be seen daily at work as above.

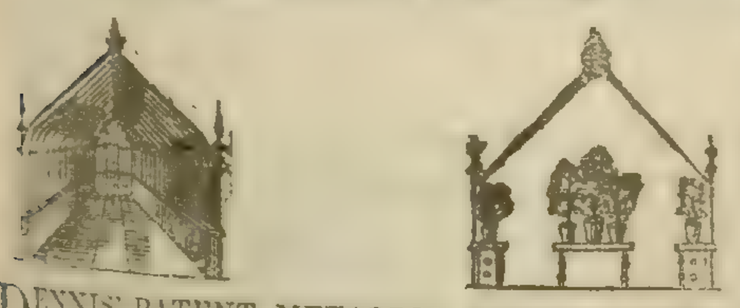
Under the Patronage of Her Majesty.

CLARK AND HOPE (LATE CLARK) 55, Lionel Street, Birmingham, MANUFACTURERS of METALLIC and WOODEN HOT-HOUSES, CONSERVATORIES, VERANDAHS, &c., COPPER and WROUGHT IRON SASHES, SKYLIGHTS, &c., and HOT WATER APPARATUS for Horticultural and Domestic purposes.

C. & H. beg to call attention to their NEW TREE COVER, or Continuous Glass Covering for Garden Walls; which is constructed of Cast and Wrought Iron, glazed with or without putty, and fitted together with bolts and nuts, constituting a Tenant's Fixture. It can be made 6, 7, or 8 feet wide, and 10, 12, or 14 feet high; the Lights being opened together, by means of simple and durable machinery, in lengths of about 50 feet; and the cost does not exceed that of a wooden structure.

Further particulars, with prices, forwarded upon application; and on receipt of the amount in postage stamps, a Book of Designs, plain 1s. 6d., coloured 2s. 6d., for Horticultural Buildings, &c.

Greenhouses—Heating Apparatus.



DENNIS' PATENT METALLIC HORTICULTURAL BUILDINGS are made from the best wrought iron, upon an entirely new principle. The combination of Iron and Glass under this Patent is perfect; the possibility of fracture is prevented, and a permanently water-tight roof insured. The leading practical advantages are extreme smallness of framing, admitting a maximum of light and heat, and perfectly neutralising atmospheric conduction. They are thoroughly ventilated, exceedingly strong and durable, rapidly erected, and whilst maintaining their established superiority for Conservatories of the highest order, are acknowledged by eminent Horticulturists of the day to be the "desideratum of perfection," promoting perfect symmetry of growth and richness of foliage, both for Fruit and Flowers.

From the complete adjustment of the constructional parts of these buildings, their manufacture is so facilitated that a comparison in point of cost with perishable wooden structures is most favorable.

THE GARDENER'S OWN GREENHOUSE (lately known as Dench's Patent) is a Tenant's Fixture. The Patent, Plant, Business, Machinery, and all connected with the above, have been transferred to T. H. P. DENNIS, who has determined to supply these really useful buildings at such a reduced scale of prices that every one desiring a Greenhouse may possess one.

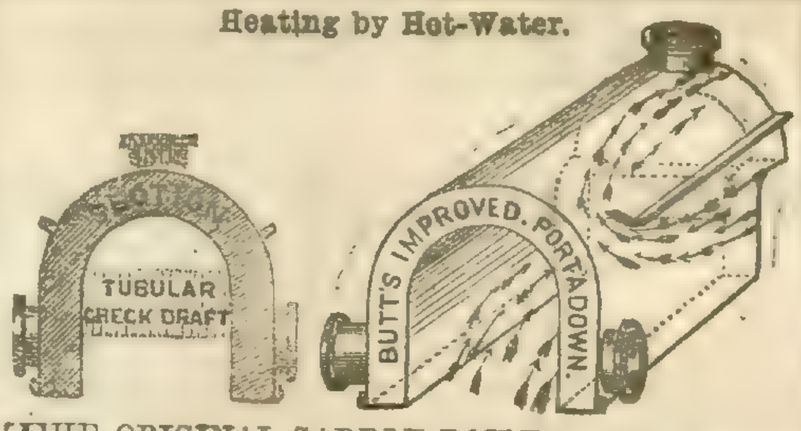
As an example—A No. 1 Lean-to, 12 ft. 6 in. by 9 ft., including honest 16-oz. glass, £16 12s. 6d.

T. H. P. D. has introduced most important improvements in their manufacture and construction, and after numerous experiments has succeeded in arranging them as a TENANT'S FIXTURE, which he feels sure will be valued by gentlemen having limited tenures. With Mr. Dennis' adaptation they make excellent Orchard-houses, and afford all that can be desired in a profitable building.

Wood structures at the lowest price consistent with sound work.

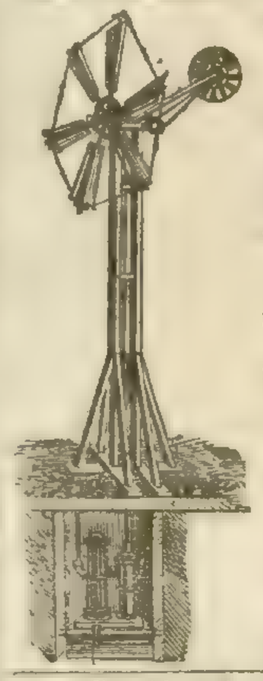
Prospectuses and Estimates on application to T. H. P. DENNIS, Horticultural Builder, Hot-water Engineer, &c., Chelmsford, Essex.

Heating by Hot-Water.



THE ORIGINAL SADDLE BOILER, with Improved Tubular Check Draft, Flued Ends, and Ribbed Sides, for Heating Greenhouses, Vineries, Forcing Pits, Public Buildings, &c. These Boilers possess increased heating surface capacity, power, economy in fuel, and are the only class of Boilers, all points considered, when properly fixed, that can be relied upon with safety for Heating Greenhouses, &c., of any extent, by Hot Water, and at a moderate price.

Gardeners interested in such work should write for List of Testimonials, sent Post Free on application to FREDERICK WILLIAM BUTT (late of London), Portadown, Ireland.



As Exhibited at Royal Agricultural Shows—

WORCESTER, 1863; NEWCASTLE, 1864; and PLYMOUTH, 1865.

WIND ENGINE (Patent Self-Regulating), for PUMPING, CHAFF CUTTING, PULPING, GRINDING, THRESHING, OAT CRUSHING, SAWING, or DRIVING other MACHINES.

Powers, from ½ to 12 Horses.

For Farm Purposes most economical, costing nothing to work. Erection simple and cheap.

For Pumping invaluable, working day and night, requiring no watching.

BURY AND POLLARD, Sole Manufacturers, PARK IRON WORKS, 17, New Park Street, Southwark, London,

Where a Wind Engine that has been at work seven years may be inspected.

Prices, with Testimonials, by post for one stamp.

Caution to Gardeners.—When you ask for

SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the corporate mark OBTAIN WARRANTED, without which none are genuine.

S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by sellers and makers.

S. & C.'s Pruning and Budding Knives are the best and the cheapest in the market.

Paxton Works, Sheffield. Established upwards of 125 years.

THE PATENT CONCRETE STONE COMPANY (LIMITED), are now the Proprietors of the Patents for the Manufacture of the beautiful material known as RANSOME'S PATENT CONCRETE STONE, which for durability, cheapness, and beauty of appearance, stands unrivalled. It is especially applicable for Fountains, Vases, Jardinets, Balustrades for Terraces, Gate Piers, Edgings for Borders, and all other Ornamental Requisites for Parks, Gardens, Conservatories, &c.

Illustrations and Prices furnished upon application at the Offices of the Patent Concrete Stone Company, 2, Queen Street Place, Southwark Bridge, E.C.

SHAW'S TIFFANY.

For samples and prices apply to J. SHAW & Co., 29, Oxford Street, Manchester.

THE NEW MAXIMUM THERMOMETER. Price 2s. Invented by T. TWINING, Esq., V.P.S.A.

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SMITH, BECK, AND BECK'S GREENHOUSE and HOTBED THERMOMETERS.—These Instruments are of the very best construction, and at moderate prices.

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Universal Microscope. Price £5 5s.

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OUTFITS for INDIA and CHINA.—Estimates with Detailed Lists of the necessary Outfits for Mercantile and other appointments to India, China, or any of the Colonies, will be forwarded on application to

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BEDSTEADS, BATHS, and LAMPS. WILLIAM S. BURTON has Six Large Show Rooms, devoted exclusively to the separate display of Lamps, Baths, and Metallic Bedsteads. The stock of each is at once the largest, newest, and most varied ever submitted to the public, and marked at prices proportionate with those that have tended to make his establishment the most distinguished in this country.

Bedsteads, from	12s. 6d. to £20 0s. each.
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Lamps (Moderateur), from ..	6s. 0d. to £7 7s. each.

All other kinds at the same rate.

Pure Colza Oil .. .. 4s. per gallon.

WILLIAM S. BURTON, GENERAL FURNISHING IRONMONGER by appointment to H.R.H. the Prince of Wales, sends a CATALOGUE gratis and post paid. It contains upwards of 600 Illustrations of his illimited Stock of Sterling Silver and Electro-Plate, Nickel Silver and Britannia Metal Goods, Dish Covers, Hot-water Dishes, Stoves, Fenders, Marble Chimney-pieces, Kitchen Ranges, Lamps, Gaseliers, Tea-Trays, Urns and Kettles, Clocks, Table Cutlery, Baths, Toilet Ware, Turnery, Iron and Brass Bedsteads, Bedding, Bed Room Cabinet Furniture, &c., with Lists of Prices, and Plans of the 20 large Show Rooms, at 39, Oxford Street, W.; 1, 1a, 2, 3, and 4, Newman Street; 4, 5, and 6, Perry's Place, and 1, Newman Yard, London, W.

BORWICK'S BAKING POWDER, recommended by the Analyst to the *Lancet* and Author of "Adulterations Detected," for making DIGESTIVE BREAD without Yeast, and for rendering Puddings and Pastry light and wholesome. Sold everywhere.

SEVERE HEADACHE, Languor, Loss of Appetite, and General Debility often prevail at this period of the year. Two or three of PARR'S LIFE PILLS will produce immediate relief, and restore the system to a happy and natural state.

May be had of any Chemist.

MORE CURES of CONSUMPTION, Coughs, Asthma, and Diseases of the Chest and Lungs, by DR LOCOCK'S PULMONIC WAFERS.—From Mr. C. Ward, Stationer, &c., Market Place, Heckmondwike, Yorkshire: "Cures of Consumption, Asthma, and other diseases of the chest and lungs, are regularly occurring here." To Singers they are invaluable. They have a pleasant taste. Price 1s. 1½d., 2s. 9d., and 4s. 6d. per box. Sold by all Druggists.

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LONG'S NON-POISONOUS SHEEP DIPPING COMPOSITION is a thorough cleanser of the skin, effectually destroys all Ticks and other vermin in the animal, thus tending greatly to improve the Flock and prevent fly striking. The Composition, in its use, leaves the fleece as white as snow, free from any stain, and the skin soft and oily. It is sent out in tin cans, from one gallon to four gallon size. When mixed, one gallon with 80 gallons of cold water, it makes a bath of a perfect white and soapy appearance; it mixes readily, leaves no sediment on the bottom or scum on the top, and the cost is about one penny per head. When used as pouring Composition for Scab or destruction of Tick, mix one gallon with 40 gallons of water.

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LONG'S GREEN-FLY LOTION.—This lotion is prepared purposely for Horticultural purposes, and when diluted, one pint to 40 pints of water, will Kill every Green-fly and other Insects that infest Roses, Fruit Trees, Shrubs, &c., and prevent Blight in Hops or Vines. Sold in half pint bottles at 20d. each bottle.

LONG'S TURNIP-FLY LOTION.—This Lotion has been J. LONG'S study for many years, and he can now confidently recommend it as a thorough Preventive and Destroyer of the Turnip pest, at a cost of from 6s. to 10s. per acre.

Wholesale Agents, S. & E. RANSOME & Co., Essex Street, Strand, W.C.

Patronised by 70,000 Stock Breeders.

REGISTERED. DISEASE HAS FOUND ITS MASTER. TRADE MARK.

DAY, SON, AND HEWITT, Sole Inventors of the Celebrated STOCK-BREEDER'S MEDICINE CHEST, containing as follows:—

Six Bottles (at 2s. 6d. each) of the UNIVERSAL CHEMICAL EXTRACT, matchless for penetrating, mollifying, and assuaging pain in all wounds, kicks, cuts, strains, &c., in horses and cattle; straining in ewes lambing, and swollen and inflamed udders in cows and ewes; sore feet in cattle, sheep, and dogs.

One Dozen Bottles (value 20s.) of the GASEOUS FLUID or BLACK MIXTURE, unmatched in the known world for curing diarrhœa or scouring calves, sheep, and lambs; for ewes weakly and exhausted after lambing; for horses and cows exhausted and sickly, and for the fret, colic, or gripes in horses and cattle. An instantaneous remedy for blown cattle and sheep.

One Dozen Packets (value 13s.) of the RED DRENCH or INFLAMMATION POWDER, for cleansing after calving or lambing, for straining in ewes, and for removing all feverish symptoms in cows and ewes after calving or lambing; for yellows in oxen, and for colds, chills, and all inflammatory cases in horses, cattle, and pigs.

One Dozen (value 7s. 6d.) of the RED PASTE or CONDITION BALLS (for horses). These Balls give vigorous health, purify the system, and produce a mole-like sleekness of coat.

Price of Chest complete, with Shilling Key to Farriery, 2l. 16s. 6d. securely packed, and carriage free. Sample case, usefully assorted 16s. 6d. Messrs. D., S., & H. respectfully urge their friends to send their orders early, so that no purchaser may be kept waiting.

Either preparation may be had separately in boxes, carriage paid.

Address—DAY, SON, & HEWITT, Animal Medicine Manufactory, 22, Dorset Street, Baker Street, London, W.; or Wantage, Berks.

Testimonials from all parts of the United Kingdom and Ireland sent free on application.

Established over One Quarter of a Century.

Cotswold Sheep.

MR. T. BEALE BROWNE, of Salperton Park, Andoversford, Gloucestershire, will be glad to see his Friends during the month of JULY. He intends SELLING his RAMS Privately, so that Purchasers may have the opportunity of inspecting the whole of his Flock.

BRETONNE COWS.—The Nobility, Gentry, and others, are respectfully informed that they can be supplied with the above beautiful and profitable little animals in any number at the shortest notice. The great success and encouragement which has attended the efforts of the importer in introducing the Pure Breed of this useful and hardy Cow into the country, has induced him to extend his connection abroad, by appointing experienced Agents throughout Brittany, and he is now enabled to offer the public a constant supply of the choicest stock that can be obtained, at prices which defy all competition. The low cost, together with the high Milking qualities of this Breed, rendering them of great value to the Cottager, as well as the fancy Stock-keeper and Dairyman, the Importer has made arrangements to keep a large stock always on view. Price from 8 to 10 Guineas each, delivered free to any Railway in London.

For further particulars, apply to Messrs. ROBERTSON & Co., 38, Crutched Friars, London, E.C.

Carts and Wheelbarrows.

BOROUGH of LIVERPOOL.—The Health Committee are desirous of receiving TENDERS for supplying 150 CARTS and 500 WHEELBARROWS, for the Collection of the Refuse and Night Soil of the Borough.

The Carts are to be for One Horse only; to be capable of removing 30 to 35 cwt. of soil and refuse, either in a liquid or dry state; and to be constructed so as to discharge their contents by tipping.

Lithographed Plans of the Tipping-places will be forwarded to persons desirous of Tendering, on application to JAMES NEWLANDS, Esq., Borough Engineer, Liverpool, from whom any further information required may be obtained.

The Carts and Wheelbarrows are to be strong and substantial. Designs of such as are proposed to be supplied are to accompany the Tenders, together with description of the material to be used.

The Committee do not bind themselves to accept the lowest Tender.

Tenders to be addressed "Chairman of Health Committee," endorsed "Tender for Carts and Barrows," and to be left at the Town Clerk's Office, Public Offices, Cornwallis Street, Liverpool, on or before the 26th July instant.—By Order.

WM. SHUTTLEWORTH, Town Clerk.

Public Offices, Cornwallis Street, Liverpool, July 8.

TO BE SOLD, the INTEREST in a SEED BUSINESS of 30 years' standing in one of the principal towns in the South of Ireland.—Particulars on application by letter to S. B., *Gardeners' Chronicle* Office, W.C.

Sales by Auction.

An Importation of Valuable Tree Ferns, Rare Araucarias, Orchids, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, July 19, at half-past 12 o'Clock precisely, an importation of ARAUCARIAS, DAMMARAS, ALSOPHILAS, DICKSONIAS, ARECAS, &c., from Sydney; TREE FERNS from Melbourne; ORCHIDS from West Indies, New Grenada, and other parts. On view the Morning of Sale, and Catalogues had.

Red Hill, near Edenbridge, Kent.

IMPORTANT SALE OF SHORT-HORNED CATTLE.

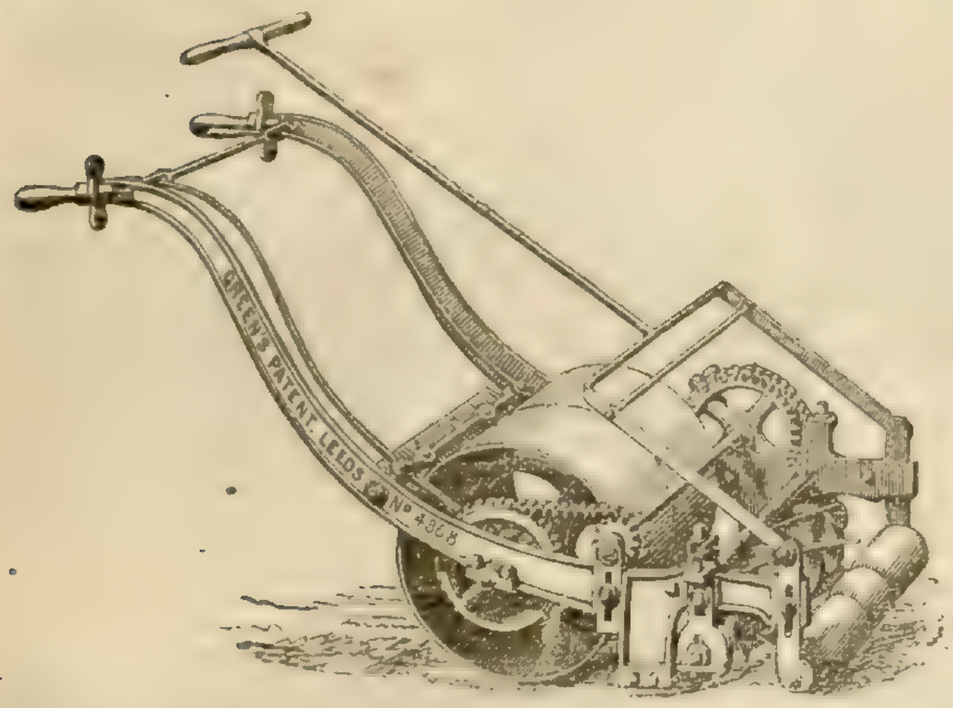
MR. STRAFFORD begs to announce that he has received instructions from G. M. Tracy, Esq., to SELL by AUCTION, on TUESDAY, July 11, about 30 HEAD of SHORT-HORNED BULLS, COWS, and HEIFERS (which are, with the exception of two Cows and their produce, his entire Herd), and includes some animals of first-rate quality and character. The Young Stock are chiefly by The Baron (13,833), see portrait Vol. XI. "Herd Book," who is well known as a Prize Bull at the Royal Dublin and Highland Societies' Shows, having proved himself one of the best Stock Getters of his time.

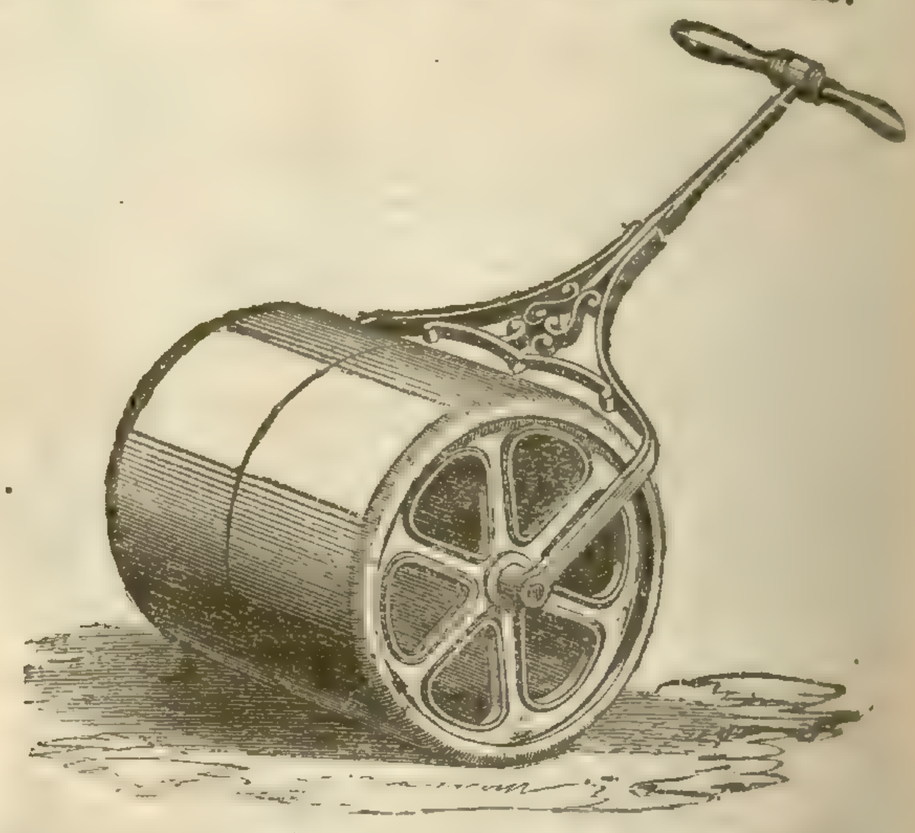
Catalogues, with Pedigrees, may be had on application to Mr. STRAFFORD, 13, Euston Square, N.W.; or of Mr. TRACY, Red Hill, near Edenbridge, Kent.

GREEN'S PATENT SILENS MESSOR,

OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.





GREEN'S PATENT LAWN MOWERS have proved to be the best, and have carried off every Prize that has been given in all cases of competition. Above 26,000 have been sold since the year 1856.

Illustrated Price Lists of Lawn Mowers and Garden Rollers Free.

THOMAS GREEN AND SON,

SMITHFIELD IRON WORKS, LEEDS; 2, FARRINGDON ROAD, HOLBORN HILL, LONDON, E.C.

HADWIN'S BUILDINGS, TITHEBARN STREET, LIVERPOOL; and 19, EDEN QUAY, DUBLIN.

SHANKS' NEW IMPROVED PATENT

LAWN MOWING, ROLLING, COLLECTING, and DELIVERING MACHINE for 1865.

PATRONIZED ON FIVE SEPARATE OCCASIONS DURING THE SEASON OF 1864 BY

HER MAJESTY THE QUEEN.

EVERY MACHINE WARRANTED.

PONY MACHINE.

PRICES—including Carriage to most of the principal Railway Stations and Shipping Ports in the Kingdom.

SHANKS' NEW PATENT HAND MACHINE for 1865.

Width of Cutter.		
10-inch Machine	£3 10 0	*Easily Worked by a Lady.*
12-inch Machine	4 10 0	
14-inch Machine	5 10 0	*Ditto by a Boy.*
16-inch Machine	6 12 6	*Ditto by a Man.*

Silent Movement for the five smallest sizes, 4*s.* extra; for the other sizes, 7*s.* 6*d.* extra.

SHANKS' NEW PATENT HAND MACHINE for 1865.

Width of Cutter.		
19-inch Machine	£7 12 6	*Easily Worked by a Man and Boy*
22-inch Machine	8 7 6	*Ditto by Two Men.*
24-inch Machine	8 17 6	

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
25-inch Machine	£12 10 0	25*s.* extra.
28-inch Machine	14 10 0	30*s.* ,,
30-inch Machine	15 15 0	30*s.* ,,

Silent Movement, 12*s.* 6*d.* extra; Boots for Pony, 21*s.* per set; Ditto for Donkey, 16*s.* per set.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
30-inch Machine	£19 0 0	30*s.* extra.
36-inch Machine	22 0 0	30*s.* ,,
42-inch Machine	26 0 0	40*s.* ,,
48-inch Machine	28 0 0	40*s.* ,,

Silent Movement, 20*s.* extra; Boots for Horse's Feet, 24*s.* per set.

Shanks' Patent Lawn Mowers are warranted to give ample satisfaction, and if not approved of may be at once returned.

☞ A. S. & Son *beg to intimate that their Warehouse at 27, Leadenhall Street, is the only place in London where intending purchasers of Lawn Mowers can choose from a stock of from 150 to 200 Machines. All sizes are kept in stock, whether for Horse, Pony, or Hand Power, and orders are executed on the day they are received.*

PATENTEES AND SOLE MANUFACTURERS:

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LONDON OFFICE and SHOW ROOMS, 27, LEADENHALL STREET, E.C.

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Printed by William Bradbury, of 13, Upper Woburn Place, in the Parish of St. Pancras, in the Co. of Middlesex, and Frederick Mullett Evans, of No. 11, Bouverie Street, in the Precinct of Whitefriars, City of London, Printers, at their Office, Lombard St., Precinct of Whitefriars, City of London, and Published by them at the Office, No. 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said Co.—Saturday, July 8, 1865.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 28.—1865.] SATURDAY, JULY 15. {Price Fivepence. STAMPED EDITION, 6*d*.

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ROYAL HORTICULTURAL SOCIETY.—SECOND GREAT EXHIBITION of FRUIT and VEGETABLES will be held on SATURDAY, July 22. Band of Royal Horse Guards from 3.30 to 6. Admission: Tickets to Fellows' Friends, 3*s*. 6*d*.; Public, 5*s*.; either of which bought on the day, 7*s*.6*d*.

LANGPORT FLORAL and HORTICULTURAL FETE.

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John Larcombe, Esq.

The NEXT GRAND FLORAL and HORTICULTURAL SHOW (Open to All England), will be held in the Grounds of HILL HOUSE, on THURSDAY, the 3d August next, when Two Silver Cups and various other Prizes will be offered for Competition.
By the kind permission of Edward Quekett, Esq., the Museum in the Hanging Chapel will be open to the holders of Tickets for the Fête.
A Military Band will be in attendance.
The Train arrangements will be announced in July.
Inventors or Manufacturers of Garden Implements, or Ornaments are invited to contribute specimens.
Schedules, Tickets, and other information may be obtained of the Secretary.
Langport, July 1. VINCENT STUCKEY, President. FREDERICK MAJOR, Secretary.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—At a GENERAL MEETING of the Members of this Institution, held on Tuesday, July 11, for the Election of Three Pensioners, the following was the result of the Ballot:—

CANDIDATES.

No.	NAME.	AGE.	VOTES.
1	JOHN BOSWELL	68	420
2	WILLIAM KER	64	703
3	JOHN FOSTER	73	417
4	JAMES MACKAY	75	636
5	WILLIAM SNOW	67	349

The Meeting then declared JAMES MACKAY, WILLIAM KER, and JOHN BOSWELL, as having the greatest number of Votes, duly Elected Pensioners. By Order. E. R. CUTLER, Secretary.
14, Tavistock Row, W.C.—July 15.

CARTER'S GARDENER'S VADE-MECUM PLANT SUPPLEMENT is now ready.

Pines.
B. S. WILLIAMS begs to announce that he has a fine Stock of the above, including all the best kinds. Prices on application.
Paradise and Victoria Nurseries, Holloway, London, N.

Vines.
B. S. WILLIAMS begs to announce that he has a very large and superior Stock of all the best kinds, both Planting and Fruiting Canes, prices of which will be forwarded on application.
Paradise and Victoria Nurseries, Holloway, London, N.

NEW GRAPE, "ROYAL VINEYARD," the best late White Grape extant. Strong planting Canes, 10*s*. 6*d*. each; strong fruiting, 21*s*. each.
B. S. WILLIAMS, Paradise and Victoria Nurseries, Holloway, London.

Orchard-house Culture.
MESSRS. THOS. RIVERS AND SON invite those interested in the above culture to view their COLLECTION of FRUIT TREES and VINES, occupying houses 2000 feet in length. APRICOTS are grown in great perfection, and are now ripe. The Harlow Station, G. E. Railway, is the most convenient for the Nurseries.
Nurseries, Sawbridgeworth.

CUTHILL'S STRAWBERRY PLANTS will be sent out August 14th:—Black Prince, Princess Royal, Richard II., High-gate, Mary, Newton Seedling and Everlasting, Prince of Wales, at 5*s*. per 100. If Selected, 7*s*. 6*d*. Dr. Lindley has often said to make sure of a crop have Cuthill's Breed.
SPAWN, per Bushel, 5*s*. Five Garden Pamphlets always on Sale.
JAMES CUTHILL, Camberwell, London, S.

Castle Kennedy Fig.
PETER LAWSON AND SON, London and Edinburgh, have made arrangements to send out the above valuable variety on OCTOBER NEXT, and are now booking orders, which will be executed in strict rotation as received.
Plants 10*s*. 6*d*. each; a few extra strong at 21*s*. each.
Special terms to the Trade, and circulars with list of awards and other particulars may be had on application.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

Roses in Bloom.
JAMES MITCHELL respectfully informs the Nobility and Gentry his renowned ROSES are NOW in FINE BLOOM.
Pilt Down Nurseries, Maresfield, Sussex, Two and a half Miles from the Uckfield Station.

Roses.
H. LANE AND SON, The Nurseries, Great Berkhamstead, beg to inform their Patrons and the Public that their COLLECTION (upwards of 7 acres) is NOW in BLOOM, at the Balshaw Nurseries, 1½ mile from the Station, and will continue during the Season.

Roses.
JOHN FRASER, of the Lea Bridge Road Nurseries, Leyton, N.E., respectfully invites an inspection of his COLLECTION of ROSES, which are NOW in FLOWER. The Collection contains many new and fine varieties.

Roses.
JOHN MANN, Nurseries, Brentwood, begs to inform his Patrons and the Public that his COLLECTION is NOW in BLOOM, ten minutes walk from Brentwood Station, Colchester Line, Great Eastern Railway.

Paul's Nurseries, Waltham Cross, N.
ENTRANCE FROM THE PLATFORM, WALTHAM STATION, GREAT EASTERN RAILWAY. HALF AN HOUR'S RIDE FROM LONDON.
WM. PAUL (Son and Successor to the late A. PAUL) begs to announce that his COLLECTION of ROSES is STILL in BLOOM, and comprises many of his own Seedlings, and other novelties not to be found in any other collection. In addition to the Roses, BEATON'S GERANIUMS, and a second and third generation from them, will be blooming throughout the summer and autumn. The Collection of HARDY TREES with FINE FOLIAGE is unrivalled, and many large and perfect specimens of the choicer CONIFERS are now in fine condition for removal, and are well worthy of the attention of gentlemen and horticulturists who contemplate planting. Bearing trees of all the LEADING FRUITS, Dwarfs and Standards, Pyramids and Espaliers, in fine health and true to name. Inspection respectfully invited.
Waltham Cross, London, N.

Rose Princess Mary of Cambridge.
PAUL AND SON find themselves obliged to DEFER SENDING OUT this fine ROSE till early next season.
Old Cheshunt Nurseries, N.

Roses.
THE PREMIUM PRIZES AT THE NATIONAL, BIRMINGHAM, LEICESTER, STAMFORD, AND BOTANIC JULY SHOWS.
PAUL AND SON respectfully invite an inspection of their COLLECTION NOW in BLOOM. The Show will continue from now till October; a piece of 40,000 only now commencing to flower. Their Collection of Specimen and young Coniferæ, and Ornamental Foliaged and beautiful Trees, as well as bearing Pyramid Fruits, are worthy of a visit. They would solicit from their Patrons early Rose Orders.
Old Cheshunt Nurseries, Cheshunt, N.

Hollyhocks.
PAUL AND SON'S Splendid COLLECTION of HOLLYHOCKS also is FINELY in BLOOM.
Reached by Rail to Cheshunt Station, Great Eastern Railway.

Shrubs, Roses, Fruit Trees, &c.
WM. CUTBUSH AND SON'S GENERAL NURSERY STOCK is the best near London.
GLADIOLI, fine, from 4*s*., 6*s*., 9*s*., & 12*s*. per dozen.
CATALOGUES on application.
Highgate Nurseries, London, N.

Hardy Ornamental Trees and Shrubs.
OSBORN AND SONS invite lovers of Ornamental Planting to an inspection of the varied forms and foliage of their unrivalled collection of the above, to which they have for many years devoted especial attention.
PRICED CATALOGUES, consisting of upwards of 1500 species and varieties, may be had on application.
The Nurseries, Fulham, London, S.W.

SUPERB SEEDS for PRESENT SOWING, 1*s*., 2*s*. 6*d*., and 3*s*. 6*d*. per packet.
CALCEOLARIA, Scorr's splendid hybrid spotted; CINERARIA, from finest named sorts; PRIMULA, choice mixed, 1*s*. and 2*s*. 6*d*.; ex. ex. quality FIMBRIATA, 2*s*. 6*d*. and 5*s*.; INTERMEDIATE STOCK, Scarlet and White, 6*d*. and 1*s* per packet, at
J. SCOTT'S, Merriott and Seed Stores, Yeovil, Somerset.

MYRTLES.—A Lady residing at S. Kensington has for SALE Four large handsome MYRTLES. They are of 20 years' growth, and are now in full foliage.
Address T. J., 187, Piccadilly, W.

THE FOLLOWING FIFTEEN PLANTS, hamper and package included, will be sent to any address on receipt of Post Office Order value 20*s*., payable to J. C. PADMAN, Boston Spa, near Tadcaster:—

Caladium Wightii
" Chantinii
" marmoratum
" Maffafa
" argyrites
" hastata
" amabilis
Dracæna ferrea versicolor
Ardisia crenulata rubra
" " alba
Gesnera zebrina splendens
Gardenia florida
Croton variegata
Blechnum corcovadense
Alocasia macrorhiza variegata

First Quality.
CALCEOLARIA, PRIMULA, CINERARIA, CARNATION, PICOTEE, PINK, AURICULA, VERBENA, MIMULUS, ZONALE GERANIUM and PELARGONIUM.
Each 2*s*. 6*d*. per packet.
BARR & SUGDEN, 12, King Street, Covent Garden, W.C.

Calceolaria, Cineraria, and Primula.
E. G. HENDERSON AND SON offer Seed of the above, in first-class quality, at 1*s*., 2*s*. 6*d*., and 5*s*. per packet.
STOCKS for next spring bloom, as SCARLET and WHITE INTERMEDIATE; also the fine ALBERT and ALEXANDRA INTERMEDIATE varieties. See the SEED CATALOGUE, page 44.
DOUBLE GERMAN WALLFLOWER, mixed in varieties, or colours separate, 1*s*. per packet.
Wellington Nursery, St. John's Wood, London, N.W.

Major's Half Shrubby Calceolaria Seed for 1865.
MR. HENRY MAJOR, Knosthorpe, near Leeds, begs to announce that his NEW SEED for the present season is now ripe, and may be had in packets at 2*s*. 6*d*. each, or three for 5*s*., post free. His Seedlings are unusually fine this season; indeed, they stand unrivalled for shape, size, and variety of colours and markings. See the opinion of the Editor of the "Journal of Horticulture," of July 4, upon H. M.'s Flowers.
N.B.—Mr. M will be glad to dispose of his best SEEDLINGS of 1865. Price on application.

Bromus Schraderi, new seed.
SUTTON AND SONS having just Harvested in their Grounds at Reading some Seed of the above, can supply the same in packets, 1*s*. each, post free.
Royal Berkshire Seed Establishment, Reading.

NEW and GENUINE AGRICULTURAL, GARDEN, and FLOWER SEEDS.
Special prices and advantageous offers on application to
JAMES FAIRHEAD & SON,
Seed Growers and Merchants, 7, Borough Market, London, S.E.

RAYNBIRD, CALDECOTT, AND BAWTREE,
SEED FARMERS and MERCHANTS,
89, Seed Market, Mark Lane; and Basingstoke.
Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

Genuine Garden and Agricultural Seeds.
JAMES CARTER AND CO.,
SEED FARMERS, MERCHANTS, and NURSERYMEN,
237 and 238, High Holborn, London, W.C.

H. AND F. SHARPE,
SEED GROWERS and MERCHANTS, Wisbech.
SPECIAL PRICED LIST of NEW SEEDS on application.

To Exporters.
WM. DAVIDSON, SEEDSMAN, &c., can supply suitable assortments of GARDEN and FLOWER SEEDS, from 10*s*. upwards, for Shipment to the Colonies. 30A, St Andrew Square, Edinburgh

New Plants for 1865.
JAMES CARTER AND CO.'S CATALOGUE of NEW and CHOICE BEDDING, GREENHOUSE, and STOVE PLANTS, is now ready, and will be forwarded gratis and post free on application.
JAMES CARTER & Co., 237 & 238, High Holborn, London, W.C.

BEDDING-OUT PLANTS in great variety. WINDOW JARDINETS, Empty or Furnished, in variety.
The "Gardeners' and Amateurs' Friend," see page 601.
BARR & SUGDEN, 12, King Street, Covent Garden, W.C.

CRYSTAL PALACE, ROYAL BOTANIC, and ROYAL HORTICULTURAL FLOWER SHOWS.
At these PLANT CASES will be exhibited in great variety, furnished with the Choicest Exotic Fern and Foliage Plants, arranged by BARR & SUGDEN, of 12, King Street, Covent Garden, W.C.

J. IVERY AND SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

New Azalea indica.
J. IVERY AND SON have much pleasure in offering the undermentioned Two beautiful Seedlings, as they feel assured they will prove thoroughly distinct, and most desirable kinds.
FORGET-ME-NOT.—Brilliant glossy reddish-purple, 10*s* 6*d*. & 21*s*.
BEAUTY of DORKING.—White striped and spotted with rose, 10*s*. 6*d*. and 21*s*.
For a full description see CATALOGUE, which will be forwarded post free on application.—Dorking, July 8.

British Fern Catalogue.
ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
*** Part II. (Exotic Ferns) will be issued as early as possible.
Foot's Cray Nursery, S.E.

MRS. POLLOCK PELARGONIUM.—Healthy Spring-struck plants, 2*s*. 6*d*. each, well hardened for bedding out. The Trade supplied.—Address,
ALFRED FRYER, Nurseryman, Chatteris, Cambridgeshire.

INTERMEDIATE STOCK, COVENT GARDEN and VICTORIA VARIETIES.
Scarlet, Purple, White, or Mixed COVENT GARDEN INTERMEDIATE STOCK, each, 1*s*. per packet.
Scarlet, White, or Mixed VICTORIA INTERMEDIATE STOCK, very floriferous, and more robust than the Covent Garden varieties, each 2*s*. 6*d*. per packet.
BARR & SUGDEN, 12, King Street, Covent Garden, W.C.

Japanese Clematis.
MR. FORTUNE'S magnificent CLEMATIS STANDISHII and FORTUNII, doubtless two of the most important introductions of late years, received the unusual honour of Special Certificates at the Meetings of the Royal Horticultural Society, April 29 and May 2 last.
Strong Flowering Plants may be obtained of CHARLES NOBLE, Bagshot.

MONA'S PRIDE, the Earliest Potato in cultivation.—On SALE, the above KIDNEY, true to name, for seed.
Apply at FARGHER'S Flower Gardens, Douglas, Isle of Man.

DWARF GREEN CURLED SAVOY.—The attention of Seedsmen is directed to the above, as a Grower will have in a few weeks several quarters thereof for Sale. Application, with a price, to be addressed to
MR. GEORGE EDMONDS, Grange Place, Gillingham, Kent.

New Turnip Seeds.—Crop of 1865.
SUTTON AND SONS have now harvested New Seeds of all the leading kinds of TURNIP SEEDS, and the same will be ready for delivery in a few days from this date. The sorts are

Lincolnshire Red Paragon.
Hardy Green Round.
Imperial Green Globe.
Grey Stone.
Pomeranian White Globe.
Sutton's Green-top Yellow Hybrid.
Sutton's Early Short-top Sixweeks.

The crops of Seed being good, the prices will be reduced.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

To Market Gardeners, Nurserymen, Farmers, and Gentlemen Gardeners.
SUPERIOR DRUMHEAD CABBAGE PLANTS, 3*s*. per 1000.
CELERY PLANTS, Red and White, 1*s*. per 100.
KOHL RABI PLANTS, of the finest stock ever offered, 3*s*. per 1000.
BRUSSELS SPROUTS, 5*s*. per 1000. | SAVOYS, 4*s*. per 1000.
CAULIFLOWERS, 8*s*. per 1000. Terms cash.
RICHARD WALKER, Seed Grower, Biggleswade, Beds.

100,000 FINE CATTLE CABBAGE PLANTS, 2*s*. 6*d*. per 1000, may be had of
Mr. A. WILKIN, Tiptree, Kelvedon, Essex.

WANTED, about 100 Bushels of SWEDE and TURNIP SEED, and 50 of RAPE. It must be of pure stocks and warranted nett. Growers having any kinds to dispose of will oblige by sending cash prices and stating kinds to
SEEDSMAN, *Gardeners' Chronicle* Office, W.C.

METROPOLIS SEWAGE AND ESSEX RECLAMATION COMPANY.

INCORPORATED, WITH LIMITED LIABILITY, BY SPECIAL ACT OF PARLIAMENT.

CAPITAL £2,100,000.

IN 21,000 SCRIP CERTIFICATES OF £100 EACH, TO BE HEREAFTER DIVIDED INTO SHARES OF £10 EACH.

Deposit, on application, £2 per Certificate, with further payments of £8 on Allotment, and £10 on 2d October next.

The Subscribers will, in exchange for their Letter of Allotment and Banker's Receipt, receive Scrip Certificates, which, on payment of the sum of £10 (payable on 2d October, as above), will be exchanged, under the provisions of the Act of Parliament, for Registered Shares of £10, and the Shareholders will be credited in the Books of the Company £2 in respect of each Registered Share.

DIRECTORS.

THE RIGHT HON. THE LORD DE TABLEY.
G. SCLATER-BOOTH, Esq., M.P., Member of Sewage Committees, 1864 [and 1865.
THE LORD RICHARD H. BROWNE.
JAMES PATTISON CURRIE, Esq.
MAURICE DRUMMOND, Esq.
ARBUTHNOT C. GUTHRIE, Esq.
CHARLES J. LAMBERT, Esq.
JOSEPH S. LESCHER, Esq.
THE HON. HENRY W. PETRE.
COL. SIR WILLIAM RUSSELL, Bart., C.B., M.P., Member of Sewage [Committee, 1864.
MAJOR THE HON. S. P. VEREKER.
J. W. PERRY WATLINGTON, Esq., M.P.

ENGINEERS.

G. W. HEMANS, Esq., C.E., &c. | J. F. BATEMAN, Esq., C.E., F.R.S., &c.

CONSULTING CHEMIST.

PROFESSOR J. T. WAY, Member of the Royal Commission on Rivers, and of the late Royal Commission on Sewage.

BANKERS.

Messrs. GLYN, MILLS, CURRIE & CO. | Messrs. DRUMMOND. | Messrs. SPARROW, TUFNELL, & CO. (Essex.)

Will also receive Subscriptions—

THE UNION BANK of SCOTLAND and BRANCHES.
THE UNION BANK of MANCHESTER.
THE BANK of LIVERPOOL.
THE BIRMINGHAM BANKING CO.
J. BARBER KENNEDY & CO. (Dublin).
THE NORTHERN BANKING CO. (Belfast).

SOLICITORS.

Messrs. BAXTER, ROSE, NORTON & CO. | Messrs. WEST & KING.

BROKERS.

Messrs. P. CAZENOVE & CO. | Messrs. SEYMOUR & CO.

SECRETARY, *pro tem.*

WALTER A. MICHAEL, Esq.

OFFICES: 60, THREADNEEDLE STREET.

The International Financial Society are authorised to receive Subscriptions for the Share Capital of this Company, which has been Incorporated by Special Act of Parliament, for the purpose of Utilising the Sewage of the Northern area of the Metropolis, the Concession of which has been granted to Messrs. NAPIER & HOPE.

The Concession from the Metropolitan Board of Works to Messrs. NAPIER & HOPE as now confirmed by Act of Parliament, is Scheduled to the Act, and both may be inspected at the Offices of the Company.

The Concession has been vested in the Company on condition of the payment to Messrs. NAPIER & HOPE, under the provisions of the Act, of £50,000 in fully paid up Shares of the Company, and a small contingent per centage of the net profits.

The Concession recites, that in the opinion of the Board, the Works proposed by Messrs. NAPIER & HOPE are calculated to effect the three following objects, namely:—

1. To divert the Sewage from the Thames.
2. To render it innocuous, by its application to growing crops
3. To realise the greatest money value of the manure contained in it.

The first Article confers upon Messrs. NAPIER & HOPE "the absolute and exclusive right to, and property in the Sewage," for a period of 54 years from the passing of the Act, but makes the following provision in reference to the application of the net profits resulting from the scheme after the expiration of 4 years from the passing of the Act. Previous to the expiration of that period, *all* the profit results to the Company.

After deduction of the annual charge for "money borrowed," and of the "working and establishment expenses," the net profit shall be applied—

1st. In payment of interest at 5 per cent. per annum on the Share Capital.
2d. In payment in equal moieties to the Shareholders and the Metropolitan Board of the further profits up to 15 per cent.
3d. In division of profits exceeding 15 per cent. and up to 25 per cent. between the Shareholders and the Metropolitan Board, in the proportion of one-fourth to the former, and three-fourths to the latter.
4th. After 25 per cent., the division again to become equal.

The object of these stipulations is, that while the Metropolitan Board are virtually to receive half the profits, yet, that in order to give a greater security, and therefore greater value to the Shares, the Shareholders are to have a preference to the extent of 5 per cent., which is made good to the Metropolitan Board between the points of 15 and 25 per cent., at which latter point each party receives 12½ per cent., and the division is then continued equally. Thus, the Share Capital of the Company derives the advantage of the entire capital, approaching Three Millions sterling, expended by the Board on the North side of the Thames, for the collection of the Sewage at the point of its delivery to the Company.

At the expiration of 31 years, the Board have the right, on giving 2 years' notice, to require a revision by arbitration of the above apportionment of profits.

The Concession stipulates for the construction of a circular brick culvert, 9 feet 6 inches in diameter, shown by the red line on the accompanying Map, and running from the Northern Outfall Sewer to the East Coast of Essex, and further, for the reclamation of the tract of foreshore and sand coloured pink on the Map (about 7000 acres). The intention being to irrigate the lands in the district through which the culvert passes, and to utilise the surplus upon the reclaimed land.

A contract has been entered into with Mr. William Webster (who has constructed more than one-third of the Main Drainage Works of the Metropolis, including the Crossness Outfall,) for the construction of the works mentioned above, together with the necessary pumping stations, for the sum of £1,553,448. To this must be added the amount to be paid to Messrs. NAPIER & HOPE in Shares, as before mentioned; the cost of land, engineering, Parliamentary and legal expenses, superintendence, and management, together with interest at 5 per cent. per annum on the capital during the construction of the culvert, estimated at a total of £546,552; in all, £2,400,000. The Act authorises the Directors to raise the amount of £700,000 in Debentures, but of this, as above shown, only £300,000 will in all probability be required.

The Company have the right of taking, without any payment, during the first four years, as much of the Sewage as they can utilise. From this source an immediate return may be obtained, so that the return upon capital during construction should be much in excess of the interest provided.

On payment on the 2d October next of the £10 per Certificate then due, the Certificates of £100 will be exchanged for registered Shares of £10 each.

According to the calculations made, the eventual revenue of the Company is estimated at about £720,000, and the working expenses and management at £50,000.

Applications in the annexed form should be left with the Bankers, who will not, however, receive any applications unless accompanied by a deposit of £2 per certificate on the number of certificates applied for. In cases where no allotment is made the deposit will be returned in full, and should a smaller number than is applied for be allotted, the balance returnable to the applicant will be applied towards payment of the amount due on allotment. In cases where an allotment is made, the deposit paid on application will be liable to forfeiture if the balance due on allotment be not paid within the term fixed by the letter of allotment, and the allotment will be liable to cancellation. Default by Subscribers in due payment of the £10 per Scrip Certificate, payable on 2d October, 1865, will, in like manner, render the Scrip Certificates subject to cancellation, and the amount theretofore paid thereon to forfeiture.

METROPOLIS SEWAGE AND ESSEX RECLAMATION COMPANY.

FORM OF APPLICATION FOR SHARES,

TO BE LEFT WITH THE BANKER.

No. ———

TO THE DIRECTORS OF THE METROPOLIS SEWAGE AND ESSEX RECLAMATION COMPANY.

GENTLEMEN,

Having paid to _____ the sum of £ _____ being a deposit of £2 per Certificate on ——— Certificates, I request you to allot to me ——— Certificates of £100 each, in the METROPOLIS SEWAGE and ESSEX RECLAMATION COMPANY, in conformity with the Prospectus issued by the International Financial Society (Limited); and I hereby agree to accept (subject in all respects to the terms of the said Prospectus) such Certificates or any less number that may be allotted to me, and to pay the sum due on allotment thereof, at such time as may be fixed by the Letter of Allotment, and to pay the further sum of £10 per Certificate on 2d October, 1865.

I am, Gentlemen,

Your obedient Servant,

Signature _____

Name in full _____

Address in full _____

Reference _____

Date _____

MEMORANDUM ON THE METROPOLIS SEWAGE AND ESSEX RECLAMATION SCHEME.

This scheme has for so long been a subject of public interest, and has been so fully discussed by the press, that it is unnecessary now to add more in justification of the Prospectus, than give a very brief summary of the Parliamentary proceedings in relation to it, and an estimate of the profit likely to accrue to the Shareholders.

It was for the necessary powers to construct the works named in the Concession that application was made to Parliament; powers also being obtained for the reclamation of the Dengie Flats, and for the construction of the Culvert shown by the Blue Line on the Map, should it hereafter be deemed expedient further to develope the operations of the Company.

After the second reading of the Bill in the House of Commons, which was supported by the Right Hon. WM. COWPER, Her Majesty's First Commissioner of Works, it was, on the petition of the Corporation of the City of London, first sent before the Referees, that the Engineering features of the scheme might be thoroughly sifted. They reported as follows:—

"The Referees are of opinion that there are no objections on an engineering point of view, and that the estimate is sufficient."

The Referees were M. D. HASSARD, Esq., M.P.; Sir WILLIAM TITE, CRAIG, Bart.; and Col. STUART, M.P.

The proposed undertaking was then inquired into by a Select Committee of the House, who received a special instruction from the House to "inquire into the most useful and profitable means of disposing of the Metropolitan Sewage on the North Side of the Thames."

After a long and patient inquiry, the Committee summed up the Report as follows:

"Upon the evidence, your Committee are of opinion that the scheme which has been submitted to them is a useful and profitable mode of applying the Sewage of the Northern portion of the Metropolis, and they have no reason to suppose that any more useful or profitable scheme could be devised."

The Committee consisted of—

The JUDGE-ADVOCATE GENERAL.	Mr. TAVERNER JOHN MILLER
Mr. AYRTON.	Mr. PAGET.
Dr. BRADY.	Mr. SCLATER-BOOTH.
Mr. CLAY.	Colonel SMYTH.
Mr. KNIGHT.	Mr. TURNER.

In the discussion which ensued on the presentation of the Report to the House, Sir George Grey and Mr. Henley both expressed their approval of the scheme.

The scheme was again inquired into very fully by a Committee of the House of Lords, where the Bill passed through all the different stages, and having received the Royal Assent, is now an Act of Parliament, and has become Law. On the division in the House of Lords upon the third reading, 49 Peers voted in favour of the bill, and only 4 against it, His Royal Highness the Prince of Wales being one of the 49, and giving to this Bill the countenance and support of his first vote ever recorded in the House of Lords.

Of the value of Sewage as a Manure, there is, as stated in a recent article upon this scheme, published in the *Times* of the 2d March last, "no dispute." The only question in regard to the Sewage of London being, as the *Times* says, whether that value is "£400,000 or £4[illegible] a year." This latter figure is the estimate of Baron LIEBIG, and the Corporation of the City of London for the Sewage of both sides of the Metropolis; or roughly, about £2,666,666, as the yearly value of that portion of the Sewage which has become the property of the Company by virtue of their agreement with Messrs. NAPIER & HOPE, but the Directors concur with these gentlemen in believing that this estimate is greatly exaggerated. However, the culvert which the Directors have contracted for is of an internal diameter of 10 feet, instead of 9 feet 6 inches; and by means of the greater carrying power thus obtained, together with the means at their disposal for storing the Sewage in the Reservoirs of the Metropolitan Board, they will be enabled to utilise at least 120,000,000 tons of Sewage per annum, and from this they look for an eventual net profit to be divided with the Board of upwards of £650,000 a year.

The experience of 40 years' application of sewage upon pure sand, and other soils, near Edinburgh, and of several years upon various soils near Croydon, shows that when the Company's operations are fully developed and in full working, the return from the Company's own land should be not less than £210,000, and this would use 35 millions of tons of sewage, leaving 85 millions available for sale to the farmers along the line of culvert, which in the same ratio as now would produce not less than £510,000 a year, making a total of £720,000; and this figure is singularly borne out by the experience and opinions of those most conversant with the subject, and [illegible] within the estimates given in evidence before the Houses of Parliament. One farmer, Mr. Wagstaff, of South Oxendon, who farms 1200 acres on the line of culvert, stated upon oath that he would be prepared to give 2*d.* per ton for such quantities of the Sewage as suited him to take—a value strongly insisted upon by many other authorities; at which rate the yearly value of the whole would be [illegible] less than One Million Sterling.

Another rough estimate of the realisable value of Sewage which has been given in evidence by many authorities, namely, 1*d.* per ton all round, would produce £500,000 a year, so that the estimated return of £720,000 arrived at by independent calculations, is as near as possible the mean between these two estimates.

Prospectuses and Forms of Application may be obtained from the Bankers and Brokers, and at the

OFFICES of the COMPANY, 60, THREADNEEDLE STREET, LONDON, E.C.

METROPOLIS SEWAGE AND ESSEX RECLAMATION COMPANY.

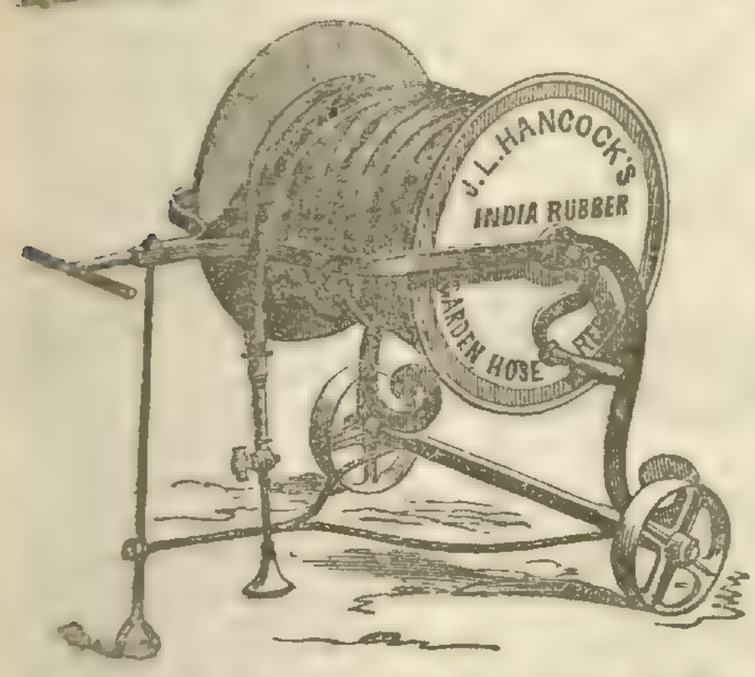
NOTICE is HEREBY GIVEN that NO FURTHER APPLICATIONS for SHARES in this COMPANY will be received after TUESDAY NEXT, the 18th inst. for London, and WEDNESDAY the 19th for the Country.

By Order,

WALTER A. MICHAEL, *Secretary pro tem.*

60, Threadneedle Street.—July 13, 1865.

HANCOCK'S INDIA-RUBBER HOSE for WATERING GARDENS, LAWNS, &c. &c., made in 60-feet lengths of any size.



HOSE REELS, of Light Iron, for Winding-up Garden Hose when not of use.

BRASS FITTINGS, STOP-COCKS, SPREADERS, HAND BRANCHES, JETS, &c. Illustrated Price Lists on application.

JAMES LYNE HANCOCK, Vulcanized India-Rubber Works, Goswell Mews, and 266, Goswell Road, London, E.C.

EARTH CLOSETS AND COMMODES.

(Moule's Patent.)

MANUFACTURED SOLELY BY

WHITE & CO.,

29, BEDFORD STREET, STRAND, LONDON, W.C.

THE PECULIAR ADVANTAGES OF THESE CLOSETS AND COMMODES OVER THE ORDINARY WATER CLOSET ARE:—

First.—That the deodorising material (dry surface earth, or clay, or other subsoil) is the best for the purpose, and at the same time is the cheapest and within the reach of all classes.

Secondly.—The supply of such material to any house or premises may be much easier than the supply of water by a forcing pump, and its removal after being used may be entirely without offence.

Thirdly.—Its application by the means provided in these Closets is immediate and effective; so immediate that no offensive smell need escape into the room or building in which they are used; and so effective that all fermentation and all escape of noxious gases are entirely prevented.

Fourthly.—The expense of these Closets, in comparison with that of Water-Closets, is, as to the first cost, trifling, and as to repairs almost nothing. For instance, there is no expensive cistern required, and there are no lead pipes to burst in frosty weather.

Lastly.—In all large Establishments, such as Hospitals, Union Houses, Schools, Gaols, and Asylums, a very considerable sum may be saved annually in the production of a valuable manure.

The efficiency of these Closets is so great as to be scarcely credible to those persons who either have not used them or seen their mode of action.

Price of Apparatus without woodwork, 25s. per set.

*** *The different forms of Closets may be seen at the address above; and Prospectuses will be forwarded on application.*

JOHN WARNER & SONS, LONDON, MANUFACTURERS.

J. WARNER AND SONS

Have much improved the construction of their

GARDEN ENGINES

in some important particulars for this Season.

They may be obtained of the Trade generally throughout the Kingdom at the following prices:—

No. 547. WARNER'S best ENGINES, in Wood Tubs, and fitted with WARNER'S Registered Spreaders—

24 Gallons,	£6	10	0
14 ,,	5	10	0

No. 547A. WARNER'S strong ENGINES, in Galvanised Iron Tubs, well painted—

10 Gallons	£2	19	0
16 ,,	3	14	0
24 ,,	4	19	0
28 ,,	5	10	0

No. 579½. WARNER'S WATER BARROWS, thoroughly Galvanised and well painted—

20 Gallons	£2	2	0
30 ,,	2	13	0
38 ,,	3	17	0
50 ,,	5	12	0

The 50-Gallon Barrow is made extra strong throughout, and fitted with handle for two men.

No. 568½, AMERICAN ENGINE, is now well known and appreciated. It throws a continuous stream, and is complete in itself. £2 2s.

SYRINGES in great variety, from 7s. 6d. to 10s. 6d.

The DISC SYRINGE, No. 557A, will recommend itself by the ease with which it is filled, and non-liability to get out of order. Price 9s.

WARNER'S AQUAJECT

Is this season first introduced to the notice of horticulturists as possessing the following advantages:—It is simple in construction, portable, and easily worked. It throws a continuous stream, and is low in price.

The Aquaject, 30s.

The small AQUAJECT is the most perfect form of Syringe yet introduced. It throws a continuous stream, with very slight movement, and with it blight, &c., is readily washed from the under side of foliage. 18s.

No. 35. WARNER'S IRON PUMPS for Wells not exceeding 25 feet in depth—2½-in., 28s. 6d.; 3-in., 41s.; 3½-in., 46s.; short barrel do., 21s.

No. 36. IRON FORCE PUMPS for raising water above their level, or watering yards, gardens, &c., through hose—2½-in., 59s.; 3-in., 65s.; 3½-in., 77s.; 4-in., 89s.

No. 36½. FORCE PUMP on BARROW, recommended for its great portability and simplicity of construction. £5 10s.

No. 42. WARNER'S PORTABLE PUMPS on Folding Legs, are of a superior construction.

Price 55s.; Rubber Suction, 2s. 6d. per ft.

No. 597A. BRANCH PIPES with Cocks and Roses—½-in., 3s. 6d.; ⅝-in., 5s.; ¾-in., 6s.

No. 599. TAPER BRANCH PIPES—½-in., 4s. 9d.; ⅝-in., 5s. 3d.; ¾-in., 6s.; 1-in., 7s.

RUBBER HOSE in all sizes.

FOUNTAIN JETS in great variety, from 8s. to 25s.

DESCRIPTIVE PRICE LISTS forwarded on application.

TANNED NETTING for the PROTECTION of FRUIT TREES, at 1*d.* per square yard. Cotton Netting, Woollen Netting, Scrim Canvas, and Tiffany. Greenhouse Shades, &c.
Be particular, JOHN EDGINGTON & Co., 48, Long Lane, Smithfield, E.C.; 18, Piccadilly, W.; and 108, Old Kent Road, S.E.

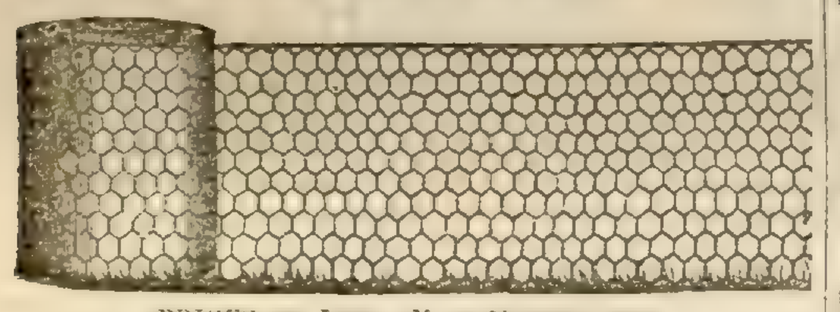
NETTING for FRUIT TREES, SEED BEDS, RIPE STRAWBERRIES, &c.—TANNED NETTING for Protecting the above from Frost, Blight, Birds, &c., 2 yards wide, 3*d.* per yard, or 100 yards, 20*s.*; 4 yards wide, 6*d.* per yard, or 50 yards, 20*s.*
NEW TANNED NETTING, suited for any of the above purposes, or as a Fence for Fowls, 2 yards wide, 6*d.* per yard; 4 yards wide, 1*s.* per yard; ¾-inch mesh, 4 yards wide, 1*s.* 6*d.* per yard. Can be had in any quantity of
EATON & DELLER, 6 & 7, Crooked Lane, London Bridge, E.C.

EDGINGTON'S GARDEN NETTING, the cheapest and most durable, 1*d.* per square yard, or in quantities of 250, 500, or 1000 yards, carriage free.
EDGINGTON'S MARQUEES and GARDEN TENTS are the prettiest. [capacious.
EDGINGTON'S MARQUEES for hire are the most handsome and
EDGINGTON'S RICK CLOTHS for 60 years have maintained their celebrity as the best.
HAYTHORN'S and BRITTAIN'S NETTINGS.
Sample of material free on application.
Be particular—FREDERICK EDGINGTON & Co., Thomas Street, Old Kent Road, London, S.E. A liberal discount to the Trade.
International Exhibition, 1862, Class XIX., Honourable Mention.

TANNED GARDEN NETTING for preserving Seed Beds, Fruits, Strawberries, from Frost, Blight, Birds, &c., and as a Fence for Fowls, &c. 1 yard wide, 1½*d.*; 2 yards, 3*d.*; 3 yards, 4½*d.*; and 4 yards, 6*d.* per yard run in any quantity, may be had at CHAS. WRIGHT'S, 576, Strand, W.C.
VARNISHED FLOWER STICKS:—1 foot, 3*d.*; 1½, 4*d.*; 2, 5*d.*; 2½, 7*d.*; 3, 10*d.*; 4, 1*s.* 6*d.* per dozen. DAHLIA do., per dozen:—3 feet, 1*s.* 6*d.*; 4, 2*s.* 3*d.*; 5, 3*s.*; 6, 3*s.* 6*d.* An allowance to Nurserymen.

CHEAPEST HOUSE for GARDEN NETTING, only 1½*d.* per yard in length, medium width. A reduction made in quantities. Also good quality SHEEP NETTING, usual depth, 20*s.* per 100 yards in length.—Address,
G. & D. HURN, Sack, Rope, Twine, Net, and Waterproof Cloth Manufacturers, 13, Dove Street, Norwich, Norfolk. Established 1812.

NEW IMPROVED PREMIUM WIRE NETTING.
Great Improvement with Reduced Price.

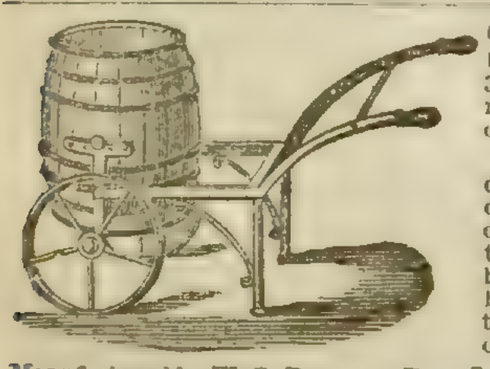


PRICES PER LINEAL YARD 24 INCHES HIGH.

Size of Mesh.	Mostly used for	Light. Jap	Light. Gal	Medium Jap	Medium Gal	Strong. Jap	Strong. Gal	Extra Strong. Jap	Extra Strong. Gal
		s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
2½ in.	Hares, Dogs, Poultry	0 3	0 4	0 3½	0 5	0 4½	0 6	0 5½	0 7
2 in.	Game or Poultry Netting	0 3½	0 4½	0 4	0 5	0 5	0 6½	0 6½	0 8
1½ in.	Small Rabbits, Hares, &c.	0 4	0 4½	0 4½	0 6	0 5½	0 7	0 7	0 9
1½ in.	Smallest Rabbits ..	0 5	0 6	0 5½	0 7	0 7	0 9	0 9	0 11
1 in.	Pheasantries, &c. ..	0 9	0 11	10½	1 1½	1 3	1 6	1 9	2 0
½ in.	Aviaries, &c.	1 0	1 3	1 3	1 6	1 6	1 9	..	..

Quantities of 100 yards or upwards delivered free to nearly all the principal Railway Stations and Shipping Ports in England; and 200 yards or upwards delivered free to most parts of Scotland and Ireland.
*** Every description of Netting warranted to give satisfaction, and if not approved will be exchanged, or may be returned unconditionally.
IRON HURDLES, CONTINUOUS BAR FENCING, IRON and WIRE FENCING, FENCING WIRE, FIELD and ENTRANCE GATES, GARDEN ENGINES, GARDEN ROLLERS, GARDEN SEATS and CHAIRS, CAST IRON VASES, and every description of HORTICULTURAL and AGRICULTURAL MACHINES, TOOLS and appliances.
Lists Free on application. Every article guaranteed to be satisfactory.
J. B. BROWN & Co. Office: 18, Cannon Street, City, London, E.C.; nearly opposite St. Swithin's Lane and "London Stone," and near London Bridge.
Warehouse (where Netting is kept in stock), 148, Upper Thames Street, E.C.; opposite the City of London Brewery, and close to the London Bridge Steam Boat Piers.

W. S. UNDERHILL'S NEW PATENT IRON FENCE for GARDENS, LAWNS, &c.
Manufactory: Newport, Salop.
Warranted the strongest and most durable Fence ever offered at corresponding prices. It is easily repaired if broken from accidents; can be rolled up most compactly when not in use, is admirably adapted for exportation, and can be had of any height and mesh required, at prices from 4*d.* to 1*s.* 6*d.* per yard and upwards.
For further particulars apply at the Manufactory; or of the London Agent, Mr. R. WINDER, 18, Abingdon Street, Westminster, S.W.



SWING WATER BARROW, to hold 36 Gallons, price 42*s.*, carriage paid to any Station on the Great Eastern Line.
This is the best and cheapest article yet introduced; the water may be dipped out, or the tub tilted and poured out, or by merely raising the handle it can be placed on the ground and the frame detached.
Manufactured by W. S. BOULTON, Rose Lane Iron Works, Norwich.

JAMES PHILLIPS AND CO.,
180, Bishopsgate Street Without,
Beg to hand their PRICES of GLASS.
PRESERVE JARS.

	Without Lids	With Lids.
3 inches diameter	0*s.* 4½*d.* each	0*s.* 6½*d.* each
4 " "	0 6 "	0 9 "
5 " "	0 8 "	0 11 "
6 " "	0 10 "	1 2 "
7 " "	1 0 "	1 4 "
8 " "	1 4 "	1 8 "
9 " "	1 8 "	2 2 "
10 " "	2 0 "	2 8 "

LACTOMETERS, for Testing the Quality of Milk.
Four Tubes .. .. 4*s.* 6*d.* | Six Tubes .. .. 6*s.* 6*d.*
With Stands complete.
WASP TRAPS, 3*s.* 6*d.* per dozen.
London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.
LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS, PAINTS of various colours ground ready for use.
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FLEMING'S SALTING MACHINE for DESTROYING WEEDS in Garden Walks and Court Yards.
PRICES:—

HAND MACHINE to disperse	20 gallons	£9 5 0
" " "	30 gallons	12 0 0
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HORSE " "	100 gallons	23 0 0

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E. T. ARCHER'S "FRIGI DOMO." — Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.
PROTECTION from the SCORCHING RAYS of the SUN.
"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.
Two yards wide .. .. 1*s.* 9*d.* per yard run.
Four yards wide.. .. .. .. 3*s.* 6*d.* per yard.
An improved make, 2 yards wide .. 1*s.* 9*d.* per yard.
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Also "Frigi Domo" Netting, 2 yards wide, 1*s.* 6*d.* per yard run.
ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, and of all Nurserymen and Seedsmen throughout the kingdom.
"It is much cheaper than Mats as a covering."

PATENT GUTTA PERCHA SOLES.—IMPORTANT TO GARDENERS.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. GLENNY, Esq., the celebrated Florist:—
"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles.—Your obedient servant, "G. GLENNY."
Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Calbotype trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town or country.
The GUTTA PERCHA COMPANY, Patentees, 18, Wharf Road, City Road, London, E.C.

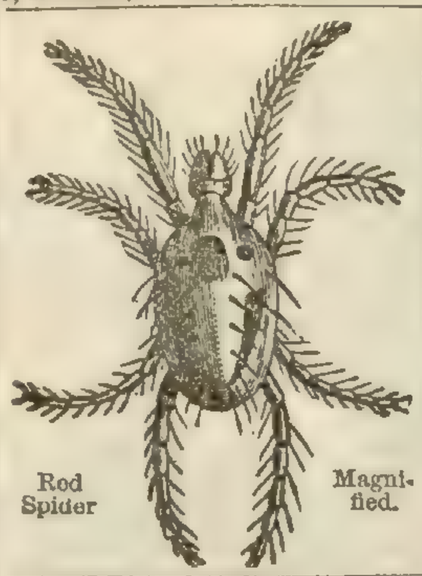
GARDEN BORDER EDGING TILES, in great variety of patterns and material, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.
F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.
Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.
Also TESSELATED PAVEMENTS of more enriched designs than the above.
WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cements, &c.
To be obtained of F. & G. ROSHER, at their Premises as above.

SILVER SAND (REIGATE, best quality), at the above addresses—14*s.* per Ton, or 1*s.* 3*d.* per Bushel; 2*s.* per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1*s.* per Ton less.
FLINTS, BRICK BURRS or CLINKERS, for Rockeries and Grotto Work.
F. & G. ROSHER.—Addresses see above.
N.B. Orders promptly executed by Railway.

GARDEN HOSE, GARDEN HOSE, GARDEN HOSE with Brass Fittings complete.—The London India-Rubber Company, Limited, Manufacturers of MECHANICAL RUBBER, 9, Ironmonger Lane, London, E.C.



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GISHURST COMPOUND, whether used against Insects and Mildew on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.
Sold Retail by Nurserymen and Seedsmen, in boxes, 1*s.* 3*s.*, and 10*s.* 6*d.* each.
Wholesale by
PRICE'S PATENT CANDLE COMPANY (LIMITED).

COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 2*s.* per bag.
For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 25th March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.
Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.
BARSHAM'S BRUSHES and MATS are sold in every town.
CAUTION.—Every Brush is stamped, J. BARSHAM'S Patent.

REIGATE SILVER SAND.—Best Kent and Surrey PEATS, LOAMS, SPHAGNUM, ROCK SANDSTONE, London-made FLOWER POTS, &c. Moderate Prices.
N.B. Loaded Trucks can be sent direct on all the Railways.
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REIGATE SILVER SAND, 12*s.* per ton, at Swan Place; delivered 5 miles, or to any London Railway, 16*s.* per ton, or 1*s.* 6*d.* per bushel (sacks at cost price, or on hire).
KENTISH and other PEATS, YELLOW LOAM, LEAF-MOULD, SPHAGNUM MOSS, and COCOA FIBRE REFUSE.
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STAND 220.
RAYNBIRD, CALDECOTT, AND BAWTREE, SEED GROWERS and SEED MERCHANTS, Basingstoke and Andover, and at 89, Seed Market, Mark Lane, London.
International Exhibition Prize Medals, 1851 and 1862, for HYBRID WHEAT and excellent SEED CORN and SEEDS.
At the Royal Horticultural Society's Great International Show in 1862, we were awarded Five First Prize Medals.
At the International Agricultural Show, held at Cologne in 1861, our collection of English-grown Seeds and Seed Corn received the First Prize Gold Medal.
*** Samples and Priced Lists of all descriptions of AGRICULTURAL SEEDS, SEED CORN, MANURES and FEEDING STUFFS, forwarded on application.
Orders received at our Stands, in Mark Lane London, Andover, Basingstoke, Salisbury, Winchester, Newbury, Reading, Oxford, and Alton Markets.

Seeds from Choice Strains.
B. S. WILLIAMS can now supply good Seeds of the following:—
CINERARIA (Weatherill's extra choice strain).—B. S. W. has secured at a great expense the entire stock and right of exclusive sale from Mr. Weatherill, of his, the best strain of Cineraria in existence, and can now offer packets at the following prices:—3*s.* 6*d.* and 5*s.*
CALCEOLARIA (Herbaceous), from a fine strain, 2*s.* 6*d.* and 3*s.* 6*d.* per packet.
PRIMULA (Williams' superb strain), the finest fringed and the best coloured flowers in cultivation. Red, White, or Mixed Seed 2*s.* 6*d.*, 3*s.* 6*d.*, and 5*s.* per packet.
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Russell's Pyramid Primulas.
GEO. CLARKE is now prepared to send out in packets, price 2*s.* 6*d.* each, this, the finest breed of PRIMULAS in cultivation. The Seed now for sale has been saved from selected plants, so that it is believed the produce will be even superior to that of former years.
Printed instructions for raising and growing the plants sent with each packet. Stamps received in payment.
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ROBERT PARKER begs to offer the following, all of which are well-grown, clean, and healthy plants:—

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CLERODENDRON BALFOURII	5 0
CORDYLINE INDIVISA	10 0
FRANCISCEA CALYCINA	10 0
GOODYERA PUBESCENS	1 0
RHODODENDRON COUNTESS of HADDINGTON, 10*s.* 6*d.* to	21 0
" JAVANICUM	2 6
" NUTTALLII	3 6
TRITOMA GRANDIS	1 0
" UVARIA GLAUCESCENS	21 0
VINE DUCHESS of BUCCLEUCH .. .. .. 10*s.* 6*d.* and	42 0
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HAVE ON HAND

A VERY LARGE STOCK OF ORCHIDS,

As will readily be inferred from the fact that at their Nursery, Ten Houses, each of considerable size, are devoted to the culture of this very interesting Class of Plants. The Collection is regularly augmented by importations received from Correspondents in Brazil, Venezuela, Borneo, the Philippine and West India Islands, the Tennasserim Provinces, and the Malayan Archipelago, as also from the various Collectors of the Firm—in New Grenada, Central American States, and Mexico.

The Plants offered are all in fine health and very vigorous, and an inspection is respectfully solicited.

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Choice Cineraria Seed.

LUCOMBE, PINCE, AND CO. beg leave to inform the Public that this season's Seed of their celebrated Strain, saved from selected plants, is now ready for sowing, and is finer than ever. The superior quality of their CINERARIAS is admitted and justly praised by all their numerous customers; they cannot be surpassed for shape, variety, and brilliancy of colour. Price 2s. 6d. per packet, post free.

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THE BEST SORTS of CABBAGE SEEDS, in packets, 6d. each sort, Post Free, sufficient to raise a Thousand Plants of each.

SUTTON'S IMPERIAL
EARLY BLENHEIM
SUTTON'S DWARF COMBE

NONPAREIL, EARLY YORK, ENFIELD MARKET, WHEELER'S IMPERIAL, and other old sorts, 3d. per packet; DRUMHEAD CATTLE CABBAGE, 2s. 6d. per lb.

SUTTON & SONS,
Royal Berkshire Seed Establishment,
Reading.

New Early Turnip.

SUTTON'S SHORT-TOP SIX-WEEKS TURNIP, for Sowing in July and August.

This excellent Turnip, certainly the quickest in cultivation, if sown in the months of July and August, will be ready for Feeding off in September and October.

Price 1s. per lb.; 42s. per bushel.
Carriage free.

SUTTON & SONS,
Royal Berkshire Seed Establishment,
Reading.

Specimen Tree Ferns, Palms, &c.

JAS. GARAWAY AND CO., Durdham Down Nurseries, Bristol, offer as under:—

Two DICKSONIA ANTARCTICA, a splendid pair, 5 feet full from pot to crown, 3 feet circumference at base, 2 feet 2 inches at 2 feet 6 inches high; crown 6 feet 6 inches across.
Two ALSOPHILA AUSTRALIS, a splendid pair, 5 feet from pot to crown; crown full 7 feet across.
One PANDANUS UTILIS, 5 feet high, 6 feet across.
One CARYOTA URENS, with five leaves, last 5 feet 8 inches long.

The whole are in first-rate health, and are growing freely, are admirably adapted for conservatory use or for exhibition, and will be sold separately or in one lot.

The Tree Ferns are particularly fine plants, and J. G. & Co. do not think that purchasers will find equally fine and as well established specimens in any other Nursery.

Prices on application. Mounted Photographs of the first four, price 10s. 6d the set, free by post on receipt of stamps.

JAS. GARAWAY & CO., Durdham Down Nurseries, Bristol.

The Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

A CHOICE and EXTENSIVE COLLECTION of STOVE and GREENHOUSE PLANTS always on view. Also FRUIT TREES, SHRUBS, and ORNAMENTAL TREES, from the Country Branches of the Firm.

The SEED and GENERAL NURSERY BUSINESS is carried on here, and Packages are delivered free at the various London Railway Stations.

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EALING NURSERY, G. CANNON, Manager.
Ten minutes' walk from the Ealing Station on the Great Western Railway Main Line.

FRUIT TREES, ROSES, and SHRUBS, are here extensively and successfully cultivated in some of the finest Loam in the County.

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Ten minutes' walk from Feltham Station.

EVERGREEN and DECIDUOUS SHRUBS, and CONIFERÆ, are here largely grown in a free Loam, well suited to their habits.

ACTON LANE and WOOD LANE NURSERIES, ISLEWORTH. ORNAMENTAL TREES are in a healthy and thriving state, and GENERAL HARDY PROPAGATION is here carried on.

The Stock in the above Nurseries is well worth the inspection of purchasers. The prices are very moderate, and the Plants are frequently transplanted to ENSURE SAFE removal.

The following CATALOGUES are published, and will be forwarded Post Free on application:—

CATALOGUE of KITCHEN GARDEN, FLOWER, and AGRICULTURAL SEEDS.
CATALOGUE of STOVE and GREENHOUSE PLANTS.
CATALOGUE of SOFT-WOODED and BEDDING PLANTS.
CATALOGUE of FRUIT TREES and FRUIT TREES in POTS.
CATALOGUE of HARDY SHRUBS and TREES.
CATALOGUE of DUTCH BULBS, published in August.
CATALOGUE of ROSES.

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The Royal Nurseries, Slough,

ROYAL HORTICULTURAL SOCIETY.—SPECIAL SHOW of ORNAMENTAL and VARIEGATED FOLIAGE PLANTS, and SCARLET PELARGONIUMS, SATURDAY, July 8, 1865.

AWARDS of the JUDGES.

CLASS 1.—12 STOVE and GREENHOUSE PLANTS, with Ornamental Foliage. (Open.)
1st Prize, Mr. Thomas Baines, Gr. to H. Micholls, Esq., Bowdon, Cheshire, £7.
2d, Messrs. J. & C. Lee, Vineyard Nursery, Hammersmith, £5.
3d, Mr. William Bull, King's Road, Chelsea, S.W., £3
Extra, Mr. J. Carr, Gr. to P. L. Hinds, Esq., Weybridge, £2.
Extra, Mr. W. Young, Gr. to R. Barclay, Esq., Highgate, N., £1 10s.

CLASS 2.—6 STOVE and GREENHOUSE PLANTS, with Ornamental Foliage. (Amateurs.)
Equal { 1st, Mr. T. Baines, £5.
Equal { 1st, Mr. D. Donald, Gr. to J. G. Barclay, Esq., Leyton, £5.
2d, Mr. W. Young, Gr. to R. Barclay, Esq., Highgate, £4.
3d, Mr. W. Taylor, Gr. to J. Yates, Esq., Highgate, £3.
Extra, Mr. William Gell, Gr. to Mrs. Beaufoys, Beaufoys, South Lambeth, £2.

CLASS 3.—6 STOVE and GREENHOUSE PLANTS, with Ornamental Foliage. (Nurserymen.)
1st, Messrs. J. & C. Lee, £4.
2d, Mr. William Bull, £3.

CLASS 4.—9 DRACÆNAS and CORDYLINES, distinct. (Nurserymen.)
1st, Mr. William Bull, £5.
2d, Messrs. J. & C. Lee, £4.

CLASS 5.—6 DRACÆNAS and CORDYLINES, distinct. (Amateurs.)
1st, Mr. D. Donald, £5.
2d, Mr. Barnard, Gr. to J. W. Taylor, Esq., Seven Sisters Road, £4.
3d, Mr. W. Young, £3.

CLASS 6.—9 PALMS, not less than 4 kinds. (Nurserymen.)
1st, Mr. William Bull, £5.

CLASS 7.—6 PALMS, not less than 3 kinds. (Amateurs.)
Equal { 1st, Mr. William Taylor, £5.
Equal { 1st, Mr. William Young, £5.

CLASS 8.—6 CALADIUMS. (Open.)
1st, Mr. J. Carr, £5.
2d, Mr. William Young, £4.
3d, Messrs. J. & C. Lee, £3.

CLASS 9.—STOVE PLANT. Single specimen. (Open.)
1st, Mr. D. Donald, £1.
2d, Mr. Wm. Bull, 10s.

CLASS 10.—GREENHOUSE PLANT. Single specimen. (Open.)
1st, Mr. William Bull, £1.
2d, Mr. D. Donald, 10s.
Extra, Mr. Thomas Baines, 5s.

CLASS 11.—12 HARDY VARIEGATED PLANTS. (Open.)
1st, Mr. J. Salter, Versailles Nursery, Hammersmith, £2.
2d, Mr. William Bull, £1.

PELARGONIUMS, SCARLET.

CLASS 12.—12 distinct kinds, of any shade of colour, zonals or plain foliaged, but not variegated. (Nurserymen.)
1st, Mr. J. Fraser, Lea Bridge Road Nursery, Leyton, £6.
2d, Mr. J. Salter, £4.

CLASS 13.—6 DISTINCT KINDS. (Amateurs.)
1st, Mr. J. Ward, Gr. to F. G. Wilkins, Esq., Leyton, £4.
2d, Mr. J. Hawes, Gr. to J. Noble, Esq., Hornsey, £3.

CLASS 14.—12 DISTINCT KINDS of VARIEGATED FOLIAGE, in or out of flower. (Nurserymen.)
1st, Mr. J. Fraser, £6.
2d, Mr. J. Hally, Nurseryman, Blackheath, £4.

CLASS 15.—6 DISTINCT KINDS of VARIEGATED FOLIAGE, in or out of flower. (Amateurs.)
1st, Mr. J. Ward, £4.

CLASS 16.—6 NOSEGAYS, distinct. (Open.)
1st, } Withheld.
2d, }
3d, Mr. J. Salter, £1.

CLASS 17.—MISCELLANEOUS. (Open.)
1st, Messrs. J. & C. Lee, for a Collection of Stove and Greenhouse Plants, £2 10s.
2d, Mr. J. Salter, for 12 Hardy Ferns, £2.
3d, Mr. William Bartlett, for 6 Adiantum cuneatum, £1.
Extra, Mr. William Paul, Waltham Cross, N., for Collection of Pelargoniums, £1.
Extra, Mr. William Paul, for 7 Boxes of Cut Roses, 15s.
Extra, Mr. Thomas Baines, for Phrenocoma prolifera Burnesii, 10s.
Extra, Mr. George Lowe, Maida Hill, for Case of Ferns and Fine-foliage Plants, 10s.
Extra, Mr. H. Hooper, Widcombe Hill, Bath, for Stand of 24 Carnations, 10s.
Extra, Mr. H. Hooper, Widcombe Hill, Bath, for Stand of Picotees, 10s.
Extra, Mr. H. Hooper, Widcombe Hill, Bath, for Stand of 24 Hollyhock Blooms, 10s.
Extra, Mr. George C. Clarke, Brixton Hill, for 8 Boxes of Cut Roses, 10s.
Extra, Mr. S. Ford, Gr. to W. E. Hubbard, Esq., Horsham, Sussex, for 1 Ripley Queen Pine-apple, 10s.
Extra, Miss Smith, Mrs. Queenlan's, Down Road, Tooting, for a Stand of Artificial Flowers, 10s.
Extra, Mr. Taylor, Gr. to J. Yates, Esq., Highgate, for a Fruit of the Dion edule, 10s.

The Gardeners' Chronicle.

SATURDAY, JULY 15, 1865.

MEETING FOR THE ENSUING WEEK.

SATURDAY, July 22 { Royal Horticultural (Great Show of Fruit and Vegetables), at S. Kensington 2 P.M.

THE discussions respecting what is called SPONTANEOUS GENERATION have been so numerous and animated in France, that Monsieur MILNE EDWARDS has given in one of the numbers for the present year of the Zoological portion of the *Annales des Sciences Naturelles*, a sketch of the progress and actual state of the question respecting the production of living organisms in the way of spontaneous generation, though he has fully treated the subject in the second part of the eighth volume of his work on the physiology and comparative anatomy of animals, which is at the present time in the press.*

It is clear that the words Spontaneous Generation are essentially incorrect. With a view to more precise notions on the subject, three distinctions are made, in the following terms:—

1. The formation of a living being by spontaneous organisation from inert or dead matter, without the concourse or influence of any already existant living being, may be called "agenesy."

2. The formation of living individuals in consequence of the dissociation of parts, which, constituted by the vital action of an animal or plant, and having participated in the vital power of this being, should preserve the faculty of living and of being developed so as to realise certain organic forms, after it had been struck with death and its organisation destroyed, may be called "necrogeny."

3. The formation of particular beings by the physiological action of a living organism, which should transmit to them the principle of life without impressing on them its own organic characters, (the new being would be procreated, but would not be of the same nature as its parents, but would constitute a new species), may be called "xenogeny."

In the first case life is the mere consequence of chemical combination, in the other cases life is communicated to inert matter by a living being, while in necrogeny the vital force is latent in the molecules of which living bodies were composed, but which have become free by their death and subsequent dissociation.

The notion of spontaneous generation is still popular, and was almost universal till the beginning of the 17th century. At present its more scientific partisans confine it for the most part to microscopic forms of plants and animals, but this was not formerly the case, as bees and other insects, especially those which are parasitic, together with a large portion of cryptogams, were fully believed to have sprung from organic or inorganic matter; while it is only within these few years that the nature of intestinal worms and their various changes and migrations have been fully recognised by the scientific, though the ignorant still look on the hosts of aphides, earwigs, or other plagues which occasionally infest our fields and gardens as mere blights produced by certain conditions of the air. If we confine our notions to microscopic organisms, it may be confidently asserted that the evidence adduced by observers like PASTEUR, of the absence of any symptoms of living organisms in infusions, where proper precautions have been taken to exclude all possibility of access from living germs contained in the atmosphere, and at the same time to insure the destruction of any which may exist in the infusions themselves, are not outweighed by the opposite experiments of POUCHET and others. When boiling has been carried to a proper degree, when the walls of the vessels are perfectly clean, when the neck is hermetically sealed and bent so as to make access a difficulty, when any germs contained in the air are intercepted by some substance like cotton wool, or where air has not been admitted till it has passed through some fluid destructive of life, as sulphuric acid, or through red-hot tubes, no organisms at all have been produced, or if any, only in proportion to the imperfection of the means taken to exclude the possibility of the access of germs. Experiments, too, made at great heights where germs may be supposed to be few in number, or in other localities, have all tended to the same result. It is true that claims are made in an opposite direction, but the same scrupulous care does not seem to have been taken as by Monsieur PASTEUR, whose experiments have been repeated with the most perfect confirmation of the conclusions at which he arrived.

As regards the second hypothesis, if the constituent molecules of organic bodies were really of the same nature as the minute organisms which appear in infusions, or were capable of attaining it by development, there might be something rational about it. But, whatever may have been thought when microscopes were extremely imperfect, there is not a shadow of argument for the belief derived from actual observation of structure, added to which it is found that they are reproduced like larger organisms.

Imperfect observations have sometimes led to contrary opinions. One is mentioned by MILNE EDWARDS which deserves notice here.

"As an example of the errors which it is difficult to avoid in researches into the origin of microscopic beings, the results announced some years ago by M. CIENKOWSKI, and afterwards refuted by himself, may be cited. On observing starch grains under infusion, he found that they became surrounded by a membranous envelope, and then gradually dissolved and were replaced by Infusoria. These facts were confirmed by other microscopists, and were considered as demonstrative of the production of animalcules by way of spontaneous generation from the constituent matter of the starch grains. But further researches made them enter into the common category; for the same naturalist showed that the pretended envelope with which the grains seemed to surround

* Since the above was written we have received the second part of the 8th Volume mentioned above.

themselves was in reality a pre-existent animalcule, which spread itself over the amylaceous body for the sake of nourishment, so that the little living beings which were developed in this manner within the cell, were derived from this animalcule, and not from the included amylaceous matter."

The only arguments for the third supposition of xenogeny, except by some slow process of elimination or natural selection which does not enter immediately into the question, are derived from the imperfect knowledge of intestinal worms, but the doctrine of alternation of generations, and the clearer notions which we now possess as to their nature, completely satisfy all doubts in this direction. Not only is life transmitted, and organised bodies are always the produce of bodies endowed with life, but in all cases where it has been possible to follow out the several steps of filiation, individuals have been found to be of the same species as those from whence they were derived. Doubtless the progeny are capable within certain limits of variations, but whether these are such that a mollusk can become a fish, or even that one species can be the parent in the process of a long series of changes of another acknowledged species of the same genus, is a question altogether apart from that of the occurrence of spontaneous generation, so far as it comes within our own limited sphere of observation, and our comparatively infinitesimal particle of time. *M. J. B.*

TIME was, and that not long since, when it was stated that MALFORMATIONS AMONG ORCHIDS were rarer than among most other plants, an assertion the correctness of which we have often doubted, and the falsity of which is daily becoming more apparent. So far from true, indeed, is the general statement just alluded to, that it is hardly possible to go into any moderately extensive collection of Orchids and not find some flowers more or less curiously deformed. Over and over again we have seen lipless flowers of Aerides, of Dendrobium, or of Cattleya; while, on the other hand, there has sometimes been a development of one or more supernumerary lips. Such an instance is now before us in a flower of Aerides sent to us by Mr. CURREY. Again, there is one whole section of Dendrobium, with regular flowers, affording illustrations of congenital Peloria, a condition in which the primordial regularity of form is never departed from. In the reproductive organs we have often seen either imperfect or supernumerary development: out of nearly 100 specimens of Ophrys aranifera gathered by ourselves at random, 40 had more or less deviation from the ordinary form. We need not here allude to the exceeding botanical interest that belongs to malformations in this beautiful and singular family, but we hope to induce cultivators to direct more attention to them than they have hitherto done, as the field is a promising one.

Double Orchids have been found lately, in some of which there has been a multiplication of the segments of the perianth at the expense of the reproductive organs, and in other instances there has been not only this increased number of petals, but new flower-buds have been formed in the axils of these petals, thus entirely altering the character of the flower, and giving it a richness and luxuriance of aspect that would delight a florist.

Then reverting to the subject of Peloria, there is the congenital Peloria already alluded to, and there is the true Peloria, where a flower becomes regular by the increase in number and consequent equalisation of its irregular parts. Thus we have Orchids as regular as a Lily, as regards their perianth, and we may get, in course of time, Orchid flowers, all of whose segments shall be in form like the lip. Nature often shows a partial change of this kind, and there seems no reason why the change should not be more complete. By a little attention, Orchid growers might produce in this already varied family, new forms vieing in beauty with, and exceeding in interest, the hybrids with which the patient skill of Mr. DOMINY and others has already enriched us.

THE Rev. GERARD SMITH, of Osmaston, has sent us a printed memorandum containing a hint for the preservation of HYACINTH BULBS in a vigorous state, which he informs us he has practised for two years, and has found remarkably successful. The hint referred to is as follows:—

"As soon as the flowers wither, take the bulb out of the earth or water in which it has bloomed, wash it and the roots clean, and lay it on the lid of a hamper, or on clean straw, in an airy, shaded, but dry place. Turn the bulb frequently; and when the roots and leaves, &c. have dried up, trim them off, remove loose scales and ripe offsets; and, when the bulb is perfectly dry, lay it by in a drawer, closet, or basket, until the following autumn. By this method, the exhaustion of the bulb, after flowering, is saved. Bulbs planted in September yield better flowers, and bloom, if anything, later in the spring."

This memorandum was printed for general distribution at the Osmaston Garden Show, at which Mr. SMITH exhibited 16 Hyacinth bulbs, the marketable appearance of which, as we are informed, greatly surprised many gentlemen who had been accustomed to the shrunken ill-looking results of laying-in by the heels. A sample of the bulbs prepared in the manner thus indicated by Mr. HARRISON, the gardener at Osmaston Manor, was obligingly sent with the foregoing memorandum. These bulbs are plump and firm, and excepting a little hollowness in the crown, quite equal in appearance to the imported bulbs of medium quality. We shall be curious to see how they bloom next season.

—— THE mode in which the beautiful DRIED FLOWERS are obtained, which have for some time past appeared for sale in the shops, has been thus described in the Journal of the Society of Arts:—"A vessel, with a moveable cover, is provided, and having removed the cover from it, a piece of metallic gauze of moderate fineness is fixed over it, and the cover replaced. A quantity of sand is then taken sufficient to fill the vessel, and passed through a sieve into an iron pot, where it is heated, with the addition of a small quantity of stearine, carefully stirred, so as to thoroughly mix the ingredients. The quantity of stearine to be added is at the rate of ½ lb. to 100 lb. of sand. Care must be taken not to add too much, as it would sink to the bottom and injure the flowers. The vessel, with its cover on, and the gauze beneath it, is then turned upside down, and the bottom being removed, the flowers to be operated upon are carefully placed on the gauze and the sand gently poured in, so as to cover the flowers entirely, the leaves being thus prevented from touching each other. The vessel is then put in a hot place, such, for instance, as the top of a baker's oven, where it is left for 48 hours. The flowers thus become dried, and they retain their natural colours. The vessel still remaining bottom upwards, the lid is taken off, and the sand runs away through the gauze, leaving the flowers uninjured." This process, by means of which the colours are in great measure preserved, is, it will be seen, an adaptation of the old plan of drying in hot sand.

—— We understand that Dr. H. G. REICHENBACH, of Hamburgh, of whose skill and learning amongst Orchidaceous plants our pages bear evidence, has been elected one of the Vice-Presidents of the Imperial German Academy Naturæ Curiosorum.

—— At a recent meeting of the French Academy of Sciences, M. CORENWINDER, in a paper on the SARGASSUM BACCIFERUM, sought indirectly to prove the existence of phosphorus in the ocean by an analysis of Seaweeds gathered far from the shore. His results showed that this Seaweed contains 1.026 per cent. of phosphoric acid, which it was argued could only have been derived from the sea.

DOUBLE-GLAZING, AND ITS EFFECTS.

YOUR Paper of April 15th contains an article from Mr. Warner, of Broomfield, enumerating the many and really very considerable advantages derived from the double-roofing of hothouses.

Mr. Warner also gives some details of the application of this system as carried out at Rockville, the seat of Thomas Bewley, Esq., near Dublin, and concludes by inquiring "whether in other countries, on the Continent, the system has had a fair trial, and with what results?" As an answer to this inquiry, as far as Berlin (the dusty and monotonously situated capital of Prussia) is concerned, I should like to make the few following remarks:—

Double-glazed roofs are and have been for a long time extensively, and, as far as hothouses are regarded, almost exclusively in use here. In fact, successful cultivation of the more tender and valuable of tropical plants, such as Orchids and Palms, could hardly be thought of without the aid of double glass in a climate like this, where in winter the thermometer very often, and sometimes very suddenly, sinks as low as from 10° to 15° Fahr. below zero, such intense cold being, moreover, frequently accompanied by the most cutting north-easterly winds, lasting sometimes uninterruptedly for days; while on the other hand in summer a scorching temperature of from 75° to 80° Fahr. in the shade, out of doors, rendered still more insupportable by clouds of heated dust and sand, which search their way through the smallest crevices, is nothing uncommon here.

To protect tender plants from the vicissitudes of such an unfavourable climate, double-glazing is evidently of the greatest importance, and consequently is generally had recourse to in this place and its vicinity.

Horticultural structures erected on this principle are existing here of almost every description, from the stately Palm-houses of the Royal Botanic and of Mr. Borsig's Gardens, down to the so-called common "pits."

Both of the Palm-houses in question are constructed of iron, and with the exception of the doors and of some of the top lights destined for airing, double-glazed throughout: the intermediate space being about 6 inches for the sides and a little less for the roof. The additional glazing, as far as regards the sides of the building, is fixed on the inside, in the shape of iron-framed sashes, which are made of a size not too large or too heavy to be conveniently handled. The extra glass for the roof, which is constructed on the ridge-and-furrow principle, consists of sashes framed in wood; they are fastened on by iron loops and small wooden wedges. These houses are merely shaded by wooden lattice-work, which is fastened on in spring and not taken off until fall, when the weakness of sunshine renders their further presence unnecessary.

In the Palm house of Mr. Borsig's Garden the two glass walls forming the front side of the structure are placed at a distance of about two feet from each other, an arrangement which admits of the whole being created stationary, since the intermediate space will be wide enough for a person to move in for the purpose of cleaning, &c., but as so much valuable space is lost by this arrangement it can hardly be recommended.

Next to these two Palm houses, I shall mention the Orchid houses, which in this vicinity are all double-roofed, without exception, and I know of but one instance where the outside sashes are regularly taken off during the hottest summer months. Most of these houses are also built of iron, a material which, in my opinion, will at no distant day totally supplant wood in the construction of plant houses, its use admitting of these structures being erected in a far more elegant and graceful style, consequently admitting a far greater amount of light; while if kept well painted it will long outlast wood, especially in hothouses.

The greater number of Orchid houses here are span-roofed, and the outer part of their double roofs consists generally of wooden sash windows, which are mostly made of such a length as to reach from bottom to top. I perfectly coincide with Mr. Warner in his opinion of the space between the two roofs requiring to be made as air-tight as possible. Too much importance cannot be attached to this point—it is the only means of producing, or at least of regularly securing, that certain degree of vaporous moisture which is so conducive to the health and vigour of Orchids. This air-tight glazing of double roofs not only offers the advantage of a great saving of fuel, as Mr. Warner very justly remarks, but also of a saving of labour, since it renders a good deal of the splashing of water about the houses unnecessary; and through this very point, joined to another still more important one, that of totally excluding all draught, it becomes the inappreciable means of preventing spotting to a great extent, for in my opinion, and as far as my experience in the cultivation of Orchids extends, this worst of plagues amongst the many which so considerably aggravate the difficulties which already attend the cultivation of Orchids, is chiefly caused by over moisture combined with cold draughts.

Double-glazing, if it is well executed, will render a good deal of the watering at the roots, and nearly all the syringing overhead, unnecessary, since the precipitated moisture which we notice upon our Orchids in the morning will tenfold and in the most natural manner replace all that we could effect by syringing.

The most striking proofs of the beneficial influence of air-tight double-glazing are furnished by the excellent state of health and vigour which the Orchids of M. Reichenheim enjoy. This fine luxuriant collection is cultivated in a span and double-roofed iron house, the walls of which are constructed of bricks and built with cement, into a layer of which the lower ends of the iron sash-bars of both surfaces of glass are directly imbedded, and merely screwed fast at top to a strong iron bar running lengthways. This very simple mode of construction offers the advantage of offering but very little obstruction to light and sunshine, and of being easily made air-tight if, as in this house, the glass is imbedded in soft putty, and the laps filled with the same material.

The only objection to this sort of a roof is, that it precludes all possibility of cleaning the inner surface of the glass, without unglazing the outer part of the roof. But here, a fact which goes directly against the opinion of some of our best cultivators of Orchids enforces itself upon one's mind, viz., that (at least as far as the so-called East Indian Vandeæ, that is the genera Vanda, Saccolabium, Aerides, Phalænopsis, Angræcum, &c., are concerned) intensity of light is not at all required, or at least not absolutely necessary, the inner surfaces of this roof not having been cleaned since the house was built, a period of nine or ten years, and thereby the glass having to a certain degree become opaque from the effects of sweat and washed-off paint—and yet the collection cultivated under this roof, especially as far as the above-named genera are regarded, is probably the finest in Europe, if not for the size of the plants, at least for exuberant health and vigour, and is totally exempt from all spot and insects.

Fear of intruding too far upon your space induces me to conclude these remarks, which I hope may at least contribute something towards the propagation of a system already so warmly recommended by Messrs. Bewley, Warner, and others, and which, for the benefit of plants, plant owners, and plant growers, deserves universal application. *A. R. E.*

ZYGOPETALUM MACKAII.

THIS is a fine winter-blooming Orchid. The length of time it lasts in bloom makes it a valuable plant for decorative purposes. To make plants suitable for this purpose they should be divided, if required, and potted in good rich fibrous peat, in 8 or 10-inch pots, with moderate drainage. This should be done in spring. It is a strong growing species, throwing up flower-spikes with the young growth during the latter part of the summer, and flowering in December and January; the flowers are deliciously fragrant, and last seven weeks in perfection. As they make the most part of their growth during the winter they should have a moderate supply of water, and that, when required, should be applied in the morning. The flower-spikes grow about three feet in height, and the flowers are about four inches across, the sepals and petals greenish yellow, mottled and spotted with brownish crimson; the lip large, nearly round, recurving at the point, French white, beautifully striped and veined with rich violet. A few plants will perfume a house; each spike bears seven or more flowers. This species will do well in the cool house; the temperature in winter should range from 40° to 50° by night, with a rise during the day, a little air being given on mild days, and admitted just over the pipes, and not by the side lights on the level with the shelves, as the cold air coming in contact with the plants is apt to be very injurious to their growth. The temperature in summer must be guided by the weather. If hot and dry give an abundance of air and moisture, and dispense with fire-heat. There are many varieties of this plant, some inferior to the one described. The following species are well worth growing, viz.:—Z. brachypetalum, Z. crinitum, Z. crititum cœruleum, Z. maxillare, Z. stenochilum. These are all free-flowering kinds, chiefly flowering in the winter months; and they require similar treatment to that recommended for Z. Mackaii. *T. Brown, Exotic Nursery, Tooting.*

GARDENERS' ROYAL BENEVOLENT INSTITUTION.

THE 22d Anniversary Festival in aid of the funds of this Institution was held on the 7th inst. at the London Tavern, under the presidency of J. W. Jeffrey, Esq., of Liverpool. The usual loyal and preliminary toasts having been given and responded to, the CHAIRMAN said the next toast he had to propose was the health of the Patron of the Institution, the Duke of Buccleuch. It was most encouraging to the officers of such an Institution as this to find that it was patronised by such an extensive landowner as the Duke of Buccleuch. He encouraged gardeners, and he was sure that his Grace felt satisfaction in giving encouragement to them. As an incitement to labour he would mention that on a peasant, who once earned 18s. per week, her Majesty deigned to confer a knighthood. He alluded to one who was taken from them, the late lamented Sir Joseph Paxton, and the example set by that eminent man it would be well to emulate. He proposed the health of the noble Patron; might he live long, and his example be followed by others. The toast was drunk with loud cheers.

The CHAIRMAN then proceeded to the toast of the evening, "Prosperity to the Gardeners' Royal Benevolent Institution." The Institution was one of a very unpretending character, and it had neither to contend with poverty nor with riches. Although he wanted their aid not to let the Institution go into poverty, yet if they would embarrass them with riches, he was sure that the officers would not object. He felt that his task of head gardener, as it were, on this occasion was a difficult one. He had to strike that hard rock, their pockets, and to cause to flow that stream which refreshes while it fructifies. They had 57 plants under their care, which had borne their fruit. They were not young plants. That refreshing stream he referred to was required for fresh cuttings and for those plants which had done their work, and which now required to be taken care of. Of those 57 plants (the pensioners) 30 were women averaging 76 years of age. He knew he should not be appealing to the friends of the Institution for aid in vain. He knew if he were to ask them which they would forego — their fine-art embellishments, or their garden, producing its beautiful flowers and vegetables, they would prefer to surrender the former rather than to give up the latter. If that were so, it was their duty to assist in the time of need those who had been worn out in their service, and to make their latter days happy. Having glanced at the principles of the Institution, he went on to say that they must pardon him if for a moment he referred again to the name of Sir Joseph Paxton. Labour in this country was open to the highest offices. Sir J. Paxton at one time was in the receipt of 18s. per week, in the service of the Horticultural Society; yet he became the associate of a Duke, a member of the Legislature, and a member of the aristocracy. All this arose from his own strength of mind, and from his own perseverance, and his ability. If the labourer deserved respect, he would receive it—if not from one employer, he would from another. He could not let this pass without alluding to the success of the working men's institutions throughout the country. They were calculated to work out the salvation of the working classes, and to break up the bonds of ignorance with which they had been fettered. He would ask them each to contribute one stone to the edifice (the Institution), and they would have the reward of having contributed to that independence which was the pride of Englishmen. Strike down his independence, and what was he? The annual expense of the Institution amounted to about 800*l.*, and although he was told that the balance in hand was 316*l.*, yet it was wanted, as they had to make their payments in advance. The Institution was started in 1838, and since its establishment the sum of 12,700*l.* had been distributed in relief. They also had some funded stock, 5700*l.*, and he was sure that they would sympathise with him when he expressed the hope that they would double that sum in half the number of years it had taken to collect. In conclusion, he commended most strongly, most seriously, and most earnestly the claims of the Institution.

The toast was drunk amidst the most enthusiastic applause.

The health of the Chairman was proposed by Mr. T. ATKINSON in graceful terms, and drank with the usual honours.

Mr WRENCH, in responding to the health of the Treasurer, observed that gardeners could by industry attain the same eminence which Paxton had achieved.

The CHAIRMAN proposed the health of the Secretary in complimentary terms.

The latter said that he had great pleasure in seeing their room so full. The more trouble they gave him and the Treasurer, the better they liked it. The list of subscriptions was the largest they had ever had. He then announced the subscriptions, which amounted in the aggregate to about 380 guineas.

Colonel SCOTT proposed the "Nursery and Seed Trades," coupling it with the name of Mr. Lee, of Hammersmith.

Mr. LEE briefly responded.

Mr BROADWATER responded for the Stewards.

"The Ladies," and some other toasts followed, which brought the proceedings to a close.

Home Correspondence.

Anomalous Growth in Orchids.—When, a short time ago, I was once more admiring Consul Schiller's innumerable flowering Vandas, I found two plants of Vanda suavis with a long and quite terminal inflorescence hanging down most gracefully, as if they belonged to some Epidendrum of Dr. Lindley's section Spathium—let us say of ramiferum. I entertain no doubt these shoots will perish after flowering, since neither axillary nor basilar young eyes could be observed on them; one only has a little growth on its side. I would have much liked to have seen that flowering spikes had been previously produced out of the axil of every leaf, but this had not been the case. If it had been we should have had an inversion of the development observed in such Palms as Arenga, Caryota, &c., where the first inflorescence appears at the top, and the last, the plant's passing bell, at the base out of the axil of the oldest leaf. Such cases of terminal inflorescence in lieu of axillary are of course of no consequence for the life of pseudobulbous Orchids, since these produce axillary shoots at the base of the bulbs. We have observed such cases in Oncids, Megaclinias, and Aspasias. Oncidium anabotryum of Dr. Klotzsch was nothing whatever but the old O. Harrisonianum, with a terminal inflorescence observed in the living plant. Such cases do not generally mislead the Orchidologist, but sometimes, in the case of dried specimens, they may lead him astray. I do not now entertain the least doubt of having committed a very grave error when proposing, in 1852, Epidendrum cycnostalyx from a single good specimen of what, no doubt, is but a slight variety of the well-known E. Stamfordianum, bearing an anomalous leafy bulb with a terminal inflorescence. The *Gardeners' Chronicle* would afford a very good place for the publication of such Orchidaceous extravagances, and I would ask to be allowed to beg English Orchidologists and Orchidophilists to make known their observations on this matter, especially as regards distichous-leaved species, as it would be of high interest if we could prove the natural cause of the death of such as these to be the production of a terminal inflorescence in place of an axillary one. *H. G. Rchb. fil.*

Pollen Tube Theory.—I am tempted to take notice of a letter from your Correspondent "H. G. R." (see p. 601), which seems to me to be unduly severe upon the "Critique raisonné et réfutation sur la théorie des boyaux polliniques" of M. Lemaire. I know nothing of M. Lemaire, nor of his paper anything beyond its title above quoted; but so far from the announcement of its title in their programme being a just cause of "grief" or "contempt" to the botanists of Amsterdam, it was, in my opinion, a fair subject for discussion at a horticultural meeting. Your Correspondent affects to treat as an anachronism any doubt as to the truth and sufficiency of the pollen tube theory, and asks why M. Lemaire has not taken some lessons from a botanist—as if botanists were agreed upon it, and as if it were not a perfectly open question. The presumption, indeed, is, that there is not one botanist in ten thousand possessed of the requisite microscopic skill to gain a glimpse of, much less to demonstrate one-half of what is asserted by the theory in question; which, I venture to assume, your correspondent must have embraced upon faith, unless, indeed, he be *the one* in ten thousand. Permit me to suggest a doubt, whether it is so evident that, in the case of a plant with a thousand seeds, a thousand pollen tubes are required to fertilise them?—each tube penetrating the stigma; travelling throughout the length of the style; threading its way among the placentæ; each finding out an ovule and its infinitely minute foramen; each penetrating the foramen, and converting the ovule into a seed? Is there any such thing as the penetration of the ova by tubes to be found in the animal kingdom? Is there no room to doubt, in observations so exquisitely difficult, and where the sources of fallacy are so numerous that even the ablest observers may have been deceived? Are there not, indeed, as many opinions upon the pollen tubes, and their *modus operandi*, as there have been men competent to observe them! If any one will examine the pistils of Passiflora quadrangularis, or any other suitable plant, after fertilisation, I doubt if he will find any visible trace of pollen tubes in the style; but he will find there bundles of spiral vessels forming a direct and free communication between the stigma and the ovary. It is not the seeds alone which are affected by the pollen; the pericarp and its contents, which grow independently of the seeds (and in this climate grow as frequently without them), are equally alive to its influence. The whole ovary, in short, is quickened by the action of the pollen; and it seems quite as likely that the impulse may be conveyed through the medium of the comparatively conspicuous spiral vessels as by hypothetical pollen tubes penetrating certain organs found only in the seeds. *An Amateur.*

Peas.—I can fully endorse the account given of New Peas by Messrs. Henderson & Co., having visited a garden lately in which all were tried against one or two old sorts. Not one of the new Peas were superior to the old ones. Dickson's was certainly the best of the new ones, but that evidently is only a good stock of an old Pea well known to London and provincial market gardeners. To my brother gardeners I would therefore say, let us in future keep our 3*s.* 6*d.* and 5*s.* in our pockets the first year, and I have no doubt the second season will see these valuable acquisitions gone the way of all short-lived things. I myself shall still keep to my old favourite, Daniel O'Rourke, which I have grown for some years, and which after this season's experience evidently requires no puffing to hold its own against its host of synonymes. *L. H. R., Gardener, Whetstone.*

Ants.—Permit me to say a word in behalf of these. While thinning fruit from an out-door Peach tree a month ago, I noticed ants in all directions; I watched them, and discovered that they congregated upon young shoots covered with green fly, which some were carrying in their mouths. A week later I could find neither ants nor green fly, although the tree had not been touched in the meantime; a week later still the green fly had reappeared, and so had the ants. At the present time the tree is free of both; the young shoots have been slightly wounded in places, and some of the leaves have fallen off. Amongst my Camellia trees I have one unhealthy, the leaves having a kind of scale insect upon them; upon this tree only there are ants, and they are attacking the scale. I cannot see that they have as yet done any harm to the plant. I think, therefore, that this is a proof that they do some good; I, however, do not deny that they do mischief to fruit and buds of Roses, before the flower is expanded. *A Subscriber.*

Earwigs.—The best mode of destroying these is the following, which I have practised for many years. Take pieces of dry Bean straw 5 or 6 inches long, free from joints, that is, open from end to end; or what is still better, pieces of the stem of the Cow Parsley, cut when dead at the end of the summer. Lay them between the branches of trees or plants, so that they cannot be shaken out by the wind. Every morning go round with a small water pot or jug of boiling water. Blow through the tube, pea-shooter fashion, and shoot the earwigs (which take refuge in the tubes during the night) into the boiling water; by this means you may destroy thousands a day. Fowls or ducks will eat the dead ones. *H. B. R.*

Bonapartea juncea.—A specimen of this graceful-leaved stove plant is now in flower here in a 12-inch pot. The flower spike first showed itself on the 29th of May, since which time it has continued to lengthen very rapidly, and it is now 5 feet long. The first flower opened on the 5th July. The plant has been here upwards of 30 years under ordinary stove treatment. Three years ago it was shifted into its present pot, and many of the loose roots that had been formed on the outside of the ball were cut away. It was repotted in peat and loam. *James Ticehurst, Dynevor Castle.*

Foreign Correspondence.

THE CLIMATE AND VEGETATION OF OOTACAMUND.—There seems to be considerable difficulty in raising hill plants in lowland countries; this I think depends in a great measure on the want of natural sunlight. In our winter here the sun in the day time is most intense, so much so that when I first came I often experienced great inconvenience from its glare. Might not horticulture generally be more benefited by a greater exposure to light? The winter is also our dry season. This season has been extended much beyond its usual time; everything appeared burnt up, and to my inexperienced eyes seemed to promise well for a very barren aspect during summer, but a few thunderstorms have completely changed the whole aspect of vegetation, the Grass has become quite green, and things are growing most vigorously. Some of our most delicate plants, as Hymenophyllum, Pteris argentea, and other delicate Ferns, seemed completely deprived of life, the Pteris especially. It is found in great abundance in the clefts of rocks into which a little soil has been washed. I have often visited its habitats when the rocks under the full glare of the sun became so heated that I could scarcely place my hand upon them, and the little soil was so contracted by drought that I could easily place my hand between it and the rock, yet both the Pteris and Hymenophyllum are now growing fast. Although the days are so hot in this season, the nights are very cold and chilly, frost occurring sufficient to nip Acacias, Geraniums, Fuchsias, &c., and to kill Tropæolums completely. I should say that frost occurs only in valleys or level spaces on which the condensed atmosphere can settle down. Yet notwithstanding all this we have beautiful plants of the Saccolabium rubrum at a much greater elevation than the gardens, blooming splendidly on trees and on rocks; in the latter habitat I have seen two plants growing wild. They were situated on the bare face of rocks on high hill tops, their roots penetrating into a little earth derived from decaying Moss, and held together by a few bunches of Grass, and blooming beautifully; they were about a foot in height. From one I gathered five spikes of flower, and from the other three, some of them branching. In a similar position I found also Cœlogyne corrugata in bloom. From what little I have seen of Orchids in their native habitats, I would recommend for their culture in the growing season

a moist and quiet atmosphere at a temperature of from 60° to 65°, with a few degrees depression at night; under this treatment they make their growth. As the autumn advances I would gradually allow them to dry, at the same time elevating the temperature gradually to 75° and 80° by day, 60° at night, giving them all the light possible, with a free circulation of air. As to the soil I would use moss and peat; the peat not to be sifted, but the richest part to be taken and broken into pieces the size of walnuts; with this I would mix a good proportion of leaf-mould quite pure. These are the ideas that I think any one would naturally arrive at by seeing the plants in their natural habitats here. I should say that the nights of the resting season are cold with keen currents of air. I think this treatment would suit Saccolabiums, Cœlogynes, Cattleyas, and all others of a similar character. It is also, I believe, more essential to maintain a steady moisture in the atmosphere than much at the roots. I believe that far less attention is paid to the resting of tropical plants than should be. It is essential that they should be rested in a high temperature, 75° or 80° in the day, 65° or 70° at night, dry at the roots, with a free circulation of air. I am aware that the majority of garden structures will not allow of much ventilation in winter; in this respect it is necessary that they should be constructed differently, so that the air may be warmed before entering the house. It is essential in the case of large or straggling plants that they be pruned in the resting season as soon as they shed their leaves, in a judicious manner; this will greatly tend to their well-being and keep them within bounds.

You speak of Acanthaceæ being difficult to cultivate; I believe their cultivation may be rendered easy by light rich soil, moderate moisture at the roots, and a moist uniform atmosphere and a hot dry resting atmosphere, with a free circulation of air. In the case of large collections of plants I would recommend that after the large plants are properly arranged, the spaces between be filled with roots, rocks, or whatever would allow of circulation beneath; over this I would put a coating of peat and leaf-mould, and plant it with Selaginella, judiciously introducing a few Ferns.

The natural exhalations of decaying substances like peat and leaf-mould, increased as it would be by the penetrating roots of the Selaginella, would prove of vast advantage to, as I stated above, a large collection of plants, and almost compensate for that rigorous individual attention capable of being given to plants in small collections. Such are my ideas on the cultivation of tropical plants; there are plenty of clever, practical men of greater ability and longer experience than myself who could suggest greater improvements. *G. B.*

Societies.

Royal Horticultural: *July* 8 (*Show of Fine-foliaged and Variegated Plants*).—A more charming exhibition of plants remarkable for the beauty of their leaves than this was could scarcely be conceived; and gay flowering plants were also contributed in considerable numbers in the shape of variegated and zonal Pelargoniums.

In the Class of 12 Ornamental-foliaged Plants, Mr. Baines, gr. to H. L. Micholls, Esq., was 1st with the remarkably fine collection which he exhibited the other day at the Regent's Park. Messrs. Lee had a beautiful 2d group, in which were Alocasia metallica, Theophrastas, Rhopalas, Dracæna indivisa, variegated Yucca, and Pine-apple, a fine Bird's-nest Fern, Alsophila australis, Oreopanax dactylifolium, and Cordyline indivisa. Mr. Bull came 3d with a collection, in which were tall specimens of Dracæna australis and Rhopala corcovadensis, Dicksonia antarctica and other Ferns, and Sphærogyne cinnamomea, the stems of the latter covered with a thick ferruginous down. Mr. Carr, gr. to P. L. Hinds, Esq., Byfleet, received an extra prize for a collection in which were Saccharum officinarum or Sugar Cane, Cissus discolor, Sphærogyne latifolia, and Musa Cavendishi.

In the Class of 6 Plants, equal 1st prizes were given Mr. Donald, gr. to J. G. Barclay, Esq., Leyton, and Baines, the latter exhibiting his fine Sarracenias and Anæctochils, noticed in our report of the Royal Botanic Show. Mr. Donald had Alocasia metallica, the white variegated A. macrorhiza, Croton, Maranta, and Dicksonia antarctica. From Mr. Young, gr. to R. Barclay, Esq., came a large and fine Alocasia metallica, the pretty white Caladium argyrites, a Rhopala, and Dieffenbachia; and in a collection from Mr. Taylor, gr. to J. Yates, Esq., Highgate, were the Rush-like Littæa juncea, Curculigo recurvata, and Maranta zebrina.

In groups of 6 Plants (Nurserymen), Messrs. Lee were 1st with a fine Alocasia Lowii, Dracæna indivisa, Croton pictum, Latania rubra, Rhopola corcovadensis, and Cyathea Smithii; Mr. Bull furnished, among others, Araucaria gracilis.

Dracænas and Cordylines, of which collections were shown, consisted chiefly of D. terminalis, ferrea, Draco, rubra, australis, stricta, arborea, Cooperi, heliconifolia, and Veitchii. The Cordylines were confined principally to indivisa, of which there were many charming examples.

Of Palms, Mr. Bull exhibited a collection, conspicuous in which were Euterpe edulis, Seaforthia elegans Brahea dulcis, and the Date Palm. Fine specimens of Cycas revoluta were exhibited by Mr. Taylor, who also had a gigantic Sabal Blackburniana; and Mr. Young had the Date Palm, Chamærops chinensis, and a large plant of Thrinax elegans.

Caladiums, consisting of Chantinii, Wightii, pœcile, bicolor splendens, Schmitzii, argyrites, Belleymei, and Lowii, came from Mr. Carr, Mr. Young, and Messrs. Lee. A collection of 12 hardy variegated plants was contributed by Mr. Salter, in which were variegated Sedum Sieboldii, Japanese Honeysuckle, Ivies, Coltsfoot, Fortune's Bamboo, Jasmine, Sedum Telephium, and others. Mr. Bull furnished Aucubas, Eurya, Euonymus, and his variegated Chrysanthemum and Verbena.

Zonale and other Pelargoniums came from Mr. Fraser, who had good plants of Herald of Spring, Clipper, Roi d'Italie, Amiral Protet, Malakoff, and L'Abbé Kensi, scarlet; Rendatler, Eugénie Mezard, Souvenir de Nancy, and Henri Etienne, different shades of salmon; Virgo Marie, white; and Rose Rendatler. From Mr. Salter came Amelina Griseau, a fine large white with a conspicuous salmon eye; Mdlle. Marie Mézard, white; Germania, orange scarlet; and Beauté de Suresnes, deep rose. In the Amateurs' Class, Mr. Ward, gr. to W. G. Wilkins, Esq., Leyton, was 1st; Mr. Hawes, gr. to J. Noble, Esq., Finchley, 2d. Among variegated varieties, Mrs. Pollock, Glowworm, and Sunset were the best of the tricolor-leaved sorts; Alma, Mountain of Snow, and some others of the white-variegated kinds were also exhibited in good bloom. Nosegays came from Mr. Salter. Among nurserymen, Mr. Fraser and Mr. Hally were 1st and 2d; and Mr. Ward was 1st in the Amateurs' Class.

Among Miscellaneous subjects, Messrs. Lee exhibited good collections of Heaths, Orchids, Ferns, Ixoras, and Statices; Mr. W. Paul and Mr. Clarke, boxes of Roses, the former also showing Beaton's beautiful Nosegay Pelargoniums; Messrs. Downie Laird & Laing contributed beautiful cut blooms of Hollyhock; Mr. Salter, hardy Ferns; Mr. Bartlett, Hammersmith, very fine pans of Adiantum cuneatum; Mr. Bull, the new Radish (Raphanus caudatus), noticed at the last Royal Botanic exhibition; Mr. Thompson, Ipswich, Trichinium Manglesii; Mr. Catleugh, Chelsea, Lilium auratum; Mr. Hooper, Bath, Carnations and Picotees; and Mr. Taylor, Highgate, the singular large woolly cone-like fructification of Dion edule. Among New Fuchsias of 1865 Messrs. E. G. Henderson had Father Ignatius, Enoch Arden, Roderick Dhu, and War Eagle, all with violet purple corollas and reflexed scarlet sepals; Light Heart, with a blackish purple corolla; and Rose of Denmark and Lucy Mills, light kinds. A rose-coloured bedding Verbena called Ariel, and a pink-coloured Stella Pelargonium also came from the same firm.

Fruit was represented by a good Queen Pine from Mr. Ford, gr. to W. Hubbard, Esq., and three dishes of Black Currants, one kind being a seedling which is said to hang a month later than any other sort. From the Society's garden came a collection of 40 sorts of Gooseberries, most of which have already been described in our columns (see p. 795, 1864).

Miss Smith, Tooting, exhibited some beautifully-executed artificial flowers, and Mr. Lowe, Maida Hill, a neatly-filled plant case. A fine plant of Barnes' variety of Phænocoma prolifera came from Mr. Baines, and a variegated Aloe-leaved Yucca from Mr. Bull. These last were shown as single specimens.

July 10 (*House Gardening*).—This was an exhibition of plants belonging to the working classes of London, 10 or 11 parishes of which competed. The arrangements in each parish were under the superintendence of a local committee, through which the exhibitors communicated with the Society, and the result was an extremely interesting Show of plants, filling not only one side of the Conservatory, but also a large portion of the western arcade. St. George's, Bloomsbury, one of the competing parishes, stood in the first rank; but fair specimens of London window gardening also came from All Saints, Mile End New Town; Trinity, Marylebone; St. James's, Ratcliff; St. Margaret's, Westminster; Christ Church, St. George's in the East; Chelsea; St. Bride's; Brill Market, St. Pancras; Curzon District; St. John's, Notting Hill; and All Souls; and even the workhouses of St. James's and St. George's in the East added their Pelargoniums, Fuchsias, Mignonette, or Nasturtiums to this great working-class plant demonstration. The exhibitors were classed as follows, viz., Parents and Adults, Children who Attend any School, and Domestic Servants. Three prizes of the respective value of 10*s.*, 5*s.*, and 2*s.* 6*d.*, were awarded in each of these classes in all the competing parishes for Pelargoniums, Fuchsias, and Annuals, which were therefore the kind of plants of which the Exhibition chiefly consisted. We however also noticed specimens of the well-known "Nettle Geranium," Myrtle, Creeping Jenny (Lysimachia Nummularia), and Musk. Annuals were for the most past confined to French Marigolds, Nasturtiums, and Mignonette. Of Dahlias in pots, for which a special prize was offered, we remarked one or two plants with three or four blooms on them; and there were also one or two Roses in pots shown. A "device" consisting of a villa residence with boundary wall, entrance gate, and garden in front was contributed from Coram Place; and although the plantations of Pelargoniums with which it was decorated were higher than the house, and blue Lobelias overtopped the fence, it nevertheless seemed to be a subject of considerable interest. Others similarly planted contained no residence. Viewed as a beginning from which better results may yearly be expected, this exhibition did credit to all concerned in getting it up; and the Society also deserves the warmest thanks of all who take an interest in improving the working classes for allowing it to be held in its at present gay garden at South Kensington. At 5 o'clock the Bishop of London, assisted by Lord Dynevor, distributed the prizes to the different exhibitors to whom they were awarded, a ceremony which was honoured by the presence of her Majesty the Queen of the Netherlands, who seemed to pay great attention to the proceedings. The Bishop moreover gave an appropriate address on the occasion. He said that it might appear to be a very slight matter to encourage the growing of flowers, but it was attended with great results. It was of much importance to accustom people to cultivate their tastes and to make their town homes approach the more radiant appearance of those in the country. They were told in the words of Lord Bacon that—

"God made the country,
And man the town."

In the Bible it was written that the earliest condition of man's race was in a garden, and lastly that man lived in cities. The latter should therefore be made as attractive as possible; it was not intended that the houses of the poor should present anything squalid or unpromising, but that that class should be encouraged to pay more regard to the duties of home life. They could not enjoy the luxuries of the rich, but they could enjoy their little gardens—the gardens which belonged to the world, and which the world enjoyed, and this would not only be cheering but ennobling. He was not speaking of the time which would be saved from the ale-house, but men would be freed from such temptation, and they would find a blessing in their homes. Luxuries were made to be enjoyed, and the cultivation of flowers would make the poor man's home one of happiness. The poor man's home should be lighted up with good and pure Christian feeling, which the rich would do well to foster. In the cultivation of flowers children grew to advantage, their tastes were developed, and great social advantages were thereby obtained. It would be well that both rich and poor should cement one common sympathy and common regard for each other's welfare. Some few years ago it was said to be impossible to grow flowers in the smoke of London, but flower culture has been developed, year by year, and would no doubt be continued. We should see, it was said, flowers raised some day just as they might be seen in the country. Although the interest taken in this movement might appear a small matter, still it was not so, for as already stated it led to something greater.

July 11 (*Fortnightly Meeting*).—The Rev. Mr. Dix, after reading over the prize list, remarked that the different bedding plants at Chiswick were now well worth inspecting, especially Mr. Bull's collection. The Larkspurs and Poppies alone, he added, would well repay a visit. The Rev. Mr. Berkeley read a translation of a paper published in the Comptes Rendus on the Vines of France, having especial reference to the effect of cross-breeding. A letter from Mr. F. P. Moore was read, in which he stated that about seven or eight years ago he had bought some raisins with which to make wine; he boiled them and pressed them, and threw the residue away. From the latter however plants had sprung up, some of which were potted, and are now bearing fruit. Mr. Berkeley related a similar instance, which happened with himself; but in his case the marc was not boiled but treated with boiling water. Nevertheless thousands of the seeds had germinated. He next adverted to a double-blossomed Geranium sylvaticum, which was shown by Messrs. Osborn, and to a Nosegay Pelargonium called General Grant, a gay crimson-scarlet kind from Mr. Reid, of Sydenham. The latter was stated to be a cross between a zonale variety and some Cape species. Referring to Cut Roses, fine specimens of which were shown by Mr. Wm. Paul, Mr. Berkeley stated that one, a seedling from Louise Peyronny, was worthy of notice, being an exquisite rosy peach, a shade deeper in colour than its parent, but not so large. This was named Elizabeth Vigneron. The others were Dr. Lindley, crimson scarlet; and Madame Emile Boyau, a valuable light blush Hybrid Perpetual. A plant in fruit of Podophyllum Emodi was shown by Messrs. Osborn. Mr. Short, who had charge of it, said that he had been acquainted with this species of Podophyllum for upwards of 20 years, and that during these last 10 years he had paid particular attention to it; he had never, however, been able to fruit it until now. The fruit is of the same colour, but considerably larger than that of a Victoria Plum. This plant, said Mr. Short, is very difficult to propagate, on account of its great reluctance to mutilation or interference of any kind, a circumstance attributable perhaps to the roots being long and fibreless. If these, he said, are once injured, even ever so slightly, it takes a long time to bring the plant again into a healthy state. As regards fertilisation, if that is not done within two hours after the expansion of the flowers there will be no chance of fruit. Mr. Berkeley stated, that in its native country it is called Wild Lemon, on account of the bitterness or acidity which belongs to the fruit. The latter on being tasted on this occasion, however, proved to be insipid. It is related to the May Apple or Podophyllum peltatum, which yields

a medicine now in great repute in America, and lately introduced to the pharmacy of this country. Concerning the Castle Kennedy Fig, specimens of which have often been exhibited, Mr. Berkeley remarked that not only that but many other valuable fruits were doubtless still to be found in old Scotch gardens, that are not at all known in the south of England. This he attributed to the ancient Scotch having frequent opportunities of introducing them from France and Flanders. He instanced some fine varieties of Gean trees growing on the Marquis of Huntley's estate in Aberdeenshire, several of which he said had acquired the size of ordinary Oaks. These he was certain were not indigenous to the country, but imported. He next alluded to a Puffball shown at the last meeting. Most people were prejudiced against Fungi, but this in a young fresh state, he said, was an extremely good esculent, and in Italy, where it grows abundantly, it is preserved in cellars and eaten largely. It is the Lycoperdon Bovista of botanists, and possessing as it does properties similar to those of chloroform, it is frequently used in this country for stupefying bees. Mr. Wilson Saunders then directed attention to what he said are by some called an ugly class of plants, viz, the Dorstenias. They were nevertheless invested with considerable interest. They had deep green, sometimes singularly cut leaves, and their fruit was of the same nature, as far as fructification is concerned, as that of the Fig, to which they are near relatives. Of these he had one or two rare species. They possess active medicinal qualities; one he said was used as an antidote against bites of serpents; but it must be in a fresh condition, otherwise its curative powers are lost. Blooms of Bignonia Cherere, a valuable conservatory climber, from Mr. Fleming, of Cliveden, were next alluded to in terms of commendation.

July 11 (*Floral Committee*).—Mr. Bull showed handsome plants of Dicksonia antarctica and cinnamomea. From Messrs. Downie Laird & Laing came beautiful blooms of Hollyhocks. The Invincible Scarlet Sweet Pea, a very fragrant highly-coloured kind, was shown by Mr. Brown, of Sudbury. Mr. Ansell, of Kentish Town, furnished cut blooms of Antirrhinums; and various beautiful Orchids were shown by Mr. Stone, gr. to J. Day, Esq., of Tottenham. Foremost among these was the rare yellow and reddish-brown blossomed Eriopsis named E. rutidobulbon, a native of New Grenada, and associated with it were Bolbophyllum psittacoglossum and Cypripedium Stonei, both fine plants. From the gardens of the Society came a Brasavola in the way of nodosa, but evidently different and perhaps an undescribed species. Mr. Bull had, in addition to the two Ferns mentioned above, the pretty dwarf Phegopteris sancta, an Aspidium from Para, and Stauranthera grandiflora, with lilac blossoms stained in the throat with yellow. Mr. Thompson, of Ipswich, again showed the lovely Trichinium Manglesii. Mr. Williams had Anæctochilus Turneri, with dark-coloured leaves charmingly covered with a rich network of pale coppery rose veins; a new Gleichenia, Lilium auratum, and a black-spotted yellow Japanese kind. From Mr. Fleming came a very fine Nosegay Pelargonium named Lady Constance, a beautiful scarlet sort, with well-marked horseshoe leaves. Dowager Duchess of Sutherland, another rosy-crimson Nosegay Pelargonium, was also shown by the same exhibitor. Both are charming kinds for flower-garden purposes.

July 11 (*Fruit Committee*).—Messrs. Cutbush showed specimens of their new Raspberry Princess Alice, which, although a very early sort, was stated to be inferior in flavour to that of its parent, the Prince of Wales. A seedling Strawberry was also shown, but it was over ripe, and was invited again next season. Some Peas and Potatos were produced; but as no cards were attached to them, we could not ascertain from whom they came.

The following candidates were elected Fellows, viz., Lieut.-General W. Cotton; H. W. Bent, Esq.; Mrs. Hazelwood; H. Whiting, Esq.; Mrs. Buchan, and F. M. Williams, Esq., M.P.

United Horticultural: *July* 12.—Another exhibition held under the auspices of this Society took place in Finsbury Circus, and was all that could be desired as far as fine weather and gay plants were concerned. Cut Roses in beautiful condition were furnished in large quantities by Messrs. Paul & Son and Mr. Turner; the last-named exhibitor. Messrs. Downie Laird & Laing, and Mr. Crute, also contributed fine examples of cut Hollyhocks, and a large collection of beautiful Balsams and zonale Pelargoniums was shown by Messrs. Smith, of Dulwich. From Mr. Holland came cut Roses and hardy Ferns; and Mr. Vockins had cut Roses, Gloxinias, and a boxful of beautiful cut blooms of Verbenas. Mr. Aldred, Kilburn, had a collection of variegated Pelargoniums. A boxful of Sweet Williams was shown by Mr. Wiltshire, of Beaconsfield. From Messrs. Low came Tree Ferns, of which they possess some magnificent specimens, and a pretty Cape Heath called exquisita. Mr. Wilson, gr. to Wm. Marshall, Esq., contributed fine-foliaged plants, beautiful exotic and hardy Ferns, and Orchids from his admirable collection at Enfield; and Orchids and Ferns also came from Mr. Baker, gr. to A. Bassett, Esq., of Stamford Hill. Mr. Rhodes had some finely grown Heaths and other plants; collections of which also came from Mr. Wheeler, gr. to J. Philpott, Esq.; Mr. Chilman, gr. to Mrs. Smith, of Ashstead Park; and Mr. Page, gr. to W. Leaf, Esq., of Streatham. Ferns, noble-looking Dracænas, variegated Pelargoniums, and other plants were contributed by Mr. Williams, of Holloway; groups of Kalosanthes, Fuchsias, &c., from Mr. Fraser; and Fuchsias, Nosegay Pelargoniums, and Calceolarias were shown by Mr. Geo. Smith, of Hornsey. One or two Cannas came from Mr. Prestoe, and handsomely-flowered plants of Lilium auratum were shown by Messrs. Carter, of Holborn. Mr. Forsyth had the beautiful Calceolaria aurea floribunda. Mr. Buxton, of Wandsworth Road, had a basketful of Mrs. Pollock and Sunset Pelargoniums, edged with blue Lobelia; and some handsomely made up bouquets were furnished by Mr. Rhodes. Hollyhocks were exhibited by Mr. Mortimer, gr. to A. Smee, Esq.; and Mr. Porter, gr. to the Hon. J. Ashley, Epping, had a collection of Pansies. Among Fruit were dishes of Nectarines, Peaches, and Strawberries, from Mr. Tillery, gr. to the Duke of Portland, at Welbeck. Mr. Young, gr. to W. H. Stone, Esq., had two Pine-apples and two dishes of Nectarines. Good Black Hamburgh Grapes were shown by Mr. Lewis, of Stamford Hill. Mr. Newton, gr. to G. J. Graham, Esq., Enfield Chase, sent a beautiful collection of fruit, as did also Mr. Mortimer, gr. to A. Smee, Esq. From Messrs. Lane & Son were fruit trees in pots, loaded with ripe produce. Finally we noticed some well-grown Cucumbers from Mr. Porter, Mr. Fry of Lee, and Mr. Vockins.

Linnean: *May* 24 (*Anniversary*).—G. Bentham, President, in the chair. The auditors reported that the receipts during the year, including balance at last anniversary, had been 1780*l.* 7*s.* 7*d.*, and the expenditure during the same period 1365*l.*, of which 958*l.* 10*s.* 3*d.* had been expended on the Society's publications. The Secretary reported that since the last anniversary the Society had lost by death nine Fellows and one Foreign Member, and five Fellows by withdrawal, and that 19 new Fellows had been elected. At the ballot which ensued Dr. Baird, R. Heward, Esq., Dr. Masters, H. T. Stainton, Esq., and Dr. Thomson were removed from the Council, and in their place the following were elected:—Rev. Hamlet Clark, Dr. Hogg, A. Newton, Esq., J. T. B. Syme, Esq., and Dr. Vinen. The following officers were re-elected, namely, G. Bentham, Esq., President; W. W. Saunders, Esq., Treasurer; G. Busk, Esq, and F. Currey, Esq., Secretaries.

June 1.—G. Bentham, Esq., President, in the chair. The President nominated as Vice-Presidents for the ensuing year, J. J. Bennett, Esq., Dr. J. D. Hooker, J. Lubbock, Esq., and W. Wilson Saunders, Esq. W. T. M. D'Urban, Esq., was elected a Fellow. The following papers were read:—1. *Remarks on the best methods of displaying Entozoa in Museums*; and 2, *On Animal Individuality*: both by Dr. Cobbold.——3. *Contributions towards a Monograph of the species of Annelides belonging to the Aphroditacea.* By Dr. Baird.——4. *Synopsis of the Diptera of the Eastern Archipelago discovered by Mr. Wallace.* By F. Walker, Esq.

June 15.—G. Bentham, Esq., President, in the chair. J. S. Baly, Esq., and the Rev. W. Colenso, M.A., were elected Fellows. Mr. Syme exhibited a living plant of Cephalanthera rubra, found in Beech woods in Gloucestershire, and Mr. Redhead a living plant of Cystopteris crenata, from Norway. The following papers were read:—1. *Descriptions of* 52 *new species of Phasmidæ, from the collection of Mr. Saunders.* By H. W. Bates.——2. *On two new Tropical African Genera of Anonaceæ.* By Prof. Oliver.——3. *Notes on a Collection of Algæ, procured in Cumberland Sound by Mr. J. Taylor, and remarks on Arctic species in general.* By Dr. Dickie.——4. *Supplementary Observations on the Sphæriæ of the Hookerian Herbarium.* By F. Currey, Esq.——5. *On the Asymmetry of the Pleuronectidæ, as elucidated by an examination of the skeleton in the Turbot, Halibut, and Plaice.* By Dr. Traquaire; communicated by Prof. Huxley.

Notices of Books.

A Treatise on the Construction, Proper Use and Capabilities of Smith Beck & Beck's Achromatic Microscopes. By Richard Beck. 8vo. London: Van Voorst. 1865, pp. viii., and 144, tab. xxviii.

The object of this work, which may be considered partly as a trade catalogue, and partly as a very useful and instructive treatise, is as the Author states in his Introduction, "to give, by a clear and concise description, combined with superior illustrations, the most complete directions for the use of Smith Beck & Beck's achromatic microscopes and the accessory apparatus." The student must not, however, suppose that the whole of the very expensive appliances are necessary for the investigation of delicate tissues. An object glass of one-fifth, will, if properly managed, show him almost everything he wants; the loss of light with higher powers being seldom compensated by increased apparent magnitude, and the size of spores and tissues varies so much that an approximation as regards accurate measurement will be quite sufficient for his purpose. The case is, however, very different for the mere microscopist, who without any very definite scientific object in view, really stands in need of every possible assistance in the comparative examination of test objects, or of the respective powers of instruments of different construction, while advanced inquirers in Biology will be glad of every accession of microscopic power in the investigation of the obscure organic forms which are the first indications of living beings. The young possessor indeed of an achromatic microscope will find many little hints in this treatise which will be of great assistance to him in his studies.

For example, the different views of the Podura scale, which is one of the most useful test objects, will be extremely useful, as they show what very different appearances the same object may assume under different circumstances. Six views are given, the first of which represents the structure when the adjustment of the object glass is correct and the object in focus. Four of the remaining figures represent either the appearance when the adjustment is still correct, but the object a very little within or beyond the focus; that when the adjustment is incorrect under similar conditions; or in the third place that which is presented when the object is in focus but the adjustment incorrect. The sixth figure is of less importance, giving the appearance when all the adjustments are correct, but when the focus is altered the least possible amount either way.

The student with a new microscope will at once be able to judge of its condition with this plate in hand, as the object is one which is procurable with the greatest facility.

There are excellent representations of other vegetable or animal subjects, as of the Diatoms, Pleurosigma quadratum, Navicula rhomboides, Pleurosigma formosum, of Coniferous wood, of the scales of Lepisma saccharinum, and of the upper extremity of Demodex folliculorum.

There are moreover two most exquisite plates, one of which represents a Diatom, Arachnoidiscus japonicus, to which attention was first drawn by Mr. Deane, of Clapham, who found it in considerable abundance on some seaweed used in Japan for soups, and which has been found by Dr. Harvey on some marine plants from the Mauritius, from which locality the specimens were derived which have afforded materials for the figure. The other, which is intended to show the effect of dark field illumination, is devoted to some Polycystina found in an extensive fossil deposit in the island of Barbados. Of the true character of these beautiful microscopic objects, which are either closely allied to Foraminifera or possibly are derived from sponges, little is known, but as our author remarks, "this does not detract from their remarkable beauty as microscopic objects, nor from their value as illustrating the advantages of a peculiar illumination, for which purpose they are introduced."

There is still a plate to which we must advert, as it shows how illumination from above may be employed in the determination of superficial structure, the three figures of Podura scale showing the change of appearance in the markings when placed in different direction to the light.

On the same plate is a figure of a simple splinter of Coniferous wood, the account of which shall be given in the author's own words. "The ordinary lucifer matches are mostly made of Deal or Pine, and the most beautiful specimens are easily obtained from them. Small fractured pieces of woody tissue are much superior to any sections, and in the present instance the shape of the longitudinal tubes, the form and arrangement of the circular disks or glands, together with the transverse medullary rays, form as a whole, and when under the binocular microscope, one of the most beautiful and instructive objects. It is impossible to represent their true appearance in a drawing, but we are fairly entitled to ask for a comparison between this and previous illustrations of the same subject."

Beautiful, however, as the drawing is, the student would not do well to rest satisfied with a mere superficial view. Sections are absolutely necessary to show him the real structure, and his success as an observer of minute tissues will depend very greatly upon his skill in the manipulation of really useful sections.

There are many other matters to which we might call attention, as for example, the details about polarisation, which are of extreme interest. We must, however, content ourselves with giving a caution with respect to the use of high object-glasses. A very slight blow is sufficient to render them totally useless. Too much care, indeed, cannot be taken in changing the object-glasses, as if they should chance to slip from the screw upon the stage ever so small a distance their condition is almost sure to be altered, as will be seen at once by the appearance of prismatic colours on the flat surface, arising, we believe, from the derangement of the Canada Balsam with which the lenses are combined, even if the lenses, which are extremely brittle, are not themselves fractured. The achromatic microscope should never be intrusted to unskilful hands, as a too rapid turn of the depressing screw upon the stage may render the object-glass perfectly useless, as we have more than once known unhappily by experience.

The most important addition which Messrs. Smith & Beck have lately made to their microscopes is that of object-glasses of 1-20th of an inch. "This high power is constructed for the examination of those objects which require the greatest amount of amplification, but not that extreme angle of aperture which involves the employment of the very thinnest glass and the most careful preparation of the object. The 1-20th will adjust through any covering glass not more than

·005 inch thick, and when in focus there is sufficient space between the front lens and the object to admit of its use in the examination of ordinary preparations. Under these circumstances it can be employed with the same facility as an object-glass of half the power. In Plate XXIV. are illustrations of two objects from the animal and vegetable kingdoms, shown as they appear under a 1-20th, with the No. 1 eye-piece, the linear magnifying power being about 900 linear. Fig. 1 is the under side of the head and thorax of the Demodex folliculorum, a minute parasite infesting the sebaceous and hair follicles of the human skin."

The remaining figures represent the sting of the common Nettle. "It appears at first sight somewhat surprising that these hairs, which are known to enter the human skin with so slight a touch, should have a blunt bulbous extremity; but this is the very provision for the peculiar effect they produce. When any slight pressure is brought upon the extremity of the hair, the bulbous part breaks off, leaving an exceedingly sharp cutting point admirably adapted for entering the skin, at the same time making an aperture at the extremity of the hair, from which the contents of the cell escape and enter the puncture."

Messrs. Powell and Lealand however have constructed a microscopic object-glass with 1-50th of an inch focus, of which an account will be be found in the "Reader," 4th March, 1865. Dr. Beale states that it defines well. "The light for illuminating the objects to be examined is obtained by the use of a condenser provided with a thin cap having an opening not more than 1-30th of an inch in diameter, and when the object is covered with the thinnest glass made by Messrs. Chance, of Birmingham, or mica, there is plenty of room for focussing to the lower surface of thin specimens, which can alone be examined by high powers as transparent objects. Particles too small to be discerned by a sixteenth are well seen by a twenty-fifth or fiftieth, and Dr. Beale suggests that the further careful study, by the aid of these high powers, of the development and increase of some of the lowest organisms, and the movements which have been seen to concur in connection with certain forms of living matter (Amœba, white blood-corpuscles, young epithelial cells, &c.) will lead to most valuable results bearing much upon debated questions of vital action."

It is in this direction that such high powers are likely to be useful, and not for the examination of objects which are not either extremely minute, or which admit of being very finely divided. Indeed, in Dr. Child's investigations respecting the Production of Organisms in Closed Vessels, read before the Royal Society on the 27th of April, it is expressly stated that Powell and Lealand's 1-50th has already shown something like an appearance of structure in these minute objects which leaves, he thinks, no doubt as to their organic character. They are, however, by no means calculated for beginners, or, indeed, for any but very advanced observers, whatever their advantages may be in the hands of experts.

The Secrets of Angling. By A. S. Moffat. Pp. 321. 8vo. Adam & Charles Black, Edinburgh. 1865.

There can be little doubt that the lovers of the gentle art will consider this a valuable and thoroughly practical book. It is written by a gentleman who is enthusiastic in his admiration of the sport, and issues forth, rod in hand, on a fine April morning, "serenely happy," full of hope and expectation. But better still he is remarkably skilful as a fisherman, and is quite willing to impart to his brethren of the rod the secrets of angling, which he believes have contributed so much to his own success.

Allowing that it might be possible to capture an occasional fish, unacquainted with the usages of civilised life, in the waters of some outlandish stream, with a line of yarn or packthread tied to a broom stick, Mr. Moffat would have every operation performed systematically and well, with its proper implement—for he says:—"I do not call that sport in any acceptation of the term which is conducted in a slovenly manner or with inappropriate tackle. Neither do I choose to follow the example of those who are in the habit of dispensing with every knick-knack appendage which is not absolutely necessary, and are constantly compelled to resort to the most clumsy and awkward methods of accomplishing what might otherwise be done with neatness and ease."

Accordingly he devotes the first chapter to a description of fishing apparatus, of which he gives several woodcut illustrations, and a list of the fisherman's requisites, in the way of costume and tackle for each kind of sport.

He next states the general characters of trout, and as a careful observer gives his opinion as to "how trout spend Christmas," and the like.

"Bobbing for eels," as practised in the Tweed, which is certainly a singular sport, is thus described. "Taking a moderate-sized stocking-needle, with about a yard of worsted yarn, he proceeded to thread a quantity of worms upon it, by drawing the needle and worsted right through their bodies from head to tail and sliding them close upon each other, until the latter was converted into a complete string of worms; he then doubled it up into five or six loops, and tied it in the centre to a piece of whipcord about three feet long, but which as a rule must always be of sufficient length merely to reach to the bottom of the stream intended to be fished, and no more; the other end of the cord must be attached to a short stout stick. These animated loops, very much resembling the hair of Cerberus, hang like fingers from the cord." The boat was moored broadside to the stream, the gunwale brought within two or three inches of the water, and three or four sets of the singular tackle dropped into the stream, allowing the worms to rest on the bottom. Willie said it would take a quarter of an hour for the eels below to feel the smell of the worms, and make their way up the stream, and sure enough in about that space of time "we were literally beset by legions, which seemed to congregate from all parts of the water, and kept up an incessant tugging and tearing at the worms, like a pack of hungry hounds at a carcase." When the eel has had time to gorge the worm and a portion of the worsted, the apparatus is quickly hauled up into the boat, and the fish, unwilling to relinquish his supper, drops off, and wriggles about till he gets his *quietus*. This sport can only be pursued on a dark night, and suggests the question, "Can fish smell?" which Mr. Moffat unhesitatingly answers in the affirmative, first, because these eels could not be made aware of the presence of the worms by any other sense in the darkness of the night; and secondly, because the commotion among the eels down stream, caused by pouring blood into it, cannot be accounted for in any other way; and the truth of this is corroborated in a variety of ways.

Our piscatory friends agree with us in thinking that there is much good sense in the following remarks upon the proper flies for each season:—

"Many accomplished anglers, and authors as well, are under the impression that on every river certain peculiar flies will be more alluring to trout all the season through than any others that can be offered them; and this mistaken notion is most prevalent with southern sportsmen, where the rivers are ill-adapted to fly-fishing, and where that mode of fishing is but seldom followed and little understood. As a case in point, in 'Fly-fishing, by Ephemera,' not one of the flies in his list, with but one solitary exception, the dark dun, has the slightest resemblance to any aquatic insect that God ever created; nor, in the clear oft-fished waters of the North would they have even an ephemeral chance of filling a basket at any season of the year. My own opinion, derived from long experience and a close attention to the matter, most decidedly compels me to arrive at the conclusion that unless the artificial flies resemble as closely their natural prototypes frequenting the waters at the season fished in, as the art of the dresser can make them, the angler may as well remain at home and whip for imaginary whales in his wash-hand basin. Some sportsmen, however, argue that trout will seize with avidity anything resembling an insect moving through the water, regardless of its shape and colour; and that the artificial representative of one fly is quite as good as another for trout."

"It is true that in some bleak mountainous parts of Scotland, where insect life is rare, the unsophisticated natives will occasionally try to gratify their powerful instinct for insect food by hazarding a snatch at anything having a resemblance of insect life, however slight. But try such nondescript libels upon Nature's handiwork as are often recommended, and "Long Tom," "The Grizzly King," or "Green Mantle," will produce among the fish no other emotions but fear, surprise, or disgust at the grotesque and monstrous lusus naturæ.

"If the trout, as some assert, seize indiscriminately anything that bears a resemblance to an insect in motion through the water, how comes it that perhaps one particular fly upon the cast of a certain colour, will take nearly every fish that is caught during a whole day's fishing, while the others, equally well dressed, and equally resembling living insects, will scarcely take one? a fact patent to every experienced fly-fisher."

Again, "the sportsman often tries in vain the most beautiful flies, while the fish keep the water all around him in a boil, by their risings at the natural fly. He tries one of the living insects, upon which the trout are feeding voraciously, and in an hour or two his creel is filled. He may depend upon it that no artificial fly, unless it closely resembles the natural insect frequenting the waters at the season fished in, will ever be successful." "It no doubt may appear strange that the same identical fly, which had so fine a flavour at 2 o'clock in the afternoon as to excite the appetite of every fish in the water, and make every piscine mouth water for a taste of it, should not be equally palatable at 10 o'clock in the morning." Yet so it is. "As a general rule, I would say, the fly-fisher will almost invariably find that those flies which have last appeared upon the water, especially a day or two after their first *début*, will be in the greatest request amongst the fish, while the previous favourites will comparatively be disregarded."

We think the above remarks will convince the judicious reader that Mr. Moffat deserves the success which he has met with, and that in all these matters the chief element of success is to study Nature by the light of common sense. We cannot go into the comparative merits of bluebottles, grasshoppers, and beetles, for use as dipping baits, nor into the advantages of scouring worms and other interesting matters. We may however conclude our notice by saying, that Mr. Moffat furnishes a short description of the principal Border rivers, from the Tyne to the Whiteadder, and states the result of his experience of the particular sport which each may be expected to afford.

He very properly finishes his work, by giving a few lessons on the art of preparing freshly caught salmon for the table, so as to have the curd crisp and firm, and the fish in perfection, instead of being oily and flabby, as will generally be the case after it has undergone the shaking of transit, and the ceremony of lying in state at the fishmonger's shop. There is also a recipe for preserving trout, if they chance to be caught in too great abundance. and for potting the fish in such a manner that it will keep good any time.

Florists' Flowers.

Carnations and Picotees (*Continued from p. 631*).—By following the directions already given, the plants should by the middle of March be in fine condition for shifting into their blooming pots, and should be placed in them at once. If the directions given respecting the compost have been attended to, a fine heap of soil will be in readiness. The pots generally used are 16's (9-inch), and 12's (11-inch), placing two plants in a 16-pot, and three plants in a 12-pot. Press the soil tolerably firm in the pots, and stand them on beds where the sun and air has full access, using coal ashes to stand them on, so as to prevent worms getting in. Cover at night by turning a pot of the same size over that containing the plants, taking it off in the morning unless very cold or wet, when it must be tilted, to allow light and air to reach the plants. This nightly covering should be continued until the middle of April. The cultivator must, however, be guided by the weather, and if frosty nights continue, the covering must also be continued until they have passed.

With careful watering (rain water only, or water exposed 12 hours at least to the influence of the sun and air, being used), by the second week in June the plants will become stout and well established, and will be benefited by having the surface of the soil in the pots stirred up and cleaned, top-dressing with a little of the same kind of compost as that used for potting. The next operation will be staking the flower-stems as they show themselves, not allowing more than three to each plant if intended for exhibition; each stem will carry two or three flowers according to the variety; this must be learnt by experience. When the buds are fairly formed, use weak manure water once a week, only remember it must be weak; this will tend to strengthen the plant, and assist to increase the size of the flowers. The most exciting time will now be at hand, and the buds will require careful watching that they do not burst and disfigure the bloom. By bursting is meant the splitting of the pod or calyx from top to bottom on one side only. To prevent this, a small band of matting, worsted, or india-rubber is placed around the pod, splitting it evenly down to the band, which allows the petals to open regularly. As the flowers open, if required for exhibition a circular card cut in the centre in a star-like manner, is placed under the petals, to keep them in position and prevent their falling down; the diameter of the card should be about 3 inches.

Shading will be required not only against the rays of the sun but also against heavy rains. Canvas, such as is used for cheese cloths, is the best material for shading. Cultivators used formerly to stage their pots and have a tent over them open at all sides. The tent is just what is required, being made so as to be used for the Tulip bed, where these are grown, and then to come in for Carnations and Picotees. I do not like the stage, as being made of strips of wood, the air has full play under the pots, and dries the roots that always congregate amongst the drainage, and thus materially injures the plants. There is nothing like a cold bottom and coal ashes to stand the pots on. The bed may, however, be raised so as to bring the flowers nearer the eye, this being the object of the stage.

The insects troublesome to the cultivator that require careful watching are the wireworm, greenfly, earwig, and green maggot. To destroy the first remember the hints given before, to expose the soil in winter to the action of the frost, and use every exertion to destroy them; but to be safe cut some pieces of Carrots or Potatos, and bury them just under the soil when the final shift is given, and look over them every morning and destroy any worms that may be trapped. The second (greenfly) will appear in the hearts of the plants, frequently early in spring. A little Scotch snuff dropped into the hearts will destroy them at once, or if they attack them when throwing up their flower stems, remove into a house or shed and fumigate with tobacco. The third must be caught and carefully destroyed, as they eat not only the hearts of the plants but the young tender flower-buds, and continue to feed upon them until fully expanded, and it is vexing to see four or five beautiful petals destroyed in one night; pieces of Bean-stalk or anything hollow, or even a small flower-pot with a bit of Moss, will be the best traps to catch them, looking over these every morning and destroying them. The last appearing only in spring and summer must be carefully looked for, as one maggot will make sad havoc in a few hours, bringing to an end all hopes and expectations as to any flowers it attacks, and trying whether the grower is a florist at heart, and has

patience and energy sufficient to conquer the obstacles to the pursuit of floriculture.

Thus far I have been writing only, perhaps, for the cultivator of the choicest kinds, and such as every one cannot afford or find time to pay attention to. For such as delight to have a Carnation, Picotee, or Clove to place in their bouquet or button hole, the common kinds and such as can be raised from seed will suffice. Very pretty varieties can now be obtained from seed, the principal portion of which is saved in the neighbourhood of Nice. To raise these the seed should be sown in pots some time in May, in a nice compost such as would be used for Pelargoniums, and about the middle of August the seedlings should be planted into beds in rows 1 foot apart each way, or in bunches in the borders, taking out the soil 2 feet deep, and adding some fresh loam and manure. If severe weather occurs in winter, a 5 or 6-inch flower-pot placed over each as a protection, allowing it to remain a day or two after a thaw has taken place, will be the only attention they will require, excepting to look out for slugs and snails, both of which are very fond of all the Dianthus family, and especially treat Carnations, &c., as a delicacy; destroy, therefore, all you can find in the vicinity of the plants. Early in March see that the plants are pressed firmly in the soil, as they are liable to be drawn out of the ground by action of frost; top-dress with rotten manure some time in May, and thin the flower spikes and buds according to the strength of the plant, if fine blooms are desired. If quantity is required, thinning, of course, will be out of the question. When in bloom mark any varieties which it may seem desirable to propagate, and layer them in July as noted in the cultivation for pots. All the Dianthus family deteriorate in quality if not propagated every season, and the young plants grown on for next year, in fact treated as biennials. The old Clove will require exactly the same treatment, if it is to be seen in perfection.

Staking the flower spikes and watering in dry weather, using weak manure water twice a week, and also sprinkling overhead with clean water through a fine rose, will be found advantageous to the health of the plants and improve the size of the flowers. *W. H.*

The Apiary.

"I will feel much obliged," says a Correspondent, "for information on the following case. On the 9th of June two swarms came off from separate hives, which seemed to work well in their respective boxes. About a week after another swarm came off and pitched in several places. What is the cause of this? The largest lot, about 30 yards away from the others, dispersed after a short time; one cluster, about the size of a sugar basin, was hived, and added to the smallest of the swarms of the previous week. All seemed to go on well for a time, when the bees gradually ceased working, and for two days half of them clustered outside the box. I then put on a small super, and they have now returned to the box, but still do not work so much as the bees in the other hive, and the outside of the box, on their leaving, was covered with wax! Did the two queens fight, and both get destroyed, or what should you consider to have been the cause of this derangement? Is the Ligurian, or yellow Alp variety, as profitable and easily managed as the common English species? If so, could you inform me whether they are expensive?"

The swarm that came off "about a week" after the others, though you do not say so, was no doubt a second swarm, and had most probably several queens; hence the reason for the bees clustering in several places. It is possible that even among the small cluster which was united to the first swarm there may have been more than one princess. It is never easy, with regard to such instances, to say positively what the real state of the case may be; but we should imagine it very likely that all the queens were sacrificed in the commotion which ensued on the addition of the small cluster. Without being able to examine the interior of the hive, no one can tell how matters exactly stand. A case such as this forcibly strengthens our opinion that no hives should be used except those which afford the utmost facilities for a thorough inspection of their interiors. With frame hives properly worked the mystery could be solved in five minutes; and should there really prove to be no queen, steps could be at once taken to remedy the evil. No stock need be lost from such a cause at this season, or in fact at any time during the working part of the year.

With respect to the bees clustering outside the box, it is not easy to say what the cause of it may have been. It would seem from their returning within the hive after the addition of a super, that they had been forced out by the internal temperature; but bees will occasionally cluster outside from mere idleness. The loss of the queen does not always prevent bees from working vigorously. We once knew a colony, a first swarm of that year, in a set of collateral boxes, to which a second swarm was added in a similar way, and was thereby deprived of a queen, remaining without one for about eight weeks, storing 75 lb. of beautiful honey-combs in two side boxes and a super. After the super was removed, a small bit of brood-comb, containing suitable eggs and larvæ, was fastened in a small bell-glass, and placed over the central aperture. The bees immediately commenced the construction of royal cells. It was also remarkable that, whereas the bees had not been observed to convey a single load of pollen into the hive for many weeks, almost immediately on the introduction of the small piece of brood-comb, pollen was carried in, and the bees appeared to be greatly cheered and invigorated. In due time a queen was hatched out, and that colony continued to prosper for many years.

As your hive had possessed a queen sufficiently long to have laid a considerable number of eggs, we should hardly imagine that the stock would perish, even supposing that the queen or queens were sacrificed. If the bees cease to carry in pollen, or do so only in very small quantities, we should try what the addition of a small piece of brood-comb would effect. It is best, if practicable, to fix it among their own combs.

The bees which clustered outside the box must have previously filled themselves with honey for the purpose of secreting wax, and having no other use for it, must have applied the wax in the manner you state. We have occasionally seen a somewhat similar misapplication of their labours. It seems to be done partly with the object of obtaining a good support for their holding on, on what would otherwise be comparatively a smooth surface.

With respect to the Ligurians, we believe them to be in all respects a superior variety. The bees certainly are far more beautiful, and we believe them to be more prolific than the common brown bee of Europe. But it is difficult to keep them pure, unless the apiarian is prepared to go to a great amount of trouble, and to sacrifice for a time the resources of his apiary. We imagine that the expense of these bees is not so great as it used to be.

Garden Memoranda.

S. Rucker's, Esq, Wandsworth.—Mr. Rucker's name has been so long associated with plants in general, and the cultivation of Orchids in particular, that a few running notes on his charming residence at Wandsworth will, it is believed, not be uninteresting to the general reader. It is a well-known fact, that he still maintains the valuable and extensive collection of Orchids that was founded long previous to the most notable collections of the present day; and that his zeal and love for that remarkable race of plants has in no way abated. Fully alive to the exigencies of the time he has extended the house accommodation to such an extent as will satisfactorily meet the wants, in point of temperature, of the numerous and beautiful additions which recent years has furnished to the tribe. Although he does not now send to our "Great Exhibitions" the splendid collections which were the pride and the boast of the old "Chiswick glories," he is ever ready to contribute his quota to further the cause, as witness his exhibitions from time to time to the scientific meetings of the Royal Horticultural Society—which, by the way, are by far the most successful of all their experiments.

It is one of those residences which might be properly called suburban, being situated at one end of the village, or town, and therefore in immediate proximity to numerous others of less pretending appearance, and infinitely less interesting to the horticulturist. The ground, however, belonging to and surrounding the residence is not so limited in its range, extending, as it does, over considerable acreage, and possessing more or less of the features that we look for in far more extensive country seats. On looking at the mansion, situated as it is close to the public road, one does not anticipate much in the way of landscape, more particularly when we consider that the locality is so valuable for building purposes, being easy of access to or from London either by road, rail, or boat; and, in fact, forming one of its most desirable suburbs. It is consequently a most agreeable surprise to find, on entering the precincts, all the appurtenances belonging to a kitchen and flower garden, and a good deal of park scenery in miniature.

The flower garden is a square block of ground very artistically designed, presenting a little of all the features of decorative gardening so combined as to make a harmonious whole, which is probably the most difficult of all tasks that come within the range of the landscape gardener. The mansion, partaking somewhat of the Italian style of architecture, compels certain formalities in dealing with the parterre to render the whole in keeping. On the one side, as a boundary, we have the park scenery already referred to, which is partly screened by an irregular bank of Rhododendrons, which looked magnificent in foliage, and were bristling with huge heads of seed-vessels—the remains of what had but recently been a gorgeous display. On the opposite side there is a dead wall as a boundary, part of which is covered with a glass promenade filled with suitable material at all seasons to create the most pleasing display—such things as Ferns, Pelargoniums, Fuchsias, and other miscellaneous plants figuring more prominently at the present time; while the wall that runs parallel with the public road is nicely screened with trees and underwood, both evergreen and deciduous. Confronting the house on the remaining side of the square is a very handsome block of span-roofed houses, with an octagon centre, designed and constructed with much taste, and at the same time not of so lofty and heavy a character as to interfere with the well-being of the plants. The flower garden panel is laid out into a series of detached beds on grassy groundwork, admirably filled with bedding plants; and being interspersed with Roses, which luxuriate in great beauty, Rhododendrons of sorts, and some of the handsome-growing Ericaceæ, with some of the more prominent and suitable herbaceous plants, did not look quite so stiff and formal as some other attempts at parterre flower gardening that could be named. But what was vastly more pleasing, on that beautiful carpet-like lawn were the select specimens of Coniferæ. Araucaria imbricata is a magnificent specimen, over 20 feet high I presume, and of faultless symmetry. Equal in point of merit, though of much less size, is Wellingtonia gigantea and Picea Nordmanniana, while Cupressus Lawsoniana and numerous others, planted in suitable positions as individual specimens, show how well such things are suited to the climate, in that locality at all events. In keeping with the style, and to give a finish to the picture, groups of standard Sweet Bays and Laurels, along with an occasional specimen of the golden-banded American Aloe, stood in front of the range of houses referred to, on a spacious gravel walk.

Entering by the door in the centre of the range we find an aquarium, large enough almost to grow the great Queen Lily (Victoria regia), but as the house is set apart for Orchids, Club-mosses, Ferns, and some of the lesser members of the Nymphal Alliance, there is much more general interest excited in this way, especially since the *furor* for blooming the Victoria has somewhat subsided. Very nice plants of Club-mosses raised above the water, and hanging gracefully downwards, caught the eye; while several of the beautifully cut fronds of the various sorts of Gleichenias, all of which are good, testified skilful culture, and toned down that peculiar rustic-like appearance which the pseudobulbs of many of the Orchids, some suspended from the roof in baskets and others in pots on the side, presented. Dendrobium moschatum was in splendid bloom, and what a beautiful, although long bare-legged object it is! The finely-formed labellum, densely covered with long hairs, makes it scarcely less interesting than the larger (although not so fine in point of form) Dalhousianum. Camellias, in capital order as regards well got-up specimens, and in the most exuberant health, filled a house adjoining; while an excellent show of miscellaneous stove and greenhouse plants in another house of the same range, made up of the most simple materials, both as regards colour of foliage and flower, such as Pelargoniums, Fuchsias, Dracænas, Coleus and Crotons, had quite a fairy-land appearance, and reminded me that such were the colours and such the material for a gas-light demonstration.

Emerging from this range by a back door, we come to another square plot of ground completely occupied with plant and fruit houses. The East Indian house, which is among the oldest of the lot, was undergoing repair, being about to be widened at least 4 feet, thus giving greater breadth of stages and passages. This has at all times been an interesting house, full of rare plants, and generally in very good order. Unfortunately a very bad form of Fungus had been making insidious inroads upon the roots of these epiphytes, and although Mr. Pilcher had gone carefully over the plants day by day, trying to check its progress, his efforts did not seem to be attended at that time with complete success. This is the same Fungus that Mr. Berkeley alluded to at one of the Tuesday scientific meetings. Of course by means of such a check some of the plants had not that vigorous appearance which we have seen in time past; but, nevertheless, many of the rarest of these tropical gems, such as Vanda or Renanthera Lowii, which was showing several blooming spikes; Aerides Schröderii, Fieldingii, and others, were still in the best possible condition.

The Cattleya house was as usual most interesting, containing many excellent specimens, not the least beautiful of which was the splendid peach-coloured, summer-flowering labiata. Nor was the chaste Wagneri the least interesting of the group, where the mauve, the crimson, and the peach so much predominate. No white can equal the flowers of a good Phalænopsis; but a white Cattleya is a very desirable object, and we have the best and purest representation of it in Wagneri. Lælia purpurata, in the month of June, when well managed, is always a gorgeous object, and when a collection has it represented in numerous varieties, as it is here, the effect upon the eye is very bewitching. Lælia Boothiana, or Cattleya lobata, as it is sometimes called, is a very distinct thing, having deep purple lines radiating from the centre of the lip, and was here in fine condition: so were several varieties of Mossiæ, which although the most common, is not the least ornamental; the array of colours shade out so charmingly, and yet in some instances are so diverse as to contrast well.

Two new north-aspect houses have been recently added. They are about 12 feet wide, and of considerable length, having a passage up the centre and a table on either side. The plants in these are doing upon the whole all that could be desired. Never before was seen such splendid examples of cultivation as the various sorts of Pleione grown here. P. maculata especially, which is the grandest of the genus, much more beautiful and rare than even lagenaria, and that is saying much, was a picture of health, having bulbs like miniature cheese presses, and leaves broader and firmer than are usually seen, being 11 inches long by 2½ broad. Here

also were the finely flowered plants of Odontoglossum citrosmum (pendulum), which had been shown at the scientific meetings, some with three spikes from one growth, and hanging in the most graceful manner. Nor was nævium majus less beautiful, from its free-flowering nature and handsome crimson-spotted spider-like flowers. I never supposed that O. pulchellum was half so beautiful until I saw Mr. Rucker's plants, which were not only blooming profusely, but what large fine flowers of great substance! The best variety of this is really grand, and everybody should grow it. Then what a host of Epidendrums, and so many good sorts too, are also congregated here! If Mr. Bateman were to see them all in flower, he would surely grow more than his two pets—vitellinum and I forget the other. One here named inversum, of a cream-coloured ground with pink markings, and bearing from 12 to 15 flowers on the spike, was quite beautiful; and so was macrochilum, and its rose-lipped variety. Of Oncidium sessile too much cannot be said for fine form and rich hue of yellow; it is one of the handsomest of the genus, and is well grown at Wandsworth.

There were one or two other houses where a miscellaneous stock was kept, including numerous little things that thrive best on blocks, such as Sophronitis, of which there was a large assortment. Instead of the hollow drain tiles which predominated for this sort of purpose on the occasion of a previous visit, there were now substituted square flat blocks of wood, which are not yet superseded for cultural purposes by any other material.

Grapes and Peaches are cultivated here to some extent. Vegetable forcing has also to be attended to, and the usual supply provided for the table from the ordinary quarters of ground allotted to vegetable culture. The whole place was scrupulously neat and clean, evincing the highest degree of order, which it must require a considerable staff to keep up. Mr. Pilcher, whilst ministering so well to the wants of Mr. Rucker, must feel a great pleasure in being under an employer imbued with so much correct taste for the beautiful, and sparing no means to procure all the rarest and choicest gems of Nature. *A.*

Miscellaneous.

Dr. Leichhardt.—The discovery of fresh traces of the traveller Leichhardt in Northern Australia has revived public interest in his fate, and at Melbourne meetings have been held to concert measures for a renewed search after the distinguished and intrepid explorer. It is estimated that a sum of 3000*l.* will be required to fit out a suitable party and maintain it for two years, and the sympathy of the ladies of England is sought by a committee of ladies at Melbourne, of whom "Mrs. Cutts, 119 William Street," acts as Honorary Treasurer. Dr. Mueller has recently given a lecture on the subject, in which he points out as ground for hope regarding Leichhardt's fate, that Mr. M'Intyre, who, by his masterly advance into the far northern interior has earned a lasting fame, found in 22° S., and about 1° westward of M'Kinlay's track, the faint traces of horses or cattle on a spot not known to have been traversed by any explorer. Pursuing his course along a new S.W. tributary of the Flinders River, he further met with two horses, grown aged, roaming in undisturbed liberty, while for hundreds of miles around, none are known to have been abandoned by any returned traveller. Yet, to the mere fact of these two horses being found at this isolated spot, perhaps no great importance would have been attached, had not subsequently the momentous discovery of two Leichhardtian trees, on the eastern main branch of the Flinders River, rendered it sufficiently evident that these animals must have belonged to Leichhardt's expedition. Under any circumstances the fact of Leichhardt having reached a position on the waters of the Flinders River so far north as 20° S. has been distinctly proved, by finding traces of him 350 miles in advance of the supposed locality at which the death scene was said to have occurred. Dr. Mueller suggests that the searching party should, during the next cool season, pass, if possible, to the tropics, to take advantage of the northern summer rains; should be strong enough to repel any attacks of united native tribes who may collect around it; should comprise several aborigines not unaccustomed to the agility of hunting life; should commence its searches from that point on the Flinders River where Leichhardt's marks were found—a point within two months easy travelling distance from Mount Murchison; should never cease its inquiries, never relinquish its search on any likely spot, until, beyond all doubt, the existence of any of Leichhardt's marks within the hunting territory of the occupying tribe had been ascertained; should enjoy the advantage, now well recognised, of commanding the auxiliary use of dromedaries in reconnoitring those tracts which, in ordinary seasons, are impassable for horses; should be mindful to avoid the scrubby ridges overgrown with Gastrolobium, a bane not known to Leichhardt, from which explorers now, by caution, may escape; should not contain too large a train of beasts of burden, that it may move with swiftness across those regions where a very scanty supply of water will only suffice for a limited period; and should be led by a man who disdains material advantages, and is actuated by a deep appreciation of the duties devolving on him as a sacred trust.

Calendar of Operations.

(*For the ensuing week.*)

As the best season for moving evergreens is at hand, the planter, especially if economy of space is an object, must study well beforehand every step which he intends to take; and every plant he commits to the soil should have been previously well considered in reference to its ultimate growth and effect. The inexperienced are too apt to plant without forethought, and many of the objects which they looked forward to admire, are killed or smothered by others of more rapid and luxuriant growth. They should therefore endeavour to make themselves acquainted with the dimensions plants are likely to attain. Small gardens require great skill in the distribution of the different subjects with which they are to be ornamented, and much judgment should be exercised in the selection of them; therefore, instead of attempting to produce quantities of one kind of plant, to the exclusion of others, it would be more satisfactory to limit the numbers of any particular kind, and thereby afford space for greater variety. The planter ought especially to avoid the too abundant introduction of coarse-growing plants; on the other hand, however, he need not confine himself to too small plants; these would produce a monotonous effect.

FLOWER GARDEN AND PLANT HOUSES.

Plants bedded out are now coming fast into great beauty, which is enhanced by neatness. Take care, therefore, that Verbenas and similar plants are kept within proper bounds, and that weeds and decaying blooms are constantly removed as soon as they make their appearance.

Auriculas.—Seedlings which were put out in pans or boxes in spring will now have attained considerable size, and may be potted off singly. Let the soil used be good loam and leaf-mould well mixed, together with a little silver sand, and when potted let the plants be set in the shade until they have become somewhat established.

Chinese Primulas.—Old plants of these should now be shaken carefully out of the old soil, repotted in good light compost, moderately rich, and placed in a warm frame for a few days, till they have begun to produce roots, after which they must be removed to a position near the glass in a cold frame, and kept close till the plants are thoroughly re-established.

Pinks.—Plant out rooted pipings on beds of well prepared soil. A second crop of pipings may also be inserted where an increase of stock is required. Seed should be gathered and placed in a dry airy situation till wanted.

Ranunculuses.—It often happens that amateurs have seedlings, the roots of which are so thin and small as often to be overlooked in the soil. The way to lose none, is to get a fine wire sieve, into which a quantity of the soil containing the seedling roots should be put, then have a tub of water, in which place the sieve, moving it about in the water; by this means every particle of soil passes through, leaving the roots behind. It is but little trouble, and many fine sorts are thus saved, for it sometimes happens that the weakest are best.

FORCING GARDEN.

Cucumbers.—Continue to thin and regulate the shoots; go over them at least twice a week, as they soon get crowded if neglected a few days. Guard against red spider. Attend to plants in frames. Keep linings well made up, and train shoots of growing plants. Water when necessary.

Peaches.—Where the fruit is ripening, ventilating during the night and in damp weather should be effected by means of the front lights, keeping the top sashes closed to prevent wet from settling on the fruit.

Pines.—A portion of the strongest and best rooted should now be picked out for succession; these should be potted immediately if they require it, and grown on steadily without any check; any of the smaller plants which are in immediate need of potting should also be attended to. Keep up an uninterrupted succession by planting a few suckers occasionally in a brisk bottom-heat.

Vines.—Let borders be frequently examined. If the soil is too dry, let the surface be carefully loosened with a fork, and watered with liquid manure.

HARDY FRUIT AND KITCHEN GARDEN.

Water frequently with liquid manure; the occasional showers which we are now experiencing may be expected to produce a beneficial effect on all kinds of green crops. Suckers should be carefully removed from fruit trees of every description; it is not sufficient merely to cut them off level with the surface of the soil, as such a mode of treatment only causes them to throw up a progeny ten times more numerous. To do the thing properly the soil should be pared away, the suckers traced back to their origin and carefully removed. If any of the stone-fruit trees on the walls are of inferior varieties, they may, if kind and healthy, be budded with other and better sorts, and especially with such as are found better adapted to the peculiarities of soil and situation. In all cases strong healthy shoots should be selected upon which to perform the operation.

Celery.—Give Celery crops one or two good waterings with liquid manure. Only those rows or beds which are intended for early use should be earthed up at present. With regard to the main crops, if the soil is at all heavy, this operation should be postponed until the plants have attained full size, when it may be finished off at once. This effects a considerable saving of time, and the Celery does not rot in winter. The same practice equally applies to Cardoons.

Strawberries.—Prepare ground for new plantations, and plant now as soon as convenient. Strawberries do best in a rather strong, rich, and deep soil. Where the soil is naturally light, improve it, therefore, by adding marl or strong loam with plenty of manure. Rows of Strawberries along the edges of walks look well, and are very convenient, as the fruit can be gathered without treading upon the ground, while the quarters are relieved and made available for crops which it is desirable to place a little further from the eye. The earliest plants produced by this year's runners should be selected, and in separating them from the parent plants, a few inches of the string should be retained to assist in fixing the plant in the ground. If they are planted on quarters, the rows should stand 2 feet apart each way. This will allow room for intermediate rows of Endive, Spinach, or dwarf York Cabbage this autumn, and the plants will require all the room next spring. By allowing plenty of room the fruit is finer, cleaner, and more abundant than when the plants are allowed to crowd one another and entirely shade the surface.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the Week ending July 12, 1865, as observed at the Horticultural Gardens

July.		Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth. 1 foot deep.	Temperature. Of the Earth. 2 feet deep.	Wind	Rain.
Thurs.	6	13	29.940	29.700	84	59	71.5	66	63	S.	48
Friday	7	14	29.781	29.687	73	54	63.5	66	63½	S	[illegible]
Satur.	8	○	29.893	29.761	74	50	62.0	65	63	S.W	[illegible]
Sunday	9	16	29.842	29.792	74	48	61.0	66	63	S.W	[illegible]
Mon.	10	17	29.814	29.700	70	48	59.0	64½	62½	S.W	[illegible]
Tues.	11	18	29.744	29.708	71	40	55.5	6[illegible]	62	W.	[illegible]
Wed.	12	19	30.065	30.007	73	43	58.0	63	61½	W	[illegible]
Average.			29.868	29.765	74.1	48.8	61.5	64.8	62.6		[illegible]

July 6—Very fine with slight haze; overcast and hot; rain at night
— 7—Fine with low white clouds; fine throughout
— 8—Low white clouds; boisterous; very fine at night.
— 9—Cloudy and fine; very fine; thunder in afternoon, rain.
— 10—Fine; cloudy, fine throughout; cloudy at night.
— 11—Cloudy; fine throughout.
— 12—Clear, deep blue sky, with dusky and white clouds; rain at night.

Mean temperature of the week, 1.1 10th deg. below the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 39 years, for the ensuing Week, ending July 22, 1865.

July.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.
Sunday..16	75.7	49.5	62.6	15	1.60 in	2	3	6	—	2	18	1
Mon. ..17	76.1	51.3	63.7	14	0.56	2	—	2	3	4	17	3
Tues. ..18	74.8	50.2	62.5	18	1.22	—	—	2	1	5	19	5
Wed. ..19	73.2	50.6	61.9	21	0.80	2	2	1	1	7	16	2
Thurs. ..20	72.9	50.5	61.7	22	0.72	1	1	3	—	1	19	2
Friday ..21	73.4	50.6	62.0	18	0.54	2	1	3	1	5	14	3
Satur. ..22	73.2	51.5	62.3	22	1.37	3	3	2	1	3	15	2

The highest temperature during the above period occurred on the 17th, 1834—therm. 94 deg.; and the lowest on the 18th, 1863—therm. 37 deg.

Notices to Correspondents.

Ants: *H.* Persevere in pouring boiling water into their nests and haunts; this remedy, which is sometimes difficult of application in a garden, can generally be applied in a dwelling house. Another remedy (see p. 556) is to make a decoction of quassia, by boiling for 10 minutes four ounces to a gallon of water, dissolving in the liquor, while cooling, four ounces of soft soap. This is to be poured in freely wherever the ants are found.

Books: *J Munro.* Kemp's "How to Lay Out a Garden" will probably meet your wants.

Insects: *T L.* Your Pear leaves are infested with the slimy larvæ of the black-winged Sawfly, Selandria æthiops. Dust the leaves with powdered lime, or syringe them repeatedly with lime-water. *W.*

Ladies' Prizes: *Fairplay.* We do not know; but even if it were as you suggest, that would not necessarily be a disqualification.

Names of Plants: *H M.* 1, Selaginella Martensii; 2, Pteris hastata; 3, Pteris cretica; 4, Nothochlæna nivea; 5, Adiantum pubescens.—*T Young.* 1, Lycium europæum; 2, Bignonia radicans.—*C K.* Polystichum munitum.—*J M E.* Anethum officinalis.—*T, an Old Subscriber.* 1, Amorpha fruticosa; 2, Elæagnus angustifolia; 3, Elæagnus argentea.—*G H.* Viburnum Lantana, a young shoot.—*A B.* All three appear to be varieties of the same plant, Cratægus coccinea.—*J T S.* Bromus velutinus.—*W B S.* The flower was crushed to pulp; what remains looks as if it were a Habranthus.—*S & M.* Cystopteris bulbifera.

Peas: *J S.* Your White Wrinkled Marrow Pea appears to be prolific in pods; but the number of Peas in the pod is but few. Therefore we consider it not desirable to be recommended so long as we have such superior sorts in the same class as Veitch's Perfection, &c. ||

Renovating Lawn: *G S.* Poverty of soil would seem to be the cause of the black mossy patches on your lawn, the soil being shallow, and the subsoil dry and chalky. Apply liquid manure, in the shape of guano water, as freely as circumstances will permit; and apply a top-dressing of guano in showery weather.

Tropæolum: *J Kitley.* The colour is a very bright deep scarlet, and appears desirable; but the value of the variety depends altogether on habit, of which we cannot judge from cut blooms.

Variegated Pelargonium: *J F.* Your seedling is a very good one for home growth, but not, so far as the specimens sent enable us to judge, superior or even equal to some already in cultivation. It has a well-defined border, and appears of healthy constitution, which are points in its favour, but there are sorts with brighter zones, Italia Unita to wit.

Vegetables at Exhibitions: *E R C.* In all such cases as that to which you refer, a good deal depends upon the actual wording of the schedule, of which we are ignorant. Taking, however, the common-sense view of the question, we should hold that Tomatos would be quite admissible in a collection of vegetables, and we think the same might be held in reference to Capsicums, especially if shown green. The value of the competing collections would still depend on the relative importance and merit of the subjects of which they were composed.

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ROYAL AGRICULTURAL SOCIETY of ENGLAND.
JULY, 1865. PLYMOUTH MEETING.
PROGRAMME
WEDNESDAY, THURSDAY, FRIDAY, and SATURDAY, JULY 12, 13, 14, and 15.
Trial of Field Implements on Woodford Farm, Plympton St. Mary. Distance by rail or road 3½ miles from the Showyard.
The Show Ground is at Pennycomequick, about one mile from the Railway Stations at Plymouth and Devenport.
SATURDAY, July 15.
The Implement Yard open from 9 A.M. till 6 P.M.; admission, 5s. each person.
MONDAY, July 17.
Cattle Yard open from 8 in the Morning, at which hour the Judges will commence inspecting the Live Stock, and making their awards.
The Implement Yard open from 8 in the Morning.
Admission—Members free; Non-Members, 5s.
The Show Yards will be closed at 6 in the Evening.
TUESDAY.
Public Dinner, in a Pavilion near the Hoe, at 6 P.M. Tickets, 10s. each.
TUESDAY and WEDNESDAY, July 18 and 19.
The General Show of Cattle, Horses, Sheep, Pigs, and Implements, open to the Public from 8 o'Clock in the Morning till 6 in the Evening. Admission—Members free; non-members, 2s. 6d. each person.
THURSDAY and FRIDAY, July 20 and 21.
The General Show of Cattle, Horses, Sheep, Pigs, and Implements, open to the Public from 6 o'Clock in the Morning till 6 in the Evening. Admission—Members free; non-members, 1s. each person.
FRIDAY, July 21.
General Meeting of the Members in the Show Yard at 10 o'Clock.
By Order, H. HALL DARE, Secretary.
12, Hanover Square, London, W.

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Royal Agricultural Society.
PLYMOUTH MEETING.
STAND 200.
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The Agricultural Gazette.
SATURDAY, JULY 15, 1865.

MEETING FOR THE ENSUING WEEK.

MONDAY,	July	17	Meeting of the Agricultural Society of England at Plymouth.
TUESDAY,	—	18	
WEDNESDAY,	—	19	
THURSDAY,	—	20	
FRIDAY,	—	21	

—— THE great annual meeting of the Royal Agricultural Society of England commenced quietly enough on Wednesday last with a preliminary trial of Reaping machines on the grounds at Woodford Farm, Plympton St. Mary, about four miles from Plymouth. There are here some 80 acres of land in four large fields, made ready with crops of Rye and Winter Oats, Clover and Rye-grass, and bare fallow respectively for reapers, mowers, horse-rakes, hay tedders, drills, manure distributors, carriages, and horse-hoes—the classes of tools which this year come under the inspection of the Society's judges. These trials occur too late in the week for us to attempt a report until our next publication, when a full description of the competing implements and their performances will be given. The distance of the ground from the town interferes materially with the interest which the general public can exhibit in the competition; but the comparative quiet in which the judges consequently work, is no doubt favourable to the trustworthiness of their decisions.

The show-yards, on the other hand, are very conveniently situated, occupying 35 acres of upland near the Saltash Road—the summit of which as seen from the higher part of the town appears as if covered with a cloud of canvas. The show is as extensive and will be as instructive and useful as ever, though we cannot suppose that it will attract so large a number of spectators as during a time of less public excitement it would have done. No less than 3000 yards in length of shedding are provided for machinery, and about a mile in length for live stock. And the strictly agricultural show, which is thus as good and large as ever, has the advantage of being this year held in a place full of unusual local attractions. There has never yet been a show-yard which has commanded so magnificent a landscape or one fuller of points of national interest. This, and the expected arrival of the French fleet during the Show week, and above all the promised visit of their Royal Highnesses the PRINCE and PRINCESS OF WALES, will signalise the Plymouth meeting of the Royal Agricultural Society, and insure for it the attainment of a great success.

—— *Plymouth: Thursday, July* 14.—The rain has been falling all day, so that nothing has been done to forward the work of the implement judges. First the reaping machine trial was postponed: and then the attempt to start the mowing machines, of which fourteen stood ready to attack the heavy coarse and foul Grass crop prepared for them, was abandoned. It will be hardly possible for the judges to accomplish their task before the end of the week.

A ROYAL COMMISSION, whose report we shall immediately publish, has been sitting in Edinburgh ever since the beginning of the year, taking evidence on the agricultural, commercial, and social effects of what is known in Scotland as the Law of Hypothec; which enables a landlord to compel repayment to himself by a purchaser of grain bought by sample in open market from any tenant against whom a right of hypothec has been executed by his landlord for arrear of rent.

The English Law of Distress, in such cases, gives the landlord a right over the tenant's property only as long as it remains on the farm, and ceases when sold to, and in the possession of a *bonâ fide* purchaser; but if purchased by a person in collusion with the seller, with a fraudulent intention, then the right of recovery still remains with the landlord. In Scotland, on the contrary, if a tenant be placed under the bar of hypothec by his landlord for arrears of rent, no corn dealer, miller, or any other person, can purchase grain from him by sample or otherwise, even in open market, without being subjected to the liability either of returning the grain or paying the landlord for it, even although he has already paid the price to the person from whom the corn was purchased. Farther, this law gives the landlord a *preferable* claim over his tenant's property, to the exclusion of all *common* creditors—the Crown, superiors, farm-servants, and creditors for funeral expenses, alone being excepted.

The obvious operation of such a law is to exclude the business of farming from participating in the advantages of ordinary mercantile transactions. The tenant can neither purchase goods nor borrow money upon the same conditions as the manufacturer or merchant, because of the existence of a law which concedes the privilege to the landlord of stepping in, whenever an arrear of rent occurs, and taking possession of the whole property on the defaulter's farm, and retaining it, or selling it for his own behoof, and in full payment of those arrears to which the hypothec extends. Agriculture thus becomes severed and isolated from other branches of industry; and those engaged in it are deprived of the unfettered freedom which characterises the commerce of Great Britain.

The ordinary term of taking possession of a farm in Scotland is at Martinmas (11th Nov.). The tenant occupies the farm for 18 or, at least, 15 months from that date before being called upon to pay any rent. Thus a person entering a farm at Martinmas, 1865, would not be required to pay rent until Candlemas or Whitsuntide, 1867, and then only a portion of it. From the nature of this engagement it seems not unreasonable for the landlord to demand the most unexceptionable security from a tenant for the payment of his rent; but unfortunately out of this long-credit system has arisen a special law which excludes all ordinary creditors from participating in a share of the effects of a bankrupt tenant until the landlord's claim is settled in full.

And what have been the practical effects of this system on the business of farming in Scotland? Its first effect undoubtedly has been to induce farmers to occupy land with comparatively small capital, in consequence of the long-credit system, which gives them the privilege of sowing, reaping, and selling the first crop of a new lease before any rent is asked. The obvious effect of this privilege is to encourage competition for land among individuals whose capital in nine cases out of ten is greatly inadequate to stock and improve it properly. This competition so fostered has not unfrequently presented the anomalous fact of land rising in price, while the value of corn, &c., may have been long and rapidly diminishing. The Law of Hypothec has therefore contributed greatly to the existence of two evils—the first an unnatural competition for land, and secondly an

occupancy with a capital generally much below what is requisite to extensive and permanent improvements.

The ultimate effect of removing the Law of Hypothec entirely from the statute book of Scotland, and substituting in its stead the more rational and equitable law of distress, as in England, would be beneficial to the interests of the farmers themselves, by restricting the competition for land to that point at which the capital employed must necessarily correspond to the requirements of the particular subjects upon which it is to be expended. Were this law abolished a landlord would reasonably require an instalment of rent at the end of the first six months' occupancy, instead of at the end of 15 or 18 months, as at present, and consequently the capital required in such a case must not only be sufficient to stock the land with cattle, horses, implements, manures, seed corn, &c., but also leave a surplus to pay a half-year's rent. The law of distress would, under such circumstances, be perfectly competent to protect the landlord against any default on the part of the tenant.

As matters are at present, a tenant, with a 15 or 18 months' credit from his landlord, who has a preferable claim over all common creditors to his tenant's effects, is placed out of the pale of an unfettered trade. In proportion to the amount of credit afforded by the landlord, and the extent of preferable claims guaranteed to him by law, so must the commercial status of the tenant be lowered in the estimation of all with whom he may have dealings. The banker freely lends money to the manufacturer upon ordinary security, because he knows that, happen what may, he has an equal right with other creditors to the effects of the individual he has trusted. With a farmer this can never be the case as long as the law assigns to the landlord the "lion's share" of his effects in the event of a sequestration being taken out against him. The manufacturer may, and often does, surmount a bankruptcy, and future prosperity sometimes enables him to clear off old scores, but the case of an enterprising tenant who has run himself aground in consequence of his very efforts to obtain greater scope for improvement, is a particularly hard one—he needs time to extricate himself from his present difficulties; his capital is not lost, it is only invested in his farm, and will reproduce itself sooner or later, either in part, in whole, or with increase according to the skill displayed in laying out, but he falls on "evil times"—a bad harvest, or a fall in the price of farm produce occurs, his outgoings exceed his income, and he finds himself by and by not in a position to meet his landlord's agent at rent day. He cannot go to a capitalist or banker to ask assistance, because the landlord's right of hypothec stands in the way; and finally he is thrown upon the landlord's mercy, who may, under such circumstances, dictate his own terms. This is by no means a fanciful picture, it has a stern reality of frequent occurrence. Is the landlord to blame?—certainly not for adopting a course which the law recognises; but, assuredly yes, if the tenant's defalcation can be satisfactorily proved to be the result of improvements, the benefits of which are still unrealised. Let landlords concede remuneration for unrealised improvements, and the Law of Hypothec, bad as it is both in principle and practice, would press much more lightly on the tenant, while at the same time his status in the commercial world would be greatly improved.

It is, however, probable that the Law of Hypothec will be very materially altered, in consequence of the publicity which the recent Commission has given to its evils. And no such mere palliative as a recognition of what is technically understood as tenant-right will be accepted as in the place of that essential restriction, or, perhaps, final repeal of it, for which we may now look.

THE WEATHER AND CROPS OF 1865.

The climate of the spring and summer in the eastern counties has been remarkable for unusual extremes. A wet March, with none of the dust which is said to be so valuable, alarmed Barley growers, as well as heavy-land farmers. Seed time was fast passing away. The severe frosts, however, alternating with the rains, mellowed the ground; and a sudden change to the most genial weather shortly allowed the spring sowing to be completed in beautiful condition, almost at the usual period, and at less than the usual cost of labour.

In the middle of April, a fortnight of fine and generally of very hot weather had brought on the corn rapidly, and the Wheat, which lost plant to some extent during the winter and wet spring, had been wonderfully restored, even on the most defective leas, by the favourable weather and the timely use of the roll and hoe. On April 17th the pastures were already green, with a bite for cattle on rich land; Rape and Turnips were running to seed; Pear and Cherry buds bursting; the Oak was ready to be peeled, and Lucerne was 10 inches high.

On the 3d of May everything had changed for the worse; there had been no rain for five weeks. Vegetation, instead of having been refreshed by April showers, was everywhere suffering from the effects of sharp frosts at night, often followed by a blazing sky all day and excessive heat, with frequent changes to cold, dry wind. Shrubs transplanted in autumn, and looking well hitherto, were dying, unable to bear the excessive expiration from their leaves, exposed to a dry burning atmosphere. Forage plants, checked by the frosts and scorching air, made no progress; on the 5th of May Red Clover was not ankle high, Trifolium was stunted, even Tares would hardly hide a partridge; Grass in the pastures was shrinking on the ground. We had experienced the climate of Canada in the sudden termination of winter and the rapid growth of vegetation. The Wheat, browned by the long and severe winter and ungenial spring, started into luxuriance. But the plant lived too fast; the drain on its constitution was too great; it became enfeebled and unable to bear the successive frosts and scorchings. Stunted, checked, and forced into abnormal maturity, its stems were formed without that "tillering" at the root, by which, in favourable seasons and on good land, a thin plant of Wheat frequently thickens into a bulky crop.

At this period the prospect for harvest threatened to become deplorable. The Wheat lost its luxuriant and spreading appearance; instead of covering the whole of the ground, it shrank and became meagre and upright. If the adverse weather had continued, the next stage in the starvation of the plant would have been the turning yellow of the lower leaves and the apparent widening of the spaces between the rows, marking out the field in straight lines, down which the eye would reach further every day. From this last stage there is no recovery. I never knew anything but a very light crop when this climax was reached in the early part of May. This year, however, the last stage of premature old age, without hope of rejuvenescence, was not quite reached. In the second week of May (the 10th) the rains came, followed by hot, forcing weather day and night. So sudden a change, and one so rapidly beneficial to the crops, has not been witnessed since 1847, when a late dry spring was followed by unbroken fine weather until a very abundant crop had been safely harvested.

The blossoming time this year was very favourable here, and I believe elsewhere generally. The ear is remarkably well set with grains, and does not appear to have suffered from the ravages of the midge.

Notwithstanding these redeeming circumstances, it will be found, when harvest arrives, that there is no hope of an average crop of Wheat. There will be a deficiency of stacks, not merely from the shortness of the straw, but from the falling off in the number of the ears. The best crop will be on the strong clays, properly designated "Wheat land," but even on such land there is not one field in fifty that has straw and ears enough on an acre for a large crop of corn. The deficiency cannot be detected without passing through the fields. It requires a practised eye to estimate the crop from the outside. To the uninitiated it is "a beautiful field of Wheat" when ripening for the sickle, whether there are seven or 10 sacks to the acre. But there are few fields this year that would satisfy the eye of the critic, who looks in vain for a close and even head of ears, apparently so level and solid that a cricket ball might be rolled from one end of the field to the other. On light land and on soils out of condition I venture to say that "he who runs may read" the unmistakeable signs of a wretched harvest in the scanty crop of straw. In many instances where the prospect in spring appeared quite hopeless, the plough was resorted to, and large breadths that were spared will not produce half a crop.

This failure was not entirely owing to drought. Riding over the chalk slopes of Cambridgeshire, on the 25th of May, I observed that the Wheat looked worst on the sides exposed to the north and east, and this was attributed to the effects of blasting winds and a severe frost on the 3d of the month.

Barley, as a spring-sown and less deep-rooting plant than Wheat, is less able to bear drought. It has suffered considerably, and during the last week of the drought it was, in many instances, shrinking fast on the ground. These warm rains will do much for the crop, and improve the prospect of its yielding a good malting quality.

The Oat crop is notoriously and hopelessly deficient.

Pulse crops will be uneven and generally light in bulk; but in the case of Early Peas and of Winter Beans on strong land, my impression is that the May rains came just in time to clothe the short haulm with abundance of pods.

The hay crop is as bad as possible; upland pastures, that always produced some sort of crop, even in the worst seasons, have totally failed this year, and the stock had to be turned in to gnaw off the straggling "bents" that took the place of Grass. This failure was not owing to the drought only, which was almost as severe last year as this, but to the ungenial weather in April and May, the daily scorchings and night frosts, the keen eastern blast alternating with the burning sirocco.

It is early to speak of root crops. They promise better than last year. Common Turnips and Swedes have grown rapidly since the recent rains; they had been previously at a standstill, and must have been swept off by the fly, but luckily the enemy was not in force at that time. Mangels are adapted to heavy land in a district where the rainfall is low; hot weather suits them; they are looking well where early sown and well farmed.

Red Clover has yielded very light crops of hay; that intended for seed, which is largely grown here, is looking better since the rains. I am afraid the young plant has again vanished from the earth, as it did in the drought of last year.

In conclusion, my estimate of the crops is as follows: Oats, Wheat, and Barley, deficient in the order they are written; winter Beans good; hay very bad; root crops promising on the whole. *H. Evershed, Gosfield, July* 10.

APPEARANCE OF THE CROPS.

Devonshire: *Tavistock, July* 6.—At present the Wheat crop is looking well, and promises to be an average crop. Barley promises an average where got in early, and on land in good condition; late-sown does not promise well. Oats are likely to be a slight crop, very short of straw, and after lea almost a failure. Potatos are free from much disease, and look not amiss, but owing to the drought they are likely to be small—at least the early ones. Mangels are promising to become a fair crop. Turnips have been so much eaten by flea and have had to be resown so much that there cannot but be a light crop of Swedes, and of common Turnips we can say nothing yet, many remaining unsown. Hay is a plentiful crop and remarkably well saved. Pastures are getting bare, but as we have nice rains now we may hope for amendment soon. *John Benson.*

Dorsetshire: *Symondsbury, July* 7.—The present appearance of the Wheat crop in this neighbourhood is most favourable; although the stalks may not be so thick and numerous as they are in some seasons, still the ears are large and full, and will, if well secured, yield plentifully and be of good quality, only in spots at all laid. The Barley crop, which appeared a few days ago most luxuriant, is (with the beautiful storms we have had), gone down, and will of course be thin in grain. Oats most uneven, more so than I ever remember to have seen, and will I fear be a disappointing crop, for if the old saying be adopted that "they who'd preserve the king and queen must cut the Oats when they are green," the sample and bulk will be very unequal. The Beans ceased to blossom very abruptly, but the first pods appear to be filling nicely. Peas a very poor crop. Flax not so heavy as last year; still I think the crop of seed will be an average one. Turnips most promising. Mangel Wurzel universally good. The eweleazes are bare of Grass, but the present prospect of winter food is very different from that of last year. Hay secured in beautiful condition and a greater crop than last season, so that I think the price of sheep will be high during the autumn; cow-leazes would have been very short of Grass had the rain not come when it did. Altogether, on taking a review of our present prospects, I think I am justified in stating that they are very satisfactory. *John Pope.* ——*West Bucknowle, Corfe Castle, July* 6.—All crops are quite an average in this neighbourhood, and harvest will be early. *W. J. Voss.*——*Bradford Abbas, July* 8.—The appearance of the crops in Dorset has greatly improved with the fine rains of the present week. Wheat promises a well-eared crop, and as yet we have not noticed the presence of any of those pests which sometimes so much interfere with the yield, such as the wheat-midge (Cecidomyia tritici), or Aphis. Corn of all kinds seems to be remarkably clear from smuts, mildew, and other fungoid attacks. Barley promises well where not too late sown, and the experience of the past and present summer has shown us that all the early-sown samples afford the best results. Six-rowed, or Winter Barley, of which a good breadth was sown for sheep-feed, is now fully ripe, and the crop excellent. Oats are rapidly mending, but the long continuance of dry weather has made them exceedingly patchy. Mangels now promise well, and are usually free from the fly (Anthomyia betæ) as also from the surface grub, which was last year so troublesome. With regard to this latter pest on our own farm, we believe that we are experiencing a greater immunity than our neighbours, because we have been careful to prevent every cause of disturbance to the rooks, which did us such signal service in devouring these devastating grubs. Swedes are generally much destroyed by the fly or flea-beetle (Haltica nemorum, and H. concinna); but unless where the land was winter cultivated for this crop, they have come up very patchy, and more especially when the land has been ploughed just previously to getting in the seed, as the dry weather caused it so to clod that indeed the effect was much the same as though some had been sown among stones. The finest promise we have seen for miles round is in our own parish, where the seed was got in early, after steam cultivation in the winter, which succeeded winter manuring, and before the seed was got in the land was sown broadcast with three hundred-weight per

acre of Proctor's turnip-manure. The roots now join rank, and never did any crop promise better. Haymaking is nearly completed. Much hay has been got together in good condition, but on the whole the crop is by no means so large as was at one time anticipated. *J. B.*

Essex: *Romford, July* 6.—I report for this neighbourhood Wheat and Barley good, Oats bad, Beans and Peas average, Clover and hay half a crop, Mangel and Turnips average. I think I shall commence harvest on the 16th proximo. We are cutting winter Barley. We have had some charming rains, that give assurance of plenty of autumn feed, &c. *Collinson Hall, sen.*

Hants: *Ealing, July* 7.—Wheat thin on high lands, good on strong soils, whether such soils are rich or poor. On the whole a full average. Barley a fair average crop. Oats bad, unless winter Oats, or sown in February: a dry April was very unfavourable to this crop; Beans middling crop; Peas pretty good; Mangel a fair promise: Swedes a fair prospect, but in places injured by grub and 26 days without rain. Turnips a good plant and, with late rains, likely to be a good crop; Potatos good. Rainfall: January, 4·82; February, 2·81; March, ·91; April, ·66; May, 2·98; June, 2·98; Total, 15·16. *W. C. Spooner.*

Merse of Berwickshire: *July* 1.—The past month is the driest on record. The showers of the 2d and 6th scarcely exceeded ¼ inch, and a week ago, when our neighbours in Lothian had some rain, we had literally but two or three drops. After the heavy rain in the end of May the weather continued remarkably warm, and Grass got very abundant, and continues so where not early bitten by ewes. Stock is in good condition, and lambs doing much better than in spring, when losses were heavy. The threatened luxuriance of Oats on deep land has got a decided check, and on hard clays and hungry light soils spring corn will be very poor indeed. There is not much Wheat to be seen; the plant is sufficient, but looks ragged and unequal in shooting. What is early sown on deep loams is, of course, exceptionally good in a dry year. Of Turnips it is difficult to speak; strong land has wrought very unkindly. Some pieces of Swedes are ready for the hoe, but the great breadth has been scorched and flea-bitten to a degree unknown in our time. Patience is largely exercised, and some have been tempted to risk second sowing, but their seed, as well as Yellow and White Turnips in general, will be nowhere unless we have rain soon. Beans and Tares stand the drought best of all crops. *J. T.*

Surrey: *Hoe Bridge, Woking, July* 10.—I think the crops in this neighbourhood have never been more various. The Wheats on the old Clover leas planted exceedingly bad, and are still very thin and poor; but where the plant is good, and the land of good holding texture, and well done by, the crop is good, and exceedingly well headed, and the ears well filled; but this is the exception, as I think the greater part of the crop is thin on the ground, short in the straw, and, especially on the poor sands and gravels, very bad indeed, and altogether decidedly below an average. The same may be said of the Barley,—very various, but upon the whole I think we shall have an average crop. Peas very good indeed, and nearly fit for cutting. Beans but little grown, and not good; Oats, the worst crop we have had for years. Mangel good, and a large breadth sown. Swedes and Turnips plant well, and look promising. Potatos good plant, and healthy. Upland hay about one-third of a crop, and poor in quality. Meadow hay a good average crop, fair quality, and well secured. Stock very healthy, and feed moderately plentiful, the late splendid showers having done wonders. *Edward Hilder.*

Wester Ross: *July* 3.—We have had in the North no such season as this for drought since 1826, when the harvest was concluded in July, and when in many places the crop was plucked because it would not cut. Last year there were loud complaints of drought, and not without reason, for Barley and Oats were unusually short and light, and so great was the scarcity of straw that scarcely a stack is now seen anywhere, and litter is nearly entirely used up. Although thus sufficiently prepared for the new crop, the supply of straw is again to be sadly deficient—considerably less than last year. This year the drought set in much earlier, and although Wheat is again to be our bulkier crop, it is much lighter than that of last year, whilst Oats are universally light, and on many fields, if gathered at all, will require as in 1826 to be plucked. With a continuance of this weather the filling of Oats on light soils seems impossible, as they are now rapidly withering away. The earlier sown Barley on deep soils has stood out better, and can be satisfactorily harvested; but the later sowings of Barley, even on good soil, have not done well, whilst on the lighter fields the ground is not yet, and will not now be, covered. And all is nearly affected alike. No one has much room to rejoice at getting better off than his neighbours, for whether the farm be high or low, light or heavy, with a northern or southern exposure, with top-dressing or without it, all seem much affected alike. If there be any advantage at all, it is on the side of the man who has the largest breadth of autumn-sown Wheat, the earliest sown and most advanced crops, and the best sheltered farm. The hay crop is light, although comparatively heavier than that of grain, and is being harvested amidst sunshine and heat that with us are quite unusual. Hay on the lighter soils became so withered, and appeared so suitable as fuel, as to lead a farmer to express his fear that his men when mowing might by fire struck from the stones with their scythes ignite his crop and burn it up. The Swedes, and all the Turnips sown before or within the first few days of June, brairded regularly, and with rain would yet do well; but all the Turnips sown about the middle or towards the end of June have brairded very irregularly, and cannot now braird until we have an abundant fall of rain. The Swedes have been singled, are yet fresh, but much needing rain. The earlier sowings of common Turnips are being hoed, and the pieces of the later sowings that have brairded will also soon be fit for the hoe. Potatos are looking pretty well. Cattle, both fat and grazing, have been selling well. Seldom has there been a better demand or higher prices than at the Muir of Ord in June, but from the continued drought and scarcity of Grass, grazing stock must necessarily fall.

West Sussex: *July* 11.—Haymaking is over and has been made well; the crop is rather light, especially the Clover, but since we finished we have had some fine showers that will bring on some after Grass, and where there is a plant of Clover we shall get a good cut. Swedes and Turnips are doing well where put in rather early, but those put in later than the end of May or beginning of June have not come up regularly, and do not look so healthy. Mangel is good in some places, and very bad in others, altogether not up to the mark. Wheat looks well and has had a good time to flower; some of it is laid, but not to the extent that we should have expected, and there is no doubt we shall have a good crop. Barley is also good, but very much laid. But Oats were never known to be so bad; some have been cut up for hay, and some fields have been so over-run with rubbishy weeds that they have been ploughed up, and the best that I have seen do not look like half a crop; and where they are best it will be difficult to decide when they ought to be cut, as they are not coming at all together. Peas are generally a good crop, and some are now being cut, but the best crops are hardly fit yet; they were all turning off too rapidly, when we had some fine showers about a fortnight ago, and since then they have filled up very much. Potatos are still healthy, and promise well. There are still some patches of Turnips to sow, but upon the whole work is well up, and all are ready for harvest. The land has been so clean that we have got through quicker than usual. Cattle feed is rather short in some places, as the weather continued rather too long dry, but we may expect to have it more plentiful through the autumn. All kinds of stock are still dear, especially sheep; full-mouth ewes of fair quality, which would come out middling fat at about 8½ to 9 stones of 8 lb., cannot be got for less than 38*s.* to 42*s.*; and to keep them a year with extra food, and sell them fat at about 44*s.* or 45*s.*, and perhaps 36*s.* for each of their lambs, after losing from 2 to 5 per cent., does not leave much profit; if we were to charge anything like fair value for the roots, hay, cake, &c., that they must get, they will leave the balance on the wrong side. Where the land is good, perhaps wether fatting does better than buying old ewes to lamb down, and then fat; but when the land is not so good, perhaps the latter is the safest plan. Harvest will begin about the last week in July, and to sum up the prospects, we may say of Wheat it may be above average; Barley, the same; Oats not half a crop; Peas nearly average, but very unequal; Beans, few grown hereabout; Mangel promises well; Swedes variable; hay light, but good. Not much old corn left in ricks. *G. S.*

MANURES AND CROPS.

(*Concluded from p.* 636.)

Liming.—No more extensive practice apart from the ordinary routine of fertilisation is known in agriculture than the application of lime—and no wonder, its effects are marked, and indeed marvellous. So great a stimulant is lime that an overdose of it, as it is called, is a well-known method of raising scourging crops and producing exhaustion and sterility in the soil. I mentioned that Liebig designates one class of plants as "lime plants." They are represented by Lucerne, Clover, Beans, Peas, and even Potatos—but lime is found only in the leaves of the Potato, very small traces occurring in the tubers, which belong under Liebig's classification to the potash plants. The Clover sickness to which we have so frequently referred is sometimes occasioned by deficiency of lime in the soil; so also is Anbury or Finger-and-Toe in Turnips—a disease which rends and rots the parenchyma of the root in consequence of its being obliged to send out shoots and tap roots in search of lime for its skin. A crop of 2 tons of Clover removes 130 lb. of lime from the soil; and the best application in Clover sickness has frequently been found to be superphosphate of lime. Gypsum or sulphate of lime is also found highly beneficial. Lime absorbs moisture from the atmosphere with incredible rapidity; and a ton of quicklime when slaked acquires three times its original bulk and weighs 25 cwt. The only advantage, however, gained by slaking lime is its reduction to a fine powder, which enables it to be more evenly spread. But slaked lime very soon attracts carbonic acid from the atmosphere, and becomes once more carbonate of lime—the condition in which it usually exists, and whence the most abundant supplies are obtained by driving off the carbon in burning the carbonate of lime or mountain limestone in kilns, as 100 lb. of this when pure contains 44 lb. of carbonic acid and 51 lb. of lime. Lime, therefore, by the process of burning, loses the whole of its carbonic acid, and a ton weight is reduced to 11¼ cwt.

The general opinion regarding the presence of lime in the soil is that an arable soil ought not to possess less than 1 per cent. of lime; and that 8 tons of burnt lime per acre would impart this proportion to 6 inches of soil. After a heavy liming no farther addition will, however, be requisite for six or eight years. A crop at the utmost removes only from 1 to 2 bushels per acre of lime, and the land at this rate gradually reverts to the condition in which more lime is required—faster—for the lime by its own specific gravity uniformly descends below the active soil, and there, upon digging a section, layer upon layer of each successive liming the land may have undergone will be found deposited. Lime not only enables crops of superior quality and bulk to be produced; it enhances the effect of undecomposed manure, by calling into action that which may have been lying dormant. Manure, however, ought never to be laid upon the land immediately after liming, because quicklime will drive off all its ready-formed ammonia. Lime destroys marsh and heath plants, such as Moss, Heath, Bent, and sour Grasses, brings up sweet herbage, with natural Clover, and completely renovates the herbage. All fodder is found more nutritious when grown upon land sufficiently limed. The quantity of lime required varies in proportion to the dryness of the soil, its stiffness, and the amount of vegetable matter it contains. Poor arable lands are soon worn out by repeated liming and cropping. To exterminate Moss, sour Grass, &c., the lime must be applied in a live state. Generally speaking, the more completely and immediately quick lime is incorporated with the soil, the more effectually the slaking is accomplished in connection with the soil the better. In overspreading Grass, however, where there is no intention of destroying the herbage, it is better first to slack the lime in the open air, reducing it to a powdery condition, and applying it in the form of mild lime. In this state the quantity of quicklime still contained in it, should, however, be sufficient to effect the necessary chemical changes in the soil; for on this its ultimate efficacy depends. Quicklime should never be applied to light or thin soils, sands, or gravels.

Magnesian limestone has an effect similar to mountain limestone. It is a carbonate of magnesia in combination with carbonate of lime, and becomes caustic in burning; but must be used more sparingly than lime destitute of magnesia, since it re-absorbs carbonic acid more slowly, and remains longer caustic. Its application is more properly made to arable than to Grass land, as Wheat, Barley, and all cereals require magnesia for the perfect development both of their straw and corn. Chemically supplying to the plant both lime and carbonic acid, lime, as an alkaline earth, neutralises the humic and other acids naturally formed in soils, converts inert vegetable matter into stimulating food for plants, and aids the mineral decomposition of iron, manganese, alumina, potash, soda, ammonia, and silica in soils. To its perhaps over-stimulating effects, in fact, may be traced the origin of the adage, "Lime enriches the fathers but impoverishes the sons." Lime, however, does not necessarily exhaust the soil, unless applied with unsparing prodigality. The apparent exhaustion it produces is only perceptible in cases where the sole application to the land has consisted in laying on successive doses of lime, and where the supplies of other manure have been too scanty. It is where lime alone has been applied that abundant crops are followed by exhaustion. The presence of mild lime in the soil assists in the formation of nitrates; and the production of nitre or saltpetre is dependent upon those properties of lime whereby nitric acid is engendered from vegetable matter. That invaluable salt, nitrate of lime, is always to be found in old compost heaps. "Under ordinary circumstances," says Professor Way (Journal of the Royal Agricultural Society) "and with the presence of moisture, lime is capable of liberating one half the ammonia contained in a soil. In the case of ammonia locked up in the soil, lime may be the remedy at the command of the farmer, his means of rendering immediately available stores of weath which can otherwise only slowly be brought into use. In this view lime would well deserve the somewhat vague name that has been given it, namely, that of a 'stimulant,' for its application would in some sort be an application of ammonia; whilst its excessive application by driving off ammonia would lead to all the disastrous effects which are so justly attributable to it. I do not wish to push this assumption too far, but if there be any truth in it, it points out the importance of employing lime in small quantities at short intervals, rather than in large doses, once in many years."

Sulphate of lime or gypsum is the most abundant of all the natural sulphates of earths or metals. Very large quantities of the pure gypsum quarried in Derbyshire, Mr. Parr tells us (Letters to Farmers), in an unburnt state and ground to powder are sent to London not only for adulterating flour, sugar, lozenges, &c., but for mixing with Peruvian guano, which it is supposed by some to render genuine by taking a pound or two of value off the ton. This adulteration is carried to an incredible extent. Chemi-

cally, the composition of gypsum consists of 28 parts lime, 40 parts sulphuric acid, and 18 of water. Hence it is capable of supplying to plants lime, sulphur, and sulphuric acid. In a burnt state when it has lost all its water, it is the well-known plaster of Paris. Burnt gypsum dissolves less readily than unburnt, and much water is in both instances required, since a gallon of water will not take up into solution exceeding three drachms of unburnt gypsum. A dressing of 3 cwt. per acre will benefit Clover on some kinds of land, as it will other green crops requiring sulphur. As an addition to the dungheap, gypsum in small quantities is an important agent in fixing ammonia. It is, however, better suited as a fixer in the liquid manure tank, since it acts only in the presence of an excess of moisture.

Agricultural salt, an article cheaply, extensively, and it would appear effectively used as a top-dressing upon pastures, is by no means a pure material, but presented to us in the less concentrated form, in which it is thus mixed up with impurities, it is the better adapted for a manure. Mr. Duckham uses it extensively on his pastures in Herefordshire, but he has informed me that though the results, as the appearance and increase of the herbage, have been very marked, the use of it is attended with a serious risk to breeding ewes, which cannot be too widely known. This fact in his experience he has had confirmed to him by that of the agent for a nobleman in Wales, and of another practical farmer in a different part of the country, so that there can be no doubt that where salt has been applied upon the pastures the cause of ewes either dropping their lambs prematurely, or if going to maturity bringing forth a diminutive and weakly offspring has been in these three instances traced to the employment of salt as a dressing for Grass. *Mr. Wallace Fyfe, at Cirencester College.*

Home Correspondence.

Growing Beans as Summer Food for Stock.—I referred to this last year, and again revert to it in the hope that my agricultural friends will try the system on a moderate scale to satisfy their minds and their pockets. Beans, when well podded during this month and August, and passed through the chaff cutter, render unnecessary any other food for fattening animals; when bullocks can get a good supply of these they will not eat their usual supply of cake. It is the most nutritious food, and those who believe in chemical analysis can readily understand this. Many a farmer who is getting rid of his stock at a low price from a dearth of green Clover or Grass, would find himself quite independent if he had recourse to his Bean crop, either for bullocks, horses, sheep, or pigs. But will it pay? I believe it to be the most effective plan for getting full value for your Bean crop. My bailiff said two years ago, when we had a long-strawed Bean crop, that it was worth 15*l.* an acre as compared with other feeding stuffs. The whole crop is thus consumed, stalk and all. The Beans should be well podded and green, and the chaff-cutter set to cut very short lengths, so that the Beans themselves are divided. It is this particular crop, so properly grown on stiff clays, that render those soils admirably adapted to the requirements of live stock in the critical months of July and August. My good friends, who so often say "show us your balance sheet," will please take note of this as one of the elements of successful farming. One acre of green Beans affords food for a great head of stock. *J. J. Mechi, July* 5.

The Weather and Crops in Essex and Suffolk.—The long-looked-for summer rains which fell on Friday and Saturday last, it is hoped universally, have proved beneficial to all growing crops, and our thanks to a kind Providence ought not to be forgotten, nor too fully and earnestly expressed to the Giver of all good. Wheat, the most prominent, and of greatest consequence to be noticed, is from the extreme drought and heat superlatively fine, and (as are all other crops) more precocious, or earlier than they have been for nearly 30 years, when about that time, I forget the precise year, much Wheat had been cut on the 10th, and carted and stacked by the middle of July, as it is probable it will this year. For want of labourers to cut and swathe corn in due and proper time, it will be necessary to have recourse to the free use of the reaping machine. On the heaviest and richest soils, Wheat is a very full crop, and barring a few, and in some cases many light and grainless ears, occasioned by nothing else but by being sown extravagantly thick, it is quite unprecedented and up to the mark, and an average of 7 qrs. per acre will be realised. On the light and poorest soils, where the continued frosts despoiled and weakened the plant, about 3½ qrs., and on the whole as a mean, and on mixed soils about 5¼ qrs., or 1½ qrs. above the common average of all years (4 qrs. per acre). It having escaped all injuries from storms, hail, and frosts at all the longest days, or season of its blossoming (an uncommon occurrence in this country), its ears are well set, from 20 to 30, and some even to 100-fold, with but very few abortive grains, or what is commonly termed the "red gum." The foliage, too, of the plant continues throughout healthy, presenting a continued green appearance, and not of a rusty or dirty yellow hue (mildewed) as it generally does in this climate as it approaches maturity. All crops too are standing up this year, whether sown thick or thin (this also is a rare occurrence, but does not imply that it is safe to sow above 1 bushel per acre to secure the best of results), and will tell well in the measure and quality. A handful of ears will handle this year as if the straw were laden with leaden bullets than feathers, like common ears of corn do in ordinary seasons. A pretty correct estimate may be made of any growing crop of Wheat by cutting a handful of ears, small and great promiscuously, blindfolded or indiscriminately, or in the night; and if they will average only 30 sound grains in each ear, allowing only 200 ears on each square yard, the estimation, reckoning 18,000 grains to a quart, will be nearly, omitting fractions, 50 bushels, 1 peck, 5 quarts per acre, and of course more or less proportionally as the number of ears and grains vary on the said square yard. Or as equally true a calculation may be made by cutting, threshing, and measuring the produce of a square yard, and multiplying it by 4840 for an acre. Rule:—about half a pint is found to be the result of the said yard in round numbers, omitting the fractional parts, if any; the quotient, by rule of three, will be 40 bushels per acre, and so on. Barley, on the whole, will be of a full average and early crop. An acre-field in this neighbourhood is already cut, as also Wheat on the marshes, self-sowed, is already cut and estimated at 5 qrs. per acre, 2 qrs. per acre being supposed to be destroyed by sparrows and other vexatious predatory birds on account of its precocity. Oats will prove below the average, except those sown before winter. All grain however will be short of straw, but yet of first-rate quality for fodder and cattle food, also for braiding. Early Beans and Peas are an average crop, as no lice or other vermin have infested them during their growth as they did last year. Early common field Peas are a full crop, but the latter and more delicate varieties of garden Peas have suffered by the heat and drought, having never expanded their blossoms, occasioning thereby in most instances where the land is poor, crippled, short, secundine or abortive pods with but one, two, or three Peas. Hay and Clover are extremely short, occasioned not only by drought and heat, but more especially by the severe frosts of the 1st and 29th of May, and at other intervals (when Walnuts were destroyed, as they often are) during that month. Let us hope and trust that by a kind Providence the aftermaths and after-feeds will compensate for this supposed loss when rain comes. Mangels will certainly be an abundant and full planted crop, from the land being deeply ploughed, dunged, and pulverised before winter, and will be the heaviest ever manifested in this county since their introduction. Turnips may yet be a crop, and free from amber, finger-and-toe, &c., though the grub, that formidable enemy, is greatly to be feared again this season. As yet they are a failure in plant, owing to the ravages of the fly. Potatos being small, will consequently be short of weight and measure, and I fear they are not yet safe from disease, as, contrary to former experiences, and as anomalous as it appears, the very earliest kinds, of which the writer cultivates in variety, are already infected with the usual malady, to an extent of one-fourth the entire crop. The lateral ones, however (though this is doubtful), may do better, as was the case last year after extreme drought. Fruit is forward, and will ripen well. *Experimenter, Maldon.*

Water in Wells.—I see that Mr. J. B. Denton requests measurements of wells. As I have some experience in this operation, I beg to suggest that the measurements be made to the surface of the water, and not to gauge the depth of water, except the first time. The test tackle is an ordinary measuring tape, which may be extended by the addition of the requisite length of twine, or, best of all, the twisted silk used by shoemakers, to the end of which a small float of wood, say 6 inches square and ½ inch thick, should be attached, the end of the string passing through a small hole in the centre of the float. To the end of the string a bullet or small weight may be tied, which when allowed to sink a short way into the water, and then drawn up till it touches the under side of the float, will show the depth to the surface of the water with the greatest accuracy, and there is no operation in which accuracy is more necessary, to make the observations really useful. *J. C. Clutterbuck.*

Foreign Correspondence.

Buenos Ayres: *Chacra de "Los Alamos," May* 25.—The gratifying acknowledgment you made of my paper on the Agriculture, &c., of Buenos Ayres, and your invitation to me to "report" occasionally, induces me again to take up my pen. The present highly interesting movement for the utilisation of sewage, and the large produce obtained in this country from Lucerne, have determined me to describe the treatment of the plant in these countries, adding some suggestions with the object of leading to attempts being made to introduce its more extended cultivation in the south of England, say the Maplin Sands, or other lands in the course of the London sewage culverts—lands on which permanent Grasses possibly may be the prevailing crops.

The variety of Lucerne almost universally grown in these countries is the Purple-flowered, and in a moist genial spring it frequently attains at the period of full flower a height or length of stem of five to six feet. The after cuttings, which are several, according to the purpose to which it is put, from (3) three to (6) six cuttings in the year—the former, if for hay, the latter for soiling—do not attain nearly so vigorous a growth, the absence of moisture and the hot sun contributing to this. The uplands are very much more under their influence, and the summer crops much lighter on them than on somewhat lower lands.

The Lucerne (Alfalfa) is grow to a very large extent on the slopes of the Cordilleras, in San Juan, Mendoza, &c., under irrigation. Immense meadows are laid down, regularly irrigated from the mountain streams, and depastured for very many years. The present owners of Alfalfars in these districts speak of their grandfathers having laid many of them down. In the lower lands of Buenos Ayres, without either irrigation or manure, the Alfalfars (Lucerne meadows) are mown year after year, and are of much shorter duration; 10 to 15 years will usually see the most of them out. The universal practice is to sow broadcast 25 lb. to 30 lb. of seed to the acre. I have this season laid down 40 acres (I am still mowing some 80 acres sown in 1852-3), on a piece of sloping ground, and as my tillage and appliances have been of a superior style to the usual practice, I will describe them as the best method practised in the country.

I first took a crop of Maize, which I hoed well, and earthed up with Howard's ridging ploughs. The crop being gathered by cutting the Maize, I allowed time for the roots to be partly decayed or softened, and then ploughed with "general purpose" ploughs, subsoiling the higher part of the slope. I worked the land with an extra strong Clay's cultivator, and fined it with Nicholson's jointed roller and frequent harrowings. In the spring, when all fear of frost had passed, I put in my seed, at the rate of 25 lb. per acre, with one of those excellent little American seed sowers, not unlike a coffee-mill, which distributes the seed evenly and well. I covered it with a chain harrow, and rolled with the previously named roller. My seed was the hill-grown seed from San Juan, which I much prefer, as being of a much longer lived plant than that of the plains. The season after sowing was very unfavourable, being unusually dry, so much so, that Lucerne meadows in their vigour at the same level yielded scarce anything at all after the first or spring mowing; nevertheless, as there was a moderate degree of moisture in the soil at the time of sowing, the seed germinated well. The best samples of seed are anything but pure, containing a considerable quantity of Charlock and other weeds, but as the majority of our Grasses and weeds are annuals, it is not of so great consequence, and more especially as the yield of Lucerne is but nominal the first year, though at the same time it is desirable to mow it two or three times in the season to cause the plant to thicken—to tiller as it were above and below ground. The earlier weeds having burst into flower I put on the mowing machines, and cleared the ground, and I have since repeated the operation twice. I have now after a fine rain (the Lucerne having had a hard struggle through the long and severe drought) a beautiful even carpet of emerald colour, the Lucerne covering the ground, and so strong as to bid defiance to any frost we may have in the winter, and so fully occupying the ground that weeds will have little chance and the spring mowing will leave it thoroughly clean; it will smother everything.

In the broadcast thick sowing adopted we look for two results, *i. e.* the smothering of all weeds and Grasses, and the less coarse growth of the plant, which enables us to get a beautiful class of hay, which would not be practicable under the usual system of drilling the seed practised in England, which necessitates also a constant hoeing, which would be impracticable here where labour is so scarce.

Haymaking of Lucerne is a totally different method from that of meadow hay, which the more you move, shake, and turn, the better it is, as it dries the more rapidly, and the mowing cannot injure it, whereas the less the Lucerne is moved the better, except in masses. The effect of moving Lucerne hay when the sun is strong and the heat great is to shake off all the leaf, leaving the bare stalk. The spring and autumn crop having been cut with the mowing machine, I leave until the flower is withered and the pulpiness of leaf and stalk has passed, which according to the weather and weight of crop may be a day more or less. I then put on the horse rake and follow with the forks, and make up lightly into small cocks. The following day I double the cocks, or I put three or four into one, according to the state of the hay, but without shaking it or opening it out more than can be helped, or I load the small cocks at once for the stack, each cock being as far as practicable lifted at one forking and handed from the cart in the same mass or flake, and the stackers receive it and place it in the same way, so that little or no leaf is lost. In the summer cut I gave the mowing machine half a day or one day's start, and then follow with the rake and cock at once. I frequently, in very drying weather, follow close after the mower, and carry the morning-cut hay to the stack in the afternoon or the following day. In parching weather no stacking can be done after the morning, for the slightest movement would shake out the leaf, even from the masses or flakes.

In this way I preserve the colour as well as the leaf, and even the flower entire and with colour. The hay comes out of the stack as fresh in colour as the day it went in.

The great enemy of Lucerne hay is wet. The slightest wet discolours it, and the slightest dampness from wet

(rain) at the stacking, moulds it. It is requisite if ra ned upon in the field to so far loose it cut of cock, as to get tolerably dry, and then re-cock and leave it to finish its drying thoroughly in the cock (after once being even slightly wet it has a greater tendency to lose leaf if exposed to the sun). I have gone into these details of the haymaking because of the acknowledged difficulty of making Lucerne hay, and because I have found that by these methods I have been entirely successful. I seldom leave the field for half-an-hour during the "getting" of my Alfalfa hay.

Lucerne will thrive on most soils; a cold clay, perhaps, excepted. A rich deep loam, of course, is the best; but a light sandy loam, or even sand, provided there is a good depth of more compact subsoil, will produce capital crops; more especially if there is a fair and good proportion of lime in it.

It will bear a considerable amount of water provided it does not stagnate on the surface, or under the surface. Where there is thorough drainage, natural or artificial, I am disposed to think it will bear any reasonable amount of irrigation by pipe or gravitation, and probably where a rich sewage irrigation can be applied, the very best land may prove to be a light porous surface soil; and on such lands it could advantageously be laid down with Italian Rye-grass thinly sown, or with a thin sowing of Oats, or Barley, or Rye, which growing more in the straw than the ear under the influence of sewage would make good "soiling" for cattle, cut at the time of shooting the ear.

The young Lucerne plant would be the better for the support of some other roots and branches than its own in the first year of irrigation on this class of soil. Broadcast sowing, too, I should think much preferable to drilling, as the ground would be more fully occupied by the plant, and the soil consolidated by its roots. Moreover, under sewage irrigation, plants far apart would attain to a very rank growth, precluding any possibility of good hay, though perhaps equally good as thinner stalked plants for soiling. Again, depasturing would not be advisable on drilled and hoed Lucerne. Lucerne, under all circumstances, should attain to its full vigour before any animals are turned on it to grass, but after it has attained full maturity, say 3 years, I believe that it may, even on irrigated lands, be grazed occasionally, and at some seasons of the year without material detriment, provided it is not eaten close, and animals not put on to it until it is well grown, and the surface sufficiently dry and consolidated. Anything like puddling is in the last degree prejudicial to Lucerne, and a plant in a hole made by the hoof of a horse or ox, and full of water for days, would have but a poor chance of life.

In choosing the ground for sowing I should give a preference to a gentle slope, especially if the irrigation is effected by gravitation; it may, indeed, be sown on a considerable slope, the ground being sufficiently firm to bear the flow of the sewage.

Alluvial deposits containing a quantity of shell lime in the subsoil should prove in England, as they do here, very favourable for sowing Lucerne.

Not only is lime a principal constituent of the ash of the plant, but it exercises a most favourable influence on it. When a large quantity of liquid is applied as a manure, the presence of lime is the more necessary; the duration, the length of life of the plant, will be materially influenced by the presence of lime in greater or less quantity. When there is not a considerable proportion of this alkaline earth in the soil or subsoil, a heavy dressing of lime turned under an 8 to 10-inch sod or furrow, or worked up with the soil previous to sowing, would not be undesirable.

As in all probability along the line of the sewage supply a large number of animals will be maintained for milk, butter, and meat supply, and for the most part "soiled" for six or seven months of the year, there can be no doubt of the value of Lucerne if it can be successfully grown. So great, I conceive, would be its value, that I believe it well worthy of the most careful and thorough trials on the most prominent varieties of soil and in the most suitable positions—possibly a close proximity to the sea would lessen the danger to the crop from frosts.

Should these lines induce the trial I shall rejoice, and should feel greatly obliged if gentlemen undertaking them would make known the results through your valuable Paper, where I might hope to have the gratification of seeing them chronicled. *Alamos, May* 25, 1865. [Many thanks.—The cultivation of Lucerne is well understood and practised in South Essex.]

Farmers' Clubs.

ISLINGTON: *The Horse Show, July* 8—13.—There were here in all nearly 400 entries, divided into 10 classes. The first class devoted to thoroughbred stallions; the second to stallions for roadsters or coaching stock; the third to riding horses, including those up to heavy weights, park hacks, and ladies' horses; the fourth class to hunters of five years old and upwards; the fifth to hunters of four years old; the sixth to carriage horses not under 15.3 hands, in match pairs; then a class for weight-carrying cobs, and three classes of ponies. It is not too much to say that in each and all of these classes were some of the finest specimens of horses to be met with even in England, which is saying a great deal in a few words. Foremost among the thoroughbred stallions is Caractacus, a winner of the blue riband of the turf, who took the 1st prize last year, and takes it again this. Scottish Chief takes the 3d prize, and though not now in training still looks as small a horse as ever, considering what he has done. The 2d prize goes to Diophantus, who ran so well in the Derby four years ago. Lord Clifden is also here, looking sadly fallen off in form. In coaching stallions one of the best shown is Prince of Wales, belonging to Mr. George Holmes. There are some fine specimens also shown in the minor hall. In riding horses the whole class is not only very numerous but very excellent. Among hunters Lord Spencer takes the 1st prize with Brown Stout, a magnificent animal standing over 16 hands high. It is among the hunters of four years old, however, that the best animals are to be found. This class is superb, as are also the weight-carrying cobs, some of which are the very perfection of what these stout, middle-aged gentlemen's horses should be. The class of carriage horses is small, but very good. The ponies, as usual, form the most numerous and the most popular class in the building. There are three classes of these animals, and nearly 100 have been sent in for competition. *Times.*

The following is the Prize List:—

THOROUGH-BRED STALLIONS.

JUDGES.—Lords Chesterfield, Falmouth, and Portsmouth.

1st, 100*l.*, with the Agricultural Hall Cup, value 25*l.*, to Mr. C. Snewing, Hollyweli, Watford (Caractacus); 2d, 50*l.*, to Mr. H. Goodchild, Stud Farm, Enfield (Diophantus); 3d, 25*l.*, to Mr. W. Donald, East Acton (Scottish Chief); extra prize, 10*l.*, to Mr. J. Casson, Middleton Lodge, Uphall (Motley).

COACHING STALLIONS.

JUDGES.—Mr. Harvey Farquhar, Colonel Maude, and Captain Percy Williams.

1st, of 40*l.*, to Mr. G. Holmes, Newbigen, Beverley (Prince of Wales); 2d, 20*l.*, to Mr. W. Jackson, Wiggenhall, St. Peter's, Lynn (Young Perfection).

ROADSTER STALLIONS.

JUDGES as for Coaching Stallions.

1st, 40*l.*, to Mr. W. Jackson, Lynn (Quicksilver); 2d, 20*l.*, to Mr. T. Phillippo, 57, London Wall (Young Performer); 3d, 10*l.*, to Mr. J. Goggs, Baddow Park, Chelmsford (Young Norfolk Phenomenon).

ALL-AGED HUNTERS.

JUDGES.—Lords Portsmouth and Suffield, and Captain Percy Williams.

Five years old and upwards, equal to not less than 15 st.—1st, 60*l.*, to Lord Spencer Althorp (Brown Stout); 2d, 30*l.*, to Mr. R. Goodliff, jun., Stow-Weedon; 3d, 15*l.*, to Mr. Westley Richards, St. James's Place (Alphabet).

Five years old and upwards, with no conditions as to weight-carrying.—1st, 30*l.*, to Mr. J. Ewins Bennett, Husbands Bosworth, Rugby (Lady Florence); 2d, 20*l.*, to Sir G. Strickland, Boynton, York (Adonis).

FOUR-YEAR-OLD HUNTERS.

JUDGES.—Lords Chesterfield and Suffield, and Captain Percy Williams.

1st, 25*l.*, to Mr. H. J. Percy, Howsenrigg, Aspatria (Ingleby); 2d, 20*l.*, to Mr. J. Musgrave, Pocklington (The Odd Number); 3d, 15*l.*, to Mr. W. H. Clark, Hook, Howden (Cotton Stockings).

CARRIAGE HORSES.

JUDGES.—Lord Chesterfield, Mr. Harvey Farquhar, and Colonel Maude.

Carriage Horses, not under 15 hands 3 inches, in match pairs—1st, 30*l.*, to Messrs. Wimbush, Halkin Street (bays); 2d, 20*l.*, to Mr. Cottrill, Motcomb Street (chesnuts).

Harness Horses in extra class, in pairs.—1st, 10*l.*, to Mr. F. Branwhite, Chapel House, Long Melford (roans); 2d, 5*l.*, to Mr. T. Houck, Tottenham (Turkish Arabs).

RIDING HORSES AND COBS.

JUDGES.—Messrs. J. Beattie, Harvey Farquhar, and Colonel Maude.

Riding Horses not under 15 hands.—1st, 25*l.*, to Mr. H. J. Percy, Aspatria (Crafty); 2d, 10*l.*, to Mr. W. Newton, East Ayton, York (Hawk).

Riding Horses equal to not less than 16st.—1st, 25*l.*, to Capt. Ferguson, Eaton Place (Carbine); 2d, 10*l.*, to Mr. C. Beart, Stow Bardolph, Downham (Princess).

Park Hacks, Ladies' Horses.—1st, 25*l.*, to Mr. G. D. Badham, Bulmer's Tye, Sudbury (Major); 2d, 10*l.*, to Mr. E. A. Sotheran, The Cedars, Kensington (Tiny).

Cobs not exceeding 14 hands 2 inches.—1st, 25*l.*, to Mr. H. J. Percy, Aspatria (Robin); 2d, 15*l.*, to Mr. James Russell, Petham Court, Eynsford.

PONIES.

JUDGES.—Mr. Bailey, Mr. Knight, and Colonel Maude.

Ponies not exceeding 13½ hands, in match pairs.—1st, 15*l.*, to Mr. J. Allen Ransome, Ipswich (Sprite and Fairy); 2d, 10*l.*, to Mr. T. B. Aysbford, Walham Green.

Ponies not exceeding 13½ hands, for saddle or harness.—1st, 15*l.*, to Mr. R. Glynes, The Minories (Polly); 2d, 10*l.*, to Mr. Harris Farquhar, Lowndes Square (Minnie Warren); 3d, 5*l.*, to Mr. J. Allen Ransome, Ipswich (Sprite).

Ponies not exceeding 12 hands, for saddle or harness—1st, 15*l.*, to Mr. E. Tailby, Birmingham (Billy); 2d, 10*l.*, to Mr. T. B. Myers, Porters, Herts (Tom Thumb); 3d, 5*l.*, to Mr. J. C. Circuit, Rainham (Tommy).

EXTRA CLASS.—Prizes of 5*l.* each to Mr. G. Bonner, Ruabon (stallion pony, Free Willie); Mr. E. Lumley, St. James's Street (stallion pony, Ruby); Mr. T. A. Jackson, Thornton House, Bradford (roadster stallion, Young Performer).

MIDLAND: *Sewage of Towns.*—At a recent meeting of this Society, Mr. KING said: Having felt anxious to investigate the statement of Mr. Houghton with regard to the value of sewage, he had made inquiries from the occupier of the meadows at Saltley to which it is applied (Mr. Burbidge), who informed him that 40 cows and two horses were kept on 30 acres from the 22d April to the 8th of May—16 days, and that that was all the stock which had been upon the land since last autumn. They were now being saved for mowing, but would not average 10 cwt. of hay per acre, and that of inferior quality. He thought the deterioration of those once valuable meadows would carry conviction that it was high time steps were taken to prevent further mischief, for to think of selling sewage which produced such injurious effects was altogether out of the question. In conclusion, he suggested that night soil or other manurial deposits should as far as practicable be kept out of the sewers, and he would add that the original system of "petties" was sound in principle, but wanted improvement in detail; for instead of these being cesspools all water should be kept out of them and the dry ashes from each dwelling put in continually. These would deodorise the night soil, take up the urine, and thereby produce a large supply of valuable manure without any nuisance or annoyance. This could then be conveyed to any distance with one-third of the trouble it caused in a wet state. Perhaps he might be told that plan was too late; but if Mr. Bannehr was correct when he said "only one-thirtieth part of the houses were provided with water closets," there was ample room for experiment.

Mr. WM. FOWLER, jun., fully agreed with one opinion, in which all seemed to concur—that the general introduction of the water-closet system in lieu of the old-fashioned privies and ashpits was a national misfortune. He, however, believed that system to be permanently established, and the question now to be considered was what was the most feasible and practicable way of dealing with it. He doubted the practicability of any system of interception whatever, which would on the one hand effectually prevent the pollution of rivers, and at the same time economically and profitably utilise the whole manurial elements of the sewage of large towns. Any system which fell short of these two requirements was not worthy of serious consideration. His own belief was that so long as the present system of sewerage continued, no effectual mode of disposing of it so as to prevent the pollution of rivers, and at the same time to utilise the manurial elements, was possible, excepting by means of irrigation. The whole philosophy of the question appeared to him to be embodied in the admirable report of the committee of which Lord Essex was chairman. By way of comparison he would take the case of Croydon, which he supposed might be considered one of the most successful instances of the utilisation of town sewage in the kingdom: but the circumstances of that place were peculiarly favourable.

The whole area is upon the chalk formation, and is of so porous and absorbent a character that when heavy storms occur a very large proportion of the rainfall is taken up by the land, instead of running rapidly off, and unduly swelling the volume of the sewage. The whole level of the country, and particularly of the farm on which the sewage is used, is remarkably adapted to the purpose, and the soil itself is so suited by nature for the reception of the sewage that it is not even necessary to drain it, except to a very limited extent. The farm is situated about two miles from the town, and the sewage is led with a rapid fall, by means of a carrier, partly open and partly covered, for about a mile. It then undergoes a rough process of filtration through gravel and straw, in a series of tanks, by means of which the solid portion is separated. Thence, by means of an open carrier, the liquid sewage is conveyed to the upper end of the farm, and by a series of open ditches, with stop gates, across the upper end of each field, and so, by small outlet gutters, is led over the whole surface of the land, draining off into the main ditch or carrier at the upper end of the field next below the one under irrigation. The sewage is always thus run over the land at least twice, and sometimes oftener, before it reaches the river, by which means it is rendered so free from impurity that the fish live and thrive at and below the outlet into the river, as if no such town as Croydon was in existence. A small portion only of the farm is in permanent turf, and nearly the whole of the remainder is arable land laid down with Italian Rye-grass, of which four, and sometimes five, crops in the year are cut, and good autumn and winter grazing afterwards got. This farm, about 250 acres in extent, the Croydon Local Board rent upon lease at 4*l.* per acre, and re-let it also upon lease at 5*l.* per acre, having in the first instance allowed the tenant 3*l.* per acre towards the cost of constructing the carriers, and levelling and adapting the land. The solid manure taken out of the filtering tanks (about 1000 tons per annum) is sold at 1*s.* 6*d.* per ton, and this is just about enough to pay for the labour required for attendance to the works, so that 250*l.* per annum is clear profit to the Board. The tenant is under covenant so to use and purify the sewage as to keep the Board free from claims for polluting the river, so that even in times of heavy rain or sudden storm every drop of the sewage is run over a greater or less extent of land, as occasion may require. The quantity of sewage is estimated at about one million gallons per day, and each portion of the land is saturated about once in every ten days, and is obliged to be so whether it requires it or not. It is estimated that about four or five thousand tons per acre is poured over the land in the course of the year. The population from which it is derived is from 17,000 to 20,000. The sewage is of capital quality, consisting only of surface water and house drainage, being free from all noxious ingredients arising from manufacturing processes.

With regard to Birmingham, there was no alternative but to carry out the same system upon a far more extensive scale, and under much less favourable circumstances. The Corporation must possess themselves, by compulsory purchase if necessary, of a large tract of land—probably not less than 1000 acres, which they must lay out and adapt it specially for the purpose of utilising the sewage: they must level it, and drain it where needful, construct the necessary carriers, and then either let it to one or more tenants, or failing that, occupy it themselves until the practicability of carrying out the system advantageously has been demonstrated; and he did not doubt the ultimate success of the operation. In conclusion, he begged leave to move the following amendment in the words of the report of Lord Essex's Committee:—"That the right way to dispose of town sewage is to apply it continuously to land, and it is only by such application that the pollution of rivers can be avoided."—Mr. T. B. WRIGHT seconded the proposition.

Mr. CHESSHIRE moved as a further amendment, "That this meeting is of opinion that any plan for utilising the sewage of towns which does not embrace the interception of fæcal matter before it arrives at the main sewers will be a complete

failure, whether viewed as an agricultural, commercial, or sanitary measure." He disagreed with Mr. Bannehr that the value of sewage was in the urine, and quoted Baron Liebig and others to substantiate his views. He asserted that the solid was the important fertilising matter, and that the great increase in the mortality of towns was owing to the collection of solid excrementitious matter in the sewers creating sewer gas; gastric fever being merely a polite name for what ought to be called sewer gas fever. He maintained that the only means of dealing with the question both in a sanitary and agricultural view was by interception—to deal with it at the starting point, and they could not fail. It might be done without any inconvenience or nuisance; and by that means they could get a manure for the farmers which could be sent to any distance and in an unlimited supply. —Mr. Adams, in supporting the amendment of Mr. Chesshire, read a report from Mr. George Gore, F.R.S., relative to the value of urine and fæces of human beings for manurial purposes, the data from which had been obtained from reliable authorities. It was to the effect that the per centage of valuable manure in fæces was about 27½ parts, and in urine about 5½ parts, and that one part by weight of fæces contained as much manure as five parts of urine; 8½ parts of urine were produced for every one part by weight of fæces: that, combined with the data just mentioned, showed the average daily value of fæces produced by each individual is to that of the urine as 1 is to 1·7.

Mr. T. B. Wright thought it was quite possible for any one to agree practically with both Mr. Fowler and Mr. Chesshire, for the reason that they referred to two entirely different matters. Mr. Fowler was prepared to deal with a state of things already in existence, and which was not likely to be set aside —the system of sewers through which the sewage of large towns passes. The question they had to decide then was, what they would do with the sewage? They would be compelled to use it in such a way as would not be a nuisance to the country, and especially to prevent its polluting the rivers. Public opinion, as far as he had been able to ascertain it, at the present time was, with regard to the largest cities and towns, that if they were to use the sewage matter with advantage, they must avail themselves of the powers given by the Legislature to local governments, and obtain land on which to employ it. They had heard a reliable statement of what was being done at Croydon, which he was informed other gentlemen from this locality besides Mr. Fowler had thoroughly investigated, and which had been fully described in our agricultural journals. They had also the Rugby and Edinburgh experiments for examples. As regarded the great scheme determined upon with respect to the sewage of London, he saw that Baron Liebig's opinion was that it would not be successful, because it would be found quite impossible to render the sand of the Essex Marshes productive on the plan proposed. Whether that was correct or not he could not say; but many practical men had arrived at an entirely different opinion, and they considered that sewage could only be advantageously used on land set apart for the purpose, on which a large quantity of succulent Grasses could be grown. By this means the supply of milk might be increased, which the Chairman would bear him out it was desirable to do. In addition to the production of milk it was contended that those Grasses might be made into hay, and that some of the artificial processes recommended for drying might be used, so that the crop would be readily transported a considerable distance. He agreed with Mr. Chesshire that in order to secure the health of towns, it was most desirable that some better method of dealing with refuse should be adopted; but as the water-closet system did not extend to more than a small part of the town, he thought the meeting would see there were two distinct things to deal with—first the refuse matter taken off in our sewers, and the other that which remained. They must necessarily have a system of sewers in towns, and whether the inhabitants would give up the present plan to commence another at an enormous cost, he was not prepared to say. He thought it was desirable that the meeting should express an opinion on the matter, and that the Corporation must ascertain whether land could not be obtained at some reasonable distance, on which to use the sewage.

Mr. R. Fowler, Jun., said that for 18 or 20 years he had applied the sewage from the outlet at Saltley to 50 acres of land, near that place, and he believed that when properly applied and attended to, a great benefit arose from its use. He thought the sewage matter of the greatest value to farmers, but as to the interception, that seemed to him like looking for a needle in a bottle of hay. His meadows were never so good as they had been these last two years, since the intercepting tanks had been built at Saltley, and the matter from the water-closets kept off the land.

Reviews.

The Quarterly Journal of Science. No. VII. July, 1865.

The current number of this most interesting quarterly Journal contains papers on Spectrum Analysis, on the Planet Mars, on the Causes of Pestilence, on Zoophytes, on the Water Supply in the New Red Sandstone Districts, and on the Depredations of Insects. This last communication we shall transfer to our columns. Besides these we have Chronicles of the various Sciences and Industries. The Chronicle of Agriculture during the past quarter refers to Dr. Anderson's experiments on Uric Acid, Dr. Voelcker's Lectures on Potash Salts in Manure and on Irrigation, Professor Coleman's Lectures on Cattle Foods and on Grassland Management, Mr. Bailey Denton's on Shelter for Cattle, Mr. Morton's on Agricultural Education, and Mr. Beale Browne's on Flax Culture.

We refer thus especially to whatever is strictly agricultural in the volume; but the rest of the work is full of matter in which any man of intelligence, whether he be agriculturist or not, must take great interest; and we feel certain that no more serviceable volume can be named by which the countryman can be kept informed of what is going on in the centres of thought and activity all around him.

Agriculture, Ancient and Modern: A Historical Account of its Principles and Practice, &c. By "The Old Norfolk Farmer." J. S. Virtue, City Road and Ivy Lane.

The 14th Part just issued contains the continuation of the chapter on Arboriculture; and then, with that curious incoherency of arrangement to which reference has more than once been made, it discusses the subject of Farm Buildings. At the close of the chapter on this subject there is a vigorous condemnation of the bothy system of some parts of Scotland—the frightful account of it by Mr. Scot Skirving — the report by the Presbytery of Caithness—the account of his experience by Mr. Henry Stephens, and, as favourable as any in its condemnation, the terms of praise in which its defenders have described it. The following is Hugh Miller's testimony regarding it:—

"The talented and lamented Hugh Miller was for many years a bothy-man, and, as a witness of the system, he was fully qualified to give a correct and truthful account of it; and what does he say of it? 'Bothy life almost never fails in essentially injuring the character of the farm-servant.' * * 'The farm-servant might be elevated far above the degraded level of the bothy, and unless means are taken to check the spread of the ruinous process of brute-making which the system involves, the Scottish people will sink, to a certainty, in the agricultural districts, from being one of the most provident, intelligent, and moral in Europe, to be one of the most licentious, reckless, and ignorant."

We add another extract from the account given of the lack of cottage accommodation in the country:—

"But what shall we say to those landowners who, instead of building suitable cottages for the peasantry on their estates, destroy those that do exist for the express purpose of compelling them to reside in other parishes, for the avowed design of reducing the present or prospective poor-rates? This nefarious system—we cannot give it a softer term—had its origin in the change in the arrangement of the land, so far as Scotland is concerned, by which the small occupations were thrown into large stock farms, and thus a number of cottages, the occupiers of which were no longer required on the land, were pulled down. 'The removal of these,' says Mr. Skirving, 'became almost a matter of necessity, and on all the valuable land they have long since disappeared. But because some old cottages had to make way for the plough of the improver, it seems, unfortunately, to have got into the heads of most of the owners of the soil, that all old houses should be pulled down; and it does not seem to have occurred to them that at least an equal number of new ones should have arisen in their stead. The work of demolition, which was at first confined to houses that were not required, or which were absolutely in the way, has been continued, and houses which were required, and which were not in the way, have been pulled down. The systematic destruction of cottages having once fairly begun, has been ruthlessly carried on, the motive for so doing being entirely changed. Formerly, a house was pulled down because it was a useless obstruction: it is now levelled for the avowed purpose of driving away the inhabitants. * * * With some men, fortunately a small minority, this cottage destruction seems to have become almost a mania. Increase of appetite has grown with what it fed on; and after such proprietors have levelled every old house they could lay their hands on within their own possessions, they have actually purchased houses, petty hamlets, and portions of villages, situated in their neighbourhood, and immediately on getting possession, have warned out the occupants, and pulled down the dwellings. The Rev. Dr. Colin Smith, chairman at a recent dinner given to the Duke of Argyle by his tenantry, was enabled to congratulate them on the fact that his Grace was not a 'devastator.' The word is an expressive one, and I gladly borrow it. The large landed proprietor who acts as I have just described is really a 'devastator,' and the greater the wealth which Providence has entrusted to his care, the greater the misfortune to the neighbourhood in which his property is placed.'

"This system has half depopulated many districts of Scotland, the inhabitants of the cottages thus pulled down being driven either to reside in towns or to emigrate. The consequence is inevitable, that enough able-bodied labourers are not left to cultivate the soil, and between the 'devastator' and the bothy, the one driving the peasantry away, the other preventing their legitimate increase, the diminution of the population becomes every year, and every census, more scanty. The worst of the case is that some who are looked upon as the most considerate landlords, do not scruple to set the example. Mr. Skirving says, 'It was only lately that one such, residing in a Midland county, remarked to me in the course of a casual conversation, 'I pull down every old house I can lay my hands on, and I have rooted a goodly lot out of that village there.' Accustomed as I was to such operations, I was startled to hear the sentiment so openly avowed by so excellent a man. I anxiously asked, what motives induced him to do so? 'Oh,' replied he, 'old cottages are perfect nuisances; the farmers want them to stand, that they may fill them with low fellows who work cheaper than proper servants do—that is the secret of the whole outcry about the old houses; they want to collect a lot of poor wretches to work at reduced wages, and the tumble-down cottages just become nests of paupers, pilferers, and poachers.' By the merest accident, in turning over the leaves of an old volume shortly after this conversation, my eye fell upon a passage describing the very village above alluded to, and the contrast was certainly curious between the present and the past mode of dealing with it. 'During the last 14 years,' says the writer in 1792, 'the village has increased by more than 20 per cent. This has arisen from the liberal encouragement given by the late proprietor to settlers on his estate. * * There is no village in this country where the inhabitants have improved more of late years in comfort and convenience. Formerly, their dwellings were no better than small dirty hovels; now they are all neat commodious houses, generally with two apartments, and well lighted.' It is this village that is now voted a nuisance; it is the 'neat commodious houses' of 1792 that are being got rid of, and that by a most estimable country gentleman.'

"We have before referred to this subject (vol. i. p. 50), and have pointed out the demoralising effect such a system must produce upon the mind of the labourer. What can be expected from a man, helpless and dependent as is the agricultural labourer, when he sees the simplest and most common claim of humanity, in his case, set at nought by the man who by his position and power, ought to be his protector, instead of his 'devastator.' Undoubtedly, when a labourer is driven from his parish to seek a lodging 3 or 4 miles from his work, which distance he has to walk morning and night, his ability to perform the accustomed task must be proportionately weakened, and his constitution injured. And thus the farmer, and through him the landlord himself, suffers from the system, whilst the poor peasant's days are shortened by it."

Farm Memoranda.

Mr. Pollok's Property in County Galway.—In 1853-54, Mr. Allan Pollok, a gentleman connected with the west of Scotland, purchased certain estates in the county of Galway, which had been brought to sale through the medium of the Incumbered Estates Court. The lands acquired by Mr. Pollok in this way amount altogether to about 28,000 acres, and may be said to consist of two estates—namely, that of Lismany, situated about five miles south from Ballinasloe, a town long celebrated for its large cattle, sheep, and horse fairs; and that of Creggs and Glinsk, which lie twenty miles north of Ballinasloe, near the junction of the counties of Galway and Roscommon.

Although there were some considerable grazing farms on these estates, particularly the Lismany property, when Mr. Pollok became the proprietor, the leading features, as in the case of many estates in Ireland, were the number of small holders—some of whom held directly from the landlord, while others were sub-tenants—and cottars, who merely possessed a cabin and a Potato-patch. A glance at the maps of the estates at that time shows that the surface was cut up into innumerable small fields, of all sizes and shapes, divided by fences consisting chiefly of low banks of earth, a rickle of stones, or poor, straggling Thorn hedges, full of gaps, and of little use either as fences or for the shelter they afforded to stock. Plenty of such fences yet exist in the neighbourhood of Mr. Pollok's estate, although in his case they have been superseded by substantial stone walls five feet in height, being either dry-stone walls dashed with lime, or built partly with mortar, which renders them still more substantial.

The numerous occupants on the estates gave rise at first to a good deal of trouble, as they were unwilling to relinquish possession of their small holdings. This arose, no doubt, from their inability to understand the real nature of the improvements contemplated by their new landlord. They imagined that, with their removal from their holdings, every source of obtaining a subsistence for themselves and their families, miserable as that had always been, would be wholly withdrawn, and that there was no other alternative for them save the workhouse. They expected—naturally enough, from what they had seen in other cases—that the object sought for in getting possession of their holdings was to turn all into huge Grass farms which would not afford any employment save for a few herdsmen. Nor were those poor people singular in their ideas. Even men of higher standing, who might have known better, looked upon Mr. Pollok's preliminary movements as preparatory to a general depopulation of the country, and an increase in the taxation, from the number of paupers which would be

cast upon the different unions; and the consequence was, that Mr. Pollok for a short time enjoyed the honour of being "the best abused man" of the day in Ireland. The matter was even formally brought before the House of Commons by some Irish members, and certain extremely distorted statements and extraordinary ideas were gravely put forward on that occasion as undeniable facts.

But it was by no means Mr. Pollok's intention either to treat the people unfairly or to sink them deeper into pauperism, if such were possible. Every man who held a perch of land on his newly-acquired estates, and who therefore had, or fancied he had, a claim, was paid liberally when it became necessary to get possession of his holding. Their little crops, and whatever live stock they possessed, even their donkeys and poultry, were all purchased and paid for at high rates, while the people themselves were again put into their cabins, with liberty to cut as much turf or peats as they required for their own use; and instead of being thrown into the poorhouse, regular employment was given to all who were able and willing to work, at wages ranging from 14*d.* to 20*d.* daily, when in former times they never got more than from 4*d.* to 6*d.* a day, and that on rare occasions and at long intervals.

* * * *

Upwards of 340,000*l.* have been expended in wages by Mr. Pollok on his Galway estates for farm-labour and permanent improvements, such as draining, fencing, &c., exclusive of the cost of the buildings erected on the property, which item alone has amounted to 65,000*l.*, being altogether an outlay of 405,000*l.* on estates where, probably, for the 10 or 12 years preceding Mr. Pollok's purchase of them, there were not as many pence expended in the shape of wages as he has laid out pounds.

* * * *

When Mr. Pollok got the Lismany estate, it was held partly in grazing farms ranging in extent from 250 to 1000 acres, and partly by tenants whose farms did not exceed 10 or 12 acres. The latter cultivated their little holdings, but the manner in which this had been done was most injurious to the land, which was consequently in a thoroughly exhausted state. Some of the land is dry enough for all purposes, but draining was required for the most part; and indeed certain portions of the property were so liable to be flooded, that for several months in each year they were not worth 6*d.* an acre.

One part of Mr. Pollok's plan was to divide the estate into a larger class of farms, and put them in a suitable state for carrying out a system of mixed husbandry upon them. Of the newly arranged farms that of Ganaveen is the largest, and as it may be considered Mr. Pollok's home-farm, we shall turn our attention to it in the first place. Ganaveen contains altogether 4000 acres, and possesses a farm-steading equal to its great extent. The main set of offices form a mass, constructed on the covered-in principle, having a barn with granaries three storeys in height placed in the centre. Inside of the square, but outside the main building, are a series of cattle-sheds, cart-sheds, forge, and other conveniences, including a gas-work, where the gas used in lighting Lismany House and stables, as well as the farm-steading, is manufactured. Altogether there is accommodation at Ganaveen for about 500 head of cattle, besides the stables, root stores, &c., which are included within the covered-in space. From the end of autumn until the end of spring there are altogether upwards of 750 head of cattle kept in the Ganaveen byres, the place of those which are first sent off to market being supplied by fresh beasts. There is also a large flock of sheep, fattening as well as breeding stock, kept on the farm during the winter, while the summer complement amounts to 800 cattle, 5500 sheep, and about 130 horses, young and old. Mr. Pollok breeds a large number of horses every year, using thorough-bred sires, and several of the young horses are also out of throrough-bred dams. The sires latterly used have been Audubon—by Irish Birdcatcher—and Elderslie, both of which are his own property; and he has also young stock by Will Scarlet, Roebuck, Magnum, and De Ruyter. A regular establishment is kept up at Sycamore Hill, which is part of the Ganaveen farm, for the purpose of breaking in the young horses as hunters, &c. Mr. Pollok has succeeded in improving this department of his live stock very much of late; and most of the young horses promise to come out well, having both strength and action.

Mr. Pollok takes the entire management of Ganaveen into his own hands, putting himself, however, in the position of a tenant farming for profit, and not as a proprietor who merely does it for amusement. A fair rent is charged, and also interest at 5 per cent. on the capital invested, and on all the permanent improvements which have been made on the farm. It is not our business to say the precise amount of rent laid on the farm; but this much we may state, that it is, as we have said, a fair rent; and that on the 31st of last March, being the period at which the accounts for the year were closed, the valuation of stock, crop, and implements on the farm amounted to 27,551*l.*, although a large portion of last year's crop had been used, and a considerable number of fat beasts and sheep sent to market.

The entire crops grown on the farm are consumed by the animals maintained upon it, as Mr. Pollok considers that, from the position of his property with respect to markets—were it for no other reason—it is more profitable to convert his grain into beef, mutton, and wool, than to dispose of it in its natural state. But in carrying out this principle even the home-grown supplies are found insufficient for the purpose, and therefore he expends about 3000*l.* a year in the purchase of grain, hay (which it is cheaper to buy in that district than to grow), and cake. The grain is all prepared for use at a splendid mill he has erected at Ochilmore, near Lismany, which is driven both by steam and water power, and fitted up with all the best machinery for milling purposes of every nature. This mill is kept almost constantly at work for the use of Mr. Pollok's farms, and is a most important auxiliary in the conversion of grain into meat.

There is, of course, an immense quantity of farmyard manure annually made at Ganaveen, but even that supply is assisted by large purchases of artificial manures. Upwards of 500*l.* were paid last year for superphosphates, &c., used at Ganaveen; but besides this there are always considerable quantities of bone-dust ground at the Ochilmore mill for the use of the different farms,—a number of people making a trade of collecting bones throughout the country, which they sell to Mr. Pollok. A few years ago, when he had more of the property in his own hands, Mr. Pollok was in the habit of importing large quantities of guano direct from the Chincha Islands for his own use; but he can now get on without doing so, having let some of his farms, and being better supplied with home manures.

From being mostly a tract of exhausted land, Ganaveen is now in fine heart, and improving in this respect every year. Mr. Pollok does not grow much Wheat upon it, but his Oat and root crops have been very productive and heavy. Turnips are grown in great perfection, not only at Ganaveen, but on all the farms on the estate; and Mangel Wurzel and Field Cabbage, both of which are most valuable crops, are successfully cultivated. Of late years Mr. Pollok has adopted the plan of sowing down his Grass seeds without a crop where permanent pasture is the object, and finds that it answers remarkably well. A small quantity of Vetches and Barley—say three-fourths of a bushel of each to the imperial acre—are sown with the Grass seeds, which allows the sheep to be put in the field sooner than would otherwise be the case. Last year the seeds were sown early in April, and the sheep were put on the crop by the 4th of June. They were allowed the run of the field, and the quantity of stock which the land maintained throughout the season was something astonishing. This year he has sown down 70 imperial acres in the same way. When the sheep are fed on Turnips during winter, they are not netted on the crop, but get the Turnips cut and scattered on a Grass field, as the land does not suit folding, which appears to be generally the case in the limestone districts of Ireland. With cut Turnips on the Grass, and crushed grain and chaff in boxes, the sheep thrive well, and improve the pasture, which is a matter of much importance.

It has been stated that the farm of Ganaveen is under Mr. Pollok's own management; the other places on the Lismany property which are still in his hands are looked after by his agent, Mr. Algie, each farm having a resident steward or grieve. The most important of these farms are Ballyhoose and Kylemore, which form one continuous tract with the lands of Ganaveen and Lismany. Ballyhoose contains 1000 acres, and Kylemore 400 acres, and on both places a considerable extent of bog or Moss has been reclaimed. The steading at Ballyhoose is built on the covered-in principle, enclosed by a high wall, against which are placed ranges of sheds, divided into boxes for cattle. The system followed on all the farms is much alike, there being perhaps occasionally some difference as to arrangement of the stock; as, for instance, at Kylemore, where the cattle kept are chiefly dairy cows, while at Ballyhoose we find beasts in preparation for the butcher, with some young stock. There is a flock of sheep on each farm, and it is at Ballyhoose that the beasts from this property, which Mr. Pollok prepares for the Christmas fat shows at London, Liverpool, and Dublin, are brought up to the mark. An excellent tilery has been erected on that part of the estate, and also a very handsome school and schoolmaster's house.

Among the other improvements on the Lismany estate, the drainage of a large extent of what are termed "callows" in that part of Ireland, is perhaps not the least important. The callows consist of low flat land near a river, and liable to be overflowed, as well as being always in a damp state in the driest seasons. The term "haughs" would not be applicable, as callows are more of the nature of a marsh or swamp than the haughs which lie on the margin of a Scotch stream. A portion of the callows on this part of Mr. Pollok's property lie too low, and have not sufficient fall, to admit of thorough drainage; but the greater portion has been laid dry by means of opening up and straightening the course of a sluggish river which ran through the land. This cutting was 20 feet wide, and 5 feet deep, a deal of it being through solid rock, which of course increased the expense considerably. Having secured the efficiency of the main outlet in this manner, the next step was to thorough-drain the land by 4-feet parallel drains with pipes, and the result is, that a tract of land which formerly was not worth sixpence an acre for the most part of the year, is now good pasture, Highland bullocks, in particular, doing remarkably well upon it; and thus those hitherto unproductive lands assist in no small degree in that vastly increased production of meat for the use of the community which has been a natural consequence of Mr. Pollok's undertakings.

The Highland cattle fed on the Lismany estate are bred for the most part on his property in Argyleshire, but he has also a large number of Galloway beasts which he breeds on his Irish lands. The heifers of both breeds are put to Short-horn bulls, and the crosses produced in this manner have placed Mr. Pollok's name high in the list of exhibitors at the Christmas fat shows. For several years he has carried off the leading prizes in Dublin, finally winning a 50*l.* challenge cup, which had to be competed for and won three successive years before it could become the property of any one. That cup was won with crosses of the Short-horn and Galloway, beating pure Short-horns. Mr. Pollok has given another 50*l.* cup to the Royal Dublin Society in lieu of that which he won; and although he has not competed for it himself, it was a heifer bred by him, but sold to a Dublin salesman, which took it two years in succession. She was a cross of the Short-horn and Hereford, and this cross is also being partially carried out by Mr. Pollok through some pure Hereford cows and heifers which he imported from the West of England. The crosses of the Short-horn with Galloway and Highland cattle have also been exhibited successfully for some years by Mr. Pollok at the leading English shows; and those he has in preparation at present for coming exhibitions are fully as good, if not better, than any he ever had, some of them being extraordinary animals. It is a great pity there are not more of those crosses bred in Ireland, for they evidently suit the country, and are very remunerative. *The Journal of Agriculture.*

Miscellaneous.

A Veteran Sportsman.—Mr. William Thurston, of the White House, Dymock, Gloucestershire, died on Sunday morning at the ripe old age of 92. In that house he had lived all his farming days; in that same house the "Man of Ross" was born. Mr. Thurston was a veteran sportsman of the old school, used to the days when the horn of the hunter awakened the echo of the dales at the hour of early dawn. It was he who taught the late Sir Joseph Thackwell to ride to hounds, and gave that impulse to his daring spirit which afterwards grew into those deeds of valour that obtained a nation's thanks. And many a happy reminiscence of the old man can Mr. John Cam Thackwell, the present Master of the Ledbury Hounds, call to mind. Often in the freedom of after-dinner talk has Mr. Thackwell been heard calling back to the old huntsman's memory the beauty or swiftness of some favourite hound, the length of some well-remembered run when they were the only two in to witness the death. And not sportsmen alone will regret his death. Many an one can testify that he "ne'er forgot the poor." *Gloucester Chronicle.*

Pioneers of Steam Cultivation.—They ought as farmers to feel very much indebted to those gentlemen who had spent their time and their money in endeavouring to bring agricultural implements as near as possible to perfection. Messrs. Howard had taken great pains, spent a great deal of money, and done a great deal of good: Mr. Fowler, a man of ten thousand, had fagged in the most unwearied manner; and great credit was also due to Mr. Williams and others, for the energy which they had brought to bear on the improvement of steam cultivation. But all the honours were not due to those men; great honour was also due to the man who started the hare. The development of steam power as applied to the land had been a very nice little game throughout; there had been a great deal of amusement as well as benefit, and some credit should certainly be given to the man who started the hare—Mr. Smith, of Woolston, as well as to those who had made the running. He (Mr. Dring) was, he believed, the first tenant farmer in England who bought, in a humble way, a set of steam tackle. That tackle was provided for him by Mr. Smith, and though he had had it for some years, he was prepared to run it against the apparatus of any modern manufacturer. *Mr. Dring, of Spilsby.*

Threshing Machines and Hand Labour.—The way to find employment for labourers is to improve agriculture in all its details. No doubt, so far as the preparation of grain is concerned, the employment of machines diminishes labour; but as regards the whole art of farming, of which this is but one small item, the result is very different. Everything which cheapens any of the processes, and therefore the products, of any business, tends, by increasing the demand for those products, to attract capital to their manufacture; and the invariable result of that is to give increased scope for the employment of labour. This is a real chain of cause and effect; and worthy of more confidence than it generally receives.

Calendar of Operations.

JULY.—*Food for Cows.*—The milking cows by this time may be turned to the most forward Grass in the richest pastures, and as their supply of this food must be variable, depending very much on the season being a forward one or otherwise, a good dairy farmer should provide a supply of Rye or Italian Rye-grass, so that a little given in the yards when the cows come to be milked will give them abundance of green food, as it is

found they refuse hay. Even when they have not a full supply from the pastures they will not readily make a good meal of dry food after tasting the green; and if it is not sufficient to satisfy them, they roam about restless and uneasy, and of course fail to yield anything like a full supply of milk; and as the produce this month is considered very good in quality, the quantity should be by all means secured to be as great as possible.

It is of great importance that good water should be supplied to dairy cows. A stream that has been some little while exposed to the air after rising from the spring before running through their pastures, is considered the best water, and the drinking place should have the soil removed and filled with clean gravel or sand, so that the water may pass through pure and fresh. Cows much prefer drinking from a narrow trough or hole, and are shy of going to a large surface of water, though there should be abundant access and egress to and from the watering place, or the master cows will often damage the others in meeting them.

Food for Calves.—The weaning calves should get fed now as described last month, the only difference being in the case of the older ones, which may be gradually getting a diminished quantity of linseed or oatmeal; this of course being less needful for them as they become stronger and more able to eat other food provided for them. They should have a sunny field to run in by day, with some Grass to pick from it, but through this month it has been found that they do better on finely-cut Swedes or Mangel Wurzel and good hay on which they will feed plentifully, having the moisture of a little skim-milk or the mixture of Linseed or Oatmeal, which, though much diminished in quality, should be given a little warm, though it should become gradually cooler as the calves get older. Should Grass be supplied at this time as their staple food, it is found to produce too great looseness in the bowels, to which calves are particularly liable, and carefully guarding against this is very essential to their starting into strong growth. They have been found to do far better in small numbers together, on account of their great disposition to feed and lie constantly very close together; and their readily taking any infectious disorder renders careful attention to what may appear trifles in the rearing of calves very desirable. A strong, healthy herd of dairy cows, which have been proved to be far more useful and profitable when weaned or reared on the farm than if purchased at market, and brought on the farm at almost any age, will be thus obtained. They should have warm sheds by night, in which to receive their hay and roots, and it has been found a very good plan to tie them up to give them their milk, as it makes the animals quiet, and each one then gets its proper quantity undisturbed; and if convenient to allow them to remain tied for a short time afterwards until they like to eat their hay after having their liquid food, all the better; as it prevents their sucking each other's ears or skins, which is often productive of much harm.

Swine.—It is calculated that about one pig can be reared on the sour whey for every two cows in the dairy. Supposing a dairy to consist of 50 cows, three breeding sows, reckoning that each one would have eight young pigs, might be kept, giving them a run in any rough Grass under orchard trees not much used for other purposes: their pigs receiving as much of the sour whey as they will drink, will make strong growing pigs. The whey is much better for pigs' food when old, or at least some mixture of it should be so; and if it be used daily from the vat, which is as often getting replenished from the dairy, it makes a very wholesome drink for pigs, on which they will grow and do remarkably well. And as the pigs are small to begin upon it, and do not drink so much as afterwards, a stock collects for their larger appetites, and this with the wash which large farm houses must supply, with garden refuse thrown in it in the summer in addition, is found enough to keep the number of pigs mentioned, viz., about one of the age and description given to every two dairy cows in milk.

We quote from Fullarton's work on Dairying, reviewed last week, a passage suited to the present season on *Summer Soiling*:—

"This mode may be explained as simply consisting of the permanent housing of the animals throughout the summer, with the exception of a short run in a paddock or yard, for an hour or so each day; the animals being supplied with cut food, as Rye-grass, Vetches, Clover, or the like; supplemented with dry foods, as hay, Bean, Pea, or oatmeal and oilcake. There can be no doubt that this system is much more economically carried out than that of pasturage, which we have already described. The following remarks, as to the mode of best securing the advantages of this system, will here be found useful. 'In conducting,' says the author of 'British Husbandry,' 'the soiling system, it is desirable to give the food often, and in small quantities, as otherwise the cattle will blow upon and reject it; added to which, if it be given in such abundance as to clog them, it will not afterwards be relished, and the beasts will consequently suffer in condition. Attention should, therefore, be paid, to have the remains of the food immediately removed, when the stock have done with it; or, indeed, rather before they are quite satiated. Green food, it should be observed, should be sparingly given at first; as otherwise, the greediness of the cattle, when put to it after dry food, not unfrequently occasions the accident known as 'hoving.' Thus Tares, Lucerne, Clover, and all those Grasses relishing to cattle of every description, and equally favourable to health, may prove noxious if taken in too great a quantity. The air which they engender swells one of their stomachs, the tension obstructs rumination, and its effects cause death if speedy assistance be not given to facilitate the evacuation of the condensed air, and the passage of the blood in the large vessels. Straw should also be given as fodder in order to correct any disposition to looseness in the bowels; and we have heard the tops of the common Heather recommended as a condiment which prevents all appearance of scouring.

"'The different varieties should also be occasionally changed; for animals like the various qualities of food, and if these be judiciously mingled, as circumstances and the successive growth of crops may admit, the appetite will be provoked, and the health and thriving of the creatures will be thus progressively improved. Indeed, were green crops of the several varieties to be regularly cultivated throughout the year—what with fog reserved from the pasture, Rye-grass, winter Tares, Kail and Lucerne in the early part of spring; Clover, spring Tares, Sainfoin, and the further cuts of Lucerne during summer; the aftermath of the meadows, and Clover for the autumn, together with the crops of Turnips, Mangel Wurzel, and Potatos for the winter months; the process of feeding, even without any assistance from hay, need never stand still.

"'In the early part of the season, when Tares and Clover are either inadequate to the support of the stock, or that it may be thought expedient to change them gradually from dry to green food, a portion of these Grasses may be mixed with the hay or straw on which the cattle are fed: and if the mixture be made up over night, the dry provender will be found to have acquired a sweet vegetable taste, and thus rendered so moist and palatable as to be more readily eaten; but it is an error to suppose that straw, given before Grass and Turnips, will have any good effect upon the cattle; for they, in a short time, will refuse to eat it. When Grass, whether natural or artificial, is to be given, it should be cut twice in the day, early in the morning and late at night, so as to avoid the withering heat of the noonday; for, if not more nutritious, it is at least more palatable in a fresh state than when stale, and the danger of hoving can be guarded against by due circumspection in the quantity to be given at each time. 'Attention should also be paid to the due proportion to be cut; and until that fact be ascertained, it is a good plan to measure out each mess, and to chalk down the quantity in weight which the basket, cart, or other vehicle employed for carrying the food, contains of the various articles used for that purpose. The practice will at least have a tendency to teach farm servants to observe method, the value of which is of considerable importance in all business, and in none more than in the various branches connected with husbandry.' People object, indeed, that such a mode of feeding is troublesome, and that the old way is more easy and convenient, but we are yet to learn the branch of good management which can be executed without some trouble; or to see the same profit derived from slovenliness as from care and attention."

Haymaking.—If every blade of Grass could be exposed as soon as cut to a temperature somewhat under that of boiling water until perfectly dry, and then packed away under a water-proof roof, the hay would be as good as such Grass could yield; the whole nutriment which the Grass contained would be present in the hay, undiminished by washing or by fermentation. For the best hay there is needed the best Grass, cut when containing the greatest quantity of nutriment, and dried rapidly and perfectly. To this end the Grass fields of Herts, Middlesex, and Surrey, where the best hay is made, are cut soon after they are in flower and perpetually tedded and shaken out, no two blades being allowed to stick together while drying. The hay, with certainly a little loss of colour, is thus simply dry green Grass. It heats hardly at all when put together, and so far as the food is concerned that was in the field, it is all and undiminished in the rick. Just in proportion as it resembles this, is haymaking good.

Notices to Correspondents.

Seed for Artificial Pasturage: *Constant Reader.* We extract the following Table from Lawson's "Agriculturists' Manual:"—

For Alternate Husbandry.

	Light and Medium Soils.			Heavy soils.		
	1 year's hay.	1 year's hay and 1 year's pasture.	1 year's hay and 2 years' pasture.	1 year's hay.	1 year's hay and 1 year's pasture.	1 year's hay and 2 years' pasture.
Lolium perenne	18lb	18 lb.	18 lb	18lb	18 lb.	18 lb.
Phleum pratense	..	..	..	1	1	1
Trifolium pratense ..	8	6	3	8	6	3
" perenne ..	..	..	3	..	..	3
" repens	2	4	4	2	4	4
Medicago lupulina ..	..	2	2	..	2	2
	28	30	30	29	31	31

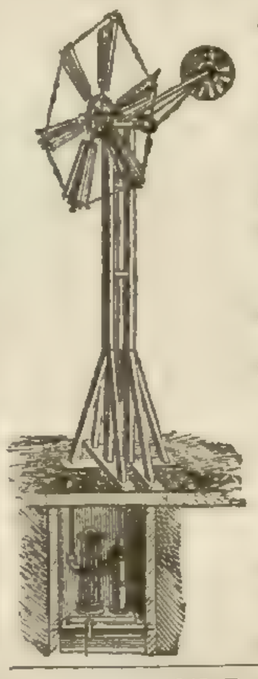
Straw: *C.*—Its nutritiveness depends on its state of ripeness. Under similar circumstances the best straw for fodder is that of the Oat. Barley is, however, generally preferred, because Clover is grown generally in it, and some of it thus harvested along with it. If it be cut before becoming ripe, Bean straw is the best fodder you can get.

£1000 UPON the WOOLSTON TACKLE against the NEWCASTLE "best application."
William Smith, Woolston, Bletchley Station.

CLAYTON, SHUTTLEWORTH, AND CO., Engineers, Manufacturers of PORTABLE and FIXED STEAM ENGINES, Machinery for Pumping, Hoisting, Grinding, Sawing, &c., Engines for Steam Cultivation, Self-Moving Engines for Common Roads and Agricultural Purposes generally.

Stamp End Works, Lincoln, and 78, Lombard Street, London; also at Lowengasse, No. 44, Landstrasse, Vienna; and Gegenüber dem Bahnhof, Pesth.

Descriptive, Illustrated, and Priced Catalogues, Free per Post. Special Drawings when required.
[*The best Steam Threshing Machinery made.*]



As Exhibited at Royal Agricultural Shows—
Worcester, 1863; Newcastle, 1864; and Plymouth, 1865.

WIND ENGINE (Patent Self-Regulating), for PUMPING, CHAFF CUTTING, PULPING, GRINDING, THRESHING, OAT CRUSHING, SAWING, or DRIVING other MACHINES.

Powers, from ½ to 12 Horses.

For Farm Purposes most economical, costing nothing to work. Erection simple and cheap.

For Pumping invaluable, working day and night, requiring no watching.

BURY and POLLARD,
Sole Manufacturers,
Park Iron Works,
17, New Park Street, Southwark, London,

Where a Wind Engine that has been at work seven years may be inspected.

Prices, with Testimonials, by post for one stamp.

Oil Paint no longer Necessary.

HILL and SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is full two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which Hill & Smith will forward on application.

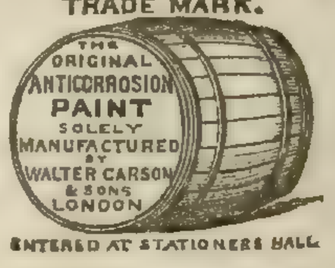
From the Right Hon. the Earl of Shannon, *Castle Martyr, near Cork.*

"Gentlemen,—I have used your Black Varnish for several years, and consider it very superior, both for iron and wood work out of doors, to anything I have ever used. I shall always continue to use it. Near the sea it is particularly valuable, as it stands exposure when paint becomes corroded. I consider the iron Barrow essential to its use."

Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the kingdom.

Apply to Hill & Smith, Brierly Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C., from whom only it can be obtained.

TRADE MARK.



ENTERED AT STATIONERS HALL.

WALTER CARSON and SONS, of Great Winchester Street, respectfully notify that they have removed their principal office to their Warehouse in LA BELLE SAUVAGE YARD, Ludgate Hill, E.C. (three doors East of Railway Viaduct), and have discontinued their West-end Office, 31, St. James's Street.

CARSONS' ANTI-CORROSION PAINT, specially manufactured for out-door work, is the best and cheapest. All colours. Is simple in application, so that any person can use it.

Is twice as durable as genuine white lead. See Testimonials and with patterns and prices post free.

Three cwt. carriage free to any station in England and Wales, and most Seaports of the United Kingdom.

CARSONS' ANTI-CORROSION PAINT used by nearly all the eminent Horticulturists, the Nobility and Gentry, for their Gardens.

CARSONS' PAINT for CONSERVATORIES.

CARSONS' PAINT for GREENHOUSES.

CARSONS' PAINT for HOTHOUSES.

CARSONS' PAINT for all OUT-DOOR WORK.

CARSONS' PAINT for WOOD and IRON WORK.

CARSONS' PAINT for BRICK and COMPO.

CARSONS' PAINT for PARK FENCING.

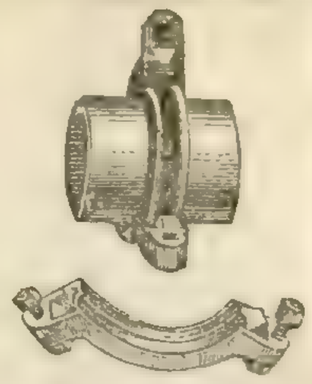
CARSONS' PAINT for FARM BUILDINGS.

CARSONS' PAINT for IRON HURDLING.

CARSONS' ANTI-CORROSION PAINT will keep for years in a dry place. All orders to be sent direct to Walter Carson & Sons, La Belle Sauvage Yard, Ludgate Hill, E.C.
Three doors East of Railway Viaduct.

HOT-WATER APPARATUS,

WITH TRUSS' PATENT PIPE JOINTS.



T. S. TRUSS, C.E.,

53, GRACECHURCH STREET, LONDON, E.C.

By means of these Joints the work is executed in less than half the time required for Socket Joints, and alterations can at any time be made, or the entire Apparatus removed and erected elsewhere with the greatest facility. A considerable saving in cost is also effected.

These Joints have been used for several years, giving entire satisfaction, and may be seen in use at the Royal Horticultural Society's Gardens, South Kensington and Chiswick, and many other places in Horticultural and Public Buildings.

For a few prices, see last week's Advertisement.

ESTIMATES, PLANS, AND PRICE LISTS FORWARDED ON APPLICATION.

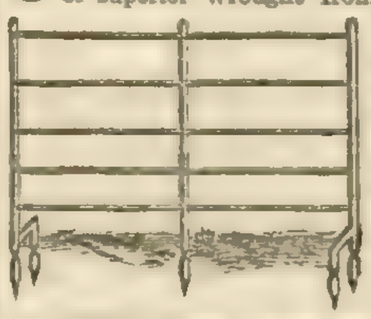
SHAW'S TIFFANY.

For samples and prices apply to

J. SHAW & Co., 29, Oxford Street, Manchester.

Iron Hurdles, Fencing, and Gates.

COTTAM'S HURDLES are made in the best manner of superior Wrought Iron. SHEEP HURDLES, from 4s.; CATTLE HURDLES, from 4s. 11d. each; CONTINUOUS FENCE, from 8d. per foot; FIELD GATES, from 25s. each. Illustrated Price List on application.



ENTRANCE GATES, RAILING, and IRON WORK of every description. Designs and Estimates free of

COTTAM & Co.,
No. 2, Winsley Street
(opposite the Pantheon),
Oxford Street, London, W.

By Royal Letters Patent.

WELLS' PORTABLE FOLDING GROUND VINERY,
for Growing and Ripening Grapes without artificial heat.

Awarded a SILVER MEDAL at the International Exposition of Horticulture held at Nice, April 1865.

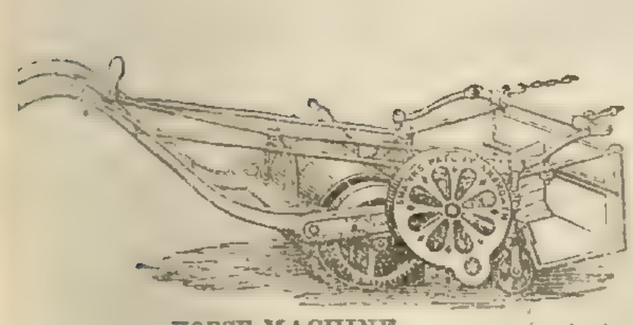
Drawings and Instructions for Management post free of

B. J. EDWARDS, 25, Bishopsgate Street Within, E.C.

SHANKS' NEW PATENT LAWN MOWERS.

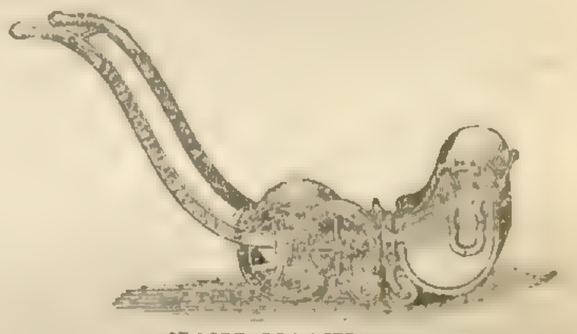
PATRONIZED ON FIVE SEPARATE OCCASIONS DURING THE SEASON OF 1864 BY

HER MAJESTY THE QUEEN.



HORSE MACHINE.

PONY MACHINE.



HAND MACHINE.

ILLUSTRATED CIRCULARS SENT FREE ON APPLICATION.

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N. B.
LONDON OFFICE and SHOW ROOMS, 27, LEADENHALL STREET, E.C.

A STOCK OF ALL SIZES OF MACHINES KEPT AT 27, LEADENHALL STREET.

NEW TARIFF OF GLASS AND HORTICULTURAL GOODS.

THOMAS MILLINGTON,

GLASS AND COLOUR MERCHANT,

87, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

HAND GLASSES.

PRESERVE JARS.

REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.

MILK PANS.

See Advertisement the first week in the month, or on application.

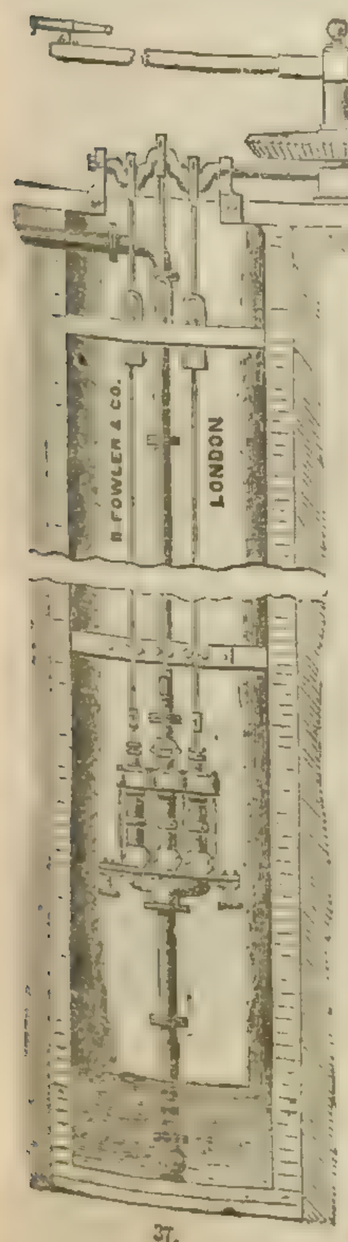
CLINTON & OWENS

(LATE BENJAMIN FOWLER & CO.)

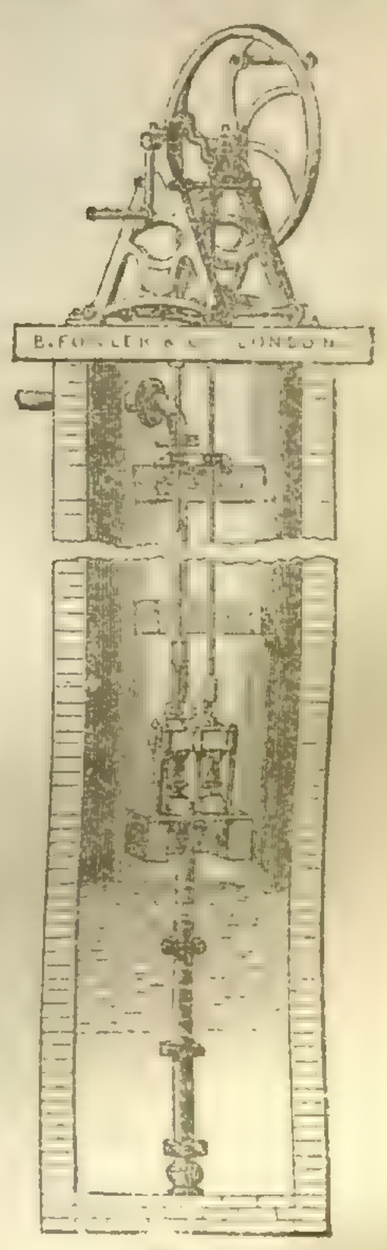
MANUFACTURERS OF

PUMPS AND HYDRAULIC MACHINERY,

WHITEFRIARS STREET, FLEET STREET, LONDON, E.C.



37.



28A.

THE LANDSCAPE SKETCH shows an adaptation of THE IMPROVED HYDRAULIC RAM. This is a simple Self-acting Machine, suited for raising a Supply of Water for use in Public and Private Establishments. Its adoption is not confined to positions as shown, but it is suited for any situation where a Fall can be obtained from a Stream, Brook, or Spring.

Messrs. FOWLER have fixed a great many in various parts of the country for raising from 600 to 6000 or more Gallons per day to elevations varying from 30 to 300 feet, and forcing through main pipes 50 yards to several miles in length.

No. 37. IMPROVED TREBLE BARREL PUMPS with HORSE GEARING for Raising Water from DEEP WELLS for the supply of MANSIONS and PUBLIC BUILDINGS.

No. 28*a*. DOUBLE BARREL PUMPS for HAND-POWER for similar purposes.

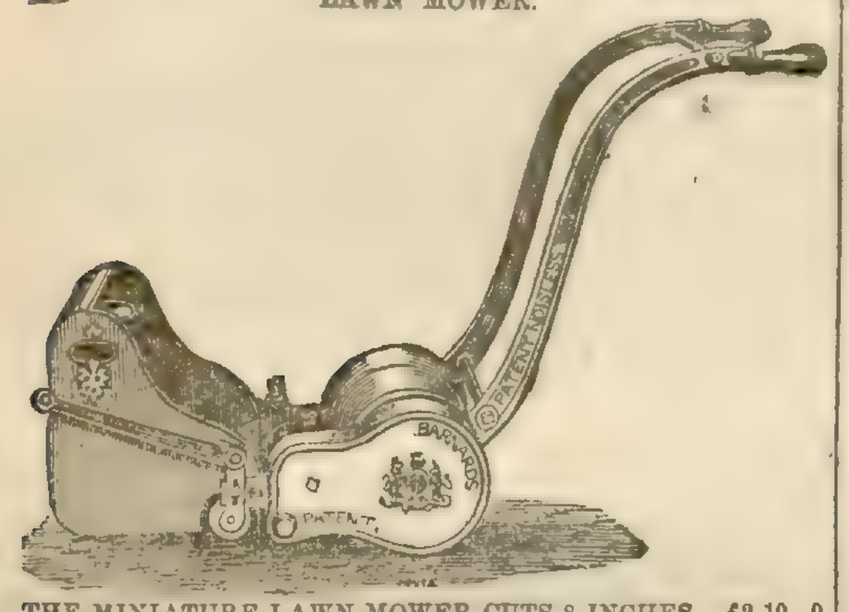
Messrs. FOWLER & Co. Manufacture and Erect every description of Engineer's Work required in Public or Private Establishments, such as Pumps for any purpose on the largest or smallest scale, Steam Engines, Water Wheels, Turbines, Warming and Drying Apparatus, Baths, Gas Works and Fittings. Estimates furnished from Plans or on inspection of position.

Price Lists of Pumps, &c. free on application.

SHAW'S PATENT FLEXIBLE SELF-ADJUSTING LAWN MOWING MACHINES.

Full Particulars, Drawings, and Prices, post free on application to the Patentee and Manufacturer.
JOHN SHAW, Junction Works, New Wortley, Leeds.

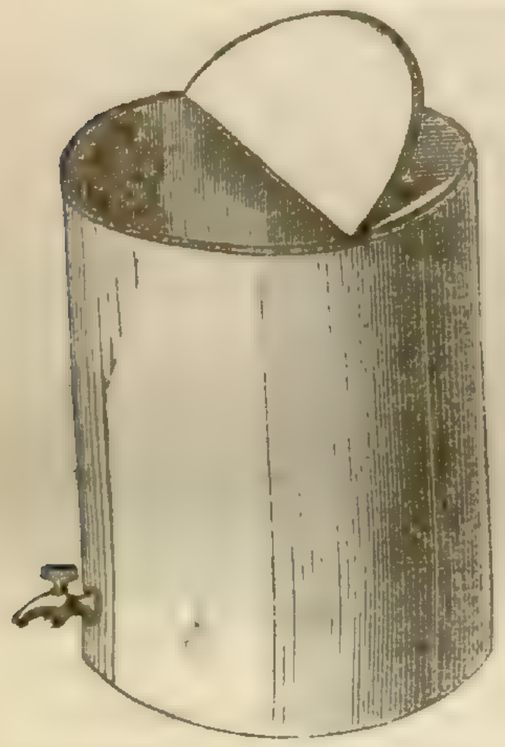
BARNARD'S PATENT NOISELESS LAWN MOWER.



THE MINIATURE LAWN MOWER CUTS 8 INCHES ..	£2 10 0
Suitable for the very smallest grass plots or edgings.	
To CUT 10 INCHES (this can be worked by a lady)	3 5 0
To CUT 12 INCHES (suitable for one person)	4 10 0
To CUT 14 INCHES (suitable for one person)	5 0 0
To CUT 16 INCHES (suitable for one person)	6 0 0
To CUT 18 INCHES (suitable for man and boy)	6 10 0
To CUT 20 INCHES (suitable for man and boy)	7 0 0
To CUT 22 INCHES (suitable for two men)	7 10 0

Packed and Delivered Carriage Free to the Principal Railway Stations in England.
All orders should be sent immediately to J. JONES & SONS, Iron Merchants and Horticultural Engineers, 6, Bankside, London, S.E.
Illustrated Catalogues gratis, with prices of Garden Rollers, Chairs, Seats, Vases, Wire Netting, &c., on application.

GALVANISED IRON WATER CISTERNS.
Cheap, light, and durable, will not rust or corrode, and keep water perfectly sweet.



To hold	Each.
30 gallons,	18s. 6d.
50 gallons,	22s. 6d.
80 gallons,	31s. 0d.
100 gallons,	36s. 0d.
120 gallons,	39s. 0d.
140 gallons,	42s. 6d.
200 gallons,	60s. 0d.
250 gallons,	72s. 0d.

With Lid and Brass Tap.

GALVANISED WIRE STRAND CABLE FENCING.
GALVANISED IRON ROOFING.
IMPROVED GALVANISED WIRE NETTING.
HURDLES, HURDLES, HURDLES, 1s. 9d. to 3s. 9d. per yard.
PATENT STRAINING PILLARS, &c.
GALVANISED IRON PUMPS.
GALVANISED SWING WATER BARROWS.
LAWN MOWERS, GARDEN ROLLERS.
ASPHALTE ROOFING FELT, 1d. per square foot.
MOTLEY & GREEN, late H. J. MORTON & Co.
Illustrated Catalogues and Estimates free on application.
12, Great George Street, Leeds.

Bee Hives.
PRIZE MEDAL and HONOURABLE MENTION AWARDED to G. N. & SONS, for BEE HIVES and HONEY at the VARIOUS EXHIBITIONS.

NEIGHBOUR'S IMPROVED COTTAGE BEE HIVE, as originally introduced by GEORGE NEIGHBOUR & SONS, with all the recent improvements, three Glasses and Thermometer, price 35s., securely packed for the country.

Several important novelties are introduced this season, including the Woodbury Straw and Bar-and-Frame Hive, price 21s., &c. Also the Engraved Pressing Roller, for the guidance of Bees in the construction of Honey-comb on the Bars, and impressed Wax Sheets, to assist in the formation of Cells.

Address, GEORGE NEIGHBOUR & SONS, 127, High Holborn, W.C.; or 149, Regent Street, London, W.

Their newly-arranged Catalogue of other Improved Hives, with drawings and prices, sent on receipt of two stamps.

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BENJAMIN EDGINGTON'S RICK CLOTHS, New and Second Hand.
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BENJAMIN EDGINGTON'S ILLUSTRATED CATALOGUE sent free by post.
BENJAMIN EDGINGTON'S only Establishment, 2, Duke Street, London Bridge, S.E.

HOT-WATER APPARATUS for Greenhouses, Hot-houses, Vineries, &c. Estimates on application.
J. JONES & SONS, 6, Bankside, London, S.E.
For List of Prices see *Gardeners' Chronicle*, June 24, 1865.

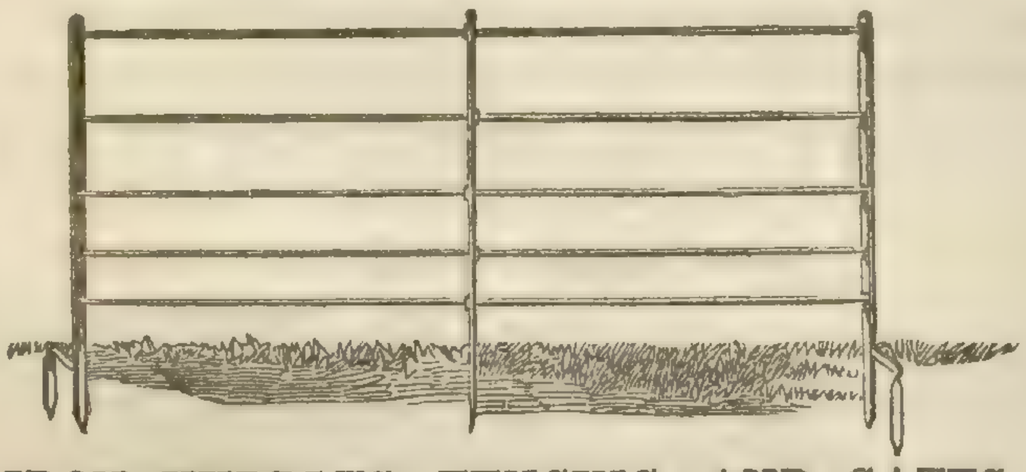
Midland Steam Power Horticultural and Hot-water Works, Loughborough.

T. G. MESSENGER, the Proprietor of the above Works, finding it necessary (through the great demand for his Horticultural Buildings and Heating Apparatus) to make large additions to his Premises, and to Fit the same with an entire set of STEAM-POWER MACHINERY, is now enabled to execute any Orders entrusted to him with the greatest dispatch, and at the lowest possible price consistent with good and substantial work.
Illustrated Catalogues, Working Model, Plans and Estimates, free on application.

Heating by Hot Water.
W. J. HOLLANDS, IRON MERCHANT, 31, Bankside, London, S.E.
HOT WATER PIPES, from Stock, per yard:—2-inch, 1s. 4d.; 3-inch, 2s.; and 4-inch, 2s. 7d. BENDS, from Stock 1s. 7d., 2s. 6d. and 3s. 3d. each. THROTTLE VALVES, 10s. 6d., 13s. 6d., and 15s. each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day. A discount to the Trade.

Heating by Hot Water.
HOT-WATER PIPES, at Reduced Wholesale Prices with Elbows, Syphons, Tee Pipes, and every other connexion. Wrought and Cast-iron Boilers, Saddle, Conical, Cylinder, Tubular and Elliptic, from 24s. each. Improved Boilers and Iron Stands for use without brickwork, 56s. each. Valves from 10s. 6d. each. Pipes, Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Castings of every description in stock, at
Mr. LYNCH WHITE'S Iron Wharf, Upper Ground Street, Blackfriars Bridge, London, S. Price List on application.

ST. PANCRAS IRON WORK COMPANY,
OLD ST. PANCRAS ROAD, LONDON, N.W.



IRON HURDLES, FENCING, AND GATES.

	Each.—s.	d.
SHEEP HURDLES, 3 ft. high, 6 ft. long, 4-Bar ..	4	0
Ditto ditto ditto, 5-do.	4	5½
Ditto ditto ditto, ⅝ Top Bar	4	8

	Each.—s.	d.
CATTLE HURDLE, 3 ft. 6 in. high, 6 ft. long ..	4	[illegible]
Ditto ditto ditto strong	5	[illegible]
OX HURDLE, 4 ft. high, 6 ft. long	7	[illegible]

DR. SPRATT'S PATENT LOCK.
The simplest and best Fastening for Field, Wicket, Swing, and Railway Gates. Particulars and Prices on application.
PATENT WROUGHT-IRON STABLE FITTINGS, CONSERVATORIES, &c. Lists Free.

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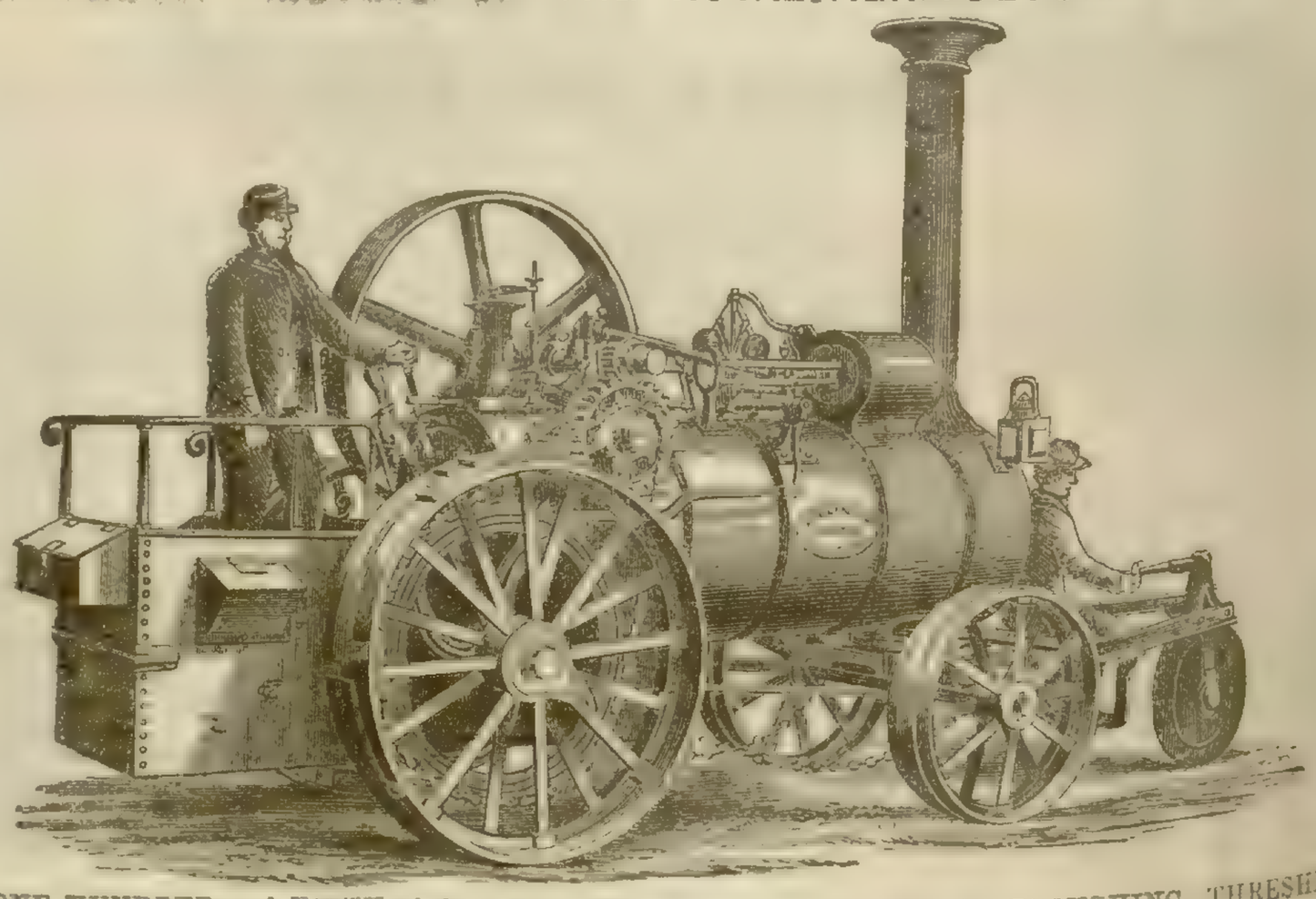
ROYAL AGRICULTURAL SOCIETY OF ENGLAND'S MEETING AT PLYMOUTH, 1865

STANDS 44 & 271.

RANSOMES & SIMS,
ORWELL WORKS, IPSWICH,
WILL EXHIBIT AT THE ABOVE SHOW THEIR

Celebrated NEWCASTLE PRIZE PLOUGHS
FINISHING STEAM THRESHING MACHINE
8-HORSE POWER PORTABLE STEAM ENGINE
Patent Rotary Self-cleaning Adjustable CORN SCREEN
BEAN MILLS, OAT MILLS, BRUISING MILLS
OILCAKE BREAKERS
HORSE GEAR, PATENT HARROWS, LAWN MOWERS, and the following Novelties—
A New Registered EQUALISING WHIPPLETREE
A New ROOT PULPER

AVELING'S PATENT AGRICULTURAL LOCOMOTIVE
WILL BE EXHIBITED AT WORK
AT THE
PLYMOUTH MEETING OF THE ROYAL AGRICULTURAL SOCIETY.



ONE HUNDRED and FIFTY of these ENGINES have now been Sold for PLOUGHING, THRESHING and General Traction Purposes.
Illustrated Catalogues to be had at the Show, or sent by Post on application to the Manufacturers,
AVELING AND PORTER, ENGINEERS, ROCHESTER.

Card.

SAMUEL N. McGEBBOW,
General Horticultural Builder,
Knotty Ash, near Liverpool.

Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

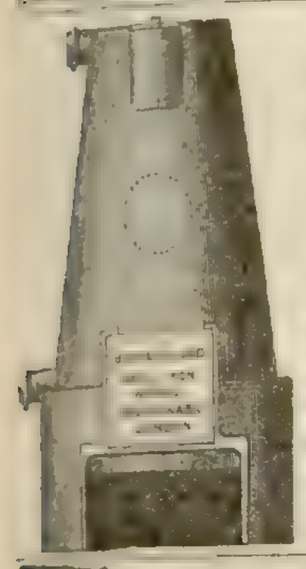
Greenhouses and Conservatories.

H. FREEMAN, Horticultural Works, Hackney, N.E., Established 20 years. Good substantial made GREENHOUSES, Glazed, ready for fixing. 42 feet by 13 feet, 50*l.*; 21 feet by 13 feet, 28*l.*; 12½ feet by 10 feet, 15*l.*

A handsome CONSERVATORY for SALE, 36 feet by 19 feet. Price 110*l.* A Large Assortment kept.

CRANSTON'S PATENT BUILDINGS for HORTICULTURE, Highly Commended by the Royal Horticultural Society, South Kensington. Plans and Estimates free on application. Houses of the following sizes always in stock:—Span, 30 by 15 feet, and 24 by 12 ft.; Half-span, 24 by 10 ft.; Lean-to, 24 by 8 ft. Stereoscopic Slides of different houses post free for 6 stamps each.

Illustrative Book, fully illustrated, by post for 20 stamps from the Inventor and Patentee, James Cranston, Architect, No. 1, Temple Row West, Birmingham.



HEATING by HOT WATER—Public and Private Buildings, Manufactories, Conservatories, &c., heated on the most improved system, combined with perfect Ventilation.

These BOILERS are adapted for setting in Brickwork, or as shown in sketch they require no Brickwork.

BURY and POLLARD
(Successors to John R. Peill),
Sole Manufacturers of the Improved CONICAL BOILERS, which are in general use, and which Boilers have for their durability and economy attained a celebrity far surpassing any other Boilers ever invented.

Park Iron Works, 17, New Park Street, Southwark, London, S.E.

N.B. Patent WINDMILLS for Pumping and Driving Farm Machinery, from half-Horse Power upwards. To be seen daily at work as above.

Greenhouses—Heating Apparatus.

DENNIS' PATENT METALLIC HORTICULTURAL BUILDINGS are made from the best wrought iron, upon an entirely new principle. The combination of Iron and Glass under this Patent is perfect; the possibility of fracture is prevented, and a permanently water-tight roof insured. The leading practical advantages are extreme smallness of framing, admitting a maximum of light and heat, and perfectly neutralising atmospheric conduction.

They are thoroughly ventilated, exceedingly strong and durable, are speedily erected, and whilst maintaining their established superiority for Conservatories of the highest order, are acknowledged by the most eminent Horticulturists of the day to be the "desideratum of perfection," promoting perfect symmetry of growth and richness of colour, both for Fruit and Flowers.

From the complete adjustment of the constructional parts of these patent buildings, their manufacture is so facilitated that a comparison in point of cost with perishable wooden structures is most favourable.

THE GARDENER'S OWN GREENHOUSE
(Lately known as Dench's Patent) is a Tenant's Fixture.

The Patent, Plant, Business, Machinery, and all connected with the above, have been transferred to T. H. P. Dennis, who has determined to supply these really useful buildings at such a reduced scale of prices that every one desiring a Greenhouse may possess one.

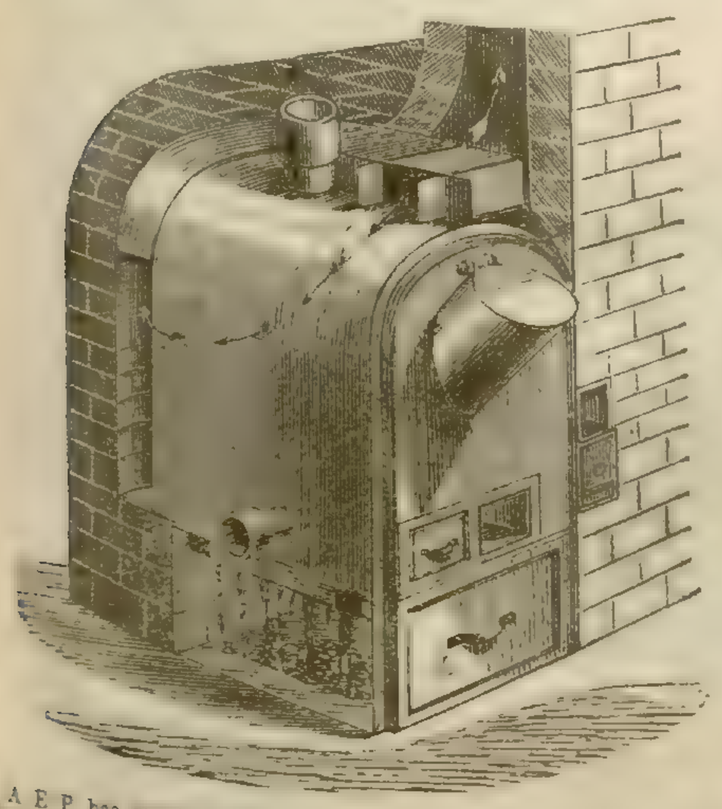
Note.—A No. 1 Lean-to, 12 ft. 6 in. by 9 ft., including honest 16-oz. Glass, £16 15*s.* 6*d.*

T. H. P. D. has introduced most important improvements in their finish and construction, and after numerous experiments has succeeded in arranging them as a Tenant's Fixture, which he feels sure will be valued by gentlemen having limited tenures. With Mr. Rivers' adaptation they make excellent Orchard-houses, and afford all that can be desired in a profitable building.

Wood structures at the lowest price consistent with sound work.

Prospectuses and Estimates on application to T. H. P. Dennis, Horticultural Builder, Hot-water Engineer, &c., Chelmsford, Essex.

BY HER MAJESTY'S ROYAL LETTERS PATENT.
Milbank's Self-feeding Hot-water Boiler.
Manufactured and Sold only by
A. E. PHILLIPS, High Street, Chelmsford, Essex.



A. E. P. has great confidence in recommending this BOILER to Gentlemen, Gardeners, Nurserymen, and the Public, having for some time tested its capabilities. It is simple in construction, inexpensive in fixing, and the most economical in the consumption of fuel of any Boiler before the public. It is very powerful for heating purposes; the whole strength of the Fire is in contact with the water surface—Brickwork absorbing the Heat. The new arrangement of the flues causes the entire heat of the fire to circulate over the entire surface before entering the chimney shaft. The Boiler is set in a dome of brickwork, whereby a double action is given to the fire.

A. E. P. will be happy to forward a List of Testimonials.

Greenhouses, Conservatories, and all kinds of Glass Structures are erected by A. E. Phillips, at the lowest possible cost. Plans and Estimates given free of charge. Architects' Plans carefully carried out. Estimates for Heating Conservatories, Churches, Chapels, or Public Buildings, on the most economical principle. The proper execution of all work guaranteed. Experienced workmen will be sent to all parts of the country.

Exhibition Prize Medal, 1862.

HOTHOUSES for the MILLION.—On the principle invented and patented by Sir Joseph Paxton, M.P., combining simplicity, cheapness, excellence, and durability. SPAN-ROOF HOUSES, painted three coats, and glazed with English Sheet Glass, can be supplied ready for fixing, 21 ft. by 13 ft., 24*l.*; 43 ft. by 19 ft., 37*l.* 5*s.*; 64 ft. by 25 ft., 16*l.*

Illustrated Circulars, with Prices, can be had on application to Samuel Hereman & J. Morton, Agents, 7, Pall Mall East, London.

Also, A HANDBOOK on VINE and FRUIT TREE CULTIVATION, 2d Edition, price 1*s.*; post free, 1*s.* 1*d.*

Caution to Gardeners.—When you ask for

SAYNOR and COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark Saynor, also the corporate mark Obtain Warranted, without which none are genuine.

S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by sellers and makers.

S. & C.'s Pruning and Budding Knives are the best and the cheapest in the market.

Paxton Works, Sheffield. Established upwards of 125 years.

FOUNTAIN JETS.

Fig. 526. JET D'EAU. 18 holes, 5*s.* 6*d.*; 24 do., 5*s.* 9*d.*; 36 do., 6*s.* 6*d.*

Fig. 531. DOME and CONVOLVULUS. 17*s.*

Fig 525. DOME. 8*s.* 6*d.*

Fig. 523. CONVOLVULUS. 8*s.* 6*d.*

Fig. 521. BARKER'S MILL. 11*s.*

Fig. 522. WIRE BASKET WITH BALL. 10 ins., 16*s.* 6*d.*; 12 ins. 17*s.* 6*d.*; 14 ins., 18*s.* 6*d*

Connecting Screws to all the above Jets, 1*s.* 6*d.* extra.

A Tap is required to be fixed in the Pipe to regulate the supply of water to Fountain Jets.

J. TYLOR and SONS, Manufacturers, Warwick Lane, Newgate Street, London, E.C.

BEDSTEADS, BATHS, and LAMPS. WILLIAM S. BURTON has Six Large Show Rooms, devoted exclusively to the separate display of Lamps, Baths, and Metallic Bedsteads. The stock of each is at once the largest, newest, and most varied ever submitted to the public, and marked at prices proportionate with those that have tended to make his establishment the most distinguished in this country.

Bedsteads, from	12*s.* 6*d.* to £20 0*s.* each.
Shower Baths, from	8*s.* 0*d.* to £6 0*s.* each.
Lamps (Moderateur), from ..	6*s.* 0*d.* to £7 7*s.* each.

All other kinds at the same rate.

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WILLIAM S. BURTON, GENERAL FURNISHING IRONMONGER by appointment to H.R.H. the Prince of Wales, sends a CATALOGUE gratis and post paid. It contains upwards of 600 Illustrations of his Unlimited Stock of Sterling Silver and Electro-Plate, Nickel Silver and Britannia Metal Goods, Dish Covers, Hot-water Dishes, Stoves, Fenders, Marble Chimney-pieces, Kitchen Ranges, Lamps, Gaseliers, Tea-Trays, Urns and Kettles, Clocks, Table Cutlery, Baths, Toilet Ware, Turnery, Iron and Brass Bedsteads, Bedding, Bed Room Cabinet Furniture, &c., with Lists of Prices, and Plans of the 20 large Show Rooms, at 39, Oxford Street, W.; 1, 1a, 2, 3, and 4, Newman Street; 4, 5, and 6, Perry's Place, and 1, Newman Yard, London, W.

OUTFITS for INDIA and CHINA.—Estimates with Detailed Lists of the necessary Outfits for Mercantile and other appointments to India, China, or any of the Colonies, will be forwarded on application to

Thresher & Glenny, Outfitters, next door to Somerset House, Strand.

WHITE and SOUND TEETH are indispensable to personal attraction, and to health and longevity, by the proper mastication of food. ROWLAND'S ODONTO, or Pearl Dentifrice, preserves and imparts a pearl-like whiteness to the Teeth, eradicates Tartar and spots of incipient decay, strengthens the Gums, and gives a pleasing fragrance to the Breath. Its truly efficient and fragrant aromatic properties have obtained its selection by her Majesty the Queen, and the Sovereigns and Nobility throughout Europe. Price 2*s.* 9*d.* per box. Sold by Chemists and Perfumers.

For Purity and Excellence of Quality,

COLMAN'S GENUINE MUSTARD
obtained the
ONLY PRIZE MEDAL
at the Great Exhibition, 1862.
Trade Mark, THE BULL'S HEAD, on each Package.

Their Genuine and Double Superfine are qualities particularly recommended for family use. Sold by all Grocers and Druggists.
J. & J. Colman, London.

Sauce.—Lea and Perrins'

WORCESTERSHIRE SAUCE.—This delicious Condiment, pronounced by Connoisseurs "THE ONLY GOOD SAUCE," is prepared solely by Lea & Perrins.

The public are respectfully cautioned against worthless imitations, and should see that Lea & Perrins' Names are on Wrapper, Label, Bottle, and Stopper. Ask for Lea & Perrins' Sauce.

*** Sold Wholesale and for Export, by the Proprietors, Worcester; Messrs. Crosse & Blackwell; Messrs. Barclay & Sons, London, &c.; and by Grocers and Oilmen universally.

DINNEFORD'S FLUID MAGNESIA.—The Medical profession for 30 years have approved of this pure solution of Magnesia as the best remedy for Gout and Stomachic disorders of every kind; and as a mild aperient it is especially adapted for Ladies and Children. Prepared solely by Dinneford & Co., Chemists, &c., 172, New Bond Street, London, W.; and sold throughout the World by all respectable Chemists. Caution.—See that "Dinneford & Co." is on each bottle and red label over the cork.

CORNS and BUNIONS.—A Gentleman, many years tormented with Corns, will be happy to afford others the information by which he obtained their complete removal in a short period without pain or any inconvenience.—Forward address on a stamped envelope to W. Goodall, Esq., Epsom, Surrey.

THE KAMES GUNPOWDER COMPANY'S CRYSTAL GUNPOWDER, packed in Red Japanned Canisters. No. 1 Fine, No. 2 Medium, No. 3 Large Grain.
London Office: 45, Lime Street, E.C.

The Kames Gunpowder Company solicit a trial of their CRYSTAL and other SPORTING GUNPOWDERS, of this year's manufacture. For strength, cleanliness, and prompt ignition they will be found unequalled. Sold by most respectable Dealers throughout the country, and at the Office, 45, Lime Street, London, E.C.

THE NEW MAXIMUM THERMOMETER. Price 2*s.*
Invented by T. Twining, Esq., V.P.S.A.
Manufactured by Marratt & Short, Opticians, &c., 63, King William Street, London Bridge, E.C.

A Description with Illustrations sent by post on receipt of stamp, or gratis on application.

SMITH, BECK, and BECK'S GREENHOUSE and HOTBED THERMOMETERS.—These Instruments are of the very best construction, and at moderate prices.
31, Cornhill, E.C.

Universal Microscope. Price £5 5*s.*

SMITH, BECK, and BECK,
31, Cornhill, E.C., late 6, Coleman Street.
*** Catalogues sent on receipt of 6 postage stamps.

To Gardeners and Florists.

BRUNSWICK SQUARE, CAMBERWELL.

THE DIRECTORS of the FREEHOLD and GENERAL INVESTMENT COMPANY, Limited, invite TENDERS for the occupation of the beautiful GARDENS of the above Square, comprising about Three Acres, laid out in Lawns, Parterres, Shrubberies, Borders, &c., offering an unusually eligible opportunity for the display of Floriculture. A very moderate rental will be entertained, inasmuch as the party whose Tender may be accepted will be required to maintain the grounds efficiently, and to preserve a certain degree of privacy for the enjoyment of those Inhabitants of the Square who have the privilege of Entry; but a Conservatory of ornamental character will be permitted to be built, and an eligible Plot of Ground adjoining and communicating with the Gardens may be rented, upon which Business accommodation (and a Residence if necessary), will be erected by the Company if suitable terms be offered.

Tenders to be addressed to the Secretary of the Company, 42, Poultry, E.C., where further information may be obtained.

Carts and Wheelbarrows.

BOROUGH of LIVERPOOL.—The Health Committee are desirous of receiving TENDERS for supplying 150 CARTS and 500 WHEELBARROWS, for the Collection of the Refuse and Night Soil of the Borough.

The Carts are to be for One Horse only; to be capable of removing 30 to 35 cwt. of soil and refuse, either in a liquid or dry state; and to be constructed so as to discharge their contents by tipping.

Lithographed Plans of the Tipping-places will be forwarded to persons desirous of Tendering, on application to James Newlands, Esq., Borough Engineer, Liverpool, from whom any further information required may be obtained.

The Carts and Wheelbarrows are to be strong and substantial. Designs of such as are proposed to be supplied are to accompany the Tenders, together with description of the material to be used.

The Committee do not bind themselves to accept the lowest Tender.

Tenders to be addressed "Chairman of Health Committee," endorsed "Tender for Carts and Barrows," and to be left at the Town Clerk's Office, Public Offices, Cornwallis Street, Liverpool, on or before the 20th July instant.—By Order.

Wm. Shuttleworth, Town Clerk.

Public Offices, Cornwallis Street, Liverpool, July 8.

TO BE SOLD, the INTEREST in a SEED BUSINESS of 39 years' standing in one of the principal towns in the South of Ireland.—Particulars on application by letter to S. B., *Gardeners' Chronicle* Office, W.C.

Cotswold Sheep.

MR. T. BEALE BROWNE, of Salperton Park, Andoversford, Gloucestershire, will be glad to see his Friends during the month of JULY. He intends SELLING his RAMS PRIVATELY, so that Purchasers may have the opportunity of inspecting the whole of his Flock.

Oxfordshire Down Rams.

MR. DRUCE offers for PRIVATE SALE this Season about 40 SHEARLING and TWO-SHEAR RAMS, which he will be happy to show at any time.
Eynsham, Oxford.

Shropshire Sheep.—Third Annual Sale.

MR. JOHN B. LYTHALL has fixed THURSDAY, August 3d next, for the GREAT CENTRAL SALE of RAMS and EWES, at Bingley Hall, Birmingham, and requests that those Flock Masters of the Midland Counties who intend to honour him with their instructions will communicate with him at once, in order that due publicity may be given to the Sale.

Several Lots of Rams and Ewes are already entered.

Terms for Selling, and all information may be obtained from the Auctioneer, 18, Temple Street, Birmingham.

Sales by Auction.

An Importation of Valuable Tree Ferns, Rare Araucarias, Orchids, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, July 19, at half-past 12 o'Clock precisely, an importation of ARAUCARIAS, DAMMARAS, ALSOPHILAS, DICKSONIAS, ARECAS, &c., from Sydney; TREE FERNS from Melbourne; ORCHIDS from West Indies, New Grenada, and other parts. On view the Morning of Sale, and Catalogues had.

Established Orchids and Flowering Plants of Lilium auratum.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, July 19, 50 strong Flowering Plants of LILIUM AURATUM, and some good Plants of Established ORCHIDS.
On view the Morning of Sale, and Catalogues had.

Stratford-sub-Castle, Two Miles from Salisbury.

IMPORTANT NOTICE of SALE of IMPROVED HAMPSHIRE DOWN STOCK.

Alteration of Day of First Sale to Friday, July 21, for the Greater Convenience of Gentlemen attending the Royal Agricultural Society's Show.

MR. JOHN WATERS (Canal Salisbury) is desired to give NOTICE of Absolute and Unreserved SALE by AUCTION, on the Premises, of the ENTIRE BREEDING FLOCK, RAMS and EWE LAMBS, the property of Mr. Edward Waters, Stratford-sub-Castle, Wilts.

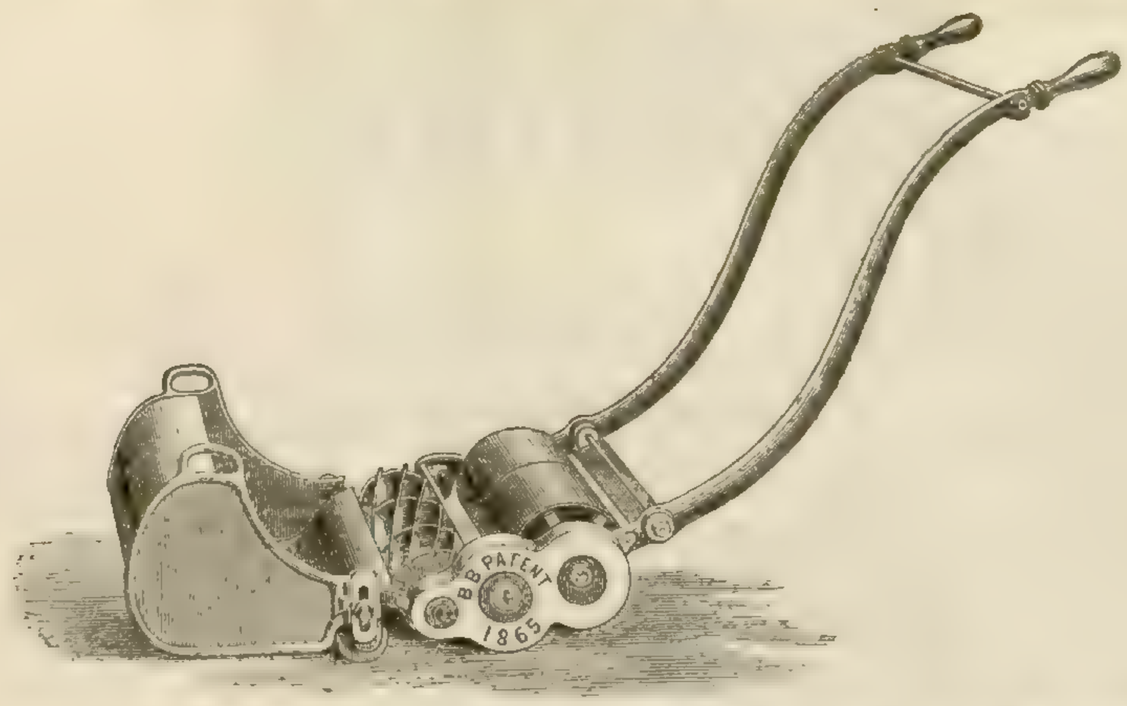
The Auctioneer, in placing the Sale of this widely known and highly esteemed Flock before the Public, respectfully invites attention to the fact that it is one of the oldest, if not the oldest, in the County, and whilst under the owner's management and that of his father for upwards of 50 years, the Flock has preserved a distinctive reputation for symmetry, quality, size, and good constitution. The cross selected has been almost entirely confined to the Stock of Mr. Humfrey, of Oak Ash, Chaddleworth, but Mr. Waters need hardly remind his friends that his great aim has always been to preserve the original character and high reputation which his Flock had for so many years enjoyed before being handed down to him from his father in 1845.

For the information of distant Purchasers only, the Auctioneer begs to add that Mr. Waters and his father have for many years given their best attention to a highly remunerative Ram Trade by private sale, and few, if any, Ram Breeders have, comparatively to acreage, yielded a larger number, or a higher class of Improved Hampshire Down Ram Lambs.

The First Sale will take place on FRIDAY, July 21, 1865, and will comprise about 150 RAM LAMBS and RAMS, the TWO-TEETH EWES, and the FULL-MOUTHED EWES, reserving the remaining ages of Ewes with the Ewe Lambs and late-dropping Ram Lambs for the Second Sale on August 16, 1865.

J. B. BROWN & CO.'S NEW PATENT B B LAWN MOWER.

GUARANTEED TO GIVE PERFECT SATISFACTION,



AND IF NOT APPROVED OF MAY BE AT ONCE RETURNED.

J. B. Brown & Co. having so very successfully introduced, at the recent Meeting of the Bath and West of England Society at Hereford, last month, the **NEW PATENT B B LAWN MOWER**, of their own manufacture, beg to mention that having now nearly supplied the large number of the **B B MACHINES** ordered on that occasion, they can now receive a few more orders for the present season.

The *Hereford Journal*, dated June 10th, thus notices this new Machine:—"Messrs. Brown & Co. are well known in connection with the best Lawn Mowing Machines—these very useful and now almost indispensable Machines, which save so much labour and at the same time so much improve the appearance of the lawn. Messrs. Brown & Co. show a new Lawn Machine of their own manufacture, which attracted much attention on account of the compact arrangement of parts, its light and elegant appearance, and its workmanship. It is worked by means of well-made geared or toothed wheels, which we believe to be more desirable than the use of chains, which are found to stretch and break so frequently, and cause much trouble. The working of this new Lawn Mower is very light and silent, and we have no doubt it must become a great favourite."

The **NEW B B PATENT LAWN MOWER** is manufactured by Messrs. Brown & Co., in London, on their own premises and under their personal superintendence. It is worked by means of geared or toothed wheels, is very noiseless, and is guaranteed to give perfect satisfaction in every respect.

PRICES—including Carriage to all the principal Railway Stations and Shipping Ports in England.

10-inch Machine	£3 10 0	*Easily Worked by a Boy.*
12-inch Machine	4 10 0	*Easily Worked by a Boy.*
14-inch Machine	5 10 0	*Easily Worked by a Boy.*
16-inch Machine	6 10 0	*Ditto by a Man.*
18-inch Machine	£7 10 0	*Easily Worked by a Man.*
20-inch Machine	8 0 0	*Ditto by Two Men.*
22-inch Machine	8 10 0	*Ditto by Two Men.*
24-inch Machine	9 0 0	*Ditto by Two Men.*

J. B. Brown & Co. continue to supply the LAWN MOWERS of other Makers, particularly GREEN'S and SHANKS', of which well-known Machines they have always stock on hand, from which orders can be at once supplied.

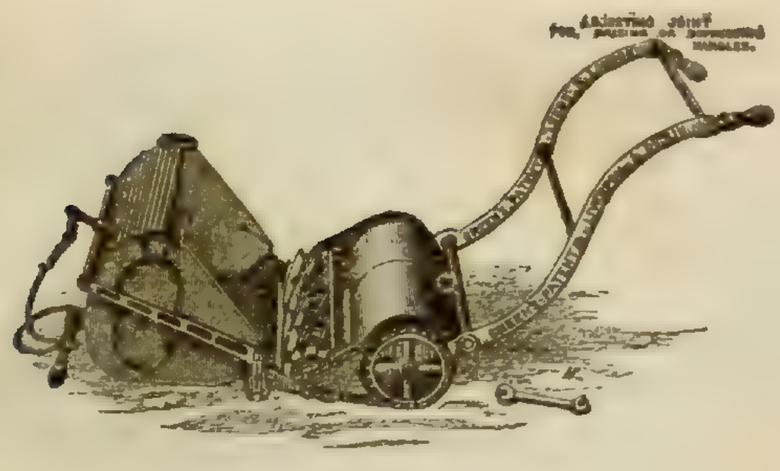
The 14-INCH LAWN MOWER is the favourite Machine this season, and the price is £5 10*s.*, for either the B B, GREEN'S, or SHANKS'.

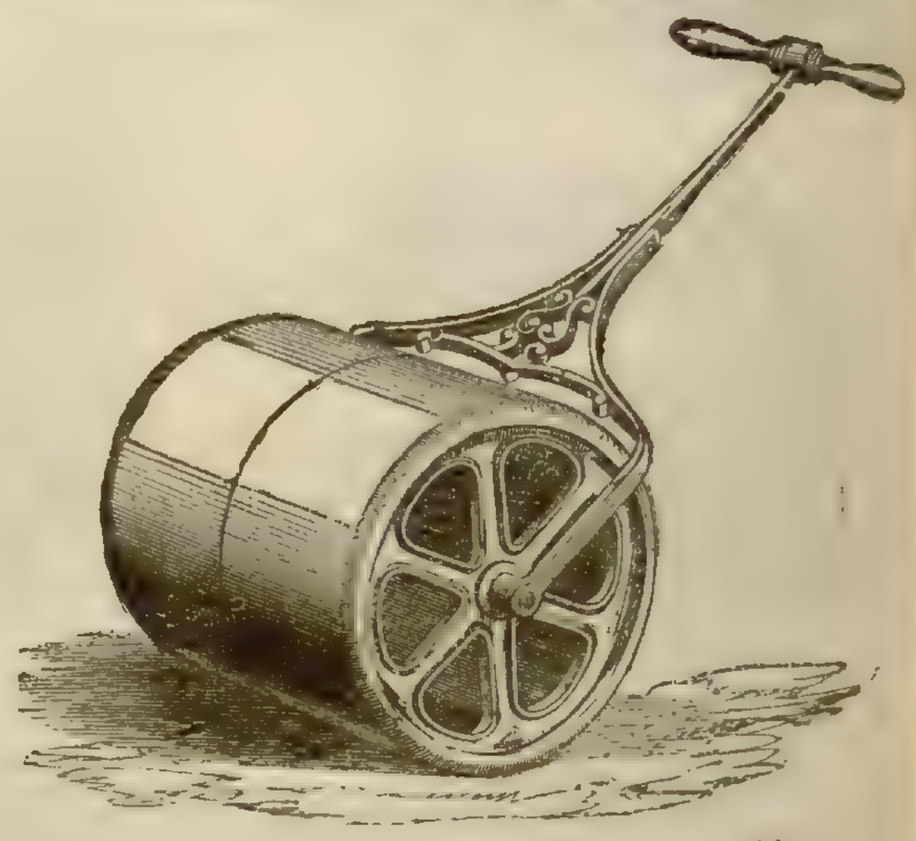
*** *Every Machine sent out is Warranted to give ample satisfaction, and, if not approved of, may be exchanged for any other size of Machine, or for the Machine of any other Maker, or may be at once returned unconditionally.*

J. B. BROWN AND CO., OFFICES, 18, CANNON STREET, CITY, LONDON, E.C.
NEARLY OPPOSITE ST. SWITHIN'S LANE and "LONDON STONE," and near LONDON BRIDGE.

WAREHOUSE (where Machines are kept in Stock), 148, UPPER THAMES STREET, E.C.
OPPOSITE the CITY of LONDON BREWERY, and close to the LONDON BRIDGE STEAM BOAT PIERS.

GREEN'S PATENT SILENS MESSOR,
OR
NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.





GREEN'S PATENT LAWN MOWERS have proved to be the best, and have carried off every Prize that has been given in all cases of competition. Above 26,000 have been sold since the year 1856.

Illustrated Price Lists of Lawn Mowers and Garden Rollers Free.

THOMAS GREEN AND SON,
SMITHFIELD IRON WORKS, LEEDS; 2, FARRINGDON ROAD, HOLBORN HILL, LONDON, E.C.
HADWIN'S BUILDINGS, TITHEBARN STREET, LIVERPOOL; and 19, EDEN QUAY, DUBLIN.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by William Bradbury, of 13, Upper Woburn Place, in the Parish of St. Pancras, in the Co. of Middlesex, and Frederick Mullett Evans, of No. 11, Bouverie Street, in the Precinct of Whitefriars, City of London, Printers, at their Office, Lombard St., Precinct of Whitefriars, City of London, and Published by them at the Office, No. 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said Co.—Saturday, July 15, 1865.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 29.—1865.] SATURDAY, JULY 22. {Price Fivepence. Stamped Edition, 6*d*.

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MANCHESTER BOTANICAL and HORTICULTURAL SOCIETY.—The THIRD EXHIBITION of FRUITS, PLANTS, and FLOWERS will be held at the Gardens, Old Trafford, on FRIDAY and SATURDAY, August 18 and 19.

Schedules of Prizes and any further information may be obtained from the Undersigned.—By Order, BRUCE FINDLAY.
Botanical Gardens, Manchester.

WARWICKSHIRE AGRICULTURAL SOCIETY.
STRATFORD-ON-AVON, September 12 and 13, 1865.
HORTICULTURAL EXHIBITION.

In addition to a large number of other Prizes, the following Special Prize is offered:—For the largest and best Collection of not less than 24 STOVE and GREENHOUSE PLANTS, including Fine-foliage Plants. 1st Prize, £10; 2d, £5.

Schedules, forms for entry, and all information may be obtained on application to the Local Secretary,
Mr. JOHN MORGAN, 11, High Street, Stratford-on-Avon.

Roses.

JOHN FRASER, of the Lea Bridge Road Nurseries, Leyton, N.E., respectfully invites an inspection of his COLLECTION of ROSES, which are NOW in FLOWER. The Collection contains many new and fine varieties.

Roses.

JOHN MANN, Nurseries, Brentwood, begs to inform his Patrons and the Public that his COLLECTION is NOW in BLOOM, ten minutes walk from Brentwood Station, Colchester Line, Great Eastern Railway.

Roses in Bloom.

JAMES MITCHELL respectfully informs the Nobility and Gentry his renowned ROSES are NOW in FINE BLOOM. Pilt Down Nurseries, Maresfield, Sussex, Two and a half Miles from the Uckfield Station.

Paul's Nurseries, Waltham Cross, N.

ENTRANCE FROM THE PLATFORM, WALTHAM STATION, GREAT EASTERN RAILWAY. HALF AN HOUR'S RIDE FROM LONDON.

WM. PAUL (Son and Successor to the late A. PAUL) begs to announce that his COLLECTION of ROSES is STILL in BLOOM, and comprises many of his own Seedlings, and other novelties not to be found in any other collection. In addition to the Roses, BEATON'S GERANIUMS, and a second and third generation from them, will be blooming throughout the summer and autumn. The Collection of HARDY TREES with FINE FOLIAGE is unrivalled, and many large and perfect specimens of the choicer CONIFERS are now in fine condition for removal, and are well worthy of the attention of gentlemen and horticulturists who contemplate planting. Bearing trees of all the LEADING FRUITS, Dwarfs and Standards, Pyramids and Espaliers, in fine health and true to name. Inspection respectfully invited.
Waltham Cross, London, N.

Rose Princess Mary of Cambridge.

PAUL AND SON find themselves obliged to DEFER SENDING OUT this fine ROSE till early next season.]
Old Cheshunt Nurseries, N.

Roses.

THE PREMIUM PRIZES AT THE NATIONAL, BIRMINGHAM, LEICESTER, STAMFORD, AND BOTANIC JULY SHOWS.

PAUL AND SON respectfully invite an inspection of their COLLECTION NOW in BLOOM. The Show will continue from now till October; a piece of 40,000 only now commencing to flower. Their Collection of Specimen and young Coniferæ, and Ornamental Foliaged and beautiful Trees, as well as bearing Pyramid Fruits, are worthy of a visit. They would solicit from their Patrons early Rose Orders.
Old Cheshunt Nurseries, Cheshunt, N.

Hollyhocks.

PAUL AND SON'S Splendid COLLECTION of HOLLYHOCKS also is FINELY in BLOOM.
Reached by Rail to Cheshunt Station, Great Eastern Railway.

Shrubs, Roses, Fruit Trees, &c.

WM. CUTBUSH AND SON'S GENERAL NURSERY STOCK is the best near London.
GLADIOLI, fine, from 4s., 6s., 9s., & 12s. per dozen.
CATALOGUES on application.
Highgate Nurseries, London, N.

SUPERB NEW CHRYSANTHEMUMS of 1865.—Good Plants, in 5-inch pots, at 12s. per dozen, or 25 varieties 21s. The usual allowance to the Trade. CATALOGUE, 32 pages, free.
J. FOCIDS, Nurseryman, Hullard St., Stretford Road, Manchester.

INTERMEDIATE STOCK, COVENT GARDEN and VICTORIA VARIETIES.
Scarlet, Purple, White, or Mixed COVENT GARDEN INTERMEDIATE STOCK, each, 1s. per packet.
Scarlet, White, or Mixed VICTORIA INTERMEDIATE STOCK very florferous, and more robust than the Covent Garden varieties, each 2s. 6d. per packet.
BARR & SUGDEN, 12, King Street, Covent Garden, W.C.

Russell's Pyramid Primulas.

GEO. CLARKE is now prepared to send out in packets, price 2s. 6d. each, this, the finest breed of PRIMULAS in cultivation. The Seed now for sale has been saved from selected plants, so that it is believed the produce will be even superior to that of former years.
Printed instructions for raising and growing the plants sent with each packet. Stamps received in payment.
Nursery, Streatham Place, Brixton Hill, London, S.

Pines.

B. S. WILLIAMS begs to announce that he has a fine Stock of the above, including all the best kinds. Prices on application.
Paradise and Victoria Nurseries, Holloway, London, N.

NEW GRAPE, "ROYAL VINEYARD," the best late White Grape extant. Strong planting Canes, 10s. 6d. each; strong fruiting, 21s. each.
B. S. WILLIAMS, Paradise and Victoria Nurseries, Holloway, London.

Orchard-house Culture.

MESSRS. THOS. RIVERS AND SON invite those interested in the above culture to view their COLLECTION of FRUIT TREES and VINES, occupying houses nearly 3000 ft. in length.
APRICOTS are grown in great perfection, and are now ripe.
The Harlow Station, G. E. Railway, is the most convenient for the Nurseries. Nurseries, Sawbridgeworth.

Castle Kennedy Fig.

PETER LAWSON AND SON, London and Edinburgh, have made arrangements to send out the above valuable acquisition in OCTOBER NEXT, and are now booking orders, which will be executed in strict rotation as received.
Plants 10s. 6d. each; a few extra strong at 21s. each.
Special terms to the Trade, and circulars with list of awards and further particulars may be had on application.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

CARTER'S GARDENER'S VADE-MECUM PLANT SUPPLEMENT is now ready.

New Plants for 1865.

JAMES CARTER AND CO.'S CATALOGUE of NEW and CHOICE BEDDING, GREENHOUSE, and STOVE PLANTS, is now ready, and will be forwarded gratis and post free on application.
JAMES CARTER & Co., 237 & 238, High Holborn, London, W.C.

To Exporters.

WM. DAVIDSON, SEEDSMAN, &c., can supply suitable assortments of GARDEN and FLOWER SEEDS, from 10s. upwards, for Shipment to the Colonies. 30A, St Andrew Square, Edinburgh

NEW and GENUINE AGRICULTURAL, GARDEN, and FLOWER SEEDS.
Special prices and advantageous offers on application to
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Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

Genuine Garden and Agricultural Seeds.

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MRS. POLLOCK PELARGONIUM.—Healthy Spring-struck plants, 2s. 6d. each, well hardened for bedding out. The Trade supplied.—Address,
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BEDDING-OUT PLANTS in great variety. WINDOW JARDINETS, Empty or Furnished, in variety.
The "Gardeners' and Amateurs' Friend," see page 601.
BARR & SUGDEN, 12, King Street, Covent Garden, W.C.

CRYSTAL PALACE, ROYAL BOTANIC, and ROYAL HORTICULTURAL FLOWER SHOWS.
At these PLANT CASES will be exhibited in great variety, furnished with the Choicest Exotic Fern and Foliage Plants, arranged by BARR & SUGDEN, of 12, King Street, Covent Garden, W.C.

THE FOLLOWING FIFTEEN PLANTS, hamper and package included, will be sent to any address on receipt of Post Office Order value 20s., payable to J. C. PADMAN, Boston Spa, near Tadcaster:—

Caladium Wightii	Ardisia crenulata rubra
" Chantinii	" " alba
" marmoratum	Gesnera zebrina splendens
" Maffafa	Gardenia florida
" argyrites	Croton variegata
" hastata	Blechnum corcovadense
" amabilis	Alocasia macrorhiza variegata
Dracæna ferrea versicolor	

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS No. 7.
*** Part II. (Exotic Ferns) will be issued as early as possible.
Foot's Cray Nursery, S.E.

J. IVERY AND SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

New Azalea indica.

J. IVERY AND SON have much pleasure in offering the undermentioned Two beautiful Seedlings, as they feel assured they will prove thoroughly distinct, and most desirable kinds.
FORGET-ME-NOT.—Brilliant glossy reddish-purple, 10s. 6d. & 21s.
BEAUTY of DORKING.—White striped and spotted with rose, 10s. 6d. and 21s.
For a full description see CATALOGUE, which will be forwarded post free on application.—Dorking, July 22.

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B. S. WILLIAMS can now supply good Seeds of the following:—
CINERARIA (Weatherill's extra choice strain).—B. S. W. has secured at a great expense the entire stock and right of exclusive sale from Mr. Weatherill, of his, the best strain of Cineraria in existence, and can now offer packets at the following prices:—3s. 6d. and 5s.
CALCEOLARIA (Herbaceous), from a fine strain, 2s. 6d. and 3s. 6d. per packet.
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CALCEOLARIA, PRIMULA, CINERARIA, CARNATION, PICOTEE, PINK, AURICULA, VERBENA, MIMULUS, ZONALE GERANIUM and PELARGONIUM.
Each 2s. 6d. per packet.
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Primula, Calceolaria, and Cineraria.

SUTTON AND SONS can supply NEW SEED of the above from choicest strains, in packets at 2s. 6d. and 1s. each, post free.
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Calceolaria, Cineraria, and Primula.

E. G. HENDERSON AND SON offer Seed of the above, in first-class quality, at 1s., 2s. 6d., and 5s. per packet.
STOCKS for next spring bloom, as SCARLET and WHITE INTERMEDIATE; also the fine ALBERT and ALEXANDRA INTERMEDIATE varieties. See the SEED CATALOGUE, page 44.
DOUBLE GERMAN WALLFLOWER, mixed in varieties, or colours separate, 1s. per packet.
Wellington Nursery, St. John's Wood, London, N.W.

SUPERB SEEDS for PRESENT SOWING, 1s., 2s. 6d., and 3s. 6d. per packet.
CALCEOLARIA, Scott's splendid hybrid spotted; CINERARIA, from finest named sorts; PRIMULA, choice mixed, 1s. and 2s. 6d.; ex. ex. quality FIMBRIATA, 2s. 6d. and 5s.; INTERMEDIATE STOCK, Scarlet and White, 6d. and 1s. per packet, at
J. Scott's Merriott and Seed Stores, Yeovil, Somerset.

Japanese Clematis.

MR. FORTUNE'S magnificent CLEMATIS STANDISHII and FORTUNII, doubtless two of the most important introductions of late years, received the unusual honour of Special Certificates at the Meetings of the Royal Horticultural Society, April 29 and May 2 last.
Strong Flowering Plants may be obtained of CHARLES NOBLE, Bagshot.

To the Seed Trade.

COLLINSIA VERNA, NUTTALL.

WM. THOMPSON, SEEDSMAN, Tavern Street, Ipswich, beg to announce that he is now ready to supply NEW SEED, for Autumn sowing only, of the above beautiful Spring-flowering Annual. Prices may be had on application.

Flower Roots of every Description.

LOUIS VAN HOUTTE'S CATALOGUE No. 109 is to be had at Messrs. R. SILBERRAD & SON'S Office, 5, Harp Lane, Great Tower Street, London, E.C.
The goods are delivered free out of the Custom House in London, without any expense whatever to the buyer, but *per contra* 5s. will be charged in account for each package.
N.B. LOUIS VAN HOUTTE'S CATALOGUES No. 105, 106, and 108, are also to be had from Messrs. R. SILBERRAD & SON.
Ghent, Belgium.

Specimen Tree Ferns, Palms, &c.

JAS. GARAWAY AND CO., Durdham Down Nurseries, Bristol, offer as under:—
Two DICKSONIA ANTARCTICA, a splendid pair, 5 feet full from pot to crown, 3 feet circumference at base, 2 feet 2 inches at 2 feet 6 inches high; crown 6 feet 6 inches across.
Two ALSOPHILA AUSTRALIS, a splendid pair, 5 feet from pot to crown; crown full 7 feet across.
One PANDANUS UTILIS, 5 feet high, 6 feet across.
One CARYOTA URENS, with five leaves, last 5 feet 8 inches long.
The whole are in first-rate health, and are growing freely, are admirably adapted for conservatory use or for exhibition, and will be sold separately or in one lot.
The Tree Ferns are particularly fine plants, and J. G. & Co. do not think that purchasers will find equally fine and as well established specimens in any other Nursery.
Prices on application. Mounted Photographs of the first four, price 10s. 6d. the set, free by post on receipt of stamps.
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ROBERT PARKER begs to offer the following, all of which are well-grown, clean, and healthy plants:—

	s.	d.
CLERODENDRON BALFOURII	5	0
CORDYLINE INDIVISA	10	6
FRANCISCEA CALYCINA	10	6
GOODYERA PUBESCENS	1	6
RHododendron COUNTESS of HADDINGTON, 10s. 6d. to	21	0
" JAVANICUM	2	6
" NUTTALLII	2	6
TRITOMA GRANDIS	3	6
" UVARIA GLAUCESCENS	1	6
VINE DUCHESS of BUCCLEUCH 10s. 6d. and	21	0
YUCCA ALBO SPICA	42	0
" TRECULEANA, *cornuta, concava*	42	0

PRICED and DESCRIPTIVE CATALOGUES of Greenhouse, Hardy, and Stove Plants, Seeds and Bulbs, are published, and will be forwarded to applicants.
Exotic Nursery, Tooting, Surrey, S.

100,000 FINE CATTLE CABBAGE PLANTS, 2s. 6d. per 1000, may be had of
Mr. A. WILKIN, Tiptree, Kelvedon, Essex.

DWARF GREEN CURLED SAVOY.—The attention of Seedsmen is directed to the above, as a Grower will have in a few weeks several quarters thereof for Sale. Application, with a price, to be addressed to
Mr. GEORGE EDMONDS, Grange Place, Gillingham, Kent.

Bromus Schraderi, new seed.

SUTTON AND SONS having just Harvested in their Grounds at Reading some Seed of the above, can supply the same in packets, 1s. each, post free.
Royal Berkshire Seed Establishment, Reading.

For Present Sowing.

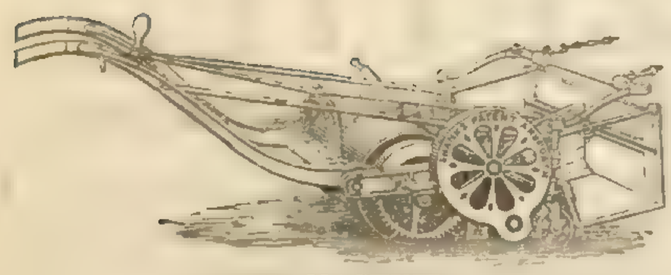
SUTTON'S IMPERIAL GREEN-GLOBE TURNIP.—This sort is invaluable for Early Spring Feed. It is hardy, and may be drilled on the Corn Stubble instead of Rye, or may be cultivated in the usual manner instead of the Old Green Round.
For three years successively the Prince Consort's Prize Cup was awarded to this sort by the Royal South Bucks Agricultural Society.
Price 9d. per lb., or cheaper by the bushel, carriage free.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

ITALIAN RYE-GRASS (SUTTON'S IMPROVED), and TRIFOLIUM INCARNATUM.—These are invaluable articles for Early Spring Feed, either grown separately or together. The proper quantity of Italian Rye-grass Seed to be sown per acre is 3 bushels if sown alone, or of Trifolium incarnatum alone 28 lb. per acre. It is considered most profitable to grow them together, sowing 2 bushels of Italian and 8 lb. of Trifolium per acre. July and August are the best months for sowing.
SUTTON & SONS have a good supply of NEW SEED just harvested, the price of which is very low and may be had on application.
SUTTON & SONS, Seed Merchants, Reading.

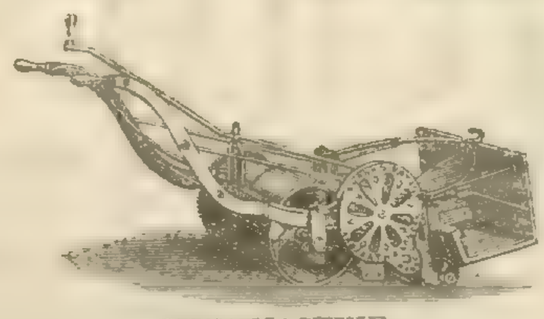
SHANKS' NEW PATENT LAWN MOWERS.

PATRONIZED ON FIVE SEPARATE OCCASIONS DURING THE SEASON OF 1864 BY

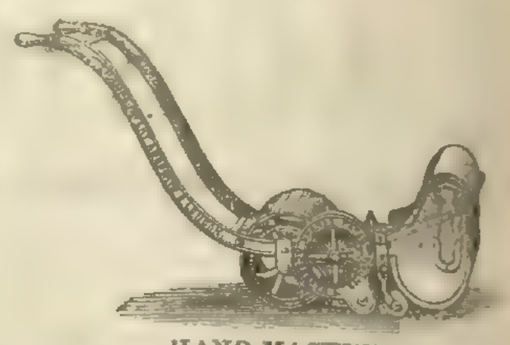
HER MAJESTY THE QUEEN.



HORSE MACHINE.



PONY MACHINE.



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A STOCK OF ALL SIZES OF MACHINES KEPT AT 27, LEADENHALL STREET.

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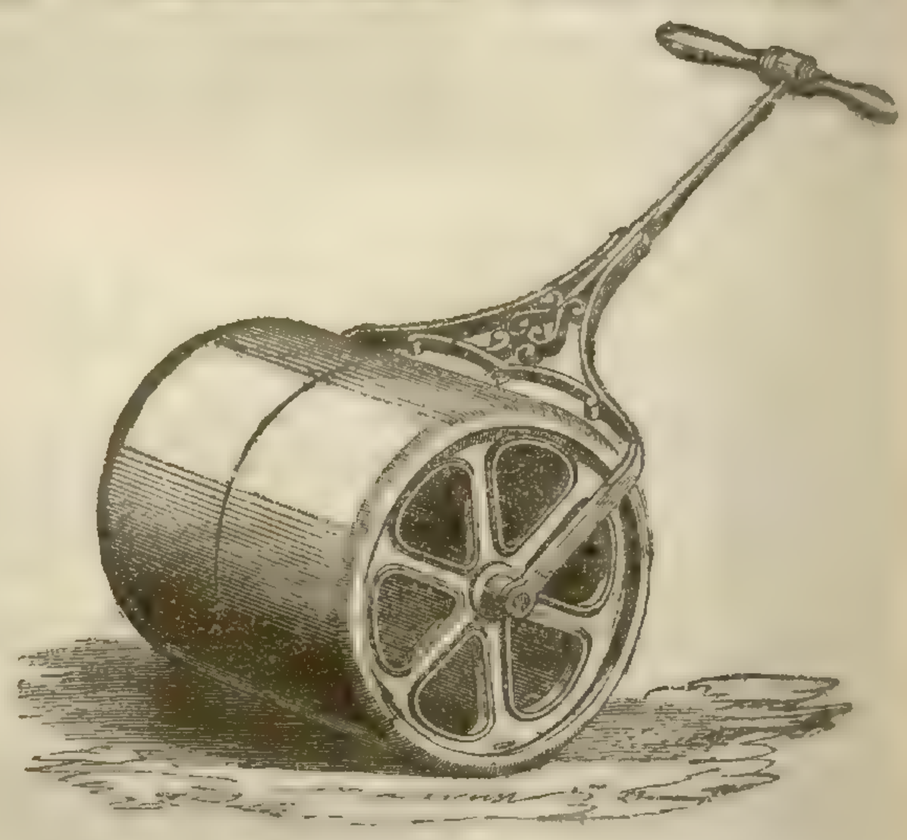
NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.



GREEN'S PATENT LAWN MOWERS have proved to be the best, and have carried off every Prize that has been given in all cases of competition. Above 26,000 have been sold since the year 1856.

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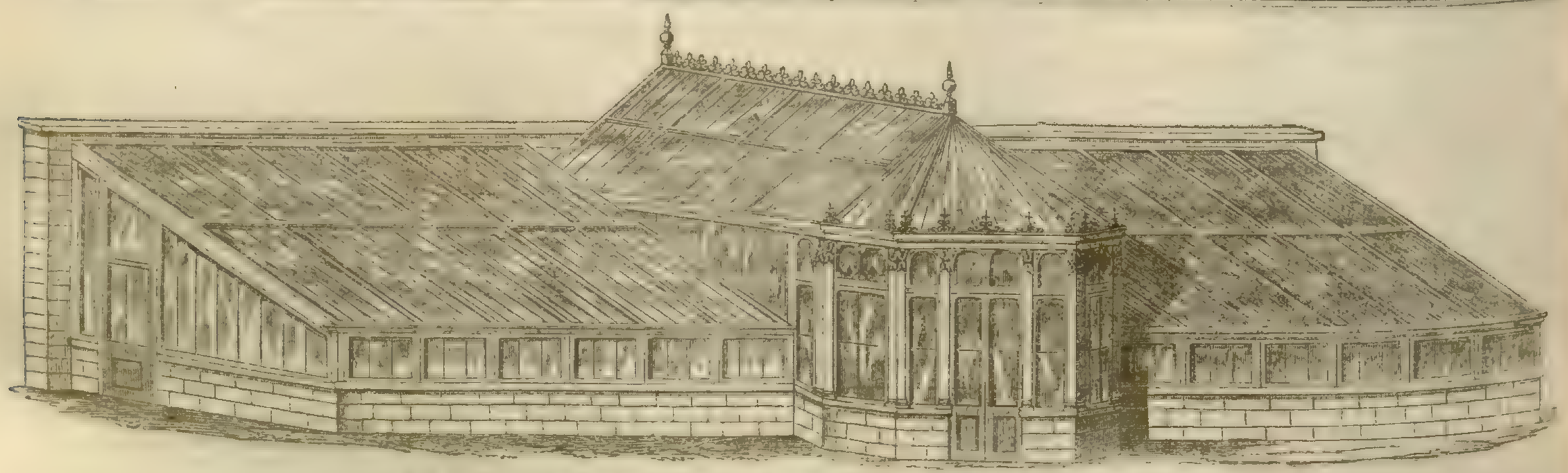
HADWIN'S BUILDINGS, TITHEBARN STREET, LIVERPOOL; and 19, EDEN QUAY, DUBLIN.



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LOWEST PRICES AND BEST MATERIALS.

DESIGNING, BUILDING, HEATING, AND VENTILATING ON THE MOST APPROVED AND SCIENTIFIC PRINCIPLES.

Plans, Specifications, and Estimates on application.

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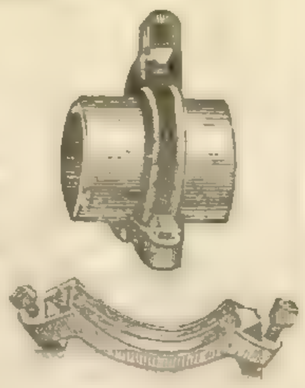
PORTABLE HOT-WATER APPARATUS,

WITH TRUSS' PATENT JOINTS FOR HEATING CONSERVATORIES, HOTHOUSES, &c.

T. S. TRUSS



Begs to offer complete HOT-WATER APPARATUS for GREEN-HOUSES (consisting of 4-inch Pipes and Joints, Saddle Boiler, Fire Doors, Bars, Soot Doors, Damper, Supply Cistern, Feed and Air Pipes, Pipe Stands, &c., of the best quality), delivered to any Railway Station in England, and to erect the same within 25 miles of London, at the following prices :—

4-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection.
12 feet by 8 feet	£8 10 0	£2 0 0	30 feet by 12 feet	£11 15 0	£2 10 0
20 feet by 10 feet	9 0 0	2 0 0	40 feet by 15 feet	15 0 0	2 15 0
25 feet by 12 feet	10 5 0	2 5 0	50 feet by 15 feet	18 0 0	3 0 0

Erection beyond 25 miles of London, Railway Fare for one Man charged extra.

By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints.

Estimates and Plans forwarded on application to

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GRAY'S OVAL TUBULAR BOILER.

INTERNATIONAL EXHIBITION, CLASS IX., No. 2119.

Mr. GRAY begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his

NEW OVAL TUBULAR BOILER,

acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in Gardeners' Chronicle *of International Exhibition, May* 24, *page* 476.

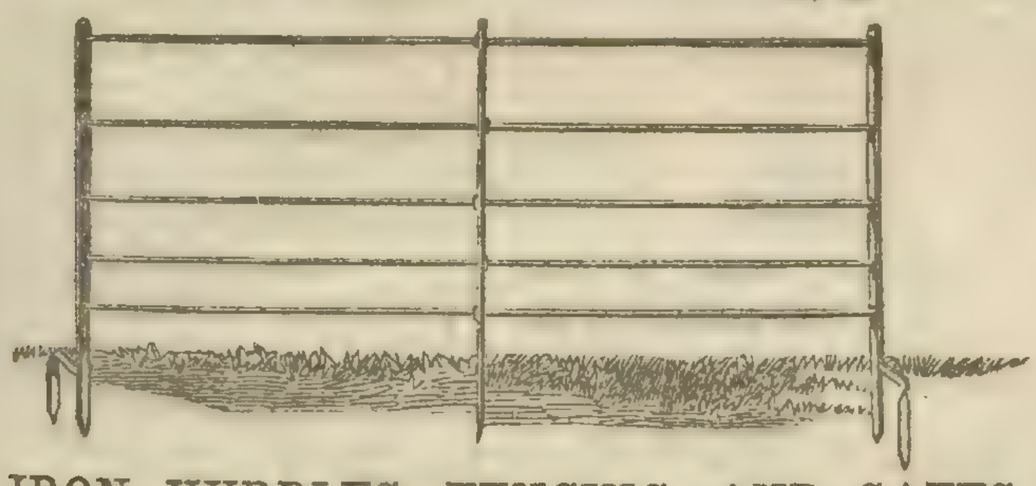
"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. GRAY's variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so, the change, though a slight one, is no doubt an improvement."

They are made of all sizes, which, with prices, may be had on application.

JAMES GRAY, HORTICULTURAL WORKS,
DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.

ST. PANCRAS IRON WORK COMPANY,

OLD ST. PANCRAS ROAD, LONDON, N.W.



IRON HURDLES, FENCING, AND GATES.

	Each.—s.	d.		Each.—s.	d.
SHEEP HURDLES, 3 ft. high, 6 ft. long, 4-Bar ..	4	0	CATTLE HURDLE, 3 ft. 6 in. high, 6 ft. long ..	4	11½
Ditto ditto ditto, 5-do.	4	5½	Ditto ditto ditto strong	5	9
Ditto ditto ditto, ⅝ Top Bar	4	8	OX HURDLE, 4 ft. high, 6 ft. long	7	0½

DR. SPRATT'S PATENT LOCK.

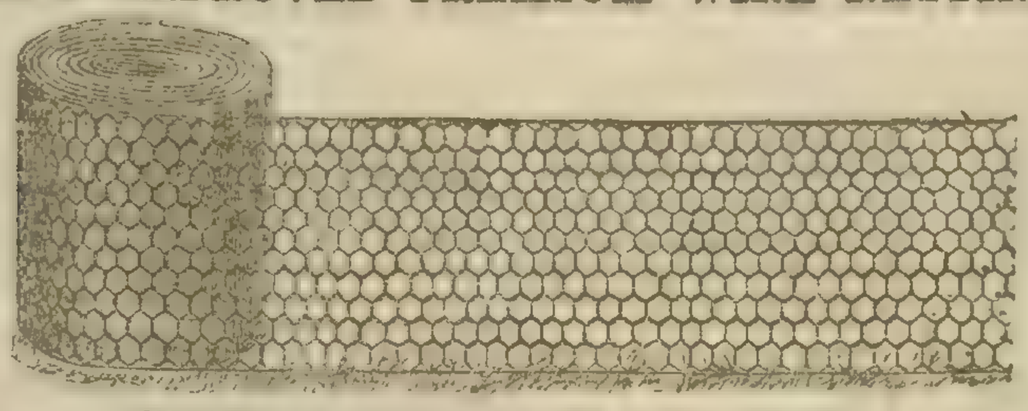
The simplest and best Fastening for Field, Wicket, Swing, and Railway Gates. Particulars and Prices on application.

PATENT WROUGHT-IRON STABLE FITTINGS, CONSERVATORIES, &c. Lists Free.

ST. PANCRAS IRON WORK COMPANY, OLD ST. PANCRAS ROAD, LONDON, N.W.

NEW IMPROVED PREMIUM WIRE NETTING.

GREAT IMPROVEMENT,



WITH REDUCED PRICE.

PRICES PER LINEAL YARD, 24 INCHES HIGH.

Size of Mesh	Mostly used for	Light. Japanned.	Light. Galvanized.	Medium. Japanned.	Medium. Galvanized.	Strong. Japanned.	Strong. Galvanized.	Extra Strong. Japanned.	Extra Strong. Galvanized.
1 inch	Hares, Dogs, Poultry ..	3d.	4d.	3¾d.	5d.	4½d.	6d.	5½d.	7d.
¾ inch	Game or Poultry Netting	3½d.	4½d.	4d.	5d.	5d.	6½d.	6½d.	8d.
½ inch	Small Rabbits, Hares, &c.	4d.	4¾d.	4¾d.	6d.	5½d.	7d.	7d.	9d.
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Quantities of 100 yards or upwards delivered free at nearly all the principal Railway Stations and Shipping Ports in England; and 200 yards or upwards delivered free to most parts of Scotland and Ireland.

*** *Every description of Netting warranted to give satisfaction, and if not approved will be exchanged or may be returned unconditionally.*

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WAREHOUSE (where Netting is kept in stock), 148, UPPER THAMES STREET, E.C., opposite the CITY of LONDON BREWERY, and close to the LONDON BRIDGE STEAM BOAT PIER.

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For samples and prices apply to

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TIFFANY to be SOLD.—A large quantity (about 2000 yards) now in use as a Blind at the Floral Hall, Covent Garden.

Apply to Mr. HASWELL, 49, Greek Street, Soho, W.; or to Mr. RUBERY, at the Floral Hall.

FLEMING'S SALTING MACHINE for DESTROYING WEEDS in Garden Walks and Court Yards.

PRICES :—

HAND MACHINE to disperse	20 gallons	.. ..	£9 5 0
" " "	30 gallons	.. ..	12 0 0
HORSE " "	40 gallons	.. ..	13 10 0
" "	100 gallons	.. ..	23 0 0

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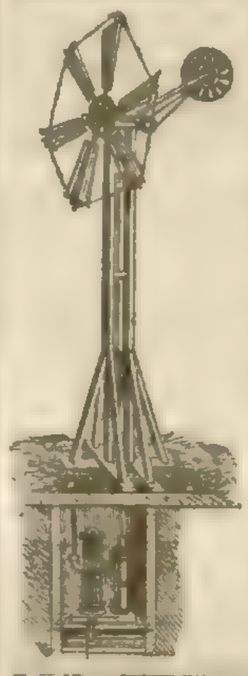
London Office and Show Rooms, 27, Leadenhall Street, E.C

By Royal Letters Patent.

WELLS' PORTABLE FOLDING GROUND VINERY, for Growing and Ripening Grapes without artificial heat.

Awarded a SILVER MEDAL at the International Exposition of Horticulture held at Nice, April 1865.

Drawings and Instructions for Management post free of B. J. EDWARDS, 25, Bishopsgate Street Within, E.C.



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WIND ENGINE (Patent Self-Regulating), for PUMPING, CHAFF CUTTING, PULPING, GRINDING, THRESHING, OAT CRUSHING, SAWING, or DRIVING other MACHINES.

Powers, from ½ to 12 Horses.

For Farm Purposes most economical, costing nothing to work. Erection simple and cheap.

For Pumping invaluable, working day and night, requiring no watching.

BURY AND POLLARD,
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Where a Wind Engine that has been at work seven years may be inspected.

Prices, with Testimonials, by post for one stamp.

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Manufacturers of

BOHEMIAN

FLOWER VASES

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LAMPS.

The Lamp lifts out of the Vase, requiring no fixing.

Is fitted either with

WARNER'S

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OR THE ORDINARY

FLAT-WICK BURNER.

The Koh-i-noor Burner produces a superior light to the Moderator, at a much less cost, and is not liable to get out of order.

The Opal Vases are made in the best style of Bohemian Glass, and beautifully decorated.

	Round Burner.	Flat
With Gold Bead	23s. 6d.	14s. 6d.
With Gold Lines	25 6	16 6
With Rose Colour, Greek Border	30 0	21 0
With Red Medallion (Antique)	32 0	23 0
With Blue Medallion (Antique)	[illegible] 0	23 0
Ruby Glass, fluted with gold lines	[illegible] 0	37 0
Emerald or Ruby, richly decorated with gold	63 0	54 0

May be obtained of the Trade throughout the United Kingdom.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.

PROTECTION from the SCORCHING RAYS of the SUN.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.

Two yards wide	1s. 9d. per yard run.
Four yards wide..	5s. 6d. per yard.
An improved make, 2 yards wide ..	1s. 9d. per yard
An improved make, 3 yards wide .	2s. 8d. per yard run.

Also "Frigi Domo" Netting, 2 yards wide, 1s. 6d. per yard run.

ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, and of all Nurserymen and Seedsmen throughout the kingdom.

"It is much cheaper than Mats as a covering."

PATENT GUTTA PERCHA SOLES.—IMPORTANT TO GARDENERS.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. GLENNY, Esq., the celebrated Florist:—

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles.—Your obedient servant, "G. GLENNY."

Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Calbotype trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town or country.

The GUTTA PERCHA COMPANY, Patentees, 18, Wharf Road, City Road London, E.C.

TANNED NETTING for the PROTECTION of FRUIT TREES, at 1d. per square yard. Cotton Netting, Woollen Netting, Scrim Canvas, and Tiffany. Greenhouse Shades, &c.
Be particular, JOHN EDGINGTON & Co., 48, Long Lane, Smithfield, E.C.; 18, Piccadilly, W.; and 108, Old Kent Road, S.E.

TANNED NETTING for FRUIT TREES.—One Penny per square yard, or in quantities of 250, 500, or 1000 yards Carriage Free. Orders executed the day received. Be particular—
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Marquees and Temporary Pavilions Lent on Hire.

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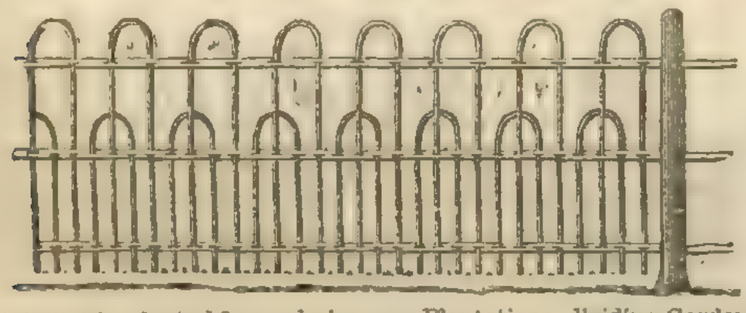
W. S. UNDERHILL'S Patent WROUGHT IRON GAME and POULTRY FENCE.



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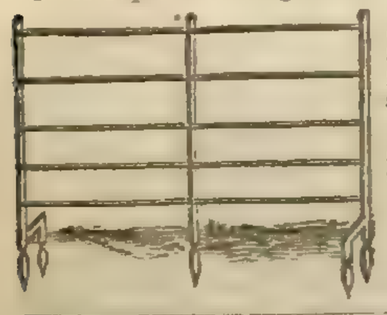

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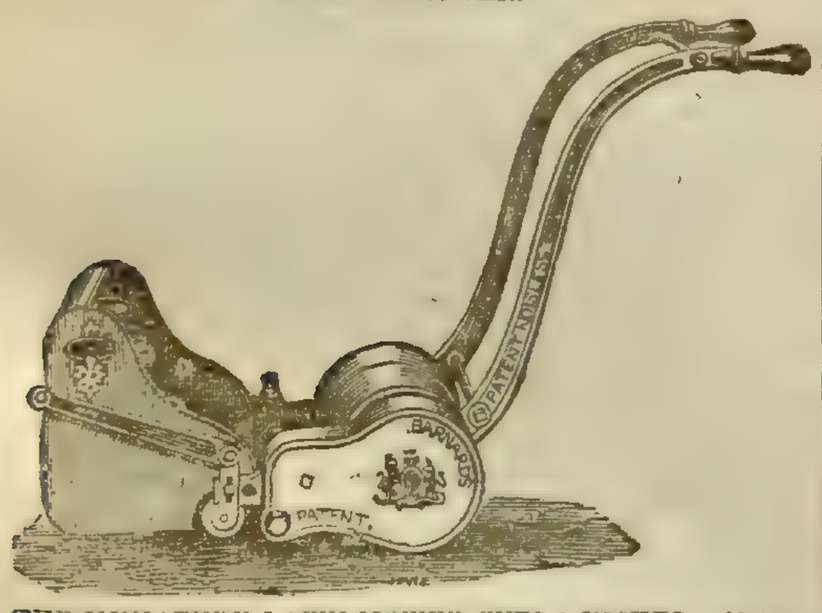

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To CUT 10 INCHES (this can be worked by a lady)	3 5 0
To CUT 12 INCHES (suitable for one person)	4 10 0
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PRESERVE JARS.

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3 inches diameter	0s. 4½d. each	0s. 6½d. each
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9 " "	1 8 "	2 2 "
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With Stands complete.
WASP TRAPS, 3s. 6d. per dozen.
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LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS, PAINTS of various colours ground ready for use.
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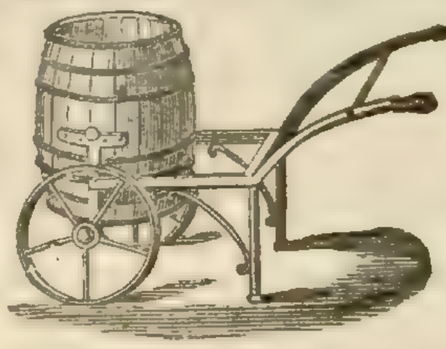

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This is the best and cheapest article yet introduced; the water may be dipped out, or the tub tilted and poured out, or by merely raising the handle it can be placed on the ground and the frame detached.
Manufactured by W. S. BOULTON, Rose Lane Iron Works, Norwich.

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PRIZE MEDAL and HONOURABLE MENTION AWARDED to G. N. & SONS, for BEE HIVES and HONEY at the VARIOUS EXHIBITIONS.

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Several important novelties are introduced this season, including the Woodbury Straw and Bar-and-Frame Hive, price 21s., &c. Also the Engraved Pressing Roller, for the guidance of Bees in the construction of Honey-comb on the Bars, and impressed Wax Sheets, to assist in the formation of Cells.
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AGENTS:—Liverpool: James Cuthbert, 12, Clayton Square. Manchester: J. Wilson, 50, King Street. Birmingham: J. H. Cottrell, 15, Bull Ring. Dublin: Edmondson Brothers, 10, Dame Street. Glasgow: Austin & McAslan, 16, Buchanan Street.

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F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.
Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.
Also TESSELATED PAVEMENTS of more enriched designs than the above.
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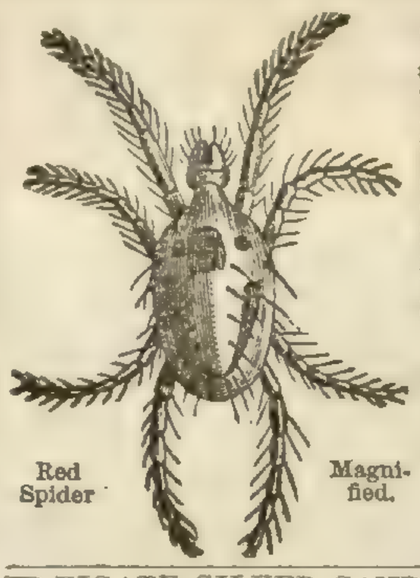
SILVER SAND (REIGATE, best quality), at the above addresses—14s. per Ton, or 1s. 3d. per Bushel; 2s. per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less.
FLINTS, BRICK BURRS or CLINKERS, for Rockeries and Grotto Work.
F. & G. ROSHER.—Addresses see above.
N.B. Orders promptly executed by Railway.

COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 2s. per bag.
For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.
Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.
BARSHAM'S BRUSHES and MATS are sold in every town.
CAUTION.—Every Brush is stamped, J. BARSHAM'S Patent.



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NONPAREIL, EARLY YORK, ENFIELD MARKET, WHEELER'S IMPERIAL, and other old sorts, 3d. per packet; DRUMHEAD CATTLE CABBAGE, 2s. 6d. per lb.
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This excellent Turnip, certainly the quickest in cultivation, if sown in the months of July and August, will be ready for Feeding off in September and October. Price 1s. per lb.; 42s. per bushel, Carriage free.
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CALCEOLARIA, UNEQUALLED HYBRIDIZED.—These are unapproached by any other in existence, and have given the greatest satisfaction. Each packet produces an almost endless variety of beautifully formed flowers, richly marked.
Packets, 1s. 6d., 2s. 6d., 3s. 6d., and 5s.
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CINERARIA.—Saved from our Prize Collection, which obtained Ten First Prizes in 1862; and also from the splendid new varieties offered by us in Autumn 1864. Each packet contains a great variety, and produces superbly formed and richly coloured varieties, varying from white to crimson, and cannot fail to produce Flowers, equal and superior in many cases to named varieties.
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DOBSON'S SUPERB PRIMULA (New Seed).
PRIMULA SINENSIS FIMBRIATA RUBRA.—Very finest fringed flowers only are selected for seed, and will be found to be very choice.—Packets, 2s. 6d. and 5s.
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A CHOICE and EXTENSIVE COLLECTION of STOVE and GREENHOUSE PLANTS always on view. Also FRUIT TREES, SHRUBS, and ORNAMENTAL TREES, from the Country Branches of the Firm.
The SEED and GENERAL NURSERY BUSINESS is carried on here, and Packages are delivered free at the various London Railway Stations.
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EALING NURSERY, G. CANNON, Manager.
Ten minutes' walk from the Ealing Station on the Great Western Railway Main Line.
FRUIT TREES, ROSES, and SHRUBS, are here extensively and successfully cultivated in some of the finest Loam in the County.
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Ten minutes' walk from Feltham Station.
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The Stock in the above Nurseries is well worth the inspection of purchasers. The prices are very moderate, and the Plants are frequently transplanted to ENSURE SAFE removal.
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ROYAL HORTICULTURAL SOCIETY.—SPECIAL SHOW of LILIACEÆ and AMARYLLIDACEÆ. SATURDAY, July 15, 1865.

AWARDS of the JUDGES.

CLASS 1.—LILIUM. Collection of not less than 6 distinct kinds. (Open.)
1st Prize, Messrs. W. Cutbush & Son, Highgate Nurseries, N., £4.
2d, Mr William Young, Gr. to R. Barclay, Esq., Highgate, N., £3.

CLASS 2.—FOUR VARIETIES of L. LANCIFOLIUM. (Nurserymen.)
1st, Messrs. W. Cutbush & Son, £2.

CLASS 3.—FOUR VARIETIES of L. LANCIFOLIUM. (Amateurs.)
1st, Mr William Young, £3.

CLASS 4.—TWO VARIETIES of L. LANCIFOLIUM. (Open.)
1st, Messrs. W. Cutbush & Son, £1 10s.
2d, Mr. W. Young, £1.

CLASS 8.—COLLECTION of not less than 6 HARDY KINDS. (Open.)
1st, Messrs. W. Cutbush & Son, £2.

CLASS 9.—3 L. AURATUM. (Nurserymen.)
1st, Messrs. E. G. Henderson & Son, Wellington Road, St. John's Wood, £2.
2d, Messrs. W. Cutbush & Son, £1 10s.
3d, Mr. William Bull, King's Road, Chelsea, £1.

CLASS 11.—ONE SPECIMEN of L. AURATUM. (Open.)
1st, Mr. William Bartlett, Shaftesbury Road, Hammersmith, £1.
2d, Mr William Young, 15s.
3d, Messrs. E. G. Henderson & Son, 10s.

CLASS 21.—2 VALLOTAS. (Open.)
1st, Mr. William Bull, 15s.

MISCELLANEOUS
1st, Mr W. Young, for 3 Hanging Baskets filled with Plants, £1.
2d, Mr W. Young, for 6 Begonias with Ornamental Foliage, 15s.
3d, Mr W Young, for 6 Achimenes, 10s.
Extra, Messrs. Downie Laird & Laing, Stanstead Park, Forest Hill, for 6 Stands of Hollyhock Blooms, 15s.
Extra, Mr. W. F. Catleugh, Chelsea, for Group of Lilliums, 10s.
Extra, Messrs. E. G. Henderson & Son, for Group of Lilliums, &c., 10s.
Extra, Mr. George Clarke, Brixton, for 4 Boxes of Cut Roses, 10s.
Extra, Mr. W. Taylor, Gr. to J. Yates, Esq., Highgate, for 6 Cockscombs, 7s. 6d.
Extra, Mr. William Bartlett, for Adiantum cuneatum, 5s.

The Gardeners' Chronicle.

SATURDAY, JULY 22, 1865.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY,	July 25	Royal Horticultural (Floral and Fruit Committees), at S. Kensington ..	11 A.M.
		Do. (Scientific Discussion)..	3 P.M.
SATURDAY,	— 29	Royal Horticultural (Show of Ferns and their Allies), at S. Kensington ..	2 P.M.

WE gave last week a sketch of MILNE EDWARDS' observations on SPONTANEOUS GENERATION, in which he arrives at conclusions confirmative of those of PASTEUR. A commission of the French Institute, consisting of Messrs. FLOURENS, DUMAS, BRONGNIART, MILNE EDWARDS, and BALARD, undertook a thorough examination of the question, but so many difficulties were mooted by PASTEUR's opponents, POUCHET, JOLY, and MUSSET, that the matter did not undergo that complete investigation, especially as regards the repetition of the opponents' experiments, which could have been wished, but as far as it went, it seemed to be completely confirmatory of the views of PASTEUR. M. BALARD's report will be found in the 3d zoological volume of the "Annales des Sciences Naturelles" for 1865, and English readers may be referred to the "Reader" of March 25, 1865.

It would not, however, be fair to pass over in silence the experiments on the production of organisms in closed vessels by Dr. CHILD, which were communicated on the 27th of April by Professor PHILLIPS to the Royal Society.

In experimenting with animal substances mixed with water, in contact with atmospheric air which had passed through red-hot tubes, or other gases, he found that when oxygen was present, and then only, organisms of a low type were produced. That if the solution was not boiled, organisms appeared in every case, but where it was boiled they were produced with oxygen or common air, but not with nitrogen, hydrogen, or carbonic acid.

Dr. CHILD states that he used every precaution employed by PASTEUR, and yet Bacteria were produced. He believes, however, that as PASTEUR used only a magnifying power of 350 diameters, these organisms may have escaped his notice, and expects that POWELL'S $\frac{1}{50}$th object glass will give still further facilities for ascertaining the existence of minute bodies. While, however, he states that he has no doubt that Bacteria can be produced in animal or vegetable solutions in hermetically sealed vessels, he does not consider the question of the possibility of spontaneous generation completely settled by such experiments.

"It seems clear, indeed, that (1) either the germs of Bacterium are capable of resisting the boiling temperature of a fluid, or (2) that they are spontaneously generated, or (3) that they are not organisms at all."

Dr. CHILD however is satisfied that Bacteria really are vegetables, and if so, experiments must take some different course from that which they have assumed at present on either side of the question. Higher powers of the microscope must be used, and the mind divested as much as possible of all foregone conclusions. He does not consider the argument of much force that as knowledge has increased, supposed cases of spontaneous generation have vanished one after another, till it is restricted to the very lowest organisms.

Till the experiments have been repeated, it would be premature to adopt an opinion unfavourable to PASTEUR, but it is quite clear that the question cannot be left where it has been by M. PASTEUR or by the Academical Commission. *M. J. B.*

WE have received from Mr. R. PARKER a very curious MONSTROUS CUCUMBER, of which some account may be interesting. The fruit is about 9 inches long, curved nearly at right angles to the shank, and marked by two very prominent ridges, which run from end to end and terminate at the apex in two rather large well-formed leaves. There are traces of a third ridge and of a third leaf.

At first sight, it would appear that these leaves are enlarged sepals, and so indeed they may be, three being deficient; the ridges on the fruit would thus correspond to the stalks of the leaves. Not a trace of corolla is visible, nor of style or stigma, but we find that on cutting the fruit across at various parts, the three placentæ are readily seen, strictly parietal in the smaller part of the pepo, and inflected in the thicker portions, just as in an ordinary Cucumber. The ovules also are present, but in a rudimentary condition. The fruit seems to be formed in the same way as in many Rosaceæ—at its lower part by the expansion of the flower stalk, and above by the dilated and confluent leaf (or sepal) stalks. This may be inferred, because on cutting across the fruit the ridges may be seen to alternate with the placentæ, and on tracing these ridges upwards they lose themselves in the midribs of the leaves. It is immaterial whether the foliar organs at the top of this fruit be considered as sepals or as leaves. The formation of a succulent fruit and of imperfect ovules without any other floral organ being present, is nothing unusual.

GARDENERS, like other people in the world, have their HOBBIES. With them some genus or tribe of plants becomes extremely fashionable, and everything else has to give way to make room for it. If the favourite plants happen to be what are called florists' flowers, they are so changed in a few years that their former friends are scarcely able to recognise them. Rough flowers have become smooth, narrow petals broad, and irregular blossoms are now quite round. But at last a time comes when taste or fashion changes, and our favourites are all but discarded for new beauties and new fancies.

The Dutch, at one time, were almost crazy about Tulips, and gave extravagant prices for a favourite variety. In our own country, and our own time, we have seen the fancy for Pansies, Auriculas, Dahlias, and other things of a like kind wax and wane. Perhaps we have been longer constant to Pines and Ferns than we have ever been to any other tribes of the vegetable kingdom. And certainly these families well deserve to be a principal object with the collector and cultivator. The pleasure which a lover of Ferns enjoys we can almost fancy to be of a higher order than that enjoyed by the admirer of flowers; and then the lover of Pine trees not only has a pure source of enjoyment for himself, but he confers, at the same time, a great and lasting benefit on his country. What a striking and pleasing effect has been produced in many portions of our landscapes by the planters of these noble trees! Who is not proud of the collections we possess in our parks and pleasure grounds? We look upon them almost as we look upon our national property, and are grateful to those whose taste has led them to make such collections.

The taste for new plants would seem to be of the most permanent kind. For these we ransack every quarter of the globe which it is possible to explore. We are always craving for something strange and something new. Those parts of the tents of our flower shows in which the new plants are staged are always crowded with visitors, and one of the first questions we hear asked is, "Where are the new plants?" or "What is there in the exhibition which is new or rare?" And it is perhaps well that this enthusiasm should exist amongst us. It is no doubt quite true that many plants are introduced from time to time which have no permanent value, which are cultivated in our gardens for a short time only, and then die out or are discarded. But even these introductions, ephemeral though they be, are not without their use. They afford a certain amount of pleasure while they last, and at the same time they give us an idea of the productions of foreign lands. But there are other plants of foreign origin, and their number we are glad to say is very large, which have a more permanent character, and which are really of great importance. If we take for example hardy plants alone—herbs, shrubs, and trees—we can scarcely imagine the void which would be produced upon our scenery were all those of foreign origin suddenly to disappear. And if we were to lose at the same time all those things for which we are indebted to the skill of our gardeners and florists at home, the void would be greater still. As to half-hardy or tender plants, were they to go off in a body, can we imagine what would be the state of our greenhouses, conservatories, and stoves? In these days of taste and luxury, what should we do without Camellias, Azaleas, Orange trees, Pelargoniums, Verbenas, and hundreds of other floral beauties, for which we are indebted to foreign countries? And yet the time was—shall we call it the "good old time?"—when these things, and all the pleasures attending them, were unknown in the gardens of this country.

If therefore those outside the gardening world—and we suppose there are some such benighted individuals—and even some inside, are inclined to smile at our enthusiasm and inconstancy, we can point with some little pride to the general results! What, let us ask, was the state of our parks and gardens a hundred years ago, or shall we say 50, or even 30, compared with what they are in this year of grace 1865? The change which has taken place for the better is marvellously great.

There may be some difference of opinion amongst us as to the value of these results as regards what are called florists' flowers; an artist, for example, would probably prefer to have a plant in its original state, and before it had been moulded by the hands of the florist; but all must acknowledge that, taken as a whole, they have been wonderfully improved for the purposes to which they are applied, namely, the adornment of our gardens. As to the value of the other plants to which we have alluded, whether for cultivation under glass or in the open air, there can be but one opinion. Although, therefore, fashion and taste in plants as in other things appear to be capricious and changeable; although as gardeners or arboriculturists we may sometimes ride our peculiar hobbies too hard, yet there is much to be said in favour of the "grand old gardener." If he has not been able to make two blades of Grass grow where only one grew before, he has at least the satisfaction of knowing that he has produced a marked and beneficial change on the gardens and pleasure grounds of this country—a change which will be permanent. *F.*

THE attempts which have been made to introduce the cultivation of flowers among the lower classes, as observed by the Rev. Mr. PARKES in his book on Window Gardening for the People, have proved that a love for flowers is spread among all classes of the London poor. "There can be no doubt that the love of flowers is a feeling common to us all; but it was a problem unsolved, whether the hard life of the London poor had not driven out this common instinct. The experiment has proved that this love still exists." The direct benefits derived from the spread of a taste for gardening pursuits among the classes to which reference has been made, is indeed so obvious, and is so generally admitted, that we need not stay to prove them. We may take it as an established fact that the gain is solid and unmistakeable; and this being so, we are much gratified in being able to record from year to year the continued success and prosperity of those exhibitions which have been established as an encouragement to this HOME-GARDENING OF THE LONDON POOR. The Exhibition connected with the parish of Bloomsbury, in which the movement first took a well-defined shape, was held a week or two since, with the usual success, in Russell Square. A more general Exhibition, really creditable to the exhibitors, has been held in the gardens of the Royal Horticultural Society at South Kensington, as reported in our last week's issue; and we have just been favoured by a correspondent, who takes deep interest in the movement, with the following suggestive remarks on the recent fourth annual flower-show of St. Clement Danes, which took place on the 27th ult.

"The various plants brought in by the exhibitors were placed on the desks in the boys' school, a simple

arrangement which answers perfectly well. The usual plan is to give prizes for the best Geraniums, Fuchsias, Musk, or Calceolaria, but the working people of the central parts of London cannot be expected to rear such plants successfully. It seems, therefore, more advisable to encourage them to raise plants from seeds, or slips, or any way they can best succeed in.

"Some curious specimens of what can be accomplished in this way were shown and received reward, as an Apple tree raised from seed, of three years growth, nearly four feet high; several Cherry trees, a Plum, and a Holly; Asparagus in its first year; Date Palms, grown from the seed of fruit bought at a grocer's; a neat little plant from the seed of St. John's Bread or Locust tree, of much interest; a well-grown Maize, or American corn plant; a Leek three feet high, from a sick man's ward in St. Giles's Workhouse, where the nurse buys a Leek on St. David's Day for a blind patient. This is planted in a small pot, and thrives well. Scarlet Runners supply much interest, and form a pleasant green border to the windows. One poor woman brought a potful of healthy-looking Cabbage plants; a boy had a pot of Watercress; another woman had Potato plants.

"One of the most delightful plants for the poor is the Plectranthus fruticosus, or Window Balm, introduced from the Cape 90 years ago; it was not much cultivated till lately, but now is found particularly well suited to the windows of workhouses, hospitals, or any humble rooms. A specimen raised from a slip by a working man in a court was 2½ years old, and of the most vigorous growth. The leaves are renewed yearly, and having a fragrant scent are very pleasant; the branches can be trained to form a screen before a window. One collection brought down from the top of a house was remarkable—two Hollyhocks, two Dahlias, Geraniums, and several other plants. Another top produced a little garden, amongst which was a pot which had small Cotton plants raised from seed, carefully protected by a glass shade. A box of Mignonette was in good bloom; another had Heartsease in the centre, with Beans trained to sticks at each end. A two-year-old Oak in a bottle, grown from an acorn, was the pride of one woman. Lavender, Bergamot, and Nasturtiums were all favourites. The model of a house and garden, with a pond and Water Lilies, was much admired, the evening work of a shoemaker. One woman said she was trying to induce her husband to take interest in her window garden, hoping it might draw him away from the public house. Virginian Creeper and Ivy nailed to a small frame make good plants for window gardens.

"Although flowers may not abound on our London plants, yet the green is very agreeable, and forms the only embellishment of small rooms in dirty, narrow, gloomy courts. The cost is trifling, and if the pence spent by children in sweets were laid out in roots and seeds, the pleasure gained might be great. One of the best and cheapest of window plants is the little native English Lysimachia Nummularia or Moneywort, more commonly known as Creeping Jenny. It is very hardy, remains through several winters, and produces its slender trailing stalks with abundant yellow flowers in summer. Ferns may also be cultivated successfully; one man had made a very neat glass case for Ferns and Wood Sorrel, which was the first of the kind seen at these flower shows."

—— A terminal shoot from a Wellingtonia about 12 feet high has been forwarded to us, which pushed vigorously in the spring, and which during the present season has attained a length of 8 inches, but has suddenly failed, being quite dead for about 2 inches, while the tips of most of the leaves have perished. It is probable that some injury must have been sustained during the previous season, as two terminal buds were developed. Be this, however, as it may, the injury is evidently derived from the tip of last year's shoot, the bark of which is decomposed, and the substance now corroded by some imperfect mould belonging to the genus Polyactis. We have seen a very similar appearance in the Scotch Fir, without being able to detect the cause. There is no trace of any insect internally, and we believe that the bark just beneath the point from whence the buds were given off received last year some partial injury which gradually spread all round, like gumming in the Peach or Apricot, and at length cut off the supply of nutriment. We have had an opportunity of examining a very large collection of Wellingtonias, but have not met with a similar case. As the rest of the tree is healthy, we do not think, in spite of the prevalence of Larch disease in the neighbourhood, that there is any reason to fear it will spread. *M. J. B.*

—— We take the earliest opportunity to state, at the request of our excellent correspondent "H. G. R.," that in his letter on International Exhibitions (p. 601), we have unwittingly misrepresented his sentiments in one particular. He had written—speaking of persons incompetent to be jurors, "such as deal only with cellules." This latter word, owing to the indistinctness of the MS., we read "cellulares," and hence we substituted "cryptogams." What our correspondent meant to say was this, that on the Continent there are those who pay attention to little or nothing but cellules—microscopists that is, who know comparatively nothing of systematic botany, and declare its study to be nonsense; and that such men are unfit to become the directors of Botanic Gardens, or the jurors at International Exhibitions. Our learned friend is especially anxious not to be misunderstood, and we not only acquit him entirely of the use of the word "cryptogams," but regret that it should have crept in through a misreading of our own.

—— We are informed that at the Scientific Meeting of the Royal Horticultural Society on Tuesday next, Mr. Berkeley will give some account of a supposed hybrid Fern from Philadelphia.

—— We have to announce with regret the death of Mr. Henry Lane, of Great Berkhampstead, in the 88th year of his age. He was the father of the present enterprising nurseryman and Rose-grower of that place, and may be said to have been the founder of the business, from which he only retired about 12 years ago. He was a man of wonderful activity and industry, and kind and considerate to all around him. He was only confined to his bed a week, and could see to read even comparatively small print without spectacles till within a few days of his death, which took place on the evening of the 15th inst. He was one of the churchwardens of Berkhampstead for a period of not less than 40 years.

New Plants.

299. Cœlogyne trifida, *Rchb. fil. in Otto, Hamb. Gartenz.* 1863, 546.

Pseudobulbis subsphæricis utrinque carinatis diphyllis, foliis lineari-ligulatis pergameneis binis, pedunculo paucifloro, bracteis ovatis acutis scariosis persistentibus, sepalis oblongis subacutis, petalis late ligulatis acutis, labello oblongo alte trifido, laciniis lateralibus late ligulatis laciniæ anticæ oblongæ appressis, carinis undulatis ternis a regione antebasilari in basin laciniæ anticæ, media in carinam tenuem extensis, versus apicem labelli exeunte, columnæ androclinio apice eroso denticulato.

A dense cæspitose plant, with copious peduncles of white flowers, reminding one of the Lily of the Valley, but even fairer, and having some yellow on the lip. It is an inhabitant of Burmah, whence it has been sent by the Rev. C. S. Parish to Kew Gardens, and to Messrs. Low & Co. Sometimes it has been regarded as C. odoratissima, Lindl., a totally different plant, with the plaited leaves of a Stanhopea, and a much larger and different flower. We saw it flowering the other day in Mr. Day's garden at Tottenham.

300. Sarcanthus Williamsonii, n. sp.

Foliis filiformibus obtusiusculis, panicula folia excedente, ramulis sparsifloris, bracteis triangulis ovariis pedicellatis multo brevioribus, sepalis oblongis, petalis ligulatis subacutis, labelli trifidi laciniis posticis triangulis antrorsis, lacinia media triangula per lineam mediam sulcata, calcari clavato septo ab apice in basin anteriorem callo pandurato velutino ante columnæ basin, columna semitereti medio constricto, curvula, basi dilatata, apice utrinque apiculata.

A very elegant plant, with light green terete leaves, as if it were a diminutive Vanda teres, bearing pretty amethyst-coloured flowers as large as those of Sarcanthus rostratus, in spreading panicles. This little vegetable gem, a rival of Saccolabium gemmatum, is dedicated to Mr. W. J. Williamson, of Assam, a most zealous collector of Orchids, by whose invaluable assistance the Dayan stoves have been greatly enriched. We saw the plant recently at Mr. Day's, under Mr. Stone's able management.

301. Dendrobium dixanthum, n. sp.

(Eudendrobia Chrysantha) caule erecto teretiusculo basi valde tenui stipitato, sesquipedali, floribus ex caulibus vetustis, singulis (semper?) lateralibus, mento parvo, obtusangulo, sepalis lanceolatis acutis, petalis oblongis acutis sublongioribus margine minute denticulatis, labello ab ungue lato hastato subquadrato obtusangulo antrorsum dilatato, medio antice minute emarginato, toto margine minute serrulato denticulato, carinula transversa per unguis basin, nervis fere omnibus lineis cristularum obtectis.

Mr. Bateman promised us the other day in his interesting lecture on Dendrobia some new species to be introduced. We hasten to show how happy was his prophetical assertion. Here is a new species, and a second also. Imagine thin stiff erect bulbs, like those of Dendrobium Aphrodite, Rchb. fil., Aug. 1, 1862 (nodatum, Lindl., Aug. 2, 1862), but without knobs, and thinner, a foot and a half high, and give them single flowers like those of the long-racemed Dendrobium chrysotoxum, with longer and broader petals a little toothleted, and a transverse bar on the margins of the lip, and you will at once know our new Dendrobe, named dixanthum in allusion to the two kinds of yellow in it, the disk of the lip being orange, and the other parts lighter. It is again one of Rev. C. S. Parish's numerous Burmese κειμήλια, sent over to Messrs. Low & Co., grown under Mr. Bullen's care—*toujours perdrix!*

302. Dendrobium lilacinum, n. sp.

Pedilonum aff. Dendrobio picto Lindl. et D. lucenti Rchb. fil. labelli ungue lineari antice in laminam panduratam obtuse acutam dilatato, dente lanceolato in unguis basi, calloutrinque in sacco juxta unguis insertionem suprabasilarem. Folium cuneato-oblongum acuminatum. Flores illis Dendrobis lucentis æquimagni, lilacini. Sepalum dorsale ligulatum acutum; sepala lateralia latiora in perulam ante basin obtusangulum deflexam extensa. Petala subæqualia. Auriculæ columnæ crenulatæ.

A neat lilac-flowered Dendrobium, in the way of Dr. Lindley's D. pictum, yet not quite so handsome, since there is no yellow in the flower. It came from Borneo, among Mr. Hugh Low's splendid spolia, and has recently flowered with Messrs. Low and Co. *H. G. Rchb. fil.*

INDOOR CLIMBERS.—BIGNONIA CHERERE.

The easy culture and the great beauty of many climbing plants makes it a matter of regret that they should be so much neglected. In planting new houses or renovating old ones, cultivators are apt to seek for a quick, rambling grower that will cover the space to be filled in the shortest time. With a little consideration, however, others more precious may be introduced at the same time, the soft-wooded kinds being made to give way, as the others acquire age and cover sufficient surface to allow their natural functions to become developed. Indeed many beautiful plants will not bloom unless allowed free development.

The subject of the present notice, Bignonia Cherere, is a member of a very extensive and beautiful family. We may well pause before it, and fancy how much of beauty there is available for our gardens if we seek variety. For example, how beautiful would be a column of this gorgeous climber in some sheltered nook; and that it can be so managed I know, for I have proved it. This however by the way, as it is foreign to my present purpose.

Bignonia Cherere is considered by many as a tender stove plant, and by others as not worthy of a place, because under certain treatment it seldom throws more than one or two blooms in a season. As regards the first of these opinions I believe that it requires extra heat while in a young state, to push it forward up to a certain stage. Let us take for example one of the large new structures springing up in all directions—they may be denominated winter gardens or conservatories. In most cases they are cleared of their inmates, which are turned out of doors for the summer months, and replaced by a different class of plants, though in other instances the house is left for the greater part of the season without anything to replace them. Beautiful permanent creepers, however, such as this little-used Bignonia, would add a double interest to such houses, and when once established they would bear a great amount of cold, even as much as 10° or 12° of frost, without the least injury.

Before leaving this part of the subject let me remark that I consider it a great mistake on the part of builders of large conservatories that they should block the roots of creepers by solid foundation walls. Arches are quite as secure, and they allow the roots to extend. I am quite aware that in many instances the walls surround structures of this sort. But that is no reason why a little preparation should not be made underneath. The sort of plants we are now considering become more beautiful in a mixture of hard material, such as brick rubbish, than in a well-made border. Such hard materials prevent that tendency to luxuriant growth possessed by most of them, and secures a more abundant bloom; but to confine the roots within small spaces most frequently prevents a full development of the plant, or otherwise brings insects or disease, with a single bloom or two in a season.

The Bignonia Cherere is an evergreen, with a strong hardy-looking robust habit. The flowers are large, trumpet-shaped, of a rich red, with yellow throat. They are produced in fine clusters of 18 or 20 blooms at the end of the previous year's shoots. It is better, therefore, when once it has filled the space intended for it, to pinch the strong shoots in through the growing season, which induces it to push a greater number of short side shoots which are certain to bring bloom. It is a continuous blooming plant in a conservatory temperature, but in a cold greenhouse it seldom opens any flowers after the sun begins to lose its power. *J. F.*

BEAUTIFUL HARDY PLANTS
FOR THE SELECT SPRING GARDEN.

It is with the greatest pleasure that I write this list, convinced that all who obtain and grow the plants therein mentioned, will add for every plant a new source of interest, and a new charm to their garden.

I will begin with the little Irises, for they are of great beauty, and very rarely seen as well as they might easily be grown. I. reticulata, pumila, and cristata are charming little plants; so Messrs. Backhouse's little Iris attica, which I have not yet had the pleasure of seeing in flower, is said to be; and so, too, is a dark purple species I have seen in flower at Messrs. Henderson's, where it is called I. spathulata. There are also several fine varieties of I. pumila. They all luxuriate in sandy peat; at Wimbledon I have seen beds of pumila literally a sheet of blue; but any light sandy soil will do. At Glasnevin I. cristata is a gem, and grows on warm borders against houses as freely as a native Rumex.

The transition is easy from Iris to Crocus, and there are, I believe, some rare things in the latter genus, such as C. Aucheri, lately introduced, but for beauty nothing beats the finer varieties of vernus. Sir W. Scott, and La Majestueuse to wit. Triteleia uniflora is a beautiful little plant of similar habit, very rarely seen as a hardy spring bulb, but I have proved it so in a soil apparently composed of an equal mixture of London clay and bad putty. It is a lovely dwarf plant, and one that wants

* We have to thank Dr. Seemann, who has specially studied the Bignoniaceæ, for certifying the name of this fine climber, which is Pithecoctenium buccinatorium, var. subinclusum. It comes from Mexico, and is the Bignonia Cherere of Lindley (*Bot. Reg.* t. 1301), and of gardens; but not the Bignonia Kerere of Aublet, or of De Candolle. Aublet's B. Kerere belongs to a very different genus, and has little beauty to recommend it.

"bringing out," being quite as useful as the best Squills. Sisyrinchium grandiflorum is a fine plant for the spring garden. The neater and most beautiful Narcissi will of course be essential: for choice say, N. Bulbocodium minor, the newly introduced and very pretty juncifolius, the pure white dubius, and the true sweet Jonquil; but it is such a fine genus that many others may be picked out. Sternbergia lutea is a fine plant where it does well, and on light or gravelly soils it displays as good and bright a bloom about the 1st October, as the yellow Crocus does in spring. But I am wandering from youth to age, from green leaves to brown, forgetting that I am writing of "spring" gardening; those, however, who grow these exquisite spring plants successfully must give them a neat little garden for themselves, and then of course a good autumnal subject will not be out of place among the beauties which are to embellish the garden after most of our spring things are past.

Zephyranthes is a lovely genus, particularly where grown in nice peaty soil in a sheltered place, as it is at Messrs. Osborn's. Galanthus plicatus, the Crimean Snowdrop, too, is fine! Professor Syme tells me that with him it is much hardier and more easily grown than the common Snowdrop! Leucojum vernum, again, is a fine and fragrant plant.

Now for the Squills. They, unlike Triteleia and another little fellow named below, do not want making known. Scilla sibirica is perhaps the best, though anybody who could see Mr. Mackay's beds of S. bifolia in bloom at Totteridge would doubt the superiority of the Siberian. S. præcox alba is a charming little dwarf, and so is S. rosea very desirable for its colour and neat habit. Hyacinthus amethystinus and Muscari botryoides and its white variety must not be overlooked. Then Puschkinia scilloides—if I did nothing in this paper but make this known as a fascinating fairy among spring plants, there would have been papers written with less result; it is the most delicately beautiful thing in the way of a spring bulb that I am familiar with—a beautiful light blue shaded off to white (I am describing from memory), and easily grown too—easier than the Squills; it does not last long in flower, but few spring flowers do. Lilium tenuifolium is a dwarf early flowering species, for beauty and brilliancy of colour second to no other. Erythronium Dens-canis and the var. major are fine things, of which I need not tell.

Another plant I want to say a few words about is as old as Methusaleh, but might as well have arrived with Maranta Veitchii for all the use that has been made of it—I mean Bulbocodium vernum. It is generally seen in a state of single blessedness, probably in a pot in a musty old frame, but get a lot of it and put it out in good sandy soil in your choice spring garden, and it will prove one of the best and earliest of spring bulbs, sending up its fine large rosy-purple flower buds, distinct in colour from any other spring flower, earlier than Crocus Susianus—in fact, they were showing for several weeks ere the snow took leave of us this year. I had an edging of it composed of about 250 plants, in a very bad soil, as healthy as growing youths of Rumex Hydrolapathum.

Mr. Niven, of Hull, says Silene acaulis alba and S. excapa are among his best Alpines, being in their season covered with hundreds of flowers; grow them by all means in a little raised bed. Silene alpestris cannot be done without. Phlox frondosa and Nelsoni will make charming little beds, or become completely covered with flowers on rockwork. Hepaticas, all, single or double, are indispensable, but the new one, H. angulosa, is the only one I need particularise. It is likely to show to great advantage when we get good big plants of it. In Backhouse's new catalogue of Alpines, &c., the flowers are said to be sometimes as large as a crown-piece. Ranunculus amplexicaulis, bullatus fl. pl. and the "fair ladies" are among the best of this genus; and Adonis vernalis is brilliant. Anemone vernalis and palmata I have not seen in good flower, but they are known to be fine, and with hortensis, fulgens, and sylvestris very free. Aquilegia alpina again, one of the most exquisite flowers ever peeped into, if true is indispensable, but it is actually surpassed by the distinct and lovely A. cœrulea, now in the hands of Mr. Thompson. Cheiranthus alpinus, Marshalli and ochroleuca—the last for choice. Some Epimediums are good, particularly if in shade and peat. Associate them with your best Hellebores, Salix lanata, &c., round the margins of your *bijou* spring garden. Aubrietias are indispensable, and now we are getting new ones. Cerastium alpinum will form woolly dwarf edgings, and flower densely the first week in May. Saponaria cæspitosa is a promising new plant in this order. Dianthus alpinus, petræus, cæsius, glacialis, and Fischeri are five excellent species, all the more acceptable because the greatest muddle is to be found in the genus, if once you go far beyond these distinct ones. D. cæsius does well on old walls, &c.; alpinus and petræus grown well are two of the loveliest plants in the country. I find I am diverging from all system, but it's not system we want, but good plants.

Androsace lanuginosa, villosa, carnea, and Chamæjasme, are gems of the first water. Primula pubescens, ciliata, marginata, and nivalis, will prove a good start in this ravishing genus. Of the Gentians, verna, ciliata, and bavarica are among the best. Cyclamens Coum and vernum must not be forgotten; nor Dielytra eximia, which has graceful leaves and bright flowers.

Sedums will come in well either as single plants or edgings, but they must be used in some shape or other; dasyphyllum, brevifolium, monregalense, Ewersii, and hispanicum, being among the best of the wonderfully neat lot. Sempervivums will make still better edgings; S. globiferum, for choice, being as compact and neat as anything can be; the Spider-webbed one is hardy in London. S. hirtum makes a charming bed or edging, and is a prodigious bee-feeding plant too. Others of the genus are fine, and all so thoroughly hardy, that they do finely in the open air in Tottenham-court-road and elsewhere in London.

Saxifragas are, of course, indispensable. You can do a great deal with a good selection from this very extensive genus. What can be neater, and to all observers more interesting, than lines of the little half-succulent encrusted-leaved Saxifragas, such as Hostii, rosularis, Aizoon, &c., with the distinguished and free-flowering pyramidalis. They are generally grown in pots, but may be grown in the open air with the greatest ease, and are so grown amidst the smoke of London. Nothing seems to affect them in the way of climatic vicissitude, and no plants are so presentable all the year round. They are never in dishabille. Saxifraga Andrewsii is an ornamental species, or rather hybrid. But before leaving the Aizoon section, I should have said that Rocheliana and luteo-viridis are among the prettiest of the small encrusted section, that produce their gallant and sturdy little flowers in tolerable plenty. I once saw 70 kinds of mossy Saxifragas in one border in the delightfully interesting botanic garden of the late Mr. Borrer, the Grand Llama of British botanists, but one who with all his love for British plants, and all his expenditure of time, labour, and wealth in their behalf, could yet find time to grow and study thousands of continental and American plants. These mossy Saxifragas are so much alike in habit, &c., that it is hardly desirable to specify individuals; nearly all are good for greening—and what plants produce so lovely a green, especially when the showers of brown leaves begin to fall? One I have, called Stansfieldii, is of close firm habit, and the freest and earliest bloomer of the whole.

Dodecatheons will beautifully fill the centres of beds—I mean the common species. D. splendens and integrifolia are two fascinating gems, very scarce yet. Antennaria dioica rosea would form an exquisite little edging plant for the choice spring garden. Wherever a soil is found fit to grow well the tiny Andromedas and Menziesias, as they grow at Comely Bank and other places near Edinburgh, they will form a unique addition to the select garden. Eritrichium nanum is said to be one of the loveliest Alpine gems, but as yet it is rare.

I have mentioned enough of "gems," and will conclude with a few subjects of easier culture, which can be got and grown largely at once for edging your beds, or for filling up the larger ones with chaste mixtures. Myosotis sylvatica is one of the best of these; sow it in early summer. Next come the double Daisies of sorts, the double Primulas, Cloven Pansies, white, blue, dark, and the Magpie Pansy. Myosotis alpestris and Myosotis montana, a beautiful thing if grown in a moist district and in a somewhat shady situation. In dry ground it is comparatively poor; but as Mr. Atkins grows or used to grow it at Painswick, of surpassing loveliness. Lacking a really good rockwork well-suited to the growth of Alpines and such choice subjects as those named, the best way to grow the most difficult is in a bed raised a foot or so above the level by stones around the margin, with a few through the centre; the soil to be very sandy, with perfect drainage and abundant moisture at all times; and the bed or beds to be in all cases fully exposed. *William Robinson.*

Home Correspondence.

Ranunculus auricomus and inconstans.—Allow me to ask you whether you have been led to suspect a specific difference between the full-flowered Ranunculus auricomus (the figure in E. B.) and the common form, which has defective petals? I strongly suspect they are distinct. R. auricomus is earlier, larger, loves more sunny spots, is of a brighter green, and has the petals equal, without a notch. The other form, which I call R. inconstans, blooms after R. auricomus, courts shade, is of a darker green, and has few petals, sometimes none; and when showing a corolla, the petals are unequal in size, often notched, and never so full as those of R. auricomus. When the two grow together (for R. auricomus will thrive in the shade also, though preferring more open spots, or the base of lofty trees), R. auricomus is decidedly the larger plant. While I resided in the southern counties, in Yorkshire, and in Cheshire, I never met with the plant figured in E. B. as R. auricomus. Near Chichester and in Cheshire the more grassy form, my R. inconstans, was abundant; but, until I resided here, the E. B. form did not cross my path. I have not yet been able to detect a character in either form clearly separating them, unless the position of the permanent style upon the achenes should prove one. *Gerard Smith, Osmaston, Ashbourne.*

Black Monukka Grape.—Some time in the autumn of 1862, I think in September, I read an account of the Grape Vines cultivated for trial at Chiswick, and among others mention was made of this, which was described as having very large bunches with large oval berries. I have a Vine of it here, but I cannot get it to fruit. My employer received it with Burchardt's Prince, Frankenthal, Black Prince, Black Morocco, &c., from the Society's Garden in the spring of 1861. It was struck from eyes in the usual way along with the other sorts, and made strong canes. It was kept in a pot during the next season, and made good fruiting canes. Next spring the following sorts were planted out in the back borders of two lean-to Vineries, viz., Black Hamburgh, Muscat Noir de Jura, Burchardt's Prince, Frankenthal, Dutch Sweetwater, and Black Monukka; all bore good crops the same season, except the last named sort, and last season they all bore an excellent crop, averaging from 10 to 15 lbs. of Grapes to each Vine. No signs of fruit however appeared on the Monukka, at which I was rather disappointed. I have a fair crop again this season with the same exception, although it made good wood, which was well ripened. I pruned it on the spur system. The border in which these Vines are planted has the advantage of heat from hot-water pipes running under the walks which divide the back and front borders. I intend taking up these Vines and planting young ones again, and having two good Vines of Monukka in pots, I should esteem it a favour if any of your readers can speak in its favour before risking space, &c., for it. *J. M.*

Cutbush's Seedling Raspberry.—The Fruit Committee of the Royal Horticultural Society are wrong in saying this is an early sort, for the reverse is the fact, it being at least three weeks later than its parent the Prince of Wales, and for this desirable quality we recommend it. The habit of growth is equally strong and free with that of the kind just named, the canes averaging from six to eight feet long, with branches from the base nearly to the summit. The fruit, which is borne on these branches in great quantities, partakes somewhat of the character of that of the Fastolff, both in shape, colour, and flavour; and being very juicy it is well adapted for preserving. We have tested it for several years side by side with other kinds, and when all others are fully ripe this is just opening its blossoms; it is not, however, an autumn-bearing sort. *Wm. Cutbush & Son, Highgate.*

Earwigs.—I have lost many plants from the attacks of these little creatures, whose name is legion. Purple King Verbena has suffered more than anything else from their ravages; Calceolarias, Pansies, Tropæolums, and Pelargoniums have all been attacked, but not so badly as the Verbenas. The remedy I adopt is this: About 8 o'clock in the evening I procure some good succulent Lettuce leaves, which I lay all over the bed, especially on that side against which the most vigorous attack is to be expected. At 11 o'clock I go round with a candle and lantern, when I generally find ten or a dozen earwigs under each leaf; on lifting the latter up the little depredators scamper off in all directions, or hide under a lump of earth. The quickest plan is to pinch them between the finger and thumb, but a more delicate, although not less cruel way, is to put them into a water-pot full of boiling water. This remedy I have proved to be better than any other, and if accidentally prevented from going to look over the leaves, the insects feast on them instead of the bedding plants. This plan repeated for a week will, although tedious, greatly thin their numbers. Does any bird feed upon either the insects or their eggs? *W. S., Haverholme Priory, Sleaford.*

Early Peas.—With reference to our First and Best, it is due to the numerous friends who last season spoke so highly of it, as well as to ourselves, that we should endeavour to remove the incorrect impression regarding its character which Messrs. A. Henderson & Co., of Pine-apple Place, have unwittingly created by their published report on New Early Peas (see p. 580). We obtained our First and Best some six years ago from a gardener in this neighbourhood, and in successive trials season after season we found it to be some days earlier than the earliest known Pea. In 1863 we grew it extensively for the purpose of sale, but afterwards hesitated to send it out until we had subjected it to a scrutinising and decisive trial. We therefore sent a package to some 50 of the leading gardeners and others throughout the country, and from all of these the most unequivocal testimonies to its earliness and excellence were received, many of which were published in our Seed Catalogue for the current year. These testimonies were so satisfactory and decisive that we resolved to send it out last spring, but as the seed had been held over a year (for the reason just stated) this circumstance will to a great extent account for its not having still earlier characteristics than already reported. In our own trial grounds, in two different localities near Chester—the one sheltered, warm, and early; the other exposed, cold, and late—our First and Best was in each case about two days later in blooming and coming into bearing than its two rivals, but the crop was much heavier and the pods were larger and better filled. We found Sutton's Ringleader and Carter's First Crop to be identical in every respect and inclined freely to sport, whereas our own was very true. First and Best is also a little taller and a more vigorous grower, and while it yielded three and four copious pickings, barely two gatherings could be obtained from the two just named. Dillistone's Early was some days later than ours, and Daniel O'Rourke later than Dillistone's. Carpenter's Express we were unable to obtain. Eley's Essex Rival appears to be a good second Early Pea, coming into bearing between our Early Favourite and

Champion of England. We are growing our First and Best very extensively this season, as we are certain it will be found and pronounced to be the best early Pea in cultivation. *Francis and Arthur Dickson & Sons*, 106, *Eastgate Street, Chester.*——I sowed this season Dickson's First and Best, Dillistone's Early, and Sangster's No. 1, and I found the first to be fully nine days earlier than either of the others. Its quality is excellent; it is very hardy, a strong grower, and pods in abundance from top to bottom. I gathered a much larger crop from the First and Best than I did from either of the others, and in future I shall sow it only for my first crop. *Wm. Landon, Downton Castle Gardens.*

Double-Glazing.—I notice (see p. 650) some interesting remarks on this subject. I had known for years that plant houses in Russia were usually double-glazed, but I had no information as to the relative value of the plan. The main purpose of my writing now is to ask your correspondent to give, if possible, some account of the comparative advantages of single and double-glazing as regards the flowering of Orchids. I fear he will be unable to do this, as he states that all the Orchid-houses at Berlin are, without exception, double-glazed. In one instance, however, it seems that the outside sashes are regularly taken off during the hottest summer months. If your correspondent will take the trouble to frequently visit this house and some others, where the plants are about equal in size, &c., not so treated, and then state in which the greatest amount of flowers are produced, it will be very interesting. With our cloudy skies I fear we must always build so as to take off one roof in the summer, or the flowers will be few and far between. M. Reichenheim's Vandas I should expect to see very luxuriantly grown, and as they are without spot and insects they must be delightful to look at. But how do they flower? Saccolabiums flower well in their native climate, where 5 inches of rain has not fallen for four months. *Robert Warner, Broomfield.*

Large Vine Leaf.—Observing in my greenhouse a Vine leaf which appeared unusually large, I measured it, and found it to be rather over 14 inches in length and breadth. Is this an unusual size? *Henry Morgan, Bracondale, Norwich.* [A leaf of White Nice received from Mr. Thomson of Dalkeith (see 1857, p. 194) measured 17 inches in diameter, and records of others larger than yours may be found in the same volume (see p. 214).]

Bedding at South Kensington.—All who visit the Royal Horticultural Gardens at South Kensington this season, must, I am sure, admire the very perfect condition of the beds there—none round London which I have seen can bear the least comparison with them, notwithstanding that it has been a beautiful spring for displaying colours to advantage. The beds in question were as nearly as possible perfect at planting time, which is the great secret of early success in such matters. The materials should be good, free from insects, and planted close. It tries the patience of many, after having had empty beds so long, to have still to wait for perfection, with which they are sometimes after all not favoured. It would be much better policy for those who have a greater amount of space to fill than their plant conveniences allow them to do successfully, to reduce that space by filling the beds partially, or, in some instances, wholly with some sort of perennial. In the meantime, however, let us take a hint from Mr. Eyles, and where the beds are large do as he has done, namely, fill the centre with Aucuba japonica; this, surrounded by a bright scarlet Pelargonium, is both pleasing and effective. At the same time it appears to me that great judgment must be exercised in the use of such additions; they can only be employed in masses that balance well with the whole design, or in miscellaneous beds distinct and complete in themselves. Moreover, the present usefulness of the Aucuba for such a purpose will be greatly enhanced when we get large clusters of rich berries on it. Of this we may doubtless soon have an opportunity of judging in this garden. I am not going to trouble you with a long description of the beds, and with what they are filled, for I hope all who can will go and judge for themselves, but I cannot pass Stella and Cybister, two new Nosegay Pelargoniums, without noticing that they are splendid additions to our bedding materials; and if the kinds Mr. William Paul is bringing out are anything equal to these, possessing as they do different shades of colour, we may hail them as real acquisitions to our flower gardens. In my opinion these gardens do Mr. Eyles, the Superintendent, infinite credit, particularly if we look back and consider the immense amount of difficulties in many ways he has had to overcome. *A Country F.R.H.S.*

Further Notes on the Flora of Kildare.—Several detached bogs exist in that part of the county next to Carlow. Dolardstown bog is about half-way between Athy and Castledermott. As it is now drained and planted it is fast losing its boggy character. Here I found Aquilegia vulgaris in the greatest abundance, and in every shade of colour from white to deep purple. Hypericum montanum is also common here, but I have not observed it elsewhere. In several spots Cladium Mariscus sends up its polished wand-like stems, indicating the fenny nature of the soil in which it delights. Rides through the bog in June are adorned with the really pretty Cnicus pratensis, and the still prettier Carlina vulgaris, which is quite common in this part of the county. About two miles to the south-east of Dolardstown is another bog of a different description, called Ballyvas. The former is clothed with a wide waste of Furze, a covert for foxes, the latter with most luxuriant Grass and Rushes, a splendid covert for snipe. In a bog of this kind the sportsman and the botanist had need, however, to walk circumspectly, for there are many places where it would be much easier getting in than getting out. Cladium Mariscus is most prominent all over this bog. At the lower end Epipactis palustris is now blooming abundantly and in luxuriance, some of the plants attaining a height of nearly two feet. This is the only locality in which I have yet seen it. This makes the tenth kind of Orchid that I have met with quite indigenous to the county Kildare. A clever botanist told me yesterday that Listera cordata is found in the county. As soon as I stumble upon it I shall tell you. In a plantation at Kilkea Castle there is about a quarter of an acre covered with Lotus major, a very distinct species of Bird's-foot Trefoil; and in another part of the same plantation Carex lævigata is found. In a low meadow between the plantation just named and the river Greece there is a scattered patch of Thalictrum flavum; and part of the banks of the river is here adorned with Typha latifolia. On the road-side between Mageney and Carlow, Ballota nigra is growing most vigorously. *J. Douglas, Kilkea Castle, Kildare.*

Sweet Peas.—Who does not love this sweetest of flowers? Perfect though they be in regard to variety and brilliancy of colour, it is perhaps not impossible to produce something grander than we are already familiar with. Has this been realised in the "New Invincible Scarlet," introduced this season as something "strikingly brilliant and very distinct in colour?" I ventured to give a good crown piece for 23 Peas, and now that they are in full flower I find they are no improvement on old sorts, nor have they a distinctness worth noting. Let any one mix together a few blooms of the Invincible and the old crimson or scarlet, and he will with difficulty see the difference. That there is a slight difference I admit, but they are not so "strikingly" different as to entitle them to be sold at this high price. No wonder that the public are misled, and made to pay enormous prices for novelties, when this said Invincible Pea is honoured by the Royal Horticultural Society with a First-class Certificate. *A Provincial Seedsman.* [We saw the flowers alluded to, and thought them remarkably fine—much finer indeed than any we had previously seen. There is, moreover, a marked difference in the half-withered flowers you send, the Invincible being in that state much the brighter of the two.]

The Old Dwarf White Rocket.—I shall be obliged if any of your readers can inform me where I can procure the old-fashioned Dwarf White Rocket, which we used to see in our gardens 30 years back. It seldom grew higher than 12 or 15 inches. I have not been able to meet with it for years, and fear it is extinct. *J. F.*

Preserving Hyacinth Bulbs.—I send a couple of Hyacinth bulbs, in which I think you will not find the hollowness spoken off at p. 650. As soon as the plants have done flowering I take them in their pots into a hot dry potting shed, where there is plenty of light; there they remain till they are quite ripe. I have about half a peck of bulbs, similar to those sent. *Joseph Forsyth Johnson, Gardener, Manchester.* [These bulbs are better filled in the crown than those mentioned previously.]

Foreign Correspondence.

Mexican Gardening.—When the "Tasmanian" landed us in the Bay of Saint Thomas I went to the market and to the public garden. In the first there were good saladings and vegetables, the former grown on the north side of the island. In the garden were growing well, in some cases luxuriantly, Crotons, Ipomœas, Cocoa-nuts (the fruit small), Bignonia Stans, and Neriums, very fine and effective, with no end of tropical subjects. At Havanna the gardens and squares were well kept, and at the time of my visit gay with flowers, Roses being plentiful, and fragrant too, contradicting in this case the old tale of their lacking perfume in warm countries. Hedges were formed of Plumbago capensis, Croton variegatum, &c.; Hibiscus, Vinca, Bignonia, Passiflora, Dracæna, and Musa were fine and abundant, and the Guavas formed large trees. Plants of noble leaf and habit being very luxuriant, and free-flowering subjects plentiful among them, the effect under a bright sun and clear sky was very gorgeous and beautiful. Round the town in waste spots, Lantana crocea, Convolvuli, Cacti, &c., in great quantity were to be seen, with variously marked lizards, crickets, beautifully-coloured butterflies, &c., among them, with other and smaller insects in great plenty, many very pleasant to the sight, and others exceedingly unpleasant to the sense of touch. I suppose the natives become pachydermatous at an early age, and cease to be affected by the latter. At Havanna there are very few pedestrians—everybody rides something.

At Vera Cruz, which is a hot, stinking, ill-drained town, tropical vegetation in the squares, &c., is represented by a few dirty old tubs! into which you look to see at the bottom a ghostly and faded Ficus, or a miserable Musa. The tub plan has its advantages in hot countries I admit, but here the thing was done as badly as it could be, the surroundings, &c., being of the filthiest and most untidy sort.

Going from Vera Cruz to Soledad, during the first few days of November, we passed by lakes of Nymphæa, groups of Musa, and Palms in luxuriant health. From thence we started in a diligence (save the name!) to go by stages to the city of Mexico. The journey is generally accomplished in three days, but this time the rainy season was much later than usual, and the "roads" being in many places impassable, we had to endure seven days of torture. The path up and down the Three-rock Mountain near Dublin is as Regent Street compared to the road between Soledad and Puebla! You are jolted from stone to stone, and bump to bump, angleways, forwards, backwards, upwards, and in every conceivable and some inconceivable directions. Watching and taking notes of the vegetation under these circumstances was impossible. In passing through a ravine I noticed large masses of Schomburgkia tibicinis growing on the largest branches of trees, in company with Tillandsias, Ferns, Mosses, &c., the situation comparatively cool, open, and airy; while some distance further on, the rugged sides of the track were lined with Gymnogramma peruviana argyrophylla, with any quantity of Cheilanthes, Adiantum, and Selaginella. Stopping at one place to change horses, our host kindly took me to a Coffee plantation, and a very interesting sight it was; bushes about three years old, very neat, about 6 feet high and 4 through, laden with beautiful berries, and the leaves of as refreshing a green as the evergreens exhibit in the mildest spots in the British Isles. The plants are mostly grown under the shade of trees, Musas, &c. Bananas and Pines were grown, and very good too; and the proprietor, a lover of plants, was introducing all the new fruits, flowers, &c., he could obtain for experiment. In some shady parts of the plantation Orchids were established on the trees. The proprietor had, too, a new climber, which I did not see in flower, but which he highly praised for its beauty and perfume. It was to be named Hanburia.

About Cordova the vegetation is luxuriant enough, but untidy; Selaginellas, Ferns, Ricinus, Azalea, &c., were in quantity; Orange trees in full fruit, and hedgerows of the Leaf of Life, Bryophyllum calycinum. But hereabouts the 12 mules were unable to drag the diligence through the mixture of mud and stones that filled the deep holes, and so we were all obliged to get out—ladies, children and all—and had to make a detour through the woods, over old stumps and trees and streams. Twenty-four mules were then fastened to the diligence, and several men set to dig it out, which they did after an hour's work, when it moved to the top of the hill to pick us up. Along the path I noticed masses of Oncidium luridum and O. bicallosum on branches of small trees, but the wood was so dense that it was impossible to see more than a few yards from the path. At Cordova it rained so hard for two days that the roads were reported to be in a worse state than ever, but I started off in company with several of the hardiest of the travellers to go by by-paths, &c., to Orizaba, and by-path it was indeed—over rocky foaming streams, through swamps, woods, &c., with the rain coming down in torrents. The "sure-footed mules" were often down with us, and sometimes never to get up again. I passed several natives—"Peons"—on the way, with spikes of Lælia anceps in their sombreros or hats, and I also saw, while skirting a wood by a by-path, several noble specimens of Cibotium princeps, with stems 5 feet high. Musas and Tobacco were plentiful. The barriers still remain in the streets of Orizaba, with the cannon planted in them as they were when the fighting was going on.

We left the town at 3 o'clock in the morning, while it was very dark and cold, with torches to light us, one trotting a-head with a torch as a pioneer; but with all this we lost the way and made little track till daylight at 6 o'clock. Lælia anceps and some Oncids were abundant on the trees. In going over some very steep mountains covered with Oaks I recognised an old friend, Polypodium vulgare, but very stunted. As soon as we got to the sunny side of these hills the vegetation rapidly changed to huge Agaves, Yuccas, and Cacti. Away again, over vast prairies with some large trees near the road, covered by a beautiful golden network of a species of Cuscuta, till we reach Puebla. Leaving it, we passed through a country almost devoted to farms or Haciendas, with very few trees to be seen, but the Wheat, Barley, and Maize abundant.

Rio Frio, a den of robbers (they had sallied out a few days before and robbed the diligence, shooting several of the passengers) is a very picturesque village, near to which in rocky places I saw a quantity of neat Ferns, Selaginellas, and other small and pretty plants, but could not stop or get near enough to obtain specimens; they should be nearly hardy, for it is very cold here. We were journeying through fields of Maize and Agave, and hedges of Cactus, and meeting hundreds of mules laden on their way to Vera Cruz, when we first had a view of the valley of Mexico; soon after we reached the city itself, tired, tattered, and with a capital appetite.

Mr. Barron's gardens are at Tacubaya, 1½ league from the city of Mexico, on an eminence overlooking the town, and opposite Chapultupec, the residence of the Emperor Maximilian, whom I have had the honour of showing round our gardens on several occasions. He is fond of plants, knows the names of a good many, and speaks English well. Mr. Barron has kindly and liberally allowed me to make what alterations I please, and so I am having a thorough overhaul. I have just commenced a Fernery with rockwork, &c., similar to the

one I arranged for Mr. Bewley, at Rockville, Dublin; but here I can get any quantity of Nothochlænas and Cheilanthes elegans, which, by the way, stands frost well, and grows mostly on exposed rocks. Orchids I shall also be able to call to my aid, and many forms of beautiful Cacti; and thus I am confident of producing a scene which may even charm some of the natives of this fine plant country. Orange trees do well here, but want protection in winter. Polygala Dalmaisiana grows into fine bushes, full of flower, and perfect specimens; Acacia longifolia forms fine masses and is uninjured by cold; Solandra Banksii is in full flower against a wall; while the young shoots of Magnolia grandiflora and Araucaria excelsa are slightly nipped by frost. Veronica Anderson forms shrubs 15 feet through; Cassias, Abutilons, Geraniums, Roses, Habrothamnuses, Salvias, &c., are all in fine health and flower, while we have Violets in quantity all the year round. The air here is very clear, light, and pure; you can distinguish a thin column of smoke rising through it apparently a mile in height. Sempervivums, Mesembryanthemums, &c., do beautifully here on rockwork. In my Orchid house, at 6 or 7 in the morning, you could well bear an overcoat. Several mornings the thermometer indicated 2° or 3° of frost, yet I have a Lælia autumnalis in flower with 15 spikes, and pseudobulbs as big as turkeys' eggs; Oncidium Barkerii, too, is fine; and Barkeria Skinneri with a higher colour than I have ever seen it in Europe. Of Orchids not in flower I have a capital lot. My old favourite Adiantum Capillus-veneris is here luxuriant and in quantity, with Lastrea Filix-mas and Woodwardias. Ipomœa Quamoclit forms a beautiful object, and does well to run over some of my arches, &c., and thus agreeably introduces a little colour among the Ferns, which we could not well do at Rockville. The Emperor has a German gardener, and a gentleman near, a Belgian. I have just had a lot of plants, which I selected before starting at Messrs. Low's nursery. They were three months coming from Clapton, but came quite safe; so much for good packing. I shall save the greater part of them, even the Laburnum.

Vegetation about me is of a very peculiar character. Palms with Ash trees; Veronicas with Cherimoyers; Roses with Agaves; Beaucarnea, Cactuses, Dasylirions, with Cupressus and Eucalyptus. The Ligustrum japonicum makes fine standard trees with round heads for terraces. Somebody should try them in London, where I know they will grow in a back-yard. There are many kinds of humming birds flitting about the garden and building their nests, of the most beautiful construction, in its trees. I think, with Darwin, that they are great fertilisers of Orchids and other flowers. In walking through a field of Agaves the other morning, I found cakes of ice an inch thick in the hollows of the leaves, and the shady sides of some roads and ditches remained frozen all day. There are very few variegated plants in Mexico. *John O'Brien.*

Societies.

BOTANICAL OF EDINBURGH: *May* 11.—Dr. Dickson, President, in the chair. The following gentlemen were elected: As a Resident Fellow—Ramsay H. Traquair, M.D.; As a Foreign Member—M. Dominique Clos, M.D., Director of the Botanic Garden, Toulouse. The following communications were read:—1. *On the Morphological Constitution of the Andrœcium of Mentzelia, and its analogy with that of certain Rosaceæ.* By Dr. Alexander Dickson. The author gave the results of his investigations of the development of the stamens in Mentzelia aurea. From the fact of the greater number of the stamens not appearing until after the development of the carpels, as well as from a consideration of the peculiar arrangement of the stamens, he believed that here the andrœcium really consists of five compound and confluent stamens superposed to the sepals. He was of opinion that the only essential difference between Mentzelia and its allies, on the one hand, and Loasa and its allies on the other, is, that in the former the evolution of staminal lobes is centripetal, in the latter centrifugal; both series of genera agreeing in having five compound stamens superposed to the sepals. This difference in staminal evolution does not appear sufficient to justify the breaking up of the Loasaceæ, as has been done by Payer. In the Rosaceæ, where Payer had recognised a similarity in staminal evolutions to the Mentzeliæ, Dr. Dickson believes that those andrœcia whose development has been examined may be arranged under two types:—1. Aremonia type; stamens superposed to the sepals, with or without a true corolla, as in Aremonia, Agrimonia, Sanguisorba, Poterium; and 2, Alchemilla type; stamens alternate with the sepals; no true corolla, as in Alchemilla, Rubus, Rosa, Geum, Fragaria, &c.——2. *Report on the Cinchona Plantation at Darjeeling in February*, 1865. By Dr. T. Anderson.——3. *Abstract of a Report on the Pitayo Cinchonas.* By Mr. Robert Cross. Mr. Clements R. Markham having been impressed with the importance of procuring seeds of the species of Cinchona which grow at and near Pitayo, New Granada, obtained the sanction of the Secretary for India to employ Mr. Cross in the service. Mr. Cross remarks that most persons who have written on the Cinchona of the Andes represent it as flourishing amidst perpetual torrents of rain and mist, and scarcely ever enjoying a moment of sunshine. He states that this is a mistake. No Cinchona could live in such a climate, nor, even if planted in similar situations, could the trees ripen their seeds, for a certain amount of dry weather and sunshine is necessary for the ripening of the capsules, and for their bursting in order that the seeds may fall to the earth. The Cinchona climate is certainly moist for about six or eight months of the year, and in cultivating this plant it is expedient to seek very humid situations, because the mountains of India do not appear to receive the same amount of moisture as the lofty elevations in America. Nevertheless it will be understood that the natural climate of the commercial Cinchona has been misrepresented by most South American travellers. The Pitayo Cinchona differs essentially from the C. lancifolia of Karsten in being a more slender tree, often found formerly from 60 to 70 feet in height, but rarely more than 18 inches or 2 feet in diameter, with very slender branches, bearing small lanceolate leaves, which before falling always assume a purple or deep red colour. The C. lancifolia to which Karsten refers extends over a wider tract of country than any other Cinchona on the Andes. This tree, however, is much more massive, and bears considerably larger leaves than those of the Pitayo Cinchona. This large-leaved Cinchona inhabits the western slopes of the Cordillera Orientale, in situations presenting conditions favourable for its development, between Pasto and the city of Santa Fé de Bogota; while the finer kinds of Pitayo bark are limited to a few square miles of steep forest-covered slopes to the northward of the volcano Purace, which belongs properly to the central Cordillera. The map of the Cinchona region of New Granada lately made for Dr. Weddel is very incorrect. It represents certain tracts of country as mountainous, and as covered with Cinchona forests, while in reality they are hot arenaceous plains, or savannas covered with low spreading leguminous trees, where no Cinchona ever grew. Karsten states that the bark is not taken from the roots of the C. lancifolia, which, in most instances, is true; but this is not the case with that of Pitayo, the bark from the roots of which is much more valuable than that from the trunks or branches. Further he asserts that the C. lancifolia is never likely to become scarce, and that the continual cutting of the Cinchona trees will rather augment than diminish the number of plants; and this may be true concerning his C. lancifolia, about which no one cares much, as the yield of quinine is often too small to cover the expense of collecting; but as regards the Pitayo bark there is one thing very certain, that at the present time there is more difficulty in collecting 1 lb. than there was formerly in collecting 1 cwt. The Pitayo bark will very probably be found the best of all the species for cultivation, as it is said to grow very rapidly, which is a matter of great importance. It may certainly be barked when it is 6 feet high, although it would not be an advisable practice to do so before the trees are at least 30 feet high. Bark taken from large trees in Pitayo was said to give nearly 4 per cent., while bark taken from the roots of the same trees gave 5 per cent. of quinine. All the bark taken from Pitayo is said to be sent to France. The bark sold in England under that name is not true Pitayo bark, but comes from the mountains which border on the valley of the Magdalena, and from Almaquer and Pasto, and is certainly from the C. lancifolia of Karsten, which as regards quality is very inferior to that of Pitayo. True Pitayo bark may be known in England by not being much thicker than common window-glass—because it is all taken from small plants, the large trees having been destroyed long ago, and by its being full of earthy particles, on account of so much bark being taken from the roots of the plants. Professor Jamieson, of Quito, analysed the Pitayo bark, and found it to contain 3.2 per cent. of quinine. There is, therefore, little doubt that this species, and the Cinchona officinalis of Loxa will prove among the best for cultivation. The climate is like that of Loxa, and even the vegetation of both regions bears a close resemblance to each other. Don Narciso Lorenzano remarks that the principal motive which induced the Government of India to commence Cinchona cultivation, after overcoming so many difficulties, was the fear that the Quina trees would be extirpated in consequence of the waste that is allowed in the woods, where they are destroyed by the barbarous method of pulling up the roots. Fortunately this destructive method, which, without any doubt, would extirpate this precious plant in a few years, is only practised in the forests of Pitayo, where it is due to the immoderate desire for making money which has taken possession of the Indians, who own the greater part of the land. But in none of the other establishments for the collection of bark in New Granada has a similar practice been adopted. On the contrary, beneficial rules are observed for the conservancy of the woods. The method consists in leaving a part of the trunk, about 3 feet in height, whence shoots may sprout, and in clearing away the surrounding trees to enable the rays of the sun to penetrate. By this means most of the trees that are cut down quickly shoot up, and, the rays of the sun penetrating to the cleared ground, the seeds which fall from the trees germinate freely. This result gives us full confidence that the good kinds of Quinas which exist in this country will be permanently preserved.——Dr. Moore, Glasnevin, sent living plants of Neotinea intacta from Galway. He stated that he had seen about 40 plants in the station, but only one of them was in flower. They grew on a dry bank, close to limestone gravel.——Dr. Dickson exhibited growing plants of Pinguicula vulgaris from various Scotch localities. The plants showed some marked differences in their flowers and leaves, and seemed to indicate at all events distinct varieties.

ENTOMOLOGICAL: *June* 5.—F. P. Pascoe, Esq., F.L.S., President, in the Chair. The Rev. Hamlet Clark communicated a paragraph quoted in Gosse's "Jamaica" from Southey's "Madoc," confirming his statement made at a previous meeting as to the simultaneous intermission of the flashing of the luminosity of fire-flies in Brazil. He also distributed a number of specimens of a new genus of beetles allied to Macronychus, captured by Captain Bowker in British Caffraria, hovering over and diving through the spray of a waterfall and settling on the rocks. He also read descriptions of 28 new species of Australian Phytophagous insects, of which 16 belonged to the genus Paropsis. Letters were read from Mr. Edwin Reed, from Bahia, and from Mr. J. A. Brewer, from the Azores, giving an account of their entomological captures. Mr. F. Smith exhibited Apate capucinus, taken by his son in Bishop's Wood, Hampstead, on a barked Oak tree. Mr. F. Bond exhibited the rare moth Diantheria albimacula, taken at Gosport, in June, and also a fine specimen of the North American Saturnia Polyphemus, reared from the chrysalis in this country, together with a large species of Ophion parasitic upon it. Mr. Stainton exhibited various kinds of galls growing upon Quercus Ilex, at Mentone; and Mr. Pascoe an apparently new species of Dorcadion, recently taken by him at Alicante. Prof. Westwood mentioned a simple mode of preserving the caterpillars of exotic Lepidoptera, which had been practised by the late Dr. Burchell in South America. Mr. F. Moore read descriptions of a number of new species of Bombycidæ from East India. A notice was read of the intended exhibition at the Palais de l'Industrie in Paris of economic insects, including, 1st, species which are beneficial to man, as producing silk, honey, wax, dyes, or useful for medicine, &c.; and 2d, species injurious to cereals, fruit trees, timber, wooden structures, &c. Some conversation took place as to the recent meeting at Brompton with reference to the destiny of the iron "boilers," now no longer wanted, and which might be used as local museums, of which it was admitted that it was very desirous that several should be established, especially in different parts of the metropolis. The recent death of the veteran French entomologist, Dr. Léon Dufour, was announced. Mr. F. Smith read some observations in opposition to the views of Dr. Sichel, contained in a memoir just published on the Humble Bee, Bombus montanus, to which he referred as varieties a number of insects hitherto regarded as specifically distinct.

July 3.—F. P. Pascoe, F.L.S., President, in the chair. An unanimous vote of thanks was passed to W. Wilson Saunders, Esq., F.L.S., &c., for the entertainment recently given by him to the members of the Society at Reigate. Mr. F. Bond exhibited fine specimens of Eupithecia pulchellata, reared from the Foxglove; also a new species of the same genus, E. campanulata, reared from the Campanule by the Rev. Harper Crewe; also Toxocampa Craccæ, reared by Dr. Knaggs. Mr. Stainton exhibited some of the remarkably broad and flat cocoons of Pyralis glaucinalis, received from Mr. Edwin Brown, of Burton-upon-Trent. The Rev. Hamlet Clarke made some further statements confirming the fact of the simultaneous intermission of luminosity by large numbers of fire-flies (Lampyridæ) in Brazil, and Mr. Fry stated that this was the case with certain species of the genus Aspisoma, generally found near water He also exhibited a number of minute insects captured in the middle of India by Lieutenant Hopson, and sent by post to England, inclosed in a small tube. He also gave an account of a kind of firefly found in Ceylon, remarkable for the number of luminous spots arranged in two rows along the sides of the body. Mr. Stainton exhibited the larva of Cerniostoma lotelia, found on the leaves of Lotus major, near Scarborough, by Mr. Wilkinson. A note was read from the Rev. Douglas Timmins, giving the result of a month's collecting in the neighbourhood of Cannes during the past spring. Dr. Armitage exhibited specimens of the male and female of a case-bearing moth (Oiketicus, K.) from Monte Video. A note was communicated by Mr. W. F. Evans, confirming the fact of the luminosity of Fulgora laternaria observed in British Honduras by his son. The Secretary read an article giving the statistics of the disease to which silkworms are very subject in France, known under the name of La Gatine. Mr. Bates read a communication received from Mr. Benjamin Walsh of Illinois, giving an account of the hybernation of an American species of Liminitis; the fact, however, had long been known in the case of the European species of butterflies belonging to the same genus, an account of which, from the "Zoologist," was read by Mr. Stainton. The President stated that some of the eggs of the dog tick, exhibited at a former meeting by Captain Cox, had recently hatched.

ROYAL HORTICULTURAL: *July* 15 (*Show of Liliaceæ, &c.*).—This consisted chiefly of the different varieties of Lilium lancifolium, of which some well-

grown and beautifully-flowered specimens were shown by Messrs. Cutbush and Young, of Highgate, under the names of speciosum, rubrum, roseum, cruentum, and album; with the exception of the last, however, they appeared to be merely different forms of speciosum. Others consisted of Lilium auratum, among which was a pretty variety with reddish bands from Messrs. E. G. Henderson, named rubescens. The others came from Messrs. Bartlett, Cutbush, Bull, Young, and Catleugh. The only other Lilies shown were the Tiger, Long-flowered, and Martagon, of which there was a pretty dark variety named umbellatum. Vallota purpurea and Amaryllis aulica ignescens came from Messrs. E. G. Henderson; and Vallota eximia from Mr. Bull. Miscellaneous subjects consisted of six stands of Hollyhocks from Messrs. Downie Laird & Laing, together with a spike of a delicate pink seedling, called Mrs. Laing. Roses came from Mr. Clarke, of Brixton; hanging baskets, Achimenes, and variegated-leaved Begonias from Mr. Young; Cockscombs from Mr. Taylor, gr. to J. Yates, Esq., Highgate; and a beautiful plant of Adiantum cuneatum from Mr. Bartlett. Cones of Pinus excelsa were contributed by Mr. Carson, gr. to W. F. G. Farmer, Esq., Nonsuch Park, Cheam; and Figs and a Queen Pine-apple by Mr. Ford, gr. to W. Hubbard, Esq., Horsham.

Notices of Books.

Vancouver Island and British Columbia. By Matthew Macfie, F.R.G.S. Longmans.

The author of this book resided for five years in the colonies, which he has undertaken to describe—in what capacity he does not say; but as there are occasional indications of his claiming a clerical character, although not using the prefix of Rev., and declining the title of clergyman in what he calls "the British sense" of the term, we are led to the conclusion that he must be a minister of some denomination dissenting from the Church of England. Be that as it may, he has industriously availed himself of his opportunities by collecting information on every point of importance or interest connected with Vancouver's Island and British Columbia; and the result, though scarcely a book to be read for the sake of amusement, contains a most valuable fund of information for the intending colonist, whether he go to Victoria as merchant, miner, agriculturist, or merely as a visitor; in either case he will find much not only to interest but to instruct.

The first chapter is devoted to the history of the colony. Beginning with the exploring expeditions of the Spaniards, which were followed up by the English under Drake and Cook, the latter of whom appears to have been the first who absolutely landed on Vancouver's Island, Mr. Macfie gives a succinct account of the fortunes of the colony from the foundation of a trading post by the Hudson's Bay Company in 1843 down to the present year, when the average population of Victoria alone is estimated at 5500. That of the entire colony is not given; indeed it would probably be quite impossible in the present state of the country even to guess at it. Every year adds enormously to its numbers. Many hundreds are attracted by the gold mines, which rival those of California, and respecting the yield from which, and the various methods of procuring the gold, the author gives ample and accurate details, illustrated by several woodcuts. Coal and copper are also exported from Victoria; and when the riches of the coast in different kinds of fish are fully explored, the yield from this branch of commerce may be expected to be enormous.

"The facilities possessed by both these colonies for catching and curing fish are pre-eminent. The indented character of their coasts signally adapts them to become important in the exportation of this article. Port San Juan, Barclay Sound, Nootka, Hespod, Koskeemo, Sooke, Esquimalt, Victoria, Nanaimo, and many other bays may be enumerated, including the inlets on the coast of British Columbia, 450 miles long—all convenient to extensive fishing grounds, and peculiarly adapted for sheltered fishing stations. The salt springs existing on Admiralty Island and at Nanaimo, have already been referred to in this volume. A gallon of water from the latter place, when analysed, produced a pound of salt, while sea water only 4½ ozs. The spring on the island is capable of supplying a gallon a minute, the specific gravity of the water being 1·060. What portion of the globe could be better situated for an export trade in fish with respect to foreign markets? To say nothing of California with its rapidly increasing population, Mexico, Central America, and all the countries on the west coast of South America, would immediately become customers were our fisheries entered upon with capital and vigour. European residents in China and Japan would swell the demand. The natives of these countries, who are proverbial for their consumption of dried and salted fish, would themselves gladly take from us as much as we could for many years conveniently dispose of. Nor is it unlikely that, as the commercial relations of these colonies with India become more intimate, large markets will spring up in that direction. Australia and New Zealand will not be able to provide for their wants in this particular for 50 years—probably never. These southern colonies, therefore, present another field for the competition of future fish merchants in Vancouver Island and British Columbia."

But it is to its Fir forests that British Columbia owes its greatest celebrity. The western coast of North America is well known as the habitat of some of the most magnificent trees in the world, which are rivalled only by the gigantic Gum trees of Australia. The Abies Douglasii, in particular, furnishes the most splendid spars for ship building to be met with any where, and an extensive trade is in consequence being rapidly developed in various directions in what the Americans term "lumber;" the profits from which may be judged of by the following statement:—

"Shippers have assured me that 100 per cent. has often been realised by them upon cargoes to China. The captain of a British vessel once stated in my hearing that, having discharged his freight from England in Victoria, he loaded his ship with sawn lumber in the vicinity of the colony at a cost of from 2*l.* 1*s.* to 2*l.* 10*s.* per 1000 feet, and sold it in Foochow, after a voyage of two months, at about 13*l.* 11*s.* 10*d.* to 14*l.* 13*s.* 4*d.* per 1000 feet."

With regard to agriculture, the prospects, according to our author, are most encouraging: the climate is excellent, the soil good, and the quantity of land suitable to the purpose extensive. But it must be confessed that in this particular Mr. Macfie's statements read more like predictions of what may be hereafter, than of what is the case at present. The fact is, that the gold mines have proved so attractive, that the attention of settlers has hitherto been less directed to the extraction of the vegetable, than of the mineral riches of these colonies. Here and there, however, farmers have commenced operations; and with a fair prospect of success:—

"The following is an extract from a communication written by a settler in this district (that called Comox) with reference to the harvest of 1864:—'The crops in the settlement have been excellent this season, the farmers being well contented with their returns. Oats, Barley, Wheat, Peas, and Potatos, are the chief products. Oats have yielded as much as 60 bushels to the acre. One of the settlers, who has about 6 acres under cultivation, has raised over 30 tons of Potatos, a ton and a half of Turnips, a large quantity of garden vegetables, and a small crop of splendid Oats, beside Wheat and Peas. He also cut over 30 tons of hay, 16 tons of which were sold on the ground at 15 dols. per ton. He has nine head of cattle, including three milch cows, 20 hogs, and 50 chickens raised this year. From his three cows he made this season over 200 lbs. of butter, for which he gets 37½ cents. per lb. at the settlement.' This person has been only two years in Comox, and is a fair example of what may be done by any industrious man without capital."

Again, "A medical gentleman, whose lengthened residence in the colony and special inquiry into this department of farming statistics gives weight to his statements, writes:—'The average production of Wheat is 25 to 30 bushels to the acre, 64 lbs. to the bushel; of Oats, 40 bushels to the acre—weight, 36 lbs. to 46 lbs.; Potatos, 200 bushels to the acre, and of superior quality. All vegetables succeed much better in Vancouver than in Oregon or Washington territory.' This remark applies also to butter. The Potatos grown in the colony cannot be equalled, and our Turnips, Carrots, Onions, Peas, Cabbages, &c., cannot be surpassed for size and flavour in any part of the world.

"In illustration of the remunerative character of dairy produce, I am assured by a gentleman who has a personal knowledge of the circumstance, that a farmer at the Blue Tent drove into Cariboo during the mining season in 1863 30 dairy cows, and netted 15*l.* per day for four months. In 18 months from his arrival in the colony, he realised 4500*l.*"

Mr. Macfie predicts for Victoria, and we think with reason, a brilliant future as an *entrepôt* for British commerce in the Pacific. Possessing in addition to its situation the great advantage of being an entirely free port, it is rapidly attracting merchants of various nations, who find there a cheaper and more convenient market than any hitherto existing. "With Washington territory, Oregon, California, and Mexico in the south, and British Columbia and Sitka in the north, knocking at our doors for goods, there would seem to be a bright future in store for our city." "The day is approaching when the choice products of China, Japan, and India, will be discharged at our wharves for trans-shipment not only to the order of buyers in the adjoining American, Mexican, and other States on the coast, but to the consignment of merchants in the cities of Canada, the Northern United States touching the boundary of British North America, and in those future centres of population whose industry will yet enliven and reclaim the trackless but fertile solitudes lying between the Rocky Mountains and Lake Huron."

It is impossible to allude to every topic discussed in this volume; it must suffice to say that the reader will find very few untouched: most are fully treated of, and as our extracts show, with a minuteness which is a guarantee of their accuracy. The only part of the book to which we decidedly object, is the extremely unpleasant tone adopted by Mr. Macfie, when discussing political affairs. His evident animus against the Hudson's Bay Company and many members of the Government, renders him an unsafe guide on the subject, as it is obvious that he can only see things from one point of view. Even were he right in his opinions, it is uncourteous, not to say ungentlemanly, to speak of Sir James Douglas and others, in the offensive language he permits himself to use. We will not disfigure our columns by quoting it, but content ourselves with expressing a hope that should the volume reach a second edition, Mr. Macfie will see the propriety of expunging such virulent abuse from his pages.

We will conclude with two short anecdotes of Victoria society, which will, we think, amuse our readers:—

"One lady, who had contracted the inconvenient habit of dropping her h's, and using singular verbs with plural nouns, provoked inquiry into the past by expatiating on the magnificence of her ancestral mansion—the number of stories it contained, its turrets and battlements, and the fine view of the sea it commanded. The fact was, to speak without figure, she was the daughter of a worthy lighthouse keeper!"

"Druggists inform me that the demand for hair-dye by immigrants is so large as to be quite noticeable. The cause of this expedient, in such a country, may be readily conjectured."

The Apiary.

Having but very recently become an enthusiast in the keeping of bees, I have to acknowledge the benefit I have received from the communications on this subject which have lately appeared in your columns. I think the best way in which my appreciation of the same can be shown will be to send you a budget of Apiarian Notes; which, relating as they do the experience gained by the manipulations of a complete tyro, may prove valuable to some of your readers, as exhibiting the results of mistakes as well as successes.

First, having been captivated by the description of bar-and-frame hives, I essayed to have some made by our country carpenter. At first I was delighted at the way in which he accomplished his task, and the exactitude with which he had made the ends of each frame slip easily within the boxes, almost, but not quite, touching their sides. Great was my dismay, as I was on the very point of furnishing these hives with swarms, to learn from a friendly correspondent that these frames were all made improperly, and must on no account be used, a clear space of three-eighths of an inch between the frames and any portion of the interior of the hive being necessary. However there was nothing to be done but to set to work to remedy the mistake, and I succeeded in having the frames ready just in time for my swarms.

Early in May I had the pleasure of visiting Mr. A. Neighbour's small apiary at Dorking. He had nothing but Ligurians, and I was greatly charmed with their appearance, and in fact with all I saw. A friend of their owner was manipulating with two stocks while I was present, and I learned more as to how to handle the frames, find the queen, and many other matters, in half an hour than I had ever picked up before.

On May 20th I made my first experiment in the way of Driving, and the formation of Artificial Swarms. The operation on a flat-topped straw hive was most successfully performed in less than 10 minutes. I thought at first that too many bees had been forced from the stock hive, so I took the precaution of covering it up with flannel, to prevent the brood being chilled during the night. However I soon found that, with the bees which had entered the decoy hive placed on the old stand while the bees were being driven, there was an ample population for carrying on the hive prosperously, and it soon began to work beautifully. The forced swarm also has done remarkably well. It was the largest swarm I have taken since commencing bee keeping.

A few days after this I again succeeded most satisfactorily in the same operation of forcing a swarm. The whole affair, from the time of tying the two hives together, was accomplished in less than five minutes. The swarm, too, has proved a complete success; and I see no reason to believe that a forced swarm is in any way inferior to one that issues naturally. I have been somewhat elated with my success in these and other manipulations, but I do not forget that I have much yet to learn. I am struck with surprise, and wonder at finding how tractable bees are at such times; how marvellously quiet and little disposed to resent the rough treatment to which they are subjected. Rough and unceremonious treatment it must indeed appear to them, yet they will submit to be pushed and swept here and there, and will obey the hand of the operator as submissively as a well trained horse. If any one doubts this, let him try the experiment as I have done.

I have had several Natural Swarms issue from hives on which I had previously placed supers. As might be expected, little or no progress has been made in the supers since. My prospects of a large honey harvest have been in consequence nipped in the bud. My bees behaved very much better in this respect last summer, giving me some fine supers of pure honey-combs.

A hive which, early in the spring, I imagined to be queenless, has recovered itself in a surprising manner. It became by the end of May as apparently populous as any of my other stocks, and weighed more than 40 lbs. Since then it has increased in population to such an extent as to be quite a marvel to myself and many others who have seen it.

I have been somewhat disappointed with my new frame hives. Having neglected to inspect them for a

long time after they were tenanted by their swarms, I now find that the combs are built in the most irregular manner possible; the frames being all connected together in one mass by the combs being carried from bar to bar. I do not know how the evil can now be remedied. It seems impossible to separate the frames so as to remove the combs safely. The bees have built the comb straight for a few inches on one bar, then crossed over to a second, carried on a few inches on that, and then again jumped across to a third. Is there any way which I can adopt for straightening these combs? This has led me to believe that *wide* bars of at least 1½ inch would be preferable to these narrow bars of ⅞ of an inch. I should be glad of your opinion on this point. I have an octagonal hive with bars of the greater width, and nothing can exceed the regularity of the combs, which are also much thicker through than those worked in a hive of the same diameter, but furnished with 10 bars instead of seven.

Should these few remarks be acceptable, I hope to be able to send you some further reports of my apiarian doings before long, and if others of your bee-keeping friends would, from time to time, relate their experience, they would greatly interest and oblige *A Sussex Clergyman.*

Garden Memoranda.

Arundel Castle.—The home of the "Head of all the Howards," famous in war and in story, and commanding some of the most beautiful scenery in the South of England, has surpassing interest for the ordinary visitor, even if incapable of admiring the noble woods which enshroud it; but it is a sort of Paradise to the horticulturist or forester, who here find their favourites more closely associated than they are elsewhere with the relics of old time—aye, actually luxuriating in the dust accumulated from the tread of warlike men during a dozen centuries.

The bold and densely wooded hill, with its grand old keep and surrounding fortifications, old and new (for the new portion of the Castle and entrances and the surrounding wall are in perfect keeping with the work done six centuries ago, quite as strong and thick, and better built, if possible), where not covered by Ivied walls and forts, is clothed with Deodars and the finest Pines, with great Tulip trees in flower, Kentucky Coffee trees, Paulownia, Catalpas large and full of blossom, and Hickory and Walnuts laden as they never are in colder parts of the country. On some parts of the outer fortifications it is most interesting to see the struggle for life between Jasmine, Ivy, and Rose, with, wherever these expose the flints, red Valerian, Wall Rue, and dwarf bits of Asplenium Adiantum-nigrum. And so the old walls that once were the prize of man, are now safely in possession of the vegetable kingdom, except that Mr. Wilson's nailing on an Apricot or Pear tree wherever he gets an open space, may be an exception.

It is from the top of the keep that the grand view is obtained. The keep is clad in the richest green by our old friend, Helix Hedera, "the best of all hardy evergreen climbers," and is in capital preservation, like all the remaining towers of Arundel. From its top you look straight down on the Italian garden about 100 feet below, and thus get the view of a brilliant flower garden, which is elsewhere generally impossible to any but bird or aëronaut. This flower garden is within the walls of the Castle, and where the old lords of Arundel marshalled their merrie men, Mr. Wilson now musters nearly 60,000 of his bedding plants. Among these, Verbena Stuarti afforded the most distinct and pleasing masses of colour—a rich purple. Standard Portugal Laurels—planted out of course, for all the evergreens luxuriate at Arundel—Irish Juniper, and Irish Yew are used with good effect in the beds, and they were wanted. In large flower gardens without any Grass between the beds, where the eye after parting the brilliant colours and beds of yellowish leaves, drops for repose upon a walk of yellow gravel, the "piling up" of colour is generally a little too much for the strongest optics; but in this case the plan was not objectionable, in consequence of the immense spread of rich green seen from the keep top, from Bevis's Tower, and indeed from the garden itself, which is embosomed in Ivy. Bevis, by the way, was one of the celebrities of Arundel, who, when about to leave this wicked world, from which he had suddenly despatched many, asked for his sword (it *was* a sword by all account) and round his head the Brobdignagian blade he swung—

> "Now mark me well," said the chief, "and obey
> The command I leave, and the word I say:
> Where ye again find this trusty glaive,
> There hollow the ground for Bevis's grave!"

And he only threw it three-quarters of a mile away among the round hills of the park, to a place called Pagan Deen, where they buried him in a grave suggestive of Gulliver's Travels.

But the flower garden is only one beauty to be seen from this rare old donjon keep, for wherever you can peep through the Ivy there is a new prospect. Just outside the Italian garden you have quite a novel view down on the tops of the spreading-headed Cypresses, near some Pines and Oaks planted by her Majesty, the Prince Consort, and other great people, with, beside and contrasting finely with an old Paulownia, one of the most desirable Pines in cultivation—Abies Morinda. It is about 30 feet high, and of mournful grace from the branchlets hanging down quite perpendicularly. It would be just in the right place at Sir Bevis's grave. Not even the Babylonian Willow can equal it as a funereal plant, for the Abies looks "dark as death" as well as pendulous. It is not so striking when in a small state. Looking beyond the pleasure-gardens the grandly rolling downs are seen dappled with deer and wood-crowned, with the Surrey hills far beyond; while by walking to the other side of the keep, looking towards the sea, the quadrangle of Arundel Castle is at the base, and one cannot say whether the newer buildings look more imposing from the keep, or the keep from the quadrangle. Beyond is the winding Arun and the blue sea, the "image of eternity," much as it was when Briton or Saxon first fixed upon the bold brow of Arundel for a stronghold. All else is changed. The Isle of Wight is seen in the dim distance, and the spires—however, I cannot hope to give an adequate idea of the beauties of Arundel, since I had not a photographic encampment and a week to spare, and so must descend to the fine pleasure grounds and fruit gardens.

Orange trees in tubs are distributed pretty freely along straight walks, and they look very healthy—and why? Because ALL the growth is made out of doors, and in consequence the foliage is able to stand any vicissitude, and remain on and in a healthy condition during the winter, the plants being placed in a rather dark and cold slated house. Orange trees treated in this way I have certainly observed to look much better than those allowed to make a start indoors, or indeed the greater part of those grown indoors altogether.*

The deep old moat which once kept cold water between the Castle and its enemies, is now dry, but it is shaded by trees and shrubs sufficiently to form what must be the Sussex head-quarters of the Hart's-tongue Fern. Standing among the Pines on the outer side of this moat you look down its side at the numerous masses of Scolopendrium, with glistening leaves nearly 2 feet long; at the bottom they are contrasted with a snowy mass of Philadelphus, and then they rise on the opposite bank for 70 feet up to the outer Castle walls. It forms one of the most singular Fern sights imaginable; and there is no better opportunity than exists at Arundel for making the grandest of all hardy Ferneries in this home of the Hart's-tongue.

Of the 20 acres of kitchen garden the greater portion has been made by Mr. Wilson during the past nine years. This is connected with the forcing and fruit gardens by a tunnel also recently made under the public road, and conveniently connecting all the gardens. From the moundy and peculiar character of the place, it was no easy matter to arrange so much kitchen and fruit garden compactly, but it is now as much so as could be desired. The vegetable quarters are more suggestive of garden farming than the supply of a private establishment, and there is as much ground under a single crop, such as Parsnips, as would support an industrious Dutchman and a few pigs. Apropos of Parsnips, judging from little contrivances which Mr. Wilson requires to get them up (short strong ropes with a noose, which is passed round the neck of the root) the Parsnips at Arundel must be as difficult to unearth as badgers.

Mr. Wilson is a root-pruner on a large scale. Along the walks of the newer part of the kitchen garden are large Apple trees, which once grew together in an orchard of 4 acres, bore nothing, but sent down into the chalk and clay nice straight clean roots that you could make walking-sticks of. They were taken up in 1858 and 1859, propped into position along the walks (the natives did not think it a very wise proceeding, and were inclined to laugh at Mr. Wilson) and now they are established and bearing abundantly. "It does one's heart good"—I mean one from the northern and colder portions of these islands—to see the large standard Fig-trees, the Arundel Fig, bearing abundantly. It realises effectively for us the old picture of contented humanity under its own Ficus; and it is no less satisfactory to the canny man from N. B., and the western and northern Gael of the sister isle, to see those large Standard Pears, of the choicest sorts, bearing abundantly. And then there are rows of dwarfer ones, from 12 to 15 ft. high, trained somewhat in a pyramidal form, root-pruned every three years, and the shoots bent down with fruit.

Strawberries are to some extent a failure at Arundel this season, as they are in most gardens. Can it be the drought of last year that has done the mischief? In the "pond garden," a low-lying piece of ground at the base of the woody hill, where the soil is much moister than in the elevated main garden, Strawberries have done well; and in that fine kitchen-garden at Petworth (which I had also the pleasure of visiting), where there is a yard and a-half deep of the finest loam, into which the spade passes as into sifted compost, the Strawberry is not a failure. But in addition to the inexhaustible supply of moisture which it finds in this splendid low-lying deposit, Mr. Jones, the able gardener, covers his Strawberry grounds with a mulching of short manure, which keeps them free from drought or crack, and when the mulching is pushed off the soil looks as moist and mellow as if just drying from a May shower. This mulching, too, keeps the fruit as clean as any special arrangement for that purpose.

The quantity of fruits of all kinds at Arundel is quite marvellous. Never have I seen such lots of Apricots, on garden walls, and on walls of old ramparts, &c. And mark—the young wood is laid in, not spurred closely, as it is with a bad result in many places. What they will do with the small fruit, Apples, Pears, &c., cannot fail to be a problem to the visitor, but then, as Mr. Wilson says, "we have to feed a great army of birds." He has a very useful fruit room, cool in summer, warm in winter, the walls being ten feet thick, but then it is the very old chapel of Saint Mary, and though very well to read about, not the sort of thing that a gardener can elsewhere lay hands on. His root room is also the interior of an old tower, with a prodigious non-conducting power of Ivy and stone, and there are old towers for all sorts of purposes, some furnished as summer rooms, others unentered within the memory of man—capital-looking tenements for ghosts.

Here and there the Virginian Poke, Phytolacca decandra, is to be seen, and while not despicable as an ornamental plant during autumn, when its spikes of black berries are in perfection, yet it is not grown for ornament, but to feed pheasants; they are said to grow deliciously tender upon it. In one fine breadth of elevated lawn, well suited for an important extension of the arboretum, which it is hoped will yet be made in it, there is a sunken panel croquet ground, which can be flooded at will, and thus the turf is kept as green and crisp as possible, while in winter the space is flooded for a very convenient skating ground. There is no more admirable feature at Arundel than the free supply of water, which may be turned on at almost every point in kitchen, fruit, or pleasure gardens. It is first pumped up from Swanbourne Lake to a covered reservoir containing over 900 tons, and is thence distributed.

New Zealand Spinach is extensively used, as it saves the almost hopeless labour of trying to get satisfactory crops of the common sort in summer.

I was rather taken with the plan of planting Dahlias and Hollyhocks among tree and herbaceous Paeonias, as practised by Mr. Wilson, thus securing two showy displays in the year in the same large beds. Arundo Donax does finely, as it doubtless would in any tolerably favoured locality in the south of England. Whoever first takes a little pains with this fine plant and some others, such as Arundo conspicua, which will make nearly as fine a plant as the Pampas Grass in the south of England, will produce an original and striking feature. Such embosomed hollows as those at Arundel would form capital places in which to begin.

When "serving my time" I was nearly "run off my legs" shading and unshading Melons, Cucumbers, &c., in the dung frames, but here in the Melon yard they are growing in the same way without shade at any time, and certainly the fluttering old mats, &c., are no loss from an æsthetic point of view, while much time is saved.

And what are these old turf pits for—just such pits as any rough labourer with plenty of sods could stick up a number of in a week, with a rough plate laid loosely on, and then any lights at hand placed on the top?—hardening off bedding stuff or such work? No! but for capital crops of Peaches to come in between those on the wall and in Peach houses. I should not omit that the simple frame of wood on which the lights rest was elevated an inch or two from the top of the turf wall, by being placed on bricks, and thus thorough ventilation was secured. The trees are planted outside, and just trained as in an ordinary Peach-house. In the forcing garden the earliest Peaches are grown in neat half-span pits, about 3 feet high at the highest point, and 6 or 8 feet wide.

The newer houses are of the best design and finish—slender copper bars leaving the interiors as light as open day; floors, brickwork, &c., evidently calculated to last as long as some of the battlemented walls to be seen from every part of the place. In one span-roofed orchard house, about 100 feet by 17, the Peaches are planted out and trained umbrella fashion—some of the specimens being exactly of the size and shape of a carriage umbrella. Well provided with fruit these look novel underneath, and they must be very pretty objects in flower. Of course the wood ripens better in this way than if the bush is a common standard, and then there is better light and more space for standing plants in pots between these umbrella specimens. In the Melon house the garden soil (half flints and lumps of chalk) was found good enough to produce good crops.

Of a whole batch of Pine-houses I have only time and space to say that they are glazed with Hartley's rough plate, and have little perforated pipes over the evaporating troughs, which fill them at once by the turning of a tap, a plan of Mr. Wilson's, which has saved him much trouble, especially in the pits, where the lights had to be removed when the troughs required filling.

Here I must stop; the fruit houses alone would have afforded interest for the very delightful day which, thanks to Mr. Wilson's kindness, I spent in this noble place, with its well-kept and excellently managed gardens. *R.*

* This quite coincides with the management of the fine old Hanoverian Orange trees, probably the finest in existence.

Miscellaneous.

The Sediments formed in Wines.—M. Pasteur states that he has carefully examined the sediments formed in wines, and has found they can all be classed under three

heads. The first are crystals of bitartrate of potash, neutral tartrate of soda, or a mixture of the two salts. These adhere to the sides of the bottles, and have but little influence upon the composition and quality of the wine. The second kind, also covering the sides of the bottles, are brown colouring matters, which, originally dissolved in the wine, are gradually rendered insoluble by oxidation. This sediment, therefore, is caused by the presence of oxygen existing in the air which is over or dissolved in the wine. By several experiments upon different wines enclosed in tubes, the author proves this fact, and shows that the deposit takes place more rapidly when the tubes are exposed to the light. The wine becomes of a lighter colour, and acquires the peculiar odour and flavour of old wines which have returned from a voyage. He attributes the good effect of a tropical voyage upon wine, not, as has been supposed, to the increase of temperature, but to the continual changing of the vitiated air over the wine through variations in the pressure from constant shaking and evaporation. Accordingly, wines hermetically sealed in bottles without oxygen have no sediment—indeed, do not sensibly change in any way. The third class of sediment, by far the most injurious, is composed of various cryptogamic vegetations, which, acting as ferments, are the sole cause of the "diseases" of wine. The author infers that wines would be improved by leaving them in the cask until ripe, and then bottling them. *Reader.*

Rats, Mice, Flies, Wasps, &c.—Some years ago I read, in a French scientific periodical, that chloride of lime would rid a house of all these nuisances. I treasured up the information until opportunity offered for testing its value, and this occurred some four years since. I took an old country house infested with rats, mice, and flies. I stuffed every rat and mouse hole with the chloride. I threw it on the quarry floors of the dairy and cellars. I kept saucers of it under the chests of drawers, or some other convenient piece of furniture; in every nursery, bed, or dressing room. An ornamental glass vase held a quantity at the foot of each staircase. Stables, cowsheds, pigsties, all had their dose, and the result was glorious. I thoroughly routed my enemies, and if the rats, more impudent than all the rest, did make renewed attacks upon the dairy in about twelve months, when probably from repeated cleansing and flushing all traces of the chloride had vanished, a handful of fresh again routed them and left me master of my own premises. Last year was a great one for wasps: they wouldn't face the chloride; though in the dining-room, in which we had none—as its smell, to me most refreshing and wholesome, is not approved by all persons—we had perpetual warfare. And all this comfort for eightpence! Only let housewives beware that they place not the chloride in their china pantries, or in too close proximity to bright steel wares, or the result will be that their gilded china will be reduced to plain, and their bright steel fenders to rusty iron in no time. *E. Payne, in Builder.*

Curious Nests of Mice.—A number of empty bottles had been stowed away upon a shelf, and among them was found one which was tenanted by a mouse. The little creature had considered that the bottle would afford a suitable home for her young, and had therefore conveyed into it a quantity of bedding, which she made into a nest. The bottle was filled with the nest, and the eccentric architect had taken the precaution to leave a round hole corresponding to the neck of the bottle. In this remarkable domicile the young were placed; and it is a fact worthy of notice, that no attempt had been made to shut out the light. Nothing would have been easier than to have formed the cavity at the underside, so that the soft materials of the nest would exclude the light; but the mouse had simply formed a comfortable hollow for her young, and therein she had placed her offspring. It is therefore evident that the mouse has no fear of light, but that it only chooses darkness as a means of safety for its young. The rapidity with which the mouse can make a nest is somewhat surprising. One of the Cambridge journals mentioned, some few years ago, that in a farmer's house a loaf of newly baked bread was placed upon a shelf, according to custom. Next day a hole was observed in the loaf; and when it was cut open a mouse and her nest were discovered within, the latter having been made of paper. On examination, the material of the habitation was found to have been obtained from a copy-book, which had been torn into shreds, and arranged into the form of a nest. Within this curious home were nine young mice, pink, transparent, and newly born. Thus, in the space of 38 hours at the most, the loaf must have cooled, the interior been excavated, the copy-book found and cut into suitable pieces, the nest made, and the young brought into the world. Surely it is no wonder that mice are so plentiful, or that their many enemies fail to exterminate them. *Homes without Hands.*

Calendar of Operations.

(*For the ensuing week.*)

IF not already done, no time should be lost in putting all houses, pits, or frames in thorough repair before short days have arrived or bad weather has set in. Let all glazing be seen to at once; also painting where needed. Inside whitewashing, although manageable at all times, may likewise now be done. The repairing and cleansing of flues, where such still exist, will of course also suggest itself, and the examination of boilers or other apparatus where suspicion may rest should likewise be proceeded with forthwith.

FLOWER GARDEN AND PLANT HOUSES.

Out of doors tall plants may require additional staking and tying. Patches of early annuals will now be past their best, and should be removed, filling their places with plants from the reserve garden. Advantage should also be taken of favourable weather to do many operations in the garden just named, such as thinning and transplanting young biennials and perennials, and any shrubs which may stand too close in their seedling beds.

CHRYSANTHEMUMS.—These should now be carefully attended to, or they will lose their lower leaves, by which the appearance of the plants will be spoiled, and the production of useless suckers encouraged. Train into form, but not too stiffly, and water frequently with weak liquid manure.

DAHLIAS.—Trap earwigs, and remove all badly-formed buds as they appear.

PELARGONIUMS.—Cuttings may be taken of some of the best bedding varieties, as they will strike now, in the open ground, with greater freedom than they will at any time during the year if coddled up by bottom heat; besides this the plants they produce are healthier, more robust, and form handsome specimens in a shorter space of time. Proceed by loosening the soil of a south border, and by mixing a little sand with it if required; afterwards insert the cuttings 3 inches apart, fastening them well with the thumb and fore finger. If the weather is dry, it may be necessary to water them occasionally; but, if possible, defer this till their bases are healed over. As soon as they have made a few fresh leaves, they can be taken up, potted into 3 and 4-inch pots, and placed for a few days in a close frame; after which they may be gradually exposed to sun and air.

RANUNCULUSES.—Beds from which the roots of these have been taken up, should be dug roughly, in order to sweeten the soil by exposure to sun and air. The roots themselves will of course be dry, and in safe quarters.

FORCING GARDEN.

MELONS.—Keep the bottom heat in dung frames as regular as possible, and endeavour to secure sufficient warmth from the linings to allow plenty of air to be given while the weather is fine. Water very cautiously, and only when a fresh supply is absolutely necessary, and then give enough to moisten the whole mass of soil.

PEACHES.—The wood will probably be ripe in the early house by this time. Give, therefore, all the air possible. Give trees from which the fruit has just been gathered a good washing with the engine to clear the foliage of dust.

PINES.—Plants intended to furnish the winter and spring supply of fruit must be treated with considerable care and judgment, in order to insure their showing at the proper time, or rather to do all that can be done to insure this, for the most experienced growers cannot always succeed in getting plants to fruit at the desired time. Continue to select the most promising plants, keeping them dry at the root, and fully exposed to light, so as to check their growth, and induce a comparative state of rest for a few weeks. Those that have well-matured their growth, if wanted to fruit at once, should be kept close and warm, affording them a brisk bottom heat, and properly moistening the soil about the roots. Those intended to supply ripe fruit late in spring, if not considered sufficiently strong, may be encouraged to grow freely for some time yet, as if these can be got to show in November, they will be sufficiently early. Attend carefully to plants swelling their fruit, giving plenty of manure water at the root, and keeping the atmosphere warm and moist. Attend to the watering of recently potted stock, as if too much is given the fresh soil is apt to become sodden, and if too little the old ball becomes so dry that it is not easy to get it properly moist again; in either case the check which the roots sustain frequently throws the plants into fruit prematurely. Get all succession stock requiring more pot room shifted as soon as circumstances will allow, in order that it may be well established before winter.

VINES.—Should showery weather continue, it will be unfavourable for Grapes that are ripe and expected to hang in good condition for a long time, and where the borders are of a strong adhesive nature, it will be advisable to cover with something to throw off heavy rain; where, however, the soil is of a light nature, and such that the water will drain through it freely, this will be unnecessary. Use gentle fires where fruit is colouring, with a moderate circulation of air, and on fine days too much air can hardly be given at this stage. In dull weather fire-heat will also be necessary where fruit is swelling.

HARDY FRUIT AND KITCHEN GARDEN.

Continue to fasten in young wood of wall trees, and to see that they are perfectly free from insects; also stop over-luxuriant shoots, and endeavour to secure a fair amount of bearing wood all over the tree. Gross shoots that were stopped early in the season may now or soon be divested of laterals. Keep the breast-wood on Pear and other wall or espalier trees closely stopped in.

CABBAGE.—Sow now some seed of the Enfield Market or some other sort for spring cutting. Plants for winter use may still be planted out.

SPINACH.—Sow a little Prickly now for use late in the season.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending July 19, 1865, as observed at the Horticultural Gardens.

July.	Moon's Age.	Barometer.		Temperature.					Wind	Rain.
				Of the Air.			Of the Earth			
		Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep		
Thurs. 13	20	29.943	29.819	68	49	58.5	63	61	S.	in
Friday 14	21	29.921	29.856	77	40	58.5	63	64½	S.W.	in
Satur. 15	22	29.882	29.855	86	58	72.0	63½	62	S.	in
Sunday 16	23	29.995	29.990	82	58	69.0	65	63	S.W.	in
Mon. 17	24	29.931	29.809	81	50	65.5	65½	63½	S.W.	in
Tues. 18	25	29.870	29.675	69	48	58.5	66	63	S.	in
Wed. 19	26	29.804	29.742	72	44	58.0	64	62½	S.	in
Average.		29.905	29.822	76.4	49.3	62.8	64.3	62.5		in

July 13—Rain; densely overcast; showery at night.
— 14—Very fine; fine, with white clouds; very fine; cool at night.
— 15—Clear and very fine; quite cloudless with hot sun; thunder and lightning at night.
— 16—Very fine, with light clouds; thunder shower at night.
— 17—Very close and hot; very fine; cloudy; overcast; rain at night.
— 18—Very clear; slight showers; very fine; showery.
— 19 Light clouds and very fine; overcast; very fine.
Mean temperature of the week, ½ deg. below the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 39 years, for the ensuing Week, ending July 29, 1865.

July.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds.								
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	
Sunday..23	74.0	51.9	63.0	19	0.70 in	1	6	5	2	3	1	6	4	
Mon.. ..24	72.6	51.9	62.3	13	1.16	1	7	4	2	5	13	4	2	
Tues. ..25	73.8	49.4	61.6	12	0.36	2	6	3	—	2	11	12	3	
Wed. ..26	73.6	50.3	61.9	19	1.22	2	2	4	2	5	14	7	4	
Thurs. ..27	74.7	51.3	63.0	17	0.98	2	3	5	2	4	13	7	3	
Friday ..28	76.3	51.2	63.7	19	1.39	2	3	3	3	1	12	11	4	
Satur. ..29	76.0	50.6	63.3	16	1.31	4	5	4	1	4	12	3	4	

The highest temperature during the above period occurred on the 25th, 1844—therm. 92 deg.; and the lowest on the 23d, 1863—therm. 32 deg.

Notices to Correspondents.

ANTIRRHINUMS: *B & S.* The flowers sent are evidently from a very good strain. They are full-sized and nicely varied in colour, but we do not observe anything novel about them.

BEDDING PLANTS: *F M.* You will find it very troublesome to preserve these through the winter with no other accommodation than a Cucumber frame. Frost must be kept out, and this can only be done by coverings carefully adjusted every frosty night. The Perillas will not keep at all. The Dahlia roots you may preserve in a frost-proof cellar or store room; and Scarlet Pelargoniums may be kept in such a place hung up by the roots, but they want accommodation to start them in spring. On the whole, with the appliances which seem to be at your command, we should not advise you to incur the trouble, with the risk, after all, of failing.

BOOKS: *A M.* Probably Glenny's Handbook to the Flower Garden would meet your wants.—*H J R.* Lindley's Theory and Practice of Horticulture.

CONIFERS SEEDING: *J M.* Unless the crop is excessive you need not remove the cones from the Pinus excelsa, 20 feet high, which is fruiting abundantly. The Wellingtonia, 8 feet high, with a few cones near the top, will not be injured by allowing them to remain.

CUCUMBER LEAVES: *X Y Z.* It is not possible to make much of a Cucumber or Melon leaf crushed in an envelope, and quite dry. The under side is studded with little brown patches, sometimes covered with several sorts of moulds. We have never seen these brown patches before. You may rest quite sure that they do not arise from any foul practice, except it be one of indifferent cultivation, as we partly collect from a very strong phrase in your letter. *M J B.*

EXHIBITIONS: *Straightforward.* If the rules state that the plants must be the property of the exhibitor or of his employer, an exhibitor showing plants which are neither his own nor his employer's, breaks the rule and becomes disqualified. We scarcely understand your other question as to a person exhibiting in another name than that of himself or his employer. The exhibitor is really the person in whose name the plants are entered for exhibition. Thus, if A. is the owner (or a gardener representing the owner) of plants shown in the name of B. (B. not being the employer), it is B. not A. who is the exhibitor; but then if the rule stands as above, B. is not showing his own (or his master's) property, and is disqualified.

FERN LEAVES: *Thomas Glover.* We find a few sori of Uredo filicum on your Fern leaves, a parasite which does not attack all Ferns indiscriminately. The greater part of the spots contain no sori. These may arise from the fungus, which has killed the spots without being developed, or they may be caused by thrips, or by some constitutional derangement. You cannot destroy the fungus, nor is it very easy completely to exclude the thrips. If, however, some constitutional derangement has taken place, you must devise some change of treatment. The black specks are the dung of some insect. *M J B.*

INSECTS: *G.* Your caterpillars are those of the buff-tip moth. They feed upon most trees. *W.*

LOBELIA: *G H.* The flowers were quite dried up when they reached us.

NAMES OF PLANTS: *E Y W.* Ornithogalum scilloides.—*H J Skelton.* Catasetum tridentatum.—*S B.* Allium descendens, very near A. sphærocephalum.—*A D B.* Acropera Loddigesii.—*Jones.* Hypoëstes sanguinolenta, Coccoloba platyclada.—*J Fuller.* 1, Veronica alpina; 2, Galeopsis villosa; 3, Narthecium Ossifragum; 4, Festuca vivipara. The other is insufficient.—*W B S.* Much damaged, but apparently Zephyranthes carinata.—*A B C.* Rhus Cotinus.—*W W.* A small form of Scolopendrium vulgare marginatum, exactly like one called marginatum tenue, but possibly in this case a very much starved frond of the variety bimarginatum.

ROSE MILDEW: *Lady J W.* Dusting the leaves with flowers of sulphur is the best remedy. If, as we presume, the long blossomless shoots of the tree Roses are produced from the stems, they should be cut off, as they are only robbing the heads.

ROYAL BOTANIC SOCIETY'S SHOW. Mr. Hill's beautiful examples of Black Prince Grapes, mentioned at p. 629, received the 1st prize, a silver-gilt medal, given for that variety, a distinction to which they were well entitled. This was by accident omitted in our list of the awards.

VINE LEAVES: *T Y.* The black specks on your Vine leaves are the excrement of some insect. We find, however, abundant spores of Oidium scattered over the surface, which are quite enough to account for their condition. Nothing we fear can be done this year, but you must watch for the mould when the Vines break, and if mealy patches appear, you must at once apply sulphur. *M J B.*

WROUGHT IRON TANKS: *J K C.* We are told that frost will have no injurious effect on a wrought iron tank full of rain water, and that you may substitute such a tank for the ordinary water butts with safety.

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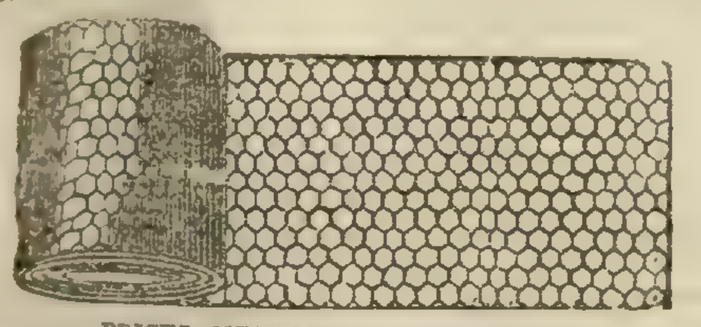

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GRAND SHOW at OLDHAM, August 30 and 31, for PRIZES amounting to £1300.
The Exhibition will this year comprise HORNED CATTLE of various kinds, HORSES, including Thorough-bred, Draught, and other Stallions, Hunters, Cobs, Ponies, &c.; SHEEP, PIGS, POULTRY, PIGEONS, DOGS, CHEESE, BUTTER, SEEDS, ROOTS, HORTICULTURAL PRODUCTIONS, IMPLEMENTS, MACHINERY, and Miscellaneous Articles.
ENTRIES for the SHOW finally CLOSE on AUGUST 3.
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The Agricultural Gazette.
SATURDAY, JULY 22, 1865.

OUR columns are filled to-day with a report of the doings of the past week at Plymouth. The Royal Agricultural Society has received a greater number of visitors and spectators in its show-yard than was expected—but the large influx on the Wednesday was doubtless due to loyal rather than agricultural enthusiasm. It had the honour on that day of a visit from the PRINCE and PRINCESS OF WALES, who have thus commenced their western tour most appropriately by an inspection of all that is best worth seeing in the agriculture of Devonshire, as well as in that of the many other counties which have sent their best specimens to Plymouth.

There has this year been a much fairer interchange of agricultural advantage between visitors and natives than we have had on some previous similar occasions, as at the Canterbury meeting, to record. Devonshire has much that is agriculturally admirable; and its beautiful breed of cattle was never before seen in such perfection. Some of our best Leicester sheep breeders also are Devonshire men. On the other hand the farmers of the West have had exhibited before them unequalled classes of sheep and pigs, mostly from other counties. The Short-horns, which are now seen everywhere, have also been displayed in fair numbers and good quality, and the Herefords have been first-rate.

The Horse Classes alone, excepting only one or two classes of farm horses, have been a failure. The implements exhibited have been as good a show as ever, and it is a striking illustration of agricultural progress that a large proportion of the whole class which has come under adjudication during the past week is the creation, and much of the rest may be pronounced at least the *growth*, of the past 20 years. Twenty years ago no man thought of mowing, and very few had thought of reaping, by machinery. Hay tedders were hardly known, manure distributors were unknown, and corn drills were confined to a comparatively few counties.

These are the machines which have taxed the powers and the patience of a dozen good judges during four days of trial at Plymouth to place them in the order of their merit—*overtaxed* them we may say, for it is impossible by a few days' experience to determine the relative excellence of some 60 drills and 40 reaping and mowing machines on a mere plot of land. And we should have preferred that the Society's judges had been instructed during this preliminary examination merely to select half-a-dozen from the whole class for a more elaborate and prolonged examination on a greater extent of land hereafter.

On the whole, whether successful financially or not, the Plymouth Meeting has been a great success in all that ought to enter into our estimate of the achievements of the Society. It has successfully brought all the agricultural energies of the country to bear upon a new district. And there is not much propriety, therefore, in a lament because fewer men from a distance have been among its visitors; or because some of the old attractions—steam cultivation, for example—have been almost in abeyance; as in a county of small fields it could not fail to be.

THE GREAT AGRICULTURAL MEETING AT PLYMOUTH.

THE business of this annual meeting commenced on Wednesday, July 12, when the various implements of the classes allotted for their adjudication were selected by the judges, and sent out to the trial grounds, and a preliminary comparison of some of the reaping machines was made. Thursday was a pouring wet day, and nothing could be done. On Friday and Saturday a very efficient comparison of the mowers and the drilling machines was accomplished, and some progress was made in comparing the reaping machines, notwithstanding the rain on the afternoon of the latter day. On Monday, which was fine, the reaping machine trials were completed, and the hay tedders, horse rakes, and horse hoes were worked.

On Monday the yards opened at 8 a.m., and immediately the judging of the different classes of live stock was commenced, and brought to a pretty early close. The general conclusion arrived at is, that there is not an average show of Short-horns, that there is a fair display of the Hereford breed, a wonderful collection of Devons, capital classes of Sheep and Pigs, and one of the poorest Horse shows that the Society has ever had. The report, which we proceed to give in detail, will we think justify this general account of the Show-yard. We proceed now to give an account of the live stock:—

THE CATTLE YARD.

THE CLASSES OF SHORT-HORNS are generally short in point of numbers. The first class of Old Bulls includes only six animals. Of these LORD CHANCELLOR, bred by Jonas Webb, lately placed 1st in his class at Hereford, stands 1st here. Mr. Sharpe, of Courtlands, Sussex, has thus shown his good judgment in bringing him across the breadth of the island. He is a large-framed high-standing long bull with well-sprung rib, deep hind quarter, and good flank—rather deficient in front. The 2d prize goes to Mr. Bolitho, of Trewidden, for a roan, just over three years old. Better in the middle than at either end, he is somewhat light in his hind quarters and coarse in front. Mr. Clayden, of Saffron Walden, shows a very long red bull, with thick meat over his loin and rib, but somewhat flat-sided, making his section "amidships" to be rectangular rather than round. The 3d prize is taken by Mr. Coryton of Saltash with a roan of beautiful quality, but of light hind-quarters and somewhat flat sided. Mr. Tennant's red roan bull, all the way from Leeds, shown in this class is very evenly and symmetrically covered, rather under sized, but of very good quality.

The Younger Class of bulls includes half a dozen, among which there was no difficulty in selecting the 1st place for Mr. Ford's red and white DUKE OF DEVONSHIRE, a very evenly covered and well formed beast, and first-rate forwards; the surface smooth over a very symmetrical frame; the early morning sun casting no shadow from hummock or patch, as it did more or less over all the others. Mr. Charlesworth's (Dewsbury) white bull, of great length, and particularly good over the loin, but with rather short hind quarters, took the 2d place; and Mr. Clayden's roan KNIGHT OF NORTH ESSEX, hardly of full size, with good twist, and barring a lump on her back, very good and even throughout, takes the 3d prize. Another young bull shown by Mr. Clayden, LORD PARAMOUNT, a rich roan, fails in length.

The Yearling Bulls are a larger and better class than their predecessors—10 animals are exhibited, and some of our first-class breeders send of their stock. The 1st prize goes to a massive roan bull by Mr. Fawkes, of Otley, with quite as much beef on him as, coming from such a herd, he ought to have. He has a long symmetrical barrel of great depth, and particularly good over the loin. Beside him stands Lord Walsingham's white bull, of great width forward, crested neck, and masculine appearance—which is somewhat lacking in the 2d prize animal—shown by Mr. Booth. This is a light roan, rather slightly built animal, of beautiful quality, with a head perfect in profile, but somewhat slender

and effeminate as seen in front. He has a straight back but coarse shoulder. Mr. Z. Walker, of Birmingham, takes the 3d prize with a son of the Gold Medal bull at Battersea. He is a rather short but massive roan. Lord Kinnaird shows a short stocky well-made roan in this class.

Among the Bull Calves there was less difficulty in separating the few best from the ruck. And the 1st prize has gone easily to a large massive and symmetrical calf, as large as a yearling, belonging to Mr. Fawkes, of Otley, and own brother to the 1st prize bull in the older class. The 2d prize was taken by Sir A. de Rothschild, with a remarkably straight somewhat small dark roan of great merit; and the reserved number is won by Mr. G. Garne, of Sarsden, with his Plymouth Candidate, a dark roan of great substance and first-rate quality.

The Cows are a class of extraordinary merit, of great size, massive, and symmetrical; all of them deserving prizes, but most of them are fat, and one in particular, Mr. Logan's *Annette 2d*, excessively fat. There are here Mr. Stratton's *Diadem* and Mr. Sharpe's *Elegant*, which were 1st and 2d in the extraordinary cow class at Hereford; they are here 2d and 3d respectively, being both beaten by a cow of wonderfully perfect form, *Corinne*, shown by Mr. Wood, of Stanwick Park, Durham. Lady Pigot shows a white cow, bred by Col. Towneley, rather light in her hind quarters, and somewhat tucked up in the middle. Mr. Stratton shows two cows—*Maid of Honour*, a very deep and well-made roan cow, with massive hind quarters, and *Diadem*, just calved, but in extraordinary condition, which is the better formed of the two. Then there is Mr. Logan's extraordinary heavy and fat cow, out of all reason fat and heavy for a breeding animal. Sir E. Kerrison shows *Violet 4th*, a very large and deep rather short roan cow. Mr. Sharpe's red roan *Elegant*, which stands 2d in the class, is wonderfully fine forward, even throughout rather light behind. Mr. Wood's *Corinne*, coming 1st, is a very wide and massive roan, in better breeding condition than some of them, and Mr. Tennant's *Frederick's Farewell*—a long, well-made Towneley cow, deserves a better place than she holds, and would have obtained it had it not been for the extraordinary merit of her competitors.

A small but very beautiful class of Heifers contended in the younger class. Mr. Booth, Mr. Stratton, Lady Pigot, Earl St. Germans, Mr. Logan, and Mr. Sharpe showed good specimens. Mr. Booth stands 1st easily with a remarkably massive, deep, and wide heifer, *Garland*, of great length, plenty of hair, and every sign of health and vigour. The dam, *Lady Blyth*, is just eight years old, and has already dropped six heifers and a bull, all alive and doing well now, and all except the first by LORD OF THE VALLEY. She had three calves in 1864, and will calve again before the end of the year. The 2d prize goes to Mr. Logan's *Charlotte 4th*, another large and massive roan, hardly so straight or so long, or so deep and massive in the hind quarters. The 3d prize goes to a red roan heifer shown by Lady Pigot, smaller than some of the others, and hardly so good at either end as those placed above it. Mr. Booth's heifer is probably the best Short-horn in the yard.

The Shorthorn Yearling Heifer Class included no fewer than two dozen entries. Lord Feversham takes the 1st prize with a roan heifer *Princess*, of great substance, capital in rib and flank and hind quarter, and a beautiful roan colour. The 2d and 3d prizes go to Mr. Tennant for *Miss Farewell*, a Towneley bred heifer, and to Mr. Wood for *Clotilde*, a red heifer, one of the largest in the class. He also shows her twin sister of almost equal merit.

The Calf class did not occupy so much time in deciding their relative positions. The 1st prize goes to Mr. Pawlett for *Charmer 8th*, a thick and wide and deep calf, of beautiful symmetry, and Sir A. Rothschild takes the 2d prize with *Little Cherry*, showing admirable quality, perfect straightness of back, in this respect somewhat the superior of *Charmer*, and first-rate hind quarters; perhaps, however, hardly showing so much substance or growth as its successful rival. The class is a very good one. Mr. Stratton shows three very good roan calves in it. We give the Prize List for Short-horns here:—

SHORT-HORNS.

JUDGES.—G. Drewry, Holker, Newton-in-Cartmel; J. B. Thompson, Anlaby, Hull; J. Robinson, Clifton Pastures, Newport Pagnell.

CLASS 1. BULLS OVER 3 AND UNDER 6 YEARS OLD (7 entries).—1st, 25*l.*; 2d, 15*l.*; 3d, 5*l.* 1, R. Sharpe, of Courtlands, East Grinstead, Sussex, LORD CHANCELLOR (bred by Jonas Webb, s. USURER (19,035), d. *Red Rose*); 2, E. Boltho, of Trewidden, Penzance; 3, A. Coryton, of Pentillie Castle, Saltash.

CLASS 2. BULLS ABOVE 2 AND UNDER 3 YEARS OLD (6 entries).—1st, 25*l.*; 2d, 15*l.*; 3d, 5*l.* 1, J. S. Ford, Ivybridge, DUKE OF DEVONSHIRE (bred by Mr. Widdicombe, Hay, Ivybridge, s. DUKE OF DEVONSHIRE, d. *Matchless*); 2, J. Charlesworth, of Headfield, Dewsbury, Yorkshire; 3, J. Clayden, of Littlebury, Saffron Walden.

CLASS 3. BULLS ABOVE 1 AND UNDER 2 YEARS OLD (13 entries).—1st, 25*l.*; 2d, 15*l.*; 3d, 5*l.* 1, F. H. Fawkes, of Farnley Hall, Otley, FRIAR TUCK (bred by exhibitor, s. LORD COBHAM (20,164), d. *Fatima*); 2, T. C. Booth, of Warlaby, Northallerton; 3, Z. Walker, of Birmingham. H. C.: Lord Walsingham, of Merton Hall, Thetford, Norfolk. C.: J. Bulteel, of Pamflete, Ivybridge.

CLASS 4. BULL CALVES ABOVE 6 AND UNDER 12 MONTHS (15 entries).—1st, 10*l.*; 2d, 5*l.* 1, F. H. Fawkes, of Farnley Hall, FRIAR BACON (bred by exhibitor, s. LORD COBHAM (20,164), d. *Fatima*); 2, Sir Anthony de Rothschild, Bart., of Aston Clinton, Tring. H. C: G. Garne, of Churchill Heath, Chipping Norton.

CLASS 5. COWS ABOVE 3 YEARS OLD (10 entries).—1st, 20*l.*; 2d, 10*l.*; 3d, 5*l.* 1, J. Wood, of Stanwick Park, Darlington, *Corinne* (bred by exhibitor, s. CARDIGAN (12,556), d. *Carmine*); 2, R. Stratton, of Walls Court, Bristol; 3, R. Sharpe, of Courtlands, East Grinsted, Sussex. H. C.: Lady Emily Pigot, of Branches Park, Newmarket, Cambridgeshire. C.: R. Stratton, of Walls Court, Bristol; W. Hosken & Son, of Loggans Mill, Hayle; R. Tennant, of Scarcroft Lodge, Leeds, Yorkshire.

CLASS 6. HEIFERS IN MILK OR IN CALF NOT EXCEEDING 3 YEARS OLD (6 entries).—1st, 15*l.*; 2d, 10*l.*; 3d, 5*l.* 1, T. C. Booth, of Warlaby, Northallerton, Yorkshire, *Lady Fragrant* (in calf, bred by the late R. Booth, s. LORD OF THE VALLEY (14,837), d. *Lady Blithe*); 2, J. Logan, of Maindee House, Newport; 3, Lady Emily Pigot, of Branches Park. C.: R. Stratton, of Walls Court, Bristol.

CLASS 7. YEARLING HEIFERS (24 entries).—1st, 15*l.*; 2d, 10*l.*; 3d, 5*l.* 1, Lord Feversham, of Duncombe Park, Yorkshire, *Princess* (bred by exhibitor, s. VESUVIUS, d. *Lady in White*); 2, R. Tennant, of Scarcroft Lodge, Leeds, Yorkshire; 3, J. Wood, of Stanwick Park, Darlington. H. C.: Sir Anthony de Rothschild, Bart., Tring; W. Hosken & Son. C.: Lady E. Pigot, Sir Anthony de Rothschild, Bart.; C. Howard, of Biddenham, Bedford. C.: C. Howard, R. Sharpe, of Courtlands.

CLASS 8. HEIFER CALVES ABOVE 6 AND UNDER 12 MONTHS OLD (11 entries).—1st, 10*l.*; 2d, 5*l.* 1, T. E. Pawlett, of Beeston, Sandy, Beds, *Charmer VIII.*, roan, 11m. 2w. old, bred by exhibitor, s. PRINCE JAMES (20,554), d. *Charmer VII.*, s. of d. HIGHTHORN (13,028); 2, Sir Anthony Rothschild, Bart., of Aston Clinton, Tring. H. C.: R. Stratton, of Bristol.

The HEREFORD CLASSES are good, both as regards quality and number, considering their distance from home. Among the Old Bulls, Mr. Baldwin's BATTERSEA, on which however the judges differed in opinion, one being willing to place him 1st again, has lost the rank which he has hitherto held. He is a remarkably long, well-made animal, getting rather thin in his thighs and loose in his flesh; but as grand all along his back and as thickly covered on rib and loin as ever. It has no doubt been against him that he has been constantly shown at five or six meetings every year, ever since his first success at Battersea three years ago. He is thus beaten now by Mr. Marsh Read's PEREMPTORILY, a more massive, and perhaps more masculine looking and grander animal, with firmer touch; but not so evenly covered, or presenting so true a surface over back and side. And also by Mr. Holling's CHIEFTAIN 2D, which was 1st in his class at Hereford, but is getting somewhat coarse and patchy.

The small Class of Younger Bulls includes Mr. Duckham's COMMODORE, Mr. Stallard's CHIEFTAIN 3D, and Mr. Marsh Read's SULTAN, which are respectively 1st, 2d, and 3d. COMMODORE is a very evenly covered animal with a good symmetrical frame within him—wide in front, with a rare thickness through the heart, and ample depth everywhere. He is perhaps hardly up to the mark as regards size, and being a little too high just behind the hock bones, gives him the appearance of a droop towards the rump. The 2d prize bull is shown by Mr. Stallard, of Brockhampton, and the 3d, somewhat less than the others in size, but of excellent quality and symmetry, is shown by Mr. J. M. Read, of Elkstone, near Cheltenham.

The younger bulls are not a large class. Mr. Paramore, of Dinedor, Hereford, takes the 1st prize with a deep and massive animal in front, good also behind, and very straight and well-made everywhere. Mr. Wright's (Oswestry) 2d prize bull is even, thick, and long; and there are other good animals in the class—Mr. W. Tudge's DOUGLAS for instance, a very straight well-made beast.

The Bull Calves are a small class. Mr. Paramore is successful here again, and Mr. Monkhouse, of The Stow, near Hereford—both showing straight and evenly covered good calves.

The Cows are a rather uneven class. Mr. Baldwin's 1st prize, *Duchess of Bedford 2d*, is rather small, but of good quality; she girths 7 ft. 4 in.—a pretty little cow. Mr. Oliver's (Grampound) larger cow is Highly Commended. Mr. Walker, of Westfield House, Holmer, Hereford, takes the 2d and 3d prizes with large-framed cows, of which the 2d prize animal is rather the worse of the two as regards patchiness and coarseness. They girth upwards of 8 ft. each.

The Heifers are a good class. Mr. Baldwin's 1st prize, *Miss Hastings 2d*, somewhat coarse over the hip, has a beautifully sprung rib, and wonderfully fine bosom. Major General Hood here shows a good heifer of light red colour, large, and good over loin and flank. The 2d prize goes to Mr. G. Pitt, for a very large and well-made cow with calf at her foot

The Yearling Heifer Class is numerous and good. Major-General the Hon. A. N. Hood has another good heifer of great length. The 1st prize goes to Mr. Wright of Oswestry; Mr. Monkhouse, of The Stow, takes the 2d prize, with a heifer of good quality and great depth. Mr. Turner, of The Leen, is 3d with a great beauty, which had taken 1st and 2d prizes previously at Ludlow and Hereford. Mr. Arkwright is Highly Commended for a beauty; and Mr. Read shows a long heifer of good quality, but out of sorts, and therefore unfit for competition.

There are half-a-dozen Heifer Calves shown. Major-General Hood shows a great beauty, and is first; Mr. Monkhouse, of The Stow, shows a dark red heifer, and is 2d. Mr. Duckham shows a very long well-made calf.

We add the Prize List:—

HEREFORDS.

JUDGES.—J. Druce, Eynsham, Oxon; W. Yeomans, Stretton Court, Hereford; G. Pye, Madlay, Hereford.

CLASS 9. BULLS ABOVE 3 AND NOT EXCEEDING 6 YEARS OLD (5 entries).—1st, 25*l.*; 2d, 15*l.*; 3d, 5*l.* 1, J. M. Read, of Elkstone, Cheltenham (COLESBORNE); 2, J. A. Hollings, of The Hillend, Hereford; 3, John Baldwin, of Luddington, Stratford-on-Avon. C.: J. M. Read, of Elkstone.

CLASS 10. BULLS ABOVE 2 AND NOT EXCEEDING 3 YEARS OLD (4 entries).—1st, 25*l.*; 2d, 15*l.*; 3d, 5*l.* 1, T. Duckham, of Baysham Court, Ross, Herefordshire (COMMODORE); 2, W. Stallard, of Brockhampton, Ross; 3, J. M. Read, of Elkstone, Cheltenham, Gloucestershire.

CLASS 11. BULLS ABOVE 1 AND NOT EXCEEDING 2 YEARS OLD (6 entries).—1st, 25*l.*; 2d, 15*l.*; 3d, 5*l.* 1, J. R. Paramore, of Dinedor Court, Hereford, DINEDOR; 2, E. Wright, of Halston Hall, Oswestry; 3, W. Tudge, of Adforton, Leintwardine. H. C.: W. Stallard, of Brockhampton.

CLASS 12. BULL CALVES ABOVE 6 AND NOT EXCEEDING 12 MONTHS OLD (6 entries).—1st, 10*l.*; 2d, 5*l.* 1, J. Monkhouse, of The Stow, Hereford, GRANDEE; 2, J. R. Paramore, of Dinedor Court. C.: H. R. Evans, jun., of Swanstone Court, Dilwyn.

CLASS 13. COWS ABOVE 3 YEARS OLD (7 entries).—1st, 20*l.*; 2d, 10*l.*; 3d, 5*l.* 1, J. Baldwin, of Luddington, Stratford-on-Avon, *Duchess of Bedford*; 2, J. Walker, of Westfield House, Holmer, Hereford; 3, J. Walker. H. C.: T. Olver, of Pelynlow, Grampound, Cornwall.

CLASS 14. HEIFERS IN MILK OR IN CALF NOT EXCEEDING 3 YEARS OLD (4 entries).—1st, 15*l.*; 2d, 10*l.*; 3d, 5*l.* 1, J. Baldwin, of Luddington; 2, G. Pitt, of Chadnor Court, Dilwyn, Leominster; 3, Major-General the Hon. A. Nelson Hood, of Cumberland Lodge, Windsor.

CLASS 15. YEARLING HEIFERS (11 entries).—1st 15*l.*; 2d, 10*l.*; 3d, 5*l.* 1, Edmund Wright, of Halston Hall, Oswestry; 2d, J. Monkhouse, of The Stow, Hereford; 3, P. Turner, of The Leen. H. C.: P. Turner, J. H. Arkwright, of Hampton Court, Leominster. (Whole class commended).

CLASS 16. HEIFER CALVES ABOVE 6, AND UNDER 12 MONTHS OLD (7 entries).—1st, 10*l.*; 2d, 5*l.* 1, Major-General the Hon. A. Nelson Hood; 2, J. Monkhouse, of The Stow. C.: J. Baldwin, of Luddington; J. H. Arkwright, of Hampton Court; T. Duckham, of Baysham Court.

The DEVONS are of course both numerous and good. Taking the classes which compete for the local as well as the national prizes together, a better illustration of the breed was never before given. We have its capabilities both as to size and quality sufficiently displayed. The class of Older Bulls includes nine animals. The 1st is shown by Lord Clinton, a great massive beast with drooping rump. Mr. Clarke's CONQUEROR (Mavagissey) is a straight and even-backed well-made bull. Major-General Hood's CROWN PRINCE is of great length, and very evenly covered. Mr. A. Smith's CONSTITUTION, with good back and evenly covered symmetrical frame and masculine look, is 3d in his class. Mr. Davy's DUKE OF FLITTON 2D, with good head, true and even back, first-rate over the loin, is 2d; and Mr. Sobey's SOBIESKI (Liskeard), very evenly covered, and of first-rate symmetry, is 1st.

The Younger Bulls are a noble class. The 1st prize goes to Viscount Falmouth for SUNFLOWER, a dark red bull, true and even from end to end, true and straight both above and below, and well covered everywhere. The 2d is taken by Mr. J. H. Buller, with a very great beauty and a wonderfully bright intelligent-looking head and eye, a well-made barrel, but rather light behind. He took the 1st prize in his class at Hereford. Mr. Farthing's evenly covered OSBORN is 3d in this class.

The Yearling Bulls are another first-rate class, including about a dozen animals. Mr. Turner, of Beacon Downes, Exeter, is 1st and 2d with two young bulls of admirable quality, straight and true everywhere, with remarkably good hind quarters. Mr. Bodley, of Stockley Pomeroy, takes the 3d prize, and Mr. A. Smith is Highly Commended. All the best names among the breeders of Devons compete here, and Mr. Turner's success is the more honourable to him.

The Bull Calf Class is another good one. Mr. Taylor, Mr. W. Farthing, Mr. Davy, Mr. Hole, Mr. Buller, and others show capital specimens. The prize list is given below.

We come now to the Female Classes. Mr. Davy takes the 1st prize in cows with a somewhat patchy but large cow, deep and heavy in her hind quarters. Mr. W. Taylor, of Harptree Court, Somerset, is 2d with a great beauty, perhaps somewhat defective in the depth of quarters which a good cow should exhibit. Mr. Quartly is 3d.

Among the Heifers in Calf or in Milk General Hood is again 1st with a remarkably straight, round, long-bodied heifer; and Mr. Quartly takes the 2d prize with a straight deep heifer, especially good forwards.

The Yearling Heifer Class is remarkably good and strong. Mr. Davy is 1st with a thick and fleshy well-topped heifer, coming very near the alleged model of perfection as regards her body, *viz.*, a brick with the corners rounded. Mr. Davy is 2d with one rather more patchy than its successful rival. Mr. Quartly shows a thick and well covered animal of great depth and massive frame, and Mr. Rundle's heifer, *Lily*, is particularly straight and good.

The Heifer Calves are a very good class. Mr. Farthing 1st with a great beauty, and Mr. Smith 2d with another almost its equal. General Hood, Mr. Hole, Mr. Taylor, Mr. Davy, Mr. Hambro, and Sir M. Lopes, also show in this class.

The SUSSEX Classes are very scantily filled. Messrs. Heasman have the 1st prize awarded to them for an old bull which characterises the breed very fairly, massive and large, coarse and heavy in front, and rather light behind. They are also 1st and 2d for good bearing cows, and 1st for a heifer of very good quality; Mr. Tilden Smith taking the 2d prize for another also of good quality. Messrs. Heasman are again 1st and 2d for their yearling heifers—very good specimens indeed, and evidently superior in quality and make to the only competitors in their class shown by Mr. S. Jenner, of Rye.

DEVONS.

JUDGES.—E. L. Franklin, Ascott, Wallingford; E. Jones, Springfield, Hereford; S. Umbers, Wappenbury, Leamington.

CLASS 17. BULLS ABOVE 3 AND NOT EXCEEDING 6 YEARS OLD (9 entries).—1st, 25*l.*; 2d, 15*l.*; 3d, 5*l.* 1, J. Sobey, of Trewolland, Liskeard; 2, J. Davy, of Flitton Barton, North

Molton: 3, J. A. Smith, of Bradford Peverill, Dorchester. H. C.: Lord Clinton.

CLASS 18. BULLS ABOVE 2 AND NOT EXCEEDING 3 YEARS OLD (7 entries).—1st, 25*l.*; 2d, 15*l.*; 3d, 5*l.* 1, Viscount Falmouth; 2, J. H. Buller, of Downes, Crediton; 3, W. Farthing, of Stowey Court, Bridgewater.

CLASS 19. BULLS ABOVE 1 AND NOT EXCEEDING 2 YEARS OLD (13 entries).—1st, 25*l.*; 2d, 15*l.*; 3d, 5*l.* 1, G. Turner, of Beacon Downes, Exeter; 2, G. Turner; 3, J. Bodley, of Stockley Pomeroy, Crediton. H. C.: J. A. Smith, of Bradford Peverill.

CLASS 20. BULL CALVES ABOVE 6 AND NOT EXCEEDING 12 MONTHS OLD (9 entries).—1st, 10*l.*; 2d, 5*l.* 1, W. Taylor, of Harptree Court, Blagdon, Somerset; 2, W. Farthing, of Stowey Court. H. C.: J. Davy, of Flitton Barton. C.: J. W. Dingle, of Darley, Callington.

CLASS 21. COWS ABOVE 3 YEARS OLD (9 entries).—1st, 20*l.*; 2d, 10*l.*; 3d, 5*l.* 1, J. Davy, of Flitton Barton; 2, W. Taylor, of Harptree Court; 3, J. Quartly, of Champson Molland. H.C.: J. Quartly.

CLASS 22. HEIFERS IN MILK OR IN CALF, NOT EXCEEDING 3 YEARS OLD (5 entries).—1st, 15*l.*; 2d, 10*l.*; 3d, 5*l.* 1, Major-General the Hon. A. Nelson Hood; 2, J. Quartly, of Champson Molland; 3, J. Davy, of Flitton Barton. C.: T. Palmer, of Norton, Stokeclimsland, Launceston.

CLASS 23. YEARLING HEIFERS (16 entries).—1st, 15*l.*; 2d, 10*l.*; 3d, 5*l.* 1, J. Davy, of Flitton Barton; 2, J. Quartly, of Champson Molland; 3, J. Davy, of Flitton Barton. H. C.: G. Turner, of Beacon Downes.

CLASS 24. HEIFER CALVES ABOVE 6 AND UNDER 12 MONTHS OLD (15 entries.)—1st, 10*l.*; 2nd, 5*l.*—1, W. Farthing, Bridgewater; 2, J. A. Smith, of Bradford Peverill. C.: W. Taylor, of Harptree Court.

SUSSEX.

CLASS 25. BULLS ABOVE 1 AND NOT EXCEEDING 6 YEARS OLD (12 entries).—1, J. & A. Heasman, of Angmering, Arundel.

CLASS 26. COWS ABOVE 3 YEARS OLD.—1 & 2, J. & A. Heasman. H. C.: G. Jenner, of Parsonage House, Udimore.

CLASS 27. HEIFERS IN MILK OR IN CALF NOR EXCEEDING 3 YEARS OLD.—1, J. & A. Heasman; 2, T. Smith, of Knell Farm, Beckley, Staplehurst.

CLASS 28. YEARLING HEIFERS.—1 & 2, J. & A. Heasman. H. C.: G. Jenner, Udimore, Rye.

The CHANNEL ISLAND breed is uncommonly well represented, bulls, cows, and heifers being numerous and well-filled classes. The very dark and somewhat small Guernsey seems to be preferred; Mr. Clement Pallot's IMPERIAL, a very dark and comparatively small bull, being 1st in its class of eight; and Mr. Browning's *dark* brown cow, and M. Gaudin's very dark *Jolie*, being 1st and 2d in the cow class. Of 17 cows, the 3d prize is taken by M. le Lacheur, with a very large light-red and white cow. The heifers include no fewer than 26 animals, and are an admirable illustration of the breed. M. Nicolle, of Jersey, takes the 1st prize with a straight-backed very dark dun cow, with a wonderfully well-formed udder. M. le Feuvre is 2d, and M. Gaudin 3d, with grey and light red heifers respectively. They are a very beautiful class, deserving of general commendation.

The OTHER BREEDS include the Long-horned and Suffolk. The 1st prize bull is one of the former breed—a very large well-made animal, with a skin as patchy in its colour as a plover's egg; and Mr. Chapman, who shows him, also takes the prize for one of the same breed in the heifer class. Otherwise all the prizes in bulls, cows, and heifers go to Sir E. Kerrison, for specimens of the Suffolk breed. The Rev. J. L. Brereton shows a Kerry cow with a wonderful udder for such a little beast.

We now come to the prizes offered by the Local Committee. They are for Devons and South Hams—the one the neatest breed in the island, the other one of the coarsest. There is a very beautiful show of the former breed, and a sufficient illustration of the latter. 30*l.* and 15*l.* are offered for the best "bull cow and offspring." Mr. Farthing takes the 1st prize for a first-rate entry, and Mr. Pridham takes the 2d. There are only two entries. In the class of pairs of cows there are five entries. Mr. W. Taylor takes the 1st prize—one of the pair very large and extraordinarily fleshy and thick over the loins—and Mr. Farthing is 2d. It is a good and interesting class. The prizes for pairs of heifers in milk have only resulted in one entry, and Mr. Bodley takes the 1st prize with a pair of good cows rather light behind. In the class of pairs of heifers under 2d year, Viscount Falmouth is 1st with a beautiful pair, Mr. Smith is 2d, and Mr. G. Turner's heifers are also very good. The younger heifers and the bull calf classes are small but good; Mr. Turner takes the 1st prize with a beautiful half-year old calf.

The SOUTH HAMS cattle are large and coarse red beasts, not unlike the Sussex. The classes in which they are shown are not numerous; some very coarse ugly bulls are among them, and some very large and handsome cows. The Prize List is given below.

CHANNEL ISLANDS.

JUDGES: J. Dumbrell, Ditchling, Hurstpierpoint; M. Gibant, Mainland, Jersey; C. P. Le Cornu, Trinity Manor, Jersey.

CLASS 29. BULLS ABOVE 2 AND NOT EXCEEDING 6 YEARS OLD (7 entries).—1, Albert Le Gallais, of La Moie House, St. Aubin's, Jersey; 2, Clement Pallot, of St. Saviour's, Jersey; 3, George Poole, of Ashburton House, St. Andrew.

CLASS 30. BULLS ABOVE 1 AND NOT EXCEEDING 2 YEARS OLD (9 entries).—1, Clement Pallot; 2, Charles Robin, of Mon Plaisir, St. Peter's Port, Guernsey; 3, Henry Le Feuvre, of Les Niemes, St. Peter's, Jersey.

CLASS 31. COWS ABOVE 3 YEARS OLD (20 entries.)—1, Frederic Browning, of Le Patrimoine, St. Lawrence, Jersey; 2, Philippe Gaudin, St. Martin's, Maufont, St. Helier, Jersey; 3, Henry de Jersey Lacheur, of Norgiots, St. Andrew's, Guernsey. H. C.: Daniel Goodland, of Haviland, St. Peter's Port, Guernsey; William Alexandre, of St. Ouen's, Jersey; Albert Le Gallais, of La Moie, St. Aubin's, Jersey. C.: Thomas Blondel Le Page, of Maison-le-bas, St. Andrew's, Guernsey.

CLASS 32. HEIFERS IN MILK OR IN CALF NOT EXCEEDING 3 YEARS OLD (26 entries).—1st, 20*l.*; 2d, 10*l.*; 3d, 5*l.* 1, E. Nicolle, of La Fontaine, Trinity, Jersey; 2, H. Le Feuvre, of Les Niemes; 3, P. Gaudin, of St. Martin's. H. C.: H. Le Feuvre, A. Le Gallais, R. Rendle, of Catel Farm.

OTHER ESTABLISHED BREEDS, NOT INCLUDING THE SHORT-HORN, HEREFORD, DEVON, SUSSEX, OR CHANNEL ISLAND BREEDS.

CLASS 33. BULLS ABOVE 2 AND NOT EXCEEDING 6 YEARS OLD (11 entries).—1, R. H. Chapman, of Upton, Nuneaton, Warwickshire (Long-horn); 2, Sir E. Kerrison, Bart., of Brome Hall, Scole (Suffolk).

CLASS 34. BULLS ABOVE 1, AND NOT EXCEEDING 2 YEARS OLD.—1, Sir E. Kerrison, Bart. (Suffolk Polled.)

CLASS 35. COWS ABOVE 3 YEARS OLD.—1, Sir E. Kerrison, Bart. (Norfolk Polled); 2, Sir E. Kerrison, Bart.

CLASS 36. HEIFERS IN MILK OR IN CALF, NOT EXCEEDING 3 YEARS OLD.—1, R. H. Chapman, of Upton, Nuneaton (Long-horn).

CLASS 37. YEARLING HEIFERS.—1, Sir E. Kerrison, Bart. (Suffolk Polled); 2, Sir E. Kerrison.

PRIZES OFFERED BY THE LOCAL COMMITTEE OF DEVONPORT AND PLYMOUTH.

DEVONS.

CLASS 101. BULL, COW, AND THEIR OFFSPRING (16 entries).—1, W. Farthing, of Stowey Court; 2, S. Pridham, of Pool Farm, Cheriton Fitzpaine, Devonshire.

CLASS 102. PAIRS OF COWS IN MILK OR IN CALF EXCEEDING 3 YEARS 6 MONTHS OLD.—1, W. Taylor, of Harptree Court, Blagdon; 2, W. Farthing, of Stowey Court.

CLASS 103. PAIRS OF HEIFERS IN MILK OR IN CALF NOT EXCEEDING 3 YEARS 6 MONTHS OLD.—1, J. Bodley, of Stockley Pomeroy, Crediton; 2, J. A. Smith, of Bradford Peverill.

CLASS 104. PAIRS OF HEIFERS NOT EXCEEDING 2 YEARS 6 MONTHS OLD.—1, Viscount Falmouth; 2, G. Turner, of Beacon Downes.

CLASS 105. PAIRS OF HEIFERS NOT EXCEEDING 1 YEAR 6 MONTHS OLD.—1, W. Taylor, of Harptree Court; 2, J. Bodley, of Stockley Pomeroy.

CLASS 106. PAIRS OF BULL CALVES NOT EXCEEDING 9 MONTHS OLD.—1, G. Turner, of Beacon Downes; 2, J. Bodley, of Stockley Pomeroy.

SOUTH HAMS.

CLASS 107. BULLS EXCEEDING 3 AND NOT EXCEEDING 5 YEARS OLD (16 entries).—1, G. Dewdney, of Baccamore, Plympton, Devon; 2, T. R. Cornish, of Woltsgrove Farm, Bishopsteignton, Teignmouth.

CLASS 108. BULLS EXCEEDING 1 AND NOT EXCEEDING 3 YEARS OLD.—1, W. Coaker, of Charleton Court, Kingsbridge; 2, G. Dewdney, of Baccamore, Plympton.

CLASS 109. COWS IN CALF OR IN MILK EXCEEDING 4 YEARS OLD.—1, W. Coaker, of Charleton Court; 2, R. Sowton, of Yealmpton.

CLASS 110. HEIFERS IN CALF OR IN MILK NOT EXCEEDING 4 YEARS OLD.—1, J. Anthony, of Yealmpton; 2, G. Coaker, of Plympton.

CLASS 111. HEIFERS NOT EXCEEDING 2 YEARS 6 MONTHS OLD.—No entry.

CLASS 112. HEIFERS NOT EXCEEDING 1 YEAR 6 MONTHS OLD.—1, W. Adams, of Centry, Kingsbridge; 2, E. Ford, of Abbotskerswell.

THE HORSES.

Excepting one or two of the agricultural classes, they are the poorest show the Society has ever witnessed. There is but one in the class of thoroughbred stallions for getting thoroughbred stock, for which 125*l.* are offered in prizes—MOTLEY, by Touchstone, out of Lanercost mare, a dark brown handsome 14-year-old. Of stallions for getting hunters there are five—not a good class—with seven brood mares, of which the prize list is given below. There are only three shown as hackneys, and the pony classes are very poorly filled.

Then come the agricultural classes. Stallions over 2½ years old, 16 very fair animals. The Duke of Beaufort takes the 1st prize with a Clydesdale of extraordinary power and substance, which has been often successful before. Two dark dapple brown horses shown by Mr. Shepherd, of Stogursey, Bridgewater, a capital pair. Another Clydesdale shown by the Rev. S. Terry, of Basingstoke, is 2d, and a capital stepping horse shown by Mr. Elphick, of Burnham, Essex, is 3d. The Clydesdales are the best horses in the class. Mr. Horswill, of North Milton, shows a very good one. The younger class of agricultural stallions contains a few good animals. Amongst the mares, one of the best is a Clydesdale, shown by Major-General Hood.

The *Suffolk* classes are well represented by a few good specimens. There are but two or three in each class, and Sir E. Kerrison is 1st in three out of four classes. Then we have prizes offered for classes of agricultural horses not Clydesdales or Suffolks, adapted for a hilly district; and Mr. Henderson, of South Shields, takes the 1st prize with a short stocky bay horse in a very pretty class. The Hunters are a short class, the Roadsters still shorter, and strange to say, the classes of Dartmoor and Exmoor Ponies shortest of all. In place of the magnificent classes which were expected, we have two Dartmoor stallion ponies and *no* mares; 3 Exmoor stallion and 3 mare ponies. None call for any special remark, except perhaps that Mr. R. Smith, of Southmolton, who showed a very fine stallion among the ponies, having called his entry an *improved* Exmoor, though showing undoubtedly the best in his class, is held disqualified for competition.

The following is the Prize List:—

HORSES.—THOROUGHBRED.

JUDGES.—Thomas Parrington, Normanby, Middlesbro'; W. Young, Field House, Hull; C. Barnett, Stratton Park, Biggleswade.

CLASS 38. FOR THE THOROUGHBRED STUD HORSE WHICH IN THE OPINION OF THE JUDGES IS BEST CALCULATED TO IMPROVE AND PERPETUATE THE BREED OF THE SOUND AND STOUT THOROUGHBRED HORSE FOR GENERAL STUD PURPOSES.—Prize 100*l.* J. Casson, of Middleton Lodge, Uphall, Linlithgowshire, Motley, brown, 14 years old; s. Touchstone, d. Lanercost mare.

HUNTERS.

CLASS 39. STALLIONS THOROUGHBRED, SUITABLE FOR GETTING HUNTERS, WHOSE REGULAR CHARGE FOR SERVING HALF-BRED MARES (DURING THE SEASON 1865) HAS NOT EXCEEDED 5 GUINEAS.—1st, 30*l.*; 2d, 20*l.*; 3d, 10*l.* 1, R. G. Luxton, Brushford, Wembworthy, Devon, The Bald-faced Stag, chestnut, 10 years old, bred by General Peel; s. Harkaway, d. Palma; 2, J. Tremayne, of Sydenham House, Low Down, Devon.

CLASS 40.—BROOD MARES, WITH FOAL AT FOOT, OR IN FOAL FOR BREEDING HUNTERS.—1st, 20*l.*; 2d, 15*l.*; 3d, 5*l.* 1, W. Barrett, of Puddaven, Totnes, Kitty; 2, the Rev. J. L. Brereton, of West Buckland; 3d, R. H. Watson, of Dorsley, Totnes.

HACKNEYS.

CLASS 41. BROOD MARES, WITH FOAL AT FOOT, OR IN FOAL, FOR BREEDING HACKNEYS.—1st, 20*l.*; 2d, 10*l.*; 3d, 5*l.* 1, C. Trelawny, of Plymouth, Wren, bay; 2, R. H. Watson, of Dorsley, Totnes; 3, C. Franklin, of Bicken Hall, Taunton.

PONIES.

CLASS 42. STALLIONS NOT EXCEEDING 14 HANDS.—1st, 15*l.*; 2d, 10*l.*; 3d, 5*l.* 1, C. A. Moorshead, of Widney Court, Plymouth; 2, E. Maunder, of Heaselly Mill, Northmolton.

CLASS 43. MARES NOT EXCEEDING 14 HANDS.—1st, 10*l.*; 2d, 5*l.* 1, S. Sampson, of Park, Broadwoodkelly, Winkleigh, Devon; 2, J. H. Trehane, of Stockton, Callington.

AGRICULTURAL—NOT QUALIFIED TO COMPETE AS SUFFOLKS.

CLASS 44. STALLIONS FOALED BEFORE THE 1ST JANUARY, 1863.—1st, 25*l.*; 2d, 15*l.*, 3d, 10*l.* 1, The Duke of Beaufort, of Badminton, Chippenham, Wilts, Sir Robert, brown, 7 year old (Clydesdale); 2, Rev. S. Terry, of Dummer, Basingstoke; 3, W. Elphick, of Cricksea Lodge, Burnham, Essex. C.: R. Jacob, of Boltonsborough, Glastonbury.

CLASS 45. STALLIONS FOALED IN THE YEAR 1863.—1st, 20*l.*; 2d, 10*l.*; 3d, 5*l.* 1, W. Walker, of Colne, St. Ives; 2, J. Oram, of Shellingford, Farringdon; 3, H. Hitchcock, of Chitterne Allsaints, Heytesbury, Wilts. C.: The Duke of Richmond.

CLASS 46. MARES AND FOALS.—1st, 20*l.*; 2d, 10*l.*; 3d, 5*l.* 1, J. S. Bult, of Dodhill House, Kington, Taunton; 2, J. Logan, of Maindee, Newport; 3, G. Elliott, of Swilley Farm, Plymouth.

CLASS 47. THREE-YEAR-OLD MARES.—15*l.*, J. S. Bult, of Dodhill House, Kington.

CLASS 48. TWO-YEAR-OLD FILLIES.—1st, 15*l.*; 2d, 10*l.* 1, Major-General the Hon. A. Nelson Hood; 2, G. Elliott, of Swilley Farm.

SUFFOLKS.

CLASS 49. STALLIONS FOALED BEFORE THE 1ST JANUARY, 1863.—1st, 20*l.*, 2d, 10*l.* 1, Sir E. Kerrison, Bart., of Brome Hall, Scole, Suffolk.

CLASS 50. STALLIONS FOALED IN THE YEAR 1863.—1st, 15*l.*; 2d, 10*l.* 1, W. H. Walker, of Wennington, Romford; 2, W. Taylor, of Harptree Court, Blagdon.

CLASS 51. MARES AND FOALS.—1st, 20*l.*; 2d, 10*l.*—1, Sir E. Kerrison, Bart; 2, The Rev. F. S. Wall, of Bradley Wood, Newton Abbot.

CLASS 52. 2-YEAR OLD FILLIES.—1st, 15*l.*; 2d, 10*l.*—1, Sir E. Kerrison, Bart.; 2, S. Clayden, of Linton, Cambridgeshire.

LOCAL COMMITTEE PRIZES.

AGRICULTURAL—NOT BEING SUFFOLK OR CLYDESDALE, ADAPTED FOR A HILLY DISTRICT.

JUDGES.—James Steedman, Boghall, Edinburgh; T. Brooks, Croxby, Caistor; G. K. Cooper, Euston, Thetford, Norfolk.

CLASS 113. STALLIONS NOT EXCEEDING 8 YEARS OLD.—1st, 15*l.*; 2d, 10*l.* 1, J. Henderson, of Horsley Hill, South Shields; 2, E. Shinner, jun., of Stretchford, Staverton, Totnes. C.: W. Jackman, of Baweombe, Tavistock.

CLASS 114. MARES OR FILLIES NOT EXCEEDING 7 YEARS OLD.—1st, 10*l.*; 2d, 5*l.* 1, J. Anthony, of Yealmpton; 2, J. Logan, of Maindee House, Newport.

HUNTERS.

CLASS 115. MARES OR GELDINGS 4 YEARS OLD.—1st, 15*l.*; 2d, 10*l.* 1, G. B. Battams, of Kilworthy, Tavistock; 2, G. B. Battams. H. C.: The Rev. A. C. Thynne, of Penstowe, Stratton.

CLASS 116. MARES OR GELDINGS 5 AND NOT EXCEEDING 6 YEARS OLD.—Prize, 15*l.* 1. G. B. Battams, Tavistock.

ROADSTERS.

CLASS 117. MARES OR GELDINGS, 5 OR 6 YEARS OLD, NOT LESS THAN 14 NOR EXCEEDING 15 HANDS 1 INCH.—1st, 10*l.*; 2d, 5*l.* 1, T. Palmer, Borough, Kelly, Tavistock; 2, The Rev. J. L. Brereton, of West Buckland.

PONIES.

DARTMOOR.

CLASS 118. STALLIONS NOT EXCEEDING 13½ HANDS.—1st, 10*l.*; 2d, 5*l.* 1, T. K. Bickell, of Corn Market Inn, Tavistock; 2, W. Griffin, of Lamerton, Tavistock.

EXMOOR.

CLASS 120. STALLIONS NOT EXCEEDING 13½ HANDS.—1st, 10*l.*; 2d, 5*l.* J. Abraham, of The Villa, Bude Haven, Cornwall.

CLASS 121. MARES NOT EXCEEDING 13 HANDS.—1st, 10*l.*; 2d, 5*l.* H. B. Hambling, of Dodbrook, Kingsbridge, Devon.

THE SHEEP CLASSES

Are the best filled of any in the yard. There are capital illustrations of the Leicester, South Down, Cotswold, and Shropshires, of the Oxfordshire and Hampshire Downs, and of the Dorsets.

The LEICESTERS include no fewer than 86 entries, viz., 52 shearling and 26 older rams, and 8 pens of shearling ewes, of which the older rams are the best class. Colonel Inge's 8 shearlings occupy the 1st place in the class. They are of first-rate quality, rather smaller than their neighbours, carrying finer wool, standing in the corners of a rectangle with hind and fore feet wide apart, and carrying a model carcase. The 3d prize goes to one of them. Mr. Tremaine's sheep (Cornwall) are rather larger, standing on longer legs and somewhat narrow behind. The 2d prize is taken by Mr. Dabbs, of Tamworth, who shows sheep of good quality. Mr. Pawlett's sheep are larger, carrying more wool, and of great width over the back and shoulder. Mr. Turner, of Beacon Downes, Exeter, who shows eight, has a flock of first-rate quality—the shearlings shown are rather under the general size of the class. Mr. Borton, of Malton, takes the 1st prize with one of his entries, and is highly commended for another. Here too the judges have evidently given to quality rather than to size of carcase or weight of fleece. Mr. Creswell's sheep are of greater size, and he and Mr. Radmore and Mr. Stamper are the remaining exhibitors.

The Older Rams are a class of extraordinary merit. Messrs. Creswell, Borton, and Creswell take the 1st, 2d, and 3d prizes respectively. Mr. Tremaine's sheep are disqualified, unnecessarily as we thought, on the score of unfair shearing. Mr. Creswell's sheep are of very great size, especially the 1st prize one, which is in his fourth year. Mr. Borton's 2d prize has a wonderfully

round barrel, great width, and firm touch. Messrs. Pawlett and Turner are the other exhibitors.

In the very beautiful class of pens of five Shearling Ewes each, Mr. Stamper, of Oswaldkirk, Yorkshire, takes the 1st prize with a pen of beautiful quality, showing first-rate wool; and Mr. Borton and Lieut.-Colonel Inge are 2d and 3d.

The COTSWOLDS are a good show, though not very numerous, nor shown by many breeders. Only Messrs. Beale Browne, Wells, Gillett, Walker, Read, Howell, and Tombs, among the many ram breeders on the Gloucestershire and Oxfordshire uplands, send illustrations of this, which is the grandest of all the British breeds of sheep. The prizes for Shearling Rams are taken by Messrs. Walker and Gillett; and among the older sheep, the prizes go to Messrs. Gillett and Beale Browne. One or two are disqualified on the alleged ground of excessive wool. There are four pens of Shearling Ewes, exhibited by Messrs. Wells and Beale Browne, among which the latter takes the 1st prize with a very beautiful pen.

A small show of LINCOLN sheep illustrates the smaller size and generally inferior symmetry of the sort as compared with that of the Western side of the island, and is not at this season a sufficient illustration of that superiority of wool of which for certain manufacturing purposes we have of late years learnt. Mr. Marshall, of Branston, takes the 1st and 2d prizes. The difference in size, as compared with Cotswolds, is seen especially in the younger sheep. Mr. Lynn, of Stroxton, takes the 1st prize for a thick and stocky sort in the older class; and Mr. Marshall is 2d and 3d with his entries. He is also 1st among the three pens of shearling ewes exhibited. Great credit is due to the enterprise which brings what is likely to remain a comparatively local breed so far from home.

The OXFORDSHIRE DOWNS include some 20 entries. They are a thick and massive sort, covered with a fleece of close long wool. The 1st prize shearling ram, shown by Mr. Bryan, of Witney, is a large-framed well covered sheep. Mr. Bryan is also 2d and 3d in his class. Mr. Wallis, of Faringdon, is 1st and 2d among the older sheep, and Mr. Howard, of Biddenham, 3d. There is a very good class indeed of shearling ewes, and in adjudicating the prizes here the quality rather than mass and size of the competing animals has been regarded. Thus the Duke of Marlborough has taken the 1st prize with a pen in which there is a more evident admixture of Southdown blood than is apparent in some of the others; Mr. Howard is 2d and 3d with pens of large upstanding sheep, also of good quality; and Mr. Overman, of Weasenham, exhibits good sheep. It is a very good class.

The SOUTH DOWNS exhibit no sign whatever of falling off in quality or number, notwithstanding the demand for longer wools. Lord Walsingham takes the 1st, 2d, and 3d prize among the shearling rams, and the 1st and 2d among the older sheep, the 3d going to Mr. Waters, of Eastbourne, whose flock has for more than 20 years been before the public, and is gradually winning its way upwards. Among the eight wonderfully fine pens of shearling ewes, the Duke of Richmond is 1st with sheep of great size and substance and symmetry, Lord Walsingham is 2d, and the Earl of Radnor 3d. Mr. Rigden, of Brighton, shows some long and excellent shearling rams. Messrs. Waters and Heasman, of Sussex; Taylor, of Somerset; Farquharson, of Dorset; and Sir T. Lennard, of Essex, are also exhibitors in the ram classes.

The SHROPSHIRES are another good illustration of a first-rate breed. No fewer than 72 entries, of which 42 are shearling rams, are exhibited here as a good class, but hardly equal, as it appears to us, to the exhibition of some previous years. And how widely spread the breed has become, and how plucky the breeders, is shown by the large number who compete. There are more flocks of Shropshire represented than of any other breed of sheep in the yard. Mr. Mansell and Messrs. Crane are 1st and 2d in the younger sheep—Colonel Dyott, Mr. Thornton, and Mr. Boyd are 1st, 2d, and 3d, in the older class—and Messrs. Crane, Mr. Holland and Lady Willoughby de Broke are 1st, 2d, and 3d in the capital class of shearling ewes.

The WILTS and HAMPSHIRE DOWNS come next. Fewer breeders than usual compete. Mr. Humfrey's sheep, though entered, do not appear. Mr. Rawlence, of Wilton, takes away most of the prizes, being 1st in all the classes, and 2d with a very beautiful pen in the class of shearling ewes.

There are capital classes of SOMERSET AND DORSET SHEEP, Messrs. Danger, of Bridgewater, and Pitfield, of Bridport, taking all the prizes, as indeed they were the sole exhibitors. The pens of shearling ewes are a particularly pretty class. There are four entries in each class. A few of the large and lumpy long-woolled SOUTH HAMS sheep are shown. They resemble a blunted clumsy Cotswold in form and style of wool, but are well adapted, we understand, to their district.

There is a very considerable collection of the long-bodied and long-woolled Dartmoor sheep shown in the wool, including no fewer than 25 entries, and completes the Sheep classes.

The following is the Prize List:—

LEICESTERS.

JUDGES.—L. Borman, Irley, Caistor, Lincoln; J. Painter, Mount Vernon Villa, Forest Road, Nottingham; T. Turtchell, Willington, Bedford.

CLASS 53. SHEARLING RAMS (53 entries).—1, J. Borton, of Barton House, Malton, Yorkshire; 2, A. Dabbs, of Seckington, Tamworth; Lieut.-Col. W. Inge, of Thorpe Constantine, Tamworth. H. C.: J. Borton. C.: J. Gould, of Poltimore, Exeter; R. W. Creswell, of Ravenstone, Ashby-de-la-Zouch; T. Stamper, of Highfield House, Oswaldkirk.

CLASS 54. RAMS OF ANY OTHER AGE (26 entries).—1, R. W. Creswell, of Ravenstone; 2, J. Borton, of Barton House; 3, R. W. Creswell, of Ravenstone. H. C.: J. Borton. C.: J. Borton; S. Kingdon, of Lynch, Thorverton, Devon.

CLASS 55. PENS OF 5 SHEARLING EWES OF THE SAME FLOCK (8 entries).—1, T. Stamper, of Highfield House, Oswaldkirk; 2, J. Borton, of Barton House; 3, Lieut.-Col. W. Inge. C.: J. Gould, of Poltimore, Exeter.

COTSWOLDS.

JUDGES.—H. Aylmer, West Dereham Abbey, Stoke Ferry, Norfolk; C. Clarke, Scopwick, Sleaford; H. Bateman, Witney.

CLASS 56. SHEARLING RAMS (20 entries).—1, T. Walker, of Stowell Park, Northleach; 2, J. Gillett, of Fawler, Charlbury; 3, J. Gillett.

CLASS 57.—RAMS OF ANY OTHER AGE (9 entries).—1, J. Gillett, Fawler, Charlbury; 2, T. B. Browne, of Salperton Park, Andoversford; 3, J. Gillett.

CLASS 58. PENS OF 5 SHEARLING EWES OF THE SAME FLOCK (4 entries).—1, T. B. Browne, Salperton Park; 2, J. Wells, of Hampnett, Northleach; 3, ditto.

LINCOLNS AND OTHER LONG-WOOLLED, NOT QUALIFIED TO COMPETE AS LEICESTERS OR COTSWOLDS.

CLASS 59. SHEARLING RAMS (13 entries.)—1st, T. B. Marshall, of Branston; 2d, T. B. Marshall; 3d, J. Lynn, of Church Farm, Stroxton, Grantham.

CLASS 60. RAMS OF ANY OTHER AGE (12 entries).—1st, John Lynn, of Stroxton; 2d, Thomas Bumpstead Marshall, of Branston; 3d, Thomas Bumpstead Marshall. This class was commended throughout.

CLASS 61. PENS OF FIVE SHEARLING EWES OF THE SAME FLOCK (3 entries).—1st, Thomas Bumpstead Marshall; 2d, The Rev. J. L. Brereton, of West Buckland, Southmolton.

OXFORDSHIRE DOWNS.

JUDGES.—R. J. Newton, Campsfield Farm, Woodstock; E. Gough, Gravel Hill, Shrewsbury; T. Horley, jun., Leamington.

CLASS 62. SHEARLING RAMS (15 entries).—1, John Bryan, of Southleigh, Witney; 2, John Bryan; 3, John Bryan. H. C.: John Bryan, of Southleigh, Witney. C.: John Bryan; G. C. Wallis, of Old Shifford, Bampton, Faringdon.

CLASS 63. RAMS OF ANY OTHER AGE (4 entries).—1, G. Wallis, of Old Shifford; 2, G. Wallis; 3, C. Howard, of Biddenham, Bedford.

CLASS 64. PENS OF 5 SHEARLING EWES OF THE SAME FLOCK (5 entries).—1, The Duke of Marlborough; 2, C. Howard, of Biddenham; 3, C. Howard.

SOUTHDOWNS.

CLASS 65. SHEARLING RAMS (32 entries).—1, Lord Walsingham, of Merton Hall, Thetford; 2d and 3d, ditto. C.: (thrice) Lord Walsingham. H. C.: The Duke of Richmond. C.: J. Farquharson, of Langton House, Blandford.

CLASS 66. RAMS OF ANY OTHER AGE (17 entries).—1, Lord Walsingham; 2, ditto; 3, J. Waters, of Motcomb, Eastbourne, Sussex. H. C.: Lord Walsingham, J. Waters. C.: W. Rigden, of Hove, Brighton; Sir T. B. Lennard, Bart., of Romford.

CLASS 67. PENS OF FIVE SHEARLING EWES OF THE SAME FLOCK (8 entries).—1, the Duke of Richmond; 2, the Earl of Radnor, of Coleshill, Highworth. H. C.: the Duke of Richmond.

SHROPSHIRES.

CLASS 68. SHEARLING RAMS (43 entries).—1, T. Mansell, of Adcott Hall, Shrewsbury; 2, T. Mansell; 3, T. Mansell. H. C.: Lady Willoughby de Broke, of Compton Verney; J. and E. Crane, of Shrawardine, Shrewsbury. C.: H. J. Sheldon, of Brailes House, Shipston-on-Stour.

CLASS 69.—RAMS OF ANY OTHER AGE (19 entries).—1, Colonel R. Dyott, of Freeford, Lichfield; 2, E. Thornton, of Pitchford, Shrewsbury; 3, S. Byrd, of The Lease Farm, Stafford. H. C.: P. W. Bowen, of Shrawardine Castle. C.: Lord Wenlock.

CLASS 70. PENS OF 5 SHEARING EWES OF THE SAME FLOCK (10 entries).—1, J. and E. Crane, of Shrawardine, Shrewsbury; 2, E. Holland, M.P., of Dumbleton Hall, Evesham; 3, Lady Willoughby de Broke.

HAMPSHIRES AND OTHER SHORT-WOOLLED NOT QUALIFIED TO COMPETE AS SOUTHDOWNS OR SHROPSHIRES.

JUDGES.—H. Fookes, Whitechurch, Blandford; J. S. Turner, Chyngton, Seaford; H. Overman, Weasenham, Rougham, Norfolk.

CLASS 71. YEARLING RAMS (10 entries).—1, J. Rawlence, of Bullbridge, Wilton; 2, M. Arnold, of Westmeon, Petersfield; 3, J. Rawlence. H. C.: M. Arnold, of Westmeon, Petersfield.

CLASS 72. RAMS OF ANY OTHER AGE (8 entries).—1, J. Rawlence; 2, M. Arnold, of Westmeon, Hampshire; 3, S. King, of Bockhampton Farm, Lambourne. H. C.: J. Rawlence, Salisbury; W. B. Canning, of Elston, Devizes.

CLASS 73. PENS OF 5 SHEARLING EWES OF THE SAME FLOCK (7 entries).—1, J. Rawlence; 2, ditto; 3, W. B. Canning, of Elston. H. C.: J. Rawlence. C.: W. F. Bennett, of Chilmark, Salisbury.

SOMERSET AND DORSET HORNED.

JUDGES.—P. Halse, Molland, Southmolton; E. Pope, Great Toller, Maiden Newton; J. Hole, Knowle House, Dunster.

CLASS 74. SHEARLING RAMS (12 entries).—1, T. Danger, of Huntstile, Bridgwater; 2, A. J. Pitfield, of Eype, Bridport, Dorsetshire.

CLASS 75. RAMS OF ANY OTHER AGE.—1, A. J. Pitfield; 2, ditto.

CLASS 76. PENS OF 5 EWES OF ANY AGE OF THE SAME FLOCK.—1, T. Danger; 2, A. J. Pitfield. C.: A. J. Pitfield.

SOUTH HAMS.

CLASS 77. SHEARLING RAMS (5 entries).—J. Willcocks, of Cleeve, Ivybridge.

CLASS 78. RAMS OF ANY OTHER AGE.—G. Dewdney, of Baccamoor, Plympton.

CLASS 79. PEN OF 5 EWES OF ANY AGE, OF THE SAME FLOCK.—1, J. Willcocks, of Cleeve; 2, R. C. Clark, of Butshead, St. Budeaux.

DARTMOOR (IN WOOL).

CLASS 80. SHEARLING RAMS (6 entries).—1, J. Drew, of Artiscombe, Tavistock; 2, R. May, of Grendon, Tavistock. C.: ditto.

CLASS 81. RAMS OF ANY AGE.—1, R. May, of Grendon; 2, T. Squire, of North Brenton, Lamerton.

CLASS 82.—PENS OF 5 EWES, OF ANY AGE, OF THE SAME FLOCK.—1, J. Drew, of Artiscombe; 2, J. March, of Widewell, Tamerton Foliott.

EXMOOR (IN WOOL.)

CLASS 83.—SHEARLING RAMS (9 entries).—1, E. Maunder, of Heaselby Mill, North Molton; 2, J. Passmore, of Fyldon, North Molton.

CLASS 84.—RAMS OF ANY OTHER AGE.—1, E. Maunder, of Heaselby Mill, North Molton; 2, W. Taylor, of Harptree Court, Blagdon.

CLASS 85.—PENS OF 5 EWES OF ANY AGE OF THE SAME FLOCK.—1, W. Taylor; 2, J. Passmore, of Fyldon.

THE PIG CLASSES

Are most of them very fairly filled, and many of them have never been excelled. Almost the only one which is noteworthy for inferiority is the class of Berkshire Boars, where a first-rate breed has not been nearly so well illustrated as it ought to have been. There are an unusual number of disqualifications by Prof. Simonds, owing to the dentition not corresponding with the alleged age. There is no restriction as to age in the different classes, but as the age guides the judgment of merit, of course it is necessary that it be correctly stated. Perhaps as time passes we may learn that our breeds are getting more and more precocious, and our veterinary authorities may require to stretch their rules so as to admit at once, and "in spite of their teeth," the growth of the specimens, and the honesty of their exhibitors, in a greater degree than they have. The 124 entries among pigs are spread over no fewer than 17 classes, which we proceed to enumerate.

Of Boars of a LARGE WHITE BREED only three are shown, the 1st and 2d prizes going to Mr. Wainman, of Carrhead, for a large specimen of the breed with plenty of hair, in which the others are deficient. Among boars of a SMALL WHITE breed Mr. Mangles, of Givendale, is disqualified, owing to dentition, in all three of the specimens he has shown. Mr. Sexton is also disqualified for one of his entries. Mr. Dickin takes the 1st prize with a boar of wonderful size for a "small" breed, and excessive fatness for a breeding animal. Mr. Stearn's entries are very good, one of them taking the 2d prize.

The Boars of a SMALL BLACK breed are a very good class. Mr. Stearn is 1st with a very capital specimen of the breed, in good condition and first-rate health. Mr. Sexton is 2d with one of his pigs, and disqualified for another. The skin and hair of these animals is perfect.

The BERKSHIRE boars are not a good class, very mixed as regards age and size, and otherwise various, so that they by no means give the impression of the first-class breed they are. Mr. Stewart, of Gloucester, is 1st with a very long good specimen. Messrs. Yells and Hewer, of Highworth, Mr. W. J. Sadler, and Mr. Tombs, of Lechlade, show well.

In the class of Boars not eligible in previous classes, we have an enormous white boar shown by Mr. Duckering, of Northorpe, Kirton Lindsay, who is very successful as an exhibitor in the pig classes; and Mr. Wainman takes the 2d prize for another specimen of the large white breed—though why it might not have been exhibited in any other class does not appear.

There is a small class of Sows in the Large White Breed, in which Mr. Gamon, of Thornton-le-Moor, is successful; Mr. Duckering again appears on the prize list; and Mr. Dickin, of Stockport, exhibits one with a litter of nine.

The Breeding Sows of a SMALL WHITE Breed are a very good class indeed. The 1st prize goes to Mr. Bulteel, of Ivy Bridge, for one bred by Colonel Kingscote; Mr. Sexton is 2d; and Mr. Stearn shows a beauty with 11 pigs.

The Breeding Sows of a SMALL BLACK breed are a wonderfully fine class. Mr. Stearn is again 1st, and Mr. Sexton is disqualified for some of his entries, and 2d and highly commended for others. Surely it is hardly possible that the records of this herd can be kept so carelessly as to produce these frequent blunders. We are always more inclined to doubt the indications on which the veterinary authority rests, than the honesty and carefulness of respectable and long-established breeders. Mr. Coles, of Yeovil, is highly commended for a very good sow with nine pigs.

The BERKSHIRE Sows are a good class, and Mr. Stewart, of Gloucester, again takes everything before him. Mr. Allender, of Winslow, and Mr. Hewer, of Highworth, show good specimens. There is a small class of breeding sows ineligible for previous classes, in which Messrs. Gamon and Duckering are again successful with enormous white sows.

The pens of three breeding sows of the various breeds include 5 classes and 19 entries. The large white breed, the small black breed, and the Berkshire are the best. The following is the Prize List:—

PIGS.

JUDGES.—T. Trotter, Bywell, Stocksfield-on-Tyne; S. Druce, Eynsham, Oxon; H. P. Jones, Portwayhouse, Warminster.

CLASS 86. BOARS OF A LARGE WHITE BREED (3 entries).—1, W. B. Wainman, of Carrhead, Cross Hills, Yorkshire; 2, R. Dickin, of 161, Old Road, Stockport, Lancashire.

CLASS 87. BOARS OF A SMALL WHITE BREED (11 entries).—1, R. Dickin; 2, S. G. Stearn, of Brandeston.

CLASS 88. BOARS OF A SMALL BLACK BREED (13 entries).—1, S. G. Stearn, of Brandeston, Wickham Market, Suffolk; 2, G. M. Sexton, of Wherstead Hall, Ipswich, Suffolk.

CLASS 89. BOARS OF THE BERKSHIRE BREED (17 entries).—1, A. Stewart, of St. Bridge House, Gloucester; 2, W. Yells, Round Robin Farm, Highworth, Wiltshire.

CLASS 90. BOARS OF A BREED NOT ELIGIBLE FOR THE PRECEDING CLASSES (4 entries).—1, R. E. Duckering, of Northorpe, Kirton Lindsay, Lincolnshire; 2, W. B. Wainman, of Carhead.

CLASS 91. BREEDING SOWS OF A LARGE WHITE BREED. (5 entries).—1, W. Gamon, of The Green, Thornton-le-Moor, Chester; 2, R. E. Duckering, of Northorpe.

CLASS 92. BREEDING SOWS OF A SMALL WHITE BREED (11 entries).—1, J. Bulteel, of Pamflete, Ivybridge; 2, G. M. Sexton, of Wherstead Hall.

CLASS 93. BREEDING SOWS OF A SMALL BLACK BREED (27 entries).—1, S. G. Stearn, of Wickham Market; 2, G. M. Sexton, of Wherstead Hall. H. C.: G. M. Sexton. C.: W. F. Collier, of Woodtown, Horrabridge.

CLASS 94. BREEDING SOWS OF THE BERKSHIRE BREED (14 entries).—1, A. Stewart, Gloucester; 2, ditto. H. C.: ditto. C.: W. Hewer twice.

CLASS 95. BREEDING SOWS OF A BREED NOT ELIGIBLE FOR THE PRECEDING CLASSES (5 entries).—1, R. E. Duckering, of Northorpe; 2, W. Gamon. C.: W. B. Wainman.

CLASS 96. PENS OF 3 BREEDING SOW PIGS OF A LARGE WHITE BREED, OF THE SAME LITTER, ABOVE 4 AND UNDER 8 MONTHS OLD (2 entries).—1, R. E. Duckering, of Northorpe; 2, W. B. Wainman.

CLASS 97. PENS OF 3 BREEDING SOW PIGS OF A SMALL WHITE BREED, OF THE SAME LITTER, ABOVE 4 AND UNDER 8 MONTHS OLD (4 entries).—1, S. Stearn, of Brandeston; 2, G. M. Sexton.

CLASS 98. PENS OF 3 BREEDING SOW PIGS OF A SMALL BLACK BREED, OF THE SAME LITTER, ABOVE 4 AND UNDER 8 MONTHS OLD (4 entries).—1, G. M. Sexton; 2, G. M. Sexton.

CLASS 99. PENS OF 3 BREEDING SOW PIGS OF THE BERKSHIRE BREED, OF THE SAME LITTER, ABOVE 4 AND UNDER 8 MONTHS OLD (6 entries).—1, W. Yells, of Highworth; 2, J. K. Tombs, of Langford, Lechdale.

CLASS 100. PENS OF 3 BREEDING SOW PIGS OF A BREED NOT ELIGIBLE FOR THE PRECEDING CLASSES, OF THE SAME LITTER, ABOVE 4 AND UNDER 8 MONTHS OLD (2 entries).—1, G. Mangles, of Givendale, Ripon; 2, W. B. Wainman.

PRIZES OFFERED BY THE LOCAL COMMITTEE OF DEVONPORT AND PLYMOUTH.

CLASS 122. BOAR, SOW, AND THEIR LITTER, OF A LARGE BREED, ALL TO HAVE BEEN BRED BY THE EXHIBITOR, THE LITTER NOT TO EXCEED 12 WEEKS OLD ON THE 17TH JULY, 1865.—1, R. Duckering, of Northorpe.

CLASS 123. BOAR, SOW, AND THEIR LITTER, OF A SMALL BLACK BREED, ALL TO HAVE BEEN BRED BY THE EXHIBITOR, THE LITTER NOT TO EXCEED 12 WEEKS OLD ON THE 17TH JULY, 1865.—1, S. G. Stearn, of Brandeston; 2, G. M. Sexton.

BUTTER.

JUDGE: T. Litton, 12, Newgate Street, London, E.C.

CLASS 124. TWELVE POUNDS OF SCALD CREAM BUTTER, MADE AND PRINTED IN POUNDS AND HALF-POUNDS (14 entries).—1, J. Widdicombe, of Torrhill, Ivy Bridge; 2, T. Burnaford, of Tamerton Foliott. H. C.: W. T. Collier, of Woodtown, Horrabridge.

WOOL.

FIVE FLEECES EACH.

JUDGES.—T. Gurney, Hounslow; T. Clayton, Stainley House, Ripley.

CLASS 125. LEICESTER.—2*l.*, 1, T. Harris, of Stony Lane House, Bromsgrove.

CLASS 128. SOUTHDOWN.—1*l*, 1, C. Boby, of Alton Hall, Sutton, Ipswich, Suffolk.

CLASS 129. SHROPSHIRE.—1, D. Davies, of Mere Old Hall, Knutsford, Cheshire.

CLASS 130. HAMPSHIRE AND OTHER SHORT-WOOLS.—2*l.*, 1, C. Howard, of Biddenham, Bedford.

CLASS 133. DARTMOOR. — 2*l.*, 1, R. May, of Grendon, Tavistock.

CLASS 134. EXMOOR.—2*l.*, 1, E. Maunder, of Heaselby Mill, North Molton.

THE IMPLEMENT YARD.

The collection of Agricultural Machinery, as well as of Implements of more strictly domestic use, which has latterly been so large a feature in the Society's shows, is as extensive as ever. There are upwards of 4000 entries on 275 stands, arranged in two divisions, one of which comprises the machinery in motion — a much less striking sight here than it was at Hereford, owing chiefly to the scattered disorder under which, as compared with the compact rank and file under the Bath and West of England arrangement, it here appears.

Taking the stands in the order of the Catalogue, we shall notice some of the more remarkable of the novelties, as well as of the established merits which they exhibit.

Messrs. Samuelson show their self-raking American reaper, in which the platform receiving the cut corn is cleared four times in the course of so many revolutions of its driving wheel, whatever the thickness of the crop may be. Their "Eclipse" reaper too is shown, in which Hussey's knife is used, but his general arrangement is modified by a wider oscillation than usual of the cutting bar, so that two intervals instead of one are cleared by the knife at each oscillation. The mower—the position of whose knife is to some extent regulated by the balancing of the driver on his seat—did very good work in the trial ground; and the combined mower and reaper achieved we believe a very good position in the estimation of the Judges. Near their stand is Mr. Cranston's, where Bullard's kicking hay tedder is shown; and Wood's mowing machine, reaper, and combined mower and reaper, all of which are first-rate tools, having done as good work with as little labour as any of the mowers or reapers on the trial ground. The one-horse reaper is supplied with a dropping open-work platform, which is held up by the foot until a sheaf has collected, and then falling, the stubble, rising through the intervals, helps the raker to discharge the corn. It will be seen that it has achieved a very high place on the prize list.

Jebb's tubular churn shown near this is an upright cylinder with narrow vertical revolving dasher, leaving room for vertical tubes standing in the milk, and capable of holding cold or hot water—but acting chiefly by the eddy and obstacle which they present to the rotary movement of the milk.

Messrs. Bentall show a large collection of chaff cutters, mills, crushers, and pulpers, tools which are not this year subjected to competition.

Mr. Smith, of Kettering, exhibits his very clever horse hoes; and Messrs. Smith, of Thrapston, show their independent-tined hay tedders. Another form of this implement is also shown by Messrs. Ashby & Jeffery, of Stamford, who also exhibit horse rakes, chaff cutters, &c.

Messrs. Coleman & Morton, of Chelmsford, show steam engine for steam cultivation, grubbers, steam cultivators, Hanson's Potato digger, &c. They have lately patented an ingenious coiler for regulating the position of the steel rope upon the driver or pulley by which their cultivating tool is drawn to and fro.

At the stand of the Reading Ironworks Company, haymakers, rakes, chaff cutters, threshing machines, and steam engines are shown.—Mr. Cuthbert, of Bedale, shows his capital one and two-horse reaper.—Carson & Toone, of Warminster, show a capital drill horse hoe, with double beam, affording a simple hold upon and means of regulating the working tines.—The Beverley Waggon Company show a large collection of carts and waggons.—Mr. Eastwood, of Blackburn, shows an upright elliptical barrel churn, in which two rotating vertical dashers revolve beside each other.

Mr. Coultas, jun., of Grantham, exhibits his capital drills for seeds, grains, and manure, displaying not only good workmanship, but great fertility of invention.

Messrs. Woods & Cocksedge, of Stowmarket, show their well-known pulpers, crushing mills, carts, and simple strong and efficient horse gear.

Messrs. Eaton, of Thrapston, exhibit their rotating Turnip buncher and horse hoe.

Mr. Kearsley, of Ripon, exhibits a somewhat heavy, but very efficient mower, and combined reaper and mower, which did capital work in the trial ground.

Mr. Waile, of Leeds, shows his barrel churn rotating on double friction rollers.

At Messrs. Howard's (Bedford) important stand there is full illustration of his system of steam cultivation—the steam engine has its boiler placed athwart the frame and thus works well on a slope—there is a large collection of implements of ordinary cultivation, ploughs, grubbers, harrows, also harvesting tools, and among them the very simple double-action hay tedder, to which the Society's prizes have been awarded. The fork barrels of this machine are so arranged as to hinder clogging. Instead of the sliding pinions used in other machines for reversing the motion, a simple eccentric moves the pinions in and out of gear. Their horse rakes, too, especially adapted to heavy crops, are exhibited.

Messrs. Hayes, of Stamford, show carts and waggons exhibiting many ingenious contrivances and many proofs of capital construction, and they too have carried off prizes.

Messrs. Larkworthy, of Worcester, show horse hoes, Seaman's tubular framed harrows, drags with duck feet, clever steel whippletrees, &c.

Mr. Milford, of Cullompton, shows capital carts and waggons, with swinging back board, drag, &c.

Mr. Brenton, of St. German's, shows reaping machines (untried before the judges) with roller delivery assisting the raker, and put in gear at his will.

Messrs. Ransomes & Sims, of Ipswich, exhibit ploughs, harrows, rotary corn screens, root pulper and cutter for roots, and mills and crushers for corn and cake. Portable steam engines and threshing machines. Among the novelties here is Edmunds' semicircular whippletree, insuring equality of draught, and enabling the horse to turn unimpeded by it at the land's end by a very simple and efficient device.

Mr. Phillips, of 8, Southampton Buildings, Chancery Lane, exhibits his rotary spader or digging machine, an importation from America, of use in light soils.

Messrs. Reeves, of Bratton, show drills, manure distributors, &c. Among their tools is a patent corn screen with a furrowed surface, giving a greater extent of efficiency to a given width of screen.

Mr. Bamlett, of Thirsk, shows his prize reaper and mower.—Mr. Barber, of Liverpool, exhibits a mower in which the finger bar is flexible, and adapts itself to the inequalities of the ground. The reaping platform can be attached or detached by simply removing three bolts, and it makes a mower or reaper in the one machine; and the finger bar being flexible, adapts itself to the undulations of the ground, and is so constructed that the operator can raise either end of it independently of the other, or he can by the same lever raise the bar to pass over cut Grass; also throw it in an upright position.

Messrs. Gower, of Winchfield, Hants, show drills and manure distributors—the principle of the latter appearing to depend on the rotation of a toothed ball in a pierced basin for each drill; the manure thus stirred up falling through the holes. There is also here a clever Grass-seed sower, in which the seed-bore is double, worked by two sets of brushes, the front one sowing Grass seeds and the hinder one Clover. It is a very good thing indeed.

Mr. Ireland, of Broughton Lane, Manchester, exhibits a vertical elliptical barrel churn, in which the plunger rotates and oscillates at the same time that it is driven up and down.

Messrs. Page, of Bedford, exhibit a large collection of their horse hoes, rakes, chaff cutters, root pulpers, &c.

Messrs. Amies & Barford, of Peterborough, show their water-ballasted roller in all manner of size and form.

Mr. Dicker, of Chagford, Exeter, shows a cart with a Gardner's Turnip cutter in the bed of it, enabling the cutting of the roots in it and the scattering of them as it is drawn over a Grass field—a mistakenly laborious tool.

Mr. Freer, of Loughborough, shows his grain planter or dibbler, somewhat on the plan of Newberry's dibble.

Mr. Hellard, of Uttoxeter, exhibits a very clever cheese-making machine, one of the most ingenious tools in the yard, combining the merits of Cocksey's and Keevil's machines, with a great many extremely well devised and efficient improvements and additions. Of this we shall hereafter give a detailed report. It is one of the most efficient and ingenious novelties in the yard.

Mr. Parsons, of Martock, shows his combined cast and wrought iron wheels, and also a combined Flax-breaking and Flax-scutching machine.

Mr. Childs, of 481 New Oxford Street, shows a clever American mowing machine, which made very good work in the trial ground; also a very clever self-feeding saw bench for use by hand.

Messrs. Priest & Woolnough, of Kingston, show a capital collection of sowing machines, and have taken away a large share of the Society's prizes.

Mr. Hawkes, of Tiverton, shows drilling machines, in which the delivery of the corn from the seed box is effected by having two rollers, one on each side of the box, and parallel with it, with endless chain around both, at intervals of a few inches, which chains in the upper part of their revolution pass through the seed box, and drag the seed out with it.

Another novelty, and more practical and useful, is shown by Mr. Skelton, of Bodmin, a one way or turn-wrest plough, in which the two mould-boards alternately take their place by a very simple movement, which converts each from the acting turn furrow on the active side of the plough body into the side plate on the land or passive side.—At the next stand Mr. Tinkler, of Penrith, shows a very simple and efficient drill horse hoe made by J. Stalker of that town, and a very simple and efficient churn manufactured by himself. It is an ordinary barrel churn, mounted on single friction wheels, with clever arrangements for the escape of the heated air, and for keeping in or letting out the milk or cream, and beating the butter clean from the milk after it is made. It is cheap, simple, and efficient, all the better that it does not affect clever and complicated devices for obtaining irregular motions for the dasher—the simple rotation of the barrel being the best of all methods of shaking the milk and breaking it.

Messrs. Wallis, of Basingstoke, exhibit Hayes' straw elevator, corn drills, horse rakes, ploughs, horse hoes, &c.

Mr. Baker, of Compton, Berks, makes and exhibits a good water cart with attached pump, which we have seen in constant daily and satisfactory use for several years.

Messrs. Garrett exhibit, in addition to steam engines, threshing machines, &c., a clever machine for bruising and reducing Wheat and other straw to fodder. The scarcity of hay in many localities has suggested the necessity of rendering straw digestible for cattle and horses, without the operation of steaming; and they invite the attention of agriculturists to this apparatus.

Messrs. Richmond & Chandler, of Salford, have among their improvements of chaff cutters a clever device for altering the length of cut without change of wheels.

Mr. Sainty, of Burnham, near Lynn, exhibits his patented addition to the ordinary drilling machine. The exhibitor's application of a spring to each lever, instead of the ordinary weights, renders the action more efficient and regular; it enables any amount of pressure to be exerted without an additional pressing apparatus, and thus reduces the draught, weight, and cost. It seems to us a very clever and efficient thing.

Mr. Boby, of Bury St. Edmunds, shows his well-known corn screen, also a clever double-action hay tedder.

Picksley & Sims, of Leigh, near Manchester, show chaff cutters, mills, reapers, and no fewer than 160 articles altogether.

Messs. Cambridge, of Bristol, exhibit rakes, chain-harrows, pressers, &c.

Mr. Brinsmead, of Torrington, shows an ingenious reeding machine for threshing and combing out a sheaf of grain at a time.

Mr. Nicholson, of Newark, shows his well-known hay tedders and horse rakes, rollers, &c.

Messrs. Fowler & Co. exhibit a full illustration of their steam cultivating apparatus, and it is at work in an adjoining field.

At the stand of Messrs. Hornsby we have a full collection of drills. Several forms of his mower and reaper (which have won a capital place in the competition before the judges), ploughs, washing machines, &c.

Near this Messrs. Burgess & Key show mowing and reaping machines, to which reference is made elsewhere. McCormick's reaper is also exhibited in at least two different forms, with revolving rake and with screw delivery.

Holmes & Sons, of Norwich, have a good stand of machinery, including drills and manure distributors, and a rotary harrow or Couch extirpator, which seems an efficient tool.

The St. Pancras Company show complete stable furniture, and a large collection of wire-work, fencing, gates, &c. Musgraves, of Belfast, also illustrate perfectly a full-sized horse stall.

Messrs. White & Co., of 29, Bedford Street, Strand, exhibit the earth closet for mechanically applying Moule's system of deodorising and utilising excrementitious matter by means of dry earth. A portable apparatus in deal case. Price 3*l.*

Messrs. Barnard & Bishop, of Norwich, exhibit their noiseless lawn mower. Messrs. Green, of Leeds, are also the exhibitors of similar machines.—At the stand of Messrs. Greening, of Manchester, is a large

collection of wire-fencing, gates, &c.; so also at Messrs. Hill & Smith's stand (of Dudley).

SEEDS, &c.—We come now to the outside fencing of the yard, around which are arranged an extraordinary illustration of the power and wealth of our great seed firms. Messrs. Gibbs, of Half Moon Street; Messrs. Sutton, of Reading; Messrs. Carter, of High Holborn; Messrs. Wheeler, of Gloucester; Messrs. Raynbird, of Basingstoke, exhibit collections of seeds and plants; and the stands of Messrs. Gibbs, Sutton, and Carter have never been surpassed.

MACHINERY IN MOTION.

Mr. Robert Willary, of Preston, exhibits a continuous trough for cow house, manufactured by Picksley, Sims, & Co., of Leigh. It is a specimen of the interior of a cow house, having a tram-way and a continuous trough by means of which the cattle can have their food prepared and given them by the new feeding machine. This feeding machine will cut Turnips or deliver corn, or break and deliver cake and carry itself and the man who works it along the tramway and trough, into which the material drops as it goes.

Messrs. Tuxford, Garrett, Clayton & Shuttleworth, Ruston & Proctor, Barrett & Exall, and other great firms show steam engines, threshing machines, &c., at work. Mr. Wright of Boston shows a stacking machine for delivering corn or straw at any required height. Picksley & Sims of Leigh show bone mills, chaff-cutters, &c. Messrs. Marshall & Sons of Gainsborough show very well made and neatly proportioned 5 and 9 horse-power steam-engine working theshing machines, to one of which is attached a mill for grinding the tail corn and discharging it at once in condition for feeding cattle. It is thus described:—Combined double-blast threshing machine, with new patent grinding apparatus, for preparing the grain for market and reducing the seconds corn to feeding meal in one operation; invented, improved, and manufactured by the exhibitors. Fitted with Goucher's patent drum beaters, Coulson's patent spring hangers, improved straw shakers, patent springs to vibrating boards, and Barley horner, &c. Price 140*l.*

Mr. Maynard of Whittlesford shows his capital sifting chaff machine, for sifting and cutting the straw as food as it comes from the threshing machine.

Riches & Watts of Norwich show their cheap and clever portable American grist mill.

Messrs. Bury & Pollard, of Southwark, show their self-regulating wind engine.

Morticing, sawing, and planing machinery is shown by Mr. Bissell, of Wolverhampton, and Messrs. Powis, James & Co., of Lambeth.

Gasworks are shown by Porter, of Lincoln, and Vicary, of Exeter.

Aveling & Porter, of Rochester, show their capital traction engine, which has come across the island 270 miles in six days, doing no harm on its way to the bodies or the nerves of any of her Majesty's subjects.

Messrs. Ransome, Richmond & Chandler, and Turner, of Ipswich, have stands at which chaff cutters, grinding mills, &c., are worked by steam power.

Mr. Garrett's straw crusher is shown at work. It is a threshing drum with deeply furrowed surface, into which correspondingly notched steel plates project from the cover within which the drum revolves. And the straw is driven through between drum and edges at the rate of 15 cwt. per hour. Eight-horse power being thus employed in reducing it to a crushed and feathery state.

Mr. Allen, of Parliament Street, Westminster, exhibited his 12-horse power double expansive portable engine, manufactured by Tuxford & Sons, of Boston. It is constructed specially to economise fuel and water, the steam being used twice over in the same cylinder. Will plough with 5 to 6 cwt. of coal and 400 to 500 gallons of water, and thresh with 3 to 4 cwt. of coal and 200 to 300 gallons of water per day. Price 330*l.* The principle of the machine has been described in our columns.

Mr. Blackburn exhibits a traction engine, in which the boiler is carried inside an enormous roller, which is made to revolve and so to travel. It is intended to be used as a tractor on common roads or on tramways; it is also applicable as a steam cultivator, to draw ploughs, scarifiers, or reaping machines. A rotatory digger can be attached for light soils. It is an effective clodcrusher and roller, and will haul any implement of tillage from two to five miles an hour; price 350*l.* It appeared to us altogether inferior to Aveling's traction engine, beside which it was exhibited; and it had travelled to the yard from Exeter *by train!* whereas the other had came from Rochester with its train of waggons of itself.

THE TRIAL GROUNDS

At Woodford, near Plympton, were on Wednesday, Friday, Saturday, and Monday, the scene of a laborious examination of reapers and mowers, drilling machines for corn and manure, horse rakes and haytedders, and Turnip and corn horse hoes. They did not expect so large an influx of spectators here as on previous occasions of the Society's meeting, but we have never seen so large a company on any of the Society's trial grounds before, not even at the steam plough trials of Leeds or Newcastle, as were on Friday looking on at the competition of reaping machines. Unfortunately a wet day on Thursday threw the whole competition back, and delayed the publication of results.

The Mowing Machines were subjected to trial in a flat bit of meadow land, extremely foul, and having been occasionally flooded over its lower half, the Grass was in a very draggled state, half-rotten at bottom, and very dirty indeed, in the very worst plight for mowing, and accordingly Messrs. Bamlett, Burgess & Key, Samuelson, and one or two others, had very bad luck indeed in choosing their plots here. Bamlett's mower nevertheless did fair work, with occasional draggings of the tool over the Grass.

Burgess & Key's new and extremely compact and simple American mower, with level crank rod and very well packed gearing, did fair work, notwithstanding frequent stops, attributable to the condition of the land.

Mr. Samuelson's mower was also occasionally stopped and backed to take up missed work.

Barber's American eagle mower made very good work, more especially, however, on one side of its land; the Grass getting somewhat easier and better set on this side. Dicker's mower dragged and combed out the Grass a good deal, occasionally missing it altogether. Child's American "clipper" made good work. Samuelson's mower, badly driven, made a good many mistakes—the Grass stubble long and combed out. Kearsley's—very good work indeed. It is a heavy tool, but the Grass was very well cut by it. Picksley & Sims' mower cut fairly, not quite so close as Kearsley's; does not leave a good open wake behind it. Bamlett's (No. 682), did first-rate work. Cranston's (Wood's), on better Grass than at the beginning, made extremely tidy work, leaving a capitally cleared wake, throwing the Grass in a capital swathe, just fit for being picked up by the hay tedder, and doing the work thoroughly well and very easily. Burgess & Key, leaving hardly so good a swathe, made very good work. Hornsby's cut a capital swathe, and left a very short well-cut stubble. We understand that the judges found its draught to be considerably heavier than Wood's, about as 4 to 3. It is heavier in point of mere weight, and thus heavier to draw. It is generally alleged that Wood's machine is too light for English crops, and will not last. We know machines that have been in constant and satisfactory use unbroken for 6 years.

The work of the combined mowers and reapers in Grass cutting was even better than that of the mowers alone. Samuelson's, Kearsley's, Wood's, Burgess & Key's, and Hornsby & Son's, all made good work in their separate plots. Wood's, Hornsby's, and Burgess & Key's machines were then made to follow one another, and all made first-rate work, standing probably in the order in which we have named them. The Prize List is given below.

For *Reaping Machines* a large field, of which the upper half was a standing field of Rye, and the lower half an extremely heavy, somewhat tangled, and barely ripe, heavily laid piece of winter Oats, had been provided. The machines were first taken round and round the Oats, cutting it without regard to the difficulties of the different lie of the corn—thus perhaps bringing out the ability of the several tools to meet these difficulties. Though, after all, it seems to us that the proper way to meet such difficulties is to avoid them altogether, and that no machine should be required to be worked otherwise than in the way in which it can make the best work.

The selected machines were afterwards set to their allotted plots in the Rye. Page's one-horse reaper and Wood's one-horse reaper went first; the latter, with open-barred tipping platform, by which the stubble helps to clean the sheaf when it falls, made very good work. Cuthbert's machine had previously gone round and round, and made fair work. Samuelson's, Wray's, and Maunder's one-horse reaper had also been previously tried, but could not satisfactorily overcome the difficulties of the corn.

On the Saturday Wray's, Brenton's, Samuelson's, and Bamlett's one-horse reapers were again tried. Of these Bamlett's made the best work.

Messrs. Hornsby's reaper was also tried, in which the tipping board is dropped upon an under platform, having revolving chains with teeth, which project into the sheaf as soon as dropped on it, and half the raker to clear it off. It made fair work, cutting well, and delivering the sheaves pretty well. Their two-horse side-delivery swathe reaper made very good work indeed until the failure of a tie which held the divider (broken on its travels by rail) rendered it subject to stoppage. It cut the corn uncommonly well, and made a very good swathe. Samuelson's self-raking reaper then went round and cleared itself and cut its way tolerably well. The Beverley (Bell's) reaper (3 horses), made very bad work indeed. Wherever the Oats were down and green, the cutting was too hard, and the driving wheels dragged, and there was an end of it—the stubble was cut too high. The corn was not in fit state for it.

Burgess & Key's well-known screw delivery reaper, as well as their McCormick's sheafing reaper, made very good work. The sheaves however were thrown off in too violent a manner. This, however, was in great measure corrected in their home-made reaper on this principle, though in the imported machine it was very obvious.

Wood's, Hornsby's, Samuelson's, Burgess & Key's, Cuthbert's, and others, were again subjected to further test on the Monday, when most of us were in the cattle yards.

The following is an abridged account of some of the trials as given in the Plymouth paper:—

H. Kearsley's 2-horse combined reaper and mower delivered badly up hill, but made tidy work down hill

Hornsby & Son's 2-horse combined mower and reaper, carrying two men, the one driving, the other delivering, made much better work than on Saturday, though the delivery was not regular.

Bamlett's 2-horse combined reaper and mower, a very heavy machine, did its cutting well, but the delivery was hard work and not even.

Wood's combined manual back delivery with an open spill tipping apparatus, we observed again yesterday to be the easiest method of tipping or discharging the crop, worked with great ease and facility. It did not cut so close as some, but was light of draught and easy of delivery.

Hornsby's self-acting side-swathe delivery got through the Oats with great difficulty, with frequent stoppages; but in the Rye the delivery in the swathe was beautiful, the ground was left perfectly clean behind the machine, and the swathe laid lightly and evenly, so that it would dry rapidly, and would be easily gathered in to a tidy sheaf. It really looked as if the perfection of reaping were attained We were glad to find by the dynamometer that this machine is worked with as small an expenditure of power as any side-delivery in the field excepting one.

Samuelson's self-side delivery two-horse, cut through the Oats and delivered them easily. It made quite light of the Rye, and made the best side delivery, with the exception of Hornsby's swathe deliverer, of any self-acting machine in the field. The draught is evidently very light, and not much power is used up in the delivery rake.

Burgess & Key's McCormack reaper, with self-acting side-delivery, made good clean work through the Oats and Rye, but the delivery was neither so powerful nor so even as the last machine.

Wood's self-acting side delivery is of exceedingly light construction and easy draught. It got through the Oats and Rye the first round, cutting rather high, and the delivery was not good; in taking the second round it broke down, and turned out.

Samuelson's (another and lighter in construction, and cheaper) did its work, both cutting and delivering, well.

Wood's, a light one-horse reaper, with open spill delivery board, worked with exceedingly light draught, and easy delivery, and did well.

Cuthbert's, rather a heavy machine. Mr. Cuthbert, who worked the delivery himself, is certainly one of the best deliverers that ever sat upon a machine. His action was most artistic and efficient; and his delivery was superior to any other delivery in the field.

Hornsby's one-horse back delivery, with open grating delivery board, did its work very nicely, delivering sheaves tidily and keeping the sheaf more distinct from the standing crop than any other machine.

R. Page's, a heavy machine, made decent work, but is heavy in draught and delivery.

Bamlett's one-horse machine did its work well, and is exceedingly strong, but heavy.

Hornsby's combined manual and self-acting delivery this machine is rather heavy and does not deliver so well as many of the manual deliverers, but it has the great advantage of placing the sheaves out of the horse track and leaving a clear space for the horses without the aid of binders.

Samuelson's one-horse Eclipse reaper did its work remarkably well; it is a strong machine, of very few parts and easy draught.

Barber's delivers the sheaf at the side of the machine by manual labour. The operation did not seem more difficult than the back deliverers; the machine also cut well; the draught was heavy.

W. Brenton's has a large pegged roller at the back of the receiving board. As we observed on Friday, it did not work well that day, but yesterday the crop being dry, the delivery was easy and even.

The machines of Messrs. Wood, Samuelson & Co., Cuthbert, Burgess & Key, Bowhay, Bamlett, Barber, and Hornsby, were put through the dynamometer test, and bore it in a most satisfactory manner.

The machines of Messrs. Wood are the lightest draught, those of Samuelson & Co. the next lightest.

The Drilling Machines.—A formidable number were subjected to a careful examination and short trial of each on Friday—a day admirably adapted for the purpose—on land in good order for the work. Among the novelties are Sainty's spring coulter arrangement, by which the lever bars are kept to their work pressed down by springs in place of weights, and thus diminishing the quantity of material and the cost of the machine. Hornsby & Coultas, of Grantham; Garrett, Reeves, Priest & Woolnough, Gower, Holmes, and many other makers are competing.

Hawkes, of Tiverton, shows a new mode of delivery, by endless chains passing transversely through the seed box and pulling out the seed. An account of this and some others is given in our description of the implement yard, and we must refer to the prize list for the result of the competition.

The Turnip drills for ridged land were tried on land well ridged up. At the same time that the most ingenious and complicated machinery, in all the glory of paint and polish, was being put through its paces in the upper part of the field, a pair of old horses in rope harness were ridging up the soil below with an old wooden plough of the time of "the Henrys." There never was a greater contrast in appearance, nor a greater triumph for what may—we hope without offence—be called Conservative principles in the excellent performance of the humble-looking tool of olden time, which was thus preparing the land for the well-dressed implements of the day.

The Horse Hoes were subjected to a good trial on Turnip land in an adjoining field—Carson & Toone's and Stalker's drill horse hoes made good work. Of the performance of the hay tedders and horse rakes we must speak another day. The trial for the former was an exceedingly fair one, and Howard's very simple and clever machine has taken the prizes; that of the horse rakes was rather exceptional—being upon Grass too heavy and green for an ordinary test.

The following is the Prize List, from which it will appear that the prizes for reapers, mowers, and hay tedders and horse rakes are awarded definitely, while those for drills and sowing machines are extremely

divided and distributed, as indeed they could not fail to be, the merit of the different tools made by the several firms being extremely equal:—

AWARDS OF THE JUDGES OF IMPLEMENTS.

JUDGES—H. B. Caldwell, Lackham House, Chippenham; John Coleman, South Fields, Wandsworth, S.W.; A. H. Johnson, Gunnersbury, Acton, Middlesex, W.; J. Hicken, Bourton, Rugby; Gilson Martin, Wrydeland, Thorney, Peterborough; F. Sherborn, Bedfont, Middlesex; John Thompson, Balminton, Chippenham; Jacob Wilson, Manor House, Woodhorn, Morpeth; Edward Wortley, Ridlington, Uppingham.

1. DRILLS: *Prizes.*—General Purpose Drill, Priest & Woolnough, 10*l.*; General Purpose Drill, Hornsby & Sons, 8*l.*; General Purpose Drill, James Coultas, Jun., 7*l.*; Corn Drill, J. Sainty, 8*l.*; Corn Drill, Priest & Woolnough, 7*l*; Corn Drill, James Coultas, Jun., 5*l*; Corn Drill, for small occupation, John Sainty, 6*l.*; Corn Drill, for small occupation, Priest & Woolnough, 5*l.*; Corn Drill, for small occupation, Hornsby & Sons, 4*l.*; Corn Drill, for hill-side delivery, James Coultas, Jun., 7*l.*; Corn Drill, for hill-side delivery, Holmes & Son, 3*l.*; Drill for Turnips, &c., on the flat, Priest & Woolnough, 8*l.*; Drill for Turnips, &c., on the flat, James Coultas, Jun., 7*l.*; Drill for Turnips, &c., on the flat, Hornsby & Sons, 5*l*; Drill for Turnips, &c., on the ridge, Gower & Sons, 8*l.*; Drill for Turnips, &c., on the ridge, Priest & Woolnough, 7*l.*; Drill for Turnips, &c., on the ridge, Gower & Sons, 5*l.*; Drill, on the ridge, R. & J. Reeves, 8*l.*; Drill on the ridge, R. & J. Reeves, 7*l.*; Drill on the ridge, James Coultas, Jun., 5*l.*; Drill for Small Seeds, Hornsby & Sons, 6*l.*; Drill for Small Seeds, Priest & Woolnough, 4*l.*; Drill Pressers, Gower & Sons, 6*l.*; Drill Pressers, William Gerrans, 4*l.* *Highly Commended:* General Purpose Drill, Priest & Woolnough; Corn Drill Hornsby & Sons; Corn Drill for small occupation, Geo. Lewis; Corn Drill for small occupation, Holmes & Son; Drill for Turnips, &c., on the flat, R. & J. Reeves; Drill for Turnips, &c., on the ridge, R. & J. Reeves; Drill for small Seeds, James Coultas, Jun. *Commended:* General Purpose Drill, R. & J. Reeves; General Purpose Drill, Jas. Coultas, Jun.; Corn Drill, A. W. Gower & Son; Corn Drill, A. W. Gower & Son; Corn Drill for small occupations, James Coultas, Jun.

2. MANURE DISTRIBUTORS: *Prizes.* — Distributor for Dry Manure, J. Sainty, 8*l.*; Distributor for Dry Manure, Priest & Woolnough, 7*l.*; Distributor for Liquid Manure, R. & J. Reeves, 10*l.* *Highly Commended:* Distributor for Dry Manure, Hornsby & Sons. *Commended:* Distributor for Dry Manure, James Coultas, Jun.

3. HORSE HOES: *Prizes.*—Horse Hoe, for general purposes, John Sainty, 6*l.*; Horse Hoe, for general purposes, Priest & Woolnough, 5*l.*; Horse Hoe, for general purposes, William Smith, 6*l.*; Horse Hoe, for single row, ridge and flat, Carson & Toone, 4*l.* 10*s.*; Horse Hoe, for single row—ridge and flat, Page & Co., 3*l.*; Horse Hoe, for single row, ridge and flat, William Smith, 2*l.* 10*s.*; Single Row Grubber, Carson & Toone, 6*l.*; Single Row Grubber, R. Tinkler, 4*l.*; Horse Hoe, for Thinning Turnips, Eaton & Son, 5*l.* *Highly Commended:* Single Row Horse-hoe for ridge and flat, James Bowden; Single Row Horse-hoe for ridge and flat, John Davey; Single row Grubber, James Bowden. *Commended:* Single Row Horse-hoe for ridge and flat, R. Tinkler.

4. MOWING MACHINES: *Prizes.*—Grass Mowing Machine, Class 1, W. A. Wood, 10*l.*; Grass Mowing Machine, Class 1, Hornsby & Sons, 8*l.*; Grass Mowing Machine, Class 1, H. Kearsley, 7*l.*; Combined Mowing and Reaping Machine, Class 3, Hornsby & Sons, 8*l.*; Combined Mowing and Reaping Machine, Class 3. W. A. Wood, 7*l.*; Combined Mowing and Reaping Machine, Class 3, A. C. Bamlett, 5*l.* *Highly Commended:* Grass Mower, Burgess & Key; Combined Mowing and Reaping Machine, H. Kearsley. *Commended:* Combined Mowing and Reaping Machine, D. H. Barber.

5. HAYMAKING MACHINES: *Prizes.*—Haymaking Machine, J. & F. Howard, 6*l*; Haymaking Machine, J. & F. Howard, 5*l*; Haymaking Machine, R. Boby, 4*l.* *Highly Commended:* Haymaking Machine, W. N. Nicholson. *Commended:* Haymaking Machine, A. & T. Fry.

6. REAPING MACHINES: *Prizes.*—One Horse Reaper, Class 4, W. A. Wood, 9*l.*; One Horse Reaper, Class 4, Samuelson & Co., 7*l.*; One Horse Reaper, Class 4, Hornsby & Sons, 5*l.*; Two Horse Reaper, Class 2, Hornsby & Sons, 10*l.*; Two Horse Reaper, Class 2, Hornsby & Sons, 5*l.*; Two Horse Reaper, Class 2, Pickler, Sims & Co., 5*l.*; Reaping Machine, with self-delivery, Class 1, Hornsby & Sons, 25*l.*; Reaping Machine, with selfside delivery, Class 1, Samuelson & Co., 15*l.* *Highly Commended:* One Horse Manual Reaping Machine, Cuthbert.

7. HORSE RAKES: *Prizes.*—Horse Rake, J. & F. Howard, 6*l.* Horse Rake, Page & Co., 4*l.* *Highly Commended:* Horse Rake, John Davey. *Commended:* Horse Rake, T. Allcock.

8. WAGGONS: *Prizes.*—Pair Horse Waggon, Beverley Iron and Waggon Company, 10*l.*; Pair Horse Waggon, William Ball & Son, 6*l.*; Pair Horse Waggon, Thomas Milford & Son, 4*l*; Other Waggons, Hayes & Son, 10*l.* *Highly Commended:* Other Waggons, Beverley Iron and Waggon Company. *Commended:* Pair Horse Waggon, George Milford; Other Waggons, Thomas Milford & Son.

9. CARTS: *Prizes.*—Single Horse Cart, Hayes & Son, 4*l.* 10*s.*; Single Horse Cart, Woods & Cocksedge, 3*l.*; Single Horse Cart, Ball & Son, 2*l.* 10*s.*; Two Horse Cart, Hayes & Son, 4*l.* 10*s.*; Two Horse Cart, Thomas Milford & Son, 3*l.*; Two Horse Cart, Beverley Iron and Waggon Company, 2*l.* 10*s.*; Harvest Cart, Beverley Iron and Waggon Company, 4*l.* 10*s.*; Harvest Cart, Hayes & Son, 3*l.*; Harvest Cart, A. and T. Fry, 2*l.* 10*s.*; Market Cart, on Springs, Robert Puckering & Co., 6*l.*; Market Cart on Springs, Beverley Iron & Waggon Company, 4*l.* *Highly Commended:* Single Horse Carts, Beverley Iron & Waggon Company; Two Horse Cart, Frank P. Milford; Market Cart on Springs, Beverley Iron & Waggon Company. *Commended:* Single Horse Cart, Thomas Milford & Son; Two Horse Cart, George Milford.

10. MISCELLANEOUS: *Silver Medal.* — Broadcast Seed Distributor, A. W. Gower & Son; "Pugh's" Patent Cheese-making Machine, Francis Mellard; "Jebb's" Tubular Churn, John Gilbert Avery; Semi-circular Pomeltrees, Hammen & Sims; Combined Flax-breaking and Scutching Machine, West of England Engineering and Coker Canvas Co.; "Beechley's" combined Sawing, Planing, Moulding, Boring Machine, W. S. Underhill; Improved Cattle Troughs, Alfred Pearce; Rotary Harrow (New Implement), Holmes & Sons. *Highly Commended:* Earth Closet Apparatus, White & Co. *Commended:* Set of Patent Steel Crank Shields, Ashby & Jeffery; Set of India Rubber Vulcanised Driving Bands, Geo. P. Cridge; Leather Machine Bands, Webb & Sons.

A PUBLIC DINNER, presided over by Sir E. Kerrison, Bart., the President, took place in a marquee on the Hoe on Tuesday evening, when, after the usual loyal toasts, and one especially to our foreign visitors, several of the French naval officers present in the bay being among the guests, the Duke of SOMERSET responded to the toast of the Navy. He said:—

"I have seen your exhibition, and I see the progress that is making in machinery and in steam engines. Well, we—the Navy—sympathise with you, for we also are anxious to make progress in steam machinery. You are anxious that the breed of animals should be improved as much as you can. Well, in one respect, you must sympathise with us—for we also have, of late, taken to some steam rams (loud laughter). I am afraid, however, that our breed is expensive. The coats are very thick. Now there is my friend Captain Debris, who has brought over two rams from France. They are very fine rams, although they are not above two years old—and it will be very interesting for you to go out and see them, for you will find there is, really, very great progress in them. In that way, therefore, the Agricultural Society and the Navy sympathise together—and I am sure of this, that you will rejoice if you see foreigners come here and endeavour to compete in every way with us in this country. Now, when I heard of the winner of the Derby being a French horse, I said 'Well, there is a great deal of good in that—we are an insular people here, and one of our merits is that we have sometimes a little too much conceit, and it will do us a great deal of good now that our horses are beaten.' We thought we had the best horses in the world, and this has shown us our mistake, and the result will be that we shall have much better horses than we had before. I think that in the same way we should have a little agricultural emulation from the other side of the Channel, which would, I am convinced, do both countries a great deal of good; of that I, myself, have very little doubt."

The Earl of MORLEY proposed Prosperity to the Agricultural Society of England:—

"He thought the whole country ought to feel deep gratitude for the efforts of the Society in a branch of their national industry which ought not to be overlooked. One of the most important facts connected with agriculture was that it embraced such a large number of sciences that it was a most complete study. There was not a human mind which would take them all in. But though this was actually unattainable, yet the Royal Agricultural Society employed the best men—those best qualified to judge, and then they brought their results into various parts of the country, whereby, in a great measure, the farmer was guided as to how he should proceed. There was another point to which he wished to refer, and that was the moral effect which this Society had upon the country. It ensured the closest tie between landlord and tenant, and the bringing about of those measures which were for their mutual benefit. He believed, however, that the Council would not find that it was unprofitable to the Society. The town of Plymouth laboured under the disadvantage, in an agricultural point of view, of having one half of the semi-circle cut off by the sea, but even the barren sea had produced a very good show of Channel Island cattle."

Lord TREDEGAR then proposed in highly complimentary terms the health of the President of the Society.

Sir EDWARD KERRISON, Bart., M.P., in responding, observed that the Royal Agricultural Society in deciding where their show should be this year, had two strong competitors, viz., the city of Exeter, and the town of Plymouth. Fifteen years ago the Royal Society had a show at Exeter, and the object of the Royal Society being to bring to the masses of the country that intelligence which, he thought, such exhibitions were likely to excite amongst the people, the Council of the Society said that the district around Exeter had had an opportunity of exhibiting, but Plymouth had not, and, therefore, they decided that the claims of Plymouth were superior to Exeter. At Exeter there were something like 600 entries, or little more, of stock, and at Plymouth there were 900; and at Exeter there were 2000 entries of implements, but now there were upwards of 4000. Those who exhibited stock must take care that the implement exhibitors did not soon beat them. They were endeavouring, as far as possible, to aid and assist them in the cultivation of the soil, and he thought they owed those gentlemen a deep debt of gratitude for their continued exertions in bringing their cumbrous machines to all parts of England, as they were almost invariably ready to do. He thought it was a matter of great moment that in those great exhibitions all classes should be represented, viz., the landlord, the farmer, and the commercial man. He mentioned the landlords, because, otherwise, it would be preaching without practice; and they should be the first, he thought, to be the means of bringing in good stock. There was one point in the agricultural ground which he must allude to. They could not but say that this country had increased in prosperity, and he was glad to see that the artisan and labourer and other people were beginning, much more than they used, to consume meat. This was a difficulty which the skill of the breeders must avert, and place it at the disposal of the working man. Unfortunately, statistics in this country were not very accurately known, but he might tell them that in the Metropolitan market only two or three years ago, whilst the cattle had increased some 114 per cent., the sheep had increased just 12½ per cent., a very small amount. The importations at the present time were much larger than heretofore, there being 80,000 more cattle, and 50,000 more sheep, but even with this enormous increase it was difficult to find food for the people. It was not, as he believed, that the stock of this country had decreased. On the contrary, it had increased, but he was very glad to say that in the smaller towns the consumption of beef was becoming more general. Here in Devon they saw animals well worthy of the name: the Quartly's, Turner's, and the Davey's had done much for this county, and in symmetry and beauty of shape altogether they were almost unequalled. Perhaps in size they might some day be somewhat increased; but on the whole he thought the county might well be proud of her animals. He wished, however, to see in Devon some good horses. He thought that if they had searched the resources of the three or four counties surrounding them they might have produced a far better show of horses than was now to be witnessed in the Show Yard. Now, a most important question for the agriculturists of this country was, how were they to meet the demand which was likely to be made upon them? Why, by an increased and improved cultivation of the land. It was not only by enclosures that this would be effected. Within the last 28 years more than 28,000 acres had been enclosed for Devon, Dorset, and Cornwall, being at the rate of 1000 acres a year. In France he knew that they were increasing rapidly in their knowledge of stock. It was now 10 or 12 years ago that they had in England 35,000,000 of sheep upon 31,000,000 acres of land, and France had 35,000,000 of sheep upon 53,000,000 acres of land, showing that we had a considerably larger amount of sheep per acre than the French had. He then referred to the question of education, and quoted as an example the West Buckland School, the conduct of which he spoke of in high terms, and expressed a hope to see it more generally carried out.

Lord FEVERSHAM then proposed the health of the Mayors and Corporations of the towns of Plymouth and Devonport.

He was sorry that the Mayor of Plymouth had not been enabled to be present with them. But he was glad to be able to tell them that he was most hospitably engaged at home at the present time. They had all heard that charity commenced at home, and perhaps the worthy Mayor had also thought that hospitality should begin at home. They were, however, favoured with the presence of the Mayor of Devonport. They were greatly indebted to both those corporations for the great assistance they had rendered in their several characters.

APPEARANCE OF THE CROPS.

DEVON: *Beacon Downes, Exeter, July* 10.—Wheat is thin, but I think the ear will be well filled; Barley has been much injured by the drought; Oats a very bad crop generally; Mangel, Potatos, and Turnips promising. *George Turner.*

KENT: *Dumpton, Ramsgate. July* 10.—From the middle of March to the end of June the weather in this locality was unusually dry, so that vegetation proceeded slowly. The crop of hay has been very light, but secured in fine condition. Cattle keep of all kinds was very scarce, but on the 1st inst. we had several hours' gentle rain, since then following showers, and all green crops have improved much and are now growing fast. It is too soon yet to speak with any certainty of the corn crop, as so much depends on the weather for the next few weeks. At present I see no reason why we may not have an average crop of Wheat and Barley. Oats in many places are a failure, and must prove generally a very deficient crop; few persons, if any, ever saw them so generally bad. Early Peas, from the drought, became prematurely ripe, will be small in sample and yield badly; late sorts have improved much by the rains. It has been too dry for Beans; they have improved of late, but must be a short crop. Many Swedes and Turnips failed from fly and drought, those that stood are now growing fast. Mangel Wurzel is generally a good plant, and looks well. Early Potatos are small; late ones (if the disease keeps off) promise an abundant crop. From present appearance I think we shall have an early rather than a late harvest, but that will much depend on the weather. *Wm. Mauser.*

SURREY: *Woodcote, July* 11.—Wheat I think in general is thinly planted, but a good head; and from the fine blooming season we had, we may expect a fair average crop. Barleys are very various: early-sown to be a good average; late-sown very much improved lately, and promises to be a fair crop. Oats decidedly a light crop. Peas have been a good crop, but mostly grown for the green market. Beans: none grown. Potatos: a large breadth planted in this quarter—I should say quite four times the extent compared to five years ago, and promise to be a large crop, with a remarkably healthy appearance. Mangels: very promising generally. Turnips: very much improved with the late rains. Hay: a very light crop—I should think 30 per cent. below an average crop, both in seedling and meadows. Harvest will be general about the 26th to end of month. *James Arnot.*

"TILLAGE AND AMMONIA."

UNDER this heading a short article, signed "Hoskyns," appeared in the *Agricultural Gazette*, p. 615, and which, short as it was, none I think could read but with pleasure and profit, as they must everything that gentleman writes. But tillage and ammonia—what thoughts are raised in the mind by these two commonly used words! the former carrying them back to the Divine command given to "till" to the first man as he now exists, and the latter, I believe, to the first temple recorded in history erected for heathen worship. This temple, according to Pliny—"Plinii Historia Naturalis"—was erected for the idolatrous worship of Jupiter Ammon, or *the sandy*, on the plains of Libya about 18 centuries before the Christian era, and at a distance of nine days' journey from Alexandria. To the Temple vast numbers of pilgrims from various parts resorted to worship, and as they usually travelled on camels, the priests of the Temple, of whom it is recorded there were full a hundred, caused inns to be built for the accommodation of the worshippers, and stables for their camels, and in the stables contrivances were invented for preserving and concentrating the urine of the beasts. The salts which were thus produced were afterwards sublimed in proper vessels for sale or otherwise, as they might be required; and they were called ammonia, an appellation they have from that remote period retained to the present day, from the name of the Deity at whose temple they were at first, as far as history informs us, made; and for centuries afterwards the whole of Europe was supplied with them from Egypt; but now, and for many years, ammonia, or sal-ammoniac, the volatile alkali, has been made in England and Scotland, and in the latter country it used to be procured by a peculiar process from soot; and, of course, it is also now made in most other civilised countries. I do not recollect anywhere reading that the ancients in those very early, or even at somewhat later periods, applied ammonia, artificially procured, to agricultural purposes, but I can see no reason but to suppose that they did; for, as they knew that decayed animal and vegetable substances, the excrements of beasts, in some shape or other formed the pabula upon which cereals and pulse, and other vegetable substances in their growing state, fed, and were brought to perfection; and as those priests, by the operation of their minds, discovered how to procure, as Mr. Hoskyns in his usual lucid and playful manner calls it, the Spirit of those decaying substances by the difficult chemical operation of sublimation, I can see no reason for doubting but by a similar process of reasoning they might have arrived at the conclusion, that, if the excrements themselves were necessary or beneficial in the growth of corn, the SPIRIT of them, the concentrated essence, must have been necessary or beneficial for the same

purpose also; and experiments which would have been made by so wise and clever a people must have confirmed the suggestions of their minds.

And when we further consider how vast the quantities of the salt that might have been made, the raw material being in such abundance, and the high state of excellence to which the Egyptians, who were so near the Temple, had reached in agricultural practices at the same time—never probably equalled, or certainly not excelled, by any other people ancient or modern—may we not assume that they used the salt procured from the Temple for the fertilising of their lands as modern farmers use guano and other highly concentrated matters? And is it a too far stretching of the imagination to suppose, again, that it was used by the Egyptians in producing the extraordinary crops of corn at the time of Joseph, during "the seven years of great plenty" we read of in the Bible, and especially as there is not even a hint in the sacred narrative that those crops, wonderful as they were, were the result of any supernatural or miraculous agency, but produced solely by the skilful Tillage then in common use among those highly civilised and extraordinary people, and which continued in its excellence for many centuries afterwards.

Thus, I think we may conclude, that 3560 years back from the present time tillage was as well or better understood and practised as it is in Great Britain or any other part of Europe at the present time, and we may further come to the conclusion that the knowledge that ammonia, the Spirit of the Dunghill, as Mr. Hoskyns so properly designates it to be, was known also in those remote ages to be the real pabula that all plants, cereals, Pulse, and others required to feed upon.

Should my readers doubt these conclusions, I would ask them to look at China and Japan, nations whose inhabitants we look upon as demi-savages, because they have not the implements of destruction, the Armstrong guns, Minie rifles, Colt's revolvers, iron-clad ships, and 600-lb. steel shots, that we have for the wholesale destruction of their fellow men,—those countries, half savage as we consider them to be, have for very many centuries been farther advanced in the theory and practice of agriculture than we of England are in the present otherwise highly enlightened age. For example, take Japan, the latter country, and we gather from the accounts we read of their farming that their cultivation is much deeper, and far more perfect than is that in England or any part of Europe, and that the average yield of their crops over the seed sown to produce them is near 200-fold, whilst that of England, which we are taught to look upon as so extraordinary, according to the authority of Mr. Caird does not average more than the puny and miserable increase of 8-fold! It is certain, also, that both Japanese and Chinese farmers have for many hundred years known what constitutes the real pabula of plants, as I have assumed the ancient Egyptians did, and that they, and without the aid of Mr. Drychaff's creaking hearse, as Mr. Hoskyns terms the dung cart, supplied all that were requisite of those pabula, and all that were proper to the nature of them, to every one of their never-failing crops.

Thus those people, as we are assured by gentlemen who have resided among them, produce annually a sufficiency of food from their own lands for the whole population, and it should be kept in mind in comparing their system with our own that the extent of their country and the amount of population are about the same as our own. But, if the accounts of their agriculture be correct, and I see no reason to doubt them, it is certain that it excels that of any country in our parts of the earth, and it appears quite certain that neither in Japan nor China are there any weeds among the growing corn, and that the farmers suffer nothing to grow on their lands but what they sow the seeds for. They return also to the land in the shape of manure the same substances they took from them in the shape of corn, and always in sufficient quantities to produce their never-failing fine crops. It is also stated, and on the same authority, that the produce of their crops was near 200-fold, and I think Mr. Layard has written that he observed the same in the course of his travels in other parts of Asia; if these statements be facts, and I see no reason to doubt them, it is a proof that so far also the system of tillage and seeding and fertilizing producing these results, must be the correct one. We have, also, the highest evidence for concluding that in the Holy Land the produce was 30, 60, and even 100-fold. But Mr. Caird, a relied-on authority, has stated, that in Great Britain the increase of produce over the seed sown to produce it, does not average more than 8-fold, and though this is miserably low, I should not think it much below the real quantity; but I myself averaged 88-fold of Wheat on the same land which was Wheat 14 years out of 17, and one year in another field I had of Barley 126-fold, my seed for the Barley being 2 pecks an acre, and hence the crop was 63 bushels an acre; and of the Wheat I had, on the average of the 14 years, 44 bushels an acre, and often my seed was neither 1 peck an acre than 2; but as I have repeated these statements so often, I fear I am wearying my readers by again stating them to show that it is not at all improbable that the farmers of the countries I have referred to do in reality produce their 200-fold, and especially as we are informed that the object of the tillers of the lands of those countries is to produce the largest crops possible from the smallest quantity of seed *from* their land; but modern European husbandmen seem to vie with each other as to which can put the largest quantity of corn by way of seed *into* the land; and hence the farmers of one part of the world are enabled to provide food for all the people, whilst in another, as in England, there would be a general famine were it not for the immense importations from foreign lands, amounting as they did in one year to 44,000,000*l.* of money.

We boast of our power, because we have Armstrong guns, Minie rifles, Colt's revolvers, iron-plated ships, and 600-lb. shots, but I think it is Dr. Adam Smith who has stated that the only country that has a chance of existing for any length of time, is the one that produces food enough from its own lands to support the whole of the people, and such I should think is the conviction of every man who seriously applies his mind to the subject.

Governors of countries, therefore, instead of labouring so incessantly, as most of them do, to extend their dominions, in my opinion ought to employ all their powers of body and mind in making their countries independent of all other nations of the real necessaries of like. Implements of human destruction may keep foreign nations from invading England, but these will not produce food for the people; and should another general European war break out, could a sufficiency of the necessaries of life be imported into it? I think not. *Geo. Wilkins, Wix Parsonage, July* 8.

Home Correspondence.

Water Economy of Great Britain.—I trust that your readers will not be led to take less interest in the subject of my recent communication, nor to relax their observations, because we have recently had the inestimable benefit of a heavy downfall of rain. Every one should remember that, although a supply of rain will help to overcome the evils of drought by filling ponds and surface ditches, to which the poorer residents in rural districts will have recourse, such a supply—coming, as it does, when land and vegetation are extremely thirsty, and the powers of evaporation are extremely great—does not reach the lower depths of the water-bearing strata, nor in any appreciable way improve the supply of wells and springs. I thank Mr. Clutterbuck for his timely suggestions, which I hope will aid the inquiry, and I will only repeat that my principal object is to trace the height of subterranean water this autumn comparatively with the last, in order that we may be able to show the effect of two consecutive dry summers upon the replenishing supply of two winters of which we have the recorded rainfalls. *J. Bailey Denton, Woodfield, Stevenage.*

Bromus Schraderi versus Italian Rye-grass.—In the spring of this year we wrote a few lines in reply to a paragraph which was going the round of the agricultural journals regarding a much-vaunted "New Bromus." On the Continent it seems to have been the "sensational" Grass of the past season, and in England, and even in our own cautious mother country, a good deal has been written in the praise of this Brome. It has even been a matter of contention with some as to who were to have the credit of having introduced it into this country: soon enough to have troubled the settlement of this matter when the Grass had established itself as "invaluable as a forage plant." In our letter we said that this Grass was not a novelty, having been introduced into Scotland many years ago. We likewise said that if the Grass really possessed the value which it was said to possess, it was not a little surprising that these properties should only now have been discovered, and that, in our opinion, its value as a forage plant had yet to be established. As we intimated that it was our intention to sow a quantity of the seed on our experimental grounds this season, alongside of what we have hitherto considered our most valuable forage plant, the Lolium italicum, and as our samples are now of sufficient growth, or rather, fully attained their growths, we send you herewith a good-sized bunch of each for your inspection. The seeds of the two Grasses were sown in rows on the 8th April, and they have all along had the same treatment. Both seeds came up well; the Italian (imported seed) was beautifully rowed by the 20th, the Bromus was later in germinating, and was not well rowed for fully six days after the Italian. The Italian maintained the lead until the last few weeks,—they are now much about equal. The root leaves of the two are about equal in length, the Italian the most numerous, branching more from the root than the other, whilst the culms or stems are about equal as regards leaves, and about the same in height. The contrast of the two from their appearing above ground was very striking. The Italian has preserved to the last the rich green colour with which it started. The Bromus, which in growth and appearance is similar to Oats, is naturally of a dark green colour, but for some weeks past its bottom leaves have assumed a withered and sickly appearance; this we cannot account for, the two having received frequent waterings during the past dry weather. The leaves of the Bromus, even when in their freshest condition, are comparatively dry and tasteless when compared with the Italian, the latter being much the sweeter and juicier of the two. Unless we find the Bromus to possess properties which we have not yet been able to discover, we must still consider the Italian Rye-grass to be the most valuable forage plant in cultivation. As to their respective merits when compared for a second cutting, we cannot as yet say. We had some however cut over about a week ago, and are now both about equal in length, with this difference, that the Italian is coming away with more of a branching habit, and has consequently more bottom leaves. We may mention that we placed a bunch of each before a horse; it attacked the Bromus first, but left off after the first mouthful; it next tried the Italian, which it did not leave off eating until it had consumed the entire bunch. Those who are interested in the trial of these two Grasses will find them—also from their second cuttings—exhibited at Inverness during the Highland Society's Show on Mr. R. T. Mackintosh's stand of Seeds. *Stuart & Mein, Kelso, N.B.*

Miscellaneous.

Fertility.—Does fertility depend on the consistence of the soil, we can marl light lands, we can burn clays, we can harden by the sheepfold and the roller, we can lighten by the scarifier and the plough. Does it depend on full opportunity being given to rain water to traverse soil and subsoil and feed the roots of plants, we can by underground channels which carry off the water as it sinks, preserve its continual circulation throughout both. Does it depend on the natural contents of the land being fitted for the food of plants, we can lime, and burn, and till, introduce the natural agency of air and rain, and the artificial agency of lime and heat, and thus stimulate that chemical action within the soil on which the preparation of food for plants depends. Does it hinge on the supply of additional fertilising matter, we can add these matters directly from the dung heap, the manure manufactory, and the guano ship, or we can add them indirectly by feeding sheep and cattle on the land upon imported food. Unquestionably fertility is to a very great extent a work of art. This is not less true on natural and shallow soils, where no such extraordinary change has to be effected in the original character of the land before it will yield good crops, than it is in the fens of Lincolnshire and Cambridge, now laden with rich grain crops, and herds and flocks of cattle and of sheep, where the natural fertility yielded formerly but Sedge and Rush, and bog and seaside plants, with only wild fowl for the live stock.

Thin Seeding.—That was a quaint bit of experience and wisdom which Mr. Cuthbert Johnson disinterred the other day from Sir A. Fitzherbert's "Boke of Husbandry," in which the old Chief Justice had declared.—"There is a seed called Discretion; if a husbandman have of that seede, and mingle it amongst his other corne, they will growe doubtless much the better, for that seede will tell him how many casts of corn a land ought to have. And if a young husband, or, it may so fortune, a man that by possibility might have grey-headed experience, hath not sufficient of that seede, yet he that lacketh, it is lawfull for him to borrow of his neighbours that have, and his neighbours be unkind if they will not lend this young husband part of their seede, for this seede of discretion hathe a wondrous virtue, for the more it is eyther taken of or lent the more it is." Now, discretion is that part of good conduct which takes wary account rather of the difficulties, risks, and dangers of the way than of the object or rewards of the journey; and it is, we think, a fortunate circumstance that in one of the earliest specimens of "book farming" in our language, it should have been desired that the "young husband" do mingle it with his "seed corne."

Steam Power in Cultivation.—Steam power, after all, was not very expensive in the long run. He had now in constant use one engine, which he bought of Messrs. Clayton & Shuttleworth in 1855, and the expense of keeping it in repair had been quite a twopenny halfpenny affair. He always brought that engine out after harvest, and the result of employing it was that he had but little to do all the rest of the year; he had plenty of time to go to the Central Farmers' Club or anywhere else. *Mr. Dring, of Spilsby.*

Destruction of Couch.—Is it to this end that all our tillage processes are so laboriously conducted—for this purpose that harrows, cultivators, hoes, and ploughs are so constantly and so expensively at work? One might easily imagine it. Certainly there is no more constant companion or attendant on our management. These processes, professedly for its extirpation, do not extirpate it. On the contrary, they are annual, recurring as regularly as seed time or as harvest; and one cannot *à priori* with any confidence declare that they are not intended, or at least that they do not contribute, to propagate and continue it. This, of course, however, is denied; the land "breeds" the plant, perhaps that is the explanation; and all the fallow operations, hoeing, Couch picking, burning, are annual and continual, simply because they are inevitable. It is half work which breeds the plant. The annual scraping of the land with hoes will only create the need for its endless repetition. Even ploughing does but transplant the living weed and increase the vigour of its growth. Repeated fallow operations of course reduce it—and a hot sun withers it; but half work of this or any other kind will only reproduce it, and a year's rest in Grass, or a few years' rest in Sainfoin, will bring all the evidences of its vitality before us again as unmistakable as ever.

Calendar of Operations.

JULY.—The following is extracted from Carter's "Farmer's Vade Mecum:"—The work this month, excepting the continuance of Turnip culture and the horse-hoeing of root crops, is more on the pastures and Clovers than on the arable land. Haymaking, with perhaps the earliest of the corn harvest, in the shape of Pea and Bean cutting, occupy the hands.

The horse labour is thus lighter in July than in any other month of the year. It includes repeated horse-hoeing of the different green crops, sowing of what may be called "stolen" crops, *i. e.*, after Vetches, Rye, Italian Rye-grass, and other early forage crops. Carting of hay, and of various other materials, lime, drain tiles, wood materials, which, as horses are at leisure, may be more easily done now than at any other time of the year. Any work of the nature of bare fallow is carried on during July.

Hand labour is almost exclusively confined to hay-making and various hoeings, with the earliest of the harvest and Flax pulling, Bean and Pea cutting, and perhaps Rye cutting, if any is left to seed.

Rape Culture.—This is sown to some extent on most kinds of soil, but it is especially the green crops of our fen districts, yielding a thick juicy succulent stem and leaf, much more nourishing than any Turnip that can be grown in such circumstances. 4 lb. or thereabouts are sown per acre, in rows 15 inches apart, on the flat. It receives a very imperfect hand-hoeing and singling, and except horse-hoeing, very little other cultivation during its growth; and it yields a very large bulk of succulent food of much greater value for sheep feeding per acre than the Turnip or the Mangel Wurzel, growing sometimes so high than even the tall upstanding Lincoln sheep is hidden in it. A good crop will keep 16 to 20 sheep from October till February per acre.

"Stolen" Crops.—Rape may be considered one of them; but the term is generally applied to those crops, as Rye, Vetches, Trifolium incarnatum, &c., which are sometimes taken on a corn stubble, and fed or cut before a late Turnip sowing. It is proposed to refer to them here, notwithstanding that it is generally later in the year that they are sown.

(1) Rye is sown as a stolen crop on any corn stubble, which should be ploughed under and harrowed, and if possible manured. Three bushels are sown broadcast—a thick plant is wanted—and being sown early in October it covers the ground before winter, and produces our earliest spring fodder. Mr. Taunton some years ago advocated a variety called St. John's Day Rye from its being capable of being sown so early as St. John's Day, and forming a bulky growth above the ground without starting the ears before winter. It is cut in March and April for forage, and carried to the stalls, or it is folded over with sheep. It is adapted to light soils, and will yield on our poorest soils a heavier crop of grain than any other of our cereal Grasses would produce. The land is cleared in ample time in May for sufficiently thorough cultivation, to insure an early enough seed-time for common Turnips, or even for summer Vetches.

Trifolium incarnatum.—This, a hardy coarse crimson-flowered Clover, may be sown as early as possible, after the Wheat or Oats is off. 24 lb. of seed are sown broadcast over the stubble, and if rain has fallen, the harrow will scrape earth enough up to cover the seed, which seems to find in the hard land a more congenial seed-bed than when pains have been taken to manure and cultivate the soil. It sprouts and covers the ground before winter, and forms a bulky coarse produce in April and May next year, which must be consumed during the time it is in flower, or it will become so hard and woody that it is indigestible and distasteful. It is only during a short time, about a fortnight, that it is fit for food; and a small portion only on any farm is all that is necessary. But Messrs. Vilmorin, of Paris, have introduced two other sorts of this Trifolium, one a white-flowered variety, and both of them much later than the common T. incarnatum, and thus three times the extent of land may be usefully devoted to this crop. Sown the same day, they will come to maturity at intervals of a fortnight from one another; and when the common sort is just going out of bloom, and the last of it therefore is being cut, the second sort will be in full succulence and at the height of its value, while the third, ready to succeed it, is hardly yet in bloom. All these sorts, like Rye and Vetches, may be followed by late-sown Turnips; they make very coarse hay, and are best consumed as forage, and so long as it is succulent, sheep and all other stock will eat it greedily: 12 to 20 tons of green food per acre may thus easily be grown. If consumed by sheep, they should be fodded on the field. The plough follows as soon as a furrow from end to end of the field is possible, and its consumption leaves such a dressing of dung upon the land that 2 or 3 cwt. of superphosphate, sown in the water drill with the Turnip seed, will secure an ample crop.

Notices to Correspondents.

ADDRESS: *J C H.* should give us his name and address, which will be forwarded to the clergyman he names, who will then be able, if he pleases, to accept his proposed visit. The farm is not made public; and we cannot publish the addresses of private gentlemen.

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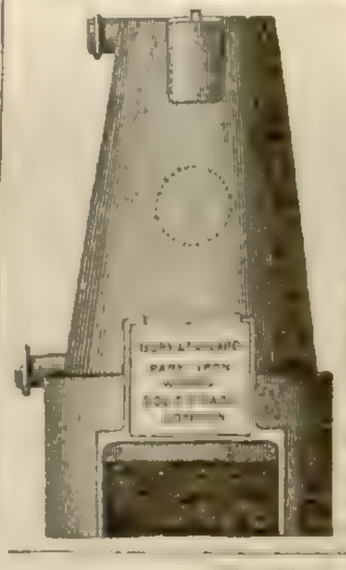

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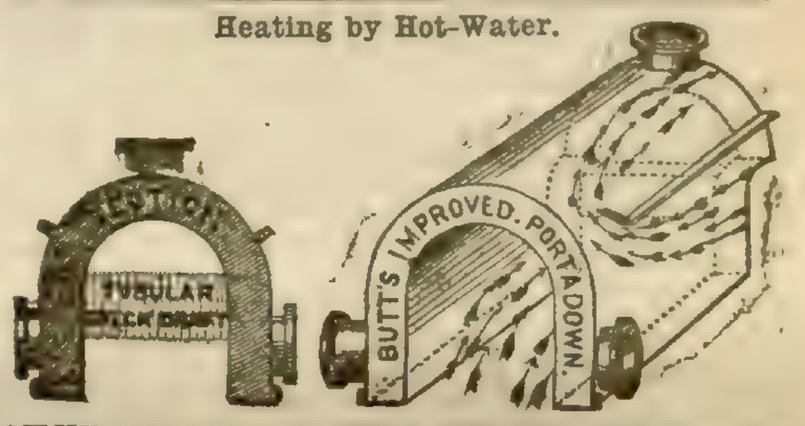

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The Accidental Branch.

1850	£ 1,228 1 6	1855	£18,059 10 8	1860	£42,280 6 1
1851	2,668 15 7	1856	21,762 3 2	1861	42,283 12 5
1852	6,326 2 5	1857	25,530 3 10	1862	44,544 15 9
1853	10,752 3 9	1858	33,260 0 0	1863	47,255 19 3
1854	15,103 13 9	1859	41,754 3 6		

The income of this branch for last year was £49,489 19*s.* 10*d.*

The claims in respect of the above premiums have not exceeded 60 per cent.

The business of the Company has been to provide any amount at death, from accidental causes, from £50 to £2000, or any amount of weekly provision during complete disablement, from 10*s.* to £20 per week, or to provide a sum at death, and weekly compensation together, at arranged rates of premium. The advantages to the community of this system of insurance must be apparent, and the figures above manifest the manner in which they have been appreciated by the public. The capital of the Accidental Death Insurance Company has hitherto compelled the Directors to limit the sums insured, thus confining the advantages of insuring to a certain class. With the larger capital and influence of the proposed Corporation, insurances may be granted to an extent which it is believed will attract large numbers of the higher and more wealthy classes.

The Accidental Death Company commenced underwriting in 1862, but the successful development of operations in marine insurance has been retarded by the inappropriateness of the name for a marine company. With, however, a change of title and constitution, and an adequacy of capital, the Company will, without doubt, obtain that support to which it is fairly entitled.

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(To be Retained by the Bankers.)

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Gentlemen,—Having paid to your Bankers _____ the sum of £ _____, being a deposit of £1 per Share on _____ Shares in the above Company, I hereby request that you will allot me that number; and I agree to accept such Shares, or any less number you may allot to me, and I agree to pay the sum of £4 per Share on allotment, and I authorise you to insert my name on the register of members for the number of Shares allotted to me.

Name in full _____

Address _____

Profession _____

Date _____

Signature _____

THE QUARTERLY REVIEW, No. CCXXIV, is published THIS DAY.

Contents.

I. Grouse
II. Christian and Pagan Sepulchres
III. Browning's Poems
IV. Close of the American War
V. North Polar Exploration
VI. The Church in her Relation to Political Parties
VII. Natural History of the Tropics
VIII. Frederick the Great
IX. Purification of London
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Trichopilia crispa marginata	" nobile pendulum
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THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 30.—1865.] SATURDAY, JULY 29. {Price Fivepence. Stamped Edition, 6d.

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RUGBY HORTICULTURAL and COTTAGE GARDENERS' SOCIETY.

President—The Rev. Dr. Temple.

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GLADIOLI, fine, from 4s., 6s., 9s., & 12s. per dozen.
CATALOGUES on application.
Highgate Nurseries, London, N.

CARTER'S GARDENER'S VADE-MECUM PLANT SUPPLEMENT is now ready.

New Plants for 1865.

JAMES CARTER AND CO.'S CATALOGUE of NEW and CHOICE BEDDING, GREENHOUSE, and STOVE PLANTS, is now ready, and will be forwarded gratis and post free on application.
James Carter & Co., 237 & 238, High Holborn, London, W.C.

MRS. POLLOCK PELARGONIUM.—Healthy Spring-struck plants, 2s. 6d. each, well hardened for bedding out. The Trade supplied.—Address,
Alfred Fryer, Nurseryman, Chatteris, Cambridgeshire.

J. IVERY AND SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

To Exporters.

WM. DAVIDSON, Seedsman, &c., can supply suitable assortments of GARDEN and FLOWER SEEDS, from 10s. upwards, for Shipment to the Colonies. 30a, St Andrew Square, Edinburgh

THE FOLLOWING FIFTEEN PLANTS, hamper and package included, will be sent to any address on receipt of Post Office Order value 20s., payable to J. C. Padman, Boston Spa, near Tadcaster:—

Caladium Wightii	Ardisia crenulata rubra
" Chantinii	" " alba
" marmoratum	Gesnera zebrina splendens
" Maffafa	Gardenia florida
" argyrites	Croton variegata
" hastata	Blechnum corcovadense
" amabilis	Alocasia macrorhiza variegata
Dracæna ferrea versicolor	

ROBERT PARKER begs to offer the following, all of which are well-grown, clean, and healthy plants:—

	s.	d.
CLERODENDRON BALFOURII	5	0
CORDYLINE INDIVISA	10	6
FRANCISCEA CALYCINA	10	6
GOODYERA PUBESCENS	1	6
RHODODENDRON COUNTESS of HADDINGTON, 10s. 6d. to	21	0
" JAVANICUM	2	6
" NUTTALLII	2	6
TRITOMA GRANDIS	3	6
" UVARIA GLAUCESCENS	1	6
VINE DUCHESS of BUCCLEUCH 10s. 6d. and	21	0
YUCCA ALBO SPICA	42	0
" TRECULEANA, *cornuta, concava*	42	0

PRICED and DESCRIPTIVE CATALOGUES of Greenhouse, Hardy, and Stove Plants, Seeds and Bulbs, are published, and will be forwarded to applicants.
Exotic Nursery, Tooting, Surrey, S.

Primula, Calceolaria, and Cineraria.

SUTTON AND SONS can supply NEW SEED of the above from choicest strains, in packets at 2s. 6d. and 1s. each, post free.
Royal Berkshire Seed Establishment, Reading.

First Quality.

CALCEOLARIA, PRIMULA, CINERARIA, CARNATION, PICOTEE, PINK, AURICULA, VERBENA, MIMULUS, ZONALE GERANIUM and PELARGONIUM.
Each 2s. 6d. per packet.
Barr & Sugden, 12, King Street, Covent Garden, W.C.

CALCEOLARIA AMBASSADOR (Sang).—The Subscribers respectfully invite the public to inspect this fine Calceolaria, now in flower at their Nurseries.
Edward Sang & Sons, Nurserymen and Seed Merchants, Kirkcaldy.

SUPERB SEEDS for PRESENT SOWING, 1s., 2s. 6d., and 3s. 6d. per packet.

CALCEOLARIA, Scott's splendid hybrid spotted; CINERARIA, from finest named sorts; PRIMULA, choice mixed, 1s. and 2s. 6d.; ex. ex. quality FIMBRIATA, 2s. 6d. and 5s; INTERMEDIATE STOCK, Scarlet and White, 6d. and 1s per packet, at
J. Scott's Merriott and Seed Stores, Yeovil, Somerset.

Sow at Once.

DOBSON'S UNRIVALLED SEEDS.
CALCEOLARIA, sealed packets, 1s. 6d., 2s. 6d, 5s.
CINERARIA, 1s., 2s. 6d., 5s.
PRIMULA, 1s., 2s. 6d., 5s.
Dobson & Sons, Seedsmen, Isleworth, W.

NEW and GENUINE AGRICULTURAL, GARDEN, and FLOWER SEEDS.
Special prices and advantageous offers on application to
James Fairhead & Son,
Seed Growers and Merchants, 7, Borough Market, London, S.E.

RAYNBIRD, CALDECOTT, AND BAWTREE,
Seed Farmers and Merchants,
89, Seed Market, Mark Lane; and Basingstoke.
Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO.,
Seed Farmers, Merchants, and Nurserymen,
237 and 238, High Holborn, London, W.C.

H. AND F. SHARPE,
Seed Growers and Merchants, Wisbech.
SPECIAL PRICED LIST of NEW SEEDS on application.

INTERMEDIATE STOCK,
COVENT GARDEN and VICTORIA VARIETIES.

Scarlet, Purple, White, or Mixed COVENT GARDEN INTERMEDIATE STOCK, each, 1s. per packet.

Scarlet, White, or Mixed VICTORIA INTERMEDIATE STOCK very floriferous, and more robust than the Covent Garden varieties, each 2s. 6d. per packet.
Barr & Sugden, 12, King Street, Covent Garden, W.C.

To the Seed Trade.

COLLINSIA VERNA, Nuttall.

WM. THOMPSON, Seedsman, Tavern Street, Ipswich, beg to announce that he is now ready to supply NEW SEED, for Autumn sowing only, of the above beautiful Spring-flowering Annual. Prices may be had on application.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS No. 7.

*** Part II. (Exotic Ferns) will be issued as early as possible.
Foot's Cray Nursery, S.E.

Seeds from Choice Strains.

B. S. WILLIAMS can now supply good Seeds of the following:—

CINERARIA (Weatherill's extra choice strain).—B. S. W. has secured at a great expense the entire stock and right of exclusive sale from Mr. Weatherill, of his, the best strain of Cineraria in existence, and can now offer packets at the following prices:—3s. 6d. and 5s.

CALCEOLARIA (Herbaceous), from a fine strain, 2s. 6d. and 3s. 6d. per packet.

PRIMULA (Williams' superb strain), the finest fringed and the best coloured flowers in cultivation. Red, White, or Mixed Seed 2s. 6d., 3s. 6d., and 5s. per packet.

Paradise and Victoria Nurseries, Holloway, London, N.

Early Spring Feed.

SEEDS FOR AUTUMN SOWING.

PETER LAWSON AND SON can supply of excellent quality—

ITALIAN RYE-GRASS	RYE
TRIFOLIUM INCARNATUM	WHITE MUSTARD
GREEN ROUND and GREEN GLOBE TURNIPS	
SIX WEEKS TURNIP	

CLOVER and NATURAL GRASS SEEDS for PERMANENT PASTURE, &c.

Also New Seed of BROMUS SCHRADERI, 2s. 6d. per lb., and the New Hardy Clover, TRIFOLIUM STRIATUM, 2s. per lb.

Peter Lawson & Son, the Queen's Seedsmen, 28, King Street, Cheapside, London, E.C.; and at Edinburgh.

Shallots.

JASPER WALTERS, Abergavenny, has a few Tons to offer, in Large or Small Quantities. Price on application.

100,000 FINE CATTLE CABBAGE PLANTS, 2s. 6d. per 1000, may be had of
Mr. A. Wilkin, Tiptree, Kelvedon, Essex.

For Present Sowing.

SUTTON'S IMPERIAL GREEN-GLOBE TURNIP.—This sort is invaluable for Early Spring Feed. It is hardy, and may be drilled on the Corn Stubble instead of Rye, or may be cultivated in the usual manner instead of the Old Green Round.

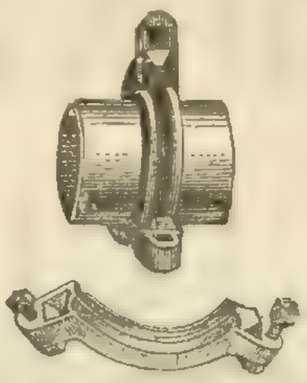
For three years successively the Prince Consort's Prize Cup was awarded to this sort by the Royal South Bucks Agricultural Society.

Price 9d. per lb., or cheaper by the bushel, carriage free.
Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

TURNIP SEED for SALE.—One Hundred Bushels of that noted GREEN GLOBE TURNIP SEED grown this year, and in first rate condition. This Turnip is noted by experienced farmers and ram breeders, to be the finest flavour and the most feeding qualities, and stands the frost better than any other grown.
Apply to Mr. Stokes, Glaston, near Uppingham, Rutland.

HOT-WATER APPARATUS,

WITH TRUSS' PATENT PIPE JOINTS.



T. S. TRUSS, C.E.,

53, GRACECHURCH STREET, LONDON, E.C.

By means of these Joints the work is executed in less than half the time required for Socket Joints, and alterations can at any time be made, or the entire Apparatus removed and erected elsewhere with the greatest facility. A considerable saving in cost is also effected.

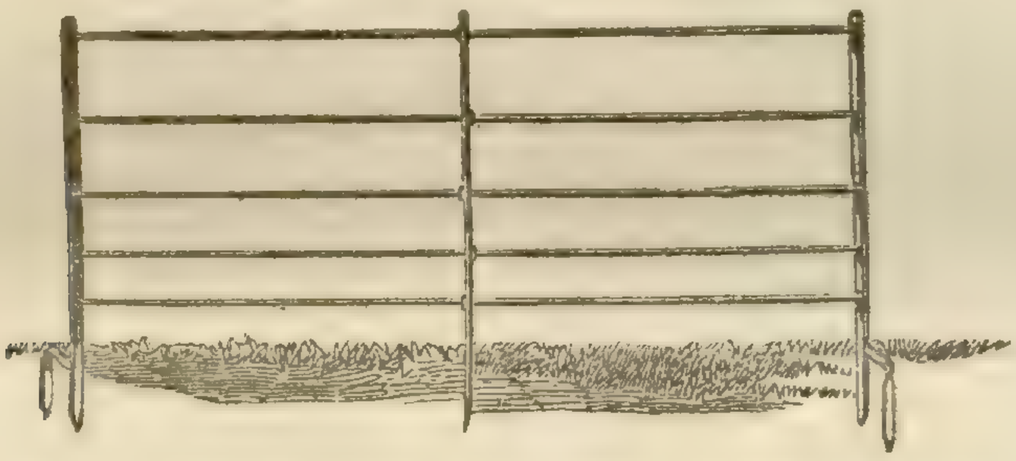
These Joints have been used for several years, giving entire satisfaction, and may be seen in use at the Royal Horticultural Society's Gardens, South Kensington and Chiswick, and many other places in Horticultural and Public Buildings.

For a few prices, see last week's Advertisement.

ESTIMATES, PLANS, AND PRICE LISTS FORWARDED ON APPLICATION.

ST. PANCRAS IRON WORK COMPANY,

OLD ST. PANCRAS ROAD, LONDON, N.W.



IRON HURDLES, FENCING, AND GATES.

	Each.—s.	d.		Each.—s.	d.
SHEEP HURDLES, 3 ft. high, 6 ft. long, 4-Bar ..	4	0	CATTLE HURDLE, 3 ft. 6 in. high, 6 ft. long ..	4	11½
Ditto ditto ditto, 5-do.	4	5½	Ditto ditto ditto strong	5	9
Ditto ditto ditto, ⅝ Top Bar	4	8	OX HURDLE, 4 ft. high, 6 ft. long	7	0½

DR. SPRATT'S PATENT LOCK.

The simplest and best Fastening for Field, Wicket, Swing, and Railway Gates. Particulars and Prices on application.

PATENT WROUGHT-IRON STABLE FITTINGS, CONSERVATORIES, &c. Lists Free.

ST. PANCRAS IRON WORK COMPANY, OLD ST. PANCRAS ROAD, LONDON, N.W.

CYCLAMEN PERSICUM.

MESSRS. E. G. HENDERSON & SON

Respectfully offer SEED of the above beautiful Winter and Early Spring Flowering Bulb in select home-saved varieties, from the finest collection in the kingdom, and which has repeatedly received Certificates of the highest merit.

The Seed may be sown successively from early autumn until the spring, but the present summer months is the most favourable period for early germination, and the seminal bulbs thus obtained being subjected to a slowly continuous growth in a warm greenhouse, conservatory, or intermediate plant-pit, will thereby attain to a flowering size in the second season.

CYCLAMEN PERSICUM, 6d. and 1s. per packet.

CYCLAMEN PERSICUM, choice mixed, from 20 varieties of C. persicum, 2s. 6d. to 5s.

CYCLAMEN PERSICUM, an assortment of 8 varieties in separate packets, 7s. 6d.

CYCLAMEN ATKINSI, A. CARNEUM, and A. ROSEUM, 1s. each.

CYCLAMEN COUM, and C. CARNEUM, 1s. each.

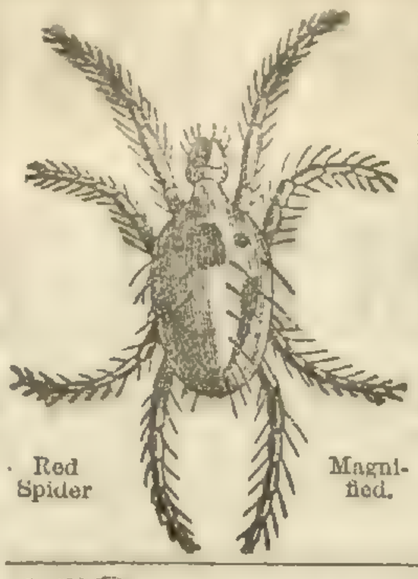
CYCLAMEN VERNUM, and C. REPANDUM, 1s. each.

CYCLAMEN, in 6 varieties of C. Atkinsi section, in separate packets, 3s.

CYCLAMEN, mixed, from 7 last named kinds, 1s. and 2s. 6d.

E. G. H. & SON also offer SEED of CALCEOLARIA, CINERARIA, and PRIMULA, in first-class quality, at 1s., 2s. 6d., and 5s. per packet, with the finest SCARLET and WHITE INTERMEDIATE STOCK, 6d. and 1s. each.

THE WELLINGTON NURSERY, ST. JOHN'S WOOD, LONDON, N.W.



Red Spider — Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved in hot water before use. This gets rid of the smell, and if the Solution is decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes, 1s., 2s., and 10s. 6d. each.

Wholesale by PRICE'S PATENT CANDLE COMPANY (LIMITED).

GARDEN BORDER EDGING TILES, in great variety of patterns and material, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.

F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.

Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also TESSELATED PAVEMENTS of more enriched designs than the above.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cements, &c.

To be obtained of F. & G. ROSHER, at their Premises as above.

SILVER SAND (REIGATE, best quality), at the above addresses—14s. per Ton, or 1s. 3d. per Bushel; 2s. per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less.

FLINTS, BRICK BURRS or CLINKERS, for Rockeries and Grotto Work.

F. & G. ROSHER.—Addresses see above.

N.B. Orders promptly executed by Railway.

SHAW'S TIFFANY

For samples and prices apply to

J. SHAW & Co., 29, Oxford Street, Manchester.

JAMES PHILLIPS AND CO.

180, Bishopsgate Street Without,

Beg to hand their PRICES of GLASS PRESERVE JARS.

	Without Lids	With Lids
3 inches diameter	0s. 4½d. each	0s. 6½d. each
4 " "	0 6 "	0 9 "
5 " "	0 8 "	0 11 "
6 " "	0 10 "	1 2 "
7 " "	1 0 "	1 4 "
8 " "	1 4 "	1 8 "
9 " "	1 8 "	2 2 "
10 " "	2 0 "	2 8 "

LACTOMETERS, for Testing the Quality of Milk.

Four Tubes .. .. 4s. 6d. | Six Tubes .. .. 6s. 6d.

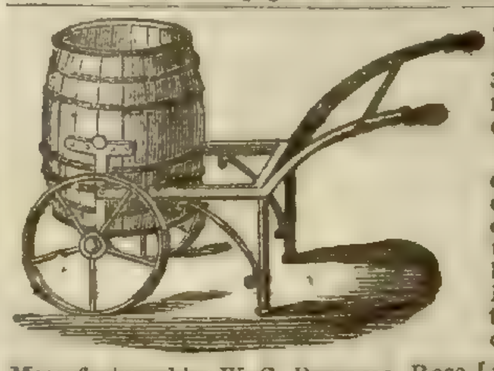
With Stands complete.

WASP TRAPS, 3s. 6d. per dozen.

London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.

LINSEED OIL, Genuine WHITE LEAD, CARSON'S PATENT PAINTS of various colours ground ready for use.

180, Bishopsgate Street Without, London, E.C.



SWING WATER BARROW, to hold 36 Gallons, price 42s., carriage paid to any Station on the Great Eastern Line.

This is the best and cheapest article yet introduced; the water may be dipped out, or the tub tilted and poured out, or by merely raising the handle it can be placed on the ground and the tub detached.

Manufactured by W. S. BOULTON, Rose Lane Iron Works, Norwich.

Caution to Gardeners.—When you ask for SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the corporate mark Oak WARRANTED, without which none are genuine.

S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not their make all of which are warranted both by sellers and makers.

S. & C.'s Pruning and Budding Knives are the best and the cheapest in the market.

Paxton Works, Sheffield. Established upwards of 125 years.

CHOICE ORCHIDS.

HUGH LOW & CO.

HAVE ON HAND

A VERY LARGE STOCK OF ORCHIDS,

As will readily be inferred from the fact that at their Nursery, Ten Houses, each of considerable size, are devoted to the culture of this very interesting Class of Plants. The Collection is regularly augmented by importations received from Correspondents in Brazil, Venezuela, Borneo, the Philippine and West India Islands, the Tennasserim Provinces, and the Malayan Archipelago, as also from the various Collectors of the Firm—in New Grenada, Central American States, and Mexico.

The Plants offered are all in fine health and very vigorous, and an inspection is respectfully solicited.

A PRICED CATALOGUE can be had on application.

CLAPTON NURSERY, LONDON, N.E.

INTERNATIONAL HORTICULTURAL EXHIBITION AND CONGRESS.

TO BE HELD IN LONDON IN 1866.

The following Resolutions form the basis of the scheme :—

1. That there shall take place in London, in 1866 (probably the week between Epsom and Ascot Races), a Grand International Horticultural Exhibition and Congress, to be open four days, and to which the leading Botanists and Horticulturists throughout Europe shall be invited.

2. That Two Morning Meetings (of the nature of a Congress) shall be held, at which Papers prepared by leading Botanists or Horticulturists shall be read, the Papers to be previously printed in English and French, and circulated, and discussion thereon invited.

3. That there shall be Two Conversazioni, at which Foreigners invited to assist at the Exhibition shall have the opportunity of meeting with our own leading Horticulturists, Botanists, Exhibitors, &c.

4. That there shall be a Banquet, to which leading Foreign Visitors shall be invited, and to which also Ladies subscribing will be admitted. Tickets £3 3*s.* each.

5. That the Committee will endeavour to arrange that the most easily-accessible English Gardens, in which some feature of British Gardening—such as "Forcing," "Decorative Gardening," &c.—is well illustrated, shall be open to Foreign Visitors.

6. That a Subscription List be opened for the purpose of obtaining the Funds necessary to the formation of a liberal Prize List (about to be issued, and containing Prizes amounting to £2400), the erection or part erection of the necessary Exhibition Building, the entertainment of Foreign Visitors, and for the working expenses of the Exhibition and Congress; and that a Guarantee Fund be also entered on.

7. That Gentlemen subscribing TEN GUINEAS shall be entitled to one Dinner Ticket of the value of £3 3*s.*; to one Card of invitation to each of the Soirées, available for one Gentleman and two Ladies; and to Eight Tickets of admission for the opening of the Exhibition, when the admission by payment will be One Guinea each Ticket. Subscribers of FIVE GUINEAS, or Guarantors of £50, will receive one Card of invitation for each Soirée, available for one Gentleman and two Ladies, and Four Tickets for the first day of the Horticultural Show. Subscribers and Guarantors of smaller amounts will receive in proportion.

Gentlemen willing to lend their support to this undertaking will perhaps be kind enough to communicate at once with the Secretaries.

The FIRST LIST of SUPPORTERS will be published in a short time.

The SCHEDULE of PRIZES will be published next week; and the LIST of OFFICE-BEARERS as soon as possible.

Bankers.—MESSRS. COUTTS AND CO., 59, Strand, W.C.; MESSRS. BARCLAY, BEVAN, AND CO., 54, Lombard Street, E.C.

Treasurer.—SIR DANIEL COOPER, BART.

Secretaries.
MR. THOMAS MOORE, F.L.S. (Exhibition), Botanic Garden, Chelsea, S.W.
DR. ROBERT HOGG, F.L.S. (General), 99, St. George's Road, S.W.
DR. BERTHOLD SEEMANN, F.L.S. (Congress), 57, Windsor Road, N.

COMMITTEE ROOMS, ROYAL HORTICULTURAL GARDENS, SOUTH KENSINGTON, W.

NEW TARIFF OF GLASS AND HORTICULTURAL GOODS.

THOMAS MILLINGTON,

GLASS AND COLOUR MERCHANT,

87, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

HAND GLASSES.

PRESERVE JARS.

REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.

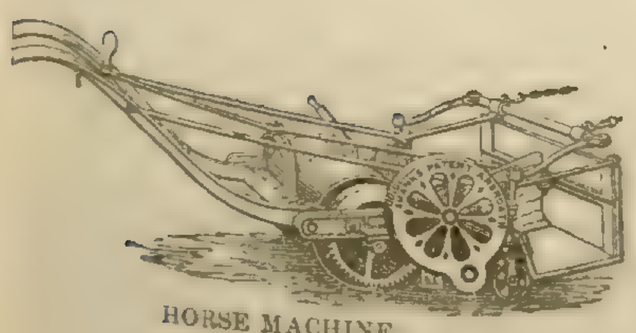
MILK PANS.

See Advertisement the first week in the month, or on application.

SHANKS' NEW PATENT LAWN MOWERS.

PATRONIZED ON FIVE SEPARATE OCCASIONS DURING THE SEASON OF 1864 BY

HER MAJESTY THE QUEEN.


HORSE MACHINE.

PONY MACHINE.

HAND MACHINE.

ILLUSTRATED CIRCULARS SENT FREE ON APPLICATION.

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N. B.

LONDON OFFICE and SHOW ROOMS, 27, LEADENHALL STREET, E.C.

A STOCK OF ALL SIZES OF MACHINES KEPT AT 27, LEADENHALL STREET.

New Early Turnip.

SUTTON'S SHORT-TOP SIX-WEEKS TURNIP, for Sowing in August.

This excellent Turnip, certainly the quickest in cultivation, if sown in the month of August, will be ready for Feeding off in October. Price 1s. per lb.; or cheaper by the bushel, Carriage free.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Cabbage Seed for Present Sowing.

SEEDSMEN BY APPOINTMENT. Sutton AND Sons

SUTTON AND SONS can supply the following good sorts for sowing in the Garden, to come in at Michaelmas:—
SUTTON'S IMPERIAL,
EARLY DWARF YORK,
IMPROVED NONPAREIL.
At 3d. and 6d. per packet, and in large quantities at reduced rates.

Also the following kinds for Early Feeding:—
WHEELER'S IMPERIAL,
ENFIELD MARKET,
EARLY BATTERSEA.
At 3s. 6d. per pound.

DRUMHEAD CABBAGE, 2s. 6d. per lb.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

For Present Sowing.—Trifolium incarnatum, Italian Crimson Clover.

SEEDSMEN BY APPOINTMENT. Sutton AND Sons

SUTTON AND SONS can now supply NEW SEED of the above of fine quality. The price is very low, and may be had on application.

The quantity to be sown per acre is 28 lbs. if alone, or if with Italian Rye-grass, 8 lbs. is sufficient.

Also MUSTARD and RAPE, new seed, at low prices, which may be had on application.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Russell's Pyramid Primulas.

GEO. CLARKE is now prepared to send out in packets, price 2s. 6d. each, this, the finest breed of PRIMULAS in cultivation. The Seed now for sale has been saved from selected plants, so that it is believed the produce will be even superior to that of former years.

Printed instructions for raising and growing the plants sent with each packet. Stamps received in payment.

Nursery, Streatham Place, Brixton Hill, London, S.

Flower Roots of every Description.

LOUIS VAN HOUTTE'S CATALOGUE No. 109 is to be had at Messrs. R. SILBERRAD & SON'S Office, 5, Harp Lane, Great Tower Street, London, E.C.

The goods are delivered free out of the Custom House in London, without any expense whatever to the buyer, but *per contra* 5s. will be charged in account for each package.

N.B. LOUIS VAN HOUTTE'S CATALOGUES No. 105, 106, and 108, are also to be had from Messrs. R. SILBERRAD & SON.

Ghent, Belgium.

New Seed now Ready.

DOBSON AND SONS' EXTRA CHOICE SEEDS, Home-saved, from the most splendid varieties in cultivation.—These Seeds have now stood the test for several years, and the greatly increasing demand for them has induced us to turn our special attention to saving Seed with all the care possible, so that we can warrant them as being unsurpassed for quality, and such as will be found after a trial to be worth the growing, and not, as is too often the case, ending with disappointment. The Seed is all of one quality, the difference only being in quantity.

First and Second Prizes are invariably awarded to our Collections.

CALCEOLARIA, Unequalled Hybridised.—These are unapproached by any other in existence, and have given the greatest satisfaction. Each packet produces an almost endless variety of beautifully-formed flowers, richly marked. Packets, 1s. 6d., 2s. 6d., 3s. 6d., and 5s. A coloured plate by Andrews, 1s. and 2s. 6d. each, post free.

CINERARIA.—Saved from our Prize Collection, which obtained Ten First Prizes in 1862; and also from the splendid new varieties offered by us in autumn 1864. Each packet contains a great variety, and produces some superbly-formed and richly-coloured varieties, varying from white to crimson, and cannot fail to produce Flowers equal and superior in many cases to named varieties. Packets, 1s., 2s. 6d., and 5s.

HOLLYHOCK.—Saved from 36 of the choicest varieties out, all fine double flowers. Packets, 1s. and 2s.

PELARGONIUM, SHOW.—From the most superb varieties out, and consequently must produce some very fine flowers. Packets, 2s. 6d. and 5s.

PELARGONIUM, FANCY.—From the newest and best varieties in cultivation. Packets, 2s. 6d. and 5s.

PRIMULA SINENSIS FIMBRIATA RUBRA.—Very finest fringed flowers only are selected for seed, and will be found to be very choice. Packets, 2s. 6d. and 5s.

PRIMULA SINENSIS FIMBRIATA ALBA.—This is a very choice strain, having large beautifully fringed flowers. Packets, 2s. 6d. and 5s.

PRIMULA SINENSIS FIMBRIATA.—Finest mixed white and red. Packets, 1s., 2s. 6d., and 5s.

STOCK.—Finest Scarlet Intermediate, producing 90 per cent. double flowers. Packets, 6d. and 1s.

☞ All the Packets are sealed, and printed on coloured papers.

All orders will have our careful personal attention and best thanks; and as we have always ready a great number of packets in stock, all orders will be executed by return of post.

We beg to request that full plainly written addresses will be given; this will prevent much inconvenience and disappointment.

JOHN DOBSON & SONS, Seed Merchants, Isleworth, W.

REIGATE SILVER SAND.—Good quality, 7s. per ton Cash, delivered loose into the Trucks at the Reigate Station. Best quality PEAT, LOAM, SPHAGNUM, ROCK, SANDSTONE, &c., on Sale.

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ROYAL HORTICULTURAL SOCIETY.

GREAT SHOW of FRUIT and VEGETABLES.

SATURDAY, JULY 22.

AWARDS OF THE JUDGES.

FRUITS.

CLASS C.—COLLECTION of not less than 3 PINES, distinct.
1st Prize, Mr. Thomas Young, Gr. to C. Bailey, Esq., Aberdare, £4.
2d, Mr. W. Thomson, Gr. to the Duke of Buccleuch, Dalkeith, £3.
3d, Mr. J. Standish, Royal Nursery, Ascot, £2.

CLASS D.—PINE-APPLE, PROVIDENCE.
1st, Mr. C. Allen, Gr. to J. B. Glegg, Esq., Withington Hall, Cheshire, £2.

CLASS E.—PINE-APPLE, QUEEN.
1st, Mr. A. Grant, Gr. to G. Plucknett, Esq., Manor House, Finchley, £2.
2d, Mr. Thomas Young, £1 10s.
3d, Mr. M. Higgs, Gr. to Mrs. Barchard, Putney Heath, £1.

CLASS G.—PINE-APPLE, any variety except Providence, Queen, or Cayenne.
1st, Mr. W. Thomson, £2.
2d, Mr. T. Young, £1 10s.

CLASS H.—GRAPES, Collection of distinct kinds.
1st, Mr. W. Hill, Gr. to R. Sneyd, Esq., Keele Hall, Staffordshire, £5.
3d, Mr. C. Tansley, Gr. to A. Moss, Esq., Chadwell Heath, E., £2.

CLASS I.—GRAPES, BLACK HAMBURGH, or FRANKENTHAL, Single Dish.
1st, Mr. G. Sage, Gr. to Earl Brownlow, Great Berkhampstead, £3.
2d, Mr. M. Henderson, Gr. to Sir C. Beaumont, Bart., Cole Orton Hall, Ashby-de-la-Zouch, £2.
3d, Mr. J. Wallis, Gr. to J. Dixon, Esq., Congleton, Cheshire, £1.

CLASS J.—GRAPES, MUSCAT HAMBURGH, Single Dish.
1st, Mr. G. Osborne, Kay's Nursery, Finchley, £3.

CLASS K.—GRAPES, MILL HILL HAMBURGH.
2d, Mr. M. Henderson, £2.

CLASS L.—GRAPES, BLACK, any other variety, Single Dish.
1st, Mr. W. Hill, £3.
2d, Mr. J. Wallis, £2.
3d, Mr. W. Brown, Gr. to Earl of Chesterfield, Burton-on-Trent, £1.
Equal 3d, Mr. J. Squibbs, Gr. to Mrs. Turner, Rook's Nest, Godstone, £1.

CLASS M.—GRAPES, WHITE MUSCAT of ALEXANDRIA, Single Dish.
1st, Mr. G. Sage, £3.
Equal 1st, Mr. C. Tyler, Gr. to J. Saunders, Esq., Saffron Walden, £3.
2d, Mr. J. Standish, £2.
3d, Mr. C. Tansley, £1.

CLASS N.—GRAPES, CANNON HALL MUSCAT, Single Dish.
1st, Mr. R. Budd, Gr. to Earl of Darnley, Gravesend, £3.

CLASS O.—GRAPES, WHITE, any other variety, Single Dish.
1st, Mr. W. Thomson, £3.
2d, Mr. W. Cross, Gr. to the Rt. Hon. Louisa Lady Ashburton, Romsey, £2.
Equal 2d, Mr. H. Beasley, Gr. to T. Wood, Esq., Twyford Abbey, Acton, £2.
3d, Mr. M. Busby, Woodfield Cottage, £1.

CLASS P.—PEACHES, 2 Dishes, distinct.
1st, Mr. W. Tillery, Gr. to the Duke of Portland, Welbeck, £3.
2d, Mr. G. Osborne, £2.
3d, Mr. D. Bain, Gr. to the Hon. Col. Duncombe, St. Neots, £1.
Equal 3d, Mr. H. Whiting, Battersea Rise, £1.

CLASS Q.—PEACHES, Single Dish.
1st, Mr. W. Tillery, £1 10s
Equal 1st, Mr J. Wallis, £1 10s.
2d, Mr. G. Osborne, £1.
3d, Mr. W. Lane, Gr. to J. Miles, Esq., Friern Barnet, Middlesex, 10s.

CLASS S.—NECTARINES, Single Dish.
1st, Mr. G. Sage, £1 10s.
2d, Mr. W. Lane, £1.
3d, Mr. Wm. Rogerson, Gr. to E. B. Brown, Esq., Acton, 10s.
Equal 3d, Mr. W. Tillery, 10s.

CLASS T.—FIGS, WHITE, Single Dish, 12 Fruits.
1st, Mr. Wm. Cross, £1.

CLASS U.—FIGS, BROWN, Single Dish, 12 Fruits.
1st, Mr. J. B. Whiting, Gr. to Mrs. Hope, The Deepdene, Dorking, £1.
2d, Mr. Rogerson, 15s.
3d, Mr. S. Ford, Gr. to W. E. Hubbard, Esq., Horsham, Sussex, 10s.

CLASS V.—CHERRIES, BLACK, 3 Dishes, distinct.
1st, Mr. R. Marcham, Gr. to E. Oates, Esq., Hanwell, £2.

CLASS W.—CHERRIES, WHITE, Single Dish, 50 Fruits.
1st, Mr. W. Cruickshanks, Gr. to W. J. Lord, Esq., Watford, £1.
2d, Mr. M. Higgs, 15s.
3d, Mr. M. Henderson, 10s.

CLASS X.—CHERRIES, Single Dish, 50 Fruits.
1st, Mr. W. Tillery, £1.
Equal 1st, Mr. J. B. Whiting, £1.
2d, Mr. R. Marcham, 15s.
3d, Mr. J. Squibbs, 10s.

CLASS Y.—PLUMS, Single Dish.
1st, Mr. J. Squibbs, £1.
2d, Mr. H. Beasley, 15s.
3d, Mr. J. B. Whiting, 10s.

CLASS Z.—STRAWBERRIES, 4 Dishes, distinct kinds.
1st, Mr. W. Tillery, £1 5s.

CLASS CC.—STRAWBERRIES, any variety except British Queen, Single Dish.
2d, Mr. W. Earley, Gr. to F. Pryor, Esq., Welwyn, 10s.
3d, Mr. W. Phipps, Gr. to the Earl of Shrewsbury, Stafford, 5s.

CLASS DD.—GOOSEBERRIES, Collection of 6 Dishes.
1st, Mr. J. Carr, Gr. to P. L. Hind, Esq., Byfleet Lodge, Weybridge, Surrey, £1.
2d, Mr. W. Young, Gr. to R. Barclay, Esq., Highgate, 15s.

CLASS EE.—CURRANTS, Collection of 6 Dishes.
1st, Mr. J. Carr, 15s.
2d, Mr. S. Ford, 10s.
3d, Mr. H. Beasley, 5s.

CLASS FF.—RASPBERRIES, RED, Single Dish.
1st, Mr. A. Moffatt, Gr. to Viscount Maynard, Dunmow, 7s.
2d, Mr. J. Clarke, Gr. to Col. Long, Bromley Hill, Kent, 5s.

CLASS HH.—MELONS, Green-fleshed.
1st, Mr. J. B. Whiting, £1 10s.
2d, Mr. J. Squibbs, £1.

CLASS II.—MELONS, Scarlet-fleshed.
1st, Mr. J. Weir, Gr. to Mrs. Hodgson, Hampstead, £1 10s.
2d, Mr. J. Gadd, Castle Gardens, Dorking, £1.

CLASS JJ.—VINES, in Pots Bearing Fruit, 4 Plants.
1st, Mr. J. Standish, Royal Nurseries, Ascot, £4.

CLASS KK.—ORCHARD-HOUSE FRUIT TREES, in Pots Bearing Fruit, 6 Plants.
1st, Mr. J. Fraser, Lea Bridge Road Nurseries, Leyton, £4.
2d, Mr. W. Rogerson, £3.
3d, Mr. J. Carr, £2.

CLASS LL.—MISCELLANEOUS. For FRUITS not Specially Mentioned.
1st, Mr. J. Fraser, Collection of Fruit Trees in Pots, £2.
2d, Mr. J. Carr, for Fruit of Carica papaya, £1 10s.
3d, Mr. J. B. Whiting, for Dish of Blenheim Apricots, £1.
Extra, Mr. M. Henderson, for Box of Black Hamburgh Grapes, £2.
Extra, Mr. W. Cross, for Basket of Golden Hamburgh Grapes, £1 10s.
Extra, Mr. G. Osborne, for Basket of Black Hamburgh Grapes, £1.
Extra, Mr. J. Veitch, Chelsea, for 2 Bunches of Muscat Champion Grapes, 10s.

FLOWERS.

Extra, Messrs. W. Cutbush & Son, Highgate, for a Group of Liliums, £2.
Extra, Messrs. Paul & Son, Cheshunt, Herts, for Collection of Cut Roses, £1.
Extra, Messrs. Paul & Son, Cheshunt, Herts, for Collection of Hollyhocks, 15s.
Extra, Messrs. Downie Laird & Laing, for Collection of Hollyhocks, 10s.
Extra, Messrs. Paul & Son, for a Collection of Phloxes, 7s. 6d.

VEGETABLES.

CLASS 1.—COLLECTION of VEGETABLES, not less than 8 kinds, distinct genera.
1st, Mr. R. Budd, £3.
2d, Mr. W. Earley, £2.
3d, Mr. J. B. Whiting, £1.
Equal 3d, Mr. G. Exell, Gr. to Mrs. Sweetlove, Maidstone, £1.

CLASS 2.—COLLECTION of VEGETABLES, not less than 6 kinds, distinct genera.
1st, Mr. H. Exell, Gr. to J. Hollingsworth, Esq., Maidstone, £2.
2d, Mr. S. Hill, Angel Row, Highgate, £1.
3d, Mr. W. Young, 10s.

CLASS 3.—COLLECTIOF of PEAS, 4 kinds.
1st, Messrs. Hooper & Co., Covent Garden, W.C., £1 10s.
2d, Mr. J. Veitch, Exotic Nursery, King's Road, Chelsea, £1.

CLASS 4.—COLLECTION of POTATOS, KIDNEYS, 4 kinds.
1st, Mr. J. B. Whiting, £1.
2d, Mr. A. Moffat, 15s.
3d, Mr. W. Earley, 10s.
Equal 3d, Mr. J. Neale, Gr. to R. A. Cartwright, Esq., Banbury, 10s.

CLASS 5.—COLLECTION of POTATOS, ROUNDS, 4 kinds.
1st, Mr. J. B. Whiting, £1.
2d, Mr. A. Moffat, 15s.
3d, Mr. W. Earley, 10s.

CLASS 6.—PEAS, best Dish of any variety.
1st, Mr. J. Carr, 15s.
2d, Mr. J. Smith, Markhouse Common, Walthamstow, 10s.
3d, Mr. W. Cruickshanks, 5s.

CLASS 7.—POTATOS, best 12 tubers (KIDNEYS).
1st, Mr. Thos. Neale, 15s.
2d, Mr. J. B. Whiting, 10s.
3d, Mr. A. Moffat, 5s.

CLASS 8.—POTATOS (ROUNDS), best 12 tubers.
1st, Mr. W. Reid, Sydenham Hill, Kent, 15s.
2d, Mr. M. Higgs, 10s.
3d, Mr. J. B. Whiting, 5s.

CLASS 9.—ASPARAGUS, 50 Heads.
1st, Mr. W. Earley, 15s.

CLASS 10.—CARROTS, 1 Bunch of 12 Roots.
1st, Mr. G. Exell, 15s.
2d, Mr. H. Exell, 10s.
3d, Mr. J. B. Whiting, 5s.

CLASS 11.—TURNIPS, 3 kinds, 12 of each.
1st, Mr. R. Budd, £1.
2d, Mr. J. Veitch, 15s.

CLASS 12.—TURNIPS, 12 of one kind.
1st, Mr. W. Phipps, 15s.
2d, Mr. W. Young, 10s.
3d, Mr. J. Squibbs, 5s.

CLASS 13.—MUSHROOMS, 1 Dish.
1st, Mr. R. Budd, 15s.
2d, Mr. W. Earley, 10s.

CLASS 14.—CAULIFLOWER, 6 Heads.
1st, Mr. J. B. Whiting, 15s.
2d, Mr. W. Phipps, 10s.
3d, Mr. Wm. Young, 5s.

CLASS 15.—CABBAGE, 6 Heads.
1st, Mr. R. Budd, 15s.
2d, Mr. J. B. Whiting, 10s.
3d, Mr. W. Earley, 5s.
Equal 3d, Mr. S. Ford, 5s.

CLASS 16.—BROAD BEANS, 1 Dish.
1st, Mr. H. Exell, 15s.
2d, Mr. Wm. Phipps, 10s.
3d, Mr. J. Carr, 5s.

CLASS 17.—FRENCH BEANS, 1 Dish of 50.
1st, Mr. H. Exell, 15s.
2d, Mr. Wm. Young, 10s.
3d, Mr. J. Squibbs, 5s.

CLASS 18.—RHUBARB, 1 Bundle.
1st, Mr. W. Young, 15s.
2d, Mr. H. Beasley, 10s.
3d, Mr. W. Earley, 5s.

CLASS 19.—BEET, 6 Roots.
1st, Mr. J. B. Whiting, 15s.
2d, Mr. W. Young, 10s.
3d, Mr. R. Budd, 5s.

CLASS 20.—ONIONS, 12.
1st, Mr. Wm. Earley, 15s.
2d, Mr. H. Beasley, 10s.
3d, Mr. W. Reid, 5s.

CLASS 21.—LETTUCE, 6 Heads.
1st, Mr. J. B. Whiting, 15s.
2d, Mr. W. Phipps, 10s.
3d, Mr. J. Clarke, 5s.

CLASS 22.—LETTUCE, CABBAGE, 6 Heads.
1st, Mr. J. B. Whiting, 15s.
2d, Mr. W. Young, 10.

CLASS 23.—ENDIVE, 6 Heads.
3d, Mr. W. Young, 5s.

CLASS 24.—SHALLOTS, 1 Dish.
1st, Mr. W. Earley, 15s.
2d, Mr. W. Cruickshanks, 10s.
3d, Mr. J. Veitch, 5s.

CLASS 25.—HORSE RADISH, best 6 Pieces
1st, Mr. W. Young, 15s.
2d, Mr. E. Fountain, 10s.

CLASS 27.—RADISHES, best 2 Bunches, Red and White, Turnip.
1st, Mr. William Young, 10s.

CLASS 28.—CELERY, 6 Heads.
1st, Mr. T. Laxton, Stamford, 15s.
2d, Mr. J. Veitch, 10s.
3d, Mr. W. Earley, 5s.

CLASS 29.—COLLECTION of POT HERBS
3d, Mr. W. Young, 5s.

CLASS 30.—MISCELLANEOUS.
1st, Mr. W. Earley, for Globe Artichokes and Vegetable Marrows, 15s.
2d, Mr. M. Higgs, Gr. to Mrs. Barchard, Putney Heath, for Vegetable Marrows, 10s.
3d, Mr. W. Young, for a Collection of Edible Gourds, 5s.
Equal 3d, Mr. W. Young, for a Dish of Scarlet Runners, 5s.

The Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

A CHOICE and EXTENSIVE COLLECTION of STOVE and GREENHOUSE PLANTS always on view. Also FRUIT TREES, SHRUBS, and ORNAMENTAL TREES, from the Country Branches of the Firm.

The SEED and GENERAL NURSERY BUSINESS is carried on here, and Packages are delivered free at the various London Railway Stations.

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EALING NURSERY, G. CANNON, Manager.
Ten minutes' walk from the Ealing Station on the Great Western Railway Main Line.

FRUIT TREES, ROSES, and SHRUBS, are here extensively and successfully cultivated in some of the finest Loam in the County.

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Ten minutes' walk from Feltham Station.

EVERGREEN and DECIDUOUS SHRUBS, and CONIFERÆ, are here largely grown in a free Loam, well suited to their habits.

At SION LANE and WOOD LANE NURSERIES, ISLEWORTH. ORNAMENTAL TREES are in a healthy and thriving state, and GENERAL HARDY PROPAGATION is here carried on.

The Stock in the above Nurseries is well worth the inspection of purchasers. The prices are very moderate, and the Plants are frequently transplanted to ENSURE SAFE removal.

The following CATALOGUES are published, and will be forwarded Post Free on application:—

CATALOGUE of KITCHEN GARDEN, FLOWER, and AGRICULTURAL SEEDS.
CATALOGUE of STOVE and GREENHOUSE PLANTS.
CATALOGUE of SOFT-WOODED and BEDDING PLANTS.
CATALOGUE of FRUIT TREES and FRUIT TREES in POTS.
CATALOGUE of HARDY SHRUBS and TREES.
CATALOGUE of DUTCH BULBS, published in August.
CATALOGUE of ROSES.

JOHN & CHARLES LEE, Proprietors, Hammersmith, London, W.

Early Sheep Feed.

SUTTON'S IMPROVED ITALIAN RYE-GRASS.—At the Meeting of the Royal Agricultural Society, on March 16, in a Lecture delivered by Alfred Hughes, Esq., of Thorness, Isle of Wight, as reported in the *Bell's Weekly Messenger*, and the *Mark Lane Express*, Mr. Hughes said:—"I always reserve a portion of out land to lay down with SUTTON'S Improved Italian Rye-grass, the most reliable plant I have come across for some years for Ewes and Lambs in the Spring. When I tell you that I put it in in the Spring, and dressed it after harvest with Guano, and that in the Autumn, when my Sheep fed it off, it was up to their knees; and that I fed it off again this Spring with Ewes and Lambs, I think you will agree that this is a crop of very great value. This Italian Rye-grass, which is sold by SUTTON, of Reading, is a most astonishing vigorous plant; indeed, I never saw anything to equal it in the course of all my experience."

Mr. W. CARDWELL, of Nunnery Farm, near Sheffield, in a letter to Messrs. SUTTON, says:—"The Italian Rye-grass grown from seed purchased from you, and sown in August, is now 16 inches high, and is much admired."

Messrs. SUTTON have also been favoured with the following on the same subject:—

Mr. R. STURT, *Pilming*.

"The SUTTON'S Improved Italian Rye-grass seed I had from you last year was very good; I think every seed came up. I have a beautiful plant, and have cut four good crops from it since the 30th of March last. It surprises my neighbours very much."

From JOHN BALDWIN, Esq., *Luddington*.

"It is certainly delightful to witness the Sheep up to their knees in your beautiful Italian Rye-grass."

J. H. FOWLER, Esq., *Eastleach*.

"I seeded some Rye-grass this last year, the seed of which I had from you, and sold it for 6s. per quarter more than any other sample in the market, in consequence of its very superior quality."

SUTTON & SONS have a fine stock at present of their Improved Italian Rye-grass, which is a very different and superior article to much that is sold as Italian Rye-grass.

PRESENT PRICE 6s. 6d. per bushel, or cheaper by the quarter, carriage free, in quantities of 8 bushels upwards. Quantity required per acre if sown alone, 3 bushels.

Royal Berkshire Seed Establishment, Reading.

LANGPORT FLORAL and HORTICULTURAL FETE.

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The NEXT GRAND FLORAL and HORTICULTURAL SHOW (open to All England), will be held in the Grounds of HILL HOUSE, on THURSDAY, the 3d August next, when Two Silver Cups and various other Prizes will be offered for Competition.

By the kind permission of Edward Quekett, Esq., the Museum in the Hanging Chapel will be open to the holders of Tickets for the Fête.

A Military Band will be in attendance.

The Train arrangements will be announced in July.

Inventors or Manufacturers of Garden Implements, or Ornaments, are invited to contribute specimens.

Schedules, Tickets, and other information may be obtained of the Secretary.

Langport, July 29 VINCENT STUCKEY, President.
FREDERICK MAJOR, Secretary.

The Gardeners' Chronicle.

SATURDAY, JULY 29, 1865.

MEETING FOR THE ENSUING WEEK.

SATURDAY, Aug. 5 { Royal Horticultural (Weekly Show), at South Kensington .. .. .. 2 P.M.

A COMMITTEE has been formed under the Presidency of the Duke of DEVONSHIRE, the Duke of SUTHERLAND, Earl GRANVILLE, Viscount PALMERSTON, Lord EGERTON OF TATTON, the SPEAKER, and Mr. GLADSTONE, to erect a MEMORIAL TO THE LATE SIR JOSEPH PAXTON. It is proposed that the Memorial shall be a statue in marble, to be placed in the garden of the Crystal Palace at Sydenham, where there exists a most eligible site in the midst of the beautiful landscape with which the name of PAXTON is so intimately associated.

It is proposed to entrust the execution of the statue to Mr. SPENCE, of Rome, to whom Sir JOSEPH sat for a bust within a few months of his death.

The many personal friends of Sir JOSEPH PAXTON, as well as the hundreds of thousands of all classes who have enjoyed the pleasures and benefits which have arisen out of the exercise of his peculiar genius, will have thus an opportunity of doing honour to the memory of a great and good man. Mr. G. GROVE, of the Crystal Palace, who is acting as Honorary Secretary to the Fund, will receive subscriptions, which the Committee have wisely determined may be of any amount, so as to embrace a large number of subscribers, and give a popular character to the Memorial.

MR. W. THOMSON has kindly forwarded us a most instructive specimen of a PROLIFEROUS ROSE, in which the cup-like receptacle is altogether absent, while the five sepals are present, in a rather more leafy condition than usual, and are slightly coherent at the base. The petals are numerous; above them, the bare stem or thalamus rises to the extent of an inch or more, when it is again encircled by several whorls of closely crowded petals, smaller than the lower ones. Next in order to this second series of petals are several circles of stamens, above which are numerous pistils, these being succeeded by more stamens, and these again by a third row of petals. Then come five perfect pinnate leaves at the base of a shoot, which bears leaves and bracts, and is terminated by a flower bud. Hence the general appearance of the whole is as if a series of flowers

were strung one above another, like so many beads on a thread.

On cutting this flower down through the middle, its real composition becomes more intelligible. Below, there are the sepals and petals of an ordinary flower, whose sexual organs are wholly wanting; above this the stem rises, and bears on its sides a whorl of confluent flowers (perhaps five in number), whose sepals are not well developed, but which have the other parts perfectly formed with the exception of the receptacle or cup, which is wanting. This explanation will account for the relative position of the pistils, stamens, &c. Beyond this ring of lateral flowers the stem is prolonged into an ordinary flower-bearing shoot.

To Mr. BELL we are also indebted for a beautiful specimen of a Proliferous Rose, in which the stem grows quite through the flower, and is surmounted by a new flower bud. The calyx is here leafy, and the cup-like receptacle entirely wanting.

FROM accounts that have reached us from various quarters, we have reason to believe that our remarks, concurrently with those of others, on SPRING FLOWERS, have not failed to make some impression in the floricultural world. Inquiries have been made in old places for Primroses, Polyanthuses, Auriculas, and other ancient favourites, which in these days of the "bedding-out system" have been allowed to go very much out of sight, and therefore out of mind. It has been discovered that our grandfathers had fine flowers, though they lived before the appearance of Dahlias and Verbenas. Middle-aged florists have wished that they could recover the old massive Grand Admiral Auricula, which still, self as it was, reappears in their memories as one of the finest plants they ever saw. It is something that cultivators who have been too much engrossed with the autumnal flower garden, should become aware of the fact that there are numerous classes of hardy plants which are quite as interesting and attractive, if not so brilliant and showy as their special favourites. We trust that the interest which has been awakened in spring flowers will not wear off without practical results; and we recur to this subject now, because we have arrived at the point of time when spring bulbs may be lifted and separated, and if not at once replanted, as many of them should be, at least prepared and stored for future use.

We are more and more convinced that any considerable improvement in flower gardening can be effected only by the adoption of the season principle—only by the establishment of special departments, for at least spring, summer, and autumn. The autumn flower garden, indeed, is nearly perfect already. No doubt something may yet be found more golden than Mrs. Pollock Pelargonium, something whiter than Centaurea ragusina, something darker than the well-known Perilla, therefore the finish of particular parts may still be heightened; but it is not improbable that general effects have already been produced in various places, which will hardly ever be surpassed. The autumnal flower garden may safely be left to the care of Fashion, which is at once infectious in its influences and exclusive in its aims. But certainly, if special departments for spring and summer are not instituted, if no provision is made for these earlier months, the flower garden will continue for a considerable portion of the year a dull and dreary desert, as it has too often been of late.

Here we may be permitted to explain a remark of ours which has been misunderstood. We said that the mixed flower border is an antiquated affair, and this has been represented as "an unwise saying." Perhaps we should have said that the mixed flower border ought to be regarded as an antiquated affair, for we fear the thing we condemn is still too common throughout the country. But the border or flower plot, which we desire to see antiquated, is that which has to stand for the place of flowers from the beginning of March to the middle of November, and which is made the common habitation of the Snowdrop and Crocus in spring, of the tall Delphiniums in summer, of the Solidagos and herbaceous Asters in autumn, and perhaps Tritoma media in winter. In such a border, or flower plot, scarcely half a dozen of plants can be in flower at one time. No possible objection, we beg to say, can be made to a mixed border of spring flowers, or a mixed plot of summer flowers. Many prefer this style of ornamentation, and they may have good reason for doing so. On the whole we prefer it ourselves. But we cannot give up grouping or massing for the production of strong effects, either in spring or summer. We suppose our meaning was misapprehended, a not uncommon case where there is a difference in matters of taste in gardening. It is not difficult to set up a man of straw, as one of our objecting friends remarks, or to imagine a card castle, and then by making a brave charge to gain an easy victory.

Our main purpose at present is to commend the SUMMER FLOWER GARDEN, properly so called, to the consideration of our readers. The whole broad country is a garden at that season, and that perhaps accounts for the fact that the appreciation of the summer garden is often languid. And yet how beautiful is the array of summer tribes. About the middle of June the princely Rhododendron hands over the floral sceptre to the Rose, the undisputed queen of all flowers; and her train is crowded by many fine shrubs, such as Spiræa ariæfolia, callosa, &c.; the white and yellow Brooms, the dwarf Coluteas, Robinia hispida, and the other Papilionaceæ of the middle season, and there are hosts of herbaceous plants usually so called. The early annuals, too, come into gay and lavish bloom; and towards the middle or the end of July the van of the Verbenas, Lobelias, and Gazanias makes its appearance. Assuredly there is no lack of materials.

Let it be understood that for the Summer Flower Garden we do not recommend a separate enclosure, fenced off from the rest of the grounds, though if there is any special reason for that arrangement it need not be avoided. We should prefer a portion of the flower garden, larger or smaller according to the extent of the place or the taste of the

proprietor, in which the summer tribes are to be more particularly if not exclusively assembled, in order that for the time being they may produce a condensed effect. As the warm season makes shade desirable, the summer flower plots may be appropriately contiguous to the points where the kept grounds shade off into the park, and the transition between its lower denizens and the lofty trees of the outer region may be effected by the taller shrubs, such as the Guelder Rose, Buddlea globosa, the Catalpa, Robinia viscosa, and many others. It is delightful to step readily from the glare of a summer sun to the shaded windward of a flower garden, whither the faint breeze comes loaded with perfume, cooled and softened as it were by the umbrageous shelter of the spreading branches. The eye looks forth from the shady place and sees everything in a finer distance and in a calmer light. In such delightful scenes all the senses are regaled at once; the thoughts succeed each other in sweet and gentle harmony; and even simple existence is felt to be a luxury.

The Summer Flower Garden, we venture to think, should be mainly in the mixed style of ornamentation; in other words, it should be filled by shrubs, herbaceous plants and annuals, skilfully combined and intermingled. This arrangement is rendered necessary by the Rose, which is its principal and indispensable occupant. A summer garden without the Rose would hardly be a garden at all. Of course it is well known that Roses are often planted in separate compartments, called Roseries, and that these compartments are laid out in parallel or concentric beds. We cannot regard any Roseries we have ever seen as successful efforts of their designers. Their very structure gives them a stiff and formal look. As it was remarked, we think by Mr. Rivers, the Rose is not a graceful shrub when out of flower; and we may add it is not very graceful even when in flower, only its glorious blossoms make us forget everything else. Rows of Rose bushes, whether in straight or curved lines, always remind us of the old Linnean arrangements in Botanic Gardens, which, even when they are without gaps, and are equally furnished, as they almost never are, are among the dreariest things in gardening. By all means let such formal arrays of Roses be discarded. But nothing forbids grouping or massing of Rose bushes where it can be fitly done. What charming beds one meets with of the Common or Lane's Moss Rose, for example, of General Jacqueminot, Senateur Vaisse, and other Hybrid Perpetuals, and, where the climate is favourable, of the Tea-scented or the deep-coloured China sorts. With the ordinary scattered grouping of Roses, the finer shrubs above mentioned may be associated; and combined with these the more showy herbaceous plants, some of which do not mass well by themselves, such as the Hybrid Potentillas, the tall Larkspurs, and many of the species of Iris, may be copiously introduced. A few standard or pillar Roses—we say a few, for an excess of standard Roses is a nuisance—may be placed singly and in conspicuous places on the lawns. A similar but subordinate use may be made of some of the more striking herbaceous plants, such as Rudbeckia purpurea, Veratrum nigrum, Bocconia cordata, Asclepias syriaca, and various others.

But while we would adopt the mixed style of decoration for the principal part of the Summer Flower Garden, we would strongly insist on the reservation of moderate spaces for masses of particular plants. A nook, for instance, should be kept for the fine hybrid varieties of Iris germanica and other species. Another plot or border might be dedicated to the numerous forms of Pæonia albiflora, edulis, tenuifolia, &c., many of which are exquisitely beautiful, and unfortunately not yet so highly appreciated in the floricultural world as they deserve to be. It is only, however, north of London that these Irises and Pæonies bloom so late as June, and therefore belong strictly to the summer garden. The bulbous Irises, both I. Xiphium and xiphioides are well adapted for massing, and are very useful in skilful hands. We also warmly recommend the numerous progeny of Phlox suffruticosa—many of which are remarkably fine, and afford admirable materials for light airy grouping as well as massing. The plant is extremely hardy. It requires, however, a cool, moist situation; and in dry localities it is greatly benefited by being grown in a mixture of rotted turf and peat. The fine varieties of P. decussata hardly bloom within the summer period. We beg our readers to allow us to recommend to them the old-fashioned Sweet William. In our humble opinion there is not a finer flower in the summer garden. Were such a plant to be introduced in the present day, the world would run wild about it. We do not, however, admire the selection of a few prim Auricula-eyed varieties; and the plants grown in rows at the distance of a foot and a-half from each other. Commend us to a good mixture of all colours, allowed to shoot up into flower in the seed bed. As this practice may be deemed inadmissible in a well-kept garden, where every space must be annually covered with some flower or other, the same result may be obtained by pricking out the plants in the place allotted to them at the proper season. Hardly so fine, but still very fine indeed is Dianthus sinensis Heddewigii, which may be treated much in the same way, though it is of a more delicate constitution. Certainly the greatest accession of recent date to the flower garden is to be found in the double and semi-double Pyrethrums, as yet comparatively little known; they are emphatically the coming flower of the day, and are destined to equal if not to surpass the finest China Asters, perhaps we might even say the bulk of the China Chrysanthemums. They are quite hardy, of easy culture, and are well adapted to form single plants, or groups, or masses, at the pleasure of the cultivator.

We have merely skimmed the surface of our subject, so far at least as plants are concerned. We intended to say something of the hardy Liliums, one of the noblest families of the floral kingdom—yet what an insufficient use has been made of them in the summer flower garden! British botanists and florists have done miserably little for them in the way of the multiplication of their roots. Good collections of Lilies are not at all common, even in Botanic gardens of considerable pretensions. Would that another Herbert would arise and teach us something in regard to the Lilials, as the truly venerable Dean did in regard to the Amaryllids!

—— The meeting of the Swiss Natural History Society will be held at Geneva on the 21st, 22d, and 23d of August, under the presidency of M. de la Rive. What with meetings, *soirées*, excursions, dinners, and the like, the gathering is likely to be an attractive one.

—— From St. Petersburg we hear that a committee has been formed to organise an International Exhibition of Plants and Agricultural Products in that city in 1868, and that Dr. Regel has been appointed President. Under such auspices and under such peculiar circumstances, a flower show in the Russian capital will be very interesting.

—— We learn with pleasure that Dr. Imray, of Dominica, is making experiments on the Cultivation of Cotton in that island, having planted nearly 50 acres of land with that shrub. We hope in due time to lay before our readers the result of this trial, the history of the Cotton plant in the West Indies in a scientific as well as in a practical point of view, being, to quote Dr. Imray's words, a subject as important as it is full of interest.

—— The *Times* of Tuesday states that the operative gardeners employed at the horticultural establishment of Passy, which belongs to the city of Paris, have addressed a demand to the Prefect of the Seine requiring—first, that their wages should be fixed at 40c. an hour, or 4f. (3*s*.) for a day's work of 10 hours, instead of 2f. 16c., which they receive at present; and, secondly, that the day's work be reduced from 12 hours to 10. Several proprietors of private nursery grounds have accepted these terms.

—— The foreign papers state that severe damage has been done to gardens in the north of France, by Thunder Storms. The hothouses of a nurseryman at Selles were ground to powder by the hailstones, some of which are said to have weighed 3 or 4 ounces. A great number of trees on the high road from Cateau to Solesmes were torn up by the roots. Much damage of a similar kind was also sustained at Maretz.

New Plants.

303. Lælia elegans Wolstenholmiæ, nov. var.

Sepalis pallide amethystinis limbo punctulis purpureis prætextis, petalis rhombeis obtusiusculis acutis amethystinis a medio apicem usque late purpureo prætextis, labelli lobis denticulatis lobulatis, antice pulcherrime purpureis.

As Dr. Hooker during his Himalayan expedition from time to time discovered what he believed to be the most splendid Rhododendron of all, till he met with a much finer one, so in our Dayan correspondence we from time to time make out the most splendid Lælia elegans. Just now, we regard this one "the very best of all." The flower is very large, larger than that of the Warnerian Lælia gigantea (Select Orchids, Plate VI.), and of a light amethyst colour. The sepals are bordered with innumerable purplish dots. The petals have a very broad purplish border, except near the base, and the anterior part of the lip is quite purplish. In *point de vue* of science we call the plant Bletia elegans Wolstenholmiæ. We feel much honoured in dedicating this most splendid Orchid to Mrs. Wolstenholm, of High Cross, Tottenham, who is a very intelligent lover of Orchids, and an accomplished pupil of her brother, Mr. Day.

304. Aërides difforme, *Wall.*; *Lindl. Orch.* 213; — *Lindl. Sert.* frontisp.

Radicibus compressiusculis, caulibus brevissimis, foliis [illegible] oblongis apice inæquali obliquis acutis, racemis paniculatis ex caulis parte vetusta elongatis densifloris, bracteis triangulo-setaceis brevissimis ovaria pedicellata non æquantibus, sepalis oblongis subacutis, petalis cuneato [illegible] obtusis, labello unguiculato trifido, medio calcarato, laciniis lateralibus descendentibus subquadratis, hinc apice serratis seu inflexo-lobatis, lacinia antica unguiculata reniformi trifidula, lacinula media triangula, lateralibus pectinatilaceris, carinula triangula per discum postposita, calcare declivi sericeo-puberulo, lamella descendente inter laciniam posticas supra calcaris ostium, calcari cylindraceo acuto subcurvulo, inter unguem laciniæ anticæ ac apices loborum lateralium, columna pyramidata, rostelli dentibus geminis magnis forcipatis deflexis.

New types of Orchids are very scarce, notwithstanding so many new ones are imported. Mr. Serapias even suggested, we might not see any more. Here, however, is a peculiar one, if not new to science, at least never seen before in our stoves. Many dried specimens teach us that Mr. Stuart Low's comparison of the growth of the plant with that of a Phalænopsis is a very happy one. The stems are unusually short and few leaved (commonly bearing two to four leaves). The racemes or panicles reach the length of more than a foot, and bear a large number of very pretty, green and brown flowers in the way of those of a large Sarcanthus. They have three peculiarities. The first is to have the spur quite in the centre of the lip, like a Renanthera. The second is to have such a two-beaked rostellum hanging over the stigmatic surface as reminds one of the mandibles of some voracious beetle, as a Cicindela or a Carabus. The third and most important is this: the end part of the lip has so many fringes that it is very much like such a sketch of the sun as boys make in their first artistic trials, and as it is represented in old Egyptian or Mexican ornaments of buildings.

After having toiled for two days with the dissection and inspection of many flowers, and having studied many specimens of Dr. Hooker, Baron von Hügel, Falconer, &c., we came to the conclusion that the plant called Aërides hystrix, from Sikkim, has no claim to be regarded a species, since the length of the spur is subject to many variations, and the middle teeth of the anterior sunlike part of the lip appear ever present. A fresh spike was obtained from Mr. S. Low. It is one more of the Rev. C. S. Parish's numerous discoveries. The area of the species thus extends from Nepal to Burmah. *H. G. R. fil.*

305. Anemone angulosa, *Lamarck, Dict.* i. 169; *Hooker, Bot. Mag.*, t. 5518. Hepatica angulosa, *De Candolle, Prodromus*, i. 22.

"The genus Hepatica," observes Sir W. Hooker, when recently figuring this plant, "first indicated by

Dillenius, has been accepted by some succeeding botanists and rejected by others, the former preponderating. Latterly, however, the discovery in Kashmir of a species of Anemone (A. Falconeri, *Thoms. in Hook. Ic. Pl.* t. 899) closely resembling the H. triloba in habit and in all other essential characters, except the position of the three involucral leaves, which afford the main distinctive character of Hepatica, invalidates the latter genus altogether."

Whatever difference of opinion may exist as to the generic name of this plant, there can be none in regard to its beauty. It is one of many hardy herbaceous plants and Alpines, which Messrs. Backhouse have during the past spring exhibited in London, and which have been received with the highest favour wherever

they have appeared. The plant is a native of Hungary, and has the tufted habit of the old Hepatica triloba, but is twice as large both in regard to stature and the size of its flowers, which are of a fine greyish blue set off by the numerous black anthers surrounding a tuft of yellow styles. The leaves are 3 inches broad, 3-lobed, the lobes coarsely crenated. The flowers are upwards of an inch and a half across. It is, doubtless, one of the finest hardy plants of recent introduction.

GENERAL FLOWER-BEDDING.—No. III.

Foliage-plants, as they are termed, have become an item of great importance in the present system of out-door decoration. They add not only more interest to a flower garden, but they tend to soften down and give increased tone to brilliant colours. I look upon the direction which bedding taste has taken in this respect as very favourable to the gardener. Only a few years ago nearly every plant employed by him for purposes of ornamentation was of a tender character, and required the protection of glass during winter. Moreover, a good many of them now discarded, yielded but a poor return in the way of display for the large amount of care necessary to bring them to perfection. In weeding out unfit subjects, however, another equally extravagant practice took place, viz., a run upon high colours. We have had masses of scarlet and yellow, and glowing ribbons, and huge borders of the same planted in straight lines. From this taste for high colours in flowers the transit was easy to that of colours in leaves, the effect of which is soft and pleasing. Most red-leaved plants are as yet tender, and require care and nursing; this is not the case however with the majority of white and light-coloured variegated plants, several of which, such as Arabis lucida variegata, and A. albida variegata, are hardy, and both the plants just named form excellent lines or edgings either in summer or winter, particularly if planted close and not often moved; they moreover require no attendance beyond the operation of picking the flowers off them in spring. These may be taken as types of the sort of plants to seek for and encourage as much as our prevailing taste will allow. Where the place to be decorated is extensive, it is seldom that the gardener gets a sufficient stock of plants to do it with, let him cram the winter protecting means at his command how he will. The hardier the materials he has therefore to deal with, the better.

If in the case of a good-sized round bed we introduce an edging of the Ivy called Hedera latifolia maculata, either sloping or flat, I venture to assert that this will be a more effective and satisfactory edging than one of the stiff coarse-leaved Centaurea. For filling the bed inside this edging in summer the most effective plant would be Amaranthus melancholicus, which, however, wants a dash of colour in the centre by way of relief and to better bring out the colours, and for this purpose a few small plants of the Negundo variegata, kept pinched in more or less low, according to situation and taste, might be planted; the pyramidal form would perhaps suit best. The only thing to bear in mind with regard to this plant is that where the soil is stiff it must have gravel or brick rubbish at the bottom to bring the variegation well out; or where Pelargoniums are preferred, such treatment is the best for good plants of those of the Mrs. Pollock class, which have no chance of being useful out-of-doors, unless placed in a frame-work of some other colour; even then, I fear that the leaves will lose their bright colour, and that a dull green will predominate the moment vigorous growth commences. In short, the best Pelargonium will not bare comparison with the Negundo. Again, in the case of a bed of bright scarlet Pelargoniums, a good edging of Vinca elegantissima would greatly assist in softening and setting off the scarlet to increased advantage. Here then we have two very useful permanent edgings, which we know by experience to be equally good or even more effective in winter than in summer, and owing to their being left in the beds they grow into a mass, which can be clipped or pinched into any shape. It will be found that the dressing put in the centre for the flowering plants is sufficient for the edging, thus obviating the necessity of moving it often.

For spring display I would fill the first bed with the large-flowering Aubrietia purpurea grandiflora, and among the Negundo, which is deciduous, I would put La Candeur Tulip, or any good white varieties of Narcissus. The Aubrietia is a bluish purple, and would contrast well with the Ivy from March to May. The other bed might be purple Honesty, Lunaria biennis, pegged down. This comes into bloom in April, and would be over by the last week in May, leaving plenty of time for summer filling.

We have also the garden variegated Alyssum, but this is not sufficiently clear in the variegation to be effective, although when planted in certain beds in autumn it makes a useful spring edging. The complaint that such plants as this and the evergreen Candytufts, when left in beds or as edgings through the summer, produce little or no bloom the following spring, is caused by their being repeatedly topped in the course of the season, which removes the blooming shoots. One cutting after the decay of the blossoms is all that can be done if they are required to flower another season. Let us now take the useful Cerastium tomentosum, and with it form a good stiff edging; not the little pinched-in lines so generally met with, but something proportionate to the size of the bed and its contents. This might surround pink Pelargonium Christine in summer, and single yellow Wallflowers in winter. In spring the Cerastium will be one mass of bloom, and in contrast with the yellow of the Wallflower, I am not acquainted with any summer combination which is half so beautiful. Moreover, allowing the plant to bloom is not injurious to its effect afterwards. *J. F.*

ON RAISING CONIFERÆ FROM HOME-GROWN AND FROM IMPORTED SEED.

Several articles have lately appeared in your columns on this important subject, and responding to your notice at p. 604, I beg to offer a few remarks, chiefly relating to the common sorts; for although I have raised some of the Californian trees to a small extent, from British-grown seeds, I have had no opportunity of comparing them with the produce of foreign seeds under the same treatment. It is well known that the cones first produced by young trees are seldom well filled. This, I expect, holds true respecting all sorts; for cones of the Scotch Fir from very young trees are deficient in the ordinary quantity of sound seed, unless they are, as in the native forests, interspersed with, or adjacent to, older trees, which yield male blossoms more abundantly, whereby the cones become fertilised.

I have a few plants of Picea nobilis raised from seeds grown in Scotland; they are 6 years old, and range from 10 to 15 inches in height, grown in the open ground and transplanted at the age of 2, and again at the age of 4 years. Like many of the plants of this genus they take badly on removal, as before growing freely their roots must have a firm hold of the soil. I cannot say what progress plants from imported seed would have made under similar treatment. Like all Silver Firs, while young they are apt to suffer from the slightest frost of early summer. The nobilis is justly a favourite tree in all Pinetums where it is of any considerable size, and from the elegance of its dense foliage it will always continue to be so, but it is not likely, on account of its price and slow growth, soon to become a useful timber tree in this country. One of the first trees of this species introduced into the North of Scotland (from the Royal Horticultural Society of London) was planted on the lawn at Coul House, by the late Sir George Mackenzie, Bart., about the year 1831 or 1832. The tree now stands 43 feet high, and its girth at the surface of the ground is 4 feet 6 inches—dimensions inferior to those of the ordinary growth of the common Silver Fir of that age.

The Douglas Fir is a far more vigorous tree, and gives promise to become valuable in glens and ravines throughout the Scottish Highlands; but hitherto there has been in the North a want of fertilisation in its cones to produce young plants, but plants from imported seed sown in the open ground grow vigorously. A fine tree of this species also stands on the lawn at Coul House—57 feet high, and 6 feet in girth near the surface of the ground. Its upward growth has diminished considerably during the last 10 years, on account of its top having outgrown shelter and become fully exposed to the open atmosphere; nevertheless, its growth during that period has been 10 feet.

It is only in accordance with a recognised law to expect that seeds of these foreign Pines grown in Scotland will produce plants less vigorous but more hardy than those raised from foreign seed. It is a fact well known to most of the Scotch, and many of the English nurserymen whose grounds are elevated and exposed, that seeds of the Pinus sylvestris imported from the Continent produce plants of more rapid growth than those raised from the forests of Scotland. The difference is perceptible in one-year seedlings, and more so in two-year olds; but the effects of the winter on the second year's growth almost uniformly makes them quite brown, and so damaged, that by the month of March they are quite unsaleable, while the plants from the native Scotch Pine under the same treatment and standing alongside, although considerably shorter, are rather stouter and quite green, so that the beds of the one can be known from the other, if brought into view on raised ground, at the distance of a mile; and although plants from imported seed succeed in favourable situations, particularly in England, they have been found to be utterly worthless when inserted in exposed moorland.

Imported Larch seed also produces young plants rather taller than seed grown in Scotland, but plants produced from foreign Larch seed have the same fault as plants produced from foreign Scotch Pine. They are very tender, and apt to have their tops destroyed, even during their nursery treatment, while those from Scotch seed ripen their terminal buds, and are exempt from injury during the severest winter. It is sometimes difficult to account for the failure of Larch plantations in many parts of the country where Larch has formerly been freely grown in a similar soil and climate, on any other hypothesis than that they have been produced from seed imported from trees grown in a warmer country. The influence of soil and climate on many kinds of Coniferæ alter their character, and sometimes produce as important a difference as that which exists between one species and another. Those magnificent specimens of the Larch at Dunkeld, Blair Athol, Moneymusk, &c., are not the produce of foreign but of British seed; and this success is quite in accordance with the experience of those who have observed the progress of the tree under different circumstances. *John Grigor, Nurseries, Forres.*

ALPINES.

It may be well to quote Ben Jonson as an authority that—

> "It is not growing like a tree
> In bulk that makes things better be,"

for the particularly interesting feature of Mr. R. Farmer's garden (The Hill, Hornsey), of which I now wish to speak in connection with Alpine plants, is composed of two little rocky beds not more than 5 feet across in the widest part; but even now—July 18—when Alpines, &c., are usually out of flower, these beds are full of bloom—full of interest they are at all times. And this within a pleasant walk of St. Paul's. How it has been done with very little trouble and expense is surely worth relating.

About 15 months ago Mr. Farmer had a lot of Messrs. Backhouse's and Messrs. E. G. Henderson's best Alpines and herbaceous plants, and what to do with the tiny and choice ones like the Gentians and mountain Forget-me-Nots was the question.

In pots they certainly may be grown well, but then they are likely to meet with many vicissitudes, which they escape if planted out in proper soil and in a proper position, and they are not usually attractive in pots, as these are generally stowed in some old frame or pit or retired corner, where the free air and light which Alpines relish so much, are impossible.

They may not be grown on the things called "rock-work," common enough in gardens, but resembling nothing in nature, and providing no "hold" or proper medium for the roots of an Alpine plant. Neither may they be grown in the mixed border, where they are sure to be smothered by coarse plants; where the soil is rarely or never suitable, and where they would have little chance of being kept sufficiently moist, or indeed of being seen in character. These considerations induced Mr. Farmer to try his Alpines in an open space. A little bed was dug out in the clay soil to the depth of 2 feet, and a drain run from it to an outlet near at hand; the bed was filled with fine sandy peat and a little loam and leaf-mould, and when nearly full rustic stones of very different sizes were placed around the margin, so as to raise the bed on an average 1 foot or so above the turf. More soil was then put in, and a few rough slabs, arranged so as to crop out from the soil in the centre, completed the preparation for the neater Sedums and Sempervivums, such Saxifragas as cæsia and Rochelliana, such Dianthuses as alpinus and petræus, Mountain Forget-me-Nots, Gentians, little spring bulbs, Hepatica angulosa, &c. They were planted, the finer and rarer things getting the best positions, and when finished the bed looked somewhat like an enlarged edition of the vases of Alpines which Messrs. Backhouse sent to our Shows, but much beauty was not expected from the arrangement for a year at least.

However, in eight weeks things had "taken so well" and the bed looked so beautiful, from a dozen plants of Calandrinia umbellata that had been planted on the little prominences flowering so gaily and profusely as to make the arrangement equal to one of bedding plants from the "effective" point of view, that Mr. Farmer immediately made a fellow for it, arranged in the same manner, with more loam, however, to suit the different tastes of the Alpines, and planted with as different subjects from those in the other bed as could be got; confining himself still to the choicest Alpines, except on the outer side of the largest stones of the margin, where such herbaceous plants as Campanula carpatica bicolor (sky-blue on the upper portion of the corolla, and white below), have been planted in both beds with great advantage.

The only attention these beds have required since planting has been to keep a free-growing species from over-running a subject like Gentiana verna, and to well water the beds on hot days—to keep them in fact thoroughly moist. They will require no further attention for years. With the exception of the exquisite Gentiana bavarica every Alpine plant put in those beds has grown well; the beds have presented fresh floral interest every week since the dawn of spring (indeed Gentiana verna was opening buds all the winter), and will continue gay with the Calandrinia and Linaria till late in autumn. The best display as regards variety was probably in the season of Dianthus alpinus; the best effect is afforded by the Calandrinia dotted over the beds, and this lasts for months. It is a marvellous plant for effect, as may be well seen in another part of the garden, where about 60 plants form a mass, growing in peat. When the sun shines on it the "vivid magenta" of this flower eclipses every other colour. The little dark purple bells of the rare Campanula pulla droop very effectively over such things as that gem among Sedums—brevifolium, and fairy bushes of Alyssum spinosum, evergreen, or more correctly, ever-silvery. The leaves of this Alyssum, if I am not mistaken, will show the stellate hairs more beautifully than any other plant known to microscopists. Choice silvery-leaved subjects like the Oyster plant, Diotis, and Androsace lanuginosa, are especially useful, even if they never flowered, for mingling with little green things, like Thymus corsicus, that run about and lap over the stones so naturally.

There are many other things which I have not space

to name that come in beautifully. Mr. Farmer declares that he has derived more gratification from this, than all the gardening he had previously done. The hundreds who crowded round the vases of Alpines sent from York to the London shows, will understand this when I say that his beds are like those vases quadrupled in size, plunged in the turf, and "established." And the great thing is that their beauty never palls; they are not the same thing for five months at a stretch—far from it. Thus, when I last saw them, Myosotis montana was the feature,—now its large blue tufts have disappeared, but in the opposite bed there are dark blue bushes of the Azorean Forget-me-Not, which by the way furnishes a more dense and level head of colour than any of the other Myosotes. At the same time the general effect of the beds is pleasing at all times from their being covered with the neatest and most interesting of evergreen plants, mingled naturally, and with the stone cropping forth here and there.

I have described the way by which this happy result has been brought about. A large feature of this sort would be admirable in some public garden, especially in those having large collections of Alpine plants, &c., in the scientific arrangements, and in pots from which could be selected at once plenty of good things. Something of the sort might be made in any garden—ay, even in a London square. *W. Robinson.*

Home Correspondence.

House Gardening.—Your very interesting report of the house gardening exhibition of the Royal Horticultural Society induces me to suggest that it is not only for the benefit and relaxation of the working classes of London that encouragement may be given to this comparatively new application of floriculture. It may also be recommended for the mitigation of the sufferings of the afflicted of all classes. Having been driven by the pressure of a painful bodily infirmity to take up my residence in the crowded locality of Covent Garden, after many years spent in the enjoyment of a greenhouse and hothouse in the country, an endeavour has been made to see how far that enjoyment can be supplied in London. A small but inexpensive three-light greenhouse has been erected in a back yard, open, however, and airy, beneath the shadow of a Plane tree from 40 to 50 feet high, and a Mulberry tree, both in full leaf; and here, thanks to the intelligent zeal of my son, whose incipient taste for floricultural pursuits leads him to spend as many hours of an evening in his London greenhouse as he until lately did in his country one, escaping thereby the temptations of more exciting pleasures, we have an interesting collection of Ferns many of them British, which have acquired their full growth from plants which were cut or died down to the roots during the winter, and all are doing well, especially Asplenium Filix-fœmina, and Osmunda regalis; with, amongst foreign species, Cyrtomium falcatum, Nephrodium Sieboldii, Lomaria alpina, Aspidium triangularum, Pellæa rotundifolia, Asplenium viviparum, Aspidium macrophyllum, Cyrtomium caryotideum, Leptochilus decurrens, Elaphoglossum callæfolium, &c. Besides these we have a few seedlings in flower, and, thanks to the kind encouragement of the worthy Director of the Royal Gardens of Kew, an interesting collection of miscellaneous plants, some of which are in flower, including Mahernia vestita, Cytisus canariensis, Rhynchospermum jasminioides, Sollya heterophylla, Loddigesia oxalidifolia, Mitraria coccinea, Polygala Dalmaisiana, Rhynchosia gibba, Cissus discolor, Veronica decussata, Monochætum tenellum, Jasminum didymum, Torenia asiatica, Tacsonia mollissima, Chironia Fischerii, Lonicera aureo-reticulata, Malva miniata, Prostanthera nivea and retusa, Tradescantia discolor, Eutaxia myrtifolia, Graptophyllum pictum, Heterocentrum mexicanum, and Eranthemum Cooperii; and among cool Orchids we have fine healthy plants of Lycaste Skinneri and Odontoglossum grande, both making fresh bulbs. It is, perhaps, scarcely worth while to speak of a capacious Fern-case in the window of an upper room, so common is the use in London of this elegant botanical toy, but an invalid whose days are spent recumbent on the sofa, may be excused dilating on the pleasure of being able to watch the growth of a vigorous intertwining mass of curious forms of foreign Ferns, many of them productions of the most distant parts of the globe, New Zealand, India, Mexico, Japan, among which the following are conspicuous:—Litobrochia vespertilionis, Nephrolepis tuberosa, Drynaria propinqua, Pteris scaberula, Adiantum formosum, Phymatodes Billardieri, Phlebodium aureum, Colysis membranacea, Pteris cretica, Lastrea glabella, &c. *Lovell Reeve, July* 15.

Judges at Flower Shows.—The following remarks relative to flower shows are sent for the purpose of illustrating the unfair mode of awarding prizes too often practised in country places upon such occasions. I shall not attempt to weary your readers with particulars of the actual grievance of which I complain—suffice it to state that I have studied and practised both landscape and general designs for flower gardens for many years past; that at I—— Flower Show on the 6th inst. I exhibited a design to which the judges awarded a 2d prize only, while in the face of this, one of the so-called judges a few days afterwards admitted to me that my design was unquestionably the best then shown. Allow me to say, that in my opinion, no person should be appointed judge or arbitrator at exhibitions such as these, who has the least interest in the matter to be decided upon, whether plant, fruit, vegetable, or garden design. Most of your readers will readily perceive the difference between a "design for a flower garden" and the "flowers or furniture" of such design, one being a matter of art, the other of mere taste; yet with some in I——, ay, and in many other places too, the most gaudy is appreciated whilst the most worthy is despised. I think you will also bear me out in the following suggestion, viz., that all promoters of shows of flowers, fruits, and vegetables, or exhibitions of this kind, should employ as judges independent gardeners to gentlemen or private families—strangers to the neighbourhood if they can possibly be obtained; and should never appoint less than three persons to the office—men who can prove themselves to be thoroughly disinterested both as regards the exhibition and the exhibitors. In short, the right men should be put in the right place, in order that exhibitors may at least feel that in exhibiting they have a certainty of being rewarded according to their respective merits. *Edmund Cooper.*

New Early Peas.—It is certainly somewhat amusing, though perhaps not surprising, to find that such broad differences of opinion exist in reference to the merits of the New Early Peas sent out last spring. In different localities, more or less affected by some peculiar conditions, these Peas have appeared in somewhat diversified forms; and so conflicting appears to be the testimonies of the various growers in regard to them, that it is a perplexing task even to make an effort to reach something like a correct conclusion respecting them. The return furnished by Messrs. A. Henderson & Co., which appeared at page 580, is a singular one, their conclusions not having been supported by any other testimony that has appeared in any of the gardening publications, while numerous other testimonies differ materially from theirs. My own trial in reference to these Peas was made on a piece of land occupying a cold exposed situation; the ground was well-manured and moist, and the seed was sown somewhat late on account of these circumstances. Carter's First Crop and Sutton's Ringleader were the first to appear in full bloom, but they were closely followed by Dickson's First and Best; and when the pods of the two first were fit to gather, Dickson's Pea was so close upon their heels, that a good picking could be obtained from each at the same time. Carter's First Crop and Sutton's Ringleader are clearly identical, and they present all the characteristics of Dillistone's Early Prolific, except that they are a little earlier and have smaller pods. Dickson's First and Best grows taller than these, is of more vigorous habit, and produces a larger quantity of pods, and while the average number of Peas in the two first was from four to five in a pod, that of Dickson's was from five to seven. Dillistone's, Sutton's, and Carter's Peas yield their entire crop in about two pickings, while from Dickson's four good gatherings can be obtained. The last-named kind was remarkably true in character; whilst, among Sutton's and Carter's, lots of "stragglers" reared their heads, and were, as rogues in Peas invariably are, later in blooming. Sangster's No. 1, from Messrs. Carter & Co., and Daniel O'Rourke, from Messrs. Waite & Co., were identical. What were true were in bad company, for they bristled with rogues, long and lanky, and when these were only in blossom many of the true Peas were fit to gather. Carpenter's Express appears to be a good stock of Daniel O'Rourke, and therefore identical with it. There was an evenness and a regularity of habit about it, that presented a marked contrast to the ragged ranks of the others. They produced well, but like Daniel O'Rourke and Sangster's No. 1 they were some days behind the other three. Essex Rival (not mentioned by Messrs. A. Henderson & Co.) is so much like Champion of Paris, that I must pronounce it to be identical with it. It certainly grew a little dwarfer than Champion of Paris annually does, but this was probably caused by the dryness of the season; like Champion of Paris it yields well, and is a first-class second Early Pea, possessing all the wished-for Marrow-fat flavour, without the peculiar sweetness of the wrinkled varieties. Princess Royal (Maclean's) in my own garden, as well as in other places where I have seen it growing, has this season fully maintained its character as the best dwarf second Early Pea in cultivation. It produces large and well-filled pods literally from head to foot of the haulm. With me it grew about three feet in height, but I had it on a strong moist soil. The flavour of the Peas when cooked is delicious, without that full sugary flavour which characterises Maclean's Dwarf Prolific, and which I find, strange as it may appear, to be objectionable to many persons. Maclean's Wonderful has also fully sustained its good reputation, and these three varieties, viz. Princess Royal, Wonderful, and Dwarf Prolific, should find a place in every garden where first-class Peas are cultivated. *Quo.*

——Messrs. A. Henderson & Co., in their report on Early Peas, make a statement to the effect that Sangster's No. 1 and Dickson's First and Best are the same in all respects except in the colour of the flowers. I have grown both these kinds this season, and I have found them very different, Dickson's being so much the earlier of the two, that I consider it but fair to send you the result of my experience with them. Both kinds were sown in boxes on the same day in the first week in March, and they were placed in heat until they came up; they were then hardened off, and were finally planted out in rows across a south border on the 29th of March. Dickson's was gathered from on the 1st of June, the produce being then in good condition. Sangster's did not yield a dish until the 13th of June, and then not so good as the former was on the 1st. Dickson's was a fortnight earlier in coming into bloom, and it did not grow so high as Sangster's by a foot. I consider Dickson's First and Best to be an excellent early variety; it is a good cropper, bearing good-sized well-filled pods, and is a Pea from which several gatherings can be obtained. It is decidedly the best early kind I have yet grown. I have not tried Dillistone's Early Prolific, Carter's First Crop, &c, and consequently I cannot say whether they are earlier than Dickson's or not. If they are, and as good in quality, they will certainly be acquisitions. I have grown Sangster's for several years, and I find it to be a good useful Pea; it is a good cropper, and with me this season it has come in well as a succession to Dickson's when sown at the same time. *J. H. Mason, Stourton Castle Gardens, Staffordshire.*——I have been much interested in reading the opinions of those who have tried the various new Peas sent out last spring, and as I have myself made very careful trials of all, I give you the following as the result of my experience. I will here mention that all the novelties were procured direct from the firms sending them out. I made my first sowings January 16th, with the following kinds:—1, Carpenter's Express; 2, Dickson's First and Best Early; 3, Carter's First Crop; 4, Sutton's Ringleader; 5, Eley's Essex Rival; 6, Sangster's No. 1; 7, Dillistone's Early; 8, Tom Thumb; 9, Sutton's Long-podded Tom Thumb. The different varieties came into bloom in the following order:—Nos. 3 and 4, May 3d; Nos. 1 and 2, May 6th; No. 7, May 11th; No. 8, May 12th; No. 5, May 19th; Nos. 6 and 9, May 20th. And were ready for gathering—Nos. 3 and 4, May 31st; No. 2, June 1st; No. 1, June 6th; Nos. 8 and 9, June 7th; No. 6, June 8th; Nos. 5 and 7, June 9th. During the whole season I could find no difference between Carter's First Crop and Sutton's Ringleader. Both the stocks had a few stragglers in them, and they are evidently the same Pea. Dickson's First and Best Early was very good and true, and in my opinion is the best New Early Pea sent out this season. Sutton's Long-podded Tom Thumb I found to be a dwarfer grower than the old form, but I could detect no difference in the cropping or quality. Eley's Essex Rival did not come so early with me this season as last, but it is a good cropping variety, and of good flavour. I would only add that the Peas were standing side by side, and were treated similarly, and I do not think that the trials could have been fairer. My sample ground is situate about 15 minutes' walk from this Nursery, and is at all times open to any one taking an interest in such matters. *J. Veitch, Royal Exotic Nursery, Chelsea.*

Strawberry Crops.—Having seen so many failures in this crop this season, both on light and heavy lands, I beg to give some account of a plan which I have found to succeed in the most trying seasons of drought. I get my ground ready about October, and I prepare it almost as if for Celery. I cause a trench to be thrown out one spade wide and a good spade deep. I then have the trench filled up with good dung, which is incorporated with the soil. The digging is intended to be nearly two spades deep; therefore when the trench is finished it has a ridge-like appearance. This completes the preparation for one row, and if I wanted a hundred I should do them in the same way if I could, by simply so arranging that the next row of Strawberries should stand 2½ feet from the first. We had about 19 kinds, and each row was 15 yards long, so I seldom planted more than one row of a kind, as they yielded so bountifully. Having finished or prepared the ground, let us proceed with the operation of planting by stretching a line along the top of the ridge, and allowing a space of about 15 inches between the plants in the row. Having planted the whole out and watered them, I took little notice of the plants till the May or June following, when I began to keep up a sharp look-out for all runners and weeds, never allowing either to rob or injure the new plantation. Well, having arrived at March in the second year, I began to think of the fruits of my labours. About this time I had the whole compartment well saturated with lime water, so as to kill everything in the way of slugs, grubs, or eggs. As soon as the ground had become a little dry, I had it worked over with the points of a fork, say 2 or 3 inches deep, and upon this I placed a thorough good mulching of good farm-yard manure. In May runners soon began to show themselves in great abundance, so a man was deputed to pay a visit to the bed three times a week to remove them, and this continued action of the feet, with rain washing the straws quite clean, left a nice clean soft bed for the fruit to lie upon. As soon as the fruit began to ripen, we were obliged to use nets to save our crop, so we could do no more to the runners, and were obliged to let them have their own way till the end of the season. Thorough feeding, thorough mulching, and thorough husbanding up the strength of the plant till wanted, are the chief features of my plan of culture, and if the sort likes the neighbourhood it will yield a good crop. And here I am led to make an observation on sorts of Strawberries. I never knew Keens' Seedling to fail; I have tried the Queen and could get nothing but beard, and I have tried her some hundreds of miles

away and found her all I could desire. Heaps of fine fruit would be yielded by the Queen, and the same of Admiral Dundas and some others; but 'heaps upon heaps' might be written opposite Filbert Pine. There is a yellow Alpine which I have found very useful, for I have had to get the snow and ice away to get at the fruit. I think it might be of use to many. *R. T., Gloster.*

Heavy Crop of Potatos.—Mr. Berry, gardener at Lanhydrock, Cornwall, the seat of T. J. Robartes, Esq., has some of the Dalmahoy sort, which have produced the great weight of 355 lbs. to the square yard, being nearly a bushel and a half. On the same ground last year grew Lapstones, which produced a bushel to the square yard. Neither the one nor the other of these crops was hacked or banked. All that was done was merely to keep them free from weeds, and this is the practice which Mr. Berry at all times adopts. After the Lapstones, crops of Brussels Sprouts and German Greens were grown on the same ground. *W. J. Mason, Market Street, Bodmin.*

Foreign Correspondence.

PONTCHARTRAIN: *July* 25, 1865.—*Grapes.*—In one of our late houses we have a young vine of Black Monukka, the bunches of which are not yet ripe. I cannot, therefore, speak with respect to flavour, but I believe the variety to be worthless, inasmuch as it is perfectly stoneless. I received it from England along with Ahbee. The latter is a magnificent-looking white variety, with berries as large as those of a Hamburgh, and I should say, judging from their crisp Chasselas-like appearance, that they would be well flavoured. The bunches will probably weigh on an average 2½lb. each at least. This Grape I am confident would become a favourite were it given a fair trial. Those of your readers who may wish to see these Grapes will have an opportunity of doing so at the International Horticultural Exhibition to be held in Edinburgh in September next. The following varieties I also find worth growing, viz., Chasselas rose, Chasselas Duhamel, Chasselas Napoleon, and Malaga rose; their colour, as I have proved them here under iron houses, is most beautiful. *Henry Knight, chef jardinier, Château de Pontchartrain, Seine et Oise.*

Societies.

ROYAL HORTICULTURAL: *July* 22 (*Great Show of Fruit and Vegetables*).—This was a highly interesting display, a table running the whole length of the Conservatory being well filled with fine fruit, while in the adjoining arcades were accommodated a good assortment of vegetables and such cut flowers and plants as happened to be exhibited. Among the latter was a collection of Japan Lilies from Messrs. Cutbush; cut Roses from Messrs. Paul & Son and others, and Hollyhocks from Messrs. Downie Laird & Laing.

Collections of Fruits.—Only one was contributed on this occasion, and that came from Mr. Carr, gr. to P. L. Hinds, Esq. It consisted of a Queen Pine-apple; Sweetwater Grapes, Tegg's Scarlet-fleshed Melon, Moorpark Apricots, Gooseberries, and fruit of Banana and Papaw.

Pine-apples.—Among these were some beautiful fruit, especially a finely-formed Enville from Mr. Thomson, of Dalkeith; excellently ripened Queens from Mr. Grant, gr. to C. Plucknett, Esq., and Mr. Young, gr. to C. Bailey, Esq., M.P.; and a Providence, weighing 11 lb. 4 oz., from Mr. Allen, gr. to J. B. Glegg, Esq. The latter was, however, somewhat unripe at top. Mr. Standish also furnished some good fruit, one or two of which appeared to be new kinds. Of Smooth-leaved Cayenne we likewise noticed a good specimen from Mr. Thomson.

Awards.—Three kinds: 1, Mr. Young; 2, Mr. Thomson; 3, Mr Standish. Providences: 1, Mr. Allen. Queen's: 1, Mr. Grant: 2, Mr. Young; 3, Mr. Higgs. Any sort: 1, Mr. Thomson; 2, Mr. Young.

Grapes.—Of these Mr. Hill, gr. to R. Sneyd, Esq., Keele Hall, Staffordshire, furnished an admirable collection, in which were excellent examples of Black Hamburgh and Black Prince; Horsforth Seedling, a black kind with oval-shaped berries, apparently nearly related to Black Morocco; Meredith's variety of Black Alicante; Lady Downes' Seedling; Buckland Sweetwater; Royal Muscadine; and Ingram's Hardy Prolific, from a Vine grafted on Black Prince. Among other Grapes we noticed beautiful bunches of Duchess of Buccleuch, a fine new white or rather green variety with a rich Muscat flavour, from Mr. Thomson, of Dalkeith; Golden Hamburgh from Mr. Busby and others; various specimens of Muscat, three bunches of which, shown by Mr. Tyler, gr. to G. Sanders, Esq., weighed together 9 lbs. 3 oz.; Black Prince, three bunches of which weighed 7 lbs. 12 oz., from Mr. Hill; finely finished examples of Black Hamburgh from Mr. Sage, gr. to Earl Brownlow; Mr. Wallis, gr. to J. Dixon, Esq.; Mr. M. Henderson, gr. to Sir George Beaumont, Bart.; Mr. Brown, gr. to Lord Chesterfield; and Mr. Cruickshank, gr. to W. L. Lloyd, Esq. Other Grapes consisted of Muscat Hamburgh, from Mr. Osborne, Finchley; Mill Hill Hamburgh, from Mr. M. Henderson; Trentham Black, from Mr. Wallis, and Black Frontignan, from Mr. Squibbs. Mr. Standish had finely-fruited Vines in pots.

Awards.—Collection: 1, Mr. Hill; 2, withheld; 3, Mr. Tansley. Black Hamburgh: 1, Mr. Sage: 2, Mr. M. Henderson; 3, Mr. Wallis. Muscat Hamburgh: 1, Mr. Osborne. Mill Hill Hamburgh: 1, Mr. M. Henderson. Black of any kind: 1, Mr. Hill; 2, Mr. Wallis: equal 3, Mr. Squibbs and Mr. Brown. Muscats: equal 1, Mr. Sage and Mr. Tyler; 2, Mr. Standish; 3, Mr. Tansley. Canon Hall: 1, Mr. Budd. White of any kind: 1, Mr. Thomson; equal 2, Mr. Beasley and Mr. Cross; 3, Mr. Busby.

Peaches.—These were not numerous, but among them were some beautiful dishes of Grosse Mignonne, Bellegarde, and Violette Hâtive; a rich orange-yellow seedling came from Mr. Ingram. Of Nectarines but few dishes were shown, and of these the best were Elruge and Violette Hâtive.

Awards.—Two dishes: 1, Mr. Tillery, gr. to the Duke of Portland; 2, Mr. Osborne; 3, Mr. Bain and Mr. H. Whiting. Single dish: 1, Mr. Tillery and Mr. Wallis; 2, Mr. Osborne; 3, Mr. W. Lane, gr. to J. Miles, Esq. Nectarines: 1, Mr. Sage; 2, Mr. Lane; 3, Mr. Rogerson, gr. to E. Brown, Esq., and Mr. Tillery.

Figs.—An excellent dish of Brown Turkey came from Mr. Whiting, of The Deepdene, to whom a 1st prize was awarded. Mr. Rogerson had the same variety, and White Marseilles came from Mr. Cross, gr. to the Dowager Lady Ashburton.

Cherries.—These consisted of very good dishes of Morello, from Mr. Marcham, Mr. Squibbs, and others; Black Tartarian, very fine, from Mr. Whiting; Florence, from Mr. Higgs; Bigarreau Napoleon, from Mr. Tillery; Elton, and May Duke.

Awards.—Black: 1, Mr. Marcham. White: 1, Mr. Cruickshanks; 2, Mr. Higgs; 3, Mr. M. Henderson. Single dish: 1, Mr. Tillery and Mr. J. B. Whiting; 2, Mr. R. Marcham; 3, Mr. Squibbs.

Plums.—Only a few dishes of these were shown, Mr. Squibbs was 1st, with Black Morocco; Mr. Beasley, gr. to T. Wood, Esq., Acton, 2d; Mr. Whiting 3d.

Strawberries.—At this late period of the season these could not be expected in quantity. The only exhibitor for four dishes was Mr. Tillery, who had a 1st prize for Empress Eugénie, Welbeck Seedling, Rifleman, and Frogmore Pine. Mr. Earley, gr. to F. Pryor, Esq., Digswell, had a 2d prize for Elton; and a 3d was awarded to Mr. Phipps.

Among other subjects were some good Gooseberries from Mr. Carr and Mr. Young, gr. to R. Barclay, Esq.

Among Miscellaneous Fruit were Currants, Red, White, and Black, from Mr. Carr; Mr. Ford, gr. to W. Hubbard, Esq., Horsham; and Mr. Beasley, Twyford Abbey. Raspberries were chiefly confined to the Fastolff, the best of which came from Mr. Moffat, gr. to Viscount Maynard. Of Green-fleshed Melons the best came from Mr. Whiting, The Deepdene, near Dorking, and Mr. Squibbs, gr. to Mr. Turner, was 2d with Hybrid Perfection, prettily netted. In Scarlet-fleshed the old Windsor prize came from Mr. Weir, gr. to Mrs. Hodgson. Mr. Fraser, Lea Bridge Road, sent orchard-house trees in pots; Mr. Carr, Peaches; and Mr. Rogerson, Figs. Mr. Carr furnished large and beautiful fruit of the Mango Papaw, which was green in colour, changing to yellow; some good Apricots came from Mr. Whiting and others; Apples from Mr. Young.

Vegetables.—Liberal prizes having been offered both for collections of these and for single dishes, the result was a large assemblage of creditable examples of most of the products of the kitchen garden now in season, and some that were out of season. Class 1 consisted of "Collections of vegetables, not less than 8 kinds, distinct genera." Class 2, "Collections of not less than 6 kinds, distinct genera." The consequence of this rather loose phraseology was that most of the exhibitors in both classes showed an unlimited number of varieties, so that practically there was no real distinction between the two except in the value of the prizes, and those who had the greatest number stood the best chance. We would therefore suggest that if the Society should repeat this exhibition another year, it would be much better to restrict the number of vegetables in each class to a definite number of sorts (say 8 and 12), leaving the choice to exhibitors. As most of the vegetables comprising these collections were better represented in their respective classes, it will be more convenient to notice them as they stand in the schedule.

Peas.—These were not well represented. Only two collections of four sorts were exhibited, and these were merely tolerable; nor did the single dishes contain anything better than common. A variety called Abergavenny Marrow, from Mr. Earley, was however all that could be desired as far as colour, flavour, and size were concerned.

Potatos.—These were largely contributed, and many of them were unusually fine for this season of the year. Among Kidneys, the most noticeable were Edgcott Second Early, a very perfect Potato, which obtained the 1st prize for a single dish; Mona's Pride, particularly nice-looking; Eugénie, a handsome and good white and red variety; and a very fine sort, originally procured from Sussex, without a name, and therefore provisionally called Sussex Kidney. To these must be added Rivers's Royal Ash-leaved, an excellent sort for garden culture. Of Round Potatos, the best-looking were Transell's Seedling (1st prize for a single dish), large, handsome, and smooth, with scarcely a perceptible eye; Napoleon, a handsome red, often blotched with white, which has the eyes very little depressed—an important point in a table Potato. Another very perfect Potato in shape formed one of the four sorts to which the 1st prize was awarded, but of this no one seemed to know the name. When sorts like these, and others perhaps equally good, are obtainable, such hollow-eyed, coarse, and inferior-flavoured varieties as the Early Shaw ought not to be tolerated at a horticultural exhibition; and yet it appeared in collections, and received the 2d prize for a single dish.

Asparagus.—Prizes for this in the end of July are certainly undesirable, it being a recognised rule that when Peas come in Asparagus goes out. Now and then a handful of young shoots may be required in the kitchen for a particular purpose, but it is not necessary for a dish, except in very exceptional cases.

Carrots.—These were largely exhibited, and many of them excellent for the time of year. With the exception of a symmetrical bunch of James's Intermediate, the Judges properly preferred the Short Horn, which is the best variety for summer use.

Turnips.—Many of these looked old and sticky. There were one or two dishes of clean-grown young bulbs, which, however, it must be supposed would not bear critical examination, as the prizes were not given to them.

Mushrooms.—In such weather as the present it is difficult to get good Mushrooms from artificial beds, consequently they were not well represented.

Cauliflowers.—The same may be said of these, of which only three collections were shown. The Judges rightly gave their decision in favour of small compact heads, not yet at their best, in preference to much larger specimens which had passed that stage.

Cabbages.—These were extensively represented, and for midsummer many of them were uncommonly good; while others would have been more in place in the farm-yard. A great solid Cabbage is a capital thing for cattle to feed on, but it should certainly never be admitted to a gentleman's table.

Beans.—These were not so good as we have seen them at many cottagers' exhibitions. French Beans, on the other hand, were excellent, and the judges must have had a difficult task to pick out the best.

Rhubarb.—This might have been very well omitted from the schedule, its proper season being past.

Beet.—Some of this was excellent in quality, although of course not fully grown; some, again, looked nearly related to Mangel Wurzel in colour and texture. One of the best is known as "Croucher's Beet" in the vicinity of Dorking, where no other variety is cultivated. Of Pine-apple we also observed good examples.

Onions.—These were largely contributed, and consisted of the different varieties of Tripoli, Spanish, and Silver-skinned, sown in autumn, besides the usual spring-sown sorts. Some of the Tripolis were very fine, but these were altogether ignored, although valuable in the kitchen at this season on account of their great bulk and comparative mildness. The objection urged against them that they will not keep is not a valid one, inasmuch as they are not wanted for keeping, but for present use.

Lettuces.—Some admirable specimens of White Paris Cos and of Neapolitan Cabbage were exhibited. These are perhaps the very best summer Lettuces grown, but another Cos, called Phipps's Nonsuch, appeared to be a good one.

Endive.—This was undeserving of prizes. In fact, Endive, like Asparagus, is altogether out of place now.

Shallots.—These were plentiful, and Mr. Earley's, which took the 1st prize, were capitally grown. Most of those exhibited were of the large French variety, which attains a greater size than the old light-coloured sort.

Horse-radish.—Only two lots of this competed, one of which was good.

Radishes.—These were represented by only two bunches of the white and the red Turnip-rooted, and they looked as crisp and tender as spring-grown ones.

Celery.—Of this there were several exhibitions, one or two of them good for Midsummer.

In the Miscellaneous Class were some very young Vegetable Marrows and edible Gourds, some rather old Artichokes, and a collection of Pot-herbs, to which a 3rd prize was liberally awarded.

The names of those who took prizes in the classes just named will be found in our advertising columns (see p. 696).

July 25 (*Fortnightly Meeting*).—The Rev. M. J. Berkeley gave some account of a hybrid Fern found on limestone rocks at Schuylkill, within 8 miles of Philadelphia, by Mr. Robinson Scott, of Port Kennedy, Montgomery County. He stated that it was found in company with Camptosorus rhizophyllus and Asplenium ebeneum, which were supposed to be its parents. He explained the way in which fertilisation in Ferns might be effected, a full account of which will be given in a forthcoming number of the Society's new Journal. The golden, silver, and grey-powdered Gymnogrammas that often appear under similar circumstances in the same house, were believed, he said, to be hybrids; but no one had ever proved them to be so. Mr. Scott's Fern he, however, had no doubt was a true hybrid. Beautiful drawings, not only of it, but also of the species from which it was supposed to be descended, made by Mr. Fitch, were shown to the meeting. He considered that growers of Ferns would do well to turn their attention to the production of hybrids in a commercial point of view. In illustration of this he instanced a case in which a painted Pteris had been raised and offered to a London nurseryman for sale. The latter thought the price asked extravagant. Nevertheless, 1500 plants of the Pteris in question had been sold for a guinea each.

Specimens of Bean and Pea mildew supplied from a suburban garden were next adverted to. It was said that mildews in Wheat and other plants were unusually prevalent this year, and that if the autumn proved wet they might be very disastrous. Two monstrous forms of Plantago major were also shown to the meeting.

July 25 (*Floral Committee*).—Mr. Rivers furnished a tall specimen of what was said to be the climbing variety of Rosa devoniensis. The vigorous habit of growth in question he stated to be the result of double budding—first, the Manetti stock with a free-growing Hybrid Perpetual, and then the latter with Rosa devoniensis. Buds taken from the latter and treated in the ordinary way it was said reverted to the old well-known form of that fine English Rose. From Mr. Bull came Allamanda Hendersoni, of which we have spoken in favourable terms in former reports. Mr. Cross, gr. to the Rt. Hon. Louisa Lady Ashburton, contributed a forked variety of Polypodium vulgare, of which whole woodfuls may sometimes be found together, while in an adjacent plantation not a plant presenting the character in question might be discovered. Mr. Cox, gr. to Lord Beauchamp, furnished a beautiful white Lobelia, called Snowflake, to which a First-class Certificate was awarded. Pavia macrostachya; different varieties of Salpiglossis; Tritonia aurea, a bright orange-flowered hardy Caffrarian bulbous plant; one or two Orchids; and examples of Double White Datura fastuosa, were contributed from the Society's garden.

Fuchsias came from Messrs. E. G. Henderson, among which the best were Father Ignatius and Enoch Arden, both dark varieties, with finely reflexed sepals and widely expanded corollas. To these First-class Certificates were awarded. Fuchsia pumila or Tom Thumb, which came from the same firm, and which appeared to be a variety of gracilis, looked as if it might be found useful in the formation of edgings. A double-blossomed Fuchsia, with white corolla, named Grace, was shown by Mr. George Smith, of Hornsey, and Queen of Whites and others in the same way were also exhibited. Other Fuchsias came from Messrs. F. & A. Smith, of Dulwich, together with golden-leaved zonale Pelargoniums, one or two herbaceous Phloxes, a beautiful sky-blue variety of Bee Larkspur called Madame H. Jacotot, and various fine Balsams, for beautiful varieties of which the firm in question is justly celebrated.

A slender-growing Dendrobium was shown by Mr. Wilcox, gr. to Dr. Pattison, St. John's Wood, and the same sort also came from Mr. Veitch. It had small narrow twisted sepals and petals—white becoming yellow at the tips, and a tiny violet-purple stained lip. From Mr. Bull came a charmingly variegated-leaved Bignonia called argyræa violescens, a South American plant to which a First-class Certificate was awarded. Two varieties of Japanese Lilies were shown by Mr. Townsend, and from Mr. Salter came a handsome crimson Pelargonium named Emperor of Nosegays.

July 25 (*Fruit Committee*).—Dr. Hogg said that before proceeding to consider the subjects brought before the Committee on this occasion, he would call attention to a report on early Peas grown this year at Chiswick. Dillistone's Early Prolific, Carter's First Crop, Dickson's First and Best, and Sutton's Ringleader, were procured from the various raisers. They were all sown in the same piece of ground and on the same day; they all came up on the same day; they all flowered on the same day; they all podded on the same day; they all were fit for table on the same day, and the result was that they were considered to be identical.

The variety among them first offered to the public was Dillistone's, which came out four or five years ago. This, however, was considered to be nothing but a pure stock of old Early Kent, a variety very difficult to obtain and keep true. Of other Peas tried, Laxton's Seedling was very similar to the Auvergne and Dickson's Favourite, whilst Carpenter's Express proved to be Sangster's No. 1. Princess Royal was thought to be an improvement on the old Dwarf Marrow. Blue Excelsior struck the Committee as being a remarkably distinct Pea. A number of others were found to be synonymous with Veitch's Perfection. Among the subjects submitted to the Committee was a collection of White Grapes from Mr. Rivers, all forms of what the French call "Muscats" and the English "Frontignans;" they have round berries, whilst in what are called Muscats in this country the berries are oval. The Frontignans possess a Muscat flavour, a quality which is highly developed in Chasselas Musqué; the great advantage of this Chasselas is its being earlier than true Muscats, and ripening in a cooler temperature; it has, however, the bad quality of cracking, but within the last few years a new race has been introduced which do not inherit this drawback, and of such Mr. Rivers's Grapes consist. Of Early Golden Frontignan, Muscat Salomon of the French, the great recommendation is that it is three weeks earlier than the Black Hamburgh, and produces bunches from 12 to 18 inches long. The colour is golden, or in fact deep amber. Early Smyrna, Muscat de Smyrna of the French, is another form of White Frontignan, not so early as the preceding but hardier, and will probably succeed out of doors—at all events it will ripen well in an ordinary greenhouse. Early Silver Frontignan has a larger berry, a very thin skin, and is eight or ten days later than Early Golden Frontignan, and the same number of days earlier than the Black Hamburgh. Muscat à gros grains from Bordeaux is remarkably early, much more sugary than the Black Hamburgh, and a month earlier. These had all been ripened on Vines in pots set on hot-water pipes, as described in our last year's volume (p. 799). A Raspberry from Mr. Graham, of Cranford, was remarkable for its large size, but as it had not as yet been subjected to careful cultivation the Committee wished to see it again before deciding on its merits. There was also a Black Currant from Mr. Ford, which was stated to hang a month later than any other kind, but the berries were small and acid. A Raspberry came from Messrs. Cutbush, of Highgate, the merit of which consisted in its coming into bearing after all other red Raspberries were over, but as regards flavour it was not fit for table, and seeing that autumn-bearing varieties of better flavour than it already existed, no award was made to it. Some Cherries were exhibited by Mr. Rivers. Of these a large Purple Guigne came in after all the Bigarreaus were over; and the Love Apple Cherry, belonging to the Late Duke class, was very large, being an inch across, had a colourless juice, and was furrowed like a Tomato. Mr. Ingram exhibited a seedling Peach called Frogmore Golden, but it was not so large as Crawford Early, and not so delicious. It was therefore doubtful whether the variety in question was required. Some Apricot trees in pots, which Mr. Rivers had sent, were next adverted to, first to show that fruit trees in pots bearing ripe fruit can be transmitted to a distance, and secondly to prove that Apricots *can* be grown in pots. The whole secret of their culture in that way was very simple: it consisted in giving them plenty of ventilation whilst in bloom—even 3° or 4° of frost would not injure them then. The rationale of this was that when the orchard-house is kept close whilst the trees are in bloom there is such an amount of moisture in the air that fertilisation cannot take place. Mr. Rivers stated that comminuted chalk existed in his soil, but in what proportion he did not know, as he had not sent the soil to be analysed; but 1-10th or 1-12th would not be too much. He, therefore, advised growers to use powdered chalk in the composts they employed for Apricots. Early Albert Peach, a kind which ripens just before the Early York, and specimens of Early Prolific Plum, were also furnished by Mr. Rivers. Messrs. Lee contributed Morocco Plum; and Mr. Veitch a bunch of his new Grape, raised from Champion Hamburgh crossed with Canon Hall. It is, in fact, a Mill Hill Hamburgh with a Muscat flavour; it cannot, therefore, fail to be a universal favourite.

The following candidates were elected Fellows; viz., Captain Inglefield, Lord Beauchamp, and Mr. R. M'Ilwraith.

Notices of Books.

Sur la Production et la Fixation des Variétés dans les Plantes d'Ornement. Par B. Verlot, Chef de Culture au Jardin des Plantes de Paris. 8vo, pp. 102. Paris, 1865.

We have already on two occasions alluded to this excellent work, or made it the subject of observation. There is, however, still much interesting matter on which we have not touched, and to which we shall now advert, omitting all that went before of the method of fixing varieties.

Our author under 16 heads notices the variations to which plants are subject, and which it will be useful to reproduce here, though all are not of equal importance. These are as follows:—

1. Diminution of size, or dwarfing. 2. Augmentation of size, or gigantism. 3. Increase of robustness or hardiness. 4. Great size of flowers. 5. Early varieties. 6. Late varieties. 7. Sweet-scented forms. 8. Variety of colouring, complete or partial, in the stems, leaves, flowers (whether striped or dotted), fruit and seeds. 9. Albinism, whether inclining to variegation or chlorosis. 10. Double flowers. 11. Proliferous forms. 12. Varieties arising from adhesion or confluence. 13. Partially abortive varieties. 14. Pelorioid flowers. 15. Chloranthoid, or foliaceous flowers. 16. Polymorphism in the stem, whether unarmed, spiny, fastigiate, filiform, pendulous, &c.; or in the leaves, as crisped, fasciate, bullate or bloated, laciniate, &c.

1. Dwarfing is something totally distinct from mere diminution of size from want of proper nourishment or from untoward conditions of climate, for the seeds of plants which have suffered from such causes, produce vigorous seedlings in good and rich soil with a favourable climate. The seeds of real dwarfs on the contrary produce dwarfs; at least, many of them do so, and by careful selection a dwarf form may be fixed for a time, though many return, notwithstanding all the pains that can be taken, to their original type. They can be propagated with certainty by cuttings alone or grafting. A dwarf Saponaria calabrica refused all attempts at fixing, while Tagetes patula and signata have produced tolerably permanent dwarf forms. M. Verlot suggests that the most likely way of obtaining dwarfs of any annual species is by autumn sowing and frequent transplanting. We are ourselves inclined however to think such matters are constitutional and depend on circumstances of which we are ignorant or over which we have no control. M. Verlot thinks however that constant pinching off of the leading shoots may have a tendency to produce seed which will give rise to dwarfs.

Mr. M'Nab has stated that he obtained dwarf varieties of Rhododendrons by fertilising with the pollen of the shorter stamens, a very curious fact if confirmed by experiment.

2. Similar remarks are applicable to gigantic forms. As in the former case stint of sustenance will yield dwarfs, richness of food may produce giants, but they will not be permanent. Forms which appear to be fixed in one country, lose the habit in another. For example the Hemp of Piedmont, which is truly gigantic, in some of the eastern departments entirely loses its distinctive character.

3. A robust or hardy habit again may depend on original constitutional differences, but delicate varieties may yield a hardy offspring by crossing, as in the case with Rhododendron arboreum crossed with R. catawbiense.

4. The size of flowers depends greatly on soil and cultivation. There may be varieties which essentially differ in this respect, but the full beauty of the flowers will only be exhibited under generous and skilful treatment. Our Pansies and Roses, and especially the former, are familiar examples. And, in such cases, though seeds may be taken from the finest flowers, they will not produce finer offspring than those which are taken from others which are smaller and later. Hybridization will certainly in some cases yield varieties remarkable for their noble flowers, but except by direct division we cannot expect such varieties to be permanent.

5, 6. Comparative earliness and lateness are of the greatest importance in gardening, and we can avail ourselves of individuals which show a tendency to the requisite habit, to produce by repeated selection early and late varieties. Besides which we may make experiments with plants from a more southern latitude, where they blow early, or the contrary, to make the habit permanent. It was, for instance, of much consequence to obtain earlier varieties of the Indian Chrysanthemum, and accordingly the early kinds came first from Avignon. At present the flowers have not proved equal to those of later kinds, but repeated experiments will probably soon get over this defect. It is suggested that as the vegetation of grain becomes slower with increased age, therefore varieties with different habits may be obtained by sowing seed year after year till it loses the power of vegetation. It does not appear, however, that in seeds of the same year there is any difference in this respect between the first and the last.

7. As regards peculiar odour, it is remarked that locality makes a great difference. The smell of Orchis hircina is intolerable near Paris, but in the South it resembles that of Vanilla. Crossing is an efficient cause in this direction. Rhododendron ciliatum, when crossed with the sweet-scented R. Edgworthii, produces a highly scented variety.

8. Varieties in colouring as enumerated above are so multitudinous, and are affected so completely by the same principles, that we cannot dwell upon them. One of the most curious examples of change in this respect, as also in regard of size, and the difficulty of permanently fixing the distinguishing characters, is presented by Dianthus Heddewigii. The flowers were at first of surprising dimensions, but soon they showed a tendency to become double, with considerable diminution of size. In many gardens at the present time, notwithstanding every attempt at isolation, while they still present immense differences as regards colouring, their size frequently does not surpass that of good varieties of Sweet William.

9. Variegation and Chlorosis, though both diseases, appear to be very different. Variegated plants may exhibit robust health, while chlorotic plants are always in a more or less failing condition. Both may arise immediately from seed, and either disease may be propagated by seed. Chlorosis may in some cases be remedied by the application of a weak solution of sulphate of iron, but we know of nothing which affects variegation except perhaps strong and forcing manures. In some cases variegation is persistent, but green shoots often spring from variegated branches, and sometimes the variegation, except preserved by cuttings, may cease altogether. Albinism may proceed to such an extent that the branches cannot be induced to strike. The variegated Ground Ivy is said to form an exception to this rule. When variegation arises from soil, the penetration of the roots into a deeper stratum will sometimes cause a reversion to the normal habit, as has occurred in the case of the variegated Laurel.

10. Double varieties are often the pride of the horticulturist, as they are the ornament of the garden. These arise from various kinds of transformation, and their preservation from seed is often precarious, as every one knows who has cultivated Stocks. Older seeds are said to be surer than those recently gathered, and in some cases, as in the Dahlia, the plumpest seeds do not yield the best flowers, and this is the case also with Balsams. Some practised eyes can at once detect those plants which will yield double flowers.

11, 12, 13, 14. We need not dwell long on these heads. Proliferous varieties are seldom of much consequence to the cultivator, who would at once reject flowers like those of No. 12, in which the petals are abortive, however interesting they may be to the physiologist. A monopetalous Poppy is cultivated by M. Vilmorin, but it is a mere botanical curiosity. Pelorioid flowers in some genera would be of some importance, but they are difficult to preserve, and while the change proceeds to the highest possible

degree, as in the common Linaria, the pistil is often abortive. In Gloxinia peloroid flowers often occur on the same plant with those which are normal.

15. Changes which make the corolla resemble the calyx in a greater or less degree are seldom acceptable to the horticulturist. The Sweet William, Chinese Primrose, and Carnation may be adduced as instances, which are curious rather than beautiful. In some cases a beautiful flower, as the Wallflower, is converted into one devoid of all horticultural interest.

16. Modifications of form, as enumerated above, are often acquisitions, and nowhere are they of greater importance than amongst Ferns. The principles which have been so often cited as applicable to changes in Phanogams, must be accepted with slight modifications amongst Ferns. As the spores of Ferns are not seeds but buds, those spores which come from the normal parts of the fronds may be expected to produce normal forms, while those which come from distorted or modified parts will reproduce the distortion or modification. In some cases it is sufficient to insert a frond in soil up to the modified part, when a multitude of young buds will be thrown out, every one of which will produce a plant resembling that from which it sprung.

We take leave of M. Verlot's little treatise, with much respect for the amount of knowledge which he has displayed, and the intelligence with which it has been drawn up.

Florists' Flowers.

MR. PERRY'S SEEDLING VERBENAS.—Mr. C. J. Perry is now well known as the raiser of some of the finest Verbenas yet sent out, all of which have been introduced by Mr. C. Turner, of Slough. Taking advantage of my visit to the Great Rose Show at Birmingham, I visited Mr. Perry's garden at Castle Bromwich to see what Seedling Verbenas he had for next year, and I am sure the following will be hailed as great acquisitions, but, of course, they will not be sent out until next spring:—

Charles Perry.—This is an improvement on Charles Turner, and a decided improvement on L'Avenir de Ballant and any others of the same class; very fine pip and truss.

Cleopatra.—Rich deep rose with clear lemon eye, beating Rosy Morn and all of that class; very fine truss.

Mazeppa.—A decided improvement on Lord Leigh and all of that class, having a white instead of a yellow eye, and very fine pip and truss.

William Dean.—A great improvement on Black Prince, Lord Elgin, and others; very rich shaded purple with clear white eye, fine truss.

Harry Turner.—Shaded lilac, very fine pip and truss: an improvement on Magnificens.

Mrs. Dean.—Blush with pale crimson centre, the centre being more clearly defined than in Madame Herman Stenger; fine pip and good truss.

Admiral of the Blue.—Distinct lilac blue with large white centre, a great improvement on all of this colour.

James Walton.—Bright rosy carmine with darker shade towards the centre, light eye, very fine pip and truss. *W. D.*

The Apiary.

"I OBSERVE (see p. 635) that a correspondent asks for information respecting the LIGURIAN BEE, and I will, with your permission, give a short account of it from certain writers, and partly from my own experience. Aristotle speaks of three different species of the honey bee as being well known in his time; the best variety he describes as small in size, round in shape, and varied in colour. Virgil speaks of two kinds; the better variety he describes as spotted or variegated, and of a beautiful golden colour. Mr. Langstroth gives the opinion of Captain Baldenstein, as formed from observation of the Ligurians in their own country, that they differ from the common kind, and seem to be more industrious. Among the points which he considered as definitely established by his observations on the Ligurian bee, are:—1st. The queen, if healthy, retains her proper fertility at least three or four years. 2d. The Ligurian bee is more industrious and the queen more prolific than the common bee; because in a most unfavourable year, when the colonies produced few swarms and little honey, his Ligurians produced three swarms, which filled their hives with combs, and together with the parent stock laid up ample stores for winter; the stock hive yielding in addition a box well filled with honey. The three colonies were among the best in his apiary. 3d. The Ligurian workers do not sting so much as the common bee. 4th. Being more numerous, owing to the queen's fertility, they consequently gather more honey. 5th. They are hardier, as many of the common bees under more favourable circumstances died out this last winter, while the Ligurians lived and did well. 6th. Persons can go among the Ligurians with less danger of being stung, as they seldom attempt to use their weapons if not disturbed. Many apiarians who have procured the Ligurians would not now be without them, on account of their superior qualities. I could give further extracts from various authors, but fear to trespass on your space. *J. Elmo.*"

Though we give the foregoing letter entire, we do not wish to be considered answerable for the correctness of the opinions of our apiarian correspondents. There are some who will not agree with all Mr. Elmo's statements, which are fair subjects for discussion.

The Ligurian bee is, we think, not smaller than our common English bee. We see no reason to believe that the Ligurian queens retain their fecundity at all longer than those of the ordinary species. We believe the queens to be usually more prolific, but whether the bees are really more industrious, or better storers of honey, remains an open question. They are certainly more given to swarming than the common sort. With regard to their being less prone to use their natural weapon on intruders, there is great difference of opinion; we do not think the truth of the assertion by any means established. We have had hives of Ligurians desperately vicious, while others would allow almost any amount of meddling and interference without exhibiting signs of resentment. On the whole, however, we are inclined to think they are less vicious than the common brown bee of Europe.

We see little reason for supposing the Ligurian variety to be better storers of honey. Our own Ligurians have either by accident or otherwise beaten our hives of common bees, but the finest and heaviest supers we have ever seen or heard of were given by bees of the ordinary species. What Ligurians might have accomplished under the same circumstances it is impossible to say. To sum up in a few words, we are decidedly favourable to the Ligurians, but we do not see any just reason for crying them up as being in all respects vastly superior to our own well-tried English variety.

Alexander Boyle, Narberth. Stewarton hives usually consist of *four* or more boxes. Two boxes of 6 inches in depth are used at first for the swarms. A super is given when required. If the hive becomes very crowded, an empty box is placed below all. This is removed at the end of autumn, and if combs have been constructed, the box is wrapped up and carefully put by for use the following season. If the honey season is good, and the super first given becomes rapidly filled with combs, an additional box is given either on the top of the first super, or between that and the stock. Occasionally, in a good district, a third super may be required, or another eke may be advisable below all. The advocates of the Stewarton hives usually remove any partially filled eke, substituting for the winter an empty compartment for the purpose of good ventilation. As the season for honey gathering in most districts is nearly exhausted, if the hive becomes inconveniently crowded we should recommend the addition of an eke, which must be removed at the close of autumn. If you are in the middle of a good heather district, and your honey season generally lasts through August, you may instead give additional room by another super. Bees will fly straight across from one hill to another for a harvest, instead of following the course of inclination of the land, therefore they will be more likely to take advantage of the heath in your vicinity. If you wish your communications to be inserted you must write on one side of the sheet only. Your second swarm, which arrived on the 21st July, from a swarm of this current year, is not likely to be worth keeping over the winter, nor will it have sufficient combs built to reap much advantage from an accession of population at so late a period of the season, unless very copiously fed. We should be inclined to let it remain until September; then drive out the bees, and unite to any other stock. Pick out any straight combs, even if they have been used for breeding, and wrap up in paper for use next season, as such combs if attached to bars greatly facilitate the working of the bees. You can unite the bees of your neighbour's hives which are to be taken up, to the first swarm, or to any hive which may appear to be likely to benefit from an increase of numbers. We do not see much advantage to be derived from your proposed plan for attempting to mitigate the evils of cold winds. When we have used sheds we have always aimed at preventing a single bee obtaining access to the interior. If this appeared to us to be of no consequence we should adopt the plan of cutting out good sized spaces, in form of arches, in front of each entrance. Any method which at all interferes with the bees obtaining direct access to their entrances, must militate against their working to the best advantage. If your district is so exposed to the violence of north easterly winds, why not try the effect of giving your hives a western aspect. Try the plan, and tell us the result after a year or two. For many seasons our best super giving stocks have, accidentally or otherwise, stood facing due west, and we confess to a slight prejudice in favour of this aspect for bees in the south of England. We should prefer placing hives facing due north or any other direction, rather than that likely to be most exposed to prevailing winds.

A Sussex Clergyman. A further edition of your "Apiarian Notes" will be acceptable. We are glad you have succeeded so well in Driving; we consider no one to be deserving of the name of a bee master who cannot drive his bees from their stock-hives at his pleasure. Your manner of forming artificial swarms, and your thoughtful care in wrapping up your apparently deserted stock-hives, show that you are no ordinary manipulator, and we have no doubt but that you will in time become a first-class apiarian. With respect to the swarming of hives which were filling large supers, we have had more of our best stocks swarm under such circumstances this year than we ever remember. It has been a very common complaint this summer. To remedy the state of affairs in your frame-hives will be difficult, but is not impossible. Leave them until colder weather in autumn, then take out the frames in the best way you can; separate the comb from adjoining frames, and straighten with your fingers. If necessary use clamps of bent zinc, or strips of thin wood. Inspect after a day or two, and pare away any parts of combs that may have come in contact with others. The use of wide bars would have been of no avail in causing the bees to work straighter, but, in fact, rather the reverse. The present dimensions of the bars, and distance apart, have been arrived at after much experience, and are undoubtedly correct. The use of bars of the width and distance apart proposed by you is totally at variance with the usual habits of the bees, and the consequence is that usually the combs are made in a very crooked manner. If we never desired to remove with facility combs from hives, we should not care whether bars were 1½ inch wide, and half inch apart, or ⅞ inch wide and ⅜ of an inch apart. By the proper use of guide-comb and the ribbed bars, we are usually pretty certain that the combs of our young swarms will be worked true to the bars or frames. If a number of hives be inspected, the average measurement from centre to centre of the foundations of the combs will be found to be about 1½ inch, which is just that allowed by us for the arrangement of our frames.

Garden Memoranda.

JOHN DAY'S, ESQ., TOTTENHAM.—The cultivation of Orchids seems to be more a hobby of commercial gentlemen than of our great landed proprietors: for although one occasionally stumbles upon nice and select collections over the length and breadth of the country, in the gardens of the aristocracy, they are small, very small in comparison to such collections as Day's, Rucker's, Warner's, Turner's, Dawson's, and some more that could be named. Nice little fortunes, however, have been sunk in getting all these varieties together, and it says much, very much for these gentlemen who have had the courage and magnanimity to disburse large sums for what everybody knows to be perishable property. Horticulture is very much indebted to such spirited efforts, which but for the means of such wealthy and munificent patrons would be vastly more circumscribed and less flourishing.

Every one at all acquainted with, or interested in, gardening matters has either heard or read of, if they have not seen, Mr. Day's plants, and every Orchidophilist ought to see them. It may be considered a work of supererogation for me to attempt to paint in words the merits of this collection, as the ground has been trodden, and the plants portrayed on more than one occasion by able contributors; but I cannot refrain from adding my mite, upon the plea that "a good story is none the worse for having been twice told." Imagine my surprise to find one of the most superb collections of Orchids in England, or in the world, located on a spot of ground not much larger than a bowling green, with very little prospect, as far as I could gather, of enlargement in that immediate locality. That Mr. Day—whose name has been connected with the advent of by far the greater number of new Orchids that have been introduced within the last five years, as any careful reader of the *Gardeners' Chronicle* must have noticed through the excellent descriptions which from time to time appear from the pen of Professor Reichenbach—should be so limited in space, and yet possess a collection so intrinsic in value, is something foreign to the notions of the gardening fraternity in general. There it is, however, crowded in houses placed span to span so close together as to suggest the idea of a stifling atmosphere, proportionately subdued light, and a host of concomitant evils.

Time was, when this Orchideous collection was in its infancy, which I can well remember, Mr. Day grew Ferns to some extent, and what was done in this way those who have seen them can testify was done well. Nothing could exceed the beauty and splendour of the fronds of the several specimen Gleichenias which are now lost to that collection, having been transferred for Orchids, simply for want of space and the growing necessity of more valuable stock. I cannot help thinking, however, that Orchids and Ferns and such-like handsome plants ought to go together to some extent for the sake of relieving the mass of colour which a "show room" of Orchids in flower presents. On that account the loss of such plants for such a purpose is great, for the idea is good wherever properly carried out; but under the circumstances, we presume, Mr. Day could not help himself, and turned his attention entirely to this great division of plants—Orchidaceæ.

Every "nook and corner" of from six to eight houses of different sizes is filled, and well filled, with representatives of all the best plants found in both temperate and tropical zones. The very roofs are almost oppressively weighed down, especially over the passages, with baskets "innumerable" suspended along an iron rod. Here there are "north-aspect" houses for "cool plants," and others of different ranges of elevation to suit the families most advantageously. Like every other one who is profiting by experience as time rolls on, besides the north aspect house referred to, which is comparatively new, there is another erection recently completed for the growth of the East Indian genera which seems to be the most suitable house in that block for plant culture. It is sufficiently high to admit of plants being suspended from an iron bar across the astragals without interfering with comfortable inspection or robbing the others on the stages of too much light. One great and undoubted benefit is the mode in practice for transmitting heat regularly without causing so great fluctuation as under ordinary modes of heating. Besides the pipes under the side tables, which go regularly round the house, there is a sheet iron trough nearly the width of the centre stage, say 5 feet, and about 2 feet deep, filled with water, which is joined to the heating apparatus, got up certainly at an amazingly low figure in proportion to the benefits that must accrue through its agency. This, as can be readily understood, will require much longer time to heat than a batch of 4-inch pipes, but after it is heated it will take a very long time to cool—precisely a desideratum in the calendar of operations for winter; and Mr. Day and his gardener, Mr. Stone, are both enthusiastic as to its meeting their most sanguine expectations.

Now for the plants. Saccolabiums and Aerides are not only grown by the dozen here but by the hundred, Mr. Day being evidently anxious to secure out of numbers of imported plants choice varieties. Saccolabium Dayanum, which is a large-flowered variety of Blumei, is largely grown, and when in bloom presents a scene of enchanting loveliness, the wreaths of flower hanging gracefully down, and not two of the plants being exactly

alike as to colour spotting or size of bloom. The same remark applies to S. guttatum, which is a much smaller and more beautifully spotted sort, especially the variety so much in request called Holfordianum. S. ampullaceum and curvifolium, two distinct sorts of the same race, are also here in quantity; one variety of the former was particularly striking from being quite as dark and lustrous in the claret hue as the best representation of Broughtonia sanguinea—quite an acquisition among the ampullaceum breed. More wondrous still was the immense quantity of Aerides Lobbii, and the Moulmein variety of virens so largely imported by Messrs. Low & Co. It is a very difficult thing to procure an Aerides to beat a good Lobbii, and when you have several dozens to pick and choose from, as in this case, it is all but impossible. The reproductive tendency to variation is fully as marked in this high order of plants as in most others under cultivation, and is indisputably illustrated in the case before us. The Moulmein virens is a decided acquisition in its way, having larger and higher-coloured flowers than the original Java variety. But among the larger-flowered sorts give me a good Lindleyanum, which, as most people know, is a variety of crispum, and ought to be called the Lindleyanum variety of crispum. Oh, how gorgeously beautiful were the branched spikes of this sort blooming on my last visit! I counted one with 58 flowers in fine condition. But Schröderii and Fieldingii were equally well grown, although more limited in number, and out, I presume, of an imported lot came a *white* Foxbrush! I must summarise my reminiscences, however, else I shall be open to the mild insinuation of being a chatterer, and probably be set down as a "bore."

I have seen Phalænopsids much better cultivated, or rather, I should say, in better condition, than the general run of them at Tottenham; but who can prevent spot and its ravages, however systematical and well-intentioned the treatment may be? The varieties under cultivation are more numerous here than at any other establishment I have seen, including all the more common and well-known sorts, with amethystina, Parishii, Wightii, and sumatrana or zebrina, which is one of the most lovely of the batch, not even excepting Luddemanniana; sepals and petals creamy white, with very prominent cinnamon-coloured "barring," and a most peculiar labellum, purple striped and spotted. Plocoglottis Lowii is an acquisition, being a semi-terrestrial plant, with a conical-like pseudobulb, and pale purple leaves, something after the colour of Coleus Verschaffeltii, the pale yellow flowers crimson-tipped and spotted. A number of Dendrobium Pierardii upon blocks, recently imported, were suspended, forming nice pendent spikes 30 inches long, and abundantly bloomed.

Cattleyas, Lælias, and Oncidiums are very well managed, as are the various Cypripediums, by Mr. Stone. Of Cattleyas there are a very large assortment, including Mossiæ and its congeners Wagnerii, Lawrenceana, and a very distinct white sort after the character of Wagnerii, but having much finer formed sepals, and petals of a better texture. Aclandiæ is grown largely and well, chiefly on blocks, many of the varieties having all the brilliancy of Regnelli, with, of course, the additional size of bloom. C. lobata is in strong force and capitally managed, having as many as 13 spikes of its distinct flowers, with from four to five on the spike. Lælia purpurata, elegans, grandis, and albida are pictures of good cultivation. A batch of imported elegans has added another novelty to that type. Instead of the sepals and petals being unicoloured, there is the usual ground colour in this variety, with a broad margin of rose, like the colouring of a ribbon. The novelty is charming, and will undoubtedly be permanent, as I have seen a portion of the same batch in another place maintaining that characteristic. All the most beautiful Dendrobes are here:—Wardianum, the chief of the group for an exquisite and positively enchanting arrangement of colouring, has bulbs three feet long; and then the chaste ivory-coloured eburneum, than which not even a Phalænopsis is more pure in the white; albosanguineum, Dayanum, and the lovely Parishii, with a host of others—few catalogues have more—revelling in health. The once rare Oncidium crispum, which, while so, few could grow satisfactorily, is here in dozens, comprising one or two extra fine specimens both of culture and kind, hanging in long racemes, forming an agreeable contrast of colour from its comparative sameness where so many are so gorgeously rich and brilliant. A plant new to me, called Palumbina candida, is a curious and rather ornamental-flowered plant, each flower being in the form of a cross, white with a yellow blotch at the base. Cypripedium Lowii, Stonei, superbiens, villosum, and the handsome-leaved variety named after Mr. Day himself, are in good order. Here I saw for the first time in flower Huntleya cerina, being a good large flower made up of fine white sepals and petals, with a yellow-ground labellum, radiately striped, with black at the mouth. Trichopilias were also large plants, especially the beautiful crimson-throated crispa, and the highly interesting and sweet-scented suavis, as well as the more rare picta.

In the cool house there are, first and foremost, a fine batch of Disa grandiflora, one or two very fine plants of Barkeria spectabilis and Skinneri, plants rather difficult to manage; all the Odontoglossums which are purchased in the market, including a couple of good plants of Pescatorei, an extra fine variety of nebulosum, a good nævium, &c., with a respectable assortment of the sorts recently sent home from New Grenada, the chief among which is Blumei and gloriosum; Masdevallia refracta, a curious monopetalous flower, with the column erect in the centre, purple, rose, and white, with three green prongs, each an inch long; Promenæa citrina, the mass a foot across, showing numerous flowers; Oncidium bifolium, much larger in bulb than one is accustomed to see it; the rare Oncidium cucullatum, with peach and crimson spotted flowers—a very pretty thing. Lycastes are also here in pretty good order, and a variety of Sobralia macrantha, greatly superior to the well-known Woolley's sort, having flowers at least a third larger and much higher coloured—quite a gem.

In conclusion, it must be said that it is impossible in the compass of a single article to do justice to the merits of such a collection as Mr. Day possesses. The cardinal points have been merely touched upon, and that lightly, for to the enthusiast and to the practical student there is quite as much food for study and for careful investigation in these rooms, if I may so call them, as there is for the antiquary in the best museum of antiquities in the country. *A.*

Calendar of Operations.

(*For the ensuing week.*)

The unusually warm moist weather which we have lately experienced has effected wonders as far as gardening is concerned. Bedding plants are nearly in perfection. Grass lawns are now beautifully green, fruit trees look more healthy, and as regards vegetables the benefit of the change is also apparent. Potatos have seldom been finer, and there is as yet little or no disease among them.

FLOWER GARDEN AND PLANT HOUSES.

Let shading be used less frequently now than when the weather was so very dry and bright; plants ripening their growth have need of not only all the daylight they can get, but even moderate sunshine.

Bedding Plants.—A rough plan must now be made of the arrangements of flower beds, which should be numbered to suit an accompanying list of the names of the plants with which it is designed to fill them next year, and the quantity required for each bed. By compiling a summary from this list, accurate information is at once obtained of the quantity of plants which must be propagated by cuttings, and both by these and seeds in spring. By this simple means disappointment is prevented on the one hand, and waste of labour on the other.

Carnations and Picotees.—Layering must now be proceeded with as rapidly as possible, it being a point of great importance to get the plants well rooted and established before placing them in their winter quarters. More of next year's success, as to fine healthy growth, &c., depends on attention to this matter than many people are aware of. All seedling plants should be marked and layered, noting their various properties as to form, colour, texture, pod, &c.; should any seedling, otherwise fine, have serrated petals, it will be advisable to propagate it, as growing it in another situation may to a certain degree remedy this defect; even some of our best varieties will come occasionally (when poorly grown) very rough on the edge. As the blooms decay, extract the faded petals from the calyces.

Orchids.—Kinds which have already made their growth and ripened it should be removed forthwith to a cool house. Great care should be taken not to excite such plants into a new growth at this time, as it is too late to get them properly matured, and the unseasonable draught upon the stored energies of the plants will materially interfere with their next production of flowers.

Pinks.—Pipings in some cases will soon be ready for transplanting. If the situations ultimately intended for them are vacant, they may be planted in them at once; but if these places are occupied by something else, the young Pinks should be planted 4 inches apart, on reserve beds in an open situation, the soil of which should consist principally of light loam, to which has been added some charcoal dust; a little dung mixed with road drift and soot should also be added.

Roses.—Cuttings of China and some other kinds may now be taken and planted in a close frame in a north aspect for three weeks or a month, until they are cicatrised at the base; they should then be taken carefully up, potted in thumb pots, and plunged in a gentle bottom heat. So treated they will make nice plants in a very short time, and if kept under slight protection during winter, will fill their pots with roots, and be ready for planting out in April or May.

FORCING GARDEN.

Cherries.—Let no exertion be spared that will contribute to keep the foliage healthy and clean as long as possible.

Melons.—Late plants swelling fruit should be kept moist, but avoid frequent waterings of the soil by giving good soakings.

Pines.—Maintain a high moist temperature, with abundance of ventilation, to plants which are swelling their fruit; and a rather drier atmosphere around those which are in flower. In all the stages (except that last mentioned, use the syringe freely, in fine weather. Take care that the bottom-heat does not get too strong for plants which have been recently potted or planted.

Strawberries.—Layers may now be potted off; place them where they will receive partial shade until they get established. After that they may have full exposure to sunlight.

Vines.—When late crops have done stoning, the borders, both inside and out, should have a good soaking of liquid manure, to assist the swelling of the fruit. Vines on which the Grapes are just beginning to ripen should be gradually inured to a freer admission of air; and if it be desired to keep those which are quite ripe for any length of time, they should still have the advantage of a slight shading during scorching weather.

HARDY FRUIT AND KITCHEN GARDEN.

Pinch or lay in shoots of wall trees, and gather all kinds of fruit as it becomes ripe.

Celery.—This may still be planted. The principal secret in growing very tender and crisp Celery, irrespective of size, is to grow it very quickly by means of plenty of manure and moisture. Whether in rows or beds, the young plants will not succeed without plenty of water.

Potatos.—Let early kinds be got up as soon as the tops are ripe enough; and let particular pains be taken to pick out all the tubers, as those left in the ground are very annoying in future years. Edgcott Second Early appears to be an excellent Kidney, the skin of which was very thin and delicate. Mona's Pride is also a good-looking sort.

Spinach.—Sow some for winter in good rich ground, deeply trenched. Avoid in all cases thick sowing; the rows should stand about 16 inches apart, to allow a free passage between the rows for forking, cleaning, and gathering the crop. At the first gathering every other plant should be drawn out entirely, thus giving additional space to those which are to produce the late winter and spring supply.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending July 26, 1865, as observed at the Horticultural Gardens.

July.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth 1 foot deep.	Temperature. Of the Earth 2 feet deep.	Wind.	Rain.
Thurs. 20	27	29.838	29.669	75	43	59.0	63½	61½	S.	[illegible]
Friday 21	28	29.811	29.764	78	56	67.0	63½	62	E.	[illegible]
Satur. 22	●	29.745	29.679	79	54	65.5	64	62½	S.W.	[illegible]
Sunday 23	1	29.971	29.826	77	48	62.5	64	62½	S.W.	[illegible]
Mon. 24	2	30.161	30.117	80	54	67.0	64	62½	S.E.	[illegible]
Tues. 25	3	30.268	30.199	84	49	66.5	65	63½	S.E.	[illegible]
Wed. 26	4	30.290	30.263	85	48	66.5	66	64½	S.E.	[illegible]
Average.		30.012	29.931	79.7	50.3	65.0	64.3	62.7		[illegible]

July 20—Very fine; with some white clouds; fine, and cool at night.
— 21—Very fine; overcast; warm at night.
— 22—Uniformly overcast; fine; cloudy; rain at night.
— 23—Slight rain; showery; overcast at night; rain.
— 24—Uniform haze; uniformly overcast; hot; rain at night.
— 25—Uniform haze; very hot; very fine.
— 26—Very fine; clear and hot; exceedingly fine.
Mean temperature of the week, 3 deg. above the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 39 years, for the ensuing Week, ending August 5, 1865.

July and August.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday..30	75.2	50.5	62.8	16	0.88 in	4	4	3	1	[illegible]	[illegible]	[illegible]	[illegible]
Mon. ..31	75.2	50.6	62.9	14	0.66	2	5	2	—	4	[illegible]	[illegible]	[illegible]
Tues. .. 1	76.1	50.6	63.4	18	1.23	1	3	[illegible]	2	3	1	[illegible]	1
Wed. .. 2	76.2	51.5	63.8	18	1.03	1	4	3	—	8	14	[illegible]	4
Thurs. .. 3	75.0	50.8	62.9	19	0.38	4	4	3	2	4	1	[illegible]	[illegible]
Friday .. 4	75.9	51.2	63.1	17	0.85	2	3	4	3	4	17	[illegible]	[illegible]
Satur. .. 5	74.4	51.5	62.9	18	0.88	1	4	4	2	5	14	6	[illegible]

The highest temperature during the above period occurred on the 2d, 1856—therm. 92 deg.; and the lowest on the 2d, 1864—therm. 31 deg.

Notices to Correspondents.

Antirrhinums: *T Ansell.* They are very good border flowers, but of no particular merit.

Diseases: *J F R.* Your specimen has unfortunately been lost. Send another to Rev. M. J. B., King's Cliff, Wansford, and you shall have an answer.—*G M.* Such sudden deaths amongst shrubs are often attributed to lightning, but in those cases where we have had an opportunity of personal inspection we have always found fungous spawn at the root.—*P G M D.* The affection on your Vine leaves is extremely common, and would not prevent the Vine from bearing fruit. The situation probably does not suit it, the wood being able, from some local reason or other, to ripen.—*A W.* It is a very common affection, and especially so this year. The cause is unknown, and no remedy has, we believe, ever been suggested. *M J B.*

Emigration: *A B.* Under existing circumstances we should be sorry to try either New Zealand or the United States. If you are anxious to try your fortune as a skilful gardener, perhaps Melbourne would suit you, but if as an enterprising gardener, why not try Queensland? *M J B.*

Frenela: *J L.* Frenela Ventenatii is another name for Callitris Ventenatii, one of the Conifers. It requires a greenhouse.

Pelargoniums: *D & Co.* The flowers were all fallen to pieces, but as far as we could see they presented no improvement on sorts already in cultivation.

Names of Plants: *J P F.* Kölreuteria paniculata.—*A M Murray.* Lonicera involucrata.—*A W.* Tecoma jasminoides.—*C B F.* Probably Pimpinella Saxifraga.—*W T.* Liatris spicata, Clematis erecta, Hypericum Androsæmum—the rest indeterminable, and none of them numbered.—*H M.* Billbergia zebrina.—*Earl of Shannon.* The Oak, so far as the materials enable us to judge, appears to be Quercus macrocarpa, but presents some points of difference both from that and Q. obtusiloba to which it is allied.—*W D.* Doodia media. We do not recognise the other.

Verbena: *T R.* We cannot possibly judge of the merit of a bedding Verbena crushed in a letter. All we can say is, that the colour appears to be a good purple. It must be seen in a growing state.

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Kelso, July 29. WILLIAM JERDAN, Secretary.

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The Exhibition will this year comprise HORNED CATTLE of various kinds, HORSES, including Thorough-bred, Draught, and other Stallions, Hunters, Cobs, Ponies, &c.; SHEEP, PIGS, POULTRY, PIGEONS, DOGS, CHEESE, BUTTER, SEEDS, ROOTS, HORTICULTURAL PRODUCTIONS, IMPLEMENTS, MACHINERY, and Miscellaneous Articles.
ENTRIES for the SHOW finally CLOSE on AUGUST 3.
Prize Lists and Forms of Entry may be obtained on application from Mr. WM. BRADBURY, Lyon Dam, Oldham (Secretary to the Local Committee), or from
T. B. RYDER, Secretary and Treasurer.
57A, Church Street, Liverpool.

The Agricultural Gazette.

SATURDAY, JULY 29, 1865.

WE must express here the great regret which is generally felt in the agricultural world that such men as Mr. PAGET, Mr. CAIRD, and Mr. THOMPSON are not members of the new House of Commons. Notwithstanding the large number of wealthy landowners who have always found and will no doubt always find a place on the list of our representatives, there is a great deficiency—until very lately indeed a total absence—of any special representation of the interests of agriculture in Parliament. It may perhaps be said on the one hand that landowners are as a body qualified to represent these interests; and on the other, with much greater truth, it may be alleged that the interests of agriculture as of every other special class or section of the whole body are most truly served by those who seek the general welfare of the country; a share in the general prosperity being better worth securing than any special advantage or monopoly can be.

But as to the first of these assertions, it is plain that landowning and tenant farming (the latter alone being agriculture) are two altogether different occupations and engagements, resulting in very different tendencies, responsibilities, and prejudices, which require for their correction or encouragement, as the case may be, altogether diverse treatment, and need the application of distinctly separate arguments or considerations—being urged respectively by very different motives. The interests of the tenant farmers of the country are in a certain sense no doubt the same as those of their landlords. In a much wider sense, moreover, are they the same as those of their customers, and of the country generally. In this latter sense, therefore, it is no doubt true that the farmer is as well represented by the general body of the Commons' House as by the landowners occupying seats in it. And speaking for the general body of the tenantry, we would infinitely on their account prefer the votes of the former to those of the latter class on such a general question as the game laws, or on such a particular one as the introduction of locomotives on our common roads—to name only two of those which came before last Parliament. But there are many other questions connected with which the interests of the tenant farmer require the advocacy of men practically acquainted with the difficulties, risks, and other specialities of agriculture; and it is greatly to be regretted on this account that none of the gentlemen we have named are members of the new House of Commons.

It is, however, matter for congratulation on the other hand that we have Mr. HOLLAND still a member: Sir EDWARD KERRISON, and Mr. DENT too, are practical men. And Mr. M'LAGAN, of Pumpherstone, the new member for Linlithgow county, is a thoroughly practical agriculturist, and one who, though cultivating only his own estate, has the entire confidence of the tenant farmers of Scotland.

But it is in Norfolk, the leading agricultural county of England, that the chief ground for self gratulation and satisfaction has been achieved for the tenant farmers of the country. In Mr. CLARE SEWELL READ they have in every respect an unexceptionable representative. We make no inquiry whatever into his probable votes on questions of mere party politics. It matters comparatively little whether he shall be a supporter of Lord DERBY or of Lord PALMERSTON on a mere party division. The great point is, that by his return those who hold and rent the land have made a vigorous and successful protest against interference of any kind whatever with their absolutely independent right as voters; and that in his person we have a most satisfactory representative of interests which hitherto have had scarcely any advocacy at all of that practical and special kind which they require. This they will now obtain; and we cannot doubt that it will be for the general interests of the country as well as for the particular interests of those who occupy and cultivate the land, that Mr. READ will sit for Norfolk.

Had Mr. HOPE, of the well-known East Lothian farm, near Drem, been elected for his county, as he would have been if he had been earlier in the field, there would have been a double cause for satisfaction. Even his defeat, however, under the circumstances of it, is a proof almost as conclusive to Scottish county voters as is the victory of Mr. READ to those of England, that if men of technical experience, and representing the special class interests of agriculture, are desired, they can be returned. And that a leavening of such representatives is needed in the House is plain from the utterance of the outspoken member for East Lothian on the occasion of his contest with Mr. HOPE:—Doubtless, had I been a tenant farmer I should have regarded the game laws and the law of hypothec as you do. Being a landowner I look upon them from another point of view.—Let tenant-farmers learn from this the need of that true representation which they as voters can at any time command, and which in Mr. READ for one example, happily for them and for the ensuing Parliament, they have.

One remark more upon what is here an unusual subject.—Why is Mr. HOSKYNS not in Parliament? He has been labouring for years as a writer upon agricultural subjects, and especially upon several of the most pregnant and important of them—as land tenure, agricultural statistics, agricultural education, steam cultivation, &c. On all of these he is a leading authority, and on many of them legislation is required. He belongs too to the class from whom county constituencies generally choose their representatives, and of that class he is in every respect a most useful and worthy member. He has, in the Society of Arts and in the Royal Agricultural Society of England, long been a most efficient representative of the best interests of agriculture. And in the columns and the pages of all the agricultural journals of the day his voice and pen have for many years been urgent. Why is he not placed where his undoubted abilities would be more directly and efficiently at work than even hitherto they have ever been? His name certainly must be added to the list of those whose absence from the new House of Commons is a serious agricultural loss.

THE Horse Show at Plymouth was the one failure of the meeting. In spite of the liberal prizes offered by the Council of the Royal Agricultural Society, the owners of horses refused to exhibit them. Even the local prizes, which in some districts excite a competition so full of interest, as, for example, at Chester (where three first prize Royal winners of different years were brought into competition for a local prize) failed in the present instance to attract attention. Surely there must be something wrong in this,

for which the Council, or rather the gentlemen who undertake the horse department for the Council, are responsible. The members, who after all are the real mainstay of the Society, furnishing, as they do, the sinews of war, have a right to ask to what end has the grand prize of 100*l.* been given on this occasion. The object of this prize is not the direct improvement of hunting stock—that is provided for by other prizes in another class—but for the improvement of the breed of race horses; it is offered for "the thorough-bred stallion best calculated to improve and perpetuate the breed of the stout and the sound thorough-bred horse for general stud purposes." So that to the question of breeders—how shall we succeed in producing stouter and better stud horses than Stockwell, Blair Athol, or Gladiateur? the reply of the Council is—"Send your mares to 'Motley.' He is not distinguished as a winner, or a sire of winners, but he succeeded in gaining at the late Islington Horse Show an extra or fourth prize of 10*l.*, as a part of 50*l.* which the judges had the power of awarding to horses possessing merit, and he has again succeeded without any competition in gaining our 100*l.* prize for improving the breed of stout race horses."

Thus the grand problem has been solved at last, and we may hope by means of this horse in a few years to render the attempts of our French competitors futile, and not only to hold our own on the Downs of Epsom, but to win another Waterloo in the Bois de Boulogne.

Joking apart, however, it is certainly very extraordinary that only one horse, and that of moderate pretensions, should compete for the largest prize given at the meeting. It shows at any rate that breeders for the turf are by no means grateful to the Society for their good intentions towards them, but fancy they can get on almost as well without them.

For hunting thorough-bred stallions three prizes were offered; and for these there were six competitors, the 1st prize being given to the owner of the Bald Stag, the winner of the second prize at the Bath and West of England Show at Exeter two years ago, when he competed with Ratan. This horse we consider well worthy of the prize, for although too short and compact for a successful race-horse, yet these qualities, with an undeniable pedigree, become positive advantages as a sire of hunters.

There were a few good hunters, the best belonging to Mr. Battams, equal to fair, but not great, weight. The mares with foals were but moderate, and mostly deficient in substance, particularly as the Council maintain the rule that none but thoroughbred stallions are fit to get hunters, however light and well bred the mares may be.

There were no weight-carrying cobs, and the ponies were few and indifferent, and greatly inferior to those of the Bath and West of England Show at Barnstaple a few years since. One called an improved Exmoor, belonging to Mr. Smith, was disqualified on that account, showing either that it was not an improvement, or that none was required.

The cart-horse stallion classes were divided into three, viz.: the general agricultural class, not qualified to compete as Suffolks; a class adapted for a hilly country; and a separate class for Suffolks. Why the latter should be a distinct class so far from their native county we can scarcely tell. However proper this may be next year, when they may be expected to be a strong class, this year we think their merits ought to have been fairly tested against other breeds. Thanks to the President, who gained the principal prizes, there were several good Suffolks. The Agricultural Class was weakened in numbers by the fact of separate prizes being given by the Local Committee for a class adapted for a hilly country. There was, however, but little difference between the horses in one class and the other. The first prize in Class 44 was gained by the Duke of Beaufort for a useful brown stallion of the Clydesdale breed, and the second went to a promising four-year old Clydesdale, son of the celebrated Battersea prize-winner Sir Walter Scott. This horse belonged to the Rev. S. Terry, who was also the owner of a powerful, compact and active bay horse, shown in the hilly class, but which was probably passed over in consequence of the existence of small thorough pins, which, however, produced no injury in action, and were we think pardonable in a horse seven or eight years old. This horse was the brother of the 1st prize horse at Canterbury. The 3d prize was given to a powerful and active roan horse, a prize winner at the last Essex show, belonging to Mr. Elphick.

Of 2-year-old stallions there were only six exhibited for the three prizes, but they were mostly good animals. Of mares and foals there were only four to compete for three prizes, and they were of fair but not extraordinary merit. In the 3-year-old class there was only one, and of 2-year-old fillies there were two, the 1st prize being given to a daughter of the Chelmsford prize horse "Britain."

If the Local Committee, instead of offering prizes for horses adapted for a hilly district, had offered these rewards for what remained of the old pack-horse breed, they would have done great service, by developing a source from which many of our half-bred hunters are derived. They might also with equal propriety have given prizes for pairs of agricultural horses, a very popular and useful class, affording the public an opportunity of seeing what the horses of the district really are, and what further improvement is really required.

We give this general review of the Plymouth Horse Show here; hoping that our remarks may induce a careful review of the horse prize list, both at the shows of the National Agricultural Society and elsewhere.

COVERED YARDS.

Cassiobury Park, Watford.

Sir,—In the various interesting articles which have appeared from time to time in your Journal, setting forth the great advantages arising from covered yards, there is one (and not a small one) which I have never seen noticed. I allude to the saving of cartage in the spring of many tons of comparatively useless matter in the shape of straw and rain-water. I have made various experiments to ascertain how much water can be absorbed by a given weight of straw of mixed kinds, and I find that it will absorb double its weight of water—even more if quite saturated. Now my covered yards have an area of 1200 square yards, and the average rainfall here is 25 inches annually—say 12 inches from 1st November to 30th April.

Now 12 inches of rain over 1200 square yards would give just 300 tons of water which would fall on my yards if not covered, or ¼ ton per yard super.

I have said that a given weight of straw will absorb double its weight of water, consequently 300 tons of water would require 150 tons of straw, supposing that a farmer wished to keep his yards reasonably dry.

This quantity, viz., 450 tons of comparatively worthless matter, has to be carted out in the spring, when the yards are uncovered, or if a great portion of the rainfall drains away it carries with it the most valuable ingredients of the dung. As regards saving of straw, it amounts with me to at least 100*l.* a year. In respect to all the other advantages detailed by Mr. Moscrop and others I can endorse them with the most perfect safety. Yours faithfully, Essex.

July, 1865.

BIRDS AND INSECTS.

The readers of this Journal are well aware that a doltish antipathy to small birds has for a long time prompted a crusade against those useful little creatures, and with a view to expose the senseless nature of these proceedings as well as to give to the uninitiated reader some insight into the character of the plague which is thereby enabled to spread unopposed, I propose in the following brief observations to treat of one particular insect enemy, whose devastations have recently forced themselves in an unpleasant manner upon my notice; I mean that commonly known as the Striped Pea Weevil.

Both in my garden and in the field I have of late lost crops of Peas, and in some cases the loss has been rendered more mortifying, inasmuch as I had selected choice seeds, and devoted great care to the cultivation of early plants. In the case of the garden crop, my gardener had unhesitatingly attributed the destruction to "sparrers," whilst the cause assigned for the ruined appearance of the plant in the field was "slugs." The real cause was, however, the little insect which I am about to describe, and which, on the occasion to be referred to, I found flying about in such numbers, that they became entangled in my whiskers, and thus gave unmistakable evidence of the wholesale destruction which they must inevitably cause.

If we look at the leaf of the young Pea we shall find it to consist of two entire leaflets, that is, without divisions at the margin—"leaf bifoliate, leaflets entire;" and which is terminated by a tendril which represents other leaflets diverted to the purposes of climbing.

Now in the injured leaves we have the appearance of pieces having been bitten out around the margin: this is either unobserved, or if noticed, it is thought by some to be the nature of the leaf, while of those who recognise it as abnormal not a few, as it seems, put it down to the pecking of birds, or the bites of slugs.

A figure represents a much-eaten leaf, but in some the parts are so evenly eroded as to cause them at first sight to appear to be the natural toothing of the leaf. A little reflection will, however, show us that we have no examples of leaves so escalloped (not to be confounded with crenations, which consist of a series of outward and not inward marginal curves). In some instances the whole leaf is destroyed, until indeed the plant ceases to live, as it has been the case with my garden crops; and this year my field crop has suffered a loss of about one half. I counted as many as 25 insects to a foot of the row, or 1650 to every chain in length, and Curtis asserts that "in the year 1841 they were universally distributed and ate off the second and third sowing;" and he further adds, that "some very naturally accused the sparrows; traps were set for rats and mice; lime strewed for slugs and snails, and toads were encouraged to extirpate wood-lice; but still the crops kept disappearing, as none of these precautions affected the wary enemy in his coat of mail."

It is now time to describe the nature of so mischievous a creature, which belongs to the order Coleoptera, family Curculionidæ, genus Sitonia (Curculio). Of this there are two species which attack our Peas, Beans, Clovers, and other Papilionaceæ, namely:—

Sitonia lineata (Linn.), the Striped Pea Weevil.
Sitonia crinita (Olivier), the Spotted Pea Weevil.

These vary in size from two to three lines, the latter being somewhat less than the former; they are both brownish externally, much of the colour of the soil. The S. crinita appears darker and sometimes almost black when the greyish scales are worn off the elytra, —otherwise they are much alike, and behave so similarly, that a description of S. lineata may serve for both.

It is of an earthy colour; is more or less elongated into an elliptical or oval shape. They may be seen sometimes in threes and fours on the edges of the leaves making the notches, and when these are present in the crop, the creatures will soon be detected in the act of feeding, if cautiously approached; if not, they fall off and disappear beneath the clods of earth, where they feign death, until all sign of danger has passed away.

Where the creatures are bred is at present a mystery, but I suspect that this operation takes place on wild Papilionaceæ, from which they migrate to their more pleasant food of Peas, and it would appear that the more delicate of these are the favoured food of this mischievous creature.

In my own crop, not having enough of the Early Warwick—a fine white Pea—the headland was drilled with a grey Pea, the nine pod; the former were nearly destroyed, while the latter as nearly escaped altogether. So in an adjoining field belonging to a neighbour, there is now a fine crop of Grey Peas almost untouched. Curtis, in his "Farm Insects," says, "From the imperfect and slender data relating to insects connected with agriculture, it is frequently difficult, if not impossible, to form any opinion as to the simultaneous or periodical appearance of the different species; and with regard to these weevils, all that can be stated is, that certain seasons seem to favour their multiplication, and others to check it. It is evident that if not checked, there is not a crop, whether in the field or garden, that would escape destruction; and this check, probably in every instance, might be traced to the agency of other insects, especially parasitic species, which I have so often shown are destined to the service of man."

But now the question arises whether the parasites referred to by Curtis have not some good assistants in this goodly work of destroying noxious insects.

Now it happens that about my farm there are, amongst other birds, hundred of larks, Alauda vulgaris, and white water-wagtails, Motacilla alba. My pupil, A. Taylor, has occasionally shot specimens of these and other species, and has examined them in order to determine their food; in the crop of a lark from this very field were several of these weevils, and in the gizzard a complete debris of small insects. In the wagtail, from the same field, the crop was full of weevils, and in the gizzard, a mass of elytra of these and other small beetles.

A reed-warbler (Silvia arundinacea) again from the farm, had in the gizzard 25 beetles of different species.

This then seems to be the tendency for good of some small birds; so much so indeed that if they were allowed fair play, I believe that this periodical superabundance of insects from which our crops frequently suffer would be rendered next to impossible.

As a curious illustration of what even seed-eating birds do, I may direct attention to a hedge-sparrow, Fringilla montana, shot in the Pea-field. In its gizzard were found several hundreds of the seeds of the Chenopodium album, a weed which was very troublesome in a Potato crop of the former season. All sparrows then are not mischievous, nor indeed any, at all times.

It seems then from the foregoing that crops are liable to a variety of insect attacks; as these injuries were supposed to result from birds, the birds have been destroyed as enemies, while a knowledge of the real truth should lead us to preserve them as friends.

In the case before us, were it not that a very much used path skirted the Pea crop, the injury I have described would, in all probability, have been kept under by the birds, a fact which in this and in other instances has led me to attempt plans to prevent their molestation, rather than to adopt that everlasting opposition to them which has been productive of so much mischief. *Professor Buckman, in the Quarterly Journal of Science.*

AGRICULTURAL EDUCATION.

The readers of the *Agricultural Gazette* who take the trouble to peruse what sometimes appears in it with my name attached, will perhaps remember that on the 15th of April, a paper of mine, occupying one or two of its columns, appeared in it, in which, among other matters on the subject, I stated that the education of farmers was by no means equal to what their profession required, nor to that of other classes of the community with whom in social standing and general influence they ought to be on an equality. I said, moreover, that the education of farmers' sons, with but few exceptions, "was just the same as is that of boys in union workhouses and national schools, and very frequently not so good, as they are taught nothing more than boys in such schools are taught, and oftentimes what they do learn is not so perfectly."

I was aware at the time I thus expressed myself, that what I wrote would be received by many well-disposed readers with much scepticism, if not by complete dissent; but I should have suppressed the convictions of my mind, not hastily or partially arrived at, had I written otherwise. But to give two examples from a union school, and which is the nearest to my residence. I put the two following questions to the boys in that school:—

Supposing the stack of Clover now standing near the stables to be worth 5*l.* a ton, what is the value of the whole stack?—The boys themselves, with no assistance from the schoolmaster, gave me the correct answer.

The second question was this: Here, boys, are six small bags of Wheat (which I produced), taken from different quantities, weighing so much per coomb (the weight being given)—how many grains of each quantity will a bushel of it put into each square foot of an acre of ground? And the answer to this question was correctly given; and this latter question and the correct answer given to it from six different parcels of Wheat since my letter of the 15th of April was published. Now, a mathematician or a gentleman accustomed to figures will consider questions of this kind, and the solution of them, very simple, but I never knew a young farmer who could solve them, or that had ever thought of them or such like as being requisite for him to know, but to my mind they appear nearly as requisite for a man properly to manage a farm as it is for a sailor to learn the science of navigation before he undertakes to navigate a ship; and let me here state that if farmers really first ascertained how many grains of any kind of cereal a given measure of it contained, I unhesitatingly affirm that a man would be considered insane who should advertise that he had put three and a-half bushels an acre into the ground of any kind of it, though only a few years since an advertisement to that effect appeared in the *Agricultural Gazette;* but had he been aware, as he ought to have been, that he put into the ground from five to seven times more seed than it was possible for it to grow to perfection and for the ground to carry, he surely would have hesitated before he had sent to the press such a statement.

My own doings are but small, too small for me to gain credit for what I do, but at the time I refer to I had not the quantity of land that the Rev. S. Smith deems requisite to test his system upon, and at the time the professor advertised that he put in 3½ bushels an acre, I had a field of Barley from only a seventh part of that quantity of seed per acre, and yet I had never less than 11 coombs an acre, and one year I had 16 coombs from one bushel; and should any of my readers think this quantity of seed too small, I ask them to ascertain the number of cereal seeds a bushel measure will contain, as I always do before I sow them, and they, as I have, will think a man insane who should put in 3½ bushels of any kind per acre. Not that I am contending about the value of the ruinous quantity of seed, but what I am maintaining is that wherever large quantities of seed are necessary, it is a demonstrative proof that the land is badly cultivated, and that the seed is put into the ground in a most unscientific way.

At this present time I have a plot of Barley, the seed for which was sent me as a present with other seeds by Mr. Raynbird, of the well-known firm of Raynbird, Caldecott, & Bawtree, and of this I put into the ground not a fourteenth part of three and a-half bushels an acre, and on land that had been Wheat ten years in succession before; and yet the crop is as thick on the ground as it can grow. And knowing how sceptical men are in reference to statements like these from years of experience, I gave a small parcel of the Barley to the master of our union house, with an agreement that he should see that it was put into the ground as I put mine in, seed by seed, and he assures me that it was so put in, and at the same distance from seed to seed that I put mine in, and his plot, again, is as thick as it can grow, and a farmer who saw it with me and the master last week, exclaimed, a crop like this would be 20 coombs an acre!

But another worthy Professor some two years since published a table of experiments to prove that it is necessary to put into the ground twice the quantity of seed that would be otherwise necessary, because on an average not half the quantity germinates and grows, and that of one kind only 18 per cent. grew; but as I have asked him, what would my crops be, and Mr. Hallett's, and Mr. Alderman Mechi's, and some others, if all the seeds did not grow? But last year, and again this year, I made trial of nearly 20 samples, obtained from farmers and merchants, and out of the whole scarcely a seed failed to grow—indeed I may say all grew; and as for kinds there is in this respect little or no difference between them; but if there be any, the bearded kind being the most perfect is less liable to accidents of any kind than any other, and hence all grows.

I wish that learned and excellent Professor would try his experiments over again, and should he do so in a wide open field fairly cultivated, I have no hesitation in telling him that he will no longer defend ruinously thick seeding on the plea that double and treble, and in some instances quadruple, the quantity of seed must be sown on the plea that a half, or a third, or a fourth of it is too lazy to germinate and grow, but as soon as it is buried in the ground it falls into a profound sleep from which it never awakes.

But consult Mr. Hewitt Davis, or Mr. Alderman Mechi on the point. The latter purchased a farm which had been in the hands of practical farmers for upwards of 150 years, and the one who was in possession when he made the purchase was considered an excellent farmer. The farm was 130 acres, and the average number of acres sown with Wheat was from 18 to 20 acres, and the average yield was 7 coombs, and observe, my readers, what I am stating is capable of proof, namely, that quantity of seed per acre to produce the 7 coombs was nearer 3 bushels than 2, but I will say 2½, for I am not so certain on this point: but from 18 to 20 acres were on an average grown with Wheat, and 7 coombs an acre produced, that is, taking it at the highest number of acres, and the average annual quantity of produce of 140 coombs.

Now, 5 years afterwards, at one of the first of the worthy Alderman's gatherings, he had 50 acres of Wheat which averaged 11 coombs an acre; that is, 550 coombs of Wheat from the 130 acres against the 140 of his predecessor, and his seed per acre was not half 2½ bushels, but from 4 to 5 pecks only, and still more than double what I should have put in; and from that time to the present I have no doubt whatever but his crops of all kinds have averaged more than 11 coombs an acre.

But my respectable readers are still sceptical. But I will give them another example, viz, the doings of Mr. Hewitt Davis, the whole of whose crops were produced from still less quantities of seed, and they were the admiration of all who inspected them; but as he always says, he learned all that he practised from men who give at least 4*l.* and 5*l.* an acre for their lands, viz., the market gardeners, one of whom, on my asking why he put in his Peas in rows 30 inches, and even 3 feet asunder, whilst farmers put the same kinds in in rows only 6 and 8 inches asunder, replied that he gave 4*l.* an acre for his land, whilst farmers gave only 30*s.*, and therefore they could afford to grow straw chiefly whilst he was obliged to grow corn.

But to return to Mr. Alderman Mechi, and to those who are sceptical in what I have said about his crops, I will say, if they will clear their farms of all useless hedges and ditches and Pollard trees, drain their lands deeply and thoroughly as he has done, really cultivate them also, and twice or three times deeper than they have done, put into them the proper mineral and vegetable manures, and scientifically seed their lands, they will increase the produce of their farms as the worthy Alderman has increased his, and moreover will relieve their country from the painful and humiliating condition she is now in of being indebted to all the corn-growing countries of the world for a sufficiency of food, but would grow enough at home from their own lands, and have some to spare for less favoured nations.

Geo. Wilkins, Parsonage, Wix.

COWS AND CALVES.

The Trade in Cows.—No reliable statistics are at our disposal to prove incontrovertibly the rapid rate at which the cows of this country are annually decreasing, from the constant enormous mortality in town dairies. It is acknowledged by all that reckless mismanagement leads to the rapid destruction of animals tied up for the production of milk in large cities. The misunderstanding on the subject, fatal to salutary reform, has arisen from the diseases of animals being ill understood, and that many-headed monster Contagion having been ignored. Some persons have attacked the system of feeding town cows—which might be better, and could be infinitely worse; others have spoken of the animals not being permitted to take exercise; and however paradoxical it may appear, a town-dairy cow is much safer and healthier, less liable to accidents and disease, if kept tied up by the neck for six months at a time, than if driven about as the cows are in Newcastle, Dublin, and other cities, where freemen enjoy the privileges of common pasture. Pictures have been frequently drawn of dark cellars, too low for a man to stand up in, deprived of any inlets or outlets for pure or foul air, in which the animals can only be seen by gaslight, and where, on inspection, our or five cows are found to be consuming less atmosphere than one would require. All this is very true, and nothing has been lost on the intelligent medical officers of London, who have succeeded in registering the dairies, excluding them altogether from certain parishes, and attending to the purity, cleanliness, and ventilation of all under their control. The paving, drainage, white-washing, and daily flushing have not, however, affected the progress of pleuro-pneumonia. There has been no diminution of disease as a rule. It is raging now, as it has done more or less for 20 years past; and so long as it continues, so long as the town-dairy system remains as it is, we must have the country drained of the animals it so much needs for keeping up the home supply of animal food.

There are those who believe that which is not the fact—viz, that the country supply of milk for large towns is restricting the number of town cowfeeders, and that the wants of large cities can be fully met by dairy farmers. Admitting that a very large quantity of the milk needed by the towns can readily be forwarded from a distance by rail, it is a well-known fact that the town cows cannot be dispensed with. A retailer of milk in the city of London will pay 2½*d.* per quart wholesale for milk supplied by a neighbouring dairyman, whereas he less willingly allows 2*d.* per quart only for the country milk. This may appear strange; but it is easily explained when we know that, to secure the proper carriage of the milk and for the sake of profit, the country dairyman keeps the morning's milk for the afternoon's despatch, and the evening's milk till next morning, so that much of the cream is removed and made into fresh butter, which is readily sold at a high price in all large towns. The town dairyman cannot trouble himself with butter-making, and sells his milk as it comes from the cow, adding, it is true, some water, if he disposes of it directly to the consumer. There are so many advantages, which we need not now discuss, in having an adequate town-dairy supply of milk, that we should turn our attention to altering those conditions which lead to the regular wholesale destruction of the fine cows purchased by the cowfeeders.

That our readers may form some idea of the extent to which our breeding districts have been drained for town purposes, we may mention that cows which were sold 20 years ago for 10*l.* or 12*l.*, realise now from 18*l.* to 20*l.* It is no unusual thing for a dairyman to give 25*l.* and 30*l.* for a cross Short-horned cow—and in spite of these prices the animals cannot be had. They are rapidly diminishing.

It is admitted that the number of cows kept in many large towns—and we may take as good examples London and Edinburgh—has not increased much during the past 20 years. The number, however, annually purchased in any single town is double and treble what it used to be prior to 1840. We perfectly remember seeing animals in the London sheds that had been one, two, and three years in the hands of town dairymen, on whose farms they were kept for a couple of months prior to calving; but now the majority of these animals are sold diseased to the butcher within five months of entering the dairy. The town dairyman has learned that a Short-horned cow leaves an enormous profit if she only lives four or five months after calving, and he knows that his predecessors in the trade erred in keeping the animals on as long as they did; but he does not consider how best to economise the scanty quantity of stock this country can supply. He goes on buying and killing twice and thrice as fast as his ancestors, quite regardless of all consequences.

Formerly the dairy districts spared for the towns the old cows which had to make room for the young ones; but now the lean animal, with well-defined cheek and facial bones, well-ringed horns, and a dropped udder, is not to be seen. Heifers with their first calf are being bought up greedily; and good fat cows, with their second or third calf, are, as a rule, delivered to the town cowfeeders. Can we then wonder that cows are getting scarce? If we could only prolong the average life of the town-dairy cow from six to nine months, the saving to the country would be enormous; and greater would be the saving if we could adopt a system whereby animals milked from five to six months after calving in a town could be returned in calf to the country. That this is practicable and profitable we hope at some future time to show. For the moment, we are desirous only of indicating that the wholesale destruction of cows in large towns is incompatible with an increase in the breeding stock of the country. Any sceptic on this point can easily be enlightened by a communicative cow-dealer or intelligent town dairyman.

The Trade in and Transport of Calves. Presuming that we have shown that there is scope for the exercise of economy in relation to the lives of our cows, we believe we can even more success-fully demonstrate that the interests of the farmer and of the people demand a radical change in the manner in which calves are used.

We do not fall in with the cry that indigestible veal should be banished from butchers' stalls, both by the advice of the Faculty and the strong arm of the law. British veal, if we except the flesh of the "slink calf" or "staggering bob," has been a rarity which gold has usually failed to purchase of late. The greatest consumption of well-fed veal in this country takes place in the metropolis; and whereas formerly the farmers of the counties of Middlesex, Surrey, Essex, Cambridge, Lincoln, &c., supplied their fatted calves at remunerative prices, the London veal trade is now gone entirely into the hands of the foreign trader. From Antwerp and other parts many fine calves are

imported; and animals that have never tasted milk or food of any kind cannot well compete with them.

The treatment of calves in this country is often cruel, revolting, and recklessly extravagant. Thousands of them are born where they cannot be reared, either in country dairy districts or in large towns. They are not permitted to suckle their mother. Thousands of them die within a few hours of being born, and a far larger number during the first week or two of their existence, from mismanagement in feeding. One great cause tending to encourage this state of matters is the ready sale found for a dead calf with its throat cut, whether it has bled or not. We believe that the proper and humane treatment of calves would be greatly encouraged, and their number enormously increased, if a law were passed that no such animal could be sold as human food unless it had been fed or suckled for at least six weeks. This is the law in many parts of the Continent; it works well, and should be tried here. One effect of such legislation would be securing for the farmer an opportunity of purchasing far more calves at a month old than he can get now.

The practice in town dairies is to give the calf the first milking of its mother and then dispose of it at once. Dealers will give 30*s.* and 35*s.* for newly-dropped Short-horn calves. We have known farmers in Aberdeenshire this season give 3*l.* and 3*l.* 10*s.* for newly-born calves in good condition in Aberdeen, and they had then to pay for their carriage home. The mortality has in some parts been enormous, and it is hard to tell what a stock of calves may not cost at present rates. It is singular that, notwithstanding the regular outcry as to the deficient supply of calves, and the frightful mortality amongst them, nothing is done to remedy the state of matters. As a rule, the dealers who buy up in the towns in England send the calves by rail to their destination. Thousands of these young animals travel, crowded in cattle-trucks, for from 24 to 56 hours without food, and having perhaps tasted milk once, if at all, after birth. As the trucks are shunted and stopped the little things roll over each other, the weaker succumb, and are trampled on by the stronger. Two or three huddle up together, and one of them may be so squeezed as to die of suffocation or internal injury. No one cares. The dealer cuts the dead one's throat at the station, and the butcher pays from 10*s.* to 1*l.* sterling for it instead of the farmer getting it at a better price. These are looked upon as the risks of trade; and the demand for calves has been so great of late years, that many have succeeded, in spite of the cruelty, to make money at it.

The calves which survive the railway journeys often die in very large numbers after having been delivered to the farmer. The starved creatures distend their stomachs with any quantity of milk they can get at. The digestive powers of the alimentary canal having been destroyed, diarrhœa sets in, and death soon follows.

If the Society for the Prevention of Cruelty to Animals would lend its influence to put down cruelty to calves, it would do more good than by offering prizes for the painless extinction of the life of vermin. Prizes might be offered for the best railway truck for calves—and we do not see why such a conveyance should not have an apparatus permitting every calf to suck milk from an artificial teat several times daily. The arrangement could be easily carried out, and the expense of feeding the calves on the journey would be amply counterbalanced by the improved condition in which the animals would arrive.

On questions of this kind the interests of the country should be considered before those of individuals. Not 50 per cent. of the calves dropped in the United Kingdom ever live beyond the first fortnight of their existence. No one can dispute this fact; and with scarcity of stock threatening us as at present, it behoves all to offer suggestions, and work to discover a remedy. Now, the town cow-feeder grudges a single meal of milk to a calf. He should be looked after, and made to understand that animals are not to be starved, and that rice-water, hay-tea, baked-flour and water are better than no food at all for the young animals he wishes to get rid of. The calf-dealers specially need looking after as well as the railway companies; and so far as the farmers are concerned, it is undoubtedly necessary widely to disseminate knowledge regarding the very simple treatment required for the prevention and cure of the intestinal disorders so fatal to young animals. *Journal of Agriculture.*

ON BREAKING UP PASTURES.

In all cases I shall presume that, as a preliminary, the land has been well and wisely drained. Although some practical farmers still hold that Grass-land as such may possibly be injured by draining, no such doubt applies to arable, except on the score of excessive outlay.

Clay Land.—The first case we have to consider is the breaking up of Grass on clay or stony loam. On such land the herbage is generally of a coarse character, with here and there tufts and patches of rough Grass which cattle will seldom eat, and never thrive upon. Occasionally the turf is thin, and there is an absence of the long coarse Grass.

Towards the end of February the breast-plough should be set vigorously to work on the turf, that the drying winds of March may make it ready for the fire. Harrowing must precede the burning; twice over will generally suffice. Let the fires be made at equal distances, and not very far apart. The burners will for their own convenience generally attend to these points, especially if the work is done —as it should be—by measure and contract.* As soon as the heaps are charred through let the ashes be spread evenly on the land: if you wait until they are cold combustion will have gone too far, and the ashes will not prove so beneficial as when a great portion of the vegetable matter is merely charred. The black ashes are bettter than those of a red colour. In burning, much depends upon good judgment and management; the fires burn much more slowly, and require more attention, when the weather is damp; but better ashes are then made than in the dry windy weather that frequently prevails in the month of March. As soon as the ashes are spread, horse-plough them in with a very narrow and shallow furrow. It is scarcely possible to plough the land too lightly, for ashes have always a tendency to work downwards, and it is desirable to keep them as near to the top as possible. Another horse-ploughing across the first furrows will sometimes be required, with harrowing, rolling, and the usual operations for reducing the soil to a fine tilth.

When the proper season for Turnip sowing arrives, begin by drilling Swedes, Turnips, Rape, or a mixture of Rape and Turnips; either of these crops would be likely to succeed, especially with an allowance of artificial manure. Part of the ashes made from the burned turf should be reserved for drilling with the Turnip crop, unless it has been determined to use the liquid manure drill.

Sometimes newly-broken land does not get sufficiently pulverised to allow the drill to work freely at first. In such cases it will be better to adopt the old-fashioned plan of sowing broadcast, so that the small seeds may fall into the crevices, and be covered by the use of a chain-harrow, or the common bush harrow; the ground should finally be made firm with an iron roller, Cambridge presser, or clod crusher, and a good crop may then be reasonably expected.

We now come to the consumption of the first root crop, and I would strongly advise that this should be done with sheep as early in the season as is practicable, especial care being taken that the crop be equably consumed over every part of the field. The first Turnip crop is frequently patchy, even where great care and labour have been bestowed upon it; in one spot it may be superabundant, while in another it has almost failed. In such cases a little expense in carting roots to these bare places would be repaid twentyfold. This may appear like "robbing Peter to pay Paul," but as the two will work together in partnership for the future, it is desirable that their powers should be equalised. The addition of cake or corn to the food of the sheep when on the turnips will, of course, increase the prospects of an abundant Corn crop in the following season.

Before any horse-ploughing is commenced it will be advisable to determine in which direction the "lands" or furrows should be, with a twofold object,—1st, for convenience in ploughing, so as to avoid crooked furrows and short turnings; and, 2ndly, for the ready escape of the surface water. I am aware that the mention of water running down furrows may be objected to by some who think it possible in all cases to dispense with water furrows; still, on some of the strong clays, although drained effectually, surface water will sometimes be seen; as, for instance, when a rapid thaw sets in after a deep fall of snow on hard frozen ground; therefore I would say, be on the safe side and prepare for an exceptional case by making water furrows, or you may suffer loss and vexation when the rain is descending and the floods come.

In horse ploughing for the first Corn crop experience teaches us that the furrows should be shallow; the manure from the sheep and the ashes from the burned turf will then be kept near the surface. Oats are generally preferred for the first Corn crop on newly broken land; Wheat is occasionally grown; but taking the average of cases it is best to start with the Oat. With the Oats sow a mixture of Cloverseed and Rye-grass, to be once mown, then depastured with sheep, and ploughed in the autumn for Wheat; or it may be a better course to let the Clover and Rye-grass remain two seasons before ploughing for the second Corn crop.

On breaking up some poor Grass fields (clay soils and subsoil) in the Vale of White Horse, in Berkshire, the following plan was adopted: the turf was merely horse ploughed and planted with Vetches, and an excellent crop was the result. After the Vetches had been eaten by sheep the land was again horse ploughed, and Wheat was planted, which produced an abundant crop; then the land came into the regular farm course. In another field of similar quality the occupier adopted the plan of breast ploughing and burning; Oats were planted, then Wheat was tried, then Swedes: yet all the crops for the first few seasons were either partially or wholly lost, through the ravages of wire worms. This is the only case within my knowledge where horse ploughing has proved better than breast ploughing for the conversion of clay land pasture into arable, and I mention it as an exceptional instance.

Strong Loams and deep Stone Brash.—Strong loams and deep stone brash lands may be classed together, because they should have similar treatment during the first few years of cropping as arable.

* Breast ploughing and burning usually costs from 20 to 25 shillings per acre; this price includes spreading the ashes.

As far as I have been able to ascertain, their treatment will differ from that of clay-land only on these points: that Barley may sometimes be substituted for Oats as the first corn crop, and that Wheat had better be taken after the seeds have stood for one year. All new arable land has a tendency to become hollow and spongy; and if the ground is loose, wire-worms, where these abound, can more readily carry on their destructive operations. Measures should, therefore, always be adopted to keep the soil firm when under crop of any kind. I have omitted to mention Beans as a crop suitable to a clay soil, because on new land they are an uncertain crop. When so planted they frequently look well at the commencement of their growth; but as the summer advances they become weak and sickly, the blossoms fall off, and at harvest, although there may be a fair quantity of haulm, but very few corn-pods appear on the stalks; still Beans* may in some situations be advantageously substituted for Clover after the first corn crop.

Chalk.—In this branch of my subject I shall have chiefly to speak of those Down pastures that once exclusively occupied the long ranges of our English chalk hills, to which of late the operation of breaking up has been most extensively applied. Friends who occupy large tracts of such soil concur with me in opinion that here also the breast-plough and fire are the best agents that can be used; and that to adopt any other course is to invite failure. One approved plan is the following:—Pare the turf as thin as possible, burn it when sufficiently dry, and, when the ashes are spread, "rafter" † the land with the horse plough; in the autumn "rafter" again, across the first work, and plant Wheat as the first crop: a Turnip crop follows, and then the field enters into the regular farm culture. Some good cultivators, after paring and burning in the same season, plant Swedes or Rape and Turnips, to be followed by Wheat or Oats. Where there is a fair chance of success, the gain of a Turnip crop, with its attendant benefits, is not to be neglected. But the judicious farmer, like the skilful physician, must have regard to every feature in the patient's case.

Gravel on Chalk.—Some of the chalk hills, such as those in the neighbourhood of Henley, in Oxfordshire, have a surface soil of gravel and flints. In breaking up such lands as these, both the author and some of his acquaintance have taken the following course:—The ordinary horse plough was followed by a "Land Presser," which forced the Grassy edge of the furrow slice to the bottom of the furrow, and at the same time made deep channels and a firm bed for the seed corn. This "presser" consists of two heavy iron wheels, about one yard each in diameter, and a light guide wheel, all fixed into a frame connected with shafts. One horse draws the presser after two plough teams, and each heavy wheel works between two furrow slices; the guide wheel runs on the unploughed ground about one yard from the furrow. In the cases referred to, Oats were sown for the first crop, and they answered well. After the Oats, it was invariably found that the turf had decayed, and was reduced to vegetable mould, which was easily pulverised by ordinary methods. These gravelly soils on chalk appear to possess the property of causing vegetable matter to decay in a short time, and, where such rapid decay takes place, burning turf would be a wasteful process.

Sandy Soils.—Sandy soils never make rich pasture land, but poor pasture on a deep sandy soil frequently makes profitable arable land when broken up, and in bringing such into cultivation the plough and presser may sometimes be used with advantage. But here, again, the paring and burning process is the safer course to adopt. If the land has not been burnt, a deeper furrow must be given than when ashes are ploughed in, otherwise there will not be sufficient soil to pulverise for the covering of the seed corn, if corn be the first crop. But here, again, I would advise that a Turnip crop be first grown, and consumed on the land with sheep, and then there will be almost a certainty of a good corn crop. The treading of the sheep, apart from their manure, is generally thought to be very beneficial on fresh broken land; the fibrous turf roots are parted and torn to pieces by the feet of the sheep, so that they decay more rapidly, and become food for succeeding crops.

Thin Stone Brash.—On the poor pastures of a thin stone brash soil there is not sufficient mould to produce a thick turf; coarse patches of the worthless Carnation Grass are here frequently found, the tough roots of which resist decay for a long period if ploughed down; therefore burning should be resorted to in breaking up such land. When the paring and burning has been finished and the ashes spread, a second breast ploughing, to be followed by harrowing to separate the tough fibres, will frequently be found cheaper and better than horse ploughing; even if a third breast ploughing be

* It may not be generally known that old Beans used as seed frequently produce a much better crop than new seed Beans. The writer could mention many remarkable instances of the kind, and is so fully impressed with the advantage of planting old Beans, that he seldom uses any other except for experiment.

† *Raftering.*—This is frequently done by taking off the "ground wrest" and "turnturrow" from an ordinary plough, and substituting a bit of wood (about 6 or 8 inches long, and 3 inches in depth) for the "turnfurrow." With the plough so prepared, alternate strips between each furrow are left unploughed, and the furrow slices are laid on this true unmoved ground, so that only half the land is actually moved; the work can also be done with an unaltered plough.

given before the Turnips are sown, the extra labour and expense will be amply repaid by the abundance of the crop. The Barley, which should follow this Turnip crop, may either be drilled after a shallow horse ploughing, or it may be sown after the sheep have been removed, and merely breast-ploughed in. Then a mixture of seeds should always be the third crop taken, —it is useless to expect a poor thin stone brash soil to yield a large or profitable return, unless it receive liberal treatment.

Peaty Soils.—These lands never afford good pastures, and the hay taken from them is always of a light and poor character; as their culture is not difficult or expensive, the occupier has always strong inducement to convert them into arable. Such lands are never so easily, cheaply, or successfully brought into cultivation, as by paring and burning. Whilst gravelly soils appear to hasten the decay of vegetable substances, peaty lands seem to possess an opposite quality.

I once broke up a field of 16 acres of well-drained peaty land with a clay subsoil, the owner of which at that time held the theory that burning vegetable matter of any kind was a wasteful process, and that the fire destroyed much matter that would be valuable if reduced to decay by natural decomposition. The turf was therefore pared off, and drawn together into large heaps; then the land was dug about five inches deep during the winter; at spring there appeared to be an excellent seed-bed; Oats were drilled in, but the ravages of the wire-worm commenced as soon as the Oats were planted, and the kernels from a large portion of the seed were eaten before they had time to sprout. The few plants that survived were fed off on the field by sheep; the land was worked with ploughs and harrows during autumn, and in the following spring Oats were tried again, and again the crop was nearly destroyed by the wire-worms. Yet, after a while, this field showed its productive powers by growing very full crops. This case of failure may act as a warning to those who may have occasion to convert peaty pasture-land to arable. To such persons I would say, breast-plough and burn for the first Turnip-crop, and then horse-plough as shallow as possible, and plant Oats; after the first Oat-crop Turnips or Swedes again (if a full crop, a portion of these roots may with advantage be removed to other land or yards); then Oats again, with Clover and Rye-grass seeds; then let the land take its regular course on the farm, unless Wheat should be considered hazardous, as it is very liable to blight and mildew on such land. Perhaps for the first few years no safer or more profitable plan could be adopted than the following, which has stood the test of experience on land such as that described:—1, Turnips; 2, Oats; 3, Grass, to be mown or fed, then (in the next year) breast-plough and burn for Turnips, and so on.

General Remarks.—It may be objected by some readers that in treating of the subject of the conversion of Grass land to arable I have merely raised a cry of Fire! fire! It is true that I have recommended burning as the safest, cheapest, and best mode that can be adopted; and I do so because experience, observation, and extensive inquiry over a large district, confirm my opinion on this point. Many persons have endeavoured to prove, and perhaps have clearly shown by experiment, that nearly all vegetable matter loses some of its valuable properties when subjected to fire, and that a greater amount of manure is produced by gradual decay. Still, it must not be forgotten that by burning turf time is gained, and a strong stimulant is secured in the first year for the fundamental crop of Turnips, which, being forced to early maturity and great bulk, will probably give back to the land as manure a far greater amount of valuable matter than can have been dissipated by the burning. Ashes also act mechanically, and on strong clay soils cause an advantageous separation of the earthy particles, and also make the soil more dry and healthy for sheep when folded thereon.

Let me suggest to clay-land farmers an inexpensive experiment—that in breaking up pasture on a strong clay-soil they should take the opportunity of clod burning, as practised in some parts of Worcestershire with marked success. The dried turf would, I believe, with the addition of a small quantity of coal, provide sufficient fuel to burn very large quantities of clay and thus secure the benefit of a heavy dose of burned soil, with comparatively slight increase of cost.

I will now endeavour to meet the objections that I anticipate will be raised against my proposals for cropping newly-broken land.

It may be said that new land will yield many corn crops in succession, and therefore to plant the less profitable green crops at first would be to reject a benefit when within our reach. Unfortunately for much land in England, and, I think I may add, unfortunately for many tenants also, the exhaustive system of cropping is too well known and too frequently practised to render it necessary for me to give any instruction on that head. The plans for cropping suggested by me are such as I consider likely to raise the fertility of the various soils instead of lowering them; and I cannot believe that any system that has a tendency to reduce the standard of fertility can possibly work for the benefit of any class for a lengthened period. Surely the farming of England cannot be right, unless year by year English land is increasing in fruitfulness. There has been, and there still is, a strong prejudice on the part of owners against breaking up pasture; and if we may judge by what has been done with newly broken-up land in many places, the objectors have full and sufficient reason for their opposition. Nearly every farmer could point to fields that he once knew as poor pasture, then as heavy corn-bearing land for a few years, and later and ever since as poor, very poor arable land, and "he knows the reason why." Surely, then, it is time that exhaustive systems were abandoned, and more liberal and renovating methods established in their stead.

The question of breaking up pasture, in its broader bearings, not only affects the interests of the landlord, the tenant, and the labourer, but enters so deeply into the general supply of food, and field for the employment of labour, that it more or less concerns the whole community. He who recognises the wisdom of him who wrote that "The profit of the earth is for all: the king himself is served by the field," * will feel the national importance of the subject.

No one, however, would advise the indiscriminate breaking up of pasture land; there is much rich grazing ground and whole districts in the dairy counties that ought to continue as they are; but, on the other hand, there is much Grass land that has always been unsuited for pasture, its character being such that it could not by ordinary means be made very productive either to the dairyman or grazier. This inferior land (unless rendered unfit by climate, altitude, heaviness of soil, or other peculiarity) would, if brought into cultivation under fair restrictions and a well-regulated course of cropping, be more profitable to all parties concerned than it is at present.

On the other hand, there is much old cultivated land that would be benefited and renovated if laid to Grass for a few years, so that on many farms for every field broken up another of equal extent might be devoted to pasture. Our root crops would at all events be benefited by the exchange if, as seems likely, the difficulty which has arisen of late years of securing a good growth of Turnips has been caused by the repetition of these crops on the same land. Two fields in my own occupation which once grew immense crops of Swedes, now, with more liberal treatment in manure, &c., are most precarious in their yield. The Swedes when planted make a good start, and a stranger would suppose them to be quite secure; but as the summer advances decay begins at the roots, the leaves droop, and the plants become entirely rotten when they have reached the size of a hen's egg. Would not new land be a remedy for these and innumerable other cases of a similar kind? *C. Belcher, Little Coxwell, Faringdon, in the Journal of the Royal Agricultural Society.*

Home Correspondence.

The Return of Mr. C. S. Read for East Norfolk is a matter so significant that it cannot properly in an agricultural journal be passed over in silence. It is not on account of Mr. Read's political creed, for that we will not at present inquire about, but the fact that the agricultural interest has at last succeeded in securing an independent representative is one of great importance, as marking an improved intelligence about to dawn upon a large, intelligent, and, we think, almost unrepresented interest. It is true that many of our county constituencies return gentlemen interested in land, sometimes as landlords only, at others, too, being themselves no bad farmers, but these gentlemen after all mostly represent their own class, and not the tenant farmer. But it does not follow that a country gentleman knows anything at all of farming. Too frequently, indeed, is he called upon even in his own county to regulate affairs connected with landed property of which he knows nothing, or to decide as a magistrate upon points of law upon which he knows less. In both cases it is true he may have an agent to act for him as a landlord —to get his rents and do some little underhand matters about shooting and the like, and in legal matters the magistrate's clerk does the business, but this is by no means the manner in which agricultural and rural matters should be decided. Just as well is it to have a landlord to represent the tenantry of England, and we rejoice to think that the time is fast approaching when our country gentlemen will advance in their education with regard to both the laws of nature and the laws of the land, and as they do so they will be even fitter representatives of their class than they are at present. We rejoice to think that the tenant farmer is increasing in intelligence, and it is a proof of this position when we find them so eagerly choosing as a representative the first tenant farmer who has ventured to offer himself for a county. We say that as yet the farming class is not properly represented, and it is no answer to us to say that some small places called agricultural towns return members; these, it is true, may represent the town, but not the surrounding rural population, for while trade in small boroughs is tolerably well represented by any man who does all his shopping therein, such man usually knows even less of the agricultural interest than the town lord. On these grounds it is that we most earnestly hope that our agricultural friends will lose no opportunities of choosing representatives of their own class—there are plenty of them. The Church, the Bar, the Railway, the Landed, and other interests are all represented, and why then should one of the most important interests be left out? It is indeed a time when different interests are struggling to make influence in the Councils of the nation, and with good reason, when it has come to be considered that people can scarcely want any kind of change unless they become clamorous for it. *J. B.*

* Eccles. v. 9.

Bromus Schraderi alias Anthistiria (Willdenow).—This species of Grass seems to be making some noise in the agricultural world. I am able to contribute some little information respecting it which may perhaps be acceptable. I can testify to the species which I grow, and from which my seeds were gathered, being perennial, as the enclosure brought under my notice had been laid down five years, and the crop, about 2 feet in height, was apparently very succulent. From the slight experience I have gained in England it seems to be earlier than the Italian Rye-grass; whether or no it will retain its vigorous habit, or be as acceptable to stock as it is at the antipodes, is a question that time only can solve. The proper time to sow it in this climate is, as far as I can judge, July and early in August. In January, 1864, I was in New South Wales, and had the pleasure of meeting with a large landed proprietor living at New Sydney, who is not only an extensive cultivator, but has much of the energy of the "old country" in his experiments. He has cultivated this Grass extensively for several years, and has found it, in his hot and dry neighbourhood, a most valuable forage Grass, cutting heavy crops twice a year. I saw one inclosure cropped with it, and was much struck with its vigorous growth. On making inquiries about it, I found its popular name at Sydney was "Californian Prairie Grass." I happened to meet with an old Californian digger, who assured me that it was common on the hills in California, and was not injured by the severest frosts. A botanical friend at Sydney said that it was a species of Anthistiria (Willdenow) and recognised as such by Leichardt. I did not hear of it in Queensland or at Melbourne. My own experience of it has gone thus far: I returned from Australia in the autumn of 1864 and brought with me a quantity of seed which I sowed in October; the plants came up in November, and although so young and tender they stood through the rather severe winter of 1864 and 1865 well. I had early in the present summer a good crop of its Oat-like seed, and after cutting it when thoroughly ripe the roots have put forth a promising crop of forage. I have read the advertisements of the "Bromus" (which I believe to be the same as my Anthistiria) at 1*s.* a packet, with some amusement, for I could have reaped a tolerable harvest of shillings had I not thought it more prudent to see how it suits our climate before offering it for sale. I may add that in New South Wales it seems to give abundant forage. The proprietor above mentioned is a large dairy farmer, makes much cheese, and finds this Grass very nutritious for his stock. It seems to be earlier than Italian Rye-grass, and may prove a very valuable addition to our early spring fodder. I almost fear those people who disbelieve the Cambridgeshire transformation of Oats into Barley will smile when I state the fact that some roots of this "Oat-grass," the flower-stems of which I cut off to observe the effect on the forage if thus treated, have thrown up ears of Barley—odd, but true. *Jno. Rivers, Sawbridgeworth.*

Crops in Essex.—Wheat first-rate on the strong cracking clays, which suffer most in wet weather. Not so full a plant on more friable soils, and rather light on hot soils; the ears particularly well filled, owing to a long quiet blooming time. Barley generally full average. Oats much complained of. Beans moderate, owing to the blossom falling off. Mangel (where a plant) very good. Turnips ditto. Late Potatos very good. Hay and Clover a very light first crop. Around this neighbourhood the crops generally are good, and there is a very marked progress in the farming. My own crops of all sorts never were better. Harvest began on the 17th, and will soon be general. The parched up pastures are now a rich green, owing to the heavy and warm rains. Food for stock will be now abundant, and must influence the value of lean live stock. *J. J. Mechi, July* 22.

Depth of Water in a Well.—Through your columns I propose to furnish Mr. Denton with the dip of a well at Cirencester in 1863, 1864, and 1865. There is a bed of gravel about 10 feet under the surface of the valley in which Cirencester stands, and water is constantly descending through it to the Thames, three miles south of the town. The gravel bed rests on the fuller's earth, a more or less water-bearing stratum, and underlies the river Churn, which, rising on the high ground of the Cotswold Hills, near Cheltenham, descends 500 feet in 12 miles to the vale of the Thames. In this gravel bed at Cirencester the Romans sunk many wells, and it is one of these, not in use, the depth of which we have given. The average rainfall is 30 inches, but that of 1863 was only 27.95, and of 1864, 24.6. The fuller's earth not being deep under the surface, is soon affected by great rains; we have noted this effect in the subjoined Table. As the average rainfall of summer is greater than that of winter, we can only attribute to evaporation the fall of water which always takes place from April to October. Does not this point to the use of checking evaporation in high dry soils by means of plantations, as much as encouraging it in low-lying clay districts, by clearing away timber and by deep cultivation? In attributing to evaporation the absorption of

rain-water in summer, we must not forget that during that season the whole surface of the earth is being pumped by the roots of plants, and that a vast quantity of water is in this way abstracted from the soil.

Dip of a Well at Cirencester.

	1863.	1864.	1865.
	Feet.	Feet.	Feet.
January 1 ..	8.0	7.8	5.7
February ..	8.10	8.0	8.5
March	7.9	8 2	9.8
April	6.10	8.9	8.4
May	5 11	7.2	7.1
June	5 2	6 4	6.3
July 1*	5.10	5.4 }	{5.7
,, 15		4 10 }	{6.5†
August 1 ..	4 7	4 5	
September ..	5.0	3.7	
October	4.9	3.0	
November ..	5 3	2 2	
December ..	7 1	1 6	

Thomas C. Brown, Further Barton, near Cirencester.

Societies.

Penwith: *Agricultural Progress.*—At the annual meeting of this Society, lately held near Penzance, the Chairman, T. S. Bolitho, Esq., gave the toast of the day, "Success to the Penwith Agricultural Society." He could not quite tell the age of the Society. It was established about 80 years ago; at any rate, it was amongst the earliest societies in England. The first agricultural society ever started was in Scotland, in 1720. Some other societies, almost entirely confined to the extreme North, were originated between that time and the year 1770, which gave birth to a society which had been one of the most successful, viz., the Bath and West of England. He thought that might be looked upon as the oldest English legitimate society. Agriculture in these isles was at the lowest point until within the last 200 or 300 years. The population was scanty, and they were ill-fed. In the year 1841, at the instance of Sir Charles Lemon, he took some trouble to ascertain the quantity of animal food consumed in Cornwall, and he then found that the number of bullocks slaughtered did not exceed 16,000 a-year. Within the last few years an estimate had been carefully prepared, showing that the number of cattle slaughtered in Cornwall during the year 1864 was rather over than under 25 000. If that had occurred in Cornwall, he had no doubt a similar improvement had taken place elsewhere. He was aware that some cattle were brought into Cornwall, and he found that about 4000 head of cattle were landed in Cornwall last year; but, on the other hand, he was aware that a very considerable number of fat cattle were sent out of Cornwall, either slaughtered or alive. Probably he was not far out of the way in saying that the number of fat cattle sent out of Cornwall amounted to about 1500 or 2000, which must go in diminution of the 4000. He had no means of knowing the number of cattle sent out of the country as store cattle, which they were aware was a very important trade in the northern part of the country, but he had reasons to believe that the trade was not less in weight than it was in the year 1842. Now he maintained that much of this improvement was to be attributed to agricultural societies. Therefore it was that he asked for support to these societies. Still more did he ask for the sake of what this and other societies must be hereafter. He was too well known to be set down as an enthusiast; but he firmly believed that England was destined to produce very much larger quantities of food than she had hitherto produced. The present high price of animal food was a subject of universal interest, but he regarded it without apprehension, being one of the means by which British agriculture would by-and-by take its proper place among the various industries of the nation. The total number of animals imported into England in the year 1864 was 180,000, being a very large increase on what it was before. He believed the imports of 1863 were something like 110,000 only. The number of sheep imported was just half a million, which was no very great increase on former years; but he was surprised to find there was a very large increase in the number of pigs. He believed there were 85,000 imported last year, as compared with 25,000 the year before. Now, these were important facts—and it was for them to see whether they could not prevent the necessity of such a large importation of cattle. He firmly believed they could. It was very true they might not be able to produce all the corn their friends required, but he thought they could compete with cattle and corn. Now what was to be done? First, the landlords must not be behindhand in doing their duty. He had very lately been travelling over a great part of England, and he was very much struck with points connected with agriculture, but nothing attracted his attention more than the great saving of land which was effected wherever he went. He did not think there were any very large tracts of land in Cornwall lying waste, but he thought there was a vast number of small tracts, and he considered it was one of the duties of the landlord to place them in a state of cultivation. Secondly, it struck him that they ought to bring a very much larger number of sheep into Cornwall, but this could not be done until they had better fences, the provision of which he looked upon as being another duty of the landlord. With regard to their buildings, in no county in England were greater improvements being effected, but still a very large proportion of them were of the very worst description. That was another difficulty which they must get over. Then, again, he thought it was the duty of the landlords to do as much as they could, each in his own sphere, to promote the improvement of stock. What was to come of legislation? On some occasions it certainly had done some good for agriculture. Among the things it did for agriculture was the Tithes Commutation Act, but he should like to see legislation go one step farther and pass a Tithes Redemption Act — in order that the landlords might have an opportunity of reducing the tithes, of which, he believed, a great many would avail themselves, thereby giving them the largest possible interest in the cultivation of the soil. He looked forward to the time when the farmers of this country would have to contend with great difficulties. They were surrounded by most formidable competitors, for he saw in France and other parts of Europe a determination on the part of the Governments to foster and encourage a spirit of emulation among all classes, from the nobles downwards, on behalf of the agriculture of their countries. The improvements going on in those countries were very great. Adverting once more to the necessary improvement in agriculture, he observed that the first thing which struck a person was the presence of an enormous quantity of weeds. They all knew it was a very unsightly thing, and there must be great improvements in that respect. To the Grass and seed he did not think sufficient attention had been paid. He was by no means sure that the day had not come when their system of sowing Clover and Rye-grass would be abolished. The next question he would advert to was one of still more importance, viz., the economy of manure. When he said that no less a sum than 2,000,000*l.* of money was spent last year upon guano, he thought that the importance of economy in the manure of their own farms must force itself upon them. A very large portion in that neighbourhood was entirely wasted. It was not only economy in the saving of manure that should be observed, but in the application of it also. What did they see done in Scotland? In one place in the neighbourhood of Glasgow there was a farm on which were kept 700 cows, and those cows yielded 15,900*l.*, being over 22*l.* per head, a result mainly attributable to the use of liquid manure. In regard to pigs there had been a most astonishing increase, for last year 6966 were sold in Penzance market as compared with 4050 for the previous year. —*Abridged from the Royal Cornwall Gazette.*

North-east Ireland: *Best Breeds of Cattle for Ulster.*—At a late meeting of this Association, Mr. R. O. Pringle, of the *Farmers' Gazette*, read a paper, from which we make some extracts:—Ulster presents a variety of circumstances which necessarily affect the character of the stock suitable for it, large tracts of fertile low-lying lands, and, again, equally extensive ranges, which consist chiefly of elevated mountain pastures, where stock-keeping is pursued under very different conditions from those which affect farmers in more genial localities. Then there are districts of a middle character. Ulster is also conspicuous from the prevalence of small farms, of which there is a larger proportion in the northern province than in any of the other provinces into which Ireland is divided; and, though this fact does not necessarily affect the description of cattle best suited for a particular district, yet it does affect cattle management in those districts, and is altogether too important a matter to be wholly overlooked. Ulster has never enjoyed the same reputation as a cattle-producing province that has for many years been possessed by the other provinces, yet we are well aware that, wherever the subject has been properly attended to in Ulster, the results have proved that as good cattle can be produced in "the Black North" as in any part of Ireland. The latest information we possess on the subject, as given in the general abstracts of Irish agricultural statistics for 1864, shows that there are in Ulster 928,283 head of cattle, of which 430,659 are milch cows. If we take the different classes given in the Registrar-General's returns as an index of the cattle trade of Ulster, we must at once perceive that only a limited proportion is retained after they are two years old. The majority seem to pass from the rearers into other hands, so as not again to come into the annual stock-taking while under two years old. The business of the Ulster farmers is, therefore, to rear young cattle chiefly for exportation; and this fact assists us in arriving at certain conclusions affecting the question we have now under consideration. Those who purchase the young beasts reared in Ulster naturally wish to have a thrifty description of cattle, which will grow and fatten readily when put on good keep; and it is the interest of the Ulster farmer to supply his customer with the kind of animal which best suits that customer's views.

1. *Short horns.*—There is one breed of cattle which possesses in an eminent degree that disposition to attain maturity at an early age, which is so valuable a characteristic in the estimation of those who are engaged in the final processes of the meat manufacture—in finishing the animals for the use of the butcher; and it is evident that the more closely the young stock which are bred in Ulster are allied to this breed, the better will be the demand for them. It is scarcely necessary to say that I mean the Short-horned breed of cattle. As wherever local circumstances are favourable, I feel assured that Short-horns or crosses of that breed will be found the most suitable description of cattle to rear in Ulster. Those who are acquainted with the district will bear me out in saying that there is not perhaps another district in Ulster, of similar extent, where improvement in cattle breeding has been more rapid or of a more marked character than it has been in that part of the County of Down which is included in the Downpatrick Union. So much is this the case that Mr Chaloner, of Kingsfort, who has been long famous as a breeder of Short-horns, declared, when acting as one of the judges at the Show of the Downpatrick Union Agricultural Society, held in 1864, that "he considered the cattle exhibited in the second class at the Show that day were the best he had ever seen in his life." This was high praise; and Mr. Chaloner afterwards backed it by again stating that "their second or tenants' class was a credit to their county. He had never seen so good a second class in his life." Sixteen or 17 years ago there were scarcely half-a-dozen of beasts at a Downpatrick Show worthy of being looked at twice. And how has this change been effected? Simply by some of the landlords, and particularly by two who own extensive properties in the district, namely Lord Bangor and Mr. Maxwell, of Finnebrogue, having prudently gone the right way to work by providing a sufficient supply of pure-blooded Short-horned bulls, of which not only their own tenants, but those also of other proprietors, have availed themselves. The young cattle—yearlings and 2-year olds—bred in this way are worth in the market more than double the value of unimproved cattle of the same age bred in the district, but the produce of a bad description of bulls. Mr. Maxwell and Lord Bangor may indeed, as Mr. Samuel Morrow said at the meeting of the Downpatrick Society, to which I have referred, have "cut a rod to whip themselves," when Mr Morrow and others can go into a show yard now-a-days and carry off the leading prizes. But this is the very object to attain which both Mr. Maxwell and Lord Bangor have been labouring for years; and I am convinced they feel more gratification from having so far succeeded than if they had continued to make the race and divide the prizes while the tenant farmers only followed at a great distance, scarcely within sight of the winners. Allow me to say that a similar motive should actuate all landlords in Ulster; for it is obviously their interest that the cattle bred by the farmers in the province shall be improved as much as possible. I put all considerations of what is called "duty" out of the question, for in reality it is merely a matter of pounds, shillings, and pence. If the use of well-bred Short-horn bulls more than doubles the value of the young stock as we have seen has been the result in Lecale, this is just a doubling of the amount of cattle at the disposal of the farmers; and if the value of the stock may be still further increased by a more extended system of root-crop cultivation, then this is also a pounds, shillings, and pence affair, affecting materially the interests of landed proprietors; for everything which increases the tenant's capital renders him better able to face the agent when rent day comes round, and not only better able to do this, but better able to provide for his family. The course to be adopted is plain, and money expended upon the purchase of good bulls, for the use of the tenantry on any estate, is money well laid out, returning an amount of interest beyond that which can be obtained from any other mode of investment. To buy a bad description of bulls, on the other hand, is just to throw the money away.

In speaking of the pure Short-horn as the best breed, in my opinion, for improving the ordinary description of cattle in Ulster, where natural circumstances are favourable to the introduction of that breed, it is possible some may object that Short horns are not good cattle for the dairy, different ideas on the subject appearing to prevail in different parts of the country. Yet objections to Short-horn cows are perhaps not altogether without foundation; but it must be remembered that it is not of high bred cows of which I am now speaking, but of well-bred bulls, as being desirable for the improvement of the ordinary breeds of the cattle in the country. For it must be taken into consideration that everything comes to the butcher's scales at last; and, while our milch cows produce heifer calves which may, perhaps, be reared into dairy cows before they reach their final destination, they also produce bull calves, which, as bullocks, form a considerable proportion of the stock which is fattened when between two and four years old. A disposition to fatten readily, with weight of carcase and a good quality of flesh, must be looked for, and when this can be obtained without injuring the milking properties of any well-known dairy breed, then a most important object will have been accomplished; and I maintain that all this can be done, although the highest bred Short-horn bulls in the kingdom are used in crossing a purely dairy breed. It is as well to state at this point that the more highly bred a bull is, the more likely is success to follow crossing. This is an essential principle, and I hold there is not, nor ever was, a bull at Warlaby too highly bred for crossing purposes, if used with judgment.

2. *Ayrshires.*—Now, there is one well-known dairy breed to which many in the North are partial—I mean the Ayrshire. But, however suitable the pure Ayrshire may be, simply for the dairy, especially where the pasture is not of a rich description, they are not graziers' beasts. The breed has been long cultivated entirely for its milking properties, and the points which indicate an animal of which the carcase will yield a good proportion of valuable roasting pieces are wanting. Size is also wanting, a very great consideration, provided the size is of the right sort, and does not arise from large coarse bones; and of late I have seen a tendency to overlook fixity of type even in prize animals, when the milking points were all right. Thus we have been accustomed to consider well-defined patches of red and white as essential in an Ayrshire, but I have seen black Ayrshires, and others black and white—that is, they were entered in the Ayrshire sections at Scotch shows, and got prizes as being pure bred. This may be all right enough, but I doubt it, and certainly such awards upset all our ideas of Ayrshire colours at least. But Short-horn bulls have been used in crossing Ayrshire cows, and the cross, while improved in form for beef purposes, has not been injured in its milking properties, at least to any serious extent. A change, however, seems to take place in the quality of the milk. This was first pointed out to me by Mr. M'Lean, Clermont Park, near Dundalk, who is a very acute and close observer of such matters. His experience, founded on repeated trials, was that the crosses of the Ayrshire with the Short-horn yield milk which produces more butter than the pure Ayrshire, while the milk yielded by the latter produces more cheese. Mr. M'Lean does not pursue crossing beyond the first cross. There is one thing which must be observed, namely, that as the crosses are heavier animals than the pure Ayrshires, they require richer keep. So far as the Ayrshires are concerned, considered as a pure breed, it must not be forgotten that a most competent judge of stock has placed on record his opinion that "no other breed can equal them for the converting of the produce of poor and medium soils into butter and cheese." This, therefore, is their peculiar province; but when the butcher's scale is kept in view, and where due provision is made for a heavier description of stock, they should be crossed with the Short-horn. But it may not be out of place if I offer a few observations on the prevailing idea that all pure Short-horn cows are necessarily bad milkers. There is not a doubt that the original Short-horns were heavy milkers, and of this we find good evidence in George Culley's "Observations on Live Stock."

* The rainfall in June, 1863, was 5.32 inches, the average being only 2 87 inches, and this accounts for the rise of 8 inches in the water

† An extraordinary fall of 4.50 inches in eight days of the present July, has already caused the rise of 10 inches, on dipping the well on July 15.

He gives the following in a foot-note: "There are instances of cows giving 36 quarts of milk per day, and of 48 firkins of butter being made from a dairy of 12 cows; but the more usual quantity is 4 firkins per cow in a season, and 24 quarts of milk daily."

Kerry Breed.—I mentioned that there are extensive ranges of mountain pastures in Ulster; and, where such is the case, breeds suitable to the climate and the land must be looked for. There is one native Irish breed well suited for such cases, to which I consider it most desirable that more attention were paid. I mean the Kerry, which is usually looked upon as a hardy breed, but, nevertheless, possesses certain properties eminently deserving of consideration. Kerry cows are excellent milkers, and not only are they so, but they fatten rapidly when dry, and "die well." The great misfortune is that Kerries have been left to nature in a great measure, and I have long felt convinced that anyone who had the taste and judgment to do so, would find it to be his interest to set to work and improve the Kerry breed—not by crossing, but by judicious selection. They would make first-rate dairy cows for small farmers in hilly districts where keep is often not over-plentiful, and when brought to better pasture would be found to pay the grazier, and please both butchers and consumers. The West Highland breed has been successfully introduced into Donegal, and in other exposed districts the Galloway might be bred and reared with advantage. Galloways were at one time very common in many parts of Ulster, and to the present day a good bullock or heifer will not stand long unsold in a fair. In fact, it sometimes happens that beasts which would be horned if left as Nature intended, are manufactured into polled cattle in order to meet the views of those who prefer hornless animals. There is a great deal of middling land in Ulster well suited for breeding Galloway cattle, and it must be remembered that this breed is always in demand—the bullocks for grazing purposes, and the heifers for putting to Short-horn bulls, in order to obtain those splendid crosses which suit the fancy of the London West-end butchers. The Galloways, however, are purely graziers' beasts, and not to be depended upon for the dairy. Of late, Lord Cremorne has introduced into the county Monaghan the polled Suffolk breed, which has long been held in high estimation as dairy cattle. The experience which has been obtained of them at Dartry confirms the justness of this opinion, and there is little doubt that crosses of them with the Short-horn will make a valuable description of cattle for the grazier.

Farmers' Clubs.

MIDLAND COUNTIES.—*Land Tenure.*—At a meeting of this Club at Birmingham some time since, during an adjourned discussion of this subject the following remarks were made by Mr. NEWDEGATE, M.P.:—

The subject of compensation to tenants was not a new subject to him; for in the year 1849 he moved for a Committee in the House of Commons to consider the agricultural customs of England and Wales. The House of Commons assented to the appointment of a Committee. He then found that he was superseding a late friend of his, Mr. Pusey, and he therefore waived the right he had, according to the custom of the House of Commons, to preside over the committee, and had Mr. Pusey appointed chairman instead of him, because Mr. Pusey's services to agriculture, to say nothing of his personal respect for him, were such as to entitle him to the distinction of presiding over the committee. But he took a most anxious interest in everything connected with the proceedings of that committee, and although those proceedings did not result in a specific suggestion for agreements, they led to an improvement of the law, whereby the agricultural tenant was placed, with respect to his right to fixtures, in the same position as men who occupied premises for commercial purposes. There was another important, though indirect, result from the labours of that committee. He meant the power granted to the Government to make advances for the improvement of land, and especially with a view to the relief of those landowners who, being only tenants for life, might be unable otherwise to procure the means of improving their estates. But there was another result, and it was the most important of all. At that time a certain number of influential persons entertained exaggerated views on the subject of tenant right; and he was happy to say that the publication of the evidence of that committee brought every one to a more temperate feeling as to the rights of tenants and as to the rights of landlords in respect to the agreements between them, and he thought it tended largely to continue that happy understanding between landlord and tenant—that kindly feeling of good neighbourhood which had distinguished this country, and had for years proved one of the main elements of the strength of society throughout England and Wales; for they had seen in Ireland that this subject might be used for the most dangerous purposes, and they found from the evidence taken by that committee that the agricultural system in some counties had, like many other good things, run to seed. For instance, in Surrey the compensation of the outgoing tenant was crippled by what he paid on entering, and he found that the farm did not suit him, still he was fixed there because nobody would repay him the enormous outlay he made on entering; the landlord was perfectly nonplussed, and the deterioration of agriculture was perfectly lamentable. Now it appeared to him—he being, as Mr. Chawner knew, a well-bred Lincolnshire man—that the remedy for this state of things was the spontaneous adoption of a wholesome form of agreement between landlord and tenant—a yearly agreement; for he was one of those who disliked leases. He knew that he was opposed to the opinion of some upon this subject; but he thought a twenty-one years' lease meant generally seven years of improvement, seven years of perfection, and seven years of deterioration. It had this effect also: that the landlord felt exempted from the application of any part of his capital to the improvement of his estate, and he thought this a positive evil. Under a wholesome form of yearly agreement the partnership of the landlord with his tenant was maintained, the tenant had an opportunity of leaving, unless advice was lone to him; and the landlord had an opportunity of joining in improvement in that system of kindly co-operation which he hoped would always exist between landlords and tenants. This was no matter of speculation; it was a matter of experience. He derived the greatest assistance from the advice—aye, from the education he received from a late relative of his, Mr. Boucher, who was a landowner in Lincolnshire, and was one of those who joined in the early improvements of that county with the late Mr. Chaplin—an improvement which had proceeded till the agriculture of Lincolnshire surpassed even that of the lowlands of Scotland. He found from them, and it was proved before the committee, that the great element of success was the system of yearly agreements, embodying compensation clauses for permanent improvements made by the tenant. Therefore they had the evidence of success, in the most successful of the agricultural districts of England, to recommend the adoption of these agreements. The committee felt that they had no right to dispose of the landlord's capital any more than they had a right to dispose of the tenant's capital, and for that reason they recommended a form of agreement. He hoped the Club would adopt a similar course. They might recommend any form of agreement they thought right; but he wished to warn them against the danger which that committee avoided—let them not attempt to be imperative. The force of example would in time spread. It was now 12 years or more since he, without saying aught to his neighbours, engrafted upon an improvement of the Warwickshire agreement, clauses equivalent to the compensation clauses of the Lincolnshire agreements. He had had twelve years' experience, and he was happy to say that experience was most satisfactory as to the working of that agreement. But he hoped that his brother-landlords, and those present, would not suppose that he wished to dictate to any one. He attended there simply because he was asked, to tender his advice, and to hear the proceedings as a member of the House of Commons, where, owing to his service upon the committee of which he had spoken, he had some experience upon the subject. He was a little alarmed when he was sent a copy of the first draft contemplated by the committee. It appeared to him that there was matter in that draft which needed revision. They must remember that they had to deal with a most complicated state of things. The tenure of property in this country was exceedingly various. There were landlords in fee simple—they could do as they liked; there were landlords unencumbered—they could do as they liked; there were tenants for life, with limited interests, and there were also estates that were encumbered. There were good farmers and bad farmers; there was every variety of soil and every variety of circumstance. Therefore he thought a good suggestion was that the Club should draw up a form of agreement embodying, in the most unobjectionable form, the principles which they wished carried out, but leaving a great deal to be supplied to meet the particular circumstances of each individual case. He should not like to express an opinion upon the draft of agreement now before the meeting, but he thought it was a very great improvement upon the draft which was submitted to him before, and it embodied principles which he thought should be carried out. There were several parts which he thought would need reconsideration. He hoped they would excuse him for making these observations. He went there for the purpose of seeing what model agreement they would suggest for application to the varied circumstances of the different counties of England. Without having sat on the committee of which he had spoken, they could scarcely conceive the immense variety of circumstances with which they would have to deal were they to attempt to enforce throughout England and Wales, were that possible, one uniform agreement for the tenure of land.

Reviews.

The Journal of Agriculture. No. 89. 26, Cockburn Street, Edinburgh.

The Quarterly Journal of Agriculture, which has hitherto appeared in connection with the Highland Society's Transactions, is for the future to be published separately. The first number of the new series retains the character which the work has long possessed. It is an agricultural journal with a good deal more of the extra professional, both as regards the manner and the matter of its contents, than agricultural journals generally exhibit. We have in it the rhetoric of a quarterly review, the substantial technical and professional information of a farmer's journal, and the discursiveness and suggestiveness of a periodical for general readers.

The present number contains a very interesting account of Scottish enterprise in Ireland, in which justice is done to Mr. Pollok, the owner of large estates recently acquired, large parts of which he cultivates himself. We have extracted portions of this paper for publication in our columns. There is also a continuation of the articles descriptive of farm crops—a paper on the destruction of the grub—the history of the wool trade, by the Old Norfolk Farmer—an engineering paper on water and its uses—a picture of Galloway and its agriculture—a good article on our museums, from which we shall give an extract on the agricultural museums of the country—a history of acclimatisation in France—an account of the useful animals of Turkey—papers on the Rhododendron, on cattle disease prevention, on Bromus Schraderi, the Farmers' and the Gardeners' note books, and a quarterly summary of agricultural proceedings.

It will thus be seen that there is great variety of material offered this month to the readers of the "Quarterly Journal of Agriculture," of the quality of which our readers shall have ample opportunity of judging, for we have marked an unusual number of pages for extract.

Meanwhile, and as belonging especially to this season of the year, we take Mr. Bowick's account of the way in which he deals with the Turnip-fly:—

"A large portion of North Bedfordshire is situated on the 'gault clay,' a soil which is spoken of as 'bird-lime in winter and steel in summer.' A recent analysis by Professor Voelcker of the soils of various fields on these farms gives them in general terms as an unmitigated poor clay; and Professor Buckman's deductions from an examination and report of the indigenous plants are precisely of the same character. Need it be wondered at, then, that even with the aid of steam cultivation very fully applied, the braird of Swedish Turnips is not of a kindly nature? Our annual rainfall also being but about 18 inches, does not indicate a root-growing locality on such a soil. It is the very abode of the Turnip fly, unless sowing is delayed till a late period of the season. Last year sowing after sowing was repeatedly cleared off by them. This season, although the fly was equally abundant, we have a good plant, and propose briefly to detail the preventive and curative means employed. Tusser was undoubtedly right when he wrote—

'Where clods prevail
The Turnips fail.'

And, therefore, a fine mould is the object aimed at by Turnip growers on both sides of the Tweed. We gain this better by ridging up before Christmas (the land having been steam-cultivated after harvest), then carting out the farm-yard dung during frost, and covering it by reversing the ridges shortly after. They lie thus till April, when they are harrowed down, the artificial manure sown, and the ridges again made up—not reversed. The fine winter mould is thus kept at the surface, where it is required. Sowing does not immediately follow, but time is allowed for the moisture from beneath to find its way upwards again, which it is sure to do. This point we would particularly recommend to the notice of northern growers, who are so careful, and justly so, about immediately covering up the dung, and sowing quickly thereafter. If you can do this, well and good; but if you have not a satisfactory mould, owing to the season, &c., then it will be better to roll down the ridges and wait for a week or ten days before sowing.* This will secure a cool bed, whereas in the other case the seed goes among small, hard, and dry clods: part of it germinates and part does not; but the fly clears off the whole.

"Anything that disturbs the Turnip fly weakens its attacks upon the young plant. But we have found that a dressing of 1 quarter of hot slaked lime per acre, applied along the rows just as the braird is above ground, very effectually checks their ravages for a few days. Even if applied as hot as men can bear to sow it, the plants will not be injured. In a week the insect pest may again be visible, but considerably weakened. Then roll after six in the evening with a light wooden roller, and another check will be given. Rolling in the evening is preferable to performing the same operation in the morning, because if any plants are bruised a scorching sun does not so speedily follow to injure the wounded leaf.

"Horse-hoeing freely and closely, as soon as the rows are visible, we also find beneficial. For this purpose we employ the Suffolk steerage-hoe, spreading 7 or 8 feet—a most useful implement.

"Much has been said about sowing plenty of seed. In itself this is a good thing, but persevering attention to the few preceding hints has saved a crop where only 1 lb. of seed to the acre was sown; whereas a disregard of liming and night-rolling has lost the crop, even with 6 lb. per acre. And there is, after all, one comfort, in that we are not so necessarily dependent upon the Swede crop as our favoured light-land neighbours. Mangels do well on the clay, and Cabbages do better, for we had a crop last year for which as much per acre was offered as the land cost. Then with Tares and Rye for summer keeping, a fair return of meat per acre can be obtained."

Miscellaneous.

Effects of Steam Cultivation.—He had often heard persons say, "I have done the same thing by horses that you have done by steam; I have cultivated land 1 foot deep by horses." Now, in that lay the error—a want of perception of the true bearing and merit of steam cultivation. He believed that the worst sort of tackle ever sent out was better than horses, and for this simple reason, that if they turned back a furrow that had been ploughed by horses, especially if they had the number of horses required to plough heavy land, they would find that the footmarks of the horses made the soil impervious to moisture. The consequence was that if they broke up that land in the autumn, they would have to do it over again in the spring. The wet being unable to percolate through the subsoil, made the surface what they had no doubt all had seen on heavy land—a very nice tilth on the top, with something below like liver. That liver had to be clod-crushed and harrowed in the spring, and it never became a fine tilth. But let them put the steam plough on that land in the autumn, or let there be spade labour, which was the same thing—though he really believed that steam cultivation was very often better than spade labour—and the land would be broken up in large pieces, and the larger the better. Let it then be dry during the winter season, and the atmosphere would act on the surface, and the frost bring it down. They would then have as beautiful a tilth in the spring, newly harrowed, as they could possibly desire. *Mr. Fowler.*

Sale of Rare Eggs.—Mr. Stevens sold a few days since, at his rooms in King Street, a collection of eggs and skins of very rare birds. Included in the former were four eggs of the Great Auk (now extinct). The prices fetched were as under, and go far to show how keen is the taste for all relating to natural history:—Lot 140, egg of Great Auk, 29*l.*; Lot 141, ditto, 33*l.*; Lot 142, ditto, 31*l.* 10*s.*; Lot 143, ditto, 29*l.*; total, 122*l.* 10*s.* One egg of the Casarca or Ruddy Shieldrake fetched 1*l.* 16*s.*, which is rather remarkable, as living specimens of the bird are, comparatively speaking, in all ornithological collections.

Touch.—The touch may be good or bad, fine or harsh, or, as it is often termed, hard or mellow. A thick firm skin, which is generally covered with a thick-set, hard, short hair, always touches hard, and indicates a bad feeder. A thin, meagre, papery skin, covered with thin silky hair, being the opposite of the one just described, does not, however, afford a good touch. Such a skin is indicative of weakness of constitution, though of good feeding properties. A perfect touch will be found with a thick loose skin, floating, as it were, on a layer of soft fat, yielding to the least pressure, and springing back towards the fingers like a piece of soft

* "Many a curse-land farmer, who finds it difficult to secure a plant, may profit by this plan. We have also seen a Scotch friend, who is a very successful manager of stiff clay in this county, using the ridge or Potato harrows for getting quit of the clods referred to before sowing."

thick chamois leather, and covered with thick, glossy, soft hair. Such a collection of hair looks rich and beautiful; and seems warm and comfortable to the animal. It is not unlike a bed of fine soft moss, and hence such a skin is frequently styled "mossy." The sensation derived from feeling a fine touch is pleasurable, and even delightful, to an amateur of breeding You cannot help liking the animal that possesses a fine touch. Along with it is generally associated a fine symmetrical form. A knowledge of touch can only be acquired by long practice; but after having acquired it, it is of itself a sufficient means of judging of the feeding quality of the ox; because, when present, the properties of symmetrical form, fine bone, sweet disposition, and purity of blood, are the general accompaniments. *Mr. Douglas, of Athelstaneford, quoted in Fullarton's Cow and the Dairy.*

Messrs. Raynbird, Caldecott, and Bawtree, Basingstoke.—We are glad to learn that the first prize, a gold medal, has been awarded to this firm at Cologne for their excellent collection of English Grasses and grains. The collection is presented to the Royal Agricultural Academy of Toysyselsdorf, near Bonn.

Calendar of Operations.

July.—*Early Harvesting of Grain.*—We extract the following passages chiefly from Mr. Hannam's writings on this subject:—It would certainly at first appear that the farmer cannot be wrong in allowing his grain crops to attain maturity—to become fully ripe; ancient practice, so far as it goes, would certainly justify him in doing so. And if by the period of maturity the time be meant when a plant has acquired its greatest value as an article of food, certainly this stage in the growth of every kind of crop ought to be attained before it is harvested; it is, however, by no means certain that maturity in this sense is not attained by our corn crops at an early period in the process of ripening. Indeed it may safely be asserted that grain has passed the period of perfection, and has begun to lose its value before it has become dead ripe. In support of this the testimony of all nature may be urged that strength and vigour progress with growth only up to a certain period.

General reasoning, however, of this kind could never have been so influential with any farmer as to induce him to alter so important and time-sanctioned a practice as that of leaving grain to ripen thoroughly. And, practically speaking, the question remained undisturbed till Mr. J. Hannam, of Kirk-Deighton, near Wetherby, Yorkshire, now (1861) Secretary of the Yorkshire Agricultural Society, in the "Quarterly Journal of Agriculture" for June, 1841, boldly asserted that the practice of allowing Wheat to become fully ripe was an injurious one. This assertion was based on the details of a careful and elaborate experiment made during the previous year, 1840. In 1841, Mr. Hannam continued his investigations on a still more extensive scale, and the results thoroughly corroborated his former conclusions. In September, 1842, the details were published in the "Quarterly Journal of Agriculture," and the question was discussed at length, the conclusion being that the best period for cutting Wheat is when it is raw, *i. e.*, from 10 to 14 days before it becomes thoroughly ripe.

Mr. Hannam's first experiment was executed in 1840. Three samples were cut, viz., respectively as follows:—

No. 1. Green, cut on .. .. .. Aug. 4, 1840.
2. Raw „ .. .. .. Aug. 18.
3. Ripe „ .. .. .. Sept. 1.

These were threshed and carried to market, when the following prices were put upon them:—

No. 1. .. .. 61*s.* per quarter.
2. .. .. 64*s.* „
3. .. .. 62*s.* „

In 1841, a more extensive experiment was instituted; five samples of half a rood each were cut, viz.:—

No. 1. Very green .. .. August 12
2. Green .. .. August 19
3. Raw .. .. August 26
4. Raw .. .. August 30
5. Ripe .. .. September 9.

These samples were threshed, and the samples were as follows:—No. 5 (ripe) was "bold, but coarse;" Nos. 1 and 2 (green), "fine in the skin, but small;" and Nos. 3 and 4, "equal in boldness of grain to No. 5, and superior in clearness of skin," being "unexceptionable as a sample." This shrinking or drying of Nos. 1 and 2 proved that it was in those cases taken too early. The whole of the samples were shown at the annual show of the Wetherby Agricultural Society, Sept. 22, 1841, when the superiority of the raw-cut grain was confirmed by the judges, who awarded to it "an extra premium, with a high commendation of the sample No. 3, cut a fortnight before ripe."

Having in one trial ascertained the value of the samples by market, and afterwards by the opinion of a public meeting, in order to leave no loophole for doubt, Mr. Hannam determined to test their qualities at the mill. The gross quantity of each was ground and dressed by Mr. John Hardcastle, of Wetherby; and from the results the annexed tables are compiled:—

No.	Grain.		Flour.	Pollard.	Bran.	Waste.	Cut.
	Quantity.	Weight.					
	bush.	st. lb.	st. lb.	st. lb.	st. lb.	lbs.	
3.	$3\frac{1}{2}$	15 10	12 6	0 12	2 1	5	Raw.
4.	$3\frac{11}{16}$	16 6	12 3	1 3	2 5	9	Do.
5.	$3\frac{1}{2}$	14 3	10 11	1 9	2 5	2	Ripe.

Weight per Bushel of

No.	Grain.	Flour.	Pollard.	Bran.
	lbs.	lbs.	lbs.	lbs.
3.	$62\frac{6}{7}$	$49\frac{5}{7}$	$3\frac{3}{7}$	$8\frac{2}{7}$
4.	$62\frac{222}{559}$	$46\frac{22}{559}$	$4\frac{335}{559}$	$8\frac{56}{559}$
5.	$59\frac{5}{7}$	$43\frac{1}{7}$	$6\frac{4}{7}$	$9\frac{3}{7}$

Weight per Cent. of

No.	Grain.	Flour.	Pollard.	Bran.
	lbs.	lbs.	lbs.	lbs.
3.	100	$80\frac{40}{43}$	$5\frac{25}{43}$	$13\frac{21}{43}$
4.	100	$77\frac{8}{22}$	$7\frac{15}{22}$	$14\frac{20}{22}$
5.	100	$72\frac{13}{20}$	$11\frac{23}{207}$	$15\frac{12}{20}$

"From this we see," says Mr. Hannam, "that the bushel of No. 3 gives more flour than the bushel of No. 5 by $6\frac{4}{7}$ lb., showing a gain of $15\frac{1}{7}$ per cent. in weight of flour upon equal measures of grain, and of nearly 8 per cent. of flour in favour of No. 3 upon equal weights of Wheat."

The theory upon which Mr. Hannam explains these results is, that as the sugar in the green plant becomes changed into the starch of the Wheat, so if permitted to remain till fully ripe another change will take place, the starch becoming gradually converted into woody fibre; for it is a well-known chemical fact, that sugar, starch, and fibre are composed of the same constituent elements, differing only in the quantity of water combined with their carbon.

This gradual change to woody fibre takes place in many vegetables as they ripen, and it is by taking this into account that we can explain the curious fact shown in the tables that the ripe Wheat contains 50 per cent. more "pollard," or "sharps,"—than the "raw cut grain." Hence it is no wonder that there should be less flour in the grain of the ripe Wheat.

Fences.—We quote the following from a paper on Fences, read by Mr. Martinson some years ago, before the Newcastle Farmers' Club:—"The weeding and otherwise cleaning the hedges should be done twice every year, until the hedge has surmounted every obstacle to its growth. The hedge should be carefully pruned the second year, in order that it may get thick and bushy. This is a very easy operation, performed with a hedge-knife. I would recommend it to be done twice a year—once in winter, and again in the latter end of July or in the beginning of August. In fact, I would follow the advice of a very intelligent and respectable gardener and nurseryman in Scotland, who, when asked this question, 'When is the best time of the year to prune Thorn hedges?' answered, 'Whenever your knife is sharpest.' It is of great importance to have a sharp instrument with which to perform this operation, which must always be done by an upright stroke of the hand. I do not like the principle of cutting or dressing hedges with shears. The cut is not so smoothly made; the surface is therefore more liable to be injured by wet; besides, a man with a good switch knife, who is an expert workman, will do double the quantity in a day than he would do with the hedge shears. When two men are employed at one time in switching the same hedge, viz., one on each side of the fence, they ought to begin at different ends, the one cutting up the hill and the other down. The Thorn hedges I would continue to prune once a year, after they have attained the height of about $4\frac{1}{2}$ feet. Indeed, I do not see much necessity for having them higher than that at any time. They ought to be about 2 feet wide at the bottom, and taper away to a point at the top, at the height above stated. For want of attention to the pruning and dressing of hedges, we are called upon repeatedly to look upon naked, stunted, open, and unsightly fences. If some of those have got any dressing at all, it has been performed on a principle which cannot be too highly denounced; I mean that of cutting off the under twigs, whilst the higher branches are left to overhang the roots of the hedge, and ultimately ruin the fence. This is what farmers call the dressing up of the dyke-side. It is certainly more like dressing out the dyke's heart."

Notices to Correspondents.

Agricultural Meeting at Plymouth: *Prize List.* We unfortunately omitted mentioning the high commendation received for a Short-horn heifer calf by Mr. Broughton Kingdon, of Rose Hill, Exeter. The judges were for some time in doubt as to whether they should not award to it the 2d prize.

Poor Mossy Grass on Chalky Soil: *Beginner.* Keep feeding stock on it with hay and Turnips. That must ultimately improve it. Do not mow it for a season or two; and meanwhile apply towards winter 10 to 26 bushels of well-rotted bone-dust mixed up (after rotting) with as large a quantity of earthy compost free from weed-seeds as you can get. Foddering cattle on the land is the best improvement you can give it, giving them cake along with hay or Turnips in winter and along with the pasture in summer.

The Horse Show at Islington: *Cor.* The alterations of arrangements we should recommend is as follows:—Whilst congratulating the shareholders of the Agricultural Hall on a well attended and interesting show, we cannot give our meed of praise to the arrangements, which did not exhibit that improvement on last year which the Company and the public had a right to expect. We therefore do not hesitate, in their interest, to suggest the following alterations:—1st. The prize for thorough-bred Stallions should be divided, or rather distributed, into three classes, viz., *a*, the best Stud Horse for the turf; *b*, the best ditto for Hunters; *c*, the best ditto for Hacks. 2d. The stallions to get Roadsters or Coaching Stock should not be thus jumbled together (as appears to be the case in the Catalogue), but should be kept totally distinct and apart; we might as well bring a dray horse and a pony in competition with each other. 3d. More time should be afforded to the judges, and they should not be allowed to see any printed catalogues while judging, and they should be requested to give commendations freely when fairly earned, although it might somewhat increase their labours. 4th. The numbers should be distinctly marked on both sides of every horse, so that each might be easily recognised in the ring. 5th. The catalogues should be clear and easily understood, not unintelligible as at present. 6th. The programme of the show and the arrangements of prizes would probably be benefited by the assistance of the practical experience which is to be found amongst the proprietors of the Agricultural Hall, should the Board of Directors be unable to supply it sufficiently.

FOUNTAIN JETS.

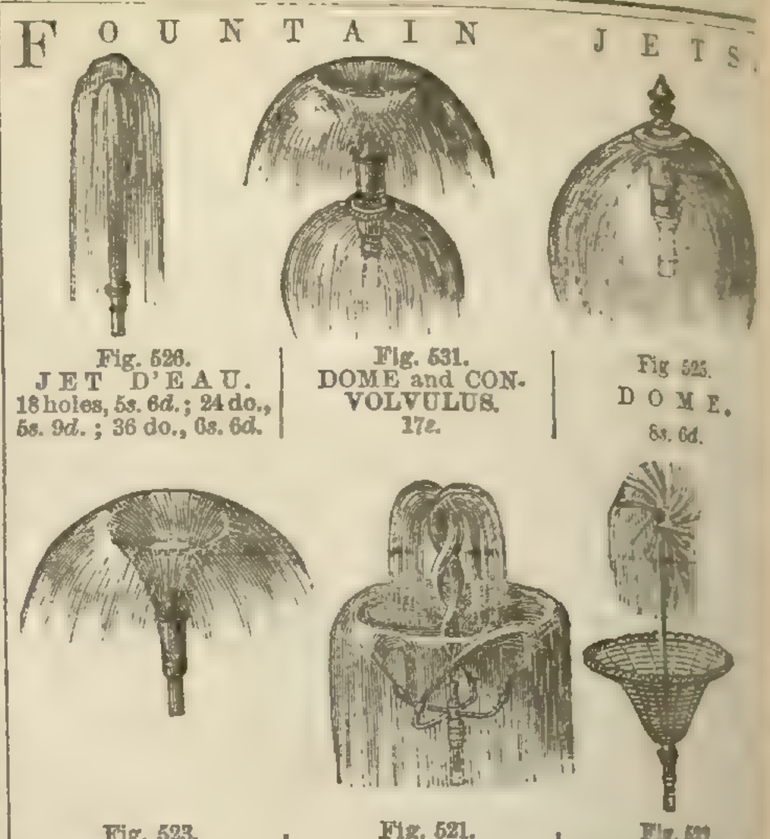

Fig. 526. JET D'EAU. 18 holes, 5*s.* 6*d.*; 24 do., 5*s.* 9*d.*; 36 do., 6*s.* 6*d.*

Fig. 531. DOME and CONVOLVULUS. 17*s.*

Fig. 525. DOME. 8*s.* 6*d.*

Fig. 523. CONVOLVULUS. 8*s.* 6*d.*

Fig. 521. BARKER'S MILL. 11*s.*

Fig. 522. WIRE BASKET WITH BALL. 10 ins., 16*s.* 6*d.*; 12 ins., 17*s.* 6*d.*; 14 ins., 18*s.* 6*d.*

Connecting Screws to all the above Jets, 1*s.* 6*d.* extra.

A Tap is required to be fixed in the Pipe to regulate the supply of water to Fountain Jets.

J. TYLOR and SONS, Manufacturers, Warwick Lane, Newgate Street, London, E.C.

Oil Paint no longer Necessary.

HILL and SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which Hill & Smith will forward on application.

From the Right Hon. the Earl of Shannon, *Castle Mary, near Cork.*

"Gentlemen,—I have used your Black Varnish for several years and consider it very superior, both for iron and wood work out of doors, to anything I have ever used. I shall always continue to use it. Near the sea it is particularly valuable, as it stands exposure when paint becomes corroded. I consider the iron Barrow essential to its use."

Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the Kingdom.

Apply to Hill & Smith, Brierly Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C., from whom only it can be obtained

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CARSONS' ANTI-CORROSION PAINT, specially manufactured for out-door work, is the best and cheapest. All colours. Is simple in application, so that any person can use it.

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THE PECULIAR ADVANTAGES OF THESE CLOSETS AND COMMODES OVER THE ORDINARY WATER CLOSET ARE:—

First.—That the deodorising material (dry surface earth, or clay, or other subsoil) is the best for the purpose, and at the same time is the cheapest and within the reach of all classes.

Secondly.—The supply of such material to any house or premises may be much easier than the supply of water by a forcing pump, and its removal after being used may be entirely without offence.

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Price of Apparatus without woodwork, 25s. per set.

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GARDEN **ENGINES**

in some important particulars for this Season.

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No. 547. WARNER'S best ENGINES, in Wood Tubs, and fitted with WARNER'S Registered Spreaders—

24 Gallons,	£6	10	0
14 „	5	10	0

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10 Gallons	£2	19	0
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20 Gallons	£2	2	0
30 „	2	13	0
38 „	3	17	0
50 „	5	12	0

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No. 568½, AMERICAN ENGINE, is now well known and appreciated. It throws a continuous stream, and is complete in itself. £2 2s.

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The Aquaject, 30s.

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PRICES :—

HAND MACHINE to disperse	20 gallons	.. ..	£9 5 0
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HORSE " "	100 gallons	.. ..	23 0 0

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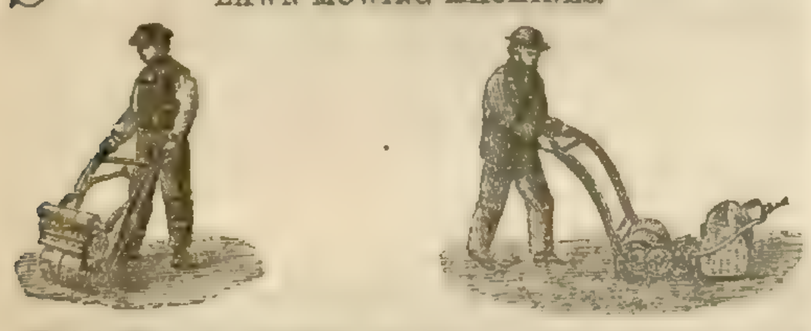
SHAW'S PATENT FLEXIBLE SELF-ADJUSTING LAWN MOWING MACHINES.



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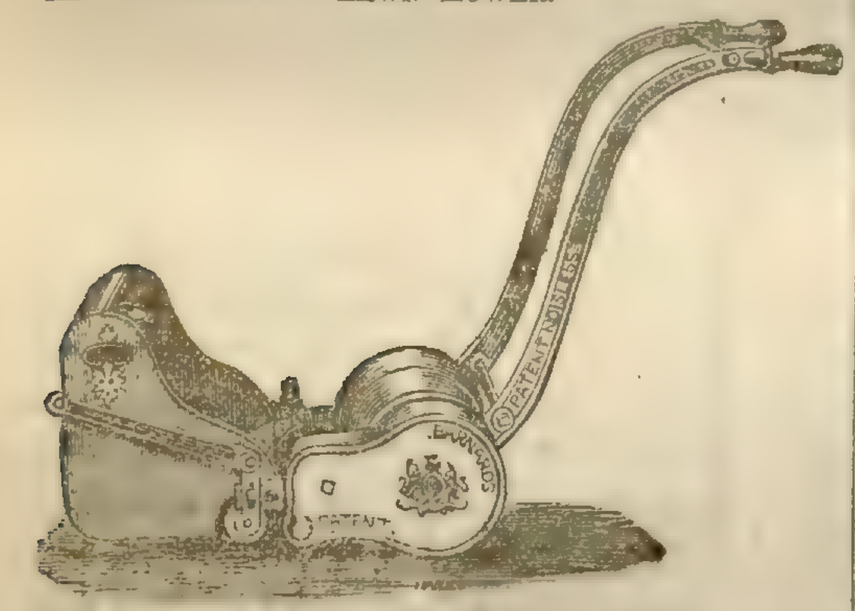
John Shaw, Junction Works, New Wortley, Leeds.

BARNARD'S PATENT NOISELESS LAWN MOWER.



THE MINIATURE LAWN MOWER CUTS 8 INCHES .. £3 10 0
Suitable for the very smallest grass plots or edgings.

To CUT 10 INCHES (this can be worked by a lady) ..	.. ..	3 5 0
To CUT 12 INCHES (suitable for one person) ..	.. ..	4 10 0
To CUT 14 INCHES (suitable for one person) ..	.. ..	5 0 0
To CUT 16 INCHES (suitable for one person) ..	.. ..	6 0 0
To CUT 18 INCHES (suitable for man and boy)	.. ..	6 10 0
To CUT 20 INCHES (suitable for man and boy)	.. ..	7 0 0
To CUT 22 INCHES (suitable for two men) ..	.. ..	7 10 0

Packed and Delivered Carriage Free to the Principal Railway Stations in England.

All orders should be sent immediately to J. Jones & Sons, Iron Merchants and Horticultural Engineers, 6, Bankside, London, S.E.

Illustrated Catalogues gratis, with prices of Garden Rollers, Chairs, Seats, Vases, Wire Netting, &c., on application.

TANNED NETTING for the PROTECTION of FRUIT TREES, at 1*d.* per square yard. Cotton Netting, Woollen Netting, Scrim Canvas, and Tiffany. Greenhouse Shades, &c.

Be particular, John Edgington & Co., 48, Long Lane, Smithfield, E.C.; 18, Piccadilly, W.; and 108, Old Kent Road, S.E.

CLEARANCE SALE of GARDEN NETTING.—1 yard in length, usual width, for 1½*d.*, quantities on lower terms. SHEEP NETTING, usual depth, 20*s.* per 100 yards.

All kinds of BIRD, HARE, RABBIT, and FISHING NETS.

G. & D. Hurn, Manufacturers, 13, Dove Street, Norwich, Norfolk. Established 1812.

GALVANISED WIRE CABLE STRAND FENCING, for FARMS, PARKS, and GARDENS.

The ORIGINAL INVENTORS and MANUFACTURERS.

The CHEAPEST, STRONGEST, and NEATEST FENCING in USE. THOUSANDS of MILES of this FENCING have been SUPPLIED by us at home and abroad. It sustains no injury by being trespassed upon.

Price, with five lines of Strand and Iron-pronged Standards, and one straining post, stay and screw bolts to every 120 yards, 1*s.* per yard.

Five lines of Cable Strand and Staples for wooden posts, 6*d.* per yard.

HURDLES, HURDLES, HURDLES, 1*s.* 9*d.* to 3*s.* 9*d.* per yard.
CONTINUOUS IRON FENCING, GATES of all kinds.
PATENT STRAINING PILLARS, &c.
GALVANISED WIRE NETTING for POULTRY, &c.
GALVANISED SWING WATER BARROWS.
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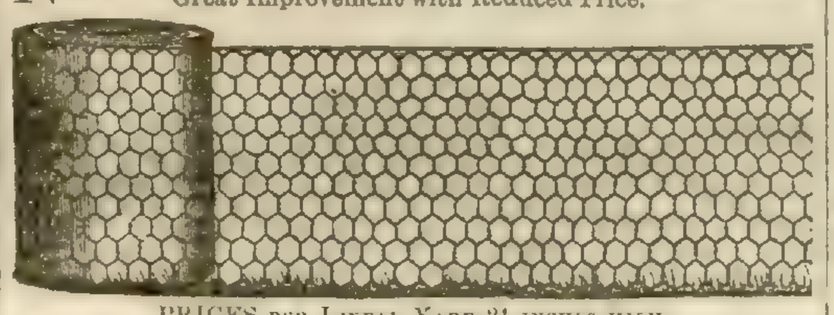
GALVANISED IRON PUMPS.
LAWN MOWERS, GARDEN ROLLERS.
ASPHALTE ROOFING FELT, 1*d.* per square foot.

Motley & Green, late H. J. Morton & Co.,
Illustrated Catalogues and Estimates free on application.
12, Great George Street, Leeds.

NEW IMPROVED PREMIUM WIRE NETTING. Great Improvement with Reduced Price.



PRICES per Lineal Yard 24 inches high.

Size of Mesh.	Mostly used for	Light. Jap	Light. Gal	Medium Jap	Medium Gal	Strong. Jap	Strong. Gal	Extra Strong. Jap	Extra Strong. Gal
		s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
2½ in.	Hares, Dogs, Poultry	0 3	0 4	0 3½	0 5	0 4½	0 6	0 5½	0 7
2 in.	Game or Poultry Netting	0 3½	0 4½	0 4	0 5	0 5	0 6½	0 6½	0 8
1½ in.	Small Rabbits, Hares, &c.	0 4	0 4½	0 4½	0 6	0 5½	0 7	0 7	0 9
1¼ in.	Smallest Rabbits ..	0 5	0 6	0 5½	0 7	0 7	0 9	0 9	0 11
1 in.	Pheasantries, &c. ..	0 9	0 11	10½	1 1½	1 3	1 6	1 9	2 0
¾ in.	Aviaries, &c.	1 0	1 3	1 3	1 6	1 6	1 9	..	..

Quantities of 100 yards or upwards delivered free to nearly all the principal Railway Stations and Shipping Ports in England; and 200 yards or upwards delivered free to most parts of Scotland and Ireland.

*** Every description of Netting warranted to give satisfaction, and if not approved will be exchanged, or may be returned unconditionally.

IRON HURDLES, CONTINUOUS BAR FENCING, IRON and WIRE FENCING, FENCING WIRE, FIELD and ENTRANCE GATES, GARDEN ENGINES, GARDEN ROLLERS, GARDEN SEATS and CHAIRS, CAST IRON VASES, and every description of HORTICULTURAL and AGRICULTURAL MACHINES, TOOLS and appliances.

Lists Free on application. Every article guaranteed to be satisfactory.

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Warehouse (where Netting is kept in stock), 148, Upper Thames Street, E.C.; opposite the City of London Brewery, and close to the London Bridge Steam Boat Piers.

TANNED NETTING for FRUIT TREES.—Penny per square yard, or in quantities of 250, 500, [illegible] Carriage Free. Orders executed the day received. Be [illegible] Frederick Edgington & Co., Marquee, Tent, and Rick Cloth Manufacturers, Thomas Street, Old Kent Road, London, S.E.
Marquees and Temporary Pavilions Lent on Hire.

TANNED GARDEN NETTING for preserving Beds, Fruits, Strawberries, from Frost, Blight, Birds, [illegible] as a Fence for Fowls, &c. 1 yard wide, 1½*d.*; 2 yards, 2*d.*; [illegible] 4½*d.*; and 4 yards, 6*d.* per yard run in any quantity, may be [illegible] Chas. Wright's, 276, Strand, W.C.

VARNISHED FLOWER STICKS:—1 foot, 3*d.*; 1½, 4*d.*; 2, [illegible] 2½, 7*d.*; 3, 10*d.*; 4, 1*s.* 6*d.* per dozen. DAHLIA do., per dozen, [illegible] 1*s.* 6*d.*; 4, 2*s.* 3*d.*; 5, 3*s.*; 6, 3*s.* 6*d.* An allowance to Nurserymen.

The Finest Fruits in England.

HAYTHORN'S HEXAGON and CHISWICK GARDEN NETS are guaranteed to protect all kinds of fruit from Wasps, Birds, Flies, &c. They are used and recommended by all the principal Gardeners.

For Testimonials, Patterns, and Prices, free by post, please apply to Mr. Haythorn, Nottingham.

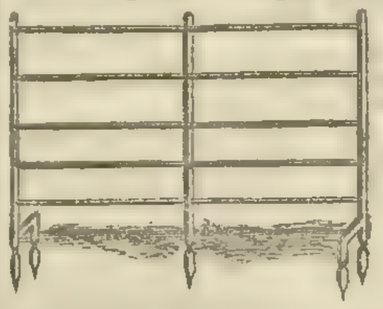
W. S. UNDERHILL'S NEW PATENT IRON FENCE for GARDENS, LAWNS, &c.
Manufactory: Newport, Salop.

Warranted the strongest and most durable Fence ever offered at corresponding prices. It is easily repaired if broken from accident, can be rolled up most compactly when not in use, is admirably adapted for exportation, and can be had of any height and [illegible] required, at prices from 4*d.* to 1*s.* 6*d.* per yard and upwards.

For further particulars apply at the Manufactory; or of the Local Agent, Mr. R. Winder, 18, Abingdon Street, Westminster, S.W.

Iron Hurdles, Fencing, and Gates.

COTTAM'S HURDLES are made in the best manner of superior Wrought Iron. SHEEP HURDLES, from [illegible] each; CATTLE HURDLES, from [illegible] each; CONTINUOUS FENCE, [illegible] 8*d.* per foot; FIELD GATES, [illegible] 25*s.* each. Illustrated Price List on application.



ENTRANCE GATES, RAILINGS, and IRON WORK of every description. Designs and Estimates free.

Cottam & Co.,
No. 2, Winsley Street
(opposite the Pantheon),
Oxford Street, London, W.

WOOL NET, to protect Ripe Fruit from Wasps and Flies, 10*d.* per yard, 2 yards wide.—NEW TWINE NET, [illegible] 1½*d.* per yard.—SHEEP NET, 30*s.* per 100 yards.—RABBIT NETS and FISHING NETS of all kinds.

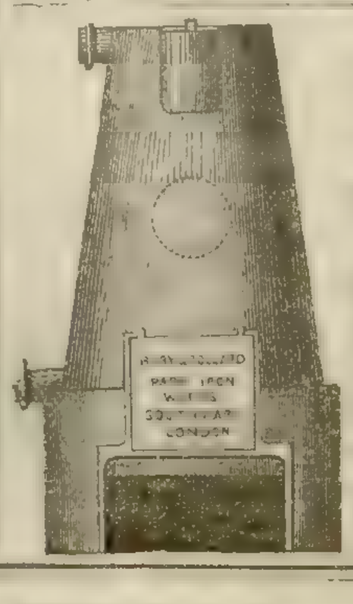
N.B. Several small Trammel Nets for Sale.
R. Richardson, 99, Euston Road, N.W.,

LARGE SUMMER HOUSE, 9 feet square, [illegible] £20. A large quantity of Roofing Felt, 6*d.* per yard. Five tons of Wire Ship's Rigging, for unstranding for Fences, £6 per ton. A quantity of Second-hand Wire Fencing, very strong, 10*d.* per yard. Several Galvanised Wire Panels, 6 feet by 3 feet, for training; [illegible] 5*s.* each, very strong.

N.B. Garden Tarpaulings, Gardeners' Capes, Waggon and [illegible] Covers, &c. R. Richardson, 99, Euston Road, N.W.

Prize Medal awarded at Nice, 1865.

BARLAND'S PATENT SELF-MILKING APPARATUS. Electro-plated, 10*s.*; silver do., 20*s.* the set. Post Office Orders payable to T. Barland, 16, Norfolk Street, Strand, W.C.



HEATING by HOT WATER—Public and Private Buildings, Manufactories, Conservatories, &c., heated on the most improved system, combined with perfect Ventilation.

These BOILERS are adapted for setting in Brickwork, or as shown in sketch they require no Brickwork.

BURY and POLLARD
(Successors to John R. Pedil),
Sole Manufacturers of the Improved CONICAL BOILERS, which are in general use, and which Boilers have for their durability and economy obtained a celebrity far surpassing any other Boilers ever invented.

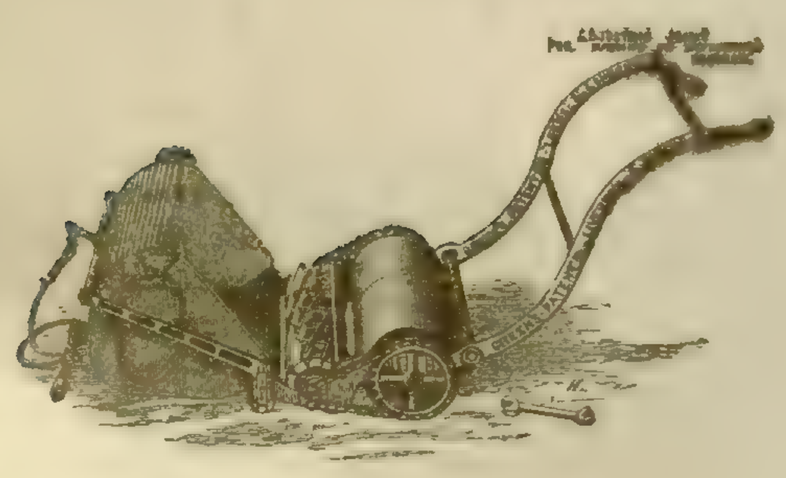
Park Iron Works, 17, New Park Street, Southwark, London, S.E.

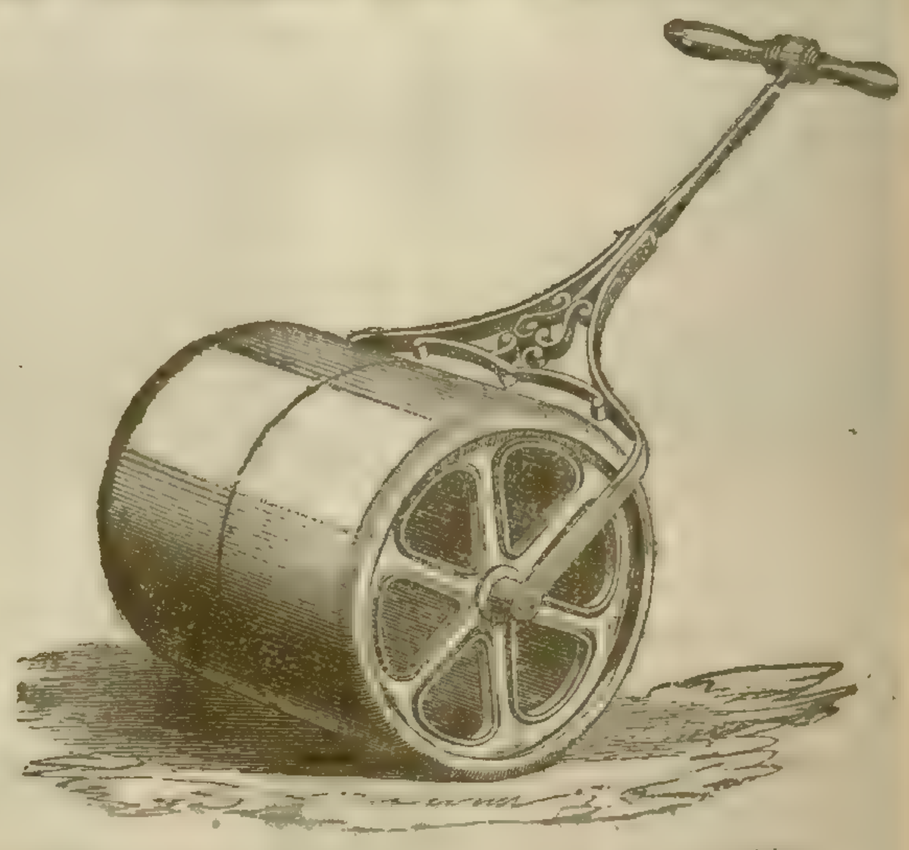
N.B. Patent WINDMILLS for Pumping and Driving Farm Machinery, from half-Horse Power upwards. To be seen daily at work as above.

GREEN'S PATENT SILENS MESSOR,

OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.





GREEN'S PATENT LAWN MOWERS have proved to be the best, and have carried off every Prize that has been given in all cases of competition. Above 26,000 have been sold since the year 1856.

Illustrated Price Lists of Lawn Mowers and Garden Rollers Free.

THOMAS GREEN and SON,
SMITHFIELD IRON WORKS, LEEDS; 2, FARRINGDON ROAD, HOLBORN HILL, LONDON, E.C.
HADWIN'S BUILDINGS, TITHEBARN STREET, LIVERPOOL; and 19, EDEN QUAY, DUBLIN.

Card.

SAMUEL N. McGERROW,
GENERAL HORTICULTURAL BUILDER,
Knotty Ash, near Liverpool.

Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

Greenhouses and Conservatories.

H. FREEMAN, Horticultural Works, Hackney, N.E., Established 20 years. Good substantial made GREENHOUSES, glazed, ready for fixing. 42 feet by 13 feet, 50*l.*; 21 feet by 13 feet, 28*l.*; 12½ feet by 10 feet, 15*l.* A handsome CONSERVATORY for SALE, 36 feet by 19 feet. Price 110*l.* A Large Assortment kept.

Heating by Hot Water.

W. J. HOLLANDS, IRON MERCHANT, 71, Bankside, London, S.E.
HOT WATER PIPES, from Stock, per yard:—2-inch, 1*s.* 4*d.*; 3-inch, 2*s.*; and 4-inch, 2*s.* 7*d.* BENDS, from Stock 1*s.* 7*d.*, 2*s.* 6*d.*, and 3*s.* 3*d.* each. THROTTLE VALVES, 10*s.* 6*d.*, 13*s.* 6*d.*, and 1*l.* each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day. A discount to the Trade.

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DENNIS' PATENT METALLIC HORTICULTURAL BUILDINGS are made from the best wrought iron, upon an entirely new principle. The combination of Iron and Glass under this Patent is perfect: the possibility of fracture is prevented, and a permanently water-tight roof insured. The leading practical advantages are extreme smallness of framing, admitting a maximum of light and heat, and perfectly neutralising atmospheric conduction.

They are thoroughly ventilated, exceedingly strong and durable, are specially erected, and whilst maintaining their established superiority for Conservatories of the highest order, are acknowledged by the most eminent Horticulturists of the day to be the "desideratum of perfection," promoting perfect symmetry of growth and richness of colour, both for Fruit and Flowers.

From the complete adjustment of the constructional parts of these patent buildings, their manufacture is so facilitated that a comparison in point of cost with perishable wooden structures is most favourable.

THE GARDENER'S OWN GREENHOUSE
(Lately known as Dench's Patent) is a Tenant's Fixture.

The Patent, Plant, Business, Machinery, and all connected with the above, have been transferred to T. H. P. DENNIS, who has determined to supply these really useful buildings at such a reduced scale of prices that every one desiring a Greenhouse may possess one.

NOTE.—A No. 1 Lean-to, 12 ft. 6 in. by 9 ft., including honest 16-oz. Glass, £16 12*s.* 6*d.*

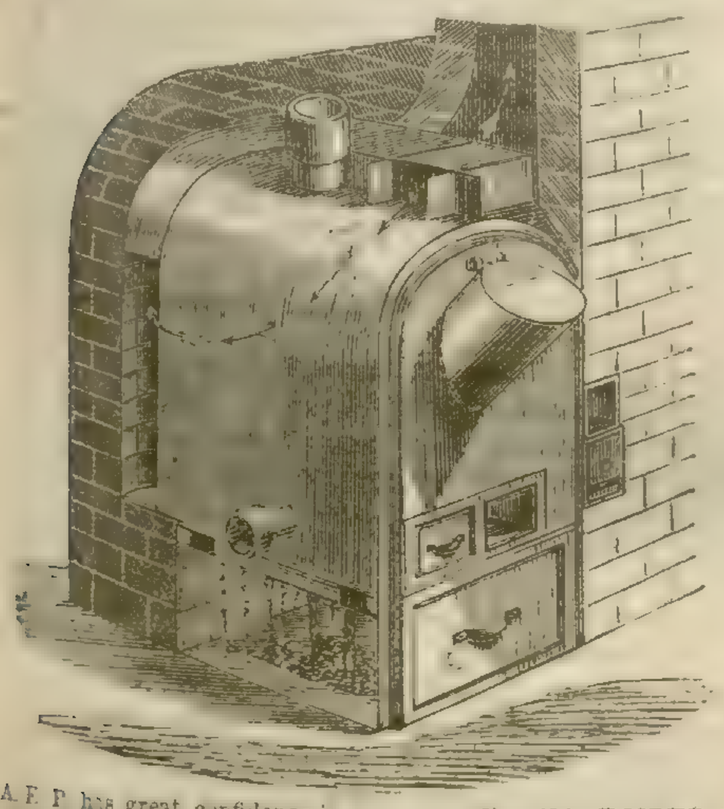
T. H. P. D. has introduced most important improvements in their finish and construction, and after numerous experiments has succeeded in arranging them as a TENANT'S FIXTURE, which he feels sure will be valued by gentlemen having limited tenures. With Mr. Dennis' adaptation they make excellent Orchard-houses, and afford all that can be desired in a profitable building.

Wood structures at the lowest price consistent with sound work.

Prospectuses and Estimates on application to T. H. P. DENNIS, Horticultural Builder, Hot-water Engineer, &c., Chelmsford, Essex.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

Milbank's Self-feeding Hot-water Boiler.
Manufactured and Sold only by
A. E. PHILLIPS, High Street, Chelmsford, Essex.



A. E. P. has great confidence in recommending this BOILER to Gentlemen, Gardeners, Nurserymen, and the Public, having for some time tested its capabilities. It is simple in construction, inexpensive in fixing, and the most economical in the consumption of fuel of any Boiler before the public. It is very powerful for heating purposes; the whole strength of the Fire is in contact with the water surface—EVERYWHERE ABSORBING THE HEAT. The new arrangement of the Fire Box causes the entire heat of the fire to circulate over the entire outside surface before entering the chimney shaft. The Boiler is set under a dome of brickwork, whereby a double action is given to the fire.

A. E. P. will be happy to forward a List of Testimonials.

Greenhouses, Conservatories, and all kinds of Glass Structures are erected by A. E. PHILLIPS, at the lowest possible cost. Plans and Estimates given free of charge. Architects' Plans carefully carried out. Estimates for Heating Conservatories, Churches, Chapels, or Public Buildings, on the most economical principle. The proper execution of all works guaranteed. Experienced workmen will be sent to all parts of the country.

HOT-WATER APPARATUS for Greenhouses, Hot-houses, Vineries, &c. Estimates on application.
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For List of Prices see *Gardeners' Chronicle*, June 24, 1865.

Heating by Hot Water.

HOT-WATER PIPES, at Reduced Wholesale Prices, with Elbows, Syphons, Tee Pipes, and every other connection: Wrought and Cast-iron Boilers, Saddle, Conical, Cylinder, Tubular, and Elliptic, from 24*s.* each. Improved Boilers and Iron Stands to use without brickwork, 56*s.* each. Valves from 10*s.* 6*d.* each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Castings of every description in stock, at
Mr. LYNCH WHITE'S Iron Wharf, Upper Ground Street, Blackfriars Bridge, London, S. Price List on application.

CRANSTON'S PATENT BUILDINGS for HORTICULTURE, Highly Commended by the Royal Horticultural Society, South Kensington. Plans and Estimates free on application. Houses of the following sizes always in stock:—Span, 30 by 15 feet, and 24 by 12 ft.; Half-span, 24 by 10 ft.; Lean-to, 24 by 8 ft. Stereoscopic Slides of different houses post free for 6 stamps each.

Descriptive Book, fully illustrated, by post for 20 stamps from the Author and Patentee, JAMES CRANSTON, Architect, No. 1, Temple Row West, Birmingham.

Midland Steam Power Horticultural and Hot-water Works, Loughborough.

T. G. MESSENGER, the Proprietor of the above Works, finding it necessary (through the great demand for his Horticultural Buildings and Heating Apparatus) to make large additions to his Premises, and to Fit the same with an entire set of STEAM-POWER MACHINERY, is now enabled to execute any Orders entrusted to him with the greatest dispatch, and at the lowest possible price consistent with good and substantial work.

Illustrated Catalogues, Working Model, Plans and Estimates, free on application.

BROWN AND GREEN'S KITCHEN RANGES.
THE PRIZE MEDAL, 1862.
THE NEW PATENT (Granted April, 1865).
"A CLOSE RANGE with an OPEN CHIMNEY" Combines the perfect cure of Smoky Chimneys, and the unequalled advantages for which BROWN & GREEN'S Ranges have long been celebrated, with free Ventilation of the Kitchen, and increased economy and convenience.
No Close Heat or Smell. Prospectuses free by Post.
FREDERICK THOMAS, 72, Bishopsgate Within, E.C.

THE KAMES GUNPOWDER COMPANY'S CRYSTAL GUNPOWDER, packed in Red Japanned Canisters. No. 1 Fine, No. 2 Medium, No. 3 Large Grain.
London Office: 45, Lime Street, E.C.
The Kames Gunpowder Company solicit a trial of their CRYSTAL and other SPORTING GUNPOWDERS, of this year's manufacture. For strength, cleanliness, and prompt ignition they will be found unequalled. Sold by most respectable Dealers throughout the country, and at the Office, 45, Lime Street, London, E.C.

Manufacturers to the Queen and Prince of Wales.

FRY'S | HOMŒOPATHIC ROCK ICELAND MOSS PEARL | COCOA.
FRY'S SOLUBLE CHOCOLATE.
J. S. FRY & SONS, Bristol and London, are the only English Manufacturers of Cocoa who obtained the Prize Medal, 1862.

BEDSTEADS, BATHS, and LAMPS. WILLIAM S. BURTON has Six Large Show Rooms, devoted exclusively to the separate display of Lamps, Baths, and Metallic Bedsteads. The stock of each is at once the largest, newest, and most varied ever submitted to the public, and marked at prices proportionate with those that have tended to make his establishment the most distinguished in this country.

Bedsteads, from	12*s.* 6*d.* to £20 0*s.* each.
Shower Baths, from	8*s.* 0*d.* to £6 0*s.* each.
Lamps (Moderateur), from ..	6*s.* 0*d.* to £7 7*s.* each.

All other kinds at the same rate.
Pure Colza Oil .. .. 4*s.* per gallon.

WILLIAM S. BURTON, GENERAL FURNISHING IRONMONGER by appointment to H.R.H. the Prince of Wales, sends a CATALOGUE gratis and post paid. It contains upwards of 600 Illustrations of his illimited Stock of Sterling Silver and Electro-Plate, Nickel Silver and Britannia Metal Goods, Dish Covers, Hot-water Dishes, Stoves, Fenders, Marble Chimney-pieces, Kitchen Ranges, Lamps, Gaseliers, Tea-Trays, Urns and Kettles, Clocks, Table Cutlery, Baths, Toilet Ware, Turnery, Iron and Brass Bedsteads, Bedding, Bed Room Cabinet Furniture, &c., with Lists of Prices, and Plans of the 20 large Show Rooms, at 39, Oxford Street, W.; 1, 1a, 2, 3, and 4, Newman Street; 4, 5, and 6, Perry's Place, and 1, Newman Yard, London, W.

For Purity and Excellence of Quality,
COLMAN'S GENUINE MUSTARD
OBTAINED THE
ONLY PRIZE MEDAL
at the Great Exhibition, 1862.
Trade Mark, THE BULL'S HEAD, on each Package.
Their Genuine and Double Superfine are qualities particularly recommended for family use. Sold by all Grocers and Druggists.
J. & J. COLMAN, London.

Sauce.—Lea and Perrins'

WORCESTERSHIRE SAUCE.—This delicious Condiment, pronounced by Connoisseurs "THE ONLY GOOD SAUCE," is prepared solely by LEA & PERRINS. The public are respectfully cautioned against worthless imitations, and should see that LEA & PERRINS' Names are on Wrapper, Label, Bottle, and Stopper. ASK FOR LEA & PERRINS' SAUCE.

*** Sold Wholesale and for Export, by the Proprietors, Worcester; Messrs. CROSSE & BLACKWELL; Messrs. BARCLAY & SONS, London, &c.; and by Grocers and Oilmen universally.

DINNEFORD'S FLUID MAGNESIA.—The Medical profession for 30 years have approved of this pure solution of Magnesia as the best remedy for Gout and Stomachic disorders of every kind; and as a mild aperient it is especially adapted for Ladies and Children. Prepared solely by DINNEFORD & Co., Chemists, &c., 172, New Bond Street, London, W.; and sold throughout the World by all respectable Chemists. CAUTION.—See that "DINNEFORD & Co." is on each bottle and red label over the cork.

CORNS and BUNIONS.—A Gentleman, many years tormented with Corns, will be happy to afford others the information by which he obtained their complete removal in a short period, without pain or any inconvenience.—Forward address on a stamped envelope to W. GOODALL, Esq., Epsom, Surrey.

Universal Microscope. Price £5 5s.

SMITH, BECK, AND BECK,
31, Cornhill, E.C., late 6, Coleman Street.
*** Catalogues sent on receipt of 6 postage stamps.

OUTFITS for INDIA and CHINA.—Estimates with Detailed Lists of the necessary Outfits for Mercantile and other appointments to India, China, or any of the Colonies, will be forwarded on application to
THRESHER & GLENNY, Outfitters, next door to Somerset House, Strand.

ANOTHER CURE THIS WEEK of DISEASE of the LUNGS of 10 years' standing by Dr. LOCOCK'S PULMONIC WAFERS.—From Mr. D. VERRAT, Coast Guard, Mountcharles, Donegal, July 19, 1865.—"I am happy to say that they are all they are represented to be. I have a child who was affected in the lungs (for 10 years), and they are the only things that have done him any good. I have tried all other means in vain."—They give instant relief of asthma, consumption, coughs, colds, and all disorders of the breath and lungs. They have a pleasant taste. Price 1*s.* 1½*d.* per box. Sold by all medicine vendors.

To Market Gardeners and Others.

TO BE LET for a Term of Years, about 25 to 30 Acres of good rich Arable Land, with a good Villa Residence, with Coach-house, Stabling, &c. The Ground is now cropped with Potatoes, Cabbages, &c. &c. Situated about Four Miles from a large Market Town in Hampshire. Address A. B., Post Office, Southampton.

To Nurserymen.

TO BE DISPOSED OF, in Yorkshire, a NURSERY and GROUND, containing about 12 Acres, 7 of which are well stocked with Ornamental Trees, Shrubs, Fruit and Forest Trees, and Roses, all in excellent and saleable condition. Twenty-one years lease, an excellent Dwelling-house of Nine Rooms, good Stabling, Coach House, Granary and Packing Shed. Rental £65 per annum; value of Stock £800 to £1000, half of which can remain on good security.

Apply to W. H., Messrs. Hurst & Son, Leadenhall Street, London.

To Gardeners.

FOR SALE, and entered upon at Michaelmas next, the LEASE, STOCK, and CROP of an OLD ESTABLISHED MARKET GARDEN, within 10 miles of Covent Garden, W.C. It consists of a 10-roomed House, excellent and convenient outbuildings, Walls, 4 acres of Land well stocked with Fruit Trees, in full bearing, between 5000 and 6000 feet of Glass heated with Hot-water, and devoted to the Forcing of Pine-apples, Strawberries, Chillies, Cucumbers, &c. About 1200 Pines in all stages of growth, about 2000 pots of Strawberries, with all implements necessary for carrying on the business of a Market Gardener. To be sold in One Lot, or by valuation.

For further particulars apply to J. D., "The Twelve Acres," East Barnet, N.

Oxfordshire Down Rams.

MR. DRUCE offers for PRIVATE SALE this Season about 40 SHEARLING and TWO-SHEAR RAMS, which he will be happy to show at any time.
Eynsham, Oxford.

Cotswold Sheep.

MR. T. BEALE BROWNE, of Salperton Park, Andoversford, Gloucestershire, will be glad to see his Friends. He intends SELLING his RAMS PRIVATELY, so that Purchasers may have the opportunity of inspecting the whole of his Flock.

With the Two Prizes at Plymouth, this Flock has taken 171 Prizes in eight years; the average of 92 Rams last year was £9 1*s.* 6*d.*

Sales by Auction.

SALE THIS DAY AT HALF-PAST TWELVE PRECISELY.

Tree Ferns from New Zealand, and Lilium auratum and Imported Orchids from Japan and Madras.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, July 29, at half-past 12 o'Clock precisely, a consignment of upwards of 100 TREE FERNS from New Zealand; an importation of ORCHIDS from Madras; and some fine established plants of LILIUM AURATUM from a well-known grower.
On view the Morning of Sale, and Catalogues had.

Phormium tenax variegatum.

MR. J. C. STEVENS begs to announce that he will include in his SALE THIS DAY, SATURDAY, July 29, at his Great Rooms, 38, King Street, Covent Garden, W.C., TWELVE FINE PLANTS of PHORMIUM TENAX VARIEGATUM.
On view and Catalogues had.

Important Sale of Established Orchids.

MR. J. C. STEVENS has been favoured with instructions to SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, August 2, at half-past 12 o'Clock precisely, without the least reserve, a VALUABLE COLLECTION of ESTABLISHED ORCHIDS, the property of a gentleman about removing from his present residence, containing several rare species, and many fine specimens of the following well-known varieties:—

Aerides Williamsii	Saccolabium guttatum, Loddiges' var.
" Veitchii	Phalænopsis Schilleriana
" Schroderi	Cattleya quadricolor
" crispum	Oncidium Lanceanum
" quinquevulnerum	Dendrochilum filiforme
Angræcum sesquipedale	Dendrobium Devonianum
Trichopilia crispa marginata	" nobile pendulum
Lælia elegans	" macrophyllum giganteum
Saccolabium Holfordii	
&c.,	&c., &c.

On view the Morning of Sale, and Catalogues had.

Important Sale and Letting of about 100 Ram Lambs and 20 Rams,
The Property of Mr. James Rawlence, of Bulbridge Farm, Wilts.

MESSRS. EWER AND WINSTANLEY will SELL and LET by AUCTION, at Salisbury, on TUESDAY, August 1, at 3 o'clock precisely, the matchless STOCK of RAM LAMBS and RAMS, of the improved Hampshire Down Breed, the property of Mr. James Rawlence, of Bulbridge, Farm Wilton.

Messrs. EWER & WINSTANLEY would especially direct attention to the great success of this Stock at the principal Agricultural Shows in this country during the last few years, having taken several Prizes at the Royal Agricultural Society's Meeting at Worcester last year, and the Bath and West of England Society's Show at Bristol; and has this year at Hereford obtained Five out of the Six Prizes awarded to the class in which he was an Exhibitor, viz., First and Second Prizes for Ewes, the First and Second Prizes for Ram Tegs, and the Second for Old Sheep. Mr. Rawlence has now taken at the Royal Agricultural Society's Show at Plymouth, the First and Third Prizes for Shearling Rams, the First Prize for Old Sheep, and the First and Second for Shearling Ewes.

Catalogues may be obtained of the AUCTIONEERS, Endless Street, Salisbury.

Third Annual Sale of Shropshire Sheep.

MR. J. B. LYTHALL will SELL by AUCTION, at Bingley Hall, Birmingham, on THURSDAY NEXT, Aug. 3, at 11 o'clock punctually, 120 Splendid SHEARLING and a few older RAMS, including several Royal Agricultural Show Sheep; 250 beautiful EWES and THEAVES, from the most noted Flocks in the Kingdom. At the same time will be Sold a few OXFORDSHIRE DOWN RAMS of Prize Blood.

Catalogues on application at the Auctioneer's Offices, 13, Temple Street, Birmingham.

Important Sale of Short-horned Cattle.

MR. STRAFFORD begs to announce that he is instructed by John Kelk, Esq., M.P., of Bentley Priory, Stanmore, to offer for SALE by AUCTION, without reserve, on TUESDAY, August 8th, at the Clarendon Hotel, adjoining the Watford Station, his small but select HERD of Pure-bred SHORT-HORNS, consisting of about 20 head of Bulls, Cows, and Heifers, that have been selected and bred from some of the most fashionable herds of the day, and descended chiefly from animals originally bred by Messrs. Bates and Booth.

Catalogues, with Pedigrees, may be had on application to Mr. STRAFFORD, 13, Euston Square, London.

HUTCHINSON ON DOG-BREAKING. NEW AND ENLARGED EDITION.

Now Ready, 4th Edition, Revised and Enlarged. With additional Illustrations by F. W. KEYL. *Crown 8vo.*, 15*s.*,

DOG-BREAKING;

THE MOST EXPEDITIOUS, CERTAIN, AND EASY METHOD, WHETHER GREAT EXCELLENCE OR ONLY MEDIOCRITY IS DESIRED.

WITH ODDS AND ENDS FOR THOSE WHO LOVE THE DOG AND GUN.

BY MAJOR-GENERAL HUTCHINSON, LATE COLONEL GRENADIER GUARDS.

JOHN MURRAY, ALBEMARLE STREET, W.

HOTHOUSES FOR THE MILLION.

AWARDED A PRIZE MEDAL, 1862.

ON THE PRINCIPLE INVENTED AND PATENTED BY

SIR JOSEPH PAXTON, M.P.

COMBINING SIMPLICITY, CHEAPNESS, EXCELLENCE, AND DURABILITY.

BEING CAPABLE OF FULFILLING IN THE MOST PERFECT MANNER ALL THE REQUIREMENTS OF HORTICULTURE.

MANUFACTURED for the AGENTS, in LONDON; NEWTON in CARTMEL, LANCASHIRE; GLOUCESTER; COVENTRY; ABERDEEN, and PAISLEY ONLY; in order to supply the Neighbouring Districts, and to save purchasers unnecessary expense in Carriage.

These PATENT GLASS HOUSES are composed of simple parts, and may be lengthened and arranged to form the boundaries of Gardens; they cost less than Brick Walls, and insure a certain crop of Fruit. As Portable Structures they may be removed and refixed at little expense; and though calculated for Gardens of the highest order, they are, from their cheapness, desirable for Market Gardens, where they may be made to cover any extent, as also for Suburban Villas and Cottage Gardens.

TESTIMONIALS.

"Grosvenor House, May 19, 1863.

"The Marquis of Westminster writes, in reply to Mr. Hereman's note, to say that he has much pleasure in informing him that the Glass Houses for Peaches, &c., which he constructed for him in Dorset, 1860, have fully answered their purpose, and prove very satisfactory."

"5, Prince's Gate, S.W., May 16, 1863.

"Sir,—I am happy to be able to inform you that the Lean-to Roof which you sent to me at Bryanstone is most successful, and I am quite satisfied will repay its cost.

"Mr. S. Hereman." "Yours &c., Portman."

"Belgrave, near Leicester, May 20, 1863.

"Sir,—The Lean-to House which you supplied to me in 1860 has fully answered my expectations. The House is planted with Vines, and Figs on the back wall; there is no artificial heat, and, though last year was a most unfavourable one, some of the bunches of Black Hamburgh Grapes weighed more than a pound, and ripened well for the season.

"The material and construction of the house have proved highly satisfactory.

"Mr. Hereman." "Yours &c., Alfred Ellis."

"Johnson Hall, near Eccleshall, Staffordshire, May 11, 1863.

Sir,—I have had in operation for several years, Lean-to Vineries made with your 14 feet sashes at an angle of about 50 degrees, the lower or front wall being 3 feet high. Nothing can be more simple than their construction; the mode of ventilation is excellent, and entirely obviates the annoyance and breakage caused by movable sashes, and I feel much pleasure in recommending these structures.

"Mr. S. Hereman." "Yours, &c., Edward Lyon."

"Wath-upon-Dearne, near Rotherham, May 12, 1863.

"Dear Sir,—The three small Glass Houses you sent me answer admirably. The Lean-to with 16 feet sashes covers now about 25 healthy and strong Vines; last year the produce and quality of the fruit were surprising. * * * I recommend every one who is so fortunate as to take pleasure in his garden, and who can afford the expense, to erect one or more of your cheap 'Hothouses for the Million'—a never-failing source of profitable amusement.

"I have other more costly and extensive glass structures, but, having regard to their cost and efficiency, they bear no comparison with those I had of you.

"I am surprised that market-gardeners do not adopt them more generally.

"Mr. Samuel Hereman." "I remain, &c., G. P. Nicholson."

"Inverary [Castle] Gardens, May 21, 1863.

"Dear Sir,—I have much pleasure in bearing testimony to the efficiency of the Lean-to Glass Houses which you erected here for covering in Peach and Fig trees. Although our wall is 17 feet [illegible] the fruit sets regularly over the whole surface, and, with the command of ventilation these houses [illegible] fruit can be forwarded or retarded at pleasure.

"Mr. S. Hereman." "I remain, &c., John Caie" [Gardener to His Grace the Duke of Argyll.]

"The Grove, Stanmore, May 12, 1863.

"Dear Sir,—I am happy to inform you that the Glass House supplied by you answers my expectation. I am using one division for Cucumbers, and the other for bedding-out plants, which thrive remarkably well, being so near the glass, and having a thorough ventilation, which your method of construction so amply secures.

"Mr. S. Hereman." "I remain, &c., W. Lewis" [Gardener to Joseph Gillott, Esq.]

"Newton Nurseries, Chester, January 20, 1863.

"Sirs,—The 'Span-roofed House' you sent us is all we could wish, and suits us very well. We do not grow Grapes, and therefore cannot speak as to its efficiency in fruit growing, though we see nothing in the formation of the house to lead us to fear it would not grow anything as well as a 'Lean-to Roof.' * * * The House came to us in perfect order, and not a pane broken, and was at once put up and at work.

"Messrs. S. Hereman & Co." "Yours, &c., James Dickson & Sons."

"Linden, Wellington, Somerset, January 25, 1863.

"Sir,—The Span-roofed Vinery, which you furnished to me in the spring of 1862, answers exceedingly well for Vines which are grown without much forcing. Last autumn I had the finest Grapes I ever saw, which I ever saw. * * * I also find it very useful for keeping Bedding Plants in during the winter, in fact anything which only requires to be shielded from frost.

"Mr. S. Hereman." "Yours, &c., Sylvanus Fox."

"Benham Park, Newbury, Berks, January, 1863.

"Sir,—I am pleased to inform you the Patent Glass Houses supplied by you 2 years ago have given great satisfaction. * * * We had a splendid crop of Muscats in one house; and in the other house West's St. Peter's, and Lady Downes' Seedling. We had an extra division put in to the Peach House: the trees have done wonders. I took the First Prize for Muscats, and First Prize for Nectarines grown in your Patent Glass House at the Newbury September Show.

"Mr. S. Hereman." "I am, yours, &c., John Jeffrey [Gardener]

"Ashurst, near Dorking, January 21, 1863.

"Sir,—In answer to your inquiry of the 10th, respecting the range of Houses furnished to my gardens in 1860 by you, I am pleased to say the Vines, &c., have been everything that could be wished for. As a proof of the quality of the fruit, I have received two First Prizes for Muscat Grapes in this range in 1863 and 1861. In my opinion these Houses are well adapted for Vines, Orchard Houses, &c.

"Mr. Hereman." "I am, yours, &c., Henry Smart [Gardener to R. A. Glass, Esq.]

"Without any pretence to high finish or elaborate workmanship, which in such structures represent a mere waste of money, they are perfectly well made. The arrangement is as simple as ingenuity can render them. No ratters obscure the light and make them cumbrous. No sashes have to be pushed up or let down by ever-breaking lines and weights, or by expensive mechanical contrivances; and yet all the ventilation requisite in such buildings is as perfectly secured. * * * * It is their [illegible] portability that must give them a peculiar value in the eyes of the public. If we hire a house for two or three years, and are enthusiastic enough to fix up a greenhouse, it remains the absolute property of the landlord at the end of the term. But, if instead of fixing up we drop down one of these Hereman's, we pack it up and remove it with the watering-cans, wheel-barrows, and other implements."—*Dr. Lindley in* "The Gardeners' Chronicle," *July 28th*, 1860.

Circulars with LISTS of PRICES and CARDS to VIEW Houses in operation in the neighbourhood of London, also ESTIMATES for ORNAMENTAL CONSERVATORIES, GREENHOUSES, &c., to Designs can be had on application to

S. HEREMAN AND J. MORTON, AGENTS, 7, PALL MALL EAST, LONDON, S.W.

The SECOND EDITION of A HANDBOOK of VINE and FRUIT TREE CULTIVATION, as adapted to the above Patent Hothouses, containing Illustrations, Hints for Heating Houses, and General Directions for Cultivation, &c., may be had of Mr. Hereman, price 1*s.*; post free, 1*s.* 1*d.*

"The instructions given for the cultivation of the Vine and other crops are essentially practical, and are evidently written by one who has himself performed all the operations before he attempted to instruct others."—*Cottage Gardener*, October 6, 1863.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 31.—1865.] SATURDAY, AUGUST 5. {Price Fivepence. Stamped Edition, 6*d*.

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Erratum.—In the Advertisement of "Hothouses for the Million" on the principle invented by the late Sir Joseph Paxton, M.P., a Span-roof House, 43 feet by 19 feet, is priced £37 5*s*.; the price should be £73 5*s*.

ROYAL HORTICULTURAL SOCIETY. A MEETING of the FRUIT and FLORAL COMMITTEES will be HELD on TUESDAY NEXT at 12 o'clock.

BISHOP AUCKLAND FLOWER SHOW will be held on FRIDAY, August 25. A great addition has this year been made to the Prizes. To insure Space Exhibitors should enter early. Schedules sent on application to Mr. J. Reed, Secretary.

RUGBY HORTICULTURAL and COTTAGE GARDENERS' SOCIETY.
President—The Rev. Dr. Temple.
The ANNUAL SHOW, open to all England, will take place at Rugby on FRIDAY, August 25.
Upwards of 100 Prizes in Class 5 (including a Silver Cup of the value of £5 5*s*., with Second and Third Prizes of £2 2*s*. and £1 1*s*., for the best Collection of eight Stove and Greenhouse Plants in Flower) will be offered for Plants, Fruits, and Flowers, Vegetables, &c.
Entries to be made on or before August 18.
Schedules of Prizes and further particulars may be obtained on application to John S. Savage, or William Mason, the Honorary Secretaries, Rugby.—Rugby, Aug. 5.

Roses in Bloom.
JAMES MITCHELL respectfully informs the Nobility and Gentry his renowned ROSES are NOW in FINE BLOOM. Pilt Down Nurseries, Maresfield, Sussex, Two and a half Miles from the Uckfield Station.

Roses.
JOHN MANN, Nurseries, Brentwood, begs to inform his Patrons and the Public that his COLLECTION is NOW in BLOOM, ten minutes walk from Brentwood Station, Colchester Line, Great Eastern Railway.

Paul's Nurseries, Waltham Cross, N.
Entrance from the Platform, Waltham Station, Great Eastern Railway. Half an Hour's Ride from London.
WM. PAUL (Son and Successor to the late A. Paul) begs to announce that his COLLECTION of ROSES is STILL in BLOOM, and comprises many of his own Seedlings, and other novelties not to be found in any other collection. In addition to the Roses, BEATON'S GERANIUMS, and a second and third generation from them, will be blooming throughout the summer and autumn. The Collection of HARDY TREES with FINE FOLIAGE is unrivalled, and many large and perfect specimens of the choicer CONIFERS are now in fine condition for removal, and are well worthy of the attention of gentlemen and horticulturists who contemplate planting. Bearing trees of all the LEADING FRUITS, Dwarfs and Standards, Pyramids and Espaliers, in fine health and true to name. Inspection respectfully invited.
Waltham Cross, London, N.

Roses.
The PREMIER PRIZES at the NATIONAL, BIRMINGHAM, LEICESTER, STAMFORD, and BOTANIC JULY SHOWS.
PAUL and SON respectfully invite an inspection of their COLLECTION NOW in BLOOM. The Show will continue from now till October; a piece of 40,000 only now commencing to flower. Their Collection of Specimen and young Coniferæ, and Ornamental Foliaged and beautiful Trees, as well as bearing Pyramid Fruits, are worthy of a visit. They would solicit from their Patrons early Rose Orders.
Old Cheshunt Nurseries, Cheshunt, N.

Hollyhocks.
PAUL and SON'S Splendid COLLECTION of HOLLYHOCKS also is FINELY in BLOOM.
Reached by Rail to Cheshunt Station, Great Eastern Railway.

New Rose Hybrid Perpetual, Empereur de Mexique.
JEAN VERSCHAFFELT has much pleasure in announcing that he intends sending out this beautiful SEEDLING ROSE, raised by himself, and figured in the "Illustration Horticole" for June, 1865. This fine dark variety is a Seedling raised from the General Jacqueminot Rose, possessing all the qualities of its parent, and is a very abundant bloomer. Plants will be ready for distribution, and will be sent out in strict rotation, about October next. Price 10*s*. each; one plant over in every three to the Trade.
A carefully Coloured Plate will be sent gratis with each Order. Supplementary Plates may be had at 6*d*. each. Orders are now being booked, and are respectfully solicited by
Jean Verschaffelt, Nurseryman, 43, Rue de la Caverne, Ghent (Belgium).
☞ A reference required from unknown Correspondents.

Shrubs, Roses, Fruit Trees, &c.
WM. CUTBUSH and SON'S GENERAL NURSERY STOCK is the best near London.
GLADIOLI, fine, from 4*s*., 6*s*., 9*s*., & 12*s*. per dozen.
CATALOGUES on application.
Highgate Nurseries, London, N.

J. IVERY and SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

Orchard-house Culture.
MESSRS. THOS. RIVERS and SON invite those interested in the above culture to view their COLLECTION of FRUIT TREES and VINES, occupying houses nearly 3000 ft. in length. APRICOTS are grown in great perfection, and are now ripe.
The Harlow Station, G. E. Railway, is the most convenient for the Nurseries. Nurseries, Sawbridgeworth.

W. B. CROSSE, Son-in-law and Successor to the late Elizabeth Ellis, 43, St. John's Market, Liverpool, begs to acquaint Gentlemen and Gardeners that he continues to give best Market Prices for Choice PINES, MELONS, GRAPES, PEACHES, NECTARINES, CUCUMBERS, and other Fruit in Season.

Pines.
B. S. WILLIAMS begs to announce that he has a fine Stock of the above, including all the best kinds. Prices on application.
Paradise and Victoria Nurseries, Holloway, London, N.

NEW GRAPE, "ROYAL VINEYARD," the best late White Grape extant. Strong planting Canes, 10*s*. 6*d*. each; strong fruiting, 21*s*. each.
B. S. Williams, Paradise and Victoria Nurseries, Holloway, London.

Castle Kennedy Fig.
PETER LAWSON and SON, London and Edinburgh, have made arrangements to send out the above valuable acquisition in OCTOBER NEXT, and are now booking orders, which will be executed in strict rotation as received.
Plants 10*s*. 6*d*. each; a few extra strong at 21*s*. each.
Special terms to the Trade, and circulars with list of awards and further particulars may be had on application.

CUTHILL'S STRAWBERRY PLANTS will be sent out August 14th:—Black Prince, Princess Royal, Richard II., Highland Mary, Newton Seedling and Everlasting, Prince of Wales, at 5*s*. per 100. If Selected, 7*s*. 6*d*. Dr. Lindley has often said, to make sure of a crop have Cuthill's Breed.
SPAWN, per Bushel, 5*s*. Mushroom Pamphlet, with New Appendix, 1*s*. 3*d*., with others always on Sale.
James Cuthill, Camberwell, London, S.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
Richard Smith, Nurseryman and Seed Merchant, Worcester.

Hardy Ornamental Trees and Shrubs.
OSBORN and SONS invite lovers of Ornamental Planting to an inspection of the varied forms and foliage of their unrivalled collection of the above, to which they have for many years devoted especial attention.
PRICED CATALOGUES, consisting of upwards of 1500 species and varieties, may be had on application.
The Nurseries, Fulham, London, S.W.

BEDDING-OUT PLANTS in great variety. WINDOW JARDINETS, Empty or Furnished, in variety.
The "Gardeners' and Amateurs' Friend," see page 601.
Barr & Sugden, 12, King Street, Covent Garden, W.C.

CRYSTAL PALACE, ROYAL BOTANIC, and ROYAL HORTICULTURAL FLOWER SHOWS.
At these PLANT CASES will be exhibited in great variety, furnished with the Choicest Exotic Fern and Foliage Plants, arranged by Barr & Sugden, of 12, King Street, Covent Garden, W.C.

Annuals.
HOOPER and CO.'S SHOW of ANNUALS is NOW in FULL BLOOM in the Ante-Garden of the Royal Horticultural Society, South Kensington, where their beauty and adaptability as Bedding Plants is successfully illustrated.
Hooper & Co., Seed Merchants, Covent Garden Market, London, W.C

NEW and GENUINE AGRICULTURAL, GARDEN, and FLOWER SEEDS.
Special prices and advantageous offers on application to
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Seed Growers and Merchants, 7, Borough Market, London, S.E.

RAYNBIRD, CALDECOTT, and BAWTREE,
Seed Farmers and Merchants,
89, Seed Market, Mark Lane; and Basingstoke.
Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

Genuine Garden and Agricultural Seeds.
JAMES CARTER and CO.,
Seed Farmers, Merchants, and Nurserymen,
237 and 238, High Holborn, London, W.C.

H. and F. SHARPE,
Seed Growers and Merchants, Wisbech.
SPECIAL PRICED LIST of NEW SEEDS on application.

Primula, Calceolaria, and Cineraria.
SUTTON and SONS can supply NEW SEED of the above from choicest strains, in packets at 2*s*. 6*d*. and 1*s*. each, post free.
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First Quality.
CALCEOLARIA, PRIMULA, CINERARIA, CARNATION, PICOTEE, PINK, AURICULA, VERBENA, MIMULUS, ZONALE GERANIUM and PELARGONIUM.
Each 2*s*. 6*d*. per packet.
Barr & Sugden, 12, King Street, Covent Garden, W.C.

CALCEOLARIA AMBASSADOR (Sang). — The Subscribers respectfully invite the public to inspect this fine Calceolaria, now in flower at their Nurseries.
Edward Sang & Sons, Nurserymen and Seed Merchants, Kirkcaldy.

Sow at Once.
DOBSON'S UNRIVALLED SEEDS.
CALCEOLARIA, sealed packets, 1*s*. 6*d*., 2*s*. 6*d*, 5*s*.
CINERARIA, 1*s*., 2*s*. 6*d*., 5*s*.
PRIMULA, 1*s*., 2*s*. 6*d*., 5*s*.
Dobson & Sons, Seedsmen, Isleworth, W.

Major's Half-shrubby Calceolaria Seed for 1865.
MR. HENRY MAJOR, Knosthorpe, near Leeds, begs to announce that his NEW SEED for the present season is now ripe, and may be had in packets at 2*s*. 6*d*. each, or three for 5*s*., post free. His Seedlings are unusually fine this season; indeed they stand unrivalled for shape, size, and variety of colours and markings. See the opinion of the editor of "The Journal of Horticulture," of July the 4th, upon H.M.'s flowers.

SUPERB SEEDS for PRESENT SOWING, 1*s*., 2*s*. 6*d*., and 3*s*. 6*d* per packet.
CALCEOLARIA, Scott's splendid hybrid spotted; CINERARIA, from finest named sorts; PRIMULA, choice mixed, 1*s*. and 2*s*. 6*d*.; ex. ex. quality FIMBRIATA, 2*s*. 6*d*. and 5*s*.; INTERMEDIATE STOCK, Scarlet and White, 6*d*. and 1*s* per packet, at
J. Scott's Merriott and Seed Store, Yeovil, Somerset.

CARTER'S GARDENER'S VADE-MECUM PLANT SUPPLEMENT is now ready.

New Plants for 1865.
JAMES CARTER and CO.'S CATALOGUE of NEW and CHOICE BEDDING, GREENHOUSE, and STOVE PLANTS, is now ready, and will be forwarded gratis and post free on application.
James Carter & Co., 237 & 238, High Holborn, London, W.C.

To Exporters.
WM. DAVIDSON, Seedsman, &c., can supply suitable assortments of GARDEN and FLOWER SEEDS, from 10*s*. upwards, for Shipment to the Colonies. 30A, St Andrew Square, Edinburgh

British Fern Catalogue.
ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS No. 7.
*** Part II. (Exotic Ferns) will be issued as early as possible.
Foot's Cray Nursery, S.E.

INTERMEDIATE STOCK, COVENT GARDEN and VICTORIA VARIETIES.
Scarlet, Purple, White, or Mixed COVENT GARDEN INTERMEDIATE STOCK, each, 1*s*. per packet.
Scarlet, White, or Mixed VICTORIA INTERMEDIATE STOCK, very floriferous, and more robust than the Covent Garden varieties, each 2*s*. 6*d*. per packet.
Barr & Sugden, 12, King Street, Covent Garden, W.C.

Pelargonium Seed.
J. DOBSON and SONS have the pleasure to offer Seed from their magnificent collection of upwards of 300 varieties, and for which they have been famous for so many years. Admirers of this class of plants have such an opportunity as never before presented itself of raising something new and novel, as the whole of their stock of plants have been kept for the purpose of saving Seed and offering it to the public.
Sealed packets, 2*s*. 6*d*. and 5*s*. Trade price on application.
Woodlands Nursery, Isleworth, W.

Russell's Pyramid Primulas.
GEO. CLARKE is now prepared to send out in packets, price 2*s*. 6*d*. each, this, the finest breed of PRIMULAS in cultivation. The Seed now for sale has been saved from selected plants, so that it is believed the produce will be even superior to that of former years.
Printed instructions for raising and growing the plants sent with each packet. Stamps received in payment.
Nursery, Streatham Place, Brixton Hill, London, S.

Seeds from Choice Strains.
B. S. WILLIAMS can now supply good Seeds of the following:—
CINERARIA (Weatherill's extra choice strain).—B. S. W. has secured at a great expense the entire stock and right of exclusive sale from Mr. Weatherill, of his, the best strain of Cineraria in existence, and can now offer packets at the following prices:—3*s*. 6*d*. and 5*s*.
CALCEOLARIA (Herbaceous), from a fine strain, 2*s*. 6*d*. and 3*s*. 6*d*. per packet.
PRIMULA (Williams' superb strain), the finest fringed and the best coloured flowers in cultivation. Red, White, or Mixed Seed 2*s*. 6*d*., 3*s*. 6*d*., and 5*s*. per packet.
Paradise and Victoria Nurseries, Holloway, London, N.

100,000 FINE CATTLE CABBAGE PLANTS, 2*s*. 6*d*. per 1000, may be had of
Mr A. Wilkin, Tiptree, Kelvedon, Essex.

For Present Sowing.
SUTTON'S IMPERIAL GREEN-GLOBE TURNIP.—This sort is invaluable for Early Spring Feed. It is hardy, and may be drilled on the Corn Stubble instead of Rye, or may be cultivated in the usual manner instead of the Old Green Round.
For three years successively the Prince Consort's Prize Cup was awarded to this sort by the Royal South Bucks Agricultural Society.
Price 9*d*. per lb., or cheaper by the bushel, carriage free.
Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

To Nurserymen and Seedsmen
MUSHROOM SPAWN.
SAMUEL CHEESE begs to inform his numerous patrons, that his new MUSHROOM SPAWN is now ready and in fine condition.
Samuel Cheese, 231, Oxford Street, London.

REIGATE SILVER SAND.—Good quality, 7*s*. per ton Cash, delivered loose into the Trucks at the Reigate Station. Best quality PEAT, LOAM, SPHAGNUM, ROCK, SANDSTONE, &c., on Sale.
W. Short, Sand and Peat Depôt, Reigate, Surrey.

SHAW'S TIFFANY.
For samples and prices apply to
J. Shaw & Co., 29, Oxford Street, Manchester.

The Finest Fruits in England.
HAYTHORN'S HEXAGON and CHISWICK GARDEN NETS are guaranteed to protect all kinds of Fruit from Wasps, Birds, Flies, &c. They are used and recommended by all the principal Gardeners.
For Testimonials, Patterns, and Prices, free by post, please direct to Mr. Haythorn, Nottingham.

TANNED NETTING for FRUIT TREES.—One Penny per square yard, or in quantities of 250, 500, or 1000 yards Carriage Free. Orders executed the day received. Be particular—
Frederick Edgington & Co., Marquee, Tent, and Rick Cloth Manufacturers, Thomas Street, Old Kent Road, London, S.E.
Marquees and Temporary Pavilions Lent on Hire.

CLEARANCE SALE of GARDEN NETTING.—1 yard in length, usual width, for 1½*d*., quantities on lower terms.
SHEEP NETTING, usual depth, 20*s*. per 100 yards.
All kinds of BIRD, HARE, RABBIT, and FISHING NETS.
G. & D. Hurn, Manufacturers, 13, Dove Street, Norwich, Norfolk.
Established 1812.

Caution to Gardeners.—When you ask for
SAYNOR and COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark Saynor, also the corporate mark Obtain Warranted, without which none are genuine.
S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make all of which are warranted both by sellers and makers.
S. & C.'s Pruning and Budding Knives are the best and the cheapest in the market.
Paxton Works, Sheffield. Established upwards of 125 years.

INTERNATIONAL HORTICULTURAL EXHIBITION AND CONGRESS.

TO BE HELD IN LONDON (ABOUT THE LAST WEEK IN), MAY, 1866.

SCHEDULE OF PRIZES.

§ I.—GENERAL COLLECTIONS.

Class 1.—6 NEW PLANTS, in or out of Flower, distinct, introduced into Europe by the exhibitor, and not found in commerce. (Open.)
1st Prize, £6; 2d Prize, £5; 3d Prize, £4; 4th Prize, £3.

Class 2.—3 NEW PLANTS, distinct, shown for the first time in Flower. (Open.)
1st Prize, £4; 2d Prize, £3; 3d Prize, £2.

Class 3.—1 NEW PLANT, in Flower, introduced into Europe by the exhibitor, and not found in commerce. (Open.)
1st Prize, £3; 2d Prize, £2; 3d Prize, £1.

Class 4.—1 NEW PLANT, not in Flower, introduced into Europe by the exhibitor, and not found in commerce. (Open.)
1st Prize, £3; 2d Prize, £2; 3d Prize, £1.

Class 5.—12 NEW PLANTS of any description, in or out of Flower, distinct. (Open.)
1st Prize, £6; 2d Prize, £5; 3d Prize, £4; 4th Prize, £3.

Class 6.—6 NEW PLANTS, of any description, in or out of Flower, distinct. (Open—the exhibitor not showing in No. 5.)
1st Prize, £3; 2d Prize, £2; 3d Prize, £1.

Class 7.—16 STOVE or GREENHOUSE PLANTS, in Flower, distinct. (Amateurs.)
1st Prize, £25; 2d Prize, £20; 3d Prize, £15; 4th Prize, £10.

Class 8.—12 STOVE or GREENHOUSE PLANTS, in Flower, distinct. (Nurserymen.)
1st Prize, £15; 2d Prize, £10; 3d Prize, £7; 4th Prize, £5.

Class 9.—10 STOVE or GREENHOUSE PLANTS, in Flower, distinct. (Amateurs.)
1st Prize, £15; 2d Prize, £10; 3d Prize, £7; 4th Prize, £5.

Class 10.—6 STOVE or GREENHOUSE PLANTS, in Flower, distinct. (Amateurs—not showing in Nos. 7 or 9.)
1st Prize, £7; 2d Prize, £5; 3d Prize, £4; 4th Prize, £2.

Class 11.—6 STOVE or GREENHOUSE PLANTS, in Flower, distinct. (Nurserymen—not showing in No. 8.)
1st Prize, £6; 2d Prize, £5; 3d Prize, £4; 4th Prize, £3.

Class 12.—6 STOVE or GREENHOUSE CLIMBING PLANTS, in Flower, distinct. (Open.)
1st Prize, £5; 2d Prize, £3; 3d Prize, £2.

Class 13.—The finest STOVE or GREENHOUSE PLANT, in or out of Flower, and not under 12 feet in height. (Open.)
1st Prize, £5; 2d Prize, £4; 3d Prize, £3.

Class 14.—12 FINE-FOLIAGED STOVE or GREENHOUSE PLANTS, without reference to Flowers, distinct, including Variegated plants—Begonias and Caladiums excepted. (Amateurs.)
1st Prize, £15; 2d Prize, £10; 3d Prize, £5; 4th Prize, £3.

Class 15.—12 FINE-FOLIAGED STOVE or GREENHOUSE PLANTS, without reference to Flowers, distinct, including Variegated Plants—Begonias and Caladiums excepted. (Nurserymen.)
1st Prize, £15; 2d Prize, £10; 3d Prize, £5; 4th Prize, £3.

Class 16.—6 FINE-FOLIAGED STOVE or GREENHOUSE PLANTS, without reference to Flowers, distinct, including Variegated Plants—Begonias and Caladiums excepted. (Amateurs—not showing in No. 14.)
1st Prize, £7; 2d Prize, £5; 3d Prize, £3; 4th Prize, £2.

Class 17.—12 VARIEGATED TENDER PLANTS, distinct—Caladiums and Begonias excepted. (Open.)
1st Prize, £10; 2d Prize, £7; 3d Prize, £5; 4th Prize, £3.

Class 18.—20 ECONOMICAL and MEDICINAL PLANTS, distinct. (Open.)
1st Prize, £5; 2d Prize, £3; 3d Prize, £2.

Class 19.—20 HARDY DECIDUOUS SHRUBS, in Flower, distinct—Azaleas excepted. (Open.)
1st Prize, £10; 2d Prize, £7; 3d Prize, £5; 4th Prize, £3.

Class 20.—20 HARDY DECIDUOUS TREES and SHRUBS, shown for the beauty of their foliage, distinct—Conifers excepted. (Open.)
1st Prize, £10; 2d Prize, £7; 3d Prize, £5; 4th Prize, £3.

Class 21.—20 HARDY EVERGREEN or DECIDUOUS CLIMBING PLANTS, in or out of Flower, distinct. (Open.)
1st Prize, £7; 2d Prize, £5; 3d Prize, £3.

Class 22.—20 HARDY EVERGREEN TREES and SHRUBS, distinct—Conifers excepted. (Open.)
1st Prize, £10; 2d Prize, £7; 3d Prize, £5; 4th Prize, £3.

Class 23.—12 NEW HARDY EVERGREEN TREES and SHRUBS, distinct—Conifers excepted. (Open.)
1st Prize, £5; 2d Prize, £3; 3d Prize, £2.

Class 24.—50 HARDY ALPINE and HERBACEOUS PLANTS, in Flower, distinct. (Open.)
1st Prize, £5; 2d Prize, £3; 3d Prize, £2.

Class 25.—50 HARDY VARIEGATED ALPINE and HERBACEOUS PLANTS, distinct. (Open.)
1st Prize, £5; 2d Prize, £3; 3d Prize, £2.

Class 26.—9 BOXES of ANNUALS shown for effect, as a representation of Parterre Gardening. (Open.)
1st Prize, £3; 2d Prize, £2; 3d Prize, £1.

§ II.—COLLECTIONS REPRESENTING FAMILIES.

Class 27.—30 EXOTIC ORCHIDS, of any kind. (Open.)
1st Prize, £30; 2d Prize, £15; 3d Prize, £10.

Class 28.—20 EXOTIC ORCHIDS, distinct, in Flower. (Amateurs.)
1st Prize, £25; 2d Prize, £20; 3d Prize, £15; 4th Prize, £10.

Class 29.—12 EXOTIC ORCHIDS, distinct, in Flower. (Nurserymen.)
1st Prize, £10; 2d Prize, £7; 3d Prize, £5; 4th Prize, £3.

Class 30.—10 EXOTIC ORCHIDS, distinct, in Flower. (Amateurs—not showing in Nos. 28 or 31).
1st Prize, £12; 2d Prize, £10; 3d Prize, £7; 4th Prize, £5.

Class 31.—6 EXOTIC ORCHIDS, distinct, in Flower. (Amateurs—not showing in Nos. 28 or 30).
1st Prize, £6; 2d Prize, £4; 3d Prize, £3; 4th Prize, £2.

Class 32.—6 EXOTIC ORCHIDS, distinct, in Flower. (Nurserymen—not showing in No. 29.)
1st Prize, £5; 2d Prize, £4; 3d Prize, £3; 4th Prize, £2.

Class 33.—1 NEW ORCHID, shown for the first time in Flower. (Open.)
1st Prize, £3; 2d Prize, £2; 3d Prize, £1.

Class 34.—1 EXOTIC ORCHID, in Flower. (Open.)
1st Prize, £5; 2d Prize, £3; 3d Prize, £2.

Class 35.—10 VARIEGATED ORCHIDS, including Anæctochilus, Physurus, Macodes, Goodyera, &c., distinct. (Open.)
1st Prize, £5; 2d Prize, £3; 3d Prize, £2.

Class 36.—6 PALMS, distinct. (Open.)
1st Prize, £15; 2d Prize, £10; 3d Prize, £5.

Class 37.—3 PALMS, distinct. (Open.)
1st Prize, £7; 2d Prize, £5; 3d Prize, £3.

Class 38.—The largest and finest PALM. (Open.)
1st Prize, £5; 2d Prize, £3; 3d Prize, £2.

§ II.—COLLECTIONS REPRESENTING FAMILIES—*continued.*

Class 39.—3 CYCADS (Cycas, Zamia, Dion, &c.), distinct. (Open.)
1st Prize, £5; 2d Prize, £3; 3d Prize, £2.

Class 40.—3 PANDANADS (Pandanus, Carludovica, &c.), distinct. (Open.)
1st Prize, £5; 2d Prize, £3; 3d Prize, £2.

Class 41.—The largest and finest PANDANAD. (Open.)
1st Prize, £3; 2d Prize, £2; 3d Prize, £1.

Class 42.—12 STOVE or GREENHOUSE FERNS, distinct. (Amateurs.)
1st Prize, £10; 2d Prize, £7; 3d Prize, £5; 4th Prize, £3.

Class 43.—12 STOVE or GREENHOUSE FERNS, distinct. (Nurserymen.)
1st Prize, £7; 2d Prize, £5; 3d Prize, £3; 4th Prize, £2.

Class 44.—6 STOVE or GREENHOUSE FERNS, distinct. (Amateurs—not showing in No. 42.)
1st Prize, £4; 2d Prize, £3; 3d Prize, £2; 4th Prize, £1.

Class 45.—6 STOVE or GREENHOUSE FERNS, distinct. (Nurserymen—not showing in No. 43.)
1st Prize, £3; 2d Prize, £2; 3d Prize, £1.

Class 46.—6 NEW TENDER FERNS, distinct. (Open.)
1st Prize, £3; 2d Prize, £2; 3d Prize, £1.

Class 47.—6 NEW HARDY FERNS, distinct. (Open.)
1st Prize, £3; 2d Prize, £2; 3d Prize, £1.

Class 48.—24 HARDY FERNS, species or varieties, distinct. (Open.)
1st Prize, £5; 2d Prize, £3; 3d Prize, £2; 4th Prize, £1.

Class 49.—12 HARDY FERNS, species or varieties, distinct. (Amateurs—not showing in No. 48.)
1st Prize, £4; 2d Prize, £3; 3d Prize, 2; 4th Prize, £1.

Class 50.—6 TREE FERNS, not fewer than 3 species. (Open.)
1st Prize, £15; 2d Prize, £10; 3d Prize, £5.

Class 51.—3 TREE FERNS, distinct. (Open, for exhibitors not showing in No. 50.)
1st Prize, £7; 2d Prize, £5; 3d Prize, £3.

Class 52.—The finest TREE FERN. (Open.)
1st Prize, £5; 2d Prize, £3; 3d Prize, £2.

Class 53.—12 LYCOPODS, distinct. (Open.)
1st Prize, £3; 2d Prize, £2; 3d Prize, £1.

Class 54.—6 LYCOPODS, distinct. (Open.)
1st Prize, £2; 2d Prize, £1.

Class 55.—10 ARADS (Alocasia, Colocasia, Philodendron, Xanthosoma, Dieffenbachia, &c., Caladium excepted), distinct. (Open.)
1st Prize, £7; 2d Prize, £5; 3d Prize, £3.

Class 56.—6 EXOTIC ARALIADS (Aralia, Sciadophyllum, Oreopanax, Didymopanax, &c.), distinct. (Open.)
1st Prize, £3; 2d Prize, £2; 3d Prize, £1.

Class 57.—6 BROMELIADS (Billbergia, Tillandsia, Vriesia, Pouretia, Æchmea, &c.), distinct, in Flower. (Open.)
1st Prize, £3; 2d Prize, £2; 3d Prize, £1.

Class 58.—12 MARANTADS (Maranta, Phrynium, Calathea, &c.), distinct. (Open.)
1st Prize, £5; 2d Prize, £3; 3d Prize, £2.

Class 59.—25 DWARF CACTI (Mammillaria, Echinocactus, &c.), distinct. (Open.)
1st Prize, £5; 2d Prize, £4; 3d Prize, £3.

Class 60.—6 TALL CACTI (Epiphyllum, Cereus, &c.), distinct, in Flower. (Open.)
1st Prize, £5; 2d Prize, £4; 3d Prize, £3.

Class 61.—12 HARDY TAXADS (Taxus, Cephalotaxus, Torreya, &c.), distinct. (Open.)
1st Prize, £5; 2d Prize, £4; 3d Prize, £3.

Class 62.—25 HARDY CONIFERS, distinct—Taxads excepted. (Open.)
1st Prize, £15; 2d Prize, £10; 3d Prize, £5.

Class 63.—12 HARDY CONIFERS, distinct—Taxads excepted. (Open, for exhibitors not showing in No. 62.)
1st Prize, £7; 2d Prize, £5; 3d Prize, £3.

Class 64.—12 GREENHOUSE CONIFERS (Araucaria, Dammara, &c.), not fewer than 6 species. (Open.)
1st Prize, £10; 2d Prize, £7; 3d Prize, £4.

§ III.—COLLECTIONS REPRESENTING GENERA.

Class 65.—10 EVERGREEN BERBERIS, including Mahonia, not fewer than 5 species or varieties. (Open.)
1st Prize, £3; 2d Prize, £2; 3d Prize, £1.

Class 66.—3 AUCUBAS in Berry, any kind. (Open.)
1st Prize, £3; 2d Prize, £2; 3d Prize, £1.

Class 67.—2 MUSAS. (Open.)
1st Prize, £4; 2d Prize, £3; 3d Prize, £2.

Class 68.—12 CALADIUMS, distinct. (Open.)
1st Prize, £7; 2d Prize, £5; 3d Prize, £3.

Class 69.—3 ANTHURIUMS, distinct, in Flower or not. (Open.)
1st Prize, £3; 2d Prize, £2; 3d Prize, £1.

Class 70.—6 NEPENTHES, distinct. (Open.)
1st Prize, £5; 2d Prize, £6; 3d Prize, £1.

Class 71.—The finest NEPENTHES. (Open.)
1st Prize, £3; 2d Prize, £2; 3d Prize, £1.

Class 72.—9 SARRACENIAS, not fewer than 6 species. (Open.)
1st Prize, £10; 2d Prize, £7; 3d Prize, £5.

Class 73.—10 BEGONIAS, distinct, with Ornamental Foliage. (Open.)
1st Prize, £4; 2d Prize, £3; 3d Prize, £2; 4th Prize, £1.

Class 74.—6 BEGONIAS, distinct, in Flower. (Open.)
1st Prize, £3; 2d Prize, £2; 3d Prize, £1.

Class 75.—1 ALLAMANDA, in Flower. (Open.)
1st Prize, £2; 2d Prize, £1.

Class 76.—1 CROTON. (Open.)
1st Prize, £2; 2d Prize, £1.

Class 77.—1 CLERODENDRON, in Flower. (Open.)
1st Prize, £2; 2d Prize, £1.

Class 78.—1 IXORA, in Flower. (Open.)
1st Prize, £2; 2d Prize, £1.

Class 79.—1 DIPLADENIA, in Flower. (Open.)
1st Prize, £2; 2d Prize, £1.

Class 80.—3 GREENHOUSE RHododendrons, distinct, in Flower. (Open.)
1st Prize, £3; 2d Prize, £2; 3d Prize, £1.

Class 81.—10 GREENHOUSE ERICAS, distinct, in Flower. (Open.)
1st Prize, £10; 2d Prize, £7; 3d Prize, £5; 4th Prize, £3.

Class 82.—6 GREENHOUSE ERICAS, distinct, in Flower. (Amateurs.)
1st Prize, £6; 2d Prize, £5; 3d Prize, £3; 4th Prize, £2.

§ III.—COLLECTIONS REPRESENTING GENERA—*continued.*

Class 83.—20 GREENHOUSE ERICAS, in Flower, in pots not more than 10 inches across, not fewer than 10 kinds. (Open.)
1st Prize, £7; 2d Prize, £5; 3d Prize, £3; 4th Prize, £2.

Class 84.—1 GREENHOUSE ERICA, in Flower. (Open.)
1st Prize, £3; 2d Prize, £2.

Class 85.—10 GREENHOUSE YUCCAS, BEAUCARNEAS, DRACÆNAS, LILIUMS, &c. (Open.)
1st Prize, £10; 2d Prize, £7; 3d Prize, £5; 4th Prize, £3.

Class 86.—10 DRACÆNAS and CORDYLINES, distinct. (Open.)
1st Prize, £10; 2d Prize, £7; 3d Prize, £5; 4th Prize, £3.

Class 87.—6 LILIUMS, in Flower, not fewer than 3 sorts. (Open.)
1st Prize, £3; 2d Prize, £2; 3d Prize, £1.

Class 88.—6 Pots of LILIUM AURATUM, in Flower, the pots not more than 10 inches across. (Open.)
1st Prize, £3; 2d Prize, £2; 3d Prize, £1.

Class 89.—24 AGAVES, not fewer than 12 species or varieties. (Open.)
1st Prize, £10; 2d Prize, £7; 3d Prize, £5; 4th Prize, £3.

Class 90.—10 AGAVES, distinct. (Open.)
1st Prize, £5; 2d Prize, £3; 3d Prize, £2.

Class 91.—12 AMARYLLIS, distinct, in Flower. (Open.)
1st Prize, £4; 2d Prize, £3; 3d Prize, £2.

Class 92.—6 AMARYLLIS, distinct, in Flower. (Amateurs.)
1st Prize, £3; 2d Prize, £2; 3d Prize, £1.

Class 93.—1 ORANGE TREE, in Flower or Fruit. (Open.)
1st Prize, £5; 2d Prize, £4; 3d Prize, £3.

Class 94.—12 ORANGE TREES, &c., in Flower or Fruit. (Open.)
1st Prize, £7; 2d Prize, £5; 3d Prize, £3.

Class 95.—6 BOUGAINVILLÆAS, in Flower, any species. (Open.)
1st Prize, £3; 2d Prize, £2; 3d Prize, £1.

Class 96.—1 TUBEROUS TROPÆOLUM, in Flower. (Open.)
1st Prize, £2; 2d Prize, £1.

Class 97.—12 CAPE PELARGONIUMS, distinct, in Flower. (Open.)
1st Prize, £4; 2d Prize, £3; 3d Prize, £2.

§ IV.—COLLECTIONS REPRESENTING SPECIES and VARIETIES.

Class 98.—3 STANDARD HARDY RHododendrons, in Flower. (Open.)
1st Prize, £5; 2d Prize, £3; 3d Prize, £2.

Class 99.—1 STANDARD HARDY RHododendron, in Flower. (Open.)
1st Prize, £3; 2d Prize, £2; 3d Prize, £1.

Class 100.—30 HARDY RHododendrons, in Flower, not fewer than 15 varieties. (Open.)
1st Prize, £15; 2d Prize, £10; 3d Prize, £7; 4th Prize, £5.

Class 101.—12 HARDY RHododendrons, distinct, in Flower. (Open, for exhibitors not showing in No. 100.)
1st Prize, £6; 2d Prize, £4; 3d Prize, £3; 4th Prize, £2.

Class 102.—8 GREENHOUSE AZALEAS, distinct, in Flower. (Amateurs.)
1st Prize, £12; 2d Prize, £10; 3d Prize, £7; 4th Prize, £5.

Class 103.—8 GREENHOUSE AZALEAS, distinct, in Flower. (Nurserymen.)
1st Prize, £12; 2d Prize, £10; 3d Prize, £7; 4th Prize, £5.

Class 104.—6 GREENHOUSE AZALEAS, distinct, in Flower. (Amateurs—not showing in No. 102.)
1st Prize, £7; 2d Prize, £5; 3d Prize, £3; 4th Prize, £2.

Class 105.—6 GREENHOUSE AZALEAS, distinct, in Flower. (Nurserymen—not showing in No. 103.)
1st Prize, £6; 2d Prize, £4; 3d Prize, £3.

Class 106.—3 GREENHOUSE AZALEAS, distinct, in Flower. (Amateurs—not showing in Nos. 102 or 104.)
1st Prize, £4; 2d Prize, £3; 3d Prize, £2.

Class 107.—3 GREENHOUSE AZALEAS, distinct, in Flower. (Nurserymen—not showing in Nos. 103 or 105.)
1st Prize, £3; 2d Prize, £2; 3d Prize, £1.

Class 108.—1 GREENHOUSE AZALEA, in Flower. (Open.)
1st Prize, £3; 2d Prize, £2.

Class 109.—20 GREENHOUSE AZALEAS, distinct, in Flower, in pots not more than 12 inches across, not fewer than [illegible] varieties. (Open.)
1st Prize, £10; 2d Prize, £7; 3d Prize, £5; 4th Prize, £3.

Class 110.—10 ROSES, in Flower, distinct, in pots not more than 13 inches across. (Open.)
1st Prize, £12; 2d Prize, £7; 3d Prize, £5; 4th Prize, £3.

Class 111.—6 ROSES, in Flower, distinct, in pots not more than 13 inches across. (Amateurs.)
1st Prize, £7; 2d Prize, £4; 3d Prize, £2.

Class 112.—6 NEW ROSES, not sent out previous to 1863-64, in Flower, in any sized pot. (Open.)
1st Prize, £3; 2d Prize, £2; 3d Prize, £1.

Class 113.—1 ROSE, in Flower. (Open.)
1st Prize, £2; 2d Prize, £1.

Class 114.—20 ROSES, in Flower, distinct, in pots not more than 8 inches across. (Open.)
1st Prize, £6; 2d Prize, £4; 3d Prize, £3; 4th Prize, £2.

Class 115.—6 STANDARD ROSES, in pots, in Flower, distinct. (Open.)
1st Prize, £3; 2d Prize, £2; 3d Prize, £1.

Class 116.—25 ROSES, distinct, 3 trusses of cut blooms of each. (Open.)
1st Prize, £3; 2d Prize, £2; 3d Prize, £1.

Class 117.—12 ROSES, distinct, 3 trusses of cut blooms of each. (Amateurs.)
1st Prize, £2; 2d Prize, £1.

Class 118.—30 HOLLIES, distinct. (Open.)
1st Prize, £10; 2d Prize, £7; 3d Prize, £5; 4th Prize, £3.

Class 119.—1 Pair of STANDARD LAURUSTINUS. (Open.)
1st Prize, £3; 2d Prize, £2; 3d Prize, £1.

Class 120.—1 Pair of PYRAMIDAL BAY TREES. (Open.)
1st Prize, £3; 2d Prize, £2; 3d Prize, £1.

Class 121.—1 Pair of STANDARD BAY TREES. (Open.)
1st Prize, £3; 2d Prize, £2; 3d Prize, £1.

Class 122.—1 Pair of STANDARD PORTUGAL LAURELS. (Open.)
1st Prize, £3; 2d Prize, £2; 3d Prize, £1.

Class 123.—1 Pair of STANDARD HOLLIES. (Open.)
1st Prize, £3; 2d Prize, £2; 3d Prize, £1.

Class 124.—1 Pair of STANDARD BOX TREES. (Open.)
1st Prize, £3; 2d Prize, £2; 3d Prize, £1.

Class 125.—1 Pair of any STANDARD EVERGREEN TREE, excepting those invited in Nos. 119 to 124. (Open.)
1st Prize, £3; 2d Prize, £2; 3d Prize, £1.

INTERNATIONAL HORTICULTURAL EXHIBITION AND CONGRESS—*(Continued).*

SCHEDULE OF PRIZES.

§ IV.—COLLECTIONS REPRESENTING SPECIES and VARIETIES—*continued.*

Class 126.—12 ZONAL PELARGONIUMS, distinct, in Flower—Nosegay and Variegated sorts excepted. (Open.)
1st Prize, £6; 2d Prize, £4; 3d Prize, £3.

Class 127.—12 NOSEGAY or HYBRID NOSEGAY PELARGONIUMS, distinct, in Flower. (Open.)
1st Prize, £6; 2d Prize, £4; 3d Prize, £3.

Class 128.—12 VARIEGATED PELARGONIUMS, distinct. (Open.)
1st Prize, £6; 2d Prize, £4; 3d Prize, £3.

Class 129.—6 STANDARD ZONAL PELARGONIUMS, distinct, in Flower. (Open.)
1st Prize, £3; 2d Prize, £2; 3d Prize, £1.

Class 130.—6 STANDARD VARIEGATED PELARGONIUMS, distinct. (Open.)
1st Prize, £3; 2d Prize, £2; 3d Prize, £1.

Class 131.—12 SHOW PELARGONIUMS, distinct, in Flower, in pots not larger than 8 inches across. (Nurserymen.)
1st Prize, £10; 2d Prize, £7; 3d Prize, £5; 4th Prize, £3.

Class 132.—12 SHOW PELARGONIUMS, distinct, in Flower, in pots not larger than 8 inches across. (Amateurs.)
1st Prize, £10; 2d Prize, £7; 3d Prize, £5; 4th Prize, £3.

Class 133.—6 SHOW PELARGONIUMS, distinct, in Flower, in pots not larger than 8 inches across. (Amateurs—not showing in No. 132.)
1st Prize, £5; 2d Prize, £4; 3d Prize, £3; 4th Prize, £2.

Class 134.—6 FANCY PELARGONIUMS, distinct, in Flower, in pots not larger than 8 inches across. (Nurserymen.)
1st Prize, £5; 2d Prize, £4; 3d Prize, £3; 4th Prize, £2.

Class 135.—6 FANCY PELARGONIUMS, distinct, in Flower, in pots not larger than 8 inches across. (Amateurs.)
1st Prize, £5; 2d Prize, £4; 3d Prize, £3; 4th Prize, £2.

Class 136.—1 PELARGONIUM, in Flower. (Open.)
1st Prize, £2; 2d Prize, £1.

Class 137.—12 HERBACEOUS CALCEOLARIAS, in Flower. (Open.)
1st Prize, £3; 2d Prize, £2; 3d Prize, £1.

Class 138.—8 SHRUBBY CALCEOLARIAS, distinct, in Flower. (Open.)
1st Prize, £3; 2d Prize, £2; 3d Prize, £1.

Class 139.—12 PANSIES, distinct, in Flower, in 6-inch pots. (Open.)
1st Prize, £2; 2d Prize, £1.

Class 140.—12 FANCY PANSIES, distinct, in Flower, in 6-inch pots. (Open.)
1st Prize, £2; 2d Prize, £1.

Class 141.—24 PANSIES, distinct, cut blooms. (Open.)
1st Prize, £1 10s.; 2d Prize, £1; 3d Prize, 10s.

Class 142.—50 TULIPS, cut blooms, 25 varieties, Bizarres, Byblœmens, and Roses. (Open.)
1st Prize, £3; 2d Prize, £2; 3d Prize, £1.

Class 143.—12 MIGNONETTE, in Flower, in 5-inch pots. (Open.)
1st Prize, £1; 2d Prize, 15s.

Class 144.—3 TREE MIGNONETTE, in Flower. (Open.)
1st Prize, £3; 2d Prize, £2; 3d Prize, £1.

Class 145.—3 STANDARD HELIOTROPES, in Flower. (Open.)
1st Prize, £2; 2d Prize, £1.

Class 146.—6 HELIOTROPES, distinct, in Flower. (Open.)
1st Prize, £2; 2d Prize, £1; 3d Prize, 10s.

Class 147.—6 FUCHSIAS, distinct, in Flower, in pots not larger than 13 inches across. (Nurserymen.)
1st Prize, £4; 2d Prize, £3; 3d Prize, £2; 4th Prize, £1.

Class 148.—6 FUCHSIAS, distinct, in Flower, in pots not larger than 13 inches across. (Amateurs.)
1st Prize, £5; 2d Prize, £3; 3d Prize, £2; 4th Prize, £1.

Class 149.—3 STANDARD FUCHSIAS, distinct, in Flower. (Open.)
1st Prize, £3; 2d Prize, £2; 3d Prize, £1.

Class 150.—25 GLADIOLUS, distinct, in pots. (Open.)
1st Prize, £3; 2d Prize, £2; 3d Prize, £1.

Class 151.—6 TREE CARNATIONS, distinct, in Flower. (Open.)
1st Prize, £2; 2d Prize, £1.

Class 152.—12 EARLY PINKS, in Flower, in pots, three or more varieties. (Open.)
1st Prize, £2; 2d Prize, £1.

Class 153.—6 HERBACEOUS PÆONIES, distinct, in Flower, in pots. (Open.)
1st Prize, £3; 2d Prize, £2; 3d Prize, £1.

Class 154.—6 Pots of LILY of the VALLEY, in Flower. (Open.)
1st Prize, £2; 2d Prize, £1.

§ V.—SEEDLINGS.

Class 155.—SEEDLING FLORISTS' FLOWER, of any kind, named. (Open.)
Certificates.

Class 156.—NEW GARDEN HYBRID, named, exclusive of Florists' Flowers. (Open.)
Certificates.

Class 157.—NEW GARDEN VARIETY, not included in Nos. 155 or 156, named. (Open.)
Certificates.

Class 158.—SEEDLING FRUIT, of any kind, named. (Open.)
Certificates.

Class 159.—SEEDLING VEGETABLE, of any kind, named. (Open.)
Certificates.

§ VI.—FRUITS.

*** *All Fruits except in Nos. 199 and 200 must be ripe and fit for table.*

Class 160.—FORCED FRUITS, 10 dishes; not more than 2 dishes of any one kind of Fruit admitted. (Open.)
1st Prize, £10; 2d Prize, £7; 3d Prize, £5.

Class 161.—PINE-APPLE, 1 Fruit of the 'Queen.' (Open.)
1st Prize, £2; 2d Prize, £1.

Class 162.—PINE-APPLE, 1 Fruit of 'Smooth Cayenne.' (Open.)
1st Prize, £2; 2d Prize, £1.

Class 163.—PINE-APPLE, 1 Fruit of 'Providence.' (Open.)
1st Prize, £2; 2d Prize, £1.

Class 164.—PINE-APPLE, 1 Fruit of 'Charlotte Rothschild.' (Open.)
1st Prize, £2; 2d Prize, £1.

§ VI.—FRUITS—*continued.*

Class 165.—PINE-APPLE, 1 Fruit of any other kind. (Open.)
1st Prize, £2; 2d Prize, £1.

Class 166.—GRAPES, 5 kinds, 1 bunch of each. (Open.)
1st Prize, £5; 2nd Prize, £4; 3d Prize, £3.

Class 167.—GRAPES, 6 bunches. (Open.)
1st Prize, £5; 2d Prize, £3; 3d Prize, £2.

Class 168.—GRAPES, 3 bunches of 'Black Hamburgh.' (Open.)
1st Prize, £3; 2d Prize, £2; 3d Prize, £1.

Class 169.—GRAPES, 3 bunches of any other Black kind, having the Muscat flavour. (Open.)
1st Prize, £3; 2d Prize, £2; 3d Prize, £1.

Class 170.—GRAPES, 3 bunches of any other Black kind, not having the Muscat flavour. (Open.)
1st Prize, £3; 2d Prize, £2; 3d Prize, £1.

Class 171.—GRAPES, 3 bunches of 'Muscat of Alexandria.' (Open.)
1st Prize, £3; 2d Prize, £2; 3d Prize, £1.

Class 172.—GRAPES, 3 bunches of any other White kind, having the Muscat flavour. (Open.)
1st Prize, £3; 2d Prize, £2; 3d Prize, £1.

Class 173.—GRAPES, 3 bunches of any other White kind, not having the Muscat flavour. (Open.)
1st Prize, £3; 2d Prize, £2; 3d Prize, £1.

Class 174.—GRAPES, the best single bunch of any Black kind. (Open.)
1st Prize, £2; 2d Prize, £1.

Class 175.—GRAPES, the best single bunch of any White kind. (Open.)
1st Prize, £2; 2d Prize, £1.

Class 176.—4 VINES in POTS, in Fruit, distinct. (Open.)
1st Prize, £5; 2d Prize, £4; 3d Prize, £3.

Class 177.—2 VINES in POTS, in Fruit, distinct. (Open.)
1st Prize, £3; 2d Prize, £2; 3d Prize, £1.

Class 178.—MELON, 1 Fruit of any Green-fleshed kind. (Open.)
1st Prize, £1; 2d Prize, 15s.; 3d Prize, 10s.

Class 179.—MELON, 1 Fruit of any Scarlet-fleshed kind. (Open.)
1st Prize, £1; 2d Prize, 15s.; 3d Prize, 10s.

Class 180.—PEACHES, 3 kinds, in threes. (Open.)
1st Prize, £4; 2d Prize, £3; 3d Prize, £2.

Class 181.—PEACHES, 6 of any kind. (Open.)
1st Prize, £2; 2d Prize, £1.

Class 182.—NECTARINES, 3 kinds, in threes. (Open.)
1st Prize, £4; 2d Prize, £3; 3d Prize, £2.

Class 183.—NECTARINES, 6 of any kind. (Open.)
1st Prize, £2; 2d Prize, £1.

Class 184.—FIGS, 6 of any kind. (Open.)
1st Prize, £1; 2d Prize, 15s.; 3d Prize, 10s.

Class 185.—STRAWBERRIES, 6 kinds, 25 Fruits of each. (Open.)
1st Prize, £5; 2d Prize, £3; 3d Prize, £2.

Class 186.—STRAWBERRIES, 3 kinds, 25 of each. (Open.)
1st Prize, £3; 2d Prize, £2; 3d Prize, £1.

Class 187.—STRAWBERRIES, any kind, 25 Fruits. (Open).
1st Prize, £1 10s.; 2d Prize, £1; 3d Prize, 15s.

Class 188.—10 pots of STRAWBERRIES, in Fruit. (Open).
1st Prize, £3; 2d Prize, £2; 3d Prize, £1.

Class 189.—CHERRIES, 30 of any Black kind. (Open.)
1st Prize, £1; 2d Prize, 15s.; 3d Prize, 10s.

Class 190.—CHERRIES, 30 of any White kind. (Open.)
1st Prize, £1; 2d Prize, 15s.; 3d Prize, 10s.

Class 191.—RASPBERRIES, 30 of any Red kind. (Open.)
1st Prize, £1; 2d Prize, 15s.; 3d Prize, 10s.

Class 192.—RASPBERRIES, 30 of any White kind. (Open.)
1st Prize, £1; 2d Prize, 15s.; 3d Prize, 10s.

Class 193.—Collection of ORANGES, LEMONS, CITRONS, POMELLOES, SHADDOCKS, &c., of foreign growth. (Open.)
1st Prize, £5; 2d Prize, £3; 3d Prize, £2.

Class 194.—6 TANGIERINE ORANGE TREES, in Fruit, in pots or boxes. (Open).
1st Prize, £3; 2d Prize, £2; 3d Prize, £1.

Class 195.—Collection of FOREIGN FRUITS. (Open.)
1st Prize, £5; 2d Prize, £3; 3d Prize, £2.

Class 196.—BANANAS, heaviest bunch. (Open).
1st Prize, £3; 2d Prize, £2; 3d Prize, £1.

Class 197.—6 FRUIT TREES, showing the modes of training for walls or espaliers. (Open.)
1st Prize, £3; 2d Prize, £2; 3d Prize, £1.

Class 198.—6 FRUIT TREES, showing the modes of training for open-ground culture. (Open.)
1st Prize, £3; 2d Prize, £2; 3d Prize, £1.

Class 199.—12 ORCHARD-HOUSE TREES, in Fruit (not necessarily ripe), in pots. (Open.)
1st Prize, £5; 2d Prize, £3; 3d Prize, £2.

Class 200.—6 ORCHARD-HOUSE TREES, in Fruit (not necessarily ripe), in pots. (Open.)
1st Prize, £3; 2d Prize, £2; 3d Prize, £1.

§ VII.—VEGETABLES.

*** *Vegetables must be shown in a state fit for use.*

Class 201.—FORCED VEGETABLES, 6 kinds—Salading excepted. (Open).
1st Prize, £3; 2d Prize, £2; 3d Prize, £1.

Class 202.—VEGETABLES NOT FORCED, 6 kinds—Salading excepted. (Open).
1st Prize, £3; 2d Prize, £2; 3d Prize, £1.

Class 203.—SALADING, 10 sorts. (Open).
1st Prize, £2; 2d Prize, £1.

Class 204.—ASPARAGUS, 50 heads. (Open).
1st Prize, £1; 2d Prize, 15s.; 3d Prize, 10s.

Class 205.—ASPARAGUS, 12 largest heads. (Open.)
1st Prize, £1; 2d Prize, 15s.; 3d Prize, 10s.

Class 206.—MUSHROOMS, 1 punnet. (Open)
1st Prize, 10s.; 2d Prize, 5s.

Class 207.—POTATOS, FORCED, 24 of any Kidney kind. (Open.)
1st Prize, 10s.; 2d Prize, 5s.

Class 208.—POTATOS, FORCED, 24 of any Round kind. (Open.)
1st Prize, 10s.; 2d Prize, 5s.

§ VII.—VEGETABLES—*continued.*

Class 209.—FRENCH BEANS Forced, 50 pods. (Open.)
1st Prize, £1; 2d Prize, 15s.; 3d Prize, 10s.

Class 210.—PEAS, half a peck. (Open.)
1st Prize, £1; 2d Prize, 15s.; 3d Prize, 10s.

Class 211.—EARLY CARROTS, 1 bunch of 24. (Open.)
1st Prize, 15s.; 2d Prize, 10s.

Class 212.—EARLY TURNIPS, 1 bunch of 24. (Open.)
1st Prize, 15s.; 2d Prize, 10s.

Class 213.—CUCUMBERS, 1 brace. (Open.)
1st Prize, £1; 2d Prize, 15s.

Class 214.—CUCUMBER, the handsomest. (Open.)
1st Prize, 10s.; 2d Prize, 5s.

Class 215.—CUCUMBER, the longest. (Open.)
1st Prize, 10s.; 2d Prize, 5s.

Class 216.—RHUBARB, heaviest 12 stalks. (Open.)
1st Prize, £1; 2d Prize, 15s.; 3d Prize, 10s.

Class 217.—CABBAGE, 3 heads. (Open.)
1st Prize, 15s.; 2d Prize, 10s.

Class 218.—CAULIFLOWER, 3 heads. (Open.)
1st Prize, 15s.; 2d Prize, 10s.

Class 219.—BROCCOLI, 3 heads. (Open.)
1st Prize, 15s.; 2d Prize, 10s.

Class 220.—NEWLY INTRODUCED VEGETABLE, distinct, cultivable in this country, and not a garden variety. (Open.)
Certificates.

§ VIII.—BOUQUETS and OBJECTS of ORNAMENT in NATURAL FLOWERS.

Class 221.—DINNER-TABLE DECORATIONS, 3 Pieces, ornamented with Flowers. (Open.)
1st Prize, £7; 2d Prize, £5; 3d Prize, £3.

Class 222.—TABLE PLATEAU, ornamented with Flowers. (Open.)
1st Prize, £5; 2d Prize, £3; 3d Prize, £2.

Class 223.—FLOWER-STANDS for the DRAWING ROOM TABLE, furnished. (Open.)
1st Prize, £3; 2d Prize, £2; 3d Prize, £1.

Class 224.—PLANT CASE for the DRAWING-ROOM, furnished with suitable Plants. (Open.)
1st Prize, £3; 2d Prize, £2; 3d Prize, £1.

Class 225.—WINDOW JARDINET, furnished with suitable Plants. (Open.)
1st Prize, £2; 2d Prize, £1.

Class 226.—WINDOW BOX, for External Decoration, furnished with suitable Plants, the Box to be of any material, but not to exceed 3 feet 6 inches long by 10 inches wide. (Open.)
1st Prize, £2; 2d Prize, £1.

Class 227.—3 HANGING BASKETS, furnished with Suitable Plants. (Open.)
1st Prize, £2; 2d Prize, £1.

Class 228.—1 WEDDING BOUQUET. (Open.)
1st Prize, £2; 2d Prize, £1.

Class 229.—3 BOUQUETS for BALLS. (Open.)
1st Prize, £2; 2d Prize, £1.

Class 230.—3 HEAD-DRESSES or WREATHS. (Open.)
1st Prize, £2; 2d Prize, £1.

§ IX. IMPLEMENTS, DESIGNS, &c.

*** *Space will be furnished for the display of objects exhibited in this Class.*

☞ *The* Society of Arts *have intimated their willingness to offer Prizes to the extent of £50 for objects exhibited in this Section.*

Class 231.—GARDEN IMPLEMENTS. (Open.)
Certificates.

Class 232.—GARDEN ORNAMENTS. (Open.)
Certificates.

Class 233.—TUBS for ORANGE-TREES, &c. (Open.)
1st Prize, £5; 2d Prize, £3.

Class 234.—DESIGN for LAYING OUT a PUBLIC GARDEN, on a scale of 40 feet to the inch; the space, form, and position of the Garden of the Royal Horticultural Society at South Kensington to be taken as a basis. (Open.)
1st Prize, £10; 2d Prize, £5; 3d Prize, £3.

Class 235.—DESIGN for LAYING OUT A PRIVATE GARDEN and GROUNDS, indicating site of House and Offices, on a scale of 40 feet to the inch: the space a rhomboid of 20 acres. (Open.)
1st Prize, £10; 2d Prize, £5; 3d Prize, £3.

Class 236.—DESIGN for LAYING OUT a VILLA GARDEN and GROUNDS, indicating site of House and Offices, on a scale of 10 feet to the inch; the space an oblong of 5 acres. (Open.)
1st Prize, £5; 2d Prize, £3.

§ X.—EXTRAORDINARY PRIZES.

Class 237.—MISCELLANEOUS PLANTS, FLOWERS, or FRUITS, not specially invited. (Open.)
1 Prize of £5; 2 Prizes of £4; 4 Prizes of £3; 6 Prizes of £2; 6 Prizes of £1.

SUMMARY of PRIZES.

§ I.—General Collections	£509	0	0
§ II.—Collections of Families	614	0	0
§ III.—Collections of Genera	345	0	0
§ IV.—Collections of Species	592	5	0
§ V.—Seedlings	0	0	0
§ VI.—Fruits	244	0	0
§ VII.—Vegetables	38	0	0
§ VIII.—Bouquets, &c.	55	0	0
§ IX.—Implements, Designs, &c.	52	0	0
§ X.—Extraordinary	43	0	0
	£2492	5	0

COMMITTEE ROOMS, ROYAL HORTICULTURAL GARDENS, SOUTH KENSINGTON, W.

COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 2s. per bag.

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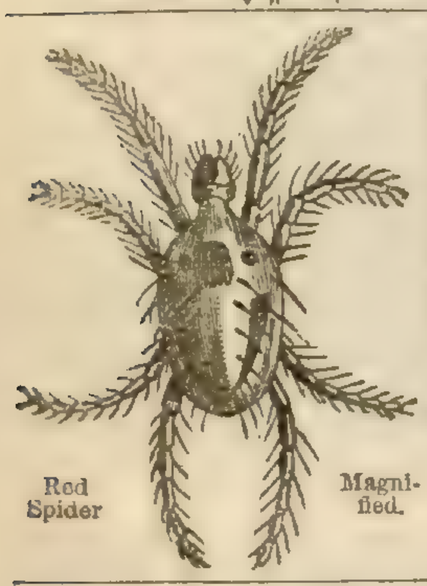
Postage Stamps or Post-office Orders payable to J. Barsham & Co.

Barsham's BRUSHES and MATS are sold in every town.

Caution.—Every Brush is stamped, J. Barsham's Patent.



Red Spider — Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes, 1s. 3s., and 10s. 6d. each.

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GARDEN BORDER EDGING TILES, in great variety of patterns and material, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.

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ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

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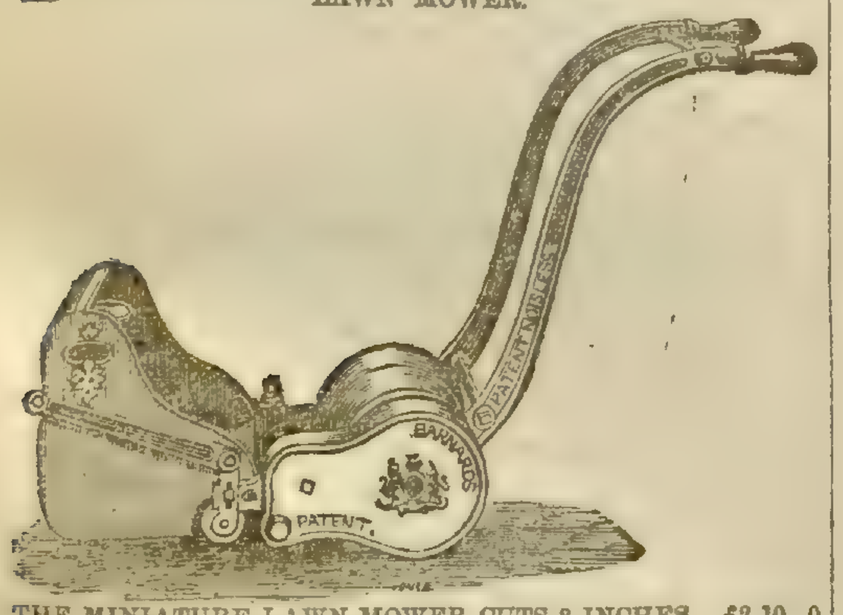

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To CUT 10 INCHES (this can be worked by a lady)	3 5 0
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The Seed may be sown successively from early autumn until the spring, but the present summer months is the most favourable period for early germination, and the seminal bulbs thus obtained being subjected to a slowly continuous growth in a warm greenhouse, conservatory, or intermediate plant-pit, will thereby attain to a flowering size in the second season.

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GRAY'S OVAL TUBULAR BOILER.

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NEW OVAL TUBULAR BOILER,

acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in Gardeners' Chronicle *of International Exhibition, May* 24, *page* 476.

The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. Gray's variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so, the change, though a slight one, is no doubt an improvement."

They are made of all sizes, which, with prices, may be had on application.

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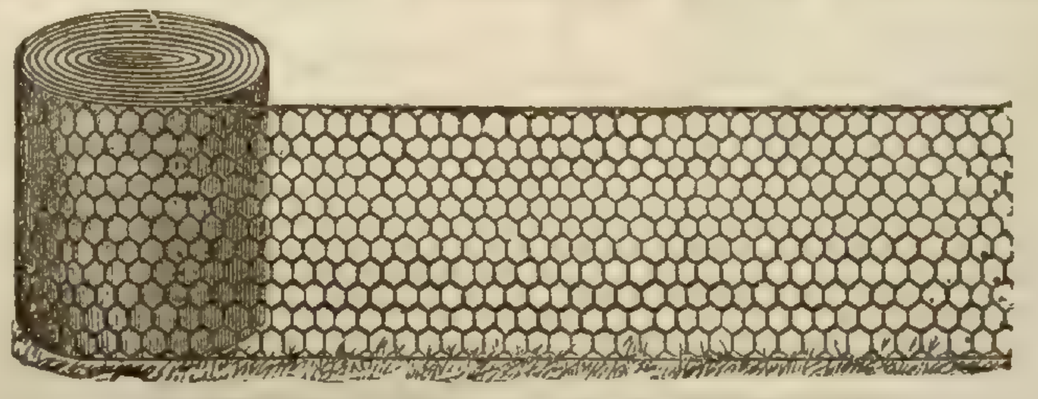

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		Japanned.	Galvanized.	Japanned.	Galvanized.	Japanned.	Galvanized.	Japanned.	Galvanized.
2¼ inch	Hares, Dogs, Poultry ..	3d.	4d.	3¾d.	5d.	4½d.	6d.	5½d.	7d.
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1⅝ inch	Small Rabbits, Hares, &c.	4d.	4¾d.	4¾d.	6d.	5½d.	7d.	7d.	9d.
1½ inch	Smallest Rabbits	5d.	6d.	5¾d.	7d.	7d.	9d.	9d.	11d.

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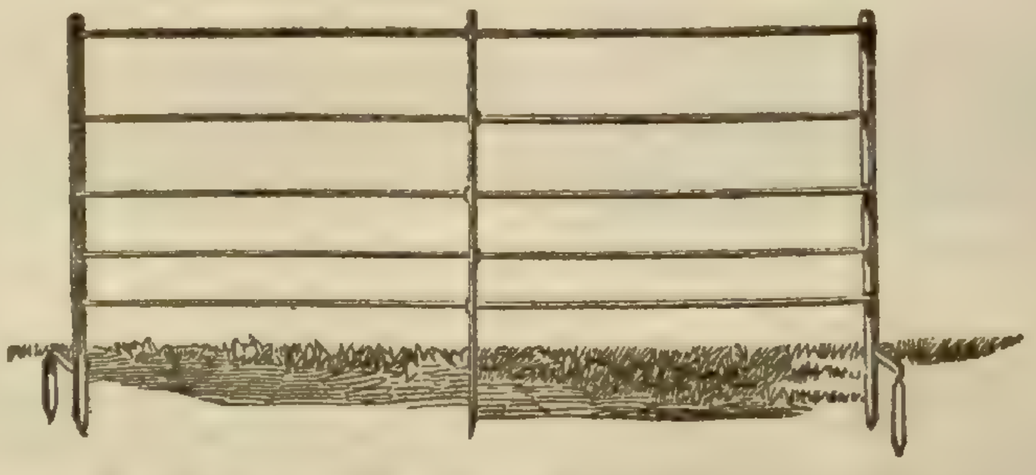

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	Each.—s.	d.
SHEEP HURDLES, 3 ft. high, 6 ft. long, 4-Bar ..	4	0
Ditto ditto ditto, 5-do.	4	5½
Ditto ditto ditto, ⅝ Top Bar	4	8
CATTLE HURDLE, 3 ft. 6 in. high, 6 ft. long ..	4	11½
Ditto ditto ditto strong	5	9
OX HURDLE, 4 ft. high, 6 ft. long	7	0½

DR. SPRATT'S PATENT LOCK.

The simplest and best Fastening for Field, Wicket, Swing, and Railway Gates. Particulars and Prices on application.

PATENT WROUGHT-IRON STABLE FITTINGS, CONSERVATORIES, &c. Lists Free.

ST. PANCRAS IRON WORK COMPANY, OLD ST. PANCRAS ROAD, LONDON, N.W.

For Present Sowing.—Trifolium incarnatum, Italian Crimson Clover.

SUTTON AND SONS can now supply NEW SEED of the above of fine quality. The price is 4d. per lb., or cheaper by the cwt.

The quantity to be sown per acre is 28 lbs. if alone, or if with Italian Rye-grass, 8 lbs. is sufficient.

Also MUSTARD and RAPE, new seed, at low prices, which may be had on application.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

New Late Trifolium.

SUTTON AND SONS have just received a supply of each of the NEW VARIETIES of TRIFOLIUM—LATE RED and LATE WHITE.

The quantity of feed is quite equal to the Common variety, with the advantage of coming in a fortnight later. The present prices are, for

NEW LATE RED FLOWERING, 8d. per lb., cheaper by the cwt.
NEW LATE WHITE FLOWERING, 9d. per lb., cheaper by the cwt.
Also the COMMON TRIFOLIUM INCARNATUM, 4d. per lb., cheaper by the cwt.
Carriage free, except small parcels.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Cabbage Seed for Present Sowing.

SUTTON AND SONS can supply the following good sorts for sowing in the Garden, to come in at Michaelmas:—

SUTTON'S IMPERIAL,
EARLY DWARF YORK,
IMPROVED NONPAREIL.

At 3d. and 6d. per packet, and in large quantities at reduced rates.

Also the following kinds for Early Feeding:—

WHEELER'S IMPERIAL,
ENFIELD MARKET,
EARLY BATTERSEA.
At 3s. 6d. per pound.

DRUMHEAD CABBAGE, 2s. 6d. per lb.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

New Early Turnip.

SUTTON'S SHORT-TOP SIX-WEEKS TURNIP, for Sowing in August.

This excellent Turnip, certainly the quickest in cultivation, if sown in the month of August, will be ready for Feeding off in October. Price 1s. per lb.; or cheaper by the bushel, Carriage free.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Chivas' Orange Jelly Turnip.

CHIVAS AND WEAVER (late GEORGE CHIVAS) acquaint Agriculturists that they are supplying the above TURNIP, grown with scrupulous care, from a stock which they have been improving for several years; the characteristics of the variety are now generally recognised, viz.:—Rapidity of Growth (may be sown till the middle of August), highly nutritious, and particularly hardy. To secure the genuine article, direct application is recommended. Price 1s. 6d. per lb; 20 lbs. delivered free at any railway station.

Chester, July 29, 1865.

Early Spring Feed.

SEEDS FOR AUTUMN SOWING.

PETER LAWSON AND SON can supply of excellent quality—

ITALIAN RYE-GRASS | RYE
TRIFOLIUM INCARNATUM | WHITE MUSTARD
GREEN ROUND and GREEN GLOBE TURNIPS
SIX WEEKS TURNIP
CLOVER and NATURAL GRASS SEEDS for PERMANENT PASTURE, &c.

Also New Seed of BROMUS SCHRADERI, 2s. 6d. per lb., and the New Hardy Clover, TRIFOLIUM STRIATUM, 2s. per lb.

PETER LAWSON & SON, the Queen's Seedsmen, 28, King Street, Cheapside, London, E.C.; and at Edinburgh.

ROBERT PARKER begs to offer the following, all of which are well-grown, clean, and healthy plants:—

	s.	d.
CLERODENDRON BALFOURII	5	0
CORDYLINE INDIVISA	10	6
FRANCISCEA CALYCINA	10	6
GOODYERA PUBESCENS	1	6
RHODODENDRON COUNTESS of HADDINGTON, 10s. 6d. to	21	0
" JAVANICUM	2	6
" NUTTALLII	2	6
TRITOMA GRANDIS	3	6
" UVARIA GLAUCESCENS	1	6
VINE DUCHESS of BUCCLEUCH 10s. 6d. and	21	0
YUCCA ALBO SPICA	42	0
" TRECULEANA, *cornuta, concava*	42	0

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Strawberries.

CHARLES TURNER has the following now ready in strong plants:—

	Per 100—s.	d.		Per 100—s.	d.
Admiral Dundas (Myatt)	5	0	Hautbois (Myatt)	3	6
British Queen (Myatt)	5	0	Hautbois, Royal	5	0
Carolina superba (Kitley)	5	0	John Powell	7	6
Cockscomb (Ingram)	7	6	Keen's Seedling	3	6
Comte de Paris	3	6	La Chalonnaise	5	0
Crimson Queen (Myatt)	5	0	Le Constant	5	0
Eclipse (Reeves)	5	0	Marguerite (Lebreton)	5	0
Eleanor (Myatt)	3	6	Oscar (Bradley)	5	0
Eliza (Rivers)	5	0	Premier	5	0
Eliza (Myatt)	3	6	President (Green)	5	0
Elton Pine (Knight)	3	6	Prince Arthur (Ingram)	5	0
Elton Improved	5	0	Scarlet Pine	5	0
Empress Eugénie (Knivett)	5	0	Sir C. Napier (Smith)	5	0
Fairy Queen (Ingram)	20	0	Sir Harry (Underhill)	5	0
Filbert Pine (Myatt)	5	0	Sir Joseph Paxton (Bradley)	7	6
Frogmore Late Pine (Ingram)	5	0	Souvenir de Kieff (De Jonghe)	5	0
General Havelock (Tiley)	5	0	Wonderful (Jeyes)	5	0

Many other kinds of less note may also be had.
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Flower Roots of every Description.

LOUIS VAN HOUTTE'S CATALOGUE No. 109 is to be had at Messrs. R. SILBERRAD & SON'S Office, 5, Harp Lane, Great Tower Street, London, E.C.

The goods are delivered free out of the Custom House in London, without any expense whatever to the buyer, but *per contra* 5s. will be charged in account for each package.

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Ghent, Belgium.

ROYAL HORTICULTURAL SOCIETY.

SPECIAL SHOW of FERNS, SATURDAY, July 29.

AWARDS of the JUDGES.

CLASS 1.—FERNS, 12 Exotic, distinct kinds. (Nurserymen.)
1st Prize, Mr. William Bull, King's Road, Chelsea, S.W., £4.

CLASS 2.—9 EXOTIC, distinct kinds. (Amateurs.)
1st, Mr. W. Cross, Gr. to the Right Hon. Louisa Lady Ashburton, Romsey, £4.
2d, Mr. H. Barnard, Gr. to J. W. Taylor, Esq., Seven Sisters Road, N., £3.
3d, Mr. W. Young, Gr. to R. Barclay, Esq., Highgate, £2.

CLASS 3.—6 EXOTIC, distinct kinds. (Open.)
1st, Mr. W. Young, £2.
2d, Mr. William Bull, £1 10s.
3d, Mr. H. Barnard, £1.

CLASS 4.—3 VARIEGATED EXOTIC. (Open.)
1st, Mr. H. Barnard, £1.
2d, Mr. J. Weston, Gr. to D. Martineau, Esq., Clapham Park, 15s.
3d, Mr. W. Young, 10s.

CLASS 5.—3 TREE. (Open.)
1st, Mr. William Bull, £2.
2d, Mr. William Young, £1 10s.

CLASS 6.—3 FILMY HYMENOPHYLLUMS. (Open.)
3d, Mr. William Bull, £1.

CLASS 7.—3 GOLDEN, distinct kinds. (Open.)
1st, Mr. William Young, £1.
2d, Mr. William Bull, 15s.

CLASS 9.—9, not less than 6 DISTINCT KINDS. (Amateurs.)
1st, Mr. M. Higgs, Gr. to Mrs. Barchard, Putney Heath, £3.
2d, Mr. H. Barnard, £2.
3d, Mr. W. Young, £1.

CLASS 10.—6 DISTINCT KINDS. (Open.)
1st, Mr. William Young, £2.
2d, Mr. M. Higgs, £1 10s.

CLASS 11.—BRITISH FERNS, 12 distinct kinds. (Open.)
1st, Messrs. J. Ivery & Son, Dorking and Reigate Nurseries, £3.
Equal 1st, Messrs. A. Stansfield & Sons, Vale Nurseries, Todmorden, Lancashire, £3.

CLASS 12.—6 DISTINCT KINDS. (Amateurs.)
1st, Mr. W. Kilmister, Gr. to Mrs. Laing, 9, Hyde Park Gate, W., £2.
2d, Mr. W. Young, £1 10s.
3d, Mr. W. Earley, Gr. to F. Pryor, Esq., Welwyn, £1.

CLASS 13.—COLLECTION of HARDY, not less than 25 kinds. (Open.)
1st, Messrs. J. Ivery & Son, £4.
2d, Messrs. A. Stansfield & Sons, £3.
3d, Mr. William Bull, £2.

CLASS 14.—FUCHSIAS, 6 distinct kinds. (Open.)
1st, Mr. J. Weston, £5.
2d, Mr. E. Gardiner, Gr. to J. Stutter, Esq., Clapham Park, £4.
3d, Mr. G. Green, Douglass Place, East Greenwich, £3.

CLASS 15.—PETUNIAS, 6 distinct kinds. (Open.)
3d, Mr. George Macintosh, Nurseryman, Hammersmith, £1.

CLASS 16.—MISCELLANEOUS. (Open.)
1st, Mr. J. Green, Gr. to Col. Miles, Malmesbury, for Adiantum Farleyanum, £2.
Extra, Mr. W. Bartlett, Hammersmith, for 9 Adiantum cuneatum, £1.
Extra, Messrs. Stansfield & Sons, for Collection of British Ferns, £1.
Extra, Mr. J. Fleming, Cliveden, for Collection of Pelargoniums, £1.
Extra, Mr. J. Merrett, Gr. to H. Whiting, Esq., Battersea Rise, for 2 Boxes of Peaches, £1.
Extra, Mr. William Bull, for 3 New Ferns, 10s.
Extra, Messrs. Barr & Sugden, for Plant Cases Filled with Plants, 10s.
Extra, Mr. W. Earley, Welwyn, for Collection of Plants in Flower, 10s.
Extra, Mr. W. Young, for Specimen Caladium Argyrites, 10s.

PRIZE OFFERED BY MR. KELK.

CLASS 17.—A prize offered by Mr. Kelk, Member of Council, for a PYRAMIDAL GROUP, composed of 2 plants of white CAMPANULA PYRAMIDALIS, 2 plants of blue CAMPANULA PYRAMIDALIS, and 2 of NERIUM SPLENDENS. (Open.)
1st, Mr. George Macintosh, £5.

CERTIFICATES.

First-class Certificate to Mr. J. Green, Gr. to Col. Mills, for Adiantum Farleyanum.
First-class Certificate to Mr. Clark, Botanical Gardens, Glasgow, for Polypodium species, Calabar.
First-class Certificate to Messrs. A. Stansfield & Sons, Todmorden, for Asplenium Adiantum-nigrum finbellatum.
First-class Certificate to Messrs. A. Stansfield & Sons, for Blechnum Spicant undulatum.
First-class Certificate to Messrs. Stansfield & Sons, for Polystichum angulare Bayliæ.
First-class Certificate to Messrs. Stansfield & Sons, for Polystichum angulare foliosum.
First-class Certificate to Messrs. Stansfield & Sons, for Asplenium Trichomanes incisum triangulare.
Second-class Certificate to Messrs. Stansfield & Sons, for Blechnum Spicant serratum rigidum.
Second-class Certificate to Messrs. Stansfield & Sons, for Teucrium Scorodonia crispum.
First-class Certificate to Mr. B. Porter, Gr. to the Hon. A. J. Ashley, Copped Hall, Epping, for Hollyhock "Mr. George Eyles."
First-class Certificate to Mr. William Cross, for Polypodium vulgare ramosum.

The Gardeners' Chronicle.

SATURDAY, AUGUST 5, 1865.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY, Aug. 8 { Royal Horticultural (Floral and Fruit Committees), at S. Kensington .. 11 A.M.
SATURDAY, — 12 { Royal Horticultural (Weekly Show), at South Kensington .. .. 2 P.M.

WE invite thus early the attention of those who are interested in improving the aspect of their Flower-gardens to the display of SUBTROPICAL GARDENING AT BATTERSEA PARK, for two reasons. The first is, that owing to the very favourable nature of the season, the plants have this summer put on the aspect of luxurious contentment, which it is so desirable for them to attain, sooner and more completely than was the case in the less congenial summers which have passed over us since Mr. GIBSON commenced this style of gardening,—as must be evident from the fact that Ficus elastica is already in luxuriant growth, rooting like a Willow in the Battersea soil; and that Hibiscus rosa sinensis is flowering and seeding freely. The second is, that a more lengthened experience, as was to be expected, has resulted in a more perfect selection, and a more tasteful arrangement of the still remarkably varied and, in many cases, unexpected materials which Mr. GIBSON so well adapts to his purpose.

Our object is, however, not now to enter upon any detailed description of the planting of the various beds and groups, so much as to point out a few of the most successful and effective combinations; to recall some of the conditions to which, in our opinion, Mr. GIBSON very reasonably attributes his success; and to record the fact that Subtropical Gardening has been so great a success in this suburban park, that the First Commissioner has consented to its extension, in consequence of which a very considerable space of ground, occupying a peninsular position on the north side of the lake, has just been opened to the public. Here, in the future, we may look for novel scenes of beauty; but in the meantime the gems of this year's planting will be found within the old subtropical area.

One very beautiful oblong group consists of a centre of rather tall plants of Centaurea gymnocarpa, which Mr. GIBSON has planted freely this year; this is flanked by a most telling border of Coleus Verschaffeltii, and that again is bordered by a row of Sempervivum californicum, sitting close to the ground. The effect of these close succulent margins, which we observed were repeated under various conditions, is very pleasing. Another most effective oblong space is filled with logitudinal bands of highly-coloured Mrs. Pollocks, on a deep green carpet of the close-growing Lithospermum fruticosum, now out of flower, but which in its season must have been itself an object of surpassing beauty. A third very pretty and airy looking group consists of a centre of the white and pink variegated Vitis heterophylla variegata, surrounded by Lonicera aureo-reticulata, so trained as to appear like a basket margin. Probably however the most telling bed of all is Coleus Verschaffeltii, remarkable for its intense bronzy crimson, unbroken by weakness of tint at any point, and bordered at just the right height by the elegantly-cut silver leaves of Centaurea gymnocarpa. This group is very beautiful—hardly so effective perhaps as when the broader-leaved Centaurea ragusina is used as an edging, but still so perfect and so lovely that criticism is disarmed. Near this is a bijou group, fit for any drawing-room. The narrow-leaved Dracæna australis occupies the centre, and round about the stem of this, clothing the earth with verdure, is the simple dwarf Begonia semperflorens, or some allied species. Outside this is a belt of Selaginella denticulata, on which are set out at regular intervals alternately, plants of the brightly-coloured Dracænas, Cooperi and ferrea variegata, the Dracænas in turn alternating with tufts of Centurea ragusina compacta. Outside the Lycopod is a narrow close line of Saxifraga pectinata. The fine colouring in this group is most striking, and its freshness is secured by simply using a slight screen on the sunny side during the hottest portion of a sunny day.

We may add, that Iresine Herbstii is dingy and ineffective in all the different situations where it has been employed at Battersea, and may be written down worthless; that notwithstanding the fine colour sometimes obtained from Amaranthus melancholicus ruber, Mr. GIBSON is decidedly of opinion that none of the red-leaved plants approach in merit to Coleus Verschaffeltii; that this latter is less effective when a belt of the dingy Coleus scutellarioides atropurpurea intervenes between it and the Centaurea ragusina; and that in one of the outer drives, a very neat effect, just that of a stone kerb, is produced by a narrow even line of Cerastium tomentosum, closely clipped so as to give it a rounded surface.

The secret of success with these tenderlings at Battersea is *bottom-heat* and fresh moderately *enriched soil*. It is the feeding that gives the brilliant colours for which both blossoms and foliage are remarkable everywhere at Battersea; and it is the bottom-heat that induces the more tender plants to thrive there so perfectly. But how is the bottom-heat provided—by trenches filled with fermenting manure? No: but by brickbats! The manner has been well described by Mr. GIBSON himself in our columns (p. 986, 1863), and to them we refer for details. The effect of this use of brick rubble is no doubt to store up, as it were, in close contact with the roots of the plants, the heat which is absorbed when the sun is darting his fervent rays in such wise as to impinge on the sides of the prepared raised beds, these being so placed as to catch as much of this heat as possible. Suffice it to say, that a thick layer of brick rubble forms the base of the beds, which are raised some foot or more, and this rubble is brought out at the sloping sides, so near to the surface as to be merely covered by the turf. There is consequently no obstacle to the ready admission of heat when the sun is shining on the sloping margins of the beds, and from the nature of the material, heat once absorbed is quickly

diffused beneath the soil. The plan involves some considerable labour in watering in dry weather, but the results are worth any reasonable amount of labour. In truth, we have here geothermal culture of the simplest and most effective kind.

Medical Education may seem at first sight somewhat remote from the subjects discussed in this paper, and yet it is one in which our readers are at least as much interested as any class of the community, excepting the disciples of Æsculapius themselves. But in order to avoid the charge of not minding our own business, or of meddling with the affairs of others, let us endeavour to propitiate the "faculty," ever jealous of interference, by assuring it that our present concern lies solely with the mode in which Practical Botany is taught in the great medical schools of this metropolis.

Some time since, in the pages of a contemporary, a rather severe censure was passed by implication on the teachers of Botany in London, and, to a certain extent, that censure was a just one. The fault, however, certainly lies far less with the teachers than with the system in accordance with which they are compelled to teach. That we may not wander into subjects unsuited to the scope of this Journal, let us at once call attention to one among the many reasons why medical students presenting themselves for examination as candidates for the medical service of the army, in India, and elsewhere, frequently show to such bad advantage. It is the want of a "Physic Garden" attached to the several hospitals, wherein pupils could see and examine at their leisure such of the principal medical plants as could be therein grown. What would be thought of a medical college without a hospital attached to it in which the students could see for themselves the "ills that flesh is heir to," or without a dissecting room in which they could follow the descriptions of the Professor of Anatomy? And yet there is not a single college in London that has a medical garden attached to it! Of course circumstances prevent the existence of such a luxury in most cases, though not in all. It would be quite possible to grow a few plants as illustrations of lectures in the ample domain attached to the temporary hospital of St. Thomas; quite possible to do so at University College, perhaps even at St. George's. But as this is clearly out of the question in most instances, we will draw attention to those means which the pupils have of acquiring a practical and not merely a closet acquaintance with plants.

Our noble garden at Kew at once suggests itself as affording ample resources for study in its unrivalled collections and museums. Not to mention, however, other reasons why Kew, otherwise so well suited for educational purposes, is ill adapted for the requirements of medical students, we have merely to consider its distance from the great hospitals. In the three months or less that medical students have to devote to botany there is no time to spare for frequent visits to Kew, because it is to be remembered that not only lectures on Botany, but at least on two other subjects have to be attended at the same time, in addition to daily attendance in the wards of the hospital.

Next in order to Kew we may mention the Botanic Garden in the Regent's Park, and this really does good service. Many of the lecturers derive their supply of specimens from that quarter; pupils are admitted under certain regulations to study there; and there is a well-arranged and good selection of medical and other plants. Regent's Park, too, is far more easily accessible than Kew.

In the third place there is the garden of the Apothecaries Society at Chelsea, a "physic garden" in the old acceptation of the term, and this is, or ought to be, *the* garden for medical students. In a certain sense it may be said to be their own. It is easily reached by steamboat or omnibus, and is within walking distance from most of the schools. Under the fostering care and superintendence of Mr. N. B. Ward and Mr. Moore, this garden, endeared by old associations to many a practitioner, is awakening to a new life of usefulness. On a future occasion we hope to return to this subject, for the dear old "Hortus Botanicus" demands fuller notice than we can give it at the present time. *M. T. M.*

We have already recorded the discovery of Orchis pyramidalis with double flowers, but this it appears is not the only one of our native Orchids which is given to duplication. Dr. Moore, of Gasnevin, has communicated the following account of Orchis mascula with double flowers, read before the Royal Dublin Society a short time since. He observes:—

"Another interesting instance of one of our native species of Orchis has been sent to me from the Bridge of Allan by Dr. Paterson, one of the resident physicians there. It is an early Orchis mascula, and the first time I believe it to have been ever seen with double flowers. Happily, the parts are so large, that the nature of the morphological changes which have taken place can be well studied.

"Moquin-Tandon, in his 'Eléments de Teratologie,' classifies the prolifications which take places in causing double flowers as *median*, *axillary*, and *lateral*:—*Median*, when the centre of the flower is changed and prolonged beyond its usual state, and leaving other buds, as frequently occurs in the Rose; *axillary*, when the prolification springs from the axil of one of the parts of the flower; and *lateral*, when the addition is rather to the inflorescence than to the flower itself. The remarkable changes which have taken place in the flowers of this Orchis appear to embrace two of these terms—*median* and *axillary*.

"The flowers are reversed on the rachis of the axis which bears them, the labellum being next the apex, in place of the sepals being uppermost, which is the normal state of the flower. The changes of the parts are very curious and interesting. On the sides of the labellum are two smaller labella with short spurs, and in the axils of these other flowers spring, thus rendering the morphology axillary. These secondary florets have, again, rudimentary florets in the axils of their changed labella. There is no ovary, or column, or nectary distinct, though in some instances in the secondary flower they are apparently present in a very rudimentary state. The part where the column ought to be in the general flower is a mass of bracts and incipient florets, forming a depressed raceme—thus showing the prolification to be median also. The malformed parts in the incipient flowers do not appear to exceed the usual number of pieces in the regular flower of Orchis. This is supposed to be the second instance of median prolification in forming the double flower of an Orchis, the first being that already noticed by Dr. Masters, relative to Mr. Foot's Orchis pyramidalis.

"I have now another remarkable instance of duplication in an Orchid flower, though caused in a very different manner from that of the former. It is the beautiful Calanthe veratrifolia, a tropical species. The alteration in this instance has occurred by the blending of three flowers into one, and is only partial on the raceme. The three flowers are attached to one solid peduncle, which springs from the rachis between two bracts, in place of one, which is the normal condition of the flowers. Each has its proper labellum, column, and pollen masses; but there are only 10 pieces of sepals and petals, in place of 15, which would have been the case had the flowers been separate and normal. The spur on the middle flower is wanting, and in place of it are two petaloid pieces with green tips. It is further worthy of notice, that the flower on the rachis, which is immediately under the malformed one described, is without a labellum altogether."

—— The Testimonial to Mr. Thomas Ingram, which has been from time to time referred to in our columns, was presented to him at Frogmore on Saturday last, by a deputation of the Committee of Management. The subscriptions amounted to about 230*l*. The Testimonial consisted of a handsome tea and coffee service, manufactured by Garrard; a gold watch, by Frodsham; and a purse of 150 guineas. The watch bore the following inscription:—"Presented to Thomas Ingram, Esq., by his friends, on the 50th anniversary of his services in the Royal Gardens, Windsor, July, 1865."

—— Horticulturists should be on the look out for double-flowered Epacrids. Such an one is now before us, and presents a great number of corollas, one within the other, to the entire exclusion of the stamens and pistils.

—— M. Becquerel has recently communicated to the Paris Academy of Sciences, a memoir on the Influence of Forests upon Climate. The influence is stated to be extremely complex, depending upon the following considerations:—the size of the forests; the height of the trees and their nature, whether deciduous or not; the power of evaporation from their leaves; the properties which they possess in common with other bodies of heating or chilling the air; and the nature and physical state of the soil and subsoil. It is stated that France has 16.7 per cent. of forest land, while Spain has but 3 per cent., and Great Britain 2 per cent. M. Becquerel concludes that the climate of a country can be improved by cultivating the land, by draining marshy districts, and by planting trees on mountains, and on all ground not used for agricultural purposes.

—— A correspondent writes:—"We have a plant of Lilium auratum at this time in blossom, which has six splendid outer petals, and three as fine inner ones, standing boldly up in the centre of the bloom, an indication of future double blossoms in this charming race of plants."

—— We understand that on Tuesday next there will be exhibited before the Floral Committee of the Royal Horticultural Society, by Mr. Veitch, of Chelsea, a Lilium auratum, with 29 blooms upon it, the single bulb producing two stems, which bear respectively 15 and 14 flowers. This we believe was grown by Mr. Constantine, gardener to C. Mills, Esq., Hillingdon Court, Uxbridge, and certainly reflects great credit on the cultivator. It is, we believe, one of the original bulbs received from Japan by Mr. Veitch, and is most kindly lent to him for exhibition by Mr. Mills. We hope so glorious an example of this Queen of Lilies will have crowds thronging to do it honour.

—— A magnificent Cereus, which bloomed first in 1851, was figured a few years ago at table 4707 of the Botanical Magazine under the name of Cereus Macdonaldiæ, having been received from Honduras from Mrs. General Macdonald. A casual observer, as Sir W. J. Hooker remarks, might pass the plant as an unusually large flowered night-blowing Cereus, but the slightest inspection of the stem and branches, and the different nature of the flower-bud, the patent petals, and above all the great size of the flowers—14 inches in diameter from tip to tip of the sepals, and 14 inches from the base of the calyx to the tip of the stigma—all indicate a most distinct species. The plant is now out of flower, but a comparison of the two species even in this condition is quite enough to justify their separation.

Sir W. J. Hooker, in a letter received very lately, remarks, "It has been justly observed in a note to the description of this plant in the Botanical Magazine, vol. 79, t. 4707, that the figure reduced to one-half its natural size gives no idea of the magnificence of the flowers themselves. The plant at Kew, covering a great extent of wall and the rafters of the hothouse, has blossomed most freely during the present summer (1865);" and Mr. Gower, foreman of the propagating houses at Kew, has communicated the following memorandum on the subject:—"The Cereus Macdonaldiæ having flowered remarkably well this season, I have ventured to trouble you with the following note concerning it. The period of flowering has extended over six weeks. Upon one occasion (May 30th) eleven blooms were expanded at one time; upon another ten, and several times seven blossoms were open in the evening. During the month of May 37 blooms expanded, and in June 46, making a total of 83 blooms. A very great many more buds were formed, but the plant had not the power to open them." It is greatly to be regretted that this and other nocturnal species of the genus can be seen by those only who watch the progress of the flowers and visit the houses after sunset in the evening, or before sunrise in the morning.

SEASONABLE HINTS ON DECORATIVE GARDENING.

May I take the liberty of indorsing some of your remarks on Spring Gardening in the leading article at page 697, particularly about old-fashioned plants? I hope we shall be able to resuscitate a good many of these before long. In the meantime, let me advise those who have any, to commence increasing them at once,—for example, Daisies, both white and red, and the old-fashioned Hen-and-Chicken, which latter I have latterly been unable to find anywhere. We have no summer, or as you term it, autumn Ribbon plant equal to a Daisy for completeness of effect in lines; but the ground must be planted full at first, and not left to be filled by the growth of the plants. Now is the time to divide them for securing a stock. They may be pulled into the smallest possible pieces, and there is even time before the autumn planting to divide them again. If space runs short there is no better position for them than between the Asparagus beds.

Let us suppose, for example, that three rows of Daisies are wanted, say white, next to that pink, and then the fine dark red. I remember to have seen one in Germany of a blue, or perhaps more correctly, a purple tint; this would be invaluable for a fourth row, and as most things that are grown in Germany are to be had in England, we may hope to hear of this purple Daisy soon. Polyanthus and Primulas should also be treated in a similar way at once. The new varieties introduced by Mr. Veitch, from Japan, will be grand acquisitions to us for the spring season, if they should prove hardy. Our own single coloured varieties have been strangely neglected of late years, considering their great beauty and their easy culture. Pansies should also be carefully looked to. If the cuttings that should have been put in last month are struck, they will now be ready to be planted out. Young plants are best; they begin to bloom in the autumn and continue on up to June; but there is still time to get fine plants by autumn if the cuttings are put in now. Seed should also be sown at once for mixed beds.

The present is, moreover, a good season for taking into

consideration the general arrangements for spring, and sowing such seeds as Silene pendula, red and white, and Myosotis of different sorts, if not done previously; indeed, any annuals that it may be wished to try, such as Collinsias, Saponaria, red and white, Virginia Stock, Lupins, &c.; the latter are fine for tall rows. *F.*

M. L'HÉRAULT'S MODE OF CULTIVATING ASPARAGUS.

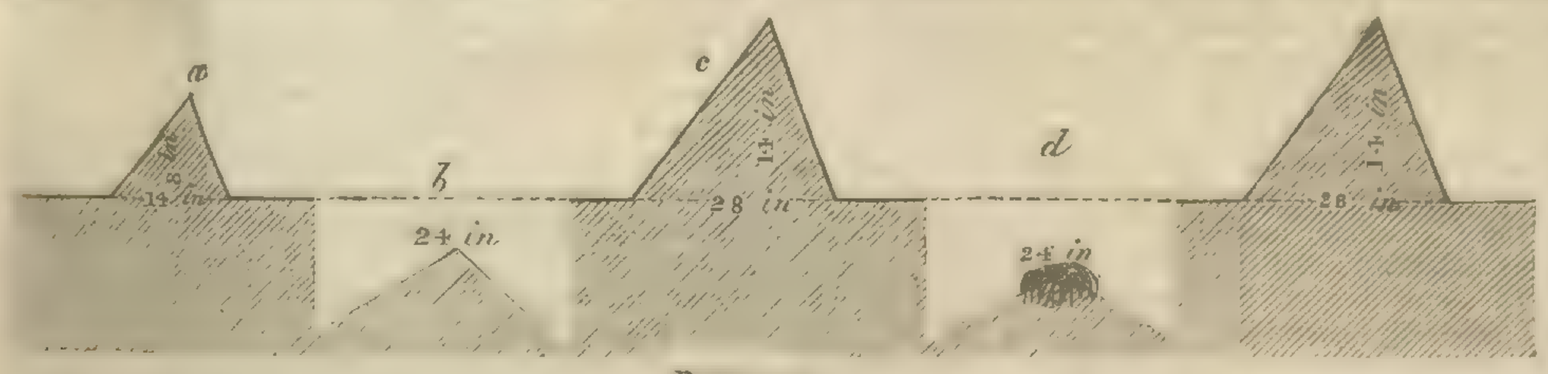
[For the following translation we have to thank Mr. Meredith, of Garston.]

It is an essential condition in the cultivation of Asparagus that the ground should be completely cleared from all fruit-bearing trees, thickets or woody plants. Excellent results are obtained in a soil of vegetable mould, or one of a sandy gritty nature; in short in any light soil free from roots, pebbles, fragments of glass, &c., which may become injurious to the roots of the plants. A calcareous, clayey, or marshy soil will be less productive.

Preparation of the Ground.—When a convenient piece of ground has been selected, it is first of all to be mellowed by spreading on its surface a good dressing of horse or sheep dung (1 cubic mètre per are 120 square yards, or 4 perches nearly, or about one-fortieth of an acre). The lowest layer of a dunghill, the dregs of Grapes, or night-soil are likewise good manures. The ground is to be dug up to a depth of 16 inches in fine weather at the beginning of winter, during which season it is to be left at rest.

In the month of February following, at least as soon as severe frost is no longer to be expected, the ground is to be laid out in furrows and ridges, in order to shape the shelving beds, and the excavations which are to receive the plantations. For this purpose the following operations are to be performed:—

First, there are to be drawn the whole length of the ground, and by preference from north to south, two lines, leaving between them a space of 14 inches, intended for the site of the first half-shelving bed. This half-shelving bed, of a conical shape, and 8 inches in height, is to be made with a spade, hoe, or other convenient implement. Reckoning from the interior base of this half-shelving bed, a distance of 24 inches is to be measured for the first "ground" or trench. The earth taken from it will serve to form the shelving bed. Care ought to be taken properly to equalise and level the ground. The second shelving bed, which will be a complete one, is to measure 28 inches in width at its base, and 14 inches in height. Next comes the second trench, then the third entire shelving bed, and so on, until the whole piece of ground has been occupied. Thus, the first half-shelving bed will measure in width 14 inches, and in height 8 inches; the first "ground" or trench in width 24 inches, the second entire shelving bed in width 28 inches, and in height 14 inches, &c. (See the annexed diagram.)



REFERENCE.
a. A half-shelving bed. *b.* Ground or trench. *c.* One of the shelving beds. *d* Ground or trench, with plant set on the hillock.

The earth of the shelving beds being intended to cover over the plants, these beds will gradually diminish in height, and the whole piece of ground will become nearly level at the end of five years, when the Asparagus plantation will be in full productiveness.

First Year.—The first plantation is to take place during the month of March or April, and should be performed in the following manner:—

In each trench, through its entire length, small holes must be formed about 36 inches distant from each other. These small holes are to be made of a diameter of 8 inches, and about 4 inches deep. In the centre of each of them a small hillock of earth about 2 inches high is to be raised, upon which the Asparagus plant is to be laid down, care being taken to divide the roots flatwise in every direction; the roots are to be covered over with half an inch of earth; then one or two handfuls of very good manure are to be added, and covered over with about an inch and a half of earth, at the same time forming a small hollow of about an inch deep over each plant, to indicate its position. In order properly to know the position of the plants, and to shelter them and their shoots from accidents, a small prop is to be set to each, inclining it at an angle of 45°, in order not to injure the roots.

After the planting has been performed over the whole piece of ground, frequent dressings will be required, in order to destroy the weeds, which are very injurious to the vegetation and growth of the plants. These dressings are to be performed with caution, so as not to cut and injure the small stalks of the young plants, since the least injury might lead to their ruin.

Every year towards the months of April and May, slugs and snails are carefully to be looked for, while the morning dew remains, and destroyed. Beetles are also much to be feared in the Asparagus plantations. Twice every day during a fortnight it will be well to pursue these insects with rods, so as to hinder them from depositing their eggs on the stalks of the Asparagus; these eggs appear at the end of three weeks in the shape of black maggots or worms, which prey upon the Asparagus stems and dry them up. Yet these insects are not the only ones which are to be dreaded. The white worms (or maggots of tree beetles) are very dangerous, and it will be well constantly to put in use the most proper means to get rid of them, for they eat the roots and destroy the Asparagus plants. It will be useful also to lay mole traps, for while tracing their underground roads the moles cut the Asparagus roots in order to get through.

Common vegetables, such as Beetroot, late Potatos, Cabbage, &c., ought not to be planted on the shelving beds; but they may be made useful, only during the first years however, by growing on them ten-week Stocks, Potatos, Lentils, and such other vegetables as are of little inconvenience from their dimensions.

Another manner of Planting.—In a moist piece of ground the digging up is to be done to a depth of 20 inches, and the manure to be employed is to contain a little more straw. The ground is to be set out in trenches. The planting is to be done flatwise without shelving beds. Lines are to be drawn by the rule, and the holes to be 40 inches distant from each other. The arrangement of these holes may be quincuncial.

The plantation may be made in the manner already indicated. You may likewise plant upon old beds at a distance of 32 inches, and with a depth of about 7 inches. The plantation may also be made separately or in the vineyards, always observing the directions given for the operation.

In the month of October, during fine and dry weather, whatever may be the sort of plantation, the small stalks of the Asparagus are to be cut off at 6 inches above the ground. The ground is to be lightly cleaned, and the shelving beds must be dug up to a depth of 12 inches, maintaining their conical shape.

The Asparagus is to be lightly dunged, the plants being laid bare with a flat hoe, for a diameter of 8 inches, and up to the crowns. Proper care ought to be taken not to injure the roots with the implement. On each plant lay one or two handfuls of good manure, free from all noxious substances. While spreading the manure, mark out with a small stick the site of the plants which have failed during the course of the year; these must be renewed in the month of March following.

The manure is at once to be covered over with about 3 inches of the best mellow earth at hand, and over the plants is to be made a small conical hillock about 2 inches high. This operation is the last to be performed for the year.

(*To be continued.*)

HARDY ORNAMENTAL PLANTS.—No. II.

I COMMENCE again with a few Fern-like plants, because they are of a most desirable type, and because, too, I have even some better examples to speak of than before (p. 627). Peucedanum gallicum is certainly fit to lead the van of a select and goodly company. It is a hardy plant, which forms vigorous-looking tufts, with finely cut leaves of a very dark green colour. No doubt the reason why Ferns are not associated with flowering plants in out-door garden embellishment is because they will not grow green and fresh in the fully exposed situations where the flowering plants must be exhibited. A choice conservatory, arranged as our flower-gardens usually are, would be intolerable; but the truth is, gardeners in general have scarcely had an alternative, because such plants as are used at Battersea are even too costly for the ordinary gardener to get enough of for his conservatory. It is very well to recommend tree Ferns, &c., for placing in warm places and nooks near our flower-gardens; it is very well to write about such schemes, but let me ask any one with a general knowledge of gardens, if tree Ferns and such plants are to be seen as a rule in any but "good plant places!" and as yet they are so scarce even in these, that it would be folly for the gardener to expose them except in a very snug and favoured locality, and where a special arrangement had been made for their comfort. Now this Peucedanum gallicum will grow fully exposed to the sun in any part of these islands; will cost little money, and no trouble after the first planting; and will produce as good and graceful an "effect" in its way as any subject that could be brought from the houses to compare with it. Umbelliferous plants usually lose their leaves and their green colour soon after flowering and fruiting. This will be found an exception, although its durability may be made more certain by cutting out the flower stems when they are first noticeable.

It may be said, "Well, we have tried the nurseries and cannot get this plant;" and I doubt if it is in more than one nursery in this country, and perhaps it is not to be seen in more than two or three botanic gardens. But what of that? A new plant, perhaps of difficult propagation, is introduced, and in a very few years there is enough of it for everybody: and so it might be with this Peucedanum. Doubtless it is now seeding in many continental botanic gardens. It is perhaps to the nurserymen who take an interest in such plants that I should in the first place commend it; and those and others who may be curious to see it may most readily do so at Kew, where it may be found among the Umbellates, as may most of the following, which are nearly equally desirable, and well worthy of cultivation for like purposes:—Peucedanum petræum and longifolium, Molospermum cicutarium, and Ligusticum pyrenaicum.

Umbelliferous plants are usually a ragged lot, and mostly unfit to be seen in a beautiful garden; but there are some species to be found in this very numerous family that are of great beauty; and I am confident that if people could see some of those I have named they would at once think as I do, that it is scarcely economical to place valuable tender plants in the open air except when they furnish an "effect" that may not be had from a hardy plant. And they would also see that it is possible to have verdant and graceful plants in "the full sun" as well as in shady places. However, some one might perhaps say they were out of place there, after arranging a conservatory on the totally different principle of using verdure and grace to enhance the higher beauty of floral colour and structure—using them in fact to "set" the floral gems.

I cannot at present think of any other first-class plants of the aspect of those I have named in this paper; and though there are many like the Acanthuses which somewhat approach them in general outline, I will place these in a different section. It is a large subject, and I purpose hunting up the best of several types of aspect, and shall try and find the most desirable hardy plants for the margin of the water; the best silvery-leaved subjects; the most stately herbaceous plants; the choicest of large spiny-leaved plants like Cynara horrida and Acanthus spinosissimus; and the neatest hardy edging plants (of which there are many which have never been used for that purpose, though invaluable for it); and having sought out these subjects in every botanic garden worthy of the name in the United Kingdom, and in the chief nurseries where such plants are grown, not so much with the view of recording the greatest number of plants, as to find out those of real distinctness and beauty, I am not without hope that the selections offered will be found useful for varying and embellishing our gardens. *W. Robinson.*

Home Correspondence.

Deleterious Properties of the Seeds of Aquilegia vulgaris.—Two or three days ago a little boy, son of a friend of mine, was taken ill in a curious and for a time unaccountable manner. He was much purged, and lay about in a semi-comatose state for several hours. On inquiry his little sister said he had been "eating seeds out of his tub." The latter was a plaything, which he had filled—after the manner of children—from the ripe and full-charged follicles of the plant just named, and had then swallowed a quantity. I do not know whether such properties have been observed before in connection with the Columbine. In any case, the publication of these facts may not be without use. The boy recovered in the course of the night, or at least by the next day. *Leo. H. Grindon,* 85, *Rumford Street, Manchester.*

Calla palustris.—"Bog plants," in the index of your Number for July 22nd, reminded me that more beauty than any native bog plant affords may be had by planting in boggy places the small trailing Arad, Calla palustris, which has pretty little spathes of the colour of those of its relative, the "Ethiopian Lily." It is thoroughly hardy, and though often grown in water, likes a moist bog much better. In a bog, or muddy place, shaded by trees to some extent, it will grow larger in flower and leaf, though it is quite at home fully exposed. I have a small bog nearly covered with the dwarf dark-green leaves of this plant, and as one of its white flowers crops up here and there along each rhizome, and just raises itself, fully expanded, above the leaves, the effect is thoroughly pleasing. Those having natural bogs, &c., would find it a very interesting plant to introduce to them. *W. R.*

The Royal Horticultural Society.—A few days ago I received my copy of the "Proceedings" of this Society, and was much surprised, on looking over its contents, to find it stated, at page 124, in the report of an address delivered by Mr. Bateman at a meeting of the Fellows held at South Kensington on the 27th of June, that the successful hybridiser, and introducer of the new and splendid race of hardy Clematises, was Mr. Jackman, of Dorking! Now, although our principal nurserymen and floriculturists may know that such is *not* the case, I conceive that the public generally, and those Fellows of the Society who may read the statement in the "Proceedings," should with-

out delay be informed that the merit of originating these magnificent Clematises is due to Mr. Jackman, the intelligent and respectable nurseryman at Woking, in Surrey. Another glaring mistake occurs in the second column of page 126, where Mr. Bateman is reported to have said: "Amongst these bouquets which are to be balloted for there are several bunches of what are called Govenia liliacea, after Gower, who was gardener to Lord Carnarvon, at Highden, for many years"!! I cannot for a moment suppose that Mr. Bateman, who is so justly distinguished for his scientific attainments and perfect knowledge of the genera and species of Orchidaceous plants, should have made such an erroneous statement respecting the genus Govenia; and I think it is much to be regretted that the proof-sheet of the address was not submitted to him. Permit me to say, that the genus Govenia was founded on the Maxillaria superba of La Llave and Lexarza, and was named by Dr. Lindley, in compliment to the late James Robert Gowen, Esq., under whose care were conducted many of the curious experiments upon cross fertilisation at Highclere, near Newbury, the seat of the Earl of Carnarvon. Mr. Gowen was no gardener, but was long well known for the great interest he took in the more refined and ornamental branches of gardening. He was for many years a Fellow of the Horticultural Society, and in 1848 and 1849 filled the office of honorary secretary. In 1850 he was elected treasurer, and until 1854 assisted to keep the society afloat during its passage through a portion of what may now be termed the second and most critical period of its existence. Had the errors I have noticed appeared in a daily paper, they probably would have been allowed to pass without comment, but in the columns of a journal which is issued to supply what is expected to be correct information to the Fellows, I consider them both inexcusable and discreditable. *F.R.H.S.*

Strawberries.—The failure of the Strawberry crops this year, and the difficulty which has been generally complained of for the last two years of obtaining early runners for fresh beds, induce me to state my own system, which, although I dare say no novelty to my friend the Rev. W. F. Radclyffe, and other real amateurs, may nevertheless prove useful to others. I take every runner as soon as formed, and long before it is rooted, gathering them with two inches of the string attached, by ones and twos as they appear, and peg them upon the tops of garden pots filled with earth pressed hard; I then put them into a cold frame, well-shaded, and treat them like any other cuttings to be struck. By this treatment I have plants well rooted in about a fortnight, and this year my main crop of Keens' Seedling was from runners of 1864, and so good, that I destroyed before fruiting a two-year-old bed of the same, as I was unable to net both. In my treatment and preparation of the beds for new plantations, I follow the directions of Mr. Cuthill's (of Camberwell) shilling pamphlet—"On the Cultivation of the Strawberry," except that as space is not so valuable to me as to him, I take rather more room, but no lover of the Strawberry need desire a better or a plainer guide. I have also found his Prince of Wales invaluable these two last years; it is a wonderful bearer, large in size, very handsome, and of fair flavour, if allowed to ripen before plucking—a permission not so often conceded by Strawberry eaters as it should be. I have found bone-dust suit my young plants well; and from the time of the flower truss appearing, up to the berries becoming tinged, I water as plentifully as I can with both guano and manure-water, and also with plain. I believe the hardier kinds of Strawberry will succeed fairly in any soil, so that they have but moderate care bestowed upon them; but if the Strawberry beds, and Raspberry, Gooseberry, and Currant trees of the many be like those in many gardens which I have visited this year, the fault does not lie exclusively in the season. Want of care before fruiting; neglect of renewing old plantations and bushes; total neglect, in the case of the Strawberry, of the beds after cropping; to say nothing of the barbarous custom of mowing off leaves and all about this time, which I have actually seen done, are the chief causes of poor crops in favourable, and of utter failure in difficult seasons. *G. E. Maunsell, Thorpe Malzor Rectory.*

Ranunculus auricomus.—Mr. Gerard Smith, who writes in reference to this plant in a recent Number (p. 675), may not have seen a paper of M. de Rochebrune's in the ninth volume of the Bulletin de la Société Botanique de France, p. 281, wherein the author points out seven degrees of transition between those cases in which the petals are completely suppressed, and those in which they are all present. *M. T. M.*

Early Peas.—When we read the Report on this subject at page 580, which is so justly commented on at page 700 as "a singular one, not supported by any other testimony," we concluded that the gentleman making that report had been imposed on or accidently deceived, and we did not consider it necessary to comment on that experiment. Of all the returns published in your Paper, on early Peas, none is more correct or explicit than that of Mr. Veitch at page 700; while that of your correspondent "Quo," at the same page, is also instructive, and in the main the conclusions of "Quo" agree with our own. This being our conviction, after carefully testing every sort of early Pea that has been offered to the public since we introduced the Early Warwick (fully 30 years ago), we are greatly astonished to read the Report of the Fruit Committee of the Royal Horticultural Society, wherein three other Peas are said to be as early as "Sutton's Ringleader," which we sent out as the most forward Pea known, and which we still most confidently declare to be the earliest Pea yet offered to the public. The only kind which has proved to be identical with it is "Carter's First Crop," this having been raised from a small quantity received by Messrs. Carter & Co. from the seed grower, who was growing the stock by contract for us (which last named important fact was quite unknown to Messrs. Carter at that time). This new early Pea has quite accidentally come before the public under two names, for neither Messrs. Carter & Co. nor ourselves were aware until within the last few weeks that these new Peas were identical, or that both firms had obtained their stock from the same locality. The other sorts named in conjunction with Ringleader may be as good in some respects, but they certainly are not so early either in blooming, podding, or in ripening. It is not too late to make another trial this season if any of your readers are so disposed. Our second sowing this summer was on the 23d of May, and the Peas were gathered fully ready for the table on the 10th of July—less than seven weeks from the time of sowing. *Sutton & Sons, Reading.*——Lest the wording of the paragraph under the heading "Fruit Committee" (Royal Horticultural Society), see p. 702, should lead the public to suppose that the Report upon Dillistone's Early Prolific, Carter's First Crop, Dickson's First and Best, and Sutton's Ringleader emanated from the Fruit Committee itself, it should be stated that as those four varieties were past their time, and were little else than dried haulm when the Committee attended at Chiswick to give their opinion upon the general trial of Peas, &c., the Report that Dr. Hogg called attention to was that of the officials of the Society at Chiswick appointed to watch and note down from day to day the appearance and progress of the vegetables, &c., entrusted to their charge, and was grounded on their notes. *One of the Fruit Committee.*——Surely the question as to which is the earliest Pea will be settled by Dr. Hogg's impartial and disinterested Report (see p. 702). I knew that the Horticultural Society was growing all the new early Peas in its grounds at Chiswick, and before expressing my opinion I was determined to wait and see its Report, which I knew would not be one-sided. I procured from Messrs. Dillistone a pint of their early Peas, and a pint each from Messrs. Carter, Dickson, and Sutton, of their (so-called) new early kinds, viz.: First Crop, First and Best, and Ringleader. I had them sown all on the same day, on the same piece of ground, and I can fearlessly assert that they are all the same Pea, both as regards earliness and cropping. I have invited a score of experienced gardeners to pay repeated visits and inspect the Peas while growing, and not one of them could see the slightest difference among any of them. *W. Egerton, Rode, Cheshire.*

Flowering Currants.—I thank you for the remarks you were so good as to offer as to the cause of the sudden death of my two flowering Currants. Mrs. Loudon, I find, remarks that the flowering Currant is apt to die suddenly if its lower branches are removed and the season happens to be dry. Some liberty has been taken with one of the shrubs in question, and the soil beneath the other is increased. Another flowering Currant, which remains healthy, has not been touched, and the ground is otherwise covered by some trailing plants. I have not yet had an opportunity of taking up the dead shrubs, but when I do so I will inform you of the results of my examination of the roots. In the meantime I send this, that some of your readers may possibly benefit by the caution implied. *G. M.*

Proliferous Roses.—I have seen your portrait of a Proliferous Rose (see p. 697). It is not uncommon with summer Roses. This year the two Gallicans, Napoleon and Schismaker, have furnished similar specimens. I never knew an autumnal Rose grow in such a fashion. Every year some one or other of the summer Roses affords specimens of such abnormal growth, or *lusus naturæ*. Some years ago I had a summer Rose (name not known) that produced most of its blooms in the form just alluded to. In due time I will send an account of the new Roses of 1864 and 1865. There are some acquisitions in both years. I think people judge too hastily of "infant phenomena." *W. F. Radclyffe, Tarrant Rushton.*

Societies.

Royal Horticultural: *July 29 (Show of Ferns, &c).*—Though rather too green in general appearance, this was nevertheless an extremely interesting exhibition, for not only exotic Ferns, but also rare and beautiful hardy varieties of that favourite class of plants were present in considerable numbers.

In classes for Exotic Ferns, the successful competitors were Mr. Bull, Nurseryman, King's Road, Chelsea; Mr. Cross, gr. to Lady Ashburton; Mr. Barnard, gr. to J. W. Taylor, Esq.; Mr. Young, gr. to R. Barclay, Esq.; Mr. Weston, gr. to D. Martineau, Esq.; and Mr. Higgs, gr. to Mrs. Barchard. Conspicuous among the Ferns shown in these classes were Marattia elegans, Dicksonia Culcita, antarctica, and cinnamomea; Gleichenia flabellata, microphylla, and dichotoma; Cyathea medullaris, and Smithii; Alsophila australis, Blechnum corcovadense, and braziliense; Platycerium alcicorne, Bird's Nest Fern, Cheilanthes lendigera, Cibotium Schiedei, Lygodium scandens, Woodwardia radicans, Phlebodium aureum, Adiantum formosum, and Stenochlæna scandens.

Of Variegated Exotic Ferns there was but an indifferent display, the plants being not only few in number, but badly grown. They were confined to Pteris argyræa, tricolor, and cretica albo-lineata, together with one or two unimportant varieties of these kinds.

Among Tree Ferns were good examples of Cyathea medullaris and dealbata, and Dicksonia antarctica.

Hymenophyllums and Gold Ferns were also exhibited and much admired. Among them the best were Gymnogramma chrysophylla and Laucheana.

Conspicuous among novelties was a magnificent specimen of an Adiantum named Farleyanum, from Mr. John Green, gr. to Colonel Miles, of Malmesbury. It somewhat resembles A. trapeziforme, but is drooping and denser in habit, and is otherwise different from that kind. This received a First-class Certificate, as did also a fine Polypodium from Mr. Clark, Botanic Gardens, Glasgow.

The collections of British Ferns from Messrs. Ivery & Son, of Dorking, and from Messrs. Stansfield & Son, Vale Nurseries, Todmorden, were in all respects excellent. In their group of 12 sorts Messrs. Ivery had several varieties of Athyrium Filix-fœmina, including among them A. Fieldiæ diffissum; A. Frizellæ nanum, a dwarf neat kind; A. plumosum, with beautiful feathery foliage; and A. ramo-cristatum, a sort with spreading purplish stalked fronds, crested at the ends. Associated with these were Lastrea Bollandiæ, one of the handsomest of the varieties of Filix-mas that are without cristate fronds; L. F.-mas cristata, a splendid tasselated sort; Osmunda regalis cristata, a handsome Fern with the ends of the pinnæ crested and multifid; Polypodium Robertianum, a beautiful kind, P. cambricum; Polystichum angulare decurrens, a new and beautiful variety; P. proliferum Wollastonii, a noble variety of proliferum, and one of the handsomest of British Ferns; together with Scolopendrium crispum, a kind with spreading frilled fronds 2 inches in width. Among other sorts from the same growers were Asplenium incisum, a rare and fine kind; Athyrium F.-f. grandiceps, a beautifully-crested dwarf variety; A. F.-f. thyssanotum, an interesting kind, with leaves intermediate in division between cresting and branching, and A. F.-f. Victoriæ, one of the most remarkable and beautiful of all the Lady Ferns. Along with these were also Blechnum Spicant imbricatum, with nearly ovate fronds 6 or 8 inches in length; B. S. ramosum, a crested and striking variety; Lastrea F.-mas cristata angustata, an elegant crested kind with fronds narrower than usual; Woodsia ilvensis; Scolopendrium fissum latum, S. ramosum majus; Polystichum subtripinnatum, an elegant variety of angulare with the basal pinnæ deeply lobed; Polystichum laciniatum, P. rotundatum, a valuable and distinct looking form of P. angulare; and Polypodium pulcherrimum, a rare and beautiful kind in the way of the Welsh Polypody.

In the Collection from Messrs. Stansfield we noticed 26 varieties of Blechnum Spicant, all apparently distinct, and two of them new, to which first and second class certificates were respectively awarded. The same exhibitors had also some 50 varieties of Athyrium, and about the same number of Scolopendrium, including some rare and curious kinds. Among the Athyriums we considered uncum, curtum, and a sub-form of plumosum, to be the most distinct and handsome. Scolopendrium lonchophorum, ramo-marginatum, cervi cornu, and supralineato-constrictum, also merit the same compliment. There were, moreover, some very good varieties of Polystichum angulare, such as plumosum, foliosum, contractum, oxyphyllum, Stansfieldii, &c. We also noticed a very handsome variety of the well-known Polystichum acrostichoides named sub-bipinnatum. Aspleniums were represented by the recently-discovered Adiantum nigrum flabellatum, A. Trichomanes incisum triangulare, and others, altogether a highly interesting group. Mr. Bull, Mr. Kilmister, and Mr. Earley likewise exhibited British Ferns.

Among Lycopods were some magnificent examples of well known kinds, especially of Selaginella apoda, a compact-growing sort, which is a favourite with every body. These came from Mr. Higgs, Mr. Young, and Mr. Barnard.

Other subjects consisted of some well-grown Fuchsias in good bloom, from Mr. Weston; Petunias from Mr. Macintosh, Hammersmith; Aërides odoratum, grown on the cool system, and Æchmea fulgens, from Mr. Earley; a fine plant of Caladium Argyrites from Mr. Young; and Lilium auratum, fine pots of Adiantum cuneatum, Leptopteris superba, and a beautiful example of Todea pellucida, from Mr. Bartlett, of Hammersmith. Some good Hollyhock blooms were shown by Mr. Porter, gr. to the Hon. A. Ashley, Epping; cut Roses by Mr. Clarke, Brixton; a collection of ornamental Grasses by Mr. Turner, Notting Hill; and the beautiful new Pelargonium, Dowager Duchess of Sutherland, and several unnamed seedlings, by Mr. Fleming, of Cliveden, who also sent flowers of Bignonia Cherere, Black Hamburgh Grapes, Peaches, and Nectarines. Mr. Merrett, gr. to H. Whiting, Esq., Battersea, also exhibited excellent Peaches, and Mr. Earley good Apricots. Messrs. Stansfield & Sons contributed Fedia crium Scorodonia crispum, a new British plant, collected in North Devon last autumn. Its leaves are rounder than those of the ordinary kind, and are distinctly surrounded with a beautifully crispate margin, after

the manner of Malva crispa, but much more delicate and beautiful. When better known it cannot fail to be a favourite.

Mr. Kelk's prize of 5*l*, offered for the best pyramidal group of plants, was won by Mr. Macintosh, of Hammersmith, with two Oleanders, and examples of the blue and white-flowered varieties of Campanula pyramidalis—the group however being a very inferior one.

A list of prizes awarded on the occasion will be found in another column.

Botanical of Edinburgh: *June* 8.—Professor Balfour in the chair. The following gentlemen were elected members:—Arthur Gamgee, M.D.; James Cumming, Esq. The following communications were read:—1. *Note on a New Gall from China*, by Professor Archer. Mr. Archer first referred to a Gall described by Dr. Pereira under the name of Woo pei tsze, which had recently been imported into this country for the manufacture of Gallic acid. Mr. Hanbury believes it to be produced on Rhus semialata, and Mr. Doubleday thinks it is caused by the puncturing of an aphis and not by a Cynips. He next noticed a Gall from India called Mahee, the produce of Tamarix indica and rich in Gallic acid; also a peculiar Gall called Kakrasingee, yielded by Rhus Kakrasinghee (Royle), and one from Southern Germany named Knoppern, produced on Quercus Cerris. In conclusion, he noticed a curious Gall from Shanghai, resembling somewhat the Chinese and Japanese Galls, but wanting their peculiar branched appearance.——2. *Note on Cape Saffron*, by Professor Archer. This Saffron is the produce of a plant belonging to the Scrophulariaceæ, and is noticed by Dr. Pappé in his Flora Capensis. It yields a good orange dye, and resembles common Saffron in taste and smell.——3. *Notice of Cubebs from Southern Africa*, by Professor Archer. Mr. Archer believed the Cubebs to be the fruit of Vepris lanceolata, a plant belonging to the Xanthoxylaceæ.——4. *Notes on the Destructive Effects of Beetles on certain young Plantations*, by Mr. James Myles, factor to Mr. Speirs of Elderslie; communicated by Mr. Gorrie. The plantations chiefly attacked are Wraes, Kirkton, and Borthwickfield—the former having been planted three years, and the latter two years. The plants in Wraes are so much injured that nothing can be done to save them, and cattle have been turned into the plantation. In Kirkton more than one half of the plants are killed, while in Borthwickfield the number destroyed is considerably less than the half. The beetles attack the plants first at the base of the stem, eating and then puncturing the bark upwards. The plants destroyed are Scotch Fir, Larch, Spruce, Austrian, Weymouth, and other coniferous trees, and a few Beech, Birch, Oak, and Mountain Ash. The beetles occurred in great profusion, and Mr. Myles gave a description of what he had done to diminish their numbers. Three boys were able to collect for some time between 1300 to 1400 beetles each day in the plantation, but afterwards they so far diminished that they could only gather 600 or 700 a day. Mr. Myles sent specimens of the beetles and plants injured by them. Mr. W. R. M'Nab, who had examined the insects, finds three different species, viz., Hylurus piniperda, Hylobius abietis, and Otiorhynchus notatus.——5. *Notes of an Excursion from Simla to the Valleys of the Giri, Pabur, and Tonse Rivers, tributaries of the Jumna*, by Dr. Cleghorn. The valley of the Giri is low, warm, fertile, and dotted with scattered cottages; the mountain slopes bare. The principal trees observed in addition to the Pines were — Melia sempervirens, Pistacia integerrima, Ficus religiosa, Putranjiva Roxburghii, Populus ciliata, Salix, Alnus nepalensis, Pyrus, Cerasus Puddum, Xanthoxylon hostile, and Cotoneaster microphylla carpeting the rock. The crops are Wheat, Barley, several Millets, Til (Sesamum orientale), Tobacco, Opium Poppy, and various Pulses (Vicia, Ervum, and Phaseolus). There is no rule for rotation of crops; the hill men sow the same seed in the same ground in successive seasons. The valley of the Pabur is wider and more verdant than any other seen in this part of the Himalaya. Elms and Horse Chestnuts, Walnuts and Mulberries, occur near villages. Many of the trees are mutilated from the tender branches and young shoots being annually cut off to be stored as winter fodder for cattle. The dried twigs are lodged in the fork of the denuded trees, and secured with Grass ropes; whence, when pasture is scarce, a bundle is taken as required. Pistacia integerrima, "kakkar," is frequent on the river bank below Raeenghur; many trees were seen which would yield planks 10 feet long by 2 feet broad. Apricots, Peaches, and Plums abound in this beautiful glen. The Himalayan Alder (Alnus nepalensis) is a large and straight tree, fringing the river banks above the junction of the Tonse. In addition to these, Berberis Lycium, Prinsepia utilis (Sekul), and Eleagnus conferta (gehai), are economic plants, useful in various ways. Broad river terraces from 400 yards to a quarter of a mile in width are devoted to Rice cultivation, for which this valley is celebrated. In spring the Opium Poppy is largely cultivated, but in small patches. Tobacco, Sesamum, and Vetches, including Ervum hirsutum (masur), are grown in small quantity. In warm situations Barley is sown in March, Wheat and several Millets are likewise extensively cultivated. There was great abundance of Wild Mustard (Sinapis), used for the purpose of obtaining oil. The Poppy and Tobacco ground is frequently weeded, and is kept clean. Previous to its being ploughed by the men, cattle manure is carried out in kiltas (long deep baskets) by the women, upon whom all the drudgery devolves. The articles of export from the valley are Wheat, Barley, Rice, Tobacco, opium, tar, kelu oil, Apricot oil, Ginger, hides, iron, wool, Potatos, honey, and wax. Above Shergaon, towards the Burenda Pass, the food of the people consists chiefly of Buckwheat (phapar) Fagopyrum esculentum, the Red Amaranth (bhatu), and the smaller Millets (chini and koda), Panicum miliaceum and Paspalum scrobiculatum, with Eleusine coracana (mandua). In September and October this Amaranth gives rich tints of carmine, orange, and yellow to the landscape, while the Buckwheat assumes a delicate pink.——6. *Recent Botanical Intelligence.* Communicated by Professor Balfour. M. Godron finds the flowers of Fumariaceæ in their early development quite regular, but flattened from before backwards as if they were compressed between the axis of inflorescence and the bract. In Dielytra, Adlumia, and Dactylicapnos, the two external petals, placed laterally, undergo during development an important modification: the base of each is prolonged into a short and rounded spur, and the two nectariferous appendages become finally quite regular; the two sepals placed superior and inferior also remain perfectly regular. In Fumaria and Corydalis only one spur is developed, so as to render the flower irregular; this spurred petal becomes larger than its antagonist. M. Godron traces the abortion of one of the spurs in the petals of Corydalis solida to the flowers during their development being compressed at the base on one side only, in which way development of the nectary and its appendages is prevented. In Dielytra and Adlumia, the spurs develop at a later period than in Fumaria, and in such a way that the raceme, in elongating, separates the flowers from each other, and allows the free and equal formation of spurs.—Bracts are generally wanting in the racemes of Cruciferæ; but in some of the characteristic species we find bracts occasionally in the lower flowers. In Sisymbrium supinum all the flowers are produced with a pinnatifid bracteal leaf, and the same is the case with Sisymbrium hirsutum. Brassica oleracea has been seen with large oblong bracts in connection with its lower flowers, while smaller bractlets have occurred at the upper part of the raceme. Similar phenomena have been observed in Erysimum cheiranthoides, Arabis Turrita, Hesperis matronalis, and Bunias orientalis. Sometimes the lower and middle part of the inner face of the bract becomes united to the base of the peduncle; this has been noticed in Iberis sempervirens, and in other Cruciferous plants. Sometimes, when the bracts are completely wanting, there are traces of the decurrence of leaves at the base of the naked peduncle.——A note was read from Dr. Paterson, Bridge of Allan, referring to a double-flowered Orchis mascula which he had recently picked in the grounds at Keir (see p. 722).

Willesden Horticultural.—The Royal Horticultural and other leading societies have as their avowed object the advancement of horticulture—a worthy object, truly, but yet inferior to that of many humble societies which endeavour to attack the devils of dirt discomfort and disease so unfortunately prevalent among the lower classes of this otherwise happy country, by encouraging them to live, learn, and labour more in their pretty gardens, and thus add to their health, their pleasure, and their good fare. One of these useful little bodies is the Willesden Horticultural Society, which held its first annual exhibition on the 27th ult, in the grounds of C. Latter, Esq., the Rookery, Willesden, just beside the ancient and very interesting Willesden Church.

The first show of a new Society in a neighbourhood previously without one, is usually a very awkward affair, but in this case the cottagers came out freely and made a very good display, of vegetables particularly. Indeed on the whole the cottagers appeared to greater advantage, comparatively, than either amateurs or gardeners, for whom as for the former there were special classes provided. Messrs. Henderson & Co. sent a nice lot of foliage plants from Pine-Apple Place to embellish the tent, as did Mr. Videon and others; and the Rev. Mr. Wharton, Mr. Finch, Mr. Bonnett, Mr. Kerr, and other gentlemen of the neighbourhood who had helped to originate the society, worked hard for its success.

Most noticeable among gardeners' productions was the group of fine-leaved plants shown by Mr. Poole, gr. to T. N. Kerr, Esq.; they were fit to compete at any of our great shows; and other subjects shown by the same exhibitor were very creditable. Grapes were best shown by Mr. Kilby and Mr. Sanders, by whom Black Prince and Bowood Muscat were respectively produced. Mr. John Aldred exhibited a choice collection of variegated Pelargoniums and several specimens of the woolly and brilliant-flowered Gnaphalium eximium. The best vegetables in the Gardeners' Section came from Mr. Tennant, who was awarded the 1st prize. Among the Cottagers, Mrs. Tennant and Mrs. Gomm were the best vegetable growers; and Mrs. Gomm also won the prize for the best dish of boiled Potatos, with a "beautiful" lot of "maily murphys," sufficiently attractive indeed to make an Irishman's mouth "wather." Space forbids our naming all the successful competitors, or going more into detail, but a word as to the arrangement is demanded. It should be a rule in all such shows to associate as closely as possible the subjects competing for each prize. When they are separated it is difficult to compare them fairly, particularly such classes as Potatos and small fruits. This, with much else, will doubtless be remedied next year, when, it may be expected, the show will be much improved.

Notices of Books.

Researches into the Early History of Mankind, and the Development of Civilization. By Edward Burnet Tylor, Author of "Mexico and the Mexicans." London: John Murray, Albemarle Street. 1865. 1 Vol. 8vo. 378 pp., with Woodcuts.

The book whose title heads this notice, is one of the most interesting and suggestive that it has been our good fortune to peruse for many a year. Dealing as it does with the rudiments of our intellectual condition as human creatures, with the dawn of our civilization as gregarious animals, with our most elementary arts and with our primitive essays to comprehend our relations to the surrounding universe, it cannot fail to rouse a spirit of inquiry in a large class of minds, who have never before thought on these subjects, and to direct the researches of those who have, into new and profitable channels. As for ourselves, long as we have been familiar with many of the topics treated of in this volume, never before did we perceive the interest attached to their systematic connection, and never so fully realize our ignorance of the springs of so many of our intellectual processes, and of the origin and growth of so many of the habits of our daily life.

The task the author sets to himself, is to explain the steps by which the most civilised races now existing, may have arrived at their present state in respect of their knowledge, arts, religion and mythology, laws, and customs, by a searching inquiry into the mental and material conditions of savages, of infants, of the blind, the deaf and the dumb, and of persons otherwise sane and sound, but who may be under abnormal conditions. In treating of these subjects Mr. Tylor has at his command a wealth of material that is quite remarkable, the result of a discriminating study of all available sources of information, and especially of voyages and books of travel, &c., &c. He has further pursued his own independent researches, both amongst the aboriginal and semi-civilised tribes of Mexico, and in the asylums and hospitals of England and the Continent. The whole is scientifically and skilfully worked up, well arranged in thirteen chapters, and the interest is sustained from beginning to end of the work.

The origin of language and of writing demands the author's first study, because "man's power of utterance, so far exceeding any that the lower animals possess, is one of the principal causes of his immense pre-eminence over them." Five chapters are devoted to these subjects, tracing their development from gesture-language, through spoken language, picture-writing, phonetic symbols, and alphabetic-writing, up to images and names. He starts with the signs used by deaf-mutes, assuring us that their means of communication with us is not as generally supposed a device of the teacher, but a natural gesture-language, the signs being explicable in every point when carefully studied, learnt from the deaf-mute by the teacher, and by him systematised for use. The comparison of these gestures with the pantomime language of the Indian savage is fully examined, and their coincidences shown to be so numerous that they may be ranked as fundamentally the same; and the curious fact is dwelt upon, that in the case of some of the lowest tribes of savages, the means of intercommunication with one another, no less than with other races, is more by gesture than by word of mouth. Still more curious is the fact that the Cistercian monks invented a gesture-language by way of mortification of the flesh, and that a great part of these gestures and signs are what the deaf and dumb do now use to convey like ideas. He concludes this subject of gesture-language by pointing out that it and word language are inseparably linked, the education of the deaf-mute beginning from the cradle amongst persons that do speak, whilst every infant with perfect faculties is first taught mainly by means of gesture-language: by observing that the existence of a gesture-language, independent of teaching, is proved by the case of Laura Bridgman, who, though blind as well as deaf and dumb, used the gestures common to the deaf-mute, the infant, and the savage.

The chapters on the Picture-writing, Phonetic writings, and hieroglyphics of the ancient Egyptians and Mexicans are singularly clear, and illustrated by well-selected woodcuts; and these, too, are shown to be far from obsolete at the present day, being more or less resorted to by half-breed American Indians, and partially educated African negroes; whilst traces of it occur not only amongst the rude peasantry of Europe but in the current writing of our day, in such expressions as "⊙ before clock," a "⊤ square," and "☽ rises."

From Picture-writing to the use of Images as direct expressions of thoughts the transition is easy; on this subject he remarks (p. 107):—"It has been already noticed how naturally children can appreciate and understand such direct expressions of thought as the

gesture-language' and 'picture-writing.' In like manner the use of dolls or images as an assistance to the operations of the mind is familiar to all children, though amongst those who grow up under the influence of civilised society it is mostly superseded and forgotten in after-life. Few educated Europeans ever thoroughly realise the fact, that they have once passed through a condition of mind from which races at a lower stage of civilisation never fully emerge; but this is certainly the case, and the European child playing with its doll furnishes the key to many of the mental phenomena which distinguish the more highly cultivated races of mankind from those lower in the scale."

And, accordingly, Mr. Tylor proceeds to show that the child, the savage, and the superstitious civilised man will agree in believing in the existence of an actual and not a merely subjective or ideal connection between the image and the object it represents, and which even extends to a similar connection between the name and the object named. To this confusion of idea and object he traces not only almost all superstitious ceremonies and beliefs, but especially witchcrafts and sorceries; and he illustrates this point by facts collected from every part of the globe, and from all ages to which history extends. The most common instance is afforded by the well-known practice of seeking to destroy an enemy by melting his image in wax.

We have no space to notice the chapters on the "growth and decline of culture" nor on the "stone age past and present," further than to remark that Mr. Tylor agrees with Lubbock and the most advanced ethnologists, in believing in the existence of two stone ages, preceding that of bronze and of iron. In this chapter we find a great deal of curious matter that is neither in Lyell's nor Lubbock's works; so much indeed that we would fain see the subject exhausted by the same hand.

"Fire Cooking, and Vessels," heads a chapter full of curious information. As regards fire it begins with the myths of "Prometheus," and carries us down through the methods of getting fire by rubbing-sticks, by fire-drills, by flint-and-pyrites, and by flint-and-iron, to lucifer matches. The origin of making cooking-vessels of clay is sought in the customs of some most rude savages, who coat wicker-work kettles and gourds with clay, to make them longer resist the fire, and of which some evidence exists in the basket-work pattern found in the pottery of some savages; whilst the simple operation of boiling water in pots is shown to be a higher development of the aboriginal process of boiling it by throwing red hot stones into wicker-work or skin vessels of water, which though water tight were not fire-proof.

The chapter on "Some Remarkable Customs," abounds in interest, the customs alluded to all having reference to the theories propounded in the foregoing parts of the work. Of these, a most curious one is that known as the "Couvade," which consists in the father taking to bed on the birth of a child, and being dieted, under the idea that his usual food would, if taken by himself, be injurious to the infant's delicate organisation. In all countries where this is practised—amongst the Indians of South America, the West Indies, California, Kamtschatka, Greenland, West Africa, the Eastern Archipelago, Central Asia, and the Basque provinces of Spain—the same reason is given for it, viz., the supposed continued influence of the parent upon the child, a superstition of the same order as that which establishes a real connection between objects and their names and their images.

Amongst the "Historical Traditions" are ample illustrations of the variations under which some of our popular tales, fairy legends, and nursery stories, appear in different parts of the world, and which prove early connections between nations now sundered by oceans and by many intervening nationalities; and these Mr. Tylor carefully distinguishes from another group of fables called "myths of observation." Under the former head he describes the tradition of the Deluge, so widely dispersed over the globe amongst uncivilised races. This he shows may have been a "myth of observation," originating independently amongst various people, and suggested by the remains of marine animals, and of bones invariably but ignorantly referred to those of man, at elevations above the sea level; but when taken in connection with the fact that all traditions mention the existence of the human race before the said deluge, and the preservation of one man, or a pair, in a boat or other vessel during the flood, he thinks the evidence is rather in favour of the various traditions having one source in the remote ages of man's existence.

The work closes with a chapter on the geographical distribution of myths, of which all we can say is, that like the preceding ones, it is too short for our liking, and affords material for a volume in itself. It leaves us in hopes that the learned and able author will continue to develope his ideas in a systematic form, and dilate upon many subjects of whose importance and interest the present volume gives us but a tantalising taste. Most especially we should like to see the arts, customs, &c., of savages much more fully treated, their myths and traditions classified ethnologically, and their influence upon the habits and manners of civilised races, continuously traced up to the present day. Meanwhile we are grateful indeed for the present instalment, and in the hope that it may speedily reach a second edition, would hint that a heading of "contents" to each chapter, and subject-headings to the pages, would be very acceptable in addition to the excellent index.

The Restoration of Health. By William Strange, M.D. London: Longmans. Small 8vo.

It is with the greatest interest we have read Dr. Strange's book, and we cannot but say that the result left on our minds is, that it is a most useful, clever, and well-written work, quite carrying out his intention in writing it, which we copy from the preface. "In place of looking upon a little knowledge of such subjects in our patients as a dangerous thing, and one likely to be injurious to them in case of illness, we shall have to take that knowledge, imperfect though it be, into our confidence, treat it with respect, and use our influence to cause its possessors to go on increasing it. We must make allies instead of enemies of our patients, take them into our confidence, treat them as partners in the game instead of adversaries; and for that purpose we must, to such an extent as may be done safely, show them our hand." . . . "In this work, then, the patient is taken from the day on which he enters the sick room until that on which he is completely restored to health, the influence of the natural stimuli of air, temperature, food, drink, exercise, bathing, sleep, climate, soil and situation, change of air, scene, &c., upon the stages of his illness, being severally examined." . . . "Those who wish for a book to teach 'every man to be his own doctor' need not look into these pages. There are no prescriptions, except a few very simple remedies for emergencies, which are placed in the Appendix." We recommend any one who would attend upon a sick relative or friend, to get the contents of this book well impressed upon his or her mind. Indeed it is so full of common sense that anybody might read it with advantage.

Sur des Fleurs monstreuses d'Epimedium. Par le Dr. L. Marchand. Adansonia. Juin, 1864.

The presence or absence of a spur to the petals of a flower seems, in many cases, to be too inconstant a character on which to found generic distinctions. In Viola, Antirrhinum, Halenia, Utricularia, and other plants, the customary spur is often absent. M. Marchand in the above cited *brochure* shows that Epimedium Musschianum is likewise frequently deprived of its spur in cultivation, and hence he objects to the retention of the genus Aceranthus, originally established by C. Morren and Decaisne, as distinct from Epimedium, on account of the spurless flowers.

Epimedium diphyllum will, therefore, to the comfort of gardeners and others, retain its old name, and the more recent one of Aceranthus will disappear, like the spur itself.

The Apiary.

The account given by "Apiator," at page 631, of the safe arrival in the south of England from a county in the far north, of a Ligurian Queen, and of her subsequent untimely end, was very interesting to me. I could hardly have imagined that an active young queen would have fallen a victim to the animosity of young bees that had only just left their breeding cells, and had never yet taken flight. It plainly shows how careful we should be in all cases of union, or of strengthening weak populations, particularly when the lives of valuable queens, such as Ligurians, are at stake. I have effected a great number of unions, and the only method by which success can be depended on, is to fumigate both families. Some apiarians object that fumigation, although it may not at the time of application destroy the bees, seriously and permanently injures them. This I cannot believe to be the result of fumigation if judiciously applied; at any rate no injury is ever manifested by the rather extensive use of fungus in my apiary. Having become possessed of some Ligurian stocks, by means of queens imported direct from abroad, and having reared many young queens, both by natural and artificial swarming. I have had a tolerably large amount of experience with respect to the uniting of swarms and strengthening of weak colonies. I would advise "Apiator" to make use of fumigation when he next attempts a similar operation.

With its aid, I now seldom fail in effecting a peaceable junction. It seems to me that Ligurians require a greater amount of smoke to subdue them than the ordinary bees, and that they recover in a much shorter time. To use fumigation with success, care must be taken that the bees have plenty of ventilation, yet are not allowed to become in any way chilled. I can only add that I find it a very useful agent in my manipulations; but were I as expert and clever in the management of my bees as "Apiator" and some others who sing the praises of "driving" in preference, and who have altogether discarded the "magic fungus," I might be induced to alter both my ideas, and the style of performing my experiments.

With respect to the rearing of Ligurians, I do not find that the yellowest and most handsome queens breed the best coloured bees. One queen raised by me last year, was the most beautifully marked one that I ever saw, but the bees bred by her were not superior to those which came from very dark coloured queens. I have now a queen raised from the brood of one of my darkest Ligurians, and her bees are as pretty and well-coloured as it is possible for them to be. Can it be that the drone has the chief influence with regard to the colour of the progeny? I have observed that the best marked drones often proceed from hybridised queens. It is also remarkable that from some queens which breed beautifully coloured bees, I can never succeed in obtaining any young mothers that will give pure Ligurians; so I conclude that they must be crossed by common drones. I have found, as has been stated by other writers, that the hybrid bees are much more vicious and irritable when disturbed, than the pure-bred bees of either variety. Where hives of black bees abound, I think it must be almost impossible to keep an apiary of pure Ligurians, for there seems a very great tendency in the varieties to wed together. I was very fortunate last year in rearing all my young Ligurian queens pure, as there were only three or four stocks of common bees kept in my neighbourhood, and those at the distance of a mile. This season will I fear not prove so fortunate in this respect, as the number of hives of common bees has increased considerably. *Apis.*

Bees attacking Fruit.—Some weeks since a paragraph appeared in some of the journals to the effect that the Ligurian bees were considered in parts of Australia as being very destructive to the Grapes, and were, in consequence, denounced as pests that should be exterminated in a most summary manner. That bees will occasionally feast on over-ripe fruit, is well known; but it rarely occurs, and is usually a sign of there being an extraordinary failure in the secretion of honey, coincident with large populations and much brood within the hives. But it is absurd to ascribe this as a propensity peculiarly common to the Ligurian variety. Long before I had ever known these bees, I was aware that our ordinary species would, in certain unpropitious seasons, commit some amount of injury to fruit. But I was hardly prepared to find that this year—a great part of which has proved so prolific a honey season—should be marked as a bad one in this respect. In my garden, where I have very few Ligurians, the bees have lately attacked the Raspberries to a great extent; as many as three being frequently discovered buried in one specimen of the fruit; consequently making it a matter of considerable danger to persons gathering it. Certainly only a fair proportion of these winged marauders were Ligurians, and I think it but just to give them all the credit that is their due—of being, in this respect at least, not worse than their neighbours.

If I were in need of any proof that it is time to remove all my supers, whether completed or not, the fact of the bees feasting on ripe fruit would supply the deficiency, as it is a tolerably certain sign that no more honey will be stored by them in this district during the remainder of this season. If Heather abounded in my vicinity, I should not despair of further supplies of honey being stored in supers and stock hives, and should allow the former to remain on for a time longer; but in the majority of districts, all supers may now be taken away, whether completely filled or not. *Apiator.*

Garden Memoranda.

Lord Belhaven's, Wishaw House.—The original title of Belhaven and Stenton was conferred by Charles I. on Sir John Hamilton, of Biel, in 1647, and continued in unbroken succession up to the death of the fifth lord in 1777. The title remained in abeyance for upwards of 20 years afterwards, owing to disputed claims as to who should succeed as "heir male," but was finally adjudicated in favour of Robert Hamilton of Wishaw, who died 15 years previous to the ultimate decision of the House of Peers. His eldest son, however, succeeded as seventh lord and at his death in 1814 the present noble lord succeeded his father. Few noblemen enjoy a more distinguished local reputation and the Crown has shown its appreciation of his merits by appointing him Lord High Commissioner to the General Assembly of the Church of Scotland for many years. He is also Lord-Lieutenant of the most important county in Scotland, Lanarkshire, and has at all times manifested a lively and personal interest in all county matters of importance. The estate of Wishaw extends over 2000 acres, which are rich in mineral, the beds of coal in the aggregate being about 25 feet thick, of very superior quality. His lordship has at all times been so much engrossed with general business as to prevent him taking much personal interest in agriculture, produce on his own home farm; but he has at all times warmly espoused horticulture, nobly seconded by a really amiable and good lady, who together with him has for the last half century been an active promoter of gardening.

The mansion, which is about 14 miles from Glasgow, and nearly two from the burgh of Wishaw, is situated on the sloping banks of the Calder, a small tributary falling into the Clyde in the grounds of the Duke of Hamilton. It is a castellated structure with battlemented towers, the greater portion being of modern construction, a very handsome edifice well suited to represent, and be in keeping with, baronial dignity. On the crest of an almost perpendicular slope from the rivulet beneath, stands the noble pile, which is still undergoing alterations of a subsidiary character. In front the surface is comparatively level, and well adapted for general ornamental purposes; a large portion of the lawn in this instance assuming the form of a spacious bowling-green. Considerable acreage in the pleasure grounds is covered with wood, the Beech and the Chestnut however predominating, at the expense of much more valuable timber. Especially so is this the

case with the glen, which is by far the finest feature in the pleasure grounds, presenting an aspect of mingled wildness where the picturesque, the romantic, and the beautiful are all in harmonious association.

The sylvan scene is embroidered on the surface with Ferns and Mosses, and other interesting plants of our native flora, which appear to have more than ordinary interest in these steep rocky glades, with the river, which has formed its bed true to Nature, running, not in a straight line, but pursuing a somewhat intricate course, turning and winding now impetuously, and again smoothly and slowly. Following our leader by the winding path in the glen, which is now and again furnished with rustic seats set into niches of the rock, we cross two bridges, which span the rivulet, and find ourselves almost immediately within the precincts of the flower-garden.

Nature never does its work by halves, and this flower-garden, which forms the larger part of an oval, presenting great diversity of surface, because it has not been too much tampered by artificial hands, abundantly testifies that to carry out the ideal of a proper flower-garden is more a matter of selection of situation than is generally recognised. The ground work here to begin with, from its many and natural undulations, its associations with wood and water, its shelter and seclusion, stamps its character as a most charming spot, requiring only a few touches here and there to enliven the most varied shades of green. The modern system of flower-gardening is not open to objection if properly managed; nay, it is a decided advancement in the art of gardening, but the abuse of it deserves all the chastisement that has been penned. A gaudy and ill-arranged assortment of colours, even in a lady's toilet, is characterised in no measured terms by all who study and have some knowledge of the art of arrangement; and so it is and will be with flower-gardening. Depend upon it, success is not how much flower you can produce in a given space, but a harmonious arrangement of shading in order to produce a well balanced whole. The Wishaw flower-garden site has been well chosen, and evinces a degree of taste in arrangement which does Mr. Thomson, the gardener, very much credit. Doubtless one could suggest alterations in detail which might serve to enhance the beauty of the picture, for scarcely two minds agree in carrying out details; but as a whole it is exceedingly creditable.

It has evidently, from the wall that partly divides it from the sylvan scenery on two sides, been at one time all that did duty as a kitchen garden; but looking at the dilapidated face of the wall, here and there covered with Ivy, Roses, and Woodbine, surmounted with self-sown seedlings of the Bird Cherry and the wild Hawthorn, it cannot have been used as such during the present century. The Calder, which is fringed with a noble row of Chestnuts, and partly screened by a low retaining wall, forms the one side of the oval, and the wall the other side, terminating in a peak at the confluence of two streams. The upper portion is laid out into a series of terraced Grassy banks, on one of which a circular greenhouse with two wings has been built. A few plants of a decorative nature, both stove and greenhouse, are always at command, not the least of which is the rose-coloured Lapageria, which has grown through its original tub, and is luxuriating in the soil of a fertile slope, throwing off shoots of the most rampant nature, trained along the roof and flowering profusely—exactly the treatment for a gross feeder such as Lapageria is.

While the arrangement as a whole represents more of the natural than the artificial, there is still a good deal introduced in the way of geometrical figures detached. These do not impress our admiration so much however as the sort of irregular shrubbery borders with which the design abounds, giving scope for the introduction of variety of material. For instance, one of the greatest hits in the way of planting for effect occurs in the centre of the design. A broad Grassy walk of several hundred yards' length, straight as an arrow, and receding abruptly from the terraces above, pleasantly attracts the eye. On either side are beds of irregular outline, which this walk, as it were, cuts in two. Yews, Pear trees, Berberries, Rhododendrons, form a part of the vegetable clothing, and give not an unagreeable harmony to straight lines of Hollyhocks, which form the first formal row of "ribbon flower-gardening." Rows of purple Candytuft; yellow Calceolarias, of which Aurea floribunda and a finer lemon-coloured sort called Bothwell Beauty, form the chief; then the crimson Admiral Dundas Verbena, with blue Lobelia, and Cerastium tomentosum next the Grass, all in excellent order, give colours well defined, not too vulgar nor yet too tame, but viewed with the scenery undoubtedly and unmistakeably beautiful. One can gaze with lingering pleasure at this, and then turn with lively satisfaction to the Irish and English Yews, the Wellingtonias which grow well, to the Cedars, the Hemlock Spruce, the purple Beech, and the mixed members of shrubs which either form individual specimens, or groups. Two splendid specimens of Weeping Ash, in a salient spot, form a secluded bower, from the density of the branches and the luxuriance of the trees. Numerous combinations of bedding plants figure over the surface, where Pelargoniums, Calceolarias, Verbenas, the wild Pansy, which blooms freely enough, but is somewhat tame unless brightened up by showy colours, the variegated Arabis, than which there is nothing more like green and gold, representing a pigmy hedge of Holly, the variegated Alyssum, the beautiful and chaste Cerastium, or "Snow in Summer," several of the best annuals, and numerous other little things, all do their part—some introduced in the usual "lining" way, others forming a design where the ground colour is made up of one plant, and circular panels made up of other plants, the whole being, as it were, set into a framework of other colours—certainly not the most easy task to do well on the part of the designer. Mrs. Pollock and Sunset Geraniums were both doing well here, the former bearing the most handsomely-formed leaf, but not quite so effective as the latter, with the vermilion shading round the edge which gives it a more fiery character. All this combination was very much enhanced by the quantity of Grass lawn, and the spacious Grassy walks, which yield to the feet like a fine Brussels carpet, and have a pleasing effect upon the senses.

Taking our leave of the flower-garden we retrace our steps though the glen, and pass the mansion to the kitchen-garden, which is situated on the opposite side. As a kitchen-garden it is commodious enough without being remarkable for its walled enclosure. It is divided up into the usual compartments, and planted with fruit-trees, which do not appear to be particularly luxuriant. A range of houses bound it on the one side, with the office houses at the back after the usual fashion, and an old range stands on the other. The principal range consists of two Peach houses, three Vineries, a stove house, and an orchard-house, which is a span-roofed structure standing at right angles to the other houses, which are lean-to. Peaches and Nectarines have always been a fair crop at Wishaw, and Vines have at all times been remarkable for good management. The Muscat house is quite a picture at the present time, both as regards crop and size of bunch and berry. I have seen the house repeatedly for many years, and it is only justice to Mr. Thomson to say that, taking both it and the Hamburgh houses, and judging them from the crops that have been produced, and the high finish which has generally characterised them, they have few equals. It is one thing growing a few bunches for exhibition, but it is quite another thing producing crops of this kind, evincing as they do uniform good culture, which though simple looking enough is not always attained. Some of these Vines are planted outside, and some have a prepared division and are planted inside. There are no inside borders, however, the bottom of the houses being paved, and where Vines are introduced, a sort of temporary divisional border is made for them. Little difference was observable in the fruit, but Mr. Thomson says that success is a question of feeding altogether, and that if the borders are well made and well drained he would not spare the liquid manure; and according to his own account he does not spare it. The Vines are managed on the spur system, and although the youngest of them must have been over 20 years planted, there is no sign of retrogression, the spurs being in convenient relation to the main stem, and the leaves broad, lusty, and vigorous, showing not the least symptom of spider. Mr. Thomson, on the plea of prevention being more effectual than cure, does not spare the sulphur in the atmosphere, occasionally coating the pipes, and keeping the house in a nice state of humidity. He is not quite so successful in his orchard-house culture, and has abandoned the planting out bush system, training the trees in the usual way, which will doubtless bring him success. Figs in pots are nicely grown, and what struck me particularly was a very handsome pot suitable for general use, and really an acquisition to the ordinary run. This is made wider than deep, and glazed brown, like common pottery ware. The length of this range will be about 200 feet and the orchard-house 50 × 22 ft. In the old range there was also a capital lot of Black Hamburgh Grapes just on the point of ripening, in very unpretending houses as to build, finish, interior, or exterior borders.

The stove was filled with a miscellaneous assortment of plants, having its back well covered with the beautiful and fine winter-flowering Ipomœa Horsfalliæ, and the rafters with the invincible Cissus discolor, which for rafters, walls, or drapery in stove conservatories stands yet unrivalled. Several nice plants of the white and rose-eyed Periwinkle, the handsome Gesnera cinnabarina, Allamandas, a very good Alocasia macrorhiza, the fine autumn-flowering Curcuma Roscöeana, which is not half so much grown as it might be for its decorative value; Maranta zebrina, still an effective plant, and several small bits of Orchids, were the chief features in the house. A very good use was made of a house specially devoted to "bedding stuff," by introducing a long narrow wooden box, full of soil and planted with Tomatos, which were trained along the glass, and hanging thick with fruit. Such is a brief description of Wishaw and its gardens. They are well worth going to see, the more so as every one connected with gardening is so heartily welcomed by the venerable nobleman who owns them. *J. A.*

Botanic Garden, Amsterdam.—Judging from the immense size of the Palms and other plants with which this garden is furnished, it evidently has been in existence for many years. Dutchmen are celebrated gardeners, and no doubt this garden at one time enjoyed a high reputation on account of its fine buildings, which, however, at the present day do but small credit to those who have betowed time and labour upon them. Now-a days we must have fine houses as well as handsome plants. The good people of Amsterdam should therefore look to the Palm-house of these gardens, which we consider unworthy of a thriving country like Holland; if the poor plants in it had power of speech they would doubtless ask for a better house, which we hope before long will be erected over them, so that the grand specimens in it may not be injured by removal. We have had good proof of Dutch liberality in the late great show at Amsterdam, as well as in the magnificent palace erected there for purposes of exhibition. We do not expect, therefore, that the present ill-conditioned houses in the Botanic Garden will long be permitted to remain there. The Dutch, as I have stated, are lovers of horticulture, and require a place of this description to resort to in leisure hours. In our own country thousands weekly throng to the Royal Gardens at Kew, and if anything of this kind is carried out in a proper spirit there will be no lack anywhere of visitors. The Botanic Garden at Amsterdam is just outside the city, in an open space; it has a park in front, which is separated from the garden by a roadway. It is entered through a large iron gate, close to which is a dwelling-house, and on each side a greenhouse, containing many rare plants.

The next house, which is "span-roofed," is devoted to Orchids, Ferns, and fine foliaged plants, many of which are noble specimens; among them the most conspicuous is Cycas revoluta, with several stems of great size. This place is in fact noted for its fine collection of this interesting class of plants, together with Palms, Dracænas, and Yuccas. We also noticed some beautiful Ferns, among which were Cibotium princeps and the lovely C. Schiedei; the rare C. Camingii, a very distinct Fern; Alsophila microptera, also a rare and beautiful species; Hemitelia integrifolia, a distinct species; and Diplazium polypodioides. On the same stage were some fine specimens of Theophrasta imperialis, with glossy dark-green foliage; this was grown in a stove, but it succeeds very well as a greenhouse plant, and is valuable on account of its distinct-looking handsome leaves. Associated with it were also some rare Palms and other fine plants. Orchids consisted of Oncidiums, Zygopetalums, Aerids, Saccolabiums, Vandas, Cypripediums, and many other genera, of which were some well-grown species. The next house to that just noticed is span-roofed and adapted to aquatics, among which the Victoria regia does well every year. The house however seemed too small for such plants to be grown with good effect.

In the Palm-house are some noble specimens, which promise soon to lift the glass from the roof of their old-fashioned tenement. Among others we noticed Livistonia chinensis, with 60 leaves on it; Sabal mexicana and umbraculifera, a fine specimen of extraordinary circumference; Arenga saccharifera; Chamærops excelsa, a noble plant with a fine stem, and one of the most compact of Greenhouse Palms; Phœnix dactylifera, with a stem 20 feet high; and Caryota maxima, a splendid specimen, 40 feet in height. Associated with these were Dracæna Draco, or Dragon's Blood plant, with a stem of wonderful size; Pandanus furcatus, an interesting plant; and a fine example of Strelitzia augusta.

The collection of Cycads in this garden is one of the most complete we have seen. Encephalartos Caffra, with a wonderful stem about 25 feet in height, must, we should think, be many hundred years old. Dion angustifolium and edule are also good plants, as are likewise others, such as Encephalartos Altensteinii and cycadifolia, and Cycas circinalis. Not far from the Cycad house was a large greenhouse, containing a collection of Australian and Cape plants, among which were Proteas, Banksias, Araucarias, Dammaras, and a most beautiful specimen of Dicksonia antarctica, one of the most hardy greenhouse Ferns in cultivation.

The gardens themselves are not extensive, nevertheless there is plenty of room for improvement in them, which is indeed begun. The situation, however, is too much within the influence of the smoke of the City ever to favour a healthy outdoor vegetation. *W.*

Miscellaneous.

Duration of Species.—According to the principles of Darwin's school, the law of natural selection would cause the existing type to be supplanted by another, whenever the external conditions had undergone a material change; whilst according to the old view, the extinction of a species would have arisen out of the limits imposed by nature to the variation of a species, and its want of power to accommodate itself to more than a certain range of external conditions. But there are circumstances connected with this subject which seem at present scarcely in harmony with either hypothesis. There lies at the foot of Dartmoor, not far from the town of Newton Abbot, a deposit of wood, coal, or lignite, which has, for a long time past, supplied fuel for various manufactories of bricks and pottery although, from its offensive smell, inapplicable to domestic uses. This deposit—through the munificence of Miss Burdett Coutts, who supplied the requisite

funds for exploring it; through the exertions of Mr. Pengelly, who ransacked, one by one, the beds of lignite and clay which, to the number of 72, alternate with each other in the principal coalpit, and who extracted from them the fossil remains which they severally contained; and, lastly, through the botanical skill of Professor Heer, of Zurich, who determined the exact nature of these remains of a former world with a precision which, perhaps, no other living naturalist could have equalled—has been investigated in such a manner as enables us to fix with certainty its antiquity, and to trace the degree of resemblance which the Flora of that period bore to that existing at present in the same locality. It has been ascertained, for instance, that whilst the plants found in the lignite at Bovey belong to the lower miocene period, and bespeak a sub-tropical climate, the overlying gravels were deposited when the temperature of Devon partook of an arctic character. But this is not all; for the plant which, from the abundance in which its remains are scattered over the whole of this formation, from the highest to the lowest of the beds, seems more than any other to have supplied the material for the Bovey coal, is nearly related to that giant of the vegetable kingdom which has been found living in California. The name, indeed, applied to the fossil plant is Sequoia, that to the living one is Wellingtonia—the specific name of Couttsiæ being appended to the former to testify the large share that lady has had in its discovery; but the best botanists are of opinion that its cones, branches, leaves, and shoots, all of which have been exhumed from the Bovey formation, concur in indicating at least a general resemblance to the Wellingtonia. And, what is still more remarkable, this same tree, or one nearly allied to it, spread during the tertiary period over all Europe, from Greenland to Italy, and extended even to Vancouver's Island, in North America. How, then, are we to reconcile its present contracted range with its wide geographical distribution? Not, as it would seem, by appealing to a change of atmosphere; for if that had been the cause, it would still have maintained its ground in Italy and other warmer regions, from which it has now entirely disappeared. Nor are its only living congeners—namely, the Cupressus (or Sequoia) sempervirens, and the Wellingtonia (or Sequoia) gigantea—particularly susceptible of cold. On the contrary, the former will grow in sheltered situations throughout England, and the latter resisted, in 1860-1, weather so inclement as to have proved fatal to the Deodar in various parts of this country. The present limitation, therefore, of the Wellingtonia within so narrow an area, seems to point to a natural law, which we recognize by its effects, without being able fully to divine the means by which it is carried out. This law is, that a certain limit has been assigned to the duration of species as well as of individuals, and that this limit is approaching in the case of the monster of the vegetable kingdom alluded to. Like the Dragon-tree of Teneriffe, or the Callitris quadrivalvis of Algeria, it is indeed vigorous where it still lingers; but, like these and others that might be named, the conditions of the climate in other respects seem to have become less propitious, although it remains to be seen whether the specimens introduced by Messrs. Veitch & Pince into their gardens at Exeter may not show that the tree will still flourish in a country where its congener, the Sequoia Couttsiæ, once so luxuriated. *Dr. Daubeny in Address to Devonshire Science Association.*

Preservation of Ships' Timbers—A communication has been made by Lieutenant A. Mariot, of the French navy, relative to the means employed by the Cochin-Chinese to protect the hulls of vessels from the attacks of the auger worm and other mischievous creatures. M. Mariot declares that the Chinese and Annamites know how to protect their vessels effectually, and at a very small cost, and a long residence in the two countries as a naval officer gives weight to his evidence. He was struck with the extreme antiquity in appearance of many of the native vessels, and found on inquiry that they were quite as old as they looked, and that in some cases they had been bequeathed from father to son until their origin was entirely forgotten. The timber of these vessels being the same as that employed in India for the same purpose, and the waters of Cochin China teeming with destructive creatures, it was evident that the durability of the vessels arose from some special precaution. The means employed are, according to Lieutenant Mariot, a mixture of a resinous oil with a resin, applied hot to the wood; both the substances being special products of the lands on the banks of the river Meikou, the trees which yield them having heart-shaped leaves, strong roots, and throwing out suckers. The tree which yields the oil is called by the Annamites Caydau, literally oil-tree, and often attains a height of more than 200 feet; it will furnish from three to five pints of oil per week. Boats made of the wood of this tree are said never to be attacked by the auger worm. The tree which yields the resin is described as being somewhat similar to the former. M. Mariot, when in command of the Amphitrite lorcha, under Admiral Charner, employed the native mixture on a boat which had been attacked by the mollusks, and at the end of a year it was perfectly free from any fresh attacks. *Journal of the Society of Arts.*

Gigantic Larch.—An immense Larch, containing no less than 193 cubic feet, has recently been cut near Llanidloes. It is the largest of the kind on record in that part of the country. *Builder.*

Calendar of Operations.

(*For the ensuing week.*)

In order to maintain a certain amount of gaiety in the conservatory, a stock of succession plants must necessarily be kept up. Any plants, therefore, in pots, which it is desirable should be grown quickly, may now have a shift; it will not, however, be advisable to give them large pots at this season, as whatever wood the plant now makes must be ripened, with perhaps the exception of such free-flowering plants as bloom on the current growing wood. As this shift will be all that will be required during the winter months, the drainage of the pots should be ample. When established, a free open situation should be selected for the newly-potted plants, in order that any new growth made may be ripened.

FLOWER GARDEN AND PLANT HOUSES.

Every means must now be taken to keep turf, gravel, and edgings of all kinds in the neatest possible order, that no drawback to the complete keeping of the whole may occur; dead flowers should be picked off daily, and stray growths reduced within proper limits. Trailing and climbing plants should be frequently gone over, to keep them neatly though not too stiffly trained and secured against winds.

Dahlias.—Take care that the laterals of these are well staked out, and use every means to entrap earwigs and other vermin which injure the flowers.

Pansies.—Rooted cuttings of these should now be ready. It will, therefore, be necessary to make beds for their reception. In doing this it is absolutely necessary that wireworms should be caught, therefore the compost should have repeated turnings; for these pests are as destructive to young Pansies as they are to Carnation layers.

Roses.—Remove dead flowers, and encourage the production of autumn blooms in the Perpetuals, by watering with liquid manure.

Tulips.—Throw out the soil from the bed on to the paths, so that it may sweeten previously to being returned.

Verbenas.—Go over beds of these frequently. Where the plants are still growing, pegging and training will involve considerable attention, removing decayed flowers, and cutting back such of the shoots as may incline to encroach upon the edging of the beds.

FORCING GARDEN.

Peaches.—The late warm dry season will have been very favourable to wood ripening; but where any is still immature, means must be taken to forward it, as next year's success will very much depend upon ripening being properly effected. Keep the foliage clean and free from insects, and endeavour to preserve it in health as long as possible.

Pines.—Plants growing in dung pits must be freely supplied with air to prevent their getting drawn, and they should also be kept near the glass and not allowed to stand too closely together, for strong robust plants need hardly be expected unless this is attended to, and weakly drawn ones seldom or never yield fine fruit. Give careful attention to such as are swelling; afford them plenty of warmth and moisture, and as much manure-water at the root as the soil will bear. Do not allow young stock in free growth in the succession pits to stand too closely together, nor to sustain any check through neglect in watering, or the want of pot room. Plants growing in beds of soil must also be carefully attended to with water, keeping the soil in a nice moist state. Where rapid growth is required keep as warm and moist as can be done without drawing the foliage, and give plenty of strong clear manure water at the root, and the plants will make rapid progress for the next two months.

Vines.—See that Vines from which the fruit has just been cut are free from insects, giving the foliage an occasional washing with the engine if red spider is at all troublesome; and use every precaution to keep the leaves in health as long as possible. Prevent the growth of laterals, which only shade and injure the principal foliage. Late Grapes colouring should be assisted with slight fires at night, especially Muscats. Thrips are frequently very troublesome in late Vineries where plants have been grown under the Vines, and where there is any reason to expect these, the foliage should be frequently examined closely; giving the house a heavy smoking as soon as they are perceived, and repeating this for two or three times at intervals of about a week. Shading the house the day after smoking where it can be done, so as to be able to keep it rather close, will render the cure more effectual; and if the pest is taken before it gets quite established, it will be easily get rid of by two or three smokings, but unless taken in time it is very difficult to eradicate.

HARDY FRUIT AND KITCHEN GARDEN.

Summer pruning and nailing in of the current year's wood will require following up.

Currants, Gooseberries, and Raspberries.—Where time will permit these will be benefited by the remaining wood of the present year's growth being thinned, leaving only sufficient to furnish next season's crop.

Decaying Crops.—Clear away the haulm, stumps and refuse of crops directly they are over, burn them, and if the ground is not wanted dig the ashes in, and let the land remain till required. At this season, however, there is seldom ground to spare; for it should be remembered that the supply for several months of the next winter and spring will depend on the diligence now made use of, in planting out as largely a supply of those kinds of vegetables most likely to be in demand as can possibly be found room for. Potatos and other crops soon coming off may therefore be interlined with any of the different kinds of Broccoli or Winter Greens, and where these are not sufficient, a quantity may be planted at one foot apart, to wait for ground as it comes in by the removal of other crops.

Pear Trees.—These may now, if not already done, have the breastwood cut back to five or six eyes, beginning with the least vigorous first, as they will be the least liable to start.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Aug. 2, 1865, as observed at the Horticultural Gardens.

July and August.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth 1 foot deep.	Temperature. Of the Earth 2 feet deep	Wind	Rain
Thurs. 27	5	30.216	30.141	87	40	63.5	67	64½	W E	[illegible]
Friday 28	6	30.227	30.133	80	41	60.5	66	64½	N.W	[illegible]
Satur. 29	7	30.078	29.994	82	50	66.0	65½	64	S W	[illegible]
Sunday 30	☽	29.975	29.944	78	42	60.0	65½	63½	N E	[illegible]
Mon. 31	9	29.779	29.573	76	49	62.5	64½	63	S W	[illegible]
Tues. 1	10	29.804	29.747	65	37	51.0	64	62	W	[illegible]
Wed. 2	11	29.734	29.318	63	37	50.0	63	61	S W	[illegible]
Average.	—	29.973	29.835	75.8	42.3	59.1	65.1	63.2		[illegible]

July 27—Very fine, very hot and dry; overcast at night.
— 28—Clear dry air, very fine, with a few light clouds, very hot; cool at night.
— 29—Very fine; clear and hot; excessively dry air, very fine; slight rain.
— 30—Fine; very fine, with some clouds; cool at night.
— 31—Very fine, overcast and fine; heavy rain at night.
August 1—Cloudy; cold at night.
— 2—Slight rain; heavy showers; thunder; nearly freezing at night.

Mean temperature of the week, 4 deg. below the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 39 years, for the ensuing Week, ending August 12, 1865.

August.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N	N.E.	E	S.E.	S	S.W.	W	N.W.
Sunday.. 6	73.3	50.8	62.1	18	0.58 in	—	6	3	1	5	14	[illegible]	[illegible]
Mon. .. 7	74.6	51.0	62.8	13	0.57	1	4	3	—	6	2	[illegible]	—
Tues. .. 8	74.7	49.7	62.2	16	0.50	2	5	2	—	3	[illegible]	[illegible]	[illegible]
Wed. .. 9	74.4	50.1	62.2	15	0.56	2	7	1	—	5	1	[illegible]	[illegible]
Thurs. ..10	75.2	52.2	63.7	17	1.05	1	6	2	2	5	[illegible]	[illegible]	[illegible]
Friday ..11	75.7	50.8	63.3	17	0.78	1	1	3	1	5	16	[illegible]	[illegible]
Satur. ..12	75.3	50.5	62.9	14	0.47	2	2	2	1	6	13	[illegible]	[illegible]

The highest temperature during the above period occurred on the 10th, 1842—therm. 93 deg.; and the lowest on the 11th, 1842—therm. 33 deg.

Notices to Correspondents.

Aloe: *C & W.* The Aloe flowers may be preserved in spirits, or in dilute acetic acid, in a closed glass vessel.

Amaranthus melancholicus ruber: *A W.* Sow the seed of this Amaranthus in the middle of March; pot off the young plants, and grow them on in gentle heat, taking care not to "draw" them; when well established in 60-sized pots, gradually harden them until they will bear full exposure, which they will do by the middle of May. These will be sufficiently early to match your Centaurea ragusina struck early in spring.

Centaurea ragusina: *A W.* If you can obtain seeds of Centaurea ragusina, which we think probable this fine season, sow it in pots the second week in August, and place them in gentle heat; pot off the young plants as soon as the seed lobes are fully developed, singly, into thumb pots; keep them in a close frame for a few days, and then set them on a shelf in the greenhouse close to the glass. In about six weeks they will require a shift into 60-sized pots, in which they will stand all the winter, and make fine plants for the spring. In the absence of seeds, obtain strong plants in pots in the autumn, place them on a shelf in the greenhouse close to the glass, and about the middle of January stop every shoot, and place them in a little heat; with proper attention they will produce abundance of cuttings, which may be easily struck in a light sandy soil, and these will make strong plants suited to your purpose. This species stood out last winter near London, but we recommend the protection of a frame or greenhouse.

Fig Seedlings: *A W.* The circumstance you mention about the Fig requires a fuller explanation; the probability is, however, that the Fig seeds were mixed with the others to which you refer as coming from America.

Insects: *T R. Hants.* It is the caterpillar of the Death's Head Moth (of course smashed in the post), common at this time on Potatos. *W.*

Midges: *Sambo* asks if any correspondent can give information of an efficient remedy against midges, which bite some persons so severely as to cause swelling and inflammation on the face?

Monstrous Lily: *K J McE.* Your Lilium auratum, in addition to other changes, has the pistil divided into three component carpels, each with a separate style and stigma.—*W M.* In your case there has occurred a fusion of two flowers, and a suppression of some of the parts of the perianth.

Names of Fruits: *R H.* 1, 3, Royal George; 4, Noblesse; 2, (bruised.)

Names of Plants: *J T.* The Lilium is giganteum, or its near ally cordifolium, we cannot tell which from leaves in such a state. The Clematises were past recognition.—*B and S.* 1 and 2, Begonia semperflorens apparently, but they were much crushed.—*Y E R* Hyoseyamus canariensis.—*J F* Your plant is Cicer arietinum, well known under the name of Gram; generally our seasons are not warm enough for successful cultivation, but it is occasionally seen in the gardens.—*Subscriber.* 3, Linaria purpurea; 4 (spotted) Veratrum nigrum; 9, Kerria japonica fl. pleno.—*J A.* Pteris serrulata. *W B.* Specimens not numbered. Phlebodium aureum, Cheilanthes elegans, Onychium lucidum, Asplenium hispidulum.

Orchids.—In the notice of Mr. Day's collection at p. 704, col. b, line 4, for Blumei, read Bluntii.

Raspberries: *Jupiter.* They are best propagated by suckers transplanted during the autumn months.

Seedling Pelargoniums: *Tyer.* The seeds should be sown as soon as they are ripe, or, if not yet done, without any further delay; pot the seedlings singly, and keep them close to the glass in a well regulated greenhouse, where they may move on gradually through the winter like other Pelargoniums. Shift them in spring. It is not advisable to force them, but all Pelargoniums require a moderately genial temperature.

Strawberries: *Jupiter.* A very good mode of making new plantations is described in our last number.

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Applications to be made to WILLIAM CLIFFORD, the Secretary, at the Offices of the Company, 22, Whitehall Place, London, S.W.

The Agricultural Gazette.

SATURDAY, AUGUST 5, 1865.

THE recent introduction and present existence of a fatal and infectious disease among cattle is exciting universal concern, and not without sufficient reason. Dearth of fodder for some time past has led to a serious rise in the price of meat, and afforded dishonest dealers an excellent opportunity of disposing of diseased animals at remunerative prices; but this, though an evil of some magnitude, shrinks into nothingness beside the tremendous consequences involved in the extension of the cattle plague over the country.

The malady is new to the present generation, but, from records that have come down to us, it is remarkably like a disease which devastated our herds more than a century ago. In its principal features it resembles the Russian "peste" so well known upon the Continent, and whose introduction into our own country has been feared for a long time past. Between the true "peste," however, and the cattle disease from which we are now suffering, there are important pathological differences that it will hardly be desirable to discuss now, as the modified form in which the disease presents itself to us is probably due in a great measure to a difference of climate. It will be sufficient to admit that the two maladies are closely related, that both are essentially *typhoid* in character, and that beyond all question the disease is imported from abroad.

Much confusion prevails among the public in respect to those affections that are classed under the term "typhus" or "typhoid;" and in endeavouring to give a shape to that "which shape has none," it is necessary to crave the forbearance of our scientific readers, for whom the explanation is not intended, but who may feel disposed to smile at an attempt to popularise an intricate scientific subject. Typhoid diseases, then, are diseases of a low, or literally smouldering character, universally associated with deficient vitality and prostration, without that active vascular and nervous excitement which accompanies acute diseases. The term therefore applied to the cattle plague is to be looked upon as a mere general expression of the fact that it is an insidious malady, remaining dormant for some time in the system, and ultimately by slow but certain action sapping and undermining the organic forces. All affections of the class appear to owe their origin to the introduction into the animal system of some morbific matter which contaminates the blood, and thus causes a generally depraved condition of the whole organism. This "virus" or "animal poison," whatever it may be, can be generated by various causes which come under the head of defective sanitary regulations, decaying animal and vegetable matters being principally concerned in the production of the morbid principle. It can also be given off from the secretions and excretions of infected animals, and thus transmitted to sound ones, irrespective of drainage or ventilation, and in defiance of all precautions. After gaining an admission into the healthy organism the morbid principle, or matter, however different its action upon the systems of different animals—whether it be the virus of small pox, or glanders, or typhus, whether introduced by the atmosphere in an impalpable form, or by direct inoculation with palpable matter—*lies for a certain definite space dormant*, that is to say, the disease has a period of *incubation*, during which the doomed animal gives no evidence of the impending outbreak. When the disease appears, a similar morbid matter or virus is eliminated in quantities altogether disproportioned to the amount originally introduced into the system, as seen in the case of small pox. The smallest particle of lymph from a vesicle being conveyed into the circulation of a healthy subject lies dormant for a time, and then results in the development of a multitude of vesicles, each one filled with a similar virus. This fact, so well known, fails to receive the consideration it merits from the non-scientific public, but it really leads to a most important conclusion, which is, that the virus during the time it is *apparently* dormant, is multiplying itself indefinitely, literally *incubating* or hatching new matter of a like kind, until it reaches such proportions as to cause some outward expression of its presence in the system; and then the disease is said to appear. We ask special attention to this point; it may seem to be speculative and theoretical, but it is in fact about as legitimate a deduction as can well be drawn from an undoubtedly true premiss, and not more wonderful than the fact that if a seed be introduced into favourable soil it will, after lying apparently dormant for a time, find an outward expression in the form of a plant, which will bear abundantly seeds of a like nature.

After this preliminary discussion, conducted in a very simple and untechnical manner, it is possible to convey to the farmer something like a rational and definite notion of the nature of the cattle plague.

First, we require the element "infection;" the virus must be introduced; and there are sufficiently numerous sources of supply. Diseased cattle may be purchased, newly imported, and thus by contact transmit the infection; or even if care be taken to keep them in quarantine, men passing from them to healthy stock can communicate the disease; sheep, or other animals, not themselves subject to the malady, may possibly become the means of conveying it to cattle, by mingling with them soon after having been associated with infected stock.

Secondly, the virus, being introduced, accumulates in the system until a sufficient quantity is collected in the blood to render that fluid morbidly stimulant to the different organs and structures through which it circulates, causing excessive or altered secretion,—hence the discharges from nostrils and eyes, and the invariable diarrhœa.

Thirdly, nutrition being arrested there results weakness and emaciation, terminating usually in death, unless the system possesses sufficient stamina to resist the effects of the poison until it has been all, or nearly all, eliminated, in which case the animal slower recovers.

The disease has nothing in common with pleuro-pneumonia, or the vesicular epizootic (foot and mouth disease), but consists essentially of a poisoned condition of the blood, implicating, of necessity, every organ of the body; all the mucous membranes, those of the mouth, nostrils, eyes,

intestines, and generative organs are reddened and inflamed, and the skin is harsh, dry, and often excoriated at the insides of the thighs. Sometimes the brain also suffers considerably.

Symptoms: There will seldom be much difficulty in recognising the disease, although the early signs are comparatively insignificant. The appetite is impaired, the animal is dull, slight discharge may occur from nostrils and eyes, the coat is harsh, the milk is diminished, constipation is sometimes present, followed by frequent evacuation of fæces, and then diarrhœa going on to dysentery. The epithelium of the lips and mouth is loosened and falls off, showing ulcerations beneath; the breath becomes fœtid; the subcutaneous cellular tissue of the loin and back becomes emphysematous, rapid wasting occurs, the animal refuses all food, the secretion of milk is almost arrested; the discharge from the eyes and nostrils is more abundant, that from the nose is sometimes mixed with blood; prostration increases, and ultimately death takes place, occasionally in a few hours, but more commonly the animal lingers from one to three weeks. A favourable termination is indicated by a return of the milk, improvement of the appetite, and cessation of diarrhœa.

Treatment: Remedies applied to the cure of the disease must be selected from tonic and antiseptic agents. Every means likely to support the system may be advantageously employed. The sulphites have been much neglected in veterinary practice, but they possess remarkable antiseptic properties, and have proved effectual in typhoid diseases in other animals. A dose composed of sulphite of soda, 2 ounces, dissolved in a little water, and combined with tincture of gentian and tincture of ginger, one ounce each, may be given in a quart of good gruel twice-a-day, the patient being supplied with thick gruel and linseed tea combined with an occasional pint of good ale at intervals.

Of far greater importance than the cure of the disease is the prevention of its ravages, which even in the short period of a few weeks have been serious. Hundreds of animals have died or been slaughtered, and the statement that 30,000*l.* worth of stock have been lost by dairymen in the metropolis alone is probably rather under the truth; many instances are known where the entire stock has been cleared off, and in other cases it has been reduced to one-half or one-third, the owners being naturally afraid to purchase animals to supply the places of those lost, from a well-founded apprehension of incurring further damages.

Meanwhile, with the decrease of the number of dairy stock, amounting, if we add the animals at present affected to those already dead, to more than one-third, the supply of milk continues,—how kept up to par, is not difficult to conjecture. If only harmless water is employed to meet the deficiency we shall offer no remonstrance, but unfortunately a certain quantity of milk can be obtained during the progress of the disease, and so long as it does not *appear* to be unfit for use, there is reason to fear it is mingled with the rest; true, we have at present no positive proof that such milk is directly injurious, but considering the state of the animal's system, it can scarcely be hoped that any quantity could be consumed with impunity, particularly by young children, who are likely to be the principal sufferers in such cases. Again, there is the constant supply of diseased meat in a state more or less unfit for food; often in a condition which would justify its condemnation, but probably as often giving no evidence of the state of the animal during life—in fact, the only guarantee the public can have of the wholesomeness of the meat they purchase, is to be found in the honesty of the butchers who supply it, unless an inspector, who must be a good pathologist, were to attend the slaughterhouses, and minutely examine all the animals before and after death: which of course is out of the question in the absence of public slaughterhouses.

In the endeavour to limit the extension of the cattle plague, the Government is doing all it can possibly do at the outset, by taking measures to ascertain how far the disease at present prevails. Inspectors, elected from the veterinary profession, are appointed to visit localities where the malady rages, in order to report and advise. Farmers and dairymen are unhappily pursuing a ruinous policy by keeping back information, and seeking to disguise the extent to which they have suffered. By a ready co-operation with the efforts of the Government a great deal may be done in a short time, while the opposite course involves delay that will be fatal, as no measures of an active character can be taken until the extent of the mischief is known.

Stock owners are further called upon to take steps to protect themselves as far as possible, by the establishment of a rigid system of supervision. To this end the following suggestions are offered:—

1. No newly-purchased cattle should be allowed to have communication, directly or indirectly, with other stock for at least 14 days: the period of incubation may be fixed at 10 days, but a little margin should be allowed.

2. Sanitary regulations should be strictly enforced in reference to drainage, ventilation, and disinfection by means of chloride of lime, solution of carbolic acid, or Condy's fluid.

3. Should the disease appear, the affected animals ought at any inconvenience to be isolated completely; the worst cases should be destroyed on the premises, skinned, and the hide thrown into some disinfecting fluid, and kept there for some hours before being allowed to leave the premises; the carcass, of course, should be consigned to the knackers to be boiled down at once.

4. All the healthy or apparently healthy animals should be treated with sulphite of soda, which may be given in doses of 3 ounces, dissolved in water, daily, or may be powdered and mixed with the food; there is good reason to expect great things from this agent as a preventive.

5. Every animal showing symptoms of the disease should be at once removed and treated or slaughtered; and the milk from all animals affected should, if the owner has any pity for his fellow creatures, be thrown away; it would be far better to double or treble the present price of good milk than to vend poison under that disguise.

Much remains to be learned respecting the disease; numerous experiments, minute and laborious too, have to be carried out before definite results can be expected, and before these results are legitimately reached it would be premature to speak too confidently: but the public may rest assured that a good deal is being done quietly even while very little is being said or written. When struggling through a great crisis men are not much inclined for words. An Italian proverb says, "He who is silent says nothing," a very judicious course when there is not much to say.

We shall take care to keep the public informed of the progress of this disease, as occasion may serve; but as the wise man says, "There is a time for all things," and this is a time for steady, combined, and unremitting work.

—— Notwithstanding gloomy anticipations of the losses to the Agricultural Society consequent upon its expenditure at Plymouth, the Plymouth meeting stands fourth upon its list as regards the amount received from visitors, exceeding all but those at Newcastle, Battersea, and Leeds. The following is the list, from which it will be seen that much greater interest has been this year excited than was exhibited at Lewes, the last occasion when a general election intervened:—

Place.	Date.	No. of Persons.	Amount received for Admittance.		
			£	s.	d.
Lewes	1852	...	1184	10	4
Gloucester	1853	36,245	2734	0	11
Lincoln	1854	37,635	3370	19	5
Carlisle	1855	...	3261	19	6
Chelmsford	1856	32,932	2988	8	5
Salisbury	1857	37,342	3447	15	9
Chester	1858	62,539	6190	9	0
Warwick	1859	55,577	5161	17	11
Canterbury	1860	42,304	2739	7	10
Leeds	1861	145,738	9889	16	2
Battersea	1862	124,328	9539	4	4
Worcester	1863	75,807	5485	10	9
Newcastle	1864	114,281	8002	0	0
Plymouth	1865	88,036	6274	0	3

The detailed account of the attendance and receipts on the several days of the Plymouth meeting is as follows:—

		Admission.		Persons.	Amount.		
		s.	d.		£	s.	d.
Saturday,	July 15	5	0	25	6	5	0
Monday,	„ 17	5	0	1,063	265	16	0
Tuesday,	„ 18	2	6	4,767	595	11	10
Wednesday,	„ 19	2	6	17,269	2159	0	0
Thursday,	„ 20	1	0	42,943	2147	14	10
Friday,	„ 21	1	0	21,969	1099	12	7
				88,036	6274	0	3

THE CATTLE PLAGUE.

[The following memoranda and letters have appeared in the daily papers during the past week].

On Tuesday a meeting of the metropolitan cowkeepers was convened by Mr. T. P. Dexter, chairman of the London Cowkeepers' Association, to consider what measures should be adopted with reference to the prevailing malady which has been recently imported into London. Professor Gamgee, late of Edinburgh, now head of the new Veterinary College at Chelsea, described the disease as a catarrhal affection, producing in the blood an impurity which had a tendency to work itself outward in every direction, and any exhalation, even through the pores of the skin, of an animal affected with the plague was, he said, highly infectious. The disease was, in the vast majority of cases, incurable. An animal attacked by it might succumb in two or three days, or might last a week or more; but he was generally doomed from the outset. The origin of the plague was infected foreign cattle brought to Islington Cattle Market. Sound cattle coming in contact with them there caught the malady, and in their turn transmitted it to others, so that it was spreading in a rapidly widening circle. It had been but just a month in the country, yet even in that short time he calculated that nearly 2000 cattle must have suffered. It was much to be regretted that prompt measures for its eradication were not taken on its first appearance. He showed how, though we had antidotes for mineral, we had none for animal poisons of the blood, and therefore it was rather to prevention than to cure that attention should be directed in cases like that under discussion. All beasts that were evidently affected should be killed, or, at least, at once and effectually separated from all healthy animals. He went on to show that although the cattle plague was not contagious to human beings, yet they indirectly it might produce typhus and other fevers and diseases, because, after a lengthened period of bad or insufficient food in any country, the people of that country were sure to suffer in health. There was no cattle disease better known than this. So far from being new, it had existed for centuries. In 1747 thousands of cattle perished or were destroyed, the Government compensating their owners. This, however, had to be discontinued on account of the numerous frauds committed. Mr. Gamgee alluded next to the sheep smallpox in North Wiltshire in 1862. He showed how, as long as farmers concealed the illness of their sheep, the disease spread with great rapidity; but when they subscribed to pay for the destruction of all that were diseased, and thus encouraged each other to speak the truth, the sheep smallpox was put an end to in three weeks. It would be more difficult to bring the cattle plague to a termination, but the same course was the proper one to pursue. The cow-owners should put their shoulders to the wheel at once, form a provisional committee, and take steps to carry out the most advisable measures.

The Price of Meat.—The present unfortunate position in this matter has been entirely due to decimation of our stock by disease since the first importation of foreign animals in 1842. I do not wish to interfere with free trade, but I have long advocated, what the farmers of this country must soon insist upon, a proper regulation of the foreign and home traffic in diseased animals. As, in times of comparative quiet in relation to cattle or sheep plagues, our agriculturists permit cattle dealers to advocate their direct interests unopposed, it is right and proper, on the recurrence of that dreaded pestilence smallpox in sheep, to open the eyes of those whose immediate interest it is that such maladies should not cross the German Ocean. It is strange that the lung disease in cattle, which my knowledge is at present making sad havoc among herds in different parts of the United Kingdom, should not excite in the public mind the fear produced by *variola ovina*; but the explanation is probably this—that oxen and cows dying of the lung disease are freely sold and eaten, whereas sheep with smallpox are worthless, and the very name of this malady indicates, what is certainly not so true, that human beings are in great danger from contamination by this disease. Smallpox is now on the Sussex downs. It is where, as in Wiltshire, roving flocks may spread any disorder, though, in the absence of direct evidence, we are not yet prepared to say how the Sussex flocks have really been contaminated. It is to be hoped that the malady will soon be suppressed, but, with a view to the attainment of this end, we must not deal with it as we do with the thousands of diseased cows slaughtered in our large cities, or the sickened oxen which are sent to market. Having had considerable experience in the prevention of smallpox at home and abroad, it may be well to caution the farmer on the following points:—First, the flocks must be carefully watched, and the slightest evidence of sickness in any single animal should lead to instant separation, and the examination of those parts of the body uncovered with wool. The early symptoms are slight fever, drooping ears, clapped wool, and a flea-bitten appearance on the inside of the arms and thighs. The red spots increase in size, and about the eighth or tenth day, after the earliest symptoms, each red papula becomes elevated and transparent. A clear limpid liquid accumulates, and soon becomes turbid. The pustule has a white and then a yellowish opaque appearance; the skin around it is pale. Each pustule is flattened and has been compared by the French to the head of a nail. A certain amount of transudation of lymph occurs, and the pustule dries, so that in a few days a yellowish gray or brown scab is perfectly formed. The scabs then fall off, and leave a red depression in the skin. It is most important to watch and separate the mildest cases, as it is the overlooking slight cases of sickness which so often leads to the disease taking deep root and exterminating a flock. Secondly, inoculation must be strictly and unconditionally avoided. In Germany, where sheep are much housed, the operation may under certain conditions be administered, but here it never is. I appeal to our Wiltshire experiences in proof of this; the losses in the inoculated flocks amounted to 18 per cent, whereas among the non-inoculated they only amounted to 1·6 per cent. The disease was most virulent, and readily suppressed by separation. Thirdly, I should advise the Sussex farmers to do as on my recommendation was done in 1862. They should club together and pay for the first—viz. the smallest—loss, and bury the sick sheep below ground.

not wish to see wantonly to destroy a whole flock, but the slaughter may be limited to very few if the plan of early slaughtering is resorted to. *John Gamgee, New Veterinary College, Edinburgh.*

The Russian Plague has been most carefully studied, is thoroughly understood, and has been made the subject of more special works, essays, reports, and official inquiries than any other disease affecting the lower animals. Nothing is therefore left to conjecture. We know positively that for the European continent, at all events westward of Russia, the malady is never known except as an imported plague, capable of being conveyed alone and exclusively by contagion. To have learned this is not a trifle. The speculations of those who are always disposed to indulge in abstract reasoning on final causes must be tormenting our stock-owners and veterinarians. It may not always be obvious how the disease has been caught, but it is always certain that contagion has been at work. The Prussians, Austrians, and others keep the disease very much in check on their frontiers to the east. Their vigilance is sometimes sufficient, as convalescent cattle or animals that have passed through the disease early in life are not subject to it, but can carry the poison from diseased animals they have approached, and communicate it to any susceptible stock with which they afterwards come in contact. Years ago I said that the system of inspection was a farce, and most people must now be disposed to endorse my opinions. **How few of the people who have purchased stock at Islington during the past month could tell the insidious disease lurking amongst animals in the market fairs?** No doubt the disorder was obvious enough yesterday, but it has most certainly passed inspections unheeded and **unobserved. I do not blame the inspectors; I blame, and have always blamed, the system under which they have been compelled to act.** The present calamity will not fall on a class, as in the case of the Cotton famine. It must affect the nation throughout its length and breadth. It is too late now to avert such a result, and, with a view to enable us to cope with the extraordinary difficulties, there must be a general and extraordinary co-operation amongst the people. The National Association for the Prevention of Cattle Diseases is to meet daily at 48, Pall Mall. One of its members, a highly intelligent cowkeeper, stated to-day that in one month the London dairymen have lost 30,000*l.* sterling. This is only the commencement, and does not include what has already been lost beyond the metropolis. It is said the disease has already reached the neighbourhood of Dublin. *J. Gamgee, Principal of the Albert Veterinary College. 48, Pall Mall, S.W., Aug. 1.*

That the disease has been imported from foreign countries no doubt whatever exists, but it has also been generated by **the close packing of the beasts in the holds of steamers, which** are unfortunately too full of the exhalations arising from their own bodies, and saturated with the excretions of numberless other animals that have preceded them in transit. In our own country the complaint has made its appearance in many places **during the last month without the actual contact of a diseased** animal, but let us take into consideration the extreme heat of the weather that has prevailed, and the badly-constructed cowsheds in many places. The ground beneath their feet having been saturated for years and years with fœtid ejections, the increase of temperature has produced decomposition in the impacted mass, and elicited other and more poisonous gases. I am well aware that cowkeepers, like other persons, dread a doctor's bill, and as the chance of curing this inveterate disorder is so remote the first loss is supposed to be the best; so the animals are destroyed or sold at a great reduction in their value, and where recovery takes place it generally appears to be owing more to the efforts of nature than those of art. As preventive and palliative measures, I would suggest the removal of the affected animals to an insolated spot some distance from their former abode, those whose cases were hopeless to be destroyed and burnt, with those which died naturally, in a kiln or furnace, which might be temporarily constructed. The animal charcoal thus obtained would be serviceable as a deodoriser. The flooring of the sheds should be excavated to the depth of 6 [inches?] which might also be submitted to the action of fire; a fresh substratum of concrete should then be laid down, and an impervious pavement placed on the top so as to admit of a good surface drainage. The free use of hot lime-wash and occasional fumigations of chlorine gas would be found of essential service; which can be easily and cheaply obtained from common salt and oxide of manganese. Medicines have had but little effect in combating the disease, but those of a tonic stimulating character may be exhibited at intervals, the great object being to sustain the depressed vital powers by their judicious use and a proper regulation of the diet. *H. D.*

It is obvious that the most effectual way of preventing the extension of the plague is by isolating it, and destroying the animals which are subject to its influence; but there is no legal power in our country for adopting this, the only thoroughly effective method of treatment. The existing law on the subject principally depends upon two statutes passed in 1848—the one entitled "An Act to Prohibit the Importation of Sheep, Cattle, and other Animals, for the purpose of preventing the Introduction of Contagious or Infectious Disorders;" the other entitled "An Act to Prevent, until the first day of September, 1850, and to the end of the then next Session of Parliament, the Spreading of Contagious or Infectious Disorders among Sheep, Cattle, and other Animals." The first of these enactments enables the Queen, by Order in Council, to prohibit temporarily the importation of foreign cattle, and to make regulations for subjecting them, when imported, to quarantine, or for causing them to be destroyed on their arrival. The second enactment referred to was a temporary statute, made, as the recital at the commencement of it states, on the appearance of a "contagious or infectious disorder known as the sheep pox, or variola ovina;" but the duration of this legislative measure has been from time to time extended, and it is still in force. It empowers inspectors of markets and similar officers to seize infected sheep exposed for sale in any public place, and to destroy them. Power is also given to the Privy Council to make orders prohibiting or regulating the removal of sheep, cattle, &c., from place to place, and for the disposal of animals seized under the authority of the Act, or dying of disease; and it is rendered a penal offence to wilfully expose diseased cattle for sale. These precautions fall far short of the summary remedies which are employed in France and Germany when a plague breaks out among herds and flocks. Various objections have been offered against the adoption here of the Continental practice. On the one hand, it is argued that a power entrusted to public officers of destroying live stock, without indemnity to the proprietors, might be productive of gross injustice. On the other hand, a general offer of such indemnity on the part of the Government would probably be the occasion of gross imposition. But it would be possible, by judicious legislation, to steer between these evils. The only way of securing the extermination of the disease, after it has once appeared among us, is obviously by destruction of the infected animals; their actual value in their damaged condition must be inconsiderable, and it would be perfectly practicable to assess the compensation to which the owners would be fairly entitled. *Taurus, August 1.*

The facts which are hourly accumulating as to the present outbreak prove that the disease has been chiefly confined to herds which have been in direct communication with foreign stock, and this applies as much to cattle affected in the open fields as it does to those in the metropolitan cowsheds. Two outbreaks of a very severe kind have occurred in the Essex Marshes, where cattle have been grazing on pastures adjoining the lands of extensive cattle dealers. In one of these cases there is no reason to believe that any other cause can have operated in inducing the disorder. One of the earliest, if not the first of the outbreaks which have occurred in the metropolis occurred in Lambeth. A cowkeeper purchased no less than six weeks back two foreign heifers in the Metropolitan Cattle Market. They were taken home and placed with 14 others; and both not only took the disease, and nearly died, but communicated the malady in so severe a form that the whole 14 had speedily to be destroyed. A third case, which I may be permitted to refer to, illustrates how contagious diseases may be kept under control. A cow-feeder in Surrey purchased two German or Dutch cows early in July. He took them home and placed them in quarantine. Both sickened and died, but the standing stock of 30 animals still remains in perfect health. So far, then, as my experience goes in relation to the present outbreak there can be no doubt as to the propagation of the cattle plague through cattle purchased at the Metropolitan Cattle Market. From the ravages committed by the disorder for months past in the Austrian dominions, and especially in the Tyrol, not to mention Bavaria, Switzerland, and other countries, it is clear that certain parts of the Continent with which we have traded have **not been free from disease.** Polish, Hungarian, and Tyrolese **cattle are exposed in our market every week,** and it will be strange indeed if the herd or herds imported here in a diseased state have not left the seeds of disease on their journey from the distant lands whence they must have started. It is however, quite possible that cattle may have been trucked from Vienna to Berlin or Hamburg, or from the Rhenish provinces to Rotterdam, and have been shipped without coming in contact with the cattle of Holland, concerning the health of which at the present moment we know nothing. *John Gamgee, Principal of the Albert Veterinary College, 48, Pall Mall, S.W. August 2.*

The scientific side of the cattle disease is being fully, and I doubt not ably treated by your correspondents, Professor Gamgee and others; but there is another side to which it is also important that attention should be directed, and on which action should be taken. Whatever the result of this lamentable visitation may be, it is generally admitted that, high as **the price of meat at present is, it will be greatly enhanced in the course of another year, owing to the deficit in the number** of cattle and sheep. In spite of enormous importations, the general prosperity we have enjoyed during the last seven years **has led to a consumption in excess of our supplies.** Add to **this the dearth of feeding stuffs last year, not only in this** country but in Holland, from which we draw such large supplies—a dearth which necessitated the slaughter of immense numbers of cattle, to save "wintering" them—and the **cry can be easily understood that not a calf or a lamb ought to** have been killed for food this year. If, then, we go on slaying for consumption and suffering the exigencies of this disease at the same time, we are "burning the candle at both ends." What is the remedy? I say, follow up that which has been mooted, if not practised, in some parts of the country by "working men." Stop the consumption of meat for a time so far as convenience will allow. This, I am convinced, is the only plan to keep our stocks from a starvation price. Is the proposal a hardship? I say, No. Bread and all farinaceous food is cheap. Make shift for a month, while the weather is warm, upon such diet. **The "working man's" family can get seven** pounds of rice sweetened with a pound of treacle for the price of two pounds of meat, which is often unwholesome. What more palatable food could be desired, especially for young folks? I am not sufficiently "up" in the figures to say what a month's abstinence would produce, but it must be sufficient to place the article, in a market point of view, in quite a different position. *W. B. M.*

Home Correspondence.

Agriculture in Ireland (1743).—Watson's Dublin Almanack for the year 1743 contains lists of premiums proposed and given by the Royal Dublin Society in the two preceding years. That important institution (which had its origin in 1730 and was incorporated by Royal Charter in 1750) was associated "for the improvement of husbandry and other useful arts." It included amongst its original members many of the nobility and highest dignitaries of the Established Church, but not Jonathan Swift, the Dean of St. Patrick's, who was at that period in a state of hopeless imbecility. If his mental vigour had not departed, the propounder of the maxim, "He who makes two blades of corn grow where only one grew before is a benefactor to mankind" would most consistently have approved of some of the proceedings which I am about to notice. At the above period, and during several years afterwards, the system of pasturage prevailed to a vast extent, not only in the rude districts of the south and West of Ireland, but **even in some of the most fertile districts of the midland** counties, in which farms of great extent were held by **graziers who paid two or three thousand pounds of yearly rent. There was a statute existing then and** subsequently, enforcing the cultivation of not less than five acres in every hundred, under the penalty of 40*s.*, **but the Act was inoperative—"all the rich were** delinquents." A principal object was to promote tillage and the culture of Wheat more especially, as remedial of the evils of the grazing system, which so disproportionately prevailed even on dry calcareous loams, especially suited to the successful growth of cereals. The Royal Dublin Society awarded in 1742 premiums for crops of the preceding year's growth; for example, to A. B. 20*l.* for 100 acres of Wheat; to C. D. 15*l.* for 100 acres of Barley; Oats not alluded to. The produce of Wheat per acre appears in one or two instances to have been enormous—here are the words of the award: "To Mr. Matthew Yelverton, county Tipperary, 10*l.* for raising the greatest quantity of Wheat off one acre in 1742, viz., 668 st. 11½lb.," which, allowing 20 st. to the barrel, is above 33 barrels. In round numbers, the Irish acre, which produced the above amazing quantity, contains an acre and five-eighths statute measure. The English reader can see at once how much greater this weight of produce is than can be attained now in the corn-growing counties of England, with all the advantages afforded by modern science. There is no record in the prize sheet before me of the quantity of Barley obtained **from any given portion of land. The ley which had** been broken up for that astounding crop of Wheat abounded no doubt in *humus* and other elements of fertility, which could only be found in old pastures of prime calcareous loam; and such soil would have yielded abundantly many successive crops of cereals in favourable seasons. At the period in question there was no skill, nothing of experienced judgment, no considerations of prospective management, as to varieties or alternations of cropping. The introduction of Turnip husbandry seems, however, to have been contemplated, for there was a premium of 10*l.* given to the same Mr. Yelverton for sowing 54 acres with Turnips. This must have been a very rare or solitary instance of such culture at that period in Ireland, for we know that Turnips were not a field crop in Northumberland and the south of Scotland until forty years afterwards. On looking at the analogous premium sheets of the late Farming Society in 1819 I perceive that instead of offering temptations for breaking up Grass lands on a large scale without regard to the due proportion of cereals and other crops and without particular attention to the qualities of the respective sorts, that Society proposed premiums for the best Wheat of not less than 12 barrels to the Irish acre (little more than a third of Mr. Yelverton's proportion of yield in 1741) and so of proportional produce for the other cereals (Barley 20 barrels of 16 st., and Oats 20 barrels of 14 st.) and also premiums respectively to the importers and growers of the best seeds in defined quantities, distinguishing those of Irish growth and those sown broadcast from those sown in drills. The most remarkable facts deducible from the foregoing details are first, that a highly influential society of Irish land proprietors and large occupiers deemed it desirable to stimulate the farmers and graziers generally to break up the extensive leys which abounded in Scotland in 1741 and grow corn extensively; whereas, from the altered circumstances of the country, the present desire is to lessen the area of cultivated land and to increase the number of cattle and sheep, at least where soil and climate are quite favourable to their multiplication and support. Second, that the fertility of some of the pasture lands in Ireland was so great at the period referred to, as to have produced more than twice as much per acre as was estimated in 1820 to be the fair amount of produce in contested cases, as appears by the premium sheets of the Farming Society of Ireland of that date. We must suppose that the laying-down of lands, after a course of cropping, with good Grass seeds, or even with any sort of Grass seed, was not usual in Ireland in the middle of **the last century, from the evidence afforded by this** entry—"for sowing the greatest quantity of land with common hay seed, 10*l.*" There was, however, encouragement given for sowing the greatest quantity of land with Clover, Trefoil, Sainfoin, Lucerne, or Rye-grass. The common farmers left their broken land to Nature's work in producing indigenous Grasses. At the same **time premiums were offered for raising the greatest** quantities and best parcels of Hops. We may assume that the experiments in this instance were finally unsuccessful from the indisputable fact that the climate of Ireland is as unfavourable to the maturation of the Hop as it is to the ripening of the Tobacco plant. Whatever there may be of inconsistency in the legislation which prohibits in our free country the culture of Hops and Tobacco (excepting under an amount of enormous taxation), common sense tells us that the revenue arising from the duty on Tobacco will not be abandoned without the substitution of other taxes of equivalent amount. Besides, our home-grown Tobacco would be always inferior in quality to that produced in warm latitudes. Tobacco, except in special cases, is injurious to our bodily and mental vigour; it is to multitudes but a luxury or enfeebling indulgence, destructive of vital energy in the young, and, generally, more hurtful than healthful to adults. As an agricultural production it would be exhaustive of soil and exacting of undue proportions of **farm-yard manure without returning any measure of** equivalents to the soil. But the claims of Hop-growers for relief from taxation are clearly justifiable. Hops are almost indispensable for the perfect concoction of the national beverage, which is really one of the **necessaries of life to the great masses of the working people. Everything that can conduce to the brewing** of good and cheap beer, and a corresponding diminution in the use of ardent spirits, which are so destructive of life and productive of crime and misery, ought to be encouraged. *Martin Doyle.*

Agricultural Prosperity.—To obtain a good crop of Agricultural prosperity there must be deep and clean culture, not only of the soil, but also of the mind. The causes that have led to the present prosperity of this **country are so satisfactory, that other countries are** adopting our free and liberal measures with a view to increase their prosperity. These are facts of the greatest importance to Agriculturists, because they tend to create and increase a greater amount of activity throughout the world, yielding employment to all grades of society, and consequently creating wealth by which this great increase in labour can be well paid for; and this also tends largely to increase the consumption, and raise the price of Agricultural produce. Then, that the English farmers may share in common with others this increased prosperity, they should increase the production of the soil they occupy, and produce such crops as they can convert into the articles

that maintain the highest price in the home market,—namely, meat, butter, cheese, and wool; and by this mode of farming they will create manure on their farms for the reproduction of future crops. Then, with a view to diminish the cost of production, they should employ more steam and less horse-power, and they should also employ more machinery and implements, that they may require less of the present high-priced manual labour. The farmers should tell their labourers that free-trade in labour does not go well with parish protection, but they should deposit more of their earnings in the savings' bank, or become members of clubs, with a view to do all that they can to support themselves, independent of assistance from the parish. *B. Ransby, Perrysfield Farm, Oxted, Surrey, July 29th.*

Bromus Schraderi.—I observe in your Paper of the 22d ult. a paragraph on the Bromus Schraderi by Messrs. Stuart & Mein anent a comparative trial they have made on their experimental grounds on the merits of the Bromus and Italian Rye-grass, which upon paper, theoretically speaking, looks in favour of the Italian; but as practice and positive evidence are always preferable, and more to be relied upon than those small experiments, I ask you as a favour to allow the enclosed letter, which I have cut out of one of our local newspapers, a place in your next impression, and shall feel obliged, as I think it may be interesting to the agricultural community. You will herewith receive a sample of the Bromus seed direct from Australia, which you may give to any one who will give it a fair and unprejudiced trial. *Francis Somner, Kelso.*

To the Editor of the Kelso Mail.

"In your issue of February 6th, which I received by the last mail, I notice with pleasure a letter from Messrs. Stuart & Mein, seedsmen, under the above heading, which you had extracted from the *Scottish Farmer*, as having attracted the attention of agriculturists. Being engaged here in the seed trade on an extensive scale, and having a knowledge of the plant alluded to, perhaps a voice from this side of the world may prove of value to those of my countrymen who are endeavouring to produce two blades of Grass where originally but one grew. I hope you will allow me, through the medium of your paper, to make a few observations on this 'New Forage Plant.' The Bromus Schraderi was introduced into this colony about 12 years ago, under the name of Ceratochloa Unioloides, but is now commonly known as Bromus Unioloides or Californian Prairie Grass. The seed that first arrived here was a portion of what was said to be the first lot that had reached Great Britain; and, though the name is changed, I have reason to be perfectly satisfied that it is the same which is now called Bromus Schraderi or Schradus Brome Grass, having seen it grown side by side with a lot very recently imported. This Californian Prairie Grass of ours was, for several years after its introduction, in the hands of only a few individuals, who, perfectly aware of its capabilities as a pasture Grass admirably adapted to our hot climate, kept it quietly to themselves till six years ago, when I procured a small quantity of the seed, and had it distributed among the farmers around Melbourne, who, in their turn, found out the merits of the Grass, and now it is as commonly used as perennial or Italian Rye grasses are with you. It is found to stand the most severe droughts of our summer better than the majority of other Grasses, and will thrive on any soil except where there is a superabundance of moisture. It is capable of yielding two good crops of hay in a season, and at least three months' good pasture, which may seem a great deal in the eyes of our farmers, but it is nothing extraordinary here, where we are more troubled with hot winds than snow-storms. What may be the feeding qualities of this Grass in your climate, I cannot say; but here it takes the precedence of all others, and stock will walk over everything else to reach it, and will eat it down as close as they can bite. It is the first Grass in spring, the last in autumn, and has been almost the sole support of our dairymen's cattle through this, the most trying summer that has been experienced in Australia for many years. My experience of this Grass is not confined to Victoria, for in New South Wales I have seen it thriving to perfection, and have heard it talked of in that colony very highly by both farmers and squatters. In New Zealand also, where I introduced it, it does well, and is now getting into very general use. Even the most ancient Scotch farmers in Otago are now growing it, and they are not the men to leap before they look. We have this season shipped a trial lot of a few hundred bushels to London, and hope next season to send a much larger quantity; and, to conclude my remarks on the merits of your 'New Forage Plant,' I may tell you that, ere this season is over, I expect that our firm will have marketed at least three thousand bushels. Last year a parcel of seed was sent to Mr. Hugh Purves, steward to Mr. John Usher, jun., of Gatehouse Cote, who will no doubt have already tried it, and will be able to speak of its value. At the Agricultural show held here lately we gained the first prize for Prairie Grass seed, and at the request of the secretary sent a portion of it to the Dublin Exhibition, where it may be seen. I fully believe that being indigenous to a cold country it will be found to suit your Tweedside climate well; and I hope when I visit Kelso—the scene of my boyhood—to find that your agriculturists have taken a hint to their profit, and gone beyond mere experiments with an article which should long ago have been introduced in great quantity by your seedsmen. By this mail I send you a sample of a few ounces, which may be examined by those of your readers who are interested. Hoping you will allow the above a space in your columns,—I am, sir, yours faithfully, *William Somner, of Law, Somner, & Co., Seedsmen, Melbourne, Sydney, and Dunedin, British and Colonial Seed Warehouse, 87, Swanston Street, Melbourne, 25th April, 1865.*"

Reaping Machine Trials at Plymouth.—In your Paper of the 22d ult., you give an account of the trials of reapers, and state that our "well-known Screw Delivery Reaper made very good work." The list will show that the prize was awarded to a swathe delivery reaper by another maker; you will therefore, we are sure, allow us to state in your columns that our screw delivery reaper was not exhibited at Plymouth, and therefore did not compete, as erroneously stated in your report. *Burgess & Key.* [The performance described was that of a reaper, which we followed on Saturday morning in company with Messrs. Coleman, Caldwell, and Wortley, the Society's judges, up the far side and along the top of the piece of winter Oats. It was, we think, withdrawn at the end of the top journey owing to a failure there—but its performance up till that time had been satisfactory. It was tried we believe between Hornsby's and Crosskill's machines. We write all this from memory, as the memorandum to which Messrs. Burgess & Key call attention was written on the Wednesday after the trial. The words probably refer to their form of McCormick's sheafing reaper, of which we have a distinct recollection that the clearance of the platform at each revolution of the reel in front of the machine was effected more quietly and with less of a "flirt" or whip on to the ground than was observable on the American-made machine.]

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

Monthly Council: *Wednesday, August* 2, 1865, present, Lord Tredegar, President, in the chair, Lord Chesham, Major-Gen. the Hon. A. N. Hood, Mr. Arkwright, Mr. Raymond Barker, Mr. Cantrell, Colonel Challoner, Mr. Clayden, Mr. Brandreth Gibbs, Mr. Holland, M.P., Mr. Randell, Mr. Sanday, Mr. Shuttleworth, Mr. Thompson, Mr. Torr, Mr. Wells, Mr. Frere, and Professor Simonds.

Finances.—Major-Gen. the Hon. A. N. Hood, chairman of the committee, presented the report, from which it appeared that the Secretary's receipts during the past month had been examined by the Committee, and by Messrs. Quilter, Ball, & Co., the Society's accountants, and were found correct. The balance in the hands of the bankers on July 31, was 7497*l.* 16*s.* The Committee recommended that the money now on deposit (1000*l*) be withdrawn to meet the Plymouth expenses. This report was adopted.

Journal Committee.—Mr. Thompson reported that in Class II. the only Essay sent in was not considered deserving of the prize.

In Class V. the prize of 25*l.* is awarded to the Essay bearing the motto "Suum Cuique," written by Wm. Henry Heywood, Dunham Massey, Altrincham, Cheshire. The Essay 564, by W. T. Carrington, Hallington, Uttoxeter, is Commended.

In Class VII. the prize of 20*l.* is awarded to the Essay bearing the motto "Rufus," written by A. Bailey Denton, Stevenage. The Essay 566, by John Ewart, Bigg Market, Newcastle-on-Tyne, and 568, by Philip D. Tuckett, 76, Old Broad Street, are Commended.

In Class IX. the Prize of 10*l.* is awarded to the Essay bearing the motto "Anteveni, et subolum," &c., written by William Little, Bunker Hill, Lambton Fence Houses; and No. 576, written by G. Murray, Overstone, Northampton, is Commended.

The following list of subjects was recommended for Prize Essays for 1866:—

	£
1. County Essay, Worcestershire	50
2. ditto Leicestershire	50
3. Town Dairies, especially with reference to the Prevalence of Disease	25
4 Mountain herds of Sheep: pure or crosses	20
5. Leaves of Plants: power of resisting drought	20
6. Improvements of Waste Lands in connection with Mines	15
7. On the use to a Farmer of Magnifying Glass or simple Microscope	15
8. Any other Agricultural subject	10

Recommended that the Sorthorn, Hereford, and Devon Herd-books to the present time be purchased for the Library.

This report was adopted.

Veterinary.—The following are extracts from the report of the Governors of the Royal Veterinary College for the year ending 31st December, 1864:—

During this period all the means at the command of the College were kept in full operation, the lectures, demonstrations, chemical instructions, &c, being daily delivered so soon as the scholastic session commenced, viz., in the month of October, according to established custom.

The chief subjects treated of in the lectures on Cattle Pathology after the necessary introductory ones were the physical and vital properties of the blood, with the pathological changes it undergoes in inflammation and other morbid conditions of the body.

This section of the instructions included likewise a full description of the causes, symptoms, and treatment—prophylactic and curative—of the diseases commonly known as Redwater in cattle and sheep, Blackleg, or Quarter Garget, Splenic Apoplexy, Diabetes, Purpura, &c., together with the results of inflammation, such as effusion, suppuration, adhesion, ulceration, and mortification.

The number of pupils in attendance was larger than ordinary, no less than 58 "freshmen" entering between October and the commencement of the Christmas vacation.

The yearly increasing entries of pupils, with the extended instruction and more rigid examination, bid fair to elevate the profession, and to keep the country well supplied with scientific veterinary surgeons on whom the agriculturists can confidently rely at the time of need.

The Bovine animals admitted into the infirmary have afforded useful instruction of a practical nature, although the cases of disease have not been of any uncommon kind. One case, however, of disease of the eyeball, requiring the performance of a bold but delicate operation, very rarely had recourse to in the lower animals, was successfully undertaken, the result proving most satisfactory. Another complex case of disease of the womb, associated with an accumulation of purulent matter within the organ, also required a surgical operation, the performance of which was attended with the happiest result. These two cases are only alluded to for the purpose of showing that operations requiring an accurate knowledge of anatomy are among many others brought before the notice of the pupils, on which occasions every step of the process is fully explained to them.

The number of morbid specimens received from country veterinary surgeons and others has been fully equal to any former period of the like duration; and these also, according to the established custom, have been used for the benefit of the class. Many of them have possessed novel features, and as such, a selection has been made for publishing in the *Veterinarian* the particulars of the cases in which they occurred.

The Governors are fully alive to the necessity which exists for the strict investigation of every new or modified form of disease which may show itself among the animals of the farm, and they only require the cordial co-operation of the members of the Society to enable them to accomplish this desirable object, and apply the knowledge obtained to the practical advantage of the agriculturists themselves.

Many members of the Society continue to consult the Professor of Cattle Pathology in cases of serious outbreaks of disease; and the Governors have learnt with much satisfaction that his visits into the country during the past half year, for the purpose of studying the causes with a view of arresting the progress of disease as well as the instructions given for the treatment of infected animals have, as a rule, been followed by beneficial results.

In the report for last year mention was made of a series of experiments being instituted in order to elucidate much of the mystery which still surrounds the existence of parasites within the animal body. This intricate and important inquiry is still going on, and several of the facts arrived at, have already been used with advantage, both in freeing animals from parasites and in warding off their attacks.

The following letter from Professor Simonds was read, and directed to be published:—

"Royal Veterinary College, Aug. 1, 1865.

"To the Council of the Royal Agricultural Society.—I have to report that the disease which has recently made its appearance among cattle continues to extend its ravages, and that since my last report several more of the London dairies have become the seat of the malady.

"Besides this, the disease has also shown itself in different parts of the country, as for example, in Shropshire, Suffolk, Norfolk, and Sussex. In each of these instances, although the places are far removed from each other, the cause of the outbreak can be clearly traced to the introduction of animals in whose systems the disease was incubated. The facts I am in possession of give no support to the opinion that the malady has had a spontaneous origin in this country; but that it has been introduced from abroad by the importation of foreign cattle.

"I have also to report that I am in daily communication with the Government, who have adopted a system of inspection of the diseased cattle within the boundary of the Metropolitan police, to keep in check the progress of the malady; and which I have reason to believe will trasmit without delay some suggestions for the consideration of the Council, having the same object in view. Jas B. Simonds."

The Committee recommended the usual grant of 200*l.* to the Royal Veterinary College for the year 1865. This report was adopted.

It was moved by Mr. Holland, M.P., and seconded by Major-General the Hon. A. N. Hood, that the Veterinary Committee may meet (if summoned by the Chairman) from time to time between this meeting and the November Council, and that the Committee be empowered to take such steps as they may consider necessary in reference to the cattle plague and small pox among sheep.

Meeting at Bury in 1866.—It was arranged that the following members of the Bury Committee should proceed at once to Bury St. Edmunds and make arrangements, viz., Lord Tredegar, Sir Edward Kerrison, Mr. Brandreth Gibbs, Mr. Randell, and Mr. Sanday.

Show-yard Contract.—Mr. Randell presented the following report:—

Your Committee have to report, that acting upon the recommendation of the Surveyor at Plymouth, they agreed to purchase from Mr. Manning such offices and other articles as were well adapted to their several purposes, a list of which with prices annexed is appended to the Surveyor's report. It will be seen that certain offices are purchased for 457*l.*, the annual charge for the use of which has been (including cost of transit and fixing), 372*l.*; other things are purchased at a cost of 177*l.* 2*s.*, making the total 634*l.* 2*s.*

The charges for the use of the latter cannot be accurately stated, they have formed part of other charges; but as the annual cost of such of the offices as have been separately charged for has been 80 per cent. of value, it may be inferred that the Council have paid liberally for the use of the remainder. Carrying out the principle that the permanent offices should belong to the Society, the contract for next year should provide that the entrances (which we hope to see an improvement upon the old ones), the office for Council and Secretary, with any other building of the sort, which may be found necessary, shall be retained, thus leaving for future years only the temporary erections to be contracted for.

As no inventory of the Society's plant was to be had at Plymouth, your Committee requested Mr. Manning to have the whole, with that now purchased from him, carefully packed and removed to Bury St. Edmunds, furnishing the Council with an inventory of everything, which he promised to do. The Surveyor will attend to its disposal at Bury.

The Surveyor reports upon Mr. Manning's bill for work at Plymouth, that the portion to which the schedule of prices agreed upon in 1862 applies, amounts to 2976*l.* 1*s.* 4*d.*, the value being 2693*l.* 19*s.* 7*d.*, excess 282*l.* 1*s.* 9*d.*; other works not provided for by any agreement as to prices, 502*l.* 3*s.*, the value 380*l.* 10*s.* 8*d.*, excess, 121*l.* 13*s.*; supplemental bill 59*l.* 5*s.* 6*d.*, the value 43*l.* 5*s.* 6*d.*, excess, 16*l.*; total amount in excess of the value of work, including certain extra charges which should form part of measured work at stated prices, 419*l.* 14*s.* 9*d.*

Seeing, however, that the prices for the greater part of the work have been previously agreed upon, that for much of the remainder Mr. Manning has precedent to show, and for all the Council by the Secretary, have agreed to pay, it only remains to do so, and to hope that the new system may prove as advantageous in practice as it is sound in principle. To carry out this principle no time should be lost, and we recommend that the Surveyor be instructed to prepare plans and detailed specifications for the Show-yard works at Bury St. Edmunds, and that the Show-yard Contract Committee be empowered to settle such plans and specifications, and to obtain by advertisement, tenders thereupon, to be opened at the Council Meeting in November.

This report was adopted.

The following letter was received from the Privy Council:—

"Privy Council Office, Whitehall, Aug. 2, 1865.

"My Lord,—I am directed by the Lord President of the Council to transmit to your lordship the accompanying copy of an Order which has been issued by a committee of the Lords of the Council, and to request that you will have the goodness to lay it before the Royal Agricultural Society.

"Your lordship is probably aware that there has lately appeared in some of the dairies in and near London a disease amongst the cattle, closely analogous to, if not the same as, that which has of late years prevailed extensively in Russia, Austria, and the eastern parts of Europe, called the cattle

plague, being a species of typhoid fever. The loss of animals caused by it in those countries has been very serious Returns have been furnished to this office by which it appears that in 1864, 152,476 cattle were attacked by this disease in Russia, out of which 104,714 died. The powers vested by law in the Government, with respect to the diseases of cattle, are very limited; and, moreover, it does not appear that in countries where the Governments possess the amplest powers for dealing with cases of this kind, and where they have exercised those powers with great vigour, any signal success has attended their measures. The Lord President therefore thinks that it is upon the care and circumspection of individuals interested in the cattle trade that the chief dependence must be placed for precautions to be taken which may prevent the spreading of this formidable disease. It is of the first importance that all farmers, cowkeepers, or dealers in cattle, when purchasing new stock, should, for several days, not less than 12 or 14, keep their cattle apart from the rest of their stock, until in fact there is reason to think that the new purchases are free from this disease.

"If a farmer, cowkeeper, or salesman should be desirous to get rid of any animals suffering from the disease in question, or even any which may have been in close contact with animals suffering from that disease, it should be impressed upon him, as a public duty, that, at the present juncture, he should not send them to markets, or other places, where they would be brought into contact with other animals; but should cause them to be slaughtered at once; and thus do what he can to prevent the spreading of the disease.

"Particular attention should be paid to the cleansing of all yards, sheds, and other places where cattle are kept; and this cleansing should be especially insisted upon where there has been any manifestation of this disease. These places should be disinfected by the free use of chloride of lime or other allied compounds. It is also of great importance that all diseased animals should be as quickly as possible removed to as great a distance from the healthy as circumstances will allow; and all indirect, as well as direct communication be strictly prevented between them. The animals which are the most severely affected having at once been killed and buried, their skins may be preserved to the owner by being placed in a disinfecting fluid as soon as removed from the body.

"That it is advisable to kill the diseased animals at once is best shown by the circumstance that it rarely happens that where the disease is allowed to run its natural course, deaths are at a lower rate than 80 per cent., and also by the fact that every diseased animal is a continuous source of danger by disseminating the elements of the infection.

"I subjoin an account of the symptoms, which, according to Professor Simonds, of the Royal Veterinary College, who has paid particular attention both in this country and in Galicia, to the disease in question, are the usual characteristics of the malady.

"Professor Simonds states that, with the present amount of experience, no special plan of medical treatment can be laid down; but that it would appear that the disease is best combated by a free use of stimulants, conjoined with antiseptic agents, the strength of the animal being kept up by a liberal supply of Wheat, or oatmeal gruel, boiled Linseed, and similar dietetic agents.—I have the honour to be, my Lord,

"Your Lordship's obedient servant,

"The Lord Tredegar," &c. "Arthur Helps."

Description of the symptoms of the disease before referred to:—

"Variations in the earliest indications of the disease will be manifested, these depending somewhat on the severity of the attack, but more especially on the circumstance as to whether the digestive or respiratory system is the chief focus of the malady.

"As soon as the affection declares itself, the animal ceases to take any kind of food, and in most cases even refuses water. Rumination is suspended; and the animal stands with its head drooping and the ears drawn back. If made to move, it shows great prostration of strength, and frequently staggers as if about to fall. The skin is hot in places, and often remarkably so between the limbs, the hind ones in particular. An exudation early takes place from these parts, and is succeeded by cracks and sores. The hair is staring, especially along the upper part of the neck, shoulders, and back. The extremities are cold, even at the commencement of the disease—and in a latter stage, the increased heat of the surface of the body gives place to a remarkable coldness, especially along the course of the spine.

"Tears trickle from the eyes, which are red and expressive of suffering, and a watery discharge flows early from the nostrils. There is a continuous increase of these secretions, which become more or less purulent in the advanced stage of the malady. The mouth is hot, red, and 'furred,' often presenting here and there raw-looking spots, especially on the inner side of the lips and along the roof. The breath is fœtid. The respiration is increased, and generally accompanied with a moan in the advanced stages. A slight cough is also present in some cases. The pulse is quick and weak, and scarcely to be felt, excepting at the heart, even at the commencement of the disease.

"The bowels are sometimes torpid at the outset, but diarrhœa, leading to dysentery, mostly follows, the evacuations being slimy, liquid, and of a dirty yellow colour, occasionally tinged with blood. Tenesmus is likewise present as a rule. Slight tremors of the muscles of the shoulders and thighs are to be observed in some cases, and so also in an emphysematous condition of the skin along the upper part of the back. In milch cows the secretion of milk is quickly arrested, a remarkable diminution in the quantity taking place, as one of the early indications of the attack. As the disease advances towards a fatal termination, the prostration of the vital powers becomes more marked, the breathing short, quick, and more painful, the alvine evacuations fœtid and more slimy, and the surface of the body deathly cold. The animal will sometimes sink as early as 12 hours from the commencement of the attack, but in many cases the disease will be protracted to the fifth or sixth, and occasionally to the eighth or ninth day.

"The period of incubation of the disease is found to vary, the majority of animals sickening on the tenth day after exposure to the infection, but some have been attacked on the seventh day."

This letter having been read, it was moved by Mr. Thompson and carried that the thanks of the Council be given to the Lord President, for the communication with which he has favoured them on the subject of the Cattle Plague, and that his lordship be requested to give instructions that any further information that the Government may receive on this subject may be communicated to the Secretary of the Royal Agricultural Society as early as possible, with a view to its immediate publication.

The usual leave of absence was granted to the Secretary, and the Council then adjourned over the autumn recess to Wednesday, the 1st of November.

HIGHLAND AND AGRICULTURAL.

Inverness: *August* 1.—No better instance of how improvement in farming has been going on in Inverness-shire could be given than the statistics of the Highland Society's shows held in that place. The first show was in 1831, the 10th, we believe, that the Society had undertaken, when 198 cattle, 90 horses, 129 head of sheep, and 11 swine were shown. The number of implements exhibited amounted only to four—a clear indication that farmers in this locality had not thought of discarding the rude implements with which their forefathers scratched the ground. The sum given away in premiums was 318*l*. Eight years after, another Highland Show was held in Inverness, by which time the Society was able to more than double the sum for prizes, offering 744*l*. This called forth 302 cattle, 93 horses, 445 sheep, and 43 pigs, and the implements had crept up to the number of 24, mechanism on the farm being still unappreciated.

In 1846 the Society again pitched its tents in Inverness, when there were 428 entries of cattle, 112 of horses, 357 of sheep, and 33 of swine; and for the first time in the history of the Society, 76 head of poultry were penned; but the number of implements still did not rise higher than 59. The prize money offered was 1050*l*. It was not until the lapse of another decade that the Show came round to the capital of the Highlands. On this occasion only 248 cattle came forward, but the horses had increased to 131; 469 sheep were exhibited, 43 swine, and 156 poultry. The enterprise of implement and machine makers was now beginning to tell upon farmers, and in all 231 articles appeared in the showyard. The premiums given by the Society were this year less by 50*l*. than in 1846.

The cattle entered at the present Show are more than 100 in excess of 1856, but they fall nearly 70 short of what they were in 1846, the number being 361. The horses are one more than at the previous show; the sheep are nearly double the number they have ever been—viz., 812. There are 43 swine, 294 head of poultry, and there is a new class opened for shepherd's dogs, and 11 collies are to come forward to receive their due reward. The premiums this year amount to the sum of 1350*l*. Thus, in less than 30 years the exhibition has more than doubled its numbers so far as cattle are concerned—nearly one half greater in regard to horses—more than six times in sheep—four times in swine—while the implement list is about 200 times as extensive.

At present we can only say in general terms that Short-horns were a full and interesting class. Of the 18 aged bulls, 16 were present, and many superior animals among them. The 2-year-olds were also a superior class, and the young bulls were both numerous and good. It may be mentioned that Lord Kinnaird's bull, which was placed second at Cupar, was here 1st, beating his rival there, as we predicted he would. The female classes were well represented, and in particular may be mentioned the heifers. The polled classes contained some first-class animals, prize-takers in many previous shows. In the Highland classes many of the best breeders of this picturesque race of cattle were represented. Ayrshires were not so numerous, but those shown by the Duke of Athole were particularly excellent.

The horses were, generally speaking, of a good quality. The Leicester sheep, especially tups, were of superior merit, and as proof of this it may be mentioned that the judges spent about an hour and a-half over them; the Cheviot 1st prize animals were all good, but the others were only middling. The black-faced sheep were a prominent feature in the show.

The following is the prize list:—

CLASS I.—CATTLE.

Shorthorn.

Section 1. Bulls calved before 1st January, 1863.—1st, James Geddes, Orbliston, Fochabers; 2d, Andrew Longmore, Rettie, Banff; 3d, Silvester Campbell, Kinellar, Blackburn, Aberdeen.

Section 2. Bulls calved after 1st January, 1863.—1st, The Duke of Buccleuch and Queensberry, K.G.; 2d, Arthur James Balfour, of Whittingham, Prestonkirk; 3d, Viscount Strathallan.

Section 3. Bulls calved after 1st January, 1864.—1st, Lord Kinnear, K.T.; 2d, Henry Gray, The Mains, Cushnie, Alford, Aberdeenshire; 3, Viscount Strathallan.

Section 4. Cows of any age.—1st, Viscount Strathallan; 2d, Silvester Campbell, Kinellar, Blackburn; 3d, David Ainslie of Costerton, Blackshiels.

Section 5. Heifers calved after 1st January, 1863.—1st, Andrew Longmore, Rettie; 2d and 3d, William Stephen, Inchbroom, Elgin.

Section 6. Heifers calved after the 1st January, 1864.—1st, Lord Kinnaird, K.T.; 2d, The Duke of Richmond; 3d, James Geddes, Orbliston.

Highland.

Section 7. Bulls calved before 1st January, 1862.—1st, The Duke of Athole; 2d, Duncan Macpherson, Kingussie; 3d, Robert Peter, Urlar, Aberfeldy.

Section 8. Bulls calved after 1st January, 1862.—1st, Allan Pollok, Ronachan, Clachan, Cantire; 2d, A. C. Campbell of Monzie, Kinloch Lodge, Fort William; 3d, John Stewart, Duntulm, Portree.

Section 9. Bulls calved after 1st January, 1863.—1st, The Duke of Athole; 2d, Alexander Fraser, Faillie, Inverness; 3d. The Duke of Athole.

Section 10. Cows of any age; 1st and 2d, The Duke of Athole; 3d, John Malcolm, of Poltalloch, Callton Mor, Lochgilphead.

Section 11. Heifers calved after 1st January, 1862.—1st, Allan Pollok, Ronachin; 2d, John Stewart, Duntulm, Portree; 3d, John Malcolm, of Poltalloch, Callton Mor, Lochgilphead.

Section 12. Heifers calved after 1st January, 1863.—1st, John Malcolm, of Poltalloch, Callton Mor, Lochgilphead; 2d and 3d, Robert Peter, Urlar, Aberfeldy.

Polled Angus, Aberdeen, and Galloway.

Section 13. Bulls calved before 1st January 1863.—1st, William M'Combie, Tillyfour, Aberdeen; 2d, Robert Walker, Hillside House, Portlether, Aberdeen; 3d, Alexander Morison, of Bognie, Mountblairy House, Turriff.

Section 14. Bulls calved after 1st January 1863.—1st, William M'Combie; 2d, John Collie, Ardgay, Forres; 3d, Thomas Lyall Shielhill, Kirriemuir.

Section 15. Bulls calved after 1st January 1864.—1st, John Collie; 2d, O. R. Lyall Grant, of Kingsford, Alford, Aberdeenshire; 3d, W. J. Taylor, Rothiemay House, Huntly.

Section 16. Cows of any age.—1st and 2d, William M'Combie; 3d, Robert Walker.

Section 17. Heifers calved after 1st January 1863.—1st and 2d, William M'Combie; 3d, Lord Kinnaird.

Section 18. Heifers calved after 1st January 1864.—1st, William M'Combie; 2d, Robert Walker, Montbleton, Banff; 3d, John Collie.

Ayrshire.

Section 19. Bulls calved after 1st January, 1862.—1st, John Stewart, Burnside Cottage, Strathaven: 2d. Robert Wilson, Nether Johnstone, Kilbarchan; 3d, premium withheld.

Section 20. Cows in milk, of any age.—1st, 2d, and 3d, the Dowager Duchess of Athole.

Section 21. Cows in calf, of any age.—1st, 2d, and 3d, the Dowager Duchess of Athole.

Section 22. Heifers calved after 1st January, 1863.—1st, John Stewart, Burnside Cottage, Strathaven; 2d, William Dunn, of Dalmare, Tarbolton; 3d. the Duke of Hamilton and Brandon.

CLASS II.—HORSES.

For Agricultural Purposes.

Section 1. Stallions foaled before 1st January, 1862.—1st, Samuel Clarke, Manswrae, Kilbarchan; 2d, James Muir, Hardington Mains, Wiston, Biggar; the Dowager Duchess of Athole, Dunkeld.

Section 2. Entire Colts foaled after 1st January, 1862.—1st, David Riddell, Kilbowie, Duntocher; 2d, Andrew Wilson, Whiteside, Alford; 3d, William Murray, Kilooy, Redcastle, Killearnan, Inverness.

Section 3. Entire Colts foaled after 1st January, 1863.—1st, Samuel Clark, Manswrae, Kilbarchan; 2d, David Riddell, Kilbowie, Duntocher; 3d, James Kay, Hill Farm, Gargunnock.

Section 4. Entire Colts foaled after 1st January, 1864.—1st, Robert M'Kean, Lumlock, Bishopbriggs; 2d, The Duke of Hamilton and Brandon.

Section 5. Mares (with Foal at foot), foaled before 1st January, 1862—1st, Peter Beattie, Insch, Aberdeenshire; 2d, John Hendrie, Castle Leathers, Inverness; 3d, The Dowager Duchess of Athole, Dunkeld.

Section 6. Mares (in foal), foaled before 1st January, 1862.—1st, J. N. Fleming, Kilkerran House, Maybole; 2d, Alexander Buchanan, Garscadden Mains, New Kilpatrick.

Section 7. Fillies foaled after 1st January, 1862.—1st, The Duke of Hamilton and Brandon; 2d, Alexander Murdoch, Hilton, Bishopbriggs; 3d. Alexander Stewart, Bog of Cawdor, Nairn.

Section 8. Fillies foaled after 1st January, 1863.—1st, David Riddell, Kilbowie, Duntocher; 2d, Alexander Buchanan, Garscadden Mains, New Kilpatrick; 3d, J. N. Fleming, Kilkerran House, Maybole.

Section 9. Fillies foaled after 1st January, 1864.—1st, Archibald Johnston, Lochburn, Maryhill, Glasgow; 2d, J. N. Fleming, Kilkerran House, Maybole; 3d, Hugh A. Gair, Hilton, Inverness.

Ponies.

Section 10. Pony Stallions, not exceeding 14 hands.—1st, The Duke of Athole: 2d, Charles Hope Johnston, the Hewk, Lockerbie; 3d. Donald MacLeod, Coulmore, Inverness.

Section 11. Pony Mares, not exceeding 14 hands.—1st, John Baillie Baillie, of Leys, Inverness; 2d, Fountaine Walker, of Foyers, Muirtown, Inverness; 3d. Hugh Mackenzie, of Dundonnel, Ullapool.

CLASS III.—SHEEP.

Leicester.

Section 1. Tups not above Four shear.—1st, David Ainsley, of Costerton, Blackshiels; 2d, Arthur James Balfour, of Whittingham, Prestonkirk; 3d, Henry A. Rannie, Mill of Boyndie, Banff.

Section 2. Dinmont or Shearling Tups.—1st, William Purves, Linton Burnfoot, Kelso; 2d, George Torrance, Sisterpath, Dunse; 3d, George Simson, Courthill, Kelso.

Section 3. Ewes not above Four-shear.—1st, David Ainslie, of Costerton, Blackshiels; 2d, John Garland, Cairnton, Fordoun; 3d, Thomas Ferguson, Kinnochtry, Coupar-Angus.

Section 4. Shearling Ewes or Gimmers.—1st, George Simson, Courthill, Kelso; 2d, William Purves, Linton Burnfoot, Kelso; 3d, David Ainslie, of Costerton, Blackshiels.

Cheviot.

Section 5. Tups not above Four-shear.—1st, James Brydon, Moodlaw, Langholm; 2d, James Brydon, jun., Kinnelhead, Moffatt; 3d, James Brydon, Moodlaw.

Section 6. Dinmont or Shearling Tups.—1st, 2d, and 3d, James Brydon, Jun., Kinnelhead, Moffat.

Section 7. Ewes not above Four-shear, with Lambs at foot. Best Pen of Lambs, Silver Medal.—1st, James Brydon, Moodlaw; 2d, Sir G. Graham Montgomery of Stanhope, Bart., M.P., Stobo Castle, Peebles; 3d, Robert Shortreed, Attonburn, Kelso.

Section 8. Shearling Ewes or Gimmers.—1st, Sir Graham Montgomery of Stanhope, Bart.; 2d, James Brydon, Moodlaw; 3d, John Archibald, Glengelt, Lauder.

Blackfaced.

Section 9. Tups not above Four-shear.—1st, Thomas Murray, Eastside, Penicuik; 2d, John Archibald, Overshiels, Stow; 3d, Allan Cunningham Pagan, Innergeldie, Comrie, Crieff.

Section 10. Dinmont or Shearling Tups.—1st, 2d, and 3d, John Archibald, Overshiels, Stow.

Section 11. Ewes not above Four-shear, with Lambs at foot. 1st, John Malcome, of Poltalloch, Callton Mor, Lochgilphead; 2d, Allan Cunningham Pagan, Innergeldie, Comrie, Crieff; 3d, James M'Pherson, Drumore, Ardersier.

Section 12. Shearling Ewes or Gimmers.—1st, Thomas Murray, Eastside, Penicuik; 2, John Archibald, Overshiels, Stow; 3d, John Malcolm, of Poltalloch, Callton Mor, Lochgilphead.

Southdowns.

Section 13. Tups not above Four-shear.—1st, James Bruce, Burnside, Fochabers; 2d, D. R. Williamson, of Lawers, Crieff; 3d, Robert Scot Skirving, Camptoun, Drem.

Section 14. Ewes not above Four-shear, or Gimmers.—Robt. Scot Skirving, Camptoun, Drem; 2d, Jas. Bruce, Burnside, Fochabers; 3d, Robert Scot Skirving.

Long-wooled other than Leicester.

Section 15. Tups not above Four-shear.—1st, Thomas Beale Browne, of Salperton Park, Andoversford, Gloucestershire; 2d, Walter Reid, Drem; 3, Thomas Beale Browne.

Section 16. Ewes not above Four-shear, or Gimmers.—1st, Thomas Beale Browne, of Salpertown Park, Andoversford, Gloucestershire; 2d, John Gibson, Woolmet, Dalkeith; 3d, Robert Scot Skirving.

Short-woolled other than Southdown.

Section 17. Tups not above Four-shear.—1st, Andrew Ralston, for the Glamis Trustees, Glamis House, Glamis; 2d and 3d John Gibson, Woolmet, Dalkeith.

Section 18. Ewes not above Four-shear, or Gimmers.—1st, Andrew Ralston, for the Glamis Trustees, Glamis House; Glamis; 2d, John Gibson, Woolmet; 3d, Andrew Ralston, for the Glamis Trustees, Glamis.

Cross.

Section 19. Shearling Wethers of any Cross.—1st, John Hunter, Dipple, Fochabers; 2d, Alexander Ronaldson, Little

Gight, Methlic; 3d, Sir Alexander P. Gordon Cumming, of Altyre, Bart., Forres.

Section 20. Lambs of any Cross.—1st, A. and A. Cowan, 5, Bridge Street, Inverness; 2nd, Edward Tew, Coul Cottage, Alness; 3d, John Ferguson, East Grange, Eorres.

CLASS IV.—SWINE.

Section 1. Boars, large breed.—1st, Andrew Ralston, Glamis; 2d, James Reid, Lunatic Asylum, Elgin; 3d, Donald Cameron, of Lochiel, Achnacarry Castle, Fort William.

Section 2. Boars, small breed.—1st John Laing, Glendeuglie, Milnathort, Kinross; 2d, William Stephen, Inchbroom, Elgin; 3d, Colonel William Fraser Tytler, of Aldourie, Inverness.

Section 3. Sows, large breed.—1st, Thomas D. Findlay, Easter Hill, Glasgow; 2d, Captain A. M. Clarke, Meddat, Parkhill, Inverness; 3d, The Duke of Hamilton and Brandon.

Section 4. Sows, small breed.—1st, John Laing, Glendeuglie, Milnathort, Kinross; 3d, Alexander Simpson, Seafield, Inverness.

Section 5. Pens of 3 Pigs, not exceeding 8 months old, large breed.—1st, The Duke of Hamilton and Brandon; 2d, Lord Kinnaird, K.T.

CLASS V.—SHEPHERD'S DOGS.

Section 1. Dogs not exceeding 6 years old.—1st, Henry Little, Hunters' Hall, Lauder, dog, black; 2d, James Macbean, Birnsdale, Fort Augustus, dog, black, age 2 years.

Section 2. Bitches not exceeding 6 years old.—John Sinclair, Kintessack, Forres, bitch, age 10 months.

MEETING OF THE COMMITTEE AND JUDGES.

A meeting of committee and judges was held in the Committee Room on the show ground at 4 A.M. on Monday. There was a numerous attendance, including Lord Lovat, chairman of the local committee, who presided.

Lord Lovat having called upon the Secretary of the Society to make a statement as to the arrangements regarding the show,

The Secretary said that perhaps before he went into any little details in regard to the arrangements for the following and other days, he might state what now exactly represented the statistics of the show. There were 361 head of cattle, 132 horses and ponies, 812 head of sheep, 43 head of swine, 11 collie dogs, 294 head of poultry, and 707 implements, which, taken all and all, formed a very great show. The implements, of course, were less than at shows further south, but they were vastly in excess of anything ever seen in Inverness. He was very happy to repeat what he had stated at a smaller meeting of the committee held in June—that every contract had been entered into and made with men belonging to Inverness. Not a farthing of the money collected in the district, and handed to the Society, went into the pockets of strangers, but everything, from the showyard, which was the greatest contract, down to the smallest, had been done by Inverness people; and he was bound to say this, that though there had been shortcomings—in respect that a showyard like this was a new thing in Inverness, and involved a great deal of details—notwithstanding these shortcomings he was bound to say that the contractors for the yard and the other contracts had made up for these shortcomings by their readiness to admit them, and their willingness to remedy them as far as in their power.

Abridged from Scottish Farmer.

Yorkshire: *Aug.* 2.—The general show-yard opened yesterday, and although the rain fell early in the day, it cleared off, and the morning was fine, though occasionally threatening.

The show goound is very convenient to the town, and is 17 acres in extent, adjoining Nether Hall. The visitors on entering had a full view of the show before them. The stock (horses, beasts, sheep, and pigs) occupied a line of tents stretching across the entire ground; lower down still, and in a parallel line, were the horse ring and the ring in which to exhibit the cattle; implements, threshing-machines, &c., occupying the left-hand space, whilst at the other extremity of the ground the boxes for stables were fitted up in an enclosed yard away from the noise of the threshing machines.

The Council met at 11 o'clock to receive deputations from towns desirous of receiving the meeting next year, and it was decided in favour of York. Applications were not made from any other towns in the county.

The annual meeting of the Council was held at noon, under the presidency of his Grace the Duke of Devonshire, K.G. The Hon. Admiral Duncombe, M.P., was appointed President next year. The Duke of Devonshire took Admiral Duncombe's place as Vice-Chairman.

The prizes for implements were awarded to-day. Messrs. Fowler, of Leeds, took the First-class Medal; Messrs. Ransome & Sons, Ipswich, Second-class Medal; Marshall, Sons, & Co., Gainsborough, the 1st prize of 50*l.* for thrashing machine; S. Rovey & Co., Leeds, 2d prize, 20*l.*, for thrashing, shaking and dressing machines; Messrs. Ashby and Jeffrey, Lincoln, the Silver Medal; Mr. Allen, 20, Parliament Street, Westminster, First-class Medal; Mr. John Plant, of Burley, Sheffield, the Second-class Medal. Several other prizes of smaller amounts were awarded.

The show of live stock was as good as it was extensive, and every department in cattle, sheep, horses, and pigs, was well filled. First prizes for best Short-horned bulls were awarded to Viscount Strathallan, of Strathallan Castle, Auchterarder; Mr. Jno. Taylor, of Moreton Whalley, Lancashire; and Mr. J. H. Fawkes, of Farnley Hall, Otley. For the best bull calf, to Mr. G. S. Foljambe, of Osberton Hall, Worksop; for the best cow, to Lord Feversham; for the best heifer under 3 years old (Silver Cup, value 25*l*), to Mr. T. Booth, of Warlaby, North Allerton; for the best heifer under 2 years old, to Lord Feversham; and for the best heifer calf, to Mr. G. S. Foljambe. Lord Londesborough carried off a 1st prize for his dairy cow.

First prizes for Leicester Sheep were adjudged to Mr. J. Barton, Barton House, Malton; Mr. W. Angus, Neswick, Driffield; for Lincoln and other long-woolled sorts, not qualified to compete as Leicesters, to Mr. T. B. Marshall, Branston, Lincoln; and Mr. R. C. Workman, of Almhome, Doncaster; for short-woolled sheep to Lord Wenlock, Escrick, York; and Mr. Jas. Brown, Rossington, Bawtry; and for extra stock (with a Silver Medal), to Mr. J. Simpson, Spofforth.

First prizes for Pigs were conferred on Mr. W. B. Wainman, Carhead Crosshills, Leeds; Mr. John Dyson, Dock Street, Leeds; Mr. G. Mangles, Givendale, Ripon; Lord Wenlock; Mr. R. E. Duckering, Northorp, Kirton-in-Lindsay; Mr. Walton, Foundry Street, Halifax; Sir G. O. Wombwell, Newburgh Park, Easingwold; Mr. John Dyson, Adelphi Hotel, Leeds; Mr. W. Parker, Golden Lion Inn, Bradford; and Mr. S. Wiley, Brandsby, York.

The great feature of the exhibition was, however, the magnificent collection of horses. The best prizes for stallion hunters were awarded to Mr. J. Peacock, North Holme, Oswaldkirk, York, and Mr. James Smith, Hut Green, Pontefract. Stallion coach-horses to Mr. John Johnson, Brigham, Driffield. Stallion roadsters to Mr. W. H. Brown, Beltoft, Bawtry. Agricultural stallions to Mr. W. Simpkin, jun., Lowthorpe, Hull. Brood mares (hunters) to Mr. W. Tindall, Wheatley, Doncaster. Brood mares (roadsters) to Mr. W. Charlesworth, Netherton, Wakefield. Agricultural brood mares to Mr. W. Tennant, Barlow, Selby. Hunting geldings to Mr. Thomas Dawson, Poundsworth, Driffield; Mr. W. H. Clark, Hook, Howden, and Mr. Everatt, Doncaster; Mr. M. Kidd, Tadcaster, and Mr. R. J. Bentley, Bawtry. Hunting fillies to Mr. J. D. Wightman, Sutton House, Malton. Coaching geldings to Mr. R. J. Bentley and Mr. J. S. Darrell, West Ayton, Scarborough. Coaching fillies to Mr. J. Jackson, jun., Great Ayton, Stokesley. Agricultural geldings or fillies to Mr. Enoch Hodgkinson, Morton Grange, Retford; and Roadster geldings or fillies to Mr. Christopher Lofthouse, Tadcaster.

Reviews.

The Veterinary Review and Stockowners' Journal. No. VII. Published Monthly. Edited by Professor J. Gamgee. Simpkin, Marshall, & Co.

The present number, in addition to much technical and professional matter, contains a good deal that is more generally agriculturally interesting. The papers on agricultural statistics, and palm-nut meal as a feeding cake, are extracted from the Journal of the English Agricultural Society. There is a defence of the proposed Albert Veterinary College, and a reference to the transference of the Edinburgh New Veterinary College, which is about to migrate southwards and assume the new title. The following is a criticism by Mr. Joseph Gamgee, sen., of the Modes in vogue of Awarding Prizes at Agricultural Associations to Horse-shoers:—

"It is impossible to deny, with truth, the lamentably unsatisfactory state of the art of horse-shoeing throughout this kingdom; and it is discouraging to see, as is the fact, that for many years past the faults of commission have produced more positively injurious effects than those of omission had ever done, so far, at least, as the state of matters can be ascertained now.

"Failing to devise a rational system of horse-shoeing, and neglecting to follow the methods pursued in other countries, the subject has been treated in England as quite an open question. Jack was as good as his master; amateurs and adventurers tried their hands; while confusion became more and more confounded. Within the last seven years, what have, by courtesy, been called 'prizes to horse-shoers,' have been set on foot in some localities; conspicuous, in particular, has been 'The West of England Agricultural Society.' And to show the position in which the horse-shoer is placed, and the exhibition made of the art of farriery, the following paragraph, taken from a London weekly sporting paper, is produced. The passage quoted is given, assumedly, on authority:—

"'*Bath and West of England Agricultural Society.*—A novelty in Wednesday's proceedings (as the competitive sheep-shearing was on Monday) was the horse-shoeing at portable forges, and as it is unfortunately true that nine out of ten cases of foot lameness arise from bad shoeing, the Society has done well in thus attracting public interest to the question. When will the village smith understand that, instead of paring and rasping a horse's foot to fit a shoe, the iron shoe should be made to fit the foot, with an equable bearing all round from heel to heel, just as he likes a leather shoe to sustain and accommodate his own sole with ease and comfort? When will he admit that an elastic hoof requires the placing of the nails so that the inner heel may expand under weight? The trial was conducted as follows—The smiths drew lots for the number of the forge, the number of the horse, and the foot to be shod. Each man then made his shoe and the requisite number of nails, the time occupied being from 20 to 30 minutes; and after inspection by the judges the shoes were fitted and nailed on, the time occupied by each man being noted. The principal points of the performance consist of the time taken to construct the shoe, the level form of the shoe, the situation of the holes and what is called the fullering, the proper and even-seating of the shoe, the preparation of the foot, the fitting of the shoe, the nailing on, and the time occupied in each of the several operations.'

"The above shows, better than any words of mine can convey, the degraded state in which this important art is at the present time—an art second to few, if any, for the breadth of its application, equally important in its operation, and difficult of acquisition. The craft of farriery has all the attributes, if it were properly cultivated, of a science and an art; and yet here we have the disgusting spectacle of seeing the sheep-shearer and horse-shoer placed in the same category, exhibiting their physical powers, respectively, at clipping, nail-making, hammering, and paring; and if perchance there had been a prize for pork butchers, then there would have been additionally—sticking.

"In no other country in Europe could such a proclamation be found, in proof of a wide-spread ignorance on that important subject — horse-shoeing — lamentably illustrative of the state of matters.

"Instead of a well-founded system for the instruction of farriers, here we have the patronising display of doling out some 10*l.* between a number of men, coming from distant places, to perform certain acts according to prescribed procedure, dictated in the absence of rational guidance, and without practical rules, on the subject; all has to be tested, not by manner, but by time. Poor horses! and oh! for the honour of veterinary medicine, Napoleon le Graud called the English a nation of shoe-keepers. I don't know for why; but if an agricultural society of France were to treat the question of horse-shoeing in the way we see carried out in England, with an evident catering for approval, their standard would soon be lowered.

"These 'prizes for horse-shoers' serve for a display and to see a few poor men working and sweating, in the absence of anything to raise their minds to the real worth and the important nature of their calling. The trifle gained by the two or three most successful, after the exhilaration of the evening, may perchance suffice to buy the wife a gown, and the children a pair or two of shoes; while the poor man himself, left in ignorance, becomes puffed up as the best horse-shoer of his neighbourhood. So much for best; if they only hit the standard, the relative position would not be coveted.

"Enough of alternately leading and driving the English horse-shoer from one series of errors to another. Let these men be instructed, and they are as capable and as willing as other men of being taught to think; but, misguided as they have been, the men and their calling are lowered in the eyes of the world.

"It would be a reasonable service if the men and their directors were made to change places! no man can instruct another in a branch of knowledge he never learnt himself. When will Englishmen be led to understand that the feet are to horses what brains and hands together are to man—everything?"

Farm Memoranda.

[We take advantage of the immense body of agricultural evidence lately taken before the Hypothec Commission at Edinburgh to publish such extracts from it as will unveil the existing style of Scottish agriculture, and the enterprise and energy of Scottish agriculturists.]

1. Southfield, Mid-Lothian: *Mr. William Gray.*—My farm is about 200 acres (Scotch), or 250 imperial acres; and I pay from 1000*l.* to 1200*l.* of rent. The farm is entirely arable. I never felt any inconvenience personally from the law of hypothec. I think it operates prejudicially to the interests of agriculture—both to landlord and tenant. I think it has a tendency to raise unduly the rent of land, by bringing in as competitors tenants who have not sufficient capital. It makes a landlord not so select with his tenants, because he knows that he has a prior claim over all other creditors. I think that is unfair to men possessed of capital, who engage in the profession of farmers. The practice of agriculture ought to be limited to men who have sufficient capital for the land they farm. The amount which they expend on draining, cleaning, and manuring, and general permanent improvements, is a considerable security to the landlord as compared with other creditors. A tenant ought to have sufficient capital to make these improvements, and to pay his rent. If I enter on a farm, and invest in it 3000*l.* of my own capital, and give my name to a lease, and pay my rent at these terms, I don't see what further security the landlord requires. I have spent sometimes on my farm 850*l.* a year for manure. In the first two or three years after my entry I also spent 500*l.* on draining. I look on these as securities which the landlord has, and which the tenant cannot take away. My average annual expenditure on manure is from 600*l.* to 700*l.* I pay cash for my guano, &c., but town manure we generally buy at six months' credit. Generally speaking, the manure used for crop 1864 is paid before Martinmas 1864. I think the hypothec should be abolished at once, without reserving the rights of parties under existing leases.

2. Woolmet, Todhills, Newhailes, and Dean and Blinkbonny, Mid-Lothian: *Mr. John Gibson.*—These farms extend to about 750 imperial acres, and, on the average of the last seven years, I have paid a rent of 2634*l.*,—sometimes much higher. My farms are all arable, but I have always had a proportion of them in pasture. They have all a Martinmas entry. The usual term of payment of rent for two of the farms is at Martinmas, a year after entry; and for the other two at Candlemas, a year and three months after entry. My strongest objection to the law of hypothec is, that it creates an unfair competition for farms. Besides that, it brings in a class of tenants who cannot do justice to the landlord or to the public. I decidedly think, and always have thought, that it is prejudicial to the progress of agriculture. I think Scotland, as an agricultural country, would have prospered more if there had been no law of hypothec—it certainly would have done so since the repeal of the Corn Laws. I think both landlords and respectable tenants would have derived benefit from its abolition. A very large proportion of the class of tenants, which many landlords have taken, could not continue in their farms; and in consequence of being short of means, they could not cultivate their farms in the same way that a tenant with

plenty of capital would have done. That deteriorates the land; and the landlords would probably suffer when these tenants left the farms, because the next tenant would not offer anything like the rent which he would have done, if the former tenant had had sufficient capital to manage the farm properly. My opinion is, that the class of tenantry in many districts of Scotland has been deteriorating for the last 30 years. In the district with which I am familiar, they have changed very much for the worse in respect of capital. I would also say that there has been a very large proportion of tenants who never were bred to farming, many of whom have gone to the wall in my time. Many of these have been men of capital, but wanting experience and practice. There is no doubt that very great progress has been made in agriculture during the last 10 years; but my opinion is, that in regard to capital, though not at all in regard to character, farmers have very much deteriorated within the last 20 years. A great change has taken place of late years in the expense of farm management, with regard to feeding stuffs and artificial manures. There are few tenants in the district in good credit, who do not find their accounts for these amount annually to more than the rent paid for the land, and in many cases to much more. It is not every one who is in a position to follow up the great improvements which have taken place in agriculture, and a very large class of farmers have fallen in consequence. For the last two or three years, and particularly with reference to the crop of 1862, there has been a great trenching on capital; and I believe that there are very few tenants who will not agree with me in this, that almost all the rent of 1862 had to be paid from capital. If the law of hypothec had been abolished, and landlords had insisted upon fore-rents, I don't think that tenants would have been rouped out of their farms in consequence of that, because, if they could pay fore-rent, they would not be put into that awkward position in one year. If there was a series of bad years, and the tenant was unable to pay his rent, the landlord might roup him off, though it might not be his interest to do so, and he would still have the farm to let at its value. My opinion is, that the effect of the abolition of the law of hypothec would be to bring in a class of tenants with more capital, and tenants would have to take farms of a size suitable for their capital.

3. Seton Mains, East Lothian: *Mr. Robert Lennie.*—I farm about 320 imperial acres. My rent, on the average of the last 22 years, has been 2*l.* 14*s.* or 2*l.* 15*s.* per acre. My term of entry is Whitsunday and separation of crop, and my rent is payable at Candlemas, Whitsunday, and Lammas, after the crop is reaped. For Edinburgh and Leith manures I pay about 130*l.* a year, and for guano and lighter manures about 460*l.* a year. I am also bound to consume all the straw on the land. For feeding-cakes, &c., I pay 200*l.* fully. I consider my term of entry very suitable, and the terms for payment of rent are very easy for me, because I get a long credit. The effect of fore-renting a farm like mine would be, that the tenant would require a great deal more capital. The landlords would get a better class of tenantry, but it might reduce the value of land in the meantime, though, I believe, that would remedy itself in course of time. I think fore-renting would raise the status of agriculture very much; it would bring in a better class of men. It would be a benefit to landlords, inasmuch as they would get their money sooner; but it might reduce, in the meantime, the value of land, by thinning the ground of men who seek to be tenants without sufficient capital; but I think it would greatly benefit the country ultimately. I don't think it would be fair to the landlords to abolish the law of hypothec without introducing the system of forehand rents. My expenditure for manures per acre is a fair average of that of neighbouring farmers. I grow early Potates, and take a second crop. The merchants who supply the farmers with guano and feeding stuff are very often their creditors. If land was fore rented, it would be very much to their advantage. I could not have taken Seton Mains with my capital at that time if the fore-renting system had been carried out; I must have taken a smaller farm.

4. Duncrae Hill, Humbie, East Lothian: *Mr. John Forman.*—It is entirely arable, with the exception of a field of pasture. I farm about 900 imperial acres, and my rent is about 33*s.* per acre. My term of entry is Whitsunday and separation of crop. I pay the first rent at the Candlemas year following. I spend on guano and feeding stuffs about 900*l.* a year, besides being under an obligation to consume the straw on the farm. I consider my term of entry is the most convenient for landlord and tenant. The effect of the hypothec is to give the farmer, large or small, the benefit of the capital to the amount of a year's rent. The abolition of the law would have the effect of driving a number of them out of the field, but that would be an advantage to themselves and to the profession generally. It would also give the men of capital an advantage, in the way of taking large or small farms, according to their means. The change would be to the advantage of the men with capital, and to the disadvantage of men without capital. I think it would make landlords more careful in the selection of their tenants; though I do not mean to say that they do not at present inquire to a certain extent as to offerers for their farms.

5. Ferrygate, Drem: *Mr William Sadler.*—The extent of my farm is 460 imperial acres, of which 400 are arable. My rent varies from 1300*l.* to 1600*l.* The term of entry to the fallow is March, to the Grass and houses at Whitsunday, and to the remainder at the separation of the crop. The first rent is payable two years after entry. Entering to the fallow in March 1864, I commence paying rent in March, 1866. I should prefer a Martinmas entry to the whole farm, and to pay rent quarterly, commencing three months after entering. I should prefer that, because I would be enabled to take land on better terms. That rule would be very inconvenient at present, because tenants have been losing a great deal of money within the last three years. On an average, I expend annually from 600*l.* to 700*l.* on imported manures, besides having to consume the whole straw on the farm. I also expend on feeding stuffs 200*l.* or 300*l.* a-year. I think the quarterly payment of rents would be decidedly beneficial to landlords and tenants. Those who have not sufficient capital to take land would not attempt to do it, as they are induced at present to do by the long-credit system of the backhanded rents. I entered to my farm in August, and purchased the crop; but I was assumed by the lease to have entered at Whitsunday, and the proprietor paid me back 2*l.* an acre for all the Grass land. I got the fallow without paying anything, and I leave it in the same way. When tenants of sheep farms enter at Whitsunday, they pay for the stock in full, and they sell part of it very soon after entering. If they were taking the farm at Martinmas, they would have less to pay for the stock. I think it would be much more satisfactory that farms should be fore-rented. If the hypothic were abolished, I think that we would get everything that we buy cheaper, because those we deal with know that they run a risk. The manure merchants are quite aware of the existence of the law of hypothec; and I am aware that there is keen competition among them, but I think they could sell cheaper than they are doing at present.

Miscellaneous.

Locomotives on Common Roads.—On the 1st of next month the Act passed in the late Session (28 and 29 Vict., cap. 83), for further regulating the use of locomotives on turnpike and other roads, will come into force and continue for two years. At least three persons are to be employed to drive or conduct a locomotive, one of whom is to precede such locomotive while in motion, on foot, by not less than 60 yards, and warn drivers of the approach, and he is to signal the driver of the locomotive when necessary to stop, and he is to assist horses and carriages drawn by horses passing the same. The whistle is not to be sounded nor steam to escape when the locomotive is on the road. The locomotive is to be stoped when required; it is to have two efficient lights. On default of the regulations a penalty of 10*l.* can be imposed. A locomotive is not to go at more than four miles an hour through a public highway, or at a greater speed than two miles through a city, town, or village. The name and address of the owner to be affixed to the locomotive. The Metropolitan Board of Works, the Lord Mayor and Aldermen of the city of London, and other local authorities, are to make orders when locomotives may pass through cities and other places.

Bare Fallow.—But life is full of it: and especially of such as this. What is education but a 20 years' fallow, heart-wearying and self-denying of the pleasures that seem to bloom invitingly around us, luring the warm spirits and fresh feelings of youth to the easy indulgence of more active enjoyment and contact with the world? What is manhood but a continued sphere of the same self-denial; another chapter in the biography of toil—for a future crop—amidst the wistful temptation of surrounding fruition? What is life itself but a fallow—and bare enough to many a weary and assiduous toiler—a fallow for the future garnering of the joyful crop that was sown in tears? *Hoskyns.*

Calendar of Operations.

August: *Arable Land.*—Over a large part of the island this is the principal harvest month. Oats and Barley will probably be earliest ripe. They may be cut by the scythe, bagging hook, or sickle. In the case of grain amongst which Clover had been sown, it may, when the straw is long, be advisable to reap among the green Clover; the sheaves will be the sooner "won" for not having any Grass amongst them. Barley is not, however, so often high enough to admit of this. The common practice in most parts of England is to mow it, turn the swaths once or twice, and place it in cocks, and when dry carry it to the rick—a method not advisable in our variable climate.

Wheat will be ready for cutting in most places during this month. Before harvest time men must be engaged for the whole work; it is of the utmost importance to secure sufficient and timely assistance. The cost may be from 8*s.* to 14*s.* per acre, prices at which men may earn 3*s.* to 4*s.* a day.

Wheat should be cut before it is dead ripe. Reaping may commence as soon as the grain will give out no juice on being squeezed. Barley, on the other hand, which is required all of one degree of ripeness, in order that it shall all sprout together in malting, can only (in general) be obtained so by allowing it all to become dead ripe, a period which is indicated by the bending down of the ear. And Oats, again, must be cut almost before they have lost the greenness of the straw; as if allowed to get ripe, they are easily shaken out by wind; and if the crop be heavy, the sickle should be preferred to the scythe to cut it with. And the more rapidly, of course that carrying proceeds, when the grain and straw are ready, the better. From the rise of dew in the morning till its fall at night, or the failing of light (either of sun or moon), carts or waggons are to be kept at work—never leaving off, except on overtaking the work, or till one or two in the morning; provided it be light and dry. It will amazingly expedite the work to let a share of it by contract. The pitching to the cart in the field, the building on the cart in the field, and the pitching from cart to stack—the work of two men and one lad—may be let to them as one company, for from 10*d.* to 1*s.* 2*d.* per acre, according to the bulk of the crop. The farmer's own men build the rick, and his boys are employed to lead the carts to and from the field. In a hilly district, or wherever two horses are used in the cart, men will be required instead of boys to drive them.

It may be necessary in the beginning of this month to thresh the last of the ricks for straw, which should be immediately "leased" for thatch, and tied in bundles and soaked in water ready for use.

Beans will be carried off the winter-sown fields early this month, and cut on the spring-sown fields towards the end of it.

Early *Tares* left for seed will also be ready to cut.

Turnips should be horse-hoed again this month. On light rich soils the earlier stubbles—especially of Peas—may be scarified, harrowed, sown broadcast with the White Stone Turnip, harrowed and rolled, and left for a crop; which, if not always of bulbs, will at any rate be sure to afford a bite of greens, useful for the young lambs.

Mangel Wurzels and Carrots, if seeding, should be pulled and carried to the pigs.

Clovers are being folded over by the sheep, and the second cut of the mown fields is being carried home to the horses; part of it may be left for seed if considered desirable. Lucerne, the last of the Vetches, and Clover, will suffice for cattle food.

Fallow.—If the land has wrought well under the last ploughing, it will need no farther work this month; but if it is still foul, advantage must be taken of good weather to harrow and plough again.

Buckwheat will be ready to cut towards the end of this month, as soon as the majority of its blossoms have ripened their seed. It should be gently moved five or six times during the process of harvesting, and when dry may be stacked in a long narrow rick, with a tunnel through it.

Hemp.—As soon as the seed has set, the male plants may be pulled, tied, and carried to the steeping pool.

Hops.—After the middle of the month the ground must not be moved more than 2 or 3 inches below the surface.

Mustard may be sown on fallow this month, for ploughing in green.

Teazel harvest is a tedious operation, and should be let to a party who will take the whole affair at 11*s.* per pack.

Grass Lands.—Pastures will now decline; but as the aftermaths are ready, they may be readily eased. Lambs and drafted ewes, and also fatting beasts may be put on the aftermaths, just in the proportion which will keep the summer pastures in a healthy and nutritious state. Cattle droppings must be spread.

In ordinary seasons pasturage gets dry and scanty during this month; and much difficulty is usually experienced in doing justice to young and fattening stock. It is most desirable therefore, to provide keep by means of Tares, Coleseed, or second cuttings of Clover, Sainfoin, or Italian Rye-grass. A few acres of one or more of these forage crops will enable the stock-master to fill up the gap betwixt Grass and Turnips, from which he is so often a serious loser. It is now that calves and lambs so usually get lean and permanently stunted, which may be prevented by a far less expenditure of food than will be required to put them again in motion after such a check has occurred.

Live Stock.—It is well to clean out the cattle boxes and sheds in the early part of August, and carry the contents to the fields for winter Beans, &c.

Sales may be effected of some of the cattle and sheep. This is the more desirable as the next month is the shortest of "keep" through the year. Swine will be bringing forth their second litters towards the end of August. The first litters will be strong young porkers, just fit for the stubbles.

The ewes will not want drafting—those intended for future breeding may be placed on ordinary pastures, stubbles, &c., those permanently drafted must be put to the best keeping the farm will afford, always excepting the aftermaths, which will generally be too strong, and ought to be left for the lambs and fatting sheep; the weakest lambs should be put on the oldest keeping.

Poultry.—Turn your chickens and grown fowl into the stubble and stack yard.

Dairy Farm.—The quantity of milk given by the cows is not quite so great as in July, but the quality is better; as the autumn advances the milk becomes much richer. In places where the grazing lands are liable to burn, it is well to be provided at this season with some early Cabbage, a few of which may be given to the cows daily. Long Grass in meadows should be

mown this month; and if it can be made to heat somewhat in the rick, it will do well for the cows when not yielding milk.

We also extract the following from Carter & Co.'s *Vade-mecum*:—

The Cereal Grains and Harvest Operations.—There are some particulars in the management of our cereal grains in which they are alike, and of which, therefore, a statement common to all of them may be made. All our white corn crops come generally in our rotations after green crops or manured fallow crops of some kind or other. Wheat succeeds fallow, Clover, Beans, Turnips, Mangel Wurzel, or Potatos. Oats come after Turnips or Potatos, or Mangels, or newly broken-up land or Clover. Barley generally comes after Turnips. The four-field rotation, Wheat, Turnips, Barley, Clover, is the general rule in England. 1, Wheat or Barley; 2, Clover and Grass seeds; 3, Oats; 4, Turnips—or 1, Turnips; 2, Wheat or Barley; 3, Grass; 4, Oats; 5, Beans or Peas; 6, Wheat, are common rotations in Scotland. The cereal crops are generally considered the exhausting crops of the rotation; but it is evident that this depends on the cultivation to which the land is subjected during their growth, and on the use that is made of their produce. This idea nevertheless rules our rotations, these crops being taken when the land is, by previous treatment, at its best, and being followed by crops whose management restores the richness of the land. There are exceptions to this rule, but they obtain only where the land has acquired too great richness and needs depletion, or where it is in the hands of its enemies, *i.e.*, of those who, having the power, are disposed to beggar it. In the fen districts of England Cole-seed or Turnips are followed by Oats, and that by Wheat; the extra tendency to straw being taken off by the less valuable crop of grain, and so a possibility of a standing Wheat crop being obtained: and thus again, in the best-managed land under the four-field rotation, that system is being modified by Wheat being taken after Turnips and followed by Barley. After folded Turnips, Wheat is found to be the best standing crop, and the Barley finds after it quite enough food to yield a crop without its being of so luxuriant a growth as to spoil the sample. Apart from these exceptions, however, the place of all these crops in the rotation is, and ought to be, after a manured crop, such as Turnips, Mangel Wurzel, or a crop which by its growth feeds the land, as Clover does, the Clover root being in effect a liberal dressing of the soil.

The next general aspect of these crops is that presented by the question which has latterly excited a good deal of discussion, namely, thick or thin seeding; but it is not worth while discussing this question on general principles; it must suffice to refer to the data furnished by experience, with reference to each particular crop of the series, and this is done in the paragraph descriptive of each.

The cultivation proper to these crops is much alike, excepting the seed-time. The seed is generally sown in rows from 6 to 12 inches apart; the fields are harrowed or hoed when the crop is up, and they may be rolled or not, according to the condition of the soil. The crop is hand-weeded, if necessary, before coming into ear, and even after, if much weeds or the wild Oat exist among it, which can be distinguished only after earing: and the harvest operations are pretty much alike for all.

Harvest-work in the corn-field is done either by contract or at days' wages; and the price per acre varies from 8*s.* to 12*s.*, and even more per acre, according to the bulk of the crop. The corn is either mown, or reaped, or bagged. If mown to tie, it is best mown up against the swathe, as otherwise the scythe is apt to cut the ears from the straw, as each new stroke is driven up against the swathe. A strong lad follows each scythe and gathers the corn in sheaves, laying them upon ties which have been pulled and placed by a child preceding him; another lad or woman ties: a man, two strong lads, and a child thus make a party.

In "bagging," as it is called, a heavy hook is used: a wisp of straw is cut first and doubled up, or a stick is used instead, held in the left hand, and with the right the heavy hook is driven against the corn close to the ground, and so, by successive strokes, the corn is cut, perhaps a foot deep, up against the standing crop; the wisp or stick in the left hand serving to guide it to a standing place as it leans against the crop. A dozen such strokes will clear 3 or 4 yards in length, and the workman, returing backwards upon his work, gathers what he has cut, against his leg, into a sheaf, and places it on a tie that has been pulled for him, and laid convenient.

In reaping, each man is of course more independent, pulling his own tie and making his own sheaf; though here also it is usual to have a bandster, who ties after several men or women. The sheaves should be about 10 inches in diameter, and as near as possible the full length of the straw. They are set up six of a side in shocks or stooks, with two head sheaves, butt to butt, over them, as a roof; or they are sometimes set up only two of a side, with two small sherves overhead, hanging, ears down, and tied together by a band, as is the practice in some parts of the midland counties. It is the general practice in England to mow the Barley and leave it in swathe; but where the crop is tall and bulky, it is better tied in sheaves, whether it be Oats, Barley, or Wheat.

The whole practice of harvest-work is, however, being altered by the use of the reaper, which, as in the case of Bell's or Burgess's, leaves the corn in swathes upon the land, and in that of Dray, Cuthbert, Gardner, Wood, and many others, leaves it in rather roughish bundles, to be gathered up and tied in sheaves. In all cases the corn should be cut and tied when dry; and this, in the case of most of those machines which have no side delivery, or one not far enough to move the corn out of the way of the horses on their next bout round the crop, needs to be done at once. Two horses (or a changed pair) may thus cut from 8 to 12 acres a day, and save the labour of 8 to 12 men.

The cost does not exceed from 5*s.* to 7*s.* an acre, instead of from 8*s.* to 12*s.* or 14*s.*, which is the more common experience in the case of hand labour; and in every case a portion at any rate of the work should be done by contract, so as to make it the interest of the men to hurry on as fast as possible. The work of carrying away should in any case be done by contract. One man pitching to cart or waggon in the field, one lad building there, and one man pitching from the carriage to the rick, may form a party, and their share of the whole work may be let for from 10*d.* to 1*s.* per acre. Three carts, and two boys to lead them, and one man and a boy on the rick to build are the day labourers paid in addition by the farmer, who, with the three contract men, form a complete harvest party for the carriage and building of the corn; and a portion of the whole being thus let by the piece, drives the whole along with the force of self-interest.

The thrashing of the several crops is another operation, alike for all. Thrashing by machine may cost from 1½*d.* to 2*d.* per bushel, and by the flail from 2*d.* to 4*d.* per bushel, according to the sort and its yield. The cost of grain-cultivation is considerably reduced by the improved means of realising the produce which reaping machines and thrashing machines have furnished; but the chief value of the latter is in their enabling an immediate turning of the crops into the market according to the prices which may obtain from week to week.

One more aspect in which these crops are related to one another exists in the diseases to which they are severally liable. Wheat almost alone, however, of them, is washed and pickled, as they call it, before seed-time; but they are all liable to injury from the disease against which this pickling is directed.

Smut or blacks more especially is common to all alike; it is the result of a Fungus named Uredo segetum, which results in the conversion of the whole floret into a mass of sooty dust, which is dissipated generally before the harvest by the wind, so that the sample is not injured by it. Bunt, on the other hand, produced by another Uredo, results in a swollen discoloured seed, which is not necessarily broken by the threshing, and so, sometimes, a flaw is found in the sample. On the kernel being broken, it is found to be full of a black stinking powder, which, if it gets between the mill-stones, spoils the flour, and so its appearance in the corn is more injurious than that of smut. It can be perfectly prevented by carefully washing the seed, so as to detach or destroy the germs of the Fungus, which, adhering to the grain and sown along with it, become absorbed during its growth, bearing their mischievous fruit at harvest time. It is better, for this washing, to use a material of a somwhat caustic character, which shall thus more easily and completely detach and destroy these spores and germs without the labour of washing. A solution of blue vitriol, ½ lb. to a gallon of water, thrown on a sack of Wheat on the floor, will on properly mixing the grain, wet the surface of every separate corn, and thus completely prevent all chance of the crop being affected by the Bunt. This is the simplest pickle that is used. To float the grain in salt and water, and afterwards dry it with quick lime, is not so easy nor so effectual, though it is still a common mode of treatment.

Notices to Correspondents.

Bread and Yeast: *Cor.* The bitter flavour which is too apt to prevail in bread made from home-brewed ale (or indeed from purchased table-beer) yeast, can be effectually obviated by washing the ferment repeatedly with pure, very cold water, suffering the yeast to subside, and then pouring off the water after every subsidence till the washings cease to bring away the bitter flavour. After which the yeast is to be strained through a quantity of good Wheat bran, such as a farmer obtains when he sends his own grist to the mill. This medium does not only correct the alkaloid bitter of the ferment, but adds fresh fermentive principle to it.

Veterinary Treatment: *Sub.* One reason why the veterinary surgeon is rarely called in, except to horses and valuable breeding stock, is that a cure of fat stock is necessarily accompanied with loss of condition. The proper way of dealing with the first symptoms of disease in fat stock is to slaughter the animal. And there cannot be a doubt that while the disease is merely local or merely incipient, the flesh of such an animal is perfectly good food. The use of the veterinary surgeon in such a case is to certify the fitness or unfitness of the carcass. It is absurd to say that an animal just attacked with disease is unfit for food. But there is a stage of disease when this fitness is lost.

Vinegar: *Housekeeper.* The following is a receipt:—Put to 10½ gallons of water 10 lb. of brown sugar, boil it gently till no scum is on the surface, taking what does arise off with a skimmer; put it into an open tub or pail to cool, and when quite so, add a tea-cupful of yeast, to put it into a fermentation; in three days put it into a cask, filling about two-thirds of it, which will cause it to acidify quicker. Place the cask in the sun, with the bung-hole open, covering it with a coarse piece of muslin to prevent flies from getting into the liquor.

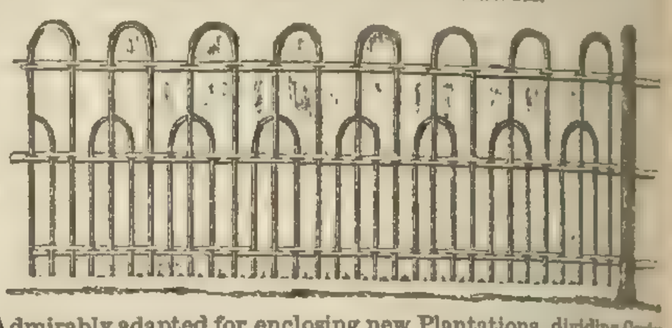
£1000 UPON the WOOLSTON TACKLE against the NEWCASTLE "best application."
William Smith, Woolston, Bletchley Station

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be seen at Work in every Agricultural County in England. For particulars apply to
John Fowler & Co., 28, Cornhill, London, E.C.; and Steam Plough Works, Leeds.

AGRICULTURAL IMPLEMENTS, CARTS, WAGGONS, PLOUGHS, HARROWS, CHAFF-CUTTERS, CHURNS, &c. Also GARDEN TOOLS of all kinds. Improved WIRE NETTING. Delivered carriage free. Price Lists per post on application.
Burgess & Key, 95, Newgate Street, London. Works, Brentwood, Essex.

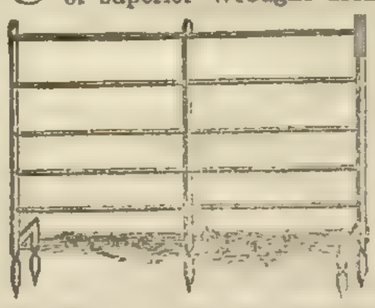
THE IMPROVED LEATHER DRIVING STRAP for MACHINERY are stronger for a given weight, more effective, more durable, and cost considerably less than any other kind of driving belt.
SPECIAL STRAPS for PORTABLE ENGINES.
Turner's Patent Strap and Hose Company.
Manufactory: Armit Works, Greenfield, near Manchester.
Warehouse: 81, Mark Lane, London, E.C.
Mr. H. Ferrabee, Agent.

W. S. UNDERHILL'S Patent WROUGHT IRON GAME and POULTRY FENCE.



Admirably adapted for enclosing new Plantations, dividing Gardens, &c. It effectually prevents trespass, and is low in price (varying from 6*d.* to 1*s.* 6*d.* per yard and upwards), neat in appearance, strong and durable.
Manufactory, St. Mary's Works, Newport, Salop. London Agent, Mr. R. Winder, 18, Abingdon Street, Westminster, S.W., where Samples may be seen.

Iron Hurdles, Fencing, and Gates.
COTTAM'S HURDLES are made in the best manner of superior Wrought Iron. SHEEP HURDLES, from 4*s.* each; CATTLE HURDLES, from 4*s.* 11*d.* each; CONTINUOUS FENCE, from 8*d.* per foot; FIELD GATES, from 25*s.* each. Illustrated Price List on application.



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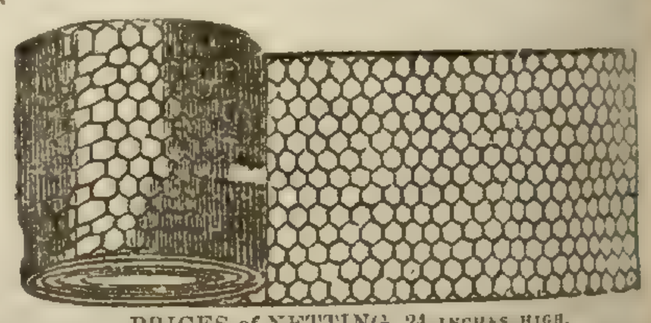
GALVANISED WIRE NETTING



PRICES of NETTING, 24 inches high.

Size of Mesh.	Proof against	Light, per Yard.	Medium, per Yard.	Strong, per Yard.	Extra Strong, per Yard.
2½ inch	Hares, Dogs, Poultry, &c.	4*d.*	5*d.*	6*d.*	[illegible]
2 inch	All kinds of Game ..	4½*d.*	5*d.*	6½*d.*	[illegible]
1⅝ inch	Small Rabbits, Hares, &c.	4¾*d.*	6*d.*	7*d.*	[illegible]
1½ inch	Ditto Ditto ..	6*d.*	7*d.*	9*d.*	[illegible]

100 Yards and upwards Carriage Free.
GALVANISED IRON WATER CISTERNS.
GALVANISED CABLE STRAND FENCING.
GALVANISED IRON PUMPS.
GALVANISED SWING WATER BARROWS.
GALVANISED IRON ROOFS and BUILDINGS.
LAWN MOWERS, GARDEN ROLLERS.
ASPHALTE ROOFING FELT, 1*d.* per square foot.
HURDLES, HURDLES, HURDLES, 1*s.* 9*d.* to 3*s.* 9*d.* per [illegible]
Motley & Green, late H. J. Morton & Co.
Illustrated Catalogues and Estimates free on application.
12, Great George Street, Leeds.

PATENT GUTTA PERCHA SOLES.—Important to Gardeners.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. Glenny, Esq., the celebrated Florist:—
"Gentlemen,—I have worn Gutta Percha Soles and Heels [illegible] two years, and being so much in a garden as I necessarily am, [illegible] weathers, and with the ground in all states, I would on no [illegible] without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part [illegible] times by warming the material at the fire, and pressing it [illegible] thick parts to the worn parts, as easily as if it were so much [illegible] I think it the duty of all persons who must occasionally wet [illegible] feet to adopt a material that completely defies damp. Many gardener would escape colds and rheumatism by the use [illegible] Percha Soles.—Your obedient servant, "G. Glenny."
Every variety of Gutta Percha articles, such as Mill Bands, [illegible] Soles, Sheet, Pump Buckets, Fire Buckets, Bosses, Union [illegible] Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge [illegible] Curtain Rings, Galvanic Batteries, Calbotype trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale [illegible] in town or country.
The Gutta Percha Company, Patentees, 18, Wharf Road, City Road, London, E.C.

E. T. ARCHER'S "FRIGI DOMO."—Patronized by her Majesty the Queen, the Duke of Northumberland, Syon House, his Grace the Duke of Devonshire for Chiswick [illegible] Professor Lindley for the Horticultural Society, Sir Joseph [illegible] for the Crystal Palace, Royal Zoological Society, &c.
PROTECTION from the SCORCHING RAYS of the Sun. "FRIGI DOMO," a Canvas made of patent prepared Hay [illegible] Wool, a perfect non-conductor of Heat and Cold, keeping, where it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers [illegible] scorching rays of the sun, from wind, from attacks of insects, [illegible] morning frosts. To be had in any required lengths.

Two yards wide	1*s.* 9*d.* per yard run.
Four yards wide..	3*s.* 6*d.* per yard.
An improved make, 2 yards wide ..	1*s.* 9*d.* per yard.
An improved make, 3 yards wide ..	2*s.* 8*d.* per yard run.

Also "Frigi Domo" Netting, 2 yards wide, 1*s.* 6*d.* per yard run.
Elisha Thomas Archer, Whole and Sole Manufacturer, [illegible] Trinity Lane, Cannon Street, City, and of all Nurserymen and Seedsmen throughout the kingdom.
"It is much cheaper than Mats as a covering."

NEW TARIFF OF GLASS AND HORTICULTURAL GOODS

THOMAS MILLINGTON,

GLASS AND COLOUR MERCHANT,

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REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.

THE AGRICULTURAL HALL, ISLINGTON, CONTAINING AN ACRE OF GLASS, WAS SUPPLIED BY ME.

Mr. Rivers and the leading men in the Horticultural profession, as well as the Nobility, Gentry, and Merchants, have favoured me with Orders for Home use and for Exportation.

SHEET GLASS.

In Cases for Cutting up, averaging from 6 to 9 feet super.

Average Thickness, 15 to 16 oz.

4ths quality	per 300 feet case	32s. 6d.	or about 1¼d.	per foot.
3ds "	"	41 0	" 1¾	"
2ds "	"	60 0	" 2¾	"
Best "	"	92 0	" 3¾	"

Average Thickness, 21 oz.

4ths quality	per 200 feet case	33s. 6d.	or about 2d.	per foot.
3ds "	"	42 0	" 2½	"
2ds "	"	63 0	" 3¾	"
Best "	"	89 0	" 5½	"

Average Thickness, 26 oz.

4ths quality	per 200 feet case	44s. 6d.	or about 2¾d.	per foot.
3ds "	"	56 0	" 3½	"
2ds "	"	84 0	" 5	"
Best "	"	116 0	" 7	

SHEET SQUARES, Cut to Order.

Average Thickness, 15 to 16 oz.

	Under 1 foot super.	Under 2 feet super.	Under 3 feet super.	Under 4 feet super.	Under 5 feet super.	Under 6 feet super.
4ths quality	1¼d.	1¾d.	2 d.	2¼d.	2½d.	2¾d.
3ds "	1¾	2	2¼	2¾	3	3½
2ds "	2	2½	2¾	3	3½	4
Best "	2½	3	3½	4	4½	5
Average Thickness, 21 oz.						
4ths quality	2¼d.	2¾d.	3 d.	3¼d.	3½d.	3¾d.
3ds "	2¾	3	3¼	3¾	4	4½
2ds "	3	3½	3¾	4½	4½	4¾
Best "	4	4½	5	5½	6	7
Average Thickness, 26 oz.						
4ths quality	3d.	3½d.	3¾d.	4 d.	4¼d.	4½d.
3ds "	3¾	4	4¼	4¾	5	5½
2ds "	4¼	5	5½	5¾	6	6½
Best "	5¼	6½	7	7½	8	8½

15 oz. Squares usually kept in Stock, &c.

32 oz., 36 oz., and 42 oz. are also supplied in various quantities.

EXTRA WHITE or CRYSTAL SHEET GLASS, very superior for Pictures and best Glazing.

RUBY, GREEN, BLUE, YELLOW, COLOURED, ENAMELLED, GROUND, and FLUTED GLASS.

15 oz. Squares usually kept in Stock, packed in 100 ft. and 100 ft. Boxes.

Stock Squares.				4ths.	3rds.	2nds.	Best.
6 by 4	7 by 5	8 by 6	9 by 7	9s. 6d.	10s. 9d.	12s. 6d.	14s. 8d.
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½				
10 by 8	12 by 9	12½ by 10½	14½ by 10½	10s. 6d.	12s. 0d.	14s. 8d.	17s. 3d.
10½ by 8½	12½ by 9½	13 by 10	15 by 10				
11 by 9	13 by 9	13½ by 10½	13 by 11				
11½ by 9½	12 by 10	14 by 10	14 by 11				
15½ by 10½	16 by 10	14½ by 11½	15 by 11	11s. 6d.	13s. 6d.	16s. 0d.	18s. 0d.

Stock Squares.				Per 100 feet. 4ths.	3rds.	2nds.	Best
15½ by 11½	14 by 12	17 by 13	22 by 16	11s. 6d.	13s. 6d.	16s.	18s.
16 by 10	14½ by 12½	18 by 13	24 by 16				
14½ by 11½	15 by 12	23 by 13	20 by 17				
15 by 11	15½ by 12½	18 by 14	22 by 17				
15½ by 11½	16 by 12	22 by 14	24 by 17				
16 by 11	16½ by 12½	24 by 14	20 by 18				
21 by 11	17 by 12	22 by 15	22 by 18				
13 by 12	18 by 12	24 by 15	24 by 18				
13½ by 12½	22 by 12						

ORCHARD HOUSE SIZES,

As recommended by and supplied to Mr. Rivers, and the leading Horticulturists of the day.

Average Thickness, 15 to 16 oz.

		4ths.	3rds.	2nds.	Best.
16½ Inches by 12½ Inches.					
20 " 12 "					
20 " 13 "					
20 " 14 "	Per 100 feet ..	11s. 6d.	13s. 6d.	16s.	18s.
20 " 15 "					
20 " 16 "					
20 " 17 "					

Average Thickness, 21 oz.

		4ths.	3rds.	2nds.	Best.
20 Inches by 12 Inches.					
20 " 13 "					
20 " 14 "	.. .. ..	14s. 6d.	18s. 6d.	24s.	27s. 6d.
20 " 15 "					
20 " 16 "					
20 " 17 "					

The above prices are only for the sizes stated, but if a quantity of any other size is required, they can be supplied at about 5 per cent. additional, provided time is allowed to manufacture them.

I have also a GREEN TINTED GLASS, which I can strongly recommend. In Summer it gives a cool appearance and in Winter a warm one.

PROPAGATING GLASSES.

3 inches diam.	0s. 4d.	each.
4 " ..	0 5	"
5 " ..	0 6	"
6 " ..	0 7	"
8 " ..	0 10½	"
10 " ..	1 2	"
12 " ..	1 6	"
14 " ..	2 3	"
16 " ..	3 0	"
18 " ..	4 6	"
20 " ..	6 0	"

HAND GLASSES.

12 inches diam.	5s. 6d.	each.
14 " ..	6 6	"
16 " ..	7 6	"
18 " ..	8 6	"
20 " ..	9 6	"
22 " ..	10 6	"
24 " ..	11 6	"

If removable tops, 1s. extra.

Painted and Glazed with Sheet Glass.

PRESERVE JARS.

In. diam.	Without. Lids.	With Lids.
3 ..	0s. 4d. ..	0 6 each.
4 ..	0 5½ ..	0 8 "
5 ..	0 7 ..	0 10 "
6 ..	0 9 ..	1 1 "
7 ..	0 10½ ..	1 2 "
8 ..	1 2 ..	1 6 "
9 ..	1 6 ..	2 0 "
10 ..	1 10 ..	2 4 "

These will be found preferable to any other kind of Jar.

CUCUMBER TUBES.

Ins. long.		each.
12 ..	0s.	10d.
13 ..	0	11
14 ..	1	0
15 ..	1	1
16 ..	1	2
17 ..	1	3
18 ..	1	4
19 ..	1	5
20 ..	1	6
22 ..	1	7
24 ..	1	9

ROLLING PINS.

each	
1s.	3d.
1	4
1	6
1	8
1	9
1	10
2	0
2	2
2	3
2	4
2	8

MILK PANS.

6 inches diam.	0s. 5d.	each.
8 "	0 8	"
10 "	0 10½	"
12 "	1 1	"
14 "	1 6	"
16 "	2 0	"
18 "	2 5	"
20 "	2 10	"
22 "	3 4	"
24 "	4 0	"

Intermediate sizes in proportion.

FISH GLOBES.

In. diam.		Qts. each
8	¾ filled,	3..1s. 3d.
9	"	4..2s.
10	"	6..2s. 6d.
11	"	8..3s.
12	"	9..3s. 9d.
13, 14, 15, 16	At same average according to weight.	7d. per lb.

If on feet, 9d. per lb.

GLASS TILES, in SHEET and ROUGH PLATE. PLATE GLASS, PATENT PLATE, and HARTLEY'S IMPROVED ROUGH PLATE.

PAINTS, COLOURS, VARNISHES, &c.

GENUINE WHITE LEAD, 30s. per Cwt.
SECONDS ditto, 28s. per Cwt.
LINSEED OIL PUTTY, 9s. per Cwt.
PINE OAK VARNISH, 10s. to 12s. per Gallon.
" CARRIAGE ditto, 12s to 14s. per Gallon.
" CRYSTAL or PAPER, 10s. to 12s. per Gallon.

WHITE ZINC PAINT, 34s. per Cwt.
One hundred weight of pure Zinc Paint, with 3 gallons of Linseed Oil, will cover as much as one hundred weight and a half of White Lead and 6 gallons of Linseed Oil.
Special Dryers for this paint.

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" RAW UMBER, 4½d. to 6d. per lb.
" BURNT Ditto, 6d. to 9d.
GREEN PAINT, all shades, 28s. to 60s. per cwt.
BLACK PAINT, 24s. to 36s. per cwt.

STUCCO PAINT, 24s. per cwt.
This paint adheres firmly to the walls, resists the weather, and is free from the glossy appearance of oil paint, resembling a stone surface, and can be made any required shade. It is mixed with rain or pure river water.

LINSEED OIL, 3s. per gallon
BOILED OIL, 3s. 6d. per gallon.
TURPENTINE, 5s. 6d. per gallon.
MINERAL Ditto, 3s. 6d. per gallon.
PREPARED OIL for ANTICORROSION, 4s. 6d. p. gal.
BRUSHES for Ditto.

IMPROVED ANTICORROSION PAINT, 28s. to 34s. p.cwt.
Anticorrosion Paint is extensively used for all kinds of work in exposed situations, in Brick, Stone, Compo, Iron, Iron Bridges, Conservatories, Greenhouses, &c., and is easily laid on by any ordinary workman.

MILLED LEAD in Sheet and Pipe of all Sizes. OLD LEAD bought or taken in exchange. LIFT PUMPS, WATER CLOSETS, & PLUMBER'S BRASS WORK of all kinds.

NETT CASH.

EARTH CLOSETS AND COMMODES.

(Moule's Patent.)

MANUFACTURED SOLELY BY

WHITE & CO.,

29, BEDFORD STREET, STRAND, LONDON, W.C.

THE PECULIAR ADVANTAGES OF THESE CLOSETS AND COMMODES OVER THE ORDINARY WATER CLOSET ARE:—

First.—That the deodorising material (dry surface earth, or clay, or other subsoil) is the best for the purpose, and at the same time is the cheapest and within the reach of all classes.

Secondly.—The supply of such material to any house or premises may be much easier than the supply of water by a forcing pump, and its removal after being used may be entirely without offence.

Thirdly.—Its application by the means provided in these Closets is immediate and effective; so immediate that no offensive smell need escape into the room or building in which they are used; and so effective that all fermentation and all escape of noxious gases are entirely prevented.

Fourthly.—The expense of these Closets, in comparison with that of Water-Closets, is, as to the first cost, trifling, and as to repairs almost nothing. For instance, there is no expensive cistern required, and there are no lead pipes to burst in frosty weather.

Lastly.—In all large Establishments, such as Hospitals, Union Houses, Schools, Gaols, and Asylums, a very considerable sum may be saved annually in the production of a valuable manure.

The efficiency of these Closets is so great as to be scarcely credible to those persons who either have not used them or seen their mode of action.

Price of Apparatus without woodwork, 25s. per set.

*** *The different forms of Closets may be seen at the address above; and Prospectuses will be forwarded on application.*

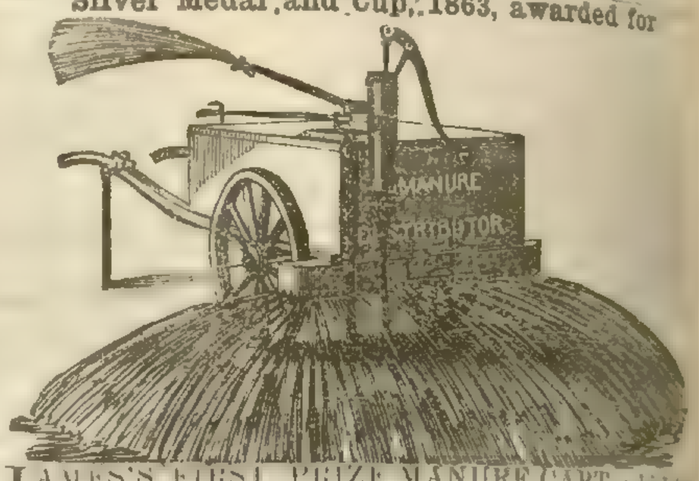
By Royal Letters Patent.

WELLS' PORTABLE FOLDING GROUND VINERY for Growing and Ripening Grapes without artificial heat. Awarded a SILVER MEDAL at the International Exposition of Horticulture held at Nice, April 1865.

Drawings and Instructions for Management post free.

B. J. EDWARDS, 25, Bishopsgate Street Within, E.C.

Silver Medal and Cup, 1863, awarded for



JAMES'S FIRST PRIZE MANURE CART, which has been awarded 20 PRIZES. Is now fitted up to answer for MANURE, for supplying the STEAM PLOUGH, for WATERING STREETS, or for a FIRE ENGINE. Nearly 300 already sold.

Washing.

The last great improvement in Washing Machines is the new Patent PRIZE WASHING, WRINGING, and MANGLING MACHINES, awarded several FIRST PRIZES. Will Wash [illegible] in 20 Minutes, with much less injury than with the hand. More than 300 Sold.

Address, I. JAMES, Tivoli Works, Cheltenham

JOHN WARNER & SONS, LONDON, MANUFACTURERS.

J. WARNER AND SONS

Have much improved the construction of their

GARDEN **ENGINES**

in some important particulars for this Season.

They may be obtained of the Trade generally throughout the Kingdom at the following prices:—

No. 547. WARNER'S best ENGINES, in Wood Tubs, and fitted with WARNER'S Registered Spreaders—

24 Gallons,	£6	10	0
14 ,,	5	10	0

No. 547A. WARNER'S strong ENGINES, in Galvanised Iron Tubs, well painted—

10 Gallons	£2	19	0
16 ,,	3	14	0
24 ,,	4	19	0
28 ,,	5	10	0

No. 579½. WARNER'S WATER BARROWS, thoroughly Galvanised and well painted—

20 Gallons	£2	2	0
30 ,,	2	13	0
38 ,,	3	17	0
50 ,,	5	12	0

The 50-Gallon Barrow is made extra strong throughout, and fitted with handle for two men.

No. 568½, AMERICAN ENGINE, is now well known and appreciated. It throws a continuous stream, and is complete in itself. £2 2*s.*

SYRINGES in great variety, from 7*s.* 6*d.* to 18*s.* 6*d.*

The DISC SYRINGE, No. 557A, will recommend itself by the ease with which it is filled, and non-liability to get out of order. Price 9*s.*

WARNER'S AQUAJECT

Is this season first introduced to the notice of horticulturists as possessing the following advantages:—It is simple in construction, portable, and easily worked. It throws a continuous stream, and is low in price.

The Aquaject, 8s.

The small AQUAJECT is the most perfect form of Syringe yet introduced. It throws a continuous stream, with very little movement, and with it blight, &c., is readily washed from the under side of foliage. 18*s.*

No. 35. WARNER'S IRON PUMPS for Wells not exceeding 25 feet depth — 2½-in., 28*s.*; 3-in., 41*s.*; 3½-in., [illegible] short barrel do., 21*s.*

No. 36. IRON FOUNTAIN PUMPS for raising water above their level, watering yards, gardens, &c., through hose—2-in., 59*s.*; 3-in., 65*s.*; 3½-in., 77*s.*; 4-in., 89*s.*

No. 36½. FOUNTAIN PUMP on BARROW, recommended for its great portability and simplicity of construction. [illegible]

No. 42. WARNER'S PORTABLE PUMPS, with Folding Legs, are of superior construction. Price 55*s.*; [illegible] Suction, 2*s.* 6*d.* per ft.

No. 597A. BRASS PIPES with Cocks and Roses — ½-in., 3*s.* 6*d.*; ⅝-in., 5*s.*; ¾-in., 6*s.*

No. 599. TAPER BRANCH PIPES—½-in., 4*s.* 9*d.*; ⅝-in., 5*s.* 6*d.*; ¾-in., 6*s.*; 1-in., 7*s.*

RUBBER HOSE in [illegible] sizes.

FOUNTAIN JETS in great variety, from 8*s.* to [illegible]

DESCRIPTIVE PRICE LISTS forwarded on application.

Card.

SAMUEL N. McGERROW,
General Horticultural Builder,
Knotty Ash, near Liverpool.

Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

Greenhouses—Heating Apparatus.

DENNIS' PATENT METALLIC HORTICULTURAL BUILDINGS are made from the best wrought iron, upon an entirely new principle. The combination of Iron and Glass under this Patent is perfect; the possibility of fracture is prevented, and a perfectly water-tight roof insured. The leading practical advantages are extreme smallness of framing, admitting a maximum of light and heat, and perfectly neutralising atmospheric conduction.

They are thoroughly ventilated, exceedingly strong and durable, are speedily erected, and whilst maintaining their established superiority for Conservatories of the highest order, are acknowledged by the most eminent Horticulturists of the day to be the "desideratum of perfection," promoting perfect symmetry of growth and richness of colour, both for Fruit and Flowers.

From the complete adjustment of the constructional parts of these patent buildings, their manufacture is so facilitated that a comparison in point of cost with perishable wooden structures is most favorable.

THE GARDENER'S OWN GREENHOUSE
(Lately known as Dench's Patent) is a Tenant's Fixture.

The Patent, Plant, Business, Machinery, and all connected with the above, have been transferred to T. H. P. Dennis, who has determined to supply these really useful buildings at such a reduced scale of prices that every one desiring a Greenhouse may possess one.

Note.—A No. 1 Lean-to, 12 ft. 6 in. by 9 ft., including honest 16-oz. Glass, £16 12s 6d.

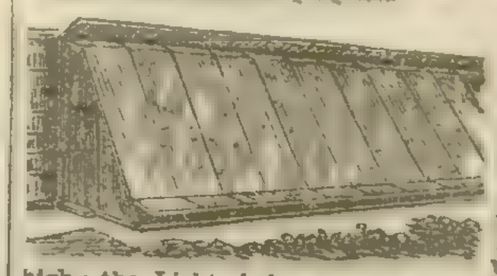
T. H. P. D. has introduced most important improvements in their design and construction, and after numerous experiments has succeeded in arranging them as a Tenant's Fixture, which he feels sure will be valued by gentlemen having limited tenures. With Mr. Dennis' adaptation they make excellent Orchard-houses, and afford a plant can be desired in a profitable building.

Wooden structures at the lowest price consistent with sound work.

Prospectuses and Estimates on application to T. H. P. Dennis, Horticultural Builder, Hot-water Engineer, &c., Chelmsford, Essex.

Under the Patronage of Her Majesty.

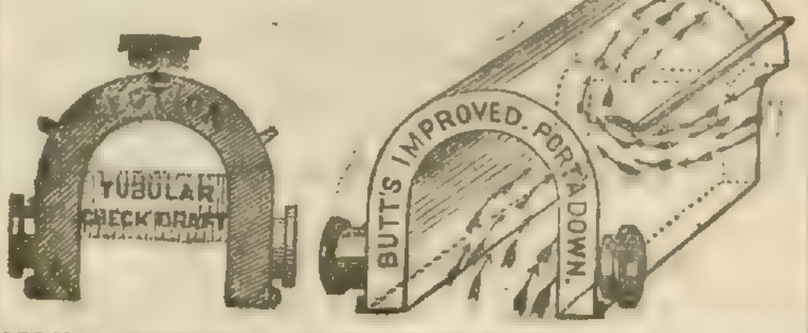
CLARK AND HOPE (late Clark) 55, Lionel Street, Birmingham, Manufacturers of Metallic and Wooden Hot Houses, Conservatories, Verandahs, &c., Copper and Wrought Iron Sashes, Skylights, &c., and Hot Water Apparatus for Horticultural and Domestic purposes.



C. & H. beg to call attention to their NEW TREE COVER, or Continuous Glass Covering for Garden Walls; which is constructed of Cast and Wrought Iron, glazed with or without putty, and fitted together with bolts and nuts, constituting a Tenant's Fixture. It can be made 6, 7, or 8 feet wide, and 10, 12, or 14 feet high; the Lights being opened together, by means of simple and durable machinery, in lengths of about 50 feet; and the cost does not exceed that of a wooden structure.

Further particulars, with prices, forwarded upon application; and on receipt of the amount in postage stamps, a Book of Designs, plain, 1s. 6d., coloured 2s. 6d., for Horticultural Buildings, &c.

Heating by Hot-Water.



THE ORIGINAL SADDLE BOILER, with Improved Tubular Check Draft, Flued Ends, and Ribbed Sides, for Heating Greenhouses, Vineries, Forcing Pits, Public Buildings, &c. These Boilers possess increased heating surface capacity, power, economy in fuel, and are the only class of Boilers, all points considered, when properly fixed, that can be relied upon with safety for Heating Greenhouses, &c., of any extent, by Hot Water, and at a moderate price.

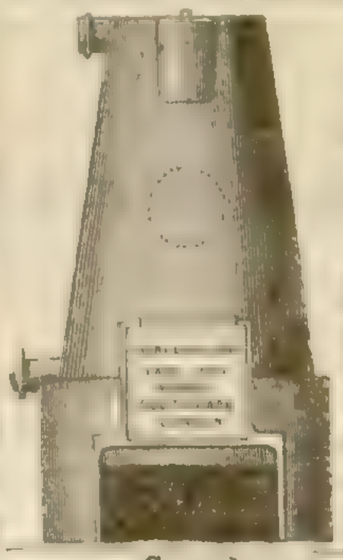
Gardeners interested in such work should write for List of Testimonials, sent Post Free on application to Frederick William Butt (late of London), Portadown, Ireland.

Exhibition Prize Medal, 1862.

HOTHOUSES for the MILLION.—On the principle invented and patented by Sir Joseph Paxton, M.P., combining simplicity, cheapness, excellence, and durability. SPAN-ROOF HOUSES, painted three coats, and glazed with English Sheet Glass, can be supplied ready for fixing, 21 ft. by 15 ft., 24l.; 43 ft. by 19 ft., 73l. 5s.; 64 ft. by 25 ft., 161l.

Illustrated Circulars, with Prices, can be had on application to Samuel Hickman & J. Morton, Agents, 7, Pall Mall East, London.

Also, A HANDBOOK on VINE and FRUIT TREE CULTIVATION, 2d Edition, price 1s.; post free, 1s. 1d.



HEATING by HOT WATER—Public and Private Buildings, Manufactories, Conservatories, &c., heated on the most improved system, combined with perfect Ventilation.

These BOILERS are adapted for setting in Brickwork, or as shown in sketch they require no Brickwork.

BURY and POLLARD
(Successors to John R. Pedl),
Sole Manufacturers of the Improved CONICAL BOILERS, which are in general use, and which Boilers have for their durability and economy attained a celebrity far surpassing any other Boilers ever invented.

Park Iron Works, 17, New Park Street, Southwark, London, S.E.

N.B. Patent WINDMILLS for Pumping and Driving Farm Machinery, from half-Horse Power upwards. To be seen daily at work as above.

Greenhouses and Conservatories.

H. FREEMAN, Horticultural Works, Hackney, N.E., Established 20 years. Good substantial made GREENHOUSES, Glazed, ready for fixing. 42 feet by 13 feet, 50l.; 21 feet by 13 feet, 28l.; 12½ feet by 10 feet, 15l.

A handsome CONSERVATORY for SALE, 36 feet by 19 feet. Price 110l. A Large Assortment kept.

Heating by Hot Water.

W. J. HOLLANDS, Iron Merchant,
31, Bankside, London, S.E.

HOT WATER PIPES, from Stock, per yard:—2-inch, 1s. 4d.; 3-inch, 2s.; and 4-inch, 2s. 7d. BENDS, from Stock 1s. 7d., 2s. 6d., and 3s. 3d. each. THROTTLE VALVES, 10s. 6d., 13s. 6d., and 15s. each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day. A discount to the Trade.

Farm to be Let.

TO BE LET, with possession at Michaelmas next, a Light Land ARABLE FARM, containing about 184 Acres, with good House and Homestall, most desirably situate at Abbot's Langley, Hertfordshire, close to the King's Langley Station, on the London and North-Western Railway, and near a Wharf on the Grand Junction Canal. The rent is £294 per annum; there are no tithes, and the taxes are moderate.

Apply to Mr. Humbert, Land Agent and Surveyor, Watford, Herts.

Estate of the late Mr. James Veitch.
NURSERY, TOPSHAM ROAD, EXETER.

NURSERY BUSINESS and FREEHOLD LAND to be DISPOSED OF.—The Stock being now much reduced, the Executors are ready to dispose of the remainder with the Freehold Land, either at a price to be given, or at a valuation, to be made in the usual way.

If not disposed of at once the Executors will proceed to Sell all the Hot and Greenhouses, Conservatory, Forcing Houses, and all Glass Erections, including Pits and Frames, with all the Plants therein, in suitable Lots, by Public Auction, of which due notice will be given.

During the ensuing Autumn the Trained and other Fruit Trees, Roses, and Ornamental Shrubs, will be disposed of, as in the last season, at a considerable reduction from the usual prices.

Application to be made for further particulars to Mr. Manning, at the Nursery; or to Mr. Gidley, Solicitor, Exeter.—Dated July 31, 1865.

Oxfordshire Down Rams.

MR. DRUCE offers for PRIVATE SALE this Season about 40 SHEARLING and TWO-SHEAR RAMS, which he will be happy to show at any time.

Eynsham, Oxford.

BRETONNE COWS.—The Nobility, Gentry, and others, are respectfully informed that they can be supplied with the above beautiful and profitable little animals in any number at the shortest notice. The great success and encouragement which has attended the efforts of the importer in introducing the Pure Breed of this useful and hardy Cow into the country, has induced him to extend his connection abroad, by appointing experienced Agents throughout Brittany, and he is now enabled to offer the public a constant supply of the choicest stock that can be obtained, at prices which defy all competition. The low cost, together with the high Milking qualities of this Breed, rendering them of great value to the Cottager, as well as the fancy Stock-keeper and Dairyman, the Importer has made arrangements to keep a large stock always on view. Price from 8 to 10 Guineas each, delivered free to any Railway in London.

For further particulars, apply to Messrs. Robertson & Co., 38, Crutched Friars, London, E.C.

Cotswold Sheep.

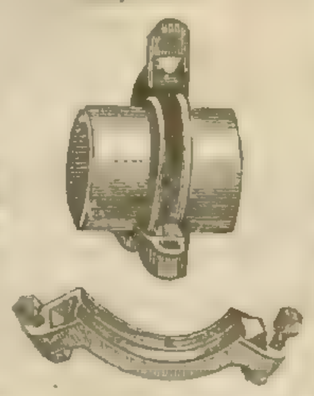
MR. T. BEALE BROWNE, of Salperton Park, Andoversford, Gloucestershire, will be glad to see his Friends. He intends SELLING his RAMS PRIVATELY, so that Purchasers may have the opportunity of inspecting the whole of his Flock.

With the Two Prizes at Plymouth, this Flock has taken 171 Prizes in eight years; the average of 92 Rams last year was £9 1s. 6d.

PORTABLE HOT-WATER APPARATUS,
WITH TRUSS' PATENT JOINTS FOR HEATING CONSERVATORIES, HOTHOUSES, &c.

T. S. TRUSS

Begs to offer complete HOT-WATER APPARATUS for GREENHOUSES (consisting of 4-inch Pipes and Joints, Saddle Boiler, Fire Doors, Bars, Soot Doors, Damper, Supply Cistern, Feed and Air Pipes, Pipe Stands, &c., of the best quality), delivered to any Railway Station in England, and to erect the same within 25 miles of London, at the following prices:—



4-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection.
16 feet by 8 feet	£8 10 0	£2 0 0	30 feet by 12 feet	£11 15 0	£2 10 0
20 feet by 10 feet	9 0 0	2 0 0	40 feet by 15 feet	15 0 0	2 15 0
26 feet by 12 feet	10 5 0	2 5 0	50 feet by 15 feet	18 0 0	3 0 0

Erection beyond 25 miles of London, Railway Fare for one Man charged extra.

By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints.

Estimates and Plans forwarded on application to
T. S. TRUSS, C.E., 53, GRACECHURCH STREET, LONDON, E.C.

JAMES PHILLIPS & CO.,
HORTICULTURAL GLASS MERCHANTS,
180, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

REDUCED PRICES OF SHEET GLASS FOR HORTICULTURAL PURPOSES.

ENGLISH SHEET GLASS.
Packed in Crates of about 280 feet.

	16-ounce.	21-ounce.
Best	5½d.	7½d.
Seconds	3¾d.	5d.
Thirds	2½d.	3½d.
Fourths	2¼d.	3¼d.

HORTICULTURAL GLASS,
Stock Sizes, 16-ounce. In 100 feet Boxes.
These prices only apply to the sizes stated.

12 by 9	13 by 9	14 by 9	4ths.	3rds.	4ths.	3rds.
12 „ 10	13 „ 10	14 „ 10	15 „ 10	10s 9d	12s 3d	12s 6d	14s 0d
14 „ 11	14 „ 11	..	..				
14 „ 12	15 „ 12	15 „ 11	16 „ 11				
18 „ 12	19 „ 12	16 „ 12	17 „ 12				
16 „ 13	17 „ 13	20 „ 12	21 „ 14				
19 „ 13	20 „ 13	18 „ 13	..	11s 6d	13s 6d	13s 6d	16s 0d
16 „ 14	17 „ 14	21 „ 13	..				
19 „ 14	20 „ 14	18 „ 14	..	14 to 15 ozs.		16 to 17 ozs.	
				to the foot.			

FOREIGN SHEET GLASS.
In Cases for cutting up, in Sizes as Manufactured.

	16 oz., 200 ft.	16 oz., 300 ft.	21 oz., 200 ft.
	£ s. d.	£ s. d.	£ s. d.
Best	..	..	5 14 0
Seconds	3 7 0	..	4 13 0
Thirds	2 10 0	..	2 10 0
Fourths	..	2 5 0	2 0 0
	..	1 15 0	

GLASS for ORCHARD HOUSES,
As supplied by us to Mr. Rivers, to the Royal Horticultural Society, and to most of the Nobility, Clergy, and Gentlemen of the United Kingdom.

Each Box contains 100 feet.

		14 to 15 ozs.	16 to 17 ozs.	21 ozs.
20 by 12	Fourths	11s. 6d.	13s. 6d.	15s. 0d.
20 „ 13	Thirds	13s. 6d.	16s. 0d.	19s. 0d.
20 „ 14	Seconds	..	English.	English.
20 „ 15	Best	..	18s. 0d.	23s. 0d.

The above prices include the Boxes.

We recommend 3rds quality at 16s., or 21-ounce at 19s. (as supplied to Mr. Rivers). Best and Seconds are intended only for pictures or dwelling-houses.

SMALL SHEET SQUARES.
In 100 feet Boxes.

6 by 4	6½ by 4½	7 by 5	7½ by 5½	11s. 6d.
8 „ 6	8½ „ 6¾	9 „ 7	9½ „ 7½	
		10 „ 8	10½ „ 8½	12s. 6d.

Boxes 2s. each, returnable at full price.

All small squares from 6 by 4 to 10½ by 8½ are cut from pieces, consequently there is only one quality.

London Agents for Hartley's Patent Rough Plate.

Perforated Glass for Ventilation.

Glass Shades, Ebony and Gilt Stands, Gas and Lamp Glasses, Chimney and Globes, &c.

Glaziers' Diamonds from 10s. to 21s. each.

GLASS TILES and SLATES in SHEET and ROUGH PLATE. PLATE GLASS, PATENT PLATE, and HARTLEY'S IMPROVED ROUGH PLATE. PAINTS, COLOURS, VARNISHES, &c.

GENUINE WHITE LEAD.
ANTI-CORROSION PAINT.
LINSEED OIL PUTTY.

FINE OAK VARNISH.
„ „ CARRIAGE.
PATENT DRYERS.

LINSEED OIL.
BOILED OIL.
TURPENTINE.

Lead in Sheets or Cut to Sizes, Lead Pipe, Lift Pumps, Water Closets, and Plumbers' Brass Work of every description.

Sales by Auction.

Importation of Orchids from Mexico.

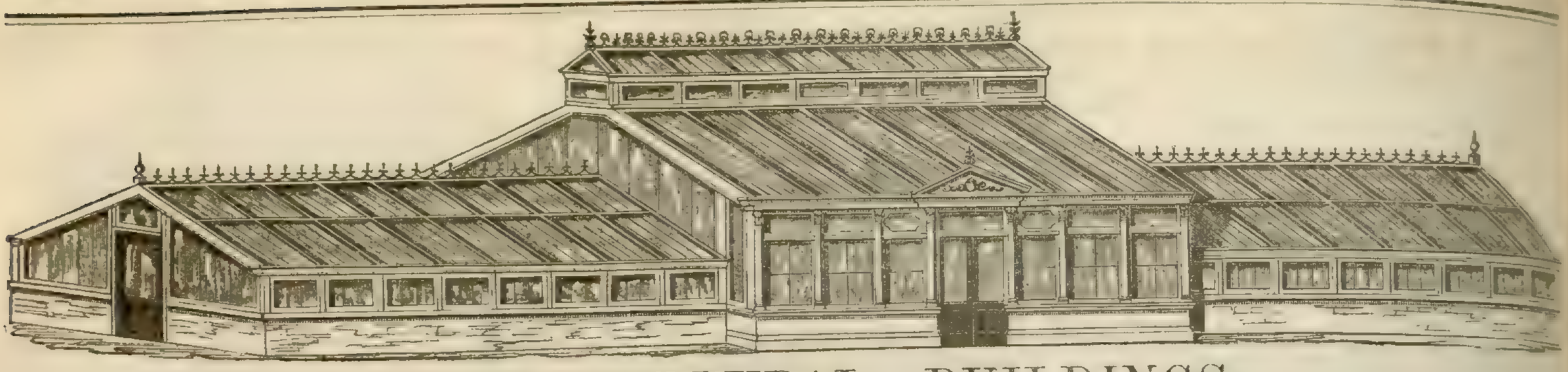
MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, August 9, at half-past 12 o'Clock precisely, an IMPORTATION of ORCHIDS from Mexico, in fine masses of Odontoglossums, Cattleya citrina, Oncidium Cavendishii, O. anguiculatum, Lycaste Skinneri, Barkeria spectabilis, and Laelia autumnalis.

On view the Morning of Sale, and Catalogues had.

Important Sale of Short-horned Cattle.

MR. STRAFFORD begs to announce that he is instructed by John Kelk, Esq., M.P., of Bentley Priory, Stanmore, to offer for SALE by AUCTION, without reserve, on TUESDAY, August 8th, at the Clarendon Hotel, adjoining the Watford Station, his small but select HERD of Pure-bred SHORT-HORNS, consisting of about 20 head of Bulls, Cows, and Heifers, that have been selected and bred from some of the most fashionable herds of the day, and descended chiefly from animals originally bred by Messrs. Bates and Booth.

Catalogues, with Pedigrees, may be had on application to Mr. Strafford, 13, Euston Square, London.



HORTICULTURAL BUILDINGS

MANUFACTURED BY STEAM POWER MACHINERY.

LOWEST PRICES AND BEST MATERIALS.

DESIGNING, BUILDING, HEATING, AND VENTILATING ON THE MOST APPROVED AND SCIENTIFIC PRINCIPLES.

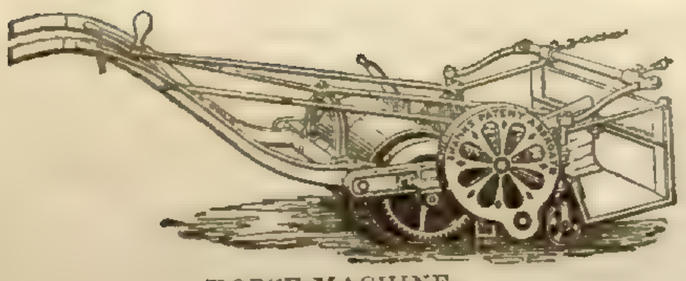
Plans, Specifications, and Estimates on application.

HENRY ORMSON, F.S.A.,
HORTICULTURAL BUILDER, AND HOT-WATER APPARATUS MANUFACTURER,
STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

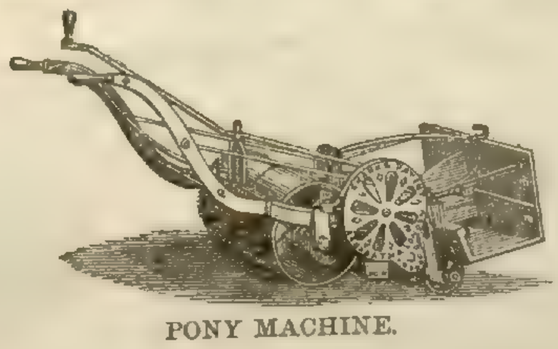
SHANKS' NEW PATENT LAWN MOWERS.

PATRONIZED ON FIVE SEPARATE OCCASIONS DURING THE SEASON OF 1864 BY

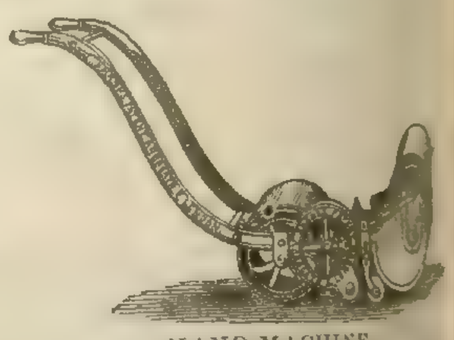
HER MAJESTY THE QUEEN.



HORSE MACHINE.



PONY MACHINE.



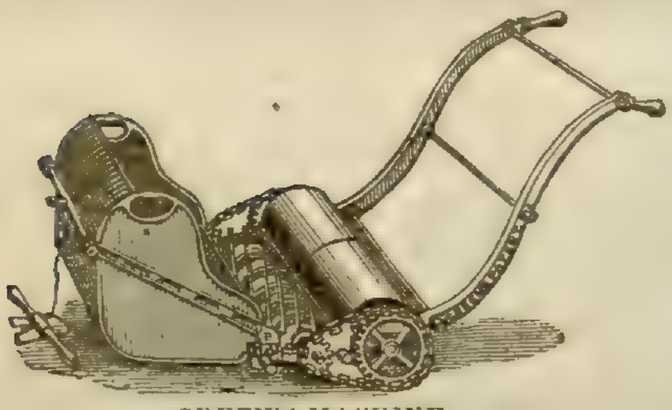
HAND MACHINE.

ILLUSTRATED CIRCULARS SENT FREE ON APPLICATION.

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N. B.
LONDON OFFICE and SHOW ROOMS, 27, LEADENHALL STREET, E.C.
A STOCK OF ALL SIZES OF MACHINES KEPT AT 27, LEADENHALL STREET.

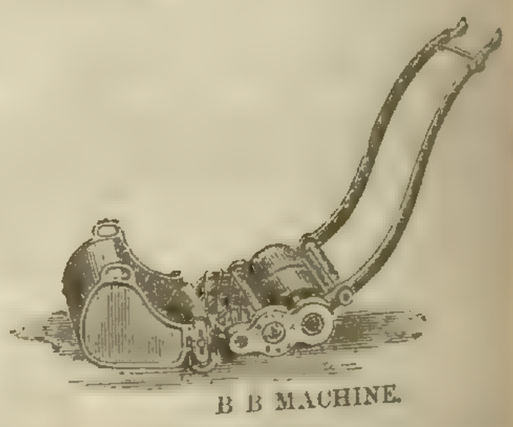
J. B. BROWN & CO., 18, CANNON STREET, CITY, E.C.

LAWN MOWING MACHINES FOR 1865.



GREEN'S MACHINE.

SHANKS' MACHINE.



B B MACHINE.

GREEN'S HAND MACHINE.

Size.	Easily Worked.	Price.	Size.	Easily Worked.	Price.
10-inch	*By a Boy* ..	£3 10 0	18-inch ..	*By a Man* ..	£7 10 0
12-inch		4 10 0	20-inch	*By Two Men*	8 0 0
14-inch		5 10 0	22-inch		8 10 0
16-inch ..	*By a Man* ..	6 10 0	24-inch		9 0 0

SHANKS' HAND MACHINES.
(Silent Movement, 4*s.* to 7*s.* 6*d.* extra. Tool Boxes, 5*s.* extra.)

Size.	Easily Worked.	Price.	Size.	Easily Worked.	Price.
10-inch	*By a Lady* ..	£3 10 0	19-inch ..	*Man and Boy* ..	£7 12 [illegible]
12-inch		4 10 0	22-inch	*By Two Men* ..	8 [illegible]
14-inch ..	*By a Boy*	5 10 0	24-inch		8 17 [illegible]
16-inch ..	*By a Man*	6 12 6			

NEW PATENT B B LAWN MOWER.

The NEW BB PATENT LAWN MOWER is manufactured by Messrs. Brown & Co., in London, on their own premises, and under their personal superintendence, is worked by means of geared or toothed wheels, is very noiseless, and is guaranteed to give perfect satisfaction in every respect.

PRICES—including Carriage to all the principal Railway Stations and Shipping Ports in England.

10-inch Machine	£3 10 0	*Easily Worked by a Boy.*	18-inch Machine .. .. £7 10 0 *Easily Worked by a B[illegible]*
12-inch Machine	4 10 0		20-inch Machine .. .. 8 0 0 *Ditto by Two Men.*
14-inch Machine	5 10 0		22-inch Machine 8 10 0
16-inch Machine	6 10 0	*Ditto by a Man.*	24-inch Machine 9 0 0

*** *Every Machine sent out is Warranted to give ample satisfaction, and, if not approved of, may be exchanged for any other size of Machine, or for the Machine of any other Maker, or may be at once returned unconditionally.*

J. B. BROWN AND CO., OFFICES, 18, CANNON STREET, CITY, LONDON, E.C.
NEARLY OPPOSITE ST. SWITHIN'S LANE and "LONDON STONE," and near LONDON BRIDGE.

WAREHOUSE (where Machines are kept in Stock), 148, UPPER THAMES STREET, E.C.
OPPOSITE the CITY of LONDON BREWERY, and close to the LONDON BRIDGE STEAM BOAT PIERS.

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THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 32.—1865.] SATURDAY, AUGUST 12. {Price Fivepence. Stamped Edition, 6d.

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ROYAL HORTICULTURAL SOCIETY.
SATURDAY SHOW, AUGUST 12.
PRIZES offered—6 COCKSCOMBS, in pots, 15s.; 6 VERBENAS, in pots, 15s.; 6 PENTSTEMONS, cut blooms, 10s.

CRYSTAL PALACE.—AUTUMN SHOW of FRUIT and FLOWERS.—ALTERATION of DATE.
This Show will be held on WEDNESDAY and THURSDAY, August 30 and 31, instead of September 6 and 7, as previously announced.
Schedules on application to ISAAC WILKINSON, Superintendent.

BISHOP AUCKLAND FLOWER SHOW will be held on FRIDAY, August 25. A great addition has this year been made to the Prizes. To insure Space Exhibitors should enter early.
Schedules sent on application to Mr. J. REED, Secretary.

DUBLIN INTERNATIONAL EXHIBITION, 1865.—GREAT INTERNATIONAL SHOW of FRUITS, GOURDS, ROOTS, VEGETABLES, and CEREALS. Open to all the World. TUESDAY, WEDNESDAY, THURSDAY, and FRIDAY, October 3, 4, 5, and 6. Keeping Fruits, Gourds, Roots, and Cereals will remain on Exhibition until October 17.
The Executive Committee have made arrangements to hold an International Fruit and Vegetable Show, in the Palace and Gardens of the Dublin International Exhibition, in October, 1865, when Prizes will be awarded for Fruits, Agricultural and Garden Roots, and Vegetables, Cereals, Dried and Preserved Fruits, Illustrated Works on Horticulture and Horticulture, and for Table Decorations.
For Prospectus and further particulars apply to
HENRY PARKINSON, Secretary.

Paul's Nurseries, Waltham Cross, N.
BEATON'S GERANIUMS are NOW in FULL BLOOM.
Entrance from the Platform, Waltham Station (G. E. Railway), half an hour's ride from London.

MILE END NURSERY, EATON, NORWICH.—In consequence of the death of Mr. WILLIAM HUSSEY, the BUSINESS of this Establishment will in future be continued on behalf of his Widow and Family under the style of HUSSEY AND SON, for whom a continuance of the favours for many years so liberally accorded to the late Proprietor is respectfully solicited.

Pines.
B. S. WILLIAMS begs to announce that he has a fine Stock of the above, including all the best kinds. Prices on application.
Paradise and Victoria Nurseries, Holloway, London, N.

NEW GRAPE, "ROYAL VINEYARD," the best late White Grape extant. Strong planting Canes, 10s. 6d. each; strong fruiting, 21s. each.
B. S. WILLIAMS, Paradise and Victoria Nurseries, Holloway, London.

Castle Kennedy Fig.
PETER LAWSON AND SON, London and Edinburgh, have made arrangements to send out the above valuable acquisition in OCTOBER NEXT, and are now booking orders, which will be executed in strict rotation as received.
Plants 10s 6d. each; a few extra strong at 21s. each.
Special terms to the Trade, and circulars with list of awards and further particulars may be had on application.

CUTHILL'S STRAWBERRY PLANTS will be sent out August 14th:—Black Prince, Princess Royal, Richard II., High-Mary, Newton Seedling and Everlasting, Prince of Wales, at 5s. per 100. If selected, 7s. 6d. Dr. Lindley has often said, to make sure of a crop have Cuthill's Breed.
SPAWN, per Bushel, 5s. Mushroom Pamphlet, with New Appendix, 1s. 6d., with others always on Sale.
JAMES CUTHILL, Camberwell, London, S.

20,000 STRAWBERRY PLANTS of all the popular kinds; warranted true; well rooted. To be sold reasonable. Price upon application.
CATALOGUE of NEW and CHOICE PLANTS of 1865, upon application to
FULLEMAN, BROTHERS, & Co., Sturmer and Woodlands Nurseries, near Haverhill, Essex.
Two minutes walk from the Sturmer Station, Great Eastern Railway.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

Orchard-house Culture.
MESSRS. THOS. RIVERS AND SON invite those interested in the above culture to view their COLLECTION of FRUIT TREES and VINES, occupying houses nearly 3000ft. in length. PEACHES and NECTARINES are now ripening.
The Harlow Station, G. E. Railway, is the most convenient for the Nurseries.
Nurseries, Sawbridgeworth.

Hardy Ornamental Trees and Shrubs.
OSBORN AND SONS invite lovers of Ornamental Planting to an inspection of the varied forms and foliage of their unrivalled collection of the above, to which they have for many years devoted especial attention.
PRICED CATALOGUES, consisting of upwards of 1500 species and varieties, may be had on application.
The Nurseries, Fulham, London, S.W.

To Nurserymen.
WANTED, 100 EUONYMUS (EVERGREEN) BOX, ARBUTUS UNEDO, CHINESE PRIVET, and AUCUBAS, 2 to 4 feet high, bushy plants.—Address lowest price for either or all (post paid) to X., at Ferguson, 2, Charles Street, Kensington New Town, W. More may be wanted.

Roses.
JOHN MANN, Nurseries, Brentwood, begs to inform his Patrons and the Public that his COLLECTION is NOW in BLOOM, ten minutes walk from Brentwood Station, Colchester Line, Great Eastern Railway.

Roses in Bloom.
JAMES MITCHELL respectfully informs the Nobility and Gentry his renowned ROSES are NOW in FINE BLOOM. Pilt Down Nurseries, Maresfield, Sussex, Two and a half Miles from the Uckfield Station.

ROSES.—The following for One Guinea.
Strong Plants, in pots, on own roots.
12 choicest TEAS and NOISETTES.
12 choicest HARDY PERPETUALS and BOURBONS.
Distinct and true to name.
Package included, and carriage free to London.
For NEW PLANTS, &c., see 56-page CATALOGUE, free for one stamp. Post Office Orders on Castle Hedingham.
WM. DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

Paul's Nurseries, Waltham Cross, N.
ENTRANCE FROM THE PLATFORM, WALTHAM STATION, GREAT EASTERN RAILWAY. HALF AN HOUR'S RIDE FROM LONDON.
WM. PAUL (Son and Successor to the late A. PAUL) begs to announce that his COLLECTION of ROSES is STILL in BLOOM, and comprises many of his own Seedlings, and other novelties not to be found in any other collection. In addition to the Roses, BEATON'S GERANIUMS, and a second and third generation from them, will be blooming throughout the summer and autumn. The Collection of HARDY TREES with FINE FOLIAGE is unrivalled, and many large and perfect specimens of the choicer CONIFERS are now in fine condition for removal, and are well worthy of the attention of gentlemen and horticulturists who contemplate planting. Bearing trees of all the LEADING FRUITS, Dwarfs and Standards, Pyramids and Espaliers, in fine, health and true to name. Inspection respectfully invited.
Waltham Cross, London, N.

Roses.
The PREMIER PRIZES at the NATIONAL, BIRMINGHAM, LEICESTER, STAMFORD, and BOTANIC JULY SHOWS.
PAUL AND SON respectfully invite an inspection of their COLLECTION NOW in BLOOM. The Show will continue from now till October; a piece of 40,000 only now commencing to flower. Their Collection of Specimen and young Coniferæ, and Ornamental Foliaged and beautiful Trees, as well as bearing Pyramid Fruits, are worthy of a visit. They would solicit from their Patrons early Rose Orders.
Old Cheshunt Nurseries, Cheshunt, N.

Hollyhocks.
PAUL AND SON'S Splendid COLLECTION of HOLLYHOCKS also is FINELY in BLOOM.
Reached by Rail to Cheshunt Station, Great Eastern Railway.

Shrubs, Roses, Fruit Trees, &c.
WM. CUTBUSH AND SON'S GENERAL NURSERY STOCK is the best near London.
GLADIOLI, fine, from 4s., 6s., 9s., & 12s. per dozen.
CATALOGUES on application.
Highgate Nurseries, London, N.

Genuine Garden and Agricultural Seeds.
JAMES CARTER AND CO.,
SEED FARMERS, MERCHANTS, and NURSERYMEN,
237 and 238, High Holborn, London, W.C.

H. AND F. SHARPE,
SEED GROWERS and MERCHANTS, Wisbech.
SPECIAL PRICED LIST of NEW SEEDS on application.

RAYNBIRD, CALDECOTT, AND BAWTREE,
SEED FARMERS and MERCHANTS,
89, Seed Market, Mark Lane; and Basingstoke.
Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

HARDY CLIMBERS, in Pots.—Now is the time for Planting.—12 choice HARDY CLIMBING PLANTS, including Honeysuckles, Clematis, Roses, Ivies, Jasmines, &c., package included, for 10s. 24 do., and package, for 18s. See 56-page CATALOGUE of NEW PLANTS of 1856, free for one stamp.
WM. DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

J. IVERY AND SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

BEDDING-OUT PLANTS in great variety.
WINDOW JARDINETS, Empty or Furnished, in variety.
The "Gardeners' and Amateurs' Friend," see page 601.
BARR & SUGDEN, 12, King Street, Covent Garden, W.C.

CRYSTAL PALACE, ROYAL BOTANIC, and ROYAL HORTICULTURAL FLOWER SHOWS.
At these PLANT CASES will be exhibited in great variety, furnished with the Choicest Exotic Fern and Foliage Plants, arranged by BARR & SUGDEN, of 12, King Street, Covent Garden, W.C.

First Quality.
CALCEOLARIA, PRIMULA, CINERARIA, CARNATION, PICOTEE, PINK, AURICULA, VERBENA, MIMULUS, ZONALE GERANIUM and PELARGONIUM.
Each 2s. 6d. per packet.
BARR & SUGDEN, 12, King Street, Covent Garden, W.C.

CALCEOLARIA AMBASSADOR (SANG). — The Subscribers respectfully invite the public to inspect this fine Calceolaria, now in flower at their Nurseries.
EDWARD SANG & SONS, Nurserymen and Seed Merchants, Kirkcaldy.

E. G. HENDERSON AND SON offer SEED of CALCEOLARIA, CINERARIA, and PRIMULA of first-class quality, at 1s., 2s. 6d., and 5s per packet. Also the finest SCARLET and INTERMEDIATE STOCK, 6d. and 1s. each.
SEED of CYCLAMEN PERSICUM, of similar quality, 6d. and 1s. each, and in mixed colours 2s. 6d. per packet.
The Wellington Nursery, St. John's Wood, London, N.W.

To the Trade.
CORNELIUS WHITEHOUSE, Brenton Nursery, Rugeley, Staffordshire, has to offer strong well-rooted 1-year SEEDLING HOLLIES; 1-year SEEDLING ENGLISH YEWS; 1-year SEEDLING BERBERIS AQUIFOLIUM; also several hundred thousand, well-grown, very stout, extra TRANSPLANTED HOLLIES, from 6 inches to 4 to 5 feet, will lift like Rhododendrons; 2 years TRANSPLANTED LAUNSTINUS, 9 to 12 inches; also stout well-rooted Plants from layers.
Price low. Cash or reference is respectfully requested from unknown correspondents.

CARTER'S GARDENER'S VADE-MECUM PLANT SUPPLEMENT is now ready.

New Plants for 1865.
JAMES CARTER AND CO.'S CATALOGUE of NEW and CHOICE BEDDING, GREENHOUSE, and STOVE PLANTS, is now ready, and will be forwarded gratis and post free on application.
JAMES CARTER & Co., 237 & 238, High Holborn, London, W.C.

British Fern Catalogue.
ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
*** Part II. (Exotic Ferns) will be issued as early as possible.
Foot's Cray Nursery, S.E.

INTERMEDIATE STOCK,
COVENT GARDEN and VICTORIA VARIETIES
Scarlet, Purple, White, or Mixed COVENT GARDEN INTERMEDIATE STOCK, each, 1s. per packet.
Scarlet, White, or Mixed VICTORIA INTERMEDIATE STOCK, very floriferous, and more robust than the Covent Garden varieties, each 2s 6d. per packet.
BARR & SUGDEN, 12, King Street, Covent Garden, W.C.

Seeds from Choice Strains.
B. S. WILLIAMS can now supply good Seeds of the following:—
CINERARIA (Weatherill's extra choice strain).—B. S. W. has secured at a great expense the entire stock and right of exclusive sale from Mr. Weatherill, of his, the best strain of Cineraria in existence, and can now offer packets at the following prices:—3s. 6d. and 5s.
CALCEOLARIA (Herbaceous), from a fine strain, 2s. 6d. and 3s. 6d. per packet.
PRIMULA (Williams' superb strain), the finest fringed and the best coloured flowers in cultivation. Red, White, or Mixed Seed, 2s. 6d., 3s. 6d., and 5s. per packet.
Paradise and Victoria Nurseries, Holloway, London, N.

NEW and GENUINE AGRICULTURAL, GARDEN, and FLOWER SEEDS
Special prices and advantageous offers on application to
JAMES FAIRHEAD & SON,
Seed Growers and Merchants, 7, Borough Market, London, S.E.

LAPAGERIA ROSEA.—A very large free-blooming plant of Lapageria rosea, in a new, well-made, neat case, for 5 Guineas.
Apply to Mr. BURWER, 17, Alma Square, Hill Road, Abbey Road, St. John's Wood, N.W.

Peas for Late Crop.
JAMES CARTER AND CO. recommend the undernamed quick growing sorts as being the most suitable for present sowing to produce a late crop this Autumn:—
CARTER'S FIRST CROP PEAS, per quart, 2s. 6d.
McLEAN'S LITTLE GEM PEAS, „ 5s.
237 & 238, High Holborn, W.C.

SUTTON'S RINGLEADER PEA.—The orders recently received for this very EARLY PEA are very numerous; and as we were unable to supply fully the demand last Spring, we respectfully solicit early orders to secure a full supply.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Cabbage Seed for present Sowing.
SUTTON AND SONS have a good stock of fresh Seed of all the best kinds of CABBAGE for the Farm and the Garden.
Royal Berkshire Seed Establishment, Reading.

100,000 FINE CATTLE CABBAGE PLANTS, 2s. 6d. per 1000, may be had of
Mr. A. WILKIN, Tiptree, Kelvedon, Essex.

Chivas' Orange Jelly Turnip.
CHIVAS AND WEAVER (late GEORGE CHIVAS) acquaint Agriculturists that they are supplying the above TURNIP, grown with scrupulous care, from a stock which they have been improving for several years; the characteristics of the variety are now generally recognised, viz. rapidity of Growth (may be sown till the middle of August), highly nutritious, and particularly hardy. To secure the genuine article, direct application is recommended. Price 1s. 6d. per lb; 20 lbs. delivered free at any railway station.
Chester, July 29, 1865.

DICKINSON'S NEW ITALIAN RYE-GRASS SEED is now ready for delivery. Sold only by himself to Agriculturists, and for present payment, at 48s per quarter, or 7s. per bushel.
New Park, Lymington, Hants.

Bromus Schraderi, new seed.
SUTTON AND SONS having just Harvested in their Grounds at Reading some Seed of the above, can supply the same in packets, 1s. each, post free.
Royal Berkshire Seed Establishment, Reading.

Meadow Grass Seeds for Autumn Sowing.
SUTTON AND SONS would recommend MEADOW and PASTURE GRASS SEEDS to be sown early in the Autumn, or not until the Spring.
Royal Berkshire Seed Establishment, Reading.

New Late Trifolium.
SUTTON AND SONS have just received a supply of each of the NEW VARIETIES of TRIFOLIUM—LATE RED and LATE WHITE. The quantity of feed is quite equal to the Common variety, with the advantage of coming in a fortnight later. The present prices are, for
NEW LATE RED FLOWERING, 8d. per lb. } cheaper by
NEW LATE WHITE FLOWERING, 9d. per lb. } the cwt.
Also the COMMON TRIFOLIUM INCARNATUM, 4d. per lb, cheaper by the cwt. Carriage free, except small parcels.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Early Spring Feed.
SEEDS FOR AUTUMN SOWING.
PETER LAWSON AND SON can supply of excellent quality—

ITALIAN RYE-GRASS	RYE
TRIFOLIUM INCARNATUM	WHITE MUSTARD

GREEN ROUND and GREEN GLOBE TURNIPS
SIX WEEKS TURNIP
CLOVER and NATURAL GRASS SEEDS for PERMANENT PASTURE, &c.
Also New Seed of BROMUS SCHRADERI, 2s. 6d. per lb., and the New Hardy Clover, TRIFOLIUM STRIATUM, 2s. per lb.
PETER LAWSON & SON, the Queen's Seedsmen, 28, King Street, Cheapside, London, E.C.; and at Edinburgh.

Strawberries.

CHARLES TURNER has the following now ready in strong plants :—

	Per 100—s.	d.		Per 100—s.	d.
Admiral Dundas (Myatt) ..	5	0	Hautbois (Myatt)	3	6
British Queen (Myatt) ..	5	0	Hautbois, Royal	5	0
Carolina superba (Kitley) ..	5	0	John Powell	7	6
Cockscomb (Ingram) ..	7	6	Keen's Seedling	3	6
Comte de Paris	3	6	La Chalonnaise	5	0
Crimson Queen (Myatt) ..	5	0	Le Constant	5	0
Eclipse (Reeves)	5	0	Marguerite (Lebreton) ..	5	0
Eleanor (Myatt)	3	6	Oscar (Bradley)	5	0
Eliza (Rivers)	5	0	Premier	5	0
Eliza (Myatt)	3	6	President (Green)	5	0
Elton Pine (Knight) ..	3	6	Prince Arthur (Ingram) ..	5	0
Elton Improved	5	0	Scarlet Pine	5	0
Empress Eugénie (Knivett)	5	0	Sir C. Napier (Smith) ..	5	0
Fairy Queen (Ingram) ..	20	0	Sir Harry (Underhill) ..	5	0
Filbert Pine (Myatt) ..	5	0	Sir Joseph Paxton (Bradley)	7	6
Frogmore Late Pine (Ingram)	5	0	Souvenir de Kieff (De Jonghe)	5	0
General Havelock (Tiley) ..	5	0	Wonderful (Joyes)	5	0

Many other kinds of less note may also be had.
The Royal Nurseries, Slough.

To the Lovers of Fine Fruit.

THE LADY.—It is 10 years since (as an Amateur) I introduced to the Public my Seedling Strawberry Sir Harry, which is now declared to be the most valuable variety at the present time in England, for in a leading article in the *Gardeners' Chronicle* of the 24th June last, alluding to the great failure of the Strawberry crop this year, it is stated that near Isleworth and Brentford, as well as the extensive tracts of land which once belonged to the Monastery of Syon, the failure is complete, and the only kind of Strawberry that bore a fine and abundant crop was the Sir Harry, "the name of which will become memorable." Having for many years past turned my attention to the raising of Seedling Strawberries, of which I have yearly produced some hundreds, I feel convinced that the variety now being introduced will prove itself to be the finest one I have ever raised. Many First Prizes have been already awarded to it at Horticultural Exhibitions for both forced and other fruit.

The Lady ripens about the time of the British Queen, and continues fruiting a long time; is a great cropper, bearing a large handsome fruit of a salmon colour, tinged with crimson, and ripening to the very end; the seeds are small and few, the flesh is very juicy, and melts in the mouth, the flavour is between a Pine and a Melon, and is most delicious, with the highest perfume I have ever met with. The entire of the crop is of large size, no useless fruit being produced, and it is as good a forcer as the Sir Harry.—Yours, &c.,

RICHARD UNDERHILL, Sir Harry's Road, Edgbaston, Birmingham.

Plants are now ready to be sent out (in lots of not less than 20).

All applications must be accompanied by a Post Office Order on Birmingham, Postage Stamps, or Cash, to receive attention.

PRICES OF THE LADY.

100 Strawberry Plants, £5	50 Strawberry Plants, £3 6
75 " " £4 5	20 " " £1 10

Plants in Pots (not less than 10) at 2s. each, package included.

The above Scale of prices will be slightly changed in August, 1866.

Mr. UNDERHILL's Treatise on the Cultivation of Strawberries may be had through the post, price 1s.

Address:—Mr. RICHARD UNDERHILL, Sir Harry's Road, Edgbaston, Birmingham.

TESTIMONIALS.

"The Cedars, Castle Bromwich, near Birmingham, July 3, 1865.

"DEAR SIR,—I am sorry I cannot accept your invitation to view your Strawberries on Wednesday next, having to attend at Regent's Park on that day; I thank you for the basket of your seedling The Lady, which is without doubt an excellent variety; the flavour is delicate and luscious, and quite distinct from any Strawberry I am acquainted with: the perfume is somewhat extraordinary, I look upon it as a decided acquisition. With best respects.—I am, dear Sir, yours very truly, "CHAS. JAS. PERRY.

"RICHARD UNDERHILL, Esq."

"Mona Cottage, Edgbaston, July 27, 1865.

"DEAR SIR,—I do not know when I was better pleased than with a view of the beds of your Seedling Strawberry The Lady; the colour of the fruit was so light and lively, and the crop so large; as to the flavour it was most delicious, and exceeded any Melon I ever tasted, and reminded me much of the Pine-apple. When your plants are ready please to let me know, for I must have some.—I remain, dear Sir, yours truly, "THOS. BURBIDGE.

"R. UNDERHILL, Esq."

New Early Turnip.

SUTTON'S SHORT-TOP SIX-WEEKS TURNIP, for Sowing in August.

This excellent Turnip, certainly the quickest in cultivation, if sown in the month of August, will be ready for Feeding off in October. Price 1s. per lb.; or cheaper by the bushel, Carriage free.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 2s. per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped, J. BARSHAM'S Patent.

PEAT, of superior quality, for Orchids, American Plants, and general Potting purposes for Sale, loaded at Farningham Road Station, on the London, Chatham, and Dover Railway. Apply to Mr. THOS. JESSEP, Woodsman, Franks, Farningham, Kent.

REIGATE SILVER SAND.—Good quality, 7s. per ton Cash, delivered loose into the Trucks at the Reigate Station. Best quality PEAT, LOAM, SPHAGNUM, ROCK, SANDSTONE, &c., on Sale.

W. SHORT, Sand and Peat Depôt, Reigate, Surrey.

To Florists and Nurserymen.

GARDEN POTS, supplied in large quantities.—Discount allowed for orders given at the present time.

H. PARRY'S Potteries, and Garden Border Edging and Drain-pipe Manufactory, Copperas Lane, Deptford, Kent, S.E. Established 1701.

Red Spider — Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing; on Trees at rest, should be dissolved 18 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes, 1s. 3s., and 10s. 6d. each.

Wholesale by PRICE'S PATENT CANDLE COMPANY (LIMITED).

INTERNATIONAL HORTICULTURAL EXHIBITION AND CONGRESS.

TO BE HELD IN LONDON IN 1866.

THE FOLLOWING RESOLUTIONS FORM THE BASIS OF THE SCHEME :—

1. That there shall take place in London, in 1866 (probably the week between Epsom and Ascot Races), a Grand International Horticultural Exhibition and Congress, to be open four days, and to which the leading Botanists and Horticulturists throughout Europe shall be invited.

2. That Two Morning Meetings (of the nature of a Congress) shall be held, at which Papers prepared by leading Botanists or Horticulturists shall be read, the Papers to be previously printed in English and French, or German, and circulated, and discussion thereon invited.

3. That there shall be Two Conversazioni, at which Foreigners invited to assist at the Exhibition shall have the opportunity of meeting with our own leading Horticulturists, Botanists, Exhibitors, &c.

4. That there shall be a Banquet, to which leading Foreign Visitors shall be invited, and to which also Ladies subscribing will be admitted. Tickets £3 3s. each.

5. That the Committee will endeavour to arrange that the most easily-accessible English Gardens, in which some feature of British Gardening—such as "Forcing," "Decorative Gardening," &c.—is illustrated, shall be open to Foreign Visitors.

6. That a Subscription List be opened for the purpose of [illegible] the Funds necessary to the formation of a liberal Prize List [illegible] to be issued, and containing Prizes amounting to nearly £[illegible] erection or part erection of the necessary Exhibition Building [illegible] tainment of Foreign Visitors, and for the working expenses [illegible] bition and Congress; and that a Guarantee Fund be also [illegible]

7. That Gentlemen subscribing TEN GUINEAS shall be [illegible] one Dinner Ticket of the value of £5 5s.; to one Card of Invitation [illegible] each of the Soirées, available for one Gentleman and [illegible] and to eight Tickets of Admission for the Opening of the Exhibition, when the admission by payment will be One Guinea each; [illegible] Subscribers of FIVE GUINEAS, or Guarantors of £50, will receive [illegible] Card of Invitation for each Soirée, available for one Gentleman [illegible] two Ladies, and four Tickets for the first day of the Horticultural Show. Subscribers and Guarantors of smaller amounts will [illegible] in proportion.

Gentlemen willing to lend their support to this undertaking will perhaps be kind enough to communicate at once with the Secretaries.

The FIRST LIST of SUPPORTERS will be published in a short time; and the LIST of OFFICE-BEARERS as soon as possible.

For the SCHEDULE of PRIZES, see the *Gardeners' Chronicle* of August 5.

Bankers.—Messrs. COUTTS & CO., 59, Strand, W.C.; Messrs. BARCLAY, BEVAN & CO., 54, Lombard St., E.

Treasurer.—Sir DANIEL COOPER, Bart.

Secretaries.
Mr. THOMAS MOORE, F.L.S. (Exhibition), Botanic Garden, Chelsea, S.W.
Dr. ROBERT HOGG, F.L.S. (General), 99, St. George's Road, S.W.
Dr. BERTHOLD SEEMANN, F.L.S. (Congress), 57, Windsor Road, N.

COMMITTEE ROOMS, ROYAL HORTICULTURAL GARDENS, SOUTH KENSINGTON, W.

NOTICE.

CATALOGUE of HYACINTHS, TULIPS, &c.

B. S. WILLIAMS'

CATALOGUE will be issued next week, and forwarded post free to all previous customers and applicants. It will contain Descriptive Lists of Hyacinths, Tulips, Crocuses, Narcissus, and other Bulbous Roots. Also a List of New and Rare Plants, including Beck's New Pelargoniums, for the autumn, 1865.

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.

CUMMING & EDMONDS,

CONSERVATORY ARCHITECTS, HORTICULTURAL BUILDERS, AND HOT-WATER APPARATUS MANUFACTURERS,

STAMFORD BRIDGE, FULHAM ROAD, BROMPTON, LONDON, S.W.

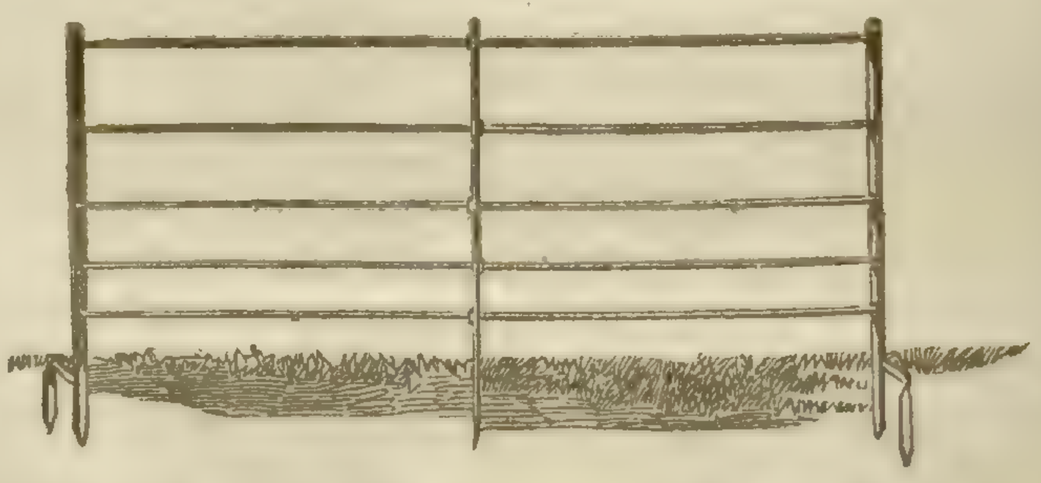
CONSERVATORIES, HOT-HOUSES, &c., Erected in the best manner, and Heated by Hot Water, embracing all the latest improvements.

Designs and Estimates prepared and forwarded free of charge.

G. CUMMING,
Eight years Managing and Estimating Clerk and Designer to Mr. H. ORMSON.

ST. PANCRAS IRON WORK COMPANY,

OLD ST. PANCRAS ROAD, LONDON, N.W.



IRON HURDLES, FENCING, AND GATES.

	Each.—s.	d.
SHEEP HURDLES, 3 ft. high, 6 ft. long, 4-Bar ..	4	0
Ditto ditto ditto, 5-do.	4	5½
Ditto ditto ditto, ⅝ Top Bar	4	8
CATTLE HURDLE, 3 ft. 6 in. high, 6 ft. long ..	4	[illegible]
Ditto ditto ditto strong	5	[illegible]
OX HURDLE, 4 ft. high, 6 ft. long	[illegible]	[illegible]

DR. SPRATT'S PATENT LOCK.

The simplest and best Fastening for Field, Wicket, Swing, and Railway Gates. Particulars and Prices on application.

PATENT WROUGHT-IRON STABLE FITTINGS, CONSERVATORIES, &c. Lists Free.

ST. PANCRAS IRON WORK COMPANY, OLD ST. PANCRAS ROAD, LONDON, N.W.

PATENT GUTTA PERCHA SOLES.—Important to Gardeners.—The Gutta Percha Company have pleasure in acknowledge the receipt of the following letter from [illegible], Esq., the celebrated Florist:—

"[illegible]—I have worn Gutta Percha Soles and Heels these [illegible] years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend [illegible] to have them, for they may repair the worn part at all [illegible] by warming the material at the fire, and pressing it from the [illegible] parts to the worn parts, as easily as if it were so much dough. [illegible] the boon of all persons who must occasionally wet their feet to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles.—Your obedient servant, "G. Glenny.

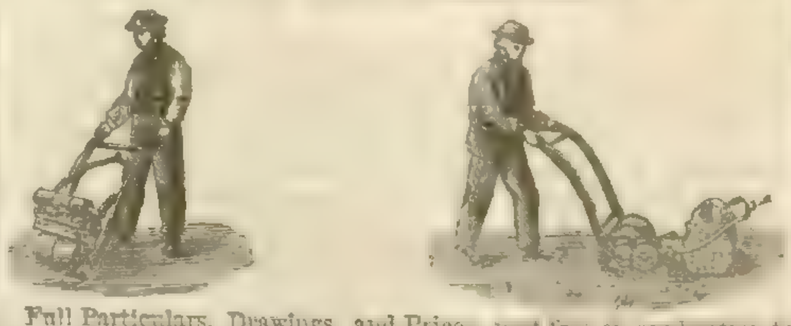
Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Calbotype trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale deals throughout the country.

The Gutta Percha Company, Patentees, 18, Wharf Road, City Road London, E.C.

Universal Microscope. Price £5 5s.

SMITH, BECK, AND BECK,
31, Cornhill, E.C., late 6, Coleman Street.
Catalogues sent on receipt of 6 postage stamps.

SHAW'S PATENT FLEXIBLE SELF-ADJUSTING LAWN MOWING MACHINES.



Full Particulars, Drawings, and Prices, post free on application to the Patentee and Manufacturer,
John Shaw, Junction Works, New Wortley, Leeds.

E. T. ARCHER'S "FRIGI DOMO." — Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.

PROTECTION from the SCORCHING RAYS of the SUN.

"Frigi Domo," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from [illegible] insects, and from morning frosts. It is had in any required lengths.

Two yards wide	1s. 9d. per yard run.
Four yards wide..	3s. 6d. per yard.
An improved make, 2 yards wide ..	1s. 9d. per yard.
An improved make, 3 yards wide ..	2s. 6d. per yard run.

Also "Frigi Domo" Netting, 2 yards wide, 1s. 6d. per yard run.

Elisha Thomas Archer, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, and of all Nurserymen and Seedsmen throughout the kingdom.

"It is much cheaper than Mats as a covering."

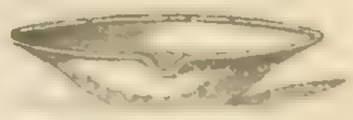
NEW TARIFF OF GLASS AND HORTICULTURAL GOODS.

THOMAS MILLINGTON,
GLASS AND COLOUR MERCHANT,
87, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

HAND GLASSES.

PRESERVE JARS.

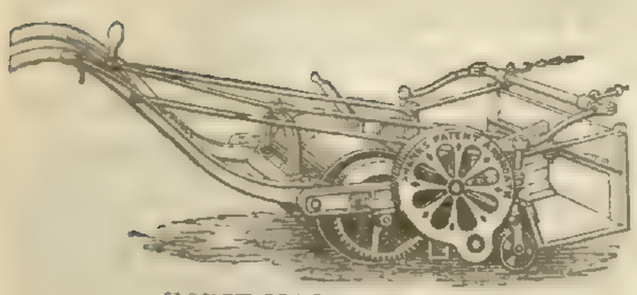
REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.

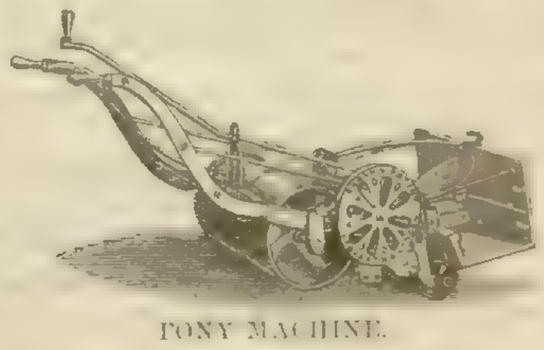

MILK PANS.

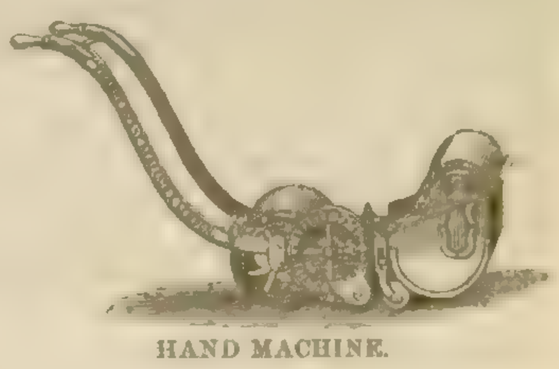
See Advertisement the first week in the month, or on application.

SHANKS' NEW PATENT LAWN MOWERS.

PATRONIZED ON FIVE SEPARATE OCCASIONS DURING THE SEASON OF 1864 BY
HER MAJESTY THE QUEEN.


HORSE MACHINE.

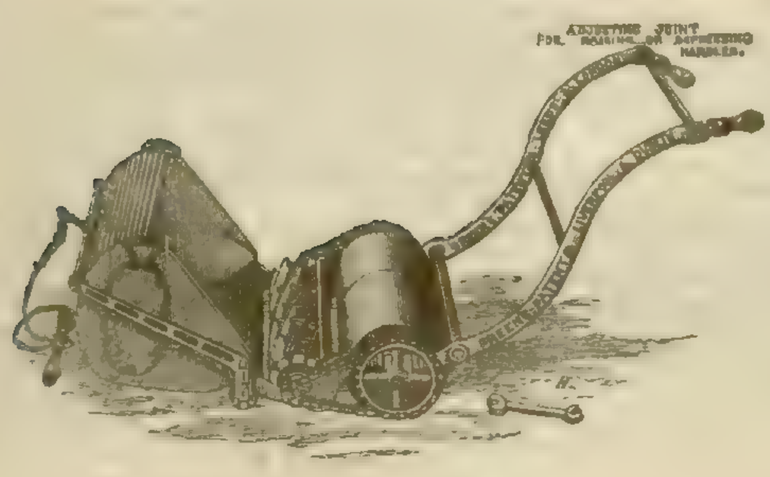

PONY MACHINE.

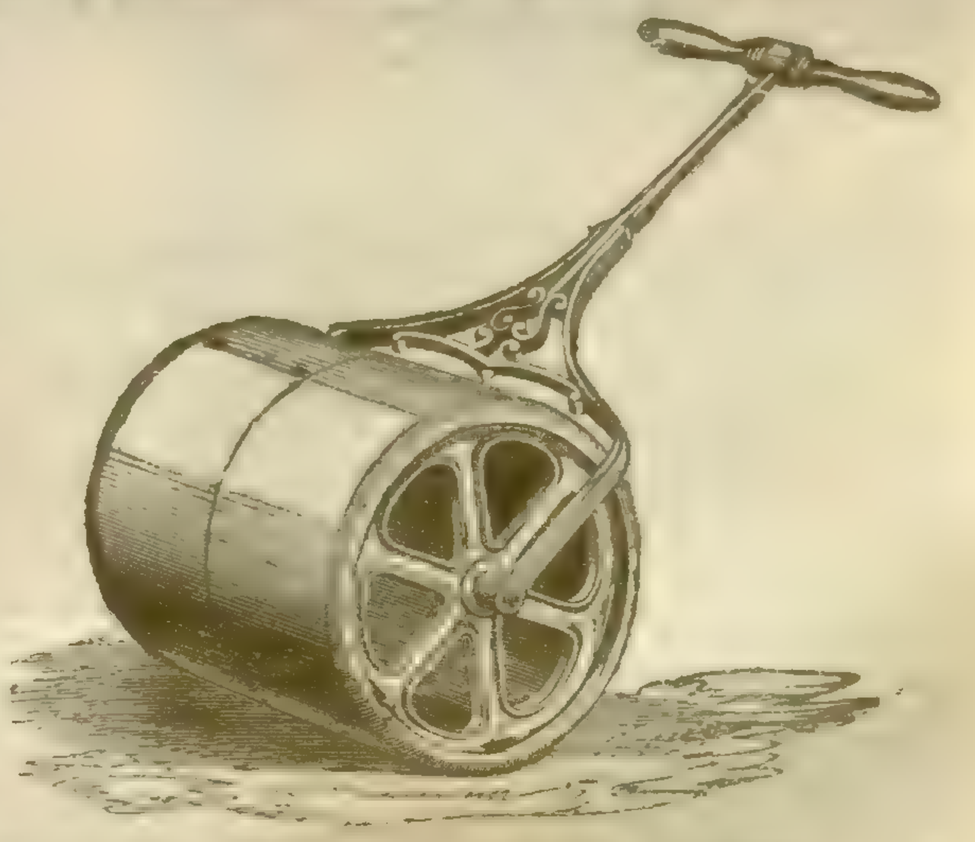

HAND MACHINE.

ILLUSTRATED CIRCULARS SENT FREE ON APPLICATION.

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N. B.
LONDON OFFICE and SHOW ROOMS, 27, LEADENHALL STREET, E.C.
A STOCK OF ALL SIZES OF MACHINES KEPT AT 27, LEADENHALL STREET.

GREEN'S PATENT SILENS MESSOR,
OR
NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.





GREEN'S PATENT LAWN MOWERS have proved to be the best, and have carried off every Prize that has been given in all cases of competition. Above 26,000 have been sold since the year 1856.

Illustrated Price Lists of Lawn Mowers and Garden Rollers Free.

THOMAS GREEN AND SON,
SMITHFIELD IRON WORKS, LEEDS; 2, FARRINGDON ROAD, HOLBORN HILL, LONDON, E.C.
HADWIN'S BUILDINGS, TITHEBARN STREET, LIVERPOOL; and 19, EDEN QUAY, DUBLIN.

ROBERT PARKER begs to offer the following, all of which are well-grown, clean, and healthy plants:—

	s.	d.
CLERODENDRON BALFOURII	5	0
CORDYLINE INDIVISA	10	6
FRANCISCEA CALYCINA	10	6
GOODYERA PUBESCENS	1	6
RHODODENDRON COUNTESS of HADDINGTON, 10s. 6d. to 21	10	0
" JAVANICUM	2	6
" NUTTALLII	2	6
TRITOMA GRANDIS	3	6
" UVARIA GLAUCESCENS	1	6
VINE DUCHESS of BUCCLEUCH 10s. 6d. and	21	0
YUCCA ALBO SPICA	42	0
" TRECULEANA, *cornuta, concava*	42	0

PRICED and DESCRIPTIVE CATALOGUES of Greenhouse, Hardy, and Stove Plants, Seeds and Bulbs, are published, and will be forwarded to applicants.

Exotic Nursery, Tooting, Surrey, S.

New Rose Hybrid Perpetual, Empereur de Mexique.

JEAN VERSCHAFFELT has much pleasure in announcing that he intends sending out this beautiful SEEDLING ROSE, raised by himself, and figured in the "Illustration Horticole" for June, 1865. This fine dark variety is a Seedling raised from the General Jacqueminot Rose, possessing all the qualities of its parent, and is a very abundant bloomer. Plants will be ready for distribution, and will be sent out in strict rotation, about October next. Price 10s. each; one plant over in every three to the Trade.

A carefully Coloured Plate will be sent gratis with each Order. Supplementary Plates may be had at 6d. each. Orders are now being booked, and are respectfully solicited by

JEAN VERSCHAFFELT, Nurseryman, 43, Rue de la Caverne, Ghent (Belgium).

☞ A reference required from unknown Correspondents.

SEEDS of the BEST QUALITY for PRESENT SOWING.

	Per paper.—s.	d.
CALCEOLARIA, from the best show flowers	2	6
CINERARIA, from ditto	2	6
PRIMULA SINENSIS FIMBRIATA	2	6
[These are saved by an Amateur, whose collection is unequalled and unrivalled.]		
STOCK INTERMEDIATE, four beautiful varieties	1	0
" EMPEROR or PERPETUAL, 4 splendid varieties	1	0
CALIFORNIAN ANNUALS, 12 showy varieties	2	6
[The whole of the above post free for 10s. 6d., or each separately at the price named.]		
CABBAGE INCOMPARABLE, EARLY	0	6
LETTUCE CHAMPION COS	1	0
ONION, large, MADEIRA	0	6
SPINACH, GIANT WINTER, New	0	6
TURNIP, WHITE, SHORT-TOP WINTER	0	6
[These fine lots of Vegetable Seeds post free for 2s. 6d., or each kind at the price quoted.]		

Apply to WM. DENYER, Seedsman, &c., 82, Gracechurch Street, E.C.

To the Seed Trade.

THE NEW INVINCIBLE SCARLET SWEET PEA.—Seed from the New Crop has now been saved, and can be supplied for Autumn Sowing.

This invaluable Pea is unquestionably one of the most important novelties among annuals of late years introduced. A First-class Certificate was presented by the Council of the Royal Horticultural Society on July 11 last, and is described in the *Gardeners' Chronicle* as "a very fragrant and high-coloured Pea." It has been this season growing in the grounds of the Society for inspection. The flowers are strikingly brilliant, and entirely distinct from any other; the upper petals intense scarlet, with a slight variation in the lower ones, which have a deep crimson tinge. It also possesses the desirable quality of Permanence of Colour. Unlike the common Scarlet, whose colour after first opening grows paler till the flower goes off, the Invincible retains its brilliance throughout, a mass of it consequently presenting an extraordinary contrast when seen near a mass of the common Scarlet.

The New Colour being so much wanted among this popular tribe, a small quantity offered in packets last year was consequently rapidly sold out, and numbers who purchased have spoken of it in very high terms.

Prices to the Trade sent on application. Orders are solicited early, as the Stock may be short, and many orders are already received.

STEPHEN BROWN, Seed Grower, Sudbury, Suffolk.

For Present Sowing.—Trifolium incarnatum, Italian Crimson Clover.

SEEDSMEN BY APPOINTMENT. Sutton AND Sons

SUTTON AND SONS can now supply NEW SEED of the above of fine quality. The price is 4d. per lb., or cheaper by the cwt.

The quantity to be sown per acre is 28 lbs. if alone, or if with Italian Rye-grass, 8 lbs. is sufficient.

Also MUSTARD and RAPE, new seed, at low prices, which may be had on application.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

BROMUS SCHRÆDERII *versus* SUTTON'S ITALIAN RYE-GRASS.

In Messrs. SUTTON'S TRIAL GROUNDS, Whitley, near Reading, are now growing the above Forage Plants, side by side, in similar soil, under similar treatment. The Bromus has produced two cuttings, and the Rye-grass three cuttings, this summer, the latter being much the heaviest. In some soils the Bromus Schræderii may be as productive as represented by Foreign Correspondents, but although we have cultivated it several seasons, and have procured Seed to supply the great demand which has arisen, we have never recommended it for cultivation in preference to the best variety of Italian Rye-grass. It will probably be valuable for Game Cover, as the Seeds are as large and as heavy as the finest Oats.

*** Messrs. SUTTON'S Trial Grounds are not open to the public, but admission is freely afforded to customers, on presentation of their card.

SUTTON & SON'S, Royal Berkampstead Establishment, Reading.

The most productive Fodder Plant is

SUTTON'S IMPROVED ITALIAN RYE-GRASS.—At the Meeting of the Royal Agricultural Society, on March 16, in a Lecture delivered by Alfred Hughes, Esq., of Thorness, Isle of Wight, as reported in the *Bell's Weekly Messenger*, and the *Mark Lane Express*, Mr. Hughes said:—"I always reserve a portion of Oat land to lay down with SUTTON'S Improved Italian Rye-grass, the most reliable plant I have come across for some years for Ewes and Lambs in the Spring. This Italian Rye grass, which is sold by SUTTON, of Reading, is a most astonishing vigorous plant; indeed, I never saw anything to equal it in the course of all my experience."

Mr. W. CARDWELL, of Nunnery Farm, near Sheffield, in a letter to Messrs. SUTTON, says:—"The Italian Rye-grass grown from seed purchased from you, and sown in August, is now 16 inches high, and is much admired."

Messrs. SUTTON have also been favoured with the following on the same subject:—

Mr. R. STUBT, *Pilming.*

"The SUTTON'S Improved Italian Rye-grass seed I had from you last year was very good; I think every seed came up. I have a beautiful plant, and have cut four good crops from it since the 30th of March last. It surprises my neighbours very much."

From JOHN BALDWIN, Esq., *Luddington.*

"It is certainly delightful to witness the Sheep up to their knees in your Italian Rye-grass."

J. H. FOWLER, Esq., *Eastleach.*

"I seeded some Rye-grass this last year, the seed of which I had from you, and sold it for 6s. per quarter *more than any other sample* in the market, in consequence of its very superior quality."

SUTTON & SONS have a fine stock at present of their Improved Italian Rye-grass, which is a very different and superior article to much that is sold as Italian Rye-grass.

PRESENT PRICE 6s. 6d. per bushel, carriage free, in quantities of 8 bushels upwards. Quantity required per acre if sown alone, 3 bushels.

Royal Berkshire Seed Establishment, Reading.

ROYAL HORTICULTURAL SOCIETY.

SCHEDULE for SATURDAY WEEKLY SHOWS for 1866.

The COUNCIL of the ROYAL HORTICULTURAL SOCIETY offer the following PRIZES for competition amongst EXHIBITORS at the SATURDAY WEEKLY SHOWS.

They will also grant Certificates for objects not included in the Classes for which Money Prizes are offered, and these Certificates may be commuted for Medals on a fixed scale.

In the Classes for Miscellaneous Collections of Cut Flowers, Specimens of Ornamental Foliage may be shown.

In the Miscellaneous Classes of Plants, not more than one-fourth of the whole collection in the case of Nurserymen, and one-third in the case of Amateurs may be Fine Foliage Plants, the remainder must be in Flower.

In cases of Equal Merit in point of Cultivation, preference will be given to those Collections which show the greatest variety of Beautiful Plants at present little cultivated.

Jan. 6 & 20.	Miscellaneous Collection, 18 PLANTS. (Nurserymen.) 20s., 15s. 10s.
Feb. 3 & 17.	The best Exhibition of VEGETABLES. (Open.) 15s., 10s., 5s.
Jan. 13 & 27.	Miscellaneous Collection, 6 PLANTS. (Amateurs.) 15s., 10s., 7s. 6d.
Feb. 10 & 24.	The best Exhibition of FRUIT. (Open.) 20s., 15s., 10s.
March 3, 17, & 31.	Collection of 18 BULBS in flower. (Nurserymen.) 20s., 15s., 10s.
"	Collection of 12 PLANTS, miscellaneous. (Nurserymen.) 15s., 10s., 7s. 6d.
"	The best Collection of VEGETABLES. (Open.) 15s., 10s., 5s.
March 10 & 24.	Collection of 12 BULBS in flower. (Amateurs.) 15s., 10s., 7s. 6d.
"	Collection of 6 PLANTS, miscellaneous. (Amateurs.) 15s., 10s., 7s. 6d.
"	The best Exhibition of FRUIT. 20s., 15s. 10s.
April 7.	Collection of 12 BULBS in flower. (Amateurs.) 15s., 10s., 7s. 6d.
"	Collection of 6 PLANTS, miscellaneous. (Amateurs.) 15s., 10s., 7s. 6d.
"	Collection of 12 CAMELLIAS, cut blooms. (Open.) 15s., 10s., 7s. 6d.
"	The best Exhibition of FRUIT. (Open.) 20s., 15s., 10s.
April 14.	Collection of 18 BULBS in flower. (Nurserymen.) 20s., 15s., 10s.
"	Collection of 12 PLANTS, miscellaneous. (Nurserymen.) 15s., 10s., 7s. 6d.
"	Collection of 24 ROSES, cut blooms. (Nurserymen.) 20s., 10s.
"	The best Exhibition of VEGETABLES. (Open.) 15s., [10s., 5s.
April 21.	Collection of 12 PLANTS, miscellaneous. (Amateurs.) 20s., 15s., 10s.
"	Collection of 6 PLANTS, miscellaneous. (Amateurs.) 15s., 10s., 7s. 6d.
"	Collection of 12 CAMELLIAS, cut blooms. (Amateurs.) 15s., 10s., 7s. 6d.
"	The best Exhibition of FRUIT. (Open.) 20s., 15s., 10s.
April 28.	Collection of 18 BULBS in flower. (Nurserymen.) 20s., 15s., 10s.
"	Collection of 12 PLANTS, miscellaneous. (Nurserymen.) 15s., 10s., 7s. 6d.
"	Collection of 12 ROSES in pots. (Nurserymen.) 20s., 15s., 10s.
"	The best Exhibition of VEGETABLES. (Open.) 15s., [10s., 5s.
May 5.	Collection of 3 PELARGONIUMS. (Amateurs.) 15s., 10s., 7s. 6d.
"	Collection of 6 PLANTS, miscellaneous. (Amateurs.) 15s., 10s., 7s. 6d.
"	Collection of 3 AZALEAS. (Amateurs). 20s., 15s., 10s.
"	Miscellaneous Collection of CUT FLOWERS, arranged in basket. (Open.) 10s., 7s. 6d, 5s.
"	The best Exhibition of FRUIT. (Open.) 20s., 15s., 10s.
May 12.	Collection of 6 PELARGONIUMS. (Nurserymen.) 20s., 15s., 10s.
"	Collection of 12 ROSES in pots. (Nurserymen.) 25s., 20s., 15s.
"	Collection of 12 PLANTS, miscellaneous. (Nurserymen.) 20s., 15s., 10s.
"	Miscellaneous Collection of CUT FLOWERS, arranged in basket. (Open.) 10s., 7s. 6d., 5s.
"	The best Exhibition of VEGETABLES. (Open.) 15s., 10s., 5s.
May 19.	Collection of 3 PELARGONIUMS. (Amateurs.) 15s., 10s., 7s. 6d.
"	Collection of 3 AZALEAS. (Amateurs.) 20s., 15s., 10s.
"	Collection of 6 PLANTS, miscellaneous. (Amateurs.) 15s., 10s., 7s. 6d.
"	Miscellaneous Collection of CUT FLOWERS, arranged in basket. (Open.) 10s., 7s. 6d., 5s.
"	The best Exhibition of FRUIT. (Open.) 20s., 15s., 10s.
June 9.	Collection of 6 PELARGONIUMS. (Nurserymen.) 20s., 15s., 10s.
"	Collection of 6 FUCHSIAS. (Nurserymen.) 15s., 10s., 7s. 6d.
"	Collection of 12 PLANTS, miscellaneous. (Nurserymen.) 20s., 15s., 10s.
"	Miscellaneous Collection of CUT FLOWERS in basket. (Open.) 15s., 10s., 7s. 6d. [10s., 5s.
"	The best Exhibition of VEGETABLES. (Open.) 15s.,
June 16.	Collection of 3 ZONAL PELARGONIUMS, various colours. (Amateurs.) 20s., 15s., 10s.
"	Collection of 3 FUCHSIAS. (Amateurs.) 15s., 10s., 7s. 6d.
"	Collection of 6 PLANTS, miscellaneous. (Amateurs.) 20s., 15s., 10s.
"	Miscellaneous Collection of CUT FLOWERS in a basket. (Open.) 10s., 7s. 6d., 5s.
"	The best Exhibition of FRUIT. (Open.) 20s., 15s., 10s.
June 23.	Collection of 6 ZONAL PELARGONIUMS, various colours. (Nurserymen.) 20s., 15s., 10s.
"	Collection of 6 FUCHSIAS. (Nurserymen.) 15s., 10s., 7s. 6d.
"	Collection of 6 CAPE HEATHS. (Nurserymen.) 20s., 15s., 10s.
"	Collection of 36 ROSES, cut blooms. (Nurserymen.) 20s., 15s., 10s.
"	Collection of 12 PLANTS, miscellaneous. (Nurserymen.) 20s., 15s., 10s.
"	Miscellaneous Collection of CUT FLOWERS in basket. (Open.) 10s., 7s. 6d., 5s.
"	The best Exhibition of VEGETABLES. (Open.) 15s., 10s., 5s.
June 30.	Collection of 6 ZONAL PELARGONIUMS, various colours. (Amateurs.) 25s., 20s., 15s.
"	Collection of 6 PINKS in pots. (Amateurs.) 20s., 15s., 10s.
"	Collection of 6 VERBENAS in pots. (Amateurs.) 15s., 10s., 7s. 6d.
"	Collection of 24 ROSES, cut blooms. (Amateurs.) 20s., 15s., 10s.
"	Miscellaneous Collection of CUT FLOWERS in basket. (Open.) 10s., 7s. 6d., 5s.
"	The best Exhibition of FRUIT. (Open.) 20s., 15s., 10s.
July 7.	Collection of 6 LILIUM AURATUM. (Nurserymen.) 20s., 15s., 10s.
"	Collection of 12 CARNATIONS. (Nurserymen.) 20s., 15s.
"	Collection of 12 PICOTEES. (Nurserymen.) 20s., 15s.
"	Miscellaneous Collection of FLOWERS in basket. (Open.) 10s., 7s. 6d., 5s.
"	The best Exhibition of VEGETABLES. (Open.) 15s., 10s., 5s.
July 14.	Collection of 3 LILIES, miscellaneous. (Amateurs.) 15s., 10s., 7s. 6d.
"	Collection of 6 CARNATIONS. (Amateurs.) 20s., 15s., 10s.
"	Collection of 6 PICOTEES. (Amateurs.) 20s., 15s., [illegible]
"	The best Exhibition of FRUIT. (Open.) 20s., 15s., [illegible]
July 21.	Collection of 6 LILIES. (Nurserymen.) 20s., 15s., [illegible]
"	Collection of 6 ASTERS in pots. (Nurserymen.) 7s. 6d., 5s.
"	Collection of 6 HOLLYHOCKS, spikes. (Nurserymen.) 20s., 15s., 10s.
"	Collection of 24 HOLLYHOCKS, cut blooms. (Nurserymen.) 20s., 15s., 10s.
"	The best Exhibition of VEGETABLES. (Open.) 15s., 10s., 5s.
July 28.	Collection of 6 SCARLET PELARGONIUMS. (Amateurs.) 20s., 15s., 10s.
"	Collection of 6 ASTERS in pots, distinct kinds. (Amateurs.) 15s., 10s., 7s. 6d.
"	Collection of 6 HOLLYHOCKS, spikes. (Amateurs.) 20s., 15s., 10s.
"	Collection of 12 HOLLYHOCKS, cut [illegible] (Amateurs.) 15s., 10s., 7s. 6d.
"	The best Exhibition of FRUIT or VEGETABLES. (Open.) 20s., 15s., 10s.
August 4.	Collection of 6 HYDRANGEAS. (Nurserymen.) 20s., 15s., 10s.
"	Collection of 3 HYDRANGEAS. (Amateurs.) 15s., 10s., 7s. 6d.
"	Collection of 6 PLANTS, miscellaneous. (Open.) 20s., 15s., 10s.
"	The best Exhibition of FRUIT. (Open.) 20s., 15s., [illegible]
August 11.	Collection of 12 PLANTS, miscellaneous. (Nurserymen.) 20s., 15s., 10s.
"	The best Exhibition of VEGETABLES. (Open.) 15s., [illegible]
August 18.	Collection of 6 PLANTS, miscellaneous. (Amateurs.) 15s., 10s., 7s. 6d.
"	The best Collection of FRUIT. (Open.) 20s., 15s., [illegible]
August 25.	Collection of 12 PLANTS, miscellaneous. (Nurserymen.) 20s., 15s., 10s.
"	The best Exhibition of VEGETABLES. (Open.) 15s., 10s., 5s.

PRIZES offered by JOHN KELK, Esq., M.P., Member of Council.

September 1.	Collection of 3 OLEANDERS, double-flowered varieties, £5.
"	Collection of 6 CAMPANULA PYRAMIDALIS. 20s., 10s.
"	Collection of 24 DAHLIAS, cut blooms. (Nurserymen.) 20s., 15s., 10s., 5s.
"	Collection of 12 DAHLIAS, cut blooms. (Nurserymen.) 10s., 7s. 6d., 5s.
"	Collection of 6 DAHLIAS, cut blooms. (Nurserymen.) 7s. 6d., 5s.
"	Collection of 12 DAHLIAS, cut blooms, fancies. (Nurserymen.) 10s., 7s. 6d.
"	Collection of 6 DAHLIAS, cut blooms, fancies. (Nurserymen.) 7s. 6d., 5s.
"	Collection of 24 DAHLIAS, cut blooms. (Amateurs.) 20s., 15s., 10s., 7s. 6d., 5s.
"	Collection of 12 DAHLIAS, cut blooms. (Amateurs.) 15s., 10s., 7s. 6d., 5s.
"	Collection of 6 DAHLIAS, cut blooms. (Amateurs.) 10s., 7s. 6d., 5s.
"	Collection of 12 DAHLIAS, cut blooms, fancies. (Amateurs.) 15s., 10s., 7s. 6d., 5s.
"	Collection of 6 DAHLIAS, cut blooms, fancies. (Amateurs.) 10s., 7s. 6d., 5s.
"	The best Exhibition of VEGETABLES. (Open.) 15s., 10s., 5s.
Sept. 8 & 22.	Collection of 6 PLANTS, miscellaneous. (Amateurs.) 15s., 10s., 7s. 6d.
"	The best Collection of FRUIT. (Open.) 20s., 15s., [illegible]
Sept. 15 & 29.	Collection of 12 PLANTS, miscellaneous. (Nurserymen.) 20s., 15s., 10s.
Oct. 6 & 20.	Collection of 6 PLANTS, miscellaneous. (Amateurs.) 15s., 10s., 7s. 6d.
"	The best Exhibition of FRUIT. (Open.) 20s., 15s., [illegible]
Oct. 13 & 27.	Collection of 12 PLANTS, miscellaneous. (Nurserymen.) 20s., 15s., 10s.
"	The best Exhibition of VEGETABLES. (Open.) 15s., 10s., 5s.
November 3.	Collection of 6 large flowering CHRYSANTHEMUMS. (Nurserymen.) 20s., 15s., 10s.
"	Collection of 6 POMPONES. (Nurserymen.) 20s., 15s., 10s.
"	Collection of 24 CHRYSANTHEMUMS, cut blooms. (Nurserymen.) 15s., 10s., 7s. 6d.
"	Collection of 6 large flowering CHRYSANTHEMUMS. (Amateurs.) 25s., 20s., 15s.
"	Collection of 6 POMPONES. (Amateurs.) 25s., 20s., 15s.
"	Collection of 12 CHRYSANTHEMUMS, cut blooms. (Amateurs.) 10s., 7s. 6d., 5s.
"	The best Exhibition of VEGETABLES. (Open.) 15s., 10s., 5s.
Nov. 10 & 24. Dec. 8 & 22.	Collection of 6 PLANTS, miscellaneous. (Amateurs.) 15s., 10s., 7s. 6d.
	The best Exhibition of FRUIT. (Open.) 20s., 15s., 10s.
Nov. 17. Dec. 1, 15, & 29.	Collection of 12 PLANTS, miscellaneous. (Nurserymen.) 10s., 7s. 6d., 5s.
	The best Exhibition of VEGETABLES. (Open.) 15s., 10s., 5s.

Grand Jubilee Commemoration.

JEDBURGH HORTICULTURAL SOCIETY. — The MANAGING COMMITTEE of the above Society beg to intimate to all interested in Floral matters that they have made arrangements for a SPECIAL FRUIT and FLOWER EXHIBITION, to be held in connection with their ordinary Autumnal Show, in the Corn Exchange, Jedburgh, on TUESDAY, August 29, 1865.

In addition to 128 Prizes enumerated in the Society's Schedule, the Committee have pleasure in intimating that they are prepared to give the following Prizes, THE SAME BEING OPEN TO ALL COMERS, with the view of securing a friendly competition with other societies, and as early a preliminary demonstration to commemorate the completion of the 50th year of the Jedburgh Society's existence. It is hoped that the value of the prizes will be found such as to induce an extensive competition. Circulars containing full particulars relative to these Commemoration Prizes may be had on application to either of the Secretaries.

1. For the finest 4 POT PLANTS, with fine foliage, distinct varieties. 1st Prize, £3; 2d, £2.
2. For the finest 4 STOVE or GREENHOUSE POT PLANTS. 1st, £3; 2d, £2.
3. For the best 6 HOLLYHOCK SPIKES. 1st, £3; 2d, £1 10s.
4. For the best 12 DAHLIAS. 1st, £2; 2d, £1.
5. For the best 6 GLADIOLI. 1st, £2; 2d, £1.
6. For the best 3 BUNCHES of GRAPES, any sort, weight and quality. 1st, £2; 2d, £1.
7. For the best 12 PEACHES. 1st, £1.
8. For the best 6 APRICOTS. 1st, £1.

JUBILEE BANQUET.

The Society's Annual Dinner will be held this year on August 29 (the day of the show), within the Spread Eagle Hotel at 5.30 P.M. Tickets 2s. 6d. each; to be had of the Secretaries, Treasurer, or any Member of the Committee.

BANBURY HORTICULTURAL SOCIETY.—OPEN PRIZES.—1865.

The THIRTEENTH ANNUAL EXHIBITION of this Society is fixed for TUESDAY, August 29, when, in addition to the usual number of Prizes to be competed for by Members, the following are offered, open to all England, on payment of an Entrance Fee of 2s. 6d.

For the best 6 Stove or Greenhouse Plants, either in Flower or Ornamental, of at least four different genera, but not Fuchsias or Annuals, 1st Prize, £3; 2d, £2.

For the best 24 Dahlias, 24 varieties, 1st Prize, £3; 2d, £2.

For the best 18 Hollyhocks, 2 Blooms of each, 1st Prize, £2; 2d, £1.

For the best 12 varieties of Verbenas (5 Trusses in a Bunch), 1st Prize, £1: 2d, 15s.

The Judges may withhold any Prize if the production exhibited be not considered worthy.

Intending Exhibitors must give notice to the Secretary on or before Saturday, August 26.

The Society will, if requested, convey the productions from and to the Railways.

The Bands of H.M.'s 52d Foot, and the 3d Oxfordshire Rifle Volunteers, and the Orpheus Glee Union will perform on the Grounds.

For further particulars apply to E. J. HARTLEY, 7, High Street, Banbury. Secretary.

The Gardeners' Chronicle.

SATURDAY, AUGUST 12, 1865.

A VERY important memoir, by Monsieur GRIS, has lately been published in "Annales des Sciences Naturelles" on the APPEARANCES PRESENTED BY THE DIFFERENT PARTS OF THE SEED DURING GERMINATION. A question had been proposed by the French Academy for competition to the following effect: "To study the changes which take place during the germination in the constitution of the tissues of the embryo and perisperm, as also in the substances contained in these tissues." Monsieur GRIS accordingly chose, amongst others, the following plants as subjects for investigation: the Castor-oil plant, the Marvel of Peru, the Italian Anchusa, the Bottle Gourd, the Laburnum, the Kidney Bean, the Indian Corn, the Indian Shot, and the Date, all of them plants with large seeds, and differing either in the nature of their albumen, or in its total absence. Each was traced through its several stages, and accurate drawings made.

Far the most interesting part in our estimation is that which relates to the curious substance first discovered by HARTIG, and named by him aleurone, a substance which abounds in the Castor-oil plant, and in many others, and which seems to play a most important part in the development of the embryo.

The grains of aleurone consist of three parts, the aleuric mass properly so called which assumes a crystalline form, a globular white nucleus, and a finely granular matter. The formation of these grains is extremely singular, and as far as we know without parallel. The mother cell presents first a nucleus which is attached to the walls by mucous threads. On these and around the nucleus little granular bodies accumulate; amylaceous but transitory grains appear on the surface of the nucleus; the contents of the cell divide into a number of compartments, the walls of which are granular and the contents pellucid; minute bodies appear in the compartments, which ultimately assume two different forms, the one larger, irregular, and crystalline, the other smaller and globose, and the two finally unite to form the grains of aleurone. Under germination the parts again separate, and the contents of the larger crystalline part become segmented, previous to its resorption.

The grains are not however in all cases the same; in the Laburnum there is no white nucleus; and the chemical reaction is different. Sometimes, as in the Laburnum, grains of chlorophyll are developed at the same time with the aleuric grains; but they do not seem to be dependent on each other, and the same may be said of amylaceous matter. The exact nature of aleurone does not seem to have been determined: sometimes the grains are not acted upon by ether, which seems to imply anything rather than a fatty nature; but in the Almond and Wood Nut the aleuric corpuscles liquify under the successive influences of oil and ether,—substances which in general do not affect aleurone, and one of which is the natural solvent of fatty matters. It is to be remarked, moreover, that in oily seeds the development of the two substances seems perfectly independent of each other.

These grains are in general sensible to the action of water, and more oil may be obtained from seeds which have been subjected to water than when pressed perfectly dry; and Monsieur GRIS is inclined to believe that oily matter contained in the grains is set free by the water.

The contents of the perispermic cells in the Castor-oil plant and Date consist of aleurone and fatty matter, while in the Indian Shot, Marvel of Peru, and Indian Corn, they are essentially amylaceous. It is curious, that while in these latter plants absorption takes place first in the parts in contact with the embryo, in the Castor-oil plant an inverse order is followed.

It is well-known that the starch during germination is transformed into soluble dextrine and sugar, but as regards cellulose, fatty matter, and aleurone, we have at present no certain information.

Monsieur GRIS adverts to the physiological import of the scutellum in cereals. It is already well furnished with starch grains before those in the albumen begin to decompose. It is probable, therefore, that it is a mere recipient of soluble matter from without which it conveys to the embryo, thus performing the functions of a root, which we believe it to be, the subsequent roots being secondary. The grains of starch moreover in the scutellum are simple, whereas in general new amylaceous formations, which appear in the tissues of the embryo, under the influence of the nutritive matters derived from the perisperm, present themselves under the form of compound grains, which is an additional point in favour of Monsieur GRIS's notion.

The development of the cotyledon seems to be singularly uniform, notwithstanding the very different circumstances under which they are placed, and the different substances with which they are in contact. Notwithstanding such great differences, the presence of starch in the first stages of germination is a constant fact, though in very variable quantity. In the Castor-oil plant and Marvel of Peru, for example, the tissues are gorged with it; in the Gourd and Laburnum it is far less abundant, while in the Anchusa it is extremely rare. This newly-formed amylaceous substance is always accompanied by a substratum of granular and azoted matter, which is probably derived from the grains of aleurone.

As regards the subsequent phases of germination, they are uniformly characterised by the resorption or rather the successive transformation of azoted substances and hydrocarbons as the tissues are developed, transformations which have in view the development of these tissues, and ultimately the apparition of the chlorophyll, which must serve for the respiration of the newly-born plant.

It is, however, a question whether the amylaceous matter of the cotyledons is really derived from the perisperm. In order to ascertain this, Monsieur GRIS contrived to insulate the embryo of the Indian Shot, and to cause it to germinate under artificial heat in the pores of a sponge. In this case, equally as in that in which it was left in contact with the perisperm, starch grains were developed, notwithstanding that in many cases none were previously present, though in others there were traces of them.

Such is only a slight sketch of Monsieur GRIS's memoir, which requires careful study accompanied by a close inspection of the numerous figures. Our object is rather to direct attention to it, than to give a full analysis. *M. J. B.*

How or why is it that the TIMBER, say of the Scotch Pine, grown in the north of Europe is of so much greater value than that of the same tree grown further south? A similar question has often been asked, and its very frequency shows that no perfectly satisfactory reply has as yet been given. M. CHATIN revives the question in a paper on the RIGA PINE, lately published in the "Bulletin de la Société Impériale d'Acclimatation."

We shall take another opportunity of alluding to this *brochure* of M. CHATIN; at present our business lies with the scientific questions involved in the matter. Do the differences which are proven to exist in this variety of Pinus sylvestris depend on climatal influences, or on the nature of the soil? Those who maintain the former, argue that the superior quality of the northern timber is due to the slowness with which, owing to the inclement climate, the wood has been formed. But, on the other hand, it is stated that the trees growing on the mountain sides of Dauphiny, Savoy, &c., are exposed to as rigorous a climate as those growing in Lithuania and the plains around the Baltic, at least in the winter season. In the period of active growth, however, so far from the climate of the Baltic region being colder than that of the mountains of central Europe, it is, in reality, much warmer, as shown not only by meteorological records, but also by horticulturists, who find that certain plants will grow in the open air in those northern districts which will not grow on the central Alps.

As the assumed severity of the climate, and the consequent slowness of growth, are thus disproved by the incontrovertible logic of facts, the next question is as to the nature of the soil. The Baltic Pines, it appears, flourish for the most part in a soil like that in which their southern brethren grow, and when transported to the south and grown there, with, and under the same conditions as the Scotch Pine, the northerners still retain their greater value, as witness the plantations at Harcourt, in the Department of Eure. And so, as neither climate nor soil seem sufficient to account for the superior value of one over the other, we are thrown back upon innate properties and hereditary qualities, and have to say that there is an inherent goodness in the one which is comparatively deficient in the other, just as the medical student, when questioned as to the cause of the narcotic effects of opium, is reported to have said—"*Quia est in eo virtus dormitiva!*"

WE have more than once adverted to a peculiar condition to which PEACH LEAVES under glass are subject, from the sudden admission of a cold draught, when they are spotted with water-drops; and several years ago we gave a figure of a similar condition in a young Cherry tree, where the effect was evidently produced by the combined action of cold and moisture. Portions of the leaves become brown; they then completely lose their vitality, and as the rest of the leaf is developed the little dead patches fall out.

We have now before us a case, in which not only the leaves are so affected, but the fruit is disfigured by brown spots of various sizes, which penetrate deeply into the tissues, and which as the fruit swells become depressed and of a darker colour, giving out large globules of gum, which is either colourless or deeply stained with the ulmates or humates of the decayed mass through which it has to pass.

The history of the case is not without instruction. The Orchard-house in which the trees grow, at a well-known watering place on the southern coast of England, is constructed in front of perforated zinc 3 feet high, 10 feet of the roof consisting of sheet glass, while the remaining 2 feet immediately over the trees—which are on the back wall of the house—consist also of perforated zinc: the object being to secure a perpetual ventilation in all weathers. We do not think such a construction at all likely to suit the delicate constitution of the Peach; but as one of the trees, a Royal George, had suffered more or less from the same disease some years before the house was constructed, we are not at liberty to look for the cause exclusively in the Orchard-house.

There is probably something peculiar in the locality; but it has been invariably observed that the disease presents itself after wet, cold, rainy weather, first by the dark spots in the leaves, then by their falling off, which they do with the slightest touch. The fruit, moreover, which is deeply affected, showed the first symptoms of disease in May, about which time there was a wet week, or rather a change from the intensely hot weather of the preceding month. Several trees in the same house, growing in pots plunged up to their rim, are free from disease, and scarcely any spotted leaves are to be found. These are immediately under the glass, and not subject to any drip when rain falls.

Whatever may have originally been the matter with the trees, we believe that any Peach trees under similar circumstances would very probably have been unhealthy, though we would not say that the fruit would be likely to be affected in the very curious manner in which that before us has suffered.

As regards the gumming of fruit, it is very

common this year, partly in all probability from the cuticle being first affected by cold, and then after drought, by a sudden access of moisture which became stagnant in the tissues. We have now before us Greengages which have gummed to a considerable extent, the bunches in which the excusion occurs so profusely consisting of 15 or more individuals, all of which are more or less affected. Apricots in the same district, though most abundant, are a complete failure, hundreds rotting on the trees. This has been attributed to swarms of earwigs, but all the mischief cannot be laid to these little plagues, as we observe that even where no insect has caused a lesion, the fruit which pressed against any hard substance has frequently suffered, and in many cases the *Oidium fructigenum*, which is the pest of various kinds of fruit, has had its share in the evil.

The spotted condition of the Peaches is however quite new to us, and the only remedy we can suggest is to cover over the perforated zinc in the roof, and to provide some other method of ventilation. *M. J. B.*

—— The discussion which has been carried on in our columns as to the merits of certain Early Peas, has an interest for several classes of the community, although the evidence is in some of its details rather conflicting. The seedsman and the practical gardener will learn from it not to expend their shillings on novelties which have little new about them, save the name, while real Pea lovers, those who partake with thankfulness of the fruits of the earth *in due season*, will still retain their preference for the later varieties. The physiologist will see in the records that have been given, another illustration that this tendency to produce flowers and pods at an earlier or a later date, is an innate hereditary tendency, only partially affected by outward circumstances. Plants, like animals, attain certain average dimensions, and their several organs bear one to the other a relative size, variable indeed, but still always within limits that it is generally easy to ascertain. So in regard to the time of producing leaves or flowers; although this varies according to the temperature of the season, the nature of the soil, and other external conditions, yet the proportionate time is not altered. The earliest Pea of one season, provided due care and selection have been exercised, will be the earliest Pea of the next, although there may be considerable difference in the seasons, and much diversity in the time of flowering at the two periods. Thus the rhythm, so to speak, is as accurately preserved as are the form, the size, or any other attribute of the plant.

To what extent it may be possible to alter the time-rate is a question for the Darwinians to answer. Meanwhile, we have abundant evidence to show that *some* modification may be effected in it; and we doubt not that in course of time much greater success in this way may be attained by hybridisation, by growing plants in colder and more exposed situations, at greater altitudes, and under various other conditions, which will suggest themselves to those desirous of carrying out this important experiment on scientific principles. As the changes must be gradual, a lengthened period of time and unfailing patience are absolutely necessary.

New Plants.

306. Sarcanthus erinaceus, *Rchb. f. in Mohl. & Schlchtd. B. Z.* 1864, 294.

Pedunculo muriculato echinato racemoso, bracteis triangulis abbreviatis echinulatis, ovariis pedicellatis æque echinulatis, sepalis oblongis acutis æque echinatis, petalis ligulatis obtusis, labello excavato tridentato, utrinque sub columna plicato, dentibus lateralibus bidentatis, dente medio producto triangulo, calcari retrorso conico-cylindraceo vacuo, gibbere pandurato sub columna, columna gracili elongata, rostello deflexo subulato elongato apice bidentato, caudicula ab ovata basi lineari, polliniis in stipite bifido centrice caudiculæ inserto reflexis.

There are flowers so very odd, that one could laugh when looking at them. Here we have a zigzag flexuose rachis, full of little spiny excrescences, and flowers in the way of those of Camarotis rostrata, with a long beaked column; the stalked ovaries and sepals outside full of such excrescences, and greenish yellow; the petals and lip rosy. We cannot but be reminded of a hedgehog or urchin, when looking at the queer flowers: hence the name. Of the leaves we know nothing. The plant is one of the numerous Burmese discoveries of the Rev. C. S. Parish. It flowered both last year and this at Upper Clapton, with Messrs. Low & Co., under the care of Mr. Bullen.

307. Odontoglossum radiatum, n. sp.

Sepalis oblongis acutis, petalis rhombeo-acuminatis utrinque supra basin antrorsum acutangulis, labelli ungue brevissimo lato, lamina cordato-oblonga apice pandurato-dilatata emarginata cum apiculo, antice lacero-serrulata, carinulis humillimis radiantibus in basi, pari antico externo in caudas antico interno in lamellas serratas exeunte, columna utrinque supra basin angulata (tabula tamen nulla), alis serratis laceris juxta foveam et circa androchinium.

Here is indeed a splendid new Odontoglot, and since the flower came from a just imported bulb one may imagine how much it will be improved when it shall have been for a longer time under good cultivation. Three species, each of great beauty, must be compared with it:—Odontoglossum luteopurpureum of Lindley, the glorious discovery of Linden, has all the petals fringed, and a totally different crest provided with many such bristle-like processes as there are here but two. Odontoglossum hystrix of Bateman, for a flower of which we are obliged to the modern monographer of Odontoglots, has very many such processes on the lip, the petals entire or nearly so, and the lateral sepals prolonged in an unusual way, much longer than the lip. Odontoglossum tripudians of Rchb. f. & Warscz., for fresh flowers of which we were indebted to our friend Linden, has the lateral sepals with angular edges, a longer stalk to the lip, and free radiating tendrils on the base of the lip, whose inferior half is of the most splendid violet purple. The other comparable species, Odontoglossum Schlimii Lind. & Rchb. f., Hallii Lindl., triumphans Rchb. f., sceptrum Rchb. f. & Warscz. (the types of which lay at our hands, with those of the three before mentioned), have all a very sharp acute apex to the lip.

Our new species has chestnut-brown sepals enlivened with a little pale yellow. The petals, so remarkable for the projecting angles at the sides, are yellow with a few brown spots. The nearly panduriform white lip is finely fringed at the broader anterior part. The radiating carinæ at the base are golden yellow, surrounded with brown; a great brown two-lobed blotch stands at the base of the anterior part, little dots surrounding the limb from the middle to the base. The column is white with some chestnut and yellowish dots, and has

very evident fringes at the sides of the stigma. This species was discovered in New Grenada by Mr. Blunt, and has just now flowered with Messrs. Low & Co. We hope they may possess a rich store of so showy a plant!

308. Cœlogyne corniculata, *Rchb. f.* 1864 *in litt. ad dom. Day.*

(Pholidota) racemo quaquaverso laxo, bracteis oblongis cucullatis apiculatis ovaria pedicellata superantibus, sepalis oblongis acutis, lateralibus per nervum medium dimidio tantum inferiori obtuse carinatis, a basi in medium obtusangulo obtusatis ab labelli faucem, petalis anguste lanceolatis acutis, labello medio angulato saccato, laciniis lateralibus semiovatis acutis, lacinia media transversa rotundata retusa seu obsolete acuta seu minutissime lobulata, gracili, juxta latera foveæ utrinque dilatata, alis lateralibus subacutis, ala postica erecta subquadrata emarginata, foveæ limbo erecto, rostello ascendente.

This bears a long pendulous raceme with great sheathing bracts and sweet yellow-green or honey-coloured flowers, the lip of which is of a deeper yellow, with brownish borders to the lateral segments. In its lax racemes it reminds one of Cœlogyne (Pholidota) undulata, but the flowers are very different, and very curious in the angular centre of the lip. It is one of Mr. Day's numerous Indian importations, most probably from Assam. *H. G. Rchb. fil.*

ORCHARD HOUSE MANAGEMENT.

Towards the end of last month I paid a visit to Messrs. Rivers, of Sawbridgeworth, merely to look at their Orchard house culture, and to ascertain if all was as perfect as I had been led to believe, for I could scarcely credit that thousands of Peach and Nectarine trees, of all ages and conditions, could be free from the pest of the season—red spider. I need merely say that I was surprised and gratified to an extent beyond what I expected. I saw hundreds of Apricots, standards, pyramids, and dwarf bushes in pots, all full of fruit, great numbers of which were dead ripe, and slightly shrivelled, but so full of juice that I could not help saying, "An Apricot in this state is decidedly the finest of all stone fruits."

In addition to the above, were standards, planted out in the borders, breaking down with their loads of fruit; these were planted in a peculiar way, which I will presently explain.

Mr. R., senior, attributes his great success in Apricot culture under glass to free ventilation night and day unless in severe frost, while the trees are in bloom; the compost the trees are growing in being very compact—made so by ramming; and to the calcareous matter in the loam in which they are potted, amounting to 15 or 20 per cent.

After viewing the Apricot culture and eating abundance of fine fruit, I turned to the Peach and Nectarine trees, which seemed to surround me in thousands—standards, half standards, pyramids, and dwarf bushes. All seemed in the most luxuriant health; the old trees full of fruit, the young ones ripening their shoots full of blossom buds; not a leaf affected with red spider could be seen. I confess I wished to know why such perfect success attended orchard house culture here; for I could not reconcile it with what I had heard from some of my friends, and from some steady old gardeners, viz., that their potted trees bore only small hard fruit, and that their trees planted out were either wild with over luxuriance, or eaten up with red spider.

Mr. R. most promptly told me what he considered the grounds of his success in Peach and Nectarine culture. 1. To making the compost, loam and rotten manure, quite solid in the pots by ramming it when potting the tree. 2. To the low lateral ventilation employed; in span-roofed houses 14 feet wide, a shutter 1 foot in width on hinges opening downwards on each side of the house on the same level, the lower part of the openings about 18 inches from the surface of the soil; in houses 24 feet wide, the shutters 18 inches wide; in all cases the opening at the same height from the ground; no roof ventilation, but merely a triangular aperture at each end under the gable, about a foot in depth, to let off the heated air. 3. To the calcareous nature of all the composts he uses, which is so favourable to the ripening and well-doing of all stone fruit. 4. To the constant attention paid to summer-surface dressings of finely chopped manure saturated with liquid manure, or horse droppings from the roads treated in the same way. This is always lying on the surface of the pot above the rim, in a concave form, so as to retain water; the surface of the earth in the pot is never suffered to become bare and dry; if so, red spider soon makes its appearance.

With respect to the tall standard Peach and half-standard Nectarine trees, planted in the borders of different houses, and the culture of which I thought quite within my gardening talents, and which I found literally crammed with fruit, I received the following intimation, which, I learned from Mr. R., sen., he has given in the 12th edition of the "Orchard House," now at press.

Mr. R., it seems, had seen some failures even with good gardeners in trees planted in the borders of Orchard houses, and at first could not conceive why such things should be; but on finding that the borders were made deep, and with fine rich light composts, he knowing from his early days that all stone fruit-trees like firm soils, proceeded to plant his trees after a new fashion.

The borders in his Orchard houses were stirred with the fork to a depth of 22 inches, and as it was stiff, calcareous, and poor, some rotten manure was mixed with it; the trees were then planted, and the surface of the soil trodden down firmly; it has remained in the same state ever since—about five years—except being pricked with the fork in spring to let in water after being kept dry all winter, and is now like a level well-trodden path; the trees are fertile and luxuriant beyond any I ever saw. Their heads were pruned so as to lie flat, and the fruit thus has the advantage of being exposed to the sun.

Mr. R. stated that in houses of a sufficient height these large flat-headed standard and half-standard trees would in a few years bear from one to two or more bushels of fruit each, without the usual trouble of training to trellises.

My attention was directed to a collection of seedling Peaches and Nectarines in one department of a large house, consisting of nearly 200 trees; these are all neat little trees, with round heads and clear straight stems from 2 to 3 feet in height, nearly all were bearing fruit of the most diversified character. The origin of each tree is given, and thus is found out the curious fact of Peaches being raised from Nectarine stones, and *vice versâ*. The prizes in this large collection of seedlings are but few, although a great number produce good fruit. One tree was pointed out as likely to repay the care and attention of years: this is a Peach, the grand-dam of which was the White Nectarine. The tree of the first generation produced an early sort of White Nectarine; stones of this were sown, one of which has produced a pale-coloured Peach, as large as and much like a Noblesse. This sort ripened in 1864 on the 18th of July, and this season, on the 11th of the same month, a fortnight earlier than the Red Nutmeg Peach, the earliest of all. Its flavour was of the finest quality.

Mr. R. states that what is called "breeding in and in," to use the stock-breeder's term, is likely to give in some cases more success than crossing, and in his opinion will lead to great changes in our fruits; for, when it is wished to produce a very early kind, no sort to cross with can be found. In breeding from early sorts of Peaches he has followed the following method:—The stones of early Peaches are sown. Many of the trees they produce will be found to vary to a great extent, and are placed on one side; but if one seedling is pro-

deed as early or earlier than its parent, it is, to use a common expression, bred from, and a very early ripening quality developed. One seedling Peach, the third generation from the Early Albert Peach, ripened on the 14th of July, and promises to be a valuable acquisition.

The perseverance and ingenuity exercised here in raising seedling fruits of all kinds is most remarkable *Observer.*

HARDY ORNAMENTAL PLANTS.—No. III.

Water side Plants.

It is a fortunate and by no means a common garden which possesses a nice piece of water, and though water in some shape is to be seen in most gardens of any beauty, it is very rare that its margin is planted as it should be; indeed it is often not planted at all, so that round the edge of an irregular pond, instead of the graceful-leaved plants natural to such positions, we see nothing but the sharp water line and a few inches of washed earth between it and the turf. This of course could only occur in an artificial piece of water to which native plants had not had access. Rich muddy soil is almost necessary for most plants that like the the water-side, and as this is sometimes absent from artificial and other ponds, &c., it would be a "charity" to have a lot of common soil thrown in at intervals near the margin, for large species to luxuriate in. Such an arrangement would be desirable in one respect, as it would prevent, to a great extent, strong-growing plants like Poa aquatica from forming a regular belt round the margin, which it will take some trouble to prevent if the soil is rich all round. It is very undesirable that one or two species like the great Poa and the common Flag should monopolise the margin, because with groups, distinct or mixed, of half a dozen other subjects a picturesque border may be obtained.

Rumex Hydrolapathum, the Great Water Dock, is one of the first plants I should select to make it so. It is a noble and huge-leaved plant. To-day I have measured leaves a yard long on a plant growing in deep clay mud in water, the plant being 5 feet high. An established mass—6 or 8 feet in diameter—of this species is as imposing as any "foliage plant" in a garden. And in autumn the large leaves assume a deep colour like those of American trees, and eventually become of a very decided lurid red.

Next come the Typhas—latifolia of course, but better still angustifolia, which does not run about so much, and forms such close and waving tufts of its slender graceful leaves as tall as a grenadier. Typha intermedia is if anything even better than angustifolia, being a little larger in the leaf, as far as my experience goes, and taller than angustifolia. Before the days of railways the late Mr. Borrer went in his carriage to Oxford, and taking Mr. Baxter *père* with him, went considerably further to see this intermediate Typha in its wild state.

Carex pendula is a fine plant for the margins of water, particularly in rich soil, drooping its very long spikes with an unsurpassed grace. Not less desirable is the much rarer Carex Psuedo-Cyperus, which also droops its handsome cylindrical spikes very elegantly, and growing in the water forms a very graceful tuft a few feet from the margin, or on the edge if so planted. Cyperus longus is also a very desirable bog or water plant, reminding one of the aspect of Papyrus when in flower.

The Bullrush, Scirpus lacustris, and Scirpus carinatus, will, of course, be desirable with the Cladium, the Acorus, the yellow flag Iris, the Poa aquatica, nearly 6 feet high, with graceful heads of flower, and the common Reed. Nuphar advena should be grown with our own Nuphar and the Water-lily, as it has very fine foliage, and holds it well over the water; and the handsome leaves of the Bog-bean might be made to form a carpet here and there, from which straight-growing subjects, like the narrow-leaved Typha might spring.

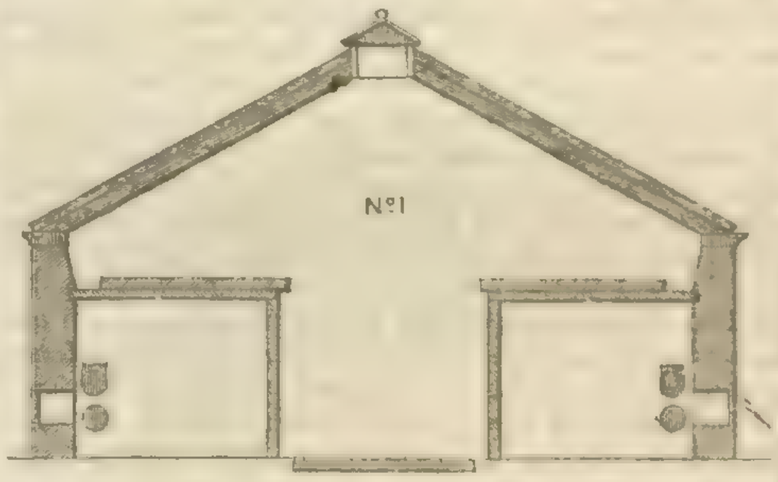
The margins of such beautiful pieces of water as those in our parks offer capital opportunities for the grouping of such plants as these, and if here and there in front of a rich group in a small bay, there occurred a sheet of the golden blossoms of Villarsia nymphæoides, with a few Water Lilies on its outer margin, a very charming combination would be seen during sunshine, particularly from the opposite banks of the water.

I was near omitting the best of all hardy subjects for the margins of water, or for deep or boggy soil in shady places—Equisetum Telmateia. In Mr. Wilson Saunders' highly interesting garden, near Reigate, and in the Oxford garden, the beauties of this plant are known and developed. With a straight tapering stem, furnished with regular whorls of slender wiry branches which droop in the most graceful manner, and growing from 3 to 6 feet high, it may easily be imagined that it is a subject of no ordinary interest. Indeed, we have no plant in the country more singular and graceful than this. *W. Robinson.*

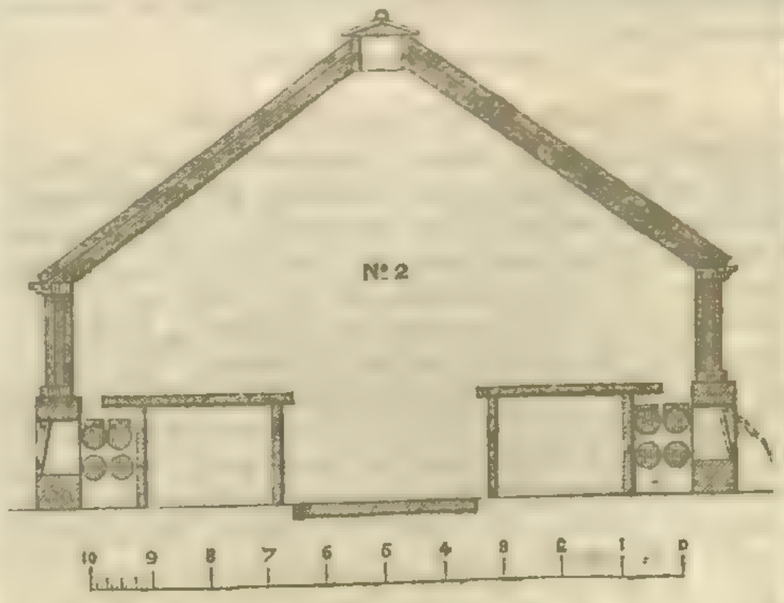
ORCHIDS AND THEIR CULTIVATION.—No. VII.

One of the first and greatest points as bearing directly upon cultivation is the proper construction of houses. Having already touched upon this point (p. 1202, 1864), I do not wish to be charged with any needless repetition, but to follow up the arguments reduced in that article, I have introduced sections suitable for the different grades of exotic Orchids, such as all those interested can understand at a glance, without much explanation. Before resuming the thread of my discussions on the management of cool Orchids, it will be necessary, however, to make a few observations, so that the engravings may be thoroughly understood.

No. 1 is such a house as will be found suitable for the cultivation of all those that come within the category of "cool" plants. It is 12 feet wide, and can be made of course any length. This gives a 3-feet passage up the centre, a table of 3½ feet on each side, and the remainder of the space for walls. The tables may either be stone, slate, or wood, but the first two are preferable, not only for durability, but for the purpose of retaining and giving off moisture. Some introduce gravel or sand to the depth of an inch



or couple of inches, which forms a very important and valuable auxiliary towards this aim, while others object to it on the score of its being a harbour for cockroaches and wood lice. These tables can be supported in many ways; either by brick, which is the cheapest, ornamental stone, or cast iron supports. One thing, however, ought not to be neglected, and that is, that there should always be left a vacuum between the side walls and the tables, so that heat may ascend unimpeded from the pipes, as it naturally inclines inwards. Provision of this kind has been made in all the engravings; and even in an economical point of view it is not undesirable, for as a portion of the table, if it abutted against the side wall, would never be used, you save at least that portion, say six inches, which if deducted from the length of a 70-feet house, taking both sides, would be exactly a saving of 70 feet of slate or stone tabling, which would more than pay for the extra supports needed alongside of the pipes, the principle for which I argue being respected to boot. The side walls are about 3 feet 9 inches high, and can be either built of brick or stone, as shown in the plan, or might have 30 inches of their height constructed of wood and glass. Either way will do very well, but it is an object to have the ventilating space, as indicated, on a level with the pipes. This can either be one continuous vacuum, supported here and there with appropriate iron castings, or by providing openings at stated intervals. In the former case it will require either a wooden or sheet-iron shutter running the whole length; and for the latter fittings of something of the same kind attached to gearing adjusted to open the whole at once. From the floor to the ridge of this house will measure something over 7 feet, quite high enough for the great majority of "cool" plants. With the view of guarding against drip, so fatal to the wellbeing of the plants during winter, it is wisdom to have the opening at the top independent of the main roof sashes. The most economical method is that shown in the ridge of Nos. 1 and 2, being simply a convex top of wood nailed



to arched wooden girders, and hinged on one side. A very simple gearing raises this the whole length, and if the house be well made and finished, it is quite water tight. A flow and return pipe round this house is quite sufficient for heating purposes, and the apparatus will be found to work all the better and easier by having the return pipe placed as indicated under the flow.

No. 2. is exactly after the style of No. 1, differing in the engravings only as to roof elevation, and having the sides partly of wood and glass. It is such a house as I would recommend for growing Cattleyas, and from its higher elevation is well adapted for plants in baskets, or pots suspended from the roof. The simplest and most convenient mode of carrying this into practice, is to get a galvanised iron rod, for rust is an abomination to look at, and does no good to the leaves if perchance it falls upon them in a moist state. This rod is to be run through the astragals the whole length, which makes it so strong as not to bend even under extreme pressure. I have all along had the most determined objection to plants being suspended over the heads of those on the stages below, as not only obstructing light, but what is more aggravating still, continually draining their surplus water on the leaves, whether wanted or not; and no amount of ordinary vigilance can counteract this tendency. What should be studied in the erection of the house is, that these rods should be placed in such a way that the plants may hang above the path. A house, at such an elevation as this gives a great amount of light, and as Cattleyas and their allies are very impatient of darkness during the four or five winter months, we have a thorough recognition of their wants, which is desirable. Two flow pipes and two "returns" are necessary in case of severe weather for Cattleyas; and in fact as a rule it is much better to be over than under the mark as to piping, for in the latter case stronger fires are required, and the pipes are heated up to a pitch which produces the most unnatural atmosphere imaginable, perfectly hostile to all that concerns the wellbeing of the plants.

No. 3, a house adapted for East Indian Orchids, will form the subject of my next communication. *James Anderson, Meadow Bank.*

EARLY-FLOWERING TULIPS.

Permit me, by way of supplement to Mr. Robinson's interesting papers on "Spring-flowering Plants," to give you a few notes on Early-flowering Tulips, which during the spring months are singularly gay and effective. Their time of flowering immediately succeeds that of the Crocus, Snowdrop, Bulbocodium, Early Scillas, and other spring-blooming bulbous plants; and they are out of bloom in time for bedding-out operations to be proceeded with. This season I have flowered an interesting collection. I have also seen elsewhere a few of the newer flowers, and I am more than ever a zealous champion for the widest recognition of their merits.

For the benefit of those who may be disposed to employ Early Tulips more largely than they have hitherto done, I propose to class them according to colour. It may also interest some to know that almost invariably the yellow varieties are the first to flower; then come the whites, the striped-edged, and scarlet flowers in rapid succession. It may, moreover, be useful to add that the light-coloured and white flowers are invariably the dwarfest, the tallest being the scarlet and some of the yellow and striped varieties. This rule is not intended for application to individual flowers, but to early Tulips in the aggregate. I am an advocate for planting in a very rich soil, and though it may result to some extent in inducing comparatively taller growth, the evil is doubly compensated for in the size and duration of the flowers, as well as in the increased brilliancy of the colours and in the better defined markings of the blooms. I have had this spring a bed of some 60 bulbs of the old Tulipa Gesneriana, which I planted in a soil composed of fully one-third of rotted manure. They grew about 2½ feet in height, and produced immense flowers of the most brilliant vermilion scarlet, which when expanded were quite dazzling, and remained in bloom from five to six weeks. Massed in this way, T. Gesneriana is invaluable for display; I shall grow it in a mass another season, but shall have an edging of the Dutch late mixed border Tulip which will flower at the same time, its more sober hues relieving the brilliancy of the former, and the two matching well in regard to height. Where a large display is wished for, perhaps the most effective methods of ensuring it are, either to plant in rows each containing one variety, due regard being had to the arrangement of colours and also height; or else to have them in masses of one variety only, with perhaps the addition of a narrow edging of some other colour to produce contrast. Much however will depend on the space to be planted; but in the decoration of beds containing herbaceous plants, &c, the Tulips may be effectively disposed in little groups of from six to eight bulbs each. It is scarcely necessary to remove them from beds of this description until the end of the summer, as they can be cut down to within about 4 inches of the surface; but from beds consisting wholly of Tulips, they should be carefully lifted and stored away in a spare piece of ground, in any shady out-of-the way place.

Let us begin with single varieties, which are much more numerous than double kinds, and while only a few of the double varieties are really effective in beds, by far the greater number of the single flowers are well adapted for that purpose.

Of pure white flowers there are but few. The best is White Pottebakker, a full-sized and stout flower, pure in colour, and a good variety for forcing in pots. The others are White Swan or White Eagle, a smaller and dwarfer flower, not so pure in colour; Alida, and Alba Regalis, two creamy-white flowers of no great merit; with these may also be classed Queen Victoria, white, slightly feathered and flaked with crimson; and Rosa Mundi, a flower greatly resembling Queen Victoria, but pencilled with rose instead of crimson.

I observe that a white Clarimond is announced in some of the continental lists, and judging from the price, it should be a really first-class flower. The white variety of Van Thol is not worth cultivation, it is small and insignificant, though high in price.

Of pure yellow flowers there are Canary Bird and Golden Prince, the best of all the yellow selfs that I have seen; and though greatly resembling each other, the former grows the tallest. Yellow Van Thol is a much better flower than either the white or rose varieties of Van Thol; in colour it is clear lemon; Yellow Pottebakker is a large and showy flower, but one that often comes slightly striped and feathered with red. Two other flowers may be classed with the foregoing, viz.:—Thomas Moore, golden buff, very good and new; and Duc de Orange, orange-yellow, with bronzy-crimson edging and base, somewhat ill-formed, but nevertheless a very showy kind.

Of self flowers of a rose or violet colour, or similar shades, there are Proserpine, a splendid kind, rich silken rose, which deepens in colour by age; Rouge Luisante, deeper in colour than Proserpine, large, bold, and very fine; Rose Luisante, a paler form of the foregoing, yet materially differing from it; Molière, purple, with the base yellow; Le Matelas, deep rose, very strong; Rose Gris de Lui, pale pink, changing with age to rose, the outside of each petal being marked with rosy-crimson; Florida, purplish violet; Rose Van Thol, a very small and poor variety; Fabiola, white, flamed with glossy rose, very fine; Terburg, a very beautiful violet flower, remarkably fine and new; and two beautiful varieties that I saw for the first time at the Liverpool Hyacinth Exhibition in March last, viz.:—Queen of Violets, a finely formed soft lilac flower, and Rouge Eblouissante, shaded pink and white, also very fine.

Among crimson red or scarlet selfs there is great variety; such as Scarlet Van Thol, bright scarlet; Vermillon Brillant, larger, deeper in colour, and later than the foregoing; Belle Alliance, crimson, very showy; Cramoise Superbe, cerise crimson, a beautiful flower; Fireball, scarlet, with fiery edging, very striking; Feu Rouge, scarlet, with a yellow flame on each petal; Couleur Cardinal, bronzy crimson, with bright scarlet edging, a beautiful flower; Cardinal's Gold, a broken Couleur Cardinal, and yet not sufficiently so to be classed with the striped flowers, the ground colour being scarlet, shaded and streaked with bright yellow. Other flowers in this division are Epaminondas, rich deep scarlet, but said to have white stripes, though I have never seen it in that condition; Clarimond, deep rose, becoming darker with age, and having a faint streak of white on each petal; Couleur Ponceau, deep rosy crimson, with a flame of white up the centre of each petal, sometimes almost a self; and lastly, one of the grandest flowers I have yet met with, viz., Van Vondel, a very large and extremely showy variety, perfectly distinct and well formed, in colour a silken rosy crimson, changing to deep crimson with age, and having slight pencillings of white on each petal. It is an excellent variety for cultivation in pots. This enumeration does not by any means exhaust the list of self flowers in these shades of colour, but the foregoing are distinct and really good.

Striped flowers are also somewhat numerous. Those having stripes on a white ground are:—Royal Standard, white, with rosy crimson flakes; Bride of Haarlem, heavily striped with rose crimson; Globe de Rigaud, heavily feathered and flaked with rosy lilac—sometimes almost a rosy lilac self; Comte de Vergennes, slightly striped and feathered with rosy crimson, very fine; Superintendent, white with rosy lilac flakes, very showy and early, though rough on the edges and deficient in form; and Roi Pepin, a magnificent variety, having bright scarlet flakes; this is one of the very finest of the striped varieties. Of striped flowers on yellow grounds, there are Marquis de Wesseurode, golden yellow, pencilled with red, a very showy variety; Maria de Medicis, yellow, with crimson streaks, very novel and beautiful; Red-striped Pottebakker, bright yellow, striped and feathered with red; and Standard Gold, rich yellow, flaked with crimson, bold and showy. The Red-striped Pottebakker I take to be a sport from the yellow flower. I bloomed this spring six bulbs of each, and in either case there were two blooms pure yellow; the remainder were striped more or less heavily. Other striped flowers not exactly comprehended in these two subdivisions, are, Grootmester van Maltha, deep rose, with broad flakes of white; Cottage Maid, rosy pink, with clear white feather, a very beautiful flower, perhaps more properly an *edged* variety, though I have classed it with the striped kinds; and Wassen van Leyden, pure white, with a narrow flame of deep rose up the centre of each petal, very pretty indeed, but somewhat tall in growth.

Among the edged flowers are some very beautiful varieties, such as Kaizer Kroon, red, edged with golden yellow, very fine; Grand Duc, said by some to be identical with the foregoing, and certainly very much resembling it; Duc d'Aremberg, bronzy crimson, with deep golden edge; Duchesse de Parma, orange red, feathered with yellow; Archduc d'Autriche, rich crimson, edged with yellow; Yellow and Red of Leyden, red, edged with yellow, very showy; La Remarquable, crimson, edged with lilac, dwarf, but very novel; El Dorado, yellow base and streaks, edged with scarlet, very showy; Mathilde, pale crimson slightly feathered with white; and Cerise Gris de Lui, chocolate, with fawn edges, novel and good.

Many of these I have bloomed myself, and the others I have seen in flower. They comprise the very cream of the flowers at present in cultivation.

Remarks on the double flowers will occupy but little space. I have met with a few double crimson varieties, viz.:—Imperator Rubrorum, bright crimson, by far the best of its class; Rex Rubrorum, deep red, but having the great defect of coming green on the tips of the petals; and Pæony Red, a bright-coloured flower, small and somewhat thin, yet showy. Rose Eclatante is catalogued as a dark crimson flower, but with me this season it came with dark crimson stripes on a dingy yellow ground. Couronne Pourpre is of a blood-crimson colour, but is deficient in substance; and the same may be said of Couronne des Roses, which has more of rose colour in it, but is also very thin.

Of Self Yellows still the very best is the Yellow Tournesol, which I this season saw very fine at Liverpool. It is of a pale colour, and has a blotch of orange buff on each petal, but it is a full bold flower. Another is Yellow Rose, pale yellow, and very good for borders. Of White flowers I know of none other than La Candeur, French white, not a first-class flower. I am informed that a new double white Tulip is being offered on the Continent this season, and perhaps something will be seen of it next spring. Bleu Celeste, or Blue Flag, pale purple, still stands, as far as I know, the solitary representative of this shade of colour.

Of edged flowers, glorious old Tournesol still holds the supremacy, though I often wonder that Gloria Solis, very much in the same way, but with a deeper edging of gold, and somewhat taller in growth, is not much more generally used for bedding purposes than it is. Duke of York, deep rose, bordered with white, is a really good flower, the colours being very clear. I wish it possessed a little more substance, still it is very effective. Overwinnaar, or La Belle Alliance, is a crimson flower edged with white, but is not so good or so effective as the foregoing. The old Double Duc Van Thol is still imported from Holland in very large quantities, but it is not nearly so generally grown as Tournesol. It, however, has the recommendation of being very cheap.

Two late-flowering double varieties yet remain, viz., Couronne Imperiale, and Mariage de ma Fille. These are so nearly alike, both in the character of the flower and the bulb, that they may be regarded as identical. The last perhaps has more crimson in the marking than the former. They are both white-ground flowers, heavily flaked with rosy crimson. Out of four bulbs of Couronne Imperiale that I bloomed this season, one broke into a pure white flower, somewhat slightly flaked with bright rose. In this form it was very distinct, indeed, so much so, that I do not think any one could have recognised in it any approach to its real character. I have carefully marked the root, on purpose to ascertain next season if it will perpetuate this distinctiveness. I have yet omitted two other varieties from the late-flowering ones, viz., Prince de Galitzin and Tawny Gold; the first a dull yellow flower, heavily flaked with crimson; the latter brighter coloured and not so heavily flaked, as far as I could discover in a somewhat imperfect bloom.

The double flowers need a thorough and rapid improvement. The demand for them as a whole is scarcely sufficient to warrant us in looking for this. With one or two exceptions, they are not nearly so beautiful or so effective as the single varieties, therefore the work of improvement is not likely to be taken up with that feeling of enthusiasm and that persistency of purpose that are required to ensure success. *Quo.*

Home Correspondence.

Govenia.—Mr. Bateman's statement alluded to at p. 723, with respect to Mr. Gowen, to whom the genus Govenia was dedicated by Dr. Lindley, may perhaps receive an explanation from the two following passages from the Botanical Magazine, the first of which probably had made its permanent impression, while the latter had either escaped notice or memory. Bot. Mag. tab. 3667, Rhododendron nudiflorum var. scintillans:—"The origin of this variety, first reared by Mr. Gowen, the *gardener* at High Clere, is thus given in his own words in the Botanical Register." Bot. Mag. tab. 3676, Potentilla glabra:—"I take the earliest opportunity afforded by a vacant space in the present number of the Magazine to offer my very sincere apology to J. R. Gowen, Esq., for having spoken of him at p. 3667, as the *gardener* at High Clere, whereas the gardener is Mr. Lindsay. Mr. Gowen is a gentleman of independent fortune, much devoted to science, and well-known in the most respectable circles in London; and under whose advice and direction many of the improvements at High Clere had been affected by the late Earl of Caernarvon, a circumstance which led to my unfortunate mistake." The other points alluded to by "F.R.H.S." as inexcusable and discreditable are evidently either errors of the press or mistakes of the Reporter. I think the terms applied to these errors are rather harsher than the case deserves. The authorities of the Royal Horticultural Society are extremely anxious that there should be a correct account of the proceedings, and a short-hand writer is employed to take notes, but it is obvious that this must be a matter of great difficulty where the stenographist is wholly ignorant of the subject—and no really competent one can be found. Even where the requisite knowledge exists, such reports are seldom quite correct, except they are submitted to the speakers, which is not always possible, and I have seen quite as grave errors as any mentioned in the communication of "F.R.H.S.," in published notes of what has really taken place at the Scientific Meetings, where they have evidently been taken by some one with considerable horticultural and botanical information. *M. J. B.*

Mixed Borders.—Allow me to protest against the condemnation of these (see p. 697). The writer says "cannot have seen a good border when he says—"In such a border scarcely half a dozen plants can be in flower at one time." I am truly astonished at the remark, for my difficulty would be to find a day during nine months of the year when so few as a dozen plants would be in flower. Many of my best herbaceous plants are now past, but I have still the following in good condition, viz.:—Pentstemons, Phloxes, Campanulas, Clematises, Asters, Lychnis, Gentians, Delphiniums, Funkias, Tradescantias, Œnotheras, Monardas, Acanthus, Silenes, Potentillas, Myosotes, Linaria alpina, and Calandrinia umbellata; and as regards magnificent foliage, I may name the Salvia patula argentea. The article alluded to is written for the purpose of advocating special arrangements for each season. Surely the best of the hardy plants suitable for mixed borders are as well worthy of a special arrangement as any others. I only commenced my mixed borders two years ago. I have put none but first-class plants in them, and next year I am sure they will be in a condition to make writers on gardening discourse in their praise if they would do me the honour of coming to see them. I have my parterre, too, but it gives me much less pleasure than my varied ever-changing hardy herbaceous border. *J. P. Farmer, The Hill, Hornsey.*

Double Cucumbers.—My employer, T. C. Garth, Esq., has directed me to send you a remarkable Cucumber for your inspection. It was grown, along with many more, on a healthy plant, but none have assumed the shape in question but itself. Is it common for Cucumbers to grow double? *W. Williams, The Gardens, Hawn Hill, Reading, Berks.* [The specimen consists of two fruit connected longitudinally for their whole length. It is a case of early adhesion.]

Battersea Park.—It is to be hoped that your remarks, together with the great gratification this garden affords the public, may not lead the other park directors to imitate Mr. Gibson's success; but rather induce them to try and strike out some other and distinct course for each. Nothing can be more unsatisfactory than the effect these foliage plants have had on the Paris gardens. While they were confined to the Champs Elysées they were pleasing enough, but when they got into every little street garden, I must confess they began to look very much out of place. Along the roads leading to the now fashionable Bois de Boulogne, where a great quantity of new villas have sprung up of late years, with neat little gardens in front, nothing is to be seen but Cannas and a Wigandia or two; whereas, in such a climate, our bedding stuff, such as Pelargoniums, &c., is continually blooming. If I were writing for a Paris climate, I should begin by pointing out how much they lose in grand effect by planting all their public places after this one idea, so that a visit to one is equivalent to a visit to all. I hope the same error will not be repeated in our London parks and small gardens. *A Country Flower Gardener.*

Flowering Currants.—I have read in your impression of the 5th inst. an article on the sudden death of two flowering Currants, and while I give your correspondent "G. M." every credit for his good intentions in warning your correspondents against pruning such trees, I fear at the same time that a wrong impression may be made on the uninitiated. I therefore beg to state that that plant has always been subject to die off in the manner described, and that the pruning has the very opposite effect from that attributed to it. I never knew an instance of their dying off when pruning took place; whereas, under the same conditions, plants not pruned have died by dozens, the Ribes atrosanguineum, its double variety, and albidum, being the most frequently attacked. The evil appears to be one of those unaccountable occurrences about which little is known. *J. L. Reid, Royal Exotic Nursery, King's Road, Chelsea.*

Podophyllum Emodi.—Our experience of this plant differs somewhat from that of Mr. Shortt, as narrated in your pages on the 15th July last. We have had a plant of it for many years in our herbaceous border, where it flowers and bears fruit annually without any trouble or attention whatever. This plant at the present moment has six fruits on it, and in a bed of young plants there are several with fruit on them. Then as to propagation, that is simple enough. The seeds germinate readily if sown when fully matured. The practice here is to sow them about the beginning of September, and set out the plants when they are two years old. These plants will flower and fruit in three or four years afterwards, that is to say, when five or six years of age. *Edward Sang & Sons, Nurserymen, Kirkaldy, N.B.*

Wasps.—It may not be uninteresting to know that in this neighbourhood not a single wasp has been seen since May. In April we thought that every fruit would be destroyed, so numerous were the queens which were

flying about. One person is said to have paid over 6*l* for their destruction; but there came frosts in May, especially that on the night of the 1st of that month. After the occurrence of these not a wasp has been seen by any one. Whether or not the genus has been so thoroughly destroyed as not to be again seen remains to be seen. *John Scott, Merriott, Somerset.*

Thujopsis borealis.—I am directed by my noble employer, the Earl of Shannon, to forward a specimen of Thujopsis borealis, and to request that you will state whether it has previously coned in England. *R. Begbie, Castle Martyr.* [We are not aware that this Thujopsis has fruited in England.]

Societies.

Entomological: *Aug.* 7.—F. Pascoe, Esq., F.L.S., President, in the chair. Mr. McLachlan exhibited some specimens of the Ant-lion fly, which he had reared from larvæ brought from Fontaineblean. Mr. W. W. Saunders exhibited a living specimen and gave an account of the curious manners of a large exotic green grasshopper which had been reared in his hothouses, the young of which had been imported with Orchids, to which it had proved very injurious, feeding by night. Mr. Pascoe exhibited the dissection of an Australian Bolbocerus, and explained the manner in which it makes the noise which it emits by the friction of its legs. A specimen of the very rare Trachys pygmæa, taken in the Lowestoft marshes, was exhibited by Mr. Saunders. Some remarkable varieties of Cryptocephalus 10-punctatus from Rannoch were exhibited by Mr. D. Sharp; also the larva of the beautiful Lampyris (Eros) aurora. Mr. S. Stevens exhibited a fine collection of butterflies, sent from the neighbourhood of Santa Martha, Venezuela, by Mr. Burchard. Mr. F. Smith communicated a note from Mr. S. Stone on the great abundance of queen wasps in the spring; their equal scarcity at the present time was also noticed by several of the members present. Some beautiful drawings illustrating the transformation of the Tusseh silk moth of India were forwarded by Lieut. Beavan. The commencement of a memoir on the Buprestidæ of South Australia, by Mr. C. A. Wilson, of Adelaide, was read. Also a memoir containing descriptions of a number of new genera and species of exotic Phytophagous beetles. Mr. Dunning exhibited a remarkable specimen of Bupalus piniarius, having the body and antennæ of a female, but with the wings coloured nearly as in a pale-coloured male. He made some observations upon so-called hermaphrodite insects, and on the necessity for a better classification of them than had been proposed by Mr. Newman. He also read a note on the rearing of Bombyx Atlas in France, to which Mr. Moore replied, that he had previously succeeded in rearing it in this country. It was doubtful whether it could be applied to supersede the common silkworm.

Royal Horticultural: *Aug.* 8 (*Floral Committee*).—Several interesting subjects of exhibition were produced on this occasion. From Mr. Chater, of Cambridge, came Gymnogramma Mertensii latifolia, a common-looking Gold Fern; a large collection of cut Hollyhock blooms, and cut flowers and fresh leaves of Pelargoniums, the last framed and glazed, and consisting of some best of the tricolor and other variegated-leaved kinds. Various Pelargoniums were contributed by Mr. Winsor, gr. to J. R. Ravenhill, Esq., Walthamstow, to whom a First-class Certificate was awarded for Sir Robert Peel, a handsome scarlet, with the leaves faintly zonate. Of Lilium auratum there was the magnificent specimen from Mr. Constantine, gr. to C. Mills, Esq., of Hillingdon, mentioned by us last week (see p. 722). From Mr. Turner, of Slough, also came a charming collection of the same handsome Lily, as well as one or two plants of the lance-leaved kind; and examples of auratum were also furnished by Mr. Tillery, gr. to the Duke of Portland, at Welbeck. Mr. Bull had a variety of L. auratum called pictum, the stripes and spots of which are redder than those of the ordinary kinds. The last-named exhibitor also received a First-class Certificate for Sphærogyne ferruginea, a kind with handsomer foliage than that of cinnamomea, fine examples of which were also exhibited. Seedling Dahlias came from Mr. Perry, Castle Bromwich, who also showed cut blooms of Verbenas, among which Cleopatra, a beautiful clear rose with conspicuous lemon eye; and W. Dean, violet shaded purple, or rather maroon, with light eye, were honoured with First-class Certificates. To Phlox Edith, white with crimson eye, from Mr. Turner, a First-class Certificate was awarded, and the same exhibitor also had a fine blooming rosy crimson Phlox, named Herbert. The fine white Lobelia ramosa, Snowflake, formerly exhibited, was reproduced on this occasion by Messrs. Lee. One or two Fuchsias were furnished by Mr. Geo. Smith, of Hornsey, and Mr. Apted, of Gatton. Pelargonium Queen of Tricolors, in the way of Mrs. Pollock, from Messrs. Garaway & Co., of Bristol, received a Second-class Certificate. Mr. Porter, gr. to the Hon. A. J. Ashley, Copt Hall, Epping, showed three dozen Hollyhocks, among which John Laing, salmon-scarlet, was distinguished by a First-class Certificate. Mr. Cripps, Tunbridge Wells, had a double-flowered scarlet Pelargonium, and a basketful of the yellowish green-edged variety of Coleus Verschaffeltii, called aureo-marginatus. Seedling Gladioli, in bad condition from travelling, came from Mr. Dijkman, of Haarlem; and from Mr. Eckford, Coleshill, came a bronze-tipped yellow Dahlia, named Sir J. Wilde. Mr. Press, Hornsey, showed shrubby Calceolarias, and a good example of Anthurium cordifolium came from the Society's garden. The Rev. E. Hawke was awarded a First-class Certificate for a bright maroon Hollyhock named Senior Wrangler. Hollyhock Mrs B. B. Todd, carmine, tinted with salmon, from Messrs. Downie Laird & Laing, received a Second-class Certificate; and a First-class Certificate was assigned to Chas. Eyre, crimson scarlet, from the same growers. These were shown in beautiful condition in the shape of spikes. Pectis angustifolia, a yellow starry-flowered plant, was shown by Mr. Thompson, of Ipswich, and received a Second-class Certificate. Palafoxia Hookeriana, a double pink-flowered North American annual composite from the same exhibitor, was also similarly rewarded. A fine Brassia, like a gigantic B. verrucosa, came from Mr. Williams, of Holloway, who also sent Pelargonium Lady Miller, a compact free flowering kind, distinct from Mrs. Pollock. To Mr. Veitch was awarded a First-class Certificate for a fine Cattleya, probably a variety of Mossiæ, and a Second-class Certificate for the slender-growing new Australian Dendrobium tattonense, described by us in a former report. We also noticed a plant of Cattleya Sidneiana, a robust kind with veined violet-shaded crimson lip, and light coloured sepals and petals. From Mr. Chater, of Saffron Walden, came various fine Hollyhocks, from among which Firefly, a variety like the Rev. Joshua Dix, but brighter in colour, was selected for a First-class Certificate; and Hebe, delicate pink with a rosy salmon centre, for a Second-class Certificate. Castanea pumila, a dwarf-growing Chestnut, and Sophora japonica in flower, were contributed by Messrs. Osborn. From Mr. May, of Fulham, came Opuntia vulgaris in fruit.

August 8 (*Fruit Committee*).—Most of the fruit produced at this meeting came from Mr. Rivers. Among his exhibitions we remarked Williams' Favourite American Apple, a high-coloured medium-sized good keeping kind; Duchess of Buccleugh Grape; Reine Claude Plum, a sort larger and apparently better than Reine Claude Hâtive; Droggan's Yellow and Late White Heart Cherries; July Greengage Plum, excellent from a cold exposure; Cluster Damson; and Rival Cherry, the last an excellent black kind, to which a First-class Certificate was awarded. A Seedling Ridge Cucumber was shown by Messrs. Garaway & Co., of Bristol. It was stated to have been grown on a bed 12 feet long and 4 feet wide, from which from 120 to 150 fruit had been cut.

Notices of Books.

Travels and Researches in Crete. By Capt. T. A. B. Spratt, R.N., C.B., F.R.S. In 2 vols. 8vo. London: John Van Voorst, Paternoster Row. 1865.

Crete, now called Candia, from the name of its modern capital, closes in the Greek archipelago on the south. It is a large and beautiful island, 140 miles long, but very narrow, extremely bold and mountainous, well watered, and abounding in fruitful valleys, and in early times was celebrated for its hundred cities. Crete holds a conspicuous position in the mythology and earliest history of Greece. Here was Mount Ida, celebrated as the birthplace of the mighty Zeus; and Gnossus, the city where Minos administered justice with such strict impartiality that after death he was supposed to pass judgment on the souls of men. Here it was, or at Gortyna, that Dædalus constructed the famous labyrinth; and here lived the terrible Minotaur, the dread of the Athenian youths and maidens, till Theseus gained the love of Ariadne, and with her assistance and the clue of thread mastered the mazes of the labyrinth and slew the monster.

It is not every Englishman that has the good fortune to visit these scenes of classic story, and certainly nobody could have had greater advantages, or better opportunities for making investigations, than Captain Spratt enjoyed. Himself an intelligent and accomplished officer of the Royal Navy, in command of a British steamer, engaged upon a Government survey of the island and the neighbouring seas, with all the requisite appliances and a regular staff of officers and men, and with plenty of time; surely there never was such a chance for making out the disputed sites of ancient cities. Captain Spratt possessed also the happy art of making friends wherever he went, and succeeded in engaging the services of a distinguished Cretan patriot, Captain Manias by name, who proved extremely useful in the work. Add to all this the kindly assistance he received from Viscount Strangford, in the translation of modern Greek and Cretan words contained in a vocabulary, and from Professor Churchill Babington, of St. John's College, Cambridge, who furnished a learned appendix upon the several new inscriptions that were found in the island, and we have a sum total of favourable circumstances such as fall to the lot of few travellers.

Captain Spratt introduces himself to the reader on the summit of the snow-capped Ida, 8200 feet above the level of the sea, whence he looks down upon the magnificent prospect, and, instrument in hand, makes his trigonometrical observations. Thence descending by way of the plain of Netha, a sort of mountain fortress, to which he gained access through the influence of his famed Sfakiot guide and chief, he glides gracefully into his subject, tracing first the possession of the island through the Saracens and Venetians, from whom it was wrested by the Turks in 1669, after the memorable siege of Candia, where the Turks made in all 56 assaults and the Venetians 86 sorties. When the Greeks rose against their oppressors in 1821, the patriots of Crete tried to throw off the Turkish yoke; but the war, commenced in the noble cause of freedom, was carried on with needless barbarity, and soon became a war of retaliation between religions and races, and desolated this fair land, bringing misery and sorrow to every feeling heart, and poverty and disease to many a Cretan family. The prosperity of the country was thrown back fully half a century, and a burning spirit of hatred and revenge was left, ready to break out into a flame at any moment of excitement. The population of the island is taken to be 210,000, of whom only one-third belong to the Mussulmans, the dominant race.

Captain Spratt mentions with due praise the researches of Sir Henry Leake, and the travels of Mr. Pashley, then a fellow of Trinity College, Cambridge, now a Q.C. and a County Court judge. He differs from this latter gentleman in some particulars regarding the sites of ancient cities, and the reader will probably agree that the captain's local knowledge and means of getting information from friends on the spot gave him more advantage than his predecessor had from his classical attainments; moreover, the same sources of information were open to the sailor. He gives, however, his principal attention to the country east of Mount Ida in order better to supply a deficiency in Mr. Pashley's work, and speaks of the western side only where discoveries of importance have been made.

Of the position that Crete held in ancient times he writes to this effect:—Under the wise rule of Minos, it is evident that commerce, art, education, and social law attained a high state of advancement at Gnossus, the capital. Its laws were celebrated throughout Greece. To Dædalus also and his successors we may trace improvements in art and taste; and Crete long maintained its early reputation, for even so late as B.C. 596 the Athenians sent to Gnossus for the sage and poet Epimenides, who, they were informed, could purify their city and stay the plague: a great tribute to his learning and merits every way—though this same poet gives an indifferent character of his own countrymen, which St. Paul quotes in his Epistle to Titus. Certain it is also, that the coins of Crete are remarkable for a high style of pictorial art, for which they are greatly admired by numismatists, though they are singularly deficient in regard to form and surface.

Captain Spratt was fortunate enough to obtain an exquisite statuette of Venus, about 2 feet high. It was found thickly encrusted with carbonate of lime, and without a head—this, however, was happily discovered about 200 yards off. Whether it be a copy of some unknown work of Praxiteles, or of some other great master, there can be no doubt that it is a perfect gem of art. Of this the reader may satisfy himself by a glance at the excellent engraving at p. 72.

Speaking of this little treasure the Captain writes with much enthusiasm:—"The back is strikingly beautiful. There are apparently several bronze copies of it in the British and other museums, which show that there existed somewhere a much admired original, as a statue or statuette of some great master. Although these copies differ in a slight degree, according to the ignorance or fancy of the local artist, the common attitude of all identifies them as intended for some reputed original somewhere.

"In this statuette, the goddess is represented as having just come out of her bath, and in the act of tying up the sandal of her left foot; and although a very difficult attitude to represent, from the necessarily half-turned and bent position of the body, and yet with the head erect, it is marvellously wrought notwithstanding.

"The style is of the attenuated school of figure, peculiar to a certain early period of Greek art and taste. The perfect grace and easy *pose*, the modest and beautiful expression, and the different position given to the arm and hand to that usual with all nude figures of Venus known to us, will naturally strike the admiration, and greatly enhance its appreciation as a work of the most chaste and delicate conception and beauty, and of the purest taste for the representation of so difficult a subject as that of the Creator's most perfect work, the human figure."

In 1860, Captain Spratt was commissioned by the trustees of the British Museum to purchase two sculptured sarcophagi, which had recently been found near the theatre of Ierapetra. The sides of one of these represents Achilles dragging the body of Hector round the walls of Troy, the discovery of Achilles at the court of Lycomedes, and Vulcan making a new shield for the hero at the solicitation of Thetis.

In the identification of ancient sites the classical scholar will take great delight, and he will find the reasons assigned sufficiently convincing. To him also the appendix on Cretan and modern Greek, and Prof. Churchill Babington's excellent appendix on the inscriptions will afford gratification. But the ordinary reader will find very much that is extremely interesting: the beautiful sketches of a country singularly wild and picturesque; the account of the sponge diving, which almost takes away one's breath; the labyrinthine quarries at Gortyna, which are probably the plan-

ning of Dædalus—all these things are told in a wonderfully fascinating way. In the course of the survey Captain Spratt sought the shelter of Kaloi Limines, a locality undescribed previous to his visit, and was enabled, in a variety of ways, to identify it with the "Fair Heavens" spoken of in the 27th chapter of the Acts, and having so hallowed an interest, as connected with St. Paul's history. In the protection it affords from the prevalent winds in the vicinity of Lasea, sometimes called Thalassea, with the remains of its ancient mole connecting it with the island of Draphos, and in the existence of a rude chapel dedicated to St. Paul, he saw confirmatory evidence. But one calm morning, being tempted to leave the "Fair Havens," a storm fell suddenly upon the steamer, and the Captain is so convinced of the similarity of his position to that of the Apostle, that he goes thoroughly into the question of the Euroclydon, and discusses the whole affair with all the zest of a sailor, and with the grand advantage of personal experience.

Saturn and its System. By Richard A. Proctor, B.A., late Scholar of St. John's College, Cambridge. Pp. 252. Longman & Co. 1865.

Saturn is by far the most singular planet in the whole solar system, and when, in July, 1610, Galileo first directed his largest telescope to this planet, it must have been a time of deep excitement to the astronomer. Though Saturn was most favourably situated for observation, the result was unsatisfactory and perplexing. On each side of the planet he saw what seemed to be a minor disc, and in November he told Kepler, "Saturn consists of three stars in contact with one another." After an interval of a year and a half he resumed his examinations, but to his amazement, not a trace was visible of the appearance that had perplexed him before. Was the telescope in fault? did the instrument need adjusting? Were the glasses defective that his triple planet had become a single disc? or were his discoveries all illusions? "Is it possible," he exclaimed, "that some mocking demon has deluded me?"

The truth was, that in December, 1612, the ring had totally disappeared, its plane at that time passing through the sun. But the changes that Galileo subsequently observed were more perplexing still. These, however, we need not describe; suffice it to say, they were startling enough. The eight attending satellites of Saturn are extremely beautiful, but it is the stupendous double, or rather triple ring which surrounds the planet that is an object of so much interest to the astronomer. The first question to determine was, whether the ring was solid or not. Laplace proved, that for any solid flat ring to remain in equilibrium, it must rotate about the central globe; that it must be divided into concentric rings rotating at different rates; and that, should its equilibrium once meet with the slightest disturbance, it never could be restored. Mr. Maxwell, who gained the Adams' Prize Essay at Cambridge in 1857, proved that the ring of Saturn cannot be solid, and Mr. Procter seems to think there is conclusive reason for rejecting the supposition that the rings of the system are continuous fluid rings. We are therefore driven to the strange conclusion, "that the rings are composed of disconnected satellites, so small and so closely packed that, at the immense distance to which Saturn is removed, they appear to form a continuous mass,"—taking an *à priori* argument in favour of this supposition, from the fact of a zone of asteroids actually travelling round the sun, and zones of meteorites also doing the same thing, for that he thinks is the only satisfactory explanation of the periodicity of the well-known meteoric showers.

There is a whole chapter on the habitability of Saturn, into which we have no intention of dragging our readers, merely giving an opinion that there seems to be no sufficient reason assigned why Saturn might not be inhabited. The moon, however, on the contrary, we have always thought to be in a very different case, having to all appearance no appreciable atmosphere; its day, moreover, being a whole month long; and nearly one half of its surface being deprived of the possibility of ever seeing the glorious earth shine from the day of its creation to the present time.

The first Part of the new Series of *The Journal of the Royal Hoticultural Society of London*, edited by the Rev. M. J. Berkeley, which has just been issued, comprises papers on the following subjects:—On Hybridism considered as a cause of variability in Vegetables, by M. Naudin; Hypocaust Heating, by Mr. Wykeham Martin; Note on Truffles and Truffle culture, by Mr. Broome; note on Cotoneaster Simmonsii, and on Dendrobium hedyosmum, by Mr. Bateman; note on Amaryllis, by Mr. J. Anderson; remarks concerning Soil and Climate, in relation to the culture of fruit trees, by Mr. W. Ingram; on Variability in the Pear tree, and a note on the Floral Organogeny of the Pear, by M. Decaisne; and papers or translations on Spot in Orchids, on Variegated plants of the 17th century, on Vineyard Culture in France, and an abstract of Wichura's observations of Hybridization, by the Editor. The papers are well written, and, as was to be expected, carefully edited; and as it is evidently planned to take in a wide range of subjects relating to practical and scientific horticulture, this new journal may be recommended, not only to the Fellows of the Society for whom it is especially provided, but to all others who are interested in the scientific literature of horticulture.

Books Received.—*Cowper's Task: The Sofa;* by Walter Macleod (Longmans). An edition with notes and exercises adapted for the use of students in Training Colleges under Government inspection.—*English Landed Title, its safest and best reform;* by J. Kennedy (Longmans).—*The Geological Magazine*, Nos. xiii. and xiv. (Longmans).—*The Fifth Annual Report of the Acclimatization Society.*—*Herbert Fry's Shilling Guide to the London Charities* (Hardwicke).—*Handbook of British Water-weeds;* by Dr. J. E. Gray (Hardwicke). A very convenient pocket synopsis, comprising brief characters of our native sea-weeds, and analytical lists of the Freshwater-weeds.—*The History and Antiquities of Wimbledon;* by the Rev. W. A. Bartlett (Simpkin & Co.). In this very interesting book, it is stated that of the 984 native plants found in Surrey, about 600 have been recorded as occurring within three miles of Wimbledon Church.—*Catalogue of British Plants* (Black), the fourth edition, printed for the Botanical Society of Edinburgh, with Mr. Neill Fraser's list of the varieties of British Ferns appended.—*The Food of the People, a Letter to H. Fenwick, Esq;* by Joseph Brown, M.D. (Longmans). The author believes that Englishmen have degenerated physically, and that the adults of the present time having been brought up with the deficiency of food which characterised the Corn-law days, have less power than their forefathers to support themselves under any drain upon the system, and less power of resisting disease. His remedy is an increase of food; and the utilisation of sewage is pointed out as one of the many means by which this increase is to be brought about.—*Stammering and Stuttering;* by James Hunt (Longmans). The author observes that a great service would be done to sufferers from defective speech by warning parents not to to neglect it in early youth. "Impediments of speech, so long held to be incurable, are as amenable to treatment as other disorders of the human frame."

The Apiary.

"I agree with you that Ligurian Bees are a fair subject for discussion, and many of your apiarian readers may be glad to hear the results of the experience of other correspondents who have been in possession of them. I agree with you in thinking that Ligurian workers are larger than the common bees; mine are, when bred in their own cells. I cannot myself state positively that Ligurian queens retain their fecundity longer than the common queen, but I found this last season that the bees lived a month longer than the common ones. Another person who lost his queen in a mixed hive observed the same thing. I think there can be no doubt that the queens are more prolific, but I should like to hear from other correspondents if they have found them more industrious. I have for the last two seasons had both common bees and Ligurians at the moors, and the Ligurians have done better than the common ones. If you have the pure Ligurians, I think you will find they are not so waspish as the common ones, but I have remarked that the hybrids are more irritable than either. *J. Elmo.*"

Our correspondent is mistaken in supposing that we meant to convey the idea that we believed the Ligurian workers to be *larger* than those of the ordinary variety. They certainly are not larger. Mr. Woodbury, who has had more experience with these bees than any other English apiarian, believes them to be decidedly *smaller*, and there are others who hold the same opinion. The German bee-keepers assert that the cells of the combs constructed by Ligurians are smaller than those built by the common bees. If this is the case it is but reasonable to suppose that the bees reared in these cells must be of a more diminutive size. We have not examined into the truth of this assertion as regards the size of the cells, therefore we cannot speak with authority. From your remark "when bred in their own cells," it would appear as if you imagined that the cells formed by Ligurians are in reality of a greater diameter and depth than those in hives of the brown bees. Have you measured them? Mark out very carefully and exactly two square inches on the surfaces of the combs of either variety, and count the number of cells comprised within the space. It is needless to say that the bees of both hives should be of undoubted purity.

With regard to the supposed increased longevity of Ligurians as compared with ordinary bees, it would be necessary to institute a series of experiments bearing closely on this point, before a decision could be arrived at. The mere fact of Ligurians remaining in existence in one or two hives, a few weeks after the extinction of the common workers, really proves nothing. They may have been bred later than the others.

We believe that Ligurians may lay claim to being more industrious. In the first place, the queens are wonderfully prolific, consequently there are greater demands on their energies and resources. In the second place, we have frequently noticed that bees from our Ligurian stocks, are out foraging an hour or more before those from ordinary hives kept in the same garden. This is the more noticeable early in the spring, or on bad working days.

Thirdly, our own hives of Ligurian bees have given larger supplies of honey than those of the common bees, situated alike, and similarly domiciled and worked. From one of the first during the present season we have had a very fine natural swarm, and 55 lbs. of honey of the purest possible quality worked in two supers. The swarm itself has filled a super of about 30 lbs. weight, in addition to its large stock-box quite full and well provisioned for the coming winter.

Taking the issue of the swarm into consideration this is a very unusual yield; but we have had in previous seasons, from hives that have not swarmed, even larger supplies of honey. On the other hand, we have the pleasure of acquaintance with a gentleman who is an ardent stickler for the common brown bees, who, two years ago, obtained two glass box supers worked by them of the extraordinary weight of 112 lbs. and [illegible] lbs. respectively. In addition to this a swarm of the same season filled its stock box (an octagon glass) with 89½ lbs. of honey, so beautifully pure as to appear like a splendidly worked super. These were all taken, and were for a time the wonder and delight of all who saw them. The proprietor believed, and with some appearance of justice, that he had the right to crow over the advocates of Ligurians and the despisers of our British species.

With regard to the Ligurians being less irritable, we have met with much diversity of opinion. Since writing the remarks on this point which appeared at page 7[illegible], we have been informed by a clerical friend, to whom we had made a present of a small Ligurian artificial swarm, reared purposely for him, that the bees were the most vicious creatures in his largely-stocked apiary. A swarm raised by us from the same parent stock at the same time and under exactly similar circumstances, to be retained in our own apiary, has been so well behaved as to allow of handling and inspection of frames without the protection of a bee dress. How therefore, is it possible to lay down any law on this disputed subject? We have from the time of our first experience with these bees believed the hybrids to be usually more irritable, and to resent interference more hotly and persistently.

Alexander Boyle: We will insert your communication next week, and reply at greater length than space this week will permit. In the meantime you will not err in the course you propose to adopt with respect to uniting bees to your second swarm, only be prepared to feed largely.

J. B., Enmistymon House: The advice given to you was very bad. You were quite right to return the bees to the hive. We will insert your letter, with fuller replies to the various queries, in our next.

Garden Memoranda.

Mr. Wm. Paul's Nursery, Waltham Cross.—A visit to this nursery is fraught with especial interest, for apart from the great progress made in its formation during the short period of three or four years, it may be regarded as the birthplace of some of our best seedling Roses.

On entering the grounds it was soon apparent that Mr. W. Paul continues the construction of his houses upon the plan originally laid down by him, an arrangement by which he hopes to derive the greatest possible amount of heat from one boiler. The house appropriated to Tea Roses has answered perfectly. It has no assistance from artificial heat, and yet it is astounding what a single house of this sort produces from the beginning of May onward. The Roses are all planted out in borders prepared for them; the strongest and most rambling are trained to the pillars and rafters, and the others are planted so that the weaker growing sorts are in the front, the whole having a very pleasing appearance. Other houses are filled with various kinds of nursery stock, three or four being devoted almost exclusively to young Vines, some of which are to be planted out; others are for fruiting in pots. Many houses are wholly devoted to purposes of propagation; in these were a fine lot of Roses upon their own roots, struck in heat from very small cuttings, growing luxuriantly. The New Holland house is filled exclusively with spring-flowering plants, from which the later summer-flowering kinds are separated. In another place I remarked a fine healthy plant of Tecoma jasminoides rosea, in a 32-sized pot, with some 10 or 12 fully expanded flowers upon it. This has been kept close to the glass in a good airy situation.

Of Beaton's new seedling Pelargoniums, there was a profusion in pots in other houses, indicating how well some of the nosegays flower under this system of culture. One, which I shall call Helen Lindsay, in a 32 sized pot, had upon it no fewer than eight fully expanded trusses, each averaging from 4 to 5 inches in diameter. A seedling of a later batch (No. 39) was equally good, having a flower a shade or two darker than Stella Duchess and several others are also great improvements on all older varieties included in this class. There is, however, one belonging to another and a distinct class, called the Waltham Ruby, a perfect gem in the way of the old Shrubland Pet, though it has the leaves, scent, and habit of the old Elk's or Stag's-horn Pelargonium. Though I only saw it in a pot, there is little doubt that it will make a good bedder, as well as prove a favourite for bouquets, &c. Associated with this was another equally distinct-looking seedling, the leaves upon which are of a decided dark plum colour, and if it will but retain this peculiarity it cannot fail to become a perfect Perilla among Pelargoniums. Here might be seen

moreover, both silver and golden variegated Pelargoniums, with good magenta nosegay flowers, which we may hope to see soon in the hands of growers.

The first thing which strikes one in walking through the grounds is the luxuriance of the stock. Young Cherries look unusually strong and healthy, as do also Apricots, Nectarines, and Peaches. Let us hope that a system of summer-pruning may soon be introduced into our nurseries, which will obviate the necessity of violent severing of limbs when the young trees get into the hands of growers.

Among hardy ornamental foliaged-plants one or two may be worth adverting to on account of their distinct or useful habits of growth. Alnus glutinosa laciniata, a cut-leaved Alder, is a very graceful plant, with leaves deeply and evenly cut. This tree has an unusually pleasing outline when viewed at a distance, and it gains favour even on closer inspection, the colour being a bright olive green. Of all white-leaved trees the best is perhaps Populus argenteus, the general appearance of which, especially when sun and wind aid in giving it effect, is very pleasing, and it is one of the cheapest of all trees. Another equally conspicuous tree is the variegated leaved Acer Negundo, which when judiciously planted—as standards especially—intermixed with the darker and varied green of woodland scenery and wildernesses, produces a grand effect. Ulmus microphylla pendula is a most gracefully weeping plant, when worked upon a good single stem; the branches are exceedingly numerous, very small, and of uniform size, and the leaves, unlike those of Elms generally, are very narrow and elongated. Of Hollies there is a very fine stock here, numbering, I believe, between 80 and 90 distinct varieties. What is called the Colchic Laurel is very distinct from the common one, the leaves being longer and more pointed. This variety is said to be hardier than the ordinary kind.

Turning to Roses—truly the "Queen of Flowers"—there is here a grand treat indeed for the connoiseur. The long-continued drought seems to have had but little effect on them. One thing was remarkable, namely, the improved effect which the later introductions in the way of dark Roses gives to a collection. There was the great desideratum of our forefathers, old Gloire de Rosomène; and conspicuous among others of almost every colour were Le Rhone, Olivier Delhomme, Madame Boutin, Madam Charles Wood, Julie Daran, &c., together with Emperors, Dukes, Senators, Generals, &c. Lord Macaulay too bore his crest most manfully. This is really, after much adverse criticism, a very valuable acquisition. One cannot leave these, even with the passing glance which has been given them, without reference to one variety, which now that our great and good gardener is no more, has additional interest for us, apart from its merits, viz., the variety called Sir J. Paxton, which Mr. Paul informed me is the best of all bedders of its class and colour. I also saw one or two meritorious seedlings.

With reference to Beaton's Pelargoniums, it is known that some 5000 of these came into the hands of Mr. Paul; from these some 4500 were thrown away; of the 500 remaining Mr. Paul has made three sections—one a questionable one; two, for second trial; three, well proven varieties.

The varieties, which Mr. Paul has sent out this summer—some of which he is already out of, having sold them as fast as they could be propagated, to the number of 7000—have each a bed devoted to them. Of these beds, the first is filled with the variety named Indian Yellow, which has evidently a very compact habit, and a freedom of flowering equal to that of any of its class, whilst the originality of its colour will render it a useful addition to bedding plants. Its proper colour is, as described, an orange scarlet.

Of Mrs. William Paul there are two beds. It is an exceedingly delicate and beautiful variety, perfect in form, and of good substance. The plant here possesses all the merits of a good bedder, whilst its originality of colour will commend it to general favour. It is clear rosy pink, with a slight blotch of white upon the upper petals.

Orange Nosegay is perhaps, with one exception—a younger and later seedling—the brightest tinted orange in the whole collection; it is quite distinct from Indian Yellow, being, as the name implies, a nosegay. It has also a plain leaf, and will become a favourite plant, indispensable in all efforts of flower-garden effect. Amy Hogg, however, is the plant which will prove to be the "Cleomede," against which all future raisers will have to wrestle. It is a wonderful acquisition, which we doubt not was considered by the raiser to be the best of his collection. In colour it is a bright purplish rose—a hybrid-nosegay, with leaves but slightly zoned, and very compact. Model, is a scarlet, with the form of which no florist could find fault. The individual flowers are larger than a five-shilling piece. It has the appearance of being a good bedder.

Scarlet Gem, an orange-tinted scarlet with a white eye, is a free bloomer with dark horse-shoe foliage. The individual flowers upon this variety are equally large and fine, as those on that just adverted to. Duchess is a fine variety, with immense trusses of a light peculiar scarlet; it is compact in habit, and is one of the most showy in the collection. Donald Beaton is clear orange scarlet, uniform in tint throughout the entire flower. The individual florets are perfect in form, and of great size. In growth it appears to be more robust than any of the kinds yet inspected, and less showy as a whole than many of the other new varieties. Princess Lichtenstein is a soft pleasing salmon pink, smooth, of good form, and a good bedder. Waltham Seedling, or to synonymise, Black Dwarf, for the name seems applicable from its dark dwarf habit, is a compact and very free blooming variety, the flowers of which are much darker than those of Stella.

Magenta Queen, though not so large as many, and especially the hybrid nosegays—one of which it is—is nevertheless a pleasing variety. The top petals are crimson, and the lower ones variable; it has a white eye, and possesses a strong free habit. Salamander is bright scarlet, with horse-shoe leaf, and is of good form and habit.

Glow-worm is a remarkable flower, aptly named, the play of colours upon individual flowers being exceedingly beautiful and variable. The top petals are fiery scarlet, the lower ones crimsoned magenta. The leaves are slightly zoned, and the habit good.

Alexandra is another variety with more or less varied hues upon individual flowers. The top petals are crimson, the lower ones scarlet. This has a distinct horse-shoe leaf, compact and effective.

To Indian Yellow Nosegay, so favoured lately by the Floral Committee of the Royal Horticultural Society, let me again revert. It is a very telling plant, with a distinct shade of colour of the orange-scarlet tint, and will be a favourite out of doors, the habit being good. One of the most novel is, however, a peach-coloured Nosegay, with good large trusses of compact form and fine habit. This is a very decided acquisition — as a pure peach colour is a desideratum we have long been in search of. There is a distinct blotch of white upon the upper petals. Another orange-scarlet with immense trusses is likely to make its debût under the name of Imperial. Yet one more before I leave them: one of the best, and a companion for even Amy Hogg, is to be found here. In form and habit and size of truss it is all that can be desired, being distinct in colour—a decided and distinct cherry—from any of the above. The stock, however, is very limited. In sections 2 and 3 are very many evidently superior to the majority of bedding sorts at present in use, though it would be premature to attempt any description of them at present. There are one or two, however, to which I cannot help giving a passing notice, one which will probably be called Dwarf Stella. It is very diminutive, with trusses almost equal to those of Stella itself. It will prove a very useful variety for divisional planting, scroll work, small beds, &c.

Enchantress is another of those we may yet expect to see become very popular. In colour it is a soft purplish crimson with scarlet eye and very massive trusses, often having fully expanded at one time some 50 flowers upon a truss. Beauty of Waltham is another of those original and striking varieties, which, chameleon-like, seems to assume a variety of colours. The general appearance of the small stock of this on hand promises for it a glorious future.

With dazzled eyes I feel relieved in having got thus far through this volume of colour, and am pleased to proceed to Mr. Paul's new nursery ground at Loughton, amidst the wildness of Epping Forest. This is at present some 20 acres in extent. It slopes gently from east to west, the more abrupt descent being on the easterly side, whilst the old historic forest encloses the whole on the northern side. This ground has not been enclosed more than from 18 to 20 months, and yet it is almost quite filled with every description of nursery out-door stock of the tree description, both evergreen and deciduous; and so deep and good is this long-rested soil, that though many things were not planted out until the latter end of May, all seemed unconscious of the past excessively hot and dry weather.

Here are Deciduous Azaleas in great variety. Rhododendrons, seedling Araucarias, Roses, Apples, &c., all growing most luxuriantly. Even the rare and beautiful Umbrella Pine, Sciadopitys verticillata, is doing exceedingly well in the open ground. Rows of fruit trees planted for permanent fruiting, line the sides of the walks. Elevated upon the western slope there is still standing an excellent example of the wild Crab of the forest. *E.*

Miscellaneous.

Dry Soil Closets.—A Galashiels correspondent, Mr. James Kerr, says he has since last year been using with satisfaction a simple apparatus, by which the deposits are at once deodorised by coal ashes or earth, and thus thrown out into a shoot or iron bin for removal by the dustman's cart or for garden use. The mechanical action of this "earth closet," he says, is very simple, the whole process being effected by opening and closing the lid, to which is affixed the lever cranks. He wishes to call the attention of landed proprietors, architects, builders, and others to the use of such earth closets in many situations where it would be preferable to a water-closet, viz., where there is deficient water supply or want of proper drainage, and the immediate deodorising of offensive matter ought to be effected at once, instead of running it into festering cess-pools or ill-constructed drains. By the admixture of ashes or earth with the night soil, also, the ammonia and other fertilising properties are at once absorbed and retained for the field or garden. Mr. Kerr is not the originator of dry soil closets, but his plan may be an improvement on others. The Royal Scottish Society of Arts, it is said, have recommended it to the consideration of its prize committee for the simplicity of its mechanical action. *Builder.*

The Raft Spider, Dolomedes fimbriatus, is a large species, being, indeed, one of the largest British spiders, its size depending more upon the dimensions of the body than the length of the limbs. It is a remarkably handsome spider, its general colour being chocolate brown, and a broad orange band being drawn so as to mark the outline of the abdomen and thorax. There is a double row of small white spots upon the surface of the abdomen, and a number of short dark transverse bars give variety to the colouring. The limbs are pale red. This creature belongs to that group of spiders which do not live in a web, and wait for casual insects, but which chase their prey after the manner of carnivorous vertebrates. Indeed it may fairly be said to belong to the large group of wolf spiders, and is nearly allied to them. The raft spider is only to be found in fenny or marshy places, and is mostly seen in the fens of Cambridgeshire, where its remarkable habits have long been known. Not content with chasing insects on land, it follows them in the water, on the surface of which it can run freely. It needs, however, a resting-place, and forms one by getting together a quantity of dry leaves and similar substances, which it gathers into a rough ball and fastens with silken threads. On this ball the spider sits, and allows itself to be blown about the water by the wind. Apparently, it has no means of directing its course, but suffers its raft to traverse the surface as the wind or current may carry it. There is no lack of prey, for the aquatic insects are constantly coming up to breathe the air; and although they may only remain on the surface for a second or two, the spider can seize them before they can gain the safe refuge of the deeper water. Then there are insects, such as the gnat, which attain their wings on the surface of the water, and can be taken by the spider before they have gained strength for flight. Also, there are insects which habitually traverse the water in search of prey, and which are themselves seized by the more powerful and equally voracious spider. More than this, moths, flies, beetles, and other insects, are continually falling into the water, and these afford the easiest prey to the raft spider, who pounces upon them as they vainly struggle to regain the air, and then carries them back to its raft, there to devour them in peace. The spider does not merely sit upon the raft and there capture any prey that may happen to come within reach, but when it sees an insect upon the surface, it leaves the raft, runs swiftly over the water, secures its prey, and brings it back to the raft. It can even descend below the surface of the water, and will often crawl several inches in depth. This feat it does not perform by diving, as is the case with the water spider, but by means of the aquatic plants, down whose stems it crawls. Its capability of existing for some time beneath the surface of the water is often the means of saving its life; for when it sees an enemy approaching, it quietly slips under the raft, and there lies in perfect security until the danger has passed away. There is, living in the same localities, a closely allied species, the Pirate Spider (Lycosa piratica), which has similar habits, chasing its prey on the water, and descending as well below the surface It does not, however, possess the power of making a raft. *Homes without Hands.*

Scientific Education.—Physics lies at the foundation of all science; and if nothing else were taught, it would be a great gain to have the youth of this country soundly instructed in the laws of the elementary forces—gravitation, heat, light, and so forth. The purely physical sciences furthermore have the great practical advantage that they can be pursued to a great extent without what have been felicitously termed "stinks or messes," while the state of knowledge regarding them is such that these elements can be taught as thoroughly as those of grammar or those of mathematics. The practical difficulties in the way of teaching boys chemistry thoroughly and as a discipline, appear to me to be much greater. Still greater obstacles beset the teaching of most of the biological sciences thoroughly and as disciplines. For the latter purposes and for boys, zoology and animal physiology are out of the question; though I do not see why the rudiments of both, or at any rate of human physiology, should not be made a part of instruction. Human physiology could be made quite as intelligible as either history or geography, and might be much more readily brought practically home to a boy's mind. But botany, with its readily accessible subjects, easy and not disagreeable anatomy, and clear and definite terminology, might be made the means of giving a thorough training in the elementary biological science. By the well-guided study of a score of common plants a boy would not indeed be made a botanist (nor is it necessary or desirable he should be one), but he would learn the use of his eyes and of his fingers, the employment of terminology, the meaning of classification, the general laws of vitality, and the scope and signification of the leading ideas of biology. He would be put on the same level with respect to biological science as a boy who had been well grounded in Latin grammar, Cæsar, and Virgil, would occupy with respect to the classics. On the whole, I am strongly in favour of confining instruction in science for disciplinal purposes to elementry physics (with incidental chemisty) and

botany, with the addition of the outlines of human physiology. A boy well grounded in the rudiments of these sciences would find none of the methods and very few of the conceptions of the others absolutely strange. If it should be found practicable, in addition, to teach the outlines of geology as information, so much the better; but I am sure that the great aim should be to teach only so much science as can be taught thoroughly; and to ground in principles and methods rather than attempt to cover a large surface of details. I believe that the most perfect method of teaching science is that pursued by chemists and anatomists, who combine lectures with practical demonstrations, and thus unite all that is excellent in both the professorial and the tutorial systems. But it should be understood that scientific teaching will be a mere sham and delusion, and had better not be attempted at all, unless a fair share of time and attention be given to it; and unless the rewards attainable by proficiency are fully equal to those within the reach of the boys who devote themselves more especially to other lines of work. If no scholarships at the Universites are open to boys, and if no fellowships at the colleges are attainable by men, who show a special aptitude for science, the introduction of scientific teaching into public schools will be a mere farce. *Professor Huxley in Evidence before Select Committee of the House of Lords.*

Gastrolobium grandiflorum.—The Poison Plant, of which specimens for my inspection were submitted by the Royal Society of Victoria, and which proved so detrimental to the herds and flocks in some places on the Cape River, and on the sources of the Burdekin and Flinders River, is botanically known as Gastrolobium grandiflorum. It is a leguminous bush, several feet high, with orange-yellow flowers, the latter imparting to it a very ornamental aspect. J. Macdouall Stuart, the famous explorer, brought the first specimens from Attack Creek, south of Arnhem's Land, and from these the species was established in the "Fragmenta Phytographiæ Australiæ," iii. 17. It is much to be feared that this plant has a wide range through the interior of tropical Australia (though it was not met with on the route of the expedition to which I was attached), and not unlikely Leichhardt had to encounter it during his last expedition. The occupants of territory in which the plant occurs may now, however, guard to some extent against this vegetable bane, since the plant has become widely known, nor is it unlikely that by setting fire repeatedly to the vegetation of the scrubby ridges on which it grows that it may be extirpated. Gastrolobium grandiflorum is the only species of the genus as yet found beyond south-west Australia, where several congeners (for instance, G. bilobum, G. calycinum, G. callistachys, G. oxylobioides), on account of their poisonous properties, render extensive tracts of the country unoccupiable. I shall have a future occasion to enter on detailed statements of the effects of the Gastrolobia on the animal frame, and give also the results of the chemical analysis of these plants. Expositions of the highly deleterious effect of the Swainsona Greyana, which as a pasture herb on the Darling flats frequently causes the death of horses during dry seasons, when other herbage fails, as well as an explanation of the deadly effect of the Lotus australis, causing, when grown and depastured in certain localities, sheep to perish within half an hour, may, as referring likewise to leguminous plants, then come simultaneously within the precincts of my elucidation. *Ferd. Mueller, M.D., F.R.S., in Proceedings of the Royal Society of Victoria.*

Calendar of Operations.

(*For the ensuing week.*)

As in spring a progressive increase of heat and moisture, to keep pace with the advancing season, was the course pursued, so now an opposite or retrogressive one must be adopted. The healthy state of plants during their winter or season of rest, and the amount of accumulated energy for a new year's growth, depend very much on their management during the autumn. They must be gradually hardened by exposing them to an increased circulation of air and lower temperature, admitting all the light possible. We have frequently urged the necessity of thoroughly watering plants when they need it, in preference to giving a little and often, according to the too common practice. Let it be the rule, then, only to give water when it is required, and then to give plenty. These remarks apply more particularly to hard-wooded plants, which, to ripen their growth properly, require a longer season than those of a more herbaceous character, which will continue to grow and flower some time longer. Remember the value of liquid manure for plants which are flowering freely, and others which it is desirable to invigorate to the utmost.

FLOWER GARDEN AND PLANT HOUSES.

Do not allow any of the transient summer beauties to remain in the flower-houses longer than they are ornamental; and those which have been grown as annuals, to serve merely for a season, should be thrown away when they cease to be useful; for, if kept beyond a certain stage, they only harbour insects.

Auriculas.—These may now be repotted, using for the purpose moderately rich soil. After potting keep them in a close frame for a short time, gradually hardening them off by means of partial exposure until they are able to stand without any protection. Keep them free from green fly and dead leaves.

Dahlias.—Go over the plants regularly twice a week, removing all superfluous spray and buds. Naturally strong growing varieties must, however, be disbudded with care, as they require less attention in that respect than more weakly kinds. Tie the side shoots to stakes, and keep earwigs in check by trapping them in inverted pots with a little dry moss in the bottom of them, or with dry bean-stalks into which they will crawl, and may be destroyed every morning.

Pansies.—Make beds for the reception of young plants. In doing this it is absolutely necessary that wireworms should be caught, therefore the compost should have repeated turnings; for these pests are very destructive to young Pansies.

Pelargoniums.—When sufficiently broken let cut down plants be shaken out, and after having been disrooted let them be potted in as small pots as they can be got into. After potting they should be placed in a frame where they should be kept close for a time; when they have become fully established, dispense with shading, and during favourable weather give air freely.

Pinks.—As soon as well rooted let these be planted into beds previously prepared for them. Trap grubs which are sometimes very destructive to the young plants about this season.

FORCING GARDEN.

Melons.—Keep up a good bottom heat, or shanking and canker will be a natural consequence. Keep the plants sufficiently thin, to allow the air to circulate freely amongst the leaves, and to act upon the surface of the soil. Thin out weak shoots, and let all the fruit be properly supported upon some hard dry substance.

Peaches.—As soon as the crop is entirely removed, any of the trees which exhibit too gross a tendency in their tops should be partially root pruned by forking down at a safe distance of two to three feet, according to the age of the tree, and shortening some of the strongest roots. Any tree which is very gross should be carefully undermined, to ascertain if any roots have descended into the subsoil. If such is found to be the case, they should, of course, be cut away; and to prevent a recurrence of the same, the tree should be lifted out entirely, and the bottom of the border made impervious by means of concrete. The trees should be frequently examined, to prevent the establishment of scale, red spider, or other insects. It is sometimes difficult to eradicate these pests entirely, but perseverance will do much.

Pines.—Give every encouragement to plants now showing and swelling. If the quantity of fruit which has already made its appearance is inadequate to meet the probable requirements during winter, water may for a short time be withheld from a portion of the plants which are fittest for fruiting. On the other hand carefully avoid any check to those which it is desirable to keep on in a growing state.

Vines.—In late Vineries the Grapes which are required to hang till the new year should be well thinned, and the shoulders tied out, so as to ensure a free circulation of air amongst the berries, that their skin and footstalks may be better matured, and less liable to decay during winter.

Strawberries.—The potting of these for forcing should be proceeded with as soon as the young plants have made sufficient roots to allow of their being transferred to pots with nice little balls of soil, which will adhere to them if taken carefully up with a curved trowel. This plan is preferable to laying them in small pots, as it saves time and pots, and succeeds perfectly. The soil for forcing Strawberries should be of rather a strong loamy nature, and have some well rotted cow or horse-dung added to it. Take pains to make the drainage very perfect, as it is necessary to give a considerable quantity of water during their growth through the autumn, and when they are being forced next season; and if the drainage is defective, the health of the plants must suffer.

HARDY FRUIT AND KITCHEN GARDEN.

Notwithstanding the rains which we have lately experienced, in gravelly localities it may be well to examine the state of the soil about the roots of Peaches, Apricots, and Figs, on open walls, especially of those which are carrying a crop of fruit; in many cases the ground will be found dry, particularly where overhanging copings are in use; and unless watered the trees will soon show evidence of the neglect, by casting some of their fruit, or by their diminutive size and absence of flavour. Means must now be taken to preserve wall fruit from the ravages of wasps, flies, &c., either by covering the fruit with some material to exclude these pests, or by entrapping the latter with something attractive and come-at-able. The latter mode of dealing with the enemy is preferable, as by covering the fruit with any opaque material it is screened from the sun, and thus deteriorated both in appearance and quality.

Fruits.—Let the earlier varieties of Pears and Apples be carefully gathered as they ripen.

Vegetables.—Tripoli Onions for future transplanting should now be sown, and Endive for a late crop. Continue to make successional sowings of Cos Lettuce, and make the first sowing of Hammersmith Cabbage Lettuce to transplant into warm borders for late autumn use. The last sowing of Early Stone and White Globe Turnips should be made this week. A considerable share of attention should now be directed towards securing an adequate supply of salads and other small matters for winter use. Chicory is one invaluable plant of which there should be no scarcity; and as it will do in spare nooks or corners, there need not be any difficulty made about want of room.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON

For the Week ending Aug. 9, 1865, as observed at the Horticultural Gardens

August.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth 1 foot deep	Temperature. Of the Earth 2 feet deep	Wind.	Rain.
Thurs. 3	12	29.745	29.677	65	45	55.0	61	59½	W	
Friday 4	13	30.026	29.871	70	35	52.5	60½	59	N W	
Satur. 5	14	30.063	30.030	73	43	58.0	60½	59	W	
Sunday 6	15	30.030	29.985	78	42	60.0	61	59½	S W	
Mon. 7	○	29.802	29.774	77	47	62.0	63	61½	W	
Tues. 8	17	29.917	29.876	76	40	58.0	61	62	N W	
Wed. 9	18	29.939	29.912	79	43	61.0	64	62	S W	
Average.		29.949	29.875	74.0	42.1	58.1	62.0	60.3		

August 3—Rain; showery; heavy rain at night.
— 4—Partially overcast; fine, with clouds; very [illegible] night.
— 5—Heavy dew; slight fog; very fine throughout.
— 6—Very fine; cloudy; fine at night; rain.
— 7—Cloudy; slight rain; heavy shower in forenoon; cloudy but fine.
— 8—Very fine; overcast; fine throughout.
— 9—Very fine throughout.

Mean temperature of the week, 4½ deg. below the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 39 years, for the ensuing Week, ending August 19, 1865.

August.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N	NE	E	SE	S	SW	W	NW
Sunday..13	74.4	50.1	62.2	17	1.14 in	1	4	3	3	5	1	[illegible]	[illegible]
Mon. ..14	72.6	50.6	61.6	15	0.79	—	11	4	2	2	1	[illegible]	[illegible]
Tues. ..15	73.2	49.9	61.6	15	0.61	4	6	4	1	5	[illegible]	[illegible]	[illegible]
Wed. ..16	73.3	51.3	62.3	18	0.80	—	4	4	2	5	4	[illegible]	[illegible]
Thurs. ..17	73.1	50.1	61.2	21	1.12	5	3	1	2	5	[illegible]	[illegible]	[illegible]
Friday ..18	73.3	51.1	62.2	14	0.38	4	6	5	3	4	[illegible]	[illegible]	[illegible]
Satur. ..19	73.0	51.3	62.2	18	0.42	2	4	4	2	3	1	[illegible]	[illegible]

The highest temperature during the above period occurred on the 18th, 1842—therm. 92 deg.; and the lowest on the 13th, 1839, and 18th, 1864—therm. 38 deg.

Notices to Correspondents.

Apricots: *C L.* If the root pruning, which you say was done this year, was well and properly performed, you will not see the effect it will have on the production of fruit until next year; but if the tree still continues to grow very luxuriantly, it is evident that root pruning is not enough, or else has not been well done. As the tree is young and vigorous it would be best to uncover the roots carefully for a large radius, and lift the tree entirely out of the ground, and replant it; the conditions, such as climate, &c., being favourable, we have no doubt that this would result in a very productive habit of growth. Something, however, of the non-productiveness of the tree may be owing to its being, as you express it, untrimmed this season. Apricots require very careful and judicious manipulation, and it is hardly fair to expect that a tree which is left to grow wildly should be productive. After replanting the tree it will be advisable to thin out the wood freely and nail it close into the wall. The best time to do the tree is early in October.

Garden Produce: *Gloucestershire.* It is very difficult to reply satisfactorily to questions like those you propose, since there may be circumstances not mentioned which affect the case. If, as your letter leads us to infer, everything is favourable, the gardener having labour and conveniences of all kinds at his disposal—hot-houses, cold-houses, Vineries, Orchid houses, pits, &c., and in fact everything that money can give—and being left to himself, his employer being away in London and elsewhere from April till August, then it is not impossible to have Figs ripened now or before now, to have Peaches and Nectarines ripened earlier than a week ago, or to have Lettuces white and fit for table—not green dirty things only fit for pigs, or to have Grapes with bloom on the berries, or to have the latter larger than good-size Currants. We say it is not impossible to have such things, and we add that an employer who gives his gardener carte blanche in his department, and intimates his wish to have any of these productions, has a right to expect them, provided he allows a reasonable time for their production. But are the applications all of a satisfactory nature? Grapes no larger than Currants intimate that there is something radically wrong—perhaps worn-out Vines, and old exhausted borders, or perished roots.

Lawn Grasses: *G P.* The best time to sow Grass seeds for the improvement of lawns is March, but it may be done in the autumn in very favourable localities. The mode of proceeding would be the same at both seasons, and consists in loosening the surface of all the bare patches, and applying a liberal dressing of rich soil, finely pulverised, over the whole surface, which should be well raked into the interstices of the standing Grass; seeds of fine Lawn Grasses mixed with White Dutch Clover, may then be scattered over the surface and slightly raked in, and when the soil is sufficiently firm not to adhere to the roller it should be very firmly rolled down, which rolling may be afterwards repeated at short intervals after the seed is up. There is another way, and if your soil is very good it may answer very well, to simply scatter plenty of seeds over the Grass, rake it well in, and then roll down firmly as before. If you mow with a machine great care should be taken that it is not set too low, as this will often have the effect of making the Grass patchy. We cannot recommend dealers, but you will have no difficulty in obtaining fine mixed Lawn Grasses and White Dutch Clover from any of the great firms whose advertisements are constantly to be found in our columns.

Names of Fruits: *A. M. T. B.*—1, 2, 4, Noblesse; 3, perhaps Red Magdalen, but cannot be determined without leaves. ‖—*Portsdown.* The Brunswick Fig. ‖—*C A G.* The Pear is the Comte de Lamy. ‖

Names of Plants: *H T.* Datura Stramonium, the Thorn Apple. It is an annual, and may be destroyed by hoeing. *R P.* Origanum sipyleum.—*R Beglié.* We are [illegible] inquiry.—*W B Everton.* Hydrangea quercifolia.

Variegated Pelargoniums: *Gormire.* Yours is a very [illegible] batch of golden tricolor zonate seedlings, though we [illegible] having the named sorts at hand for comparison we [illegible] hardly say how far they may be sufficiently distinct [illegible] resemble and are apparently as good as Mrs. Pollock. The most distinct seems to be one with a broad zone of red, which a rosy tint predominates. They are well worth growing for a season, though of course a large proportion [illegible] as being inferior to the rest, will be necessarily discarded.

Vines: *R P.* Old Vines that were cut back last autumn and have this summer made strong canes, may be allowed to bear moderately next summer. The wood must, however, be well ripened this autumn.

Misc.: *Inquirer* can have the first Number for the present year.

Manures and Feeding Stuffs.

RAYNBIRD, CALDECOTT, AND BAWTREE. Address, 89, Seed Market, Mark Lane; or Basingstoke.
Samples and prices on application.

THE LONDON MANURE COMPANY have now ready in fine condition—
DISSOLVED BONES,
SUPERPHOSPHATES of LIME,
TURNIP MANURE,
BLOOD MANURE for Barley and Roots,
NITRATE,
MANGEL MANURE, &c. &c.
They also continue to supply GIBBS' PERUVIAN GUANO, NITRATE of SODA, SULPHATE of AMMONIA, FISHERY SALT, and all Fertilisers of known value.
Works, Plough Wharf, Isle of Dogs.
Offices, 116, Fenchurch Street, E.C. E. Pratten, Secretary.

LAWES'S MANURES.—The Manures manufactured by J. B. Lawes for the present Season of 1865 are now ready for delivery at his Factories, at the following prices:—
LAWES'S PATENT TURNIP MANURE, and BONE SUPERPHOSPHATE of LIME, £6 6s. per ton.
LAWES'S SUPERPHOSPHATE of LIME from BURNT BONE and MINERAL PHOSPHATES, £5 5s. per ton.
LAWES'S WHEAT, BARLEY, GRASS, and MANGEL MANURES, £5 per ton.
CONCENTRATED CORN and GRASS MANURE, £12 per ton.
These Manures can be obtained of Mr. Lawes, or through his appointed Agents, in all parts of the United Kingdom, at prices varying according to cost of carriage.
Genuine PERUVIAN GUANO direct from the Importers.
NITRATE of SODA, SULPHATE of AMMONIA, and other Chemical Manures. AMERICAN and other CAKES at market prices.
Address John Bennet Lawes, 1, Adelaide Place, London Bridge, E.C.; and 22, Eden Quay, Dublin.

CARBOLIC ACID.—The best qualities of this Acid for Commercial, Agricultural, and Veterinary purposes, may be had from the original Manufacturers, F. C. Calvert & Co., Royal Institution, Manchester.
Price Lists forwarded free on application.

Caution to Gardeners.—When you ask for SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark Saynor, also the corporate mark Obtain Warranted, without which none are genuine.
S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make all of which are warranted both by sellers and makers.
S. & C.'s Pruning and Budding Knives are the best and the cheapest in the market.
Paxton Works, Sheffield. Established upwards of 125 years.

CLAYTON, SHUTTLEWORTH, AND CO., Engineers, Manufacturers of PORTABLE and FIXED STEAM ENGINES, Machinery for Pumping, Hoisting, Grinding, Sawing, &c., Engines for Steam Cultivation, Self-Moving Engines for Common Roads and Agricultural Purposes generally.
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Descriptive, Illustrated, and Priced Catalogues, Free per Post.
Special Drawings when required.
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AGRICULTURAL IMPLEMENTS, CARTS, WAGGONS, PLOUGHS, HARROWS, CHAFF-CUTTERS, CHURNS, &c. Also GARDEN TOOLS of all kinds. Improved WIRE NETTING. Delivered carriage free. Price Lists per post on application.
Burgess & Key, 95, Newgate Street, London. Works, Brentwood, Essex.

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be seen at Work in every Agricultural County in England. For particulars apply to
John Fowler & Co., 28, Cornhill, London, E.C.; and Steam Plough Works, Leeds.

£1000 UPON the WOOLSTON TACKLE against the NEWCASTLE "best application."
William Smith, Woolston, Bletchley Station.

The Agricultural Gazette.

SATURDAY, AUGUST 12, 1865.

A copy of to-day's paper is sent to several hundreds of our correspondents scattered over every county in the kingdom. These words will, therefore, in all probability be read by gentlemen who have for many years been kind enough to answer our inquiries on agricultural subjects. We shall be exceedingly obliged to all or any of them who may be good enough to send an occasional communication to us during the next few weeks on the subject of the threatened Cattle Plague. Notes of its existence, progress or cessation, treatment, cure or failure, wherever the disease has broken out, may be serviceable elsewhere, and whether directly serviceable or not, will undoubtedly be useful indirectly by correcting any errors of judgment regarding it, whether on the side of carelessness or panic. We are glad to have this opportunity of thus directly addressing our usual correspondents; and of thus asking the favour of communications from them on this subject during the next few weeks. Copies of the paper, containing the information we may receive from all quarters, will be forwarded to all those to whom we shall be thus indebted for it.

The returns from our correspondents as to the character of the crops now being harvested, give but a sorry account of the corn fields of 1865. Excepting the autumn-sown clay lands, all grain crops are this year much below their average productiveness.

Wheats on the lighter soils and loams are generally inferior. Barley on the lighter and thinner Barley soils is much below an average, and, though probably the best crop of the year, it, too, as a whole, is inferior. Oats, excepting the few instances where winter sown, are the poorest crop we have had for many years. Beans and Peas are generally below their usual yield.

The following is a Tabular statement of the returns:—

Number of Returns.

Crops.	Under Average.	Average.	Over Average.	Total.
Wheat	76	90	29	195
Barley	40	112	28	180
Oats	154	27	2	183
Beans	64	58	4	126
Peas	37	67	6	110

The exceptions to the general failure are in the case of clay land Wheats, and notably in that of Wheat on the poorer clays, which is almost everywhere unusually good. The Barley on the better class of Barley soils is also a fair crop wherever early sown. Peas are a good crop in some districts.

The Root Crop is a great improvement over all southern and midland England over that of last year. Mangels are generally good, and Swedes and other Turnips are tolerably promising. In the North and all over Yorkshire and Northumberland they are, however, being destroyed by the grub. In the dairy districts there has been generally a good crop of Grass, and the hay has been well made. All over the eastern and southern counties the hay crop has been unusually short.

Any doubts which may have existed in the minds of the most cautious investigators, as to the precise nature of the prevailing disease among cattle, have been removed by the experience of the last week. In various well-marked cases the symptoms and *post mortem* appearances place it beyond all question that we have the true "Rinderpeste" in our country, imported, there is good reason to believe, direct from Russia. At the outset certain differences in the signs manifested during the progress of the affection justified the hope that it might be modified by our climate; but even this consolation is now denied us, and nothing remains but the naked fact that a most virulent and eminently infectious disease is extending with wonderful rapidity among our herds in various parts of the country, in spite of all measures that have yet been employed for its prevention. Every day fresh intelligence arrives pointing to new centres of contagion. All kinds of suggestions are freely scattered through the public prints; allopathic treatment here, and homœopathic tinctures there, are lauded; marvellous cures of nearly every case treated are published for the benefit of all whom it may concern, and as a consequence, the scientific inquirer is sorely hindered by the abundance of useless information so profusely lavished upon him.

During the last week a very important element in the question has been discovered, in the shape of a general tendency to ignore all other cattle diseases save this one. In the performance of our duties it has occurred more than once or twice to see animals under treatment allopathic and homœopathic for this disease, when all its characteristic signs have been wanting. Convalescent cattle have been pointed out which gave indubitable evidence of not having been attacked at all; and hence triumphant assertions of successful results meet with no response from those who are best acquainted with the malady, because their experience compels the sad admission that as yet medicine has proved to be powerless to arrest, or even ameliorate when once the disease is developed.

Up to this time information has been received of the appearance of the plague in several parts of Kent, in Norfolk, Berkshire, Devonshire, and Northumberland, and with the insane determination to hush the matter up, still so prevalent, we may doubtless add many other counties to the list. The system of sending diseased cattle off the premises along public roads to the butcher or to market also continues, and necessarily leads to the extension of the malady. Doubtless the desire to avoid the loss of the whole value of the animal is natural, but the effects of such proceedings are not the less disastrous to the country.

Abandoning for the present all idea of successful treatment, it is nevertheless of the highest importance to learn all we can of the characters belonging to the disease. And first, in relation to its infectious nature. In most instances the outbreak in a certain locality has been directly traceable to the purchase of animals, either foreign or English, infected with the disease generally in a latent form; but of late, cases have occurred where no direct communication could be proved to have taken place between the healthy and diseased stock, where no fresh purchases have been made for many months, and where, as far as could be ascertained, no persons who had been in attendance upon infected animals have had access to the place. In one particular instance the appearance of the disease was quite inexplicable, according to the general idea of the necessity for contact; and after much inquiry it was discovered that some sheep in an adjoining meadow, only divided by iron hurdles, had been twice to the metropolitan market: this was the only circumstance that gave any clue to the origin of the attack. That the infliction came to us from abroad at the commencement, no one is disposed to deny; that it is highly, almost certainly, infectious is not disputed; that the infection may be conveyed in a variety of ways,—by contact, by other animals that have associated with diseased stock, by the attendants, by drinking from the same bucket,—are all facts tolerably well established by evidence; but in what other way infection may be carried we have yet to learn; how far the atmosphere may be instrumental in wafting the poison from one locality to another, is yet only a matter of conjecture, but with even our limited experience of a few weeks, there is good reason to suspect that such a method of conveyance is at least probable. Nor is there anything in the circumstance inconsistent with what has been observed in relation to other infectious diseases.

Admitting, however, the possibility of the communication of the malady by means of the atmosphere, it is not any the less necessary to take every precaution to avoid all direct transmission of the subtle poison given off by the infected subjects: very little care is even now taken to prevent men passing from a diseased cow or ox to the sheds where the healthy stock are. Nor is it at all easy to effectually carry out the restrictions which are so important. Only a few days back an attendant, after receiving minute directions to avoid passing near the healthy stock, directly showed the amount of attention he intended to give to instructions, by walking up to some cows for the purpose of pointing them out as free from the affection. These difficulties will undoubtedly continue to be felt as so many of the precautionary measures must be entrusted to the uneducated and unreflecting, but so much the more is it imperative upon those who have the charge of stock to see their directions carried into effect; because admitting, as we are from recent observations compelled to do, that the malady may be communicated without palpable contact of diseased animals, and even without any indirect medium of communication being apparent, we are nevertheless constrained to insist upon the importance of the severest system of inspection, and the immediate removal of any animal that shows any symptoms of the disease.

Want of time compels us to defer some momentous points for discussion in our next.

THE CATTLE PLAGUE.

[We continue to give extracts and abridgements of the letters which have lately appeared in the daily papers on this subject.]

1. From the Earl of Shannon, *Castle Martyr, Aug.* 5.—I have just read your agricultural article on the subject of the Cattle Plague. From the description given of the disease, it appears to me that it would be most desirable that the effects of the Turkish bath should be tried on some animals affected. Having a bath on my own premises, I have tested it extensively in various diseases of cattle, horses, and dogs, and with the greatest success. In diseases of the blood its success is almost invariable, and also in low typhoid diseases. This new pest seems to be of this character, and I should entertain most sanguine hopes of the effects of the bath. Its stimulating powers, and also the carrying off, through the pores, the impurities of the blood, mark it as a most desirable agent in the present epidemic. These baths for cattle, as they do not require a high finish for such purposes, can be cheaply and simply put up—indeed I think no large stockowner ought to be without one.—Shannon.

2. From Professor Simmonds.—It is much to be feared that, unless farmers, stockowners, cattle dealers, and others, whose interests are immediately involved, cordially co-operate in the endeavour to quickly exterminate the disease wherever it may appear, it may assume a magnitude rightly to be regarded as a great national calamity. For this end it is important that all persons should know—"First,—That the disease specially belongs to the ox tribe, and that it has never been known to attack any other domesticated animal. Secondly,—that it is the most infectious, as well as the most fatal, of all diseases attacking cattle, and that it lies dormant in the system from seven to 10 days, or often longer, before the animal gives any indications of being infected. For these reasons it is imperatively necessary that the following precautions be observed:—1. That all newly-purchased cattle of every kind be kept apart from others for a period of not less than 12 to 14 days. 2. That every cattle-owner keep a strict watch

over his stock, so as to recognise the first indications of the disease, and, as soon as any of these are manifested, call to his assistance the professional aid of a veterinary surgeon. The early symptoms of the disease are usually a remarkably dull and dispirited condition of the animal, which will stand with its head hanging down, ears drawn back, and coat staring, refusing all food, and occasionally shivering. A watery discharge flows from the eyes and nostrils. The skin is hot, but sometimes chilly, the temperature varying from time to time. The extremities are cold, the breathing short and quick, being not unfrequently accompanied with moaning as an indication of pain. A slight cough is sometimes present. The inner part of the upper lip and roof of the mouth is reddened and often covered with raw-looking spots. The bowels are occasionally constipated, but in most instances diarrhœa soon sets in, the evacuations being slimy and very frequently of a dirty yellow colour. The prostration of strength is great, the animal staggering when made to move. In milch cows the secretion of milk is rapidly diminished, and soon ceases altogether. 3. That all infected cattle be instantly removed from the healthy, and placed in situations as far from them as possible. As a further precaution, it would be well to have the healthy washed and cleansed. 4. That no cattle the subjects of this disease be allowed to remain in any meadow or pasture field unless they can be perfectly isolated from all other cattle, as well as kept at a distance of not less than a hundred yards from all roads along which cattle may be driven. 5. That every animal which is violently attacked with the disease be killed at once, and buried without delay, and that the skin be placed in some disinfecting fluid before being sent off the premises. 6. That no cattle be allowed to go near to the burial places until several weeks have elapsed. 7. That no person who has the charge of the sick cattle be allowed to go near the healthy ones, and that all indirect communication between the infected and the healthy be strictly prevented. 8. That no fodder or straw which has been used about the infected be taken to other animals, or even thrown into the fold yard or upon the manure heap until it be first well sprinkled with chloride of lime or some other disinfecting powder. When practicable it is desirable that all such fodder and straw should be burnt. 9. That all sheds and stables in which diseased cattle have been located be thoroughly washed, cleansed, and ventilated, and likewise disinfected by whitewashings with quick lime, before any other cattle are placed therein; and that during their occupancy by the diseased all manure and evacuations be mingled with some disinfecting agent before being taken away. 10. That all railway cattle-trucks, station pounds, ships used in the cattle trade, wharves, and other places where cattle are brought together, be kept as clean as possible by frequent washings, and that disinfectants be used whenever there is reason to believe that they have been occupied by diseased cattle. 11. That no store stock, milking cows, or cattle of any kind which have been exposed to the influence of the infection by being located with the diseased, be sent to any fair or market in less time than a month after such exposure; and that in all cases in which it is determined to stay the progress of the disease by killing animals so exposed, they being at the time believed to be fit for human food, the animals be sent direct to the slaughterhouse when not killed on the premises of the owner. *Jas. B. Simonds, Royal Veterinary College, Aug.* 3.

3. From Professor Gamgee.—From Market Drayton we learn that on one farm 33 out of 35 head of cattle have died, and there are reasonable grounds for fearing further losses in the same neighbourhood. Mr. Parkes, veterinary surgeon, of Birmingham, reports an outbreak at West Bromwich. A farmer purchased a foreign cow from a dealer on the 18th of July. This cow had a calf by her side about three weeks old, and had been bought a day or two previously in Smithfield. Immediately after delivery by the dealer signs of illness appeared in this animal. She was returned by the farmer on the 21st, and died on the 23d or 24th. On the 27th the general stall was affected, and six cows, the whole in the man's possession, had succumbed to the malady by yesterday morning. The malady has undoubtedly broken out near Kelso, on 14 head of cattle imported into London and sent north. A letter bearing yesterday's date states that of the 14 two are dead and nine were affected yesterday. The disease has appeared also amongst some home-bred animals. Twenty-eight animals have been seized with the disease at Woolwich, and calves from the London market are blamed for taking the malady down to Horsham and Grinstead. Referring to the causes of the contagious typhoid in my last letter, I alluded particularly to direct contamination. The more we learn the more we find that there are very few cases of indirect contagion; and if farmers and cowkeepers can keep clear of diseased cattle approaching their stock they have no occasion to fear the appearance of the malady. It is also certain that early removal of a sick animal may save a whole stock, and for this reason it is important to notice the early symptoms. Not a little variety is observed in the early manifestations of the disorder. Some animals cough, others do not. Some shiver continually, and others at intervals. In all the appetite diminishes, and then ceases altogether. The secretion of milk is rapidly suspended, and there are general symptoms of fever. The pulse is very frequent, respiration quick, and extremities at first hot and afterwards cold. There is a discharge from eyes and nose, drivelling of saliva, sometimes smacking of lips, grinding of teeth, drooping ears, and outstretched position of the head. The muscles of the face are liable to twitchings, and there are spasmodic jerkings of the muscles in other parts of the body. The position of the animal is now often characteristic. The legs are drawn together, back arched, joints more or less rigid, and the udder is shrivelled. The belly is apt to become distended; abdominal pains are not uncommon, and the excrement may be dry, or it is more frequently fluid, and even tinged with blood. Emphysematous swellings often form at this stage, and the prostration becomes considerable. Cows in calf are apt to abort, and sink speedily afterwards. The pulse becomes weak and indistinct at the jaw; the discharge from nose and eyes and the salivation increase; the cough becomes more or less indistinct, should it continue. In a number of cases the cough is entirely absent. On the membrane lining the mouth and nose an eruption often occurs, and even ulceration follows. Such are the leading symptoms, which usually terminate in death within a week from the earliest signs of illness. Foreign observers have given lengthened descriptions of the various stages of the disorder. All are agreed that the period of incubation never exceeds 10 days, and often extends only over four. Then the general fever sets in with abdominal pains; and lastly, the spine is more or less affected. The animal stands and rises with difficulty, and often dies in convulsions. *John Gamgee, Principal of the Albert Veterinary College*, 48, *Pall Mall, S.W., Aug.* 4.

4. From Professor Gamgee.—Two cows were purchased on the 19th of June in the Islington Market; they were placed with other cows in a shed. On the 24th one of them took ill; she was sold at once with her companion, and died, whereas the latter has been traced now through a dealer's hands to another stock, which, if not diseased, is in great danger of immediate destruction. I may mention that the first cowkeeper who bought the two cows has sustained most serious losses from the malady having been propagated to his standing stock. Now it is evident that in all probability the foreign cow which resisted the complaint, to all appearance, enjoyed the immunity which always follows one attack. Animals are not seized twice with the disease, and, once over an attack, cannot have a relapse. There is a point of very great importance which has been mooted by Mr. Helps in his official letter. Is it, or is it not, possible to adopt measures for the eradication of the disease? Not only does Mr. Helps say that our Government can do nothing, but that all others having tried in times past on the European continent have failed in their endeavours. Now this is not the case. I quite agree with Mr. Helps that serious outbreaks have occurred in countries where the sanitary regulations for controlling the spread of epizootics are admirably organised; but would these outbreaks not have been infinitely more serious without the exercise of the power which foreign governments wield? There is no doubt that they would. If we compare the Austrian outbreaks with the one in Egypt in 1863, we shall find in the former the average loss on the stock of the whole country barely exceeds 2 per cent., whereas in Egypt it amounted nearly to 50 per cent. I am quite aware of the different conditions under which animals exist in the two countries, but if we take the Hungarian Steppes, which are famed in history as the favourite haunts of cattle plagues, we shall find that in all the outbreaks from 1849 to 1863 the loss never exceeded 5 per cent. on the total stock in these districts. This metropolis should contrast favourably with the Hungarian Steppes. Here, at all events, stock is subdivided in small lots. There they rove in large herds, so as to favour in a singular manner the spread of any contagious malady. And how does the case stand? Within seven weeks from 10 to 12 per cent. of the animals in this metropolis have been destroyed. This is not absolutely correct. It cannot be, but if I err it is on the safe side. In Austria the losses sustained by the disease on the infected stocks amount to the enormous proportion of 53 per cent. That shows the virulence of the disease, but it also demonstrates the activity with which measures are adopted, as here the rule is total extermination. At all events, I should estimate the percentage of deaths in infected stocks as certainly exceeding 80 per cent. I have spoken very strongly in times past on the subject of veterinary inspection, and I repeat that the present system is totally inadequate. Unless the inspectors can do their duty calmly and dispassionately, without being hurried, "not to lose the market," or "not to keep cattle lest they should suffer in health," as the dealers say, we cannot witness the exercise of a better supervision at our ports. And so long as the inspectors are compelled to allow all cattle that are not actually diseased to pass at once, notwithstanding that they have been mixed with diseased animals, I shall assert that the Government can do more than it has done. *John Gamgee, Principal of the Albert Veterinary College*, 48, *Pall Mall, S.W., Aug.* 5.

5. From the Albert Veterinary College.—From the rapid spread of the Russian cattle plague the committee of the National Association for the Prevention of Cattle Diseases have requested me to issue such suggestions to owners of stock as may be of some service under existing circumstances. It is important at once to state that reports of fresh outbreaks are reaching us daily: that persons acquainted with the cattle plague, who have visited the Metropolitan Market, have seen animals purchased after having been in close proximity with those diseased; that infected animals have been freely bought from the dairies or farms where the disease has appeared, and that some unprincipled dealers are attempting to turn this serious calamity to profit by buying what they know to be contaminated, at a low price, to be sold at the value of sound stock to the unwary. The association has reason to believe that infected animals have thus been purchased in the metropolitan districts, and have been transported to country markets and fairs, where they have been sold as healthy stock. The purchases of stock must, therefore, be conducted with great care; and whereas all dealings should be effected with persons of undoubted respectability, a special warranty, as to the condition of animals bought, should be obtained. Purchases should be few and far between, and no cattle for feeding or dairy purposes should for the moment be bought in large markets, where foreign or English cattle in a diseased state may be exposed for sale. *Sale of Stock.*—It is the duty of all persons to protect their neighbours and the country at large from th sale of animals concerning which there may be the slightest suspicion of being affected with the Steppe murrain. If the officers of this association are consulted, arrangements may be made for the sale or disposal of cattle. On no account, however, should infected animals be travelled by road, in railway trucks, or steam-boats; and it is best to have them slaughtered at home, or be conducted to slaughter-houses in suitable vans. *Quarantine.*—Newly-bought cattle should be kept separate for a period of not less than ten days, and on no consideration whatever should they be placed amongst stock known to be diseased. As an indication of the great value of this measure, I may be permitted to refer to one of several important cases which have come under my notice. A cow-feeder in Surrey purchased two German or Dutch cows, early in July. He took them home and placed them in quarantine. Both sickened and died; but the standing stock of 30 animals still remain in perfect health. *Subdivision of Stock.*—It is very desirable to keep stock in small lots, so that, should the plague attack any single animal, it may be confined to the lot in which that animal may be found. One of the earliest outbreaks of the disease occurred in a shed belonging to a cowkeeper who had his cows separated in three or four places. Out of 140 animals only 24 were infected, and the disease has not spread from the single shed in which it was first introduced. The food on which the cows are fed should be carefully selected, properly stored, and given in sufficient but not immoderate quantity, and with great regularity. Sour grains, bad hay, &c., must be carefully avoided. *Management of Stock after the Appearance of the Disease.*—Whereas it is of great importance to attend to perfect cleanliness and proper ventilation under any circumstances, it is especially so if the plague or any such malady enters a stock. The sheds should be flushed with water, and disinfectants most freely used. Scrubbing all wood with hot water and soda, and applying disinfectants, such as chlorinated lime, chloride of zinc, Condy's fluid, Macdougall's powder or solution, are to be specially recommended. Wherever diseased cattle have been purging, the excrement should be removed, and the parts thoroughly purified. Watching the first symptoms, which consist in sudden suppression of the milk secretion, loss of appetite, shivering, extended head and drooping ears, hot nose, red eyes, husky cough, discharge from eyes and nose, and costiveness or diarrhœa, must be regarded of the highest importance. At the early stage the malady is not so infectious as at a later period, and by early removal of the sick the remainder may be preserved. It is best to err on the safe side, and no animals thus removed should be returned to its place unless on the advice of a competent person acquainted with the nature of the disease. I have always found that convalescent animals are apt to spread disease from persons erroneously supposing that because an animal is thriving after an attack of the disease it can no longer injure its companions. The administration of tonics in moderation, and especially preparations of iron, may be recommended for all cattle that have been accidentally subjected to the contact of infected animals. All should be done to support the animal's strength, that it may withstand the disorder. The treatment of sick animals consists in careful nursing, allowing a little meal and water, and using stimulants in moderation and under the guidance of a veterinary surgeon. Hot water applications to the surface of the belly, and the use of embrocations, may be advisable. Persons have recommended the iternal use of antiseptics, yeast, carbolic acid, the alkaline permanganates, iodine, and others; but there is no reason to believe that such measures have proved of any substantial service. By applying to the National Association for the Prevention of Cattle Diseases, special instructions may be had on points which cannot be referred to in a circular such as the present.

6. On Saturday a meeting of farmers and other stock owners was held at Aylesbury, for the purpose of considering the imminent extension of the present disease amongst cattle, to devise measures for its limitation, and to afford relief to such as may suffer from loss. A large number of the leading agriculturists of the district were present, including the members of the Vale of Aylesbury Cattle Association for mutual asssurance against loss through pleuropneumonia. The nature of the disease having been discussed, a farmer said the disease had appeared at Cookham. Mr. G. Lepper suggested the formation of a society assuring its members for losses, separate from the already existing pleuro-pneumonia association, especially as he had no doubt that, if the complaint spread all over the country, Government would render a quota of assistance. When the plague last visited this country Government awarded to suffering cattle owners 4*l.* a head, and in one year 135,000*l.* was paid from State resources alone. It threatened to become a great national calamity, and persons other than farmers would no doubt contribute to the relief of those who were even now—especially the London dairymen—suffering from the effects of the murrain. Mr. W. H. Rose moved the formation of an association for national assurance against loss in cattle by the disease commonly known as the cattle plague. This was seconded by Mr. J. Simons, and carried. Arrangements were made to hold another meeting and solicit the general co-operation of the farmers and inhabitants of the county.

Another meeting of a similar character was held at Norwich on Saturday evening, when Mr. C. S. Read, M.P., presided. The statements of the various speakers were to the effect that the disease was spreading, and that it was incumbent that immediate steps should be taken for its suppression.

7. From North Waltham, Norfolk.—Rinderpest has broken out near us, 70 beasts, within a radius of two miles, have now fallen victims. *W. Cubitt.*

8. From Market Drayton, Shropshire.—I am sorry to say murrain has broken out in the cattle here, and swept away 12 out of a dairy stock of 35, on one farm in three weeks. *T. P. Green.*

9. Health.—The present startling epidemic amongst cattle appears to be not only a subject upon which the apprehensions of cattle dealers and veterinaries should be directed; it is a question immediately affecting every materfamilias in relation to our offspring. A suspicious affection is daily manifesting itself amongst infants, particularly those between the ages of two and eight months. The symptoms are an erratic typhus with a spurious phrenitis, pneumonia, constipation or diarrhœa and petechiæ; indeed, all the exact characteristics arising from the generic poison devastating our cattle. From inquiries made amongst a wide circle of medical gentlemen and from my personal experience, I should say that among infants this bastard complex synochus is extending, and alarmingly so, in the particular districts where cattle contagion has mostly prevailed. That this disease is transmitted by contaminated milk is unquestionable, as the following experiment will show. Two kittens were suckled upon milk from a cow slightly diseased, and which is now dead. In two days evidences of tenesmus were exhibited, rapidly followed by emaciation, shivering, and strophulus. One was allowed to linger until death. The post-mortem appearances were those of typhus—general inflammation of intestines, stomach, brain, &c.; the blood a bilious pus; red globules decomposed, as though it had been subjected to strong fumes of hydrogen. The food of the other kitten was altered, and consisted of the raw yolks of eggs, into which certain salts, or a preparation now termed Mincasea, was mixed, thinned by water saturated with charcoal. In a week the kitten had completely recovered by the new diet. The same experiments were afterwards made upon two rabbits and a whelp, with somewhat similar results. The origin of these experiments arose through two young infants in my own family being attacked with the infection, and presenting unusual symptoms, which baffled every means of treatment; the sight of the little ones was grievous in the extreme—cadaverous, ghostly, accompanied with delirium, and severe pains—and no hopes of their lives were entertained. The milk, I should add, was invariably vomited, although reduced with lime and other water. The suggestion to analyse it was made, when it was found to be impregnated largely with water, thin, decomposed, and adulterated with arrowroot, flour, and glycerine, to thicken it. Milk was then dispensed with, and the infants were fed upon the yolks of raw new-laid eggs, with salts of Mincasea sparingly intermixed. An immediate recovery took place. This is not an isolated instance, as a great number of medical practitioners can avow. *A Physician.*

10. The following suggestions may not be out of place at a time like the present, when our cattle are being smitten by hundreds. To cattle keepers I would say:—1. Take care, as soon as an animal is affected with the disease, to remove it to a clean house, and place a dry litter always under it. 2. Give at once a mild purging drench, consisting of the following drugs: Epsom salts, sulphur, nitre and ginger. 3. Let the mouth be washed out frequently during the day with a solution of chlorate of potash. 4. When the purging drench has operated, gave a drench of the following drugs: chlorate of potash, ginger, gentian, Cinchona bark, and Aniseed, twice a day in a quart of warm gruel. If the above treatment be carried out, I have no doubt but that it will be a benefit to my fellow farmers. *M. D.*

REPORTS OF THE HARVEST.

FROM OUR OWN CORRESPONDENTS, AUGUST 5, 1865.

COUNTY.	WHEAT.	BARLEY	OATS.	BEANS.	PEAS.	POTATOS.	HAY.	ROOT CROPS.	WHEN WILL HARVEST BE GENERAL.	NAME AND ADDRESS.
SCOTLAND.										
INVERNESS	Average crop, but small acreage	Under average	Much under average	Good	None grown	Very promising	Full crop on heavy, short on light soils	Early sown good; late unpromising	Aug. 20.	Alex. Simpson, Seafield
BANFFSHIRE	About average	One-third short of average	Half crop	....	....	Very good	Not a quarter of a crop	Various	End of Aug.	John Barclay, Brae of Engie
ELGIN	Good	Light; very short	Very light	....	....	Very promising	Very deficient	Fine appearance	Now	Jas. Hutchison, Forres
	Under average	Under average	Far under average	....	....	Good and healthy	About half a crop	Swedes very good; others unequal	After Aug. 20	John Grigor, Forres
ABERDEEN	Under average	Under average	Straw, 2 3ds.; grain, 4 5ths.	None	None	Average; healthy	Half a crop	Turnips promising	About Aug 20	——
	Good; little grain	Under average	Very deficient	....	....	Very good	Very light	Three-fourths good	End of Aug.	——, Aberdeen
PERTH.	Full crop	Under average	Light crop	Under average	Under average	Looking remarkably well	Good crop	A third looking well; the rest no good	Aug. 8	David Edie, Bridge of Earn
FORFAR	Above average	Average	Much under average	Good	....	Good	Good	Great breadth, unpromising	Middle of Aug	W. Smith, West Downie, Brechin
FIFE	Average	Full average	Under average	Good	....	Over average	Average	Under average	Aug. 1	J. Morton, Lambieth
	Full average	Only on strong land good	Under average	Under average	....	Very promising	Above average	Late sown bad	Aug. 14	Walter Yeitch, Kinghorn
STIRLING	Above average	Average	Below average	Below average	Not grown here	Splendid crop	Average crop	Early splendid; later promising	Aug. 15	W. Drummond & Sons, Stirling
	Above average	Full average	Rather under average	Considerably below average	....	Excellent	Good	Very bad	Aug. 12	Alex. Buchanan, Stirling
HADDINGTON	Above average	Above average	Under average	Under average	....	Average	Above average	Under average	Aug 10	Patrick Sharreff, Haddington
MIDLOTHIAN	On light soils thin; on strong soils a good bulk and sound; about average	On light soils a bulky, but much laid, and not of fine quality; yield average	Under an average bulk, and likely to be so as to produce	Short of straw, but being well podded are likely to be an average yield	None sown in the district	About an average breadth planted, and at present promise over average	Where early top dressed the crop is above an average; altogether under average	Early sown promise to be a fair crop, but late sown and on clay soils must be short	Now	——, Around Edinburgh and Inveresk
	A full crop	Full crop	Under average	Under average	None	Very vigorous	Full average	Few promising	Aug. 21	James Melvin, Ratho
	Above average	Full average	Under average	Under average	....	Above average	A full crop	Good where early sown	About Aug. 20	James Hislop, Mid Calder
RENFREW	Good average	Average	Fair, but short in straw	Average	....	Good	Full average	Good	Middle of Aug.	George Boyd Renfrew
LANARK.....	Good	None	Fully an average crop	Average crop	None	Very good	Above an average crop	Late and irregular	In two weeks	J. M., Wishaw
AYR	Average	Middling	Under average	Average	None grown	A fair crop	Above average	Promising well; want rain	Aug. 16	And. W. Ralston, Laggan by Ayr
	Average	Average	Above average	Under average	....	Above average	A large crop	Full average	Aug. 25	William Orr Reith
SELKIRK	Average	Average	Under average	None	None	Average	Above average	Very good; above average	Aug. 14	James Sadler, Galashiels
PEEBLES	....	Average in bulk and superior in quality	Very short in straw, with a light head	Very few grown; light	.....	Superior crop, and no signs of disease	The largest and finest crop for many years	Where sown early good; the remainder very late	Aug 14	James Lyle, Innerleithen
KIRKCUDBRIGHSHIRE	Average	Under average	Under average	....	....	Good	Above average	Late, and not promising	Aug 17	——, Clarrow
	Average; but small breadth under crop	Average; large breadth	Deficient and short in straw	Rather under average	Above average	Full average	Average	Very deficient	Aug. 12 or 14	——, Kelso
BERWICK	Average	Good	Average	Average	....	Good	Good	Good Turnips on soft soils; others patchy	Aug. 20	John Wilson, Ellington Mains, Chirnside
	Average	Above average	Under average	....	....	Above average	Above average	Good on light land; very bad on clay	Aug 21	George Logan, Hazelhill, by Stitchel
WIGTON	Average	Fair crop	On light land short	Few sown	None	Very good	Best for some years	Very good; Carrots good	Middle of Aug.	A. H. M'Clean, Auchneal, Stranraer
ENGLAND.										
NORTHUMBERLAND	Nearly average	Good	Very light	Short	Fair	Good	Full average	Very bad	9th or 10th. August	George Laing, Cornhill
	Thin but well headed	Good	Short and light	Few	Good	Promising	Average	Very bad	Aug. 12 or 15	J. Grey, Lipwood House, Haydonbridge
	Light	Full crop	Scarcely average	None	Average	Very good crop	Light	Not half a crop	Middle of Aug	C. Stephenson, Fourstones
	Average	Average	Under average	Under average	Light; well podded	Very good	Fair crop; well got	Destroyed with grubs	Aug. 19	Thomas P. Dods, Anick Grange, Hexham
	Very thin, and below average	Fully average	Barely average	Heavy, but not well podded	Average	Good	Light	Late and unequal	Middle of Aug	Jacob Wilson, Woodburn Manor, Morpeth
CUMBERLAND ..	Average on all good land	Over average	Under average; very short	Average	Good crop	Over average	Very good; well got	Early good; late bad	Aug. 20	Thomas Gibbons, Burnfoot, Longtown
	Very good	Good	A very light crop	....	Much droughted	Very good	Average	Very bad	Middle of Aug	Richard Harrison, Newbiggen, near Penrith
	Average	Average	Under average	None	None	Average	Light	Poor	End of Aug.	Tho. Wilson, Beauthorn, Ullswater
	Above an average	Average	Light	None	None	Average	Generally light	Under average	About Aug. 21	——, Penrith
WESTMORELAND	Full average	Generally light	Very light	Tolerably good	....	Good as yet	Light crop	Under average	Aug. 16	William Key, Kirkby-Lonsdale
	Very good	Average	Light; under average	None	None	Average	Average	Under average	About Aug. 25	Jonathan Robinson, Warcop
DURHAM	About an average	Below an average	Below an average	An average	An average	Short crop	Light crop	Not half a crop	About Aug. 24	Robert Bell, Caldwell, Darlington
	Average	Average	Under an average	None sown	Average	Good	Under average	Very bad	About Aug. 21	George Crofton, Kimblesworth
YORKSHIRE	Full average crop	Full crop	Half crop	Very moderate	Light but well corned	Very good indeed	Half crop; well won	Very bad with the grub	2d week in Aug	John Outhwaite, Bainesse, Catterick
	10 per cent. below average; light soils thin	20 per cent. below average; late sown bad	20 per cent. below average	Average	Bad	Early planted good; late inferior	30 per cent. below average	Very deficient; drought and grub	Aug 10	John Hannam, Kirk Deighton, Wetherby
	Bad crop about here	Average	Moderate	Good	Good	Look well but want rain	Average crop	Destroyed by grub	Aug. 10	E. Taylor, Darrington
	Good and fall average	Average crop	Short; well fed	Good	Good	Promising	Good average crop	Injured by the dry weather	Aug. 15	Henry Briggs, Outwood Hall, Wakefield
	Average	Good	Good	Good	None	Average	Variable	Mangels good	Middle of Aug.	William Irvine, Halifax
	Barely average	Average, prematurely ripe in shallow soil	Very indifferent	Pretty fair crop on Bean land	Very short but fairly corned	Looking healthy; not abundant	Scarcely a third of a crop; well got	A complete failure	Early in Aug.	J Knowles, Wetherby
	Great straw on strong soils, but quality deficient	Variable in quality and not a good sample	Short crop	Winter average crop; spring bad	Good crop where sown early	Light crop	Light crop; well got	Early sown good; but late deficient	Early in Aug.	John Clark, Hessle, near Hull
	Under average	Full average	Under average	Average	Average	Good	Under average; well got	Half destroyed by fly or grub.	Aug. 15 to 20	H. J. Turner, Richmond
	Good on strong; bad on light soil	Average	Bad	Fair	None grown	....	Light crop	A very partial crop	Aug. 10	Peter Stevenson, Raiston, Thirsk
	Under average	Average	Bad	Under average	Average	Variable	Average crop	Very bad Turnips	Aug. 10	Thomas Parrington, Middlesborough
LANCASHIRE	Average and quite ripe	Average and quite ripe	Average and quite ripe	....	....	Fair	All got in	Fair	Just commenced	W. Bond, Ulverston
	Fair	Good	Bad crop	....	....	Very good	Average	Attacked with grub; late sown fair	Aug. 8	Geo. Drury, Holker

REPORTS OF THE HARVEST—(*Continued*).

COUNTY.	WHEAT.	BARLEY.	OATS.	BEANS.	PEAS.	POTATOS.	HAY.	ROOT CROPS.	WHEN WILL HARVEST BE GENERAL.	NAME AND ADDRESS.
ENGLAND.										
LANCASHIRE	Over average	Average	Good; short in straw	Average	....	Very good on Moss lands	Plentiful and well housed	A failure	Now	Richard Robinson, Gestang
	....	....	....	....	....	....	Secured in very splendid order; Pastures full	....	....	George Story, Burnley
	....	....	....	....	....	Look healthy	Splendid crop of hay	Turnips good; Mangels bad	....	Robert Tweedale, Rochdale
	Nearly average	Very little grown	Nearly average	....	....	Good	First crop good; second light	Likely to be light	2d week in Aug.	H. W., Warrington
LINCOLNSHIRE ..	Under average	Heavy	Light	Good	....	Good	Light	Good	Aug. 12	Croft Sharpley, Louth
	Average	Average	Average	Average	Average	Good	Good; not got well	Swedes injured by grub	Aug. 7	W. Fancourt, Asleby, Folkingham
	Average	Over average	Various	Very few grown	Very few grown	Good	Light	Very good	About Aug. 9	Francis Sowerby, Aylesby
	Under average	Average	Average	Light	....	Good	Good	Good	Aug. 10	Wm. Dadding, Wragby
	Much below the average	Good on heavy soils; light soils moderate	Very light	Good on Bean land	Better than usual	Looking promising	More than an average	Turnips backward	Aug. 14	——, Kirton Lindsey
	Deficient on light lands; average on strong	Nearly average; lighter than last year	Light crop	Winter Beans good	Few grown, but average	Promising for a crop	Light crop	Turnips very short of plant, but improving	Early in Aug	James G. Dixon, Caistor
	Average	Average	Average	Badly corned	Average	Very promising; no disease	Light; Clover good	Mangels splendid; Swedes average	Aug. 7	John Algernon Clarke, Long Sutton
	8 bush. less than average of two years, and much lighter	None	Below average; bad colour; light weight	Few grown; below average	None	Very luxuriant; large breadth	Light	Good	Oats, July 31; Wheat, Aug. 10	Thomas Aitken, Deeping, St Nicholas
	Light on heath lands; worst on seed land. Good on heavy land	Fair average, though not ripening kindly	Bad	Nearly an average	Pretty good	Good	Very light	Good	Now	Joseph Bellamy, Sleaford
DERBYSHIRE ...	....	....	Half a crop	....	....	Excellent	Light	Good	Aug 20	B Swaffield, Hartington
NOTTS..	Good on heavy; bad on light soils	Very middling	Bad	Fair	Good	Good	Very bad indeed	Many fields very patchy	Now	William Chowler, Jun. South Muskham, Newark.
* On sand	*Bad; under average	Good; over average	Very bad	....	....	....	Bad	Not good; many sown 3 times	Now	C. D., Southwell
† On clay	†Very good, but much knocked down	Very good; over average; much laid	Bad; under average	Under average	Good	Good	Generally bad; under average	Very good where early sown	Now	Ditto
CHESHIRE.....	Crops generally good; quality fine; full average	Early sown good; late sown hot land light; not average	Early sown on good land a fair crop: below an average	Tolerably good; short in the straw	None	On cool land, under good management, fair; under an average	Clover good; hay about two-thirds of a crop	Turnips a general failure	About Aug. 7	William Palin, Stapleford Hall
	Fair average	....	Generally light and short	Well podded; good crop	....	Sound, but light	About one-third under average	Very bad; almost failure	Early in Aug.	——, Knutsford
	Under average	....	Short in the straw, and light	Ripening prematurely	....	Promising	Common hay under an average	Almost universal failure	Aug. 3	W. B. Burnham, Spital near Chester
SHROPSHIRE	Under average; strong lands best	Average; but not of last year's quality	Under average	....	A good crop	Tops looking well, and bid fair for average	Very light crop	Mangel good; Swedes very partial	Aug 7	Henry Smith, Smethwick Maddock
	Full average	Very good; full average	Variable	....	Very good	Good; disease appearing	Light crops but well got	Promising	Aug. 7	Richard Shirley, Bawdrip Munslow
	Average crop; light in the straw	Light crop, and very short	Generally good	....	....	Excellent	Light; well harvested	Failure from drought, slug, and fly.	Now	W. D. Green, Market Drayton
	Average	Good average	Average	Average	Average	Very good	Under average	Affected by caterpillar	Aug. 14	Evan Davies, Much Wenlock
	Altogether about average	Good	Good	....	Good	Healthy	Good	About ⅔ths of a crop	Now	P. W. Bowen, Stiwardine Castle
LEICESTER	Generally good	Very good	Light	Not grown	Not much grown	Good	Below an average	Much better than last year	In about 10 days	R. W. Creswell, Ravenstone, Ashby-de-la-Zouch
	A full crop; much down; rather rusty in the straw; average crop	General'y a great crop, but rough in quality; very much lodged	Very deficient in straw; must be bad in yield and colour	A great crop of straw, but generally short of pod; not average	Rather short of straw, but well corned generally	Appearance good; a little disease in first Earlys	Hay and seeds very short crop indeed	Mangels very good; Swedes first sown, mildewed	Now	Francis Spencer, Cottesbrook, Lutterworth
STAFFORDSHIRE.	Average; short in straw on light lands	An average, except light lands	An average	Average	Under average	An average	Average; well harvested	Turnips very bad	Aug 2.	Thomas Byrd, Mynd Penkridge
NORFOLK	Partially affected by blight; thin crop, less than an average	Bulky crop on cool land; other soil from medium to thin	Poor, indifferent crop; worse than for some years past	About an average crop; pods rather small	A fair crop; pods short, but well filled	A good crop for being sound; but small in size and number	Not half a crop; second crop promises well	Mangel extraordinary; Swedes fair	Aug. 7	W H. Taylor, Cromer Bank, Wymondham, Norfolk
	The worst crop of Wheat I ever grew upon this farm; not so much by 3 qrs. an acre as the average of the last 10 years, yet the land better done by than usual	Light crop; very much cut up by the dry season; sample will not be fine	A good crop here, but bad generally	Good on the strong land; middle blossoms fell off during the very hot dry weather	Early Peas good; harvested 30 acres and the land drilled with White Turnips and hoed out; promising to be good	Good	Small crop; well secured	Mangels very fine crop; Swedes good, but thinned by the wire-worms and grubs; White Turnip good	We are now full in harvest. It is the worst crop of Wheat I ever saw in this county, and I have been a farmer 50 years	John Hudson, Cole Acre Lodge
	Under average; thin Wheat blighted	Average quality indifferent	Very bad	Light	Light	A light crop, but sound	One-third of a crop	Various; where a plant very fine	Aug. 10	William Cubitt, Bacton Abbey
	Not quite average	Good crop, but variable	Not an average	About an average	Good crop	A very good crop and healthy	Not half a crop	Mangels good; Swedes and Turnips promising	Aug. 7	Hugh Aylmer, West Dereham Abbey
	Very bad crop	Below average on light lands; bad quality	Below average	....	Pretty good	Good	Very bad	Not good, but improving	Aug. 5	Horace Beck, Harpley
	Half a crop, blighted and mildewed	Under average, and bad in quality	Very bad	Under average and infested with the fly	Fair average	Very promising	The worst crop ever known	Promise well	Aug. 4	Thomas Brown, Denver
	On the light land much below an average	Below an average; straw very short	Below average, and in light land inferior	Short, and not well podded	Drought affected them; a light crop	As well as can be desired	Meadow hay very light; Clovers, &c., inferior	Early sown good; late now stopped	Aug 8	——, Thetford
SUFFOLK	Thin in plant; ears rather deficient	Good on heavy lands; but much laid by rains; on hot soils inferior	Very bad, both in plant and length of straw	Very short in straw, and deficient in corn	Under average; injured by lice	Early, very good; late ones not so good	The shortest crop ever known; good	Mangel very good; Turnips much injured,	Now	Samuel G. Stearn, Wickham Market
	Good	Good	None grown	Badly mildewed	But few grown	Small; but good	Small crop	Beet good; Turnips good plants	Aug. 7	George Edwards, Falkenham, Suffolk
	Light on middling soils; on heavy soils as last season	Good in bulk, but coarse in quality	Light	Bad	Good	Good	Very light	Mangold very good; Turnips promise well	Now	G. M Saxton, Whers Hall, Ipswich
	The worst crop on the light lands for many years; staple soils are not cutting up so well as expected	On the very poor lands the crop is bad, but on other soils the rain has improved it	Very few grown in this district	Extensive mildew has set in, so that at the best this crop must be a sorry one	A better crop than of late years, still far from an abundant one	The early ones suffered greatly from the drought, and the late ones promise well	About the lightest crop ever grown in this district	Mangel and turnips promise well, owing to the late rains	Aug. 7	Henry Edwards, Woodbridge
	Extremely thin on light soils, clays nearly average	Light and thin on dry soils; fair on clays	Few grown, and variable.	Short, but good; well podded.	Perhaps two-thirds of a crop	Promise well	Less than ever known	Promise well	Now	Cornelius Welton, Wickham Market
HUNTINGDON....	Much mildewed; under average	Very fine, but also mildewed	Bad	Not an average	Very good	Splendid	Very light	Very promising	Already quite general	Peter Purves, Brampton

REPORTS OF THE HARVEST—(*Continued*).

COUNTY.	WHEAT.	BARLEY.	OATS.	BEANS.	PEAS.	POTATOS.	HAY.	ROOT CROPS.	WHEN WILL HARVEST BE GENERAL.	NAME AND ADDRESS.
ENGLAND.										
HUNTINGDON ..	Much under an average on the light soils	Over an average	Barely half a crop	About an average	Good	Very good; showing signs of disease in patches	Much under an average	Good	July 26	—, St. Ives
NORTHAMPTON ..	Average	Average	Two-thirds of average	Two-thirds average	Under an average	Promise abundantly.	Half an average	Promise abundantly	Aug. 1	Peter Love, 15, St. Giles, Northampton
	Full crops much down; damaged	Heavy crops; much laid	Much below average	Deficient in corn	Almost a failure	Very good	Very light; well got	Very good	Aug. 7	J. B. Smeeton, Naseby
WARWICKSHIRE.	On strong soils a full crop, but on light land short	A full crop, of bad quality	....	Short and deficient	Not good	Very productive, and of excellent quality	Not above 1-4th of the average	Mangels and early Swedes promising	Now	John C. Adkins, Milcote
	Light soils thin and light; heavy soils good	Light soils very bad; heavy soils very good	....	Under average	Under average	Good at present	Very short crop	Prospect good	Aug 7	William Gibbs, Alveston
	Average	Light land deficient; strong land much laid	Average	Average	Good	Healthy	One-third under average	Mangels good; Turnips patchy	Aug. 7	J. H. Burbery, the Chase, Kenilworth
	Under average	Indifferent	Good	Not well podded	Short crop	Very good	Half a crop	Indifferent	Aug. 3	John Ford, Morton Hall
	Not average on the light lands; on the clay lands good, and quite an average	On light lands not average; on heavier soils average, but inferior	Good average crop	Short in the straw, and not well corned; not an average crop	Very poor, having suffered from the effects of a fly	Most luxuriant in top, and average crop	Half a crop on a great many meadows; far from an average	Promising far beyond the average of years	Now.	John Baldwin, Ludding-ton, Stratford-on-Avon
	Average	Full, but much beaten down	Very bad	Very good	A very thin crop	Good, and very promising	A very light crop, but well got	Turnips improving; Mangels good	Aug. 1	William Dexter, Seckington
WORCESTER.	Clay soils full average; sandy soils under an average.	Average good malting quality	Various	Under average; blighted	Grey Peas good; white Peas very much under average	Luxuriant haulm; perfectly free from blight, but growing again	Meadows generally good; uplands very light.	Very promising	Aug. 1	Henry Hudson, the Elms, Pershore
	Good	Good	....	Various	Good	Good	Well saved; not heavy	Good	This week	Joseph Matthews, New-land, near Malvern
HEREFORDSHIRE	The worst known for very many years; a great portion ploughed up	The early planted good; the other portion very bad	Many acres have been eaten off with sheep as not worth harvesting	....	Various	Good	Well made; crop light	The grubs have been most destructive; acreage great	Aug. 2	T. Duckham, Baysham Court, Ross
	Rather under average	Full average	Under average	Average	Average	Good	Light; well secured	Very patchy	Now	P. Norman Edwards, Brinsop Court
MONMOUTH	Average	Average	Average	Under average	....	Promising; no blight	Under average	Very irregular	Aug. 5	Henry Pride, The Cwm near Monmouth
	Good	Good	Light	Average	Good	Good	Light	Destroyed by grub	Aug. 3	Thomas Beckingham, Mary Hill
GLOUCESTER-SHIRE	Bad, light; good, heavy land	Under average: very bad quality	Very bad	Bad	Bad	Average	Very bad	Promising	Aug. 1	Giles Edmonds, Eastleach
* Hill district.	Straw thin; ear tolerably good; barely average*	Early Barley good; late middling; nearly average	Very light and uneven; much under average	Variable; not good on the whole	Thin crop, but well podded	Good appearance at present	Rye grass, &c., light; Sainfoin good; under average	Mangels good; Turnips later sown very deficient	About Aug. 4	Stiles Rich, Didmarton
	Good in the ear, but thin; 1-5th below an average	Much under an average	One-third below an average	....	Very bad	Promising	Two-thirds of a crop; made well	Many failing fields; others promising	Aug. 12	J. M. Read, Elkstone Cheltenham
	Average of 7 years	Below average of 7 years	Below average of 7 years	Average	Below average	Good	30 per cent. under average	Late and uncertain	Aug. 5	John F. Peacey, Winchcomb
	Very much laid, and mildewed	Light grain; moderate straw	Good crop	Very moderate	Good crops the exception	Good	Light	Good in many instances	Now	Charles G. Clarke, Cullabine Farm, Dumbleton
	Thin; improved, but some blighted	Short in straw, but bad quality of corn	Very bad	....	....	Good	Very light	Very deficient	Aug. 12	John Wells, Hempnett
	Average on heavy land; not on the light	Average on heavy land; not on the light	A light crop	Short straw but pretty well podded	Light in straw but well podded	Good	Light crop, but saved well	Various	Aug. 3	John Cobban, Whitfield, Berkeley
	Very light on the hill land; much under the average yield; on the heavy land a good crop but laid	On all thin soils suffered from the late drought; a poor yield in general; on the stronger land a fair crop	The worst for many years; and by no means of good quality	Rather short in the straw; but about an average crop	Often thin; but well podded, and upon the whole a fair average	Looking remarkably well in general, and but few complaints of disease	A very short crop, but well got	Improved by the late rains; earwigs have made sad havoc in several parts	Now	—, Churchill, Chipping Norton
	Average in bulk, but inferior in quality of corn	Full average of straw: inferior quality	Rather under average	Not more than 2-3ds of an average crop	Half an average crop	Average	Half a crop on uplands and Clovers	Mangels good; Turnips very partial	About Aug. 7	Wm. Woodward, Tewkesbury
	About an average	Early sown good; late much injured	Crop varies very much; below an average	About an average	Average	About an average	Sainfoin good; Clover bad	Late, but very promising	Now	—, Chippenham
OXFORDSHIRE ..	Average on strong, blighted on light soils	Under average, and rough quality	Under average	Average crop	Bad	Good	Very light crop	Various	Now. Aug. 1	Matthew Savidge, Sarsden Lodge Farm
	Heavy on heavy lands, but laid	Medium crop and quality	Not an average crop	Good	Good	Good	Fair crop, and well got	Very good	Now	W. E. Hitchman, Bicester
	Barely average	Medium	Generally bad	Very short and inferior	Moderately good	Prolific	Very bad	Quite good	Now general, Aug. 5	John Gillett, Oaklands, Charlbury
BUCKS.....	Full average bulk; much laid	Average; laid	About one-third of a crop	Average bulk, but blighted	....	Good	Less than average; well got	Very promising	Now	Alex. Fraser, Clayden
	Heavy on clay lands, but mildewed	Good	Below average	Good	Good	Good	Less than half a crop	Very good	Aug. 5	W. G. Duncan, Bradwell
	Injured by rain; thin and light; average	Thrown down by rain and wind; rough, and light	Not average	Average, but blighted	Average	Some bad; average in quantity	Half average	Later, but look well	Aug. 1	William Smith, Woolston
	Average	Over average	Winter good; spring light	Very good	....	Very good	Much under average	Mangels light; Swedes good	Now	Edw. Evans, Bovency Court, near Windsor
BEDFORDSHIRE .	On heavy or clay soils very good; on gravelly very light. The clay land mildewed	A large crop, and likely to yield well, but of very middling quality	....	....	....	Likely to be very good	Not one-third of an average crop	Excellent	Now	T. E. Pawlett, Beeston Sandy .
	Average	Heavy crops; quality bad	Below an average	Not an average crop	Average	....	Great deficiency	Generally good	At the present time	John Howell, Stevington, Bedford
	Average, but blighted during the last 10 days	Average crop	Under average	Under average	Good	Good	Half crop	Good	July 31	James Ross, Luton Hoo
HERTS	Average	Above average	Below average	Above average	Good	Good	Very bad	Good	Aug. 1	J. B. Lawes, Rothamsted
	Average	Average; quality inferior	Under average	....	Average	Free from disease	Well got; not half a crop	Generally good	Aug. 1	George Webb, Beaumont Hall, Redbourn
MIDDLESEX	Average; some complaint of blight	Average, but coarse	Much under an average crop	Good; but not many grown	Good	An average crop	A very light crop	Mangel good; Turnips deficient	Now	T. Hewitt, Cranford Park Farm, Hounslow
ESSEX	On light land short, and not good; heavy land, where well farmed, good	The greater part on dry thin land very bad; well farmed clay lands good, except where laid	By no means generally good, although improved from the late rain	Winter, where a good plant, fair; spring, blighted; altogether under average	Short straw, and generally bad	Good	Wretched in crop, but secured well	Generally good; beyond average	Now	John Clayden, Littlebury
	About average	Average; inferior quality	Deficient	Under average	Under average	Good, but disease appearing	Never shorter in quantity	Doing well	Aug. 7	A. Barfield, Dunmow
	Good	Good	Half crop	Good	Very good	Large crop	Very short	Good	Aug. 3	Collinson Hall, Romford
	Over average	Full average	Under average	Average	Average	Partially diseased	Light, but good	Mangels over, Turnips under average	End of July	Abraham Hardy, Maldon
	Full average on good clay soils: upon gravel and thin soils half a crop	An average crop	Same as Wheat, far from average	Below average one-third	Below average one-third; quality good	Very promising for a full crop	Never so short, both Grass and Clovers	Mangels most luxuriant; Swedes and Turnips growing rapidly	Aug. 1	Henry Dixon, Witham

REPORTS OF THE HARVEST—(*Continued*).

COUNTY.	WHEAT.	BARLEY.	OATS.	BEANS.	PEAS.	POTATOS.	HAY.	ROOT CROPS.	WHEN WILL HARVEST BE GENERAL.	NAME AND ADDRESS.
ENGLAND.										
SURREY	Below an average	A fair average	Very much below average	....	....	Very good, and sound	About half a crop	Mangels good; Turnips various	Aug. 1	James Arnot, Carshalton
	Thin plant; straw short; quality good; under an average	Exceedingly various; about an average	Very bad	Under an average	Very good	Very good; no blight at present	Clover almost a failure; meadow good	Mangel very good; Swedes and Turnips coming on well	July 27	Edward Hilder, Woking
	Average on heavy lands; not on light	An average crop	Short Oats very deficient; Tartarian an average	About an average	About an average	Very good, and free from disease	Very short crops but well secured	Mangels good; Swedes near failure	July 31	William Willis, Wa Moulsey
BERKS	Most variable; under average; blight in the straw from July 24	Very variable; about an average	Mostly thin; under average certainly	Short, and under an average	Under average	Very good at present	Carried well, but short crop	Mangels very good; Swedes, &c., various	Aug. 1	Thomas Owen, Cla Hungerford
	Very variable; heavy crops laid flat, and blighted	Varies according to soil and time of planting	Decidedly inferior	Good generally; exceptions	....	Promising; disease has appeared	Quality good, but short in quantity	Very promising	Now	E. W. Moore, Colesb
	Good	Good	Light	Average	Good	Healty and good	Very short	Mangel good; Swedes aver.	July 31	James Brebner, Windsor Great Park
	Under average	Average	Under average	Average	Average	Very good	Very short crop	Partial	Aug. 1	John Adnams, Thatcham near Newbury
	Promises well	Thick, but inferior in quality	Generally very light	Short, but tolerably well podded	Improved by rains, and pretty good	Likely to be small	Exceedingly light, but got well	Swedes taken 2 and 3 times by fly and grub	Aug. 1	W. Bulstrode, M Farm, Cookham D
	Average; partially blighted	Crop good, quantity various	Bad	Average	Good	Good	Inferior	Good	July 28	James Williams, Ab don
SOMERSETSHIRE	On some light land thin and blighted; on the best land good; an average	Above an average in quantity, but the quality inferior	Much below an average	Partially good; under an average	Under an average	The disease has made its appearance	A good crop, well secured	Good	Harvest is now general	Walter Farthing, Stoke Court, Bridgewater
	Very good	Good	Good	None grown	None grown	Very good	Good; under average	Partial	2d week in Aug.	John B. Collyns, Dulverton
WILTS	Good, middling, and blighted; scarcely average	Nearly an average	Bad and middling; under an average	Short in straw; fair	Short, but corny	Showing the disease	Clover very light; Grass good	Promising	Aug. 28	Thos. Arkell, Pen H Swindon
	Below the average	Not a full average	Much below the average	Short in straw, well podded	A very indifferent crop	So far promising	A moderate crop of excellent quality	Generally late, but promising	Aug. 1	Joseph Stratton, Mi ningford Bruce
	Good on strong land; not on light, and blighted	An average crop	Early sown good; late sown, not an average	Well corned, but short in straw	Well corned, but short in straw	Good, with slight symptoms of disease	Well made, but short in quantity	Excellent	Aug. 1	T. Pearce Brown, D derop
	Much blighted and far from good	Good	Inferior	Not an average	Good	Prospect good	Deficient	Good	Aug. 7	Geo. Brown, Avebu Chippenham
	Average on heavy, light on all shallow soils	Very indifferent, and must yield badly	Excepting on stiff soils, a short crop	Failed on light; promising on deeper soils	Not quite half a crop	Will be a short crop	Light, some well made, but very deficient	Swedes partially failed	Aug. 8	J. Lynch Fl Langley Lodge, C penham
	Wheat was above an average; two-thirds very heavy, but much laid and sadly blighted	Average, but ripening much too fast; the quality not so good as last year	The worst we have had for years	Only one field, which are very good	Very short in the haulm, but well kidded	Very healthy and good, but too much haulm	Sainfoin good; field grass very light	Root crops generally fair, but suffering from the grub	Now	J. A. Williams, Bayl
	Thin and blighted	About an average crop	Very bad	Below an average	A partial crop	Good	Short crop	Partial crop	Now	James Rawlence, F bridge, Wilton
	What is not blighted about an average crop	A fair average crop, but not even	A light crop	Generally blighted	A fair crop	Looking well	Clover very light; Sainfoin heavy	Generally good	Now	William Spearing, E Kennet, Malborough
KENT	Probably 1-5th less than last year's crop; the red Wheats die well, and there are fields good	An average crop of various quality	Not half an average crop	Above an average	Not half an average crop	A great breadth; a good crop; and of excellent quality	Not 1-3d of a crop	Mangel very good; Swedes very bad	July 31	Robert Matson, Wi ham
	On the whole an average crop	Some blighted, but fair	Generally below an average	Blighted	Below an average	Showing blight	Very short crop	Middling	Aug. 10	Mark Sandford, Martin near Dover
	Three-4ths the quantity grown last year	A good average; injured by rain	Much under an average	A good average	Under an average	In a very critical state; the land saturated with wet	Light crop; well secured	In want of dry weather	Aug. 1	Wm. Manser, Dum Ramsgate
SUSSEX	Under average; part blighted	Quite average	Under average	Under average; red rust	About average	Very good	Very much under average	Very bad, much eat up with slug	About Aug. 9	J. Brotherston, R bridge
	Below an average on light; good on stiffer soils	Average, but short in the straw	Very much below an average	Rather under average	Rather under average	Good	A light crop; well got	Good	Aug. 1.	Frederick C. Hale Brighton
	Average	Average	Much under average	Under average	Under average	Under average; disease just appearing	Very light crop	Average	July 31	H. Scott Hayward, Fa ington.
	Good average crop	....	General short in straw, but well corned	Short, being blighted before fully podded	Average	Looking well, no symptom of disease	Full average, after Grass; promising well	Looking well	Now	Robert Sharpe, C lands, East Grinstead
	Variable, a deficient crop	Sample said to be thin	Large extent fed off; a very deficient crop	....	Partially blighted.	Generally good	Short crop, but well made	Variable	July 26	H. E. Sadler, Mil L vant, Chichester.
	Under an average, thin, some blighted	Average	Bad, uneven, half a crop	Average, blighted.	Three-fourths of a crop.	Good crop, blighted.	Early, well saved, short crop	Mangel good; Swedes bad	Aug. 3.	James Eames, Ly Midhurst.
HANTS.....	Average	Average	Under average	Average	Average	Blighted in haulm	Under average	Average	Aug. 3	Joseph Blundell, Bur don, Southampton
	½ blighted; ½ under average	Scarcely an average	Very bad; ½ under average	Under average	Average	Very good	Short crop; good quality	Partial; some very good	July 24	John T. Twynam, W chester.
	Over average on clays; under on light land	Abundant crops; quality doubtful	Under average	Improved by rain	Not much grown	Good; blight just appearing	Under average	Swedes and Turnips improved; Mangel good	Aug. 1	Hugh Raynbird, Bas stoke
DORSET	Not equal to expectations	Thin and much laid	Bad crop	Blighted, but better than last year	Below an average	Stalks diseased, roots partially so	Beautiful quality; well secured	Most promising	Now	John T. Pope, Symondsbury, Dorset
	Middling	Good	Middling	Middling	Middling	Good	Light	Good	Now	J. Furmedge, Beaminster
	Under average; much blighted	About average; coarse	Much under average	Not much grown	....	Slightly blighted	Under average; made well	Late, but pretty good	Aug. 3	Robert Damen, Dorchester
	Average	Average	Average	....	Good	Blight just appearing	Good	Average	Aug. 1	W. J. Voss, Corfe Castle
	Good on strong, thin on light soils; a little blight	Heavy on good except gravelly soils. Many fields laid.	Bad crop; very unevenly ripe	....	Good	Good till lately, but now blighted	A light crop in most fields; made well	Mangel thin; early sown Swedes patchy	July 31	T. H. Saunders, Wi combe.
DEVON..	Generally thin, but quality good; rather below an average	Average crop; but samples will not be large	Bad crop; one-third below an average	None grown	None grown	Good; the early sorts diseased	Clover below an average; meadow above an average	Mangels very good; Turnips attacked by fly and grub	Aug. 1	Lamoureux, Clark & Plymouth.
	Good; but rust complained of	Good	Very slight	....	....	Very good	Good	Mangel good; others patchy	Aug. 9.	John Benson, Tavistock
	Above an average	Average	Very bad	None grown	None grown	Good, but slightly diseased	Light crop	Good	Aug. 10	Sam. Cornish, Stanc Kingsbridge
	Wheat rusted, ears small; thin on the ground; 25 per cent. under average	Ears small, straw short, not bright and healthy; 15 per cent. under average	Similar to the Barley	....	....	Haulm strong; good yield; late ones promising	Well harvested; moderate crop	Mangel inferior; Turnips destroyed by flea and grub	Now	Geo. Langdon, Ash Barnstaple

REPORTS OF THE HARVEST—(*Continued*).

COUNTY.	WHEAT.	BARLEY.	OATS.	BEANS.	PEAS.	POTATOS.	HAY.	ROOT CROPS.	WHEN WILL HARVEST BE GENERAL.	NAME AND ADDRESS.
ENGLAND.										
DEVON	Above average crop	Looking well	Light and thin crop	....	....	Exceedingly good	Very well saved; average	Mangels good; Turnips plain	Aug. 20	James Davy, Flitton Barton, North Molton
	Rust prevails; crop short	Straw short; yield deficient	Light crop	....	....	Stems diseased; tubers fair	Good, and well saved	Mangel good; no Swedes	Aug. 2	P. Cowan, Tawstock Manor, Barnstaple
	Average	Average	Under average	None grown	None grown	Diseased	Light crop	Good	Aug. 3	——, Totnes
CORNWALL	Average, and good quality	Various; thin land light	Poor	....	....	Disease just appeared	Light; well got	Patchy and poor	July 27	Jno. Wills, Southpetherwyn
	Average	Average	Average	....	....	Full crop, but diseased	Not good	Turnips much injured	Aug. 5	John Michell, Tregoose, Truro
	Average	Average	Average	....	....	Good crop; much diseased	Old Grass good	Various	Aug. 1	T. Davey Simmons, Truro
WALES.										
CAERMARTHEN ..	Over average	Average; short in straw	Average; short in straw	....	....	Symptoms of blight	Light	Average; taken by fly	Aug. 7	John Muscott, Junior, Laugharne
"	Good	Fair average	Middling; straw very short	....	....	Looking well	Light crop	Very bad	Now	John Burnell, Llanelly
IRELAND.										
LONDONDERRY ..	Scarce; average crop	None	Under average	None	None	Very promising	Under average	Under average	Aug. 20	Charles Pollock, Magherafelt
DOWN	Fair crop; quality excellent	Scarcely crop this year	Good and plentiful	Good	None	Splendid	An extra crop, and prime	Very inferior	About Aug. 25	William M'Cleery, Portaferry
KILDARE	Over average in yield; straw, long; grain good	Straw good; grain good	Under the average considerably	....	....	Under the average	Considerably under the average	Turnips a failure; Mangels very good	Next week	Richard M. Bagot, Fontstown
KILKENNY	Light; 3-4ths average	Average	Average	....	....	Average	Average	Very bad	Aug. 5	Patrick Grace, Uppercourt, Freshford
	Good	Average	Average	None	None	Good; blighted	Average	Very bad	Aug. 10	D. A. Milward, Tullaghan
KERRY	Very good	Good	Good, but short	None	None	Good, but partially damaged	Average	Backward	Aug. 20	John O'Sullivan, P.P. and V.G., Kenmare
TIPPERARY	Good	....	A short crop	....	....	Good	Good	Fair	Aug. 10	William Ryall, Cashel
	Very good	Fair	Short and thin on light lands	....	....	Excellent quantity and quality	Abundant crop	Produce will be very poor	Now	D. Clanchy, Charleville
CORK	Very good	Good	Good	....	....	Remarkably fine	Very good crop	Looking very healthy	Aug. 15	George Glascott, J.P., Ballinhassig
	Generally good	....	Very short	....	....	Heavy; much diseased	Good	Mangels and Carrots good; Turnips bad	Aug. 2	James Byrne, Shanballymore

THE LAW OF HYPOTHEC.

We make the following extracts from the recently issued Report of the Royal Commission on this subject:—

Origin and present state of Law.—The landlord's right of hypothec in rural subjects is defined by Erskine (Inst. B. II. Tit. vi. sec. 56) to be "a real right in the fruits of the ground, and in the cattle brought upon it by the tenant," as a security for the rent, in addition to the tenant's personal obligation expressed in the lease. . . . . "All fruits," says Erskine, in the section following that already quoted, "while growing, belong truly to the proprietor of the ground in consequence of his right of property; and though they become the tenant's by his reaping, or otherwise separating them from the ground with the landlord's consent, yet, by the Roman law, they continued, even after being reaped, to be chargeable with the payment of the yearly tack-duty, and so became the subject of the landlord's hypothec, because his consent to the reaping implied a condition that the stipulated rent should be paid out of these fruits to himself." "By that law," he continues—meaning the law of Rome—"the landlord had no hypothec on the cattle pasturing on the ground, without express covenant. Nevertheless, not only the fruits but the cattle brought on the ground are, by the law of Scotland, subjected to this hypothec, partly for the lardlord's greater security, and partly because in Grass grounds, where little or no corn is sown, the subject of the hypothec would be frequently reduced to a trifle, if there were none upon the cattle."

Hypothec over Produce.—The produce of the ground is held to be hypothecated for the rent of the year of which it is the crop, and not for that of any previous or subsequent year. From the language of Erskine in one passage it might be inferred that, under the right of hypothec, the crop of one year may be attached for the rent of another; but the law as above stated has been clearly laid down and acted upon in various decisions of the Court of Session. There does not appear to be any limit prescribed to the time during which the hypothec attaches to the particular crop, the right of the landlord having in one case (Hay *v.* Keith, 1623, Mor. 6188) been held to exist even after the lapse of seven years. In virtue of his right of hypothec, the landlord may either retain the produce on the ground, even against creditors upon legal diligence ready to be executed by poinding, or he may recover it from purchasers, or those who have intermeddled with it.

Hypothec over Live Stock.—The right of hypothec over the live stock on the farm is different from that over the produce, and is held to be available for the rent of the current year only, or that which has just ended. The right for each year is held to expire at the end of three months after the last conventional term of payment of the rent for the year. The landlord has the same right of retention in virtue of his hypothec on the cattle as he has in regard to the produce; but if the cattle have been removed by a *bonâ fide* purchaser, he has no right of recovery.

In virtue of his right of hypothec, whether over produce or live-stock, the landlord is preferred to all ordinary creditors. Should the terms of payment of the rent not have arrived, he may stop a creditor poinding for his debt until he receives security for the rent; or, if it is a grain rent, security for delivery of the quantities of grain specified in the lease. When proper security is given, the creditor may proceed with his poinding; but the right to remove the produce upon offering caution does not extend to the tenant himself. After the rent has become due, the landlord has a right to detain what amounts to the full value of the rent, and it is not then enough to offer security. Unless a sufficiency of effects is left, payment of the rent must be offered.

Right of following Crop.—The right of the landlord to follow the crop in the hands of third parties, and to recover it from them, entitles him, if the term of payment of the rent has not arrived, to bring it back to the tenant's granaries, as security for the rent; or, if that term is past, to appropriate it to its payment. Notwithstanding early decisions to the contrary, it is now settled law, that a sale by bulk in open market protects the purchaser against any interference on the part of the landlord, unless indeed the purchaser should have had previous warning that the rent had not been paid. No similar protection is extended by the law either to a purchase by sample in open market, or to a purchase elsewhere than in market, although in either case the purchase may have been made in *bonâ fide*, and followed by delivery of the grain and payment of the price. In the case of Dalhousie *v.* Dunlop, decided by the House of Lords in the year 1830, and reported in the fourth volume of Wilson and Shaw's Reports, p. 420, it was held, that a purchase by sample in an open market did not protect the purchaser against the landlord's right; and in the recent case of Barns *v.* Allan, 1st June, 1864, it was decided by the Court of Session, that the conversion of Oats into meal was not sufficient to deprive the landlord of his right of hypothec, and that that right was to be preferred to a purchase of meal by a meal-dealer in his own premises . . . .

Claims preferable to Landlord's.—The claims to which the landlord's right of hypothec is postponed are four in number,—viz. (1) claims on the part of the Crown; (2) feu-duties payable to the landlord's feudal superior; (3) the claims of farm-servants for their current wages; and (4) the claims of creditors for funeral expenses. . . . .

Terms of Entry and Payment of Rent.—In any consideration of the law of hypothec, it is of importance to keep in view the usual terms in Scotland for entry to land by a tenant, and for payment of rent.

The term of entry in arable farms is, with a few local exceptions, either (1) Martinmas (11th November) for the whole possession, or (2) Whitsunday (15th May) as to the houses, Grass, and fallow land, and the separation of the crop of that year from the ground as to the land under crop. The term of entry in Grass or pastoral farms is almost invariably Whitsunday.

The legal terms of payment of rent—in other words, those terms at which, in the absence of special agreement between the parties, rent is payable—are Whitsunday and Martinmas; originally fixed on the assumption that one half of the rent was due by the tenant after sowing his crop, viz., at Whitsunday, and the other half after reaping his crop, viz. at Martinmas.

In the case, therefore, of an arable farm, with entry at Martinmas 1865, the rent is legally due at the terms of Whitsunday and Martinmas 1866. The rent is also legally due at the same terms when the entry is to houses, Grass, and fallow land at Whitsunday 1865, and the separation of the crop of that year from the ground as to the land under crop; it being settled by decision, that the tenant's possession of certain parts of the farm, as betwixt Whitsunday 1865 and separation of crop, is only to be viewed as an accommodation, and that, as he reaps no crop until that of 1866, the rule is to be held the same as if the entry had been at Martinmas 1865.

In the case of a Grass or pastoral farm, with entry at Whitsunday 1865, the first half-year's rent is legally due at entry,—that is, at Whitsunday 1865,—and the next half at Martinmas 1865. The apparent anomaly is explained on the principle, settled by decision, that the law recognises the crop of the year as the test by which the payment of rent is regulated, and that the Grass is really the crop, which is presumed to have been "hained," *i.e.* kept unstocked during the winter.

While the above are the legal terms for payment of rent, and are observed in some parts of Scotland, the conventional terms, that is to say, the terms fixed by the lease, are in most cases different.

In the case of an arable farm, with entry at Martinmas 1865, the conventional terms, according to the general practice, are either Martinmas 1866 for the first half-year's rent, and Whitsunday 1867 for the second; or Candlemas (2d February) 1867 for the first, and Lammas (1st August) 1867 for the second.

In the case of an arable farm, with entry to houses, Grass, and fallow at Whitsunday 1865, and separation of crop 1865 from the ground as to the land under crop, the conventional terms are, according to the general practice, the same as those above stated where the entry was at Martinmas 1865.

In the case of a Grass or pastoral farm, with entry at Whitsunday 1865, the conventional terms for payment of rent generally adopted, are Martinmas 1865 for the first half-year's rent, and Whitsunday 1866 for the second.

These terms are applicable to the greater part of Scotland. But there are some districts, and also particular estates in other districts, where the conventional terms are the same, or nearly the same, for arable and for pastoral farms. In some of these cases a tenant entering at Whitsunday 1865, and separation of that year's crop from the ground, pays his first half-year's rent as soon as at Martinmas 1865, and his second at Whitsunday 1866; but more commonly the first is payable at Candlemas, and the second at Lammas 1866.

In the case of arable farms, rents payable before a crop has been reaped are popularly known as "forehand" rents. In the same way rents payable after the crop has been reaped are known as "backhand" rents.

Recent proposals for Altering the Law.—The law under which the landlord's right of hypothec exists does not appear to have attracted public attention as a law supposed to require amendment until a comparatively recent period. In delivering judgment in the House of Lords in the case of Dalhousie *v.* Dunlop in 1830, Lord Chancellor Brougham expressed himself as laying down with regret a state of the law so unfavourable to the right of a purchaser of grain by sample in open market; and, shortly after the decision in that case, the same learned lord introduced a Bill into Parliament, with the view of protecting the interest of *bonâ fide* purchasers. The Bill thus introduced was withdrawn, as were also other Bills brought into Parliament with a similar object. This was the case with a Bill brought into the House of Lords by Lord Belhaven in 1834; with one proposed in the House of Commons about the same time by Mr Gillon, then member for the county of Linlithgow: and also with one introduced in 1836 by Mr. Chalmers, member for Montrose. More recently, in 1850, Lord Brougham again introduced a Bill on the subject, "for the removal of obstructions in the corn trade of that part of the United Kingdom called Scotland." This Bill also was withdrawn; and a subsequent one, introduced by the same noble lord, was equally unsuccessful. Within the last year the question has attracted a considerable share of public attention in Scotland, and in several places it has formed the subject of discussion at public meetings, and has given rise to some degree of agitation among those specially interested in the matter. The occasion of this renewed attention to the policy of the law was the decision of the Court of Session in the case of *Barns* v. *Allan*. But the increased interest in the subject may probably also be attributed to the fact, that the successful cultivation of the soil now depends very much on classes of persons, such as the manure merchant and mechanical engineer, whose capital and labour only a few years ago contributed but little to the ordinary operations of agriculture.

Course of Proceeding Adopted — . . . . We have held 30 sittings in Edinburgh, and have examined 102 witnesses, including landlords and their factors or agents, farmers, bankers, corn and manure merchants, and also gentlemen from England whom we thought it of importance to call before us in order that we might be informed as to the state and operation of the law in that country. Among the witnesses so examined there have been several representatives of committees, which had been formed in some parts of the country, in consequence of the agitation we have already referred to as having recently arisen on the subject of the law, and the object of which was to obtain its repeal or modification. These committees placed themselves in communication with us, and we examined such of their members as they suggested to us as most likely adequately to represent their views. On the other hand, the names of persons in different districts, believed to be favourable to the existing law, were furnished to us by those possessed of local information; and ample opportunities were given to all to come before us who might have anything of importance to communicate. It may perhaps be the case, that fewer of the smaller and less wealthy class of farmers have come forward as witnesses than we might have expected, or perhaps than we might have wished, on account of its being represented to us that the interests of that class are peculiarly involved in any proposal for a modification of the law. But, on the whole, we are satisfied that the information laid before us has been very complete, and is exhaustive of the subject.

Views of those opposed to the Law.—On the part of those who advocate the total abolition of the law, and the removal of all preference in favour of the landlord over other creditors of the tenant, it was represented to us that the law is unfair to the general dealer, inasmuch as, through the protection which it affords to the landlord, it frequently enables him, when a tenant becomes bankrupt, to obtain full payment of his claim for rent, while the other creditors generally receive but a small dividend, and frequently no dividend at all, the effects of the tenant being entirely swept away to satisfy the landlord's demand. Occasionally, it is said, this demand may amount to the rent for two years, the crop and stocking being hypothecated both for the year that is past and for the current year. Such a preference, it was urged, cannot but be most injurious to seed and manure merchants and other dealers who supply articles to the tenant on credit; and, among others, to the small tradesmen in the locality, who are dependent altogether on the custom they receive from the neighbouring farmers. In particular it was represented on behalf of the manure merchants that, although the law might have had a show of fairness at one time, when little if any artificial manure was used, and the expenditure on a farm was very much less than it now is, circumstances have so altered in this respect, by the introduction and extensive application of foreign and other manures, and also by the use of expensive feeding-stuffs (the annual outlay of a farmer for these together frequently approximat-

ing to the amount of his rent), that the ground on which the law may be presumed to have been based—the protection, namely, of the landlord, as the person who contributes the great bulk of the capital to the production of the crop—no longer exists, and the law itself ought therefore to be abolished as unreasonable and unjust. The position of the small tradesmen, when a bankruptcy occurs, was represented as one of peculiar hardship; and it was said that no good reason exists, why the agricultural labourer should have a preference for his wages, while the carpenter and blacksmith who work on the farm are postponed to the landlord, and only allowed to rank with the other creditors. There is no peculiarity, it was contended, in the relation between landlord and tenant to entitle the former to any preference over other creditors; and, indeed, without any such preference, it was said that he frequently receives from the outlay expended on the farm by the tenant a sufficient benefit to compensate him for a temporary loss of rent. In addition to these grounds for introducing a material change in the law, it was further very strongly urged on us, and more particularly by several of the tenants of larger capital, that the height to which the rent of land in Scotland has risen is to be attributed in a great measure to the injurious operation of the law of hypothec, which enables landlords, in reliance on the protection afforded them by the law, to accept tenants of inferior capital or skill, whom they would not otherwise be disposed to trust. Part of the system, it was said, by which this inferior class of tenants is encouraged, is the system of back-renting, or postponing the terms of payment of the rent to a later date than the legal terms: this being done with the view of enabling such tenants first to realise their crops, and then to satisfy the landlord out of the proceeds. In this way, we were told, encouragement has been given to a class of men who ought either never to have been farmers at all, or to have been content with smaller holdings than they now have; and who, by offering for farms, have fostered a fictitious system of competition, through which the rent of land throughout Scotland has been unduly raised. The introduction of fore-rents, or bringing the conventional into conformity with the legal terms of payment, which many deprecate as an evil likely to arise from any change in the law, would, in the view of those to whose opinions we now refer, be an advantage rather than a disadvantage, as rendering larger capital necessary for prosecuting the profession of agriculture than is now required. On the other hand, it was urged by some witnesses, as a reason for a change in the law, that the preference now given to the landlord prevents banks from accommodating tenants with advances of money, and that tenants would be benefited by the increased facility in obtaining loans which the abolition of the landlord's preference would bring with it. The power of the landlord under the present law to follow grain in the hands of a purchaser, if the rent for the year of which the grain is the produce has not been paid, was greatly objected to as contrary to general principle; and the private manner in which a sequestration by the landlord may be carried through, owing to the absence of any general system of publication of sequestrations, was stated to be injurious to the public, as inducing persons to deal, or to continue dealing, with a man who remains in a farm ostensibly in good credit, but over whose effects a sequestration may have been obtained by the landlord, and kept by him in suspense for security of his rent. Several of the witnesses who thought the abolition of the landlord's preference desirable, were at the same time decidedly of opinion, that greater facilities than now exist should be given by law for getting rid of an insolvent tenant.

Views of those favourable to the Law.—On the part of those generally favourable to the maintenance of the present law, it was, on the other hand, represented to us, that the losses which manure-dealers and other traders suffer through the operation of the landlord's hypothec are very small, compared with the amount of the dealings in the course of which these losses occur; that the profits which such traders expect and realise from the employment of their capital are very much greater than the return obtained by landowners; and that such trifling proportion of loss as they do meet with is taken into account by them in fixing the prices of the articles in which they deal. These dealers also, it was argued, have it in their power, if they please, to regulate or alter their terms of payment from time to time, and, in any cases where they may think it prudent, to restrict their transactions to sales for ready money; and were the landlord's preference, and more especially his power of sequestration in security, to be abolished, they might, in case of a purchase by a doubtful tenant, take steps to obtain payment from his effects before the arrival of the half-yearly term of payment of the landlord's rent, and so leave the latter without any means of satisfying his claim. It was further urged, that a landlord who lets his farm to a tenant for a period of 19 years, and so practically places it out of his own power for that long period, is in quite a different position from a merchant who deals only in isolated transactions from day to day, and who may cease dealing with a tenant of doubtful solvency whenever he pleases; and that this consideration was the more worthy of attention from the fact, that the greatest degree of care originally exercised in the selection of a tenant may, from his death during the currency of the lease, or from unforeseen changes in his circumstances, be wholly unavailing for the landlord's security. In this way, to place the landlord's claim for rent on the same footing with the claim of an ordinary dealer would, it was said, be to lessen very seriously the value of land, not merely as an investment, but also as a security, and would therefore affect very materially the position of the large class of persons whose money is lent on heritable bonds. With regard to the argument that the outlay expended on the farm by the tenant places the landlord in so favourable a position as to render him secure independently of any preference which the law of hypothec may give him, it was represented that, so far from the land being improved by a tenant who falls in arrear with his rent, it is in the very great majority of instances very much deteriorated; and, on the farm being relet, the landlord must either be content with a reduced rent, or must himself lay out a large sum in order to restore the land to a proper condition. The allegation that the security afforded by the law of hypothec induces landlords to accept of a class of men as tenants whom otherwise they would not accept, was denied by the landlords and factors who gave evidence before us. These gentlemen assured us that they never take the law into consideration in selecting a tenant, and that to trust to it as a security for obtaining payment of the rent would be most imprudent, and would certainly end in involving the landlord in difficulty and loss. It was denied that the law of hypothec has had any effect in the way of creating a fictitious competition for farms, or unduly raising the rent of land. The law, it was said, has existed for centuries, whereas it is only of very recent date that any such complaints as to its operation have been brought forward. The present high rents of land were attributed to the increased competition existing in all branches of industry, and to other causes of various kinds; among which in recent years were to be noticed the high prices of farm produce which prevailed about the time of the Crimean War, and the large sums realised by farmers in several districts of Scotland from the cultivation of Potatos, when that crop had been generally a failure in England. Above all it was urged, that the present state of the law is of fully as great advantage to tenants as to landlords. Thus the system of back-renting, which is closely connected with, if not dependant on, the existence of the law of hypothec, was described as highly favourable to a class of tenants very numerous in some parts of the country, and more especially in the poorer districts, where the land is only now being brought into cultivation—a class of tenants, namely, who rely more on their personal energy and labour than on their capital, and to whose exertions the agriculture of Scotland has been much indebted for the great progress it has made. Were a system of fore-rents to be introduced, we were told that it would become impossible for a large proportion of the class of tenants to whom we now refer to continue in their holdings, and that they would be compelled either to descend to the position of labourers on the farms of others or to emigrate. That the abolition of the security at present possessed by the landlord would inevitably lead to the system of fore-renting where that system does not already prevail, was the opinion of a great majority of the witnesses. Many of them stated further that, under such a change in the law, security for the rent would uniformly be exacted from tenants, leading in the end to a general system of mutual cautionry, or of one tenant becoming security for another—a result very much to be deprecated; while some of those concerned in the management of land even anticipated the necessity, in such circumstances, of rents being prepaid. We were also told that independently of the assistance which, throughout the greater part of Scotland, tenant-farmers receive from the loan given to them at a very cheap rate in the form of a back-rent, they frequently, in bad seasons and circumstances of temporary difficulty, derive much benefit from the indulgence which their principal creditor, the landlord, is enabled to give them in reliance on the security he possesses under his right of hypothec. Were that security destroyed a different course would, it was anticipated, be frequently taken; and a tenant in the circumstances referred to, instead of being allowed, as he now is, to delay the payment of his rent, and take time for selling his produce to advantage, by which means he is frequently enabled to retrieve his position, would be treated with no indulgence, and left to sink under misfortune. The view that farmers now suffer through the inferior credit in which they stand with bankers, owing to the preference secured to the landlord, was met by the assurance which was given us that bankers never take the law into consideration in dealing with tenants, and that money is advanced to them and their bills discounted on the same terms as those adopted with other traders.

Suggested Modifications of the Law.—On the question as to the policy of continuing the present law by which crop in the hands of a purchaser may be followed for payment of the rent due to the landlord, one or two witnesses of high standing, while admitting that this part of the law is very seldom resorted to, expressed to us views favourable to its maintainance, on account of the protection which it affords against fraudulent dealings to the prejudice of the landlord, which otherwise there would be great difficulty in checking. But the general view of persons otherwise favourable to the law as a whole was that the right of the landlord to follow the crop in the hands of *bonâ fide* purchasers might be abandoned with safety and with advantage.

To the proposal for the publication of sequestrations there was far from a general assent on the part of the witnesses favourable to the present law. Many of them regarded it as a course which would confer little benefit on the public, and one which at the same time would be most injurious to the tenant, as having the effect of permanently ruining his credit, and so depriving him of any chance of recovering himself. Among the neighbours of a tenant under sequestration, it was said, his position is as well known as if it were published in the *Gazette*, and as they are the persons who are principally interested in knowing the fact, the publication would be an act at once unnecessary and cruel.

On the part of some, by whom the law is regarded as generally beneficial, it was considered that it might be advantageous, if it were practicable, to limit the landlord's preference to some extent; as, for example, that he should not be entitled to a preference over the other creditors for more than one year's rent.

It was also suggested to us that the landlord's right of sequestration might be so restricted as to require it to be exercised within a certain definite period after each portion of the rent becomes due, under the penalty of a forfeiture of the right as regards such portion. This proposal was directed against the power which the landlord now has of delaying the exercise of his right of sequestration until both half-yearly instalments of the rent have fallen in arrear, after which he may proceed to sequestrate for the full amount of the year's rent.

We were urged by some of the witnesses to consider, whether a preference similar to that now possessed, in the case of a tenant's bankruptcy, by the labourers on the farm, might not be properly extended to the carpenter, blacksmith, and other artificers, whose services are equally necessary for its cultivation. And some other modifications of the existing law were suggested, to which it is unnecessary to refer particularly, but all of which have received a due share of our attention.

(*To be continued.*)

Home Correspondence.

Crops in Nottinghamshire.—I duly received your annual circular for information about crops in our neighbourhood. As the land varies so much round here, I could not give you all the information you require in your circular. The root crops vary very much indeed on the good sand soils and on the light blow-away forest soils; on that class of soils in the parishes of Blidworth and Farnsfield they are generally very bad, the greater part of the farmers have had to sow their fields two or three times over, and that class of soils being so much dependent on the Turnip crops, if they miss growing a good crop of Swedes, it is a very great loss to them. On some of the good sand farms the Turnips are looking very healthy and promising for good crops. There is very little Grassland attached to sand farms; and the hay and seeds on that soil is very light and bad. Pastures bare and brown, but not so bad as in 1864. Oats are the worst crop I ever remember. On sandy soils: Wheat bad; Barley very good indeed; Beans, Peas, and Potatos not generally grown on sand land near here, excepting some few small farmers. On the good loams and good clay soils the Wheat is very good, but much knocked about by the heavy thunderstorms we have had; we think it will turn out a full average crop. The Barley is very good indeed, above an average crop; it is much knocked down, and some quite flat to the ground by rains, &c. Oats on good loams about an average crop; they are much knocked down. Oats generally are a very bad crop on clay soils. Beans look well, plenty of straw, but very badly podded, many stalks with not one pod on them. Peas good and well podded. Potatos good, and looking healthy; haulm very strong and rank. Hay: this crop varies very much on some favoured farms of good rich loamy soil, where the meadows are annually dressed over with manure, or lime composts, the hay crops are very good indeed; for example, one of my meadows has produced double the quantity of hay this year to what it produced in 1864, but we dress the meadow over annually either with good manure or composts, and now we have some very good Edible. Generally, the hay crops are very bad, but well secured in good order. Clover also varies very much, generally a light bad crop, all well secured, in good order. Clover, on rich loamy soil, was a very heavy crop indeed, and we intend mowing the second crop for hay; it is a very good crop. Roots, where early sown, are very good indeed, both Mangel Wurzel and Swedes. Comparing the root crops on loams and clays with those grown on sandy soils, the former are very much the best. We have a field of Prolific Tick Beans, a very good crop, straw more than 5 feet high, and exceedingly well podded; we only dibbled three pecks per acre of seed. *C. D., Southwell.*

Cabbage v. *Swedes.*—In our county, with stiff clay and hot sunshine, experience has taught me the superior value of Cabbage for feeding purposes. We are now cutting the London Cabbage planted in March, which will be followed later in the season by the large Cow Cabbage planted in February, and I am advised that it is useful to have Savoys to succeed these, as they stand winter best. Our beasts progress faster on Cabbage mixed with plenty of fine-cut Wheat straw and Cotton cake than with any other vegetable. This is consistent with the analysis in Morton's excellent Cyclopædia, which gives to Cabbage 1 flesh-forming to 3 carbonaceous or heat-forming; while in Potato the flesh-forming is only as 1 to 20. It is also rich in mineral matter. Its analysis proves the necessity for using with it a considerable quantity of carbonaceous matter. This we give in the Wheat straw cut as fine as ¼ to ½ of an inch in length. When our engine is at work the whole Cabbage, stalk and all, is passed through the pulper. At harvest time the leaves are chopped, and the hard and hearted part passed through Gardener's Turnip Cutter to prevent choking. I have 6 acres planted with Cabbage in July—growing fast—after a heavy Tare crop. We save time by planting out Cabbage and get a much greater quantity of good food. The cost also is really not greater than the Swede crop. As to exhaustion, it is idle to talk about it while we have guano and sewage. The effect of sewage irrigation on Cabbage is excellent. Every year convinces me that straw should be used as food rather than as litter in open yards for soaking up water. My boarded or sparred floors still retain a firm hold on my good opinion as a real economy both of straw and labour and essentially as conducive to animal health. Farmers will never get the full value for their root and green crops until they make greater use of their straw (including particularly Bean straw) for feeding purposes. Experience and observation confirm me in the opinion. Aug. 3: Our Wheat harvest progresses favourably in spite of some showers, the straw being very stiff, and the land free from weeds. Several of my fields of Wheat are estimated at near 7 quarters per acre, which I believe to be correct; for the ears are, this season, remarkably well set, and the kernels plump. One field of Rivett Wheat (sown with my usual quantity, one bushel per acre) is estimated to produce near eight quarters, although it followed a crop of White Wheat which last year yielded 54 bushels per acre. The Rivett Wheat was manured, when sown, with 2 cwt. of Peruvian guano and one cwt. of salt per acre. My other Wheats are grown after Beans, Clover, and Mangel. Mangel will be, generally, a very heavy crop on the stiff clays. I never saw them look better. There are also very fine crops of forward White Turnips. I omitted to mention that if we are to grow heavy crops of Cabbage after Tares we must have a good supply of summer-made under-cover manure. This, with deep trench-ploughing, makes the crop a sure one. As a rule, we do not, in Essex, make enough summer meat and manure. Hence we hear complaints of not being able to get the straw trodden down. I prefer hearing that we are always rather short of straw. It means more meat and more manure. I am generally a straw buyer, although I grow so much, and yet all my manure is made under cover. *J. J. Mechi.*

Farm Memoranda.

[We take advantage of the immense body of agricultural evidence lately taken before the Hypothec Commission in Edinburgh to publish such extracts from it as will illustrate the existing style of Scottish agriculture, and the enterprise and energy of Scottish agriculturists.]

(*Continued from p. 735.*)

6. Bonnington, near Ratho: *Mr. James Meikle.*—The extent is about 1000 imperial acres, and the rent about 2000*l.* a-year. I have been all my life in the practice of agriculture. I began in 1836. One of my farms is a Grass farm, to work on with the cropping farm. Martinmas is my stated term of entry, but on the cropping farm, where I reside, there is a quantity of land which I entered to as summer fallow, i.e. I entered to it almost a year previous to the Martinmas of entry. I paid for that to the landlord, and the landlord or incoming tenant is bound to pay me when I go out. My general term of entry may be said to be Martinmas, and my general term of payment for my arable land Candlemas and Lammas, after reaping the crop. The entry to my Grass farm is Martinmas;

first rent being payable at Martinmas following, and the next at Whitsunday. These would be convenient enough terms, but the law of hypothec puts us to a certain extent in a wrong position. I think there should be no such law, and that it should be matter of arrangement between landlord and tenant. If it were abolished, I think the system of fore-rents would be generally adopted. I think its abolition would eventually be advantageous to the landlord; and I think it would be decidedly advantageous to the tenant. The tenant would certainly be in a better position paying forehand rent, with no law of hypothec existing, than he is now. I think there is a tendency at present to overrate the value of land, *i. e.*, to offer more money for land than it is actually worth, on account of the postponed terms of payment. By the present system rents are unduly forced up; and I should say that one-third more is got for land in the Lothians than for similar land in England, though no doubt the superior skill and intelligence of Scotch farmers may be an element. Even under the law of hypothec in Scotland there is a difference of 20 per cent. between farms let privately at a fair value and farms let publicly. On the farm on which I reside, consisting of 670 imperial acres, I lay out 1000*l.* on purchased manures, and I buy 450*l.* worth of linseed cake for feeding. I cannot complain of the operation of the law of hypothec so far as I am personally concerned, though I have lost a little money occasionally by neighbours who have become bankrupt, to whom I have sold seed corn.

7. Longniddry, East Lothian: *Mr. Alexander Henderson.*—I farm about 750 imperial acres. My rent is about 1700*l.* or 1800*l.* a year. I have been about 40 years a farmer. I have also acted as adviser in regard to the Luffness and Rankeillor estates. I have been much employed in arbitrations and valuations, and in giving advice as to the letting of farms. My term of entry is Whitsunday, and the separation of the crop; and my rent is payable at Candlemas and Lammas after reaping. That system suits very well in East Lothian. If the law of hypothec were abolished, I think the rents must be made payable sooner. The tenant would just require to have additional capital in his pocket in the shape of a year's rent. I think that would improve the status of the farmers, and it would have a tendency to limit the farming class to men of more capital. It would have the effect, in my opinion, of reducing the rents; but I think they are unnaturally high at present. It is the fault of the bidders that they are so. I know no reason for their offering too high rents, except that, when a landlord advertises, he gets as offerers people from other professions than the agricultural interest. Mercantile men, who have made a little money, come in and overbid the practical men in the country, and they are generally preferred. A good many of these men have come into East Lothian, and into various districts of the country, and there have been a good many farms let lately to others than practical men. Some of these have capital, and some have not. I have no other objection to the law of hypothec, except that it unnaturally increases the competition for farms, and that the merchant has not such a fair opportunity of getting payment for his goods as he would otherwise have. I don't think the manure merchant protects himself from loss by charging those who pay ready money a much larger price—further than the difference between ready money and credit. Two invoices are always sent to the customer—one for credit, and the other for ready money. On the land I possess myself, I spend about 1200*l.* or 1400*l.* a year on manure, and I spend 2400*l.* or 2500*l.* a year on manures and feeding stuff together. I don't know that the system of fore-renting would take well at starting, but I think it would secure good tenants.

8. Whittinghame Mains, East Lothian: *Mr. George Harvey.*—I have been engaged in the practice of agriculture for 40 years. I have been treasurer to the East Lothian Agricultural Society for 17 years. The extent of my farm is fully 400 imperial acres, and my rent is from 850*l.* to 1050*l.* My term of entry is Whitsunday and separation of crop, and the rent is payable at Candlemas and Lammas, after the crop is reaped. I have not personally experienced any disadvantage from the law of hypothec. I don't think it has told much, till perhaps recently, in the way of increasing the price of manure. I do not use so much manure as some of my neighbours, as my land is not adapted for Potatos, but I get from 24 to 28 tons of Peruvian guano yearly. I have used very little of any other special manure. I am bound to use all my straw as manure. My expenditure for feeding stuffs is about 100*l.* a year. I think the law of hypothec has the effect of making land higher rented than it would otherwise be, from the power that the landlord has over the means of the tenant. It brings men into the field as competitors for farms who would not otherwise be so, and who are non-practical men; and it is very difficult to convince a proprietor or factor that the highest rent is not about the best thing going, provided there is any capability at all to take the land. By an unpractical man I mean one who knows nothing of his business. If a man had studied farming in Berwickshire, and came to East Lothian with plenty of capital, I don't think he should be rejected as unpractical. The unpractical men are sometimes men of capital and sometimes not. At present, many landlords exact security for the proper stocking of the farm and for the first year's rent, and I think that is the exercise of a very fair caution.

9. Niddrie Mains, Mid-Lothian: *Mr. Thomas Mylne.*—I farm fully 500 imperial acres, and pay upwards of 2000*l.* a year of rent. My term of entry is Martinmas, to the whole farm; that is a common term of entry in Mid-Lothian. My rent is payable at Candlemas and Lammas, after the crop is reaped. I am within three miles of Edinburgh. I lay out above 1200*l.* a year on purchased manures. Mine is not a feeding farm. The produce is mostly sold off the ground, but I spend about 200*l.* a year on feeding stuffs. I think the law which follows grain after it is sold off a farm is a hindrance to trade, and creates a certain distrust among mercantile people. I think that is a most objectionable part of the law of hypothec. I sell most of my Barley by sample in the offices of brewers in Edinburgh; and under that law these men might feel a distrust of me, and want to know how I stand with my landlord. I think there should be no hypothec after a *bonâ fide* sale, delivery, and payment.

10. Thornton Loch and Leaston in East Lothian: *Mr. James Brodie.*—I farm altogether 3300 imperial acres. The rent of Thornton Loch is a Wheat rent; the others are money rents. For the whole farms my rent is sometimes under and sometimes beyond 4000*l.* The term of entry to Thornton Loch is Whitsunday and separation of crop; to Leaston the entry is at Martinmas. The rents for Thornton Loch and Leaston are payable at Candlemas and Lammas, after the crops are reaped; the first payment being in the one case a year and three months after entry, and in the other a year and nine months after entry. I have felt the hardship of the law of hypothec in this respect, that, being in the habit of taking Turnips on other farms, I have had to pay for them twice. Having prepaid the tenant, I was called on by the proprietor to pay over again to him the price of the Turnips which had been consumed by my sheep on the field. That happened just once; but on another occasion a similar claim was made against me, which was not insisted on. My stock had been removed before a sequestration was served upon the tenant, and it was doubtful whether the landlord had a right to ask me to pay; but I refused payment, and it was not insisted on. I have heard of similar cases, but they are not common. Many farmers, however, have not stock of their own to eat their Turnips, and they are in the habit of letting them; and it is usual to pay them a sum to account when the sheep are placed in the field, and the balance when the sheep are removed. I have no means of ascertaining whether I can deal safely with a tenant in such a case. I cannot ask him to show the landlord's receipt for his rent, and it may not be due. I have also felt the hardship of the law in regard to seed-corn. I supply tenants with seed; and there have been cases where I got no payment, and the landlord got the benefit of it. I think that merchants supplying seed-corn, or manure, or tiles, or lime, should have some preference, because at present the landlord in the event of a sequestration gets the benefit of all these articles. The landlord gets everything, and the other creditors too often get nothing.

(To be continued.)

Notices to Correspondents.

Abortion in Cows: *J J R.* The Ergot is not confined to Rye. Rye-grass, both Common and Italian, are liable to it; and this may sometimes explain the loss of calves. We give your letter, in case any correspondent may offer a suggestion:—"*Pearose, Helston.* In the parish of Ludgoan, near Penzance, for some nine or ten years past, serious losses in horned stock have occurred from cows frequently slipping their calves from the fifth to the eighth month; the calf frequently dying, and the cow lost for some time to the dairy. No Italian Rye-grass is or has been grown on any farm where the evil exists, as far as I can learn, and the water is usually pure and in good quantity. Sometimes cows in calf drink at pools fouled by droppings. Seven in 20 calves are lost annually on one farm which I know; and about 100 calves annually are lost in the parish. What noxious herb besides Ergot of Rye can occasion this? Sheep do not suffer. We know nothing of the kind in this neighbourhood. *J J R.*"

Early Harvesting: *A.* We suffer our grain to become too ripe ere it is cut, as if we had wind, and time, and capital to squander at pleasure. Speaking of Irish farmers, Mr. Beale Brown observes:—"They have only to plant earlier, not let their corn get so ripe, and cap their stacks, and the corn can be secured in Ireland as well as in England." On the 4th of August, Mr. Hannam cut a perfectly green sheaf, the grain as yet full of milk, and left it for a fortnight on the ground. On the 18th he cut another sheaf when the ears and stem were of a greenish-yellow, but more green than yellow, and on the 1st of September he cut a third sheaf. The grain from these several sheaves was carefully tested, and it appeared, to use Mr. Hannam's words, "that Wheat reaped a fortnight before it was ripe had the advantage in every respect of the ripe." The yield was greater. The grain fetched a higher price. Corn factors, to whom the samples were submitted, priced the green Wheat and the ripe at 61s. per quarter. The half-ripe Wheat they estimated at 64s. per quarter; and Mr. Hardcastle the miller at Wetherby, found that in yield of flour, the half-ripe Wheat was nearly 8 per cent. in excess of the ripe.

Mildew: *J B.* The mildew of the Berberry and that of the Wheat plant are not the same fungus. It is impossible that the former should produce the latter; but it is quite possible that the same circumstances should favour the production of both; and hence possibly has arisen the idea to which you refer.

Sour Beer: *A Correspondent* says:—In a two-hogshead cask we had about 56 gallons of very stale beer, turned by the thunder last summer, and not fit to drink. I drew it off, washed the cask out, and put in 2 lb. of calcined chalk, and the beer on the chalk. I let it stand three days, then brewed 56 gallons of beer with 4 bushels of malt and 6 lb. of Hops, and put it into the cask with the stale beer. It has been done about a month, and now tastes very soft and pleasant. Master says it is a hogshead of beer gained.

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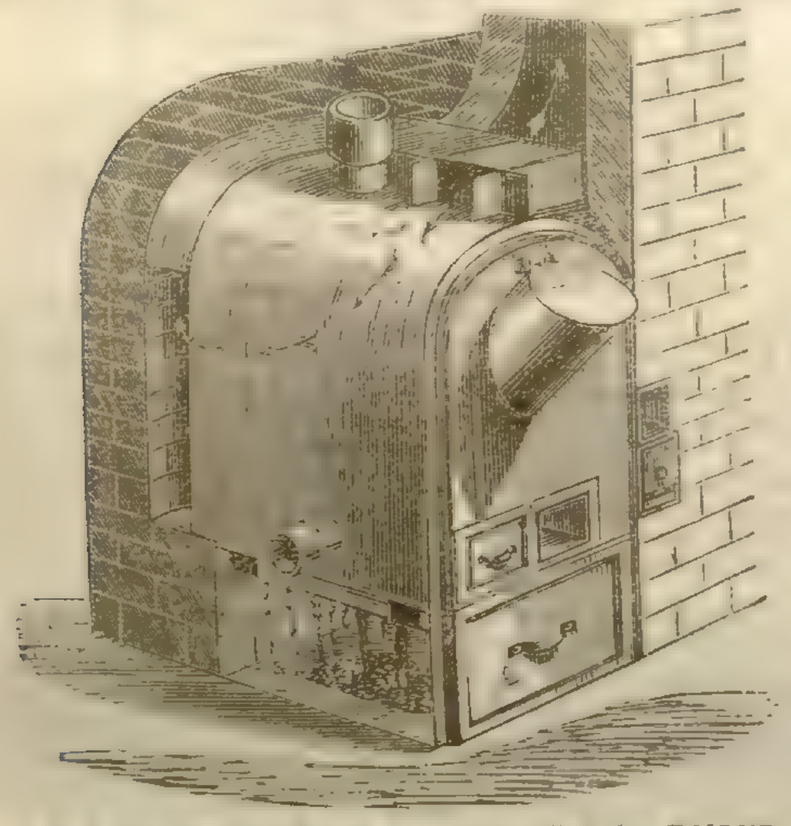

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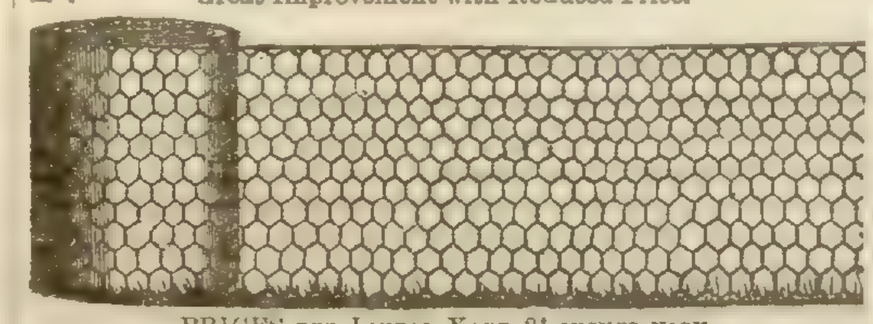

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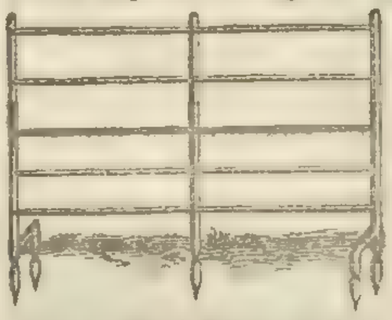

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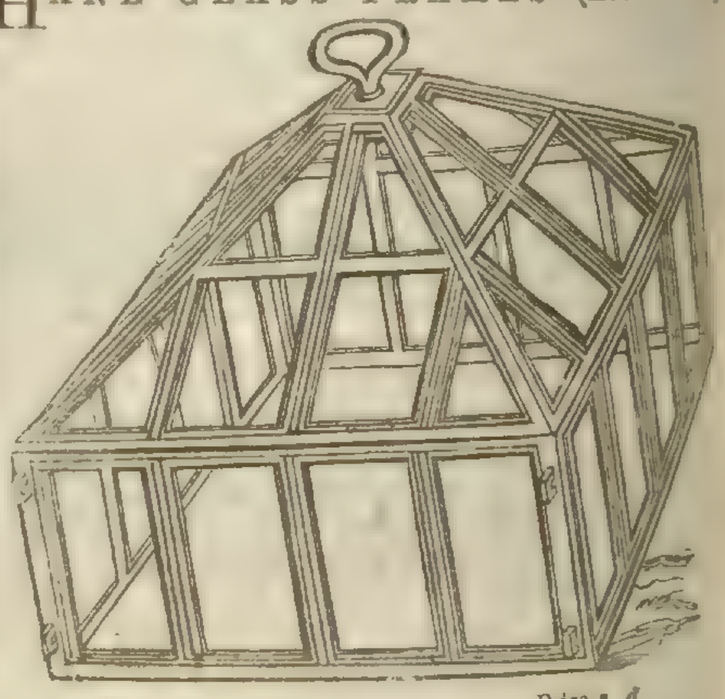

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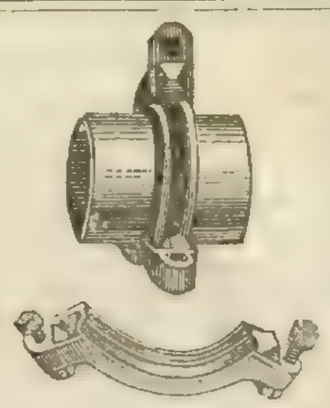

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No. 33.—1865.] SATURDAY, AUGUST 19. {Price Fivepence. Stamped Edition, 6d.

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☞ NOTICE TO ADVERTISERS.—*Advertisements intended for the* CURRENT WEEK'S NUMBER *should reach the Office not later than* THURSDAY.

ROYAL HORTICULTURAL SOCIETY.—A MEETING of the FRUIT and FLORAL COMMITTEES will be held on TUESDAY NEXT, at 12 o'Clock.

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Plants 10s. 6d. each; a few extra strong at 21s. each.
Special terms to the Trade, and circulars with list of awards and further particulars may be had on application.

CUTHILL'S STRAWBERRY PLANTS.—Black Prince, Princess Royal, Richard II., Highland Mary, Newton Seedling, and the splendid Prince of Wales, all at 5s. per 100, all for bearing in 1866. Dr. Lindley has often said, "To make sure of a crop, have CUTHILL'S Breed."
SPAWN, 5s. per Bushel. Mushroom Pamphlet, with New Appendix, 1s. 3d.; Market Gardening, 1s. 6d.; Cucumber and Melon, 1s.; Strawberry, new system, 1s.; Potato, &c., 1s. 6d.
PRINCE ALBERT WINTER CUCUMBER, 1s. per packet. Stamps or Order on Camberwell Green.
JAMES CUTHILL, Camberwell, London, S.

20,000 STRAWBERRY PLANTS of all the popular kinds; warranted true; well rooted. To be sold reasonable. Price upon application.
CATALOGUE of NEW and CHOICE PLANTS of 1865, upon application to
DILLISTONE, BROTHERS, & Co., Sturmer and Woodlands Nurseries, near Halstead, Essex.
Two minutes walk from the Sturmer Station, Great Eastern Railway.

J. IVERY AND SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

HUGH LOW AND CO. beg to announce the arrival of their annual importations of DUTCH FLOWER ROOTS, for which they respectfully solicit early orders.
CATALOGUES can be had on application.
Clapton Nursery, London, N.E.

New Plants for 1865.
JAMES CARTER AND CO.'S CATALOGUE of NEW and CHOICE BEDDING, GREENHOUSE, and STOVE PLANTS, is now ready, and will be forwarded gratis and post free on application.
JAMES CARTER & Co., 237 & 238, High Holborn, London, W.C.

VIOLETS.—A large stock of all kinds of Violet Plants, including the Giant, Neapolitan, London, Crimea, Russia, &c., now ready for planting out, full of buds, will Bloom directly.
CATALOGUE of prices on application.
JOHN STEDMAN, Thornton Heath, Surrey, S.

BEDDING-OUT PLANTS in great variety. WINDOW JARDINETS, Empty or Furnished, in variety.
The "Gardeners' and Amateurs' Friend," see page 601.
BARR & SUGDEN, 12, King Street, Covent Garden, W.C.

CRYSTAL PALACE, ROYAL BOTANIC, and ROYAL HORTICULTURAL FLOWER SHOWS.
At these PLANT CASES will be exhibited in great variety, furnished with the Choicest Exotic Fern and Foliage Plants, arranged by BARR & SUGDEN, of 12, King Street, Covent Garden, W.C.

First Quality.
CALCEOLARIA, PRIMULA, CINERARIA, CARNATION, PICOTEE, PINK, AURICULA, VERBENA, MIMULUS, ZONALE GERANIUM and PELARGONIUM.
Each 2s. 6d. per packet.
BARR & SUGDEN, 12, King Street, Covent Garden, W.C.

E. G. HENDERSON AND SON offer SEED of CALCEOLARIA, CINERARIA, and PRIMULA of first-class quality, at 1s., 2s. 6d., and 5s. per packet. Also the finest SCARLET and INTERMEDIATE STOCK, 6d. and 1s. each.
SEED of CYCLAMEN PERSICUM, of similar quality, 6d. and 1s. each, and in mixed colours 2s. 6d. per packet.
The Wellington Nursery, St. John's Wood, London, N.W.

ROBERT PARKER begs to offer the following, all of which are well-grown, clean, and healthy plants:—

	s.	d.
CLERODENDRON BALFOURII	5	0
CORDYLINE INDIVISA	10	6
FRANCISCEA CALYCINA	10	6
GOODYERA PUBESCENS	1	6
RHODODENDRON COUNTESS of HADDINGTON, 10s. 6d. to 21	0	0
" JAVANICUM	2	6
" NUTTALLII	2	6
TRITOMA GRANDIS	3	6
" UVARIA GLAUCESCENS	1	6
VINE DUCHESS of BUCCLEUCH 10s. 6d. and	21	0
YUCCA ALBO SPICA	42	0
" TRECULEANA, *cornuta, concava*	42	0

PRICED and DESCRIPTIVE CATALOGUES of Greenhouse, Hardy, and Stove Plants, Seeds and Bulbs, are published, and will be forwarded to applicants.
Exotic Nursery, Tooting, Surrey, S.

Genuine Garden and Agricultural Seeds.
JAMES CARTER AND CO., SEED FARMERS, MERCHANTS, and NURSERYMEN, 237 and 238, High Holborn, London, W.C.

H. AND F. SHARPE, SEED GROWERS and MERCHANTS, Wisbech.
SPECIAL PRICED LIST of NEW SEEDS on application.

RAYNBIRD, CALDECOTT, AND BAWTREE, SEED FARMERS and MERCHANTS, 89, Seed Market, Mark Lane; and Basingstoke.
Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

NEW and GENUINE AGRICULTURAL, GARDEN, and FLOWER SEEDS.
Special prices and advantageous offers on application to
JAMES FAIRHEAD & SON, Seed Growers and Merchants, 7, Borough Market, London, S.E.

British Fern Catalogue.
ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
*** Part II. (Exotic Ferns) will be issued as early as possible.
Foot's Cray Nursery, S.E.

Choice Hybridised Pelargonium Seed.
EDWIN COOLING has a small quantity of the above, saved from all the newest and best varieties, to offer, in packets, as follows, free by post:—
Large-flowered, Show and Spotted, 2s. 6d.; Fancy, 2s. 6d.
Also PRIMULA, CALCEOLARIA, and CINERARIA, of superb quality, at 1s. and 2s. 6d. per packet each.
Mile Ash Nursery, Derby.

DOBSON'S UNEQUALLED SEEDS.
CALCEOLARIA, hybridized, 1s. 6d., 2s. 6d., 3s. 6d., and 5s.
CINERARIA, ex. ex., 1s., 2s. 6., and 5s.
PRIMULA SINENSIS FIMBRIATA, 1s., 2s. 6d., and 5s.
PELARGONIUM, show and fancy, 2s. 6d. and 5s.
STOCK, SCARLET INTERMEDIATE, 6d. and 1s.
SWEET WILLIAM, 6d. and 1s.
HOLLYHOCK, 1s. and 2s.
The above Seeds are strongly recommended for their superior quality, especially to amateurs who grow but few and like them good.
J. DOBSON & SONS, Woodlands Nursery, Isleworth, W.

CAMELLIAS and AZALEAS.—A large quantity of fine plants, well set with flower buds, 21s. and 24s. per dozen.
ORANGE TREES, 18s. and 24s. per dozen. The largest collection of FERNS in the Trade. Fern Cases filled complete from 4s. 6d. each.
R. GREEN, 154, Kingsland Road, N.E.; and the Bedford Conservatories, Covent Garden Market, W.C.

Green Hollies for Stocks.
G. H. BUNNEY has a fine lot of clean bedded Plants, well rooted, at 10s. per 100, or £4 10s. per 1000.
G. H. B. has also several Thousands of GREEN HOLLIES, from 2 to 6 feet, bushy, and all recently moved, which he can offer at a reasonable rate.
The Nurseries, Stratford and Wanstead Park, Essex.

To the Trade.
CORNELIUS WHITEHOUSE, Brenton Nursery, Rugeley, Staffordshire, has to offer strong well-rooted 1-year SEEDLING BERBERIS AQUIFOLIUM; also several hundred thousand well-grown, very stout, extra TRANSPLANTED HOLLIES, from 6 inches to 4 to 5 feet, will lift like Rhododendrons; 2 years' TRANSPLANTED LAURUSTINUS, 9 to 12 inches; also stout well-rooted Plants from layers.
Price low. Cash or reference is respectfully requested from unknown correspondents.

SUTTON'S RINGLEADER PEA.—The orders recently received for this very EARLY PEA are very numerous; and as we were unable to supply fully the demand last Spring, we respectfully solicit early orders to secure a full supply.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Peas for Late Crop.
JAMES CARTER AND CO. recommend the undernamed quick-growing sorts as being the most suitable for present sowing to produce a late crop this Autumn:—
CARTER'S FIRST CROP PEAS, per quart, 2s. 6d.
McLEAN'S LITTLE GEM PEAS, " 5s.
237 & 238, High Holborn, W.C.

Cabbage Seed for present Sowing.
SUTTON AND SONS have a good stock of fresh Seed of all the best kinds of CABBAGE for the Farm and the Garden.
Royal Berkshire Seed Establishment, Reading.

100,000 FINE CATTLE CABBAGE PLANTS, 2s. 6d. per 1000, may be had of
Mr. A. WILKIN, Tiptree, Kelvedon, Essex.

Early Spring Feed.—Seeds for Autumn Sowing.
PETER LAWSON AND SON can supply of excellent quality—

ITALIAN RYE-GRASS	RYE
TRIFOLIUM INCARNATUM	WHITE MUSTARD
WINTER TARES	

CLOVER and NATURAL GRASS SEEDS for PERMANENT PASTURE, &c.
Also New Seed of BROMUS SCHRADERI, 8s. 6d. per lb., and the New Hardy Clover, TRIFOLIUM STRIATUM, 2s. per lb.
PETER LAWSON & SON, the Queen's Seedsmen, 23, King Street, Cheapside, London, E.C.; and at Edinburgh.

DICKINSON'S NEW ITALIAN RYE-GRASS SEED is now ready for delivery. Sold only by himself to Agriculturists, and for present payment, at 48s. per quarter, or 7s. per bushel.
New Park, Lymington, Hants.

Meadow Grass Seeds for Autumn Sowing.
SUTTON AND SONS would recommend MEADOW and PASTURE GRASS SEEDS to be Sown EARLY in the Autumn, or not until the Spring.
Royal Berkshire Seed Establishment, Reading.

New Late Trifolium.
SUTTON AND SONS have just received a supply of each of the NEW VARIETIES of TRIFOLIUM—LATE RED and LATE WHITE. The quantity of feed is quite equal to the Common variety, with the advantage of coming in a fortnight later. The present prices are, for
NEW LATE RED FLOWERING, 8d. per lb. } cheaper by
NEW LATE WHITE FLOWERING, 9d. per lb. } the cwt.
Also the COMMON TRIFOLIUM INCARNATUM, 4d. per lb., cheaper by the cwt. Carriage free, except small parcels.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Card.

SAMUEL N. McGERROW,
GENERAL HORTICULTURAL BUILDER,
Knotty Ash, near Liverpool.

Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

Heating by Hot Water.

W. J. HOLLANDS, IRON MERCHANT,
31, Bankside, London, S.E.

HOT WATER PIPES, from Stock, per yard:—2-inch, 1s. 4d.; 3-inch, 2s.; and 4-inch, 2s. 7d. BENDS, from Stock 1s. 7d., 2s. 6d., and 3s. 3d. each. THROTTLE VALVES, 10s. 6d., 13s. 6d., and 15s. each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day. A discount to the Trade.

Greenhouses and Conservatories.

H. FREEMAN, Horticultural Works, Hackney, N.E., Established 20 years. Good substantial made GREENHOUSES, Glazed, ready for fixing. 42 feet by 13 feet, 50l.; 21 feet by 13 feet, 28l.; 12½ feet by 10 feet, 15l.

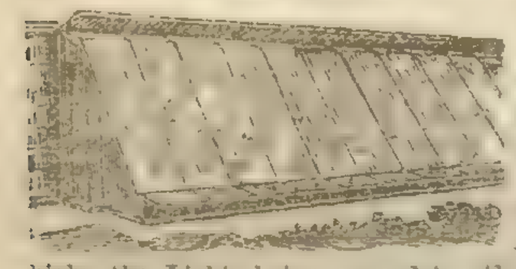
A handsome CONSERVATORY for SALE, 36 feet by 19 feet. Price 110l. A Large Assortment kept.

CRANSTON'S PATENT BUILDINGS for HORTICULTURE, Highly Commended by the Royal Horticultural Society, South Kensington. Plans and Estimates free on application. Houses of the following sizes always in stock:—Span, 30 by 15 feet, and 24 by 12 ft.; Half-span, 24 by 10 ft.; Lean-to, 24 by 8 ft. Stereoscopic Slides of different houses post free for 6 stamps each.

Descriptive Book, fully illustrated, by post for 20 stamps from the Author and Patentee, JAMES CRANSTON, Architect, No. 1, Temple Row West, Birmingham.

Under the Patronage of Her Majesty.

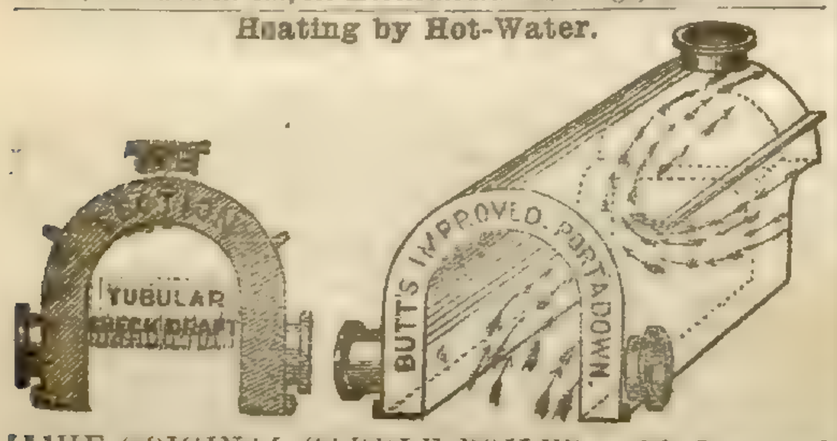
CLARK AND HOPE (LATE CLARK) 55, Lionel Street, Birmingham, MANUFACTURERS of METALLIC and WOODEN HOTHOUSES, CONSERVATORIES, VERANDAHS, &c., COPPER and WROUGHT IRON SASHES, SKYLIGHTS, &c., and HOT WATER APPARATUS for Horticultural and Domestic purposes.



C. & H. beg to call attention to their NEW TREE COVER, or Continuous Glass Covering for Garden Walls; which is constructed of Cast and Wrought Iron, glazed with or without putty, and fitted together with bolts and nuts, constituting a Tenant's Fixture. It can be made 6, 7, or 8 feet wide, and 10, 12, or 14 feet high: the Lights being opened together, by means of simple and durable machinery, in lengths of about 50 feet; and the cost does not exceed that of a wooden structure.

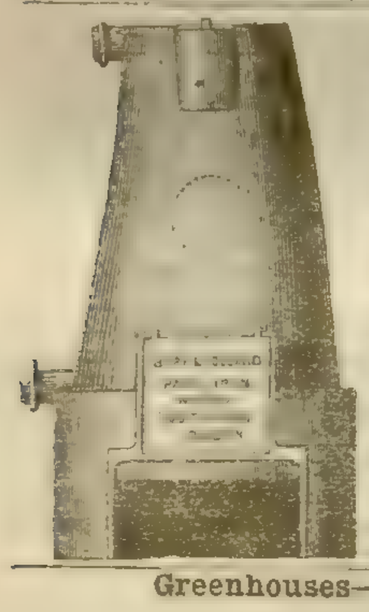
Further particulars, with prices, forwarded upon application; and on receipt of the amount in postage stamps, a Book of Designs, plain, 1s. 6d., coloured 2s. 6d., for Horticultural Buildings, &c.

Heating by Hot-Water.



THE ORIGINAL SADDLE BOILER, with Improved Tubular Check Draft, Flued Ends, and Ribbed Sides, for Heating Greenhouses, Vineries, Forcing Pits, Public Buildings, &c. These Boilers possess increased heating surface capacity, power, economy in fuel, and are the only class of Boilers, all points considered, when properly fixed, that can be relied upon with safety for Heating Greenhouses, &c., of any extent, by Hot Water, and at a moderate price.

Gardeners interested in such work should write for List of Testimonials, sent Post Free on application to FREDERICK WILLIAM BUTT late of London), Portadown, Ireland.



HEATING by HOT WATER—Public and Private Buildings, Manufactories, Conservatories, &c., heated on the most improved system, combined with perfect Ventilation.

These BOILERS are adapted for setting in Brickwork, or as shown in sketch they require no BRICKWORK.

BURY AND POLLARD
(Successors to John R. Peill),
Sole Manufacturers of the Improved CONICAL BOILERS, which are in general use, and which Boilers have for their durability and economy attained a celebrity far surpassing any other Boilers ever invented.

Park Iron Works, 17, New Park Street, Southwark, London, S.E.

N.B. Patent WINDMILLS for Pumping and Driving Farm Machinery, from half-Horse Power upwards. To be seen daily at work as above.

Greenhouses—Heating Apparatus.

DENNIS' PATENT METALLIC HORTICULTURAL BUILDINGS are made from the best wrought iron, upon an entirely new principle. The combination of Iron and Glass under this Patent is perfect; the possibility of fracture is prevented, and a permanently water-tight roof insured. The leading practical advantages are extreme smallness of framing, admitting a maximum of light and heat, and perfectly neutralising atmospheric conduction.

They are thoroughly ventilated, exceedingly strong and durable, are speedily erected, and whilst maintaining their established superiority for Conservatories of the highest order, are acknowledged by the most eminent Horticulturists of the day to be the "desideratum of perfection," promoting perfect symmetry of growth and richness of colour, both for Fruit and Flowers.

From the complete adjustment of the constructional parts of these patent buildings, their manufacture is so facilitated that a comparison in point of cost with perishable wooden structures is most favourable.

THE GARDENER'S OWN GREENHOUSE
(Lately known as Dench's Patent) is a Tenant's Fixture.

The Patent, Plant, Business, Machinery, and all connected with the above, have been transferred to T. H. P. DENNIS, who has determined to supply these really useful buildings at such a reduced scale of prices that every one desiring a Greenhouse may possess one.

NOTE.—A No. 1 Lean-to, 12 ft. 6 in. by 9 ft., including honest 16-oz. Glass, £16 12s 6d.

T. H. P. D. has introduced most important improvements in their finish and construction, and after numerous experiments has succeeded in arranging them as a TENANT'S FIXTURE, which he feels sure will be valued by gentlemen having limited tenures. With Mr. Rivers' adaptation they make excellent Orchard-houses, and afford all that can be desired in a profitable building.

Wood structures at the lowest price consistent with sound work.

Prospectuses and Estimates on application to T. H. P. DENNIS, Horticultural Builder, Hot-water Engineer, &c., Chelmsford, Essex.

Heating by Hot Water.

HOT-WATER PIPES, at Reduced Wholesale Prices, with Elbows, Syphons, Tee Pipes, and every other connection; Wrought and Cast-iron Boilers, Saddle, Conical, Cylinder, TUBULAR, and Elliptic, from 24s. each. Improved Boilers and Iron Stands to use without brickwork, 56s. each. Valves from 10s. 6d. each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Castings of every description in stock, at

Mr. LYNCH WHITE'S Iron Wharf, Upper Ground Street, Blackfriars Bridge, London, S. Price List on application.

BENJAMIN EDGINGTON'S RICK CLOTHS New and Second Hand.

BENJAMIN EDGINGTON'S MARQUEES and TENTS.

BENJAMIN EDGINGTON'S FLAGS and BANNERS NATIONS.

BENJAMIN EDGINGTON'S ILLUSTRATED CATALOGUE free by post.

BENJAMIN EDGINGTON'S only Establishment, 2, Duke London Bridge, S.E.

HOTHOUSES FOR THE MILLION.

AWARDED A PRIZE MEDAL, 1862.

ON THE PRINCIPLE INVENTED AND PATENTED BY

SIR JOSEPH PAXTON, M.P.

COMBINING SIMPLICITY, CHEAPNESS, AND DURABILITY.

BEING CAPABLE OF FULFILLING IN THE MOST PERFECT MANNER ALL THE REQUIREMENTS OF HORTICULTURE.

"We do not know in what other way so much interesting amusement, pleasant exercise, and luxurious profit can be obtained as Hothouses for the Million' are calculated to afford."—*Bell's Weekly Messenger*, August 23, 1862.

"Nothing can be more easy than to build them, nothing more simple than to remove them."—*Daily News*, May 22, 1862.

The Cash Prices of LEAN-TO HOUSES, with Water-troughs, Doors and Ends complete, are as follows:—

Ft. In.	8 ft. Lights.	10 ft. Lights	Ft. In.	12 ft. Lights.	14 ft. Lights.	16 ft. Lights.
20 7 in length	£12 0 0	£16 0 0	20 11 in length	£21 18 0	£28 10 0	£34 [illegible]
31 3 in length	16 10 0	21 2 6	31 9 in length	29 6 0	37 12 0	45 [illegible]
41 11 in length	20 18 0	26 18 6	42 7 in length	36 16 0	46 14 0	57 [illegible]
63 3 in length	30 6 0	33 10 0	64 3 in length	51 14 0	64 18 0	80 [illegible]
84 7 in length	39 6 0	49 11 6	85 11 in length	66 12 0	83 2 0	103 [illegible]
105 11 in length	48 17 6	60 12 6	107 7 in length	81 10 0	101 10 0	126 [illegible]

SPAN-ROOF HOUSES at double the above prices for each length of house.

Circulars, with Lists of Prices and Cards to view houses in operation in the neighbourhood of London, and Estimates for Heating and Erection complete, can be had on application to

SAMUEL HEREMAN and J. MORTON, AGENTS, 7, PALL MALL EAST, LONDON, S.W.

Manufactured in London; Newton in Cartmel, Lancashire; Gloucester, Coventry, Aberdeen and Paisley.

A HANDBOOK of VINE and FRUIT TREE CULTIVATION, as adapted to the above Patent Hothouses, may be had of Mr. HEREMAN. Second Edition, price 1s.; post free, 1s. 1d.

"The instructions given for the Cultivation of the Vine and other Crops are essentially practical."—*Cottage Gardener*, Oct. 6, 1862.

GRAY'S OVAL TUBULAR BOILER.

INTERNATIONAL EXHIBITION, CLASS IX., No. 2119.

Mr. GRAY begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his

NEW OVAL TUBULAR BOILER,

acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in Gardeners' Chronicle *of International Exhibition, May 24, page 476.*

The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. GRAY'S variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; as this being so, the change, though a slight one, is no doubt an improvement."

They are made of all sizes, which, with prices, may be had on application.

JAMES GRAY, HORTICULTURAL WORKS,
DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.

PORTABLE HOT-WATER APPARATUS,

WITH TRUSS' PATENT JOINTS FOR HEATING CONSERVATORIES, HOTHOUSES, &c.

T. S. TRUSS

Begs to offer complete HOT-WATER APPARATUS for GREENHOUSES (consisting of 4-inch Pipes and Joints, Saddle Boiler, Fire Doors, Bars, Soot Doors, Damper, Supply Cistern, Feed and Air Pipes, Pipe Stands, &c., of the best quality), delivered to any Railway Station in England, and to erect the same within 25 miles of London, at the following prices:—

4-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection.
16 feet by 8 feet	£8 10 0	£2 0 0	30 feet by 12 feet	£11 15 0	£2 10 0
20 feet by 10 feet	9 0 0	2 0 0	40 feet by 15 feet	15 0 0	2 15 0
25 feet by 12 feet	10 5 0	2 5 0	50 feet by 15 feet	18 0 0	3 0 0

Erection beyond 25 miles of London, Railway Fare for one Man charged extra.

By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints.

Estimates and Plans forwarded on application to

T. S. TRUSS, C.E., 53, GRACECHURCH STREET, LONDON, E.C.

SHAW'S TIFFANY.
For samples and prices apply to
J. Shaw & Co., 29, Oxford Street, Manchester.

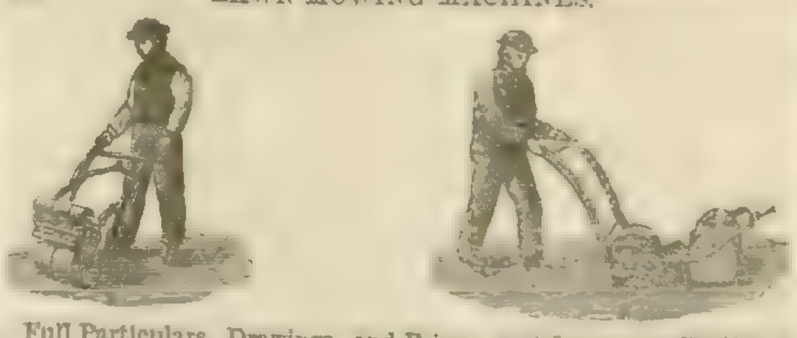
CLEARANCE SALE of GARDEN NETTING.—
1 yard in length, usual width, for 1½*d.*, quantities on lower terms.
SHEEP NETTING, usual depth, 25*s.* per 100 yards.
All kinds of BIRD, HARE, RABBIT, and FISHING NETS.
G. & D. Hurn, Manufacturers, 13, Dove Street, Norwich, Norfolk.
Established 1812.

JAMES PHILLIPS AND CO.,
190, Bishopsgate Street Without,
Beg to hand their PRICES of GLASS.
PRESERVE JARS.

	Without Lids	With Lids.
Jars of diameter	0*s.* 4½*d.* each	0*s.* 6½*d.* each
4 " "	0 6 "	0 9 "
5 " "	0 8 "	0 11 "
6 " "	0 10 "	1 2 "
7 " "	1 0 "	1 4 "
8 " "	1 4 "	1 8 "
9 " "	1 8 "	2 2 "
10 " "	2 0 "	2 8 "

LACTOMETERS, for Testing the Quality of Milk.
Four Tubes .. . 4*s.* 6*d.* | Six Tubes .. .. 6*s.* 6*d.*
With Stands complete.
WASP TRAPS, 3*s.* 6*d.* per dozen.
London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE
LINSEED OIL, Genuine WHITE LEAD, Carson's PAINTS, PAINTS of various colours ground ready for use.
190, Bishopsgate Street Without, London, E.C.

SHAW'S PATENT FLEXIBLE SELF-ADJUSTING LAWN MOWING MACHINES.



Full Particulars, Drawings, and Prices, post free on application to the Patentee and Manufacturer,
John Shaw, Junction Works, New Wortley, Leeds.

MOULE'S PATENT EARTH CLOSETS
supersede Water Closets in every way, viz.:—
No Unwholesome Cesspools.
No Bad Smells.
No Water Pipes to get out of order.
The Best Night Commodes ever known for Sick Rooms.
The Apparatus (price 15*s.* and 30*s.*) may be applied to any Closet at trifling cost, and is self-acting.
By its use a valuable Manure is saved, and Fertility to the Soil ensured.
Earth is recommended by the Privy Council, in their report on Cholera, as a deodoriser and disinfectant.
Extract from Letter received from the Secretary of the National Rifle Association.
"I am further directed to state that they (the Closets) proved of the greatest use, and were found to act admirably."
White & Co., 29, Bedford Street, Strand, London, W.C.

By Royal Letters Patent.
WELLS' PORTABLE FOLDING GROUND VINERY,
for Growing and Ripening Grapes without artificial heat.
Awarded a SILVER MEDAL at the International Exposition of Horticulture held at Nice, April 1864.
Illustrated Descriptive Circulars on Manufacture post free of
S. J. Edwards, 24, Bishopsgate Street Within, E.C.

JAS. SMITH offers for SALE Two small LEAN-TO GREENHOUSES, and a quantity of LIT and other LIGHTS, Glazed and Painted, fit for use, from 5*s.* 6*d.* each. GARDEN FRAMES of all sizes, ready for sale, from 1*s.* 6*d.* each. 2-inch LIGHTS, Glazed and Painted, 8*s.* per foot. Unglazed, at 4½*d.* per foot. GREENHOUSES, erected complete, at 1*s.* 1*d.* per foot. Orders attended to personally. Apply to
James Smith, Hothouse Builder, 205, King Street, Hammersmith.

Caution to Gardeners.—When you ask for
SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark Saynor, and the corporate mark Obtain Warranted, without which none are genuine.
S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine article, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by sellers and makers.
S. & C.'s Pruning and Budding Knives are the best and the cheapest in the market.
Pinion Works, Sheffield. Established upwards of 125 years.

Improvements in Parks, Gardens, Plantations, &c.
MR. NEWTON, 30, Eastbourne Terrace, W., Author of "Picturesque Gardening," executes such works, and, having just visited the best landscape grounds in France, Switzerland, Italy, Austria, &c., he can introduce new styles with economy. Reference even to works completed in several parts of the United Kingdom.

JOHN WARNER & SONS, London, Manufacturers.

J. WARNER AND SONS
Have much improved the construction of their
GARDEN ENGINES
in some important particulars for this Season.

They may be obtained of the Trade generally throughout the Kingdom at the following prices:—

No. 547. WARNER'S best ENGINES, in Wood Tubs, and fitted with Warner's Registered Spreaders—

24 Gallons,	£6	10	0
14 "	5	10	0

No. 547A. WARNER'S strong ENGINES, in Galvanised Iron Tubs, well painted—

10 Gallons	£2	19	0
16 "	3	14	0
24 "	4	19	0
28 "	5	10	0

No. 679½. WARNER'S WATER BARROWS, thoroughly Galvanised and well painted—

20 Gallons	£2	2	0
30 "	2	13	0
38 "	3	17	0
50 "	5	12	0

The 50-Gallon Barrow is made extra strong throughout, and fitted with handle for two men.

No. 568½, AMERICAN ENGINE, is now well known and appreciated. It throws a continuous stream, and is complete in itself. £2 2*s.*

SYRINGES in great variety, from 7*s.* 6*d.* to 18*s.* 6*d.*

The DISC SYRINGE, No. 557A, will recommend itself by the ease with which it is filled, and non-liability to get out of order. Price 9*s.*

WARNER'S AQUAJECT
Is this season first introduced to the notice of horticulturists as possessing the following advantages:—It is simple in construction, portable, and easily worked. It throws a continuous stream, and is low in price.

The Aquaject, 30s.

The small AQUAJECT is the most perfect form of Syringe yet introduced. It throws a continuous stream, with very slight movement, and with it blight, &c., is readily washed from the under side of foliage. 18*s.*

No. 35. WARNER'S IRON PUMPS for Wells not exceeding 25 feet in depth — 2½-in., 28*s.* 6*d.*; 3-in., 41*s.*; 3½-in., 46*s.*; short barrel do., 21*s.*

No. 36. IRON FORCE PUMPS for raising water above their level, or watering yards, gardens, &c., through hose—2½-in., 59*s.*; 3-in., 65*s.*; 3½-in., 77*s.*; 4-in., 89*s.*

No. 36½. FORCE PUMP on BARROW, recommended for its great portability and simplicity of construction. £5 10*s.*

No. 42. WARNER'S PORTABLE PUMPS on Folding Legs, are of a superior construction.

Price 55*s.*; Rubber Suction, 2*s.* 6*d.* per ft.

No. 597A. BRANCH PIPES with Cocks and Roses — ½-in., 3*s.* 6*d.*; ⅝-in., 5*s.*; ¾-in., 6*s.*

No. 599. TAPER BRANCH PIPES—½-in., 4*s.* 9*d.*; ⅝-in., 5*s.* 3*d.*; ¾-in., 6*s.*; 1-in., 7*s.*

RUBBER HOSE in all sizes.

FOUNTAIN JETS in great variety, from 8*s.* to 25*s.*

DESCRIPTIVE PRICE LISTS forwarded on application.

Norwood Pottery, Surrey.—Established 1819.

R. H. MARSHALL, Manufacturer of GARDEN POTS of superior quality. The clay being of a porous nature causes the roots and fibres to grow quickly; it has been proved that plants will thrive as well again as in the hard close-grained pots now brought into the London market. Price List on application.

To Florists and Nurserymen.

GARDEN POTS, supplied in large quantities.—Discount allowed for orders given at the present time.

H. Parry's Potteries, and Garden Border Edging and Drain-pipe Manufactory, Copperas Lane, Deptford, Kent, S.E. Established 1701.

REIGATE SILVER SAND.—Good quality, 7*s.* per ton Cash, delivered loose into the Trucks at the Reigate Station. Best quality PEAT, LOAM, SPHAGNUM, ROCK, SANDSTONE, &c., on Sale.

W. Short, Sand and Peat Depôt, Reigate, Surrey.

COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 2*s.* per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the Patent Cocoa Fibre Company, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. Barsham & Co.

Barsham's BRUSHES and MATS are sold in every town.

Caution.—Every Brush is stamped, J. Barsham's Patent.

Red Spider — Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes, 1*s.* 3*s.*, and 10*s.* 6*d.* each.

Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited).

Manures and Feeding Stuffs.

RAYNBIRD, CALDECOTT, AND BAWTREE. Address, 89, Seed Market, Mark Lane; or Basingstoke. Samples and prices on application.

THE LONDON MANURE COMPANY (Established 1840), Have now ready for delivery WHEAT MANURE, for Autumn Sowing. DISSOLVED BONES, for Dressing Pasture Lands. SUPERPHOSPHATES of LIME, &c. Genuine PERUVIAN GUANO and NITRATE of SODA, ex Dock Warehouse, SULPHATE of AMMONIA, FISHERY SALT, &c. Offices, 116, Fenchurch Street, E.C. Edward Purser, Secretary.

LAWES'S MANURES.—The Manures manufactured by J. B. Lawes for the present Season of 1865 are now ready or delivery at his Factories, at the following prices:—

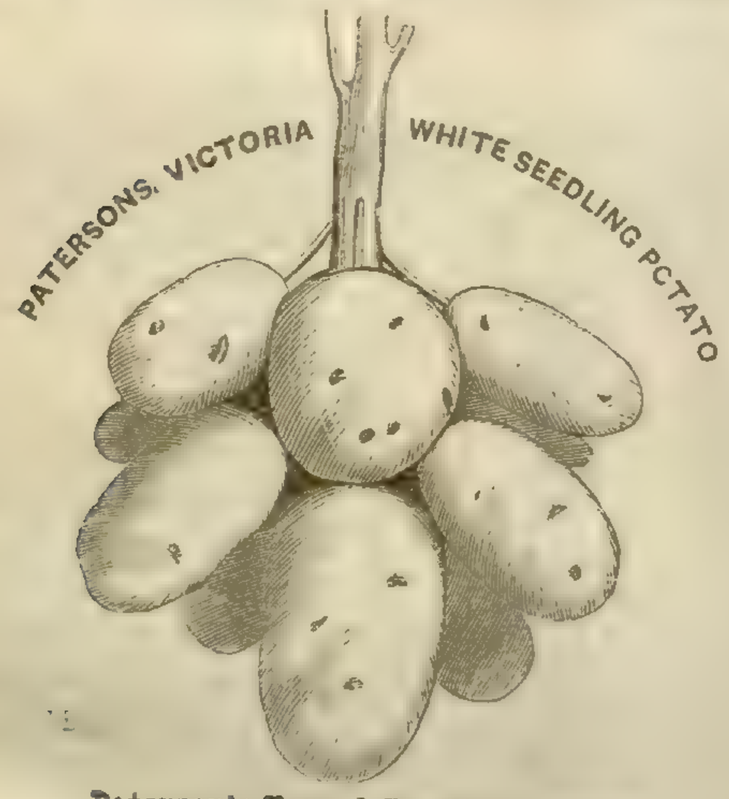
LAWES'S PATENT TURNIP MANURE, and BONE SUPERPHOSPHATE of LIME, £6 6*s.* per ton.
LAWES'S SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES, £5 5*s.* per ton.
LAWES'S WHEAT, BARLEY, GRASS, and MANGEL MANURES, £8 per ton.
CONCENTRATED CORN and GRASS MANURE, £12 per ton.

These Manures can be obtained of Mr. Lawes, or through his appointed Agents, in all parts of the United Kingdom, at prices varying according to cost of carriage.

Genuine PERUVIAN GUANO direct from the Importers.

NITRATE of SODA, SULPHATE of AMMONIA, and other Chemical Manures. AMERICAN and other CAKES at market prices.

Address John Bennet Lawes, 1, Adelaide Place, London Bridge, E.C.; and 22, Eden Quay, Dublin.



Paterson's Famed Seedling Potatos.

Important to Agriculturists visiting Scotland.

WM. PATERSON AND SON, 1, Union Street, Dundee, solicit public inspection of their SEEDLING FIELDS on the undermentioned farms (in the vicinity of Dundee), where their new varieties of POTATOS are to be seen under extensive Field Culture, growing alongside, and under the same treatment as the best old varieties, their vast superiority over which in every respect is expressed by all who visit them.

Their Senior having spent more than 40 years in the careful culture and improvement of the Potato plant, has succeeded in raising from the Seed (or Apple) a new class of Potato, which for strength of constitution, vigorous growth, insensibility to disease, crop and quality, stamp them a race greatly superior to any since the fatal blight of 1846.

W. P. & S. have previously been unable to meet the extraordinary demand they have had for their Seedlings, owing to the limited stock, but this season they are able to supply the most extensive growers with their best varieties, and at greatly reduced rates.

For PRICE LISTS or any other information apply to W. P. & S. direct, Dundee.—August, 1865.

List of Farms:—

Balmydown	Burnmouth
Balkemmock	Mains of Klinnaird
Dronly	Gowriehill
Logie	Hatton of Newtyle
Middle Craigie	Scotston of Laurencekirk.

To the Lovers of Fine Fruit.

THE LADY.—It is 10 years since (as an Amateur) I introduced to the Public my Seedling Strawberry Sir Harry, which is now declared to be the most valuable variety at the present time in England, for in a leading article in the *Gardeners' Chronicle* of the 24th June last, alluding to the great failure of the Strawberry crop this year, it is stated that near Isleworth and Brentford, as well as the extensive tracts of land which once belonged to the Monastery of Syon, the failure is complete, and the only kind of Strawberry that bore a fine and abundant crop was the Sir Harry, "the name of which will become memorable." Having for many years past turned my attention to the raising of Seedling Strawberries, of which I have yearly produced some hundreds, I feel convinced that the variety now being introduced will prove itself to be the finest one I have ever raised. Many First Prizes have been already awarded to it at Horticultural Exhibitions for both forced and other fruit.

The Lady ripens about the time of the British Queen, and continues fruiting a long time; is a great cropper, bearing a large handsome fruit of a salmon colour, tinged with crimson, and ripening to the very end; the seeds are small and few, the flesh is very juicy, and melts in the mouth, the flavour is between a Pine and a Melon, and is most delicious, with the highest perfume I have ever met with. The entire of the crop is of large size, no useless fruit being produced, and it is as good a forcer as the Sir Harry.—Yours, &c.,

Richard Underhill, Sir Harry's Road, Edgbaston, Birmingham.

Plants are now ready to be sent out (in lots of not less than 20).

All applications must be accompanied by a Post Office Order on Birmingham, Postage Stamps, or Cash, to receive attention.

Prices of The Lady.

100 Strawberry Plants, £5	50 Strawberry Plants, £3 6
75 " " £4 5	20 " " £1 10

Plants in Pots (not less than 10) at 2*s.* each, package included.

The above Scale of prices will be slightly changed in August, 1866.

Mr. Underhill's Treatise on the Cultivation of Strawberries may be had through the post, price 1*s.*

Address:—Mr. Richard Underhill, Sir Harry's Road, Edgbaston, Birmingham.

Testimonials.

"The Cedars, Castle Bromwich, near Birmingham, July 3, 1865.

"Dear Sir,—I am sorry I cannot accept your invitation to view your Strawberries on Wednesday next, having to attend at Regent's Park on that day; I thank you for the basket of your seedling The Lady, which is without doubt an excellent variety; the flavour is delicate and luscious, and quite distinct from any Strawberry I am acquainted with; the perfume is somewhat extraordinary, I look upon it as a decided acquisition. With best respects.—I am, dear Sir, yours very truly, "Chas. Jas. Perry.

"Richard Underhill, Esq."

"Mona Cottage, Edgbaston, July 27, 1865.

"Dear Sir,—I do not know when I was better pleased than with a view of the beds of your Seedling Strawberry The Lady, the colour of the fruit was so light and lively, and the crop so large; as to the flavour it was most delicious, and exceeded any Melon I ever tasted, and reminded me much of the Pine-apple. When your plants are ready please to let me know, for I must have some.—I remain, dear Sir, yours truly, "Thos. Burbidge.

"R. Underhill, Esq."

For Present Sowing.—Trifolium incarnatum, Italian Crimson Clover.

SUTTON AND SONS can now supply NEW SEED of the above of fine quality. The price is 4*d.* per lb., or cheaper by the cwt.

The quantity to be sown per acre is 28 lbs. if alone, or if with Italian Rye-grass, 8 lbs. is sufficient.

Also MUSTARD and RAPE, new seed, at low prices, which may be had on application.

Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

New Early Turnip.

SUTTON'S SHORT-TOP SIX-WEEKS TURNIP, for Sowing in August.

This excellent Turnip, certainly the quickest in cultivation, if sown in the month of August, will be ready for Feeding off in October. Price 1*s.* per lb.; or cheaper by the bushel, Carriage free.

Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

To the Seed Trade.

THE NEW INVINCIBLE SCARLET SWEET PEA.—Seed from the New Crop has now been saved, and can be supplied for Autumn Sowing.

This invaluable Pea is unquestionably one of the most important novelties among annuals of late years introduced. A First-class Certificate was presented by the Council of the Royal Horticultural Society on July 11 last, and it is described in the *Gardeners' Chronicle* as "a very fragrant and high-coloured Pea." It has been this season growing in the grounds of the Society for inspection. The flowers are strikingly brilliant, and entirely distinct from any other; the upper petals intense scarlet, with a slight variation in the lower ones, which have a deep crimson tinge. It also possesses the desirable quality of Permanence of Colour. Unlike the common Scarlet, whose colour after first opening grows paler till the flower goes off, the Invincible retains its brilliance throughout, a mass of it consequently presenting an extraordinary contrast when seen near a mass of the common Scarlet.

The New Colour being so much wanted among this popular tribe, a small quantity offered in packets last year was consequently rapidly sold out, and numbers who purchased have spoken of it in very high terms.

Prices to the Trade sent on application. Orders are solicited early, as the Stock may be short, and many orders are already received.

Stephen Brown, Seed Grower, Sudbury, Suffolk.

BROMUS SCHRADERI *versus* SUTTON'S ITALIAN RYE-GRASS.

In Messrs. Sutton's TRIAL GROUNDS, Whitley, near Reading, now growing the above Forage Plants, side by side, under similar treatment. The Bromus has produced [illegible] and the Rye-grass three cuttings, this summer, the [illegible] much the heaviest. In some soils the Bromus Schraderi [illegible] productive as represented by Foreign Correspondents, [illegible] we have cultivated it several seasons, and have [illegible] supply the great demand which has arisen, we have [illegible] mended it for cultivation in preference to the best [illegible] Rye-grass. It will probably be valuable for Game Cover, as [illegible] are as large and as heavy as the finest Oats.

*** Messrs. Sutton's Trial Grounds are not open to the public, but admission is freely afforded to customers, on presentation of their card.

Sutton & Sons, Royal Berkshire Establishment, Reading.

Seeds from Choice Strains.

B. S. WILLIAMS can now supply good Seeds [illegible] following:—

CINERARIA (Weatherill's extra choice strain).—B. S. W. has secured at a great expense the entire stock and right of exclusive sale from Mr. Weatherill, of his, the best strain of Cineraria in existence, and can now offer packets at the following prices, 3*s.*, 6*d.* and 5*s.*

CALCEOLARIA (Herbaceous), from a fine strain, 2*s.* 6*d.* [illegible] per packet.

PRIMULA (Williams' superb strain), the finest fringed [illegible] best coloured flowers in cultivation. Red, White, or Mixed, 2*s.* 6*d.*, 3*s.* 6*d.*, and 5*s.* per packet.

Paradise and Victoria Nurseries, Holloway, London, N.

SEEDS of the BEST QUALITY for PRESENT SOWING. Per packet.

CALCEOLARIA, from the best show flowers .. ..
CINERARIA, from ditto .. ..
PRIMULA SINENSIS FIMBRIATA .. ..
[These are saved by an Amateur, whose collection is unequalled and unrivalled.]
STOCK, INTERMEDIATE, four beautiful varieties .. ..
" EMPEROR or PERPETUAL, 4 splendid varieties ..
CALIFORNIAN ANNUALS, 12 showy varieties .. .. ..
[The whole of the above post free for 10*s.* 6*d.*, or each separately at the price named.]
CABBAGE INCOMPARABLE, EARLY .. .. ..
LETTUCE CHAMPION COS .. ..
ONION, large, MADEIRA .. ..
SPINACH, GIANT WINTER, New .. ..
TURNIP, WHITE, SHORT-TOP WINTER .. .. ..
[These five lots of Vegetable Seeds post free for 2*s.* 6*d.* each kind at the price quoted.]

Apply to Wm. Denyer, Seedsman, &c., 82, Gracechurch Street.

WELLINGTONIA AUREO-VARIEGATA.

Height	11 feet 6 inches.
Circumference of Branches	30 feet
Circumference of Trunk ..	2 feet 4 inches.
This Season's shoot	2 feet 9 inches.

Originated at "The Lough Nurseries," Cork.

This singular Tree is now in great beauty; every shoot [illegible] marked with rich gold, which hangs in tassels, and when [illegible] sunshine is most beautiful and unique.

The Variegation has been constant since the Tree was one [illegible]

It may be seen at the above address until the end of October, [illegible] usual time for stripping the cuttings.

Richard Hartland, The Lough Nurseries, Cork.

NOTICE.

CATALOGUE of HYACINTHS, TULIPS, &c.

B. S. WILLIAMS'

CATALOGUE will be issued next week, and forwarded post free to all previous customers and applicants. It will contain Descriptive Lists of Hyacinths, Tulips, Crocuses, Narcissus, and other Bulbous Roots. A List of New and Rare Plants, including Beck's New Pelargoniums, for the Autumn 1865.

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.

HARDY ORNAMENTAL TREES AND SHRUBS.

OSBORN & SONS

Invite lovers of Ornamental Planting to an inspection of the varied forms and foliage of their unrivalled Collection of the above, to which they have for many years devoted especial attention.

PRICED CATALOGUES, consisting of upwards of 1500 species and varieties, may be had on application.

THE NURSERIES, FULHAM, LONDON, S.W.

BANBURY HORTICULTURAL SOCIETY.—OPEN PRIZES.—1865.

The THIRTEENTH ANNUAL EXHIBITION of this Society is fixed for TUESDAY, August 29, when, in addition to the usual number of Prizes to be competed for by Members, the following are offered, open to all England, on payment of an Entrance Fee of 2s. 6d.

For the best 6 Stove or Greenhouse Plants, either in Flower or Ornamental, of at least four different genera, but not Fuchsias or Annuals, 1st Prize, £3; 2d, £2.

For the best 24 Dahlias, 24 varieties, 1st Prize, £3; 2d, £2.

For the best 18 Hollyhocks, 2 Blooms of each, 1st Prize, £2; 2d, £1.

For the best 12 varieties of Verbenas (5 Trusses in a Bunch), 1st Prize, £1; 2d, 15s.

The Judges may withhold any Prize if the production exhibited be not considered worthy.

Intending Exhibitors must give notice to the Secretary on or before Saturday, August 26.

The Society will, if requested, convey the productions from and to the Railways.

The Bands of H.M.'s 52d Foot, and the 3d Oxfordshire Rifle Volunteers, and the Orpheus Glee Union will perform on the Grounds.

For further particulars apply to E. J. HARTLEY, High Street, Banbury. Secretary.

SHERBORNE FLORICULTURAL and HORTICULTURAL SOCIETY, Sherborne Park, WEDNESDAY, Aug. 30.

Under the patronage of the LORD LIEUTENANT,

Sir H. A. Hoare, Bart., M.P.	H. Gerard Sturt, Esq., M.P.
Sir W. Giles Medlycott, Bart.	Rev. Henry Boucher
H. D. Seymour, Esq., M.P.	Marwood S. Yeatman, Esq.
Hon. W. H. B. Portman, M.P.	John Goodden, Esq.
J. Le Freyer, Esq., M.P.	J. Lee Lee, Esq.

President—G. D. W. DIGBY, Esq.

The above Society have the pleasure to announce that the ANNUAL SHOW of FRUITS, FLOWERS, and VEGETABLES will be held, by the kind permission of G. D. W. Digby, Esq., in the Delightful Grounds of the Old Castle, on the above-named day.

The Pleasure Grounds will be thrown open, and there will be sailing on the Lake.

The celebrated Band of the Royal Marines (Portsmouth Division), in number, have been engaged, and the Band of the 7th Dorset Volunteers will perform throughout the day.

In the evening the Ruins of the Old Castle will be beautifully illuminated by a variety of Coloured Lights.

Refreshments will be provided on the grounds.

The Abbey Church, which has been so splendidly restored, will be open for the inspection of Visitors.

*** Visitors from Salisbury and intermediate Stations will be conveyed at Single Fares (1st and 2d Class) for the Double Journey, by the Trains leaving Salisbury at 10.15 A.M., 1.13 P.M., and 2.25 P.M.; and from Axminster and intermediate Stations (1st and 2d Class) by the Trains leaving Axminster at 11.2 A.M. and 2.16 P.M., and by all Trains during the day from Yeovil, available to return by any Train.

Schedules of Prizes, &c., may be obtained on application to the Honorary Secretary. Admission: at 2 o'clock, 2s.; at 3 o'clock, 1s.

THOMAS ELLIS, Hon. Sec.

The Gardeners' Chronicle.

SATURDAY, AUGUST 19, 1865.

MEETING FOR THE ENSUING WEEK.

TUESDAY, Aug. 22 { Royal Horticultural (Floral and Fruit Committees), at S. Kensington .. 11 A.M.

We have to-day the melancholy duty to record the death of one of the veteran leaders in botanical science. Sir W. J. HOOKER, the estimable Director of the Royal Gardens, died at Kew on the 12th inst. Next week we purpose giving an obituary notice of our departed friend, whose mortal remains now rest near the spot where the labours of the later years of a long and useful life have been so well carried out.

A VERY singular variety of FUCHSIA, raised by Mr. APTED, of Gatton, named The Victory, was exhibited on the 8th of August at the Tuesday meeting of the Horticultural Society. In addition to the eight normal stamens there were four exterior to these, which were greatly elongated, the anthers being converted into purple petals, giving the flowers a very curious appearance, and calling to mind the spoon-shaped staminode of Lopezia.

We have just seen a double Fuchsia in which the petals were replaced by somewhat similar bodies, only the limb instead of being expanded and shaped like a little flag, was tubular, exactly like the cornet-shaped leaves which sometimes occur in Spinach and the common Cabbage. This induced us to look more narrowly to the way in which Fuchsias become double, and we were surprised to find that the additional laminæ on the petals are produced when the buds are already far advanced, and appear at first like little short deformed nail-shaped stamens, the top of which is composed of large prominent cells, along the mass of which a fissure at length takes place, and the limb is variously expanded or contorted. In the cases examined the abortive stamen was always produced on the medial line of the petal, but in most instances several are formed, which are more or less folded over or involve each other.

In Clarkia elegans, a plant belonging to the same natural order, where the additional petals are numerous, we find them mixed with more or less perfect stamens in almost inextricable confusion. Where, however, only two additional petals appear on each normal petal, we have seen such a curious condition that we think it deserves immediate record. Instead of anything like a transformed stamen, we have, at least in the case before us, the new formation assuming the condition of a little flower with four suborbicular petals, and containing four short colourless stamens and a simple style. The structure is only to be seen in unexpanded buds and on careful dissection, but so distinctly that there is not the slightest doubt of the matter. The formation does not seem to the eye to be axillary, but marginal, though it is possible that had the specimens been examined in an earlier stage it might have been traced lower down, and if so we should have something analogous to the proliferous Daisies which are known as Hen-and-Chickens. The subject is well worth a more careful investigation than we have hitherto been able to institute, but it is too interesting to be passed by without notice. *M. J. B.*

OUR correspondent "R. T. C." some time ago sent us a curious variety of DELPHINIUM CONSOLIDA, whose portrait we now present to our readers. It was found in the garden of a country inn, and our friend describes it as "a strange monster, neither fish nor flesh, which can neither flower nor fruit properly, a *curiosa infelicitas*, through complicity incompetent." In truth, the flowers seem to be absent, and their place is supplied by very numerous, narrow, overlapping bracts, of a pale

blue colour. In old-fashioned gardens may occasionally be seen an analogous deviation from the ordinary conformation in what is called the double White Lily; and we have seen a similar state of things in Gentiana Amarella, Sweet Williams, and a few other plants. There is little doubt that this "antheo-phyllomaniacal" Delphinium, if it could be preserved, might be "improved" so as to form a handsome garden plant like the Feather Hyacinth. Was any attempt made to propagate it?

IN a recent Number we had occasion, when alluding to the defective BOTANICAL EDUCATION of London medical students, to allude to the Botanic Garden of the Society of Apothecaries at Chelsea; and we revert to the subject the more readily, as from its humble unobtrusiveness it is less widely known and appreciated than its usefulness demands. Founded in 1673, there is but little to record concerning it of general interest till 1685, when we find from a passage in EVELYN'S Diary for that year, August 7, that the writer paid a visit to Mr. WATTS, the keeper of the "Apothecaries' Garden of simples at Chelsea, where there is a collection of innumerable varieties of that sort particularly, besides many rare annuals, the tree bearing Jesuit's Bark, &c., which had done such wonders in quartan agues. What was very ingenious was the subterranean heat, conveyed by a stove under the conservatory, all vaulted with brick, so as he has the doors and windows open in the hardest frosts, secluding only the snow." About this time were planted four Cedar trees, then about 3 feet in height. Three of these unfortunately have disappeared, one within the last few years, so that one tree alone remains and still forms a striking object from the river, though destined ere long to follow its former companions.

Some years after this period, the superintendence of the garden devolved upon Mr. SAMUEL DOODY, an eminent member of the Society, and well-known in the botanical world for his researches in Cryptogamic botany. The next name of note that we meet with in the annals of the garden is that of RAY'S friend PETIVER, who acted as Demonstrator of Botany to the Society. In 1722 Sir HANS SLOANE made over the premises to the Apothecaries Society, on condition that they should give annually to the Royal Society 50 plants, until the number should amount to 2000. This, as it were, second foundation of the garden, was happily inaugurated by the appointment as gardener of no less a person than PHILIP MILLER. A year or two after this, ISAAC RAND was nominated by the Society as "Præfectus Horti," and it formed part of his duties to demonstrate the structure of plants to the pupils of the Society. JAMES SHERARD, of "Hortus Elthamensis" notoriety, the brother of WILLIAM SHERARD, to whom the Oxford Garden owes so much, appears about this time to have been one of the garden committee. Some years later, in 1761, Mr. HUDSON, the author of the "Flora Anglica," became curator of the garden. He was nearly the first among English botanists to adopt the Linnean system, and thus forms a link between our own RAY and the illustrious Swede. Then followed in the office of demonstrator, WILLIAM CURTIS, the author of the well-known "Flora Londinensis," with its eminently faithful representations, and who was also the originator of the "Botanical Magazine." On his resignation, Mr. WHEELER was appointed in his stead, and superintended the affairs of the garden in conjunction with Mr. FORSYTH, of arboricultural notoriety. In 1814 Mr. W. ANDERSON became the curator of the establishment, at the suggestion of Sir JOSEPH BANKS.

We have lingered thus at length over the memorials of some of the more eminent personages connected with the old Chelsea garden, because there is scarcely a garden in England which possesses such a muster-roll. For its historical associations then, if for no other cause, great interest attaches to it. Its fortunes have been fluctuating in no ordinary degree, depending in the earlier part of its career on the success and popularity of its officers, and on the taste and predilection of individual members of the Society.

Our own personal recollections begin at a time when it had fallen into a state of decadence from the uncertainty that prevailed in the Society's councils as to the fate of the garden. It was even suggested, we believe, that the old garden should be abandoned, and a new one formed in some less crowded locality, at a greater distance from the smoke of London. At the time we speak of, however, the garden still afforded to Dr. LINDLEY the opportunity of giving practical instruction of a kind which could not be given in the several lecture rooms, and which was appreciated by some among his audience—not by the majority, we fear, though most thoroughly by the few. It required some sacrifice on the part of a student, say from the Borough hospitals, to present himself at Chelsea at half-past eight in the morning; nor can it be deemed surprising that, as the session wore on, the numbers attending these prelections gradually declined. But there are among the medical practitioners of this country many who look back to these lectures of Dr. LINDLEY as affording more real practical information on botany than was contained in the more formal courses which they attended in their own hospitals, or was to be found in the books which were within the reach of pupils.

Now, again, within the last year or two, great efforts have been made, and are making, to render this garden useful to students. We know from experience that the latter do appreciate what is being done for them. They find facilities for study there, which are not so readily available elsewhere; and the members of one class at least, visit it, in company with their teacher, in preference to going further a-field or herborising, because they say they learn more at a smaller sacrifice of time and money. In the out-door department there is perhaps little to attract the ordinary observer, but

the collection of medical plants, and the numerous illustrations of the natural orders, render it very serviceable to those for whose use it is more especially intended. A "cool house," facing the north-east, has been lately erected at comparatively little cost, and answers its purpose admirably. The plants are disposed in groups, deprived of the pots which disfigure an ordinary greenhouse; so that, enter it at whatever season you may, there is a freshness, a natural look, which is entirely wanting in ordinary cases. The difference is as great as that between looking at animals cooped up in cages, and the same creatures roaming in their native pastures. In the other houses the collections are of the most interesting character; the number of plants is not so great as to induce bewilderment, but the plants themselves are such as arrest the attention of the student. In two of them pot culture is almost or quite discarded, the plants being grouped over an uneven surface of rockwork and turf, by which means the more characteristic are enabled to assume something of a natural aspect. Another double house is filled with tender medicinal plants, which are kept in pots in the usual way, and though not extensive, the collection is being daily augmented.

We must not omit to mention that additional rooms are in process of construction for the accommodation of the gardeners employed in the establishment; together with a Committee room, destined also to serve as a room for students, where they may study plants in wet weather, and consult diagrams and books in Botany and vegetable Materia Medica; so that it is to be hoped that we shall not hear much longer of pupils mistaking Antirrhinum for Aconite, and not knowing a Poppy Capsule when they see it.

We trust that the Society may receive every encouragement, both from within and without, in this praiseworthy undertaking, and that means may be taken to make the existence of the garden, and the facilities it offers, more widely known among the pupils. *M. T. M.*

—— We observe that the Undercliff Horticultural Society is holding out inducements to the study of Marine Botany, by including in the schedule of its Exhibition, which takes place on the 29th inst., prizes for collections of Seaweeds and Zoophytes. The prizes are offered not only for the Classification of a general British Herbarium, but also for a special Herbarium and for a device both made up of Isle of Wight species. This branch of Natural History, hitherto much neglected, judging from the attraction it has afforded at the previous summer show, promises to become one of the most popular of scientific recreations. Fresh-water botany is also introduced with the view of encouraging the cultivation of aquatic plants, as the best means of more generally introducing ornamental water, cascades, &c., in gardens. Prizes are also offered to cottagers for the greatest improvement in the exterior of their cottages and premises, the object being to induce them to spend their leisure hours in their gardens, and so to keep them away from the pot-house. We wish the Society every success in its endeavours to elevate the condition of the working classes within the range of its influence.

—— Some time since we received a sample of an Aphis Wash prepared at the City Soap Works, with a request that it might be submitted to experimental trial. This having been done, we are enabled to report favourably of the results. Among other things it was applied to various Cannas, Marantas, and Caladiums infested by red spider, and a single application proved effectual for their destruction. It was applied, according to the directions given, namely one part of the wash to eight parts of water, in various ways—by the syringe, by the sponge, and by dipping the plants; but in all cases was equally effectual provided the leaves were completely wetted. The plants after the lapse of an hour or so were syringed with clean water. It claims to be invariably successful in "removing and destroying by one application, all the aphis, red spider, or any other form of blight by which Hops, Roses, fruit trees, Quickset hedges, &c., are so frequently and fatally injured;" and is said to have been also "found perfectly efficacious in removing mildew from Vines." It leaves no deposit on the foliage, which is a recommendation. So far as this small experiment goes, we are inclined to think well of it.

—— We have also made some experimental trials of one or two kinds of Artificial Manures, namely, Goulding's and Standen's, two plants of Coleus being manured according to the directions given with each of these manures, two with guano, while two of the same batch were grown beside them in the same kind of soil, but without manure. In about 10 days the plants, which were all alike at the commencement, presented a decided difference of aspect. The greatest improvement was visible in those treated with Goulding's manure. Those treated with Standen's manure and guano were nearly alike, the former having slightly the advantage. This relative position was maintained during seven weeks, after which the trial was discontinued.

—— A French newspaper gives the following mode of Destroying Ants in gardens, "without having recourse to the apothecary of the town, or the sorcerer of the village." It consists in turning down empty flower pots, one or more, as may be necessary, in the places frequented by the ants; these being attracted by the shelter, make their hills beneath the pots, and one has but to remove each pot and pour boiling water on the mass to destroy them. The pot or pots may be shifted from place to place as long as the presence of the little intruders is manifest, and the process of destruction repeated.

—— A magnificent flower of a Monster Gladiolus, raised by Mr. Standish (the Earl of Shaftesbury), has just been sent to us from Deal by Mr. Dombrain, which is worthy of a few lines. It was forwarded as a double flower, but it is not strictly so, but an abnormal development caused by the confluence of three different blooms, or perhaps of four, for there are ten distinct placentæ in the compressed bisulcate capsule, and four styles, two of which have four stigmas, and two a pair only. The stamens are nine in number, but one is confluent through its whole length with its neighbour, the anther being converted into a petaloid expansion. There are fourteen petals, in two whorls, seven in each and alternate with each other, six apparently on the lower side of the flower being smaller, deeper-coloured, and more elliptic than the remaining eight, which are broadly ovate or obovate, and of a lovely salmon red. The flower is altogether one of the most beautiful we have seen; but we fear that as it arises merely from confluence, the plant next year may produce only normal blooms. It is to be observed, however, that all the flowers of the spike partook more or less of the same character, those on the upper portion of it more so than those of the lower. The blooms moreover are more persistent, though the pollen seems to be quite perfect. *M. J. B.*

—— We glean a few scraps relating to French Horticulture and French markets, from the foreign correspondence of the *Times*. Eight thousand baskets of Mushrooms, states our contemporary, were offered for sale at the last market at Périgueux. Calculating each basket at only 5*d.* the basket, those who brought them to market received above 160*l.* There were buyers from Bordeaux and other towns in the neighbourhood, and the Mushrooms were all sold before three in the afternoon. From the *Memorial de Vaucluse* it appears that there were 65,000 dozen of Melons offered for sale at the last market of Cavaillon. They were all sold at an average of 15*d.* the dozen. The vineyard Peaches in the neighbourhood of Lyons have arrived at maturity, but the fruit is dear at the Lyons market. It may be purchased, however, on reasonable terms from the growers at Vaugneray, Arbresle, and Limonest, where all the vineyards are planted with Peach trees, of which the produce is more than usually abundant this year, and where choice Peaches may be had at from 1*s.* to 1*s.* 6*d.* the hundred. The price of Chasselas Grapes in these markets is set down at from 1*d.* to 1½*d.* the pound weight, and Black Grapes are cheaper. Very fine Pears may be purchased from one halfpenny each; Almonds, 2½*d.* to 3*d.* the hundred; and Plums from 4*d.* to 5*d.* Fruit is at least six times as dear in the Paris markets.

New Plants.

309. Trichopilia Galeottiana, *A. Rich. Ann. Sc. Naturelles*, 1845, p. 26! tab. ined. 31! (Trichopilia picta, *C. Lemaire, Ill. Hort.* vi. Misc. 86, pl. 225!

Sepalis petalisque cuneato-oblongo-ligulatis acutis, labello a basi cuneata latissime dilatato convolute quadrilobo, lobis lateralibus medianis obtusangulis, lobis anticis obtusatis sinu acuto separatis.

Pseudobulbus ligulatus anceps folio cuneato oblongo acuto. Vaginæ baseos punctulatæ. Pedunculi uniflori. Bracteæ tenue scariosæ oblongæ subacutæ punctulatæ pedicellum æquantes. Ovarium obtuse trigono-teres, prasiato-candidum. Perigonium viridi-sulphureum, hinc per lineam mediam pallidissime cinnamomeum, oblique insertum. Sepala cuneato-lanceolata acuta. Petala sublatiora. Labellum album, columnæ basi adnatum cuneatum dilatatum trilobum, lobi laterales obtusanguli, lobus medius obreniformis, intense flavus, hinc purpureo pictus maculis vittisque quibusdam. Columna clavata, sursum bene incrassata, stigmate prope horizontali; ala ligulata fimbriata postica, alæ laterales humillime serrulatæ.

The typical specimen in our herbarium (which contains Galeotti's types of Orchids) was collected near Teotaleingo, at Chinantla, in Mexico, on Oaks, at an elevation of 3000 ft., No. 5105. We possess also the single impression of his inedited plates, as it would appear. We know that these plates were sold after A. Richards's death by a coppersmith, and most probably they are now doing service under a transmuted form, in some modest household. It was M. Verschaffelt who introduced the living plant. The flowers are not the most beautiful to be found in the family, but they are interesting. The five spreading parts of the perianth are nearly lanceolate, acute, yellowish green, and brown along the middle line. The well expanded labellum is whitish, with some purple streaks and dots in the centre. Neither Galeotti's wild flower, nor a fresh flower grown under Mr. Stone's care in Mr. Day's garden, reach the expansion of the flowers of the plate in the *Illustration*, nor were the colours so warm as they are there represented.

310. Trichopilia Turialvæ, *Rchb. fil.*, in *Otto Hanst. Gartenz.* xix. 1863, p. 11.

Sepalis petalisque cuneato-lineari-ligulatis acuminatis, labello cuneato flabellato trilobo, lobis lateralibus obtusis dilatatis, lobo medio reniformi bilobo angusti n, obtusis nullis, labelli ungue cum columna basi connato, antrorsum cucullo bene fimbriato, lobis lateralibus paulo brevioribus, fovea basin versus angustiori, basi retusa, anthera cum humili loculis breviori.

A species in the way of Trichopilia albida Warsc. fil., oicophylax Rchb. fil., and maculata Rchb. fil., but one which can boast much beauty. The erect fimbriated membrane surrounding the anther reminds one of an old-fashioned stiff erect lady's collar. The flower is yellowish-white, the lip deeper yellow. It was discovered by Mr. Wendland, the son (or rather the grandson, since he is already the third of the Wendlands), near Volcano Turialva in Central America. Later it was also observed by a traveller named Sell, who could not tell much.—*H. G. Rchb. fil.*

M. L'HÉRAULT'S MODE OF CULTIVATING ASPARAGUS.

(*Continued from* p. 723.)

Second Year.—In March or April begin by supplying the plants which have failed in the preceding year, selecting vigorous plants a year old, and setting them in the same manner as recommended for the first year. Props are to be placed at the foot of each plant, always at an angle of 45°.

In the beginning of April a first dressing is to be made on the shelving beds and on the grounds; it will be well to perform this operation the day after a sprinkling of rain, in order the more easily to break the clods. The dressings must be frequently renewed during the whole season, so as to free the asparagus plantation from all weeds, and keep it in a perfect state of cleanliness. It is unnecessary to repeat here the precautions to be taken in order to avoid bruising the Asparagus with the spade, or to secure the destruction of insects.

As soon as the Asparagus stems become free, fasten them to the props, in order to protect them against the wind, which might break them.

In the month of October the dry stalks are to be cut off at 8 inches above the ground; the shelving beds are to be turned up, always lightly hollowing out the trenches. The manure prepared is to be spread on the shelving beds, which are then to be dug up. The props having become useless, are to be taken away. Lastly, the laying bare of the plants is to be done by taking away the earth, as already directed, up to the surface of the manure. The earth must be mellowed with the hands, and covered at once over the plants, to the thickness of a couple of inches, always in the shape of a small hillock.

Third Year.—In the middle of the month of March, during fine weather, small knolls, from 6 to 8 inches high, are to be made over each plant, taking nevertheless as a basis the comparative strength of the crowns, more or less large, or of a more or less determined development; those which may be too feeble, or have served the preceding year to supply the bad ones, or those which had failed, are to be covered over with a hillock of only 4 inches high, and should then be left to themselves.

From the other plants, three, or at most four Asparagus heads may be gathered; but they are not to be cut off with an Asparagus-knife, but removed with the fingers. However, there is a particular sort of knife, square shaped at the end, and having teeth on one side, forming a saw, which will be useful to take away the earth about the stalk, and will make it easy for the fingers to reach the subterranean stock, which care must be taken not to injure.

Asparagus is fit to be cut off when it is about an inch and a half above the surface of the ground, and when it is red, rosy, or violet.

With regard to the gathering, one finger must be put behind the Asparagus stem at its base, and by bending it, it will easily come off the stock. In this manner no injury to its neighbours, which may easily happen with an Asparagus-knife, will be avoided; and there will not be left any wounded ends, from which the sap would flow and spread around, occasioning rapid corruption. Care should be taken to close up the hole made for the gathering of the Asparagus, and the knoll is at once to be formed anew.

In the month of April, the props are to be again placed, and the stems fastened to them in due time. The dressings must be as frequent this year as during the preceding year. After having, in fine weather, done all that is necessary, in the month of October, the dry stalks are to be cut off about 10 inches above the ground, and the dead rubbish thrown out of the Asparagus plantation. The shelving beds are to be turned up, and the trenches again appropriated. A plentiful dunging is to be made in the following manner. From the whole surface of the trenches, and to a depth of 4 inches, the earth is to be taken away and thrown upon the shelving beds; this earth is to be substituted by a layer of very good manure, which layer is to be of a thickness of about an inch and a half, if night-soil is made use of, or of about 2 inches if it is only common manure. At the same time a portion of the end of the dry stalks is to be

taken away, preserving that nearest to the crown, so as to indicate the exact site of the plants for the fourth year. The object of this operation is to clean the subterranean stocks; it will also give space to the stems which are to shoot forth in the following spring, and will facilitate their growth.

After having spread the manure, the shelving beds must be dug up, and the manure covered with an inch or two of earth; above the very bulbs a small hillock is to be made, over 3 inches thick, reckoning from the subterranean stock. The feeble plants are to be marked out with a small stick, in order to know them again in the spring.

Fourth Year.—About the middle of March, in dry weather, or the day after a sprinkling of rain, knolls of the height of from 10 to 12 inches must be formed over each plant with good mellow earth. The feeble plants, marked with a small stick at the preceding laying bare, are to be covered over with hillocks of a thickness of from 4 to 6 inches only.

While earthing up the Asparagus the ends of the dry stalks are to be taken away. The gathering is to take place from the largest ones during one month at the most. Then they are to be left to run into seed. The most feeble ones are to be spared in order to strengthen them. At the second dressing in the month of May, earth is taken from the shelving beds, in order to cover over, to an extent of a few centimètres, the whole surface of the grounds, so as to shelter the Asparagus plantation from the dryness of the summer. The props, being bigger, are to be 5 feet high. The dressings are always to be frequent, and to be done during fine weather.

In the month of October the stalks of the Asparagus are to be cut off at 14 inches above the ground, and the plantation is to be cleared of the rubbish; manure is to be spread on the shelving beds, which are to be made up from the knolls in the trenches; and are then to be dug up to a depth of 16 inches.

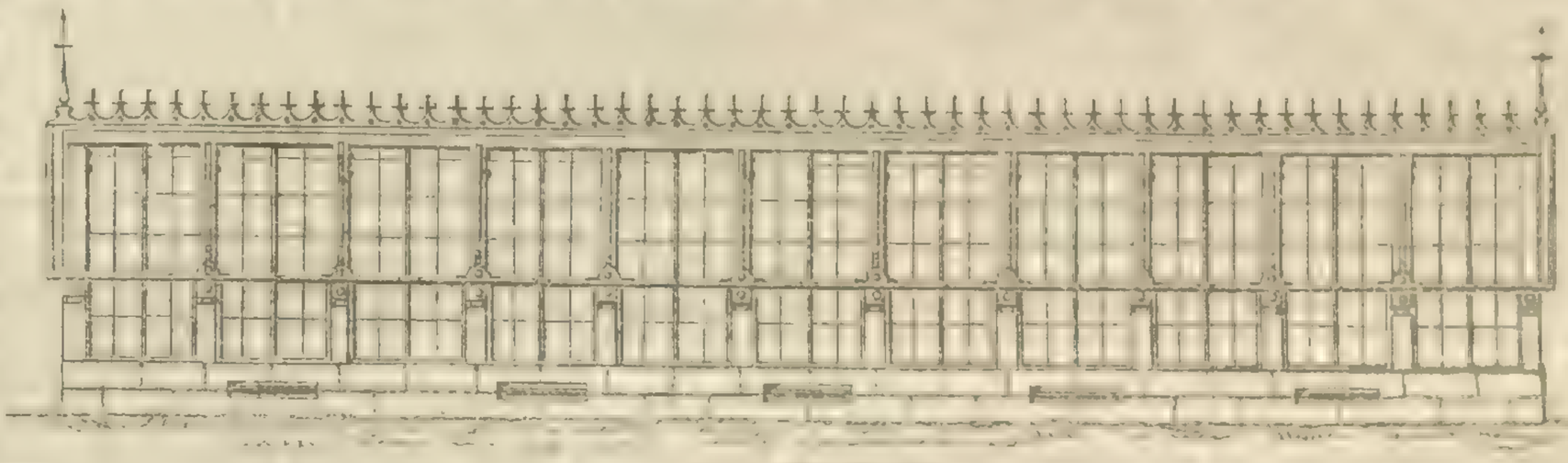
Notwithstanding the manure laid upon the shelving beds, the stalks of the Asparagus are to be laid bare in the manner already described. Upon the crowns are to be put a few handfuls of good manure, which is to be covered over with two inches of good mellow earth; the knolls, which are to be formed over the centre of the plants, are to be over three inches in height. The means already indicated for marking the feeble plants, to designate them for the next year, are to be followed.

(To be continued.)

ORCHIDS AND THEIR CULTIVATION.

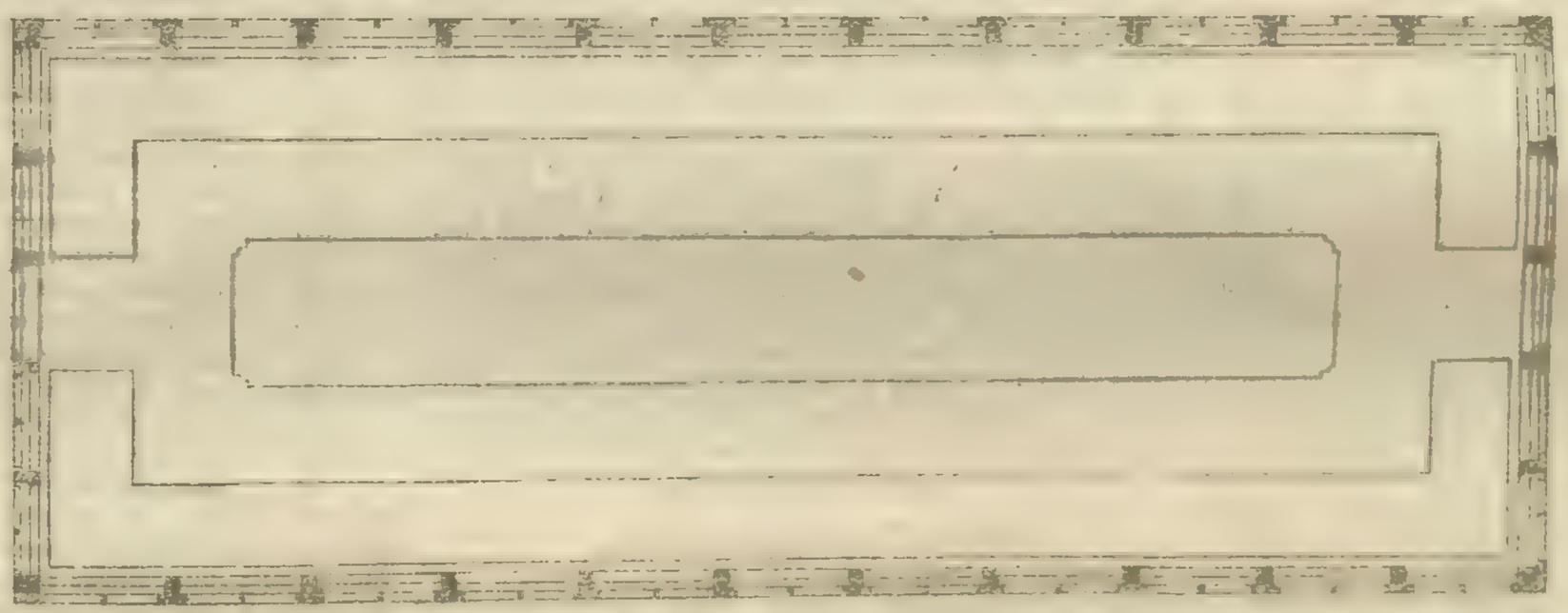
No. VIII.

No. 3, to which allusion has already been made, and of which sketches are appended, is such a house as is in general request for the growth of the East Indian plants, more especially Vandas, Aërides, Dendrobiums, Angræcums, and such like; although for Phalænopsis, Saccolabiums, Cypripediums, and all the dwarfer fraternity of that region, and other tropical climates, such a house as No. 1 will be found far more suitable. Such a style as the engraving represents is, however, in more general use than either of the two former. Mr. Low grows his imported plants, albeit, in such low houses as No. 1, and I don't know where to find small plants in a better state than those under Mr. Bullen's care. Mr. Veitch's new houses are something like No. 3, with the exception of his cool houses, which are under a north aspect, and are narrow, like No. 1, only they are provided with double glass, and Mr. Dominy, whose intelligence and practice I beg to speak of with all respect, seems to be of opinion that the double-glazing principle is good and worthy of adoption. Mr. Day, Mr. Rucker, Mr. Warner, and others have houses something after the same cast, but not quite so ornamental in appearance. What I wish to convey is that Orchids can be cultivated equally well in houses that have at least no more elaborate decoration than this; so that gentlemen who wish it, can associate houses of this kind with the finest æsthetic architectural grandeur, while, on the other hand, they can be constructed at so very reasonable a rate as to come within the province of the less affluent, or those who care little for a decorative exterior, if they get a plain design accompanied with substantiality. No. 3 is a house of what might be called good proportions, being 60 × 22 feet, having a centre table and two side tables, with a path surrounding the centre of 3 feet width. The ground plan is a section on a level with the tables, which in turn are on the same level as the walls, and are expected to be polished ashlar for appearance' sake. Neat cast-iron supports are represented to carry either stone or slate tables of uniform size. The end section is drawn to a little larger scale than either the ground plan or the side elevation with a view of enhancing the effect upon paper. The house being of considerable span, unlike the other two described, which are intended to be simply framed of astragals—say about 2½ × 1½ inches, will require rafters at intervals as indicated in plan, and to these rafters are attached two cross-tie rods to strengthen the building. Between these again come astragals, which can be introduced, leaving spaces for glass to suit the taste of those interested—a very good division, however, being 13½ inches. I would never think of putting 15 oz. glass into such a house, neither will it be necessary to put heavier material than 21 oz., which for general purposes might be aptly termed "horticultural glass." The method of ventilation and the space left for this, differ from that of the illustrations in my former paper. In this case the hood at the top is permanent, so are the principal roof sashes; but the little perpendicular sides under the hood are moveable, leaving thus a vacuum at both sides, which can be nicely manipulated, the gearing being all fitted on the parallel ruler principle. The side or bottom air is admitted in the same way as the others referred to, so that the means of ventilation are ample, and the circulation uniform. The importance of thorough air-circulation cannot be over-estimated, and the only feasible way in which liberal ventilation can be applied without detriment to the growing plants is to have a good command of heating power. In this instance there are six flow and six return pipes, which to a house of these dimensions should be ample even in the most precarious weather. If evaporating troughs should be either cast or fitted on the top of the flow pipes, so much more will the heat be augmented, and the proper balance of moisture in the house kept up and maintained.



No. 3.—Side Elevation.

No. 3.—Section.



No. 3.—Ground Plan.

Such, I presume, is all that is necessary to explain. Although such houses are mainly got up in connection with my Orchid papers, they will be found to be the sort of structures in which any kind of plant will feel quite at home, simply because they are designed to yield an abundance of light: because the principle of the plants' proximity to the glass contributing to health and influencing free blooming properties is recognised; and because a thorough system of heating and ventilation is indicated and enjoined—all indispensable requirements in the routine of successful plant cultivation. *James Anderson, Meadow Bank.*

THE COTTON FIELDS OF EGYPT.

I ARRIVED in Alexandria the first week in February, and after visiting the Cotton market and packing places there, I went to Cairo, and commenced a tour through the best Cotton districts, including the towns of Bentra, Zagazig, Tanta, Mansoorah, Samanod, &c., where there are many ginning factories. I commenced my tour by visiting the well managed Cotton farms of H. H. Halim Pasha, uncle to the present Viceroy. He has above 60 steam-engines, portable or fixed, engaged in pumping water, working centrifugal pumps and steam ploughs; and has no less than 22 steam ploughs at work on his farms. As the system of Cotton cultivation followed on his farm at Shoobra is said to be the best, I will briefly state what it is. First, I must observe that the whole of the cultivation on the Delta is entirely dependent on artificial irrigation; I mean that the irrigation is made available by skilful art carrying out what nature has provided.

It is, I believe, a very general opinion that the whole surface of the land of Egypt is annually submerged by the Nile, and that the land is thereby rendered fruitful without any artificial irrigation; so far is this from being the real state of the case, that I assure you a flooding of the cultivated land by the Nile during its height would be productive of ruin to most of the crops, and it is most carefully guarded against wherever cultivation is systematically carried on in what is called the Delta. It is quite true that in the districts above Cairo, and in those bordering on the desert outside the embankments of the Delta, the amount of cultivation is entirely dependent on the quantity of land covered by the annual inundation; but as soon as the annual floodings have raised the soil, or covered the sands with a sufficient depth of alluvial deposit, embankments are constructed which serve for canals, into which the waters of the Nile are admitted, and which embankments equally protect the land from being flooded at high Nile. All the various branches of the Nile, from Cairo downwards, are most carefully embanked; indeed, wherever there is a doubt about the stability of the banking, a loop embankment is made at the back of the weak place, so as to prevent a flooding of the country, should the weak bank give way.

The Nile begins to rise about the beginning of July, and reaches its highest point about the 10th of August, but these periods vary a few weeks in different parts of the country. The whole of the Delta is dammed, and the water is let into the canals by breaking the banks as required, where flood gates do not exist. When the Nile is sufficiently high, the natives most skilfully take advantage of the opportunity to admit sufficient water to nourish the growing crops, and to fill their canals, out of which, at all other periods of the year, they have to raise the water for irrigating purpose. They do so by various means. The most primitive method is the following, viz.:—two men stand on the bank of the water, and with a flat mat, swung by ropes, between them, lade the water upwards. Next, the long swing pole, balanced with a counter weight. Third, by cattle gear, which works an endless rope, having jars attached to it, which appears the most simple and effective for various depths. Next comes a wheel, which only serves for certain depths, for it has merely water-holding space in its rim. The centrifugal pump is next, and of these there is an immense number now at work in the country. They, however, require steam-power, which is principally supplied by portable engines, but on some large estates there are steam pumps of 50 horse-power, which are capable of supplying water to canals 15 miles distant. These details

will enable you more clearly to understand the farming, to which I will now return. I went into the farm with Halim Pasha's chief engineer, and in the first field which we visited (of about 40 acres) we found four portable steam-engines at work; two working one steam-plough, and the other two a cultivator, one turning five furrows, the other seven. I preferred the cultivator, from the perfect manner in which it grubbed up the old roots of the Cotton plants. The ground was most perfectly broken up to a depth of 12 to 15 inches, and I am told that it is not beneficial to go to a greater depth. I was surprised to find that the four engines and ploughs were entirely worked by Arabs. There was not an European in the field, but there were European engineers at the farm engine establishment, to make repairs if required. The chief engineer told me that he finds the Arab to be an apt learner and intelligent.

We then went to a field in which they were sowing Cotton. The seeds are soaked in water previous to being put into the ground. The ground having been ploughed and harrowed, is thrown into lands with furrows 9 inches deep and about 12 inches wide. The seeds are sown on the sides of the furrows, about 4 inches down, so that they may not be covered with water when the irrigation is commenced. The sowing is done in this fashion:—Five men, walking 4 feet apart, make holes in the furrows 4 feet apart; five children with the moistened seeds in small vessels, follow close to the men, drop about 12 seeds in, and then drag a little soil over the seeds. The lands are made so that the holes are 4 feet apart each way. When the plants are about 8 inches high, they are thinned out, and three plants left in each. In no case did I see only one plant, but in many cases I saw four. The seeds being put on the sides of the trenches prevents the young plants being damaged by the water when irrigated. The water is turned into the trenches every three or four weeks, until the flowers begin to set into bolls, and after each gathering more water is given. Picking is commenced and continued at intervals of about three weeks, when it can be done; but the want of labourers will not now allow this to be done so properly, and the crop is gathered at three or four pickings as a rule throughout the country. As soon as the picking is over the plants are broken up, and the ground cropped with Wheat, Beans, &c. On this estate experiments on a large scale have been made to test the effect of various quantities of irrigation, and the yield of clean cotton per fedan, or acre, was as follows:—from irrigated land, 250 lbs.; from land irrigated two or three times, 400 lbs.; from land irrigated six times, 600 lbs.; from land irrigated and manured with guano, 900 lbs.

Such is the best system of cultivation, but the general system amongst the peasantry is not so perfect; the seeds are sown much nearer, say in rows 3 feet apart, and the plants not more than 6 inches or 8 inches apart The result is that whilst Halim Pasha's plants are 6 feet to 10 feet high, the villagers' plants are only 2½ feet to 5 feet, and where greed has prompted them to plant still more closely, the produce has been even less, and the yield proportionately worse. The village system of picking is the same, but scarceness of labour will not allow them to do it as regularly as it should be done. They usually turn a lot of children into the fields and gather the crops at three times. About January they irrigate the surface of the cotton fields, and sow Beans or Clover, or Barley amongst the Cotton plants, and when those crops are ripe they are gathered, and the Cotton plants broken up. Sometimes they leave the Cotton plants standing for a second year's crop, although it is well known that this is not as productive a system as re-sowing, and the Cotton is inferior. I am sorry to say that the result of my personal observation this season, during my two trips up-country, has convinced me that a very large proportion of last year's Cotton plantations are left standing to produce a second crop this year. In many places I saw the people cleaning carefully the Bean crops from amongst the growing Cotton, and in other places I saw farms where the plants of last year have been cut down and have made a considerable growth this year for the second crop. This is entirely owing to the want of sufficient labourers to cultivate the plant properly, for the peasantry are most intelligent cultivators, and invariably pursue the most productive systems. They have nothing to learn in that way; indeed, our English farmers might learn a good deal from them in the careful cultivation of every available yard of land, and the cleanness of the growing crops, not a weed being to be seen, while the manner in which they protect some of their crops, by putting upright reeds along each row of seeds, to protect the young plants from the winds, is worthy of notice. I have been in fields of 30 or 40 acres, in which more care was taken to protect the rising crops than is taken in the gardens in England.

Before I conclude I must mention a botanical peculiarity of the Cotton plant growth in Egypt. My attention was called to the fact that the wood of the plants, when 10 or 12 months old, has the appearance of two-year-old timber; indeed, so strongly is the second growth indicated in the bark rings, that some American friends, who are Cotton cultivators, were positive that the plants were not of annual growth, and only after a very careful investigation were we satisfied that the appearance arises from a climatic cause, which I believe can be accounted for. Mr. Chapman, the intelligent English gardener of Halim Pasha, at Shoobra, told me incidentally that when the Nile is at its highest, and the heat the greatest, there appears to be a pause or rest in the growth of all kinds of trees for about a month or six weeks, and that when the hot weather is over, in August or September, everything appears to make a fresh start, and trees make shoots afresh as they do in the spring. I think that this will account for older appearances; the plants make their first growth before the hot season, mature their wood during the six weeks' rest, then make the fresh growth and mature it before the winter rest, thus actually making two years' growth in one year. I am not aware that this peculiarity has ever before been noticed, and it may to some extent account for the productive character of the plants. *W. Wanklyn, in Cotton Supply Reporter.*

IN-DOOR CLIMBERS.

Pergularia odoratissima.—This was first introduced to this country in 1784, but it is so seldom met with that I hope the following account of its merits may be the means of placing it in a more favourable position than it now occupies. Many beautiful old-fashioned stove climbers have doubtless been thrown out of cultivation from the change that has latterly taken place in the heating of garden structures. A few years ago tan was the material in general use for supplying bottom-heat to Pine-apples, and large pots plunged in the corners of Pineries for the most part contained such plants as that under notice. In such a position the roots had the chance of passing through the bottom of the pot and running amongst the tan, while the pot still furnished sufficient check to induce the plant to produce a greater profusion of bloom than it otherwise might have done. I do not know that we have gained much by our change in heating such places, except perhaps a little saving of labour, and increased neatness.

In most Pine stoves now-a-days there is hardly plunging material sufficient to cover the pots, and the dry heat underneath prevents the roots from spreading in that direction. It, however, may be said that such places are as well without such plants, which only encourage insects. Nevertheless, there are few houses, even at the present day, without some of these pests, those that are the best managed having, of course, the least; and I maintain that creepers add great interest to such places, particularly as many of them will not grow in cooler places, which is the case with the one under notice. I have tried it in an intermediate house, and coaxed it on in all manner of ways, but, when the cold months come, the shoots commence to damp off, and, by the return of spring, few are left. It is an evergreen twiner, which grows freely when in good health, but like some others it requires time to make a good stem, before it commences to bloom well.

As regards special treatment, when once the plant has covered the space intended for it, all the shoots should be cut close in, similar to the short-pruning of Vines. The flower trusses issue from the axils of the leaf stalks, each shoot producing, according to the vigour of the plant, from three to six trusses, and each truss is composed of from 30 to 40 blooms of a light green colour with a yellow throat. None of the plants of this genus can lay claim to much beauty, but this particular species is perhaps the sweetest climbing plant in cultivation, one truss being sufficient to fill a whole house with its pleasant perfume. Generally it commences to bloom about the end of May, and it continues less or more in beauty during the summer months. It is easily propagated, and even small plants of it will grow well in peat and loam. *J. F.*

Home Correspondence.

Chamæpeuce diacantha and Casabonæ.—Fine and distinct as is the habit of Salvia argentea, the first of these plants will be found to surpass even that in like qualities. It is a Composite plant, quite distinct in aspect from anything else that we cultivate in the order, and which has struck some of our best bedders as being a grand subject for innovation in a bedding arrangement—in the centre of an ordinary bed, and for a bold margin in such noble compositions as those made by Mr. Gibson at Battersea. But that it cannot be had in sufficient numbers, we probably should have this already well exemplified by some of our leading decorative gardeners. There is little reason, however, why it should be so scarce, as some of the continental nurserymen catalogue seed of it—the only ready way in which it can be obtained. Plants 12 months from seed, planted out in rich soil with the bedding plants, soon make symmetrical specimens, from 18 inches to 2 feet in diameter, with leaves shooting straight out, armed thickly with fierce white spines along the margin. These give the plant its peculiar character. Its near relative, C. Casabonæ, is less striking from being more thinly armed with yellowish spines, but it also is a subject very distinct in aspect, and though not so liable to be coveted by the bedder as diacantha is at first sight, yet might be usefully employed where variety is sought. It, like the first mentioned, should be planted out when a year old, and will then make handsome symmetrical specimens nearly as large as its congener. *William Robinson.*

Grape Judging.—At a large town about one hundred miles from London a horticultural show is annually held, and first, second, third, and fourth prizes are awarded for the three best bunches of black Grapes. At a recent show many exhibitors staged fine examples of black Grapes, and among them were two well-known London exhibitors, one of whom showed three bunches of Black Hamburgh, very large, well grown, and as black as sloes; the other showed three bunches of Black Barbarossa, very large, well grown, and with a beautiful colour. It was the opinion of many who saw them that the Black Hamburghs were the best; but when the judges had made their awards, it was found that the Black Barbarossa had been placed first. To the credit of the exhibitors, let it be added, no fault was found, but I have all along felt a strong inclination in favour of the Black Hamburghs, and I should much like to have the opinion of my brother gardeners on the question whether Barbarossas should thus take precedence of Hamburghs. It is not an unimportant question. I may add that the two samples of Grapes were each of the first order, and that I have no personal part in the matter. *J. M. L.*

Heated Soil.—I have just had a large stack of turfy loam drawn home and put together very closely, and I find it is so hot to-day that I can hardly bear my hand on a stick which I had rammed in as far as possible. When it came out it was fearfully hot. The loam was taken from a very old pasture. I am desirous of knowing if this excessive heat will in any way injure the quality of soil for potting purposes. Perhaps some of your correspondents can tell me. *Lennox T. Davis, Hillsborough.* [We should not anticipate any ill result from this fermentation if it soon subsides; it must be owing to the presence of a considerable amount of herbage.]

Vines.—I shall be glad to have the opinion of your correspondents on the following case. I planted a house with young Vines in 1863, and they made very satisfactory progress until about a month ago, when the fruit, then about stoning, suddenly lost its healthy appearance, and has swollen so slowly since that the berries, now beginning to colour, are not nearly their proper size. In all other respects the Vines seem healthy, although I think they are ripening their wood rather too quickly. They are planted inside in a good border, which has been watered two or three times since they were started, giving on each occasion a quantity about equal to a heavy fall of rain of 2 inches over the surface. I feared we might not have given water enough to reach the bottom of the border, but I do not think this is the case, as I have tested its condition by means of the instrument of which the annexed is a representation. I may add that both in making the border as well as in the management of the house I followed as nearly as possible the directions given in Thomson's Treatise on the Vine. I have left eight bunches on each rod, which cannot be too much, as the Vines are strong and have plenty of roots, extending 10 or 12 feet into the border. I am therefore greatly at a loss to account for the unsatisfactory swelling of the fruit. The instrument just alluded to for testing the condition of fruit-tree borders without disturbing the roots, consists of a tube of stout brass about ¾ inch in diameter, with a handle so fixed that it can be turned round, and a loose wooden ramrod extending through its entire length, having a knob at the end. In using this instrument push it down into the border, with the ramrod inside, to the depth you require to test, draw up the ramrod about 2 inches, then screw the tube a little deeper into the border, and draw it gently out, when it will bring up a small portion of soil, which may be pushed out and examined. *A Subscriber.*

Turfed Peach Borders.—Some few weeks ago I sent you an account of a Peach border here, which was sown down with Grass 16 years ago. To-day I have gathered a Peach from one of the trees growing in it measuring 10¾ inches in circumference, and weighing 9¼ ounces. I believe that few such fruit can be obtained from trees whose roots are continually chopped by digging the borders in which they grow. *J. Stevenson, Gr. to the Earl of Durham, Lambton Castle.*

Early Peas.—Messrs. Henderson & Co. (see p. 589) state that Dillistone's Early, Carter's First Crop, and Sutton's Ringleader are identical in every respect; and that Dickson's First and Best and Sangster's No. 1 are likewise identical, coming into bearing about from 7 to 10 days after the foregoing, and moreover that they produce a much better crop than the earlier kinds. This may be characterised as statement the first. Strange to say statement the second, in the form of a report on a trial of early Peas at Chiswick (see p. 702), makes Dickson's First and Best to be identical with Dillistone's Early, Carter's First Crop, and Sutton's Ringleader, and thus some seven days earlier than Messrs. A. Henderson & Co.'s report makes it to be. The Chester Pea somehow baffles correct classification. The one day it is designated a first early, the next it is said to be a second early; at one place it is reported to be a very prolific cropper, at another it receives an indifferent character in this respect. The various

localities of the country will therefore have to decide the question of superiority for themselves. Throughout the land each Pea will have its warm adherents, and the firms who have fathered them need have no fears for their sale. Ringleader and First Crop (which should be re-named, Messrs. Sutton & Sons having admitted their identity), Dillistone's Early, and Dickson's First and Best, are the candidates that appeal for public support. I predict that the two first will soon become absorbed the one into the other. I do think that Dickson's has claims to be an early variety superior to the other two, but unless it is very carefully selected at short intervals, it will no doubt also retrograde into an alliance with the others. *Quo.*——It can scarcely be expected that all should agree as to the merits of the Peas sent out last spring, but I am somewhat surprised to find it stated in one report that Dickson's First and Best is identical with Dillistone's Early, and in another, that it is similar to Sangster's No. 1. I had many opportunities of comparing these three varieties for several seasons previous to the first-named being sent out by Messrs. Dickson, and it is undoubtedly distinct from, and much superior as a cropper to, either of the other two kinds. I have no hesitation in endorsing Mr. Veitch's opinion, that it is—"the best new early Pea sent out this season. There is no doubt that Carter's First Crop and Sutton's Ringleader are the same, and that they require selection, there being many "rogues" amongst them. *John McHattie, Chester.*

Coning of Thujopsis borealis.—I have a very fine plant of this, with a quantity of fruit on it. It is 13 feet in height, 19 feet in circumference, and a perfect pyramid from the ground to the very top. I have also a plant of Wellingtonia, measuring 18 feet in height, 36 feet in circumference, and 3 feet 3 inches round the trunk at a foot from the ground, on which there are several cones. Whether or not the fruit of either plant, however, will come to maturity in this country I am not able to say. *W. Nichol, Gardener, Drinkstone Park, Bury St. Edmunds, Suffolk.*——I have a plant of Thujopsis borealis, 6 feet high, bearing upwards of 50 perfect cones, but on not a single other plant can one be detected. *W. Hopwood, Jersey Gardens, Cheltenham.*

Lilium auratum.—With me one bulb of this Lily has this year produced two stems, each measuring 2¼ inches in circumference at six inches from the surface of the soil, the highest stem measuring 8 feet in length, the other 7 feet 9 inches. The number of leaves is 185, and 20 flowers, on an average 10 and 12 inches in diameter. The variety is one of the finest I have seen. The first and strongest offset I had from this plant has this year produced three flowers, each measuring 13 inches in diameter. *Robert Bullen, Gardener, Bow Bridge, Leicester.*——At p. 722 reference is made to a flower of this Lily in which there were three inner petals, showing a disposition to come double. Last summer I had a plant with a perfectly double flower on it, or rather what some would call hose-in-hose. The bloom was 9 inches in diameter, beautifully ornamented with golden bands, and a little in advance of it was another bloom, as large and as perfect as the other. There was about half-an-inch between the two, the inner bloom having as many petals as the outer flower. I have the plant still, but it is not yet in blossom. I shall be curious to ascertain whether or not the double form is constant. *Thos. Jones, Gardener, Rusholme, Manchester.*

Old Dwarf White Rocket (see p. 676).—This old favourite is, I am happy to inform your correspondent "J. F.," not lost. Some time ago it existed here in large numbers, but it suddenly disappeared all through the neighbourhood, and after diligent search and inquiry I could not find a single plant. Through the medium of your paper, however, I succeeded in obtaining plants from kind friends in Scotland and the West of Ireland. A lady who sent me plants from the latter place informed me that it grew in quantity in her garden. If your correspondent "J. F." will favour me with his address, I shall be happy to send him a plant or two of the true kind. I received from various quarters plants of a French white variety as the true sort, but it grows taller, the bloom is more straggling, and it is not so beautiful as the old variety. *George Wood, Rochford, Essex.*——If "J. F." will forward his address to North Hale, Standish, Lancashire, I shall have much pleasure in sending him a plant of the old White Rocket for which he inquires. *E. S.*

Hepatica.—I am glad to see that this beautiful spring ornament of our gardens has at last begun to attract notice, and I hope that the result may be the introduction of other varieties, though the five old sorts which I believe have been known in our gardens considerably above 100 years, are very pretty, and have continued from their introduction to the present time without variation, viz., double and single red, double and single purple, and single white. I could never obtain any others until recently, except a variety of white with different coloured anthers, a distinction too trifling to be noticeable. I have now added to my collection angulosa, and another. There are several other old acquaintances which have disappeared from our gardens. What, for instance, has become of the double Delphinium grandiflorum, Double Rose Campion, Double white Bachelor's Button, and a host of others? I remember them years ago, but now they are not, or scarcely to be found; I believe, however, if the inquiry were set on foot, many of our missing plants would be found, and ought to be restored to the notice they deserve. *George Wood, Rochford, Essex.*

Large Vine Leaves.—I have sent you a Vine leaf, thinking that its dimensions might be worth recording. It is however not our largest by 2 inches. Last year several leaves exceeded anything we have ever had, but we have unfortunately lost their actual sizes. Each spur carries a large leaf, besides numerous others. The Vines are hard worked and loaded with fruit. *Wm. Greenshields, Culzean Castle, Ayrshire.* [Your leaf, even after so long a journey, measured 17 inches in diameter one way and 16 inches the other—dimensions worthy of association with those recorded at p. 676.]

Willesden Horticultural Society.—I beg to thank you for the kind notice you have given of the late fête at Willesden on the 27th ult.; but I hope I may be allowed to add the name of Mr. W. J. Lucking, whose assistance has been most valuable in promoting the interests of the Society, and the success of this, its first meeting. Mr. Lucking was one of the committee, and from the very first took a very lively interest in the welfare of the Society. *H. Finch.*

Grafting Rhododendrons.—In the early part of July, 1864, I saw some remarks in your columns upon "grafting Rhododendrons." This summer I have been trying my hand upon some, but I fear I have failed. I took the plants out of the ground and potted them the second week in July, grafting them at once, and plunging them in moist bottom-heat. They appeared to be going on all right, and had callused along a portion of the junction, but now they appear to be going brown, and some of the stocks are dead. My bottom-heat has declined, in fact is almost gone, the pit being shallow. I plunged them above where the junction was made; have I plunged them too deep, and so caused them to rot? or what is the cause of my failure? In grafting I merely cut a slice from the scion and stock, and tied them firmly together. *Arborea, Chester.* [The causes of the failure of the Rhododendrons were grafting out of season, and plunging in bottom-heat. Rhododendron stocks may be taken up with balls of soil, and potted and grafted any time from November to February or March, but July is too early, before the wood is sufficiently ripened, and plunging in strong bottom-heat is death to any of the Ericaceæ. Very little bottom-heat, if any, is required; the plants should stand on a level surface. If in the winter months a close frame was placed in a house where the temperature ranges from 60° or 70°, they would do well. The side or wedge graft is simple and the best.]

Foreign Correspondence.

Cinchona Cultivation at Darjeeling.—In his report for the month of March, 1865, Dr. Anderson gives a favourable account of the progress of the plantations. Now that the plants are nearly all in the open air their progress is more dependent on the nature of the weather than when they were growing in conservatories, where the external cold could be counteracted by heated flues, and where the moisture in the atmosphere could be increased or diminished according to their requirements. In the open air the plants are in a much more natural condition, but the change renders it necessary to record the meteorological conditions of the month, in order to show how the growth made, the operations of making cuttings, planting out, &c., and other works performed, have been affected by the weather. The drawing up of rules for the guidance of those growing Cinchona and the deciding of the very important questions of which is the best season for making cuttings, of forming permanent plantations for bark, and above all the time when bark can be most easily removed from the trees and dried, will be influenced by the results of carefully made meteorological observations. The time selected for the latter operation must be that of least growth, and this period will be most favourable should it coincide with the driest and sunniest season of the year. During March the weather has been extremely dry, the sky has been clear and cloudless, and though the sun has been very powerful, raising the thermometer to a mean maximum of nearly 80° at the lowest plantation, yet from the great radiation occurring during the still cloudless nights, the mean minimum temperature has been very low. The natural dryness has also been much increased by the extensive fires that have been raging all round; these have been caused by villagers burning the jungle for cultivation during the approaching rainy season. At the fourth plantation the mean maximum during the month was 74°.68. The mean minimum 53°.55—mean temperature 64°.11. At the fifth and lowest plantation the mean maximum temperature has been 78°.89, the mean minimum 53°.8, and the monthly mean temperature 66°.34. These are not conditions favouring the growth of any plants and certainly not of Cinchonas, which require abundant moisture in the air and an equable temperature. Though the growth has been small, still there is a marked increase on that of February, and the plants are in perfect health and have not suffered in the least degree from the dryness of the air. Four hundred and twenty plants of Cinchona officinalis have been planted out in the bark-yielding plantation, No. 3—3715 feet above the sea. Only 7214 cuttings have been made during the month. The nursery for the distribution of Cinchona had been commenced during the month; and it was expected that at least 1000 plants would be ready for distribution on the 1st July. The condition of the stock plants of C. officinalis in the open air has changed but little, as the atmosphere is extremely dry in consequence of the rapid increase of temperature, and the reckless destruction of all the vegetation around us by the natives who are clearing the land at present for their crops. For the last fortnight all the slopes have been in a continued blaze all around the spur on which the Cinchona cultivation is carried on just now. During the month 7214 cuttings have been made. An unusually small number of these are C. officinalis, as the plants were partially checked by their removal from the frames into the open air, and because it was considered necessary that these stock plants should be allowed to make young and strong wood again before cutting them down for propagation. The permanent planting out of the C. Pahudiana has been deferred on account of the parching dry weather we have had until now. The condition of the plants must be considered excellent, as although growth has been slow they have improved in appearance, and their roots have got well distributed in the ground, so that a luxuriant growth will no doubt commence as soon as the atmosphere becomes moister than it is at present. The total number of plants, cuttings, &c. on the 1st April, 1865, is thus stated:—C. succirubra, 7030; C. Calisaya, 37; C. micrantha, 1294; C. officinalis, including varieties, 23,929; C. Pahudiana, 5092: total, 37,382. The greatest amount of growth during the month was 2¾ inches. This occurred in C. succirubra and C. officinalis, at the two lower plantations, 2500 feet and 1825 feet above the sea respectively.

Notices of Books.

Hardy Ferns: how I Collected and Cultivated them. By Nona Bellairs; with Frontispiece. London: Smith, Elder, & Co. 12mo., pp. 128.

This little book records the experiences of an enthusiastic Fern hunter, and points out in a very attractive and winning way how much pleasure is to be derived both from gathering and cultivating our wild Ferns—for it is to these that its pages are devoted. "We should begin our collection," observes the authoress at the very outset of her task, "from those which grow near our own homes, bringing first one root, then another, finding out to what family they belong, what soil suits them, and their distinctive characters and habits. The cottage garden may always have room for its Fernery; a few plants by the old well, by the wicket gate, will supply subjects for thought and study; helping to turn the child's heart to the love of the pure and beautiful instead of the vile and debasing. We may all help each other in studies of this kind; giving or lending books, dividing a fortunate discovery with less-successful Fern-hunters; in a hundred ways we may one and all help in diffusing the pure and happy thoughts which the study and knowledge of natural objects give."

And then the reader is conducted through various Ferny scenes, and is permitted a glimpse at the old Fern book of early-collecting days, in which the specimens stand labelled with the fond names of a wild imagination — Lastrea dilatata appearing as Dryopteris, unmitigated Filix-mas doing duty as Lastrea cristata, and Oreopteris alone correct. By the advice of a friend a book of patterns—fronds correctly named, was obtained, and then the task of Fern hunting became more easy. Furnished with such a pattern book, a tourist's black bag, two trowels (one of them flat, like a bricklayer's, to pick Ferns out of rock or wall) the writer starts on a Scotch tour; and, puzzled at first how to carry her Ferns about for two or three months in any quantities, she at last hit upon the following plan, which answered completely:—She provided herself with a large tin box with padlock and key, and three or four yards of common brown calico. As the Ferns were found they were wrapped up in bits of calico, with a little earth and drainage at the bottom, sewing them tight like mummies, leaving only the fronds and stalks uncovered. In this way the tin box held large quantities. At the inns the box was merely unlocked, and once in every few days the Ferns sprinkled with water. They were carried in this way for two or three months.

One stage of the Scottish tour, through the classic ground of the Trosachs and Loch Katrine, is so romantic that we cannot resist the temptation to quote a portion of the description:—

"Through the Trosachs—not walking or driving leisurely, stopping here and there to admire now dragging this wheel, now getting down for a lounge up that hill; but dashing, scrambling, tearing along on the outside of a rickety old coach, driven unicorn fashion with a wild-looking 'leader,' having a mad gleam in her eye, called 'Black Bess' by the coachman, who instead of minding his horses, kept quoting Sir Walter Scott, to the intense horror of one of our party, a superb four-in-hand 'whip.'

"Oh! the perils of that drive—the ludicrous mixture of the sublime and ridiculous. Black Bess scorned a whip, and the coachman employed his to illustrate his quotations. 'There, madam, is the rock where Fitz James withstood Roderick Dhu.

His back against a rock he bore,
And firmly placed his foot before.

Hold in, Bess, will you; what's up now?'—'My good

friend,' broke in the whip, 'do let me have the reins. Do pray be careful.'—'Bless you, sir, don't be frightened, Bess is as gentle as a lamb when you let her have her own way. Hold hard, old girl. Now for it!' and like a mad thing, Bess was tearing down a grip, and pulling might and main up a steep ascent. A few more alarming quotations, and we came to Loch Katrine, lying graceful and beaming, with its little sunny isles beneath the shadow of its mountains and its trees.

"A small steamer plies up and down this lovely lake, and you find yourself looking out for landmarks, given you by Scott. The 'beach of pebble bright as snow,' the 'silver strand' are there, it only needs 'fair Ellen's' voice to take the place of the rough music of the paddles.

"Loch Katrine is a graceful preparation for the grander beauty of Loch Lomond. I can hardly fancy a lovelier picture than that which bursts upon you as you near the inn of Inversnaid, Ben after Ben rising in the distance, some brown, some blue, and some with bright patches of green here and there.

"I did not forget the Ferns; I spent hours hunting the hill sides at Inversnaid. Oreopteris grew in abundance, with beautiful Filix-fœmina and other common Ferns. I had made friends on the lake with a gentleman, armed as I was with trowel and bag. He joined us in the walk.

"'What success?' I asked, half hoping he had found some rarity, half fearing lest his booty should exceed my own. He shook his head. I opened my store triumphantly. 'Look here,' I said, 'Is not this a wonderful find?' and I displayed a graceful little Fern. 'This is the Woodsia ilvensis!'

"I saw a twinkle in the 'Fern man's' eye, but he told me gravely my specimen was only a baby Filix-fœmina; and then he added how troublesome baby Ferns always were, and that one could not easily decide on a Fern unless there was fructification. I might hunt for varieties of Filix-mas and fœmina, but he thought I should find nothing else. Then he discoursed of Ferns in general, and of Fern hunters—how he found ladies looking for septentrionale in a wood, for Ceterach in a ditch, and for Asplenium viride on a wall. 'I do,' said I. 'It is a pity to waste time,' he answered. 'Find out the whereabouts before you search. Know what you are likely to find, and then take anything strange you meet with.' And so it came to pass, I only brought away from Inversnaid a few young plants of Oreopteris and a Lycopodium or two; but I took to more diligent readings of Moore, and wished there had been a few simple directions as to the 'how' of finding Ferns."

In this chatty way Miss Bellairs runs through her experiences of Fern gathering; and we cannot but think that many who will be persuaded to read of her pleasant wanderings, will be tempted to follow in her track. They might do worse than set out on a Fern-exploring pilgrimage.

Man, considered Socially and Morally. By George Sparkes, late Madras Civil Service. Pp. 162. 12mo. Longman & Co.

The author, or, as he modestly styles himself, the compiler, of this little book tells us, that he formed the habit of writing down the most noteworthy opinions which he heard or read on social and moral subjects. He evidently has an affection for the writings of Aristotle, Locke, and Butler, and loves to make a quotation from his favourite Cicero, and sometimes from Homer, Virgil, and Tacitus. This is no systematic treatise, but a series of thoughts and opinions which run on from the attributes of God to Pantheism, superintending Providence, prayer, instinct and reason, immortality, civilisation, reason, and the sources of knowledge, and ends with consolations under affliction, old age, and death. The author makes use occasionally of his Indian experience, giving, for instance, the teaching of the Védas, which is in fact what we call Pantheism, the ground on which the Rajpoots defend the practice of infanticide, with remarks on Indian and Chinese civilisation, &c. He also refers sometimes to the wise sayings of the Indian sage Manu, and would be very glad if he could be identified with Menes of the Egyptians, and the mythological Minos of the Greeks. He makes a mistake, however, in supposing that it was Quintus Curtius who plunged into the chasm in the Roman forum. Q. Curtius was the historian. We quote an incident from Arabian life:—

"A chief had long desired, but in vain, to purchase a neighbour's horse. Determined to obtain it, he disguised himself as a lame beggar, and waylaid the rider. Touched with compassion, the horseman dismounted and helped the chief into the saddle. The latter immediately struck the horse, galloped on a few paces, and threw off his disguise. The owner said, 'I will give you the horse, on the sole condition of your never disclosing the affair.'—'Why?' asked the chief. 'Because,' said the other, 'if the story be noised abroad, no lame or miserable man will ever find a friend in the desert.' The chieftain was struck with the reply, and instantly dismounted."

Brande's Dictionary of Science, Literature, and Art (Longmans), the publication of which has been already announced, has reached the Fifth Part. This new edition of a standard work is a capital successor to those which have gone before. New matter has been copiously introduced wherever wanted, old matter has been carefully revised, and the whole now stands before the public as an example to be followed by the makers of all similar Dictionaries.

We learn from a Circular that a new work called *Pinaceæ: being a Handbook of the Firs and Pines*, by Senilis, is to be published shortly by subscription. The Title, which is a rather lengthy one, goes on to promise "their distinctive characteristics, and the best modes of growing them; with brief practical notes on their hardiness, and the soils and situations most suitable for them: showing such kinds as are of economic value for their timber, and such as are useful for ornamental planting in the climate of Great Britain and Ireland: also, a natural and common-sense classification and nomenclature of them: to which is added an alphabetical list or index of the names of all the genera, species, quasi-species, varieties and sub-varieties, and all the synonyms or aliases by which they are at present known: comprising all that is desirable or necessary for the British arboriculturist to know concerning the 'Firs and Pines' of the world, to the present date." One of the many arboricultural wants of the present age, it is observed, is a handbook of the Firs and Pines, giving their distinctive characteristics, and the best modes of growing them, practical notes on their hardiness, and on the soils and situations most suitable for them; showing such kinds as are of economic value for their timber, and such as are useful for ornamental planting in the climate of Great Britain and Ireland: all at a reasonable price, and in a portable form. This, it is universally admitted, is a desideratum which has not yet been supplied. Most writers upon the Firs and Pines, says the author, have either been learned botanists, literary pedants, theoretical philosophers, professed bookmakers, or, when of the practical class, personally interested vendors of the so-called Conifers; and the consequence has been that all their laudable attempts to remove obscurity have only added to its shade. The reason this volume is to appear at the bar of public opinion, is thus stated:—The Scottish Arboricultural Society has for some years past offered a prize for the best essay upon 'The Introduction and Cultivation of the newer Coniferæ, with special reference to the climate of Great Britain and Ireland.' The author had been often requested by his arboricultural friends to enter the lists as a competitor, and was at last induced to do so; and during the autumn of 1864 sent in the subject matter of his handbook, under the motto, 'Wave your tops, ye Pines;' to which the judges on essays awarded the first prize. The essay was, however, accompanied by a code of conditions, to which the publishing committee objected, and, as he declined to withdraw them, the consequence was "he won the honour and forfeited the gold."

Catalogues Received.—*Osborn & Sons' Catalogue of Hardy Trees and Shrubs* is an extensive and carefully prepared list of probably one of the best trade collections of Trees and Shrubs in the country. It is quite a model as to orthography.—*Louis Van Houtte's Prix-Courant* (*Ognons à Fleurs*) is a very complete list of Dutch Bulbs, supplemented by a variety of other Bulbous, Tuberous, and Rhizomatous plants, and a very extensive series of Amaryllis (Hippeastrum), which we observe M. Van Houtte has given up naming.—*Haage et Schmidt's* (Erfurt) *Catalogue d'Ognons à Fleurs*, besides the Dutch Bulbs, contains a very extensive series of Miscellaneous Bulbs and Tuberous-rooted plants, and is interspersed freely with woodcuts.—*Fowler & Son's Dutch Flower Roots.*

The Apiary.

"I feel much obliged for the full and explicit information given me about the Stewarton hives, which were a great puzzle to me.

"In my last communication I gave some information about the times of Swarming in this part of Wales (Carmarthenshire and Pembrokeshire), which I thought might have been useful to other apiarians. Swarms issue with us much later than in England. A swarm hived for me on the 29th of May this year was the second prime swarm that had come off within a circuit of many miles. It was only because the weather was unusually warm for the season that there was any swarm in May at all. Prime swarms usually issue during the first half of June. The hay and corn harvests are two or three weeks later than in England, so that I presume honey gathering may continue later also. The above-named swarm of the 29th of May threw off a swarm on the 4th of July, and a second swarm on the 21st of the same month. As I shall be able to obtain the bees of some condemned stocks, would it be advisable to retain both these swarms, and strengthen them by the addition of some bees? I can obtain these bees early in this month (August); would it be safe to unite them now, as Taylor, in his useful Manual, and you in one of your communications a few weeks since, say that September is the proper time for this operation?

"I presume that both hives would require feeding, particularly the second swarm; but as I can obtain honey, run from the combs, at from 5*d.* to 7*d.* per lb., there will be no difficulty in this respect. I therefore incline to retain the second swarm if I can unite bees to it, now, and trust to feeding to carry it through the winter.

"There is an abundance of Heath at the distance of a mile and a quarter in a direct line. From that onwards, nothing but Heath, Heath, for miles. I suppose the bees in our neighbourhood take advantage of it, as swarms of the current year when taken are allowed to remain until the middle of September. Bee-keepers here say that old stocks cease gathering early in August, but that swarms continue six weeks later.

"For feeding bees, I have found that Taylor's advice to make a kind of barley-sugar, can be easily and successfully followed. Add water and vinegar to white sugar, and boil rather gently, till some on a spoon or stick dipped into cold water, solidifies. The moment it does so it must be taken off, as if boiled only a few minutes longer than is requisite, it begins to granulate again. A quarter of an hour is usually sufficient. The bees eat it greedily, however hard it may be; but it should be managed so as not to be very hard. *Alexander Boyle, Narberth.*"

There are many parts of England in which the usual period for the issue of prime or first swarms, is as late or later than in your district. Where Heather abounds, swarms are generally later than in the more cultivated parts. We should not have been inclined to retain the second swarm which arrived so late, but should have returned it to the parent stock, the more so, that it issued from a swarm of this same season. But as you have kept it, and still wish to preserve it, you had better obtain some bees from a condemned hive, as soon as possible, and unite them to the small colony. As it is probable that very little comb has been constructed, you must commence a most liberal course of feeding at once. The larger proportion of the food supplied will be used in the secretion of wax for extending the combs, so that you must not be surprised, if after giving the bees 20 lbs. of honey or other food, you find that the increase in the weight of the hive is very small. September is the time usually recommended for effecting these unions, but in your case an early augmentation is desirable, that there may be a population sufficiently large to ensure a considerable amount of comb building.

Barley-sugar has been strongly recommended for feeding bees, but we very much prefer simple sugar syrup in the proportion of 6 lbs. of loaf-sugar to 4 lbs. of water, boiled for five minutes. This may be given in any of the feeders usually recommended, but the inverted bottle feeder is the best.

"I would feel much obliged for assistance in the following difficulty:—I had a swarm on the 12th of June, which I hived in a box 10 in. high by 12 in. square, intending afterwards to put a glass on the top to be filled with honey. However, I changed my intentions with regard to the glass for the following plan, which I was advised to try as being the best. When the hive would be full of combs to within an inch and a half of the floor-board the bees were to be drummed out into a new hive, and a beautiful box of maiden honey would fall to my share. I was delighted with the idea. Early in August I examined the hive, and, finding the comb worked down to within an inch of the bottom, I determined to expel the bees. This was done on the following morning, but to my great disappointment I found no honey, so the bees were returned to their old quarters. May I expect to be able to take any honey from this hive? Another swarm which was hived on the 25th of June worked rapidly for three weeks. Since then the bees are dying fast, so that there is now not one-twentieth part of them alive. I cannot discover any cause for this mortality. I changed the hive from one garden to another, about 20 perches distant. Can you give me any information on these points? Do bees fill the combs as they make them with honey? *J. R., Ennistymon House.*"

As we said in our hurried reply last week, the advice given you was very bad. To obtain a very small quantity of honey, an immense amount of brood-comb would be destroyed; and it would most probably be too late for the expatriated bees to be able to construct combs and lay in sufficient stores to pass through the winter.

A good-sized glass or other super, might have been put on, and if the hive still showed signs of overcrowding, a shallow box should have been slipped below the stock. Both super and eke, whether filled or not, ought to be removed at the close of the working season.

You were wise to return the bees at once, and it was fortunate that you did not dislodge the combs in your driving operations.

With respect to the other swarm and the cause of the bees dwindling away, there is little doubt that it was owing to your changing the position of the hive. You do not say how long after the hive was first placed on one stand that it was removed to another. If it were a second swarm, it is possible that the virgin queen may have gone out after the removal on one of her matrimonial flights, returned to the former locality, and being unable to discover her home, have been lost. This, if the case, will account for the gradual dwindling away of the population. Could you not expel the bees, and ascertain whether there is any brood in any stage? If there is none, the best way to restore the hive would be to procure a lot of condemned bees from a cottager and unite to the others. Or if you do not feel disposed to supply the large quantity of food which will be necessary to keep them alive through the winter,

you had best expel the bees and unite them to any of your other stocks in the usual way. Carefully wrap up and put by all the clean combs for use next season. You will not be able to take any honey this season from the swarm first mentioned. Bees do not always fill the combs as they construct them with honey. If, however, honey is abundant it will usually be found in more or less quantities in the combs in course of construction.

Garden Memoranda.

Messrs. Carter's Seed Grounds, Dedham and St. Osyth, Essex.—Savages of Swan River! Mohawks of the Mississippi! I once envied you the privilege of hunting o'er the Collinsia and Rhodanthe-dappled prairies, but "never more!" For, however delightful it would be to pick up the beautiful Everlastings in that strange southern land, there would also be the possibility of encountering one of those aboriginal beauties, of which Professor Huxley has told us in his lectures, carrying on a string the skulls, half worn away, of her male relatives—much more unpleasant company even than tomahawks or rattlesnakes in the far West, where grow those brilliant annuals, of which Douglas sent us home such beautiful samples. But here I am in East Anglia, in the midst of fields of the choicest gatherings from the banks of the Murray to the slopes of the Alleghanies, and with no more ferocious quadruped at hand than an eastern-counties rabbit—nothing more alarming in the way of a biped than the manager of Messrs. Carter's Sydenham Nursery.

The reader will bear in mind that there are two farms about 14 miles apart, besides a great deal of ground away from those devoted to the culture of the larger vegetables; and as flowers and vegetables are cultivated to about the same proportionate extent in each, I shall not treat of them separately, but stride from one to the other as the subjects turn up. And a 14 miles' stride is scarcely figurative in the neighbourhood of a mile of Nemophila insignis! and that I had the surprise of seeing at St. Osyth, where a cartway, about 10 feet wide and half a mile long, that runs across the farm, has been sown with this popular annual, as well as another band of equal length at the boundary. There is the blue riband of the turf and the blue riband of the wave, but surely this is the blue riband of the garden.

It was rather disappointing to find dozens of acres bare of flowers which had ripened off, and the ground being planted in market-garden fashion with Cabbages and Broccolis; but I was 20 days late for the best display, and too early for the Asters, &c. Plenty of work, however, particularly when, inquiring for a favourite family, one has to cross 2½ acres of Thyme, a greater quantity of Marjoram and Hyssop, and a small farm planted with the French breakfast Radish, to find it, as I did when seeking the ornamental Grasses, which, if not attractive from point of colour, are certainly among the most desirable and most graceful things sent out by our seedsmen. Having paid some attention to these, I will venture to pick out the best, for certain it is that the best are seldom seen in private gardens, where they rarely grow one better than a Briza, though there are some far more worthy of the honour. I give these a little more prominence than evanescent things, because if cut at the right time—as soon as the inflorescence is developed, and before the seeds begin to ripen—they are most lovely and invaluable for vase decoration in rooms, particularly if mingled with two or three of the best Everlastings. The Stipa, Briza, and Pampas Grass are already used in this way to some extent; but if to these are added Sorghum bicolor, with a gracefully drooping shower-like inflorescence; Bromus brizæformis, like a large Briza in spikelet, but drooping over even more gracefully than the Sorghum; and Panicum capillare, *alias* Eragrostis elegans — cut when the panicle is emerging from the sheath, like water from a fine syringe or jet—a much more beautiful and varied vase may be made. To these may be added, as first-rate and distinct, Hordeum jubatum,* Piptatherum multiflorum, Agrostis pulchella, and Agrostis nebulosa, Lagurus ovatus, Setaria macrochæta, and, if large drooping heads are desired, S. germanica. The Brizas and Stipa need not naming. I know from experience that a gardener could not furnish the ladies with anything more welcome than a nice lot of these, to be arranged by them in vases filled with dry silver sand.

With the Grasses one naturally associates Everlastings, and these are largely grown at both farms, but chiefly at St. Osyth. The best Everlasting I saw was one not sent out or named, but apparently a large yellow Waitzia [W. grandiflora] of a glistening golden colour. If gathered just before the heads expand it will be found a worthy companion of the best Rhodanthe. It is "a decided acquisition," because the unopened heads are brightly coloured, which is not sufficiently the case with the Helichrysums, than any of which it is brighter and more beautiful. It may be a large form or variety of W. aurea, which, as grown near it, looks diminutive. Who does not admire the beautiful Rhodanthe, which, if cut when young and fresh in colour, will retain its brilliancy indoors till Rhodanthes come round again? Here there are large gardens of each kind, the best being maculata, though it is scarcely possible to beat the old one.

We are gradually getting towards the middle of the grounds, which appear to be laid out in painted allotments. There is rather a matter-of-fact foreground—5 or 6 acres of superfine selected York Cabbage, a neat-looking sort; but it is bounded by a wide strip of Xeranthemum annuum, nearly 400 feet long. Beyond are clear and well-coloured squares of Brachycome, both blue and white, separate; but the most beautiful square of all is where the two varieties are nearly equally mixed—that, waving in the morning sun, looks like a little silvery sea. It is needless to invite attention to that large piece of Tropæolum Tom Thumb Scarlet, because the ground looks as if it were covered with new scarlet hunting cloth, and is almost painful to look upon from its extreme brilliancy. No other plant could have produced such a telling level sheet of colour: it hides its leaves completely. Other Tropæolums there are in abundance—spotted, bronze, "black," and yellow—but King of Tom Thumbs is said to be the best. It seemed to me the most decisively coloured of all as regards the single bloom, being like a Scarlet Geranium, but did not throw up such a sheet as the Scarlet Tom Thumb. This, however, was explained by its being sown later, and of course I am only able to give the aspect of things as they looked on a single day. Nothing in the distance looked so dressy and ladylike as the squares of Rocket Larkspurs, pink, blue and white mixed, though there were many competitors—showy, like the double Sunflower, Princes' Feather, Coreopsis, and Marigold—beautifully coloured, like Convolvulus minor and the Viscarias—or interesting, such as fields of Canary Climber grown and staked like Peas, Everlasting Peas in like manner, and long strips of trial ground in which a short line or two of each sample of seed is sown.

I was not quite sure of the hardiness of Calandrinia umbellata on level ground till I saw here a square of old plants full of seed. Their age I suppose had made them cease flowering so soon in the season, as young plants bloom on freely till very late. Calandrinia discolor, sown in March in the open ground, is a noble annual, growing even more regularly over its little field than the Clarkias do over their acres, and quite "effective" when expanded in the sun.

If the quantity of a vegetable grown for seed be any indication of its merit, which it ought to be, something may be learned here. On the way we passed about 10 acres of French Beans—kinds Newington Wonder, and Dwarf Dun. A Vegetable Marrow called the Cluster, grown in quantity, seemed very distinct, from the fact of its not running about as Marrows are wont, but fruiting freely close to the collar. Of Broccolis, Maule's Late White, Southampton Late White, and Carter's Champion, were the favourites, and grown to a great extent. Parsley seemed a special object of care, as more than half a score acres were devoted to it, Dickson's Curled and Dunnett's Garnishing being thought most of.

Messrs. Carter's foreman at St. Osyth was quite enthusiastic about the merits of Wheeler's Tom Thumb Lettuce, said to be the best winter kind, and also good for the summer months. Of Peas the earliest were Carter's First Crop and Sutton's Ringleader, which proved to be identical. Maclean's Little Gem is a great favourite. The straw from which 16 four-bushel sacks of this Pea had been threshed was taken away in a cart, while a waggon was required for the Peas. "Do you grow much of Veitch's Perfection?"—"We had 50 acres of it last year and hadn't half enough," was the reply; and I believe this made the voice within cry out, "You are hungry!" and led to a suspension of note-taking.

Of course I did not see half the annuals that are grown here, because the men were threshing numbers of them out like corn, and cleaning and stowing away the seeds in bags to get a final cleaning in the winter; and numbers more were pulled up by the roots and stacked along to dry in the most business-like manner; while lots of things like the Nemophilas were pulled up and thrown on their faces to dry before they had quite lost their beauty, in a way that would seem cruel to many of the thousands in whose eyes they will almost be sacred subjects next year. A few things are grown for division, &c., such as the Tritomas and Gladioli, and very imposing they look when grown thus in quantity; the Tritoma, by the way, I should not have expected to do so well, fully exposed to the sea breeze on these unsheltered grounds. The opportunities for picking out new and desirable varieties of both vegetables and flowers in these farms is perhaps unequalled in the world, and it is well taken advantage of, for here originated the double and margined Clarkias and many other popular improvements in both parts of the Catalogue. Just as we are examining the differences between Convolvulus tricolor and its var. splendens, we spy a new and distinct var. among the common kind. In this, the white is completely lost, and a rich purple runs down to the yellow eye, giving quite a new aspect to Convolvulus minor. *R.*

* This, though very beautiful, falls to pieces in drying.

Miscellaneous.

Structure of the Vinegar Plant.—Many additions to our knowledge of this Fungus have been made by Mr. H. J. Slack in his recent paper read to the Microscopical Society, and published in its Proceedings. An examination of the Vinegar plant with low powers shows no more than the Micrographic Dictionary describes, but if portions are carefully illuminated and viewed under a magnification of from 1 to 3000 linear, it will be found that the gelatinous matter, hitherto treated as structureless, contains millions of small bodies resembling the Bacteria that occur in the pellicle of solutions set aside to develop infusoria. These bodies vary considerably in size, some not exceeding $\frac{1}{18000}$ of an inch in length, others twice as big or more. If stained with iodine, they sometimes become a little plainer; but the more delicate will not appear as beaded structures to an observer coming quite fresh to their examination. Mr. Slack does not consider that all are beaded, and some seem to be in an intermediate state. The number that can be made out will depend upon the time employed in the investigation, and in the course of a week or two the observer will be able to trace their structure to a sufficient extent to justify the belief that all either possess or tend toward the Bacterium form. Mr. Slack believes the Yeast plant is commonly associated with Bacterium-like bodies, and, probably, when their number is moderate, they do not noticeably interfere with the various fermentations. In the Vinegar plant they are so numerous as to suggest the idea that they play an important part in the complicated series of actions which the plant, as a whole, excites. *Popular Science Review.*

Australian Perfumes.—In Australia there are many trees with fragrant leaves, and principally the Tasmanian Peppermint (Eucalyptus amygdalina), the Peppermint tree (Eucalyptus odorata), the Blue Gum tree (Eucalyptus globulus), &c. Essential oils distilled from the leaves were shown at the last Exhibition, and although described in the catalogue as only fit for painting purposes, I expressed an opinion that they might be rendered available for perfumery. An experiment which I made with the oil of Eucalyptus amygdalina (possessing a strange flavour of nutmegs combined with peppermint) confirmed me in that idea, and I am pleased to find that the colonists have turned their attention to the subject, and are now sending these oils to our markets. The Wattle flower is also very abundant in those parts, and as it closely resembles the Cassie in fragrance it might be turned to good account. I received not long since from Tasmania a specimen of pomade made from the flowers of the Silver Wattle (Acacia dealbata), but it was very interior, owing to the want of experience of the operator. New South Wales and Queensland produce Myall-wood (Acacia pendula), which has an intense and delightful smell of Violets, a very scarce odour in nature. *Rimmel's Book of Perfumes.*

Wooden Cows.—Persons who reside in our large towns, especially the largest, are very apt to slander the milkman, and ascribe the semi-lactescent appearance of his commodity to a free use of "the cow with an iron tail." It is not our intention to join in any such scandal, for the milk of our history is genuine and unadulterated, although not derived from a quadrupedal cow, goat, or any animal whatever. Some, perhaps most, of our readers will have heard something of the existence of vegetable cows, or plants yielding milk; it is of these "wooden cows" we purpose to refresh their memories. The Caoutchouc, or India-rubber of commerce, as it exudes from the tree, very much resembles milk in colour and density. Many other plants yield a similar fluid, and in some instances this is so sweet and palatable as to be employed by the natives for almost all the purposes of animal milk. The "Cow-tree of Demerara" is described as a tree from 30 to 40 feet in height, with a diameter at the base of nearly 18 inches. This tree is known to botanists by the name of Tabernæmontana utilis, and to the natives as the Hya-hya. It belongs to the same natural order as the Penang India-rubber tree, and the Poison Tree of Madagascar (Apocynaceæ). It occurs plentifully in the forests of British Guiana, and its bark and pith are so rich in milk, that a moderately-sized stem, which was felled on the bank of a forest stream, in the course of an hour coloured the water quite white and milky. The milk is said to be thicker and richer than cow's milk, mixes freely with water, and is perfectly innocuous, and of a pleasant flavour; the natives employing it as a refreshing drink, and in all respects as animal milk. The Cinghalese have also a tree which they call "Kiriaghuma," but which belongs to a different order of plants (Asclepiadaceæ). It is the Gymnema lactiferum, and yields a very pleasant milk, which is employed for domestic purposes in Ceylon. There appears to be also a milk tree common in the forests of Para which the natives call "Massenodendron," but of which we have no definite knowledge, except that it was for a considerable time used on board H.M.S. Chanticleer as a substitute for cow's milk. It was said to suffer no chemical change by keeping, neither did it show any tendency to become sour. The most celebrated of all the Cow-trees was that discovered and made known by Humboldt as the "Palo de Vaca," or "Cow-tree." Singularly enough it belongs to a different nacural order from those already mentioned (Artocarpaceæ), and to one which includes also the poisonous Upas tree of Java. The botanical name of this Cow-tree is Galactodendron utile, the "useful milk tree," or, as more recently called, Brosimum utile. Its discoverer states that while staying at the farm of Barbula in the valleys of Aragua, "we were assured that the negroes of the farm, who drink plentifully of this vegetable milk, consider it a wholesome aliment, and we found by experience during our stay that the virtues of this tree had not been exaggerated.

When incisions are made in the trunk, it yields abundance of a glutinous milk, tolerably thick, devoid of all acridity, and of an agreeable and balmy smell. It was offered to us in the shell of a calabash. We drank considerable quantities of it in the evening before we went to bed, and very early in the morning, without feeling the least injurious effect. The viscosity of this milk alone renders it a little disagreeable. The negroes and the free people who work in the plantations drink it, dipping into it their bread of Maize or Cassava. The overseer of the farm told us that the negroes grow sensibly fatter during the season when the Palo de Vaca furnishes them with most milk. This juice, exposed to the air, presents on its surface membranes of a strongly animalised substance, yellowish, stringy, and resembling cheese. The people call it cheese. This coagulum becomes sour in the space of four or five days. Other trees are known which possess similar properties to a greater or less extent. One of these is the "Tabayba dolce" of the Canaries (Euphorbia balsamifera). Here again we have a plant belonging to a different natural order from any of the others, namely, the Euphorbiaceæ, and one containing a large number of plants with acrid and purgative juices. Leopold von Buch states that the juice of this plant is similar to sweet milk, and, thickened into a jelly, is eaten as a delicacy. A species of Cactus (C. mammillaris) also yields a milky juice equally sweet and wholesome. It now constitutes the type of a genus called Mammillaria. The milk is affirmed to be much inferior in its quality to the majority of the above. Although none of the Cow-trees enumerated yield a true India-rubber, that substance, or one greatly resembling it, is afforded by some of their allies. It is curious to observe how, when failing to serve mankind in one direction, these trees become important servants in another. How forcibly this reminds us of the quaint lines of George Herbert:—

> More servants wait on Man
> Than he'll take notice of; in every path
> He treads down that which doth befriend him,
> When sickness makes him pale and wan.
> Oh, mighty love! Man is one world, and hath
> Another to attend him.

Science Gossip.

Flower-Farming in England.—It has been proposed to cultivate flowers in England for perfumery purposes, but the climate renders this scheme totally impracticable. English flowers, however beautiful in form and colour they may be, do not possess the intensity of odour required for extraction, and the greater part of those used in France for perfumery would only grow here in hot-houses. The only flower which might be had in abundance would be the Rose, but the smell of it is very faint compared with that of the Southern Rose, and the Rose-water made in this country can never equal the French in strength. If we add to this the shortness of the flowering season, and the high price of land and labour, we may arrive at the conclusion that such a speculation would be as bad as that of attempting to make wine from English Grapes. As a proof of this, I may mention that I had a specimen submitted to me not long since of a perfumed pomade which a lady had attempted to make on a flower-farm, which she had been induced to establish in the north of England, and it was, as I expected, a complete failure. The only two perfumery ingredients in which the English really excel are Lavender and Peppermint, but that is owing to the very cause which would militate against the success of other flowers in this country, for our moist and moderate climate gives those two plants the mildness of fragrance for which they are prized, whilst in France and other warm countries they grow strong and rank. *Rimmel's Book of Perfumes.*

Calendar of Operations.

(*For the ensuing week.*)

EVERYTHING out of doors should now wear an appearance of perfect order and neatness, and this can only be effected and maintained by a systematic perseverance in going regularly and frequently over the whole outside department. Considerable attention is necessary to keep half-hardy plants in order at this season. Tall or straggling growths in masses should be constantly shortened, and if this is done with taste the beds may be made regular and uniform, without being formal. At planting-out season, for the sake of immediate effect, beds are generally filled rather thickly, and in consequence of this a careful thinning may be useful, especially where over-crowded plants are liable to be injured at the bottom, as may be the case in low, damp places during the present rainy weather.

FLOWER GARDEN AND PLANT HOUSES.

Continue to use less shading now than when the weather was so hot; plants ripening their growth have need of not only all the daylight they can get, but even moderate sunshine.

CINERARIAS.—These will now want a cool shady situation; if mildew makes its appearance sulphur should be at once applied. The first-struck cuttings will now require re-potting; also the first-sown seedlings for early bloom.

HOLLYHOCKS.—Fine varieties may be propagated by means of eyes taken from the strong parts of this year's wood. In selecting them, care should be taken to choose those which have an incipient leaf-bud at the base of the leaf, and to reject those which are developing flower-buds only. The cuttings should be prepared by splitting and cutting the stems up into lengths, leaving about 2 inches below the bud, and paring away the pithy part; they should then be planted about 1 inch deep in a frame of very sandy soil, and carefully shaded; if they can have the advantage of a little bottom-heat, so much the better.

ORCHIDS.—Kinds which have already made their growth and ripened it should be removed forthwith to a cool house. Care should be taken not to excite such plants into new growth at this time, as it is much too late to get it properly matured, and the unseasonable draught upon the stored energies of the plants will materially interfere with the next production of flowers.

PELARGONIUMS.—The propagation of greenhouse varieties should now have a due share of attention. The large kinds may be cut down according to the usual practice, and cuttings selected from the shoots so cut off; but with the fancy varieties a different course must be pursued; most of these produce such a profusion of flowers, that, if left to their ordinary course, it is almost impossible to obtain any proper shoots for cuttings. By picking off the flowers as they appear, and encouraging the growth of the plants by rich soil and liquid manure, the extreme points will make cuttings, and the young side shoots will produce them in abundance.

ROSES.—Cuttings of China and some other kinds may now be taken and planted in a close cold frame in a north aspect for three weeks or a month, until they are cicatrised at the base; they should then be taken carefully up, potted in thumb pots, and plunged in a close warm frame with a gentle bottom-heat. So treated they will make nice plants in a very short time, and if kept under slight protection during winter will fill their pots with roots, and be ready for planting out in April or May.

FORCING GARDEN.

CHERRIES.—Endeavour by all means to keep the foliage healthy and clean as long as possible.

MELONS.—Attend well to plants swelling late fruit. Avoid frequent waterings of the soil by giving good soakings.

PINES.—Maintain a high moist temperature with abundance of ventilation, to plants which are swelling fruits; and a rather drier atmosphere around those which are in flower. In all the stages except that last mentioned use the syringe freely in fine weather; but, on dull days, depend almost entirely upon the evaporating troughs, and be careful to admit air, to prevent too great a condensation of moisture. If the syringe is used in excess during this month, it is liable to render the soil too wet for the healthy development of the plants. Take care that the bottom-heat does not get too strong for plants which have been recently potted or planted.

STRAWBERRIES.—Pot off layers, and place them where they will receive partial shade until they get established. After that they may have full exposure to sunlight.

VINES.—Houses in which the Grapes are just beginning to ripen should be gradually inured to a free admission of air; and if it be desired to keep for any length of time those which are quite ripe, they should still have the advantage of a slight shading should the weather become bright.

HARDY FRUIT AND KITCHEN GARDEN.

Continue to gather all kinds of fruit as it becomes ripe.

CELERY.—This may still be planted. Some prefer what is called the Scotch plan, viz., beds of from 4 to 6 feet in width. These beds, which often succeed crops of Peas, are trenched two spits deep. The bottom spit receives plenty of raw manure or half-rotten leaves, and the top one old manure. The principal secret in growing very tender and crisp celery, irrespective of size, is to grow it very quickly by means of plenty of manure and moisture. Whether in rows or beds, the young plants will not succeed without plenty of water.

ENDIVE.—Transplant while the weather is favourable for operations of that kind.

LETTUCES.—Sow now to stand the winter, and transplant the produce of previous sowings.

ONIONS.—Sow some of the Tripoli or Spanish for early use; lift ripe crops, and carefully dry and store them.

POTATOS.—These keep growing late this year, but let early kinds be got up as soon as the tops are ripe; let the produce be sorted, and if of an approved kind let all the small and moderate-sized tubers be carefully preserved in dry sand or charcoal dust. Be at a little trouble also to test the different varieties, and do not allow your number of sorts to exceed half-a-dozen, selecting those only which are most liked at table, free croppers, early in coming to perfection, and least liable to be affected with disease. As soon as the Potatos are off plant Winter Greens on the same ground.

SPINACH.—Sow some for winter in good rich ground, deeply trenched; if in rows they should stand about 16 inches apart, to allow a free passage between them for forking, cleaning, and gathering the crop. At the first gathering every other plant should be drawn out entirely, thus giving additional space to those which are to produce the late winter and spring supply.

TURNIPS.—A sowing of Early Dutch, American, Red Top, or some other approved kind may yet be made.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Aug. 16, 1865, as observed at the Horticultural Gardens

August.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth 1 foot deep.	Temperature. Of the Earth 2 feet deep.	Wind	Rain in
Thurs. 10	19	29.753	29.611	77	55	66.0	64	62½	S.	1.65
Friday 11	20	29.653	29.526	78	43	60.5	64	63	S.	.05
Satur. 12	21	29.791	29.724	69	50	59.5	63	62	S.E.	.05
Sunday 13	[illegible]	29.826	29.757	72	49	60.5	62	61	S.W.	.05
Mon. 14	23	29.759	29.691	73	49	61.0	64	61	S.	.10
Tues. 15	24	29.579	29.501	67	51	59.0	64	62	S.W.	.45
Wed. 16	25	29.727	29.640	70	48	59.0	64	63	S.	.05
Average.		29.727	29.635	72.3	49.3	60.8	63.5	62.7		1.65

August 10—Very fine; thunder, lightning; very heavy rain at night.
— 11—Overcast; densely clouded; fine; rain at night.
— 12—Fine. rain; cloudy.
— 13—Fine; flying clouds; rain at night.
— 14—Showery; cloudy and showery; fine; rain.
— 15—Rain; showery throughout
— 16—Clear and fine; showery; fine at night.
Mean temperature of the week, 1¾ deg. below the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 39 years, for the ensuing Week, ending August 26, 1865.

August.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday..20	72.5	53.5	61.5	18	0.45 in	3	3	3	—	5	10	11	[illegible]
Mon. ..21	72.3	49.4	60.3	14	0.62	3	3	1	1	4	[illegible]	13	[illegible]
Tues. ..22	71.5	49.8	60.1	16	0.67	2	2	4	—	4	11	[illegible]	[illegible]
Wed. ..23	71.9	48.8	60.4	19	0.95	2	4	3	1	3	1	12	[illegible]
Thurs. ..24	71.4	47.7	59.6	16	0.24	—	7	4	—	5	[illegible]	[illegible]	[illegible]
Friday ..25	71.7	49.9	60.3	16	0.62	2	2	2	[illegible]	5	15	[illegible]	[illegible]
Satur. ..26	72.5	48.3	60.4	12	0.51	3	3	3	—	7	5	9	[illegible]

The highest temperature during the above period occurred on the 25th, 1859 — therm. 89 deg.; and the lowest on the 26th, 1836 — therm. 31 deg.

Notices to Correspondents.

ALOE: *Chivas & Co.* Your question has been already answered: see p. 728. We know of no better mode of preserving the Aloe flowers in a glass tube than by putting them in dilute spirit or acetic acid.

BEECH TREES: *E T.* The white substance on your Beech bark has been included amongst Fungi under the name of Psilonia nivea, but it is an insect production. It appears frequently upon the trunks of living Beech trees, but we do not know that it causes death. The drought of last year has been fatal to many trees which were in an unhealthy condition. A quantity of fine Beech perished a few years since at Sir W Middleton's, and it was found on examination that the roots had been extensively attacked by Fungi. Some pains were taken with the remaining unhealthy ones to remove those roots which were affected and supply fresh soil, but we never heard whether the plan was effectual. The green substance on the piece of bark No. 2 is an Alga. *M J B.*

BOOKS: *W M R.* Probably Moore's Field Botanist's Companion would answer the young lady's purpose, but there is only a selection of the plants figured. If woodcut figures will suffice, then nothing can be desired better than the illustrated edition of Bentham's Handbook of British Plants.—*J D.* Hooker and Bentham's Genera Plantarum.

CONIFERÆ: *R Allen.* There is no difficulty in preserving specimens of the Coniferæ in the usual way, by drying them under pressure between thick layers of bibulous paper. Those which have any tendency to throw off their leaves in drying, as the Abies do, should first be dipped in scalding water.

DISEASED PEACHES: *E J W.* Your Peach arrived in a state of hopeless putrescence. Not only was the speck as large as a fourpenny piece, but it had spread over three-quarters of the fruit, which was perfectly pulpy and full of fungous threads. Some incipient specks on the only part which was at all sound, seem to show that the disease is caused by a very minute fungus, which often attacks Peaches and Nectarines and for which no one can find a remedy. It is very common on the early Orange Nectarine. *M J B.*

HOLLYHOCKS: *G H.* We do not undertake to name florists' flowers. If they are meritorious seedlings, send them to the Floral Committee, which meets at Kensington on Tuesday next at 11 o'clock.—*S Freeman.* The Hollyhock is a short-lived perennial, soon exhausting the ground and wearing itself out, but excepting the Chinese Hollyhock it is a perennial. The Foxglove is biennial; sown one year it blossoms the next, and then dies.

NAMES OF PLANTS: *A B.* 1, Spiræa salicifolia; 2, unnameable; 3, Fraxinus australis.—*Subscriber.* Your specimens are so bad as to be almost unnameable; 1 is some Calceolaria; 2, Clethra alnifolia.—*J B.* Wretched specimens. 1 appears to be Bartonia aurea; 2, Borago officinalis; 3, Œnothera bistorta; 4, Nigella romana.—*W F.* Dianthus cinnameus.—*Y E R.* Acropera Loddigesii.—*R D S.* 1, Polypogon monspeliense; 2, Setaria verticillata; 3, Lamarckia aurea.—*Constant Subscriber.* 1, Sophora japonica; 2, Celtis occidentalis; 3, Paliurus aculeatus; 4, Viburnum? with monstrous flowers.—*H W C.* Viburnum Oxycoccus.—*J B B.* Polystichum capense.

SALEP: *J Lewis.* Salep is obtained from the tuber-like roots of various species of Orchis or other Orchids of the Optera section. That of the Levant is reputedly the produce of Orchis Morio, O. mascula, and others; that of our own country of O. mascula and sometimes of O. latifolia. There is probably less difference in the Salep obtained from the various species than in any one of them gathered at different seasons, the worst being the period when the root has been exhausted by the nutrition of the stem.

STAKING PLANTS: *Louisa.* Next week.

STRAWBERRIES: *J B.* We do not recommend cutting the leaves off the Strawberry plants indiscriminately after the fruit has been taken.

STRAWBERRY FORCING: *Bath.* You had better shift your plants into fruiting pots at once, and place them on coal ashes in a frame exposed to the sun, supplying them liberally with water. Early in October plunge the pots to the rims in frames or pits. Give them full exposure in mild weather, but protect both from heavy rains and severe frosts. The beginning of January is as early as you can start forcing with safety. A few weeks previous prepare a quantity of materials composed principally of tree leaves and stable litter, and with them make a bed either in a pit or to be covered with a frame, and when it has cooled down plunge a portion of the pots therein, with the plants close to the glass; let them have abundance of air, and put on an efficient covering at night. The temperature should not be lower than 50°, nor higher than 60°, except by sun heat. When the fruit is set, remove them to the stove or Vinery to finish off, and plunge another lot for succession. Liberal watering and free ventilation are principal features in the management.

WATER PLANTS; *Aquarium.* For the tank in the warm house you may take Pistia Stratiotes, Limnocharis Humboldtii, and Vallisneria spiralis. In the cooler house the Vallisneria would succeed very well, and so would the beautiful Aponogeton distachyon. Your tank is not large enough for Water Lilies.

THE NATIONAL EXHIBITION of SPORTING and OTHER DOGS.—The SIXTH GREAT ANNUAL EXHIBITION will be held in the NEW CURZON EXHIBITION HALL, BIRMINGHAM, on MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, the 27th, 28th, 29th, and 30th of November next.

Copies of the Prize Lists and Regulations may be obtained from the Secretary, Mr. G. Beech, Temple Row, Birmingham.

The ENTRIES CLOSE on November 1.

MANCHESTER and LIVERPOOL AGRICULTURAL SOCIETY.—GRAND SHOW at OLDHAM.

On WEDNESDAY and THURSDAY, August 30 and 31 (preceded by a preliminary Exhibition of Implements and Machinery only on TUESDAY, the 29th), for Special and other Prizes, amounting to £1300.

The Exhibition will this year comprise Horned Cattle of various kinds; Horses, including Thorough-bred and other Stallions, Hunters, Roadsters, Cobs, Ponies, &c.; Sheep, Pigs, Poultry, Pigeons, Song Birds, Dogs, Cheese, Butter, Seeds, Roots, Flowers, Horticultural Productions, Implements, Machinery, and Miscellaneous Articles. Entries for the Show finally closed on 8th instant.

57a. Church Street, Liverpool, Aug. 19. T. B. Ryder, Sec.

The Agricultural Gazette.

SATURDAY, AUGUST 19, 1865.

Every day brings intelligence of new outbreaks of the Cattle Plague, and every inspection adds something to our stock of knowledge. A disease so disastrous in its effects, and withal so novel to the present generation, demands more than the study of a few weeks; facts, numerous and important, are already collected, but a vast field lies before the explorer yet, and not until he has trodden over the whole ground can he claim to be heard as a true exponent of the nature and relations of the terrible malady which is devastating our herds over a large extent of country.

It has been urged as a reproach to the Veterinary profession that no efforts are being made to *cure*, but only recommendations being given to *kill*. This, however, is an assertion that emanates only from the uninformed. All over the country attempts to treat the disease are being made, both by the qualified veterinary surgeon and also by the mere "cow-leech," who still flourishes, and is often still intrusted by misguided or indifferent owners of stock with the management of their flocks and herds. So far from the medical treatment of the disease having been neglected, it was almost universally adopted at the outset; and not until the danger of allowing infected animals to live and extend the infection was realised, did the system of destroying, and burying, find favour among scientific men as a matter of expediency. Judging from a large bulk of evidence now before us, obtained by observations made in London, as well as in distant parts, the cattle plague is quite as manageable as any other fatal and malignant affection, and as a rule the further one goes from the metropolis the larger the percentage of cases of recovery under treatment, where the measures adopted have been judicious and prompt.

On behalf of the veterinary profession we deny distinctly that "bovine typhus" has ever been considered hopeless; on the contrary the feeling among the profession is quite the other way. Veterinarians are more ready to treat the disease than stock owners are to have them treated, knowing as the latter do from experience how large an amount of loss would be incurred under the most favourable circumstances; not to speak of the anxiety which is known only to those whose worldly goods are represented by such unstable securities as oxen and cows, under present circumstances, are. On the other side the markets have been open, every facility has existed for the profitable disposal of stock from infected localities, and thus the "plague" has been distributed throughout the country—no less than 16 counties up to this time are reported as suffering from outbreaks of greater or less extent. Under these circumstances, to encourage the indiscriminate treatment of diseased animals would be injurious to the interests of the country; it would at the best result in the establishment of a variety of conflicting opinions as to the most successful plan of procedure, and afford opportunities to the unscrupulous to vaunt the merits of their quackeries, to the detriment of the interests of that considerable section of the public, who seem to delight in being victimised. What is done in this direction should be systematically conducted, under competent supervision, so that the results might be relied on.

The veterinary aspect of the question has yet to be fully developed; and this it will be, provided the means that are being adopted do not, as we hope they will, strangle the disease out of existence, before it reaches fatal proportions; but up to this time all public and official inquiries have been directed to limiting the outbreak. At present, however, it is somewhat premature to charge the veterinary profession with being unable to cope with a malady which has not appeared in our country before since the veterinary profession has been in existence.

In our last remarks we observed on the importance of considering the characteristics of the cattle plague as they present themselves in different instances. And in reference to the infectious nature of the malady, we remarked upon the difficulty, in many cases, of tracing the disease to its origin. Generally we find good evidence of the outbreak having occurred among newly purchased stock, coming from the Metropolitan Market, shortly after their arrival in a locality; but there is, on the other hand, equally good evidence of the infection having extended from this centre to places at various distances around, from a quarter of a mile to a mile or more without any communication being discoverable. It is not our intention to assume that the infection must, in these instances, of necessity be conveyed by the atmosphere, but we cannot refuse to admit that it may; and the idea is at least as reasonable as the belief that such infection may be conveyed in the clothes of a man or the wool of a sheep. Further, we have noticed that an outbreak may occur, and a certain number of animals may die, or be destroyed, and the disease apparently cease for some time, and yet again appear in a distant part of the same farm, even when every precaution has been taken that experience could suggest for its prevention.

Again, the appearance of the malady in isolated cases, at intervals of two or three days, is peculiar; it shows either that the period of incubation varies very much in different constitutions, or that some source of infection is constantly present, or that animals may communicate the disease to each other before the indications of its existence are seen in themselves. It cannot be denied that opinions upon the precise modes of infection should be cautiously received and promulgated; that view is most satisfactory which involves the necessity for the greatest amount of vigilance; and it is at least safe to call special attention to the fact that the disease can be propagated independently of any apparent contact with infected animals. The knowledge of this fact will make the farmer anxious to close any and every possible channel of communication.

He will be urged to this by several considerations: first, the extreme fatality of the disease; secondly, that it is certain to be conveyed to a healthy animal exposed to its influence; and, thirdly, that there is a probability of its extension, even when care is taken to cut off all direct or indirect communication.

In different parts of the country and in different animals the disease presents itself under different aspects, both in its symptoms and in the changes which it produces in the tissues of the body. This will not be difficult to understand if it be remembered that in our first article we explained the malady to consist in a poisoned condition of the blood, causing, as a matter of course, certain derangements of the nutritive functions, and impairing the perfection of the several textures; according, therefore, to the susceptibility of the system and the amount of resisting force will be the duration of the disease, and consequently the extent of the morbid changes. Hence in one case we find extensive disease of the palate, ulcerations extending outside the nostrils; in another dysenteric diarrhœa, with inflammation of the mucous membrane of the true stomach and intestines. In a third the most characteristic changes are found in the third stomach (manyplus), the peculiar leaf-like folds of its membrane being marked by patches of inflammation or ulceration, and sometimes loss of texture by sloughing, leaving large and ragged holes. In a fourth instance emphysema, *i.e.*, existence of air or gas under the skin of the back, or over the whole body, is a marked indication, in other cases this sign is altogether absent; sometimes there is much discharge of mucus and lymph from eyes and nostrils, at others scarcely any.

As a general statement of the effects of the disease, it is correct to say that the mucous membranes are inflamed; but whether the inflammation shall happen to be most marked in the membrane lining the mouth, or that extending through the digestive system—or whether the morbid action shall especially implicate the lining of the windpipe and tubes of the lungs, are points dependent upon certain determining influences about which we know nothing. There are doubtless peculiar susceptibilities among animals as among human beings, one man being subject to bronchitis, another to diarrhœa.

The symptoms of the malady will in some degree depend upon the virulence of the attack. Among practical men, diminution of the milk is considered to be one of the earliest signs, and if in addition the animal is dull, refusing to eat or ruminate, and standing with the head lowered, the evidence is tolerably complete that the attack has commenced. It is very curious to watch the progress of the affection in different animals after these first indications are shown; many of them remain for a day or two with scarcely any change, some have seemed to improve, and then suffer a relapse; while on the other hand it often occurs that an animal which in the morning gave only doubtful evidence of the presence of the malady, has all the worst symptoms fully developed by the evening.

The symptoms which supervene upon the first are definite enough; diarrhœa going on to dysentery, exudation of dirty white material from the membrane of the palate and upper lip with superficial ulcerations, which are also sometimes seen under the tongue, general prostration, great distress in breathing, groaning constantly, abundant discharge from eyes and nostrils, peculiar fœtor of the breath, with the trembling of the muscles of the hind quarters.

Commonly there is a peculiarly harsh condition of the coat with an exudation from the skin, more particularly between the thighs, in which situation there are often extensive excoriations.

Very little trouble is felt, by those who have seen the disease, in recognising it when once developed; the expression of intense suffering and the extreme prostration of the vital powers at an early period are not to be mistaken. The real difficulty is felt in attempting to decide upon the best course to be pursued, under the circumstances, in regard to the remaining healthy stock. By the Order in Council animals that have been exposed to contagion are not to be sent into the market for sale, and the owner has, therefore, the alternative of keeping them and running the risk, which almost amounts to a certainty of their taking the affection, or obtaining licence from the veterinary inspector to send such as are fit for the butcher to be immediately slaughtered; this appears to be the only course offering a chance of saving something from the wreck. What the effects of such a system will be in the future remains to be seen; at present we must confess that of two evils it seems to us the least. Any attempts to preserve animals for treatment, save in properly arranged quarters, we deprecate, as opposed to the true interests of the country.

The *Illustrated News* of the 8th July contains a letter from Melbourne, Australia, in which after describing the beautiful villas and gardens which are springing up around that city, the writer says:—"But alas for the turf—the green sward on which the pretty girls play croquet, and the fat babies tumble about—we have it not, and never shall have it, despite a shower of gold." It may be impossible ever to produce a sward in that arid climate to compare with the green pastures of merry England; but if these lines should ever catch the writer's eye, he may find some comfort in the following words of Meyen:—"A beautiful lawn surrounded by Bambuseæ, such as I have seen in India, even though the turf be composed chiefly of Cyperoideæ, is one of the most charming objects in nature."* Let us suggest that this fact should be submitted to Dr. Mueller, the talented Director of the Botanic Garden at Melbourne, who may also be able to suggest some more suitable plants for experiment. We can also assure the writer that if he will collect so many drops of that "shower of gold" alluded to in his letter, as would suffice for the preparation of a "report on useful Grasses and forage plants, with notes on such others as may be considered worthy of experiment in the British Colonies," as indicated in a former paper (see p. 634), that shower will help to fertilise Australia throughout all time.

Australia has been reserved for the inheritance of the Anglo-Saxon race; its diversified climate is, on the whole, not unsuitable, and though not "a land flowing with milk and honey," the difficulties to be surmounted before gathering in the fruits of the earth will conduce towards maintaining the energy of the race. Its soil, by cultivation, yields all the necessaries and many of the luxuries demanded by the highest civilisation. Its pastures are boundless in extent, but very sadly deficient in productiveness. "The Grasses are numerous, but they grow in separate tufts, on a reddish calcareous earth in some places, and a black sun-cracked soil in others. Owing to this, the sheep and cattle runs of the great 'squatters,' with their

* Outlines of the Geography of Plants, p. 108.

immense flocks and herds, of necessity embrace vast tracts of country, and are continually spreading farther and farther into the interior,"—hence the necessity for exploring expeditions to prepare the way for the march of these "shepherd kings" across the continent. With the exception of the basin of the Murray River, there is no great river system giving access by boats to the interior; in many districts there is a deficiency of water. No dependence can be placed upon wild animals, nor on vegetable productions to supply the passing wants of the pioneer. Supplies must be carried on pack horses; the toils and dangers of exploration are of no ordinary character.

Another expedition to the north is under consideration in Melbourne. Experience has led to great perfection in the details of equipment, but the depôt system is capable of some improvement, so that the expedition may fall back upon stores which have been *increased* by cultivation, instead of being *diminished* by the consumption of the party in charge. A dépôt being established in a suitable locality where there are no natives, a few acres might be planted with rapid growing, productive and nourishing kinds of grain, of easy transportation, and requiring little preparation for human food, such as Cobbett's Maize, whereof three crops are gathered within the year in Queensland; the Chick Pea (Cicer), Lentils (Ervum) of sorts, Haricot Beans (Phaseolus) and such others as on application may be recommended by Messrs. Mueller, Moore, and Hill, Directors of the Botanic Gardens at Melbourne, Sydney, and Brisbane. Let us further suggest the propriety of taking the opinion of these gentlemen about a horse pack load or two of the seeds of European fruit trees, particularly the Spanish Chestnut; also the Locust Bean (Ceratonia siliqua), and the Date Palm; the Wild Rice of the basin of the Amazons, and the so-called Wild Rice (Zizania aquatica) of Western Canada, besides others which they might suggest to be planted at intervals on the route. Thus a little forethought and judicious outlay might in due time save many a valuable life, and the march of such a company might, in after years, like the visits and gifts of live stock and seeds by the illustrious Cook to many an island in the Pacific Ocean, be held in grateful remembrance by the simple natives, whose cry hitherto has been, "white men come, kangaroo go away."

The electric telegraph from Melbourne has already reached Bowen, Port Denison, in about latitude 22° south, and in order to complete communication with England, a cable will probably, ere long, be landed from Singapore and the Dutch East Indian islands on the N.W. coast of Australia. The hereditary robbers of Northern Arabia, who defied the rapacious Turkish Pashas of Damascus and Bagdad, have owned the soft influence of British gold, and become the guardians of the desert wire. In dealing with the more primitive natives along the route to Bowen, through vast districts which have never heard the crack of the stockman's whip, can any one suggest a better policy than one of love and mercy, or a stronger appeal to the goodwill of the natives, than preceding, or at latest accompanying, the passage of the wire with the planting of fruit-bearing trees and herbs? *B. M. F.*

—— The annual meeting of the National Association for the Promotion of Social Science will be held at Sheffield, from the 4th to the 11th of October. The Section of Agriculture is presided over by Mr. Holland, M.P.; Prof. John Wilson, of the University of Edinburgh, acts as Secretary. The subjects decided upon for discussion before the Agricultural Section are:—1. The Game Laws. 2. Agricultural Tenancies—Leases, &c. 3. Agricultural Education.

A circular has been issued to local Agricultural Societies, informing them that the National Association will be glad to receive their support, whether in the shape of a personal deputation or of written papers * on any of the subjects specified.

THE CATTLE PLAGUE.

[We continue to give the letters of our correspondents as well as extracts and abridgements of the letters which have lately appeared in the daily papers on this subject.]

1. Dorset.—As the statistics which you collect are so valuable, I take this opportunity of giving you such notes as I can collect as regards the condition of our animals in the county of Dorset. *Cattle.*—As yet I have not heard of a single case of the "murrain," for with all its new names, I think this old term will be best understood. We have, however, a disease very prevalent, which is described by Clater under the terms blain, hawkes, or gargyse, now called foot-and-mouth disease. In my own parish a farmer is said to have 30 cows attacked with the disease, and it is in various parts of the county. My bailiff tells me that about 12 years ago his father had about the same number of cows attacked, and as nearly as he can recollect the summer was much the same as in this year, which I take it has been remarkable for hot days, with north or east winds, and cold nights. His remedy was then ground Oats, with the coarser bran removed, made into gruel, with which the beasts were drenched two or three times a day; this yielded support in cases where the mouth was so sore as to prevent eating, and the bran left acted mechanically upon the bowels, and he did not lose one, while his neighbours who did not do this lost his animals from sheer exhaustion. This is interesting as showing the periodical appearance of diseases incidental to animals. We have heard of a few cases of splenic apoplexy in Somerset, but only in the districts in which this disease has ever prevailed. *Sheep.*—In our own flock and others a few ewes are annually lost, apparently from some blood disease of the splenic apoplexy class, in as far as I can make out from a *post mortem* examination and the guidance of the writings and lectures which I have heard or read by Professors Brown and Simonds. The most troublesome complaint we have, however, with our sheep—and it is very prevalent—is that of lame feet. Prof. Brown's paper in the Bath and West of England Agricultural Society's Journal has so fully described it that it leaves little more to be wished. I quite think with him that this is to be prevented, by careful periodical examination of the whole flock, washing and paring of the feet, but all people, and especially shepherds, are slow to use preventive measures. Dry upland pastures seem the least liable to produce—sandy stubbles and low meadows in wet weather aggravate it. The best thing would seem to be to separate affected sheep and put them in as dry a position as possible, pare and apply stimulating and astringent remedies. *Pigs.*—I have heard of many sudden losses among this stock from unexplained causes, but I have had no opportunity of seeing into them. Our county has promise of rich pasturage, and more than an average crop of roots, but with animals that were so sorely pinched in many places last year plenty is even more destructive at times than scarcity. Recent events will result in good if it only teaches the farmer how important it is that he should study the principles of healthy and diseased action, and this if it only taught him how crude are the common farriery notions with which he is too often content to put up; but while those in charge of cattle believe in the existence of the tail-worm, talk of the Crankums, or attribute so much to a beast being "Moscrop" (mouse-crope), we shall have very little reliable evidence about our cattle diseases. I had an ill favoured steer of about four years old which no treatment could improve. "Oh!" says Hodge, "he has the tail-worm."—Myself: What is the tail-worm?—Hodge: It is a worm begins at the tayle, and creeps all along the back-bwon till he gets to the head, and then the beast's teeth drop out, and he dies. Podge tells me he is "moscrop."—Myself: Moscrop; that means mouse-crop.—Podge: Ees, sure, a shraw (*anglice* shrew-mouse) crept over his lines, and he'll lose the power of his hinder-quarters. Pudding said he had got the "Crankums."—Myself: Well, that is a queer name, and what may be its nature.—Pudding: "Oh that's a disease of the ox." Now I knew that before. True, the poor beast had some affection of the hocks, but whether of a local character, or whether from partial paralysis, or what, I could not make out. This case occurs with variations every day. Country people are not learned about cattle diseases, nor do we think the usual druggers know much more. What we want therefore is not to be told, "results" for every real or fancied ailment, but to be taught the principles of diseased action. This was once taught at the Royal Agricultural College under Prof. Brown, who is a really philosophical inquirer. *J. B., Bradford Abbas, Aug.* 13.

2. Sussex.—The cattle plague has been and is still raging in this neighbourhood. It originated in some calves bought for suckling at Chichester market a month ago last Wednesday. The calves came from London, and were bought by several farmers; and all about the same time failed with the disease. Mr. Challen, about three miles east of here, bought seven, all of which died, with five others nearly fit for the butcher. At our committee meeting last Tuesday he reported that he had lost 18 cows and 12 calves. I saw him again on Thursday, when he had lost four more cows. Mrs. Cobden, widow of the late R. Cobden, M.P., has lost four cows and a calf, all she had. Others have been great losers. The calves bought at Chichester were sold to a great many farmers, six or seven of whom I know, and all have very much suffered. In different instances 32, 34, 15, 10, 5, and 2 cows and calves have been lost, and many others, as the disease is spreading very fast. It rains and blows a gale of wind. Wheat about one-third carried; will soon grow. I hear the Barley is growing fast. It has rained in torrents from 3 this morning (now 11 o'clock), and still continues. I think in this locality about one-fourth of the corn is carted. Our streams are flooded. *James Eames, Lynch, Midhurst, Aug.* 15.

3. Essex.—The cattle plague has unhappily broken out near us in Essex. No less than 30 beasts, cows, and calves, and one prize pedigree bull value 100 guineas, at one farm, Mr. Taylor's, Hazeleigh Hall, have fallen victims within the last fortnight. They are buried and covered with disinfecting chloride of lime. I have just learned that J. O. Parker, of Woodhammer-timer Lodge, adjoining the said Hazeleigh Hall farm, had this day three cases of "Rinderpest," which proves it to be decidedly contagious. I would recommend that as "Doctor Green" has now made an appearance in this country again, after an absence of two years of extreme drought, a full amount of green food should be resorted to for cattle in their own stalls, and pure water to partake of at their will. *Maldon.*

4. Essex.—We have several notable cases of Steppe Murrain in Essex, all from Chelmsford market—in two cases from suckling calves bought in that market. One farmer lost 22 beasts, and two other extensive farms have become infected. One effect will be, no doubt, to purchase from farms and not from markets. *J. J. Mechi.*

5. From Mr. Giblett (abridged).—Having been for above 30 years extensively connected with the trade and sale of cattle, I feel it my duty to forward you the following facts and my experience relative to the present disease in cattle, which I think you will deem ought to be published. The public should hesitate before they give credence to the reiterated statements made by certain professors connected with veterinary companies and colleges. It is assumed by some that this disease has been imported from abroad, yet though the most strict inspection, under the direction of Government, has been made of every head of foreign cattle, it is not proved that any are unsound, but on the contrary, that they are more sound than English, Irish, or Scotch. This being well known by those who buy and slaughter them, they are especially and almost invariably bought for those parties who are the most particular in their investigation, viz., the Jews. No class of people pay so much attention to the cleanliness, wholesomeness, and sound state of their meat; priests are appointed to see their oxen killed, and most minutely examine the carcases: this must be admitted as a very distinct test of the soundness of foreign oxen. It is also a fact that 80 per cent. of all the oxen bought to supply the Government contracts are foreign: about 600 per week throughout the year are required for these contracts. All the beasts are subject to a second rigorous official inspection before they are allowed to be killed at the various dockyards, and then there is a due inspection of the meat. It is a very serious matter for any person to assert that for which there is not the least proof, viz., that the disease is brought into this country by the importation of foreign cattle. It is a great blessing that they do come to help to supply the increasing demand of food for the people. What would otherwise be the fearful price of meat? Last Monday we had 3800 foreign cattle in the Metropolitan Market, all perfectly sound, some of which, from their excellent quality, made as high price per lb as English, some moderately-sized beasts from Bremen making 30*l.* each. One of Professor Gamgee's sapient remarks—that the increased supply by foreign beasts, which is above one-third of the whole supply of the London markets, tends to increase the price of meat—proves that such Professors are merely professors; but those who heard his contradictory statements of his own statistics in the committee of the House of Commons last year, will know what reliance to place on his observations. As to the proposition of causing foreign cattle to undergo a quarantine for a fortnight, this would be perfectly unreasonable; for where could be the sense or justice of detaining 5000 cattle per week, if needed for immediate consumption, and which are pronounced by efficient Government inspectors to be sound, in the vicinity of London, where they might imbibe the very disease which is prevalent in this country? As chairman of a large meeting, held last year, of graziers, salesmen, and others interested in the trade and feeding of cattle, relative to the foot-and-mouth complaint, it became my duty to sign a circular, at the direction of the meeting, addressed to each Member of Parliament, to the effect that, in the opinion of the meeting, the foot-and-mouth disease was caused by a baneful atmospherical influence. Professor Simonds subscribed to and concurred in this opinion, and in each expression of the letter. If the foot-and-mouth complaint was then caused by the bad state of the atmosphere, why not the present disease, which simultaneously attacks animals in various counties where they have not had any contact with foreign cattle? What is to stay the winds of the atmosphere from visiting not only counties, but countries? In the absence of all proof that this disease is imported, for a foreign stock has been known to be affected until they have been a considerable time in this country, is it not reasonable to conclude that it is a species of cholera in the air? There is nothing antagonistic to this theory in the fact that the cows in and about London are very generally attacked. In the case of fevers and epidemics, would they not dwell and be fixed in localities that were badly drained, and not properly ventilated? About 130 years since England was visited by a similar scourge, no foreign cattle was then sent. *John Giblett, Stoke Newington, Aug.* 11.

6. From Professor Gamgee (abridged).—Mr. John Giblett has addressed you a letter, and considers that he is entitled to give an opinion on a scientific question because he has been connected with the sale and trade of cattle for 30 years. I shall not follow his example and launch out insinuations which cannot by any possibility be construed into facts or arguments bearing on the question at issue, but I may be permitted to say that Mr. Giblett's 30 years' experience no more entitles him to start theories as to the origin of cattle plagues than similar practical knowledge would justify a South American slave dealer in setting his face against a whole profession as to the cause of typhus and small pox in man. That the steppe murrain has been imported direct from Russia is now known to be the fact. I. It is an established truth in veterinary medicine that at all events to the west of Russia—in Europe, the steppe murrain is only known as an imported disorder. II. The cattle plague is not a British disorder. If it had been generated in the London sheds it is now, after the years of useful inquiry on the part of sanitary boards and medical officers of health, why not before during the past hundred years? Last century it was imported. Dr. Daniel Peter Layard, writing in 1746, quoted a statement by Mr. Theobald to this effect:—The first infection of this dreadful calamity among the cow and ox was brought over from Holland in 1745 by means of two cows or calves which a farmer at Poplar, near London, sent for in order to mix the breed; that it spread into Berkshire by two cows brought out of Essex, and that in the clothes of such persons who attended the sick cows there was observed a disagreeable smell. III. Although last century the disease undoubtedly crossed

* All papers, &c., should be forwarded as early as possible to the Secretary, at the Office of the Association, 1, Adam Street, Adelphi, London, W.C.

the German Ocean from Holland, it appears that any German or Dutch cattle which may have propagated the disorder now have caught it from being mixed with Russian cattle in our markets. Mr. Giblett comments on the soundness of foreign cattle. Thirty years ago the British Islands were free from diseases which abound now among our live stock. If the contrast with other European countries is not so favourable now, we have alone to thank the importation of stock, and I repeat what I have often stated before, that had we never imported cattle British beef would be sounder, cheaper, and more abundant than it is. I admit that we cannot now do without foreign stock, but it was quite possible to have placed the foreign and home trade in cattle on such a footing as to have preserved us from the present catastrophe. The cattle importers know that inspection is only of value to a limited extent, and I am an advocate for doing away with that which has been proved useless, and adopting a system of foreign stock markets and slaughter-houses, so as to preclude the possibility of contamination of our own stock. My desire is to serve the cause of truth. I wish the importation of stock to be placed on such a foundation that it may continue without injury to these dominions; but such a result cannot be arrived at if we shut our eyes to the realities of the present. *John Gamgee, Principal of the Albert Veterinary College. National Association for the Prevention of Cattle Diseases, 48, Pall Mall, S.W., Aug. 15.*

7. Professor Simonds on the Cattle Plague (abridged).—At the Norwich meeting last week, Professor Simonds said they must recollect that this was a disease not belonging to England. It no more belonged to us than the Asiatic cholera, the yellow fever, or any other of those diseases belonged to us. It was a disease specially belonging to Russia, Austria, and the Danubian provinces, Bessarabia, and the whole of the countries lying eastward. The countries on the west side of the line were strangers to the disease, save and except upon its introduction. Sometimes it went into Prussia, sometimes into Bohemia, and sometimes into Bavaria; but it never went there except upon the introduction of cattle in whose systems the disease was either incubated at the time, or the cattle themselves were positively in a state of disease. There were men to be met with in the medical profession who were called contagionists; and there were men not at all favourable to this view, of disease being spread by contagion, or at any rate, not being exclusively spread by contagion; it was difficult, of course, to draw a line between the two opinions. Perhaps it might be that the truth lay in the middle there as it did in other things; but let them at the same time not lose sight of the fact that the disease was contagious, and that it was by infection that it extended itself. It was true that they could not always trace every individual case as it occurred. He knew of an outbreak which occurred the other day in the neighbourhood of London, where the animals were apparently isolated from all others. It was said, "Oh, here is a case of spontaneous origin." He had inquired into the case, and the fact was found to be that the sheep were placed in pasturage in a park, a portion of the park being let off to dealers, and the dealers were in the habit of not only taking their sheep to the park from the market, but allowing them to remain, if not sold, until another market. This being so, he thought they could not wonder at the existence of the disease in the market. It was a fact that it had now been introduced. How did it get into Norfolk? Directly from the Metropolitan Market. How did it get into Suffolk? Directly from the Metropolitan Market. How did it get into Shropshire? Directly from the Metropolitan Market. He could show them that in almost every case—certainly every case which he had traced out—it was through the Metropolitan Market and through the great traffic of cattle in this country that the disease had spread as it had done. He would give them an instance as to how it had spread in Sussex. Two or three farmers, residing not far from Chichester, were dairy farmers. They were in the habit, as was the custom in some parts of Sussex, of making veal by calves. One farmer went to Chichester market and bought a calf. Believing that it was a country calf, and had been sent there by a brother farmer, he put it to a cow, and in two or three days afterwards it was noticed to be dead. He was stating a fact which occurred in Sussex. A cow next the calf-pen was first attacked, and then the cow which suckled the calf was next attacked; so that the more directly cattle were together the more certainty there was of the spread of the disease. In the cases mentioned 11 cows and 12 calves died. Another farmer lost 15 cows and 15 calves by introducing into his dairy a calf purchased from the same source. He thought this was an answer to the argument that the disease was an atmospherical affection. It seemed to him that the best way in which this evil could be met was to form in the different counties, where the disease existed, societies such as that which it was proposed to organise in Norfolk. By such associations they could, for example, in Norwich put in full force an inspectorship of the market, and so on. This would do good, no doubt, but not so much as we might at first sight expect, because there might be a large number of cattle on Norwich Hill which had been exposed to the infection without any one knowing of it, as there might be no signs by which the diseased could be recognised at the time; but there would be a moral effect—persons knowing there would be an inspector, and not knowing how soon an animal would show the disease, would hesitate to send such animals to the market, and a great amount of good might thus be done. With regard to seizing diseased animals, that was an important point, and the law could be put in force in all towns where there were corporations or powers sufficient.

8. Kent.—At a public meeting at Canterbury the Mayor explained the cases of cattle plague in the neighbourhood. In the case of Mr. Dombrain there was no doubt the infection had been communicated by four Dutch calves from the London market. His stock consisted of 16 head, and when Mr. Brown, the Government inspector, visited the farm, as stated in *The Times* on Thursday, they had all died except one. Another case reported to him was in the neighbourhood of Dover, on a farm belonging to a London gentleman, who sent down twelve cows. Immediately on their arrival three of the cows were taken ill and two of them died, and the other nine were sent back to London. Another case in the neighbourhood of Canterbury was that of a milkman named Bourne, who had lost all his stock. Mr. J. B. Plumptre had been told that it had broken out in the neighbourhood of Northbourne and Guston, where one farmer had lost 12 beasts and another 16.

9. Aberdeenshire (From the *Scotsman*).—In the parish of Forgue, some 15 animals, belonging to one farmer, were affected by the disease, and of these more than one-half have died. The disease was introduced by the owner of the cattle having purchased from a dealer a calf that had come from London, and which was after purchase put to suck a cow from which her own calf had been removed. On the farm of Stockbridge, near Peterhead, and some 30 miles from Forgue, about eight cattle have been lost by the malady; while on the farm of Bogenjohn, near Strichen, no fewer than 22 animals have been swept off. Yesterday a meeting was held in Aberdeen of the committee of the Royal Northern Agricultural Society, for the purpose of devising measures to avert the progress of the disease, or at least to mitigate its ravages.

10. Hull.—As far as can be ascertained, up to the present time no animal suffering from the plague has arrived at that port, and it is a matter of satisfaction to know that in the district immediately surrounding Hull, where large numbers of cows are kept for dairy purposes, the infection has not yet penetrated. Since the commencement of the present year nearly 20,000 head of cattle and 30,000 sheep have been imported into Hull, and no trace of the disease has been found."

Public meetings are everywhere being held for the formation of county or union mutual insurance societies, and large subscriptions are made by leading landowners towards the cost of organising and working such associations.

Orders in Council have been issued, giving powers to inspectors of access to all premises where the disease is reported to exist, and requiring the separation of diseased stock; also directing that notice of the appearance of the disease be given by the owner of any cattle affected with it to the mayor of the town, or the clerk to the justices of the country district in question.

THE LAW OF HYPOTHEC.

The following is the conclusion of the Report of the Royal Commission on the subject, the former part of which was published last week:—

Views of Commissioners.—We have given to the whole subject the most anxious consideration, and we now humbly beg to submit to your Majesty the result of our deliberations.

Principle of the law should be maintained.—In the general principle of the law, under which the landlord of an agricultural subject has, in security of his rent, a preference over the crop raised on the ground, and the stock brought upon it by the tenant, we are not disposed to recommend any alteration. Our investigations have regarded the results of a system which has existed for centuries, not only without complaint, but as a subject of commendation, both by legal writers and by persons practically conversant with its operation. That system is intimately interwoven with the land rights of Scotland. Numerous analogies to it are found in other branches of our jurisprudence, and under its influence this country has undoubtedly made great advances in the science and practice of agriculture. We are inclined to think that, both on the part of the opponents of the present law of hypothec and of its supporters, the consequences which would be likely to result from its repeal may have been to some extent exaggerated. But such a measure would, in our opinion, certainly be followed by alterations in the tenancy of land in Scotland, which must act injuriously on the tenants, and especially on the smaller tenants, and would probably remove many of that valuable and industrious class from their present possessions. We should also anticipate, from the abolition of the existing law, other changes in the relations between landlord and tenant which might operate very differently in different parts of the country, but the ultimate consequences of which it is impossible to foresee.

Alterations desirable.—While holding these views on the general principle of the law of hypothec, we think that there are some points in regard to which that law would admit of beneficial alteration. The provision of the law which has been most generally objected to is that under which a landlord, when the rent is unpaid, is entitled to demand re-delivery of the crop, or a second payment of its price, from any person by whom such crop has been purchased otherwise than by bulk in open market. That the power thus conferred on landlords has been so very rarely exercised as scarcely to amount to a practical grievance, is in itself an argument for the abolition of a rule which experience has proved to be unnecessary. Further, there are several districts of Scotland in which no bulk markets are held, and the increase of railway communication and other causes have, in many places, made sale by sample the most convenient way in which farmers can conduct their business. On this account we consider it right, that the same protection against interference on the part of the landlord should be extended to sales by sample as has been settled by long practice to attach to sales in bulk. We are also of opinion that it ought not to be necessary, in order to secure a *bonâ fide* purchaser against a claim for repetition, that the sale should have been made in open market. A change in the present law to the extent thus indicated would bring the rule regarding the sale of grain or other farm produce into conformity with that already existing in reference to live stock. Of course, sales in breach of sequestration ought not to be protected. And, as a means of preventing collusion, it would, in our opinion, be necessary, in order to make the sale effectual against the landlord's claim, that such sale, wherever made, should have been followed by delivery of the subject, and payment of the price.

With this exception, and one other to be noticed immediately, we do not consider any limitation of the right now possessed by landlords necessary or desirable. It is a circumstance highly creditable both to landlords and tenants throughout Scotland, that, taking the country as a whole, sequestrations for rent are of rare occurrence. In one or two districts they have, during the last few years, been more numerous than formerly; but it seems to us that these instances may be attributed to local and temporary causes; and they are certainly not sufficient to support the allegation that it is a general practice among landlords, in reliance on the security which the law of hypothec affords them, to entrust their farms to a class of tenants whom otherwise they would not be disposed to accept.

There can be no doubt that, when sequestration is resorted to for obtaining payment of the rent, the other creditors of an insolvent tenant often suffer more than the landlord. But the evidence laid before us has entirely failed to show that the losses of manure merchants and other dealers through the insolvency of farmers have been, on an average, greater than those which occur in other mercantile transactions, or that they are such as might not in a great degree be avoided by the exercise of ordinary caution.

The position of the smaller class of country tradesmen and artificers is somewhat different from that of the larger dealers, the range of their custom being more limited, while greater hardship is involved in cases of loss. We have therefore given a very careful consideration to the position of this class of persons, and to the suggestion that a special preference might be created in their favour; but we have come to the conclusion that it would be impossible to propose the introduction of any such new preference. It seems impossible to distinguish in principle between the claims of such persons and those of traders on a larger scale; and it is obvious that the argument for their protection, which has been drawn from the preference given to the wages of farm servants, fails in this respect, that the farm servant is hired to labour on a single farm, and is dependent for his wages on the tenant of that farm alone, while the dealings of the country tradesman are distributed among the inhabitants of the neighbourhood.

The suggestion which was offered to us, that it might be advantageous to restrict the landlord's right of sequestration to the rent for a single year, has received our fullest attention. But, on the whole, the conclusion at which we have arrived is that no sufficient case has been made out for such an alteration of the law; and, on the assumption which seems to be implied in the proposal itself, that a landlord ought to have security for the rent payable during a tenant's occupation, there are serious practical objections to the proposal. Without an entire change in the ordinary periods for the payment of rent of arable farms, one effect of limiting the landlord's right in this way would be that a tenant would frequently have entered on a year's occupancy, for the rent of which the landlord would be left without security, and during which the proper cultivation of the land might be attended with considerable difficulty. This is obvious when it is considered that generally throughout Scotland the rent, or at all events the second moiety of the rent, for one year is seldom payable until the occupation for the following year has commenced.

Half-yearly Sequestrations.—It is a different question whether evils may not arise from the power which the landlord has of keeping the exercise of his right in abeyance until the end of the year, as well as from the want of a sufficient system of registration of sequestrations. From either of these causes it sometimes happens that the public are left to deal with a tenant, in ignorance that he is in doubtful circumstances, or, it may be, actually under sequestration. It may be true that the indulgence which the present state of the law enables the landlord to give, by forbearing to exercise the right to sequestrate until the last moiety of the year's rent is due, is often of use to the tenant through the time which it gives him to sell his produce or stock to advantage. But there is considerable force in the objection that this indulgence is to a large extent given at the risk of the other creditors of the tenant; and we think it not unreasonable that if the landlord is disposed to grant the indulgence he should also be made to share in the risk. We therefore recommend that the law should be altered, so as to deprive the landlord of the right to sequestrate for the whole year's rent after omitting to do so for a half-yearly payment; in other words, that his right should be made to lapse as to each half-yearly or other periodical instalment of the rent, within a certain time after such instalment has become due, and before the next instalment is payable. A period of three months after any portion of the rent falls due appears to us a sufficient time for the landlord to be allowed to exercise his right of sequestration, and it is the same as that allowed at present after the last conventional term of payment of the rent for the exercise of the landlord's right over the cattle.

Registration of Sequestrations.—We also think it right that the public should be enabled to ascertain, without difficulty, the fact that a tenant is under sequestration. With this view we recommend that a record should be kept in each sheriff court, in which every sequestration for rent granted in such court should be forthwith entered, and that no sequestration should be privileged without being so registered. We are of opinion that the publicity to sequestrations which will thus be secured will afford a sufficient protection to the public against the risk of dealing with a man in ignorance of his position. It does not seem to us necessary that the publication should be made in the *Gazette*. Such a mode of publication might have the appearance of being needlessly harsh to a man placed in temporary difficulty; and, by the course which we recommend, sequestrations will probably receive the same publicity as is now given to protested bills of exchange.

Certain Points should be Definitively Settled.—In the event of any legislation taking place in conformity with these recommendations, we would venture further humbly to recommend to your Majesty that there should at the same time be an authoritative declaration of the law as to certain points which, as far as we are aware, have not as yet been satisfactorily or definitively settled.

We have already stated that a question has been raised whether sheep belonging to a third person, taken upon an arable farm to be fed on Turnips, are not liable to the hypothec for the whole amount of the rent of the farm. We think that this question should be settled in conformity with the practice by which the landlord's preference over Grass-mail is enforced. Accordingly, it ought to be declared that the liability of the owner of the sheep does not extend beyond the amount of the consideration payable for the Turnips; but that, to the extent of such consideration, and also to the extent of the Grass-mail payable for cattle taken in to graze, the landlord's hypothec embraces the sheep and cattle.

It has also been a question whether, in the case of an agricultural subject, the hypothec extends to the household furniture of the tenant and to the implements of husbandry. Professor Bell, in his Commentaries (Shaw's edition, vol. ii. p. 880), says, "It has not been decided whether the furniture of the house and implements of husbandry are also included, although it is generally understood to extend to both." But he adds, "The same principle which led to the extension of the hypothec over cattle sanctions in no degree an extension of it over the house furniture or implements of husbandry." In general practice we believe that the household furniture has not been included in cases of sequestration. In regard to the implements the practice seems to have varied, and they are very often included. We think that neither the furniture nor the implements ought to be included, and we recommend that this should be so settled by a declaratory enactment of the Legislature.

Following the same principle we think it desirable that it should be declared by the Legislature that the hypothec does not, in the absence of express stipulation in the lease, extend to imported manures not yet applied to or incorporated with the soil, or generally to any articles introduced into the farm, but not yet applied to the purposes for which they were intended; as, for example, to imported feeding stuffs not yet consumed. We are not aware that any question as to the liability of such articles has been raised; but, on principle as well as in equity, we think they ought not to be held liable, and that it would be of importance that their non-liability should be authoritatively declared.

Recommendations.—In conformity with these views we beg leave humbly to report our opinion, that the law relating to the landlord's right of hypothec in Scotland, in so far as regards agricultural subjects, ought to be altered; and the following are the alterations and explanations of that law which appear to us to be desirable:—

I. That, whenever any agricultural produce shall have been *bonâ fide* purchased by any person, and shall have been actually delivered and removed from the farm, and the price thereof paid, the landlord's right of hypothec over such produce shall cease and and determine. Provided always, that nothing to be enacted in this respect shall defeat, abridge, or affect the landlord's right of hypothec over any such agricultural produce before the completed delivery and removal thereof, and payment of the price: And also provided, that nothing to be so enacted shall apply to any such agricultural produce which has actually been sequestrated previous to the purchase of the same being completed.

II. That, in the event of the landlord failing to exercise his right of hypothec within three months after the day or term at which the rent, or any portion thereof, is payable, such right for the rent or portion thereof then due shall cease and determine.

III. That at each court where sequestration at the landlord's instance for the rent of agricultural subjects is in use to be

granted, it shall be imperative to keep a register, to be entitled the Register of Sequestrations for Rent; and, on the granting of any such sequestration, there shall be immediately entered in such register the name of the tenant whose effects are sequestrated, the name of the landlord at whose instance the sequestration takes place, the amount of the sum for which such sequestration is sued out, the farm or premises possessed by the tenant, and such other details as may be specified in the enacting statute; which register shall be patent to the lieges, under such conditions as the statute shall prescribe.

IV. That, in the absence of any special stipulation in the lease, when a tenant shall have sold any growing crop to be consumed on the premises by live stock belonging to any other person, or shall have taken in any such stock to be grazed or fed on the farm or premises, such stock shall be liable to the landlord's hypothec to the extent of the amount of consideration agreed to be paid by the owner thereof to the tenant, and no further: Provided always, that the consideration so agreed to be paid shall be a fair and *bonâ fide* one; that while such stock, or any portion thereof, remains on the premises, the liability shall continue to the full extent of the consideration originally agreed upon, notwithstanding that a portion of the crop may have been consumed; and that, in the event of the removal of the stock, while the consideration is unpaid, the landlord's right of hypothec over such stock shall subsist for such unpaid consideration.

V. That, in any case of sequestration for the rent of an agricultural subject, where any agricultural produce or stock shall be sequestrated, the sequestration shall not apply, and it shall not be competent to make it apply, to household furniture or furnishings, or to any agricultural implements; nor shall it be competent, except as hereinafter provided, to include among the sequestrated effects any imported manure, lime, drain tiles, feeding stuffs, or other material, not being the produce of or made upon the land, and not at the time incorporated with the soil, or consumed, or otherwise applied to the purposes for which they had been procured: Provided always, that, where manure of any kind has been brought upon the farm in fulfilment of any obligation imposed on the tenant by the lease, such manure may competently be included in the sequestrated effects. W. Gibson Craig, Charles Carnegie, Chas. Lawson, Lord Provost; G. Young, Robert Dundas, A. Campbell Swinton, T. G. Murray, J. S. Fleming, George Hope, Peter M'Lagan, Adam Curror.

Dissents.—We think it proper to state that, while we concur in the propriety of the changes of the law recommended in the Report, we do not concur in the conclusion at which the majority of the Commissioners have arrived,—not to recommend any alteration in the general principle of the law under which the landlord of an agricultural subject has, in security of his rent, a preference over the crop raised on the ground, and the stock brought upon it by the tenant; and that in our opinion a larger change than any suggested in the Report might be made with safety and advantage to the agricultural interests of the country.—Charles Carnegie, G. Young.

While we have signed the foregoing Report, we so far dissent from it, inasmuch as we consider it to have been conclusively established that the law of hypothec in regard to agricultural subjects in Scotland confers an amount of preference in favour of landlords, not only opposed to the established principles of commercial law and the tendency of all recent legislation, but which is in itself also manifestly unjust. By means of decisions of the Supreme Courts alone, and these decisions obtained at a very early period, proprietors in Scotland have become possessed of powers and privileges for the security and recovery of rents, unknown in England and Ireland, where payment is enforced under statutory enactments. While freely admitting that the great majority of landowners in Scotland desire to manage their estates in a liberal and judicious manner, and that many of them never, or only very rarely, put the law of hypothec into operation, so far as the recovery of rents is concerned, yet it has been proved to us that, in some particular localities, as well as in a number of isolated cases, the undue advantages which this law confers have been most freely used, causing ruin to the tenants on such properties, and great injustice and loss to their ordinary creditors, besides having frequently a baneful influence on the farmers of adjoining estates. The absolute security which the hypothec confers permits the payment of rents to be postponed to conventional terms, varying from 12 to 18 and 21 months after the legal terms at which such rents fall due; and this postponement appears to be the rule followed in most districts, although a more healthy system is adopted in some places, particularly in the shires of Caithness and Inverness in the north, and in those of Dumfries, Wigtown, and Kirkcudbright in the south. It is evident, by means of the law of Hypothec, a proprietor can effectually secure his first year's rent in preference to the ordinary creditors of his tenant, almost within two and a half years after the tenant's entry to the farm. This injustice is aggravated by the practice which extensively prevails, of giving to tenants at Whitsunday possession of Grass and fallow land varying in extent from one-sixth part up to three-fifths of the whole farm, and that without payment of any rent, but simply upon their undertaking to give up at removal, and before reaping the last crop, the same extent of grass and fallow ground which they received at entry. But besides this, the whole manure made from the previous crop is frequently delivered to incoming tenants free of charge, and still more commonly the straw also of the last crop is "steelbow," or the property of the landlord. When we consider, that with all this there is conjoined complete security for payment to the landlord of the rent due for the past, and also for the current year, it is evident, when a tenant fails, the dividends payable to his ordinary creditors from the residue of his estate must be of the smallest amount. Neither is this a trifling matter, as of late years the necessary transactions of farmers with other classes have immensely increased; and, perhaps, it is not too much to say, that without the valuable assistance of tradesmen, manure dealers and others who supply furnishings to farmers, present rents could not be paid, nor modern agriculture carried on. The certainty also that landlords have of receiving, at least for a time, almost any amount of rent that may be offered by any candidate for a farm, places all offerers so much on a level, whether they are possessed of capital and skill or not, that a strong and prevalent inducement is held out to proprietors to select the highest offerer as tenant without due regard to his suitableness in other respects. The comparative poverty of tenant-farmers as a class was much insisted on by some witnesses in favour of the law; but even if this be true to the extent stated, it only tends to disprove the theory, that the existing law of hypothec enables tenants with little or no capital to increase in wealth, and become independent or more extensive farmers. Neither is this general poverty matter for surprise, as, under the circumstances detailed, capital must naturally be diverted from the cultivation of the soil, and flow into other channels, where its legitimate importance is fully recognised and rendered available under the administration of more equitable laws. It also appears to us to have been undeniably established, that the law is not required for the recovery of rents on well-managed estates; and that, in those instances where it is called into operation, it is alike detrimental to the tenants and their ordinary creditors, and not less so to the best interests of the landowners themselves. The amendments proposed in the Report certainly tend to mitigate some of the more prominent objections to the law, but its greatest evils are left untouched; and we are convinced that, due regard being had to existing leases, the total abolition of the law is imperatively demanded, both by justice and expediency. George Hope, Adam Curror.

GUANO AND EXPERIMENTS.

How often has it been said to me, "Mr. Mechi, you are an experimentalist, and of course, as such, it cannot be expected that your farming should pay you; but we are much obliged by your losing money for our benefit, for you tell us of your failures."

This is very cold comfort for a man of business, and a very fallacious mode of reasoning, as I shall presently show. I consider no man to be a good and progressive farmer who does not experiment, for such a person is almost always enveloped in the meshes of old customs, old traditions, and strong prejudices.

How often have I spoken of thin seeding, and the reply has been, "it won't answer on our soil;" and when I mildly inquired for the comparative experiments that had brought him to such a conclusion, the reply has too often been—"No, I have not tried it, and I don't mean, for I know it won't answer on our soil: I like a thick plant and a thick crop."

But is it either expensive or difficult to make experiments in agriculture? Quite the reverse; a quarter or an eighth of an acre here and there will tell us a result as clearly as a whole farm. This has been my custom, and by such comparative experiments I have been enabled to deduce a practice suitable to my soil and climate, and agreeable in a pecuniary sense.

But now, as to the value of guano, for superphosphate rarely shows any good effect on our Essex clays, owing, I presume, to our having already a sufficiency of bone earth in our soil.

I have been a user of guano for more than 20 years, and at a time when my practical friends ridiculed the idea of a "mere peppering" being able to rival the massive dung-heap. My general preparation for a Mangel crop consists of about 20 to 25 loads of rich shed manure, 4 cwt. of Peruvian guano, and 2 cwt. of salt. It was thought that the guano might be partially superfluous after such a dressing of good manure; so to test it I omitted the guano on a certain portion, and the result was a loss of 5 tons of Mangel per acre, which I could have sold at 1*l.* per ton. But see what follows: this spring we as usual harrowed in (after the Mangel) 1½ cwt. of guano and 1 cwt. of salt with 2 bushels of Oats per acre (my usual quantity). To-day we have cut those Oats, and on the portion not guanoed for Mangel the previous year, there are at least 8 bushels less of Oats, and a proportionate falling off in straw. It seems very probable from the appearance of the young Clover that the effect of the guano will be traceable in that crop. Now when I am asked, "Ah, but, Mr. Mechi, does it pay?" I will reply, Here is an extra expenditure of 2*l.* 14*s.* per acre, and I get in return for it 5*l.* in Mangel, 1*l.* 5*s.* in Oats, and so much in straw and Clover. The fact is, we don't, as a rule, half manure or half cultivate; and although I make so very much rich shed manure, it is clear from the above and many similar experiments, that I must not dispense with guano as an auxiliary if I look for profitable results.

"Well, but then, Mr. Mechi, where is all the money to come from to buy this expensive guano and keep so much more stock?" I reply, Diminish the size of your holding; remember that it is the maximum crop that pays—the minimum keeps agriculture poor and humble.

Take the country through, and we find three-fourths of the land held too largely in proportion to the tenant's capital, and consequently unsatisfactory and unprofitable to the country at large, as well as to the occupiers.

With facts such as I have just quoted, and which I could greatly multiply, I must be excused for advocating a much higher and more intelligent practice in our general agriculture, and a greater emancipation from old customs no longer suitable to our altered and progressive condition.

Let us always remember, with a humiliated feeling, that the statistical agricultural map of Great Britain gives 4*l.* per acre capital, and 3*l.* 12*s.* per acre return or gross produce. Can this be satisfactory—when we reflect that commercial and manufacturing energy and progress have caused an acre of land in Lombard Street to be worth more than 2,000,000*l.* for its fee simple? However highly I may manure for Beans, I find it pays to put on for the Wheat that follows 1½ cwt. of guano and 1 cwt. of salt. The omission of this shows a great diminution in the crop. I always leave a small portion to test the difference. Why should not my brother farmers do the same? *J. J. Mechi, Aug.* 3.

P.S.—This wet harvest gives a signal instance of the advantage of a strong reedy crop of straw from thin sowing over a weak, flaccid, spongy, fluffy crop, produced by thick sowing. In the first case the air circulates through and under the reedy sheaves; in the other, the soft compressed mass excludes air, and sits closely fitting to the ground, and by thus retaining moisture causes the grain to "spear," and the straw to become musty. My Wheats have suffered little or no injury from the rains, although still in the fields; neither have my Oats or Barley. There is a mistaken notion that more straw is got from thick sowing than from thin. The contrary is the case. My experience is that a crop of straw from thin sowing weighs more, as well as producing more corn, than the thick sown. The advantage of cleaning by hoeing must not be forgotten. I fear that this rainy weather has so stimulated the growth of weeds that where they have not been previously removed by the hoe and hand they will damage materially the grain crops. *J. J. M.*

EARLY DOMESTICATION OF ANIMALS IN ENGLAND.

[The following abridgment of a paper on this subject, read some time ago before the Ethnological Society by Mr. Thrupp, appeared at the time in the *Athenæum*.]

The customs and regulations contained in ancient laws and charters afford assistance in fixing the dates of the domestication of certain animals, and of this the author availed himself. 1. A man had an absolute right of property in tame animals, a limited one in semi-domesticated, and none in wild. 2. He was responsible for damage done by the first, partly for the second, but not for the third. 3. There was a fixed price to be paid as compensation for stealing domesticated animals, a smaller fixed price for the semi-domesticated, but none for the wild. 4. Rent payable generally in produce, and also fines to the king; damages and compensations might be paid in the first, generally were in the second, but never in the third class. 5. When a species was wild, the clergy did not tithe it, but so soon as it became domesticated they did so. 6. Wild animals were left to take care of themselves. The semi-domesticated were under the care of the general body of slaves; but the domesticated had special officers appointed to attend them, such as swine-herds, ox-herds, &c. 7. When they were completely domesticated, they were let out to tenants as a part of their farms, much as farm-buildings are now, and at the end of the tenure reverted to the landlord. 8. They were also specially bequeathed or granted in wills or charters, as were the enclosures, cattle-yards, hog-pens, or castra, in which they were kept. The custom of petting animals has been suggested as the origin of domestication, but the author believes that it was adopted mainly from economic motives, was practised so soon as it was found to pay, and was carried to the extent and was persevered in so long as it was found to be profitable, and neither further nor longer. The animals on whose produce our Anglo-Saxon forefathers at first mainly lived, and which they mostly earnestly desired to domesticate, were hogs, bees, and eels. The hog was the first with which they were successful. The domestication of the horse was, probably, of a later date, and its history exhibits a difference in the habits of the Cymric and Teutonic races. The Welsh loved, bred and trained horses when the Anglo-Saxons care little for them. In the tenth century, a large proportion of the Welsh horses were kept at home, fed and trained, but their brood mares, when in foal, were turned loose in the forest, for the express economical reason that when they could "not draw a cart up and down hill" they were not worth home keep. Horses turned out in the boundary forests were as much an object of systematic forays as hogs; and in a treaty between the Welsh and the Western English of the 10th century, it is stipulated that home-bred horses carried off from the woods shall be paid for with 3*s.*, and forest-borns with 12*s.* From the time of Athelstan, the tribute of the Welsh, which had previously been paid in valueless wolves, was demanded in horses, hawks and greyhounds; the exportation of these was forbidden by law, and they were eagerly accepted in payment of compensations; the clergy induced Edward the Confessor to tithe them. Hunting on horseback became suddenly the fashion, and every man of rank adopted the custom, which the early Anglo-Saxon abhorred, of fighting on horseback. At the earliest period, the Anglo-Saxon was, probably, more anxious to domesticate bees than horses. Their produce was an article of food, necessary to brewing mead, and extensively used externally and internally, in medicine. In the sixth and seventh centuries, bees were altogether wild; they swarmed in the woods, and formed their honeycombs in hollow trees, and were at this time classed by law with foxes and otters, as incapable of private ownership, "*because they are always on the move.*" From the bee, which has continued semi-domesticated, the author passes to the hawk, whose domestication was superior in degree, though inferior in proportionate number; was probably a foreign taste, and has altogether ceased. There is no evidence that the early Anglo-Saxons trained these birds. With the introduction of fire-arms the breeding of hawks ceased, as they were no longer the most profitable or expedient means of taking wild fowl. Of all the animals which the Anglo-Saxons vainly attempted to domesticate, the eel probably cost them most labour and money. Enormous ovaria were attached to nearly every monastery, and supplied the monks with many thousands of eels to alleviate the severity of their fasts. The last of the animals which the Anglo-Saxons kept as pets, and probably attempted to domesticate, is a very long list. We have wolves, foxes, otters, bears, roebucks, hares, weasels, cats, ravens, rooks, dogs, cranes, peacocks. The weasel and the cat were both domesticated at the same time and for the same purpose, yet the animal which proved effective is no longer home-nourished, while the worthless one—thanks to an affectionate and domestic disposition—is petted and pampered in every family.

REPORTS OF THE HARVEST.

FROM OUR OWN CORRESPONDENTS—(*Continued from p. 759*).

COUNTY.	WHEAT.	BARLEY.	OATS.	BEANS.	PEAS.	POTATOS.	HAY.	ROOT CROPS.	WHEN WILL HARVEST BE GENERAL.	NAME AND ADDRESS.
SCOTLAND.										
FIFE	Average	Under average	A little more than half a crop	None	None	Full average	Scarcely average	One third under average	Aug. 16	John Pitcairn, Kinnaird
	Above average	Under average	Under average	Average	Average	Very promising	Good	Early sown fine; late bad	Aug. 18	R. Russell, Pilmuir
ENGLAND.										
DURHAM	Generally good; thin on cold clays	Not quite average	Over average; best of Corn crops	Very good	Good	Average; same as last year	Good	Generally good; no Turnips	Aug. 16	Robt. R. Dixon, Darlington
YORKSHIRE	Thin on ground, but well topped	Good	Moderate	Good	Good	Good	Light crop, well secured	Injured by the grey grub	Aug. 15	Brady Nicholson, Shirton Grange, Leeds
	Short of average	Average crop; ripened prematurely	Much below average	Below average	....	Stopped by drought; growing again	Much below an average	Nearly a total failure	Now	Thos. C. Booth, Warlaby
	Good	Fair	Middling	Good	Fair	Good	Light	Very poor	About the 22d	James Wilkinson, Whitby
DERBYSHIRE	Below average	Average	Average	Not sufficient grown to justify an opinion	Average	Good	Early mown light; late mown good	Recent rains have improved them; below average	Now	John Parkin, Idridgehay
NOTTINGHAM	Above average	Full average	Under average	Good	Good	Very good	Two-thirds of a crop	Mangel never better; Turnips never better	Now	C. Paget, Ruddington Grange
MONMOUTH	A fair average	A fair average	Good	....	....	Very promising	Light	Very various	Aug. 10	G. R. G. Relph, Usk
GLOUCESTERSHIRE.	Good	Inferior	Light	Short but well covered	Good	Late sorts promising	Moderate quantity; excellent quality	Mangels very good; Swedes fair	Aug. 7	Richard Stratton, Walls Court, Bristol
BEDFORD	Not average	Average	Bad	Good	Good	Good	Light	Good	Aug. 1	William Lavender, Biddenham
DEVONSHIRE	Much blighted; under average	Nearly average	Under average	Good crop	Average crop	Looking well; slightly diseased	Well saved; light crop	Good	A great deal cut and some stacked	George Turner, Beacon Downes, Exeter
IRELAND.										
KERRY	Good	Middling.	Average in general	....	....	Very good; never better	Average	Turnips bad	Aug. 15	John Creagh, Tarmons, Tarbert
CORK	Over average	Good; little grown	Average; short	....	....	Good; blight appearing	Average	Very indifferent	Aug. 5	Francis A. Twiname, Bally Philip
	Good	Not much grown	Good	None	None	Middling	Good	Much has failed	About September	Sam. Piddell, Kildorrery

DOUBLE-EARED WHEAT.

For the sake of opening up a field of inquiry, I send you the hitherto barren results of my experimenting with twin-eared Wheat, that is, two perfect and distinct ears growing upon one straw. And I should be glad if some abler vegetable physiologist than myself would say what probability there is of ever making these sports reproduce their like. I fancy that a variety in the animal or vegetable kingdoms has sometimes originated in a *lusus naturæ*: is not the Purple Beech an instance? and my Purple Beeches last year and the year before bore Beech-nuts, though I have not tried if they would grow into young Purple Beeches. I am inclined to think that the many-branched Wheat called Egyptian or Mummy Wheat (Triticum multiplici spici) arose from a monstrosity exhibiting a predisposition to extend the axes of the spikelets; for I have grown some of this Wheat, and found that in two years it lost nearly all its branches, reverting, I supposed, to the original character whence the monstrosity had sprung. Still this degeneracy may have been due to difference of climate,—Wheat that might be nick-named "hen-and-chickens" in Egypt, not caring to throw out half so many young off-shoots in Lincolnshire.

There is no doubt that double-eared Wheat would be valuable if we could once get it to become hereditary and permanent in type, supposing the quality of the grain to be good. The discoverer or inventor, if he could not take out a patent, would reap a handsome reward, owing to the mere curiosity of the thing. But it is quite possible to obtain a variety of Wheat that will accumulate a greater proportion of its total weight in grain than any other.

Boussingault found that the increase of dry weight in Wheat plants between flowering time and harvest was no less than 77 per cent.; and at harvest 450 plants, merely dried by long exposure to the air, weighed as follows: The seed, 23.8 oz.; spike and chaff, 5.4 oz.; straw, 32.6 oz.; and roots, 4.2 oz.—altogether 66 oz. But these relative amounts of grain, straw, &c., are not fixed quantities: all just depends upon the habit of the plant, which may become the habit of a variety; for our fields abound with all sorts of proportions between weights of grain and straw. I find ears of 40 grains upon 5 feet length of straw, and ears of 60 grains upon 3 feet length of straw, in the middle of thick crops where food, space, air, &c., can hardly favour one plant more than another. I do not know whether a sort of Wheat naturally running most to ear and least to straw is more likely to be found with two moderate-sized ears than with one large ear; but if I can meet with a variety that will give half as much more corn than another, in proportion to the straw, I shall be a benefactor to mankind, or, at any rate, to the high-farming portion of mankind, whose stimulated crops run to fibrine instead of gluten and starch.

I thought it worth while to make a few trials with double-eared sports; there being some slight chance of success, though others had failed before me. In the *Agricultural Gazette* for 1849, p. 363, appeared a drawing of "Twin-headed Wheat," from Mr. W. B. Booth, of Carclew. In a subsequent number, p. 378, Professor Henslow announced that he possessed a similar curiosity, grown two or three years before near Stowmarket. "The person who met with it," he says, 'carefully planted every grain, in the hope of reproducing the monstrosity. As might have been anticipated, he was unsuccessful, though there seems to be no absolute rule why a predisposition to produce twin ears may not be continued through the seed." In a number of the *Gardeners' Chronicle*, I forget in what year, I saw a drawing of an ear of Wheat having additional spikelets branching from the notches upon the rachis; the Editor's observation being, that the predisposition might be hereditary, and if only one grain of such an ear produced its like again, the offspring of that would be almost sure to perpetuate the new form. I think that I have also seen a drawing of double-eared Barley in a *Gardeners' Chronicle* of some years ago.

Now, double ears are not very great rarities in our neighbourhood; our gleaning women occasionally pick them up, some superstitious wives immediately throwing them away as unlucky for people whose means are unequal to more than one baby at a time! By offering a small gratuity for every double-ear brought to me, I have succeeded in obtaining a good many specimens; and for three separate years I have sown the grains in a plot in the middle of a Wheat-field, without getting one monstrosity, all the plants having borne common single-eared Wheat. The harvest of 1863 furnished me with no fewer than 67 of the "sports;" they were sown together in a plot in a Wheat-field, but last harvest I could not find in their produce any indication of double ears, branches, or even extra spikelets. I never saw a twin ear in a standing crop, or in a bound sheaf; but I am of opinion that 100 acres of Wheat produce a great number every year. Three of the above 67 were found by gleaners in one field of 22 acres. I do not see why the gleanings should contain a larger per-centage of sports than the general crop; and if the gleanings amounted to a quarter of a bushel per acre, and the entire crop to 40 bushels per acre, there were thus (probably) 480 double-eared straws in that field. That these should have escaped observation in the mowing, gathering, tying, stooking, pitching, loading, stacking, threshing, is not surprising, when we consider the enormous number of ears among which (if there) they were intermingled. At the rate of 640 000 grains per bushel, and 50 grains per ear, the whole crop comprised 11,264,000 ears, each of the double ears being thus concealed among 23,466 common ones. It is quite possible (and from the number of these double-ears I think probable) that some of them grew from grains of double-ears; the proportion of ordinary ears, however, being so overwhelming as to prevent any annual increase of the others,—which would not be the case if the double-ear grains were separated from the bulk of the seed.

I inclose drawings (natural size) of a few of the specimens now in my possession—two good twin ears, one singular development of the straw, and one triple-branched ear, the only instance I ever heard of.

I inclose one branched and one double-ear, and hope that somebody interested in Wheats will follow up my unfortunate experiment until success is at last attained. *John Algernon Clarke, Long Sutton, Lincolnshire, August* 11.

[There is in the drawings sent with this communication every stage exhibited between the two extremes of a division (in the rachis) into two or more branchlets half way up the axis of the ear, and (in the straw) several inches below the ear.]

Home Correspondence.

A Plea for the Birds:—

"Not a bird
But hath its special uses. Even the rook
Well earns his toll—the burrowing cockchafer,
That else would devastate our lawns and fields
Forgive him, then, if sometimes he digs up
Some of thy new-sown Barley for his brood;
The bunting mischievous, if he unthatch
Thy Barley rick in drawing out the straws,
Searching for grains. Forgive the sparrow bold,
Although they hunt him down and call him thief,
If, burrowing in thy stack, he eats the corn.
All kill the vermin for thee, every one,
And do thy worming most efficiently.
The linnet thins the insect and the weed;
The lady goldfinch, greedy of the seeds,
The pestilent Dock and Thistle thins for thee;
And the poor swallow only insects eats—
Never thy fruit. Then let them live in peace;
Let the poor martin, that beneath thy eaves
Confiding builds his nest, feel he is safe,
Not merely unmolested, but beloved,
And sheltered, and defended. Better taught
(Intelligence is always merciful),
Thou wouldst not thus miscall the birds thy foes.
The partridge and the pheasant are thy friends;
The saucy blackbird, if he dares to eat
Thy gooseberries and currants, also eats
The caterpillars, earning his scant toll
For real service done. Our tiny friend,
The little creeper, saves thee many a bud
And many a blossom too."

The great French naturalist M. Florent Prevost made the alimentation of birds his careful study. He collected and preserved the stomachs of many species, taking them at different periods of the year, and at various stages of their growth. He comes to the conclusion that they are more serviceable in the destruction of larvæ and insects than is generally believed, that this greatly counterbalances any injury they do to the crops, and that all of them are more useful than injurious to man. This is high praise. They certainly appear to do considerable injury to many farm crops, and this is evident to every beholder; but how few look closely enough into the subject to ascertain the good they do. The rook comes in for no small share of calumny. He is a great gormandiser, we know, of very many kinds of food: corn, pulse, flesh, fish, seeds, are all palatable to him, and occasionally he will pleasantly dine off chicken, the younger the better; but his real taste lies amongst grubs, wireworms, beetles, the larger caterpillars, worms, and also field mice, eggs, &c. He is indefatigable, however, in search of grubs, and will denude a field of pasture or a growing corn crop to get at the grub lying at the root-plants. The sparrow equally divides the censure with the rook, and by many he is thought to be the most mischievous. He is no doubt the most audacious thief, and but few things come amiss to him; but then from his very nature he is never idle: the fly, the moth, the butterfly, cockchafer, beetle, worm, caterpillar, and nearly all the insect tribe are constantly sought for and devoured by him, to say but little of the seeds of weeds. This is great compensation for the injury and mischief he perpetrates. The linnet is probably next in our low estimate of birds; he is a

sad enemy to our seed crops, upon which his tribe congregate in large numbers; but at other periods, particularly in the summer, their food is mainly insects, moths, butterflies, larvæ, beetles, &c, and in the autumn and winter the flowers and seeds of weeds, thistles, &c., in the destruction of which they do very essential service. The lark, too, delights to scratch up our seed Wheat, and "bill up" the first springing of it, but his food consists almost entirely of the insect tribe in their various stages of insect life. The blackbird, who delights in our Cherries, and the thrush, his occasional assistant, are ardent lovers of grubs, worms, and insect food. It is highly amusing to see them chase flying insects and large butterflies. The chaffinch, hedge-sparrow, red-breast, bullfinch, wagtail, nightingale, black-cap, wren, titmouse, and the martin and swallow, are all well known and abound in our gardens and orchards. Some of them do us some little damage, but for the most part they will be found to be in earnest after worms or insects, aphis, grub and caterpillar, or their progenitors, while on the wing. It is altogether impossible fully to estimate the immensity of good they thus effect. They undoubtedly do us more good than harm; we have only to protect particular crops, our fickle climate will prevent a damaging increase in their numbers. *O. F.*

The Harvest in South Essex.—Wheat here was unprecedentedly precocious, and was by the middle of July fit for the sickle, scythe, or reaping machine. The want of labourers to cut it in due time, as I forewarned in my last paragraph would be the case, is now evident. Where 50 strangers have generally appeared in former years to cut the corn in the Hundreds of Essex, not 10 have this year offered their services. The Excelsior reaper and other machines certainly should have been put into requisition, here especially, where the most abundant crops abounded on our best and clay lands. The system has very wisely been adopted on a large scale in Suffolk and elsewhere, and most Wheat was secured before the late and present rains set in, and very much more corn hereabout might have been cut and housed, and freed from the wet and wind now prevailing, which is now sadly shedding the grain in some localities, by reason of the rottenness of the chaff, to the extent of at least 8 bushels per acre. The Wheats in this district of Essex are nevertheless on the whole much over the usual average of 4 quarters per acre on our strongest clay lands, as I foresaw it would be two months ago; and the effect of good farming, in my opinion, never was more fully exemplified than in the present season. The sample and weight of the grain and flour, however, this year, from its abundant yield in the ear, and the fact of its being sown too thick and late, will come short of at least 5 lb. per bushel compared with that of last season's growth, when the ears were less filled, but with more full-bodied grain, comprising the most and the very best of flour ever remembered to be produced by the millers. It is strange, and proper, I think, to be observed, that during the past year good bread and flour made from the very heaviest grain ever known, at a range of only 40*s*. to 45*s*. per quarter, have not been procurable at less than 6*d*. per quartern—this week bread is 6½*d*.! Whether this is a fault of the miller, or baker, or both, or the community for tolerating this unfairness on the public, I leave for others to determine. *A. H.*

Cattle Plague.—On looking over the Number of the *Agricultural Gazette* of the 12th inst., I find at page 754, a communication signed "M.D." suggesting a purging drench of Epsom salts, sulphur, nitre, and ginger. Also a drench of chlorate of potash, ginger, Gentian, Cinchona bark, and Aniseed. The recipe is valueless without a proper formula. I would submit therefore that "M.D." shall mend his hand and give quantities to make his drench practical. *A Subscriber, Roscrea, Ireland.*

Societies.

Bath and West of England.—*The Cattle Plague.*—At the Monthly Meeting of the Council of the Society, before the regular business of the day commenced, Colonel Acland, M.P., drew attention to the importance of taking some steps in reference to the visitation commonly known as the Cattle Plague, which is causing so much alarm in various parts of England. Through the exertions and instrumentality of Mr. Daw, by whom the arrangements had been projected and matured, a meeting had been held at Exeter on the previous day, when a District Cattle Assurance Association had been formed, and a committee, comprising several members of the Council of this Society, had been appointed, with Mr. R. R. M. Daw as their honorary secretary: at the instance of that meeting he (Mr. A.) had undertaken to bring the subject under the notice of the Council at their present meeting.

Mr. W. A. Sanford, Wellington, said, what the Society ought to do was to circulate the best information they could, on a subject of such vital importance, among the agriculturists in the district of their operations; nor was there any time to lose, for the disease was, no doubt, spreading in different parts of the country. In conclusion, he suggested that a handbill containing information for stock-owners should be issued under the Council's authority, and that sub-committees should be formed from among the members of the Society in the various districts comprised within the area of the Society's operations, for the purpose of giving prompt and extensive circulation to such information.

Mr. Daw (Exeter) said that anything to be effectual must be done within a small area; everything depended on prompt action, and this was utterly incompatible with a large district and cumbrous machinery. In Devonshire the danger was actually at their very doors, and one farmer, Mr. Snell, of Egg Buckland, had lost every head of his cattle by it. The proper way to cope with the evil would be by prompt action in local areas, and he thought it highly desirable that a Mutual Protection Society should be established in every Poor Law Union in the counties comprised within the Society's area of operations, for the very simple reason that the area of a Poor Law Union was quite large enough for the distribution of insurance risk, and quite as large as consistent with promptitude of action. At the Exeter meeting on the preceding day, they utterly repudiated the idea of treating the matter in the form of a county movement, and at one of the largest meetings ever got together in the Guildhall, they had resolved to establish a Mutual Assurance Association, confined to a district coincident with the area of St. Thomas's Union, believing that that would be the best means of dealing with the evil, and leaving the residents in the other unions to follow their example. Hence it was that they had refused to allow several large stock owners in distant parts of the county to become insurers in the Exeter District Association, but rather recommended them at once to form associations in their own immediate neighbourhoods. This course of action was the more essential because of the peculiar nature of the disease. He would not attempt to describe it; that was unnecessary after what had appeared in the newspapers; but he did not hesitate to say that when an animal was taken ill it should be killed at once. In the valley of the Nile, where the disease was allowed to take its course, full 80 per cent. of the cattle were swept away by it; but in Austria, where they had combined in mutual protection associations, and distributed the loss among a company instead of casting it on individuals, and the affected animals were at once destroyed, the loss was limited to 2 per cent. If they established associations with too extended an area—such for instance as that of a county—they would need a staff of paid officers, a secretary, valuers, and so forth; but if they confined their operations to narrower limits, it would be easy to find gentlemen willing to act as honorary secretaries, and they would only need one inspector, who would take an area co-extensive to that of a Poor-law Union and no larger. Such an area would probably be represented by at least 10,000 head of cattle, which would be quite sufficient for insurance purposes, and would, in the event of a bad visitation, make quite sufficient demands on the attention of any one inspector. In the Exeter Association they proposed that every stockowner joining it should pay an entrance fee of 1*s*. per head, stating the number of stock in his possession, and that he should pay such other calls as might from time to time be made. The Association would be managed by a Committee, of which every insurer of 20 bullocks would be eligible as a member, but it would also include persons of influence and intelligence, who, though not actually owners of stock themselves, might choose to show their interest in the objects of the Association by subscribing as though they were. In the event of any animal being affected, the first step would be to call in an inspector, who would have power to order its immediate destruction; and two practical men having assessed the value of any animal so destroyed, its owner would receive two-thirds or three-fourths of the amount as might be agreed upon in the conditions of association. It must be obvious that in small areas the affair would be much more manageable than in more extensive districts.

Mr. G. H. Andrews (Rimpton, Sherborne) contended that without the intervention of Government authority at the out-ports nothing effectual could be done. An animal imported at Southampton the other day had communicated the disease to all the other animals in a park where it was introduced, and all the animals had since died. He did not believe it possible for the most scientific man to say what animals had the disease latent in them or not. The only plan by which the Government could stop the disease would be by establishing at every port arrangements for the slaughter of animals and the inspection of the flesh afterwards. Sound carcases could then be sold as in the London meat markets, without any serious interruption to trade at a time when supplies were greatly needed. He concluded by suggesting that Government should be memorialised in favour of some such plan as he had ventured to recommend.

A long discussion ensued. Ultimately a committee was appointed to collect and disseminate information on the subject of the disease, and with authority to communicate with the chairmen and clerks of the Boards of Guardians in the several Unions in the six western counties, with the hope of calling attention of agriculturists throughout the district to the importance of adopting due precautions against the spread of the malady.

A motion to memorialise the Government to adopt additional precautions at the outports, in accordance with the suggestions of Mr. Andrews at an earlier stage of the meeting, was negatived by the casting vote of the Chairman.

A meeting of the Committee appointed to collect and disseminate information on the subject of the Cattle Plague, was held immediately after the rising of the Council.

The following form of letter to the Chairmen and Clerks of Boards of Guardians in the Poor-law Unions in the counties of Somerset, Devon, Cornwall, Dorset, Wilts and Gloucester, was settled and approved, and ordered to be signed by the Hon. Secretary and Secretary.

Bath, August 14, 1865.

Sir,—We are directed by the Council of the Bath and West of England Society to communicate to you their opinion as an association for the mutual protection of agriculturists should be established within the area of each Poor-law Union, in consequence of the cattle plague having appeared in the West of England. We have the honour to request that you will be so kind as to take, with the utmost promptitude, such measures as you may deem most suitable to submit the consideration of this question to a meeting representing the different parishes of your union. We beg to inform you that such an association has been established for Exeter and the St. Thomas's district surrounding that city. The rules adopted by that association shall be forwarded to you without delay. The Council have appointed a committee to collect and disseminate information on this important subject; and we are directed by that committee to furnish you with a copy of a circular which has been suggested to the Council as likely to be productive of good effect in arresting the progress of the disease. We have the honour to be, Sir, your obedient servants, H. St. John Mildmay, Hon. Secretary; Josiah Goodwin, Secretary.

The following form of Handbill of Suggestions to Stock Owners was also settled and approved, and ordered to be printed in the form of a handbill suitable for circulation in the rural districts:—

The Cattle Plague.—Suggestions to Stock Owners.—In consequence of the very infectious disease which has broken out among the horned cattle in various parts of the kingdom, it is recommended to stock owners to adopt the following measures for the purpose of preventing, if possible, the further progress of this alarming evil:—1. That no cattle which have been recently purchased be allowed to join the stock on the farm, but be kept separate from them, in a distant part of the farm, for not less than 14 days. 2. That where an animal shows symptoms of being infected it be immediately removed from the herd, kept within some separate shed, and placed under the care of a veterinary surgeon. 3 Should the existence of the disease in such animal be confirmed, it is recommended that the animal be destroyed and buried; that the sheds be carefully whitewashed with fresh lime or any other disinfectant; and that all the remaining fodder, bedding, and dung be destroyed by fire.

The following is a description of the symptoms of the disease as laid down by the Professional Advisers of the Privy Council:—

"Variations in the earliest indications of the disease will be manifested, these depending somewhat on the severity of the attack, but more especially on the circumstance as to whether the digestive or respiratory system is the chief focus of the malady. As soon as the affection declares itself the animal ceases to take any kind of food, and in most cases even refuses water. Rumination is suspended; and the animal stands with its head drooping and the ears drawn back. If made to move it shows great prostration of strength, and frequently staggers, as if about to fall. The skin is hot in places and often remarkably so between the limbs, the hind ones in particular. An exudation early takes place from these parts and is succeeded by cracks and sores. The hair is staring especially along the upper part of the neck, shoulders, and back. The extremities are cold, even at the commencement of the disease—and in a latter stage the increased heat of the surface of the body gives place to a remarkable coldness, especially along the course of the spine. Tears trickle from the eyes, which are red and expressive of suffering, and a watery discharge flows early from the nostrils. There is a continuous increase of these secretions which become more or less purulent in the advanced stage of the malady. The mouth is hot, red, and 'furred,' often presenting here and there raw-looking spots, especially on the inner side of the lips and along the roof. The breath is fetid. The respiration is increased, and generally accompanied with a moan in the advanced stages. A slight cough is also present in some cases. The pulse is quick and weak, and scarcely to be felt, excepting at the heart, even at the commencement of the disease. The bowels are sometimes torpid at the outset, but diarrhœa, leading to dysentery, mostly follows, the evacuations being slimy, liquid, and of a dirty yellow colour, occasionally tinged with blood. Tenesmus is likewise present as a rule. Slight tremors of the muscles of the shoulders and thighs are to be observed in some cases, and so also in an emphysematous condition of the skin along the upper part of the back. In milch cows the secretion of the milk is quickly arrested, a remarkable diminution in the quantity taking place, as one of the early indications of the attack. As the disease advances towards a fatal termination the prostration of the vital powers becomes more marked, the breathing short, quick, and more painful, the alvine evacuations fœtid and more slimy, and the surface of the body deathly cold. The animal will sometimes sink in as early as twelve hours from the commencement of the attack, but in many cases the disease will be protracted to the fifth or sixth, and occasionally to the eighth or ninth day. The period of incubation of the disease is found to vary, the majority of animals sickening on the tenth day after exposure to the infection, but some have been attacked on the seventh day."

As to the plan of medical treatment, Professor Simonds of the Royal Veterinary College (who has paid particular attention, both in this country and in Galicia, to the disease in question) says: That with the present amount of experience no special plan can be laid down; but it would appear that the disease is best combated by a free use of stimulants, combined with antiseptic agents, the strength of the animal being kept up by a liberal supply of Wheat or Oatmeal gruel, boiled linseed, and similar dietetic agents.

The New Officers of the Bath and West of England Society.—At the meeting of the Council of the Bath and West of England Agricultural Society held at Taunton on Saturday last, Mr. H. St. John Mildmay (who at a former meeting of the Council had resigned the office of secretary) received the distinguished compliment of being elected honorary secretary; Mr. Josiah Goodwin, who will still continue to edit the Society's Journal, was elected secretary in succession to Mr. Mildmay; and Mr. Spackman, land agent and surveyor, Terrace Walk, Bath, was elected to the office of official superintendent or director of the show yard. The business of the Society will henceforth be conducted by

offices devoted to that purpose exclusively, a course rendered absolutely necessary by the annually increasing magnitude of the Society's operations.

Agricultural Improvement of Ireland.—*Clonmel.*—The annual meeting of this Society is being held here this week; and it will be seen from the following figures that there is an abundant exhibition of stock. Most of the classes are unusually large, and they are filled wholly with entries from Irish exhibitors.

The following Table will show the entries at the shows of the Society for the last five years:—

	Cork.	Belfast.	Limrk.	Kilkny.	Sligo.	Clonmel.
Shorthorns	92	103	59	83	59	81
Mixed breed	108	99	54	53	57	90
Sheep	168	148	154	111	76	164
Horses	65	51	53	35	50	71
Swine	58	84	41	56	26	68
Implements	68	98	47	54	23	34

The strength of the Cattle classes is with the Shorthorns. There are 11 aged bulls. The 1st prize, "White Chieftain," of Mr. Moffat, of Enniscorthy, Wexford, is a good level beast with a fine touch; and the 2d prize bull of Mr. Fitzpatrick, of Templemore, Tipperary, displays huge dimensions. The next class—of bulls calved in 1863—is well filled with entries, but better animals are to be seen at the Dublin Society's Show. However, the 1st prize red bull "Felix," of Mr. Wallis, of Drishane Castle, Cork, gained the 1st prize at the Dublin Spring Show, and another 1st prize at Cork a fortnight ago. In the large yearling-bull class, the 1st prize red bull, "Chief of Lothian," is shown by Mr. J. Smith, of Croom, Limerick. Mr. James Anderson, of Grace Dieu, Waterford, gets nothing for his capital bull "Mercury," which beat Mr. Smith's at Cork, and was placed 2d at Dublin. The 13 bull calves make a grand class. Mr. Anderson's "Dictator" is splendid; his "Squire Hadlinger" little inferior; Mr. Butler's two calves receive well-earned commendation; a little white beauty is exhibited by Mr. Cooke, of New Ross; and Commendations have been very properly showered upon almost all the entries. In a class of eight we have Mr. E. J. Smith's 1st prize cow "Récherché," out-and-out the best Short-horn in the yard. Of Captain Ball's herd, and by Mr. Booth's "Monk," she has grand form and style, has a beautiful roan coat, and handles like a Bates cow; she won the 1st prize as a calf at Cork, the 1st prize at Kilkenny and other annual shows of the Society, and only yielded the palm at the Dublin Spring Show to Mr. Eastwood's magnificent "Frederick's Fidelity," one of the mothers of the Towneley herd. Plenty of Commendations are awarded in this class. The class of six heifers calved in 1863 contains a very pretty roan, "Woodbelle," of Mr. Massey, the others possessing considerable merit. The heifer calves make a good class, the 1st prize, "Medora," of Mr. Bloomfield, of New Park, Waterford, being extremely pretty, while Mr. Anderson and Mr. E. J. Smith, of Islanmore, Croom, Limerick, show calves little inferior.

In other classes of cattle several stalls are empty, the exhibitors being afraid of the Russian plague. Something very much like a panic (at present very unreasonable) prevails in some quarters, and a feeling is strongly expressed that Government ought to stop the trifling Irish imports at once, seeing that such a measure could do no harm, and would spare the Government much opprobrium in case the pest should be introduced into this land, which lives by its cattle. *Times (abridged).*

Inverness.—At the annual meeting of the Highland and Agricultural Society, the Duke of Argyll, President of the Society, spoke thus of Highland Agriculture:—'In going over the show-yard to day I could not help contrasting the picture which the show presented to me, in the improvement which has taken place in the Highland counties of Scotland, with another picture which I have recently seen drawn in London with reference to the condition of these counties. Gentlemen, about six weeks ago, towards the end of the month of June, I received a very civil note from a gentleman who may be well-known by name to some of you—a gentleman of great eminence, connected with the social and economic sciences of London, a foreigner and a Jew by birth—Professor Leone Levi, a very distinguished man, who wrote to me that he was about to read a paper upon the agricultural and social condition of the Highlands of Scotland before a statistical society of London, and asking me if I would come to hear the paper. Now, I was very anxious to do so, because I confess that I have a very strong impression of the want of information respecting the real condition of the Highlands which exists among many of our friends in the south of England, especially among literary men, and which often, I am afraid, is prevalent in the southern districts of Scotland. I went; and I must say that what I heard in respect to the peculiar absence of information to which I have alluded exceeded my most sanguine expectation. I do not know, gentlemen, whether you will be surprised—I think you will—when I inform you that the thesis or assertion with which this paper started was, that the Highland counties of Scotland were stagnant, and in some cases in a declining state; and the paper professed to account for this terrible phenomenon, that whilst the whole of England and all the southern counties of Scotland, and many even of the counties upon the eastern border, were in a most thriving and prosperous condition, it was undoubtedly a most melancholy fact that the Highland counties of Scotland were in a stagnant, and even in a declining state. The cause which has led to the prevalence of the impression to which I have referred, is the common notion, which was evidently the notion of Dr. Leone Levi, that the introduction of sheep farming into the Highlands was not an addition to the ancient culture, but was entirely in substitution of it. Now, I believe this to be a very general mistake. The truth is that, before sheep farming was introduced into the Highlands, the pasture of the higher mountains was wholly lost to the use of the farmer, and the low grounds gave food to a few black cattle, while the lower slopes of the mountains during the three months of summer were used for the making of butter and cheese in those little shealings which all of us have seen in our walks on the moors. But the pasture on the higher mountains was absolutely lost. No animal except the wild deer pastured there. It was entirely lost as far as regards the production of food for the human race. The introduction, therefore, of sheep farming, which took place exactly 100 years ago—for I believe 1764 was the first year they saw this system introduced into the Highlands—was as really an addition to the food-producing capabilities of the country, as if the tops of the mountains had been for the first time reclaimed from the ocean. I do not mean to say that sheep farming is not, in certain particular districts—in the narrow glens of our West Highlands, where the cottar tenantry maintain a miserable cultivation, living upon very bad Oats and very bad Bere—I do not mean to say that sheep farming may not have been a substitution in some of those localities; but I mean that sheep farming has been, not a substitution of ancient tillage, but wholly in addition to it; and if you count it acre for acre, you have four or five times the amount of land under tillage now which you had 100 years ago. And one of the best proofs of this is the extraordinary and almost incredible rise in the value of land which has taken place in the course of the last 100 years. To illustrate this, I may mention a particular case which came under my own knowledge during the last few years. I know one estate, of which I have the complete rent-roll of 100 years ago, and at the conclusion of the civil war the rental was about 5000*l.* It is no longer in the hands of one person, but is separated into several hands; and I know that the lands which from 1756 to 1760 represented only between 5000*l.* and 6000*l.* a-year, now represent a rental of nearly 70,000*l.* Now, making full allowance for the difference in the value of money, you will at once perceive the sort of increase that must arise from having the new cultivation and the employment of land in entirely new purposes; and I must say that at a time like this, when the working classes are paying 9*d.* to 10*d.* a pound for meat, this does seem the strangest accusation to bring against the Highlands, which have used every exertion in their power, by the skill and outlay of capital, to increase the supply of food for the country. A third proof of this misunderstanding is the undoubted fact that, at certain intervals, there have been periods of distress in the Highlands. But I think if you inquire into the fact you will find that the distress has always taken place exactly where the old system has remained unchanged, where we have a very poor cottar peasantry without capital and without skill, living on Potatos and the produce of their little crops, and who, being exposed to the vicissitudes to which our climate is particularly exposed, have felt the pressure of famine, which has, in all circumstances, been a great affliction to the Highlands. Before passing on to another subject, you will allow me to say a few words with regard to the other tenantry. I believe some of the most successful instances of the crofter tenantry are to be found in the immediate neighbourhood of this city. I am told, for example, that they are very thriving and successful in the district called the Black Isle, which, although it no doubt at one time deserved its appellation, ought now more properly to be called Yellow Isle, from the beautiful crops with which it is covered. But I believe the small crofter tenantry will only be able to maintain their places where they are enabled to eke out their subsistence by daily labour; and I believe that in cases of success it has been in consequence of their nearness to towns like this. But in the western district of the Highlands, where access to labour is more difficult, I believe the small cottar tenantry will be naturally replaced by a much larger class of farmers; and I do not believe this will be much loss to the country; but, on the contrary, as regards the produce of food for the use of man, that the change will be one more for the better than for the worse. I do not say this, gentlemen, without full appreciation of the merits of the small tenantry; but it appears to me that, after all, there is a very great mistake in the law of the country as to the tenure of land in the Highlands. The tenant farmers of Scotland may rightly be divided into three great classes. At the lower end of the scale you have the small crofters to which I have referred, and at the other end of the scale you have the great capitalists of Berwick and the Lothians, represented in the Highlands by the larger and more extensive grazings. But between these two extremes there is a large class who are not embraced in them—the great bulk of the tenantry of Scotland, what I may call the middle-class tenantry—men paying between 100*l.* and 500*l.* a-year. Now, although I believe it to be true that the small cottar population of the Highlands is decreasing, I do not believe that this middle class is decreasing, but, on the contrary, is increasing. I myself have had some personal experience of all these classes of tenantry, and I know very well the immense advantage which it sometimes is to men who own land, and possessing great resources of their own. I know the owners in such circumstances find their rents very secure, and that there is very little trouble for the outlay of capital. I must say this, that tenants lay out great capital themselves without asking their landlords' assistance. I must say, passing from Berwickshire and the Lothians, that I never can cease to admire the magnificent crops there exhibited; and notwithstanding my own preference, perhaps arising from early associations and from the appearance of the country with which I am most familiar, and where I chiefly live—I confess that I do prefer the landscape which is most thickly covered with happy industrious homes. I should be ungrateful to a class of men to whom, I believe, the landowners of Scotland are under very deep obligation, if I did not say that I believed a great deal of the improvement of the land in Scotland has taken place under the care of men who are not great capitalists, who have seldom more capital than just enough to stock the farm, and have beyond that to depend upon their own labour, and that of their sons and daughters. I should indeed deeply regret any change, from whatever cause it might come, which would tend to depreciate or disparage the middle-class tenantry in Scotland, or which would tend to substitute for them men of great capital like the capitalists of the Lothians, or the great sheep farmers of the Highlands. I hope the great class of tenantry will continue to thrive and prosper, and that it will be the object of the landlords of Scotland to preserve them. Now, having said so much with reference to the inferences that have been erroneously drawn from false statistics, allow me to pass to another subject, to which I referred when first I had the honour of presiding over this Society, and which I must be again allowed to refer to, as it is the last time I shall have the honour to address you in the capacity of your President; and that is the importance of having real, genuine statistics to oppose to those imperfect, and, it may be, false statistics, which are culled from accidental sources of information by such eminent men as Prof. Leone Levi. I don't think that the errors into which that gentleman fell were due to the fact that he relied on statistics: on the contrary, the errors into which he and others fell are due to the fact that we have no reliable statistics of agriculture in this country. It is a disgrace to us that we should have to make such a confession at this time of day. I do not say this deprecatory of the Highland Society; because, so far as the Highland Society is concerned, mainly through the exertions that have been made by our distinguished secretary, Mr. Hall Maxwell, we have attempted to get something like a system of agricultural statistics for Scotland; but from various causes, to which I need not refer, the attempt broke down. The only part of the United Kingdom which is now able to present a complete and satisfactory statement of its agricultural produce is the sister kingdom of Ireland. I have now to inform you that it is the intention of her Majesty's Government to endeavour to get England and Scotland to provide a complete system of agricultural statistics. The difficulty hitherto standing in the way is that we have not had in England and Scotland the same complete machinery as in Ireland. I therefore make an earnest appeal to the tenant-farmers, who are intelligent enough to know the importance of knowledge in all its forms, to second the exertions of the Government to enable them satisfactorily to say what are the number of acres under each crop in the United Kingdom, and to give all such information. Were this done, and had we a good system of agricultural statistics, we should be able more effectually to refute the erroneous statements made by Professor Levi in his paper.

Northumberland.—At the late annual meeting of this Society Earl Grey spoke as follows on the agriculture of the county:—He was told by those who were far better judges than himself that in the show-yard there was abundant evidence, in the excellence of the stock and the number of the implements, of the progress which agriculture was making in the county. As to the fact, he thought that no doubt could be entertained by any who, like himself, were old enough to remember what the state of things was twenty-five or thirty years ago. The change in that time seemed to him, in looking back, almost marvellous. They remembered that at that time attempts which had been made to improve farming were few and feeble. Now, on the contrary, scientific farming was almost universal throughout the county. The sums which had been spent on drainage in Northumberland in the last 25 years alone might, he believed, be written not by thousands of pounds, but by hundreds of thousands. They also saw similar improvements in farm buildings, especially in the most important of farm buildings—he meant the cottages of the farm labourers. He could remember the time when the dismal Northumberland farm cottage was almost a by-word in the kingdom; and to a great extent he thought they deserved the reproach—they had incurred it by the state of their cottages. But he was happy to believe that at the present moment

there was no county in England in which more had been done in a limited time to improve the dwellings of the labouring class than in the county to which he was proud to belong. Within the same time they had also seen a wonderful change in the process of cultivation. Up to a certain number of years ago everything seemed to have got into a state of stagnation. People merely followed the beaten track of their forefathers, and there was scarcely known an attempt on the part of farmers to depart from time-honoured practices of former days. But they had latterly awoke from their trance. Extraordinary efforts had been made; and they now saw in every department of farming a wonderful change. The implements which they now know were no longer the old-fashioned ones of their forefathers; and there was no county in England where a larger proportion both of their Grass crops and of their corn crops was got by machinery instead of by hand than in Northumberland. That had all been done in a few years; and he was informed a few days ago by a tenant of his own that the cost of harvesting the crops now-a-days by machinery was less by one-half. That was all improvement. And in the same manner the increase of stock and the improved modes of managing it—the improved modes of cultivating, were all testifying to the progress which had been made. No doubt the farmers had a hard task in bringing about the great improvements they had done; but they had proved themselves equal to the task, and the proof of it was that at that moment the price of land in Northumberland was higher than at any former period, and it apparently tended rather to rise than to fall. The difficulties of the farmer had latterly been very great, but perhaps in the last 12 months those difficulties had been greater than usual, because, if he was not misinformed, the past year had been one of pressure and heavy trial to a large proportion of the county. If he was not mistaken, they had most of them found that the corn crop of last year was a very disappointing one, probably owing to the severe winds which prevailed at the critical season, and thus the crops had not come up to what was expected; and while the greater part of England had an unusually bountiful harvest, in Northumberland, on the contrary, the farmers had in general less than they calculated upon. That fact had been a heavy trial to the farmers of Northumberland; but it had been met in a great deal no doubt by the high prices they had received for their stock. That seemed to him to mark a sign of the reduction in the price of corn to which they would have to look forward in the future, because he did not think, if they looked to the future price of that commodity, they could look for any high price for corn in this country. Agriculture was extending and improving all over the world; the facilities of transporting corn were also increasing. Foreign countries were adopting railways, and even those countries which had been most behindhand and the exception were now adopting the railway. Thus those increased facilities were rendering the transport of corn to our shores from foreign countries more easy, and our population were enjoying the inestimable benefits of that cheap food which conduced so much to the general prosperity, and it was not likely we should return to the old prices. With respect to the growth of wool, the improved welfare of the population, their increasing numbers, as well as the increasing daily comforts of the people, would promote the demand for woollen clothes. On the whole, he thought that, with respect to farmer's stock and the growth of wool, they might look for a continued high price for some time to come. And that appeared to point out to them the direction in which their efforts should mainly be made in endeavouring to meet the difficulties which surrounded them as farmers. As to the increasing of the corn crop, he could tell them that it must be done in combination with an increase in the production of stock, and though there were great difficulties to be encountered—especially in certain districts of the county—in increasing the proportion of stock, from the nature of the soil on some of the heavier lands near the coast, he did not consider the matter a great difficulty. He looked to their deriving great assistance in that respect from the recent invention of the steam plough. He knew that some of those who had already tried that implement had been quite astonished with its benefits, and they believed that in a few years people would see the flat and heavy lands of this country largely cultivated by the steam plough, and they would by that means be enabled to raise a larger proportion of produce than was now done. He also recommended a greater growth of root crops, though it was almost in vain to grow such crops unless they could have them often. Much, however, might be done in that respect by the use of portable rails or tramways, which in some parts of England was carried out to a great extent, and which did very much in preventing land from being injured in getting away the crops.

Farm Memoranda.

[We take advantage of the immense body of agricultural evidence lately taken before the Hypothec Commission at Edinburgh to publish such extracts from it as will indicate the existing style of Scottish agriculture, and the enterprise and energy of Scottish agriculturists.]

(*Continued from page* 761.)

11. The Manure Trade. *Mr. William Hope.*—My firm (MacLean & Hope) has large transactions in these articles. We deal with a large number of farmers; most largely in the Lothians, but also in other parts of Scotland. In 1863 and 1864, the amount of seeds, guanoes, and other manures and feeding stuffs which we sold in the three Lothians, was 190.000*l.* for 12 months: our dealings with other counties are on a smaller scale. During the same time we bought about 75.000*l.* worth of all kinds of grain from the markets around Edinburgh. The principal markets from which we make these purchases are stock markets. The stock is put down in the market, and generally delivered that day; though to a large extent, in East Lothian, Edinburgh, and Dalkeith, the bag is only put down, and the bulk delivered the following day, or two or three days afterwards. The mass of what we buy is presumed to be in bulk. It is put on at the station nearest the farmer; but the day he sells it, it is in his barn at home. In Edinburgh we pay the parties with whom we are acquainted, if the stock is at the railway station, against a delivery order. If it is there, and we get a railway receipt or a delivery order, we pay that day; if it is at the Edinburgh station, the whole is entered in the market books as sold, equally as if it were in the market. At Haddington they enter the quantity given in by the farmers, and report the sale as if it were on the spot, and the buyer and seller arrange how and when it is to be delivered; but the whole is entered as sold, whether it is at the railway station or still in the farmer's barn. The same rule is followed at Dalkeith. About three years ago we had some difficulty as to payment before delivery of the bulk, the merchants refusing to pay till the stuff was brought forward. Some farmers ask us to pay at once, but most of them don't ask payment till it is delivered the following week. Under the law of hypothec, I have been called upon to pay over again once for grain and once for seeds. Our terms of credit are three months for Peruvian guano, and four months for other manures. We profess to exact payment at these terms, but we have frequently to give longer credits. If we had not to incur risks in many sales to the extent which we do by long credits, and if they were altogether cash transactions, I have no doubt the trade might be conducted with equal profit to us, and with a saving to those now buying on credit terms, to the extent, say, of 2½ per cent. Supposing the law of hypothec were abolished, and the uncertainty as to the tenant's position removed, I have not the least hesitation in saying roughly, that the prices would be reduced to that extent. Taking different parties chosen throughout the higher and lower parts of the Lothians from 1855 to 1862, I find that in one case the value of the seeds, manures, and feeding stuffs used, is nearly three times the rental of the farm. The rental is 849*l.*, and the expenditure ranges from 1040*l.* 10*s.* 3*d.* to 2263*l.*

12. Edington Mains, in Berwickshire: *Mr. John Wilson.*—I farm 1140 imperial acres, arable. I am also tenant of Rawburn, a Lammermoor sheep farm, of about 4000 acres. My rent is 3700*l.* I am author of the article Agriculture, in the "Encyclopædia Britannica," which was also published separately. My term of entry for all my farms is Whitsunday and separation of crop. My first rent for my low-country farms is payable at Whitsunday, 12 months, and for the sheep farm at Martinmas, six months after entry. The term of payment for the low-country farms is a very usual one, though there are many variations. Under a former lease, my first term's rent was postponed for 21 months; in the lease now current it is brought forward nine months, and that is becoming a very common arrangement in Berwickshire. Speaking generally, I think the term I have named for arable lands is one that very fairly meets the interests both of landlord and tenant. It is a fore-rent so far as the corn lands are concerned, because it is paid three months at least before the crop is ripe. Upon my low-country farms my annual payments for purchased manures, feeding stuffs, and Clover-seeds, are pretty nearly 1*l.* per acre over the whole farms. These payments are perhaps not so large in Berwickshire as in some other counties, because there is little or no Potato-growing in the county, and the Turnips are wholly consumed by live stock. I have suffered no direct loss from the law of hypothec, because I never happened to be creditor of a bankrupt tenant; but for the last 34 years, during which I have been a farmer, I have had frequent opportunities of witnessing its effects. I have come to a pretty decided opinion, that the law, as it stands, operates injuriously to the whole agricultural interest, including both landlord and tenant. I have observed three classes of evil consequences arising from it. The first of these is of comparatively rare occurrence. I refer to those cases, where persons have had to pay over again to the landlord for produce honestly bought, and paid for to the tenant. I think I could count on my fingers all the cases of that class which have occurred within my own observation, or which I have heard bout. They have been felt by the whole community to be a great injustice, and they have caused a great scandal whenever they have occurred. A more numerous and very distressing class of cases are those in which tradesmen, who have furnished commodities indispensable to the working of the farm, have virtually had their property confiscated. The landlord has been paid in full; and, though their commodities have gone into the land, and were as indispensable to the working of it as the labour of the farm-labourers, these tradesmen have either got nothing at all, or a very small composition for their debts. I refer to cart-wrights and mill-wrights, who have put up machinery, which has been virtually confiscated; blacksmiths, saddlers, brewers, bakers, seedsmen, manure dealers, and lime-burners. I have had occasion to observe instances of all these parties, where losses of a very distressing kind have been incurred. The third point to which I have referred is really the worst of all. I allude to the influence which the law has upon the letting of land. It appears to me, that it has in very numerous cases led to persons being accepted as tenants of farms, who undoubtedly did not possess adequate capital. The tendency of it has appeared to me to be, to exempt landlords or their agents from that prudence and foresight, which it would be otherwise necessary to use in such important transactions. I know that there are many landlords and agents who act as cautiously and prudently as they would if the law did not exist, but the tendency is as I have said; and I have seen very numerous instances where the effect has been to lead to the acceptance of tenants who never ought to have been put in such a position. Where I have had the opportunity of examining lists of offerers for farms, I have observed that the men of least means were usually most reckless in their offers. Those who were trading on insufficient capital, or on borrowed capital, were less cautious than men who had substance of their own. I have also seen this consequence ensue, that the landlord by accepting a man as tenant, and having of course an opportunity that nobody else had of inquiring into his means, gives him facilities for obtaining credit which he would not otherwise have; and I do think that a serious injury is done to those tradesmen around who are naturally led to deal with the man, and who have not the same opportunities of knowing what his real circumstances are that the landlord must have. That effect of the law is of very frequent occurrence in my observation, and I think it is the worst effect of all. I cannot say that I see my way to a total abolition of the law, because I think the landlord should have a reasonable security; but I think it should be shortened considerably in its operation. I understand that it enables the landlord virtually to obtain payment of two full years' rent (taking into account the stock and growing crop), leaving nothing to the other creditors at all. Now I think that is far too extended. When the law originated, the state of the country was very different from what it now is—there was not money either in the hands of landlords or tenants, and the rents could only be paid by kind being given; but the state of matters is now so different, that I think there ought to be a corresponding change in the law. The earlier payments of rent, which are now becoming common, meet the case to a considerable extent; but I think, when the first term's payment arrives, if the man is not prepared with his rent, the landlord should be entitled to have a preferable claim over what is on the farm. I would entirely abolish that part of it, which allows grain to be followed in the hands of *bonâ fide* purchasers. I think that is nothing short of an outrage. A *bonâ fide* sale by sample should be made equivalent to a sale in bulk. I think any change in the law should not affect existing leases. One main ground on which I desire to see a change, so far as landlords and tenants are concerned, is, that I think it would lead landlords generally to do what many of them do at present—viz., to take the greatest care, by inquiry and by requiring positive proof of sufficiency of means, to ascertain that any man who proposed to become a tenant was really a suitable person to put in that position. I believe it is admitted by all who have inquired into the subject, that both in Scotland and England nothing operates so much against the progress of agriculture and the productiveness of the soil, as its being occupied by men with insufficient means. Every improvement which has been introduced has been in the direction of making it needful that a tenant, in order to do any good, should have more means than sufficed under a different state of matters. I cannot say that I have observed any deterioration in the class of men who are tenants. Those in my own county are quite as responsible and respectable a class of men as they were formerly. There are none of the very small class of tenantry in Berwickshire; but there are numerous farms cultivated by one or two pairs of horses; and speaking generally, that class of tenanty are in as good circumstances, in proportion to the land that they occupy, as many of the larger farmers, and they usually pay at the same terms that others do. A change of the law would make no difference to them. There are many one-pair of horse farms in Berwickshire, and the tenants are in good circumstances. I know one tenant who farms 90 acres and pays 4*l.* or 5*l.* an acre for it, and I don't suppose there is a more industrious or thriving tenant in the county. He lives in the vicinity of a town, and may do a little carting. Many carry on carting in addition to their farms. Some of these men are purely farmers and don't carry on any other business. I do not think that the capital at present employed by tenants in farming in Scotland is sufficient generally for the holdings they occupy. Not only in Scotland, but in England, a very large proportion of the land is in the hands of men who are trying to farm it with insufficient capital. If rents were forehanded the tenant would require more capital in many cases, but a very large proportion of the farms in Berwickshire are fore-rented already. If a tenant had a farm of 200 acres, but if rented, with just sufficient capital to manage the

farm, if the law were repealed and the rents made fore-rented, the tenant would probably not be able to take a farm of that extent again, but I believe there is no lack of capital and no lack of farmers with adequate capital in the country. The competition for every farm that comes into the market is sufficient proof of that, and I think the change would have the effect of gradually leading to the selection of a different class of men. I don't mean that the size of the farms would be different, but it would lead landlords to be more careful in accepting offers to see that the person offering had adequate means to meet the rent and collateral engagements. I would rather not express an opinion on how it might operate on the large class of impoverished cottar-farmers in the Highlands; but, so far as my own observation goes, there is never any lack of competition for land. There are many men who succeed in getting farms at present who would not do so in a different state of matters, and I think it would be better for themselves and others that they did not. I am aware that in many cases landlords, or their agents, do what I think they should always do, viz.,—before closing a bargain with an offerer insist that he shall produce to them satisfactory proof that he possesses adequate funds to stock the farm, but I believe they are usually satisfied with that without asking anybody to become cautioner for payment of the first rents. I cannot see why, in principle, there should be a distinction between farm-labourers' wages, which are a preferable claim at present, and the accounts of blacksmiths, carpenters, and other tradesmen, who as certainly perform part of the labour of the farm as those who plough and do other agricultural operations, because without their work and furnishings the business could not be carried on. I also think that the accounts of merchants from whom seeds and manures, which go into the land and become the property of the landlord, are bought, stand in a different position from personal debts incurred by the tenant for his household living, &c. I am not prepared to say that these should be preferable to the landlord's claim, but they should stand more on an equality, and I think that would be sufficiently provided for by the change in the law which I have indicated.

(*To be continued.*)

Calendar of Operations.

Chatteris, Isle of Ely: *August* 8. — We have had another most unusual summer. Frost lingered long into the spring, and then in April Midsummer heat burst upon us so suddenly that all vegetation, from a state of barrenness and dearth, sprung into active life. From that time until the end of June or beginning of July we had scarcely any rain. Frosts, too, returned with cold N.E. winds the last three nights of April, and did incalculable mischief both to the Grass and corn crops. Wheats hurried into rapid growth by the unseasonable heat of April, were unfitted for such a severe change, and consequently suffered largely. In some of our fen districts they were cut down to the ground, and where not wholly destroyed, had to shoot again from the bottom, and have since grown weak and sickly. We estimated our own loss by those three nights' disaster at something like 500*l*, so fickle and liable to injury from atmospheric changes is our fen-land.

The drought of May and June occasioned our pastures to lose all their verdure, and to all external appearances the Grass was dead. Not a vestige of green was to be found, but brown barrenness characterised the whole. It was with difficulty that stock could be kept from shrinking and losing condition. The hay crop was the lightest we ever remember to have seen gathered. The rains of the last month have altogether altered the appearance of the country. Once more our fields look green and fruitful, and we have the promise of an abundance of autumn-keeping. The plague which has lately visited the metropolis and other parts of the country, causing such fearful losses amongst the cattle, will make farmers very timid in purchasing their winter supplies for manure-making purposes,—for that is their only use very frequently in this neighbourhood. As sources of profit we cannot regard them, but as useful machines we are compelled to have them.

Kohl Rabi has planted well, and promises to make a fair crop, although covered with "smother fly," which has to some extent injured it and retarded its growth. Mangels on cool lands are good, and will be a heavy crop. Coleseeds are generally a good plant, but a good deal infested with fly and other insect pests. The frequent showers we have had lately, with a rather lower temperature, will do much to help it, and it may yet prove a good crop. We sowed some early in June, on which we have 250 sheep now, and all thriving well.

It is merely uttering a truism to say, that the excessive drought of April, May, and June made the Wheat crops on our gravelly soils very light in bulk, and very short in the straw. We never before saw them so short, and where a full plant on the ground, so light in bulk. We are compelled to mow everything, it being impossible to reap them. On the earliest ripening soils we have a fair quality, but on the later lands there is much mildew. There will be a great deal of thin inferior corn in the fen districts this year. It is many years since we saw mildew so prevalent and so severe. We commenced cutting Wheat a fortnight ago, and last week stacked 100 acres.

Oats are very various; on some cool lands we have a heavy crop, as good as we have ever grown, whereas on warm dry soils they are short and poor. The crop generally is not favourably reported of, although greatly improved by the rains five weeks ago.

Barley is shorter than usual, but has a good head, and looks like yielding well, and producing a good average quality. Beans and Peas are both well-podded, but vary very much in the length of the straw, according as they are on a gravelly or clay subsoil.

As far as we can yet estimate the Wheat crop in this immediate locality, we should say it will be from one to one and a-half quarters per acre below an average; and the quality will range from very good to very bad, but we fear much more of the latter than the former.

Oats we should consider slightly below an average. Barley quite an average, perhaps a little over. Beans and Peas an average. Potatos at present promising, but disease may, as the result of the heavy rains of the last few days, soon appear. Kohl Rabi, Mangels, and Coleseeds a full average crop. Hay very bad indeed. *A. S. R.*

Notices to Correspondents.

Agricultural Progress: *Student.* The most discriminating and in all probability accurate account of it in the southern counties is that which was given by Mr. Blundell some time ago:—

Crops.	1840 to 1843. Average produce per Acre.	1860 to 1863. Average produce per Acre.	1843 to 1863. Acreage grown.	1843 to 1863. Quality.
Wheat	24 bushels.	29 bushels.	Increase 25 per cent.	No improvement
Barley	28 ,,	32 ,,	Decrease 20 ,,	Deteriorated.
Oats	31 ,,	42 ,,	Increase 10 ,,	Improved.
Beans	24 ,,	26 ,,	Increase 10 ,,	No improvement.
Peas	22 ,,	24 ,,	Increase 10 ,,	No improvement.
Rye for feeding ..	....	....	Doubled	....
Tares ditto	....	....	Doubled	....
Grasses for hay and feeding	....	....	Decrease 25 per cent.	No improvement.
Swedish Turnips ..	13 tons.	16 tons.	Decrease 20 ,,	Deteriorated.
Common Turnips ..	12 ,,	15 ,,	Increase 5 ,,	Improved.
Mangel Wurzel ..	18 ,,	25 ,,	Increase 15 ,,	Improved.
Cabbages, Carrots, Kohl Rabi, &c.	15 ,,	20 ,,	Increase 10 ,,	Improved.

Live Stock	1843 to 1863.
Horned cattle, fattened	double number.
Dairy cattle..	increase 10 per cent.
Calves raised for dairy purposes ..	,, 10 ,,
Calves raised for fatting purposes ..	,, 30 ,,
Value of cattle raised at two years old	,, 16 ,,
Sheep stock for breeding purposes ..	,, 25-30 ,,
Sheep stock for fatting purposes ..	,, 50 ,,
Value of sheep stock of all ages ..	,, 20 ,,
Swine of all ages	,, 30 ,,
Value of ditto	,, 10 ,,
Horses for farm work	no increase.
Value of ditto	increase 15 per cent.

"Great losses by disease unknown before 1840 have been reported of cattle and sheep."

Clean Cowhouses: *A Subscriber* says:—"I venture, Mr Editor, to ask you whether any one of your correspondents could be induced to write a plain, short article 'On the Necessity of Keeping Stables, Cowhouses, Piggeries, and Poultry Roosts Clean and well Ventilated,' and publish it in a cheap form. It is among the small farmers, of whom the majority follow old habits and customs, and have no means of learning modern ways of thinking, that a few words of good plain advice on such matters would be a boon, and if it could be bought cheaply, surely many landowners would gladly buy and distribute them."

Disinfecting Powder: *F K.* Mr. MacDougal, manufacturing chemist, Riga Street, Shude Hill, Manchester.

Rape Cake and Beanmeal: *Dairy.* The following is a comparison of Rape cake and Beanmeal in the experience of a cow-keeping correspondent:—Having seen Rape cake strongly recommended for cows, I was induced to try it, but the results are unsatisfactory; several of my cows will not eat it at all; the cow I put on trial liked the Rape cake, had calved about three months, and is an average cow. She gave on Rape cake 3 lb. 12 oz. of butter. When 4 lb of Beanmeal were substituted for 4 lb. of Rape cake, she gave 5 lb. 4 oz. of butter and 4 quarts 1 pint more milk. In addition to the cake or meal, I gave the cows 50 lb. a day of Turnips pulped up and mixed with hay and straw chaff; it is allowed to heat for 24 hours, and then given to the cows, who relish it extremely.

The Grub: *Messrs. Fergus, Farrell, & Son, Dublin.* It is unusually prevalent not only on your side of the water but in the northern counties of England. The wet weather of the past two weeks will be better than any artificial attempt to deal with the plague.

Oil Paint no longer Necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which Hill & Smith will forward on application.

From the Right Hon. the Earl of Shannon, *Castle Martyr, near Cork.*

"Gentlemen,—I have used your Black Varnish for several years, and consider it very superior, both for iron and wood work out of doors, to anything I have ever used. I shall always continue to use it. Near the sea it is particularly valuable, as it stands exposure when paint becomes corroded. I consider the iron Barrow essential to its use."

Sold in casks of about 30 gallons each, at 1*s.* 6*d* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the kingdom.

Apply to Hill & Smith, Brierly Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C., from whom only it can be obtained.

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WALTER CARSON AND SONS, of Great Winchester Street, respectfully notify that they have removed their principal office to their Warehouse in LA BELLE SAUVAGE YARD, Ludgate Hill, E.C. (three doors East of Railway Viaduct), and have discontinued their West-end Office, 31, St. James's Street.

CARSONS' ANTI-CORROSION PAINT, specially manufactured for out-door work, is the best and cheapest. All colours. Is simple in application, so that any person can use it.

Is twice as durable as genuine white lead. See Testimonials sent with patterns and prices post free.

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PATENT GUTTA PERCHA SOLES.—Important to Gardeners.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. Glenny, Esq., the celebrated Florist:—

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles.—Your obedient servant, "G. Glenny.

Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Calbotype trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town or country.

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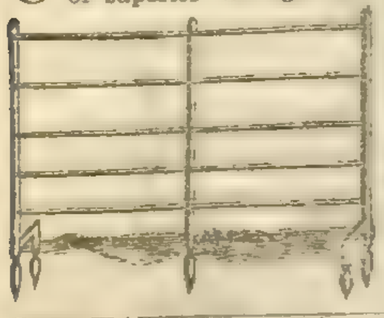

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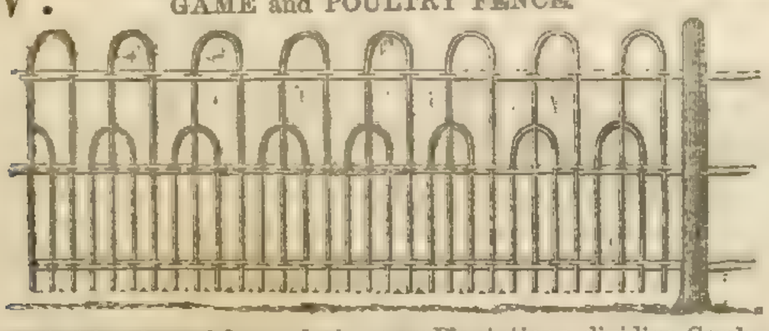

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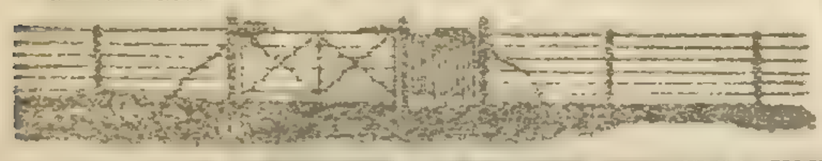

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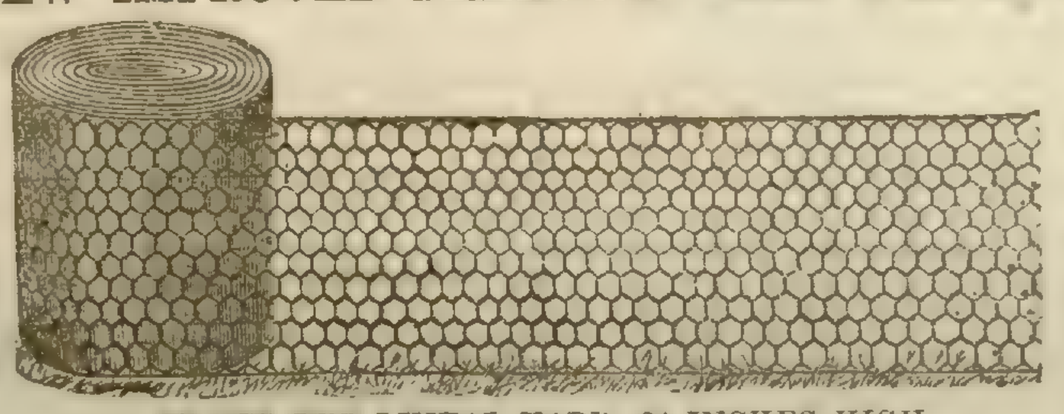

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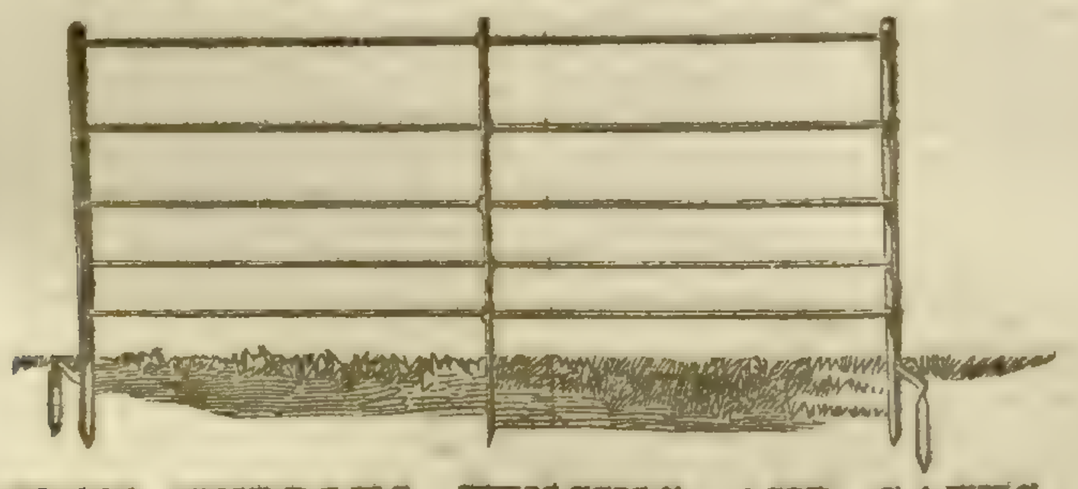

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Farm Buildings.

THE GENERAL LAND DRAINAGE and IMPROVEMENT COMPANY.

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George Thomas Clark, Esq.	William Fisher Hobbs, Esq.
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J. Bailey Denton, *Principal Engineer.*

This Company undertakes the Erection of Farm Houses, Farm Buildings, and Labourers' Cottages on Estates of every kind of tenure, whether Freehold, Entailed, Mortgaged, Trust, Ecclesiastical, Corporate, or Collegiate, or grant Loans for the purpose to landowners who desire to execute the works by their own Agents from their own designs.

The Company also furnish Approved Plans and Specifications of Farm Houses, Labourers' Cottages, and Farm Buildings of every description, and assist Landowners in carrying out the works by their own Agents.

The whole of the outlay in the Works, with all official expenses, may be charged on the Estate for a term of years to be fixed by the Landowners to meet the circumstances of tenants.

Works of Drainage, Irrigation, Enclosing, Wood Grubbing, and Road Making, may be executed in a similar manner.

No investigation of title being required, no legal expenses are incurred.

Applications to be made to William Clifford, the Secretary, at the Offices of the Company, 22, Whitehall Place, London, S.W.

THE LANDS IMPROVEMENT COMPANY.
Incorporated by Special Act of Parliament in 1853.
2, Old Palace Yard, Westminster, S.W.

Directors.

The Right Hon. the Lord Naas M.P., *Chairman.*

F. L. Dashwood, Esq.	Sir C. H. J. Rich, Bart.
William Hope, Esq., V.C.	Sir Wm. Russell, Bart., M.P.
John Horatio Lloyd, Esq.	G. R. H. Somerset, Esq.
The Hon. Wm. Napier	Philip Twells, Esq.
J. Follott Powell, Esq.	

To Landowners, the Clergy, Estate Agents, Surveyors, &c., in England and Wales, and in Scotland.

The Company advances money, unlimited in amount, for the following works of Agricultural Improvement, the whole outlay and expenses in all cases being liquidated by a rent charge for 25 years.

1. Drainage, Irrigation and Warping, Embanking, Inclosing, Clearing, Reclamation, Planting, for any beneficial purpose. Engines or Machinery for Drainage or Irrigation.
2. Farm Roads, Tramways and Railroads for agricultural or farming purposes.
3. Jetties or Landing places on the sea coast or on the banks of navigable rivers or lakes.
4. The Erection of Farm Houses, Labourers' Cottages, and other Buildings required for Farm purposes, and the improvement of and additions to Farm Houses and other buildings for Farm purposes.

Landowners assessed under the provisions of any Act of Parliament, Royal Charter, or Commission in respect of any public or general works of Drainage or other improvements, may borrow their proportionate share of the cost, and charge the same with the expenses on the lands improved.

No investigation of title is required, and the Company being of a strictly financial character do not interfere with the plans and execution of the Works, which are controlled only by the Government Enclosure Commissioners.

For further information, and for forms of application, apply to the Honourable William Napier, Managing Director, 2, Old Palace Yard, Westminster, S.W.

THE KAMES GUNPOWDER COMPANY'S CRYSTAL GUNPOWDER, packed in Red Japanned Canisters, No. 1 Fine, No. 2 Medium, No. 3 Large Grain.

London Office, 11, Lime Street, E.C.

The Kames Company [illegible] of their CRYSTAL [illegible] manufacture [illegible] throughout the country, and at the office, 11, Lime Street, London, E.C.

CARBOLIC ACID.—The best qualities of this Acid for Commercial, Agricultural, and Veterinary purposes, may be had from the original Manufacturers, F. C. Calvert & Co., Royal Institution, Manchester.

Price Lists forwarded free on application.

THE CATTLE PLAGUE.—The TONIC STIMULANT FOOD—PREVENTION BETTER THAN CURE.—No animal can become infected with this Disease if a Farthing Packet of THORLEY'S SPICY AROMATIC COMPOUND (costs one penny) be mixed with the ordinary food at each time of feeding. The Invention of Thorley has been proved to remove [illegible] and thus fortifying the animal against the insidious inroads of disease. To be had only in penny packets. None genuine without the Inventor's Signature [illegible] Druggists and Grocers throughout the World. Cases containing 48 penny packets, 4s.; half cases, 2s. 6d.; quarter cases, 1s. 6d.

N.B.—In case any difficulty arises in obtaining the genuine article, send a Post-office Order for 48s., 24s., or 12s., payable to the Inventor, Joseph Thorley, Speed Mills, Fairfield Bridge, Kings Cross, London, N., and an iron-bound case containing 48 packets will be sent, carriage paid, by the next Luggage Train to any Railway Station in the United Kingdom.

BRETONNE COWS.—The Nobility, Gentry, and others, are respectfully informed that they can be supplied with the above beautiful and profitable breed of cows in any number at the shortest notice. The great success [illegible] which has attended the efforts of the importer in introducing this Pure breed of this useful and large Cow into the country, has induced him to extend his connection abroad, by appointing an experienced Agent to travel in Brittany, and he is now enabled to offer the public a considerable supply of the choicest stock that can be selected of pure white Lady, [illegible] the Breed, [illegible] the Cattle, as well as the fancy Stock-keeper and Dairyman, the Importer has made arrangements to keep a large stock always on view. Price from 7 to 10 Guineas each, delivered free to any Railway in London.

For further particulars, apply to Messrs. Robertson & Co., 38, Crutched Friars, London, E.C.

To Market Gardeners and Farmers.

TO BE LET, about 90 ACRES of LAND in high Cultivation, within an easy distance from the London Markets. For particulars apply to Mr. W. T. Atwood, Land Agent, Mortlake.

Nursery Stock, Cheltenham.

To Noblemen, Gentlemen, and Others contemplating Planting, and to the Trade.

TO BE DISPOSED OF, by Private Contract, in large or small quantities, the valuable NURSERY STOCK now standing on the ST. JAMES'S NURSERY, near the Great Western Railway Station, Cheltenham, consisting of a good and general selection of Forest and Ornamental Trees, Pyramid, Trained, and Standard Fruit Trees, Conifers and Shrubs; also a very choice selection of Standard and Dwarf Roses, the whole of which will be offered at prices worthy of attention.

An early inspection and early orders solicited.

FOR SALE, a very choice SMALL FARM, with Immediate Possession. It comprises 57 Acres of exceedingly fine Land, admirably adapted for Market Gardening or Seed Growing purposes, close to a Station and Town, and within an hour of London.

Apply to Messrs. Newson & Stanley, Land Agents and Valuers, 2, Walbrook, Mansion House, E.C.

Stock Farms, near Guildford, to be Let.

TO BE LET, with Immediate Possession, or at Michaelmas next, those compact Farms called TUNMORE and HOMEHURST FARMS, at East Clandon, with good Dwelling House, two convenient Homesteads, four Labourers' Cottages, and about 260 Acres of Arable, Meadow, and Pasture Land, within 5 miles of the Market Town of Guildford.

For particulars apply to the Tenant on the Premises; or to Mr. Woods, East Clandon, near Guildford. Hatchlands, Aug. 12.

FARM TO LET, at Norwood, in the Parish of Croydon, Surrey, for a term of 7 years.—BIGGEN FARM, containing about 135 Acres, 47 being Meadow, a small part Wood, and the remainder Arable, with Dwelling House, Garden, Greenhouse, and extensive Farm Buildings. Situate about 7 miles from London, 3 from the Market Town of Croydon, 1 from the Railway Stations at Lower Norwood and Thornton Heath, and less than 2 from the Crystal Palace. The Shooting will be included.

For cards to view and further particulars apply to Messrs. Blake, Croydon, S.

TO BE LET, for a Term of Years, a first-class STOCK and CORN FARM, of 159 Acres, in the highest state of Cultivation, with Gentlemanly Residence, good and ample Homestead and Offices, situate 4 miles from Southampton. Entry at Michaelmas next will be given to a Tenant who will pay for Unexhausted Manures, &c., and take Live and Dead Stock, Crops, Tillage, &c., at a valuation.

For further particulars and to treat, apply with references to Mr. Joseph Blundell, Bursledon, Southampton.

Sales by Auction.

To Market Gardeners and Others.

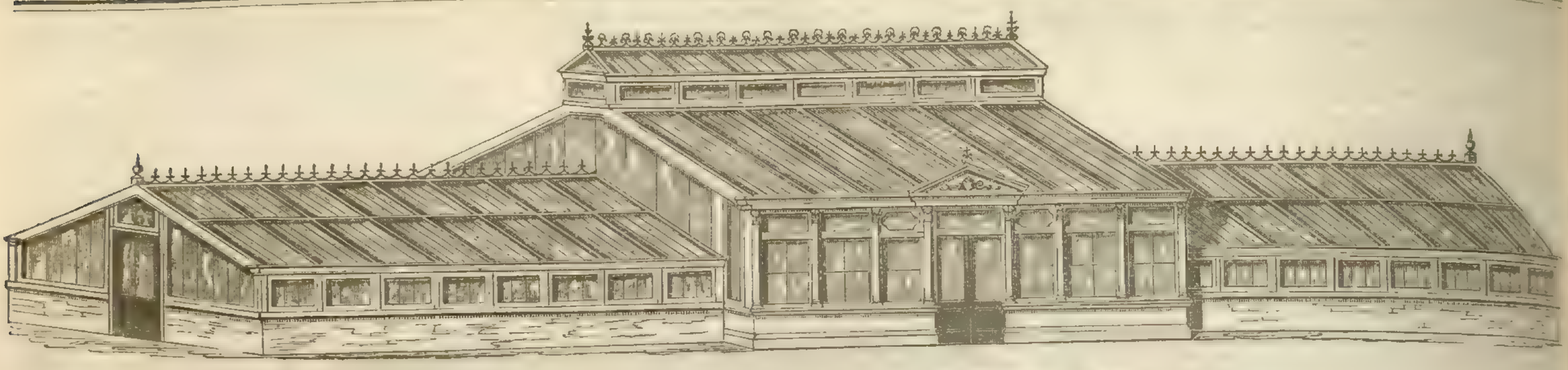
MESSRS. E. and C. NEWMAN have received instructions to LET by AUCTION, by direction of the surviving trustee of the late Thomas King, Esq., at the Flower Pot Inn, Sunbury, Middlesex, on MONDAY, August 28, at 12 o'Clock, for a term of years from Michaelmas next, part of the ARABLE and MEADOW LAND of the Old Farm, Upper Halliford, Middlesex, about 110 acres of good deep land, in lots of from 5 to 10 acres, well suited for Market Gardening purposes. The land is situate about 15 miles by road from London, and 1 mile from a station on the Thames Valley Railway.

May be viewed by leave of Mr. Kidner, the tenant, and printed particulars had at the place of Auction; Messrs. Fraser & May, Solicitors, 78, Dean Street, Soho, W.; Messrs. Clarke, Son, & Rawlins, Solicitors, 29, Coleman Street, City, E.C.; Mr. King, 243, Regent Street, W.; and at the Offices of the Auctioneers, Uxbridge and Church Farm, Harlington, Middlesex.

To Builders, Market Gardeners, and Others.

MESSRS. E. and C. NEWMAN have received instructions to LET by AUCTION, at the Flower Pot Inn, Sunbury, Middlesex, on MONDAY, August 28, at 12 o'Clock, the MARKET GARDEN, near the Cemetery, Sunbury, in the occupation of Mr. William Scarlett, and a FIELD of THREE ACRES, situate in the Green Lane, Sunbury, for a term from the 29th of September next; also TWO DETACHED VILLAS with Pleasure Grounds and Gardens, situate at Feltham Hill, close to the Station; and 1 at ground rents for 99 years, in FIFTEEN PLOTS of BUILDING GROUND, varying in frontage and depth from 140 to 200 feet, with option of purchase within 3 years; the Freehold, a FIELD of LAND, situate at Feltham Hill, Middlesex, most eligibly situated as a building site, standing high and dry, and a very easy distance of the Sunbury Station on the Thames Valley Line.

Particulars, with Plan of the Building Ground, may be had at the place of Auction; Mr. King, 243, Regent Street, W.; Messrs. Hancock, Saunders, & Hawksford, Solicitors, 36, Carey Street, Lincoln's Inn, W.C.; Messrs. Fraser & May, Solicitors, 78, Dean Street, Soho, W.; and at the Offices of the Auctioneers, Uxbridge and Church Farm, Harlington, Middlesex.



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MANUFACTURED BY STEAM POWER MACHINERY.

LOWEST PRICES AND BEST MATERIALS.

DESIGNING, BUILDING, HEATING, AND VENTILATING ON THE MOST APPROVED AND SCIENTIFIC PRINCIPLES.

Plans, Specifications, and Estimates on application.

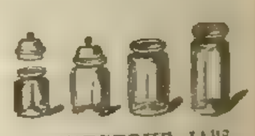
HENRY ORMSON, F.S.A.,

HORTICULTURAL BUILDER, AND HOT-WATER APPARATUS MANUFACTURER,

STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

NEW TARIFF OF GLASS AND HORTICULTURAL GOODS.

THOMAS MILLINGTON,



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GLASS AND COLOUR MERCHANT,

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HAND GLASSES.

REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.

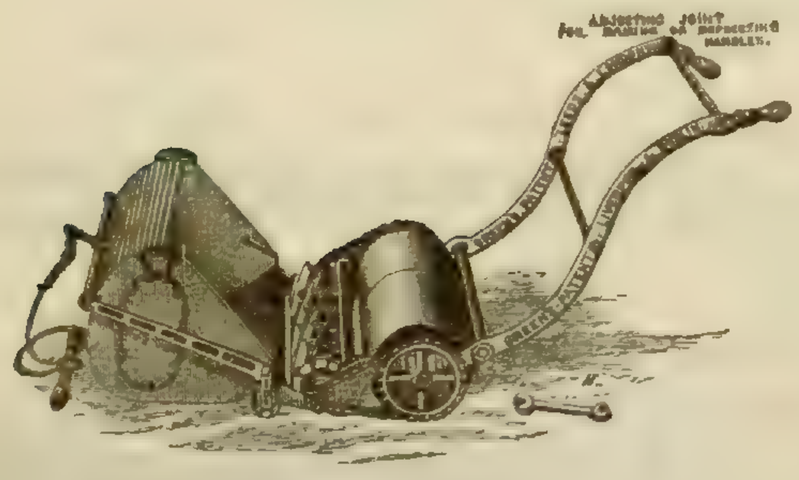
MILK PANS.

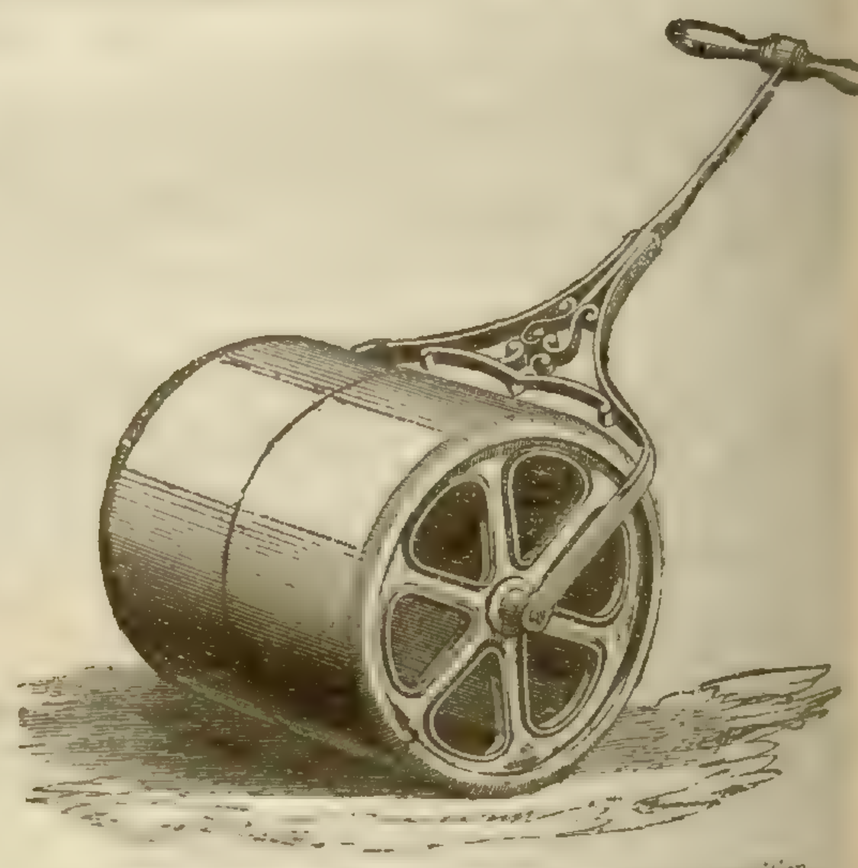
See Advertisement the first week in the month, or on application.

GREEN'S PATENT SILENS MESSOR,

OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.





GREEN'S PATENT LAWN MOWERS have proved to be the best, and have carried off every Prize that has been given in all cases of competition. Above 26,000 have been sold since the year 1856.

Illustrated Price Lists of Lawn Mowers and Garden Rollers Free.

THOMAS GREEN AND SON,

SMITHFIELD IRON WORKS, LEEDS; 2, FARRINGDON ROAD, HOLBORN HILL, LONDON, E.C.

HADWIN'S BUILDINGS, TITHEBARN STREET, LIVERPOOL; and 19, EDEN QUAY, DUBLIN.

Editorial Communications should be addressed to "The Editor," Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by William Bradbury, of 13, Upper Woburn Place, in the Parish of St. Pancras, in the Co. of Middlesex, and Frederick Mullett Evans, of No. 11, Bouverie Street, in the Precinct of Whitefriars, City of Lon. Printers, at their Office, Lombard St., Precinct of Whitefriars, City of London, and Published by them at the Office, No. 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said Co.—Saturday, August 19, 1865.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 34.—1865.] SATURDAY, AUGUST 26. {Price Fivepence. Stamped Edition, 6*d*.

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ADVERTISEMENTS *intended for the* CURRENT WEEK'S NUMBER *should reach the Office not later than* THURSDAY.

CRYSTAL PALACE.—AUTUMN GREAT SHOW of FRUIT and FLOWERS, WEDNESDAY and THURSDAY, August 30 and 31. One Shilling each day.

GREAT INTERNATIONAL FRUIT and FLOWER SHOW, promoted by the HORTICULTURAL SOCIETY of EDINBURGH, to be held on WEDNESDAY, September 6, in the Assembly Rooms and Music Hall, George Street.
Intending Competitors must give Notice to the Secretary in writing three clear Days before the Show, and specify the Classes and Numbers in which they are to exhibit.
33, South Bridge. WILLIAM YOUNG, Secretary.

HUNTINGDONSHIRE HORTICULTURAL SOCIETY.—OPEN PRIZES.
The AUTUMN SHOW of this SOCIETY will be held (by kind permission of the Right Hon. the EARL of SANDWICH) in Hinchingbrook Park, on WEDNESDAY, September 13, when, besides the Prizes offered in the Schedule for Members, the following will be given, Open to all England:—
For the best 24 Dahlias, 24 varieties, 1st prize £3; 2d, £2.
For the best Collection of Fruit, 10 varieties, 1st prize £3; 2d £2.
Intending Exhibitors must give Notice to Mr. INGRAM, the Nurseries, Huntingdon, on or before Saturday, September 9.

Pines.
B. S. WILLIAMS begs to announce that he has a fine Stock of the above, including all the best kinds. Prices on application.
Paradise and Victoria Nurseries, Holloway, London, N.

NEW GRAPE, "ROYAL VINEYARD," the best late White Grape extant. Strong planting Canes, 10*s*. 6*d*. each; strong fruiting, 21*s*. each.
B. S. WILLIAMS, Paradise and Victoria Nurseries, Holloway, London.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

Orchard-house Culture.
MESSRS. THOS. RIVERS AND SON invite those interested in the above culture to view their COLLECTION of FRUIT TREES and VINES, occupying houses nearly 3000 ft. in length. PEACHES and NECTARINES are now ripening.
The Harlow Station, G. E. Railway, is the most convenient for the Nurseries. Nurseries, Sawbridgeworth.

WALL-TRAINED FRUIT TREES of BEARING SIZE.—Our stock of the above this season is very clean and fine. Many trees could now be seen and selected with fruit on. An inspection is respectfully invited.
THOMAS JACKSON & SON, Nurserymen, &c., Kingston, S.W. (adjoining the Kingston Station of the South Western Railway, Windsor Branch).

Castle Kennedy Fig.
PETER LAWSON AND SON, London and Edinburgh, have made arrangements to send out the above valuable acquisition in OCTOBER NEXT, and are now booking orders, which will be executed in strict rotation as received.
Plants 10*s*. 6*d*. each; a few extra strong at 21*s*. each.
Special terms to the Trade, and circulars with list of awards and further particulars may be had on application.

STRAWBERRY PLANTS.—Strong, for immediate planting. PRICED DESCRIPTIVE LIST may be had.
STEPHEN BROWN, Nurseryman, Sudbury, Suffolk.

CUTHILL'S STRAWBERRY PLANTS.—Black Prince, Princess Royal, Richard II., Highland Mary, Newton Seedling, and the splendid Prince of Wales, all at 5*s*. per 100, all for bearing in 1866. Dr. Lindley has often said, "To make sure of a crop, have CUTHILL'S Breed."
SPAWN, 5*s*. per Bushel. Mushroom Pamphlet, with New Appendix, 1*s*. 3*d*.; Market Gardening, 1*s*. 6*d*.; Cucumber and Melon, 1*s*.; Strawberry, new system, 1*s*.; Potato, &c., 1*s*. 6*d*.
PRINCE ALBERT WINTER CUCUMBER, 1*s*. per packet. Stamps or Order on Camberwell Green.
JAMES CUTHILL, Camberwell, London, S.

20,000 STRAWBERRY PLANTS of all the popular kinds; warranted true; well rooted. To be sold reasonable. Price upon application.
CATALOGUE of NEW and CHOICE PLANTS of 1865, upon application to
DILLISTONE, BROTHERS, & Co., Sturmer and Woodlands Nurseries, near Halstead, Essex.
Two minutes walk from the Sturmer Station, Great Eastern Railway.

J. IVERY AND SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

A. VAN GEERT, NURSERYMAN, Ghent, Belgium, begs to inform Amateurs and the Trade, that his NEW GENERAL CATALOGUE of PLANTS is just published, containing many very interesting Novelties. May be had on application, of Messrs. R. SILBERRAD & SON, Agents, 5, Harp Lane, Tower Street, London, E.C.

Fresh Imported Dutch Flower Roots.
SUTTON AND SONS have the pleasure of announcing the arrival of their first Consignment of the above. The quality of the roots is very fine, and the prices will be moderate.
SUTTON'S AUTUMN CATALOGUE, now in the Press, will be shortly published, and forwarded gratis and post free on application.
Royal Berkshire Seed Establishment, Reading.

HUGH LOW AND CO. beg to announce the arrival of their annual importations of DUTCH FLOWER ROOTS, for which they respectfully solicit early orders.
CATALOGUES can be had on application.
Clapton Nursery, London, N.E.

Hyacinths, Tulips, &c.
WM. HOOPER'S Annual Importation of DUTCH FLOWER ROOTS has just arrived. Early Orders are respectfully solicited. W. H. will be happy to forward his PRICED CATALOGUE, free on application.
St. John's Hill Nursery, New Wandsworth.

CARTER'S GARDENER'S VADE-MECUM, AUTUMN SUPPLEMENT of DUTCH and CAPE BULBS and PLANTS, is now ready.

Guernsey and Bella Donna Lilies, 5s. 6d. per dozen.
BARR AND SUGDEN, SEED and PLANT MERCHANTS, 12, King Street, Covent Garden, W.C
HYACINTHS, TULIPS, CROCUS, NARCISSUS, &c., just received from Holland in excellent condition.

Guernsey and Bella Donna Lilies.
SUTTON AND SONS have just received a good supply of the above beautiful LILIES, and can offer them at 6*s*. per doz.
Royal Berkshire Seed Establishment, Reading.

To the Trade.
DOBSON'S EXTRA CHOICE SEEDS.
Woodlands Nursery, Isleworth, W.

DOBSON'S UNEQUALLED SEEDS.
CALCEOLARIA, hybridized, 1*s*. 6*d*., 2*s*. 6*d*., 3*s*. 6*d*., and 5*s*.
CINERARIA, ex. ex., 1*s*., 2*s*. 6*d*., and 5*s*.
PRIMULA SINENSIS FIMBRIATA, 1*s*., 2*s*. 6*d*., and 5*s*.
PELARGONIUM, show and fancy, 2*s*. 6*d*. and 5*s*.
STOCK, SCARLET INTERMEDIATE, 6*d*. and 1*s*.
SWEET WILLIAM, 6*d*. and 1*s*.
HOLLYHOCK, 1*s*. and 2*s*.
The above Seeds are strongly recommended for their superior quality, especially to amateurs who grow but few and like them good.
J. DOBSON & SONS, Woodlands Nursery, Isleworth, W.

Roses.
DR. LINDLEY would be greatly obliged to any Gentleman in the Trade who will favour him with his LIST or CATALOGUE of ROSES now on Sale.

Roses in Bloom.
JAMES MITCHELL respectfully informs the Nobility and Gentry his renowned ROSES are NOW in FINE BLOOM.
Pilt Down Nurseries, Maresfield, Sussex, Two and a half Miles from the Uckfield Station.

Roses.
The PREMIER PRIZES at the NATIONAL, BIRMINGHAM, LEICESTER, STAMFORD, and BOTANIC JULY SHOWS.
PAUL AND SON respectfully invite an inspection of their COLLECTION NOW in BLOOM. The Show will continue from now till October; a piece of 40,000 only now commencing to flower. Their Collection of Specimen and young Conifers, and Ornamental Foliaged and beautiful Trees, as well as bearing Pyramid Fruits, is worthy of a visit. They would solicit from their Patrons early Rose Orders.
Old Cheshunt Nurseries, Cheshunt, N.

Hollyhocks.
PAUL AND SON'S Splendid COLLECTION of HOLLYHOCKS also is FINELY in BLOOM.
Reached by Rail to Cheshunt Station, Great Eastern Railway.

Gladioli, Pæonies, and New Roses.
EUGÈNE VERDIER, Fils Aîné, NURSERYMAN, 3, Rue Dunois, Paris, has the honour to inform his customers and the Trade generally that he is now publishing his SPECIAL and DESCRIPTIVE CATALOGUES of the above for 1865, which can be obtained of his Agents,
Messrs. BETHAM & BLACKITH, Cox's Quay, Lower Thames Street, London, E.C.

Shrubs, Roses, Fruit Trees, &c.
WM. CUTBUSH AND SON'S GENERAL NURSERY STOCK is the best near London.
GLADIOLI, fine, from 4*s*., 6*s*., 9*s*., & 12*s*. per dozen.
CATALOGUES on application.
Highgate Nurseries, London, N.

Hardy Ornamental Trees and Shrubs.
OSBORN AND SONS invite lovers of Ornamental Planting to an inspection of the varied forms and foliage of their unrivalled collection of the above, to which they have for many years devoted especial attention.
PRICED CATALOGUES, consisting of upwards of 1500 species and varieties, may be had on application.
The Nurseries, Fulham, London, S.W.

Primula sinensis fimbriata.
HOOPER AND CO.'S is unsurpassed in every good quality. Deep carmine or white, each 1*s*., 2*s*. 6*d*., and 5*s*. per packet. Post free.
Seed Merchants, Covent Garden Market, London, W.C.

British Fern Catalogue.
ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
*** Part II. (Exotic Ferns) will be issued as early as possible.
Foot's Cray Nursery, S.E.

To the Seed Trade.
COLLINSIA VERNA, NUTTALL.
WM. THOMPSON, SEEDSMAN, Tavern Street, Ipswich, begs to announce that he is now ready to supply NEW SEED, for Autumn Sowing only, of the above beautiful Spring-flowering Annual. Prices may be had on application.
Retail packets free for seven stamps.

Stove Plants.
FOR SALE, in One Lot, 150 clean healthy STOVE PLANTS, in upwards of 50 varieties, many of them large plants. The entire will be sold for £10, as they must be removed from the premises. Railway communication to all parts of Ireland.
For Catalogues, &c., apply to Mr. BERNARD M'CABE, Streamstown, Mohill.

Paul's Nurseries, Waltham Cross, N.
BEATON'S GERANIUMS are NOW in FULL BLOOM.
Entrance from the Platform, Waltham Station (G. E. Railway), half an hour's ride from London.

GERANIUM MRS. POLLOCK.—Very strong Plants of this can be supplied at 18*s*. per dozen. Price to the Trade per dozen or 100 on application to
JOHN SCOTT, Florist, Bathford, near Bath.

PELARGONIUM MRS. POLLOCK.—Strong Summer-struck Plants, well established in 60-pots, at 18*s*. per dozen.
The Trade supplied.
ALFRED FRYER, Nurseries, Chatteris, Cambridgeshire.

Choice Hybridised Pelargonium Seed.
EDWIN COOLING has a small quantity of the above, saved from all the newest and best varieties, to offer, in packets, as follows, free by post:—
Large-flowered, Show and Spotted, 2*s* 6*d*.; Fancy, 2*s*. 6*d*.
Also PRIMULA, CALCEOLARIA, and CINERARIA, of superb quality, at 1*s*. and 2*s*. 6*d*. per packet each.
Mile Ash Nursery, Derby.

Aquilegia cœrulea, Torrey.
W. THOMPSON, SEEDSMAN, Tavern Street, Ipswich, respectfully offers for Autumn Planting, good roots of the above splendid NEW COLUMBINE from the Rocky Mountains, for which two First-class Certificates were awarded at the Spring Shows of the present year.
A Coloured Figure is published in the "Floral Magazine" for August. Price 3*s*. 6*d*. each.
A DESCRIPTIVE CIRCULAR, comprising several other New and Choice Hardy Perennials, may be had on post paid application.

BEDDING-OUT PLANTS in great variety.
WINDOW JARDINETS, Empty or Furnished, in variety.
The "Gardeners' and Amateurs' Fr[illegible]" [illegible]
BARR & SUGDEN, 12, King Street, Covent Garden, W.C.

CRYSTAL PALACE, ROYAL BOTANIC, and ROYAL HORTICULTURAL FLOWER SHOWS.
At these PLANT CASES will be exhibited in great variety, furnished with the Choicest Exotic Fern and Foliage Plants, arranged by BARR & SUGDEN, of 12, King Street, Covent Garden, W.C.

First Quality.
CALCEOLARIA, PRIMULA, CINERARIA, CARNATION, PICOTEE, PINK, AURICULA, VERBENA, MIMULUS, ZONALE GERANIUM and PELARGONIUM.
Each 2*s*. 6*d*. per packet.
BARR & SUGDEN, 12, King Street, Covent Garden, W.C.

E. G. HENDERSON AND SON offer SEED of CALCEOLARIA, CINERARIA, and PRIMULA of first-class quality, at 1*s*., 2*s*. 6*d*., and 5*s* per packet. Also the finest SCARLET and INTERMEDIATE STOCK, 6*d*. and 1*s*. each.
SEED of CYCLAMEN PERSICUM, of similar quality, 6*d*. and 1*s*. each, and in mixed colours 2*s*. 6*d*. per packet.
The Wellington Nursery, St. John's Wood, London, N.W.

H. AND F. SHARPE, SEED GROWERS and MERCHANTS, Wisbech.
SPECIAL PRICED LIST of NEW SEEDS on application.

Genuine Garden and Agricultural Seeds.
JAMES CARTER AND CO., SEED FARMERS, MERCHANTS, and NURSERYMEN, 237 and 238, High Holborn, London, W.C.

NEW and GENUINE AGRICULTURAL, GARDEN, and FLOWER SEEDS.
Special prices and advantageous offers on application to
JAMES FAIRHEAD & SON,
Seed Growers and Merchants, 7, Borough Market, London, S.E.

RAYNBIRD, CALDECOTT, AND BAWTREE, SEED FARMERS and MERCHANTS,
89, Seed Market, Mark Lane; and Basingstoke.
Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

TO THE TRADE.
SUTTON'S STUDENT PARSNIP SEED, 1*s*. per lb.
VARIEGATED KALE SEED (special), 2*s*. per lb.
SWEET WILLIAM SEED do. 9*d*. per oz.
DELPHINIUM FORMOSUM SEED, 3*s*. 6*d*. per lb.
1-year's SEEDLING OAKS, 2*s*. 6*d*. per 1000.
FERN ASPLENIUM BULBIFERUM, 1*s*. 6*d*. each, 4-in. pots.
FRANK WALWORK, Seed Merchant, Stamford.

SUTTON'S RINGLEADER PEA.—The orders recently received for this very EARLY PEA are very numerous; and as we were unable to supply fully the demand last Spring, we respectfully solicit early orders to secure a full supply.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Cabbage Seed for present Sowing.
SUTTON AND SONS have a good stock of fresh Seed of all the best kinds of CABBAGE for the Farm and the Garden.
Royal Berkshire Seed Establishment, Reading.

DRUMHEAD CATTLE CABBAGE PLANTS, 3*s*. per 1000, prepaid, may be had of
Mr. A. WILKIN, Tiptree, Kelvedon, Essex.

DICKINSON'S NEW ITALIAN RYE-GRASS SEED is now ready for delivery. Sold only by himself to Agriculturists, and for present payment, at 4*s*. per quarter, or 7*s*. per bushel.
New Park, Lymington, Hants.

Meadow Grass Seeds for Autumn Sowing.
SUTTON AND SONS would recommend MEADOW and PASTURE GRASS SEEDS to be Sown Early in the Autumn, or not until the Spring.
Royal Berkshire Seed Establishment, Reading.

NEW TRIFOLIUM INCARNATUM.
" " late variety.
ITALIAN RYE-GRASS, imported Seed.
JAMES CARTER AND CO. have fine samples of the above at very low prices. Prices and sample on application.
JAMES CARTER & Co., 237 & 238, High Holborn, London, W.C.

New Late Trifolium.
SUTTON AND SONS have just received a supply of each of the NEW VARIETIES of TRIFOLIUM—LATE RED and LATE WHITE. The quality of both is quite equal to the Common variety, with the advantage of coming in a fortnight later. The present prices are, for
NEW LATE RED FLOWERING, 8*d*. per lb. [illegible] cheaper by [illegible]
NEW LATE WHITE FLOWERING, [illegible] per lb. [illegible]
Also the COMMON TRIFOLIUM INCARNATUM, [illegible] per lb., cheaper by the cwt. Carriage free, except small parcels.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Improvements in Parks, Gardens, Plantations, &c.

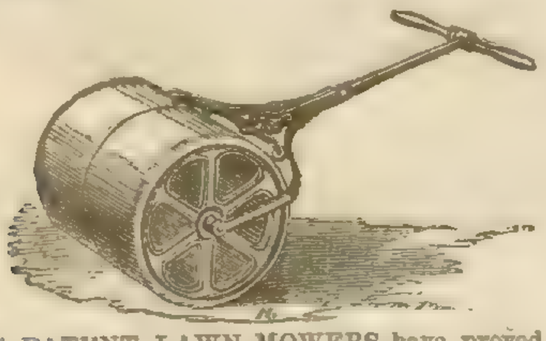
MR. NEWTON, 30, Eastbourne Terrace, W., Author of "Picturesque Garden Plans," executes such works; and, having just visited the best laid-out grounds in France, Switzerland, Italy, Austria, &c., he can introduce new styles with economy. Reference given to works completed in several parts of the United Kingdom.

To the Seed Trade.

HOOPER AND CO.'S ETRUSCAN and GRECIAN HYACINTH VASES.—Beautiful new patterns for the coming season are now ready. They have proved far superior to Glasses for the successful growth of Hyacinths in water, and are consequently in great demand. Lists on application.
HOOPER & Co., Seed Merchants, Covent Garden Market, London, W.C.

THE PRUSSIAN FLOWER STICKS and TALLIES are the best made, and can be had Wholesale of
BETHAM & BLACKITH, Cox's Quay, Lower Thames Street, London, E.C.
And Retail of any Nurseryman and Seedsman in Town or Country.

GREEN'S PATENT SILENS MESSOR, or NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.



GREEN'S PATENT LAWN MOWERS have proved to be the best, and have carried off every Prize that has been given in all cases of competition. Above 26,000 have been sold since the year 1856.
Illustrated Price Lists of Lawn Mowers and Garden Rollers Free.
THOMAS GREEN & SON, Smithfield Iron Works, Leeds; 2, Farringdon Road, Holborn Hill, London, E.C.; Hadwin's Buildings, Tithebarn Street, Liverpool; and 19, Eden Quay, Dublin.

SHAW'S PATENT FLEXIBLE SELF-ADJUSTING LAWN MOWING MACHINES.

Full Particulars, Drawings, and Prices, post free on application to the Patentee and Manufacturer.
JOHN SHAW, Junction Works, New Wortley, Leeds.

SMITH, BECK, AND BECK'S GREENHOUSE and HOTBED THERMOMETERS.—These Instruments are of the very best construction, and at moderate prices.
31, Cornhill, E.C.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.

PROTECTION from the SCORCHING RAYS of the SUN.
"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.

Two yards wide	1s. 9d. per yard run.
Four yards wide	3s. 6d. per yard.
An improved make, 2 yards wide ..	1s. 9d. per yard.
An improved make, 3 yards wide ..	2s. 8d. per yard run.

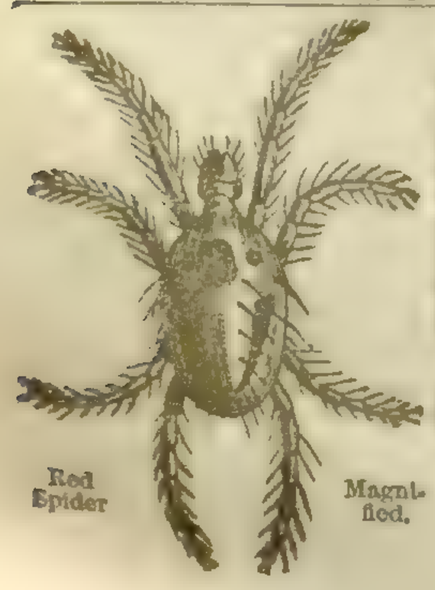
Also "Frigi Domo" Netting, 2 yards wide, 1s. 6d. per yard run.
ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, and of all Nurserymen and Seedsmen throughout the kingdom.
"It is much cheaper than Mats as a covering."

GARDEN BORDER EDGING TILES, in great variety of patterns and material, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.
F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.
Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.
Also TESSELATED PAVEMENTS of more enriched designs than the above.
WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cements, &c.
To be obtained of F. & G. ROSHER, at their Premises as above.

SILVER SAND (REIGATE, best quality), at the above addresses—14s. per Ton, or 1s. 3d. per Bushel; 2s. per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less.
FLINTS, BRICK BURRS or CLINKERS, for Rockeries and Grotto Work.
F. & G. ROSHER.—Addresses see above.
N.B. Orders promptly executed by Railway.



GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes, 1s. 3s., and 10s. 6d. each.

Wholesale by
PRICE'S PATENT CANDLE COMPANY (LIMITED),

COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 2s. per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped, J. BARSHAM'S Patent.

New Catalogue of Plants, Dutch Bulbs, &c.

ROBERT PARKER begs to announce that his NEW CATALOGUE, containing Select Descriptive and Priced Lists of New, Rare, and Beautiful Greenhouse, Hardy, and Stove Plants, Fruit Trees, Grapes, &c., Amaryllis, Crocuses, Gladioluses, Hyacinths, Narcissus, Tulips, and other Bulbs, is now published, and will be forwarded to applicants.
Exotic Nursery, Tooting, Surrey, S.

WELLINGTONIA AUREO-VARIEGATA.

Height	11 feet 6 inches.
Circumference of Branches	30 feet
Circumference of Trunk ..	2 feet 4 inches.
This Season's shoot	2 feet 9 inches.

Originated at "The Lough Nurseries," Cork.
This singular Tree is now in great beauty; every shoot is heavily marked with rich gold, which hangs in tassels, and when seen in sunshine is most beautiful and unique.
The Variegation has been constant since the Tree was one foot high.
It may be seen at the above address until the end of October, the usual time for stripping the cuttings.
RICHARD HARTLAND, The Lough Nurseries, Cork.

Early Spring Feed.—Seeds for Autumn Sowing.

PETER LAWSON AND SON can supply of excellent quality—

ITALIAN RYE-GRASS	RYE
TRIFOLIUM INCARNATUM	WHITE MUSTARD
WINTER TARES	

CLOVER and NATURAL GRASS SEEDS for PERMANENT PASTURE, &c.
Also New Seed of BROMUS SCHRADERI, 2s. 6d. per lb., and the New Hardy Clover, TRIFOLIUM STRIATUM, 2s. per lb.
PETER LAWSON & SON, the Queen's Seedsmen, 28, King Street, Cheapside, London, E.C.; and at Edinburgh.

To the Seed Trade.

THE NEW INVINCIBLE SCARLET SWEET PEA.—Seed from the New Crop has now been saved, and can be supplied for Autumn Sowing.
This invaluable Pea is unquestionably one of the most important novelties among annuals of late years introduced. A First-class Certificate was presented by the Council of the Royal Horticultural Society on July 11 last, and it is described in the *Gardeners' Chronicle* as "a very fragrant and high-coloured Pea." It has been this season growing in the grounds of the Society for inspection. The flowers are strikingly brilliant, and entirely distinct from any other; the upper petals intense scarlet, with a slight variation in the lower ones, which have a deep crimson tinge. It also possesses the desirable quality of Permanence of Colour. Unlike the common Scarlet, whose colour after first opening grows paler till the flower goes off, the Invincible retains its brilliance throughout, a mass of it consequently presenting an extraordinary contrast when seen near a mass of the common Scarlet.
The New Colour being so much wanted among this popular tribe, a small quantity offered in packets last year was consequently rapidly sold out, and numbers who purchased have spoken of it in very high terms.
Prices to the Trade sent on application. Orders are solicited early, as the Stock may be short, and many orders are already received.
STEPHEN BROWN, Seed Grower, Sudbury, Suffolk.

Improvement of Grass Lands
BY SOWING GOOD SEEDS OF MOST SUITABLE KINDS.

SUTTON'S RENOVATING GRASS SEEDS.

SEEDSMEN BY APPOINTMENT. Sutton AND Sons

SEED NOW READY.

These Seeds consist of the [illegible] CLOVERS and FINE [illegible] improving the bottom.

8 to 12 lb. per acre will be sufficient, and will effect a great increase in the produce.

SUTTON & SONS,
Royal Berkshire Seed Establishment,
Reading.

For Present Sowing.—Trifolium incarnatum, Italian Crimson Clover.

SEEDSMEN BY APPOINTMENT. Sutton AND Sons

SUTTON AND SONS can now supply NEW SEED of the above fine quality. The price is 4d. per lb., or cheaper by the cwt.

The quantity to be sown is 28 lbs if alone, or if with Italian Rye-grass 8 lbs. is sufficient.

Also MUSTARD and RAPE, new crop, low prices, which may be had on application.

SUTTON & SONS,
Royal Berkshire Seed Establishment,
Reading.

To the Lovers of Fine Fruit.

THE LADY.—It is 10 years since (as an Amateur) I introduced to the Public my Seedling Strawberry which is now declared to be the most valuable variety at the time in England, for in a leading article in the *Gardeners'* of the 24th June last, alluding to the great failure of the crop this year, it is stated that near Isleworth and Brentford as the extensive tracts of land which once belonged to the Duke of Syon, the failure is complete, and the only kind of Strawberry bore a fine and abundant crop was the Sir Harry, "the which will become memorable." Having for many years past my attention to the raising of Seedling Strawberries, of which I yearly produced some hundreds, I feel convinced that the one now being introduced will prove itself to be the finest ever raised. Many First Prizes have been already awarded at Horticultural Exhibitions for both forced and other fruit.
The Lady ripens about the time of the British Queen, and continues fruiting a long time; is a great cropper, bearing a large fruit of a salmon colour, tinged with crimson, and pointed at the very end; the seeds are small and few, the flesh is very [illegible] melts in the mouth, the flavour is between a Pine and a Melon, and is most delicious, with the highest perfume I have ever [illegible] The entire of the crop is of large size, no useless fruit [illegible] and it is as good a forcer as the Sir Harry.—Yours, &c.,
RICHARD UNDERHILL, Sir Harry's Road, Edgbaston, Birmingham.
Plants are now ready to be sent out (in lots of not less than [illegible]
All applications must be accompanied by a Post Office [illegible] Birmingham, Postage Stamps, or Cash, to receive attention.

PRICES OF THE LADY.

100 Strawberry Plants,	£5 0	50 Strawberry Plants,	[illegible]
75 " "	£4 5	20 " "	[illegible]

Plants in Pots (not less than 10) at 2s. each, package free.
The above Scale of prices will be slightly changed in August.
Mr. UNDERHILL's Treatise, either in English, French, or German, on the Cultivation of Strawberries may be had through the post, [illegible]
Address:—Mr. RICHARD UNDERHILL, Sir Harry's Road, Edgbaston, Birmingham.

TESTIMONIALS.

"The Cedars, Castle Bromwich, near Birmingham, July [illegible]
"DEAR SIR,—I am sorry I cannot accept your invitation to [illegible] Strawberries on Wednesday next, having to attend at Rowley on that day; I thank you for the basket of your seedling [illegible] which is without doubt an excellent variety; the flavour [illegible] and luscious, and quite distinct from any Strawberry I am acquainted with; the perfume is somewhat extraordinary, I look upon it as a decided acquisition. With best respects.—I am, dear Sir, yours truly, "CHAS. JAS. [illegible]
"RICHARD UNDERHILL, Esq."

"Mona Cottage, Edgbaston, July [illegible]
"DEAR SIR,—I do not know when I was better pleased than [illegible] view of the beds of your Seedling Strawberry The Lady, the [illegible] of the fruit was so light and lively, and the crop so large. As [illegible] flavour it was most delicious, and exceeded any Melon I ever [illegible] and reminded me much of the Pine-apple. When your [illegible] ready please to let me know, for I must have some—I [illegible] Sir, yours truly, "THOS. [illegible]
"R. UNDERHILL, Esq."

ARCHIBALD HENDERSON respectfully announces to the Nobility, Gentry, and Inhabitants of the Town and neighbourhood, also to the Public generally, that he has purchased the STOCK, and succeeded to the NURSERY and SEED BUSINESS of Messrs. PRIDHAM & SON, Sion Nursery, and Mr. [illegible] Croydon, and sincerely hopes to merit the support so liberally conferred upon his predecessors.
A. H., in addition to the above, will devote his time to LANDSCAPE GARDENING, HOTHOUSE BUILDING, &c. His experience as a general cultivator will enable him, when [illegible] to give instructions on all matters connected with Gardening.
Ladies and Gentlemen waited upon either in town or country.
Postal Address, Sion Nursery, Thornton Heath, Surrey.

MESSRS. PRIDHAM AND SON beg to announce to the Public that they have disposed of their NURSERY and SEED BUSINESS to MR. ARCHIBALD HENDERSON, late Superintendent to the Horticultural Society of London, and to his Grace the Duke of Sutherland's Gardens, at Trentham (Staffordshire), and take this opportunity of offering their sincere thanks for the kind and generous support they have been favoured with, which they take the liberty of soliciting for their successor, who they believe, from his past experience, will be found [illegible] general confidence and support.
Mr. A. HENDERSON takes to the Business from the 1st of [illegible] has kindly consented to receive all Accounts due to the late firm.
Sion Nursery, Thornton Heath, Surrey, July 1st, 1871.

REIGATE SILVER SAND.—Good quality, [illegible] Cash, delivered loose into the Trucks at the Reigate Station. Best quality PEAT, LOAM, SPHAGNUM, ROCK, SAND, &c., on Sale.
W. SHORT, Sand and Peat Depôt, Reigate, Surrey.

NEW PLANTS.

MR. WILLIAM BULL

BEGS TO ANNOUNCE THAT HIS

NEW LIST OF THE ABOVE IS NOW READY.

Upwards of Two Hundred Prizes and Awards have been made to W. B. for NEW and RARE PLANTS alone at the principal London Shows during the present year.

ESTABLISHMENT for NEW and RARE PLANTS, KING'S ROAD, CHELSEA, LONDON

HYACINTHS, TULIPS, NARCISSUS, CROCUS, &c.

B. S. WILLIAMS'

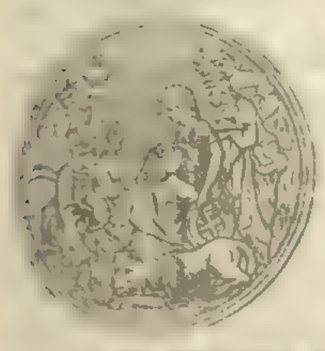
BULB CATALOGUE FOR 1865 IS NOW READY,

AND CAN BE HAD POST FREE ON APPLICATION.

It contains DESCRIPTIVE LISTS of DUTCH and other BULBS; also a LIST of NEW and RARE PLANTS, including BECK'S NEW and CHOICE PELARGONIUMS for the Autumn 1865.

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.

IMPORTED DUTCH FLOWER ROOTS.



JAMES CARTER & CO.'S

FIRST IMPORTATION OF PICKED BULBS OF

HYACINTHS, CROCUS, TULIPS, NARCISSUS, ETC.,

HAS ARRIVED IN FINE CONDITION, AND THEY BEG RESPECTFULLY TO SOLICIT EARLY ORDERS.

JAMES CARTER & Co. have also to announce that the

AUTUMN SUPPLEMENT OF THE GARDENER'S AND FARMER'S VADE-MECUM

Is now published, and will be found to contain (with Cultural Directions) complete lists of DUTCH and CAPE BULBS, to which is added a LIST of PLANTS, including particulars of their large and important COLLECTION of FRUITING VINES in POTS, and STRAWBERRIES.

The Autumn Supplement will be forwarded Gratis and Post Free on application to

JAMES CARTER AND CO., 237 and 238, HIGH HOLBORN, LONDON, W.C.

DUTCH FLOWER ROOTS.

JAMES VEITCH,

ROYAL EXOTIC NURSERY, CHELSEA, S.W.,

BEGS TO ANNOUNCE THAT HE HAS RECEIVED HIS

ANNUAL SUPPLY OF BULBOUS ROOTS FROM HOLLAND,

and is pleased to say that they are in excellent condition.

CATALOGUES are now ready, and will be forwarded post free on application.

J. V. desires to impress upon those who patronise him the great advantage of giving him their orders early, as the successful Cultivation of Bulbs depends in a great measure upon their being planted early in the season.—August 26.

THE SPRING FLOWER GARDEN AND HOW TO ADORN IT.

See BARR & SUGDEN'S forthcoming

AUTUMNAL FLORAL GUIDE.

Guernsey Lilies, 5s. 6d. per dozen. | Bella Donna Lilies, 5s. 6d. per dozen.

BARR AND SUGDEN, SEED and PLANT MERCHANTS, 12, KING STREET, COVENT GARDEN, LONDON, W.C.

LOBELIA SNOWFLAKE.

Extract from GARDENERS' CHRONICLE:—

"Mr. Cox, Gardener to Lord Beauchamp, exhibited a beautiful WHITE LOBELIA called SNOWFLAKE, to which a First-class Certificate was awarded. Floral Committee of the Royal Horticultural Society, July 25, 1865."

JOHN & CHARLES LEE

Having acquired the stock of this desirable NEW BEDDING PLANT, they have much pleasure in offering SEED in SEALED PACKETS for present sowing for spring pot culture, for which it is well adapted.

As a BEDDING LOBELIA it stands unrivalled. The plant is of dwarf compact habit: the flowers are large, perfectly even, and of the purest white. The stock comes perfectly true from seed.

Price 2s. 6d. per packet.

Price to the Trade on application.

ROYAL VINEYARD NURSERY and SEED ESTABLISHMENT, HAMMERSMITH, LONDON, W.

Paul's Nurseries, Waltham Cross, N.

ENTRANCE FROM THE PLATFORM, WALTHAM STATION, GREAT EASTERN RAILWAY. [illegible]

WM. PAUL (Son and Successor to the late A. PAUL) begs to announce that his COLLECTION of ROSES is STILL in BLOOM, and comprises many of his own Seedlings, and other novelties not to be found in any other collection. In addition to the Roses, BEATON'S GERANIUMS, and a second and third generation from them, will be blooming throughout the summer and autumn. [illegible] is unrivalled, and many large and perfect specimens of the choicer CONIFERS are now in fine condition for removal, and are well worthy of the attention of gentlemen and horticulturists who contemplate [illegible] Dwarfs [illegible] true to name. [illegible]

Waltham Cross, London, N.

Seeds from Choice Strains.

B. S. WILLIAMS [illegible] good Seeds of the

CINERARIA (W[illegible] [illegible] W. has secured [illegible] sale from Mr. W[illegible] [illegible] 3s. [illegible]

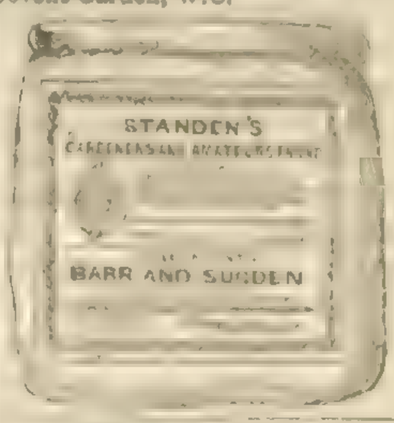
CALCEOLARIA (H[illegible] [illegible] 6d. [illegible]

PRIMULA (W[illegible] best coloured flowers in cultivation. Red, White, or Mixed Seed, 2s. 6d., 3s. 6d., and 5s. per packet.

Paradise and Victoria Nurseries, Holloway, London, N.

HYACINTHS, TULIPS, CROCUS, &c., now arrived from Holland in excellent condition.

BARR & SUGDEN, Seed and Plant Merchants, 12, King Street, Covent Garden, W.C.



[illegible] 1s. and 2s. 6d.

Bags, 5s. 6d., 10s. 6d., and 21s.

New Early Turnip.

SUTTON'S SHORT-TOP SIX-WEEKS.

The forwardest Turnip known. May now be sown with certainty [illegible]

Price 1s. per lb.; or cheaper by the bushel, Carriage free.

[illegible] Royal Berkshire Seed Establishment, Reading.

ROYAL HORTICULTURAL SOCIETY

SCHEDULE of PRIZES [illegible] to be Competed for [illegible] shown at the Meetings of the Society during the ensuing season, the year 1865.

SEPTEMBER 19.

Class A.—For the best Dish of PEACHES from the open wall, 20s., 10s.
" B.—Ditto ditto NECTARINES ditto, 20s., 10s.
" C.—Ditto ditto APRICOTS ditto, 20s., 10s.
" D.—Ditto ditto PEACHES from orchard house, 20s., 10s.
" E.—Ditto ditto NECTARINES ditto, 20s., 10s.
" F.—Ditto ditto APRICOTS ditto, 20s., 10s.
" G.—For the best 3 Dishes of PLUMS, 20s., 10s.
" H.—For the best Dish of FIGS, 15s., 10s.

OCTOBER 3.

Class A.—For the best Collection of any variety of GRAPES, except Muscat Grapes, 1 bunch of each, 60s., 40s.
" Ditto WHITE MUSCAT GRAPES, 1 bunch of each sort, 60s., 40s.

N.B. It is not imperative that the Grapes shown in this class should be grown by the Exhibitor, the object of the Committee being to obtain specimens of all the varieties of White Muscat Grapes that are grown in different parts of the country, for comparison.

" C.—For the best Dish of MUSCAT HAMBURGH GRAPES, 20s., 10s.
" D.—For the best 3 Dishes of DESSERT APPLES, distinct kinds, 15s., 10s.
" E.—Ditto ditto PEARS, ditto, 15s., 10s.
" F.—For the best Collection of PEACHMAIN APPLES, 21s.

NOVEMBER 21.

Class A.—For the best 3 Dishes of DESSERT APPLES, distinct kinds, 15s., 10s.
" B.—For the best Dish of KNIGHT'S MONARCH PEAR, 15s., 10s.
" C.—Ditto HUYSHE'S PRINCE of WALES ditto, 15s., 10s.
" D.—Ditto ditto VICTORIA ditto, 15s., 10s.
" E.—Ditto of any other variety of PEAR, 15s., 10s.

The Gardeners' Chronicle.

SATURDAY, AUGUST 26, 1865.

MEETINGS FOR THE ENSUING WEEK.

Wednesday,	Aug. 30	Crystal Palace Autumn Fruit and Flower Show	
Thursday,	— 31		
Saturday,	Sept. 2	Royal Horticultural Weekly Show, at South Kensington	2 P.M.

In drawing the attention of our readers (p. 673) to the rage which sometimes exists amongst us for certain tribes of plants, we endeavoured to show that, on the whole, this enthusiasm is not without its good results. It may be true that this marked preference for certain families of plants, or for what we suppose to be an improved race of florists' flowers, may sometimes overshoot the mark, yet upon the whole we have no reason to regret the general results, which are certainly of the most satisfactory kind. Our gardens are rendered more gay and enjoyable, and our Parks and Pleasure-grounds have added to them quite a new feature by the introduction of foreign trees and shrubs. Moreover, the results are also apparent in our forests and on our hill sides, and a goodly number of exotic trees, which have made themselves at home with us, are likely to become of considerable importance, not only on account of the effect they produce upon our landscapes, but also in a commercial point of view, owing to the value of their timber. For these results, therefore, we would give every

encouragement to horticultural or arboricultural enthusiasm, thankful for the good it leaves with us, and excusing any little prejudices or imperfections which may be perhaps inseparably connected with it.

Our main object in alluding to this subject was to direct the attention of our arboriculturists and landscape gardeners into a somewhat different channel. We acknowledge, with gratitude, the effects which have been produced upon our garden and park scenery by the introduction of many trees and shrubs of foreign origin. Need we name as examples the Indian Deodar, the Araucaria of South America, the Pines of California and Southern Europe, the Glycine of China, and a thousand other things which are now naturalised in England. There is, however, one class of trees which have been hitherto much neglected, but which we are glad to see are now attracting the attention of landscape gardeners and planters—we allude to those which have Deeply-coloured Foliage. Upon this class of trees a little of the enthusiasm to which we have alluded would be well spent. To all who have grown weary of such things as Pines or Ferns or Orchids, as well as to those who are proving constant to their first love, we say, "here is a subject for your enthusiasm; it will amply repay any exertions bestowed upon it, by enabling you to leave a beautiful and permanent mark upon our landscapes."

The rage for trees and shrubs with variegated foliage has supplied, and left with us, a number of very remarkable and effective objects of that class. We have amongst others our variegated Hollies, Ivies and Honeysuckles, and the splendid Golden Yew with which Mr. Barron produces such grand effects at Elvaston Castle (see p. 938, 1864). It is not, however, to this class of plants that we are now alluding. The love for such beautiful objects is rampant enough and needs no fresh spur from us. We plead for the extensive cultivation and use of trees and shrubs which have leaves not strikingly variegated *but richly coloured*. Already we have several of these things common in our parks and gardens, such, for example, as the Purple Beech, the Purple Hazel, and some others alluded to by Mr. Bateman, in his address to the Royal Horticultural Society on the 27th of June (see p. 605). We need scarcely remark that we cordially agree with Mr. Bateman as to the effects produced upon our landscape by these trees. "With materials such as these," he remarks, "not tender, requiring glass protection, but hardy, beautiful sylvan scenery might be created which even persons with comparatively limited means might afford to provide."

Were the taste for such objects more fully developed amongst us, there is no lack of subjects to supply it. Many of them, as we have shown, are already amongst us, and many more would be soon forthcoming. Perhaps no class of trees would be more valuable for the object we have in view than the Maples of Japan. They are very remarkable for the rich and beautiful colour of their foliage. Some of them have leaves of the deepest purple, or red, or yellow, and others have their foliage most curiously marked. Nearly all take on the most beautiful autumnal tints, and produce a marked and pleasing effect at all times on the landscape. We have frequently thought that it must have been one of these Maples that Padre Huc met with when travelling in Chinese Tartary, and about which he tells such wonderful stories. Those species which are found in the central or more northern part of the Japanese Islands would probably prove quite hardy in our climate. Many of them are now in England, although at present extremely rare. At Mr. Standish's sale last year his collection, which was very rich in Maples, was entirely dispersed. We advise the possessors of these plants to take great care of them, and to propagate them extensively, for if our taste takes a turn in the way we have indicated, they will be much sought after, and will prove of great value.

We come now to another question,—Would it be in accordance with the rules of good taste to plant these trees extensively in order to produce an effect upon our landscapes? We say "yes" without the slightest hesitation. It has been our lot to travel much in foreign countries where many of these trees to which we have just alluded are at home, where they have been planted and reared by the hand of Nature on the hill sides, and we can bear testimony to the fact that the eye is never weary of resting on those masses of brilliant colouring of many different hues which they present, and more particularly in autumn, when the leaves are ripening before they fall. Our own experience has been principally in Oriental countries, as in India, China, and Japan, but American friends have given us glowing pictures of the effects which these trees produce on the other side of the Atlantic, and we readily believe the pictures which they have drawn. If Nature, then, shows us such an example, we can scarcely do wrong in following her, and we need not question the taste which leads to so much enjoyment.

With materials at hand of the kind we have indicated, we would advise all lovers of hardy trees to direct their attention to the subject, for it is one which will amply repay them. Let us have the same amount of enthusiasm displayed for these trees with richly coloured foliage as we have had for Pines, Ferns, and variegated plants, and the most striking effect will soon be produced in our landscapes. We commend this matter to our landscape gardeners, and to all who are engaged in planting trees. *F.*

We mentioned (see p. 746) the extraordinary failure there has been in the Apricot Crop, from premature decay, partly attributable to the attacks of insects, and partly to something wrong about the trees themselves, which seemed to predispose the fruit to decomposition. Where the fruit was ripe, it in most cases fell off, but where this was not the case, it ultimately dried up and remained upon the tree, and it is now evident that the mischief is not confined to the fruit, but has extended to the little spurs, or twigs, on which it was produced, or rather perhaps there was something wrong about the tree, which first induced decay in the fruit, and ultimately of the productive shoots. These are already quite dead, and cut a very sorry figure upon the trees, a large portion of the wood of which in many cases will have to be cut out next spring. In every case the disease, for such clearly it must be called, is attended by profuse gumming, which either hangs down in long colourless or yellow strings, or forms large discoloured globules, especially at the point where the stalk of the fruit is attached to the ring. The disease is not confined to one variety. We have seen it abundantly in the Moor Park and Breda Apricots, especially the latter, less so in the Roman, and scarcely at all by comparison in the Peach Apricot; nor is it confined to a single garden, for we have observed it in every garden which we have had an opportunity of examining in the neighbourhood. It is difficult to account for these inflictions, but it is probable that a sudden and bountiful accession of moisture after long drought, together with the comparatively low temperature at night for many weeks, has had a great part in its production. At present we have seen nothing of the kind in Peaches and Nectarines, but now that the time of ripening in these fruits has arrived, we should not be surprised to find that there is a similar failure. *M. J. B.*

Although our British foresters may not be so immediately interested in the culture of the Riga Pine as their French brethren, yet the subject is one of such importance that a few remarks extracted from M. Chatin's paper already referred to (p. 745) may not be out of place. The Riga Pine (Pinus sylvestris rigensis) is merely a variety or race of Pinus sylvestris, distinguished from the ordinary form by botanists on account of its erect branches; by the forester by its more rapid growth and larger size; and by the builder or shipwright by the elasticity of its wood, which renders it peculiarly useful for masts. M. Vilmorin gives the following characters by which it may be known from other varieties of Pinus sylvestris:—"The stem is ordinarily perfectly vertical, preserving its thickness all the way up, and is often nearly cylindrical for half its height. The crown is regular, symmetrical, and composed of rather strong branches, which are all of about equal size, ascending and fastigiate. The general form is elongated and pyramidal, recalling that of the Italian Poplar. The bark is of a reddish yellow colour, splitting off in scales. The shoot is earlier in the spring than that of the Pine of Haguenau, and much more so (10 or 15 days) than that of the Geneva or Ardèche Pines, and it is of a pale green colour, without any tinge of red. The leaves are less glaucous, shorter, and straighter than those of the Haguenau Pine, and more closely pressed against the branch. They are, on the other hand, longer and narrower than in the Geneva Pines. The cone is smaller and shorter than in the Geneva variety; it is generally grey, rarely slightly violet; the pyramidal ends of the scales are slightly prominent. The [illegible] varies in tint from yellowish to reddish; [illegible] smaller and less resinous than in the ordinary [illegible] sylvestris with horizontal branches. The colour of the male catkins varies from yellowish to pale red."* Thus, continues M. Vilmorin, in the forests of Russia and Lithuania it acquires the dimensions of the largest Firs (Abies), and furnishes excellent timber, which fetches a high price in French and English ports. On the other hand the greater portion of the Scotch Firs, grown on the mountains of Switzerland and Germany, are comparatively small trees, badly shaped, not fit even to supply even an ordinary beam; in fact, having little or no resemblance in size or quality to the Riga Pine."

M. Chatin gives the results of measurements of trees of the Riga Pine, sown at Harcourt in 18[illegible] some of which had, in 1860, attained a height of 70 to 80 feet, and a circumference of nearly 5 feet. When contrasted with the Scotch Fir, the Corsican Pine, and the black Austrian Pines, the advantage was quite on the side of the Riga Pine as to size, and by inference as to the qualities of the wood; for M. Chatin holds the opinion that the quicker the growth and the thicker the layers of wood, the more valuable it is likely to be for constructive purposes, if not for fuel. A sandy soil suits the Riga Pine best, but it will grow on limestone soil, and while it grows well in dry situations it prefers one which retains a small amount of coolness. It is well adapted for the barren heathy slopes in the north and central districts of France, with a southern, south-eastern, western, or south-western aspect, where any other arboreal vegetation could not be profitably grown. M. Chatin concludes his paper with some general remarks on the sowing, pruning, and management of the trees, for the details of which we refer to the pamphlet itself, merely stating that the method of treatment recommended is one which is intended to secure the due development of the "leader" at the expense of the lateral branches.

—— The Lobelia—of the tall perennial type—is, it seems, undergoing the same kind of improvement which is being effected in the case of other flowers—variety of colour as well as size being secured. Scarlets and Purples we have long been familiar with, but other colours have till now been wanting, and strangely enough the plants themselves have been much less freely cultivated than their beauty has merited. Perhaps this has been owing to the absence of variety, but if so, we cannot but expect to see the perennial Lobelia rise again in popular favour, for in a box of seedlings which has reached us, occur several decidedly new colours—pink carmine and [illegible] amongst them, with various intermediate shades. We hail them as great acquisitions, for the Lobelia is one of the good old summer flowers which have been elbowed out of the garden by the bedding system, though few subjects are more brilliant than it, when under good management. We are indebted to Mr. Bull for the flowers to which reference has been made.

—— We are informed that a flowering specimen of the Agave americana may now be seen in the gardens of the Star and Garter Hotel, Richmond Hill. The flower stem is about 20 feet high, and carries 2000 flowers.

—— We may remind our readers that the great International Fruit and Flower Show promised by the Edinburgh Horticultural Society, is to take place in the Music Hall, George Street, Edinburgh, on the 6th of September. We understand that the show promises to be a success, and as such a gathering must prove of great interest to gardeners, there is no doubt it will be well attended. Among the prizes offered is one of the value of 10*l.*, to which allusion was made at p. 172 as being given by the Proprietors of this Journal and open to all competitors—"For the best six kinds of choice home-grown fruit, consisting of two Pines or Melons (one green-fleshed, and one scarlet-fleshed), four bunches of Grapes (distinct sorts), 12 Peaches, 12 Nectarines, and 12 any other fruit." We hope it may induce a sharp competition.

—— We have been requested to correct an erroneous impression which has got abroad, that the Royal Horticultural Society does not intend to hold any of the usual great or minor shows of flowers next year. This impression has perhaps arisen from the arrangements for the somewhat novel Saturday meetings having been announced earlier, and without any reference having been made to the shows in question. We are informed, however, that exhibitions will take place next year as usual, and that too on days other than Saturdays, and that the arrangements and schedules for these will be issued shortly.

—— Among the novelties in the way of Ferns which have lately reached us is a white-margined Scolopendrium, which we propose to name S. vulgare Phillipsii, after its discoverer, Mr. W. H. Phillips.

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* Vilmorin, Exposé historique et descriptif de l'[illegible] forestière des Barres. Mem. Soc. Agric., 1863, part 1, p. [illegible]

Belfast. The plant was found five years ago in Colin Glen, Antrim, and has each year produced fronds with white margins. The first fronds of the year have no indication of this colour, and bear spore-cases, but do not arrive at perfection, the margins becoming repand or crenate. The white-edged fronds produced later in the season have never produced spores. In the frond which accompanied these particulars, the edge from the middle upwards for about an eighth of an inch in width was of a distinct creamy white; and if, as Mr. Phillips points out, it produces annually fronds of this character, we must regard it as a constant white-edged Hart's-tongue. There is nothing surprising, we may add, in the fact that the later fronds of the year are different from the earlier ones. The same thing occurs in other varieties of British Ferns. In Polystichum angulare decurrens, for example, the spring fronds are scarcely distinguishable from the normal form, but all those produced later in the year are so remarkably dissimilar, that no one could possibly suspect they came from the same caudex. *M.*

New Plants.

311. Palumbina candida, *Rchb. fil. Walp. Ann.* vi., n. 699. Oncidium candidum, *Lindl. B. Reg.* xxix., 1843, Misc. 76. Oncidium?? candidum, *Lindl. Folia*, n. 53.

Palumbina: sepalum dorsale oblongum subacutum, sepalum inferius æquale. Petala oblonga subacuta. Labellum subæquale. Columna crassa, androclinium obliquum apiculatum, rostello quinquelobulo seu prærupto medio unilobulato, alis membranaceis retusis denticulatis juxta foveam circularem. Tabula stigmatica obliqua prona increscens super labelli basin. Caudicula pollinis utriusque caudiculæ tertiæ communi inserta.

P. candida: pseudobulbis ligulatis compressis monophyllis seu diphyllis, foliis cuneato-ligulatis, racemo pauciflore flexuoso.

"Habent sua fata libelli" is an old proverb, but also poor plants have their fates, and this has had a very interesting one. It flowered in 1843, with Messrs. Lod-

diges; introduced by Hartweg. Dr. Lindley had a coloured sketch prepared by Miss Drake; but the flower was lost. (We cannot but feel sorry that in those times Orchid growers were so very chary of their flowers, so that we have often felt surprised to see with what slender means they had so often compelled our great orchidologist to work.) When Dr. Lindley prepared his new Monograph of Oncids he was not a little puzzled on finding his own remark that the plant had two caudiculæ; and he was naturally the first to suggest it could be no Oncidium. Yet having no other materials except the figures of Miss Drake in his Herbarium (copies of which, kindly communicated by him, lay before us), he declared, that "until the plant shall have been re-examined, it is safest to leave it where it stands. The growing individual has disappeared." Indeed, it had disappeared; but happily only from England. When Messrs. Loddiges gave up their splendid nursery, Consul Schiller, of Hamburgh, was good enough to purchase, at our request, a large set of highly curious Lindleyan typical specimens, merely for scientific purposes, for they were nearly all poor things in *point de vue* of beauty. Yet a few were much better than expected, and among these the Oncidium candidum, proving, as well suggested by Dr. Lindley, a new genus, which we call Palumbina. It is a favourite of visitors to the Schillerian collection, since it reminds one of flying doves, white and purplish, on brownish-purple peduncles. The base of the column is yellow with purplish dots. Though it cannot rank higher than Odontoglossum pulchellum for beauty, yet it is a great curiosity, worthy of being installed in any collection. Thus we were very glad to read of its having been exhibited a short time since at the Royal Horticultural Society's scientific meeting, the plant no doubt an off-spring of Consul Schiller's large specimens.—*H. G. Rchb. fil.*

THE LATE SIR W. JACKSON HOOKER.

One of the most familiar names to all the readers of the *Gardeners' Chronicle* is that of the illustrious botanist whose death we recorded last week. The year of Sir William Hooker's appointment to Kew but shortly antedates the foundation of the *Gardeners' Chronicle*, the Editor of which paper was in 1839, with several other scientific gentlemen, applied to by Her Majesty's Government to draw up a report on the condition of the Royal Gardens of Kew, then the private property of the Royal family. Their recommendation was, that these gardens should be made over to the nation, and should ultimately become the head-quarters of botanical science for England, its colonies, and dependencies. It was with heartfelt pleasure that the Editor found these propositions acceded to by her Majesty's Government; and above all, that a man had been nominated to the appointment who, whether for his distinguished position as a botanist, for the liberality of his sentiments, the urbanity of his manners, and his singleness of purpose, or for the energy with which he had advanced so many departments of botanical science, was of all others the best fitted to carry out the views embodied in this report.

William Jackson Hooker was born at Norwich on the 6th of July, 1785. His father, at that time a confidential clerk in a large manufacturing business, was a man devoted to reading, especially travels and German literature, and to the culture of rare and curious plants, of which his collection was well known amongst amateurs.

He received his education at the High School at Norwich, under the tuition of the celebrated Rev. Dr. Foster. Having inherited, through his godfather, William Jackson, Esq., an ample competency in landed property, he determined to devote his life to travelling and to scientific pursuits; while, with a view of qualifying himself to superintend and improve his estates, he resided for a time with Mr. Paul, a gentleman farmer living at Starston, in Norfolk, where, however, his whole time appears to have been devoted to Natural History. Being a keen sportsman, he formed a fine collection of the birds of Norfolk, which was rendered more valuable by many close observations on their habits; and becoming very intimate with Messrs. Kirby & Spence, Alexander Macleay, the Secretary of the Linnean Society, and other distinguished entomologists, he also devoted much of his time to entomology. About this time he became acquainted with Sir J. E. Smith, the most eminent British botanist of his day; and having himself discovered the Buxbaumia aphylla, one of the most curious and rare of British Mosses, which he took to Sir James, he was by him encouraged to commence the study of that science, which afterwards became the main pursuit of his life. In 1806, when he came into possession of his estates, he seems to have given up everything for Natural History; he made extensive botanical tours in the wildest parts of Scotland (including the Orkneys, Hebrides, &c.), accompanied first by Dawson Turner, of Yarmouth, F.R.S., his future father-in law, and afterwards by Wm. Borrer, of Henfield, F.L.S. At this time he principally resided in London, where he made the acquaintance of Sir Joseph Banks, Robert Brown, Drs. Solander and Dryander, &c.; indeed of most of the distinguished scientific men of the day.

Encouraged by Sir Joseph Banks, he in 1809 visited Iceland, which he extensively explored, making large collections in all branches of Natural History; but these, together with all his notes and drawings, were totally lost on his way home, through the burning at sea of the ship of marque in which he was returning, and which was bringing Danish prisoners to England. His escape, owing to the arrival of another vessel in mid ocean, was almost miraculous; an account of it will be found in the modest narrative called "Recollections of Iceland," and which soon reached a second edition.

In 1810-11 he made extensive preparations for accompanying Sir Robert Brownrigg to the then little known island of Ceylon, of which the latter was appointed Governor; for this purpose he sold his estates, the proceeds of which were invested in business and foreign securities, which were unfortunately ill-chosen, and afterwards much decreased in value. Of the zeal with which he carried on his preparations, we may give as an example the fact that he made pen and ink copies of the plates and descriptions of the entire MS. series of Roxburgh's Indian plants. His arrangements, however, all came to nothing; as the sanguinary disturbances which immediately afterwards took place in Ceylon, prevented his plans from being carried out.

In 1814 he made a botanising expedition into France, Switzerland, and the north of Italy, which extended over a period of nine months, and in the course of which he became acquainted at Paris and elsewhere with the principal botanists of Europe; thus laying the foundation of that intercourse and correspondence which lasted until his death.

In 1815 he married the eldest daughter of Dawson Turner, of Yarmouth, Esq., and settled at Halesworth, in Suffolk, where his house at once became the rendezvous of British and foreign botanists, and where he commenced the formation of that great Herbarium which is now the finest in the world.

His first botanical work was that on the British Jungermanniæ, which was completed in 1816. This, which is a model of skilful microscopic dissection and accurate description, is further unrivalled as an example of first-rate botanical engraving, the drawings for it being prepared by Sir William's exquisite pencil, and afterwards etched on copper by W. C. Edwards, at great cost. The "Muscologia Britannica" was published in conjunction with Dr. Taylor, in 1817, and was followed by the "Musci Exotici." These and other works, added to an increasing home and foreign correspondence, fully occupied his time for the next five years of his life. Meanwhile his property had been rapidly deteriorating, and with an increasing family he found it necessary to look out for some remunerative scientific employment. He was therefore advised by his friend Sir Joseph Banks to accept the then vacant Regius Professorship of Botany in the University of Glasgow, which, although not a medical man, Sir Joseph was able to procure for him. In 1820 he accordingly removed to Glasgow, the emoluments of the chair being 50*l.* as salary, and under 60*l.* for students' fees.

His life at Glasgow was entirely devoted to Botany; he rose early, and went late to bed; he visited but little, avoiding society except on his occasional journeys to England; and devoted the whole powers of his mind and his pencil to his favourite science. He was a most popular lecturer, his class being sometimes attended by as many volunteers as medical men; he encouraged his students in the pursuit, by taking them on excursions, by giving them rare plants from his duplicates, and by furnishing them with letters of introduction to all parts of the world when they went abroad. He kept up a close connection with the officers of the Admiralty, Treasury, and Colonial Office; and it was mainly through his exertions that botanists were so frequently appointed to the various Government expeditions of that period. His agreeable manners and intimate knowledge of all parts of Scotland rendered his house an attractive resort for scientific and literary men.

During the 20 years he resided at Glasgow he published his "Flora Scotica," in which the plants of a great part of the British Isles were for the first time arranged according to the natural method; the "Flora Exotica," and (in conjunction with Dr. Greville) the "Icones Filicum;" also the "Botanical Miscellany," the "Journal of Botany," the "Icones Plantarum," the "British Flora," the "Botany of Ross', Parry's, Franklin's, Back's, and other Arctic Expeditions; the "Flora Boreali-Americana," and (in conjunction with Dr Arnott) the "Botany of Beechey's Voyage," and various other works of standard authority. In 1826 he commenced the authorship of the "Botanical Magazine," which he carried on for nearly 40 years. His Herbarium in the meantime was rapidly becoming the finest in Europe, mainly owing to the indefatigable correspondence he kept up with all parts of the world, and to the number of trained Scotch medical students who, when seeking their fortunes in foreign countries, continued to send him plants, even up to the day of his death. Latterly his salary from the Crown was increased to 150*l.*, while the other emoluments of the Professorship amounted to about 700*l.*; the number of students having increased from 21 to upwards of 100.

During his residence in Glasgow, he was twice offered knighthood, which he accepted from William the Fourth in the year 1836: this honour being bestowed on him in consideration of his scientific career, and the great services he had rendered to Botany. So much for his professorial career in connection with Scotland. In 1841 he was appointed to the Directorship of the Royal Gardens at Kew, under circumstances which we shall narrate in a succeeding article.

(To be continued.)

THE BOTHWELL CASTLE HEATHS.

It seldom falls to the lot of any one to chronicle an uninterrupted successful career of Heath growing for upwards of five-and-thirty years. To have been a successful grower and propagator of the race in question over such a lengthened period claims more than ordinary attention, and justifies a special notice of this kind; but what renders Mr. Turnbull's practice more illustrious still, and what his name will in future ever be honourably connected with, is the introduction of a batch of seedlings, many of them yet unknown, quite eclipsing the best sorts under cultivation. It is evident to all those who are acquainted with the Bothwell Castle collection, that great skill must have been manifested in the crossing and re-crossing of choice varieties to obtain such sorts as will hereafter be described, and great firmness to discard all those which did not possess features of excellence distinct from or in advance of the types from which they were produced. More wonderful still is Mr. Turnbull's attachment to his pet tribe; for unless to such eminent growers as the late Mr. Jackson,

of Kingston, Mr. Kinghorn, Mr. Fairbairn, Mr. McNab, of Edinburgh, and Mr. Henderson, of Woodhall—all men eminently great in this particular line; and to a few of his own students, who now hold situations among the foremost in the country, he has at all times been chary of giving away his seedlings, in case they might be lost; and this accounts in some measure for a few of the very best and choicest remaining still in his own hands.

That they are a "ticklish" race of plants to manage we have abundant proof; and although one occasionally sees groups of them "well done" at the London shows, it is more the exception than the rule. It is quite a mistake to suppose that their popularity as decorative plants is decreasing; it is simply and solely because they are not brought out in first-rate style. To any one who has the slightest hesitation about their merits as show plants, or the individual beauty and variety of form and colour in the flowers, I say come and see such a collection as Mr. Turnbull possesses, chiefly of his own rearing, by painstaking and what must be called scientific cross-breeding.

Not a type of the race but what he has manipulated upon, and generally with the most satisfactory results. One type only has defied his efforts, and that is elegans, which refuses to be hybridised. Pollen of this, however, is freely emitted by irritation, and seed ripened capable of producing a numerous progeny—all somewhat different in character. The hard-wooded race, such as tricolor and its allies, is difficult to hybridise with the ventricosas, for seedlings from such are true hybrids; but it is possible to produce them, although, within my knowledge, we have no very distinct progeny from this line. The same remark is, in some measure, applicable to Cavendishiana, which is a Heath that some have never been able successfully to cross. Linnæoides, hyemalis, and vestita have been crossed with hard-wooded sorts by Mr. Turnbull advantageously, and so have the numerous forms of most of the hard-wooded section, which show great variety both in foliage and flower; as well as the ventricosas, which are a very numerous and ornamental division.

First and foremost among those intended to be particularised is Marnockiana, an autumn-flowering Heath of the highest degree of merit, and which is now beginning to be well known. It was dedicated to Mr. Marnock by the raiser, and will certainly, independent of his merits, perpetuate his name. This is a seedling of Hartnelli by retorta, having the high colour of the former, with the free-blooming properties of the latter; and although having the viscid appearance of the parent, is quite free of gluten—a decided gain, as Hartnelli is an invincible flycatcher. Aitoniana Turnbulli is unquestionably by far the finest of the Aitoniana breed, having much longer-tubed flowers, and a more perfectly-formed limb than the old Aitoniana, and vastly more prolific of flowers. It is off the latter, by jasminiflora alba; and it also is pretty well known. Jacksoni, named in compliment to Mr. Jackson, is one of the richest-mouthed Heaths I know; it is off Irbyana by retorta, and has the pure white tube of the former with the addition of a better form, and the mouth of the corolla deep rose. It is a free bloomer, and inclines to have drooping flowers.

Ventricosa alba (Bothwellii) is also in the hands of the public. It is of a more bushy habit than most of the ventricosas, and is a very free-flowering, chaste, white-coloured sort, worthy of a place in the most choice collections. Mr. Turnbull has had many seedlings from these, some of them in advance of the best-named sorts, but not so sufficiently distinct as those we are characterising.

Savileana major is a very distinct, short-tubed, much-inflated flower, of a rosy cast, very much larger and more free in habit and bloom than the original and normal type, which has been brought about by careful selection of seed, without any attempt at cross-breeding. This is really a gem, and, although in a few hands, is not universally known. Aristata vittata is not yet much cultivated, but is of most excellent habit, easy propagation, and a distinct flower. It is a seedling, I believe, of linnæoides by aristata, possessing the foliage of the former, but much more soft-wooded, and the flowers more of the latter than the former, being white and lilac—a very desirable spring-flowering Heath. Austiniana, named after a member of the firm of Austin & McAslan, of Glasgow, is a fine habited sort, something in the way of Irbyana in form, but rosy-coloured, being a seedling of Irbyana crossed by retorta. Douglasii is another seedling of intrinsic merit, of a pale colour, but very prettily marked with rose on the corolla, after the style of colour of retorta major, but finer in form, being a seedling between that variety and Austiniana. It was in general cultivation, but not having seen it for some time, I fear it is lost to all but the collection from which it emanated.

Such are a few of the names of those which have either been or are still in the market. Subjoined is a notice of more recent novelties that Mr. Turnbull does not seem inclined to let out of his hands. These are numbered from my note-book without reference to any other distinguishing mark.

No. 1, between Macnabiana and retorta major, a sort greatly in advance of both parents, having the foliage of the latter, but more robust, yet not straggling; and the flower of the former, with a greatly superior corolla, having fine dark rosy lines down the centre of each segment. It is free, and nearly as high-coloured as Marnockiana, but much larger in the flowers.

No. 2 is also a dark-coloured sort, between retorta and Marnockiana, having flowers nearly as large as the former, with the handsome mouthed corolla peculiar to this parentage, and the additional attraction of somewhat downy foliage.

No. 3, a cross between Douglasii and Marnockiana, is longer tubed, and scarcely so much inflated as either of the above, of a scarlet colour, with a white limb and a deeply prominent rosy scarlet eye; it is of excellent habit.

No. 4 is a variety of the Marnockiana type, with flowers a third larger, but not so fine, flowering a month earlier than that sort, and having all the appearance of viscidity; but quite free, throwing much larger heads of bloom than even Marnockiana—a most decided acquisition.

No. 5 is sometimes called Aitoniana rubra, being of the same form of flower as the white Aitoniana Turnbulli, but red in the tube and very deep red in the mouth of the corolla, a much larger flower than the one with which it is compared, being a seedling of Aitoniana by Macnabiana, one of the most distinct and the best varieties in cultivation.

No. 6 is a seedling of Shannoni by retorta major and is a clear hybrid between the two as to colour and size, having the additional charm of yielding so many as 20 flowers in the head of bloom, quite unprecedented in the character of either of the parents.

No. 7 is quite the converse, being off retorta major by Shannoni; and although a most excellent sort, is not equal either as a flower, or as regards free blooming, to the other example. Retorta evidently imparts a bushy habit, and a freedom of bloom, wherever it has been manipulated upon.

No. 8 is between Shannoni and jasminiflora alba, having the free growth and the handsome habit of the latter, with a much freer flowering tendency than either, the shoots giving 12 blooms instead of 6, as in the parents, and withall not losing that beautiful white waxy tendency always accompanying that old and beautiful sort, jasminiflora alba.

Many more than these could be enumerated, but these possess merits of so unquestionable a nature as to distinguish them for many years to come. I am not speaking by haphazard or prematurely judging their merits, like many who are inclined in the advent of a good thing to push it forward before it has size and age to recommend it. Quite the contrary. The plants I speak of are many of them a yard in diameter, some of them more, very few less. Associated with them are some of the best examples of other people's efforts, such as the sorts named as forming the parentage of the above-named progeny, and the beautiful odorata; Massoni major, which was never very fertile in producing choice seedlings; a famous elegans that has out-grown the size of the house; several splendid specimens of retorta and the major variety, one of the former in particular measuring more than 6 feet across, and bristling with heads of bloom. Prægnans major is also grown in fine condition, throwing immense heads of bloom. In fact, go when you may, there is always a good display; but in autumn, when the choice seedlings I have enumerated are at their best, the sight is gorgeous, capable of enamouring even those who go prepared to criticise, which is the best of all testimony.

The house in which they grow has been built for about half a century, and is of simple construction; and yet, considering the time of day in which it was built, very suitable for plant culture. It is a half span with semi-octagonal ends, heated with a flue. Simple as it is in comparison with what we look for at the present day in the way of erections and fittings, it has served Mr. Turnbull's purpose admirably. *J. A.*

VEGETABLE HYBRIDS.

So much was done a hundred years ago by Kölreuter, and more recently by Gärtner, towards the knowledge of vegetable hybrids, that little comparatively seemed to be left for modern research. Naudin, however, has made some valuable contributions on the subject, and Wichura, who seems to have been unacquainted with Naudin's Prize Essay, has presented us with a mass of valuable information in the treatise before us,* in part corroboratory of former observations, and in part teeming either with original matter or suggestive of future investigation.

By a happy thought he chose the genus Salix, which abounds in natural hybrids, and which affords peculiar facilities for verifying artificially what takes place naturally, and which is less exposed than many other genera to error arising from inadvertence or want of dexterous manipulation. Wimmer had already asserted that a great part of European Willows were hybrids, and his collection of the genus at Breslau afforded Wichura an opportunity of testing at the same time the correctness of his observation, and studying the general subject of hybridism in detail.

As regards the former question, he arrived at the conviction that for 34 pure species there are 32 spontaneous hybrids, which, again, by intercrossing, have yielded 66 known binary hybrids. These, however, are not produced indiscriminately in every locality. Intermediate forms always occur in the neighbourhood of the plants from which they are derived. As regards the number of individuals, circumstances are in reality unfavourable to their spreading. The mother pollen, or that of the hybrid's ancestors, is more readily received than its own; and if the plants are in a position to be self-impregnated, the potency of the pollen and of the plants themselves diminishes year by year; females are produced in greater numbers than males; some hybrids have sterile ovaries, though not sterile pollen, while others ripen only a few seeds, and those not so perfect as the seeds of pure species; while in those cases where vegetation is less vigorous the plants are lost in the Darwinian struggle for life.

Again, where the plants are shaded, the pollen of strange species is not so readily transported, while, on the contrary, in open places, as the pebbly banks of rivers, where there are not the same impediments, hybrids of various degrees occasionally abound. In confirmation of this view, we may remark that we were peculiarly struck, three years since, on the exposed shingly margins of the Dee, in Aberdeenshire, with the immense variety of forms, insomuch that it seemed at first sight almost a hopeless task to bring anything like order out of the confused mass.

As Willows are essentially diœcious, it is extremely easy to isolate the shoots perfectly, by means of cylindrical tarlatan bags, which can be made perfectly impervious to strange pollen by some simple fastening at either end, while no delicate handling is needful for the extirpation of the stamens, a process which cannot be effected without some injury to the flowers, which may possibly affect their health, or at any rate will place them in an abnormal condition. As soon as the ovaries are set, and the influence of strange pollen is no longer formidable, the bags are removed, and the plant is in a perfectly natural condition. Willows, moreover, present another facility for experiment, from the fact that their pollen may be preserved for some reasonable time before it is used without losing its vitality, and indeed longer by some days than the ripe seeds themselves, which germinate very rapidly, the epispore being extremely thin, and the embryo already charged with chlorophyll. There is another peculiarity in favour of the choice of the genus, as the young plants make shoots under favourable circumstances two or three feet in length within the year, and sometimes, though rarely, produce catkins, while the appearance of blossoms is seldom delayed beyond the third year. In some cases, as in hybrid Pears, seven years at least must pass before the result of hybridising can be fully ascertained.

Wichura has confirmed most of the received ideas respecting hybrids, of their different degrees of fertility and constitutional strength, the aptitude of pure plants for their own rather than for strange pollen, the tendency of fertile hybrids to produce, when intermingled, numerous varieties, besides a number of detached facts; he does not, however, confirm the observations of others respecting reversion, and believes that those recorded by Gärtner are due to the accidental access of ancestral pollen, while one of our best authorities on such subjects is inclined to think that the frequent instances of reversion observed by Naudin, of which Wichura was not aware, may have arisen from the plants being cultivated, and not in a state of nature.

When a hybrid is treated with its own pollen at the same time with that of one of its parents, it prefers the latter, and, it is said, even that of some congeneric; fact which Wichura has not been able to confirm. Kölreuter obtained triple Hybrids, and Gärtner quadruple, but Wichura has raised quinary and senary hybrids, and he believes that some of a higher order may be obtained, though from increasing weakness of constitution, both in the plants themselves and in the organs of fructification, there is a limit beyond which intercrossing is no longer possible. Even senary hybrids at present have perished without producing perfect fruit. Complicated hybrids, moreover, among Willows are produced naturally as well as artificially. Wichura has not been able to decide whether Willows which refuse binary union will impregnate a binary hybrid, as Gärtner observed in the genus Nicotiana.

Hybrids in general are not as fertile as true species, but there are gradations of sterility as regards number of seeds, imperfection of constitution, weakness of vegetation, or, where plants are over luxuriant, of reproduction, besides different degrees of potency in the pollen. The condition of the organs of fructification in an early stage has been too little attended to. Even Naudin has done but little in this direction. As regards the female organs, we are not aware that any one has yet compared the condition of the embryo sac or the development of the embryo in hybrids comparatively with those of pure plants. Professor Henslow's paper on a hybrid Digitalis, which now dates back 30 years or more, may be considered as a model for such investigations, if we make allowance for the state of our knowledge of vegetable embryology at the time when it was written.

Wichura has, however, carefully examined the

* Die Bastardbefruchtung im Planzenreich, &c. Von Max Wichura. (Breslau: E. Morgenstern. 1865.)

* Nicotiana glutinosa, which would not combine with N. rustica, was fertilised by a hybrid between N. paniculata and rustica.

anthers of pure and hybrid Willows in different stages, a matter which is facilitated by the fact that their contents readily squeeze out under the pressure of a piece of microscopic glass when placed on the stage of the microscope. The part which relates to this seems to us to be one of the most valuable in the paper.

For pure Willows have irregular pollen grains, but in hybrids all sorts of irregularities occur in their form and relative size, the number of perfect grains produced from the quaternary mother cells, the condition of their contents, and, in consequence, of their fertility. The number of grains capable of developing pollen tubes is smaller, and their potency in general weaker. As hybrids intermingle the pollen gradually gets worse, while in different individuals of the same generation its potency and condition are equal. The less closely related the parents, the more irregular the pollen; and the greater the number of species intermingled, the greater the anomaly. As far as has been observed, the same may be said of the female organs, though their physiology has not been so deeply studied. Luxuriant growth in Willow hybrids is certainly not the rule, though even in a senary hybrid, which produced a catkin in 10 months, the vigour was remarkable. Frequently there is a defective development, while the relation of the sexes is modified.

At the conclusion of his treatise Wichura ventures to propose certain hypotheses as to the nature of hybrids, which are to be considered rather as suggestive and matter for fresh examination than proof.

Supposing each pure species to be accommodated to the circumstances which suit it best, and which enable it to maintain its place in the struggle for existence, when two are combined of different though closely-related character, there will be a proportionate degree of disaccommodation, which unfits them for their position, and exposes them sooner or later to destruction. Were a hybrid between a fish and a bird possible, in consequence of its imperfect fins and feathers, it could neither swim in the water nor fly in the air, and so will it be proportionally with all hybrids whatsoever. The more species are intermingled, the greater, in consequence, will be the disaccommodation, and the more they will contain within themselves the seeds of decay. Hybrids of nearly-related species will be likely to be more perfect than those of species which are more distant, especially as irregularity and failure of potency in the pollen increases as more species are combined. Only such species, therefore, will be likely to intermingle, or, indeed, can do so, which possess in common proportionally numerous peculiarities, and agree in many conditions of life; for every species requires all the peculiarities with which it is furnished to maintain itself in certain vital elements. The increasing sterility of hybrids, when fertilised with their own pollen, depends upon the seeds of disease being propagated constantly, and the diseased condition constantly aggravated, by the union of individuals in which the same weakness exists, a proposition which agrees exactly with Darwin's views of inter-breeding causing sterility in successive generations, though, perhaps, there is a greater rapidity of deterioration in the one view than the other.

Finally, plants of other genera which have a tendency to vary have often irregular pollen, one grain having greater potency than another, and hence, from the unequal action of the grains, varieties are produced. Cultivated plants, like hybrids, are in a state of disaccommodation. The nature, indeed, of beasts and plants, like that of hybrids, has a tendency to vary so soon as they are removed in any way from that position for which they are especially adapted, for imperfect accommodation of an organism induces an increased tendency to variation. *Reader, June* 3, 1865.

THE GREAT VINE AT CUMBERLAND LODGE.

This is considerably larger than the famous Hampton Court Vine, and occurs very appropriately in Windsor Park, where drives, woods and trees and everything else is on a large scale, and likely to remain so. Judging from its size and health, the vigour of its young growth, and the profusion of good fruit, no limit can be assigned to the capabilities of this Vine. Indeed, one can scarcely be expected to be more explicit about the matter than was a certain "grumpy" gardener, who, when asked by his noble employer how much longer a fine Wistaria, that ran along the top of a wall, would grow, replied, "Till it stops."

It was planted 65 years ago as a cutting in an old Pine pit, which was eventually ennobled into a Vinery to suit it, and since then the house has been enlarged three times, the last time six years ago, when the back wall was taken back 4 feet. The house is a lean-to 138 feet long, 20 wide, and 12 high at back wall, a considerably larger space than that occupied by the Vine at Hampton Court, and this is completely furnished with clean firm shoots bearing healthy foliage and an abundant crop of fruit, though it is not this year so heavy as that borne by the Vine in other years. There are, however, 2000 nice bunches, colouring well. The tree—surely it is worthy of this dignity, for no other fruit tree could offer a more imposing sight—is planted inside, and the floor of the house is a well-prepared border, fully occupied by the roots; but that is also the case with every bit of soil about the house, for even when making the stoke holes they found healthy feeding roots more than 6 feet deep. Instead of showing any signs of weakness or decay, it is "improving every year," and Mr. Wheakley, who for a long time has had charge of it, is confident that it would fill a much larger space, as even at the extreme parts of the house young wood has to be freely cut away.

The soil of the spot was thus described to me:—"About 18 inches of good vegetable mould, under it from a foot to 18 inches of sandy loam, then a foot of gravelly clay, then blue gritty or sandy clay, and finally a basis of stiff yellow clay." But on further inquiry, I found that Mr. Wheakley's clay and mine were anything but as like as two Peas, and that the "clay" of this part of Windsor Park would be excellent stuff to ameliorate the real Simon Pure clay of North London. In fact the Vine is growing on four or five layers of sandy and gritty earths, rich enough to furnish it with abundant food, sandy and friable enough to prevent any watery or unfruitful development, and so stratified on this warm sloping bank stretching down to the "great meadow pond," that not a drop of water remains on the ground after the heaviest rains.

Where the natural soil is as suitable to the Vine as this, of course as good results may be expected as from the best "made" border; and in any case there is no reason why we should not oftener see noble specimens of the Grape Vine—they would be no less profitable, while much more attractive, than the single stick plants in common use. Are there larger Grape Vines than this, and if so where are they? *W. R.*

MONA'S PRIDE POTATO.

Three years since, when on a visit to my friend Mr. Botterill in the Isle of Man, I heard of a new early Potato with the above name, which was very much esteemed in the island, and reported to be as early as the Ashleaf Kidney, but a better cropper. I drew attention to the Potato through the *Gardeners' Chronicle*, and although a few persons in Lancashire and Cheshire knew the variety, it was comparatively unknown in England. It has now been grown by many gardeners in England, and although I have never heard but one opinion expressed with regard to its being early and very productive, still I should like to see an expression of opinion with regard to its being earlier than the true Ashleaf Kidney or not. Feeling anxious to learn what the Potato was doing in its native place compared with other early Potatos, I visited the island in the middle of August for the purpose of gleaning information.

Mr. Botterill has a large farm near to the village of Onchan, a short distance from Douglas, and in one of the best bits of Potato ground in the island. He is growing breadths of Mona's Pride, Ashleaf Kidney, Rivers' Royal Ashleaf, Dean's Early Prolific, Myatt's Prolific, Wonderful Red Kidney, and other kinds. The men were at work digging, and we decided that Mona is the first early, by 10 to 14 days: next the Ashleaf, followed closely by Dean's Early Prolific, Rivers' Royal Ashleaf, and Myatt's, all of which are fit for use about a fortnight or so after Mona's Pride, Myatt's Prolific being the latest of the three. The characteristics of these Potatos are:—

Mona's Pride grows to a large size in good ground, and is a heavy cropper, but if grown too large it becomes hollow in the centre. It is a handsome Potato, and those who grow for exhibition prize it. It sprouts very early, and in this condition it is easily distinguished from any Potato, as it forms a short dark-green sprout, which becomes a semi-tuber, and if these are removed, and are planted in good soil, they will produce good tubers. It is ready for digging very early, before the haulm indicates ripeness, and is good in quality. It is such an early sprouting kind that two crops in a year may easily be obtained, and it is doubtless a good kind for early work. One thing is certain: it is a much better cropper than the Ashleaf Kidney and its congeners, and earlier.

Ashleaf Kidney is so well known as to need no description.

Rivers' Royal Ashleaf is a fine-cropping handsome Kidney of good quality, but later than Mona's Pride and the Ashleaf Kidney, and a little earlier than Myatt's Prolific. This is certainly an excellent variety.

Dean's Royal Prolific is a very dwarf-growing kind, having the shortest haulm of any kind I have met with, and in form is neither kidney nor round, but a cross between the two. It is a very heavy cropper, and the tubers cluster round the haulm in a mass. It is never too large for a gentleman's table, and in a young state is a dry eating Potato of full flavour. Six rows of this kind can be grown on the same space of ground required for four rows of the taller growing second early kinds, and it is a first-class kind for pot culture. I met with this Potato six or seven years since, but without a name, and it no doubt is in existence under some other name than that I have given it.

Myatt's Prolific Kidney is one of the best second early Potatos known. It is everybody's Potato, alike suitable for the cottager's and the gentleman's garden. It crops well, and is of excellent quality.

Wonderful Red Kidney is a handsome thin-skinned variety, of a pale red colour, a heavy cropper, with thin haulm of medium length, and is ready for digging with Myatt's Prolific. It is the earliest red Kidney I know, and of superior flavour. For general use I like it much, and regard it as the most satisfying Potato I know. It remains in use until April, as it is late in sprouting; still is very early fit for digging. It should not be used until November.

As the Mona's Pride is fast rising into popularity, its history may interest some. It was raised nearly 17 years since in Mr. Spittall's nursery at Onchan, in the Isle of Man, by Mr. Peter Poland now the foreman there, from seed saved from Goldfinder, a second early round variety with a yellow skin and flesh, which was growing by the side of some Ashleaf Kidneys. About seven years since this variety fell into the hands of Mr. Routledge, of Onchan, who speedily saw it was a Potato of unusual excellence, and although it had been previously named at Mr. Spittall's nursery, the Filbert Kidney, it was re-christened by Mr. Routledge as Mona's Pride, and by that name it will no doubt be generally known. It is however also known on the island under the name of Filbert Kidney, and by some thought to be different, but both Mr. Poland, myself, and others regard them as identical. One thing is certain: Mr. Routledge, who deserves the credit for bringing this fine kind into notice, obtained his stock from Mr. Spittall's nursery, where it was raised. In the Isle of Man this Potato is in much request, and seed tubers readily fetch 3*s.* to 3*s.* 6*d.* per stone of 14 lbs.; in fact hitherto the supply has been quite inadequate to the demand. I have asked several persons in the island qualified to give an opinion, what they regard as the best early Potato known there, and all agree that Mona's Pride is by far the best for an early crop, and much superior to the Ashleaf Kidney. *William Dean, Bradford Nursery, Shipley, Yorkshire.*

Home Correspondence.

Achyranthus Verschaffeltii (*Iresine Herbstii*).—In spring I predicted that this would prove a valuable plant for flower-garden ornamentation, and all that I said in its favour has been fully realised. About 700 plants of it bedded-out here have a more beautiful and effective appearance than pen can describe. During the hot dry weather Amaranthus melancholicus ruber bore off the palm. I have several thousands of the last-named plant that have been very effective this summer—hot dry weather suits it; while the Achyranthus succeeds best in cooler weather, and in a more moist situation—indeed, it will thrive where the Amaranthus will not live. I have had it out in 10 degrees of spring frost without its being injured in the least. We may therefore expect to see it in full beauty long after the Amaranthus has passed away, for should the weather continue wet we shall soon find that the Amaranthus will lose its beauty and die. Nothing can excel the fine appearance of this Achyranthus as now seen here. *Edward Bennett, Gr. to G. S. Foljambe, Esq., Osberton Hall, Worksop, Notts.*

Water Plants.—It may not be known generally that the White Arum, or Lily of the Nile, is a beautiful water plant, and quite hardy, at least with me. Some years ago, a plant of it was sunk in a sheet of water here in a pot, in about 1½ foot water, with muddy bottom. It has spread much, and has not suffered during two very severe winters, in both of which the water over it was frozen strong enough to bear. The large, dark leaves, with a number of the beautiful white blooms, standing erect over the water, have a very good effect. It is an excellent companion to the common Water Lily. The original plant here is so large now, that a water-hen built a nest in it and hatched out her eggs this summer. I have since put down several more plants of it. The best season for sinking the pots is June, and care should be taken to allow the points of the leaves to stand over the water until the plant is established. *Shannon, Castle Martyr, Ireland.*

Old-fashioned Plants.—Some of your correspondents are moving in a right direction in making inquiry for certain of our old and missing plants. I have for years been advising nurserymen to get at work at them. Where are many of our old shrubs to be found? How many good things have been lost, or partially so, *i.e.*, lost to the trade—put aside by new things. I am at present noting some of the old, old-fashioned trees and plants, and where they are to be found; and trust some one in the trade will take the matter up, for a landscape gardener has not the plants which our forefathers had to form his picture with; and although hundreds of new things have been introduced, the old have been neglected until one can only find about a score kinds of trees and shrubs in the majority of provincial nurseries. I will again revert to this subject. *D. J. Northwood.*

Thujopsis borealis.—I have four plants this season in fruit, and enclose a small branch for your inspection. One of the plants has fruited with me for the last four years at Mayfield, Falkirk, N.B. *John Russel, Mayfield, Aug.* 17.

Cucumber Growing for Seed.—Mr. Joseph Hamilton, formerly gardener to the late F. A. Philips, Esq., Thornfield, Stockport, now resides at Wellington Place, Botcherby, near Carlisle, where he grows Cucumbers upon an extensive scale, upwards of 4000 feet of glass, divided into suitable compartments, being appropriated to their growth, principally for seed. When in the vicinity of Manchester and Stockport, Mr. Hamilton turned much of his attention to the improving and raising of new varieties of Cucumber, and some of his sorts are still held in high estimation, namely, Hamilton's Black Spine, Hero of Thornfield, Manchester

Prize, Lancashire Witch, and other kinds. In 1824 he obtained a packet of Cucumber seeds from the Continent, from which many of the existing sorts have been raised. Two of these he has preserved true up to the present time. One is called Walker's Cucumber, the other Walker's Pea Green, and by others Walker's Long Green. The latter is a fine long, good sort. Two new houses, erected last spring, contain all the newest and best varieties, which are carefully attended to on account of their seed. Great care is taken to exclude all insects from the house in which they are grown during the time they are in bloom, otherwise the different sorts could not be produced true to name. Amongst varieties ripening seeds at the time of my visit, I observed Ipswich Standard, Sir C. Campbell, Newton Hero, Roman Emperor, Sutton's Champion, Long Gun, Walker's Long Green, Telegraph, General Canrobert, Lancashire Witch, Hamilton's Market Favourite, and Botcherby Hybrid. The latter is a summer Cucumber, fine deep green in colour, and it grows about 24 inches long. The Lancashire Witch and Market Favourite are useful for early forcing. I have cut the former as evenly swelled in January as in early summer. Associated with these were fruit of a sort called Johnston's Lord Herries, a white-spined variety, nearly smooth, with small neck and a free bearer. This measured 27½ inches in length. The finest of all however were three sorts, named respectively Pride of the Border, with a tipped spine, dark green in colour, slender in form, and having a very short neck,—this grows 31 inches in length; British Volunteer, jet-black spine with a rather small neck, but fine in form and colour, length from 30 inches to 31 inches; and Invincible, white spine with a very short thick neck, good dark colour, and fine form. This last is a very handsome Cucumber, a strong grower, and a free bearer. Its fruit measured 30 inches in length. All these three will make good varieties for exhibition. *Robert Weddle, Gardener, Crofton Hall, Carlisle.*

Carter's First Crop Pea.—In a recent issue of your Paper, Messrs. Sutton state that Sutton's Ringleader and Carter's First Crop Peas are identical. We quite agree that they are one and the same variety. We can also bear testimony that neither Messrs. Sutton nor ourselves were aware at the time of sending it out that the two Peas were the same. We have been convinced from our own trials in the present and also past seasons that Carter's First Crop or Sutton's Ringleader is not identical with Dillistone's Early; and the following letter from Mr. Dillistone will corroborate our opinion. "I have," says Mr. D., "been from home, or I should have answered yours of the 8th before, respecting your First Crop Pea. With me it certainly differs from ours, *i. e.*, Dillistone's First Early, in habit, but I found it no earlier than a select stock of the latter." Notwithstanding the adverse trials of some of your Correspondents, we can still confidently state that Carter's First Crop Pea is a new variety, and that it is also the earliest and at the same time most prolific (early) Pea in cultivation. *James Carter & Co., High Holborn.*

Flowering Currants.—I have sent for your inspection the portion of one of the flowering Currants which was immediately next the ground, and you will perceive that there is a root, which is a very long one, springing from a spot where the bark appears to be unsound. I think your correspondent, Mr. Reed, has misunderstood me; or perhaps I did not express myself clearly on the subject of pruning. I did not intend to convey any opinion about pruning, properly so-called; I only meant to say in apparent corroboration of Mrs. Loudon's statement as to the exposure of the surface and of the collar of the plant by the lower branches having been, as she says, "cut away from a mistaken idea of neatness," that thus the shading of the ground which results from the natural habits of the plant had been prevented. This was just the case with the two plants which died. Nothing of the kind took place with those which have remained healthy. This seems to me to have something of the force of a crucial experiment, but perhaps you will kindly give us your opinion. I could discover nothing at the roots which looked like disease. *G. M.* [We consider your letter interesting, whether it attributes the disease to the right cause or not, with regard to which it is very difficult to give an opinion without actual experience. Your communication is at least suggestive. There is, however, disease at the root. The bark is decayed in a curious manner, and on a superficial view might be pronounced to be covered with a little tawny Thelephora, but the microscope shows that the appearance is not immediately due to the presence of a Fungus, but that the tissues are decomposed. There is, however, another appearance of a different nature, and one which we have often seen in Standard Roses, and never without ultimate mischief. The bark in part shells off, and there is a very fine white powdery appearance on the denuded portions. On submission to the microscope irregular very obscure threads are seen sparingly, and amongst them proportionally large globose spores of different sizes. We cannot positively assert that this is the source of evil. It may be the consequence, and not the cause; but it is at least matter for grave suspicion. It is astonishing how small an amount of fungous spawn may prove injurious. There may, however, be a close connection between laying the bottom of the plants bare and the appearance of the Fungus. The one may have favoured the development of the other, and so we may both be right. *M. J. B.*]

Societies.

Royal Horticultural: *August* 22 (*Floral Committee*).—Several interesting exhibitions were contributed on this occasion. Mr. Barker, of Godalming, furnished two valuable new Ferns, one of which was named Asplenium erectum proliferum, and the other Pteris flabellata ascensionis, both beautiful kinds, to which First-class Certificates were awarded. The same exhibitor also showed a charming collection of cut blooms of Petunias, all excellent selected varieties of good colours, size, and substance. Messrs. E. G. Henderson received a Special Certificate for a specimen of the Scarlet-flowered Æschynanthus-like Agalmyla staminea. The same exhibitors had also various other plants, prominent among which were one or two fine varieties of Lilium auratum, with more red than usual in their bands and spotting. Cut blooms of a Verbena called Blue Defiance came from Mr. Salter, of Sydenham, who also showed blue Lobelias in the way of speciosa and Paxtoni. A First-class Certificate was awarded to Mr. Eckford for Verbena Lady Jane Ellice, a fine light kind with green eye, surrounded by a ring of pale rose. From Messrs. Smith, of Dulwich, came one of the best varieties of Lilium auratum, and various zonal Pelargoniums. Messrs. Kelway & Son furnished a collection of cut spikes of Gladioli, most of which seemed to have been more or less injured by the late rains. A brilliant scarlet Verbena, with a small lemon eye, called Scarlet Cushion, was shown by Mr. Wills, gr. to Sir P. G. Egerton, Bart., and received a First-class Certificate. The same exhibitor had also various promising seedling Pelargoniums and Verbenas. From Mr. Veitch came a valuable collection of Hybrid Cattleyas, to which a Special Certificate was awarded. A violet-shaded, purplish-lilac kind, with the sepals and petals covered with minute black dots, named C. hybrida picta, received a First-class Certificate. C. devoniensis, with pure white labellum, terminating in intense velvety crimson, the sepals and petals being greenish-pink, was also extremely pretty, as were likewise one or two others. From Mr. Veitch also came other Orchids, to which a Special Certificate was awarded. Among them were fine examples of Odontoglossum grande, an invaluable cool-house kind; and the large variety of Saccolabium Blumei. Dendrobium MacCarthiæ, a handsome Ceylon species from Dr. Ainsworth, received a First-class Certificate. Mr. Bull received a Second-class Certificate for Tapienotes Carolinæ, a Gloxinia-like plant, with pure white flowers, and shining deep green leaves. From the same exhibitor also came Xanthosoma violacea, with long deep violet-coloured stems surmounted by large Caladium-like leaves; Amorphophallus grandis, coming into flower, and like most Arads emitting a very disagreeable smell; variegated varieties of Chrysanthemum and Aubrietia; and Fuchsia Gipsy Queen, a large showy dark double-blossomed kind, which was Commended. From the Society's Garden came some ornamental Grasses, the most striking among which were Pennisetum longistylum, and Setaria macrochæta. Mr. Hopkins, of Brentford, contributed some promising blooms of seedling Dahlias, as did also Mr. Keynes, of Salisbury. The latter received First-class Certificates for Marquis of Winchester, large crimson maroon; and Lottie Atkins, blush tipped lilac. The same exhibitor also had John Downie, yellow, tipped with red; Frank Tiffin and John Bunn, both yellow, striped with red, to all of which Second-class Certificates were awarded. A Second-class Certificate was also awarded to Mr. Legge, of Edmonton, for The Pride of the World Dahlia, golden yellow, faintly tipped with red. From Mr. Pope, of Chelsea, came Fanny Sturt, of which only one bloom was shown, but that sufficiently indicated that it is one of the best tipped Dahlias in cultivation, the colour being crimson, heavily tipped with creamy white. Mr. Burgess, Chelsea, contributed Dahlia Mrs. Lund, a small-petaled canary-coloured flower, neat and very regular in shape, to which a Second-class Certificate was awarded.

Aug. 22 (*Fruit Committee*).—A collection of 10 Early Kitchen Apples was shown by Mr. Wm. Paul; it consisted of Hawthornden, Emperor Alexander, Jolly Beggar, Lord Suffield, Duchess of Oldenburgh, Keswick Codlin, Large Yellow Bough, and Manx Codlin. Among other fruits was a collection of Plums from Mr. Cox, consisting of Winesour, Goliath, Pond's Seedling, Fotheringham Gage, a fine-looking variety, larger than Black Diamond; Greengage, Jefferson, Huling's Hybrid, a kind somewhat resembling the Jefferson; and Diaprée Rouge. From Messrs. Lee came Gordon Castle Plum, and the Stoneless Damson. We also noticed Early Grosse Mignonne Peach. Mr. Laing, of Twickenham, showed a seedling Siberian Crab of wonderful beauty, being at least three times as large as the ordinary kind, and of a brilliant red colour. A Pine-apple from the Society's Garden at Chiswick, ripened in the open air, was cut, and proved to be excellent in flavour. Mr. Wills and others showed some green-fleshed Melons, one or two of which were good. Of Beurré d'Amanlis Panachée Pear, a kind blotched and striped with red, fine-looking specimens were exhibited. From Messrs. Osborn & Sons came fruit of Jambosa aquea.

Manchester Horticultural Exhibition: *Aug.* 18.—The third exhibition for the season, of Fruits, Plants, and Vegetables took place at the Botanical Gardens. The show was a good one; and though plants were not so numerous as on the former occasions, in consequence of the lateness of the season, yet fruits and vegetables were shown in considerable quantities. The large house in which the various products were staged presented a very interesting and attractive appearance, owing to the judicious arrangements of Mr. Findlay. There were several collections of Orchids, but the fine specimens belonging to Mr. J. A. Turner were missing. Dr. Ainsworth's collection, to which the 1st prize was awarded, contained a Lælia crispa superba, a fine plant with 18 flowers; and fine plants of Miltonia spectabilis, Odontoglossum grande, and Cattleya crispa superba. Among the two collections which won the 2d prize were a small plant of the comparatively new Cypripedium Veitchii, with three flowers; a Lælia elegans, remarkable for its high colour; a good plant of Broughtonia sanguinea, and the curious Oncidium Papilio majus, or Butterfly plant, with two flowers open. There were several collections of stove and greenhouse plants. Mrs. Cole & Sons were 1st with eight plants. In the collections of 10 there was too much sameness in the 1st prize lot, that of Mr. Kendal, there being four Allamandas and three Dipladenias. Several fine plants of Phœnocoma prolifera, and Bougainvillea glabra, with its showy bracts of mauve colour, were shown; also the beautiful Pleroma elegans, with better foliage than is generally seen. There was a very good Sphærogyne latifolia, 3 or 4 feet in height, with fine foliage down to the pot. Several collections of small plants were shown by nurserymen, and contained some choice things. A large group of new Japanese plants, principally Coniferæ, was sent by Mr. Barron, of Elvaston. The cut flowers consisted of Dahlias, Gladioli, and Asters, the first of which were very fine, considering the unfavourable weather. Fruit was generally very good, especially Grapes, Peaches, and Melons. The Canon Hall Muscat, from Mr. T. Statter, was very fine, and deservedly took the 1st prize. There was a great quantity of Apples. In the cottagers' class, the window plants, vegetables, and collections of wild flowers did them great credit. There was a good attendance of visitors. This exhibition will be the last for this year—a year that has been the best for the gardens since they were established. The principal prizes were—

Exotic Orchids—8: 1st, Dr. Ainsworth. 6: 1st, Dr. Ainsworth. 1: 1st, Dr. Ainsworth. Dahlias—24: 1st, Mr. J. Rylance. Dahlias—12: 1st, Mr. C. Rylance. Dahlias—6: 1st, Mr. W. Renshaw. Gladiolus—12 spikes: 1st, Mr. J. Lancashire. 6: 1st, Mr. S. Yates. Stove and Greenhouse Plants—8: 1st, Mrs. Cole & Sons. Japan Lilies—4: 1st, Mr. S. Roebuck. Pelargoniums—8: 1st, Mr. J. Foulds. 4: 1st, Mr. J. Foulds. Miscellaneous plants—10: 1st, Mr. T. Kendal. Cockscombs—6: 1st, Mr. W. Carver. Asters—12: 1st, Mr. T. Kendal.—6: 1st, Mr. J. Carver. Hollyhocks—12: 1st, Mr. C. Rylance. Fuchsias—6: 1st, Mr. S. Schloss. Verbenas—12: 1st, Mr. C. Rylance. One New Plant—1st, Mr. J. Scott. Pine—1st, Mr. J. Dixon. Peaches—6: 1st, Mr. J. Dixon. Nectarines—6: 1st, Lord Stanley of Alderley. Light-coloured Grapes—2 bunches: Mr. T. Statter. Black Grapes—2 bunches: Mr. H. Micholls. Apricots—6: 1st, Mr. G. Silcock. Six dishes of Fruit—1st, Mr. J. Dixon.

Working Men's Flower Show in Ancoats, one of the manufacturing districts of Manchester.—It is tolerably well known that very successful exertions have recently been made in London to spread the love of flowers among the poorer classes in certain out-of-the-way parts of the town by getting up flower shows at which they could exhibit their specimens. Prizes have been given, and the result has been highly satisfactory. The idea is a most excellent one, and deserves to be very extensively adopted. Manchester is not behind-hand. Last year the first show of the kind was held in connection with Ancoats Church; the Rev. Canon Richson, the Rev. Mr. Holland, and an active committee, being the promoters and superintendents. This year there has again been a show, and again of the most gratifying kind. To give an idea of the nature of the show, and of the class of persons invited to compete, we give the conditions and list of prizes offered:—

1. To persons living in the courts and cellars; 2. To persons living elsewhere within the parish. To each of these classes the following prizes were given—Fuchsias: 1st prize, 5*s.*; 2d, 3*s.*; 3d, 1*s.* 6*d.* Pelargoniums: 1st, 5*s.*; 2d, 3*s.*; 3d, 1*s.* 6*d.* Annuals: 1st, 5*s.*; 2d, 3*s.*; 3d, 1*s.* 6*d.* Extra prizes were given for 1, the best collection of Ferns; 2, any plant grown under peculiarly difficult circumstances; 3, the best plant or tree of any other kind than those named.

On Saturday the 12th inst. the show was held, as announced. There was a capital lot of Fuchsias and of French Nettles (the Plectranthus fruticosus of botanists), with a number of nicely-grown plants of Elder, Pelargoniums, Tobacco, Tradescantia repens (locally called Parsons' Pride); Stocks also, Musk plants, and many others. A few bouquets of Mignonette and hardy perennials, such as the Great Yellow Loosestrife and the Willow Herb, lay on one of the tables, and there were also some very excellent Wardian cases of Ferns. The great difficulty these simple but earnest cultivators have to contend with is the smoke; perhaps even a greater difficulty is in the acids and chemical vapours in the atmosphere. These cause the buds of many a nice flower to drop off prematurely. Everything, of course, except the bouquets, was growing in pots. The effect of these little exhibitions is good in many ways. A man who is induced to turn his attention to the cultivation and tender nursing of a few pretty plants in his window, or in his back

yard, has something to draw his attention away from ignoble things, and the chances are that he will be incited to seek for useful knowledge and a better class of companionship than he has been used to. To see his plant grow up and flourish under his own hands, and then win a prize, gives, moreover, an impetus to his intelligence and industry. There is something, at the same time, to interest the children, and to open their minds, better than playing down in the dust of the street can ever do.

Notices of Books.

Ice-caves of France and Switzerland. By Rev. G. F. Browne, M.A., Fellow of St. Catherine's College, Cambridge. Pp. 315. London: Longman & Co. 1865.

Ice-caves are found in various parts of the world at depths varying from 50 to 200 feet below the surface of the earth, unconnected with glaciers or snow mountains, and in latitudes and at altitudes where ice could not under ordinary circumstances be supposed to exist. These caves are very singular, and many of them well repay inspection; so Mr. Browne describes the twelve which he has visited, giving a good deal of useful information for the guidance of persons who wish to make an inspection for themselves, and interspersing his accounts with the numerous little incidents that occurred in his travels and investigations, which he always manages to invest with a deal of humour. With an unfailing flow of buoyant animal spirits, and sometimes accompanied by a couple of lively sisters, ever ready to make the best of things, and turn little *contretemps* into fun, Mr. Browne seems to have passed a very pleasant time in making his explorations, and comes back to England with a series of measurements and thermometer readings, and a few pretty sketches of the ice-caves. These furnish materials for a couple of papers which he read before the British Association at Bath, in 1864; one on the prismatic formation of the ice, the other on the general character of the ice caves and their possible cause; and finally, at his leisure, he gives the reading public the benefit of his labours and experience in the form of a light and amusing volume.

The first ice cave that Mr. Browne describes is the glacière of La Grenollière, not far from the village of Arzier. It is situated at an elevation of about 2800 feet above the level of the Lake of Geneva. The cave was small but lofty, its floor being 51 feet long, of which a space 37 feet in length was covered, more or less, with ice. There were four principal columns of ice from 12 to 15 feet high, proceeding from fissures in the side of the cave, and looking like frozen cascades. When the ordinary stores of ice fail, Geneva is supplied from this source, and the peasants, observing that the supply of ice seems to be greatest in the fine hot weather, have imbibed the notion that the ice is formed in these caves in summer and melts in winter. This however has been conclusively proved to be a mere vulgar error, for M. Thury found the caves in a state of utter frost in the winter, and Mr. Browne, who visited them in the summer, invariably found them more or less in a state of thaw. It is true that some currents of cold air were observed in the caves by Saussure, but the lowest temperatures which he noted were considerably above the freezing point. The reasonable explanation of the preservation of ice in these caves seems to be, that the heavy cold air of winter sinks down into these glacières, the entrance of the cave being always situated on a higher level than the place of the ice deposit, where the warmer and lighter air of summer cannot dislodge it on any principle of gravitation, so that heat is very slowly spread through the caves, and when some amount of heat does reach the ice, the process of melting is very slow, for ice absorbs 60° C. of heat in melting; and thus, when ice is once formed, it is a material guarantee for the permanence of cold in the cave. There appear to be three necessary conditions for the long continuance of ice in these caves: 1st, it must be situated below the entrance of the cave, else the cold air would escape by its own gravity, and be replaced by warmer air; 2dly, the cave must be protected from direct radiation; 3dly, the wind must not have free access to the cave. To judge by the sketches and descriptions, many of these caves must be extremely beautiful. Some of them required long ladders to effect an entrance, for some an ice-axe and a rope are indispensable, and some had the great advantage, that venturesome young ladies were able to share the perils of the enterprise. In the Pré de S. Livres a vertical ladder leads to a ledge of rock, on which bushes and trees grow; a longer ladder next leads to the deep snow: after traversing a space of 29 feet wide by 177 feet long, over a coat of snow, glazed over with ice, very sloping and very slippery, and requiring the axe for every step, one comes to an abrupt termination, like the end of a roof, and from the eaves magnificent icicles are hanging down; into these an old ladder has been frozen, and the travellers chop out holes for their feet and descend the ladder. The icicles are found to form a sort of fairy cloistered walk under the eaves of that roof. The travellers are now on a flooring of ice, and for curiosity cut a hole through the floor with an axe, and entering up to their arm pits happily their feet touch the sides of a sloping trench. They descend through the hole and creep down the trench-side to a depth of 50 feet, so that had the hole been cut in a different place a deep chasm would have been beneath them. All this is made plain to the reader by means of a very pretty sketch, and a profile section of the cave.

In another case a dome excites their admiration, and Mr. Browne writes:—

"Beneath this dome a very lovely cluster of columns had grouped itself, formed of the clear porcelain-like ice, and fretted and festooned with the utmost delicacy, as if Anderson's ice maiden had been there in one of her amiable moods, and had built herself a palace. This dome in the roof was similar to many which I afterwards observed in other glaciers, being a vertical fissure with flutings from top to bottom—not a spherical dome, but of that more elegant shape which the female dress of modern times assumes on a tall person." Some of these expeditions had just enough of danger connected with them to render them interesting, and to bring out the character of the Englishman. In others he indulges largely in pleasantries, and treats his guides to a considerable allowance of chaff. If a Frenchman tries to explain to him the usual depth of a fall of snow in those parts, he observes that it is rather more than two joints of a remarkably dirty finger. If he gets some dinner at a Mairie, he is merry over its singularity. "There was some talk of a *poulet*; but the bird still lived, and the talk came to nothing. The dinner ended with the haricots, and we then relapsed into dessert, namely, bread and kirsch. The mayoress came in with the dessert, and sat on the end of the bench, below the hats and the bread-tin, eating the remaining Onions off the dish with the spoon of nature."

With regard to the prismatic structure of the ice, Mr. Browne noticed that "the surfaces of the columns were covered by very irregular lines, marked somewhat deeply in the ice, and dividing the surface into areas of all shapes, a sort of net-work with meshes of many different shapes and sizes. In fact, it was found that these were the ends of prisms, which could be detached with ease, by using no instrument more violent than the fingers, and sometimes the prism could be pushed out entire, like a knot from the edge of a piece of wood. The point of a thin knife entered freely at any of the surface lines, and split the ice neatly down the sides of the prisms." Now, Prof. Faraday has observed a well-marked crystalline structure in ice that has been formed under a lower temperature than the freezing point. And Prof. Tyndall has pointed out, that owing to a want of perfect homogeneity, some parts of a block of ice exposed to a temperature of 32° F. will melt, while others remain solid. Thus the prismatic ice, which seems to have greater power of resisting heat than ordinary ice, is accounted for, and thus the hollow stalactites of ice found in some of these caverns are explained.

De l'Arbousier, de la propagation, de sa culture, et des produits économiques qui en résultent, &c. Par Mingaud (du Gard), Pharmacien de première classe. 8vo. pp. 26. 1863. With a lithographed plate.

Loudon, so long ago as 1838, drew attention in his Arboretum et Fruticetum to the various economic uses to which the common Arbutus and its different parts may be put, for the formation of sugar and spirit, for tanning, charcoal-making, and fencing, and we have here a pamphlet, the express purpose of which is to recommend the cultivation of the plant on a large scale in France; while, as we hear, there is a project on foot for the formation of a company to utilise more especially its fruit, and the valuable properties of the leaves, as containing a considerable quantity of tannin, are not lost sight of. It is clear that the cultivation, supposing the sanguine views of projectors should be realised, could succeed only in the southern parts of France. The plant at Paris requires protection from severe frosts. The fruit is eaten in many places where it grows abundantly, but it is at best an insipid article of food, and it is not very probable that any attention of the horticulturist would greatly improve it. It is, however, highly nutritious from the quantity of pectine and parapectine which it contains, and it is mainly on this that its supposed merits in manufactures are founded. There is no doubt that a good and wholesome jelly can be obtained from it, but it requires the addition of vanille, or some flavouring substance, to make it palatable. It is believed also that it may be of great importance in the manufacture of glucose, and that it surpasses most other substances for distillation. These matters are detailed in the pamphlet, with copious receipts for the formation of jelly, preserve, syrup, liqueur, wine of various kinds, vinegar, &c., from the fruit. A great deal, moreover, is said of its dyeing properties. The chemical products which it yields are summed up as follows:—1. Pectine from the fruit. 2. Parapectine from the fruit. 3. Starch from the fruit. 4. Tannin from the fruit and leaves. 5. Wax from the fruit. 6. Green colouring matter from the leaves. 7. Violet colouring matter from the fruit. 8. Sugar from the fruit. 9. Alcohol from the fruit. The real economic value will of course depend upon the product per acre, and the expense of cultivation. It is recommended to raise the plants from seed, but as seedlings do not bear fruit for seven or eight years, layers or cuttings would be preferable.

The last (August) number of the *Botanical Magazine* derives a melancholy interest from its being the last which passed through the hands of the late Sir W. J. Hooker, who has edited the work for nearly 40 years. Its last plate is *Primula cortusoides amœna*, one of Mr. Veitch's introductions from Japan, named in our columns shortly after its introduction, but now that it is brought more thoroughly under the hands of the cultivator, more than justifying the name. The flowers, foliage, and habit resemble those of the old Primula cortusoides, but the flowers at least are two or three times as large, and already several very distinct varieties both as regards form and colour have been raised by Mr. Veitch. It is amongst the most hopeful of recent additions to the lists of spring flowers, and with such plants as this and Anemone angulosa to work upon, the interest which gathers round our spring gardens should be of the liveliest character.—*Bertolonia guttata* is another of Mr. Veitch's plants—said to be from Madagascar, but according to Sir W. Hooker rather Brazilian. It is a lovely dwarf stove perennial, of the Melastomaceous family, with ovate acuminate five-nerved leaves of a rich green, dotted over with rosy spots. The flowers are small and pinkish.—*Scutellaria aurata sulphurea*, a dwarf branching stove plant, introduced from Brazil, and bearing terminal racemes of long-tubed sulphur-yellow flowers.—*Psammisia longicolla*, of uncertain South American origin, grown by Mr. Bateman, and a good deal resembling other species which have been lately figured. The leaves are elliptic acuminate, three or five-nerved, and the crimson green-tipped flowers are in short recurved axillary racemes, crowding the branches.—*Phalænopsis sumatrana*, already fully noticed at p. 506; a beautiful figure of this charming plant is given.

The previous (July) number contains figures of the following plants:—*Fourcroya longæva*, a magnificent Mexican species, which flowered last summer, for the first time in Europe, in the conservatory of the Royal Botanic Society. It is, as Mr. Bateman has observed, "one of the most marvellous productions of the vegetable world," with the habit of a gigantic Yucca, its stem being frequently 50 feet high, and its flower spike 40 more. Like the Agave, it dies after flowering, leaving however a supply of young plants in the shape of germs on its flowering panicle. The plant in question was about 15 feet high, including the much-branched pyramidal panicle; the flowers are spreading whitish within, yellow-green externally.—*Dendrobium senile*, a remarkably hairy Moulmein species with yellow flowers, fully noticed at p. 434.—*Marianthus Drummondii*, a slender West Australian evergreen greenhouse climber, with pale blue flowers, and very much the aspect of a Sollya. It has been introduced by Mr. Veitch.—*Drimia altissima*, a Natal bulb, with a tall erect scape (4 feet high), terminating in a dense raceme of reflexed pale-green flowers.—*Phalænopsis Lüddemanniana*, another of the beautiful new Orchids which have made their appearance during the present year. The flowers, fully described at p. 410, are white, thickly cross-barred with amethyst. It was introduced by Messrs. Low.

In the three last numbers of the *Florist and Pomologist* we find figures of *Pelargonium Amy Hogg*, one of Beaton's new semi-nosegay varieties, and of a lovely purplish rose, bearing immense trusses.—*Pelargonium John Hoyle*, one of the best new varieties of the "show" section.—*Skimmia oblata*, a Japanese evergreen shrub introduced by Mr. Fortune, and combining in its foliage and berries the beauties of the Laurel and the Holly. The chief peculiarity of this species is that the berries are of an oblate figure, and of the colour of bright sealing-wax. It is of more vigorous habit than the common Skimmia, and bears exposure to sun better than that.

In the recent numbers of the *Floral Magazine* are figures of the following: *Rhododendron Princess Alexandra*, one of Mr. Veitch's hybrids, with the habit of R. Princess Royal, but white flowers.—*Pelargonium* (Zonal) *Venus*, one of Mr. Hally's marbled-leaved seedlings, with fine scarlet white-eyed flowers.—*Hepatica angulosa*, the pretty Anemone angulosa introduced by Messrs. Backhouse, but very indifferently represented, one of the buds unmistakably showing an inferior ovary!—*Mimulus duplex*, a group of the hose-in-hose varieties already noticed by us. It is observed that "some of the varieties obtained when they were exhibited a First-class Certificate," but it should be explained that it was a single certificate which was granted to the duplex form of Mimulus as a desirable novelty, and not to any of the individual varieties.—*Primula cortusoides amœna*, noticed above.—*Andromeda tetragona* so-called, but as it would appear from a foot-note *A. fastigiata*.—*Anemone fulgens*, one of the fine things shown by Messrs. Backhouse during the spring months. It is a Greek plant with brilliant crimson flowers, and is closely allied to A. hortensis.—*Berberis stenophylla*, Messrs. Fisher Holmes & Co.'s beautiful hybrid, to which frequent allusion has been made by us. Seedling plants it is stated, and as was indeed to be expected, do not come true.—*Rhododendron thibaudiense* (surely thibaudioides) which has flowers like those of R. Keysii, but in terminal bunches instead of growing from the old wood.—*Aquilegia cœrulea*, a beautiful hardy perennial from the Rocky Mountains, grown by Mr. Thompson, of Ipswich. The flowers have very long spurs, blue sepals, and white petals, and stand erect instead of being pendent.—*Clerodendron Balfourii*, a plant like the parent Thomsonæ, except that it has larger flowers, the difference in size, however, not being very apparent; it is like C. Thomsonæ a very handsome stove climber.—*Primula intermedia*, a purple-flowered garden variety, with the character of the Alpine Primroses.

Florists' Flowers.

The encouragement given to raisers of NEW SEEDLING FLORISTS' FLOWERS, should urge them to leave no means untried by which they could hope to improve upon the existing kinds. At first sight we appear to approximate very nearly to the standard of excellence in many subjects, but on closer inspection it is generally found that the most beautiful flowers are somehow or other deficient. When the "Properties of Flowers" were first published by Mr. Glenny, they were set down by many as a chimera, or were looked on as a standard which would never be realised; but florists as a body at once recognised them, and gave him the credit for making an advance in floriculture such as will be remembered as long as florists' flowers are cultivated.

The judges at our exhibitions often make sad mistakes in awarding certificates to novelties, by following their own ideas as to what constitutes a first-class flower. They have a natural taste and a quick perception of the beautiful perhaps, but if asked what should constitute a perfect flower in any particular genus, they would most probably be at a loss to answer so important a question. Hence it is necessary that every judge of florist flowers should be well acquainted with the recognised properties before officiating in that capacity or commencing the cultivation of this class of flowers, more especially the raising of new kinds.

In the raising of seedlings I am afraid many persons begin with no fixed purpose in view, further than wishing to bring before the public some splendid production that will make their name famous. A lifetime may be spent in this hap-hazard way with no very satisfactory result.

The first thing to be considered is saving the seed. This should be obtained from some variety with good sound constitution and excellent habit, the flower if possible to be also of the finest form. The male parent should possess purity of colour and excellence of shape, looking at these two properties before noticing the habit and constitution, which latter should be present in the female parent.

As an instance how easy it is to err and do the reverse of what was intended, I will refer to the Rhododendron, a flower which has been greatly improved within the last 30 years, the fine exhibition of these plants at the Royal Botanic Gardens and South Kensington being now among the greatest floral treats of the season. When Rhododendron arboreum was first introduced, its beautiful colour caused two well-known lovers of horticulture in those days, the late Dean Herbert and the late Mr. Henry Burn, of Tottenham Park, to turn their attention to the improvement of this particular flower, and how they succeeded is well known to the many thousands who have seen the magnificent banks at Highclere and Tottenham Park; but unfortunately they used the wrong variety as the female parent, taking R. arboreum for this purpose, and crossing with R. catawbiense and other late-blooming kinds. The majority, or more probably all the produce of this cross bloom so early in the season that rarely is their beauty seen in perfection, the flowers being year after year destroyed by the late spring frosts. The intention of both those gentlemen was to introduce scarlet Rhododendrons blooming as late in the season as R. catawbiense, but by taking the wrong species as the female parent, that intention was to a certain extent frustrated, although the brilliant colours of R. altaclerense, R. Russellianum, and R. Nobleanum cannot well be equalled for conservatory decoration in early spring. Many fine varieties raised by Mr. Burn have never been distributed.

To the late Mr. Hosea Waterer belongs the credit of bringing before the public the beautiful late-blooming varieties of this flower. He avoided the error made by his contemporaries, and used R. catawbiense as the female parent, and R. arboreum as the male. The whole race at Knap Hill and Bagshot have sprung from this judicious crossing, which, in a commercial point of view, has evidently been most satisfactory.

Again, in the case of Pelargoniums, Mr. Hoyle every year produces some magnificent varieties. John Hoyle and Mary Hoyle of the present season appear to come as near perfection as possible. The bottom petals of most of his varieties are so fine that each individual flower is a circle. Mr. Hoyle has carried on his crossing with great skill, and avoided the kinds with narrow petals, more especially in the male parent.

The late Donald Beaton once said he had something to tell us respecting hybridising Pelargoniums, but I am afraid his lamented death deprived us of the information acquired through his great experience with this particular class of flowers. If I remember rightly it was to the effect that the long and the short stamens each perform different functions, the pollen from the long stamens influencing the upper petals, and that from the short stamens the lower petals. It would be of great service if some successful hybridiser would give his experience in this matter, which is worthy of trial, especially in the Zonale section.

The late Mr. Beck wrote in the "Florist" that he did not hybridise his Pelargoniums artificially, but placed them in groups, each colour separately, and left the crossing to insects and nature. His seedlings have always been of a high character, but in my opinion wanting in many good properties that especially belong to Mr. Hoyle's strain. The late Mr. Foster produced more high-coloured flowers than any other raiser, and many of them of excellent quality, but most of them somewhat narrow in the lower petals, whereas Mr. Hoyle's flowers are distinguished by the very opposite character.

These references are made with the intention only of pointing out to raisers of seedlings that they should, before they attempt to save any seed, carefully study the habits and qualities of the kinds they operate on, so that their labour may not be in vain. Much more might be said of the success of such raisers as May and Puxley among Carnations, Kirtland among Picotees, and Sainsbury, Dods, and many others among Dahlias. It is to be hoped, moreover, that others will take up the pursuit and assist in producing novelties for our exhibitions. There is, as I said before, ample room for improvement, and with Nil Desperandum for a motto it is impossible not to succeed. *William Heale.*

New Roses.—I lately promised in your pages to speak of new Roses after further trial. I do not think that it will be so good for the public service to wait longer, as to speak of them at once, because the budding season will soon be over, and people may not know what sorts are the most eligible for propagation. Further, I am induced to do so at once on account of a letter which I have received from Mr. Postans, of Brentwood, Essex, in which he says—"I hope you will pardon my asking you to be so kind as to inform us what Roses you can recommend from your own experience out of those of 1864–65. If you state the style of the flower and habit of the plant, you would confer a great favour on amateurs who, like myself, have not the opportunity of seeing the new Roses growing. Where a Rose at all resembles a well-known kind, your statement that it does so will give one some idea of the sort of flower you are describing."

I will endeavour to do so, and I hope I shall not give the impression of "egotistry" in speaking of my personal experience; for I need hardly say that information and experience, to be worth anything, must be personal and egotistical!

The character of all the kinds that I shall recommend, so far as I have had opportunity to try them, is that of good growth and foliage:—

1. *Roses of* 1864.—1. Madame Victor Verdier, clear crimson, somewhat in the style of M. Bernardin, better formed, and of lighter colour. 2. Pierre Notting, deep crimson, a highly improved Mrs. W. Paul. 3. Baronne Pelletan de Kinkelin, the best shaped dark rose that I have seen for some time. 4. Lord Macaulay, rich lustrous crimson, sometimes dark, very thick petals, a lasting flower. 5. Lord Herbert, light carmine-crimson, beautifully folded, and full to the centre. 5. Eugène Verdier, a fine purple or purple crimson, in the way of André Leroy d'Angers; it is an abundant bloomer. 6. Leopold Premier, a well-formed handsome scarlet crimson. 7. George Prince, globular, a deep clear red. 8. La Duchesse de Morny, pure rose with silvery reverse to the petals—a great bloomer. 9. Lord Clyde, scarlet crimson, of great substance, sometimes a little rough at its edges; for style and substance it is allied to Lord Macaulay, but the colour is lighter. Here Lord M. is the best. The above are nine first-class Roses that can be highly recommended.

The following have not been quite full to the centre, but they are handsome, clear in their colours, and sure to make good garden Roses, probably good show Roses. 10. Paul de la Meilleray, cerise crimson, in formation bearing more resemblance to Jules Margottin than to any other. 11. Gabriel Peyronny, intensely brilliant crimson, folding inwards, like Reine des Pays Bas, and very like it. The following appear to be fine full Roses, but they did not open well, viz., Alpaïde de Rotalier, Madame Derreux Douville, and Vicomtesse Douglas. When more established, they will do better. All the Roses previously mentioned as pot plants were wintered on raised banks in the open garden, with a slight covering of straw over their roots. All the above kinds, and those which I am about to name, are rightly described in the catalogues as to their colours.

2. *Roses of* 1865.—1. La Duchesse de Caylus, clear carmine-crimson, of perfect outline and disposition of petal, of fine substance; a lasting flower under sun and rain. It dies well, after five days, a good pink. 2. Rushton Radclyffe, rosy crimson, large, of perfect outline and disposition of petal, an abundant bloomer. The petals are substantial, but want a little more silica to cork out the heavy night dews absorbed by the petals. It never discolours. It is a very fine Rose, and when budded (not grafted) it will be found to be a fine kind. It is a good grower, has good foliage, and out of 40 or 50 blooms there has not been one bad one. It is a free bloomer in all weathers, wet or dry. 3. Duc de Wellington, a rich darkish crimson, darker shaded, with well-disposed velvety substantial petals; a very fine Rose. 4. Madlle. Amelie Halphen, clear carmine-crimson, a deep petaled, well-formed Rose. These have been the four best; and for a limited trial (in respect of 1, 3, 4) I can conscientiously recommend them.

I believe that the following Roses will hereafter be found to be very good, viz., King's Acre, Princesse Lichtenstein, Emile Boyau, Elizabeth Vigneron, Madame Moreau, and Achille Gonod, one of the best growers, and with stout wood and healthy foliage. After they have bloomed again I shall be able to speak with less liability to err. We must not be too hasty in forming opinions of novelties on weak stocks in a summer like this, which has severely tried our strong and established Roses. Some of the infants here will probably not bloom at all this year. At present, therefore, I recommend the Roses of 1864 and four Roses of 1865.

I see that Mr. Keynes has given high testimonials to Madame Moreau and Madame Rousset in his Catalogue lately received. Mr. Adolphus Kent, in a letter to me, says: "I saw lots of Emile Boyau and Elizabeth Vigneron at Mr. W. Paul's; they were lovely." He also spoke highly of two dark Roses, Dr. Lindley and Cœur de Lion, not yet sent out. *W. F. Radclyffe. Tarrant Rushton.*

The Apiary.

"One of my early swarms in an Ayrshire hive has filled two of the boxes, 6 inches and 4 inches deep respectively, which I used as the stock, so that they weigh 35 lb., exclusive of boxes and board. Allowing, according to Taylor, 4 lb. for the bees and 11 lb. for pollen, there remains the large quantity of 30 lb. of honey. Surely some of this might be taken, 15 lb. being sufficient for the winter. The reason why I am in doubt about the matter is because it is stated on the authority just named that, unless in an extraordinary season, no honey should be taken from a swarm of the year. Again, you tell me that it is usual to use two of the boxes of an Ayrshire hive as the stock, and that does not usually take from the bees any of the contents of that. Still, the amount contained in a hive 10 inches in depth, appears a great deal to leave. And it would be greater still if the two 6-inch boxes—the usual stock, were in use.

"I cannot say that this mode of managing bees appears characteristic of the usual economy of the Scotch; so I think I must be in want of some further enlightenment.

"Do you think me right in my estimate of weight of honey, and the allowance for bees, pollen, &c.?

"Pray what weight of honey is the glazed octagon super described by you, 13 inches in diameter by 7 inches deep, calculated to hold when full? *A. B.*"

It is not usual so late in the season to deprive an Ayrshire or Stewarton hive, consisting of two compartments, of any of its contents. Supposing you were to appropriate to your own use the upper division, you would most probably remove from the stock nearly all the sealed honey that it would contain, leaving but a very small quantity in the lower box; whereas, if you take this last away, you will obtain no honey worth having, and will sacrifice a considerable quantity of brood and pollen.

We do not consider 35 lb. nett weight of contents to be at all too much to leave in any stock. We never attempt to appropriate any honey from a stock that which does not exceed that weight. We should only be too glad if all our hives at the end of every autumn could be put up for the winter with that amount. With our full-sized frame hives, which usually contain a far greater weight of stored food, we usually remove the end frame on either side, not only for the sake of the honey, but because we find the vacuum thus made is conducive to freedom from mouldiness and moisture, and, consequently, to preserving the bees in better health.

These side combs, if not quite adapted for consumption at table, are invaluable for supplying weak stocks with combs and food. Eighteen pounds of honey is quite a sufficient supply for a colony during the winter, but in removing a part of the Stewart hive in question, not merely honey which might be spared, but combs which could not be spared, would be taken away also.

Your estimate of the relative weight of bees, honey, pollen, &c., is not quite correct. In a swarm of the current year, weighing 35 lb. in August, we should be inclined to allow for the bees, 4 lb.; for combs, 1 lb.; for pollen, 4 lb.; and for brood, 4 lb., making at least 13 lb. in all to be deducted. If you were to take the entire contents, we should think you would be well off to obtain from it 20 lb. of run honey.

As a rule it is not usual for the bee-master to think of to appropriate honey from a swarm of the year. In these two or three last seasons supers taken from swarms have been far from rare.

To rob the stocks of too great a share of their stores would be very bad economy, and we do not think the Scotch, in leaving ample supplies, prove themselves unthrifty economists or bad bee-keepers.

The super described by us and alluded to by you will hold when well filled about 35 lb., more or less according to the thickness and closeness of the combs.

"A Novice" wishes to know "if Ants are injurious to bees, as his garden swarms with ants, and his bees do not thrive as he could desire."

We do not consider that ants are usually the cause of much injury to bees. They abound in the vicinity of our apiary, and are often to be seen running about the alighting boards of our hives; but the bees do not seem to pay much attention to them, unless an attempt be made by any to get within. We have known a large colony of ants to establish a nest on the crown of a populous stock of bees. Neither party seemed to

molest the other. How it might have proved had the bees been weak in numbers, we cannot say. The owner allowed the ants to remain during the greater part of the summer.

Garden Memoranda.

Messrs. Stansfield's, The Vale Nurseries, Todmorden.—With Manchester one associates a good deal that is advanced in civilisation and the arts; one knows it is an Eldorado to the Orchid grower, and *the* city of good omnibuses, but to think of it in connection with Messrs. Stansfield's Nursery seemed out of the question. That surely, thought I, must be somewhere up in the region of Asplenium viride or Gentiana verna. However, Mr. Findlay enlightened me, and an hour's railway run from Cottonopolis brought me to the side of a cold pit containing several thousand fine plants of Asplenium fontanum, and among the most genial lot of gardeners and Fern-growers imaginable. I had resolved to hold my tongue before such "distinguished pteridologists," thinking that the sages who had detected and named so many abnormities and curiosities in the way of Ferns would be too learned for converse with ordinary mortals; but the first sight of Mr. Abraham Stansfield immediately thawed that particular coat of ice. And then, Mr. J. Nowell, the muscologist, and the younger Stansfields were singly capable of dissolving any further amount of frigidity.

The immense collection of British Ferns and their varieties possessed by Messrs. Stansfield is for the most part grown in pots, and this was my first surprise. I thought the Ferns were Alpines, and that Stansfields, of the Vale Nurseries, never could have made such a noise in the world unless the place was specially prepared by Nature for Fern-growing. On the contrary, the nursery is just under the shade of a very grim-looking town—I mean an iron-grey sort of town, business to the backbone. It is said to be at once the dirtiest and prettiest town in the north, and entering it by train you see smoke-begrimed buildings, factories, &c., piled up in the usual north-country fashion, from one window, while from the opposite one you look on a picturesque and fertile valley, shut in by high hills—a scene which before its invasion by King Cotton must have been very beautiful. The town is distant 11 miles from Halifax, 9 from Rochdale, and about 19 from Manchester. Only 3 miles from Todmorden is the chief habitat (as far as I know) of that little vegetable wonder Schistostega pennata, which illuminates an old coal-drip there. But Messrs. Stansfield have been lucky enough to introduce to their houses this extraordinary Moss, which shows its presence here and there on the moist benches—a patch of iridescent golden-green. In the chief British fernery, which has rockwork in the centre, with moist cavities beneath, Schistostega abounds, and presents a picture far surpassing that of the finest Trichomanes, tipped with golden dew. What a great thing it would be if people could introduce this Moss to other cool ferneries, &c. The plant is so small that, looked at closely, it merely forms a green scum on the stones, but then the colour! especially when the morning sun gleams gently into the little cavities. It is like nothing else in the vegetable kingdom, and only reminded me of some of the most beautiful aspects of metals under the microscope.

But the Ferns, what shall I say of them? Only fancy nearly 100 named varieties of Athyrium Filix-fœmina, besides a small host "yet undetermined." And then think of the long names (Athyrium Filix-fœmina corymbifero-depauperatum to wit) which are necessary to express the wondrous divergence of many of these from the normal type, and then the descriptions (these are "original," as in many cases the sori or something else grows where something else "ought to be,") and this will give some faint idea of my note book. It may not, however, be out of place to tell the uninitiated in British Ferns, that the best of the newish Lady Ferns are the vars. grandiceps, Vernoniæ and Victoriæ—three worth getting immediately for every collection of hardy Ferns.

As for the Blechnums there are nearly 50 named varieties in the collection, for the most part distinct, and some of them the most curious Ferns in cultivation. For instance, what can be more extraordinary than such forms of the common Hard Fern as concinnum, with fronds very narrow, from 12 to 18 inches long and not a quarter inch wide, the fertile fronds long but little more than midribs, with simple knots instead of lobes bearing the sori; varieties like anomalum and anomalum minus, fertile half way down; and polydactylon, with the fronds terminating in a beautiful many-fingered crest. Some people go so far as attempting to ridicule this "making" of varieties of British Ferns, but many of the most beautiful inhabitants of our Ferneries, such as Athyrium F.-f. plumosum, surpassing by far the beauty of the species, have been thus preserved for us. Besides, if there are many of them not particularly graceful, and it may be particularly monstrous, they will come into cultivation so long as people are not prevented by Act of Parliament from having their own way in their own Ferneries; and then, once a plant is in cultivation or in people's thoughts, it must have a name. Then, again, in these days of deep thought on "species" and all living things, surely the "makers" have done something towards forwarding the labours of great pioneers of thought like Darwin, by clearly proving the wonderful variation of the subjects they deal with.

There are 20 named varieties of Lastrea dilatata cultivated at Todmorden, and nearly 40 of Lastrea Filix-mas, among the most striking of the former being Howardii, which bears the same relation to the varieties of dilatata that Fieldiæ does to the varieties of Athyrium. Among the Filix-mas breed, Barnesii, "regarded by some as the handsomest British Fern in cultivation," Bollandiæ and furcans were among the most remarkable. There is scarcely a British Fern of which Messrs. Stansfield do not possess varieties. Thus of the beautiful Asplenium fontanum there are four or five, but then when it is grown by the thousand, and in large specimens too, where should varieties be found if not at Todmorden? Asplenium Trichomanes has a dozen varieties in cultivation there, among the most remarkable being laciniatum, with the pinnæ cut in almost to the midrib, triangulare, and Moulei.

But all these variations are surpassed by the Hart's-tongue, of which Messrs. Stansfield grow upwards of 150 varieties, besides "improved forms." Marvellous is the diversity of form exhibited by this protean species, and among the most striking are the varieties constellatum, limbospermum, cervi-cornu, lonchophorum, albescens and pallescens (two white Hart's-tongues), marginato-papillosum—but it is useless attempting to indicate the most striking of the 150 here without a special article, and a special man too. Among Polystichums, aculeatum densum, with a densely imbricated aspect; P. angulare grandidens, imbricatum, and plumosum are among the more desirable, while more common and favourite varieties, such as Wollastoni, are grown in quantity. Of Polypodiums—there is no plant more admired in private gardens than P. cambricum—the most remarkable are pulcherrimum and omnilacerum, both somewhat allied in beauty to the favourite.

Largely as the British Ferns are grown at Todmorden, exotic species also fall in for no small share of attention and hardy exotic Ferns are very abundant, among them occurring also Sarracenias, &c., several species of North American Lycopods—pretty trailing things suggestive of the hunting grounds of the far West. It was interesting to see large batches of Cystopteris alpina, recently imported from the Tyrol, and other rare subjects beginning to unfold their fronds for the first time in matter-of-fact Lancashire; and no sight was more pleasing than a view of Botrychium virginicum, obliquum, and the beautiful lunariodes unfolding their elegant fronds, along with Schizæa pusilla by the score. There are also many curious and rare Alpines and British plants, for a real love of plants exists among the Todmorden people, and though busy as bees with Fern growing and general nursery work, they deem it well to enjoy the society of Chimaphilas, Gentians, Soldanellas, Rhododendron pygmæum, and a host of Alpines, some curious things in this way occasionally turning up with the large importations of hardy Ferns from America and the Continent.

And the Stansfields would appear to have infused this enthusiastic love of plants and botany into the hardworking men around to an extent very rare indeed in this country. This is proved by the flourishing state of the Todmorden Botanical Society, which numbers about 150 members, and has for its president Mr. A. Stansfield, and for its vice-president Mr. J. Nowell, the muscologist. Monthly excursions are made to interesting local plant-haunts; and now and then a distant one among the wilds of Clare or the beauties of Devon is made and thoroughly enjoyed by old and young. *R.*

Miscellaneous.

Spikenard.—The true nature of Spikenard has been at all times the subject of much controversy. Ptolemy mentions it as an odoriferous plant, the best of which grew at Rangamati and on the borders of the country now called Bhotan. Pliny says there are 12 varieties of it—the best being the Indian, the next in quality the Syriac, then the Gallic, and, in the fourth place, that of Crete. He thus describes the Indian Spikenard:—"It is a shrub with a heavy thick root, but short, black, brittle, and yet unctuous as well; it has a musty smell, too, very much like that of the Cyperus, with a sharp acrid taste, the leaves being small, and growing in tufts. The heads of the Nard spread out into ears; hence it is that Nard is so famous for its two fold production, the spike or ear, and the leaf." The price of genuine Spikenard was then 100 denarii per lb., and all the other sorts, which were merely herbs, were infinitely cheaper, some being only worth 3 denarii per lb. Galen and Dioscorides give a somewhat similar account of Spikenard or Nardostachys, but the latter pretends that the so-called Syrian Nard came in reality from India, whence it was brought to Syria for shipment. The ancients appear to have confounded Spikenard with some of the fragrant Grasses of India, which would account for the report that Alexander the Great when he invaded Gedrosia could smell from the back of his elephant the fragrance of the Nard as it was trod upon by the horses' feet. This error was shared by Linnæus, who did not attempt to classify it, but was inclined to think it was the same as the Andropogon Nardus, commonly called Ginger-grass. Sir William Jones, the learned orientalist, turned his serious attention to this question, and after a laborious investigation succeeded in establishing beyond doubt that the Spikenard of the ancients was a plant of the valerianic order, called by the Arabs sumbul, which means "spike," and by the Hindûs jatamansi, which signifies "locks of hair," both appellations being derived from its having a stem which somewhat resembles the tail of an ermine or of a small weasel. He consequently gave it the name of Valeriana Jatamansi. It is found in the mountainous regions of India, principally in Bhotan and Nepal. Its name appears to be derived from the Tamil language, in which the syllable nár denotes anything possessing fragrance, such as nártum pillu, "Lemon-grass;" nárum panei, "Indian Jasmine;" nárta manum, "Wild Orange," &c. It is highly probable, however, that the word Spikenard was often applied by the ancients as a generic name for every sort of perfume, as the Chinese now designate all their scents by the name of hëang, which properly means incense, it being for them the type of all perfumes. *Rimmel's Book of Perfumes.*

Ancient Trees.—The celebrated Chestnut (Castanea vesca) on Ætna must be a thousand years old at least. The Baobab trees (Adansonia digitata) of the Green Cape demand of us, according to their thickness and the number of zones in some of their branches, an age of 4000 years or thereabouts. The gigantic Cypress (Cupressus disticha) at Santa Maria del Tule, six miles east of Oaxaca, in Mexico, has a circumference of 124 Spanish feet, about 40′ in diameter. Now, suppose that every annual zone measured 1‴, the tree must be nearly 3000 years old. It is historically certain that it is older than the conquest of Mexico by the Spaniards. The age of the great Dragon tree (Dracæna Draco) at Orotava, in Teneriffe, is supposed to be 5000 years. These examples are quite sufficient to prove the possibility of a compound plant living on without end. *Schleiden's Principles of Scientific Botany.*

Gossamer Spiders.—About a week ago I happened to be wandering round the garden situated at the back of the house in which I reside. The sun was shining brightly, and in every direction threads of gossamer floated through the air, whilst other threads were stretched like fairy clothes-lines from the plants to the railings, and from thence to the Bean sticks in the adjoining garden. Observing that the threads were in much greater numbers at the lower end of the garden, induced me to commence a hunt in order to discover the spinners. A brief search soon disclosed their retreat. Clustered together like a swarm of bees were at least 300 of the tiniest spiders I ever saw. A general panic was the immediate result of my touching them. "One and all," they scampered off over the large web on which they had assembled. Some wisely endeavoured to hide under the leaves, others either fell or threw themselves from the web, and hung suspended by a delicate thread. I captured a few of the flying host; then holding them on my hand, observed a filament of web rapidly jerked out until sufficiently long to sustain the little fellow, when away he went, ascending rapidly until quite lost to vision. Procuring a wine glass, and placing in it some strong spirit, for the purpose of killing a few of the spiders, to more carefully examine them with a lens, I was not a little astonished, on taking some of them out from the spirit after an immersion of several minutes, to find as they lay on my hand, the rays of the sun shining on them through the pocket lens, that the little victims still had life. First a feeble kick with one leg, then another performed with two a trifle stronger; a third and fourth; and so on, until they marched away not even tipsy, as free from harm as if they had lived in spirit for a lifetime. The spiders were the young of the garden spider (Epeira diadema). I relate the fact, as I was not aware the young of the Epeira ever floated about on their webs, a habit I imagined peculiar to a particular species; neither did I know a young spider could bear soaking in strong spirit for several minutes without causing its death. *J. K. Lord, in Science Gossip.*

Flowers and Foreign Flower-Fashions.—Bouquets for the hand abroad are not made up like "the run" of English ones. The prettiest mode is to have a kind of Fern-shaped spray of green going down the bouquet between each little group of flowers. It seems to me that in composing a bouquet there are five or six separate bunches of green arranged first separately—some Fern, for example, or sprays of Rose-leaves (to mention things, as usual, that everyone has at hand), and then these sprays are fastened to the centre. The effect is exceedingly good; and all delicate foliage comes in exquisitely for this; and now we really have such varieties in our greenhouses. The flowers would not be mixed much—perhaps red and white in one place, and only pink in another; or perhaps blue would be alone here, and next door to it buff. The art is, not to seem to think the flowers unsuited to each other. . . . . Flowers for hair and dress are now very rarely mixed. You have some one flower and its own buds for all. Then, if more green is wanted, there are always sprays of Ivy, drooping fronds of Fern, long ribbons of delicate Grass. As a general thing, however, one flower with its own leaves is enough for one person's ambition; and the result is once more much grace and little heaviness. How awful "corn flowers" look when worn, in the spring, in bonnets—red and yellow and blue! The light flower-tufts on the hair are excessively pretty; and so is the plan of having a drooping tuft on one shoulder. I never very much like seeing a head dressed with flowers, unless there are also flowers some-

where about the dress. To me there always is the feeling that some blossoms should have fallen, or been kept in the hand, or stuck into the band. It is too hard, and complete, and finished, when every scrap of flower is collected and put in the hair. For actual use on dinner tables, the prettiest fashion I ever have seen by far is that of the large open vase supported on gilt branches, always so arranged as to look wide and low in proportion to its height. Of course in the centre of the table there must be something high; but there it seems so much more natural to have lights—a tall branch, for instance, with candles, and only at the feet two or three groups of flowers; three groups of flowers or fruit forming a natural ornament round the foot of some high centre. Much green is again especially desirable in this place, because there is always a certain glare of light and plate, and table-cloth and dress; and a mass of green is therefore more than ever welcome to eyes that feel slightly weary, as most eyes do in London before it comes to dinner time. I should suggest then having, if for a large or long table, some centrepiece of this kind, and placing the vase I describe at the top or bottom. But for a small table, especially a round one, the said vase itself is charming, when used for the centre ornament—and, indeed, in such cases no other flowers are necessary; and if other flowers are used it is all the worse for the users, who pay an increased florist's bill, and have a less pretty table. For the flowers appropriate for filling such a vase I will simply copy a list I took down in Paris, which seemed to me to combine all colour, and grace, and lightness, in the most charming manner. The dish or vase, I should mention, was of plain frosted glass, shallow and wide, and rested on twisted supports of bright and frosted gilding. The dish was itself filled up with bright dark green Moss—one of the beautiful greenhouse Lycopods might well be used here. Lycopodium denticulatum is, perhaps, best of all for the purpose, and is easily grown anywhere, in a shady corner of the greenhouse, or in a window that will not suit many flowering plants because of want of sun. The Moss was raised in the centre—not a heap, but curved upwards. The flowers were as follow:—One deep-red Rose, one of the palest blush white, a spray of white Convolvulus just touched with pink, a cluster of red drooping flowers (I thought, of the rose Acacia), one spray of pale wild Rose, one bright pink Rose, a cluster of white Acacia, and a drooping branch of the pink Convolvulus. It is to be remarked the colours were *all* shades of rose and white. The whole thing was most perfectly bright, and fresh, and beautiful. Each flower was simply laid down on the green, fairly round the vase, no attempt being made to fill up the centre at all. The flowers just touched, and had each its own green leaves; the stems, of course, were just hidden slightly in the Moss. I give this to show the style of thing, but, of course, other flowers can be used for any of those named. The great thing is, it seemed to me, to have *some* idea to work to; and there certainly are such ideas to be picked up, sown broadcast abroad, where nobody is ashamed of trying to make themselves and everything else look their prettiest. *London Society.*

Mr. Fortescue's Elms.—Near the churchyard of Buxton, in Devon, is a fine grove of Elms planted in the year 1677 by Mr. Fortescue, of Spridlestone, and other parishioners, for the express purpose of being sold, when at a proper growth, to raise a fund for the benefit of the poor; a singular instance of prudent foresight, and well worthy of imitation, there being many parishes in which small wastes might most beneficially be thus planted. Sixteen were cut down during the winter of 1819, and produced the sum of 92*l.* 2*s.* There is a stone on the spot with the following inscription:—"This colony of Elms, regularly disposed into walks, was planted in November, 1677, by Edward Fortescue, of Spridlestone, Esq., churchwarden, with the approbation and contributions of the majority of estated parishioners, to the intent that when perfect in growth and sold, lands may be purchased with the money for the relief of the poor of this parish, and that posterity reaping the advantages of our benefaction, may be encouraged to provide for more succession by substituting others in the room of these." As land cannot legally be purchased, the proceeds are funded for the benefit of the poor. *Lyson's Devonshire, quoted in Notes and Queries.*

Number of Useful Plants.—Some interesting statistics have lately appeared upon this subject. The number of useful plants has been computed to be 12,000; but it must be remembered that the researches which lead to this conclusion have only extended over certain parts of the world. There are no less than 2500 known economic plants, among which are reckoned 1100 edible fruits, berries, and seeds; 50 cereals; 400 uncultivated edible graminaceous seeds; 23 of other families; 260 comestible rhizomes, roots, and tubers; 37 Onions; 420 vegetables and salads; 40 Palms; 32 varieties of Arrow-root; 31 sugars, and 40 saleps. Vinous drinks are obtained from 200 plants, and aromatics from 266. There are 50 substitutes for coffee, and 129 for tea. Tannin is present in 14 plants; caoutchouc in 96; gutta percha in 7; resin and balsamic gums in 389; wax in 10; grease and essential oils in 330; 88 plants contain potash, soda, and iodine; 650 contain dyes; 47 soap; 250 fibres which serve for weaving, and 44 for paper making; 48 give materials for roofing; 100 are employed for hurdles and copses; 740 are used in building, and 615 are known to be poisonous. According to Endlicher, out of 278 known natural families, there appear to be only 18 absolutely useless. *Popular Science Review.*

Calendar of Operations.

(*For the ensuing week.*)

A short time ago we recommended all who are anxious to make a fine display of flowers next summer to take notes of the most effective plants for that purpose, and of the habits and peculiarities of each. Such a review might now be carefully repeated, and the present state of the plants noted, marking particularly those which at that time made a creditable display, but which are now becoming shabby. The right way to proceed is to make a list of desiderata. One important point to be attended to in the selection of plants for bedding purposes is the proper balance between flower and foliage, and especially amongst the bright warm colours. The principle of methodical arrangement might indeed be carried beyond the parterre; every clump of shrubs might be made to give evidence of good taste in the disposition of shades and colours. Many of the most showy herbaceous plants are now in beauty, and by studying the effect they produce in different situations it is more easy to decide where new plantations of them may be introduced with the greatest advantage.

FLOWER GARDEN AND PLANT HOUSES.

The late heavy rains in some places have somewhat impaired the beauty of bedding plants, which should therefore now receive a little re-arrangement. Weeds must also be kept in check, Grass cut short, and walks kept clean and neatly rolled. If wet weather should continue, fine specimens of greenhouse plants now in the open air had perhaps better be placed under cover.

Bedding Plants.—These may now be propagated, and in doing so see that cuttings of a proper description are selected for the purpose, and that they are put into well-drained pots that will occupy little room during winter. See that the cuttings are not allowed to flag. When potted, place them in a cold frame, and shade them from bright sunshine until they have become a little established. The chief point is to get them as hardy as possible before winter. On no account allow them to get weakly and drawn. The greater part of out-door stock should be wintered in store-pots, the plants in which will yield good materials for propagation in spring.

Carnations and Picotees.—Pot-off rooted plants and place them on ashes in a shaded and sheltered place, covering with frame-lights, so as to prevent excessive rain from soddening the soil, or if a cold frame is at liberty they may be placed in that; regular attention as to watering, &c., must be given them.

Dahlias.—These even yet in some places may require abundance of water, if fine blooms are to be expected.

FORCING GARDEN.

Cucumbers.—If bright weather should set in, dew the plants overhead once or twice a week, observing always to use a fine rose, as a heavy stream breaks down the leaves.

Peaches.—The late warm dry season will have been very favourable to wood ripening; but where any is still immature, means must be taken to forward it, as next year's success will very much depend upon ripening being properly effected. Keep the foliage clean and free from insects.

Pines.—Afford plants lately potted a liberal temperature, but let it be accompanied by sufficient ventilation to prevent undue elongation of the leaves, and to mature their tissue while sunlight is powerful enough for that purpose. A less humid atmosphere should be supplied generally, and especially to plants intended for fruiting early next spring, as it is very important that they should acquire a strong sturdy habit, and that the accumulation and elaboration of sap should be encouraged, rather than the increase of the size of the plant. Assist the swelling fruit with liquid manure, but admit abundance of air, for the sake of the flavour, and to prevent the crowns growing too luxuriantly.

Vines.—Preserve ripe Grapes from the effects of damp, by avoiding the spilling of water about the houses, and by admitting a free current of air during favourable weather, accompanied by a little fire heat during rain or fogs. Late Vineries should now, if possible, be freed entirely from plants in pots, or if any are allowed to remain they should be of kinds requiring little or no water, such as bulbs and other stove plants, which like a dry cool treatment to induce them to rest. From this time the points of all growing shoots should be stopped, as leaves produced after this time appropriate stored-up energy, without ripening sufficiently early to benefit the Vines in return. Care, however, must be taken not to stop too closely the lateral shoots of Vines which are still growing vigorously, as they are liable in such cases to burst the buds too near the base of the shoots.

HARDY FRUIT AND KITCHEN GARDEN.

Shorten the breastwood of wall trees, and at the same time divest them of superfluous shoots; gather all kinds of outdoor fruit as it becomes ripe and fit for storing.

Celery.—Take advantage of dry days to earth the rows up, sprinkling a good dusting of quicklime or soot about the plants in the lines, and over the surface of the ground for some distance on each side, to destroy slugs, which generally do considerable damage to Celery, especially in wet seasons. The soot or lime should be applied two or three times before soiling up the plants, at intervals of a few days, and early in the morning, before the pests have retired to their hiding-places.

Strawberries.—Let young plantations of these be well attended to by stirring the soil between the plants and supplying them with plenty of liquid manure, that they may continue to progress at the root, and fully employ their leaves in the elaboration of sap. Promote by every means vigorous growth now, and fine fruit next year will be the reward. Alpine Strawberries should be looked to, as they will now or soon be found useful in supplying a desirable addition to the dessert. If they are in a state to receive water, supply it in the shape of liquid manure. Plant a few beds of young runners on a north wall for another year; let the soil be a sandy loam, moderately enriched.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON

For the Week ending Aug. 23, 1865, as observed at the Horticultural Gardens.

August.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth 1 foot deep	Temperature. Of the Earth 2 feet deep	Wind
Thurs. 17	26	29.708	29.730	71	50	60.5	64	61½	S
Friday 18	27	29.879	29.773	72	39	55.5	63½	61½	S W
Satur. 19	28	29.9 8	29.858	73	45	59 0	63	61½	S W
Sunday 20	29	29.927	29.8 3	76	51	63.5	64	62	S W
Mon. 21	●	29.714	29.706	75	50	62 5	64½	62	W
Tues. 22	1	29.685	29.603	78	46	62.5	65	62½	S W
Wed. 23	2	29.512	29.424	64	54	59.0	64½	62½	E
Average.		29.762	29.699	72.8	47.8	60.3	64 1	61 9	

August 17—Cloudy; showery; warm and rather boisterous at night.
— 18—Fine; windy and cloudy; very fine; cold at night.
— 19—Very fine throughout.
— 20—Fine; very fine; rain at night.
— 21—Fine with clouds; very fine throughout.
— 22—Very fine; exceedingly fine; mild at night.
— 23—Slight haze; constant heavy rain throughout.
Mean temperature of the week, 1 deg. below the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 39 years, for the ensuing Week, ending Sept 2 1865.

August and Sept.	Average Highest Temp.	Average Lowest Temp.	Mean Temp	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds
Sunday..27	73.2	49.3	61.2	12	1.32 in	2 2 4 — 2 1
Mon. ..28	73.1	49.5	61.3	17	0.22	2 6 3 — 5 1
Tues. ..29	71.7	47.8	59.7	14	0.54	4 5 4 11 2 3
Wed. ..30	72.2	48.5	60.3	10	0.92	2 6 3 — 6 9
Thurs. ..31	71.1	47.1	59.1	17	1.31	2 7 3 2 2 9
Friday .. 1	70.5	47.5	59.0	20	1.50	3 5 3 4 4 12
Satur. .. 2	70.7	47.6	59.1	17	0.44	7 [illegible]

The highest temperature during the above period occurred on the 1st, 1843—therm. 85 deg.; and the lowest on the 29th, 1836—therm 32 deg.

Notices to Correspondents.

Artificial Manure: *J Perrett.* We have no experience of the manure you mention, as applied to Vines.

Fine-foliage Plants: *P H* Any of the plants named would be eligible in competition for a prize for plants with fine foliage.

Fungi: *John Fryer.* Your Fungus is Russula vesternosa, an acrid species, and probably not wholesome. It is not the fact that there are only a few species which are not edible. Though many more are wholesome than is generally imagined, there are very many which are either worthless or unwholesome.—*E W.* Your Fungus is Cyathus vernicosus, one of the Birds-nest Pezizæ Have not your Fuchsias been overwatered; or by chance has the soil ever been allowed to get dry, and then to make up for lost time suddenly saturated with water? *M J B.*

Gas Heating: *W C O.* The first question with us would be can you secure close joints, so as to prevent the possibility of any escape? If so, then there remain, we think, two objections to your proposed plan. The 14 or 16 feet of 9 inch rows in a house 30 by 12 would not we should fear yield sufficient heat, according to the proposed arrangements for drawing, &c.; and the middle of the house is the very worst of positions to place the apparatus.

Magnolias: *Mrs G.* None of the evergreen Magnolias are perfectly hardy, although they sometimes survive in very sheltered spots. Nor is there any similar evergreen tree of spreading habit and bearing sweet-smelling flowers which is so. The choice of evergreen trees lies practically between Evergreen Oaks, Hollies, Laurels, Bays, and Arbutus; the Magnolia is a special favourite we should advise you to introduce it, and, as a safeguard, to protect it till it gets well established.

Names of Plants: *H W E.* 1, Asplenium bulbiferum; 2, Phlebodium squamulosum; 3, Pteris serrulata; 4, damaged; 5, Selaginella pubescens.—*F J.* The male of Humulus Lupulus.—*K S.* 1, Abies Douglasii; 2, Abies grandis; Abies Webbiana—as nearly as can be determined by fragments.—*J M.* Common Hemp, Cannabis sativa.—*S P* Todea hymenophylloides *alias* pellucida; 2, Dicksonia squarrosa; 3, Polystichum vestitum var. venustum; Asplenium Colensoi.—*S & M.* Not recognised.—*W B* Woodwardia (Doodya) caudata.—*C M.* Heliophila amplexicaulis.

Staking Plants: *Louisa.* While we agree with you that a great number of sticks disfigure the appearance of plants grown in pots, and that Fuchsias, Geraniums, Calceolarias, and Cinerarias may be grown sufficiently strong to need little support, we can hardly go so far as admit that no support is ever necessary. But when they are used, stakes or other supports should not be made obtrusive. There can be no universal rule however. Taking the Fuchsias for instance, there is no handsomer mode of forming a fine plant than to train up a single leading shoot (which must have a stake), and let the lateral growth hang out from it all sides.

Variegated Cineraria: *K J M.* A very good variegated-leaved Cineraria was produced at the London shows a year or two back.

Yew Trees: *Henry.* Your old Yew trees in the front of dwelling house, which have been suffered to grow for twenty years without any cutting in, so that now all light is hidden from the windows, may have the branches shortened at once and in winter may be pruned in close to the main stems as desired.

Zamia horrida: *Gardener.* This plant, more correctly called Encephalartos, was fruited some few years ago in the garden of the Royal Botanic Society, and since more perfectly by Mr Yates, Esq., of Highgate. When ripe it bursts open, showing the red fruits lying within the green scales of the cone. It is edible and nutritious, but not particularly palatable

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Entries for the Show finally closed on 8th instant.
67a, Church Street, Liverpool, Aug. 19. T. B. RYDER, Sec.

The Agricultural Gazette.

SATURDAY, AUGUST 26, 1865.

UPON the question of the origin of the malady which is still steadily extending among our herds, there seems to be a reaction in the public mind. The outcry against the introduction of foreign cattle is varied by assertions to the effect that no cases have yet been traced to them, and that no foreign animals have been seized at English ports in consequence of this disease; and further, that the filthy condition of the cow-sheds in the metropolis is sufficient to have caused the disease in the London dairies, from which it has extended to the country. About this line of argument there is a certain speciousness which causes it to find favour with the multitude, and when seasoned with a little abuse directed against those who take an opposite view, it is generally received with approbation. Very little consideration, however, is required to prove the flimsiness of the basis on which these conclusions rest; for example, the statement that no foreign animals have been seized at English ports in consequence of the disease being found among them, whether true or not, is of no importance. Every one who knows anything of the system of inspection at ports must be aware how impossible it is for one man, amidst all the hurry and confusion of disembarking a cargo of 500 or 600 animals, perhaps in the middle of the night, to properly examine individuals; any of them that present decided symptoms of sickness, symptoms that can be detected as the animals pass by, are seized upon by the inspector; but as a matter of course, the early signs of this or any other disease being detectable only by a careful and minute observation, cannot be discerned during the cursory inspection which is alone possible under the present system. Thus any number of animals having the disease in its incubative stage, or only indicating it by the first symptoms, such as loss of milk or dulness, which would certainly not be recognised in the excitement attendant upon the process of landing, might be passed and be sent to distant parts before any decided evidence of the disease might present itself. That such things do happen is tolerably clear from the fact admitted, that these animals have shown the malady some time after landing; but by a strange perversion of reasoning, this circumstance has been adduced to prove that they must have taken the affection in this country.

The other argument, based on the sanitary state of the cow-sheds in the metropolis, has been advanced either by certain medical men, who, however eminent in their own profession, are liable to error in discussing veterinary matters, or by non-professional men, whose ideas upon these subjects appear to be of spontaneous origin, utterly independent of logic or science. In the minds of those who are most accustomed to cow-sheds there is a keen appreciation of the fact that these habitations are in many instances quite unfit for a life-long residence for animals whose natural haunts are the fields and mountain pastures. But are these sheds worse than they were 100 years ago? Have the causes which induce typhoid diseases been steadily increasing, until the smouldering fire has burnt into a flame? It should be so to account for the sudden origin of a malady which has not visited our country for 120 years; but on the contrary the opposite is true; however bad cow-sheds in general may be, they are better in every respect than they were; and so far from the disease being most rife where these assumed causes are present in the greatest degree, it has occurred and continues to occur in sheds which are models of perfection, and not only so but in open fields and extensive marshes in the healthiest situations. On the other side of the question it is in evidence that animals coming directly from the Steppes of Asia have been brought to this country, and that soon after their arrival the murrain became rife, and has since extended, and is extending still, throughout the country.

Granted that the disease is only once landed on our shores, it must be admitted that cattle of all breeds may be exposed to infection, and thus the introduction of the malady to distant parts of the country may be the result of the passage of Dutch, Irish, Scotch, or English animals which have accidentally been exposed to the infection. It is not necessary to trace a Russian ox or cow to every locality where the disease exists; so long as we can explain its introduction into the country, there is no difficulty in suggesting a variety of means by which it could be extended. Setting aside, however, the question how it came, there is no doubt of the fact that it is here, and we are mainly concerned for the present with the methods of preventing or remedying its evil consequences.

Medicinal treatment will occupy our attention shortly, but, save under very strict regulations, we have already deprecated its employment for reasons which concern the public welfare; prevention, however, is in this matter so much better than cure, that we are constrained to give more than ordinary prominence to all propositions having this end in view.

Starting with an admission that general attention is to be given to ventilation, drainage, feeding, and cleanliness, we proceed to the consideration of those points which particularly relate to the extension of the disease by contact, direct or indirect.

First, in reference to a healthy district: an absolute law should be established among agriculturists by mutual consent, not to purchase fresh store stock outside the boundaries of that district. Certain practical difficulties will attend this system, but it is the only one which promises safety.

Secondly. In a district already infected, every precaution should be taken to prevent the moving of animals from place to place—all diseased stock should be isolated perfectly—and all the worst cases destroyed and effectually disposed of, so that there shall be no chance of their being employed for human food or contaminating the air we breathe. All contact with diseased animals should be carefully prevented, even to the extent of prohibiting the same man from passing from one to the other. The great evil we have to contend against now, is the travelling of diseased or infected stock along public roads from one part of the country to another. The Order in Council is specially framed to stop this; but it is extremely difficult to prevent it where men are determined to consult their own pecuniary advantage in defiance of the laws, and regardless of the interests of the country.

In fairs and markets there will be much risk of infected animals being purchased, and where necessity compels the obtainment of stock from these sources, they should be kept quite apart from others for a fortnight at the least.

Marshes and common lands are especially awkward to manage in this emergency; but so far as can be arranged, cattle should not be allowed to travel to and fro; and in the event of the disease appearing in one herd the rest should be directly removed and kept apart on their several owners' premises until a fortnight has elapsed. The diseased animals should if possible be temporarily isolated from their companions, or if suffering from the worst form of the disease, at once killed and buried. The remainder of the herd is to be considered infected. But the animals may not show any indications of disease for some time, and while they remain healthy it is desirable to obtain the certificate of the inspector for the district, in order to send those of them that are fit for the butcher to the nearest slaughter house. Owners of healthy stock will hardly need to be warned not to turn animals into unenclosed lands while the malady prevails, and to avoid exposing them to contact with any other animals as far as possible. Practically the suggestion to remove infected animals from unenclosed lands, particularly where they are of great extent, cannot be legally carried out in certain instances, because, in order to do so, it would be necessary to drive them through other herds and along public roads, to the great danger of healthy stock, and in contravention of the Order in Council. In such instances as these there is no alternative but to destroy and bury on the spot all animals that are not likely to recover, and to make temporary arrangements for slaughtering and dressing all that remain unaffected by the malady. We do not advance this idea without being aware of the numerous difficulties that will have to be overcome, but no other more feasible plan occurs to us. As the case stands the animals must not be removed, they are therefore to be left to die, or some arrangement must be made for at once on the spot butchering those that are available for human food. The observation so constantly ringing in our ears, "It can't be done," should be suspended for the present as ill-befitting the mouths of those who have the onerous duties of an emergency to discharge.

The extensive use of disinfectants about straw-yards and sheds where diseased cattle have been placed, must not be neglected, no manure or litter should be removed until after the disinfecting process has been properly carried out, and if convenient the loose litter should be burned; in many instances this will not be possible, and then a liberal sprinkling with chloride of lime must be had recourse to instead.

Considering how much the skin sympathises with the disease of the mucous membranes, it will be advisable to employ antiseptic solutions for the purpose of washing the surface of the body at intervals. No agent is likely to be more beneficial than carbolic acid, mixed with water in the proportion of one part of acid to 100 of water;

Condy's fluid may also be used with advantage, but the tar products have proved themselves so effective as antiseptics in other cases that we are constrained to advocate their use.

During the past few weeks opportunities have occurred of observing the effects of treatment directed to the cure of this malady. Various methods have been adopted by different practitioners with various results, and next week we propose to offer to our readers an account of the proceedings that have been instituted in different parts of the country; meanwhile adding a caution to the effect that only the empiric offers a *specific*,—no positive cure has been or is likely to be discovered. A certain system of treatment, based on the principle of supporting the animal while attempts are made to assist the elimination of the poison from the blood, has been apparently successful; we say apparently, because it must be remembered that about 20 per cent. of all the animals attacked will recover without any medical treatment at all; and therefore, in estimating the success of any remedial measures, these cases of spontaneous recovery must be taken into account.

The wet and difficult weather of the past fortnight has certainly taken a considerable percentage off the crop returns, below average though they were, which we published two weeks ago. And it is but fair that we should publish the further report of a correspondent who gave us his opinion then, as his present account is in all probability true of many counties in South and Midland England besides the one from which he writes. He says:—

"Since writing to you on the 1st inst., we have had a great quantity of rain, which has made our harvest long and very expensive. I have muddled together the greatest part of my corn, but have not carted a sheaf in prime order, and very few that are not more or less injured. Barley is all discoloured, and no small portion sprouted. Wheat has been carted in a soft condition. Where it has been well attended to there is but little grown, but it will require the winter's frosts before it will be fit for mealing purposes. Oats at first were a bad crop, and a great portion of them are left on the ground. The Pea straw is all spoilt, and a great many Peas are left on the ground. Beans are all out yet, but swelling out of the pods.

"The Potato disease has made sad progress. The haulm is nearly bare of foliage. The fields are looking nearly black. The stench is most disagreeable when you pass near them, and the tubers are getting rotten. Turnips, particularly early ones, are growing very fast. It is too wet for Mangel Wurzel, which have much more top than bulb.

"The cattle murrain, Rinderpeste, is amongst us—brought here by a dealer who brought from London eight cows, which he sold to nearly as many different persons, thereby infesting the neighbourhood. A person whose buildings adjoin a farm of mine, had a dairy of 20 very fine cows, and last evening he had but two left, one that was thought would recover, and one that had been in the midst of it all the time and had not had it. The opinion is (I don't know that it is worth anything), from its being a Dutch cow, that she had had it before. I have eight within a few yards, say 30 at most, that are to appearance clear yet. Some cow-keepers have lost their all and are ruined."

This is a gloomy picture—drawn too by a man who is generally disposed to look on the bright side of everything. We fear it is true of a very large portion of the island.

THICK SOWING, SHALLOW PLOUGHING, AND WEEDINESS.

Said a friend to me yesterday, "all the way from Rugby to London I saw several crops laid flat, the Grass and weeds growing through them, and Thistles as high as my stick. There cannot be a crop there, for the sheaves will be as light as feathers."

The experience of 20 years has taught me that thick sowing inflicts an enormous aggregate loss on British agriculture—and that loss is greatly aggravated by the ordinary shallow ploughing—for, as I have before said, the Thistle and other strong and deep-rooted weeds, are merely decapitated by ordinary ploughing, and consequently our laid Barley crops give unmistakeable evidence that those weeds have still possession of the soil and subsoil. They stand towering above almost every Barley crop, while in my own scarcely one can be found, owing to my second or under plough (drawn by four strong horses), having, when preparing for the root or Cabbage crop, destroyed them by tearing them from their stronghold in the subsoil. As I pass through the country by train I can judge where the ploughing has been shallow or deep by the appearance of the Barley crops especially, and by the Bean and Wheat crops generally. The weediness of Great Britain costs the country millions annually. These weedy intruders take the lion's share of the food intended for our crops. But look at the difficulty of harvesting such crops, especially in a wet harvest time as this is. These green weeds not only tend to delay the drying and carting, and heat the stack, but supply a stock of seeds for future crops. The sample is also frequently diminished in value some 2*s*. or 3*s*. per quarter, because these flat laid weedy crops almost always turn out a bad light sample. But why are these crops laid flat? Mind, I do not object to heavy crops, whose weighty heads bow them down, and appear to be laid; but, if you examine them, you will find, as mine are, that the stems are not horizontally flat, but that they are merely bowed or arched, leaving plenty of room for circulation of air under those arches, which never allow the heavy heads to come near the ground. They are, although laid, actually repesing on arches formed by the strong reedy stems of their neighbours. These stems, stiff, glassy, and reed-like, stand erect as stubble, and resist your steps when walking, very differently from the soft, spongy stubble of thick-sown crops:—mark the difference in growth of a thick and thin-sown crop when the warmed soil in spring stimulates vegetation. In one case the crowded stems rush upward in a vertical struggle for light and air, which, being excluded from their stems in later growth, cause those stems to become spongy, soft, and deficient in that glassy covering which not only protects the circulation of the plant but keeps the stem erect. In consequence of overcrowding, down goes your crop prematurely, and up come your weeds, which have now lost the shade of their competitor the corn. Light frothy straw, and lean miserable kernels follow as a natural consequence, and are certain preludes to a low price and loss of profit.

But then say the advocates of thick-sowing, "But I like a thick crop at harvest." I reply, "So do I; but what is the true test of a thick crop?—not bulk, but weight, both of straw and corn. Experience has taught me that I always get a greater weight of both by thin sowing than from thick."

It is easy to understand why thick sowing has so strong a hold on the agricultural mind, and why it is no longer justifiable in practice. Before drills were invented broadcasting was a necessity, and taking the variability in ploughing it is easy to understand that much seed being too deeply placed never came up, while much of it near the surface was food for birds. The farmers might well feel anxious about exact depth of furrow, and carefully laying them, as well as having a sower "cunning in his art." But drills and iron steel-toothed harrows have changed all this, and rendered a very much smaller quantity of seed absolutely necessary, for each seed in well cultivated ground is, by the drill, placed in a proper position to grow; therefore let my old practical friends take the hint, and adapt themselves to an altered state of things. Even now I hear that many of our north-country friends, over the Border and near it, cling to broadcasting, thus depriving themselves of the benefit of that labour-saving machine, Garrett's horse-hoe, which takes 7 feet in width, and by which from 12 to 20 acres a day may be both cleansed and cultivated. Owing to the removal of trees and fences, drainage, and generally improved cultivation, our seeds are no longer subjected to such dangers as formerly.

It is curious to trace how much accident has had to do with diminishing the quantity of seed. When the drill was first introduced there was the desire to put in the same quantity of seed as when broadcasted, not considering how perfectly the drill placed every kernel, while by broadcasting much was wasted. An old friend in Warwickshire gave me an instance of this accidental diminution. When the new drill came, he ordered the man to take care to put in plenty of seed (their usual quantity being 3 bushels of Wheat). The man saw so much seed coming down the pipes that he thought there must be a plenty. The field was of 20 acres, and when the master returned at midday he found they had only put in 6 pecks. Great was the dismay and doubt whether it should not be resown.

However, the other half of the field was drilled with 3 bushels. At harvest the thin-sown beat the thick by more than a quarter per acre, and ever since six pecks has been the quantity of that neighbourhood.

Surely we ought not to wait for an accidental discovery when it is so easy and inexpensive to make comparative trials on a small portion of each field.

I have been led to make these remarks by my practical experience in thin sowing and deeply cultivating. It must be borne in mind that I allude to strong heavy land, well drained, and kept free from weeds, and properly manured, and in the cereal county of Essex. Let each man judge of his own soil and climate, and take into consideration all other circumstances. It would be impossible to lay down an inflexible rule for all soils and all climates, but at any rate I am satisfied that by moderate and careful experiments we shall all gradually arrive at a considerable diminution in the quantity of seed sown, especially as our agricultural practice approaches nearer to perfection.

As I have often said before, the quantity of corn produced does not mainly depend upon the quantity of seed sown; it is the natural or artificial fertility of the soil that causes the young plant to multiply its shoots or stems in spring.

The half peck per acre of Wheat on my 9-acre field is now cut and in shock, as well as the two lands of two sorts of Wheat on each side of it sown with my usual quantity of four pecks. The half peck appears, both in straw and grain, to have the advantage, but we shall test them carefully, by weight and measure, both of corn and straw. This is a singular instance of an extreme case, because we gave it up for lost in the winter; but in the spring it branched out horizontally close to the ground and then up rose vertically, and forming the curve of resistance below, from [illegible] to 28 strong reedy stems from each plant, each stem having a fine ear averaging fifty kernels, being an increase of from 500 to 1400 for each kernel. This is somewhat different from the average of the kingdom—9 for 1, as described in Mr. James Caird's admirable book. My men estimate the general yield of the field at 52 bushels; if so, the increase for the half peck will be 52 bushels, or 416 kernels for one.

There certainly must be something radically wrong in our agriculture, when we find 9 for 1 as the general average increase. In Russia, where there is no hoeing, and where Weeds and Wheat grow in company, the average increase is from 3½ to 5 for one, according to the quality of the soil.

The question, as a national one, will be the better for a thorough agitation. There is something practically absurd in supposing that we can put in a screened kernel of Wheat in properly prepared ground, and only obtain from it a quarter of an ear, or ten kernels, and that it must only produce that one ear. I believe that the same principle holds good for Wheat as for Turnips, trees, or animals.

Put ten animals for nine months on a pasture which only contains food enough for one, the consequence would be death to most of them, and half starvation for the survivor,—so it must be with plants: we know it is so with trees and Turnips. The want of air and light as well as other food is destruction.

We never see two trees in close proximity without observing that they turn their backs to each other, and extend their arms in opposite directions; few or no branches are formed between them. It is not the want of earthy food that causes this, but the want of the aërial food, without which neither plants nor animals can flourish.

Let my practical friends ponder on this important matter, and let them remember that whenever they wish to raise a new stock of corn, they carefully put the kernel in a hole, in well cultivated ground, and rejoice in obtaining an enormous produce.

A good field of Wheat should, in early spring, look as flat as if its stems were glued to the ground, every shoot pushing out horizontally, before it takes its vertical movement.

Agriculturists admit that this is the proper appearance, but they can never obtain it by thick-sowing and crowded plants, for then the early movement is an upward struggle for light and air (as we see in a crowded Fir plantation), and down they all go, too often prematurely, and ruinously, their spongy stems rendered soft by the absence of light and air, being unable to sustain the impact of rains or wind.

I need scarcely say that a thin sower should select perfect seed—heavy as well as bulky—and freed by the blowing machine from all seed weeds, or light corn. This wet, warm harvest there will be an unusual quantity of sprouted grain, useless as seed. I have heard farmers say that, as a matter of economy, they sowed tail corn. This would never suit a thin sower, and it is certainly a very false economy. Last year a peck per acre produced the largest crop on my farm, both of corn and straw, viz., 56 bushels of Wheat and 2¾ tons of straw per acre, accurately measured and weighed.

For careful experimental dibbling I am indebted to Mr. Hallett's simple dibble. It is like the point of an umbrella with its projecting collar, that prevents the dibble-hole being made too large or too deep, and does away with that injurious solidifying of the dibble-hole, which causes it to hold water.

I cannot conclude this paper without expressing my admiration and esteem for those persevering pioneers in this good cause, I mean Mr. Hewitt Davis, the late Samuel Smith, my friends the Rev. George Wilson and the Venerable Archdeacon Huxtable,—may they long continue to be able to battle against inexperience and prejudice. *J. J. Mechi, August*, 1865.

THE CATTLE PLAGUE.

[We continue to give extracts and abridgments of communications on this subject, addressed to ourselves and our contemporaries.]

On the payment of inspectors the following circular has been issued:—

"Whitehall, Aug. 1865.

"Sir,—I am directed by Secretary Sir George Grey to acknowledge the receipt of your letter of the [illegible] and to inform you that the Lords Commissioners of Her Majesty's Treasury will sanction the payment to inspectors, appointed under the authority of the order of the Lords of the Privy Council, dated the 1st of August, 1865, in districts infected with the 'Cattle Plague,' of the sum of 1*l*. 1*s*. for each day that they are actually engaged in the performance of the duties required of them by the said order, with travelling expenses at a rate not exceeding 3*d*. a mile each way.

"I am, Sir, your obedient servant,

1. From Mr. Harvey, of Norwich, to Mr. C. S. Read, M.P.—Having a little experience as a cattle feeder, and in pursuits placing me in communication with the larger

breeders and feeders in the Eastern Counties, I feel that it is a presumption to express an opinion on the subject. That opinion is that the disease is very much exaggerated, and that while precautionary measures are most desirable, there is no occasion for the panic which prevails in some quarters respecting it. The cattle disease is no new thing. Some years ago I visited one of the largest dairy establishments in London, and I was told by the proprietor that he was on the eve of giving up his trade in consequence of the large losses entailed upon him by pulmonary disease among his cows. The profit upon sale, he said, was very large, but the loss by the disease among his cattle more than counterbalanced it. This large cowkeeper, however, did not retire from the business as he contemplated, and at a subsequent period he told me that he had not done so because he had discovered a remedy for the complaint in inoculation. He had, he said, inoculated all his cows from the lung of an animal which had died of disease, and he had found the remedy complete. The part inoculated was, I understood, the tail. With respect to foreign cattle, I am not inclined to believe that this disease is in any way introduced into this country by animals imported from abroad, and I think that we ought to be very cautious in giving currency to that idea. The foreign cattle trade is not only a very large trade, and one which exercises a most beneficial influence on our country, but it is a rapidly increasing trade, and one which it would be most disadvantageous to check. In no part of the world is there less disease among cattle than in Holstein and Jutland, and the other parts of the Continent from which we derive the bulk of our beasts; and the experience of the cattle trade in London bears out the conclusion that they arrive here untainted by disease. If the disease is propagated among foreign animals more readily than among our own, that circumstance may be accounted for. The foreign animals imported for the purpose of the grazier are generally very young animals—what are termed in the market "young bullocks." They reach this country fatigued and enfeebled by a protracted and very often a tempestuous sea passage; they are immediately turned into pasturage of a description to which they have been unaccustomed, and the very luxuriance of which is probably, in the first instance, prejudicial to them. I do not know, nor do I admit, that disease is more rapidly propagated among foreign than among home-bred beasts; some of the largest dealers in London aver that it is not so; but if any agriculturist has found such to be the case, I submit that the foregoing causes sufficiently account for the fact. The prevalence and increase of the cattle disease during the past month is attributable, as I believe, to a cause incidental to the present season. We have had an exceedingly dry summer. Our cattle in consequence have for many months been fed on what the farmers technically call 'roast meat'—*i. e.*, the least description of herbage. At length there came that abundant rainfall which was due to the earth, and the last few weeks have been extremely wet. The rain has given growth to an abundance of unusually rank Grass, on which the cattle have no doubt fed very plenteously. This sudden change from a long course of dry food (and little of it) to what may be described as a purgative 'vegetable diet' has, in my opinion, been the cause of the spread of this disease; and I believe we shall have less and less of it as the animals become more and more accustomed to the change. The cattle disease, as is well known, has a tendency to spread wherever animals are put upon a description of food which they are likely to suddenly purgandise. Feeders who tried the experiment of 'steam food' with a view to the more expeditious fattening of cattle, have, in some instances, been obliged to relinquish that experiment in consequence of this loss sustained by the spread of pulmonary disease. Considering the intimate relations between the stomach and the lungs, this is not surprising. And all this supports the view that it is to the change of food, consequent upon the change in the face of nature, that we have to attribute the recent sudden spread of the disease. The change from dry to wet pastures, and the steaming state of the atmosphere—for the thermometer during the late rains has never fallen in proportion to the barometer—would of course assist the development and spread of the complaint. I may observe that the drought which prevailed in Great Britain during the summer has been even exceeded on the Continent. In parts of France the cattle have absolutely perished for want of water, and in Schleswig and Holstein, which may be considered moist climates, there was absolutely no rainfall whatever between April and the first week of August, while the temperature ranged at excessive heats. The pasturages having been in consequence dried up, the animals recently imported from those countries have reached us in very inferior condition, though free from disease."

2. Professor Simonds before the Mansion House Meeting, Aug 17.—He had studied the disease in 1857 for three great agricultural societies and for the Government. In that year there was a rumour that it was prevailing to a considerable extent in Mecklenburg, and the Government taking alarm deemed it prudent to close the ports of the Baltic against the introduction of cattle into this country. On that occasion he found that to the westward of a line from Memel to Trieste the disease had not existed since 1817, and then it was in consequence of the European war, and it followed the Austrian army. Eastward of that line he met with the infection. The disease as he witnessed it in 1857 was unquestionably identical with the present one, and it had been brought from the steppes of Russia by the ordinary methods of the cattle trade. The result was that the disease gained a footing in that district, and caused considerable destruction among the cattle. The Government introduced some extraordinary sanitary police regulations, but he believed they were absolutely unnecessary for the extirpation of the disease. It might be true that the diseased cattle could not now be traced, and that there might have been no animals seized in our ports or in the Metropolitan Market, but that was no answer to the question as to whether the disease was or was not of foreign importation. It was a fact that it was not until the latter part of June that we had the disease in England, and just a little before that a certain number of animals came from the diseased district, having been collected at Revel, and subsequently shipped to England. He had before him proofs that the disease now in this country was raging in that particular district, and certainly after the arrival of a number of those animals from that district the disease manifested itself here. Cattle could not long come here from Russia, Galicia, or Poland, in any considerable numbers without serious consequences, for that was the home of the disease. He believed that the whole of France, Belgium, and Holland was free from the disease, as was also Schleswig-Holstein. As to its being spontaneous in its origin, we had been free of the disease in this country for 1[illegible] years. This was a special disease, and it never could arise from a common cause. What were the facts with regard to the spread of the disease in this country? A great number of the cases could be traced directly to the Metropolitan Market. There was no question whatever about it. Although the disease had extended into Norfolk, Kent, Sussex, and in some other counties, there was not a single instance where it could be traced in its origin to the county. It was the most fearful visitation of the kind that had ever been seen in England, and the only part of the community which had addressed itself properly to it was that of the county of Norfolk. People there had formed themselves into a society, drawn up a code of regulations, and were organising a system for making good the losses that individuals might sustain by the disease. If the rest of the country took its cue from Norfolk, a great deal of good might be done. If the disease was dealt with as a contagious disease, and as a contagious disease only, it would be hemmed in and would very rarely escape. There was a certain district in Austria where out of 56,784 head of cattle, 50,237 of them escaped the infection, owing to proper sanitary measures having been adopted. They must look boldly at the matter, and the all-powerful Corporation should strive to arrest the progress of the disease in its own market. He was sorry to hear that they could not prevent diseased animals entering the market, because if they had that power he was sure it would be judiciously exercised, and be attended with the best results.

[Previously to Prof. Simonds' statement the following statistics had been laid before the meeting:—]

Dr. Tripe, of Hackney, said there were 62 cow-houses in the Hackney district, and there had been 64 deaths, while 114 cows had been destroyed in consequence of the disease, making nearly a sixth part of the whole of the cows in the district which had suffered more or less from the complaint. He had not been able to ascertain any instance of infection from without. In one case where 32 cows had been destroyed, the disease had originated with two heifers which had never left the pasture in which they were bred and born. In another case six cows out of 110 were left in a shed. Some had died, and the others had been sent to market. In that case there had not been a single fresh head of cattle for months, and the disease broke out in a place where there could have been no means of infection. One man, who kept 38 cows as a rule, had lost 60 in 12 months. On the other hand, it was remarkable that no one case had occurred in small dairies. The epidemic had only been severe where there had been a large aggregation of cows. If that were so, would not the disease be greatly augmented by the establishment of quarantine sheds, as some had suggested? One cowkeeper, to his knowledge, had allowed a cow to lie unburied for three days, and 30 cows were left to feed in the same field. The result was that out of 30 cows 11 dropped down dead on the Sunday afterwards. Some special oversight was required with respect to the cow-houses, as in the case of dwelling-houses when cholera was apprehended. Where once the disease presented itself it spread like lightning. With 2800 acres in his neighbourhood there was only one inspector.

Dr. Whitmore, from Marylebone, said there were 60 cow-houses, in which 1900 cows were ordinarily kept. At present there were only 700, and it might be said that more than one-half had perished from the disease. In his parish the disease had been most fatal where the sanitary arrangements had been most perfect, strange as that might seem. With regard to the indiscriminate slaughter of beasts that were suffering, it became a serious question whether they ought to kill every cow that became diseased, because in his experience a great proportion of the cows attacked by the disorder had recovered, and that mainly from the care and attention paid to them by the cow-keepers. In various parts of the country at present large numbers of cattle were being indiscriminately slaughtered, which, with proper treatment, might be saved for food. He would suggest that in certain districts of the metropolis large sheds should be appropriated for the reception of diseased cattle and their treatment by skilful veterinary surgeons. If that course were adopted, he was convinced many thousands of cattle would be saved which were now being slaughtered.

3. A Note from Cornwall.—At a recent meeting of the Council of the Royal Cornwall Agricultural Association, Mr. Tucker, of St. Germans, said:—

On the 5th of August he visited Egg Buckland, and personally inspected the herds in the neighbourhood where the disease had broken out. He first went to a farm called Coleridge, in the occupation of Mr. Snell, who informed him that out of 20 head of cattle 19 had died, the one in which the disease first made its appearance having recovered, and being still alive. Mr. Snell told him that 10 head actually died of the disease, and seeing the remainder were almost in the last stage of their existence, he sold them at low prices, and had no doubt that the meat had found its way into the market of the three towns. He was also informed by Mr. Snell that he had six feeding bullocks, which he kept in a farm as far distant as possible from those cows, and so much fear did he entertain of infection, that neither himself nor his servants had gone near them. However, on representing that he (Mr. Tucker) should like to see them, he accompanied him to the field, and they were certainly looking very well, but Mr. Snell said he should immediately sell them and stock his farm with sheep. He interrogated Mr. Snell as to how he accounted for the origin of the disease, and he pointed out the locality where his cows were pastured—a field adjoining that of the Government contractor, Mr Holberton, who, on the 12th of July, imported a quantity of Dutch oxen which he kept on this piece of ground, separated only by an iron fencing, and on the other side of Mr. Holberton's field was one occupied by Mr. Atwill. On the day following the importation of these Dutch oxen by Mr. Holberton three of them died, and Mr Snell lent his horse and cart to remove the bodies, no notice being taken of the matter, the natural supposition being that they had died from the effects of the voyage. On the 16th of July the disease broke out among the cows of Mr. Snell, who became quite alarmed, and more so on noticing that their appearance was precisely similar to that of the Dutch oxen which had died. He called in to his aid the best professional assistance he could obtain, but nothing appeared to be of any avail, and the animals died. After visiting the farm of Mr. Snell, that gentleman accompanied him to Mr. Atwill's, who produced 11 head of cattle, seven of which were dead; one was dying in an adjoining shed, others were in an adjoining field, also diseased, and he (Mr. Tucker) had heard that they had since all died. He might tell them that he was surprised at the entire absence of smell. Notwithstanding that these carcases had lain there from the Tuesday to the Saturday, there was not the least appearance of decomposition—certainly not as much as would be ordinarily expected in the natural process of decomposition. He had also examined other farms situate in the neighbourhood, but he had found there was not the slightest appearance of disease.

4. From Messrs. Wreathall, Clewby, & Co., of Harrow.—Nothing can atone for a want of cleanliness and ventilation in the various sheds or dairies in which cattle may be located. Our own experience confirms this during the many years we have farmed cows at Harrow-on-the-Hill, where to insure the immunity from disease we have hitherto enjoyed, a careful attention to these points has been a matter of constant study; the more especially within the past 3 years, during which we have introduced a system of cleansing and fumigation which, we will venture to assert, if adopted more generally by cow keepers and owners of stock, would have tended in a very material manner to keep down a disease the virulence of which is now causing such consternation.

The following is the system adopted by Mr. Wreathall in their byres:—His sheds are well limewashed once a month. The pavements are thoroughly washed and scrubbed with brooms every second day. On each alternate day, between the pavement washings, he uses the following disinfectant thus. He places a quarter of an ounce of chlorate of potash in a saucer on the floor. On this he pours an ounce and a half—about a wineglass full—of muriatic acid. One saucer is placed for 7 or 8 cows. The cattle are, of course, removed to the open air during the process, and the saucers taken away before their return. Meanwhile the sheds are closed and made as air tight as possible, but the doors and windows are opened for an hour or two previous to the readmission of the cattle. After fresh limewashing, its effect is to form on the walls a coating of chloride of lime—above the best of all disinfectants. Mr Wreathall also freely uses this chloride in the gutters behind the cows. It does not take five minutes to do it. This gentleman believes that the use of grains to excess, and of the refuse of the vegetable markets as food, added to the absence of ventilation and cleanliness in cowhouses, is a common cause of disease among our cattle.

5. Further Instructions by Professor Simonds.—The following letter containing certain further suggestions relating to the cattle plague, has been addressed to the Clerk of the Council by Professor Simonds:—

"I would suggest to individual cattle owners—in addition to the regulations of the Order in Council of the 11th of August, 1865—the absolute necessity of adopting the following precautions for the purpose of arresting the progress of the disease:—1. That all persons should abstain as much as possible from the purchase of 'store stock' in fairs and markets, and should not purchase from cattle dealers without a warranty against the disease; and that all newly-purchased cattle of every kind be kept apart from others for a period of not less than 12 to 14 days. 2. That cattle, the subjects of this disease, should not be allowed to remain in any meadow or pasture field unless they can be perfectly isolated from all other animals, as well as kept at a distance of not less than 100 yards from all roads along which cattle may be driven. 3. That in districts where there are unenclosed commons, on which cattle the property of different owners are pastured, no milch cows, or other animals of the ox tribe, should be allowed to travel, day by day, to and from the common, during the existence of the cattle plague in the neighbourhood; and that in the event of the disease prevailing on adjacent farms or places contiguous to the common, the cattle pasturing thereon should be removed as soon as possible to the premises of their respective owners. 4. That every animal which is evidently attacked with the disease be killed and buried without delay,* and that the skin be placed in some disinfecting fluid before being sent off the premises. 5. That no animals be allowed to go near the burial places until several weeks have elapsed. 6. That no person who has the charge of the sick cattle be allowed to go near the healthy ones, and that all indirect communication by dogs, or other animals, between the infected and the healthy cattle, be strictly prevented. 7. That all healthy cattle, after removal from the diseased, be well washed and cleansed. 8. That no fodder or straw which has been used about infected cattle be taken to other animals, or even thrown into the fold yard, or upon the manure heap, until it be first incorporated with chloride of lime, or some other disinfecting powder. When practicable it is desirable that all such fodder and straw should be burnt. 9. That all manure in the sheds or stables occupied by diseased cattle be daily sprinkled with some disinfectant, and that no evacuations of the diseased be removed without being first thoroughly disinfected. 10. That in all cases in which it is determined to slaughter animals which have been on a farm or premises where the disease has broken out, but which animals are believed at the time to be healthy, and fit for human food, they be sent, with all due care and caution, direct to the nearest slaughter-house, if not killed on the premises, and as a further precaution their skins be placed in some disinfecting fluid. 11. That although experience has shown all animals of the ox tribe, whatever may be their age, sex or condition, to be susceptible of the action of the infection, still it is very desirable that every cause which tends to weaken the constitution should be carefully avoided. Protection from inclement weather,—supplying animals with nutritious food, such as cake or corn, and especially with pure water, are imperatively demanded at a juncture like the present."

6. Deodorisation.—As so much anxiety prevails respecting the cattle disease, and so many suggestions have been offered to the public for fumigating, deodorising, and cleansing cowhouses, I have thought it may be of much public utility to state the means I have used for many years to preserve my stables free from the odour of decomposing dung, and all other causes of offensive smell. Every morning after careful sweeping I have each stall dusted with M'Dougall's disinfectant powder. This is the simple, cheap, and effective process which has caused my stables to be so remarkable for the purity of the air and the absence of disease. Thousands of gentlemen on seeing this letter will be able to attest the above statement. The cost does not exceed one penny per week per horse. If cowkeepers would habitually enforce the strictest cleanliness, and employ an agent so cheap and effective they would be certain to have healthier stock, and suffer less from contagious diseases. By the use of this disinfectant not only are my stables kept pure, but absolutely free from flies. Cowkeepers should observe the state of the air at the outside of the cowhouses. A little of this material will keep both flies and bad smells from both cowhouses and dung middens. *W. Murray, Brougham Mews, Manchester, Aug. 21*

7. Paddington.—I am anxious to make it known that there are 32 licensed cowhouses in Paddington (part of which comprises Bayswater), containing 273 cows, and not one case of the disease among cattle now prevailing has as yet taken place among them. *Robt. Gifford, Sanitary Inspector, Vestry Hall, Paddington.*

8. Shipping Cattle.—In the early spring of last year I bought 60 heifers at Moate fair, in the centre of Ireland. I brought them home with all the care I possibly could. They rested 20 hours in Dublin and 24 in Holyhead. At both places they had comfortable quarters and good food and water. I also took care to cover the floor of the trucks which brought them from Holyhead to Market Harborough with a thick layer of clean sawdust. They came and remained sound. Two of my neighbours have made like experiments several times last year and this and with the same success. It was amusing to me in Dublin to witness the scheming of the jobbers who brought cattle over in the same boat with mine to get their cattle good berths on board. My first care on arriving with my heifers in Dublin was to ascertain the regulations of landing, and I found that the cattle which arrived at the ship's side first were put lowest. I wanted to have mine, if possible, on deck, and I used all my wit to get them put there. I therefore kept them out of the way till as late as possible; but I soon found that the jobbers were at the same game. Among us we delayed the boat for three hours. However, I held out as long as any, and so got my cattle well placed. I mention this only to show that the jobbers are quite alive to the bad effect on their stock of the hot and poisonous atmosphere below. I shall be reminded that "one swallow does not make a summer" if I conclude from my success, and that of my neighbours, that care in transport will prevent disease, so all I deduce from our success is that the result of our few experiments agrees with this theory. Of course, it was in the usual "dirty and infected trucks" that our cattle have been transported.

* "In town dairies the animals to be sent to the Knacker or manure manufacturer,—if there be no convenience for burying them."

THE CLONMEL SHOW.

Since the alarm has arisen regarding "the cattle plague," some degree of apprehension was felt regarding the success and ultimate results of the Clonmel meeting, and certain more than usually timid people actually contemplated getting up a memorial to the Lord Lieutenant to have the show prohibited altogether until all danger should have passed. But the simple announcement made last week by the secretary that there were no entries from the other side put an end at once to any alarm which might be felt from danger arising from that source, although it did prove that Irish breeders were left entirely "on their own hook" to sustain the character of their national show, and to disprove the assertion which had been so confidently put forward, that an Irish Royal, without English entries, would be a failure. Knowing tolerably the character of most of the Short-horns of any pretensions in the country, we had no fears as to the success of the Clonmel meeting, and the result has perfectly justified our anticipations; for in the leading features of an Irish Royal—Short-horns, sheep, and pigs—the meeting of 1865 has contrasted most favourably with any show which the Society has held for several years, only half-a-dozen of the 79 entries in the Short-horn department being absent.

The aged Short-horn bulls did not, indeed, come in holiday garb, made up merely to be looked and wondered at from the quantity of flesh piled on their bones; but, what was much better, they were brought in their working clothes, and this, perhaps, assisted to render the judging of the section somewhat more difficult than usual; for Messrs. Unthank and Garne took a good bit of time to get through it, settling down at last to Mr. Moffat's White Chieftain as 1st, with Mr. Fitzpatrick's Professor Miller as 2d. Mr. Moffat's bull is a thick-bodied animal, with great thighs and good flesh. He is by Mr. Barcroft's Sir Colin, out of that fine thick cow, Amy, the Manchester and Liverpool winning yearling of 1856, which Mr. Barcroft got at the Kelsterton sale. The Lisduff 2d was bred by Mr. Simson, of Blainslie, and after coming over last year was put 1st in a good section of aged bulls at the Queen's County meeting. He is an upstanding bull of great substance, showing well when brought out; his principal drawback being his hair. A Highly Commended card went to Field Marshal 2d, which, when shown by his breeder, the Marquis of Waterford, was 1st repeatedly at Dublin and elsewhere. Field Marshal now belongs to Mr. William Malcomson, and has retained his good fore-end, though he has got a bit too light in the thighs.

Major Wallis's Felix—which, when shown by his breeder, Mr. Jones, Mullinabro', was the 1st prize two-year-old of the last Spring Show, as well as Waterford, Cork, &c.—was again head of his section. Felix is a lengthy, even bull, of great substance, come of good blood, being by Master Harbinger, of Warlaby descent, out of a Matadore dam bred at Sittyton. The 2d two-year-old at Clonmel was Mr. Massy's Gwynne of Lothian, a thick, good-fleshed bull, a get of Lamp of Lothian's out of one of Troutbeck's Gwynne tribe. At the Kilkenny Royal in '63, Gwynne of Lothian was the 1st prize bull calf of that year. Mr. Cosby's Ravenswood, the Ganly Cup bull of last year's Spring Show, and the winner last autumn of the Queen's County Cup, was Highly Commended. Ravenswood has a good fore-end and rib, and is altogether a nice bull.

There was a good yearling section at Clonmel, and the first on the list was Mr. E. J. Smith's Chief of Lothian, another of the Ardfert Abbey lot of Lamp of Lothian gets which have spread over the country. In Chief of Lothian there is a double portion of Lamp blood; for his dam, Florentine, the Royal Dublin gold medal heifer of '62, was also by that very lucky prize-winner getting sire; and he promises to turn out well, having the head, neck, counter, quarters, and thighs of a good bull. The 2d bull in the section was Mr. Kearney's Telegram, a growthy, improving 13 months' old calf by Dr. M'Hale.

Thirteen capital bull calves puzzled the judges a bit, and it was not until considerably past the hour fixed for breakfast that they finally made up their minds to give Mr. Anderson, Grace Dieu, the 1st and 2d prizes in the section for his two Master Harbinger calves—The Dictator, a good topped calf, and Squire Harbinger, own brother to Mercury, Mr. Anderson's 2d prize yearling of the last spring show, which had more age, and therefore rather more substance than the other. An H. C. honour went to Mr. Thomas Butler's Soubadar calf Rockingham, and then the judges settled the matter by Commending all the other calves in the section, as will be seen by the entries which are given elsewhere in this impression.

From the calves to the cows is but a natural transition, and a most creditable lot of the latter came into ring on Wednesday morning, which were speedily disposed of by putting Mr. Smith's Recherché, formerly Captain Bath's well-known cow, as 1st, with Mr. Anderson's Dandelion, from the Sarsden herd, as 2d, and a High Commendation to Mr. Barcroft's useful Mysie 19th, a former Royal winner. The judges Commended the whole section, and that is quite enough to tell what they thought of the lot.

Of the three entries of three-year-old heifers Mr. Jones's Lady Spencer, three-year-old of the last Spring Show, and 1st in her section on various occasions at different meetings, was again 1st; with a strong, large framed heifer, the Princess of Wales, belonging to Mr. Reynell, as 2d.

Half a dozen two-year-old heifers, there being one absentee, came in for another general Commendation, the special honours being given, first of all, to Mr. Massy's Woodbelle, bred by Captain Ball, the first yearling of the Spring Show of 1864—where she beat, among others, Mr. Eastwood's Rosette the Second—and the 2d of the last Kildare Street meeting. Woodbelle has a grand fore-end, rib, and loin, and comes of Dr. M'Hale blood, through her sire, besides being out of a Baron Warlaby dam. Next on the list of winners came Sir Robert Paul's Silk, which, with her very pretty head, neck, bosom, and rib, has always taken the fancy of the judges; so that she has gone home from Kildare Street and elsewhere with honours on every occasion on which she has been shown. Mr. Butler's Countess, a substantial heifer, with the Soubadar head, and a good rib and thighs, was Highly Commended, with, as we have said, Commendations all round to the others.

Most of the yearling heifers were first-rate, and the whole section generally was good. Mr. Anderson's Gamehen 2d, by Bright Lamp—a son of Lamp of Lothian, out of a Lord Clyde dam—was put 1st. She had been Highly Commended at the last Spring Show, and has improved considerably since Easter. She was beautifully brought out, and has a nice head, neck, breast, and rib, but does not come out equally well in the loin. The 2d heifer was Mr. Welsted's Rosette, a remarkably sweet animal, which had won the challenge cup as the best heifer in county Cork, and two other 1st prizes at the Cork Show a fortnight ago. She is by Booth's Elfin King out of a Crusade dam, one of Maynard's old sort; and another of the same line, but having an additional cross of Booth's blood—namely, Elfin Rose—also belonging to Mr. Welsted, was Highly Commended. Elfin Rose is a sweet heifer, and though she rather wants the size, has all the style of Rosette. Another H. C. card went to Mr. Meadows' very promising Fanny 15th, which had obtained a similar mark of distinction in Kildare Street last Easter; the Commendations in the section going to her half sister, Primrose 5th, also belonging to Mr. Meadows, to Mr. Jones's Lunette, and Mr. Reynell's Molly Maguire.

There was not such a turn-out of heifer calves as there was of bull calves, but those shown were good. Mr. Bloomfield's Medora, a very pretty calf by Mr. Anderson's Bright Lamp out of Knight of Windsor dam, was put 1st, with Mr. Anderson's Octavia 3d, a calf of great sweetness, by Master Harbinger from a Lord Clyde dam, as 2d; and Mr. Smith's Sunshine, by the M'Hale Chorister out of Recherché, which promises well for substance and style, was Highly Commended.

This finished the Short-horn sections, and all through ample proof was afforded, if such was at all required, that Irish breeders can make a capital show without anybody's help. The records of former shows, and more especially those of the Easter meetings, sufficiently testify that Irish breeders can afford to meet their friends from the other side of the Channel and send them home well licked into the bargain; so that our satisfaction at the result of the Clonmel Royal, so far as the Short-horn sections are concerned, does not arise from being allowed to have all the crowing to ourselves on that occasion.

The Herefords, which came next in order, were few in number, but good in quality. Mr. Kearney's Sir Capis Ball, bred by Mr. Rea, Monaughty, which got the prize, is a very neat, thick bull, of good quality; and the Sultana cow, belonging to the same gentleman, the dam moreover of the prize bull, is a cow of great substance. Mr. Reynell's Ashton Maid, also an importation from Herefordshire, was Highly Commended. The cream of the class, however, was Mr. Kearney's 13 months' old Winifred 4th, a very perfect animal, with capital hair and good flesh.

In the polled breeds, Mr. Owen, as usual, sustained the character of the different sections; and in Devons, Captain Boyle, Tanagh, Rockcorry, had it all his own way, except a Commendation to Mr. Wight's cow, with the bull, cow, and heifer with which he won last month at the North-East Association. The yearling heifer was bred by himself, but the others were imported from Devonshire. The show of Ayrshires was limited, and still more so owing to several entries not having come forward. Mr. Borthwick's cattle were among the absent, as that gentleman had been disappointed in the steamboat arrangements for the conveyance of stock between Belfast and Waterford. No prize was awarded in the section of Ayrshire bulls, while that for cows of that breed went to Lord James Butler's cow, a strong, useful-looking animal, of a larger size than the ordinary run of Ayrshires. General Gough had a good pair of cows, which were respectively Highly Commended and Commended; that gentleman's heifers also winning in the section including yearlings and two-year-olds. Some entries of Highland cattle had been made, but none of them were forward. The Kerry sections were also but indifferently filled as to numbers; Mr. Brady's entries not having been sent, in consequence, we believe, of foot-and-mouth disease having appeared among some of the cattle with which his Kerries have lately been running, and he was unwilling, therefore, to send his cattle, lest they might carry the disease with them to the show-yard. Captain Bayley, Friarstown, showed a handsome well-bred cow and three-year old heifer, with both of which the 1st prizes in their respective sections were taken, followed by high commends and commends to Mr. Harding's cow, Mr. Frend's three-year-old heifer, and Mr. Foley's heifer of the same age. Mr. Barry Drew's heifers were the winners in the yearling and two-year-old sections.

In the extra premiums, competed for by *bonâ fide* tenant farmers of Ireland not paying more than 1*l.* a year of rent, Mr. James Smith, the Challenge Cup holder of the County Carlow Society, took home the 1st prize for the best cow in calf or in milk of any age, with his Fairy Queen, a very well bred cow; and the 1st prize for the best three-year-old heifer, with New Year's Gift, the same heifer which secured the Beresford Cup for him last year at Carlow.

Passing on to the next great section of the show, as found in the Sheep classes, we have to record a good show of Leicester shearling rams to begin with; the 1st prize in that section, together with the Cork Cup, being awarded to a good-backed sheep of good quality, belonging to and bred by Mr. Owen; the 2d going to Mr. William Fennell's ram, which had good quarters and thighs; and the 3d to Mr. Meade's ram, which, with a capital rib, was a bit lightish behind. In the aged section a thick, heavy sheep, shown by the representatives of the late Mr. Mountiford Longfield, was put 1st, and a good quartered sheep belonging to Mr. Marris, 2d, Mr. Fennell coming in as 3d, with a thick lumpy sheep. The 1st prize for the best five shearling ewes was awarded to a pen of stylish sheep shown by Mr. D. Hewetson, Mr. Marris's pen being 2d; and Mr. Hewetson also carried off the prize for the best five ewe lambs shown, four of which were particularly good. If we do not mistake, we think that Mr. Hewetson's prize shearling ewes and ewe lambs were got by rams which he has had from Mr. Owen. He has been for some years a leading exhibitor at the Waterford shows, and we were glad to see him coming out so strong at a Royal meeting.

There was a considerable number of long-woolled sheep shown, some of which were not only heavy sheep but had also quality along with it, and this was particularly the case in Mr. Carroll's shearling ram, which took the 1st prize in his section. Mr. Beale Browne came in for the 2d and 3d honours, together with an H.C.; Mr. Low, Kilshane, getting a similar honorary award for one of his Cotswolds. Mr. Beale Browne took the prize in the aged section, and 1st also with a pen of shearling ewes, Mr. Low's pen of nice sheep being 2d, and with five ewe lambs that gentleman also carried off the prize in that section.

Mr. Marris was the only exhibitor of Southdowns and took all the prizes. His sheep were neat, well-bred animals, the 1st prize shearling ram being particularly so; and, in fact, it was almost expected that the first shearling would have won the Short-woolled Cork Cup when he was brought over from England. But Southdowns have no chance with the Shropshires, unless the latter are very inferior, which was not the case at Clonmel, the turn-out of Shropshires not only being the best we have ever had in Ireland, but of a description which, we have good reason to believe, actually astonished the judges. Looking at the Shropshire sections on Wednesday, we could not help contrasting them with what we have seen only a few years ago at Irish shows, when the numbers were not only exceedingly limited, but the interest excited by that breed was but small. The breed, however, has now increased so much in public estimation that the sections occupied by it form by no means the least important part of our shows. In the section of shearling rams two of those shown by Mrs. Smith Barry took both 1st and 2d prizes, the cup going as to the 1st one, which was a lengthy, full-quartered sheep. The 2d sheep had a good breast, and was a sheep of great size, but he was not quite as sweet to the eye as the other. Mr. C. W. Hamilton had a good-backed ram of beautiful quality, which was put 3d, with an H.C. and two Commended cards to others of the Hamwood flock. Mrs. Smith Barry was equally fortunate in the section of rams of any other age; the pair of two-shear rams being put 1st and 2d, while Mr. Hamilton again came in 3d, or Highly Commended, with a Commendation to the only other ram which showed in the section. Mrs. Smith Barry's sheep had undoubtedly great substance, but they have scarcely the quality or style of the Hamwood sheep, and they had been shorn much earlier, which makes a great difference in the appearance of sheep shown at this time of the year. The 1st and 2d prizes for pens of shearling ewes—five in each—went to two beautiful pens which also belonged to Mrs. Smith Barry; Lord Bessborough taking the prize in the ewe lamb section with five nice well-bred lambs. In the class which was open for competition to *bonâ fide* tenant farmers paying over 100*l.* a year, Mr. David Hewetson took both the 1st prizes for five ewes which have reared lambs this season, and for five hogget ewes, Mr. Hewetson's sheep being all Leicesters; while the competition open to farmers paying under 100*l.* was in no way remarkable, numbers being limited, and quality indifferent, and the prizes going to pens exhibited by Mr. Patrick Quinlan, near Bansha.

As might be expected from the character of the district, the show of Swine at Clonmel, particularly in the coloured breeds, was excellent, the Waterford breeders coming out in great force. The Gold Medal and local committee's special prize went to Mr. Dw[illegible]

Malcomson's Berkshire boar, Blair Athol, which was put 1st in the section of those under 18 months old; Mr. Malcomson and Mr. Joyce taking the lion's share of the honours in the coloured breeds.

Mr. Wainman showed in the white breeds, and was successful, his young boar taking the Gold Medal in the white sections; but the Carhead swine were well met by pigs from the Loughcrew sties; and in the section of young breeding sows, Mr. Naper beat Mr. Wainman, another of Mr. Naper's pigs being put 1st in the section of breeding sows over 18 months old. Mr. David Malcomson was also a successful exhibitor of Yorkshires in the different sections, his sow and litter winning in their section. Mr. Michael Carroll, who holds about 30 acres of land, and has been always a very successful exhibitor at Waterford, took two 1sts in the extra premiums competed for by tenant farmers not paying more than 100*l.* a year of rent, both his winning sows having been got by Abbey Farm boars.

Eighty-three entries filled up the Horse sections; but although some of them were a fair description of stock, it must be allowed there was a large number of very indifferent animals exhibited; so much so, that while the judges refrained from giving 2d prizes in some of the sections, owing to want of merit, there were sections altogether rejected from the same cause. The Medal as the best of the prize draught stallions, and also the Challenge Cup for the best animal of any age or sex in that department, was awarded to Mr. Mooney's Young Welshman; while the Croker Cup for the best weight-carrying thorough-bred stallion was taken by Mr. M'Craith's Forager, a seven years old horse by Cossack out of a dam by Liverpool.

The following is a list of the judges:—

Short-horns.—Messrs. Unthank and Garne.
Herefords and Devons.—Messrs. T. Duckham and Cureton.
Other Breeds.—Messrs. Guthrie, Mowbray, and Hillard.
Cart Horses.—Major Borrowes, Sir P. Nugent, and Mr. Darker.
Croker Cup.—Messrs. G. A. Boyd, Thurnell, and W. H. Clarke.
Leicester Sheep.—Messrs. Painter, Warburton, and Thurnell
Short-wool Sheep.—Messrs. Duckham, Cureton, and Thurnell.
Swine.—Messrs. Borthwick, Chaloner, Darker, and Fisher.
Poultry.—Messrs. Darker and Stanton.
Butter and Cheese.—Messrs. Fforde, M'Donald, and Green.
Implements.—Messrs. Borthwick, Wade, and Finlay.

Abridged from Irish Farmers' Gazette.

At the Annual Banquet of the Society the Marquis of Waterford, who presided, said:—

There was no light task imposed upon the Ministers of the Crown in the present crisis of the agricultural interest. In the first instance, they had to deal with one of the most serious calamities which had afflicted the empire for years, and which, he feared, was extending itself to Ireland—namely, the Cattle Plague. It would require all the exertions of the Government to stop that plague and prevent its introduction into this country, so as to leave us a tone of health amongst our herds. He regretted the recent decision of the English Cabinet, inasmuch as it should be remembered that Ireland was a great agricultural country, the wealth of which depended on its flocks and herds, and its pastures. Therefore it was that he trusted the Government would put a veto upon the importation of cattle into Ireland, and he hoped that when his Excellency heard from the highest and the lowest in that assembly the formidable nature of the danger with which they had to cope, he would urge upon the Cabinet the necessity of prohibiting the entry of diseased cattle into the country. Another question of the most serious importance was the daily exodus from our shores of the youth of the land. This may have arisen from causes beyond the power of man to stem; but still it was in the power of the Government to hold out inducements to retain them in the country. He looked upon this as a most important matter, and he thought the Government should turn seriously to this subject, in order, if possible, to keep our young men—and especially our educated young men—at home. How was that to be done? By one simple and direct plan—a more liberal outlay of public money in Ireland. He proposed that works should be constructed at such ports as Cork, Waterford, and Belfast—not works to repel an American foe, for he believed they were themselves an arm of strength to England; but we required our ports to be opened, and harbours of refuge designed and carried out. Again, what would be the feeling of people in this country if they could see the lines of an ironclad laid down for building in an Irish dockyard?

The Lord-Lieutenant said: My noble friend spoke of the expenditure of public money. It was not in the power of the Government of England to enter upon a large expenditure of public money in Ireland, and if they were resolved to take the whole Treasury of England and use it as if it were the cap of Fortunatus, and throw it broadcast over the land, it would not remedy the evils under which you suffer, nor advance your country. It is not by such means a nation's prosperity is achieved. I know when I say, "Rely on yourselves," I know it will be said that is an old lesson; but however old and trite the saying, it is one which you ought not to disregard, and one which, if you disregard, you will never remedy the evils of this country. It is, no doubt, the duty of the Government of England, who represent the voice of the people of England, to extend a helping hand to Ireland, being, as they are, the stronger member of the United Kingdom, and to put the Irish nation upon the road to a better state of things. With regard to the establishment of dock-yards—although I feel ashamed, this being an agricultural meeting, to introduce the subject here—still, as it has been mentioned, I think it right to take credit for the fact that orders have been given for the construction of a dock-yard at Cork. This is a small beginning, but out of small beginnings great works proceed. It shows, however, that the Government think it desirable to make use of your harbours, and before I came down here I received an intimation of the actual commencement of the work. Gentlemen, we are met on this occasion specially to celebrate an agricultural anniversary. The Royal Agricultural Society has conferred great benefits on Ireland. I know that it is said the improvement of cattle is not, after all, that which can secure the well-being of a country; but still I think that cattle are a great source of wealth, and we ought to learn to produce cattle which bring the greatest amount of money. That is the lesson which the Royal Agricultural Society has endeavoured to teach—how successfully you all know, by the show you have seen to-day. I am sure I do not in any respect flatter the Society when I say that seldom has a show been seen more creditable in every respect than your show to-day, especially in Short-horns. It is evident that Ireland—for none but Irish beasts were exhibited to-day—yields the palm to no part of the United Kingdom in Short-horns. It was gratifying to see that the sheep were improving very considerably. Some sheep were exhibited to-day which, if shown at Plymouth, at the Royal Agricultural Society's show, would have carried off some of the large prizes. As regards what I may call the staple produce of Ireland, the pigs, we all saw as admirable specimens of swine as ever were seen on any occasion of the kind. These are fair and legitimate subjects of congratulation. Before I leave this I wish to mention what may be interesting on a subject of this kind, that you should know what has been the progress during the past year as regards cattle and other agricultural produce of this country. I asked the department which is specially charged with this matter to furnish me as nearly as possible with the returns of cattle and sheep for the past year. These figures are not yet published. They are, in some respects, only an approximation; but will, no doubt, be found to be a correct approximation. The number of cattle last year was 3,262,294, and this year the number is 3,502,446, showing an increase of 240,152. The number of sheep has increased from 3,366,941 to 3,683,443, showing an increase of 316,502. The number of pigs has increased from 1,058,480 to 1,299,801, an increase of 241,321. I am sorry to say the horses show a decrease from 562,261 to 550,223. The increase of cattle and sheep shows that the effect of the better season which we enjoyed is beginning to be felt. We have returned about to the point we were at in 1861, before the bad seasons occurred. There is another matter which is of the greatest consequence to the agriculture of Ireland—namely, the cultivation of Flax. Upon that Government have bestowed great attention, and have again this year showed they are not negligent of this important branch of agriculture, by expending money to send instructors to different parts of the country. The amount of Flax has diminished as compared with 1864; but it still remains larger than in 1863. And although considerable disappointment was felt last year at the decrease of Flax cultivation, yet there is reason to expect that a considerable permanent increase in the cultivation of Flax may be established. But my noble friend justly remarks, how great would be the calamity which would befal this country if its great staple produce—the cattle—were to be affected by the dire disease which has appeared in England. As no doubt every gentleman in this room is aware, I was waited upon by deputations very influentially composed, to press upon me that it would be advisable to prohibit the importation of cattle into Ireland. I brought that recommendation before the Government, expressing, as regards myself, a favourable opinion with regard to it. But, the matter having been taken into very full and careful consideration by those members of the Cabinet who were in London, they came to the conclusion that the circumstances were not such as would justify so extreme a measure—a measure which, be it remarked, would be beyond the powers which the law places in the hands of the Government. I may mention that the main reasons which influenced them in coming to such a decision were—that, in the first place, it is by no means satisfactorily proved that this disease has come from without the country at all. The evidence I have seen leaves the matter in very considerable doubt. It seems more than probable the disease has originated within the country itself—that it is the result of the late hot season, as well as the various natural causes which produce diseases in the lower animals as well as in men, and is not imported from abroad. As regards Holland, which is charged with being the centre of the disease, I believe it is the fact that there are no cattle more healthy than Dutch cattle, and there is no country where more elaborate measures are taken to preserve the cattle from contagion. In England the feeling of alarm excited is very great, and just before I came to Clonmel I received from my own county, which is deeply interested in the fattening of cattle—I mean Norfolk—an account of an agricultural meeting held there, at which they came to no less a resolution than that they would for the space of six weeks buy no more store cattle whatsoever. When I tell you the cattle market of Norwich is, perhaps, the largest market in England for lean beasts, you will fairly estimate what a very important resolution that is. I mention that to show how great is the alarm felt by the farmers, and how determined they are to take every measure they can to arrest the disease. They also resolved upon a cattle assurance society, and those who conform to the rules and subscribe a certain sum to the association will be entitled to compensation if their cattle are destroyed. I believe similar measures will be adopted throughout England. As regards this country, I ought to mention that although the importation of cattle is not forbidden, yet very stringent regulations are enforced at the ports, and under an Order in Council, which the Government have ordered to be stringently enforced, very careful inspection will take place. There are not many cattle imported. I do not think the Spanish and Portuguese cattle imported are infected with any disease whatever, and the number brought into the port of Dublin does not, I believe, exceed 1500 in the year. The most dangerous importation seems to be calves from England, but that has ceased at this period of the year. With proper inspection and care it may be that no diseased cattle will be allowed to land. There was one other point I would mention. It came to my knowledge that the contractor for the troops at the Curragh imported some beasts into this country. I immediately communicated with the War Office; and I have since seen the Commissary-General, who has charge of these matters, and he assures me that in the last six weeks not more than two foreign beasts—one a Spanish beast and one a Dutch beast—were presented by the contractor at all for acceptance by the Commissariat, and one was rejected. He has written to me this morning to say he has taken such measures as will ensure that by that means no infected cattle will be imported. The cattle are slaughtered in Dublin. Many of the cattle generally imported are also slaughtered in Dublin, so that there is less danger of the disease coming through the country. From these measures I think no alarm need be felt on the score of importation.

Home Correspondence.

The Value of a Ton of Straw.—"People don't know the value of straw," said my ploughman to me to-day, and so careless are folks about it that I have considerable difficulty in preserving mine free from damaging rains. Taking the country generally, straw is looked upon as only fit to spread about open farmyards to sop up the rains which have latterly been carrying away the farmer's profit in the shape of strong tea, leaving him only the tea-leaves. As straw can be thatched for 6*d.* a ton, it does appear to me a grievous neglect and waste of valuable property to allow it to stand unroofed, and become rotted by the weather. I produce on my farm of 170 acres about 200 tons of straw annually, and whether I realise 5*s.*, 10*s.*, 15*s.*, or 20*s.* a ton of it makes a considerable difference. I wish that our Agricultural Society would offer a prize for a correct and practical as well as scientific estimate of the value of straw of all kinds as food, as manure, or as litter. I am convinced, by my own practice, that straw (particularly Bean, Wheat, and Oat) has a considerable value for feeding purposes, when rendered available as food. My labourers often say—"Ah, master, you could not keep half so much stock as you do, if you did not consume your straw." Of course, near large towns, farmers will sell their straw and bring back manure. So important is straw considered as an article of animal food in Spain, that Messrs. Garrett are making machines, driven by steam power, for "straw pulping," so that it is rendered soft and silky—in fact duly prepared for animal digestion. I am assured that in all warm Eastern countries straw is always used as food for animals. 'Tis said "wise men come from the East," and in this case I am sure that our English farmers have something to learn. Let us see what straw is composed of, and why it should be valuable as food, and especially as a substitute for hay, so as to set free for the growth of corn and roots a larger area. The late Mr. Horsfall said in that excellent paper of his (the best, in my opinion, that ever was written), on Feeding Stock and Dairy Management (Soc. Journ., vol. 18, p. 173), "I am satisfied that the most economical use of food rich in albuminous matter is together with straw or other materials which are deficient in this element." This I had proved to be true. He especially commends Bean straw. He says, "In Wheat straw, for which I pay 35*s.* per ton, I obtain for 1*s.* 2*d.* 32 lb. of starch (reduced as oil, 18¼ lb. from 100 lb. of straw), available for the production of fat or for respiration." I have long since adopted straw as food, and should consider myself foolishly unprofitable to waste it uselessly in an open and wet farmyard. I believe that Cabbage would have been much more extensively grown had farmers known how necessary it is to give with the Cabbage a large quantity of straw chaff, without which much of the Cabbage is wasted. *J. J. Mechi, Aug.*, 1865.

Agricultural Statistics, Ireland, 1865.—The following return shows, in statute acres, the extent under Flax in each county in 1864 and 1865, compiled from returns obtained by the constabulary and metropolitan police, who act as enumerators:—Ulster, in 1864, 278,143 acres; in 1865, 233,289; decrease, 44,854. Munster, in 1864, 7,580 acres; in 1865, 4,980; decrease, 2,600. Leinster, in 1864, 7,388 acres; in 1865, 5,862; decrease, 1,526. Connaught, in 1864, 8,582 acres; in 1865, 7421; decrease, 1,161. Total acreage under Flax in Ireland in 1864 and 1865: in 1864, 301,693 acres; in 1865, 251,552; total decrease in 1865, 50,141. Total extent of Flax grown in Ireland in each of the following years: in 1851, 140,536 acres, in 1852, 137,008; in 1853, 174,579; in 1854, 151,403; in 1855, 97,075; in 1856, 106,311; in 1857, 97,721; in 1858, 91,646; in 1859, 136,282; in 1860, 128,595; in 1861, 147,957; in 1862, 150,070; in 1863, 214,099; in 1864, 301,693; in 1865, 251,552. The foregoing return is published as in previous years, in anticipation of the General Abstracts, which will show the acreage under the various crops, and the number of live stock, by counties and provinces; they will, I trust, be ready for publication in the course of the ensuing month. *William Donnelly, Registrar-General*, 5, *Henrietta Street, Dublin, August* 12.

Vermin in Poultry (*in reply to correspondent*).—Should you suspect your birds to be infested with vermin, a visit to the hen house after dusk will tell you if such be the case. Your birds will be restless and fidgetty, constantly moving, and picking their feathers with their beaks. If the little chickens are suffering you will hear a plaintive low piping from them when under the hen, instead of the quiet soothing chirp they utter when really at rest. In the day time the little ones move listlessly about, with their back and neck feathers arched; they seem restless and dissatisfied, and get thinner and thinner, the skin seems dry and the flesh red. The insects are very small, of light yellowish colour, and are generally found under the wings and on the back of the neck in greatest numbers. The most effectual cure we have found to be a little white precipitate ointment rubbed in with the hand between the shoulders and along the ridge of the back. Care must be taken in applying it to use only such small quantities as will be absorbed at once by the skin, so that it may not remain on the outer surface of the feathers. Where the bird is in a very restless and bad state, a little sweet oil may be afterwards applied on the sides of the breast and thighs. In using the remedy the quantity must of course be regulated by the size of the bird. Where a hen with a brood is affected, it is an excellent plan to coop her on a heap of wood ashes after dressing her with the ointment, so that the particles of the ash may adhere to her feathers; indeed, where fowls have constant access to wood ashes they are seldom troubled with vermin. Good diet, clean water (not rain), and a frequent use of the whitewash brush in the hen-house and coops, will do much to keep fowls of all ages free from such scourges. *J. B.*

Societies.

Yorkshire.—We have not had space at our disposal before now, owing to the length of our crop and cattle reports, for the publication of the prize list at the late annual meeting of the Yorkshire Agricultural Society. The following are the principal items:—

Short-horns.

Judges.—W. Bartholomew, Waddington Heath, Lincoln; J. Douglas, Athelstaneford, Drem, N. B.; G. Drury, Holker Hall, Newton-in-Cartmel.

Bulls above 3, and not exceeding 6 years old.—1st, Viscount Strathallan, Strathallan Castle, Auchterarder, Scotland (Fosco);

2d, R. J. Middlesborough, South Milford (Lord Pam); 3d, J. Dickinson, Partridge Hall, Bawtry (Royal Oak). Commended: P. Brown, Glentworth, Lincoln (Masterman).

Bulls above 2, and not exceeding 3 years old.—1st, J. Taylor, Moreton Whalley, Lancashire (Shannon); 2d, J. R Middlesborough (Prince of Wales); 3d, W. White Burrill, Bedale (Prince Arthur). Highly Commended: J. Charlesworth, Headfield, Dewsbury (Baron Bleucow). Commended: T. Dawson, Poundsworth, Driffield (Next of Kin) and E. Hodgkinson, Morton Grange, Retford (Highland Duke)

Bulls above 1, and not exceeding 2 years old.—1st, F. H. Fawkes, Farnley Hall, Otley (Friar Tuck); 2d, S. Wiley, Brandsby, York (Earl of Derby); 3d, J. Peacock, North Holme, York (Veteran) Commended: Rev. J. D. Jefferson, Thicket Priory, York (Duke of Waterloo).

Bull calves above 5, and not exceeding 12 months old—1st, G. S. Foljambe, Osberton Hall, Worksop (Robin); 2d, F. H. Fawkes (Friar Bacon); 3d, T. C. Booth, Warlaby, Northallerton (Master Hopewell).

Cows of any age above 3 years, in Calf or Milk.—1st, Lord Feversham, Duncombe Park, Helmsley (Pride of Southwicke); 2d, A. Dugdale, Rose Hill, Burnley (Kent Cherry); 3d, Lady Pigot, Branches Park, Newmarket (Perfume). Highly Commended: J. R. Middlesborough (Gay Lady). Commended: R. Eastwood, Thornley Holme, Clitheroe (Double Butterfly), and J. Taylor (Eugénie).

Heifers not exceeding 3 years old, in Calf or Milk—1st, T. C. Booth, Warlaby (Lady Fragrant); 2d, Lady Pigot (Ladye of Rosalea).

Heifers not exceeding 2 years old.—1st, Lord Feversham (Princess); 2d, R. E. Oliver, Sholebrook Lodge, Towcester (Campanella). Highly Commended: Lord Feversham (Violet). Commended: R. Eastwood (Lady Emily)

Heifer Calves above 5 and not exceeding 12 months old—1st, G. S. Foljambe (Rose of Windsor); 2d, Messrs. Dudding, Panton House, Wragby (Pride of Panton). Highly Commended: R. Eastwood (My Mary) Commended: Lady Pigot (Victoria Rubicunda), and R. E. Oliver (Chrystallina).

The Champion Cup, value 25*l*., for the best animal in any of these classes, to T. C. Booth (Lady Fragrant).

EXTRA STOCK.

First-class Silver Medal, T C. Booth (short-horn bull, Prince Alfred.) Second-class Medal, G. S. Foljambe (fat steer).

SHEEP.

JUDGES.—J. Buckley, Normanton Hill, Loughborough; H. Mackinder, Langton Grange, Spilsby.

LEICESTERS.

Shearling Rams.—1st, J. Borton, Barton House, Malton; 2d, J. Borton. Commended: J Borton, for three other rams.

Rams of any Age—1st, J. Borton; 2d, J. Borton. Commended: T. Marris, The Chace, Ulceby.

Pens of Five Ewes.—1st, W. Angas, Newwick, Driffield; 2d, J. Simpson, Spofforth Park, Wetherby.

Pens of Five Shearling Gimmers.—1st, J. Borton; 2d, J. and E. Tindall, Knapton Hall, Rillington. Commended: W. Brown, Highgate, Holme on Spalding Moor, and R. Lovel, Knapton, Rillington.

LINCOLN AND OTHER LONG WOOLS.
(Not qualified to compete as Leicesters.)

Shearling Rams.—1st. T. B. Marshall, Branston, Lincoln; 2d, T B. Marshall. Commended: E. J. Howard, Rise Farm, Nocktoin, Lincoln.

Pens of Five Ewes.—1st, R. C. Workman, Almholme, Doncaster; 2d, W. Mellows, High Melton, Doncaster.

Pens of Five Shearling Gimmers.—1st, R. C. Workman; 2d, T. B. Marshall.

SHORT-WOOLS.

JUDGES.—J. Druce, Eynsham, Oxford; J. Purves, Alconbury, Huntingdon.

Shearling Rams.—1st, 15*l*, Lord Wenlock, Escrick, York; 2d, 5*l*., Lord Wenlock.

Pens of five Ewes.—1st, 5*l*., Lord Wenlock.

Pens of five Shearling Gimmers.—1st, withheld; 2d, 5*l*., J. Brown, Rossington, Bawtry.

PIGS.

JUDGES.—J. Druce, Eynsham, Oxford; P. Purves, Alconbury, Huntingdon; J. Buckley, Normanton Hill, Loughborough; H. Mackinder, Langton Grange, Spilsby.

Boars of a Large Breed.—1st, W. B. Wainman, Carhead, Crosshills, Leeds; 2d, R Dickin, Old Road, Stockport.

Sows of a Large Breed, in pig or milk.—1st, J. Dyson, Leeds; 2d, R. Duckering, Northorpe, Kirton-in-Lindsey.

Boars of a Small Breed.—1st, G. Mangles, Givendale, Ripon; 2d, R. Dickin.

Sows of a Small Breed, in Pig or Milk.—1st, Lord Wenlock, Escrick Park, York; 2d, M. Walton, Foundry Street, Halifax.

Boars of any Breed, not qualified to compete as large or small.—1st, R. E. Duckering; 2d, C. W. Graham.

Sows of any Breed, in Pig or Milk, not qualified to compete as large or small.—1st, M. Walton, Foundry Street, Halifax; 2d, J. Norton, Nortonthorpe Hall, Huddersfield.

Three Store Pigs of any Breed and of the same litter, from 4 to 9 months old.—1st, Sir G. O. Wombwell, Bart., Newburgh Park; 2d, M. Walton.

PIGS NOT EXCEEDING 12 MONTHS OLD.

Boars of a Large Breed.—1st, J. Dyson, Adelphi Hotel, Leeds.

Sows of Large Breed.—1st, R. E. Duckering.

Boars of a Small Breed.—1st, Wm. Parker.

Sows of a Small Breed.—1st, Lord Wenlock.

IMPLEMENTS.

JUDGES.—T. Martin, Wainfleet, Lincoln; W. Owen, Engineer, Rotherham; T. Scott, Broom Close, Ripon; J. Wilson, Manor House, Morpeth.

Threshing Machines, driven by Steam Power, subject to thorough trials in threshing grain and delivering it into sacks ready for market.—1st, 50*l*. Marshall, Sons, & Co. (Limited), Gainsborough; 2d, 20*l*., Robey & Co. (Limited), Lincoln. Commended: Ransomes & Sims, Ipswich, and Ruston, Proctor, & Co., Lincoln.

Grinding Mills, driven by Horse or Steam Power, subject to thorough trials in crushing and grinding all descriptions of grain.—Prize of 2*l*., Amies & Barford, Peterborough, for a Felton's American grist mill. Commended: H. Whiteley, Doncaster; and J. Hodgson, Duffield, Beverley.

The Silver Medal for the invention of any new and improved principle of construction as applied to farm implements, to Fowler & Co., Leeds, for their 8-horse power single cylinder engines, with self-moving and reversing gear.

Silver Medals were also awarded to—

W. Tasker & Sons, Waterloo Iron Works, Andover, for application of chaff delivery to threshing machines.

John Plant, Birley, Sheffield, for earth closet and commode.

Ransomes & Sims, Ipswich, for a six registered equalising pomeltrees.

R. E. Allen, Westminster, for an 8-horse power patent double expansive portable steam engine.

MISCELLANEOUS.

2*l*., Ransomes & Sims, for Biddell's patent root-pulper; 2*l*., Ransomes & Sims, for a patent rotary adjustable self-cleaning corn screen; 2*l*., Marshall, Sons, & Co., for application of a mill to a threshing machine; 2*l*, Spencer & Co., Doncaster, for a Potato planting machine; 2*l*., W. Bushby, Newton, Bedale, for a plough and digger; 1*l*., C. Topham, Birch Lane, London, for assortment of solid tube brushes for cleaning of boiler tubes; 2*l*., W. Sawney, Beverley, for patent sack lifter and tilter; 2*l*., R. Puckering, Beverley, for a market cart; 2*l*, Amies & Barford, for patent turntable rollers; 2*l*., Amies & Barford, for Proctor's patent straw elevator. Highly Commended: Patterson & Co., Beverley, for compound action mill.

We have received the following letter in reference to the competition at this meeting for the large prize, 50*l*., offered for the best threshing machine:—

"Orwell Works, Ipswich, August 5, 1865.

"The Yorkshire Agricultural Society offered for award, at the meeting which they have just held at Doncaster, the following prizes:—

"Threshing machines driven by steam power, which shall be subject to a thorough trial in threshing grain, and delivering it into sacks ready for market.

"Best, £50 0 0
"Second £20 0 0

"These are handsome prizes, not only in amount, but because they are larger than the Royal or any other English Agricultural Society, that we know of, has ever given for the best threshing machine in any class.

"The standing of the Yorkshire Society, and the conditions of the award, 'that the machines should be subjected to a thorough trial,' also added to the inducement to manufacturers to compete.

We and some others were attracted by them; but Messrs. Clayton & Shuttleworth, Hornsby, Tuxford, and other leading makers held aloof; and the result shows they were wise to do so. For instead of giving the machines a thorough trial, the preparations made by the Society were totally inadequate to test one machine thoroughly, much less those that were presented for trial. The machines were tried with Wheat only. Of this grain enough was allotted to each to afford about seven minutes' trial. The whole quantity provided might have been threshed and delivered fit for market in little more than one hour by any one of the competing machines. The capability of the machines on Barley, Oats, or any other grain than Wheat, was not tested. Their capability of working two or three hours without stopping was not tested. No measure was taken by the dynamometer of the power each machine required to drive it; and no attempt was made to ascertain the waste of grain by any machine.

The judges, four in number, were expected to test all the threshing machines and to conduct equally important trials with grinding mills in one day, and to distribute suitable awards among upwards of 130 articles detailed in the catalogue. This they accomplished on the second day.

As a matter of course, under such conditions, the trials were, in spite of the best efforts of judges and exhibitors, a thorough farce, and the prizes might as well have been awarded without any trial at all.

This certainly is a state of things equally unfair to the public, to the judges, and to exhibitors; and our object in writing this letter is not to cavil at the decision of the judges, but to draw attention to a point which appears to us worthy of more consideration than it has evidently received on this occasion from the Yorkshire Society; namely, the moral obligation incumbent on a Society to carry out the conditions by which it tempts persons to compete for the prizes which it offers.

It seems to us, that when a Society offers prizes to be awarded after thorough trial, and especially so when those prizes are of exceptional magnitude, it is bound by every consideration of good faith and regard for its own character to provide the means for carrying out what it offers, and that when it fails to do so, as the Yorkshire Society has failed upon this occasion, the circumstance ought to be widely made known, in order, on the one hand, that manufacturers may be on their guard for the future, and, on the other hand, that the public may correctly measure the value of the Society's awards

In speaking thus plainly, we believe we advocate the interest of the public as well as of the manufacturer, and we trust that the Yorkshire Society will see the justice of our remarks, and in future either have thorough and practical trials, or else have no trials. Thanking you for the insertion of these remarks, we are yours respectfully, RANSOMES & SIMS.

Farmers' Clubs.

DORCHESTER: *The Profits of the Meat Manufacture.*—Mr. DAMEN gave a lecture on this subject at a recent meeting of this Club. He said: I shall not attempt to show the relative advantages of feeding cattle and of growing corn. It would be presumptuous on my part, in the presence of so many practical men, to attempt to prove that you could gain more by one system than another. I shall rather demonstrate to you the fallacy of the advice given by many people at agricultural meetings, that it would be desirable for you to fatten cattle instead of growing corn. The effect of acting upon such advice would not be at all to your interest or to the general advantage of the people. I believe the price of meat, if you acted on that principle, would be so reduced that you would fail in the object you had in view. I desire in the first place to draw your attention to some remarks of Sir Lawrence Palk, in Devonshire, who, after making a good speech, said, "The long and short of what I would impress on the agriculturists is that they must look for the future more to producing good beef and mutton than to growing cereal crops." Now price must depend upon supply and demand. If you produce a larger quantity, price must lower in consequence. The price of meat for some years past, as you are aware, has been, as I may say, the sheet-anchor of the farmer. But the demand has been met by the producers of meat. Although the price has been high, we must not forget the expensive means that have been used in fattening those cattle, and those enterprising men who have done so have only met a fair return for it. If the advice of Sir Lawrence Palk and other gentlemen could be acted upon, what would be the effect? The price of meat must be reduced, and that to the extent of say 1*d*. or 2*d*. per lb. I believe myself most firmly that it would convert the present fair profit into a positive loss. Some have contended that the increased supply would be met by increased consumption; but it is quite evident that unless you can reduce the price of meat you cannot increase the consumption—not in an equal ratio, to say the least of it. And not only that, the price of meat must be governed by the consuming capabilities of the people. If it was possible, for instance, to get meat up to 2*s*. per lb., I would ask you if the great price would not in a very short time be reduced in consequence of people not being able to buy meat at such a rate? We know, too, that if it were possible to raise the wages of the labourers and artizans of this country to the extent of 25 or 30 per cent., it is quite possible the price of meat, butter, and cheese would rise in proportion, and wages would rise in proportion; but labour, like everything else, is a marketable article. Therefore it would take years to increase the price of wages. I have no doubt myself that in the course of years wages will advance in this country, if we continue prosperous, that the price of meat and produce will increase in value in proportion as wages increase; for you will find the artizan-labouring classes of this country do not work to save, but to live, and live well if they can. Therefore it is only a question of time, but it must be a long time before any revolution of that kind can take place. In reference to the price of meat, let me call your attention to the report of a committee of the House of Commons that sat in 1834 or 1835 to inquire into the agricultural distress at that time prevailing. Before that committee some eminent farmers—some of the best in the eastern counties—gave evidence, and their evidence went to show that they were in the habit of stall-feeding largely, but that they had to meet a loss on the animals they sold. Their evidence was corroborated fully by each other that the loss on these animals sometimes amounted to 1*l*. or 2*l*. per head each, and they gave them roots into the bargain. This was at a time when meat was only 6*d*. per lb. You will agree with me that in fattening meat at 6*d*. per lb. your loss would be something like it, but you would sacrifice your roots also in feeding animals. But these gentlemen contended that, notwithstanding the loss they sustained in feeding the animals to supply the markets at such a price, they regained their profit by what they called the value of the "muck" or manure which they produced. Now, gentlemen, muck of itself will not pay rent, however pretty the muck that can be made of it. Fattening must be followed by corn. Every practical farmer knows the necessity of a rotation of crops. Growing roots alone (as many contend we should do) never repay him. You cannot afford to sacrifice—the Norfolk farmer contended he could do—his corn for the sake of the corn and muck that was to be with them, for that, as reasonable men, you know we must depend upon the value of the produce hereafter. Since free trade became the law of this country, during the first 12 years we imported, in round numbers, about 5,000,000 qrs. of Wheat per annum. But from 1848 (when the worst crops were grown in England that had been known for half a century) to 1863 we imported 10,000,000 qrs. of Wheat per annum, or about sufficient to feed half the population of this country. It is strange to say, too, that during those years prices were reduced and went down 25 per cent.; but this, I believe, was more in consequence of the American war than from any other cause. They sent us their corn as being the only country which could receive it and pay them the money, and from the effect of their own necessities the foreigner is to feed the people of this country with bread-food, if the system should be adopted that we should almost entirely grow roots instead of corn—which I don't believe possible—the next thing must be that tillage land must be converted into pasturage. Then I ask, what would be the effect on that deserving class, the agricultural labourer? We all know as practical men that every 100 acres of arable land will find employment for four men. If you convert that land into pasture, one man will do the work of four; therefore by such a system, you throw out of employment a large number of men. I have endeavoured to show the folly of following Sir L. Palk's advice in this matter: I will now to show you what should be the duty of our Members upon the Malt Tax. If any farmer has entertained misgivings previously, I think for the last two or three years he must have begun to see that our demands on that subject are just and reasonable. If he looks at the price of Barley he will find that it is unremunerative; he will find, however much he may grow, however much he may improve his soil, he will get no corresponding advantage from it. So far as regards the grinding value of the Barley, it is quite certain he cannot afford to grow it for grinding purposes. At this moment the inferior grinding Barleys of Europe and Turkey in Asia, can be brought into this country at a much less price than we can grow them. I am to be prepared to supply any gentleman in this [illegible] grinding Barley, weighing 50 lb. a bushel, at a [illegible] per quarter. I should be happy to take orders for 5000 or 10,000 quarters of good grinding Barley [illegible] guinea per quarter. If you get a large crop of Barley in this country, the brewers positively get all the advantage. The public pay the same price for their beer, and not a farthing less. If you get a large crop of cheap bread, the people get the advantage of cheap bread, which is always a blessing; but whatever the [illegible] of Barley, the people never derive any advantage. It all goes into the capacious pocket of the brewer. At Manchester they have Chambers of Commerce [illegible] it is a well-known fact that the Chamber of Commerce at Manchester carried Free Trade. Where is the Chamber of Commerce for agriculture? How are [illegible] sented in these matters? I would suggest, [illegible] Chambers of Commerce, that we should have agri[illegible]

tural boards in this country; and I believe no agricultural boards could be so easily formed as those formed by Farmers' Clubs. They represent the agricultural views of the districts in which they are formed. I have been a member of various farmers' clubs for a great many years, but I believe we have scrupulously avoided party politics, and therefore we have no reason to be afraid of expressing our opinions fearlessly on all subjects that relate to agricultural politics. You are aware that in France the Government seems especially to take care of its agricultural interest—that they have a Minister especially devoted to the interests of its agriculture; and you may have seen, as I have seen within the last few days, a circular (and a very sensible one too) addressed to the people of France in reference to agriculture. The agriculturists of France complain that prices are so low that they are losing their money; and you know if men lose their money they squeak, in any part of the world. They blame their Legislature first, in a very sensible way. This Minister of Agriculture replies, "It is not so. It may be from your good crops, or the good crops of England. The facts with regard to France are these—that they only import, and have imported within the last two or three years of these low prices, three per cent. of their consumption; but then they have in the same time exported more than they have imported." In this country the case is entirely different. We import from one quarter to one-half of our consumption—the food of the people of this country. The large importation ought to be sufficient to satisfy any body of people that we are not in a safe position to import a larger quantity than this, especially, as I have said before, in the time of war, come when it may. I don't mention these large importations that we receive in this country at the moment with any view of wishing to reverse that system which has been established here, and firmly established within the last few years—free-trade, I mean. Neither do we want, as I know of, a Minister of Agriculture here; but we want freedom to grow, untaxed, the natural products of our own soil. I trust I have said enough to show the fallacy of substituting the fattening of cattle for the growth of corn in this country; and if we left that principle, how dangerous it would be in case of war, not only to the growers of corn, but to the community at large. I fear I have thrown out a hint with regard to your wishes respecting your agricultural members, that there should be a source opened up whereby you may in some way or other communicate with them from time to time, and that your opinions should be as thoroughly represented to the House of Commons as every class of the community is represented.

Mr. J. G. Homer agreed with Mr. Damen that the right principle to go upon was to combine the production of stock with the growth of corn. Indeed, he did not see how a great portion of this country was adapted to the production of meat alone. On their hill farms it certainly would not answer, though there was some land that could perhaps be turned to better account in pasture than corn at the present price. With regard to the malt tax they only wanted fair play. The Legislature thought they had given the farmers a great boon by allowing them to malt for feeding purposes: but there were so many restrictions that it could not be done. He believed it would be a great advantage if they could have malt to mix with other things, and that if they were unfettered in this respect they would be able to produce more meat than they did at present.

Mr. J. Galpin trusted the day would be far distant before they saw members merely delegated from an agricultural body or any other body to support individual interest, but that they would be allowed to exercise their judgment as honest and upright men for the good of the community at large. It would be an unfortunate thing if they made anything a question of agriculturists against manufacturers; and he did not think any one would feel it to his interest to advance anything injurious to the agricultural interest.

Mr. T. H. Saunders observed that on arable farms the stock cost them quite as much as they got for it, or little as much as where they had good deep Grass land; but then they must manage according to the soil and the climate, and could not in many districts pay attention solely to stock. As to Barley, if Mr. Damen could supply good grinding samples at the price he had mentioned, it was impossible to grow it here, and leave any rent for the landlord.

Mr. H. Duke said his opinion was that the more stock they kept the more corn they could grow. In some localities the land was naturally arable, and in others it was naturally pasture. Within the last 20 years we had been in this county one-third of the land had been broken up; and he thought there was an opportunity of keeping stock to a much greater value than when it was laid down. He believed in this county they had as good a staple of land as in most counties, but the climate was very much worse. If they only went a very little distance, say between Christchurch and Southampton or Portsmouth, he was satisfied that there a man would produce stock with much more profit and more weight with roots alone in ordinary seasons than they could here with all the roots and corn they could give them. This was a great consideration when a man was taking a farm, and he estimated that 5*s.* an acre would go a very little way towards it. He believed there was more stock bred in this country than 20 years ago; but he considered it a great question whether a larger amount of meat was produced, and he would tell them why. In the market that day he saw a lot of sheep sold weighing about 7 stone, which, with a little extra keep, would have made 10 stone. They would have well paid the expense of keeping a little longer; and stock was often sold just at the time they were beginning to pay the farmer. They were obliged to keep their corn till it came to perfection, but not so with their stock, and hence the low price of the one and the high price of the other.

Mr. G. W. Homer observed that they had been recommended to grow more Turnips, but he was inclined to think they were the most expensive crop grown, although a portion was necessary, because it was the best crop under which the land was cleaned. A gentleman of considerable experience informed him that he found his Turnip crop cost him in growing about 4*l.* an acre, and that the produce from it was but 2*l.*—this under the ordinary system of keeping a flock of sheep upon them. That at first sight might appear rather startling; but when they considered the large breadth of land over which sheep went, the Clovers and Turnips, and the produce of the permanent pasture meadows which they consumed, it was a question whether his estimate was not a sound one. Now, he thought the growing of more cereals and Pulse crops, and feeding them on the land, would pay better than Turnips. On light land they might sow an early description of Pea, and by being cut rather before ripe, it might be followed by a crop of Rape, previous to spring corn. On heavy land Beans might be substituted, which would be better food than Turnips. As to the question of the malt-tax, at the present time they were bringing their untaxed cider in this county from Devonshire at about 10*s.* a hogshead, whilst the tax upon malt liquor was about 11*s.* a hogshead.

The Chairman said: As to the fallacy of advising them to produce stock instead of growing corn, he need only refer to the practical experience of agriculturists, who need not be told which was the most profitable way of employing their land. The system which had been adopted for the last 20 years was the raising and production of as much stock as they could, and the growing of as much corn as they could; and he believed Mr. Duke was right when he said that both must go together in order to make a farm remunerative to the tenant. The larger quantity of corn they grew the more stock they kept; but he did not believe the increase in the amount of stock, even at the present price, balanced the loss they sustained by the lowness of corn. Mr. Damen had alluded to the desirability of their having some means of official communication with their county members. All he could say upon that point was that they had a better means of communication now than before the establishment of these farmers' clubs. They might depend upon this—that it had brought them into more direct contact with their county members than they had ever experienced before; and he rejoiced to know that this had been the case. But at the same time he did not see why an agricultural board should not exist in this country as well as commercial boards—the object being the protection and advancement of commerce in the one case, and the protection and advancement of agriculture in the other case.

Notes on Books.

—— We have upon our table *Practice with Science* (Longmans), No. 1 of a series of agricultural publications to be issued from the Royal Agricultural College. There is no preface or introduction explanatory of the plan of the work; but the present issue is a collection of exceedingly valuable papers—the substance of lectures which have been delivered at the College. It contains lectures by the Principal on Agricultural Education; by Mr. Bailey Denton on Agricultural Drainage; by Mr. J. E. Ransome on Ploughs and Ploughing; by Professor Church on Wheat Experiments; by Mr. J. Algernon Clarke on Farmyard Poultry; by Mr. J. T. Harrison on Dairy Farming; by Mr. Warrington, jun., assistant to the Professor of Chemistry, on Points affecting the Agricultural Value of Natural Phosphates; by the Principal on the working of Steam Engines expansively; and by Mr. R. G. Welford (now Judge of the Warwickshire County Court) on Leases. Of these we have already seen in these columns extracts from the lecture on Agricultural Education, and from those on Dairy Farming, and we shall give from them further illustrations from time to time of the substantial teaching which agricultural students receive at Cirencester. Meanwhile we may confidently recommend the volume before us as containing a series of excellent original agricultural essays upon the important topics enumerated.

—— The Rev. H. Moule, of Fordington Dorset, announces *Harvest Hymns** (Bradbury & Evans) to be published by subscription of 1*s* a copy, if a sufficient number of Subscribers can be obtained. These Hymns consist mainly of direct acts of praise and thanksgiving. The author offers them either as a supplement to existing Hymn Books, or as a first contribution towards one in which there shall be less of prayer in verse, less of mere sentiment, and of mere invitation to praise; and in which there shall be far more of actual thanksgiving and cheerfulness. The specimens we have seen satisfactorily carry out the intention thus signified; and the book is thus proper to be brought under the favourable notice of our readers.

—— *The Standard of Excellence, issued by the Poultry Club* (Groombridge & Sons) is a collection of descriptions and definitions of merit in the several classes of poultry. It is a striking illustration of the large public now interested in poultry shows that so elaborate and considerable a work on such a subject should find the requisite number of purchasers.

* Subscribers' names for five copies and upwards received by the Author.

Farm Memoranda.

[We take advantage of the immense body of agricultural evidence lately taken before the Hypothec Commission at Edinburgh to publish such extracts from it as will illustrate the existing style of Scottish agriculture and the enterprise and energy of Scottish agriculturists.]

(Continued from page 788.)

13. Saughton Mains, Mid-Lothian: *Mr. John Dickson.*—I pay a rent of about 1000*l.* per, 2000*l.* in Mid-Lothian, and as much in Perthshire. I am largely employed by landlords and tenants as an adviser in agricultural matters, and also in fixing the rent of farms out of lease. My opinion is in favour of a modification of the present law of hypothec. I think that all farm produce sold in open market by sample, and delivered, should be placed in the same position as farm produce sold in bulk; the landlord would not then have a right to follow it. By far the greater part of the farm produce is sold by sample. I sell all my grain by sample, even in Edinburgh where there is a stock market. I also think that the right of hypothec should be restricted to two half-years' rent,—the half-year past due and the current half-year. It should have no reference to the crop for which it was the rent. The hypothec should extend to the stock as well as to the crop. I don't think that it would injure any one to make the change in the law take immediate effect, even during current leases,—much less so than what the abolition of the Corn-laws did. It does not necessarily follow that the system of foreland rents would be introduced, although it might tend to that result. I think the landlords would have sufficient security without exacting fore-rents. There are about 200 tenants on the I-lay estate, paying rents varying from 20*l.* to 100*l.*; the rest are larger tenants. I think the smaller tenants might suffer from the total abolition of the law. At present they farm with less capital than they would then require.

14. The Seed Trade: *Mr. William Dodds.*—I have extensive dealings with farmers, and I sell about 10,000*l.* worth of seed in a year. Farmers buy in spring, and it is understood that they pay in the New Year. Many of them pay then, but generally they pay when they buy the new seed. We don't send an invoice of credit and prices; it is mostly all credit. I have frequently sustained loss from the operation of the law of hypothec. If the landlord obtains a warrant for sequestration, the sheriff-clerk sends his deputy to sequestrate, and it is done very quietly in the man's own house—nobody ever hears of it; and that goes on year after year, sometimes for three years, and we are giving him credit without being aware of it. That evil would be remedied by the fact being published in the *Gazette* or in the *Mercantile Test*, because then we would stop his credit. I am in favour of abolishing the law of hypothec altogether. I would put landlords in the same position as other merchants. They have the same remedy in a court of law that merchants have, and I don't see why they should have any preference. I don't see any distinction between the landlord who grants a lease for 19 years and the man who deals from day to day. He can make his rents payable at short intervals, and, if they are not paid, he can bring his tenants into the Sheriff Court, just as I can for ordinary debt. I have been in business for 45 years, and I cannot say how much I have lost from tenants in that time, but in many recent cases the dividends have not been above 1*s.* 6*d.* or 2*s.* in the pound. When a tenant is sequestrated, the landlord generally gets two years' rent secured to him—the crop for the current year, and the stock for the previous year's. In one case, about three years ago, where I got a dividend of 1*s.* 6*d.*, the landlord got two years' rent, and a balance of a former year's rent, out of what the incoming tenant paid for the fallow, dung, and young Grass. In the parish of Haddington there are 16 or 18 farms, and I think more than half of the tenants have been changed four or five times. There are only two tenants in the parish whose farms have descended from father to son. Very often men come and overbid the present tenants, although they have not adequate capital or judgment to carry on the farm. They can stock the farm, and sow the first crop, and they have no rent to pay for 21 months. They cut the crop and sell it, and pay the first year's rent; but they are running in debt to seed merchants, carpenters, and other tradesmen, and, if they have not capital, they cannot go on.

15. Hatton Mains, Mid Lothian: *Mr. George Glendinning.*—I hold three farms—Kirkliston Mains, Auchnoon, and Little Vantage, and Grass Parks at Hopetoun. Kirkliston is in West Lothian. The rent of these is about 1050*l.* Auchnoon is partly hill; the others are arable. I am also factor for the Earl of Morton, Lord Aberdour, Mr. Baillie Cochrane, and

Mr. Welwood. I have had considerable experience as an adviser in agricultural matters. I have been a tenant for 40 years, and a factor for 24. I am in the habit of valuing lands for letting and for purchasing. As a tenant, I have experienced no inconvenience, either directly or indirectly, from the law of hypothec. I always get manure at its fair market value. I object to the landlord having power to follow grain after it is sold, delivered, and paid for; and I would extend the rule which now applies to bulk markets to sample markets. That is the only change I would suggest in the present law. I think you would ruin tenants altogether if you altered the law. I draw about 28,000*l.* a year of rent, every farthing of which is paid, except 200*l.* or 300*l.* of small balances; but, if I asked these tenants to pay in advance, it would ruin them. Landlords would be in a worse position than manure, seed, and cattle merchants, if they were only to get their rents every six months after entry; because, if I buy cattle, the dealer will not part with them till I pay him the money. Landlords would only be in the same position as these merchants, if tenants paid their rents before getting possession.

16. Timpendean, Broombacks, Shaw, and Spylaw, Roxburgh: *Mr. William Scott.*—Two of these are pasture farms, and two arable. They extend to about 3300 imperial acres, and the aggregate rent is 3700*l.* or 3800*l.* I have been engaged for 23 years in the practice of agriculture. To the pastoral farms, my entry is entirely at Whitsunday, and to the others at Whitsunday and separation of crop. My first rent is payable for one of the arable farms at Lammas twelvemonth; for another at Martinmas twelvemonth; and for a portion of another, at Whitsunday, a year after entry. The rent of the pastoral farms is payable at Martinmas after entry. The rents of a large proportion of arable farms in my district are payable at Candlemas and Whitsunday after entry. Some don't pay for a year and a half, but the general rule in Roxburghshire is to pay the rent before the crop is reaped. I think the term of entry which I have mentioned is the best. If the tenant has capital, the sooner his rent is paid the better. I think Whitsunday or Lammas would be the best term of payment, even for arable farms; of course, for pastoral farms, Martinmas or Candlemas is, I should think, the proper term. My reason for preferring these terms of payment is, that they would secure the tenant being a man of capital. The very first farm my father had he lost by a tenant without capital coming in when the lease was out. I think it was relying on the law of hypothec that the landlord took him; but he only had the farm for two years; he was obliged to give it up. This took place 26 or 27 years ago, and, though not directly an injury to me, it was so to my father and to his family. I have offered for farms in Roxburghshire, and other persons have been preferred who had not capital, and who only kept the farms for a year or two. I also object to the law, because I think it is unfair to the public with whom the farmer deals. I think the public should be placed in the same position as the landlord. I do not see any distinction between a landlord letting a farm for 19 years, and a manure merchant who may have only one transaction with the farmer. The landlord is only placing the interest of his capital at stake, whereas the manure merchant and others are placing their capital at stake with the tenant. I don't think it would be easy for the manure merchant and other dealers to secure themselves by ready-money payments. I have known numerous instances of grocers, and other tradesmen of that class, having suffered from the law of hypothec. I know an estate in Roxburghshire on which every farmer has failed within my recollection, and taken in the public. There are at least six farms on that estate, and these failures have extended over 20 years. I know of many other similar cases. I don't think more than half a dozen of these cases occur in the district in a year,—scarcely that number on the average. In one case the landlord did not get his full rent, but he let the farm considerably higher afterwards, and in that case the other creditors got nothing at all. I don't think landlords have generally suffered by the farms being in bad condition on the failure of tenants. On the estate I have referred to, the landlord has universally got a considerable rise of rent after all these failures. The tenants farmed the land very fairly. One of the cases was five or six years ago, two of them since, and the others previously. The tenants who came in after the failures are still on the farms. They pay higher rents, but they got the benefit of the liming and draining which the former tenants had done. It requires more capital to farm in Roxburghshire than in the Lothians, because we keep a much larger stock of sheep and cattle than the farmers of the Lothians do. I don't think we lay out as much on manure, in proportion to our rents, as they do in the Lothians, but we raise more manure on our farms. I would abolish the law of hypothec, even as to existing leases. That would be no more unfair than the abolition of the Corn-laws was, or than the abolition of tolls would be. Under the system of high farming, I think landlords have a very great security in the amount which tenants lay out on draining and improving. A good tenant at once commences to improve the farm by liming and draining; and, after the first year, there is a very large amount of capital on that farm, which the landlord has the benefit of, and which no other creditor can get a share of. After the first year, there would be more than a year's rent on the farm in that way. I think the effect of the abolition of the law of hypothec would be to improve the farming. There would be a much better class of tenants than many who now offer for farms and get them. I think it would lower the rents a little at first, though I have no doubt they would afterwards come up to the same amount. A number of the present successful offerers for farms have neither skill nor capital, and a man with both has no chance. If a professional farmer merely offered according to the value of the land at the present time, he might as well keep his offer in his pocket. The abolition of the law would lower rents on those estates on which it has been the habit to take tenants without capital, because there they have got up to a fictitious height. Q. *Do you think landlords would let their farms, if the law were abolished, without stipulating either for security for the rent, or for forehand rent?—A.* I think they would. If they took a tenant with sufficient capital and skill, I don't think that would interfere with the letting. I don't think they would ask any other security, at least in Roxburghshire. I think, if the law were abolished, landlords would be more careful in inquiring as to their tenants. Q. *Then you think it is possible to make men prudent by Act of Parliament?—A.* It would be by their own pockets suffering. Q. *Don't you think landlords' pockets suffer under the present law?—A.* There is not much fear of their suffering under the present law; they generally gain by it largely. I don't think a landlord would knowingly prefer a tenant who has neither capital nor skill, but as long as the present law exists it is not very important for him to inquire whether he has capital and skill. I am now tenant of Spylaw. I succeeded my brother, who died a few months ago. The tenant under the former lease was a gentleman who was well known as an excellent farmer. I have heard that he was offered the farm again privately. It was then advertised, and let at a large increase of rent. On the estate I mentioned in Roxburghshire the landlord was a very great gainer, because he got a considerable rise of rent after the failure of each tenant. He is getting many hundreds a year more than he would have got. So long as the law of hypothec exists landlords run no risk. Q. *Don't you think that, where a tenant was beginning to go back in the world, the guano merchant would often take care to get his account paid before the landlord could demand his rent?—A.* I don't think that is likely to happen. I think tenants would be more anxious to be pointed in paying their rents. I think guano merchants are quite as lenient to tenants as landlords are. If they see their way they would be quite as much inclined to let the tenant go on as landlords would be. Of course the guano merchant would try to get his money if he thought the tenant in a bad way. The fact of a landlord letting a good farm to a tenant induces the guano merchant to give him credit. He generally goes on the faith of the landlord having taken proper precautions in letting the farms. My family has risen from one farm,—the farm of Heriotsfield. My brothers and myself now pay rents amounting to about 14,000*l.* a year. All the farms are in Roxburghshire, except one in Selkirk. Heriotsfield was a small farm lying totally waste when my father took it. I speak the sentiments of my family as to the law of hypothec. I think back-rents are prejudicial to the progress of agriculture. I am aware that agriculture has made great progress in the Lothians. Many of the farms there are very well farmed, according to the system they are farmed on; but I don't think their system is good at the present time. They should rely more on stock and less on grain at present prices. If the farms were fore-rented, the rents would be lower, but I think that would be an advantage to both landlord and tenant. The landlords would get farmers with more capital, and, in the end, they would get as much money.

(*To be continued.*)

Miscellaneous.

Farmyard Manure is made up of the mixed excrements of the domesticated animals, and the straw, litter, and other refuse stuff produced on the farmstead. It is very variable in composition, the variations arising out of the conditions under which the article is found and preserved. When it is in great part made up of the solid and liquid excreta of stall-fed oxen and horses kept on a liberal dietary, and properly preserved, it is a manure of great value; but when it is produced from poorly fed animals, and has not been protected from atmospheric influences, it is often but little more useful than its weight of rotten straw. The following table exhibits the composition of four kinds of farmyard manure:—

	1	2	3	4
Water	73.22	64.12	65 22	69.12
Organic matter..	21.17	29.28	28 14	24.21
Phosphate of lime	1.73	1.75	1.88	1.64
Alkaline salts	1.30	1.09	1.86	0.94
Lime and magnesia	1.88	1.82	1.24	2.12
Silica, oxide of iron, &c. ..	1.20	1.94	1.66	1.95
	100.00	100.00	100.00	100.00
Ammonia free. in combination with acids, and latent	0.150	0.784	0.550	0 612

No. 1 was composed chiefly of horse and cow dung, the urine having drained away, and most of the soluble matters of the dung having been washed out by rain. Nos. 2 and 3 were composed of the dung and urine of horses and cows, and having been preserved in a proper manner, exhibit a much higher percentage of ammonia. No. 4 was composed of the mixed excrements of horses, cows, and pigs. In every case, of course, the excreta were largely mixed with vegetable matter derived from the straw with which the cattle were imbedded.

The Oilcake Manufacture.—[The following County Court case is reported]. *Messrs. Dixon and Cardus v. Stephen Ayles.*—The plaintiffs in this case live at Northam, oilcake makers, and they sued the defendant, who until the last few months occupied a farm at Braishfield, for the sum of 13*l.* odd, the balance of account for Linseed cake sold in May, 1864. The defendant refused to pay the amount until he had been recompensed for the loss of a large number of lambs which he alleged had been killed by eating the cake supplied by plaintiffs. Mr. Leigh appeared for the plaintiffs, and Mr. Mackey for the defendant:—

Mr. Cecil Dixon, sworn: In May, 1864, we sold Mr. A. two tons of Linseed oilcake. We send out about [illegible] a-year. Part of the cake has been returned, leaving a balance of 13*l.* odd. Cross-examined by Mr. Mackey: Mr. Ayles said he would pay the balance when he had been compensated for the loss of his lambs. Mr. Ayles wrote for the cake, and I sent it by rail to Romsey. We sell this cake for stock; we sell it as good oilcake. About the same time we sold to Mr. Burney, Mr. Wallace, Mr. Lywood, Mr. Reeves, and other gentlemen. Complaints were made to us by Mr. W. that between 40 and 50 of his lambs had died through eating the cake. The oilcake was composed of Linseed, bran, and Arashide Nut. Cake is not supposed to be made of Linseed only. The proportions of the various ingredients vary according to the quality of the seed. Cross-examined by Mr. [illegible]: Bran would not make the cake unwholesome. We sell to several hundreds of customers at the same time. We had complaints from this neighbourhood. We had no complaints of any ewes having died. We have to sift the seed when it comes over, and the quantity of weed seed and other things taken away would be a considerable loss to us if we were not to replace it by something else, and if the cake were only made of Linseed we should soon be in the Bankruptcy Court. All oilcake makers use the same ingredients. Mr. Joseph Mee said: I am agent to Messrs. Dixon and Cardus. I sold oilcake to two or three hundred parties at the same time. I only had complaints from parties in this neighbourhood. There was great mortality amongst lambs that season. I know of the composition of oilcake from seeing the manufacture. Cross-examined by Mr. Mackey: There was much more used for this particular batch of cake than at any other time. None of the parties told me directly that the cake had killed their lambs. Mr. Ayles sent some of his back, saying that it had killed his lambs. Mr. Wallace said he had lost lambs. Mr. Burney did not speak to me about his lambs. I never bought Charlock seed to mix with Linseed cake, or Rape cake for manure. I bought 50 lambs of Mr. Wallace, he had complained to me. Mr. W. H. Gulliver, said I received 50 lambs from Mr. Mee, and fed them on Messrs. Cardus' cake, and they thrived well. This was the case for the plaintiffs. Mr. Mackey, on the part of the defendant, said he should prove that the lambs died from eating the cake. Mr. Ayles had parted his lambs, and those that ate the cake died, and those lived that had none, and many other such cases.

After a little consultation on the part of the defendant and his friends, they agreed to a verdict for the plaintiffs, as His Honour said that if the case was adjourned the cost of bringing various witnesses to prove it would be very heavy.

Grassland Farming.—Certainly, I do not believe in the soundness of the outcry that has latterly arisen among agricultural writers and speakers for the laying down of land to Grass. We can, I believe, generally grow nearly as much cattle food upon 100 acres of arable land as we can on 100 acres of Grassland; and we get the grain to boot. Landowners do not willingly give leave to break up old Grass, and they are wise not to do it on any such scale in any district as would change the general style of industry and the general character of farm management under which the labourers and tenants of that district have through many generations grown up. But it is worth while for them to recollect that the Grasslands which, as being less injurable, they so tenaciously retain in Grass, are at the best stationary and stop the way in agriculture, and that the arable lands of which, as being liable to injury, they fear the extension, are the really progressive part of English agriculture. It is these whose rents have increased, they have given the labourer his wages, and they have fed the population. I believe, if any one will inquire into the circumstances of the dairy farms of the kingdom they will find no more cheese or butter made per [illegible] now than was made 40 years ago. I have the figures of 13 dairy farms in Tortworth and Wickwar parishes collected in 1830. There were then about 23 cows to 100 acres kept upon those farms, and there are not more now. And statistics of richer farms in Frocester and Coaley parishes seem to bear out the assertion that the dairy farming of the Vale is in very remarkable contrast to the arable farming on the hills in all that for the interests of landlord, labourer and population. I expressly forbear to give any opinion as to how the interests of the tenant farmer have been served by the progress on the hill. But it may reasonably be supposed that the competition for land here, as elsewhere, reduces the profits of the farmer to pretty much an even [illegible] wherever you go.

Early Rising.—Industry is up with the sun; he awaketh at the crowing of the cock, and walketh abroad to taste the sweetness of the morning. She is ruddy as the daughter of Health; her ears are delighted with the music of the lark. Her garment sweepeth the dew-drop from the stubble and the Grass, her path is by the murmuring of the brook. Her appetite is keen, her blood is pure, her pulse beateth even. Her handmaids are the daughters of neatness, plenty smiles at her table. *The late J. Grigor, of Norwich.*

Calendar of Operations.

August.—*Harvest Work.*—The use of the reaping machine has been already described. When, on the other hand, harvest work is done wholly by manual labour, the corn is either hand-reaped, "fagged," as already described, or mowed and tied.

The processes of mowing and hand reaping are well contrasted in the following report of the two by Mr. John Taylor, farm overseer at Corsietown, near Huntly. Mr. Taylor first considers the comparative merits of the implements in reference to the processes of binding, winning, carrying, stacking, and threshing the crop. In regard to binding, a man can bind and stook 1500 sheaves, cut by the scythe, in ten hours, as easily as he can bind 1200 sheaves cut with the sickle: the chief reason for the difference being in the circumstance of the binder to the mower having his work straight before him, without having to move from one ridge to another. It is allowed on all hands, as remarked by Mr. Taylor, that mown sheaves win one-fourth quicker than those cut with the sickle, though there is no perceptible difference in winning different lots of grain all cut with the sickle. As to carrying and stacking, mown sheaves are closer in the head than reaped sheaves, and on this account less grain is lost by shedding while being carted; and as a stack built of mown sheaves is more open, the grain and straw in it not only win sooner, but on that account may be carried with safety from the field in an imperfectly dry state. It is allowed that a stack of mown sheaves has a rougher appearance than one of sheaves cut with the sickle, and that it exposes a greater number of heads of grain to the weather and the depredations of birds; but this difficulty is easily overcome, as a man can dress a stack with a scythe-blade in an hour. It is admitted that hand-reaped sheaves are threshed about ten per cent. faster with the flail than mown ones; but as that implement is now in very limited use, and a good threshing machine is equally effective and expeditious with sheaves cut in either way, this objection is of little importance. Another question of moment in using the sickle and scythe is the quantity of work performed by each, and its cost. The following are the results of Mr. Taylor's experience in the employment of seven harvest labourers connected with the operation of each implement, viz., with the scythe, two mowers, two gatherers, two binders, and one raker; and with the sickle, six reapers and one binder:—

	Of Wheat.			Of Oats or Barley.		
	A.	R.	P.	A.	R.	P.
By the scythe	2	3	0	4	0	20
By the smooth sickle ..	1	1	18	2	2	10
By the toothed sickle ..	1	0	8	2	0	10

From these results, the advantage from the use of the scythe is obvious. According to the statement given by Mr. Taylor, it appears that the cost of mowing is about 4*s.* per acre—a sum considerably less than the expense incurred by either kind of sickle.

Probably most of the hand-cut Wheat in this country is now done by the fagging hook, which has the advantage of greater rapidity than the sickle, while the sheaves are at the same time looser, and more easily won. Of the merits of mowing, the following account is given by a Ross shire correspondent, who describes the harvesting of a light crop in a good season. How much later harvest is there than in the southern counties is plain from the opening sentence of the paragraph:—

On the 14th of September (1859), we completed one of the finest harvests we have ever had. There was little interruption from bad weather from beginning to end. Take the following as a specimen of what can be done by the scythe, with a light crop, and having all the hands well fitted for the different parts of the work:—"On Saturday, the 20th of August, we commenced cutting 140 acres of Wheat, Oats, and Barley, with six scythes. In 12 days of working time the whole 140 acres were gone over—each man having cut little less than two acres per day. There were employed in all six scythemen, six women for gathering, six men for binding, and three boys for raking. The six scythemen and two of the rakers were engaged for the half year; all the others were engaged for the harvest. A few of the hands were discharged when the cutting was completed; the others were retained to assist in carting home and in stacking the crop. This operation occupied seven additional days, on which days some 55 stacks were carted to the stackyard. The scythemen and two of the rakers being, as I have already said, half-year servants, were not, of course, then paid. The binders had from 2*s.* 3*d.* to 2*s.* 6*d.*, and the women and boys 1*s.* 9*d.* per day. The whole outlay amounted to 20*l.*, the cutting, reaping, binding, raking, leading, and stacking being about 2*s.* 11*d.* per imperial acre. We would have greatly preferred a more costly harvest, with a better filled stackyard. Wheat bulked less than usual; Barley considerably less; and of Oats there is less than half the usual bulk."

In the Southern counties the usual method is to tie the Wheat in sheaves, as it is reaped, fagged, mown, or cut by the machine, and place them in stooks the same day, about five sheaves on each side. It is well to place the stooks in rows as far apart as possible, to enable stubble cultivation at once to be proceeded with.

In the North they place sheaves five or six on each side, and cover over all with two head-sheaves, which are stuck, butt to butt, by the two men who are setting up the sheaves, who then open up the under side of each, and placing them over the ridge, make each embrace the end sheaves.

In the Midland Counties, in some districts where hand reaping prevails, four sheaves are stuck down upon the long stubble, and two others, butt to butt, are bound around the heads of the four with a straw band, making the whole almost impervious to weather, and safe against a storm of wind.

Oats, where a bulky crop, are almost everywhere treated in the harvesting, and tied in sheaves and stooked, like Wheat. Except where a very bulky crop, it is, however, in the Southern Counties common both with Oats and Barley, and almost universally the practice in the case of the Barley crop, to mow the crop and let it lie till nearly dry in swathe; then to turn it with the rake, and break it into little cocks with the large sheafing prong, before it is carried.

The following is Mr. Shirreff's experience in East Lothian, of the liability of the different grain crops to suffer injury from rain when tied in sheaves and stooked, as is the practice in the North:—

"Let it be supposed that the soil is in good condition, and that the wetness extends throughout the entire period of growth, then the Oat will certainly sustain the least injury, and Wheat the most. Should an excess of wetness be confined to the period of harvesting, then Barley will be least injured, and Oats the most. These conclusions are unquestionably just when the crops are bound into sheaves and properly stooked, although the case may be otherwise when the crops are harvested like hay.

"The Oat being found congenial to high latitudes, and ripening at a low temperature, accounts for the plant being found able to cope with wet seasons.

"And from the ears of Barley adhering closely and securely, and being entirely free from chaff, rain seldom penetrates far into the sheaves, and wet ears are easily dried, and hence this grain is seldom injured by sprouting in the field. In 1857 the Wheat and Oat crops of East Lothian were most extensively injured by sprout, while Barley was little affected. The power of Barley to cope with wet harvests is universally admitted by the farmers of this country. With Wheat and Oats the case is very different. Sheaves of these grains readily admit rain, and from their seeds being enveloped with chaff which long retains moisture, they are easily sprouted, and more especially Oats.

"In 1857, in a field of unripe Wheat standing upright in an exposed situation, I found 5 per cent. of the grains sprouted. As a general rule, the riper and drier the grains are, the sooner do they sprout in a wet harvest, and hence the advantage of a reaping machine in expediting the cutting down of crops before they have attained full maturity."

Let it be added as a caution to the young farmer, not to let his anxiety get the better of his patience in the harvest field, but to wait resolutely until the corn is dry before it is carried. In the Western counties it is common to "puck" the corn in the field in difficult weather, *i.e.*, carry it by hand as soon as nearly dry to different points all over the field, about a cart-load to each, and build it there in little mows barely two sheaves' length in diameter, and perhaps ten feet high, securing the top with a little cut stubble; letting the weather dry it in those "pucks," and thereafter carrying it to barn or rick. It is also customary, as already said, to build in very small ricks in the North, in order thereby to be able to carry corn before it is perfectly dry.

What expedients are possible in a wet and tedious harvest time, may appear from the following note by Mr. Hallett, of the Manor House, Brighton, written during the wet harvest time of 1860:—"On the three days, August 30, 31, and September 1, expecting the wet weather to continue, I had 30 acres of Wheat reaped and placed under cover in barns, hovels, cattle and implement sheds, &c.,—in fact, in everything that had a roof to it,—setting each sheaf upright on the ground, thus exposing the whole of it to the action of the air. Each acre of sheaves occupied an area of 400 superficial feet. The Wheat was cut when dry and carried immediately; it is now in excellent order, and my people commence threshing it to-morrow. Had the wet weather continued, the whole might have been removed in a few days, and stacked either out of doors or under the same roofs, making room in the former case for 30 acres, and in the latter case for at least 20 acres more. To show that in the extreme case of the weather not permitting the Wheat to be cut dry it might still be saved, I may mention that two waggon loads of sheaves standing in the field throughout the wet week ending the 25th of August were carried on that day in the pouring rain and placed under cover. They were then soaked throughout, and are now, September 10th, fit to thresh. I had one field of ten acres dried in the straw on three kilns in a malt-house, each of which was 25 feet square, and contained upwards of an acre of sheaves."

[The above notes are abridged from *Morton's Farmer's Calendar.*]

Notices to Correspondents.

Grub: *R W K.* Your grub is probably the maggot of the crane fly, which is a most destructive animal in the field and garden, eating through the roots of Wheat, Oats, Beet, Cabbages, Carrots, Potatos, Turnips, Scarlet Beans, Lettuce, Dahlias, Carnations, and various flowers from May to August. All that Mr. Curtis says of a remedy is—"Rolling will reduce these gnats by destroying the larvæ, pupæ, and flies, and hand-picking may be successfully practised in the garden." Soot, salt, and sea-sand sown on the surface prevent their increase. Rooks, starlings, seagulls, lapwings, pheasants, and snipes pick up and devour multitudes of these larvæ.

Rye: *M H C.* Rye-corn contains in its natural state as to dryness about 11 per cent. of gluten, 51 per cent. of starch, 9 per cent. of sugar and gum, 10 per cent. of husk, 13 per cent. of water. Wheat will contain 16 to 20 per cent. of gluten, 46 to 50 per cent. of starch, 12 per cent. of husk, and 12 to 14 per cent. of water.

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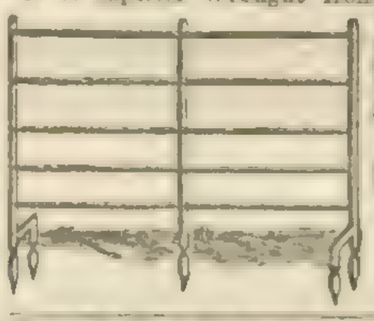

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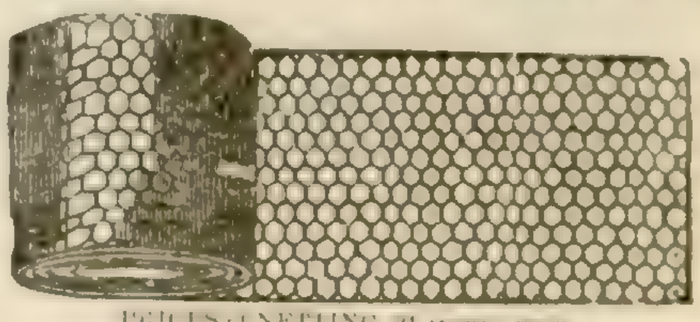

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2 inch	All kinds of Game ..	4½*d.*	5*d.*	6½*d.*	8*d.*
1⅔ inch	Small Rabbits, Hares, &c.	4½*d.*	6*d.*	7*d.*	9*d.*
1½ inch	Ditto Ditto ..	6*d.*	7*d.*	9*d.*	11*d.*

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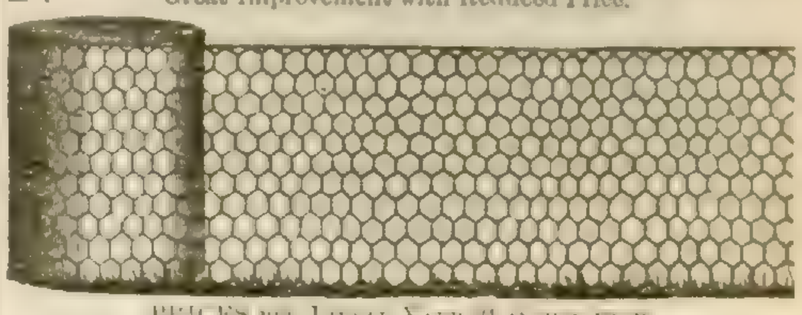

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2½ in.	Hares, Dogs, Poultry	0 3	0 4	0 3½	0 5	0 4½	0 6	0 5½	0 7
2 in.	Game or Poultry Netting	0 3½	0 4½	0 4	0 5	0 5	0 6½	0 6½	0 8
1⅔ in.	Small Rabbits, Hares, &c.	0 4	0 4½	0 4½	0 6	0 5½	0 7	0 7	0 9
1½ in.	Smallest Rabbits ..	0 5	0 6	0 5½	0 7	0 7	0 9	0 9	0 11
1 in.	Pheasantries, &c. ..	0 9	0 11	10½	1 1½	1 3	1 6	1 9	2 0
¾ in.	Aviaries, &c.	1 0	1 3	1 3	1 6	1 6	1 9	..	..

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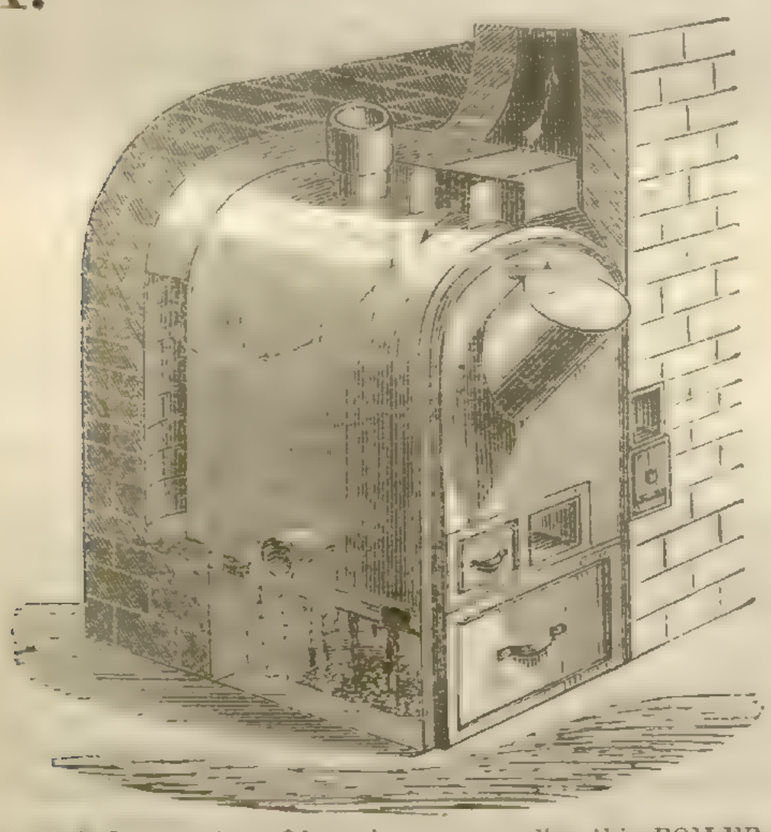

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Mr. LYNCH WHITE'S Iron Wharf, Upper Ground [illegible] Friars Bridge, London, S. Price List on application.

Midland Steam Power Horticultural and Hot-water Works, Loughborough.

T. G. MESSENGER, the Proprietor of the [illegible] Works, finding it necessary (through the great demand [illegible] Horticultural Buildings and Heating Apparatus) to [illegible] additions to his Premises, and to Fit the same with an entire STEAM-POWER MACHINERY, is now enabled to [illegible] Orders entrusted to him with the greatest dispatch, and [illegible] lowest possible price consistent with good and substantial [illegible]
Illustrated Catalogues, Working Model, Plans and Est[illegible] on application.

HOT-WATER APPARATUS,

WITH TRUSS' PATENT PIPE JOINTS.

T. S. TRUSS, C.E.,

53, GRACECHURCH STREET, LONDON, E.C.

By means of these Joints the work is executed in less than half the time required for Socket Joints, and alterations can at any time be made, or the entire Apparatus removed and erected elsewhere with the [illegible] facility. A considerable saving in cost is also effected.

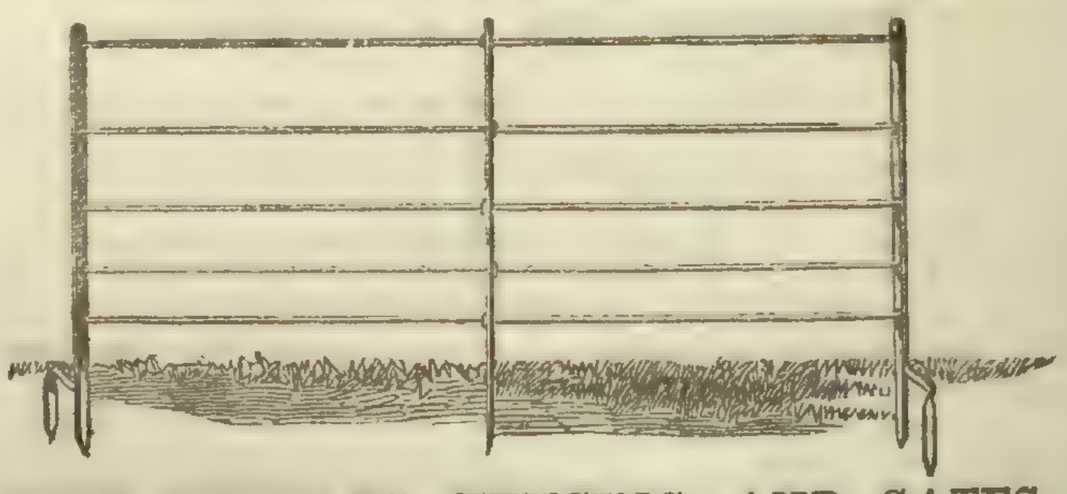
These Joints have been used for several years, giving entire satisfaction, and may be seen in use [illegible] Royal Horticultural Society's Gardens, South Kensington and Chiswick, and many other places in Horticultural [illegible] Public Buildings.

For a few prices, see last week's Advertisement.

ESTIMATES, PLANS, AND PRICE LISTS FORWARDED ON APPLICATION.

ST. PANCRAS IRON WORK COMPANY,

OLD ST. PANCRAS ROAD, LONDON, N.W.



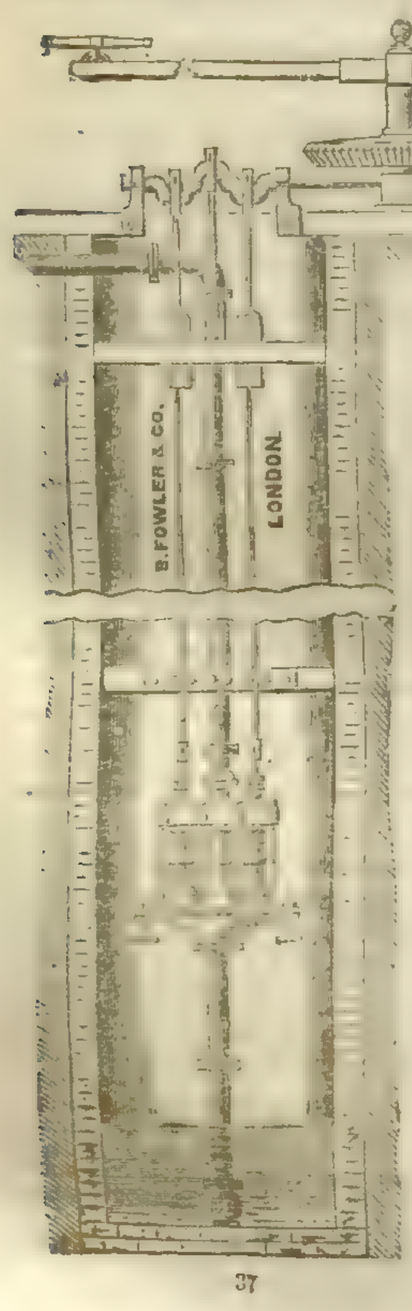
IRON HURDLES, FENCING, AND GATES.

	Each.—*s.*	*d.*		Each.—[illegible]
SHEEP HURDLES, 3 ft. high, 6 ft. long, 4-Bar ..	4	0	CATTLE HURDLE, 3 ft. 6 in. high, 6 ft. long ..	[illegible]
Ditto ditto ditto, 5-do.	4	5½	Ditto ditto ditto strong	[illegible]
Ditto ditto ditto, ⅝ Top Bar	4	8	OX HURDLE, 4 ft. high, 6 ft. long	[illegible]

DR. SPRATT'S PATENT LOCK.

The simplest and best Fastening for Field, Wicket, Swing, and Railway Gates. Particulars and Prices on application.
PATENT WROUGHT-IRON STABLE FITTINGS, CONSERVATORIES, &c. Lists Free.

ST. PANCRAS IRON WORK COMPANY, OLD ST. PANCRAS ROAD, LONDON N.W.



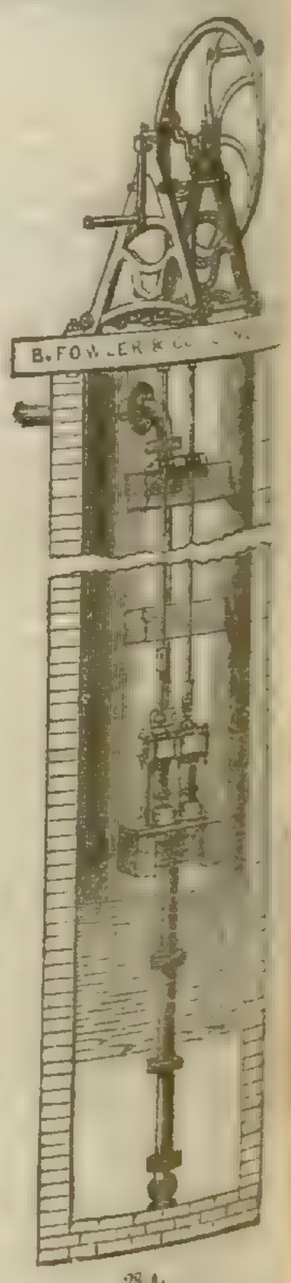
37

CLINTON & OWENS

(late BENJAMIN FOWLER & CO.)
MANUFACTURERS OF

PUMPS AND HYDRAULIC MACHINERY,

WHITEFRIARS STREET, FLEET STREET, LONDON, E.C.



28 A.

THE LANDSCAPE SKETCH shows an adaptation of THE IMPROVED HYDRAULIC RAM. This is a simple Self-acting Machine, suited for raising a Supply of Water for use in Public and Private Establishments. Its adoption is not confined to positions as above, but it is suited for any situation where a Fall can be obtained from a Stream, Brook, or Spring.

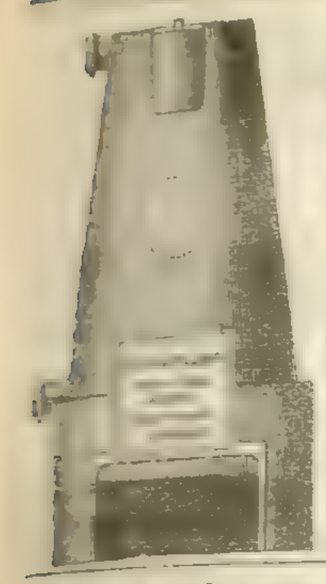
Messrs. Fowler have fixed a great many in various parts of the country for raising from 600 to 6000 or more Gallons per day to elevations varying from 30 to 300 feet, and forcing through main pipes 50 yards to several miles in length.

No. 27. IMPROVED TREBLE BARREL PUMPS with HORSE GEARING for Raising Water from DEEP WELLS for the supply of MANSIONS and PUBLIC BUILDINGS.

No. 28*a*. DOUBLE BARREL PUMPS for HAND-POWER for similar purposes.

Messrs. Fowler & Co. Manufacture and Erect every description of Engineer's Work required in Public or Private Establishments, such as Pumps for any purpose on the largest or smallest scale, Steam Engines, Water Wheels, Turbines, Warming and Drying Apparatus, Baths, Gas Works and Fittings. Estimates furnished from Plans or on inspection of position.

Price Lists of Pumps, &c. free on application.



HEATING by HOT WATER—Public and Private Buildings, Manufactories, Conservatories, &c., heated on the most improved system, combined with perfect Ventilation.

These BOILERS are adapted for setting in Brickwork, or as shown in sketch they require no BRICKWORK.

BURY AND POLLARD
(Successors to John R. Peill),
Sole Manufacturers of the Improved CONICAL BOILERS, which are in general use, and which Boilers have for their durability and economy attained a celebrity far surpassing any other Boilers ever invented.

Park Iron Works, 17, New Park Street, Southwark, London, S.E.

N.B. Patent WINDMILLS for Pumping and Driving Farm Machinery, from half-Horse Power upwards. To be seen daily at work as above.

Greenhouses—Heating Apparatus.

DENNIS' PATENT METALLIC HORTICULTURAL BUILDINGS are made from the best wrought iron, upon an entirely new principle. The combination of Iron and Glass under this Patent is perfect; the possibility of fracture is prevented, and a permanently water-tight roof insured. The leading practical advantages are extreme smallness of framing, admitting a maximum of light and heat, and perfectly neutralising atmospheric conduction.

They are thoroughly ventilated, exceedingly strong and durable, easily erected, and whilst maintaining their established superiority as Conservatories of the highest order, are acknowledged by the most eminent Horticulturists of the day to be the "desideratum [illegible]," promoting perfect symmetry of growth and richness of [illegible] both for Fruit and Flowers.

From the complete adjustment of the constructional parts of these patent buildings, their manufacture is so facilitated that a comparison in point of cost with perishable wooden structures is most [illegible].

THE GARDENER'S OWN GREENHOUSE
Lately known as Dench's Patent) is a Tenant's Fixture.

The Patent, Plant, Business, Machinery, and all connected with the above, have been transferred to T. H. P. DENNIS, who has determined to supply these really useful buildings at such a reduced scale as to that every one desiring a Greenhouse may possess one.

NOTE.—A No. 1 Lean-to, 12 ft. 6 in. by 9 ft., including honest 16-oz. Glass, £16 12s. 6d.

T. H. P. D. has introduced most important improvements in their finish and construction, and after numerous experiments has succeeded in arranging them as a TENANT'S FIXTURE, which he feels sure will be valued by gentlemen having limited tenures. With Mr. [illegible]'s adaptation they make excellent Orchard-houses, and after [illegible] may be desired in a profitable building.

[illegible] structures at the lowest price consistent with sound work.

Prospectuses and Estimates on application to T. H. P. DENNIS, [illegible] Builder, Hot-water Engineer, &c., Chelmsford, Essex.

Horticultural Works, Kensal Green, London, W.

W. T. AND J. TAYLOR (late JOHN TAYLOR & SONS), have on hand for Sale THREE very handsome WOOD and GLASS CONSERVATORIES made to order. Two of them were [illegible] for a gentleman residing in Park Lane, an objection being raised on account of their intercepting the view from the adjoining [illegible]. They were not fixed.

Sketches and Prices fixed complete in any part of the United Kingdom forwarded upon application.

JAS. SMITH offers for SALE Two small LEAN-TO GREENHOUSES, and a quantity of PIT and other LIGHTS, Glazed and Painted fit for use, from 8s. 6d. each. GARDEN FRAMES of all sizes kept in stock, from 10s. 6d. each. 2-inch LIGHTS, Glazed and Painted, 8d. per foot; Unglazed, at 4½d. per foot. GREENHOUSES, erected complete, at 1s. 1d. per foot. Orders attended to personally. Apply to

JAMES SMITH, Hothouse Builder, 205, King Street, Hammersmith.

GREENHOUSES for SALE, Warranted of good Materials, 21-oz. glass.—LEAN-TO, 45 by 14, £65; 22 by 12, £33; [illegible]; 21 by 11, £25. SPAN, 21 by 19, £50, angle 45 deg.; [illegible]; 24 by 15, £35.

A large quantity of PIT LIGHTS and MELON FRAMES in stock. [illegible] made to order, 21-oz. glass, 1s. 3d. per foot; Pit Lights, [illegible] per foot. N.B. Estimates for Heating by Hot-water.

JOSEPH SMITH, New Road, Hammersmith, W.

To Florists and Nurserymen.

GARDEN POTS, supplied in large quantities.—Discount allowed for orders given at the present time.

H. PARRY'S Potteries, and Garden Border Edging and Drain-pipe Manufactory, Copperas Lane, Deptford, Kent, S.E. Established 1701.

EARTH CLOSETS (MOULE'S PATENT).
No Unwholesome Cesspools.
No Bad Smells.
No Water Pipes to get out of order.
The Best Night Commodes.
The Apparatus (price 25s. and 30s.) may be applied to any Closet at trifling cost, and is self-acting.
By its use a valuable Manure is saved, and Fertility to the Soil ensured.
Earth is recommended by the Privy Council, in their report on Cholera, as a deodorizer and disinfectant.

Extract from Letter received from the SECRETARY *of the* NATIONAL RIFLE ASSOCIATION.

"I am further directed to state that they (the Closets) proved of great use, and were found to act admirably."

WHITE & Co., 29, Bedford Street, Strand, London, W.C.
OLDHAM SHOW, STAND 46.

THE IMPROVED LEATHER DRIVING STRAPS for MACHINERY are stronger for a given weight, more elastic, more durable, and cost considerably less than any other driving belt.

SPECIAL STRAPS for PORTABLE ENGINES.
TURNER'S Patent Strap and Hose Company.
Manufactory: Armit Works, Greenfield, near Manchester.
Warehouse: 81, Mark Lane, London, E.C.
Mr. H. FERRABEE, Agent.

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be seen at Work in every Agricultural District in England. For particulars apply to

JOHN FOWLER & Co., 28, Cornhill, London, E.C.; and Steam Plough Works, Leeds.

AGRICULTURAL IMPLEMENTS, CARTS, WAGGONS, PLOUGHS, HARROWS, CHAFF-CUTTERS, &c. Also GARDEN TOOLS of all kinds. Improved NETTING. Delivered carriage free. Price Lists per post on [illegible]

[illegible] & Key, 65, Newgate Street, London. Works, Brentwood.

BENJAMIN EDGINGTON'S RICK CLOTHS, New and Second Hand.
BENJAMIN EDGINGTON'S MARQUEES and TENTS.
BENJAMIN EDGINGTON'S FLAGS and BANNERS of all Nations.
BENJAMIN EDGINGTON'S ILLUSTRATED CATALOGUE sent free by post.
BENJAMIN EDGINGTON'S only Establishment, 2, Duke Street, London Bridge, S.E.

Glass for Garden Purposes.

JAMES PHILLIPS AND CO. beg to submit their prices as follows:—

PROPAGATING GLASSES.

	Each.—s. d.		Each.—s. d.
2 inches in diameter	.. 0 3½	12 inches in diameter	.. 1 [illegible]
3 " "	.. [illegible]	13 " "	.. 2 0
4 " "	.. 0 [illegible]	14 " "	.. [illegible]
5 " "	.. 0 6½	15 " "	.. [illegible]
6 " "	.. 0 8	16 " "	.. [illegible]
7 " "	.. 0 10	17 " "	.. 3 6
8 " "	.. 1 0	18 " "	.. 4 0
9 " "	.. 1 2	19 " "	.. 5 0
10 " "	.. 1 4	20 " "	.. 6 0
11 " "	.. 1 6		.. 7 0

BEE GLASSES.

	Each.—s. d.		Each.—s. d.
4 inches in diameter	.. 0 6	9 inches in diameter	.. 1 8
5 " "	.. 0 8	10 "	.. 2 0
6 " "	.. 0 10	11 "	.. 2 6
7 " "	.. 1 1	12 "	.. 3 0
8 " "	.. 1 4		

CUCUMBER GLASSES.

	Each.—s. d.		Each.—s. d.
24 inches long	.. .. 2 0	16 inches long	.. .. 1 4
22 " "	.. .. 1 10	14 " "	.. .. 1 2
20 " "	.. .. 1 8	12 " "	.. .. 1 0
18 " "	.. .. 1 6		

HAND GLASSES, with Open Tops.

	Each.—s. d.		Each.—s. d.
12 inches	.. 6 6	18 inches	.. 9 6
14 "	.. 7 6	20 "	.. 10 6
16 "	.. 8 6	22 "	.. 11 6
		24 "	.. 12 6

Painted and Glazed with 16-oz. Sheet Glass.

London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.

LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS, PAINTS of various colours ready for use.

180, Bishopsgate Street Within, London, E.C.

SHAW'S TIFFANY.
For samples and prices apply to
J. SHAW & Co., 29, Oxford Street, Manchester.

Oil Paint no longer Necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is only two thirds cheaper. It may be applied to an ordinary coloured, requires no mixing or thinning, and is used cold. It is used on the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

From the Right Hon. the EARL OF SHANNON, *Castle Mallow, near Cork.*

"GENTLEMEN,—I have used your Black Varnish for several years, and consider it very superior, both for iron and wood work out of doors, to anything I have ever used. I shall always continue to use it. Near the sea it is particularly valuable, as it stands exposure when paint becomes corroded. I consider the iron Barrow essential to its use."

Sold in casks of about 30 gallons each, at 1s. 6d. per gallon, at the Manufactory, or 1s. 8d. per gallon paid to any Station on the Kingdom.

Apply to HILL & SMITH, Brierley Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C., from whom only it can be obtained.

TRADE MARK.

ENTERED AT STATIONERS HALL

WALTER CARSON AND SONS, of Great Winchester Street, respectfully notify that they have removed their principal office to their Warehouse in LA BELLE SAUVAGE YARD, Ludgate Hill, E.C. (three doors East of Railway Viaduct), and have discontinued their West-end Office, 31, St. James's Street.

CARSONS' ANTI-CORROSION PAINT, specially manufactured for out-door work, is the best and cheapest. All colours. Is simple in application, so that any person can use it.

Is twice as durable as genuine white lead. See Testimonials sent with patterns and prices post free.

Three cwt. carriage free to any station in England and Wales, and most Seaports of the United Kingdom.

CARSONS' PAINT for all OUT-DOOR WORK.

CARSONS' PAINT for WOOD and IRON WORK.

CARSONS' PAINT for BRICK and COMPO.

CARSONS' ANTI-CORROSION PAINT used by nearly all the eminent Horticulturists, the Nobility and Gentry, for their Gardens.

CARSONS' PAINT for CONSERVATORIES.

CARSONS' PAINT for GREENHOUSES.

CARSONS' PAINT for HOTHOUSES.

TESTIMONIAL.

"[illegible] Nurseries, [illegible]

"GENTLEMEN,—I [illegible] you to [illegible] What I had from you last season has, after a twelvemonth's wear, proved most satisfactory; there is not a crack in the paint, nor, on the contrary, it is as solid as though the glass were cemented in, which I have rarely found with white lead.—I am, yours truly, "[illegible]

"Messrs. W. CARSON & SONS, La Belle Sauvage Yard, Ludgate Hill."

CARSONS' ANTI-CORROSION PAINT will keep for years in a dry place. All orders to be sent direct to WALTER CARSON & SONS, La Belle Sauvage Yard, Ludgate Hill, E.C.
Three doors East of Railway Viaduct.

Nursery Stock, Cheltenham.

To NOBLEMEN, GENTLEMEN, AND OTHERS CONTEMPLATING PLANTING AND TO THE TRADE.

TO BE DISPOSED OF, by Private Contract, in [illegible] or small quantities, the valuable NURSERY STOCK now standing on the EXTENSIVE NURSERIES, near the Great Western Railway Station, Cheltenham, comprising a good and [illegible] collection of Forest [illegible] Trees, Shrubs, [illegible] Standard and Dwarf [illegible] at prices worthy of attention.

An early inspection and early orders solicited.

FOR SALE, a FIFTEEN YEARS' LEASE, with between 5000 and 6000 feet of Glass, about 1200 Pine Plants, about 2000 Pots of Strawberries, with Hot-water Apparatus, and the whole of the Stock in Trade of an Old Established Market [illegible], within [illegible] Ten-roomed House, good Out-buildings, W[illegible]. A[illegible]

J. D., The Twelve Acres, Ea[illegible]

WANTED on LEASE, a FLORIST BUSINESS, with plenty of Glass, or a Gentleman's GARDEN, [illegible] Houses, &c., stocked, and in full bearing, near London.

R. H. S., *Gardeners' Chronicle* Office, W.C.

To Land Owners and Agents.

WANTED to RENT, with early possession, a FARM of from 200 to 300 ACRES, chiefly Grass. The Midland Counties preferred. Also a FARM of from 50 to 100 ACRES, chiefly Pasture, with a respectable House thereon. [illegible]

FOR SALE, a very choice SMALL FARM, with Immediate Possession. It comprises 57 Acres of exceedingly fine Land, admirably [illegible] Market [illegible]

Apply to Messrs. NEWSON & SPENCER, Land Agents and Valuers, 2, [illegible], E.C.

FARM To LET, at Norwood, in the Parish of Croydon, [illegible] containing [illegible] Arable, with [illegible] House, Cottages, [illegible] Lower Norwood and [illegible] Croydon, S.

Sales by Auction.

Importation of Dicksonia antarctica.

JUST ARRIVED IN SPLENDID CONDITION FROM MELBOURNE.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Room, [illegible] W.C., on THURSDAY, August 31, at half-past 12 o'clock precisely, without reserve, 50 Magnificent TREE FERNS, from 7 to 14 feet high, in the finest possible condition.

On view the Morning of Sale, and Catalogues had.

To Market Gardeners and Others.

MESSRS. E. AND C. NEWMAN have received instructions to LET by AUCTION, by direction of the surviving trustee of the late [illegible] Esq., Sunbury, Middlesex, on MONDAY, August 28, at 12 o'clock, for a term of [illegible] years, the MEADOW LAND [illegible] about [illegible] Acres [illegible] Market Gardeners [illegible] Thames Valley Railway.

May be viewed by leave of Mr. Keeson [illegible] and particulars had at the place of Auction; Messrs. Prebble & May, Solicitors, 75, Dean Street, Soho, W.; Messrs. Chaldecott & Rawlins, Solicitors, 20, Coleman Street, City, E.C.; Mr. King, 215, Regent Street, W.; and at the Offices of the Auctioneers, Uxbridge and Church Farm, Harlington, Middlesex.

To Builders, Market Gardeners, and Others.

MESSRS. E. AND C. NEWMAN have received instructions to LET by AUCTION, at the Flower Pot Inn, Sunbury, Middlesex, on MONDAY, August 28, at 12 o'clock, the MARKET GARDEN, near the Cemetery, Sunbury, in the occupation of Mr. William Scaife; and a FIELD of THREE ACRES, situate in the Green Lane, Sunbury, for a term from the 29th of September next, also TWO DETACHED VILLAS with Pleasure Grounds and Gardens, situated at Feltham Hill, close to the Station; and at ground rents for 99 years, in FIFTEEN PLOTS of BUILDING GROUND, varying in frontage and depth from 100 to 200 feet, with option of purchase within five years, a FIELD of LAND, situate at Feltham Hill, Middlesex, most eligibly situated as a Building Site, standing high and dry, and a very easy distance of the Sunbury Station on the Thames Valley Line.

Particulars, with Plan of the Building Ground, may be had at the place of Auction; Mr. King, 215, Regent Street, W.; Messrs. Hancock, Solicitors, 2, Hare Court, Solicitors, 76, Cursitor Street, Lincoln's Inn, W.C.; Messrs. Prebble & May, Solicitors, 75, Dean Street, Soho, W.; and at the Offices of the Auctioneers, Uxbridge and Church Farm, Harlington, Middlesex.

Shropshire Sheep.

MR. JOHN H. BRADBURNE, of Pipe Place, near Lichfield, has fixed his ANNUAL AUCTION SALE to take place on MONDAY, the 11th of September next, when he will offer about 30 SHEARLINGS and CLIFF RAMS, of good size, and the best blood that can possibly be obtained, and 120 splendid EWES and THEAVES.

The Auctioneer invites the attention of Sheep Breeders to the opportunity of obtaining Animals from the Old established Flock, which has been bred from Stock selected with the greatest possible care, due regard having been paid to size, quality of Wool and Mutton, and purity of blood, and unreservedly approved by the patronage, from time to time, of the best Ewes that could be obtained.

In the Show Yard, Mr. Bradburne has been a most successful competitor, having in the last 3 years been awarded upwards of 70 Prizes for Rams and Ewes bred by himself, and exhibited in the Midland Counties, against the other leading breeders of the district, including the most important prize of last season, viz.: that for 20 Ewes at the Sparkbrook Show, and from which several of these Rams are bred.

At the same time will be sold seven highly-bred Young SHORT-HORNED BULLS.

Conveyances will meet the Trains at both Stations at Lichfield. Luncheon at One, Sale at Two o'clock.

Catalogues, with pedigrees, will shortly be published.

JOHN B. LANGLEY, (Secretary to the Birmingham Cattle Show), Auctioneer. Offices, 11, Temple Street, Birmingham.

Willis's Nursery Gardens, Fulbrook, Oxfordshire.

MR. THOMAS SIGRAY will SELL by AUCTION, at the Bull Inn, Burford, on FRIDAY, September 15, at 3 o'Clock precisely, by the directions of trustees (or sole under the Will of the late proprietor, Thomas Willis, deceased) that well established and highly productive NURSERY GROUNDS or GARDENS, being partly [illegible] and partly [illegible] by adjoining [illegible] Fulbrook, [illegible] of inheritance, and the business of a Nurseryman and Seedsman has been successfully carried on thereupon for four generations, is now in full work, and to which there now is and always has been a good [illegible] Trade as [illegible] by reason of the death of the late Proprietor. Possession may be had on completion of the purchase. The Purchaser will have to take to the Stock [illegible]. Fulbrook is close to the Town of Burford, and 4 miles or thereabouts from the Shipton Station of the Great Western Railway.

To view the Property, or for further particulars, apply to the Auctioneer, or Messrs. PRICE & SON, Solicitors, Burford.

NEW TARIFF OF GLASS AND HORTICULTURAL GOODS.

HAND GLASSES.

THOMAS MILLINGTON,

GLASS AND COLOUR MERCHANT,

87, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

PRESERVE JARS.

REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.

MILK PANS.

See Advertisement the first week in the month, or on application.

JOHN WARNER & SONS, LONDON, MANUFACTURERS.

J. WARNER AND SONS

Have much improved the construction of their

GARDEN ENGINES

in some important particulars for this Season.

They may be obtained of the Trade generally throughout the Kingdom at the following prices:—

No. 547. WARNER'S best ENGINES, in Wood Tubs, and fitted with WARNER'S Registered Spreaders—

24 Gallons,	£6	10	0
14 ,,	5	10	0

No. 547A. WARNER'S strong ENGINES, in Galvanised Iron Tubs, well painted—

10 Gallons	£2	19	0
16 ,,	3	14	0
24 ,,	4	19	0
28 ,,	5	10	0

No. 579½. WARNER'S WATER BARROWS, thoroughly Galvanised and well painted—

20 Gallons	£2	2	0
30 ,,	2	13	0
38 ,,	3	17	0
50 ,,	5	12	0

The 50-Gallon Barrow is made extra strong throughout, and fitted with handle for two men.

No. 568½, AMERICAN ENGINE, is now well known and appreciated. It throws a continuous stream, and is complete in itself. £2 2*s.*

SYRINGES in great variety, from 7*s.* 6*d.* to 18*s.* 6*d.*

The DISC SYRINGE, No. 557A, will recommend itself by the ease with which it is filled, and non-liability to get out of order. Price 9*s.*

WARNER'S AQUAJECT

Is this season first introduced to the notice of horticulturists as possessing the following advantages:—It is simple in construction, portable, and easily worked. It throws a continuous stream, and is low in price.

The Aquaject, 30s.

The small AQUAJECT is the most perfect form of Syringe yet introduced. It throws a continuous stream, with very small movement, and with it blight, &c., is readily washed from the under side of foliage. 18*s.*

No. 35. WARNER'S IRON PUMPS for Wells not exceeding 25 feet in depth — 2½-in., 28*s.* 6*d.*; 3-in., 41*s.*; 3½-in., 49*s.*; short barrel do., 21*s.*

No. 36. IRON FORCE PUMPS for raising water above their level, for watering yards, gardens, &c., through hose—2½-in., 59*s.*; 3-in., 65*s.*; 3½-in., 77*s.*; 4-in., 89*s.*

No. 36½. FORCE PUMP on BARROW, recommended for its great portability and simplicity of construction. £5 10*s.*

No. 42. WARNER'S PORTABLE PUMPS with Folding Legs, are of superior construction. Price 55*s.*; Rubber Suction, 2*s.* 6*d.* per ft.

No. 597A. BRANCH PIPES with Cocks and Roses — ½-in., 3*s.* 6*d.*; ⅝-in., 5*s.*; ¾-in., 6*s.*

No. 599. TAPER BRANCH PIPES—½-in., 4*s.* 9*d.*; ⅝-in., 5*s.* 3*d.*; ¾-in., 6*s.*; 1-in., 7*s.*

RUBBER HOSE in all sizes.

FOUNTAIN JETS in great variety, from 8*s.* to £5.

DESCRIPTIVE PRICE LISTS forwarded on application.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by William Bradbury, of 13, Upper Woburn Place, in the Parish of St. Pancras, in the Co. of Middlesex, and Frederick Mullett Evans, of No. 11, Bouverie Street, in the Precinct of Whitefriars, City of London, Printers, at their Office, Lombard St., Precinct of Whitefriars, City of London, and Published by them at the Office, No. 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said Co.—Saturday, August 26, 1865.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 35.—1865.] SATURDAY, SEPTEMBER 2. {Price Fivepence. STAMPED EDITION, 6d.

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ADVERTISEMENTS *intended for the* CURRENT WEEK'S NUMBER *should reach the Office not later than* THURSDAY.

ROYAL HORTICULTURAL SOCIETY.—A MEETING of the FRUIT and FLORAL COMMITTEES will be held on TUESDAY NEXT at 11 o'clock.

E. G. HENDERSON AND SON offer SEED of CALCEOLARIA, CINERARIA, and PRIMULA of first-class quality, at 1s., 2s. 6d., and 5s. per packet. Also the finest SCARLET and INTERMEDIATE STOCK, 6d. and 1s. each.
SEED of CYCLAMEN PERSICUM, of similar quality, 6d. and 1s. each, and in mixed colours 2s. 6d. per packet.
The Wellington Nursery, St. John's Wood, London, N.W.

J. IVERY AND SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

To the Trade.
DOBSON'S EXTRA CHOICE SEEDS.
Woodlands Nursery, Isleworth, W.

PELARGONIUM MRS. POLLOCK.—Strong Summer-struck Plants, well established in 60-pots, at 18s. per dozen.
The Trade supplied.
ALFRED FRYER, Nurseries, Chatteris, Cambridgeshire.

GERANIUM MRS. POLLOCK.—Very strong Plants of this can be supplied at 18s. per dozen. Price to the Trade per dozen or 100 on application to
JOHN SCOTT, Florist, Bathford, near Bath.

Paul's Nurseries, Waltham Cross, N.
BEATON'S GERANIUMS are NOW in FULL BLOOM.
Entrance from the Platform, Waltham Station (G. E. Railway), half an hour's ride from London.

VIOLETS, NEAPOLITAN and TREE.—Extra fine plants of the above can be supplied by WILLIAM HARMAN, Denham, near Uxbridge. Price on application.

VIOLETS.—A large stock of all kinds of Violet Plants, including the Giant Neapolitan, London, Crimea, Russia, &c., now ready for planting out, full of buds, will Bloom directly.
CATALOGUE of prices on application.
JOHN STEDMAN, Thornton Heath, Surrey, S.

NEW RUSSIAN VIOLET, THE CZAR, surpassing in size and sweetness all other kinds, having obtained two First-class Certificates. Very strong flowering plants, £5 per 100, or 1s. each for not less than 12, prepaid, may be had of
Mr. JOHN GRAHAM, Cranford, near Hounslow, W.

Primula sinensis fimbriata.
HOOPER AND CO.'S is unsurpassed in every good quality. Deep carmine or white, each 1s., 2s. 6d., and 5s. per packet. Post free.
Seed Merchants, Covent Garden Market, London, W.C.

Choice Hybridised Pelargonium Seed.
EDWIN COOLING has a small quantity of the above, saved from all the newest and best varieties, to offer, in packets, as follows, free by post:—
Large-flowered, Show and Spotted, 2s. 6d.; Fancy, 2s. 6d.
ALSO PRIMULA, CALCEOLARIA, and CINERARIA, of superb variety, at 1s. and 2s. 6d. per packet each.
Mile Ash Nursery, Derby.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

Orchard-house Culture.
MESSRS. THOS. RIVERS AND SON invite those interested in the above culture to view their COLLECTION of FRUIT TREES and VINES, occupying houses nearly 3000 ft. in length. PEACHES and NECTARINES are now ripening.
The Harlow Station, G. E. Railway, is the most convenient for the Nurseries.
Nurseries, Sawbridgeworth.

British Fern Catalogue.
ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
*** Part II. (Exotic Ferns) will be issued as early as possible.
Foot's Cray Nursery, S.E.

New Hardy British Ferns.
J. IVERY AND SON beg to announce that they can now supply strong PLANTS of the undermentioned distinct and beautiful FERNS, both of which have received a First-class Certificate.
ASPIDIUM FILIX FŒMINA APPLEBYANUM, 10s. 6d. each.
POLYSTICHUM ANGULARE WAKELEYANUM, 10s. 6d. and 1s. each.
For full description see CATALOGUE, which will be forwarded gratis on application to our Dorking Nursery.

The Spring Flower Garden.
COLLECTIONS of BULBS for the above, 10s. 6d., 21s., 42s., 63s., 84s., and 105s.
COLLECTIONS of PLANTS for the above, 12s. 6d., 25s., 50s., & 100s.
For particulars see the AUTUMN FLORAL GUIDE.
BARR & SUGDEN, 12, King Street, Covent Garden, W.C.

HUGH LOW AND CO. beg to announce the arrival of their annual importations of DUTCH FLOWER ROOTS, for which they respectfully solicit early orders.
CATALOGUES can be had on application.
Clapton Nursery, London, N.E.

Hyacinths, Tulips, &c.
WM. HOOPER'S First Importation of DUTCH FLOWER ROOTS has arrived. Early Orders are respectfully solicited. CATALOGUE free on application.
St. John's Hill Nursery, New Wandsworth.

HYACINTHS, TULIPS, CROCUS, NARCISSUS, GLADIOLI, RANUNCULUS, ANEMONES, LILIES, AMARYLLIS, in splendid collections. See BARR & SUGDEN'S AUTUMN FLORAL GUIDE, free and post paid on application.
BARR & SUGDEN, Seed and Plant Merchants, 12, King Street, Covent Garden, W.C.

New Catalogue of Plants, Dutch Bulbs, &c.
ROBERT PARKER begs to announce that his NEW CATALOGUE, containing Select Descriptive and Priced Lists of New, Rare, and Beautiful Greenhouse, Hardy, and Stove Plants, Fruit Trees, Grapes, &c., Amaryllis, Crocuses, Gladioli, Hyacinths, Narcissus, Tulips, and other Bulbs, is now published, and will be forwarded to applicants.
Exotic Nursery, Tooting, Surrey, S.

CARTER'S GARDENER'S VADE-MECUM, AUTUMN SUPPLEMENT of DUTCH and CAPE BULBS and PLANTS, is now ready.

Guernsey and Bella Donna Lilies.
SUTTON AND SONS have just received a good supply of the above beautiful LILIES, and can offer them at 6s. per doz.
Royal Berkshire Seed Establishment, Reading.

GUERNSEY and BELLA DONNA LILIES, 5s. 6d. per dozen.
AUTUMN CATALOGUE of HYACINTHS, TULIPS, &c., now ready, and can be had post free.
BUTLER & MCCULLOCH, Covent Garden Market, W.C.

Guernsey and Bella Donna Lilies, 5s. 6d. per dozen.
BARR AND SUGDEN, SEED and PLANT MERCHANTS, 12, King Street, Covent Garden W.C
HYACINTHS, TULIPS, CROCUS, NARCISSUS, &c., just received from Holland in excellent condition.

Roses in Bloom.
JAMES MITCHELL respectfully informs the Nobility and Gentry his renowned ROSES are NOW in FINE BLOOM.
Pilt Down Nurseries, Maresfield, Sussex, Two and a half Miles from the Uckfield Station.

Roses.
The PREMIER PRIZES at the NATIONAL, BIRMINGHAM, LEICESTER, STAMFORD, and BOTANIC JULY SHOWS.
PAUL AND SON respectfully invite an inspection of their COLLECTION NOW in BLOOM. The Show will continue from now till October; a piece of 40,000 only now commencing to flower. Their Collection of Specimen and young Coniferæ, and Ornamental Foliaged and beautiful Trees, as well as bearing Pyramid Fruits, is worthy of a visit. They would solicit from their Patrons early Rose Orders.
Old Cheshunt Nurseries, Cheshunt, N.

Hollyhocks.
PAUL AND SON'S Splendid COLLECTION of HOLLYHOCKS also is FINELY in BLOOM.
Reached by Rail to Cheshunt Station, Great Eastern Railway.

Gladioli, Pæonies, and New Roses.
EUGÈNE VERDIER, Fils Ainé, NURSERYMAN, 3, Rue Dunois, Paris, has the honour to inform his customers and the Trade generally that he is now publishing his SPECIAL and DESCRIPTIVE CATALOGUES of the above for 1865, which can be obtained of his Agents,
Messrs. BETHAM & BLACKITH, Cox's Quay, Lower Thames Street, London, E.C.

Shrubs, Roses, Fruit Trees, &c.
WM. CUTBUSH AND SON'S GENERAL NURSERY STOCK is the best near London.
GLADIOLI, fine, from 4s., 6s., 9s., & 12s. per dozen.
CATALOGUES on application.
Highgate Nurseries, London, N.

Hardy Ornamental Trees and Shrubs.
OSBORN AND SONS invite lovers of Ornamental Planting to an inspection of the varied forms and foliage of their unrivalled collection of the above, to which they have for many years devoted especial attention.
PRICED CATALOGUES, consisting of upwards of 1500 species and varieties, may be had on application.
The Nurseries, Fulham, London, S.W.

Thorns.
WANTED, 100,000 Transplanted THORNS, 3 years old, also 50,000 4 years old, to be delivered at Basingstoke Station by the end of November.
Address, stating lowest price for cash on delivery, G. G., Contractor, Post Office, Southampton.

JEAN VERSCHAFFELT, NURSERYMAN, Ghent, Belgium, begs to announce that his NEW CATALOGUE for 1865 and 1866 is just published, and contains many interesting Novelties. To be obtained gratis on application, either to himself or to his Agents,
Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, E.C.

WANTED, ACONITES and SNOWDROPS.
Send sample and price to
BARR & SUGDEN, Seed and Plant Merchants, 12, King Street, Covent Garden, W.C.

Shallots.
JASPER WALTERS, Abergavenny, has still to offer a few of his large kinds of SHALLOTS, which have produced this year over 7 Tons per Acre. Price per cwt. on application.

PURE BROWICK WHEAT.—Carefully screened parcels for Seed, grown on stiff clay soil, after the steam cultivator. The crop was harvested early and in prime condition. Samples and price by post on application to
Mr. T. BOWICK, Manager, Messrs. Howard's Steam Cultivated Farms, Bedford.

Strawberry Plants.
WM. HOOPER offers several Thousands of SIR CHARLES NAPIER, strong plants, per 100, 3s. 6d.; per 1000, £1 10s.—St. John's Hill Nursery, New Wandsworth.

Strawberry Plants.
MRS. NICHOLSON begs to intimate that a CATALOGUE of the extensive collection of STRAWBERRIES cultivated at Egglescliffe, is now ready, and can be had on application. Egglescliffe, Yarm.

STRAWBERRY PLANTS.—Strong, for immediate planting. PRICED DESCRIPTIVE LIST may be had.
STEPHEN BROWN, Nurseryman, Sudbury, Suffolk.

CUTHILL'S STRAWBERRY PLANTS.—Black Prince, Princess Royal, Richard III., Highland Mary, Newton Seedling, and the splendid Prince of Wales, all at 5s. per 100, all for bearing in 1866. Dr. Lindley has often said, "To make sure of a crop, have CUTHILL'S Breed."
SPAWN, 5s. per Bushel. Mushroom Pamphlet, with New Appendix, 1s. 3d.; Market Gardening, 1s. 6d.; Cucumber and Melon, 1s.; Strawberry, new system, 1s.; Potato, &c., 1s. 6d.
PRINCE ALBERT WINTER CUCUMBER, 1s. per packet. Stamps or Order on Camberwell Green.
JAMES CUTHILL, Camberwell, London, S.

20,000 STRAWBERRY PLANTS of all the popular kinds; warranted true; well rooted. To be sold reasonable. Price upon application.
CATALOGUE of NEW and CHOICE PLANTS of 1865, upon application to
DILLISTONE, BROTHERS, & Co., Sturmer and Woodlands Nurseries, near Halstead, Essex.
Two minutes walk from the Sturmer Station, Great Eastern Railway.

The Goldfinder Strawberry.
JAMES SCLATER AND CO., Devon Nurseries, near Exeter, as the largest Fruit Growers in the West, after 15 years' trial, can with all confidence recommend this fine STRAWBERRY, particularly to Market Gardeners, as the finest early known. Forces well, and is a most abundant and certain cropper. Fruit of this Strawberry grown in the open fields we sold in quantity in London, Manchester, Exeter, and other towns in the last week of the past May. The fruit is large and solid, and colour brilliant scarlet.
Strong Plants 10s. the 100, or 80s. the 1000.
Orders received by Messrs. HURST & SON, Seed Merchants, Leadenhall Street, London, E.C.; and Mr. JAMES VEITCH, Royal Exotic Nursery, Chelsea, S.W.

Castle Kennedy Fig.
PETER LAWSON AND SON, London and Edinburgh, have made arrangements to send out the above valuable acquisition in OCTOBER NEXT, and are now booking orders, which will be executed in strict rotation as received.
Plants 10s. 6d. each; a few extra strong at 21s. each.
Special terms to the Trade, and circulars with list of awards and further particulars may be had on application.

NEW GRAPE, "ROYAL VINEYARD," the best late White Grape extant. Strong planting Canes, 10s. 6d. each; strong fruiting, 21s. each.
B. S. WILLIAMS, Paradise and Victoria Nurseries, Holloway, London.

GRAPES.—To be Sold, about 160 Bunches, hanging in a Greenhouse, just beginning to ripen, and can be gathered as required.—Apply to Mr. COLLINGWOOD, Harringay Farm, Hornsey, N.

Pines.
B. S. WILLIAMS begs to announce that he has a fine Stock of the above, including all the best kinds. Prices on application.
Paradise and Victoria Nurseries, Holloway, London, N.

Pines.—Pines wanted Wholesale.
WANTED to meet with a Lot of CLEAN PINES that will Fruit in Succession from next January, four or five per month; and a Lot of SUCKERS for Succession Houses.
Address with price to G. PROFIT, Gardener, Upper Avenue Road, N.W.

WANTED, a few FRUITING and SUCCESSION PINE PLANTS, SMOOTH CAYENNE, PROVIDENCE, JAMAICA, and QUEENS. Must be clean and well grown.
G. H., Post-office, Henley-on-Thames.

Genuine Garden and Agricultural Seeds.
JAMES CARTER AND CO.,
SEED FARMERS, MERCHANTS, and NURSERYMEN,
237 and 238, High Holborn, London, W.C.

NEW and GENUINE AGRICULTURAL, GARDEN, and FLOWER SEEDS.
Special prices and advantageous offers on application to
JAMES FAIRHEAD & SON,
Seed Growers and Merchants, 7, Borough Market, London, S.E.

RAYNBIRD, CALDECOTT, AND BAWTREE,
SEED FARMERS and MERCHANTS,
89, Seed Market, Mark Lane; and Basingstoke.
Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

H. AND F. SHARPE,
SEED GROWERS and MERCHANTS, Wisbech.
SPECIAL PRICED LIST of NEW SEEDS on application.

TO THE TRADE.
SUTTON'S STUDENT PARSNIP SEED, 1s. per lb.
VARIEGATED KALE SEED (special), 2s. per lb.
SWEET WILLIAM SEED do. 9d. per oz.
DELPHINIUM FORMOSUM SEED, 3s. 6d. per lb.
1-year's SEEDLING OAKS, 2s. 6d. per 1000.
FERN ASPLENIUM BULBIFERUM, 1s. 6d. each, 4-in. pots.
FRANK WARWICK, Seed Merchant, Sleaford.

DRUMHEAD CATTLE CABBAGE PLANTS, 3s. per 1000, prepaid, may be had of
Mr. A. WILKIN, Tiptree, Kelvedon, Essex.

DICKINSON'S NEW ITALIAN RYE-GRASS SEED is now ready for delivery. Sold only by himself to Agriculturists, and for present payment, at 4ss. per quarter, or 7s. per bushel.
New Park, Lymington, Hants.

Meadow Grass Seeds for Autumn Sowing.
SUTTON AND SONS would recommend MEADOW and PASTURE GRASS SEEDS to be SOWN EARLY in the Autumn, or not until the Spring.
Royal Berkshire Seed Establishment, Reading.

NEW TRIFOLIUM INCARNATUM.
" " late variety.
ITALIAN RYE-GRASS, imported Seed.
JAMES CARTER AND CO. have fine samples of the above at very low prices. Prices and samples on application.
JAMES CARTER & Co., 237 & 238, High Holborn, London, W.C.

New Late Trifolium.

SUTTON AND SONS have just received a supply of each of the NEW VARIETIES of TRIFOLIUM—LATE RED and LATE WHITE. The quantity of feed is quite equal to the Common variety, with the advantage of coming in a fortnight later. The present prices are, for

NEW LATE RED FLOWERING, 8*d.* per lb. } cheaper by
NEW LATE WHITE FLOWERING, 9*d.* per lb. } the cwt.
Also the COMMON TRIFOLIUM INCARNATUM, 4*d.* per lb., cheaper by the cwt. Carriage free, except small parcels.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Improvement of Grass Lands

BY SOWING GOOD SEEDS OF THE MOST SUITABLE KINDS.

SUTTON'S RENOVATING GRASS SEEDS

SHOULD NOW BE SOWN.

These Seeds consist of PERENNIAL CLOVERS and FINE GRASSES for improving the bottom.

8 to 12 lb. per acre will be sufficient, and will effect a great increase in the produce.

SUTTON & SONS,
Royal Berkshire Seed Establishment,
Reading.

Seeds from Choice Strains.

B. S. WILLIAMS can now supply good Seeds of the following:—

CINERARIA (Weatherill's extra choice strain).—B. S. W. has secured at a great expense the entire stock and right of exclusive sale from Mr. Weatherill, of his, the best strain of Cineraria in existence, and can now offer packets at the following prices:—3*s.* 6*d.* and 5*s.*

CALCEOLARIA (Herbaceous), from a fine strain, 2*s.* 6*d.* and 3*s.* 6*d.* per packet.

PRIMULA (Williams' superb strain), the finest fringed and the best coloured flowers in cultivation. Red, White, or Mixed Seed, 2*s.* 6*d.*, 3*s.* 6*d.*, and 5*s.* per packet.

Paradise and Victoria Nurseries, Holloway, London, N.

Gladioli.

CHARLES VERDIER, Fils, NURSERYMAN, No. 32, Rue du Marché aux Chevaux, Paris (Successor to the old-established house of Victor Verdier & Charles Verdier), has published his DESCRIPTIVE CATALOGUE of GLADIOLI for the season, which can be had on applying to his Agents, Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, E.C.

He recommends particularly the New Sorts as under:—

EURYDICE (SOUCHET).—Flower large, perfect form, pure white, flamed with lively carmine rose. Perfection.

LORD BYRON (S.)—Very brilliant scarlet, spotted and striped with pure white. A very effective plant.

MARÉCHAL VAILLANT (S.)—Flower large, good form, very brilliant scarlet, very large pure white spot. The shading of this fine plant produces an unequalled effect.

MILTON (S.)—Flower very large, perfect form, white slightly shaded with rose, very largely flamed with red. Extra.

NEWTON (S.)—Flower large, perfect form, dark crimson red, the centre white, with numerous white lines. A very fine new shade.

SHAKESPEARE (S.)—Flower very large, perfect form, white very slightly flamed with carmine rose, very large rose spot. Perfection

CHARLES VERDIER begs to inform Amateurs that these Gladioli have a most delightful smell, and that he can deliver the Bulbs in the highest perfection.

To the Seed Trade.

THE NEW INVINCIBLE SCARLET SWEET PEA.—Seed from the New Crop has now been saved, and can be supplied for Autumn Sowing.

This invaluable Pea is unquestionably one of the most important novelties among annuals of late years introduced. A First-class Certificate was presented by the Council of the Royal Horticultural Society on July 11 last, and it is described in the *Gardeners' Chronicle* as "a very fragrant and high-coloured Pea." It has been this season growing in the grounds of the Society for inspection. The flowers are strikingly brilliant, and entirely distinct from any other; the upper petals intense scarlet, with a slight variation in the lower ones, which have a deep crimson tinge. It also possesses the desirable quality of Permanence of Colour. Unlike the common Scarlet, whose colour after first opening grows paler till the flower goes off, the Invincible retains its brilliance throughout, a mass of it consequently presenting an extraordinary contrast when seen near a mass of the common Scarlet.

The New Colour being so much wanted among this popular tribe, a small quantity offered in packets last year was consequently rapidly sold out, and numbers who purchased have spoken of it in very high terms.

Prices to the Trade sent on application. Orders are solicited early, as the Stock may be short, and many orders are already received.

STEPHEN BROWN, Seed Grower, Sudbury, Suffolk.

BRIGHTON and SUSSEX SEED WAREHOUSE. The EARLIEST PEA known, gathered May 7. The earliest date on record.

The following are extracts from a few of the numerous Letters received:—

From Mr. JONES, *Gardener to* Lord Leconfield, *Petworth House, Sussex.*

"I sowed Carpenter's Express Peas on the 20th November, and gathered the first dish on the 7th May. I had Daniel O'Rourke and Carpenter's Express side by side, but gathered first from Carpenter's Express."

From Mr. MARSH, *Gardener to* Marchioness of Bath, *Worthing, Sussex.*

"I made a sowing of Carpenter's Express and Sangster's No. 1 side by side, and I found Carpenter's Express to be up about a week before Sangster's."

From Mr. KEMSLEY, *Gardener to* C. Catt, Esq., *Brighton.*

"I made a sowing of Carpenter's Express and Daniel O'Rourke side by side, and I gathered Carpenter's Express at least a fortnight before the other was ready."

From Mr. DAWES, *Gardener to* H. Pegg, Esq., *Brighton.*

"I made a sowing of Carpenter's Express on the same day as Sangster's No. 1 and also Morning Star, and I gathered from Carpenter's Express 12 days before either of the others."

From Mr. JOHN COX, *Gardener to* W. Wells, Esq., *Redleaf, Staplehurst, Kent.*

"Having tried Carpenter's Express Peas, I beg to say that I gathered in quantity this season (1864) nine days in advance of any other early variety."

Mr. MAXWELL, *of the Gardens, Eton Park, Oakham, in a letter to the* GARDENERS' CHRONICLE *of June* 12, 1865, *on Early Peas, says:*—

"Carpenter's Express is a fortnight earlier than Sangster's No. 1, and 10 days earlier than Dillistone's."

From Mr. C. COURT, *Gardener to* Captain Bratt, *Chichester.*

"I grew Carpenter's Express side by side with Sangster's No. 1, and found it to be seven days earlier."

From Mr. ALEXANDER STEWART, *Gardener to* Colonel Leslie, *Slindon House, Arundel.*

"Carpenter's Express were sown side by side with Early Warwick and Early Frame, and I gathered from Carpenter's Express full a fortnight before either of the others."

THE EDITOR *of the* SUSSEX EXPRESS *of the* 1*st July*, 1865, *reports the following:*—

"Mr. Thomas Jenner, Lewes, sowed both Carpenter's Express and Sangster's No. 1 on the same day, and gathered from Carpenter's Express eight or nine days before the other sort. This seems to be universally the case."

To CARPENTER'S EXPRESS PEAS have been awarded Two First-class Certificates at the Brighton Horticultural Society's Exhibitions as the Earliest Pea. 5*s.* per quart.

Early orders are solicited, as the stock is not large.

EDWARD CARPENTER, Seed Merchant and Grower, 96, St. James Street, Brighton.

CATALOGUES on application.

REIGATE SILVER SAND.—Good quality, 7*s.* per ton Cash, delivered loose into the Trucks at the Reigate Station. Best quality PEAT, LOAM, SPHAGNUM, ROCK, SANDSTONE, &c., on sale.

W. SHORT, Sand and Peat Depot, Reigate, Surrey.

Early Spring Feed.—Seeds for Autumn Sowing.

PETER LAWSON AND SON can supply of excellent quality—

ITALIAN RYE-GRASS	RYE
TRIFOLIUM INCARNATUM	WHITE MUSTARD
WINTER TARES	

CLOVER and NATURAL GRASS SEEDS for PERMANENT PASTURE, &c.

Also New Seed of BROMUS SCHRADERI, 2*s.* 6*d.* per lb., and the New Hardy Clover, TRIFOLIUM STRIATUM, 2*s.* per lb.

PETER LAWSON & SON, the Queen's Seedsmen, 28, King Street, Cheapside, London, E.C.; and at Edinburgh.

To the Trade.

JEAN VERSCHAFFELT, Ghent, begs to offer the following at the undermentioned low prices, viz.:—

AZALEA INDICA, nice plants with buds, best varieties, per 100, £5.
" " fine plants on stems 12 to 15 inches high, per 100, £8 to £10.
" " stocks fit for grafting, per 100, £1.
CAMELLIAS, bushy plants, 1 to 1½ ft. high, without buds, per 100, £5.
" nice plants with buds, per 100, £6.
" nice plants, stronger, per 100, £8, £10, £12, and upwards.
" strong bushy plants, on large stocks, beautifully set, per doz., £4.
" stocks fit for grafting, per 100, £1 8*s.*
ARUNDO DONAX VARIEGATA, fine strong plants in pots, per doz., £1 4*s.*
CITRUS SINENSIS (Otaheite Oranges), beautiful dwarf plants with a great number of fruit, per doz., £1 4*s.*
LILIUM LANCIFOLIUM ALBUM, per 100, £2.
" " " extra large bulbs (the largest ever offered), per 100, £2 10*s.*
" " RUBRUM, per 100, £2.
" " " extra large sized bulbs, £3.
" " PUNCTATUM (true), extra size of bulbs, per doz., £2 8*s.*

Early Orders are respectfully solicited, and are to be directed to JEAN VERSCHAFFELT, Nurseryman, 43, Rue de la Caverne, Ghent, Belgium.

☞ Cash or reference required from unknown correspondents.

COCOA-NUT REFUSE delivered with in 24 h[illegible] of Charing Cross, at [illegible] per ton.

For particulars, and how to use it, see [illegible] *Gardeners'* [illegible] March, 1863; [illegible] PATENT COCOA [illegible] Kingston-upon-Thames.

Postage Stamps or [illegible] Orders payable to J. [illegible] & Co.

BARSHAM'S BRUSHES [illegible] MATS are sold in every [illegible]

CAUTION.—Every Brush [illegible] stamped, J. BARSHAM'S PATENT.

Red Spider — Magnified.

GISHURST COMPOUND, whether [illegible] against Insects and Mildew [illegible] Growing Plants, or as Winter Dressing on Trees [illegible] should be dissolved [illegible] before use. This [illegible] smell, and if the S[illegible] decanted, prevents any [illegible] of foliage. A strength of [illegible] 1 to 2 oz. to the gall[illegible] is recommended for [illegible] Plants; one from 1 to [illegible] Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes, [illegible] 3*s.*, and 10*s.* 6*d.* each.

Wholesale by
PRICE'S PATENT CANDLE COMPANY (LIMITED).

NEW PLANTS.

MR. WILLIAM BULL

BEGS TO ANNOUNCE THAT HIS

NEW LIST OF THE ABOVE IS NOW READY.

Upwards of Two Hundred Prizes and Awards have been made to W. B. for NEW and RARE PLANTS alone at the principal London Shows during the present year.

ESTABLISHMENT for NEW and RARE PLANTS, KING'S ROAD, CHELSEA, LONDON

BARR & SUGDEN. SEED & PLANT MERCHANTS 12 KING ST. COVENT GARDEN W.C.

THE SPRING FLOWER GARDEN AND HOW TO ADORN IT.

See BARR & SUGDEN'S forthcoming

AUTUMNAL FLORAL GUIDE.

Guernsey Lilies, 5s. 6d. per dozen. | Bella Donna Lilies, 5s. 6d. per dozen.

BARR AND SUGDEN, SEED and PLANT MERCHANTS, 12, KING STREET, COVENT GARDEN, LONDON, W.C.

CLIANTHUS DAMPIERI IN VARIETIES.

MESSRS. E. G. HENDERSON & SON

HAVE MUCH PLEASURE IN ANNOUNCING THAT THEY ARE

NOW PREPARED TO OFFER SEEDS OF THIS SPLENDID PLANT

IN ITS REMARKABLE VARIETIES OF COLOUR.

From the various reports of a White-flowered variety, it has been eagerly sought after as a first-class Novelty, but not until the present has it been offered in its genuine diversified features.

The party from whom the present Seed is purchased by E. G. HENDERSON & SON exhibited the White-flowered variety in Australia, which excited great interest and admiration, and it is from the original White-flowered variety that the present additional varieties now offered were derived; it being found that the Seed produced from the White-flowered Plant originated six or seven other shades, varying from white, to white bordered with rich rose crimson; including the various shades of scarlet, and crimson with the black boss-like blotch. The diversity of colour obtained from the collection of plants from which the Seed now offered is produced, proves that the species sports into various forms, including some of the most unexpected Novelties yet offered.

One of the most beautiful varieties originated in the group referred to, the Seed from which is included in that now offered, is white throughout the centre spaces of the flower, very elegantly and uniformly belted with rich crimson, thus yielding an unique and exquisite combination of colour, with the brilliant black boss-like blotch on the base of the upper lobe. A Figure of this variety will be published separately early in September, affording a beautiful illustration of the varieties included in the Seed now offered.

For the protection of the Public the Seed will be sent out in Packets, with the Seal of the Firm, to ensure its genuine source.

Packets—First Size, 24 Seeds, 5s.; Second, 12 Seeds, 2s. 6d.

P.S.—The Seed now offered having been produced from Cultivated Plants in Australia by the Raiser of the varieties adverted to, is similar in quality and colour to that obtained from home-grown or English plants, and differs from that collected on its native sandy plains, in being of a richer brown tint, and more plump in substance, the native being often gathered prematurely, and generally of a paler hue.

WELLINGTON NURSERY, ST. JOHN'S WOOD, LONDON, N.W.

JAMES PHILLIPS & CO.,

HORTICULTURAL GLASS MERCHANTS,

180, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

REDUCED PRICES OF SHEET GLASS FOR HORTICULTURAL PURPOSES.

ENGLISH SHEET GLASS.

Packed in Crates of about 280 feet.

	16-ounce.	21-ounce.
Best	$5\frac{1}{2}d.$ ..	$7\frac{1}{4}d.$
Seconds	$3\frac{3}{4}d.$	$5d.$
Thirds	$2\frac{1}{2}d.$ ..	$3\frac{1}{2}d.$
Fourths	$2\frac{1}{4}d.$ ..	$3\frac{1}{4}d.$

HORTICULTURAL GLASS,

Stock Sizes, 16-ounce. In 100 feet Boxes.

These prices only apply to the sizes stated.

11 by 9	12 by 9	13 by 9	14 by 9		4ths.	3rds.
12 ,, 10	13 ,, 10	14 ,, 10	15 ,, 10		12s. 6d.	14s. 0d.
13 ,, 11	14 ,, 11	..	..			
14 ,, 12	15 ,, 12	15 ,, 11	16 ,, 11			
15 ,, 12	14 ,, 12	16 ,, 12	17 ,, 12			
16 ,, 13	17 ,, 13	20 ,, 12	21 ,, 14		13s. 6d.	16s. 0d.
17 ,, 13	20 ,, 13	18 ,, 13	..			
18 ,, 14	17 ,, 14	21 ,, 13	..			
19 ,, 14	20 ,, 14	18 ,, 14	..		16 to 17 oz. to the foot.	

FOREIGN SHEET GLASS.

In Cases for cutting up, in Sizes as Manufactured.

	16-oz., 200 ft. £ s. d.	16-oz., 300 ft. £ s. d.	21-oz., 200 ft. £ s. d.
Best ..	3 7 0	..	5 14 0
Seconds ..	3 0 0	..	4 13 0
Thirds ..	..	2 5 0	2 10 0
Fourths ..	..	1 15 0	2 0 0

GLASS for ORCHARD HOUSES,

As supplied by us to Mr. Rivers, to the Royal Horticultural Society, and to most of the Nobility, Clergy, and Gentlemen of the United Kingdom.

Each Box contains 100 feet.

		16 to 17 oz.	21 oz.
20 by 12	Fourths ..	13s. 6d. ..	15s. 0d.
20 ,, 13	Thirds ..	16s. 0d. ..	19s. 0d.
20 ,, 14	Seconds ..	English. ..	English.
20 ,, 15	Best ..	18s. 0d. ..	23s. 0d.

The above prices include the Boxes.

We recommend 3rds quality at 16s., or 21-ounce at 19s. (as supplied to Mr. Rivers). Best and Seconds are intended only for pictures or dwelling-houses.

SMALL SHEET SQUARES.

In 100 feet Boxes.

6 by 4 .. $6\frac{1}{2}$ by $4\frac{1}{2}$ ..	7 by 5 .. $7\frac{1}{2}$ by $5\frac{1}{2}$	11s.6d.
8 ,, 6 .. $8\frac{1}{2}$,, $6\frac{3}{8}$ ..	9 ,, 7 .. $9\frac{1}{2}$,, $7\frac{1}{2}$	
	10 ,, 8 .. $10\frac{1}{2}$,, $8\frac{1}{2}$	12s.6d.

Boxes 2s. each, returnable at full price.

All small squares from 6 by 4 to $10\frac{1}{2}$ by $8\frac{1}{2}$ are cut from pieces, consequently there is only one quality.

London Agents for Hartley's Patent Rough Plate.

Perforated Glass for Ventilation.

Glass Shades, Ebony and Gilt Stands, Gas and Lamp Glasses, Chimney and Globes, &c.

Glaziers' Diamonds from 10s. to 21s. each.

GLASS TILES and SLATES in SHEET and ROUGH PLATE. PLATE GLASS, PATENT PLATE, and HARTLEY'S IMPROVED ROUGH PLATE. PAINTS, COLOURS, VARNISHES, &c.

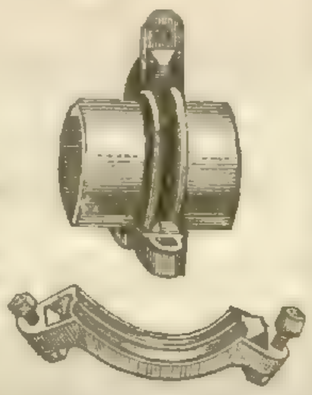
GENUINE WHITE LEAD.	FINE OAK VARNISH.	LINSEED OIL.
ANTI-CORROSION PAINT.	,, ,, CARRIAGE.	BOILED OIL.
LINSEED OIL PUTTY.	PATENT DRYERS.	TURPENTINE.

Lead in Sheets or Cut to Sizes, Lead Pipe, Lift Pumps, Water Closets, and Plumbers' Brass Work of every description.

PORTABLE HOT-WATER APPARATUS,

WITH TRUSS' PATENT JOINTS FOR HEATING CONSERVATORIES, HOTHOUSES, &c.

T. S. TRUSS



Begs to offer complete HOT-WATER APPARATUS for GREEN-HOUSES (consisting of 4-inch Pipes and Joints, Saddle Boiler, Fire Doors, Bars, Soot Doors, Damper, Supply Cistern, Feed and Air Pipes, Pipe Stands, &c., of the best quality), delivered to any Railway Station in England, and to erect the same within 25 miles of London, at the following prices:—

4-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection.
15 feet by 8 feet ..	.. £8 10 0 ..	£2 0 0	30 feet by 12 feet ..	.. £11 15 0 ..	£2 10 0
20 feet by 10 feet ..	.. 9 0 0 ..	2 0 0	40 feet by 15 feet ..	.. 15 0 0 ..	2 15 0
25 feet by 12 feet ..	.. 10 5 0 ..	2 5 0	50 feet by 15 feet ..	.. 18 0 0 ..	3 0 0

Erection beyond 25 miles of London, Railway Fare for one Man charged extra.

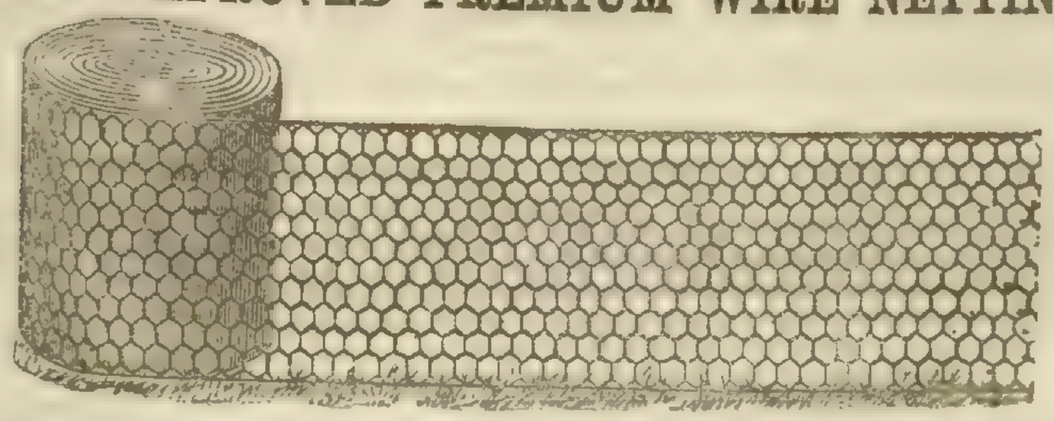
By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints.

Estimates and Plans forwarded on application to

T. S. TRUSS, C.E., 53, GRACECHURCH STREET, LONDON, E.C.

NEW IMPROVED PREMIUM WIRE NETTING.

GREAT IMPROVEMENT,



WITH REDUCED PRICE.

PRICES PER LINEAL YARD, 24 INCHES HIGH.

Size of Mesh	Mostly used for	Light. Japanned.	Light. Galvanized.	Medium. Japanned.	Medium. Galvanized.	Strong. Japanned.	Strong. Galvanized.	Extra Strong. Japanned.	Extra Strong. Galvanized.
1 inch	Hares, Dogs, Poultry ..	3d.	4d.	$3\frac{3}{4}d.$	5d.	$4\frac{1}{2}d.$	6d.	$5\frac{1}{2}d.$	7d.
2 inch	Game or Poultry Netting	$3\frac{1}{2}d.$	$4\frac{1}{4}d.$	4d.	5d.	5d.	$6\frac{1}{2}d.$	$6\frac{1}{2}d.$	8d.
1½ inch	Small Rabbits, Hares, &c.	4d.	$4\frac{3}{4}d.$	$4\frac{3}{4}d.$	6d.	$5\frac{1}{2}d.$	7d.	7d.	9d.
1 inch	Smallest Rabbits	5d.	6d.	$5\frac{3}{4}d.$	7d.	7d.	9d.	9d.	11d.

Quantities of 100 yards or upwards delivered free at nearly all the principal Railway Stations and Shipping Ports England; and 200 yards or upwards delivered free to most parts of Scotland and Ireland.

*** *Every description of Netting warranted to give satisfaction, and if not approved will be exchanged or may be returned unconditionally.*

J. B. BROWN AND CO. OFFICES: 18, CANNON STREET, CITY, LONDON, E.C., Nearly opposite ST. SWITHIN'S LANE and LONDON STONE, and near LONDON BRIDGE.

WAREHOUSE (where Netting is kept in stock), 148, UPPER THAMES STREET, E.C., opposite the CITY of LONDON BREWERY, and close to the LONDON BRIDGE STEAM BOAT PIER.

SHAW'S TIFFANY.

For samples and prices apply to

J. SHAW & Co., 26, Oxford Street, Manchester.

GARDEN TARPAULINGS, 8 ft. by 4 ft., 32s. per doz., with eyelet holes. TRANSPARENT SHEETING, 1 yd. wide, 1s. 2d. per yard run. WATERPROOF CAPES, 3 ft. deep, 3s. 6d. each. POLICE CAPES, 18s. and 24s. per doz. HORSES' LOIN CLOTHS, lined with woollen, 7s. each. DRIVING APRONS, 10s. Cart Tarpaulings, Box Covers, Hoses, Lines, Twines, Fishing Nets, Garden Nets, Sheep Nets, and Rabbit Nets.

R. RICHARDSON, 99, Euston Road, London, N.W.

N.B.—Wire, 2-in. Mesh, to enclose Poultry, 4½d. per square yard. Galvanized, 1½ Mesh, 2 ft. wide, 5d. per yard.

BENJAMIN EDGINGTON'S RICK CLOTHS, New and Second Hand.

BENJAMIN EDGINGTON'S MARQUEES and TENTS.

BENJAMIN EDGINGTON'S FLAGS and BANNERS of all NATIONS.

BENJAMIN EDGINGTON'S ILLUSTRATED CATALOGUE sent free by post.

BENJAMIN EDGINGTON'S only Establishment, 2, Duke Street, London Bridge, S.E.

GARDEN BORDER EDGING TILES, in great variety of patterns and material, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down require no further labour and expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.

F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.

Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also TESSELATED PAVEMENTS of more enriched designs than the above.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cements, &c.

To be obtained of F. & G. ROSHER, at their Premises as above.

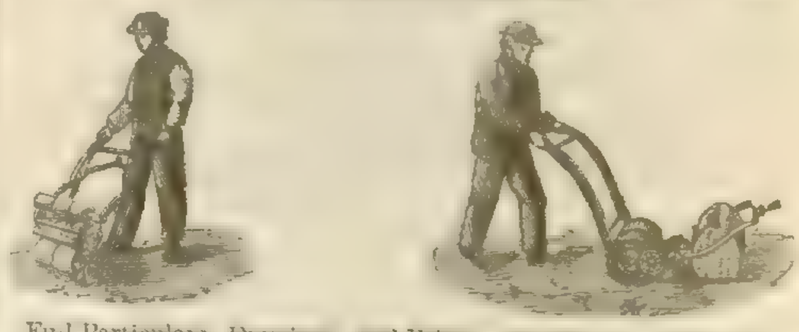
SILVER SAND (REIGATE, best quality), at the above addresses—14s. per Ton, or 1s. 3d. per Bushel; 2s. per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less.

FLINTS, BRICK BURRS or CLINKERS, for Rockeries and Grotto Work.

F. & G. ROSHER.—Addresses see above.

N.B. Orders promptly executed by Railway.

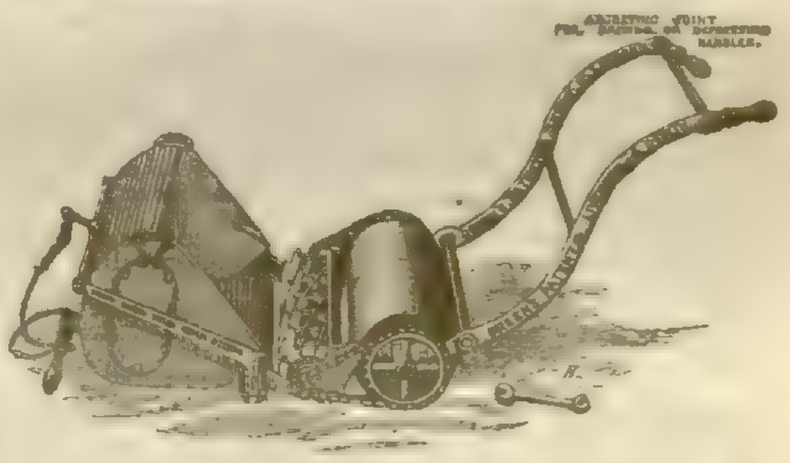
SHAW'S PATENT FLEXIBLE SELF-ADJUSTING LAWN MOWING MACHINES.

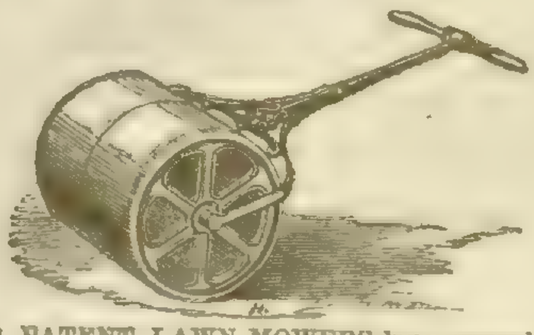


Full Particulars, Drawings, and Prices, post free on application to the Patentee and Manufacturer.

JOHN SHAW, Junction Works, New Wortley, Leeds.

GREEN'S PATENT SILENS MESSOR, or NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.





GREEN'S PATENT LAWN MOWERS have proved to be the best, and have carried off every Prize that has been given in all cases of competition. Above 26,000 have been sold since the year 1856.

Illustrated Price Lists of Lawn Mowers and Garden Rollers Free.

THOMAS GREEN & SON, Smithfield Iron Works, Leeds; 2, Farringdon Road, Holborn Hill, London, E.C.; Hadwin's Buildings, Tithebarn Street, Liverpool; and 19, Eden Quay, Dublin.

PATENT GUTTA PERCHA SOLES.—IMPORTANT TO GARDENERS.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. GLENNY, Esq., the celebrated Florist:—

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles.—Your obedient servant, "G. GLENNY.

Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Calbotype trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town or country.

* The GUTTA PERCHA COMPANY, Patentees, 18, Wharf Road, City Road, London, E.C.

Paul's Nurseries, Waltham Cross, N.

ENTRANCE FROM THE PLATFORM, WALTHAM STATION, GREAT EASTERN RAILWAY. HALF AN HOUR'S RIDE FROM LONDON.

WM. PAUL (Son and Successor to the late A. PAUL) begs to announce that his COLLECTION of ROSES is STILL in BLOOM, and comprises many of his own Seedlings, and other novelties not to be found in any other collection. In addition to the Roses, BEATON'S GERANIUMS, and a second and third generation from them, will be blooming throughout the summer and autumn. The Collection of HARDY TREES with FINE FOLIAGE is unrivalled, and many large and perfect specimens of the choicer CONIFERS are now in fine condition for removal, and are well worthy of the attention of gentlemen and horticulturists who contemplate planting. Bearing trees of all the LEADING FRUITS, Dwarfs and Standards, Pyramids and Espaliers, in fine health and true to name. Inspection respectfully invited.

Waltham Cross, London, N.

DOBSON'S UNEQUALLED SEEDS.

CALCEOLARIA, hybridized, 1*s.* 6*d.*, 2*s.* 6*d.*, 3*s.* 6*d.*, and 5*s.*
CINERARIA, ex. ex., 1*s.*, 2*s.* 6*d.*, and 5*s.*
PRIMULA SINENSIS FIMBRIATA, 1*s.*, 2*s.* 6*d.*, and 5*s.*
PELARGONIUM, show and fancy, 2*s.* 6*d.* and 5*s.*
STOCK, SCARLET INTERMEDIATE, 6*d.* and 1*s.*
SWEET WILLIAM, 6*d.* and 1*s.*
HOLLYHOCK, 1*s.* and 2*s.*

The above Seeds are strongly recommended for their superior quality, especially to amateurs who grow but few and like them good.

J. DOBSON & SONS, Woodlands Nursery, Isleworth, W.

Lobelia Snowflake.

Extract from GARDENERS' CHRONICLE :—

"Mr. Cox, Gardener to Lord Beauchamp, exhibited a beautiful White Lobelia called Snowflake, to which a First-class Certificate was awarded. Floral Committee of the Royal Horticultural Society, July 25, 1865."

JOHN AND CHARLES LEE having acquired the stock of this desirable NEW BEDDING PLANT, they have much pleasure in offering SEED in SEALED PACKETS for present sowing for spring pot culture, for which it is well adapted.

As a BEDDING LOBELIA it stands unrivalled. The plant is of dwarf compact habit: the flowers are large, perfectly even, and of the purest white. The stock comes perfectly true from seed.

Price 2*s.* 6*d.* per packet. Price to the Trade on application.

Royal Vineyard Nursery and Seed Establishment, Hammersmith, W.

WELLINGTONIA AUREO-VARIEGATA.

Height	11 feet 6 inches.
Circumference of Branches	30 feet
Circumference of Trunk ..	2 feet 4 inches.
This Season's shoot	2 feet 9 inches.

Originated at "The Lough Nurseries," Cork.

This singular Tree is now in great beauty; every shoot is heavily marked with rich gold, which hangs in tassels, and when seen in sunshine is most beautiful and unique.

The Variegation has been constant since the Tree was one foot high.

It may be seen at the above address until the end of October, the usual time for stripping the cuttings.

RICHARD HARTLAND, The Lough Nurseries, Cork.

Northampton Nurseries. Important to Planters.

JOHN PERKINS begs to call the attention of Noblemen, Gentlemen, and others engaged in Planting to his large stock of 1, 2, and 3 years BLACK THORN (for covert planting). Of this he has upwards of Two Millions, the greater part of which is extra fine. Also large quantities of

BERBERIS AQUIFOLIA	HORNBEAM
BERBERIS DULCIS	HAZEL
SINGLE GORSE	BIRCH
GREEN BOX	BEECH
LAURELS	ELMS
EVERGREEN PRIVETS	OAKS, &c.

J. P.'s stock of all kinds of Fruit, Forest, Ornamental Trees, &c., is very extensive, and this season remarkably fine and in excellent condition for removal, having been frequently transplanted. Samples sent to any given address.

CATALOGUES of GENERAL NURSERY STOCK forwarded post free upon application to

52, Market Square, opposite the Corn Exchange, Northampton.

J. P. begs his correspondents will make use of the above full Address, as there are others of the same name in the town.

ARCHIBALD HENDERSON respectfully announces to the Nobility, Gentry, and Inhabitants of the Town of Croydon and neighbourhood, also to the Public generally, that he has purchased the STOCK, and succeeded to the NURSERY and SEED BUSINESS of Messrs. PRIDHAM & SON, Sion Nursery, and North End, Croydon, and sincerely hopes to merit the support so liberally conferred upon his predecessors.

A. H., in addition to the above, will devote his time to LANDSCAPE GARDENING, HOTHOUSE BUILDING, &c., and his experience as a general cultivator will enable him, when consulted, to give instructions on all matters connected with Gardening.

Ladies and Gentlemen waited upon either in town or country.

Postal Address, Sion Nursery, Thornton Heath, Surrey, S.

MESSRS. PRIDHAM AND SON beg to announce to the Public that they have disposed of their NURSERY and SEED BUSINESS to MR. ARCHIBALD HENDERSON (late Superintendent to the Horticultural Society of London, and of His Grace the Duke of Sutherland's Gardens, at Trentham, Staffordshire), and take this opportunity of offering their sincere thanks for the kind and generous support they have been favoured with, and which they take the liberty of soliciting for their Successor, who, they believe, from his past experience, will be found worthy of general confidence and support.

Mr. A. HENDERSON takes to the Business from the 1st of July, and has kindly consented to receive all Accounts due to the late Firm.

Sion Nursery, Thornton Heath, Surrey, July 1st, 1865.

DUTCH FLOWER ROOTS.

JAMES VEITCH,

ROYAL EXOTIC NURSERY, CHELSEA, S.W.,

BEGS TO ANNOUNCE THAT HE HAS RECEIVED HIS

ANNUAL SUPPLY OF BULBOUS ROOTS FROM HOLLAND,

and is pleased to say that they are in excellent condition.

CATALOGUES are now ready, and will be forwarded post free on application.

J. V. desires to impress upon those who patronise him the great advantage of giving him their orders early, as the successful Cultivation of Bulbs depends in a great measure upon their being planted early in the season.

DUTCH ROOTS.

JOHN & CHARLES LEE

HAVE RECEIVED A

LARGE IMPORTATION OF HYACINTHS AND OTHER DUTCH ROOTS

IN VERY FINE CONDITION.

CATALOGUES Post Free on application.

ROYAL VINEYARD NURSERY and SEED ESTABLISHMENT, HAMMERSMITH, LONDON, W.

IMPORTED DUTCH FLOWER ROOTS.

JAMES CARTER & CO.'S

FIRST IMPORTATION OF PICKED BULBS OF

HYACINTHS, CROCUS, TULIPS, NARCISSUS, ETC.,

HAS ARRIVED IN FINE CONDITION, AND THEY BEG RESPECTFULLY TO SOLICIT EARLY ORDERS.

JAMES CARTER & Co. have also to announce that the

AUTUMN SUPPLEMENT OF THE GARDENER'S AND FARMER'S VADE-MECUM

Is now published, and will be found to contain (with Cultural Directions) complete lists of DUTCH and CAPE BULBS, to which is added a LIST of PLANTS, including particulars of their large and important COLLECTION of FRUITING VINES in POTS, and STRAWBERRIES.

The Autumn Supplement will be forwarded Gratis and Post Free on application to

JAMES CARTER AND CO., 237 and 238, HIGH HOLBORN, LONDON, W.C.

SUTTON'S

UNRIVALLED COLLECTIONS OF

BULBOUS FLOWER ROOTS,

FOR BLOOMING DURING THE WINTER AND SPRING.

These are every year becoming more popularly cultivated, and the HYACINTHS, ANEMONES, TULIPS, &c., which we imported last season from the celebrated Dutch Florists, Messrs. de Boom, Veen, Byvoet, and others, having been so generally admired, *we have imported from the same parties, and still more extensively. As many of these sorts are at present unknown to English cultivators, we have considered it advisable to make up Collections* of the sorts which, after careful observation, we have found to be the best worthy of cultivation, being THE MOST SHOWY AND MOST CERTAIN TO THRIVE WELL under any ordinary treatment, and for which any good Garden soil (not particularly heavy) will be suitable.

SUTTON'S COLLECTION of HARDY FLOWER ROOTS for OPEN GROUND.

		£	s.	d.
No. 1.	A large and Choice Collection of ANEMONES, HYACINTHS, CROCUSES, TULIPS, RANUNCULI, NARCISSI, SNOWDROPS, IRISES, GLADIOLI, &c.	2	2	
No. 2.	Ditto ditto, consisting of all the same kinds, in Reduced Quantities	1	1	
No. 3.	A Small and Choice ditto	0	15	

SORTS for FLOWER POTS and GLASSES.

		£	s.	d.
No. 4.	A splendid Collection of HYACINTHS, JONQUILS, NARCISSI, EARLY TULIPS, New large CROCUSES, &c.	2	2	
No. 5.	The same in Reduced Quantities	1	1	
No. 6.	A Small and Choice Assortment	0	10	

N.B. A complete LIST of the above may be had post free, and any article specified, if not required, will be omitted, and additional quantities of others included.

The very low charges now made for the above Choice Collections of Flower Roots will, it is believed, insure a continually increasing demand.

Early Orders are requested before the more scarce kinds are all sold.

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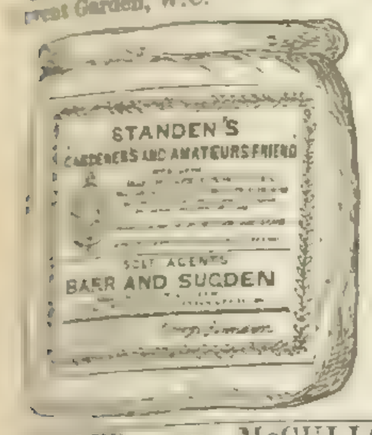

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The Gardeners' Chronicle.

SATURDAY, SEPTEMBER 2, 1865.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY,	Sept. 5	Royal Horticultural (Floral and Fruit Committees), at S. Kensington ..	11 A.M.
WEDNESDAY,	— 6	Edinburgh International Fruit Show	11 A.M.
SATURDAY,	— 9	Royal Horticultural (Weekly Show), at South Kensington	2 P.M.

THE Schedule of Prizes for the INTERNATIONAL HORTICULTURAL EXHIBITION of 1866 presents some differences from the schedules of our ordinary metropolitan shows, to which it may be useful in the interests of the exhibition to direct attention. The subjects invited, we may remark at the outset, have been chosen so as to afford an opportunity to all classes of cultivators to take part in the proceedings, and we trust, for the honour of England, that amongst the growers who contribute, every class will be well represented. It is no ordinary occasion this, but one which should afford proof to our continental friends that good gardening is with us the rule, through the length and breadth of the land; and if on this ground alone, we sincerely hope that no one who is able to exhibit good gardening produce, whether flowers, fruits, or vegetables, will hold aloof, but will at once push on with his preparations.

This International, it must be recollected, is to be a monster show, and it will be observed that in accordance with this idea the classes have been so framed as to invite collections and specimens under many varied heads. This is, in fact, the explanation of what some may at first be disposed to regard as an unnecessary multiplication of classes; the intention really having been to provide for as many exhibitors as possible. Confining our remarks for the present to that part of the schedule relating to Plants and Flowers, we observe that the classes for these are arranged under four principal subdivisions. In the first section, devoted to General Collections, will be found the Miscellaneous Stove and Greenhouse Plants and Fine-foliaged Plants of our present shows, along with various classes for New Plants; but in addition to these there are certain classes for Hardy Shrubs and Trees, Hardy Alpine Herbaceous and Variegated Plants, and Annuals shown for effect—classes which will let in a great variety of subjects, both in flower and out of flower, which now we never meet with at our flower-shows, and which will moreover afford opportunities to exhibit to many who would be altogether unable to compete in the classes for tender plants. Hardy trees and shrubs alone, if fairly represented, as surely our nurserymen will take care they shall be, will form a most important feature of the exhibition; while the boxes of Annuals representing parterre gardening, will enable our clever flower gardeners to anticipate, for the benefit of foreign visitors, some of the beautiful effects presented at a later period in the summer flower-garden.

The foregoing are all mixed collections. The second section, however, is devoted to collections representing distinct Families or Natural Orders of plants, such as Orchids, Arads, Ferns, &c. Here the object is to get together materials for effect by securing masses of kindred plants, which may yield characteristic features at various points of the show. Orchids we are accustomed to see in considerable numbers at the principal shows both in London and elsewhere, but we look forward to see them in overwhelming force at the International, and no feature, we imagine, will convey to our foreign friends a better notion of the resources of English gardens than the display of these choice and valuable plants which will be presented to their gaze. In this section, Palms, Cycads, Pandanads, and Tree Ferns are invited, and what is desired by the framers of the Schedule is that these should be in the form of large specimens, such as may be distributed over the show and form centres of attraction, around which the dwarfer-habited subjects may be grouped. We would particularly impress upon those who possess large specimens of these plants, that they will be doing good service to the project by permitting them to form part of the exhibition. In this section, too, occur the novel classes of Hardy and Greenhouse Conifers, which may be made very useful in grouping; while Arads, Araliads, Bromeliads, Marantads, and Cacti come in as so many separate and distinct features, to be worked in wherever they will prove most effective.

In the third section, representing the Genera of plants, the same feature is carried a step further for the sake of breaking up the prize list into convenient portions. Here we get Caladiums, Anthuriums, Nepenthes, Sarracenias, Begonias, Heaths, Rhododendrons, Liliums, Agaves, Yuccas, and such like; the groups brought together in competition for this series of prizes being again intended to form special features, scattered here and there through the exhibition. We find Musas are invited, and these would be expected in the form of large plants, to aid the effects yielded by Palms and Ferns; we find Aucubas in berry, and Evergreen Berberises, which will afford striking variety in fruit and foliage; and we find specimen plants of various prominent genera, as Allamanda, Croton, Clerodendron, Ixora, Dipladenia, Erica, &c., these specimens being required to occupy prominent positions in the final making up of the picture. Orange trees are invited in this division of the schedule, and we trust some respectable examples may be brought forward, which will bear comparison with those shown on the other side of the Channel.

THE fourth section, representing species and their varieties, will contribute most largely to the brilliancy of the show, for here we meet with Azaleas, Rhododendrons, Roses, Pelargoniums, Calceolarias, Fuchsias, and various other popular flowers, which, if represented as they ought to be, always make a grand display of bright and telling colours, but which, as here multiplied and set off by the abundant and varied evergreens which are invited to accompany them, will, we have no doubt, prove to be vastly more effective than ever.

Among the less usual subjects of exhibition brought in here are Standard Rhododendrons with Standard Laurustines, Bays, Portugal Laurels, Hollies, Box trees, &c., all most important elements in the tasteful arrangement of the show. For the first time, too, tolerably good prizes are offered for Zonal, Nosegay, and Variegated Pelargoniums, and we trust some of our growers will lay themselves out to produce better plants than we have yet seen exhibited. The chief difficulty they will have to contend with, is that the show may fall a little early for such subjects, but this should only be an additional incitement to a British gardener to rise superior to all difficulties. As far as regards this particular task, we have no doubt that it can be accomplished, if it is set about in time, so as not to render forcing necessary at the last. Tree Carnations, Tree Fuchsias, Tree Mignonette, Tree Heliotropes, Tree Pelargoniums, Tree Roses, with Pansies, Tulips, Gladioli, Pinks, Pæonies, &c., make up the remainder of this class, which again affords abundant scope for cultivators of every kind and of every degree.

Seedling Flowers, Fruit, and Vegetables have not been overlooked, but will, according to their merit, be rewarded by Certificates. Respecting the remaining features of the Schedule we shall have a few remarks to make hereafter. What we now most earnestly desire is to induce cultivators, everywhere, professional and amateur, to take measures to fill up between them all the classes provided for plants and flowers. The Committee will, we are sure, be only too glad if every prize offered is competed for and won.

WE have received from Mr. JOHN CARSON, a gentleman well-known at Melbourne for the interest he takes in everything connected with Horticulture, some information with respect to a DISEASE with which HOLLYHOCKS are affected to such a degree as almost to preclude their cultivation. Almost every plant is attacked by a parasitic Fungus, which soon undermines its health, and leaves an unsightly wreck behind. A specimen which he kindly communicated shows that the Fungus is a species of Puccinia. This was the more surprising, as we know of no Malvaceous plant which is attacked by Puccinia in Europe. It appears, however, that BERTERO gathered in Chili leaves of Althæa officinalis, which were infested with a Puccinia, and on closer investigation it is quite certain that the Australian Fungus is the same, a figure of which will be found in the posthumous fasciculus of CORDA's Icones. The very compact sori are much raised, and always umbilicated beneath, the depression being either free, or producing another crop of spores. The spores are pale, with very long pedicels, which are often thicker above. They are generally more or less contracted in the centre, but they vary very much in outline, and are generally bluntly apiculate above. It is curious that two European plants, the one in Chili, the other in Australia, should be the prey of a parasitic Fungus which at present has not been found on any indigenous plant of the same natural order, and in the latter case to such an extent as to interfere greatly with its cultivation.

Mr. CARSON at the same time gave us the leaf of a Plum infested also with a Puccinia, and that frequently so virulently as to cause all the leaves to fall. This, however, is the European Puccinia Pruni, and it is often very mischievous at home. If in the one case it is remarkable that a European plant, which does not suffer from parasites at home, should meet an inveterate enemy in Australia, it is scarcely less curious that the Plum wherever it goes should carry its parasite with it. In the former case we have an interesting example of one of those unexpected causes which occasionally forbid the establishment of a species in a climate which otherwise might be congenial. *M. J. B.*

A GOOD deal has been written respecting the PERFORATIONS which are often observed IN LEAVES, caused by the separation of little dead patches, which often remain partially attached to the aperture. These frequently arise from drops of water remaining in a more or less chilled condition for some time on the surface, but sometimes from mere comparative weakness of certain portions of the tissue, as was certainly the case in a plant of the famous Hand-plant at Kew, which at first sight looked as if it had been attacked by some Fungus. As the process is in general slow, a greater or less degree of uncertainty will always attach itself to such observations, however satisfactory they may seem to the person who has more especially studied the matter. A case however has just occurred in which the cause is at once apparent, though neither attributable to mere cold or partial constitutional weakness. Some Maple trees struck us in passing from the extraordinary degree to which their leaves were either perforated or studded with decayed orbicular patches. These would have been puzzling enough, had we been left merely to conjecture, as it would scarcely have been possible that the trees should at once have been covered with such large perfectly round drops of water. After looking however at a few of the leaves, the cause was quite clear, as the remains of the dotted form of *Rhytisma acerinum* were visible in several instances. The mycelium of the Fungus had doubtless in the first instance established itself on the leaves, but circumstances were not favourable to its development, and in consequence, while the other portions of the leaves grew, the infested spots withered, and in process of time in most instances fell out, while in a few only, indubitable traces of the Rhytisma were left behind. The observation is of the greater importance as it tends to confirm a notion of FRIES that parasitic Fungi may in some climates be only partially developed on leaves so as to cause spots, while the perfect plant appears only in the districts which are congenial to its nature. *M. J. B.*

—— The ARALIA JAPONICA of THUNBERG figures in Dr. SEEMANN's revision of the Araliaceæ, under the name of Fatsia japonica, given to it by DECAISNE and PLANCHON. The ARALIA CRASSIFOLIA of BANKS and SOLANDER appears in the same paper as Pseudopanax crassifolium of C. KOCH. This, observes Dr. SEEMANN, is a very variable plant. PARKINSON, who accompanied Capt. COOK in one of his voyages, has left drawings of two varieties which he gathered in New Zealand, the one having crimson, the other purple petioles. In recent years, continental nurserymen have raised as many as 20 varieties, chiefly differing in the division, shape, and colour of the leaves. One of the oldest inmates of our gardens has been described as a separate species by REGEL, under the name of Panax coriaceum, and by HOOKER under that of P. longissimum. It has a simple stem and a dark green bark

striped with brown; all the leaves are quite simple. REGEL enumerates two varieties of P. coriaceum, namely, *latifolium* (leaves ½ to ¾ of an inch broad, the older ones with rather large teeth, Aralia latifolia Hort.) and *angustifolium* (leaves ⅓ of an inch broad, with very small teeth, Aralia integrifolia Hort.). Panax pentadactylon, Decaisne & Planchon (Aralia pentaphylla and A. quinquevulnera Hort.), and P. tridactylon, Decaisne & Planchon (Aralia triphylla and A. trifoliata Hort.), and Aralia heteromorpha are also garden varieties of this variable species.

—— On Saturday last, being the anniversary of the PRINCE CONSORT'S birthday, the GARDENS OF THE ROYAL HORTICULTURAL SOCIETY were, as last year, thrown open to the public, in accordance with HER MAJESTY'S desire. The visitors were of a decidedly superior class to those who in the previous year thronged to see the flowers. The number of persons who entered the Gardens is reported to have been about 130,000. Several bands were in attendance, and continued playing until the Gardens closed. There were numerous refreshment stands, and the two annexes were set apart for those who desired to picnic on the Grass. The public appeared to appreciate the liberality of the Society in opening the Gardens gratis, and we understand no damage was done to the flowers, shrubs, or buildings.

—— Those who are interested in the study of ORCHIDS will be glad to know that Dr. LINDLEY'S invaluable dried collection of these plants has been acquired for the Kew Museum.

—— On the 26th ult. a very large consignment of GRAPES FROM THE SOUTH OF FRANCE arrived at the Waterloo Station of the South-Western Railway. The fruit, which was contained in about 1200 circular baskets, weighed some 12 tons, and occupied five large railway trucks. The Grapes were shipped at the port of Havre, and conveyed by boat to Southampton, whence they were despatched by train to the metropolis. Although rather small in the berry, the fruit, which was of a purple colour, was extremely sweet, and, being sold at a low price, found numerous customers among the poorer classes of the metropolis, for whom it was purchased by the dealers of the New Cut, Shoreditch, and other cheap markets. Birmingham and the other manufacturing towns buy largely of this description of Grape, and the fruit is now extensively used in the manufacture of home-made wines in London. The day previous a still larger consignment reached town by the same route. This parcel numbered about 1300 baskets, and weighed 17 tons.

—— A specimen of LILIUM AURATUM was kindly sent to us at the last Tuesday meeting of the Royal Horticultural Society, by Mr. PARSONS, which was equally curious and handsome with the Gladiolus to which we lately drew attention. That, however, was a mere case of lateral fusion; this was one of metamorphosis. The three sepals and petals were in their usual position, but in addition to these, alternating with the petals, was a third whorl equally developed, replacing three of the stamens, the remaining three being perfectly normal.

This was not the only monster produced on the occasion. A Gourd was brought from the Society's Garden in which the fruit was completely amalgamated with the neighbouring shoot; and a Japan Lily, in which the upper part produced little bulbs, the lobes of which were foliaceous.

An anomaly was also exhibited amongst Plums, in which there was no stone whatever, though the kernel was fully developed. It is a Damson of little merit, described in HOGG'S "Fruit Manual" under the name of Stoneless or Prune sans noyau. It is somewhat analogous to the Bladder Plums, which sometimes are produced in America, and which occur also occasionally in the common Sloe in this country. *M. J. B.*

THE LATE SIR W. JACKSON HOOKER.

(*Concluded from page* 793.)

IT requires, as is well known, a concurrence of fortuitous circumstances to induce any Government to initiate a public improvement; and we need hardly add that when this was to be a scientific one, under the Government of Lord Melbourne, these circumstances must have been numerous and weighty. Amongst them the first and foremost was, that a site capable of indefinite extension, and containing a garden of no mean celebrity, however far it might have fallen from its once proud position, was offered to the nation. Secondly, there was the Report drawn up by command of Her Majesty's Government, and which could not be ignored. Thirdly, there was the singular fitness of the late Director for the appointment. And lastly, but most important of all, a powerful feeling in favour of rendering Kew Gardens a National Establishment had long existed in the breast of one of the most accomplished and influential noblemen of the day—the late John, Duke of Bedford, himself an ardent horticulturist, and the father of a statesman already risen high in office—the present Earl Russell.

It is a curious fact, that Sir William Hooker had, from the commencement of his botanical career, felt a strong interest in Kew, and had never abandoned the secret idea that the time might come when he might hold the post of its Director. For many years during his Glasgow residence, the above-mentioned Duke had honoured him with his friendship and correspondence; subscribing munificently to the collectors whom he sent out, and by means of his diplomatic relations and friends, enlarging Sir William's sphere of action in various parts of the world.

The placing of Kew on a national footing had been for some time a common object both with the Duke and Sir William Hooker, and the former did not fail, before his death in 1839, to urge upon those in political power the fulfilment of his favourite project. Upon his death, his son, the late Duke of Bedford, zealously carried out his father's wishes; but it was upon the present Earl Russell, then Lord John, that the chief weight of the transaction fell; and it is to him, then First Lord of the Treasury, that the nation owes the possession of these magnificent gardens.

In 1841, Mr. Aiton (the Director of all the Royal gardens, whether fruit, kitchen, or botanical) resigned his post at Kew, having held it for 50 years. He was succeeded by Sir William, who received a salary of 300*l.* per annum, with 200*l.* to enable him to rent such a house as should accommodate his herbarium and library, by this time of immense extent, and essential, we need not say, to the working of the establishment, whether in a scientific or economic point of view. Sir William entered upon his duties in command of unusual resources for the development of the Gardens, such as had never been combined in any other person. Single in purpose and straightforward in action, enthusiastic in manner, and at the same time prepared to advance by degrees, he at once won the confidence of that branch of the Government under which he worked, which was then known as the Office of Woods and Forests, under the Presidency of Lord Duncannon. To those in office above him, he imparted much of the zeal and interest he himself felt, which was proved by constant visits to the Gardens, resulting in invariable approval of what he was doing, and promises of aid for the future. Another means at his disposal, and which he at once brought to bear on the work in hand, was his extensive foreign and colonial correspondence, including especially that with a large number of students whom he had imbued with a love of botany, and who were scattered over the most remote countries of the globe, and several of whom indeed remained in more or less active correspondence with the Gardens up to the day of his death. His views were further greatly facilitated by his friendly intercourse with the Foreign and Colonial Offices, the Admiralty, and the East India Company; to all whom he had been the means of rendering services, by the recommendation of former pupils to posts in their employment, and by publishing the botanical results of the expeditions they sent out. Nor can we omit to mention here the late Curator, Mr. John Smith, an officer of unusual botanical and horticultural knowledge, by whom he was zealously seconded in all his plans. Previous to this time, Mr. Smith had been a foreman in the Royal Gardens, in which position he had shown unwearied zeal and devotion to his duties; indeed to him alone is due the credit of having upheld the scientific character of the Gardens for many years previously.

At the time of Sir William's taking office, the Gardens consisted of 11 acres, with a most imperfect and generally dilapidated series of 10 hothouses and conservatories. Most of these have since been gradually pulled down; and with the exception of the Great Orangery (now used as a museum for woods), and the large architectural house near the garden gates, and which had just previously been removed from Buckingham Palace, not one now remains. They have been replaced by 25 structures (in most cases of much larger dimensions), exclusive of the Palm stove, and the hitherto unfinished great Conservatory in the pleasure-grounds.

To describe the various improvements which have resulted in the present establishment; including, as it does, a botanic garden of 75 acres, and a pleasure-ground or arboretum of 270 acres, three museums, stored with many thousand specimens of vegetable products, and a magnificent library and herbarium, the finest in Europe, placed in the late King of Hanover's house on one side of Kew Green, and adjoining the Gardens — would rather be to give a history of the Gardens than the life of their Director: we may, however, give the following dates of the most important events, so far as the public are interested.

The first step was the opening of the Gardens to the public on week days, which followed immediately upon Sir William entering upon the Directorship. Rather more than 9000 persons visited them during the first year of their being thrown open; a number which has gradually increased, until in 1864 no fewer than 473,307 persons visited the Gardens.

About 1843 the Queen granted from the contiguous pleasure-ground an addition of 47 acres, including a piece of water, by the side of which the Palm stove was afterwards erected.

About 1846 the beautiful wrought-iron gates, designed by Decimus Burton, were erected.

In 1846 the Royal Kitchen and Forcing Gardens, which ran along the side of the Richmond road, and which included 15 acres, were added. Upon this piece of ground stood an old fruit-house, since memorable as the origin of the first Museum of Economic Botany that ever existed. On the said piece of ground being given over, Sir William requested that this building might not be pulled down, but that the windows might be enlarged, the walls fitted with shelves to hold specimens of vegetable products illustrative of the habits and uses of plants, and the whole thrown open to the public. The chief contributions were from Sir William's own collection and that of Mr. Smith; and these were soon increased by means of a vigorous correspondence, and are now represented by the three admirable Museums so well known to the public.

In 1861 was commenced the large Temperate House in the pleasure grounds, often called the Winter Garden; the last building wanting to complete the establishment in a horticultural point of view. This beautiful building, as is well known, was designed by Decimus Burton, Esq., and is admirably adapted to its purpose; the interior arrangement of the beds, and of the plants in them, which have been so much admired, is, however, wholly due to Sir William's judgment and taste.

It might be supposed that the 24 years of Sir William's life spent at Kew in the above public improvements, added to the daily correspondence and superintendence of the Gardens, would have left but little time and energy for scientific pursuits; such, however, was far from being the case. By keeping up the active habits of his early life, he was enabled to get through a greater amount of scientific work than any other botanist of his age. The British Flora, which has now reached the 12th edition, he made over to his successor in the Glasgow chair, Dr. Arnott; but his monthly journal of botany was recommenced; first appearing as the London, and afterwards as the Kew Journal of Botany; which together embraced 17 annual volumes, and was enriched with papers of his own,—with letters from his correspondents in all parts of the world,—with reviews of botanical works,—with contributions on physiological, structural, and systematic botany,—and with notices of the progress of the science everywhere. With the exception of carrying on the "Botanical Magazine," for the last 15 years of his life most of his leisure was devoted to the study of Ferns, and on this subject he published two works of standard value and great labour; firstly, the "Genera Filicum," with illustrations by the late Francis Bauer, Esq.; secondly, the "Species Filicum," commenced in 1846, and finished only last year. This work, which is in 5 vols., and contains the only complete systematic description of the vast tribe of plants to which it is devoted, would of itself have been sufficient to establish a botanical reputation, and is regarded as a standard authority upon the subject. During the last few years of his life, he also published his "Garden Ferns," "Exotic Ferns," and "British Ferns;" all beautifully illustrated, and with descriptions from his own pen. At the date of his death he was engaged upon a "Synopsis Filicum," of which one number only has appeared.

In connection with the scientific labours of Sir William Hooker, there are two names which should be prominently mentioned. The one is that of Lady Hooker, who for 40 years was his able amanuensis, and assistant in his literary duties and library; and the other is that of Walter Fitch, Esq., now the most distinguished botanical artist in Europe. Up to about 1835, Sir William made the drawings for his works with his own hands; but about that time he was fortunate in having the artistic skill of this gentleman brought before him, whose talents he encouraged, and whose services he eventually secured for the illustration of his works. Most faithfully has Mr. Fitch seconded his early patron and friend in his labours. Of their joint extent some idea may be formed from the fact that Mr. Fitch has executed in the last 30 years upwards of 4000 plates for Sir William alone.

Our concluding remarks must be few, and directed to Sir William Hooker's character, disposition, and appearance. An almost unbounded liberality was one of his most prominent features; and scientific botany is more indebted to him than to any individual since Sir Joseph Banks for the progress it has made within the last half century. In his dealings with Government his conduct was as liberal as it was towards his fellow botanists. For the first 12 years of his residence at Kew, his herbarium and library were not only kept up at his own expense for the use and benefit of the public establishment, but was further open to every botanist who came to his house to make use of them. To him we are indebted for the appointment not only of botanists but naturalists to the majority of the Government expeditions of discovery, survey and research which have been sent out during the last 30 years; and it is through his energy that funds were forthcoming from Government to meet the after expenses of the publication of their results. To young botanists he was especially kind and helpful; indeed there are few cultivators of this science in Europe or America who have not paid lavish tribute to his generosity and encouragement. Last among his efforts has been the inducing of the Home and Colonial Governments to grant the necessary funds for the publication of the Floras of their possessions; and within the two last years of his life he prevailed upon Sir Charles Wood, the President of the India Board, in like manner to support the publication of the Flora of British India; and through the influence of his steady friend Earl Russell, he procured a grant for the publication of the Flora of tropical Africa.

A man personally so well known requires little description; but for such of our readers as have never seen him, we may state that Sir William was in person tall, athletic, and active; in features remarkably good-looking, and with a most benevolent countenance; and

that his conversation had all the charm of a cultivated mind, joined to great facility in placing his subject clearly before his hearers; and there are none who have enjoyed the privilege of having been conducted round the Gardens and Museums by him who do not refer to it as a most enjoyable intellectual treat.

Although such subjects possessed little attraction for the late Director, yet it may interest those learned in genealogy to know that he was descended from the same family of which Richard Hooker, author of the "Ecclesiastical Polity," was a member, and we believe that his descendants are considered to be the only surviving representatives of the family. Though himself born at Norwich, his father had come there from Exeter, of which place he was a native.

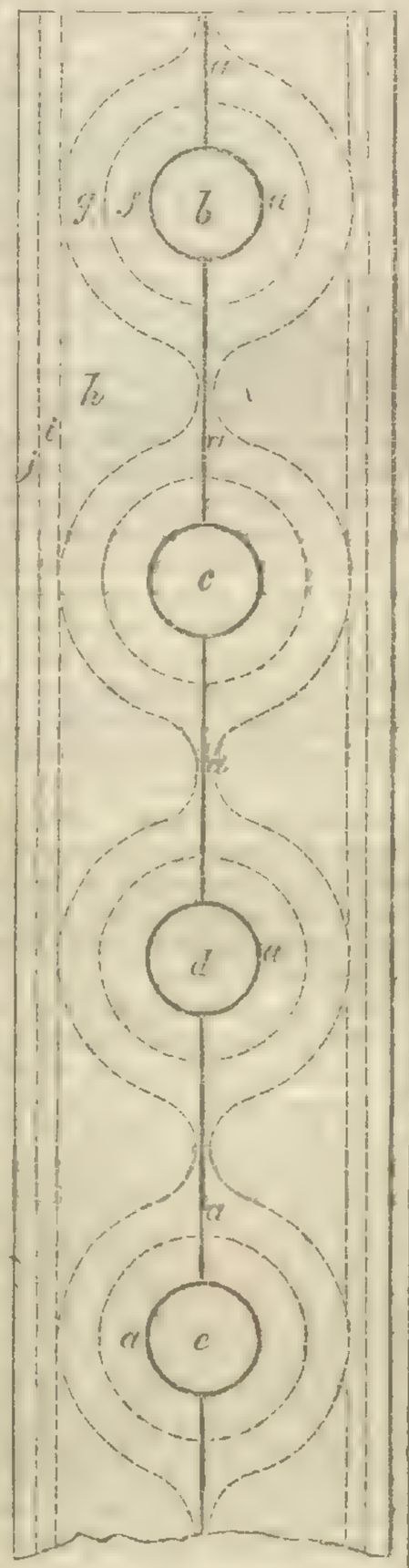
He was an LL.D. of Glasgow, D.C.L. of Oxford, a fellow of the Royal Societies of London and Edinburgh, the Linnean, Antiquarian, Geographical, and other Societies; a Knight of Hanover, Companion of the Legion of Honour, a Correspondent of the Academy of France, and a member of almost every other learned Academy in Europe and America.

He died at Kew on the 12th of August, in the 81st year of his age, after a very short illness, of a complaint in the throat, then epidemic at that place.

He leaves a widow, two married daughters, and one son, Dr. Joseph Hooker, the Assistant Director of the Royal Gardens.

GENERAL FLOWER BEDDING.—No. IV.

THE chief point to keep in view in this matter is variety. In the present state of arrangements we can see in one good flower garden the contents of almost any other. Change for the better is, however, easier to talk about than to accomplish. In the mean time, let me point out what I consider to be a mistake in our present arrangements. The whole of the materials now in use are of a low description; no striking object breaks up or relieves our masses of colour, even in what are termed central beds, which form the principal features of almost every design. With a little ingenuity it will be found, however, that the flatness complained of may be improved, even without any alteration of materials, by means of growing into large specimens some of the ordinary Scarlet Pelargoniums, or such as Cybister, Stella, and Christine; Calceolaria amplexicaulis, Centaurea gymnocarpa, and Coleus Verschaffeltii. Without seeing them no one can form any idea how striking are such plants as Stella Pelargonium when 3 feet high. The Calceolaria is perhaps even more conspicuous than the Pelargonium, and the Centaurea shows its long feathery leaves best in the form of a good-sized specimen on a stem. In planting large circles I have frequently made a frame similar to that of a tent, and planted round the outside of it; but the pyramid is the best form for effect.



By way of illustration let us take a border 10 ft. wide, and instead of the usual long rows of Purple King and other ordinary plants commonly used for decorative purposes, let us introduce a little design as follows, which would form a change for a season or two at least:—

Let *a* represent a stiff line of Aucuba japonica; *b*, yellow Calceolaria amplexicaulis, 2 feet 6 inches high; *c*, Stella Pelargonium, 2 feet 6 inches or 3 feet high; *d*, Centaurea gymnocarpa of equal height; *e*, Delphinium Bella Donna, and so on; *f*, Scarlet Pelargonium; *g*, Variegated ditto; *h*, Verbena Purple King; *i*, Pink Pelargonium; *j*, White-leaved Cerastium. With the exception of the Aucuba these form outlines of themselves as planted. Instead of the Aucuba I at one time had Periwinkle, but it did not prove so good as the Aucuba. The Delphinium is the most beautiful blue we have, and can be easily had all the summer by lifting and dividing the plants in the spring, and planting in good soil; it can also be kept to any height by laying and pegging. I may add that this plan can be carried out on a bed quite as well as in a long border.

It will be evident that by this arrangement a foundation is laid for the use of ornament, both in winter and spring. Even if no other plants were employed, the Aucuba and Cerastium, if neatly trimmed, would tend to enliven such a border as has just been represented; but we have plenty of means at hand to fill the whole during the winter months, and perhaps with as much effect as in the case of summer plants. Let *b* be yellow single Wallflower and a few dark Tulips; *c*, dark Italian Wallflower and Tulipa Gesneriana; *d*, White Honesty; *e*, Doronicum cordifolium; *f*, Silene pendula; *g*, Yellow Pansy; *h*, Blue Pansy; and *i*, Saponaria calabrica. Concerning these plants I shall have something to say shortly.

It may be borne in mind, that the Aucuba may be lifted at any time, and the design altered, according to taste. *J. F.*

Home Correspondence.

How to Grow the Woodsias.—These little plants are often stowed away in dark and humid corners, frames, &c., in which, in nine cases out of ten, they fail to grow. In Norway, and other countries which they inhabit, they are found fully exposed to the clear free sun and light of day, and they will be found to do well under like exposure in this country. There is now in one of the reserve gardens at Glasnevin a few dozen plants of our native Woodsias growing in 60-sized pots, plunged in coal ashes, and fully exposed to the sun in a warm corner. They look healthy, ripe, and safe as the commonest of cultivated Ferns. Dr. Moore found these plants always growing on the sunniest spots in Norway, and he considers this *the* way to grow them. Of course they are Alpines, and doubtless they would thoroughly enjoy the conditions which I have prescribed for the choicest Alpines,—plenty of moisture, suitable soil, and full exposure to sun and air. They would also contrast charmingly with the succulent Alpines, &c., in the beds I have recommended. Asplenium septentrionale along with the Woodsias was finely developed, and quite at home. *W. Robinson.*

Peas.—On the 28th of March I sowed Sutton's Ringleader, and had a splendid crop in less than eight weeks, which I allowed to ripen. I then sowed the ripe seed on July 10th, and have now a capital crop of Peas, the second crop having been six weeks only in growing, and the two crops have been produced in less than five months. I beg to forward you a sample, the pods in which you will observe are well filled. *Thomas Fielder, White Horse, Binfield, Berks.* [A very fair sample, averaging about five Peas in a pod.]

Mistleto.—I have just observed two plants of Mistleto growing on the branches of a Chionanthus virginica, about 7 feet high. There is a Siberian Crab about 8½ feet from the Chionanthus, on which Mistleto is growing luxuriantly, it having been put there by my gardener years ago. He, however, did not put any plants of it on the Chionanthus, and was surprised when he was shown them. I would therefore like to know if this is a common occurrence. *C. M., Cobham.*

Bulbocodium vernum.—Your correspondent Mr. Wm. Robinson advises people not to grow Bulbocodium vernum in the shape of single roots, but to get a good patch of it. Can he or any one else inform me where any of it may be obtained true, as some of us have been trying for years to get a root, and have always been treated to something different. *M. C. W.*

Coning of Thujopsis borealis.—There is a plant here of Thujopsis borealis, which is one of the hardiest and most beautiful of Conifers, about three feet high, with a quantity of seeds upon it. This is the only plant upon which I can find any seeds, and we have many hundreds from 3 to 6 feet in height. The plant upon which the seeds are, is growing amongst a quantity more of Thujopsis, and of course under the same circumstances. *D. Freeman, F. & A. Dickson & Sons' Nurseries, Chester.*

Mona's Pride Potato (see p. 795).—Having assisted in awarding prizes at the Douglas (Isle of Man) Horticultural Society's Exhibition last year, I had an opportunity of seeing some splendid examples of the Filbert Kidney or Mona's Pride Potato. I am not able to speak from experience respecting it, but I was assured by some of the exhibitors of it that it was the earliest variety they had on the island, and that they had tried it against the true Ashleaf, Myatt's variety, and the Royal Ashleaf, all of which must give way to the superiority of Mona's Pride, both in point of earliness and productiveness. I would advise gardeners who are interested in early Potatos to try it as an early frame variety, and to give us the result of their experience in reference to it. *D. Freeman, F. & A. Dickson & Sons' Nurseries, Chester.*

Hint to Ornamental Planters.—Your remarks on the utility of ornamental trees and shrubs of foreign origin call to my mind a very fine collection of Japanese plants, which was exhibited by John Knowles, Esq., Trafford Bank, at the late Exhibition of the Manchester Botanical Society. Many of these were 4 feet high and 3 feet through, showing their use and beauty to much greater advantage than in a small state. Amongst them were Cryptomeria Veitchii, fully 4 feet high and very bushy, with beautiful glaucous foliage. This cannot fail to form a fine feature in winter and spring, provided it proves hardy. Retinospora obtusa, as shown, had a fine pyramidal habit, which, however, does not seem common to this plant. Juniperus rigida, with fine pendulous branches, promises to make a good companion for the Deodara, while Thuja falcata, with close upright habit, seems specially adapted for forming bold divisional lines in a garden. Besides these there were also several others possessing great variety both of form and colour, which must in a few years greatly revolutionise our present system of outdoor decoration. *T. F., Manchester.*

Wasps.—In the *Worcester Chronicle* of last week the question is asked, Whether anybody has seen a wasp since May? In April the queens were so numerous that it was supposed we should have had in the autumn an overwhelming supply of these destructive pests, and it is recorded that one gentleman paid more than 6*l.* for the destruction of queens in his gardens and grounds during that month. He might have saved his money. The sharp frost of the 1st of May appears to have done its work in destroying these insects, scarcely one having been seen since. The people in Worcester have reason to rejoice at the paucity of wasps. I wish I could share in the general joy. Wasps, although not so numerous as I have seen them in dry seasons, are still very plentiful and troublesome here. An unusual large quantity of queens was brought in to me in April, and the frosts of May, June, or July, do not seem to have lessened their number much. Here the quantity of wasps' nests brought in will not fall below the average of former dry summers. Even while I am writing this, nine nests have come in, and some of them are very strong ones. *E. Bennett, Osberton, Notts.*

Grevillea Manglesii.—Let me strongly recommend this plant to all your readers who have to embellish large conservatories, &c. It may be equally useful for small ones; but as I know the plant, it is about 10 feet high, with a peculiarly graceful habit—quite unlike that of any of its relatives we cultivate, and having a very enticing resemblance in habit to the Weeping Willow. In fact, it will do for large conservatories what that fine plant does for our pleasure grounds. It is abundantly covered with white flowers in spring, but the drooping character of its slender branchlets is its chief charm. *W. Robinson.*

Foreign Correspondence.

A NEW ZEALAND FLOWER SHOW.—The following account of a show held last March in Canterbury, New Zealand, shows that gardening is carried on with spirit in that distant colony:—The show was one of the finest, if not the finest, held in Canterbury; and those who are interested in the progress made in horticulture would have been well repaid even for a trudge through the rain and mud, which, it appears, affect New Zealand flower shows as much as our own. It speaks well for the enterprise of antipodal gardeners, that they are not content with striving to attain excellence in the growth of old familiar favourite plants, but that they endeavour to introduce new specimens into the province. The productions of all climates were, it is said, shown in much beauty and perfection. And it may be taken as an evidence of the fertility of the New Zealand soil and the adaptability of the climate, that, notwithstanding the fickleness of the latter, plants and vegetables thrive so well. Flowers, fruits, and vegetables of all kinds which have been introduced, seem to take to their new homes as if they were indigenous. This might be remarked in the heterogeneous collection of the plants shown at the exhibition: natives of England, of the Continent, of the East, and even of warmer climates. The display of Fuchsias was beautiful; the choicest specimens were Guiding Star, Venus di Medici, Souvenir de Chiswick, Sir Colin Campbell, Queen of Hanover, Rose of Castille, Fair Urania, and Madame Cornelissen. There was a lovely specimen of the Plumbago capensis, and others of Achimenes Meteor, of Nerium splendens, and of Polygala acuminata. A pretty specimen of the Hoya carnosa attracted great admiration, both on account of its dark glossy foliage and of its elegant blossoms. The Gloxinias were very pretty, and some of the Begonias were remarkable for the large size attained by their foliage; Gloxinia Magnet was perhaps the finest of its class shown. Some beautiful Petunias were sent in for exhibition; the double ones were of especial merit; but, adds our informant, we must aver our preference for the single ones. In some instances the double-flowered plants produced by cultivation are inferior to the simple form of the parent plant. These double Petunias were the first shown in Canterbury, and had been gallantly named after some of the ladies in Christchurch. Near the entrance of the saloon stood a large plant of Hydrangea in full bloom; it was growing in a tub, and had attained a considerable size. Mr. W. Wilson sent a very choice specimen of Humea elegans, with delicate pink pendent blossoms, so extensively used in gardens in England as a centre for beds. One strange contribution must not be overlooked, a specimen of the Tea-plant, the Thea Bohea, the only one, it is said, in Canterbury, and the property of Mr. Miles. Only a few Pelargoniums were shown. There were some very interesting specimens of the Sensitive plant; and some Ice-plants of great beauty were shown, and were noticeable for their sparkling foliage. Mr. Gould sent a curious plant, the Aralia papyrifera, the Rice Paper-plant, of which the substance is manufactured upon which the Chinese paintings are made. The Balsams were very good, some fine double ones being exhibited. There was a novelty in the shape of a shrub recently imported from Japan; a hardy plant, with very

elegantly variegated foliage. Messrs. Ollivier and Packer contributed some very good specimens of the Amaryllis; that known as coccinea is a very pretty one. Dr. Lillie sent some fine Asters, and Mr. Brooke some capital Hollyhocks. Some of Mr. Painter's Fuchsias were much and deservedly admired. Outside the room were two collections of Conifers, one belonging to Mr. Greenaway, and the other to Mr. Hislop. They comprised numerous varieties of Araucaria, Pinus, Cupressus, and Arbor-vitæ. Mr. Hislop sent in a first-rate specimen of the Virginian Cedar, growing in a pot; it was of about five years' growth. The Arbor-vitæ can be easily acclimatised, and will doubtless prove a most valuable tree for its timber.

Amongst the cut flowers, the Dahlias were, perhaps, the most remarkable. Roses generally occupy the place of honour, but the season for them was well-nigh past. The Dahlias shown were for the most part fine blooms, but not so large as those we have been accustomed to see in England. There were some of great beauty as regards colour, especially the claret and sulphur-coloured ones. The old-fashioned Globe Dahlias seem going out of vogue—at least, we have seen none of them in Canterbury. Messrs. Brooke, Potts, Lillie, and Greenaway were the successful competitors in this department. The blooms of Verbenas and Marigolds, and some specimens of the Clarkias were very good, as were also some of the Lilium lancifolium.

Of Fruits there was a small show. The most attractive feature was Mr. Potts' basket of fruit. In the different compartments of this were arranged samples of Apples, Pears, Plums, Siberian Crabs, Cape Gooseberries, &c. Mr. Tunmor contributed some fine greenhouse Grapes. Mrs. Deans sent some splendid Apples and Pears. The Peaches were very choice, especially those sent by Dr. Watkins, of Akaroa. Mr. Haylock sent some very large Plums, as did also Mrs. Mathias. A fine lot of large Hazel Nuts was contributed by Mr. W. Wilson, and some very good Peaches by Mr. Wilson, of Papanui. Mr. Wilmer showed some good Apples, and there was also a good exhibition of Greengages. Mr. Potts sent some Mulberries. This fruit seems to thrive very well in the province, the soil being well suited for it, the only obstacle against its successful culture being the sharp frosts we have sometimes to encounter.

Vegetables were remarkably fine. Perhaps the most noticeable were the Potatos. Some one has described New Zealand as "a land flowing with pigs and potatos," and this show bears out the idea as concerns the latter article. Mr. Dalgety showed some which would have delighted the heart of an Hibernian. Some of the finest in the show were those known as Deacon's seedlings. The other sorts were the Orange Ravensworth, Lapstone Kidney, and Chapman's Early Prolific. Mr. W. H. Lane showed some ripe Tomatos. Mr. Wilson sent some samples of Hallett's Wheat, which promises to be a very valuable addition to the cereals of the province. Mr. Painter showed a "prodigy Cabbage," as it was named, and the term was certainly an appropriate one. There was an immense variety of Gourds, Pumpkins, and Vegetable Marrows. Mr. Brooke was the principal contributor of these, and he also carried off the prize for Cucumbers. Dr. Stedman exhibited some of the largest Carrots we have seen. The Beetroot and Celery were also very fine, but much of the latter, owing to some defect, either in the soil or in the culture, was what is technically called "piped." The Turnips were large and sound; some of a strange dark colour were shown. There were remarkably large Onions, and Garlic enough to have satisfied a Spaniard's love for olla podrida.

Cinchona Cultivation at Darjeeling.—Dr. Anderson's report on the progress of the plantations during the month of April, shows very favourable results. The latter part of the month was very moist and warm and highly favourable to growth, 11·18 inches having fallen during the latter half. At the fourth plantation, the mean maximum temperature during the month was 74°·5, the mean minimum 60°, and the monthly mean temperature 68°·5. At the fifth and lowest plantation, the mean maximum temperature was 85°·4, the mean minimum 62°·3, and the monthly mean 73°·6. These figures indicate a great increase in the minimum temperature as compared with last month, while the mean maximum temperature at the fourth plantation has fallen slightly below that of March. The growth of the plants had everywhere been most satisfactory, and especially at the lowest plantation; the condition of all the species could hardly be surpassed, the plants being covered with luxuriant foliage, and the largest sending out vigorous branches from the axils of the three or four upper pairs of leaves. The total number of plants and partially rooted cuttings of all species was 49,486 on the 30th April. The number permanently planted out was 3256. The number of plants added during the month to the number to be retained as stock plants was 9820; all of these belonging to Cinchona officinalis were planted in beds in the open air. The increase by cuttings during April far exceeds the number obtained, since the commencement of the experiment, 12,104 cuttings of all species were made. None of these are buds, only vigorous shoots were used, as it was considered preferable to have healthy stock than a large monthly increase of cuttings taken from over-pruned plants. The 7214 cuttings made during March had all rooted and were ready to be potted off as soon as the more urgent work of preparing ground for the rapidly increasing stock of plants, had been completed.

In the report for February it was stated that an experiment had been made to ascertain the difference in the number of cuttings obtained from plants growing under glass and those growing in the soil and fully exposed. After two months it has been found that the plants under glass yielded a larger number of cuttings than the plants entirely unprotected. The proportion was three to five. No general reliable results can be obtained until the experiment has been carried on for a year; as during the rains the plants in the open air will grow must luxuriantly and will give a much larger proportion of cuttings than during the dry season. The operations at Rungbee during April, in addition to the making of cuttings and the planting in the open-air beds of 9820 plants, consisted of planting Cinchona Pahudiana in permanent plantations, making drains in nurseries and plantations, and repairing the roads, all of which were much damaged during the heavy and sudden falls of rain occurring during the latter part of the month. A new road, giving access to the southern slope of the spur, had also been finished. The nursery for the distribution of Cinchona plants had been commenced during the month by 1000 cuttings of Cinchona officinalis having been placed in it. The number of plants, cuttings, &c., on the 1st of May, 1865, is given as follows:—C. succirubra, 10,850; C. Calisaya, 61; C. micrantha, 1554; C. officinalis, including varieties, 31,929; C. Pahudiana, 5092: total, 49,486.

Societies.

Royal Horticultural of Ireland: *Aug.* 24 (*Autumn Exhibition*).—It did not rain but it poured the day before and up to nine o'clock on the morning of the 24th ult., and we thought the pretty hollow in which the Society holds its summer and autumn exhibitions, just by the edge of Dublin Bay, would be flooded; but just in the nick of time the sun came forth and dispersed the rain clouds and vapours that obscured the beauties of the Bay, illuminated the Hill of Howth on the opposite shore, and prepared everything for a most agreeable afternoon and excellent show. Instead of giving a mere list of prizes, perhaps we had better specify any peculiarities of the Society or its exhibition as compared with the London and provincial English shows; and this is the more desirable, as the Society is in a most prosperous condition. First, then, as regards the show: it, like the others of the Society we have seen, was well arranged, and the tents regularly filled. This is a desirable feature of a show, and the Dublin people, by making it a rule to fine those who do not stage in the classes in which they have entered, take a good means of preventing what is the cause of considerable inconvenience at the London meetings. Of the plants, nothing seen at the show calls for such special remark as the "group for effect, consisting of from 12 to 15 Exotics, one-third at least to be in flower." This was well won by Mr. Smith, of the Phœnix Park, with a well and cleverly arranged group. This sort of class is deserving of great encouragement. The Foliage-plant Classes were also good, the best prize being won by Mr. McNeil, also of the Phœnix Park, who usually wins the group for effect prizes. Liliums, too, were made a feature of, and a very effective one, Mr. Tobin winning the best prizes.

Florists' flowers were a much more conspicuous feature at this show than at any that occur in London. They receive greater encouragement, at the expense, however, of the large groups of stove and greenhouse plants, some of which cost the exhibitor more for carriage than would pay for the conveyance of all the florists' flowers at the show. The climate of Ireland suits the Dahlia well, and it was shown very creditably and largely—Messrs. Campbell winning the cup. However, it was in Gladioli that the exhibition was greatest, and they were shown in astonishing perfection and beauty. Those grown in the neighbourhood of Dublin were far before some sent from England, but all were eclipsed by the stands sent from the north of Ireland by Messrs. Dickson, of Newtownards, who are the most successful growers of florists' flowers in Ireland. The best prize was for a Seedsmen and Amateurs' Subscription Cup, value 10 guineas, and the stand from Messrs. Dickson, which won this, was a show in itself, both as regards arrangement and the great size and perfection of individual spikes. The kinds were as follows:—Napoleon III., Impératrice, Duc de Malakoff, Mac Mahon, Comte de Morny, Sulphureus, La Quintinie, Lord Granville, Ninon de l'Enclos, Diana, Madame Binder, Achille, Calypso, John Waterer, Impératrice Eugénie, Madame Basseville, Mathilde Landevoisin, Raphael, John Bull, Le Poussin, Chateaubriand, Madame Lesèble, Crystal Palace, Hebe, Madame E. Verdier, Linné, Adonis, Florian, Maria Dremontier, and Madame Vindron.

Fruit was well and largely shown. The Peaches were fine, Ireland being an excellent country for Peach-culture in the open air, but some of the best dishes were spoiled from bad packing, and of course got no prizes. Several kinds of Grapes were shown by Mr. Roberts, gardener at Charleville Forest, Tullamore; they were of great size, particularly Mill Hill Hamburgh and the Muscat of Alexandria, the latter larger in bunch than we have seen it in London, though not so well as regards the berries. This exhibitor has shown single bunches of Grapes at the Dublin shows this year over 8 lbs. in weight. Mr. Smith, of the Vice-regal gardens, had a well-arranged pyramid of fruit, about four feet high. The fruit was placed on metallic leaves of Vines and water-plants that sprung from a central stem, and the effect was striking and good. The way *not* to do it was well exemplified by another exhibitor in the same direction, who piled up his fruit on a little square wooden stage with steps, without leaves or any accompaniments—about the worst arrangement conceivable, next to putting it into a flower-pot. The climate of Ireland is particularly favourable to the growth of all our vegetables, and they were as usual shown in fine condition, Mr. Delany taking the chief prize.

In the evening the Society and its guests dined at the Salt Hill Hotel, as they do every season on the day of the autumn show; and this time, as is his custom, the Duke of Leinster presided. Lord Powerscourt, Lord James Butler, and some of the leading noblemen and gentlemen of Ireland were among the guests. It should be mentioned, however, that it is rather a dinner of patrons of horticulture than horticulturists, and that gardeners generally are practically excluded from it. It is gratifying, of course, that horticulture should be thus honoured by the leaders of the land, but it is equally desirable that the gardeners should be brought together annually, and the Society might do well to try an experiment of that kind, if an amalgamation is impossible, as a horticultural dinner without practical gardeners is somewhat paradoxical. There was a capital dinner, much of the fruit shown having been presented by the owners. Lieutenant-Colonel Hillier, in returning thanks for the Army, regretted the unavoidable absence of Sir H. Rose, who had devoted so much of his energies to the social and moral improvement of the soldier, and had accomplished a good deal in that way by means of small gardens.

Captain Miller, of H.M.S. Royal George, replying very happily for the Navy, begged to assure the company that the Navy took the deepest interest in horticultural matters, though from want of space on board ship they could do but little in that direction. Still he had seen very beautiful plants grown on board her Majesty's ships, and he had heard of Gooseberry bushes growing in the days of Admiral Benbow, but he had no actual knowledge of the fact! He hoped that the Navy, in addition to fighting the battles of the country, would also cultivate a taste for flowers.

Prosperous as the Society is, it neglects one important good—giving a breakfast to the exhibitors. No men work harder than exhibiting gardeners, and there is pretty good evidence of their ability to eat a good breakfast when on an exhibition day the staging is done. Now as shows are often held in places where it is nearly impossible to get a good breakfast, the men are often driven to the publichouse and its amenities and graces even against their will. The beauties of our flower shows, and the profits of exhibiting societies, it is needless to say arise almost directly from the skill and energy of the gardener, and except where a society is beginning or in abject poverty, he should be made comfortable, after perhaps twelve hours of work, which more than any other requires a combination of taste and severe bodily labour. It must be gratifying to a hungry gardener to know that the Dublin Society has plenty of funds in hand, of course, but it is not impossible that he might view the "situation" with even greater equanimity. Another improvement might be made by somewhat increasing the prizes for the large and important classes of plants which are so costly as regards culture and carriage, and so much more useful as an attraction for the public—upon whose support of course the whole thing depends.

The popularity and prosperity of the Society must be to a large extent owing to the courtesy, energy, and full knowledge of horticulture on the part of its Secretary, Mr. Ambrose Balfe, who works hard and successfully to make the exhibitors and all else concerned as much at home as possible. He is entitled to the best thanks of the Dublin exhibitors. *R.*

Crystal Palace: *Aug.* 30 *&* 31 (*Autumn Exhibition of Fruits and Flowers*).—This was a magnificent exhibition, especially as regards fruits, to which one half of the nave was devoted, the other half being filled with Dahlias, Asters, Cut Roses, Gladioli, and subjects of that description.

Pine-apples.—These were not very plentiful. Two good Smooth-leaved Cayennes were shown by Mr. Page, gr. to W. Leaf, Esq., of Streatham. Mr. Smee, gr. to H. Stone, Esq., of Dulwich, had a well-grown but somewhat unripe Prickly Cayenne and a Black Jamaica. Mr. James Barnes of Bicton furnished an excellent Queen, as did also Mr. Miller, gr. to Lord Craven, at Combe Abbey. Mr. Higgs, gr. to Mrs. Barchard, contributed a well-swelled Moscow Queen, as did also Mr. Smith, gr. to A. Anderson, Esq. Mr. Pizzey, gr. to F. Edwards, Esq., and Mr. Kemp, gr. to E. Bentall, Esq., both showed Queens.

Collections of Fruit.—By far the best of these came from Mr. Miller, gr. to Lord Craven. It contained magnificent Muscat of Alexandria Grapes, three bunches of which weighed 10 lb.; Morello Cherries, Victoria Plums, a Monarch Melon, the weight of which was 7¾ lb.; a Moscow Queen Pine-apple; three bunches of Black Hamburgh Grapes, which weighed together 10½ lb.; good Barrington Peaches, and Violette Hâtive Nectarines. Mr. Bailey, gr. to T. Drake, Esq.

Shardeloes, contributed the next best collection in point of merit. It consisted of Black Hamburgh and Bowood Muscat Grapes, the last fine bunches, cut from Vines in pots; a Queen Pine-apple, Bailey's Green-fleshed Melon, Elruge Nectarines, Red Magdalen Peaches, Lee's Perpetual Figs, and Jefferson Plums. A third collection came from Mr. Donald, gr. to J. G. Barclay, Esq., Knot's Green, Leyton. It contained Lady Downe's and Bowood Muscat Grapes, Williams's Bon Chrétien Pears, Morello Cherries, a Queen Pine-apple, Royal George Peaches, and Jefferson Plums. In a collection from Mr. Carr, gr. to P. L. Hinds, Esq., Byfleet, were fine examples of Papaw, Figs, Peaches and Nectarines, Plums, two Pine-apples, and White and Black Grapes. Mr. Bones, gr. to J. Bray, Esq., Romford, and Mr. Rabbit also showed in this class.

Grapes.—Among these were some magnificent examples of skilful culture. Mr. Meredith, who stood as usual first, had three bunches of Black Hamburgh which for size, colour, and bloom could not well be surpassed. These were deservedly the admiration of everybody. Next came three wonderfully fine bunches of the same variety from Mr. Miller, gr. to Lord Craven, which weighed together 11¼ lb. Mr. Sage, gr. to Earl Brownlow, also furnished admirable Black Hamburghs, as did also Messrs. Lane, whose fruit was remarkable for fine colour and bloom. Black Hamburghs in good condition were likewise shown by Mr. Osborne, of Finchley, and Mr. Ford, gr. to the Rev. T. D. Hudson. From Mr. Irving, gr. to the Duke of Hamilton, came three bunches of the last-named variety, weighing together 11 lb. 3 oz. They were, however, deficient in colour. The last-named exhibitor had also three bunches of Buckland Sweetwater, weighing together 7 lb. 3 oz., somewhat injured from travelling. Good Buckland Sweetwater was shown by Messrs. Lane. The best Muscat of Alexandria came from Mr. Osborne. Mr. Wills, gr. to Sir P. G. Egerton, Bart., had Trebbiano, apparently over-ripe. Mr. Bailey sent Chavoush, a green-coloured, promising, comparatively new Grape. And Mr. Miller had the finest three bunches of Golden Hamburgh ever before seen in this country. Their united weight was 12 lb., the centre bunch alone weighing 5 lb., and furnished with large handsome shoulders. Such a result must have been highly gratifying to all concerned in first introducing this fine Grape to public notice. In the class set specially apart for large bunches was one of Black Hamburgh from Mr. Irving, weighing 5 lb. 8 oz.; but, as with other fruit from the same exhibitor, it was deficient in colour. Mr. Osborne had a compact well-coloured bunch weighing 3 lb. Mr. Meredith showed a beautiful basketful of Black Hamburgh, for which he received a 1st prize. Other basketfuls came from Messrs. Lane and Mr. Osborne, the fruit from the latter being somewhat larger in the berry than that from Messrs. Lane; but it was not nearly so well coloured. From Mr. Wills came a fine basketful of West's St. Peter's, and Mr. Cross, gr. to Lady Ashburton, had beautiful Black Hamburghs. We observed some Grapes and other fruit from the late Sir Joseph Paxton's houses at Rockhill, and fine collections of Vines in pots from Messrs. Lane and Mr. Geirs, gr. to T. Flight, Esq., Norwood. From Mr. Williams of Holloway came bunches of his handsome-looking new Grape, Royal Vineyard.

Melons.—These were plentiful; Scarlet Gem standing in the first rank among Scarlets, and Marquis of Ailsa in that of Green-fleshed kinds.

Pears.—These were shown in large numbers. The sort to which the 1st prize was awarded for flavour came from the neighbourhood of Chiswick, and was shown by Mr. Anstiss. It was a small Pear without a name, something like Comte de Lamy. It was, however, remarked concerning it by a good pomologist, who had tasted it, that "if that was the best-flavoured Pear shown, what must the second-best be!" Williams's Bon Chrétien was the sort to which both 2d and 3d prizes were given for flavour. Of Louise Bonne of Jersey we noticed well-grown examples from Mr. Wilson, of Gishurst Cottage, Weybridge, and others. The heaviest dish consisted of Uvedale's St. Germain, 12 fruits of which weighed 8 lb. 10 oz. These came from Mr. Gadd, gr. to J. R. Jaffray, Esq., Betchworth. Mr. Wilson had 12 fine specimens of Maréchal de la Cour; and Mr. Morris, gr. to T. J. White, Esq., 12 small fruit of Uvedale's St. Germain. The best three dishes were shown by Mr. Sheath, Langley, who contributed fine examples of Williams's Bon Chrétien, Gansel's Bergamot, and Louise Bonne of Jersey. Mr. Bichbell, Tadworth Court, Epsom, showed Marie Louise, Beurré Diel, and another unnamed. From Mr. Donald came Autumn Colmar, Gansel's Bergamot, and Williams's Bon Chrétien.

Apples.—These were remarkable for high colour, especially such sorts as the Quarrenden, Red Reinette, Red Astrachan, Fearn's Pippin, and Early Red Margaret. The kinds for culinary purposes were as a rule very large in size. Among the latter, the best six dishes came from Messrs. Gadd & Son, of Worthing. The sorts were Nelson's Glory, Reinette Blanche d'Espagne, Lord Suffield, Emperor Alexander, Kentish Fillbasket, and New Hawthornden. The second best lot was contributed by Mr. Lane, St. Mary's Cray, who had Hoary Morning, Emperor Alexander, Blenheim Pippin, Praiseworthy, Lord Suffield, and Tambour. From Mr. Webb, Reading, came Blenheim Pippin, Hollandbury, large and possessing high colour; Dumelow's Seedling, one of the most useful Apples in cultivation; Emperor Alexander, well coloured; Cellini, and Lord Suffield. Mr. Kaile, gr. to Lord Lovelace, furnished New Hawthornden, Alfriston, Emperor Alexander, Broad-crowned Pippin, and Manx Codlin. Mr. Newton, gr. to G. J. Graham, Esq., contributed beautiful fruit of Emperor Alexander, Hollandbury, Dutch Codlin, Kentish Fillbasket, Hawthornden, and Brabant Bellefleur. Among dessert fruit the best came from Dr. Cooper, of Slough, who had very fine high-coloured specimens of Quarrenden, Early Red Margaret, Red Astrachan, Cox's Orange Pippin, Nonsuch, and Ribston. From Mr. Sheath, of Langley, came Quarrenden, Peach Apple, Red Margaret, Cox's Orange Pippin, White Peach, and Ribston, the last large and fine. Mr. House, Chalvey, furnished Quarrenden, Early Red Margaret, Red Astrachan, Cox's Orange Pippin, Ribston and Nonsuch. Mr. Lane sent Fearn's Pippin, Cellini, Carnation, a handsome striped kind; Peach Apple, Red Astrachan, and Colonel Vaughan. Kerry Pippin, and nearly the same sorts as those just named, came from Mr. Wren, gr. to E. Purser, Esq., Carshalton. Mr. Newton had beautiful specimens of Cornish Gilliflower, which, though not generally handsome in appearance, is nevertheless one of the best-flavoured Apples in cultivation.

Plums.—These were present in abundance, large and fine. The best came from Mr. Bailey, who showed Jefferson, Victoria, and Washington. Mr. Simmonds, gr. to J. Smith, Esq., Dorking, sent Jefferson, Kirke's, and Washington. From Mr. Goldsmith, gr. to Sir W. Farquhar, Bart., came Kirke's, Washington, and Pond's Seedling. Mr. Sage and Mr. Wells also showed similar varieties. Among other sorts we noticed Coe's Golden Drop, Goliath, Greengage, Magnum Bonum, and Black Diamond.

Cherries.—These were chiefly confined to Morello, some fine dishes of which were exhibited. Other sorts were the Late Duke, Flemish, and Kentish. We, however, saw a beautiful dish of Bigarreau from Mr. Bailey, of Shardeloes.

Figs.—In some of the dishes shown of these, the fruit was very large and fine. The sorts were the Brunswick, Genoa, Brown Turkey, and Madagascar.

Nectarines.—These were for the most part somewhat small in size. The best came from Mr. King, gr. to R. Loder, Esq., Slaugham, and consisted of Violette Hâtive. Mr. Tillery, gr. to the Duke of Portland, had very good high-coloured examples of Elruge, and Mr. Ingle, gr. to C. G. Round, Esq., also showed the last-named variety.

Peaches.—These, like the Nectarines, were not remarkable for large size. The best dish of Royal George came from Mr. King; good Barringtons from Mr. Kaile; large and fine Walburton Admirable from Mr. Evans, gr. to Gen. Cartwright; and Royal George from Mr. Ingle. Some well fruited Peaches in pots were shown by Mr. Vertigan of Clapham, and Mr. Fraser.

Miscellaneous Fruit. — Mr. Sage, gr. to Earl Brownlow, furnished a large, handsome, but unripe cluster of the fruit of Musa Cavendishii. Mr. Carr had fine fruit of a violet-tinged variety of Musa sapientum, the Papaw (Carica Papaya), Peaches, Plums, and the large fruit of Passiflora quadrangularis. From Mr. Cuthill, of Camberwell, came a handsome oval, lemon-skinned Melon, weighing 5 lb. The seeds of it were received by Mr. Cuthill from Australia, where it is said to attain twice the weight just named. Mr. Sawkins, gr. to A. Smith, Esq., Bramfield, had Red Grape Currants still in a state of perfect preservation. Mr. Higgs had Willmot's Red Currant equally well kept. Large yellow, and both small and large red Capsicums were shown by Mr. Sage, gr., Ashridge.

Dahlias.—These were numerous, large, and fine, especially the blooms in the winning stands.

In the Class of 48, Varieties, Mr. Keynes, of Salisbury, had the 1st prize for beautiful examples of Annie Austin, Lord Derby, Leah, Mrs. Trotter, Charles Turner, Baron Taunton, Lord Shaftesbury, Queen of Primroses, Lord Clyde, Golden Drop, Andrew Dodds, Helen Potter, Queen of the Isles, Garibaldi, Earl Pembroke, Pauline, John Wyatt, Lord and Lady Palmerston, Jenny Austin, Princess, Donald Beaton, Lilac Queen, Marquis of Winchester, Lady Maude Herbert, Miss Henshaw, Disraeli, Hero, George Wheeler, Peri, Willie Austin, Ne Plus Ultra, Earl Russell, Bird of Passage, Juno, Foxhunter, Edward Spary, Miss Herbert, Charlotte Dorling, Chairman, Champion, Hugh Miller, Mrs. Wyndham, Lady Gladys Herbert, Annie Keynes, Mrs. Hogg, and British Triumph. To Mr. Keynes was also awarded the 2d prize in this class. Among other exhibitors in it were Mr. Walker of Thame, Mr. Wheeler of Warminster, Mr. Allen of Shacklewell, Wood & Ingram, Huntingdon, and Mr. Legge of Edmonton.

In the Class of 24 Blooms, Mr. Keynes was again the most successful exhibitor. His kinds were Leah, Jenny Austin, Chairman, Norfolk Hero, Baron Taunton, Hugh Miller, Lady Gladys Herbert, Andrew Dodds, Helen Potter, Mrs. Wyndham, Earl Pembroke, Golden Drop, Disraeli, Annie Keynes, Pauline, Lord Derby, Annie Austin, Champion, Bird of Passage, Charles Turner, Juno, Miss Herbert, Golden Gem, and Miss Henshaw. The next best collection came from Mr. Wheeler, who contributed among others good blooms of Bellona, Garibaldi, Lord Derby, Andrew Dodds, and Miss Henshaw. Messrs. Kelway & Sons, Langport, Somerset, Walker, Roe, Wood & Ingram, and Godden, all staged good flowers in this class.

In the Class of 12 Fancy Dahlias Mr. Keynes took the 1st prize with large beautiful blooms of Striped Perfection, Messenger, Patent, Magpie, Sam Bartlett, Pauline, Regularity, Formidable, J. Salter, Proserpine, Queen Mab, and J. Bunn. Mr. Legge contributed among others, fine examples of Mary Lander, Princess of Prussia, Glory, Lady Paxton, Eclat, and Lord Warden. Most of the exhibitors named above also took part in this competition.

In the Amateurs' Class of 24 kinds, Mr. Perry, of Castle Bromwich, was 1st with charming examples of Purity, Countess of Shelbourne, Delicata, Earl of Pembroke, Bob Ridley, Miss Roberts, Stella Colas, George Wheeler, Leah, Princess, Lord Derby, Hugh Miller, Ne Plus Ultra, Charles Turner, Umpire, Model, Maroon-coloured Seedling, Blush-coloured Seedling, Chairman, Bird of Passage, Volunteer, Lord Palmerston, Miss Henshaw, and Disraeli. From Mr. Thornycroft, Floore, near Weedon, came Lord Dundreary, Lilac Queen, Model, Umpire, Willie Austin, Triomphe de Pecq, Chairman, Charles Turner, British Triumph, Admiral Dundas, Annie Keynes, John Wyatt, Juno, Norfolk Hero, Lady L. Paulett, George Wheeler, Mrs. Church, Volunteer, Leah, Peri, Earl of Shaftesbury, Jenny Austin, Lord Derby, and Miss Henshaw. Mr. Hedge, Reed Hall, Colchester, had fine large blooms, among which Criterion, lilac, measured nearly half a foot in diameter. Duchess of Wellington, maroon, was nearly equally large, and we also noticed fine examples of Chairman and Norfolk Hero, the last a fine orange-salmon kind. Mr. Hopkins, of Brentford, and Mr. Leslie, St. Peter's, Margate, also showed in this class.

In the Class of 12 Blooms (Amateurs), Mr. Thornycroft was the most successful exhibitor. He had Miss Henshaw, British Triumph, Willie Austin, Champion, Baron Taunton, Lord Dundreary, Juno, Chas. Turner, Admiral Dundas, Lord Palmerston, Norfolk Hero, and Lord Derby. Mr. Petfield, gr. to G. Thornhill, Esq., who stood next in point of merit, had George Brown, Count Cavour, Edward Spary, Golden Gem, Mrs. Bush, Hugh Miller, Jenny Austin, Leah, Norfolk Hero, Baron Taunton, Lord Derby, and Charlotte Dorling. Mr. Perry, Mr. Dicks of Brockhall, near Daventry, Mr. Hopkins, and Mr. Bennett, also all showed good blooms.

In the Class of 12 Fancy kinds (Amateurs), Mr. Perry had considerably the best blooms; they consisted of Comus, Startler, a fine white-tipped deep mulberry; Gem, Garibaldi, Pauline, Harlequin; Messenger, a seedling something like Queen Mab but redder in colour; Miss Jones, Queen Mab, Countess of Bective, and Flirt. Summertide and Lady Paxton were also shown in beautiful condition by the same exhibitor, to whom a 2d prize was also awarded in this class. Mr. Thornycroft had a good third-rate stand.

Seedling Dahlias.—These were tolerably plentiful. The best two were Marquis of Winchester, deep maroon, beautiful in shape, both as regards the flower and petal, and Mrs. Savory (Church's), white, heavily tipped with purplish lilac; both these belong to Mr. Keynes, who received First-class Certificates for them, and for Lottie Atkins, a fine kind, described by us on a former occasion. Fanny Sturt, a Fancy kind in the way of Lady Paxton, from Mr. Pope, of Chelsea, also received a First-class Certificate. To Master of Arts, bronzy salmon, from Mr. Turner, a Second-class Certificate was awarded, and a similar mark of distinction was conferred upon Chung, a yellow kind striped and mottled with scarlet from Mr. Keynes.

Hollyhocks.—No spikes of these were shown, which there certainly should have been; but instead of them there were some very large and fine single blooms, especially those in a collection from the Rev. E. Hawke, of Willingham. Among them we noticed J. Ullett, Decision, Rev. J. Dix, Lady Des Vœux, Lord Palmerston, Imperator, Gem of Yellows, C. Eyre, Willingham Defiance, Lord Craven, Purple Emperor, Fair Ellen, Beauty of Mitford, Mrs. Cochrane, Lilac Perfection, Eminent, J. Clarke, Wm. Dean, Albion, Gladiator, G. Young, and G. Keith. Many of the blooms in other collections seemed considerably injured by the weather.

Verbenas.—Mr. Perry showed some charming sorts, conspicuous among which were Auricula, dark mulberry with large pale green eye; Black Prince, very dark with white eye; Snowball, one of the very best whites; Lilac King, a beautifully scented kind; Géant des Batailles, large dark crimson; Charles Perry, delicate pink with crimson eye; and among scarlets, Lord Leigh, Foxhunter, and Firefly, all fine varieties.

Roses.—Several boxfuls of these were shown in good condition. In a collection from Messrs. Paul & Son we noticed the glorious new yellow Tea Rose Maréchal Neil, a real acquisition; also Charles Lefebvre, Prince Camille de Rohan, Madame Boll, Madame Victor Verdier, Prince of Wales, Gloire de Dijon, Maurice Bernardin, Pierre Notting, Gloire de Santenay, and Madame Willermoz. The same exhibitors had also Alfred de Rougemont, deep velvety crimson; Louise Savoie, and Louise Magnan. In the Amateurs' Class the best blooms were contributed by Dr. Cooper, of Slough, who had among others Maréchal Vaillant, Senateur Vaisse, Guyet, Madame Boll, Gloire de Santenay, and Gloire de Dijon, all in excellent condition. Mr. Thornycroft, Mr. Hollingsworth, Mr. Hedge, Mr. Clarke, Brixton, and

Mr. Smith, gr. to T. Moxon, Esq., also all showed good Rose blooms.

Asters.—Both German and French kinds were shown in admirable condition. The French sorts especially were very large, and the colours bright and clean, while the German varieties were not less remarkable for their compactness and neatness. We should, however, like to see greater variety, both of colour and character, than was presented on this occasion, many of the sections into which Asters are now divided not being represented at all. Let us hope that this defect may be remedied next season.

Gladioli.—Cut spikes of these were shown in beautiful condition by Messrs. Kelway & Son, Langport, Somerset. Some of the best among them were Pliuus, light cherry, with white throat; Rubens, crimson-striped vermilion on pale ground; Raphael, purple-shaded vermilion, slightly veined with white; Prince Imperial, soft rose, stained with violet crimson; Ophir, yellow striped with purplish red, but scarcely so clear or good a yellow as Miss Sladden; Napoleon III., scarlet, striped with white, a find kind; Madame de Vatry, white, striped with purplish crimson; Madame Basseville, cherry, stained with purple on a white ground; Madame Vilmorin, shaded rose, with a large white centre; MacMahon, red striped rose; Maria Dumortier, large white striped and stained with violet and rose; Le Poussin, still a good old kind; Madame Rabourdin, rose veined with carmine and beautifully marked with white in the centre of each petal; Achille, feathered crimson with pale yellow throat; Monta, large soft rose relieved with a little white. We also noticed in this collection one or two promising seedlings, viz., Monta just noticed, Mrs. Stuckey, and Rosa. From Mr. Sladden, of Ash, came Miss Sladden, a good yellow; Prospero, crimson scarlet feathered with violet; and other good kinds. Mr. Ingle furnished Mrs. Ingle, a large showy light kind, and several yellows, all of which wanted brightness. From Messrs. Paul & Son came Fulton, bright scarlet; Princess of Wales, white, with rosy purple marking and stripes; La Quintinie, fine salmony scarlet; James Veitch, crimson, with violet feather; and Madame Furtado, a good carnation sort. Mr. Brown, Sudbury, also showed Gladioli. Yucca leaves, we observed, were employed by some exhibitors to set off their flowers, an unnatural practice, which cannot be too soon abandoned.

Fine-leaved Plants.—Of these Messrs. Downie, Laird, & Laing had a large and valuable collection, in which were assembled nearly all the ornamental-leaved Solanums in cultivation. It included S. pyracantha, with rich cinnamon spines and ribs; S. marginatum argenteum, with silvery shaded foliage of good size, which when moved by wind has a fine effect; S. robustum, with large spiny leaves; and S. auriculatum, with very ample foliage. Associated with these were Daturas, Wigandia caracasana, Nicotiana wigandioides, Polymnia grandis, with fine large deeply cut pale-green leaves; Ferdinanda eminens; Phytolacca dioica, with oblong leaves and red stems and leaf-stalks, and many others—all well worth the attention of lovers of fine-leaved plants for purposes of outdoor summer decoration.

Miscellaneous Subjects.—From Mr. Rhodes, Sydenham, came a fine boxful of cut flowers, and a similar exhibition was also furnished by Mr. Frisby, gr. to H. Chaplin, Esq., Blackney Hall, Sleaford. From Messrs. Waterer & Godfrey came an example of the beautiful glaucous or rather silvery-marked variety of Cupressus Lawsoniana. From Mr. Parker, of Lower Norwood, came Japan Lilies. Messrs. Downie, Laird, & Laing contributed some handsome varieties of Pentstemons, Antirrhinums, and Phloxes. Among the latter Le Lyon, Mrs. C. Wood, Triomphe de Twickel, and Vicomte de Beaumont, appeared to be good sorts. From Mr. Brown, of Sudbury, came specimens of Invincible Scarlet Sweet Pea, which is certainly an improvement in point of colour on the sort usually cultivated, specimens of which were also furnished by way of contrast. Mr. August, of Beddington, had a box of double and semi-double Zinnias. Messrs. James Carter & Co., of Holborn, furnished an extremely interesting display of Plant Cases, filled with much taste and skill; also beautiful plants of Mrs. Pollock Pelargonium, the best of all the tricolor-leaved kinds in general cultivation, and other subjects used both for in and outdoor decoration.

Ealing, Acton, and Hanwell Horticultural.—The first annual exhibition of this newly-established Society, under the presidency of the Right Hon. S. H. Walpole, M.P., was held the other day at the College, Elm Grove, Ealing, the residence of Dr. Sweete, who kindly placed his beautiful grounds at the disposal of the committee. The Society was only projected and established about three months ago by a few gentlemen residing in the neighbourhood, and so warmly has their object been supported that about 600 persons, including the leading families and cottagers of the locality, were present. It may be stated that the Society was formed mainly with the view of holding out an inducement to cottagers to contend for the prizes to be awarded to growers of useful vegetables and the more hardy and ornamental description of flowers, and such was the success of the experiment that the cottage growers were found very greatly to excel in merit the gentleman's gardener exhibitors of such productions as Potatos, Cucumbers, Onions, and Carrots. It may be stated as a proof of the thorough impartiality of the judges, that the greater number of prizes were awarded to the humbler class of exhibitors. At half-past four o'clock the Right Hon. S. H. Walpole addressed the company, expressing his gratification at the large assembly and the wonderful success of the Society. The show of fruits, flowers, and especially vegetables, was most creditable; but what particularly pleased him was the good that had at this early period been effected among the cottagers in the neighbourhood by giving them an inducement to devote their leisure time to gardening. He found that the number of subscribers was 170, and the amount of prizes in money awarded to exhibitors was 57*l*. He congratulated the committee on the success that had attended their efforts, and he had no doubt that at the first real annual meeting the number of the subscribers would be greatly increased.

The right hon. gentleman then distributed the prizes to the fortunate exhibitors and growers; and, after a vote of thanks to him, the company separated.

Notices of Books.

The figures in the recent numbers of *Seemann's Journal of Botany* represent *Erucastrum Pollichii*, *Hedera canariensis*, and *Mentha cardiaca*. The Erucastrum is the same as that rewarded with a gold medal by the Royal Horticultural Society as a new British plant, under the synonymous name of E. inodorum. This was found by Mr. Joshua Clarke on a sand heap near Saffron Walden, and is held to be with little doubt "one of the plants introduced from the continent by commercial intercommunication." Of the Hedera, Dr. Seemann writes:—"The existence of Hedera canariensis in Ireland has been so often asserted and denied that most botanists seem to look upon the plant as one of those phantom species which occasionally flit across the botanical forum. There is in gardens a very fast-growing large-leaved plant, commonly called Irish or Scotch Ivy. This plant, as I understand the species, is one of the many varieties of H. Helix. There is besides a plant which gardeners call Sharp-leaved Irish Ivy, and this I hold to be one of the varieties of H. canariensis. It occurs wild in Ireland, and is evidently the plant alluded to by Mackay in his Flora Hibernica." Dr. Moore says of it—"The plant known in gardens as the Sharp-leaved Irish Ivy, I do not remember ever seeing myself in a wild state. I, however, saw it lately growing at West Aston, Wicklow, and Mrs. Acton, mother to the present proprietor, who has resided there during the last 60 years at least, told me she remembered getting it from the late Mr. Hodgens, of Dunganstown, Wicklow, about 40 years ago, as a rarity he found somewhere in the neighbourhood of that place. I consider it to be the plant alluded to by the late Dr. Mackay in Flora Hibernica, who compares the leaves to those of Passiflora cœrulea! and states that it was found by Mr. Hodgens, and also on walls near Merrion. The latter place is about fourmiles from Dublin." A certain confirmation of H. canariensis being an indigenous Irish plant is afforded by its general geographical distribution, assuming it to belong to the Iberian type of our Flora; and acting upon that assumption I procured, through Dr. Welwitsch's kind offices, specimens of the Hedera growing in Portugal, and I was delighted to find it to be H. canariensis, thus furnishing another proof of the correctness of the accepted theory of plant distribution." The Mentha cardiaca of Gerarde is identified with the M. gentilis of Sole, and of English Botany, t. 449. Among the more important papers are some remarks on New Monimiaceæ, by Alph. De Candolle; on the Andrœcium of Mentzelia, by Dr. Dickson; a Revision of the English Mints, by Mr. J. G. Baker; on the Genus Faradaya, and a Continuation of a Revision of the Araliaceæ, by the Editor.

Catalogues Received.—*J. Carter & Co.'s Vade Mecum*, Part 4, in addition to complete lists of Dutch bulbs, comprises a good many of the rare Cape bulbs, as Ixia, Sparaxis, &c.—*F. & A. Dickson & Sons' Catalogue of Dutch Flower Roots* offers a selection of the best kinds.—*C. Turner's Catalogue of Bulbous Flower Roots* gives, besides Dutch bulbs, an extensive list of choice Tulips.—*B. S. Williams's Bulb Catalogue* is a good general list; the second part devoted to new Pelargoniums.—*W. Cutbush & Son's Bulb Catalogue* is an excellent list of select sorts.—*W. Paul's Select List of Hyacinths, &c.*, is supplemented by a useful list of Spring-flowers, hardy and tender.—*W. Bull's Retail List of New Plants for the Autumn of* 1865 comprises many interesting novelties; amongst others the fine Allamanda Hendersonii, and the Duplex Mimuluses, of which 12 varieties are offered.—*Adolph Stelzner's* (Ghent) *Preisliste* is a rather full general list of new or recent plants.—*Jean Verschaffelt's Catalogue des Plantes* contains a very complete series of Azaleas, Camellias, and Rhododendrons, besides a general list of choice stove and greenhouse plants, and a good collection of Agaves, Yuccas, and allied subjects.—*Eugène Verdier fils aîné* issues a list of *Gladioli*.

Florists' Flowers.

We are glad to see that the cultivators of the Tulip, who are most numerous in the midland and northern districts, and by whom the National Tulip Society is from year to year upheld with a varying degree of spirit and success, have determined to make an effort to carry out the exhibitions of this flower on a more permanent and satisfactory footing than heretofore. At the annual dinner of the present year, as we learn from our contemporary the *Florists' Guide*, various resolutions, to which we are happy to give further publicity, were agreed to; and if these are carried out in the spirit in which they appear to have been originated, we cannot but expect a more prosperous future for the National Society. The principal resolutions are as follows:—

"That the next annual exhibition of the National Tulip Society be held in Birmingham."

"That Mr. W. R. Lymbery, of Nottingham, be appointed Permanent Secretary."

"That a National Committee of Tulip growers be appointed, and that one or more be selected from each district or town where Tulips are grown."

Then follow the names of those who were nominated, with power to add to their number, namely, Messrs. Steward of York, Hextall of Ashby, Haynes & Parkinson of Derby, Rev. S. Creswell of Radford, Barber of Stanton-by-Dale, Battersby of Mansfield, Bagshaw of Sheffield, Barlow of Stukehill, Lee of Leigh, Hart of Stockport, Hart & Dixon of Leeds, Dean of Shipley, Hardy of Warrington, Hepworth of Huddersfield, Jackson of Deighton, Turner of Slough, Betteridge of Steventon, Headley of Stapleford, W. Willison of Whitby, Wiseman, Barnes, and Sharp of Birmingham, and Colman of Norwich.

"That Mr. J. P. Sharp be appointed Local Secretary for Birmingham, for the current year."

"That Mr. Lymbery's form of schedule be adopted as a model or basis, but the amount of prize money to be awarded to be in accordance with the funds at the disposal of the Local Committee of Management for each show, and arranged between them and the Permanent Secretary on the 1st of May in each year."

"That the show of Tulips for each year be held between the 20th and 30th of May; and that each exhibitor be supplied with a proper form to fill in the date on which he may wish the show to be held, which form must be returned on or before the 1st of May in each year to the Permanent Secretary, together with post-office order for his year's subscription; and that the schedule be sent out in one week from that date."

"That the only days on which the shows should be held be either Tuesday, Wednesday, Thursday, or Friday, in each year."

"That the duty of each Local Secretary or Manager shall be to get all the assistance he can, either by donations or subscriptions; form his own Committee and be responsible for their acts; choose the place of exhibition, and make the best arrangements he can to make it profitable to the Society. He shall communicate with the Permanent Secretary whenever he thinks it necessary, and shall make all his arrangements before the 1st day of May. Immediately on the receipt of returns from the members of the Society, the Permanent and Local Secretaries shall decide upon the Schedule of Prizes, and it shall be sent out by their joint advice by the Permanent Secretary."

With a more permanent organisation of this kind the Society has a better chance of flourishing and extending its influence than under the intermittent character by which its previous existence was marked, the more especially so if the various elements of which the working body must necessarily be composed will be content simply to work in harmony for the common good.

The Apiary.

"Will you kindly give me some advice as to what I am to do under the following circumstances indicating Barrenness in a Queen Bee!

"Having forced a swarm from my stock hive, four royal cells were constructed, and when the queens had nearly arrived at maturity I removed one royal cell, which was attached to a good brood-comb, with the bees clustered thereon, and placed it with other spare combs in a nucleus box. The bees were confined for six hours, at the end of which time the queen had come out and had been well received. The bees set to work merrily, the brood is nearly all hatched out, and some honey has been stored, but still the queen shows no signs of breeding. She appears to be quite barren, and as a full fortnight has elapsed since she emerged from the cell, I fear she will remain so. I have inspected the combs several times, and there is no egg nor worm in any cell. The queen I have also seen repeatedly, and she appears to be just the same size as when hatched. She cannot therefore have been impregnated. Her wings appear to be perfect, and when under observation, she is generally racing very actively over the combs. The hive is therefore stationary, with certainly not a sufficient number of bees to go through the winter.

"Ought I to remove this barren queen, and add a suitable brood-comb (without the bees), for the purpose of inducing the bees to raise another queen?

"The swarm forced from the stock, with the old queen at its head, has progressed bravely, and is now quite strong.

"The parent hive appears to be doing well with its young artificially-raised queen. The bees swarmed on the coming out of the queens from the royal cells, remaining after the abstraction of the one as before-mentioned. I found and removed two of the queens,

but could not after a long search find the third, so I shook back the swarm into the parent hive, since which all has gone on well and quietly. *J. H. H., Fulham Road, London.*"

The foregoing letter ought to have received attention some weeks ago, but want of space, which has prevented its being replied to at sufficient length, must be our excuse for the delay. When forming a nucleus, it is better as a rule when practicable to give at least two royal cells, as there is less probability of failure than where one only is inserted. Four royal cells are not many for a stock hive to raise after having been deprived of its queen. We have known as many as 16, and have heard of more, being found in a hive after a swarm has been taken from it. There seems no reason why your queen should prove to be a barren one, as a fortnight is by no means an unusual time to elapse before eggs make their appearance. We should not be at all alarmed about the matter. When your letter was written, drones were still plentiful in your apiary, and ere this reply is in print, most probably you will find your queen has become a fertile mother. If our surmise is correct, give a little food every evening, by means of the inverted bottle feeder; this will excite the queen to fill the combs with eggs, and you will, by this means, obtain a sufficient population to carry the hive through the winter.

Queens do usually increase considerably in size after impregnation and before egg laying, but occasionally they continue for a long time remarkably small and attenuated. The racing over the combs by a young queen is however usually regarded by us as a sign of her being still a virgin. If your queen should remain barren, or have shown herself to have been a decided drone-breeder, we should not advise, at this late period of the season, to attempt to raise another. It would be better to unite your bees and combs to another of your weaker hives.

You did wisely in returning the swarm to the old stock, as it would have done but little good without liberal feeding, and the stock hive would have been considerably weakened.

Bees and Beehives at the Royal Agricultural Show at Plymouth.—Among the objects of interest to be seen at the Royal Agricultural Exhibition held at Plymouth this year, there were few stands which attracted more attention than that of Messrs. Neighbour & Sons, who exhibited a large and varied collection of all the paraphernalia connected with bees and bee-hives. In addition to specimens of the hives kept by them were two hives containing living bees, which were allowed the liberty of egress and ingress. One of these consisted of a Unicomb Observatory-hive, in which was a stock of Ligurian bees, having at their head a splendid yellow Italian queen. The other was a square glass hive stocked with English bees. This being a bar-and-frame hive showed the position of the bars and frames, with the combs and the bees clustered thereon. Both these hives were brought down from Mr. A. Neighbour's Apiary, near London. The bees obtained ingress and egress through the wall of the shed and enclosure by means of covered ways, nearly 3 feet long, which appeared to inconvenience them but little, whilst being covered with glass, they added greatly to the interest with which they were observed. By way of exemplifying the results of the honey harvest of the season, Messrs. Neighbour exhibited two very fine supers of honey-combs; one a square glass box from the apiary of Mr. Woodbury, of Mount Radford, Exeter; and the other, a large octagonal glass box filled with remarkably splendid looking honey-comb, from the apiary of Mr. S. Bevan Fox, also of Exeter.

Garden Memoranda.

Messrs. Lane & Son's Nursery, Great Berkhampstead, Herts.—Few horticultural establishments afford more genuine horticultural interest than this; for, in addition to one of the most extensive and valuable collections of Roses in the country, it possesses Graperies of large extent, in which are not only grown thousands of young Vines for sale, but also bunches of Grapes, whose colour, bloom, and weight have astonished even cultivators who have made Grape growing their especial study. To this let us add, a magnificent collection of fruit trees in pots, housefuls of specimen Azaleas, grown and trained with much taste and skill, and a well-varied healthy assortment of general nursery stock.

The principal Vinery is 132 feet in length and 24 feet in width. The Vines, which are planted outside in a border raised above the ordinary level of the ground, stand about 5 feet apart, and the intervening spaces are occupied with Vines in pots. This house furnishes annually enormous crops, not only on the permanent Vines, but also on those in pots which produce from 8 to 9 fine bunches on a rod. Bunches of Snow's Muscat Hamburgh grown in this house have weighed as much as 4 lb. 13 oz. each. Golden Hamburgh has also been wonderfully fine, as has likewise been Foster's Seedling, a white variety with long tapering handsome bunches of transparent round berries. Of Chavoush, another comparatively new Grape, we noticed good examples; and bunches of Frankenthal, Trentham Black, Black Prince, Lady Downe's, Barbarossa, West's St. Peter's, Bowood Muscat, and Buckland Sweetwater, a short time ago might have been counted by hundreds, the white kinds possessing a beautiful golden tinge, and the black sorts in all respects remarkably perfect. The Monukka, a stoneless Grape, has fruited here this season; but its flavour has not been good. Muscat Trovéren has proved to be a good free-setting Grape of fine flavour, well suited for early forcing. Of seedling Grapes Messrs. Lane have one with wonderfully large bunches, the berries in which measure individually quite 3 inches in circumference, and when separated from the bunch have more the appearance of Plums than Grapes. It is good in flavour, the skin thin, and the seeds not unusually large. Its colour, a deep amber, is somewhat against it, but under more liberal treatment it may become perfectly black, the border in which the Vine is growing being merely a makeshift one about 2 feet in width and not much more in depth. Be that however as it may, the variety, which evidently belongs to the Hamburgh section, is well worth attention, if only for its size.

The home nursery, as it is familiarly termed, or that which contains the glass houses, occupies the sloping side and lower portion of a delightful valley through which the London and Birmingham Railway runs. Here has been formed a hardy winter garden, in which ample diversity both of form of bed and colour may be found. A great circular central bed contains thriving young plants of Wellingtonias, the peculiarly fresh and pleasing green of which forms a good contrast with Golden Yews, Variegated Hollies, Yuccas, Thuja gigantea, Cupressus Lawsoniana, Thujopsis borealis, Thuja aurea, Irish Yew, Box, and plants of that description, beds of all of which may be seen here, divided from one another only by means of narrow circuitous walks. Still further up the hill are compartments containing examples of most of the different kinds of Roses in cultivation, flanked, or rather supported, by a little arboretum, conspicuous in which is one of the most striking plants that can be employed in giving point and effect to groups of hardy materials used in ornamental planting, viz., the white-leaved Acer Negundo. From the top of this slope, clad as it is from June to the present time in colours such as the Queen of Flowers alone can furnish, a fine view of charming park scenery which lies on the other side of this valley, may be obtained.

Among Roses remarkable for very high colour as well as for other qualities constituting first class flowers, Senateur Vaisse, Charles Lefebvre, Olivier Delhomme, and Pierre Notting certainly stand in the first rank; Baron Adolphe de Rothschild, Alphonse Damaizin, Lord Clyde, Maréchal Vaillant, Professor Koch, and many others are also brilliant varieties, without which no collection can be complete; but the cream of the glowing crimson scarlet kinds is undoubtedly the four first named. Prince Camille de Rohan, Vicomte Vigier, and Duc de Rohan are all very dark rich velvety crimson sorts, which in a half blown state are extremely pretty, and which when skilfully set in bouquets are perfect gems. These are all Hybrid Perpetuals, a class to which Madame Alfred de Rougemont and one or two other white kinds are interesting recent additions. In this section, however, great improvement must yet be effected before it can be at all placed on an equality with that of the Scarlets. Emotion, Modèle de Perfection, and Madame de Stella are good light-coloured Bourbons, and of Yellow Teas, Jaune d'Or and Madame Falcot are both acquisitions, as is also Marquise de Foucault, a fine cream-coloured kind, while Triomphe de Rennes, deep lemon, and Madame Alfred de Rougemont, beautifully cupped, shaded French white, are fine features of the Noisette class. Of old and tried favourites in all classes the name is legion. We might add the names of Roses suitable for forcing for the early spring decoration of greenhouses and conservatories; but Messrs. Lane have saved us the trouble by printing a list of the best sorts for that purpose at the end of their Rose Catalogue.

What are called the Balshaw Nurseries, also belonging to Messrs. Lane, are situated on Berkhampstead Common, a large tract of elevated ground, from which magnificent views are obtained in all directions. Here, the soil being excellent and the air pure and healthy, Roses grow with great vigour, and bloom with a profusion unknown to them in less favoured localities. Even comparatively tender Conifers resist cold better here than in low grounds where moisture hangs about their leaves. Araucaria imbricata may be found here in thousands—fine plants, varying from 2 feet to 12 feet in height, densely branched from top to bottom; Douglas Fir grows here plentifully, strong symmetrical little trees from 10 to 15 feet in height; Cupressus Lawsoniana and Thujopsis borealis, together with T. dolabrata, Abies Nordmanniana, nobilis and a particularly glaucous variety of the last, as well as Wellingtonias, are planted here in wonderfully large numbers. On some of the Wellingtonias are cones which promise to ripen seeds this season. Plantations of Junipers, Irish Yews, Thujas, and Arborvitæ line the paths on every side. Among ordinary evergreens we noticed Berberis Aquifolium, which is extensively grown for cover, for which it is very suitable. Among Portugal Laurels we remarked some very fine Standards, trained in imitation of Orange trees, with large bushy heads and straight stems some 4 or 5 feet in height. Scarlet-flowering and other ornamental Thorns are also extensively cultivated in the shape of Standards. Rhododendrons and other American plants form quite a conspicuous feature of these grounds, in which they are found to thrive in ordinary yellow loam as well as in peat. To these, as well as to other nursery stock, some 70 acres are devoted.

Another nursery belonging to Messrs. Lane, also occupying elevated land, is situated on Wiggington Common. This is devoted chiefly to fruit trees, of which there are large quarters, both trained and untrained, dwarfs, and standards, all as healthy and clean as it is possible for stock of this description to be. One of the principal features of this nursery is an avenue of Araucarias and Deodars, about half a mile in length, the trees of which it consists being some 8 and 10 feet in height, and of uniform size. The effect produced by them is therefore excellent. The Araucaria is considered by many to be too stiff and formal a tree for avenues; in the west of Scotland it is, however, used largely for that purpose, and wherever the situation is suitable for free and healthy growth it may doubtless be employed in that way with advantage.

Miscellaneous.

The late Mr. Hugh Cuming.—We have to record the death of one of the most distinguished of Natural History travellers, and the possessor of the finest and most extensive conchological collection that has ever been formed. In both these capacities the name of Hugh Cuming has long had a world-wide celebrity; and few men, if any, have contributed so largely to the material extension of the Natural Sciences, which, from his infancy, formed a subject of his eager and almost passionate pursuit. Mr. Cuming was born at West Alvington, Kingsbridge, in the county of Devon, on the 14th of February, 1791. Even as a child his love of plants and of shells displayed itself in a remarkable manner; and under the friendly patronage and encouragement of Colonel Montagu, the celebrated author of "Testacea Britannica," who resided in the neighbourhood, it was largely fostered and developed. Apprenticed to a sail-maker, he was brought into contact with seafaring men, and in the year 1819 he made a voyage to South America, and settled at Valparaiso. Here his passion for collecting shells found an ample field for its development, and was greatly stimulated and assisted by the English Consul, Mr. Nugent, and by several officers of the British Navy among others, by Lieut. Frembly and the officers of the surveying ships under the command of Capts. King and Fitzroy. In 1826 he gave up his business in order to devote himself wholly to his favourite pursuit. With this object he built a yacht, expressly fitted for the collection and stowage of objects of Natural History; and a cruise of upwards of 12 months among the islands of the South Pacific amply rewarded him for his toils in dredging and collecting by sea and shore. On his return to Valparaiso he prepared for a voyage of more extended duration along the western coast of America; and his reputation being now widely extended, he started under peculiar advantages. The Chilian Government granted him the privilege of anchoring in its ports free of charges, and of purchasing stores free of duty, and he was furnished with letters to the authorities of all the States which he visited, who, in consequence, received him with marked attention, and gave him every possible facility. After two years spent in exploring the coast from the Island of Chiloe, in lat. 44° S., to the Gulf of Conchagua, in lat. 13° N., dredging, while under sail and at anchor, in the bays and inlets, searching among the rocks, turning over the stones at low water, and rambling inland over the plains, river banks, and woods, Mr. Cuming returned with all his accumulated stores of plants and animals to his native land. The Zoological Society had just previously been established, and it was in 1831 that its evening scientific meetings began to be enlivened by the brilliant displays of new shells from his cabinet, which were described by the late Mr. Broderip and the late Mr. G. B. Sowerby; while the anatomy of some of the more interesting mollusks formed the subject of papers by Prof. Owen. For four-and-thirty years his unrivalled collection has continued to supply fresh novelties for these meetings, and the supply is still far from being exhausted. In 1835 he determined to undertake a new expedition, and fixed upon the Philippine Islands, rich in natural productions, little explored, and where his knowledge of Spanish would be of great advantage, as the scene of his labours. Letters of recommendation from the authorities at Madrid to the Governor-General at Manilla, to the Governors of the various provinces into which the islands are divided, and to the Archbishop of Manilla, procured him a hospitable welcome among all ranks, but especially among the clergy, wherever he presented himself. Although his dredgings and wanderings by the sea-shore were by no means inconsiderable, his attention was now more particularly directed to the woods and forests of these luxuriant islands, and in them he reaped a most abundant harvest of plants, and filled his store chests with innumerable specimens of such a magnificent series of land shells as had never before rewarded the exertions of a collector. In every locality Mr. Cuming became the guest of the padre, or priest, always the chief personage of the district in the interior of these islands; their houses,

their equipages were placed at his disposal, and, what was of still greater importance, the services of the school children, educated at the expense of the Spanish Government, and numbering in some places as many as four or five hundred, were secured to scour the woods for snails and plants. Small bribes of money were most effectual in directing the lynx eyes of these youthful collectors to the detection of such as were especially pointed out to their notice, and shells which gladdened his eyes by their exceeding novelty and beauty were brought to him from day to day in quantities which seemed prodigious. After four years spent among the islands of the Philippine group, and short visits to Malacca, Singapore, and St. Helena, Mr. Cuming returned to England with the richest booty that had ever been collected by a single man. His dried plants, which numbered 130,000 specimens, were immediately distributed, as well as his living Orchids, which were numerous and of great beauty. Large numbers of birds and reptiles, quadrupeds and insects, were also added to the museums at home and abroad. But his shells formed by far the most important part of the spoils which he had secured. Before leaving England he had brought together, through his Pacific and South American collections, and by means of purchase and exchange, the largest and most valuable private collection then in existence. His vast Philippine collections enabled him to increase this to an enormous extent; and during the five-and-twenty years that have since elapsed he has been untiringly engaged in its arrangement and completion, in adding to it by purchase and exchange, and in getting the species described and figured by conchologists, both at home and abroad. It is stated by Mr. Reeve that it contains not fewer than 30,000 species and varieties, and in most cases several specimens of each. Mr. Cuming had long been subject to chronic bronchitis and an asthmatic affection, each successive paroxysm of which afforded his friends more and more serious grounds of alarm. His last attack came on on the 26th of July, after a visit to the Crystal Palace; dropsical symptoms, to which he had before been subject, reappeared; and he died on the 10th of August, at his residence in Gower Street, surrounded by the collections which had been the object and the solace of his life; and in the contemplation of which he had continued to occupy himself until within a few hours of his death. He had from time to time disposed of his duplicate specimens to the various public and private collections of Europe and America, and always took pleasure in acknowledging that his expenses and his labours had been amply repaid. "The great object of my ambition," he writes of himself, in the year 1858, "is to place my collection in the British Museum, so that it may be accessible to all the scientific world, and where it would afford to the public eye a striking example of what has been done by the personal industry and means of one man." Sincerely do we echo the wish of the world of science, that this object may ere long be accomplished. *Athenæum.*

Aconite mistaken for Jalap.—Some serious and fatal accidents have recently occurred at Constantinople, through the root of Aconite having been mistaken for jalap. From what we can gather from the account of the occurrence given by Professor Dr. C. D. Schroff, of Vienna, it would appear that a merchant at Constantinople received from Calcutta a parcel of a drug which he considered to be jalap, and which he sold as such to several apothecaries and druggists. This terrible error was soon followed by serious consequences. A fatal case of poisoning occurred, and suspicions having been aroused respecting the medicine which the patient had taken, the danger was traced to the supposed jalap. A further examination revealed the fact that this drug was in reality Aconite root, and of that peculiarly poisonous variety which is known in India as Bikh, and which is commonly attributed to Aconitum ferox, Wall., although the roots of other species are also collected under the same name. The confounding of drugs so little similar as jalap and Aconite seems, at first sight, to indicate extraordinary ignorance on the part of the purchasers. But we have found upon examination that some of the larger roots of the Indian Aconite have a certain distant resemblance to the small and inferior jalap tubers that have of late years appeared in the market. A very cursory examination, however, will immediately show their distinctness. *Pharmaceutical Journal.*

The Origin of Otto of Roses.—Otto of Roses has been made for a very long time in India, and Lieutenant-Colonel Polier thus relates its origin in the *Asiatic Researches*:—"Noorjeehan Begum (Light of the World), the favourite wife of Jehan-Geer, was once walking in her garden, through which ran a canal of Rose water, when she remarked some oily particles floating on the surface. These were collected, and their aroma found to be so delicious that means were devised to produce the precious essence in a regular way." *Rimmel's Book of Perfumes.*

Calendar of Operations.

(*For the ensuing week.*)

FEW autumn-blooming plants are more attractive than Japan Lilies. They come into bloom at a time when the beauty of New Holland plants is over, and when an actual scarcity of flowering plants exists, wherewith to decorate our conservatories and greenhouses. They produce a gorgeous display either in-doors or out; and as they are quite hardy they may even be liberally planted in the open border. The cultivation of them in pots is by no means difficult. Immediately when the bulbs go to rest is the proper time to repot them. If large specimens for particular display are required, large pots may be employed, and half a dozen flowering bulbs placed in each pot. Rough peat, intermixed with a little loam and silver sand, is the best kind of soil for them. The pots should be well drained, and the crown of the bulb should be just covered with the soil. When potted they should be placed in a cold pit or frame, and where room under glass is an object in winter, they may even be plunged in the open air in coal ashes, in a manner similar to potted Hyacinths.

FLOWER GARDEN AND PLANT HOUSES.

Stove plants which flower upon young wood may now receive a shift. Those, on the contrary, which flower upon the ripened wood, must be gradually encouraged to go to rest. Poinsettias, which do not flower until January, may be repotted now, and freely supplied with liquid manure; under this kind of management the floral leaves will be double the size that they would be if less liberally treated. Before the season is further advanced, every gardener should calculate, as nearly as he can, whether the extent of his framing conveniences will be sufficient to afford shelter during winter to his stock of established half-hardy plants, as well as those he is now propagating. If his room is deficient, he must either restrict autumnal propagation within certain limits, or prepare additional pits without further loss of time. Brick pits are of course the most durable, and although expensive in the first outlay they are cheapest in the end. A common make-shift pit however might be built of turves; it will last several seasons and prove very warm.

BALSAMS.—Keep these in beauty as long as possible. Do not let them suffer from want of water, remove all dead blooms, and keep the foliage clean and healthy.

DAHLIAS.—Exhibitions of these will now be held plentifully all over the country, and to procure fine blooms for them will test the skill and patience of many an amateur. Early flowers, from which it may be desirable to save seed, should have attention, and as they wither, the decaying florets should be extracted. Seedlings, especially weak late-blooming ones, that give any evidence of merit, though they may not be quite up to the mark in every respect, should be taken care of, to be tried again, as high cultivation another season may induce a more favourable development of their good qualities.

HOLLYHOCKS.—Save seed from the best kinds. Some adopt the plan of removing the upper part of the spike, leaving six or eight of the early blooms. When the plant throws up four or five stems, and propagation of the variety is an object, one or more of the spikes of flowers may be sacrificed; the stem may be split, cut in lengths, with a bud in each, and placed under a hand-glass, taking care that the small portion of shoot retained is covered with soil, leaving the point of the bud exposed. Strong young plants may often be raised in this way.

FORCING GARDEN.

CUCUMBERS.—Where a supply is required during winter, vigorous young plants should be secured at once from seed, as plants that have been bearing through the autumn, however promising they may look, seldom answer well for winter fruiting.

MELONS.—Where fruit is ripening give air as freely as the state of the weather will permit, and keep the atmosphere as dry as possible. If late plants are infested with spider, syringe morning and afternoon as freely as can be done without injuring the leaves; in short, use every means to get the plants perfectly clean, while water can be employed without danger of creating too much damp.

PINES.—Be careful not to over-water fruit that is ripening. Endeavour to afford growing stock a steady bottom-heat of about 70°, and keep it well supplied with manure-water at the root, but avoid getting the soil too wet. As fire-heat will soon be necessary to a considerably larger extent than has been the case during summer, care must be exercised to secure a properly moist state of the atmosphere, keeping the evaporating pans or troughs regularly supplied with water, and moistening the floors, &c., frequently, as any sudden change from a moist to a dry state of the atmosphere would be injurious to growing stock, and also to plants swelling their fruit. Be as sparing of fire-heat, however, as circumstances will permit, and shut up early. Where young stock is grown in dung pits care must be exercised after this season not to get the plants weakly through keeping them too close and warm; air should be admitted freely on every favourable opportunity, and sufficient command of warmth should be secured from the linings, to allow an opportunity of giving a little air at night and on warm cloudy days.

VINES.—Remove all decayed or unhealthy berries from ripe Grapes, and keep the house well aired and free from moisture.

HARDY FRUIT AND KITCHEN GARDEN.

Look over gathered fruit frequently, in order to see that nothing is going wrong with it. Keep it as thin as possible on the shelves on which it is placed.

CABBAGE.—A sowing may now be made for spring use. Plant out those sown last month for Coleworts.

CELERY.—Earth up plants of this in an advanced state of growth, choosing a dry day for the purpose.

LETTUCE.—Sow Brown Cos and Hardy Cabbage for spring use, and plant out those sown last month in a warm situation, where they will be useful late in the season.

SPINACH.—Make a sowing for the winter and spring supply.

TURNIPS.—A sowing may soon be made of early Dutch for spring use.

WINTER GREENS.—Plant out these on Potato ground as soon as the crop is up, and provide against the supply being less than the demand.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the Week ending Aug. 30, 1865, as observed at the Horticultural Gardens

August.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth 1 foot deep.	Temperature. Of the Earth 2 feet deep	Wind	Rain.
Thurs. 24	3	30.161	30.117	78	50	64.0	64½	62	W.	[illegible]
Friday 25	4	30.268	30.199	74	43	58.5	65	63	N.E.	[illegible]
Satur. 26	5	30.290	30.263	76	41	58.5	64	62½	E.	[illegible]
Sunday 27	6	30.216	30.141	82	50	66.0	64	62½	S.	[illegible]
Mon. 28	7	30.227	30.133	71	49	60.0	65	63½	N.	[illegible]
Tues. 29	8	30.078	29.951	68	40	54.0	64	62	N.W.	[illegible]
Wed. 30	9	29.975	29.944	73	39	56.0	63	62	N.	[illegible]
Average.		30.173	30.107	74.5	44.5	59.5	64.2	62.5		[illegible]

August 24—Fine; clear and very fine, with drying air.
— 25—Light clouds and fine; very fine.
— 26—Foggy; very fine throughout; cool at night.
— 27—Slight fog; fine; overcast; very fine and hot; fine.
— 28—Slight rain: overcast and warm.
— 29—Overcast; very fine throughout.
— 30—Clear and cool; very fine throughout.
Mean temperature of the week, 1 deg. below the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 39 years, for the ensuing Week, ending Sept 9, 1865

September.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday.. 3	70.4	47.6	59.0	17	0.49 in	3	7	3	[illegible]	6	[illegible]	[illegible]	[illegible]
Mon. .. 4	70.5	46.4	58.4	17	0.58	5	7	4	4	4	[illegible]	[illegible]	[illegible]
Tues. .. 5	69.8	47.2	58.5	16	0.30	3	[illegible]	[illegible]	—	4	[illegible]	[illegible]	[illegible]
Wed. .. 6	69.6	46.4	58.0	18	0.70	1	10	4	—	1	15	[illegible]	[illegible]
Thurs. .. 7	69.8	47.5	58.6	18	0.55	1	[illegible]	6	1	6	1	[illegible]	[illegible]
Friday .. 8	69.0	47.7	68.3	17	0.65	3	7	2	2	3	[illegible]	[illegible]	[illegible]
Satur. .. 9	69.8	48.0	58.4	17	1.09	—	6	2	3	5	[illegible]	[illegible]	[illegible]

The highest temperature during the above period occurred on the 6th, 1859—therm. 84 deg.; and the lowest on the 6th, 1850—therm 30 deg.

Notices to Correspondents.

ECCREMOCARPUS: *C B.* The specimen is a very curious one. Most probably cuttings taken from it would perpetuate the sport.

FUNGI: *Dunnyland.* The Fungus is Scleroderma vulgare. It is closely allied to the Puffballs, though very distinct in structure. It seems peculiarly abundant this year. *M J B*

GARDEN LABOUR: *Subscriber.* All depends on the style of keeping. The general rule is to reckon one man to the acre, exclusive of superintendence. Your acre and a half should by this rule furnish employment for two men, one of whom would take the supervision.

GLADIOLUS BRENCHLEYENSIS: *Youell & Co.* The flowers sent of this fine decorative variety are very fine this season.

GRAPES: *G B.* Your Grapes are affected with the too common disease called shanking, for which there is no certain remedy when once it has commenced. Its cause may be unhealthy and deficient foliage, or some sudden privation of too great a portion of the latter.

GUANO-WATER: *Reader.* The quantity depends on the strength of the manure. Half an ounce to the gallon may be taken as a general guide. But you may not apply this or any other liquid manure as freely to Pelargoniums as to Strawberries

INSECTS: *Sir W C.* Your young Fir shoots are attacked by the small beetle Hylurgus piniperda. We know no other remedy at this period of the year than that of carefully picking off the injured shoots below the wound (so as to insure the presence of the beetle in the excised part), and then burning the shoots. Later in the year the beetles leave the trees and winter in the rubbish at their roots, which must also be carefully raked off and burnt.—*R D S.* You may look for the Death's Head moth making its appearance in the perfect state about the beginning of October; keep the earth in as natural a state as you can.—*T S P.* We cannot think the young larvæ of the dark Fritillary butterfly are hybernating yet. Try them with leaves of some other plant allied to the Violet. We should be glad of a specimen or two in spirits, as well as of the chrysalis.—*Smith.* We found no evidence of insects having been at work on your Grapes. *W.*

INTERNATIONAL HORTICULTURAL EXHIBITION: *R T.* The movement is going forward very satisfactorily. We can assure you it has been commenced, and will be carried on as a perfectly independent movement, the aim of which is the general advancement of horticulture, and the promotion of amity between cultivators of every class and of every clime. You must support it.

MUSHROOMS: *J S.* Your Mushrooms are A. arvensis, quite as wholesome as A. campestris, though not so delicately flavoured. The large baskets in Covent Garden Market consist almost entirely of this species.—*C F.* The best way is to insert little bits of Mushroom spawn in the turf. This plan is sometimes successful. The best time perhaps is in spring, as soon as the later frosts are over.—*J M.* Your Mushrooms are quite right. There is no fear about using them. *M J B*

NAMES OF FRUITS: *J P.* Apricots—The Breda; Pear, English—Caillot rosat.—*W W.* 1, Hughes's Golden Pippin; 3, Old Golden Pippin; 5, London Pippin; 8, Court Pendu Plat; 12, Hawthornden; 13, 15, 18, New Rock Pippin; 19, Boston Russet; 20, Sturmer Pippin.

NAMES OF PLANTS: *G A.* Lycium barbarum.—*A B.* 1, Gomphlebium appendiculatum; 2, Oxalis corniculata atropurpurea.—*R B.* It is impossible to identify your plant from buds not half-grown. Most likely they fall off because they have not had sufficient heat.

ORCHID FLOWER: We have in vain endeavoured to get the little Orchid named which was sent to us about a month since. The initials have unfortunately been lost, but if a specimen can be sent still to Rev. M. J. B., King's Cliffe, we will make another trial. *M J B.*

SCARLET PELARGONIUMS: *Alpha.* We take the words "Scarlet Pelargoniums" in a prize schedule to mean the family group, and not the colour of the flower; and so, unless the white and rose-coloured were separately mentioned, we should hold them to be included in a class where the prizes are offered for Variegated or Scarlet Pelargoniums.

THE LADY STRAWBERRY: *E R.* All we know of this new variety of Mr. Underhill's is that her portrait is handsome, indeed she looks every inch a "queen." We hear, however, that she is as good as she looks to be.

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The Agricultural Gazette.

SATURDAY, SEPTEMBER 2, 1865.

MEETING FOR THE ENSUING WEEK.

Wednesday, Sept. 6 } Sparkenhoe Farmers' Club, at Loughborough.
Thursday, — 7 }

We had occasion some months ago to describe a farm of 800 acres on the eastern side of London, which is cultivated 10 to 14 inches deep, manured sometimes at the rate of 80 tons per acre in the year, and yields 30, 50, even 70 tons of Cabbages and Greens in two or three successive crops within 12 months; producing also 12 to 20 tons of Carrots per acre, 10 to 14 tons of Onions, and so on. Its management involves an expenditure of 6000*l.* in labour, and nearly as much in rents and rates, the payments altogether coming nearly up to 15*l.* an acre every year. This was the case of a deep light-land farm on gravel, naturally fertile but cultivated with hardly any draught whatever on its natural fertility; for the tenant every year brings probably a greater weight of fertilising stuff on to the land he cultivates than even his heavy crops take from it. His farm is a mere machine for converting purchased manures into produce for Covent Garden Market. It is an illustration of great enterprise and energy, and success in cultivation. But it can hardly be called farming—it is market gardening. As the Frenchman might say, though magnificent, it is not Agriculture.

Let us, therefore, now describe some land cultivated under more ordinary conditions—chiefly a thin, calcareous soil on chalk, with downland at one end and marshland at the other, but on the highest ground, where the chalk hills are covered with deposited red clay, a tolerably heavy soil. It is far enough from any such dung-heap as the London cow-houses and stable-yards provide for market gardeners, nor has it any extraordinary depth of soil, or unusual natural storehouse of fertility on which to draw for its supplies. There are, indeed, hardly any unusual conditions in the case at all. The climate of the lowland is that of south-eastern England, but on the broken-up downland, 600 feet above the level of the sea, it is almost too cold and damp for anything but Oats, both Wheat and Barley being very often blighted. The land is generally dry, being most of it upon the chalk, but it is a thin white soil, whose fertility surprises any one to whom such land is new. If the ordinary rules of good agriculture answer anywhere they must do so here; and if intelligent and energetic management are successful here, they ought to be successful everywhere. We refer to Motcomb Farm near Eastbourne, on the Duke of Devonshire's property.

It is a corn-growing district. Standing on the edge of the hills overlooking Eastbourne some weeks ago one could hardly anywhere have seen at once a better foreground of Wheat fields. From Willingdon to the sea, a mile or more in width between the downland and the marsh, there is a stretch of uncommonly productive land, evidently well managed. And it is not merely good bread-corn, but good Barley land, whose fertility is kept up by the large breeding flocks, which are all along the hill sides here an essential part of every occupation. The grazing grounds on the flats beyond, a share of which goes with almost every farm, furnish beef. Nowhere is there better mutton. The Velvet-eared or Rough-chaff Wheat, commonly grown, yields the very best quality of flour for bread, and a first-rate quality of Barley yields good malt. Moreover, on the downs and marshes, and in the Clovers, Sainfoin, Turnips, Mangel Wurzel, Oats, Beans, Peas, all of which are largely cultivated, there is ample store of provender. We don't know anywhere a district which more completely or abundantly provides ample food for man and beast.

The lesson of liberal outlay, deep cultivation, well organised farm labour, and prompt business arrangements, is well taught on the extensive market gardens of Mr. W. Adams, of East Ham, to which we formerly referred. But these are all on too exceptional a scale to be copied on an ordinary farm: and the illustrations of intelligent and energetic management which the farm of Mr. John Waters, now to be described, affords, are likely to be more generally useful, because they are seen in connection with the flocks and herds, the pastures and ploughlands of ordinary agriculture. Mr. Waters has long been known to English agriculturists as a Southdown judge and breeder. In his own county he is also known as one of the principal tenants on the Duke of Devonshire's estate, and as an excellent practical farmer.

The land in his occupation, extending from the level on the hill top across the slopes of Down and lower ploughlands to the marsh on the Pevensey level below, amounts to between 700 and 800 acres, 350 being arable, 200 grazing ground, and the remainder downland. It carries a stock of 500 ewes; and this, in the early summer time, means a flock of 1400 sheep, including 650 lambs or thereabouts, 50 shearling rams, and 200 young ewes. The marshland carries about 100 beasts of all ages, 40 being sold to the butcher every autumn, at 2¾ to 3 years old, having been some of them bought in, but mostly reared as calves (three in succession to every cow). Some 500*l.* a year are spent on cake and hand manures, used upon the 350 acres of arable land. The rotation adopted is for the most part the four-field or Norfolk course of cropping, varied however by taking two white crops in succession on the lower and better land, where also Sainfoin has latterly been most successfully grown and kept down three or four years together—varied also on the higher land by taking Grasses after Wheat, breaking them up for Oats, and following these with Vetches and Turnips.

The character of the management may be read in the crops; and a fortnight ago we saw on Motcomb Farm clean and abundant crops of Wheat and Barley, the former on the hill top equal to six or seven quarters an acre, the latter an exceedingly heavy crop of excellent colour on the land below, but close to the edge of the Down. The Oat crop is nowhere good this year, and not first-rate at Motcomb. An abundant growth of Sainfoin, four years old, a good second cut of Clover, capital early Turnips, good Swedes and Mangel Wurzels, all testified to the condition of the land. The chief weeds of the district are Charlock, Wild Oat and Shepherd's Needle, the last, however, being abundant only when the corn crop has failed. Motcomb used to be as yellow with Charlock as the rest of the county, but it has been got rid of here by growing fallow green crops, two or three years in succession. The wild Oat is still a nuisance in some fields, and any attempt at a deeper ploughing than usual has generally brought it up abundantly. The greatest fertiliser of the land is the sheepfold. Heavy dressings of dung are applied to the fields in their turn; but nothing is equal to the regular fold with sheep. A double "fold-tail," which is sometimes allotted as the preparation for a corn crop, is sure to result in abundant straw and grain. We saw in consequence of some such treatment along with a dressing with Odams's blood-manure, a laid Barley crop close to the edge of the bare Down, notwithstanding the natural poverty of the soil and the drought of early summer. The management of the flock is thus the keystone of farm practice on the South Downs.

It is the fitness of the Southdown breed of sheep for this mode of management adopted on these farms, half down half arable, which will secure its permanence over a large part of England. The object of breeders latterly has been to get a larger sort of sheep carrying a heavier fleece without losing the quality, productiveness, and hardiness of the original breed. Mr. Waters's flock, bred for the last 30 years under continuous management on the same farm, have always been known as well-bred Southdowns; and for at least half that time special attention has been paid to their improvement. For 14 or 15 years Mr. Waters has purchased the best rams to be had, paying some 100*l.* a year in this way; and more than once has he had to respond at Babraham to the toast to the purchaser at the highest price of the day. A judge for many years at the Royal Agricultural Shows, he has had ample opportunity of becoming acquainted with the best flocks of the country; so that while long an exhibitor and prize taker at shows in his own county, he has gradually been gaining ground with a view to competition at the national exhibitions. And having at length acquired a flock of unusually large-framed sheep for Southdowns—long and wide with deep and heavy quarters, big scrags and bosoms—carrying too a heavy fleece (the whole flock averaging 4½ lb. of wool, and 9 lb. having been occasionally cut)—he commenced as exhibitor at Battersea. He was there honoured with both a high and an ordinary Commendation. His sheep were unnoticed at Worcester, but one, shown as a shearling there, obtained the 1st prize in the older class next year at Newcastle; and other shearling sheep unnoticed at Newcastle received respectively a 3d prize and high commendation at Plymouth. On all these occasions of course Mr. Waters has been competing with such men as the Duke of Richmond, Lord Walsingham, Sir T. Lennard, and others who for show purposes get their lambs in January, the yearling sheep thus coming to the show-yard at eighteen months old; whereas March and April are the lambing months in Sussex. Three months are a great difference in the age of a young sheep—too great hitherto, indeed, to allow of successful competition in the shearling class at the Royal Agricultural Show; but it disappears comparatively in the second year. Motcomb sheep are thus placed on more even terms with those of Goodwood and of Merton Park in the older class, and there Mr. Waters has been more than once successful.

His sheep fetch good prices. The top price last year was 100*l.*; and one of the commended sheep shown at Plymouth has been since sold for 50*l.* There are now 20 or 30 young rams to let or sell, having all the characteristic merits of the Southdown, improved far beyond the average of the breed both in size and fleece—just in those points, in fact, where the market price of mutton and of wool shows that the breed requires improvement. This alteration, too, has been obtained without the loss of any essential merit of the Southdown sheep; the mutton is as good, the fleece is worth as much per pound, the sheep are as prolific and as hardy. Five hundred ewes have on the average of 20 years produced 600 lambs a year; and their hardiness is shown by this—that only one of the ewes bought by Mr. Waters at Babraham remains—only one (a very fine sheep she is) has stood the hardships of the ordinary treatment of a Southdown flock in Sussex.

Motcomb is furnished with no fewer than 23 labourers' cottages attached to the farm. Wages, nominally 2*s.* a-day, amount with harvest earnings to 15*s.* or 16*s.* a week the year round, besides beer occasionally, which is brewed at home at the cost of 30*l.* or 40*l.* a-year. The visitor will see a first-class flock of Southdowns, on a farm well and liberally managed as regards both labourers and land.

Notwithstanding the fatal character of the Cattle Disease, its treatment would seem, from statements which are constantly being published, to be a matter of extreme simplicity. One man, with a coolness that might freeze all the enthusiasm of his competitors, asserts that in not a single case has his method failed. Another, more modestly, invites observation, and rather suggests than claims that his results would startle, by their magnitude, all who should favour him with a visit of inspection. The Government is overwhelmed with generous offers of assistance, and at this moment, while cattle are being lost by hundreds, several *certain cures* for the malady are waiting acceptance; meanwhile scientific men are trying, without much success, to battle with the disease that yields so readily, we are told, to half a dozen quack systems.

Without pretending to offer a specific, we do not hesitate to assert in general terms what indeed we have already stated, that the cattle plague is a curable disease. Among the profession the fact has never been doubted, and from the commencement animals were submitted to treatment, and with decided success, that is to say a certain number of cases recovered. Even in the worst

forms of the disease some instances of restoration have been observed, and where the attack is mild the per-centage of recovery will be considerable. At any rate, taking the average throughout the country, one-fifth of the animals attacked may be expected to recover naturally. In some parts and in some sheds the disease has presented itself in a very malignant and destructive form, the animals being suddenly attacked, and dying in a few hours; in other localities premonitory symptoms have been observed for several days before characteristic indications have appeared, and the cases have throughout been marked by a slow progress, and by symptoms varying in severity; one day the appearances may excite hopes of favourable termination, the next every sign is opposed to the idea of recovery.

Under these circumstances, conclusions drawn from the employment of certain remedies in one set of cases, will be quite upset by the results of the same or similar treatment in another set; and no better argument can be advanced against a *specific cure*, than the fact of the disease assuming very different aspects under apparently similar circumstances, sometimes running its course with a rapidity that renders any treatment futile for want of time to enable medicines to act, and at other times occurring under a low form, progressing almost imperceptibly towards a fatal termination, but occupying days and even weeks, and thus permitting time for the use of remedies.

Numerous examinations of the tissues of animals that have died or been destroyed in all stages of the malady enable us to speak with tolerable certainty of the precise condition of the internal organs in the different phases of the disease, and justify the statement that no single remedy can possibly be effective under all circumstances. Remedies, for example, which stimulate, are certainly not indicated when the early symptoms of febrile excitement are present, nor would there be any reason in giving medicines that had been found effective in calming excitement and lessening or removing febrile symptoms to an animal whose system was prostrated by the malady. No safer or more scientific plan of treatment can be adopted than the one based on the principle of eliminating the poison from the body by the medium of the secretions, and supporting the animal during the process by tonics and stimulants regulated to meet the requirements of the case; and, in addition, supplying nutriment in the most easily digestible form, such as Linseed-tea combined with well-boiled gruel, mingled with good ale and a portion of some carminative, as ginger or pimenta. A curious idea has lately been circulated, attributing the fatality of the malady to an inability on the part of the animal to eat, in consequence of the ulcerated condition of the mouth, and advising the use of gruel and Linseed-tea as the only treatment necessary to cure the "starving disease." This notion is erroneous, the mouth in many cases is not affected at all, and in several instances animals have continued to eat up to the hour of their death; besides which, the disease in its least active form will kill in a much shorter time than would be required to destroy life by merely depriving the animal of food. There is no doubt of the great importance of giving nutriment in moderate quantities frequently, but not for the purpose of preventing starvation. The animal dies from the depressing action of the poison in his system upon the nervous functions, and treatment to be effective must be directed to the removal of that poison from the blood, at the same time that efforts are being made to sustain the animal's vitality.

Treatment of the malady should commence with the first signs of ill-health, however slight those symptoms may be. A cow in the morning gives a quart less milk than usual, or there may be observed a restless and anxious expression of countenance, the appetite is not quite so good, rumination ceases, and is again continued at short intervals. Any or all of these trifling signs are of importance at this time, and have in many instances preceded a most rapid and violent attack. At this early stage a laxative dose, combined with agents that will calm the nervous excitement and promote secretion, may be exhibited. Castor oil is generally preferred as a laxative, and a dose of one pint may be given at once; a febrifuge draught being administered in the course of an hour, and repeated at intervals of four to six hours, according to the animal's condition. We need hardly add that the aid of a qualified veterinary surgeon should always be sought, and treatment regulated by his advice.

The draught we have used with benefit after the administration of the purgative is composed of:—Nitrate of potash, two drachms; carbonate of potash, one drachm; nitric or chloric æther, one ounce; water one pint. Give two or three times a-day. It will be observed that 20 formulæ might be written having each of them an action similar to the one we have advised, or possessing properties adapted to suit the peculiarities of individual cases. If, for example, instead of an appearance of nervous excitement at the first, there should be dulness manifested, an ounce of aromatic spirit of ammonia might be added to the mixture. Should there be debility present, the draught may be combined with a pint of good ale, while in the case of a plethoric animal such an addition would not be desirable. The principles on which treatment should be conducted being admitted, there will still be room for the exercise of great judgment in carrying the system out. In a few instances the remedies we have just suggested produced most satisfactory results, the febrile symptoms gradually subsided, and the disease did not advance to a further development, but the same method in the same localities proved ineffective and did not arrest the course of the malady, and this circumstance, so constantly observed, leads to the conclusion that recovery under treatment is more often dependent upon the strength of the animal's constitution or the mildness of the attack than upon the influence of medicinal agents. In the second stage of the disease, when the appetite, as a rule, is lost, the secretion of milk is much diminished, and indications of the virulent disease are marked, the exhibition of febrifuge mixtures will no longer avail; it will, therefore, be understood that the means advised for the treatment of the early stage are only applicable while that stage exists, and that without reference to time of duration; the moment the first symptoms are succeeded by others indicating the second stage, which is marked by some degree of prostration, a new course of treatment, consisting of tonics, antiseptics, and stimulants, must be at once adopted.

An extensive list of agents possessing the requisite properties will allow of the exercise of any amount of fancy or prejudice in selection. All the mineral acids find advocates, and whether we employ sulphuric, hydrochloric, or nitric acid, is probably a matter of indifference. Mineral tonics, as sulphate of copper or sulphate of iron, have been largely used. Vegetable tonics, Quassia and Gentian, are valuable, and quinine has been employed, but sparingly on account of its price. Among antiseptics, carbolic acid and the permanganate of potash (Condy's fluid) have justly taken a high stand. Alcoholic fluids in the form of rectified spirit or brandy have been also exhibited extensively. And cases of the most decided form of the disease have recovered under their use in conjunction with nutriment frequently administered.

The doses of the different agents given by different practitioners vary considerably. Of mineral acids, an ordinary dose will be one drachm diluted with a quart of water, and combined with 1 or 2 ounces of tincture of Gentian, but as much as 1 ounce, we were told by one experimenter, had been exhibited at once. Again, half a pint of brandy or spirit would be considered a fair quantity for one dose, but an entire bottle has been given in gruel, and repeated daily with apparent benefit. Allowing considerable latitude in the matter, we are nevertheless inclined to recommend moderate or even small doses of any agents, and frequent repetition of them, for the purpose of keeping up their action. The formula we are now using in the second stage of the malady consists of Quinine, 10 grains; sulphuric acid, 1 drachm; tincture of Gentian, 2 ounces; to be exhibited three or four times a day in a pint of strong ale. Good gruel and Linseed tea are ordered at intervals in moderate quantities, say two quarts at a time, with a tablespoonful of powdered ginger. If diarrhœa is present, the gruel should be made with flour instead of oatmeal, or starch made in the ordinary way should be administered, a quart at a time, once or twice a day until an improvement takes place.

Under the action of each of the agents mentioned, cases have recovered on the one hand, and on the other have under similar circumstances died. We have a long list of animals treated, with different results, and next week we propose to illustrate the systems we have alluded to by reference to groups of cases, and, by comparison of the results, to endeavour to ascertain what are the advantages of each method over and above that grand system which seldom meets with much consideration, the "Ars medicatrix Naturæ."

THIS WET HARVEST—HOW TO MITIGATE ITS EVILS.

I do not venture to throw out any hints for the use of my old practical friends, who are supposed to know all about it, but there are many amateur farmers who, like myself, are seeking for and desirous to obtain information.

There are two sides to every question, and so it is with a wet harvest. The dark side on a stiff wet clay or tile earth means (after 5 inches or 500 tons of water per acre in August) water through unthatched stacks, wet sheaves, speared or sprouted corn, spoiled straw, corn unfit for market, extra labour and waste, anxiety of mind, rivers overflowing, full ditches, land like bird-lime, long fallows (where undrained), seas of mud, hoeing impossible, weeds rampant, land injured by deep ruts and deeper foot holes in carting off the corn—a bad prospect for autumn scarifying and cultivation, labourers losing their time, and their wives and families almost losing their gleaning corn, the ears having grown and got washed into the soil; the strong and best of the farm-yard tea washed away, roads deeply furrowed and injured by rushing torrents on inclined planes; the fly very busy, and maggots abundant in sheep; Bass, Allsopp, and our other friends who supply "thirsty souls," anxiously looking after old dry Barley, naturally anticipating a short supply of malting quality and some diminution in their profits—tantalising fine Sundays and wet Mondays—spoiled second crop of hay. So much for the dark side—now for the bright view, the bit of blue between the clouds. Five weeks ago the country was all drab, now it is "with verdure clad;" stock was then a drug for want of food, now it is at a good premium: when we consider that more than half the kingdom is in Grass, one may realise the importance and profit of a natural irrigation of some 700 tons per acre of warm rain falling on a hot surface, and carrying down to the cold subsoil in drained lands an increased temperature. Turnips, Mangel, Rape, and especially Cabbage rejoice in the change, and promise to the meat consumer greatly increased supplies as compared with the absence of root crops last year, allowing, however, a sufficient discount for the cattle-plague. Taking all circumstances, on my own farm I consider the balance is an advantage in my favour, because I have got up my grain crops in fair order with very little loss, while my pasture, Italian Rye-grass, Mangel Wurzel, and particularly Cabbage (of all of which I have a considerable breadth), are immensely benefited and increased in produce by the rains. I also get a higher price than last year for my corn.

These remarks apply only to my own land and circumstances. Had I much summer fallow and few roots the case would be entirely different. My observation of the crops this season leads me to the following conclusions:—That on stiff clays (like mine that crack widely in dry weather, there is a very large crop of Wheat. On my own land I have several fields yielding 7 to 8 quarters of Wheat per acre, and I know of good yields in the neighbourhood. On such soils the heads are large, well set, and perfect. As a consequence, the weight being great, the sheaves did not blow down, when strong winds came. On chalky stiff clays that do not crack in dry weather the crops of Wheat are by no means equal to those of last year, and on light hot soils the crops are ruinously deficient.

I will now state what I do to mitigate the evils of a wet harvest, remarking first that drained lands and open fields are much in my favour. I lay down as a principle that Wheat cut with a bagging hook, or with a reaping machine, or mowed with the scythe, will not, when sheaved and shocked, suffer much from rain, provided certain things are done. I had one field of Rough Chaff White, which stood a whole month after cutting, waiting in vain for three fine days to harden it fit for grinding, but we had no such chance, for during that period more than 5 inches or 500 tons of rain fell on each acre. So long as the mere outsides of the sheaves were wet, we did nothing, but when 2 inches of rain or 200 tons per acre fell in 14 hours and saturated the interior of the sheaves, we untied the bands, loosened and lifted the straw, turned it again at midday, re-bound it and carted it to stack. One fine day for such a purpose has an astonishing effect, prevents the grain from spearing or sprouting, and renders your crop safe. The cost of this useful and profitable operation is about 3*d*. to 4*d*. per quarter; removing the sheaves to fresh ground and turning them is useful, but nothing beats untying and separating. By this means time is saved, and opportunity is used. The same remark applies to Oats—of which I have also a good crop this year. These operations afford labour for the men at ordinary wages during the interrupted course of their harvest, and it is really of great importance to the farmer, for when once the interior of the large sheaves of a heavy crop gets thoroughly wet, it should be untied and opened, or it will grow and mould. Those who mowed their Wheat will find many ears sprouted in the butt end of the sheaf. Bagging is, on the whole, when time permits, the most economical and satisfactory operation, for the heads of corn are in their right place, and very little is left on the field. If Wheat is to remain in stack some time, carting it in a shower is of no consequence, for when pressure comes on it and the roof is

made secure by thatch, the water vaporises and escapes through the reedy straw. This would not do in a dense hay stack, nor with soft spongy straw accompanied by weeds. In a treacherous season, or pluvial district, all crops should be sheaved. I hear that this is done even with Clover in certain districts. The Clover is tied in bundles and stands heads upwards. We south-country people are so used to fine dry harvest weather that a contrast takes us by surprise, and finds us somewhat at a loss for expedients.

Old Wheat, of which there is an abundance, now finds a ready and profitable sale. Millers are very shy of the new crop, which comes to market in some instances "like grains;" consequently only those will buy it (at a considerable reduction) who have proper drying apparatus. Here, again, permit me to give a hint, which I find profitable. When threshed and on the barn floor, if a dry or windy day, let a man keep constantly stirring it over for a day or two. The cost of 4*s.* for two days' work is a mere fraction compared with the advantage derived. It is not pleasant to be snubbed in the market for a bad sample.

Spread on a cloth in the sun is good, but remember it must be moved. In a stagnant heap it heats and sweats rather than dries.

The old system of reaping is the most dangerous in a wet season. The tightly bound and close-fitting straws when wet are slow to dry compared with the more loose and open sheaves of bagging or mowing or machine-cut.

We finish harvest on the 30th, including Beans, if the weather is tolerable. It rains now. *J. J. Mechi, Aug.* 28.

THE CATTLE PLAGUE.

[On Saturday last an Order in Council forbade the importation of cattle in Ireland from Great Britain.—It is announced that her Majesty's Government have received intelligence from the British Minister at the Hague that a malady among cattle, having a striking resemblance to the cattle plague, has broken out in the Netherlands. The Commissioners of Customs are to make known this fact to their officers at the outports, in order that they may be careful not to relax the vigilance which those officers have shown, by strictly enforcing the regulations laid down to prevent the importation of diseased cattle into this country from any foreign ports.—We continue to publish letters from our own correspondents and those of other papers on the subject.]

1. From Mr. Alderman Mechi.—The cattle murrain is extending in our district—some sucking calves brought it to Kelvedon. Being placed for a short time in a cowshed, the cows were attacked, and two if not three of the four are already dead. The calves, which had rested at Kelvedon, were then brought to my neighbour, who has a bull and 13 cows. The bull and several cows are already dead, and it is feared most of them will perish—a neighbour's cow grazing in the adjoining meadow took the disease and died immediately. The calves were destroyed. Active measures have been taken by the Waltham magistrates, and an Inspector appointed so as to localise the disease. It is unpleasantly near me, for I have 57 head of bullock stock young and old. At present I have escaped. Another neighbour foolishly bought a sucking calf (we are famous for calves in Essex), and has contaminated his cows. In almost every case here I can trace its first introduction to the purchase of calves, which are bought in London and brought down by dealers to our markets. Strange to say, some will still continue to buy calves in the market, trusting to their eyes to judge of the present health of the animal. These, however, are the exception, for scarcely a head of cattle stock has been seen in the markets of Chelmsford or Colchester, and at Bury great fair there were no store bullocks. It appears to me that constant separation and isolation are essential, and the first loss by destroying the animal perhaps the wisest course.

The disease has established itself extensively in the neighbourhood of Maldon (6 miles from me), and has in several instances destroyed some valuable herds. Farmers have taken the alarm, and are purifying their sheds, &c., by the abundant use of lime. A watchful eye is also kept on knackers, jobbers, and ignorant or selfish persons, who unscrupulously endanger their neighbour's stock by the purchase and transfer of infected, dying, or dead animals. It appears to me to be a great mistake to allow the animals to linger and die, thus corrupting the atmosphere, and extending the disease. There is a prevailing opinion that the enormous swarms of flies that are attracted by the stench from the dying animals convey the disease to distant animals, by puncturing them after recently feeding on those diseased.

The necessity for compulsory supervisional powers is painfully apparent. I know that in one case near me the dead diseased animal was offered for sale to a knacker, who declined to buy it. The hope of saving something out of the wreck has no doubt in many cases caused a spreading of the murrain. Remedial measures appear rarely to succeed. There is a general use of cordials and stimulants with gruel to support vitality.

The trade in cattle is almost stagnant. The losses and disappointments must be extensive and severe. Keen men of business are, in some instances, deriving an unusual benefit from the bargains picked up under the influence of a panic. So far as I have had an opportunity of judging, the disease is not epidemic but infectious, and we can trace the principal cause—contact by the injudicious purchase of infected animals. Some think that the veterinary practitioners convey it from one farm to another. At all events where cattle must be had, it should be, if possible, from a known farm, not from a market, and even so, an isolated probation is essential on a distinct part of the farm, with a special attendant. *J. J. Mechi, Aug.* 28.

2. On Ventilation.—The remedy which surpasses all others, both in the prevention and in the treatment of human typhus and of allied diseases, is fresh air. With plenty of fresh air, in fact, human typhus almost ceases to be contagious. The same remedy will, I am confident, be found equally efficacious in preventing the spread and in diminishing the mortality of the cattle plague, and it is worth considering how the remedy can best be applied for this double object. I. For Preventing the Spread of the Disease.—Experience shows that the strictest quarantine and the most rigid isolation do not prevent the disease appearing in new localities. The moment it gains admission into a crowded, ill-ventilated cow-house, the conditions for its rapid extension could not possibly be more favourable. Fumigation and disinfectants may do some good, but they cannot supply the place of fresh air. If all the cattle in our metropolitan cow-houses were at once removed to well-ventilated wooden sheds erected in open spaces in the neighbouring country, I believe that we would soon hear little more of the cattle plague. A similar procedure ought to be adopted with regard to the cow-houses of many of our country farms, the sanitary condition of which is often not better than what we find in the metropolis. The carrying out of this measure will no doubt involve considerable inconvenience and expense, but the inconvenience and expense would be nothing compared to what they will certainly be if the cattle are permitted to remain where they are. There could be no better proof of the soundness of the recommendation now made than the significant fact that the disease is almost entirely limited to milk cows, while oxen, which are not confined in cow-sheds, have, for the most part, escaped. II. For the Treatment of the Disease.—The practice now in force is to remove every animal when the first symptoms of the disease manifest themselves to the knacker's yard. There it either dies—and in the atmosphere of a knacker's yard this result is not surprising—or it is killed; and in either case the carcase is converted into manure. Once in the knacker's yard the law allows no return. It seems to me that this practice is a most barbarous one, and evinces a lamentable confession on the part of veterinary science in the 19th century. All opportunity of trying the effects of treatment, and, above all, of fresh air, is cut off, and much valuable property is wantonly destroyed. I venture to recommend the erection of temporary wooden hospitals on the commons or waste grounds in the neighbourhood of London—but, of course, at a distance from the sheds intended for healthy cattle—to which all infected animals could at once be removed, where they could have the benefit of fresh air, and where the effects of different methods of treatment could be tried. Much valuable property would thus be saved; for there can be no doubt that cattle, after having passed through the plague, would soon regain as perfect health as man does after experiencing an attack of typhus or smallpox. *F. R. C. P.*

3. S. G. O. in the *Times* (an extract).—Let us suppose two steamers, under precisely the same conditions, vessels which for years have been in use in the importation of cattle, being in every respect as clean or dirty, well or ill ventilated; the accommodation for the beasts, as to the average number brought, being the same. I strongly suspect, if you travelled my squire's healthy Devons the same distance, to embark them for Holland in one of these steamers, that a herd of healthy foreign cattle were travelled to be embarked for London, either on the voyage or soon after landing, the probability would be as great that the one set of beasts as the other would show the disease. It is no use assuring me that the mode of transport for years has been the same by rail and by boat; that the beasts stood the crowding, bruising, half-starving and foul accommodation, and yet escaped the disease. I assert that they did so simply because, to develope this scourge, it requires a locality to be tainted up to a certain degree; all that is then wanting is the action of a certain atmosphere to make it at once a hotbed of disease. Without this peculiar atmospheric condition, the seeds of the disease existing, could not fructify. As with crowded alleys and lodging-houses, so with steamers, cattle trucks, and cow-sheds; nothing but continued care and cleanliness at all times can guard against pestilence at peculiar seasons. We nurse the viper until we think him harmless—a change of temper, and he bites to kill us. Why should we have expected a thing so tame should ever become so deadly?—because he was a viper at best. So with dirt and bad air; for a season they leave us unharmed, and we bear with them, but on a sudden they vindicate their nature and destroy. Cleanliness is next to godliness. Soap, whitewash, pure air, clean clothing, good drainage, take precedence of medicine. An assembly of "vets" over the deceased in a cowshed, a board of medical inspectors with cabs waiting at the mouth of a blind alley, cholera smitten, are alike worthy of respect; they are the detectives come — after the robbery. Had they been called in a few short months since to inspect the premises and point out the weak places death would not have stolen the cows or the men. I once knew a row of cottages in a healthy village, in which there were repeated cases of low fever; the gardens were close up to the doors; the only accessible cesspools were just the distance which the poor call, not convenient for such conveniences. I ascertained that the mothers and daughters who did the house-work were accustomed to bring out slops of all descriptions to their doors, take two strides, and then jerk the stuff as far as they could into the garden. The result was, the soil for some 9 feet or so (a woman, strong in the arm, can only jerk the contents of a large vessel 3 feet) was saturated with mixed noxious matters. I advised during the fever keeping the soil 12 feet from the houses, covered with quicklime; the fever abated, certain sanitary alterations were made, and I have never heard of a case in the same locality since. My strong impression is, that with regard to the cattle disease, every shed in the kingdom should be kept for some time to come not only in a state of the utmost cleanliness, but that no cost should be spared to remove to some distance from it any accumulation of dung; that cattle owners cannot be too liberal in whitewash everywhere, that especial attention should be paid to the water given the beasts to drink, never taking it from any source in any, the most distant, connection with decayed vegetable or animal matter. Were it my good luck to possess a valuable herd of beasts I would at any reasonable cost at once erect temporary wooden buildings for them, remove them for a season from the sheds to which they have been accustomed, and treat these as I would a stable in which by ill luck a horse might have had the glanders. As to steamers and railway trucks, all the scrubbing and disinfecting in the world can only mitigate the evil. I doubt whether fresh painting the whole of a truck would be more than partially effectual; boards not only absorb noxious matters and retain them far below their surface, but cattle on a journey rub in and scratch in their excreta to a degree of incorporation with the fibre of the wood, which must thoroughly inoculate it. The paint would only be a covering soon lifted, the old sore would be exposed and remoistened. You may deodorise and not disinfect, kill the smell and yet leave its source prepared to give out its peculiar poison; the plan I would suggest is, to thoroughly clean each journey, and then quicklime every inch of exposed wooden surface. I know not whether the disease is imported or not, but be it how it may I am satisfied common prudence points out the wisdom of not trusting to the mere close watching our herds that no foreign cattle come among them—it is well to regard it as an epidemic, and as one to be prepared for its outbreak anywhere. Had half the zeal now expended to cleanse and purify cattle steamers, trucks, and sheds been given six months ago, when we had every reason to expect the existing disease, we should have saved many a milcher, have had yet to eat hundreds of tons of beef now buried. We have some expectation that cholera will come; we have sent forth warnings; shall we do no more? *S. G. O.*

4. Mansion House Meeting.—At the adjourned meeting, in moving the adoption of a report which recommended that a fund be raised, and a committee appointed to administer it, to compensate the owners of cattle falling with the disease within the metropolis, Mr. Gibbins, of the Markets' Committee, said:—There were proofs that the disease had not come from the foreign cattle. A fortnight ago there were 7000 beasts in the market, of which number 4000 were from Boulogne. Three years ago the proportion was one-fourth foreign and three-fourths English. Last Monday week there were 3500 foreign cattle imported, all healthy. The day before there were 3400 foreign cattle imported, and these were all in a healthy and lively state; and a happy thing it was for the people of this country that foreign beasts were coming in such large quantities. Not a single head of cattle had been seized at any of the outports of England, so that all these facts combined served to show that we had not obtained the disease from any foreign country. On Monday last there were six or seven beasts in our market condemned and ordered to be slaughtered, but there were 200 others which had the watering of the eye—the first symptom of the disease. Those 200 had been brought in from Norfolk and Ireland.

Professor Gamgee believed the cattle from Holland, Prussia, France, and other parts of the Continent were perfectly free from the plague, and that they would continue so unless we communicated it to them. The foreign cattle imported were undoubtedly healthier than the British cattle; but while he admitted this to be the case, he did not acquiesce in what had fallen from Mr. Gibbins that the disease did not come in with the foreign stock. He believed that plague came from abroad, but from a region with which our cattle importers had no desire now to deal. Were he a dairyman he should slaughter the whole of his cattle if once the disease broke out among them, because then he would secure their value in the market; whereas if he waited until they died he would lose his all. He thought the plan of giving compensation, as proposed in the report, would be attended with the best results. He fully agreed with Mr. Gibbins that whatever fund was raised must be applied solely to the plague, and that it must have no reference whatever to pleuro-pneumonia.

Dr. Tripe advocated a plan of shed inspection. He visited 82 cowhouses, and if he had not been previously told that the disease was in them, he would never have been informed of it by the owners. He held that the Orders in Council were difficult, if not impracticable, and that as a remedy for the disease there ought to be a free use of chloride of lime, Condy's fluid, and whisky. He was in favour of the establishment of the slaughter-houses, with a proper inspector, and if the meat was considered sound, then he would advise it to be sold.

Mr Harvey said that 400 or 500 cows had died of the disease in Islington, and that two dairies were already closed in that neighbourhood.

Mr Councillor Rudkin believed that 50 slaughter-houses for the diseased animals could be obtained in the metropolitan districts, and that no real good would be done until the compensation were adopted. He was prepared to ask the Corporation of London to vote 1000*l.* to the compensation fund out of the city cash, and he believed it would be granted.

The Lord Mayor said he should convene a meeting of the Court of Common Council for the 1st or 2d of September, when the report just adopted would be laid before them, and he should support a motion in favour of their subscribing to the compensation fund.

5. North Lancashire.—Colonel Wilson Patten, M.P., suggests the following organisation of societies for the protection of farmers against the effects of the cattle disease (to be formed within the limits of each Poor Law Union in North Lancashire):—"That an association be formed in the —— Union for mutual protection against the effects of the disease known by the name of 'the cattle plague,' to be called 'The —— Union Association.' That a fund be raised by a collection, in the first instance, of 1*s.* for every head of healthy cattle above 2 years old, of 6*d.* for every head above 1 and under 2-years old, and of 2*d.* for every calf; and that any further sum required by the committee be raised in like proportions. That to every person insuring the whole of his stock, but not otherwise, and who shall have paid up all the calls made upon him by the committee, an allowance be made of 10*l.* for every animal of 2 years old and upwards, of 5*l.* for every animal of 1-year old and less than 2, and of 1*l.* for every calf which shall be certified to the committee by the person so authorised to have died of the cattle plague, and to have been buried in its skin immediately after inspection. That the committee be authorised to unite with the committee of any adjoining union, and to form a common fund, provided the cattle plague has not appeared in such union. That each township of the union be invited to form a committee for carrying out the following objects:—1. An inspection of homesteads, and to see that they are properly cleansed, the inside of cowhouses and other cattle buildings whitewashed, and any stagnant water or urine removed. 2. To collect subscriptions, and report the names of the parties insuring, and the number of cattle under the above heads. 3. To see that no cattle are introduced into the township without being properly examined. That the above rules be of no effect unless —— [here state the number thought requisite] cattle insured."

6. From Mr. Clare S. Read, M.P. to Mr. Harvey, M.P. (abridged).—"You say this 'cattle disease is no new thing.' I have been among cattle all my life, and have never seen the like before. You recommend inoculation. Supposing it successful, would it not tend to extend the area of contagion that we are striving so hard to lessen? But our veterinary surgeons seem unanimous in condemning inoculation, and some even question its possibility. You caution us against believing that this new disease is introduced by foreign stock. In our county every outbreak is most distinctly connected with imported cattle. More than 100 years have elapsed since any such murrain has visited our shores, but this disorder is more or less common among the cattle of the east of Europe. It is only within the last few months that we have received any quantity of cattle from Russia. If this disease is not imported, it is certainly a very strange coincidence that Russian cattle and Russian murrain should have both chosen the same month to pay us a visit. You attribute the

prevalence of the disease to the sudden change in the weather, and the consequent luxuriance of our pastures. We have had many such changes in my recollection, and no doubt very many more remarkable ones have occurred within the past century. Yet strange to tell, we had no outbreak of the murrain between the years 1745 and 1865. Supposing your theory correct, it is curious that in the London cowhouses, where no change of diet took place, the disease first manifested itself with such fatal virulence. If rank Grass has anything to do with the development of the murrain in East Norfolk, we should look for it on the good grazing lands of the Yare and the Bure rather than the short bite of Whitwell Common and the poor pastures around North Walsham. I cannot believe that in Norfolk the importance of this visitation has been seriously exaggerated. The effect of our united movement has happily succeeded in confining the disease to those immediate neighbourhoods in which it made its appearance. The first week or two it spread like wildfire through the adjoining villages, but since proper regulations have been insisted on, the area of contagion is not much extended. Only this fresh instance has occurred within the past few days:—A cow from the very parish in which the first outbreak occurred was most unwarrantably sent to market, and was there bought cheap by a poor unlucky man, who kept only three cows. The fresh purchased animal as well as the other three are dead, and a neighbour's cow, on the other side of the road, was the next victim. Surely this instance and the success of preventive measures show the wisdom of putting a stop to all traffic in cattle for a few weeks, and demonstrate that it is only by prompt and decisive measures, taken in the first instance, that we can hope to rid ourselves of this most fatal disease. And when we again begin to buy cattle, it will be necessary that every farmer should subject his new purchases to a rigorous quarantine before mixing them with the other stock."

WHEAT GROWING.

A FEW WORDS SPOKEN AT A RENT AUDIT IN THE WEST.

ONE thing appears to demand some notice from me on this occasion; it is the outcry lately raised over the kingdom, to the effect that farmers should cease growing Wheat, and should grow more beef and mutton. Now, however well-intentioned such remarks may be, they appear to come from persons belonging to that large class in this country who, as regards agriculture, are affected with the malady called "sciolism," and which Professor Kingsley defines to be "the bad habit of knowing *about* subjects without really knowing the subject itself," and a short answer to such persons would be this—"We grow Wheat to enable us to grow beef, just as we grow beef to enable us to grow Wheat." And though, as an item and taken in the abstract it may not pay, yet we grow Wheat because it tends to make other things pay, and because its cultivation is blended with our system, and forms a link in our chain of management. When we get a farm set out in a proper rotation of cropping, green and white crops following each other in alternate courses, I do not see how, on arable farms, we are to depart from this arrangement. On such holdings, the several operations are so interwoven and dovetailed together, that we cannot abandon one without confusing the whole. Of course I am not now speaking of bad farming, where, it may be, three corn crops are taken one after the other from the same ground—that mode of getting more corn is blameworthy at any time, and we put it out of the question and out of the pale of civilised agriculture altogether—but in good management, where a regular rotation is followed, we cannot give up Wheat growing any more than we can give up Barley and Oat growing. After our root crops, we want in this part of the kingdom a corn crop that will "keep on end," as the phrase is, notwithstanding the very wet seasons with which we are sometimes visited, and Wheat we know is our cereal to depend on under such circumstances. Then we want Wheat straw to keep our cattle in warmth and comfort during the winter months; and in the management of our live stock, warmth and comfort are terms which convey a most important meaning, and one not to be overlooked or despised, but zealously to be studied and attended to both as regards fatting cattle and store cattle. Keep your stock well in winter, young farmers, that you may see them thrive well in summer; and remember this: that all the good food you may give them in your stalls is entirely thrown away, if you allow them to be cold, wet, and comfortless afterwards. In winter feeding, when the appetite of an animal is appeased, he wants to lie down; take care that he has a bed of good dry Wheat straw on which to do so; and thus, having served these and various other useful purposes, including a very important one, that of fodder, we at last convert our straw into manure with which to enrich our drilled-out fields—to enable us to grow roots—to feed cattle and sheep—to make beef and mutton—to sell at the high price! But suppose we give up growing Wheat, what are we to do with the surplus ground which we shall then have on hand—the ground on which we have omitted to sow Wheat? Are we to enlarge our root crops to the extent we displace those of Wheat, and so grow root crop after root crop? Suppose such a system practicable, would the price of beef and mutton be the same then as now—high? and would the price of Wheat be the same then as now—low? Matters would then probably be reversed. Perhaps it is recommended that we should till our intended Wheat ground to spring corn: how would this answer? Not well, you will say; you have enough of spring work on your hands already; more would cause some to be neglected, and nothing tells so adversely in farming as neglect of any kind. Horse keepers and maltsters would like the plan, no doubt, as they would expect to get Oats and Barley very cheap.

Then, again, in order to have more beef and mutton to sell at the high price, we are told to turn our tillage lands into permanent pasture lands. Is it possible to accomplish this? I apprehend not. On looking over property we find a good meadow or piece of old Grass land on one side of a hedge, and an arable field on the other side, which the cultivator endeavours in vain to convert to permanent pasture. He sows down the ground in good heart, and with a good mixture of seeds; treats it very gently for some time at first, and does not neglect top-dressing, and things look promising for a year or two; but after this the surface begins to get bare and patchy, the Grasses die out, weeds supply their place, and it is evident there is some peculiarity in the soil which insists on running counter to man's wishes, and obstinately refuses to be clothed with Grass for any length of time, and the ground has again to be broken up, and I believe there are certain soils on which Grasses will not thrive permanently, do what you will. A friend of mine is just now making a rather expensive experiment on this very subject. He some time ago sowed out an arable field of 10 acres to Grass, the land having previously been well prepared. He has been carefully nursing this field ever since—not omitting frequent top-dressings. A bullock is not allowed to look into it, nor is a horse, so that literally while Grass grows the horse starves, or may starve; sheep are privileged stock, they are put in sometimes as a great favour, if they only knew it, and by-and-by my friend hopes to be able to show a fine field of permanent pasture—I only hope he may, but in the meantime where are all these years' rent and profit, and where are tithe, taxes, and rates to come from? A renting farmer could not afford to make such an expensive and protracted experiment as this, ending it may be in total failure after all. It seems strange if true, and I believe it to be so, namely, that Grass, to do well and become permanent, requires good and deep land, deeper than any other plant we cultivate. As an instance, where do we find the richest and most luxuriant pastures but on marsh lands, which are all alluvial deposits of great depth? The artisan, the tradesman, the skilled labourer, the merchant complain that beef and mutton are scarce and dear. What made them so? The answer is not far to seek. Free-trade prices of corn do not pay the grower, and as a forlorn hope he resorts to Grass husbandry. Now four-fifths of the arable lands of this country and of Scotland will not flourish under Grass, and the attempt to make them do so is like throwing so much land out of cultivation for the time the experiment is going on. It is only by a regular system of aration, that is, cereal and root crops alternating; cultivation and stock management combined, that a plentiful supply of beef and mutton can be obtained. We want roots and straw for our full-aged cattle, and we want roots and straw for our young stock to bring on.

Take a farm of 100 acres all Grass, and take another farm of 100 acres under a regular course of tillage, arable and Grass; say such a rotation as this—Grass, Oats, Potatos, Wheat, Turnips, Barley with seeds; which farm will produce the most beef and mutton, lamb and veal, pork and bacon, eggs and poultry per year?—the youngest farmer here could tell me that the difference would be greatly in favour of the tillage farm. We see men who ought to know better stand up at public meetings of farmers and denounce Wheat cultivation. The next day we hear of a great Statesman delivering himself thus:—"The farmers have produced such abundant Wheat crops this year (1864), that at the moment when the credit of the country was in a most delicate state, they had saved us from a commercial collapse, the effects of which would have been of a most disastrous character." Let us therefore think of these things.

RECENT SALES OF SHROPSHIRE SHEEP.

The Fosse Sale.—At Mr. T. Horley's sale near Leamington, Mr. W. G. Preece, of Shrewsbury, officiated. The rams this year, owing to the entire failure of the root crops, were not so forward in condition as on previous occasions, but their uniformity of type and character was more marked, and their hardiness of constitution, their symmetry, and wool-bearing properties apparent to all. The average of 36 sheep let and sold was a little over 9*l.* 11*s.*

The Leese Farm Sale.—Mr. John B. Lythall submitted 30 rams, of the noted "Patentee" blood, the property of Mr. S. Byrd, for public competition. Mr. Byrd's flock contains more of this renowned blood than any other, and has furnished some of the most remarkable R. A. S. sheep on record, of which we may mention the 120-guinea Canterbury "Patentee." The sale commenced with the grand two-shear ram "Gayton Prince," highly commended at Hereford, a very long firm sheep, with good neck and head, and which realised 40 guineas. No. 2 was let to Mr. Keeling at 17 guineas, and had he been better on his legs, would have made double that figure, as he stood 4th at the Newcastle Royal Show, and was a true-made animal, of good size and fine quality. The other old sheep included the four-shear "Monarch," sold at 27 guineas, and "Canterbury 2d," five-shear, at 14 guineas. The shearlings commenced with a perfect specimen, which was let from the 2d of October at 29 guineas; No. 11, a great favourite of ours, making 24 guineas. A brother to "Competition," purchased by Mr. Keeling at 71 guineas, was cheap at the 21 guineas at which the Earl of Shrewsbury secured him; and other satisfactory prices followed, the general average, making the usual allowance for the let sheep, being within a few pence of 14*l.* 18*s.* 6*d.* per head.

Grendon.—Mrs. Baker's annual sale included 30 rams and 80 ewes. This flock has taken high honours at the Royal and other shows, and is distinguished for a judicious combination of size, quality, symmetry, and wool; and a splendid specimen of the true Shropshire was to be seen in the second lot, a three-shear ram, "Nuneaton," winner of several 1st prizes, which was let for the season at the satisfactory figure of 23 guineas to Mr. Clare; and the remainder ranged from 23 down to 6 guineas each, the average for the 30 being 10*l.* 7*s.* 4*d.*

The Yew Tree Farm.—The highest average of the season was attained by Mr. Keeling last year. The rams for sale numbered 30, and though the proprietor, in common with others, had great difficulties to contend with in the failure of his root crop last year, yet the early maturing and weight-making properties of the true-bred Shropshire were fully developed in the case of the animals offered. No. 4 was a long true-made sheep, very good in colour, and with a heavy skin, and not dear at the 20 guineas at which Mr. Brooksbank, of Rotherham, secured him. No. 9 was a fat-backed compact sheep, and was bought by Mr. Botteley at the same figure. The highest price given was for No. 19, the representative of this flock at Hereford and Plymouth shows. This sheep was purchased by Mr. Phillips, at 38 guineas, and, with the exception of a trifling improvement required about the head, was all but perfection. The general average was as near as possible 13 guineas.

Pendeford.—This flock, which was originally founded by Mr. W. Masfen, at Norton Caines, upwards of 50 years ago, is of the purest and most fashionable blood, and several of the most popular flocks of the day are indebted to it for great improvements. The sheep show great hardihood of constitution, good quality, and size. One of the very best made shearlings we have seen this year was No. 2, which Mr. Osborn hired at the low figure of 10 guineas. No. 6 was a wide fat backed sheep, and fetched 19 guineas to Mr. Bennett. Nos. 7 and 11 were both long, useful sheep, but the latter was slightly mottled or he would have made more than 13½ guineas, which these two brought respectively, Mr. John Peel, M.P., thus securing one of the cheapest lots of the day. The old sheep were good, particularly the level, firm, and well-covered "Lord Verney," bred by Lady Willoughby de Broke, which made 17 guineas to Mr. Wilson; and "Intrepid," a heavy-fleshed three-shear, by Mainstay, which went to Mr. T. Lowe, at 1 guinea less. The average quoted for the rams was 10*l.* 7*s.* for 35, and for the ewes about 63*s.*

Freeford.—The sale included the noted Royal Agricultural Society's 1st prize old sheep, "Beaufort," the "Duke of Newcastle," winner of 1st prize at Royal Agricultural Society, 1864; "Novelty," another Royal Agricultural Society winner; "Nobleman 2d," and other sires of note. The Freeford flock dates back 40 years, when it was founded with ewes from the old Whittington Heath flocks. It was improved from time to time by the introduction of rams and ewes of the celebrated old Hagley blood, and it has since been maintained by selected sires from the best and most successful pure-bred flocks extant. Perhaps there is no Shropshire flock at present possessing better blood, more beautiful form, or finer quality, and several of the most eminent flockmasters have testified to its excellence by selecting rams from it at prices ranging from 40 to 100 guineas each. Satisfactory prices were realised, the general average being about 11 guineas each; but if Mr. Coxon's were taken separately, his 22 sheep would make 13 guineas per head. The highest price was given for "Novelty," which was let for 34 guineas. "Beaufort" realised 31 guineas, the buyer being Mr. W. Yates, of Grindle, near Shiffnal; and "Duke of Newcastle" went for 24 guineas, to Mr. Winterton, of Wolvey.

Elford Park.—Mr. G. A. May's rams submitted for sale possess great frames well covered with lean meat of the finest quality, and remarkably good constitutions, as evidenced by the manner in which, in common with the whole flock, they had borne the deprivations of the previous winter, and they were truly designated a rent-paying class of sheep, from the weight and quality of their fleeces, the former ranging from 10 lbs.—the lowest weight—to over 14 lbs., and the price at which the wool was sold, we believe, has not been exceeded in any instance this year. A local agricultural meeting in the neighbourhood prevented the attendance being quite so large as usual, but there was a very fair trade throughout, resulting in an average of 10*l.* 12*s.* 3*d.* each. The highest prices were twenty-six and twenty guineas for Nos. 17 and 18—twins; which were purchased by Messrs. Cargey and Thorneywork respectively.

Annual Sale at Bingley Hall, Birmingham.—The number of rams for sale and letting was 130; of ewes 300. The prices of rams ranged from 5 to 25 guineas, and the ewes from 45*s.* to 75*s.* each, the total amount realised being about 1600*l.*

Holly Bank.—Mr. Willoughby Wood's rams displayed heavy weight, dark features, strong constitution, and general uniformity of character. The average of the public and private sales effected was stated to be about 8*l.* For the ewes the demand was brisker than

for the rams. Lot 1 made 4*l.* per head, while two other lots made 62*s.* 6*d.* per head; the general average being 57*s.* 6*d.*

Mr. Preece's Annual Sale comprised upwards of 200 animals, such as were never before congregated together; and it is no mean compliment to Mr. Preece, by whom the sales were conducted in the most able manner, and to whose exertions on behalf of the breeders of "Shropshires" their present position is in a great measure due, to be entrusted with the distribution of so large and so valuable a lot of sheep as were disposed of by him at Shrewsbury. Messrs. Crane's lot of 30 rams showed great scale and character. They were by "Nobleman," "Chieftain," and "Jack." The Plymouth Royal prize ram was let for 28 guineas, the general average of the lot being nearly 16 guineas each. The Rev. C. P. Peters, of Pitchford, sent seven capital sheep; Nos. 3 and 4, however, were far superior to the others, the former making 40 guineas, to Captain Broughton, Howbeck Lodge, Nantwich, and the latter 33 guineas, to Messrs. Crane, of Shrawardine. A score of rams from the flock of Mr. J. Evans, of Uffington, exhibited perhaps greater uniformity of character and type than any on the ground. The first ram sold fetched 23 guineas, the lot averaging over 15 guineas. Mr. Maddox, of Harley, sent a grand two-shear ram, which was purchased at 26 guineas, for E. Holland, Esq., M.P., of Dumbleton. Mr. Thornton's lot attracted considerable attention. The splendid 2d prize sheep in the all-age class at the recent Plymouth Royal was let to Mr. Minor at the sum of 42 guineas. Mr. Thornton's lot consisted of 15, which averaged nearly 15 guineas. Mr. Horton showed a capital lot of rent-paying sheep; a two-shear ram being let to J. Sheldon, Esq., of Brailes House, Warwickshire, for 36 guineas; and another was let at 21 guineas. The lot averaged over 12 guineas. Mr. Pryce Bowen's lot included his splendid three-shear ram, "Lord Clifden," which, in the opinion of many, deserved a better place at Plymouth; he was sold for 29 guineas to Mr. Henry Matthews. The lot averaged about 13 guineas, the Hon. Colonel Pennant being the purchaser of one at 20 guineas. Mr. Thomas Mansell's (Adcott) lot were next on the card, but it was 6 o'clock before the 1st prize yearling, "Mansion," was brought into the ring. This extraordinary animal was still suffering from the lameness which told so much against him at Plymouth, though much better. This defect operated against his sale, and he was knocked down for the small sum of 25 guineas, though warranted sound by Mr. Mansell, to Mr. Pryce Bowen. The 3d-prize ram, "Earl of Plymouth," by the same sire, found more favour, and after a spirited competition was let to the Hon. Colonel Pennant at 38 guineas. The average of the lot was 18 guineas. The first lot brought into the ring at the ewe sale was the five 1st prize shearling ewes of Messrs. Crane. These splendid sheep attracted much notice, and were much admired for their symmetry and true character. They were very quickly sold to Mr. D. R. Davies, of Mere Old Hall, Cheshire, for 10 guineas each. The second pen of show ewes made 5 guineas each, the whole averaging over 4*l.* Mr. Evans's ewes displayed the same uniformity of character as the rams. The stock ewes made 6*l.* each, and the yearlings averaged 4*l.* Mr. Meire's lot were exceedingly good, and averaged nearly 3*l.* each. Mr. Pryce Bowen's lot consisted of 25 superb ewes by prize rams, and averaged nearly 4*l.*; as did also those of Mr. Thomas Mansell. Messrs. Bowen & Jones sent five pens of first-class ewes, which averaged 65*s.* Mr. R. Jones, of Norton, had also a lot of capital ewes, which realised an average of over 60*s.* The ewes sent by Mr. Bickerton, of Newton-on-the-Hill, were extremely good, especially the yearlings, which made 6*l.* 5*s.* each, whilst the others fetched 3*l.* 7*s.* 6*d.* Mr. Andrew Mansell and Mr. Henry Lee each sent a lot of capital ewes, those of the latter being yearlings, which were all sold at 3*l.* 5*s.* each.

THE CATTLE PLAGUE.

[The following are extracts from a paper on the Siberian Cattle Plague or the Typhoid Fever of the Ox, read by W. Budd, M.D., at Leamington, August 1, and published in the *British Medical Journal.*]

Definite in character; peculiar to a single species; having a period of incubation; occurring, as a rule, but once in life; specific in the highest sense of that word; and in its very essence a contagious fever—it is a perfectly typical member of that family of which human typhoid fever and human small-pox are familiar examples. Known to tradition from the remotest times, it is the same now as it was at first. Bearing the closest family resemblance to human typhoid, it can be inoculated like small-pox, and the mode of its propagation determined by the most decisive of experiments.

The Steppes of Siberia, in which it appears to have first come into being, are still its great stronghold. Somewhere or another in that wide area, which looks so blank on our maps, now in sporadic, now in epizootic form, it is always present. In these wild wastes, this fell disorder works its will on the hapless and unconscious cattle, unchecked by veterinary police or sanitary reformer.

The one thing needful for prevention—separation of the infected from the healthy—being impracticable, the disease in the Steppes is, with few exceptions, left to its own course. Happy if its ravages always ended there. Like all other contagious disorders, it possesses, in virtue of the terrible gift of communicability, the fatal and characteristic power of migration.

Trade and war, those two inexorable tyrants, are the chief agencies by which it is disseminated. In the course of ordinary traffic, vast droves of cattle annually leave the Steppe for the markets of the West. Too often these droves carry with them the germs of the scourge. So prolific are these germs, and with such rapidity do they multiply, that, from a single case of Cattle Plague, great outbreaks often spring, which, in a few months, spread over whole principalities, and count their victims by tens of thousands.

The actual onset of the disease is marked by the constant and well-known signs of violent disturbance which usher in all the contagious fevers. Rigour or shivering, followed by an increase in the temperature of the body, frequent pulse, and sudden prostration of the powers of life, are the leading and familiar signs. The coat is stark; all fodder is refused; and at the end of a few hours, at most, rumination finally ceases. The poor plague-stricken ox, standing with its back arched, its head hanging down, its ears lopped, and its legs gathered under the body, presents, to those who know how to interpret such signs, an unmistakeable aspect of grave illness. Transient quiverings of the muscles, especially about the neck and shoulders, betray already the severity of the nervous disturbance. The animal looks dull and dispirited; is reluctant to move; and, when made to move, often staggers from weakness. In the milch cow, the secretion of milk at once ceases.

In some few cases, the bowels are at first torpid; but in the great majority, in the course of a few hours, or on the second day at the latest, diarrhœa sets in; and the discharges, becoming more and more profuse, and at last dysenteric, plainly show on what surface the malady finds its chief outward development. The evacuations are more or less fluid, of a dirty yellow—sometimes blood-stained; have a peculiar sour smell; and, on minute examination, are found to be charged with flocculi derived from the diseased intestine. As the drain from the bowels proceeds, the loss of power makes rapid progress. The tail has lost its native function; and, in summer time, flies, busy in their work of petty torture, swarm upon the hide, undisturbed by that once lively member.

In malignant cases, the discharges become involuntary; and the raw and fretted vent is often entirely prolapsed.

At an early period—sometimes, as I have myself seen, at the very outset—a mucous fluid weeps in abundance from the eyes and nostrils. Transparent at first, this mucus soon becomes laden with whitish flakes, and at length is entirely opaque. As the disease advances, this ill-conditioned stuff stands in viscid pools beneath the head of the patient. With the extension of the catarrhal condition to the throat and windpipe, cough sets in, and the breathing grows more or less hurried and embarrassed. Under these circumstances, the act of breathing is attended by a peculiar rough moan, which has appeared to myself to be very characteristic.

The temperature of the body, which at first was uniformly higher than natural, is now unequally distributed; so that, while the mouth and roots of the ears are still hot, the tips of the ears and the extremities often have a death-like coldness.

With failing strength, the animal finally loses its legs; and lying with its head hanging back on its shoulders, recalls to mind that look of abject prostration which is so familiar to us in the typhoid fever of our own species. As life ebbs away, the belly becomes distended; the limbs are agitated by involuntary twitchings;* and in some cases the back and loins crackle when pressed, from the extrication, while the animal is yet living, of putrid gases in the areolar tissue.

When things have come to this pass, the breathing becomes rapid, its rhythm irregular; and, the temperature of the body falling from hour to hour, the sufferer soon sinks.

One of the most important of the characteristics of the contagion of cattle plague, is the almost unerring certainty with which it appears to take effect. When this disease is once introduced into a farm or homestead, nothing short of the instant slaughter of the infected subjects, and the destruction of all exuviæ from them, seems to give any certain security in preventing its extension to the whole stock. Cattle of all ages, of all races, and in all degrees of what is called "condition," appear equally liable. To have had the disease once before, is the only circumstance which constitutes an immunity from it. In many instances, the oxen in direct relation with the first sufferers are not alone attacked.

In various ways, and through a great variety of media, the disease is often conveyed to neighbouring farms. Among the most efficacious of these media are the hides, the horns, and the hoofs of diseased beasts. Not that the fact is any certain proof that these parts are contagious by their own power. Largely tainted as they must necessarily be by what, in one form or another, is cast off by the internal specific disease, it is probably to this taint that they are chiefly, if not entirely indebted, for the part they play in sowing the pest. It is most likely in virtue of germs derived from the same pathological source, that men, oxen—themselves uninfected—horses, sheep, dogs, poultry, and other animals, domestic and wild, often fulfil the same function. Flooded with intestinal and other discharges as the places are where the sick cattle are kept, it is easily intelligible that persons visiting them may carry away in their shoes and in other ways enough of infection to taint the soil of distant places. In this way neatherds, farriers, sanitary inspectors, and lastly farmers, curious about the new and fatal pest which has stricken their neighbour's cattle, may often become, as on the Continent they are known to be, unconscious bearers of it.

Unless we have an eye to it in time, many of the modes of transmission here indicated are likely to have no little hand in spreading the pest. *A priori*, it would seem certain that the disease must be disseminated chiefly by the discharges from the intestine and the nostril, and by exhalations from them. Although the view does not appear to have presented itself to any of the scientific men who have written on cattle plague, incidental evidence of its truth is not wanting in their works. Take, among others, the very general remark that the *manure* of infected homesteads has an especial virulence in conveying the contagion. As we shall see presently, however, on other grounds, no special evidence of this kind was needed.

As the discharges are liquid, their first effect must be to taint the soil on which the patient stands. In the same way they taint the ship, the wharf, the cattle-truck, the public road, and the market.

In the country, taking the line of watershed, it would seem to follow that these discharges must often, like those of cholera and of human typhoid, contaminate the drinking water, which, when in the form of small running streams, may, in its turn, become the means of carrying the disease to distant spots. The attention of continental observers does not seem to have been called to this mode of transmission; but physicians here who are acquainted with the evidence collected upon it in regard to the two human diseases just named, will easily see how it may often intervene in causing many unexplained outbreaks.

In the town dairy, on the other hand, these discharges are distributed by the sewer. In certain districts of London, for many weeks past, the sewers have been constantly fed by this infectious stuff. From what we know of this mode of dissemination in the typhoid fever of our own species, it is more than probable that effluvia from this source, finding their way through untrapped drains, may carry the cattle plague to cows that have had no other contact with it. Practically, the greater part of the poison cast off by the infected animal takes the form of manure. This being so, all thoughtful men must be anxious to know what has become of all the cattle plague manure created in London and its suburbs within the last two months. If it be true, as many fear, that much of it has already been taken into the country to be spread over the land, the results may be disastrous indeed. I have myself reason to know that no longer ago than Saturday last (August 5th) a load of manure, which had undergone no disinfecting process, was sent from an infected dairy to one of the canals which radiate from London, to be despatched thence into the country. It would be interesting to know what has become of that precious cargo. Did it perchance meet any droves of cattle in its way through London? Is it at this moment travelling in some slowly moving barge, with its trail of infection behind it, to the meadows of Berkshire or Bucks? To what manure-yard next were the horse and cart sent which first bore it away?

I have said that Rinderpest is unknown here. In the latter part of last century, by one of those striking incidents which are so full at once of teaching and of deep and various warning, we ran a great risk of having this disease naturalised among us. In 1744 its germ was introduced into England. Dr. Layard, who wrote an essay on the disease, seems to have ascertained that it was brought to us by an English tanner, "who had purchased a parcel of distempered hides in Zealand very cheap, because they were forbidden to be sold and ought to have been buried." From this parcel of hides there issued a power never known in these islands before, which, rapidly reinforced as it went by its own offspring, grew to such a height as to slay myriads of oxen. For 10 whole years this epizootic raged with unheard of severity. In the third year of the disease 80,000 oxen affected with it were killed, and nearly twice that number died of it. 135,000*l.* were, in the same year, paid out of the Treasury to farmers in compensation for slaughtered cattle. In Nottinghamshire alone 40,000 head perished in six months, and in Cheshire upwards of 30,000 in the same space of time.

So great a price did the nation pay for the little lot of distempered hides imported by that sordid and ignoble tanner.

But if the mode in which the disease was introduced into England be instructive, the means by which it was finally extinguished were not less so. By order of the King in Council the following stringent measures were prescribed and rigidly enforced.

1. All infected animals to be killed and buried entire, with their skins on, slashed from head to foot.

* My friend Professor Simonds writes to me to say that these and other nervous phenomena are not so highly developed in the present epizootic as in the cases he saw in Galicia.

2. All hay and straw used about the sick animals to be burnt.

3. The sheds occupied by them to be cleansed and fumigated, and not to be re-occupied by sound cattle for the space of two months.

4. No recovered animal to be allowed to mix with others for a month after convalescence.

5. No diseased cattle to be driven to fairs or markets, nor their flesh to be used as food for dogs.

6. No healthy cattle to be removed from a farm where the disease had prevailed, in less than a month after its disappearance.

To insure the more certain execution of these measures, Government undertook to pay 40*s.* for every ox, bull, or cow, which was killed, and 10*s.* for every calf, with a corresponding price for their skins.

In 1747, the disease being still rife, but being then confined to the southern counties, another Order in Council was issued in the month of January, forbidding any cattle, whether sound or sick, to pass the Humber or Trent northwards, from that date to the end of March.

By continuing to execute to the letter every detail of this preventive code—and not, be it observed, by improved drainage of cattle sheds—the epizootic was at last got under, leaving nothing behind it but this simple and pregnant history.*

These events speak for themselves. All hanging together, as they do, by a single thread, each is, in its way, decisive.

According to the partisans of spontaneous origin, never a year passes that cattle plague does not frequently arise spontaneously. But here we have a thousand years, with all their variations of wet and drought, and heat and frost, and blight, and infinitely various chances of peace and war, of plenty and scarcity, and of breed and keep and condition, bringing back their myriads of departed oxen to bear witness against such a notion.

From the time when he first issued from the loins of the wild Urus, to the date of this outbreak, the British ox, girt in by the sea, had remained protected from this plague, as English sheep had in the same way remained protected from sheep's small-pox.†

That this long immunity was not due to the absence of any of the natural conditions necessary for the manifestation of the disease, was proved by the fact that, when its germ was introduced, it multiplied as rapidly here as in its native home, and with precisely the same results, untraceable outbreaks, without number, included. That the disease when imported was solely due to the continual fructification of the imported germ, was finally proved by this other fact, that it was extinguished by measures in no way affecting the common conditions of cattle life, but solely directed to the extinction of the specific cause.

Had the pest, of which this is the history, been some newly imported animal or plant, the events could not have testified in a more clear and decisive way against spontaneous origin on the one hand, and in proof of the simple law of propagation by continuous succession on the other.

Conclusion.—1. Cattle-plague is a contagious and eruptive fever peculiar to the cattle tribe, in which the eruption, instead of occurring on the skin, as in small-pox, occurs on the internal surfaces of the alimentary canal and air-passages, nostrils included.‡

2. The poisonous germs thrown off by the eruption are cast out of the body in the discharges from these surfaces, which thus become the chief means of propagating the disorder. In Russia, the plague is often actually inoculated by virus from this source.

3. The specific poison which causes cattle-plague is, like the poison of small-pox, the product of the disease itself; and the living body of the animal affected with it is the only known medium in which it is bred.

4. (A proposition which is merely a corollary of the last). Cattle-plague, like syphilis, like human small-pox and sheep's small-pox, and, I may add, like the living organisms which people the earth, having first come into being under conditions of which we know nothing, is never known to spring up spontaneously now, but is self-propagated only.

To be successful, all attempts at prevention must be based on these principles. It is from want of clear apprehension of some among them, that certain foreign Governments, in spite of an otherwise very stringent preventive code, have often failed to stay the pest. It will be from want of applying these principles sufficiently early, or with sufficient vigilance to meet every incident of the case, that we, in England, shall fail now, if fail we do.

To succeed, three things only are necessary; but they are all three vital:—

1. To destroy the further manufacture of the poison by the instant slaughter of infected cattle.

2. To get rid of all poison cast off by them.

3. To prevent the reimportation of the pest.

All three, but the second especially, are things which require great knowledge and still greater vigilance—qualities which are only too likely often to be in default in this emergency. The first needs, in addition, a loyalty to high principle in the execution of measures seemingly adverse to the money interests of the hour, which, I fear, is likely to be often wanting in the farming class. Could all this be accomplished, cattle plague in England would be no more. Let us strive to go as near it as we can.

* From the length of time during which the epizootic lasted, it will, no doubt, be objected, that its extinction was rather due to natural causes than to the preventive measures adopted. That such causes may have had something to do with the decline of the pest, seems probable enough; but that they were powerfully seconded by the steps taken for the direct extinction of the morbid poison, whenever and wherever it cropped up, is absolutely sure. That alone these causes would not have sufficed, seems equally so. There is no instance on record, in fact, in which this terrible disease, once introduced into a country, has died a natural death. That the measures enforced by Government did not shut up the epizootic sooner, is to be explained, partly, by the difficulties attending their application; and partly, by the fact that the disease had already made a great head before they were adopted.

† I have made a pretty careful study of the history of past epizootics in this country, as far as the local resources of a provincial town will allow me; but although in "Matthew Paris" and in other works relating to the middle ages, there is mention made of many fatal murrains among English cattle, I can find no account which at all corresponds with the present malady. We may be pretty sure from the way in which it thrives here, that, had it once been imported, it would not have died out again.

‡ By the word "contagious," wherever used in this essay, I simply mean "communicable," whatever the medium, direct or indirect, through which the poison may pass from the infected to the uninfected.

Home Correspondence.

The Agricultural Crops of 1865.—[Mr. H. J. Turner, of Richmond, thus writes to the *Times.*] During the last 10 days my professional engagements have again taken me over a large portion of the country between the Tyne and the Thames, and I shall be obliged if you will permit me, as usual, to state my impression respecting the agricultural produce of our country for this year. Some time ago you did me the honour to insert a letter of mine on this subject, and, with one exception, the opinion I then gave on the prospect of our corn crops has been fully confirmed, now that I have seen those crops when arrived at maturity, and upon a far larger area of land than I had had an opportunity of inspecting when I wrote before. The exception is in the Wheat crop. I said I thought under any circumstances that crop would prove under average, but I now think that in bulk it is an average one. I wish I could stop my description here, but truth obliges me to add that, although the quantity is more satisfactory than I had anticipated, the quality I am persuaded will be found greatly inferior to that of last year. Owing to the showery weather which has prevailed for the last three weeks over most of our country, corn, and especially Wheat, will be found a moderate sample—dark in sample, crude in condition, and in many places in the most southern counties unquestionably unsound. The natural result will be that for several weeks yet we shall have to depend in a great degree upon old Wheat for our bread meal and flour. Fortunately, the stock in hand is ample, and of superior quality. We already hear statements put forth as to the yield. In my opinion those accounts are generally worthless, as, in consequence of the soft condition in which the grain has been gathered in, very little of it has been, or, indeed, could be threshed as yet; and it will be some time before any reliable judgment can be formed of the yield of the general crop. One curious circumstance has resulted from the humidity of the season. It has almost equalised the period of harvest in the whole district between York and Rugby, and yesterday there was nearly as great a proportion of the crops of grain in the fields in Warwickshire and Leicestershire as there was in the West Riding of Yorkshire. Barley is generally a full average crop, but the colour is mostly very dark, the sample rough, and in many districts it will not be found free from sprouts. Oats are a moderate crop over the whole country. Beans and Peas average crops. Potatos look well, and will, I think, prove a good crop generally. Turnips, south of Doncaster, are a full average crop: north of that place they are in many fields patchy; while in the North Riding of Yorkshire, and in the counties of Durham and Northumberland there are hundreds—nay, thousands—of acres of land where that valuable crop has been utterly destroyed by fly or grub. The herbage on old Grass-land is everywhere abundant. In Trent Valley, in our dales, on the dry pastures of Leicestershire, and on our extensive marshes there is more food for cattle and sheep than I have seen for many years. These excellent pastures, aided by cake or corn, will fatten off animals in a forward state, and put all our other healthy stock into capital condition for beginning winter, widely differing from the half-starved state in which they came out of our parched pastures of last year. I have the honour to be, Sir, your faithful servant, *H. J. Turner, Land Agent.*

Beet Sugar.—The low price of Wheat, relatively to that of meat, renders the cultivation and use of root crops of increasing importance. Is it not incumbent on us to sift the question whether Beet-root might not now be profitably grown in England for the production of sugar, as it has been found in France that cattle fatten on the pulp after the sugar has been extracted? In some "arrondissements" of that country the horned cattle have increased tenfold in number, and the Wheat has been doubled in quantity, principally from the larger supply of manure thus obtained, and partly no doubt from the tillage of roots taking the place of wretched fallows. Through my friend Mr. R. Hunt, of the Government School of Mines, I have obtained from Paris a statement as to the produce per acre, estimated at 8 tons of Beet-root, from which 8 cwt. of raw sugar are made, yielding 86 per cent. of refined, and 14 of molasses. It is as rich in saccharine matter as cane sugar. The pulp is apportioned among the farmers according to the quantity of roots severally delivered by them; they receive cash for the roots and pay for the pulp. The manufacture of sugar costs about 10*s.* per cwt. in labour, fuel, lighting, &c. A profit equal to the value of the molasses and pulp, satisfies the manufacturers; some of them grow their Beet-roots. In the Pas de Calais there are manufactories producing five tons of raw sugar in 24 hours, and employing 150 to 200 people of both sexes. France consumes annually about 400,000 tons of Beet-root sugar and about 40,000 tons of cane sugar, although home-grown sugar pays 49 francs per 100 kilogrammes, equal to 16*s.* 10*d.* per cwt., and French Colonial 3*s.* 4*d.* less: and yet the number of Beet sugar manufactories has increased in the last year from 364 to 398. Might we not partly calculate on a produce of 12 to 15 tons per acre in England instead of 8 tons as in France, from our better cultivation and more abundant manure? Sugar does not take nitrogen, phosphorus, or sulphur from the soil; carbon, hydrogen, and oxygen, its component parts, abound everywhere; the growth of canes may impoverish a soil, for they restore so little to it in the shape of manure. Raw cane sugar, during its transit from the colonies, wastes largely by leakage. The English revenue receives about the same amount from sugar as from malt; could any increased production of a grain crop, like Barley (were the duty on malt abolished), be compared with the benefit that the farmer might derive from the largely increased demand for Beet-root sugar which would arise if the duty on it were removed? *C. F., Falmouth, Aug.* 11, 1865.

Societies.

MEETINGS IN SCOTLAND.

Edinburgh.—At a meeting of the magistrates of Edinburgh, held in the Council Chamber on the 21st ult., a report was given in by Mr. Ford, Convener of the Cleansing Committee of the Town Council, in which it was stated that there are 145 byres in the city which have all been cleaned and lime-washed in accordance with the instructions issued. A sanatorium for diseased animals in Mr. Tod's garden, Lover's Loan, Leith Walk, has been completed, and a lorry constructed for the purpose of conveying diseased animals to the hospital. The number of cows in Edinburgh at present is 2085, whose value may be estimated at 33,000*l.*

Highland Society.—Professor Dick's report to the Highland Society says that much might be done both in the way of prevention and cure by cleanliness, ventilation, and drainage; and on those stocks where the disease made its appearance he would advise that all the cows in the place should immediately get a dose of purgative medicine—1 lb. common salt, and 1 lb. treacle—with plenty of water, as a means of removing any latent irritation of the bowels, and change of diet should also be made; wet rank Grass should be avoided, and hay scalded with hot water given instead; and Linseed cake used instead of the grains so commonly given. The cake to be scalded and mixed with bran; a few Turnips to be given as soon as they can be procured, in preference to Mangel Wurzel; let them also have plenty of water; a little salt should be given daily with all their mash food, and, if convenient, in fine weather exercise should be given daily. Having described the symptoms of the disease, as shown in the animals affected, he said—From the general symptoms and *post mortem* appearances, I am of opinion that the disease depends chiefly on atmospheric causes and the diet of the cattle, which may be prevented by attention and occasional changes of diet: and where any case of even suspicion occurs, I would at once give a dose of purgative medicine to every beast in the herd—say of 1 lb. of common salt, 1 lb. of treacle, and 2 ounces of ginger, and this dose might be repeated. When the disease has manifested itself, I think the best plan to adopt will be to give 1 lb. of Linseed oil in the first place, and if the bowels are costive, 1 lb. of common salt and plenty of distilled water. On the following day, if purging has set in, 2 ounces of laudanum should be given in Linseed tea, and as soon as the purging has ceased, 3 or 4 drachms of the sulphate of iron should be given night and morning. If the animal is weak and exhausted, a pint of port wine or 4 ounces of whisky may be given, the back rubbed with yeast (barm), and a mustard blister well rubbed on the belly, or fomentations of hot water freely used.

Mr. Hope suggested the institution of mutual insurance societies throughout the country. If each person interested would subscribe 10 per cent. on his stock, he thought a sufficient sum would be raised to cover all loss. He also considered that the remuneration granted should not exceed one-half of the value of the cattle that might be destroyed.

Sir Alex. G. Maitland said he felt a little disappointed at the report of Professor Dick, and was inclined to think that he was trying to lull them asleep, to prevent any very serious apprehensions arising in their minds. He urged the desirability of the directors of the Highland Society writing to the various railway companies in Scotland and England, pointing out to them the very disgraceful manner in which cattle trucks were generally kept.

Mr. Campbell Swinton moved—"1st, That appli-

tition be made by the directors of the Society to the Secretary of State to extend to Scotland without delay the orders and regulations by the Privy Council, under the Act 11 and 12 Victoria, chapter 107, for preventing the spread of the cattle plague in this country. 2 l, That the directors of the Society urge upon her Majesty's Government the propriety of taking measures to prevent the importation of cattle from countries where the disease was known to exist.

Sir ALEXANDER G. MAITLAND seconded the resolutions, which were unanimously agreed to.

CHAMBER OF AGRICULTURE.—Last Wednesday a meeting of the Acting Committee was held on the subject of the cattle plague.

Professor LAW said: The London importers of cattle were very strong in asserting that the disease originated in the London cow-sheds. Now, it was admitted by people of experience on all hands that Russia was the origin of this plague. The cattle that first brought the disease into London came from Hull, and, in connexion with that, they should take into account that immediately before a ship load of cattle from Revel, in the Baltic, were landed at Hull. The cattle come here in a three days' passage. Now, the period of incubation extends over ten days, and no one will discover the existence of the disease until the period of incubation has expired.

Mr. T. SWAN.—Then, if the inspection is a farce, the best means to prevent the disease spreading is to stop the importation of foreign cattle altogether.

Mr. SHEPHERD then read his motion as follows:—"That the meeting petition the Privy Council to stop the importation of all live stock for at least two months."

Professor DICK.—By which time half of the inhabitants will be dead from want of meat.

It was unanimously agreed "to adopt the resolutions of the Highland Society" on the subject.

UNITED EAST LOTHIAN.—At a special meeting of this Association, the Marquis of Tweeddale occupied the chair.

Lord ELCHO said: The disease was already in this country, and what they must look to was carefulness and cleanliness in the treatment of animals at home, and the separation of all animals which they had reason to believe were unsound. It would not be wise, and he did not think they would get the Government to undertake the prevention of the importation of cattle from foreign ports; that disease might lie for ten days in the animal before it was generated. An animal might be shipped at Hamburgh, and might be inspected after it came to this country, and kept in quarantine and then passed, and yet the disease might break out in it afterwards. When they considered that 119,000 animals had been imported into this country during the past year, he did not see that they could venture upon doing anything in the way of preventing the importation of cattle from foreign ports because it was possible that some of them might be diseased. The best course was for everybody to establish a quarantine for himself on his own farm, and on acquiring new cattle, to keep them apart for a certain time from his other stock. What they required from Government was the power to compel every one keeping stock to be careful and cleanly, and to keep his stables and byres in such a way as that their uncleanliness would not spread the disease.

Mr. HOPE, Fenton Barns, proposed—"That a committee be formed in East-Lothian to take measures for the prevention and suppression of the cattle disease, to sit weekly at Haddington, and that local committees be organised by the central committee in each parish—one or two of the members of each parish committee to be members of the central committee."

Mr. DOUGLAS, Athelstaneford, stated several objections to the idea of forming a mutual assurance association, and urged that if it was proposed to pay to owners of stock even half the amount that they might lose, the premium must be very high. He also expressed his belief that cattle disease would always exist to a greater or less extent, and it was natural to suppose that cattle imported from abroad, which had to undergo the exceptional fatigues of travelling, would be most liable to that disease.

Mr. SCOT SKIRVING objected to mutual insurances upon cattle, for supposing it was general and successful, he thought it would create a premium on bringing diseased cattle into the country, in this way:—A man might say, "I am a member of an assurance society; I can only lose one-half of what I lay out, and here is a splendid bargain of cattle which I may get in England; I may run the risk of the other half." And so he might be encouraged to buy in a stock of suspected cattle which, in other circumstances, he would not think of doing.

Farmers' Clubs.

BOTLEY: *The Cattle Plague.*—At the last meeting of this Club, Mr. C. GATES, the Chairman, believed that since their meeting a fortnight ago, no fresh case of the disease had occurred in this neighbourhood.

In answer to questions, Mr. HAYES stated that the beasts which died on his ground were buried without delay, and to the satisfaction of Mr. Barford, the inspector.

Mr. GOULD said the following were the *post mortem* appearances of the animal he had opened:—The lungs were free from disease, but the left one was much congested, which he attributed to the animal lying on that side. The tongue was in an ulcerated state; the heart was empty, but free from disease, the reticulum, or second stomach, containing hard and dry ingesta. In the large intestines were threads of lymph effused upon the mucous membrane, and containing very dark faeculant matter; the small intestines were much congested. The liver was healthy, as was also the gall bladder. The Schneiderian membrane was likewise congested, the trachea, or windpipe, containing extensive layers of lymph. He had treated several cows belonging to Mr. Hayes that were suffering from the disease, his treatment being diffusible stimulants, followed up by antiseptics, which Professor Simonds approved of, stating that the disease must be dealt with as an infectious one, there being no doubt on the Professor's mind that it was imported from Russia.

Mr. SPOONER hoped the discussion would lead to some practical conclusion on the subject, which was a very important one, not only to agriculturists, but to the community at large. They must not think that they could fall back upon the ordinary insurance societies in a case of this sort, for it would ruin them if they were to attempt to make good the losses sustained by the cattle plague. He thought they should not part without taking some steps towards forming such a society, but probably they would think it should emanate from a larger meeting, either at Southampton or a county meeting at Winchester. The machinery of a society of the kind he was referring to would consist of an inspector, a committee, and a secretary. An owner of cattle would subscribe in proportion to the number and value of his cattle, as described by himself, and, as he would be interested in not rating them too high, so there was little probability of that objection occurring. Besides, it would be very easy to tell if they were not properly valued. In some societies the scale of payment adopted was 1*s.* per animal, but he thought it would be better to pay 1 per cent. on the value of the stock. Of course, no money would be paid out of the society without the sanction of the committee. He also thought that assistance would be obtained from other sources; landowners, and people of property in towns would probably contribute to the funds of such a society, so as to lighten the burden that might fall upon the members of it. With these views he had drawn up a series of resolutions which he thought would very properly proceed either from that or a larger meeting. The resolutions were as follows:

1. That it is the opinion of this meeting that, with a view to prevent loss to owners of cattle from the prevalence of the cattle plague, it is most desirable to form a mutual insurance society for the reimbursement of members of the association, who, having complied with its rules, might lose cattle from this fatal disease.
2. That each member wishing to join in the association should give in a list of the cattle belonging to him, with age and value of each, and should pay a deposit of 1 per cent. on such value, and engaging to pay a *pro rata* assessment for any further sum that may be required.
3. That, in the event of the stock of any member of the association being visited with the disease, he having given due notice to the inspector as required by the Order in Council, shall be reimbursed by the society to the extent of of the value of any cattle that may die or be destroyed by order of the inspector, who will certify that the animals so destroyed were not, when in health, of less than the value placed on them by the owner.
4. That a secretary and an inspector be appointed by the society, whose remuneration shall be left to a managing committee of the society.
5. That the following gentlemen shall be considered officers of the association, and that no pecuniary award will be made unless sanctioned by a majority of the committee, three of whom shall form a quorum.
6. That the operations of the Society shall, for the sake of convenience, be limited to
7. That as the extensive prevalence of this fatal and virulent disease would become a national misfortune of great magnitude, and one that concerns every consumer of meat, the assistance, pecuniary and otherwise, may justly be invited, not only of landowners, but of other gentlemen, and the public in general, to any society having for its object the warding off or the mitigation of such a direful calamity.

The CHAIRMAN considered that Mr. Spooner's proposals were exceedingly well timed, and adapted to meet the emergency; but in his opinion they should be submitted to a larger meeting.

Mr. BLUNDELL said: The Order in Council calling upon parties to kill infected animals was all very well as far as it went, but how were they to kill the infection? Killing diseased animals was one thing, but killing the infection was another, and he maintained that this being a national calamity those who lost by it ought to be compensated out of the national purse. It was for them, as a Club, to devise some measure for staying the progress of the disease or mitigating the losses resulting from it, which would be best done by calling a large public meeting, as had been done at Norwich, where Lord Leicester gave 500*l.*, the Mayor of Norwich 100*l*, and other wealthy individuals large sums for the purpose of initiating an association for compensating those who lost cattle by the disease. They had Southampton, Portsmouth, and other large consuming towns in their immediate neighbourhood, to which they would be entitled to look for assistance, for their own subscriptions, as members of the Club, would be totally inadequate to meet the losses they might sustain if the disease assumed larger proportions. It was a national calamity, and they had a right to look to the public for assistance. He thought a requisition should be signed and presented to the Mayor of Southampton, calling upon him to convene a public meeting of the inhabitants of that town, and in addition thereto, that circulars be sent to the landed proprietors and wealthy residents of South Hants, asking them to co-operate with the said public meeting in raising funds to compensate those who might lose cattle by this disease.

Mr. W. WARNER made inquiries as to the cattle that had been turned into Mr. Hayes's pastures since the disease had broken out there.

Mr. HAYES replied that the cattle referred to belonged to Mr. Spincer, butcher, of Southampton, who believed that the disease was not infectious. They were in the same pasture as that where the disease had made its appearance, and up to the present time no fresh appearance of the malady had manifested itself.

Mr. BARFORD had no doubt the disease was infectious.

Mr. SPOONER said whatever doubt might exist as to how the disease was engendered, there could be no doubt that it was infectious, and the Order in Council would be infringed by turning cattle into a place where the disease had previously manifested itself within the time specified.

Mr. W. WARNER moved, and Mr. BLUNDELL seconded the following resolution:—"That it is the opinion of this meeting that a request be sent from the Club to the Mayor of Southampton, respectfully urging him to call a public meeting of the inhabitants of the town and the neighbourhood with the view of adopting the best measures calculated to stay the progress of the cattle plague by forming a mutual assurance association, or such other means as may be resolved on."

Reviews.

Field and Fern: or Scottish Flocks and Herds. By H. H. Dixon, Author of the Royal Agricultural Society of England's Prize Essay on Shorthorns. 1865. Rogerson and Tuxford, *Mark Lane Express* Office, 245, Strand.

These two volumes, endorsed respectively "North" and "South," give the very racy journal of a very clever writer, who has for the last three years been wandering amongst the best cultivated farms and the best bred studs and herds and flocks in Great Britain. The North and South are here however both confined to Scotland, and refer respectively to the Highland and the Lowland counties. It needs a certain amount of special knowledge, as of the herd book and the stud book, and of sporting life as well as of ordinary farm practice, to thoroughly appreciate and understand all the allusions and suggestions in which Mr. Dixon's pen continually indulges throughout the collection of anecdotes, scraps of conversation and of information by which its work of description is accomplished. But every one can appreciate and enjoy the author's powers, by means of the fewest possible touches, of presenting both character and scenery before the mind. His own sympathy with the humours of the many individual and original men he meets with on his agricultural and sporting tour is caught readily enough and thoroughly enjoyed. And thus, while it is the agriculturist and sportsman perhaps especially to whom his pages are presented, they will afford both amusement and enjoyment to a large and general circle.

We extract a passage or two from some of the more strictly professional chapters of the work. In an account of Falkirk Tryst and the stock markets of Scotland there is this reference to the foreign trade:—

"Despite these large supplies, farmers have of late years found it so much more profitable to make their corn-sacks walk to market in the shape of beef and mutton, that they have often hardly known where to look for store beasts. Time has, indeed, verified what Mr. Aitchison, of Linhope, said in one of those glowing periods which used to 'bring down the house,' when he returned thanks for 'The Tenant Farmers' at the Highland Society's banquet—'Steam is your Highland drover.' And so it was, in verity, a few months since, when a dealer, finding himself left short for Ellon, set off from Aberdeen on a Wednesday, and returned with a large lot of Herefords from England on the Saturday.

"A Denmark beast trade is being opened up with the direct steam navigation from Copenhagen to Leith, and fully 5000 'Dutchmen' are passed through the hands of the Swans between May and October, and sold to the Forfarshire, Fife, and Lothian farmers at 5*l.* to 8*l.* They are small blacks and whites, and very like the Ayrshires in size and marks. The Holstein cattle, on the contrary, which are poured in from Hamburgh and Oldenburg, are not unlike the Fife breed, and of all colours, black, spotted, and red and white. Mr. Smith, of Ley Shade, near Dundee, imports about 500 or 600 of them annually, and puts them into the farmers, and then buys them back at a profit of from 25*s.* to 30*s.* a month for a few months' keep. The smaller butchers buy them up very readily, but the leading men do not take kindly to anything but British-fed beef and mutton. Still, when the beasts have been judiciously selected off ship-board, and fed for a time in the country, they come out well, and command a ready sale, as they carry both flesh and fat, and are generally good killers. Between the middle of March and the 1st of November, Hamburgh ships fully 2000 of these cattle, and 15,000 sheep to Leith. Some of the cattle are 'as old as a man,' and with strong marks of the collar; and many of the Merinoes are most venerable

wool producers. They are generally four and five years old wedders, and suit the second-class Glasgow butchers, at all figures from 22*s.* to 30*s.*, while the Holsteiners will fetch from 18*l.* to 23*l.* These sheep are the incarnation of ugliness, with long tails and white noses, and most of them with a strong dash of Merino blood. When they do not come over clipped, as a large proportion do, their skins make 7*s.* Plenty kill at only 7lb. to 8lb. per quarter, but the better class scale twice as much."

The following is an account of the show jockeying at the Ayrshire competition for prizes offered to dairy stock:—

"The show dodges of the Ayrshire men are inexhaustible, and not unattended with danger, as one man in his last 24 hours of a 'strong preparation' fairly burst his bull. A great deal depends upon the jockeying during that time. A cow is generally kept sharp set till four or five hours before the show. If she had been on too fine food, her paunch would be drawn up, and the vessel would lean forward, and the teats not in position; whereas, if the paunch is gradually filled in these few last hours, first by giving her common food, and then by coaxing her into quantity by bettering it at every supply, she is filled to repletion, and the vessel hangs taut and square. She often gets her pound of salt at night, and between the two agencies she should be turned out quite the thing in the morning. Cows are also kept well up to 'tid' during the show season with gruel made of Linseed-meal, Oatmeal, and flour, diluted with their own milk, and sometimes as much as 3 lb. of treacle in it. The shape of the vessel is also as carefully looked to and adjusted as the Spanish cock's comb, which was, while the fashion set that way, kept up in pasteboard splints, till just before going into Bingley Hall. A board is put below the vessel with holes for the teats, and tied with strings round the cow's back, so as to keep it in position, and the vessel is laved with cold water all night, to make it flat and contracted and give it consistency.

"They are also washed over with butter-milk, and the finer lights put in with soap and gum. Sometimes the cow barbers use butter-milk for the legs, and take to hair-oil, and the horns are rubbed with charcoal or Hawthorn ashes, in accordance with an old superstition. In short, the day and night before the show are in many instances quite as important as an artist's glazing-day at the Royal Academy. The judges are well up to 'the little game,' which extends to scraping rams' horns almost to the quick, and then japanning them, and is on all-fours with that artistic clipping to hide weak points, against which old Val Barford, K.C.B. (Knight of the Clipping Board), struggled so long, till the Royal English Society issued its ukase."

We add the author's account of the late Duke of Athol as an agriculturist, and a description of his Ayrshire herd:—

"It was something heroically grand to see his Grace in the middle of the ring at Kelso, all muffled up, to hide the ravages of that terrible malady which was so surely eating away his life, and yet calmly giving orders about his cattle, Ayrshire and West Highland, which 'will not be scattered, when I die, to the four winds of heaven.' The servants of the exhibitor had not forgotten how unceasingly he watched over their interests at Battersea; and they seemed to vie with each other in holding his horse, and anticipating every wish. His death, as he told his friends, when he bade them good-bye in the yard, with as much calmness as if he were only taking a journey, 'may be a matter of only 10 days or three months;' but it was six weary months before he found rest. When he could hardly speak, we saw him leaving the Dunkeld station to superintend the trucking of some Ayrshire cows, which he had selected for the Royal dairy at Balmoral; and later still, when her Majesty paid her visit of sympathy to Blair Athole, no pain or weakness could restrain him from accompanying her to the station. Then for the last time his Highlanders heard his voice, as, after kneeling to kiss her Majesty's hand, he strove to dispel the gloom of that sad parting by giving them the word for three lusty cheers.

"It was as President of the Highland Society in 1858-61 that he first took a fancy for farming and Ayrshires, of which her Grace had a few at Dunkeld. A certain number of them always accompanied him to Blair Athole, and he took them with him the first time he ever went there by rail. He left Dunkeld for Blair Athole some months before he died; but to the last he had a weekly report of the milking and specimens of Beetroot, Mangel, and Kohl Rabi sent to him from his farms at New Tigle and Haugh End.

"The dairy books were kept during his Grace's lifetime with the most scrupulous exactness; and her Grace the Duchess Dowager, and her friend Miss Murray MacGregor, have taken an equal interest in the since herd his decease. . . .

"The herd never exceeded 50 cows in milk, and including a few cross-breds and a Jersey; her Grace has nearly as many at present, and about 130 head in all at Dunkeld. The milk was first reduced to the present careful system of calculation on March 31st, 1859; and on Thursday every cow's milk is weighed separately, and multiplied by seven, to get the amount for the week. If the cows are away—as the two Premiums, Colly Hill, White Legs, and Idiot were, at Kelso—an average is taken from the preceding and following week, so that it is possible to look back over the books for more than six years, and approximate within a fraction of what every cow has been doing. Taking the average of the largest week in the height of the Grass, we find that 702 milkings produced 8100 lb. of milk, or 810 gallons, from which there came 39½ gallons of cream. That Ayrshires differ very widely, may be seen by comparing this 9-quarts-a-day average with Glengall's, who averaged 12 quarts and a fraction daily for 58 successive weeks. For seven weeks, between May 7 and July 3, she averaged a trifle beyond 6 gallons a day; and Colly Hill, who led in 1860-61, still gives 4 gallons at her best, and beat them all save Marion last September.

"They generally begin with cooked food in November, and a two horse-power engine, with a corn grinder, oil-cake bruiser, Turnip pulper, and hay, chaff, and straw-bedding cutters attached, is fixed in the boiling room at the end of the byre. The four boilers are filled with hay cut 2 inches long, Rape-cake and Bean-meal in layers, and then steamed; and the large waggon, which runs on a tram-road with turn-tables, bears two pails of mixture to every cow per day. The four milkmaids have each a soap-box, a towel, and a currycomb. After each milking they scrupulously wash their hands, and they keep their pets in winter as bright in their coats as a blood horse. At one time it was the regular milk-maid fashion to shift sides so as to balance the vessel, but it was found to do no practical good, and the cow often became shifty and kicked over the pail. Each rake or 30 lb. of milk is weighed, and then carried to the tin dishes in the dairy. The calculation is that one gallon should be equal to a pint of cream, if it is fine weather and it rises properly, and that a quart of cream should produce about a pound of butter; but this is hardly borne out in practice. Only skim-milk cheese is made, and nearly a hundred flagons at the door of the dairy were ready to receive the milk of the night before, and to disperse it at a penny a quart through Dunkeld."

The volumes from which we have taken these extracts are full, not only of the sober business as well as the most energetic enterprise of agriculture, but we have the romance of country life in every phase most cleverly depicted. There are no better pictures anywhere of coursing, racing, and otter hunting. And we shall hereafter give our readers the benefit of some of the mere farming sketches which are also here collected.

The Cattle Plague: its History, Treatment, and Prevention. Pp. 20. By A. J. Murray, M.R.C.V.S., Professor of Veterinary Surgery in the Royal Agricultural College, Cirencester. Taylor & Francis, Red Lion Court, Fleet Street.

This is a short and simple account of the Steppe Murrain, for the preparation of which the author has been at pains to study the disease in some of the districts where it has broken out, and to collect evidence from the published works of continental authorities on the subject of inoculation. This means of diminishing the ravages of the plague has been recommended, and it is of importance to show that it has been largely tried, and that it is a failure. As regards the author's own district, it appears that the disease has broken out at Calne, in Wiltshire, but that it has not extended beyond the immediate locality. Mutual Insurance Associations have been formed at Cirencester, Highworth, Tetbury, and Nailsworth, so that in the event of the disease appearing, there is already a system of insurance and inspectorship in operation for its suppression. The well-timed pamphlet now issued is a sensible and a temperate account of the malady, and will no doubt obtain the wide circulation it deserves. Professor Murray recommends half an ounce of dilute sulphuric acid with an ounce of gentian in a quart of cold water, to be given twice a day in cases where it is considered desirable to treat the disease. There are also other particulars to be attended to in the treatment, for which the reader must consult the pamphlet. "It must be remembered, however," he says, "that treatment is not recommended when there is much risk of spreading the contagion."

Farm Memoranda.

[We take advantage of the immense body of agricultural evidence lately taken before the Hypothec Commission at Edinburgh to publish such extracts from it as will indicate the existing style of Scottish agriculture, and the enterprise and energy of Scottish agriculturists.]

(*Continued from* p. 808.)

17. KIPPENDAVIE, PERTH: *Mr. John Stirling.*—I am well acquainted with the condition of farmers in the western district of Perthshire, and in part of Stirling. The great bulk of them are small farmers, paying from 100*l.* to 300*l.* of rent. The value of their land varies from 15*s.* the imperial acre to 25*s.* It is a late district, and a good deal of it is high-lying, poor ground. They are very improving tenants. There has been great improvement in the last 20 years. They use a great amount of artificial manure now, which was perfectly unknown 20 years ago. A great many of them are sons of farmers, who were bred to the business, and who either succeeded to the farms, or were put into them by their fathers, and they are a very well-doing set of men generally. The period of entry to these small farms is Martinmas to the whole farm, and the first rent is payable, nominally, at Martinmas and Whitsunday afterwards; but almost the whole of the rents are collected at Candlemas and Whitsunday, 15 months after entry. I should say the majority of these men have not had more than sufficient to stock the farms, and keep themselves and their families for the first year, with perhaps 100*l.* over, and they could not have paid forehanded rents. When they enter on a bare farm in that way, they get very little off of it before the 12 months are out. If there is a way-going tenant, the probability is that they don't buy above a third of the crop. There have not been many sequestrations in the neighbourhood. Many of the farmers have been for years on the same farm,—much more than one lease. They certainly could not, as a class, pay forehand rents. I believe they have improved a great deal of that poor, high land, which would not have been improved otherwise, the landlords having almost universally executed the draining and the fencing. I don't think it is impossible to throw these small farms into larger holdings; but I think that is a question affecting the interests of the smaller class of tenants,—men paying from 100*l.* to 200*l.* a year of rent. If these farms were thrown into larger possessions, I would save in buildings and in fences to a considerable extent; so that, with a forehand rent, I would, as a landlord, be as well off giving 15 per cent. of deduction, as I am now; but I think it would extinguish the small class of tenants, whom I look on as a very valuable set of men. I think the majority of them would emigrate. Their sons are grieves and foremen, who are looking forward to getting a farm some day; but, if they saw nothing but large farms, they would look on that as hopeless, and all the younger men would emigrate at once. A man of that sort has a prospect of saving enough of money, with some credit, to enter a farm of 100*l.* or 200*l.* of rent; but, if the rent is 500*l.* or 600*l.*, he has no chance. I would not say the land is better improved by these men than it would be if it were in the hands of men of capital; but there has been a very large amount of improvement made upon it. The farms of which I have been speaking are principally arable, and to a considerable extent they are dairy farms. The farmers make a considerable part of their rents from dairy produce, and feeding stock. If the law of hypothec were abolished, the whole of that class of tenants would require to pay forehand rents. I am quite clear that would be necessary for the security of landlords, because otherwise every person would be paid before the landlord. Their customers meet them every market day, and they would get their debts paid before the rent was due, but for the law of hypothec. I would certainly be quite prepared to give up the right of hypothec so far, that we should not be entitled to follow the crop or stock off the ground, when it is *bonâ fide* sold and paid for. I also think that all sequestrations should be published in the *Gazette.* I understand there have not been above one or two cases of following a crop in my district in the last 30 years, and in these cases it was sold in breach of sequestration. It is very difficult to say what sum is required to stock a farm of 150 or 200 acres in my neighbourhood, so much depends on the times. Tenants would require more capital, to the extent of at least a year's rent, if their farms were fore-rented. Even where tenants of that class have been doing well, I don't think they have any money generally, because they have educated their sons, and put them into small farms; so that many of the men, who have been doing well during a lease, are bare of ready money. I have known a good many instances of these small tenants taking larger farms at the expiry of their leases. I have now in my own hands a farm of 150 acres, which the tenant left at the end of a 19 years' lease, because he wanted a larger farm. He began with his stock only. I have known several instances of tenants who have set up two or three of their sons in farms, who began with only a small farm. The father might have no difficulty in fore-renting his farm at the end of a lease, but the sons would probably all emigrate.

18. HOLMSTON, NEAR AYR: *Mr. James Drennan.*—My farm is all arable. It is nearly 250 acres in extent and my rent is a little over 700*l.* My term of entry is Martinmas. That is the general term of entry in Ayrshire for arable land. I entered to the whole farm at Martinmas. The landlord has power, by my lease, to exact payment of a half-year's rent at the first Whitsunday before I reap my crop; but the practice on the estate has been to pay the first half year in November following, although the lease bears Whitsunday. I have no doubt that the present law of hypothec operates prejudicially against tenants getting credit from banks. I think that, if the law were repealed, tenants would get money more readily from bankers than they do at present. If the banks were to advance money after the repeal of the law, they would of course ask security; but in the meantime, even with security, farmers can scarcely get credit. I hear them saying that they can scarcely get loans even for a short period. The landlord is as well entitled to security on letting his land for nineteen years, as the banker is on lending money for a few months. I would allow the landlord to seek as much security as he thinks fit. If he asks too much, he makes the farm less attractive; and if he likes to take a little risk, he will get more rent. If the law of hypothec were abolished, the landlord might have either the security of fore-renting or personal security for the rent. I think generally that

fore-renting would be a sufficient security. Without the law of hypothec, the landlord would be in the same position as other creditors with the second half-year. As to the first half-year of a lease, there is plenty on the farm then. I would abolish his right to seize preferably what is on the farm. Supposing the tenant got into difficulties after the Whitsunday term, when the crop would be on the ground unreaped, the creditors might step in and reap the crop, and leave the landlord to rank on the estate with the other creditors. With fore-renting, the landlord would be in a better position than if nothing were paid till Martinmas, in the event of anything going wrong during the summer, after Whitsunday. If the difficulty arose before the Whitsunday rent was paid, he would rank with the other creditors. In that case fore-renting would give the landlord no security. I can see no reason for giving the landlord any other security than he chooses to stipulate for; and it is for him to consider whether it is for his advantage to be content with fore-renting, or to ask more. I would advise the landlord to be content with fore-renting; just to have a little cash, like other people. There might be a case, of course, in which he would lose, but, in the aggregate, he would be right enough if careful in the selection of his tenants. In Ayrshire, the small tenants are a hard-working class. I believe every hard-working man is valuable to the country. If the law of hypothec were repealed, and the farms were fore-rented, a number of those small farmers might go to other occupations, and be a great deal better. A number might not be able to keep their farms. Men of a little more capital, of course, would take them. There are a number of people just now who say they are willing to take farms, but they cannot get them in a way they can live in them. That class of men would step in. They would expect to get the farms at a lower rent, where they are too dear. There is no great tendency in Ayrshire to throw arable land into larger farms. With our climate, large arable farms are not worked to great advantage in the heavy inland districts. In the lower part of the county the farms are larger. Suppose rents were prepaid, a half-year's rent being payable on entry, that would affect a more numerous class of tenants than fore-renting; but their credit in other respects would be so much better, that it would be almost an equivalent.

Miscellaneous.

Agricultural Education.—The *Albany Cultivator* of August 3rd states:—Mr. Secretary Klippart, who is now travelling in Europe, has written a letter to the Ohio State Board of Agriculture, which we find in the columns of the last *Ohio Farmer*. It contains his account of an interview with Baron von Liebig on the subject of agricultural education. Liebig is represented as saying:—

"In Ohio you do not want to build a palace for an agricultural school. In America you spend too much money in putting up your educational buildings, and then starve your professors. I learn that you put up a very grand building in your city of Columbus, called the 'Starling Medical College;' I have a picture of it; I am told it cost some 70,000 or 75,000 dollars, and now you are starving the professors in it. You did the same in Cleveland and Cincinnati; then I am told you built two universities in Ohio, and now the professors can barely live on the salary you pay—the consequence is that these schools, colleges, or universities must run down. There is no place in the whole world where knowledge can make so much money as in America; therefore your best men will not become teachers or professors—simply because they can make more money out of something else, and they naturally apply their talent and ability where it pays the best. No man will engage in an educational course of life for life, on a salary of [illegible] dollars or 1500 dollars a year, when by applying the same ability in some other pursuit, he can make 4000 dollars to [illegible] dollars a year. Hence you have no first-class professors in America, but you have instead first-class business men, first-class mechanics, and managers of large and colossal establishments. Now I am afraid that out of your large fund of money you will think that you must at least build another 'Starling College,' or even a yet more expensive establishment. You want an ordinary good building, but you don't want the twentieth part there is at Hohenheim. Then, too, I am afraid that after you have your buildings, you will employ third or fourth-rate professors, and you will find that your establishment will languish, and your standard of attainments will be very low. These are your great dangers. On the other hand, with an ordinary and convenient building, first-rate professors and well paid, you may rest assured that Ohio will take high rank in the agricultural world."

On the subject of managing the farm connected with an Agricultural College, Liebig expressed himself as follows:—

"The manager or director of the establishment should be a man thoroughly versed in scientific agriculture; because the experimental farm is for the purpose of making experiments [illegible], and not for the purpose of maintaining or supporting the school. The scientific director can see that the proper experiments are made, and the experiments should always be made in direct consideration of being put into general practice; that is, they should all tend to producing the greatest crops at the least expense and without exhausting the soil, and of course be of such a character that all the farmers may avail themselves of the methods; because if your experiments cost more than the crops amount to, nobody will repeat them, and you have made no advance in agriculture; although you may have solved a problem or ascertained a fact, yet for agriculture generally it is of no value. If, on the other hand, your director is a practical man only, and not a scientific man, he is only repeating on the experimental farm what is perhaps being done on every well-regulated farm in the State; and therefore you are making no progress. You can never persuade a practical director to make proper experiments. You don't want much land," continues Liebig; "a few hundred acres is sufficient for all manner of experiments, and you must allow me to repeat, you want to make experiments only—you do not want to teach a specific system of model farming, for many reasons; first, not one student perhaps can get a farm precisely like your model farm; he may not be able to get so much Grass land or so much upland, or may be unable to have farm buildings precisely like the model ones; then what good does your model do when nobody can copy it?—and to copy a part of the model impresses the ignorant that the whole is copied, and the results in copying a part cannot be as great or as beneficial materially as if the whole were copied, and yet the moral effect is that that part represents the whole; therefore I would not advise model farming. Hohenheim set out with the idea of being a model farm, when there were not half-a-dozen estates of the same extent or geological structure in all Wurtemburg; and as a matter of course it must fail as a model, for nobody but kings or princes could copy it, and small farms could not even attempt it. Confine your institution to experiments, and as for practice, you have every day at your service the practice of the whole State of Ohio. Let the students visit the best farms in the State, and see how things are managed, and it will do them more good than if you undertake to carry out the model idea. Now when you get home, pray do not misrepresent this idea. I want you to make experiments, not simply to show what can be done, but make experiments to show what can be done profitably, and what may be done by any intelligent farmer. Of course you cannot expect to accomplish much for the present generation of farmers, but the seeds you sow will be reaped by the coming and future generations."

The Birmingham Dog Show.—It is announced in our advertising columns that the sixth annual exhibition of Sporting and other Dogs at Birmingham will be held on the 27th, 28th, 29th, and 30th of November next, in the Curzon Exhibition Hall, now in course of erection in that town. The prize lists have been issued within the last few days, and, for the first time, include classes for pens of puppies of all the leading breeds of sporting dogs.

Calendar of Operations.

September.—*Harvest Work.*—Where harvest is early the stubbles are ploughed: Bean stubbles for Wheat, and other stubbles for Beans or winter Tares and fallow. Lime may be properly applied now where it is desired, on the stubbles, broadcast, at the rate of from 50 to 150 bushels per acre. Marl, and chalk and clay, may be hauled out this month on land where it is intended to apply them. Manure, too, may be carried out to the lands intended for Wheat. It is a good plan in districts where the harvest is early, and autumn moist, and where weeds thus have time and opportunity to grow, to pare the stubbles, harrow them well, gather the rubbish together, and burn it.

The ploughing of Clover lea for Wheat may be proceeded with. Fallow Wheat may be sown towards the end of the month: four or five pecks per acre are enough for so early a seed-time. The earliest portion of winter Tares should be sown some time in September: and Rye should be sown in the commencement of it, both upon some corn stubble that has been prepared for them.

Live Stock.—The pastures still afford good fare to store stock; but for fattening animals, both sheep and cattle, they must be supplemented with cake; and the farmer will have an adequate portion of his Turnip crop fit for use early in this month. Hoggets will be much the better for getting some after-math or Clover stubbles to keep them growing, and prepare them for going on to Turnips. Coleseed suits admirably for this purpose: and some farmers provide it by growing it, mixed with the Turnips, on the piece which they intend to use first.

Lambs ought, if needful, to be again dipped during this month. Nearly all the fatting sheep, if well bred, will be ready by this time—those still on hand must be put to Turnips or Rape, being allowed corn or cake. Breeding sheep should be dipped or run with some liquid, any time this month, when the weather is dry, in order to free their wool and skins from vermin.

Notices to Correspondents.

Clover Dodder: *C S.* Your sample is a handful of the Clover Dodder, a mischievous parasite which springs from a seed capable of separation from Clover by screening. It springs from the soil; soon lays hold of a plant: and its connection with the soil then dies. Thereafter it grows from plant to plant, entangling a whole circle in its embraces, sucking their juices and destroying the whole. If the Clover is for seed, the circles thus destroyed should be pared and burned before the crop is harvested.

Harvest Hymns: *Correspondent.* We were mistaken in describing the Hymns published by the Rev. H. Moule as being exclusively 'Harvest' hymns. The subjects are not limited, but general. And it is desired through the few harvest hymns alluded to, to get these more general ones into the hands of the agricultural class.

Insects: *J F P.* The earwig certainly feeds on vegetables, and for want of other food would attack Turnips, but you may satisfy yourself easily if they be the real depredators in your case by examining the fields after dark with a lanthorn. We should fear that it is the surface grubs which have done the mischief. *W.*

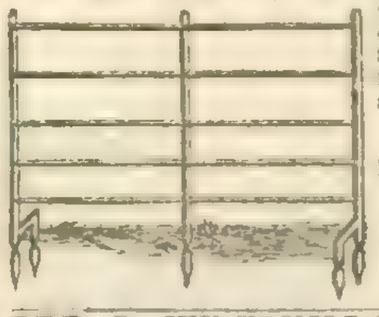
Leather: *W A G.* We can find no information on the composition of leather clippings. But it is doubtless rich in nitrogenous matter. In the conversion of skin into leather there is, however, such an insolubility and fixity of character conferred upon it that it is rendered useless as manure, except after such a tedious process of rotting and disintegration as will practically render it valueless.

Lice in Chicken-houses: *M R.* We hardly know what to advise to rid the houses of the pest. We have always found lime-washing effectual when thoroughly done. It must be well worked into all crevices; holes which the brush cannot reach must be stopped, and the operation must be repeated till the desired result takes place. If the fowls are supplied in the house and in their run with a couple of bushels of dust, or better still of wood-ashes, with which should be mixed four or five pounds of black sulphur, they will use it as a bath and rid themselves of their visitors. *J B.*

Rust on Wheat: *G Shepherd.* We fear there is no help for your friend, but a well-grown and vigorous crop is probably less liable than another to the mischief, and so far good agriculture may diminish the liability to rust. The works of the Rev. M. J. Berkeley, his writings on the diseases of plants, contain all that is known on the subject.

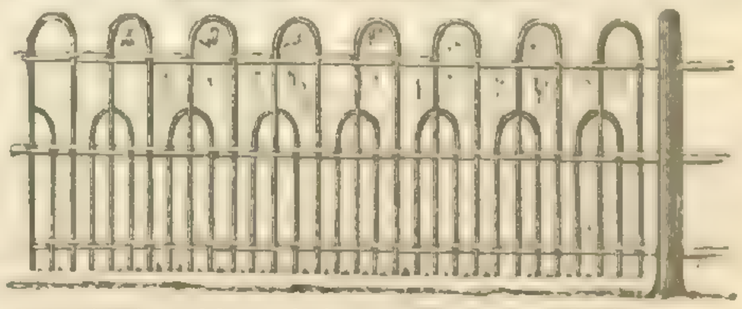
FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be seen at Work in every Agricultural County in England. For particulars apply to
John Fowler & Co., 25, Cornhill, London, E.C.; and Steam Plough Works, Leeds.

Iron Hurdles, Fencing, and Gates.
COTTAM'S HURDLES are made in the best manner of superior Wrought Iron. SHEEP HURDLES, from 4s.; CATTLE HURDLES, from 4s. 11d. each; CONTINUOUS FENCE, from 8d. per foot; FIELD GATES, from 25s. each. Illustrated Price List on application.



ENTRANCE GATES, RAILING, and IRON WORK of every description. Designs and Estimates free of
Cottam & Co.,
No. 2, Winsley Street
(opposite the Pantheon),
Oxford Street, London, W.

W. S. UNDERHILL'S Patent WROUGHT IRON GAME and POULTRY FENCE.



Admirably adapted for enclosing new Plantations, dividing Gardens, &c. It effectually prevents trespass, and is low in price (varying from 6d. to 1s. 6d. per yard and upwards), neat in appearance, strong and durable.
Manufactory, St. Mary's Works, Newport, Salop. London Agent, Mr. R. Winder, 18, Abingdon Street, Westminster, S.W., where Samples may be seen.

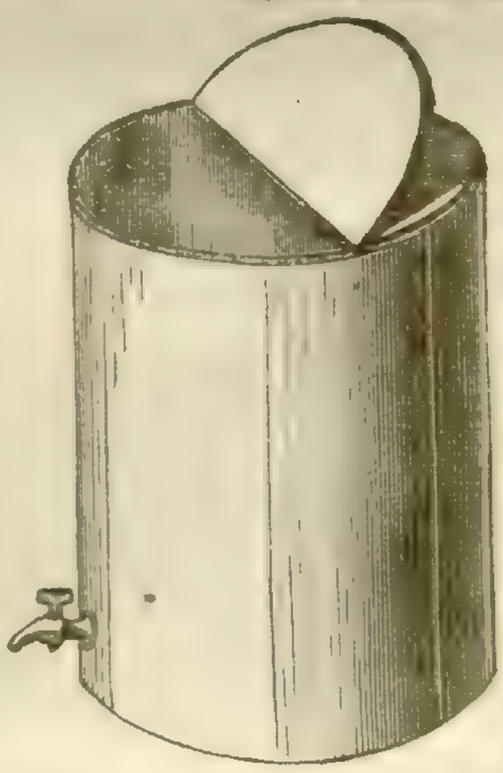
EARTH CLOSETS (MOULE'S PATENT).
No Unwholesome Cesspools.
No Bad Smells.
No Water Pipes to get out of order.
The Best Night Commodes.
The Apparatus (price 25s. and 30s.) may be applied to any Closet at trifling cost, and is self-acting.
By its use a valuable Manure is saved, and Fertility to the Soil ensured.
Earth is recommended by the Privy Council, in their report on Cholera, as a deodoriser and disinfectant.
Extract from Letter received from the Secretary *of the* National Rifle Association.
"I am further directed to state that they (the Closets) proved of the greatest use, and were found to act admirably."
White & Co., 29, Bedford Street, Strand, London, W.C.
OLDHAM SHOW, STAND 46.

Silver Medal and Cup, 1863, awarded for

JAMES'S FIRST PRIZE MANURE CART, which has been awarded 20 PRIZES. Is now fitted up to answer for LIQUID MANURE, for supplying the STEAM PLOUGH, for WATERING STREETS, or for a FIRE ENGINE. Nearly 300 already sold.

Washing.
The last great improvement in Washing Machines is in James's new Patent PRIZE WASHING, WRINGING, and MANGLING MACHINES, awarded several FIRST PRIZES. Will Wash 20 Shirts in 20 Minutes, with much less injury than with the hand. More than 300 Sold.
Address, I. James, Tivoli Works, Cheltenham.

GALVANISED IRON WATER CISTERNS.
Cheap, light, and durable, will not rust or corrode, and keep water perfectly sweet.



To hold	Each.
30 gallons,	18s. 6d.
50 gallons,	22s. 6d.
80 gallons,	31s. 0d.
100 gallons,	36s. 0d.
120 gallons,	39s. 0d.
140 gallons,	42s. 6d.
200 gallons,	60s. 0d.
250 gallons,	72s. 0d.

With Lid and Brass Tap.

GALVANISED WIRE STRAND CABLE FENCING.
GALVANISED IRON ROOFING.
IMPROVED GALVANISED WIRE NETTING.
HURDLES, HURDLES, HURDLES, 1s. 9d. to 3s. 9d. per yard.
PATENT STRAINING PILLARS, &c.
GALVANISED IRON PUMPS.
GALVANISED SWING WATER BARROWS.
LAWN MOWERS, GARDEN ROLLERS.
ASPHALTE ROOFING FELT, 1d. per square foot.
Motley & Green, late H. J. Morton & Co.
Illustrated Catalogues and Estimates free on application.
12, Great George Street, Leeds.

Caution to Gardeners.—When you ask for SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark Saynor, also the corporate mark Obtain Warranted, without which none are genuine.
S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by sellers and makers.
S. & C.'s Pruning and Budding Knives are the best and the cheapest in the market.
Paxton Works, Sheffield. Established upwards of 125 years.

NEW TARIFF OF GLASS AND HORTICULTURAL GOODS

THOMAS MILLINGTON,

GLASS AND COLOUR MERCHANT,

87, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.

THE AGRICULTURAL HALL, ISLINGTON, CONTAINING AN ACRE OF GLASS, WAS SUPPLIED BY ME.

Mr. Rivers and the leading men in the Horticultural profession, as well as the Nobility, Gentry, and Merchants, have favoured me with Orders for Home use and for Exportation.

SHEET GLASS.

In Cases for Cutting up, averaging from 6 to 9 feet super.

Average Thickness, 15 to 16 oz.

4ths quality	..	..	per 300 feet case	32s. 6d.	or about 1½d. per foot.
3ds ,,	..	..	,,	41 0	,, 1¾ ,,
2ds ,,	..	..	,,	60 0	,, 2½ ,,
Best ,,	..	..	,,	92 0	,, 3¾ ,,

Average Thickness, 21 oz.

4ths quality	..	..	per 200 feet case	33s. 6d.	or about 2d. per foot.
3ds ,,	..	..	,,	42 0	,, 2½ ,,
2ds ,,	..	..	,,	63 0	,, 3¾ ,,
Best ,,	..	..	,,	89 0	,, 5½ ,,

Average Thickness, 26 oz.

4ths quality	..	..	per 200 feet case	44s. 6d.	or about 2¾d. per foot.
3ds ,,	..	..	,,	56 0	,, 3½ ,,
2ds ,,	..	..	,,	84 0	,, 5 ,,
Best ,,	..	..	,,	116 0	,, 7

SHEET SQUARES, Cut to Order.

Average Thickness, 15 to 16 oz.

	Under 1 foot super.	Under 2 feet super.	Under 3 feet super.	Under 4 feet super.	Under 5 feet super.	Under 6 feet super.
4ths quality	1½d.	1¾d.	2 d.	2¼d.	2½d.	[illegible]
3ds ,,	1¾	2	2¼	2¾	3	[illegible]
2ds ,,	2	2½	2¾	3	3½	[illegible]
Best ,,	2½	3	3½	4	4½	[illegible]
Average Thickness, 21 oz.						
4ths quality	2¼d.	2¾d.	3 d.	3¼d.	3½d.	3¾d.
3ds ,,	2½	3	3¼	3¾	4	4½
2ds ,,	3	3½	3¾	4¼	4½	4¾
Best ,,	4	4½	5	5½	6	7
Average Thickness, 26 oz.						
4ths quality	3d.	3½d.	3¾d.	4 d.	4½d.	4¾d.
3ds ,,	3¾	4	4¼	4¾	5	5½
2ds ,,	4¼	5	5½	5¾	6	6½
Best ,,	5¼	6½	7	7½	8	8½

15 oz. Squares usually kept in Stock, &c.

32 oz., 36 oz., and 42 oz. are also supplied in various quantities.

EXTRA WHITE or CRYSTAL SHEET GLASS, very superior for Pictures and best Glazing.

RUBY, GREEN, BLUE, YELLOW, COLOURED, ENAMELLED, GROUND, and FLUTED GLASS.

15 oz. Squares usually kept in Stock, packed in 100 ft. and 100 ft. Boxes.

Stock Squares.				4ths.	3rds.	2nds.	Best.
6 by 4	7 by 5	8 by 6	9 by 7	9s. 6d.	10s. 9d.	12s. 6d.	14s. 8d.
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½				
10 by 8	12 by 9	12½ by 10½	14½ by 10½				
10½ by 8½	12½ by 9½	13 by 10	15 by 10				
11 by 9	13 by 9	13½ by 10½	13 by 11	10s. 6d.	12s. 0d.	14s. 8d.	17s. 3d.
11½ by 9½	12 by 10	14 by 10	14 by 11				
15½ by 10½	16 by 10	14½ by 11½	15 by 11	11s. 6d.	13s. 6d.	16s. 0d.	18s. 0d.

Stock Squares.				Per 100 feet. 4ths.	3rds.	2nds.	Best
15½ by 11½	14 by 12	17 by 13	22 by 16				
16 by 10	14½ by 12½	18 by 13	24 by 16				
14½ by 11½	15 by 12	23 by 13	20 by 17				
15 by 11	15½ by 12½	18 by 14	22 by 17				
15½ by 11½	16 by 12	22 by 14	24 by 17	..	11s. 6d.	13s. 6d.	16s.
16 by 11	16½ by 12½	24 by 14	20 by 18				
21 by 11	17 by 12	22 by 15	22 by 18				
13 by 12	18 by 12	24 by 15	24 by 18				
13½ by 12½	22 by 12						

ORCHARD HOUSE SIZES,

As recommended by and supplied to Mr. Rivers, and the leading Horticulturists of the day.

Average Thickness, 15 to 16 oz.

				4ths.	3rds.	2nds.	Best.
16½ Inches by 12½ Inches.							
20 ,, 12 ,,							
20 ,, 13 ,,							
20 ,, 14 ,,	Per 100 feet	..		11s. 6d.	13s. 6d.	16s.	18s.
20 ,, 15 ,,							
20 ,, 16 ,,							
20 ,, 17 ,,							

Average Thickness, 21 oz.

			4ths.	3rds.	2nds.	Best
20 Inches by 12 Inches.						
20 ,, 13 ,,						
20 ,, 14 ,,	..	.. ..	14s. 6d.	18s. 6d.	24s.	27s. 6d.
20 ,, 15 ,,						
20 ,, 16 ,,						
20 ,, 17 ,,						

The above prices are only for the sizes stated, but if a quantity of any other size is required, they can be supplied at about 5 per cent. additional, provided time is allowed to manufacture them.

I have also a GREEN TINTED GLASS, which I can strongly recommend. In Summer it gives a cool appearance and in Winter a warm one.

PROPAGATING GLASSES.

3 inches diam.	0s.	4d.	each.
4 ,, ..	0	5	,,
5 ,, ..	0	6	,,
6 ,, ..	0	7	,,
8 ,, ..	0	10½	,,
10 ,, ..	1	2	,,
12 ,, ..	1	6	,,
14 ,, ..	2	3	,,
16 ,, ..	3	0	,,
18 ,, ..	4	6	,,
20 ,, ..	6	0	,,

HAND GLASSES.

12 inches diam.	5s.	6d.	each.
14 ,, ..	6	6	,,
16 ,, ..	7	6	,,
18 ,, ..	8	6	,,
20 ,, ..	9	6	,,
22 ,, ..	10	6	,,
24 ,, ..	11	6	,,

If removable tops, 1s. extra.

Painted and Glazed with Sheet Glass.

PRESERVE JARS.

In. diam.	Without. Lids.	With Lids.
3 ..	0s. 4d.	0 6 each.
4 ..	0 5½	0 8 ,,
5 ..	0 7	0 10 ,,
6 ..	0 9	1 1 ,,
7 ..	0 10½	1 2 ,,
8 ..	1 2	1 6 ,,
9 ..	1 6	2 0 ,,
10 ..	1 10	2 4 ,,

These will be found preferable to any other kind of Jar.

CUCUMBER TUBES.

Ins. long.			each.
12 ..	0s.	10d.	
13 ..	0	11	
14 ..	1	0	
15 ..	1	1	
16 ..	1	2	
17 ..	1	3	
18 ..	1	4	
19 ..	1	5	
20 ..	1	6	
22 ..	1	7	
24 ..	1	9	

ROLLING PINS.

		each
1s.	3d.	
1	4	
1	6	
1	8	
1	9	
1	10	
2	0	
2	2	
2	3	
2	4	
2	8	

MILK PANS.

6 inches diam.	0s.	5d.	each.
8 ,,	0	8	,,
10 ,,	0	10½	,,
12 ,,	1	1	,,
14 ,,	1	6	,,
16 ,,	2	0	,,
18 ,,	2	5	,,
20 ,,	2	10	,,
22 ,,	3	4	,,
24 ,,	4	0	,,

Intermediate sizes in proportion.

FISH GLOBES.

In. diam.		Qts.	
8	¾ filled,	3..	1s.
9	,,	4..	2s.
10	,,	6..	2s. 6d.
11	,,	8..	3s.
12	,,	9..	3s. 6d.
13, 14, 15, 16	At same average according to weight.		7d. per lb.

If on feet, 9d. per lb.

GLASS TILES, in SHEET and ROUGH PLATE. PLATE GLASS, PATENT PLATE, and HARTLEY'S IMPROVED ROUGH PLATE.

PAINTS, COLOURS, VARNISHES, &c.

GENUINE WHITE LEAD, 30s. per Cwt.
SECONDS ditto, 28s. per Cwt.
LINSEED OIL PUTTY, 9s. per Cwt.
PINE OAK VARNISH, 10s. to 12s. per Gallon.
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WHITE ZINC PAINT, 34s. per Cwt.
One hundred weight of pure Zinc Paint, with 3 gallons of Linseed Oil, will cover as much as one hundred weight and a half of White Lead and 6 gallons of Linseed Oil.
Special Dryers for this paint.

GROUND PATENT DRYERS, 3d. to 4½d. per lb.
,, OXFORD OCHRE, 3d. to 4½d. per lb.
,, RAW UMBER, 4½d. to 6d. per lb.
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GREEN PAINT, all shades, 28s. to 60s. per cwt.
BLACK PAINT, 24s. to 36s. per cwt.

STUCCO PAINT, 24s. per cwt.
This paint adheres firmly to the walls, resists the weather, and is free from the glossy appearance of oil paint, resembling a stone surface, and can be made any required shade. It is mixed with rain or pure river water.

LINSEED OIL, 3s. per gallon
BOILED OIL, 3s. 6d. per gallon.
TURPENTINE, 5s. 6d. per gallon.
MINERAL Ditto, 3s. 6d. per gallon.
PREPARED OIL for ANTICORROSION, 4s. 6d. per gallon.
BRUSHES for Ditto.

IMPROVED ANTICORROSION PAINT, 28s. to 34s. per cwt.
Anticorrosion Paint is extensively used for all kinds of work in exposed situations, in Brick, Stone, Compo, Iron, Iron Bridges, Conservatories, Greenhouses, &c., and is easily laid on by any ordinary workman.

MILLED LEAD in Sheet and Pipe of all Sizes. OLD LEAD bought or taken in exchange. LIFT PUMPS, WATER CLOSETS, & PLUMBER'S BRASS WORK of all kinds.

NETT CASH.

THE PRUSSIAN FLOWER STICKS and TALLIES are the best made, and can be had Wholesale of BUTRAY & BLACKITH, Cox's Quay, Lower Thames Street, London, E.C. And Retail of any Nurseryman and Seedsman in Town or Country.

To Florists and Nurserymen.

GARDEN POTS, supplied in large quantities.—Discount allowed for orders given at the present time. ... Pottery, and Garden Border Edging and Drain-pipe ... Copperas Lane, Deptford, Kent, S.E. Established 1701.

Norwood Pottery, Surrey. Established 1819.

R. H. MARSHALL, Contractor to Her Majesty's ..., &c., Manufacturer of GARDEN POTS of superior ... will prove that these Pots are the best for ... and Rearing Plants, the clay being of a porous nature, ... and fibres to grow quickly, and not like the close-... which scorch up the roots, not allowing sufficient ... Terms and Price List on application.

Oil Paint no longer Necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the ... Windsor Castle, Kew Gardens, and at the seats of many ... of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

From the Right Hon. the EARL of SHANNON, *Castle Martyr, near Cork.*

"GENTLEMEN,—I have used your Black Varnish for several years, and consider it very superior, both for iron and wood work out of doors, to anything I have ever used. I shall always continue to use it. Near the sea it is particularly valuable, as it stands exposure when paint becomes corroded. I consider the iron Barrow essential ... use."

... casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the kingdom.

Apply to HILL & SMITH, Brierly Hill Iron Works, near Dudley, and ... Street West, E.C., from whom only it can be obtained.

TRADE MARK.

ENTERED AT STATIONERS HALL.

WALTER CARSON AND SONS, of Great Winchester Street, respectfully notify that they have removed their principal office to their Warehouse in LA BELLE SAUVAGE YARD, Ludgate Hill, E.C. (three doors East of Railway Viaduct), and have discontinued their West-end Office, 31, St. James's Street.

CARSONS' ANTI-CORROSION PAINT, specially manufactured for out-door work, is the best and ... All colours. Is simple in application, so that any person ... It.

Is twice as durable as genuine white lead. See Testimonials sent with patterns and prices post free.

Three cwt. carriage free to any station in England and Wales, and ... Seaports of the United Kingdom.

CARSONS' PAINT for all OUT-DOOR WORK

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TO BE DISPOSED OF, a PEN of very fine pure bred BLACK NORFOLK TURKEYS, Prize Birds, very weighty, and in excellent plumage, 17 months old. Cock and two Hens, 40*s.* Also a Brood of 1865 Birds from the same, hatched April 4, of great size, at 7*s.* 6*d.* each. Also a PEN of five AYLESBURY DUCKS and DRAKE, Highly Commended at several Poultry Shows, 30*s.*

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Sales by Auction.

To Noblemen, Gentlemen, Nurserymen, and Others.

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Croydon, Surrey.

MESSRS. BLAKE will SELL by AUCTION, upon the Premises, Oakfield Lodge, adjoining the West Croydon Railway Station, on FRIDAY, September 15, at 12 for 1 o'Clock, a Small HERD of FALLOW DEER, consisting of 5 Bucks, 11 Does, and 5 Fawns.

May be viewed the day before the Sale, and Catalogues had at GARRAWAY'S Coffee House, Change Alley; and of Messrs. BLAKE, Croydon.

Willis's Nursery Gardens, Fulbrook, Oxfordshire.

MR. THOMAS STREAT will SELL by AUCTION, at the Bull Inn, Burford, on FRIDAY, September 15, at 3 o'Clock precisely, by the direction of Trustees for Sale under the Will of the late proprietor Thomas Willis, all that substantially built DWELLING HOUSE, with Detached Storehouse, with Seed Room over Brewhouse, and other Outlying Buildings; and all those FOUR NURSERY GROUNDS or GARDENS, lying partly contiguous and partly very near thereto, and containing by admeasurement, 7a. 3r. 9p. The Property is Freehold of Inheritance, and the business of a Nurseryman and Seedsman has been successfully carried on thereupon for four generations, is now in full work, and to which there now is and always has been a good connection, and therefore it deserves the attention of the Trade as being disposed of by reason of the death of the late Proprietor. Possession may be had on completion of the purchase. The purchaser will have to take to the Stock thereon. Fulbrook is close to the Town of Burford, and 4 miles or thereabouts from the Shipton Station of the Great Western Railway.

To view the Property, or for further particulars, apply to the Auctioneer, or Messrs. PRICE & SON, Solicitors, Burford.

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INTERNATIONAL EXHIBITION, CLASS IX., No. 2119.

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NEW OVAL TUBULAR BOILER,

acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in Gardeners' Chronicle *of International Exhibition, May* 24, *page* 476.

"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. GRAY'S variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so, the change, though a slight one, is no doubt an improvement."

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DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.

FOR ITS HISTORY AND CULTIVATION, SEE ESSAY IN THE "JOURNAL OF THE ROYAL AGRICULTURAL SOCIETY" FOR FEBRUARY, 1862. No. XLVIII.

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WHITE PEDIGREE WHEAT.

MARK.

(ROUGH CHAFFED).

NOW OFFERED FOR THE FIRST TIME.

This is a fine Millers' Wheat, in addition to possessing the extraordinary productiveness of the original *Red* Pedigree Wheat. Straw of medium length and very stiff, not being laid by bad weather. A Winter Wheat only.

SEED REQUIRED.

If Drilled in September, 4 Bushels on 10 Acres.
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" December, 4 " 3 "

Note.—The ORIGINAL "RED" PEDIGREE WHEAT will be supplied if *specially named*, otherwise the above new White variety will this year, in all cases, be [illegible]

PRICE, including Bags:—ONE GUINEA a BUSHEL, or SEVEN GUINEAS the QUARTER by the Quarter or Half Quarter, delivered in Bags, sewed up and sealed, at the Brighton Railway Station, upon receipt of Cheque or Post Office Order, *without which it will not in any case be sent to unknown Correspondents.* Less than a Bushel will not be supplied.

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Besides its astonishing productiveness, characteristic of all the PEDIGREE CEREALS, it possesses remarkable value for the maltster, *not a single grain failing to germinate, and all growing equally.*

Although only a very limited area of it has this year been grown, it will, in deference to a generally expressed wish, be at once offered to the public instead of waiting until next year, and a Subscription List has been formed, to which gentlemen desirous of securing any of it for drilling next Spring, would do well at once to add their name, which, however, will not involve payment until it be ready for delivery, of which due notice will be given by printed circular.

SEED REQUIRED.

If Drilled in March, 1 Bushel on 3 Acres. | If Drilled in April, 1 Bushel on 2 Acres.

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Note.—As the quantity is so limited, it will, until exhausted, be sent out to Gentlemen in the order in which they have joined the Subscription List.

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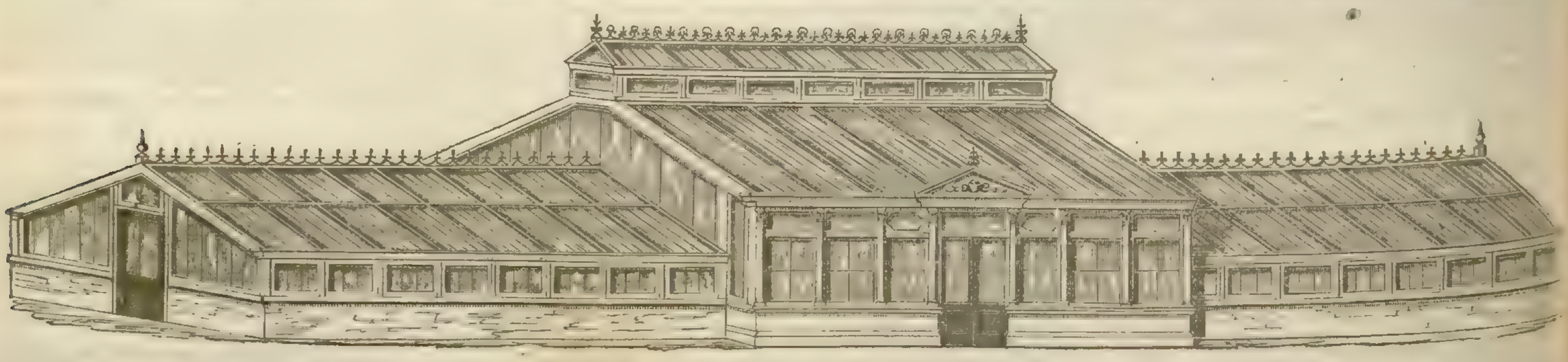

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THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 36.—1865.] SATURDAY, SEPTEMBER 9. {Price Fivepence. Stamped Edition, 6d.

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BRIGHTON PLANT, FRUIT, and CUT-FLOWER SHOW will be held in the splendid decorated Rooms and Eastern Lawn of the ROYAL PAVILION, on WEDNESDAY and THURSDAY NEXT. Prizes to the amount of £300 are offered. The Bands of the Coldstream Guards and Royal Dragoons are engaged for each day.

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Brighton, September 9. Edward Carpenter, Secretary.

ENFIELD HORTICULTURAL SOCIETY.—The NEXT FLOWER SHOW will be held on THURSDAY, the 14th inst., in the Grounds of J. W. Bosanquet, Esq., Claysmore. By the kind permission of Lieut.-Col. Somerset, the Band of the Central London Rifle Rangers will play a selection during the afternoon. Admission from 2 till 5, 2s. 6d; and 5 till 6½, 6d.

W. Marshall, Hon. Sec.

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James Cuthill, Camberwell, London, S.

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Plants 10s. 6d. each; a few extra strong at 21s. each.

Special terms to the Trade, and circulars with list of awards and further particulars may be had on application.

WANTED, ST. MICHAEL and BLOOD ORANGE TREES; also a LEMON TREE, three or four specimens, not less than 6 feet high, required. Any Gentleman having duplicates to dispose of, will find a purchaser by addressing Mr. John Robson, Gardens, Alpha House, Coburg Road, Old Kent Road, S.

FOR SALE, 12 REMARKABLY HANDSOME ORANGE TREES, from 10 to 12 feet high, in full bearing and health. Imported last year from the Continent. Single straight stems, round heads, new and expensive cases.

Apply, by letter or personally, to Mr. Roberts, Gardener, Woburn Park, Weybridge.

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Paradise and Victoria Nurseries, Holloway, London, N.

New Catalogue of Plants, Dutch Bulbs, &c.

ROBERT PARKER begs to announce that his NEW CATALOGUE, containing Select Descriptive and Priced Lists of New, Rare, and Beautiful Greenhouse, Hardy, and Stove Plants, Fruit Trees, Grapes, &c., Amaryllis, Crocuses, Gladioli, Hyacinths, Narcissus, Tulips, and other Bulbs, is now published, and will be forwarded to applicants.

Exotic Nursery, Tooting, Surrey, S.

CARTER'S GARDENER'S VADE-MECUM, AUTUMN SUPPLEMENT of DUTCH and CAPE BULBS and PLANTS, is now ready.

GUERNSEY and BELLA DONNA LILIES, 5s. 6d. per dozen.

AUTUMN CATALOGUE of HYACINTHS, TULIPS, &c., now ready, and can be had post free.

Butler & McCulloch, Covent Garden Market, W.C.

Guernsey and Bella Donna Lilies, 5s. 6d. per dozen.

BARR AND SUGDEN, Seed and Plant Merchants, 12, King Street, Covent Garden, W.C

HYACINTHS, TULIPS, CROCUS, NARCISSUS, &c., just received from Holland in excellent condition.

PAUL AND SON'S ROSES. The AUTUMNAL ROSES are still finely in BLOOM, at the "Old" Cheshunt Nurseries, 1 mile from Cheshunt Station, G.E.R.

PAUL'S HOLLYHOCKS.—New Seed is now ready for present sowing. Packets, in 12 named varieties, 5s.

Paul & Son, "Old" Cheshunt Nurseries, N.

PELARGONIUM MRS. POLLOCK.—Strong Summer-struck Plants, well established in 60-pots, at 18s. per dozen.

The Trade supplied.

Alfred Fryer, Nurseries, Chatteris, Cambridgeshire.

Paul's Nurseries, Waltham Cross, N.

BEATON'S GERANIUMS are NOW in FULL BLOOM.

Entrance from the Platform, Waltham Station (G. E. Railway), half an hour's ride from London.

Geranium Crystal Sea,

New Variegated, with White Flower.

MARTIN AND SON are now sending out the above new beautiful variety, and as the stock is short, early application is necessary. 10s. 6d. each.

Hull: 7, Market Place.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.

Richard Smith, Nurseryman and Seed Merchant, Worcester.

Primula sinensis fimbriata.

HOOPER AND CO.'S is unsurpassed in every good quality. Deep carmine or white, each 1s., 2s. 6d., and 5s. per packet. Post free.

Seed Merchants, Covent Garden Market, London, W.C.

DOBSON'S SUPERB SEEDS.

New Seed now ready. Quality A 1.

CALCEOLARIA, 1s. 6d., 2s. 6d., 3s. 6d., and 5s. per packet.
CINERARIA, 1s., 2s. 6d., and 5s. per packet.
PRIMULA, 1s., 2s. 6d., and 5s. per packet.
PELARGONIUM, 2s. 6d. and 5s. per packet.

J. Dobson & Sons, Woodlands Nursery, Isleworth, W.

Early Spring Feed.—Seeds for Autumn Sowing.

PETER LAWSON AND SON can supply of excellent quality—

ITALIAN RYE-GRASS	RYE
TRIFOLIUM INCARNATUM	WHITE MUSTARD
WINTER TARES	

CLOVER and NATURAL GRASS SEEDS for PERMANENT PASTURE, &c.

Also New Seed of BROMUS SCHRADERI, 2s. 6d. per lb., and the New Hardy Clover, TRIFOLIUM STRIATUM, 2s. per lb.

Peter Lawson & Son, the Queen's Seedsmen, 23, King Street, Cheapside, London, E.C.; and at Edinburgh.

NEW and GENUINE AGRICULTURAL, GARDEN, and FLOWER SEEDS.

Special prices and advantageous offers on application to

James Fairhead & Son,

Seed Growers and Merchants, 7, Borough Market, London, S.E.

RAYNBIRD, CALDECOTT, AND BAWTREE,

Seed Farmers and Merchants,

89, Seed Market, Mark Lane; and Basingstoke.

Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

H. AND F. SHARPE,

Seed Growers and Merchants, Wisbech.

SPECIAL PRICED LIST of NEW SEEDS on application.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO.,

Seed Farmers, Merchants, and Nurserymen,

237 and 238, High Holborn, London, W.C.

J. IVERY AND SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

E. G. HENDERSON AND SON offer SEED of CALCEOLARIA, CINERARIA, and PRIMULA of first-class quality, at 1s., 2s. 6d., and 5s per packet. Also the finest SCARLET and INTERMEDIATE STOCK, 6d. and 1s. each.

SEED of CYCLAMEN PERSICUM, of similar quality, 6d. and 1s. each, and in mixed colours 2s. 6d. per packet.

The Wellington Nursery, St. John's Wood, London, N.W.

Shrubs, Roses, Fruit Trees, &c.

WM. CUTBUSH AND SON'S GENERAL NURSERY STOCK is the best near London.

GLADIOLI, fine, from 4s., 6s., 8s., & 12s. per dozen.

CATALOGUES on application.

Highgate Nurseries, London, N.

Hardy Ornamental Trees and Shrubs.

OSBORN AND SONS invite lovers of Ornamental Planting to an inspection of the varied forms and foliage of their unrivalled collection of the above, to which they have for many years devoted especial attention.

PRICED CATALOGUES, consisting of upwards of 1500 species and varieties, may be had on application.

The Nurseries, Fulham, London, S.W.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

*** Part II. (Exotic Ferns) will be issued as early as possible.

Foot's Cray Nursery, S.E.

New Hardy British Ferns.

J. IVERY AND SON beg to announce that they can now supply strong PLANTS of the undermentioned distinct and beautiful FERNS, both of which have received a First-class Certificate.

ATHYRIUM FILIX FŒMINA APPLEBYANUM, 10s. 6d. each.
POLYSTICHUM ANGULARE WAKELEYANUM, 10s. 6d. and 15s. each.

For full description see CATALOGUE, which will be forwarded gratis on application to our Dorking Nursery.

JEAN VERSCHAFFELT, Nurseryman, Ghent, Belgium, begs to announce that his NEW CATALOGUE for 1865 and 1866 is just published, and contains many interesting Novelties. To be obtained gratis on application, either to himself or to his Agents,

Messrs. R. Silberrad & Son, 5, Harp Lane, Great Tower Street, E.C.

WANTED, ACONITES and SNOWDROPS. Send sample and price to

Barr & Sugden, Seed and Plant Merchants, 12, King Street, Covent Garden, W.C.

WANTED, when Ripe, a large quantity of HAZEL NUTS, CHESTNUTS (Spanish), HOLLY, BEECH, & QUICK, and any other Seeds of Forest Trees. Send price per bushel to

Mr. Thomas Thornton, Heatherside, Bagshot, Surrey.

Greenhouse Conifers.

FOR SALE, at a nominal price, on account of want of room, the following PLANTS, viz.:—Araucaria excelsa, 10 feet high; Araucaria Cunninghamii, 8 ft.; Araucaria brasiliana, 9 ft.; Dammara australis, 10 ft.; Dacrydium cupressinum, 10 ft.; Callitris quadrivalvis, 12 ft.; Podocarpus Totarra, 10 ft.

For particulars apply to the Gardener, Manor House, Ampthill, Beds.

DRUMHEAD CATTLE CABBAGE PLANTS, 3s. per 1000, prepaid, may be had of

Mr. A. Wilkin, Tiptree, Kelvedon, Essex.

PLANTS of CATTELL'S RELIANCE CABBAGE, for early Spring use, 4s. per 1000.

Strong Plants of WHITE, RED, and GREEN VARIEGATED KALE, for Winter Garden Decoration, at 1s. per 100.

John Cattell, Westerham, Kent.

NEW TRIFOLIUM INCARNATUM.

" " late variety.

ITALIAN RYE-GRASS, imported Seed.

JAMES CARTER AND CO. have fine samples of the above at very low prices. Prices and sample on application.

James Carter & Co., 237 & 238, High Holborn, London, W.C.

Meadow Grass Seeds for Autumn Sowing.

SUTTON AND SONS would recommend MEADOW and PASTURE GRASS SEEDS to be Sown Early in the Autumn, or not until the Spring.

Royal Berkshire Seed Establishment, Reading.

HALLETT'S PEDIGREE WHITE WHEAT and CHEVALIER BARLEY.

For full Advertisement, see last page of *Agricultural Gazette* of last week.

Browick Red and Golden Drop Wheat.

MR. S. A. DAINTREE, of Fendrayton, St. Ives, Hunts, has selected stocks of the above, grown upon a maiden gravelly soil, for sale at 50s. per quarter. Sacks 1s. 8d. each. Remittance must accompany orders.

PURE BROWICK WHEAT.—Carefully screened parcels for Seed, grown on stiff clay soil, after the steam cultivator. The crop was harvested early and in prime condition. Samples and price by post on application to

Mr T. Bowick, Manager, Messrs. Howard's Steam Cultivated Farms, Bedford.

Seeds from Choice Strains.

B. S. WILLIAMS can now supply good Seeds of the following:—

CINERARIA (Weatherill's extra choice strain).—B. S. W. has secured at a great expense the entire stock and right of exclusive sale from Mr. Weatherill, of this, the best strain of Cineraria in existence, and can now offer packets at the following prices:—3s. 6d. and 5s.

CALCEOLARIA (Herbaceous), from a fine strain, 2s. 6d. and 3s. 6d. per packet.

PRIMULA (Williams' superb strain), the finest fringed and the best coloured flowers in cultivation. Red, White, or Mixed Seed, 2s. 6d., 3s. 6d., and 5s. per packet.

Paradise and Victoria Nurseries, Holloway, London, N.

Northampton Nurseries. Important to Planters.

JOHN PERKINS begs to call the attention of Noblemen, Gentlemen, and others engaged in Planting to his large stock of 1, 2, and 3 years BLACK THORN (for covert planting). Of this he has upwards of Two Millions, the greater part of which is extra fine. Also Two Millions of LARCH FIR, 3 to 4 feet; and One Million of SPRUCE and SCOTCH FIRS, 2 to 3 feet. Also large quantities of

PINUS AUSTRIACA	HORNBEAM
BERBERIS AQUIFOLIA	HAZEL
BERBERIS DULCIS	BIRCH
SINGLE GORSE	BEECH
GREEN BOX	ELMS
LAURELS	OAKS
EVERGREEN PRIVETS	ASH, &c.

J. P.'s stock of all kinds of Fruit, Forest, Ornamental Trees, &c., is very extensive, and this season remarkably fine and in excellent condition for removal, having been frequently transplanted. Samples sent to any given address.

CATALOGUES of GENERAL NURSERY STOCK forwarded post free upon application to

52, Market Square, opposite the Corn Exchange, Northampton.

J. P. begs his correspondents will make use of the above full Address, as there are others of the same name in the town.

New Late Trifolium.

SUTTON AND SONS have just received a supply of each of the NEW VARIETIES of TRIFOLIUM—LATE RED and LATE WHITE. The quantity of feed is quite equal to the Common variety, with the advantage of coming in a fortnight later. The present prices are, for

NEW LATE RED FLOWERING, 8d. per lb. } cheaper by
NEW LATE WHITE FLOWERING, 9d. per lb. } the cwt.

Also the COMMON TRIFOLIUM INCARNATUM, 4d. per lb., cheaper by the cwt. Carriage free, except small parcels.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Improvement of Grass Lands

BY SOWING GOOD SEEDS OF THE MOST SUITABLE KINDS.

SUTTON'S RENOVATING GRASS SEEDS

SHOULD NOW BE SOWN.

These Seeds consist of PERENNIAL CLOVERS and FINE GRASSES for improving the bottom.

8 to 12lb. per acre will be sufficient, and will effect a great increase in the produce.

SUTTON & SONS,
Royal Berkshire Seed Establishment,
Reading.

To the Seed Trade.

THE NEW INVINCIBLE SCARLET SWEET PEA.—Seed from the New Crop has now been saved, and can be supplied for Autumn Sowing.

This invaluable Pea is unquestionably one of the most important novelties among annuals of late years introduced. A First-class Certificate was presented by the Council of the Royal Horticultural Society on July 11 last, and it is described in the *Gardeners' Chronicle* as "a very fragrant and high-coloured Pea." It has been this season growing in the grounds of the Society for inspection. The flowers are strikingly brilliant, and entirely distinct from any other; the upper petals intense scarlet, with a slight variation in the lower ones, which have a deep crimson tinge. It also possesses the desirable quality of Permanence of Colour. Unlike the common Scarlet, whose colour after first opening grows paler till the flower goes off, the Invincible retains its brilliance throughout, a mass of it consequently presenting an extraordinary contrast when seen near a mass of the common Scarlet.

The New Colour being so much wanted among this popular tribe, a small quantity offered in packets last year was consequently rapidly sold out, and numbers who purchased have spoken of it in very high terms. Prices to the Trade sent on application. Orders are solicited early, as the Stock may be short, and many orders are already received.

STEPHEN BROWN, Seed Grower, Sudbury, Suffolk.

Brighton and Sussex Seed Warehouse.

CARPENTER'S EXPRESS, the EARLIEST PEA known, gathered May 7. The earliest date on record.

The following are extracts from a few of the numerous Letters received:—

From Mr. JONES, *Gardener to* Lord Leconfield, *Petworth House, Sussex.*

"I sowed Carpenter's Express Peas on the 20th November, and gathered the first dish on the 7th May. I had Daniel O'Rourke and Carpenter's Express side by side, but gathered first from Carpenter's Express."

From Mr. MARSH, *Gardener to* Marchioness of Bath, *Worthing, Sussex.*

"I made a sowing of Carpenter's Express and Sangster's No. 1 side by side, and I found Carpenter's Express to be up about a week before Sangster's."

From Mr. KEMSLEY, *Gardener to* C. Catt, Esq., *Brighton.*

"I made a sowing of Carpenter's Express and Daniel O'Rourke side by side, and I gathered Carpenter's Express at least a fortnight before the other was ready.'

From Mr. DAWES, *Gardener to* H. Pegg, Esq., *Brighton.*

"I made a sowing of Carpenter's Express on the same day as Sangster's No. 1 and also Morning Star, and I gathered from Carpenter's Express 12 days before either of the others."

From Mr. JOHN COX, *Gardener to* W. Wells, Esq., *Redleaf, Staplehurst, Kent.*

"Having tried Carpenter's Express Peas, I beg to say that I gathered in quantity this season (1864) nine days in advance of any other early variety."

Mr. MAXWELL, *of the Gardens, Exton Park, Oakham, in a letter to the* GARDENERS' CHRONICLE *of June* 12, 1865, *on Early Peas, says:*—

"Carpenter's Express is a fortnight earlier than Sangster's No. 1, and 10 days earlier than Dillistone's."

From Mr. C. COURT, *Gardener to* Captain Pratt, *Chichester.*

"I grew Carpenter's Express side by side with Sangster's No. 1, and found it to be seven days earlier."

From Mr. ALEXANDER STEWART, *Gardener to* Colonel Leslie, *Slindon House, Arundel.*

"Carpenter's Express were sown side by side with Early Warwick and Early Frame, and I gathered from Carpenter's Express full a fortnight before either of the others."

THE EDITOR *of the* SUSSEX EXPRESS *of the* 1st *July*, 1865, *reports the following:*—

"Mr. Thomas Jenner, Lewes, sowed both Carpenter's Express and Sangster's No. 1 on the same day, and gathered from Carpenter's Express eight or nine days before the other sort. This seems to be universally the case."

To CARPENTER'S EXPRESS PEAS have been awarded Two First-class Certificates at the Brighton Horticultural Society's Exhibitions as the Earliest Pea. 5s. per quart.

Early orders are solicited, as the stock is not large.

EDWARD CARPENTER, Seed Merchant and Grower, 96, St. James Street, Brighton.

CATALOGUES on application

IMPORTED DUTCH FLOWER ROOTS.

JAMES CARTER & CO.'S

FIRST IMPORTATION OF PICKED BULBS OF

HYACINTHS, CROCUS, TULIPS, NARCISSUS, ETC.,

HAS ARRIVED IN FINE CONDITION, AND THEY BEG RESPECTFULLY TO SOLICIT EARLY ORDERS

JAMES CARTER & Co. have also to announce that the

AUTUMN SUPPLEMENT OF THE GARDENER'S AND FARMER'S VADE-MECUM

Is now published, and will be found to contain (with Cultural Directions) complete lists of DUTCH and CAPE BULBS, to which is added a LIST of PLANTS, including particulars of their large and important COLLECTIONS of FRUITING VINES in POTS, and STRAWBERRIES.

The Autumn Supplement will be forwarded Gratis and Post Free on application to

JAMES CARTER AND CO., 237 and 238, HIGH HOLBORN, LONDON, W.C.

DUTCH BULBS.

ARCHIBALD HENDERSON,

LATE SUPERINTENDENT TO THE HORTICULTURAL SOCIETY OF LONDON, AND OF HIS GRACE THE DUKE OF SUTHERLAND'S GARDENS AT TRENTHAM, STAFFORDSHIRE,

BEGS TO ANNOUNCE THAT HIS SPLENDID

COLLECTIONS OF HYACINTHS AND OTHER DUTCH ROOTS,

IMPORTED BY HIM DIRECT FROM HOLLAND, HAVE ARRIVED IN FINE CONDITION

CATALOGUES are now ready, and will be forwarded post free on application.

SION NURSERY, THORNTON HEATH, SURREY, S.

SUTTON'S

UNRIVALLED COLLECTIONS OF

BULBOUS FLOWER ROOTS,

FOR BLOOMING DURING THE WINTER AND SPRING.

These are every year becoming more popularly cultivated, and the HYACINTHS, ANEMONES, TULIPS, &c., which we imported last season from the celebrated Dutch Florists, Messrs. de Boom, Veen, Byvoet, and others, having been so generally admired, *we have imported from the same parties, and still more extensively. As many of these sorts are at present unknown to English cultivators, we have considered it advisable to make up Collections* of the sorts which, after careful observation, we have found to be the best worthy of cultivation, being THE MOST SHOWY AND MOST CERTAIN TO THRIVE WELL under any ordinary treatment, and for which any good Garden soil (not particularly heavy) will be suitable.

SUTTON'S COLLECTION of HARDY FLOWER ROOTS for OPEN GROUND.

		£	s.	d.
No. 1.	A large and Choice Collection of ANEMONES, HYACINTHS, CROCUSES, TULIPS, RANUNCULI, NARCISSI, SNOWDROPS, IRISES, GLADIOLI, &c.	2	2	
No. 2.	Ditto ditto, consisting of all the same kinds, in Reduced Quantities	1	1	
No. 3.	A Small and Choice ditto	0	10	

SORTS for FLOWER POTS and GLASSES.

		£	s.	d.
No. 4.	A splendid Collection of HYACINTHS, JONQUILS, NARCISSI, EARLY TULIPS, New large CROCUSES, &c.	2	2	
No. 5.	The same in Reduced Quantities	1	1	
No. 6.	A Small and Choice Assortment	0	10	

N.B. A complete LIST of the above may be had post free, and any article specified, if not required, will be omitted, and additional quantities of others included.

The very low charges now made for the above Choice Collections of Flower Roots will, it is believed, insure a continually increasing demand.

Early Orders are requested before the more scarce kinds are all sold.

SUTTON'S AUTUMN CATALOGUE,

Containing Descriptive Lists of the best varieties of HYACINTHS, GLADIOLI, ANEMONES, CROCUSES, and other Bulbous Roots, and Choice STOVE and GREENHOUSE PLANTS, FERNS, AMERICAN PLANTS, ROSES, CARNATIONS, and other Florists' Flowers, FRUIT TREES, New GARDEN SEEDS, &c., is now ready, and may be had gratis and post free on application.

All Goods sent Carriage Free except small parcels, and 5 per cent. allowed for cash payments.

SUTTON AND SONS, ROYAL BERKS SEED ESTABLISHMENT, READING.

BARR & SUGDEN.

SEED & PLANT MERCHANTS 12 KING ST. COVENT GARDEN W.C.

THE SPRING FLOWER GARDEN AND HOW TO ADORN IT.

See BARR & SUGDEN's forthcoming

AUTUMNAL FLORAL GUIDE.

Guernsey Lilies, 5s. 6d. per dozen. | Bella Donna Lilies, 5s. 6d. per dozen.

BARR AND SUGDEN, SEED and PLANT MERCHANTS, 12, KING STREET, COVENT GARDEN, LONDON, W.C.

Manures and Feeding Stuffs.

RAYNBIRD, CALDECOTT, AND BAWTREE. Address, 89, Seed Market, Mark Lane; or Basingstoke. Samples and prices on application.

LAWES'S MANURES.—The Manures manufactured by J. B. Lawes for the present Season of 1865 are now ready for delivery at his Factories, at the following prices:—

LAWES'S PATENT TURNIP MANURE, and BONE SUPERPHOSPHATE of LIME, £6 6s. per ton.
LAWES'S SUPERPHOSPHATE of LIME from BURNT BONE MINERAL PHOSPHATES, £5 5s. per ton.
LAWES'S WHEAT, BARLEY, GRASS, and MANGEL MANURES, £5 per ton.
CONCENTRATED CORN and GRASS MANURE, £12 per ton.

These Manures can be obtained of Mr. Lawes, or through his Appointed Agents, in all parts of the United Kingdom, at prices varying according to cost of carriage.

Genuine PERUVIAN GUANO direct from the Importers.
NITRATE of SODA, SULPHATE of AMMONIA, and other Chemical Manures. AMERICAN and other CAKES at market prices.
Address JOHN BENNET LAWES, 1, Adelaide Place, London Bridge, E.C., and 22, Eden Quay, Dublin.

THE LONDON MANURE COMPANY (ESTABLISHED 1840), Have now ready for delivery WHEAT MANURE, for Autumn Sowing. DISSOLVED BONES, for Dressing Pasture Lands. SUPERPHOSPHATES of LIME, &c. Genuine PERUVIAN GUANO and NITRATE of SODA, ex Dock Warehouse, SULPHATE of AMMONIA, FISHERY SALT, &c. Offices, 116, Fenchurch Street, E.C. EDWARD PURSER, Secretary.

REIGATE SILVER SAND.—Good quality, 7s. per ton Cash, delivered loose into the Trucks at the Reigate Station. Best quality PEAT, LOAM, SPHAGNUM, ROCK, SANDSTONE, &c., on Sale.
W. SHORT, Sand and Peat Depôt, Reigate, Surrey.

Improvements in Parks, Gardens, Plantations, &c.

MR. NEWTON, 30, Eastbourne Terrace, W., Author of "Picturesque Garden Plans," executes such works; and, having just visited the best laid-out grounds in France, Switzerland, Italy, Austria, &c., he can introduce new styles with economy. Reference given to works completed in several parts of the United Kingdom.

WHEAT SOWING.

DOWN'S FARMERS' FRIEND, for preventing the Smut in Wheat, and the ravages of the Slug, Grub, and Wireworm.

A 9d. packet is sufficient for 6 bushels of Seed Wheat, which can be dressed and fit to sow in a quarter of an hour.

Testimonials from the largest Wheat-growers in the Kingdom, bearing testimony to its great power and efficacy, may be had of Agents, who are appointed for every district.

Full directions for use are given with each packet.
Prepared by the Manufacturer, W. Down, Beds.

CAUTION.—To guard against fraudulent imitations and consequent disappointment, see that the signature of Henry Down is on the label.
Agents in every Town throughout England, Scotland, and Ireland.

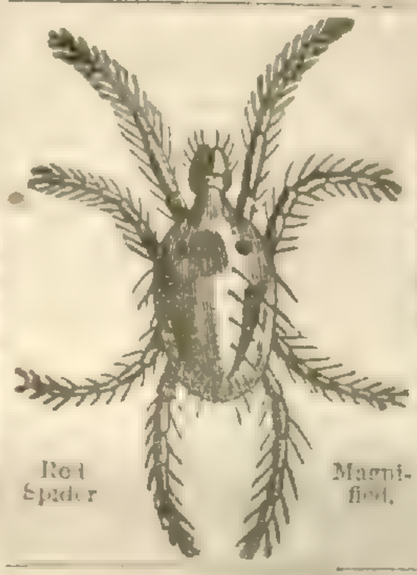
COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 2s per bag.

For particulars, and how to use it, see long Advertisement in Gardeners' Chronicle of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped, J. BARSHAM'S Patent.



GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of fabrics. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

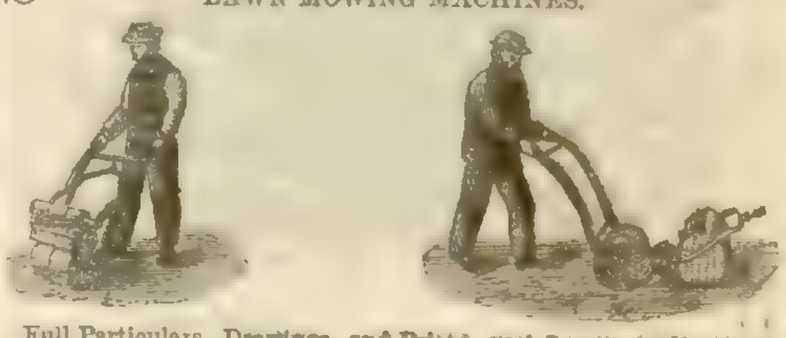
Sold Retail by Nurserymen and Seedsmen, in boxes, 1s., 3s., and 10s 6d. each.

Wholesale by PRICE'S PATENT CANDLE COMPANY (LIMITED).

To the Seed Trade.

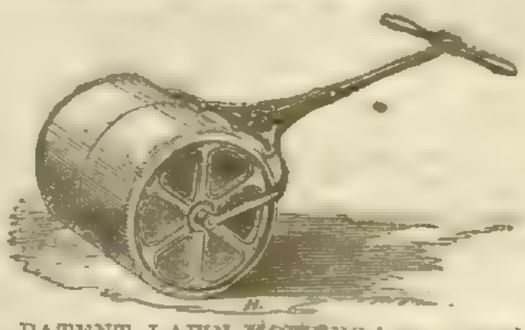
HOOPER AND CO.'S ETRUSCAN and GRECIAN HYACINTH VASES.—Beautiful new patterns for the coming season are now ready. They have proved far superior to Glasses for the successful growth of Hyacinths in water, and are consequently in great demand. Lists on application
HOOPER & Co., Seed Merchants, Covent Garden Market, London, W.C.

SHAW'S PATENT FLEXIBLE SELF-ADJUSTING LAWN MOWING MACHINES.



Full Particulars, Drawings, and Prices, post free on application to the Patentee and Manufacturer,
JOHN SHAW, Junction Works, New Wortley, Leeds.

GREEN'S PATENT SILENS MESSOR, or NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.



GREEN'S PATENT LAWN MOWERS have proved to be the best, and have carried off every Prize that has been given in all cases of competition. Above 26,000 have been sold since the year 1856.
Illustrated Price Lists of Lawn Mowers and Garden Rollers Free.
THOMAS GREEN & SON, Smithfield Iron Works, Leeds; 2, Farringdon Road, Holborn Hill, London, E.C.; Hadwin's Buildings, Tithebarn Street, Liverpool; and 19, Eden Quay, Dublin

PATENT GUTTA PERCHA SOLES.—IMPORTANT TO GARDENERS.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. GLENNY, Esq., the celebrated Florist:—

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles.—Your obedient servant, "G. GLENNY.

Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Calbotype trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town or country.

The GUTTA PERCHA COMPANY, Patentees, 18, Wharf Road, City Road, London, E.C.

CLIANTHUS DAMPIERI IN VARIETIES.

MESSRS. E. G. HENDERSON & SON

HAVE MUCH PLEASURE IN ANNOUNCING THAT THEY ARE

NOW PREPARED TO OFFER SEEDS OF THIS SPLENDID PLANT

IN ITS REMARKABLE VARIETIES OF COLOUR.

From the various reports of a White-flowered variety, it has been eagerly sought after as a first-class Novelty, but not until the present has it been offered in its genuine diversified features.

The party from whom the present Seed is purchased by E. G. HENDERSON & SON exhibited the White-flowered variety in Australia, which excited great interest and admiration, and it is from the original White-flowered variety that the present additional varieties now offered were derived; it being found that the Seed produce of the White-flowered Plant originated six or seven other shades, varying from white, to white bordered with rich rosy crimson; including the various shades of scarlet, and crimson with the black boss-like blotch. The diversity of colour obtained from the collection of plants from which the Seed now offered is produced, proves that the species sports into various forms, including some of the most unexpected Novelties yet offered.

One of the most beautiful varieties originated in the group referred to, the Seed from which is included in that now offered, is white throughout the centre spaces of the flower, very elegantly and uniformly belted with rosy crimson, thus yielding an unique and exquisite combination of colour, with the brilliant black boss-like blotch on the base of the upper lobe. A Figure of this variety will be published separately early in September, affording a beautiful illustration of the varieties included in the Seed now offered.

For the protection of the Public the Seed will be sent out in Packets, with the Seal of the Firm, to ensure its genuine source.

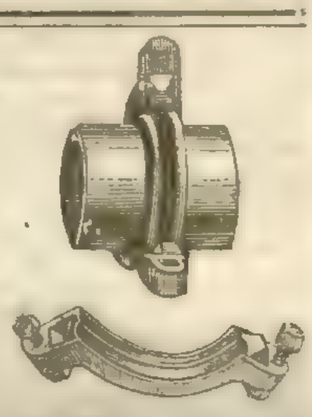
Packets—First Size, 24 Seeds, 5s.; Second, 12 Seeds, 2s. 6d.

P.S.—The Seed now offered having been produced from Cultivated Plants in Australia by the Raiser of the varieties adverted to, is similar in quality and colour to that obtained from home-grown or English plants, and differs from that collected on its native sandy plains, in being of a richer brown tint, and more plump in substance, the native being often gathered prematurely, and generally of a paler hue.

WELLINGTON NURSERY, ST. JOHN'S WOOD, LONDON, N.W.

HOT-WATER APPARATUS,

WITH TRUSS' PATENT PIPE JOINTS.



T. S. TRUSS, C.E.,

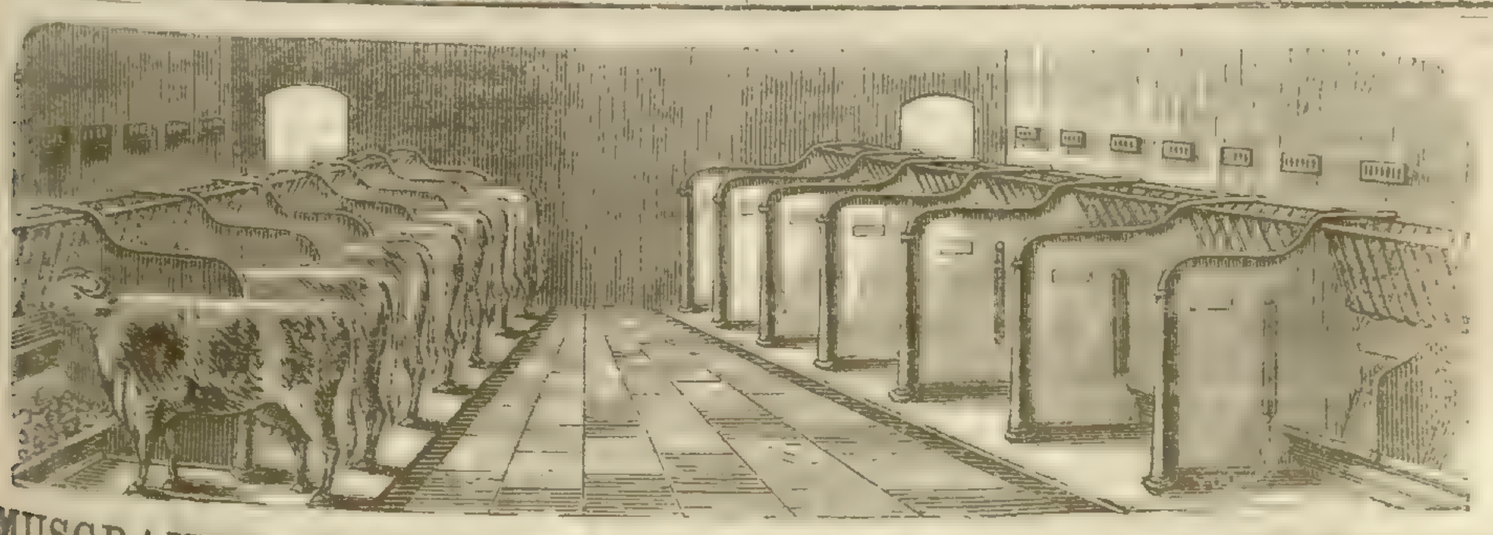
53, GRACECHURCH STREET, LONDON, E.C.

By means of these Joints the work is executed in less than half the time required for Socket Joints, and alterations can at any time be made, or the entire Apparatus removed and erected elsewhere with the greatest facility. A considerable saving in cost is also effected.

These Joints have been used for several years, giving entire satisfaction, and may be seen in use at the Royal Horticultural Society's Gardens, South Kensington and Chiswick, and many other places in Horticultural and Public Buildings.

For a few prices, see last week's Advertisement.

ESTIMATES, PLANS, AND PRICE LISTS FORWARDED ON APPLICATION.



MUSGRAVE'S PATENT IRON COW STALLS and PIGGERIES,

WITH FRESH AIR INLETS, AS USED IN THE GOVERNMENT MODEL FARMS.

MUSGRAVE'S PATENT STABLE and HARNESS FITTINGS,

ADOPTED BY HIS ROYAL HIGHNESS THE PRINCE OF WALES FOR SANDRINGHAM.

MUSGRAVE'S PATENT SLOW-COMBUSTION STOVES,

EMPLOYED BY THE ECCLESIASTICAL COMMISSIONERS.

The PATENT IRON COW STALLS and AIR INLETS are perfect in their arrangements for Feeding and Ventilation; every part being of iron they are indestructible, inexpensive, very compact, cleanly, and healthful for the animal. Should sickness occur, if the iron work be painted and the walls washed with lime, they can neither harbour nor communicate contagion. This system in fact is found to be the only true SAFEGUARD AGAINST THE SPREAD OF EPIDEMIC.

Priced Engravings of all these Inventions, sent post free on application to
MUSGRAVE BROTHERS, ANN STREET IRON WORKS, BELFAST.

Lobelia Snowflake.

Extract from Gardeners' Chronicle :—

"Mr. Cox, Gardener to Lord Beauchamp, exhibited a beautiful White Lobelia called Snowflake, to which a First-class Certificate was awarded. Floral Committee of the Royal Horticultural Society, July 25, 1865."

JOHN AND CHARLES LEE having acquired the stock of this desirable NEW BEDDING PLANT, they have much pleasure in offering SEED in SEALED PACKETS for present sowing for spring pot culture, for which it is well adapted.

As a BEDDING LOBELIA it stands unrivalled. The plant is of dwarf compact habit: the flowers are large, perfectly even, and of the purest white. The stock comes perfectly true from seed.

Price 2s. 6d. per packet. Price to the Trade on application.

Royal Vineyard Nursery and Seed Establishment, Hammersmith, W.

Paul's Nurseries, Waltham Cross, N.

Entrance from the Platform, Waltham Station, Great Eastern Railway. Half an Hour's Ride from London.

WM. PAUL (Son and Successor to the late A. Paul) begs to announce that his COLLECTION of ROSES is STILL in BLOOM, and comprises many of his own Seedlings, and other novelties not to be found in any other collection. In addition to the Roses, BEATON'S GERANIUMS, and a second and third generation from them, will be blooming throughout the summer and autumn. The Collection of HARDY TREES with FINE FOLIAGE is unrivalled, and many large and perfect specimens of the choicer CONIFERS are now in fine condition for removal, and are well worthy of the attention of gentlemen and horticulturists who contemplate planting. Bearing trees of all the LEADING FRUITS, Dwarfs and Standards, Pyramids and Espaliers, in fine health and true to name. Inspection respectfully invited.

Waltham Cross, London, N.

WELLINGTONIA AUREO-VARIEGATA.

Height	11 feet 6 inches.
Circumference of Branches	30 feet
Circumference of Trunk ..	2 feet 4 inches.
This Season's shoot	2 feet 9 inches.

Originated at "The Lough Nurseries," Cork.

This singular Tree is now in great beauty; every shoot is heavily marked with rich gold, which hangs in tassels, and when seen in sunshine is most beautiful and unique.

The Variegation has been constant since the Tree was one foot high.

It may be seen at the above address until the end of October, the usual time for stripping the cuttings.

Richard Hartland, The Lough Nurseries, Cork.

To the Trade.

JEAN VERSCHAFFELT, Ghent, begs to offer the following at the undermentioned low prices, viz. :—

AZALEA INDICA, nice plants with buds, best varieties, per 100, £5.
" " fine plants on stems 12 to 15 inches high, per 100, £8 to £10.
" " stocks fit for grafting, per 100, £1.
CAMELLIAS, bushy plants, 1 to 1½ ft. high, without buds, per 100, £5.
" nice plants with buds, per 100, £6.
" nice plants, stronger, per 100, £8, £10, £12, and upwards.
" strong bushy plants, on large stocks, beautifully set, per doz., £4.
" stocks fit for grafting, per 100, £1 8s.
ARUNDO DONAX VARIEGATA, fine strong plants in pots, per doz., £1 4s.
CITRUS SINENSIS (Otaheite Oranges), beautiful dwarf plants with a great number of fruit, per doz., £1 4s.
LILIUM LANCIFOLIUM ALBUM, per 100, £2.
" " " extra large bulbs (the largest ever offered), per 100, £2 10s.
" " RUBRUM, per 100, £2.
" " " extra large sized bulbs, £3.
" " PUNCTATUM (true), extra size of bulbs, per doz., £2 8s.

Early Orders are respectfully solicited, and are to be directed to

Jean Verschaffelt, Nurseryman, 43, Rue de la Caverne, Ghent, Belgium.

☞ Cash or reference required from unknown correspondents.

Gladioli.

CHARLES VERDIER, Fils, Nurseryman, No. 32, Rue du Marché aux Chevaux, Paris (Successor to the old-established house of Victor Verdier & Charles Verdier), has published his DESCRIPTIVE CATALOGUE of GLADIOLI for the season, which can be had on applying to his Agents, Messrs. R. Silberrad & Son, 5, Harp Lane, Great Tower Street, E.C.

He recommends particularly the New Sorts as under :—

EURYDICE (Souchet).—Flower large, perfect form, pure white, flamed with lively carmine rose. Perfection.

LORD BYRON (S.)—Very brilliant scarlet, spotted and striped with pure white. A very effective plant.

MARÉCHAL VAILLANT (S.)—Flower large, good form, very brilliant scarlet, very large pure white spot. The shading of this fine plant produces an unequalled effect.

MILTON (S.)—Flower very large, perfect form, white slightly shaded with rose, very largely flamed with red. Extra.

NEWTON (S.)—Flower large, perfect form, dark crimson red, the centre white, with numerous white lines. A very fine new shade

SHAKESPEARE (S.)—Flower very large, perfect form, white very slightly flamed with carmine rose, very large rose spot. Perfection.

Special CATALOGUES for the Trade.

Charles Verdier, Fils, has pleasure in announcing that all these Gladioli are in splendid condition, and that he sends out none but very healthy and vigorous bulbs.

[The announcement, in my advertisement in *Gardeners' Chronicle* of the 2d September, that my GLADIOLI had a delightful scent, was an error made in its translation from French into English.]

ROYAL HORTICULTURAL SOCIETY.

SCHEDULE for SATURDAY WEEKLY SHOWS for 1866.

The COUNCIL of the ROYAL HORTICULTURAL SOCIETY offer the following PRIZES for competition amongst EXHIBITORS at the SATURDAY WEEKLY SHOWS.

They will also grant Certificates for objects not included in the Classes for which Money Prizes are offered, and these Certificates may be commuted for Medals on a fixed scale.

In the Classes for Miscellaneous Collections of Cut Flowers, Specimens of Ornamental Foliage may be shown.

In the Miscellaneous Classes of Plants, not more than one-fourth of the whole collection in the case of Nurserymen, and one-third in the case of Amateurs may be Fine Foliage Plants, the remainder must be in Flower.

In cases of Equal Merit in point of Cultivation, preference will be given to those Collections which show the greatest variety of Beautiful Plants at present little cultivated.

Jan. 6 & 20. Feb. 3 & 17.	Miscellaneous Collection, 18 PLANTS. (Nurserymen.) 20s., 15s. 10s.
	The best Exhibition of VEGETABLES. (Open.) 15s., 10s., 5s.
Jan. 13 & 27. Feb. 10 & 24.	Miscellaneous Collection, 6 PLANTS. (Amateurs.) 15s., 10s., 7s. 6d.
	The best Exhibition of FRUIT. (Open.) 20s., 15s., 10s.
March 3, 17, & 31.	Collection of 18 BULBS in flower. (Nurserymen.) 20s., 15s., 10s.
"	Collection of 12 PLANTS, miscellaneous. (Nurserymen.) 15s., 10s., 7s. 6d.
"	The best Collection of VEGETABLES. (Open.) 15s., 10s., 5s.
March 10 & 24.	Collection of 12 BULBS in flower. (Amateurs.) 15s., 10s., 7s. 6d.
"	Collection of 6 PLANTS, miscellaneous. (Amateurs.) 15s., 10s., 7s. 6d.
"	The best Exhibition of FRUIT. 20s., 15s. 10s.
April 7.	Collection of 12 BULBS in flower. (Amateurs.) 15s., 10s., 7s. 6d.
"	Collection of 6 PLANTS, miscellaneous. (Amateurs.) 15s., 10s., 7s. 6d.
"	Collection of 12 CAMELLIAS, cut blooms. (Open.) 15s., 10s., 7s. 6d.
"	The best Exhibition of FRUIT. (Open.) 20s., 15s., 10s.
April 14.	Collection of 18 BULBS in flower. (Nurserymen.) 20s., 15s., 10s.
"	Collection of 12 PLANTS, miscellaneous. (Nurserymen.) 15s., 10s., 7s. 6d.
"	Collection of 24 ROSES, cut blooms. (Nurserymen.) 20s., 10s.
"	The best Exhibition of VEGETABLES. (Open.) 15s., 10s., 5s.
April 21.	Collection of 12 PLANTS, miscellaneous. (Amateurs.) 20s., 15s., 10s.
"	Collection of 6 PLANTS, miscellaneous. (Amateurs.) 15s., 10s., 7s. 6d.
"	Collection of 12 CAMELLIAS, cut blooms. (Amateurs.) 15s., 10s., 7s. 6d.
"	The best Exhibition of FRUIT. (Open.) 20s., 15s., 10s.
April 28.	Collection of 18 BULBS in flower. (Nurserymen.) 20s., 15s., 10s.
"	Collection of 12 PLANTS, miscellaneous. (Nurserymen.) 15s., 10s., 7s. 6d.
"	Collection of 12 ROSES in pots. (Nurserymen.) 20s., 15s., 10s.
"	The best Exhibition of VEGETABLES. (Open.) 15s., 10s., 5s.
May 5.	Collection of 3 PELARGONIUMS. (Amateurs.) 15s., 10s., 7s. 6d.
"	Collection of 6 PLANTS, miscellaneous. (Amateurs.) 15s., 10s., 7s. 6d.
"	Collection of 3 AZALEAS. (Amateurs). 20s., 15s., 10s.
"	Miscellaneous Collection of CUT FLOWERS, arranged in basket. (Open.) 10s., 7s. 6d., 5s.
"	The best Exhibition of FRUIT. (Open.) 20s., 15s., 10s.
May 12.	Collection of 6 PELARGONIUMS. (Nurserymen.) 20s., 15s., 10s.
"	Collection of 12 ROSES in pots. (Nurserymen.) 25s., 20s., 15s.
"	Collection of 12 PLANTS, miscellaneous. (Nurserymen.) 20s., 15s., 10s.
"	Miscellaneous Collection of CUT FLOWERS, arranged in basket. (Open.) 10s., 7s. 6d., 5s.
"	The best Exhibition of VEGETABLES. (Open.) 15s., 10s., 5s.
May 19.	Collection of 3 PELARGONIUMS. (Amateurs.) 15s., 10s., 7s. 6d.
"	Collection of 3 AZALEAS. (Amateurs.) 20s., 15s., 10s.
"	Collection of 6 PLANTS, miscellaneous. (Amateurs.) 15s., 10s., 7s. 6d.
"	Miscellaneous Collection of CUT FLOWERS, arranged in basket. (Open.) 10s., 7s. 6d., 5s.
"	The best Exhibition of FRUIT. (Open.) 20s., 15s., 10s.
June 9.	Collection of 6 PELARGONIUMS. (Nurserymen.) 20s., 15s., 10s.
"	Collection of 6 FUCHSIAS. (Nurserymen.) 15s., 10s., 7s. 6d.
"	Collection of 12 PLANTS, miscellaneous. (Nurserymen.) 20s., 15s., 10s.
"	Miscellaneous Collection of CUT FLOWERS in basket. (Open.) 10s., 7s. 6d., 5s.
"	The best Exhibition of VEGETABLES. (Open.) 15s., 10s., 5s.
June 16.	Collection of 3 ZONAL PELARGONIUMS, various colours. (Amateurs.) 20s., 15s., 10s.
"	Collection of 3 FUCHSIAS. (Amateurs.) 15s., 10s., 7s. 6d.
"	Collection of 6 PLANTS, miscellaneous. (Amateurs.) 20s., 15s., 10s.
"	Miscellaneous Collection of CUT FLOWERS in a basket. (Open.) 10s., 7s. 6d., 5s.
"	The best Exhibition of FRUIT. (Open.) 20s., 15s., 10s.
June 23.	Collection of 6 ZONAL PELARGONIUMS, various colours. (Nurserymen.) 20s., 15s., 10s.
"	Collection of 6 FUCHSIAS. (Nurserymen.) 15s., 10s., 7s. 6d.
"	Collection of 6 CAPE HEATHS. (Nurserymen.) 20s., 15s., 10s.
"	Collection of 36 ROSES, cut blooms. (Nurserymen.) 20s., 15s., 10s.
"	Collection of 12 PLANTS, miscellaneous. (Nurserymen.) 20s., 15s., 10s.
"	Miscellaneous Collection of CUT FLOWERS in basket. (Open.) 10s., 7s. 6d., 5s.
"	The best Exhibition of VEGETABLES. (Open.) 15s., 10s., 5s.
June 30.	Collection of 6 ZONAL PELARGONIUMS, various colours. (Amateurs.) 25s., 20s., 15s.
"	Collection of 6 PINKS in pots. (Amateurs.) 20s., 15s., 10s.
"	Collection of 6 VERBENAS in pots. (Amateurs.) 15s., 10s., 7s. 6d.
"	Collection of 24 ROSES, cut blooms. (Amateurs.) 20s., 15s., 10s.
"	Miscellaneous Collection of CUT FLOWERS in basket. (Open.) 10s., 7s. 6d., 5s.
"	The best Exhibition of FRUIT. (Open.) 20s., 15s., 10s.
July 7.	Collection of 6 LILIUM AURATUM. (Nurserymen.) 20s., 15s., 10s.
"	Collection of 12 CARNATIONS. (Nurserymen.) 20s., 15s., 10s.
"	Collection of 12 PICOTEES. (Nurserymen.) 20s., 15s.
"	Miscellaneous Collection of FLOWERS in basket. (Open.) 10s., 7s. 6d., 5s.
"	The best Exhibition of VEGETABLES. (Open.) 10s., 5s.
July 14.	Collection of 3 LILIES, miscellaneous. (Amateurs.) 15s., 10s., 7s. 6d.
"	Collection of 6 CARNATIONS. (Amateurs.) 20s., 15s., 10s.
"	Collection of 6 PICOTEES. (Amateurs.) 20s., 15s., 10s.
"	The best Exhibition of FRUIT. (Open.) 20s., 15s., 10s.
July 21.	Collection of 6 LILIES. (Nurserymen.) 20s., 15s., 10s.
"	Collection of 6 ASTERS in pots. (Nurserymen.) 10s., 7s. 6d., 5s.
"	Collection of 6 HOLLYHOCKS, spikes. (Nurserymen.) 20s., 15s., 10s.
"	Collection of 24 HOLLYHOCKS, cut blooms. (Nurserymen.) 20s., 15s., 10s.
"	The best Exhibition of VEGETABLES. (Open.) 15s., 10s., 5s.
July 28.	Collection of 6 SCARLET PELARGONIUMS. (Amateurs.) 20s., 15s., 10s.
"	Collection of 6 ASTERS in pots, distinct kinds. (Amateurs.) 15s., 10s., 7s. 6d.
"	Collection of 6 HOLLYHOCKS, spikes. (Amateurs.) 20s., 15s., 10s.
"	Collection of 12 HOLLYHOCKS, cut blooms. (Amateurs.) 15s., 10s., 7s. 6d.
"	The best Exhibition of FRUIT or VEGETABLES. (Open.) 20s., 15s., 10s.
August 4.	Collection of 6 HYDRANGEAS. (Nurserymen.) 20s., 15s., 10s.
"	Collection of 3 HYDRANGEAS. (Amateurs.) 15s., 10s., 7s. 6d.
"	Collection of 6 PLANTS, miscellaneous. (Open.) 20s., 15s., 10s.
"	The best Exhibition of FRUIT. (Open.) 20s., 15s., 10s.
August 11.	Collection of 12 PLANTS, miscellaneous. (Nurserymen.) 20s., 15s., 10s.
"	The best Exhibition of VEGETABLES. (Open.) 15s., 10s., 5s.
August 18.	Collection of 6 PLANTS, miscellaneous. (Amateurs.) 15s., 10s., 7s. 6d.
"	The best Collection of FRUIT. (Open.) 20s., 15s., 10s.
August 25.	Collection of 12 PLANTS, miscellaneous. (Nurserymen.) 20s., 15s., 10s.
"	The best Exhibition of VEGETABLES. (Open.) 15s., 10s., 5s.

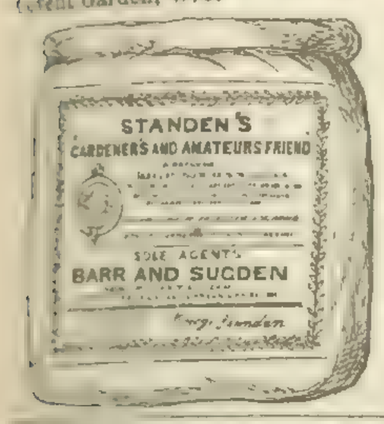
PRIZES offered by JOHN KELK, Esq., M.P., Member of Council.

September 1.	Collection of 3 OLEANDERS, double-flowered varieties, £5.
"	Collection of 6 CAMPANULA PYRAMIDALIS. 40s., 20s., 10s.
"	Collection of 24 DAHLIAS, cut blooms. (Nurserymen.) 20s., 15s., 10s., 5s.
"	Collection of 12 DAHLIAS, cut blooms. (Nurserymen.) 10s., 7s. 6d., 5s.
"	Collection of 6 DAHLIAS, cut blooms. (Nurserymen.) 7s. 6d., 5s.
"	Collection of 12 DAHLIAS, cut blooms, fancies. (Nurserymen.) 10s., 7s. 6d.
"	Collection of 6 DAHLIAS, cut blooms, fancies. (Nurserymen.) 7s. 6d., 5s.
"	Collection of 24 DAHLIAS, cut blooms. (Amateurs.) 20s., 15s., 10s., 7s. 6d., 5s.
"	Collection of 12 DAHLIAS, cut blooms. (Amateurs.) 15s., 10s., 7s. 6d., 5s.
"	Collection of 6 DAHLIAS, cut blooms. (Amateurs.) 10s., 7s. 6d., 5s.
"	Collection of 12 DAHLIAS, cut blooms, fancies. (Amateurs.) 15s., 10s., 7s. 6d., 5s.
"	Collection of 6 DAHLIAS, cut blooms, fancies. (Amateurs.) 10s., 7s. 6d., 5s.
"	The best Exhibition of VEGETABLES. (Open.) 15s., 10s., 5s.
Sept. 8 & 22.	Collection of 6 PLANTS, miscellaneous. (Amateurs.) 15s., 10s., 7s. 6d.
"	The best Collection of FRUIT. (Open.) 20s., 15s., 10s.
Sept. 15 & 29.	Collection of 12 PLANTS, miscellaneous. (Nurserymen.) 20s., 15s., 10s.
Oct. 6 & 20.	Collection of 6 PLANTS, miscellaneous. (Amateurs.) 15s., 10s., 7s. 6d.
"	The best Exhibition of FRUIT. (Open.) 20s., 15s., 10s.
Oct. 13 & 27.	Collection of 12 PLANTS, miscellaneous. (Nurserymen.) 20s., 15s., 10s.
"	The best Exhibition of VEGETABLES. (Open.) 15s., 10s., 5s.
November 3.	Collection of 6 large flowering CHRYSANTHEMUMS. (Nurserymen.) 20s., 15s., 10s.
"	Collection of 6 POMPONES. (Nurserymen.) 20s., 15s., 10s.
"	Collection of 24 CHRYSANTHEMUMS, cut blooms. (Nurserymen.) 15s., 10s., 7s. 6d.
"	Collection of 6 large flowering CHRYSANTHEMUMS. (Amateurs.) 25s., 20s., 15s.
"	Collection of 6 POMPONES. (Amateurs.) 25s., 20s., 15s.
"	Collection of 12 CHRYSANTHEMUMS, cut blooms. (Amateurs.) 10s., 7s. 6d., 5s.
"	The best Exhibition of VEGETABLES. (Open.) 15s., 10s., 5s.
Nov. 10 & 24. Dec. 8 & 22.	Collection of 6 PLANTS, miscellaneous. (Amateurs.) 15s., 10s., 7s. 6d.
	The best Exhibition of FRUIT. (Open.) 20s., 15s., 10s.
Nov. 17. Dec. 1, 15, & 29.	Collection of 12 PLANTS, miscellaneous. (Nurserymen.) 10s., 7s. 6d., 5s.
	The best Exhibition of VEGETABLES. (Open.) 15s., 10s., 5s.

Dutch Flower Roots.

JAMES VEITCH, Royal Exotic Nursery, Chelsea, S.W., begs to announce that his CATALOGUE of BULBOUS ROOTS is now ready and will be forwarded post free on application.

HYACINTHS, TULIPS, CROCUS, &c., now arrived from Holland in excellent condition.
BARR & SUGDEN, Seed and Plant Merchants, 12, King Street, Covent Garden, W.C.



Sample Canisters,
1s. and 2s. 6d.

Bags,
5s. 6d., 10s. 6d., and 21s.

BUTLER AND McCULLOCH, SEED MERCHANTS, South Row (or Strand side), opposite Southampton Street, Covent Garden Market, London, W.C., beg to announce the arrival of their DUTCH and other FOREIGN BULBS in the finest possible condition.

Having personally inspected the Continental Collections this season, they have been enabled to make the most judicious selections, and they beg to assure their numerous patrons that the respective kinds will be supplied as usual strictly true to name.

Their AUTUMN CATALOGUE of BULBS is now ready, and will be forwarded on application without charge, and post free to any part of the world. To it are appended selections of Flower, Vegetable, and Agricultural Seeds for Autumn Sowing; also a Select List of Plants, including Hardy Shrubs, Conifers, Climbers, Roses, Fruit Trees &c

The Gardeners' Chronicle.

SATURDAY, SEPTEMBER 9, 1865.

MEETING FOR THE ENSUING WEEK.

SATURDAY, Sept. 16 { Royal Horticultural (Weekly Show), at South Kensington .. .. 2 P.M.

THE GREAT INTERNATIONAL FRUIT SHOW of Edinburgh has, we are happy to record, proved a great success. We speak of it as a Fruit show, because it was in respect to this particular feature that the exhibition has stood out prominently in advance of all previous gatherings of the same kind. No exhibition which it has been our lot to witness, not even the really grand display which took place some few years since under the auspices of the Horticultural Society in St. James's Hall, could for a moment bear comparison with the Edinburgh Show in respect to the profusion of high-class fruits under which the tables groaned, thanks to the spirited competition amongst British gardeners—for although an 'International' display, in fact as well as in name, it is due to our home growers to say that the managers were indebted to them for the elements which formed the glory of the show. Indeed, since the foreign fruit which was sent in, was contributed by a British gardener, it may be said that the display was entirely due to the skill of our own cultivators. All honour to the skilful men who were able to achieve such success.

The principal features of the exhibition will be found noticed in detail in another page; but we cannot refrain from inviting attention in this place to the glorious illustrations of Grape culture which were its crowning feature. We particularly refer to those furnished by Mr. FOWLER, Mr. MEREDITH, Mr. THOMSON, Mr. RICHARDS, and others. Mr. FOWLER'S Muscats and Mr. MEREDITH'S Hamburghs were superb, and we doubt if more perfect examples of good Grape growing than these have ever adorned the tables of an exhibition room. There were also some wonderful examples of huge clusters produced, Mr. FOWLER taking the lead with a bunch of the Syrian, weighing 12 lb. 9½ oz., well supported by Mr. GREENSHIELDS, of Culzean Castle, with a Barbarossa of 10 lb. 12 oz. weight. Besides these, there were various other examples of nearly equal size.

Amongst the Grapes whose merits were decided by flavour only, the palm was borne away by Muscat of Alexandria and Duchess of Buccleuch amongst the whites; and by Muscat Hamburgh and Black Frontignan amongst the blacks. There were some Hamburghs of which the flavour was exceedingly fine, but such Grapes, however much more generally useful, have no chance in competition with the richer varieties of which mention has been made, when the decision rests upon the possession of the finest flavour; and it would doubtless have been better had those varieties with and those without the Muscat flavour been shown in separate classes.

We should not omit to mention one or two splendid examples of Pine culture, sent in by Mr. D. THOMSON, of Archerfield, by whom the 10*l.* prize offered by the Proprietors of this Journal was won. They were shown in pots, the fruit being in an unripe state, but their sturdy vigour and perfectly swelled fruit, showed them to be models of high cultivation.

Though too late for many of our choicest exhibition plants, there was nevertheless a very good display, both of plants and cut flowers, the Gladiolus and Hollyhock being the most prominent amongst the latter. Amongst the plants, Statices seem to be more freely grown in the north than in the south, and are very effective, some remarkable specimens being staged. But what appeared to us to be perhaps the finest examples of plant-growing in the show were an Anæctochilus Lobbii, from Mr. LEES, of Tynningham, which for sturdy vigour, size of foliage, and density of growth, has not we believe been ever equalled at our flower shows; and a Nepenthes Rafflesiana, clothed with pitchers, which came from Mr. MITCHELL, of Hamilton.

Some idea of the magnificence of this exhibition as regards the better sorts of fruits may be formed from the number of entries, which extend to about 140 in the various classes of Grapes, the show of which was extraordinary, to 7 amongst Pineapples, to 13 for various collections of Fruits, to 30 for Peaches, to 16 for Nectarines, to 8 for Apricots.

The day proved auspicious, and a crowded company thronged the Hall and Assembly Rooms in which the show was held, we trust with the most beneficial results as regards the exchequer of the Society—the Horticultural of Edinburgh—by which the show was promoted. The thanks of the gardening world are, moreover, due to the managing committee for the stimulus their well-considered plans, so efficiently carried out, have given to British Horticulture. We shall hope to see such gatherings repeated.

THERE are few subjects on which we have more inquiries than FUNGI, whether as regards their classification, their esculent or deleterious qualities, their cultivation, their apparently anomalous mode of growth, the peculiar forms they sometimes assume, or the various diseases of which they are more or less ostensibly the cause. A few observations on some of these subjects may not be ill-timed in the midst of this extremely prolific Fungus year, a year not only remarkable for the number of individuals, but for the rare and interesting forms of which it has been productive.

We may pass over the subject of classification as little adapted to the purposes of this Journal, but in respect of wholesome or unwholesome properties no demand is more frequent than that we should give some general rule by which good and bad kinds may be distinguished. The housekeeper in general cuts the Gordian knot by rejecting everything except the true Agaricus campestris, which to satisfy her requisitions must have beautifully pink gills, and look rather ruddy when bruised. Even that, however, is often rejected, while some culinary martinets will pass nothing except what comes from the Mushroom bed, though as dangerous species sometimes appear there as in the fields or woods, for it is a great mistake to suppose that it invariably yields one species only. The truth is that no certain rules for discrimination can be given. We must in general reject those which have an acrid unpleasant taste, or which are on the verge of decomposition from age or the attacks of insects, but even here we may be too nice, as something depends on the mode of treatment, and something on individual constitution. No one in England would think of eating Lactarius piperitus, which if bitten by a dog in sport, as we have ourselves witnessed, will make it foam at the mouth as if in an advanced stage of hydrophobia, and yet, from being pickled in salt and vinegar, this species is eaten, as indeed are many species of bad repute, with perfect impunity by the Russians, who depend often on preserved Fungi for a great portion of their food in winter. But even the Russians exercise a certain degree of discrimination, and do not venture on such kinds as the Fly Agaric, or those red-pored Boleti which turn blue when bruised, though some other species of the group, which few in England would venture to eat, are a favourite lenten food even with the higher classes, as they afford a good substitute for meat during their rigid fasts.

In some genera, as for example in Russula, the wholesome and unwholesome species are often so nearly allied to each other that even the practised Mycologist is occasionally at fault. But as the Nurseryman will often excel the Botanist in the nice discrimination of varieties, and at once recognise differences which the mere scientific man can scarcely see even when pointed out, so the peasant in countries where various Fungi have their market value can at once by mere tact discriminate between the wholesome and unwholesome, and if he fails to do so, or makes mistakes on purpose, the market inspector is pretty sure to set him right. The only safe rule with Russulæ, some of which, as we may learn from Mrs. HUSSEY, who had great experience in these matters, are of surpassing excellence, and acceptable where other food is loathed by invalids, is to ascertain by taste whether they leave a burning impression on the palate like that of Capsicum, for some of them are not acrid at first. We should advise however experimentalists in this direction, like professional wine tasters, not to swallow the morsels which are tested, or they may suffer considerably. Dr. BADHAM once experienced great inconvenience from simply swallowing a few of the spores of Lactarius vellereus, which is a most acrid species.

We need not say much about cultivation. Directions are to be found either in separate treatises or in general works on gardening. The great objection to artificially grown Mushrooms is, that if proper care is not taken in gathering they are apt to be gritty. Attempts have occasionally succeeded in making the spawn grow through turf, but success can only be partial, as some of the requisites for an abundant produce can scarcely be secured under such a method. Undoubtedly lawns may be inoculated with fungous spawn, but the constant mowing is not favourable to development, and the varieties which are most likely to succeed form barren unsightly patches or rings, which, except in some remote part of the grounds, where they might be of less consequence, would at once call for their extirpation. This was the case in one instance where the experiment was tried, and it is curious that the spawn penetrated to so great a depth, and was so strongly scented as to make it a task of some difficulty to destroy it completely, a difficulty which was much increased by the overpowering odour.

It is often a matter of surprise to persons unacquainted with the habits of Mushrooms to see them spring up abundantly in frames or in other situations where no spawn has been placed intentionally. But the truth is, that the spores of some of the Agarics require to pass through the stomach of some graminivorous animal in order to their germination, or at least they germinate better under such circumstances, as is well known to be the case with the seeds of some of our native plants. As regards the spores of the common Mushroom, it is quite clear that the stomach of the horse is peculiarly favourable. Wherever horse manure is used, or horse droppings are mixed with soil, as from road sweepings or any other source, Mushrooms often spring up abundantly, and sometimes in such quantities as to be very annoying to the gardener who wants to have a crop of Melons or Cucumbers, and not Mushrooms where Mushrooms should not be. In some gardens they come up everywhere, so as almost to do away with the necessity of any artificial cultivation during a portion of the year, while the comminuted straw in the stables is so rich in spawn that there is no need to apply to the seedsman for Mushroom bricks.

We have formerly given figures of some of the different varieties which occur in Mushroom beds. Our attention has, however, been lately called especially to what may be called monstrosities in cultivated or field Mushrooms, by specimens, drawings, photographs, or descriptions. In some cases the caps are joined together, the stems growing in two opposite directions; in others there are gills at the tops of the cap, as well as beneath, in one or more distinct hymenia; in some the whole pileus is changed into a solid ball covered with fructification, while in whole beds the gills are completely obliterated. The last case is the only one which is of any real consequence to the Mushroom grower. The others are merely interesting in a morphological point of view, and are very important to the systematist, but the last arises from the attack of a Fungus which is closely allied to that which is so often brought home from New Zealand on caterpillars, and which is utterly destructive of the crop, and most probably the infected specimens are unwholesome.

The last point mentioned, the agency of Fungi in the production of disease, is one on which we are frequently called to make observations. There is a question agitated at the present moment, which is of considerable importance, namely, whether the Fungus of the Savine has any relation to the Rœstelia which is often so destructive amongst Pear trees. The question is just like that

of the connection between the Berberry Æcidium and Wheat mildew. On such points we do not consider that at present there is sufficient reliable evidence. We have, however, no right at once to speak dogmatically on the subject, and it is highly desirable that information should be collected. A correspondent has just sent us a very aggravated case, in which the Pear trees affected were most diseased on the side which was nearest to a Savine bush. It is, however, as far as the question is concerned, absolutely necessary not only to show the vicinity, but that the Savine bush was infested with the gelatinous fungus (Podisoma) which is supposed to be a condition of that which appears on the Pear. No conclusion can be drawn from mere vicinity, and it is necessary to take into the question the nearly allied forms which appear on the Hawthorn, Quince, and Mountain Ash. *M. J. B.*

—— WE find Mr. BULL'S NEW RADISH, to which allusion was made by us at p. 630, thus referred to in the last number of the *Journal of Botany*:—"At the last great flower-show held at the Botanic Gardens, Regent's Park, Mr. BULL exhibited a newly introduced and unnamed kind of Radish from the East Indies, the fruit of which, stated to grow three inches during a single night, was recommended to be eaten instead of the root, as in the ordinary Radish. From specimens kindly placed at our disposal by the exhibitor, we find the plant to be *Raphanus caudatus*, Lin., of which, books of reference inform us, the leaves are eaten as a vegetable, and the seeds are pickled. The petals are whitish, tipped with purple, and traversed by purple veins, and the fruit is several feet long. We fancy this is the first time that this annual has been introduced, and there is no reason to believe that it cannot be grown with us in the open air."

—— Attention has recently been called to the poisonous properties of the BOG ASPHODEL, *Narthecium ossifragum*. Cows which have eaten of the plant have died after a severe attack of dysentery, their milk turning as bitter as gall; and cats known to have partaken of this milk have died also.

—— The Rev. R. T. LOWE states in the *Journal of Botany*, that the proper focal habitat of ARUM CANARIENSE is Madeira. In the Canaries it is rare and local, in Madeira it is common and universal, occurring on moist shady banks, under walls and hedges by roadsides, and in damp sheltered places, from 500 to 2000 feet above the sea. The plant is called in Madeira Bigaloa or Bigalhoa, and arrowroot is occasionally prepared from its corms; but it is justly accounted a troublesome and noxious weed, and very difficult of extirpation.

—— We have now, observes the *Canadian Naturalist*, certain knowledge of localities for HEATHER, *Calluna vulgaris*, in Massachusetts, in Cape Breton, and in Newfoundland; and we have the testimony of GRESECKE that it occurs in Greenland also. The question of the nativity of this plant in America may be considered settled.

—— A GREAT INTERNATIONAL SHOW OF FRUITS, GOURDS, ROOTS, VEGETABLES, AND CEREALS, open to all the world, is to be held in connection with the Dublin International Exhibition, on October 3d and following days. The Exhibition of perishable Fruits and Vegetables is to close on the 6th, and that of Keeping Fruits, Roots, Gourds, and Cereals on the 17th of October. Among the special prizes announced are Large Silver Medals—1, for the best collection of Fruits and Vegetables grown by any Botanic or Horticultural Society in any part of the world; 2, for the best and most complete *representative* collection of Fruits and Vegetables from any of the Colonies; and 3, for the best and most complete *representative* collection from the Presidencies of India. Besides the Fruits and Vegetables usually invited on such occasions, the Committee offer prizes for Collections of Fruits, Roots, or Vegetables, modelled in wax, or in any other material; and for Preserved Fruits.

—— We learn from *La Belgique Horticole* that M. J. DEBRICHY has been named Director of the Government School of Horticulture at Vilvorde, in succession to M. DE BAVAY, deceased.

—— A correspondent forwarded to us recently an interesting "sport" of the flowers of Eccremocarpus scaber. The limb of the corolla in these specimens was deeply divided into five equal oblong segments, alternating with which were five stamens of equal length. In some of the flowers only four perfect stamens were present, with a rudiment of a fifth. The other parts of the flower did not deviate from their ordinary condition. We have here, therefore, an instance of regular Peloria, in conjunction with a more complete separation of the petals than is usual.

—— In an interesting paper lately published by DE BARY in the *Monatsberichte der K. Akad. der Wissenschafts*. Berlin, the author asserts that Æcidium berberidis can be produced by sowing the sporidia of Puccinia graminis on the leaves of Berberis vulgaris. If this observation should be confirmed, it will go far to justify the opinion of those farmers who consider the Berberry as prejudicial to the growth of Wheat by producing fungoid disease in it.

New Plants.

312. LUISIA PSYCHE, *Rchb. fil., in Mohl & Schlecht. Bot. Zeit.* 1863, p. 98. CYMBIDIUM SCARABÆIFORME, *Parish MS.*

Petalis cuneato-oblongis subacutis, labello basi utrinque auriculato, ante auriculas a basi utrinque minute semicordato transverse obovato subacuto, limbo minute hinc lobulato.

Folia teretia crassa. Flos paulo major flore Vandæ alpinæ. Sepalum dorsale ligulato-fornicatum, sepala lateralia angustiora per dorsum carinata, carina ante apicem abrupta, omnia viridia. Labellum viride, basi speculo disco radiis limbo maculis pulcherrime atro-purpureis picto, illi Ophrydis Bertolonii comparabile.

There are some Orchids so very bizarre that if we had not seen them alive or dried, but only in oriental drawings, we could but believe them to be imaginary. So it is with a few Luisias, which add to the common habit of Vanda teres, instead of the, alas! so indifferent flowers of most Luisias, such as are quite peculiar, being bright coloured, and having much elongated petals. We had till now but two such species, still to be introduced, both described by Dr. Lindley. One is the Luisia volucris from Khasia, whose flowers the same author so well observes look like little birds with narrow outspread wings. The other, L. burmanica, has green flowers with many blackish-purple dots and streaks, and is only known from a drawing of Griffith's, but no doubt soon to be introduced to England by the Rev. C. S. Parish or Colonel Benson. Our species has green flowers, with very large petals, comparable to the spread ears of a rabbit, and a very singular large roundish green lip, full of blackish violet-purple spots,

reminding one of a Persian or Turkish carpet. It is one of the first Burmah discoveries of Rev. C. S. Parish, introduced to England by Messrs. Low and Co., and was exhibited the other day at the Royal Horticultural Society's scientific meeting. *H. G. Rchb. fil.*

NYMPHÆA GIGANTEA.

THIS remarkable plant is nearly always met with in a state anything but suggestive of the aptitude of its specific name, the flowers being rarely seen, and the leaves not half the size of the common Nymphæas. Even the best aquatic places have failed to make anything of it, which is remarkable, considering with what strength and rapidity the other species grow. Walking through Glasnevin with Dr. Moore the other day, fully interested, of course, but without the slightest expectation of having anything to record of the garden in addition to that published last autumn, we suddenly came upon Nymphæa gigantea in full flower in the open air! Since my visit of last year a small cemented tank has been made outside the Victoria house—on the front border, in fact, and in this some tropical Water Lilies, Euryale ferox and Nelumbium are doing healthfully, but better than any of them the hitherto difficult-to-do gigantea, with three of its large soft blue flowers fully expanded in the sun. The tank is not heated by a pipe, but the overflow of the Victoria house, in which there is a grand specimen this year, is conducted into it, warming the water to some extent, of course. The leaves were quite clean, healthy, and thick, and the flowers stood erect from a foot to 18 inches above the water. What a difference between a garden presenting one with fresh interest of this kind in addition to its usual attractions, and public gardens which merely present us, on perhaps a large scale, with what may be seen in every private establishment. *W. Robinson.*

M. L'HÉRAULTS MODE OF CULTIVATING ASPARAGUS.

(*Concluded from p.* 771.)

Fifth Year.—The making of knolls on the Asparagus is to begin in the month of March; the knolls are to be 14 inches high, and their diameter is to be in conformity with the dimensions of the plants. The ends of the dry stalks, which have been left the preceding year, to mark the site of the plants, are to be taken away; and the feeble ones, which have been marked out at the preceding laying bare, are to be carefully looked to.

The gathering is to consist of the heads on all the large plants, and of some only on the feeble ones the gathering may last two months at most. In order to get fine Asparagus, they are to be gathered once every day, or every other day, or every third day at farthest, according to the degree of temperature. This is the way to obtain rosy, red, or violet Asparagus. Under these conditions they will exceed the extremity of the knolls by an inch or two. In order to get green ones it will be sufficient to let them grow during four or five days more; they will lengthen and become green. At all events the red, rosy, or violet colour will be the best guide. The second dressings are to be made as in the preceding years. The props are to be put as soon as the necessity is felt, and the stalks, with regard to the increase of their height and weight, must be firmly tied, so that the wind may not disturb them and that they may not be broken.

In the month of October following, the dry stalks are to be cut off at 14 inches above the ground. The plantation is to be cleared, and the shelving beds are to be turned up by raking up the earth of the knolls which have been raised on the plants for the gathering. Then the manure is to be spread in the manner already indicated; the digging up of the shelving beds is next to take place, and the manure is immediately to be covered over.

Sixth Year.—When the Asparagus plantation shall have reached its sixth year, it will then be in full productiveness. The feeble plants, however, must constantly be taken care of, if it is wished to strengthen them. The forming of knolls is to take place in March during fine and dry weather; the knolls must always be 14 inches high, reckoning from the subterranean stock.

Nevertheless, the care to be taken is to be the same as in the preceding year, as well with regard to the knolls as to the props. As for insects, they will be less to be feared than during the first years of the establishment of the Asparagus plantation. The beetles can no longer lay their eggs on the stalks of the Asparagus, since they are cut during two months, and when they run into seed the time of the laying of eggs is passed.

In the month of October the shelving beds are to be turned up in conformity with the manner shown for the preceding year; the shelving beds and the plants are to be dunged, as has been explained for the fourth year. As the Asparagus plantation may last 15 or 20 years, the operations and the care to be taken are to be repeated from year to year in the manner above indicated.

With regard to the Asparagus planted on beds or separately, the manure is every year to be spread on the plants alone, observing all the precautions indicated for the cultivation in full beds or the open ground.

Generally, in a well-established Asparagus plantation, the gathering, reckoning from its beginning, is to take place during two months, whatever may be the climatal circumstances under which the plantation is placed.

It must have been seen that the expense is not very great; the chief object is the care which must be taken. The main point is to get good plants, in order to obtain good produce. By properly following the rules laid down here, satisfactory results will be obtained.

To sum up: the ground requires manure; the earth must be dug up, meliowed, and sheltered from dryness, and the plants must be kept free from the attack of insects. These are the best means of giving to the Asparagus a rich and luxuriant vegetation.

There are to be found three chief varieties of remarkable Asparagus, viz., the Common one, very fine; the late Dutch Asparagus, improved, very large; and L'Hérault's Early Asparagus. This last variety, which is very precocious, very productive, and much to be recommended, has been obtained from seed; and from its exceptional size and flavour it has obtained honourable mention and several medals of the 1st class at the horticultural exhibitions. *Louis L'Hérault*, 14, *Rue de Calais, à Argenteuil.*

THE STRAWBERRIES AT YARM, YORKSHIRE.

Two years ago I furnished you with a brief account of the best of the Strawberries grown at Yarm. The late Mr. Nicholson took a great interest in the Strawberry, and had formed a collection of more than 400 varieties, being in constant communication with the principal growers of France, Belgium, America, and Great Britain, and the collection is still kept up by Mrs. Nicholson, and many seedlings left by Mr. Nicholson are now being proved.

One of the best of these seedlings is named Alice Nicholson, a cone-shaped fruit, of a luscious rich flavour, and a good bearer. This is a fine-flavoured kind and a handsome fruit. Gloria is another of the Yarm seedlings, and in growth is akin to Black Prince, but the fruit is large, round, and handsome, with a rich Pine and Hautbois flavour combined, and a good cropper. Prince Victor is another seedling, and has not only large handsome round fruit of rich flavour, but is a free cropper.

An extremely fine Strawberry is grown here, received

I believe from Belgium, and is called "Premier on the British Queen," but which will now be called Premier. It is quite unlike the British Queen in growth or shape, but has its flavour. It is a large, handsome, round, dark-coloured Strawberry, resembling Keens' Seedling in habit and shape, but distinct from it, and a good cropper; and with its fine flavour and large size is a decided acquisition. Lord Murray has a British Queen style of fruit, with a rich sugary flavour, very large and very free bearer, and a good hardy sort. Lord Clyde (Dean's), planted in April, fruited here as well as the dry summer would admit, and was considered by Mrs. Nicholson and her foreman to be first-rate in flavour. Titiens, sent out, I think, by Messrs. E. G. Henderson & Son, has fine fruit, but deficient in flavour. Ingram's Rifleman has very fine fruit of good flavour, and is a free-bearing useful kind. Auguste Van Geert is an Alpine cross with prominent seeds, and poor in flavour, but bears well. Choix d'un Connoisseur is rather small, very free cropper, of a good colour, but deficient in flavour. Refresher is a French kind, resembling Empress Eugénie, with very large irregularly shaped fruit, which is very juicy, but not superior in flavour to the Empress or Sir Harry. British Sovereign, one of Messrs. Stewart & Neilson's seedlings, is a very fine sort with rich sugary flavour. Blandford resembles the British Queen in habit and fruit, and has a brisk sugary flavour and fine fruit. Kimberley is a large, showy, free-cropping Strawberry, but is poor in flavour. Comte de Zaus is a very heavy bearer, and has very large fruit of medium flavour. President is a good cropper, with large, handsome, sweet, juicy fruit. Rivers's Eliza and La Constante both keep up their characters as first-class kinds; and Marguerite is a large, free-cropping kind of fine flavour and firm substance. Crimson Cluster, raised by Mrs. Clements, of Bodmin, is a free-bearing kind with large fruit of a brisk pleasant flavour. Sir Joseph Paxton, one of Mr. Ingram's fine seedlings, is a free bearer with handsome fruit of rich sugary flavour. Crimson Queen is a large-fruited good sort for sale, but should be frequently renewed. Savoureuse, one of Mr. Gloede's seedlings I think, very much resembles La Constante, and has a full Hautbois flavour. This seems a very promising kind. It has not been a productive Strawberry at Yarm, probably owing to the very dry summers of 1864 and 1865, the former especially. Many kinds were not in good character, so that I have not alluded to them.

One of the best Strawberry growers in Yorkshire, the Rev. Charles Marsden, Vicar of Gargrave, near Skipton, grows La Constante and British Queen superbly, and this summer, when Strawberries generally failed, he had an abundance of fine fruit. He treats these two things as annuals, and plants a new batch of runners every year, and gets fine plants and very fine fruit, but then he gives them liberal growth, and waters copiously during the dry summer weather. Two years terminates the career of the plants with him, but he trusts chiefly to the one-year old plants for his supply. *William Dean, Shipley, Yorkshire.*

Home Correspondence.

Strawberries.—I advise Strawberry cultivators to supply both worked and new plantations of Strawberries with abundance of water. If they do not do so, the plants will not crop next year. The plantations here are good, and well foliaged; they are constantly supplied with water. The Strawberry failure this year was a mistake, resulting from inattention. There never were two finer season for fruits and flowers than the seasons of 1864 and 1865. Chalky or sandy lands require to be watered copiously twice a week; clay lands once a week. New plantations are much helped by mulching in hot weather. I recommend to market gardeners Sir Joseph Paxton, Empress Eugénie, Wonderful, Frogmore Late Pine, Ne Plus Ultra (de Jonghe), Eclipse, and Rivers' Eliza. The five first are great croppers, and have all large fruit; the other two are medium-sized, and great croppers. They are all very hardy sorts, and of quick establishment. *W. F. Radclyffe, Tarrant Rushton.*

Planting in Peat Land.—Can any of your readers give the result of their experience in the growth of timber and underwood in peat land, such as the fens of Lincolnshire, the mosses of Lancashire, or the bogs of Ireland? There seems to be but little doubt that these several regions were clothed with wood at some period of their history, and it would be advantageous to know why they should not again revert to a use much more profitable than that to which the bogs of Ireland and the mosses of the north-west of England are now applied. Has this question ever been discussed? and if so, what are the trees and brushwood that will grow best in a semi-state of bog or quagmire? *A Fen-man.*

Coning of Cupressus torulosa.—I have the variety of this called majestica, a tree 12 feet high, on which there are many cones. *G., Victoria Park, Bath.*

Magnolia purpurea.—This very handsome small tree (5 feet high) is quite hardy here as a standard. It has this year blossomed profusely in June, and is now covered again with numerous blossoms, at this time just opening. *Victoria Park, Bath, Sept. 5.*

Rain-water Tanks.—In consequence of the failure of a sufficient supply of spring-water for my house I have been obliged to have recourse to some rain-water tanks which I constructed two or three years ago to serve my garden and stable. The water comes from the roofs of adjoining buildings, and the tanks are completely domed over, and will each hold 4000 or 5000 gallons. The water is obtained by pumps in the usual way. On using the water for domestic purposes, I found that from each tank it smelt more or less very offensively; that which had been the least previously used smelling the worst. No offensive matter can drain into these tanks, which are all bricked and cemented. Can any of your readers tell me what is the cause of this smell, and how it is to be prevented. *N. B. A.*

Coning of Thujopsis borealis.—I have four plants of this, bearing a quantity of cones. This morning I gathered 65 ripened cones from a plant 2 feet 6 inches high, and there are 143 still left upon it. I likewise gathered 22 cones from another plant. I have a great many plants of this Thujupsis, but none are bearing cones except those just mentioned. This beautiful Conifer withstood the severity of the winter of 1860 and 1861 uninjured. *Charles Burgess, The Nurseries, London Road, Cheltenham.*

Wasps.—Here, as in Worcester, we have almost a total immunity from wasps, though in the spring queens were unusually plentiful, and we anticipated the terrible annoyance from them experienced last year. To the surprise of all however, until within the last fortnight, one was rarely seen; even now we have but few, and those very small. Last season I had 64 nests destroyed around me—this year I have not heard of one. *T. T., Bocking.*

Sweet Bays.—Permit me to inquire through your Journal, whether the female of the Sweet Bay tree, Laurus nobilis, is generally found to be hardier, and to attain to a greater size than the male plant? There are two trees of it near Mr. James Randolph's house at Milverton, which measure above 30 feet in height, and their trunks from 2 to 3 feet in circumference a yard from the ground, and these, and all other large specimens of it in the west of Somersetshire, as far as I can ascertain, are female, and remained unscathed by the severe winters of 1859 60 and 1860-61, when many male plants in the neighbourhood were killed. It may be of much practical importance to those who are forming shrubberies, to learn whether this has been experienced in other places. *R. C. A. P.*

Flower Borders.—At The Cedars, Wright's Lane, Kensington, is a trim little border laid out by Mr. Newton, on a plan similar to that represented in your columns at p. 819. It is kept gay with bedding plants in summer, and in winter it will be furnished with occupants suitable for that season, means being provided for allowing the winter crop to be planted before even the summer crop is off the ground, and *vice versâ*. A croquet ground has also been made on the lawn, without its formation being readily visible when not in use, a point of some importance in places of limited extent. *M.*

Foreign Correspondence.

New Zealand Gardening.—We have received a file of Lyttleton papers, in which occur some interesting sketches of antipodal gardens, which we shall transfer to our columns. We commence with Mr. Wilson's nursery gardens, which date their origin from the founding of the city of Christchurch, some 14 years ago, and are not only the oldest established, but by far the most extensive nursery gardens in Canterbury; and the largest and best stocked in New Zealand. They are three in number, and comprise about 19 acres, all in the highest state of cultivation. The gardens contain very many thousands of fruit trees, English forest trees, evergreen and deciduous flowering shrubs and plants, and are the source whence has been derived a very large proportion of the fruit trees which now fill the gardens of the province with a profusion of fine fruit, and of the forest trees which ornament Christchurch.

The nursery garden in Cashel Street is securely enclosed by a very lofty and well-kept Gorse fence, within which there is a closely planted line of lofty Australian Blue Gums and Lombardy Poplars, whose dense foliage and branching arms, completely intertwined, afford the most complete shelter from all winds. Immediately in front of this screen there is a broad belt of fruit trees, running round the whole of the garden, consisting mainly of Apples, Pears, Plums, Cherries, Peaches, Nectarines, Figs, Filberts, Medlars, Quinces, and Almonds, besides immense quantities of Gooseberries, Black, Red, and White Currants, Raspberries, Strawberries, and other small fruit. A spacious Grass walk, 726 feet long, stretches from the entrance gate to the eastern end of the garden; at right angles to this walk, and at distances of 132 feet apart, the garden is intersected with lofty and well-kept Cape Broom fences, thereby forming convenient nursery compartments. These consist of beds, 18 feet in width, with 4-feet intervening foot-paths. The beds in some of the compartments are all densely filled with a most luxuriant growth of from one to six year old fruit trees, of the kinds which we have already enumerated. Other beds are filled with forest trees, such as English and mossy-cupped Oaks, English Ash, including some very tall-stemmed Ash trees, upon the summit of which some Weeping Ash are growing gracefully pendent. There are also quantities of the Scotch and English Elm; and, also, the Weeping and American Lime trees, with Mountain Ash, Horse Chesnuts, and sweet or Spanish Chestnuts, besides Hornbeams, common and purple-leaved Beech trees, with Lombardy and Black Italian Poplars; the former mainly remarkable for their handsome upright habit of growth; and the latter recommending itself by its rapidity of growth and the large size to which it speedily attains, rapidly yielding timber, well suited for very many purposes of utility. Side by side with some of these will also be found quantities of the Norway and other Maples, besides the well-known and handsome-foliaged English Sycamore, and the noble-leaved Platanus orientalis, some four feet high, and the first, so far as we know, which have yet been grown in New Zealand. We also noticed some beautiful Birch trees, about seven feet in height, with quantities of English Laburnum and Locust trees of all ages and sizes. The latter not only makes a very impenetrable hedge, but, when thinly planted, rapidly becomes a lofty tree, and yields fine timber of an excessively hard and most enduring character, and largely used in the States of America for the purpose of ship-building.

Amongst Coniferous trees were considerable quantities of the Pinaster, and still more of the hardy Pinus maritima, which will yet clothe with luxuriant green the slopes and summits of our driest and ever shifting sand-hills, for which this highly ornamental tree seems to possess an especial preference. There were hundreds of Walnut trees, from 5 to 12 feet in height; these have all been raised from the well-known French Walnuts grown and fruited so abundantly at Akaroa.

Of hedge plants large quantities of Thorns, Privets, Sweet Briars, Thorn Acacia, English, Cape, and Portugal White Brooms were grown, having their respective uses for the purposes of protection, ornament, or shelter. First amongst ornamental evergreens and deciduous flowering plants we noticed quantities of the handsome English Holly, besides some dozens of the still more beautiful variegated Hollies, budded or grafted upon the common Green form, and presenting the well-known varieties of gold and silver-edged; the hedgehog and broad-leaved Dahoon Holly, these being respectively the much admired ornaments of all well-kept ornamental Grass lawns. Also some hundreds of the noblest of all beautiful evergreens, the Rhododendron ponticum, and other similar varieties of this handsome flowering occupant of all English shrubberies. In close proximity to these were many hundreds of fine large plants of the common English Laurel, a familiar and well-known evergreen, asserting its right to a place in all shrubberies and ornamental grounds by its large and handsome shining green leaves; a quantity of fine plants of the Laurustinus, esteemed not more for its handsome evergreen foliage than for its admired peculiarity of blooming profusely throughout the whole of the winter; and some plants of the well-known Portugal Laurel, and the equally familiar Bay Laurel, or Sweet Bay, and near to them plants of the Aucuba japonica, or gold Japan tree. In addition to these were the handsome climbing and delightfully fragrant Wistaria sinensis, the broad-leaved Photinia serrulata, the handsome-flowering Weigela rosea, the still more ornamental snow-ball Guelder Rose, with plants of the early spring-flowering scarlet Pyrus japonica, many hundreds of the Spiræa corymbosa, the New South Wales May, besides other varieties of the Spiræa recently introduced from England. Among climbing plants were Rhus Toxicodendron, or Poison Oak; three varieties of the English Ivy; besides several sorts of climbing Roses. There were also handsome Chinese Arbor-vitæ, and the still more handsome Evergreen Cypress, besides the most beautiful of all Cypresses, the Cupressus Lambertiana, and handsome specimens of Pinus insignis, and of the equally ornamental and lofty Pinus excelsa. Amongst coniferous plants in pots were quantities of Pinasters, Scotch and Spruce Firs, Pinus maritima, Stone Pines, and many other handsome sorts of Pinus, Cedar, Cypress, Juniper, and other similar plants and trees, precarious to transplant unless established in pots, which ensures their being removed with the most perfect certainty of growth. We further observed plants of the American Osage Orange, of the evergreen and deciduous fruit-bearing Barberry, of the Pomegranate, of the handsome Rose Acacia, of the sweet-smelling Buddlea globosa, of the Salisburia adiantifolia or Maiden-hair tree, with quantities of Box trees, and Siberian, Persian, and White Lilacs, broad-leaved American Thorns, besides a large number of budded plants of the double scarlet, double white, and single scarlet Thorns, the latter especially, from its great profusion of brilliant scarlet bloom, forming one of the most handsome flowering trees for a Grass lawn. Time and space, however, would fail us to enumerate all the trees and plants here cultivated.

The garden fronting on Madras Street is surrounded with a Sweet Briar fence, immediately within which a lofty row of Blue Gums and Poplars afford excellent shelter. The border in front of these is planted all round with some 400 of the newest and best sorts of Pear and Plum trees. The Pears comprise over 40 varieties of the choicest new French varieties, many in full bearing. The remainder of this nursery ground is mostly filled with young grafted or budded fruit trees, with large quantities of Damson and Mussel Plums, with some thousands of Lombardy and Black Italian Poplars, common Willows, Weeping Willows, and the lofty timber-growing variety known by the name of

the Huntingdon Willow, mainly remarkable for rapidity of growth, the lightness and whiteness of its timber, and the numerous purposes of utility to which it can be applied. Prominently noticeable, however, amongst all the productions of this garden are some 25,000 English Ash trees, in remarkable health and vigour, and standing from 3 to 10 feet high. These we hope will soon be distributed and planted over the country, to afford in after years a supply of Ash timber, so indispensable in all the ordinary farming operations of every community, from its extreme toughness and remarkable elasticity. So necessary is it, that we are obliged to import annually from England and America many hundreds of pounds' worth of this timber, for handles of implements and other agricultural purposes.

Passing over many other interesting plants in this garden, we proceed to the more recently formed nursery garden of 10 acres on the Ferry road. This is bounded by a Gorse fence, and planted with a broad border of forest trees and evergreen shrubs; shelter in all cases being one of the first considerations in Mr. Wilson's gardening. The land is also divided into compartments with Cape Broom fences, and each of these compartments is filled with forest trees, comprising Ash, Oak, Elm, Beech, Lime, Acacia, Maple and Sycamore, besides many thousand seedling Pines. We were also glad to notice about a thousand young trees of two years' growth of the Ailantus glandulosa, or silk-worm tree, so much used as a handsome avenue tree on the sides of the streets of towns in America, and which, we doubt not, will also be largely used in Canterbury, when its merits as a hardy ornamental tree are better known. Near these, a large quantity of the Gleditschia triacanthos, or three-spined Acacia, were growing luxuriantly. This is a hardy tree, with a handsome small green foliage, which secures for it a possition on planted lawns as an ornamental tree. Portions of this ground are also devoted to the growth of vegetable seeds, and especially to the growth of Thorns for hedges; upon 1½ acre of ground, 175 bushels of Haws had been sown last spring.

Societies.

EDINBURGH INTERNATIONAL HORTICULTURAL SHOW.—As the leading features of this, in all respects, great display of Fruit, Plants, and Vegetables, are given in another column, we will at once turn our attention here to details. The principal prize of the day, testifying to superior cultural skill, was that offered for the collection of fruits in 20 sorts. Three dukes and a "commoner" were represented in this contest—Buccleuch, Portland, and Roxburgh, against Nisbet Hamilton, Esq., of Archerfield; but the contest virtually lay between the first and last of these, Mr. Thomson, of Dalkeith, being placed 1st, and his brother 2d. The Dalkeith collection contained three first-rate Pines, including two Smooth Cayennes and a Queen, the latter weighing 6½ lb., a most magnificent fruit, in extra fine condition; Muscat Hamburgh, Raisin de Calabre, and Lady Downes' Grapes; Crawford and Bellegarde Peaches, Elruge Nectarines, Moorpark Apricots, Victoria and Jefferson Plums; Trentham Hybrid and Eclipse Melons; Figs of sorts; Kerry Pippin Apples; Jargonelle Pears; Morello Cherries, and Red and White Currants. Mr. Thomson, Archerfield, had three Smooth Cayenne Pines; Muscat, Raisin de Calabre, Hamburgh, and Lady Downes' Grapes; Barrington, Bellegarde, and Noblesse Peaches; excellent Moorpark Apricots; Victoria and Kirke's Seedling Plums; white Marseilles Fig; two Cocoa-nut Melons and Munro's Hybrid; Jargonelle Pears; Morello Cherries; two sorts of Currants; and two sorts of Gooseberries in dishes separate from the box case which the principal fruit was shown in, and which in this case and that of Mr. Wm. Thomson looked so remarkably elegant. Mr. Tillery and Mr. Rose had also good assortments.

For 16 sorts exclusive of Pines, Mr. Melville, Dalmeny Park, was 1st with a very fair assortment; and Mr. Matheson, Tulliallan, was 2d with a lot so nearly equal as to cause very close scrutiny to fix the award. Messrs. Cook, Holeyn Hall, Newcastle; Lees, Tynninghame; and some others, also had good collections.

For the best six varieties of choice home-grown fruit, consisting of two Pines, two Melons, four bunches of Grapes, 12 Peaches, 12 Nectarines, and 12 any other fruit, the prize offered by the *Gardeners' Chronicle*, there was singularly only one competitor, Mr. D. Thomson, but his collection was superb, and well merited the 10*l.* award. The Barrington Peaches, Moorpark Apricots, and Muscat Grapes were particularly fine.

Among the most interesting exhibitions in the rooms, however, were the collections of "eight varieties of Grapes, two bunches of each." Here the North and the South were pitted one against the other in admirable rivalry, Mr. Fowler of Castle Kennedy winning honours tolerably easily against the redoubtable champion Grape grower, Mr. Meredith, of Garston. Mr. Fowler's sorts were Muscat of Alexandria, shown in splendid condition; very well finished Trebbiano and Syrian, weighing respectively 12 lbs. 9½oz., and 9 lbs. 6½oz.; very good Black Gibraltar; excellent Muscat Hamburgh, Lady Downes', Black Prince, and Black Barbarossa, all fine examples of cultivation, and worthy of unqualified praise. Mr. Meredith had Chaptal, a greenish white sort; Black Hamburgh, extraordinarily finely finished; Muscat of Alexandria, Black Prince, Child of Hale; good Muscat Hamburgh, and Black Alicante. Messrs. Lane & Sons, Great Berkhampstead, and Rose, Floors Castle, also had collections. For the best four sorts Mr. Thomson, Dalkeith, was 1st, with Lady Downes', Muscat of Alexandria, Tokay, and Black Hamburgh; the other lots in this section not being quite so praiseworthy.

For the best couple of Black Hamburgh bunches, Mr. Meredith had, as he always has, wonderfully finished samples, distancing his opponents considerably; Mr. Richards, Grimston Park, Tadcaster, and Mr. Fowler, Castle Kennedy, were 2d and 3d. For Muscats, Mr. Fowler had splendidly finished bunches, and so had Mr. Thomson, Archerfield, who was placed 2d. Mr. Anderson, Torwoodlee, Galashiels, had very fair samples of both Hamburghs and Muscats. For early Frontignan there was scarcely any competition, Mr. Meredith having by far the best. For Muscat Hamburgh Mr. Fowler was unmistakeably first, with excellent bunches, but not quite equal in point of size of berry and finish to his exhibitions of former years. Messrs. Lane & Son, and Johnston, Terregles, were 2d and 3d. For Tokay the exhibition was a poor one. Mr. Matheson being placed 1st, and Mr. Phipps, Ingestre Hall, Stafford, 2d. For single examples of Hamburgh and Muscat Messrs. Meredith and Richards maintained their position in the one instance, and Messrs. Fowler and David Thomson in the other. For Black Alicante, wherein there was a spirited competition, Mr. Greenshields, Culzean Castle, Mr. Melville, New Galloway, and Mr. Meiklejohn, Dalkeith, were placed in the order in which they are named, all showing excellent produce.

For the heaviest bunch of black Mr. Greenshields had Barbarossa, 10 lb. 15 oz. Mr. Meredith had a very fine sample of Hamburgh in this class, well finished, weighing 4 lb. 12 oz. For the heaviest bunch of white Mr. Fowler had White Nice, 11 lb., and Mr. Meredith Child of Hale, 8 lb. 10 oz., both wonderful bunches. For the finest flavoured White Grape Mr. Thomson, Dalkeith, and Mr. Anderson, Torwoodlee, had equal 1st with Duchess of Buccleuch and Muscat of Alexandria, the former a long slender bunch with small berries, but exquisitely flavoured. There were 14 entries for this prize. For the finest flavoured black sort there were 11 entries, Mr. Fowler being 1st, with Muscat Hamburgh; and Mr. Tillery 2d, with Black Frontignan. For the finest bloom on a Black Grape there was a spirited competition, and singularly enough an amateur, a tyro in Grape growing, Mr. Meiklejohn, Dalkeith, was 1st, with Black Alicante, and Mr. Willshere Cavers Carr 2d, for Hamburgh.

A black and also a white seedling came from Mr. Melville, Dalmeny; the former was said to be a cross between the Champion Hamburgh and Grizzly Frontignan, with large berries, a little after the character of the Grizzly; and the white was a cross between the Canon Hall Muscat and the Syrian, but not ripe enough to be in a condition to adjudicate upon. The Royal Vineyard was also shown by Mr. Williams, of London, but it was not sufficiently ripe.

Of Pines there was not a large exhibition, neither was there anything very meritorious among the samples shown, the best coming from Messrs. David Thomson. Peacock, of Castle Dykes, Fowler, of Harewood, and John Gavin Donibristle—the latter showing Providence, of rather squatty monstrous form, having apparently three crowns.

Peaches were very creditably shown, especially such sorts as Barrington, Walburton Admirable, Violette Hâtive, and Royal George; twenty-four dishes being contributed.

Awards.—1, Mr. Peacock, Castle Dykes; 2, Mr. Wemyss, Springwood Park; 3, Mr. Henderson, Castle Wemyss, Greenock; 4, Mr. Cook, Holeyn Hall.

Nectarines were not quite so well shown as Peaches; the Elruge, Violette Hâtive, and Violette Grosse being the most prominent.

Awards.—1, Mr. Oswald, Marthly; 2, Mr. Peacock, Castle Dykes; 3, Mr. T. Millar, Cally Gardens; 4, Mr. Temple, Balbirnie.

Apricots were chiefly Moorpark, with some samples of Turkey and Breda.

Awards.—1, Mr. Walter Allan, Ratho; 2, Mr. Cooke, Gloag Drylaw House.

Plums were very well represented, especially Kirke's Seedling, Jefferson, Coe's Imperial, and some good Greengages, Victoria, Washington, and Magnum Bonum.

Awards.—1, Mr. Melville, Dalmeny; 2, Mr. Millar, Cally House; 3, Mr. Ramsay, Mount-Stuart.

For collections of twelve sorts of Pears, ripe or unripe, there were seven competitors—Mr. Scrymgeour, Holme Park, Reading, having by far the finest coloured samples, including Beurré Rance, Gansel's Bergamot, Vicar of Winkfield, King Edward's, Van Mons Leon le Clerc, Beurré Bosc, Marie Louise, Beurré Diel, Duchesse d'Angoulême, Flemish Beauty, Williams's Bon Chrétien, and Louise Bonne of Jersey.

For collections of 12 Dessert Apples, three of each, ripe or unripe, Mr. Scrymgeour had the following in fine condition:—Blenheim Orange, Ribston Pippin, Golden Nonpareil, Golden Russet, King of Pippins, Fearn's Pippin, Nonpareil Russet, Court of Wick, Margil, Golden Lustre, London Pippin, and one unnamed. Mr. Cramb, Tortworth Court, had also capital samples, the best of which were Orange and Ribston Pippins, Summer Pearmain and Golden Russet.

For collections of Baking Apples in 12 sorts there was a very spirited competition, Mr. Cramb being a very good 1st, with Tower of Glammis, Emperor Alexander, Mère de Nonage, Waltham Abbey Seedling, Alfriston, Brabant Bellefleur, Dumelow's Seedling, Gloria Mundi, and several others. Mr. Scrymgeour had also a good collection. There were 15 competitors.

Messrs. Carstairs & Sons and Mr. William Brown competed for the Fruiterers' prize, each having a magnificent assortment of both home-grown and foreign fruits of almost every kind, which occupied a very large portion of the Society's tables, and in which much interest was excited. The two firms were placed equal 1st.

Messrs. Lane & Son showed a very excellently managed plant of a Vine in pot, which, considering the distance travelled, was in all but faultless condition. The sort was Black Alicante.

Mr. Meredith showed a very excellent collection of both Hamburghs and Muscats, the former including Richmond Villa, Champion, Old Black, Pope's, Dutch, Mill Hill, Victoria, and Wilmot's, all extra fine finished, but the old variety and the Mill Hill were decidedly the best. In Muscats there were the old Escholata, Barnes', Trovéren, Hâtive de Saumur, Tokay, Bowood, Cioton, and Canon Hall; the latter and the Escholata having the largest berries, and the Hâtive de Saumur the smallest.

The only foreign collection, as before noticed, was that from Mr. Henry Knight, Château de Portchartrain, which included 13 sorts of Pears: Beurré Diel, Louise Bonne of Jersey, Duchesse d'Angoulême, and Fondante de Bris being the most prominent. In Grapes, which had suffered considerably in transit, were Muscat of Alexandria, Tynninghame Muscat, Burchardt's Black Prince, Black Monukka (a curious oblong smallish berry), and Chasselas Rose. Apples consisted of Reinette du Canada, Api Gros, Api Rose and Api Noir (a violet-skinned sort), and some others.

There were from 12 to 14 entries in both Scarlet and Green-fleshed Melons, Mr. Thos. Shannon being successful with the smallest fruit exhibited, which was Turner's Scarlet Gem; and Mr. Johnston 2d with one of the Terregles hybrids. In Green-fleshed, Mr. Thos. Weir, Slateford, was the most successful with a beautiful sample of Veitch's Perfection.

The plants in pots, cut blooms, and vegetables were arranged in the Music Hall proper, the spacious orchestra being filled with Coniferous plants, the dull green of which was enlivened by spikes of Gladioli and foliage plants, contributed by Messrs. Lawson & Son and Jas. Dickson & Sons, Edinburgh. Conspicuous among the flowering plants were the 12 specimens sent by Mr. Lees, Tynninghame, which included one of the best-bloomed plants of Renanthera coccinea seen for some time, with several long spikes of highly interesting flowers; a capital Phalænopsis grandiflora; several excellent specimens of Statice, including Holfordii and Rattryana; several Heaths in fine health and full of bloom, including Marnockiana, Austiniana, and a variety of Aitoni Turnbulli; with a very large plant of Oncidium luridum guttatum, magnificently flowered. The 2d prize went to Mr. Black, Dalhousie Castle, whose plants were much inferior to the premier lot. Heaths were only shown by Mr. Thomson, Dalkeith, but they were well shown, including one of the best plants of Austiniana in the country, an excellent-coloured Marnockiana, and Retorta major.

For eight plants with fine foliage, Mr. Mitchell, Hamilton Palace, took 1st prize with noble specimens of the Alocasia zebrina, Croton variegatum, the best Nepenthes Rafflesiana probably ever shown, fully 8 feet high, and clothed with magnificent pitchers; a variegated Pine, a good Cordyline indivisa, and a handsome Dasylirion glaucum. Mr. Thomson, Dalkeith, and Mr. Lees, Tynninghame, were equal 2d; the former having a most noble Pandanus elegantissimus, and the latter having one or two splendid Anæctochilus, growing in shallow pans with Club Mosses hanging over the edge, a pretty mode of growing these plants.

For eight Ferns, Mr. Mitchell was 1st, with two noble plants of Cibotium princeps and Schiedei, a good Bird's-nest Fern, several Adiantums, &c.; while Mr. Henderson, Millbank, and Mr. Lees had also some extra fine plants of dwarfer stature, which we have not space to enumerate. Mr. Thomson and Mr. Lees had also good Tree Ferns.

Fuchsias were pretty well represented, the older sorts, such as Souvenir de Chiswick, Rose of Castille, and Wiltshire Lass being among the best; while Achimenes, although well cultivated, were past perfection. Of Zonal Pelargoniums there was an interesting exhibition, including the rose and white Rose Rendatler, the pure white Madame Vaucher, the orange-scarlet Paul Labbé, the salmon and white François Desbois, and some others, the best coming from Mr. James Gordon, Niddrie House. The variegated sorts from Mr. Henderson, Millbank, were Sunset, Mrs. Pollock, Flower of Spring, a pretty pot plant; Cloth of Gold, and Queen of Queens.

Gladioli were beautiful, and came from Scotland, England, and Ireland; Messrs. Downie & Co., Edinburgh, and Dickson & Sons, Belfast, being placed equal 1st. The latter were far the most elegantly set up, and on a green painted stand, the spikes tied to horizontal rods, and charmingly arranged. Foremost among the many beauties were Hebe, Madame Souchet, Lord Raglan an excellent flower, Prince of Wales, Maria, Impératrice Eugénie, Linné extra fine, Penelope, Raphael grand deep crimson, John Waterer, Napoleon III., Princess

Clotilde, Princess Frederick William, Diana, Charles Smith, Madame Vilmorin, Roi Leopold, Madame Domage, Chateaubriand, Duc de Malakoff, Bertram, Charles Dickens, Reine Victoria a splendid white with rosy purple blotch, Mazeppa, Comte de Morny still an effective flower, Rebecca, and Edulia. There were some 16 lots staged, and all were fine, and justly merited the extra prizes awarded by the judges.

Dahlias were magnificent, but the struggle lay between Messrs. Downie & Co. and Mr. Harrison of Darlington. The former were successful; their blooms, although not nearly so large as the English lot, were more compact. The following were Messrs. Downie & Co.'s:—Criterion, Anne Keynes, Harry, Alexandra, Baron Taunton, Willie Austin, Queen of Primroses, Favourite, Miss Henshaw, Lord Derby, Leah, Excelsior, Leopard, Delicata, Ne Plus Ultra, Miss Robarts, Imperial, Garibaldi, Charlotte Dorling, Golden Gem, Scarlet Gem, Stella Colas and Princess Alice—all extra flowers. Mr. Harrison's Criterion, Lord Derby, Lady Gladys Herbert a very beautiful crimson-tipped flower, Golden Drop, Lady Lilian Powlett, Hero, Earl of Shaftesbury and Mauve Queen, were superb flowers. In the gardeners' list Mr. John Thomson, Preston Tower, was 1st, with extra fine blooms, especially his Delicata, Miss Henshaw, Bellona, Duchess of Northumberland, Norfolk Hero, Bob Ridley, Goldfinder, Favourite, Stella Colas, and Charlotte Dorling. The best Fancies also came from Messrs. Downie & Co., viz., Prospero, Queen Mab, Sam Bartlett, Norah Creina, Ebor, Mrs. Joy, Mrs. Reid, Startler (Keynes'), Startler (Perry's), Pauline, Reliance and Gem.

Hollyhocks were very good, both as spikes and as cut flowers, the best coming from Messrs. Downie & Co. and Mr. Thomson, Preston Tower. The following are the names of the best in the exhibition:—The Queen, Glory, Mr. Chater, Beauty of Mitford, Countess of Craven, Lord Loughborough, Masterpiece, Lord Rokeby, Mr. F. M'Kenzie, Lord Clifden, Mrs. Adair, David Doig, Mrs. Cheap, Stanstead Rival, George Keith, John Cowan, Earl of Breadalbane, Mrs. Sharpe, Wm. Young, Jaune d'Or, Seraph, Hon. Wm. Cheape, and Orange Perfection.

Roses were shown in tolerable numbers, but they were very deficient both in size and texture. Several miscellaneous articles were exhibited, the most prominent among which was a capitally managed plant of Vallota purpurea, with a score of spikes full of bloom, by Mr. John Currie, Salisbury Green. One of the most interesting and rare plants in the country was furnished by Mr. Lees, of Tynninghame, viz., Phalænopsis Portei, a magnificent plant with from five to seven leaves, each about 8 inches long, and producing flower spikes with nearly 20 fully expanded flowers. It was sold to Mr. Lees by Mr. Williams before flowering it for Phalænopsis amabilis, and it now turns out to be this *rara avis*. We have seen it only besides at Mr. Warner's at Broomfield. The remaining subjects possessed less interest.

The Vegetable department was represented by samples of excellent produce in the several classes, but these do not call for special further remark.

The dinner, which took place at Slaney's Hotel in the evening, was served admirably, and was attended by a very large gathering of horticulturists from the three kingdoms. Sir W. Gibson-Craig, of Riccarton, occupied the chair; and Mr. J. Campbell Swinton, and Mr. W. Thomson, acted as croupiers. After the usual loyal toasts, together with the health of the Lord Provost and Lord-Lieutenant, had been given, the Chairman proposed the toast of the evening—"The Horticultural Society of Edinburgh." The best commendation of the Society, he said, was the excellent exhibition which had that day been concluded. That Show, he was assured by a friend sitting beside him, Mr. William Paul, who had a great knowledge of Shows in England, and in all parts of the country, was equal, in regard to the display of fruit and its general excellence, to anything he had ever seen in any other country in the world. The result was very gratifying, for he had the pleasure of saying what he believed the prize list would bear him out in, that the most remarkable specimens of fruit which had been exhibited were shown by Scotch gardeners. He did not say this in the least invidiously, but at the same time he would claim this for Scotland, that he had never seen more extraordinary exhibitions of fruit, and of Grapes especially, than he had seen at this show. He hoped his English friends would take these remarks in kindness and good humour, because if they had had better Grapes and better fruit to show, they ought to have sent them, and since they had not, certainly the Scotch competitors were entitled to the honour they had obtained in carrying off the first prizes. In connection with the toast he might mention that there was some talk of an amalgamation of the Society with an older Society—namely, the Royal Horticultural Society of Scotland, and, as a member of both societies, he should be glad to see the union, which he believed would be for the advantage of both parties. Mr. Thomson, in replying, expressed himself in favour of an amalgamation of the two Societies. He said the Chairman had justly taken credit to Scotland for the success which Scotch gardeners had gained in the competitions, but he begged at the same time to testify his high respect for English gardeners. He had had some Englishmen under him who had turned out the best gardeners he had ever known; and there were English gardeners present who were not second to any Scotch gardener he knew. He concluded by proposing the "Health of the Strangers present, coupled with the name of Mr. Turner, of Slough." Mr. Turner, in reply, expressed the great pleasure he had had in making this his first visit to Edinburgh.

Mr. Campbell Swinton proposed "The Judges," coupling with the toast the names of Mr. Moore, of London, who had acted as one of the leading judges in the fruit department, and Mr. William Paul, who had acted in a similar capacity in the floral department of the show. Mr. Moore briefly acknowledged the toast. Mr. Paul did not hesitate to say that he had never seen equalled the exhibition which he had that day witnessed. It was remarkable not only for the presence of good specimens of horticulture, but for the entire absence of bad specimens. He was glad that the leading prizes had been taken by Scotch exhibitors, because he believed that that circumstance would, on the one hand, have a good influence in Scotland by giving confidence to Scotch cultivators, who might hitherto, in their diffidence, have considered that they were not equal to English cultivators—although he had never thought so; while, on the other hand, it would be an additional spur to English cultivators, and, therefore, he believed the cause of horticulture would profit. He complimented the Horticultural Society on the successful manner in which they had got up the exhibition, in which they had shown that they were not only first-rate horticulturists, but that they were also good men of business, and not unskilful diplomatists. Referring to the great progress which had been made in horticultural science during the last 20 years, he said that, wonderful as had been the progress which had been made in the past, a still more glorious future was open to horticulturists. Perhaps much improvement might not be made in the cultivation of the plants and flowers, which they had already brought so near perfection, but much might be done in the improvement of races by hybridisation and cross-breeding, and he earnestly appealed to practical gardeners to study this branch of horticultural science. He expressed his regret that there was so little sympathy existing between scientific and practical horticulturists, and urged that more attention should be paid in the training of gardeners to their scientific instruction.

Mr. Thomson proposed "The Horticultural Press," coupled with the name of Mr. Hibberd.

Professor M'Lagan proposed the Exhibitors, for which Mr. Meredith replied, expressing a hope that a good many of those Scotch gardeners, who had competed so successfully on this occasion, would visit the Great International Show in London in May next. Mr. Fowler also briefly replied.

Royal Horticultural: *Sept.* 5 (*Floral Committee*).—To Messrs. Downie, Laird & Laing was awarded a Special Certificate on this occasion for the fine collection of Solanums and other plants which was shown by them the other day at the Crystal Palace. From Mr. Coombs, Hackney Road, came two tricolor-leaved Pelargoniums in the way of but inferior to Mrs. Pollock; Dahlia Mrs. Lund, shown again by Mr. Burgess, was found to well maintain the good character it had received when it was first exhibited. Dahlia Fanny Sturt, red tipped with creamy white, from Mr. Pope, received a First-class Certificate; and Dahlias Master of Arts, bronzy purple, and Blushing Fifteen, large rosy lilac, both from Mr. Turner, had each a Second-class Certificate awarded them, as had also Dahlia Commander, bronzy fawn, from Mr. Bragg. Mr. Keynes received a First-class Certificate for Dahlia Ultimatum, a medium-sized finely formed flower of a blush colour, tipped with rosy-carmine. Mr. Eckford, of Highworth, contributed Dahlia Lady Mary Wilde, white, tipped with purplish-rose, for which a Second-class Certificate was awarded. The same exhibitor also received a First-class Certificate for Verbena John Keynes, brilliant orange-scarlet, with a conspicuous white eye, and a Second-class Certificate for Mr. Gladstone, dark scarlet, with large white eye. Mr. Bull was awarded a First-class Certificate for a cheerful-looking Fuchsia with cherry-coloured sepals and a double white corolla. Mr. Perry had Verbena Champion, a dark maroon-coloured sort, for which a First-class Certificate was awarded. The pale-blossomed Stanhopea grandiflora was shown by Messrs. Lee, and Mr. Veitch received a Special Certificate for the charming Cattleya exoniensis. Mr. Wailly contributed blooms of Tropæolums, Mr. Leach two Japanese Lilies, and Mr. Wills an Hydrangea with leaves bordered with white. From Mr. Macintosh came a neat flowering dwarf Antirrhinum called Tom Thumb, a specimen plant of Plumbago capensis, grown in the form of a bush, without any support from sticks, and blooms of China Asters, a beautiful collection of which is now in full flower in his nursery at Hammersmith.

Sept. 5 (*Fruit Committee*).—Mr. Macintosh, Mr. Clarke, and Messrs. Lee all exhibited Peaches from standards, ripe and good, a circumstance doubtless owing to the warm dry summer which we have experienced. From Mr. Clarke came a large Seedling Peach, from a standard, concerning which it was stated that it might be worth trial against a wall. From Mr. Wills came Pine-apple Melon, and good Walburton Admirable Peaches were shown by Mr. Whiting, of Battersea Rise. From the Garden of the Society came a fine collection of Figs and four or five varieties of Continental Grapes, two black sorts among which were about as good in flavour as the Black Hamburgh. A portion of a Pine-apple was exhibited showing a fungoid affection of the pips, the central portion being apparently sound.

Wilts Horticultural.—By the kind permission of the Right Hon. Lady Herbert, of Lea, this Society held its second Show in the beautiful grounds of Wilton Park, on the 24th ult. Rain fell in torrents the day before, but the weather was fortunately fine on the day of the Show, at which there was a large attendance of visitors.

The Show was held, as all Shows should be, under canvas in four large marquees. The tent containing the gentlemen's gardeners' productions we shall call No. 1. Mr. Cross, gr. to Lady Ashburton, had the honour of getting the 1st prize, a Silver Cup, value 5*l.* 5*s.*, for a finer collection of Stove and Greenhouse Plants than is generally exhibited at a country Show. He had several good Ferns, among which we noticed Cibotium princeps, one of the most graceful and elegant of the tribe; a splendid specimen of Dicksonia antarctica, and a good Dicksonia squarrosa. There were likewise one or two good Palms, together with fine specimens of Maranta fasciata, Alocasia macrorhiza, &c. The 2d prize, another cup, value 3*l.* 3*s*, was taken by Mr. Challis, who sent a remarkably fine Eucharis amazonica, with lovely white sweet-scented flowers; also Lapageria rosea, trained on a flat trellis profusely covered with flowers; and a noble specimen of Sphærogyne latifolia. In the Amateurs' Class, the Hon. and Rev. H. Bligh received a Silver Cup, value 3*l.* 3*s.* for a group of 8 Stove and Greenhouse Plants. The other exhibitors in this class had some well-flowered specimens, giving evidence of good cultivation. The side tables of this tent were devoted to cut flowers. Mr. Keynes most unmistakeably held his own against all comers with Dahlias, taking the Cup and the 1st prize in each of the classes in which he exhibited. Mr. Wheeler, of Warminster, made a strong effort in the open classes, but only succeeded in obtaining a 2d place. The heavy rains of the previous day had somewhat marred the full beauty of the Roses, still some very good stands were shown. Mr. Keynes, coming in here again, took the Silver Cup offered for the best 24 trusses. The names of the sorts of which it consisted were Charles Lefebvre, Devoniensis, Maurice Bernardin, Comtesse Overoff, Madame Chas. Wood, Triomphe de Rennes, Anna de Diesbach, Baronne Adolphe de Rothschild, Celine Forestier, Madame Victor Verdier, Souvenir de la Malmaison, Vainqueur de Goliath, Cloth of Gold, Madame Valembourg, Madame Sertot, Jules Margottin, Madame Caillat, Maréchal Vaillant, Madame Boll, Sœur des Anges, Baronne Pelletan de Kinkelin, Gloire de Bordeaux, Senateur Vaisse, and Gloire de Dijon. The other exhibitors in this class were Mr. Wheeler, of Warminster (who took the 2d prize), and Mr. Tiley, of Bath.

Passing to tent No. 2 we found a splendid display of Fruit. The chief attraction here was the contest for the silver cups offered to gentlemen's gardeners for the best eight dishes of various fruits; there were eight competitors, Mr. Penfold, gr. to Viscount Folkestone, being 1st; he had two splendid bunches of Muscat Grapes, the berries in which were remarkably fine. Mr. Pragnell, gr. to — Digby, Esq., of Sherborne Castle, occupied the 2d place with a good collection. Mr. Chard, gr. to Sir F. H. Bathurst, and Mr. Challis also showed good collections. A silver cup, value 3*l.* 3*s.*, was given to Mr. Butcher, Fisherton, for a collection of six dishes of fruit. In this tent were exhibited ladies' bouquets, round which was a crowd the whole day; to each bouquet was appended some appropriate motto. For Cut Roses in the gardeners' classes Mr. Chard took the 1st prize with some superb blooms.

The third tent contained Miscellaneous subjects, such as Ferns, Liliums, variegated plants, Fuchsias, Pelargoniums, baskets of cut flowers, &c. To Mr. Mould, Devizes, was awarded a Silver Cup for Fuchsias, Mr. Wheeler being 2d.

Into the fourth tent amateurs' and cottagers' productions only were admitted; this portion of a country flower show, always so interesting, was exceedingly good here, the vegetables being very fine. Two military bands were in attendance.

Worthing Horticultural.—Considerable interest was excited at Worthing on the 6th of September by the Flower Show, which, for a first attempt in this direction, proved a great success. It was not to be expected that any great novelty should characterise the show, but there were several admirable specimens, to a few of which it may not be uninteresting to some of our readers to call attention.

The first thing which struck us on entering one of the two marquees was a very creditable collection of fine-foliaged plants, amongst which there was a specimen of the variegated form of Cyperus alternifolius, which would have commanded attention anywhere. This, like a very good collection of Ferns, amongst which Niphobolus chinensis and Elaphoglossum callæfolium, were very striking, were sent by Mr. C. Young, of Leigh Park, near Havant, and deservedly obtained the 1st prize.

Amongst specimen plants was a beautiful example of Rondeletia from Mr. Edney, gr. to Mrs. Fitzpatrick, and Heterocentra rosea, which was much admired for

its elegance, though not so striking as many of its neighbours.

The Orchids were many of them excellent specimens, but one or two unfortunately were in such an unhealthy condition that they rather detracted from the general effect. Amongst a collection sent by Mr. Wilson, gr. to W. Marshall, Esq., we noticed especially a nice sample of Cypripedium concolor, and a good specimen of what was once considered a great rarity, and which now always commands attention, Epidendrum vitellinum.

A smaller collection, from Mr. Cameron, of Goodwood, had excellent specimens of Vanda suavis, Cattleya crispa, and Oncidium Lanceanum, while in that from Mr. Young, which obtained the 2d prize, there were nice examples of Saccolabium Blumei, var. Dayanum, and Aerides suavissimum.

Next to the Orchids was a very sterling group of specimen plants from Goodwood; amongst which the pink and white Madagascar Periwinkle, though almost banished by far worse competitors, were most beautiful and conspicuous, while Begonia semperflorens was distinguishable for elegance and admirable growth.

The collection of Vegetables was very small, but not quite without interest. The Onions and Tomatos were both worthy of praise, and there was among the Gourds a specimen under the name of Cattle Melon, which seemed to us to be the same with one sent out by M. Vilmorin under the name of Melonrée, and agreeing with the Ohio and Valparaiso Gourds in having buff shining seeds. These were sent by Mr. Brice, who exhibited several other matters of interest, and amongst them a plant of Cotton in flower and fruit, which was, however, too much drawn up to do it complete justice. There were many good specimens of Apples, but these were quite thrown into the shade by Mr. Gadd's Crystal Palace collection (a truly magnificent one), which were not, however, exhibited for competition.

The Muscat of Alexandria Grapes and the Black Hamburgh, which obtained the 1st prize for Mr. Bristow, gr. to E. Orme, Esq., of Broadwater, deserve especial notice; and, above all, a branch loaded with lovely Peaches, which was said to give but a faint idea of the splendour of the tree which bore it. On the whole we were extremely gratified, and the general impression seemed to be one of great satisfaction,

Notices of Books.

The illustrations published during the present year in *La Belgique Horticole*, in addition to *Renanthera Lowii*, a double plate; *Aphelandra ornata*, and *Delphinium Brunonianum*, which have already appeared in English works, are—*Billbergia pallescens*, a Bromeliad introduced from Brazil by M. De Jonghe, and having green leaves, erect scapes, crimson bracts, and pale green flowers just tipped with blue. It will take but secondary rank in point of ornament.—*Thyrsacanthus rutilans*, now well known in gardens.—*Dianthus cincinnatus*, a very large and deeply-fringed form of Indian Pink, of the Heddewigii section.—*Haplophytum calyculatum*, a very distinct and ornamental Bromeliad, introduced from Brazil by M. Linden. It produces a tuft of erect green leaves which are remarkably obtuse with a distinct acuminate point, and has erect scapes bearing each a roundish head of bright yellow flowers, beneath which occur a few red bracts.—There is also an *Apple* called *Les deux Jumelles*, a very handsome-looking fruit, yellow and deep red, and said to be of exquisite flavour; it ripens at the end of December, and lasts till February.

In *L'Horticulteur Français* the illustrations are—*Bouvardia leucantha splendida*, a fine orange-scarlet hybrid.—*Delphinium Triomphe de Pontoise*, a semi-double herbaceous Larkspur with a dense spike of flowers, of which the outer sepals are bright blue, the inner ones clear pink, so that the flowers appear to be formed of a rosy star set in blue.—*Lithospermum fruticosum*.—*Poire Prince Impérial de France*, a handsome-looking turbinate fruit obtained by M. Grégoire-Nélis, ripening in December and January, and said to be of good flavour.—*Pelargonium Endicherianum*—*Knowltonia rigida*.—*Iresine Herbstii*.—*Libonia floribunda*.—*Doryanthes excelsa*.—*Prunus triloba*.—Some curious varieties of *Gloxinia*: *Amélie Neumann*, and *Marie de Lapagerie*, in which a whorl of wedge-shaped petaloid reflexed bodies comes between the calyx and the proper corolla tube.—*Salvia dissimilis*, a very free-blooming scarlet Sage.—*Garrya elliptica*.—*Cereus Bertini*, a dwarfish species, with curious hooked spines, and sulphur-buff flowers.—*Ungnadia speciosa*, an ornamental Texan tree, very nearly related to Æsculus.

Florists' Flowers.

A Correspondent, in communicating the annexed list of Good Cheap Hyacinths, remarks that so much interest is taken generally in the cultivation of this flower that it must be the desire of the million to know which are the best of the low priced varieties. The spring exhibitions in the metropolis and elsewhere afford a sufficient guide to those who will have the best without regard to price, but when inquiries are made as to the cost it will be found that some of these will cost 10*s*. 6*d*. or 21*s*. each, while others almost equally fine, sometimes quite as fine, though not so rare, may be had at 1*s*. each. Many, indeed, of those our correspondent mentions may be obtained for even a lower sum, and all are worthy of cultivation, either for exhibition or decoration. It will be easy to ascertain from those who advertise Bulbs the cost of the number which in any particular case may be required. The following is the list referred to:—

Bouquet Tendre, bright red.
Lady Montague, light orange red, striped.
Regina Rubrorum, pale red, dark eye.
Rouge Joli, bright red.
Sans Souci, deep crimson.
Bouquet Royal, delicate rose, dark centre.
Groot Voorst, blush, large truss.
Lord Wellington, blush.
Perruque Royale, large shaded pink.
Regina Victoria, salmon rose.
La Tour d'Auvergne, pure white.
Prins Van Waterloo, pure white large bells.
Anna Maria, purple eye, very double, and compact.
La Virginité, blush white.
Miss Kitty, blush white, dark eye.
Og Roi de Basan, clear white, with rosy eye.
Albion, very dark blue.
Bride of Lammermuir, bright blue.
Garrick, dark blue, shaded pure.
Laurens Koster, splendid rich purple, large truss.
Prince of Saxe-Weimar, dark purple.
Blocksberg, light blue striped.
Madame Marmont, fine marbled light blue, extra large bells.
Bouquet d'Orange, reddish orange, dwarf habit.
Jaune Suprême, pure yellow.
Amy, bright scarlet.
Circe, bright carmine.
Diebitsch Sabalkansky, splendid bright red, good truss.
Lina, rich crimson.
L'Unique purple mauve.
Maria Catherina, large, deep red.
Mrs. Beecher Stowe, rosy red, striped.
Cosmos, bright rosy pink.
Gigantea, delicate pink.
La Belle Quirine, striped rose.
Norma, delicate wavy pink.
Sultan's Favourite, blush, shaded with deep pink.
Alba Maxima, pure white.
Elfrida, blush white.
Grand Vainqueur, pure white.
Mont Blanc, pure white.
Voltaire, creamy white.
Argus, fine blue, with pure white eye.
Baron von Tuyll very dark blue.
Baron Von Humboldt, glittering purple.
Bleu Moresque, purple lilac.
Charles Dickens, porcelain blue, shaded with purple.
Emicus, dark blue, with white eye.
La Nuit, rich silky black.
Prince Albert, nearly black, splendid truss.
William d'Erste, purplish black, long spike.
Grande Lilas, beautiful light porcelain.
Nimrod, fine light porcelain, close truss, dwarf.
Orondates, sky blue.
Staten General, bright blue.
Alida Jacoba, deep canary yellow.
Jupiter, pale yellow.
La Pluie d'Or, straw colour.

Florists' Flowers in Ireland.—The correspondent who furnished you with particulars respecting the show of the Royal Horticultural Society of Ireland held at Salthill on the 24th ult. states, in reference to Gladioli, that Messrs. Dickson of Newtownards "are the most successful growers of florists' flowers in Ireland." I beg leave to take exception to this statement, and to convince the writer that he is in error. I have to state that we have this year won 26 prizes for florists' flowers from the Royal Horticultural Society alone, while Messrs. Dickson have won only five. If additional proof be wanting, it will be found in the fact that we have for years past been awarded the medal offered by the Society to the winner of the greatest number of 1st prizes in florists' flowers.

The writer in question also takes exception to the encouragement given to florists' flowers in Ireland, compared with that bestowed on large groups of stove and greenhouse plants. Now, if he had inquired farther into this subject, he would have found that the classes of plants just named get the lion's share of the prizes in the gift of the Society (see the schedule for this year); and he also seems to have forgotten what he had previously stated, that these prizes, taken exception to by him, were subscribed for and offered by the seedsmen and amateurs for Gladioli, and that the only large prize offered by the Society for florists' flowers was the Cup won by us for 36 Dahlias. He would also have found, if he looked about him, that the prizes offered by the Society for florists' flowers, particularly in the classes of Roses, Dahlias, Gladioli, Hollyhocks, and Asters, are totally inadequate to reward the numbers who grow and exhibit in these classes. *A. Campbell, Churchill Nurseries, Glasnevin, Dublin, Sept. 6.*

The Apiary.

The following hints relative to the Removal of Supers may be of use to some who have not yet deprived their bees of their surplus honey. There are many doubtless who have experienced the same difficulty in this operation as I have often done. To obtain a super quite clear of bees used with me to be a matter of very great difficulty; and to involve the spending of several hours in effecting it. It need not be so tedious an affair; and I usually accomplish all that can be desired in the course of a quarter or half an hour.

Whether the super consist of glass, wood, or straw, gently draw a fine wire between it and the adapter or top of the stock hive. Without undue jarring, remove the super to a partially darkened room or arbour, invert it on a table, and place an empty straw hive over it. It is not necessary to wrap any cloth round the two hives, or to do anything to ensure the entire imprisonment of the bees. If the super be a glass one, rap slowly but with some force on the table all round it, or place the super on a board for the same purpose. In a few minutes, usually, a loud humming noise will be heard, and the bees will have commenced ascending into the straw receptacle. I find that they ascend more rapidly when a straw hive which has contained some combs at some time or other is used for this purpose. So soon as the bees have fairly commenced streaming up into the upper hive, it may be tilted up, and the ascent be watched. A few gentle puffs of smoke blown among any lingerers will hasten their dislodgment, but this is by no means necessary. When the majority have gone up, take off the upper hive very cautiously, and knock out the bees in close proximity to the parent stock. This may be done in various ways. A cloth may be spread in front of the hive attached to the alighting board, and the bees being knocked out on this, by two or three vigorous blows and shakes, will quickly find their way into the entrance. Or they may be dislodged on the top of the adapter, from which they will gradually descend into the stock. As it is my rule never to leave an adapter on a hive during the winter, I usually, immediately after having cleared the super of its bees, proceed to remove the adapter; putting on the permanent winter cover or top-board, the bees are knocked out suddenly on the surface of the bars, and speedily disappear among the combs. After a few minutes the proper top-board may be gently pushed over the upper surface of the hive, taking care to crush no bees.

Any bees that may have been left behind in the super are whisked off with a feather, and they will mostly succeed in reaching their old home.

If the super be constructed of wood or straw, the rapping may be performed on it instead of the board or table. It should not be very violent; a steady succession of blows, which at the same time cause a slight vibration, is better than a rapid continuation of strokes.

The great advantage of this plan is, that the operator need not leave his super for a minute, until it is perfectly free of bees, and it may then be carried off to a place of safety within doors; whereas, with the old system, from the enormous time it consumed, it was frequently necessary to leave the super for hours, and with very great danger from the attacks of robber bees.

The fuller a super is of combs, and the greater the population which may happen to be within it at the time of its removal, the more easily, as a rule, will the dislodgement of the bees be effected.

In all these operations the bee-keeper should be very effectually protected from the attacks of the infuriated defenders of their hard-earned stores. Being thus perfectly secure, the necessary confidence is ensured, without which any plan of operations may fail.

The more summarily the bees are treated at these times the more speedily I find the affair to be accomplished. If not properly protected, the operator may be driven off in the middle of any of these several manipulations, and that which should be easily effected in a quarter of an hour, will be the work of hours instead. *Apiator.*

Bees and Fruit.—On Tuesday last thousands of bees attacked my Apricots, making in a short space of time sad havoc among them, and although the trees and fruit have been made secure with wadding and netting, they still continue to visit them in large quantities since their first appearance here on Tuesday. At the suggestion of my employer I have treacle placed in pans near the trees, and also along the Peach wall. This appears to have the desired effect, for although the pans of treacle and dipped rags are swarming all day with large quantities of bees, wasps, and flies, I have not observed one eating the fruit. The Peaches are not yet protected with netting. To me it appears remarkable that bees should become wholesale fruit destroyers; at least such a circumstance has never come under my observation before. We have no beehives in the gardens, and very few in the immediate neighbourhood. While at the time I lived with the Marquis of Camden at Wilderness Park, we kept large quantities of bees in the garden, within a few yards of a Peach and Apricot wall, nevertheless I never remember to have destroyed the fruit; it is true that I have seen now and then a solitary bee on fruit, but I never before witnessed such a sight as I did on Tuesday last, when at least 50 bees were feeding on one Apricot. Indeed the bees so outnumbered the wasps that they drove them away, and should a solitary one be found by them on the fruit they set on it and threw it to the ground. I should be glad to hear if any of your correspondents was ever similarly annoyed with bees. *E. Bennett, Osberton, Worksop.*

Garden Memoranda.

Robert Warner's, Esq., Broomfield.—In the centre of a purely arable district, where heavy cereal and root crops not only attest the fertility of the soil but evince a high degree of agricultural skill, is the residence of Mr. Warner, the Orchidophilist and Orchid culturist. Broomfield, being little more than a couple of miles from Chelmsford, is easily accessible by rail from London, and as it contains a notable collection of Orchids, differing in many respects from those one is in the habit of seeing in and around the metropolis, time may very profitably be spent in examining them. There is nothing very impressive in the outward appearance of the place—nothing in the least indicating embellishment either as to architectural or landscape gardening features, little or no uniformity in the general design of the houses, but all through a rigid observance of the principles of economy, with, in all cases, an intelligent aim to possess structures of the most suitable kind for plant cultivation. The most cursory glance indoors, however, rivets the enthusiast's attention, and in order that one's ideas may

not become confused by attempting to summarise the whole, it will be better to reproduce our notes in the order the houses and plants were inspected,

The first house, which is an East Indian one, has a corridor at the entrance to prevent the ingress of atmospheric air, rushing in as it does in volumes with detriment, especially in winter time, when the temperature in-doors and the temperature out-doors is at so great a variation. This, like all the other principal plant houses, is span-roofed, having a centre table and two side tables, with walks sufficiently spacious to ensure proper inspection. The one-half of the centre table is completely filled with Vandas, and happened to be so arranged as to produce a sensational feeling, presenting an array of flowering spikes along its whole length. I included several varieties of insignis, tricolor, and suavis, all well bloomed, the latter in some cases with 15 flowers to the spike, which is as near the maximum of good cultivation as may be. All these were in the most rude health, and in point of numbers and variety may be considered unique. Vanda Lowii is the next best plant to Mr. Rucker's I have seen, and was showing several spikes of bloom—a most desirable plant, and one of the most difficult to get home alive. V. cristata is a charming little variety with olive green sepals and petals, and a broad cream and yellow ground labellum, thickly radiated with black lines, and doing well among its compeers. The other, or dark side of the centre stage, was devoted to several sorts of Aerides, including Loddiges' charming and distinct variety of quinquevulnerum, with leaves instead of growing horizontal much inclined upwards; several suavissimum and its collateral nobile, with odoratum in many and diverse varieties; as well as Fieldingii and a paler variety of the type with faint spotting, and the distinct narrow-leaved rubrum. On the front stage was a splendid collection of Cypripeds, including more than common specimens of Lowii, a most remarkable Veitchii for robustness of habit and beauty of leaf-variegation; while japonicum and Hookeræ were quite pictures of beauty in their way, and must when in flower be more than usually attractive. The pretty little gem Fairrieanum is not eclipsed by its more gigantic slippered fellows, and it was here grown in great perfection by Mr. Blake; so also was the still more rare, curious, and effective caudatum, and Linden's Uropedium. Right over the passage in the one case, and on a level with your face on the other, above the plant I am describing, were close rows of—what?—talk of ribbon flower gardening and expensive sub-tropical gems, what are they in comparison to triple lines, each 40 feet long, of—Phalænopsids! Mr. Warner might have been fairly charged with monopoly in Schilleriana if I had not seen Lüddeman's collection, in the environs of Paris, which is nearly if not quite as numerous. The Broomfield plants of this are growing beautifully, but so are the grandifloras, the roseas, and the amabilis, with which they are associated. Some good sorts of Cattleya Aclandæ were also growing in this house, which variety along with superba appears to prefer a higher temperature than most other Cattleyas yet introduced. A very distinct and rare plant was also growing here with pseudobulbs separated by rhizomes, and assuming the general features of a Dendrochilum—Chelonanthera gibbosa; and a gigantic plant of that curious and beautiful ivory-lipped Angræcum eburneum, from Madagascar. It may be remarked with reference to the Vandas, that they do not appear to be often disturbed, and are rather under than over potted, which may induce them to bloom more freely, the air roots ramifying in all directions in exuberant masses.

There are two doors of exit into the adjoining houses; but, like a skilful general that arranges to take the enemy by surprise, Mr. Warner elects to lead and escort us—for they were a goodly company of "F.R.H.S.'s" on a tour of pleasure that day—by a particular route, so that all of a sudden our senses might be overwhelmed with the gorgeous forest of beauty which from 300 to 400 blooms of varied Cattleya Mossiæ presented. Entering a narrow house with a table on each side of the centre path, we find great variety, and in some cases fine specimens, of Cattleya labiata and the numerous forms which belong to that section, offering more in shade of colour than in variety of shape; some very well grown Lælia Perrinii, a very useful species, though rather short-lived in period of flowering; some good Oncidium crispum grandiflorum; one of the largest and best plants of Trichopilia crispa in the country; and several other good things.

Ascending a few stone steps to a higher level, and moving towards the front, we find ourselves at one end of such an enchanting scene of loveliness as is impossible to describe, far too flaring and gorgeous to look upon, and but for the novelty and rarity of the sight, would merit quite as much condemnation as the dense groups of Azaleas that one sees at the great Shows, unrelieved by the introduction of a few Tree Ferns and other ornamental-foliage plants. Why, Mr. Warner's Cattleya Mossiæ when in flower, if arranged on a table 120 feet long by 6 wide, would nicely fill it; that is, if a few graceful-habited plants, such as Ferns, which would add grace and beauty to the group, were introduced. Were the flowers and varieties of common order one would hesitate to pronounce encomiums, however great in point of numbers, but there is not one of the sorts but are above the average, many of them quite unique, fully justifying the dignified position the *Gardeners' Chronicle* accorded them last season. Mr. Warner is certainly fortunate in holding such a stock, for although some individual kinds will find their equals in other establishments, still no collection is so numerous or so uniformly good. One of the most beautiful and distinct among them is called Marianæ, with white sepals and petals, and a very beautiful labellum of orange and crimson. Another, christened kermesina marginata, has fine peach sepals and petals, with a gorgeously beautiful lip of carmine, having a distinct frilled edge of white. Rothschildiana and Lawrenciana are also excellent sorts. Intermixed among these were two unique plants of Dendrobium clavatum and chrysotoxum, each with more than 20 spikes in full flower. Associated with them, in flower, were capital examples of one of the loveliest of all Epidendrums, and one that should be in every Orchid collection—prismatocarpum; the charming rare, and striking Broughtonia lilacina, with fine rosy-pink flowers and a pretty radiated eye, flowering profusely on a block of wood; the brown, yellow, and black Epidendrum alatum, with immense spikes; the curious beetle-like-formed Brassia cinnamomea; a splendid example of Bearded Lady's Slipper, with very large inflated labellum; and last among the flowering plants, and prettiest of them all, Chysis lævis. This is a much finer thing than is generally supposed, eclipsing even the rare and beautiful Limminghii; ground colour of sepals and petals sienna, with yellow towards the base; lip broad, crimson and yellow suffused. Some fine specimens of Odontoglossum citrosmum and roseum were in flower, but none of them quite so high-coloured as the plate in Mr. Warner's "Select Orchidaceous Plants," which is rather overdone. Of Lælia purpurata, elegans, and all the intermediate section, there are numerous specimens, all in very good order, some of them very large plants. Of the famous Lælia superbiens, which was once the pride of the Horticultural Society, and from there transferred to Mr. Fairrie's collection in Liverpool, where the writer has seen it growing, but not in so exuberant health as it now manifests at Broomfield, to which collection it has ultimately come, we may state that it is flowering freely, and is as dark-green in the pseudobulbs and foliage as a Musselburgh Leek, and yet it is a plant that will cover 7 feet by 5 of space upon the table. No signs of "wearing out" or retrogression, or degeneracy in this somewhat aged specimen.

Many plants were equally striking in the house referred to, and in a narrow one adjoining the little tropical aquarium, where Ferns, especially several of the Adiantums, were standing on raised pots or pedestals clear of the water, in excellent condition. Among Oncidiums in the adjoining house were a capital unguiculatum, Wentworthianum, the beautiful Batemanni, and the more rare cheirophorum. Among Lælias, as before remarked, are some extra fine batches of elegans; not the least prominent as a variety is the chaste dark-lipped Schilleriana; a good Lawrenciana in the way of cinnabarina-growth; a splendid autumnalis superba, and an equally fine anceps; as well as a beautiful plant of Dendrobium macrophyllum giganteum.

The Lycaste house, or rather the Vineries, where these and other temperate Orchids were growing, contain some very good plants, but by no means so large as individual specimens, or in so excellent a condition as I had been led to anticipate. After seeing these and others grown under different circumstances, my opinion is only confirmed, that perpetual shade even in summer, when the Vines are growing and maturing, is in a certain degree prejudicial to consolidation of bulb, so well manifested in the case of soft-wooded plants under similar auspices, which become "drawn" from insufficiency of light. There is a good collection of sorts of Lycaste, some of them which we have seen of extra fine quality. Pleiones are largely grown, and in very good condition—lagenaria, maculata, and Wallichii forming the chief in point of quality and quantity. Odontoglossums were cultivated in this house at one time, but they have now a house for themselves. They are much smaller plants generally than Mr. Warner possesses of other rare and beautiful genera, but they constitute a goodly group of sorts including grande, Insleayii, Warscewiczii, nævium, Cervantesii, Ehrenbergii, cordatum, Karwinskii, and the oblong-bulbed Warnerianum. The Vines were bearing a very heavy crop, the bunches of fully average size, and apparently altogether free from the inroads of insect pests, which redounds much to the credit of Mr. Blake's management, for where plants and fruit are combined, more than ordinary vigilance is requisite.

The last thing we notice is two detached narrow houses, which form receptacles chiefly for sickly plants, and such as are affected with spot. No collection of any extent is completely free from this constitutional derangement, and Mr. Warner's, although generally well managed, forms no exception. Curiously enough, standing out in bold relief are plants of Saccolabium violaceum, Aerides Schröderi, and Fieldingii, all in the best possible condition, as it were setting spot at defiance, and yet in the very centre of its influence. Some imported Cattleyas, Dendrobiums, &c., were making nice headway, notwithstanding there are not nearly the same amount of recent importations in this collection that one now-a-days stumbles upon, the greater portion having been introduced for some time, and bearing the character of established plants, many of them very rare and very valuable. A very simple mode of connecting the heating pipes in use here, is quite effective, and does not necessitate skilled labour. A thick India-rubber band is introduced at the end of each pipe, and jammed into the faucet, which must expand as the water gets heated, to fill up any inequalities in the cast-iron, as the whole, at least from mere casual inspection, seemed to be quite water-tight. *A.*

Miscellaneous.

The Oriental Plane.—Amongst the timber trees most remarkable for their size and beauty, I may mention the Oriental Plane, the Platanus of Pliny, and the Πλάτανος of the Greeks, which though flourishing everywhere in Italy, and indeed, in countries much less favoured by climate, was, Pliny says, first brought across the Ionian Sea to the Island of Diomedes, one of a small group lying off the coast of Apulia, of volcanic origin, and so nearly in a line with the volcanos of Vesuvius and Vultur on the Italian continent, that I should be tempted by its existence midway between the two countries to extend the line of igneous action existing in that quarter from Italy to Albania, and to suppose these islands to be a connecting link between the two. The Plane Tree, Pliny says, was first planted at the tomb of Diomede, who was buried there, when, according to the fable, his companions were turned into sea-fowl, which still frequent the shrine of the hero, and seem to discriminate between Greeks and barbarians, giving to the former a courteous welcome, but pursuing the latter with loud and clamorous cries. The Plane-tree was afterwards imported from thence into Sicily, and had become in the time of Pliny so naturalised on the continent that even the Morini, a nation of Belgic Gaul, on the shores of the British Ocean, were taxed for the privilege of enjoying its shade. The size which these trees had attained in the time of Pliny was remarkable. In Lycia the cavity in the interior of one of them formed a species of house, 81 feet in width, and had been fitted up with seats, in which, it is added, the pro-consul of the province, Licinius Mucinus, entertained 18 persons of his retinue at a banquet. Dr. E. D. Clarke also describes a marvellous tree of the kind in the island of Cos; and another in the Straits of Thermopylæ "of unknown antiquity, self-sown in its origin, and one of many that may have flourished upon the spot ever since the Lacedæmonian soldiers were seen at the fountain combing their hair, and amusing themselves with gymnastic exercises." Probably, however, the magnificent trees of this description now existing on the shores of the Bosphorus, called the Seven Brothers, where, it is said, Godfrey de Bouillon with his army of Crusaders, in 1096 encamped, must surpass in beauty and interest all those instanced by the writers of antiquity. The largest of them is 90 feet in height, and 150 feet in circumference, indicating at the usual rate of growth of this tree, perhaps 1500 years of duration. Pliny mentions also, in the Island of Crete, an evergreen variety of the Plane, which had even been propagated by cuttings. This statement, however, appears apocryphal. More credit seems due to his report as to dwarf Plane-trees (Chamæplatani) existing in his time in Italy; for it is well known that the Chinese have long possessed the art of growing stunted varieties of the larger trees by pruning their roots, and by employing other means of arresting their development. *Daubeny's Trees and Shrubs of the Ancients.*

Classification of Odours:—

Classes.	Types.	Odours belonging to the same Class.
Rose	Rose	Geranium, Sweetbriar, Rhodium, Rosewood.
Jasmine ..	Jasmine ..	Lily of the Valley.
Orange Flower	Orange Flower	Acacia, Syringa, Orange leaves.
Tuberose ..	Tuberose ..	Lily, Jonquil, Narcissus, Hyacinth.
Violet	Violet	Cassie, Orris-root, Mignonette.
Balsamic ..	Vanilla	Balsam of Peru and Tolu, Benzoin, Styrax, Tonquin Beans, Heliotrope.
Spice	Cinnamon ..	Cassia, Nutmeg, Mace, Pimento.
Clove	Clove	Carnation, Clove Pink.
Camphor ..	Camphor ..	Rosemary, Patchouly.
Sandal	Sandalwood ..	Vetivert, Cedarwood.
Citrine	Lemon	Bergamot, Orange, Cedrat, Limette.
Lavender ..	Lavender ..	Spike Thyme, Serpolet, Marjoram.
Mint	Peppermint ..	Spearmint, Balm, Rue, Sage.
Aniseed	Aniseed	Basil, Caraway, Dill, Coriander, Fennel.
Almond ..	Bitter Almonds	Laurel, Peach kernels, Mirbane.
Musk	Musk	Civet, Musk-seed, Musk-plant.
Amber ..	Ambergris ..	Oak-moss.
Fruit	Pear	Apple, Pine-apple, Quince.

—*Rimmel's Book of Perfumes.*

Bog Plants.—Botanists who value the Surrey heaths as being one of the best "grounds" in England for rare plants, had better make the most of their time. We are told that the value of peat as an article of fuel is being again discussed in scientific quarters. Some

time ago, the majority of the engineers who examined the matter said that peat was all but worthless. The *Building News* thinks that this was because they only tried the dried peat, full of coarse fibre, instead of the condensed peat from which the roots have been taken away, and out of which all moisture has been squeezed. This can be sold at the price of coal at the pit's mouth (what pit's mouth we are not told, although of course the price in Staffordshire, for instance, differs from that at Newcastle). There are, it seems, 140,000 acres of peat near London, from 5 to 15 feet deep, which will not long be left unworked, if (as the *Building News* asserts) the heating power of condensed peat is to that of coal as two to one. It has been tried in steam-engines of all kinds with a saving of 50 per cent.; while, as it contains no phosphorus, and next to no sulphur, it does not injure the ironwork with which it comes in contact. This absence of sulphur makes it invaluable when converted into charcoal for making steel. Further, it makes no smoke, leaves no cinders, and seems altogether a most satisfactory succedaneum. We fear the peat-growing plants of Surrey are doomed. The country close round London used to be one of the wildest, south of the Trent at any rate. We can remember the Cotton-grass abundant in a wet corner of Hampstead Heath; but Epping Forest enclosed, and the heaths pared for fuel, the plant and insect gatherers will have to go further, and probably fare worse. *Reader.*

Ladanum is an exudation from a species of Rock Rose (Cistus creticus, L.) which abounds on the drier slopes of the northern mountain mass [Cyprus], most abundantly to the westward, at elevations between 2500 and 5000 feet. It is also found not only in Candia (where also Ladanum is collected), but in Rhodes, Sicily, and Greece. This resin has been known from remote antiquity, and the mode of obtaining it, still in use in the island, is mentioned by Herodotus and Pliny. It is a secretion from compound hairs, composed of many cells, which cover the under sides and margins of the leaves, as well as the petioles and young shoots, and is collected from the beards of the goats which feed upon the plants. In Candia, as Tournefort has long ago told us, the Ladanum is collected by a sort of rake, or coarse brush with leathern thongs, with which the brushes are beaten. According to Pococke and others, a somewhat similar instrument is used in Cyprus, in which long strips of wool are the vehicle for detaching the resin; but these instruments are certainly no longer in use in this island. In connection with the Ladanum plant, Dr. Unger enters into a curious discussion respecting the derivation of the name of the island, upon which depends, as is well known, that of copper (æs Cyprium), and of the Cypress (Cupressus). The name Κύπρος is identified with Gopher, a Hebrew word, which was applied to a shrub whose flowers and fruit were used to make an ointment. Pliny describes this Gopher or Cupros shrub, and his description evidently points to Lawsonia alba, Lam., the well-known Henna shrub, which is certainly not a native of Cyprus, and though abundantly cultivated there 150 years ago, is now scarcely known. As there was never any demand for this plant in western Europe, it could never have been an article of trade between Cyprus and the West, so that Pliny must be in error, and some other plant must be looked for. Now, as Pliny himself, after following Herodotus in giving Arabia as the native country of Ladanum, says that the Arabian sort is now called Stoholon, and that the true resin is obtained from Cyprus, and that in both countries it is obtained from the beards of goats, Dr. Unger believes that the name Cupros properly belongs to the Ladanum cistus, one of the most characteristic shrubs of the island. *Natural History Review.*

Inn Sign.—The following is a copy of a poetical invitation on the sign of The Beehive, an old inn at Abingdon, kept by William Honey:—

"Within this Hive we're all alive,
Good Liquor makes us funny;
If you are dry, step in and try
The flavour of our Honey."

Notes and Queries.

Calendar of Operations.

(*For the ensuing week.*)

THE heavy rains which we have had recently have unfortunately greatly impaired the beauty of bedded-out plants, and even valuable specimen plants placed temporarily out of doors will soon be better under cover, should the weather again set in stormy and wet. Before housing such plants, however, see that the drainage is in a state of efficiency, and that the pots are well washed. A little top-dressing will also give the whole an additional appearance of neatness. A few late cuttings of choice bedding plants may still be put in, and among these do not overlook the Nosegay Pelargoniums Stella and Cybister, which are not only effective in beds and vases, but also make valuable pot plants.

FLOWER GARDEN AND PLANT HOUSES.

Hyacinths and other Dutch bulbs, if not already got, should now be procured and potted. Orange trees intended for forcing for the decoration of the conservatory or greenhouse should also receive attention. These and Daphnes are invaluable for winter blooming, and should be largely grown for that purpose. Look carefully after red spider. It is easily got rid of by laying the affected plant on its side, and well washing the under sides of the leaves with the engine, applying the water with as much force as the foliage will bear.

ASTERS.—These will now be beautifully in flower in open borders, and where fine blooms are wanted for exhibition, shading will be required during this bright weather. Truffaut's White Perfection is an extremely showy useful sort, as are also Victoria, rosy pink, and the different kinds belonging to the Giant Emperor class.

AZALEAS.—Get these now tied into form. In doing this, however, avoid too much formality. Also attend to the staking and training of specimen plants of other hard-wooded kinds as leisure time can be found for that purpose.

HEATHS.—Look carefully after the watering of large specimens of these in pots, which are soon injured by being either over or under-watered. Examine them often and carefully, and where they are found to be dry, water thoroughly, so as to moisten the whole of the ball; also look sharply after mildew on comparatively soft-wooded varieties, and dust with sulphur directly the enemy is perceived.

HOLLYHOCKS.—Continue to increase these both by means of cuttings and seed. The latter should be sown as soon as it is ripe.

SALVIAS.—See to having plenty of the showy scarlet kind called splendens, which is extremely useful for mixing among Chrysanthemums. It is a good practice to place the largest specimens of this in a shady situation out of doors for a few weeks in autumn; plants so treated will be found to bloom more strongly, and last longer in beauty than others drawn up in a warm house.

TREE VIOLETS.—Keep these clear of red spider, by a liberal use of the syringe, and by giving them plenty of manure water, which will assist in keeping them in vigorous health.

TULIPS.—Bulbs of Van Thol and others of that class used for forcing may be potted. Place them on coal ashes, cover them as Hyacinths are usually done, and early in November they may be placed in heat.

FORCING GARDEN.

CUCUMBERS.—Where a supply is required during winter, vigorous young plants should be secured at once from seed, as plants that have been bearing through the autumn, however promising they may look, seldom answer well for winter fruiting.

FIGS.—Where any are ripe keep the atmosphere as dry as can conveniently be done, and also let the trees be on the side of dryness at the root, but avoid such a degree of drought as would be likely to injure the foliage or the bearing wood for next crop. Keep the shoots thin, so as to expose the trees fairly to light and air, but avoid stopping at this season. Keep the atmosphere moist where fruit is swelling, washing the foliage well with the syringe frequently to prevent red spider, and give plants in pots or tubs a liberal supply of manure water.

PINES.—Any necessary re-arrangement of plants growing in open beds should now be effected. Encourage plants expected to show fruit next January to make vigorous growth, for these should be sufficiently advanced by the beginning of November to allow of keeping them rather cool and dry, so as to check and thoroughly ripen their growth. Plants which have been prepared for fruiting, and which it is desired to get up at once, should be encouraged with a moist warm atmosphere, keeping the soil about their roots in a healthy state as to moisture. If artificial treatment must be resorted to in order to get the plants to fruit at the desired time, there is no method so certain or so little injurious as keeping them cool and dry for a month, and then affording them a moist warm temperature and a brisk bottom-heat, giving sufficient water at the root to properly moisten the soil. Take off and pot, or plant out suckers at short intervals as they can be obtained of sufficient strength for that purpose.

VINES.—Give air freely whenever the weather is dry in houses where the ripening of the wood is an object, and if a little fire-heat is used with the air, this will be much more efficacious now than later. Except, however, in the case of young Vines with a very gross habit it will hardly be necessary to use fire-heat if the weather is dry. It will now be advisable to cover the borders of houses in which it is intended to keep ripe Grapes for any length of time, so as to prevent the soil from getting saturated by heavy rains. Look over ripe Grapes frequently, particularly in damp weather, cutting out any tainted berries immediately they are perceived, and keep the atmosphere as dry as possible, using gentle fires when necessary, with a free circulation of air; but a warm temperature is nearly as injurious as damp, therefore use no more fire-heat than may be absolutely necessary.

HARDY FRUIT AND KITCHEN GARDEN.

Pay every attention to getting the wood of Peaches and Apricots well ripened, by exposure, shortening, &c. Prepare for planting all kinds of fruit trees, by getting the ground in good order for the different kinds.

APPLES AND PEARS.—Most kinds of Apples may be gathered during this and next month. Pears should, however, be left on the trees as long as the weather continues favourable for their ripening.

CAULIFLOWERS.—Use these before they get too large, and prepare a shed or pit to plant a quantity on the first approach of frost.

POTATOS.—No opportunity should now be lost for getting Potatos that are ripe out of the ground, and stored in a dry condition. They may either be kept in narrow pits, with a little dry earth sprinkled among them, or in airy dark sheds. Before storing, however, take care to separate the bad ones, fortunately very scarce this season, from those that are sound.

SALADING.—Plant out Lettuces and Endive for spring use. If planted on the sloping sides of wide ridges they will stand better, damp being quite as destructive to them as frost.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON

For the Week ending Sept. 6, 1865, as observed at the Horticultural Garden.

August and Sept.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth 1 foot deep.	Temperature. Of the Earth 2 feet deep	Wind	Rain
Thurs. 31	10	30.199	30.060	80	50	65.0	63½	61½		
Friday 1	11	30.146	30.094	70	52	61.0	64	62	N.W	0.[illegible]
Satur. 2	12	30.163	30.083	84	47	65.5	64½	62¼	W.	0.[illegible]
Sunday 3	13	30.179	30.121	81	47	64.0	65	62¼	S.W.	0.[illegible]
Mon. 4	14	30.078	30.072	82	44	63.0	65	63	S.	0.[illegible]
Tues. 5	○	30.147	30.106	81	44	62.5	65	63	W	0.[illegible]
Wed. 6	16	30.143	30.062	80	49	64.5	65	63	S.W	0.00
Average.		30.150	30.094	79.7	47.5	63.6	64.5	62.5		

August 31—Fine; very fine; hot and sunny; fine at night.
Sept. 1—Fine; very fine and dry.
— 2—Fine with clouds; very hot; fine throughout.
— 3—Slight fog; very fine with hot sun; fine at night.
— 4 Very fine; hot and sultry; very fine throughout.
— 5—Foggy, with heavy dew; very hot sun, very fine.
— 6—Slight fog; heavy dew; hot sun, and dry air, exceedingly fine.

Mean temperature of the week, 4.4-5th deg. above the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 39 years, for the ensuing Week, ending Sept 16 1865.

September.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday..10	69.3	45.5	57.4	19	1.27 in	2	4	4	[illegible]	7	9	10	2
Mon. ..11	68.4	46.5	57.4	10	0.63	2	8	1	2	5	7	10	4
Tues. ..12	68.8	44.5	56.7	15	0.49	4	6	1	4	2	8	13	1
Wed. ..13	67.7	45.7	56.7	18	0.42	2	3	6	2	4	8	9	[illegible]
Thurs. ..14	66.7	46.3	56.5	20	0.84	1	4	7	4	3	10	7	3
Friday ..15	67.1	46.4	56.7	20	0.63	1	5	6	2	8	5	6	5
Satur. ..16	68.2	47.3	57.8	16	0.61	3	7	5	1	10	4	7	2

The highest temperature during the above period occurred on the 12th, 1858—therm 86 deg., and the lowest on the 11th, and 12th, 1860—therm 28 deg.

Notices to Correspondents.

AUSTRALIAN SEEDS: *E A C.* The seeds may be sown after Christmas, in a sandy mixture of loam and peat, and the young plants grown in a greenhouse. A little extra warmth may cause them to germinate more speedily.

BOOKS. Can any of our correspondents favour us with the title of any book that may be published on Wax Modelling of Fruits, &c.?—*D C.* You will get the information you seek in Thompson's Gardener's Assistant. There is no separate work we can recommend.

CUT FLOWERS: *Subscriber.* The early morning is the preferable time to cut flowers for bouquets, all other conditions being equal. Flowers not separated from the stem are of course fed by the sap during the night, the surrounding atmosphere being at the same time less exhaustive than during the day. Hence they must be fresher in the morning than in the evening; and the fresher they are when cut, the longer they will last. The duration of cut flowers, however, depends not a little upon their age when cut.

FUNGI: *I D.* Your Pear tree is affected with Rœstelia cancellata. We know of no remedy except burning the leaves. You do not say whether your Savine has a gelatinous Fungus on the branches. It is not supposed that the Savine has any effect on the Pear tree except through its parasitic Fungus. *M J B.*

INSECTS: *J H.* The insects which have gnawed off the young roots of your Orchids, are the large American Cockroach, Blatta americana. They are very common in ships coming from India and the West Indies, and are now becoming domesticated in several parts of England near the coast. Their nocturnal habits resemble those of the common Cockroach, but they are much less domesticated. You must examine your plants after nightfall with a lanthorn and kill the marauders. *W.*

NAMES OF PLANTS: *D R U.* We never name more than four plants at one time. 1, Erica carnea; 6, Ranunculus auricomus; 11, Convulvulus Soldanella; 16, Glaux maritima.—*H H.* Mirabilis Jalapa.—*A S B.* 1, Pteris hastata macrophylla; 2, Nephrodium molle; 3, Adiantum cuneatum.

PACKING GRAPES: *H D.* The best mode of packing Grapes to travel any considerable distance is to tie the bunches down to the bottom of shallow boxes, made to drop into an outer packing case. Or else to inclose each bunch in a pointed bag (folded like a grocer's sugar-paper) of cartridge paper, and to place them as closely as they will lie side by side in a single layer in shallow boxes.

PRUNING: *Old Subscriber.* You may cut back the large boughs of a good-sized Yew now or in spring. The straggling boughs of large Rhododendrons, five or six feet in diameter, transplanted in March last, had better be left till they are ready to break next spring, especially as you wish to cut them in hard to produce a thick growth near the ground.

STRAWBERRIES: *Reader.* "A sandy part of the garden, almost bare of top soil," is about the worst possible basis for a productive Strawberry bed. The best dressing you could apply would be as much heavy loam as you can obtain. We cannot recommend any artificial manure which would enable you to accomplish the end proposed. Rape-cake, with occasionally watering with liquid manure, may do as well as any.

TROPÆOLUM: *Subscriber.* The probable cause of strong and vigorous plants of Crystal Palace Tropæolum producing very few flowers, is that the soil in which they are planted is too rich and stimulating, inducing the growth of leaves instead of blossoms.

WATER PIPES: *S H E D.* Water which has acquired a reddish tinge in passing through iron pipes must be strongly impregnated with iron, and is not fit for watering plants in a conservatory. It is probably only occasioned by the first cleansing of the pipes after oxidisation, and would not occur again if the water were run off a few times. If the pipe is not always filled with water, so that air gets in, it will however continue to oxidise, and you will then not get rid of the stained water, except by taking up the pipes and painting them inside, or by substituting lead.

ERRATUM. In p. 795, col. c, for Achyranthus read Achyranthes.

MISC. *J P A.* will shortly hear from us.

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Highland and Agricultural Society.

EDINBURGH VETERINARY COLLEGE.—The COMMITTEE of the HIGHLAND and AGRICULTURAL SOCIETY of SCOTLAND, appointed to Superintend the VETERINARY COLLEGE, hereby intimate that SESSION 1865-66 will COMMENCE on WEDNESDAY, November the 1st.

THE COURSE OF STUDY EMBRACES THE FOLLOWING CLASSES:—

Zoatrics, Veterinary Medicine, and Surgery	Professor DICK.
Zoonomy comprising Veterinary Descriptive Anatomy, and Physiology ..	Mr. STRANGEWAYS, V.S.
Practical Anatomy, and Anatomical Demonstrations	Mr. STRANGEWAYS, V.S.
Chemistry, Theoretical and Descriptive, from commencement of Session till end of January	Dr. A. DALZELL.
Veterinary Materia Medica and Pharmacy, from beginning of February till end of Session	Dr. A. DALZELL.
Physiology and Histology, Physiological and Pathological	Dr. P. YOUNG.
Practical Pharmacy and Clinical Instruction	Prof. DICK, assisted by Mr. WORTHINGTON, V.S.

Perpetual Fee for Attendance on all the Classes, £16 16s.
JOHN HALL MAXWELL, Secretary.

SMITHFIELD CLUB SHOW.
AGRICULTURAL HALL, ISLINGTON, Dec. 4 to 8.

IMPLEMENT DEPARTMENT.—The Last Day for receiving Entries for Implements and Machinery, &c., is Oct. 2 (the 1st falling on a Sunday.

Printed Forms for Entry, with Rules and Regulations, may be obtained of Mr. DAVID PULLEN, Assistant Secretary, at the Office of the Honorary Secretary, Corner of Half Moon Street, Piccadilly, London, W.

The Agricultural Gazette.
SATURDAY, SEPTEMBER 9, 1865.

ILLUSTRATIONS of the effects of the several systems of medical treatment discussed in our last paper, may be selected without difficulty from the numerous cases that have been made the subject of experiments by physicians, surgeons, and veterinary surgeons, all of whom, as far as we have had personal opportunities of judging, have commenced with the sanguine conviction that great results were to follow the measures they intended to adopt.

First among the groups of cases which furnish instructive evidence, we propose to take those in which the disease has appeared in the mild form, the first symptoms being those of ordinary cold—slight discharge from eyes and nostrils, diminution of milk, dulness, impaired appetite, and a peculiar erect condition of the hair, giving rise to the old expression "staring coat."

Two cases, exactly alike, both presenting those symptoms in the same degree, happened in the neighbourhood of London a few weeks back. Both animals had previously been exposed to infection, but the owners, with the usual want of caution, although one of them had lost all his little stock but one, had allowed the animals to remain out in exposed situations, to the great danger of other animals which might come into contact with them. Directions were immediately given to place them in isolated positions, and in a few days both gave evidence of the existence of the disease. The treatment ordered was that suggested last week. A dose of castor oil was administered to each animal, and the febrifuge mixture directed to be given at intervals of four hours. A second examination of these cases was made in the morning of the second day after treatment was commenced. One animal appeared to be slightly better, the quantity of milk had increased, the appetite was good, but discharge was still flowing from the eyes. The febrifuge draught was ordered to be continued once a day.

The other case was not so satisfactory: the cow was standing with the head depressed, ears drawn back, the secretion of milk had almost ceased, and there was that distressed expression of countenance characteristic of this disease. A tonic and stimulant course of treatment was immediately adopted: quinine, with tincture of gentian in the doses previously mentioned, was given in strong ale twice a-day; gruel with ale and ginger were administered frequently, for the purpose of supporting the animal; but in spite of everything done the case grew rapidly worse, and died in seven days from the commencement of the attack.

The other cow continues to progress favourably. No medicines have been given for a week past, and beyond a little glairy discharge from the eyes, the animal would be pronounced free from all indications of disease.

In similar cases to the two quoted the use of chloric ether has been followed by improvement. In many instances the secretion of milk has been restored and the further development of the disease arrested; but in other sheds animals showing the same symptoms have been treated with the agent without any benefit resulting. Chloric ether may be given in doses of two ounces in a quart of water once or twice a-day; it will not be necessary to continue its use for a long period, because the case will either improve or become hopeless in a day or two—at least it is the result of our experience that when an animal grows worse under treatment it never again rallies.

For the sake of further exemplification we may refer to a series of cases that were placed under treatment in a private establishment a few miles from London. About the end of July the disease broke out, and one cow died soon after being attacked; four others followed in quick succession, and on Aug. 6 there were three cows, three calves, and one bull affected with the malady. The calves were evidently dying, and were not considered fit cases for treatment. The bull and three cows were properly isolated, every precaution being taken to prevent contact with the remaining eight cows which were still healthy, and treatment was at once commenced. The bull and two cows had drachm doses of carbolic acid, with tincture of gentian and ginger, three times a day. The remaining cow was in a shed some distance from the others, and in her case sulphite of soda was given in doses of two ounces in water three times a day; gruel with ale was ordered, but before any benefit could be gained or indeed expected from the measures pursued, the animals became rapidly worse, and in the course of a couple of days were all dead.

At intervals of a few days the other cows were attacked, and successively placed under treatment. Quinine, brandy, port wine, gruel, and Linseed tea were exhibited abundantly in each case; no trouble or expense were spared, but all in vain. The last two cases were under treatment by a surgeon of eminence, who was sanguine as to the result; these animals were dying when last seen, and are since dead. At the present time, out of 20 fine healthy animals in a beautifully open situation, accommodated in sheds kept scrupulously clean, with all the advantages of good meadows, pure air, and unremitting attention, with every appliance that science could suggest or money purchase, out of those 20 attacked one only remains—a living evidence of the utter powerlessness of medicine to cope with this disease.

Again, the malady appears under another phase, and the treatment is remarkable for its success. Three cows and a heifer give evidence of the existence of the disease in its early stage. One cow was more depressed than the others, but all the cases were considered to be worth treating. Accordingly carbolic acid was ordered in doses of two drachms, with two ounces each of tincture of gentian and tincture of ginger, three times a-day. This system has been pursued for a week. Of course the usual nutriments—gruel, Linseed-tea, and ale were given when the appetite failed, and three of the animals have nearly recovered, and the worst case is progressing favourably. In another locality experiments on a large scale have been tried, the stimulant and tonic systems of treatment have been adopted, without the slightest benefit; not a single case has recovered.

On the other side of the question, again, we may quote the case of a farm, on which there are about thirty animals left out of a hundred and fifty. Twenty of these recovered under a tonic and antiseptic system of treatment, consisting principally of the employment of tar-water, which may be taken as the equivalent of a weak solution of carbolic acid. The other ten animals either escaped the disease altogether, or had it in a mild form.

Again, in many places distant from London, in parts of Norfolk and Suffolk, we found animals recovering under the free use of sulphate of iron or dilute sulphuric acid, in addition to the necessary supply of nutriment.

In the City of London a number of animals were treated in one shed with no better result than the preservation of one cow, which the owner, in defiance alike of reason and common sense, insisted upon having bled. In fine, to sum up our conclusions to the present moment, we may state that every plan of treatment that has been tried has succeeded and failed. The fortunate experimenter who meets with a certain phase of the disease in a particular locality, will, speaking of his method according to its success, assert his power to cure 50 per cent. or more. Another, taking a more extended view, is content to save one-third; another, who has fallen upon the malady in its worst form and seen shed after shed deserted, is silent upon the subject of treatment altogether. And it remains for those who have observed the course of the disease from its commencement, and have marked the results of every system of treatment—who have seen the bombastic pretensions of the ignorant meet with miserable failure, and the well-directed measures of the scientific utterly inadequate to cope with the emergency, to make the humiliating confession that the medical art has met with an opponent who refuses to succumb.

By continental veterinarians of the highest standing it is admitted that in spite of the opportunities afforded by repeated outbreaks of "murrain," no remedy has yet been found in which any reliance can be placed, and it may be after a painful experience that English veterinarians as a body may in the future be obliged to indorse the opinion of their continental brethren, who are entitled to speak on this subject with authority.

BARNET FAIR: *Sept.* 4-7.—Reasonable fears being entertained that diseased cattle would be sent to Barnet, an application was made to the Privy Council by Mr. GEACHY, late High Sheriff of the county, to take proper measures to prevent their entrance as far as possible. Accordingly Professor BROWN was instructed to organise a system of inspection, and the effect of this has been altogether to prevent any attempt to introduce diseased animals. It was deemed necessary at the outset to make very comprehensive arrangements, sufficient in fact to meet any emergency. For three days previous to the fair all the roads by which cattle could enter were carefully examined, and all outlying stock were inspected by Messrs. DALE, HIRST, and STANLEY, acting in different directions. By Saturday night a most complete system was arranged: barns and sheds were in readiness to receive diseased cattle when seized, means of slaughtering and burying were at hand, veterinary inspectors were appointed to stations which commanded all the roads along which cattle could pass, and a large body of police, both horse and foot, were ordered by Sir RICHARD MAYNE to afford every assistance.

On Monday morning at 6 o'clock the inspectors assembled at Barnet, and proceeded to their stations, accompanied by a sufficient number of police to render any attempt at opposition on the part of the drovers abortive. The cattle began to arrive soon after seven, and continued to pass at intervals till nearly twelve o'clock. Each drove was submitted to a rigid examination, but no case of disease was found. The inspection was resumed on Tuesday and Wednesday with the same results, although from intelligence brought in by some of the inspectors there is reason to believe that diseased animals were on the road, some having been left dead in meadows at a considerable distance from Barnet. The lots to which they belonged are reported to have gone in a direction away from the fair. On all hands it was remarked that so few cattle had not been seen at Barnet Fair for nearly half a century. This circumstance is undoubtedly due to two causes: in the first place owners of healthy stock were chary of sending their animals to a place where they would run the risk of being infected; and, secondly, those in possession of diseased animals would hardly care to send them where they would be certain to be discovered and seized.

The few animals that were sent found a tolerably ready sale at fair average prices, and it was noticed that they were particularly healthy. It is probable however that there is no reason to regret the smallness of the number, for no system of inspection, however rigid, can prevent the sale of infected animals—that is to say of animals that have been exposed to the influence of the disease, but in whose systems the poison lies dormant, and who perhaps will show no symptoms of the malady for days to come. It is to be hoped that all who have purchased store stock have taken the precaution to place them in quarantine,

and intend to keep them quite isolated from other stock for two or three weeks.

Veterinary inspection at fairs and markets is of the greatest importance under present circumstances; but it is a grave question how far fairs or markets for store stock are to be countenanced during the progress of a disease so fearfully infectious and so deadly in its effects as the cattle plague. In one sense animals in which the disease is developed are less dangerous than those that are the subjects of it in the incubative stage, because in the one case the animal is discovered and destroyed, while in the other the malady may break out among stock which have been placed, under a false sense of security, in the midst of a previously healthy district. These points we commend to the serious consideration of our readers.

The Inspectors who assisted Professor BROWN were Messrs. STANLEY, DALE, HIRST, LUPTON, SKELTON, PRIESTMAN, WOODGER, jun., and PROCTOR.

The police arrangements were admirably carried out by Inspector RICHARDS, of Barnet, and the Veterinary Inspectors were unanimous in their acknowledgments to him and the men under his direction for their very valuable assistance, and support.

—— THE following letter from a correspondent illustrates one of many ways in which panic regarding the Cattle Plague is proving mischievous. It is a great loss and difficulty that is here pointed out, but it is hard to say how it can be avoided. On the one hand it is plain that the contact of two healthy herds cannot do any harm; but on the other the facility and danger of infection are so great that we do not wonder at the owner of a herd placing all animals that have traversed any public thoroughfare in rigid quarantine:—

"The great alarm created by the cattle disease is, I fear, leading, at least in this neighbourhood, to another evil. Last week I heard of some of my neighbours finding great difficulty in obtaining the use of a bull. This week the difficulty has occurred in my own yard. One of my cows was sent again to a yard where she had been before, and the cowman was met by the answer, 'no more cows will be admitted this year.' Now there is no illness in this neighbourhood that I am aware of; my own cows, eight, are all known to be well and of a good Guernsey breed, and there is no illness in the yard to which they have been sent. I have since desired inquiries to be made at every place in the district known to keep good bulls, and we have failed in obtaining access to any. The time has now passed, and we must wait some weeks, before which I must buy; but it strikes me that this general refusal is tending, even though it is late in the season, to perpetuate the difficulty in the supply of animal food which at present exists, and that you might wisely allude to the subject, and urge the continued letting in all cases where it is clear disease does not exist."

THE CATTLE PLAGUE.

[We continue to publish the letters of Correspondents on the subject.]

1. LORD GRANVILLE thus writes to the *Times*:—

"On my return from Coburg yesterday I requested my bailiff to draw up a statement of what has occurred during my absence at a farm which I hire at Golder's Green, three miles from the Regent's Park on the Finchley Road. Having perfect confidence in the accuracy of Mr. Panter's statement, and thinking it may interest the public, I forward it to you for publication.

"When I left England a month ago there were about 130 milch cows in four sheds. In the two largest and best managed I found only one cow yesterday. His Royal Highness the Duke of Coburg informed me last week that what he believed to be the same disease visited Coburg last year. No one could trace its origin, and no medical treatment was successful. Air and water were their only remedies. Some men had died from eating the meat killed at a particular stage of the disease. His Royal Highness had seen a horse die in four hours, killed by flies which came from the carcase of a cow which had been allowed to remain above ground. The disease disappeared in the autumn as mysteriously as it had come.

"I understand that Professor Simonds is of opinion that the disease mentioned by the Duke of Coburg is not the same as that from which we are suffering here—that its name is the Siberian Pest.

"GRANVILLE."

"Golder's Green Farm, Hendon, N.W., Sept. 4.

"On the 13th of July I purchased five Dutch cows in the Metropolitan Market, and placed them in quarantine at Child's Hill farm, one mile from here. On the 22d of July one of them showed signs of debility, diarrhœa followed. Thinking it was only a cold, she was treated accordingly, but continued to get worse, and died in five days. Two more were attacked in a similar way, when veterinary advice was called in, but in five days the whole either died or were slaughtered. Every precaution was used to prevent the spread of infection here, the men who attended the sick cattle were not allowed to go among the healthy ones, and *vice versâ*. But previous to this, hearing of the disease in the London cowsheds, I adopted precautionary measures, such as a liberal use daily of chloride of lime, administered one ounce of nitre in half a pint of water to each cow, and a small quantity of tar, and painted their noses with tar. But on the 8th August, unfortunately, the disease showed itself here in a fat cow that had been for 10 months in the best built, best drained and ventilated shed. No new stock had been added for nine weeks. In a few hours four more cows showed symptoms of it. I immediately had them all removed and slaughtered, and made a *post mortem* examination of them, and found the windpipe in a state of decomposition, the lungs inflated, the small intestines red and inflamed, and the meat of a dark yellow colour outside, and dark red inside, which I think unfit for human food after the first stage.

"The disease confined itself to the above shed of 48 cows (which are now all gone) till the 20th of August, when it broke out in another shed of 35 cows, some 10 yards from the former one, and continued its ravages, taking from two to four cows daily, till they are all gone but two, one of which has not been attacked; the other, which was a bad case, is cured, and partly come to her milk again. On the first symptoms I had her separated from the other stock, and did not treat her for two days, when diarrhœa set in; I then gave her a bottle of brandy and 4 ounces of ground ginger in 3 quarts of old ale. She lay in a kind of stupor for 12 hours, when I could see a change in her for the better. I continued to give her daily 4 quarts of gruel made with old ale and 2 ounces of ginger. In four days she was sufficiently recovered to eat a little hay, &c., and do without further treatment. In another case the above treatment failed, and the animal died in three days. In other cases I allowed any one to treat them who thought they had a remedy, both professional men and others. One persevering young veterinary surgeon came up out of Somersetshire and treated two cases most energetically, but failed in both; one died in four, and the other in eight days. In other cases tonics, stimulants blisters, and setons have been tried, but all failed. The whole of the 81 cows lost were of the English breed; we have not as yet had any loss out of the other two sheds, consisting of about half English and half Dutch cows, and standing about 40 yards from the infected shed.

"It may be interesting for your Lordship to know that I had the shed at Child's Hill farm immediately cleansed with disinfectants, and washed with hot lime, &c., and bought 12 fresh cows and placed them there on the 16th, which are now in perfect health, and a neighbour situated midway between here and that farm had 23 cows lying in a field; the plague took 20 of them, and in three weeks he replaced them with new stock, which are still healthy, he having had them a month.

"Another neighbour, a mile distant, had a fine herd of 72 cows (English) lying in the fields a fortnight ago. The plague broke out among them, and now he has only eight left in health. From my own experience, and from all I can learn, I believe the disease is atmospheric, and of a typhoid character. The first symptom in a milking cow is an almost entire loss of milk, then loss of appetite, a watery discharge from the eyes, nostrils, and mouth, which thickens as the disease develops itself; rumination ceases, her ears hang down, her eyes are heavy and sunken, bloody matter is seen in the excrement, great debility is seen, diarrhœa sets in, and death takes place in from three to nine days

"I have read of iron water being a preventive of the disease. All the water your cows have drunk comes six miles through rusty iron pipes. "CHARLES PANTER."

"The Right. Hon. Earl Granville. K.G., &c."

2. FROM MR. T. D. ACLAND, M.P., IN THE *Times*.—Mutual cattle assurance associations within the area of Poor Law Unions are being formed throughout the West of England. The general basis of the plan is a contribution per head on all the cattle belonging to each insurer, losses are to be met by calls on the members *pro rata*, on the number of cattle insured It follows that breeders pay more in proportion than graziers. This proportion is, in part, corrected by a rule thus:—The compensation is to be at the rate of three-quarters of the value, but in no case to exceed 15*l* for one animal. The loser of five animals, worth 10*l*. each, may receive 37*l* 10*s*; the loser of two animals, worth 25*l*. each, cannot recover more than 30*l* In this rough way we hope to adjust the balance between the grazier and the breeder. It is best to meet the emergency by very simple measures. We think the plan of a graduated scale, explained by Colonel Patten, in Lancashire (see p. 8.7), will lead to complication and dispute. There appears to be some reluctance to insure, on the ground of the indefinite liability of each insurer. Men of small capital fear they may be ruined by rapidly succeeding calls. Men of large capital fear that they will be required to pay for the defalcation of their neighbours. It has been proposed in one Union to limit the liability of each member to 6*s*. per head of insured cattle. This would provide compensation for the few cattle first attacked, and leave nothing to meet the losses consequent on any serious spread of the evil. In another Union its members resolved that the calls should not exceed 20*s*. per head insured, without a special general meeting being summoned, and also that those who require time shall have six months to pay up their calls. It has been well said that, to limit the liability to 5*s*. per head, is to decree beforehand the dissolution of the society as soon as the evil becomes serious. The extension of time for payment of calls is also open to serious objection. I think the extent of the liability may be cleared up by an illustration. Suppose 100 persons insure 20 head of cattle, say at an average value of 10*l*. per head. The total property insured is 20,000*l*. The average rate of compensation will be 7*l*. 10*s*. The limit of 15*l*. on valuable grazing beasts, worth from 20*l*. to 30*l*., does not increase the liability, but the reverse, as it throws a part of the loss exclusively on the owner, and thereby reduces the risk to be borne by the rest of the insurers Each insurer of 20 head, therefore, if the limit of 20*s*. per head be adopted, will be liable to a loss of 20*l*. when that limit has been reached. A public meeting must be summoned. The members will decide to extend the time for further calls, to wind up the association. Suppose the extreme case, that every bullock dies, each insurer of 20 head will have to pay some sum not exceeding 15*l*.

The chief alarm as to indefinite liability proceeds on the supposition that some of the insurers may be unable to pay their calls, and that an action at law may be unproductive This risk, if real, cannot come suddenly Insurers unable to pay any call when it arises will forfeit all claim to compensation and cease to be members. They will lose caste, and the calls succeeding each other at intervals will reveal the defaulters one by one The substantial men will act in concert and support each other all the more surely.

Several leading landowners have set a good example by becoming responsible for the risk on various sums, from 20 to 100 head of cattle, though owners of a smaller number, or of none. Several tenants in this Union have insured to the extent of nearly 150 head, the amount of their actual stock. I wish not to underrate the amount of their liability, but to state clearly its nature. I shall be very grateful if any of your readers can suggest any mode of narrowing its limits. In the mean time the great object to be aimed at is to cover the whole country with some machinery, providing for local watchfulness and prevention.

I request that any communication on this subject may be addressed to the Chairman of the Cattle Plague Committee of the Bath and West of England Society, at the office of the honorary secretary, Mr. R. R. M. Daw, 13, Bedford Circus, Exeter. *Thomas Dyke Acland jun.*

3. FROM MR HARVEY, M.P. (abridged).—[The following is a reply to the letter of Mr. C. S Read, published at p. 8[illegible]]

When I spoke of the cattle disease as "very much exaggerated," I referred to the panic which prevailed, and endeavoured to guard myself against misconstruction by adding that "precautionary measures were more desirable."

You think that the character of the season and the consequent change of food have nothing to do with the disease. "We have had," you say, "many such climates in my recollection, and no doubt very many more remarkable have occurred within the past century; yet we have no outbreak of murrain between 1745 and 1865." Your view, however, upon this point, is not borne out by the meteorological and other authorities. In the last official report of the Registrar-General, it is stated, on the authority of Mr. Glaisher, that the average temperature of the quarter ending the 30th of June was the highest on record. "There is no instance on record," says Mr. Glaisher, "of such a high temperature." The nearest approaches to the same value were in 1775 and 1848; and the latter, you will remember, was the very year when cattle disease prevailed so much amongst us.

But the important and most interesting point of difference between us is as to the origin of this disease You emphatically declare that "in our county every outbreak is most distinctly connected with imported cattle." If this is so, it is most important that the fact should be established. You will not, I am sure, object to produce the evidence by which it can be proved. If, in your own words, "every outbreak is most distinctly connected with imported cattle," the facts must be easy to establish; and it is right that the public and the Government should be put in possession of such facts if present the cattle dealers, the leading professors of veterinary science, and the Customs' authorities who superintend the imports, all deny the imported cattle having brought the prevalent disease amongst us It is only a few days ago that the Under Secretary for the Home Department, writing to my excellent friend the Hon. Thomas de Grey, declared "that it is doubtful, from the evidence as yet in possession of the Government, whether this disease has arisen from imported stock."

Calmly considering the position, I think you will confess that the alarm is assuming irrational proportions. Some ladies are so frightened that they altogether refrain from eating beef and tell me that they feed their families on fish and fowls. Of course they never saw a diseased animal, and their apprehensions are therefore excited simply by what they hear and read. But what is reported to be said upon the subject is certainly not well calculated to excite alarm. At recent meetings in your county one speaker proposed nothing less than "the stopping of the importation of all foreign cattle, including Irish" Another "urged the necessity of killing all imported fat beasts at the outports, and placing all stock intended for grazing in quarantine for 14 days." A third proposed "to prohibit public selling at all the fairs in the United Kingdom," including, as he was compelled to explain, at all regular sales, auctions of stock and private sales on farms, "where the stock had been quite fresh." You, yourself, dwell in your letter "on the wisdom of putting a stop to all traffic in cattle for a few weeks," and "on the necessity, when we again begin to buy cattle, that every farmer should subject his new purchases to a rigorous quarantine." All these measures are proposed as mere "measures of prevention." I am far from under-valuing measures of prevention. But do let us take care that our measures of prevention are such only as are necessary, and such as will interfere as little as possible with the interests of the trade, and the supply of food to our population.

Before we talk, for example, of stopping the importation of foreign cattle, we really ought to consider what the importation of foreign cattle implies. At the present moment nearly one-half of the animal food of the people is derived from abroad. Apart from the large quantities of meat imported there were at the Metropolitan Cattle Market in 1864 more than 120,000 foreign beasts (*i. e.* oxen, bulls, and cows), and during the six months ending 30th June, 1865, we imported

Oxen, bulls, and cows	74,392
Calves	18,785
Sheep and lambs	250,212
Swine and hogs	38,706
	382,095

The import cattle trade, therefore, is indispensable for the consumption of the country. For the interests of our own district it is, above all things, necessary to encourage it. In Norfolk we are feeders, but not breeders, of cattle It is especially our interest not to discourage the importation of animals that require feeding. Do not let us, on any doubtful and doubtful premises, lose the manufacture of these bullocks into fat stock, by driving away a trade from our shores, which will compel us to shut up our pastures as well as our markets. If all the measures of precaution are taken which have been suggested, and even urged upon the Government at recent meetings, I ask you to consider whether the trade and agriculture of England will not suffer a greater inconvenience and loss than it is likely to do even from the "Cattle Plague" itself?

In the midst of a panic, we ought not to forget that it is a matter of diversity of opinion, even amongst the best authorities, what the disease is. We are all too apt to attribute to foreign agencies what is the mere result of natural causes which we have failed to be duly observant. In the [illegible] there was a short hay crop in 1864, a very small T[illegible] last winter, and an exceedingly dry and hot summer this year. We might surely find some causes for the typhoid [illegible] our animals, especially those immured in the unwholesome and heated atmosphere of a London cow-house In no other European country are animals permitted to be kept as they are kept in London. The milk supplies of all other cities are furnished from the dairy farms beyond their walls, not in damp, badly-drained and ill-ventilated cellars, in which the animals are immured for life, badly supplied with straw, fed on, and fed on grains, and other impure and merely exciting foods. Whether, as many believe, this is the cause in the London cow-houses or not, here is, I submit, an evil with which the Government might be fairly asked to deal. Instead of demanding a prohibition of the importation of foreign cattle which are necessary for the consumption of the country, and by which the more we import the more we feed, let us demand that the dairymen of London and other towns shall be forced to give pasture to their cows. Cleanliness, humanity, and health alike require such an arrangement, and there can be no practical difficulty attending it since railway communications into and around London enable supplies of milk to be furnished with facility from [illegible] pasturages to every quarter of the city.

As regards imported cattle, you yourself appear to think that every practical measure is taken by foreign Governments at the ports of exportation, to prevent the shipment of unfitted for exportation. It may be that we, on our part, might make some practical regulations for their better treatment during their passage to our markets. But, on this ground we should be very cautious before we extend the "measures of precaution" from the range of the practical to that of the theoretical.

To guard against diseased animals being brought to market is one thing; to stop one-half our supply of animal food, [illegible]

[illegible] all [illegible] cattle fairs, cattle markets, auctions, and farm [illegible] and thereby destroy the trade of the grazier, the breeder, [illegible] the cattle dealer, and at the same time to raise the price [illegible] every description of animal food throughout the country. [illegible] purposes which, I submit, can only be justified by a necessity, the existence of which requires to be proved. *R. J. H. Harvey.*

[illegible] MR. IRWIN ON THE IMPORTATION OF CATTLE.—The disease at present prevailing in England is said to have been introduced by means of a single cargo of cattle from Revel. It is essentially distinctive by its prevalence among London [illegible]

Although the Revel cargo was sold in open market at Hull, Manchester and London, the two former adjacent districts have been comparatively, if not entirely, free from disease.

The information by which the Privy Council has been guided as to the assumed importation of the disease from Revel is utterly unauthenticated and unreliable, the veterinary authority, Professor Simonds, having acknowledged the source of his information to be the person who was sent to Revel to buy the cattle in question, superintend their being properly selected for the English markets, inspect them on shipment, and accompany them to their destination, who personally saw [illegible] well, but who never alluded to the possibility of disease among them until the existing pestilence was raging, and who incidentally he was at variance with his coadjutors as to the question of profit and loss on the transaction.

I may as well inform your readers that notwithstanding what has been said as to the prices paid for the cattle to the breeders in Esthonia the actual result of the transaction was a profit of some few shillings—certainly under 5*l.*—the importers taking the risk of loss on the voyage, excepting as against total loss of the steamer by which they were carried. It therefore appears on the bare recital of the actual facts, that the assumption of the importation of the disease from Revel is most unwarranted, in confirmation of which view I beg to submit the correct version of the Revel importation.

About the autumn of last year it was suggested to a gentleman who is one of the principal importers of foreign cattle to London, that the Russian sources of supply might be made available for the English markets, and with creditable enterprise he despatched an agent—the source of information given to Professor Simonds, as previously alluded to—to buy and superintend the feeding and shipment of an experimental cargo from Revel, the port of debarcation having originally been determined—viz., Lowestoft, which was, however, ultimately altered to Hull on the advice of north country dealers, who informed the importer that in their opinion Hull was the best market to bring the cattle to, and not, as has been very currently reported, for the purpose of avoiding the examination of the London inspector of cattle, who was fully aware of the expected importation to Hull, and who doubtless would have been sent to superintend its discharge had the Commissioners of Customs been in the least doubtful of the ability of their Hull inspector. The cattle arrived at Hull in excellent condition, the veterinary inspector being perfectly satisfied with their healthfulness; part were sold in Hull, some to be resold in Manchester, and the remainder sent by rail to London, where they were variously disposed of in the Metropolitan Market. Some few weeks afterwards this same Revel cargo was freely spoken of as the cause of the existing cattle plague in England. Although the importer of the Esthonian cattle felt satisfied that he had not been the unconscious cause of so great a calamity, he has abstained from publicly making any direct allusion to the matter until such time as he could do so in a manner admitting of no question; and I have now the pleasure of forwarding to you the original certificate from the chief veterinary authority of the Province of Esthonia, indorsed by the British Consul at Revel, asserting that no disease has existed there for some years.

1 and 2, Fenchurch Street, Sept. 4. JOHN IRWIN.

"COPY OF CERTIFICATE.

"By request of the parties concerned, I hereby conscientiously testify that in the preceding years, as also in the present year, being 1865, when Captain Russell, of the British steamer Tanning loaded from Revel bound to Lowestoft 321 oxen, 831 sheep, and three horses, that here, in the province of Esthonia, a perfectly sound state of health prevailed among the cattle, and that in no part of the province a cattle plague or any other contagious disease had made its appearance, much less had the slightest trace of murrain (rinderpest) existed.

"W. A. MAASSEN,

"First Veterinarian of the Province of Esthonia,"

"Revel, August 11."

MISS BURDETT COUTTS'S COWS.—The fine herd of Ayrshire cows at Holly Lodge, Highgate, the property of Miss Burdett Coutts, has been literally swept away during the last week or so by the disease which is now so prevalent among cattle. This herd numbered 20 cows of the purest Ayrshire breed and an Alderney bull. One cow has recovered from the disease, and the bull was unaffected by it. The cow that has survived was condemned by Mr. Mayor, the veterinary surgeon, who examined the herd; and, strange to say, the surviving animal, according to the testimony of Roach, the herdsman, was pronounced to be in the very worst condition, and the medium through which the disease was communicated to the other animals. The destruction of this herd by the cattle disease suggests one or two reflections as to its origin and nature. Every one of the presumed causes of the disease was absent, and yet it attacked the animals with the utmost virulence, and no amount of remedial skill could allay its severity or arrest its progress. We need scarcely remark that Miss Coutts, on being apprised of the disease manifesting itself in the herd, gave immediate orders that everything material should be done, not only with the view of saving her own property, but for the purpose of benefiting the public, who are anxious to acquire some knowledge as to the cause and character of the disease. First, let us remark, the herd had been some time at Holly Lodge, therefore it was not tainted with any imported cattle. Secondly, it was in excellent condition, and several of the cows were yielding from 16 to 18 quarts of milk per day. Thirdly, the sheds in which the animals were milked were airy, lime-washed, and every kind of enclosure [illegible] they are well gravelled. The pasture on which the animals fed might be termed not only good, but rich, and the water which they drank was as pure as water can well be. In short, so far as food and treatment could go to keep a herd of cows in first-class condition, they were everything that could be desired. Yet the animals sank rapidly, and some of them exhibited the worst characteristics of the disease. The herdsman, who was deeply affected by the loss of his charge, informed us that as mere stimulants given to the animals after certain severe purgations, there had been consumed by two cows alone (one of which has survived) eight bottles of whisky, two gallons of brandy, two dozen and a half of port wine, and other strong drinks, all of which were given in vain except in the solitary instance named. The cattle, under the several stages of the disease, exhibited the usual phenomena of pleuro-pneumonia. They appeared, ordinarily speaking, either excited, with staring gaze protruding eyeball and watery eye, or depressed or relaxed, with a dull, dim look, and a flow of mucus from the eyes and the nose. In all the animals a cold shivering and a coolness of the horn, the ear, and the extremities were apparent, with staring coat, tremoring of the muscles, and increased respiration. Foam and saliva flowed from the mouth, and the lungs of the animals exhibited the same appearance, being much beyond their natural size in almost every instance. *Observer.*

6. NORFOLK.—During the past week some few fresh instances of the disease have occurred in Norfolk, but at the same time it is satisfactory to observe that the prompt and vigorous precautions taken have checked to some extent the progress of the calamity. Cases of the cattle plague are reported from Felbrigg, Southrepps, Bradfield, Wickhampton, and Burgh. On Saturday a meeting of the Central County Committee was held at Norwich, Mr. C. S. Read, M.P., presiding. It appeared that the subscription raised in aid of the rate imposed for compensation purposes is now about 4,000*l.*, and substantial relief has been afforded to several sufferers. Among recent subscribers to the fund are Messrs. Gurneys and Birkbecks, 200*l.*; Mr. J. B. Petre, 100*l.*; the Bishop of Norwich, 50*l.*; Lord Hindes, 50*l.*; Lord Stafford, 50*l.*; Lieut.-General Angerstein, 50*l.*; Major Hare, 50*l.*; Mr. A. Cator, 50*l.*; Mr. J. Calthrop, 50*l.*; Mr. R. Overman, 50*l.*; Mr H. Lestrange, 50*l.*; Mr B. B. Cabbell, 50*l.*, &c. With a view of ascertaining the precise state of affairs, the committee agreed, on the motion of Mr. Woods, agent of Lord Walsingham, to address the following questions to each Poor Law union in the county:—"1. Are there any cattle in your union affected by any disease similar to the cattle plague, and if so, state in what parish, when it broke out, and if a veterinary inspector has been called in? 2. Have any cattle died in your union of any similar disease? 3. If you suppose the disease to exist in your union, can you trace it to any particular cause? 4. Is there any smallpox among the sheep in your union, or has there been within the last six months?"

7. Dr. LETHEBY, the Medical Officer of Health for the City of London, mentions in his evidence before the House of Commons, that the following letter from a well known salesman in Newgate Market was found on a man who was fined 10*l.* at Derby, in March, 1864, for selling diseased meat:—

DEAR SIR,—Your meat was first sold at 2*s.*, but it was brought back. I had no idea it was full of physic. I was glad to get it off to a "chopper" at last. If the inspector had seen it, it would have been seized. In future, if you have anything *doubtful*, send it with the following note, for your own protection in case of *accident*:—"Sir,—Please not to offer this meat for sale without the sanction of the inspector. If not approved of, do the best you can."—Yours obediently, ——

Dr. Letheby explained that a "chopper" is the trade term for a sausage-maker; and that persons sending up diseased meat to London cannot be reached by the arm of the law if they protect themselves by notes similar to that suggested by the Newgate Market salesman to his carrion correspondent at Derby. *Pall Mall Gazette.*

8. PROPAGATION BY INFECTED MANURE.—Years ago Dr. Budd of Bristol (to whom we are indebted for a correct pathology of the typhoid fever of the lower animals, and, indeed, principally for our information on this subject), demonstrated that the great source of danger from infection in human typhoid, a strict analogue of the disease which is at present devastating our herds, is from the excreta of the patient, and that, providing proper measures are taken to insure immediate disinfection of the alvine discharges, there is comparatively no danger of the disease spreading. It is also well known that those who, from the nature of their duties are brought into more immediate contact with the excreta of the sufferer are invariably those who incur the greatest danger of infection, and suffer from the disease in its most virulent form.

We can readily understand why this should be the case when we reflect that typhoid fever is a disease that has its specific eruption on some portion of the mucous surface of the intestinal tract, and that it is by this surface that nature endeavours to eliminate the poison. Here it is to be found in greatest quantity and most concentrated form, and here alone are to be seen those specific lesions which distinguish the disease from all others. Just as the poison of smallpox finds its outlet and specific eruption upon the skin, so does the poison of typhoid fever seek its elimination and exhibit its characteristic eruption in the intestinal tract. In the discharge from that canal and some portion of the mucous surface of the respiratory outlets lie the great, if not the only source of danger, and I do not hesitate to affirm that we shall never get rid of the "rinderpest" in this country so long as cart-loads, waggon-loads, and boat-loads of manure derived from infected stables contaminated with the discharges of diseased animals, and consequently containing the poison in a most concentrated form are scattered broadcast over the land.

It is easy to understand that animals pastured in fields manured from such a source must inevitably suffer from the disease, and spread it among their companions. It is thus that the hides and hoofs of diseased animals spread contagion, soaked as they are with the discharges with which the stables and litter are flooded, and in this way attendants and visitors carry on their boots and dress sufficient poison to propagate the disease. Thus also the railway trucks, the streets along which diseased beasts have been driven, the ships' holds, the cattle-market, and the sewers become fertile sources of contagion. To this cause also we may rationally attribute the persistence of the disease in the steppes of Siberia, where the intestinal discharges from infected animals are dried up, and being thus preserved are spread invisibly over the land; in fact, one particular outbreak was distinctly traced to the dung of some diseased oxen which had lain for months under the frost and snow of a Russian winter. As to the disease itself there is little doubt that if the animals subject to it were carefully treated the great majority would recover, and I have no doubt that if those exposed to infection were protected by full doses of the hyposulphites (salts demonstrated by Professor Polli, of Vienna, to protect the system almost completely from purulent infection) a very large proportion would escape. These points, however, are scarcely worthy of consideration; a single beast is never worth preserving when a probable source of so dangerous infection, and there can be no question that the only safety is the instant slaughter of the infected animal, the complete destruction of all exuviæ, absolute burning of the hay, straw, and litter, and the thorough disinfection of the stalls, which should not be used again for months. *Charles Taylor, M.D., Nottingham.*

9. PREVENTIVES.—I keep 100 cows within six miles of London, which are fed like most dairy cows in the neighbourhood, on cut Grass, grains, Mangel Wurzel leaves, and flour. They are never turned out into the fields. On hearing, three weeks ago, that the plague was raging in my (the N.W.) district, I determined to give each cow daily half a pint of prepared charcoal mixed with her grains and flour, and one ounce of nitre (dissolved in cold water) in half a pint of water every other morning. I have freely used Burnett's disinfecting fluid, dashing it with a wisp of hay against the boards upon which the cows breathe, and along the alleys and openings into the drains. I limewash my sheds every month, and paint the cows' noses with Stockholm tar every morning. I attend to the ventilation, which is as free as I can make it. I have not yet done it, but I intend to fumigate the sheds by burning a little tar on red hot bricks in them every day. Hitherto I am thankful to say that the plague has not visited me. I do not mean to say that these means are a preventive, and I am very far from being presumptuous enough to say that my turn is not at hand; but I state the broad fact that my cows never were healthier than they were last night at 8 o'clock, and such being the case, I give the measures I have adopted, so that others may, if they think fit, give them a trial. They are, at all events, within the means of any person who keeps cows. *W. P. Talbot, Oakingham Farm, Sudbury, N.W.*

IS LONG FALLOW NECESSARY?

I REPLY—Certainly not, either on light or heavy lands, provided they are properly drained, deeply cultivated, and sufficiently manured. All the advantages of a long fallow are gained by trench ploughing and by horse and hand-hoeing among our strong-growing root, Cabbage and Bean crops. There are certain crops that will always master the weeds if you will but use the hand and horse hoe. Weeds have no chance with a crop of Tares and Wheat, especially if you use guano; I mean Tares sown with Wheat early in October. The great destroyer of deep-rooted weeds is the second or trench plough, which tears them from their stronghold in the subsoil.

Beans, when an inch out of the ground, are already so deeply and strongly rooted that you may safely harrow the ground well with iron harrows. This is my practice, and although it appears a dangerous one, it answers admirably, and gets rid of the young or surface weeds and stimulates the growth of the Beans. Another strong deep-rooted plant is the Mangel, which, although very young, has its roots deep in the soil, and will, if aided by the hand and horse hoe, very soon overcome its enemies the weeds.

If there are any weeds in Red Clover, the hand hoe in the spring, when the Clover pushes its shoots, will decapitate its enemies, and then the Clover takes care that they shall not again show ahead. Good farmers take care at the same period to have strong weeds mattocked out of their pastures. But then it may be said,—How are we to get rid of our Couch Grass?

Couch Grass loves water furrows and wet places, therefore drainage is indispensable. Next is deep cultivation by trench ploughing. It is surprising how rapidly the surface furrow-slice will dry when it has another furrow-slice or cultivated land under it. After very heavy rain storms the surface becomes almost immediately firm, the water having passed rapidly into the under cultivated layer. Couch Grass is easily killed in our hot dry eastern counties during summer by double ploughing and being harrowed to the surface and dried by the sun, or removed from the land; but bear in mind that if any moisture remains in the root its vitality exists, and it will soon re-plant itself. My land is very free from Couch Grass, but wherever it appears it is forked out, shaken from the earth, and carried off the field.

If you plough your land before removing the Couch Grass, its divided parts are distributed by the drill harrow, &c, and you thus get a multiplication of evil. I have now a fine growth of Cabbages planted in July after Tares. The Couch Grass shows itself in various patches. As soon as the land is dry enough, or immediately after harvest, every patch will be forked out and carried off the land before we hoe the Cabbage. The hoe would, if used before the fork, cut it and propagate it. Cabbages are quite able to keep down weeds after sufficient hoeing. One of our London or Garden Cabbage planted in March and now used for feeding our stock weighed 13 lb. Three tons of Cabbage, according to analysis, contain as much flesh (not fat) forming matter as 20 tons of Potatos.

Long fallow is an apology for want of manure. Surely this is inadmissible; for we have guano and other artificial manures if we cannot afford to produce our own by abundant meat making. A year's fallow costs 5*l.* at least, without any immediate return. 1*l.* per acre spent in horse and hand hoeing among growing crops will give us ample cultivation after a trench ploughing, and we get a valuable crop for consumption. Surely the days of long fallow are numbered—a proposition to fallow a fourth of our garden would create astonishment.

After harvest and before scarifying the stubbles, we fork out every patch of Couch Grass and carry it off the land; an expense of 9*d.* per acre thus incurred is a profitable preventive.

If we could estimate or had statistics of the losses incurred by long fallows and by Couch Grass in the United Kingdom, it would astound us. I confess that I was astonished a few years ago to see *en passant* by rail huge stacks of Couch Grass, and to hear that a manufactory was established to convert it into paper. Several reflections passed through my mind at that moment, which I may be excused for not committing to this paper.

I have a lively recollection of attending some years ago an agricultural trial of implements in the neighbourhood of Watford. The field, a stubble, was a pasture of Couch Grass. At the dinner that followed I ventured mildly to suggest that I thought the growing of Couch Grass was unprofitable, and that it was unfortunate to select such a field for a public exhibition of agricultural progress. A storm of indignation followed my remarks, and it really appeared to me from what was said that the field was not an unusual one. Since that time I have seen too many such fields in a similar state in various parts of the kingdom, and I observe with regret that in the reports of most of our trials of implements, comments are made on the unfavourable condition of the ground selected for trial.

I wish that my agricultural friends would dig down and see how deep the roots of plants and weeds go—many feet deeper than some of them are aware of. *J. J. Mechi, Aug.* 1865.

COTSWOLD RAM SALES.

THE auction sales for the present year, of this famous breed of sheep, have nearly concluded, and considering the depression under which the agricultural interest has so long laboured, there appears to be little reason to complain of the prices obtained.

July 24, at Little Badminton, Mr. William Tayler sold about 40 sheep, for Mr. Francis Francomb, at an average of 13*l.* 0*s.* 9*d.*

July 26, at the Cross Hands Inn, Old Sodbury, Mr. William Tayler sold about 40 sheep, for Messrs. G. & W. Limbrick, of Horton, at an average of 12*l.* 19*s.*

August 4, at Sierford, Mr. Villar sold 51 sheep, for Mr. Handy, which made an average of 13*l.* 5*s.* 2*d.* Last year, the average was 10*l.* 10s. 10*d.*

August 5, at Northleach, Mr. Acock sold 40 sheep, for Mr. James Walker, which made an average of 16*l.* 10*s.* 6*d.* Last year, 10*l.*

August 7, in Cirencester market, Mr. Villar sold 30 sheep, for Mr. H. Cole, of Ashbrook, at an average of 7*l.* 15*s.* 8*d.* Last year, 8*l.* 12*s.* 4*d.*

August 7, in Cirencester market, Mr. Villar sold 16 sheep, for Mr. J. M. Read, of Elkstone (the historian of the "Cotswolds"), at an average of 9*l.* 17*s.* 10*d.*

August 7, in Cirencester market, Mr. Villar sold 10 sheep, for Mr. Ratcliffe, of Sapperton, at an average of 9*l.* 14*s.* 3*d.*

August 7, at Cirencester market, Mr. Villar sold 22 sheep, for Mr. Akers, of Water Eaton, at an average of 6*l.* 17*s.*

August 7, in Cirencester market, Mr. Villar sold 11 sheep, for Mrs. Baxter, of Fyfield, at an average of 15*l.* 1*s.* 6*d.*

August 7, in Baunton, after the market at Cirencester, Mr. Villar sold 44 sheep for Mr. Porter, which made an average price of 17*l.* 5*s.* One of the sheep, lot 5, realised 77 guineas. Mr. Porter's average last year was 10*l.* 18s. 10*d.*

August 7, in Cirencester market, Messrs. Moore & Hill sold 20 sheep, for Mr. Clark, of Frampton Mansell, averaging 7*l.* 10*s.*

August 7, in Cirencester market, Messrs. Moore & Hill sold 20 sheep for Mr. John Barton, of Kemble, which averaged 7*l.*

August 7, in Cirencester market, Messrs. Moore & Hill sold 20 sheep, for Messrs. Porter, of Coln St. Aldwyns, which made an average of 6*l.* 15*s.* 6*d.*

August 7, in Cirencester market, Mr. Acock sold 32 sheep, for Mr. William Garne, of Kilkenny, at an average of 7*l.* 18*s.* 2*d.* Last year, 12*l.* 7*s.* 8*d.*

August 7, in Cirencester Market, Mr. Acock sold 1[illegible] sheep, for Mr. Tayler, of Turkdean, averaging 10*l.* 2*s.* 10*d.*

August 7, in Cirencester market, Mr. Acock sold 12 sheep, for Mr. Thomas Barton, of Coln St. Dennis, at an average of 8*l.* 5*s.* 4*d.*

August 7, in Cirencester market, Mr. Acock sold 21 sheep for Mr. John Barton, of Coln St. Aldwyns, at an average of 11*l.* Last year, 9*l.* 5*s.* 9*d.*

August 7, in Cirencester market, Mr. Acock sold 12 sheep, for Mr. G. Hewer, of Le Gore, at an average of 12*l.* 1*s.* 6*d.*

August 8, at Ewen, Messrs. Moore & Hill sold 4[illegible] sheep, for Mr. John Howell, at an average price of 11*l.* 19*s.* each. Last year's average was 12*l.* 19*s.*

August 9, at Coates, Messrs. Moore & Hill sold 4[illegible] sheep, for Mr. Henry Howell, which made an average of 9*l.* 2*s.* Last year, 10*l.* 17*s.* 3*d.*

The following is our usual comparative statement of the sales for the past 9 years:—

NAME.	1857.				1858.				1859.				1860.				1861.				1862.				1863.				1864.				1865.			
	Sheep Sold.	Average.			Sheep Sold.	Average.			Sheep Sold.	Average.			Sheep Sold.	Average.			Sheep Sold.	Average.			Sheep Sold.	Average.			Sheep Sold.	Average.			Sheep Sold.	Average.			Sheep Sold.	Average.		
		£	s.	d.		£	s.	d.		£	s.	d.		£	s.	d.		£	s.	d.		£	s.	d.		£	s.	d.		£	s.	d.		£	s.	d.
Mr. H. Howell, Coates	40	12	10	0	40	9	0	0	40	8	19	3	40	14	10	2	41	8	11	7	40	11	1	0	40	11	6	8	39	10	17	3	41	9	2	6
Mr. J. Lane, Barton Mill	50	9	14	9	50	10	8	0	45	8	18	0	48	10	10	4	47	11	2	3	48	10	0	4½	50	11	18	9	47	9	14	9	—	..		
Mr. J. K. Tombs, Hatherop	50	8	15	0	53	8	0	0	48	8	9	8	40	8	3	6	39	9	6	2	50	7	13	3	40	8	12	6	40	7	10	2	36	7	7	0
Mr. C. Barton, Coln Rogers	52	13	5	8½	52	12	2	1	53	11	1	2	52	12	7	4	50	10	5	0	50	11	13	0	52	11	19	2	49	9	11	7	49	12	14	9
Mr. W. Cother, Middle Aston	70	9	16	2	70	11	1	8	68	9	1	1	60	8	14	2	60	9	18	0	86	10	13	6	65	8	9	11	44	9	10	3	54	7	7	4
Mr. W. Garne, Kilkenny	56	8	3	0	49	8	5	0	45	8	7	2	46	19	8	0	54	12	4	0	47	10	4	5	48	11	6	9	34	12	7	8	32	7	13	2
Mr. W. Lane, Broadfield	65	22	4	2¼	58	16	14	6	50	11	16	6	54	17	8	0	50	17	11	3	50	13	13	9	56	14	14	11	56	10	6	7	52	17	9	9
Mr. J. Gillett, Minster Lovell	64	14	2	0	64	12	14	1	60	14	4	2	60	11	17	2	66	12	2	7	58	9	17	4	50	10	0	3	56	9	16	4	59	10	3	8
Mr. R. Garne, Aldsworth	59	16	17	3	60	12	7	2	50	12	1	6	52	18	13	2	56	15	15	7	50	11	14	1	54	15	16	9	50	14	8	2	52	13	18	6
Mr. W. Smith, Bibury	57	18	16	2	59	13	6	7	51	11	4	9	50	11	7	4	50	9	10	0	54	8	0	4	44	11	4	6	54	9	19	11	40	10	7	10
Mr. T. Porter, Baunton	52	10	15	8	50	9	15	8	44	9	0	0	49	11	11	8	50	10	18	6	50	7	17	6	30	8	16	9	50	10	18	10	44	17	5	0
Mr. Fletcher, Shipton	54	12	9	3	54	12	3	7	50	13	5	6	51	11	8	6	50	12	16	6	51	11	17	9	52	13	10	6	53	14	17	7	51	13	5	2
Mr. W. Hewer, Northleach	54	15	18	6	55	20	12	11	53	14	17	6	50	16	8	0	50	16	5	3	56	17	17	0	50	17	5	0	50	25	5	2	50	21	19	9
Mr. Walker, Yanworth	46	12	0	7	46	9	0	3¾	40	10	14	7	19	13	1	0	—	..			—	..			—	.			—	..			—	..		
Mr. R. Lane, Cottage Farm	30	16	5	0	46	12	2	6	32	16	0	7	32	17	6	6	36	34	10	8	43	23	2	3	—	..			—	..			—	..		
Mr. Howell, Ewen	42	12	0	6	40	12	9	4½	40	11	1	3	40	12	8	4	40	11	0	6	40	13	3	3	36	12	1	6	39	12	19	0	41	11	19	6
Mr. J. Barton, Coln St. Aldwyns	50	9	1	6	50	9	4	0	50	8	17	0	45	11	8	0	50	10	7	0	46	8	19	7	44	11	5	0	46	9	5	9	21	11	0	[illegible]
Mr. Barton, Fyfield	50	13	9	9	50	9	10	0	50	9	2	10	50	15	3	6	44	15	10	0	46	16	13	4	44	14	14	11	48	12	18	4	46	10	7	2
Mr. Handy, Sireford	—		..		—		..		—		..		—	9	18	0	40	9	16	3	42	10	10	3	48	9	15	0	51	10	10	10	51	13	5	[illegible]
Mr. H. Cole, Ashbrook	—		..		—		..		—		..		—		..		—		..		—		..		20	10	10	6	24	8	12	4	30	7	15	[illegible]
Mr. James Walker, Northleach	—		..		—		..		—		..		—		..		—		..		—	13	5	0	36	11	9	2	40	10	0	0	40	16	10	6
Messrs. J. Wells, Hampnett	—		..		—		..		—		..		—		..		—		..		—		..		..		..		51	11	19	5	51	10	13	[illegible]

In 1854, Mr. Garne, of Aldsworth, realised 21*l.* 7*s.* 3*d.* each for 55 sheep. In 1855, Mr. W. Lane's average for 65 sheep was 20*l.* 2*s.* 6½*d.* In 1856, Mr. R. Lane obtained an average of 20*l.* 14*s.* 1*d.* for 30 sheep. Mr. R. Lane has now discontinued his sale of shearhogs, and last year sold his ram lambs at an average of nearly 7*l.* each.

At Oxford, Mr. Jonas Paxton disposed of some very fine animals from four different breeders.

Mr. Paxton first submitted 42 superior Cotswold shearling rams, bred by Mr. R. Lord, which fetched an average of 8*l.* 9*s.* 3*d.*, the highest figure being 15½ guineas, and the lowest 6½.

Thirty first-class long-woolled ram lambs, the property of Mr. W. Gillett, of Southleigh, were next disposed of realising from 10*l.* 15*s.* to 3*l.* 5*s.*, and averaging 5*l.* 5*s.* 8*d.*

Mr. Paxton next offered 30 long-woolled ram lambs from Mr. C. Gillett, of Lower Haddon. Prices varied from 5*l.* 15*s.* to 3*l.* 10*s.*, the average being 4*l.* 10*s.* 9*d.*

The last sale consisted of 20 Cotswold shearlings, bred by Mr. Thos. Akers, of Black Bourton, who made his *début* this year with some very superior rams. They realized from 5½ to 14½ guineas, averaging 7*l.* 15*s.* 10*d.* *Wilts and Gloucestershire Standard.*

HEALTH OF STOCK IN 1864.

The following is greatly abridged from the returns in the "Veterinary Review" for August 1865:—

BEDFORDSHIRE: *Leighton Buzzard.*—Diseases among horses and cattle have been much less prevalent than usual. Thousands of pigs had died within a radius of 10 miles, presenting the following symptoms:—loathing of food, prostration of strength, staggering gait, and constipation on the first day, succeeded on the second by diarrhœa. The pigs die in a few days, and present red blotches on the lungs, liver, and mesentery, and marks of extensive inflammation of the bowels.

CHESTER: *Crewe.*—Pleuro-pneumonia has not been so prevalent or fatal as in some previous years. Foot-and-mouth disease prevailed among the cattle and pigs on three or four farms. Black quarter has prevailed to a slight extent, but splenic apoplexy has not been met with. Sheep have been healthy, but many pigs have died, presenting symptoms of quick breathing, loss of power in the limbs, and discoloration of the body.

CORNWALL: *Penzance.*—Contagious diseases infrequent. Pleuro-pneumonia has been unknown for six years, though cattle are frequently imported from Spain. Black quarter, dropping after calving, and red water, were occasionally met with, and diarrhœa in calves was very prevalent.

CUMBERLAND: *Aspatria.*—Contagious diseases not prevalent, with the exception of epizootic aphtha, which occurred extensively among cattle and sheep. Black quarter was exceedingly common among yearling stirks, and splenic apoplexy attacked half a dozen animals on badly drained land, proving fatal in all cases but one, in from four to six hours. Red water in cattle was very prevalent on the same kind of land as splenic apoplexy. Diarrhœa made great havoc among yearling stirks, appearing equally on all lands. Measles has been very prevalent in pigs. Rot has occurred to a limited extent among sheep; in the previous year (1863) it was very destructive.

DERBYSHIRE: *Bakewell.*—Pleuro-pneumonia and epizootic aphtha have been much less prevalent than usual. "This I attribute to the farmer being more cautious in the purchase of Irish and other stock, that have brought it into this neighbourhood before. Black quarter prevailed extensively in autumn. There was little parturient fever, but much red water among cattle, the latter being attributed to the dry summer, which had rendered the natural grasses more indigestible. Many lambs perished from filaria in the bronchia. Many were saved by the early administration of turpentine and tincture of asafœtida.

DEVONSHIRE: *Torquay.*—Pleuro-pneumonia was extensively prevalent in the district during the summer and autumn. The majority of cases proved fatal. All of them, I believe, were produced by contagion. Calves suffered considerably from diarrhœa. —— *Cullompton.*—Pleuro-pneumonia rarely visits the neighbourhood, the cattle being home-bred. Scab in sheep is common, leading often to litigation and recovery of damages for the contamination of stock.

DORSETSHIRE: *Bridport.*—Pleuro-pneumonia has appeared in only one dairy of 58 cows, on a farm where it was never seen before, where there has been no stock imported for several years, no cases for several months within several miles of the place, and no public road through or near the farm. Two of the cows died two days after I was called in. Thirty others were slightly affected, showing the mucous crepitating râle; but none of these died. The 56 remaining cows were dosed every four hours for three successive days with flax and gruel, and an ounce and a half each of sweet spirits of nitre and oil of turpentine. Those affected were well blistered with mustard. Sheep suffered extensively from epizootic aphtha, remaining lame for months, and becoming greatly emaciated. While treating some cows for epizootic aphtha, "I put nitrate of potass into a cistern for them to drink, and wash their mouths. In order to test the strength of the fluid, I incautiously dipped my finger into the fluid, and put it into my mouth. A day or two after this, my mouth became fearfully vesicated; and the vesicles underwent similar changes to those of the cows, &c. I had not the least hesitation in pronouncing my complaint to be eczema epizootica."

DURHAM: *Stockton-on-Tees.*—A great many cattle, both fat and lean, have suffered from pleuro-pneumonia. Though the cattle, as a rule, are hurried off to the slaughterer, thus in part concealing the prevalence of the disease, yet great numbers have come under my notice. The result is not only loss to the farmer, but the plentiful supply of food unfit for human consumption. I believe the disease to originate chiefly in contagion; and this affection, as well as foot-and-mouth disease, and scab, has been very prevalent in the Stockton and Darlington markets.

ESSEX: *Southminster, near Maldon.*—Very few cases of pleuro-pneumonia have been met with. Epizootic aphtha greatly less than in the preceding year. Markets generally pretty free from these diseases. Diarrhœa in calves was rather frequent, they being purchased from other counties when very young, and subjected to long abstinence, change of milk, &c. Pigs suffered considerably from affections of the respiratory organs.

HAMPSHIRE: *Alton.*—Very little pleuro-pneumonia or epizootic aphtha. Sheep have suffered from foot-rot, and pigs have perished in large numbers from a fatal disease.

HERTFORD: *Bishop-Stortford.*—About 20 cases of pleuro-pneumonia; the best were sent to the butcher, and the others were treated generally with success. When a farmer bought 10 or 20 at a fair, one or two would fall ill, and the others go on satisfactorily. Epizootic aphtha is treated with chalk and gruel by the farmers themselves. Bronchitis was prevalent among farm horses in the spring; they were treated successfully by blistering, and giving calomel, ammonia, and sweet spirits of nitre. —— *Great Berkhamstead.*—Epizootic aphtha has not been so frequent or severe as in former years. Black quarter and diarrhœa in calves existed to a limited extent. Parturient fever was less prevalent than usual. Amongst pigs an epidemic and highly infectious enteric fever has been extremely fatal, destroying, in many instances, from 50 to 80 per cent. It is most fatal in young pigs.

HUNTINGDON: *St. Ives.*—Pleuro-pneumonia has come less under my notice than last year. It is mostly Irish beasts that suffer, and it generally ends in death. Epizootic disease has been very prevalent. The markets usually contain diseased animals. Black quarter is generally very fatal. Cases of dropping after calving, ophthalmia in cattle, and diarrhœa, have been met with, but in no great numbers.

KENT: *Lewisham.*—Pleuro-pneumonia was very prevalent in the large dairies where they are constantly purchasing cattle. It is chiefly brought with the Dutch cattle; it is no uncommon thing for a farmer to buy ten or twelve Dutch beasts, and in less than a week all of them will be affected with pleuro-pneumonia. Foot-and-mouth disease has prevailed to a very large extent, both in cattle and pigs: scarcely a farm escaped. Diarrhœa in calves rather prevalent. —— *Rochester.*—Very few cases of contagious diseases; two of pleuro-pneumonia, and 12 of foot-and-mouth disease. I never hear of any being taken into market in this part of the county. —— *Willesborough.*—Diarrhœa occasionally among calves artificially reared. Great mortality from parasites in lambs during the winter months.

LANCASTER: *Liverpool.*—Pleuro-pneumonia extensively prevalent. By the adoption of preventive measures the number sent into the market diseased can usually be restricted to ten per cent. Epizootic aphtha prevailed extensively during the past year, having been brought by pigs from Ireland. Several farm servants had it very severely. Diseases of the respiratory and digestive organs were below the average.

LEICESTER: *Loughborough.*—There was a great number of cases of pleuro-pneumonia among Irish and Dutch cattle; but there were few among home-bred beasts. Epizootic aphtha existed in a mild form during the summer. Scab in sheep was less prevalent than in the previous year. Many animals were exhibited in the markets affected with those two last diseases. Diseases of the digestive organs were also abundant. Black quarter raged extensively during the last few months of the year. Many calves died from diarrhœa. Sheep also suffered from diarrhœa, and pigs from pleuro-pneumonia.

LINCOLNSHIRE.—Scab in sheep was never so prevalent in Lincolnshire before. Influenza, with low fever, was very prevalent; there was no discharge from the nose, but intense fever. A few cases of black quarter, though the country generally is well drained. We have treated several flocks of lambs for strongylus filaria in the bronchia —— *Market Deeping.*—Pleuro-pneumonia was less frequent than in 1863. It taken in time they usually got better under the use of creosote, setons, and blisters, with good living generally. When an outbreak takes place I always seton the whole herd with advantage. Epizootic aphtha and scab have been less prevalent than usual. Black quarter occurred extensively in calves, and parturient fever in cows. Diarrhœa in calves existed to a limited extent. —— *Brigg.*—Pleuro-pneumonia was extensively prevalent, but in a milder form than is common. Epizootic aphtha, sometimes accompanied by paralysis, sometimes simple aphtha. Scab has been very prevalent among sheep. Diarrhœa extensively among calves. Besides scab, sheep suffered from foot rot, diarrhœa, and a uterine affection before lambing. Pigs had measles and disease of the digestive organs, with paralysis. —— Epizootic aphtha was more general during the early part of the year 1864 than any previous year since its first appearance. It attacked sheep and pigs extensively, as well as cattle. I have seen several shepherds and their helpers suffer from the mouth disease. Their tongues and lips bear the closest resemblance to the appearances witnessed in the lower animals. Scab more prevalent than for many years. Scarcely a farm is free from it. Most of the farms have either public or occupation roads through them. Black quarter above the average, attacking young beasts, from six to fifteen months old principally. I never saw a single beast recover in my 30 years' practice

MIDDLESEX: *Plumstead.*—During the latter part of the year bronchitis and influenza were very prevalent among horses, the latter assuming an asthenic form, and proving fatal in a great number of cases. Horses were comparatively healthy until November, when influenza broke out. Its most prominent symptom was great debility, and generally terminated

...ly in from two to four days, if not properly treated in the early stage.

NORFOLK: *Blofield.*—Pleuro-pneumonia in cattle has been less prevalent than in former years. The majority of cases have occurred singly, and of a very mild nature. At least 50 per cent. of the affected animals have recovered. The other case terminated fatally in two days. Foot-and-mouth disease has been very common among cattle; but it generally yields in a few days to good nursing. Diseases of the digestive organs have been rather prevalent among horses, due mostly to improper feeding. Three or four cases of black quarter in young cattle—all terminating fatally. Red water in cattle common, but the great majority of cases have recovered. Sheep have been comparatively healthy during the past year. We often see cattle suffering from epizootic aphtha and pleuro-pneumonia exposed for sale in our public markets. Scabby sheep rarely seen.

NORTHAMPTON: *Kettering.*—Pleuro-pneumonia in cattle has been very prevalent in this district during the past year, appearing mostly among bullocks bought at fairs. Veterinary surgeons are seldom called upon to treat this disease, but I have found the use of salines in the early stage, followed up by the administration of vegetable and ferruginous tonics, prove very beneficial. There can be no doubt of the contagious nature of pleuro-pneumonia; and I am convinced that proper market and railway regulations, along with other sanitary improvements, would do much to rid the country of this disease. Foot-and-mouth disease prevails to a great extent in this district, but it generally yields to good nursing in a few days. Scab in sheep very common during the summer and autumn, treated in most cases with mercurial ointment. In the spring a large proportion of the farm horses in this district were affected with a very malignant form of fever (scarlatina). The disease was most virulent on its first appearance, but afterwards assumed a milder form, and ultimately disappeared; only a few cases proved fatal.——*Berry.*—Influenza, pleurisy, and pneumonia, very prevalent among horses during the month of December; about the average number of cases of diseases of the digestive organs in horses. Hoose in calves has been very common, in most cases complicated with obstinate diarrhœa. The most common diseases of sheep are diarrhœa in ewes, hoose and diarrhœa in lambs; and in many cases sheep suffer from the application of mercurial ointment in the treatment of scab.

NOTTINGHAM: *Newark.*—Glanders and farcy in horses very much on the increase, more especially among post and boat horses. A few cases of pleuro-pneumonia in cattle, the result of contagion. Epizootic aphtha very prevalent among dairy stock and young cattle, due to contagion. Scab in sheep prevalent. Black quarter in cattle has prevailed to a considerable extent, and in every case proved fatal. Diarrhœa in calves very common during the spring months, in many instances terminating fatally. Diseases of the respiratory organs in horses is very prevalent; and owing to improper feeding, diseases of the digestive organs were also very common. Cattle affected with pleuro-pneumonia are seldom exposed for sale in the market here, but we freqently meet with cases of foot-and-mouth disease, both in cattle and sheep, in our public fairs. Scabby sheep often sold as sound.——*Worksop.*—Foot and mouth disease has been very prevalent among cattle; and a few cases of this disease have occurred in pigs in this district during the year. I have only had two cases of splenic apoplexy and three of parturient fever for the last 12 months. Diarrhœa and hoose in calves have been very prevalent. In the autumn large numbers of sheep and lambs were affected with diarrhœa. Animals exposed for sale in our public markets have been very free of contagious diseases throughout the whole year.——*Ollerton.*—No cases of pleuro-pneumonia in cattle have been seen for the last two or three years. I am constantly seeing cases of foot-and-mouth disease in cattle, sheep, and pigs; in fact, this district never seems to be thoroughly free of this disease. Scab in sheep is by no means uncommon, but farmers always try to keep an outbreak of this disease as secret as possible. Parturient fever very common, but in most cases I believe it is the result of improper management and change of food about the time of calving. I have never been called to a case where I could not discover some change of diet. Bran mashes given to cows not accustomed to them often cause the disease, but where cows are kept on rather a short allowance of their ordinary food few if any cases occur. Diarrhœa in calves very prevalent, and for the past two years I have seen a great many calves suffering from paralysis of motion in the posterior extremities, sensation normal, but the animals are unable to get up; in such cases I administer oil, and put a smart blister over the loins, after which they usually recover in the course of three weeks or a month.

OXFORD: *Banbury.*—Pleuro-pneumonia in cattle occasionally breaks out in this district as the result of contagion, but it has not prevailed to any extent in my practice for several years. Epizootic aphtha very prevalent; black quarter, 12 cases; red water in cattle, about 20 cases; diarrhœa in calves common. Among sheep the principal diseases have been scab and rot; and among pigs splenic apoplexy has been very prevalent.

SHROPSHIRE: *Longnor.*—Pleuro-pneumonia in cattle has not been prevalent in this district during the past year; but epizootic aphtha very common, mostly of a mild nature, and many of the affected animals recovered without any medical treatment. Scab in sheep has not been so prevalent as in former years. Black quarter has raged a good deal, one-year old cattle suffering most; some herds of yearlings have been reduced 60 or 70 per cent. from this disease alone.

SOMERSET: *Wainster.*—Pleuro-pneumonia in cattle has not prevailed to any extent in this district for the last three or four years. I have met with a good many cases of foot-and-mouth disease during the past year.——*Langport.*—Pleuro-pneumonia in cattle a few cases; loss about 3 per cent.; foot-and-mouth disease was very prevalent among cattle in the month of February; both pleuro-pneumonia and epizootic aphtha are, in my opinion, due to atmospheric influence. Cases of indigestion in horses caused by hard dry indigestible food were very common, and during the months of September and October gastritis and tympanitis prevailed to the extent of ... per cent. Black quarter has been rather prevalent, parturient fever about 5 per cent., and red water in cattle ... per cent. Rot in sheep is very common in our low pasture grounds, and foot-rot often troublesome.

SURREY: *Battersea.*—This district has been free from foot-and-mouth disease during the past year, and we had comparatively few cases of pleuro-pneumonia in cattle. Several hundreds of pigs have died in this district, presenting the following symptoms:—Loss of appetite, panting, sitting on their haunches, and in some cases rapid inflammation of the fore arms, and red patches on various parts of the body. *Post-mortem* appearances—abscesses of the lungs and liver, in some cases the intestines very much inflamed.

SUSSEX: *Lewes.*—Pleuro-pneumonia in cattle has not been prevalent during the past year, it has mostly affected animals in low condition bought at fairs. Some cases of spontaneous origin on one farm where 23 cows are kept; the first case occurred August 17th, the second case September 6th, and the third case October 27th. These cows had all been bred and kept on the farm, no fresh stock had been bought, and no cases of pleuro-pneumonia had been observed in the neighbourhood. After the first case occurred I recommended change of pasture, and in addition oilcake and bran, and the whole herd to go through a regular course of medicine—a plan I have never known to fail in arresting the progress of the disease. I believe pleuro-pneumonia often lies lurking in the system for months, ready to break out when the animal is exposed to any exciting cause, such as heat, cold, wet, short rations, or bad food. Few cases of foot-and-mouth disease compared with former years, and scab in sheep almost unknown in this part of the country. Black quarter prevails to a great extent in this neighbourhood, but I am generally successful in arresting its progress by a change of diet and a little medicine to bring about a healthy condition of the blood. In our markets stock are generally healthy, but occasionally a few cases of pleuro-pneumonia and foot-and-mouth disease may be seen.

WARWICK: *Coventry.*—The diseases most prevalent among cattle have been diarrhœa in calves and parturient fever in cows; pleuro-pneumonia and epizootic aphtha have both been below the average during the past year.

WORCESTER: *Stourbridge.*—I do not consider I have met with one well-marked case of pleuro-pneumonia in cattle in 1864, although I have seen several cases of pleurisy and inflammation of the lungs caused by cold and exposure. Foot-and-mouth disease very prevalent among cattle, but I have seen no cases in sheep or pigs.——*Kidderminster.*—Pleuro pneumonia in cattle less prevalent than usual; cases of foot-and-mouth disease frequently occur, but they are usually treated by the owners. Sheep have, as a general rule, been healthy, but numbers of lambs have suffered from congestion of the lungs.

YORKSHIRE: Several herds and flocks suffered from epizootic aphtha. Scab in sheep has been very prevalent, but I believe has now nearly disappeared. I have not seen a case of pleuro-pneumonia, but epizootic aphtha has been very abundant in the markets. The markets and the cattle trucks, which are never properly washed and cleaned, are, I believe, among the most fruitful causes of the propagation of these diseases.——*Keighley.*—May and June furnished us with several cases of pleuro pneumonia. These were all on one farm, and among Irish cattle that had been purchased the preceding autumn, and kept on the farm till the outbreak. No epizootic aphtha during the last year, but many cases at the close of the preceding one; these were caused by the purchase of pigs suffering from this affection.——*Market Weighton.*—I had a few solitary cases of pleuro-pneumonia. Epizootic aphtha has been very prevalent in the district, though the veterinary surgeon is seldom called to see it. Diarrhœa in calves has been very severe; I heard of several fatal cases. I had three fatal cases in three-year-old horses; these were carried off in a short time. Last spring pigs suffered from a most fatal affection, as I believe, of the throat. Some seemed well in the morning, and in the evening were found dead; others coughed and pined away, dying in three or four days; in these cases the skin had a pinkish hue, and if the animals lived for about a week the integument was covered with scabs. A farmer in the district lost four calves rather suddenly from eating new burnt Oat sheaves cut up with the straw-cutter. The six were left well at night, and the following morning three were found dead. The other three appeared healthy; but one took ill at 10 A.M., and died ere my arrival. The other two were ill, but recovered under appropriate treatment. In the one that died the rumen was loaded with indigested food; the omasum impacted; and the rectum congested. These animals fed exclusively on the cut Oat sheaves.——*Beverley.*—There were several cases of pleuro-pneumonia during the summer of 1864. I have not seen a case of this contagious disease for three months. Epizootic aphtha raged to a great extent during the summer of 1864, especially in the common pastures belonging to the freemen of Beverley. Scab in sheep seems increasing to a large extent.——*Barnsley.*—I have met with a number of isolated cases of pleuro-pneumonia among herds of from 10 to 20. In one or two cases five or six have been lost, and in one instance 16. In all the cases I traced the cattle had been bought at market, and many of them had been brought from different parts of the country by railway. The general result was death. Epizootic aphtha has prevailed among cattle and pigs to a very great extent. In many cases it was brought by Irish pigs imported by way of Liverpool. Scab in sheep has existed largely during the whole year. The foot-and-mouth disease and scab have been almost the only diseases seen in our markets.

WHEAT EXPERIMENTS, 1863-4.

[The following extracts from Professor Church's report in the Volume lately published for the Agricultural College, and referred to the other day, will be read with interest.]

HAVE we any ready method of selecting corn for sced so as to enable us to get a larger and better crop? One criterion may at all events be adopted without difficulty, that of density. . . .

I have submitted the question, "Do the denser grains yield a larger and better crop?" to the test of actual experiment, and the results obtained will furnish the best answer.

The results obtained in two series of experiments, in which the seed-corn had been selected in accordance with this principle, are recorded in the present communication. One small series of experiments was made in the well-cultivated but unmanured soil of the Botanic Garden of the Royal Agricultural College; the second, and more extended series, was made on four different fields of the College Farm.

In the series of Botanic Garden experiments four varieties of Wheat were sown, each variety occupying a separate plot. Sixty seeds of each variety were planted by hand, each seed being placed about 1½ inch in depth, and nearly 12 inches apart in the rows. The 60 seeds included the three qualities selected according to their density, 20 seeds of each being taken. The three rows in which the seeds were sown were 16 inches apart, and were assigned to the several qualities in each plot as in the annexed diagram:—

B	. . . . . Medium density	B
C	. . . . . Low density	C
A	. . . . . High density	A

The seed of highest density was named A in each instance, that of medium density B, and that of low density C. The varieties sown were—

I. Hallett's Pedigree.
II. Browick's Red.
III. Fenton White.
IV. Cotteswold-grown Mixed.

The three different qualities of these varieties will be spoken of in the subsequent part of the account of the garden experiments as Hallett's A, Hallett's B, Hallett's C; Browick's A, Browick's B, Browick's C' and so on.

After describing the methods employed to select seed of higher density, the author proceeds:—

The seed was sown on the 10th October, 1863. The plants soon appeared, those from the different qualities of each variety not presenting any marked differences. However, the numbers of "A," "B," and "C" plants that were living on the 10th June, 1864, showed some variations, which are given in the following lists:—

Number of Plants living, June 10, 1864.

I. Hallett's A, 12	II. Browick's A, 14	III. Fenton A, 14
" B, 13	" B, 18	" B, 11
" C, 8	" C, 6	" C, 9

IV. Cotteswold-grown A, 15
" " B, 17
" " C, 7

From the 80 A seeds of the 4 varieties sown, 55 plants were living = 68 75 per cent.
From the 80 B seeds of the 4 varieties sown, 59 plants were living = 73.75 per cent.
From the 80 C seeds of the 4 varieties sown, 30 plants were living = 37.50 per cent.

Here it will be seen that the dense seeds A and B show a most marked superiority over the light seeds C, but that the densest seeds, A, did not yield by 5 per cent. so many plants (living June, 1861) as B. This may be accidental, but, as we shall point out presently, the average yield of good corn from the A qualities was greater than that from those classed as B, even though the number of plants was less.

During the periods of growth and ripening, every care was taken to prevent injury to the Wheat plants. Each experimental bed was enclosed, when the season had advanced sufficiently, in a large cage of tanned netting. The ears were gathered as they ripened; the first cutting took place on the 20th of August. In order to avoid undue prolixity, I have placed all the more important facts regarding the crops obtained in the form of a Table.

WHEAT EXPERIMENTS, 1863 64.
(*Botanic Garden Series.*)

	Density of Grain, Crop 1864.	Relative yield of dressed Corn.	Relative number of Ears.	Average number of Ears on each Plant.	Relative number of Plants fruited.	Number of Plants fruited to 100 sown.
I. HALLETT'S WHEAT.						
A	1.401	100.00	100.00	21 8	100.00	60
B	1.396	73.33	102.30	20 5	108 33	65
C	1 379	23 33	39 46	13 0	66.66	40
II. BROWICK'S WHEAT.						
A	1 375	100.00	100 00	19 2	100.00	70
B	1.374	122.92	124 50	18.6	128 57	90
C	1 354	37.50	34 01	15 3	42 85	30
III. FENTON.						
A	1 394	100.00	100.00	22.9	100.00	70
B	1 389	80 55	70 71	20.6	73.33	55
C	1.375	38.88	57.07	13 4	60.00	45
IV. COTTESWOLD GROWN MIXED WHEAT.						
A	1.381	100.09	100.00	26 3	100.00	75
B	1 380	96.34	117 00	27.1	113.33	85
C	1.365	37.81	48.47	27.3	46.66	35

The chief conclusions to be drawn from the foregoing statistics may be condensed in the following statements:—

1. The seed-Wheat of the greatest density produces the densest seed.

2. The seed-Wheat of the greatest density yields the largest amount of dressed corn.

3. The seed-Wheat of medium density generally gives the largest number of ears, but the ears are poorer than those from the densest seed.

4. The seed-Wheat of medium density generally produces the largest number of fruiting plants.

5. The seed-Wheats which sink in water, but float in a solution having the density 1.247, are of a very low value, yielding on an average only 34.4 lb. of dressed corn for every 100 yielded by the densest seed.

In selecting the seed for the farm experiments, the same plan was followed as that already described. . .

The Wheats numbered I., II., III. were purchased from Messrs. Lawson, and were of the best quality. No. IV. was a Cotteswold-grown mixed Wheat obtained from a local source; this sample was badly dressed, containing more than 5 per cent of broken grains and seeds of weeds. Unlike the other seed-Wheats, it was, however, grown in the immediate neighbourhood of Cirencester, and some of the results which it yielded are due, I believe, to the fact of its having been "acclimatised;" the earlier date of its sowing must not, however, be overlooked. In alluding to this matter I may suitably quote the observations of Dr. Schübeler, of Christiania, in reference to the yield of Wheat in Norway. In his synopsis of the vegetable products of Norway, he states, "Corn or other seeds brought from a southern to a northern climate require at first a longer time to ripen than the same species which have been cultivated there for some time. But after the lapse of two or three years the plants obtained from foreign seeds generally acquire the same ripening peculiarities as their corresponding species which have been cultivated for a longer time in the country." . . . "So long as a plant is not cultivated further northwards than it is able to attain its full development, the seed

increases in size and weight for the first two or three years." The bearings of these observations on the results which I have obtained with a Cotteswold-grown Wheat will be evident presently.

The following are the details regarding the farm experiments with the high density Wheat:—

No. I. Old Kent Red Wheat.—This was sown October 21, 1863. The plot was ½ acre. A top dressing of 1 cwt. sodium nitrate, with 2 cwt. sodium chloride, was applied on the 20th and 21st April, 1864. 2 bushels of seed were sown per acre. (Field No. 3.)

No. II. Browick's Wheat.—This was sown October 2, 1863. The plot was ¼ acre. No artificial manure was applied. Between 6 and 7 pecks of seed per acre were sown. (Field No. 15.)

No. III. Fenton Wheat.—This was sown October 24, 1863. The plot was ½ acre. No top-dressing was applied. 2 bushels of seed per acre were sown. (Field No. 4.)

No. IV. Cotteswold-grown Wheat (Rough chaff Essex and Spalding Red, mixed).—Sown September 24, 1863. The plot was ¼ acre. 7 pecks per acre. (Field No. 19.)

WHEAT EXPERIMENTS, 1863-64.

(*Farm Series.*)

Variety of Wheat.	Produce in Dressed Corn per 1-10th acre in pounds weight.		Difference in favour of the "Experimental" in lbs per acre.	Gross extra profit per acre at 5s. per bushel.
	Experimental.	Ordinary.		
I. Old Kent, Red	217	213	40	£0 3 4
II. Browick's ..	184	174	100	0 8 4
III. Fenton ..	187	172	150	0 12 6
IV. Cotteswold-grown ..	248	215	330	1 7 6
Mean				£0 12 11

Weight per bushel of the above samples of Dressed Corn.

	No. 1.	No. II.	No. III	No. IV.	Mean.
Experimental ..	60 5	61 8	58 5	64 0	61.2
Ordinary	61.0	59.8	58 3	63 3	60 6

From the results contained in the above Table, collated with those before given, especially those derived from the Botanic Garden experiments, it may be safely concluded—

1. That an average extra return of about 13*s.* per acre may be obtained by submitting the seed sown to the particular process of selection described in the present paper.

2. That a very high standard of density is not required to secure the extra return; in practice the exclusion of less than 20 per cent. of the seed-Wheat will probably be sufficient to insure this result.

3. That the process of selection of seed by density is easy and inexpensive; in some cases it might, however, be advantageously left to the seedsman.

4. That an acclimatised seed-Wheat (No. IV. in both series) yields a considerably heavier crop than Wheats grown under different conditions of climate, soils, &c. The great difference, however, between the "Experimental" and "Ordinary," in the case of IV., arose from the process of selection telling with special effect upon this particularly badly dressed original sample.

Home Correspondence.

Lord Walsingham's Lambs.—In your Leading Article of last Saturday you say Lord Walsingham's lambs drop in January. You have been misinformed. I never knew of any dropped in that month, and seldom till several weeks afterwards. *Henry Woods, Merton, near Thetford, Sept.* 4.

Yorkshire Agricultural Society. — The letter of Messrs. Ransomes & Sims in your Paper of the 26th ult., respecting the unfair trials of machinery at Doncaster, is neither answered by the Council of the Society nor the Secretary in whose hands the entire management of the yard is placed. Either the materials for trials were deficient or the time too limited, and either of these faults could have been obviated by a practically informed man at the head of that department, which other similar societies possess. The thing seems a complete farce to offer prizes for competition and bring machinery from all parts to compete, and then make no preparation, or at least none such as to give any satisfaction to the public. The local papers don't speak out, and they won't interfere until the exhibitors feel disgusted at the bad management and leave the Society altogether, as several already have done. *A. Myers & Sons, Sandhutton, Thirsk.*

The Cattle Plague.—Nothing, I think, can be more madlike, let the prevalence of the malady have proceeded from what cause it may, than the act of prohibiting foreign cattle to set foot on our shores during the present crisis. If this were allowed, a further great rise in the price of meat of all descriptions must inevitably follow. There is as much good reason to know this, as to believe that the price of grain would and must go fearfully high, were we to forbid all at once any more importations of Wheat, &c. Enough surely is already instituted for the partial annihilation of the present generation of cattle, in that all having any real disease or fancied ailment are to be immediately shot and buried. Rather, I should say, it is more highly necessary for her Majesty's Government to foster the continuation of importing foreign supplies of all healthy cattle, and moreover to enact a mandate prohibiting for at least one year (to be extended longer if necessary) the slaughtering of any sucking calves, lambs, or pigs, till such time as they are of mature age, less insipid, and more proper for human food. Sure it is, that a full sufficiency of green food, indigenous Grass and Clover, also Turnips and Mangel especially, abounds everywhere since the late incessant rains, for all foreign beasts which may be imported, as well as our own cattle; the former comprising all the necessary natural and physical elements conducive to the wants and comforts of every kind of animal, without having resort to the various condiments and oleaginous dainties, such as Linseed meal, &c., which I contend have often given rise to disease in cattle, and render them, by their being over fatted, unwholesome to be eaten. It is a well-known fact, that better fatted beasts have not and cannot be procured than those that have been only Grass-fed, when plenty of that has abounded, as it does at the present time, to supply their wants. My humble opinion is, that every possible means ought to be resorted to to augment the stock, rather than to diminish or reduce their numbers, otherwise, what, I would ask, is to eat up the over abundance of natural green food (which a kind Providence has undoubtedly especially provided for the emergency) now clothing the surface of the earth? Amongst which may be noticed the most superlative crops of Mangel Wurzel, such as were never before produced, and that universally, since their introduction into this country. And what must be the scarcity and enormous price of meat ere long, if the stock should continually keep being reduced by disease, condemnation of death and destruction to all which appear so, and the prohibition of the usual supplies of lean stock from abroad? I have before intimated in a former paper, and it is still my impression, that if all stalled oxen and cows as well as loose were turned out for the next warm month to Grass, as isolated as possible in different pastures, corn eddishes, lanes, commons, and wastes, where medicinal herbage most abounds suitable to their wants, to be partaken of at their will as their natural instinct invites their appetite, avoiding as much as may be swampy situations, choosing rather elevated spots for their depasturage (mountaineers are understood to be the healthiest beasts imported) a general improvement in their health will shortly be observable, and but little more will be heard of disease in cattle. I sincerely wish as sure a remedy and process of cure could be devised for the sad chronic disease in the ill-fated Potato, which has been so prevalent for the last 21 years, and this year as rife as ever. This I consider is a greater calamity than the former, as it affects both poor and rich, without any provision being made for the losses of either. Aftermaths are now abundant, and Clover rowans, if carefully watched not to be got up in bad order from fog-damps and rain, will fully counterbalance the short crops of spring hay to be eked out with Turnips and Mangels for their comfort during the ensuing winter and next spring. *A. Hardy, Maldon, Essex, August* 27.

Beet Sugar.—The statements given in the communication of "C. F.," dated Falmouth, 11th August, and inserted in your last Number, are too inaccurate not to throw doubts on the conclusions arrived at. The enclosed printed paper, drawn up with the utmost care from official documents, liberally furnished by the French Government, shows that the quantity of Beet sugar made has never yet (1863 being the largest year on record) reached half the figure given by "C. F.," whereas the use of Colonial sugar has been about five times as much as stated by him. I am not aware what quantity of root is produced per acre, but should say it must be more than eight tons, which would not give more gross than nine pounds,—too little, one would think, considering the cost of cultivation and manufacture into raw sugar, one hundred-weight of which I can buy at 25*s.*, delivered in London. Much inquiry justifies me in stating that light, not heat, is the great atmospheric pabulum of saccharine, and that a cloudless sky distinguishes those districts of France, Germany, and Russia where this kind of agricultural industry is most practised. With the exception of 1865, that condition cannot be said to prevail in the United Kingdom, and hence all attempts so far have failed. In my neighbourhood Sugar Beet some years ago was grown for distilling purposes, but did not answer, acre for acre being found much in favour of Barley. To tempt an unnatural branch of Agriculture by remitting the duty would, to my mind, be an economical blunder, and still result in disappointment. *Fred. Scheer, Stafford House, Northfleet, Kent, September* 5.

Foreign Correspondence.

Dieppe: *Sept.* 2. . . . I have seen more than might be expected of that part of Normandy that lies between Havre and Dieppe. It is a lovely and fertile tract, well-cultivated, and the Wheats (above an average) all housed in fair order. The face of the country presents a succession of rounded hills, divided by small rivers on their way to the sea. The table-lands are very extensive. There are no hedges, no hedgerow timber, but the whole surface has a park-like appearance, from the circumstance that every homestead, and every village and château, is embowered in well-defined plantations. These, of various size, at unequal distances from each other, and often with a background of forest, would, if all the arable were meadow land, make the traveller suppose he was riding through a park as big as Hampshire.

After Wheat, Oats seemed most general. The Barley may have been carted, at any rate I saw none by the wayside fields within eyeshot. Beans were but few. The patches of green crops bore a sorrowfully unpromising aspect, but there was a plentiful bite of meat in the pastures. We started a covey of partridges now and then, and a hare crossed the road just before the carriage—a sign of good luck.

The material prosperity of the part of France I visited is very striking. Le Havre stretches into the country as Liverpool has done, whilst the smaller towns improve in proportion; but intelligent French complain that they are over-regulated in everything, and that the political leading strings are kept painfully tight.

The passenger traffic between the two opposite shores is surprising. Two steamers leave Newhaven for Dieppe every week day, and *vice versâ*—that is, four-and-twenty steamers a week. The one I came over in brought 130—a common number. A little while ago 400 were in the same boat. Say the average is 120 per diem each way, and the weekly number is 2480, reckoning both to and fro.

In the month of June, 1814, I crossed from Calais to Dover in 15 hours, and there were only a few dozen persons on board. Then those sailing packets went twice a-week. Look at the difference! Then sit down and calculate the difference between the present rate and what it will be when people will be able to go round the world in a week! *J. M., Coldred, Dover.*

Societies.

Edinburgh: *Cattle Plague.*—We understand that in Edinburgh the number of dairymen who have joined the Mutual Assurance Association is between 80 and 90, and that they have paid deposit money on nearly 1100 cows.

It was stated on authority some weeks ago that the number of cows in Edinburgh byres was about 2800; we have heard from trustworthy sources that there are now not more than 1500 or 1600. The rest have all been put away since the panic about the Rinderpest began; some of them have been sold fat at a good price, a great many more have been sold at enormous sacrifice, and others have been destroyed. Up to the present time we believe that not fewer than 150 or 160 have been slain as being manifestly affected with Rinderpest, while more have "gone to the dogs" under the impression that they were labouring under or likely to be attacked by the plague.

Up to last week the disease was confined almost entirely to dairy cows, and stockowners were under the impression that store cattle were not liable to be affected by it. This is a delusion. On Monday night we went out to see some grazing cattle in the neighbourhood of Kirkliston, and we then found that two out of a lot of six had died from Rinderpest, and two were suffering from the same disorder, but they appeared to be recovering. *Scottish Farmer, Sept.* 6.

Chamber of Agriculture: *Sept.* 6.—At a special general meeting of the Chamber of Agriculture and Scottish Farmers' Club "for the special purpose of considering and resolving on the steps that should be taken in reference to the cattle plague:"

Mr. Hope, of Fenton Barns, presided, and said:—It appeared to him that something like 2000*l.* would clear out all the byres at present affected in Edinburgh. If animals were taken ill, and it was clearly proved that the disease was the Rinderpest, the animal should be destroyed, and all the other animals in the byre sent to the slaughterhouse. It had been said that this was a very harsh and strong step to take; but so far as he could see it was the only efficient one. He would recommend that they should, as a Chamber, authorise the committee to subscribe, say 100*l.*, and invite the Corporation, which had taken up the question, to give 500*l.* He would himself cheerfully subscribe 10*l.*, 20*l.*, or 30*l.*, provided this suggestion was gone into, and the animals destroyed. He would not subscribe this money as a matter of charity to the cowfeeders at all, but simply to preserve his own stock from infection. For every pound they paid to the dairymen of Edinburgh they would save 10*l.* to 20*l.*

Mr. Mylne, Niddry Mains, moved the following resolution:—"As the extension of the cattle plague beyond the cities where it first appeared into the adjoining counties seems imminent, this meeting earnestly recommends the authorities in every town and county, where they may not have already done so, the moment they 'shall have reason to apprehend the approach of the said disease' to their respective jurisdictions, to adopt means for carrying into energetic practical operation the orders of Government under the Act 11 & 12 Vict., chap. 107, now made applicable to Scotland against the spread of the disease, by the appointment of inspectors, and the enforcement of the penalties for disregarding the same."

Mr. Melvin, Bonnington, moved that—"This meeting also recommends agriculturists and breeders of cattle generally to avoid travelling cattle for sale, or purchasing animals in public market and fairs in the meantime, and till the malady is exterminated; and in dealing at all, to purchase only where the stock is known to be free from disease. If, unfortunately, however, disease should appear in any herd, whether bred or purchased, this meeting earnestly recommends the owners to give immediate intimation thereof to the inspector of the district appointed under the Government orders."

Professor Dick moved that—"This meeting recommends particular attention to cleanliness and proper ventilation in byres, courts, or other places where cattle are kept, to systematic feeding and watering, and to the general comfort of the cattle kept." Just now, when the disease was prevalent, the Grass that was given to the cows was that which was produced from the meadows. It was sour and coarse, and the cows eat it with very little relish. Horses would scarcely take it at certain seasons of the year, and therefore it is not fit for cows to take. He thought a good deal of attention ought to be paid to the quality of Grass or hay given to cows. If hay were used, it would be well to have it watered and a little meal thrown upon it, which would give an increased relish and tend to promote digestion. In addition to cleanliness, it would also be well if the animals were allowed to have a little exercise every day, even for half-an-hour. It was very unnatural for an animal to be kept tied up in the same position for months together. His wonder was, not that the cows were attacked with the disease, but that they really lived in the state in which they were placed, with only four feet by two to move about.

Mr. SADLER, Ferrygate, moved "This meeting respectfully [illegible], and recommends the local authorities in counties and [illegible] to urge upon all railway, steamboat, and other public [illegible] companies engaged in the transit of cattle, to pay particular [illegible] to the feeding, watering, and comforts of them, [illegible] and disinfecting of trucks and boxes, and steam [illegible], in which cattle have been and are to be transmitted, [illegible] the giving of immediate intimation to the nearest [illegible] inspector of disease appearing in any animal while [illegible] their charge."

Mr. M'LAGAN, M.P., Pumpherston, seconded the resolution, [illegible] rather pay an additional charge for the transportation of their cattle and have the trucks properly disinfected than have their cattle put into trucks in the filthy state in which they were at present kept. He had had a conversation with a director of one of the principal railways in Scotland, and he told him that orders had been issued by the Board to disinfect all the trucks on the line. The substance to be used for that purpose was a most effectual one—that was, the refuse from the manufacture of chloroform. Another [illegible] which he wished to bring under the notice of the [illegible] was the watering of cattle in their transit by means [illegible] a trough as that recommended by Mr. Reid, of Granton. He thought it might have some effect in inducing railway companies to construct these troughs if it should go from [illegible] a meeting as this that they placed the greatest importance on the watering of cattle. He agreed with all that had been stated, with the exception, perhaps, of a few remarks made by Mr. Mylne in regard to the origin of the disease, because he might say that he was thoroughly of opinion that it was of foreign origin, and that it was imported from the Steppes of Russia. But now that it was amongst them, they should take the most effectual steps for suppressing it. He therefore thought that the resolution proposed by Mr. Melvin was scarcely strong enough, and that it might be made a little stronger in the emergency in which they were placed at present. He was sure Mr. Melvin would not object to that being done, because, from the remarks that that gentleman had made, he seemed thoroughly to agree with what he (Mr. M'Lagan) felt himself. In regard to the first part of the resolution, he had no objection, but in regard to the latter part, he thought that instead of recommending the owners of stock, on the appearance of disease amongst them, to give information to the inspector, they should tell them that they were bound to give information to the inspector of the district by the Privy Council Orders, and were liable to a penalty of 20*l.* if they did not. But he would go further than what Mr. Melvin did in his speech, and advocate the establishment of mutual cattle assurance associations, and request something in reference to that to be added to the second resolution. He quite went along with the Chairman, and was prepared to make a motion to the effect that so much of the funds of this Association should be given to the Dairy Association in Edinburgh to the amount of 100*l.*, as suggested, to try and stay the plague there. Those in the country were far more interested in stopping the plague than people were generally aware of. If they kept it in bounds here, where, he was glad to say, many of the animals, under the careful treatment of Professor Dick, were recovering, there was less risk of its spreading to their own quarters. It was quite true that if 10*l.* were given by one large owner of stock for securing that object, he might save in his own stock as much as 100*l.* or 200*l.* He therefore suggested, that in place of the last clause of the resolution, the meeting should adopt the following:—"This meeting would specially remind the owners that unless they give immediate intimation thereof to the inspector of the district, appointed under the Government orders, they render themselves liable to a penalty not exceeding 20*l.*; and the meeting further recommends the owners of stock to organise mutual cattle assurance associations in their respective districts, as the best means of controlling the disease and mitigating the losses of those individuals whose stocks are attacked by it."

Mr. MELVIN said he thought it would decidedly strengthen the motion he proposed were Mr. M'Lagan's rider with reference to the inspector's power adhibited to it. He also agreed in the cattle assurance association scheme for districts.

Mr SCOT SKIRVING said he would support heartily the first part of the second motion, and of Mr. M'Lagan's amendment, but he did not concur in the second part, and he thought it ought to form a distinct motion. Cattle assurance associations had been proved to be a failure by the experience of 20 years. If Mr. M'Lagan would look to the fifth report to the Privy Council by the Board of Health, he would find a report by a very clever man, Mr Gamgee, who gave a full list of these associations. Mr Gamgee recited how much their business was at first, and how soon after, without one single exception, they all utterly failed. They failed to remunerate the people who unfortunately assured; they failed because the premium was found not to be large enough, and every one who touched them suffered loss. After hearing Prof. Dick's speech he had some little doubt as to the propriety of the insurance society which had been formed for the Edinburgh dairymen, because they were going to perpetuate a nuisance which ought never to have been there at all. He thought that all the byres should be swept out of the town, and placed in the environs. He also objected to coming *in formâ pauperis* to the public. Those in large cities who enjoyed the benefit of free trade should come forward and take their share in the loss, and landlords ought to do the same. If it stood clear that if, under the law of hypothec, landlords had a claim on the stock of their tenants, they should do something in assuring it, seeing that the stock was theirs. Although he would not join the association himself, he would be very glad to insure the cows of his farm servants.

The CHAIRMAN remarked that Mr. M'Lagan had somewhat misapprehended his proposal about the voting of 100*l.* What he meant was that the Chamber should give power to the committee to vote 100*l.*, provided the magistrates took up the matter in a proper spirit, and were prepared to order the slaughter of all animals infected with the disease.

The second resolution, amended as follows, was then put to the meeting and unanimously agreed to:—"This meeting also recommends agriculturists and breeders of cattle generally to avoid travelling cattle for sale, or purchasing animals in public markets and fairs, in the meantime, and till the malady is exterminated; and if dealing at all, to purchase only where the herd is known to be free from disease. If, unfortunately, however, disease should appear in any herd, whether bred or purchased, this meeting would specially remind the owners that, unless they give immediate intimation thereof to the inspector of the district appointed under the Government orders, they render themselves liable to a penalty not exceeding 20*l.*"

Mr. M'LAGAN afterwards moved as a fifth resolution:—"That this meeting further recommends owners of stock to organise mutual cattle insurance associations in their respective districts as the best means of controlling the disease and mitigating the losses of those individuals whose stock may be attacked by the disease."

Mr. MELVIN seconded the new motion, which was unanimously agreed to.

LONDON COURT OF COMMON COUNCIL: *Sept.* 6. — A special meeting of the Court of Common Council was held at Guildhall, the Lord Mayor in the chair, for the purpose of taking into consideration the propriety of voting the sum of 1000*l.* towards a fund for compensating the owners of such cattle as may fall with the plague within the metropolitan district, and for the establishment of sanitariums for the separation and cure of the cattle affected. There was a numerous attendance on the part of the members.

The TOWN-CLERK read a long report from the Markets and Cattle Plague Committees, in which they recapitulated the various meetings they had held, the resolutions they had arrived at, the interview with Mr. Waddington at the Home Office, the Orders in Council, the legal opinion respecting the slaughtering of diseased cattle given by the Common Serjeant, the reasons in favour of the establishment of sanitariums, and the necessity which existed for raising the Compensation Fund. In conclusion they recommended the Corporation to contribute 1000*l.* to the fund out of the City cash.

Mr. GIBBINS, the Chairman of the Markets' Committee, then moved the following resolution:—

"That in consequence of the vast interest the Corporation have at stake in the importation and sale of cattle at the Metropolitan Cattle Market, and the prevention of the spread of the cattle disease throughout the country, the Markets' Committee is of opinion that the Corporation should contribute the sum of 1000*l.* towards a fund for compensating the owners of such cattle as may fall with the disease within the metropolitan district, and for the establishment of sanitariums for the separation and cure of the cattle affected."

The attention of the Markets' Committee was first called to it by their inspector, who at the time was in communication with Professor Simonds. It was then referred to a special committee, and shortly after a letter was received from the Lord Mayor, stating that cattle fever had manifested itself among the lairs at Islington. The committee thereupon disinfected the market in every possible way, as recommended by Dr. Letheby. They ordered chloride of lime to be freely used, and directed that the market should be periodically flooded from the hydrants there. They also empowered their inspectors to employ additional men to prevent cattle in a diseased state from being sold for human food. Their object in doing that was because they had no power to prevent any quantity of diseased cattle from coming into the market. They had no power to stop them, the market being a public one, but, when the diseased cattle entered, then they had power to deal with them to a limited extent. This limited power on their parts was so described in the Acts of Parliament. They found that they could go to a justice of the peace and obtain an order from him to have the diseased cattle destroyed, but then they were informed that all cattle in the early stages of the disease were fit for human food, and that they could not condemn beasts which were only in those stages. He was afraid the disease had been spread all over the country from the Metropolitan Market, for it was the market for the metropolis of England and of the whole of Europe. The first effect of the disease was shown in a deprivation of the milk of the animal, and then the cows were sent sometimes to the slaughterhouses, and sometimes to the Metropolitan Market. It now appeared that, up to last night, out of 16,000 cows in the metropolitan district, as many as 2000 had been killed in consequence of the disease. This only included cows as distinguished from beasts. The day before there were 17 fat beasts affected with the disease, and this was its first appearance in the metropolis among the beasts, though it was not its first appearance among them throughout the country. The cost of the 2000 cows which had been killed was some 30,000*l.* or 40,000*l.* Who was to meet this loss? During the last two months this disease had been raging, and how to meet it no one seemed to know. The cures suggested for the disease were legion, and among these were gruel, tar, saline mixtures, and water impregnated with iron, and it was hoped that the latter, which was recommended upon high authority, would be proved effectual. At present the cowkeepers sent off the infected beasts to the market or to some slaughterhouse where they might be killed. There was believed to be great danger in allowing the infected cows to be driven through the streets. If the good could be separated from the bad animals, and if the latter could be conveyed to sanitariums, where the medical men could operate upon them, then much benefit would result, and then, too, if the animals died they would be buried on the spot. All the professors were agreed in this, that if a Compensation Fund were raised, and the cowkeeper were told that he would be remunerated for his loss, he would at once inform the authorities when the disease made its appearance in his cowshed. Shed after shed was being now shut up, and men and women who seemed to be affluent one day were the next reduced to ruin. An illustration of this would suffice. One day last week a cowkeeper at Pimlico had 70 or 80 healthy cows. On Wednesday three of them were found dead. On Thursday 42 of them were sent to the market. Of these 42, three showed symptoms of the disease, and then the whole of the 42 beasts had to be slaughtered because the three were diseased. The poor fellow was thus ruined. Last Monday he sent nine more cows to the market, and these also had to be slaughtered. At present the man was absolutely out of his mind. Out of his 70 beasts he had not one left. Some persons were saying that the disease arose from bad water, bad ventilation, and bad cowsheds; but in the case of Miss Burdett Coutts, who had 40 head of cattle, which were most carefully housed and attended to, particularly from the moment she heard that the disease was among them, all were gone with the exception of one cow; so that, whether it was a want of water or a want of ventilation which in other cases caused it, this was an instance in which everything was done that could be done, and yet the plague raged and mortality ensued. In his neighbourhood 20 or 30 cows had been lost, and yet in Dulwich none had been affected. The northern part, too, seemed far more affected with the disease than the southern part. Under those circumstances something should be done, and the Corporation would not misapply their money by contributing 1000*l.* towards the Compensation Fund. In every part of the kingdom some compensation had been adopted, and London should not be behind in raising a fund. Besides, if the Corporation headed the subscription-list with 1000*l.*, the cattle salesmen would subscribe another 1000*l.*, and the public would come forward with their money.

Mr. WALTER asked to what extent the disease had affected the city.

Mr. GIBBINS replied that in the city of London proper out of 19 cowsheds there was not one in which the disease had made its appearance. In Warwick Lane there were 28 cows, and no disease among them. He was happy to say that all the vestries and boards in the metropolis had been communicated with on this subject, and that they had returned very favourable answers.

Mr. Alderman PHILLIPS said the visitation was a most serious one, and that the committee were, doubtless, actuated with the most benevolent intentions when they came forward and asked for a subscription of 1000*l.* These questions, however, were deserving of consideration:—Who was to give it? what was the object of it? if given, who was to have the disposal of it; and were the rich cowkeepers to share in it? It now appeared that within a given time something like 2000 cows had fallen victims to a pestilential disease, and that these would represent 30,000*l.* or 40,000*l.* Let the Corporation look the matter fairly in the face, and not deal with ephemeral experiments, but come to facts. Where was this 30,000*l.* to come from, and where was the matter to end? Was the Government to subscribe, and was the subscription to be taken up by the city and the metropolis at large? If the principle was right that they should subscribe, then they should know what they were going to subscribe for, and to whom they were going to give the money. His own opinion was that 1000*l.* was inadequate. He believed they were all influenced by the same kindly motives in this matter, and that the discussion of the question would be useful. But, when the great veterinary professors of the day were differing as to the course to be pursued with regard to the disease, he was free to confess that, with the kindest and most benevolent intentions, he was utterly at sea as to whether he should do right or wrong in supporting the motion.

Mr. RUDKIN was sorry that the report seemed not to have been listened to very attentively. It proposed that sanitariums should be established, that compensation should be brought to bear; that persons who had cows affected with the disease should give timely notice of the same, and that their diseased cattle should be sent in proper conveyances to the sanitariums, where the medical men would try their hands in effecting a cure. The great principle of the Compensation Fund was to get at the facts, and to ascertain the localities in which the disease existed. The present inspectors were clothed with full powers to brand on the horns every head of cattle which was infected. These powers, however, were not efficiently carried out, for at the cattle-market infected cows were arriving from all parts of London without a Government certificate and without being branded on the horns, and these travelled through the streets and spread the disease. Now, it was proposed to carry these beasts by means of conveyances to the sanitariums, to explain to the cowkeepers the advantages derivable from better ventilation, and to impart to them advice as to the best means of meeting the disease. It was worthy of remark that Professors Simonds and Gamgee, and all the medical men, were in favour of the Compensation Fund. The committee believed that a sum of 10,000*l.* or 15,000*l.* would be adequate to meet the immediate necessities of the case. They had not as yet received any answer from the Government respecting their sanction to the establishment of the sanitariums, but the inhabitants of the metropolis might do, independently of that sanction, what had been done by Edinburgh and Glasgow,—they might establish those hospitals for themselves.

Mr. LAWLEY was of opinion that in a case so urgent as the present something should be done, and that the Markets' Committee were deserving of the fullest support. He thought the committee should be armed with full powers to act to the best of their judgment, and that 1000*l.* should at once be placed at their disposal. He was more in favour of establishing hospitals than he was for compensating cowkeepers, and he thought the Corporation ought to form the nucleus of the fund.

Mr. ROWE said that no member of the Corporation would raise up his hand against the vote if he thought it would form the nucleus of an adequate fund. He thought it a reproach to the Government that they had allowed the disease to spread so extensively as it had without taking any steps to arm the Local Boards with powers to meet the emergency. To talk of 1000*l.* was ridiculous. In his opinion 200,000*l.* was more likely to be the sum that was necessary to encounter the evil. The vote was nothing but a charitable contribution, exceedingly laudable in its design, but by no means sufficient to check the calamity. He hoped the Government would be moved to some action in the matter.

Mr. ISAACS suggested that part of the compensation should be given as a premium for an effectual remedy for the disease. He asked what was the use of establishing hospitals when it was admitted that there was no known remedy for the disease.

Mr. HORRIDGE opposed anything like a "rest and be thankful" policy, and deprecated such a mode of meeting the disease as that recommended by Professor Simonds—namely, the poleaxe.

The motion was then put and carried unanimously; and, upon the motion of Dr. Saunders, the whole of the reports, &c., upon this subject were ordered to be printed and circulated among the members.

The Court then adjourned.

Farmers' Clubs.

MIDLAND: *The Cattle Plague.*—At a special meeting on Thursday last to consider what steps it is advisable to take with reference to the existing cattle plague—

Mr. HAYDEN said he did not believe that the present epidemic among cattle was a new disease. He thought the causes of it were to be found in connection with the carriage of cattle from foreign countries and their conveyance by rail in England. They knew that at the railway stations there were very disagreeable smells, and the trucks in which cattle were conveyed were made of open fibrous timber which retained the urine and other excrementitious matter of the animals. So long as trucks were made of this material, he believed whitewashing and the use of chloride of lime were useless. The trucks ought to be coated with iron. He very much regretted that our veterinary surgeons and persons whom we looked to in such emergencies so little understood the present epidemic.

Mr. Councillor LOWE thought it would be acknowledged pretty generally that in many of the homesteads of this country sanitary precautions were generally disregarded. For cattle sheds to enclose the place where the manure was deposited was a very serious mistake, as the effluvia arising from the manure heap to a very great extent passed into the lungs of the animals. He thought the disease would, amongst other things, call the attention of farmers to the importance and necessity of making better arrangements in this respect. Another remark he had to make was, that with a view to preventing the contagion, it would perhaps be as well for farmers, as far as possible, to abstain from sending either fat or store cattle to fairs or markets for a short time, and to invite butchers to visit their houses to buy any stock they might have to dispose of. He thought the practice of collecting a large number of animals together, either at markets or fairs, at the present time, must of necessity increase the probability of infection.

Mr. STANLEY, veterinary surgeon, said there was undoubtedly a great deal more disease now amongst all animals than there was in his early days. This was especially true of horned cattle, pigs, and sheep. With reference to the present epidemic, it was reasonable to expect that the first outbreak should be amongst cattle which were debilitated by crossing the sea under unfavourable conditions of transit. He thought it was not sufficient that imported cattle should be inspected

at the port of debarkation. They should be again examined before being admitted into any town; because the symptoms manifested themselves very suddenly, and an animal which appeared to be quite well to-day might show symptoms of the disease to-morrow. With respect to treatment, it would be found that a great number of beasts had been cured, and he was quite sure that if the animals were taken in hand before diarrhœa came on, and if they were allowed plenty of fresh air, and were properly nursed, many might be cured.

Mr. Masfen said: As to remarks with reference to the homesteads of most farmers and their sanatory state, no disease of the kind they were considering was engendered at a farm house. There was no doubt in his own mind that the disease was either imported or engendered on board ship. He attributed it to the sudden change from heat to cold—the animals, after being transferred from the hold of a ship, travelling through the country at the rate of 20 or 30 miles an hour in trucks, the abominable state of which was well known. He was satisfied that the disease was brought to this country by the cattle imported from abroad. He found that Dutch stock had always been subject to disease, but the London dairymen, although aware of this, bought them, because the profit on them was so great they were willing to run the risk. He had no doubt the seeds of disease were sown in thousands of cases from improper treatment on board ship, and in carriage by land. There ought to be inspectors to see that the cattle were properly treated, not only on the voyage but after landing.

Mr. Hunt (Hunt & Parker), veterinary surgeon, said the origin of the disease in this part of the country might be traced to one cow—another indication that the disease was virulently contagious. The first outbreak was at West Bromwich, where it was traced to a cow purchased at Smithfield, of which the dealer said, "to be candid, it was Dutch." That animal was placed in a dairy, where the disease soon appeared. There were 15 cows, the owner of which, when the disease broke out, sold them, and they found their way into the Birmingham market. Six of them, which were sold to Mr. Bayliss, of Arley, all died, and contaminated the farm on which they were and the farm next to it, and now the disease had spread to five farms in that locality. A person in the district bought two calves off an infected farm, and introduced them into sheds, and there six cows died. In every instance in which he had had an opportunity of investigation, the disease was to be traced to contagion. This being the case, it was clearly of the utmost importance that every precaution should be taken to prevent the spread of the disease. The Corporation of Birmingham had certainly done all they could. But it was necessary that more should be done by farmers themselves. A veterinary surgeon might pass an animal as healthy now, and in two or three days afterwards it might be dangerously ill. Under these circumstances he insisted that quarantine was necessary. Farmers should keep animals purchased by them separate from the rest of their stock for a certain time. Fourteen days was the period for incubating the new disease, and six weeks for pleuro-pneumonia. With respect to the importation of cattle, no one was wild enough to think of stopping it; but there ought to be a system of quarantine. He did not think the state of the railway trucks had caused the disease, but if not improved they might be the cause of aggravating it. With respect to the treatment of the disease, he thought they had better not attempt anything of the kind. They must endeavour to trample it out. He was for the destruction of every animal that showed symptoms of the disease. Curative measures might, as had been said, be effective if adopted soon enough; but the difficulty was as to taking it in time, for as soon as acute symptoms appeared it was evident to the accustomed eye that the animals must die: the marble coldness of the extremities, and the utter prostration of strength were such that no reaction could be hoped for. In the first case that came under his notice at Plymouth, the cow was milked at 5 o'clock in the evening, being then apparently in good health; at 9 o'clock it was ill, and by 7 the next morning it was dead. As a rule treatment would be hopeless, and he therefore would have no dallying with the disease. He was for strict quarantine, and for the immediate death and burial of an affected animal, so that it should not be a means of spreading the contagion.

The Chairman, by way of giving practical effect to the discussion, submitted the following resolution:—"That the Club recommend that precautionary measures be taken by the municipal authorities in every place where cattle are congregated together, whether the disease has appeared in the locality or not."

Mr. Wright said—It appeared to him that the first question which it was necessary to clear up was this—Had a new disease appeared amongst our cattle, and was it really and truly the Rinderpest, as the leading authorities contended? If this were so, then the history of that disease, as Professors Simonds and Gamgee, as well as others, had fully explained, clearly showed that none but the most stringent measures would stop its progress, and that simply waiting to deal with it as it appeared in different localities would by no means meet the case, as the causes which led to the extension of the evil remained untouched. He might instance the appointment of inspectors, who would visit the cattle markets. Suppose one or more diseased animals were discovered and removed, that would not lessen the evil, for other cattle in the same market might take the infection, or it might be carried away in the clothes of the persons attending the market, and in this way the disease would be rapidly conveyed to all parts of the country. Professor Gamgee had pointed out the measures adopted abroad on the appearance of the disease: the infected districts being closed against the introduction or exit of stock; no markets are allowed to be held, and even a check is placed upon the movements of the people in such districts. If the circumstances in which the farmers of this country were now placed were of the same character, then some extraordinary steps appeared to be necessary, and he had noticed that at one county meeting it had been suggested that Parliament should assemble to take the subject into consideration. Noticing what had been stated by Mr. Hunt with respect to destroying any animal suffering from the disease, he (Mr. Wright) might refer to the opinions of Delafond, quoted in the *North British Agriculturist* of the previous day, which were to the effect that in treating affected cattle we multiply the centres of infection and the channels of communication, and that veterinary hospitals do not obviate this danger, but become themselves vast centres of infection.

The Chairman then moved, "That agriculturists be requested in their several localities to assist in carrying out the Orders in Council, and to carry out the sanatory measures recommended by Professor Simonds and other authorities."

Mr. Hunt suggested that a sentence should be added to the effect that to attempt curative treatment was inadvisable.

Mr. Lowe seconded the motion, and it was carried.

Mr. Homer stated that 58 cows out of 60 affected—in the opinion of Professor Simonds—with the disease in question, were cured in Derbyshire.

Mr. H. Lakin spoke of the importance of consulting skilful veterinary surgeons, and not the half-educated cattle-leaches practising in some localities. He was very pleased to hear the remarks of Mr. Wright with reference to that profession, and he had been in communication with Professor Simonds as to the best means of sending some of its qualified members into the country districts in the present emergency. *Abridged from Midland Counties Herald.*

Sparkenhoe: *Sept.* 7.—The Annual Show of this Society was held at Loughborough on Wednesday and Thursday of this week. As the shows of the Royal Society are held in different towns in this country, so does the Sparkenhoe Society divide its favours amongst the towns situated within its province. The Society may well feel gratified with the reception it has this year met at Loughborough, the inhabitants and gentry of the locality being determined not to be outdone by other places in generosity and taste in the welcome it has accorded to the Society in this its first Show in Loughborough.

Triumphal arches were erected over the principal streets, and the amount of flags, garlands, and other festive decorations everywhere apparent, was a thing worth looking at.

One of the chief features of this exhibition is the department in which prizes offered by the local landed proprietors are competed for.

The Duke of Rutland, Mr. Packe, M.P., Mr. Herrick, Sir John Harper Crewe, E. B. Farnham, Esq., and Mr. Middleton offer prizes to be competed for by *bonâ fide* tenant farmers and labourers. Ploughing, digging, draining, hedge cutting, sheep rearing and allotment culture are encouraged, and the labourer who serves the longest time with the same master also gets his reward.

The show of agricultural implements was very fine, and we may say that for quality and weight the roots shown were fully equal to those shown, or we might say grown, in any other year at this season. The Globe Mangel Wurzel of Mr. Claridge were really beautiful. The Swedes were generally coarse, but the 1st and 2d prizes were awarded to well-grown roots from Mr. Eaton, Castle Donnington, and the Agricultural Colony Reformatory School.

The Cabbages were very fine; 1st prize went to Mr. Eaton, Castle Donnington; 2d, the Agricultural Colony, Whitwick.

The show of Potatos was the chief feature of the root department, and seldom have we seen better Potatos than were this year exhibited at Loughborough. Mr. Dobel, of Loughborough, offered a special prize for the best collection of Potatos, and this brought together a first-class assortment, the prize was awarded to Mr. Shakspear, Loughborough. The Agricultural Colony showed in this class a very good collection of 15 varieties.

The show of Beasts was not as good in point of numbers as was expected; this was owing to the fear of contagion now so general. Some very good Shorthorns were exhibited, Mr. Packe, M.P., the President of the Society, competing with some capital heifers and a bull that would not have disgraced a Royal Show. The 1st prize for aged bulls was awarded to a grand red bull of Mr. Bosworth, of Dishley, and for quality, substance, hair, and evenness, this bull justly got the extra prize.

In Cows the 1st prize went to a beautifully even cow of Mr. John Lynn; 2d to a cow of Maynard blood, shown by Mr. Packe, M.P.

Some very good Yearling Bulls were shown, but the entries were not large.

The Class of Cows in Milk was not well filled, and it is to be regretted that the plague caused such a panic at this exhibition, as the milking cows from the Leicestershire dairy farms are considered fully equal to those of any other county in England.

In fat stock, the 1st prize was awarded to a good even-fleshed Short-horn; the 2d went to a capital Long-horn. The show of young heifers was very poor indeed.

There were some very good Long-horns shown, and we may say that it would be difficult to find so many animals of this once famous breed exhibited as are usually shown at the shows in Leicestershire.

If the show of cattle was poor, the Sheep and Swine classes made in themselves a capital exhibition. If sheep do not come out well in Leicester, there is nothing in a name, and the show of this week brought together as good a lot of sheep as need be desired. The 1st prize ram of Mr. Lynn and Mr. Creswell's 2d prize animal were something superb. Shropshires came out in large numbers and excellent quality. Colonel Dyott had the 1st prize Shropshire ram in the section for aged animals, and seldom have we seen a finer animal. It would seem that Shropshires are competing keenly with Leicesters on the ground where so much honour accrued to the production of the genius of Bakewell. A prize for the best 20 ewes brought out a very good assortment of capital brood ewes.

The entries of Swine were confined altogether to white breeds. Mr. Duckering showed some very capital pigs of the large breed, and the Agricultural Colony, with Mr. Lynn, of Lincolnshire, showed some grand animals in the sections for small breeds.

The show of Horses was very good indeed. Some capital hunters were exhibited, and the trials of jumping and galloping were witnessed with much interest. Of agricultural horses there was a good display, and the young animals here were really very fine. A prize "to the blacksmith who shall, in the opinion of the judges, make and fit on a fore and hind shoe in the best manner," was competed for, and created a deal of local interest. The blacksmiths performed their work on the ground, and the competition was witnessed by a large number of the visitors.

On the whole, we think the members of the Sparkenhoe Farmers' Club and the Loughborough folk may well feel satisfied with this week's Show. We should offer one suggestion, viz, that no short-sighted policy of saving expense should again induce the Club to overlook the policy and good taste of engaging first-rate judges, and from a district outside their province.

The dinner, which was largely attended, was held in a pavilion on the Show ground. We may congratulate the Showyard Committee on the beautiful grounds which were placed at their disposal by Mr. Warner.

Review.

Coates's Herd Book. Vol. 16. (August, 1865) Edited by H. Strafford, 13, Euston Square.

This volume contains the names and pedigrees of 2117 bulls with registered numbers, from 21,136 to 23,252; and of 2873 cows, with produce up to the 31st December, 1864.

There are 5882 cows and heifers given in the index; and besides these, there are many bull calves given as the produce of cows only, which have not registered numbers; also several heifer and bull calves not named, so that really the volume may be said to contain the pedigrees of upwards of 8000 animals.

Comparing this number of the series with Vol. 6, the first published by Mr. Strafford in August, 1846, which contains animals born up to the end of 1845, we find that it has an increase of 1068 registered bulls, or more than double those numbered in Vol. 6, which contains 1049 bulls and about 1250 cows and their produce. The index of Vol. 6 gives the names of 2530 cows and heifers, so that that volume contains the pedigrees of close upon 3600 animals, which is not half the contents of the current volume.

The Breeders' Index of Vol. 16 gives 895 names against 832 in Vol. 15, published in 1863, and 454 in Vol. 6, published in 1846.

The 16th volume is embellished with 13 lithographic plates, six of bulls and seven of cows, representing several prize animals, others for which high prices have been paid, and the rest specimens of some of the most famous herds in the kingdom. The names chosen by breeders for their animals are of the greatest variety, taken from the gods of heathen mythology down to the principal and popular characters of the day, including kings, emperors, lords and dukes, and every sort of official position. Christian names and titles, flowers and fruits are the chief resources for female names; and many for both sexes are odd enough, as our readers will find on purchasing the volume.

Farm Memoranda.

[We take advantage of the immense body of agricultural evidence lately taken before the Hypothec Commission at Edinburgh to publish such extracts from it as will indicate the existing style of Scottish agriculture, and the enterprise and energy of Scottish agriculturists.]

(*Continued from* p. 833.)

19. The Manure Trade: *Mr. Thomas Steele.*—I have been 17 years a grain merchant in Ayr. I sell considerably to the farmers. My sales to them may reach

from 20,000*l.* to 25,000*l.* a year. My purchases are smaller, and are perhaps from 5000*l.* to 6000*l.* a year. My dealings are principally in Ayrshire, Wigtownshire, Dumfriesshire, and a little in other counties. I sell manure, bones, bone manure, and sulphate of ammonia and nitrate of soda. I have found the existence of the law of hypothec prejudicial to me in my trade, in respect to the very great preference it gives to the landlord in his claim. We find, as a rule, that, upon agricultural estates, the dividends we get are quite trifling as compared with those we get from commercial estates. I could not state the number of cases in which I have sustained losses for a number of years, but I took ten cases of farmers' estates, and ten cases of commercial estates, the first that turned up from my books, without selecting either the one or the other. The ten cases of agricultural estates extended over the last six years. The statement of dividends on both estates is as follows:—

No.	Agricultural Estates.	Commercial Estates.
1	No dividend.	14*s.* per pound.
2	No dividend.	No dividend.
3	No dividend.	8*s.* 6*d.* per pound.
4	4*s.* 0½*d.* per pound.	9*s.* per pound.
5	No dividend.	5*s.* per pound.
6	3*s.* 6*d.* per pound.	10*s.* per pound.
7	No dividend.	1*s.* 4*d.* per pound.
8	5*s.* per pound.	7*s.* 7*d.* per pound.
9	2*d.* per pound.	4*s.* 6*d* per pound.
10	5*s.* per pound.	7*s.* 6*d.* per pound.

The average dividend from the whole ten agricultural estates was 1s. 9¼d. per pound, while the average dividend from the ten commercial estates was 6*s.* 3*d.* per pound. There would be a larger sum involved in the commercial than in the agricultural estates; but these are the dividends per pound. Recently, in dealing with the farmers, we have been aware of the preference the landlord had. Not long ago we were not aware of the great risks we ran; but our eyes have been opened recently to the fact in ways which we could not mistake. Undoubtedly we must regulate our prices in consequence of that risk, if we understand our business. We find that the risk upon agricultural estates, as compared with commercial, is something like four times as great; and, for that additional risk, if business men understand their business, they will put on larger profits. Some few agriculturists with whom I deal avail themselves of cash prices; but, unfortunately, as Ayrshire is situated just now, it is only a few of the more substantial that are able to avail themselves of such terms. If the law of hypothec were abolished, I do not think they would be all able to pay cash, but I think they would then be in a position to come into the market and get credit on the best possible terms, which they certainly are not at present. I would advocate the total abolition of the law of hypothec. I have not thought much over the question, whether the rights of parties under existing leases should be reserved. It certainly would apply harshly that existing leases should be interfered with, but it would come very awkward in practice if they were not interfered with. I should think that, if the law were to be abolished, all should come under it. I think it should apply to existing leases from the time it came into operation; but it might be a prospective repeal, not to come into operation for a certain number of years. I have thought over giving the landlord security, and I cannot see any principle on which he should have any security. The circumstances of agriculture are very much altered of late. Formerly the rent to the landlord was the heaviest item of outlay upon the farm, with a little for lime; but now the general public come in as creditors to a much greater extent than the landlords do, and I do not think it is reasonable that the landlord should have any additional security. I do not think that any distinction should be drawn between a man who ties up his land for nineteen years, and a man who is dealing with the tenant from day to day. It would be for the landlord's interest if he left his tenant free and unfettered; and for this reason, that it is a well-known fact, in the annals of farming in Scotland, that the capital employed upon it is quite insufficient for it. That is the case in many other trades as well as in farming; but in general business parties are in a position to go in upon the best terms for credit, which tenants are not, under the law of hypothec as it stands; and I hold that it would be for the advantage and interest of the proprietor that his tenant should be prepared to go into the market on the best terms for credit, to supplement the want of capital that there is for the business. Credit is very essential in all business, and no class would get it more readily than farmers, if it were not for this law. They require to go to their agricultural implement-makers for a great many things they formerly did not require. They require to go to the seed merchants for seed, and to the manure merchants for manure. Credit from such merchants is now curtailed. I know cases in Ayrshire where a deficiency of crop existed last year on the smaller class of farms, because the tenant could not get credit for manures to put into the ground to raise a full crop.

Calendar of Operations.

Merse of Berwickshire: *Sept.* 2.—Harvest has been general for a fortnight, but last week was more helpful to the green crop than to the labours of the season. Under a vivid recollection of last year's shake, Oats were cut wet or dry, but a few fine airy days have come in time to prevent sprouting, except in sheltered spots. Not so, however, in the S.W. district, where cutting was a week earlier, much corn badly sprung in stook, and growing Wheat extensively mildewed.

The broken weather delayed the reaping of Barley until it was dead ripe, and it is only the Clover that keeps it from being fit for the stack. We carted some yesterday in good order, but were stopped by rain A splendid wind, however, has enabled us to finish the field this evening. Oats being cut green will be longer in the winning. Reaping is now all but finished, and light machines have done some service, for Irish hands have been scarce and dear. These hand-delivery sheafers are most in favour, being simple of management; but there is much room for improvement in material and workmanship. For ripe and twisted Barley the machine is much better than the hook.

On all poor clays and light hungry gravels spring corn is very poor in every respect. On better soils Oats improved very much after the July rains, and have come to be an average crop, but with a tendency to dingy chaff in places. Barley, on the contrary, stooks but poorly, and was uncommonly twisted for such short straw. The colour will not be what was expected. Wheat is a well-planted standing crop, of a fine yellow here, except it be a rare piece of spring-sown, which is getting black in the straw, and may as well be cut green as it is. The extent under Wheat is very small, and on so called Wheat-soils there is none at all, owing to October floods. August came in dry, with cold nights; but since the middle of the month we have had a milder temperature, and 3 inches of rain, which wetted the ground a little at times.

The prospects of the Root crop are entirely dependent on an open winter. Swedes got through, in spite of a month's struggle with the flea, and will be a fair crop on free soils. Clay lands, which a few years ago were regularly fallowed, are now forced to grow Turnips; but a dash of rain in May floored them, as indeed it came at the worst possible time for us all. Their Swedes are poor and blanky, and their White Turnips nowhere. The great difficulty, on all hands, will be to find early winter keep, for our most promising Turnips are those sown at the end of June; and there is to be seen many a field hurriedly prepared to reap the advantage (?) of early sowing, which can never come to anything but a few leaves.

In view of the cattle plague, fewer cattle may be kept; though one may steer clear of it by avoiding fairs and foreigners. Sheep command more attention than ever, and ewes will be dear, owing to plenty of Grass. Lambs are dull of sale just at present; but the rise in the earlier fairs was 4*s.* above last year, which leaves much less for the feeder than for the breeder. The disproportionate price of lambs is said to be due to the introduction of sheep-feeding in districts hitherto devoted to dairy farming. Wool sold with some difficulty at 3*d.* per lb. below last year's prices; bred hogg, 2*s.* 3*d.*

Clover hay was a good crop, and some of it well got; but a portion is still a-field in the cock. So is old-land hay, which is grown in parks around mansion houses, and is sold by auction in half-acre lots "to suit purchasers."

Potatos have looked well all summer, but they are now getting black in the shaw. *J. T.*

Notices to Correspondents.

Address: *T L T.* asks for the address of "Colonel Szerelmi," patentee of a new process for manufacturing paper, so as to make it available for roofing, &c.

Cattle Insurance: *Shropshire Farmer.* The Cattle Insurance Office, whose chief place of business is Nottingham, is not known here.

Poultry: *A F G (Ireland).* The poultry sent to the London markets from Ireland sells at a very low rate, principally because it is not well fed nor carefully killed, but very often because it is badly packed in old tea-chests, which split and let in sea-water and all kinds of dirt to spoil the contents. During the last summer, one or two senders have had some large chests made with false zinc sides, so that a layer of rough ice and sawdust could be put between the fowls and the outer surface. The superior condition in which the goods reached market, and increased price, fully repaid the outlay. To improve the size of your farmyard fowls introduce Dorking or Brahma Poutra cocks, and withdraw the others.

Sow: *Essex.* The destruction of her young, which the sow will sometimes eat, is a phenomenon connected with temper rather than with food. She has been excited or disturbed; it is not owing to any deficiency of food.

Sulphate of Iron as a Manure: *R.* The ordinary green vitriol of our shops in a soil, whether placed there artificially or not, is a nuisance and a poison. It can indeed exist as such in a soil only in the absence of lime, which is necessary to fertility, and under conditions of deficient drainage, which are equally opposed to the productiveness of ordinary crops. This is fully borne out by agricultural experience of its use. It has been applied to farm crops in a so-called "economic manure," with either entire uselessness or mischievous effect; and it has been recommended for use in stables and liquid manure tanks for fixing ammonia, which it will do; but it has at the same time the effect of fixing the phosphoric acid of the manure in an insoluble form.

Toll Bars: *Subscriber.* We are not learned in the law; but it is plain that the spirit of the Act, and of decisions under it, is against the charges you name, viz., for carting the tops of trees (not timber) from one part of a farm to the other, and for the farmer riding his pony from one part of the farm to the other.

Tumours: *R S.* Sometimes these tumours are caused by lying down on a hard and slippery floor. If otherwise, give nitrate of potash, powdered, 1 drachm; colchicum, powdered, half-a drachm, morning and night in a mash made with bran and a pound of crushed Linseed cake for four days; then omit a day or two, and repeat as before. The cake may be continued. The tumours may be painted over with compound tincture of iodine. *W C S.*

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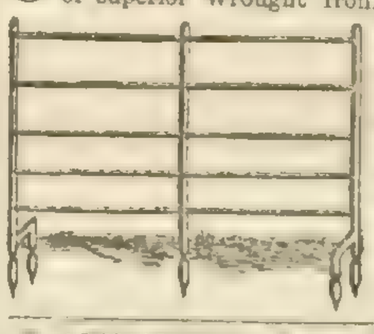

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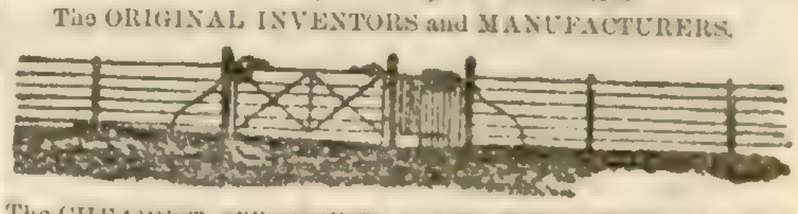

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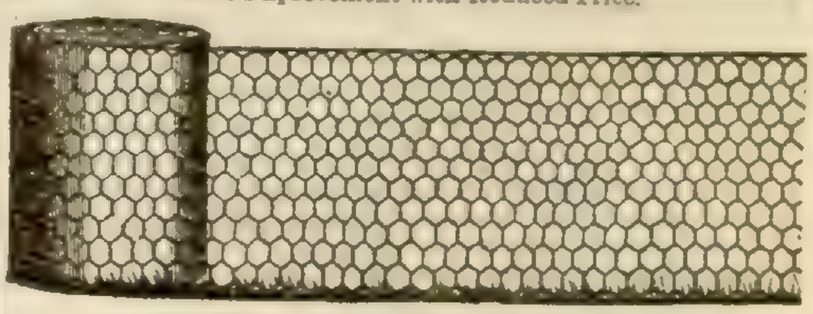

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		s. d.	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*
2½ in.	Hares, Dogs, Poultry	0 3	0 4	0 3½	0 5	0 4½	0 6	0 5½	0 7
2 in.	Game or Poultry Netting	0 3½	0 4½	0 4	0 5	0 5	0 6½	0 6½	0 8
1⅝ in.	Small Rabbits, Hares, &c.	0 4	0 4½	0 4½	0 6	0 5½	0 7	0 7	0 9
1½ in.	Smallest Rabbits ..	0 5	0 6	0 5½	0 7	0 7	0 9	0 9	0 11
1 in.	Pheasantries, &c. ..	0 9	0 11	10½	1 1½	1 3	1 6	1 9	2 0
¾ in.	Aviaries, &c.	1 0	1 3	1 3	1 6	1 6	1 9	..	..

Quantities of 100 yards or upwards delivered free to nearly all the principal Railway Stations and Shipping Ports in England; and 200 yards or upwards delivered free to most parts of Scotland and Ireland.

*** Every description of Netting warranted to give satisfaction, and if not approved will be exchanged, or may be returned unconditionally.

IRON HURDLES, CONTINUOUS BAR FENCING, IRON and WIRE FENCING, FENCING WIRE, FIELD and ENTRANCE GATES, GARDEN ENGINES, GARDEN ROLLERS, GARDEN SEATS and CHAIRS, CAST IRON VASES, and every description of HORTICULTURAL and AGRICULTURAL MACHINES, TOOLS and appliances.

Lists Free on application. Every article guaranteed to be satisfactory.

J. B Brown & Co. Office: 18, Cannon Street, City, London, E.C.; nearly opposite St. Swithin's Lane and "London Stone," and near London Bridge.

Warehouse (where Netting is kept in stock), 148, Upper Thames Street, E.C.; opposite the City of London Brewery, and close to the London Bridge Steam Boat Piers.

GARDEN BORDER EDGING TILES, in great variety of patterns and material, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.

F. & G. Rosher, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kings.and Road, Kingsland, N.E.

Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also TESSELATED PAVEMENTS of more enriched designs than the above.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cements, &c.

To be obtained of F. & G. Rosher, at their Premises as above.

SILVER SAND (REIGATE, best quality), at the above addresses—14s. per Ton, or 1s. 3*d.* per Bushel; 2s. per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less.

FLINTS, BRICK BURRS or CLINKERS, for Rockeries and Grotto Work.

F. & G. Rosher.—Addresses see above.
N.B. Orders promptly executed by Railway.

HOT-WATER APPARATUS for Greenhouses, Hot-houses, Vineries, &c. Estimates on application.
J. Jones & Sons, 6, Bankside, London, S.E.
For List of Prices see *Gardeners' Chronicle*, June 24, 1865.

Heating by Hot Water.

W. J. HOLLANDS, Iron Merchant, 31, Bankside, London, S.E.

HOT WATER PIPES, from Stock, per yard:—2-inch, 1s. 2d.; 3-inch, 1s. 10d.; and 4-inch, 2s. 4d. BENDS, from Stock, 1s. 6d., 2s. 6d., and 3s. each. THROTTLE VALVES, 10s., 13s., and 14s. each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day. A discount to the Trade.

Heating by Hot Water.

HOT-WATER PIPES, at Reduced Wholesale Prices, with Elbows, Syphons, Tee Pipes, and every other connection; Wrought and Cast-iron Boilers, Saddle, Conical, Cylinder, Tubular, and Elliptic, from 24s. each. Improved Boilers and Iron Stands to use without brickwork, 56s. each. Valves from 10s. 6d. each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Castings of every description in stock, at
Mr. LYNCH WHITE'S Iron Wharf, Upper Ground Street, Blackfriars Bridge, London, S. Price List on application.

Horticultural Works, Kensal Green, London, W.

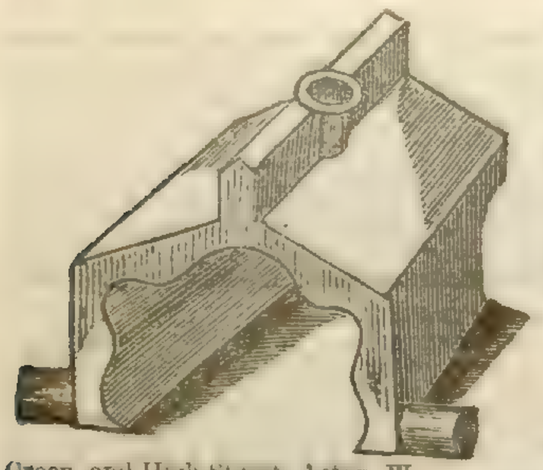
W. T. and J. TAYLOR (late John Taylor & Sons), have on hand for Sale THREE very handsome WOOD and GLASS CONSERVATORIES made to order. Two of them were prepared for a gentleman residing in Park Lane, an objection being raised on account of their intercepting the view from the adjoining houses. They were not fixed.
Designs and Prices fixed complete in any part of the United Kingdom forwarded upon application.

CRANSTON'S PATENT BUILDINGS for HORTICULTURE, Highly Commended by the Royal Horticultural Society, South Kensington. Plans and Estimates free on application. Houses of the following sizes always in stock:—Span, 30 by 15 feet, and 24 by 12 ft.; Half-span, 24 by 10 ft.; Lean-to, 24 by 8 ft. Stereoscopic Slides of different houses post free for 6 stamps each.
Descriptive Book, fully illustrated, by post for 20 stamps from the Author and Patentee, James Cranston, Architect, No. 1, Temple Row West, Birmingham.

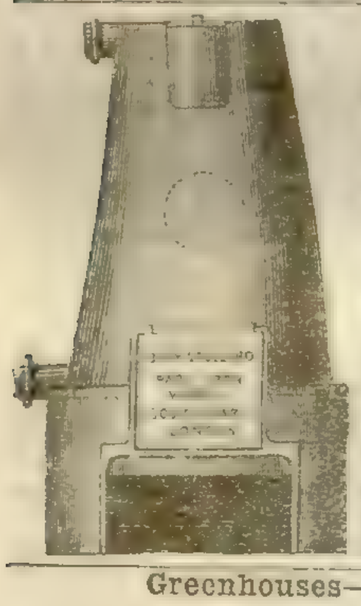
Midland Steam Power Horticultural and Hot-water Works, Loughborough.

T. G. MESSENGER, the Proprietor of the above Works, finding it necessary (through the great demand for his Horticultural Buildings and Heating Apparatus) to make large additions to his Premises, and to Fit the same with an entire set of STEAM-POWER MACHINERY, is now enabled to execute any Orders entrusted to him with the greatest dispatch, and at the lowest possible price consistent with good and substantial work.
Illustrated Catalogues, Working Model, Plans and Estimates, free on application.

T. M. LOBJOIT'S PATENT HOT-WATER BOILERS are acknowledged by all who have them in use to be the most powerful Boilers now known, and are the most economical, requiring less fuel and attention than any other. They are made of various sizes, suitable for heating the smallest Greenhouse to the largest Conservatory, Churches, and Buildings of all descriptions.

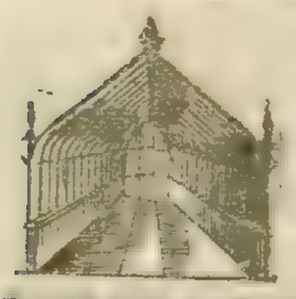


Testimonials forwarded on application to Thos. M. Lobjoit, Horticultural Builder and Hot-Water Apparatus Manufacturer, 1, Mount Villa, Acton Green, and High Street, Acton, W.



HEATING by HOT WATER—Public and Private Buildings, Manufactories, Conservatories, &c., heated on the most improved system, combined with perfect Ventilation.
These BOILERS are adapted for setting in Brickwork, or as shown in sketch they require no Brickwork.
BURY and POLLARD
(Successors to John R. Peill),
Sole Manufacturers of the Improved CONICAL BOILERS, which are in general use, and which Boilers have for their durability and economy attained a celebrity far surpassing any other Boilers ever invented.
Park Iron Works, 17, New Park Street, Southwark, London, S.E.
N.B. Patent WINDMILLS for Pumping and Driving Farm Machinery, from half-Horse Power upwards. To be seen daily at work as above.

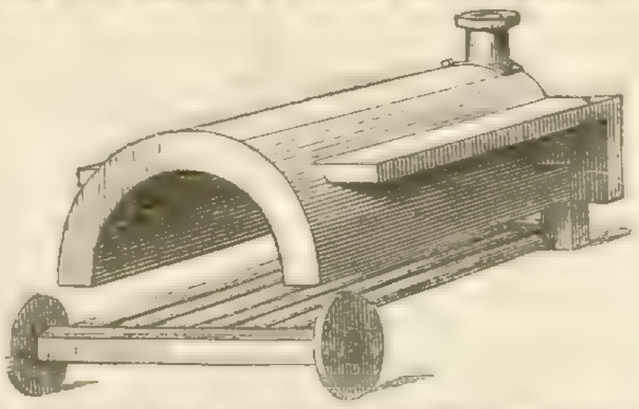
Greenhouses—Heating Apparatus.



DENNIS' PATENT METALLIC HORTICULTURAL BUILDINGS are made from the best wrought iron, upon an entirely new principle. The combination of Iron and Glass under this Patent is perfect; the possibility of fracture is prevented, and a permanently water-tight roof insured. The leading practical advantages are extreme smallness of framing, admitting a maximum of light and heat, and perfectly neutralising atmospheric conduction.
They are thoroughly ventilated, exceedingly strong and durable, are speedily erected, and whilst maintaining their established superiority for Conservatories of the highest order, are acknowledged by the most eminent Horticulturists of the day to be the "desideratum of perfection," promoting perfect symmetry of growth and richness of colour, both for Fruit and Flowers.
From the complete adjustment of the constructional parts of these patent buildings, their manufacture is so facilitated that a comparison in point of cost with perishable wooden structures is most favourable.

THE GARDENER'S OWN GREENHOUSE
(Lately known as Dench's Patent) is a Tenant's Fixture.
The Patent, Plant, Business, Machinery, and all connected with the above, have been transferred to T. H. P. Dennis, who has determined to supply these really useful buildings at such a reduced scale of prices that every one desiring a Greenhouse may possess one.
Note.—A No. 1 Lean-to, 12 ft. 6 in. by 9 ft., including honest 16-oz. Glass, £16 12s. 6d.
T. H. P. D. has introduced most important improvements in their finish and construction, and after numerous experiments has succeeded in arranging them as a Tenant's Fixture, which he feels sure will be valued by gentlemen having limited tenures. With Mr. Rivers' adaptation they make excellent Orchard-houses, and afford all that can be desired in a profitable building.
Wood structures at the lowest price consistent with sound work.
Prospectuses and Estimates on application to T. H. P. Dennis, Horticultural Builder, Hot-water Engineer, &c., Chelmsford Essex.

By Her Majesty's Royal Letters Patent.



THE TERMINAL SADDLE BOILER.—This is the Old Saddle made perfect, by the addition of an upright terminal end piece, which quite closes the arch and side flues, and forms the back of the furnace, doing away with all brickwork at the end, and adding one-third more heating surface to the boiler just where it is most exposed to the direct action of the fire.
To be seen at the Royal Horticultural Gardens, South Kensington; and is at work at the Victoria Nursery, Holloway, Mr. Williams having kindly consented to show it to any one who will call at that Establishment. Circulars, Prices, &c., on application to
J. Ireland, The Works, Edward Street, Broughton Lane, Manchester.

GREENHOUSES for SALE, Warranted of good Materials, 21-oz. glass.—LEAN-TO, 45 by 14, £65; 22 by 12, £33; 25 by 13, £30; 21 by 11, £25. SPAN, 21 by 19, £50, angle 45 deg.; 21 by 10, £25; 24 by 15, £35
A large quantity of PIT LIGHTS and MELON FRAMES in stock. Houses made to order, 21-oz. glass, 1s. 3d. per foot; Pit Lights, 8d. per foot. N.B. Estimates for Heating by Hot-water.
Joseph Smith, New Road, Hammersmith, W.

GREENHOUSES to be SOLD, Cheap and Good.—A LEAN-TO, 15 ft. by 7 ft.; do., 15 ft. 6 in. by 8 ft. 6 in.; do., 52 ft. by 11 ft. 6 in. SPAN-ROOF, 21 ft. by 10 ft. 6 in.; do., 25 ft. by 16 ft.; 1, 2, and 3-Light GARDEN FRAMES, from 10s. 6d. each; PIT LIGHTS, from 8s. 6d. each; 2-in. PIT LIGHTS, made to order, 4½d. per foot; do. Glazed, at 8d. per foot; GREENHOUSES erected complete, at 1s. 1d. per foot. Apply to
James Smith, Hothouse Builder, 205, King Street, Hammersmith, W.

Oil Paint no longer Necessary.

HILL and SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which Hill & Smith will forward on application.
From the Right Hon. the Earl of Shannon, *Castle Martyr, near Cork.*
"Gentlemen,—I have used your Black Varnish for several years, and consider it very superior, both for iron and wood work out of doors, to anything I have ever used. I shall always continue to use it. Near the sea it is particularly valuable, as it stands exposure when paint becomes corroded. I consider the iron Barrow essential to its use."
Sold in casks of about 30 gallons each, at 1s. 6d. per gallon, at the Manufactory, or 1s. 8d. per gallon paid to any Station in the kingdom.
Apply to Hill & Smith, Brierly Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C., from whom only it can be obtained.

TRADE MARK.

WALTER CARSON and SONS, of Great Winchester Street, respectfully notify that they have removed their principal office to their Warehouse in LA BELLE SAUVAGE YARD, Ludgate Hill, E.C. (three doors East of Railway Viaduct), and have discontinued their West-end Office, 31, St. James's Street.

CARSONS' ANTI-CORROSION PAINT, specially manufactured for out-door work, is the best and cheapest. All colours. Is simple in application, so that any person can use it.
Is twice as durable as genuine white lead. See Testimonials sent with patterns and prices post free.
Three cwt. carriage free to any station in England and Wales, and most Seaports of the United Kingdom.

CARSONS' PAINT for all OUT-DOOR WORK

CARSONS' PAINT for WOOD and IRON WORK.

CARSONS' PAINT for BRICK and COMPO.

CARSONS' ANTI-CORROSION PAINT used by nearly all the eminent Horticulturists, the Nobility and Gentry, for their Gardens.

CARSONS' PAINT for CONSERVATORIES.

CARSONS' PAINT for GREENHOUSES.

CARSONS' PAINT for HOTHOUSES.

Testimonial.
"Exotic Nurseries, Southampton, August 10, 1865.
"Gentlemen,—I will thank you to forward, &c. What I had from you last season has, after a twelvemonth's wear, proved most satisfactory; there is not a crack in the putty, but, on the contrary, it is as solid as though the glass were cemented in, which I have rarely found with white lead.—I am, yours truly, "Josiah Elcombe."
"Messrs. W. Carson & Sons, La Belle Sauvage Yard, Ludgate Hill."

CARSONS' ANTI-CORROSION PAINT will keep for years in a dry place. All orders to be sent direct to Walter Carson & Sons, La Belle Sauvage Yard, Ludgate Hill, E.C. Three doors East of Railway Viaduct.

Glass for Garden Purposes.

JAMES PHILLIPS AND CO. beg to submit their prices as follows:—

PROPAGATING GLASSES.

	Each.—s.	d.		Each.—s.	d.
2 inches in diameter ..	0	3½	12 inches in diameter ..	[illegible]	[illegible]
3 " " ..	0	4½	13 " " ..	[illegible]	[illegible]
4 " " ..	0	5½	14 " " ..	[illegible]	[illegible]
5 " " ..	0	6½	15 " " ..	[illegible]	[illegible]
6 " " ..	0	8	16 " " ..	[illegible]	[illegible]
7 " " ..	0	10	17 " " ..	[illegible]	[illegible]
8 " " ..	1	0	18 " " ..	[illegible]	[illegible]
9 " " ..	1	2	19 " " ..	[illegible]	[illegible]
10 " " ..	1	4	20 " " ..	[illegible]	[illegible]
11 " " ..	1	6			

BEE GLASSES.

	Each.—s.	d.		Each.—s.	d.
4 inches in diameter ..	6	6	9 inches in diameter ..	[illegible]	[illegible]
5 " " ..	6	8	10 " ..	[illegible]	[illegible]
6 " " ..	6	10	11 " ..	[illegible]	[illegible]
7 " " ..	1	1	12 " ..	[illegible]	[illegible]
8 " " ..	1	4			

CUCUMBER GLASSES.

	Each.—s.	d.		Each.—s.	d.
24 inches long	2	0	16 inches long	[illegible]	[illegible]
22 " "	1	10	14 " "	[illegible]	[illegible]
20 " "	1	8	12 " "	[illegible]	[illegible]
18 " "	1	6			

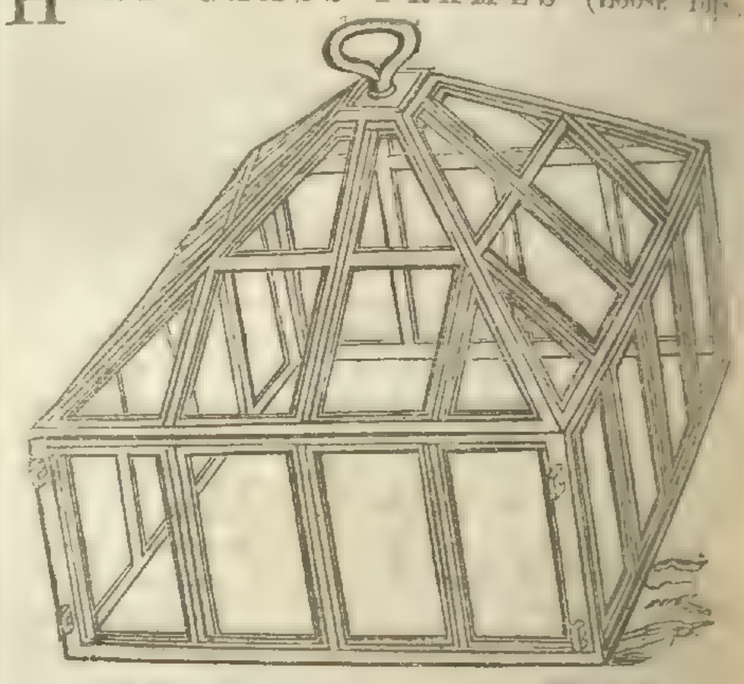
HAND GLASSES, with Open Tops.

	Each.—s.	d.		Each.—s.	d.
12 inches	6	6	18 inches	[illegible]	[illegible]
14 "	7	6	20 "	[illegible]	[illegible]
16 "	8	6	22 "	[illegible]	[illegible]
			24 "	[illegible]	[illegible]

Painted and Glazed with 16-oz. Sheet Glass.

London Agents for HARTLEY'S IMPROVED PATENT ROLLED PLATE.
LINSEED OIL, Genuine WHITE LEAD, Carson's PAINTS, PAINTS of various colours ground ready for use.
180, Bishopsgate Street Without, London, E.C.

HAND GLASS FRAMES (Loose Tops).



Size	Price s.	d.	
14 by 14	4	0	Each.
18 by 18	5	9	"
20 by 20	6	6	"
22 by 22	7	6	"
24 by 24	8	6	"

Delivered Free to any Station in England if 12 or more are ordered.
J. Jones & Sons, 6, Bankside, London, S.E.

J. WARNER and SONS, London.
Manufacturers of

BOHEMIAN
FLOWER VASES
AND
HYDRO-CARBON
LAMPS.

The Lamp lifts out of the Vase, requiring no fixing.
Is fitted either with
WARNER'S
KOH-I-NOOR,
OR THE ORDINARY
FLAT-WICK BURNER.
The Koh-i-Noor Burner produces a superior light to the Moderator, at a much less cost, and is not liable to get out of order.

The Opal Vases are made in the best style of Bohemian Glass, beautifully decorated.

	Round Burner	
	23s. 6d.	[illegible]
With Gold Bead	25 0	[illegible]
With Gold Lines	30 0	[illegible]
With Rose Colour, Greek Border	32 0	[illegible]
With Red Medallion (Antique)	32 0	[illegible]
With Blue Medallion (Antique)	46 0	[illegible]
Ruby Glass, fluted with gold lines	63 0	[illegible]
Emerald or Ruby, richly decorated with gold.		

May be obtained of the Trade throughout the United Kingdom.

BENJAMIN EDGINGTON'S RICK CLOTHS, New and Second Hand.
BENJAMIN EDGINGTON'S MARQUEES and TENTS.
BENJAMIN EDGINGTON'S FLAGS and BANNERS of all NATIONS.
BENJAMIN EDGINGTON'S ILLUSTRATED CATALOGUE sent free by post.
BENJAMIN EDGINGTON'S only Establishment, 2, Duke Street, London Bridge, S.E.

Caution to Gardeners.—When you ask for

SAYNOR and COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark Saynor, also the corporate mark Warranted, without which none are genuine.
S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not their make, all of which are warranted both by sellers and makers.
S. & C.'s Pruning and Budding Knives are the best and the cheapest in the market.
Paxton Works, Sheffield. Established upwards of 125 years.

F. T. ARCHER'S "FRIGI DOMO." — Patronised by her Majesty the Queen, the Duke of Northumberland for Alnwick, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.

PROTECTION from the SCORCHING RAYS of the SUN. "FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever used, a fixed temperature. It is adapted for all horticultural and domestic purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from spring frosts. To be had in any required lengths.

Two yards wide	1s. 9d. per yard run.
Four yards wide..	3s. 6d. per yard.
An improved make, 2 yards wide ..	1s. 9d. per yard.
An improved make, 3 yards wide ..	2s. 8d. per yard run.

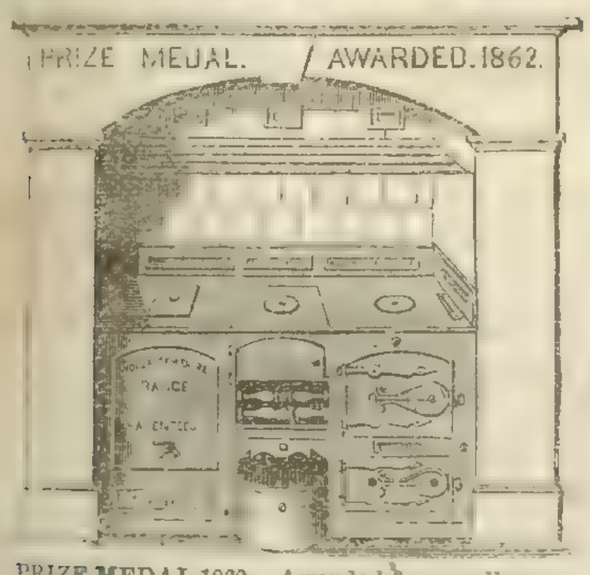
Also "Frigi Domo" Netting, 2 yards wide, 1s. 6d. per yard run.
MADE BY THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, and of all Nurserymen and Seedsmen throughout the kingdom.
"It is much cheaper than Mats as a covering."

EARTH CLOSETS (MOULE'S PATENT).
No Unwholesome Cesspools.
No Bad Smells.
No Water Pipes to get out of order.
The Best Night Commodes.
The Apparatus (price 25s. and 30s.) may be applied to any Closet at trifling cost, and is self-acting.
By its use a valuable Manure is saved, and Fertility to the Soil ensured.
Earth is recommended by the Privy Council, in their report on Cholera, as a deodoriser and disinfectant.
Extract from Letter received from the SECRETARY *of the* NATIONAL RIFLE ASSOCIATION.
"I am further directed to state that they (the Closets) proved of the greatest use, and were found to act admirably."
WRIGHT & Co., 29, Bedford Street, Strand, London, W.C.
OLDHAM SHOW, STAND 46.

THE KAMES GUNPOWDER COMPANY'S CRYSTAL GUNPOWDER, packed in Red Japanned Canisters, 1 Lb., No. 2 Medium, No. 3 Large Grain.
London Office: 45, Lime Street, E.C.
The Kames Gunpowder Company solicit a trial of their CRYSTAL and other SPORTING GUNPOWDERS, of this year's manufacture. For strength, cleanliness, and prompt ignition they will be found unequalled. Sold by most respectable Dealers throughout the Country, and at the Office, 45, Lime Street, London, E.C.

BROWN AND GREEN'S KITCHEN RANGES.
THE PRIZE MEDAL, 1862.
THE NEW PATENT (Granted April, 1865).
"A CLOSE RANGE with an OPEN CHIMNEY." Combines the greatest cure of Smoky Chimneys, and the unequalled advantages for Cooking. Brown & Green's Ranges have long been celebrated, with free ventilation of the Kitchen, and increased economy and convenience.
No Close Heat or Smell. Prospectuses free by Post.
FREDERICK THOMAS, 72 Bishopsgate Within, E.C.

PATENT WORCESTERSHIRE RANGE.



PRIZE MEDAL 1862. Awarded for excellence.
The ADVANTAGES of the above RANGE.—Two Ovens are heated with the same amount of COAL as one of any other.
CONVENIENCE of COOKING. Great saving of Fuel and Labour, Universal Adaptability, Cleanliness, Comfort, Durability, and for the arrangement is not surpassed.
Warranted to CURE a SMOKY CHIMNEY.
Inventors and Manufacturers, JONES & ROWE, Worcester.
London Agents, BARRON, SON, & WILSON, Ironmongers to her Majesty, 436, West Strand.
ILLUSTRATED CATALOGUES, with Prices and Books of Testimonials, forwarded on application.

DEANE'S, The Monument, LONDON BRIDGE, Established A.D. 1700.

DEANE'S TABLE CUTLERY, celebrated for more than 150 years, remains unrivalled for quality and cheapness. The Stock is most extensive and complete, affording a choice suited to the taste and means of every purchaser. The following are some of the Prices for Ivory-handled Knives, each blade being of the best cast, bearing our name, and warranted:—

	s. d.	s. d.	s. d.	s. d.	s. d.	s.	s.	s.
Table Knives, per doz	12 6	14 0	16 0	19 0	23 0	25	29	33
Desert ditto "	11 6	12 0	12 0	15 0	18 0	20	23	28
Carvers, Joint, pr pair	5 0	5 0	5 6	6 6	7 6	8	9	11

ELECTRO-PLATED SPOONS and FORKS.—The best manufacture, well finished, strongly plated. Every article stamped with our mark, and guaranteed.

Per dozen.	Fiddle. 2nd.	Fiddle. Best.	Reeded. 2nd.	Reeded. Best.	King's. 2nd.	King's. Best.	Lily. Best.
	s. d.	s. d.	s.	s.	s.	s.	s.
Table Spoons	33 0	40 0	44	58	54	66	58
Table Forks	31 0	38 0	44	56	54	64	56
Dessert Spoons	23 0	29 0	32	40	37	46	40
Dessert Forks	24 0	30 0	32	42	37	48	42
Tea Spoons	14 6	18 0	22	26	26	32	26
Mustard Spoons, each ..	6 6	7 6	9	11	11	12	10

DISH COVERS and HOT-WATER DISHES.—DEANE & CO. invite particular attention to their varied and excellent assortment of these Goods, to which they are continually adding all modern approved patterns in Electro-Plate, Britannia Metal, and Tin.

	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.
Britannia Metal, set of 5 ..	3 0	3 6	3 10	4 6	5 10	5 15
Britannia Metal, set of 6 ..	4 5	4 13	5 0	5 8	7 7	7 17
Block Tin, set of 6	0 18	1 10	2 0	2 2	2 8	2 17
" " 7	1 4	2 0	2 13	2 17	3 4	3 10
Electro-Plate, set of 4 ..	12 8	12 12	14 0	5 0	15 15	26 4

An Illustrated Catalogue and Priced Furnishing List, gratis and post free.
DEANE & Co., 46, King William Street, London Bridge, E.C.

DINNEFORD'S FLUID MAGNESIA.—The Medical Profession for 30 years have approved of this pure solution of Magnesia as the best remedy for Gout and Stomachic disorders of Children, and as a mild aperient it is especially adapted for Ladies and Females. Prepared solely by DINNEFORD & Co., Chemists, &c., 172, New Bond Street, London, W.; and sold throughout the World by respectable Chemists. CAUTION.—See that "DINNEFORD & Co." is on the outer bottle and red label over the cork.

CORNS and BUNIONS.—A Gentleman, many years tormented with Corns, will be happy to afford others the information by which he obtained their complete removal in a short period, without pain or any inconvenience.—Forward address on a stamped envelope to W. GOODALL, Esq., Epsom, Surrey.

BEDSTEADS, BATHS, and LAMPS. WILLIAM S. BURTON has Six Large Show Rooms, devoted exclusively to the separate display of Lamps, Baths, and Metallic Bedsteads. The stock of each is at once the largest, newest, and most varied ever submitted to the public, and marked at prices proportionate with those that have tended to make his establishment the most distinguished in this country.

Bedsteads, from	12s. 6d. to £20 0s each.
Shower Baths, from	8s. 0d. to £6 0s. each.
Lamps (Moderateur), from ..	6s. 0d. to £7 7s. each.
All other kinds at the same rate.	
Pure Colza Oil	4s. per gallon.

WILLIAM S. BURTON, GENERAL FURNISHING IRONMONGER by appointment to H.R.H. the Prince of Wales, sends a CATALOGUE gratis and post paid. It contains upwards of 600 Illustrations of his illimited Stock of Sterling Silver and Electro-Plate, Nickel Silver and Britannia Metal Goods, Dish Covers, Hot-water Dishes, Stoves, Fenders, Marble Chimney-pieces, Kitchen Ranges, Lamps, Gaseliers, Tea-Trays, Urns and Kettles, Clocks, Table Cutlery, Baths, Toilet Ware, Turnery, Iron and Brass Bedsteads, Bedding, Bed Room Cabinet Furniture, &c., with Lists of Prices, and Plans of the 20 large Show Rooms, at 39, Oxford Street, W.; 1, 1A, 2, 3, and 4, Newman Street; 4, 5, and 6, Perry's Place, and 1, Newman Yard, London, W.

SEWAGE of TOWNS, &c.—A Member of the Society of Civil Engineers, of great experience in applying the Sewage of Towns, and large Establishments successfully to Lands, is open to engagements. References given where Works have been long completed, and where extensive Works are now in hand. Address C. E., 142, High Holborn, W.C.

CLIFF'S ANTISEPTIC FLUID.—The Disinfecting and Antiseptic properties of this Fluid render it peculiarly valuable for warding off the Cattle Plague.
"Wash the Animal's body once a fortnight with a solution of 1 part of the Fluid to 80 parts of Water, applying the liquid with a sponge or brush. Frequently wash down Cowshed, Mangers, &c., with a similar solution."
For further particulars apply to JOHN COLEMAN, 150, Leadenhall Street, E.C.

Lincolnshire Long-woolled Rams.
MR. JOHN CLARKE, of Long Sutton, Lincolnshire, will be pleased to forward LINCOLNSHIRE LONG-WOOLLED SHEARLING RAMS of his own Breed to any part of the Kingdom at very moderate prices. Lincolnshire Lustre Wool may be advantageously grown in any cool climate. Wet climates require the closer-set fleeces of some, which Mr. C. would select according to the information sent.—Long Sutton, September 2.

The Exmoor Cobs, Galloways, and large-sized Ponies.
THE LAST LOT OF THE "ROBINS."
MR. ROBERT SMITH'S ANNUAL SALE of these NOTED FIRST-CROSS ANIMALS, from PONY MARES, will again take place at Bristol, on WEDNESDAY, October 4, 1865. Upwards of 20 of this year's Sale (rising 5 years old and quiet to ride), are by the renowned Horse Bobby, so famous in history at Hyde Park Corner. They are Chiefly Bays with Black points, and combine with the hardihood of the Pony Mare, Old Bobby's Arab shapes and splendid action. Mr. Smith's Stud Farm being from 1000 to 1200 feet above the sea, is a sufficient guarantee of their hardihood.
They may be viewed upon the Hills at any time previous to the Sale. There are some exact matches from 12-2 to 14 hands.
Catalogues will be ready 10 days prior to the Sale.
Emmetts Grange, Exmoor Forest, South Molton.

WANTED, to RENT, a MARKET GARDEN within 15 miles of London.
J. H. S., *Gardeners' Chronicle* Office, W.C.

Nursery Stock, Cheltenham.
TO NOBLEMEN, GENTLEMEN, AND OTHERS CONTEMPLATING PLANTING AND TO THE TRADE.
TO BE DISPOSED OF, by Private Contract, in large or small quantities, the valuable NURSERY STOCK now standing on the ST. JAMES'S NURSERY, near the Great Western Railway Station, Cheltenham, comprising a good and general selection of Forest and Ornamental Trees, Pyramid, Trained, and Standard Fruit Trees, Coniferæ and Shrubs; also a very choice selection of Standard and Dwarf Roses, the whole of which will be offered at prices worthy of attention.
An early inspection and early orders solicited.

Archway Nursery, Shore Road, South Hackney.
TO BE DISPOSED OF, One Acre of NURSERY GROUND, with 8 Greenhouses, 50 Lights and Frames, good Stock of Plants to work from, and the whole of the Ground well cropped with Flower Roots; 300 Casts of Flower-pots, 25 Loads of Compost for potting. Land rich. Good Jobbing connection. Can be greatly improved. Good Dwelling House on the ground, enclosed with wall all round. Water laid on from the main. Rent £34 per annum. Lease 7 years, can be renewed. Premium £370, including stock. Profits, £150 per annum.
For further particulars, apply to Mr. J. C. STEVENS, Horticultural Auctioneer and Valuer, 38, King Street, Covent Garden, London.

Epsom.
TO BE SOLD, with Immediate Possession, the LEASE, STOCK, and GLASS, of the old-established EPSOM NURSERY, in consequence of the decease of Mr. George S. Dods, the late proprietor. The Grounds contain about 5 acres with Greenhouses and Pits completely and economically heated with hot-water; also the valuable Nursery Stock, Greenhouse and Bedding Plants, Seeds, and other effects. Or the whole may be taken at a valuation.
Apply to PROTHEROE & MORRIS, Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

FOR SALE, a very choice SMALL FARM, with Immediate Possession. It comprises 57 Acres of exceedingly fine Land, admirably adapted for Market Gardening or Seed Growing purposes, close to a Station and Town, and within an hour of London.
Apply to Messrs. NEWSON & STANLEY, Land Agents and Valuers, 2, Walbrook, Mansion House, E.C.

Stock Farms, near Guildford, to be Let.
TO BE LET, with Immediate Possession, or at Michaelmas next, those compact Farms called TUNMORE and HOMEHURST FARMS, at East Clandon, with good Dwelling House, two convenient Homesteads, four Labourers' Cottages, and about 260 Acres of Arable, Meadow, and Pasture Land, within 5 miles of the Market Town of Guildford.
For particulars apply to the Tenant on the Premises; or to Mr. WOOD, East Clandon, near Guildford. Hatchlands, Sept. 2.

FARM TO LET, at Norwood, in the Parish of Croydon, Surrey, for a term of 7 years.—BIGGEN FARM, containing about 135 Acres, 47 being Meadow, a small part Wood, and the remainder Arable, with Dwelling House, Garden, Greenhouse, and extensive Farm Buildings. Situate about 7 miles from London, 3 from the Market Town of Croydon, 1 from the Railway Stations at Lower Norwood and Thornton Heath, and less than 2 from the Crystal Palace. The Shooting will be included.
For cards to view and further particulars apply to Messrs. BLAKE, Croydon, S.

FOR SALE, by PRIVATE TREATY, a DESIRABLE FREEHOLD ESTATE, situated on the borders of Salop and Radnor. This Estate comprises about 271 ACRES of FERTILE LAND, admirably placed near a first-class Railway Station on the banks of the River Teme, (so famous for its Trent and Grayling Fishing,) and being within easy reach of good Markets and several packs of Hounds, is equally suitable for Investment as for a residential home. The property is well Wooded, beautifully undulated, and combines in a singular manner, the richly Irrigated and Pasture Lands of the Vale of Teme, with the upland Border Lands, which are as picturesquely formed for Park Lands as for Building purposes, within 2¾ miles of the improving Town of Knighton. There is also a valuable SHEEP WALK (additional Park Land), adjoining the rich uplands, of some 150 acres, on Skyborrah Hill—upwards of 200 acres of the enclosed Estate is in rich Pasture and irrigated Meadows. The whole Estate now let to responsible tenants at an income of about £700 per annum.
Plans, with every requisite information (to treat), may be had at the office of Mr. ROBERT SMITH, Emmetts Grange, South Molton, Devon.
N.B.—Mr. SMITH has several Estates for Sale in North Devon.

THE SALE of FOREST TREES, SHRUBS, &c., advertised to take place by ROBERT TURNER, at Sydnope Nurseries, near Matlock, is POSTPONED for a short time until further Notice. ARROW SMITH.

Sales by Auction.

Croydon, Surrey.
MESSRS. BLAKE will SELL by AUCTION, upon the Premises, Oakfield Lodge, adjoining the West Croydon Railway Station, on FRIDAY, September 15, at 12 for 1 o'Clock, a Small HERD of FALLOW DEER, consisting of 5 Bucks, 11 Does, and 8 Fawns.
May be viewed the day before the Sale, and Catalogues had at GARRAWAY'S Coffee House, Change Alley; and of Messrs. BLAKE, Croydon.

Importation of Orchids from Rio Negro and Rio Blanca in South America.
MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, September 19, at half-past 12 o'Clock precisely, an importation of valuable ORCHIDS just arrived in the finest possible condition, consisting of Cattleya or Lælia Wallisii, Scuticaria species nova, Cattleya superba, Schomburgkia spectabilis, Batemannia species nova, &c.
On view the Morning of Sale, and Catalogues had.

Importation of Tree Ferns from Melbourne. Established and Imported Orchids, &c.
MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, September 20, at half-past 12 o'Clock precisely, a Consignment of 100 very fine TREE FERNS, including Dicksonia antarctica, Cyathea australis, &c., from 5 to 8 feet high, in the finest possible condition, just arrived per "Swiftsure" and "Sussex," from Melbourne. A small Collection of ESTABLISHED ORCHIDS, the property of a gentleman from the North of England. An Importation of Orchids from the Cape, &c.
On view the Morning of Sale, and Catalogues had.

Dutch Bulbs.
MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, September 23, at half-past 12 o'Clock precisely, a choice assortment of HYACINTHS, TULIPS, and CROCUSES from a well-known Bulb Farm at Haarlem; a Collection of valuable TULIPS, the property of a Gentleman; and a large quantity of STRAWBERRY PLANTS, including most of the newest and best sorts.
On view the Morning of Sale, and Catalogues had.

Acton Vale Nursery.
TO NOBLEMEN, GENTLEMEN, BUILDERS, NURSERYMEN, AND PUBLIC COMPANIES ENGAGED IN PLANTING.
MESSRS. PROTHEROE and MORRIS will SELL by AUCTION, on the Premises, Acton Vale Nursery, Uxbridge Road, Middlesex, within 10 minutes' walk of the Acton Railway Station, on the North London Railway, on MONDAY, October 16, and Three following days, at 11 o'Clock each day, without the least reserve, by order of Mr. T. Brevand, Sole Lessee, the Lease having nearly expired, the Valuable NURSERY STOCK, including large quantities of Handsome Evergreens, Deciduous Shrubs, Ornamental Trees and Forest Trees; Standard and Dwarf Roses, &c., particulars of which will shortly appear.
American Nurseries, Leytonstone, N.E.—Sept. 9.

Sunningdale Nursery, Bagshot, Surrey.
PRELIMINARY NOTICE OF AN UNUSUALLY EXTENSIVE AND HIGHLY IMPORTANT SALE OF VALUABLE NURSERY STOCK.
MESSRS. PROTHEROE AND MORRIS have received instructions from Mr. Chas. Noble to offer for SALE by public AUCTION, NEXT MONTH, on the Premises, Sunningdale Nursery, Bagshot, Surrey, within 5 minutes' walk of the Sunningdale Station on the South-Western Railway, without the least reserve, in consequence of a portion of the Land being required for the formation of two public roads, and a new line of Railway, which necessitates entire new arrangements and immediate clearance of the STOCK. There are many handsome symmetrical specimens of CONIFERÆ and other SHRUBS, scarcely to be met with at any other Establishment, bearing perfect evidence of the most skilful and careful cultivation, presenting an unprecedented opportunity to Noblemen, Gentlemen, and Public Companies forming and improving Plantations, and the Trade for obtaining in large quantities that which is rare and excellent. Particulars of the Stock will appear in future Advertisements.
American Nurseries, Leytonstone, N.E.—Sept. 9.

Willis's Nursery Gardens, Fulbrook, Oxfordshire.
MR. THOMAS STREAT will SELL by AUCTION, at the Bull Inn, Burford, on FRIDAY, September 15, at 3 o'Clock precisely, by the direction of Trustees for Sale under the Will of the late proprietor Thomas Willis, all that substantially built DWELLING HOUSE, with Detached Storehouse, with Seed Room over Brewhouse, and other Outbuildings; and all those FOUR NURSERY GROUNDS or GARDENS, lying partly contiguous and partly very near thereto, and containing by admeasurement, 7a. 3r. 9p. The Property is Freehold of Inheritance, and the business of a Nurseryman and Seedsman has been successfully carried on thereupon for four generations, is now in full work, and to which there now is and always has been a good connection, and therefore it deserves the attention of the Trade as being disposed of by reason of the death of the late Proprietor. Possession may be had on completion of the purchase. The purchaser will have to take to the Stock thereon. Fulbrook is close to the Town of Burford, and 4 miles or thereabouts from the Shipton Station of the Great Western Railway.
To view the Property, or for further particulars, apply to the Auctioneer, or Messrs. PRICE & SON, Solicitors, Burford.

Notice of Sale of the Whole of the Stock
OF MR. JOSEPH DAY, NURSERYMAN AND GARDENER, ENSHAM, OXON.
MESSRS. T. MALLAM AND SON will SELL by AUCTION, on the Premises, on WEDNESDAY, September 27, and following day, at 11 o'Clock each day, the STOCK, comprising about 30,000 Laurels, 10,000 Laurustinus, 2000 Yew Trees, various; 3000 Evergreen Oaks, 1000 Apple, Pear, Plum, and Cherry Trees, 500 Portugal Laurels, 5000 English and Turkey Oaks, 3000 Gooseberries, Currants, and Raspberries, 5000 Aucuba japonica, 3000 Dwarf Berberis, 3000 Tree Box, 3000 yards of Box Edging, 2000 Evergreen Privets, 3000 Elm, Hornbeam, Chestnut and Acacia ditto, 2000 Sweet Briars, 500 Common Holly, 500 Spruce Firs, 500 Black Italian Poplar, 500 Broom, 200 Filbert, 100 Walnut, 50 Standard Apricots, and other Stock in great variety.
Catalogues are being prepared, and will be in circulation ten days previous to the Sale, and may be obtained of Mr. DAY, on the Premises; at the adjacent Inns; and at the Auctioneer's Offices, 136, High Street, Oxford.

To Market Gardeners, Florists, and Others.
IMPORTANT SALE OF THE GROWING CROPS, HORSES, WAGGONS, CARTS, AND OTHER USEFUL IMPLEMENTS, THE PROPERTY OF MR. PHILIP URLWIN, WHO IS RETIRING FROM BUSINESS.
MR. DANIEL WATNEY will SELL by AUCTION, on the Premises, at Loughborough Park, Brixton (adjoining Loughborough Road Station), on WEDNESDAY, Sept. 27, at 12 for 1 o'Clock, without the slightest reserve, the GROWING CROPS, comprising 7 acres of Rose Coleworts, 1 acre of Linnæus and Albert Rhubarb Roots (3 years old), 1 acre of Regent Potatos, about half an acre of Mint, and about the same quantity of Mangel Wurzel; also three first-class Draught Horses, four excellent Market Waggons, with patent arms and axles, head and side ladders complete; a capital Spring Van, three strong Market Carts, Night Soil Cart, Water Cart, heavy Iron and other Rollers, two Ploughs, three sets of Harrows, Tennant's Grubber, two Chaff-cutting Machines, seven Glazed Forcing Pits, 66 Three-light Boxes, and 10 Cast-iron Hand-lights, Wheelbarrows, Water pots, Bushel Baskets, Dibblers, Forks, Spades, Hoes, and various other implements.
Catalogues may be obtained 10 days prior to the Sale, of the BAILIFF, on the premises; and of Mr. DANIEL WATNEY, Land Agent and Auctioneer, 73, Cheapside, E.C.

HOTHOUSES FOR THE MILLION.

AWARDED A PRIZE MEDAL, 1862.

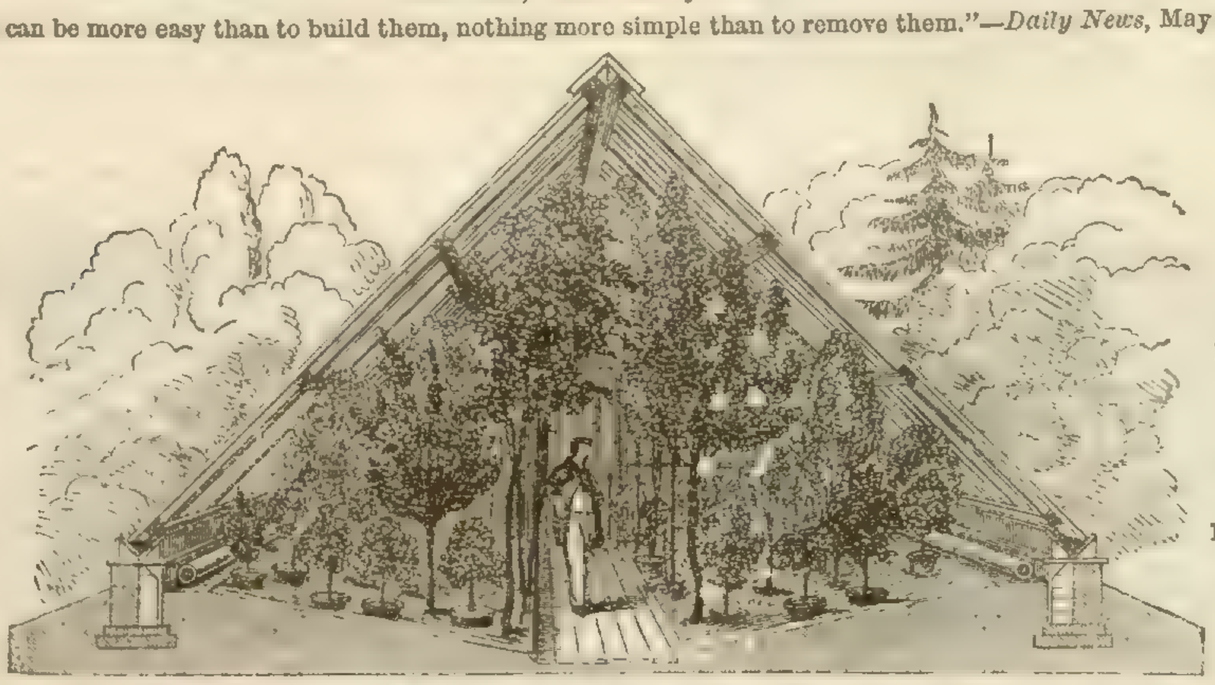
INVENTED AND PATENTED BY

SIR JOSEPH PAXTON, M.P.

Manufactured for the Agent, in London; Newton in Cartmel, Lancashire; Gloucester, Coventry, Aberdeen, and Paisley ONLY.

"Nothing can be more easy than to build them, nothing more simple than to remove them."—*Daily News*, May 22, 1862.

COMBINE SIMPLICITY, **CHEAPNESS,** AND DURABILITY.



FULFIL ALL THE REQUIREMENTS OF HORTICULTURE.

SPAN-ROOF HOUSES, with two ends and doors, can be supplied, Painted and Glazed, ready for fixing, 21 ft. by 16 ft., 32*l.*; 42 ft. by 16 ft., 54*l.*; 54 ft. by 19 ft., 88*l.*; 64½ ft. by 22 ft., 130*l.*, &c., &c.

ILLUSTRATED CIRCULARS, with Prices, can be had on application to

SAMUEL HEREMAN and J. MORTON, Agents, 7, PALL MALL EAST, LONDON, S.W.

A HANDBOOK of VINE and FRUIT TREE CULTIVATION, as adapted to the above Patent Hothouses, may be had of Mr. Hereman. Second Edition, price 1*s.*; post free, 1*s.* 1*d.*

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For samples and prices apply to J. Shaw & Co., 29, Oxford Street, Manchester.

SMITH, BECK, AND BECK'S GREENHOUSE HOTBED THERMOMETERS.—These Instruments are of very best construction, and at moderate prices.
31, Cornhill, E.C.

Universal Microscope. Price £5 5s.

SMITH, BECK, AND BECK
31, Cornhill, E.C., late 6, Coleman Street.
*** Catalogues sent on receipt of 6 postage stamps.

To Florists and Nurserymen.

GARDEN POTS, supplied in large quantities. Discount allowed for orders given at the present time. H. Parry's Potteries, and Garden Border Edging and Drain Manufactory, Copperas Lane, Deptford, Kent, S.E. Established

Card.

SAMUEL N. McGERROY,
General Horticultural Builder,
Knotty Ash, near Liverpool.
Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

THE IMPROVED LEATHER DRIVING STRAPS for MACHINERY are stronger for a given weight, more effective, more durable, and cost considerably less than any kind of driving belt.
SPECIAL STRAPS for PORTABLE ENGINES.
Turner's Patent Strap and Hose Company.
Manufactory: Armit Works, Greenfield, near Manchester
Warehouse: 81, Mark Lane, London, E.C.
Mr. H. Ferrabee, Agent

WASHING by MACHINERY
One month or two months' trial—which is allowed free of carriage, and respectfully solicited by the Patentees of BRADFORD'S IMPROVED PATENT WASHING MACHINES—remove all question as to their unmistakeable value; their superiority has for a year been publicly attested by Five Prize Medals, and by innumerable letters of approval from purchasers.—See New Catalogue free by post.
Thomas Bradford & Co.,
63, Fleet Street, London;
Cathedral Steps, Manchester;
23, Dawson Street, Dublin.
CHURNS.—The Patentees have now every confidence in recommending their Patent Midfeather Churns, which have been tested by some of the most practical Farmers in England, Ireland, and Scotland.

NEW TARIFF OF GLASS AND HORTICULTURAL GOODS.

THOMAS MILLINGTON,

GLASS AND COLOUR MERCHANT,

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HAND GLASSES.

PRESERVE JARS.

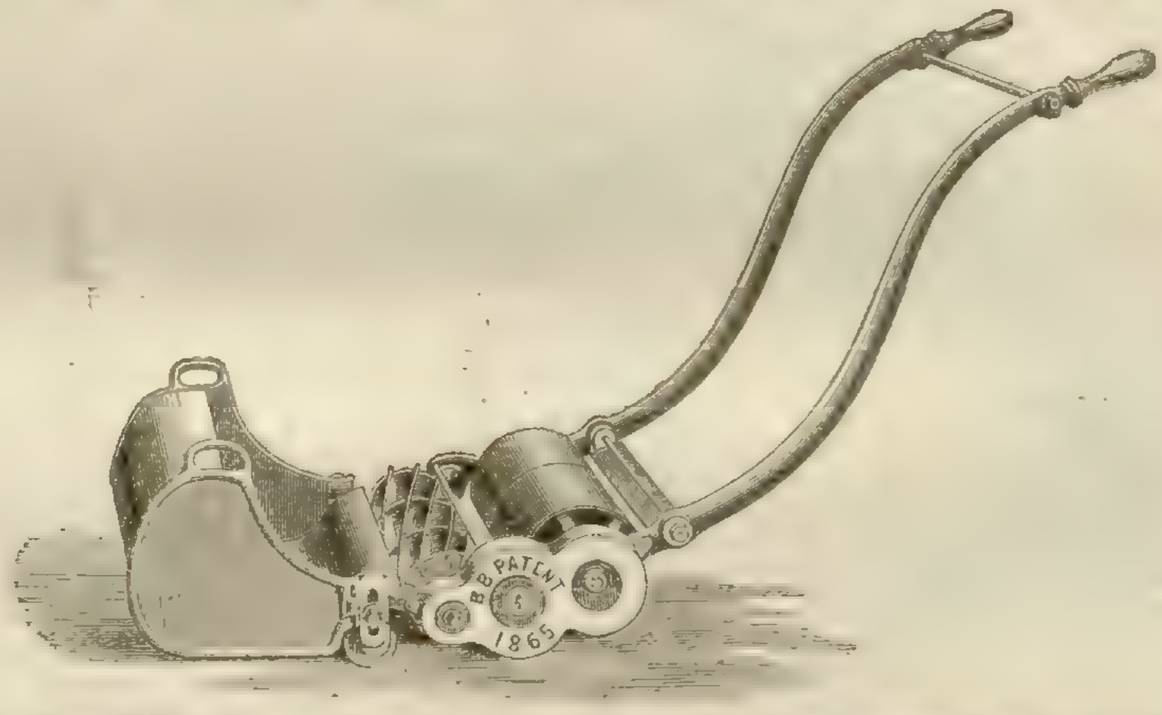
REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.

MILK PANS.

See Advertisement the first week in the month, or on application.

J. B. BROWN & CO.'S NEW PATENT BB LAWN MOWER.

GUARANTEED TO GIVE PERFECT SATISFACTION,



AND IF NOT APPROVED OF MAY BE AT ONCE RETURNED.

J. B. BROWN and CO. having so very successfully introduced, at the recent Meeting of the Bath and West of England Society at Hereford, in June last, the NEW PATENT BB LAWN MOWER, of their own manufacture, beg to mention that having now supplied the large number of the BB MACHINES ordered on that occasion, they are now receiving a few more orders for the present season.

The *Hereford Journal*, dated June 10th, thus notices this new Machine:—"Messrs. Brown & Co. are well known in connection with the best Lawn Mowing Machines—these very useful and now almost indispensable Machines, which save so much labour and at the same time so much improve the appearance of the lawn. Messrs. Brown had show a new Lawn Machine of their own manufacture, which attracted much attention on account of the compact arrangement of parts, its light and elegant appearance, and its workmanship. It is worked by means of well-made geared or toothed wheels, which we believe to be more desirable than the use of chains, which are found to stretch and break so frequently, and cause much trouble. **The working of this new Lawn Mower is very light and silent, and we have no doubt it must become a great favourite.**"

The NEW BB PATENT LAWN MOWER is manufactured by Messrs. Brown & Co., in London, on their own premises, and under their personal superintendence. It **is worked by means of geared or toothed wheels, is very noiseless,** and is guaranteed to give perfect satisfaction in every respect.

PRICES—including Carriage to all the principal Railway Stations and Shipping Ports in England.

10-inch Machine	£3 10 0	*Easily Worked by a Boy.*
12-inch Machine	4 10 0	*Easily Worked by a Boy.*
14-inch Machine	5 10 0	*Easily Worked by a Boy.*
16-inch Machine	6 10 0	*Ditto by a Man.*
18-inch Machine	£7 10 0	*Easily Worked by a Man*
20-inch Machine	8 0 0	*Ditto by Two Men.*
22-inch Machine	8 10 0	*Ditto by Two Men.*
24-inch Machine	9 0 0	*Ditto by Two Men.*

J. B. BROWN and CO. continue to supply the LAWN MOWERS of other Makers, particularly GREEN'S and SHANKS', of which well-known Machines they have always a stock on hand, from which orders can be at once supplied.

The 14-INCH LAWN MOWER is the favourite Machine this season, and the price is £5 10*s.*, for either the BB, GREEN'S, or SHANKS'.

*** *Every Machine sent out is Warranted to give ample satisfaction, and, if not approved of, may be exchanged for any other size of Machine, or for the Machine of any other Maker, or may be at once returned unconditionally.*

J. B. BROWN and CO., OFFICES, 18, CANNON STREET, CITY, LONDON, E.C.

NEARLY OPPOSITE ST. SWITHIN'S LANE and "LONDON STONE," and near LONDON BRIDGE.

WAREHOUSE (where Machines are kept in Stock), 148, UPPER THAMES STREET, E.C.

OPPOSITE the CITY of LONDON BREWERY, and close to the LONDON BRIDGE STEAM BOAT PIERS.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by William Bradbury, of 13, Upper Woburn Place, in the Parish of St. Pancras, in the Co. of Middlesex, and Frederick Mullett Evans, of No. 11, Bouverie Street, in the Precinct of Whitefriars, City of London, Printers, at their Office, Lombard St., Precinct of Whitefriars, City of London, and Published by them at the Office, No. 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said Co.—Saturday, September 9, 1865.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 37.—1865.] SATURDAY, SEPTEMBER 16. {Price Fivepence. Stamped Edition, 6*d*.

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ADVERTISEMENTS *intended for the* CURRENT WEEK'S NUMBER *should reach the Office not later than* THURSDAY.

PAUL AND SON'S ROSES.
The AUTUMNAL ROSES are still finely in BLOOM, at the "Old" Cheshunt Nurseries, 1 mile from Cheshunt Station, G.E.R.

PAUL'S HOLLYHOCKS.—New Seed is now ready for present sowing. Packets, in 12 named varieties, 5*s*.
PAUL & SON, "Old" Cheshunt Nurseries, N.

PELARGONIUM MRS. POLLOCK.—Strong Summer-struck Plants, well established in 60-pots, at 18*s*. per dozen.
The Trade supplied.
ALFRED FRYER, Nurseries, Chatteris, Cambridgeshire.

Paul's Nurseries, Waltham Cross, N.
BEATON'S GERANIUMS are NOW in FULL BLOOM.
Entrance from the Platform, Waltham Station (G. E. Railway), half an hour's ride from London.

THE CLIVEDEN COLLECTIONS of SPRING BLOOMING PLANTS, 12*s*. 6*d*., 25*s*., 50*s*., and 100*s*.
For particulars see our AUTUMN FLORAL GUIDE.
BARR & SUGDEN, 12, King Street, Covent Garden, W.C.

J. IVERY AND SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

E. G. HENDERSON AND SON offer SEED of CALCEOLARIA, CINERARIA, and PRIMULA of first-class quality, at 1*s*., 2*s*. 6*d*., and 5*s*. per packet. Also the finest SCARLET and INTERMEDIATE STOCK, 6*d*. and 1*s*. each.
SEED of CYCLAMEN PERSICUM, of similar quality, 6*d*. and 1*s*. each, and in mixed colours 2*s*. 6*d*. per packet.
The Wellington Nursery, St. John's Wood, London, N.W.

British Fern Catalogue.
ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
*** Part II. (Exotic Ferns) will be issued as early as possible.
Foot's Cray Nursery, S.E.

New Hardy British Ferns.
J. IVERY AND SON beg to announce that they can now supply strong PLANTS of the undermentioned distinct and beautiful FERNS, both of which have received a First-class Certificate
ATHYRIUM FILIX FŒMINA APPLEBYANUM, 10*s*. 6*d*. each.
POLYSTICHUM ANGULARE WAKELEYANUM, 10*s*. 6*d*. and 15*s*. each.
For full description see CATALOGUE, which will be forwarded gratis on application to our Dorking Nursery.

JEAN VERSCHAFFELT, NURSERYMAN, Ghent, Belgium, begs to announce that his NEW CATALOGUE for 1865 and 1866 is just published, and contains many interesting Novelties. To be obtained gratis on application, either to himself or to his Agents,
Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, E.C.

A. VAN GEERT, NURSERYMAN, Ghent, Belgium, begs to inform Amateurs and the Trade that his NEW GENERAL CATALOGUE of PLANTS is just published, containing many very interesting Novelties. May be had on application, of
Messrs. R. SILBERRAD & SON, Agents, 5, Harp Lane, Tower Street, London, E.C.

Lobelia Snowflake.
Extract from GARDENERS' CHRONICLE:—
"Mr Cox, Gardener to Lord Beauchamp, exhibited a beautiful white Lobelia called Snowflake, to which a First-class Certificate was awarded. Floral Committee of the Royal Horticultural Society July 25, 1865."
JOHN AND CHARLES LEE having acquired the stock of this desirable NEW BEDDING PLANT, they have much pleasure in offering SEED in SEALED PACKETS for present sowing for spring pot culture, for which it is well adapted.
As a BEDDING LOBELIA it stands unrivalled. The plant is of dwarf compact habit: the flowers are large, perfectly even, and of the purest white. The stock comes perfectly true from seed.
Price 2*s*. 6*d*. per packet. Price to the Trade on application.
Royal Vineyard Nursery and Seed Establishment, Hammersmith, W.

Seeds from Choice Strains.
B. S. WILLIAMS can now supply good Seeds of the following:—
CINERARIA (Weatherill's extra choice strain).—B. S. W. has secured at a great expense the entire stock and right of exclusive sale from Mr. Weatherill, of his, the best strain of Cineraria in existence, and can now offer packets at the following prices:—3*s*. 6*d*., and 5*s*.
CALCEOLARIA (Herbaceous), from a fine strain, 2*s*. 6*d*. and 3*s*. 6*d*. per packet.
PRIMULA (Williams' superb strain), the finest fringed and the best coloured flowers in cultivation. Red, White, or Mixed Seed, 2*s*. 6*d*., 3*s*. 6*d*., and 5*s*. per packet.
Paradise and Victoria Nurseries, Holloway, London, N.

CARTER'S GARDENER'S VADE-MECUM, AUTUMN SUPPLEMENT of DUTCH and CAPE BULBS and PLANTS, is now ready.

Dutch Roots.
JOHN AND CHARLES LEE have received a large importation of HYACINTHS and other DUTCH ROOTS in very fine condition. CATALOGUES post free on application.
Royal Vineyard Nursery and Seed Establishment, Hammersmith, W.

Dutch Bulbs.
CHARLES TURNER is prepared to execute orders with the finest varieties of HYACINTHS, TULIPS, CROCUS, NARCISSUS, &c. The roots have arrived in fine condition. CATALOGUES on application.
The Royal Nurseries, Slough.

DUTCH BULBOUS ROOTS.—The Proprietors have received a large importation in fine condition.
WM. BARRATT, West Riding Seed Establishment, Wakefield.

J. SCOTT, Importer of DUTCH and other BULBOUS FLOWER ROOTS, has received large consignments, of best quality and in excellent condition.
DESCRIPTIVE PRICED LIST post free on application to
J. SCOTT, Merriott Nurseries or Seed Stores, Yeovil, Somerset.

Hyacinths, Tulips, &c.
WM. HOOPER'S First Importation of DUTCH FLOWER ROOTS has arrived. Early Orders are respectfully solicited. CATALOGUE free on application.
St. John's Hill Nursery, New Wandsworth.

Hyacinths and other Dutch Bulbs.
WM. CUTBUSH AND SON beg to acquaint their numerous Patrons that they have received their usual Consignment of Choice HYACINTHS, TULIPS, CROCUS, &c.
PRICED DESCRIPTIVE CATALOGUE post free on application.
Highgate Nurseries, London, N.

Hyacinths and other Choice Bulbs.
B. S. WILLIAMS begs to announce that his various IMPORTATIONS of DUTCH FLOWER ROOTS have arrived in fine condition, and that he is now prepared to execute all orders he may be favoured with.
A PRICED and DESCRIPTIVE CATALOGUE, including Lists of New and Rare Plants, post free to all applicants.
Paradise and Victoria Nurseries, Holloway, London, N.

Hyacinths, &c.
WILLIAM PAUL'S PRICED DESCRIPTIVE CATALOGUE of HYACINTHS, EARLY TULIPS, CROCUSES, and other SPRING FLOWERING PLANTS is now ready, post free on application.
PAUL'S Nurseries and Seed Warehouse, Waltham Cross, London, N.

BARR AND SUGDEN'S HYACINTHS, TULIPS, CROCUS, NARCISSUS, GLADIOLI, RANUNCULUS, ANEMONES, LILIES, AMARYLLIS, in splendid collections. See our AUTUMN FLORAL GUIDE, free and post paid on application.
BARR & SUGDEN, Seed and Plant Merchants, 12, King Street, Covent Garden, W.C.

500 DUTCH BULBS, carriage free, Great Western Railway, 21*s*. Consist of best named HYACINTHS, Bedding HYACINTHS, TULIPS, CROCUS, SNOWDROPS, &c. One of the cheapest and best collections offered.
Also on offer, 50,000 2-years TRANSPLANTED LARCH, 3 feet, strong, and 6000 3-years ditto, 5 feet, strong.
ROBERT H. POYNTER, Dutch Bulb Importer and Seed Merchant, Taunton.

BUTLER AND McCULLOCH, SEED MERCHANTS, South Row (or Strand side), opposite Southampton Street, Covent Garden Market, London, W.C., beg to announce the arrival of their DUTCH and other FOREIGN BULBS in the finest possible condition
Having personally inspected the Continental Collections this season, they have been enabled to make the most judicious selections, and they beg to assure their numerous patrons that the respective kinds will be supplied as usual strictly true to name.
Their AUTUMN CATALOGUE of BULBS is now ready, and will be forwarded on application without charge, and post free to any part of the world. To it are appended selections of Flower, Vegetable, and Agricultural Seeds for Autumn Sowing; also a Select List of Plants, including Hardy Shrubs, Conifers, Climbers, Roses, Fruit Trees &c

New Catalogue of Plants, Dutch Bulbs, &c.
ROBERT PARKER begs to announce that his NEW CATALOGUE, containing Select Descriptive and Priced Lists of New, Rare, and Beautiful Greenhouse, Hardy, and Stove Plants, Fruit Trees, Grapes, &c., Amaryllis, Crocuses, Gladioli, Hyacinths, Narcissus, Tulips, and other Bulbs, is now published, and will be forwarded to applicants.
Exotic Nursery, Tooting, Surrey, S.

GUERNSEY and BELLA DONNA LILIES, 5*s*. 6*d*. per dozen.
AUTUMN CATALOGUE of HYACINTHS, TULIPS, &c., now ready, and can be had post free.
BUTLER & McCULLOCH, Covent Garden Market, W.C.

CARNATIONS and PICOTEES for the Million. Fine Strong Plants at reduced prices.
Every one should send for the revised CATALOGUE of CARNATIONS, PICOTEES, PINKS, PANSIES, ROSES, FRUIT TREES, BULBS, &c.
HOLLAND & JONES, Proprietors, Bradshaw Gardens, Chadderton, near Manchester.

Unequalled Seedling Tulips.
WILLIAM WILLISON, of the Rose and Plant Nursery, Whitby, Yorkshire, has the greatest confidence in offering for SALE the most superb batch of British SEEDLING TULIPS ever raised (the produce of nearly 30 years), which as a whole stand unrivalled for marking, form, purity and substance, a DESCRIPTIVE and PRICED LIST of which may be had free on application.
Finest Mixed SHOW TULIPS, 5*s*. per 100, 35*s*. per 1000.
The best EXHIBITION TULIPS, by name, 100 sorts £5.
N.B.—A remittance or reference will be required from unknown correspondents.

Browick Red and Golden Drop Wheat.
MR. S. A. DAINTREE, of Fendrayton, St. Ives, Hunts, has selected stocks of the above, grown upon a maiden gravelly soil, for sale at 50*s*. per quarter. Sacks 1*s*. 8*d*. each. Remittance must accompany orders.

PURE BROWICK WHEAT.—Carefully screened parcels for Seed, grown on stiff clay soil, after the steam cultivator. The crop was harvested early and in prime condition. Samples and price by post on application to
Mr. T. BOWICK, Manager, Messrs. Howard's Steam Cultivated Farms, Bedford.

Pines.
B. S. WILLIAMS begs to announce that he has a fine Stock of the above, including all the best kinds. Prices on application.
Paradise and Victoria Nurseries, Holloway, London, N.

NEW GRAPE, "ROYAL VINEYARD," the best late White Grape extant. Strong planting Canes, 10*s*. 6*d*. each; strong fruiting, 21*s*. each.
B. S. WILLIAMS, Paradise and Victoria Nurseries, Holloway, London.

STRAWBERRY PLANTS.—Strong, for immediate planting. PRICED DESCRIPTIVE LIST may be had.
STEPHEN BROWN, Nurseryman, Sudbury, Suffolk.

Strawberry Plants.
MRS. NICHOLSON begs to intimate that a CATALOGUE of the extensive collection of STRAWBERRIES cultivated at Egglescliffe, is now ready, and can be had on application. Egglescliffe, Yarm.

Strawberry Plants.
JOHN HARRISON begs to offer to his Friends and the Trade an immense stock of fine STRAWBERRY PLANTS of all the best varieties in cultivation, at 2*s*. 6*d*. per 100, or 20*s*. per 1000. If 5000 or more are taken, a further reduction will be made.
Nursery, Darlington

CUTHILL'S STRAWBERRY PLANTS.—Black Prince, Princess Royal, Richard II., Highland Mary, Newton Seedling, and the splendid Prince of Wales, all at 5*s*. per 100, all for bearing in 1866. Dr. Lindley has often said, "To make sure of a crop, have CUTHILL'S Breed."
SPAWN, 5*s*. per Bushel. Mushroom Pamphlet, with New Appendix, 1*s*. 3*d*.; Market Gardening, 1*s*. 6*d*.; Cucumber and Melon, 1*s*.; Strawberry, new system, 1*s*.; Potato, &c., 1*s*. 6*d*.
PRINCE ALBERT WINTER CUCUMBER, 1*s*. per packet. Stamps or Order on Camberwell Green.
JAMES CUTHILL, Camberwell, London, S

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

Orchard-house Culture.
MESSRS. THOS. RIVERS AND SON invite those interested in the above culture to view their COLLECTION of FRUIT TREES and VINES, occupying houses nearly 3000 ft. in length. PEACHES and NECTARINES are now ripening.
The Harlow Station, G. E. Railway, is the most convenient for the Nurseries. Nurseries, Sawbridgeworth.

ORANGE and LEMON TREES WANTED.—A few Specimens required standing in the Tubs, not less than 6 feet high.
Mr. J. ROBSON, Gardens, Alpha House, Coburg Road, Old Kent Road, S.

FOR SALE, Two large Plants of ARAUCARIA EXCELSA, 14 and 11 feet high.—For particulars apply to
H. CHESTER, Gardener, Albemarle Lodge, Wimbledon Park, S.

RAYNBIRD, CALDECOTT, AND BAWTREE,
SEED FARMERS and MERCHANTS,
89, Seed Market, Mark Lane; and Basingstoke.
Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

H. AND F. SHARPE,
SEED GROWERS and MERCHANTS, Wisbech.
SPECIAL PRICED LIST of NEW SEEDS on application.

Genuine Garden and Agricultural Seeds.
JAMES CARTER AND CO.,
SEED FARMERS, MERCHANTS, and NURSERYMEN,
237 and 238, High Holborn, London, W.C.

NEW and GENUINE AGRICULTURAL, GARDEN, and FLOWER SEEDS
Special prices and advantageous offers on application to
JAMES FAIRBEAD & SON,
Seed Growers and Merchants, 7, Borough Market, London, S.E

Primula sinensis fimbriata.
HOOPER AND CO.'S is unsurpassed in every good quality. Deep carmine or white, each 1*s*., 2*s*. 6*d*., and 5*s*. per packet. Post free.
Seed Merchants, Covent Garden Market, London, W.C.

PLANTS of CATTELL'S RELIANCE CABBAGE, for early Spring use, 4*s*. per 1000.
Strong Plants of WHITE, RED, and GREEN VARIEGATED KALE, for Winter Garden Decoration, at 1*s*. per 100.
JOHN CATTELL, Westerham, Kent.

NEW TRIFOLIUM INCARNATUM, late variety.
ITALIAN RYE-GRASS, imported Seed.
JAMES CARTER AND CO. have fine samples of the above at very low prices. Prices and sample on application.
JAMES CARTER & Co., 237 & 238, High Holborn, London, W.C.

New Late Trifolium.
SUTTON AND SONS have just received a supply of each of the NEW VARIETIES of TRIFOLIUM—LATE RED and LATE WHITE. The quantity of feed is quite equal to the Common variety, with the advantage of coming in a fortnight later. The present prices are, for
NEW LATE RED FLOWERING, 8*d*. per lb. } cheaper by
NEW LATE WHITE FLOWERING, 9*d*. per lb. } the cwt.
Also the COMMON TRIFOLIUM INCARNATUM, 4*d*. per lb., cheaper by the cwt. Carriage free, except small parcels.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading

Meadow Grass Seeds for Autumn Sowing.
SUTTON AND SONS would recommend MEADOW and PASTURE GRASS SEEDS to be Sown Early in the Autumn, or not until the Spring.
Royal Berkshire Seed Establishment, Reading.

Early Spring Feed.—Seeds for Autumn Sowing.
PETER LAWSON AND SON can supply of excellent quality—

ITALIAN RYE-GRASS	RYE
TRIFOLIUM INCARNATUM	WHITE MUSTARD
WINTER TARES	

CLOVER and NATURAL GRASS SEEDS for PERMANENT PASTURE, &c.
Also New Seed of BROMUS SCHRADERI, 24*s*. per lb., and the New Hardy Clover, TRIFOLIUM STRIATUM, 2*s*. per lb.
PETER LAWSON & SON, the Queen's Seedsmen, 98, King Street, Cheapside, London, E.C.; and at Edinburgh.

Gladioli.

CHARLES VERDIER, Fils, NURSERYMAN, No. 32, Rue du Marché aux Chevaux, Paris (Successor to the old-established house of Victor Verdier & Charles Verdier), has published his DESCRIPTIVE CATALOGUE of GLADIOLI for the season, which can be had on applying to his Agents,

Messrs. R. SHERRARD & SON, 5, Harp Lane, Great Tower Street, E.C.

He recommends particularly the New Sorts as under:—

EURYDICE (SOCIETY).—Flower large, perfect form, pure white, flamed with lively carmine rose. Perfection.

LORD BYRON (S.)—Very brilliant scarlet, spotted and striped with pure white. A very effective plant.

MARÉCHAL VAILLANT (S.)—Flower large, good form, very brilliant scarlet, very large pure white spot. The shading of this fine plant produces an unequalled effect.

MILTON (S.)—Flower very large, perfect form, white slightly shaded with rose, very largely flamed with red. Extra.

NEWTON (S.)—Flower large, perfect form, dark crimson red, the centre white, with numerous white lines. A very fine new shade

SHAKESPEARE (S.)—Flower very large, perfect form, white very slightly flamed with carmine rose, very large rose spot. Perfection.

Special CATALOGUES for the Trade.

CHARLES VERDIER, Fils, has pleasure in announcing that all these Gladioli are in splendid condition, and that he sends out none but very healthy and vigorous bulbs

To the Trade.

JEAN VERSCHAFFELT, Ghent, begs to offer the following at the undermentioned low prices, viz.:—

AZALEA INDICA, nice plants with buds, best varieties, per 100, £5.
" " fine plants on stems 12 to 15 inches high, per 100, £8 to £10.
" " stocks fit for grafting, per 100, £1.
CAMELLIAS, bushy plants, 1 to 1½ ft. high, without buds, per 100, £5.
" nice plants with buds, per 100, £6.
" nice plants, stronger, per 100, £8, £10, £12, and upwards.
" strong bushy plants, on large stocks, beautifully set, per doz., £4.
" stocks fit for grafting, per 100, £1 8s.
ARUNDO DONAX VARIEGATA, fine strong plants in pots, per doz., £1 4s.
CITRUS SINENSIS (Otaheite Oranges), beautiful dwarf plants with a great number of fruit, per doz., £1 4s.
LILIUM LANCIFOLIUM ALBUM, per 100, £2.
" " " extra large bulbs (the largest ever offered), per 100, £2 10s.
RUBRUM, per 100, £2.
" " " extra large sized bulbs, £3.
" " PUNCTATUM (true), extra size of bulbs, per doz., £2 8s.

Early Orders are respectfully solicited, and are to be directed to JEAN VERSCHAFFELT, Nurseryman, 43, Rue de la Caverne, Ghent, Belgium.

☞ Cash or reference required from unknown correspondents.

To the Trade.

A. VAN GEERT, NURSERYMAN, Ghent, Belgium, begs to offer the undernamed useful articles, at very moderate prices:—

100 LATANIA BORBONICA, young plants in pots, a fine Palm for table decoration, easily grown in a cool house, £2 2s.
24 ALSOPHILA EXCELSA, stout seedling, a Tree Fern for the greenhouse, £1 15s.
50 LASTREA AEMULA, a beautiful hardy Fern, £1 10s.
12 PTERIS BIAURITA, fine greenhouse Fern, 6s.
24 OSMUNDA REGALIS CRISTATA, 18s.
2 ALSOPHILA LATEBROSA, a fine new Tree Fern, strong plants, £1 10s.
100 [illegible] varieties, £2 5s.
25 LYCOPODS in varieties, 15s.
24 EXOTIC ORCHIDS, for cool house, £4.
100 GLOXINIAS, in fine varieties, £1 6s.
100 ACHIMENES, in fine varieties, 18s.
24 DASYLIRIONS, in three varieties, strong plants, £2 10s.
12 fine plants of CHAMÆROPS HUMILIS (nearly hardy) £1 16s.
6 ditto of ROPALIA REGIA, also nearly hardy, £1 5s.
12 ERYTHRINA CRISTA-GALLI, 6s.
100 choice STOVE PLANTS, £2 10s.
100 " GREENHOUSE PLANTS, £2 10s.
100 " CONIFEROUS PLANTS, £3 10s.
24 PASSIFLORA CŒRULEA (hardy), 8s.
100 CAMELLIAS, with flower buds, £6.
6 " " strong plants, £1 10s.
100 " without buds, £3 10s.
100 " " stronger plants, £5.
100 choice INDIAN AZALEAS, with flower buds, £4 to £6.
100 GHENT AZALEAS, Seedlings, 4-years old, 18s.
100 Choice Hardy RHODODENDRONS, fine plants, £4.
25 Choice Hardy RHODODENDRONS, with flower buds, £1 15s.
12 RHODODENDRON NUTTALLII, strong plants, £1 10s.
12 RHODODENDRON VIRGATUM, very pretty, from Himalaya, 18s.
24 Fine varieties of TREE PÆONIES, £2.
24 Varieties of choice herbaceous PÆONIES, 18s.
100 ASCLEPIAS TUBEROSA, flowering roots, £1 1s.
100 fine STANDARD ROSES, £4 10s.
100 fine half " " £3.
12 MAGNOLIA GRANDIFLORA, 12s.
12 " MACROPHYLLA, £1 10s.
100 " TRIPETALA, £1 10s.
100 Young plants of YUCCA ALOEFOLIA, £1 10s.
1000 HEMLOCK SPRUCE FIR, 2-year old, £2.
100 AMPELOPSIS QUINQUEFOLIA, £1 6s.
100 ABIES NORDMANNIANA, £1 5s.
100 GLYCINE SINENSIS, strong plants, £1 16s.
12 LOMARIA DISCOLOR, strong plants, 18s.
1 Ounce Seed of CUPRESSUS LAWSONIANA, 10s.

No less quantity than above-mentioned can be supplied for the quoted prices.

References or remittances from unknown Correspondents.

REIGATE SILVER SAND.—Good quality, 7s. per ton Cash, delivered loose into the Trucks at the Reigate Station. Best quality PEAT, LOAM, SPHAGNUM, ROCK, SANDSTONE, &c., on Sale.

W. SHORT, Sand and Peat Depôt, Reigate, Surrey.

Manures and Feeding Stuffs.

RAYNBIRD, CALDECOTT, AND BAWTREE. Address, 89, Seed Market, Mark Lane; or Basingstoke. Samples and prices on application.

LAWES'S MANURES.—The Manures manufactured by J. B. LAWES for the present Season of 1865 are now ready for delivery at his Factories, at the following prices:—

LAWES'S PATENT TURNIP MANURE, and BONE SUPERPHOSPHATE of LIME, £6 6s. per ton.
LAWES'S SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES, £5 5s. per ton.
LAWES'S WHEAT, BARLEY, GRASS, and MANGEL MANURES, £8 per ton.
CONCENTRATED CORN and GRASS MANURE, £12 per ton.

These Manures can be obtained of Mr. LAWES, or through his appointed Agents, in all parts of the United Kingdom, at prices varying according to cost of carriage.

Genuine PERUVIAN GUANO direct from the Importers.

NITRATE of SODA, SULPHATE of AMMONIA, and other Chemical Manures. AMERICAN and other CAKES at market prices.

Address JOHN BENNET LAWES, 1, Adelaide Place, London Bridge, E.C.; and 22, Eden Quay, Dublin.

THE LONDON MANURE COMPANY (ESTABLISHED 1840), Have now ready for delivery WHEAT MANURE, for Autumn Sowing. DISSOLVED BONES, for Dressing Pasture Lands. SUPERPHOSPHATES of LIME, &c. Genuine PERUVIAN GUANO and NITRATE of SODA, ex Dock Warehouse. SULPHATE of AMMONIA, FISHERY SALT, &c. Offices, 116, Fenchurch Street, E.C. EDWARD PURSER, Secretary.

CLIFF'S ANTISEPTIC FLUID.—The Disinfecting and Antiseptic properties of this Fluid render it peculiarly valuable for warding off the Cattle Plague.

"Wash the Animal's body once a fortnight with a solution of 1 part of the Fluid to 80 parts of Water, applying the liquid with a sponge or brush. Frequently wash down Cowshed, Mangers, &c., with a similar solution."

For further particulars apply to JOHN COLEMAN, 150, Leadenhall Street, E.C.

COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 2s. per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped, J. BARSHAM'S Patent.

WHEAT SOWING.

DOWN'S FARMERS' FRIEND, for preventing the Smut in Wheat, and the ravages of the Slug, Grub, and Wireworm.

A 9d. packet is sufficient for 6 bushels of Seed Wheat, which can be dressed and fit to sow in a quarter of an hour.

Testimonials from the largest Wheat-growers in the Kingdom, bearing testimony to its great power and efficacy, may be had of **Agents, who are appointed for every district.**

Full directions for use are given with each packet.

Prepared at the Manufactory, Woburn, Beds.

CAUTION.—To guard against fraudulent imitation and consequent disappointment, see that the signature of HENRY DOWN is on the label. Agents in every Town throughout England, Scotland, and Ireland.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes, 1s. 3s., and 10s. 6d. each.

Wholesale by PRICE'S PATENT CANDLE COMPANY (LIMITED).

GARDEN BORDER EDGING TILES, in great variety of patterns and material, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.

F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.

Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also TESSELATED PAVEMENTS of more enriched designs than the above.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cements, &c.

To be obtained of F. & G. ROSHER, at their Premises as above.

SILVER SAND (REIGATE, best quality), at the above addresses—14s. per Ton, or 1s. 3d. per Bushel; 2s. per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less.

FLINTS, BRICK BURRS or CLINKERS, for Rockeries Grotto Work.

F. & G. ROSHER.—Addresses see above.
N.B. Orders promptly executed by Railway.

EARTH CLOSETS (MOULE'S PATENT).

No Unwholesome Cesspools.
No Bad Smells.
No Water Pipes to get out of order.
The Best Night Commodes.
The Apparatus (price 25s. and 30s.) may be applied to any Closet at trifling cost, and is self-acting.
By its use a valuable Manure is saved, and Fertility to the Soil ensured.
Earth is recommended by the Privy Council, in their report on Cholera, as a deodoriser and disinfectant.

Extract from Letter received from the SECRETARY *of the* NATIONAL RIFLE ASSOCIATION.

"I am further directed to state that they (the Closets) proved of the greatest use, and were found to act admirably."

WHITE & Co., 29, Bedford Street, Strand, London, W.C.
OLDHAM SHOW, STAND 46.

Improvements in Parks, Gardens, Plantations, &c.

MR. NEWTON, 30, Eastbourne Terrace, W., of "Picturesque Garden Plans," executes [illegible] having just visited the best laid-out grounds in France, Italy, Austria, &c., he can introduce new styles [illegible] Reference given to works completed in several parts [illegible] Kingdom.

To Florists and Nurserymen.

GARDEN POTS, supplied in large [illegible] Discount allowed for orders given at the present [illegible]

H. PARRY'S Potteries, and Garden Border Edging [illegible] Manufactory, Copperas Lane, Deptford, Kent, S.E. [illegible]

BEADED BRICKS for GARDEN WALLS (FOXLEY'S PATENT) may be had in any [illegible] the Agents.

"N[illegible] built a [illegible] without [illegible] Bricks [illegible] the [illegible] adopting [illegible] Garden [illegible] 186[illegible]

Illustrated Prospectus, with List of Agents, on application. FOXLEY & HOLLAND, Stony Stratford, Bucks. London Agents, Messrs. F. & G. ROSHER, Old Jamaica Wharf, Blackfriars, S.

Glass for Garden Purposes.

JAMES PHILLIPS AND [illegible] beg to submit their prices as follows:—

PROPAGATING GLASSES.

	Each.—s. d.		Each.—s. d.
2 inches in diameter	.. 0 3½	12 inches in diameter	.. [illegible]
3 " "	.. 0 4½	13 " "	.. [illegible]
4 " "	.. 0 5½	14 " "	.. [illegible]
5 " "	.. 0 6½	15 " "	.. [illegible]
6 " "	.. 0 8	16 " "	.. [illegible]
7 " "	.. 0 10	17 " "	.. [illegible]
8 " "	.. 1 0	18 " "	.. [illegible]
9 " "	.. 1 2	19 " "	.. [illegible]
10 " "	.. 1 4	20 " "	.. [illegible]
11 " "	.. 1 6		

BEE GLASSES.

	Each.—s. d.		Each.—s. d.
4 inches in diameter	.. 0 6	9 inches in diameter	.. [illegible]
5 " "	.. 0 8	10 " "	.. [illegible]
6 " "	.. 0 10	11 " "	.. [illegible]
7 " "	.. 1 1	12 " "	.. [illegible]
8 " "	.. 1 4		

CUCUMBER GLASSES.

	Each.—s. d.		Each.—s. d.
24 inches long	.. .. 2 0	16 inches long	.. [illegible]
22 " "	.. .. 1 10	14 " "	.. [illegible]
20 " "	.. .. 1 8	12 " "	.. [illegible]
18 " "	.. .. 1 6		

HAND GLASSES, with Open Tops.

	Each.—s. d.		Each.—s. d.
12 inches	.. .. .. 6 6	18 inches	.. .. .. [illegible]
14 "	.. .. .. 7 6	20 "	.. .. .. [illegible]
16 "	.. .. .. 8 6	22 "	.. .. .. [illegible]
		24 "	.. .. .. [illegible]

Painted and Glazed with 16-oz. Sheet Glass.

London Agents for HARTLEY'S IMPROVED PATENT [illegible] PLATE.

LINSEED OIL, Genuine WHITE LEAD, CARSON'S PATENT PAINTS of various colours ground ready for use.

180, Bishopsgate Street Without, London, E.C.

Oil Paint no longer Necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish [illegible] excellent substitute for oil paint on all out-door work, and [illegible] two-thirds cheaper. It may be applied by an ordinary [illegible] requires no mixing or thinning, and is used cold. It is used [illegible] grounds at Windsor Castle, Kew Gardens, and at the seats of [illegible] hundreds of the nobility and gentry, from whom the most flattering **testimonials have been received, which HILL & SMITH will forward** on application.

From the Right Hon. the EARL of SHANNON, *Castle Mary, near Cork.*

"GENTLEMEN,—I have used your Black Varnish for several [illegible] and consider it very superior, both for iron and wood work [illegible] doors, to anything I have ever used. I shall always continue to [illegible] it. Near the sea it is particularly valuable, as it stands expo[illegible] when paint becomes corroded. I consider the iron Barrow essential to its use."

Sold in casks of about 30 gallons each, at 1s. 6d. per gallon at the Manufactory, or 1s. 8d. per gallon paid to any Station in the Kingdom.

Apply to HILL & SMITH, Brierly Hill Iron Works, near Dudley, or 22, Cannon Street West, E.C., from whom only it can be obtained.

IMPORTED DUTCH FLOWER ROOTS.

JAMES CARTER & CO.'S

FIRST IMPORTATION OF PICKED BULBS OF

HYACINTHS, CROCUS, TULIPS, NARCISSUS, ETC.,

HAS ARRIVED IN FINE CONDITION, AND THEY BEG RESPECTFULLY TO SOLICIT EARLY ORDERS.

JAMES CARTER & Co. have also to announce that the

AUTUMN SUPPLEMENT OF THE GARDENER'S AND FARMER'S VADE-MECUM

Is now published, and will be found to contain (with Cultural Directions) complete lists of DUTCH and CAPE BULBS, to which is added a LIST of PLANTS, including particulars of their large and important COLLECTION of FRUITING VINES in POTS, and STRAWBERRIES.

The Autumn Supplement will be forwarded Gratis and Post Free on application to

JAMES CARTER AND CO., 237 and 238, HIGH HOLBORN, LONDON, W.C.

GRAY'S OVAL TUBULAR BOILER.

INTERNATIONAL EXHIBITION, CLASS IX., No. 2119.

Mr. GRAY begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his

NEW OVAL TUBULAR BOILER,

acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in Gardeners' Chronicle *of International Exhibition, May* 24, *page* 476.

"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. GRAY's variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so, the change, though a slight one, is no doubt an improvement."

They are made of all sizes, which, with prices, may be had on application.

JAMES GRAY, HORTICULTURAL WORKS,
DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.

CUMMING & EDMONDS,

CONSERVATORY ARCHITECTS, HORTICULTURAL BUILDERS, and
HOT-WATER APPARATUS MANUFACTURERS,
STAMFORD BRIDGE, FULHAM ROAD, BROMPTON, LONDON, S.W.

CONSERVATORIES, HOTHOUSES, &c., erected in the best manner and Heated by Hot Water, with all the latest improvements. CHURCHES, SCHOOLS, MANSIONS, WAREHOUSES, &c., efficiently Heated by Hot Water on the most approved principles.

All Work executed at the lowest prices compatible with good materials and workmanship.

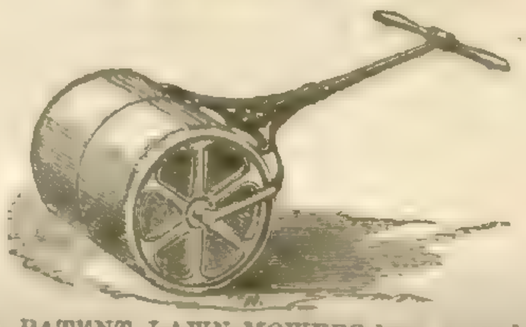
SURVEYS made, and DESIGNS and ESTIMATES prepared and forwarded free of every expense.

G. CUMMING, eight years Managing and Estimating Clerk and Designer to Mr. H. ORMSON.

SHAW'S PATENT FLEXIBLE SELF-ADJUSTING LAWN MOWING MACHINES.

Full Particulars, Drawings, and Prices, post free on application to the Patentee and Manufacturer,
JOHN SHAW, Junction Works, New Wortley, Leeds.

GREEN'S PATENT SILENS MESSOR, or NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.



GREEN'S PATENT LAWN MOWERS have proved to be the best, and have carried off every Prize that has been given in all cases of competition. Above 26,000 have been sold since the year 1856.

Illustrated Price Lists of Lawn Mowers and Garden Rollers Free.

THOMAS GREEN & SON, Smithfield Iron Works, Leeds; 2, Farringdon Road, Holborn Hill, London, E.C.; Hadwin's Buildings, Tithebarn Street, Liverpool; and 19, Eden Quay, Dublin.

£1000 UPON the WOOLSTON TACKLE against the NEWCASTLE "best application."
WILLIAM SMITH, Woolston, Bletchley Station.

AGRICULTURAL IMPLEMENTS, STEAM ENGINES, THRESHING MACHINES, PUMPS, CARTS, WAGGONS, PLOUGHS, HARROWS, CHAFF-CUTTERS, CHURNS, &c. Also GARDEN TOOLS of all kinds. Improved WIRE NETTING. Delivered carriage free. Price Lists per post on application.

BURGESS & KEY, 95, Newgate Street, London. Works, Brentwood, Essex.

E. T. ARCHER'S "FRIGI DOMO." — Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.

PROTECTION from the SCORCHING RAYS of the SUN.

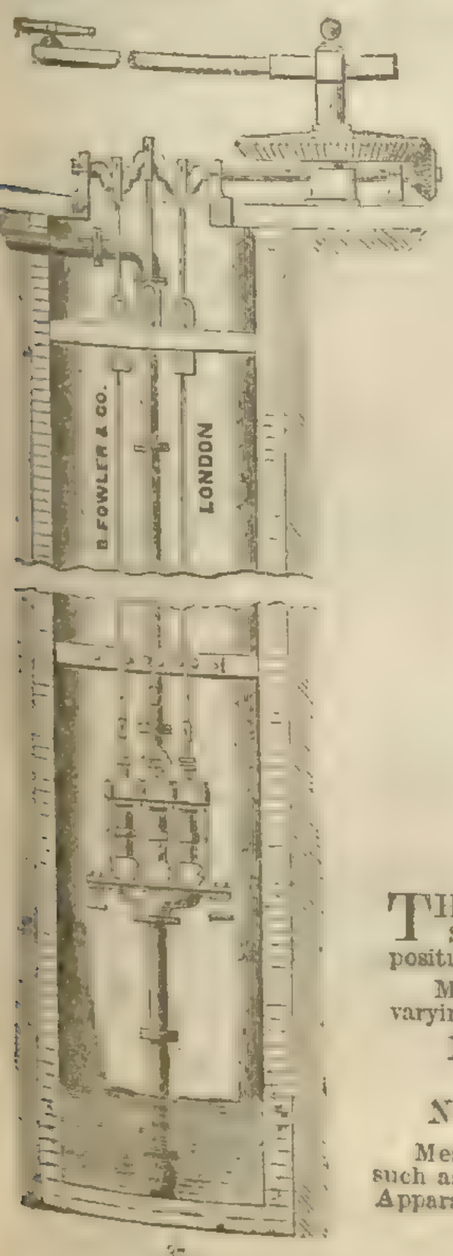
"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.

Two yards wide	1*s.* 9*d.* per yard run.
Four yards wide..	3*s.* 6*d.* per yard.
An improved make, 2 yards wide ..	1*s.* 9*d.* per yard.
An improved make, 3 yards wide ..	2*s.* 8*d.* per yard run.

Also "Frigi Domo" Netting, 2 yards wide, 1*s.* 6*d* per yard run.

ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, and of all Nurserymen and Seedsmen throughout the kingdom.

"It is much cheaper than Mats as a covering."



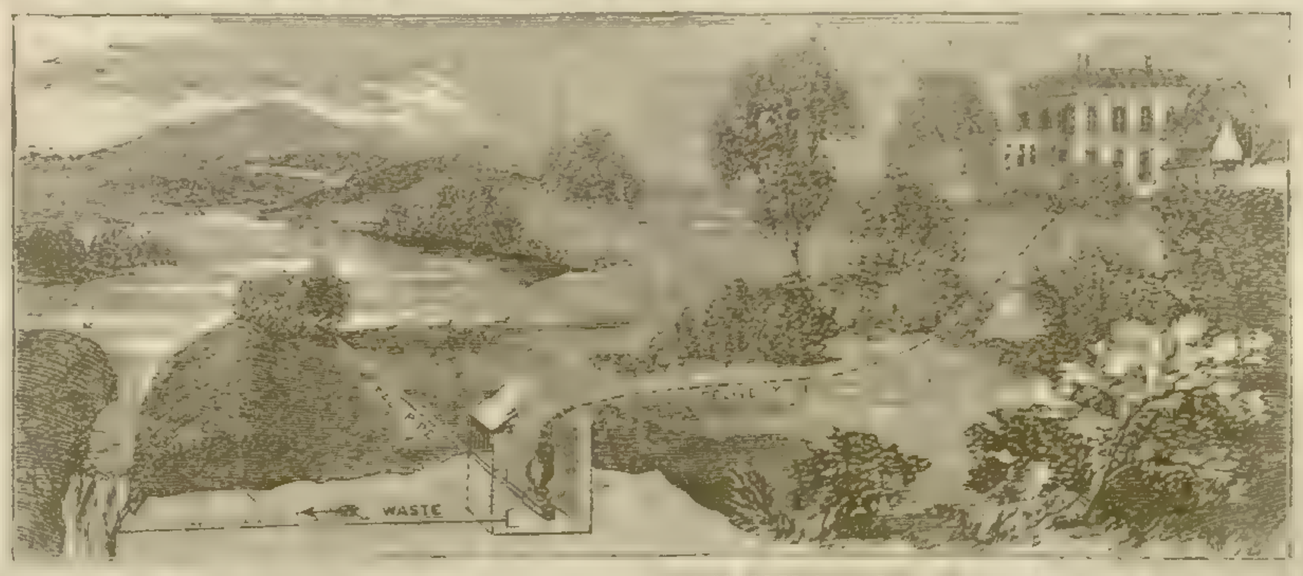
37.

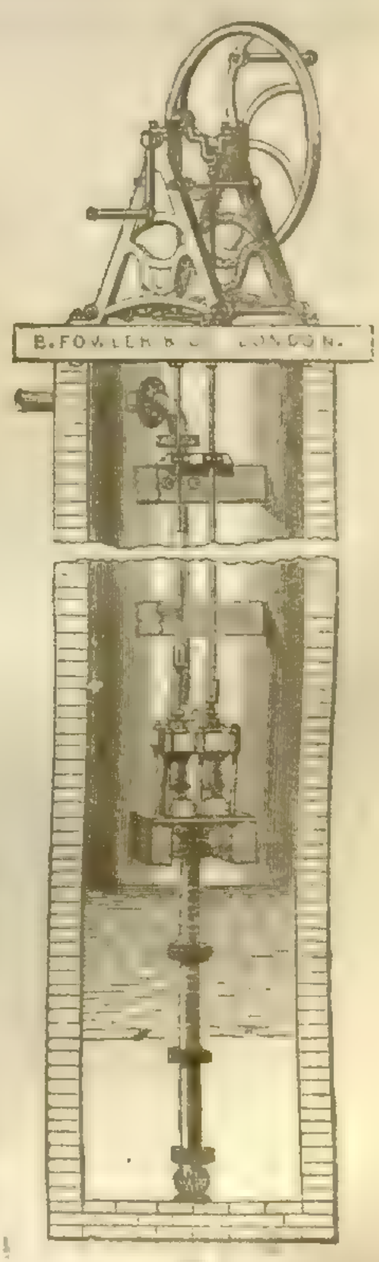
CLINTON & OWENS

(LATE BENJAMIN FOWLER & CO.)
MANUFACTURERS OF

PUMPS AND HYDRAULIC MACHINERY,

WHITEFRIARS STREET, FLEET STREET, LONDON, E.C.





28 A.

THE LANDSCAPE SKETCH shows an adaptation of THE IMPROVED HYDRAULIC RAM. This is a simple Self-acting Machine, suited for raising a Supply of Water for use in Public and Private Establishments. Its adoption is not confined to positions as shown, but it is suited for any situation where a Fall can be obtained from a Stream, Brook, or Spring.

Messrs. FOWLER have fixed a great many in various parts of the country for raising from 600 to 6000 or more Gallons per day to elevations varying from 30 to 300 feet, and forcing through main pipes 50 yards to several miles in length.

No. 37. IMPROVED TREBLE BARREL PUMPS with HORSE GEARING for Raising Water from DEEP WELLS for the supply of MANSIONS and PUBLIC BUILDINGS.

No. 28*a*. DOUBLE BARREL PUMPS for HAND-POWER for similar purposes.

Messrs. FOWLER & Co. Manufacture and Erect every description of Engineer's Work required in Public or Private Establishments, such as Pumps for any purpose on the largest or smallest scale, Steam Engines, Water Wheels, Turbines, Warming and Drying Apparatus, Baths, Gas Works and Fittings. Estimates furnished from Plans or on inspection of position.

Price Lists of Pumps, &c. free on application.

Northampton Nurseries. Important to Planters.

JOHN PERKINS begs to call the attention of Noblemen, Gentlemen, and others engaged in Planting to his large stock of 1, 2, and 3 years BLACK THORN (for covert planting). Of this he has upwards of Two Millions, the greater part of which is extra fine. Also Two Millions of LARCH FIR, 3 to 4 feet; and One Million of SPRUCE and SCOTCH FIRS, 2 to 3 feet. Also large quantities of

PINUS AUSTRIACA	HORNBEAM
BERBERIS AQUIFOLIUM	HAZEL
BERBERIS DULCIS	BIRCH
SINGLE GORSE	BEECH
GREEN BOX	ELMS
LAURELS	OAKS
EVERGREEN PRIVETS	ASH, &c.

J. P.'s stock of all kinds of Fruit, Forest, Ornamental Trees, &c., is very extensive, and this season remarkably fine and in excellent condition for removal, having been frequently transplanted. Samples sent to any given address.

CATALOGUES of GENERAL NURSERY STOCK forwarded post free upon application to

52, Market Square, opposite the Corn Exchange, Northampton.

J. P. begs his correspondents will make use of the above full Address, as there are others of the same name in the town.

WILLIAM BARRON, Sketty Nursery Farm, Swansea, offers the following:—

200,000 LARCH, 2½ to 3½ feet.	50,000 SCOTCH FIR, 1½ to 2½ feet.
200,000 ,, 1½ to 2½ feet.	50,000 SPRUCE FIR, 2 to 4 feet.

30,000 BLACK ITALIAN POPLAR, 2 to 4 feet.

Alders, Ash, Beech, Birch, Elm, Sycamore, Holly, Hazel, Limes, Yews, Thorns for hedges, Privet, Laurels, Lilacs, Laburnums, Berberis Aquifolium, Rhododendrons, Ailantus glandulosa, Acer Negundo variegata, Purple-leaved Hazel, Coniters of sorts, choice varieties of Hardy Ornamental Trees and Shrubs with fine foliage, Roses &c. Hardy Ferns in quantity.

Prices post free on application.

Monro's Rabley Cucumber.

JOHN MONRO begs to inform Cucumber Growers, Gardeners, and the Trade, that having had this season above 6000 feet of Glass planted with his RABLEY CUCUMBER, he has been able to save a fine lot of Seed, and is prepared to send it out true, in large Packets at 1s. per Packet. This is the best Winter or Summer Cucumber, and has always taken the First Prize whenever exhibited. May be ordered of any Seedsman. A liberal allowance to the Trade.

JOHN MONRO, Osborne Park Gardens, Potter's Bar Station, Barnet, N.

Improvement of Grass Lands

BY SOWING GOOD SEEDS OF THE MOST SUITABLE KINDS.

SUTTON'S RENOVATING GRASS SEEDS

SHOULD NOW BE SOWN.

These Seeds consist of PERENNIAL CLOVERS and FINE GRASSES for improving the bottom.

8 to 12lb. per acre will be sufficient, and will effect a great increase in the produce.

SUTTON & SONS,
Royal Berkshire Seed Establishment,
Reading.

HARDY ORNAMENTAL TREES AND SHRUBS.

OSBORN & SONS

Invite lovers of Ornamental Planting to an inspection of the varied forms and foliage of their unrivalled Collection of the above, to which they have for many years devoted especial attention.

PRICED CATALOGUES, consisting of upwards of 1500 species and varieties, may be had on application.

THE NURSERIES, FULHAM, LONDON, S.W.

SUTTON'S

UNRIVALLED COLLECTIONS OF

BULBOUS FLOWER ROOTS,

FOR BLOOMING DURING THE WINTER AND SPRING.

These are every year becoming more popularly cultivated, and the HYACINTHS, ANEMONES, TULIPS, &c., which we imported last season from the celebrated Dutch Florists, Messrs. de Boom, Veen, Byvoet, and others, having been so generally admired, *we have imported from the same parties, and still more extensively.*

SUTTON'S COLLECTION of HARDY FLOWER ROOTS for OPEN GROUND.

		£	s.	d.
No. 1.	A large and Choice Collection of ANEMONES, HYACINTHS, CROCUSES, TULIPS, RANUNCULI, NARCISSI, SNOWDROPS, IRISES, GLADIOLI, &c.	2	2	
No. 2.	Ditto ditto, consisting of all the same kinds, in Reduced Quantities	1	1	
No. 3.	A Small and Choice ditto	0	10	6

SORTS for FLOWER POTS and GLASSES.

		£	s.	d.
No. 4.	A splendid Collection of HYACINTHS, JONQUILS, NARCISSI, EARLY TULIPS, New large CROCUSES, &c.	2	2	0
No. 5.	The same in Reduced Quantities	1	1	0
No. 6.	A Small and Choice Assortment	0	10	6

SUTTON'S AUTUMN CATALOGUE,

Containing Descriptive Lists of the best varieties of HYACINTHS, GLADIOLI, ANEMONES, CROCUSES, and other Bulbous Roots, and Choice STOVE and GREENHOUSE PLANTS, FERNS, AMERICAN PLANTS, ROSES, CARNATIONS, and other Florists' Flowers, FRUIT TREES, New GARDEN SEEDS, &c., is now ready, and may be had gratis and post free on application.

All Goods sent Carriage Free except small parcels, and 5 per cent. allowed for Cash Payments.

SUTTON AND SONS, ROYAL BERKS SEED ESTABLISHMENT, READING.

HUGH LOW & CO.

HAVE PLEASURE IN STATING THAT THEIR

STOCK of CAMELLIAS, AZALEAS, ERICAS, EPACRIS, CYTISUS,

AND MISCELLANEOUS GREENHOUSE PLANTS

ADAPTED FOR GREENHOUSE DECORATION IN WINTER AND SPRING, IS THIS SEASON UNUSUALLY LARGE AND OF GOOD QUALITY.

HUGH LOW & Co. respectfully invite Inspection by intending Purchasers.

GRAPE VINES OF VARIOUS SIZES.

CATALOGUE OF DUTCH BULBS SENT ON APPLICATION.

CLAPTON NURSERY, LONDON, N.E.

COLLECTIONS OF BULBS.

THE COVENT GARDEN COLLECTIONS,

PART FOR IN AND PART FOR OUT-OF-DOOR DECORATION, 10*s.* 6*d.*, 15*s.* 6*d.*, 21*s.*, 42*s.*, 63*s.*, & 105*s.*

THE PAXTONIAN COLLECTIONS,

FOR THE ORNAMENTATION OF THE SPRING GARDEN, 10*s.* 6*d.*, 15*s.* 6*d.*, 21*s.*, 42*s.*, 63*s.*, & 105*s.*

THE KENSINGTON GARDEN and CRYSTAL PALACE COLLECTIONS,

FOR ORNAMENTING THE WINTER FLOWER GARDEN, 10*s.* 6*d.*, 21*s.*, 30*s.*, 42*s.*, 63*s.*, & 105*s.*

THE CLIVEDEN SOUVENIR COLLECTIONS of BULBS.

No. 1.—HYACINTHS and CROCUS, 10*s.* 6*d.*, 21*s.*, 42*s.*, & 84*s.*
No. 2.—RANUNCULUS and CROCUS, 7*s.* 6*d.*, 15*s.*, & 30*s.*
No. 3.—TULIPS and CROCUS, 12*s.* 6*d.*, 25*s.*, & 50*s.*
No. 4.—ANEMONES and CROCUS, 15*s.*, 30*s.*, & 60*s.*

For particulars of these Collections, and Splendid Collections of HYACINTHS, TULIPS, NARCISSUS, GLADIOLI, AMARYLLIS, ANEMONES, RANUNCULUS, &c.

THE CLIVEDEN COLLECTIONS of SPRING-BLOOMING PLANTS,

DRAWN FROM THE STOCK AT CLIVEDEN.

50 PERPETUAL-FLOWERING CLIVEDEN YELLOW PANSIES.
50 PERPETUAL-FLOWERING CLIVEDEN BLUE PANSIES.
50 PERPETUAL-FLOWERING CLIVEDEN PURPLE PANSIES.
100 WHITE DAISIES.
100 PINK DAISIES.
100 BLUE FORGET-ME-NOT (MYOSOTIS SYLVATICA).
100 SILENE PINK.
50 MIXED COWSLIP.

The above, 105s.; Half the quantity, 50s.; Quarter do., 25s.; Eighth, 12s. 6d.

Choice Hyacinths for Exhibition.

SUTTON AND SONS can supply good sound BULBS of all the HYACINTHS recommended at page 485 of the *Gardeners' Chronicle*, for £3, or half the quantity (selection left to us), for £1 11*s.* 6*d.*, carriage free; also other good sorts at considerably lower prices.

SUTTON'S AUTUMN CATALOGUE is now ready, and may be had gratis and post free on application to

SUTTON & SONS,
Royal Berkshire Seed Establishment,
Reading.

HYACINTHS, TULIPS, CROCUS, &c., now arrived from Holland in excellent condition.
BARR & SUGDEN, Seed and Plant Merchants, 12, King Street, Covent Garden, W.C.

STANDEN'S GARDENER'S AND AMATEUR'S FRIEND, a concentrated Inodorous Fertilizer, for all kinds of Stove and Greenhouse Plants, Vines and other Fruit Trees in pots, Flowers and Vegetables, &c., in the open ground.

STANDEN'S FERTILIZER is the best adapted for Hard-wooded Plants.

STANDEN'S FERTILIZER is recommended for Soft-wooded Plants, Flowers, &c.

Sample Canisters, 1*s.* & 2*s.* 6*d.*
Bags, 5*s.* 6*d.*, 10*s.* 6*d.*, and 21*s.*

Paul's Nurseries, Waltham Cross, N.

ENTRANCE FROM THE PLATFORM, WALTHAM STATION, GREAT EASTERN RAILWAY. HALF AN HOUR'S RIDE FROM LONDON.

WM. PAUL (Son and Successor to the late A. PAUL) begs to announce that his COLLECTION of ROSES is STILL in BLOOM, and comprises many of his own Seedlings, and other novelties not to be found in any other collection. In addition to the Roses, BEATON'S GERANIUMS, and a second and third generation from them, will be blooming throughout the summer and autumn. The Collection of HARDY TREES with FINE FOLIAGE is unrivalled, and many large and perfect specimens of the choicer CONIFERS are now in fine condition for removal, and are well worthy of the attention of gentlemen and horticulturists who contemplate planting. Bearing trees of all the LEADING FRUITS, Dwarfs and Standards, Pyramids and Espaliers, in fine health and true to name. Inspection respectfully invited.
Waltham Cross, London, N.

The Gardeners' Chronicle.

SATURDAY, SEPTEMBER 16, 1865.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY,	Sept. 19	Royal Horticultural (Floral and Fruit Committees), at S. Kensington .. 11 A.M.
SATURDAY,	— 23	Royal Horticultural (Weekly Show), at South Kensington .. .. 2 P.M.

WE hear with great pleasure that her Majesty the QUEEN has been pleased to permit the announcement that the Great International Horticultural Show and Congress of next year is under HER MAJESTY'S patronage. HER MAJESTY has also most liberally contributed Fifty Pounds to the fund raising to pay the expenses.

WE have just received, through the kindness of Dr. GREVILLE, from the neighbourhood of Brandon, one of the most magnificent Fungi we ever saw—SPARASSIS CRISPA, and which has moreover the merit of being described by FRIES and KROMBHOLZ as most delicious. Four specimens only were found at the roots of a large Scotch Fir, in a wood of a hundred years' growth, consisting of Scotch Fir mixed with large and small Oaks. The specimens were so remarkable that they were gathered by the keeper on Mr. AMHURST'S estate, and sent to a village flower show at Bridlington, without any suspicion that the species is of such extreme rarity in this country, a single specimen only having occurred before in Berkshire, which was figured in the Intellectual Observer. That specimen however was very small in comparison of these, one of which Admiral MITFORD, who sent it originally to Dr. GREVILLE, informs us measured 18 inches in diameter by 14. At the first glance it looks more like some beautiful Madrepore or Seaweed, so different is it from other Fungi, but its real affinities are with the genus Clavaria.

From a strong rooting obconical base, 3 inches or more in diameter above, spring in every direction radiating anastomosing foliaceous flattened laminæ, which are wrinkled below, branched above, and divided into innumerable more or less rounded crisped and often recurved laciniæ, which are sometimes but not always wrinkled on the under side, though both surfaces are equally fertile. The spores are hyaline and elliptic, with a very large opaque globose nucleus. The whole forms a nearly hemispherical mass of a delicate cream colour, passing as the plant approaches decay, especially at the extremities, into pallid ochre. It is well figured by SCHÆFFER and KROMBHOLZ, though from specimens very inferior in size to that before us. The smell is peculiar, at least in the plant when old. Like other Fungi, the Sparassis should be eaten before it is much attacked by insects, which seem extremely fond of it. No directions are given for its culinary preparation, but it would doubtless require the same treatment as the large Clavariæ, which are generally dressed in France, according to ROQUES, with butter, Parsley, Basil, and other herbs, not forgetting a *soupçon* of Garlic, occasionally mixing with the butter a few spoonsful of stock while the Fungus is stewing. When it is tender it is served with a mixture of cream and yolk of egg. It might also, doubtless, be preserved in vinegar for winter use like the Clavariæ.

The other European species, Sparassis laminosa, which attains equal dimensions, and also forms an hemispherical mass, is found about the stumps of Oaks, and is distinguished by the laminæ being much less divided above, and by no means crisped or recurved.

Sparassis crispa is produced abundantly in the neighbourhood of Prague, where it is often brought into the market, and is highly prized. Sparassis laminosa is much rarer, but equally good in quality. *M. J. B.*

THE more salient points of the Prize Schedule put forth for the INTERNATIONAL EXHIBITION of 1866 have been already noticed, so far as regards those portions relating to flowering and ornamental plants. We will now glance over the other subjects among which competition is invited.

Taking Fruits first, as the most important, it may be observed that the season fixed upon, being such as will afford the most gorgeous display of flowers, falls full early for the production of great quantities of fruit. Hence, except by some extraordinary effort on the part of British cultivators—and we by no means admit that the word 'finality' belongs to their vocabulary, or that they have reached the limit of their powers—hence, we say, it is scarcely to be expected that so good a display of the better kinds of fruit as that which has been recently witnessed in Edinburgh, for instance, can be brought together. We do not, however, despair of seeing a thoroughly good fruit show, all the more meritorious, let us observe, from the fact that its production will have required some increased effort on the part of the growers. Taking a rapid glance over the prizes, we may note that they seem to be fairly liberal, and such as to lead one to infer they will be liberally responded to. After a collection of various Forced Fruits, which must necessarily be of a miscellaneous character, there follow five classes for Pine-apples, destined we hope, among other influences, to draw southwards some of the admirable examples of Pine-growing to be seen in and about the northern metropolis and elsewhere. Grapes come next: first, two classes which represent collections, then half-a-dozen classes representing the different races of Grapes, then single bunches, and Vines in pots—altogether affording abundant inducement for a noble display of British Grape-growing. This, it must be recollected, is a feature of our national gardening through which we ought to make a strong impression on our foreign visitors; and both on this ground, and on account of the impulse which a little warm rivalry will give to the development of Horticulture even amongst ourselves, we would urge Grape-growers to give the matter their most favourable attention. Melons, Peaches, Nectarines, Figs, Strawberries, Cherries, &c., with Tangierine Oranges on the tree, invite the further attention of our forcing gardeners; Orchard-house trees come in as a representation of a still somewhat novel phase of fruit culture, and may be made to contribute largely to the beauty and variety of the show; while, finally, illustrations of the mode of training fruit trees, which generally form interesting features in a continental show, are also sought to be introduced to our English Exhibitions.

Vegetables we need hardly particularise. Prizes are offered for such as are likely to come in season at the time of the Show, and both forced and naturally-grown kinds are expected. The most interesting portions of this Show will probably be the collections; but such subjects as the largest Asparagus, the heaviest Rhubarb, and both the longest and handsomest Cucumber, will afford scope for an exciting contest between growers of specialties like these.

The eighth section, for "Bouquets and Objects of Ornament in Natural Flowers," will afford those persons an opportunity to exhibit who take up such subjects as table-decoration, bouquet-making, and the like. We would, however, invite the attention of amateurs and of lady gardeners in particular to the classes for Window Jardinets and external Window-boxes, the furnishing of which may afford them ample scope for an exhibition of good taste.

Another distinct feature of this prize list to which we would direct the attention of gardeners, and especially of young gardeners, is the designs for laying out grounds, both public and private, which the Committee have decided to invite. It is quite true that our young friends may not successfully compete against those more practised in the art of laying out grounds, but it is a subject which it is of the utmost importance to them to understand, and it is hardly possible they can compete without manifest advantage to themselves. In the case of Garden Implements and Garden Ornaments, the Society of Arts, in its capacity of patron of inventions, will distribute some 50*l.* as prize money.

We have only to add our earnest desire that the well-to-do friends of horticulture will strengthen the hands of the Committee (as indeed they are doing) by providing the sinews of war in the shape of liberal subscriptions—for nothing of this kind on a large scale like the present, can be carried on in a satisfactory way without abundant funds; that the Committee, while carrying out the scheme in a liberal spirit, will avoid extravagant expenditure of every kind; and that the horticulturists of these Isles will do their duty when the day of exhibition comes round.

—— WE have to-day to record a most gratifying episode of the recent Edinburgh Horticultural Exhibition, which the exigencies of our publishing arrangements prevented us from doing in our last impression, namely the PRESENTATION TO MR. THOMSON, of Dalkeith, of a mark of esteem and regard, by several gardeners who had served as foremen under him, and who are now themselves filling important and responsible positions. The general assembly of horticulturists in Edinburgh, on the occasion of the Show, afforded an opportunity to give something of a public character to this well-earned mark of respect, and accordingly the subscribers, together with many of Mr. THOMSON'S friends, met at the Douglas Hotel in St. Andrew's Square on the 6th inst., when he was presented with a handsome gold watch and appendages. Mr. ROSE, gardener at Floors Castle, occupied the chair, and in a few appropriate remarks introduced the subject. Mr. DALZIEL, in making the presentation, referred to the uniform kindness which Mr. THOMSON evinced towards those placed under him, and alluded to the readiness with which, at all times, he had communicated to them the benefits of his great professional experience—not only when engaged under him, but after they had left him to occupy important situations elsewhere. In accepting the gift, Mr. THOMSON stated that when he had first heard of the proposition, he had felt the same objection to it which he had to testimonials generally; but when he found it was the spontaneous doing of those who had so long and so creditably acted as foremen at Dalkeith—none of them for less than two or three years, he had laid aside his scruples, and had agreed to accept the gift in the same spirit which had actuated the givers. The watch bore this inscription:—"Presented to Mr. WILLIAM THOMSON, by nine of his late foremen, September 6, 1865;" surrounding which, incorporated with the decorations of the device, were the initials of the subscribers, namely, Mr. H. ROSE, Floors Castle; Mr. DELL, Stoke Rochfort, Grantham; Mr. D. BROWN, Corehouse; Mr. J. M'INTOSH, late of Raby Castle; Mr. W. PRENTICE, Shugborough Hall, Rugeley; Mr. W. DICK, Wynyard Park, Durham; Mr. J. MORRISON, Auchincruive; Mr. H. KNIGHT, Château Pontchartrain, Paris; and Mr. J. SIMPSON, Wortley Hall. It is most gratifying to see men filling Mr. THOMSON'S high position in the Horticultural world thus securing the grateful esteem of those who serve under them, not only for professional instruction imparted, but, as in this case, for the kind considerate treatment which all who know Mr. THOMSON will be quite sure marked his dealings with those who were called upon to act as his subordinates. It would be well for Horticulture if such examples could be indefinitely multiplied.

—— From time to time during the past two years we have seen more or less perfect specimens of a curious SPORT IN THE GLOXINIA, in which one or sometimes five wedge-like petals have been placed on the outside of the corolla, between it and the calyx. Specimens of this kind were exhibited at one of the recent meetings of the Floral Committee. The most complete account of these singular flowers that we have seen is contained in a paper of Prof. E. MORREN'S, in the 19th volume of the second series of the "Bulletin de l'Académie Royale de Belgique." From this account, it appears that the supplementary pieces just alluded to are really members of a second imperfect flower, placed outside the original one, and partially adherent to it. "In the flower just mentioned," says M. MORREN, "there was formed a flower bud in the axil of one of the sepals, and this bud has given origin to a separate corolla, partially adnate to the primary corolla, and slightly atrophied, but enclosing nevertheless a rudimentary ovary." In other flowers the appearances are still more singular; in these, it seems as if *several* axillary flowers were produced between the calyx and corolla, each of the supplementary flowers being in so reduced a condition, that one petal alone remains to represent the corolla. When

these imperfect petals are of about equal size, and when they become coherent by their edges, they form a "catacorolla" on the outside of the true corolla. In this way were formed certain double Gloxinias, which were first brought under M. Morren's notice in the establishment of M. L. Reichenheim, of Berlin, and in which one corolla was enclosed within an outer one, as happens in Datura ceratocaula, &c. Now the outermost corolla, "catacorolla" as M. Morren terms it, alternates in position with the true one; and whereas in the original blossom it is the *inner* surface that is brightly coloured, in the supplementary one on the contrary, the inner side is of a pale colour, while the exterior is tinted with bright carmine. These "races" have been obtained by removing all the ordinarily shaped flowers, and insuring the due fertilisation of those which presented the deviations above mentioned, till at length in the fourth generation the rudimentary outlying petals have been combined into one simple-looking, though really complex catacorolla.

This is truly one of the most extraordinary results of the art of the cultivator that has been put on record, and we should be thankful to those who would kindly transmit specimens to us, in order that we may trace out the different stages in the production of hose-in-hose Gloxinias.

—— The question raised in a recent Number (see p. 843), as to the supposed greater hardihood of the female plants of the common Bay Laurel, is one of such importance, both in a physiological and in a cultural point of view, that we hope the inquiry made by our correspondent may elicit some valuable information. It was the opinion of Knight, that in the Melon, the Cucumber, and similar plants, a high temperature favoured the production of male flowers, a low degree that of female flowers. This is in consonance with our correspondent's opinion; but it is clear that before arriving at any definite conclusion, a large amount of well-authenticated evidence must be obtained.

One objection that might be raised as to the existence of a different constitution for female as contrasted with male plants is this, that in the case even of diœcious plants, like the Hop or the Willow, male blossoms are sometimes found on the female trees. In some of the Willows this is particularly common; and moreover it frequently happens in these trees that there is to be seen a gradual transition in form and function, from the stamen to the pistil. This change can hardly be the result of any alteration in the constitution of the plant, but merely of some external agency acting for a short time, for in the next season perhaps no such transitional forms are to be seen. Again, the Hop plant has been noticed to produce female flowers in one season, male and female flowers in the succeeding summer, while in the third year male blossoms only were produced.

In the Primroses, Linums, and Lythrums, studied so carefully by Mr. Darwin, the flowers are functionally if not structurally unisexual, but we have yet to learn whether any, and if any, what differences in constitution are manifested by the plants in question. In order to limit the subject, however, within the bounds assigned by our correspondent, we have simply to ask those of our contributors who may have under their observation large Bay Laurels unscathed by the winter of 1860-61, to be kind enough to tell us the sex of the shrubs.

BRITISH ASSOCIATION.

The meeting of the British Association, which has been held this year in Birmingham, commenced on the 6th inst. The business of the General Meeting was opened by an address from the President, Professor Phillips, from which we select a few passages. After referring to the early labours of the Association he observed:—

"How many questions have we asked—not always in vain—regarding the constitution of the earth, its history as a planet, its place in creation; now probing with sharpened eyes the peopled space around—peopled with a thousand times ten thousand stars; now floating above the clouds in colder and clearer air; now traversing the polar ice—the desert sand—the virgin forest—the unconquered mountain; now sounding the depths of the ocean, or diving into the dark places of the earth. Everywhere curiosity, everywhere discovery, everywhere enjoyment, everywhere some useful and therefore some worthy result. Life in every form, of every grade, in every stage; man in every clime and under all conditions; the life that now surrounds us, and that which has passed away; these subjects of high contemplation have been examined often, if not always, in the spirit of that philosophy which is slowly raising, on a broad security of observed facts, sure inductions, and repeated experiments, the steady columns of the temple of physical truth.

"The light and heat which are emitted from the sun reach the earth without great diminution by the absorptive action of the atmosphere; but the waste of heat from the surface of our planet through radiation into space is prevented, or rather lessened, by this same atmosphere. Many transparent bodies admit freely heat-rays derived from a source of high temperature, but stop the rays which emanate from bodies only slightly warmed. The atmosphere possesses this quality in a remarkable degree, and owes it to the presence of diffused water and vapour; a fact which Dr. Tyndall has placed in the clear light of complete and varied experiment. The application of this truth to the history of the earth and of the other planets is obvious. The vaporous atmosphere acts like warm clothing to the earth. By an augmented quantity of vapour dissolved, and water suspended in the air, the waste of surface-heat of the earth would be more impeded; the soil, the water, and the lower parts of the atmosphere would grow warmer; the climates would be more equalised; the general conditions more like what has been supposed to be the state of land, sea, and air during the geological period of the coal-measures. Such an augmentation of the watery constituents in the atmosphere would be a natural consequence of that greater flow of heat from the interior, which by many geologists, mathematicians, and chemists is supposed to have happened in the earlier periods of the history of the earth. The history of suns and planets is, in truth, the history of the effects of light and heat manifested in them, or emanating from them. Nothing in the universe escapes their influence; no part of space is too distant to be penetrated by their energy; no kind of matter is able to resist their transforming agency.

"As we ascend above the earth, heat, moisture, and magnetic force decrease, the velocity of wind augments, and the proportion of oxygen and nitrogen remains the same. The decrease of heat as we rise into the air is no new subject of inquiry, nor have the views respecting it been very limited or very accordant. Leslie considered it mathematically in relation to pressure; Humboldt gave the result of a large inquiry at points on the earth's surface, unequally elevated above the sea; and finally, Mr. Glaisher and Mr. Coxwell, during many balloon ascents to the zones of life-destroying cold, far above our mountain tops, have obtained innumerable data in all seasons of the year, through a vast range of vertical height. The result is to show much more rapid decrease near the earth, much slower decrease at great elevations; thus agreeing in general with the view of Leslie, and yet throwing no discredit on the determinations of Humboldt.

"Researches of every kind have so enriched meteorology since our early friend, Professor J. Forbes, printed his suggestive reports on that subject, and so great have been the benefits conferred on it by the electric telegraph, that at this moment in M. Leverrier's observatory at Paris, and the office so lately presided over by Admiral Fitzroy in London, the messages are arriving from all parts of Europe to declare the present weather, and furnish grounds for reasonable expectation of the next probable change. Hardly now within the seas of Europe can a cyclone begin its career of devastation, before the warning signal is raised in our seaports, to restrain the too confident sailor. The gentle spirit which employed this knowledge in the cause of humanity has passed away, leaving an example of unselfish devotion, in a work which must not fail through any lack of energy on the part of this Association, the Royal Society, or the Government. We must extend these researches and enlarge these benefits by the aid of the telegraph, bringing the ends of the world together.

"The greater our progress in the study of the economy of Nature, the more she unveils herself as one vast whole; one comprehensive plan; one universal rule, in a yet unexhausted series of individual peculiarities. Such is the aspect of this moving, working, living system of force and law, such it has ever been, if we rightly interpret the history of our own portion of this rich inheritance of mind, the history of that earth from which we spring, with which so many of our thoughts are co-ordinated, and to which all but our thoughts and hopes will again return. How instructive the history of that long series of inhabitants which received in primeval times the gift of life, and filled the land, sea, and air with rejoicing myriads, through innumerable revolutions of the planet, before in the fulness of time it pleased the Giver of all good to place man upon the earth, and bid him look up to heaven.

"Wave succeeding wave, the forms of ancient life sweep across the ever-changing surface of the earth; revealing to us the height of the land, the depth of the sea, the quality of the air, the course of the rivers, the extent of the forest, the system of life and death—yes, the growth, decay, and death of individuals, the beginning and ending of races, of many successive races of plants and animals, in seas now dried, on sand-banks now raised into mountains, on continents now sunk beneath the waters.

"Had that series a beginning? Was the earth ever uninhabited, after it became a globe turning on its axis and revolving round the sun? Was there ever a period since land and sea were separated—a period which we can trace—when the land was not shaded by plants, the ocean not alive with animals? The answer, as it comes to us from the latest observation, declares that in the lowest deposits of the most ancient seas in the stratified crust of the globe, the monuments of life remain. They extend to the earliest sediments of water, now in part so changed as to appear like the products of fire. What life? Only the simpler and less specially organised fabrics have as yet rewarded research among these old Laurentian rocks—only the aggregated structures of Foraminifera have been found in what, for the present at least, must be accepted as the first deposits of the oldest sea. The most ancient of all known fossils, the Eozoon canadense, is of this low, we may even say lowest, type of animal organisation.

"And what is the latest term in this long series of successive existence? Surely the monuments of ever-advancing art—the temples whose origin is in caverns of the rocks; the cities which have taken the place of holes in the ground, or heaps of stones and timber in a lake; the ships which have outgrown the canoe, as that was modelled from the floating trunk of a tree, are sufficient proof of the late arrival of man upon the earth, after it had undergone many changes, and had become adapted to his physical, intellectual, and moral nature.

"Ever since the days of Aristotle, the analogy existing among all parts of the animal kingdom, and in a general sense we may say among all the forms of life, has become more and more the subject of special study. Related as all living beings are to the element in which they move and breathe, to the mechanical energies of nature which they employ or resist, and to the molecular forces which penetrate and transform them, some general conformity of structure, some frequently recurring resemblance of function, must be present, and cannot be overlooked. In the several classes this analogy grows stronger, and in the subdivisions of these classes real family affinity is recognised. In the smallest divisions which have this family relation in the highest degree, there seems to be a line which circumscribes each group, within which variations occur, from food, exercise, climate, and transmitted peculiarities. Often one specific group approaches another or several others, and a question arises whether, though now distinct, or rather distinguishable, they always have been so from their beginning, or will be always so until their disappearance.

"Whether what we call species are so many original creations or derivations from a few types or one type, is discussed at length in the elegant treatise of Darwin, himself a naturalist of eminent rank. It had been often discussed before. Nor will any one think lightly of such inquiries who remembers the essay of Linnæus—'De Telluris orbis incremento,' or the investigations of Brown, Prichard, Forbes, Agassiz, and Hooker regarding the local origin of different species, genera, and families of plants and animals, both on the land and in the sea. Still less will he be disposed to undervalue its importance when he reflects on the many successive races of living forms more or less resembling our existing quadrupeds, reptiles, fishes, and molluscs, which appear to have occupied definite and different parts of the depths of ancient time; as now the tiger and the jaguar, the cayman and the gavial, live on different parts of the terrestrial surface. Is the living elephant of Ceylon the lineal descendant of that mammoth which roamed over Siberia and Europe and North America, or of one of those sub-Himalayan tribes which Dr. Falconer has made known, or was it a species dwelling only in circumpolar regions? Can our domestic cattle, horses and dogs, our beasts of chase and our beasts of prey, be traced back to their source in older types, contemporaries of the urus, megaceros, and hyæna on the plains of Europe? If so, what range of variation in structure does it indicate? If not so, by what characters are the living races separated from those of earlier date?

"Specific questions of this kind must be answered before the general proposition, that the forms of life are indefinitely variable with time and circumstance, can be even examined by the light of adequate evidence. That such evidence will be gathered and rightly interpreted, I for one neither doubt nor fear; nor will any be too hasty in adopting extreme opinions or too fearful of the final result, who remember how often that which is true has been found very different from that which was plausible, and how often out of the nettles of danger we have plucked the flowers of safety. At the present moment the three propositions which were ever present to the mind of Edward Forbes may be successfully maintained, as agreeing with many observed phenomena; and around them as a basis of classification may be gathered most of the facts and most of the speculations which relate to the history of life. First, it may be admitted that plants and animals form many natural groups, the members of which have several common characters, and are parted from other groups by a real boundary line, or rather unoccupied space. Next, that each of these groups has a limited distribution in space, often restrained by high mountains or deep seas, or parallels of temperature, within which it has been brought into being. Thirdly, that each group has been submitted to, or is now undergoing, the pressure of a general law, by which its duration is limited in geological time; the same group never reappearing after being removed from the series."

INDOOR CLIMBERS.

Stigmaphyllon jatrophæfolium.—This very pretty plant is generally grown under the name of S. ciliatum, sometimes as Banisteria ciliata, but there is a great difference between the two. S. ciliatum has palmate leaves, 4 or 5-lobed, and very acutely serrated; the flowers are also smaller, more numerous, and not so beautiful as in S. jatrophæfolium, the latter deriving its name from the shape of its fine handsome leaves. Both these plants are natives of Brazil, and are termed stove climbers—a designation which very frequently prevents the cultivator from trying them elsewhere. The plant

under consideration is equally a conservatory climber, and its fine clean evergreen leaves, and rich yellow flowers entitle it to a high place as such.

The most successful example of cultivation, as far as regards this plant, which I have seen, was at Woolaston Hall, the seat of Sir John Berners, where it was planted in an architectural conservatory, and was blooming in great profusion, its rich yellow blossoms forming a fine contrast with the Lapageria. My own experience simply extends to the stove, but Mr. Shepherd, the gardener of the above-named place, gave me convincing proof that a conservatory was the more suitable place to show off its rich handsome fringed yellow flowers to advantage.

The specimen at Woolaston Hall is planted out in a mixture of peat, loam, and sand; and it is cut in very closely every spring to get a good push of young wood, from which the flowers are freely produced from the end of May until August. The plant is an evergreen climber, and under successful treatment is exceedingly striking, much more so than many of our more recent introductions. *J. F., Sept. 9.*

THE LONDON PARKS.—No. III.

The Regent's Park.

Time was when the smoked and dried Londoner found it necessary to go in the country to enjoy pretty flowers and green trees. The time is approaching—indeed it is at hand—when the country must come to town to see the highest examples of modern gardening set in verdant groves, and breadths of the greenest turf, sweeping away over breezy height or down towards the Weeping Willows that droop o'er the glistening boat-enlivened water. "The pent-up Londoner" forsooth! Reader, if you want to see something of the present condition of this once hapless creature, the next time you are in London on an early summer morning just walk through Portland Place into this noble park. If the glorious foliage of the avenue of Chestnuts is fully out, and every tree is adorned with spikelets of silver tinted with crimson, so much the better, but it matters little, for on either side is a beautiful garden, richly but tastefully embellished with trees, and shrubs, and flowers, while plenty of seats are at hand for those who wish to rest, or read, or contemplate. There is a refreshing rush of water from the hose with which the gardeners are watering, making everything look as fresh as if just washed by a summer shower. The walks too are moist and cool; and the flower garden of the richest nobleman in the country does not offer a greater luxury than may be had here by the poorest Londoner.

This is very well, but look to the west and you will see an equally desirable sight—hundreds of young men and boys playing at cricket, to which a certain portion of the park is devoted before breakfast. Then go further north by the fishers, old and young, down to where those fond of a pull on the water are enjoying the chest-expanding exercise; and then up again across that wide and breezy expanse of green in front of Holford House, passing all sorts of folks who come out to take the morning air, and unfortunately not a few, in some places, who have no bed but that afforded them by the turf when the parks are opened—houseless wanderers. Then walk up to Primrose Hill and see how thoroughly the gymnasium is enjoyed, and what a fresh and delicious breeze sweeps the top, where many go to have a breath of air before commencing their sedentary work, and you will have some idea of what has been done towards improving the people's condition in this important respect. A still better idea may be formed by going 12 hours later, in the evening, when old and young swarm out after their day's work is completed. You will probably pity the people of country towns; but just think that though in Shakspeare's time London was a great city, yet then the serving maids took out their washing to bleach on the clean green grass where Leicester Square now shows itself black and murky; that cows grazed within a stone's throw of Snow Hill, and far to the south of Holborn, while the Regent's Park was away beyond green-pastured Soho "in the country." And all is now absorbed in one mighty whole, rendering it almost impossible for the dweller in central London to take daily exercise in the free fresh air but for these grand parks.

In extent upwards of 400 acres, of pure London clay, very deep—excellent stuff for little mudlarks with a taste for modelling, but the worst material in the world for the gardener—it was no ordinary task to embellish this park with trees, &c.; but it has been well done. The planting as a whole is sufficient and satisfactory, while the trees of the Botanic and Zoological Gardens, and those of the various villa gardens in the park, contribute to the general effect. The Weeping Willows by the water furnish a distinct and beautiful feature; it is fortunate they do so well in the London parks. It would not be wise to prevent the breeze having "its own sweet will" on that fine expanse to the west of the Zoological Gardens and Westmacott's drinking fountain, by any further planting or complications, though the planting of a few hundred deciduous flowering trees and shrubs would much beautify the park in spring, and they could without detriment be introduced in natural groups around the margins. What specially recommends this class of plants—double Cherries and Peaches, Almonds, American Hawthorn, Chinese Pear, &c.—in addition to their great floral beauty, is the fact that they do as well in London as in the country, because they are at rest during the season of smut, and burst out into leaf when the clear air of spring returns. They flourish in the Botanic Garden, as may be seen near the Museum, while it is nearly impossible to keep the life in a Pine, or preserve an evergreen in glistening health, without which it is not worth growing. Besides, these deciduous trees and shrubs are the most desirable from an æsthetic point of view, as they display their beauties at the season when people resort to the parks; they are more beautiful when unfolding the leaves of spring, flower profusely and brilliantly, which evergreens do not, and are at least as well to look upon in winter as evergreens perishing from accumulation of dirt upon their lungs.

A good piece of water is indispensable to a first-rate park, and the Regent's Park is well supplied with about 22 acres of it on the south-west side. It is well arranged, and seen from the Hanover Gate direction and other points, very beautiful, the terminations being hidden away beyond woody islands and winding reaches. In winter, during a long frost, it presents one of the most animated sights conceivable—then, particularly on Sundays, almost every modification of the species from a Ratcliffe rough to a Dutchwoman may be seen whizzing over the ice in a state of high glee. The only unfortunate feature is that the soil which was excavated to form the lake has been thrown out in the form of a wide flat unmeaning heap, relieved indeed to some extent by being covered with trees, and would perhaps be noticed by few but for its edge coming very near that of the water, and thus getting trodden bare and brown. To what excellent use the material taken from an excavation of this sort may be put is perhaps better illustrated in the adjoining Botanic Garden than elsewhere. There what was taken from the pond basin forms a perfectly natural-looking and picturesque mound, particularly striking when seen from the east side of the water, and which enables the visitor to catch, beyond the indefinite northern margin of the garden and Primrose Hill, a beautiful view of the tops of Hampstead and Highgate hills, with their churches, &c. If a well-defined and unobjectionable boundary is an important desideratum in great city parks, the Regent's has one peculiar advantage, for no other is nearly so well situated in this respect. The stately wall of noble terraces which encompass it on every side but the north, are almost exalted enough to give even such a large expanse some advantages of shelter, while the dignified architectural aspects of most of these seen through the park foliage is perhaps the best marginal view to be had in any London park. And where the terraces cease, in comes the canal by way of a boundary sunk at the bottom of deep woody slopes, which furnish charming vistas from several of the bridges, particularly one in which flowering Rosaceous trees from some private gardens, come into the picture in early summer. The shady plantations along the canal, in which Hawthorns are a feature, are also good additions to the park, particularly when the May is in flower. By the way this fine native plant, of which there are scores of acres in the Phœnix Park at Dublin, is not at all sufficiently used in the London Parks.

The great central avenue or broad walk, as it is called, is unquestionably the centre of attraction, as well as the chief artery of the Regent's Park. It is one of the finest features in any known park, and only wants continuing across Park Square and Crescent to the end of Portland Place to open up a combination of street, garden, and park scenery, which could not fail to gratify even the "intelligent foreigner" used to the best aspects of continental cities and gardens. This must have been contemplated by Nash when he designed the park and terraces, and the most remarkable fact is that so obvious and necessary an improvement has not been long ago carried out. It would be difficult to suggest an improvement of this fine and well-kept avenue excepting in one trivial respect—the gates where it is crossed by the Chester Road are much too narrow, and there is often a perfect jam here on Sundays, when great crowds pass up and down to hear the band and enjoy the promenade. They should be replaced by gates that could be thrown back the whole or nearly the whole breadth of the walk, and without being expensive they might, too, be of a more ornamental character.

Four rows of trees originally ran along each side of this broad walk, from its south end to the drinking fountain. To make way for the geometrical garden designed by Mr. Markham Nesfield, the two central rows on each side as far as the Chester Road were cut away, the greater length of the very agreeable shady avenue remaining intact—I hope to continue so. Thus the garden and shade lovers would both be propitiated; there would be plenty of shade for Sunday or week day promenaders, and gardening for the million at the same time. But the shady grove is old, and the avenue gardens are new and the great novelty of the park at present. As regards position and treatment they are distinct from any other known gardens. The situation has been objected to, but certainly none other could have been found in the park better suited for a geometrical garden. When the entrance is opened into Portland Place they will form a capital gradation from the best and most imposing streets of London to the park scenery to the north. Doubtless many would prefer an opposite style of garden, but where the ground does not invite the "English," "natural," or shall we say anti-geometrical garden—for want of a better name,—it is, unless done well, and at great expense, better let alone. Besides, according to all recognised laws of the subject, a formal garden is the only one that could be tolerated within sight and call of Portland Place. *W. Robinson.*

(To be continued.)

THE SCOTCH FIR—PINUS SYLVESTRIS.

The Scotch Fir is a well-known and highly characteristic tree, not only on account of its timber, but also on account of the extracts which are obtained from it. In Norway and Sweden, where it abounds to a great extent, and also in the forests of Germany, oil of turpentine and pitch are extracted from it, and form prominent articles of commerce. It is amongst the most common, the most hardy, and most useful trees that Britain produces, valuable not only on account of its timber, but also on account of its ornamental appearance, regardless of the soil, situation, and climate where it grows. It is a hardy evergreen, with leaves two in each sheath, from one to two inches long, of a light-green colour, remaining on the tree for two years, which is also the case with the fruit or cones before they reach maturity. These ought to be gathered in November or December, at which time there will be both green and ripe cones on the same tree—the green the produce of the flowers that bloomed in May, the ripe ones the produce of last year.

In our modern artificial forests, the Pinus sylvestris that is now in cultivation, cannot properly speaking be termed the true original indigenous Scotch Fir, but a variety of it; and inferior as a timber tree to the ancient kind. Not only is the older species more majestic, but it is also more rare than the former—in fact nearly extirpated by the constant thinnings and improvements that this country has undergone within the last 100 years. Now, with a very few exceptions, true old Scotch Fir is not found south of the Tay in Scotland. Pines in general all have a conical form. When planted in an open space they are closely set with branches from within a few feet of the ground, forming a very symmetrical pyramid. The original Scotch Fir, when planted closely like the other, prunes itself to within a few yards of the top, and spreads or rather is flattened by the action of the air bearing upon its top, making the latter appear like a "bonnet." The variety always has an upright appearance, and seldom or never wears the bonnet. The bonnet forms one of the chief marks of recognition, as does also the deeply furrowed bark towards the base, the indentures in which get shallower as they ascend the stem, until about halfway up, where the bark is smooth, and yellowish-brown in colour, coming off in scales about the size of a crown piece. It is true that all Pines when planted in an exposed situation have a deeper covering of bark than those that are sheltered, but the Bonnet-headed Fir chiefly wears the thickest coat towards the base. The modern variety has for some time back been largely imported from the Continent, where the seeds are gathered and sent to our nurserymen, who rear them for the use of our forests; hence, in my opinion, the introduction to this country of the inferior variety. There is also another variety of the original called Pinus sylvestris montana, or dwarf Mountain Fir, which some assert to be nothing more than the ordinary variety of Scotch Fir. It is, however, a distinct variety, which can be distinguished from the usual kind by its dwarfer appearance and more loosely set branches. If unpruned, the lower branches are generally as large and as strong as the leading or top shoot, and lie horizontally.

The variegated Scotch Fir (Pinus sylvestris variegata) is another variety which exhibits some of the characteristics of montana. As an ornamental tree it does well where it is not required to be of great magnitude, but merely to be employed for embellishment; it is perfectly hardy, and possesses the same advantage over the climate as sylvestris does. Both it and P. sylvestris globosa are very insignificant timber trees, as they never exceed more than 6 feet in height; they are, however, very ornamental, and well deserve more attention than they at present receive.

It has been asked in your columns, "How or why is it that timber, say of the Scotch Pine, grown in the north of Europe, is of so much greater value than that of the same tree grown further south?" This is a difficult question to answer. As regards climatic influence, if in a hot locality, the sap will circulate quicker than in a cold one, and the wood will grow faster, and thus become soft. On the other hand, if in cold situations the sap will circulate but slowly, but will have a tendency to make the timber more durable. The best timber is grown in a dry sandy soil or loam bordering on clay; in fact, all the kinds of Scotch Fir delight in a dry sandy soil, and they will grow in a very dry situation. The leaves being small and tough give off very little moisture by evaporation, which renders the trees suitable for a dry soil. It is my opinion that the Riga Pine is quite a distinct variety, as is proved by the nature of the Lithuanian and Harcourt soils, which are both alike; moreover, trees transplanted from the Baltic to Harcourt, and planted in similar soil to that which

their southern relations grew in, still retained their superior value. In the plains of Riga, where these trees have been planted by the hand of Nature, they are in general all very old, having long reached maturity, a fact which, taken together with their climatic advantages, renders them superior in durability to their more rapidly-grown relations in the south. *James Grigor, Bedford Nursery, N.W.*

AMHERSTIA NOBILIS.

THIS grand tree, which has come to us from the East Indies, has been known in a living state in this country about 30 years. I believe that for the first plant that reached England alive, we are indebted to Mr. Gibson, now Superintendent at Battersea Park, who succeeded in bringing it from the Botanic Garden at Calcutta to Chatsworth. Although, therefore, not a new plant, yet it still remains exceedingly scarce in our collections. The Amherstia belongs to the Leguminosæ, and perhaps is not equalled in beauty by any of them, if surpassed by any plant in the vegetable world. This family yields us many other fine things, such as the Browneas, Colvilleas, Bauhinias, Erythrinas, Poincianas, Mucunas, Wistarias, &c., all strong-growing plants, either shrubs, creepers, or trees; yet, fine as they are, the Amherstia ranks above them all. The immense pendulous flower racemes, of the richest vermilion and yellow, give it so remarkable an appearance, that when once seen it is not easily forgotten.

The late Mrs. Lawrence, of Ealing Park, was one of its most successful cultivators. The splendid collections of Orchids, Heaths, Azaleas, Stove and Greenhouse plants, that were the objects of universal admiration in the tents at Chiswick and Regent's Park, and for which we were indebted to the skill and love of plants possessed by this indefatigable lady, have never as yet been replaced by the efforts of any one individual. It was at Ealing Park that the Amherstia was seen—if not in all its grandeur, for space did not permit of that, at least showing much of its beauty. At last, however, it became too large for the house that was allotted to it, and the plant was presented to the Royal Botanic Gardens at Kew, where it grew exceedingly well for some years, and flowered beautifully, until the house in which it was planted required repairs, and the Amherstia had to be removed into another, which proved too cold and arid for it, so that it suffered seriously from the removal, and never regained its former health and beauty.

If obtained as a young plant, it should be grown on as fast as possible, by repotting in the spring, and again in the middle of summer, not giving too large a shift at one time. The branches should be tied upright, and when they attain 8 or 10 feet in height, and are of sufficient strength, it should be placed in the position where it is intended to be grown. I should advise a large slate slab for the bottom, say from 4 to 6 feet or more across, depending on the space. A groove should be cut from the centre, so as to form a cross, deeper towards the edges, so as to draw off any stagnant water. The sides of the tub might be made of wood of the size required to give a moderate shift. The depth should be about 2½ feet, and plenty of drainage must be used; the plant in the beginning should be kept well up, as it is sure to sink. By the time it next requires retubbing the sides will not be required so high, and when it requires its final shift I would recommend slate put together with bolts and nuts, as being much more durable, and more easily taken to pieces, should the roots at any time require examination.

The soil should be rich fibrous mellow loam, with plenty of grit or small stones, beaten up together, merely picking out the large rank roots. The plant should be trained on wires, the length-way of the house, about 1½ to 2 feet from the glass. If at any time more shoots are required to fill the wires on the roof, the points of the shoots should be tied downwards to induce the plant to break. This will check the flow of sap, and cause it to break readily.

It is rather impatient of the knife. The branches should be all trained on the wires, as its blossoms are pendulous; if otherwise the beauty of the flowers is lost. It is a plant that roots rather freely if strong cuttings are taken, with a little heel, when they are ripe or about three parts ripe; they should be plunged in strong bottom heat under a glass.

The house in which it is grown should not be too large, as it requires plenty of heat, moisture, and shade to prevent the young leaves from burning. The syringe must be used freely on all occasions when the temperature is high.

This fine plant is worthy of any trouble or expense, and the house in which it was grown would deserve the name of the Amherstia House. The same house would be suitable for growing all moderate-sized Palms, Ferns, and other fine-foliaged plants. *Thomas Brown, Exotic Nursery, Tooting.*

Home Correspondence.

Vines Extraordinary.—An early Vinery at Stoke Park was started in the September of last year. Although this was not out of the ordinary way, forcing having been commenced at a similar time for several previous seasons, yet on this occasion, from some cause or other, the Vines did not show any fruit. I believe it was considered that there was something wrong at the root. In the month of May this season, a fresh border was made outside, and young Vines were introduced. The old Vines being planted inside were pruned, and left to take their chance. A little extra heat was put on to push the newly-planted Vines, when, strange to say, the old Vines broke again regularly all over, and have now, September, a fine crop of Grapes beginning to colour. They are vigorous and healthy, with fine foliage, and the bunches are of a good average size, and in every way resemble a late crop. *F.*

Bulbocodium vernum.—When in Messrs. James Dickson & Son's seed warehouse at Chester I saw your correspondent's note (p. 819) about the difficulty of getting this plant true, or getting it at all, and I immediately asked if it was to be had at Chester. They had it, I was told, "in the nurseries at all events," but having already traversed them, we were obliged to find out Bulbocodium among the "mixed bulbs" lately arrived. There it was sure enough—dark-brown-skinned sturdy bulbs, which could not well be mistaken for anything else. I found it catalogued at 3*s.* per dozen. I have had it cheap enough from London houses; no doubt all respectable bulb-sellers have it; and I am quite sure that in more than one place in Holland it is sold at 5*s.* or 6*s.* per 100, or even less! As before remarked, it is most distinct in colour among small early spring flowers; the handsome buds appeared above ground during the past spring, several weeks before the snow departed, and I have no doubt that if a demand for the plant arises, the Dutch will grow it plentifully for us, and make it as cheap as some of the Crocuses. When the flower is fully expanded it is not nearly so pretty as when the buds are unopened, but one way or other it is most attractive for several weeks in the very dawn of spring, and deserves to rank as a first-class spring bulb. *William Robinson.*——I beg to say that I see by a book of miscellaneous memoranda made in Switzerland that the plant in question is to be found only at or near Branson, near Martigny. The observation of your correspondent that he had received other things under the name of Bulbocodium vernum, reminds me that very early in the spring I found a group of two or three roots of what I supposed to be Bulbocodium, but which I have since thought might have been unseasonably flowering plants of Colchicum autumnale. I saw plants of the true Bulbocodium in flower in spring on the same day on which they were gathered at Branson. There is a Mr. Thomas, son of a Swiss botanist, living at Devens, near Bix, in the valley of the Upper Rhone, who supplies seeds and plants of all the choice Swiss plants. Doubtless the Bulbocodium might be procured of him by any one travelling in that direction. *J. H. Maw, Broseley.*

Large Peaches.—Last week I gathered from a tree very heavily laden with fine fruit, a Peach measuring 11⅛ inches in circumference, and weighing 10 oz. The roots of the tree in question have been continually chopped by digging the border in the regular order of cropping, a circumstance which places it on quite a different footing from that at Lambton Castle, which is growing in a turfed border, and from which (see p. 772) Mr. Stevenson also gathered a large Peach. *W. Umney, Gardener to C. Buxton, Esq., M.P., Fox Warren, Cobham, Surrey.*

Odontoglossum citrosmum roseum.—My attention has been directed to a remark in your last paper (p. 847), to the effect that the flowers of this Odontoglossum, figured by me in Mr. Warner's work on Orchids, were too highly coloured. In justice to myself and to that work, allow me to say that the colours were carefully copied from a specimen sent me by Mr. Warner from his collection, and if the colours were more intense than usual it was Nature's fault—not mine. *W. H. Fitch, Clayton House, Kew.*

Evergreen Oaks.—Can any of your correspondents tell me if the following evergreen Oaks, mentioned in the catalogue of Messrs. Osborn & Sons, Fulham, are sufficiently hardy and suitable for planting as single specimens in parks, viz., Quercus sclerophylla, Q. glabra *Thunb.* (*Gardeners' Chronicle*, 1843, p. 911), Q. glauca *Thunb.*, Q. serrata *Thunb.*, and Q. sideroxyla *Humb. and Bonp.*? This place is about 500 feet above the level of the sea, and is much exposed, especially to N.W. winds. In the winter of 1860-1 the shrubs here were much less injured than they were in Manchester, where I reside, or even in low places only a few miles off. The Common and Portugal Laurels were not hurt, nor was the Aucuba japonica, but this last was in a sheltered situation; Laurus nobilis (one of which has now been planted about 25 years, and is 8 feet 4 inches in height, and about the same in diameter) lost the tips of their shoots to the length of 3 or 4 inches; Laurustinus were killed to the ground. The Gum Cistus has been killed in milder winters. On referring to your back volumes I see that two Q. sclerophylla were killed down at Bicton, in Devon, in the winter of 1853-4 (1854, p. 502), when the lowest temperature was + 15° (p. 437). It was also killed to the ground at Biddulph Grange, Staffordshire, in the same winter (1854, p. 341). At Bagshot it was injured in 1853-4 (1854, p. 358), and killed back to the old wood in 1860-1 (1861, p. 146), when the lowest temperature was zero (p. 47). Mr. Standish tells me that the lowest temperature in his nursery was + 3° in 1860-1, and + 2° in 1859-60). At Abbotsbury, Dorset, it was not hurt in 1860-1 (1861, p. 698). Quercus glabra was killed at the Golden Acres Nursery, Edinburgh, in the winter of 1852-3 (1853, p. 279). At Hafodunos, Denbighshire, it was not injured in 1852-3, lowest temperature − 19° (1853, p. 261); "all but perished" in 1853-4 (1854, p. 614); and was not hurt in 1859-60 (1860, p. 386). It was also uninjured in 1852-3, at Biddulph Grange (1853, p. 293); at Turnham Green (1853, p. 215); and at Vinstone, near Plymouth (1853, p. 278). In 1853-4, it was not injured at Bagshot (1854, p. 358); and at Bicton (1854, p. 502), lowest temperature + 15° (p. 437), where the plant was 8 feet high and 8 feet wide. In 1860-61 it did not suffer at Kew (1861, p. 830), where Dr. Hooker tells me that the lowest temperature was + 7°; at Abbotsbury, Dorset (1861, p. 698, see also 1859, p. 949); and at Bishopstowe, Torquay (1861, p. 434), where Mr. Garland, the gardener, informs me that the lowest temperature was + 13°. Mr. Standish, in his "Practical Hints on Planting Ornamental Trees," states that in the autumn of 1851 there was a fine specimen of Q. glabra, three feet high, at Holkar Hall, near Lancaster. I think from the above accounts that the three Japan Oaks would withstand the frosts here at least as well as the Bay, though they might be injured by wind; but it is very doubtful if Q. sclerophylla would be hardy enough. Loudon, in the "Arboretum," Vol. III., p. 1943, says that Q. sideroxyla grows "in dry and arid places." I think of planting it in a dry and stony gravel. Have any of the Himalayan Oaks mentioned in Loudon's "Arboretum," p. 1933 (Bohn's edition), been introduced, and are they likely to be hardy? A short time ago (p. 792) you recommended the Japan Maples to be extensively propagated; there is here a small plant of Mr. Veitch's Acer japonicum polymorphum, apparently raised from a cutting; would they not make much larger trees if grafted on the Sycamore? *Charles Palmer, Stewkley Grange, near Leighton Buzzard, Bucks.*

New Strawberries.—Fragarians, like Rosarians, look with anxiety for novelties. Strawberry raising is a very interesting occupation; but it is also a very heartless one. Mr. Rivers told me, that out of the thousands of seedlings which he had raised, he only "gained" two really good ones, viz., Eliza and the Royal Hautbois. The case is much the same with seedling Roses. I have a list of Strawberries to be sent out by Mons. F. Gloede, aux Sablons, Moret-sur-Loing, France. Of those marked thus (*) portraits have been made. 1. Boule d'Or (Boisselot): fruit large, sometimes enormous, roundish or cockscomb, bright glossy orange in colour, seeds projecting; flesh white, buttery, melting, very sweet and highly flavoured. Plant very hardy and of robust habit, bearing well and ripening at the medium season. Perhaps the handsomest Strawberry raised. 2. Carniola magna* (de Jonghe): splendid fruit of large size, oval, colour bright glossy vermilion, seeds prominent; flesh solid, pink, hollow at the core, juicy, melting, sweet, and with a pleasant aroma. Plant very hardy and a great bearer. 3. La Mauresque (de Jonghe): fruit of medium size, oval or conical, dark red, nearly black when fully ripe, seeds projecting; flesh blood-red, solid, juicy, very sweet, with a rich Hautbois flavour, Plant exceedingly hardy, and a good successional bearer. 4. Sir Harry Orange (Makoy): this fine Strawberry resembles somewhat the famous Sir Harry, except in colour, which is of a beautiful golden orange. The flavour is exquisite and unrivalled. Extremely recommended. 5. Topsy* (de Jonghe): fruit medium-sized, and of pretty appearance; colour bright orange, seeds projecting; flesh pale red, solid, juicy, sweet and delicious in flavour. Plant very hardy and prolific, ripening at the medium season. 6. La Vineuse de Nantes* (Boisselot): fruit of fair size, oval or flattened, bright glossy crimson, seeds projecting; flesh red, solid, juicy, sweet with a brisk delicious aroma. These appear by description to be the six best. No. 6 I have had for several years. It is like its portrait, and is one of the very best foreign sorts, taken at all points, that has ever been here. It is of Chili descent. Its description is quite true. This year I lost my crop totally. Though a stalwart plant it threw all its beautiful snow-flaked tresses above its foliage, and the Siberian hoar frosts cut them up. It is a quick runner, of quick establishment, and the plant is extra hardy and healthy. I recommended it in a previous article. Strawberries that expose their blossoms are precarious croppers in valleys. They are best for high situations. Spring frosts do me more mischief than winter frosts. Observe, nothing is said of the plant or cropping of No. 4. No. 2 is the best for shape. No. 1 is too flat at the apex, but appears to be a fine Strawberry. *W. F. Radclyffe, Tarrant Rushton.*

Peaches and Nectarines from Standards.—I have sent you three sorts of Peaches, and three of Nectarines, grown on my bush trees in the open ground, without any protection whatever. They produce large crops, which make a good succession to earlier ripened fruit. *Josiah Illman, Strood, Kent.* [Both Nectarines and Peaches were good in flavour and appearance, but their size was not equal to that of fruit of the same sorts grown on wall-trees.]——A few years ago I found a young Peach tree growing here, evidently from a stone which had fallen from a neighbouring tree. I transplanted it into an open space in my kitchen garden, where it is now a healthy shrub about 10 feet high. I have to-day counted 111 fine fruit upon it, some of which being already ripe have been tasted, and found to be of an extremely good flavour, although it has

never been grafted, and grows on the north side of a wall which is about four yards from it. *Ed. Ansley Peck, Houghton Rectory, near Huntingdon.*

Planting Peat Land.—Apart from the direct pecuniary profits derived from judiciously executed plantations on our otherwise valueless mountainous districts, and well prepared peat bogs, the thinnings of those made some 25 or 45 years ago, now selling for importation to Wales and other places, as "pitwood," are paying more than the fee simple of the land at 25 years' purchase in its original state, and from 10 to 20 per cent. interest on the capital expended in making and looking after such plantations; besides having by shelter and shade rendered the lands which are beside and otherwise contiguous to them fully double their original value, whether for Grass or tillage. Strange however, to say, we have hundreds of thousands of acres of such lands in Ireland now comparatively waste, which in 40 or 50 years at farthest might be made worth millions to the present owner or his descendants. In the County Mayo especially plantations are far too few, notwithstanding the many favourable sites for them, both on mountains and in deep bogs. There are however other properties which I could notice, with whose condition I am intimately acquainted. On the boggy lands belonging to the Earl of Arran, at and around Ballina, nearly every variety of hardy Pine thrives amazingly. In many places the Scotch Fir and some of the Spruces shed their seeds, and produce plants, as it were, indigenously; and in other parts of the kingdom on dry barren lands the Larch performs the same office. Among the most extraordinary things I have seen or read of, I have lately discovered in the centre of a wood, on a deeply drained and partially gravelled bog on Lord Arran's property—it relates to Rhododendrons. A few years ago a few plants of R. ponticum were planted in this open space, and such was the rapidity of their growth, and the precocity of their habit, that although when planted out they were small plants, set at from 4 to 6 feet apart, they now occupy the whole ground, except where occasionally removed to other places as underwood, and the spaces thus cleared became studded over with myriads of seedlings, whose rapidity of growth would astonish any one not previously acquainted with it. These seedlings are being encouraged by transplantation and otherwise, and in a year or two more there will be an adequate supply of Rhododendrons to form underwood in some 600 or 700 acres of woods. Wherever the spare plants were planted out as underwood their growth is truly astonishing. The Superintendent, Mr. Warde, has lately introduced some of the more rare and less hardy Rhododendrons to such places, and they are thriving with equal rapidity. In this locality I found several Fuchsias growing most luxuriantly, flowering continuously during the summer and autumn, and they are now full of ripe seeds. In one case I found one such plant covering a space of nearly 40 feet square, and this was at an elevation of about 1000 feet above the sea, on the side of the celebrated Mount Nephin, the highest mountain in Connaught. I may add, that I have found the Aucuba an excellent underwood in such places, and the Silver Fir, when headed down, is still better and cheaper. And speaking of this fine Fir, I have found old trees of it on high but by their branches shaded soils, to produce seedlings in abundance. Many of these young plants I have taken up, and without more ado planted them out successfully as underwood. *Edward Carroll, College Hotel, Dublin.*

The White Nice and Syrian Grapes.—In your account at p. 841 of the recent Edinburgh Fruit Show, you state that Mr. Fowler, at Castle Kennedy, took the lead in Grapes with a bunch of the Syrian, weighing 12 lb. 9½ oz.; and I understand Dr. Hogg also thought this Grape the Syrian. Mr. Fowler calls it the White Nice; and it is generally so-called in Scotland. As some confusion has arisen in regard to these two names, I beg to call the attention of the pomologists in England to it, in the hope that it may be cleared up. I remember seeing Mr. Fowler's Grape so long ago as 1817, growing abundantly on aged Vines, and called the White Nice, at Vallyfield, the seat of the late Sir Robert Preston. Previous to that date I had become acquainted with the Syrian Grape in an old Vinery at Hopetoun House, which was probably planted before 1790. I have often seen the two Grapes under their respective names; and I have reason to know that the Syrian, as I first learned it, is still sold as such in some of the Edinburgh nurseries. The two varieties both grow to a great size in bunches, and when ripe are of a whitish or pale amber colour; but in other respects are extremely different, and ought not to be confounded. We are too apt to be tenacious of local names. It is worthy of remark, however, that the descriptions in the London Horticultural Society's Fruit Catalogue (1842), and in Dr. Hogg's "Pomology," 1st edition, are more accurately descriptive of the respective fruits under the Scotch nomenclature, than when the names are reversed. Miller and Speechly were the great authorities in Grapes in the beginning of the century. Speechly, it is well known, grew the Syrian to a vast size. It would be interesting to know whether the Vineries or traditions at Welbeck throw any light on this question. *J. S.* [This is a question which requires to be cleared up, the confusion between the two sorts being, we believe, very general. We shall be glad to learn what other correspondents have to say on the question raised by our highly esteemed correspondent.]

Wax Modelling.—In answer to your inquiry (see p. 848) as to books on this subject, I beg to state that perhaps the article "Wax Modelling" in the second volume of the First Supplement to the Penny Cyclopædia might give the desired information. The process is described at much length for anatomical models (which is nearly the same as for fruits) in the latter part of the article, with a description of the slight difference requisite for fruit, and the manner of making wax flowers is also mentioned; at the end of the article on "Modelling," in the same volume, are a few lines about modelling tools, and the composition of modelling wax. *E. O., Chepstow.*

Wood ashes.—Can any of your correspondents give me information as to the benefit, or otherwise, of wood ashes in mixing with soil to be used in transplanting Conifers, and the proportion to be used in a loamy sand entirely free from lime. *G. H. B.*

Societies.

Glasgow and West of Scotland Horticultural: *Sept.* 13.—This, the last show of the season, was held as usual in the City Hall and adjoining rooms. As a mixed show of flowers, fruit, and vegetables, it was one of the best ever held in Glasgow—there being 1100 entries in all the departments. The plants in pots exhibited by Mr. D. Mitchell, Hamilton Palace; W. Paterson, Esq., Ashville, Patrick; Mr. Clark, Botanic Garden; and — Todd, Esq., of Patrick, were very creditable at this late season of the year. Mr. Mitchell was the most successful in flowering specimens, with a fine plant of Bougainvillæa glabra, Ixora coccinea, Erica M'Nabiana, a fine Odontoglossum grande with six spikes of bloom, and a very handsome Vinca alba grown in the way of a pyramid, which looked exceedingly neat as a plant, and was full of bloom. Mr. James Kirk, gr. to Mr. Paterson, had a fine Lapageria rosea, a very good variety of Lilium auratum with five fully expanded blooms, and a nice plant of the all but forgotten but lovely Torenia asiatica. From the garden of Mr. Todd also came some good specimens, especially in foliage plants, which took a first position. In the Botanic Garden collection, which was sent merely for exhibition purposes, were a good Philodendron pertusum, Pleroma elegans, Colocasia antiquorum, with fine large esculentum-like foliage, supported on a pale-green stem; the chaste and graceful Pandanus graminifolius, the pretty Coccoloba platyclada, Cephalotus follicularis, Miltonia Clowesii, and several good Ferns.

Among Orchids and new plants Mr. Paterson contributed a very nice assortment, including a seedling Cattleya, in the way of Mr. Veitch's C. Brabantiæ; Phalænopsis cornu-cervi, so named from the staghorn-form of the flower-stem; the pretty long-bulbed and scarlet-flowered Sophronitis grandidora; Vanda Roxburghii, Epidendrum prismatocarpum, and some others. Mr. Mitchell had Maranta Van den Heckii, a very graceful and interesting addition to this class of plants; Anthurium magnificum, having fine large green foliage with white veins; and Alocasia longiloba, a dwarfer-growing species than zebrina, with an equally beautiful marbled stem.

Foliage plants were contributed in considerable numbers. Philodendron pertusum, Dasylirion glaucum, Cordyline indivisa, and Alocasia Veitchii, of Mr. Mitchell's, being fine plants; while Mr. Paterson's Sphærogyne latifolia and Aralia pulchra were equally praiseworthy.

Not the least interesting feature in the exhibition was a lot of from eight to ten devices of different design, all of them very much superior to what one is in the habit of seeing, and causing probably more lounging on the part of the public than anything else. The 1st prize one, from Mr. Alexander Macallum, was a most artistic design, remarkable both for the idea, and the manner in which it was decorated. It was Gothic, with a square foundation, and four square buttresses planted in each corner, thatched with the leaves of Tradescantia zebrina—a capital hit—and decorated in various ways with the flowers of Everlastings pasted on, while from this square eight columns in the form of an octagon supported the very handsome spire, relieved at the haunches with abutments; the whole being decorated with green Moss, flowers of Sweet Peas, and other things of the most simple and unpretending character.

Florists' flowers were numerous, and probably on the whole fully better represented than we have seen them hitherto. Dahlias took precedence, Messrs. Downie & Co. with their gorgeous stands eclipsing everything else exhibited. Mr. Paton, Patrick and George White, Paisley, as nurserymen, also had fine stands. The gardeners were scarcely behind the nurserymen in point of excellence, especially Mr. Vair, gr., Gogar Bank; Mr. Gibson, Fairhill, Hamilton; and Mr. Eadie, an enterprising amateur from the Albert Allotment Gardens. Chief among the sorts were Baron Taunton, which was the finest bloom in the room among at least 600—then Charlotte Dorling, Miss Henshaw, Lord Derby, Criterion, Anna Keynes, Willie Austin, Mrs. Wyndham, Jennie Austin, Beauty of Hilperton, General Jackson, Delicata, Lady L. Herbert, Excelsior, Leah, Hugh Miller, Impérial, Princess Alice, Scarlet Gem, Golden Gem, Cornet, Cygnet, Bellona, and Mauve Queen; George Wheeler, a very distinct mauve; Stella Colas, Princess Alice, Favourite, Cygnet; Delicata, a charming novelty; and Lady Maude Herbert. It would really be a difficult work to eclipse these sorts. Fancies were a good exhibition, especially Norah Creina, Angelina, Regularity, Ebor, Queen Mab, Pauline, Startler, Hercules, Patens, Sam Bartlett, Octoroon, Mrs. Joy, Unique, Queen of Sports, John Salter, Garibaldi, Formidable, Stafford's Gem, Mrs. Reid, Prospero, Prince of Wales, and Reliance.

Gladioli were brilliant, some of the sorts being most chaste, beautiful, and finely formed, such as Madame Basseville, Madame Landevoisin, Madame de Vatry, Hélène, James Veitch, Mazeppa, Napoleon III. still an effective sort, Le Poussin, and Velleda.

The cut flowers of Annuals were quite a show of themselves—the Globe Amaranths, Clarkias, Scabious, Phlox Drummondii, Linum grandiflorum, Calandrinia discolor, white and purple Malvas, and many other things put up in nice bouquets were quite beautiful. Herbaceous Cut Flowers were also effective in the make up of this exhibition, chief among which was Achillea Eupatoria, Veronica corymbosa, Chrysocoma Linosyris, Crucianella stylosa, Tritoma Uvaria, Delphinium Barlowii, Dracocephalum speciosum, Sedum Fabaria, Statice latifolia, Rudbeckia Neumanni, Anemone japonica, Lythrum spicatum, Valeriana rubra, Lychnis dioica alba flore-pleno, Phloxes of sorts, Gladiolus, and even Lilium lancifolium, which is said to be hardy in the far west of Scotland.

Hollyhocks were rather past their best, still Mr. Glass, gardener, View Park, and Mr. Charles McIntosh, gr. to the Earl of Morton, Dalmahoy, had good spikes and cut blooms. The best were George Keith, Lord Clifden, Vanguard, Invincible, Mammon, Mrs. Adair, Wm. Blackwood, Lord Rokeby, Queen Victoria, Queen, Beauty of Mitford, Jaune d'Or, Countess Craven, and Princess.

Pansies were not up to the usual style of excellence, but we noticed fine blooms of Lizzie, Miss E. Cochrane, Rev. H. Dombrain, Wallace, Countess of Rosslyn, Perfection, Princess Mary, W. B. Speirs, Alex. M'Nab, Charles Waterer, Mrs. Laird, Miss Williamson, James Dalzell, Invincible, C. W. Ramsay, Cupid, Mrs. Muirhead, Miriam, Yellow Model, Lady L. Dundas, and the Rev. T. Findlay, for which a Certificate was awarded to James Gibson, Fairhill.

Roses were a much better exhibition than at Edinburgh the week previous, good blooms of Triomphe de Rennes, Adam, Devoniensis, Clara Sylvain, Souvenir d'un Ami, Moiré, Victor Verdier, Madame C. Crapelet, Julie Mansais, and others being shown.

Fruit was a fair exhibition, the best by far being exhibited by Mr. J. Colquhoun, of Argyll Arcade, who had a table which, whether we regard it for the artistic manner in which the fruit was set up, or the individual samples, was unique. All the fine Grapes of Mr. Meredith shown at Edinburgh were there, with about a dozen Pines of good size, wonderfully fine Peaches and Nectarines, immense Pears, of which Duchesse d'Angoulême, Beurré Diel, and Bon Cœur were the best; equally fine Apples, including Emperor Alexander La Gloire du Monde, King Pippin, and Prince Pippin, with samples of most other sorts to be had in the market. Baskets of fruit were well shown, but are not so effective as fruit arranged on stands such as Mr. Thomson had at the Assembly Rooms, Edinburgh. Mr. Mitchell was 1st, and Mr. Johnson, Terregles, 2d, the latter having the largest number, but rather injured in transit. Pines were well represented, Mr. Peacock, Castle Dykes, being placed 1st with two good Queens, although Mr. Johnson had much larger fruit, weighing respectively 5 lb. and 4 lb. 7 oz., but not fully ripe. Grapes were feeble in comparison to the Edinburgh collection, although Mr. Henderson, Castle Wemyss, had a very excellent case, containing four sorts, two bunches each, of Black Hamburgh, Muscat, Lady Downes', and Golden Hamburgh, the berries of the latter sort beginning to give way, as it always does, when fully ripe. Mr. McConochie, Cameron House, was 2d, with Hamburghs, Muscats, Black Prince, and Frontignans. Mr. Williams, of Holloway, gave the 1st prize of 10*l.* for this lot, and the Society the 2d of 5*l.*; it certainly was an easy victory. In Black, Mr. Cassels, gr. to J. W. Deans, Esq., Kilmarnock, was 1st, and Mr Mitchell, Hamilton, 2d; while in Muscats Mr. Henderson was 1st, the other competitors being nowhere in comparison, for fine finish.

Peaches were a very remarkable exhibition, especially those coming from Mr. Campbell, gr. to — Nozier, Esq., of Mauldesie Castle, who had Late Admirable, weighing in one example 13 oz. and the six in the aggregate weighed 4 lb. 9 oz. Mr. Halliday, gr. to the Earl of Mansfield, Scone Palace, had a very fine Barrington and Royal George, and also orchard-fruit grown in an iron house, of the Salway Peach in pots full of fruit, but yet unripe. Mr. Mitchell had also good Barringtons.

Pears, Apples, and Plums were fairly represented, but those shown so recently at Edinburgh were so much superior that we need not particularise.

Vegetables were also a large and a good exhibition, and as a whole very creditable to the growers.

The Show was attended during the day by a very numerous company, which were brought together not only from Glasgow but from all parts, an arrangement having been made with the several railway companies

for reduced fares to parties visiting the Show. Much credit is due to the Directors and the indefatigable Secretary, Mr. Hugh Campbell, for their exertions in promoting the cause of horticulture so well.

Notices of Books.

British Conchology: or an Account of the Mollusca which now inhabit the British Isles and the Surrounding Seas. Vol. III. Marine Shells, comprising the remaining Conchifera, the Solenoconchia and Gasteropoda, as far as Littorina. By J. Gwyn Jeffreys, F.R.S., &c. 8vo, pp. 394, tab. ix.

This is a third and most welcome instalment of a very valuable work, which we have already had occasion to notice in warm terms of approbation. It contains a good deal of popular as well as scientific matter, some of which is quite worthy of transcription.

The volume is divided into two parts, the first of which, containing notices of the remaining Conchifera, comprises several approved articles of food, at least articles which, though not of general use, are locally appreciated.

The Solens, or Razor-shells, were formerly in great request, and were eaten boiled or fried, though, according to some, the best way is to roast them on a wood fire till they gape. They usually burrow in sand at the verge of low water mark, not perpendicularly, but in a slanting direction, at an angle of about 30°. "A Solen hunt requires considerable alertness, for if you cannot approach near enough to catch them when partly exposed to view—and this is not easy, their muscular strength being, in proportion to their size, far greater than that of man,—and you delve with your hands after them, they will probably beat you in the race. The stake is much more important to them than to you, and it calls for all their energies. Fishermen entice them out of their holes by a pinch of salt, making (as they say) the razor-fish believe that the tide is coming in. Reaumur, however, considered that the salt irritates them, and causes a painful prickly sensation in the mantle, which induces them to rise to the surface, and endeavour to get rid of the annoyance by expelling the salt backwards. He also noticed the blind instinct which the Solen has when taken out of his hole, and held between the fingers in the open air, suspended vertically; it protrudes its foot several times in succession, as if it were in the act of burrowing into its native sands. The account given by Poli of Solen-fishing is curious. He tells us that the lurking-place of the Solen is betrayed by a hole in the sand agreeing in shape with the apertures of its tubes or siphons. Where the water is shallow the fisherman sprinkles some oil on the surface in order to see these marks more clearly. He then steadies himself by leaning on a staff with his left hand, and feels for the Solen with his naked right foot. This he catches and holds between his big toe and the next; but although his toes are protected by linen bands, the struggles of the Solen to escape are so violent and the shell so sharp that very often a severe wound is inflicted by it."

More than one species is still sold in foreign markets, but the yellowish brown S. vagina is acrid, and not esteemed so much as the greenish S. siliqua.

Mya arenaria is another littoral species which sometimes occurs in immense quantities, as on the muddy sands near Dunstaffnage Castle. It is eaten in many parts of the world, and is collected largely as bait. "Five thousand bushels are annually brought to Boston market (U.S.) as food for man, and much more than 10 times that quantity is salted and used as bait for fish. It forms one of the numerous articles of Chinese diet, being brought to market after being boiled for a long time, and cooked with a seasoning of which Onion is the base."

Mya truncata, which often occurs in the same locality, is also admired for its rich flavour. It often occurs in a fossil state, and "is dug up in such quantities on a farm near the Crinan Canal as to be carted and used for manure. At Lochgilphead the leathery siphon is preserved in the clay filling the interior of the shell."

One of our rarest and largest shells is the magnificent Saxicava norvegica, which is occasionally fished up on the eastern coasts. It is used for various purposes by the fishermen, who, however, now find that from its rarity it commands a ready sale with the shell dealers. "The long-line fishermen every now and then capture living specimens by means of their hooks becoming fixed in the tough leathery sheaths of these enormous Saxicavæ, and they thus increase not a little their precarious earnings." A specimen now in the collection of Mr. Bean was kept alive for some time, to the amusement of many, from its faculty of squirting water to the ceiling.

Some pages are, of course, devoted to the question how the Pholades manage to excavate holes in substances of such a different chemical constitution and texture as clay, peat, chalk, limestone, sandstone, &c. Mr. Jeffreys is satisfied that it is done principally by the foot, the action being simply mechanical. Pholas dactylus is much eaten in France and served at the best tables, though it is little in request in this country except as bait. It is occasionally, like some of the Solens, luminous, but probably from the accidental presence of minute phosphorescent animals.

No part of the volume is more interesting than that which relates to the Ship-worms. If the notion is right that the appendages of Pholadidæ are the homologues of the pallets in Teredines, we cannot help thinking, if we take into consideration the close resemblance of the shell of Xylophaga to that of Teredo, that the mere presence of a calcareous tube in the latter is not a sufficient reason for placing them in distinct families. This however is mere matter of opinion; the ravages which they commit on wooden structures exposed to salt water are too notorious facts. It is most desirable that the habits of these creatures should be thoroughly investigated with a view to palliating the evil. They one year destroyed Government works at Plymouth and Devonport alone to the amount of 8000*l*. "In 1860 it was proposed by a Committee of the British Association" (of which our author was the Chairman) "to have certain experiments made in the dockyard at Plymouth with a view to prevent the further destruction by the Teredo of Government timber, which had cost the country a considerable sum every year. A small grant had been voted by the Association for such purposes. Permission to have these experiments made was asked through the Port Admiral, Sir Thos. Pasley, who expressed his entire approval, but forwarded the application to the Admiralty. It is scarcely credible that no answer was received for nearly a month, and that then came a simple refusal, without any reason given for it."

Whoever has read the evidence before the Committee on Gunboats will not be surprised at the result of the application. "Great Britain," says our author, "unlike other States, "does not count a single naturalist in her national assembly; and the Government will not, unless urged by popular pressure, take the initiative, or even forward any plan of public improvement which is out of the regular groove of routine."

We must, however, pass on to the second part of the volume.

It will surprise many of our readers to find that Mr. Jeffreys pronounces the common limpet to be excellent food when roasted, and we need no longer expend so much pity on the Irish because in time of famine they have had recourse to limpets, especially as it is notorious that at the time when they devoured these mollusca the finest fish were frequently rejected as food.

"Roasted limpets," says our author, "are capital eating. A few years ago I was a guest at a dinner party in the little island of Herm. This consisted of fine limpets, laid in their usual position, and cooked by being covered with a heap of straw, which had been set on fire about 20 minutes before dinner. There was also bread and butter. The company were a farmer, two labourers, a sheep-dog, the late Dr. Lukis, and myself. We squatted round the smouldering heap, and left on the board a couple of hundred of empty shells. The limpet used to be eaten by the Faroese, and in Ireland and the north of England the consumption was prodigious between 20 and 30 years ago, according to the accounts furnished by Mr. Patterson and the late Dr. Johnston. The former estimated that 11¼ tons of boiled limpets were sold in one season about Larne, county Antrim; and the latter states that nearly 12 millions had been collected yearly on the coast of Berwickshire, until the supply was almost exhausted. These quantities were exclusive of what were collected to feed the pigs and poultry. The Shetlanders are either more fastidious or prefer real fish; they will not even eat an oyster. Some of the Orkneymen seem to be imbued with a similar prejudice; for we find in the life of Sir Walter Scott that the "inhabitants of the rest of the Orcades despise those of Swona for eating limpets, as being the last of human meannesses."

The beautiful sea-ears adhere to the rocks like limpets, and form an article of food where they are abundant. They require however a great deal of stewing to make them tender. The shells were formerly in great request for button making, one merchant alone taking from 4 to 9 tons annually, but the sale is now much impaired by the importation of the true mother-of-pearl shells.

The volume closes with an account of the Littorinæ, one species of which furnishes the periwinkles, which are so popular in London amongst the poorer classes. The consumption is quite enormous. The quality varies extremely, the larger ones bearing the greater prices. Many curious details will be found in Mayhew's "London Labour." The collection of them employs very many hands in the North.

"The supply is about 2000 bushels per week for six months, from March until August inclusive, and about 500 bushels per week for the remaining six months. The number of persons employed in gathering is at least 1000 (chiefly women and children) and quite as many more in selling. The best gathering grounds are the coasts of Scotland, Orkneys, Shetland, and Ireland. The trade price varies from 2*s*. to 8*s*. per bushel of 8 gallons heaped measure. When the supply is greater than the demand, Messrs. Baxter" (who furnished Mr. Jeffreys with the particulars) "now and then send their surplus stock to Southend, and have it laid on ground of theirs between tide marks; but the cost of carriage and of gathering the stock and bringing it again to market is considerable, and it is often cheaper to throw away what is unsaleable."

We must, however, close our extracts from this interesting work, which we can recommend cordially to scientific and unscientific readers. As regards the former, they cannot but admire the immense pains which the author has taken to arrive at a just appreciation of species, or the judgment which he has displayed.

The Apiary.

THE latter part of the present summer has been a very extraordinary one as regards the supply of FOOD AVAILABLE FOR BEES. Notwithstanding the extended period of unusually fine weather with which we have been favoured, it has been a matter of very common remark that since about the 20th of June there has been a very limited secretion of honey in the flowers; comb building was almost entirely discontinued, and honey ceased to be stored soon after the above date. Some supers very visibly diminished in weight, and a few of the late swarms, at any rate in the south of England, actually succumbed to starvation. Fortunately the secretion of honey during the month of May and June was almost unprecedentedly large, so that the majority of swarms, as well as of stock hives, were enabled to store up a sufficient supply of food for the coming winter. There has seldom been a season in which the importance of strongly populated colonies at the commencement of the season has been more clearly demonstrated than in this one which has nearly passed away. The period of the honey harvest was so early, and so limited in duration, that none but tolerably strong stocks were enabled to take full advantage of it, so as to be remunerative to their owners in the filling of supers. The swarms which issued in May and the early part of June very rapidly filled their hives, and from some of them supers of large size have been taken. Not so, however, with respect to those which arrived after the 15th of the latter month; these have barely been able to exist at all, and very many of them will have no chance of surviving the coming winter, unless liberally supplied with food. To those who have more than one of such swarms we would recommend the union of two of them, followed by liberal feeding, as soon as possible, so as to induce the bees to add a little to their combs, as well as to store and seal a sufficient supply for their requirements. As a general rule we prefer following this plan to the one usually recommended, of uniting such poorly provided swarms to strong or old established stocks. We have frequently found that a colony composed of two weak swarms, and sufficiently supplied with food, forms a very remunerative hive the following season. The feeding induces to late breeding, and these late-bred bees live on far into the spring, keeping up a large population until the spring-bred bees become strong in numbers. Early swarms may usually be expected, or if a good and early honey season should occur, the bees are enabled to take prompt advantage of it.

The food we prefer for autumnal feeding is composed of 6 lb. of loaf sugar, 4 lb. of water, and 1 lb. of honey clear run from the combs. The sugar and water are boiled together for about five minutes after the boiling heat has been reached; when removed from the fire the honey is added, and stirred in while the liquid is hot. The food must be allowed to cool before it is given. The addition of honey makes the food particularly palatable to the bees. They will frequently take down from a well constructed feeder, many pounds in the course of a single night.

When the object aimed at is the supplying of a sufficient quantity of food to a hive already well filled with combs, it is desirable that it be administered as speedily as is consistent with safety from the attacks of robbers; that is to say, as much may be given each evening as can be taken down by the bees during the night, and continued until the hive is made up to a proper weight.

On the contrary, if the hive is deficient in combs, a smaller portion of food may be supplied on each occasion, and the feeding be continued for a much longer period. The hive should be weighed both before and after, and no reliance be placed on the actual amount of food to which it has been treated.

The bottle-feeder is the one most to be recommended. An ordinary pickle-bottle is filled with the liquid; the mouth is covered with very fine net, or coarse straining cloth; a piece of perforated zinc is placed over the hole in the hive, and the bottle inverted over it. If properly done, not a drop will escape into the hive, although the bees are enabled to take down the liquid very rapidly. A smaller sort of bottle may be used for feeding of a more limited character in autumn and in spring. All feeders should be closely covered over so as to wood, as much as possible, attracting the attention of robber bees. If thus protected, it is not necessary that the bottles should be removed every morning. It is well, however, to contract the entrances of all hives that are being fed, which will enable the bees more effectually to repel invaders.

Bees and Fruit.—Mr. E. Bennett, of Osberton, Worksop, mentions (see p. 846) as an unusual circumstance that his Apricots have nearly been devoured by hive bees, and asks if any of your correspondents have suffered from a similar attack. I beg to state for his information that my Peaches, especially the over-ripe ones on the ground, have been for the last week black with bees; the Apricot crop was over before these industrious little creatures commenced their operations

on the Peaches. I have not noticed a similar fact in any former year, although the temptation on the Peach walls was not wanting, and I attribute the evil this season to the scarcity of wasps. In former years I have been obliged to hang bottles of beer and sugar on the trees, to protect the fruit from being devoured by multitudes of wasps and large flies; no doubt the bees have discovered the absence of their enemies, and have taken the fullest advantage of it. A few very warm days here in the early spring brought out a number of queen wasps before the usual period, which must for the most part have been destroyed by frost or other causes before they laid their eggs. *A Subscriber, Dublin.*——Like Mr. Bennett, I have this season been much annoyed by bees, which have been almost as destructive to fruit as wasps were last year. With us they began with Gooseberries, of which they entirely destroyed several large bushes, and they have attacked all other fruits as fast as they have ripened. I have never been similarly annoyed, though there have always been many bees kept in the neighbourhood; and I have lived in places where they have been kept in the garden, but I have no recollection of fruit being hurt to any extent by them. We have had no wasps here until within the last few days, when a few weakly ones have appeared. Flies have been very numerous, and they have also been very destructive to the fruit. *D. Uphill, Moreton Gardens, Dorchester.*——Peaches and Plums at this place (Apricots being not) have been subject to the attacks of bees this season. We have several bee-hives in the gardens, and always have had, but this is the only season in which bees have destroyed the fruit. If we had had more wasps the bees would have been driven away. When I found one or two bad fruits I cut them into small bits, and placed them all over the trees. The bees eat these in preference to the whole ones, and by adopting this plan I have suffered but little damage from them. *A. North, Holmewood, Tunbridge Wells.*——Bees have made sad havoc with the Peaches at this place; I never before observed bees attacking fruit, but wasps being scarce they have doubtless availed themselves of a luxury they would otherwise have been deprived of, wasps and bees being avowed enemies to each other. I have bottles suspended against the walls containing a mixture of beer and sugar, but very few wasps, bees, or flies, have entered them. When at hand, treacle makes the best trap, using 1 lb. of treacle to 1 quart of boiling water. I have understood that bees often attack fruit on the Continent. *Thos. Ellam, Gardener, North Wales.*

Garden Memoranda.

Royal Gardens, Frogmore.—After reviewing botanic gardens and nurseries, fine plant places, and Alpine establishments, let us go to Frogmore and put what intelligence we can pick up there during a single visit into an article or two of moderate length.

We will first walk through the main range of glass-houses, which is well terminated at its eastern end by a high warm greenhouse, containing a Luculia planted out in loamy soil in the central pit; it has been cut down and is breaking freely. "Does it flower freely?"—"We sometimes cut 100 trusses from it for Christmas!" This would appear to be the way to grow Luculia freely. "Thank you, Mr. Ingram *fils*, this sort of thing suits me exactly, only if it comes too fast, I'll have to write a book on the subject." We pass on into a combination of Pinery and Vinery—Vines over the back passage, and planted in it. These Grapes ripen in March, and get only about six weeks' rest in autumn, when most of the Pines have done fruiting, and the house is cleared for a few weeks to be filled again with fruiting plants. A great number of the Cayenne Pines are planted out; these are in pots, but root freely enough into the bed, which is warmed by hot-water pipes laid among flint stones, with gravel on top, and then leaf-mould and a little loam to about a foot in depth.

In all these houses the front lights are opened readily and simultaneously; so are the back-wall ventilators by turning with a handle a worm, a foot long, attached to a simple apparatus for the purpose. Every second light is also let down by means of slender copper ropes, but the back-wall ventilation is the most particularly efficient, as the ups so easily opened communicate with a chamber in the back wall, fitted with gratings, just above the top of the roof. Thus in winter the houses may be gently ventilated, "no matter how the wind blows."

The sash bars are copper, and hollow to counteract the effect of expansion, &c.; the houses are furnished with slate water tanks with tap over each, and every thing, even the wire ropes, is in quite as good a state as when put up 20 years ago, which is certainly some-thing in favour of metallic houses, &c. And if they are of the right sort, no houses are better adapted for the growth of either plants or fruits. Nothing like the better copper sash bar for admitting the clear light of day. There are small corridors between each two houses, so that you pass along without causing any sudden draught or alteration of temperature, and these are useful for accommodating pot plants or miscellaneous subjects. Sometimes a branch of a fruit tree hanging in the next house is introduced, and as these corridors are not heated, it ripens its fruit a fortnight later than the tree itself. Let us pass on through a Plum-house planted with various kinds, remarking that Denyer's Victoria is considered the best Plum at Frogmore either for in-door or out-door work, useful for preserving or eating; and let us step into a house planted with seedling Peaches and Nectarines raised here, some of them promising kinds. Fruits that have become useless from the attacks of wasps and other causes are collected promiscuously for sowing. A Vinery upwards of 100 feet long changes the scene very agreeably, with its imposing crop of Black Hamburgh, planted inside the house, the roots being allowed to run out. A crop of Kidney Beans is annually raised in early spring on the floor of the house. The Beans are sown in rows, 16 feet long, across the border, and exactly beneath the middle of the sash between each two Vines. This is of course done before the shade of the Vines begins to darken the houses. Strawberries are forced in all these houses: they are placed near the front and near the light on narrow iron stands above the little perforated pipe which runs over and supplies the large evaporating troughs. The iron stands are about 9 feet long and 4 inches in width; they are made of two iron laths, with three crossbits, just the size to place Strawberries, &c., on, neat, and cheap too, for of course wooden ones would have had to be replaced long ere this; and these have only cost a little more than the price of the iron. In a Peach-house we pass, along with old favourites, the new Yellow Peach lately raised here, large in size, of rich flavour, and somewhat like an Apricot in appearance. Others of these early Vineries are also used for getting crops of French Beans; and in the 8th large house passed through there is a heavy crop of Muscats, very late and green, but they are not to be cut till October and November, and there is plenty of heating power to ripen them off then. We now come to the excellent house for the Superintendent, which is very appropriately placed in the centre of the great range. Would that other leading gardeners' houses were nearly as well constructed, as I find some of our noblest families put their gardeners into houses which a City merchant would hardly think good enough for his groom, and this too in places which the gardener's skill has made famous for beauty. At Frogmore the house is worthy of the place and its Superintendent; one side looks over the main gardens, the other through Roses and climbing plants and across the tops of freely-flowering bushes of Hibiscus syriacus into a sort of sublimated "Melon ground," 8 acres in extent, containing the minor ranges of glass and forcing arrangements. On a vegetarian discovering this spot he would surely cry "Eureka! if there is an elysium on earth it is here!" while the mere searcher after the beautiful could hardly be much less pleased, from the thorough appropriateness of the arrangements and unity of the scene. There is yet the half of this great 1130-feet range to do, but the houses are fac-similes of those on the east side of Mr. Ingram's house, and in some cases identical as regards their contents. All are used as fruit houses, and contain excellent crops of Pines, Grapes, and Nectarines, in most cases planted when the houses were first made. This is too quick a way of gliding through the largest range of glass, but bear in mind that there is yet a host of houses, and "five miles of trained trees!" to look over.

Let us next wander through the Cherry, Melon, Asparagus houses, &c., in the finely walled garden behind the main range, and have a look into the numerous Pine-pits, which contain excellent crops, Queen and Smooth Cayenne being the kinds most extensively cultivated.

Some of the younger stock is grown by the aid of dung linings, but the latter have a hollow cast-iron slab for a margin or retaining boundary, which gives them a neat appearance. All the Pines looked in first-class condition, particularly the planted-out stock of fruiting plants. These are grown in very deep pits, with means of lining at back, which is however rarely used. They are planted in loam from the Great Park, mixed with a portion of fresh pig-dung laid over about 4 feet of Oak and Beech leaves, with a large open pipe running round the front and sides of the pit. Looking into those great Pine pits from the back they presented quite a tropical aspect, the plants being unusually clean and luxuriant.

The Cucumber houses, half spans with copper bars, and of course full light, seemed just the thing for their work. A lot of rough boards are laid across the well-raised pit in the centre, and on this the light rich mounds of soil are placed. If they had been put on the "dead" soil or surface at the same height, of course they would be much colder and more liable to get sodden. Along the back wall a narrow high pit is raised well up towards the light, and on this the plants are put out in like manner.

With all the fruit and vegetable growing arrangements there are also a number of houses and pits devoted to plant-culture for room decoration, &c.

The front wall of a number of these forcing houses and pits forms nearly a continuous line about 4 feet high, and against it the first crop of Peas is raised—now it is employed in ripening off a crop of Tomatos, and thus yields good service.

Potatos are forced in well-built cold pits; after they are dug out, Melons are popped in for late fruiting, to be again replaced by quantities of Endive to form a grand reserve in case of very severe weather out of doors. There are noble Cherry houses, span-roofed tall, and built as well as those in the great range. The trees are now plunged out of doors for the summer, and the borders of the houses have just been dug preparatory to planting them with Chrysanthemums for furnishing cut flowers.

The air-loving Cherry is accommodated by having large hinged sashes running continuously, which can in a moment be thrown fully open. Strawberries are also grown here on the little iron stands as in the warmer houses.

A late house of West's St. Peter's is made to accommodate Strawberries when the Grapes are cut in February, while Figs are grown against the back wall.

In the houses for forcing Asparagus the roots are packed thickly in the central pit, which is heated by hot-water pipes, and covered with loose material; while under the benches and in other parts of the house Rhubarb, &c., is grown, and the shelves are used for large crops of Basil and Knotted Marjoram, which must be had in quantity at all seasons; Kidney Beans and Strawberries being in front here as usual. All the boilers are saddle boilers, which last about 15 years; and as fuel, coke is burnt to avoid smut, &c.

A great deal of Asparagus is grown in low span-roofed wooden frames placed on dwarf brick walls, which, however, sink deep into the ground, and form a narrow chamber between each bed. The soil in those frame-covered pits is about 5 feet deep, and very rich; and any particular bed can be heated at pleasure by the hot water running through this closely wooden covered chamber. On the whole this plan seems an excellent one for obtaining intermediate crops of Asparagus.

In many gardens where economy is a leading consideration, and money and men not to be had for any but the most necessary of work, Seakail is yet forced in a most troublesome, expensive, and roundabout way,—by the use of pots and other modes of spreading manure over large surfaces, to be removed now and then at no small labour. Here it is very different. Just beside the chamber through which the pipes make way from their furnace to those Asparagus beds a bricked trench is sunk, for which are provided wooden shutters. Into this the Seakail roots for all seasons are packed as closely as they can stand when dug up for forcing, and there is no further trouble except to raise the shutters and cut away. No cover is required above the shutters except in very severe weather. When done, cuttings from the roots are replanted, allowed a year's repose and free growth, and they are then fit to dig up and force again. The Mushroom houses have arched brick roofs, strong slate shelves, and are provided with means of heating by hot water, which is, however, very seldom used. *W. R.*

(*To be continued.*)

Miscellaneous.

Alexandrian Laurel.—Another variety of Laurus is called by Pliny taxa, and is described by him as having a small excrescence sprouting from the middle of the leaf, and forming a fringe, as it were, hanging from it. Now this description applies so well to the Ruscus Hypoglossum of modern botanists that we should be inclined to identify the two plants; but it is remarkable that Pliny afterwards states that another so-called Laurel, namely the Alexandrian, by some termed the Idæan, is also designated by the name of Hypoglottion, whilst Dioscorides describes the plant he calls Ἰδαία Ρίζα, as having leaves like the Wild Myrtle, and upon them small twisted appendages (ἕλικες), from which the flower issues. Pliny, too, in his 27th book, c. 67, speaks of the Hypoglottion exactly in the same terms as Dioscorides, but he just afterwards alludes to the Idæan plant, as though it were distinct from the former. In another place Dioscorides mentions the Alexandrian Laurel as synonymous to the Chamædaphne, and describes it as having its fruit placed in the middle of the leaf, a description which would apply to the R. Hypophyllum of Linnæus, which has a flower springing from the centre of the leaf like the R. Hypoglottion, but is destitute of that tongue-shaped bracten which is characteristic of the latter. From the circumstance of the fruit growing from the leaf, the Alexandrian Laurel is called by Pliny carpophyllum. Nevertheless others have preferred to identify the Alexandrian Laurel with the Ruscus racemosus, although in that species the flowers do not spring from the leaf as in the two other species. Perhaps, if we believe that the ancients really distinguished these three species of Ruscus, we may be disposed to believe with Sibthorp, that the Δάφνη Ἀλεξάνδρεια of Dioscorides was the R. Hypoglottion, Χαμαιδάφνη the R. Hypophyllum, Μυρσινη ἀγρια the R. aculeatus. An old botanist of the 16th century, Fabius Colonna, in his work entitled Φυτοβασανος, Neapoli, 1592, first pointed out the resemblance between the Radix Idæa and the Ruscus Hypoglossum, of which latter he gives a correct drawing. *Daubeny's Trees and Shrubs of the Ancients.*

The Carob or St. John's Bread (Ceratonia Siliqua, L.) is a native of the island (Cyprus), covering the tops and sides of the dry hills, which are incapable of cultivation. In its wild state, however, the fruits are almost dry and scarcely sweet, and the succulent sweetness of the better sorts is the result of careful cultivation. Plants raised from seeds of these better sorts soon revert to

the condition of the wild plant. The cultivated plants are, therefore, all grafted, and this is done not only in gardens, but to the old plants on the hill sides, the branches of which are lopped off, and a twig of the plant to be grafted inserted into the stem of some of the large branches. This rough sort of grafting seems to succeed well with this hardy plant. The Carob cultivation is chiefly carried on on the south coast, and large sheds are built near the ports on the coast, to store the pods in previous to exportation. In the island itself they are not much eaten, but are used for feeding cattle, and the preparation of brandy by distillation. For the latter purpose they are largely exported, chiefly to Trieste. The produce has amounted in some years to about 5000 tons; but as the export is a monopoly in the hands of the Turkish Government, which pays the cultivator a wretched pittance, it has of late been found more profitable to cut down the Carob trees. *Natural History Review.*

Assyrian Botany.—A most curious fact in natural history has recently been brought to light by the decipherment of Assyrian inscriptions. The history of the artificial migration of plants—a very interesting and intricate subject—has been carried back to a period of great antiquity. Kūtlā'ī, a Mendaite writer in the fourth century A.D., tells us that the Kings of Assyria were accustomed to bring back with them from their campaigns in foreign countries any plant which they thought would be valuable and useful; that in this way, for instance, the Cherry was transplanted from the banks of the Jordan to the gardens of Nineveh and Babylon. These statements are strikingly confirmed by an inscription of Tiglath Pileser I., an Assyrian monarch, who was carried captive to Babylon, B.C. 1110. The King therein says:—"The Pine tree, the Likkarina tree, and the Algum tree, these trees, which none of the former kings, my fathers, had planted, I took from the countries which I subdued, and I planted them in the groves of my own country, and I called (the plantations) by the name of groves; whatever was not in my own country I took and placed in the groves of Assyria." The translation "Algum tree" is not quite certain. If the identification can be maintained, it will be a proof of the occupation of the Malabar coast by the Aryans as early as the 12th century B.C. This will not be the only case in which ethnology has received important aid from the botanical department of natural history. The northern home of our Aryan ancestors is borne evidence to by the fact that the "Birch"—the denizen of a cold climate—is the only tree having the same name both in Eastern and Western Aryan, *i.e.*, both in Sanskrit and in the various languages of Europe. So, again, we learn from the fact that "Flax" (Lat. linum, Greek λίνον, Goth. lein) is known by different names in Eastern and Western Aryan, that the separation of the forefathers of the Hindús and of the Greeks and Romans took place before either had exchanged an agricultural for a pastoral life. We have reason to hope that the present researches into the early records of mankind may throw some light upon the primitive history and cultivation of the cereals. *A. Sayce, in Science Gossip.*

The Castagno la Nave.—In June, 1811, being employed on the Quartermaster-General's staff in Sicily, and engaged in making surveys of various localities, I visited Mount Etna, and of course did not neglect to examine that vegetable wonder, the Castagno di Cento Cavalli, which seemed to me, as it had done to other travellers, not what was expected—a single tree, but apparently a cluster of five distinct trees, since reduced, I understand, to three. A late traveller has remarked, and I think with good reason, that a large tree may have existed on the spot, and that on its destruction in some of the many convulsions that have so often shook Etna to its very centre, the present cluster of trees sprang from its root. But it is not of the Castagno di Cento Cavalli that I am about to speak, it is of a more wonderful production of Nature in my opinion, which stands within a few hundred yards of that celebrated tree; it is the Castagno la Nave, a noble patriarch of the forest. This tree rises in an unbroken stem for about 40 feet, then divides and throws out lateral branches to an enormous extent. It appeared to me, as I viewed it, to be comparatively a young tree, from the vigour of its growth and absence of decayed branches. I was accompanied by a friend, and, after contemplating with admiration this splendid specimen of the vegetable kingdom, we proceeded to measure it with a surveying tape, and at four feet from the ground it measured 54 feet in circumference. I need scarcely add, that I entered this measurement in my note-book. I took a drawing of the Castagno di Cento Cavalli, which shows almost beyond a doubt that this never was a single trunk, but a group; but from some cause which I do not now remember I neglected to add its noble companion to my other sketches; but I afterwards saw at Messina a very beautiful drawing of this tree in the portfolio of my friend Lieutenant Wright, of the Royal Staff Corps. On reading "Murray's Handbook of Sicily," which has been recently published, it is there stated that this very tree was carefully measured within the last year, and was found to be 57 feet in circumference at 3 feet from the ground, nearly at the same height that I measured it, thus showing an increase in girth of 3 feet in 53 years. If, therefore, we take for granted that the growth was the same every 53 years, the calculation makes the tree now 1007 years old. But if we presume that the tree increased in bulk somewhat more than 3 feet in 53 years in the early period of its growth, which, by the by, does not appear to be generally the case, for I have examined the annual rings in the trunks of many newly cut down trees, and found them on an average of equal thickness throughout, except towards the south or sunny side, where they are generally thicker, on the same principle that plants grown in a window will always increase more towards the light; but even allowing this, it would still make the tree nearly 1000 years old—no contemptible age; and although it is now showing symptoms of decay, for it is said to be partly hollow, yet it is not impossible but what it may, if the lavas of Etna spare it as they have hitherto done, live some five or six centuries more. *Capt. Smith, in Intellectual Observer.*

Calendar of Operations.

(*For the ensuing week.*)

The principal operations in regard to ornamental grounds for the present will be mowing and clearing up, and if anything like neatness is to be maintained, sweeping up of leaves will soon require daily attention. Gravel walks must also be thoroughly freed from weeds and Moss; roll them frequently so as to keep the surface hard and smooth.

FLOWER GARDEN AND PLANT HOUSES.

Notwithstanding the extreme heat of the weather, shade may now in a great measure be dispensed with. Acacias and other winter-flowering plants having been subjected to a period of comparatively dry treatment, to ensure their blooming profusely, should now or soon be pretty liberally supplied with water at the root, in order to get them into flower during the dull season, when they will be much more esteemed than in spring, when flowers are plentiful.

Annuals.—Where these have sown themselves on borders, let them, if possible, be retained; they will bloom early and strongly in spring, especially the Californian kinds, and may then be transplanted, if desired, to other situations.

Bedding Plants.—Cuttings of Calceolarias and zonal Pelargoniums may still be put in where stock of such things is deficient. Cuttings of Calceolarias taken from plants in the open ground are, however, liable to damp off in heat; but they will be found to do very well in a close pit or frame, where there is the means of applying a little warmth when necessary to dispel damp. See to securing as many cuttings as possible of any scarce plants which it may be desirable to increase while there is a fair chance for rooting them; and also be prepared to protect choice Pelargoniums and other things which it may be intended to take up and winter.

Chrysanthemums.—These should now occupy attention; let them be tied into form, but not too stiffly; where the flower-buds are too thick, thin them out; keep them well watered, in order that they may not lose their leaves.

Hollyhocks.—A few of the very choicest sorts of these may soon be taken up, potted, and wintered in a cool house; they will be exceedingly useful for furnishing cuttings, and these if got in early in spring will make excellent plants for next season.

FORCING GARDEN.

Pines.—As has been frequently mentioned, plants swelling their fruit should be assisted with a brisk temperature, say from 65° to 75° at night, regulating this according to the state of the external temperature, keeping the house rather close on sunny days, and allowing the thermometer to rise to 80° or 85° before giving air freely. Also endeavour to proportion the moisture to the temperature, for a high dry temperature is not favourable to the swelling of the fruit, and there is no chance of getting well-swelled heavy fruit without plenty of warmth and moisture. Maintain a steady bottom-heat of about 85°, and use every care to keep the soil in a healthy state as to moisture. When watering is necessary, use clear manure-water; give sufficient to moisten the whole of the soil, and avoid frequent dribblings, for when this system of watering is practised it is nearly impossible to keep the under soil in a healthy state. Use the syringe sparingly, and only to dew the plants, as heavy syringings after this season are apt to keep the surface soil so moist as to render it difficult to judge as to when water should be given. Any young plants growing in pots which may require repotting should be seen to at once, so as to allow an opportunity of getting them established in fresh pots, while they can be kept tolerably warm. See that the balls are in a proper state as to moisture before repotting, as neglect of this is a frequent cause of young stock fruiting prematurely. Keep moist and rather warm for a time after shifting, so as to encourage the formation of fresh roots.

Vines.—Before wet, comparatively sunless weather sets in, we would advise covering the borders of houses in which it is intended to keep ripe Grapes for any length of time, so as to prevent the soil getting saturated about the roots. Look over ripe Grapes frequently, cutting out any tainted berries immediately they are perceived, and keep the atmosphere as dry as possible, using gentle fires when necessary with a free circulation of air; but a warm temperature is nearly as injurious as damp, therefore use no more fire heat than may be absolutely necessary.

HARDY FRUIT AND KITCHEN GARDEN

Get all spare ground deeply trenched and ridged so as to expose it as much as possible to the weather, putting in plenty of good rotten manure, especially where crops of an exhausting character are to be planted.

Apples and Pears.—Gather these as they become fit for storing. Also examine those in the fruit room, as there will occasionally be found a few decaying in a few weeks after housing, and these should be removed as soon as perceived. Keep the fruit room cool and airy, in order to allow of the escape of moisture given off by the fruit, which is considerable for a few weeks at first. Where it is intended to make fresh plantations of trees this season, the ground should be prepared at the earliest convenience, and any fresh soil to be used for planting should be thoroughly exposed to the action of the weather, so as to have it in a mellow state when wanted for use.

Lettuces.—Brown and Bath Cos, as well as Hammersmith Cabbage, for early spring work, should now be pricked out; more especially if getting what is technically termed proud.

Strawberries.—If not already done, clean and dress plantations of these, clearing away all useless runners, giving a good dressing of manure when necessary, but be careful to select that which is thoroughly decayed, and which can be covered without the necessity of digging deep or injuring the roots.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON

For the Week ending Sept. 13, 1865, as observed at the Horticultural Gardens

Sept.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth 1 foot deep.	Temperature. Of the Earth 2 feet deep.	Wind.	Rain.
Thurs. 7	17	30.039	29.956	85	56	70.5	65	63	S.W.	in
Friday 8	18	29.925	29.884	86	56	71.0	65½	64	S.	in
Satur. 9	19	30.063	30.028	76	55	65.5	66	64	S.W.	in
Sunday 10	20	30.165	30.078	78	60	69.0	65½	64	W.	in
Mon. 11	21	30.278	30.063	78	51	64.5	65	63½	W.	in
Tues. 12	22	30.392	30.335	85	50	67.5	65	64	S.W.	in
Wed. 13	23	30.307	30.234	85	45	66.5	65	64	S	in
Average		30.167	30.074	82.3	53.3	67.8	65.3	63.8		

Sept. 7—Slight fog, with heavy dew; hot sun; very hot; exceedingly fine.
— 8—Heavy dew; clear sky; very hot and dry air; thunder lightning, heavy rain in the night.
— 9—Overcast; clear; very fine throughout
— 10—Overcast; very fine, cloudy and fine at night.
— 11—Overcast; close and warm; very fine; overcast.
— 12—Slight fog; very fine; hot, very fine at night
— 13—Slight fog, with heavy dew, excessively hot, very fine.
Mean temperature of the week, 8½ deg. above the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 39 years, for the ensuing Week, ending Sept. 23

September.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds N.	E.	N.	E.	S.	W.	S.	W.
Sunday..17	68.9	45.6	57.3	15	0.90 in	1	6	8	3	3	15	4	4
Mon. ..18	66.8	46.6	56.7	18	0.84	3	8	3	1	3	18	6	1
Tues. ..19	67.0	45.1	56.1	19	0.64	4	10	3	1	5	9	4	2
Wed. ..20	63.9	44.1	55.5	17	0.45	3	5	5	4	3	8	4	1
Thurs. ..21	66.4	45.1	55.7	21	0.50	2	5	8	2	6	7	-	-
Friday ..22	66.7	45.4	56.0	19	0.80	—	4	9	1	6	7	1	-
Satur. ..23	66.4	46.1	56.2	20	1.21	—	6	8	2	-	-	-	-

The highest temperature during the above period occurred on the 17th, 1841—therm. 84 deg.; and the lowest on the 17th, 1838—therm 29 deg.

Notices to Correspondents.

Ageratums: *Hatfield, Doncaster.* The plants of Ageratums swarm with red spider, which is undoubtedly the cause of the mischief of which you complain. *M J B.*

Books: *N E D.* McKellar's Book of Flower Plots.

Edinburgh International Exhibition.—In our report of this Show, under Peaches and Nectarines, the awards should have stood thus:—Peaches, 12: 1, Mr. Peacock; 2, Mr. Wemyss. 6: 1, Mr. Henderson; 2, Mr. Cook. Nectarines, 12: 1, Mr. Oswald; 2, Mr. Peacock. 6: 1, Mr. Muir; Mr. Temple. In p. 844. col. c, 17th line, "Early Frontignan" should read "Grizzly Frontignan."

Fungi: *W C Trevelyan.* Your Fungus is Pterula multiplex Fr. It agrees with an authentic specimen, though habitat is different. The genus is new to Great Britain. The species is described in Monographia Hymenomycetum Sueciæ. *M J B.—Katie* Agaricus glonocephalus. See Gardeners' *Chronicle*, Oct. 22, 1860.

Hops: *R B.* The supposed Fungus is merely the glandular bodies on the Hop, which contain an essential oil.

Insects: *Rev R N M.* The insects which have attacked the Pear leaves are the slimy larvæ of the saw-fly, Tenthredo æthiops. They are easily destroyed with powdered hellebore or syringing with lime water.—*Old Subscriber.* The insects are the common little blue butterfly, just out of the chrysalis, with unexpanded wings. The roughness on the Maple leaves will receive attention next week. *W.*

Names of Fruits: *T B B.* 2, Black Achan; 4, Hampden's Bergamot; 5, Williams's Bon Chrétien; 6, Moorfowl Egg.—*Name obliterated by juice of bruised fruit.* 2, Beauty of Kent not coloured; 3, Gravenstein; 4, Blenheim Pippin; 9, Scarlet Nonpareil; Northern Greening; 8, Sturmer Pippin; 9, Scarlet Nonpareil. Peaches and Nectarines cannot be named with certainty unless the fruit is accompanied with leaves.—*G B.* 1, Belle et Bonne.—*J F F.* The Black Achan.—*T.* Your Seedling Peach may be briefly described as a combination of bitterness and acidity. ‖

Names of Plants: *Sax.* One of the Cuscutas, but we cannot say which, without flowers; probably the common Epithymum. You had better destroy all affected stems. *S S.* 1, Lastrea Filix-mas in a monstrous state. 2, Athyrium Filix-fœmina var.; 3, Lastrea cristata; 4, Lastrea dilatata.—*Inquirens.* 1, Pteris arguta; 2, Aspidium aculeatum; apparently, but the specimen is too small; 3, Cyrtomium falcatum.—*R P.* Lythrum alatum.—*W R B.* Fruit of Cucurbita mexicana.

Strawberries: *R J H.* We will endeavour to furnish the information you seek for shortly.

Vegetables at Exhibitions: *J P.* We quite agree with you that vegetables at exhibitions should not be shown as they are lifted, with all their roots, leaves, and filth about them. They should be moderately trimmed, and those that require it should be washed, and the whole set up "tastefully," as you express it. This is the general practice at the metropolitan shows, though there is no [illegible] If a root lifts clean and bright, as Potatos for example do, then it does not need washing, and should not be washed. The best guide in these cases is common sense.

[illegible] companions, with the statement that he had found it [illegible] neighbourhood of the spot where the occurrence took place.

AUSTRIA.—It is stated that Baron Prokesch-Osten, Internuncio of Austria to the Porte, will shortly retire into private life, and that Baron Burger, formerly Austrian Minister of Marine, has been appointed to succeed him. The *Presse* of Monday states that Austria will be represented by Count Blome at the approaching diplomatic meeting at Biarritz. It is stated that preparations are being made by the Ministry of Commerce for the resumption of the deliberations of the Anglo-Austrian Commission of Inquiry. The *Débatte* of Monday denies the rumour that the Government intends to institute repressive measures against the press.

TRANSYLVANIA.—An Imperial decree was published at Vienna on Tuesday, dissolving the Old Transylvanian Diet and convoking a new Diet on the 19th of November. The exclusive and only subject to be discussed by the new Diet is the revision of the 1st article of the law of 1848 on the union between Hungary and Transylvania on the basis of the common interests of both countries. Field-Marshal Lieutenant Count Crenneville is appointed the Government Commissioner, and Herr von Kemény President of the Diet.

ITALY.—The Pope has returned to Rome. Great fires have taken place in the vast woods of the Decima, Castel Romano, and Castel Porriano.

RUSSIA.—The Paris correspondent of the *Indépendance Belge* asserts that the Russian Government has sent a circular to its diplomatic agents abroad respecting the Gastein Convention, in accordance with the circulars of the English and French Governments. The same correspondent also learns from the best sources that England, France, and Russia long since exchanged views respecting the Duchies, and that a perfect agreement exists between the three Powers in their manner of viewing the Salzburg Treaty.

POLAND.—In the military manœuvres held at Warsaw on Friday, the Governor of Warsaw, by accident, got into the middle of a charge of cavalry and had his foot crushed. However, he did not fall, and it is hoped that the accident may have no serious consequences.

THE DANUBE.—The *Moniteur* of Wednesday says that the Powers have removed all the difficulties relative to the Treaty for the navigation of the Danube, which will be signed shortly.

THE PRINCIPALITIES.—Prince Couza's fête passed off at Bucharest, on Tuesday, with great *éclat* and enthusiasm. His Highness has granted a general amnesty to those persons accused of participation in the recent disturbances.

CAPE OF GOOD HOPE.—The Cape Mail has arrived with news from Cape Town to the 14th ult. The war between the Free State and the Basutos was being prosecuted with vigour by the Boers, who had entirely maintained the aggressive, and carried their commandos far into the Basuto country, ransacking and burning several small native towns, and capturing a large quantity of stock. A Free State commando had reached within a few thousand yards of Thaba Bosigo, the capital of the Basutos, where Moshesh, their paramount chief, and their principal warriors were centered. The Boers were preparing to assault it. The rumour was in circulation that the Basutos had abandoned this stronghold, but it appeared by the last advices to be somewhat premature. Hitherto the Boers had escaped with but few casualties, and appeared sanguine of their power to humble their foe. In the Cape Parliament business had been considerably obstructed by the members for the eastern and midland districts, who were opposed to the Bill introduced by Government for the annexation of Kaffraria. The western majority disapproved of these obstructions, and the minority were finally compelled to withdraw any further opposition. The Bill subsequently passed the House of Assembly, and was in progress in the Legislative Council.

UNITED STATES.—Despatches from Fortress Monroe of the 31st ult. report that Mr. Jefferson Davis is ill with erysipelas. It is announced that he will be tried in a United States circuit court, probably at Norfolk, Virginia, Chief Justice Chase presiding. The *New York Times* asserts that General Butler, in conjunction with the Attorney General, will take a prominent part in the prosecution. President Johnson has issued a proclamation, removing the restrictions on the trade with the Southern States in all articles previously declared contraband of war, subject only to such regulations as the Secretary of the Treasury may prescribe. Mr. Montgomery Blair has made a speech accusing Messrs. Seward and Stanton of encouraging and sympathising, during the latter part of Buchanan's administration, with the leaders who had plotted the country into rebellion. Captain Wirz's counsel have again abandoned his case on account of difficulties with the Court, but at the prisoner's earnest solicitation they resumed the defence. The military authorities at Raleigh, North Carolina, have refused to deliver to the civil authorities, on demand of Governor Holden, three citizens arrested for outrages on negroes, alleging that the civil authorities neglect to take cognizance of these outrages. A Union mass-meeting has been held at Richmond, when resolutions were passed to express indignation at the suspicion of the Northern press and people that the Southerners were insincere in taking the oath of allegiance, and express their loyalty to the Government, and also their acquiescence in the result of the war, including the abolition of slavery. It was also recommended that similar meetings should be held throughout the South. The Southern Methodists have declined an ecclesiastical reunion with the Northern Methodists. The Hon. Preston King and Mr. Moses F. Odell were installed in the offices of Collector and Port Surveyor of New York on the 1st inst. The creditors of Morris, Ketchum, and Co., at the meeting on the 1st inst., agreed to accept in settlement 60 per cent. of their claims, and to allow the house to resume business. The liabilities of the house amount to $3,900,000, and its assets to $3,000,000. Railroad accidents involving serious loss of life continue to occur. Heavy frauds have been discovered among the army paymasters. The Shenandoah has burned the whaling ships Helman, Isaac Howland, Nassau, Brunswick, Waverley, Martha, Congress, Favourite, and Covington, and has bonded the James Meury, near Behring's Straits. She was last seen steering towards Lawrence Bay. The Federal steamer Saranac left Esquimalt, British Columbia, on the 23rd ult., in search of her. The steamer Suwanee arrived at Esquimalt on the 24th, and was to speedily join in the search. The South Carolina planters complain that the negroes refuse to work unless under military compulsion. The cotton crop is not expected to give more than half the ordinary yield.

NEW BRUNSWICK.—The *Royal Gazette* contains a long minute addressed by the Executive Government of New Brunswick to the Lieutenant-Governor in reference to Mr. Cardwell's despatch of the 24th June last. In this minute the Council call attention to the fact that a Parliament was specially elected to test the opinion of the people upon the Confederation scheme, who, after mature deliberation, refused it by an overwhelming majority, because unable to discover in it that it "gave promise of either moral or material advantage to the empire or themselves, or that it afforded a prospect of improved administration or increased prosperity." Loyalty, as much then as now, animated the people of New Brunswick, and if there was a necessity for it they would place all their resources at the disposal of the Imperial Government; but they did not believe that the Quebec plan of Confederation would either render their strength more available or increase it. The Government also claim that Canadian local exigencies were the sole motives and groundwork of the scheme; and while giving respectful attention to the wishes of the Imperial Government, they must unhesitatingly protest against the destruction of their own autonomy. The Executive say that the right of self-government would be a mockery if the province were compelled to yield on these all-important questions to the wishes of the mother country. In reply to this minute, Mr. Cardwell, writing on the 4th August, says:—"I still confidently anticipate that the serious consideration of the province of New Brunswick will be given to the earnest and friendly suggestions which, on the part of her Majesty's Government, it has been my duty to convey to them through you."

SAN DOMINGO.—It was rumoured from Havannah that the Spanish steamer overdue from St. Domingo had been seized at Samana by the Hayti revolutionists.

MEXICO.—Advices from Vera Cruz to the 20th August announce that the Imperialists had re-occupied Tacambero, completely routing the Republican army of the centre, with heavy loss in men, and capturing all its artillery. The Imperial troops had also been victorious in an engagement near Tezan, but had received a slight check at Almacattan. At the latter place 25 Austrian lancers and a company of Mexican infantry were compelled to surrender to the Juarists. The Imperialists occupied Hermansilla on the 12th, throwing open all the roads into the interior of Sonora. The main Republican army, commanded by Pesquiera, has joined the Imperialists. Pesquiera fled with 200 men. The town of Zongolica, in Orizaba, had proclaimed against the Empire. The Mexican Estafette asserts that the Emperor Maximilian has determined to send an official personage to Washington, in order to ascertain the attitude of the United States Government towards Mexico. More friendly feelings are reported to exist between the Federal and Imperial officers along the Rio Grande.

PERU AND CHILI.—The Chincha Islands have been seized by Montero, the revolutionary leader. The loading of guano was not, however, interfered with in any way. Between 40 and 50 ships were anchored off the port. Montero, with his squadron, on the 10th of August was cruising in line outside the shipping at Callao, but had flags of truce flying. His force consisted of the steam frigate Amazonian and two heavy steam corvettes, the Union and America. The Government squadron at anchor inside comprised the steam frigate Apurimac, a monitor, a turret vessel, and two or three steam transports. All had their steam up, and a good deal of stir was exhibited. The officers went on board the Pacific Company's steamer Peru to watch Mr. Casso, late Peruvian Consul in Chili, and would have seized him had not the Peru been a mail steamer. During the night some additional heavy guns were mounted on the castle and other warlike preparations made. Next day, although much excitement prevailed, business went on about as usual. Montero had given notice that on the 17th August he would attack the castle and squadron, and the Government had ordered all vessels to shift their berths out of the line of fire. At Lima Montero's presence off Callao did not seem to occasion the slightest concern. Rapid progress was making in the construction of the great iron floating dock in the port of Callao. In consequence of the disturbed state of affairs the port was closed every evening at 6 P.M., after which no communication was allowed. Some Blakely guns of the largest size had been landed on the mole at Callao, and were being rapidly mounted for its defence. The best informed persons did not think that Montero could be successful. In the northern ports the revolution was hardly noticed.

City Intelligence.

MONEY MARKET, FRIDAY.—BRITISH FUNDS: Consols closed at 89⅝ to ¾ for Money, and 90 for Account; New Three per Cents., 88¼ to ⅜; Annuities, 1885, 13¾ to ⅞; Exchequer Bills, 2s. dis. to 2s. pm.—FOREIGN: Brazilian, 1852, '58, '60, 71; Columbian Six per Cents., 81; Danubian, 77½; Egyptian, 95 ex div.; Ditto 1864, 96; Ditto 100*l.* Bonds, 96½; Greek, 21¼; Italian, 18[illegible]5, 80; Mexican, 24¼; Ditto for Acct., 24⅝ to ¾; Ditto 1864, 23⅝; Ditto Anglo-French, 50½; New Granada, 14½; Russian, 1862, 92⅝ to ⅞; Sardinian, 76½ to 75½; Turkish, 1858, 72¾ ex div.; Ditto 1862, 71¼ to ¼; Ditto 100*l.* Bonds, 74¾ to 75¼; Ditto 1865, 45¼ to 46; Ditto 100*l.* Bonds, 46¾.

Bank of England.

ISSUE DEPARTMENT.

Notes issued	£27,950,400	Government Debt	£11,015,100
		Other Securities	3,634,800
		Gold Coin and Bullion ..	13,300,400
		Silver Bullion	—
	£27,950,400		£27,950,400

BANKING DEPARTMENT.

Proprietors' Capital ..	£14,553,000	Government Securities (including Dead Weight Annuity) ..	£10,394,209
Rest	3,747,923	Other Securities	21,243,808
Public Deposits (including Exchequer, Savings Banks, Commissioners of Nat. Debt, and Dividend Accts.)	6,321,640	Notes	6,835,340
Other Deposits	13,860,979	Gold and Silver Coin ..	855,170
Seven days and other bills	554,695		
	£39,038,237		£39,038,237

Sept. 14, 1865. GEORGE FORBES, Deputy Cashier.

Gazette of the Week.

FRIDAY, *Sept. 8.*—BANKRUPTS. (*To Surrender in London.*)—M. & T. H. ARCHER, St. James's Street, Piccadilly, Tailors—J. BAKER, Poultry, Scrivener—J. A. BENIT, Savage Gardens, and Richmond Road, Dalston, Provision Commission Agent—T. COOPER, Chapel Street, Penton-ville—J. DUGGAN, Hollis Street, Clare Market, Coal Porter—A. DUNN, Fenny Stratford, Grocer—G. EVERETT, Kossuth Terrace, Victoria Park, Commission Agent—W. GILES, Fair Street, Horsleydown, Basket Maker—F. J. GORRINGE and G. R. GOUGER, Belvedere, Kent, and Butler Road, Lower Kennington Lane, Builders—J. W. GUTTY, Princes Court, Leicester Square, Bootmaker—J. J. HUTTER, Tulse Hill—J. MOON, St. John's Road, Hoxton, Tailor—H. NORTH, sen., Central Street, St. Luke's, Coal Dealer—R. W. PARSNEAU, Bromley—W. PROWSE, Park Terrace, Kensington, Stonemason—H. ROBERTS, Luton, Boot Dealer—M. ROSENBERG, Sandy's Row, Bishopsgate, Hat Manufacturer—P. H. STEVENS, Moorgate Street, Merchant—F. TATTS, Hemingford Road, Barnsbury. (*To Surrender in the Country.*)—D. BURROWS, Foleshill, Baker—J. CARTER, King's Norton, Bricklayer—ROBERT EVANS, Nantwichcharlton, Miner—EVAN GARCONS, Shipley, Hauler—J. HENSHALL, Scholes, Wigan, Innkeeper—E. H. HICKIN, Wolverhampton, Licensed Victualler—CATHERINE and WILLIAM HOLBOYD, Upholland, Shopkeepers—J. HUDSON, Kingsley, Lacemaker—T. HYDE, Audenshaw, Carpenter—J. JOHNSON, Norwich, Labourer—C. LATHAM, Bawtrille, Brewer—H. MASON, Birmingham—J. MATHEWS, Aston, juxta Birmingham—A. MINTY, Fallowfield—[illegible], Newcastle upon Tyne, Picture Frame Manufacturer—W. MOSS, Newnham, Saddler—S. OLIVER, Islington, Stationer—J. PEARSON, Owen Darwen, Bookkeeper—C. C. ROBINSON, Navenby, Joiner—A. SCOTT, Castleford, Licensed Victualler—J. SHANNON, Liverpool, Baker—B. SHELTON, Syston, Butcher—J. SNARR, North Duffield, Wheelwright—S. SOUTHALL, Litchurch, Millman—G. TOWNEND, Kendal, Farmer—H. WILLIAMS, Tynycaen, Farmer.

SCOTCH SEQUESTRATIONS.—J. T. M'NEILLAN, Alloa, Brewers—J. SMITH, Tomintoul, Banffshire, Merchant.

TUESDAY, *Sept. 12.*—BANKRUPTS. (*To Surrender in London.*)—C. ADAMS, Bromley, Builder—J. BARLTROP, Essex Road, Islington, Bootmaker—J. BASSINGTON, John Street, Curtain Road, Shoreditch, Ironfounder—A. BLACKER, Hemingford Road, Islington, Milliner's Assistant—T. S. BRAMPTON, Claverton Street, Pimlico, Clerk—W. T. CLARKE, Grafton Street, Soho, Heraldic Embosser—C. JACKSON, Guildford Grove, Maitland Park, Bookkeeper—E. OLIVER, late of Walham Green, Clerk—J. OSBORNE, James Street, Larkhall Lane, Clapham, Tailor—J. PECK, Praed Street, Paddington, Hosier—E. H. REEKS, Wimborne Minster, Painter—J. SAUNDERS, Chiworth, near Guildford, Farmer—J. T. SCHUSTER, Galway Street, Bath Street, St. Luke's, Shirt Dresser—G. SNOWBALL, Spring Street, Paddington, Watchmaker—J. SUMNER, Chapel Street, Anthony Street, St. George in the East, Oilman—J. F. WHALE, Charterhouse Street, Long Lane, Fancy Fringe Maker—J. T. WILMORE, Pentonville Road, Racket and Ball Maker. (*To Surrender in the Country.*)—THOMAS ATKINSON, Little Sutton, Gardener—THOMAS ATKINSON, Lambton, Butcher—JOHN BATESON, Sheffield, Tailor—S. BROCK, Dalton, Journeyman Mason—J. BARRATT, late of Hulme, Coach Proprietor—W. H. COOKE, Salford, Manchester—T. DEALY, Liverpool, Provision Dealer—R. EVANS, Swine Market, Shoemaker—J. A. GALLIE, Newport, Potato Merchant—G. HARE, Swinesnead, Grocer—G. HOWARD, Kirkburton, Corn Miller—L. LARKIN, Manchester, Journeyman Paper-maker—J. MANSFIELD, Beeles, Metal Broker—C. F. MEDHURST, Llanelly, Bar Iron Manufacturer—J. MOLINEAUX, Wolverhampton, Licensed Victualler—J. NUTTER, Seaforth, Builder—C. NUTTER, Goldar, Waste Dealer—F. J. OWEN, Sheffield—S. PARTON, Birmingham, Grocer—JH. PEATE, Acton Trussell, Licensed Victualler—J. RHODES, Leeds and Belfast, Hackle Manufacturer—R. ROBERTS, New Brighton, Dealer in Slates—J. SAUNDERS, Windsor Street, Sussex, Carpenter—A. SELLERS, Manchester, Hosier—E. SHAW, Huddersfield, Plumber—G. SKINNER, Digby, Cordwainer—H. STREET, Fareham, Blacksmith—G. WALKER, Cheetham, Assistant News Agent.

SCOTCH SEQUESTRATIONS.—A. D. COWAN, Edinburgh, Saddlers' Ironmonger—GOURLIE, MOIR, & Co., Glasgow, Upholsterers—A. RENNIE, Kessingeon, near Maryhill, Farmer—A. ROSS, Edinburgh.

Metropolis and its Vicinity.

FRENCH VISITORS TO THE CRYSTAL PALACE.—On Tuesday a large body of excursionists from Calais visited the Crystal Palace. Two boats, which left Calais at 4 A.M., conveyed upwards of 1400 persons, and two special trains on the London, Chatham, and Dover Railway brought them to the Palace about 11 o'clock. The excursionists were accompanied by the band of the Sapeurs Pompiers of St. Pierre. Among them were many Frenchwomen of the working classes, in their quaint and picturesque costume—white starched caps, bright shawls over the shoulders, earrings some inches long, and remarkable petticoats. These were chiefly fish-women and lace girls, many of whom had never before been three miles from home, and they appeared to enjoy the attractions of the Palace much more than ordinary English visitors do, and in a different manner. They

seemed especially to criticise the statuary and other works of art. After inspecting the various courts, the excursionists assembled in the centre transept, when the band of the Company and the French band performed. The Prince and Princess of Wales, the Prince and Princess Louis of Hesse, and the Princess Hilda of Anhalt-Dessau visited the Palace at mid-day, and after taking luncheon in the new dining-room overlooking the terrace, witnessed the display of the great fountains from the windows. The French serenaded the Prince and Princess as soon as they heard of their presence. Their Royal Highnesses took their departure by the half-past 4 train from the new High Level Station for Victoria. The French excursionists left the Palace at 6 o'clock, and expected to reach Calais between 10 and 11 at night.

THE CATTLE DISEASE.—The City Committee, at a meeting on Friday, resolved that sanatoriums should be erected in such districts of the metropolis as might be approved by the medical officers. The committee met again on Saturday, when subscriptions to the compensation fund to the amount of nearly 1300*l.*, including 1000*l.* voted by the Common Council, were acknowledged. A motion for the immediate construction of three sanatoriums—one for the north-east, one for the north-west, and one for the south of London—was carried unanimously. At a meeting on Monday the committee decided that compensation should be made only in cases where the death has occurred since the commencement of the fund, and where the owners had given notice to the committee. The cattle stricken with disease will be bought at fair prices and removed to the sanatoriums. On Wednesday it was resolved to appoint a veterinary surgeon to each sanatorium and to provide ambulances for the removal of infected cattle. On Tuesday a long document prepared by Dr. Thudichum, under the direction of the Lords of the Council, was published. It is "a memorandum on the principles of disinfection as applicable to the cattle plague." A supplement to the *Gazette*, issued on Wednesday night, contained an Order in Council, by which it is henceforth permitted to import into Ireland hides of cattle from India, South America, and Australia, which were included in the prohibition of a former Order in Council. On Wednesday a Mr. Russell and his servant were charged before the magistrate at Greenwich with removing a diseased cow along the high road, contrary to the Order in Council. It seems that this animal, as well as another, also diseased, had been sold to a butcher. They were fined in 9*l.* 10*s.* and costs. The oxen landed last week from the Rotterdam steamer continue in a healthy state. They will be slaughtered and the meat sent to market, before the term of quarantine expires. It is announced by a Lille paper that the disease has broken out in the north of France. As active measures were immediately taken on the farm where the disease made its appearance, it is hoped its extension may be prevented. The Foreign Office have received a communication from Rotterdam stating that the authorities there are so alarmed at the progress of the cattle plague that, with a view to stop it, they have determined on closing the market altogether for the present.

THE SUPPLY OF MILK.—A new company is forming for the purpose of supplying milk to the 3,000,000 of people in this metropolis. It is said that from the rapid extermination among dairy cows the supply of milk will soon cease altogether unless some effort be made to avert such a result. However independent adults may be of the supply of this produce, physicians assert that infants require it, and that no good substitute can be discovered. If the overworked mothers fail to support their babies, and cows are not at hand to yield a healthy supply, the children must perish, or survive with ill-nourished systems to suffer disease in future. Any measure, therefore, calculated to favour the supply of milk must tend to reduce infant mortality. At present 5*d.* and 6*d.* per quart are prices at which London milk is supplied; and it is said that such a price will leave a handsome margin of profit if several cows are kept under a good system. The proposed "Dairy Company," of which Dr. Lankester, Professor Gamgee, and several practical farmers and dairymen are directors, is intended to meet this want.

ELOPEMENT WITH A GROOM.—A few days since, at the Wandsworth Police Court, the Rev. Mr. Crosse, Rector of Ockham, Surrey, charged George Smith, his groom, with the abduction of his daughter, and with carrying away with him several articles which were his property. The young lady herself, who is two years older than the groom, who is a mere boy of 18, was examined in court, and proved by her evidence that she was the person who made the first advances, that the elopement was planned by her, that she had hired the single room in which they were found living at Wandsworth, and had ordered the banns of marriage to be put up for them in church. She stated that she had been accustomed to ride out with the prisoner, and that an attachment had sprung up between them. After this evidence the charge of abduction was of course at an end, but the prisoner was remanded for further inquiry on the charge of taking away the property. The young lady meanwhile returned to Ockham with her father. When the case again came on, Mr. Crosse withdrew from the prosecution, and the whole affair, which derived all its interest from the undue publicity which had been given to it, was considered at an end. It appears, however, that when Miss Crosse returned to her father's she declared that she would marry George Smith, at all events when she was 21 years of age. Her father thereupon consented to the marriage at once, and the requisite licence having been obtained, the ceremony was performed on Thursday at All Saints' Church, Wandsworth. The church was crowded, the street was literally blocked up with hundreds of people who could not gain admission, and many carriages, carts, and waggons were assembled, such was the excitement and curiosity created by the event. On the conclusion of the ceremony the bells were rung, and as the bride and bridegroom walked to their lodging they were loudly cheered, and their path had to be cleared for them by the police. The bridegroom soon afterwards appeared at the first-floor window and addressed the crowd. He thanked his friends for their kindness to him since he had been in Wandsworth, and hoped they would all live long and be happy. This short speech was followed by renewed cheering, and it was some time before the police could clear the streets and restore order.

THE FYCHOW GIANT.—Chang Woo Gow, of Fychow, one of the tallest men ever seen in Europe, arrived in England a few days ago, and had an interview with the Prince and Princess of Wales on Tuesday. He is between 19 and 23 years of age; his height is 7 feet 8 inches; he weighs about 20 stone; is well proportioned, and presents, from the mere loftiness of his figure, a very remarkable object. His features approach the European type more nearly than those of his countrymen, and their expression is unusually gentle and even feminine. He is accompanied by Mr. Chisholm, who has had charge of him since his departure from China, and who states that he is a person of respectable family, refined manners, and considerable accomplishments. He was brought up, it appears, as a scholar, and he now employs a considerable portion of his time in writing. His gigantic stature may be regarded as a hereditary quality, for his father and grandfather were each as tall as he is himself, and he has a brother now serving in the Imperial Chinese army who, although he is 6 inches lower, outweighs him by not less than 100 lb. He had also a sister who was 8 feet 6 inches in height, and died about a year ago. He has with him two secretaries, a wife, and a female servant, the latter of whom exhibits a specimen of the famous Chinese feet, the length of them not being more than about 4 inches. The party also comprises a dwarf called Chung Mow, 27 years of age, about 3 feet high, with strongly marked Chinese features. The interview with the Prince and Princess of Wales at Marlborough House on Tuesday evening was one of singular interest, the whole of the Chinese party being attired in their robes, and retaining their head-coverings, in accordance with native custom. Only once, with a view to observe his height more correctly, did the Prince desire that Chang might remove his hat. His Royal Highness also expressed a wish that he would write his "chop," or signature, on the wall of the room, which was promptly done by Chang at a height of more than 10 feet from the floor, with a pencil lent him by the Duke of Cambridge, who did not conceal his astonishment, when, in compliance with the wish of the Prince, Chang-Woo-Gow opened the door on the arrival of the Commander-in-Chief. The Princess accepted from Chang a letter of compliment in the Chinese character, and the little Princess Victoria, daughter of the Prince and Princess of Hesse, accepted a fan from the Tartar dwarf, Chung Mow.

EXTENSIVE JEWEL ROBBERIES.—For some weeks past the authorities of Scotland Yard have been engaged in the investigation of circumstances under which several heavy robberies, amounting in the total to between 4000*l.* and 5000*l.*, have been committed. Great secrecy has been observed; but all efforts at detection have thus far been fruitless, with the exception of this fact, that the robberies have been effected by one person. The man is described, by several who have noticed him, as being about 5 feet 10 inches in height, slimly built, complexion olive, well dressed, and invariably wearing a wide-awake hat. His visits have hitherto been confined to Belgravia and the parks, gaining entrance to an open window generally at the rear of the mansion by means of a water-spout or a portico, which latter affords vast facilities for the enterprise. The hours apparently selected by the thief have been between 6 o'clock and 12. On one occasion when surprised at his work he sprang from a window a distance of 40 feet from the ground, leaving his boot marks deeply embedded in the garden mould. He appears to disdain companionship in his visits, and does not encumber his pockets with anything heavy, however valuable—diamonds, precious stones, and jewellery being the coveted articles. In July last he stole from the mansion of Lord Palmerston, in Piccadilly, 800*l.* worth of jewellery, and, probably by mistake, his lordship's freedom of the city of Glasgow. In August, from Kensington Palace, where a sentry is always on duty, 300*l.* worth of jewellery, the property of the Duchess of Inverness. In the same month from the mansion of Lord Southampton, in St. James's Place, 120*l.* worth of jewellery, and from the Grosvenor Hotel, Pimlico, in the same month, 3000*l.* worth of jewellery.

THE PUBLIC HEALTH.—The Registrar-General's Return states that in the week that ended on Saturday, Sept. 9, the births registered in London and 10 other large towns of the United Kingdom were 3757; the deaths, 2528. The annual rate of mortality in the week in those 11 towns was 23 per 1000 persons living, being 20 per 1000 in London, 24 in Edinburgh, 23 in Dublin, 29 in Liverpool, 31 in Manchester, 35 in Salford, 21 in Birmingham, 32 in Leeds, 20 in Bristol, 26 in Hull, and 24 in Glasgow. In London the births of 973 boys and 932 girls, in all 1905 children, were registered in the week. In the corresponding weeks of 10 years, 1855—64, the average number, corrected for increase of population, was 1888. The deaths registered in London during the week were 1179. The average number for the corresponding week of the 10 years was 1228. The present return is therefore 49 below the average.

Provincial.

BRISTOL.—On Monday a despatch was received from London stating that Lord Palmerston, who had consented to open the Working Men's Industrial Exhibition on the 19th inst., will be prevented by an attack of gout from keeping his engagement. The disappointment was naturally very great, not only in the city but also in Bath, which his lordship had accepted an invitation to visit on his return to town. It was hoped that Mr. Gladstone, who was invited to close the Exhibition, would act for his lordship at the opening; but he has declined the invitation.

CHATHAM.—At the Borough Police-court on Monday Sarah Eliza Drew was charged before the county magistrates with murdering her female child on the 8th inst., in the parish of Gillingham. The prisoner on being placed in the dock had a very desponding look, taking no notice of anything passing in the court, but keeping her eyes fixed upon the floor. Four witnesses having been examined, the Chairman asked the prisoner if she had anything to say, she made no reply, and was committed for trial at the next Maidstone assizes for the murder of her infant.

DERBY.—On Saturday evening Mr. Samuel Thompson, aged 29, of the firm of Thompson and Fryer, builders, in this town, and Mr. Robert Dickenson, aged 51, foreman to the firm, were killed by being thrown from a Whitechapel cart, the shaft of which snapped asunder while it was going at a rapid pace near Shardlow, about seven miles from Derby. The jury at the inquest returned a verdict of Accidental Death.

DEVONPORT.—Sergeant P. Shurlock, of the 28th Regiment, who was shot by a private in the barrack-room on the 1st inst., is progressing so satisfactorily that it is expected he will shortly be able to give evidence in Court. The prisoner, Michael Foy, was brought before the magistrates on Friday, and remanded for a week. The surgeon of the regiment informed the Bench that the ball passed between two ribs without fracturing either; and just touched the surface of the lung, but did not injure any of the vital parts. The wound is about 6 inches long.

GLOUCESTER.—The triennial festival of the three choirs took place in this city on the 5th, 6th, 7th, and 8th inst., under circumstances that somewhat disturbed the usually even tenor of these gatherings. Two difficulties had to be encountered—the one clerical, the other artistic. With regard to the first, the present bishop, who is a High Churchman, intimated that it would not be consistent with his feelings to sanction with his presence such performances within the cathedral, and left for the Continent before the time appointed for the festival. The dean (Dr. Law), who is a Low Churchman, had similar objections, and was for some time doubtful whether he would not refuse the cathedral for the purpose; but he ultimately abstained from adopting that course, though he absented himself from the festival. Canon Evans, master of Pembroke College, Oxford, who was in residence, made an exchange with another canon, and also left before the festival. A second canon was in Wales, and only two canons out of the cathedral staff were therefore present. With regard to the artistic difficulty, Madame Sainton-Dolby and M. Sainton, Mr. Sims Reeves, and Mr. Weiss declined accepting the terms offered them by the conductor, and the result was that the programme was issued without the names of either of those vocalists, without whose aid it was hardly thought possible that these gatherings could maintain the character for high art which they have gained through a long series of years. Notwithstanding these drawbacks the festival took place with complete success, the local nobility and gentry having supported it with more than their usual liberality, as a demonstration against what they denounced as clerical dictation. The principal vocalists were Madame Titiens, Madame Rudersdorff, Miss Louisa Pyne, Miss Julia Elton, Dr. Gunz, Mr. Cummings, and Mr. Santley, Dr. Wesley officiating as conductor. The opening sermon was preached by the Rev. C. E. Kennaway, vicar of Chipping Campden, and the oratorios were given in the following order:—Tuesday, Mendelssohn's "St. Paul" and Spohr's "Die Letzten Dinge;" Wednesday, Mendelssohn's "Hymn of Praise" and Mozart's "Requiem," and selections from "Mount of Olives" and "Babylon;" Thursday, Mendelssohn's "Elijah;" and Friday, Handel's "Messiah." The first evening concert was a miscellaneous one, but among the pieces in the other evening concerts was a selection from

Haydn's "Seasons," Mendelssohn's "First Walpurgis Nacht," "Zauberflöte," Spohr's "Azor and Zemira," and Mendelssohn's well-known fragment of "Loreley." The festival closed, as usual, with a ball on Friday night. The collections amounted to 856*l.* 5*s.* 7½*d.*, which will ultimately be raised to 1110*l.* 12*s.* 11½*d.*

Godalming.—On Thursday evening, the 7th inst., a murderous assault was committed upon Mr. and Mrs. Underwood, general shopkeepers of Hascombe, a little village about four miles from this town, by a man called Oliver. It appears that the man entered the shop and demanded some beer, and on being refused his demand immediately attacked Mr. Underwood, and inflicted upon him serious injuries with a knife. Mr. Underwood's cries for help quickly brought his wife to his aid, but the assassin rushed upon her and stabbed her several times in the neck and head, causing wounds of so dangerous a character that her life is considered in danger. The man was arrested and brought before a special bench of magistrates on Saturday. He is a man of small size and partially afflicted with paralysis of the right side, but is described as being of a very passionate and vindictive temper. It was stated that the wounded persons will probably not be able, under the most favourable circumstances, to appear before the bench for at least a month. The prisoner was therefore remanded.

Manchester.—At a meeting of the Cobden Memorial Committee in this city, it has been unanimously resolved to entrust the commission for the statue to Mr. Marshall Wood. The total subscription was announced at 4377*l.*, of which more than 3000*l.* has been paid into the bank.

Nottingham.—At the meeting of the General Committee of the British Association at Birmingham on Monday, it was resolved that the next annual meeting of the Association should take place at Nottingham, in compliance with a pressing invitation from the leading inhabitants of this town. Similar invitations had been received from Southampton and Dundee, and Sir R. Murchison, who said he was charged to advocate the claims of the latter place to an early visit from the members and associates, expressed a hope that it might be gratified the year after next. Mr. F. Galton then moved, and Mr. J. P. Gassiot seconded, the nomination of Mr. W. R. Grove, Q.C., F.R.S., as President for next year. The motion was unanimously adopted. Mr. Grove acknowledged the honour done him by this choice, and promised to do his best to make the meeting at Nottingham as successful as any of its predecessors. The Duke of Devonshire, the Duke of Rutland, Lord Belper, the Speaker of the House of Commons, Mr. Webb, Mr. T. Graham, and Mr. J. Hooker, were elected vice-presidents.——The Nottingham and Midland Counties Working Classes Art and Industrial Exhibition was opened in this town on Tuesday by Lord Belper, the Lord-Lieutenant of the county, in the presence of the leading gentry of the district. A procession was formed at the Exchange, which proceeded through the principal streets to the Institution, where Lord Belper delivered the inaugural Address. At its conclusion the company partook of a cold collation in a marquee which had been erected near the building.

Reading.—The Reading Industrial Exhibition was opened on Wednesday by the Bishop of Oxford. A portion of the Town Hall has been set apart for the display, which includes some valuable contributions from her Majesty's collection at Windsor, the Tinted Venus by Gibson, and other works of sculpture, many valuable paintings, and other objects of interest. The industrial portion of the exhibition is nearly swamped by the attractive Loan Collection. At the conclusion of the Bishop's address, luncheon was served in the Assize Courts.

Salisbury.—Miss Emily Sophia Blake, only daughter of Mr. T. J. Blake, surgeon, of Castle Street, in this city, died on Tuesday night, the 5th inst., from the effects of poison. She was only 19 years of age, and of an exceedingly attractive person. Late on Tuesday night Mr. and Mrs. Blake were alarmed by hearing loud cries from her bedroom, and found her in great agony, screaming loudly, while her body was in a state of rigidity, and exhibiting symptoms of poisoning by strychnine. They immediately sent for Dr. Roberts and Mr. W. M. Coates, who applied all the usual remedies in a case of this nature. On being asked whether she had taken any medicine, she denied that she had done so; but she was afterwards privately questioned by Dr. Roberts, who told her she was dying, when she admitted that she had taken three pills. Dr. Roberts asked her who gave her the pills, and she replied "They were given to me by Mr. Storer, who said they were to keep me well." [Mr. Storer was the late assistant to Mr. Blake.] Dr. Roberts asked her if any of them were left, and she replied that there was a box in the dressing-table drawer. The box was found, and on being asked if that was the box from which she had taken the pills, she said it was. Shortly after this she fell into convulsions and died. On Wednesday evening, Dr. Roberts, Mr. Coates, and Dr. Blackmore, made a *post mortem* examination, when they found the principal organs in a healthy state, while the symptoms which appeared to have occasioned death, were such as would result from poisoning by strychnine. The stomach and its contents were accordingly sealed up, and, together with the pills found in the box, forwarded to Professor Taylor for analysis. The examination revealed the fact that the young lady was not in the family-way. It appears that Miss Blake did not take the pills with any intention of committing suicide, as she had written a letter to one of her aunts respecting a journey to London, and was in very good spirits a short time before her death. She was out for a walk on the Tuesday evening, and was met by various persons, who observed nothing unusual in her appearance. She also had a romp in the kitchen with the servants before she went to bed. Mr. Storer, the person who, according to her statement, gave her the pills, was for some time an assistant to Mr. Blake. It is stated that he proposed to marry her, but his suit was rejected by her father; and his conduct not being satisfactory he was dismissed. He left Salisbury for Falmouth about three weeks ago. After he was gone Mrs. Blake received a telegram from his sister stating that he was very ill, and was in a desperate state of mind respecting the young lady. It is said that Mr. Blake had no strychnine in his surgery; and thus, if the pills which occasioned Miss Blake's death were prepared for her by Mr. Storer, the poison must have been procured out of the house, and must have been purchased for the purpose. The following are some additional facts respecting Mr. Storer. About two years since he entered the employ of Mr. Read, chemist and druggist, Salisbury, where he remained as assistant for about six months. Previously to his engagement at Mr. Read's, he was employed by Mr. Stone, chemist, of Marlborough. While in Mr. Read's employment he conducted himself with great propriety. He left Mr. Read's, and was for some time an assistant in a chemist's shop at Cheltenham. He subsequently returned to Salisbury, representing himself as a duly qualified medical practitioner, and was engaged by Mr. Blake as his assistant, with whom he remained until a few weeks ago. A warrant for his apprehension was issued, and on Thursday he was brought before the city magistrates charged with the murder of Miss Blake. The prisoner insisted on making a statement, in which he admitted that he and the young lady were attached to each other, and that her father refused his consent to their engagement. He admitted also that at her request he had given her digestive pills, but he indignantly denied that he had administered strychnine, or had ever had the poison in his possession. He was remanded, pending the result of the analysis by Professor Taylor. An inquest was held on Tuesday, and adjourned.

Sheffield.—The annual Cutlers' Festival took place in this town on the 7th inst. In returning thanks for the toast of the Lord Lieutenant, Earl Fitzwilliam alluded to the rule prohibiting the discussion of politics at that board, and said it made the feast like an indigestible "Welsh rabbit." Mr. Roebuck, in acknowledging the toast of the Borough members, said that it was his notion that he should best consult their views and the views of the country at large if he indulged in making that Welsh rabbit that Lord Fitzwilliam had referred to palatable. He then proceeded to speak as follows:—

"My notion about the matter is a very different one to that of the noble earl. Instead of as a Welsh rabbit I shall illustrate their meeting as like salad, in which the tart vinegar, the pungent pepper, and the smooth oil, and the wholesome salt can be beaten together, making an agreeable condiment—that exactly what I wish to do on this occasion. I have no doubt that there are many in this room who have gone across the Channel in a storm, and have felt the vessel as it goes over the waves creating great discomfort to their spirit and their body, and when they land the very railroad seems to be bounding up and down, and they cannot divest themselves of the notion that they are still upon the ocean,—that is my feeling with respect to the present election. I have gone through all the difficulties, and I have landed, and the land still seems moving up and down, but still I have arrived at that calm state of the nerves that makes me look back upon the past with some feelings of satisfaction; and now I ask what has this great election taught us? Well, it has taught us this. We have been told that there has been no great principle at stake in the past election. Now, that I believe to be a great mistake, and if the company will allow me, I will state why I think it is a great mistake in the onward course of events in England. The spirit of Reform has been at one time in the ascendancy, and the spirit of reaction in another. From the death of Elizabeth to the death of Cromwell the spirit of Reform went on and played precious pranks, and then came a violent reaction, and that passed through the reign of Charles II. and James II., and then came the spirit of onward movement from William to the first and second George, but when the third George came again came a reaction; that reaction lasted until the end of the war with Napoleon, and then came the onward progress, and that onward progress has made way until the present time. Now, we were told with so much confidence that I almost believed the people who told me that the people of England were tired of improvement; that they were altogether out of sorts with the onward party; and that they wished to get again to reactionary movement. The question that was fought at the last election was whether that statement was true or false, and the fact has been the people of England are so wedded to improvement, so desirous of improving and going onwards, that they have returned a majority to the House of Commons who are bound to be Liberal. Well now I believe, if you will mark what has taken place, you can't conclude that the people of England have been unwise in that particular. In 1829 we got rid of ecclesiastical measures of opposition to Reform. In 1830 and 1832 we altered the political Reform of the country. It was a great revolution to guide us, and when I speak of the word "revolution" I wish to say a word about the people of England. They don't ask for theoretic perfection, but what they ask is political advancement; they don't shatter down all the old things about them, nor, to make a clear field, erect a perfect temple upon the basis: no, they take what their ancestors have given them. They fashion and improve it, they make what has now been made a House, and I believe a Government that has never been equalled since the world began, for the happiness and welfare of the people under them. You may call it theoretic. You may call it monarchic. I am glad it is monarchic. In my youth I was what is called a Republican, but I am glad to feel that the people of England are governed in a way that ought to make the world at large envy them. These are statements, I have no doubt, that will sound in the ear of my Lord Fitzwilliam wild and wonderfully political. That Welsh rabbit I believe every one here would digest, and after doing so would go home fully persuaded that the country in which he lives ought to be and is the envy of the whole world. We have freedom of speech and thought; we have security for person and property to an extent that the rest of the world does not know, and when foreigners come among us the wonder to them is how this vast multitude of human beings can live so quietly and so happily. That is the condition of ourselves at home, and now allow me to call your attention to what has taken place two or three days ago at Portsmouth. We have had our old enemy, and now our ally, the French, meeting us in friendly concourse and in friendly, I may say, emulation on the waters of Portsmouth. Do you believe that that is a fact of significance to the world? It is a fact significant of this, that while England and France hold together the world must be at peace. There may be outlying populations who wish to disturb the peace of the world, but they will be kept down by the dominion and force of the two great nations of the world—France and England. I don't care whether they are on the other side of the Atlantic or on this, they must obey. I don't care about the world; and I will say for the Emperor of the French that he sees clearly what the destiny of the world ought to be, and he employs that power which he has and so well exercises for the benefit of mankind. Now I would make the moral of my tale. What I have said will be my guide as your representative. As your representative, speaking in the House of Commons, every word that I utter goes forth to the world. It is not as the individual; it is not that, it is that he is the representative known as thoroughly representing the people of England and Wales. He utters his sentiments; they are known to be the sentiments of a larger body of his countrymen. Well, those will be the ideas with which I go again to represent you after many years of representation; I believe and I feel myself to be now as a sort of part and parcel of this great Cutlers' Company. I am always here, and I believe myself to be part of you, and this very day I have gone through all your forms, and I ought to be elected an hon. member of your company; but I have a greater dignity, and it is that I am the representative of Sheffield, and in that character I shall maintain peace; I shall maintain the dignity of England, and I will do all I can to advance the great body of my countrymen to the attainment of that power to which I think they are destined."

Sunderland.—An inquest was held in this town on Saturday on a child three years old, which had been entrusted to the care of an old woman called Robson, who took care of illegitimate children. The mother was a married woman called Lawson, but who did not live with her husband. Cries were often heard by the neighbours proceeding from the rooms where the child was kept, and on entering a sickening spectacle was discovered. In one room lay the daughter of the old woman in a state of drunkenness, and in another the woman herself, helpless from age and disease, with the child, which was covered with filth and vermin, by her side. The two latter were removed to the workhouse, where they died. The *post-mortem* examination showed that there was not a drop of blood in the child's body, and that parts of its flesh were absolutely eaten away by vermin. The Coroner in summing up said that the law in the case was that if a mother knew that her child was being starved or neglected, whilst in the possession of another person, such mother was responsible for that neglect, and could not throw the blame on to the father who contributed to its support. The jury returned a verdict—That the child died from starvation and neglect, with the knowledge and consent of the mother. This is equivalent to a charge of Wilful Murder.

Swansea.—A reprieve has been obtained for Francisco Giardienari, the Italian seaman convicted at the last Assizes for the murder of his fellow seaman, Peter Moitch. The sentence of execution had been previously respited for a month, and Sir George Grey, the Home Secretary, taking all the circumstances of the case into consideration, has advised her Majesty that the capital sentence ought not to be carried into effect.

Weston-super-Mare.—On Sunday morning it was discovered that three gold watches, a gold pencil-case, and a purse containing some gold and silver, the property of various persons residing at a hotel in this town, were missing. The alarm was given by Mrs. Weston, a lady living near Taunton, who awoke on Sunday morning about 5 o'clock, and on going to the table upon which she had placed her watch, found, to her dismay, that it was gone, and that her gold pencil-case was also missing. Mrs. Weston at once gave an alarm, and the landlady being called up, an examination of the house was made, when the doors and windows of the hotel were found in the same state as they were left on Saturday night. Acting on the suggestion of the police, the inmates of the hotel were roused, and it was then found that two of the inmates who had neglected to fasten their bed-room doors on the previous night had lost their gold watches, and that another gentleman had lost his purse. The house and premises were again searched, but without effect, and it was apparent that some person residing at the hotel must have committed the robbery. It is supposed that the thief having robbed those rooms which were unlocked, returned to his own room, and raising the window, lowered the booty to a confederate, stationed at the outside of the hotel, who at once made off with it. By this trick two advantages were secured—first, that the receiver of the stolen articles would get off safely with them; secondly, that the actual thief would escape all chance of suspicion, and might safely challenge a vigorous search of his boxes and person. The police are endeavouring to trace the guilty parties, but at present there is no ground for suspecting anybody.

Whitby.—On Tuesday night the 7th inst. the house No. 4, North Terrace, Whitby, at present occupied by Mr. T. H. Coles, of London, was entered by some expert burglar, who succeeded in carrying off plate and

jewellery to the value of 170*l*. The gold watches and diamond rings were abstracted from the bed-room in which Mr. and Mrs. Coles were sleeping at the time, although the door was locked, and the key left inside.

WIGAN.—On Saturday morning the mail train, which drops and takes up the bags of letters at this town by a mechanical contrivance, while passing through the station at full speed, took up the bags for the North in the usual way, but failed to catch those from the South intended for Wigan. The long leathern envelope containing some half dozen different bags of letters for distribution in the district consequently fell on the line, was caught by the wheels of the carriage, and was cut, ripped, and slashed in a thousand directions. The letters were mutilated and dispersed, tattered envelopes, newspapers, note-sheets, invoices, funeral cards, &c., being strewn along the line for a distance of a mile or two. Many hundred letters were recovered intact, but a vast quantity were so totally defaced and torn as to render either contents or address totally indecipherable.——On Tuesday, as eight men and boys employed at the California Pit, Pennington Green, were ascending the shaft in the cage, the wire rope, when the cage was within about 45 yards of the top, suddenly slipped off the cone-shaped drum on the shaft, and though the engine was immediately checked, the cage fell down the pit, snapping the steel wire like thread, and then dashing down at a fearful rate to the bottom, a fall of fully 270 yards. The men and boys were of course killed on the spot. The rope, which was of steel and about 3¼ inches in circumference, had been on the drum since the 13th of May, and was in good working order; it was calculated to resist a strain of 10 or 12 tons, but this, of course, would be nothing compared with the force of the jerk by which it was broken. The drum was of conical shape, and the slipping of the rope which caused the accident would be very similar to the slipping of a lad's string when he winds his pegtop.

WOLVERHAMPTON.—On Tuesday a coroner's jury returned a verdict of Wilful Murder against Robinson, who killed the young woman Harriett Seager on the 26th ult., by cutting her throat. One of the surgeons of the hospital stated that he had observed no signs of insanity about Robinson, who, while the coroner was reading over to him the depositions of the witnesses, diverted himself in trying to catch a fly on the quilt of his bed in the infirmary. He is however not yet in a condition to be removed.

WORCESTER.—A man who gave the name of Kennedy was apprehended at Birkenhead on Saturday night on suspicion of being the Rev. A. J. H. Morton, who recently absconded from Worcester with a gold watch and chain, which he obtained under false pretences from a tradesman. On inquiry, however, it was found that the wrong man had been apprehended; and the prisoner when brought up at Birkenhead Police Court, on Monday morning, was set at liberty.

Ireland.

THE FENIANS.—In consequence of a report that some Fenian demonstration was about to be attempted on the west coast, and that a body of disbanded Federal soldiers had landed in the neighbourhood of Galway, the Channel fleet, under Admiral Dacres, consisting of the flag-ship and five iron-clads, left Spithead on Tuesday for Bantry Bay. The 6-gun sloop of war Gladiator, and the gunboats Highlander and Rose, left Queenstown last week to cruise on the west coast, and her Majesty's screw frigate Liverpool, 42 guns, unexpectedly sailed into Cork harbour on the 7th, and has since left in company with the gunboat Sandfly for the west. On Thursday, on the invitation of Lord Fermoy, Lord-Lieutenant of the county, who occupied the chair, a meeting was held at Cork to consider the existence of a secret organisation dangerous to the public peace. The attendance was very large, considerably more than 150 magistrates being present, including the Earls of Bandon and Shannon. The proceedings were private, and did not occupy more than an hour. They resulted in the unanimous adoption of a memorial to the Government, praying for an immediate increase in the police and military force of the country.

THE COMMISSIONNAIRES IN IRELAND.—A movement has been set on foot in the army in Ireland to organize an institution similar to the Corps of Commissionnaires in England, to be called the "Army Pensioners' Employment Society," with the object of providing a home and suitable employment for partially disabled soldiers resident in Ireland, the head-quarters of which is to be in Dublin.

Scotland.

THE SCOTTISH NATIONAL MEMORIAL TO THE PRINCE CONSORT.—A meeting of the general central committee for promoting the Scottish National Memorial to the Prince Consort was held a few days since in Edinburgh, the Duke of Buccleuch presiding. The secretary read a report of the steps taken in connection with the Memorial, stating, as already known, that her Majesty had selected, out of the designs submitted to her, one by Mr. John Steell, her Majesty's sculptor for Scotland, for an equestrian statue on a pedestal, with inscriptions and bas-reliefs, and with sculptured groups at the base, to be placed on a site in the Queen's Park, near the scene of the great Volunteer review at Holyrood in 1860. The meeting unanimously approved the report, and requested the Duke of Buccleuch to convey to her Majesty the respectful expression of their gratitude for having taken so much trouble and interest in this national work. It was also resolved to carry out her Majesty's wishes with respect to the site and design, and to appoint a committee, enter into contracts with the artists concerned, and make such advances from the fund from time to time as they might think fit. The secretary reported that the amount of the fund in the bank was 12,921*l*.

THE ORGAN MOVEMENT IN THE KIRK.—A meeting of the session and members of the Tron Church, Glasgow, was held on the 7th inst., to consider the propriety of introducing an organ in the services of the congregation. It was unanimously agreed that a sum of not less than 500*l*. should be raised for the purpose of procuring a high-class organ. Upwards of 100 guineas were subscribed before the meeting broke up. Services, in which the organ was used for the first time, in Maxwell Church, Glasgow, took place on Friday night.

MURDER AT SEA.—A brutal murder has just been committed a short distance at sea, on the north-east coast of Scotland. On Wednesday afternoon, the 8th inst., the schooner Nymph, of Montrose, left that port, with a cargo of flooring, for London. The crew consisted of four—the captain, John Greig; the mate, Andrew Brown; and two seamen, Pert and Raeburn. All appears to have gone well until towards evening of Wednesday, when Pert, who was at the helm, was suddenly startled by hearing a loud smashing sound, and on looking forward was horrified to see Brown, the mate, with an axe in his hand, striking at the head of Captain Greig, who had been lying dozing on deck. Quick as thought the mate, with three furious blows, completely smashed his victim's head literally to pieces. With the assistance of Raeburn, Pert, after a struggle, succeeded in wresting the axe from Brown, and threw it overboard. The murderer, still in a wild passion, assumed the command, threatening instant death if his directions were not complied with. He ordered the vessel's course to be altered, and this being done they sailed northwards. About 12 at night the Nymph was off Stonehaven, when, with the consent of Brown, a pilot was hailed, and the vessel was soon moored in that port, nearly opposite, indeed, the house of the murderer's mother. Pert and Raeburn immediately on getting ashore proceeded to the Police Office and gave information of the deed, when in a very short time Brown was apprehended in his mother's residence. He acknowledged his guilt by saying, "It was me that did the deed; but I have seen my mother, and I hope I will see her again." No motive is known for the shocking affair; but Brown, who is about 25 years of age, was well known in Stonehaven as very quarrelsome, particularly when in drink. Captain Greig was a fine, promising man of 30, and son of the owner of the vessel in which he met his fate. On Saturday Brown was conveyed to Forfar, the Crown having decided that the prosecution of the case belongs to Forfarshire, the crime having been committed only a mile and a half off the Forfarshire coast.

Railways.

NEW LINE BETWEEN MANCHESTER AND LIVERPOOL.—It is stated that the contract for the construction of the straight line to Liverpool by the Manchester, Sheffield, and Lincolnshire Company, has been let to the firm of Messrs. Brassey & Co., and that the works are to be commenced immediately.

COLLISION ON THE BRIGHTON.—On Friday morning, as the ordinary goods train from Portsmouth for London was arriving at Three Bridges, the Brighton up goods train entered the station at the same time, and ran into the Portsmouth with a fearful crash. The drivers, stokers, and guards had a narrow escape with their lives. On Monday the Company charged the driver and fireman of the Brighton train with neglect of duty, in disregarding the signals. It appears that by neglecting to stop their engines, in obedience to the signals, they had caused damage to the extent of 2000*l*. The magistrate remanded the prisoners, but accepted bail in 40*l*. each, and themselves in double that amount.

COLLISION ON THE GREAT WESTERN.—On Saturday another collision took place on this line near the Banbury station. While the express train from London to Liverpool was passing at full speed, the axle of the engine broke. The engine ran down an embankment and only one carriage remained upon the rails. No lives were lost, and the passengers, though much shaken, escaped with some bruises. The driver escaped by jumping off.

COLLISION ON THE LANCASHIRE AND YORKSHIRE.—On Saturday morning a collision took place at the Hoghton Station, a few miles from Preston, on the East Lancashire Section of the Lancashire and Yorkshire, between two goods trains, the danger signals having been improperly turned off by a platelayer who had no business to touch them. Several of the waggons were destroyed, but no lives were lost.

RAILWAY ASSAULT.—A traveller in the wine trade, named Alexander Macintosh, has been fined 5*l*., with 18*s*. costs, by the Croydon magistrate, for attempting to kiss a young woman with whom he was travelling in a second class carriage through the Merstham tunnel. The magistrates told him that they had the power to send him to the house of correction for six months.

Sporting.

DONCASTER RACES.

TUESDAY.—*Fitzwilliam Stakes.*—Colonel Baillie's [illegible] Richard beat Argonaut, Ambition, and 5 others. [illegible] *Stakes.*—Lord Stamford's Cubisa beat Rapid Rhone [illegible] *Filly Stakes.*—Mr. Johnstone's Sister to Cambuscan [illegible] Harriette, Gretna, and 4 others. *Revival P[illegible]*—Mr. Johnstone's Rococo beat Attraction, Edith of Lorn, [illegible] Trumps. *Great Yorkshire Handicap.*—Mr. Hugh Sm[illegible] Davis beat Elland, Claremont, and 13 others. [illegible] *Stakes.*—Lord St. Vincent's Redan beat Lord Lyon, [illegible] Hood, and 10 others. *Selling Stakes.*—Marquis of H[illegible] Sisyphus beat Kingfisher, Cobweb, and 3 others. [illegible] *Plate.*—Major Stapylton's Red Earl beat Molly Carew, [illegible] o'Lantern, and 8 others.

WEDNESDAY.—*Municipal Stakes.*—Mr. Sutton's Gu[illegible] Sans Si and Lady Alicia colt. *Handicap Sweeps.*—Lord W[illegible] moreland's Crown Prince beat Alberta, Lady Elizabeth and 23 others. *St Leger Stakes.*—Count F. de L[illegible] Gladiateur beat Regalia, Archimedes, The Duke, and [illegible] Betting.—6 to 4 on Gladiateur, 5 to 1 agst The Duke, [illegible] agst Regalia, 100 to 7 agst Klarinska, 25 to 1 each agst B[illegible] bane and Archimedes, 50 to 1 agst Peeress, 100 to 1 agst Zambesi. They left the post at the first attempt, Zambesi with Klarinska, Breadalbane, and Peeress at his girths [illegible] away in advance, but on making the turn Klarinska [illegible] the front and made the running, The Duke going on second, Peeress third, with Walcot, Breadalbane, and Regalia next; three lengths in the rear of these came Red Earl, Archimedes, Sister to Ascham, and Heir-at-Law, nearly abreast, and [illegible] in the track of the latter were seen the colours of the Frenchman, Dux, and Barbarossa. They ran thus without any perceptible alteration to the foot of the hill, when Gladiateur was seen to give way, which gave rise to fears of his having broken down, but on reaching the mile-post he gradually improved his position, and followed the leaders up [illegible] the upper ground. At the Rifle Butts Zambesi [illegible] into the fourth place, closely attended by Breadalbane and Regalia, the latter two being joined by Gladiateur, upon whom Grimshaw was biding his time. Making the Red House turn Klarinska suddenly gave way, followed in a few strides further by Walcot and Zambesi, leaving Peeress in possession of a slight lead of The Duke, who was followed next by Archimedes and Regalia, Gladiateur at this point giving evidence of having recovered his previous mishap. A few strides further Mr. Tattersall's filly was disposed of, when The Duke appeared in advance, and with Archimedes and Regalia came on in company to the bend. Here Grimshaw brought up Gladiateur, who having all his horses beaten at the distance, came on with a clear lead, and won with extreme ease by three lengths. Regalia, who headed Archimedes at the Stand, secured the second money by half a length, the latter defeated The Duke by three lengths for third, Breadalbane was fifth, Sister to Ascham sixth, Peeress seventh, and Klarinska next. The others were beaten off a long way, Red Earl being last. After the race Mr. Graham, the owner of Regalia, lodged a protest against the stakes being paid over to Gladiateur until his mouth had undergone examination. Upon this the stewards of the meeting conferred with the stewards of the Jockey Club, and the latter authorities confirmed the decision which has previously been given, adverse to the owner of Regalia, and the matter may now be considered settled. The *Corporation Plate.*—Mr. W. Robinson's Muezzin beat Holstein, Thalassius, and 7 others. *Sweeps.*—Mr. Jackson's Reprise beat King Hal, Broomielaw, and 5 others. *Her Majesty's Plate.*—Marquis of Hastings' Ackworth walked over. *Stand Plate.*—Mr. Arnold's Kilkenny beat Salliet, Gulnare, and 12 others.

THURSDAY.—*Scarborough Stakes.*—Mr. Falmouth's Celerima walked over. *Sweeps.*—Duke of Beaufort's Rustic beat Sunskin, Nutrition, and 10 others. *Zetland Stakes.*—Count F. de Lagrange's La Fortune walked over, and divided the stakes with Lord Stamford's Archimedes. *Portland Plate.*—Lord Westmoreland's Kilkenny beat Lady Egidia, Thalassius and 9 others. *Eglinton Stakes.*—Lord Stamford's Cubisa beat Split the Difference, Raunds, and 4 others. *Junior Stakes.*—Marquis of Hastings' Sweet Anne beat The Nun, Blue Bell filly, and 3 others. *Cleveland Handicap.*—Major Stapylton's Sundeelah beat Elland, Windham, and 7 others.

FRIDAY.—*Sweeps.*—Archimedes walked over. *Don Stakes.*—Archimedes beat Regineilt. *Doncaster Stakes.*—Gladiateur beat Breadalbane and Reginella. *Doncaster Cup.*—Acme beat Hippolyta. *Town Plate.*—Effie beat Blue Mantle, Scottish and 7 others. *Nursery Plate.*—Sweet Ann beat Crowl, Frank Shamrock, and 16 others. *Scurry Stakes.*—Lady Sophia beat Lady Abbess and Sisyphus. *Park Hill Stakes.*—White Dove beat Trapeze.

Obituary.

GENERAL SIR JAMES FERGUSSON, G.C.B., Colonel of the 49th Regiment, died at 14, Marlborough Buildings, Bath, on the [illegible] inst. He was the son of Mr. Charles Fergusson, by his cousin [illegible] daughter of Mr. James Fergusson, of Craigdarrock, Dumfriesshire, which has been in possession of his ancestors unbroken for ages past. He entered the Army in 1[illegible] as Ensign in the 18th Regiment, from which he was removed to the 43d, then training with the 52d and old 95th under Sir John Moore at Shorncliffe, and which afterwards became the famous Light Division. In that regiment he served in the campaigns of 1808–9, at Vimiera, Corunna, and subsequently at Walcheren; in the Peninsular campaigns from 181[illegible] to the end of the war in 1814, during which time he was never absent from his regiment except from wounds. He was five times wounded, and though his wounds were still open, he led the stormers of his regiment at the third siege of Badajoz, and was again wounded. Though his promotion was rapid compared with many others, he had to purchase all his steps. He served with the 43d Light infantry during nearly the whole war, [illegible] he was appointed Major of the 79th Regiment in 1812, but was removed to the 85th, and served with that regiment at the investment of Bayonne; was appointed Lieut.-Colonel of the 2d Battalion of the 3d Regiment in 1814, and after the close of the war, when the battalion was reduced, was placed on half pay, when he went to study at the Military College at Farnham for some time. In 1819 he was appointed to the command of the 88th, of which regiment he always spoke in terms of high regard. In 1825 he was removed to the command of the 52d, one of the old Light Division, with which he was so gloriously connected. In 1830 he was appointed Colonel and King's Aide-de-Camp. He continued in command of the 52d Regiment till 1839, when he retired on his [illegible] Lord Hill, then Commander-in-Chief, remarking, "that [illegible] commanding regiments for more than a quarter of a century" he was at liberty to do what he thought proper. He became Major General in 1841, and Lieut.-General in 1851, and was appointed to the command of the troops at Malta [illegible] where he was stationed during the early part of the Crimean war, his inability from the diseased state of his lungs, caused by a former wound, alone preventing him from again volunteering his services in the field. He received the thanks of the Duke of Newcastle for the manner in which he provided

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.

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The CHRISTMAS QUARTER Commences October 6.

HIGHLAND and AGRICULTURAL SOCIETY.
AGRICULTURAL EDUCATION.

The EXAMINATIONS for the SOCIETY'S CERTIFICATE and DIPLOMA will be held at the Close of the Winter Session of the Edinburgh University.

Candidates for the Certificate must be 18 years of age; those for the Diploma must be 21.

Candidates for the Certificate must be acquainted with Farm Accounts, Mensuration, and Surveying, and must possess a good knowledge of Practical Agriculture, and a general acquaintance with the principles of Botany, Chemistry, and Natural History.

Candidates for the Diploma must have previously obtained the Certificate, and must possess a thorough knowledge of the Theory and Practice of Agriculture; of Mechanics and Mensuration; of the Physiology and Treatment of Domesticated Animals; and of the application of Botany, Chemistry, and Natural History to Agriculture.

BOARD of EXAMINERS.

Science and Practice of Agriculture—Mechanics & Construction.	JOHN WILSON, Prof. of Agriculture, Edinburgh University; GEORGE HOPE, Fentonbarns; ROBERT RUSSELL, Pilmuir; and JOHN WILSON, Edington Mains.
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Book-keeping and Accounts	KENNETH MACKENZIE, C.A., and PETER M'LAGAN, of Pumpherston, M.P.

Further information in reference to the Examinations to be had on application to the Secretary of the Society, at 6, Albyn Place, Edinburgh.

JN. HALL MAXWELL, Secretary.

SMITHFIELD CLUB SHOW.
AGRICULTURAL HALL, ISLINGTON, Dec. 4 to 8.

IMPLEMENT DEPARTMENT.—The Last Day for receiving Entries for Implements and Machinery, &c., is Oct. 2 (the 1st falling on a Sunday.

Printed Forms for Entry, with Rules and Regulations, may be obtained of Mr. DAVID PULLEN, Assistant Secretary, at the Office of the Honorary Secretary, Corner of Half Moon Street, Piccadilly, London, W.

SMITHFIELD CLUB FAT CATTLE SHOW.—The ANNUAL SHOW of FAT CATTLE, SHEEP, and PIGS, will be held at the AGRICULTURAL HALL, ISLINGTON, on MONDAY afternoon, December 4, and four following days.

Intending Exhibitors are requested to apply for Certificate Forms by the reference letters as under.

CATTLE.—Form A. For an OX or STEER (in any Class).
" B. For a COW or HEIFER (in any Class).
" C. For a BEAST in Extra Stock.
SHEEP. " D. For a PEN of 3 WETHERS (in any Class).
" E. For a SINGLE SHEEP in Extra Stock.
PIGS. " F. For a PEN of 3 PIGS (in any Class).
" G. For a SINGLE PIG in Extra Stock.

ENTRIES for LIVE STOCK CLOSE NOVEMBER 1.

Prize Lists, Forms of Certificates, and all information may be obtained on application to Mr. DAVID PULLEN, Assistant Secretary, at the office of the Honorary Secretary, corner of Half-Moon Street, Piccadilly, London, W.

N.B.—All communications respecting the Show must be addressed to the Assistant Secretary, as above, and should bear outside the words "Smithfield Club."

The Agricultural Gazette.
SATURDAY, SEPTEMBER 16, 1865.

WE receive almost daily broadsheets recording the successes of the Champion ploughmen at various local matches. Messrs. HOWARD and RANSOME, at enormous cost, send the best ploughs they respectively can make, and the best ploughmen whose services they can hire, and the best pairs of horses they can possibly procure, to one after the other of almost all the county meetings during the autumn months, and they are then at great expense to advertise the important fact that BROWN has beaten JONES in the Champion class; or that the prize has been awarded to Mr. RANSOME'S or to Mr. HOWARD'S ploughs in the hands of JOHN SMITH, ploughman to Mr. ——, one of the neighbouring farmers.

What is the exact amount of public service rendered by the enormous expenditure which these firms in this way annually incur? There may be some additional interest thus excited locally in the issue of a personal competition, and probably a somewhat large attendance may be attracted to the field, and thus the life and energy of the local ploughing match may be to some extent invigorated—and all these results are no doubt locally desirable. But that English agriculture generally is improved and benefited by this costly competition we altogether deny. It matters nothing whatever, we believe, to any farmer in the country whether A or B, with RANSOME'S and HOWARD'S plough and team respectively, shall carry off the prize in the opinion of Messrs. C, D, and E, the judges of the F—— Farmers' Club. In the first place the tools they use are both first-rate, and each of them will do the very best tillage of which a plough is capable; in the second place any differences in the work they do accomplish are owing very much more to A and B respectively and the teams they drive than they are to the ploughs they hold; and in the third, the judgment of Messrs. C and D and E cannot be accepted as infallible.

These judgments, therefore, we do not care to place on record in our columns. The competition between these rival firms conducted thus is not in the interest of English agriculture; it is purely a personal matter; and we submit that manufacturers who object with us, especially in the case of such a tool as the plough, to the unsatisfactory annual competitions before the very best judges which the National Society can procure—are in the highest degree inconsistent in wasting their money for the attainment of these local distinctions, in every respect so much less satisfactory. Success on such occasions may be a very good trade advertisement to catch the eye and custom of a certain class. But all our aim must be to warn this class that they are being caught by a bait, which, to use an old definition of the fisherman, however costly it may be to the fool at one end of the rod, is altogether worthless to the greater fool who swallows it.

Now that the subject of the Cattle Disease is fairly before our readers, we may devote a short time to the consideration of certain collateral matters which have yet received but little attention; such questions as the means by which the infection is carried from one place to another—the steps that have been taken for preventing the spread of the malady—the amount of risk incurred by consumers of milk and beef—the prospects of the continuance of the plague among our stock;—these are points which concern the public, and the agricultural public particularly, and after what we have previously written upon the origin, nature, and treatment of the disease, we are not acting unreasonably in assuming that our arguments upon the subject stated will be perfectly intelligible to our readers.

The first question proposed is difficult of solution. The appearance of the disease in an isolated shed containing only one animal, which has not been taken out of it since it was first admitted, is puzzling, and in the mind of the owner the conclusion arrived at is that the disease is "carried in the air," because, as he observes, "no diseased animal has been near here, and the cow has never been out of the shed." This one case, which actually occurred a few days ago, may be accepted as an illustration of a class of cases varying but little in their details; the animals in each instance being in small groups of twos and threes, kept in sheds away from other stock, never taken out, and as far as could be ascertained, never exposed to the influence of infection. Without accepting the onus of tracing the process of the contagion, or attempting to explain in every case how the animal became infected, it is nevertheless, in most cases, apparent that infection has been at work. The mere circumstance of the majority of animals escaping altogether during the time the disease was raging in a virulent form, is in itself opposed to the idea of the malady being an epizootic. Again, the influence of contagion is evident in the prevalence of the disease among large masses of animals, to reach which it has often passed over small groups. In many localities two or three cows kept in private establishments, although surrounded by diseased animals, have remained for a long time safe, until their owners have indulged the hope that they would altogether escape; their turn has in many instances arrived at last, but the manifestations of disease in them have commonly been less violent than where large numbers of animals were collected together.

It would seem as though the infecting matter acted in some cases in proportion to its bulk, to use a mechanical form of expression. Where a large number of diseased animals are associated together, the extension of the disease in their vicinity is marked by all the characteristics of the affection in its most malignant form; but on the other hand, where only a few animals are collected together, and become affected, the extension of the disease from such a centre is often less sure, and the affection when communicated is less rapid in its course and less virulent in its nature.

The difficulty of accounting for the outbreak of an infectious malady is not alone felt in reference to this disease of cattle. Small-pox in man is admitted to be eminently infectious, and in the event of an individual becoming affected in spite of all precaution, no attempt is made to explain the circumstance on the ground of the spontaneous origin of the malady, but, on the contrary, all the wits of the family are taxed to find out "how he could have caught it." No doubt is ever entertained for a moment that it has been "caught," that is to say that some kind of transmission of infectious matter has taken place from a diseased subject to the previously healthy one, and whether all the facts are opposed to this idea or no, the impression remains the same: "the person has the small-pox, and he must have caught it from some one," and all argument stops at this insurmountable obstacle; but with the cattle plague—although, without any question or doubt, the disease is as infectious as small-pox—the same system of reasoning is no longer in favour, but rather the reverse: "the cow has the plague, and as no diseased animal has been near her, it must be in the air," is the deduction that meets with an universal assent, even from those who, if met by the same suggestion in reference to small-pox, would treat it with a contemptuous sneer. When, as related in the history of small-pox, an Indian suffering from the disease was landed on the Mexican coast, and the disease scourged thousands of the inhabitants off the face of the land, we wonder if the unfortunate atmosphere or the more miserable Indian deserved the greatest share of the blame; but admitting, or at least not denying, that the air may be a carrier of contagious or pestilential matter, there must be the source. There is no reason, certainly no satisfaction, in assuming that in a country previously free from a malignant disease there exist the elements of an immediate and spontaneous outbreak. If then we allow that the pestilence must be introduced—and there is singularly good evidence that in this case it was introduced—it may be further granted that pestilential emanations may be carried by the atmosphere, by the clothes of individuals, by the wool of a sheep, and to go a little further, by the proboscis of a fly; there are no limits to possibilities, but we hold to, and we advise all whom it may concern to hold to, the theory or the fact of *contagion*—to look upon the cattle plague in the same way as they look upon human small-pox; to treat each diseased animal as a centre and source of pestilential matter, and to disinfect it, if they can, or failing that to bury it deep out of sight at once. Had the country been alive to the real danger at the outset, the plague had been smothered out of existence at its origin. Small-pox in sheep has thrice been so trampled out of the land—once slowly and with hesitation; a second time promptly; and the third time on the instant of its appearance, a few hundred sheep being the price of its extermination for the time; but this cattle plague has no malignant pustules to mark its presence, its signs are obscure at first, and lookers on cannot admit that such slight symptoms of derangement can portend any serious result. Every amateur in medicine knows a remedy for this *blood disease*: purify the circulating fluid, oxidize the blood, cleanse the cow-sheds, let in the light and air—the air, by the by, which is accused of carrying the disease. Give tonics, give sedatives, give purgatives; drench the patient with nutriment—keep it short of food; use brandy—avoid all alcoholic fluids as poison. These are the confusing and contradictory suggestions so freely offered; bitterly responding, as a comment upon all, we have the ever-increasing suffering of the dying animals; the haggard, despairing look; the never ceasing groans, the faint struggle at last of the conquered life, and the stillness that mocks at the efforts of misdirected science—if haply instead of this there has not come before the quick sharp stroke of the axe, that ends the suffering at once.

In the public mind there seems to be an entire want of appreciation of the fact that the cattle plague has a period of incubation, that is to say, it may remain dormant in the system for a certain number of days and then appear; therefore that an infected animal may be bought in the market next Monday, to all appearance perfectly healthy, may be taken to a distant part, and on the following Monday show symptoms of the disease; on the Wednesday it may be dead and buried, and in the course of the next three weeks the animals with whom it has been placed, be they few or many, may all have become victims to the same disease. This hypothetical case is the pattern of thousands of natural occurrences, and with all the facts before us there would be no difficulty in accounting for the rapid extension of the plague through the country. Take for example some few places within 10 minutes' walk of each other—not selected, but taken in the course of two hours' inspection. Names are withheld, as they would not strengthen the facts, which are copied from the note-book. (1.) Mr. X. had 70 cows; the

disease appeared among them; one animal was very ill and died, the rest, as they gave evidence of illness by the premonitory symptoms—partial loss of milk and appetite, were sent to market and sold. (2.) Mr. W. had 29 cows; when the disease became apparent, all were sent to market and sold. (3.) Mr. R. had 12 cows; when the disease broke out, all were sent away and sold. (4.) Mr. S. had 140 cows. The disease broke out and destroyed several; but 104 were sent away and sold to propagate the disease elsewhere. In these four instances, in one small neighbourhood, over 200 infected animals were sent away and distributed throughout the country; the question naturally arises, what is the exact amount of injury done, if the calculation be extended to the whole of the metropolitan districts, and still further to the country generally. The fact really is, that the first attempt on the part of the Government to obtain information of the existence of the disease under a penalty for non-compliance with their Order, led to a result directly the opposite to the one intended. Cattle owners at once perceived that their interests were about to be compromised, and as no hint was given of compensation, it was clearly to their advantage to keep the matter in the dark as far as possible, and get rid of the infected stock to the best advantage; accordingly, the notices sent in were units, and the animals sent away were hundreds and thousands. If the animals so removed be estimated exactly in the same way as so many sheep infected with small-pox, and sent among healthy flocks in all parts, a good idea will be gained of the magnitude of the evils inflicted upon the country by these means, and the necessity for explaining the extension of the cattle plague by atmospheric influence, or by the assumption of its spontaneous origin is entirely done away.

Another important inquiry is—what has been done to prevent the spread of the malady, and with what results? This question we propose to discuss in our next.

—— Our advertisement columns inform us that Mr. Robert Smith's annual sale of Exmoor Cobs, Galloways, and large-sized Ponies from Pony Mares, will take place at Bristol, on Wednesday, October 4. They are chiefly bays with black points, and combine good form and action with great hardihood. Mr. Smith's stud farm being from 1000 to 1200 feet above the sea, is a sufficient guarantee of their hardihood.

THE HARVEST AND CROPS.

Having during the last five weeks minutely inspected, probably, a larger area under crop throughout the United Kingdom than any other person, I now lay before your readers my opinion, based on many years' experience of testing the field estimate by the barn floor results of the farm crops of 1865.

In my interim report, written in the end of May, I alluded to the late and barren spring, the rapid growing of the crops caused by the singularly forcing weather in May, and to the extraordinary prospects which the luxuriant state of the crops then warranted, and indicated that a third crop in succession would equal the great crops of 1863 and 1864. These prospects were soon blighted, and a sudden check given to the luxuriance of all cereal crops, and never was the brilliant promise of early summer followed by such indifferent results. On the morning of the 12th of June a severe frost greatly injured the crops, especially on soft, peaty, and moorish soils—their luxuriant hue being suddenly changed into a blanched appearance, while the vigorous and broadly developed plant assumed a stunted and spiral form. It was chiefly, however, the absence of rain and the prevalence of singularly hot weather that continued throughout June which lessened the yield of straw, of which the crops, at an earlier date, indicated such great abundance. Fortunately, all early sown crops had passed the ear forming stage before they suffered from the severe drought, or otherwise the scarce year of 1826 would have been reproduced in 1865. This circumstance accounts for the long ears of all the cereals compared with the length of straw. In the first week of July copious rains improved in bulk the later-sown crops, but the earlier were too far advanced to be benefited; hence in many cases, especially on light soils, the ears of the corn scarcely got clear out of the hoe.

Cutting commenced in East Kent, South Essex, Hertfordshire, in the earlier districts of Norfolk and Suffolk, and in Berkshire on the 24th of July, and fortunate have been those farmers who in the last week of that month secured the grain then cut, as it was, from the overpowering sun that prevailed, in the best condition. With August came very unsatisfactory harvest weather—heavy rains falling every second day, and, being accompanied with a humid temperature, harvest operations were not only almost daily interrupted, but grain from discoloration and sprouting considerably injured. The cereal crops being all ripe, farmers were at a loss whether to cut them in a wet state or to allow them to get over-ripe. The latter evil was doubtless the least; but where crops were laid and twisted from heavy storms, or becoming choked with sown Grasses, their only resource was to cut them.

Although a few fields are still to be seen uncut in the south and south-eastern counties of England, yet these are exceptional, and the great bulk of the crops in these counties has been carried. In the Midland counties, too, cutting is all but finished, and three-fourths of the crop are in the barn-yard. In Yorkshire, Lancashire, and Cheshire three-fourths of the crops are cut, and fully one-third secured. In the most northern counties of England the greater proportion of the crops are in sheaf; but up to the end of last week scarcely a stook was carried. In Scotland, too, where the farmers, anticipating more favourable weather, delayed cutting, nearly one-half of the crops previous to the present week were uncut, and, with the exception of a very small area in the early counties, little grain had been carried. As the operations of cutting and carrying have been uninterrupted this week, from the extraordinary favourable change in the weather, a very large area of corn has been carried in excellent condition, and with another such week there will be few fields outstanding.

It is worthy of notice that in the upland districts harvest has not been so early since 1826, nor have crops ripened so equally since that year. Indeed, cutting commenced nearly as soon in the Vale of Tweed as on the banks of the Thames; while, from the hot sunshine that prevailed throughout June and July, crops in the upland districts have been as early as those in the lowest. This simultaneous ripening of the crops in the different districts caused, where reaping machines were not used, a short supply of hands, which, added to the frequent interruption from weather, has made the present a lingering harvest.

All cereal crops have been so variable this season that those in a county or parish can scarcely with accuracy be designated. Indeed, it was not uncommon to witness two adjoining fields on the same farm, the one yielding a good, the other an almost worthless crop; or two contiguous farms where the crops of the one were a full average and those of the other light.

The Wheat crop first claims attention. In East Kent, South Essex, on the deep soils in Wiltshire, and the strong red soils in Worcestershire and Warwickshire, in Leicestershire, Lancashire, Cheshire, Roxburgh, Berwick, the Lothians, and in the Carse of Stirling, this cereal in point of bulk reaches close upon an average. Indeed, on all deep, strong, and alluvial soils the Wheat crop has nearly the usual length of straw, and large and closely set ears, and plump well-filled grain. Even on the best soils, however, there is a slight deficiency of plants. On the best soils in Surrey, Sussex, and Hants the Wheat crop reaches the low average yield of these counties. Barring the rich loams in the north-east of Norfolk, the marl soils, which form a comparatively small area, in Lincoln, the strong and well-farmed clays in Northumberland and Yorkshire, this cereal is in these counties decidedly under average. Spring-sown Wheat is most deficient, being short in straw and thinly planted. Rust attacked the Wheat plant in the second week of August; but, with the exception of Wheats on fen land and those late sown in spring, the ravages of this disease have been comparatively limited. Like the quantity, the quality of Wheat is very variable. The small breadth early secured is yielding a good bright sample, but the greater proportion carried previous to the present week, being in a soft condition, will be some time before it is fit for market, and even then the grain will be coarse and rough; with the exception of some of the earlier varieties, such as Talavera and Australian, little injury has been caused by sprouting.

Barley—happily termed by Mr. Caird the wine crop of this country—in many instances is now substituted for Wheat; therefore, the area under the crop is rapidly increasing. This may partly be ascribed to the comparatively higher price now realised for Barley, but chiefly to the fact that the stock husbandry is becoming more appreciated, and as Barley is the best intervening crop between roots and Grasses, it is the crop in the usual rotation that conduces most to the extension of stock farming. Early sown Barley on deep soils has cut up well, being thick on the ground, and having a long, full, and closely-set ear. In Norfolk—the great Barley-producing county, with its varied soils of clay, loam, sand, and gravel—the crop varies as the soils vary. On all the light soils which skirt the eastern coast the crop has suffered greatly from drought, in several instances being burnt totally up. On the loamy soils, which form a considerable area of the county, Barley, though far short of last year's crop, is nearly average. Everywhere late sown Barleys are deficient, being thinly planted, the extreme drought having prevented the plants from tillering. This cereal has suffered most from weather, all of it being discoloured; while a considerable portion of the earliest cut in every county has sustained considerable damage from sprouting, so that maltsters will look in vain for the silvery-tinged samples of last year. Where the practice is carried out, as in the southern counties, of allowing the Barley to lie in swathe, and not put in stook when cut, the loss from sprouting and discoloration has been great. Indeed, this mode of allowing grain to lie on the ground in wet, muggy weather is the most effectual way to cause sprout.

The Oat crop is by far the most deficient of the cereals. Indeed, a bulky crop I have rarely seen. This season the best crops I have witnessed were on the deep soils in Oxfordshire, in South Devon, and in the western counties of Scotland. In Aberdeenshire, one of the largest Oat-growing counties, the crop is about one-third deficient. Excepting on early land soils, where the sample is shrivelled and husky, the quality is good, the grain being full and plump; and on the whole the Oat crop has sustained little injury from weather. As the ears of the grain are large, so the yield will be great, compared with the length of straw.

From the general failure of seeds last year a large area of Peas was planted, especially in North Nottinghamshire and on the light soil around Kidderminster. In general this crop is nearly an average, and the quality superior.

The Bean crop is unequal. On all deep loams and, indeed, on all deep clays, including those of the oolite and chalk formations, Beans are a full average crop, but on lighter soils deficient. In general they are full and closely podded, and are an average crop.

Potatos are in almost every district and on every variety of soil a most luxuriant crop, and should the disease, of which there are already unmistakable symptoms, not extend, the yield of this root will be very great.

The Turnip crop—which supplies the chief winter food for cattle and sheep, is the best soil-restoring crop in a rotation and the best preparation for artificial Grasses, and is withal the most profitable farm crop, although the most costly to raise—has throughout the season held out various prospects. On a large breadth of stiff soils the infant plants were completely destroyed by the Turnip fly (staltica nemorum), so that on all such soils resowing was essential. At a more advanced stage the plant was in many instances denuded of its leaves by the ravages of the earwig, happily an unfrequent enemy to root crops, and throughout June a deficiency of moisture greatly retarded its growth on every description of soil. Fortunately, towards the end of the first week in July there was a sufficient amount of rainfall to recover the injured plant, and recent rains, which proved so injurious to cereals, have proved most beneficial to Turnips. The latter generally, indeed, are singularly luxuriant; and although there are some failures on the burning soils in the south, and also patchy fields to be seen on the tenacious clays in Yorkshire, Northumberland, Berwickshire, and East Lothian, yet these are exceptional, and in general the Turnip crop promises to be a full average. Wherever deep autumn ploughing, and merely surface scarifying in spring, had been carried out, there the Turnip crop is most luxuriant. A sufficient degree of moisture and a fine frost pulverised soil is thus preserved to insure vigorous braird.

Mangels are a full average crop. Hay cut well up, was well secured, and is of good quality. The aftermath, or second cutting, is unusually good, being in many instances equal to the first crop of last year.

Pastures are singularly abundant, and are carrying an unusual quantity of stock.

Unlike those of last year, Grass-seeds are luxuriant, being closely planted and vigorous.

Taking the crops as a whole, and without reference to the great crops of 1863 and 1864, and taking into account the high average reached in recent years by an improved system of husbandry, I estimate the yield of the Wheat crop to be 26 bushels per acre, or 4 bushels below average; Barley 32 bushels per acre, or 8 bushels below average; and Oats 34 bushels per acre, or 14 bushels below average. Peas and Beans average, Turnips average, Mangels an extraordinary crop, Potatos unusually good, hay average, pastures singularly abundant.

As I anticipated in my report of last year, the price of butcher's meat has ruled extraordinarily high, and prices for store stock, especially sheep, are even higher than those for fat; so meat, especially mutton, probably will yet command a higher price.

During the past year many farmers wisely consumed with stock their entire produce of Oats and Barley, for, with present prices of beef and mutton and wool, commanding 20, and store lambs 35 per cent. above average prices, they could not sell these products in a better market.

The exclusive corn-growing farmer has no such markets to take advantage of; and unless he at once adopt a mixed system of husbandry, and make stock his staple produce, it is impossible, with Wheat at 40s per quarter, present prices of labour, and ruling rentals, that he can meet his expenditure.

The stock-rearing farmer, on the other hand, enjoys a prosperity without precedent, and in connection with this the extraordinary development of Scottish agriculture in the stock-producing districts is worthy of notice. This was conspicuously manifested during the spring months of the current year by the great number of fat cattle sent from Scotland to the London market, and which realised the highest prices. Mr. M Combie, Tillyfour, Aberdeen, the well-known breeder, alone forwarded to London market during the season 1864–5 nearly 400 cattle, which brought at an average 35*l.* each.

It is, however, in the sheep-rearing districts in the

Border counties that the greatest progress has recently been and is being made. To give one of many instances I could cite. A farm containing 600 acres was, prior to the occupancy of the present tenant, in 1864, all over natural pasture. The former tenant during a 14 years' lease annually realised for his "cast" of lambs from 7*l.* to 110*l.* During the occupancy of the present tenant the natural pastures have been converted chiefly into art field Grasses, and this year's produce of lambs realised 1200*l.* Moreover, there has been a corresponding increase in the revenue derived from other sources—wool, full-grown sheep and cattle; and in addition the farm now annually yields upwards of 100 acres of corn. There are still hundreds of farms in England and in Scotland from which similar results are attainable.

The cattle plague is causing great alarm throughout the country, and each district is vieing with its neighbour in adopting measures to check its extension. It appears to me that the most effectual remedy would be for all farmers to give up for a time the purchasing of cattle—regardless of the inconvenience which the adoption of such a view might entail; for so long as there is free traffic in cattle along the highways which part many a grazing field, or cattle bought and put into fields which border on others in which cattle graze, so long will the disease be likely to spread.—I am, Sir, your obedient servant,

James Sanderson, Land Valuer.

15, Manchester Buildings, Westminster, Sept. 1.

RECENT SHEEP SALES.

Cotswolds.—Mr. Wigmore's annual ram sale took place in the market at Ross, under the direction of Mr. Henry Dowle. The sheep penned numbered between 30 and 40, and every lot was sold, realising an average price of 10*l.* 7*s.* 6*d.* within a fraction.

Lincolnshires: *Attleborough Hall, Norfolk.*—The reputation the Messrs. Salter's sheep have already acquired in this neighbourhood, in addition to the adaptability of the improved Lincolnshire breed for crossing with the brown and blackfaced ewes still in favour with the Norfolk flockmasters, was an attraction sufficient to bring together upwards of 150 of the most business men and largest breeders in the county. And when it is said that the flock at present is only 200 stock ewes, and 100 shearlings were brought to the ring for sale and letting, it will be believed that this flock is full of promise. Of these, 80 were sold for 38*l.* 5*s.*, or only 35*s.* under 10 guineas each. The remaining 20 were young and twin sheep, or promised to grow into good two-shears for next year. When it is further said, as one may judge, that only 15 male lambs of the last year's fall were withdrawn for wethers, it will be allowed that the Messrs. Salter have, in the drier climate of East Norfolk, fairly distanced many breeders of these sheep in their native county.

In regard to the long wool retaining its lustre and quality of fibre in this drier and warmer climate, we may say that we have never seen more uniformity of fine qualities; and this opinion was confirmed by Mr. O'Neal, of Ely, who has bought the Messrs. Salters' for three years, and who said in a letter to Mr. Simpson, the officiating auctioneer, on Thursday last: "I have said to many friends it was the best parcel of wool we have sent to Bradford this season. The party to whom it was sent say the same, and that it is very much superior to the bulk of wool grown in our district." Some of this the Messrs. Salter attribute to their practice of spreading straw over the land; for, as they say, much damage is done to long wool by its being frozen to the ground in winter, for the sheep on rising break some and stretch more to an extent that it afterwards grows deformed, becoming "knotty," a defect which is very injurious and therefore watched for by buyers. But from the sheep having straw to lie on, instead of bare soil or rooted Grass, on their rising the loose straw sticks to the sides of the sheep, and falls off soon after from the heat of the body or the sun melting the ice by which it was attached. This, however, has nothing to do with the lustre, and, so far as we could perceive, this important quality is not in the least diminished.

The prices the sheep made were of a very uniform character. The highest price was 20*l.*, which was given by Mr. Edwards, who bought five others at prices between 8*l.* 10*s.* and 12*l.* 10*s.* Mr. Turner bought four for the Marquis of Bristol at prices from [illegible] to 12*l.* 10*s.* These are for putting to pure South-down ewes, which shows the change which is undergoing in the minds of fashionable breeders before the high prices of mutton and long-wool. Mr. Gayford, of Wretham, bought two at 12*l.* and 9*l.* each; Mr. Seamon three at 10*l.*, 10*l.* 10*s.* and 11*l.* respectively. Mr. W. Jennings bought No. 1 at 17*l.*, and two others. Messrs. J. & C. Jillings bought two each. Captain Caldwell bought one at 14*l.*, and one at 13*l.* Mr. Limmer bought four at store prices, which varied from 9*l.* to 12*l.* 10*s.* The remainder were sold according to their form and the appreciation they met with by the company. The 20 shearlings that were let made proportionate prices.

Of ram-lambs there were 35, which were let. The first made 9*l.* to Mr. Myhill. Mr. Tingay took two at 7*l.* 10*s.* Several were let at 6*l.* the pair, some at 5*l.*, and three at 3*l.* the pair for the season. These of course will return, if they do well, and be some of the shearlings for next year's sale. It is here generally considered that strong lambs, if taken good care of, improve by being used as rams. Lambs are greatly preferred for begetting lambs for fattening.

Before closing this notice of the Attleborough Hall sale, we cannot do less than remark that the system of spreading straw on the fields for sheep to tread in answers as perfectly as we said last spring it promised to do. All the roots are here sown with one ploughing 11 inches deep, and nothing can be expected to look better than they now do. As will be remembered, the quantity of corn fed per acre was about 1 ton, as the roots were last year so few. Beyond this, no other manure has been used, and on these 11-inch furrows, or rather depth of mould, there are some wonderful Mangel, capital Swedes, and White Turnips, and, for the season, those crops are unusually clean. This may in some measure be accounted for, after the showery weather we have had, from the seed of annuals near the surface after the 11-inch turning-over having had time to vegetate, and were therefore harrowed up at the time of sowing the crop. These roots will be nearly all consumed as before described. About two-thirds will be taken to adjoining fallows, and one-third be fed in some cases on the field for the Barley or spring Oats. The cartage saved by this practice is of immense importance. The improved condition of the land is, however, of greater importance. The present stubbles will be as usual forked over, to raise out the few roots of twitch that will gather by the end of a course. This is done at the cost of 2*s.* 6*d.* to 3*s.* per acre, and is no doubt the cheapest as well as surest method of keeping land free of this troublesome plant.

Last year the Messrs. Salter were so hard up for feed for sheep that they fed off a piece of lightly podded Beans. This makeshift, as it was looked upon at the beginning, proved so advantageous that this year several acres of part Beans and part Rape or Turnips have been sown, and are being fed off together, the ewes having a few rods nightly. By this feed the ewes are clean and healthy, although they are on a piece of sappy after-grass. They eat the stalk and all down close, and the cheapness of this practice must be also greatly in its favour. *Abridged from Mark Lane Express.*

Owersby: Mr. Davy.—The average of the 118 sheep was 13*l.* 1*s.* 6*d.*, while the shearlings brought on an average 14*l.* 13*s.* 6*d.* The highest price was 76*l.*, which was given by a Cotswold breeder, Mr. Garne, of Gloucestershire. The next figure to this was fetched by a three-shear ram, which was let to Mr. T. Brown for 40*l.*; and Mr. Byron gave 36*l.* for the hire of a shearling. Other shearlings were let to Mr. T. Cartwright, Mr. Mayfield, Mr. Dickinson, and Mr. Codling, for sums of 30*l.* and 31*l.* There were 70 shearlings let, 36 two-shears, and a dozen three-shears and upwards, and the total produce of the letting was 1542*l.*

Peterborough.—50 rams, the property of Mr. J. H. Caswell, of Loughton, were sold by Messrs. Lumley & Son, and averaged 14*l.* 15*s.* The highest price was 50*l.* The 48 Pointon rams, the property of Mr. T. Caswell, averaged 14*l.* 2*s.* 6*d.* The highest price was 70*l.*

Biscathorpe.—This flock of rams, which year after year draws such a large gathering of the principal sheep breeders of the midland counties to Biscathorpe, was let by auction by Mr. Briggs on Thursday last. A finer lot of animals were never penned than the 150 rams which Mr. Kirkham had selected for his friends. The success of the letting was most complete, the prices realised being quite in character with the fame of the flock. The 50 shearlings averaged 16*l.* 18*s.* 6*d.*, the 52 two-shears 17*l.* 3*s.*, and the 48 aged sheep, 15*l.* 4*s.*; the average of the 150 rams let being 16*l.* 18*s.* 6*d.* The best shearling was let to Mr. Caleb Going, Ireland, for 70 guineas; the best two-shears to Mr. C. Clark, Scopwick, for 137*l.*; and the best aged sheep to Mr. W. Chaplin for 100 guineas.

Leicesters: *Mungoswells, Dunse.*—Mr. Thomson's shearling rams were sold by auction in Dunse Fair, Aug. 29; 42 shearlings, from 14*l.* 10*s.* to 3*l.* 10*s.* Average price, 7*l.* 10*s.* 6*d.* Mr. Bland's Border Leicesters averaged close upon 14*l.* each: Mr. Robertson's averaging on the entire lot of 30 about 10*l.* 6*s.* 6*d.*, and upon the first 20 about 12*l.* 3*s.* Mr. Franks, of Jerpoint Hill, Co. Kilkenny, sold a lot of 20 shearling Border Leicester tups, of the purest breeding, but in low condition, which averaged over 10*l.* each. Mr. Mitchel, Low Grange, sold a lot of 30 shearling tups, at prices ranging from 18 guineas down to 10½ guineas

Shropshires: *Dumbleton Annual Ram Sale.*—The annual sale of Shropshire sheep, bred by Edward Holland, Esq., M.P., of Dumbleton, was held on Tuesday last, at the Cullabine Farm, when 25 splendid pure-bred Shropshire rams and 120 first-class ewes and theaves were disposed of by auction. The rams fetched 228*l.* 7*s.* 6*d.*, being an average of 9*l.* 18*s.* 6*d.* each. The highest brought 24*l.* 13*s.* 6*d.*, and the lowest 5*l.* 15*s.* 6*d.* Ten pens of shearling ewes were disposed of at prices varying from 56*s.* to 68*s.* each. Fourteen pens of young breeding ewes realised from 48*s.* to 62*s.* Twenty pens of prime wethers fetched from 58*s.* to 84*s.* each, the average being 67*s.* 2*d.* *Patshull.*—This annual gathering took place on Friday last, at the New Dairy Farm, near Patshull Hall, the seat of the Earl of Dartmouth. The 26 rams made 8*l.* 5*s.* each. The sheep were much admired, and as a proof of the abundance of keep, the theaves made 14*s.* per head more than last year, and the ewes 6*s.* per head.

Mr. J. H. Bradburne's Sale.—This, which is the largest private ram sale amongst the Shropshire breeders, was held at Pipe Place, near Lichfield; 50 rams, principally shearlings, 100 ewes, and 7 young Shorthorn bulls were sold. The best shearling, No. 8, "Rector," was secured for the Marquis of Exeter, at 34 guineas; and No. 38, a great favourite of ours, was bought for the Dean of York at 28 guineas: the remainder going at various figures from 17 down to 5½ guineas; 48 being sold and let at an average of 10*l.* 2*s.* 2*d.* The ewes followed, and made from 80*s.*, at which several pens were sold, down to 46*s.*, the average being 2*l.* 19*s.* 9*d.*

Sale at Patshull.—110 store ewes, which averaged 56*s.*; next came a fine lot of theaves (90) which made 54*s.* 9*d.* each. The 26 rams made 8*l.* 5*s.* each.

Mr. Charles W. Hamilton's Annual Sale at Hamwood.—Mr. W. P. Preece, of Shrewsbury, sold 33 rams and 100 ewes in about an hour; the highest price given for a ram was 32*l.* 11*s.* The average of the rams was 13*l.* 17*s.* 9*d.*, and the ewes averaged 3*l.* 1*s.*

Bourton Grange.—The dispersion of Lord Wenlock's farm stock at Bourton Grange, Shropshire, was a success:—

	£	s.	d.		£	s.	d.	
130 Store Ewes ..	536	2	6	average	4	2	8	each animal.
90 Yearling ditto ..	402	12	6	,,	4	9	6	,,
80 Ewe Lambs ..	184	15	0	,,	2	6	4	,,
4 Aged Rams ..	54	1	6	,,	13	10	6	,,
20 Yearling ditto ..	332	17	0	,,	16	13	0	,,
28 Ram Lambs ..	124	10	0	,,	4	9	0	,,

THE CATTLE PLAGUE.

[We continue to publish the letters of Correspondents on this subject.]

Importation into France has been forbidden. The decree to this effect was signed by the Emperor upon the 5th inst.

In the *Times* of Thursday there is an account given of the appearance and disappearance of the disease at Market Drayton. 40 cases in all had occurred within a quarter of a mile of each other, but the parish can now show a clean bill of health. Dr. Saxton says:—"As soon as we became convinced of having the plague we freely issued circulars to the farmers, giving the symptoms and explaining the very fatal and contagious nature of the disease, recommending that cattle should be kept in good condition, their sheds made as clean, dry, and airy as possible, and to use disinfectants; to keep them off the public roads; to purchase no cattle but those known to be healthy, and then keep them separate for 14 days; to let no person pass from diseased to healthy stock; on the slightest appearance of illness to separate the animals as quickly and completely as possible, and if murrain is detected to slaughter the animal immediately, to bury the carcase in the skin five feet deep, and also destroy all dung, fodder, or anything that has been in contact with the animal. I believe that the disease may be stamped out of any district by the prompt and energetic use of these means; and I believe it may be easily detected by the professional man in a stage before contagion becomes very great. It has appeared on three farms only, and, fortunately for this neighbourhood, the occupiers submitted to the recommendations made, and have not sold any live animals from their farms; if they had done so, as others have done, the disease might have spread immensely."

1. Proceedings of Cattle Plague Committee: London.—A letter addressed to the Lord Mayor by Mrs. Nicholls, of Laycock's Dairy Farm, Liverpool Road, was read. She stated that towards the latter end of June the cattle plague first appeared in her sheds. The little time that the virulent nature of the disease allowed for medical treatment was unceasingly employed, and Professor Simonds rendered valuable assistance and advice. Nevertheless, such had been the fatal results, that the greater part of her stock had either died or been slaughtered on the premises. In less than a fortnight 85 cows were sacrificed. Her stock, consisting of 116 Short-horn cows, had cost 2530*l.*, at 22*l.* a head, and she had expended 48*l.* 17*s.* in medical advice, cartage, and other costs, making 2578*l.* 17*s.* Of her cows, 100, which she had been obliged to sell at a great loss, had realised 536*l.* 0*s.*, 16 had been carted away and buried, and the total loss she had sustained amounted to 2042*l.* odd.

Many deplorable instances were related by members within their own experience of the progress of the disease in the metropolis, mostly, if not solely, among cows; by some members immediate slaughter of the animals when first affected was urged, and by others their removal to other places, as well with the view to being cured, if possible, as to prevent their infecting the rest of the herd. Again, it was urged by Dr. Hillier that the establishment of sanatoriums, as suggested, would but carry the disease into neighbourhoods now free from it and form fresh centres for its propagation. Eventually, on the motion of Mr. Rudkin, a resolution was adopted to the effect, that one or more sheds or sanatoriums be provided in such places as might be approved by the medical officer of health for the district for the reception of animals affected with the plague, and that no animals be received into such sheds except under a certificate from the inspector for the district.

2. M.D. in the *Times*.—It is stated that the cattle disease has been proved to be of a typhoid type. Typhus is a fever of prostration. The blood has been poisoned in the lungs by coming into contact with a pestilential atmosphere, and instead of being decarbonised is circulated through the body as black blood. Hence the whole vitality languishes. Now the questions are—What remedy is there for all this mischief? What are the indications of treatment? The chlorates of potassa and the nitrate of potassa abound in oxygen. If black venous blood be drawn from an animal and the clot be plunged into a solution of either of these salts, its surface will instantly become florid and arterial. It has been decarbonised by the oxygen contained in the solution. The same action will take place in the living animal tissues. In combination, when administered in sufficient quantity, these sorts become

absorbed and speedily convert black into florid arterial blood. The specific formula I would recommend in the worst cases of disease is the following, which contains a very large per centage of oxygen:—Take of chlorate of potassa, chloride of sodium, nitrate of potassa, of each one ounce; dissolve them in a pint of hot water, in which an ounce of dilute nitro-hydrochloric acid has been mixed, and administer in a sufficient quantity of thin gruel for a dose.

3. FROM MR. HUTTON, V.S.: *Park at Long Melford, Suffolk.*—At the commencement of last month there were 150 beasts grazing in this park; on the 21st and 22d several owners of cattle, fearing that their animals might fall under the disease, which had made its appearance in the neighbourhood (one of a number of Irish beasts purchased at Bury market having been attacked on the 12th), removed their beasts, nearly 20 in number, from the park; and all these, up to the present time, are apparently sound and healthy. On the 25th ult. several other beasts were removed early in the day, but though apparently healthy at the time, they had the germs of the murrain, and have since died. I was appointed inspector of the Long Melford Petty Sessional Division by the magistrates, at their sittings at Melford on the 25th ult., and made an inspection of the animals at once, since which I have attended daily at the park, and spent a great part of my time there. The first case occurred in the park on the 24th, and since that date animals have sickened every day, and upwards of 30 have died. I have carefully examined every animal daily, and as soon as there appeared the least symptoms of the murrain the beast has been separated from the others, placed with other diseased ones, in a herd by themselves, in a different part of the park, and in most cases subjected to veterinary treatment. An extempore hospital has been used in the park, where the diseased animals are constantly attended by men night and day. The apparently sound ones are herded in another part of the Park and also carefully watched night and day. In accordance with instructions I received from the Privy Council, I have daily examined the healthy beasts, and, at the request of their owners, have allowed 50 to be slaughtered for the market, most of the beasts having been examined on several consecutive days before I allowed them to be killed. These beasts have all been slaughtered, dressed, and packed in the Park, and not one animal since the disease first made its appearance there has been allowed to leave the Park alive. There are 50 beasts there at the present time, some sound and others down in different stages of the disease, all the latter being under veterinary treatment. Should they recover they will be separated from the others and herded by themselves, but no animal which has been attacked in the Park has yet recovered. The beasts that have died have been buried in the Park in graves five or six feet deep, and covered with quick lime; the skin, horns, hoofs, &c, have not been removed, but the carcase buried entire immediately after death. As regards the precautionary measures taken, lime is strewed about in the neighbourhood of the several herds; the roots and bases of the trunks of the trees are also strewed with lime and saturated with tar, tar fires are constantly kept burning, and the utmost vigilance is exercised to ward off, if possible, the disease from the healthy animals. The offal, &c., of the slaughtered animals is immediately removed or buried. The basis of the treatment of the disease is ammonia and tonics, stimulants are also given as required; all the water used for drinking is medicated with mineral acids, and the beasts themselves frequently washed with water impregnated with ammonia. I may add that the Park itself is well wooded and sheltered, and the subsoil consists of gravel and stone. All the cases in Melford are distinctly traceable, and there is no doubt in my mind that the murrain was introduced there by a number of Irish beasts which came from Bury market, one of which was attacked on the 12th of August..

Thus the disease is at present confined to Melford and the adjacent district in the north and north-west. At Sudbury, Suffolk, where I am appointed inspector, I am happy to state that among the 80 cows depastured on the common lands no case has occurred. I have inspected all the sheds in the town, which were generally in a proper state, and gave orders to have all preventive measures promptly taken, which I believe to have been done. All animals driven to the town for market are inspected on the Croft before they are allowed to enter the town, and several I have rejected, and have not allowed to be exposed for sale on the market hill.

I have found that the time which has elapsed from the first attack, or the date when the first symptoms were discovered, till the death of the animal, has been (the shortest period) 12 hours, or three or eight days, or (the longest) where vigorous treatment has been used, though unsuccessfully, 14 days.

I would earnestly impress the following upon all owners of stock,—that as soon as there is the least symptom of the disease apparent, notice should be given to the veterinary surgeon and the Government inspector, and the suspected animal be at once separated from the others, placed in a very clean and well-ventilated shed, put under treatment with medicated water, &c., that the sheds be not only kept in the utmost cleanliness, but all dung and refuse removed to a distance, and the shed well lime-washed. Let no one attempt, if he have the disease on his premises, to try and keep it secret, thinking he can cure the beast himself, or seek to get rid of it; for by so doing he not only renders himself amenable to the law, but is also endangering others and spreading the plague, and he will entail additional trouble and expense on himself.

4. FROM MESSRS. MORRIS & OAKES: *Leadenhall Market.*—We beg to protest most earnestly against that indiscriminate slaughter of cattle which has been carried on for the last few weeks. It may be expedient, no doubt, to kill animals suffering in the worst stage of the disease, but such wholesale butchery as has taken place we believe to be perfectly unnecessary. Possibly a great quantity of meat killed in this manner is very good, quite fit for human food, and finds its way into the market, but as dead meat, depreciated in value, and only to be disposed of at a loss. This system of blindly killing all cattle infected, or supposed to be infected, is based upon the assumption that the disease is incurable, which we do not believe to be the case. We have the authority of Mr. Wilde, one of the sanitary inspectors of the City, a thoroughly practical and efficient officer, for this statement, and he has given us two instances in which he has successfully cured cows suffering under the worst form of the disease. Names and other particulars can be furnished if necessary. We need scarcely add that we contemplate the proposed sanatorium in the metropolis with the greatest satisfaction, because it will be characterised by an attempt to cure and not destroy. Again, we would question the advisability of placing such extensive and arbitrary power in the hands of veterinary surgeons and medical men, a great number of whom must necessarily have very little experience in the peculiar disease which has so suddenly arisen and assumed such formidable proportions.

5. THE METROPOLITAN CATTLE MARKET. — As regards the cattle plague, there is the usual conflict of opinion among the doctors, who, whether "medicine men" of man or beast, seem to agree to differ about everything. But the light of common sense is sure eventually to be thrown on any subject brought prominently before the public, not unfrequently to the education of professional and official men. We have received conflicting accounts of the visits to London of members of county associations for mutual protection against the ravages of the cattle plague. To be in a position to judge for ourselves, we yesterday made an inspection of the Metropolitan Cattle Market and slaughter-houses at Islington. We will state what we saw, and leave our readers to form their own conclusions, merely premising that the accounts of immense slaughter-houses emitting an awful stench are not founded on fact. There are 75 acres of ground comprised within what is known as the Islington Cattle Market. The actual market-place occupies 14 acres; the rest is occupied by lairs and paddocks. The whole is washed and purified with chloride of time once a week. It struck us that this ought to be done every day, and that burnt clay in this case would be a cheap disinfectant. There is accommodation in the market for tying up 6000 head of cattle, and pen accommodation for 25,000 or 30,000 sheep. There are often larger numbers of both than these. There is likewise room for 4000 pigs and 2000 calves The market days for cattle, sheep, and pigs are Mondays and Thursdays; there is a miscellaneous market for horses, asses, and goats on Fridays. The slaughter-houses are rented from the corporation by private individuals. There are six of them, in which between 300 and 400 cattle are slaughtered daily. Since the breaking out of the cattle plague the Markets Committee of the corporation have taken a slaughter-house into their own hands, in which all diseased beasts, and no others are killed. In this place every rope, poleaxe, or other implement of animal life destruction is exclusively used with diseased animals, and has not been removed to any other building. The walls are limewashed, and the pervading smell of the place is that of chloride of lime. The flesh of diseased animals is destroyed, covered with creosote and chloride of lime, so as not to be eaten by cats and dogs The hides are disinfected, and the manure is kept apart, each layer being covered with a disinfectant. The six slaughter-houses rented from the corporation are used respectively by Mr. Cross, Messrs. Rhodes & Grimaldi, Mr Packman, Mr. Markham, and Mr. Wilding. Having had notice three weeks ago to limewash and disinfect these places, the occupiers have done so within the last few days, and the houses are pretty nearly as decent as places of slaughter could be. The main point is to keep them so. Among the recent arrangements Mr. Tegg, V.S., who is both the Government and Corporation Inspector, has been given additional help. He has a man at each gate of the market who takes the names and addresses of the owners of cows as they come in or go out, and also the number of the drover's badge. He has also two assistant veterinary surgeons constantly on duty with him inside the place on market days. An experienced butcher, who has the night management, inspects each carcase, and allows none that is diseased to pass the gates. This man reports daily to Mr. Tegg. We should state that there is a large wooden shed, with an entrance from the public road, and, so far, not connected with the regular slaughter-houses, where beasts are improperly intermixed, and where there is a bad smell. But this place will no doubt soon be looked after. Mr. Baldwin, the clerk of the market, has the responsibility of the whole general regulation of the place.

6. THE HUMAN ANALOGY: *From a Hospital Physician.*—Taking for granted that this plague is typhus, why should the experiment not be made of treating it as we do typhus in the human subject? There is now pretty fair statistical evidence to show that the most effective treatment of human typhus is the plan of administering continuous animal food and frequent doses of muriatic acid. Under this *régime* we hospital physicians hardly ever lose a patient at the present day. Now, looking at cattle with the eye of a physician, and not as a farmer (I mean putting aside the question of expense), I cannot see any objection to applying the treatment to them. Small quantities every half hour of weak beef tea and milk may be given, and every two hours a draught containing 20 or 30 drops of the pharmacopœal muriatic acid. The animal should be well covered up and kept perfectly still. Diarrhœa should be checked by opiate injections, if necessary, but it is usually arrested by the acid after a few hours. I am aware that a cow is not such a tough animal as a man, but yet I should expect a sufficient number to be saved by the above plan to justify its adoption in preference to slaughtering the beast.

7. HOLLY LODGE, NEAR WATFORD.—On the 27th of June an Alderney bull was purchased at Bushey, near Watford, and placed with the rest of the herd, then consisting of 11 cows, five sucking calves, three yearling heifers, and one bull. The bull had been imported from Alderney for several months. About a month after, namely, on the 29th of July, a cow in calf was attacked with unusual symptoms. She was separated from the rest; nourishing drinks were administered; but, having calved, she died 48 hours after the first symptoms were observed. This led to the belief that she died of the disease which then began to prevail. This cow had been pastured with the others in a field occasionally used for grazing sheep that were taken to the Metropolitan Cattle Market, and, if not sold, brought back again until the next market day; the sheep were separated from the cows by iron hurdles. The Holly Lodge Estate is partly bounded on the east by the route taken by drovers with foreign and other cattle to and from the market, some of which are also occasionally brought back to neighbouring fields. The high road forms the western boundary within a few yards of the cattle-sheds and pastures. These facts are stated to show that the contagion might have been easily communicated to the animals. A few days later three calves were attacked with cold shivering and twitching of the muscles. The previous nights having become suddenly and unusually cold and wet, the symptoms were at first attributed to that cause. Although these calves had been pastured quite apart from the cow which first died, the cow had been driven across the field where the calves lay to the shed in which it died, the calves having been placed in the next shed, where two of them died on the 6th of August, unmistakeably of the cattle plague. The third calf was sent to the Royal Veterinary College, where it also died By the 9th of August four cows and the bull were seized with the disease so virulently that it was thought necessary to kill them after three days illness. On the 12th a cow and a heifer were also destroyed, and on the 14th one of the sucking calves died. Thus, out of a herd of 19 animals, 12 had died within a fortnight. The malady had taken so strong and sudden a hold upon them that no systematic means of remedy could be applied except separation, warmth, stimulants, and the medicines ordinarily given in cases of cold and fever. On the 13th of August two more cows were pronounced incurable by two of the veterinary surgeons who had been called in; but it was determined, upon further advice, to try a mode of treatment upon them not hitherto adopted. One drachm of calomel was administered in gruel, four hours afterwards one pint of castor oil, and three hours later 1 quart of yeast. About 2 quarts of warm porter were added to a gruel of yeast and oatmeal, and given at intervals. These remedies acted most efficiently, and in one case gave much encouragement. The next day the cow began to eat hay, to chew her cud, and to yield a good quantity of milk. These remedies, together with bi-sulphate of soda, which invariably produced a return of the milk, and quinine, were then tried upon four other patients, with varied success. But in the end all these cows died, not, it is believed, of the cattle murrain, but of exhaustion occasioned by the activity of the drugs administered to them. This belief was strengthened by the healthy appearance presented by the viscera of the first cow thus experimented upon, on its being partially dissected after death. The remaining cow thus treated is still alive. It is impossible to avoid believing that had the medical man who kindly gave his attention to these animals been better acquainted with the constitution of the creatures, or had those who minded them had any knowledge of medicine, three of the cows treated in this manner might probably would have recovered; and even when the animals succumbed, the consequences were less serious, the virulence of the poison being expelled—at least it was discernible to those who dissected them. During the fortnight that the murrain was raging, one cow in calf and one calf remained perfectly healthy, apparently until both were seized within a day of each other; these had always been kept separate from the sick animals, and tended by other men. The calf died, and the cow was destroyed, in consequence of the symptoms being so violent. In this case very little care was given. As it may be as well to mention all particulars, it may be stated here that the men who tended the animals were provided with a dress, and that it was found desirable that a certain quantity of stimulants—brandy, coffee, and strong soup—should be given to prevent nausea and other uncomfortable feelings from which the men suffered. All the directions respecting the burying of the animals issued by the Privy Council have been strictly complied with; clothes, &c., have been burnt, chloride of lime (Macdougall's disinfectant) was used with others, to destroy insects and flies, with abundance of whitewashing The [illegible] were recommended to use, as a wash for the [illegible] manganate of potash. The first crop of Grass in the [illegible] where the cattle lay before their sickness, and during it, has been destroyed also; and it is intended to use some disinfectant, such as charcoal or lime, to spread over the [illegible] Miss B. C. feels so persuaded that some mode of treatment could be found to alleviate, if not to save life, that she has determined to employ a medical gentleman, who kindly offers his services, and to take also the advice of a good cow veterinary surgeon, and to try the effects of various remedies in some of the cowsheds where persons will be glad to let such experiments be tried; and it is also her intention to ask the Privy Council to allow one of the Government Inspectors to assist and report upon the cases. It may not be altogether unimportant to add that the state of the atmosphere seemed to have some effect upon the health of the animals, as upon those occasions the symptoms were most severe during the thunder-storms which then occurred. The milk when returned was found to be rather watery, and the cream had a peculiar appearance. At first the pigs declined it, and it was not thought advisable to continue to give it at all to any animals for about a week. It is now perfectly good.

8. THE CATTLE COMPENSATION COMMITTEE.—At a meeting lately held at the Mansion House, a letter was read from Mr. Waddington, enclosing a report made by Professor Simonds to the Privy Council. In this report Mr. Simonds says he regards the establishment of sanatoriums on a scale contemplated by the Metropolitan Committee as perfectly impracticable, and he is further of opinion that if they were founded they would be "one of the greatest evils possible to conceive," as tending to perpetuate the contagion. He observes, that "nothing can be more fallacious" than the supposition that the plague is a curable disease, and adds, "the experience already gained in this country already confirms Europe as a whole—viz., whenever the plague breaks from its strongholds in Russia, and invades other countries, medical skill is powerless in arresting its progress by curative measures." The accounts from Essex state that the disease still rages in that county, and from Bedfordshire we learn that two cases have occurred at Harlington.

EPIDEMICS AND EPIZOOTICS.

[The following are extracts from a clever letter by "S. G. O." in the *Times*.]

THE accounts which have been made public of the disastrous effect of the cattle disease in the case of the dairy of Miss Coutts and that of Lord Granville, and the report made by the two foreign veterinary professors on the *post-mortem* examination of certain cattle which had clearly died of the epidemic, are most interesting.

In the case of the herd of Miss Coutts the treatment of the infected animals was, to say the least of it, very vigorous. Lord Granville's cows had not only the advantage of all the skill and energy of his herdsman, but, with great wisdom, were submitted to the treatment of any veterinary surgeons who wished to try their own theories in the way of remedial measures. In both cases the epidemic defied all curative treatment. No sick cows could have had a fairer field to struggle with disease. All that care and cleanliness could do to prevent their infection was done. When infected all that money could command was called in to the rescue, but in vain. We have now positive evidence that when an epidemic prevails, the most apparently healthy and prosperous subjects are not safe. We knew that dirt and low living, impure atmosphere and depressed vitality, invite disease; we now know that when disease is set afloat, no matter from what quarter, in no quarter is there perfect safety. There is a moral to be drawn from these two dairies and their scene of death. The cows of Lord Granville and Miss B. Coutts were of a highly privileged class. They abode in all [illegible] luxury and comfort. There is no suspicion that among this class the disease first broke out; on the contrary, there is every reason to believe that it did not, that it first appeared among ill-treated cows. . . . .

The report of the two foreign veterinary professors on the *post-mortem* appearances of the cattle they examined reads to me as just such a report as any two good physiologists would make upon the bodies of patients who have died of malignant typhus, of course allowing in some details for the difference in the organism, &c., of a human being and a cow.

The manager of Lord Granville's dairy gives the case of one cow, which was saved:—"She lay," he says, "in a kind of stupor for 12 hours, when I could see a change in her for the better. I continued to give her daily 4 quarts of gruel made with old ale and 2 ounces of ginger; in four days she was sufficiently recovered to eat a little hay and do without further treatment." I never read a more simple, plain description of a certain stage of typhoid disease. Had she been put between sheets on a four-poster, I can quite fancy how her fore hoofs would have wandered about the pattern of the coun-

fortune; how from time to time there would have been wandering in her poor horned head, with gentle whispered bellowings, dreamy answers to dreamt calves; we should have lifted her lips, seen sores about the teeth, and the blackened tongue and peculiar typhoid fœtor; her poll would have been shaved, wet rags applied, the room would have smelt of vinegar, and, on the rector's advice, rags steeped in chloride of lime would have been suspended about the bed; cold, clammy skin, puzzled eye, and then an eye that seemed to look but not to see; sleep, at least the apparent quiet of it—coma, has supervened; the probability would be she would die—she did not; reaction set in; old ale and carminative gruel helped it. She is alive, can eat a bit, eats more, is well. Just so have I seen some—a few patients in a typhus nest, what the doctors call "pull through."

It is a great mistake to suppose that highly privileged animals, living on the fat of dairy land or mansion-house land, are in real natural health because they show no ailment, are portly and comely to look upon. Nature has, I have no doubt, very different views from our own about health. We were originally built to her order, and then left to our own devices. We have taken strange liberties with man and beast. We establish a certain standard of what we call health, that is a condition of body which will bear decently the indulgences in the way of food in which we delight. With our beasts we feed for the market, making, just as far as we can, all the powers of beast nature submissive to processes calculated to obtain certain ends of our own. Mr. Banting found woe in fat; penitent and reflective, he deplored his abuse of a too good-natured digestion; repenting, became prudent, treated his stomach with respect, regained the lesser corporeal calibre of his better nature. Great men and women made him their prophet, gladly gave up much daily bread, beer, and loveable matters of food, to reduce their bulk. Nature is very good natured; if you have only offended her, not actually maimed her, she only asks of you to do so no more; to eat in future for her sake, rather than your own. Oh! that a cow had speech, that an ox could preach, a pig lecture! We should then learn from dairy, stall, and sty, that there may be a clean coat, great appetite, much fat, and yet a constitution so artificially abused, that a feather may turn the scale; one puff from a blast of wind blowing over a dead beast miles away may infect this pampered blood, to at once disease and destroy. We wonder how so foul a guest could get into so fair a chamber; we ought to remember that artificial nature is after a sort nature perverted, nature unnaturalised, and therefore out of health, as such, in a condition in which its force must be weak as against imported disease; an animal kept for our special purpose in a certain condition of what we call health, may after all be in a state of disease, a state altogether unfitted to contend with any sudden constitutional disturbance.

I once ventured to remonstrate with an agricultural enthusiast on the strange diet and treatment to which he submitted his farm animals. He pitied my ignorance. I was told his object was to get rich manure for his fields, and to clothe the creatures he fed with all the fat he could, as he sold by weight. I own I was of opinion, that any animal used as a mere manure mill, taking toll of what it ground in fat, could not be in a state of health. I was inclined to argue that oil-cake and saccharine vegetable food given to an ox, kept from exercise, in quantity sufficient to cover heart, kidneys, intestines, the whole frame, with fat, until the animal appeared more fit for the tallow vat than the kitchen, must be an extraordinary liberty taken with every natural condition. I could not see that a pig fed with greaves and the boiled flesh of animals, killed to save them from dying, however fat and sleepy it might become, however valuable its outgoings, could be considered so much by weight of edible wholesome bacon. I had my own doubts how far manure thus obtained would grow sound crops. I was inclined to think the roots might be grown very large, but of such weak, forced cellular substance, that they would be liable to rot under atmospheric conditions in which roots, less artificially driven to size, would preserve health. In my ignorance, then and since, I have expected a day would come when we might purchase a fine Wheat head too dear; that continued choice of the best earproducing seed, and its cultivation under the high pressure of strongly prepared manures, would lead at last to a plant unable to stand cold nights, heavy dews, and then we should have a Wheat disease.

With regard to dairy cows, I firmly believe that in the best of dairies there is too much of experiment in the way of getting rich milk, a great deal of it, and a too continuance of milk-giving power. The pail supplants the calf; in a state of nature the calf feeds at intervals, and the udder thus is often relieved. Just as women do among the lower classes, for ends of their own, often nurse too long and suffer for it; so I believe we not only artificially over-stimulate the milk-giving power of our cows, but we are apt to force milk-giving action beyond the time that in pasture the calf would seek it, and therefore the mother afford it. We expect our cows to go on giving milk to the last moment we can by any means, however artificial, promote its secretion. They may look healthy in an aristocratic dairy, or they may be, as London cellar cows, giving their milk much under the same conditions as those in which thousands of lodging human mothers give theirs in crowded back lanes. I believe, in both cases, the animals are not in health, the poor cows and poor women are the most likely to breed typhoid disease, the richer are then quite likely to be infected by it. . . .

It is in vain for us to speculate on the laws which really govern epidemics; they are mysteries which as yet defy all human interpretation. It is the old story of high authority, "In the midst of life we are in death." It were well for us if we sought the succour where alone we are told it is to be found. From time immemorial epidemics have prevailed; to the end of time they will prevail. We can study their symptoms, and learn to predicate where they will flourish best. Whence they come, or whither they depart, is as mysterious to us as the travel of the wind. We may be content to offer to them food in man and beast, neglected, oppressed, and lowered to one and the same bad level; fed first on these they will feed yet on better food; they gather power from vile food to use it on those who fare sumptuously. The cows of a Cabinet Minister are not proof against the epidemic that slays the wretched cellar cow. We may live to see cholera equally impartial. But, inasmuch as the gate opened first to these diseases is where life, human or bestial, is in a state of neglect, it is well for us to keep our lanes, alleys, lodging-houses, &c., as clean as we know we ought to keep our cowsheds. *S. G. O.*

WEST RIDING STEAM PLOUGHING COMPANY.

[The following is an abridged account of the recent half-yearly meeting of shareholders.]

After reading the notice calling the meeting, and transacting other business of a routine character, Mr. Clay, the Secretary, read the report of the Directors, of which the following is a copy:—

"Your Directors have at all previous meetings had to congratulate the shareholders on the successful position of their affairs. Upon this occasion, however, they are compelled to state that the financial account for the past half year is not so satisfactory as usual; but if anything can make pecuniary losses fall lightly upon individuals, it is the knowledge that they have not been the result of reckless extravagance or wilful neglect. So with this company its present position is not owing in any way to intrinsic weakness, but has been brought about by a few individuals totally unconnected with the company, who took fright at the machinery travelling upon the roads. It is perhaps useless going much into the details connected with the magistrates and their retrograde policy respecting the transit of locomotives on highways, as every shareholder must have heard quite sufficient on that matter during the past six months; but it is very requisite to point out that the unfavourable state of the company's finances is entirely owing to the interference of a few of those gentlemen, whose excess of timidity caused them to take such mistaken views.

"Your Directors have to state that in consequence of the proceedings taken against the company at Wakefield, and their inability to induce the magistrates in January last to come to any sort of reasonable terms to enable the engines to travel upon the highways during the day time, they were obliged to discontinue working one set of the ploughing tackle last February, as it was impossible to find both sets sufficient work out of the prohibited district; and when it is known that in the Lower Division of Agbrigg, the earnings of the company amounted to nearly 450*l.* per annum (which was lost—together with the direct expenses incurred in opposing the restrictions) it will readily be seen that such deductions must have a serious effect upon the revenue account. But the loss does not even end here. When the machinery was not allowed to travel on the roads all the customers became alarmed, fearing this company would not be able to carry on their work, and consequently each made provisions for accomplishing his own cultivation in the best manner circumstances would admit,—thus throwing the remainder of the machinery almost idle. Not wishing, however, to break up the whole undertaking, your directors retained four of the men, although during two months of the time they were not able to earn their wages. Altogether it is quite clear that the magistrates have disorganised the whole business of this company, and your directors are not even yet in a position to venture an opinion as to what may be the ultimate result of these proceedings. Both sets of tackle are, however, ready for work again; and if the public return to the employment of the machinery, now that under the new law there is some chance of working, there is every probability the company will recover its position, which at present your directors see no reason to fear. It is simply a question of time until the public regain their confidence, and until the effect of the new Act of Parliament be practically tested.

"The following is the state of the accounts made up to 30th June, 1865:—

Dr. Capital Account.			
To total amount received on shares issued	£3230	0	0
Cr.			
By amount paid for machinery to Dec. 31, 1864 ..	2976	11	6
" " " to June 30, 1865 ..	208	0	0
Balance	45	8	6
	£3230	0	0
Revenue Account.			
To cash received	346	19	7
To balance from last year	52	14	1
Balance	67	1	1
	£466	14	9
Cr.			
By amount for wages, oil, repairs, &c.	315	12	3
" carried to reserve fund	150	0	0
By dividends paid	1	2	6
	£466	14	9
Dr. Liabilities.			
Balance as above	67	1	1
To repairs—new wearing parts, oil, &c.	51	14	0
Balance	68	17	11
	£187	13	0
Assets.			
By book debts	£187	13	0

Examined and found correct,
George Potter, Auditor.

"From the above statement it will be seen that there is a balance of 68*l.* 17*s.* 11*d.*, after paying 150*l.* out of the year's earnings into the reserve fund, in accordance with your resolution passed at the last meeting, which, with 70*l.* the amount subscribed by this company towards the expenses of the Deputation and London Committees, together making a total of 288*l.* 17*s.* 11*d.* profit on the whole year, is not so small, considering the circumstances, as there was every reason to expect would have been the case. After disposing, however, of the income in this manner, there remains only the 68*l.* 17*s.* 11*d.*, out of which it is impossible for your directors to recommend the payment of any dividend for the past year, unless this meeting is of opinion that the same should be paid out of the reserve fund, a course which your directors do not consider advisable, as in the first place, that fund is not constituted in such a manner as to warrant the payment of dividends out of it, and in the next the amount in reserve is by no means too large to meet the replacement of capital which must be the first consideration.

"After all it is a subject for congratulation that this small company should have been enabled to hold on under such adversities; and your directors believe that 'A better time is coming'—that steam cultivation is daily becoming more and more appreciated—and that ultimately this undertaking must take the position which its important object fully entitles it to hold."

The proceedings of the Company in reference to Mr. Holland's Bill, permitting the travelling of engines on highways, are then described, and the directors suggest that the national benefit arising out of this Company's difficulties will, in some measure, compensate the shareholders for the present deficiency of dividend.

Votes of thanks were moved to Lord Kinnaird and others who had been active in the agitation which has resulted in Mr. Holland's Bill, and especially to Mr. Clay, the Secretary of the Company, for his energetic services during the past year.

MALTING BEANS AND PEAS.

The subjoined correspondence has been recently published:—

(No. 1. *To the Right Hon. the Chancellor of the Exchequer, &c.*)

The Hall, Attleborough, Norfolk, April 20, 1865.

The farmers have undoubtedly a right to feel obliged to the concession made in respect to malting corn for cattle. It has been proved beyond doubt, if properly managed, to be a most valuable condiment with other food, especially for sheep, and were it not for the indispensable restriction of grinding it would be more so, and there would at this time be a very large quantity used for lambs, with succulent Grasses, especially Beans and Peas. It has been my opinion for many years that malting for cattle would one day become an art and a study, if the trade could be thrown open; and the more I learn from practical results the more I am convinced of the fact that brewers' malt is not the essence of perfection for feeding purposes. I was very anxious to have tried a few score of Beans and Peas malted for my flock (about 1000 head), but the grinding renders the trial as valueless as that published by the Board of Trade; and they have now only to seek for unbiassed information to test the truth of my assertion. My intention was to have had these Beans and Peas slightly sprouted, and not too highly dried, and unground; my object being to render them brittle, easier for mastication, lighter for digestion, thereby more nutritious and not so heating as the raw article. The farmers and the public will shortly know their doom. But surely if your plans are not sufficiently matured to give us total repeal (from information derived from the Inland Revenue Office, which appears to take especial interest in the malting and brewing monopoly, if their report, as published by Mr. William Gurdon, is to be taken as a guide) this session, arrangements might be made to grant the free and unrestricted use of Beans and Peas. I am not aware it could in any way interfere with the revenue. No doubt the present style of English beer is a compound difficult to define, but I have not been able to ascertain Beans and Peas form any part in the decoction. If it would not be considered presumption, I should like to know, in the event of the malt-tax not being repealed for a season, whether there could not be some arrangement made relative to the unrestricted use of Beans and Peas for feeding purposes. Many of my brother-farmers are anxious to know your views, and if we are likely to have a chance given us to compete against the extraordinary importation of fat cattle—a most serious consideration to every grazing district. I am a farmer, and have been somewhat largely concerned in landed property in several counties, for 30 years, as agent and public valuer, and the sentiments I have expressed are entertained by a very large majority of the tenants. Agriculturists seldom or never unite or interfere with state or political matters; but the severe pressure that now hangs over them, and indeed every branch of their calling, has aroused a strong feeling of suspicion that their passive, and, I may add, loyal demeanour, has acted prejudicially against them, and that the hackneyed phrase, "the farmers' friend," has been a snare and delusion, and it is now time they should put their shoulders to the wheel. I have repeatedly been told you are ever ready and willing to hear all sides, and I must plead that as my excuse for thus trespassing on your valuable time; and I trust you will be able to arrive at a just verdict, and by judicious legislation place the farmers in the position to pay their full quota of the income-tax; for it is contrary to common sense and reason for them to pay only 3*d.*, if their present condition is sound, while the rest of the community are charged 6*d.* We live in a free country, and every Englishman ought to contribute willingly towards the support of so liberal institutions, but I think it is admitted on all sides that the malt-tax is unequal, oppressive, and not

in accordance with free-trade principles; but in the same breath we are obliged to add, "how are we to spare the money?" It is an old adage "where there's a will there's a way," and I hope you will be able to solve the problem and satisfy yourself. Some parties will be sure to grumble. The malt-tax I presume realises, in round figures, 5,000,000*l.* net. I trust you will shortly be able to announce you have 2,000,000*l.* to spare towards its repeal, leaving 3,000,000*l.* to be made up. Select 40,000,000*l.* of taxes, to which add 5 per cent. so long as required. That will raise 2,000,000*l.*, which, if the taxes are equal now, no one can complain of. Draw out a graduated scale for raising 1,000,000*l.* under Mr. Gurdon's plan, or some modified adjustment, and the difficulty is solved in the opinion of one who begs to subscribe himself with great respect. *Thos. Fisher Salter.*

(No. 2. *To Mr. Salter.*)

Inland Revenue, Somerset House, London, W.C.
2nd August, 1865.

Sir,—On the 21st of April last, the Chancellor of the Exchequer referred to this Board for their consideration a letter you addressed to him on the subject of malt for cattle-feeding purposes. This Board regret the delay that has taken place in their reply to your suggestions, but much time has been occupied in the experiments that were necessarily required. I am now to inform you that, there will be no objection to your using unground malted Beans and Peas, or Barley malt crushed under rollers, provided the Linseed or Linseed-cake be first mixed and crushed at the same time with it, and that samples pass the examination at this office; unground Barley malt cannot, however, in the interests of the Revenue, be allowed to be used for cattle-feeding purposes. *Wm. Corbett, Sec.*

(No. 3. *To Mr. Corbett.*)

The Hall, Attleborough, August 4, 1865.

Sir,—I beg to acknowledge the receipt of your letter of the 2d August, relating to malted corn for cattle, for which I am obliged. With regard to Beans and Peas, if I understand your letter correctly, there are no restrictions; therefore I can have them malted at any malt office nearest to my occupation free of duty. The restrictions on Barley remain the same, with the exception that it may be crushed under rollers with the Linseed instead of being ground. *Thomas Fisher Salter.*

(No. 4. *To Mr. Salter.*)

Inland Revenue, Somerset House, London.

Sir,—Your letter of the 4th instant, addressed to the Secretary, having been laid before the Board, I am directed to acquaint you that Peas and Beans may be malted, duty free, for cattle feeding, without any restriction, except that the process must be conducted at an entered malt-house, and that the maltster must give the local officer 24 hours' notice before he steeps the Peas or Beans, and keep them at all times separate from grain or malt in the malt-house. Barley or other grain, malted duty free for cattle feeding, remains subject to all the established restrictions, except that the malt may be crushed under rollers with the Linseed or Linseed-cake, instead of being ground; but a sample of the mixture must be submitted for approval. *Adam Young.*

Home Correspondence.

The Champion Wheat Crop of the Season.—Will you do me the favour to insert this letter in your next publication, as several of my friends are desirous of knowing the result of the challenge Mr. Hallett made to the United Kingdom to produce a piece of Wheat equal to his, and which I accepted. Mr. Hallett withdrew from the trial in consequence of not being able to secure judges. *Chas. Bates, Dagenham, Essex, Sept.* 11.

Profitable use of Diseased Potatos.—Former experience has taught me that diseased Potatos may be preserved and rendered profitable and serviceable, not only for pig food, but also for valuable manure, the process of preserving them for both purposes being the same. The plan I have in several years adopted has been to boil them tolerably well, but not into a slushy consistence, and then to drain and jam them into tubs a few at a time, with a rammer, without any water, sprinkling a double-handful of coarse salt (value 1*s.* a bushel), over about each peck, and to keep them as air-tight as possible by pouring over the top of all a thin coating of puddled loamy earth mixed with a little oil, daubed over as fresh as occasion required, with a little salted grease when the crust become cracked. Thus they will keep fresh for a long time, should there not be sufficient pigs obtainable the same year to eat them, as I fear will be the case this season; or they may be used as a valuable manure should they become too stale for food. Their being washed for any or both purposes is not necessary, were it not for the danger of the dirt burning out the bottom of the boiler or copper, as grit is rather essential than not for the well-being of the pig. The same hot water, too, may be used for several boilings, at a great saving of fuel, if the Potatos are washed. Care, therefore, is necessary in this particular. Old flour-barrels, to be bought at from 6*d.* to 1*s.* each, answer admirably for the purpose, as they can conveniently be stored upon each other in any small outhouse, which should be on a northern aspect or cool sunless side; whether it is indoors or abroad it matters not, as frosts do not despoil their good qualities. Thus they proved very serviceable mixed with pollard or meal. In 1845 I had 900 bushels diseased out of 1000, which were hurried on to a large heap promiscuously, and used as dung the ensuing spring, and what is remarkable, very successfully and profitably, on half an acre of land, and planted the next year, 1846, with Potatos, the common Pink-eyed variety, which yielded a full crop, and the soundest I have grown since of that kind (they being now nearly extinct). This rubbish of course was not salted, not being then thought of, consequently had become putrid. Former experience has taught me also that after summers of extreme heat and drought, since blight has appeared, all sound early Potatos at the end of this month (September), whether it was the entire crop, or those which were left in the ground at the time of early raising, became prematurely sprouted, as if making a special effort to reproduce a second crop, and came up perfectly green and healthy-looking as Potatos look in May, without any signs of disease about them, and continued so till frost overtook them, rendering them unfit for planting. In a former year when they did so, scarcely a single self-sown one could be found in the spring, though that winter had been a very mild one. Careful watchfulness therefore should be observed as soon as they first appear, as I am sanguine to believe they will do so this autumn, when, if they are taken up, they will keep well, and prove most serviceable for seeding, those being such as Nature has proved to be freest from disease. *Experimenter, Maldon, Essex.*

Farmers' Clubs.

KINGSCOTE.—At the recent annual ploughing match of this vigorous and flourishing Society, there were 50 entries—the largest number the Society has ever yet had, and 48 teams started at nine o'clock.

At the annual meeting of members, held at Hunter's Hall Inn, Mr. Daniel Holbrow was elected president in the place of Mr. J. T. Harrison, resigned on account of his leaving this neighbourhood, and Mr. George Barber, of Babdown, was appointed chairman of the committee of management.

At the dinner the chair was filled by Colonel KINGSCOTE, M.P. He proposed the toast of the evening—Success to the Kingscote Agricultural Association. Societies like these were of immense value to the farmers; they diffused intelligence and a high tone of feeling among all in the neighbourhood, and united all classes upon many occasions. There was great good in the monthly discussions which the members carried on during the winter. There was a strong feeling throughout the country that something more ought to be done for the education of the farmer. He was himself on the Education Committee of the Royal Agricultural Society's Council, which was appointed this year. The majority of the committee were for only taking up the existing machinery of middle-class examinations and adapting it in the best way to agriculturists, and had decided to aid the examination of the agricultural class in botany, chemistry, geology, and kindred subjects. Now he himself took a different view. He thought the Royal Agricultural Society ought to begin with a practical examination in agriculture. The majority were against that, but Mr. Holland, Mr. Randall, and himself, put forth a protest. The argument of the majority was that a practical examination could not be carried out, for that you could not get examiners of the same mind, and that the pupils would come from different parts of the country, where entirely different systems of farming were pursued. Well, all he could say was, it ought to be tried. This little Society had taken a step very much in the right direction. It had established a class for instruction in chemistry, and he was sure any man must be a dolt who could not understand the extremely clear and valuable instruction given by Mr. Church. It was a useful subject for farmers to take up, and he hoped other classes equally useful would be formed. He did his best in committee to get the Royal Agricultural Society to give prizes in aid of agricultural knowledge like this. The farmer was under difficulties as regarded the education of his sons. There were few places suited to farmers' sons as regarded their means and requirements. They needed a good general and practical education. There were colleges in Devon and Suffolk for carrying out this object, and there ought to be such in every county. It was necessary that there should be a practical and a physical education. He had no doubt that the masters of those ploughmen who took prizes to-day could handle the plough skilfully, and show their men how to do it. It might be said that this county had the Royal Agricultural College at Cirencester; but that, he thought, had overshot the mark altogether. It was too expensive, and as to their management they had been obliged to give up their farm to a tenant farmer. If they could not make it answer, all he could say was they ought to. He concluded by proposing the toast, and regretting the absence of Mr. Harrison, the President, coupled with it the name of Mr. Burnett, the Hon. Secretary.

Mr. BURNETT said he had occupied this position as vice chairman six or seven years ago, and was delighted at the growth of the Society. He contrasted its present position with its beginning. At the first meeting the ploughing was wretchedly bad; the ploughs could not keep on their own land, and were running on to their neighbours'; but to-day the ploughing was excellent, and he did not believe that superior could be seen in England or elsewhere. As a proof one of their local men had taken the champion prize. During the past season they had some very instructive lectures, and also many most useful and interesting discussions, in which all could take part and benefit by the interchange of ideas. He felt that it was needful that something should be done for a purely agricultural education. That education ought to be practical, and he would guarantee to find within the limits of this Society 10 or 20 young men who were fit to stand before any examiner in practical agriculture. But when they came to the Oxford examination that was a different thing, and the difficulty was to combine the two branches of education at a rate within the farmers' means.

WIGTON: *Commercial Principles allied to Farming.*—At a late meeting of this Club Mr. LAMPORT read the following paper:—

After preliminary remarks, he said—I propose in broad terms to define farming, and to describe what I consider to be the essentials of a "practical farmer." Having secured these grounds, I shall compare agricultural operations with those of the manufacturing and other staple branches of our national industry. If I can show that the principles involved in all are essentially identical, I may be allowed to draw the conclusion that all should be guided by the same rules, and be referred to the same standard. If, therefore, it appears that farmers have neglected those principles of business which are essential in other branches of industry, it may be inferred that their absence renders the operations of the farm uncertain—often wasteful, and not seldom unprofitable. And the converse will follow: their intelligent adoption will tend to effect the union of skill with capital—will equalise and increase the profits of the farmer—will stimulate the progress of agriculture, and raise it to the rank of a scientific pursuit—to the benefit of all immediately interested, and to the promotion of the well-being of the nation.

1. I ask, what is farming? Is it a manufacture, a trade, or is it an occupation or business peculiar to itself?

I adopt the statements of our President (Sir Robert Brisco, Bart.)—"Land is a machine through which the farmer puts his capital; you are but as tradesmen or manufacturers; you sell and you buy; you manufacture your goods equally with them, though you select land as your manufactory, because best suited to your rearing and knowledge." This is sound sense, and to the point. The manufacturer works by the application of known mechanical laws. The farmer watches and profits by the ascertained effects of a round of seasons, of variations of temperature, of alternations of soaking rain and of drying winds, and of the ever-acting, insensible influences of chemical affinities. Similar natural laws work in their ceaseless round for the manufacturing chemist—for the calico printer, and for the bleacher and dyer. There are in all these cases distinctions, but no differences. It is be said that the seasonal changes by which the farmer effects his transmutations of increase are fickle, and only to be dealt with by a system of long averages, while the laws of chemistry and machinery are consecutive and valuable—let me instance in reply, the merchant and shipowner, who carry on their operations under natural changes as sharp in their uncertainty, involving greater risks, and yielding more precarious results than any farming. Talk of the Potato rot, and I can point to the cotton famine. Against a cattle epidemic, I can set a strike for wages. A wet autumn is as disastrous for the manufacturer of fancy goods as for the farmer; and the law of supply and demand shows as many distressing ripples on the great waves of transition as local atmospheric variations, which here and there punish a few farmers, while the average of the world is undisturbed. The farmer, therefore, I maintain, can claim no exemption from the operation of those principles which are applied to other branches of industry. He has no peculiar function. He can set up no wall of separation. He can raise no plea for immunity, but must be weighed in the same balance as all other trades. In one word, farming is essentially a manufacture, and one carried on under more than the average of healthful and pleasurable influences.

2. Let me ask the question, what constitutes a "practical farmer?"

A practical farmer is a person who farms for his living. This definition will cut off amateur dabblers in Agriculture. It will enable me to speak of farmers as a class who make farming their trade, and follow it for profit. It will bind them to conduct their business upon true commercial principles, and will put them open to free criticism, while it challenges comparison of management with other branches of our great national industry. I assume, therefore, that farming is a manufacturing trade, and that a practical farmer is a person who engages in the process to gain a livelihood—that he makes it his avocation, occupation, and gives up to it his whole time and attention. I assume, also, that there is no reason why his operations should not be guided by the broad recognised principles of production which make other branches of trade yield a fair amount of profit.

3. What are the recognised principles of production? 1st, I instance the important one of *division of labour*; 2nd, the employment of approved mechanical and other appliances for economising labour and lessening the cost of production; and 3rd, a maximum production from a given fixed outlay.

These several requirements demand an extensive business, ample capital, and a regular system of management. The advantages of *division of labour* are so well known, when applied to the details of all manufactures, that I need not dwell upon them now. My object is to show that they are equally efficacious as respects the general direction of the business. The question is, can those masters succeed better by carrying on three separate concerns, or by combining to carry on one large one? It seems to me that the day for small businesses has gone by. Weaving has been gathered into large mills; and the small manufactories that nestled in the valleys of Lancashire and Yorkshire, and utilised their scanty water-power, have been absorbed into nuclei, of which Saltaire is a princely example. I think that the prevalence of partnerships in most businesses proves that extensive operations, with division of labour and combined capital, are in reality more able than the single-handed prosecution of several small ones. It may even be a question as to whether ordinary partnerships and businesses of average extension may now be undertaken without supervision by the spread and wider action of Joint Stock Companies. Several partners attending to different branches

the same business appears to have been much tested and approved in most occupations. The man who has a good head for finance may be little fitted for the mechanical processes of production, while a man whose special aptitude is for the details of the manufactory may be utterly unfit for the operations of the market and exchange. Again, the buying and selling in a large business is as clearly distinct from the finance and book-keeping as from the processes of production. A combination of especial aptitudes, with a union of the capital at the partner's command, appears to effect that organisation which underlies all large and successful businesses. It is only in large concerns that it is possible to employ steam power and the accompanying host of mechanical contrivances by which labour is diminished and time saved. And lastly, it is only by the capital employed in extensive operations that the maximum production from a given fixed outlay can be attained, and a reduction of all fixed expenses to their minimum effected.

4. Now, what is the position of agriculture in the face of this great economical bias in all other trades?

Have we, as a rule, large farms—farming partnerships with combined skill, energy, and capital?

Have we the recognised necessity for the employment of approved mechanical appliances, and of a high pressure production? I am afraid not—and why not?

How is it that, in a business like farming, taking in so varied a range of processes—of tillage, with its knowledge of soils, manures, and rotations; of stock feeding, requiring judgment as to cattle, and intelligent experience as to breeding and feeding; of its general arrangements, demanding skilful direction of labour, and the superintendence of many mechanical processes—how is it that, as a rule, farms are small, and are managed single-handed? If I might do so without offence, I would ask, Are the farmers as a body more intelligent than other commercial men? are they better educated? more specially trained? or more naturally apt to master the details, and carry on the processes of a complicated business?

For an answer to these questions, let us glance at some of the statistics of agriculture.

In 1851 there were 285,936 farm holdings in Great Britain. Of these no less than 170,814, or considerably more than one-half, were under 50 acres! The average of the whole number of farms was only 102 acres, while 91,698 farmers, or nearly one-third of the entire number, employed no labourers.

The amount of capital employed must always be a doubtful question. M. Lavergne, an intelligent French agriculturist, who visited this country in 1854, estimates the farmers' capital in England at 3*l.* 7*s.* per acre. The farmers' profit he estimates at half the rent, or 10 per cent. on the capital invested. Mr. Mechi, in an elaborate paper read before the "London Central Farmers' Club," estimates the farmers' capital at 4*l.* per acre, or a total of 200,000,000*l.*, and the acreable produce at 3*l.* 12*s.* The conclusion he draws is "the painful conviction that there must be an immense tract of country unprofitably farmed and insufficiently capitalled." Now, gentlemen, looking at these statements, may I not safely assume that the commercial principles I have dwelt upon, as being essential to the progress and success of all other trades, are, as a rule, wanting in agriculture? How can an average area of 102 acres give room for an economical division of labour, or employment for expensive but profitable machinery? And how can a capital of 4*l.* per acre so stimulate production as to minimise all the heavy fixed charges upon land in cultivation? While all other branches of industry have been obeying the ascertained necessity for concentration and for high pressure production, I appeal to the inexorable logic of the facts I have adduced, to show that agriculture has resisted the warning and the invitation of the times. At first sight it seems strange that so large a portion of our national industry should be content to be an exception to the general rule of progress and profit; but there seems to me to be an explanation for the anomaly, and it is this: The large farmer finds in his business a social consideration and pleasure for amusement which no other occupation of equal extent can yield. On the other hand, the small farmer can find no employment in which his manual labour, with that of his family, along with the small capital he commands, can be so independently engaged. The latter gets his living, and is his own master, and is content. The former gets his living, can meet his landlord in the hunting field; can fish, and shoot, and drive his dog-cart, and finds his solace for a small profit in the consideration and social standing, and in the freedom from anxiety which three times the return and double the capital in another business would not yield. Take the case, for example, of a farmer holding, say 500 or 600 acres, and say farmer that his capital is some 4000*l.* or 5000*l.*, and contrast his position and standing with that of a small manufacturer or tradesman employing a similar capital. The latter, by close attention, will no doubt make twice or thrice the profit that the farmer will; but dare he follow the hounds? or take out his certificate? or take leisure for any sport he is inclined to pursue? What would his neighbours say? Where would his credit be? How soon would he be sent for into the Bank parlour, or find his name in the *Gazette?* No law is so clearly understood as this—that capital follows confidence. Confidence and credit are identical, and, until farming is made a purely commercial undertaking, and carried on upon recognised commercial principles, I, for one, am not surprised that agriculture should be held to be bare of capital, and that the question should be so frequently asked—Where is the capital for improvement to come from?

5. Nothing convinces me so clearly of the want of the commercial spirit in farming as the almost entire absence of book-keeping. In every other business worthy of the name, any one carrying it on without a proper system of books would be regarded as crazy. If he were unfortunate in business he would on this account be liable to be severely punished in the Bankruptcy Court by his certificate being withheld. By book-keeping I do not mean simple entries of what a man sells, or even a debtor or creditor account kept of his cash. Properly considered, a good system of books is a registry of results. By it every variety of crop and every variation of quantity is brought out, ready for comparison on an unvarying common denominator—money. Prize cattle, show Turnips, giant Wheat, all the results of fancy cultivation, are reduced to the inexorable standard of this common denominator.

The tissue of loose talk and mere guess-work, by which many a farmer gropes his anxious or whistles his easy way, is resolved by a few columns into hard facts, and measured by a stern and unerring and precise. By a proper system of book-keeping alone can any farmer or other producer get a satisfactory answer to the main question of his business—will it pay? Any practical farmer will tell you about what it will cost to plough, to reap, to mow; but general estimates are general delusions. Every man's locality, his manufactory, machinery, and all other concomitant circumstances, differ more or less from another man's; and every man's farm, and every field in it, must also make a difference in the cost of a variety of operations; so that no estimate except his own experience, ought to be a law to any one. Now, nothing can make that experience trustworthy and valuable except there be a registry of results; for there can be no reduction of results to a common denominator except by proper book-keeping. "Many a person will say that if he 'knows his business' (that is, in detail), buys and sells shrewdly, looks, in short, after the pence, 'that the pounds will take care of themselves.' Many a man is satisfied with working away on the faith of stereotyped estimates, or on no estimate at all, depending upon his memory and judgment, which may be defective, if not treacherous, and thinks that if he cultivates his land after the manner of the country round he cannot do better. To these persons I will put a single case:—Two men have similar farms; but one has a clever managing wife, a steady hard-working son, and a bright, active daughter; the habit of the other's household is unthrift, pleasure-seeking, and extravagance in dress. The outlay of both households is mixed up with the farm expenditure—all incoming and payment being made out of the traditional old stocking. The one man gradually increases his store: the other is in a state of chronic complaint that 'farming does not pay.' Now, both may be wrong. The satisfied farmer may be making less by his farm than the other, but both are equally in the dark, because neither keeps books." The first objection to book-keeping will be, no doubt, want of time. Now, whatever else a farmer does, it seems to me that this ought not to be neglected. A man carrying on business without books is like a ship at sea with no compass. But, may I be permitted to suggest that when out-of-door work is impossible, the winter evenings are long and tedious, and that a simple set of books need not take more than an hour a week to enter up. Then, again, allow me to ask whether it is absolutely necessary that a farmer should attend a weekly market. One-sixth of a farmer's time seems to be a large proportion to spend on the road and in the market-place to sell a small amount of produce; and I will only point at the temptations otherwise put in his way by this mode of transacting business. To the 91,000 farmers employing no labourers, this market-day cessation of farm labour amounts to a sacrifice of something like one-sixth of the whole work performed on the farm. Talk of farming not paying! Why, no other business or trade in the country could possibly exist at all under a tax so heavy as this! The infusion of a more thoroughly commercial spirit into agriculture will no doubt effect a change in this point. It will also, I trust, in time establish a more economical mode of converting the bulk of the farm produce into money. The small farmer confessedly wants capital; but has he ever calculated the loss of interest he incurs by maintaining a well-filled stackyard? Has he ever made out the per centage of loss to the agricultural interest from the depredations of vermin, or the effect of mildew? I do not venture here to enter into details, but I may state that the admission that steam-threshing is an advantage, will itself dispose of a host of small objections against it. Commercially considered, it appears incomprehensible that while the land is hungering, and the farmer is calling out for capital, a considerable amount of capital is kept worse than idle in the barn and stackyard. Of course, a rapid and general conversion of produce into money would require an increase of middlemen or corn factors, with their capital, to prevent any great decline of prices. Should such a change become general, as in time I apprehend it must come, its influence on prices will be nullified, as is the case in other articles. Cotton, sugar, tea, flax, and colonial timber are all put into the merchant's hands as quickly as possible, and the course of trade adapts itself to the pressure. Capital in second hands is ready to receive them, and the supply for consumption is regulated by experience and sustained by capital. The first excess is thus impounded as it were, and the stream for consumption is regulated to meet the wants of the year, without unnatural depression in prices. Under the present system it is notorious that the supply of most provincial corn markets is affected by the farmer's convenience or necessities. If he wants money, or has leisure, he threshes and sells; and if it so happen that several are equally influenced at the same time, prices are forced down without any adequate or general reason. Now, why should farmers double their produce upon the market by a system so serious and costly in expenditure of time, and by so disastrous a locking-up of capital, so much wanted on the land? Many no doubt get advances upon their stacks; but this, as it causes them to pay for the accommodation, ought to realise the loss they incur in holding them month after month. A farmer ought not to be a corn dealer, any more than he ought to be a miller or a baker, unless he possesses ample capital for all (as separate trades), and has some special aptitude or advantage in carrying them on together, which is seldom the case. The farmer's business is to produce corn and meat, and he is the best man of business who concentrates his efforts, and applies all his capital to till his ground and feed his stock.

6. Let me summarise what has already been advanced.

Farming is a business, similar in its broad features to all other trades or manufactures, and should be managed on the same general principles.

The present condition of agriculture shows, however, that the true commercial spirit is wanting in this branch of our national industry.

This is proved by the average small size of the farms in Great Britain—by the consequent primitive character of the appliances for culture—by a wasteful and expensive general management—by insufficient capital, and a minimum production—by an almost entire absence of systematic book-keeping. The natural consequence of this state of things is a want of confidence amongst capitalists in farming as a profitable investment.

That "farming does not pay" is a generally received opinion: and from the absence of systematic book-keeping, good farmers cannot prove themselves an exception to the rule. Hence it is that capital is so deficient—that high farming is the exception—and that agriculture is stationary in the face of a universal progression.

It now follows to determine how the capital for improvements may be obtained? Our President says:—"By reducing the size of your farms." This is a clear and intelligible indication how a man may increase the proportion of his capital per acre, and, I think, a plain and practical suggestion how a man may make the amount of capital he now possesses more profitable But I submit with all deference that no inkling is thereby afforded as to how a man may increase the amount of his capital available for cultivation, nor does it show from what quarter, or by what process, agriculture is to attract the capital necessary to raise it from a state of imperfect action to one of profitable activity.

If Mr. Mechi is to be credited, agriculture, which now vegetates upon 4*l.* an acre, requires a sum of 300,000,000*l.* to make it pay. If our President's expedient were to be generally adopted, this branch of industry will require some 80,000 new tenants, possessing or commanding the use of this vast sum. To realise the difficulty of obtaining this large number of new tenants, I may state that even if farming could be put into successful competition with other trades as to profit, it would take every druggist, draper, and bookseller in the country to make up this number, while 20 years of the ordinary increase of population (making due allowance for emigration and drafts to other trades) would not enable the farming class of itself to attain to the requisite dimensions. These considerations must convince us that it can be by no empirical process—by no sudden or violent change—that the whole course and condition of agriculture can be transposed from apathy to activity, from money starvation to abundance, and from a state of "not paying" to a fair place amongst the profitable staple trades of the country. It will require many and many an answer to the feverish question, Where is the capital to come from? to unravel the many web of diverse interests, habits, and requirements. It must be by many and many a process of action and reaction, and by a host of expedients—our President's ingenious and practical, but necessarily narrow one among the rest—that agriculture will be revolutionised and ultimately built up, as it should be, into the most enduring industrial edifice of our social state. If what I shall advance, therefore, differs from what our President advised last December, do not suppose that because of that difference there is opposition. The house cannot be built without the scaffold, and palliatives must precede cures; but the gist of the argument and the full measure of the difference may be brought out by the question—Did Sir Robert Briscoe say one word against large farms when tilled with ample capital?

7. I therefore proceed with an easy conscience to advocate large farms, as providing, under proper arrangements, what small farms cannot do—namely, the foundation for division of labour, mechanical appliances, consolidation and increase of capital, and for a profitable high-pressure rate of production.

To bring about slowly, but effectually, this combination of advantages, there seems to me but one simple recipe—farm partnership; and as most necessary to effect this result—systematic farm accounts.

My plan is this: Let two farmers join together, the one to look after the tillage, the other to take charge of the stock, and associate with them a third, with sufficient capital to farm some 600 to 1000 acres, on the best system. The third may be a sleeping partner; or, say the younger son of a country gentleman, to whom might be assigned the charge of the books, the superintendence of the machinery, or such other special branch of farm business as he may be capable of managing. From the overcrowded state of the professions, such an opening for the younger sons of country gentlemen who might be averse to trade would, I apprehend, be eagerly sought. I can hardly conceive a better position for a young man of good connection than a partnership with one or two clever agriculturists; and I can conceive no more advantageous mode than this by which a couple of clever farmers may find scope for their energy, and utilise their experience and ability to the best advantage. Or, as I have said, the monied partner might be what is termed a sleeping partner, the division of profits being in proportion to the work done, or money supplied. To such a firm of course book keeping would be essential; and, to a firm so constituted, I conceive no bank would refuse such temporary accommodation for legitimate trade purposes, as it might from time to time require. Although the amount of capital which agriculture is capable of profitably absorbing is something prodigious, amounting—with draining requirements and permanent improvements, in addition to farmers' wants—to something like 300,000,000*l.*, yet the capability of the country to produce or supply it is not less prodigious. The amount of surplus profits or interests accruing is generally estimated at annually 80,000,000*l.*, while the power of commerce to create its representatives is enormous. I estimate the profits of trade at 200,000,000*l.* annually, representing a capital employed, or turned over, of some 2,000,000,000*l.* Now, if everyone paid his accounts in three-months bills instead of cash, or, at all events, if three months' extra credit was generally taken over the ordinary period of payment, a sum of 500,000,000*l.* would be at once available for the purpose of commerce. And this is regularly done to a greater or less extent when money is in demand. Such a result, however, can only follow or be supported on confidence. Capital is as mobile, and follows as simple a law, as water in finding its level. The safest and most profitable business always requires, and will command, the largest share; and I may safely say that no business with these characteristics was ever crippled in its development and operations by the want of capital. It is only businesses that do not pay, and that are carried on in a way that does not command the confidence of the monied class, that are starved and cry out. Once show, therefore, that agriculture is fairly profitable, and establish a fair claim to confidence from its organisation and management, and from a thousand minute and unsuspected sources, and in a thousand ways inscrutable or scarcely traceable, capital will find its way—like water into your deep drains—to fill the empty coffers of the farmers, and fructify their half-cultivated fields.

Mr. Banks observed that he had long been of opinion that farmers were trading beyond their capital. They could not go into the best markets and select the best goods as the opportunity arose, as they had bills which must be matured; and so it went on, a losing game, till at length they broke down, bringing others to ruin in the collapse. This remark he applied generally to all trades and businesses as at present carried on, and farmers were not exempt. They had not the capital to do justice to the opportunities of their position. He agreed with Mr. Lamport that, through the agency of farmers' clubs, partnerships might be formed for farming with advantage, as in commercial speculations; and he also agreed that in all farming operations there should be a strict system of book-keeping, so as to show the profit and loss. He had lately the pleasure of staying with his friend the late High Sheriff of Lancashire, where that system was carried out to the minutest article with eminent success; and he thought Mr. Lamport's paper was pregnant with remark which might be followed up with advantage by the Club.

Review.

On Water Supply to Villages and Farms. By J. Bailey Denton, M. Inst. C.E. Chapman and Hall.

This subject has for several seasons been of great and pressing importance. We live in a neighbourhood where last summer one-third of the horse-power of the farm was in many cases employed for many weeks in carrying water for the stock; and where it is not too much to say all this would have been saved if only Mr. Bailey Denton's plans for the storage of drainage water had been properly carried out.

In this pamphlet these plans are elaborately described and illustrated; and now that a dry September is again beginning to press the importance of a water supply on our attention, we doubt not that the pamphlet will be widely circulated and read. How easily the needed work may be accomplished is plain from the following extract:—

"In the published records of the discharge of drains in clay lands (see Royal Agricultural Society's Journal, vol. xx., p. 273), it has been shown that the proportion of the rainfall discharged annually varies from about 1-10th to 1-5th, according to the density of the soil.

"Taking the mean of these proportions and the rainfall on the surface at 24 inches, the depth of water discharged would be 3 in. 6 dec., or upwards of 80,000 gallons per acre. If we allow to each inhabitant of a village 10 gallons per diem, and assume that for four months, or 120 days in the year, recourse would be had to the conserved supply, it would appear that 67 people may obtain a summer supply from each acre of land, if the whole discharge could be collected and used.

"Now, if the average population of villages may be taken at 400 inhabitants, it would require only the drainage water of 6 acres to be collected to secure a reserve against drought for an entire village.

"If the service reservoir be an open pond, a considerable allowance must be made for waste by evaporation, &c., and 50 per cent. on the quantity, *i. e.*, 15 gallons per head per diem, or the drainage water of 9 acres, should be provided, for a village. If a covered reservoir be adopted instead of an open one, the quantity may be reduced; but the expense of constructing a covered tank of sufficient size will preclude its adoption, except in special instances.

Then follows detailed plans and estimates, and the work concludes thus:—

"Assuming these figures to fairly represent the cost of supplying a village of 400 inhabitants with water, and the number of houses or cottages in the village to be 100, it follows that the cost per person would be 20*s.* 9*d.*, and the cost per house 4*l.* 3*s.* If the cost were charged upon the houses, and the money were borrowed to do the work, it could be repaid by instalments, with interest, in 30 years, at 6¼ per cent., and the annual charge would amount to 26*l.*, or a charge upon each house of not quite 5*s.* 3*d.* per annum.

"The capability of thus supplying villages with water is not conjectural;—every day's experience in drainage only confirms the conclusion that there are few villages in which something of the sort might not be devised. In fact, the figures given represent the worst aspect of the suggestion, for Nature frequently affords opportunities of collecting the water of drainage, without recourse to artificial ponds, in hollows and ready-made receptacles which may be appropriated with advantage. The only thing necessary is an admission that the provision is positively required, and that it is an act of justice to charge it upon the properties that will derive benefit from the supply.

"Turning again to farms—as clay lands will derive the greatest amount of benefit from the application of steam cultivation, it is a desideratum of the highest importance that water should be at command during the summer, when the stirring of the soil secures the greatest benefit. And as all clay lands will be drained which are not already drained ere steam cultivation acquires its proper position in agriculture, it is only necessary to provide a sufficient supply for the engine when draining the land.

Wells at certain intervals will do this in perhaps as cheap a form as any other mode of preservation, or ponds will serve the like purpose. A steam engine of 10-horse power requires for the cultivation of an acre of land from 100 to 125 gallons, say 125 gallons of water, and a well 12 feet deep and 6 feet in diameter will hold, if rendered water-tight and properly covered over, 2115 gallons, or a supply sufficient for the cultivation of 17 acres. It will only be necessary when carrying out any system of drainage, to multiply the wells or ponds according to this calculation in proportion to the number of acres of arable land on the farm.

"It may be fairly asked,—If these objects can be so simply attained, why have they not been carried out during the great progress of drainage? The answer is soon given. The necessity has not been acknowledged, and until that is the case, nothing will be done on any extensive scale."

Farm Memoranda.

[We take advantage of the immense body of agricultural evidence lately taken before the Hypothec Commission at Edinburgh to publish such extracts from it as will indicate the existing style of Scottish agriculture, and the enterprise and energy of Scottish agriculturists.]

(*Continued from* p. 857.)

20. Snawden, East Lothian: *Mr. Joseph Harper.* I farm about 1300 acres of moor, and above 700 arable. I pay 900*l.* a year of rent. My term of entry is Whitsunday and separation of crop. The first rent is payable at Candlemas following entry, the reason being, that part of my farm is pastoral. I think the term of entry is fair enough, but in general it would be better to make it a Martinmas entry for arable farms, with the first rent payable at Whitsunday before the crop is reaped; that would be, in fact, fore-rented. I have known guano merchants, smiths, joiners, and general merchants in town and country suffer from the landlord's preference under the law of hypothec operating prejudicially to them. When the question was discussed two or three years ago, I was so startled with the great injury that the commercial classes and others suffered, that I came to the conclusion that the law should be abolished altogether; but subsequent discussions, and subsequent reflection, have caused me to modify that opinion to a certain extent. I now think that, if the landlord had one year's rent secured to him, that would be a very fair arrangement. I would give him a preference over stock and crop for the rent of that year. If the landlord let the tenant remain three half-years without paying rent, I would still just allow him hypothec for one year. As the law now stands, the landlord rarely loses his rent. I think he should take a certain amount of risk, though there is a distinction between a proprietor letting his land on lease for 19 years and a merchant whose transactions are from day to day. The merchant can stop his supply of goods, but the landlord cannot turn the tenant out on so short a notice. I do not myself know of any case in which a party has been called upon to pay twice for agricultural produce under the law of hypothec; but at last Melrose fair I was asked by a person who had bought lambs from the farm of another farmer, whether it would be safe to take away the lambs and pay for them, as he had since heard that the tenant was about to be sequestrated. I said that, in the event of sequestration, I had no doubt he would have to pay for them twice, and I suggested that he should follow the Lord President's advice in a recent case, and ask to see the tenant's receipt for his rent. He was quite indignant at the idea of putting such a question to the farmer. I would consider such a question put to myself as a personal insult. It is a good advice from a lawyer, but not practicable in business. I then advised him to write to the factor as to his condition. I sometimes put my sheep to other farms to eat the Turnips. Two years ago I had sheep in the low country on Turnips. The price of the Turnips was 70*l.*, and the value of my sheep was about 400*l.* The tenant was sequestrated, and I was told that, if his sequestration had happened before my sheep had left, they could have been seized.

21. Netherton, Dumblane: *Mr. James Stirling.*—The rent of that farm is from 250*l.* to 300*l.*, partly a grain and partly a money rent. My father was a farmer in Craighead. His farm was about 90 acres, and the rent was 100 guineas. I succeeded my father in that farm. He left me a few hundred pounds besides the stocking of the farm. It is 40 years since I succeeded my father. I have still my father's farm. I took another farm 10 years ago, on the estate of Kippendavie, of 200 imperial acres. I took a third farm last year. It is nearly 400 acres, and the rent is 500*l.* I commenced with a farm of 100*l.* rent, and I am now paying in all nearly 900*l.* rent. I have five of a family. The last farm that I took was for my eldest son. I mean the farm I took with the rent of 500*l.* I stocked that farm for my eldest son, as well as having a stock of my own. I have found no inconvenience arising to me from the law of hypothec. I have rather found it to be beneficial. It prevents me laying out so much of my capital, by paying a forehanded rent, as I would have to do were it not for the law of hypothec; and of course I have the money to lay out on improvements on the farm. If there had been no law of hypothec, I could have fore-rented my own farm, and stocked and fore-rented my son's farm, but it would have reduced my capital for the improvements on the farm. It would not have been so convenient for me to do as I have done under the law of hypothec. Commencing with a small capital, under the law of hypothec, I am now in the position I have stated. If the law of hypothec were abolished, I should think the landlord would require security or forehanded rent. I think it would not be convenient to the majority of the tenants in my neighbourhood to pay forehanded rent. My opinion is, that, were the law of hypothec abolished, without some countervailing security to the landlord, it would have a tendency to remove from moderately-sized farms a most respectable and industrious class of tenants. I first commenced with a farm of 90 acres, and then took a second, and then a third farm. On the second of these farms, I expended a good deal of money in permanent improvements, but not on the last farm. I only entered it at Martinmas. I think the sizes of the farms which were taken by the people with very small capital, to whom I referred as having done well, have generally been from 70 to perhaps 200 acres. I would not like to say that the present tenants could not fore-rent their land, if the law were abolished. I think that, generally speaking, those who have been for some time in their farms could fore-rent them; but I certainly think that ultimately it would come to their being removed. I would account for that in this way, that unless people are able to put their sons into farms, it would come to be that they would be put out. *Q. What do you think would come of the farms, or who would occupy them, if these tenants would not do so?*—A. Well, perhaps tenants of more capital. I could not say where they would come from. I do not see that the present tenants would get better bargains of their farms if they were fore-renting them. As far as my experience goes, I have not given a shilling more for the farms I have taken, on account of the law of hypothec. I do not think the farmers would get their farms cheaper if they paid their rent beforehand. I see farms in the market that are still letting higher, but I do not say that they are taken by practical farmers. I took both farms on the Kippendavie estate privately. The farm was never valued. I just took it from the landlord himself. A great many are still offering for farms, when they are advertised. They are certainly offering more than the farms are worth, for I see very often tenants coming into the quarter in which I reside do not stop long in the farms. I think these strangers offer more than those in the district. I have known some of those strangers, being men of capital, who took farms, and did not do well with them. I do not know whether they spent all their money or not, but they left their farms in a short time. I think these farms were none the worse of the tenants. I know no case where tenants have been put out of their farms. I could not say whether it is on account of the law of hypothec that these men have offered more than they should have done. I think the cost of the artificial manures which I generally put on the land, is about one-fourth part of the rent on the average. I have not known any failures of farmers in my district. The general size of the farms in my neighbourhood is from 70 to 200 acres. I know a great many tenants of the smallest farms in my neighbourhood who have risen from the position of ordinary labourers. I know four or five, or perhaps six, who have risen from being servants. The land lets generally at about 30*s.* per Scotch acre in my neighbourhood. I am not aware of the landlords having given any assistance to those labourers who took small farms. Perhaps they gave them a little assistance, by giving drains and such permanent improvements. If there had been no law of hypothec, these men could certainly not have taken these farms. Those who have taken them have generally thriven well in them. If the law of hypothec were repealed, and the leases of these small farms were out, perhaps some of these tenants might be able to pay a fore-rent, because I consider that most of them have made a little money. They have thriven under the law of hypothec. There have been very few changes in my district. I know of no changes for a great number of years except two, and both of them were in one farm. I could not exactly say that the small number of changes show that the landlords have exercised a wise discretion in the choice of their tenants. Of course there is a difference in landlords; some do take a higher rent if it is offered for a farm, and others do not. I should certainly say that the landlords look well to the circumstances of their tenants. I think they generally consider the capital and skill of offerers, and make inquiries about them, before they let their farms. I think it is the general opinion of the tenants in my district, so far as I have made inquiry, that the law of hypothec has wrought well. If I were a landlord, I think I would select men of skill for my tenants, even in preference to men of larger capital. I think I would do that, even if the law of hypothec were abolished. I would have more trust in a man of skill, without any more capital than would stock the farm, than in a man of large capital and no skill. It would take a few hundred pounds to stock a farm of 70 Scotch acres. It depends entirely on the class of stock put on the farm. I should think that 500*l.* would do it very well. I do not know exactly whether 300*l.* would do it. The rent of a farm of 70 acres is 100 guineas. The man that has 500*l.* would just require to have 600*l.* to take a similar farm, and pay a forehanded rent. Some people would stock a farm cheaper than others. My own opinion is something like 7*l.* an acre.

Miscellaneous.

Stack Burning in North Lincolnshire.—The fearful scenes of last winter, which produced so much consternation throughout North Lincolnshire and East Yorkshire, seem about to be re-enacted. No sooner has the harvest been gathered than two fires—having, alas, too many of the marks of the unmistakable incendiarism of last winter—are reported from North Lincolnshire. The first of these occurred at West Burton, a village about three miles from Gainsborough and eight from Retford. The fire made its appearance soon after midnight on Saturday, upon the farmyard of Mr. William Toder, Middle House. The household retired to rest at 11 o'clock, leaving all safe. Between 1 and 2 Mr. Foster, of High House, residing about a quarter of a mile west of Mr. Toder's, was awoke by a glare from the stackyard, which fronts his bedroom. At about 6 o'clock, in spite of the arrival of two fire engines, and the efforts of the farmer and his men, aided by a good supply of water, the flames had destroyed 25 stacks of Wheat, Barley, and Oats, besides four waggons which were left near the stacks, and of which nothing but the iron frames remained. Four large fat pigs, and a peacock which flew into the flames, also perished. The entire produce of the farm had been got in on Saturday, and of the whole a few loads of Clover and hay were all that was saved. Happily, by strenuous efforts, the farm buildings were saved. Most praiseworthy assistance was rendered by the county police from Retford, and by the neighbouring farmers and labourers. The amount of damage is variously estimated, but it is said to be covered by insurance in the Leeds and Yorkshire

offices. The farm is the property of Lord Middleton. A fire also broke out on Sunday night, it is said, at Horton, in North-east Lincolnshire. The flames were visible from Hull. Passengers to Hull by the last train from Grimsby report that some Wheat stacks were burning. There is every reason to fear that it was another stack conflagration. *Globe.*

Calendar of Operations.

September.—The following notes are abridged from *Morton's Farmer's Calendar*:—

1. *Autumn Cultivation.*—There is no part of the skill which the clayland farmer needs more useful to him in his business than that which times the operations of tillage to the fit condition of the soil. Tillage operations which will benefit at one time will do mischief at another, and many a man has lamented too great activity and anxiety to get on with work upon the field which had been better left undone till the weather had improved. It is the same sort of wisdom or of folly, only intenser of its kind, which is displayed in the distribution of tillage operations through the season as is shown in their arrangement from day to day. There is a great need of fitting what is done in the field to the actual weather of the day; but there is an even greater need, especially on clay soils, of fitting the great tillage operations of the year to the average weather of the seasons.

There seems to be an advantage on clay soils in the deep and thorough tillage of the stubbles when dry in autumn, which is so remarkably greater than the advantage of the same process at any other season as almost to require some special explanation. I believe, however, that the explanation is no other than that which ordinary tillage and its influence on fertility receive; the greater effect arising from its being done in the dry and followed by the frost. But whatever the explanation be, the fact on almost every kind of soil is unquestionable; and any means of cheapening and rendering more effective a thorough autumn tillage, and of increasing our power of carrying it out, will be welcome to all clay-land farmers.

Among such means none is so valuable when turned to proper use as a long period of dry weather after harvest. Let the ordinary means of cultivation be put energetically to work immediately after harvest during such a season as we are having (1861), and they will be better in their influence and cheaper in their cost than all that ingenuity and capital can devise or furnish for the assistance of the farmer in ordinary or in difficult times.

I am informed by a gentleman who farms largely in Holland that there the first operation on the stubbles is as deep a furrow given with the plough as can be done with horses. Ten to 12 inches of the alluvial soil are thus turned over; and if the weather permits, a cross-ploughing of less depth is given before winter. In the neighbourhood of Edinburgh nothing strikes the spectator more during a walk over the fallows in winter than the great depth of the ploughing which has been given to the land since harvest. And in instances nearer home, where the practice has been transplanted or adopted farther south, the same advantage seems to follow a deep autumnal ploughing. In the fen districts a large deep-working plough has been lately introduced by Mr. Howard, which seems to be most influential on the fertility of the land. The bringing up a portion of the clay subsoil to be weathered during winter, when it becomes mixed with the vegetable mould of the surface, is found to be most beneficial.

And where there are no especial reasons why advantages may be expected from a similar practice, as on a comparatively light soil over chalk in the county of Surrey, yet the same advantage has followed the adoption of a similar practice. And a furrow, 10 or 12 inches deep, given by means of steam power, has proved a capital preparation for the succeeding Potato crop, and a capital preparation, indeed, for the whole succeeding rotation. Of course this deep furrow cannot be given in the case of a very foul stubble; such land must be cleaned before it is safe to turn it over deeply, and it is then that modern implements are most useful.

Coleman's cultivator and Bentall's broadshare, and other machines of that class, should be put to work for the purpose of cutting off that thin surface of the soil in which the roots of creeping weeds luxuriate. The comparatively small quantity of material, in the first place, disturbed, is thus the more easily weathered, and, if necessary, burned. The harrows following the scarifiers drag all the rubbish together; and when it is either carried off or set fire to, the whole soil may be turned over deeply with the plough.

Certainly the preliminary use of the paring plough and cultivator is a great economy. Where ploughs and harrows alone are used in tillage operations, the whole process is cumbrous in the extreme.

2. *Vetches.*—Winter Vetches cannot be sown too early after the corn harvest is finished, though they are generally sown at any time during the latter half of August, the whole month of September, or the first half of October, and in a mild season they will bear sowing even a fortnight later. If the soil be poor, or the situation elevated and exposed, sow in August; and upon every farm it is advisable to sow some of them early and others late, in order to have a succession of green food the ensuing summer.

Spring Vetches produce rather a lighter crop than the winter sort, and are subject to more risk from a dry summer. There is no difference in their use or value per ton; but the spring sort coming to maturity two or three weeks later, makes it convenient and advisable to grow some of each, in order to have a succession of them for green food all the summer. They may be sown all the spring and summer from February till the middle of July, but the success of late sowing will depend on a showery season.

Immediately after corn is carried from a field, or even part of a field, in August, or early in September, scarify and cleanse whatever of them, having no Clover or other seeds among them, may be intended for Vetches. Cart on it such manure as can be spared, up to 10 or 15 tons of well-rotted dung per acre, and spread it, sowing the Vetches upon it; these (the seeds and manure) should then be immediately covered by the thin and narrow slices of a very small plough. Or what is generally better, plough in the dung, give the land a slight harrowing, and then drill the Vetches in rows 6 or 8 inches apart. If ploughed and pressed, and then sown broadcast, a very light harrow, or if the soil be friable, even a bush harrow, may close the seams. These operations will cost about 10*s.* per acre. But where no manure is used, the seeds may be harrowed or scuffled in without ploughing, at so small a charge as 1*s.* per acre.

A proper quantity of seed is three bushels of winter Tares alone, or two bushels and a-half of Tares mixed with half as much winter Barley or Rye per acre.

After the seed is covered, cleanse the water-furrows, in order to render the land dry during the winter.

3. *Wheat.*—Sowing and reaping used perhaps more commonly formerly than now to be carried on together; and the young Wheat had often indeed appeared before Wheat harvest was completed. This was the case especially with Wheat sown after fallow, and with Wheat sown after Clover and Grass. Such fields are in the southern counties, either after a second cutting has been removed, or after a hard pasturing of the field, manured with dung from the yards which has been lying in heaps since spring, and is now carted on and spread broadcast at such a rate as the quantity allows, and ploughed under with a shallow furrow. If ploughed with a skim-coulter so as thoroughly to bury the green surface and whatever lay upon it, and afterwards pressed with the drill presser, and then suffered to lie for a month before sowing, every condition likely to secure a crop is observed. There is plenty of manure and of "heart" in the land, and it receives and acquires a good firm texture which the Wheat plant likes. The land lies in ribs sufficiently abrupt to insure that seed sown broadcast and harrowed in shall fall into the lines opened for it and come up in row as perfectly as if drilled.

Wheat after a bare fallow is sown by the Suffolk drill in rows from 8 to 12 inches apart on land which received its last ploughing some weeks before. And it is then harrowed in and the ground left—the rougher the better. Six pecks of Wheat, or less, is ample seeding in the month of September. And that quantity is also sufficient when sown broadcast either skilfully by hand or by machine, over a ribbed ploughing, and harrowed in so as to come up in lines.

The following memoranda on Wheat-sowing in September are given from the original edition of this work:—

Seed-time.—Upon all cold, wet, and backward soils, September is the best season for putting in Wheat, provided the land be not too dry; for Wheat should never be sown in a very dry season, nor till rain falls in tolerable plenty. Upon drier and warmer soils it is far better to postpone it till October. But in this case every agriculturist should remember that the soil intended for Wheat should be cleansed and prepared for it in September, by scuffling and destroying all root weeds, as well as ploughing the soil once into ridges, the most suitable for keeping it dry through the following winter. Another general observation is, that in proportion to the earliness of the sowing a small deduction may be made from the accustomed quantity of seed, as two bushels sown any time in this month are equal to three in November.

Steeping Seed.—There are many methods of steeping, brining, and liming seed Wheat, and they are all intended to prevent the smut.

Notices to Correspondents.

Ploughing: *Inquirer.* The niceties of this subject are no longer of the importance which they once possessed. Well drained land should be "smashed up"—*that* is the proper way to treat it. If you want to know all the mysteries of the subject as it used to be practically carried out—perhaps still is in some districts—consult Stephens's "Book of the Farm." The whole vocabulary of this once tedious subject has become obsolete: and in place of "gathering up, crown and furrow ploughing, casting or yoking or coupling ridges, casting ridges with gore furrows, cleaving down ridges, cleaving down ridges with or without gore furrows, ploughing two-out-and-two-in, ploughing in breaks, cross-furrowing, angle-ploughing, ribbing, peering, &c.," all that the land now needs, in order to efficient culture, is, according to Mr. Smith, of Woolston, a "smashing up;" and it is to land drainage, as permitting a deep, rough tillage before winter, and to steam ploughs and steam cultivators, as enabling it, that the most striking lesson of recent agricultural experience in land cultivation is due.

Sow and Pigs: *Mr C Walton* recommends our correspondent to Mr. Stearn, Brandiston, near Wickham Market, Suffolk, who will explain the cause of the sow destroying its young. Mr. Stearn is one of the most successful rearers of pigs, and his name is well known in all the agricultural shows.

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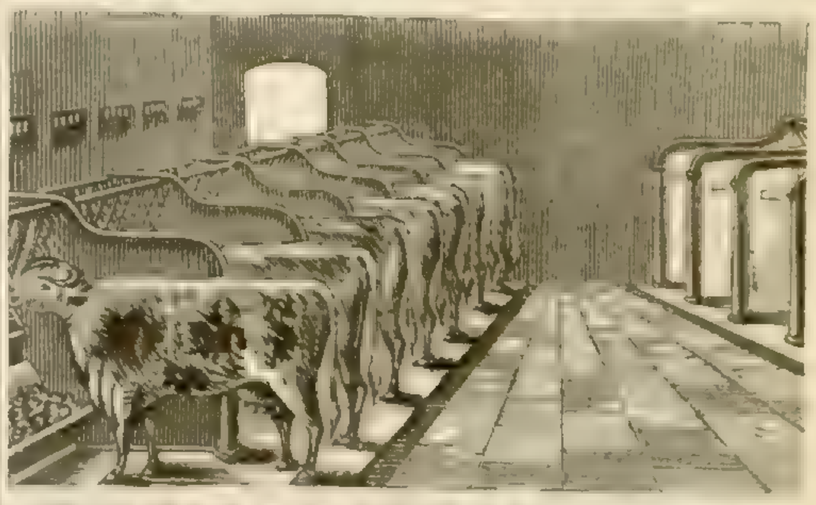

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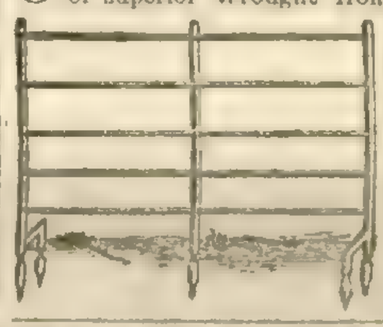

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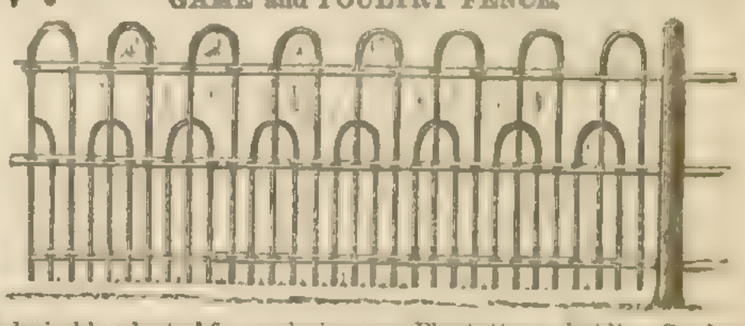

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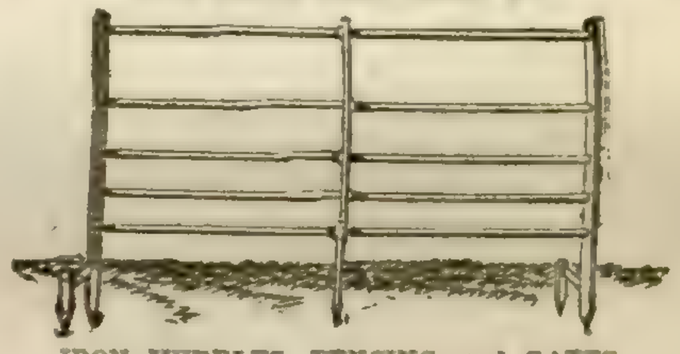

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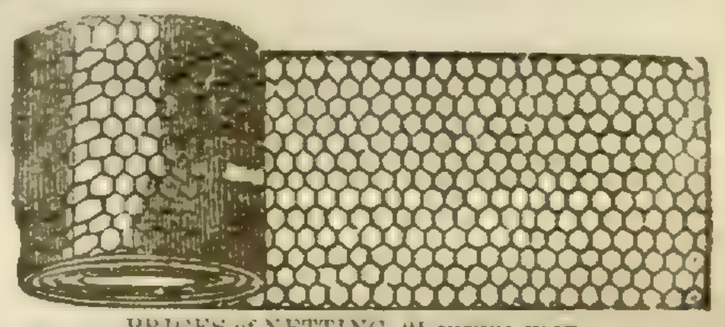

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HOT-WATER PIPES, at Reduced Wholesale Prices, with Elbows, Syphons, Tee Pipes, and every other connection; Wrought and Cast-iron Boilers, Saddle, Conical, Cylinder, TUBULAR, and Elliptic, from 24s. each. Improved Boilers and Iron Stands to use without brickwork, 56s. each. Valves from 10s. 6d. each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Castings of every description in stock, at
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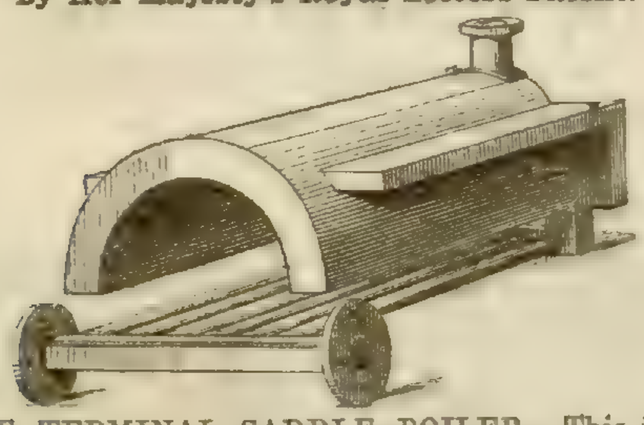
Horticultural Works, Kensal Green, London, W.

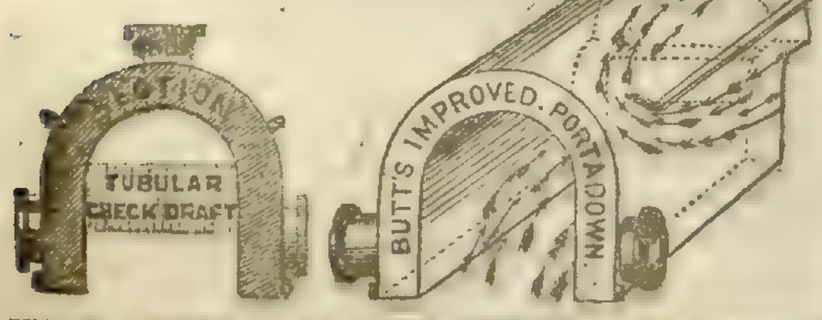
W. T. AND J. TAYLOR (late JOHN TAYLOR & SONS), have on hand for Sale THREE very handsome WOOD and GLASS CONSERVATORIES made to order. Two of them were prepared for a gentleman residing in Park Lane, an objection being raised on account of their intercepting the view from the adjoining houses. They were not fixed.
Designs and Prices fixed complete in any part of the United Kingdom forwarded upon application.

By Her Majesty's Royal Letters Patent.



THE TERMINAL SADDLE BOILER.—This is the Old Saddle made perfect, by the addition of an upright terminal end piece, which quite closes the arch and side flues, and forms the back of the furnace, doing away with all brickwork at the end, and adding one-third more heating surface to the boiler just where it is most exposed to the direct action of the fire.
To be seen at the Royal Horticultural Gardens, South Kensington; and is at work at the Victoria Nursery, Holloway, Mr. Williams having kindly consented to show it to any one who will call at that Establishment. Circulars, Prices, &c., on application to
J. IRELAND, The Works, Edward Street, Broughton Lane, Manchester

Heating by Hot-Water.



THE ORIGINAL SADDLE BOILER, with Improved Tubular Check Draft, Flued Ends, and Ribbed Sides, for Heating Greenhouses, Vineries, Forcing Pits, Public Buildings, &c. These Boilers possess increased heating surface capacity, power, economy in fuel, and are the only class of Boilers, all points considered, when properly fixed, that can be relied upon with safety for Heating Greenhouses, &c., of any extent, by Hot Water, and at a moderate price.
Gardeners interested in such work should write for List of Testimonials, sent Post Free on application to FREDERICK WILLIAM BUTT late of London), Portadown, Ireland.

BURY and POLLARD'S CONICAL BOILERS for Heating by Hot Water, fixed at Seats of Duke of Newcastle, Lord Belper, &c., at Viscount Sydney's replaced, after being 20 years in constant use. Apply at
17, New Park Street, Southwark, London, S.E.

BURY AND POLLARD have just fixed, at Wollaton Gardens, for Lord Middleton, several Boilers and long Ranges of Pipes.

Card.

SAMUEL N. McGERROW,
GENERAL HORTICULTURAL BUILDER,
Knotty Ash, near Liverpool.
Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

CRANSTON'S PATENT BUILDINGS for HORTICULTURE, Highly Commended by the Royal Horticultural Society, South Kensington. Plans and Estimates free on application. Houses of the following sizes always in stock:—Span, 30 by 15 feet, and 24 by 12 ft.; Half-span, 24 by 10 ft.; Lean-to, 24 by 8 ft. Stereoscopic Slides of different houses post free for 6 stamps each.
Descriptive Book, fully illustrated, by post for 20 stamps from the Author and Patentee, JAMES CRANSTON, Architect, No. 1, Temple Row West, Birmingham.

Greenhouses—Heating Apparatus.

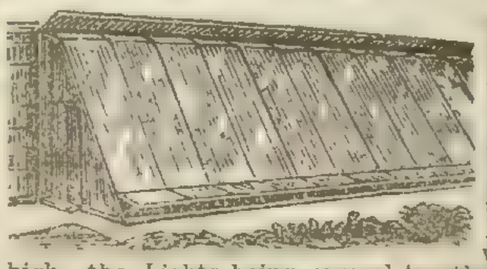
DENNIS' PATENT METALLIC HORTICULTURAL BUILDINGS are made from the best wrought iron, upon an entirely new principle. The combination of Iron and Glass under this Patent is perfect; the possibility of fracture is prevented, and a permanently water-tight roof insured. The leading practical advantages are extreme smallness of framing, admitting a maximum of light and heat, and perfectly neutralising atmospheric conduction.
They are thoroughly ventilated, exceedingly strong and durable, are speedily erected, and whilst maintaining their established superiority for Conservatories of the highest order, are acknowledged by the most eminent Horticulturists of the day to be the "desideratum of perfection," promoting perfect symmetry of growth and richness of colour, both for Fruit and Flowers.
From the complete adjustment of the constructional parts of these patent buildings, their manufacture is so facilitated that a comparison in point of cost with perishable wooden structures is most favourable.
THE GARDENER'S OWN GREENHOUSE
(Lately known as Dench's Patent) is a Tenant's Fixture.
The Patent, Plant, Business, Machinery, and all connected with the above, have been transferred to T. H. P. DENNIS, who has determined to supply these really useful buildings at such a reduced scale of prices that every one desiring a Greenhouse may possess one.
NOTE.—A No. 1 Lean-to, 12 ft. 6 in. by 9 ft., including honest 16-oz. Glass, £16 12s. 6d.
T. H. P. D. has introduced most important improvements in their finish and construction, and after numerous experiments has succeeded in arranging them as a TENANT'S FIXTURE, which he feels sure will be valued by gentlemen having limited tenures. With Mr. Rivers' adaptation they make excellent Orchard-houses, and afford all that can be desired in a profitable building.
Wood structures at the lowest price consistent with sound work.
Prospectuses and Estimates on application to T. H. P. DENNIS, Horticultural Builder, Hot-water Engineer, &c., Chelmsford Essex.

Exhibition Prize Medal, 1862.

HOTHOUSES for the MILLION.—On the [illegible] invented and patented by Sir Joseph Paxton, M.P. [illegible] simplicity, cheapness, excellence, and durability [illegible] SPAN HOUSES, painted three coats, and glazed with English Sheet Glass, can be supplied ready for fixing, 21 ft. by 13 ft., 24l.; 43 ft. by [illegible] 73l. 5s.; 64 ft. by 25 ft., 161l.
Illustrated Circulars, with Prices, can be had on application to SAMUEL HEREMAN & J. MORTON, Agents, 7, Pall Mall East, London.
Also, A HANDBOOK on VINE and FRUIT TREE CULTIVATION, 2d Edition, price 1s.; post free, 1s. 1d.

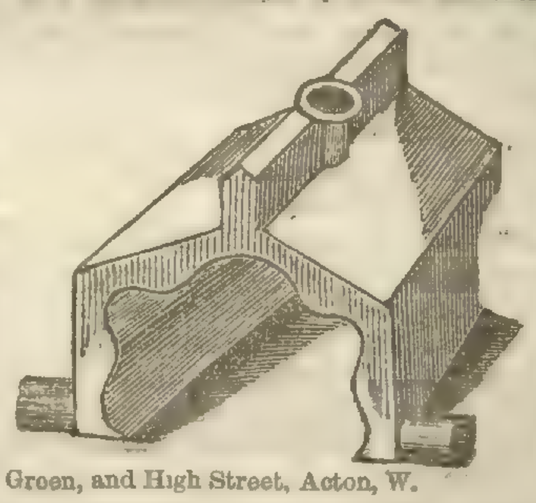
Under the Patronage of Her Majesty.

CLARK AND HOPE (LATE CLARK) 55, Lionel Street, Birmingham, MANUFACTURERS of METALLIC and WOODEN HOTHOUSES, CONSERVATORIES, VERANDAHS, &c., COPPER and WROUGHT IRON SASHES, SKYLIGHTS, &c., and HOT WATER APPARATUS for Horticultural and Domestic purposes.



C. & H. beg to call the attention to their NEW TEN COVER, or Continuous Glass Covering for Garden Walls; which is constructed of Cast and Wrought Iron, glazed with or without putty, and fitted [illegible] with bolts and nuts, [illegible] tuting a Tenant's Fixture. It can be made 6, 7, or [illegible] wide, and 10, 12, or [illegible] high; the Lights being opened together, by means of simple and durable machinery, in lengths of about 50 feet; and the cost [illegible] not exceed that of a wooden structure.
Further particulars, with prices, forwarded upon application, or on receipt of the amount in postage stamps, a Book of Designs, [illegible] 1s. 6d., coloured 2s. 6d., for Horticultural Buildings, &c.

T. M. LOBJOIT'S PATENT HOT-WATER BOILERS are acknowledged by all who have them in use to be the most powerful Boilers known, and are the most economical, requiring less fuel and attention than any other. They are made of various sizes, [illegible] able for heating the smallest Greenhouse to the largest Conservatory, Churches, Buildings of all descriptions.

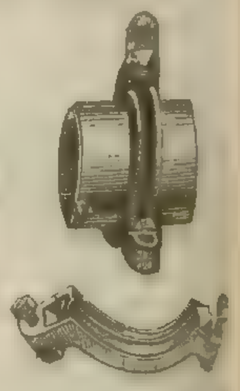


Testimonials forwarded on application to THOS. M. LOBJOIT, Horticultural Builder and Hot-Water Apparatus Manufacturer, 1, Mount Villa, [illegible] Green, and High Street, Acton, W.

PORTABLE HOT-WATER APPARATUS,

WITH TRUSS' PATENT JOINTS FOR HEATING CONSERVATORIES, HOTHOUSES, &c.

T. S. TRUSS



Begs to offer complete HOT-WATER APPARATUS for GREENHOUSES (consisting of 4-inch Pipes and Joints, Saddle Boiler, Fire Doors, Bars, Soot Doors, Damper, Supply Cistern, Feed and Air Pipes, Pipe Stands, &c., of the best quality), delivered to any Railway Station in England, and to erect the same within 25 miles of London, at the following prices:—

4-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

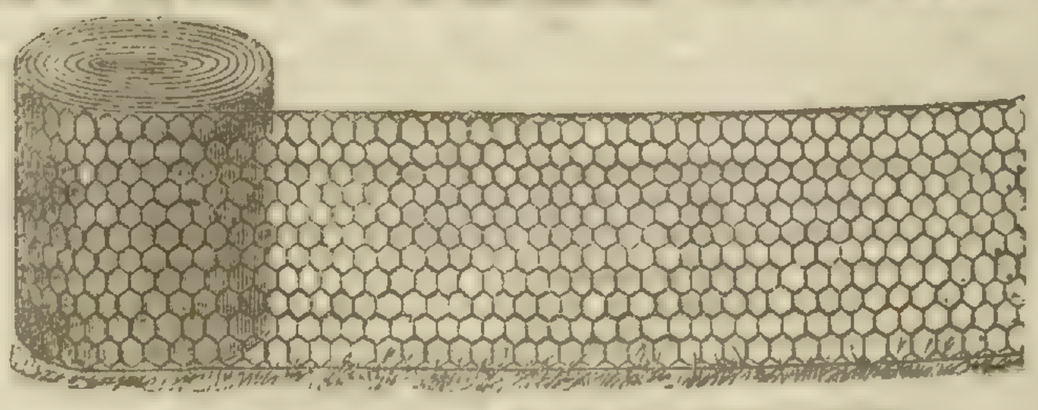
Size of House	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection.
16 feet by 8 feet	£8 10 0 ..	£2 0 0	30 feet by 12 feet	£11 15 0 ..	£2 10 [illegible]
20 feet by 10 feet	9 0 0 ..	2 0 0	40 feet by 15 feet	15 0 0 ..	2 15 [illegible]
25 feet by 12 feet	10 5 0 ..	2 5 0	50 feet by 15 feet	18 0 0 ..	3 0 [illegible]

Erection beyond 25 miles of London, Railway Fare for one Man charged extra.
By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints.

Estimates and Plans forwarded on application to
T. S. TRUSS, C.E., 53, GRACECHURCH STREET, LONDON, E.C.

NEW IMPROVED PREMIUM WIRE NETTING.

GREAT IMPROVEMENT,



WITH REDUCED PRICE

PRICES PER LINEAL YARD, 24 INCHES HIGH.

Size of Mesh.	Mostly used for	Light. Japanned.	Light. Galvanized.	Medium. Japanned.	Medium. Galvanized.	Strong. Japanned.	Strong. Galvanized.	Extra Strong. Japanned.	Extra Strong. Galvanized.
2¼ inch	Hares, Dogs, Poultry ..	3d.	4d.	3¾d.	5d.	4½d.	6d.	5½d.	[illegible]
2 inch	Game or Poultry Netting	3½d.	4½d.	4d.	5d.	5d.	6½d.	6½d.	7d.
1⅝ inch	Small Rabbits, Hares, &c.	4d.	4½d.	4¾d.	6d.	5½d.	7d.	7d.	9d.
1½ inch	Smallest Rabbits	5d.	6d.	5¾d.	7d.	7d.	9d.	9d.	[illegible]

Quantities of 100 yards or upwards delivered free at nearly all the principal Railway Stations and Shipping Ports in England; and 200 yards or upwards delivered free to most parts of Scotland and Ireland.

*** *Every description of Netting warranted to give satisfaction, and if not approved will be exchanged, or may be returned unconditionally.*

J. B. BROWN AND CO. OFFICES: 18, CANNON STREET, CITY, LONDON, E.C.,
Nearly opposite ST. SWITHIN'S LANE and LONDON STONE, and near LONDON BRIDGE.
WAREHOUSE (where Netting is kept in stock), 148, UPPER THAMES STREET, E.C., opposite the CITY of LONDON BREWERY, and close to the LONDON BRIDGE STEAM BOAT PIER.

SHAW'S TIFFANY,
For samples and prices apply to
J. Shaw & Co., 29, Oxford Street, Manchester.

Caution to Gardeners.—When you ask for
SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark Saynor, also the corporate mark Obtain Warranted, without which none are genuine.

S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by sellers and makers.

S. & C.'s Pruning and Budding Knives are the best and the cheapest in the market.

Patent Works, Sheffield. Established upwards of 125 years.

PATENT GUTTA PERCHA SOLES.—Important to Gardeners.—The Gutta Percha Company have pleasure to acknowledge the receipt of the following letter from Mr. Glenny, Esq., the celebrated Florist:—

"Gentlemen,—I have worn Gutta Percha Soles and Heels these wet nights, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet to accept a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles.—Your obedient servant, "G. Glenny.

Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Funnels, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Calbotype trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town or country.

The Gutta Percha Company, Patentees, 18, Wharf Road, City Road, London, E.C.

SMITH, BECK, AND BECK'S GREENHOUSE and HOTBED THERMOMETERS.—These Instruments are of the very best construction, and at moderate prices.
31, Cornhill, E.C.

Universal Microscope. Price £5 5s.
SMITH, BECK, AND BECK,
31, Cornhill, E.C., late 6, Coleman Street.
*** Catalogues sent on receipt of 6 postage stamps.

THE KAMES GUNPOWDER COMPANY'S CRYSTAL GUNPOWDER, packed in Red Japanned Canisters. No. 1 Fine, No. 2 Medium No. 3 Large Grain.

London Office: 45, Lime Street, E.C.

The Kames Gunpowder Company solicit a trial of their CRYSTAL and other SPORTING GUNPOWDERS, of this year's manufacture. For strength, cleanliness, and prompt ignition they will be found unequalled. Sold by most respectable Dealers throughout the country, and at the Office, 45, Lime Street, London, E.C.

BROWN AND GREEN'S KITCHEN RANGES
THE PRIZE MEDAL, 1862.
The New Patent (Granted April, 1865).
"A CLOSE RANGE with an OPEN CHIMNEY." Combines the perfect cure of Smoky Chimneys, and the unequalled advantages for which Brown & Green's Ranges have long been celebrated, with free Ventilation of the Kitchen, and increased economy and convenience. No Close Heat or Smell. Prospectuses free by Post.

Frederick Thomas, 72, Bishopsgate Within, E.C.

BEDSTEADS, BATHS, and LAMPS. WILLIAM S. BURTON has Six Large Show Rooms, devoted exclusively to the separate display of Lamps, Baths, and Metallic Bedsteads. The stock of each is at once the largest, newest, and most varied ever submitted to the public, and marked at prices proportionate with those that have tended to make his establishment the most distinguished in this country.

Bedsteads, from	12s. 6d. to £20 0s. each.
Shower Baths, from	8s. 0d. to £6 0s. each.
Lamps (Moderateur), from ..	6s. 0d. to £7 7s. each.

All other kinds at the same rate.
Pure Colza Oil .. .. 4s. per gallon.

WILLIAM S. BURTON, GENERAL FURNISHING IRONMONGER by appointment to H.R.H. the Prince of Wales, sends a CATALOGUE gratis and post paid. It contains upwards of 800 Illustrations of his illimited Stock of Sterling Silver and Electro-Plate, Nickel Silver and Britannia Metal Goods, Dish Covers, Hot-water Dishes, Stoves, Fenders, Marble Chimney-pieces, Kitchen Ranges, Lamps, Gaseliers, Tea-Trays, Urns and Kettles, Clocks, Table Cutlery, Baths, Toilet Ware, Turnery, Iron and Brass Bedsteads, Bedding, Bed Room Cabinet Furniture, &c., with Lists of Prices, and Plans of the 20 large Show Rooms, at 39, Oxford Street, W.; 1, 1a, 2, 3, and 4, Newman Street; 4, 5, and 6, Perry's Place, and 1, Newman Yard, London, W.

Sauce.—Lea and Perrins'
WORCESTERSHIRE SAUCE.—This delicious Condiment, pronounced by Connoisseurs "THE ONLY GOOD SAUCE," is prepared solely by Lea & Perrins. The public are respectfully cautioned against worthless imitations, and should see that Lea & Perrins' Names are on Wrapper, Label, Bottle, and Stopper. Ask for Lea & Perrins' Sauce.
*** Sold Wholesale and for Export, by the Proprietors, Worcester; Messrs. Crosse & Blackwell; Messrs. Barclay & Sons, London, &c.; and by Grocers and Oilmen universally.

For Purity and Excellence of Quality,
COLMAN'S GENUINE MUSTARD
OBTAINED THE
ONLY PRIZE MEDAL
at the Great Exhibition, 1862.
Trade Mark, THE BULL'S HEAD, on each Package.
Their Genuine and Double Superfine are qualities particularly recommended for family use. Sold by all Grocers and Druggists.
J. & J. Colman, London.

DINNEFORD'S FLUID MAGNESIA.—The Medical profession for 30 years have approved of this pure solution of Magnesia as the best remedy for Gout and Stomachic disorders of every kind; and as a mild aperient it is especially adapted for Ladies and Children. Prepared solely by Dinneford & Co., Chemists, &c., 172, New Bond Street, London, W.; and sold throughout the World by all respectable Chemists. Caution.—See that "Dinneford & Co." is on each bottle and red label over the cork.

CORNS and BUNIONS.—A Gentleman, many years tormented with Corns, will be happy to afford others the information by which he obtained their complete removal in a short period, without pain or any inconvenience.—Forward address on a stamped envelope to W. Goodall, Esq., Epsom, Surrey.

Valuable Remedies for the Afflicted.
DR. ROBERTS'S CELEBRATED OINTMENT, called THE POOR MAN'S FRIEND, is confidently recommended to the Public as an unfailing remedy for Wounds of every description, a certain Cure for Ulcerated Sore Legs, if of 20 years' standing, Gout, Burns, Scalds, Bruises, Chilblains, Scorbutic Eruptions, Pimples on the Face, Sore and Inflamed Eyes, Sore Heads, Sore Breasts, Piles, Fistulas, and Cancerous Humours, &c. Sold in Pots at 1s. 1½d., 11s., and 22s. each. Also his PILULÆ ANTISCROPHULÆ, confirmed by 60 years' experiment to be, without a doubt, one of the best alterative medicines ever compounded for purifying the blood, and assisting Nature in all her operations. They are used in Scrofula, Scorbutic Complaints, Glandular Swellings, particularly those of the Neck, &c. They form a mild and superior family aperient that may be taken at all times without confinement or change of diet. Sold in boxes at 1s. 1½d., 2s. 9d., 4s. 6d., and 11s. Sold Wholesale by the Proprietors, Beach & Barnicott, Dispensary, Bridport; by the London Houses. Retail by all respectable Medicine Vendors in the United Kingdom and Colonies.
Observe: No medicine sold under the above name can possibly be genuine, unless "Beach & Barnicott, late Dr. Roberts, Bridport," is engraved on the Government stamp affixed to each package.

THE DAIRY COMPANY, LIMITED,
Incorporated under the Companies Act, 1862, which specially limits the liability of each Shareholder to the amount of his Shares.
Capital, £100,000; in 10,000 Shares of £10 each.
Deposit on application £1 per share, and on allotment £2 per share. No call to exceed £3 per share, and after the first no further calls to be made at less intervals than three months

Directors.
Dr. Lankester, F.R.S., F.L.S., Coroner for Middlesex, Chairman.
Lieut.-Colonel Evelyn, 34, Onslow Gardens, South Kensington.
Charles Lempriere, Esq., D.C.L., St. John's College, Oxford.
John James, Esq., Vauvert, Guernsey
Mr. Thomas William Fordham, Stansted Rye Farm, near Hoddesdon, Herts.
Mr. John Rumball, Rookery Farm, Dagenham, Essex.
Mr. John Abbott, St. Anne's Farm, Burnet Road, Limehouse, E.
Professor John Gamgee, Professional Superintendent.
Mr. Samuel Sharman Dancocks, Model Farm Dairy, Fulham Road, W., Manager.
Solicitor.—Messrs. Morris, Stone, Townson, & Morris, Moorgate Street Chambers
Bankers.—London and County Bank, and Branches.
Secretary (pro tem.)—Mr. H. S. Hird
Temporary Offices.—Moorgate Street Chambers, E.C.

Abridged Prospectus.

This Company has been formed with the view of ensuring to the inhabitants of the metropolis and other large cities a wholesome supply of Milk.

The Directors propose to erect cow-houses upon entirely new and improved principles, about the outskirts of the metropolis, where open spaces are to be found, and to select the stock direct from breeders, who will produce a succession of cows for the exclusive use of the Company.

The Directors have secured by provisional agreement from Professor John Gamgee, Principal of the Albert Veterinary College, the exclusive license to use his invention for improvements in the construction of cow-houses, and Professor Gamgee has agreed to become Professional Superintendent, with a seat at the board, and to accept the duty of exercising a proper supervision over the stock bought, and the conditions under which it is kept. The invention is of such a character as to secure the most approved systems of quarantine, subdivision of stock, and perfect drainage and ventilation.

The Directors have secured, by preliminary agreement, the entire goodwill (but not the stock) in the old established businesses of Mr. S. S. Dancocks, Model Farm Dairy, Fulham Road; and Mrs. Mary Abbott, St. Anne's Farm, Limehouse. The annual returns from these concerns amount in the aggregate to £20,000 sterling; and as 400 cows will be required to supply the two businesses, a substantial nucleus is thereby secured for the Company's operations.

Mr. Dancocks and Mrs. Abbott will transfer the goodwill of their respective businesses to the Company, as from the 29th day of September, 1865, and will supply the Company (by transfer of their existing contracts) with such new milk and other dairy produce from the country as may be required during the erection of the necessary buildings. Mr. Dancocks will continue to manage the West end depot; the business at the East end of London is also to be continued under the existing management; and as the profits hitherto realised at the two establishments have been very large, the Directors consider this arrangement an important element in the undertaking.

The Norfolk Farmers' and General Assurance Company are willing to insure the cows of this Company in the ordinary way, owing to the adoption of the system here suggested for the purchase, keep, and housing of the stock.

It is proposed forthwith to erect buildings, on Professor Gamgee's plans, for the reception of a large number of cows on land, secured by provisional agreement, adjoining Battersea Park, with river frontage, whereby the Company ensures the combined advantages of fresh air in perpetuity for their cows, and water carriage not only for their produce to the various depots, but of provender for their stock.

Should no allotment be made, the deposits will be returned in full.

Full Prospectuses and Forms of Application for Shares may be obtained from the Legal Advisers and Bankers of the Company, and at the temporary Offices, where the Plans of Buildings to be erected and the Articles of Association may be seen.

BRETONNE COWS.—The Nobility, Gentry, and others, are respectfully informed that they can be supplied with the above beautiful and profitable little animals in any number at the shortest notice. The great success and encouragement which has attended the efforts of the importer in introducing the Pure Breed of this useful and hardy Cow into the country, has induced him to extend his connection abroad, by appointing experienced Agents throughout Brittany, and he is now enabled to offer the public a constant supply of the choicest stock that can be obtained, at prices which defy all competition. The low cost, together with the high Milking qualities of this Breed, rendering them of great value to the Cottager, as well as the fancy Stock keeper and Dairyman, the Importer has made arrangements to keep a large stock always on view. Price from 8 to 10 Guineas each, delivered free to any Railway in London.

For further particulars, apply to Messrs. Robertson & Co., 38, Crutched Friars, London, E.C.

Epsom.
TO BE SOLD, with Immediate Possession, the LEASE, STOCK, and GLASS, of the old-established EPSOM NURSERY, in consequence of the decease of Mr. George S. Dods, the late proprietor. The Grounds contain about 5 acres with Greenhouses and Pits completely and economically heated with hot-water; also the valuable Nursery Stock, Greenhouse and Bedding Plants, Seeds, and other effects. Or the whole may be taken at a valuation.

Apply to Protheroe & Morris, Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

FARM TO LET, at Norwood, in the Parish of Croydon, Surrey, for a term of 7 years.—BIGGEN FARM, containing about 135 Acres, 47 being Meadow, a small part Wood, and the remainder Arable, with Dwelling House, Garden, Greenhouse, and extensive Farm Buildings. Situate about 7 miles from London, 3 from the Market Town of Croydon, 1 from the Railway Stations at Lower Norwood and Thornton Heath, and less than 2 from the Crystal Palace. The Shooting will be included.

For cards to view and further particulars apply to Messrs. Blake, Croydon, S.

Sales by Auction.

Imported Orchids, Tree Ferns, Orange Trees, &c.
MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, September 20, at half-past 12 o'Clock precisely, a Collection of ESTABLISHED ORCHIDS from Germany, comprising many rare and choice sorts; Consignment of 100 very fine TREE FERNS, including Dicksonia antarctica, Alsophila australis, &c., from 5 to 8 feet high, in the finest possible condition, just arrived per "Swiftsure" and "Sussex," from Melbourne; a small Collection of ESTABLISHED ORCHIDS, the property of a gentleman from the North of England; an Importation of Orchids from the Cape, &c.; 350 nice Orange Trees from France, well-grown plants; also Two Pine Pits, and 800 Fruiting and Succession Pines.
On view the Morning of Sale, and Catalogues had.

Dutch Bulbs.
MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, September 23, at half-past 12 o'Clock precisely, a choice assortment of HYACINTHS, TULIPS, and CROCUSES from a well-known Bulb Farm at Haarlem; a Collection of valuable TULIPS, the property of a Gentleman; and a large quantity of STRAWBERRY PLANTS, including most of the newest and best sorts. On view the Morning of Sale, and Catalogues had.

Alteration of Date of Sale from Tuesday, September 19, to Thursday, September 28.

Importation of Orchids from Rio Negro and Rio Blanca in South America.
MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, September 28, at half-past 12 o'Clock precisely, an importation of valuable ORCHIDS just arrived in the finest possible condition, consisting of Cattleya or Lælia Wallisii, Scuticaria species nova, Cattleya superba, Schomburgkia spectabilis, Batemannia species nova, &c., from Mr. Linden's well-known collectors in South America.
On view the Morning of Sale, and Catalogues had.

Acton Vale Nursery.
To Noblemen, Gentlemen, Builders, Nurserymen, and Public Companies Engaged in Planting.
MESSRS. PROTHEROE and MORRIS will SELL by AUCTION, on the Premises, Acton Vale Nursery, Uxbridge Road Middlesex, within 10 minutes' walk of the Acton Railway Station on the North London Railway, on MONDAY, October 16, and Three following days, at 11 o'Clock each day, without the least reserve, by order of Mr. F. Hopgood, Senior, the Lease having nearly expired, the Valuable NURSERY STOCK, including large quantities of fine-grown Evergreens, Deciduous Shrubs, Ornamental Fruit and Forest Trees; Standard and Dwarf Roses, &c., particulars of which will shortly appear.
American Nurseries, Leytonstone, N.E.—Sept. 16.

Sunningdale Nursery, Bagshot, Surrey.
Preliminary Notice of an Unusually Extensive and Highly Important Sale of Valuable Nursery Stock.
MESSRS. PROTHEROE AND MORRIS have received instructions from Mr. Chas. Noble to offer for SALE by public AUCTION, NEXT MONTH, on the Premises, Sunningdale Nursery, Bagshot, Surrey, within 5 minutes' walk of the Sunningdale Station on the South-Western Railway, without the least reserve, in consequence of a portion of the Land being required for the formation of two public roads, and a new line of Railway, which necessitates entire new arrangements and immediate clearance of the STOCK. There are many handsome symmetrical specimens of CONIFERÆ and other SHRUBS, scarcely to be met with at any other Establishment, bearing perfect evidence of the most skilful and careful cultivation, presenting an unprecedented opportunity to Noblemen, Gentlemen, and Public Companies forming and improving Plantations, and the Trade for obtaining in large quantities that which is rare and excellent. Particulars of the Stock will appear in future Advertisements.
American Nurseries, Leytonstone, N.E.—Sept. 16.

Kennington Park.
To Gentlemen, Nurserymen, Florists, and Others.
MR. BRIANT has received instructions to SELL by AUCTION, on the Premises, Green Street, New Street, Kennington Park Road, on THURSDAY, September 21, at 12 o'Clock, a NURSERY STOCK, comprising about 5000 Choice Geraniums, Dwarf and other Roses, a fine Collection of Carnations, Picotees, Cloves, Pinks, Chrysanthemums, Hollyhocks, Calceolarias, Myrtles, Fuchsias, Verbenas, Seedling Tulips, Carnation Stands, and Pots, &c., the erection of Greenhouses, Forcing and other Frames, Hand Glasses, Plants in Pots, quantity of Shrubs, a quantity of old Iron, and Miscellaneous Effects.
May be viewed; Catalogues had of Mr. Hughes, on the Premises; and at Mr. Briant's Auction Offices, 200, Kennington Park Road, S.

Important Sale of Hot and Greenhouses, Pits, Frames, Stove and Greenhouse Plants, &c.
MR. S. R. FORCE has received instructions from the Executors of the late Mr. James Veitch, to SELL by AUCTION, at the Nursery, Topsham Road, Exeter, on TUESDAY, September 26, and Two following days, the HOT and GREENHOUSES, PITS, and FRAMES, fitted complete with Portland Stone, Brick and Slate Benches, Boilers and Pipes for Heating, Pits and Wood Frames, Hand Glasses, &c.
The Stock of PLANTS comprises a large collection of Camellias, Cape Heaths, Epacris, Gloxinias, Achimenes, Hardy and Exotic Ferns, fine specimen Azaleas, Begonias, Pelargoniums, Fuchsias, with a general assortment of New Holland Plants, Fine-foliage and other Stove Plants.
Catalogues (which will contain a List of everything to be Sold at this Auction) will be ready one week previous to the Auction, and will admit to a view the whole intended for sale. They may be had at 6d. each (to be allowed to purchasers and regular customers) of Mr. Manning, at the Nursery, Topsham Road; or at the Office of the Auctioneer, 106, St. Sidwell's, Exeter.
The Sale will commence with the Greenhouses, Pits, and Frames on Tuesday, at 11 o'Clock, and be resumed each day at the same hour.—Exeter, September 16.

Fulham.—Southfield Farm, Parson's Green.
To Market Gardeners, Farmers, and Others.
W. G. AND R. TAYLOR are favoured with instructions (by Miss Maria Fitch), to SELL on the Premises, as above, on WEDNESDAY, Sept. 27, at 12 for 1 o'clock precisely, the whole of the LIVE and DEAD STOCK, consisting of about 300 bushels of Gathered Fruits, and some useful Cart Horses; Narrow and Broad Wheel Block and Spring Waggons, Water and Barrow Carts, Light Spring Market Cart, a capital Phaeton and Set of New Harness, Cart and Thill Harness, Pair of Timber Chains, Corn Bin, two Patent Chaff-cutters, small quantity of Fodder, large number of Ladders, 800 2-ft. Bell Glasses, 600 Hand Glasses, 2000 Flowerpots, a large Slate Cistern, several Step Ladders, Waggon Covers, Sacks, Matting, about 11,000 ft. of Glass Framing, Spades, Hoes, Rakes, Forks, Watering Pots, several large Canisters, Cross-cut and Pit Saws, Grindstone, Iron Pump, Vices, a large quantity of useful Iron, a set of Brewing Utensils, a small portion of the Household Furniture, and numerous items.
May be viewed the day preceding the Sale; and Catalogues had on the Premises; at the principal Inns in the neighbourhood; and of the Auctioneers', George Street, Richmond.
N.B. The whole of the Lots must positively be Cleared the day after the Sale.

Notice of Sale of the Whole of the Stock
of Mr. Joseph Day, Nurseryman and Gardener, Ensham, Oxon.
MESSRS. T. MALLAM AND SON will SELL by AUCTION, on the Premises, on WEDNESDAY, September 27, and following day, at 11 o'Clock each day, the STOCK, comprising about 30,000 Laurels, 10,000 Laurustinus, 2000 Yew Trees, various; 3000 Evergreen Oaks, 1000 Apple, Pear, Plum, and Cherry Trees, 500 Portugal Laurels, 5000 English and Turkey Oaks, 3000 Gooseberries, Currants, and Raspberries, 5000 Aucuba japonica, 5000 Dwarf Berberis, 3000 Tree Box, 3000 yards of Box Edging, 2000 Evergreen Privets, 3000 Elm, Hornbeam, Chestnut and Acacia ditto, 2000 Sweet Briars, 500 Common Holly, 500 Spruce Firs, 500 Black Italian Poplar, 500 Broom, 200 Filbert, 100 Walnut, 50 Standard Apricots, and other Stock in great variety.
Catalogues are being prepared, and will be in circulation ten days previous to the Sale, and may be obtained of Mr. Day, on the Premises; at the adjacent Inns; and at the Auctioneer's Offices, 126 High Street, Oxford.

To Market Gardeners, Florists, and Others.
Important Sale of the Growing Crops, Horses, Waggons, Carts, and other useful Implements, the Property of Mr. Philip Urlwin, who is Retiring from Business.
MR. DANIEL WATNEY will SELL by AUCTION, on the Premises, at Loughborough Park, Brixton (adjoining Loughborough Road Station), on WEDNESDAY, Sept. 27, at 12 for 1 o'Clock, without the slightest reserve, the GROWING CROPS; comprising 7 acres of Rose Coleworts, 1 acre of Linnæus and Albert Rhubarb Roots (3 years old), 1 acre of Regent Potatos, about half an acre of Mint, and about the same quantity of Mangel Wurzel; also three first-class Draught Horses, four excellent Market Waggons, with patent arms and axles, head and side ladders complete; a capital Spring Van, three strong Market Carts, Night Soil Cart, Water Cart, heavy Iron and other Rollers, two Ploughs, three sets of Harrows, Tennant's Grubber, two Chaff-cutting Machines, seven Glazed Forcing Pits, 66 Three-light Boxes, and 10 Cast-iron Hand-lights, Wheelbarrows, Water-pots, Bushel Baskets, Dibbers, Forks, Spades, Hoes, and various other implements.
Catalogues may be obtained 10 days prior to the Sale, of the Bailiff, on the premises; and of Mr. Daniel Watney, Land Agent and Auctioneer, 73, Cheapside, E.C.

The Exmoor Cobs, Galloways, and large-sized Ponies.
The Last Lot of the "Bobbies."
MR. ROBERT SMITH'S ANNUAL SALE of these NOTED FIRST-CROSS ANIMALS, from PONY MARES, will again take place at Allday's Repository, Bristol, on WEDNESDAY, October 4, at 1.30 to the minute.
Upwards of 20 of this year's Sale (rising 5 years old and quiet to ride), are by the renowned Horse Bobby, so famous in history at Hyde Park Corner. They are chiefly Bays with Black points, and combine with the hardihood of the Pony Mare, Old Bobby's Arab shapes and splendid action. Mr. Smith's Stud farm being from 1000 to 1200 feet above the sea, is a sufficient guarantee of their hardihood.
They may be viewed upon the Hills at any time previous to the Sale. There are some exact matches from 13-2 to 14 hands.
Catalogues to be had 10 days prior to the Sale.
Emmetts Grange, Exmoor Forest, South Molton.

For History and Cultivation, see Essay in the "Journal of the Royal Agricultural Society" for February, 1862. No. XLVIII.

HALLETT'S

TRADE

WHITE PEDIGREE WHEAT,

MARK.

(ROUGH CHAFFED),

NOW OFFERED FOR THE FIRST TIME,

Grown upon the Summit of the Chalk Downs, and yielded over several Acres nearly Seven Quarters per Acre, the Crop on similar Light Soils being this year extremely bad.

This is a fine Millers' Wheat, in addition to possessing the extraordinary productiveness of the original *Red* Pedigree Wheat. Straw of medium length and very stiff, not being laid by bad weather. A Winter Wheat only.

SEED REQUIRED.

If Drilled in September, 4 Bushels on 10 Acres.
" October, 4 " 8 "

If Drilled in November, 4 Bushels on 4 Acres.
" December, 4 " 3 "

Note.—The ORIGINAL "RED" PEDIGREE WHEAT will be supplied if *specially named*, otherwise the above new White variety will this year, in all cases, be forwarded.

Price, including Bags:—ONE GUINEA a BUSHEL, or SEVEN GUINEAS the QUARTER by the Quarter or Half Quarter, delivered in Bags, sewed up and sealed, at the Brighton Railway Station, upon receipt of Cheque or Post Office Order, *without which it will not in any case be sent to unknown Correspondents.* Less than a Bushel will not be supplied.

TRADE

CHEVALIER PEDIGREE BARLEY.

MARK.

This has been "bred" in the same manner as the PEDIGREE WHEAT, viz.:—by repeated annual selection, re-starting in each year from a single grain.

Although grown upon a poor thin soil (resting immediately upon the chalk), which upon neighbouring farms produces Barley rarely weighing so much as 51 lbs. per bushel and fit only for grinding, the PEDIGREE BARLEY last year [this year's crop not yet threshed] weighed 57 lbs. per bushel, and produced 89½ bushels per acre.

Besides its astonishing productiveness, characteristic of all the PEDIGREE CEREALS, it possesses remarkable value for the maltster, *not a single grain failing to grow and all growing equally.*

Although only a very limited area of it has this year been grown, it will, in deference to a generally expressed wish, be at once offered to the public instead of waiting for next year, and a Subscription List has been formed, to which gentlemen desirous of securing any of it for drilling next Spring, would do well at once to add their name, which, however, will not involve payment until it be ready for delivery, of which due notice will be given by printed circular.

SEED REQUIRED.

If Drilled in March, 1 Bushel on 3 Acres.

If Drilled in April, 1 Bushel on 2 Acres.

Price:—TWO GUINEAS a BUSHEL (including Bag), delivered in Bags sewed up and sealed, at the Brighton Railway Station, upon receipt of Cheque or Post Office Order, *without which it will not in any case be sent to unknown correspondents.* Less than a Bushel will not be supplied.

Note.—As the quantity is so limited, it will, until exhausted, be sent out to Gentlemen in the order in which they have joined the Subscription List.

FREDERIC F. HALLETT, F.L.S., THE MANOR HOUSE, BRIGHTON, SUSSEX.

NEW TARIFF OF GLASS AND HORTICULTURAL GOODS.

THOMAS MILLINGTON,

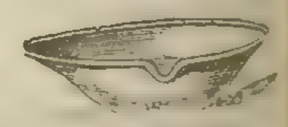
HAND GLASSES.

PRESERVE JARS.

GLASS AND COLOUR MERCHANT,

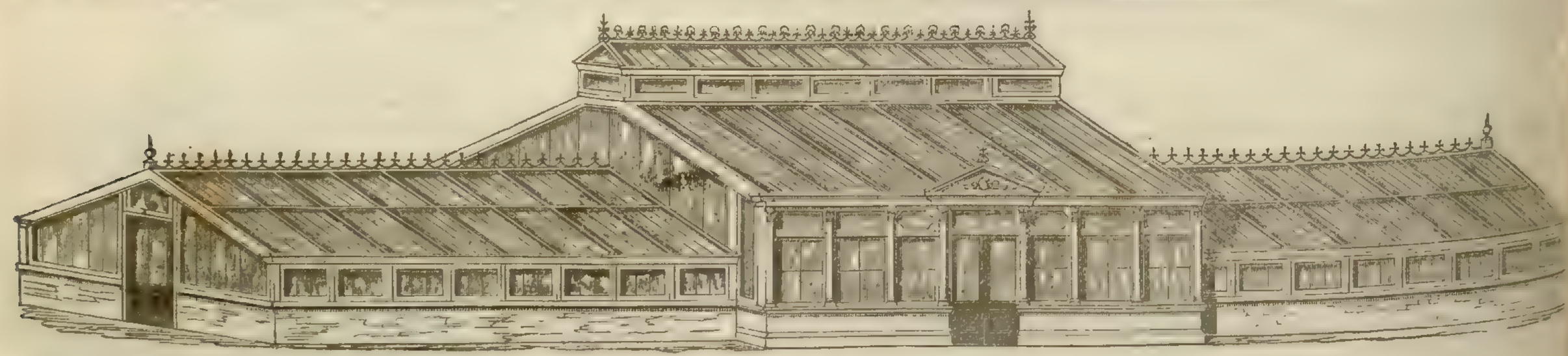
87, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.



MILK PANS.

See Advertisement the first week in the month, or on application.



HORTICULTURAL BUILDINGS

MANUFACTURED BY STEAM POWER MACHINERY.

LOWEST PRICES AND BEST MATERIALS.

DESIGNING, BUILDING, HEATING, AND VENTILATING ON THE MOST APPROVED AND SCIENTIFIC PRINCIPLES.

Plans, Specifications, and Estimates on application.

HENRY ORMSON, F.S.A.,

HORTICULTURAL BUILDER, AND HOT-WATER APPARATUS MANUFACTURER,

STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

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THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 38.—1865.] SATURDAY, SEPTEMBER 23. {Price Fivepence. Stamped Edition, 6*d*.

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Paul's Nurseries, Waltham Cross, N.

BEATON'S GERANIUMS are NOW in FULL BLOOM.

Entrance from the Platform, Waltham Station (G. E. Railway), half an hour's ride from London.

PAUL AND SON'S ROSES.

The AUTUMNAL ROSES are still finely in BLOOM, at the "Old" Cheshunt Nurseries, 1 mile from Cheshunt Station, G.E.R.

New Roses for 1865.

EUGÈNE VERDIER, FILS AINÉ, NURSERYMAN, 3, Rue Dunois, Paris, will deliver to the Trade in November next, the NEW ROSES Jules César, Madame Charles Baltet, Alba Mutabilis, Charles Rouillard, Fisher Holmes, John Grier, Jean Lambert, Miss Margarett Dombrain, Prince de Porcia, Professor Duchartre, Souvenir d'Abraham Lincoln, William Rollisson.

DESCRIPTIVE CATALOGUE, with engraving of the Rose MARGARETT DOMBRAIN, can be obtained of his Agents, Messrs. Bytham & Blackith, Cox's Quay, Lower Thames St., London, E.C.

Pines.

B. S. WILLIAMS begs to announce that he has a fine Stock of the above, including all the best kinds. Prices on application.

Paradise and Victoria Nurseries, Holloway, London, N.

NEW GRAPE, "ROYAL VINEYARD," the best late White Grape extant. Strong planting Canes, 10*s*. 6*d*. each; strong fruiting, 21*s*. each.

B. S. Williams, Paradise and Victoria Nurseries, Holloway, London.

Vines, Vines, Vines.

E. B. HAYNES can now supply strong well-ripened CANES for Planting, 5*s*. and 7*s*. 6*d*. each. Extra strong for fruiting in pots, 10*s*. 6*d*. and 12*s*. 6*d*. each.

Penge Nursery, Surrey.

Grape Vines.

MRS. G. S. DODS begs to offer splendid well ripened CANES for Forcing, 7*s*. 6*d*.; for Planting out, 5*s*. Also AZALIA INDICA, 12 of the leading kinds in 48 pots, well set with flower, for 12*s*. ERICA HYMALIS, fine plants in 48 pots, beautifully set with flower, at 9*s*. per doz.; Ditto in 32 pots at 18*s*. per doz.

Epsom Nursery, Surrey.

STRAWBERRY PLANTS.—Strong, for immediate planting. PRICED DESCRIPTIVE LIST may be had.

Stephen Brown, Nurseryman, Sudbury, Suffolk.

Strawberry Plants.

MRS. NICHOLSON begs to intimate that a CATALOGUE of the extensive collection of STRAWBERRIES cultivated at Egglescliffe, is now ready, and can be had on application.

Egglescliffe, Yarm.

CUTHILL'S STRAWBERRY PLANTS.—Black Prince, Princess Royal, Richard II., Highland Mary, Newton Seedling, and the splendid Prince of Wales, all at 5*s*. per 100, all for bearing in 1866. Dr. Lindley has often said, "To make sure of a crop, have Cuthill's Breed."

SPAWN, 5*s*. per Bushel. Mushroom Pamphlet, with New Appendix, 1*s* 3*d*.; Market Gardening, 1*s*. 6*d*.; Cucumber and Melon, 1*s*.; Strawberry, new system, 1*s*.; Potato, &c., 1*s*. 6*d*.

PRINCE ALBERT WINTER CUCUMBER, 1*s*. per packet. Stamps or Order on Camberwell Green.

James Cuthill, Camberwell, London, S.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.

Richard Smith, Nurseryman and Seed Merchant, Worcester.

Orchard-house Culture.

MESSRS. THOS. RIVERS AND SON invite those interested in the above culture to view their COLLECTION of FRUIT TREES and VINES, occupying houses nearly 3000 ft. in length. PEACHES and NECTARINES are now ripening.

The Harlow Station, G. E. Railway, is the most convenient for the Nurseries.

Nurseries, Sawbridgeworth.

Hardy Ornamental Trees and Shrubs.

OSBORN AND SONS invite lovers of Ornamental Planting to an inspection of the varied forms and foliage of their unrivalled collection of the above, to which they have for many years devoted especial attention.

PRICED CATALOGUES, consisting of upwards of 1500 species and varieties, may be had on application.

The Nurseries, Fulham, London, S.W.

Seeds from Choice Strains.

B. S. WILLIAMS can now supply good Seeds of the following:—

CINERARIA (Weatherill's extra choice st[illegible] B. S. W. has secured at a great expense the entire stock [illegible]ht of exclusive sale from Mr. Weatherill, of [illegible]is, the best [illegible] of Cineraria in existence, and can now offer packets at t[illegible] following prices:—3*s*. 6*d*. and 5*s*.

CALCEOLARIA (Herbaceous), from a fine strai[illegible] 6*d*. and 3*s*. 6*d*. per packet.

PRIMULA (Williams' superb strain), the fi[illegible] fringed and the finest coloured flowers in cultivation. Red, [illegible]e, or Mixed Seed, 1*s*. 6*d*., 3*s*. 6*d*., and 5*s*. per packet.

Paradise and Victoria Nurseries, Hollo[illegible] London, N.

Dutch Roots.

JOHN AND CHARLES LEE have received a large importation of HYACINTHS and other DUTCH ROOTS in very fine condition. CATALOGUES post free on application.

Royal Vineyard Nursery and Seed Establishment, Hammersmith, W.

DUTCH BULBOUS ROOTS.—The Proprietors have received a large importation in fine condition.

Wm. Barratt, West Riding Seed Establishment, Wakefield.

J. SCOTT, Importer of DUTCH and other BULBOUS FLOWER ROOTS, has received large consignments, of best quality and in excellent condition.

DESCRIPTIVE PRICED LIST post free on application to J. Scott, Merriott Nurseries or Seed Stores, Yeovil, Somerset.

CARTER'S GARDENER'S VADE-MECUM, AUTUMN SUPPLEMENT of DUTCH and CAPE BULBS and PLANTS, is now ready.

Hyacinths, Tulips, &c.

WM. HOOPER'S First Importation of DUTCH FLOWER ROOTS has arrived. Early Orders are respectfully solicited. CATALOGUE free on application.

St. John's Hill Nursery, New Wandsworth.

Hyacinths and other Dutch Bulbs.

WM. CUTBUSH AND SON beg to acquaint their numerous Patrons that they have received their usual Consignment of Choice HYACINTHS, TULIPS, CROCUS, &c.

PRICED DESCRIPTIVE CATALOGUE post free on application.

Highgate Nurseries, London, N.

Hyacinths and other Choice Bulbs.

B. S. WILLIAMS begs to announce that his various IMPORTATIONS of DUTCH FLOWER ROOTS have arrived in fine condition, and that he is now prepared to execute all orders he may be favoured with.

A PRICED and DESCRIPTIVE CATALOGUE, including Lists of New and Rare Plants, post free to all applicants.

Paradise and Victoria Nurseries, Holloway, London, N.

Hyacinths, &c.

WILLIAM PAUL'S PRICED DESCRIPTIVE CATALOGUE of HYACINTHS, EARLY TULIPS, CROCUSES, and other SPRING FLOWERING PLANTS is now ready, post free on application.

Paul's Nurseries and Seed Warehouse, Waltham Cross, London, N.

BARR AND SUGDEN'S HYACINTHS, TULIPS, CROCUS, NARCISSUS, GLADIOLI, RANUNCULUS, ANEMONES, LILIES, AMARYLLIS, in splendid collections. See our AUTUMN FLORAL GUIDE, free and post paid on application.

Barr & Sugden, Seed and Plant Merchants, 12, King Street, Covent Garden, W.C.

500 DUTCH BULBS, carriage free, Great Western Railway, 21*s*. Consist of best named HYACINTHS, Bedding HYACINTHS, TULIPS, CROCUS, SNOWDROPS, &c. One of the cheapest and best collections offered.

Also on offer, 50,000 2-years TRANSPLANTED LARCH, 3 feet, strong, and 6000 3-years ditto, 5 feet, strong.

Robert H. Poynter, Dutch Bulb Importer and Seed Merchant, Taunton.

New Catalogue of Plants, Dutch Bulbs, &c.

ROBERT PARKER begs to announce that his NEW CATALOGUE, containing Select Descriptive and Priced Lists of New, Rare, and Beautiful Greenhouse, Hardy, and Stove Plants, Fruit Trees, Grapes, &c., Amaryllis, Crocuses, Gladioli, Hyacinths, Narcissus, Tulips, and other Bulbs, is now published, and will be forwarded to applicants.

Exotic Nursery, Tooting, Surrey, S.

Wholesale Catalogue.

GEORGE JACKMAN AND SON will have much pleasure in forwarding on application, free by post, their DESCRIPTIVE and PRICED CATALOGUE of NURSERY STOCK for 1865 and Spring 1866.

Woking Nursery, Surrey.

E. G. HENDERSON AND SON offer SEED of CALCEOLARIA, CINERARIA, and PRIMULA of first-class quality, at 1*s*., 2*s*. 6*d*., and 5*s*. per packet. Also the finest SCARLET and INTERMEDIATE STOCK, 6*d*. and 1*s*. each.

SEED of CYCLAMEN PERSICUM, of similar quality, 6*d*. and 1*s*. each, and in mixed colours 2*s*. 6*d*. per packet.

The Wellington Nursery, St. John's Wood, London, N.W.

BUTLER AND McCULLOCH, Seed Merchants, South Row (or Strand Side), opposite Southampton Street, Covent Garden Market, London, W.C., beg to offer their unrivalled COLLECTIONS of FLOWER ROOTS, at 10*s*. 6*d*., 15*s*., 21*s*., 25*s*., 50*s*., and 100*s*. each, suitable for Greenhouse or Conservatory, for Flower Garden only, or for Greenhouse and Flower Garden, of which full particulars in their BULB CATALOGUE, just published, which may be had free by post on application.

SEEDLING FORCING GERANIUMS.

MRS. BRADSHAW (Jackson's).—Blush white, medium sized, dark claret spots feathered bright cherry; trusses large and erect, profuse bloomer, and of very dwarf habit. Price 5*s*.

SPOTTED ALMA (Jackson's).—Crimson rose, upper and lower petals spotted and feathered marone, of dwarfer habit, and more multiflorous than the well-known favourite Alma. Price 5*s*.

We strongly recommend the above as worthy companions of Mrs. Lewis Loyd.

Thomas Jackson & Son, Nursery, Kingston, Surrey.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

*** Part II. (Exotic Ferns) will be issued as early as possible.

Foot's Cray Nursery, S.E.

SPECIMEN FERN (ALSOPHILA RADENS), with eight fronds, each 2 feet 3 inches long, price 21*s*.; also a smaller plant of ALSOPHILA INFESTA, with six fronds 2 feet long, price 10*s*. 6*d*. These are two of the best Ferns for exhibition, and in perfect health.—John Morse, Nurseryman, Dursley, Gloucestershire.

New Hardy British Ferns.

J. IVERY AND SON beg to announce that they can now supply strong PLANTS of the undermentioned distinct and beautiful FERNS, both of which have received a First-class Certificate.

ATHYRIUM FILIX FŒMINA APPLEBYANUM, 10*s*. 6*d*. each.

POLYSTICHUM ANGULARE WAKELEYANUM, 10*s*. 6*d*. and 15*s*. each.

For full description see CATALOGUE, which will be forwarded gratis on application to our Dorking Nursery.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO., Seed Farmers, Merchants, and Nurserymen, 237 and 238, High Holborn, London, W.C.

H. AND F. SHARPE, Seed Growers and Merchants, Wisbech. SPECIAL PRICED LIST of NEW SEEDS on application.

NEW and GENUINE AGRICULTURAL, GARDEN, and FLOWER SEEDS.

Special prices and advantageous offers on application to James Fairhead & Son, Seed Growers and Merchants, 7, Borough Market, London, S.E.

RAYNBIRD, CALDECOTT, AND BAWTREE, Seed Farmers and Merchants, 89, Seed Market, Mark Lane; and Basingstoke. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

PELARGONIUM MRS. POLLOCK.—Strong Summer-struck Plants, well established in 60-pots, at 18*s*. per dozen. The Trade supplied.

Alfred Fryer, Nurseries, Chatteris, Cambridgeshire.

THE CLIVEDEN COLLECTIONS of SPRING BLOOMING PLANTS, 12*s*. 6*d*., 25*s*., 50*s*., and 100*s*. For particulars see our AUTUMN FLORAL GUIDE.

Barr & Sugden, 12, King Street, Covent Garden, W.C.

J. IVERY AND SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

To Suit the Times.

HOLLAND AND JONES have much pleasure in offering their distinguished CARNATIONS and PICOTEES at 9*s*. and 12*s*. per doz. pairs. See revised Catalogue.

Bradshaw Gardens, Chadderton, near Manchester.

CARNATIONS and PICOTEES for the Million. Fine Strong Plants at reduced prices.

Every one should send for the revised CATALOGUE of CARNATIONS, PICOTEES, PINKS, PANSIES, ROSES, FRUIT TREES, BULBS, &c.

Holland & Jones, Proprietors, Bradshaw Gardens, Chadderton, near Manchester.

Unequalled Seedling Tulips.

WILLIAM WILLISON, of the Rose and Plant Nursery, Whitby, Yorkshire, has the greatest confidence in offering for SALE the most superb batch of British SEEDLING TULIPS ever raised (the produce of nearly 30 years), which as a whole stand unrivalled for marking, form, purity and substance, a DESCRIPTIVE and PRICED LIST of which may be had free on application.

Finest Mixed SHOW TULIPS, 5*s*. per 100, 35*s*. per 1000.

The best EXHIBITION TULIPS, by name, 100 sorts £5.

N.B.—A remittance or reference will be required from unknown correspondents.

Meadow Grass Seeds for Autumn Sowing.

SUTTON AND SONS would recommend MEADOW and PASTURE GRASS SEEDS to be Sown Early in the Autumn, or not until the Spring.

Royal Berkshire Seed Establishment, Reading.

NEW TRIFOLIUM INCARNATUM.

" " " late variety.

ITALIAN RYE-GRASS, imported Seed.

JAMES CARTER AND CO. have fine samples of the above at very low prices. Prices and sample on application.

James Carter & Co., 237 & 238, High Holborn, London, W.C.

HEDSOR PROLIFIC CUCUMBER.—This is a most productive kind, and for Winter or Early Spring Forcing has no equal. 1*s*. 6*d*. per packet.

Charles Turner, Royal Nurseries, Slough.

Monro's Rabley Cucumber.

JOHN MONRO begs to inform Cucumber Growers, Gardeners, and the Trade, that having had this season above 6000 feet of Glass planted with his RABLEY CUCUMBER, he has been able to save a fine lot of Seed, and is prepared to send it out true, in large Packets at 1*s*. per Packet. This is the best Winter or Summer Cucumber, and has always taken the First Prize whenever exhibited. May be ordered of any Seedsman. A liberal allowance to the Trade.

John Monro, Osborne Park Gardens [illegible]'s Bar Station, Barnet, N.

To Farmers, Garde[illegible] and Others.

EXCELLENT STRONG [illegible]GE PLANTS, of most kinds, may be had in any [illegible], at [illegible] 6*d*. per 1000 for cash. Frederick Gee, Seed Gr[illegible] Biggleswade, Beds.

PLANTS of CATTELL'S RELIANCE CABBAGE, for early Spring use, [illegible] per 1000.

Strong Plants of WHITE, RED, and GREEN VARIEGATED KAIL, for Winter Garden Decoration, at 1*s*. per 100.

John Cattell, Westerham, Kent.

The Earliest Pea known is

CARPENTER'S EXPRESS, gathered May 7th, the earliest date on record. See testimonials in *Gardeners' Chronicle* of September 2 and 9. Price 5*s*. per quart.

To be had of Edward Carpenter, Seed Merchant and Grower, Brighton and Sussex Seed Warehouse, 96, St. James's Street, Brighton.—Sept. 23.

PRICED CATALOGUES of DUTCH BULBS now ready.

INVINCIBLE SCARLET SWEET PEA, For AUTUMN SOWING.

A First-class Certificate received from the Royal Horticultural Society, also a Certificate at the Crystal Palace Autumn Show.

Very fragrant, strikingly brilliant, distinct, and permanent in its colour. Packets of 30 seeds, 2*s*. 6*d*.; 10 Seeds, 1*s*.; 5 seeds, 6*d*.; Packets of 100 seeds, 7*s*. 6*d*. May be had of the principal Seedsmen throughout the kingdom, or of the raiser.

Stephen Brown, Seedsman, Sudbury, Suffolk.

Browick Red and Golden Drop Wheat.

MR. S. A. DAINTREE, of Fendrayton, St. Ives, Hunts, has selected stocks of the above, grown upon a maiden gravelly soil, for sale at 50*s*. per quarter. Sacks 1*s*. 8*d*. each. Remittance must accompany orders.

PURE BROWICK WHEAT.—Carefully screened parcels for Seed, grown on stiff clay soil, after the steam cultivator. The crop was harvested early and in prime condition. Samples and price by post on application to Mr. T. Bowick, Manager, Messrs. Howard's Steam Cultivated Farms, Bedford.

New Gladioli for 1865.

EUGÈNE VERDIER, FILS AINÉ, FLORIST, 3, Rue Dunois, Paris, specially recommends the following New Varieties, obtained from seed by M. Souchet:—EURYDICE, LORD BYRON, MARECHAL VAILLANT, MILTON, NEWTON, SHAKESPEARE. Also the varieties CHERUBIN, DIOMEDE, EMILE, GALILE, LE DANTE, MALVINA, VICTOR EMMANUEL, can likewise be well recommended.

The DESCRIPTIVE CATALOGUE can be obtained of Messrs. BETHAM & BLACKITH, Cox's Quay, Lower Thames Street, London, E.C.

Gladioli.

CHARLES VERDIER, Fils, NURSERYMAN, No. 32, Rue du Marché aux Chevaux, Paris (Successor to the old-established house of Victor Verdier & Charles Verdier), has published his DESCRIPTIVE CATALOGUE of GLADIOLI for the season, which can be had on applying to his Agents,

Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, E.C.

He recommends particularly the New Sorts as under:—

EURYDICE (SOUCHET).—Flower large, perfect form, pure white, flamed with lively carmine rose. Perfection.

LORD BYRON (S.)—Very brilliant scarlet, spotted and striped with pure white A very effective plant.

MARÉCHAL VAILLANT (S.)—Flower large, good form, very brilliant scarlet, very large pure white spot. The shading of this fine plant produces an unequalled effect.

MILTON (S.)—Flower very large, perfect form, white slightly shaded with rose, very largely flamed with red. Extra.

NEWTON (S.)—Flower large, perfect form, dark crimson red, the centre white, with numerous white lines. A very fine new shade

SHAKESPEARE (S.)—Flower very large, perfect form, white very slightly flamed with carmine rose, very large rose spot. Perfection.

Special CATALOGUES for the Trade.

CHARLES VERDIER, Fils, has pleasure in announcing that all these Gladioli are in splendid condition, and that he sends out none but very healthy and vigorous bulbs.

AMBROISE VERSCHAFFELT, NURSERYMAN, Ghent, Belgium, begs to offer the following New Plants:—

ALTERNANTHERA AMŒNA, 8s.; Ditto SPATHULATA, 8s.

TELEIANTHERA VERSICOLOR, 8s.; or the three sorts for 20s. These three remarkably fine Amarantaceous plants can be seen now at A. V.'s Nursery in their full beauty; they grow perfectly well in the open air.

CALADIUM DUC DE NASSAU, one of the finest foliaged plants sent out, 16s

Six New CHRYSANTHEMUMS (LILLIPUT), the set of 6, 16s.

RHODODENDRON DUCHESSE DE NASSAU (VERSCHAFFELT).—Very light rose colour, all spotted over, bloom of a beautiful effect, large truss and very free, quite hardy. 12s.; a few strong plants at 20s.

RHODODENDRON SALMONO-ROSEUM (VERSCHAFFELT).—Very large bouquets, compact, lilac rose, with a salmon tint; very large spots of a brownish black, quite hardy; one of the finest and most distinct varieties ever raised. 12s.; a few strong plants, 20s.

ROSE HYB. EMPEREUR DU MEXIQUE.—Large bloom, double, very dark, first-rate flower. 10s.

All the above Plants are figured in VERSCHAFFELT'S Illustration Horticole.

A. V.'s New Catalogue (No. 77), is now ready, and can be obtained free at Messrs. R. SILBERRAD & SONS, 5, Harp Lane, Great Tower Street, London, E.C.

A. V. also recommends his publication, the Illustration Horticole, published monthly, each Part containing three Coloured Plates, price 14s. 6d. per year, free.

To the Trade.

A. VAN GEERT, NURSERYMAN, Ghent, Belgium, begs to offer the undernamed useful articles, at very moderate prices:—

100 LATANIA BORBONICA, young plants in pots, a fine Palm for table decoration, easily grown in a cool house, £2 2s.
24 ALSOPHILA EXCELSA, stout seedling, a Tree Fern for the greenhouse, £1 15s.
50 LASTREA ÆMULA, a beautiful hardy Fern, £1 10s.
12 PTERIS BIAURITA, fine greenhouse Fern, 6s.
24 OSMUNDA REGALIS CRISTATA, 18s.
2 ALSOPHILA LATEBROSA, a fine new Tree Fern, strong plants, £1 10s.
100 FERNS in varieties, £2 5s.
25 LYCOPODS in varieties, 15s.
24 EXOTIC ORCHIDS, for cool house, £4.
100 GLOXINIAS, in fine varieties, £1 5s.
100 ACHIMENES, in fine varieties, 18s.
24 DASYLIRIONS, in three varieties, strong plants, £2 10s.
12 fine plants of CHAMÆROPS HUMILIS (nearly hardy) £1 16s.
6 ditto of ROEZLIA REGIA, also nearly hardy, £1 5s.
12 ERYTHRINA CRISTA-GALLI, 6s.
100 choice STOVE PLANTS, £2 10s.
100 „ GREENHOUSE PLANTS, £2 10s.
100 „ CONIFEROUS PLANTS, £3 10s.
24 PASSIFLORA CŒRULEA (hardy), 8s.
100 CAMELLIAS, with flower buds, £6.
6 „ „ strong plants, £1 10s.
100 „ without buds, £3 10s.
100 „ „ stronger plants, £5.
100 choice INDIAN AZALEAS, with flower buds, £4 to £6.
100 GHENT AZALEAS, Seedlings, 4-years old, 18s.
100 Choice Hardy RHODODENDRONS, fine plants, £4.
25 Choice Hardy RHODODENDRONS, with flower buds, £1 15s.
12 RHODODENDRON NUTTALLII, strong plants, £1 10s.
12 RHODODENDRON VIRGATUM, very pretty, from Himalaya, 18s.
24 Fine varieties of TREE PÆONIES, £2.
24 Varieties of choice herbaceous PÆONIES, 18s.
100 ASCLEPIAS TUBEROSA, flowering roots, £1 1s.
100 fine STANDARD ROSES, £4 10s.
100 fine half „ „ £3.
12 MAGNOLIA GRANDIFLORA, 12s.
12 „ MACROPHYLLA, £1 10s.
100 „ TRIPETALA, £1 10s.
100 Young plants of YUCCA ALOEFOLIA, £1 10s.
1000 HEMLOCK SPRUCE FIR, 2-year old, £2.
100 AMPELOPSIS QUINQUEFOLIA, £1 5s.
100 ABIES NORDMANNIANA, £1 5s.
100 GLYCINE SINENSIS, strong plants, £1 16s.
12 LOMARIA DISCOLOR, strong plants, 18s.
1 Ounce Seed of CUPRESSUS LAWSONIANA, 10s.

No less quantity than above-mentioned can be supplied for the quoted prices.

References or remittances from unknown Correspondents.

REIGATE SILVER SAND.—Good quality, 7s. per ton Cash, delivered loose into the Trucks at the Reigate Station. Best quality PEAT, LOAM, SPHAGNUM, ROCK, SANDSTONE, &c., on Sale. The Sand offered is taken from under a Peaty Soil; it is a sharp and superior grit for plants.

W. SHORT, Sand and Peat Depôt, Reigate, Surrey.

COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 2s. per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped, J. BARSHAM'S Patent.

CLIFF'S ANTISEPTIC FLUID.—The Disinfecting and Antiseptic properties of this Fluid render it peculiarly valuable for warding off the Cattle Plague.

"Wash the Animal's body once a fortnight with a solution of 1 part of the Fluid to 80 parts of Water, applying the liquid with a sponge or brush. Frequently wash down Cowshed, Mangers, &c., with a similar solution."

For further particulars apply to JOHN COLEMAN, 150, Leadenhall Street, E.C.

Manures and Feeding Stuffs.

RAYNBIRD, CALDECOTT, AND BAWTREE. Address, 89, Seed Market, Mark Lane; or Basingstoke. Samples and prices on application.

THE LONDON MANURE COMPANY (ESTABLISHED 1840), Have now ready for delivery WHEAT MANURE, for Autumn Sowing. DISSOLVED BONES, for Dressing Pasture Lands. SUPERPHOSPHATES of LIME, &c. Genuine PERUVIAN GUANO and NITRATE of SODA, ex Dock Warehouse, SULPHATE of AMMONIA, FISHERY SALT, &c. Offices, 116, Fenchurch Street, E.C. EDWARD PURSER, Secretary.

Autumn Sowing.—Odams's Blood Manure for Wheat.

MANUFACTURED BY THE PATENT

NITRO-PHOSPHATE or BLOOD MANURE COMPANY, LIMITED, consisting of Tenant Farmers occupying upwards of 50,000 Acres of Land.

Chairman.—JOHN CLAYDEN, Littlebury, Essex.

Managing Director.—JAMES ODAMS.

Particulars of this Standard Manure may be obtained at the Offices; C. T. MACADAM, Secretary; or of the Local Agents. Chief Office, 109, Fenchurch Street, London, E.C.; Western Counties Branch, Queen Street Station, Exeter; Manufactories, Plaistow, Essex; and Ebford, near Topsham, Devonshire.

LAWES'S MANURES.—The Manures manufactured by J. B. LAWES for the present Season of 1865 are now ready for delivery at his Factories, at the following prices:—

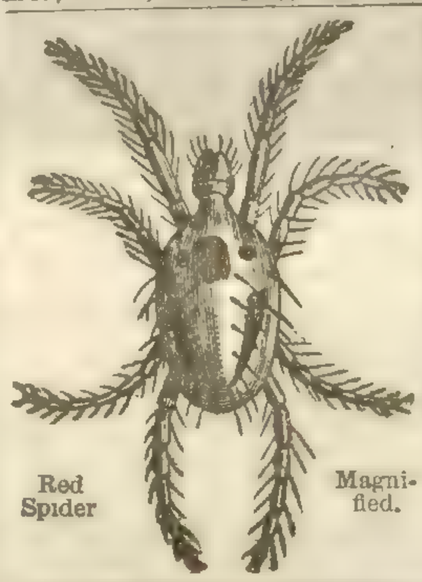
LAWES'S PATENT TURNIP MANURE, and BONE SUPERPHOSPHATE of LIME, £6 6s. per ton.
LAWES'S SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES, £5 5s. per ton.
LAWES'S WHEAT, BARLEY, GRASS, and MANGEL MANURES, £8 per ton.
CONCENTRATED CORN and GRASS MANURE, £12 per ton.

These Manures can be obtained of Mr. LAWES, or through his appointed Agents, in all parts of the United Kingdom, at prices varying according to cost of carriage.

Genuine PERUVIAN GUANO direct from the Importers.

NITRATE of SODA, SULPHATE of AMMONIA, and other Chemical Manures. AMERICAN and other CAKES at market prices.

Address JOHN BENNET LAWES, 1, Adelaide Place, London Bridge, E.C.; and 22, Eden Quay, Dublin.



Red Spider — Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes, 1s. 3s., and 10s. 6d. each.

Wholesale by PRICE'S PATENT CANDLE COMPANY (LIMITED).

WHEAT SOWING.

DOWN'S FARMERS' FRIEND, for preventing the Smut in Wheat, and the ravages of the Slug, Grub, and Wireworm.

A 9d. packet is sufficient for 6 bushels of Seed Wheat, which can be dressed and fit to sow in a quarter of an hour.

Testimonials from the largest Wheat-growers in the kingdom bearing testimony to its great power and efficacy, may be had of Agents, who are appointed for every district.

Full directions for use are given with each packet.

Prepared at the Manufactory, Woburn, Beds.

CAUTION.—To guard against fraudulent imitation and consequent disappointment, see that the signature of HENRY DOWN is on the label.

Agents in every Town throughout England, Scotland, and Ireland.

GARDEN BORDER EDGING TILES, in great variety of patterns and material, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.

F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.

Sole London Agents for FOXLEY'S PATENT GARDEN WALL BRICKS. Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also TESSELATED PAVEMENTS of more enriched designs than the above.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cements, &c.

To be obtained of F. & G. ROSHER, at their Premises as above.

SILVER SAND (REIGATE, best quality), at the above addresses—14s. per Ton, or 1s. 3d. per Bushel; 2s. per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less.

FLINTS, BRICK BURRS or CLINKERS, for Rockeries Grotto Work.

F. & G. ROSHER.—Addresses see above.

N.B. Orders promptly executed by Railway.

To the Seed Trade.

HOOPER AND CO.'S ETRUSCAN and GRECIAN HYACINTH VASES.—Beautiful new patterns for the coming season are now ready. They have proved far superior to Glasses for the successful growth of Hyacinths in water, and are consequently in great demand. Lists on application.

HOOPER & Co., Seed Merchants, Covent Garden Market, London, W.C.

SMITH, BECK, AND BECK'S GREENHOUSE and HOTBED THERMOMETERS.—These Instruments are of the very best construction, and at moderate prices.

31, Cornhill, E.C.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

BEARD'S PATENT NON-CONDUCTING METALLIC GLASS HOUSES

AND PATENT VENTILATING APPARATUS,

FOR HORTICULTURAL AND OTHER STRUCTURES, MANUFACTURED BY

E. J. SANDERS, HORTICULTURAL ENGINEER,

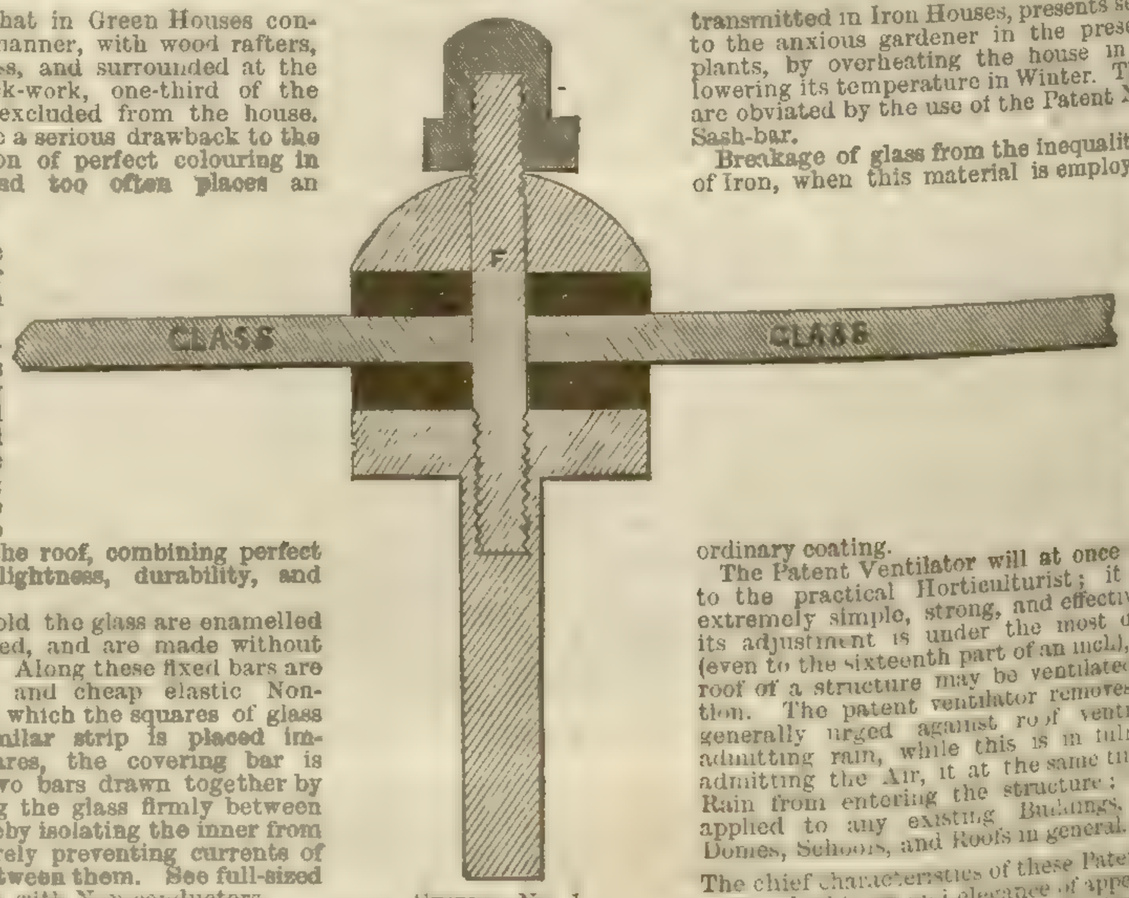
VICTORIA WORKS, BURY ST. EDMUNDS.

The object of the above Inventions is, to correct the several objections hitherto existing in Horticultural and other Structures, both Wood and Iron.

It has been calculated that in Green Houses constructed in the ordinary manner, with wood rafters, sash-bars, and lapped glass, and surrounded at the base with the usual brick-work, one-third of the entire light, at least, is excluded from the house. This of course must prove a serious drawback to the gardener in the production of perfect colouring in Foliage and Flowers, and too often places an insurmountable difficulty in his way.

These Patents substitute a light and elegant outer and inner sash-bar, between which is placed a cheap and durable Non-conducting substance, which takes the place of the ordinary rabbeted sash-bar and rafter; lapped glass and brick foundations may be entirely dispensed with; and the Patent Houses are glazed direct from the floor-line to the top of the roof, combining perfect ventilation and extreme lightness, durability, and cheapness.

The Iron bars which hold the glass are enamelled paint, burnt on or galvanised, and are made without the usual sash-bar rabbet. Along these fixed bars are placed strips of durable and cheap elastic Non-conducting material, upon which the squares of glass are placed; another similar strip is placed immediately over the squares, the covering bar is placed upon it, and the two bars drawn together by hexagon cap nuts, holding the glass firmly between the Non-conductors, thereby isolating the inner from the outer bars, and entirely preventing currents of heat and cold passing between them. See full-sized section, No. 1, of Sash-bars, with Non-conductors.



SECTION No. 1.

The readiness with which heat and cold are transmitted in Iron Houses, presents serious obstacles to the anxious gardener in the preservation of his plants, by overheating the house in Summer and lowering its temperature in Winter. These difficulties are obviated by the use of the Patent Non-conducting Sash-bar.

Breakage of glass from the inequality of expansion of Iron, when this material is employed in combination with putty, is entirely avoided, as the use of the latter is dispensed with, and the Iron, being coated with enamel-paint, or japanned, or galvanised, is rendered more durable than with any ordinary coating.

The Patent Ventilator will at once commend itself to the practical Horticulturist; it will be found extremely simple, strong, and effective in operation, its adjustment is under the most delicate control (even to the sixteenth part of an inch), and the entire roof of a structure may be ventilated at one operation. The patent ventilator removes the objections generally urged against roof ventilators, viz., admitting rain, while this is in full operation, admitting the Air, it at the same time excludes the Rain from entering the structure; and it may be applied to any existing Buildings, or Sky-lights, Domes, Schools, and Roofs in general.

The chief characteristics of these Patent Houses are—

1st.—Lightness and elegance of appearance.
2d.—Non-conduction of the Metallic Sash-bars.
3d.—Durability and Cheapness.
4th.—Complete Ventilation and purity of light from the floor to the roof of the House.
5th.—They may be erected cheaply and rapidly.
6th.—Any ordinary Gardener may remove or replace a square of Glass at pleasure.
7th.—The elastic Non-conducting material being cheap and durable, and the use of putty avoided, contingent expenses for repairs are materially reduced.
8th.—The unsightly lapped Glass is avoided, and all breakage from expansion and contraction of the metals is removed, each pane being held free and independent between the elastic material.

It is generally admitted in Horticulture, that no great improvement has been made in connecting cheap Glass with Iron. The predominant connecting material is putty, and it is well known that all these expand and contract differently under a similar temperature, consequently breakage of the Glass too often happens.) Most important improvements have been made in Iron, which is now rolled almost every shape and angle; it is the combination of these important substances in such a manner and at such a price as shall place these Horticultural and other structures not only as the best and cheapest for those who require permanent and durable Buildings, but also for those who require them as tenants' fixtures. They may be made with curvilinear or straight roofs, or hexagon or octagon designs.

These Patents will be found extremely valuable for Glazing, and Ventilating Railway Stations, Schools, Public Buildings, Shops, Warehouses, Storehouses, and for Roofing generally.

A variety of Horticultural Buildings, Green Houses, Conservatories, Forcing Pits, Orchard Houses, &c., may be seen, and Particulars, Plans, and Estimates supplied, by applying at the Works.

Glass for Garden Purposes.

JAMES PHILLIPS AND CO.

beg to submit their prices as follows:—

PROPAGATING GLASSES.

	Each.—s. d.		Each.—s. d.
3 inches in diameter	0 3½	12 inches in diameter	1 9
3½ " "	0 4½	13 " "	2 0
4 " "	0 5½	14 " "	2 6
4½ " "	0 6½	15 " "	3 0
5 " "	0 8	16 " "	3 6
6 " "	0 10	17 " "	4 0
7 " "	1 0	18 " "	5 0
8 " "	1 2	19 " "	6 0
9 " "	1 4	20 " "	7 0
10 " "	1 6		

BEE GLASSES.

	Each.—s. d.		Each.—s. d.
6 inches in diameter	0 6	9 inches in diameter	1 8
7 " "	0 8	10 " "	2 0
8 " "	0 10	11 " "	2 6
9 " "	1 1	12 " "	3 0
10 " "	1 4		

CUCUMBER GLASSES.

	Each.—s. d.		Each.—s. d.
24 inches long	2 0	16 inches long	1 4
21 " "	1 10	14 " "	1 2
20 " "	1 8	12 " "	1 0
18 " "	1 6		

HAND GLASSES, with Open Tops.

	Each.—s. d.		Each.—s. d.
12 inches	6 6	18 inches	9 6
14 "	7 6	20 "	10 6
16 "	8 6	22 "	11 6
		24 "	12 6

Painted and Glazed with 16-oz. Sheet Glass.

London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.

LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS, PAINTS of various colours ground ready for use.

180, Bishopsgate Street Without, London, E.C.

E. T. ARCHER'S "FRIGI DOMO." — Patronised by her Majesty the Queen, the Duke of Northumberland for Sion House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.

PROTECTION from the SCORCHING RAYS of the SUN.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.

Two yards wide .. .. 1s. 9d. per yard run.
Four yards wide.. .. .. .. 3s. 6d. per yard.
An improved make, 2 yards wide .. 1s. 9d. per yard.
An improved make, 3 yards wide .. 2s. 8d. per yard run.

Also "Frigi Domo" Netting, 2 yards wide, 1s. 6d per yard run.

ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, and of all Nurserymen and Seedsmen throughout the kingdom.

"It is much cheaper than Mats as a covering."

SHAW'S TIFFANY,

For samples and prices apply to

J. SHAW & Co., 29, Oxford Street, Manchester.

Oil Paint no longer Necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

From the Right Hon. the EARL of SHANNON, *Castle Martyr, near Cork.*

"GENTLEMEN,—I have used your Black Varnish for several years, and consider it very superior, both for iron and wood work out of doors, to anything I have ever used. I shall always continue to use it. Near the sea it is particularly valuable, as it stands exposure when paint becomes corroded. I consider the iron Barrow essential to its use."

Sold in casks of about 30 gallons each, at 1s. 6d. per gallon, at the Manufactory, or 1s. 8d. per gallon paid to any Station in the kingdom.

Apply to HILL & SMITH, Brierly Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C., from whom only it can be obtained.

EARTH CLOSETS (MOULE'S PATENT).

No Unwholesome Cesspools.
No Bad Smells.
No Water Pipes to get out of order.
The Best Night Commodes.
The Apparatus (price 25s. and 32s.) may be applied to any Closet at trifling cost, and is self-acting.
By its use a valuable Manure is saved, and Fertility to the Soil ensured.
Earth is recommended by the Privy Council, in their report on Cholera, as a deodoriser and disinfectant.

Extract from Letter received from the SECRETARY *of the* NATIONAL RIFLE ASSOCIATION.

"I am further directed to state that they (the Closets) proved of the greatest use, and were found to act admirably."

WHITE & Co., 29, Bedford Street, Strand, London, W.C.
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AGRICULTURAL IMPLEMENTS, STEAM ENGINES, THRESHING MACHINES, PUMPS, CARTS, WAGGONS, PLOUGHS, HARROWS, CHAFF-CUTTERS, CHURNS, &c. Also GARDEN TOOLS of all kinds. Improved WIRE NETTING. Delivered carriage free. Price Lists per post on application.

BURGESS & KEY, 55, Newgate Street, London. Works, Brentwood, Essex.

GREEN'S PATENT SILENS MESSOR, or NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

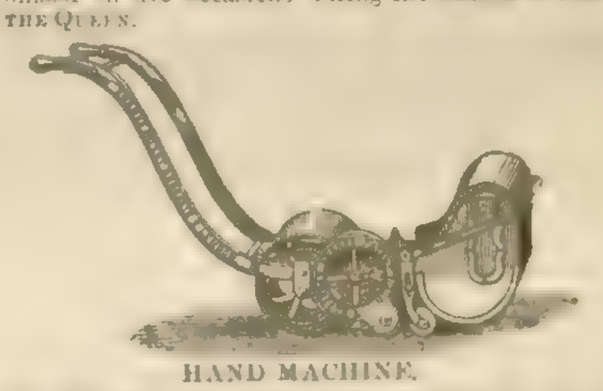
GREEN'S PATENT LAWN MOWERS have proven to be the best, and have earned at every Public Trial gold medals, given in all cases of competition. Above 1,000 have been sold since the year 1856.

Illustrated Price Lists of Lawn Mowers and Garden Rollers Free.

THOMAS GREEN & SON, Smithfield Iron Works, Lower Fore Street, Holborn Hill, London, E.C.; Blackwall Buildings, Fitzwilliam Street, Liverpool; and 10, Eden Quay, Dublin.

SHANKS' NEW IMPROVED LAWN MOWERS,

Patronised on five occasions during the Season of 1864 by HER MAJESTY THE QUEEN.



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Illustrated Circulars, containing full particulars, sent free on application.

ALEX. SHANKS & SON, 27, Leadenhall Street, London, E.C.
Manufactory: Dens Iron Works, Arbroath.
A Stock of Machines always kept at 27, Leadenhall Street.

SHAW'S PATENT FLEXIBLE SELF-ADJUSTING LAWN MOWING MACHINES.

Full Particulars, Drawings, and Prices, post free on application to the Patentee and Manufacturer.

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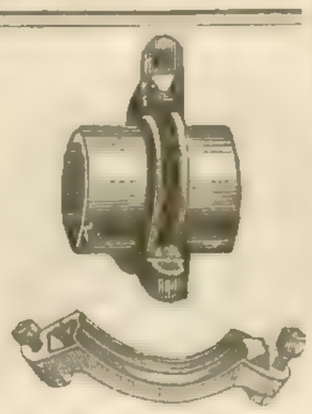
HOT-WATER APPARATUS,

WITH TRUSS' PATENT PIPE JOINTS.



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By means of these Joints the work is executed in less than half the time required for Socket Joints, and alterations can at any time be made, or the entire Apparatus removed and erected elsewhere with the greatest facility. A considerable saving in cost is also effected.

These Joints have been used for several years, giving entire satisfaction, and may be seen in use at the Royal Horticultural Society's Gardens, South Kensington and Chiswick, and many other places in Horticultural and Public Buildings.

For a few prices, see last week's Advertisement.

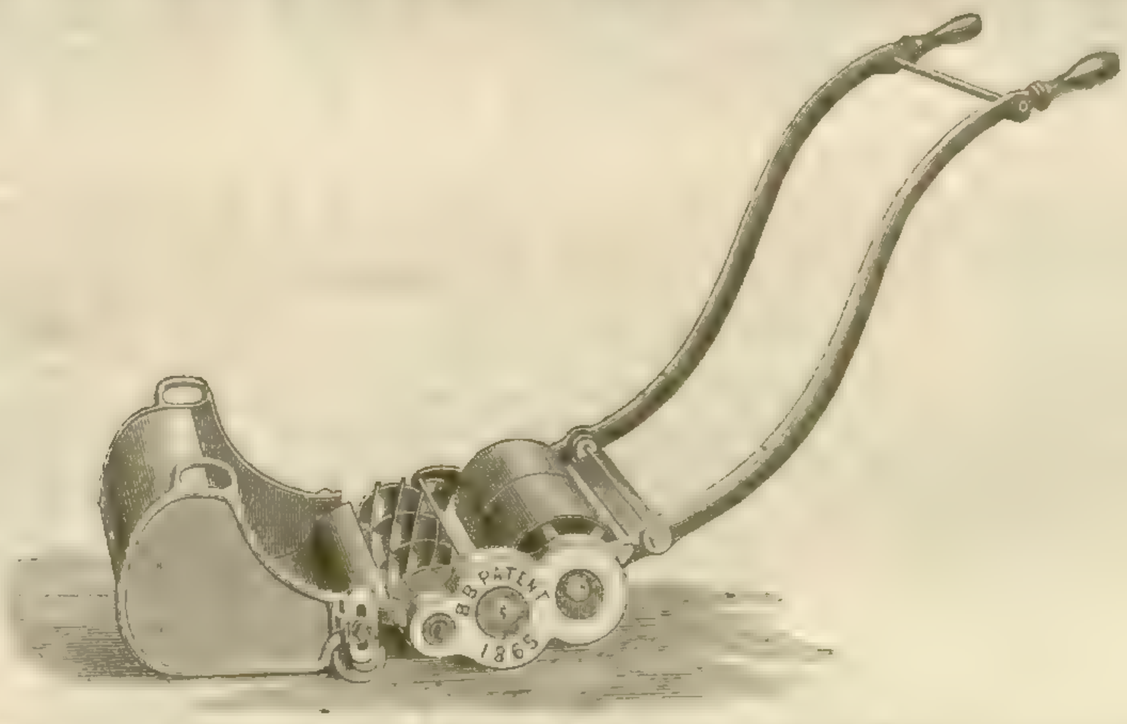
ESTIMATES, PLANS, AND PRICE LISTS FORWARDED ON APPLICATION.

J. B. BROWN & CO.'S NEW PATENT B B LAWN MOWER.

MANUFACTURED BY

J. B. BROWN AND CO.,

148, Upper Thames Street, E.C.



Guaranteed to give perfect satisfaction and if not approved of may be at once returned.

The NEW BB PATENT LAWN MOWER is manufactured by Messrs. BROWN & Co., in London, on their own premises, and under their personal superintendence. It is worked by means of geared or toothed wheels, is noiseless, and is guaranteed to give perfect satisfaction in every respect.

PRICES—including Carriage to all the principal Railway Stations and Shipping Ports in England.

10-inch Machine	£3 10 0	*Easily Worked by a Boy.*
12-inch Machine	4 10 0	
14-inch Machine	5 10 0	
16-inch Machine	6 10 0	*Ditto by a Man.*
18-inch Machine	£7 10 0	*Easily Worked by a Man.*
20-inch Machine	8 0 0	*Ditto by Two Men.*
22-inch Machine	8 10 0	
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*** *Every Machine sent out is Warranted to give ample satisfaction, and, if not approved of, may be exchanged for any other size of Machine, or for the Machine of any other Maker, or may be at once returned unconditionally.*

J. B. BROWN AND CO., OFFICES, 18, CANNON STREET, CITY, LONDON, E.C.

NEARLY OPPOSITE ST. SWITHIN'S LANE and "LONDON STONE," and near LONDON BRIDGE.

WAREHOUSE (where Machines are kept in Stock), 148, UPPER THAMES STREET, E.C.

OPPOSITE the CITY of LONDON BREWERY, and close to the LONDON BRIDGE STEAM BOAT PIERS.

Improvement of Grass Lands
BY SOWING GOOD SEEDS OF THE MOST SUITABLE KINDS.

SUTTON'S RENOVATING GRASS SEEDS
SHOULD NOW BE SOWN.

These Seeds consist of PERENNIAL CLOVERS and FINE GRASSES for improving the bottom.

8 to 12 lb. per acre will be sufficient, and will effect a great increase in the produce.

SUTTON & SONS,
Royal Berkshire Seed Establishment,
Reading.

Surrey White Wheat.

WAITE, BURNELL, AND CO., beg to offer the above very fine variety of WHITE WHEAT, which is highly recommended for poor and elevated soils. It has been tried against many varieties, among which may be named the Rough Chaff, Hunter's Trump, and almost all other kinds of White Wheat, and has produced fully 15 per cent. greater crop. It has been perfectly free from blight and red rust when other varieties have been more or less affected. Price 10s. 6d. per bushel.

A liberal discount to the trade.
Seed Warehouse, 181, High Holborn, London, W.C.

Hardy Climbers.—To the Trade.

CLEMATIS JACKMANNI.—Large intense violet purple, rugose and veiny in centre, 3s. each; 30s. per dozen.
CLEMATIS RUBRO-VIOLACEA.—Reddish violet, sepals moderate, fine, 3s. each; 30s. per dozen.
CLEMATIS STANDISHI.—Beautiful violet blue, 3s. each; 30s. per dozen.

Besides other good old varieties.
A CATALOGUE, including Description and Treatment of Clematises will be forwarded free on application to
GEO. JACKMAN & SON, Woking Nursery, Surrey.

Gladioli.

EUGÈNE VERDIER, FILS AINÉ, FLORIST, 3, Rue Dunois, Paris, thinks it but right to inform his numerous friends that he has this year, 1865, obtained Seven First Prizes in Medals of Gold, Silver Gilt, and Silver for his COLLECTIONS of GLADIOLI.

He is happy also to say that his unrivalled COLLECTION, consisting of many hundreds and thousands of BULBS of each variety, are this year very large, fine, and healthy; 26 Roots are sent for every 25 ordered of the same sort, free of carriage to London, to care of Messrs. BETHAM & BLACKITH, Cox's Quay, Lower Thames Street, London, E.C., from whom CATALOGUES can be obtained.

Lobelia Snowflake.

Extract from GARDENERS' CHRONICLE:—
"Mr. COX, Gardener to Lord Beauchamp, exhibited a beautiful White Lobelia called Snowflake, to which a First-class Certificate was awarded. Floral Committee of the Royal Horticultural Society July 25, 1865."

JOHN AND CHARLES LEE having acquired the stock of this desirable NEW BEDDING PLANT, they have much pleasure in offering SEED in SEALED PACKETS for present sowing for spring pot culture, for which it is well adapted.

As a BEDDING LOBELIA it stands unrivalled. The plant is of dwarf compact habit: the flowers are large, perfectly even, and of the purest white. The stock comes perfectly true from seed.

Price 2s. 6d. per packet. Price to the Trade on application.
Royal Vineyard Nursery and Seed Establishment, Hammersmith, W.

Verbena Crimson King.

THOMAS METHVEN has much pleasure in announcing that he has arranged to send out the unrivalled VERBENA CRIMSON KING, which was raised in 1863 by Mr. David Thomson, at Archerfield, where it has been extensively used for the last two seasons. Its superiority consists in its great and continuous profusion of bloom, its vigorous and compact habit, and its healthy constitution. It is in fact a companion to the well-known Purple King, having all the good qualities of the latter variety, without its tendency to mildew or to become diseased in winter. Crimson King has fine bold crimson trusses of bloom, with petals of unusual substance, borne on short stiff stalks, which constitutes one of the very best plants for standing heavy rains without much injury. Either for masses or for lines it is considered by the many gardeners who have seen it this season at Archerfield to stand unrivalled for striking effect. The following testimonials which have been received by Mr. Thomson will more than corroborate what is said above of its merits.

From Dr. ROBERT HOGG, *of the Journal of Horticulture.*
"I was particularly struck with the brilliant colour and telling effect of your Crimson King Verbena, when I saw it for the first time on entering the Kitchen Garden at Archerfield, forming a line in the ribbon border on each side of the main walk. But when I entered the Flower Garden at Dirleton Castle, remarkable for its breadth and variety of colour, in the distance my eye rested on two brilliant masses standing boldly out from all the others, which I did not fail to see was produced by the same Verbena. I was particularly struck with its compact body of colour; and on placing it in proximity with Beaton's Stella Geranium, its depth was such as to give Stella an orange hue. You have great merit in having raised so valuable a decorative plant."

From Mr. JOHN CLARKE, *Gardener to* EARL DE GREY AND RIPON, *Studley Royal, Ripon.*
"I was particularly struck with your Seedling Verbena Crimson King. It will indeed be a valuable acquisition to all who require dense masses of colour. I cannot give you a better testimony of my appreciation of it than by saying that immediately on my return to Edinburgh, I ordered 100 plants to be secured for me as soon as it is sent out."

From Mr. JOHN ROBSON, *Gardener to* VISCOUNT HOLMESDALE, *Linton Park, Kent.*
"For many years we have been on the outlook for a class of Verbenas having the upright growth and free-flowering qualities of Purple King, but differing from it in colour. Such a one Mr. D. Thomson has obtained in his Crimson King, which is equally adapted for massing, for edging, or for lines in ribbon borders; while for continuous blooming it promises to be superior to Purple King. It is deeper and richer in colour than the well-known Geranium Stella, and, although the latter was in its best trim at Archerfield, it was the unanimous opinion of several gardeners we met with, who, like ourselves, had seen this Verbena and Geranium Stella in juxtaposition at Archerfield, that the Verbena was by far the more brilliant of the two. There seems nothing left to wish for, unless it be for other Verbenas of like habit, but of different colours, not yet represented in this way."

From Mr. THOMAS LEES, *Gardener to the* EARL OF HADDINGTON, *Tyninghame.*
"I have great pleasure in bearing the highest testimony to your Verbena Crimson King, having had opportunities of seeing it bedded along with other Verbenas in the gardens at Archerfield both last year and this. Both in fine weather and after dashing rains, it at all times was pre-eminent. Colour rich crimson, borne in great profusion. Habit of plant same as the well-known Purple King."

From Mr. H. ROSE, *Gardener to the* DUKE of ROXBURGH, *Floors Castle, Kelso.*
"Having seen your Seedling Verbena Crimson King at Archerfield for two successive seasons, I am convinced that it is the best crimson in cultivation. Its habit is that of Purple King. It will be a great acquisition whether used for beds or ribbon borders."

From Mr. J. BISSET, *Gardener to the* EARL of SEFTON, *Croxteth Park.*
"Crimson King Verbena, which I saw at Archerfield in great perfection, is of a most brilliant colour, much wanted in Verbenas. Habit good, being very erect and a great bloomer. I had great pleasure in giving an order for a quantity of this plant."

To be sent out next May at 18s. per dozen.
Orders are now being booked, and will be executed in rotation as they are received.
Leith Walk Nurseries, Edinburgh, September 23.

Paul's Nurseries, Waltham Cross, N.
ENTRANCE FROM THE PLATFORM, WALTHAM STATION, GREAT EASTERN RAILWAY. HALF AN HOUR'S RIDE FROM LONDON.

WM. PAUL (Son and Successor to the late A. PAUL) begs to announce that his COLLECTION of ROSES is STILL in BLOOM, and comprises many of his own Seedlings, and other novelties not to be found in any other collection. In addition to the Roses, BEATON'S GERANIUMS, and a second and third generation from them, will be blooming throughout the summer and autumn. The Collection of HARDY TREES with FINE FOLIAGE is unrivalled, and many large and perfect specimens of the choicer CONIFERS are now in fine condition for removal, and are well worthy of the attention of gentlemen and horticulturists who contemplate planting. Bearing trees of all the LEADING FRUITS, Dwarfs and Standards, Pyramids and Espaliers, in fine health and true to name. Inspection respectfully invited.

Waltham Cross, London, N.

WILLIAM BARRON, Sketty Nursery Farm, Swansea, offers the following:—

200,000 LARCH, 2½ to 3½ feet.	50,000 SCOTCH FIR, 1½ to 2½ feet.
200,000 „ 1½ to 2½ feet.	50,000 SPRUCE FIR, 2 to 4 feet.

30,000 BLACK ITALIAN POPLAR, 2 to 4 feet.

Alders, Ash, Beech, Birch, Elm, Sycamore, Holly, Hazel, Limes, Yews, Thorns for hedges, Privet, Laurels, Lilacs, Laburnums, Berberis Aquifolium, Rhododendrons, Ailantus glandulosa, Acer Negundo variegata, Purple-leaved Hazel, Conifers of sorts, choice varieties of Hardy Ornamental Trees and Shrubs with fine foliage, Roses &c. Hardy Ferns in quantity.

Prices post free on application.

BUTLER AND McCULLOCH, SEED MERCHANTS, South Row (or Strand side), opposite Southampton Street, Covent Garden Market, London, W.C., beg to announce the arrival of their DUTCH and other FOREIGN BULBS in the finest possible condition.

Having personally inspected the Continental Collections this season, they have been enabled to make the most judicious selections, and they beg to assure their numerous patrons that the respective kinds will be supplied as usual strictly true to name.

Their AUTUMN CATALOGUE of BULBS is now ready, and will be forwarded on application without charge, and post free to any part of the world. To it are appended selections of Flower, Vegetable and Agricultural Seeds for Autumn Sowing; also a Select List of Plants, including Hardy Shrubs, Conifers, Climbers, Roses, Fruit Trees &c.

Choice Hyacinths for Exhibition.

SUTTON AND SONS can supply good sound BULBS of all the HYACINTHS recommended at page 4[illegible] of the *Gardeners' Chronicle*, for £3, or half the quantity (selection left to us), for £1 11s. 6d., carriage free; also other good sorts at considerably lower prices.

SUTTON'S AUTUMN CATALOGUE is now ready, and may be had gratis and post free on application to

SUTTON & SONS,
Royal Berkshire Seed Establishment,
Reading.

DUTCH FLOWER ROOTS.

JAMES VEITCH,

ROYAL EXOTIC NURSERY, CHELSEA, S.W.,

BEGS TO ANNOUNCE THAT HE HAS RECEIVED HIS

ANNUAL SUPPLY OF BULBOUS ROOTS FROM HOLLAND,

and is pleased to say that they are in excellent condition.

CATALOGUES are now ready, and will be forwarded post free on application.

J. V. desires to impress upon those who patronise him the great advantage of giving him their orders early, as the successful Cultivation of Bulbs depends in a great measure upon their being planted early in the season.

IMPORTED DUTCH FLOWER ROOTS.

JAMES CARTER & CO.'S

FIRST IMPORTATION OF PICKED BULBS OF

HYACINTHS, CROCUS, TULIPS, NARCISSUS, ETC.,

HAS ARRIVED IN FINE CONDITION, AND THEY BEG RESPECTFULLY TO SOLICIT EARLY ORDERS.

JAMES CARTER & Co. have also to announce that the

AUTUMN SUPPLEMENT OF THE GARDENER'S AND FARMER'S VADE-MECUM

Is now published, and will be found to contain (with Cultural Directions) complete lists of DUTCH and CAPE BULBS, to which is added a LIST of PLANTS, including particulars of their large and important COLLECTION of FRUITING VINES in POTS, and STRAWBERRIES.

The Autumn Supplement will be forwarded Gratis and Post Free on application to
JAMES CARTER AND CO., 237 and 238, HIGH HOLBORN, LONDON, W.C.

MESSRS. E. G. HENDERSON & SON

RESPECTFULLY ANNOUNCE THE PUBLICATION OF THEIR

BULB CATALOGUE,

COMBINED WITH A COMPREHENSIVE

LIST OF HERBACEOUS AND ALPINE PERENNIAL PLANTS,

Extending to above 100 pages, the latter part giving the price of each species, with their respective colour, height, and season of bloom, &c. Also reference to Bulbous and Tuberous-rooted kinds, whether of Climbing or Creeping habit, and adaptation for marshy ground, or for water, with indications to those species requiring partial protection.

Forwarded Postage Free on application.

WELLINGTON NURSERY, ST. JOHN'S WOOD, LONDON, N.W.

DUTCH BULBS.

ARCHIBALD HENDERSON,

LATE SUPERINTENDENT TO THE HORTICULTURAL SOCIETY OF LONDON, AND OF HIS GRACE THE DUKE OF SUTHERLAND'S GARDENS AT TRENTHAM, STAFFORDSHIRE,

BEGS TO ANNOUNCE THAT HIS SPLENDID

COLLECTIONS OF HYACINTHS AND OTHER DUTCH ROOTS,

IMPORTED BY HIM DIRECT FROM HOLLAND, HAVE ARRIVED IN FINE CONDITION.

CATALOGUES are now ready, and will be forwarded post free on application.

SION NURSERY, THORNTON HEATH, SURREY, S.

HYACINTHS, TULIPS, CROCUS, &c., now arrived from Holland in excellent condition.
PARR & SCUDEN, Seed and Plant Merchants, 12, King Street, Covent Garden, W.C.

STANDEN'S GARDENER'S AND AMATEUR'S FRIEND, a highly concentrated Inodorous Fertilizer, for all kinds of Stove and Greenhouse Plants, Vines and other Fruit Trees in pots, &c.; also Vegetables, &c., in the open ground.

No. 1 FERTILIZER is the best adapted for Hard-wooded Plants.

No. 2 FERTILIZER is recommended for Soft-wooded Plants, Bulbs, &c.

Sample Canisters, 1s. & 2s. 6d. Bags, 5s. 6d., 10s. 6d., and 21s.

SUTTON'S unrivalled COLLECTIONS of BULBOUS FLOWER ROOTS, for Blooming during the Winter and Spring. These are every year becoming more popularly cultivated, and the HYACINTHS, ANEMONES, TULIPS, &c., which we imported last season from the celebrated Dutch Florists, Messrs. de Boom, Veen, Huyet, and others, having been so generally admired, we have imported from the same parties, and still more extensively.

SUTTON'S COLLECTION of HARDY FLOWER ROOTS for OPEN GROUND.

		£	s.	d.
No. 1.	A large and Choice Collection of ANEMONES, HYACINTHS, CROCUSES, TULIPS, RANUNCULI, NARCISSI, SNOWDROPS, IRISES, GLADIOLI, &c.	2	2	0
No. 2.	Ditto ditto, consisting of all the same kinds, in Reduced Quantities	1	1	0
No. 3.	A Small and Choice ditto	0	10	6
	SORTS for FLOWER POTS and GLASSES.			
No. 4.	A splendid Collection of HYACINTHS, JONQUILS, NARCISSI, EARLY TULIPS, New large CROCUSES, &c.	2	2	0
No. 5.	The same in Reduced Quantities	1	1	0
No. 6.	A Small and Choice Assortment	0	10	6

SUTTON'S AUTUMN CATALOGUE, containing DESCRIPTIVE LISTS of the best varieties of Hyacinths, Gladioli, Anemones, Crocuses, and other Bulbous Roots, and Choice Stove and Greenhouse Plants, Ferns, American Plants, Roses, Carnations, and other Florists' Flowers, Fruit Trees, New Garden Seeds, &c., is now ready, and may be had gratis and post free on application.

All Goods sent Carriage Free except small parcels, and 5 per cent. allowed for Cash Payments.

SUTTON & SONS, Royal Berks Seed Establishment, Reading.

The Gardeners' Chronicle.

SATURDAY, SEPTEMBER 23, 1865.

MEETINGS FOR THE WEEK.

SATURDAY, Sept. 30 { Royal Horticultural (Weekly Show), at South Kensington .. .. 2 P.M.

FEW things are more mortifying to authors and public men than the strange mistakes and misrepresentations to which they are subject from the carelessness or want of skill of office readers and reporters. A striking instance has lately come under our notice in an account of an inquest which took place at Rickinghall, near Bury St. Edmunds, and which, indeed, was copied in the newspaper portion of this Journal of Sept. 9.

A child had died confessedly from the effects of arsenic, and as one of the same family had previously died after a short illness, the body was exhumed, and portions submitted to an eminent practitioner at Bury St. Edmunds, who detected no arsenic, but who suggested in his evidence that death might have arisen from the effect of POISONOUS FUNGI.

The greater portion of the evidence as reported was directly contrary to that which was actually given, and especially as regards the symptoms of poisoning by Fungi. What was actually stated, as we know from correspondence with the gentleman in question, was that the symptoms of poisoning by arsenic and Fungi "in some respects resembled each other," and therefore required careful discrimination; "that arsenic was an irritant poison, and Fungi a narcotic irritant; that drowsiness in the case of Fungi preceded the gastro-intestinal irritation." The symptoms, moreover, as described by one of the witnesses were those which would be produced by Fungi.

It is quite right that an erroneous impression should not be left on the minds of our readers, by which they might on some future occasion be led to confound two things which are essentially distinct.

Some evidence, moreover, was given about the presence of Fungi in the body, a circumstance which does not seem to us at all surprising, since the boy had been dead 53 days. It is, however, quite certain that no poisonous Fungi which he could have eaten, even if they had been taken raw, could vegetate under such circumstances, as it is totally contrary to the habit of any he was in the least likely to eat. It is true that the spores of some Fungi, as we lately remarked, vegetate more certainly if they pass through the stomach of some graminivorous animal, but we never heard that they vegetated there, much less produced a mould of an abnormal character. For the most curious point is, that a mould occurred, of which we have a sketch, which does not accord with any genus with which we are acquainted. The mycelium is distinctly jointed, and the spores, of which we regret that we have no measurement, consisted of three distinctly defined cells, resembling more those of one of the leaf-Fungi (as, for example, Polycystis) than of any mould with which we are acquainted. Other Fungi sometimes appear upon putrifying flesh; we have, for example, seen a kind of Sclerotium, a spurious genus, which consists either of an altered state of certain moulds, which must have been the condition in the instance just mentioned, or a winter, or, as it is termed, a hybernating form of some of the higher Fungi.

It is a curious fact that the same Fungi may act differently on different persons, the symptoms in the one case being more those of irritation, in another those of narcotism. As this is the case, and as arsenic has sometimes been administered with Fungi, it is obvious that no certain opinion can be given without a *post mortem* analysis.

It may not be useless in conclusion to state that where it is suspected that deleterious Fungi have been taken, emetics and castor oil should at once be used freely, and that recourse should be had as soon as possible to a regular practitioner.* *M. J. B.*

PREVIOUS to the removal of the Marble Arch from Buckingham Palace to the Cumberland Gate, which took place in the spring of 1851, the east side carriage drive, running parallel with Park Lane, presented few attractions either to the masses, or the habitual lounger in HYDE PARK. The first improvement was the formation of a new road, which was carried further into the Park, inside the few fine old trees through which it formerly wound. Some years before, a row of Plane trees had been planted next to Park Lane; and although these shut out the view from the neighbouring houses, they were already adding a certain amount of seclusion to the new drive. It does not appear, however, that any further alterations were contemplated in the intermediate space now left between the drive and the public road. The usual London belt of Lilacs and other shrubs existed by the side of the railing, and on one occasion was made the subject of a petition to the present Premier, that it might neither be neglected nor in any way interfered with. Its days were nevertheless numbered, but only to reappear in more perfect luxuriance; for on the advent of Mr. COWPER, the present First Commissioner, Mr. MANN, the Superintendent of the Parks, proceeded to thoroughly trench and enrich the ground; plans were submitted to the elder NESFIELD, and the first result of Mr. COWPER's new gardening policy was a pleasant and interesting promenade, stretching from Hyde Park Corner to the Marble Arch, and affording the equestrian a magnificent panorama either on leaving or entering Rotten Row. Indeed, when the flowers are at their best, the view is singularly glorious, the mixture of park scenery picturesque trees and garden producing a variety that may be set in friendly competition with the more stately splendour of the Champs Elysées. From the noise and bustle of Oxford Street, it is a sudden transition to the shade and comparative quiet of the garden.

In arrangement nothing can be more simple, one central walk dividing its whole length from the Marble Arch to Stanhope Gate. At its commencement irregular groups of Elm and Plane are interspersed with beds of Ivy and Periwinkle, or where there is sufficient light, brilliant patches of colour. Then a more open plot intervenes, formally laid out with standard Acacia and flower beds, and enclosed on either side by a low backing of shrubs. In front of these a permanent border of mixed Pinks has been introduced, having a good effect, either as a grey edging or a line of variegated bloom. Next we find another cluster of overhanging trees, and beyond these a pretty assemblage of Coleus beds and Centaureas, Cannas, and Pelargoniums, Castor Oil plants, the Giant Rhubarb, and the light green of the Indian Maize contrasting to advantage against the gorgeous colour of the flowers. The garden here begins to widen, and in the intervals between the foreground trees, peeps are obtained of distant glade, and trees feathering to the horizon. And were it not for the peculiar gloom that hangs over the metropolis, and the incessant though gentle rumbling from the vehicles in Park Lane, one might almost fancy oneself miles away from the great City. Of course, during the "season," such an illusion is impossible, and it seems almost a wonder how Mr. MANN contrives to grow such beautiful flowers amidst the clouds of dust that are sometimes showered upon them.

Just beyond here is Stanhope Gate, from whence the garden entirely changes its character. In one of his essays on the imagination, Mr. ADDISON has remarked that works of Art, as compared with those of Nature, "have nothing in them of that vastness and immensity which afford so great an entertainment to the mind of the beholder." We think that, judged by this standard, the boldness of conception that initiated the endless ribbon of red, purple, and yellow, commencing at this point, and following a course parallel with the drive further than the eye can distinguish it, deservedly merits our approbation. The effect is undoubtedly fine and striking, especially when whirled rapidly past it; and the pedestrian, moreover, has the inner walk, where the bedding is much varied. Here are the ordinary Pelargoniums, Ageratums, Feverfews, Dahlias, and other tall flowers; and a short way down, two beds of Hybrid Rhododendrons, that are flourishing as well as either Aucubas or Holly. Then comes a stately Elm, as HOOD would say, "like some ramous Laocoon," but throwing out its arms in solitary grandeur, and breaking right through the monster ribbon. At the extreme end the strip narrows again, and is occupied by a single chain of flower-beds, alternated with Lucombe Oaks, which promise some day to monopolise the whole of the Grass compartment. On the opposite side of the drive an Italian garden has been constructed in the old reservoir, with bands of Irish Ivy, and a marble group in its centre, which serves as a drinking fountain.

Passing round the ACHILLES Statue to the entrance of Rotten Row, we come across another novelty in park gardening. It will be recollected that there is a triangular piece of ground between the avenued portion of the ring drive known as the "Ladies' Mile," and Rotten Row. At Hyde Park Corner it is a narrow wedge, gradually widening until it presents a fine broad frontage gently sloping towards the Row. The whole area is as nearly as possible 12 acres. A portion that is completed near Hyde Park Corner, with its graceful diversity of outlying beds of Yuccas, Humea elegans, foliage plants, and informal groupings of Holly, Rhododendron, and other varieties of trees, has already excited much comment and admiration. Specimen plants of Thuja aurea, Lombardy Poplars, Thorns, and others are charmingly disposed in recesses among the planting. The remainder is being carried out under the advice of Mr. MARKHAM NESFIELD, and we can therefore rest assured that the result will be satisfactory.

Before quitting the subject we must allude to the new road through the Park. When the preparations were making for the Exhibition of 1862, some difficulty was apprehended with respect to the approaches. The Brompton Road was widened, and a new gate placed in Hyde Park, opposite the end of Exhibition Road; still the only access from the north was by Park Lane, or the narrow and circuitous thoroughfare of Church Lane, Kensington. A more direct communication was considered necessary, and various suggestions were made, such as for a pontoon bridge, hanging walks by the side of the present bridge, or for widening the whole structure. In discarding these Mr. COWPER showed his usual judgment, and we think his simple solution of the difficulty is in every way successful. The entrance at the Victoria Gate from the Bayswater Road, is one of the prettiest in the Park—the drive sweeping between noble trees past Kensington Gardens, and over the Serpentine Bridge, which is so divided that pedestrians have one-half of the bridge and equestrians and carriages the other. One-half of the western part of Rotten Row is also fenced off for it, and from here it leaves the Park by the Queen's Gate, close to the Horticultural Gardens.

The First Commissioner had another scheme for connecting the broad gravel walk in Kensington Garden between Lancaster Gate and the Coalbrook Dale Iron Gates, with a small road which would have passed through a tunnel under Rotten Row into the Kensington Gore Road; but the expense proved fatal to it, and it is very probable that it would not have been ready in time for the Exhibition. But even if it had been, the present line

* There are one or two curious mistakes in Dr. TAYLOR's work on Poisons. Ed. 2. 1859. Agaricus esculentus, though it is used as a condiment in some parts of Germany, is, we believe, never eaten in France, and certainly not in England, where it is exceedingly rare. It is not even mentioned in Monsieur ROQUE's excellent treatise on the esculent Fungi of France. It cannot therefore be said to be one most commonly employed as an article of food. It is moreover a very small and insignificant species, and is little esteemed on account of its bitter taste. All highly coloured species are no poisonous. Agaricus cæsareus is perhaps at once the most splendid and best of esculent Fungi. The common Truffle is not Morchella esculenta, which is the scientific name of the Morel.

answers every purpose, as is best proved by the fact that the temporary expedient has resolved itself into a permanent public roadway.

—— We are happy to be able to announce that Dr. J. D. HOOKER, than whom no more fitting person could be found, has been appointed to succeed his father, the late Sir W. J. HOOKER, as Director of the Royal Gardens, at Kew. There can be no doubt that under his able supervision Kew Gardens will maintain the high reputation they have acquired amongst the scientific establishments of Europe, as well as continue the centre of botanical science at home.

—— Dr. THWAITES, the distinguished superintendent of the Botanic Garden at Peradenia, Ceylon, writes to us "on the PACKING for transport of various kinds of SEEDS which do not retain their power of germinating after they have become dry"—and to this category belong many of the seeds of moist tropical countries. "I am continually receiving," says our valued correspondent, "such seeds packed in paper parcels, and of course find them of no value for sowing. If packed in a close tin box, with finely powdered charcoal between them, such seeds will remain good for some weeks, and if the seed vessels themselves are carefully gathered just as they are ripe, and packed in the way above described, taking care not to bruise them, the seeds they contain will be preserved in a good state for a still longer period. The charcoal, if it fills up all the interstices of the close box, seems to check the growth of fungal mycelia, which would otherwise speedily destroy the vitality of the seeds."

—— From ERFURT we learn that the Exhibition of Flowers and Fruit held in that town from the 9th to the 17th instant was on a large scale, but presented little novelty. The objects were for the most part displayed in the open air, the remainder under tents. The principal exhibitors were Messrs. Jühlke, Benary, Heinemann, Haage, Schmidt, &c. But few save Germans were present at the show, and the Congress was not attended by that large assemblage of savans and horticulturists which formed so important and delightful a feature of the exhibitions at Brussels and at Amsterdam, and which we hope to see repeated next year in London. Erfurt itself wore a holiday appearance on the occasion, the houses being gaily decorated with flags and boughs. A banquet and an excursion to the Thuringer Wald were pleasant additions to the floral fête.

—— Mr. H. KNIGHT, the intelligent English gardener, at the Château de Pontchartrain (Seine et Oise), has sent us samples of a very handsome HYBRID AMARANTHUS, which, so far as can be judged from the specimens before us, will prove a most valuable plant for the summer flower garden. It is described as a cross between the Amaranthus melancholicus ruber, so much used within the last year or two for bedding purposes, and the very gaily tinted Amaranthus tricolor elegantissimus, which has been occasionally seen as a pot plant at our great exhibitions. The upper end of the leaf is of the deep sanguineous red which marks A. melancholicus ruber, while the lower end next the stalk is of a bright crimson red, and the young leaves of the lateral shoots are almost wholly of this brighter hue. Being so much more brilliantly coloured than its parent, it may be regarded as a most useful acquisition for summer gardening.

New Plants.

313. DENDROBIUM TATTONIANUM, *Bateman MS.*

D. caulibus fusiformibus, racemis sparsifloris foliis angustis carnosis acutis longioribus, bracteis triangulo-setaceis ovariis pedicellatis multo brevioribus, sepalis ligulatis subacutis, mento parvo obtuse conico, petalis a basi angustissimâ dilatatis ligulatis subacutis paulo longioribus, labello longe cuneato antice trifido laciniis lateralibus triangulis antice obtusangulis, laciniâ mediâ semiovatâ apiculatâ, venis in laciniis lateralibus carinulato-incrassatis, carinis lobulatis ternis antice inter laciniias laterales in disco laciniæ anticæ in lamellas rhombeas dorso crenulatis exeuntibus, columnâ apice tridentatâ, antherâ velutinâ. *Rchb. fil.* (*conf. D. aureum R. Br.*).

This is an exceedingly pretty and distinct Dendrobium, which I was glad to have the opportunity of dedicating to Lord Egerton of Tatton, from whose rich collection of Orchids I received specimens in July last. The flowers are pleasantly scented, continue fresh for an indefinite length of time, and are very gaily coloured in a style quite unusual in the genus, the sepals and petals being yellow and white, while the lip is a deep mauve. It was discovered on the coast of North Australia by Mr. J. G. Veitch, from whom living plants were sent to his father's vast establishment in the King's Road, Chelsea. *J. B.*

314. DENDROBIUM JOHANNIS, *Rchb. fil.*

D. caulibus incrassatis foliosis racemis erectis multifloris brevioribus, bracteis minutissimis triangulis, sepalo supremo ac petalis cuneato-ligulatis subacutis undulato-tortis porrectis, sepalis lateralibus subæqualibus, haud æquilongis, basi in calcar extinctiforme extensis, labello ab ungue latissimâ basi dilatato cuneato oblongo trifido, laciniis lateralibus semirhombeis antice utrinque medio angulatis, laciniâ mediâ sessili subrhombeâ apiculatâ, carinis crassis ternis inter laciniias laterales per discum in disco laciniæ mediæ antice obtuse abruptis, lateralibus supra apicem bi-lobatis, columnâ apice tridentatâ basi utrinque angulatâ, antherâ velutinâ. *Rchb. fil.*

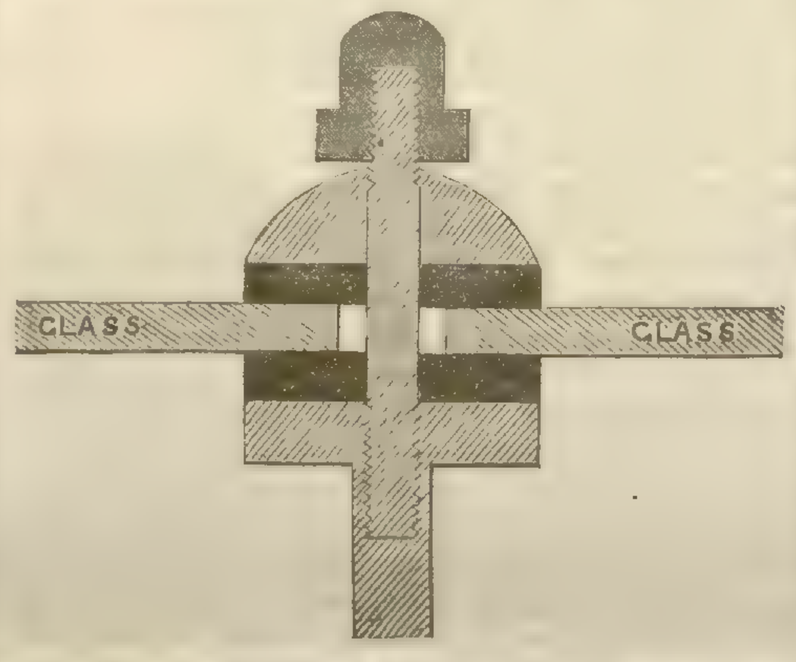
Like the preceding this new Dendrobium was found in North Australia by Mr. John G. Veitch, from whom plants were received last spring in such excellent condition that some of them have already flowered in the King's Road. The flowers are borne in erect racemes, and have singular twisted brown sepals and petals with a yellow lip.

Prof. Reichenbach being anxious to connect in some way the name of Mr. John G. Veitch with that of a plant which forms one of his more remarkable discoveries, and being unable to call it Dendrobium Veitchianum, because that name had long since been given by Dr. Lindley to another species of the genus discovered by Lobb, hit upon the ingenious device of making his Christian name the passport to immortality in the present instance. Certainly no one ever laboured harder in the cause of science or deserved the compliment better than the adventurous young traveller, who has already added so many new things to our collections, and who, we sincerely hope, may be spared to enrich them still more. This and D. Tattonianum will be figured in the forthcoming number of the "Botanical Magazine." *J. B.*

BEARD'S PATENT HOTHOUSE ROOFING.

FOR some years past the most thoughtful builders and horticulturists have been rather dissatisfied with the usual modes of attaching glass to wood or iron for roofing purposes. The general system has been to place the glass between rebated rafters or sash bars, to overlap the squares, and to separate them from the iron or wood, and keep them in position by means of putty.

The whole of these processes have been objected to on various grounds—rebates, because they increase the expense of manufacture, and the risk of breakage of glass, and weaken the bars; putty from its first cost, need of paint, necessity of repair, and excessive hardness; and laps, from their accumulation of dirt, obscuration of light, production of drip, and retention of water, which, when it freezes, leads to a wholesale destruction of glass. The evils naturally incident to rebated bars or sash bars are often increased by tight glazing. Of



course if a square of glass is tightly fitted between two bars of wood, or worse still, two of iron, it must be broken by the slightest change in bulk of the substances against which it presses, or by sudden concussion. It is also well known that most roofs and all horticultural structures are subject to both these influences, and hence the cause of most of the glass broken. Where rebates are used, one eighth of an inch should always be left clear between the side of the glass and the upright centre of the rafter. But even when this is done, the hardness of the putty will neutralise the benefit of it to a great extent. The evils of this hardness are most apparent on metallic roofs, because metals contract and expand more with the addition or subtraction of heat than wood or other substances. This power of change in obedience to alterations of temperature is also much more active in metal than in either putty or glass, which are irremovably combined with it to form one building or roof. All these substances are changed by caloric, but they are changed in a different ratio—at a distinct rate of speed, and the harder the putty becomes the greater the likelihood that the metal in its hurried obedience to this natural law will double up the glass. Every one is familiar with the capacity of laps for water—how they draw it in and retain it by capillary attraction in that dangerous position until the cold grasp of the frost expands it into ice, and breaks the glass by one and the same process.

Looking at the threefold destructive force of rebates, putty, and laps, it was only to be expected that improvers would strive to abolish one or the other, or all three together; and as a matter of fact, this is mainly the direction that improved methods of glazing have taken. Mr. Russell many years ago boldly strove to remedy most of these evils by covering horticultural and other roofs with glass tiles. One end of these was made wider than the other, so that the under end slipped into the upper, and each two rows of tiles were grasped and held firmly together by a metal flange full of putty being pressed firmly down upon them. Mr. Snow and others adopted the plan of glazing end to end without laps. Read protected his putty from the weather by inserting the glass in a deeply-grooved astragal; and Kent, Curtis, Harrison, Saul, Cranston, Barrett, and others have tried more or less to fix the glass in by the aid of metals and other substances as substitutes for putty. Copper, lead, iron, zinc, brass, and glass itself have been used as the binding materials, and lead, marine glue, india-rubber, gutta percha, etc., as the elastic breaks to the friction of glass against metal.

Without staying to criticise or even to describe these various systems, I hasten to introduce to your readers that recently patented by Mr. Charles Beard, of Bury St. Edmunds, in Suffolk. He has not only abolished rebates, putty, laps, and paint, but entirely neutralised all the objections usually brought against metallic roofs. He forms his frame-work entirely of iron, and his improvements may be said to abolish all working expenses by superseding the necessity of repairs. The least durable substance he employs will last probably 30 or more years, and it can be renewed in a few hours at a trifling cost. His first great object is to render the iron anti-corrosive. With this view he began to erect his houses with galvanised iron, and they may still be built with that metal. Mr. Beard, however, does not strongly recommend it now. Practical difficulties connected with the galvanising process led him to seek another antidote to rust, and this he has found in a species of enamel paint. By a series of dressings and bakings the iron is turned out finished, hard and smooth as the internal surface of an enamelled saucepan. The entire frame-work of the houses consists of this enamelled iron, and this enamel needs no paint and defies rust. It is impossible to exaggerate the value of this boon.

Mr. Beard's next object was so to attach the glass to the iron, that the latter might continue to obey its natural and necessary law of contraction and expansion without breaking the former. This is accomplished by keeping the glass entirely at all points free of the metal. It is completely insulated from it, and yet firmly enough bound to it to prevent the glass being moved or blown out by stress of weather. All this is accomplished by the simplest and cheapest means. Nothing but level-topped T shaped sash bars (or rather ribs, for there are no lights), are used.

For ordinary-sized houses this bar is made of three-quarter iron, 1 inch wide, and 1½ inch deep. Of course the size of the bar would be determined by the width of the house. The above size is merely named to give definiteness to the facts. The mode of glazing would be identically the same whether the roof bars were large or small. Along the centre of these bars small screw-holes are drilled, ¾ inch deep, at intervals of 30 inches. The roof bars are placed 20 inches apart. Small studs or tiny bolts, 1½ inch long, with a thread at each end, are then turned three-quarters of an inch into the holes in the bars. A strip of asphalte felt, the same width as the rafter, is run along the sash bar, and holes pierced through for the studs, so that the felt lays flat on the iron. On the top of this felt the glass is placed, then another strip of felt over the glass, next a three-quarter inch covering bar is placed on the felt, and the whole is finished by a small hexagon capped nut being screwed firmly on to the other end of the stud that projects through the covering bar. This completes the glazing, and keeps asphalte, glass, and top bar firmly fixed to the main rafter or roof-bar beneath.

The squares of glass are 30 inches by 20, and as the studs are placed so that each grasps the corners of four squares, this gives an average of one stud to every 25 inches square, or one to a pane. The glass must weigh 26 to 28 oz. to the foot to support this size; and care must be taken not to allow the two squares of glass to meet as they lie side by side on the top of the roof-bar. A space of from ⅛ to ¼ of an inch should always be left, and at no point should the glass touch the glass, or impinge upon the metal bar or bolt that binds all together. The reason of this precaution is this—when the metal moves in obedience to its change of temperature it is needful that the glass should have the power of moving with it, and at all points it must be shielded from friction against itself or the iron, either by a vacant space, or the intervention of the elastic felt. Thus breakage by friction pressure or concussion, becomes impossible.

Although this mode of glazing is quite compatible with the use of laps, it is easier managed and better without them. It has been demonstrated again and again, and these houses convincingly confirm all previous experience, that laps are not needed to keep out the water. And yet, singularly enough, the only objection made to this mode of glazing at the International Exhibition at Edinburgh, where a specimen of it was exhibited, among the hundreds of gardeners who visited that grand display, was "that the rain must come in." The fact does not seem to be generally known, that where two straight edges of glass meet in a straight line, the water is sure to pass safely over the point of union, unless the roof is flatter than is ever the case in horticultural buildings. It is however, certain that these houses are singularly free from drip, some of them have now been erected for two years, and neither during snow, heavy rains, or, worse than both, sudden thaws after severe frost, do they exhibit the evils of drip. The reasons for this comparative exemption are obvious enough. On good roofs of any kind the external water may easily be kept out. It is the water extracted from the warm air of the house itself as it presses against the cold

surface of the glass, that originates drip. The colder the glass and the warmer the air the more drip there will be, and *vice versâ*. While the glass remains cold the water continues suspended on it, but no sooner is the glass warmed than down comes the water. On lap-glazed roofs the difference of level precipitates the water in rows of drip, running parallel with the ends of the panes of glass. In Mr. Beard's houses no external water can get through; the glass is thicker, consequently warmer than that of ordinary houses, therefore there is less drip formed; and, lastly, what is formed runs down the level internal surface of the glass, and finds its exit into the roof plate, which also forms the water-gutter of these houses.

This mode of glazing meets and destroys another objection urged against metallic roofs, that of being so much colder than wood. It is well known that all metals are extremely active conductors of caloric. They heat and cool rapidly. They favour extremes, not regularity of temperature. But by placing two thicknesses of asphalte felt and one of glass between the main rafter and covering bar, these are completely insulated the one from the other, and neither heat nor cold can pass through by direct conduction or radiation. Hence I believe these bars are about as good non-conductors, as wood of similar scantling.

This mode of fixing the glass to the iron also affords rare facilities for double glazing, which is now being adopted for Orchid culture, &c., and as a means of economising fuel and securing a more agreeable temperature. The T shaped bar has only to receive a bottom end, thus I, and the glass, asphalte, and covering bar can be applied as on the top, and a stratum of air the depth of the rafter thus secured. Either bottom or top glass could be readily removed or cleaned at pleasure. I know of no rafter or mode of glazing so admirably adapted for the application of this wise and philosophical plan of economising heat by the aid of the air itself, as this.

The ventilation of these houses is singularly perfect. The air sweeps in at the surface of the earth, and escapes at the highest point of the house. The mechanical means for its admission are under easy and complete control. As the glass rises from the surface of the ground, the whole area of the houses is flooded with light, and permeated by air. The ductility of metals and the improved methods of bending glass enable the maker to offer these houses of every shape and pattern. They are equally suitable for sheltering a regal collection of tropical flowers and fruit, a peach wall, or a poor man's window plants. Their cultural merits will be obvious at a glance to your practical readers, and they combine in a high degree the great merits of completeness, portability, cheapness, durability, strength, elegance, and efficiency. *D. T. Fish, gr. to Lady Cullum, Hardwicke House, Bury St. Edmund's, Suffolk.*

NOTES ON BEDDING PLANTS.

In bedding-out, as in other things, we keep moving on, and though it may sometimes be difficult to find new plants worthy of popular adoption, yet so many are the resources of our nurserymen, and so wide the run of botanical travellers, that there are usually a few candidates for popular favour in the field. Having had pretty good opportunities of observing these, I will endeavour to indicate their merits as far as my judgment goes.

The dwarf form of Centaurea ragusina called compacta would appear to be a "decided acquisition," inasmuch as it does not grow more than half the size of the common form, and is therefore suited for edgings and smaller compositions than those for which ragusina is fitted. It must be planted more closely than the original.

Iresine Herbstii, or Achyranthes Verschaffeltii, would appear to be a perfect failure generally, and unworthy of the large sale it has had. At Battersea it looks a miserable object, and, indeed, that is its usual character, though with Mr. Eyles its character is redeemed to some extent. It is, indeed, so good with him, that had we not the Coleus and Amaranthus we might think it a useful plant; but at its best it is inferior to either of these, and not sufficiently distinct in aspect to warrant its further cultivation. About London it has improved much with the late fine weather, even in places where it looked sickly at the end of August.

Mr. Gibson is certainly justified in considering Coleus Verschaffeltii the best plant in its way, as with him it displays an extraordinary beauty of colour, but then it is in the sub-tropical, where things are warmed and well looked after. In other gardens, though a valuable and indispensable subject, it does not attain that bright and vivid tint which it does at Battersea. Amaranthus melancholicus ruber seems at home on cold or light soils, displays great beauty of colour even on the London clay, and appears to me to be the most generally useful of the lot, as in some places and on cold soils the Coleus remains in sickly green and yellow and starved condition throughout the season. It does well at Chatsworth, where Coleus is useless.

Santolina incana is probably not yet in general cultivation, but it promises soon to be an indispensable tenant of gardens. I have seen many plants of it, and though they are being propagated from now at a high-pressure rate, yet it promises to be at once distinct and useful. With all the neatness of leafage of the Lavender Cotton it is much more tomentose, and has a dwarf recumbent habit, which will cause it to be a useful edging plant.

Would not young and clean-grown plants of Santolina Chamæcyparissus furnish the sort of tall silvery edgings for which Antennaria margaritacea was recommended a few years ago? The Lavender Cotton, too, has the advantage of hardiness and is evergreen—or rather ever silvery. I am confident it might be used with great success as a "winter gardening" subject.

The Tropæolums are certainly establishing their claims as first-rate plants for summer decoration. Among the best are Tropæolum coccineum compactum, which, without stopping or pegging of any kind, forms dense compact lines well covered with brilliant scarlet flowers. It has the advantage, too, of not getting knocked out of bloom or beauty by such heavy rains as we sometimes have. T. compactum luteum is also low and neat in habit, with orange-yellow spotted flowers, and is probably the best of its class. Tropæolum Eclipse appears to be the best of the climbing or running sorts, suited for trailing over the edges of vases, &c. This breed of Tropæolums possesses a decided advantage over such as are raised from seed, fine as some of these are, inasmuch as you are always sure of perpetuating the right thing from cuttings. The first-named kind seems to be as good as any other plant used to produce a mass of scarlet.

Among the novelties and striking combinations at Battersea, none is more beautiful than a bed of Vitis heterophylla variegata. I have grown the plant for several years, and know that it may be depended on as a beautiful variegated subject. It has remained in the bed at Battersea during the past winter. That bed is now covered with its slender shoots, which form an "airy" but not straggling mass, every leaf being thickly dappled over with pink and white spots, furnishing an indescribably pretty effect. Many variegated plants "get green" as they get old in leafage; with this Vitis it is the reverse, as the later formed leaves are the most prettily marked, and the effect of a mass of it is more attractive at the end than the beginning of the summer.

The neat dwarf and hoary Veronica incana is capable of doing a good deal as a dwarf edging plant. It has also some advantage in being hardy.

Those who have to pay most attention to autumnal decoration—whose employers only frequent their gardens in autumn—would do well to use the new white Anemone Honorine Jobert, and to mix with it the old Anemone japonica. Among low or trailing shrubs they look and do well, and on rockwork charmingly, as about the houses at Chatsworth.

Euonymus radicans variegata, well pegged down, forms a dwarf, distinct, and pretty silvery edging, of a glistening tint too, which is sometimes desirable, though not common, among variegated edging plants. By this glistening character, and by having a brightish yet low margin, Arabis alpina variegata differs from A. albida variegata, than which it is a more effective and useful edging plant.

Bouvardia angustifolia (Van Houtte's variety) is a free-blooming kind, yielding fine heads of scarlet flowers. It, as well as other Bouvardias, should be put out in the form of established plants. Very young ones do not flower satisfactorily.

Of silvery-margined Pelargoniums Silver Chain would seem to be the best for the bedder, from its round and swelling but neat habit, and bright markings. Old specimens of it for high lines or centres look particularly pleasing.

Of the "Cloth of Gold section," Mrs. Maxwell Hutton has a free yet neat habit, and is perhaps the best. There are some charming things coming out in the Mrs. Pollock way, but as yet they are too rare to be talked of. By the way the most beautiful masses of Mrs. Pollock about London are not grown as recommended at page 699, by having "gravel or brick-rubbish at the bottom to bring the variegation well out," but by the contrary process of making the bed the richest in the garden. Mrs. Benyon is almost as fine and brilliant in flower as some of the standard green-leaved kinds.

Of Bouquet or Lilliputian Dahlias one called German Daisy is a great acquisition. It is very dwarf, growing only about 18 inches high, and the flowers are also exceedingly compact and pretty. It is rather changeable in colour, shading off from lilac to violet crimson now and then, but always pleasing, and likely to be most useful for cutting from.

The finely variegated Arundo Donax grows very dwarf indeed compared to the green form, and for this reason a good plant of it, with its waving and beautifully marked leaves, would I think form a pretty and graceful centre for a 6-foot bed. It would be necessary to select plants with half a dozen young shoots or thereabouts. They would not get higher than 20 ins. or 2 feet during the season, about London at all events; and should be protected in winter with an old mat or something of the sort.

The variegated variety of Vinca major, called elegantissima, retains its markings regularly, and pegged down neatly it makes a good yellowish edging, shining, and of course hardy.

Achillea ægyptiaca is worthy of a trial as a bedding plant, particularly in rich ground; it has leaves somewhat like those of a whitened Nothochlæna, furnishes a continuous bloom of clear yellow flowers, and usually grows about 18 inches high. The faded corymbs of flowers must be cut off. A. aurea is also worth trying in this way, but it is hardy, and if allowed to remain in the ground during the winter the second year's bloom is of much shorter duration than the first. To succeed with it as a bedding subject, it should be planted out with the Pelargoniums, &c.

Salvia argentea is unquestionably the finest large-leaved silvery plant we have, and now more than ever useful for association with the green and handsome habited plants which are beginning to tastefully vary the masses of gay flowers. It may be seen at Battersea by anybody, not much more than half the size it usually grows, perhaps from being on a raised brick bed. It grows freely in ordinary garden soil, but of course like most other things likes it rich and deep, but the heaviest rain, coldest soil, or fullest exposure do not affect it in the least, though some at first sight say—judging by its woolly aspect—that it must be spoiled by rain. If planted round large-leaved things, they should not be allowed to overshade it. Mr. Gibson uses as a large green edging Euphorbia Cyparissias, an herbaceous plant which forms a very neat green bush; round it, for instance, an edging of this Salvia would tell well.

The fine Sempervivum californicum, with its handsomely tipped leaves, is perhaps entitled to take precedence among dwarf edging plants; it is neat and clean in growth, and moreover quite hardy, and as presentable at Christmas as at midsummer. No pegging down, no getting green, no annual propagation required with it. But as it has been a neglected plant, of course it cannot immediately be had in sufficient quantity to make edgings of, and those who have the plant at present would do well to divide and increase it as much as possible.

These notes chiefly refer to bedding plants as seen in the neighbourhood of London—the centre of gardening as of thought. However, I am going to have a run towards the circumference of the circle, and if I see "anything good" and new not mentioned here, I will report on it. *W. Robinson.*

THE CORSICAN PINE—PINUS CORSICA.

[The annexed paper, which we have somewhat condensed, has been sent us by the author, as a sample of the new work, Pinacea, referred to at p. 774].

THIS most valuable timber tree is indigenous to Greece and Spain—nay, it is found more or less plentiful all over Eastern and Southern Europe. If introduced into, it was but little known in this country until the beginning of the present century, and even then only as a rare or new Pine: for it is only during the last 20 years that its intrinsic merits as a first-class timber tree, in every respect well adapted for profitable planting in this country, have been appreciated; and even at the present time it is sadly neglected by practical planters. For quality, quantity, general utility, and early maturity it may have equals, but no superiors, amongst the true Pines.

It is perfectly hardy, and what is equally necessary constitutionally hardy; of very rapid growth, surpassing its congeners, and a rival to our constitutionally tender and now diseased Larch Fir; of large dimensions, attaining heights of from 80 to 130 feet, arriving at maturity in 60 to 80 years, but will produce timber fit for any purpose, even naval architecture, in about 30 to 40 years. It is not fastidious as to soil or situation, and excepting in spongy-marsh or soft peat, I know of no description of soils if in a healthy condition, and not surcharged with stagnant water, in which it would not grow, and produce wood (relative and comparative), of as good quality and equal quantity, and yield as quick and profitable a return as any timber tree extant. Its special and most valuable quality in my estimation is, that there are few if any other kinds of trees, either indigenous or exotic, which would so well remunerate for planting the many-thousand acres of waste and unprofitable poor barren lands, which are so common in this country—lands which, when we consider the genius, the skill in rural economy, and the wealth of Great Britain, and our enormous progress in trade and commerce, are disgraceful to us as a nation. I fearlessly assert that (with the exceptions of the two descriptions of soils already mentioned) of the many, yea, too many, thousands of acres of waste lands, there are not more than five per cent. which might not through the medium of practical knowledge and the necessary capital be turned to profitable account by being planted with this and such like trees.

Its wood when young or newly cut is creamy-white; when matured and seasoned brownish-yellow; very resinous, elastic, and tough; very durable, long-grained, and though a little coarse in texture, yet easily worked, and capable of receiving a tolerably good polish. As far as I have seen I am inclined to think it will not be very subject to the ravages of wood vermin. I know of no Fir nor Pine less subject to the ravages of insects, fungi, game, or vermin, which may be accounted for by the bitter aromatic flavour with which its juices are impregnated. It seems predisposed to inconstancy in its distinguishing characteristics, which may have been induced by its occupying so wide and dissimilar a range of native habitats, and which has led to much confusion in its introduction, cultivation, and nomenclature; for it is

to be found in catalogues and collections under many specific names, as well as in many varieties. Some of the forms indeed seem externally very distinct, but when grown under the same conditions, most of them more or less closely resemble the true species. Moreover, there are several quasi-species, *e. g.*, austriaca, calabrica, caramanica, contorta, Pallasiana, pygmæa, &c., which generally reproduce themselves from seed: but each and all of which are vastly inferior to the prototype "corsica" as a timber tree. There are also some seminal varieties which are more or less beautiful as ornamental trees, particularly the variegated-foliaged and the pendulous-branched forms. Most of these require to be increased or perpetuated by the (at least to Firs and Pines) reprehensible modes of propagation—grafting, inarching, layering or cuttings; but in such cases, when ornamental branches, not trees, are wanted, these arts are pardonable.

Whenever it is intended to plant this Pine for profit or good timber, great care is necessary in selecting the seed. It should be an invariable rule to secure it from the most elevated and exposed situations, and from the coldest climate of which the tree is a native, until we have it in sufficient quantities and of such an age as to enable us to obtain our supplies of seed from home-grown trees; for I hazard the opinion that when this Pine has become thoroughly acclimatised, and we can obtain our supplies of seed from such counties as Aberdeen, Argyll, or Perth in Scotland, if it does not surpass it will at least divide the honours with the native Scotch Pine, as the most economically valuable, and in every respect best adapted Pine for the profitable planting of the waste lands of Great Britain and Ireland. It is said that great care is necessary in its cultivation, inasmuch as it is what in common parlance is termed "a bad rooter;" consequently a bad transplanter. That it is a sparse or tap-rooting Pine when in a young state I frankly admit, but that it is a bad transplanter I most emphatically deny. I have of late years been cultivating many thousands of it for planting exposed forest land, and I have invariably made it a rule to transplant the seedling plants the first autumn or winter after their first summer's growth, and again every succeeding autumn or winter until removed from the nurseries to their forest quarters; and by such a course of procedure in the cultivation of this and similar-rooted Pines, and by transplanting every alternate season the more fibrous-rooted ones, the failures are *nil*; and mending-over or replanting a single plant in any enclosure or plantation after the first planting is an operation which we have consigned to the limbo of the past.

It may be concisely described in a few sentences, viz.: Leaves generally two in a sheath; seed-leaves generally six to eight in number, on young growths 4 to 6 inches long, on old trees 2 to 4; dark green, rather slender, more or less curved or twisted, particularly on the tips of the shoots, having comparatively short sheaths. Cones one two or more in a cluster, horizontally disposed; irregular in form—egg-shaped, conical, straight or curved, of a brownish yellow colour, 3 to 4 inches long, and 1 to 2 inches broad at base; the scales elliptic, more or less elevated, convex on the back, and of a creamy-brown colour. Buds ovate in form, resinous, hoary-like, rather long, and comparatively sharp-pointed. Bark darkish-gray, more or less furrowed and predisposed to peeling. Branches regular, well-disposed, in comparatively distant whorls, forming a lofty handsome free-and-easy looking ornamental pyramid.

A remarkable tree, inasmuch as it is a gross feeder, and a hard worker for its supplies of food. In thin hard soils its large serpent-like roots will be found thoroughly exposed, and creeping in every direction, far and wide; and amongst rocks and upon mountain declivities they will be found ascending or descending in search of the crevices wherein are deposited alluvium, or natural humus, their choicest food. *Senilis.*

Home Correspondence.

The International Exhibition of 1866.—I regret that I have never been rich enough to be able to give a donation in aid of the fund for carrying out this International Exhibition. Still I can give expression to my hearty good wishes for the success of so laudable an undertaking, and it is possible I may look in when I come to London. For all this, I am not insensible to the sorry figure that some of our smart gardeners will cut in the face of the foreigner. I recollect very well that when conducting the Prince Doria Pamphili's gardener to the noted English gardens to show him "our superior skill in horticulture," we were puzzled with such cases as that of Squire ——, who excelled in Orchids, and had some fine specimens of Abies and Picea growing among Potatos. The Prince's gardener remarked as we were returning, "Non beautiful Jardin," "Non beautiful Uxor," "Ubique Pomme de terre." The gardener's wife, not being handsome, did not attract his admiration, and the general aspect of a garden where the Potato was supreme did not raise his ideas of our horticulture. I mention this bit of practical experience to indicate that in any arrangements which are made for showing off our gardening we must not show small outlying places noted only for one article, where out of every ten departments nine are done badly, and an extravagant sum spent on the tenth. The name of such is legion, while really consistent places, where each department has a fair share of attention, are few and far between. It is the same with our nurseries; for example, the Camellia House at Messrs. —— is quite a show, having no equal anywhere; but when you have seen this, and a show house of plants in flower, the gems are exhausted, and the neglected state of other parts only gives rise to grief at the inconsistency of the whole. ——'s nursery is consistent, and is quite a marvel of wealth in every department of botany. Our Rose growers, too, err grievously in this way. Blinded with the gorgeous gaiety of their Roses, they neglect the commonest characteristic of neatness, and either mount the Rose on a gridiron of wire, or tie it broom-stick fashion to a crooked stake, out of all nature, and out of all art. *A. F. M.*

Humming Bird Moth.—We have yesterday and to-day had visiting our Geraniums, two at least (seen at same instant), I believe four, of these rare visitors, rare at least in these parts, as the gardeners had never seen them previously. What is its scientific name? *C. W. D., Surrey.* [This very interesting moth is called Macroglossa stellatarum. Mr. Knapp observes respecting it—"The vigilance and animation of this creature are surprising, and seem to equal those of its namesake, that splendid meteoric bird of the tropics, that 'winged thought' as some one has called it, though our plain and dusky insect can boast none of its glorious hues. Our little sphinx appears chiefly in the mornings and evenings of the day, avoiding the heat of the sun, possibly roused from its rest by the scent, that 'aromatic soul of flowers' which is principally exhaled at these periods."]

Planting Peat Land (see p. 869).—Will your correspondent, Mr. Carroll, be so good as to add to the information he has given by stating if he has had any experience of the growth of Berberis Aquifolium in bog, drained, and undrained, as a cover and food for game? All who know anything of the bogs of Ireland know that the real difficulty in dealing with them is to ascertain the point where outlay in improvement ceased to bear profit, and to treat them so as not to pass that point. Planting bog land carries with it three objects of profit, namely, the gradually increasing value of growing wood, the shelter afforded by plantations, and the cover they form and the food they give to winged game. If in addition to these objects the dreary plains are changed into picturesque scenes, which many of the bogs are capable of becoming from their undulating character, it is hardly possible to overrate the advantages of planting. The question therefore is, what trees and what shrubs will grow best in bog partially drained or not drained at all, for it seems to be pretty well understood and generally admitted, that to thoroughly drain the mountain bogs of Ireland is a losing game. It is this experience and prevailing opinion that stops the improvement of many bogs and fens and mosses in Wales and the western parts of England, but a new view of the matter would spring up if we could be assured that with partial drainage we could plant them with profit. There cannot be a doubt but that there are many places in Ireland where the Rhododendron would flourish, and the Fuchsia live through the winter without protection, and these plants would give good effect to the borders of lakes, where flowers and foliage are in the proper place. Every day is advancing the value of ornament in landed property; but it must be in the proper place, and who shall say planting is not in "the proper place" when carried out in the bogs of Ireland, seeing that when Nature had her own way, many of those bogs, which now present the bleakest aspect, were covered with trees which for size and character would ennoble many a modern park? *A Fen-man.*

Fruiting of Standard Peaches and Nectarine Trees.—Some of your readers may remember that last year I gave an account of a Standard Nectarine that had produced fruit out in the open air, perfectly free from walls or trellis of any kind. This same tree has this year exceeded itself, for it has been literally laden with fruit. It has ripened more than twelve dozen of Nectarines, and some of a flavour beyond what the same kind usually attains, either in pots or on a wall. I have Peaches also; but that is to me no novelty, for I have frequently had them under similar circumstances during the last five years, but Nectarines never till the last two seasons. The variety of the Nectarine is the well-known Newington, and those that began to shrivel before they were eaten were perfection in point of flavour. We often plant Almonds as ornamental trees. The character of this Nectarine as an ornamental tree surpasses in beauty the Almond in all but blossom, for the habit of the branches is far more elegant, and the arrangement and colour of the leaves far exceed those of the Almond. Why should we not introduce occasionally on our lawns Peaches and Nectarines, as we do Mulberries? *William Masters, Exotic Nursery, Canterbury.*

Morus nigra.—Will any of your correspondents favour me with some advice under the following circumstances? On the lawn stands a fine healthy Mulberry tree, a standard 4 feet 6 inches in circumference and 18 feet in height, yet it is still unfruitful. Can any mode be adopted to induce this tree to bear? It is situated about 400 yards from the sea, and is sheltered by large trees and shrubs. *J. Goode, The Gardens, Glenarm Castle, North Ireland.*

Chestnut flowering.—There is now within a few yards of the Chester Road, in the broad walk avenue, Regent's Park, a Chestnut tree in flower and young leaf. This tree is in the habit of appearing in full leaf a week or two before any of the other trees, and the old leaves are now (Sept. 15) clean gone off before the others are half stripped. It is but partially in flower and leaf, but buds are opening; and if the present remarkably warm and fine weather continues for a week or so more, it will doubtless soon have somewhat of its May aspect. *R.*

Lilium auratum.—Since the publication of my note on the Lilium auratum, which flowered so finely here three weeks ago, I have had many inquiries respecting its treatment; and as they are far too numerous for me to answer separately, you will oblige me by publishing the following:—I believe the secret of my success to have been the paying great attention to the plant as regards water, and giving a moderate greenhouse temperature after flowering, thereby securing a very gradual decay of the leaves and stem, which is of much natural advantage to the bulbs. As soon as all signs of life had departed from the stem I kept the bulb in the coolest part of the greenhouse, being careful at the same time not to allow the soil to become too dry, which may be guarded against by standing the pot on a damp bottom, so as to keep the roots slightly in action. It is one of the greatest mistakes possible to allow these bulbs to be entirely dried off during the winter. As regards soil, I use good fibry loam and peat in equal parts, with a good proportion of sand and leaf mould, after which I add cow or sheep dung dried and beaten up small, in proportion of 1 ounce to every 2 lbs. of the whole of the other soil. I never give manure water until the pot is filled with roots and the buds formed, and this is gradually withheld as the flowers expand. *Robert Bullen, Gardener, Bow Bridge, Leicester.*

Ouvirandra fenestralis.—Your correspondent Mr. Brown, of Tooting, has given us an interesting article (see p. 293) on the cultivation of this plant, in which he lays it down as an absolute rule that the water in which it is grown should possess an average heat of 84°, not lower than 80°, he says, but the nearer 84° the better, in order to insure success. He would also seem to direct, or at least leave us to infer, that no season of rest is necessary for its wellbeing. It would be interesting to know how long the plant mentioned by Mr. Brown as having been grown in accordance with the directions referred to, and so successfully, continued to succeed, and whether or not its constitution did not give way under such an exciting method of treatment. It is probable that all who may be desirous of growing this most interesting plant may not be able to command the heat recommended by Mr. Brown, and indeed so high a temperature is by no means essential; in fact it is questionable whether such treatment, if persisted in, would not have the same effect upon it, as it has been found to have on numbers of cool Orchids, introduced and kept in a warm close atmosphere quite at variance with the conditions under which they grow naturally. The Lattice plant has been cultivated at this place for a number of years with a fair amount of success; and it has been found invariably to succeed best with the water from 66° to 70°. During the greater part of the year from 67° to 68° would be the average. Of course in the hot summer months the heat would rise considerably higher, though not permanently so. When a greater heat has been maintained the plants have always exhibited unmistakeable signs of dislike to it. The tanks in which it is grown have an average depth of water of about 10 inches; the surface of the soil being covered with clean white gravel, or better still, small white square tiles which more clearly show off to advantage the delicate form of the leaves than any gravel. The soil used consists of one-third turfy loam, one-third turfy peat, and one-third rough gravel, with a sprinkling of silver sand. The gravel is very essential, as the plants are always found to root more freely when a good quantity of it is incorporated with the compost. The water used is the purest rain-water we can get, as free from insects as possible. Water from stagnant pools likely to contain Confervæ is to be avoided. The principal plant of the Ouvirandra (all the others having been frequently divided for purposes of propagation) grown according to the method just mentioned, had on it at one time last summer 230 sound leaves. Single leaves have several times measured 24 inches long, and the leafy portion from 12 to 13 inches by 4½ inches in breadth. After the winter's rest most of the older leaves perish, but the rest appears to give increased vigour to the plant for the summer's growth. *J. Dangstein, Petersfield.*

Societies.

Royal Horticultural: *Sept.* 19 (*Floral Committee*).—Mr. Turner, Royal Nursery, Slough, contributed on this occasion several beautiful stands of Dahlias, among which, a yellow seedling named Bullion, had a Second-class Certificate. A similar award was also conferred on a very dark-coloured bedding seedling Dahlia named Sambo, from Mr. Rawlings. From Mr. Legge, Edmonton, came Dahlias Golden Empire and Lilac Perfection, to both of which Second-class Certificates were awarded. Mr. Earley, gr. to A. Pryor, Esq., of Digswell, received a First-class Certificate for a handsome deep green-coloured variety of Polystichum angulare, the fronds of which are large and graceful, and furnished

with closely-set serrated pinnæ. Litobrochia tripartita, from Mr. Shortt, was Commended; and to a charming form of Lomaria, called Bellii, from the same exhibitor, a First-class Certificate was awarded. To Mr. Howard, gr. to J. Brande, Esq., Balham, was awarded a Special Certificate for two plants of the orange-blotched, large white-flowered Dendrobium formosum giganteum; and a similar award was made to Mr. Wm. Paul for a fine collection of cut Roses, consisting chiefly of Teas and favourite varieties of Hybrid Perpetuals.

Mr. Eckford, Coleshill, sent examples of Dahlia Lady Mary Wilde, and one or two cut Verbenas. Dahlia Fanny Sturt, a Fancy kind in the way of Lady Paxton, was again shown in good condition by Mr. Pope, of Chelsea. Mr. Wills, gr. to Sir P. G. Egerton, Bart., exhibited a beautiful spike of an unnamed Oncidium, and a pale lilac-blossomed Cattleya. From Mr. Howard came Iunopsis paniculata, with a fine spike of blush white flowers. Melia japonica, in the shape of a little standard, with a fine head of handsome foliage, was contributed by Messrs. Lee; and Cedronella cana, with numerous upright-growing spikes of purplish red Galeoquia-like flowers, came from Mr. Thompson, of Ipswich.

Sept. 19. (*Fruit Committee.*)—Prizes were offered at this meeting for Peaches and Nectarines grown under glass and on open walls, and one or two lots from both situations were exhibited; those from walls being greatly superior to those from under glass. Mr. Whiting, of the Deepdene, near Dorking, received a 1st prize for excellent Walburton Admirable Peaches; and a 2d prize was given to Mr. Turner, of Slough, for very good fruit of the same variety. The 1st prize for Nectarines was carried off by Mr. Turner with the Stanwick, which was large and well coloured. Walburton Admirable Peaches and very small Violet Hâtive Nectarines were shown by Mr. Westcott, of Dulwich to whom a 1st prize was awarded for the Peaches. Mr. Rivers also had a 1st prize for a large fine-looking seedling Peach. Mr. Whiting received a 1st prize for Reine Claude de Bavay Plums; and we noticed a 2d prize attached to a dish of Autumn Gage, but could not learn from whom it came. Mr. Smythe, gr. to Lord Sondes, sent 20 varieties of Pears, and as many kinds of Apples. Cox's Pomona, a handsome high-coloured Apple, came from Mr. Whiting. Belle Agathe, or Autumn Bigarreau, a useful late sort of Cherry, came from Mr. Rivers, who also contributed handsome specimens of Old Golden Pippin Apple, gathered from a tree, in a pot grown in an orchard house. The same exhibitor also sent a dish of Belle de Septembre, or Autumn Beauty Plum, a red coloured late kind, suitable for culinary purposes. A small red seedling Plum came from Mr. Jonathan Clarke, and Mr. Whiting had deliciously flavoured fruit of the Ickworth Impératrice Plum. Mr. Kinghorn had a red Apple resembling Bess Pool. From Mr. Wm. Paul came a collection of Apples; Gloria Mundi Apple, a well-known very large kind, came from Mr. Salter; and fine looking specimens of Cox's Orange Pippin Apple were furnished by Mr. Turner. From Mr. Wilson, Gishurst Cottage, Weybridge, came large and fine examples of Maréchal de la Cour Pear, which it was stated had been set in an orchard house, and afterwards turned out of doors to grow and ripen, the pots in which the trees were growing being plunged in the ground. Other fruit consisted of Coe's Golden Drop and other Plums, two Melons, a dish of Raspberries, and preserved Apricots. The last, which were very good, came from Mr. Wills, gr., Oulton Park.

Brighton Horticultural: *Sept.* 13 and 14.—Fruit was particularly fine on this occasion, and there was also a good display both of plants and cut flowers. A highly interesting group of plants was contributed by Mr. Wilson Saunders, who furnished among others Salvadora persica, the Mustard tree of Scripture; Anthurium magnificum; a new Dieffenbachia, and a Billbergia also new, both from Santa Martha.

In the entrance hall was a large and effective floral design, representing the north gate entrance to the Pavilion grounds, by Mr. J. Dawes, gr. to H. Pegg, Esq. Exotic Ferns were placed on the west side of the banqueting room. Those exhibited by Mr. S. Hudson, gr. to F. Barchard, Esq., Horsted Place, were exceedingly fine, as were also those shown by Mr. T. Gilbert, gr. to E. L. M'Murdo, Esq., Hastings; Mr. Thompson, gr. to G. Hawkins, Esq., Brighton; and Mr. Wm. Holman, gr. to the Earl of Chichester, Stanmer. There were several groups of variegated-leaved plants, which formed an attractive feature of the Show. Mr. S. Hudson had excellent cut flowers, as had also Mr. G. Young, Leigh Park; Mr. T. Larkin, gr. to Viscount Gage; and Mr. G. Cameron, gr. to the Duke of Richmond.

Orchids were exhibited in the drawing room next the banqueting room. Those contributed by Mr. H. Chilman, gr. to Mrs. Smith, Epsom, were exceedingly beautiful. Mr. G. Cameron, gr. to the Duke of Richmond, also showed some lovely specimens of Orchids. Ericas were very fine, particularly those exhibited by Mr. Gilbert, of Hastings, Mr. Rhodes, Sydenham, and Mr. Young, gr. to W. H. Stone, Esq. Dahlias were unusually attractive. Mr. Keynes carried off the 1st prize both for show and fancy varieties, with magnificent blooms. Verbenas were good, but owing to the dry season the trusses were generally small. Some pretty varieties of Pansies were shown by Mr. T. J. Jenner, for which an extra prize was awarded. Asters were highly attractive, both French and quilled German varieties. Both spikes and cut flowers of Hollyhocks were exceedingly fine and much admired.

Achimenes exhibited by Mr. Lambert, gr. to the Rev. H. Smith, were well grown specimens, and Gloxinias were likewise generally good. Bridal bouquets were exquisite specimens of art, and all of them received First-class Certificates.

Among variegated plants, to which allusion has already been made, those shown by Mr. Hudson, gr. to F. Barchard, Esq., Horsted, deserve especial notice. His Crotons were particularly well coloured, and Caladium Belleymei was also exceedingly beautiful, as was likewise a variegated Pine Apple (Ananassa sativa variegata). In the collection shown by Mr. Young, gr. to W. H. Stone, Esq., some varieties were equally beautiful. Mr. Young also exhibited a bloom of Victoria regia.

Amongst the collections of eight dishes of fruit, all of which were excellent, particularly that shown by Mr. Cameron, Goodwood, was a new feature, viz. a collection of eight dishes exhibited by fruiterers only. Messrs. Balchin & Nell exhibited in this class a beautiful Queen Pine-apple, black Hamburgh and white Muscat Grapes, Duchess d'Angoulême Pears, Golden Drop Plums, Golden Perfection Melon, Ribston Pippin Apples, and the Chancellor Peach.

Of Fruit in the first division Open to all England there was a large exhibition. Grapes, both Black and White, were particularly good. The Black Grapes exhibited by Messrs. H. Baker & Son, Worthing, were universally admired; those shown by Mr. Bushby, Worthing, were also excellent.

Fruit grown in the county of Sussex was on the centre table in the banqueting room, and extraordinary it was both in regard to quantity and quality. The black Hamburgh Grapes were exceedingly fine, both those shown in three bunches and in boxes of 12 lbs; the berries were large and well coloured. White Grapes were also good. Peaches were excellent, as were also Plums, Pears, Apples (both culinary and dessert) Morello Cherries, Figs, and Red Currants. White Currants were likewise very large.

In a large booth, opposite the Pavilion, were placed stove and greenhouse plants of large growth. Mr. G. Parsons, Western Road, exhibited beautiful plants of Stephanotis floribunda, and an Allamanda.

Behind the stove and greenhouse plants, were the Roses. In 48 varieties in bunches of three trusses, Messrs. Paul & Son and Mr. James Mitchell were the contending parties. In both collections there were exquisite and lovely varieties of most of the leading and best Roses. In Messrs. Paul's collection, which obtained the 1st prize, was Maréchal Niel, which is a perfect yellow gem.

Gladioli, shown by Mr. Sladden, Ash, Sandwich, and Messrs. Downie Laird & Laing were exceedingly beautiful and much admired.

Among Miscellaneous subjects were pot Vines beautifully fruited from Messrs. Lane & Son, Great Berkhamstead; also a device for a flower-garden by Mr. G. Godley, 15 Park Street, Brighton. Messrs. Ivery & Son, Dorking, exhibited a large collection of British Ferns. Lantanas were furnished by Mr. Wm. Penfold. Mr. A. Smith, Dulwich, showed zonal Pelargoniums, to three of which, named Glow, Rosy Circle, and Premier, first-class certificates were awarded.

Mr. Spary, Queen's Graperies, Brighton, exhibited, not for competition, some very large heads of the Mammoth Sunflower, several of which measured quite 38 inches in circumference.

Several seedling Dahlias, some of good properties, were shown. Among them Lotty Atkins, John Downing, Chung, President Lincoln, Helen Potter, Golden Empire, Freemason, and Fair Imogen received First-class Certificates, and similar distinctions of a second class were awarded to Lady of the Lake and Lilac Perfection.

The weather on both days was exceedingly fine, and the show was both large and good. On the 13th 2976 visitors were admitted, exclusive of exhibitors and officials, and on the second, or shilling day, 3508 shillings were taken for admittance.

Notices of Books.

Report of the Colonial Botanist for the year 1864. Cape Town, 1865. Pp. 150.

Dr. Brown, the Colonial Botanist at the Cape of Good Hope, has in his annual report for 1864, printed a series of letters written by himself to various persons on matters relating to the welfare of the colony. As many of the subjects treated are of the highest importance, we hope that Dr. Brown will circulate an abstract of his researches, for we fancy few of the class for whom this report is specially intended, will wade through this rather formidable-looking blue book, teeming though it does with practical suggestions and interesting information.

Want of moisture in the atmosphere and the lack of an available supply of water for purposes of irrigation, seem to constitute the great defects of South Africa in a cultural point of view. And these requirements our author proposes to supply by putting a stop to that wholesale destruction of bush and herbage, which the colonists term "burning the veldt;" by the extensive planting of trees, and by the formation of large reservoirs of water, in order to facilitate irrigation, or at least produce an evaporation of moist vapour. These things being done, drainage effected, and manure applied, the difficulty will be, not to raise crops, but to get the crops conveyed to a profitable market for consumption and exportation. It is evident, from what has been said, that Dr. Brown looks forward to the time when it will be more remunerative to adopt the agricultural than to continue the pastoral life which is now chiefly followed.

The burning of the veldt is condemned, not only on the ground of its increasing the aridity of the climate, but from the possible and not unfrequent destruction of whatever crops, plantations, or houses there may be in the vicinity, the losses so entailed being far from compensated by any of the advantages alleged to follow the practice. For instance, it has been frequently observed that rain follows immediately after extensive conflagrations of this kind, but on the other hand, within a very short period it may also be found that the streamlets flowing from the place have been wholly or partially dried up.

Again, the defenders of the practice assert that the fire destroys the coarse herbage, and so allows the sweet Grass a chance of growing up, and even renders the coarse herbage itself eatable by animals, as while young, sheep will feed on it.

To this, Dr. Brown replies by stating that after veldt burning the land becomes infested with the Rhenoster bush (Elytropappus rhenocerotis), a noxious plant that spreads to such an extent and is so difficult to exterminate, that it leaves the land practically useless. While not disposed to deny that some advantages may accrue from burning the veldt, the Colonial Botanist considers that the same results might be obtained in a more economical way; on the principle that it is not necessary to burn a house down, in order to enjoy the luxury of roast pig. He shows that hundreds of thousands of young trees, belonging to one proprietor, have been destroyed by a neighbouring, but hardly neighbourly, farmer burning his veldt.

The more general cultivation of trees is urged, not only on the score of increased dampness of the atmosphere so caused, but also from the great want of timber in certain districts of the colony, where, we are told, that farmers have been occasionally forced to burn their waggons and wooden implements to keep body and soul together.

Sir John Herschel's example might advantageously be followed in such a case. It appears that Sir John was in the habit, when taking his walks, of providing himself with a walking-stick and a pocket full of seeds, and of dropping a seed here and there as he rambled about. Some plantations in the neighbourhood of Swellendam are said to have originated in this way.

As to water, there does not appear to be any real deficiency of that important element, so much as a difficulty of turning it to good account. Dr. Brown relates that he on one occasion crossed the Tarka river in a box suspended from a rope stretching from the trees on the opposite banks, while the river torrent was tearing along below, 22 feet deep, as ascertained by measurement, where, 48 hours before, the depth was only 16 inches; and on another occasion he was a witness of the devastation caused by the sudden rise of a river to a height of 70 feet above its usual level. Though in such cases as those just mentioned no ordinary dam would be of any use, in other situations water might be retained to a very large extent, and "even the river's speed might be bridled by arresting its waters ere they reach its bed."

Other portions of this report are devoted to the expediency of increasing the number of vegetable products in South Africa, or of rendering those already obtained more valuable. In the case of Aloes the great defect seems to be in the mode of preparation, and this applies with even more force, as we shall hereafter see, to the Cape wines.

It has been suggested, that the milk sap of the Euphorbia, so abundant in some parts of the Cape, might be turned to good account in the manufacture of vulcanite and of other substances into the composition of which caoutchouc enters in some form or other. With this view, some of the milk sap from these plants was sent to London for trial, but it was unfortunately found to be of little value, compared with India-rubber or gutta-percha. Different methods of preparation may possibly remedy the defects of Euphorbia sap, or render it useful in other ways than those just mentioned.

Referring to the improvement of Cape wines, the reporter remarks that there are upwards of one hundred varieties of the Vine in cultivation in the colony, those best suited for making wine being the Hannepot and the rough-skinned Steen Grape, which are the most productive with regard to fruit and wine; next to these are reckoned the Pontac, the Muscadel, and the Frontignan, which latter two are employed in the manufacture of the Constantia wines. A wine grower is reported to have said that "the Cape Grapes were the very best in the world." In seeking for the causes of the inferiority of the wine made from such Grapes, the author lays considerable stress on the necessity of keeping the must cool during the period of fermentation, a somewhat difficult thing to do in such a climate, but one which may be effected by placing the must in underground vaults, or

in double-walled houses with a stratum of air between the walls, or even by placing baskets of ice in the rooms where the wine is stored.

Drainage is another means suggested by Dr. Brown to avert the unpleasant *goût* of Cape wines, by insuring the due access of air to the rootlets of the Vine. Other offensive flavours are traced to the use of unfermented dung as a manure, in preference to which the German method of making use of the branches pruned from the Vines themselves, is recommended.

Pressure of the Grape by machinery must, to say the least, be preferable to the mode so generally adopted of "treading the Grapes by half-naked Africans, with perspiration of an offensive odour pouring from them in consequence of the excitement and exercise."

Many valuable suggestions are thrown out in this report as to the establishment of an experimental farm, the accounts of which should be kept with the same degree of accuracy that a merchant demands in carrying out his transactions, and without which no trustworthy evidence of the profit or loss attendant upon agricultural operations can be obtained.

In a letter to Professor Harvey, of Dublin, it is mentioned that Mr. James Chapman has brought from the interior a living specimen of the Welwitschia, together with photographs of the plant *in situ*, and similar repesentations of other interesting plants, such as the Baobab, the Elephant's Trunk, Adenium namaquanum, and many others. A photograph has also been obtained of a curious Cucurbitaceous plant called Naras, known in Europe by name from the mention made of it by Sir J. Alexander. Seeds of this have been sent to the Cape on different occasions, but they have not germinated, and so little is known with certainty of the plant that the description given by Mr. Chapman is a valuable addition to our scanty information. "The plant is generally found destitute of leaves, but presenting the appearance of one mass of prickles. He says that when the seed germinates the tap root descends, but drift sand accumulates among the sprouts of the young plant; these seem to rise above the sand, but only to await a larger accumulation; the struggle for the mastery is renewed, or rather is continued, till the plant is found covering a largish mound of sand, penetrated in all directions by rootlets at a level far above the tapering root, which seems to have been growing deeper and deeper. The flower is infundibuliform and short-lived; the fruit is all over the plant. It is generally spherical, about the size of a child's head, with a hardish skin, in thickness and firmness like that of a Gourd, and breaking into segments as if septicidal. The mesocarp is not adherent The seeds, which contain a large quantity of oleaginous matter, are stored for food, as is also the pulp, which is preserved thus: it is boiled in a pipkin or pan; a piece of matting is spread upon the clean sand; the boiled pulp is poured upon this, which acts as a sieve; after a time this is raised, when there is found underneath a thin cake of hardened jelly, which has somewhat the flavour of jelly prepared from Apricots; this is freed from adhering sand, which is easily done, and if not required for food at the time it is rolled together and stowed away for future use."

Some useful suggestions to missionary and other travellers for the collection and transport of objects of interest are given in this report, which terminates by a notice of the accommodation provided for the herbarium of the late Dr. Pappe, and a suggestion for the formation of an economic museum of South African vegetable products.

Die China rinden der Pharmakognostichen Sammlung zu Berlin, mit zehn tafeln, abbildungen von Dr. Otto Berg, Professor an der Universität zu Berlin. 4to, Berlin, 1865, tab. x. (*The Cinchona Barks of the Pharmacological Collection of Berlin, &c.* By Dr. Otto Berg.)

This treatise forms a valuable addition to the already copious literature of the Cinchona barks. It contains some preliminary remarks on the Materia Medica collections of the Berlin University in general, and on the Cinchona barks in particular. Some slight notice is given of the botanical history of the species of Cinchona, in connection with which we may observe that Dr. Berg adheres to the Linnean method of spelling the name of the genus. He moreover adopts Lambert's name, C. Condaminea, for the species which Linnæus, appropriately enough, called C. officinalis, and the re-establishment of which was most judiciously, as we think, suggested by Dr. Hooker in a recent volume of the Botanical Magazine. The greater portion, however, of the present work consists in an elaborate description of the microscopical characters of the barks of the various species and varieties of the true genus Cinchona, as well as of the barks of several plants belonging to nearly allied genera. The author has availed himself of the various collections within his reach, and of the microscopical preparations made by Phœbus of the barks of Delondre and Bouchardat. The various barks are arranged in subdivisions according to the arrangement and disposition of the bast cells in radiating lines or in scattered groups, the presence or absence of sap vessels, the thickness of the middle bark, &c. Twenty-eight well-drawn figures on 10 plates add greatly to the value of this important publication. When, however, we reflect what very different qualities pertain to the same species grown under different circumstances—how for instance the appearance, the colour, and density of timber depend on the soil and other conditions under which the tree grows, we must hesitate ere we place too much confidence in anatomical details such as those given us by Dr. Berg. We make these remarks by no means in disparagement of what has been done, but rather with a view of stimulating further research in so important and comparatively untrodden a field.

A very useful *Catalogue of Plants in the Royal Botanical Gardens, Calcutta*, by Dr. Anderson, compiled between April 1861, and September 1864, and recording the plants cultivated within these periods, has been issued, and Dr. Anderson promises a more scientific catalogue hereafter.—The *Geological Magazine* (vol. 2, No. 9) contains a somewhat lengthy paper on Cambrian Rocks, comprising an interesting account of the fossil Oldhamia; and Mr. Binney shows that the Polyporites Bowmanni of Hutton and Lindley's Fossil Flora, is in reality the scale of a fish.

CATALOGUES RECEIVED.—*Barr & Sugden's Illustrated Autumnal Floral Guide; Sutton's Bulb Catalogue, &c.; Butler & M'Culloch's Dutch and Cape Bulbs; Hooper's Bulb Catalogue* illustrated; *and R. P. Ker's Bulb Catalogue*, all contain very extensive lists of Bulbs, with descriptive and cultural remarks. The latter contains a treatise on the Hyacinth, and several illustrations. Briefer Bulb lists occur in *J. & C. Lee's Catalogue of Dutch Flower Roots, W. Hooper's List of Hyacinths, &c., R. Parker's Plant and Bulb Catalogue. Charlwood & Cummins's Flower Roots, and Dreghorn & Aitken's Catalogue of Dutch Bulbs and Roses.* Of Foreign Lists that of *E. H. Krelage & Son, Haarlem*, is very comprehensive; that of *Vilmorin-Andrieux et Cie., Paris*, select; and that of *C. Verdier fils, Paris*, mainly occupied by Gladioli.—*A. N. Baumann's Catalogue Général*, contains fruit trees, hardy trees and shrubs, and indoor plants—good collections of each.—*F. Gloede's List of Strawberries* has been already noticed at p. 868.—*W. H. Davis's Descriptive Catalogue of Roses.*

Florists' Flowers.

MANY of your readers have doubtless sailed from the quiet little harbour of Folkestone on their voyage to Boulogne, and after getting out a few hundred yards they have seen nimbly running one after the other pretty little waves called "white cups;" then has followed a peculiar nervous rising sensation of the stomach, so hard to bear with patience. Such is the sensation felt by a true lover of Roses when he reads the lists of NEW ROSES so liberally furnished by good-natured and enthusiastic correspondents of the gardening papers, who seem to me to require a heavy ballast of old Moss and Cabbage Roses to keep them from toppling over. No new crimson Rose issued in the springs of 1864 and 5 is worthy of a place by the side of such grand and distinct sorts as Charles Lefebvre, Senateur Vaisse, Alphonse Damaisin, Duc de Rohan, François Lacharme, Gloire de Santenay, Madame Boutin, Madame Julie Daran, Maurice Bernardin, Professor Koch, Souvenir de Comte Cavour, Souvenir de Lady Eardley, Turenne, and some few others of the same range of colour. Why, then, are we pestered with these hundreds of sorts, seedlings from General Jacqueminot, and but few of them so good as that glorious old Rose, and many of them dignified with the names of princes, princesses, and peers? I can explain the question; it is merely to take the money from our pockets and transfer it to those of the raisers. I repeat, that out of more than 200 *quasi* new sorts of crimson Roses introduced these last two years, not one is fit to be placed alongside of the first in my list, or even the second.

Then as to rose-coloured Roses, not a single variety can approach to Jules Margottin or John Hopper, which latter in the past season has been if possible more beautiful than our old friend Jules. Again, in pale flesh-coloured varieties, what "new Rose" has been worthy of being shown with Madame Vidot or Madame Rivers? As to white Roses, so little progress has been made, that not one can be compared to that old beautiful hybrid Bourbon, Acidalie. It is true that those clustered white Roses—hybrid varieties—such as Louise Darzens and others, are pretty enough but they have nothing of the general size and form of Acidalie.

To give your readers some idea of the number of new Roses annually issued by French rose-growers, I annex a list of those "mis en vente" last autumn, by the following raisers of seedlings; and besides these, there were 40 or 50 others from the small Rose growers in France:—

Damaisin	3	Levet	2
Ducher	4	Liabaud	3
Guillot Père	7	Oyer	3
Guillot Fils	3	Trouillard	5
Gautreau	1	Verdior, Charles	3
Gonod	3	Verdier, Eugene	12
Jamain	5		
Leveque	1	Total	55

The grower last named is most particularly liberal with his new Roses, and withal most remarkably shrewd, for he has practised quite a new manœuvre. He offered a bribe to those who would take all his seedlings, in the shape of a plant of that very good yellow Tea-scented Rose, Maréchal Niel, of which he possessed the stock. I should like to hear the opinions of those who were tempted to take M. Eugene's seedling Roses.

There is, I trust, comfort in store for the true Rose lover. The English will hesitate to buy these new creations of grand names and descriptions, and the charlatanism of our neighbours will cease. The present state of Rose culture reminds one of a time long past when Rose lovers were told to go to Messrs. Lee's of Hackney, to look at a collection of "20 [illegible] Roses." I went, and most undoubtedly they were there—in name. How well I remember the grand sounding names of hundreds of varieties of [illegible] gallica, various in name but not in nature! I could not understand why different names were given to sorts which seemed not to differ. I was so innocent as not to perceive that every sort had cost a certain number of francs, which had gone into the pockets of my intelligent neighbours. Poor John Bull. How [illegible] and liberal he has always been! Well, it is an amiable failing, and so let it pass. It is the Rose-loving poor John that is to be pitied. He reads a grand list of new Roses, and longs for them, and if he has not an extra stock of prudence he suffers himself to be beguiled into purchasing new Roses, and—repentance! The large masses of Hybrid Perpetual Roses now grown by our nurserymen remind me forcibly of Rosa gallica. Princes, princesses, dukes, and lords are there, but they seem all alike; and one is compelled to have a knowing guide to point out in what respect they differ, and even then it is a hard task.

I have been led into this tirade, as some of your readers may perhaps call it, by a severe feeling of disappointment, which I have experienced all the past season. Whenever I have been attracted by a Rose in some of my large groups, and have rushed to it thinking it would prove one of my new ones, I have found it one of my true old friends. Whenever I have been tempted to view more closely some Rose at our English Rose shows which seemed to look out from one of those odious parallelograms—called show-boxes—of Roses, I have always found it one of our well-known established favourites. Whenever I have visited the large Rose growers, and have been looking over their large masses of Roses, and have been caught by one or two more than usually attractive, I have found them as usual those kinds I have named, not old, but well-tried friends. I have to-day been forcibly reminded of the high excellence of one Rose. I was looking across my lawn, and in the distance I saw what I thought to be one of my new Roses, remarkable for its brilliancy. I hastened to it, and found it to be a single bloom of Charles Lefebvre, so brilliant, so large, so perfect in its shape as to defy all competition; and then I made a determination that, instead of having a box of 50 or 100 sorts, I would have groups of my special favourites.

There is something inexpressibly ridiculous in the nomenclature of new Roses. Our French Catholic allies have gone into our Protestant church, and have even given the names of Protestant clergymen to their Roses. We may expect soon to have a Rose named "The Right Rev. the Archbishop of York;" his grace will then receive a douceur of some new Roses, and a request that he will in his next charge "give them a lift." I confess that I feel some difficulty in always pronouncing the prefix "The Reverend," and so I have invented a method of elision: instead of calling my friend's attention to a Rose, under the name of the Reverend Stephen Stumps, I say "look at Stumps, the Reverend; good, isn't he?" And then if we really happen one day to have a rose named after our excellent and learned prelate, I am fearful I should say, when a fine bloom opened, "York is brilliant to-day," or, if I happened to be gathering a very fine bloom, I should probably mutter "York, you're wanted." I merely touch on these matters to show how soon we get from the sublime to the unsublime; and so I trust it will be a caution to the French Rose growers, and prevent their further intrusion into our church.

With respect to English secular names, not so plentifully given to new French Roses, they are now as they once were, an honour. Any English dowager giving an order to a French Rose raiser to the amount of 500 francs may have a Rose dedicated to him, and named after him: it is thus we have so many French Roses with English names attached to them. There is one comfort, they are rarely seen after the second or third year of their introduction. Some of these should-be English names are odd. James Veitch is "James Weitch." When we come to "Souvenirs and "Deuils," the combination with English is curious. I fear I thought mischief when I advised a French Rose grower to name one Rose Souvenir de John Bull, and another Deuil de Richard Roe. *Rosa Anglica.*

FLORISTS' FLOWERS IN IRELAND.—When I reported the Dublin show (p. 820) I knew who took the greater number of prizes. The word "successful" was used by me in its best sense—to state that Messrs. Dickson sent the finest examples of florists' flowers to Dublin that had been seen there for years—a fact which is patent to every frequenter of the Dublin shows. Mr. May and Mr. Baines have sent some of the finest grown stove and greenhouse plants to the Dublin shows within the past few years, but if their merits as cultivators were to be judged by the number of 1st prizes they had taken, it would appear low indeed

Messrs. Campbell live in Dublin, and compete at every show. Messrs. Dickson live more than 100 miles from Dublin, and only compete at the autumn show, when they invariably excel. I do not know either of the firms except by their contributions to the Dublin shows; but with most others who know anything of gardening, I cannot find it difficult to recognise extraordinary merit, and I am confident the stand of Gladioli, which won the largest prize offered at Dublin for any class, would, if shown in London, have obtained higher praise from the press than I awarded.

To show that Mr. Campbell is unfair respecting the proportion of prizes to florists' flowers, I have merely to quote a few lines from the schedule for this very show. The chief prize offered for a class of "exotic Ferns, 6, each different," is 15*s.*, while the same amount is offered for "6 Carnations" (single blooms, of course); and while 30*s.* is the prize for 12 Carnations, a splendid group of the finest varieties of Lilium lancifolium which won the 1st prize, and required a van to bring them to the show, got the munificent prize of 20*s.*—10*s.* less than that awarded to what could be carried under the arm, and grown on a couple of square yards of ground in the open air. The best prize for large Fuchsias is the same as that offered for 24 single Hollyhock blooms; and this, too, at an exhibition of which the greatest attraction was the pot plants. I do not say the Dublin florists get enough for their trouble: far from it; but I do say that the proportion observed is absurdly unfair, so much so that probably London exhibitors would think it a joke. There are good collections of Orchids in the neighbourhood of Dublin, but can any one wonder they were not represented, when the 1st prize for them is only larger by 10*s.* than that offered for a stand of Picotees? I am as fond of Picotees as of Orchids, or stove plants, perhaps more so; but none the less does it seem to me that this arrangement is similar to that of an agricultural society which would offer the same prize for the best thorough-bred bull or stallion, as for the leading donkey or Southdown.

Almost the same proportion obtains at the first annual show of the society, when florists' flowers form but a moiety of the attractions, and 8 Auriculas get a larger prize than the splendid and costly class of 6 Azaleas in pots. *R.*

The Apiary.

"It has occurred to me that many valuable lives may be saved by obtaining Cottagers' Doomed Bees, putting them into empty hives and feeding liberally.

"I have this summer become a bee-keeper, and, as a matter of course, an enthusiast in the pursuit. I have only two hives, and am desirous of increasing their number, but as our farmers and cottagers demand a very high price at this season for their stocks, on the ground of their being full of honey, I cannot afford the outlay. Some of these individuals tell me that they would rather sell me the hives than break them up for the contents, as they do not like destroying, or 'burning,' as they call it, the poor bees. I can very easily obtain the bees from several hives, provided I will take the trouble of getting them out, by smoke or otherwise. Could I not unite two or more of these lots of expelled bees into one hive, and feed extensively, thereby obtaining some good stocks at a small cost? Will you kindly tell me, whether it is practicable to adopt this plan, and if so, whether driving or fumigation is the best?

"What would be the probable cost of establishing a stock by these means?

"How many lots of expelled bees may be put together, and would it be necessary to destroy all but one of the queens?

"What quantity of food would each stock require to enable it to survive the winter?"

So writes "A Beginner." There is no doubt as to the feasibility of the plan of establishing colonies by feeding the bees expelled from hives taken up for their honey. But it is by no means to be recommended on the score of economy. The quantity of food which is required by these bees, for the purpose of filling their hives with combs, and laying up a sufficient store for the coming winter, is so very large, as to render this plan a very expensive one in comparison with any of the ordinary ways of obtaining good stocks. If "A Beginner" is possessed of, or can obtain at a small price, a hive partially filled with combs, he can try the experiment with every chance of success. Or if he can procure a few worker-combs and attach them to the bars of a frame-hive, it may answer tolerably well.

As a rule, it will be found by the cottagers more advantageous to dispose of their hives outright for the sum usually given for them by purchasers, than to break them up and appropriate the honey and wax. It is very seldom indeed that a hive will afford as much clean honey-comb, or clear run honey and wax, as will equal the price per stock usually asked and given, to say nothing of the trouble and time saved to the bee-keeper.

If you can procure a hive more or less filled with combs, you can make the experiment; whether the cost will exceed that of a purchased swarm or stock will depend on the amount of empty combs you can command. Expel the bees by driving, not by fumigation. Having provided yourself with suitable comb-knives, you will do well to make it a point to have the cutting out of the combs entrusted to your own real or imagined superior skill. You can then look out for any combs which contain brood, which being of no use to the cottage bee-keeper, you can probably obtain leave to cut away and appropriate to your own use. Wrap this up and keep it warm, until you can in any way most practicable fasten it in the hive intended for the reception of the bees.

Drive out into separate hives the bees from two or more stocks; knock them all out together on a cloth spread on the ground. Sprinkle, but without drenching, the bees with sugared water slightly flavoured with peppermint. The hive must then be gently placed over the apparently seething mass of insects, its edges resting on two sticks previously placed on the cloth. The bees will usually unite peaceably, and may be removed to their permanent stand the same night, or early the next morning. The hive should be accurately weighed. Feeding, at the rate of a pound or two of food per day, must be immediately resorted to. It will take from 40lb. to 60 lb. of boiled sugar food to bring up the weight of the hive to the proper state. The probable cost of establishing a colony in this wise would be about 1*l.* and upwards. This would greatly depend on the quantity of comb previously placed or contained in the hive, it being calculated that it requires 20 lbs. of honey to form one pound of waxen combs. You may unite the bees of two or more beaten-out hives. We have crowded as many as five into one hive, leaving the bees to settle the question of sovereignty. We supplied the hive with plenty of food, some of which was pure run honey. Of this last, 10 lbs. were given and taken down in one night and a day. If economy is your chief object, we should recommend your waiting until the spring. In March or April, when the perils and trials of the winter have passed, you can choose a strong healthy stock; you will probably be able to purchase it at a less cost than would be demanded for it now, and will not run so much risk of loss; and then by a small amount of judicious feeding you will promote early and extensive breeding and the issue of early and large swarms.

Bees and Fruit.—I also have to complain of the unusual attack on the fruit which my bees are carrying on this season. It may be remembered by some that I drew attention to the fact of my bees feasting on the Raspberries, early in August, and as to its having then continued for some little time. It is seldom that wasps are numerous at that date; we must, I think, look for some other cause than the scarcity of wasps. I do not think this can have much to do with it. The real fact is, that there has been little or no secretion of honey since the latter part of June, and the bees have been compelled to resort to unusual sources for the supply of food for their own wants and that of the brood. Owing to the remarkably fine and warm weather which has prevailed so long, breeding has been continued on a rather extensive scale; the bees have naturally a reluctance to break in on their sealed stores; and finding but little honey in the flowers, the source of their usual supply, they have resorted to other fountains; first Raspberries, then wallfruit, and now fallen Pears, have been with me the objects of their attraction. These signs seem to me to foretel a somewhat disastrous winter for bees. I would advise all apiarians to carefully examine or weigh their stocks during this month, and if found to be at all deficient in weight, supply them liberally with artificial food, giving as many pounds as each hive seems to require in as short a time as possible. If I may judge from the experience of former years, this is the only way to prevent an excessive mortality among bees. *Apiator.*

—— Bees have made sad havoc with my Peaches and Nectarines in this neighbourhood, and several gardens within a radius of four or five miles have also suffered from their depredations. *T. F. Baily, Hall Place, Tunbridge.*

Garden Memoranda.

Royal Gardens, Frogmore (*Concluded from p.* 871).—Let us now examine the Pear garden, about an acre in extent, on the east side, corresponding with a special Plum garden on the west. The walls of the different out-door compartments are better covered with fruitful trees than any I have seen for years, and, by the way, nothing indicates good gardening better than this fact, particularly when it applies to such a vast extent of 12-foot wall as that surrounding the greater part of the 32 acres of vegetable and fruit garden at Frogmore. In a great number of gardens it is painful to see more bare red brick surface than verdure. "Now, Mr. Powell" (the manager of the hardy fruit department), "does your treatment of these fine wall Pear trees differ essentially from that in common use?"—"Yes, decidedly," says Mr. P; "we do not cut back the leading shoots till the wall is covered—not even of young plants obtained from nurseries. The young shoots are thinned by plucking them out towards the end of June, thus letting in plenty of light, sun, and air to help the free formation of fruit buds on the remaining shoots, which are shortened back to three or four inches with the knife in July. In the winter they are pruned on the close spur system." The walls are furnished with a stone coping, projecting about three inches. No trees are grown on the Quince stock, as the walls cannot be quickly or satisfactorily covered with them. There are five of these minor gardens surrounding three sides of the central or main garden. The walls of the next we enter are devoted to Apricot culture. Here unfortunately, as elsewhere, disease has played some havoc with the walls, the Moor Park being the worst affected. After the walls had got perfectly covered, all of a sudden healthy shoots began to perish on every tree. Again they began to recover, and improved for two or three years, sufficiently to encourage the hope that things will look as they did before, but again a collapse comes, and so they go on. But now an experiment is in course of being tried, which it is hoped may prevent this destruction. It is growing seedling plants on their own roots, and as yet these present no sign of failure, though it sometimes appears in younger and smaller trees than some of the seedlings. Strange to say, these seedling Apricots are placed against the walls, and trained away unproved. "Not one of them has yielded a bad fruit." There is a popular belief among gardeners that in raising seedlings it is very rare to get a good or even a middling fruit among them, but at Frogmore, so famous for new fruit raising, the reverse is the case.

The Apricot and Peach walls are covered with canvas (Dorsetshire cheese cloth, 14 years in use now without a break) during the critical period in spring, but it is rolled up daily, and it is considered better not to cover at all than to have a covering that is not taken off daily, except in very severe and unusual weather. Currants are grown on the walls, and, like the Pears and some other subjects, they are not stopped till they reach the top. The favourite kind for wall-work, in which way they may best be kept late, is Warner's Grape.

Of Grapes grown on walls, Napoleon is considered the best; it is different in leaf from the common Muscadine, but is near that kind.

Although the climate of this part of the world would appear more suitable to the Peach than that of Ireland, the contrary seems the case, as usually in this country Peach walls look miserable indeed compared with those I have seen in Ireland, and in gardens too where other wall-fruit were not at all equal to what they are in this country. For instance, at Lord Charlemont's, near the sea-shore at Dublin, there is or was a few years ago a Peach wall, perfectly covered with green healthy fruiting wood and foliage from the bottom brick to the top, and studded over with fruit as good as could be raised indoors; whereas the finest places about London frequently present nothing but a few ghostly tall fantails on the walls. It may be owing to the moister climate of the Emerald Isle, which may keep down red spider and other ailments to which Peaches are liable. The Salway is a great favourite at Frogmore. It may be had in use as late as the end of November, and weighs often 11 ounces. There is no trouble in growing the Salway or the "smooth-leaved kinds," which all do well on open walls.

There is more wall space devoted to seedling Plums at Frogmore than that for fruit altogether in some great gardens; and here again, strange to say, they do not get a bad Plum in a whole batch of seedlings. There are seedlings of great promise raised between Victoria and Washington; a strain of Early Golden Drops, with one small and distinct, as rich as a Greengage, but with a pleasant vinous flavour; and in fact several dozen fruiting specimens of seedlings promising distinction and variety of flavour.

On the Cherry walls many trees had been disfigured much in the manner of the Apricot—the decay dating from a very severe spring frost. The borders of the main range of glass houses right and left of Mr. Ingram's residence are planted on the ribbon system; while on the other side of the great walk occurs a mixed border, running also the whole length. The latter is supported by a low terrace wall, below which there is a long row of oblong beds for annuals, &c., and then comes the great squares of the central garden. The way in which these are edged, so to speak, and the way in which the mutations that are continually going on with the crops kept from disagreeably showing themselves to the terrace, must strike every visitor. In the first place there is an arched trellis of Pears running along the terrace end of the compartments to the right and left of Mr. Ingram's house, 900 feet long. The Pears have completely covered this, and seen from the main walk (2 feet or so higher than the garden it so well commands) the green-covered arched trellis looks like a round broad hedge, while just in front of it are two rows of Parsley to finish off with. This kind of arrangement is continued away down each side of the central walk, past the central fountain, with Apples, and also across the other main walks, diverging right and left.

The trees are planted in the centre of the arch, a leading shoot being taken along the top of the trellis, from which the shoots are brought down to the ground. About a foot or so higher, and with the trees planted at the sides, this trellis would have formed an unrivalled green and fruit-arched walk, but with the trees at the sides it probably would not be so easy to cover the trellis as it is now. Apart from its neatness, permanence, and excellence as a boundary screen, this would appear to be a good way to cultivate Apples

and Pears, as irrespective of other merits the trees could not be so severely swept by the blast as espaliers, though the Pear blossoms sometimes get cut up in spring.

There are strong-looking rising trees on the walls of the handsome and excellent new Pear, British Queen, which as everybody knows was raised here, and a splendid collection of the best-known varieties for each season Mr. Powell, who has had charge of these walls for many years, was good enough to indicate to me some of the most approved in each section. They are as follows, an asterisk distinguishing the kinds suited for pyramidal, trellis, or bush training:—Early Pears: Tyson, *Williams's and *Summer Bon Chrétiens. Jargonelle, and Louise Bonne of Jersey. Middle-season varieties: Seckle, *Bergamot, *Beurré d'Amanlis, *Beurré d'Aremberg, *Beurré Bosc, Beurré Diel, Comte de Lamy, *Althorpe Crassane, Eyewood, *Marie Louise, Napoleon, *British Queen. Late varieties: Easter Beurré, Beurré Rance, Chaumontel, *Sabine d'Hiver, *Passe Colmar, *Winter Nelis, Glou Morceau, Vicar of Winkfield, *Knight's Monarch, *Ne plus Meuris.

The following Peaches and Nectarines are considered the best for out-door culture: Early Victoria, Grosse Mignonne, Bellegarde, Buckingham Mignonne, Barrington, Walburton Admirable, Late Admirable, and Salway, ripening in the order of naming. Nectarines: Vermash, Murray, Downton, Violette Hâtive, Elruge, and Victoria.

Not a word yet about the Strawberry! Why, one might write for a day upon Frogmore and its Strawberries! The kinds grown in the gardens have for the most part been raised in them. The following are some of the chief kinds used: Prince of Wales, good middle season var.; Prince Arthur, heavy bearer, mostly grown for preserving and forcing; John Powell, distinct, well flavoured, and prolific; Fairy Queen, resembles British Queen in flavour, spoken of as excellent by the best judges; Improved Elton, large and late; Frogmore Late Pine—the best of all late Strawberries; Sir J. Paxton (Bradley), large, early, and handsome, travels well; President, an early variety of great merit, good for pot culture; Rifleman and Cockscomb. A few other kinds, including red and white Alpines and Hautbois, completes the collection.

Mr. Marr has the care of the Vegetable department, in which half an acre of London Flag Leek suggested seed-farming immediately—not thinking at the time what great demands are made on that savoury stalk. M'Lean's Little Gem Pea was considered the best for house-work, and very decided opinions were expressed respecting new Peas, &c., "but don't mention names." No, no!

While thanking good culture and able superintendence for all one sees in these 32 acres of kitchen and fruit garden, let us, however, not forget that Dame Nature has been good enough to deposit "not less than 5 feet of fine loam within the walls," on a clean gravelly bottom. This of itself is almost enough to carry lasting despair to all gardeners who have to contend with poor shallow and wet soils, which are common enough even in these green isles. Thus must I wind up for want of space this very incomplete sketch of the walled-in gardens alone, of this right Royal establishment, over which Mr. Ingram has presided for a long series of years, with so much credit to himself, and so much advantage to those employed under him. *W. R.*

Miscellaneous.

The Trees of Cyprus are chiefly Conifers, for the Oaks are either under-shrubs, or are confined to the higher hills. The Plane hides itself in the shady valleys. The commonest Pine on the low levels is the Aleppo Pine (Pinus maritima or halepensis), which, no doubt, once on a time clothed with forest a large part of the island, but which now grows scattered, or forms small woods on the less accessible slopes. Next in abundance, in the eastern part of the island, is Cupressus horizontalis, which forms small woods on the northern chain of hills, and at one time, probably, covered with forest their southern slope, as Pinus maritima did the northern. The wood is much valued for its hardness and perfume, and the tree is therefore much sought after. Juniperus phœnicea is also abundant on the desert plains of the eastern part of the island. All these trees extend from the sea level up to 3000 feet, and the Pinus maritima up to 4000 feet, where it overlaps the lowest level of another Pine, P. Laricio. This Pine extends from that elevation to the top of the higher hills, and forms extensive, though open forests, which give a dark green colour to the western mountains of the island, as seen from the sea. Trees of 200 and 300 years are common; younger ones are scattered, and seedlings a rarity. Few of the trees are uninjured, and great numbers are destroyed for the purpose of obtaining the pitch and tar by an exceedingly rude process. The islanders have no saws, and lop off the branches of the trees for their purposes, leaving the trunk standing, which it is too laborious to cut down. Near the summit of Troodos, and above P. Laricio, another Conifer, Juniperus fœtidissima, Willd., occurs. The summit itself is bare and dry, and produces only a few herbaceous plants along the water channels *Natural History Review.*

Calendar of Operations.

(*For the ensuing week.*)

If not already done, lose no time in getting tender plants under protection, a kind of work the omission of which may peril the welfare of valuable stock that cannot be readily replaced. In addition to making the indoor department as gay as possible at this season, attention to cleanliness and order should be rigorously enforced, as the time is drawing near when this will be looked to as a principal means of affording gratification and enjoyment, in lieu of that which must soon be lost in the open flower garden; and when attention is concentrated more exclusively upon the plant-houses, anything which is untidy or out of order, will the sooner attract notice. Some nice good-shaped plants of hardy Rhododendrons, Azaleas, and Kalmias, which are well supplied with blossom-buds, should now be taken up, potted, and plunged in a bed of ashes, from whence they can be brought forward in succession as they are required.

FLOWER GARDEN AND PLANT HOUSES.

Alterations of grounds and planting of Evergreens should now be carried on with dispatch, while the soil is in good condition for operations of this kind; the drier mould is when placed round the roots of newly planted shrubs (provided they are judiciously watered in) the sooner they will emit fresh roots. Mulching is, however, requisite to keep out frost, and earlier in the season to prevent evaporation.

Asters.—These are still in good bloom, and should receive careful attention in the way of watering, in order that their beauty may be maintained for as long a period as possible.

Azaleas.—Keep these in an even condition with regard to water at the root. Stake or tie out if necessary, and do all that can be done to keep the plants clean, and to maintain them in good health.

Camellias.—Thin the blossom-buds if too thick, and give the plants plenty of air while the weather is favourable.

Cinerarias.—Cuttings of these may still be put in, or young plants may be raised from seeds. The last will prove useful late in the season. Plants struck early may now require a shift.

Chrysanthemums.—These dislike a close atmosphere, and if under glass and the house contains plants requiring treatment, the Chrysanthemums should as far as practicable be placed in the coolest part, where air can be given freely on every favourable opportunity; except they can be pretty fully exposed to air their foliage soon gets attacked and disfigured by mildew, especially if the plants are bushy and well grown. See also that they are kept well watered at the root.

Climbers.—These, at least some of the most rambling of them, will now want a smart dressing where they obstruct light in any material degree. Such as flower on the young wood, and which are now in a ripening condition, or approaching a state of rest, may be pruned in close. Others, such as the late-blooming Passifloras, Combretums, Echites, Ipomœas, Stephanotis, Thunbergias and Mandevillas, which are still thriving, must be regulated with a more gentle hand, cutting away merely barren shoots, and drawing the remainder into somewhat closer festoons, in order to throw sunlight into the interior of the house.

Heaths.—These should be kept as much as possible apart from other plants, especially such as are of a herbaceous character; indeed, where circumstances admit of it, they should wholly occupy a house or pit by themselves. They seldom succeed well if associated with soft-wooded plants.

FORCING GARDEN.

Cucumbers.—Plants in bearing will now or soon require fire-heat, at least at night. They will also enjoy a moist growing atmosphere.

Pines.—Do not subject plants in a fruiting state to a very low temperature, which should be kept at from 60° to 65° by means of fire-heat, for although they will bear a considerable amount of cold without apparent injury, those not subjected to any unnecessary extremes will produce the finest fruit; and a short period of comparatively dry treatment will ripen the growth and just as effectually induce a tendency to show fruit as checking the energies of the plant by an unnaturally low temperature, and without any of the ill effects of the latter method. Little dependence can be placed on the weather after this season, therefore see that plants in pits with insufficient means of heating are well protected by means of covering at night; and maintain the command of a rather high temperature by frequently renewing the linings, so as to be prepared for any sudden decrease of heat. Avoid anything approaching excess of atmospheric moisture among young stock, whether in pits heated by linings, or in better arranged structures; it only tends to promote a too free growth for the amount of light.

Vines.—Admit a free circulation of air through Vineries in which there are no crops, and attend vigorously to the destruction of insects, if any. Keep the atmosphere as cool as possible, where the wood is ripe, or nearly so; and in all cases stop the growth of laterals, even where a warm temperature is of necessity kept up, for the purpose of ripening late crops; as leaves produced during this month cannot possibly attain a perfect development sufficiently early to repay the amount of stored up sap, which they have consumed in their formation. Where the fruit is not yet fully ripe, a brisk temperature must be maintained [illegible] the keeping properties of the fruit depends on [illegible] matured before the end of this month.

HARDY FRUIT AND KITCHEN GARDEN.

Look over fruit stores frequently to see that [illegible] keeping well, and remove any fruit that may [illegible] symptoms of decay, so as to prevent the mischief from spreading; attend to gathering fruit as formerly directed.

Cauliflowers.—Plants heading must be frequently examined; those not wanted for immediate use should be taken up and stored till wanted.

Potatos.—Get these out of the ground as soon as they are fit for lifting; frequently inspecting them after they are stored, in order to separate any that may be bad, from the good. Disease has been making sad havoc in some places this season.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the Week ending Sept. 20, 1865, as observed at the Horticultural Gardens.

Sept.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth. 1 foot deep	Temperature. Of the Earth. 2 feet deep	Wind
Thurs. 14	24	30.242	30.170	82	45	63.5	65	63½	E
Friday 15	25	30.160	30.127	87	45	66.0	65	63	[illegible]
Satur. 16	26	30.108	30.102	82	46	64.0	64	63	[illegible]
Sunday 17	27	30.294	30.224	81	41	61.0	65	63	E
Mon. 18	28	30.385	30.353	82	40	60.5	64	63	N
Tues. 19	●	30.377	30.235	81	42	61.5	63	62	E
Wed. 20	1	30.153	30.052	81	43	62.0	63	62	[illegible]
Average		30.245	30.180	82.3	43.1	62.6	64.1	62.8	

Sept. 14—Slight fog, with very heavy dew; slight haze; very fine.
— 15—Heavy dew; very fine; clear, blue, cloudless sky; very hot.
— 16—Slight fog, and heavy dew; very fine throughout.
— 17—Very fine; cool at night.
— 18—Very fine, hot and dry; cold at night.
— 19—Foggy; very fine throughout.
— 20—Dense fog; quite cloudless; hot and very dry; rain at night.
Mean temperature of the week, 6 deg. above the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 39 years, for the ensuing Week, ending Sept 30.

September.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N	NE	E	SE	S	SW	W	NW
Sunday..24	65.9	44.5	55.7	18	0.75 in	2	8	3	1	6	1	[illegible]	[illegible]
Mon. ..25	65.8	43.5	54.7	19	0.30	2	4	3	3	6	10	[illegible]	[illegible]
Tues. ..26	65.4	44.1	54.7	19	1.68	—	5	6	2	9	[illegible]	[illegible]	[illegible]
Wed. ..27	65.2	45.0	55.1	22	0.07	—	2	5	3	[illegible]	[illegible]	[illegible]	[illegible]
Thurs. ..28	64.7	44.0	54.4	21	1.44	1	5	4	1	10	[illegible]	[illegible]	[illegible]
Friday ..29	65.4	44.3	54.8	24	0.46	2	3	3	4	[illegible]	[illegible]	[illegible]	[illegible]
Satur. ..30	65.0	43.4	54.2	23	0.58	3	2	3	4	7	5	[illegible]	[illegible]

The highest temperature during the above period occurred on the 25th, 1832—therm. 82 deg.; and the lowest on the 30th, 1833—therm. 25 deg.

Notices to Correspondents.

Books: *Sigma.* Hassall's Freshwater Algæ, Smith's Diatomaceæ, Ralf's Desmidiaceæ, or Harvey's Manual, will give you what you want. The Algæ is most probably Sphærozosma spiralis. Specimens would be very acceptable. *M. J. B. D. C.* Possibly Glenny's Handbook to the Flower Garden and Greenhouse will answer your purpose.

Exotic Ferns: *W Brown.* Twelve good stove and greenhouse Ferns not named in your list are:—Acrophorus immersus, Adiantum cardiochlæna, Asplenium dimorphum, Asplenium laserpitiifolium, Cibotium princeps, Davallia polyantha, Gleichenia dicarpa, Gleichenia Spelunca, Gomophlebium subauriculatum, Lomaria gibba, Llavea cordifolia, Nephrolepis davallioides. For twelve good hardy or nearly hardy ones, not British, we recommend:—Adiantum pedatum, Cyrtomium falcatum, Lastrea Sieboldii, Lastrea Standishii, Lastrea opaca, Lomaria magellanica, Onoclea sensibilis, Osmunda spectabilis, Struthiopteris germanica, Woodwardia orientalis, Polystichum flexum, Nephrolepia scabra.

Fuchsias: *A Correspondent* reports that having seen an advertisement in the *Gardeners' Chronicle* in which Fuchsias were offered at a very low rate by the 100, he wrote to enquire whether the advertiser's stock included the hardy varieties Riccartoni, and the bedder Tom Thumb, and his enquiry has been returned from the dead letter office, the advertiser having "gone and left no address."

Fungi: *W S.* The Fungus on Grass is the common Uredo rubigo-vera, which is believed to be a condition of the common corn mildew. It is probably not a wholesome food for cattle. The Fungus on Rose leaves is Uredo Rosæ (Lecythea Rosæ, Léveillé).—*T D.* The substance on the Beech trees is described as a Fungus, Psilonia nivea; it is however really an animal production.—*W M.* We cannot find the name "Tête de Mort" in any of the French treatises on Esculent Fungi. It is probably a corruption of Trompette Noire, and if so it is Boletus æreus, one of the very best culinary Mushrooms. Didlington is in Norfolk, near Brandon.

Names of Fruits: *J Illman.* The Nectarine Plum.—*T* 1, Jersey Gratioli; 2, Urbaniste; 4, St. Germain; 5, Summer Thorn. The disease in the Marie Louise appears to have been caused by insects which have punctured the [illegible] when it was in a very young state. Remove the soil from the stem and substitute fresh soil. This simple operation has frequently been practised very beneficially in the case of insects which prove injurious to Pear trees.—*F [illegible]* Your Apple appears to be the Orange Pippin.—*T [illegible]* Nonsuch; 4, Worthless; 5, Like Ne Plus Meuris; 6, Winter Pippin; 7, Belle Après Noël; 11, Caraway Russet; [illegible] Hollow-crowned Pippin.

Names of Plants: *Jones.* 1, Acer monspessulanum; 2, Cratægus punctata aurea; 3, Cytisus alpinus; [illegible] vimmalis.—*J P A.* Xanthium spinosum.—*J Spencer* [illegible] japonica.—*J B.* 1, 2, 3, 4, All forms of Athyrium fœmina, but not sufficiently marked to be recognised as varieties.—*T R.* Anthurium Scherzerianum.—*B A* [illegible] male plant of Restio subverticillatus, commonly but erroneously called in gardens Willdenovia teres.—*A* [illegible] Carthamus tinctorius, the Bastard Saffron.

Plane-trees: *Country Gardener.* Dr. Daubeny is the authority for the statement. The other matter you have mentioned is personal, and we never indulge in personalities. We can assure you, however, that no great mistake was made in the case you allude to, the gentleman named being well qualified for the office.

Tropæolum: *R Josling.* The flowers were quite shrivelled and useless when they reached us.

Verbena: *Albion.* Small but very effective, the colours very bright scarlet with close yellow eye. It will probably be useful for small beds.

Erratum. In the note on Sparassis crispa (Sept. 16), the locality should be Didlington, not Bridlington.

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The CHRISTMAS QUARTER Commences October 6.

SMITHFIELD CLUB SHOW.
AGRICULTURAL HALL, ISLINGTON, Dec. 4 to 8.

IMPLEMENT DEPARTMENT.—The Last Day for receiving Entries for Implements and Machinery, &c., is Oct. 2 (the 1st falling on a Sunday.

Printed Forms for Entry, with Rules and Regulations, may be obtained of Mr. DAVID PULLEN, Assistant Secretary, at the Office of the Honorary Secretary, Corner of Half Moon Street, Piccadilly, London, W.

SMITHFIELD CLUB FAT CATTLE SHOW.—The ANNUAL SHOW of FAT CATTLE, SHEEP, and PIGS, will be held at the AGRICULTURAL HALL, ISLINGTON, on MONDAY afternoon, December 4, and four following days.

Intending Exhibitors are requested to apply for Certificate Forms by the reference letters as under.

CATTLE.—Form A. For an OX or STEER (in any Class).
" B. For a COW or HEIFER (in any Class).
" C For a BEAST in Extra Stock.
SHEEP. " D. For a PEN of 3 WETHERS (in any Class).
" E. For a SINGLE SHEEP in Extra Stock.
PIGS. " F. For a PEN of 3 PIGS (in any Class).
" G. For a SINGLE PIG in Extra Stock.

ENTRIES for LIVE STOCK CLOSE NOVEMBER 1.

Prize Lists, Forms of Certificates, and all information may be obtained on application to Mr. DAVID PULLEN, Assistant Secretary, at the office of the Honorary Secretary, corner of Half-Moon Street, Piccadilly, London, W.

N.B.—All communications respecting the Show must be addressed to the Assistant Secretary, as above, and should bear outside the words "Smithfield Club."

The Agricultural Gazette.

SATURDAY, SEPTEMBER 23, 1865.

EVERY newspaper one sees is now more or less earnest in considering the cattle plague; and thus there is no class of society under whose notice this scourge of the herds is not brought. Consumers of beef to a far greater extent than any other people, it behoves us seriously to look about us to find substitutes for the many tons weight of meat which must thus be deducted from the ordinary supply. The mouse in the fable gnawed the net and helped the lion out; so may the Dorking fowl, Aylesbury or Rouen duck, Toulouse goose, and other varieties of poultry each in its degree help the farmer as producer, and help to satisfy the appetite of the consumer. There never was a time when our best breeds of domestic poultry were better worthy the attention of farmers and of country residents generally. This is a subject that has held and does occupy a far more important position in relation to the food supply of the Continent than with us. It is usual, when we at intervals see in the public journals a little foot note stating the number of millions of eggs imported in a few months, to feel a sort of regret, not unmixed with wonder, that we do not take steps to supply ourselves with articles of such daily use from our own farm-yards. Again, the numbers of rabbits imported from Belgium amount to many thousands per week; these sell at an average of from 3*s.* 6*d.* to 4*s.*, and sometimes 4*s.* 4*d.*, per stone, without skin or offal; all of which is turned to good account in Belgium. In how many homesteads in England can there not be found an old pigstye or cart-shed that at a trifling cost could be converted into a rabbit house? The cost of keeping these useful little animals would be but very small on a farm where there is always more or less waste corn and fodder. Their dung is valuable as manure; they are, if well cared for, fit for market at nine or ten weeks old; and they will breed nearly all the year round. They have, however, hosts of enemies; but none so dangerous as those who are prejudiced against them without having given them a trial.

Fowls are at last getting rather more attention among us, and a marked improvement is apparent in the size and quality of those sent to the London market from Lincolnshire and Cambridgeshire. When it is considered at how slight an expense the stock of poultry on a farm can be improved by the gradual introduction of fresh blood, it is only to be regretted that it is not more generally carried out.

The farmer or dealer who takes to market a dozen fowls weighing one pound each more than the average, is sure to have the call of the market, and will naturally obtain the best price. Where on a farm there is an ordinary stock of poultry of no particular breed and of little value, it would answer as an experiment to kill off all the cocks and turn down in their place some strong young Dorkings, Brahma-Poutras, or Crève-cœurs, and to note the result of the first year's breeding. We believe the difference in amount and improvement in quality of the produce would be so marked that those who made the attempt would be induced to persevere until they had a stock that would rank highly in their estimation from the results obtained from it.

CONTINUING the course of argument pursued in our last paper, we have to inquire what has been done to arrest the spread of infection, and with what results? At the commencement of the outbreak, the first thing to do was to find out where the disease existed, and with this object Government took action. Notices were sent to cowkeepers requiring them to state directly on the appearance of the disease among their animals how many were affected, in order that steps might be taken to arrest the spread of the malady; no response was given to the demand, and consequently no steps were taken to prevent the removal of diseased animals, whose existence in fact was not known; accordingly the markets were crowded with infected stock. Unsuspicious purchasers bought and transferred them to their own premises, and among their own stock. In a short time the evil became suddenly apparent, and news began to arrive from all quarters of the appearance of the "New Cattle Disease."

Veterinary Inspectors were meanwhile appointed by the Government in metropolitan districts, and outside those limits by the mayor or by magistrates in petty sessions. The duties of Inspectors were defined by various Orders in Council, and up to the present they comprise power to enter and inspect any premises where there is reason to believe disease exists; power to order the isolation of diseased animals, and to prevent the removal of those animals, or any others that have been with them on the same premises, or in any way in contact with them; power to cause to be destroyed and buried any diseased animals which may be considered dangerous as sources of infection; power also to cause the sheds in which cattle have been or are kept, and also the manure to be properly disinfected or destroyed; power, lastly, to sanction by certificate the removal of any *healthy animals* from infected premises to a slaughter-house for the purpose of being killed and dressed as early as convenient, but no power, be it observed, to sanction the removal of such animals, even when free from any symptoms of disease, to a market, whence they might be taken to healthy localities, and disseminate the disease. On the one hand, these provisions, however effective in theory, are constantly evaded; and on the other, appointments of incompetent veterinary inspectors have occasionally been made. And we need not say that this is as great a mischief as the other; for power in incompetent hands will only raise opposition to its exercise. Moreover, veterinary inspectors are not ubiquitous; all of them have their own professional interests, as well as their special duties to consider; and even assuming that each man in his district were to devote himself exclusively to the duties of his appointment, it would be impossible for him to watch all the cow-sheds day and night in order to ascertain when animals were surreptitiously removed. Such an idea of the capabilities of an inspector could only be entertained by those who estimate him as a piece of patent machinery of 500 police power. The actual working of the system amounts to this—some persons are reckless of consequences, and simply take their own course in defiance of positive orders, and in opposition to all good advice. They prefer to incur the risk, and dispose of their infected stock in what they consider the most advantageous way. They may be summoned and fined, or they may by some legal quibble escape punishment. In either case the mischief they have done is not repaired by means of penalties inflicted upon them, the perpetrators. Another large class of persons are actuated by purely selfish considerations; they have no desire to break the law, but they must save themselves, and consequently, under the present circumstances, injure others. A further division may be considered to be represented by those who apparently are quite incapable of understanding that there can be any real objection to sending to market cattle which, although coming from infected premises, are still in perfect health; who, in answer to every explanation, urge their inalienable right to do what they like with their own, an idea which clings to the uneducated mind with singular tenacity. Another class includes those whose deeds are emphatically deeds of darkness, who, under the cover of night, traffic in diseased animals, buying at a small price anything that can be converted by any ingenious process into human food.

With all these adverse circumstances at work it cannot be a matter of surprise that the measures that have been instituted have up to the present proved inadequate to prevent the spread of the disease. Had owners of stock seen fit to co-operate with the Government, the evil might by this have been eradicated; but as, on the contrary, they practically offered every form of opposition, the means which were calculated to effect good have been rendered abortive, or at best their efficiency has been marred.

It is very difficult to suggest a remedy for the existing state of things, because our English notions about liberty are offended at the mere talk of restrictions. Any interference with the interest of trade is sure to be deprecated; and in a country so extensively devoted to commerce as ours, it becomes impossible to legislate in favour of one part of the community without at the same time inflicting injury upon another part.

Closing certain ports and stopping all fairs and markets would undoubtedly be, or rather would have been, calculated to arrest the spread of the disease, but at the same time so much injury would have resulted in a variety of ways that this obvious course of procedure could not be entertained. At the present time the disease is extending, although in many places it has assumed, as was predicted, a milder form. Some of the characteristic symptoms, such as emphysema along the back, and the peculiar state of the palate, so frequent in the early cases, are now seen very rarely, the discharge from the eyes and nostrils is no longer one of the first indications, and sometimes is not present at all until the disease is fully developed, and even then only to a slight extent. These variations are more particularly noticeable in neighbourhoods where the disease has previously been very virulent. Cases of the malignant form of the malady are still met with, as might be expected; but even its occasional occurrence under a modified form must be accepted as a favourable indication.

In proportion to the obscurity of the signs by which the disease can be discovered, will be the difficulty of detecting infected animals. Too much caution cannot be exercised therefore at this time in regard to the inspection of stock. The slightest symptom of ill health is to be estimated as of serious importance. Dulness and diminution of milk are not now in all cases to be looked for as the primary signs. Some cases have recently occurred, in which the first symptom was slight diarrhœa, the animals meanwhile milking well, and as far as the general appearance is concerned, giving no indications of disease; yet in two days from the first observation of the diarrhœa, the malady presented itself unmistakeably, and ran its course rapidly to a fatal termination.

After a careful consideration of the whole question, we are compelled to admit that the measures which have been in operation since the outbreak of the plague have not resulted in anything satisfactory; the malady has extended in spite of all that has been done to arrest it; and judging from daily observation, it is steadily advancing yet. People seem to have made up their minds that no care will avail; the disease is conveyed by the air, or in some other mysterious manner, and if their cows are to have it they will, no matter what is done to prevent it; these reckless notions are too prevalent, and, added to the fact that stock owners still persist in viewing all animals as perfectly healthy so long as they show no symptoms of disease, notwithstanding that they have been in contact with infected stock, there is reason to fear that there is no chance of our getting rid of the plague at present.

Consumers of beef and milk are the victims of a not unreasonable apprehension, either that they will have to do without these commodities altogether, or be content with them as very occasional luxuries. With regard to the meat question, there is little doubt but that the supply from abroad will, while the foreign stock remains to a great extent healthy, suffice to prevent famine prices being demanded. The milk question is

more serious, not only because the supply is even now very much below the demand, but for the further and more important reason that a great deal of milk from diseased animals is sold and consumed. We have no desire to excite unnecessary alarm, but it is our duty in the interests of the public to protest against the popular fallacy, that diseased milk cannot be obtained, because of the secretion being arrested as soon as the animal is attacked. Many animals continue to give milk for some days after the disease has commenced, some never lose the secretion entirely up to the moment of death; and all cases of recovery are marked by its gradual return from the time that amendment is perceptible. Microscopic examination has resulted in the discovery of morbid elements in milk given by convalescent animals, when those animals have been yielding 4 quarts per diem. The milk from diseased subjects without exception contains these products, sometimes in abundance, and convalescent animals that are yielding their full quantity, nevertheless give a poor quality of fluid of low specific gravity (1012 to 1026), the average being about 1018, which is the specific gravity of skim milk adulterated with 50 per cent. of water. The specific gravity of good new milk may for the sake of comparison be fixed at an average of 1032. A great many specimens have been examined, and the results have been uniformly the same. How far this diseased milk may be injurious when taken as food there is no direct evidence to prove, but there can be but little doubt of its unwholesomeness, particularly as an article of diet for children.

In some instances the cream taken from milk containing diseased products did not appear to have retained any of those morbid matters. The subject is still under observation, and should it prove to be the case that cream in the act of rising to the surface does not carry up with it any of these elements, it will be an argument in favour of using cream, properly diluted, for children's food, where there is any doubt about the purity of the milk; and there is no question that both the milk and the meat of diseased animals have been, and are being, largely consumed by the public.

That the pastures of very poor soils may be immensely improved by feeding on them cattle or sheep, and supplementing the Grass with some of the aids to fattening—corn, oil-cakes, &c.,—is a point about which there is now very little difference of opinion; though it is still scarcely admitted by some that the result of such measures for improvement will compensate for the outlay and loss of time which are inevitable in this course. We have, however, lately met with an instance which bears on this question. Some pasture on a very thin water-soaked soil was composed of the coarsest of the Grasses; Rushes, Sedges, and other semi-aquatic plants, were everywhere apparent; it barely served to keep alive the few animals that were unfortunate enough to be placed upon it. It was occasionally mown, and the hay which it yielded was deficient in quantity, and—as might be expected—very coarse in quality.

The first steps for its improvement were the laying of drains; but these were not judiciously planned, and very imperfectly served the purpose for which they were made. A quantity of soil and heaps of rubbish, excavations of subsoil, &c., lay adjacent to the pasture. These were mixed with quicklime to the extent for the land to be dressed of 60 cwt. per acre. A mixture of White Clover, Trefoil, Perennial Rye-grass, Crested Dog's-tail, and some of the Fescues was sown at the rate of 25 lb. per acre; the top-dressing was applied, and the ground well bush-harrowed afterwards. The seeds were sown in the spring, and previously to sowing the field had a good harrowing with a sharp tined harrow. It was necessary that the field should be mown the first year. The produce was of course very light, but it is probable that the shelter afforded to the germinating seeds by the herbage was serviceable.

During the autumn a large number of sheep and cattle were put on, and the following food given. For the cows, cut Wheat straw, grains, and about 4 lb. of Rape-cake per animal; the sheep had 1 lb. of Rape-cake per day each. Winter coming on, the cattle were removed, and the sheep stock increased, and these were now folded equally over the pasture. They were allowed to remain in the fold until the Grass was completely eaten and trampled down, their droppings being thick on the soil. Their food at this time was chopped oat-straw, grains, pulped Turnips, and Rape-cake, with occasionally a feed of acorns, which were plentiful, and selling at about 1*s.* 4*d.* a bushel.

In the spring the sheep were removed to allow the pasture to freshen, and after a rest of a fortnight the improvement was so great that the field was scarcely recognisable.

But the reality of the improvements was equal to the appearance. Land that formerly half-starved a few animals now carried six sheep and a beast per acre. Sheep were sold fat from land which was considered almost a waste.

And in the work of improvement there was no loss felt. The greater part of the sheep stock were hoggets, purchased in October at 20*s.* each., and these were sold the following March at 46*s.* each, a few going off after shearing at 50*s.*

The system here described might be applied with advantage to a large extent of land in this country, including much that it would be unadvisable to break up, either because of the expense of tillage or expectation of a deficient yield.

Now that stock-farming is yielding such profits, and artificial food can be had at reasonable prices, there need not be much apprehension about the trial not being remunerative. We have shown that in two years an inferior pasture was raised to a very good standard. It has been made evident that the system was not a losing speculation, and there can be very little doubt that with care in the after management the pasture will not only not revert to its former state, but will continue to improve. *C.*

ON DISINFECTION.

The document from which the following are extracts has been prepared by direction of the Lords of the Council. It is headed "Memorandum on the Principles and Practice of Disinfection, as applicable to the present Epidemic of Cattle disease. By J. L. W. Thudichum, M.D.":—

"I. Principles of Disinfection.—The cattle plague, although affecting every part of the animal, shows its visible effects most extensively in the intestinal canal. It is believed, and apparently upon good grounds, that the intestinal discharges are the principal agents, upon the distribution of which mainly depends the spread of the disorder.

"It follows from the above that all articles which have been in contact with a diseased animal, or any of its discharges, particularly its fæces, are capable of carrying the infection for an indefinite time, and must be looked upon as being actually infectious to other healthy animals. Such are racks of wood or iron, cribs or mangers of wood, iron, or stone; articles used for fastening animals, leather collars and straps, ropes and chains; all harness of any animals used for drawing, and all carts, waggons, and carriages which they have actually been drawing; the stalls or sheds in which animals have been standing; the whole lengths of the gutters and drains through which their urine has been flowing; the entire surface over which their manure has been drawn, and all implements with which the removal has been effected; the entire dung-heap upon which infected manure has been put, and the fluid contents of the manure pit or of the special receptacle for the urine; yards or sheds in which cattle have been kept to tread down long straw, and the whole of such straw and manure, as also the ground beneath them; paths and roads upon which diseased cattle have walked or been carried; fields and meadows upon which they have been grazing; all carts, carriages, trucks, and railway trucks in which diseased cattle have been conveyed, and all the platforms, railings, bridges, and boards upon which they have been moved thereto; as also all apparatus which has been used to pen, tie, lift, haul lower, and fix them; the clothes, and particularly shoes and boots, and iron-pointed sticks of drivers, and their dogs; the apparel of all cattle-herds or attendants, particularly their shoes and boots; the shoes and boots of all persons visiting places where diseased cattle are or have been standing; and in general the clothes of all persons visiting infected places, ships, and all parts of the platforms, stages, stairs and bridges, hoists and cranes used for embarking and landing the animals; markets, and all sheds and pens and implements used in contact with cattle; slaughter-houses, and all persons and implements in them which have been employed upon sick cattle, as also sundry parts or organs which come from sick animals killed in slaughter-houses; knackers' yards, trucks, or carts, horses, men, and implements which have been employed in the disposal of sick or dead animals; wells and ponds from which diseased cattle have been drinking, or into which any portion of their excreta has had any opportunity of flowing directly or indirectly; all fodder, Grass, hay, straw, Clover, &c., and particularly remnants of fodder upon which diseased cattle have been feeding; and, in general, all persons, animals, places, buildings, and movable things which have been in contact with matters proceeding from diseased cattle, or with such diseased cattle themselves. To the above-mentioned places and things any of the processes and agents enumerated and described in the following may have to be applied:—

"II. Practice of Disinfection: A. Disinfection by Earth.—1. The quickest, and cheapest, and most certain way of disinfecting an animal dead from the plague is to bury it entire.

"2. The droppings and all straw and other matters contaminated therewith may also be buried into ground where they are not likely to be disturbed for a long time.

"3. Manure heaps and the down-trodden manure of farm yards, if they have become infected by even a small quantity of the droppings of a diseased animal, should be carefully shifted to a suitable piece of ground, and there be trenched into compost heaps. A layer of manure 1 or 2 feet in thickness should be covered all over with 6 inches of dry earth, ashes and mineral rubbish; upon this another layer of manure should be placed, and then again a layer of earth, and so forth, until the whole of the manure is stacked; it should be covered all over with a continuous layer of earth of from 6 inches to 1 foot in thickness. If the manure heap or yard manure cannot be shifted it may be covered on the spot with a layer of earth, after which all animals are to be kept away from it.

"4. If the floor of any shed or stable in which diseased cattle has been standing is not constructed with special water tight and impenetrable material, it must be assumed to be infected to the depth of at least 6 inches. This ground should therefore be removed, together with any stones, paving-tiles, or woodwork which may have been in contact with it, and be carted to a piece of dry land and buried. Half-rotten wood is a particularly favourable carrier of infection. Mortar, brick, loam, or any other lining of the sides of a pen in which a diseased animal has been standing should be broken out and buried.

"B. Disinfection by Fire.—Burning.—All infected articles of a minor value, or made of incombustible materials, may be disinfected by exposing them to a heat which will char organic matter. To this class of articles may be reckoned racks of wood or iron; cribs or mangers of wood, iron, or stone; leather collars and straps, ropes and chains; dry manure, residues of fodder from which diseased cattle have eaten; and all such small articles of little value which can be easily replaced by new ones. Chains may be exposed to a dull red heat; all other articles may be heated over a fire of coal, brushwood, or straw, until well scorched. All new articles of ironware should be bought in a galvanised state to prevent the formation of rust, the accumulations of which form convenient seats for infectious matter, and for the same purpose it is desirable that iron articles which have been disinfected by heat as above should afterwards be either galvanised or, at least, while hot, be treated with resin, to coat them with a durable varnish, or should be varnished or painted.

"C. Disinfection by Chloride of Lime.—Chloride of lime, or bleaching powder, is the most powerful, the cheapest, and most easily managed of all artificial disinfectants. It can be had everywhere, and at any time, and in quantities sufficient for every purpose. It should as much as possible be applied in solution, of a strength varying somewhat with the particular purpose for which it is to be employed; and, after it has been allowed to act upon the surface or matter to be disinfected a reasonable time, should be washed off, together with the products of decomposition. As chloride of lime does not destroy only the infectious matter in a mixture, but destroys all organic matter without distinction, it is not applicable to large quantities of matter, such as the manure of cattle, in dung-heaps, &c., inasmuch as twice or three times the weight of these matters of chloride of lime would be required for their effectual destruction and disinfection. It is further inapplicable to all matters rich in ammonia, particularly putrid urine, as it destroys the ammonia and evolves a large amount of gases, some of which have a repugnant odour, and are perhaps not quite innocuous. But for the disinfection of surfaces of things and places no better or more suitable agent than chloride of lime is at present known to science.

"D. Special Directions for the Disinfection of Stables, Sheds, Vans, Railway Trucks, and Cattle Ships, and of Persons and Things connected with them.—1. After such a place has been cleaned by mechanical means, scraping, &c., as much as possible, and all manure and dirt has been carefully buried, the entire surface which has been contaminated, or is likely to have been contaminated, should be covered with a layer of chloride of lime in powder. The powder should be worked about with a broom until equally distributed. It is intended to disinfect the water to be used in the washing process which is now to commence. Clean water from a hose in which it flows under pressure, or from a force pump, garden engine, or from large watering-pots, or water-cans, or poured freely from buckets, should now be applied to the entire surface by one person, while another at the same time scrubs the entire surface, and particularly all crevices, joints, and irregularities. The washing water and chloride of lime are then to be worked down the gutters into the sinks, cesses, or natural watercourses. No washing water from any infected place or thing should ever be allowed to flow into any cesspool, urine-tank, dungheap, pond, sewer, or natural watercourse without having previously been mixed and stirred with a liberal amount of chloride of lime. When the place has thus been scrubbed, until the water flows off clean, it is ready for effectual disinfection.

"2. For this purpose a solution of chloride of lime in water, in the proportion of one pound of the powder to one gallon of water, is made. For the lair of one animal from six to ten gallons of such fluid should be prepared. This fluid is now distributed over the whole surface, to be disinfected gradually by squirting from a syringe, or by pumping through a force pump, garden-engine, or by watering from a watering-pot or can with a finely-pierced rose. All wood-work, stones, bricks, cement, mortar, all fixtures of whatever material, should be well wetted with the solution and immediately be scrubbed with a hard brush. Floor and ceilings are also scrubbed, and the whole is left in this wet state covered with the chloride of lime solution for at least an hour, during which time care is taken that no parts become dry.

"3. As the chloride of lime and the products of its decomposing action upon infectious matters may be hurtful to cattle, these matters have to be carefully washed off by a second and final flushing. For this too much water and too much scrubbing cannot be employed. Care should be taken to apply the clean water always to the highest parts, so as to cause it to flow thence to the lower parts, and to wash away the waste from the lower parts before applying any fresh water to the upper parts.

"4. Care should also be taken to rinse and flush every broom which has worked away sediment and waste from the lower parts into and through the gutters and drains before applying it again to the clean upper parts. Care should also be taken that the working persons should not step from the dirty or partially-cleaned places on to the clean ones, as this may suffice to bring infection back to the disinfected places.

"5. Lastly, all persons employed in this work, having swept and flushed the gutters with the same care as the rooms, are collected, together with all the engines and tools which they have used, as near as possible to the sink or place of final expulsion of water from the premises, and there disinfected as will be described.

"The tools, such as hooks, forks, spades, hoes, barrows, &c., are scrubbed with the above solution of chloride of lime, and subsequently water, until clean; they are then repeatedly wetted with the solution, and after it has had time to disinfect the entire surface of them, they are washed clean, and laid up or hung up to dry.

"The workmen, then, having finished the disinfection

washing of all objects and surfaces, effect their own [illegible] in the following manner:—They wash their [illegible] carefully with chloride of lime and water, [illegible] the soles and scrubbing the seams where the [illegible] in the upper leather. They wash their hands [illegible] and by means of clean rags or sponges they [illegible] any soiledness from their clothes. After this they go [illegible] and put all clothes from head to foot, wash their bodies, and particularly their hands, faces, hair and feet with plenty of soap and water, and put on fresh clothes and linen. The clothes and linen which they have taken off should be treated as infected, set to soak immediately in boiling water, and afterwards disinfected, or in water containing 2 ounces of chloride of lime to the gallon in solution, or containing 4 ounces of Condy's red permanganate of potash fluid in solution; or the clothes and linen should be put in a copper and boiled, and subsequently washed. All articles of little value which are much soiled should be burned on a bright fire.

"E. Disinfection of Live Stock.—1. Live cattle may carry infection in two ways—first, by being themselves infected with the plague and reproducing the poison; and, secondly, by accidentally carrying the poison from other animals in a dormant state upon some part of their surface, their hair, and particularly their feet. These latter animals may therefore infect others without being or becoming themselves subjects of the plague. All persons, therefore, buying new animals should disinfect them before allowing them to enter their premises. In a similar manner, if in a stable there has been a case of plague, the healthy or apparently healthy animals should all be disinfected.

"2. The mode in which live animals may be disinfected consists in washing them with disinfectant solutions of such strength as will destroy the contagion without injuring the surface of the animal. A solution of two ounces of chloride of lime to a gallon of water is a proper solution for washing the coat of animals. A mixture of four ounces of Condy's red permanganate of potash fluid with one gallon of water is also a proper disinfectant solution. For full-sized cows and bullocks, say, several gallons of either of these solutions should be used. Great care should be taken to keep the solution away from the eyes, nostrils, mouth, and tender parts. When the entire surface is washed and disinfected, all disinfectant is removed by the application of great quantities of clean tepid water to all parts. The animal is given a warming and refreshing drink, and is conducted by a clean attendant to the clean quarantine shed. There it should receive fodder, both dry and green, and sop, and plenty of pure cold water, and be rubbed dry with whisks of straw and hay."

[Then follows an elaborate account of the precautions to be taken for the management and disinfection of quarantine sheds.]

"F. Disinfection of Meadows, Fields, Roads, &c.—1. Meadows infected by diseased cattle should be carefully cleaned of all dung, by burying each dropping on the spot where it lies, cutting out the round piece of turf with the dropping on it, and turning it upside down. The Grass on the entire meadow should then be cut and burned. It should then be left without any cattle for at least a month, including at least two wet days.

"2. All roads, paths, streets of towns, or villages, should be carefully and frequently scavenged. All carts, vans, or waggons used for carrying manure should be watertight, caulked, and painted, and should not be permitted to ooze and drip their fluid or semi-fluid contents on the road over which they are drawn. They should be kept clean and disinfected, as a precautionary measure, by the proceedings above described.

"III. GENERAL RECOMMENDATIONS.—In conclusion, it must be pointed out to farmers, dairymen, and all persons having charge of cattle,

"That the same great measures which are known to maintain and restore the health of human beings will also maintain and restore the health of cattle.

"Pure air: dry, spacious, and well-ventilated and well-drained clean sheds; clean and dry meadows: plenty of pure water; frequent currying and washing; the prevention of the development, by the destruction of the germs, of internal and external parasites, particularly entozoa; proper food in suitable quantities, and at proper times; protection from inclement weather; the utmost cleanliness in the removal of manure; the storing of the manure at a great distance from the cattle-shed, and, in addition, the most conscientious observance of the precautionary and disinfecting measures above described—all these measures and agents together will secure the utmost possible health of stock, and the prosperity of the agriculturist and dairyman. But the neglect of any one of them will make the stock liable to become infected, and the more so the more several or all collateral conditions of the healthy existence of animals are neglected. The negligent man is therefore certain to lose, to injure his neighbour by defeating his precautions, and to damage society; but the watchful and painstaking man will be rewarded, not only by the preservation of his property, but particularly by the consciousness that it has been preserved by his own care and attention, and that thereby he has also benefited the State."

THE CATTLE PLAGUE.

[We continue to publish the letters of Correspondents on this subject.]

—— We have now had the cattle plague in this country two months or more, and it is only checked in individual cases by killing. Probably there will never be much learnt as to a cure of the disease by the dissection of an animal in a state of almost putrefaction, and certainly nothing from those that are buried 10 feet deep. Suppose 20 healthy beasts were placed with some that are diseased, where infection would be expected to follow as a matter of course. Let one or two of these beasts be killed and dissected every day in the presence of competent professional men, not confining them to veterinary surgeons, should a few medical men wish to trace the proceeding. A record of appearances could be kept, and probably some guess would be made of the way in which the disease enters the system, and of its progress day by day, which might give some clearer notions as to its treatment. I should call this dissecting the disease, which seems too much to deal with as a whole. If such a plan was adopted I would willingly contribute 5*l.* towards the purchase of the 20 beasts. *W. F. C.*

—— Allow me to call your attention and that of other farmers to the proceedings of some Suffolk magistrates. It appears that a farmer in Suffolk had the disease among some of his cattle, but had also quite separated from them and shut up in a separate shed, with the door almost constantly closed, a perfectly healthy fat heifer, which he did not show to the inspector, but sent to market when ready. It appears to be distinctly admitted that there had been no contact between this animal and the diseased ones, but it was supposed that some diseased animals had been driven past the door of the shed it was confined in. For this, which the magistrates construed into "contact," the farmer was fined 10*l.* and costs. Now, it is bad enough that we should be exposed to the caprice of any ignorant animal of a farrier who may be appointed inspector by the magistrates, but it is far worse that any set of magistrates—who are generally supposed, if they have not much law, to have a good deal of common sense—should back up an inspector in such tyrannical proceedings, and judicially declare that an animal has been in contact with another when it has been carefully separated from it. To show the ignorance of the inspector I refer to your columns, where it appears that the only two cows out of a herd of 30 that were saved had been condemned by this very official, but as they were in a part of the field out of his jurisdiction the farmer refused to kill them. And now let me beg of the medical profession to put aside for a time their professional etiquette and try if they can't heal the cattle; for you may be very certain, if our cattle and sheep get diseased, it will not be long before some analogous disease reaches the human subject. It is rather too much to be borne. This reminds me of the well-known receipt for making the soup one generally finds in Italy—"Put a pot of water on the fire and drive a cow past the door;" and there seems to have been exactly the same amount of contact in the one case as in the other. Is there no court of appeal against such decisions, which, if carried out in other counties, would simply have the effect of preventing any meat being brought to market at all? I do not pretend to be disinterested in the matter. I am a large landed proprietor, and have over 120 head of cattle, and the present system of indiscriminate slaughtering, though it may greatly raise the price of meat, will never effect what we want—a cure. *J. R. H., Union Club, London, Sept. 20.*

1. METROPOLITAN CATTLE PLAGUE COMMITTEE: *Sept.* 16.—A communication, dated the 13th inst., was read from Professor Dick, of the Veterinary College, Edinburgh. He stated that they had been very unsuccessful in their sanatariums for cattle there; 36 had died, and only one was likely to recover, but in the various byres (sheds) in different parts of the city 22 were recovering. Much depended, he said, on taking a case as soon as the symptoms made their appearance, and giving a quart bottle of linseed oil with half a bottle of whiskey, or from a half to a pound of salts, and repeating the dose next day, if the medicine had not operated, and afterwards giving sulphate of iron (half an ounce) night and morning. It was owing, he said, to the time lost in getting the cows to the sanatarium and in their getting the medicine that they had been so unsuccessful.

The CHAIRMAN explained that the Metropolitan Committee had entered on this matter with the view to stop the plague if possible, and they offered compensation to those whose cattle might be affected for the loss of the cattle, provided that at the very earliest stage of the disease they gave information to the committee, so that the infected animals might be forthwith removed to the sanatariums, where they would be treated in a manner compatible with the present state of veterinary science. While, however, they had been doing all in their power to check the disease, and the Corporation had generously headed a subscription with 1000*l.*, for some reason or other which they could not understand they were thwarted by the Government.

Mr. RUDKIN complained that the orders in Council had been framed in so bungling a manner that it was impossible to get a conviction under them before a police magistrate, though the case was never so clear. The Government inspectors were veterinary surgeons, and the owners of the sheds over which they had control were their clients. That being so, the inspectors naturally said to their clients that they would do all they could to get them out of the difficulty, and the result was that infected animals were smuggled away for sale with the connivance of the Government inspectors themselves. At present, therefore, the Orders in Council were mere waste paper.

Mr. BREWSTER said that Professor Simonds laughed at the idea of sending diseased cattle to sanatariums. If the committee established a sanatarium no diseased animal could be removed to it without the consent of a Government inspector, and if he refused his sanction, as he probably would do, there would be an end of the matter, and all the care and labour would be wasted.

2. THE TOWER-HAMLETS DISTRICT: *Sept.* 16.—At a meeting of cow-keepers, dealers, dairymen, &c., the following return of the number of cow-keepers, of the cows originally kept, as well as of those sold, dead, and remaining, was read:—Mile End Old Town and Bow—Cowkeepers, 27; cows originally kept, 515; sold, 152; died, 53; remaining, 310. Limehouse—Cowkeepers, 27; cows originally kept, 443; sold, 221; died, 73; left, 149. Poplar—Cow-keepers, 14; cows originally kept, 88; sold, 21; died, 8; remaining, 59. Whitechapel—Cow-keepers, 29; cows originally kept, 530; sold, 263; died, 58; remaining, 209. St. Matthew's, Bethnal Green—Cow-keepers, 44; cows originally kept, 449; sold, 186; died, 103; remaining, 160. St. George's—Cow-keepers, 15; cows originally kept, 200; sold, 54; died, 17; remaining, 129. Shoreditch—Cowkeepers, 46; cows originally kept, 595; sold, 159; died, 132; remaining, [illegible]4. Total (including Stoke Newington district), cowkeepers, 291; cows originally kept, 4108; sold, 1504; died, 563; remaining, 2042. The Chairman said the above return was nearly accurate, and the losses which had been sustained should prompt them to take immediate action for the sufferers. Mr. Brewster (of the Corporation) thought they should ask a grant of the Government. The inhabitants of the cotton districts had obtained a grant, and the cattle plague was of as much importance to those connected with cattle as the cotton famine had been to the people of Lancashire.

3. NORFOLK.—The subscriptions made in aid of the compensation fund administered by the Norfolk Cattle Plague Association now exceed 5500*l.* At a meeting of the central committee numerous fresh cases of disease were reported. Mr. R. J. H. Harvey, M.P., who had lost about 40 head of cattle which he had on his farm at Crown Point, near Norwich, lately expressed his opinion that the statements made as to the prevalence of the disease were exaggerated. On Saturday he stated that he should increase his subscription to the funds of the Association from 50*l.* to 100*l.*

4. SUFFOLK.—The most seriously affected parish in Suffolk has perhaps been Melford. The number of beasts in Melford Park on 21st of August was 156. On the same day 25 were removed by the owners; 10 were taken out on the 24th of August and have since died; 41 were slaughtered after being passed by the inspector; 78 died and were buried on the spot; and 1 is still alive. The other losses in the parish may be summed up as follows:—Mrs. Cox, High Street Farm, 17 bullocks; Mr. G. Rufell, 14; Mr. Beaumont, Cranmere Farm, [illegible]; Messrs. Ward and Silver, 4; Mr. Ardley, 6 bullocks and 2 cows; Mr. J. Byford, 17; Mr. Decks, 10 bullocks and one cow; Mr. Westropp, the Place Farm, 10 cows and one bull; Lord A. Paget, Mr. Brauwhite, and Mr. Butcher have also each lost one cow.

5. Mr. GREEN'S FARM AT EDRHAM, KENT.—The stock consisted of 133 animals, 88 cows and 3 bulls at Edrham, 42 steers and heifers at Shooter's Hill, in the same parish. The disease first broke out among the young stock at Shooter's Hill about the end of August, and was first detected by a shortness of "catch" in the breath, with loss of appetite. These symptoms showed themselves in 11 of the beasts, which were separated from the herd and removed to a distant field, where seven died and were buried on the spot; the remaining four survive and are now doing well. Within a few days of the removal of the 11 the other 44 were seized with the complaint, and all died with the exception of 10. In none of these 45 cases was any treatment adopted. This stock was tended by Mr. Green on his own premises. The ages of the animals ranged from two to three years. Mr. Green is not aware how they became affected, but as they were allowed to graze on an adjoining common in the day time, he thinks they may have possibly contracted the disease from cattle supposed to be infected that were driven across it from neighbouring farms. All were buried on the spot as they died. About the 2nd of August the disease was detected among a few of the cows at the Southend farm, and it spread so rapidly that 30 sickened in a few days. These were treated by Mr. Green's cowman with brandy and spirits of camphor, under which treatment six survived; of the remaining 24 all have suffered, except three, up to the present date. Of the 55, 42 were placed under the care of a person who practises as a veterinary surgeon; but not having seen [illegible] the plan of treatment he pursued to any one, and as he left shortly after my arrival, it is impossible for me to mention the remedies employed. Of these, 27 have died, three or four are on the point of death, and 10 or 11 may possibly recover. Two cows and two bulls are now taking chloride of potash and nitro-muriatic acid in separate drinks, mixed with gruel, as suggested by Mr. Russell, and are going on favourably. I first visited the farm on September 7, and found the following symptoms in the sick animals; dull appearance of the eye, which in some was nearly closed; great redness of the conjunctiva, with purulent discharge, pinched appearance of countenance, copious discharge from the nostrils, which were very red, distended, and excoriated. Dribbling from the mouth and abrasions of the inside of the lips and gums, with patches of aphthous ulceration beneath the tongue. The animals appeared in great distress; the breathing was short and difficult; there was a short, hacking cough, and their necks were stretched to the utmost, which was evidently for the purpose of relieving the inflamed state of the windpipe, which the *post mortem* examination revealed; the walls of the chest moved rapidly and forcibly, and in many of the animals a loud, peculiar noise, something between a moan and a grunt, accompanied each act of expiration. Mr. Russell also drew my attention to swellings over the loins of a cow, evidently arising from emphysema of the cellular tissue under the hide. We expected to find a similar condition of the lungs should the animal die, and, as this happened a few hours after, the supposition was fully borne out by the *post mortem* examination, which is subjoined. The discovery of this symptom led to a further examination for the same appearance, which was found on different parts of the bodies of a number of the diseased cows. *From Dr. Aldis, in the Times.*

6. Miss BURDETT COUTTS, who lost almost her whole herd of Alderney cows at Holly Lodge, Highgate, has written a long account of the ravages of the cattle disease, concluding as follows:—"My own conviction, that we have the rinderpest among us, is so decided that I venture earnestly to press upon your attention the urgent necessity for a systematic attempt to discover an effectual mode of treatment. We cannot altogether prevent importation, and when this pestilence has died out people will again become careless; and though I heartily hope that the system of bringing the poor creatures to market may be humanised, and the state of our cattle-sheds permanently amended, still efficient inspection can never be relied on except under the pressure of danger; and the signs of the disease are so peculiarly subtle as to elude even careful and self-interested watching. I might have sold innocently the day before its seizure the worst case. I had in my dairy a cow with a calf I was particularly anxious to save, and which had remained apparently healthy throughout the previous fortnight, while the disease was at its height among the other cattle. It would be important to alleviate the sufferings the animals endure, and to render their bodies less dangerous when dead. I am about to set some inquiry on foot myself on these points. A few gentlemen kindly gave me their help. May I hope for any assistance from Government in carrying out my project? There are several other very grave subjects on which information is greatly needed. Is the meat of diseased animals fit food for man or for animals in any stage of the disorder? I have heard of sickness lately in kennels. Can this be attributed to the meat given to the dogs? The milk also, is it fit for use either during the attack or immediately after it? Some of my cows gave milk after doses of bisulphate of soda. I did not allow it to be used, but it could scarcely be expected that others should do this whose livelihood depended upon their supply of milk; and, if unnecessary to be done, the waste would be equally to be deplored. On the recovery of the only cow saved out of my herd of 20, the milk was given to some pigs. They rejected it at first, and after taking it, sickened slightly. I forbid its use for a week. Surely it is a point of great importance to the public health, and should be ascertained, and inspectors should have the power of certifying that an animal is or is not in a fit state to be milked. At present no one knows where to turn for any advice, and it seems to me, and I believe I may add that I represent the opinions of many, that upon such an occasion as the present our Government should take the lead in guiding us how to act, and in assisting us to meet an emergency which is full of difficulty and danger to all classes. According to the account of the murrain drawn up in 1745, the spring months proved the most severe, whilst it slumbered in winter. We must not, therefore, reckon upon its ceasing with the year; nor should we forget that we have not the cold which in Russia, I presume, checks the infection, and the absence of which accounts for the still greater severity with which it is said that the disease has visited Egypt, which is afflicted with this as well as with cholera."

7. ON THE ORDER IN COUNCIL.—If the Government exercise the unheard-of arbitrary powers of entering by its officials the farmer's sheds, and slaughtering indiscriminately his cattle, surely it ought to take especial care that none but duly qualified persons, who can produce certificates of competency from the Veterinary College, or some other good authority, should be intrusted with such vast responsibility and stretch of power as the lately issued Orders in Council give them? And not less incumbent is it on the Government to fully compensate every owner of cattle for losses occasioned by it where

it has, through its officials, destroyed any of his beasts. There is no doubt but that, through ignorance of the disease, and want of confidence of the inspectors, hundreds of beasts will be unnecessarily destroyed. Many of these inspectors when called upon in discharge of their duties will, it is presumed, argue thus:—"This beast may or may not be affected with the "cattle plague," but it will be best to slaughter and bury it at once, as no one will then be able to say that it was not suffering from the direful disorder. If, however, on the other hand, its destruction be delayed, and unmistakable symptoms of the true disease manifest themselves, followed by other cattle in the neighbourhood falling down in the same complaint, our reputation as inspectors will be at an end." Thus it is contended that an inducement, if not a premium, is, under the present system, held out for the unnecessary waste of meat at a time when it is at almost a famine price. *John Combes, Land Agent, and Hon. Sec. to the Devizes Union Mutual Cattle Assurance Association, Devizes Sept.* 12.

S. MR. HENLEY, M.P., AT BICESTER.—I cannot part with you without saying a word on what, in common with me, you will all have read in the papers this morning about the cattle plague. We have been favoured with a list of directions and memorandums published under the authority of the Privy Council, and drawn up by a gentleman whose name I hardly know how to pronounce. Whether it is Thudicum or Dudicum I have been at a loss to discover; but, at any rate, the directions emanate from a learned doctor of medicine with a very outlandish name. Now, these instructions contain some such very unusual things that I cannot help calling the attention of those agriculturists who go about the country and attend fairs to the nature of some of the recommendations. Among other things, the Doctor recommends the use of what is called a "safety dress." In particular I wish to call the attention of our chairman to this. He is so good a judge of costume that I hope the advice will not be lost upon him. The learned Doctor recommends in the first instance—beginning, not at the head, but the feet—that good boots should be worn, well greased, and reaching up above the knees. The next thing he recommends is a waterproof coat, closely buttoned all down the front and tied very tight at the neck, and, in addition, a cap is to be worn which does not allow too much of the hair of the head to escape. Now that is suggested as a safety dress, and our agriculturists are recommended in the present state of the weather to adopt it when attending the country fairs. Another direction is that when any beast is affected, or suspected, or troubled with diarrhœa, the tail should be tied up to one of the horns. Like a man of deep science, the learned Doctor gives his reason, which is, that if the tail be tied up the animal will not dirty it and will not be apt to distribute the fœces with the peculiar action which that region is subject to. Now, these are all things so simple and so quite within the power of all of us to do that I cannot think we shall any of us avoid following the learned doctor's advice published through the Privy Council. A further measure is suggested as a mode of disinfecting a meadow, and that it must be somewhat efficacious I have no doubt. Every piece of manure upon it is to be carefully burnt, and the soil turned wrong side upwards, and if that is not sufficient then you are to proceed to mow all the Grass and burn it. Then, that there may be something for the beasts to eat afterwards, you are to take care not to turn any cattle in for a month. That is the remedy given under the sanction of the Privy Council for disinfecting a meadow. Although these things make one laugh, yet in talking the matter over, one cannot help the grave reflection that recommendations of this kind—whether they may be the wisest or not is another matter—would not be published under the sanction of her Majesty's Government unless they felt the gravity of the occasion. They would never have taken the pains to issue instructions filling two columns of the newspapers, and containing some things good and useful with some that are not likely to be much followed, unless they knew that the occasion was very grave, and that it behoves us all to do what we can to put a stop to this serious malady.

ROOT GROWING AT BRACKLEY.

THERE is everywhere abundant promise of cattle food during the coming winter. The hay crop has, indeed, been generally deficient; but there never was such an aftermath, and never a better second cut. The store of hay will thus not be attacked till much latter than usual in the season, and then there will be an unusually abundant crop of Swedes and Mangels to consume along with it. It is not such a good year as the last was to test the merit of any particular mode of cultivating the root crops; for, however cultivated, the crop is this year generally good. We were, however, last week over a small farm near Brackley, where the root crop has been almost always good—even last year—and first-rate now. Mr. Malins, who occupies about 200 acres on the brown oolite soil near Brackley, most of it his own property, has for about eight years followed a particular system of root cultivation, of the advantages of which he is every year more perfectly convinced—and already, on nearly 30 acres, he has a full and bulky crop, which, with several months of growth still before it, will certainly be much heavier before the end of the year.

The merit of his plan lies not only in its productiveness but in its cheapness. The fields are old arable land, chiefly a brashy stony soil—some of it much heavier and deeper—but receiving little or no manure for the Turnip crop. Sometimes there is a portion of the farmyard dung allotted to the Wheat stubbles for the Swede crop, but oftener there is none. The abundant crop we saw last week was grown with none, and no artificial manure whatever is employed. The experience of Mr. Malins in root cultivation, like that of the Rev. S. Smith, of Lois Weedon, in Wheat cultivation, is a capital lesson in the fertilising influence of tillage.

The Wheat stubbles, slightly manured or not manured at all, are ploughed deeply before winter, and never moved again. That and early sowing are the keystones of the system. Let us here describe the management in detail. There are 110 acres of arable land, some 20 acres of meadow, the rest being grazing ground. The arable land is cultivated on the four-field system, with the Clover quarter halved between Beans and Clover. Clover thus comes round once in eight years—Swedish Turnips once in four. The straw of the corn crops is consumed in yards with some 25 or 30 beasts each winter, receiving 3 or 4 lb. of cake apiece each day. And the dung carted out to heap is used first on the Clovers either in spring, or after the second cut in the autumn, before being ploughed for Wheat. Then it is used every year at the rate of 10 tons or thereabouts per acre to the pasture land, which is mown each year. The remainder becomes available for the Bean crop over the half-breadth of Barley stubble not sown down with Clover. Occasionally a field of the grazing ground is dressed. And, if there is any over, it is applied to the Wheat stubbles, which are ploughed deeply up for Swedes as soon as Wheat sowing has been accomplished. The autumnal ploughing is done with a four or five-horse team, and done thoroughly and deeply. The land has all been thoroughly drained, and so it lies rough, and deep, and dry all winter. In spring, if any surface weeds appear, they are lightly harrowed down; and in the first week of April, about 2 lb. of Skirving's Swede seed are drilled in rows 2 feet apart. The seed comes generally at once. It is almost too early for the fly, and the land is full of moisture, and so the young plant grows. Under ordinary management the crop would certainly be mildewed. We hear of sowing Turnips as early in the spring as possible in the north, but here an early-sown crop is almost certain to be mildewed. Mr. Malins, however, has never suffered from mildew—not that there is none in the field—the lower leaves of almost every root are already discoloured, and many of them withered, and many of them meally enough—but there is always a heart of fresh green leaf still feeding the bulb—and those we examined were as firm and good as possible. The plants are singled out 2 feet apart. The surface of the intervals is simply pared with a horse hoe. The men who single the plants go over the ground with the hoe a second time. The 6*s.* 6*d.* paid for this, the horse labour of the light horse-hoeing, harrowing, and drilling, and of the single heavy ploughing are all the cost and labour of the crop. All—for the crop is never pulled or carried home. It is wholly fed on the ground with sheep—and there will be food enough for about 400 heavy Cotswold tegs, receiving also the Clover hay off about 13 acres, for four months this winter, but no corn or cake.

We do not mean to say, nor does Mr. Malins suppose, that the experience of this management at Brackley will be realised anywhere. Nevertheless it is certain that everywhere the lesson may be learnt of the fertilising influence of tillage operations for roots as well as corn. The land here, too, is not unusually good. It is in many places thin and brashy—elsewhere, and there the crop is obviously heavier, it is deeper and better. The farm is only half arable, but the Grass land is not robbed for the plough land. There is one meadow of 20 acres mown every year—furnishing, therefore, hay every year towards the general dung heap of the farm, and there are some 3 lb. of cake purchased for each of about two dozen beasts daily during the winter. This also improves the dung heap. But this dung heap is drawn upon for the meadow land and pasture land, as well as for the arable. So that only a portion is put on the Clovers for Wheat and on the Barley stubble for Beans, leaving a very small quantity for the Swedes; nevertheless on this, and on the very heavy folding with sheep—the consumption of the whole crop upon the land where it grew—depends the maintenance of the general fertility of the land—on this, and on deep, and clean, and thorough tillage. Care is taken that whatever food for plants the land contains shall not be wasted on the farmer's enemies. It all goes to the Swedes, the Wheat, and Beans, and the other cultivated plants—none, or hardly any, to Thistles, Couch, and other enemies. All these are thoroughly extirpated; and the hedges being kept forked, and every root-weed also being forked before the ploughing is done, there is no seed-bed by which it is reproduced.

It is, however, especially to the cultivation of the Swede crop that the attention is directed. And it seems, from the experience of Mr. Malins, that on soils of a certain class—by no means of the very highest natural fertility—an early seed-time, with the consequent long time afforded to plant growth upon land which has been deeply ploughed all winter, is enough to produce an excellent crop of roots. There are no deep or frequent horse-hoeings allowed during the growth of the crop—no breakage of either root, fibre, or leaf. The young plant, uncrowded even as a seedling, and left widely separated from its neighbours from the beginning, is left to find its food from air and soil under the condition not of an artificially supplied fertility, but of a great depth and area of natural soil. It thus grows comparatively slowly, but healthily, and the fields are now full of roots measuring 2 feet round, and many of them more than 30 inches.

It is by no means meant by this account of root cultivation near Brackley either to disparage artificial manuring or to intimate that mere tillage will everywhere do all that it accomplishes here; but we do mean by it that everywhere deep and thorough tillage is a most efficient fertilising agent, and that anywhere a better crop may be obtained by depending more on this than is generally done.

We may add that, notwithstanding the early sowing, not a single plant has run to seed; nor is the mildew such as to hinder the continued growth of the plant, which, moreover, has already attained the dimensions of an excellent crop. *Oxford Journal.*

RECENT SHEEP SALES.

LEICESTER RAMS: *Kelso, Sept.* 7.—We append the result of those sales averaging 10*l.* each, or thereabout, which took place at the different rings:—

Auctioneers—Messrs. Donkin.

No. of Rams.	Owners.	Highest Price	Average
		£ s d	£ s d
90	Rev. R. W. Bosanquet, Rock, Alnwick	21 0 [illegible]	10 [illegible] [illegible]
55	Mr. Dinning, Adderstone, Belford	30 0 0	11 [illegible] [illegible]
38	Mr. Wood, Thornbrough, Hexham	19 0 0	10 [illegible] [illegible]
45	Mr. Wilson, Haymount	18 0 0	9 12 [illegible]
40	Mr. Calder, Kelloe Mains	42 0 0	8 [illegible] [illegible]
35	Mr. Cunningham, Grahamslaw	15 10 0	10 1 [illegible]
44	Mr. Stark, Mellendean	81 0 9	24 [illegible] [illegible]
40	Right Hon. Lord Polwarth	95 0 0	37 [illegible] [illegible]
67	Mr. Simson, Courthill	36 0 0	11 [illegible] [illegible]
100	Mr. Purves, Lintonburnfoot	48 0 0	12 [illegible] [illegible]
60	Mr. Nisbet, of Lambden	22 0 0	[illegible] [illegible] [illegible]
80	Mr. Melvin, Bonnington	29 0 0	9 14 [illegible]
20	Mr. Watson, Esperston	30 0 0	12 4 [illegible]

LOTHIAN.—Duke of Buccleugh—highest price 28*l.*; average, 12*l.* 0*s.* 9*d.*

The *Kelso Mail* gives particulars of former years as follows:—

The following table shows the number of the entries during the last 12 years; but it must be borne in mind that while the figures for the first 10 include the half-breds, those for the last two refer solely to the Leicesters, and both are exclusive of the animals sent for disposal by private bargain:—

1854 ..	1750	1857 ..	1630	1860 ..	2033	1863 ..	[illegible]
1855 ..	1850	1858 ..	1532	1861 ..	1814	1864 ..	[illegible]
1856 ..	1325	1859 ..	1518	1862 ..	2300	1865 ..	[illegible]

The highest and top average prices during these years were as under:—

Years	Highest.	The highest average.	Years	Highest.	The highest average.
1854	£35 0 0	£10 10 0	1860	£52 10 0	£10 7 [illegible]
1855	50 0 0	11 11 5	1861	52 10 0	17 0 0
1856	26 0 0	9 6 9	1862	50 0 0	17 10 [illegible]
1857	46 0 0	11 12 0	1863	60 0 0	21 6 [illegible]
1858	30 0 0	10 12 4	1864	70 0 0	26 10 [illegible]
1859	38 0 0	12 4 8	1865	95 0 0	37 15 [illegible]

The subjoined compilation shows the highest and average prices obtained in these years (as far as they can now be ascertained) by one or two of the principal local breeders, the largest sums in each case being of course those which topped the sales of their respective years:—

Year.	Name.	Highest. Price.	Highest Average.
1854	Mr. Dickinson, Magdalenhall	£35 0 0	£5 1 [illegible]
,,	Mr. Ruddick	21 0 0	9 0 [illegible]
,,	Mr. Brown, Burton	..	10 10 [illegible]
,,	Mr. Purves	9 5 11	7 0 [illegible]
1855	Lord Polwarth	50 0 0	8 2 9
,,	Mr. Ruddick	..	11 11 5
,,	Mr. Stark	..	7 16 2
,,	Mr. Purves	..	5 0 5
1856	Mr. Dickinson	26 0 0	6 15 1
,,	Mr. Cockburn	25 0 0	9 6 9
,,	Lord Polwarth	24 0 0	8 6 [illegible]
,,	Mr. Stark	..	8 11 0
,,	Mr. Purves	..	4 11 10
1857	Mr. Stark	46 0 0	10 5 0
,,	Mr. Murray, Mount Pleasant	30 0 0	11 12 0
,,	Lord Polwarth	30 0 0	7 9 0
,,	Mr. Simson, Courthill ..	..	9 2 1
,,	Mr. Purves	..	6 10 [illegible]
1858	Mr. Stark	30 0 0	10 12 4
,,	Mr. Simson	..	7 7 10
,,	Mr. Purves	..	7 5 6
,,	Lord Polwarth	..	6 17 5
1859	Lord Polwarth	38 0 0	11 4 0
,,	Mr. Stark	..	12 4 8
,,	Mr. Purves	..	8 4 [illegible]
,,	Mr. Simson	..	7 11 8
1860	Lord Polwarth	52 10 0	10 7 0
,,	Mr. Simson	..	6 15 2
,,	Mr. Purves	..	5 13 [illegible]
1861	Lord Polwarth	52 10 0	17 0 0
,,	Mr. Simson	31 0 0	10 5 1
,,	Mr. Purves	26 0 0	8 9 [illegible]
,,	Mr. Stark	25 0 0	7 9 [illegible]
1862	Lord Polwarth	50 0 0	17 10 [illegible]
,,	Mr. Simson	45 0 0	8 0 [illegible]
,,	Mr. Stark	31 0 0	9 3 3
,,	Mr. Purves	19 0 0	8 16 [illegible]
1863	Lord Polwarth	60 0 0	21 6 [illegible]
,,	Rev. Mr. Bosanquet	28 0 0	9 1[illegible] [illegible]
,,	Mr. Simson	27 0 0	11 1[illegible] [illegible]
,,	Mr. Purves	24 0 0	1[illegible] [illegible]
,,	Mr. Stark	17 10 0	8 [illegible] [illegible]
1864	Lord Polwarth	70 0 0	26 [illegible] [illegible]
,,	Mr. Stark	57 0 0	9 0 [illegible]
,,	Mr. Calder	51 0 0	12 1[illegible] [illegible]
,,	Mr. Torrance	33 0 0	19 1[illegible] [illegible]
,,	Mr. Simson	32 0 0	[illegible] [illegible] [illegible]
,,	Mr. Purves	30 0 0	9 7 [illegible]
1865	Lord Polwarth	95 0 0	37 15 [illegible]
,,	Mr. Stark	81 0 0	24 [illegible] [illegible]
,,	Mr. Purves	48 0 0	1[illegible] [illegible] [illegible]
,,	Mr. Calder	42 0 0	8 1[illegible] [illegible]
,,	Mr. Torrance	41 0 0	12 1[illegible] [illegible]
,,	Messrs. Laing	40 0 0	10 [illegible] [illegible]
,,	Mr. Simson	36 0 0	11 10 0
,,	Mr. Angus	33 0 0	8 1 8
,,	Mr. Dinning	30 0 0	11 5 9

SHROPSHIRE SHEEP AT SHREWSBURY.—Mr. W. G. Preece's great annual sale commenced on Tuesday, and the catalogue comprised 250 rams of the best and purest blood, selected from the flocks of the most eminent breeders. There was almost an entire absence of show or prize sheep, consequently no extreme price was obtained: the average prices were exceedingly good. Mr. Evans, of Uffington, sold 10 very useful sheep, in store condition, which averaged 9 guineas. Mr. P. W. Bowen sent 16 rams; one sold for 30 guineas, the general average being about 13 guineas. Mr. Thomas Mansell, first Royal prize winner of the year,

sent a two-shear, which fetched 14½ guineas. These were followed by a lot of 18 sheep from the flock of Lady Willoughby de Broke. Five of these exceeded 1 guineas, and the whole averaged nearly 14½ guineas. The first 8 of the Hon. H. Noel Hill's sheep made an average of 18½ guineas, and the whole the very capital average (the best of the day) of 17½ guineas. Mr. Thornton sent 9 sheep, which averaged 12 guineas; Messrs. Crane 20, which averaged 11 guineas. Mr. Henry Smith, of Sutton Maddock, produced 14 sheep, which averaged 12 guineas; Mr. Horton, of Harnage Grange, 7 rams, which realised 71 guineas; and Mr. Meire, of Berrington, had a capital shearling which fetched 9 guineas. Messrs. Bowen & Jones sent 5 of their out-wintered rams, which averaged 10 guineas, some of them being purchased by Mr. Fortune for the Earl of Powis. Mr. D. R. Davies, of Mere Old Hall, who has introduced the Shropshire into Cheshire, with the praiseworthy view of improving the sheep of that district, sold one which reached 30 guineas; this being secured by Mr. Jervis, of Upon Magna. The Hon. E. Kenyon, of Maesten, averaged nearly 18 guineas for his lot. Mr. Griffith's (of Hanmer, Flintshire) shearling rams made 17 guineas each, and his ram-lambs 5 guineas each. The sale concluded with a few long-woolled sheep from Mr. Smith, of Pitchford, which averaged 9 guineas each.—The sale was resumed on Wednesday, when 1500 stock ewes were all sold at unprecedented prices, viz., from 3*l.* to 7*l.* 2*s.* 6*d.* each, the aggregate amount of the day's sale reaching 6,000*l.* This was the largest sale of Shropshire sheep that has ever taken place. It was attended by buyers from all parts of the United Kingdom.

Cheviots (at Edinburgh).—Mr. Moffatt, Kinleith, 26 Cheviots—highest, 32*l.*; average, 11*l.*

Blackfaced.—Mr. Aitken, Listonshiels, 85—highest, 24*l.*; average, 6*l.* 10*s.*

ON STEEPING WHEAT FOR SEED.

Upon the careful preparation of Wheat for seed depends, to a considerable degree, the value of the future crop. Several diseases to which the plant is subject are believed or known to have their germs resident in the seed or on its surface, and to remove these should always be the object of a careful operation at seed time.

The two diseases, to avert which is the main object of steeping and otherwise preparing seed Wheat, are the smut and bunt or pepper-brand; in the latter, which is the more dreaded of the two—because the grain retains its form and appearance in the sample—the parasitic Fungus which produces it has a peculiarly fetid odour; in the former this smell is wanting, and the seed-vessels burst, dispersing their sooty contents before the general ripening of the crop. Smut is more common in Oats than in any other grain crop.

It has been known long before those who adopted the practice possessed any definite idea of the cause of these diseases, that the best method of avoiding them was thoroughly to cleanse the seed. Botanists have since informed us that the success of this operation is owing to its removing from the surface of the seed the germs of those Fungi to which these diseases are owing—germs of inconceivably small size—not above $\frac{1}{1600}$ of an inch in diameter—so small, in fact, that they are absorbed by the root of the young plant.

The following passages are extracted from Professor Henslow's report. Referring to the bunt or pepper-brand, he says:—

"Upon simply immersing the grain in water, the infected seeds float, and on the water being poured off nothing but the sound ones remain in the vessel. This simple process, however, is never perfectly effective, because in threshing the Wheat, many of the infected grains (smut-balls) are crushed, and the spores are dispersed in the form of a fine powder, which adheres with considerable obstinacy to the surface of the sound grains, by means of an oily or greasy matter found in the Fungi. In order to detach them thoroughly, it has been considered useful to add some alkaline ley to the water in which they are washed; because oil and alkali unite and form a soapy substance, and then the spores will no longer adhere to the surface of the grains of Wheat. Lime, possessing alkaline qualities, has been long employed for the purpose. Common potash, and substances containing ammonia, as the liquid portion of stable manure, have also been used. But as some persons employ brine, sulphate of copper, arsenic, and a variety of other materials which do not possess alkaline properties, it is supposed that all these solutions act rather by destroying the vegetative properties of the Fungi, than as a means of removing them from the surface of the grains. It may therefore be worth while to institute a set of experiments to determine which supposition is really correct. Perhaps some portion of the effect may be owing to the increased specific gravity of the liquid; or perhaps some portion of the solution may be imbibed by the steeped corn, sufficient to prevent the sporules of the Fungus from germinating within the substance of the plant; just as corrosive sublimate, essential oils, and Russia leather, prevent the formation of mouldiness. I may also add that the temperature at which the solutions are applied may be of some importance."

In the section "On the precautions to be taken against bunt and smut," a suggestion is offered which we think well worthy the attention of farmers. Professor Henslow says:—

"From a variety of considerations, it has always appeared to me strange that practical agriculturists are accustomed to pay so little attention to the raising of pure seed-crops. There may be reasons which I do not properly appreciate that would render it inexpedient to cultivate a seed-crop apart from the rest of the produce raised on a farm; but I should have thought that it was always worth while for every farmer to set aside some portion of ground to be more carefully tended than the rest, for the purpose of securing good and perfectly clean seed. Among other reasons for such a practice, he would then be able to weed his crop from every plant infected with bunt or smut, before the Fungi ripened."

It is certainly the interest of the farmer either to do this or to purchase his seed from those who pay particular attention to its cultivation.

We shall make only one more extract, in which a series of experiments are recommended with the view of ascertaining what substances in solution are the most effectual preventives of these diseases. These are published here, as being likely both to lead the practical reader to a useful conclusion as regards his own practice, and also to encourage the habit of investigation generally.

"A parcel of thoroughly bunted or smutted seed should be divided into a number of small packets, each of the same weight; or, if very small, each containing the same number of grains. When any of these packets are steeped or washed, the floated grains and the Fungi which rise to the surface may be kept apart for separate experiments, being carefully labelled 'F. 1,' 'F. 2,' &c., to show that they were obtained from the packets of seeds 'No. 1,' 'No. 2,' &c., by this process.

No. 1. Seeds unwashed, to serve as a comparative experiment.

No. 2. Washed in cold water only—(2*), in scalding water.

No. 3. Washed in water with lime, the proportions specified.

No. 4. Washed in water and brine.

(*a*) Mixed in the proportion of 2 water to 1 saturated brine.

(*b*) Mixed in the proportion of 1 water to 1 saturated brine.

(*c*) Mixed in the proportion of 1 water to 2 saturated brine.

(*d*) Saturated brine.

No. 5. Washed in sulphate of copper.

No. 6. Sprinkled, but not washed, with lime.

"Another set of experiments may be prepared with clean corn, to be infected with the floated Fungi obtained in washing the above.

No. 7. rubbed with—

(*a*) F. 2, to serve as a comparative experiment.

(*b*) F. 3, (*c*) F. 4. (*d*) F. 5.

"Another set may be prepared with clean corn, which should first be steeped in different solutions, and then rubbed with the Fungi obtained by simply washing in water (No. 2).

No. 8. Steeped in lime, and rubbed with F. 2.

No. 9. „ brine and do.

No. 10. „ sulphate of copper and do.

"These last may be repeated by washing the seeds clean after they have been steeped, to remove any of the mixture that may here adhere to the surface."

In addition to brine, blue vitriol, &c., Glauber's salts, the sulphate of soda, has been recommended to be used just as the sulphate of copper, and then dried with lime, which decomposes it and leaves caustic soda on the surface of the grain, to deal with and destroy the life of the fungal germs which may cling to it.

We may add the following report of experience on this subject, which is taken from a statement made some years ago by Mr. David to the Cardiff Farmers' Club.

"In November, 1822, I selected three bushels of Wheat, which I had grown that summer, and which was exceedingly smutty, but to render it still more so, I had a quantity of smut-ball rubbed into it, until the whole was much blackened. The lot was then divided into six half-bushels, and having dissolved half a pound of blue vitriol in boiling water, the Wheat was pickled as follows:—

No. 1. Immersed in the vitriol water for three hours.

No. 2. Washed and skimmed until it was clean, then immersed in the vitriol water as above.

No. 3. No preparation.

No. 4. Washed and skimmed well until clean.

No. 5. Washed and skimmed as above, then sifted quicklime over it, and mixed a quarter of a pound of salt with it.

No. 6. Pickled in the mode usually adopted, with a mixture of lime, salt, and water.

"The seed was sown the following day on a Clover lea, in six separate ridges, each 112 yards long by 4 yards wide, half a bushel to each ridge, being at the rate of near five bushels per acre. (!)

Nos. 1, 2, and 5 came up thin, seemed to be at the rate of only two bushels per acre.

No. 6 appeared to be at the rate of about 2½ bushels per acre.

No. 4 appeared to be at the rate of about 3 bushels per acre.

No. 3 appeared at the rate of about 4 bushels per acre.

"Sept. 5, 1823.—The whole was reaped, each lot being carefully kept separate, and the result proved as follows:—

No. 2. Found only two smutty ears in the whole ridge, which, notwithstanding the care taken, might have come from an adjoining ridge.

No. 1. Had several smutty ears in it.

No. 5. From 30 to 40 black ears in the ridge.

No. 6. About a 20th part smutty ears.

No. 4. About a 5th part smutty ears.

No. 3. About one-half smutty ears.

"From which it appeared that the blue vitriol, coupled with washing and skimming, proved to be an effectual cure, even to a sample of the description sown. Ever since, I have invariably used vitriol, and have found from 20 years' experience on upwards of 100 acres of Wheat annually, that one pound to a sack of Wheat will prevent the disease, as I have never had smutty Wheat since. I believe the cure was effected in the above by destroying the vegetative powers of the damaged seed, for it will be observed that the produce was clean in proportion to the thickness of the plant."

We have only to add that we have found the use of blue vitriol (sulphate of copper) to be perfectly efficient, though at the rate of only half a pound per bushel. But to add quicklime to the Wheat after having steeped it in this solution, as was done in one of the above trials, is entirely erroneous. Lime will decompose sulphate of copper, and to add it to the Wheat after steeping it, as above, would, therefore, be an attempt to neutralise the benefits which are expected from the use of that substance for this purpose. The recipe is as follows:—Dissolve half a pound of blue vitriol in a gallon of warm water in an earthenware vessel, and pour it over a sack of Wheat on the barn floor, and turn it over and over, so that every grain shall be thoroughly wetted. It will be dry and ready for sowing in two or three hours' time. Do a sack at a time, and do not have too much done beforehand, as it is better that it should not lie long in heaps before sowing. *Morton's Farmer's Calendar.*

THE CONTINENTAL FEEDING OF DAIRY COWS.

The great feature of the continental management of dairy cows is the very general adoption of the summer as well as the winter soiling of the animals, or what is called the "stabulation permanente." It is to the Continent, therefore, that we must look for the best exposition of the advantages and disadvantages of the system, only noting here that, in the opinion of by far the greater majority of authorities there, the advantages outweigh considerably the disadvantages. It will be worth while, therefore, to glance briefly at what are the modes adopted on the Continent in the management of dairy cattle; and in doing this we cannot do better than follow the celebrated treatise by Baron E. Peers, entitled "De la Stabulation de l'Espèce Bovine," premising that, although the remarks of this celebrated authority have special reference to the district of West Flanders, they give a fair idea of the modes adopted generally throughout the Continent. There are three systems essentially marked and distinct—(1), the system of the (stabulation) housing, absolute or permanent; (2), that of housing, mixed or temporary; and (3), the pasturage system. These three systems under which the milk cows are placed have each their uncompromising advocates, and it is almost unnecessary to say that each can present its useful side, and one may have benefits which another does not possess.

In districts where the arable lands are good and well cultivated, and which bring in a good rental, and where the pasturages and the meadows for the supply of hay are not common, the farmers are in a measure compelled to adopt the first of the above named systems, that of the permanent housing (stabulation), this constituting the basis of their feeding system. The green crops or hoed plants (*les plantes sarclées*), such as Cabbages, Turnips, Mangel Wurzel, Carrots, are therefore in a measure forced to form part of the rotation of the farm. The market gardener in the neighbourhood of large towns finds great benefit in the adoption of this system for his milch cows, for he feeds them with the residue of numbers of vegetables which he daily exposes in the market for sale. He has a ready sale, moreover, for his milk, and the system provides him with a good supply of manure for his crops. In the condition in which he is placed the pasturage is not practicable, and the raising of Grass crops would land him in large deficiencies.

In the third system—that of pasturage—the cows are placed to Grass either during a part—and that the greater part—of the year, or during the whole year. This system undoubtedly seems the most natural in its general aspects; but it is only in highly-favoured districts where the pasturage can be carried out during the whole year. The farmers of a great part of Holland, of some localities which stretch in vast extent along the sea margin of the North Sea from Dunkirk in France and along the coast of Belgium to l'Ecluse on the frontiers of Holland, and of the valleys in which flow streams and rivers, in order to obtain a supply of cut Grass, find themselves under the necessity to adopt the system of permanent pasturage during several continuous months. The

Grass being the principal product of these farms, it is necessary for the cultivator to consume it as much as possible on the land; and converting a portion of the Grass of these natural meadows into hay, in order to find food for winter, he has the after Grass for the cows, which is thus a supplementary food, and at a period when the Grass does not grow with the vigour of early spring. But those localities where large flocks can find in natural pastures and meadows a proper supply of food during a lengthened period of the year are not common; and those districts are certainly privileged where the pasturage can be carried out during the months of winter. Permanent pasturage can only, therefore, be understood in a limited sense, comprising some seven months, during which the Grass is fairly abundant, the housing of the animals being carried out all the winter till the return of spring. It is in West Flanders that we find all the systems which we have noted adopted with a certain degree of success, although it may be said that their adoption depends upon motives of which theory does not approve, but of which it may be said that practically they are successful. The permanent housing is now, and has been from time immemorial, carried out in a large part of the district of Courtrai in Belgium, long celebrated as a Flax-growing district. Several causes have determined the farmers of that district to adopt the system which they have found so beneficial to their interests; and it may be said, without fear of contradiction, that they understand thoroughly this department of their practice. Amongst those causes above alluded to is the extent of the alluvial lands bordering the river Lys, and which, possessed of a remarkable fertility, have long been devoted to the culture of the industrial plants, as Flax, oleaginous plants, and to the cereals. It is easily to be comprehended, therefore, that in such localities, where every foot of ground is cultivated with such painstaking care, that more value is set upon, and, in fact, obtained from them, than could be from the same extent of land placed under Grass. Fertile soil, highly manured and rich in nitrogen, farms of small extent cultivated by hand, with labour abundant, such are the motives which plead strongly in favour of the adoption of the system of permanent housing, and in the rejection of the pastoral system, which cannot be embraced without compromising the very existence of the workmen who are required in numbers to carry out the various operations involved in the cultivation of numerous crops.

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We proceed to notice other points treated of by Baron Peers, connected with the soiling or housing system as practised on the Continent, and which have an equal value in the practice of this country. Amongst the questions which are still disputed, and seem as yet far from being definitely settled, is that which has reference to the relative cost of the two systems—the pasturage of the cows during eight months of the year, and the permanent housing of them during the whole of it. Superficially examined, the pasturage system would seem to carry with it the greatest number of economical advantages; but a closer investigation will lead to the opposite conclusion. This holds, of course, in districts where pasturages are rare; where pasturages are, on the contrary, abundant and productive, it is incontestable that the permanent housing system will not be so economical as the pasturage. Let us examine the facts. A cow or ox will require as a minimum 50 ares of pasture land during 200 days. Let us suppose that these 50 ares occasion an outlay of 100 francs annually for all expenses, including rent, making the cost of daily nourishment during the period above named 50 centimes per day. Taking the Red Clover as the forage plant which yields the most abundant crop of food, and which is the most easily cultivated in a wide variety of soils, and as constituting, therefore, a fair means of comparison, we find that two cuttings will produce regularly 10,000 kilogrammes of green food per 50 ares. This will give for 200 days a daily quantity of 50 kilogrammes. The expenses attendant upon this extent of land, and the cultivation of the crop which it bears, may be put down as the same as those attendant upon the same extent of pasture land; but while there is thus a similarity in the cost, we find a higher value attached to the products of the 50 ares under Clover than the 50 ares under pasture.

As regards the produce of milk, let it be at once admitted that it will be equal in both cases, the cow fed in the pasture field and that fed in the house; but in the latter case we have a produce which at once gives it a higher economical value. In the pasture, the excrements voided by the animals produce most irregular, and, in many cases, most prejudicial effects upon the land on which they fall. The vegetation is doubtless often very luxuriant where the manure is voided, but frequently the animal has a distaste for the Grass grown upon such spots; moreover, lying there exposed to the atmospheric influences, a great loss of its manurial value is sustained. On the contrary, in the housing or soiling system, the best and most ready means are afforded for saving the manure. The value of this, as produced by one cow during 200 days, is set down at 40 francs, thus at once reducing the cost of the Clover feed from 50 ares to 60 francs. In the housing system all the food, except in cases where the most culpable negligence is permitted, is utilised; none of it is or need be lost; in the pastures a large per centage—10 per cent.—is calculated as utterly lost from a variety of causes, most of which we have already named. Again, the green-cut food used in the housing system may be further economised by mixing it with other food, as with cut straw and with sliced roots.

There is yet another advantage connected with the housing system, and that is the great facility which it affords in the maintenance of the health of the animals; but as to this we have already alluded. Nothing further on it, then, need here be said, except to point out that the thorough cleaning of the animals is very easily carried out, the ordure is easily removed, and the currycombing also—not often done in England—which is found wherever it is adopted to exercise the most beneficial influence upon the health of the cow. In carrying out the system of pasturage, it is right to note here what Baron Peers says respecting the two plans of having—during the continuance of the season—(1) the animals brought home night and morning to be milked; and (2) the animals milked in the fields. The Baron advocates the latter as the best; for, as he remarks, nothing favours so much the abundant secretion of milk as tranquillity, and the liberty which they enjoy in the field, the exercise they take there being sufficient for the maintenance of good health. In Holland, where the pasturages are of very fine quality, the cows are kept out night and day; and the women go to the fields and milk them at a regular hour in the morning and at night. The quiet of the animal is thus secured. But where the practice is carried out of leading the cows home night and morning to be milked considerable loss is sustained, for not only is the distance from the field to the farm-house so considerable as to induce fatigue, but many things happen to frighten them, the result of all which is that the milk is rendered either less in quantity or reduced in quality. It may be taken as an axiom that all agitation is bad for the cows.

The continental authority, of whose opinions we have thus given a free translation, is a great advocate for the use of oil-cake for milk cows, in conjunction with the bulky and aqueous root food generally given; by the addition of the oil-cake the secretion of milk is not only greatly favoured, but also the healthy development of the animal; on this point Baron Peers and Mr. Horsfall are at one. The oil-cake facilitates the secretions and the dejections, and gives to the milk an exquisite flavour, and a great richness in butter-making principles. Making the oil-cake as the basis of the food of the milk cow, the Baron admits all the other alimentary substances into the category of daily food. He is, indeed, like the majority of scientific agriculturists, a great advocate for the use of a wide variety of foods, so that a change of diet as well as a mixture of food may be within easy reach of the dairyman; and on the value of a mixture of food, this able authority has some very good remarks. He does not, however, conceal the danger that may arise from rapid changes of diet, as from dry to succulent food, and *vice versâ;* but he believes that, by the exercise of a little care, this may be avoided, as by mixing succulent food with dry, as green-cut forage with straw, gradually increasing the quantity of the food which is alternately to form the staple of the animal's meals, eight days will suffice, he says, to habituate the animals to a change of food.

In considering the number of feeding materials at the command of the dairyman, it may be asked, why does he confine himself to one only? The system of mixing a variety of feeding substances together will infallibly provoke—says our authority—the appetite of the animals, facilitate their digestion, and maintain them in good health. Thus, during the period in which the housing is enforced, as in the winter months, the dairyman may have at his command the varieties of straw, as Oats, Wheat, and Barley—of hay, of Turnips, Beet-root and Carrots—so that he may easily concoct an excellent mixture. Cut hay and straw with sliced roots, we look upon as the basis of a feeding material, economical for the farmer, and healthy for the animal. Economical, because the smallest particles of these substances are converted without loss into valuable aliment; healthy, because these mixtures have a good influence upon the digestive organs in equalising the diverse qualities of the feeding substances. Thus the straw and the hay have a constipating, while the roots have a relaxing, tendency. . . We consider it, therefore—continues our authority—an essential to have a mixture of food, to maintain the animals in a just equilibrium, so that their excrements may not have either a too great solidity or liquidity. Baron Peers is no advocate of cooked and fermented food. Cooked food, he admits, forms an agreeable mode of administering it, but he believes that it withdraws from the roots a good portion of their valuable qualities, leaving only the watery and fibrous portions. Of all the roots the Potato should, he thinks, be alone cooked; but then this root is rarely given to milk cows, because it has little influence in increasing the yield of milk, while, on the other hand, it makes the butter difficult to be extracted. We have already noticed that Baron Peers is a great advocate for the use of oilcake, and of this as a food which can be cooked. It is perhaps the best, because cooking develops instantaneously the valuable products which it contains. Of fermented food, he says, that it has the advantage of containing much valuable matter easily digested. Fermentation requires to be conducted with considerable care, for if it is not carried up to a certain point, the good qualities of the food are not brought out; while if it is carried beyond a certain stage, the food is spoiled. In presence, then, of these difficulties and disadvantages connected with cooked and fermented food, Baron Peers advocates the use of a mixture of cut straw, hay, and roots, with a certain quantity of water and oilcake. This food will give a greater abundance of milk than dry or soft food. There are two ways of making this food. The first consists in cooking the oilcake, and throwing it over the surface of the solid food, mixing the whole well up, so that the solid substances will imbibe the liquid oilcake preparation. A species of soup will thus be formed, which the animals will eat with avidity. The second method consists in giving the ground mixed solid food dry, previously giving them a drink composed of meal and water in which oilcake is mixed. Of these two modes, Baron Peers prefers the first. In cold weather it will be advisable to give the food slightly warmed. *The Cow and the Dairy, Fullarton.*

FACTS FOR FLAX GROWERS.

A STRANGER to Ireland, or even a young Irishman ignorant of his country's agricultural history and her industrial traditions, on reading much of what has been published of late relative to Flax culture and its management would be led to suppose our ancestors were little acquainted with, if not grossly ignorant of, Flax culture.

This would be a great mistake, as I can assure you, as an old Flax grower, and having a perfect recollection of the practices in its regard, common not only amongst the old men but the old women of Ireland fully half a century ago, that the old men and women of that day understood then the culture of Flax fully as well as it is understood at the present day by "the Flax instructors," whether native or foreign, employed now to teach the natives how to grow it. It has of late been often a source of surprise, I had almost said of disgust, to me, to hear and read the remarks of men who would wish to be considered not only practically but scientifically acquainted with the culture of this crop, when assuming that it is so exhaustive of the natural fertility of the land grown as to forbid its extended culture, even in due course of land cropping rotation. The cause of my seeking thus to notice this crop through your pages is my having seen some important discussions of late through them by Englishmen who are in earnest on the matter, and unlike some of my own countrymen, not easily dissuaded from a matter of so much importance.

As every well-educated agriculturist fully understands its primary culture, and as every intelligent stockfeeder knows the great value of Flax seed in the manufacture, if I may so express it, of fleshmeat, I will merely say that in this country from 1000 feet over the sea's level to within 10 to 20 feet under it, at high water mark, there will be found no land when ordinarily treated incapable of growing good Flax except the following—(1), very deep or unreclaimed bogs; (2), light, open, shallow, gravelly soils; and (3) very shallow soils, whether light or heavy, resting on rocky subsoils generally but on limestone rocks more especially. Nor is there any culmiferous crop in the rotation more profitable than a Flax crop, even should the fibre be but a matter of secondary consideration. Neither is there any crop better calculated to lay down with, whether the object in laying down such land be to produce Grass and Clovers for soiling, or for temporary or permanent meadow or pasture.

Furthermore, Irish-grown Flax seed when well saved and judiciously selected will be found as well adapted for resowing*, and the production of oil and cattle-food as the very best that can be imported.

These facts admitted, and no well-informed practical man will attempt to gainsay them, it is to be hoped that whatever failures have taken or may hereafter take place in Flax culture will be attributed to their true causes—want of judgment in a variety of ways too numerous to mention here in detail, even were this the time to discuss them. What I wish now cursorily to discuss is (1) the steeping ponds, (2) the retting, and (3) the drying. Steeping: want of water is a great drawback, and the steeping in unsuited water is a great evil. All admit that what is called "soft water" is the best. Water taken soon after issuing from ferruginous or even calcareous rocks, marl beds, and limestone gravel, is objectionable; the first being impregnated with compounds of iron, and the second with carbonate of lime held in solution, should each be freed from them as much as possible. The first generally issues from high grounds, and the second from lower levels, and thus affording the easiest means of purifying each respectively.

Each should be brought as great a distance from its source to where wanted as it is possible to afford it. The first to be let roll over or tumble through rocks, stones, and gravel, in its passage as much as possible

* The best of my experimentally grown crops with the best seeds of foreign and British growth were those from Irish-grown seed. *E. C.*

† The best oilcake I ever used was oilcake made of Irish-grown seeds. *E. C.*

to become oxidized, leaving such residue after it in its passage to the pond for collection: and the second let it flow slowly and thinly over as broad a streamlet bed as circumstances will admit of, and each should be allowed some time to settle down and leave its residue in a shallow catch pond before being let in on the Flax in the steep or retting pond, whose construction is often less attended to than its great importance demands.

Lately Mr. Friedlaender has described a steep pond which, according to his account, enables him to steep and ret every description of Flax in four or five days. I cannot of my own knowledge say how far his statements as to time of retting may be trustworthy, and without questioning his practice, judging by all I could glean from him in its regard, we want not only more practice but far more science brought to our aid before we can confidently venture on adopting his system as to the time required in steeping and retting. The case is quite different in regard to his form of steep pond, and the manner of letting the water on and off the Flax, due regard being had to the protection of the pond from the ingress of land springs, the protection of its sides when empty against outward pressure, and the economising of the water when let off as a source of fertility by irrigation.*

Several years before Mr. Friedlaender became known or even heard of in Ireland, I had adopted the very same form of steep pond, but totally free from the objections to which his is liable. The site of the steep pond fixed upon as high up on a hill side as it may be convenient to convey the water, to make an excavation of whatever dimensions desirable, embanking and raising the lower side or ends with the stuff removed from the higher or sunken parts, leaving a small opening at the lowest angle through which to let off the water when used up or become foul. Let the sides and ends be lined with brick or stone, laid in mortar, cement or tough clay, or made of tough sods, if no better lining material can be had. Between such lining and the side or ends of the pond formed by the sinking on the higher parts leave a space of 6 or 9 inches to be filled in with broken stones, coarse gravel, peat charcoal, dried peat broken small, or some other porous materials through which the land springs or other water issuing from the higher lands can percolate without entering into or forcing in the side or end portions of the pond subject to such pressure. The water thus arrested let out and drained off the lower land without mixing with the steep water when let off to flow over the lower land by irrigation.

Time required in the Steep pond.—This, according to the most approved practice, will depend (1) on the condition of the Flax when put in; (2) on the condition of the water; and (3) on the temperature of the atmosphere.

Mr. Friedlaender's system is, if I am rightly informed of himself, to let the water remain on the Flax in the pond 24 hours; then let off and the Flax to remain in the pond without any water fermenting one or two days; and then when sufficiently fermented (of which he gives no scientific test) to let the water run on, and through the Flax for 24 hours more. It is to be then taken out, and when somewhat drained of water on the bank spread to further ret or dry for the time not specifically mentioned, that is, if I can trust to my memory, on having conversed with him, and hearing and reading his lectures on the matter.

Amongst practical men there is some diversity of opinion regarding the time the Flax should remain on the Grass or stubble to be further retted and dried. My experience leads me to believe that some at least, if not many, leave the Flax too long subject to this process, and it should not be left longer than till it has sufficiently dried to be safe from fermentation when taken up and stacked, or otherwise disposed of.

By leaving it long on the Grass in my belief exposes it to a double evil arising from two exposures: (1) excessive sunlight, which will dry it too much during the day, and (2) its absorption of moisture during rains or heavy dews during the night, particularly if far advanced in autumn, when the dews are heavy and the nights long. In this case such repeated dryings and wettings, although they will help in a sort of bleaching process and render it brittle, will also render it liable to become what is called mildewed, which is nothing more nor less than the growth of parasitic plants, visible to the naked eye only by their dark colour from which the fibre seldom recovers its great colour except by further bleachings with chemicals, which renders the fibres less durable when manufactured.

Were this the place to notice it, it would be little short of insult to men of common sense to discuss the senseless folly of permitting the seed to be lost, under the impression that—(1) the crop can be injured by taking it off; or (2) that when allowed to rot in the steep pond it can benefit the fibre when there in any degree beyond aiding, and that to a very trifling degree, the fermentative power of the water. But as this is more a scientific than a practical question I will leave its discussion to speculative theorists, first saying that the seed, however apparently unripe when the crop is pulled, should be taken off by one or other of the various means adopted for such purposes.

Manner of Disposing of the Fibre.—This must depend upon the demand in each respective locality, which I regret to say that in many parts of Ireland at least is not very tempting.

My belief is, and I speak from dearly bought experience, that in localities far from the manufactory it would be better to sell the crop, either before it is steeped or retted, or as soon as possible after, to the owner of some local owner of breaking and scutching mills, and leave him to find a market for the dressed fibre and tow; and if he, as some others do, crush the seed to extract the oil and prepare the cake for feeding, the purchaser of such cake will find it more profitable to purchase from him than (with very few exceptions) go to the expense of preparing such food on the premises where the Flax is grown. Observe, my remarks in these latter respects have reference chiefly to Ireland, where farm machinery is too little known to the extensive farmer and not known at all to the small farmer, too poor in mind and means to cultivate a closer acquaintance with things to the large farmer so indispensable to secure success in his operations. *Edward Carroll, College Hotel, College Street, Dublin.*

* Mr. Friedlaender, I believe, attaches more importance to washing the residual matter given off by the Flax in the retting process in a space under a false bottom in his pond, which space he says he fills with some absorbent matter such as peat. This I have adopted too, and the material I used was peat-charcoal, burned earth, and dry peat-mould. *B. C.*

Home Correspondence.

The Champion Wheat Crop of the Season.—Under the above heading you published last week a letter from Mr. Bates, in which that gentleman says, "Mr. Hallett withdrew from the trial in consequence of not being able to secure judges." The facts were that on the 1st July I wrote to Mr. Bates that although my crop was much injured I should not withdraw. He and I at once named our respective members of the jury, all of whom declined to act. At length Mr. Bates wrote that he had secured Mr. Charles Howard and Mr. Hewitt Davis, whom I at once accepted as sole arbiters. At Mr. Bates's request, I wrote to Mr. Howard, thus "secured," inviting him to Brighton, at which he expressed his surprise, saying that he had not consented to act, and I was obliged to write an explanation of my troubling him, and to Mr. Bates, regretting that upon insufficient grounds he had caused me to do so. Thus the matter ended, through the failure of Mr. Bates to secure judges, not through mine. *Fred. F. Hallett, The Manor House, Brighton, Sept. 18.*

Cottages of the Poor.—How are we in the United Kingdom prepared to meet the probable visitation of the cholera? By the introduction of large quantities of diseased meat into the markets and butchers' shops—by the want of a sufficient supply of pure water in all large towns and villages—and by crowding the working classes into small, badly ventilated, dirty dwellings, in which it is not possible for the inmates to separate the sick from the healthy, or to provide accommodation for the sexes apart from each other. The terrible eastern scourge carries all before it on its first appearance in a locality; and though no means of prevention are known, yet the frightful effects of the cholera may be mitigated by attention to cleanliness, ventilation, and diet. The free use of hot lime wash on the walls of houses is a valuable remedy in cases of infection. If neither humanity nor common decency will call the attention of the upper and middle classes to the points in question, the fear of contagion may have some influence, and induce them to attempt to ameliorate the ravages of cholera, typhus, scarlet fever, and small-pox. Some little agitation has lately prevailed on the culpable neglect of the cottages and infected districts, in which the working classes reside; however, it is but a drop in the ocean compared with what ought to be done. A man and his wife may have ready inclination to check the bad conduct of their grown-up children, and scold the younger, but with miserable results, as might be anticipated, when they have but two rooms to live in by day and sleep in by night. The natural results which follow a system of compelling men, women, boys, and girls to congregate together like animals, is not conducive either to morality or religion; and has an undoubted tendency to demoralise the class, who, more particularly suffer under the degrading circumstances alluded to. To judge of the true state of society, a knowledge of the various classes composing this great family must be obtained, not from outward appearances only; in the usual intercourse of man with man, individuals are obliged to observe certain civilities, whether they indicate real feeling, or are put on for the occasion. To arrive at a better understanding of things in general, the houses of both high and low should be visited, which will expose the nakedness of the land, and exhibit a very different aspect from the polite and smooth exteriors of persons meeting either in public assemblies or private gatherings. A peep behind the scenes will show on how unsafe a foundation society exists, and the wide field for reform there is amongst the educated and uneducated; and how few people realise to themselves the ruin the fast young men and women of the present day, and the careless old ones, are bringing upon themselves, and the mischief they are entailing upon the rising generation. *Falcon.*

Societies.

Royal Agricultural.—The Veterinary Committee of this Society has issued a circular of instructions to its members, describing the disease and the proceedings proper to be taken on an attack of it. The following is an extract:—The several Orders in Council which have been put forth, well calculated as they are to arrest the progress of the malady, will, nevertheless, prove non-effective to a considerable extent unless they are backed by individual exertion. One of the chief, and in many instances the only cause of the extension of the disease into several fresh districts has been the reckless manner that many persons have dealt with infected cattle. Not only have these been driven from place to place, and turned into fields separated only from large herds of healthy animals by an ordinary fence, but many have been sent to fairs and markets; and thus, by commingling with others, have spread the disease far and wide. All preventive measures are thus rendered of little avail, and unless practices of this kind are prevented by the vigilance of agriculturists and others, thousands of cattle will be lost to the country, in addition to those which have already perished. Every one should be impressed with the fact that the disease is the most infectious as well as the most fatal which is known to affect cattle, akin in its deadly effects to the small-pox of sheep, but not giving warning to persons by an eruption upon the body. Like small-pox of sheep also, the poison lies latent in the system for several days after being inhaled, and during this time the animal gives no indications of being affected, so that the most cautious persons may be deceived in the making of purchases. Another fact of equal importance, but not generally known, is that the special poisonous material, or infectious matter, on which the disease depends for its existence, is multiplied to an extent scarcely to be estimated in the system of every fresh victim; so that it is quite possible for one diseased animal to be ultimately the cause of the death of thousands.

After describing the precautions to be observed, which have been already published, the Committee remind the members of the necessity of recognising the early symptoms of the disease, and not confounding them with those belonging to other maladies common to cattle. For this purpose they here insert the leading symptoms of the cattle plague, and of the two other epidemic affections to which cattle are subject:—

The Cattle Plague.—The early symptoms of the Plague are usually a remarkably dull and dispirited condition of the animal, which will stand with its head hanging down, ears drawn back, and coat staring, refusing all food, and occasionally shivering. The eyes have an unusual expression of anxiety, and a mucous discharge flows from them, and also from the nostrils. The skin is hot, but sometimes chilly; the temperature varying from time to time. The extremities are cold; the breathing short and quick, and frequently accompanied with moaning as an indication of pain. The inner part of the upper lip and roof of the mouth is reddened, and often covered with raw-looking spots. The bowels are occasionally constipated; but, in most instances, diarrhœa soon sets in, the evacuations being slimy and very frequently of a dirty-yellow colour. The vagina is often intensely reddened. The prostration of strength is great, the animal staggering when made to move. In milch cows the secretion of milk is rapidly diminished, and soon ceases altogether.

Pleuro-pneumonia, or Lung Disease.—The attack is mostly insidious, the animal appearing at the outset to be but little affected. The eyes retain their brightness, often to the termination of the illness. The appetite is generally diminished, but rarely lost, excepting in the advanced stages of the disease. A short, dry, husky cough is one of the earliest symptoms: it continues throughout, and is easily excited by moving the animal, especially if such movement is sudden. There is rarely any discharge from either the eyes or nostrils. The breathing is greatly increased, and becomes painful as the disease advances. A dull sound is emitted on gently percussing the side of the chest over the diseased lung. Firm pressure applied to this part will also cause the animal to shrink. There is little or no alteration in the fœcal evacuations, excepting in the last stages of the malady, when a diarrhœa comes on. The warmth of the body and the extremities is often retained to the last hours of the illness. In milch cows the quantity is lessened; but the animal will frequently yield a fair quantity to the very last. The affected animal will sometimes live for weeks.

The Mouth and Foot Disease.—Attack sudden. No premonitory symptoms, excepting in very rare instances. The animal frequently smacks its lips, and shows by the movements of its tongue that the mouth is the seat of suffering. The saliva flows freely from the mouth, and accumulates also as a frothy fluid around the muzzle. An examination of the mouth shows the existence of large blisters on the tongue, and often on the inner part of the upper lip. They are few in number, and always white in colour. The animal seldom refuses food, but rolls it about in its mouth, and often drops instead of swallowing it. There is little or no disturbance of either the breathing or pulse; nor is the temperature of the body altered. The evacuations are also natural. In many instances the feet are affected as well as the mouth, and blisters will form between the toes, causing the animal to walk tenderly, and frequently to catch up one foot after the other and shake it, as if to dislodge something which was producing pain. In milch cows the teats are occasionally affected with blisters, especially at opening of the milk duct, which lead on in this situation to sores and crusts, and prevent the ready flow of the milk. The disease is of short duration, rarely produces death, and frequently exists simultaneously among the sheep, pigs, and poultry of the farm, as well as among the cattle.

Reviews.

The Cattle Plague: with suggestions for its Treatment by Homœopathy. By James Moore, M.R.C.V.S. Simpkin, Marshall, & Co.

This pamphlet is for the most part a discussion of the history, circumstances, and symptoms of the prevailing epizootic. Towards the close of it, however, there is a description of a case visited some years ago near Manchester, which the author believes to have been the

same disease as the Steppe Murrain, and which was successfully treated by him.

The following account of it was published some years ago in his "Veterinary Homœopathy":—

"On June 9, 1857, I visited a cow belonging to Mr. Shenton, Peel Hall, Cheshire. This was an aged cow and a heavy milker. She had only recently come into her present owner's possession. On June 8, 1857, she was observed to shake violently, soon after having been milked in the morning. A domestic drench composed of ginger, pepper, ale, treacle, &c., was given. Excepting that she neither ate nor gave milk, nothing further was observed until the following morning, when, soon after eating a shovel-full of grains, she became very ill, was violently purged, and vomited her meal. There is no reason to suspect poisoning.

"Symptoms:—Pulse 96, and weak; respiration 32, and attended by a peculiar groan at every expiration; frequent single cough recurring at intervals of a few minutes; loud rattles in the trachea; mucous membrane of the mouth and gums inflamed; copious and constant flow of clear mucous from mouth and nostrils; tongue lance-shaped, and protruded 3 or 4 inches from the mouth: urgent thirst; great difficulty in swallowing fluids; deglutition accomplished by a sort of 'bolt;' cannot drink from a bucket on the floor, but only when it is raised to the mouth; eyes watery, dull, half-closed, and sunken; legs, ears, and whole surface cold; secretion of milk suspended from the first; appaling purgation of fluid whitish, frothy, horribly fœtid matter, mixed with flakes of lymph, and occasionally with a hard lump of fæces. (The cowman called the discharge 'corruption,' and he cannot stay in the shed beyond a minute or two.) Extreme and rapid prostration; inability to stand up beyond a few minutes. With considerable difficulty she was got into a box in another part of the premises—she could scarcely stand up, and walked against every obstacle, as if she were blind.

"*Treatment.*—To have Aconitum 1, 10 drops, and Arsenicum 2, 10 drops every hour alternately.

"10th. (24 hours after visit.) Much improved; pulse 80 and stronger; respiration 20; groan gone; occasional cough; looks lively; can stand up; slight dribbling of saliva; purging considerably abated; the matter voided is natural in colour and not offensive; appetite fair. The cow began to rally about 2 o'clock this morning. Continue medicine.

"11th. Pulse 70; respiration natural; occasional purging of natural fæces; chewing cud.

"To have Arsenicum every three hours.

"I did not see this cow again, but the owner told me, a short time afterwards, that she gradually recovered.

"*Remarks*:—Dysenteric Murrain is mentioned by Dr. Greenhow, in his Report to the General Board of Health, on Murrain in Horned Cattle: and he gives in the Appendix an account by Mr. Radcliffe, M.R.C.S., of a violent outbreak of this pestilence which occurred at Sinope in the summer and autumn of 1855. This disease, as it prevailed in the East, was characterised by symptoms closely resembling those of Asiatic cholera in man; while the *post-mortem* appearances were those of dysentery. Its progress was rapid, and its results almost uniformly fatal within a few hours.

"During a lengthened practice I have seen only five cases of the above disease. Two cases were cows belonging to Mr. Syddall, who takes great interest in such matters, and never saw such a disease before. One case died shortly after I saw her, the other died before I could reach her, both after a few hours' illness. The *post mortem* appearances coincided with Mr. Radcliffe's account. Mr. Whittle, V.S., Wortley, told me that he had seen seven or eight cases at one farm, and that they all died. I have heard of other deaths in the neighbourhood of Manchester. The owner, who has been born, bred, and brought up as a farmer, and who has been amongst cows all his life, never saw such a case before.

"The alarming nature of the symptoms must be admitted. The striking effects of the treatment are evident, and show the speedy remedial action to be derived from a few doses of homœopathic medicine, even in desperate cases. Arsenicum was, no doubt, the curative agent, and proved as efficacious in the choleric murrain of the cow, as in the cholera of man."

In accordance with the process recorded here, the author recommends Arsenicum and Aconitum, with two or three other "remedies," according to the symptoms observed. He also recommends Arsenicum—third dilution, 10 drops every day as a preventive. The following is the concluding paragraph:—

"1. Purchasers of cattle should particularly examine the nose. A cow apparently in good health, eating well, chewing the cud well, and milking as usual, may yet have the plague upon her in course of development. This may be discovered by observing that the upper part of the alæ (wings) of the openings of the nostrils are swollen and shining, and the dewy part of white noses, marked with numerous small, slate-coloured spots, flat, and not raised above the surface. This is, I believe, an original observation of considerable value, and a symptom to be met with in every case at least 24 hours before the appearance of any others.

"2. I may also mention that in white cows I have observed a dark red eruption on the body—whether this is an accidental or an essential symptom further observation may decide.

"3. It is well known that many cows, slavering at the mouth, have been condemned by the appointed inspectors, under the idea that the disease was the plague, whereas, it was the 'mouth and foot disease.'"

We are bound to add that we would rather trust the judgment of Prof. Simonds and of Prof. G. T. Brown, to whom our readers are indebted for the full discussion which the whole subject has received in our columns during the past few weeks.

Farm Memoranda.

[We take advantage of the immense body of agricultural evidence lately taken before the Hypothec Commission at Edinburgh to publish such extracts from it as will indicate the existing style of Scottish agriculture, and the enterprise and energy of Scottish agriculturists.]

(*Continued from* p. 880.)

BLUETON, DUMBLANE, PERTHSHIRE: *Mr. Andrew Sharp.*—My farm is 200 Scotch acres, or about 250 imperial acres. I entered with 120*l.* of rent, and I now pay 260*l.* My entry was 15 years ago. The length of my lease is 19 years. My rent rose gradually with the improvements on the farm. The landlord laid out the money for drainage. I have been engaged in the practice of agriculture about 45 years, always in Perthshire, and mostly in the eastern district of Perthshire. I have experienced no inconvenience from the law of hypothec. I think I have experienced some advantage from the law. I commenced business with my staff in my hand. I was a long time a servant, and collected a little money in that way, and then I took a farm; and I think that, on entering the farm, I had an advantage by the law of hypothec, on account of the postponed term of payment of the rent. I entered at Martinmas, and the first half-year's rent was payable in the year following the putting in of the crop, on the 1st of February. Had it not been for the law of hypothec, I would not have expected the landlord to give me such a postponed period of rent, especially to a stranger, as I was to him at that time. I have reclaimed most of my land out of heather, and I have expended money on lime and guano and on permanent improvements. I get lime by the railway, and I pay credit price generally for it. I get credit for my lime for a month or six weeks—never more than six weeks. I sometimes get six months' credit for guano. There are a good many tenants in the same position as myself in my neighbourhood. They occupy small farms like myself—some less and some larger; and they have raised themselves to their present position. I think that the law of hypothec is an an advantage to that class of tenants, by enabling the landlords to give them an indulgence. I do not think it would be possible for such tenants to pay rent before they reaped a crop.

THE SEED TRADE: *Mr. David Cross.*—I have been in business for 25 years on my own account. My brother and I succeeded my father, who was in business for 50 years before that. My father came to Glasgow about 20 years before I joined the business, but he was always in Glasgow or neighbourhood. We have numerous transactions with farmers in buying and selling. We sell about 100,000*l.* worth of manure and feeding-stuffs in the year, and we sell seeds and seed-grain to an additional extent of 30,000*l.* or 40,000*l.* We purchase Rye grass seed by sample, to the extent of 20,000*l.* or 30,000*l.* annually, from farmers and others. This year the quantity is less, owing to the bad crop; but, on an average of five years, our purchases of Rye-grass seed have ranged from 20,000*l.* to 30,000*l.* annually. We also purchase grain, chiefly for seed. The seed-grain is purchased principally in the Lothians stock markets. I ought to mention, that we purchase grain by sample in the districts where we do business, in places where there are no stock markets. In the districts where we do business, I am brought very much in contact with the agricultural class—with tenants who pay all sorts of rents. We have experienced loss from the law of hypothec. When tenant-farmers become bankrupt, we find that the sum to divide, after satisfying the landlord, is very small as a rule. During the last three or four years, our rankings on the estates of tenant-farmers amounted to about 2600*l.*, which was spread over about 87 debtors. From 67 of these we have received as yet no dividend; five have paid from 6*d.* to 3*s.* per pound; five from 3*s.* to 5*s.*; four from 5*s.* to 7*s.*; five from 7*s.* to 10*s.*; and one has paid 11*s.*, which is the highest dividend we have received. Our loss has been 2600*l.*, less the dividends. That has been upon transactions to the extent of about 450,000*l.* in the three years. In the seed-trade the rule is to give credit. Our accounts are generally rendered from Martinmas to Christmas, and a good many of them are paid about that time, though a great many are deferred till spring, when new transactions are gone into. Many of them pay cash for their manures, taking the benefit of the discount which we give for cash. Our rule is to deduct 5*s.* per ton from the price of manure for cash. As a rule, they don't pay ready money for seed; but some do, and we allow them 5 per cent. Our losses have been partly on seed transactions and partly on manures. There is a class of our customers who get manure and seeds together, from whom we don't ask cash payment. The two go into one account, and are paid together. It is not from that class that we sustain the loss, it is more from the class whose credit we try to limit. We stipulate for ready money from them, but are frequently disappointed in getting it. Q. *Would the tenants, who are unable to pay ready money for manures, be able to pay forehand rents to their landlords?*—*A.* In some cases they might. Tenant-farmers labour under this disadvantage with the present law, that their credit is doubted. They don't get those conveniences from bankers and others that merchants do. I have been told by bankers, again and again, that they disliked farmers' bills. One banker told me he would rather have a shoemaker than a farmer. He said that was in consequence of the law of hypothec. If there was no such law, I think a farmer would be a more eligible person for a banker to deal with than most merchants, because his subject is not so easily made away with. I think it is of no advantage to any person. I don't think it is any advantage to the landlord. I don't see why the landlord should ask security. Of all classes he has the least need of security. He parts with the produce of his land for the current year; he does not part with his land. Even under a 19 years' lease he parts with nothing; he merely becomes a creditor of the tenant for the rent. In point of fact, he is the only instance of a person having a transaction wherein he parts with nothing. If I sell goods to a merchant on a six months' bill, my debtor can convert these goods at once into money; but, if a landlord lets a farm, the rent of which is payable six months after entry, or at any given time, his tenant cannot part the subject. If he is a tenant such as ought to be selected, and such as every wise landlord will select, he must [illegible] very threshold of his entry, that which [illegible] manent and effectual security, and cannot [illegible] drawn by himself or his creditors for many [illegible] do not see why the law should interpose an [illegible] advantage to the strong party, because the [illegible] the strong party here. He can let his land or [illegible] he pleases, and he can make his terms for payment [illegible] rent what he pleases. If there was a change [illegible] law, I think landlords would consider what would [illegible] best for their interests in regard to making [illegible] change in the terms for payment of rent; whether [illegible] would be better to take a good and industrious [illegible] who required a little credit, or to take a [illegible] able to pay the rent in advance, and [illegible] paying a less rent. It would not in [illegible] case necessitate the exacting of forehand rents [illegible] if the landlord desired it, I don't see that [illegible] should interpose to make it unnecessary for him [illegible] so. I think the class of tenants who require [illegible] from their landlords are not benefiting themselves [illegible] the landlord, or the community generally. The [illegible] industrious, economical, and hard-working tenants [illegible] a credit to the country, and it would be a [illegible] if anything were done to injure their position; [illegible] I don't think they would suffer. Landlords of [illegible] farms would be glad to have such tenants, even [illegible] paid a backhanded rent. I differ from those [illegible] think that the abolition of the law would necessarily infer fore rents. I think a landlord is perfectly [illegible] with that class of tenants, if they are of the [illegible] have described. I can see no reason for the continuance of the law. It is a relic of a state of things long [illegible] away, when payments were made in kind, and [illegible] was the practice for the landlord to go round and [illegible] so much of the crop before it was removed.

(*To be continued.*)

Miscellaneous.

The Butcher's Bill.—In all upper and middle [illegible] households the butcher's bill is the heaviest of [illegible] weekly accounts. No people consume so much [illegible] meat as the English; no people consume it so wastefully. And as, in consequence of our wasteful [illegible] we have a wide margin for retrenchment, it behoves every head of a family at the present moment [illegible] prepare to meet the difficulties of the crisis. A [illegible] of butcher's meat will inevitably raise the price [illegible] other articles of food, to say nothing of the rain, which, as we write, is ruining the harvest of 1865. [illegible] those whose fortunes are so large as to render [illegible] amount of their daily household expenditure of [illegible] paratively small importance are in duty bound [illegible] the example of a well-timed and judicious economy [illegible] order that more food may remain for other [illegible] less fortunate than themselves. The waste connected with our daily consumption of butcher's meat commences in the butcher's shop. The percentage system is calculated to make the cook "safe"—to induce [illegible] servant we pay to watch over our interests to betray them. Nobody, save the cook and the butcher, really knows what weight of meat actually comes into the house; indeed, in very few households is the [illegible] supply of meat reweighed when it is sent in. We count the dozens of wine we receive from the [illegible] merchant; we see our silks and our linen measured when we buy them; but for some unaccountable reason we take our butcher's accuracy and integrity upon trust. And, as we have already pointed out, the butcher's is the heaviest of all our weekly bills. The first step towards kitchen reform, therefore, that we should advise, would be that every joint sent into the house from the butcher's should be reweighed as soon as it is received. The next step will be to see that we get from that tradesman what we want and no more. When bullocks and sheep are scarce and dear, meat must be dear also; and we have no desire to encourage [illegible] upon the question of price, which must depend on supply and competition. We are simply alluding to the vicious custom which exists in the meat trade of weighing in with the prime joints, for which the highest price is paid, quantities of bone, fat, flaps, and coarse pieces, almost all of which, in upper and middle class families, are either thrown to waste or go to swell the perquisites of the cook. In France, where the price of meat has usually ranged higher than in England, and where fortunes are not generally so large as they are with us, the method of retailing butcher's meat has been much more thrifty. A French [illegible] wishing to buy the under portion of the sirloin—the *filet*—gets exactly what she wants, and no more. He [illegible] in order to obtain the *filet*, she has to take the whole sirloin, accompanied by a quantity of fat and coarse meat for which she has no need. Although in France she would have to pay more per pound for the *filet* than she would here pay for the sirloin, she would, practically, pay less; for in one case there would be no waste, in the other the waste would be great; and this is with all other prime joints. The usage of the trade in England weighs in with them flaps and fat and shankbones, which must all be trimmed off and set aside before they can appear upon the table. Instead of buying our cutlets and chops ready for the gridiron or the casserole, we buy loins and necks of fat mutton, at least half of which are thrown to waste. The enormous weight of meat thus daily squandered in our kitchens would be most acceptable to the poorer classes.

and could be readily sold to them by the butcher, for the inferior parts of good meat are far more wholesome and nourishing than the best parts of inferior meat, such as the poorer classes chiefly eat. The second step, therefore, towards kitchen reform ought to be an arrangement with the butcher that every joint sent in should be closely trimmed for the table before it leaves his shop; and that if we want chops and cutlets, we should buy from him chops and cutlets, and not the entire joints from which they are cut. Then comes the question of actual consumption—whether meat is to be eaten by everybody three times a-day, whether the servants are to have five meals a-day and hot joints for supper, &c. This must be left to the firmness and discretion of their employers. It is painful to think that those who work faithfully and hard for one's family are insufficiently fed; but still there is a limit to indulgence, beyond which it is absurd and wrong to transgress. Our correspondent "Providus," who wrote in our columns some months back a series of letters on domestic economy, placed the most exorbitant daily consumption of butcher's meat to which a first-class family could fairly attain at a pound and a half a-head. There is no difficulty in proving that this estimate is excessive. In every first-class family the consumption of fish, eggs, bacon, butter, and poultry is considerable, and all those items ought to diminish the consumption of butcher's meat. Probably the best specimens of athletic well-fed Englishmen to be seen are among the gentlemen of her Majesty's Household Brigade. They are all 6ft. high at least, they are all young and healthy, they are all in hard condition and work. Their appetites, therefore, may be supposed to be above the average, and although none of them, save their non-commissioned officers, are positively corpulent, they certainly bear no appearance of being stinted. Now, if we reflect that a private family of, say, 16 persons, of whom one-half are women and children, dieted according to the estimate of "Providus," on 1½ lb. of meat a head daily, besides butter, fish, poultry, bacon, and eggs ad libitum, consume exactly the weight which is found ample to maintain 32 Life Guardsmen in high health and vigour without the accessories of butter, fish, poultry, bacon, and eggs, we think we have established the fact to which we earnestly desire to call public attention, that the usual expenditure of an English kitchen is so extraordinarily wasteful as to afford a wide margin for retrenchment during the existing meat famine. An English soldier's rations are 1 lb. of bread and ¾ lb. of meat a day. *Pall Mall Gazette.*

Companies for Agricultural Direction.—The possibility of acting on unvarying rule is in direct proportion to the unvarying character of the subject on which you are to operate. If soil were of uniform depth, consistency, and dryness, if meteorology were one of the exact sciences, and vitality were everywhere alike, the art of agriculture itself might be expressed in a few rules of universal application, and the result of every operation might be certainly predicted. But into every one of these agricultural conditions irregularity and uncertainty enter, and just in proportion as they prevail do rules become impossible, and even principles and general laws become veiled under the influence of more immediate circumstances. A man may become a good cultivator by the observance of certain rules, for soil and vegetable life, and even weather, in any one locality, are tolerably uniform and known; he cannot thus become a good stock farmer, or at least he cannot be a good herdsman in this way, for no one rule will apply to the varying animal temperaments and characters with which he has to deal. We should be inclined to predict the success of a market-gardening company rather than the prosperity of a dairying company on these grounds. The success of cow-keeping depends on an interest in the animals individually, which neither companies nor agents can be expected to exhibit.

Grass Culture.—Towards the end of last year Mr. R. J. Bates, Long Ditton, Surbiton, Surrey, with whom I was previously not acquainted, informed me that he wanted to lay down a field containing 10 acres on my system, and that he would put the preparatory labour, manuring, tillage, and seeding, under my direction. The field was therefore prepared, the seeds sown in spring, and although the braird was not vigorous, yet afterwards the growth was so rapid that by the middle of June there was abundant pasturage. It was, however, the first week of July before 60 sheep were put into the field, but as that number was quite inadequate to the food the field furnished, it was found necessary to mow and make hay of several acres. To have prevented the Grasses from getting too luxuriant, and thus have obviated the necessity of mowing, 150 sheep, or 15 sheep per acre, would have been required, and the field would have yielded valuable fattening food for that number for four months, which would have been the most profitable mode. As it is, taking into account that the field has yielded excellent hay of the value of 25*l.*, and will afford for two months hence excellent fattening food for the 60 sheep it has maintained since the beginning of July, and also taking into account the value of the corn crop the field would have yielded, I estimate the profits derived this year from sowing the Grass seeds without a corn crop at 15*s.* per acre. Apart from this an excellent meadow has been at once obtained, which otherwise several years could not have made so good, and, besides, by this mode the land has been enriched, while by the usual mode it would have been impoverished. It is necessary to state that the field, which undulates to the west, is of a light sandy nature, is naturally extremely poor, is situate in one of the hottest districts, and I need scarcely add that the past summer throughout has been one of the most scorching on record. Mr. Bates kindly offers the inspection of the field to any one who wishes to avail himself of it, and so satisfied is he with the results that I have just laid down a second field for him, and he intends to add a third in spring. *James Sanderson (in the Times), 15, Manchester Buildings, Westminster, Sept. 18th.*

Calendar of Operations.

WEST SUSSEX: *Sept.* 12.—We are now in one of the most extraordinary seasons that any remember. The heat is intense and oppressive, and there is every sign that it will continue so for some time longer, as the barometer is higher to-day than it has been for months. Harvest has been done here for more than a week, but has not been what we would call a favourable one. Wheat may be not much under an average in quantity, but the quality is far from good, there has been little carried in really good order, and it will be long before any of it will be fit to grind by itself, so that old will be in request all through the winter, and there is a great amount of tailing, and if it is possible much will be used again for feeding purposes.

Barley is not good on the whole, much of it was down long before it was cut, and consequently thin, and some sprouted, and some was cut when we had heavy mild rains, and is a good deal grown, and there is very little that is not more or less stained, and Oats are altogether bad. Peas are perhaps the only sound crop we have got. Roots have done well, but we think there are more patches failed than usual, and there are signs of the earlier sown Swedes inclining to rot. But the young Clovers are extra good, and will have to be fed extensively through the autumn to prevent their rotting during the winter; but the difficulty is to get stock to do it. Sheep have gone up to a very high price, and yet are all wanted; but cattle are not sent to market, because few would care to buy them at any price, and our market has got very much deranged since the cattle disease has appeared in the neighbourhood. The disease has not spread much since its first appearance, but has been very deadly in those places. In this locality, on the east and south of Chichester, it has shown itself on four or five farms, and now and then we hear of its spreading, but fortunately the report has nearly always turned out premature; and though it be the case, that those who lose do not let it be known, yet others seem too eager to spread the report, and every animal that dies is said to have had it. And the cry of wolf may make us feel too secure and neglect to take those precautions that we ought. And such appears to be the case round Chichester, which is perhaps the only place where united action has not been taken to prevent the spread of the disease. It is true that meetings have taken place, and inspectors have been appointed and several suggestions made, but nothing agreed upon, and there is at present danger that no steps will be taken to prevent the further spreading of it, till perhaps it has got much further, and then there will be another attempt to shut the stable-door. Whatever may be the cause, it is a fact that the landlords and tenants of West Sussex cannot form a strong working association for any purpose connected with their calling. We see accounts of meetings held in all parts of the kingdom, and useful hints given, but here little is done in that way. Should some spirited farmers try to get up a meeting landlords do not attend, and it is often difficult to get a chairman. The late Duke of Richmond bore the chief burden of all this, and now there appears to be none to take his place, *G. S.*

Notices to Correspondents.

DESTRUCTION OF MICE: *Inquirer* asks for the best dressing for the destruction of mice in corn stacks. Many years since, he says, there was a Wiltshire man that travelled the country and charged 1*s.* per stack for the dressing, which was very effectual, but he ceased to come round as usual after harvest, and the consequence is that they are very much pestered with mice. Perhaps some of our readers will, *pro bono publico*, give their experience.

GRASS: *Taunton.* It is Bromus secalinus—Rye-Brome Grass, or "Drank."

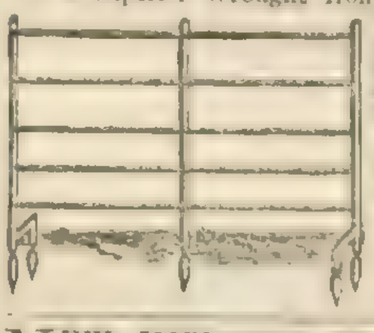
LAYING DOWN A CHALK SOIL: *S.* It will not do to let Grass come of itself in old Sainfoin in order to good pasture. If you want to grow the right sort of plants you must sow the right sorts of seed, and you cannot do better than procure and read Mr. Sutton's paper on laying down Grass, which you will get by sending to his address at Reading. We should get the land well fallowed this hot weather, and folded heavily with sheep during winter; then in spring put the cultivator through it, and sow Grass seeds in March, with a light crop of either Oats or Barley, about one bushel of seed per acre, which you may either cut green in June or let ripen, as you please. The seeds for a comparatively light calcareous soil should be—Foxtail, 5 lb.; Timothy, 2 lb.; Hard Fescue, 2 lb.; Meadow Fescue, 3 lb.; Perennial Rye-grass, 10 lb.; Italian Rye-grass, 5 lb.; Catstail, 1 lb., Rough-stalked meadow Grass, 2 lb.; Hop Trefoil, 1 lb.; White Clover, 3 lb.; Red Clover, 4 lb.; and Sainfoin about 5 or 6 lb. per acre.

NATAL: *M A.* We can but repeat the advice already given. In a long-established colony the wants of colonists have long since been considered by tradesmen on the spot. You had better take out nothing with you but things of personal or domestic need, about which there can be no doubt. Money will buy on the spot whatever agricultural implements and seeds are necessary.

£1000 UPON the WOOLSTON TACKLE against the NEWCASTLE "best application."
WILLIAM SMITH, Woolston, Bletchley Station.

W. S. UNDERHILL'S NEW PATENT IRON FENCE for GARDENS, LAWNS, &c.
Manufactory: Newport, Salop.
Warranted the strongest and most durable Fence ever offered at corresponding prices. It is easily repaired if broken from accidents can be rolled up most compactly when not in use, is admirably adapted for exportation, and can be had of any height and mesh required, at prices from 4d. to 1s. 6d. per yard and upwards.
For further particulars apply at the Manufactory; or of the London Agent, Mr. R. WINDER, 18, Abingdon Street, Westminster, S.W.

Iron Hurdles, Fencing, and Gates.
COTTAM'S HURDLES are made in the best manner of superior Wrought Iron SHEEP HURDLES, from 4s.; CATTLE HURDLES, from 4s. 11d. each; CONTINUOUS FENCE, from 8d. per foot; FIELD GATES, from 25s. each. Illustrated Price List on application.



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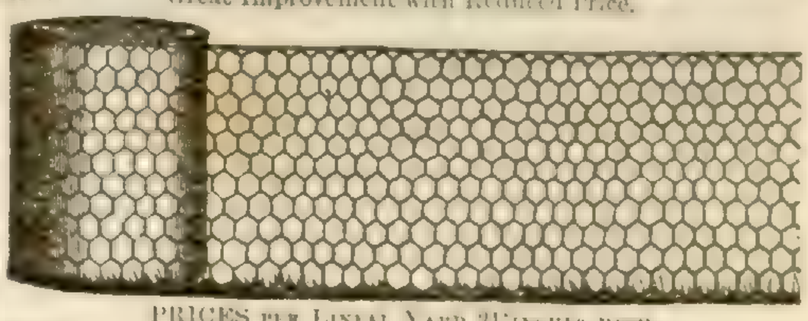
NEW IMPROVED PREMIUM WIRE NETTING.
Great Improvement with Reduced Price.



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Size of Mesh.	Mostly used for	Light. Jap	Light. Gal	Medium. Jap	Medium. Gal	Strong. Jap	Strong. Gal	Extra Strong. Jap	Extra Strong. Gal
		s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
2½ in.	Hares, Dogs, Poultry	0 3	0 4	0 3½	0 5	0 4½	0 6	0 5½	0 7
2 in.	Game or Poultry Netting	0 3½	0 4½	0 4	0 5	0 5	0 6½	0 6½	0 8
1⅝ in.	Small Rabbits, Hares, &c.	0 4	0 4½	0 4½	0 6	0 5½	0 7	0 7	0 9
1½ in.	Smallest Rabbits ..	0 5	0 6	0 5½	0 7	0 7	0 9	0 9	0 11
1 in.	Pheasantries, &c. ..	0 9	0 11	10½	1 1½	1 3	1 6	1 9	2 0
¾ in.	Aviaries, &c.	1 0	1 3	1 3	1 6	1 6	1 9	..	..

Quantities of 100 yards or upwards delivered free to nearly all the principal Railway Stations and Shipping Ports in England; and 200 yards or upwards delivered free to most parts of Scotland and Ireland.

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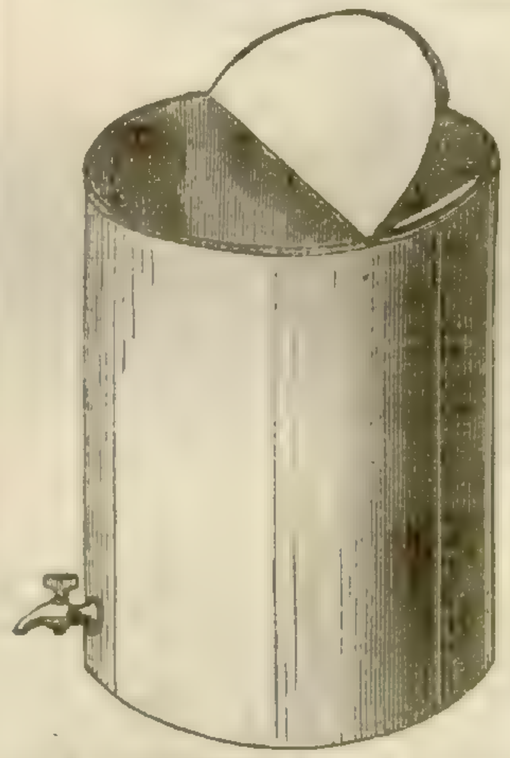
GALVANISED IRON WATER CISTERNS.
Cheap, light, and durable, will not rust or corrode, and keep water perfectly sweet.



To hold	Each.
30 gallons,	18*s.* 6*d.*
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100 gallons,	36*s.* 0*d.*
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With Lid and Brass Tap.

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HURDLES, HURDLES, HURDLES, 1*s.* 9*d.* to 3*s.* 9*d.* per yard.
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HOT WATER PIPES, from Stock, per yard:—2-inch, 1*s.* 2*d.*; 3-inch, 1*s.* 10*d.*; and 4-inch, 2*s.* 4*d.* BENDS, from Stock, 1*s.* 6*d.*, 2*s.* 6*d.*, and 3*s.* each. THROTTLE VALVES, 10*s.*, 13*s.*, and 14*s.* each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day. A discount to the Trade.

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W. T. AND J. TAYLOR (late JOHN TAYLOR & SONS), have on hand for Sale THREE very handsome WOOD and GLASS CONSERVATORIES made to order. Two of them were prepared for a gentleman residing in Park Lane, an objection being raised on account of their intercepting the view from the adjoining houses. They were not fixed.

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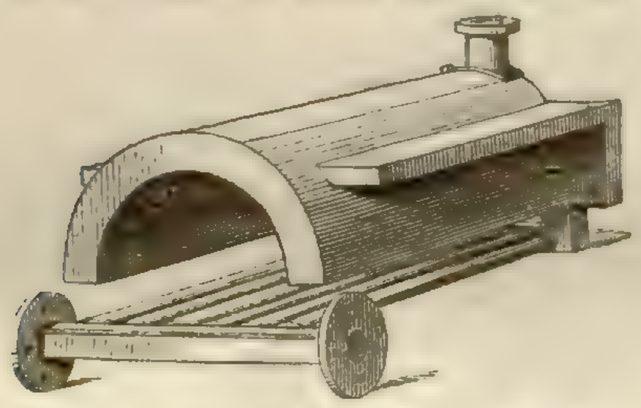
By Her Majesty's Royal Letters Patent.



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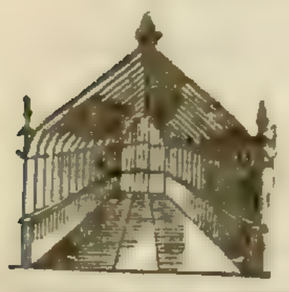

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They are thoroughly ventilated, exceedingly strong and durable, are speedily erected, and whilst maintaining their established superiority for Conservatories of the highest order, are acknowledged by the most eminent Horticulturists of the day to be the "desideratum of perfection," promoting perfect symmetry of growth and richness of colour, both for Fruit and Flowers.

From the complete adjustment of the constructional parts of these patent buildings, their manufacture is so facilitated that a comparison in point of cost with perishable wooden structures is most favourable.

THE GARDENER'S OWN GREENHOUSE
(Lately known as Dench's Patent) is a Tenant's Fixture.

The Patent, Plant, Business, Machinery, and all connected with the above, have been transferred to T. H. P. DENNIS, who has determined to supply these really useful buildings at such a reduced scale of prices that every one desiring a Greenhouse may possess one.

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Wood structures at the lowest price consistent with sound work.

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The Lamp lifts out of the Vase, requiring no fixing.

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Table Knives, per doz.	12 6	14 0	16 0	19 0	23 0	[illegible]
Dessert ditto ,,	11 6	12 0	12 0	15 0	18 0	[illegible]
Carvers, Joint, pr pair	5 0	5 0	5 6	6 0	7 6	[illegible]

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	2nd.	Best.	2nd.	Best.	2nd.	Best.
Per dozen.	s. d.	s. d.	s.	s.	s.	s.
Table Spoons	33 0	40 0	44	58	54	68
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Dessert Forks	23 0	29 0	32	40	37	[illegible]
Dessert Spoons ..	24 0	30 0	32	42	37	32
Tea Spoons	14 6	18 0	22	26	26	[illegible]
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Britannia Metal, set of 6 ..	4 5	4 13	5 0	[illegible]	[illegible]
Block Tin, set of 6	0 18	1 10	2 0	[illegible]	[illegible]
,, ,, 7	1 4	2 0	2 13	2 17	[illegible]
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JOHNSON AND SHAW'S FARMERS' ALMANAC and CALENDAR for 1866 will be published as usual on November 1. Advertisements will be received up to October 14, by the Publisher. W. RIDGWAY, 169, Piccadilly, W.

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MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, on WEDNESDAY, September 27, at half-past 12 o'Clock precisely, an immense assortment of HYACINTHS, TULIPS, CROCUSES, NARCISSUS, WATSONIAS, TRITOMAS, &c. A small collection of valuable TULIPS, the property of an amateur. Several Thousand Choice STRAWBERRY PLANTS; 100 PHORMIUM TENAX, &c.

On view the Morning of Sale, and Catalogues had.

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May be viewed on the Morning of Sale, and Catalogues had on the Premises; and of Mr. J. C. STEVENS, Horticultural Auctioneer and Valuer, 38, King Street, Covent Garden, London, W.C.

ALTERATION OF DATE OF SALE FROM TUESDAY, SEPTEMBER 19, TO THURSDAY, SEPTEMBER 28.

Importation of Orchids from Rio Negro and Rio Blanca in South America.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, September 28, at half-past 12 o'Clock precisely, an importation of valuable ORCHIDS just arrived in the finest possible condition, consisting of Cattleya or Lælia Wallisii, Scuticaria species nova, Cattleya superba, Schomburgkia spectabilis, Batemannia species nova, &c., from Mr. Linden's well-known collectors in South America.

On view the Morning of Sale, and Catalogues had.

Notice of Sale of the Whole of the Stock

OF MR. JOSEPH DAY, NURSERYMAN AND GARDENER, ENSHAM, OXON.

MESSRS. T. MALLAM AND SON will SELL by AUCTION, on the Premises, on WEDNESDAY, September 27, and following day, at 11 o'Clock each day, the STOCK, comprising about 30,000 Laurels, 10,000 Laurustinus, 2000 Yew Trees, various; 3000 Evergreen Oaks, 1000 Apple, Pear, Plum, and Cherry Trees, 500 Portugal Laurels, 5000 English and Turkey Oaks, 3000 Gooseberries, Currants, and Raspberries, 5000 Aucuba Japonica, 5000 Dwarf Berberis, 3000 Tree Box, 3000 yards of Box Edging, 2000 Evergreen Privets, 3000 Elm, Hornbeam, Chestnut and Acacia ditto, 2000 Sweet Briars, 500 Common Holly, 500 Spruce Firs, 500 Black Italian Poplar, 500 Broom, 200 Filbert, 100 Walnut, 50 Standard Apricots, and other Stock in great variety.

Catalogues are being prepared, and will be in circulation ten days previous to the Sale, and may be obtained of Mr. DAY, on the Premises; at the adjacent Inns; and at the Auctioneer's Offices, 126, High Street, Oxford.

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To NOBLEMEN, GENTLEMEN, BUILDERS, NURSERYMEN, AND PUBLIC COMPANIES ENGAGED IN PLANTING.

MESSRS. PROTHEROE and MORRIS will SELL by AUCTION, on the Premises, Acton Vale Nursery, Uxbridge Road, Middlesex, within 10 minutes' walk of the Acton Railway Station, on the North London Line, on MONDAY, October 16, and Three following days, at 11 o'Clock each day, without the least reserve, by order of Mr. F. Hopgood, Senior, the Lease having nearly expired, the Valuable NURSERY STOCK, consisting of a large and healthy assortment of Evergreens and Deciduous Shrubs, Ornamental Fruit and Forest Trees, including about [illegible] Common Laurels, 4000 Aucubas, 1000 Green Hollies, [illegible] Yews, [illegible] Thujas, [illegible] Spruce [illegible], [illegible] Laurustinus, [illegible] Privet, Bays, [illegible] Lilacs, [illegible] Guelder Rose, Syringa, Roses, 1000 [illegible] Roses, &c., 200 Limes, 3000 Poplars, Planes, Purple Beech, Chesnut, Sycamore, Thorns, Mespilus, Ailanthus, &c.; several thousands of handsome Dwarf-trained, Untrained, Standard, and Pyramidal Plums, Cherries, Apples, and Pears; 1500 Dwarf-trained Peaches, Nectarines, Apricots; Figs (in pots), Currants, Gooseberries, 200 Vines; 7000 fine Standard and Dwarf Roses of the best kinds; 2000 strong Seakale plants, 2 years; Hardy Climbers, &c. May be viewed one week prior to the Sale.

Catalogues [illegible], price [illegible], (returnable to purchasers), on the Premises of Messrs. HOPGOOD & JACOBS, Exotic Nursery, Shepherd's Bush; of the principal SEEDSMEN in London; and of the AUCTIONEERS and VALUERS, American Nurseries, Leytonstone, N.E.

Sunningdale Nursery, Bagshot, Surrey.

PRELIMINARY NOTICE OF AN UNUSUALLY EXTENSIVE AND HIGHLY IMPORTANT SALE OF VALUABLE NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS have received instructions from Mr. Chas. Noble to offer for SALE by public AUCTION, NEXT MONTH, on the Premises, Sunningdale Nursery, Bagshot, Surrey, within 3 minutes' walk of the Sunningdale Station on the South-Western Railway, without the least reserve, in consequence of a portion of the Land being required for the formation of two public roads, and a new line of Railway, which necessitates entire new arrangements and immediate clearance of the STOCK. There are many handsome symmetrical specimens of CONIFERÆ and other SHRUBS, scarcely to be met with at any other Establishment, bearing perfect evidence of the most skilful and careful cultivation, presenting an unprecedented opportunity to Noblemen, Gentlemen, and Public Companies forming and improving Plantations, and the Trade for obtaining in large quantities that which is rare and excellent. Particulars of the Stock will appear in future Advertisements.

American Nurseries, Leytonstone, N.E.—Sept. 23.

Important Sale of Hot and Greenhouses, Pits, Frames, Stove and Greenhouse Plants, &c.

MR. S. R. FORCE has received instructions from the Executors of the late Mr. James Veitch, to SELL by AUCTION, at the Nursery, Topsham Road, Exeter, on TUESDAY, September 26, and Two following days, the HOT and GREENHOUSES, PITS, and FRAMES, fitted complete with Portland Stone, Brick and Slate Benches, Boilers and Pipes for Heating, Pits and Wood Frames, Hand Glasses, &c.

The Stock of PLANTS comprises a large collection of Camellias, Cape Heaths, Epacris, Gloxinias, Achimenes, Hardy and Exotic Ferns, fine specimen Azaleas, Begonias, Pelargoniums, Fuchsias, with a general assortment of New Holland Plants, Fine-foliage and other Stove Plants.

Catalogues (which will contain a List of everything to be Sold at this Auction) will be ready one week previous to the Auction, and will admit to a view the whole intended for sale. They may be had at 6d. each (to be allowed to purchasers and regular customers) of Mr. MANNING, at the Nursery, Topsham Road; or at the Office of the Auctioneer, 166, St. Sidwell's, Exeter.

The Sale will commence with the Greenhouses, Pits, and Frames on Tuesday, at 11 o'Clock, and be resumed each day at the same hour.—Exeter, September 23.

Fulham.—Southfield Farm, Parson's Green.

To MARKET GARDENERS, FARMERS, AND OTHERS.

W. G. AND R. TAYLOR are favoured with instructions (by Miss Maria Fitch), to SELL on the Premises, as above, on WEDNESDAY, Sept. 27, at 12 for 1 o'clock precisely, the whole of the LIVE and DEAD STOCK, consisting of about 300 bushels of Gathered Fruits, and some useful Cart Horses; Narrow and Broad Wheel Block and Spring Waggons, Water and Barrow Carts, Light Spring Market Cart, a capital Phaeton and Set of New Harness, Cart and Thill Harness, Pair of Timber Chains, Corn Bin, two Patent Chaff-cutters, small quantity of Fodder, large number of Ladders, 800 2-ft. Bell Glasses, 600 Hand Glasses, 200 Flowerpots, a large Slate Cistern, several Step Ladders, Waggon Covers, Sacks, Matting, about 11,000 ft. of Glass Framing, Spades, Hoes, Rakes, Forks, Watering Pots, several large Canisters, Cross-cut and Pit Saws, Grindstone, Iron Pump, Vices, a large quantity of useful Iron, a set of Brewing Utensils, a small portion of the Household Furniture, and numerous items.

May be viewed the day preceding the Sale; and Catalogues had on the Premises; at the principal Inns in the neighbourhood; and of the Auctioneers', George Street, Richmond.

N.B. The whole of the Lots must positively be Cleared the day after the Sale.

To Market Gardeners, Florists, and Others.

IMPORTANT SALE OF THE GROWING CROPS, HORSES, WAGGONS, CARTS, AND OTHER USEFUL IMPLEMENTS, THE PROPERTY OF MR. PHILIP URLWIN, WHO IS RETIRING FROM BUSINESS.

MR. DANIEL WATNEY will SELL by AUCTION, on the Premises, at Loughborough Park, Brixton (adjoining Loughborough Road Station), on WEDNESDAY, Sept. 27, at 12 for 1 o'Clock, without the slightest reserve, the GROWING CROPS; comprising 7 acres of Rose Coleworts, 1 acre of Linnæus and Albert Rhubarb Roots (3 years old), 1 acre of Regent Potatos, about half an acre of Mint, and about the same quantity of Mangel Wurzel; also three first-class Draught Horses, four excellent Market Waggons, with patent arms and axles, head and side ladders complete; a capital Spring Van, three strong Market Carts, Night Soil Cart, Water Cart, heavy Iron and other Rollers, two Ploughs, three sets of Harrows, Tennant's Grubber, two Chaff-cutting Machines, seven Glazed Forcing Pits, 66 Three-light Boxes, and 10 Cast-iron Hand-lights, Wheelbarrows, Water-pots, Bushel Baskets, Dibbers, Forks, Spades, Hoes, and various other implements.

Catalogues may be obtained 10 days prior to the Sale, of the BAILIFF, on the premises; and of MR. DANIEL WATNEY, Land Agent and Auctioneer, 73, Cheapside, E.C.

Uckfield Nursery, Uckfield, Sussex.

To NOBLEMEN, GENTLEMEN, BUILDERS, NURSERYMEN, AND OTHERS.

UNUSUALLY EXTENSIVE AND HIGHLY IMPORTANT SALE OF VALUABLE NURSERY STOCK.

MR. ROBERT T. MARTIN has much pleasure in announcing that he has received instructions from the Messrs. Cameron to submit to PUBLIC COMPETITION, on the Premises, situate within five minutes' walk of the Uckfield Railway Station, London, Brighton, and South Coast Railway, on THURSDAY and FRIDAY, October 5 and 6, a portion of the valuable NURSERY STOCK, without the least reserve, the Lease of the Land having expired on which the portion for Sale is standing; including large quantities of fine-grown Evergreens, Deciduous Shrubs, Ornamental Fruit and Forest Trees, Standard Roses, &c. Comprising about 30,000 Laurels, 1500 Laurustinus, 1000 Portugal Laurels, 800 Evergreen Hollies, 800 Mountain Ash, 3000 Scotch Fir, 25,000 Larch ditto, 1500 Spruce ditto, 250 Silver ditto, 25,500 Ash, 2000 Standard and Dwarf Roses, 900 Laburnums, 120 Red Cedars, 50 Large Cedars of Lebanon, 2000 English and Wych Elm, 1000 Picea nustraca, excelsa, and [illegible], 50 Norway Maple, 100 Grafted Cherries, 1500 Standard, Dwarf, and Trained Pear Trees, 14,000 Apple ditto, 800 Plum ditto, 1000 Cherry ditto, 350 Peaches, Nectarine, and Apricot ditto, 2500 Gooseberry and Currant ditto, and a large quantity of Privet, Box Edging, Weeping Beech, Black Poplar, Hornbeam, Horse Chestnut, Variegated Maple, Almonds, Double-blossom Cherries, Philyrea, Variegated Box, Common Yews, Arbor-vitæ, Weigelia rosea, Sweet Bay, Forsythia viridissima, Cryptomeria japonica, Rhododendrons, and other Stock in great variety. N.B. The Stock may be viewed six days previous to the Sale.

Catalogues are being prepared, and will be in circulation six days preceding the Sale, and may be obtained on the Premises; at the principal Inns in the neighbourhood; and at the Office of the AUCTIONEER, Town House, Hailsham, Sussex.

COLLECTIONS of BULBS.

The COVENT GARDEN COLLECTIONS,

Part for in and part for out-of-door decoration, 10*s.* 6*d.*, 15*s.* 6*d.*, 21*s.*, 42*s.*, 63*s.*, & 105*s.*

COLLECTIONS of BULBS.

The PAXTONIAN COLLECTIONS.

For the Ornamenting the Spring Garden, 15*s.* 6*d.*, 21*s.*, 42*s.*, [illegible]

THE KENSINGTON GARDEN and CRYSTAL PALACE COLLECTIONS, for Ornamenting the Winter Flower Garden,
10*s.* 6*d.*, 21*s.*, 30*s.*, 42*s.*, 63*s.*, & 105*s.*

THE CLIVEDEN SOUVENIR COLLECTIONS of BULBS.

No. 1.—HYACINTHS and CROCUS, 10*s.* 6*d.*, 21*s.*, 42*s.*, & 84*s.*
No. 2.—RANUNCULUS and CROCUS, 7*s.* 6*d.*, 15*s.*, & 30*s.*
No. 3.—TULIPS and CROCUS, 12*s.* 6*d.*, 25*s.*, & 50*s.*
No. 4.—ANEMONES and CROCUS, 15*s.*, 30*s.*, & 60*s.*

For particulars of these Collections, and Splendid Collections of HYACINTHS, TULIPS, NARCISSUS, GLADIOLI, AMARYLLIS, ANEMONES, RANUNCULUS, &c. see our FLORAL GUIDE.

THE CLIVEDEN COLLECTIONS of SPRING-BLOOMING PLANTS, drawn from the Stock at Cliveden.

50 PERPETUAL-FLOWERING CLIVEDEN YELLOW PANSIES.
50 PERPETUAL-FLOWERING CLIVEDEN BLUE PANSIES.
50 PERPETUAL-FLOWERING CLIVEDEN PURPLE PANSIES.
100 WHITE DAISIES.
100 PINK DAISIES.
100 BLUE FORGET-ME-NOT (MYOSOTIS SYLVATICA).
100 SILENE PINK.
50 MIXED COWSLIP.

The above, 105s.; Half the quantity, 50s.; Quarter do., 25s.; Eighth, 12s. 6d.

FOR HISTORY AND CULTIVATION, SEE ESSAY IN THE "JOURNAL OF THE ROYAL AGRICULTURAL SOCIETY" FOR FEBRUARY, 1862. No. XLVIII.

HALLETT'S

TRADE
WHITE PEDIGREE WHEAT,
MARK.

(ROUGH CHAFFED),

NOW OFFERED FOR THE FIRST TIME,

Grown upon the Summit of the Chalk Downs, and yielded over several Acres nearly Seven Quarters per Acre, the Crop on similar Light Soils being this year extremely bad.

This is a fine Millers' Wheat, in addition to possessing the extraordinary productiveness of the original *Red* Pedigree Wheat. Straw of medium length and very stiff, being laid by bad weather. A Winter Wheat only.

SEED REQUIRED.

If Drilled in September, 4 Bushels on 10 Acres.
" October, 4 " 8 "
If Drilled in November, 4 Bushels on 4 Acres.
" December, 4 " 3 "

Note.—**The ORIGINAL "RED" PEDIGREE WHEAT will be supplied if *specially named*, otherwise the above new White variety will this year, in all cases, be [illegible]**

PRICE, including Bags:—ONE GUINEA a BUSHEL, or SEVEN GUINEAS the QUARTER by the Quarter or Half Quarter, delivered in Bags, sewed up and sealed, at the Brighton Railway Station, upon receipt of Cheque or Post Office Order, *without which it will not in any case be sent to unknown Correspondents.* Less than a Bushel will not be supplied.

TRADE
CHEVALIER PEDIGREE BARLEY.
MARK.

This has been "bred" in the same manner as the PEDIGREE WHEAT, viz.:—by repeated annual selection, re-starting in each year from a single grain.

Although grown upon a poor thin soil (resting immediately upon the chalk), which upon neighbouring farms produces Barley rarely weighing so much as 51 lbs. per bushel, and fit only for grinding, the PEDIGREE BARLEY last year [this year's crop not yet threshed] weighed 57 lbs. per bushel, and produced 89½ bushels per acre.

Besides its astonishing productiveness, characteristic of all the PEDIGREE CEREALS, it possesses remarkable value for the maltster, *not a single grain failing to germinate and all growing equally.*

Although only a very limited area of it has this year been grown, it will, in deference to a generally expressed wish, be at once offered to the public instead of waiting next year, and a Subscription List has been formed, to which gentlemen desirous of securing any of it for drilling next Spring, would do well at once to add their [illegible] which, however, will not involve payment until it be ready for delivery, of which due notice will be given by printed circular.

SEED REQUIRED.

If Drilled in March, 1 Bushel on 3 Acres.
If Drilled in April, 1 Bushel on 2 Acres.

PRICE:—TWO GUINEAS a BUSHEL (including Bag), delivered in Bags sewed up and sealed, at the Brighton Railway Station, upon receipt of Cheque or Post Order, *without which it will not in any case be sent to unknown correspondents.* Less than a Bushel will not be supplied.

Note.—As the quantity is so limited, it will, until exhausted, be sent out to Gentlemen in the order in which they have joined the Subscription List.

FREDERIC F. HALLETT, F.L.S., THE MANOR HOUSE, BRIGHTON, SUSSEX.

NEW TARIFF OF GLASS AND HORTICULTURAL GOODS.

THOMAS MILLINGTON,

HAND GLASSES.

PRESERVE JARS

GLASS AND COLOUR MERCHANT,

87, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

MILK PANS

REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.

See Advertisement the first week in the month, or on application.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by WILLIAM BRADBURY, of 13, Upper Woburn Place, in the Parish of St. Pancras, in the Co. of Middlesex, and FREDERICK MULLETT EVANS, of No. 11, Bouverie Street, in the Precinct of Whitefriars, City of London, Printers, at their Office, Lombard St., Precinct of Whitefriars, City of London, and Published by them at the Office, No. 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said Co.—SATURDAY, September [illegible]

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 39.—1865.] SATURDAY, SEPTEMBER 30. (Price Fivepence. (Stamped Edition, 6d.

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ADVERTISEMENTS *intended for the* CURRENT WEEK'S NUMBER *should reach the Office not later than* THURSDAY.

ROYAL HORTICULTURAL SOCIETY.—A MEETING of the FRUIT and FLORAL COMMITTEES will be held on TUESDAY NEXT at 11 o'clock.

Pines.

B. S. WILLIAMS begs to announce that he has a fine Stock of the above, including all the best kinds. Prices on application.
Paradise and Victoria Nurseries, Holloway, London, N.

NEW GRAPE, "ROYAL VINEYARD," the best late White Grape extant. Strong planting Canes, 10s. 6d. each; strong fruiting, 21s. each.
B. S. WILLIAMS, Paradise and Victoria Nurseries, Holloway, London.

VINES in Pots, extra strong, from 40 of the best varieties, at 45s. per dozen. Allowance to the Trade. At B. WHITHAM's Nurseries, Reddish, near Stockport.

Vines, Vines, Vines.

E. B. HAYNES can now supply strong well-ripened CANES for Planting, 5s. and 7s. 6d. each. Extra strong for Fruting in pots, 10s. 6d. and 12s. 6d. each.
Penge Nursery, Surrey.

Grape Vines.

MRS. G. S. DODS begs to offer splendid well-ripened CANES for Forcing, 7s. 6d.; for Planting out, 5s. Also AZALEA INDICA, 12 of the leading kinds in 48-pots, well set with flower, for 12s. ERICA HIEMALIS, fine plants in 48-pots, beautifully set with flower, at 9s. per doz.; Ditto in 32-pots at 18s per doz. Epsom Nursery, Surrey.

Pine Plants and Vines.

T. PAPE can supply PROVIDENCE, BLACK PRINCE, QUEENS, MONTSERRAT, and BLACK JAMAICA PINE PLANTS. All sizes, warranted clean. Also strong VINE for fruiting in pots, or planting out; all the leading sorts
Undercliffe Gardens, Bradford, Yorkshire.

STRAWBERRY PLANTS.—Strong, for immediate planting PRICED DESCRIPTIVE LIST may be had.
STEPHEN BROWN, Nurseryman, Sudbury, Suffolk.

APPLE TREES, STANDARDS and DWARFS, warranted the best collection in England, at 60s. per 100 for Standards and Dwarfs. Allowance to the Trade. At
B. WHITHAM's Nurseries, Reddish, near Stockport.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

FOR SALE, 12 remarkably fine ORANGE TREES, in perfect health, from 10 to 12 feet high, straight single stems, round heads, full of fruit, in new handsome boxes.
Apply to Mr. ROBERTS, Woburn Park, Weybridge.

WANTED, first week in November, 15 good DWARF-TRAINED PEACH TREES in a bearing state, of the following sorts:—Noblesse, Grosse Mignonne, Red Magdalen, Royal Charlotte, Royal George, Violette Hâtive, Walburton Admirable, and Chancellor.
Apply, stating cash price for any or all of the above, to JOHN PARSONS, Ranelagh Nursery, Leamington, Warwickshire.

Orchard-house Culture.

MESSRS. THOS. RIVERS AND SON invite those interested in the above culture to view their COLLECTION of FRUIT TREES and VINES, occupying houses nearly 3000ft. in length. PEACHES and NECTARINES are now ripening.
The Harlow Station, G. E. Railway, is the most convenient for the Nurseries. Nurseries, Sawbridgeworth.

Hardy Ornamental Trees and Shrubs.

OSBORN AND SONS invite lovers of Ornamental Planting to an inspection of the varied forms and foliage of their unrivalled collection of the above, to which they have for many years devoted especial attention.
PRICED CATALOGUES, consisting of upwards of 1500 species and varieties, may be had on application.
The Nurseries, Fulham, London, S.W.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO.,
SEED FARMERS, MERCHANTS, and NURSERYMEN,
237 and 238, High Holborn, London, W.C.

H. AND F. SHARPE,
SEED GROWERS and MERCHANTS, Wisbech.
SPECIAL PRICED LIST of NEW SEEDS on application.

NEW and GENUINE AGRICULTURAL, GARDEN, and FLOWER SEEDS.
Special prices and advantageous offers on application to
JAMES FAIRHEAD & SON,
Seed Growers and Merchants, 7, Borough Market, London, S.E.

RAYNBIRD, CALDECOTT, AND BAWTREE,
SEED FARMERS and MERCHANTS,
89, Seed Market, Mark Lane; and Basingstoke.
Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

Miniature Hyacinths.

SUTTON AND SONS can supply fine BULBS of the above at 4s. per dozen.
Royal Berkshire Seed Establishment, Reading.

Finest Dutch Flower Roots.

SUTTON'S AUTUMN CATALOGUE of the above is now ready, and may be had gratis and post free on application.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Dutch Bulbs.

CHARLES TURNER is prepared to execute orders with the finest varieties of HYACINTHS, TULIPS, CROCUS, NARCISSUS, &c. The roots have arrived in fine condition. CATALOGUES on application.
The Royal Nurseries, Slough.

DUTCH BULBOUS ROOTS.—The Proprietors have received a large importation in fine condition.
WM. BARRATT, West Riding Seed Establishment, Wakefield.

J. SCOTT, Importer of DUTCH and other BULBOUS FLOWER ROOTS, has received large consignments, of best quality and in excellent condition.
DESCRIPTIVE PRICED LIST post free on application to
J. SCOTT, Merriott Nurseries or Seed Stores, Yeovil, Somerset.

CARTER'S GARDENER'S VADE-MECUM, AUTUMN SUPPLEMENT of DUTCH and CAPE BULBS and PLANTS, is now ready.

Dutch Roots.

JOHN AND CHARLES LEE have received a large importation of HYACINTHS and other DUTCH ROOTS in very fine condition. CATALOGUES post free on application.
Royal Vineyard Nursery and Seed Establishment, Hammersmith, W.

Hyacinths and other Dutch Bulbs.

WM. CUTBUSH AND SON beg to acquaint their numerous Patrons that they have received their usual Consignment of Choice HYACINTHS, TULIPS, CROCUS, &c.
PRICED DESCRIPTIVE CATALOGUE post free on application.
Highgate Nurseries, London, N.

Hyacinths, and other Dutch Bulbs.

WM. HOOPER has received large consignments of the above, of best quality, and in excellent condition. CATALOGUES free on application.
St. John's Hill Nursery, New Wandsworth.

Hyacinths and other Choice Bulbs,

B. S. WILLIAMS begs to announce that his various IMPORTATIONS of DUTCH FLOWER ROOTS have arrived in fine condition, and that he is now prepared to execute all orders he may be favoured with.
A PRICED and DESCRIPTIVE CATALOGUE, including Lists of New and Rare Plants, post free to all applicants.
Paradise and Victoria Nurseries, Holloway, London, N.

BARR AND SUGDEN'S HYACINTHS, TULIPS, CROCUS, NARCISSUS, GLADIOLI, RANUNCULUS, ANEMONES, LILIES, AMARYLLIS, in splendid collections. See our AUTUMN FLORAL GUIDE, free and post paid on application.
BARR & SUGDEN, Seed and Plant Merchants, 12, King Street, Covent Garden, W.C.

500 DUTCH BULBS, carriage free, Great Western Railway, 21s. Consist of best named HYACINTHS, Bedding HYACINTHS, TULIPS, CROCUS, SNOWDROPS, &c. One of the cheapest and best collections offered.
Also on offer, 50,000 2-years TRANSPLANTED LARCH, 3 feet, strong, and 6000 3-years ditto, 5 feet, strong.
ROBERT H. POYNTER, Dutch Bulb Importer and Seed Merchant, Taunton.

New Catalogue of Plants, Dutch Bulbs, &c.

ROBERT PARKER begs to announce that his NEW CATALOGUE, containing Select Descriptive and Priced Lists of New, Rare, and Beautiful Greenhouse, Hardy, and Stove Plants, Fruit Trees, Grapes, &c., Amaryllis, Crocuses, Gladioli, Hyacinths, Narcissus, Tulips, and other Bulbs, is now published, and will be forwarded to applicants.
Exotic Nursery, Tooting, Surrey, S.

To Suit the Times.

HOLLAND AND JONES have much pleasure in offering their distinguished CARNATIONS and PICOTEES at 9s. and 12s. per doz. pairs. See revised Catalogue.
Bradshaw Gardens, Chadderton, near Manchester.

CARNATIONS and PICOTEES for the Million. Fine Strong Plants at reduced prices.
Every one should send for the revised CATALOGUE of CARNATIONS, PICOTEES, PINKS, PANSIES, ROSES, FRUIT TREES, BULBS, &c.
HOLLAND & JONES, Proprietors, Bradshaw Gardens, Chadderton, near Manchester.

Wholesale Catalogue.

GEORGE JACKMAN AND SON will have much pleasure in forwarding on application, free by post, their DESCRIPTIVE and PRICED CATALOGUE of NURSERY STOCK for 1865 and Spring 1866.
Woking Nursery, Surrey.

WANTED, HEPATICAS.—Double Red, Single Red, Blue and White. Quote price.
BARR & SUGDEN, Seed and Plant Merchants, 12, King Street, Covent Garden, W.C.

WANTED, Transplanted LARCH, BIRCH, SPANISH CHESTNUT, ASH, &c.
Sample and Price to EDWARD CARPENTER, Seed Merchant and Grower, 96, St. James's Street, Brighton.

WANTED, in October or November, 2000 good ENGLISH OAKS, 4 feet; 10,000 strong ASH, 4 to 5 feet, well rooted.—State price, &c., to
ROBT. F. DARBY, The Nurseries, Cirencester.

JOHN JEFFERIES AND SON beg to offer handsome well-rooted plants of PINUS EXCELSA, 8 to 10 feet high, each 7s. 6d., or 60s. per dozen.
AMERICAN ARBOR-VITÆ, 3 to 4 feet, 45s. per 100.
" " 4 to 5 feet, 55s. "
RED CEDARS, 1½ to 2 feet, 40s. per 100.
" 2 to 2½ feet, 50s. "
Royal Nurseries, Cirencester.

To Noblemen, Land Stewards, and other Gentlemen requiring Forest Trees, &c.

JOSEPH TREMBLE AND SONS inform their Patrons that their Stock of Transplanted LARCH and other FOREST TREES is very extensive and remarkably healthy; they have at all times done well from those soils. Orders or inquiries will have best attention. Nurseries, Penrith, Cumberland.

PAUL AND SON'S ROSES.
The AUTUMNAL ROSES are still finely in BLOOM, at the "Old" Cheshunt Nurseries, 1 mile from Cheshunt Station, G.E.R.

New Rose Catalogue for 1865 and 1866.

PAUL AND SON beg respectfully to announce that their NEW LIST is ready. Post-free on application.
The "Old" Cheshunt Nurseries, N.

Roses.

WM. PAUL (Son and Successor to the late A. PAUL), begs to announce that his NEW DESCRIPTIVE CATALOGUE of ROSES is now ready, and will be forwarded on application, free by post. The stock is large and in splendid condition.
PAUL'S Nurseries, Waltham Cross, London, N.

THE CLIVEDEN COLLECTIONS of SPRING BLOOMING PLANTS, 12s. 6d., 25s., 50s., and 100s.
For particulars see our AUTUMN FLORAL GUIDE.
BARR & SUGDEN, 12, King Street, Covent Garden, W.C.

RHODODENDRONS, extra strong fine bushy plants, including all the best named varieties.—Having over One Million and a Half, enables me to offer them on advantageous terms to the Public or Trade. Prices may be had on application to
B. WHITHAM, The Nurseries, Reddish, near Stockport.

PELARGONIUM MRS. POLLOCK.—Strong Summer-struck Plants, well established in 60-pots, at 18s. per dozen.
The Trade supplied.
ALFRED FRYER, Nurseries, Chatteris, Cambridgeshire.

J. IVERY AND SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
*** Part II. (Exotic Ferns) will be issued as early as possible.
Foot's Cray Nursery, S.E.

CHEAP, CHEAP, CHEAP.—3 GERANIUM ITALIA UNITA; 3 GERANIUM MRS. POLLOCK; 6 choice GREENHOUSE FERNS; 6 choice HARDY FERNS for 21s.
The above are extra good Plants. Basket and packing included.
A Post-office Order made payable to JOHN BARRETT, Nurseryman, Bury St. Edmund's, Suffolk, will have immediate attention.

E. G. HENDERSON AND SON offer SEED of CALCEOLARIA, CINERARIA, and PRIMULA of first class quality, at 1s., 2s. 6d., and 5s per packet. Also the finest SCARLET and INTERMEDIATE STOCK, 6d. and 1s each.
SEED of CYCLAMEN PERSICUM, of similar quality, 6d. and 1s. each, and in mixed colours 2s. 6d. per packet.
The Wellington Nursery, St. John's Wood, London, N.W.

Hallett's

PEDIGREE WHITE WHEAT and CHEVALIER BARLEY.
For full Advertisement, see last page of *Agricultural Gazette* of last week.

Browick Red and Golden Drop Wheat.

MR. S. A. DAINTREE, of Fendrayton, St. Ives, Hunts, has selected stocks of the above, grown upon a maiden gravelly soil, for sale at 50s. per quarter. Sacks 1s. 8d. each. Remittance must accompany orders.

PAMPAS GRASS (GYNERIUM ARGENTEUM).—Several Thousands of strong plants, in pots, from 2 to 3 feet high, now ready for planting out, price 1s. each.
SUTTON & SONS, Reading Nurseries.

NEW TRIFOLIUM INCARNATUM.
" late variety.
ITALIAN RYE-GRASS, imported Seed.
JAMES CARTER AND CO. have fine samples of the above at very low prices. Prices and sample on application.
JAMES CARTER & Co., 237 & 238, High Holborn, London, W.C.

SUPERIOR MUSHROOM SPAWN, 5s. per Bushel. Mushroom Pamphlet, with New Appendix, 1s. 3d.; Market Gardening, 1s. 6d.; Cucumber and Melon, 1s.; Strawberry, new system, 1s.; Potato, &c., 1s. 6d.
PRINCE ALBERT WINTER CUCUMBER, 1s. per packet. Stamps or Order on Camberwell Green.
JAMES CUTHILL, Camberwell, London, S.

To Farmers, Gardeners, and Others.

EXCELLENT STRONG CABBAGE PLANTS, of most kinds, may be had in any quantities, at 2s 6d. per 1000 for cash. FREDERICK GEE, Seed Grower, &c., Biggleswade, Beds.

PLANTS of CATTELL'S RELIANCE CABBAGE, for early Spring use, 4s per 1000.
Strong Plants of WHITE, RED, and GREEN VARIEGATED KAIL, for Winter Garden Decoration, at 1s per 100.
JOHN CATTELL, Westerham, Kent.

HEDSOR PROLIFIC CUCUMBER.—This is a most productive kind, and for Winter or Early Spring Forcing has no equal. 1s. 6d. per packet.
CHARLES TURNER, Royal Nurseries, Slough.

BRITISH HERO DWARF PEA.
From 50 to 100 quarters to offer at 42s. per quarter.
This Pea is acknowledged to be one of the best Dwarfs grown for either field or garden.
Apply to FRANK WARWICK, Nurseryman and Seedsman, Sleaford.

The Earliest Pea known is

CARPENTER'S EXPRESS, gathered May 7th, the earliest date on record. See testimonials in *Gardeners' Chronicle* of September 2 and 9. Price 5s per quart.
To be had of EDWARD CARPENTER, Seed Merchant and Grower, Brighton and Sussex Seed Warehouse, 96, St. James's Street, Brighton.
PRICED CATALOGUES of DUTCH BULBS now ready.

INVINCIBLE SCARLET SWEET PEA, For AUTUMN SOWING.
A First-class Certificate received from the Royal Horticultural Society, also a Certificate at the Crystal Palace Autumn Show.
Very fragrant, strikingly brilliant, distinct, and permanent in its colour. Packets of 30 seeds, 2s. 6d.; 10 Seeds, 1s.; 5 seeds, 6d.; Packets of 100 seeds, 7s. 6d. May be had of the principal Seedsmen throughout the kingdom, or of the raiser,
STEPHEN BROWN, Seedsman, Sudbury, Suffolk.

Lobelia Snowflake.

Extract from GARDENERS' CHRONICLE :—

"Mr. Cox, Gardener to Lord Beauchamp, exhibited a beautiful White Lobelia called Snowflake, to which a First-class Certificate was awarded. Floral Committee of the Royal Horticultural Society July 25, 1865."

JOHN AND CHARLES LEE having acquired the stock of this desirable NEW BEDDING PLANT, they have much pleasure in offering SEED in SEALED PACKETS for present sowing for spring pot culture, for which it is well adapted.

As a BEDDING LOBELIA it stands unrivalled. The plant is of dwarf compact habit: the flowers are large, perfectly even, and of the purest white. The stock comes perfectly true from seed.

Price 2s. 6d. per packet. Price to the Trade on application.
Royal Vineyard Nursery and Seed Establishment, Hammersmith, W.

Gladioli.

EUGÈNE VERDIER, Fils Aîné, FLORIST, 3, Rue Dunois, Paris, thinks it but right to inform his numerous friends that he has this year, 1865, obtained Seven First Prizes in Medals of Gold, Silver Gilt, and Silver for his COLLECTIONS of GLADIOLI.

He is happy also to say that his unrivalled COLLECTION, consisting of many hundreds and thousands of BULBS of each variety, are this year very large, fine, and healthy; 26 Roots are sent for every 25 ordered of the same sort, free of carriage to London, to care of Messrs. BETHAM & BLACKITH, Cox's Quay, Lower Thames Street, London, E.C., from whom CATALOGUES can be obtained.

New Gladioli for 1865.

EUGÈNE VERDIER, Fils Aîné, FLORIST, 3, Rue Dunois, Paris, specially recommends the following New Varieties, obtained from seed by M. Souchet:—EURYDICE, LORD BYRON, MARECHAL VAILLANT, MILTON, NEWTON, SHAKESPEARE. Also the varieties CHERUBIN, DIOMEDE, EMILE, GALILE, LE DANTE, MALVINA, VICTOR EMMANUEL, can likewise be well recommended.

The DESCRIPTIVE CATALOGUE can be obtained of Messrs. BETHAM & BLACKITH, Cox's Quay, Lower Thames Street, London, E.C.

Gladioli.

CHARLES VERDIER, Fils, NURSERYMAN, No. 32, Rue du Marché aux Chevaux, Paris (Successor to the old-established house of Victor Verdier & Charles Verdier), has published his DESCRIPTIVE CATALOGUE of GLADIOLI for the season which can be had on applying to his Agents,

Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, E.C.

He recommends particularly the New Sorts as under:—

EURYDICE (SOUCHET).—Flower large, perfect form, pure white, flamed with lively carmine rose. Perfection.

LORD BYRON (S.)—Very brilliant scarlet, spotted and striped with pure white. A very effective plant.

MARÉCHAL VAILLANT (S.)—Flower large, good form, very brilliant scarlet, very large pure white spot. The shading of this fine plant produces an unequalled effect.

MILTON (S.)—Flower very large, perfect form, white slightly shaded with rose, very largely flamed with red. Extra.

NEWTON (S.)—Flower large, perfect form, dark crimson red, the centre white, with numerous white lines. A very fine new shade

SHAKESPEARE (S.)—Flower very large, perfect form, white very slightly flamed with carmine rose, very large rose spot. Perfection.

Special CATALOGUES for the Trade.

CHARLES VERDIER, Fils, has pleasure in announcing that all these Gladioli are in splendid condition, and that he sends out none but very healthy and vigorous bulbs.

AMBROISE VERSCHAFFELT, NURSERYMAN, Ghent, Belgium, begs to offer the following New Plants:—

ALTERNANTHERA AMŒNA, 8s.; Ditto SPATHULATA, 8s.

TELEIANTHERA VERSICOLOR, 8s.; or the three sorts for 20s. These three remarkably fine Amarantaceous plants can be seen now at A. V.'s Nursery in their full beauty; they grow perfectly well in the open air.

CALADIUM DUC DE NASSAU, one of the finest foliaged plants sent out, 16s.

Six New CHRYSANTHEMUMS (LILLIPUT), the set of 6, 16s.

RHODODENDRON DUCHESSE DE NASSAU (VERSCHAFFELT).—Very light rose colour, all spotted over, bloom of a beautiful effect, large truss and very free, quite hardy. 12s.; a few strong plants at 20s.

RHODODENDRON SALMONO-ROSEUM (VERSCHAFFELT).—Very large bouquets, compact, lilac rose, with a salmon tint; very large spots of a brownish black, quite hardy; one of the finest and most distinct varieties ever raised. 12s.; a few strong plants, 20s.

ROSE HYB. EMPEREUR DU MEXIQUE.—Large bloom, double, very dark, first-rate flower. 10s.

All the above Plants are figured in VERSCHAFFELT'S Illustration Horticole.

A. V.'s New Catalogue (No. 77), is now ready, and can be obtained free at Messrs. R. SILBERRAD & SONS, 5, Harp Lane, Great Tower Street, London, E.C.

A. V. also recommends his publication, the Illustration Horticole, published monthly, each Part containing three Coloured Plates, price 14s. 6d. per year, free.

To the Trade.

A. VAN GEERT, NURSERYMAN, Ghent, Belgium, begs to offer the undernamed useful articles, at very moderate prices:—

100 LATANIA BORBONICA, young plants in pots, a fine Palm for table decoration, easily grown in a cool house, £2 2s.
24 ALSOPHILA EXCELSA, stout seedling, a Tree Fern, for the greenhouse, £1 15s.
50 LASTREA ÆMULA, a beautiful hardy Fern, £1 10s.
12 PTERIS BIAURITA, fine greenhouse Fern, 6s.
24 OSMUNDA REGALIS CRISTATA, 18s.
2 ALSOPHILA LATEBROSA, a fine new Tree Fern, strong plants, £1 10s.
100 FERNS in varieties, £2 5s.
25 LYCOPODS in varieties, 15s.
24 EXOTIC ORCHIDS, for cool house, £4.
100 GLOXINIAS, in fine varieties, £1 5s.
100 ACHIMENES, in fine varieties, 18s.
24 DASYLIRIONS, in three varieties, strong plants, £2 10s.
12 fine plants of CHAMÆROPS HUMILIS (nearly hardy) £1 16s.
6 ditto of ROEZLIA REGIA, also nearly hardy, £1 5s.
12 ERYTHRINA CRISTA-GALLI, 6s.
100 choice STOVE PLANTS, £2 10s.
100 " GREENHOUSE PLANTS, £2 10s.
100 " CONIFEROUS PLANTS, £3 10s.
24 PASSIFLORA CŒRULEA (hardy), 8s.
100 CAMELLIAS, with flower buds, £6.
6 " " strong plants, £1 10s.
100 " without buds, £3 10s.
100 " " stronger plants, £5.
100 choice INDIAN AZALEAS, with flower buds, £4 to £6.
100 GHENT AZALEAS, Seedlings, 4-years old, 18s.
100 Choice Hardy RHODODENDRONS, fine plants, £4.
25 Choice Hardy RHODODENDRONS, with flower buds, £1 15s.
12 RHODODENDRON NUTTALLII, strong plants, £1 10s.
12 RHODODENDRON VIRGATUM, very pretty, from Himalaya, 18s.
24 Fine varieties of TREE PÆONIES, £2.
24 Varieties of choice herbaceous PÆONIES, 18s.
100 ASCLEPIAS TUBEROSA, flowering roots, £1 1s.
100 fine STANDARD ROSES, £4 10s.
100 fine half " " £3.
12 MAGNOLIA GRANDIFLORA, 12s.
12 " MACROPHYLLA, £1 10s.
100 " TRIPETALA, £1 10s.
100 Young plants of YUCCA ALOEFOLIA, £1 10s.
1000 HEMLOCK SPRUCE FIR, 2-year old, £2.
100 AMPELOPSIS QUINQUEFOLIA, £1 5s.
100 ABIES NORDMANNIANA, £1 5s.
100 GLYCINE SINENSIS, strong plants, £1 16s.
12 LOMARIA DISCOLOR, strong plants, 18s.
1 Ounce Seed of CUPRESSUS LAWSONIANA, 10s.

No less quantity than above-mentioned can be supplied for the quoted prices.

References or remittances from unknown Correspondents.

REIGATE SILVER SAND.—Good quality, 7s. per ton Cash, delivered loose into the Trucks at the Reigate Station. Best quality PEAT, LOAM, SPHAGNUM, ROCK, SANDSTONE, &c., on Sale. The Sand offered is taken from under a Peaty Soil; it is a sharp and superior grit for plants.

W. SHORT, Sand and Peat Depôt, Reigate, Surrey.

Verbena Crimson King.

THOMAS METHVEN has much pleasure in announcing that he has arranged to send out the unrivalled VERBENA CRIMSON KING, which was raised in 1863 by Mr. David Thomson, at Archerfield, where it has been extensively used for the last two seasons. Its superiority consists in its great and continuous profusion of bloom, its vigorous and compact habit, and its healthy constitution. It is in fact a companion to the well-known Purple King, having all the good qualities of the latter variety, without its tendency to mildew or to become diseased in winter. Crimson King has fine bold crimson trusses of bloom, with petals of unusual substance, borne on short stiff stalks, which constitutes one of the very best plants for standing heavy rains without much injury. Either for masses or for lines it is considered by the many gardeners who have seen it this season at Archerfield to stand unrivalled for striking effect. The following testimonials which have been received by Mr. Thomson will more than corroborate what is said above of its merits.

From Dr. ROBERT HOGG, *of the Journal of Horticulture.*

"I was particularly struck with the brilliant colour and telling effect of your Crimson King Verbena, when I saw it for the first time on entering the Kitchen Garden at Archerfield, forming a line in the ribbon border on each side of the main walk. But when I entered the Flower Garden at Dirleton Castle, remarkable for its breadth and variety of colour, in the distance my eye rested on two brilliant masses standing boldly out from all the others, which I did not fail to see was produced by the same Verbena. I was particularly struck with its compact body of colour; and on placing it in proximity with Beaton's Stella Geranium, its depth was such as to give Stella an orange hue. You have great merit in having raised so valuable a decorative plant."

From Mr. TOWARD, *Osborne House, Isle of Wight.*

"Your Verbena Crimson King is one of the best varieties I have seen; its brilliancy of colour, profusion of bloom, and upright habit of growth will place it in the front rank.

From Mr. JOHN CLARKE, *Gardener to* EARL DE GREY AND RIPON, *Studley Royal, Ripon.*

"I was particularly struck with your Seedling Verbena Crimson King. It will indeed be a valuable acquisition to all who require dense masses of colour. I cannot give you a better testimony of my appreciation of it than by saying that immediately on my return to Edinburgh, I ordered 100 plants to be secured for me as soon as it is sent out."

From Mr. JOHN ROBSON, *Gardener to* VISCOUNT HOLMESDALE, *Linton Park, Kent.*

"For many years we have been on the outlook for a class of Verbenas having the upright growth and free-flowering qualities of Purple King, but differing from it in colour. Such a one Mr. D. Thomson has obtained in his Crimson King, which is equally adapted for massing, for edging, or for lines in ribbon borders; while for continuous blooming it promises to be superior to Purple King. It is deeper and richer in colour than the well-known Geranium Stella, and, although the latter was in its best trim at Archerfield, it was the unanimous opinion of several gardeners we met with, who, like ourselves, had seen this Verbena and Geranium Stella in juxtaposition at Archerfield, that the Verbena was by far the more brilliant of the two. There seems nothing left to wish for, unless it be for other Verbenas of like habit, but of different colours, not yet represented in this way."

From Mr. THOMAS LEES, *Gardener to the* EARL OF HADDINGTON, *Tyninghame.*

"I have great pleasure in bearing the highest testimony to your Verbena Crimson King, having had opportunities of seeing it bedded along with other Verbenas in the gardens at Archerfield both last year and this. Both in fine weather and after dashing rains, it at all times was pre-eminent. Colour rich crimson, borne in great profusion. Habit of plant same as the well-known Purple King."

From Mr. H. ROSE, *Gardener to the* DUKE OF ROXBURGH, *Floors Castle, Kelso.*

"Having seen your Seedling Verbena Crimson King at Archerfield for two successive seasons, I am convinced that it is the best crimson in cultivation. Its habit is that of Purple King. It will be a great acquisition whether used for beds or ribbon borders."

From MR. J. BISSET, *Gardener to the* EARL OF SEFTON, *Croxteth Park.*

"Crimson King Verbena, which I saw at Archerfield in great perfection, is of a most brilliant colour, much wanted in Verbenas. Habit good, being very erect and a great bloomer. I had great pleasure in giving an order for a quantity of this plant."

To be sent out next May at 18s. per dozen.

Orders are now being booked, and will be executed in rotation as they are received.

Leith Walk Nurseries, Edinburgh.—September 30.

Monro's Rabley Cucumber.

JOHN MONRO begs to inform Cucumber Growers, Gardeners, and the Trade, that having had this season above 6000 feet of Glass planted with his RABLEY CUCUMBER, he has been able to save a fine lot of Seed, and is prepared to send it out true, in large Packets at 1s. per Packet. This is the best Winter or Summer Cucumber, and has always taken the First Prize whenever exhibited. May be ordered of any Seedsman. A liberal allowance to the Trade.

JOHN MONRO, Osborne Park Gardens, Potter's Bar Station, Barnet, N.

Seed Wheat from the Chalk.

BROWICK RED, NURSERY, GOLDEN DROP, CHIDHAM ROUGH CHAFF, and all the other most approved varieties of Wheat. Also HALLETT'S PEDIGREE, SHIRREFF, &c., supplied by RAYNBIRD, CALDECOTT, & BAWTREE.

Winter Tares, Rye, Winter Barley, Winter Oats, Tr[illegible]. Samples and prices post free on application.

Address Basingstoke; or 89, Seed Market, Mark Lane, E.

Surrey White Wheat.

WAITE, BURNELL, AND CO., beg to offer the very fine variety of WHITE WHEAT, which is recommended for poor and elevated soils. It has been tried [illegible] many varieties, among which may be named the R[illegible], Hunter's Trump, and almost all other kinds of White W[illegible] has produced fully 15 per cent. greater crop. It has been [illegible] free from blight and red rust when other varieties have been [illegible] less affected. Price 10s. 6d. per bushel.

A liberal discount to the Trade.
Seed Warehouse, 181, High Holborn, London, W.C.

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DOWN'S FARMERS' FRIEND, for preventing the Smut in Wheat, and the ravages of the Slug, Grub and Wireworm.

A 9d. packet is sufficient for 6 bushels of Seed Wheat, which can be dressed and fit to sow in a quarter of an hour.

Testimonials from the largest Wheat-growers in the Kingdom, bearing testimony to its great power and efficacy, may be [illegible] Agents, who are appointed for every district.

Full directions for use are given with each packet.
Prepared at the Manufactory, Woburn, Beds.

CAUTION.—To guard against fraudulent imitation and consequent disappointment, see that the signature of HENRY DOWN is on the [illegible]
Agents in every Town throughout England, Scotland, and Ireland.

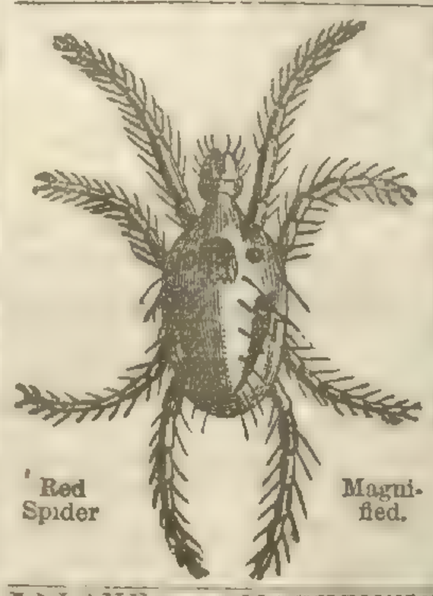
COCOA-NUT REFUSE delivered within 2[illegible] of Charing Cross, at 2s. per [illegible]

For particulars, and how to use it, see long Advertisement, *Gardeners' Chronicle* of the [illegible] March, 1863; or apply to [illegible] PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post Office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES [illegible] MATS are sold in every town.

CAUTION.—Every Brush [illegible] stamped, J. BARSHAM'S PATENT.



Red Spider — Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of the smell, and if the Solution is decanted, prevents any stain of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes, 1s., 3s., and 10s. 6d. each.

Wholesale by
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DESCRIPTIVE and CULTURAL SEED POCKETS, GERMAN SEED ENVELOPES, &c. Samples and Prices on application.

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HY. JNO. GUERRIER,
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FIRST IMPORTATION OF PICKED BULBS OF

HYACINTHS, CROCUS, TULIPS, NARCISSUS, ETC.,

HAS ARRIVED IN FINE CONDITION, AND THEY BEG RESPECTFULLY TO SOLICIT EARLY ORDERS.

JAMES CARTER & Co. have also to announce that the

AUTUMN SUPPLEMENT OF THE GARDENER'S AND FARMER'S VADE-MECUM

Is now published, and will be found to contain (with Cultural Directions) complete lists of DUTCH and CAPE BULBS, to which is added a LIST of PLANTS, including particulars of their large and important COLLECTION of FRUITING VINES in POTS, and STRAWBERRIES.

The Autumn Supplement will be forwarded Gratis and Post Free on application to
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DUTCH BULBS.

ARCHIBALD HENDERSON,

LATE SUPERINTENDENT TO THE HORTICULTURAL SOCIETY OF LONDON, AND OF HIS GRACE THE DUKE OF SUTHERLAND'S GARDENS AT TRENTHAM, STAFFORDSHIRE,

BEGS TO ANNOUNCE THAT HIS SPLENDID

COLLECTIONS OF HYACINTHS AND OTHER DUTCH ROOTS,

IMPORTED BY HIM DIRECT FROM HOLLAND, HAVE ARRIVED IN FINE CONDITION

CATALOGUES are now ready, and will be forwarded post free on application.

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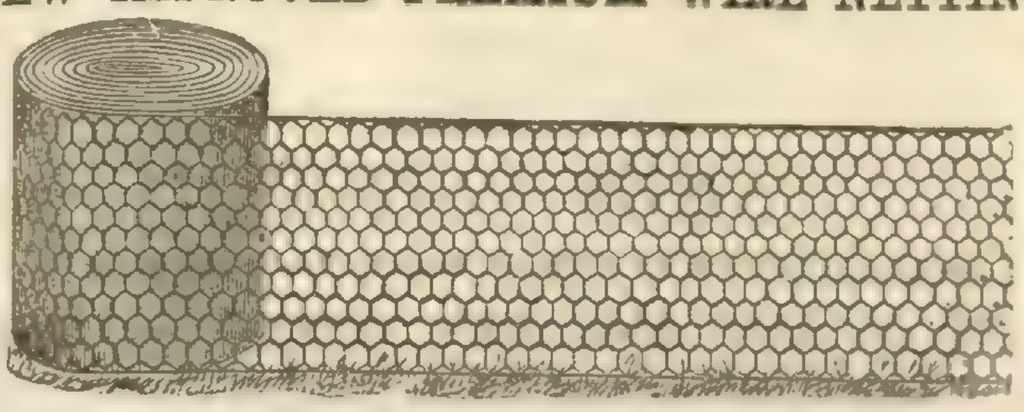
NEW IMPROVED PREMIUM WIRE NETTING.

GREAT IMPROVEMENT,



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1 inch	Hares, Dogs, Poultry ..	3d.	4d.	3¾d.	5d.	4½d.	6d.	5½d.	7d.
¾ inch	Game or Poultry Netting	3½d.	4½d.	4d.	5d.	5d.	6½d.	6½d.	8d.
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⅜ inch	Smallest Rabbits	5d.	6d.	5¾d.	7d.	7d.	9d.	9d.	11d.

Quantities of 100 yards or upwards delivered free at nearly all the principal Railway Stations and Shipping Ports in England; and 200 yards or upwards delivered free to most parts of Scotland and Ireland.

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INTERNATIONAL EXHIBITION, CLASS IX., No. 2119.

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NEW OVAL TUBULAR BOILER,

acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in Gardeners' Chronicle *of International Exhibition, May* 24, *page* 476.

"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. GRAY's variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so, the change, though a slight one, is no doubt an improvement."

They are made of all sizes, which, with prices, may be had on application.

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Caution to Gardeners.—When you ask for

SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the corporate mark GRAIN WARRANTED, without which none are genuine.

S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by sellers and makers.

S. & C.'s Pruning and Budding Knives are the best and the cheapest in the market.

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N.B. We only make one quality, the best that can be manufactured, regardless of expense, the same as the late Saynor always made during their lifetime.

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SECOND-HAND GREENHOUSE, which must be SOLD IMMEDIATELY.—Size 30 feet by 15 feet, with Glass front, ends and roof, all complete, price £15. It is worth four times the money. Also a quantity of PIT LIGHTS.

Apply to JOHN WEEKS & Co., Kings Road, Chelsea, S.W.

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JAMES PHILLIPS AND CO. beg to submit their prices as follows:—

PROPAGATING GLASSES

	Each.—s. d.		Each.—s. d.
2 inches in diameter ..	0 3½	12 inches in diameter ..	1 9
3 " " ..	0 4½	13 " " ..	2 0
4 " " ..	0 5½	14 " " ..	2 6
5 " " ..	0 6½	15 " " ..	3 0
6 " " ..	0 8	16 " " ..	3 6
7 " " ..	0 10	17 " " ..	4 0
8 " " ..	1 0	18 " " ..	5 0
9 " " ..	1 2	19 " " ..	6 0
10 " " ..	1 4	20 " " ..	7 0
11 " " ..	1 6		

BEE GLASSES.

	Each.—s. d.		Each.—s. d.
4 inches in diameter ..	0 6	9 inches in diameter ..	1 8
5 " " ..	0 8	10 " " ..	2 0
6 " " ..	0 10	11 " " ..	2 6
7 " " ..	1 1	12 " " ..	3 0
8 " " ..	1 4		

CUCUMBER GLASSES.

	Each.—s. d.		Each.—s. d.
24 inches long	2 0	16 inches long	1 4
22 " "	1 10	14 " "	1 2
20 " "	1 8	12 " "	1 0
18 " "	1 6		

HAND GLASSES, with Open Tops

	Each.—s. d.		Each.—s. d.
12 inches	6 6	18 inches	8 6
14 "	7 6	20 "	10 6
16 "	8 6	22 "	11 6
		24 "	12 6

Painted and Glazed with 16-oz. Sheet Glass.

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LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS, PAINTS of various colours ground ready for use.

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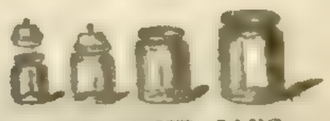

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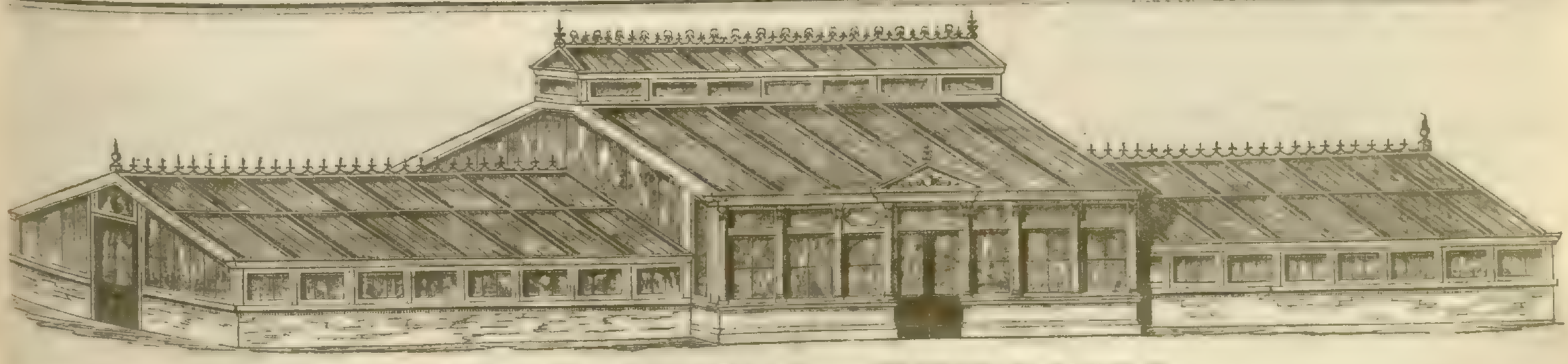

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CINERARIA (Weatherill's extra choice strain).—B. S. W. has secured at a great expense the entire stock and right of exclusive sale from Mr. Weatherill, of his, the best strain of Cineraria in existence, and can now offer packets at the following prices:—3*s.* 6*d.* and 5*s.*

CALCEOLARIA (Herbaceous), from a fine strain, 2*s.* 6*d.* and 3*s.* 6*d.* per packet.

PRIMULA (Williams' superb strain), the finest fringed and the best coloured flowers in cultivation. Red, White, or Mixed Seed, 2*s.* 6*d.*, 3*s.* 6*d.*, and 5*s.* per packet.

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SEEDLING FORCING GERANIUMS.

MRS. BRADSHAW (JACKSON'S).—Blush white, medium sized, dark claret spots feathered bright cherry; trusses large and erect, profuse bloomer, and of very dwarf habit. Price 5*s.*

SPOTTED ALMA (JACKSON'S).—Crimson rose, upper and lower petals spotted and feathered marone, of dwarfer habit, and more multiflorous than the well-known favourite Alma. Price 5*s.*

We strongly recommend the above as worthy companions of Mrs. Lewis Loyd.

THOMAS JACKSON & SON, Nursery, Kingston, Surrey.

Hardy Climbers.—To the Trade.

CLEMATIS JACKMANNI.—Large intense violet purple, rugose and veiny in centre, 3*s.* each; 30*s.* per dozen.

CLEMATIS RUBRO-VIOLACEA.—Reddish violet, sepals moderate, fine, 3*s.* each; 30*s.* per dozen.

CLEMATIS STANDISHI.—Beautiful violet blue, 3*s.* each; 30*s.* per dozen.

Besides other good old varieties.

A CATALOGUE, including Description and Treatment of Clematises, will be forwarded free on application to

GEO. JACKMAN & SON, Woking Nursery, Surrey.

MESSRS. G. BAKER AND SON having a large and fine stock of CLEMATIS and ROSES in pots, have much pleasure in offering them to the Trade, at the following low prices:—

CLEMATIS STANDISHII, 24*s.* to 30*s.* per doz.
" FORTUNII, 24*s.* to 30*s.* per doz.
" JACKMANII, 24*s.* to 30*s.* per doz.
" RUBRO VIOLACEA, 24*s.* to 30*s.* per doz.
" LANUGINOSA, 12*s.* per doz.
" VITICELLA VENOSA, 6*s.* per doz.
" SIEBOLDII, 6*s.* per doz.
" AZUREA, 6*s.* per doz.
ROSES in 48-pots, 6*s.* per doz.
" strong for forcing, 9*s.* to 12*s.* per doz.

Also a large Collection of American and General Nursery Stock.

American Nursery, Bagshot, Surrey.

New Hardy British Ferns.

J. IVERY AND SON beg to announce that they can now supply strong PLANTS of the undermentioned distinct and beautiful FERNS, both of which have received a First-class Certificate.

ATHYRIUM FILIX-FŒMINA APPLEBYANUM, 10*s.* 6*d.* each.
POLYSTICHUM ANGULARE WAKELEYANUM, 10*s.* 6*d.* and 15*s.* each.

For full description see CATALOGUE, which will be forwarded gratis on application to our Dorking Nursery.

New Roses for 1865.

EUGÈNE VERDIER, Fils Ainé, NURSERYMAN, 3, Rue Dunois, Paris, will deliver to the Trade in November next, the NEW ROSES Jules César, Madame Charles Baltet, Alba Mutabilis, Charles Rouillard, Fisher Holmes, John Grier, Jean Lambert, Miss Margaret Dombrain, Prince de Porcia, Professor Duchartre, Souvenir d'Abraham Lincoln, William Rollisson.

DESCRIPTIVE CATALOGUE, with engraving of the Rose MARGARET DOMBRAIN, can be obtained of his Agents, Messrs. BETHAM & BLACKITH, Cox's Quay, Lower Thames St., London, E.C.

Choice Zonale Geraniums, &c.

GEO. SMITH now begs to offer in Strong Plants the following new and select ZONALE GERANIUMS, viz., Admiral Proted, Amelina Grisau, Anthony Lamotte, Beauté de Parterre, Boule d'Hesperides, Cybister, Demetrio Piccoli, Emily Vaucher, Etoile des Massifs, Eugénie Mezard, Fascination, Harry Hieover, Helen Lindsay, Herald of Spring, Lady Rokeby, St. Clair, Leon Bermau, Lucrece, Lord of the Isles, Madame Rudersdorff, Meteor, Mrs. Whiltly, Nosegay Imperial, Nosegay Stella, Orange Globe, Petit Mont Rouge, Prince Imperial, President, Princess of Prussia, Roi d'Italie, Senator, Snowball, Souvenir de l'Isère, St. Fiacre, Villafranca, White and Tom Thumb, at from 9*s.* to 12*s.* per dozen.

Beauté de Surennes, Christian Deegen, Clipper, Enamel, Glory, Highgate Rival, Ida, Mr. G. Natchet, Mr. Boucharlot, Princess, Prime Minister, Pink Beauty, Pigmy, Queen Mab, Red Riding Hood, Rose of Lee, The Clown, and Venus, 21*s* per dozen.

DOUBLE FLOWERING SCARLET GERANIUMS.—Auguste Ferriet, 5*s.* each; Marechal de Chanflourd and Triomphe de Gergoviat, 7*s.* 6*d.* each.

Also a first-class Collection of Show, Spotted, Fancy, and Variegated Geraniums of the newest and most approved kinds, at from 12*s.* to 24*s.* per dozen.

STELLA VARIEGATA (SMITH), valuable for all purposes, in fine plants, 7*s.* 6*d.* each.

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200,000 LARCH, 2½ to 3½ feet. | 50,000 SCOTCH FIR, 1½ to 2½ feet.
200,000 " 1½ to 2½ feet. | 50,000 SPRUCE FIR, 2 to 4 feet.
30,000 BLACK ITALIAN POPLAR, 2 to 4 feet.

Alders, Ash, Beech, Birch, Elm, Sycamore, Holly, Hazel, Limes, Yews, Thorns for hedges, Privet, Laurels, Lilacs, Laburnums, Berberis Aquifolium, Rhododendrons, Ailantus glandulosa, Acer Negundo variegata, Purple-leaved Hazel, Conifers of sorts, choice varieties of Hardy Ornamental Trees and Shrubs with fine foliage, Roses &c. Hardy Ferns in quantity.

Prices post free on application.

CLEMATIS REGINA.

JAMES VEITCH

BEGS TO ANNOUNCE THAT HE IS NOW PREPARED TO OFFER

PLANTS OF THIS FINE NEW HYBRID CLEMATIS,

Raised by ISAAC ANDERSON HENRY, Esq., of Edinburgh.

The Flowers are large, of a deep mauve colour, measuring from 4½ to 5 inches across, and consisting of six to eight broadly oval petals, which are somewhat woolly on the under surface.

The Plant is of robust growth, and promises to be one of the most useful Clematises introduced of late years.

It was awarded a Certificate by the Floral Committee of the Royal Horticultural Society, at their Meeting, on April 22, 1862.

Price 21s. each.

ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA, S.W.

PAUL'S NURSERIES, WALTHAM CROSS, N.

WILLIAM PAUL,

(SON and SUCCESSOR to the late A. PAUL),

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The "ROSE GARDEN," Second Edition, with numerous Woodcuts, 6*s.* 6*d.*

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HYACINTHS, 6*s.* to 15*s.*; new sorts, 18*s.* to 30*s.* per doz. | POLYANTHUS NARCISSUS, 3*s.* to 6*s.* per doz.
BEDDING HYACINTHS, 18*s.* to 34*s.* per 100. | CROCUSES, 2*s.* to 4*s.* per 100.
EARLY TULIPS, 1*s.* to 4*s.* per doz. | GLADIOLI, 4*s.* to 12*s.* per doz.

And all other Bulbs equally reasonable.

BEATON'S GERANIUMS.

Reduction in price; the Set of 16 Varieties, 32*s.* These have now been thoroughly tested, and have proved even superior to the descriptions originally given of them; they have also been pronounced by many leading horticulturists indispensable in the future of every well-arranged flower garden.

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Standard and Dwarf-trained Pyramid and Dwarf PEACHES, NECTARINES, APRICOTS, APPLES, PEARS, CHERRIES, PLUMS, GOOSEBERRIES, CURRANTS, RASPBERRIES, STRAWBERRIES, FIGS, and FILBERTS. A selection of all the really good sorts, both young and fruiting trees, in splendid condition.

GRAPE VINES.

Two Thousand Fruiting and Planting, including the newest sorts.

EVERGREEN and ORNAMENTAL TREES.

One Thousand Species and Varieties, selected in a great measure for the beauty of their foliage.

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RESPECTFULLY ANNOUNCE THE PUBLICATION OF THEIR

BULB CATALOGUE,

COMBINED WITH A COMPREHENSIVE

LIST OF HERBACEOUS AND ALPINE PERENNIAL PLANTS,

Extending to above 100 pages, the latter part giving the price of each species, with their respective colour, height, and season of bloom, &c. Also reference to Bulbous and Tuberous-rooted kinds, whether of Climbing or Creeping habit, and adaptation for marshy ground, or for water, with indications to those species requiring partial protection.

Forwarded Postage Free on application.

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The COVENT GARDEN COLLECTIONS,

Part for In and part for Out-of-door Decoration, 10*s.* 6*d.*, 15*s.* 6*d.*, 21*s.*, 42*s.*, 63*s.*, & 105*s.*

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100 WHITE DAISIES.
100 PINK DAISIES.
100 BLUE FORGET-ME-NOT (MYOSOTIS SYLVATICA).
100 SILENE PINK.
50 MIXED COWSLIP.

The above, 105s.; Half the quantity, 50s.; Quarter do., 25s.; Eighth, 12s. 6d.

SUTTON'S unrivalled COLLECTIONS of BULBOUS FLOWER ROOTS, for Blooming during the Winter and Spring. These are every year becoming more popularly cultivated, and the HYACINTHS, ANEMONES, TULIPS, &c., which we imported last season from the celebrated Dutch Florists, Messrs. de Boom, Veen, Roos, and others, having been so generally admired, we have imported from the same parties, and still more extensively.

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No. 1	A large and Choice Collection of ANEMONES, HYACINTHS, CROCUSES, TULIPS, RANUNCULI, NARCISSI, SNOWDROPS, IRISES, GLADIOLI, &c	2	2	0
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	SORTS for FLOWER POTS and GLASSES.			
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All goods sent Carriage Free except small parcels, and 5 per cent. allowed for Cash Payments.

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Choice Hyacinths for Exhibition.

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SUTTON & SONS,
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HYACINTHS, TULIPS, CROCUS, &c., now arrived from Holland in excellent condition.

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No. 1 FERTILIZER is the best adapted for Hard-wooded Plants.

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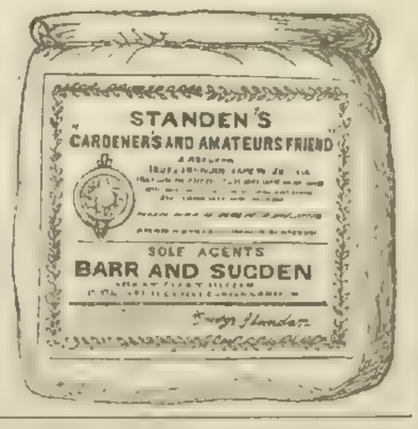
Sample Canisters, 1s. & 2s. 6d. Bags, 5s. 6d., 10s. 6d., and 21s.



BUTLER AND McCULLOCH, SEED MERCHANTS, 7, Covent Garden (South Row (or Strand side), opposite Southampton Street, Covent Garden Market, London, W.C., beg to announce the arrival of their DUTCH and other FOREIGN BULBS in the finest possible condition.

Having personally inspected the Continental Collections this season, they have been enabled to make the most judicious selections, and they beg to assure their numerous patrons that the respective kinds will be supplied as usual strictly true to name.

Their AUTUMN CATALOGUE of BULBS is now ready, and will be forwarded on application without charge, and post free to any part of the world. To it are appended selections of Flower, Vegetable, and Agricultural Seeds for Autumn Sowing; also a Select List of Plants, including Hardy Shrubs, Conifers, Climbers, Roses, Fruit Trees &c

The Gardeners' Chronicle.

SATURDAY, SEPTEMBER 30, 1865.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY,	Oct. 3	Royal Horticultural (Floral and Fruit Committees), at S. Kensington ..	11 A.M.
SATURDAY,	— 7	Royal Horticultural (Weekly Show), at South Kensington	2 P.M.

DURING the course of our series of papers on Vegetable Pathology, several instances were given of the abnormal development of CELLULAR TISSUE where not confined by the cuticle, much after the manner of the granulations which take place in a wound in the course of healing. This was remarkably the case in the cores of Apples, where the external cells were curiously echinulate, and also in the stems of a Broccoli. A singular instance of the same nature has just occurred to us in a Gourd of that yellow-fleshed variety seeds of which used to be distributed by the Horticultural Society under the name of Cucurbita ovifera (a name sometimes applied to the white Vegetable Marrow), and which Dr. LINDLEY used to eulogise by saying that it was the only variety fit to make a gentleman's purée.

On cutting up one of the Gourds in question, we were surprised to find it quite hollow, without the slightest trace of fructification, and the whole divided transversely into brown and yellowish-white bands. The brown bands consisted of withered fragmentary tissue, the remains of the dissepiments, which were in a greater or less degree of decomposition; the latter consisted of numerous swollen, cushion-shaped granulated masses, looking like some form of carbonate of lime, as, for example, what is called botryoidal. On subjecting a thin slice to the microscope, the interior cells were found to be like ordinary cellular tissue, with very large intercellular spaces, and abundant starch granules; the outer cells, on the contrary, were variously shaped, but more or less rounded on the free edges, and filled with granular matter, which became yellow with the solution of chloride of zinc, iodide of potassium, and iodine.* Some of the cells contained threads of fungus-spawn, and others elliptic or globose bodies with a distinct nucleus, and granulated externally, which, like the matter just mentioned, turned yellow under the same treatment, and which might be the fruit of some internal Fungus; though of this we are by no means certain.

While on the subject of Gourds, there are two points on which we shall venture one or two remarks. First, as regards heat being favourable to the development of male rather than female flowers in Cucurbits, we have never been able to verify Mr. KNIGHT'S doctrine. Under precisely similar circumstances, as far as we could observe, the first flowers of Cucumbers and Melons are either male or female, and we have observed the same in Gourds. In the more tender ones, as C. melanosperma and C. moschata, we have generally seen the male flowers come first. The nature of the flowers is, however, predetermined long before the shoot is fully extended; so that if the doctrine is true, all the flowers on a shoot should be of one kind, which is certainly not the case.

The other remark we have to make is about what are called Cattle Melons, the seeds of which have of late been extensively advertised. What we have seen growing from purchased seed are all varieties of C. maxima, showing a greater or less admixture of the common Turkscap. Now this is not what is largely cultivated under the name of Cattle Melon in the United States, and for the same purpose in the warmer parts of Europe. The species cultivated in America is uniformly C. Pepo, and sometimes produces as much as 15 tons an acre. A Gourd, probably of this kind, was recorded in this Journal, Feb. 1862, which attained the extraordinary weight of 280 lb., and we have ourselves an enormous example of the Citronille de Touraine, the kind cultivated for cattle in France, on a plant growing on a heap of cinder ashes, the major axis of which at this time, while it is still growing, measures 27 inches, and the minor 14. Should this ripen properly, of which we will give due notice, we shall be very happy to send a seed or two to any one who will forward a stamped envelope with the proper address. We have moreover a Gourd from another variety, with whose name we are not acquainted, but which came accidentally with some other seed from France, which is nearly globose, and 15 inches in diameter. This resembles in form and colour the well-known Potiron Jaune, but does not belong to the same species of Cucurbita, but is a true Courgeron. There is however no chance of Cattle Melons being grown to profit in this country; in ordinary summers, and even in our hotter seasons, the produce would probably be confined to one or two fruits on a plant. If numerous they cannot be expected to be so large.

There is another species, C. melanosperma, which bears black seeds, which affords excellent food for cattle, though it is a very inferior Gourd for culinary purposes. But there is even less chance of this succeeding than the hardier C. Pepo and C. maxima, as it requires a considerable degree of warmth to bring it to perfection. Not a single fruit set with us, till the late extraordinary weather. In the East it is grown extensively for cattle, and is much esteemed because of its keeping well. When some Yaks were shipped from Shanghai to France, great quantities were packed in casks for their use, and many of them arrived in perfectly good condition after a long and tedious voyage. If Cattle Melons are to succeed at all in this country, we must look to some variety of C. Pepo, which is the only species of the four which does not succeed in a very hot country; and if we tried it we should certainly prefer what are called lazy-beds for its cultivation, pinching off occasionally the tips of the shoots to increase the produce. *M. J. B.*

WHATEVER tends to the improved EDUCATION OF GARDENERS at once commands our warmest sympathies. Hence we are glad to see, that moved thereto, we believe, by an impulse from Kensington, the Society of Arts has arranged to include the examination of gardeners in its well-tried and thoroughly practical scheme of examinations. Whatever the cause, we can entertain no doubt of the fact, that as a body—there are many honourable exceptions of course—the young gardeners of the present generation are not the studious self-denying race they were when most of those who are now the leading gardeners of the day were undergoing professional training. Hence we can have no doubt that any stimulus which can be brought to bear, in respect to their studies, upon the young men who are preparing themselves to take in due course these leading positions in the gardening world, will not only be beneficial to them personally, but will also tend most surely to raise Horticulture itself amongst the practical sciences; and leaving out of view the general advantages likely to flow from such a state of things, no one can doubt that even the vexed question of wages must eventually be influenced by such an elevation. In fact, we hold this to be the true line of attack upon the evil of low wages, with which it is true enough, as often urged, that gardeners have too generally to contend.

Most of our readers are doubtless aware that the Society of Arts has for some time past held examinations in Botany. These are continued, with the usual prizes; but in addition, as an incitement to young gardeners to ground themselves in this useful and delightful science, we observe that the Council of the Royal Horticultural Society offers three additional Prizes of 5*l.*, 3*l.*, and 1*l.* respectively to the three candidates being *bonâ fide* professional Gardeners, who, taking any grade of certificate in Botany, obtain the highest number of marks in that subject.

The new examinations, however, to which we desire especially to invite the attention of young gardeners, are to be conducted under the heads of Floriculture, which is intended to comprise what in horticultural language is called plant-culture generally or the Flower-garden department; and Fruit and Vegetable culture, which comprises the management of the kitchen-garden and orchard. Under the head of Floriculture candidates will be expected to answer questions relating to any of the undermentioned subjects:—

"The leading Flowers of the different seasons, indicating those to be obtained naturally, and those by artificial means. Leaf Buds and Flower Buds, the conditions favourable to their development respectively. Food of Plants, how and whence derived, and in what form received. Manuring substances best adapted for Flower Culture.

"Improvement of Races in Plants, how has it been effected, and by what means can it be carried forward? Hybridisation, objects and guiding principles of. Conditions necessary to ensure fertility in Flowers.

"Construction of Houses for Plant Culture. Warming and Ventilation. Influence of Ventilation on Plants confined in forcing houses. Limits of Temperature endurable by Plants, and how to turn this to advantage in Practical Floriculture. Bottom-heat, value of in Plant Culture. Watering, the *rationale* of—what to avoid. Liquid Manures.

"Propagation, the various modes of, and their special adaptations. Germination of seeds, conditions favourable and unfavourable to. Vitality of seeds, duration of, and how best preserved. Treatment of Seedling Plants. Budding, Grafting, and Inarching, how performed, and to what subjects best adapted. Increase by cuttings and by layers. Leaf-cuttings, how is it that they can organise buds? Potting. Composts.

"Acclimatisation. Is it possible to increase the hardiness of any race of plants, and by what means?"

The examination on Floricultural subjects is to take place on the 24th of April next; that on Fruit and Vegetable Culture, embraced under the following heads, is to take place on the 26th of April:—

"Kinds of Fruits adapted for various soils and exposures. The Propagation, Pruning, and Training of Fruit Trees. The Forcing of Fruit Trees, and their cultivation under glass, both in and out of pots. The Theory of Ripening, and the principles that ought to regulate the preservation of fruits after they are ripe or their subsequent maturation. The Packing of Fruit for transmission to great distances.

"The kinds and quantities of vegetable seeds and roots required for cropping gardens of given dimensions. The culture of the different kinds of vegetables and salads. The preparation of fermenting materials for artificial heating. The forcing of vegetables and salads.

"Soils, Water, Atmospheric Air, Light and Heat in their relation to the successful cultivation of Fruit and Vegetables. Manures and their application. The Diseases and Insects to which Fruit Trees and Vegetables are subject, and their remedies. The Structure and Functions of the Organs of Plants, considered in their relation to growth and reproduction. The erection, heating, and ventilation of garden structures."

The Society of Arts, in addition to its Certificates, offers prizes of 5*l.* and 3*l.* in each of these sections to candidates taking First-class Certificates. In addition thereto, the Proprietors of this

* It may be useful to some of our readers to give the formula of what the Germans call the "chlor-iod-zinc losung:"

Iodine, gr. j.
Pot. Iod. gr. iij.
Chlor. Zinc. gr. viij.

Journal offer prizes of 3*l.*, 2*l.*, and 1*l.* respectively to the three candidates, being *bonâ fide* professional gardeners, who, obtaining a Second-class Certificate, at least, in either Floriculture or Fruit and Vegetable culture, shall obtain the highest number of marks in one of these subjects, and also a Second-class Certificate, at least, in Book-keeping or Mensuration.

The Examiners appointed are for Floriculture Mr. THOMAS MOORE, and for Fruit and Vegetable culture Dr. HOGG. Those who are desirous of availing themselves of the examinations may learn the full particulars by application to "The Secretary of the Society of Arts, Adelphi, London, W.C."

While we accept this proposed examination at its actual worth, as a direct gain to Horticulture, we trust yet to see the Royal Horticultural Society itself vindicating its position, by taking a more prominent and active part in reference to this important subject; and we believe we are correct in stating that some arrangements with this object in view are under consideration at the present moment.

—— M. TRÉCUL has recently read a memoir before the French Academy of Sciences on the Production of Amyliferous Plantules in VEGETABLE CELLS during Putrefaction. The facts, observes the *Reader*, given in this paper show that the organic matter contained in certain cells can be transformed, during putrefaction, to living bodies of a very different nature to the generating species. M. TRÉCUL believes that he has discovered in the cells of a plant under examination minute crystals of chlorophyll, of various sizes, and of a bright green colour.

—— We are glad to learn that our countryman Mr. MEREDITH, of the Vineyard, Garston, has carried off the Medal of Honour, the highest prize awarded for GRAPES, at the recent Fruit Flower and Agricultural Show at Brussels, with an exhibition that especially attracted the notice of the KING and Royal Family. There were some four or five collections of Hothouse Grapes shown, but with the exception of those from Mr. MEREDITH, which attracted universal admiration, and a collection from M. GOES, which were tolerably fine, the bulk of them were inferior, being small both in bunch and berry. The season nevertheless has been very propitious for Vines on the Continent, so that much of the produce shown was finer than usual. The most abundant objects of exhibition were the Apples and Pears, but the season has been so hot that they were dry and comparatively flavourless. Peaches were very good, and there were a few Pineapples shown. The plants were numerous, but comprised nothing remarkably fine. Wheat and Barley were good; Potatos very poor; and Mangels large, but very much deformed. The Show seems to have been a satisfactory one.

—— M. PASTEUR'S views on the RIPENING OF WINES were alluded to at p. 679. A memoir has since been presented to the French Academy of Sciences by M. BÉCHAMP, in which he affirms, contrary to the results of M. PASTEUR, that the sole cause of the improvement of wines by age, is a fermentation, promoted by the presence of organic bodies. Not a single exception to this was found in the different wines examined by him. He adds, that the whole secret of maturing wine lies in preventing acidity, and in encouraging the production of these organisms.

—— Those who know GLASNEVIN will be glad to learn that Government intends granting even a much larger sum than was anticipated towards the improvement and extension of that fine botanic garden. Amongst other alterations it is proposed to improve the handsome curvilinear range of lean-to houses by doubling its width and converting it into a roomy span-roofed range; to modify and improve the ugly aspect of the new Palm house; and to add to the gardens an adjoining piece of valuable undulating land on the banks of the Tolka. It will be a capital place for an extension of the arboretum.

—— A few months since M. JOSEPH BOEHM communicated to the Imperial Academy of Sciences at Vienna, a paper on the Parasitic Nature of the MISTLETO, in which he maintains that this plant is not a true parasite, but that it acts merely as a vigorous, though useless, branch of the tree on which it grows.

—— According to the French news in the leading journal, this is to be a prodigious year for TRUFFLES. A few have already been brought to market much sooner than is usually the case; but the harvest has not yet begun, and the precious subterranean mushroom is still acquiring size and fragrance in the ground. Not only, it is stated, will the crop be unusually large, but the quality will be something very remarkable, the hot sun which came after some rains in August having been highly favourable to the perfume of these black diamonds of gastronomy. A century ago the whole of the Truffles annually gathered in France did not amount to a value of a million francs; they are said now to produce more than 30 millions. Truffles are found in almost every part of France, and in many departments their collection and sale is a great resource to the poor in winter. Hitherto it has not been generally allowed to collect Truffles in the forests of the State, but that prohibition is expected to be shortly removed. Abundant Truffles and a wonderful vintage, it is remarked, will make of 1865 a red-letter year in the *gourmet's* calendar.

New Plants.

315. CYPRIPEDIUM LÆVIGATUM, *Bateman in Bot. Mag.*, t. 5508.

This fine new Cypripedium was discovered by Mr. J. G. Veitch in the Philippine Islands, and by him sent to his father's establishment at Chelsea, where it bloomed for the first time in March last. It is most nearly related to C. Stonei, the only other species known to have glossy leaves, but differs from it in the form and colour of its lip, which is small and of a dirty yellow, while that of C. Stonei is large, with a pink front on a white ground. The petals too of C. Stonei are not twisted, and only twice the length of the sepals, while in C. lævigatum they are much twisted, and at least four times the length of the sepals. Again, in C. Stonei the dorsal sepal is striped on the outside with crimson, but is white within, whereas in C. lævigatum the crimson stripes are all on the inside.

Mr. Veitch found C. lævigatum established on the roots of the well-known Vanda Batemanni, to obtain

a. Cypripedium lævigatum. *b.* Masdevallia tovarensis.

which was one main object of his voyage, though he sought for it long in vain, and had almost begun to despair of ever meeting with it, when running his boat one day ashore in the bay of a small island, he was delighted and astonished to find the rocks by the coast covered with large masses of the plant of which he was in quest. As the Vanda affects a warm situation, the Cypripedium should be treated in the same way. *Bot. Mag. l. c.*

316. MASDEVALLIA TOVARENSIS, *Reichenbach fil. in Bonplandia; Hooker, Bot. Mag.* t. 5505.

Of the extensive genus Masdevallia very few have come into cultivation, and these for the most part insignificant and uninteresting to cultivators. The present with its numerous leaves and large white flowers is an exception, and is really worth growing among the dwarfer inhabitants of the Orchid house. It comes from the high mountains of Columbia, and is therefore one of the class denominated cool Orchids. In the flowers the large white sepals coalesce into a sort of cup, within which the minute petals, lip, and column are seated.

BLIGHTED APRICOT TREES.

I HAVE been interested in reading an account of the Apricot culture in the Royal Gardens, Frogmore (p. 685), and am reminded of the numerous theories formerly advanced to account for that most distressing and disastrous blight by which perhaps one-third or one-half of a fine tree full of fruit would in one day become totally dead. This was, I think, accounted for by some theorists by snow lodging on the large horizontal branches trained against a wall; this, thawing by day and becoming ice at night, it was thought, laid the foundation of this terrible disease. Others imputed it to the sun in summer scorching the bare parts of the old branches, and thus bringing on sudden death. I have strong reason for thinking it to be, like our Potato and other vegetable diseases, a mystery; and although to be modified, yet perfectly incurable.

I say this, because I have had some considerable experience in Apricot culture, and I have seen the trees under many different circumstances. In the south, west, and south-west of France the standard trees, which are sometimes planted among the Vines and in orchards appropriated to them by thousands and hundreds of thousands, are often afflicted with a dying off of large limbs, without any apparent cause and generally in the middle of summer. I remember when I saw this that my pet theory was knocked over, for I had thought and said that the disease was owing to our trees being budded on Plum stocks, which brought on a plethoric growth, subjecting the tree to a sort of apoplexy or paralysis. My favourite remedy was therefore the budding Apricots on Apricot stocks. This, by bringing on the growth of more slender shoots, seemed likely to put off the evil day of blight, and I still believe it does so to a certain extent. My ideas have, however, received this season a new turn, for among my numerous seedlings are many raised from the "Abricot Pêche"—the Peach Apricot; one of these, a fine young tree, four or five years old, one morning in July last showed signs of paralysis by its leaves withering; by the afternoon, owing to the hot sun it was dead and sear to an extent of three-fourths of the tree. There was no mark in the stem, nor no signs of canker, for it looked perfectly smooth and healthy, yet without the least warning it had died suddenly to within a foot of the ground, leaving only one branch, which has since the stump made a vigorous growth; on bending the stem it broke suddenly, and showed itself to be dry and decayed. The tree had not been subjected to frost and snow or to any extra exposure to the sun, for it had been in the orchard house summer and winter, standing among others, and of course partially shaded. It must be therefore considered a mysterious malady to which Apricot trees, particularly of the Moor Park and Peach varieties, are more liable than some other varieties—still it is not confined to them, for I have just discovered a large bearing tree in a pot of another kind that has within the last fortnight suddenly died; this was ten years old, and has lived constantly in the orchard house.

With respect to seedling Apricots not varying much in quality, I fully believe that if 100 seedlings were raised from the Moor Park or Peach Apricot scarcely one would be found of inferior quality; some would be large, some small, some a trifle earlier, some later, to a small extent, but all would be juicy and good. It is most difficult to procure any very distinct variety from seed, as there are but few sorts that offer any advantage by crossing.

The only really marked varieties which I have yet produced are a seedling from that very old sort, the Red Muscadine, which has given me an early kind like its parent, but larger and much more juicy. The Musch Musch has also given me from its seed a sort double the size of its parent, and most particularly rich and juicy, probably the richest and highest in flavour of all at present known; and to finish the list of my gains from seed, I may mention that the St. Ambroise, a sort rather early in ripening, has produced a seedling large and very late, ripening a month after the Moor Park. This odd variation from seed is not so surprising as what I now see in my orchard house—a late Pavie, not yet ripe, a seedling from the Early Victoria Peach, one of the earliest of all.

In the interesting notice by your correspondent of the Royal Gardens at Frogmore, I was much amused at the place given to the Victoria Plum—the people's Plum. This sort, as a culinary Plum, is undoubtedly useful and good. I have seen it in all stages, on walls, in orchard and forcing houses, and on standards, and often very large and beautiful; and I have tasted it. I never could manage to eat one on account of its mawkish sweetness, without any redeeming aroma. If her Gracious Majesty only once ate a fine fruit of the Transparent Gage Plum, I am inclined to think Victoria would go out of favour. *T. K.*

THE LONDON PARKS.—No. IV.

The Regent's Park.

Let us next carefully go through and examine the new Avenue gardens, to which allusion was made at p. 867.

First, with regard to general design, it will be well to bear in mind that each is made in a narrow strip, 75 feet wide, and nearly 400 yards long, between two straight rows of trees—at first view a most unlikely site for a classical garden. Each side is divided into a central and two ante-gardens, and we are in the N.W. ante-garden looking to the south, where stands the interesting gardener's cottage, designed in the old English style by Mr. Eden Nesfield. In the ante-gardens a walk runs exactly between the two lines of trees from the north and south ends, say for about 100 yards, till it meets the central garden (which occupies nearly the whole width between the trees and the remainder of the length), when it branches and runs along under the trees on either side of the central garden. Near the edge of the walk in each ante-garden tapering young Poplars are planted at intervals, behind which are the flower-beds and shrubs, gradually rising towards the Elms on one side and Horse Chestnuts on the other, with which the slim young Poplars make an agreeable contrast, while they also give one an impression of walking through a sort of green aisle. Thus, when you walk down to the end of the central garden and leave the last Poplar behind, the effect by contrast with the artistically narrowed ante-garden is one of breadth and expansion, so much so that you never think of it in connection with 75 feet. By these means an excellent effect is given to what would otherwise have been a sort of vegetable Gower Street. Equally satisfactory is the part played by these Poplars at each end. By forming a minor vista to the big trees they carry the eye onwards, aid the perspective, and give an impression of increased length rather than narrowness, and consequently of increased space.

Here and there among the shrubs on either side the ante-garden walk are young standard Almond and Peach trees; by-and-by these may be sufficiently developed to produce this perspective aiding effect, and then the Poplars could be dispensed with if they should become too large or otherwise objectionable. There are tastefully placed vases on either side the ante-garden walks, and large raised tazzas and vases in the centre of the main gardens. The Poplars are used in the east garden with the same object and the same effect.

Now let us discuss the matter from a purely gardening point of view. Well, the first two beds we meet in the N.W. ante-garden are composed of a centre of green fine-leaved plants such as Dracænas, Solanum robustum, and Aralias, surrounded by a belt of the extremely useful Amaranthus melancholicus, edged with Centaurea. This, though not so fine an example in the same direction as we shall see on the N.E. side, is yet quite an antidote to all grumbling on my part, for it is the very thing I have been all along advocating. The central beds in this ante-garden are two bold masses of Stella Pelargonium in a stone-curbed bed, the edging being of Yellow Honeysuckle, which looked very washy indeed against the white stone, as did some of the Golden Chain breed of Geraniums in like positions. Observe that there is as much variety of arrangement in these gardens—I think more—as is ever noticed in a garden of the kind, with a thorough avoidance of gaudiness. For instance, there are two circles on each side, north and south of this oblong bed of Stella, planted respectively with purple Verbena and Calceolaria and fine-leaved plants. Connecting these with the Stella is a narrow band of yellow Pansy running along in front of the little Privet hedge which borders the flowering shrubs and Aucubas. In the S.W. ante-garden this little strip is of Variegated Mint and blue Lobelia; in the S.E. ante-garden it is a most pleasing combination made by planting a line of Scarlet Verbena behind one of variegated Cocksfoot Grass—an excellent edging plant; and in the N.E. garden a mixture of Variegated Mint and Amaranthus melancholicus proves to be one of the most successful mixtures of the present bedding season around London. When the sun is out nothing equals the translucent beauty of the colour of this plant; and this ought to teach a lesson to those gardeners who, when the planting of important points is finished, make every border a fac-simile of every other, with the common bedding plants left on hand.

It may be observed that some things do not here look so well as in more open gardens, and this is in consequence of the immediate proximity of the trees. A hungry man will not more surely eat a savoury dish within his reach, than will these gormandising trees suck up every bit of nourishment in these beds, not made for them but for the flowers. However a simple expedient will completely cut the roots off from the flower-beds, which will then have the advantage of being embosomed in verdure and sheltered without being eaten up by trees.

Let us pass on to the most pleasing compositions, and of these perhaps the best, though not the most original, is in the wide oblong beds with tazza in centre and circle at each end. Running along the middle of the beds is a line of Holly placed there to show its glistening green behind the brilliant flowers—a capital idea. On each side of the Holly is one row of Stella, one of Trentham Rose, one of Christine, two of Manglesii, 15 inches of Purple King Verbena, all nicely graduated as to height, and forming a piece of brilliantly harmonious colouring, which cannot fail to please every connoisseur of the art. One of the best features of the garden is the way in which tapering, graceful, and formal shrubs are used on the Grass band surrounding these panels. Yucca recurva is freely planted, alternating with pyramidal Box, Yews, beds of dwarf Rhododendrons and Berberis Aquifolium. This Yucca will eventually prove one of the most useful plants in these gardens, and should be planted freely in every geometrical garden. Just observe how chaste and pretty this line of young white Fuchsias looks in the raised bed round the Griffin tazza; they bloom continuously, and are so satisfactory as to warrant the general use in flower gardens of this popular favourite, particularly in beds raised 18 inches, or higher.

Space does not permit me to go through every feature, but I must point out a bed of crimson and green Dracænas with fine India-rubber plants in the centre, and an edging of young Vines around it, which is pretty; and also teaches how careful we ought to be about putting such things in the open air. In the south-east ante-garden the chief compositions are centred by handsome but simple vases with Ivy creeping round the base, around which is a circle of Frogmore Scarlet, which is quite surpassed by Attraction and Stella. On each side of this is a bed of Coleus edged by Centaurea, very effective when the sun is out. But on the whole, granting that the two plants do equally well, Mr. Nesfield thinks Coleus under no circumstances equal to Amaranthus, being of too deep a tone. I think so too, and also that nothing surpasses a mixture of this Amaranthus, and some silvery-looking subject like the Variegated Mint.

The eastern central garden does not seem so thoroughly in unison with the situation and surroundings as the western, but this has arisen from the necessity of having to facilitate the dispersion of the large crowds that pass up and down hereabouts occasionally. One of the most original and beautiful examples of colouring seen for a long time occurs in this. It is called the cable frieze, and viewed from either end is well worth a study, although Purple King and some of the Pelargoniums have been put out of humour by the pouring rains of August. It is composed of six gradually enlarging circles, the smaller one having only room for a speck of Centauren, with band of Purple King and edge of Cerastium, while at the other end a large circle of Stella surrounds the green belt at the base of the vase. Looking from this vase of Stella to the narrow end of the composition you see the Centaurea forming a white spot in the centre of its bed, and next to it in the series Alma variegated, then Flower of the Day, the circles and bands of Purple King getting larger and becoming warm; then in the fourth bed Golden Circle; while the fifth, next the glowing Stella, is filled by a splendid mass of Golden Fleece, which would seem to be a valuable plant compared to some of its allies. The fillings in, or little triangular beds, are well planted by Christine, which has a beautiful effect outside the novel series of variegated beds. The frieze is slightly sunk and margined with a white stone curb, a narrow gravel walk running between the little triangles and the margin. This walk, instead of being left in its nakedness, is for 15 inches next the stone curb densely covered with dark-green trailing Ivy, kept clear of the white curb, and of a few inches of gravel near the box; the effect of the whole of this frieze, which I take to be quite original in its planting, is that of exquisitely quiet harmony of colour, as distinct from the brilliant harmony of the N.W. central garden. It could only be bettered by substituting Silver Chain Pelargonium for the Centaurea, and that would be a decided improvement.

We have no time to spend upon anything less beautiful than this, and so will step into the N.E. ante-garden, which I take to be the feature of this year's planting; and as particularly illustrative of the true theory of garden embellishment (I hate the word bedding—it is only fit for the kitchen garden), I would recommend all gardeners who have the chance to study it for themselves. From this garden you may see what may be seen from any of the ante-gardens: immediately behind the first vase at the entrance of the central garden a bed of Rhododendrons, intended by the designer to hide out from the ante-garden the colour of the central division, and thus make the ante-garden complete in itself. In some of these beds are Cannas, in others Dahlias, but in all the intent is the same. The first striking thing in this ante-garden is the luxurious growth of the sub-tropical plants employed in it, and not planted on raised mounds, but on the level ground as ordinary bedding plants. They have, it is true, a layer of brick rubbish below the rich soil, but that is only desirable here from the clay bottom, and would be quite unnecessary in nine cases out of ten. Of course these bricks are quite ineffective from a geothermal point of view, and yet the Castor Oils have leaves two feet across, and are 9 feet high already, while the Ferdinandas top them by a foot, and the Caladiums make leaves healthy and distinct enough to be nobly useful. This, depend upon it, is the best phase of sub-tropical gardening, because the plants used may be raised nearly as cheaply as bedding plants, because they grow as fresh and green and glistening and fast as the wildest native plants, and afford a marked contrast to such things as the crimson Dracænas in the S.W. ante-garden, and a still greater contrast to the ragged Hollyhocks filling similar beds in the S.E. garden. However desirable these latter may be from an artistic point of view, their number might with advantage be reduced, and some distinct beds such as those in the N.E. ante-garden substituted for them.

Here it is that the band of Amaranthus mixed with Variegated Mint is so conspicuous for its beauty. It is not an unbroken or monotonous band, as at every 20 yards or so out juts a circle of Ferdinandas with a band of Castor Oils around, edged by the noble leaves of the esculent Arum, and the line of colour runs into this as it were; while looking in the other direction, a circle of equal size projects with basket vase in centre, surrounded by a row of Arum esculentum, which associates beautifully with the vase, and around it a mass of Pelargonium Rose Queen edged by Gnaphalium lanatum. This I take to be an artistic and excellent attempt to associate graceful plants with showy ones, and such combinations must eventually bear away the palm from vast piles of either foliage or flowering plants alone and unmixed.

Now look to the north end of this ante-garden, and you will see the walk branches off instead of going straight to the end as in the opposite side, and this is to facilitate the movements of crowds here. The angle formed by the branching of the walks is planted with common Rhododendron, and surrounded by an effective and pleasing margin, composed of Centaurea near the dark foliage of the shrubs; then a good belt of Frogmore Scarlet, with edge of Lobelia and Gnaphalium. At the northern and wider end of this triangular space runs the short cross walk as in the other ante-gardens, but in this case beyond it there is a bank of Ferdinandas, 9 and 10 feet high, on a rich raised bed to "finish off" the garden, and this rich green wall seen across the brilliant margined Rhododendron bed comes in well.

This garden, which impartial observers will pronounce eminently suited to the situation, and as well arranged as it could be to secure variety without "frittering away," has, as regards its summer decoration, as well as original planting and laying out, been done from the designs of Mr. Markham Nesfield. As a whole they would be highly creditable to any landscape gardener, but they are remarkable as the work of a young artist.

The park is well superintended by Mr. Edwards, assisted by Mr. Murphy; and Mr. Ivison looks after the new garden. There is enough of space in it to fully display the present system of flower gardening or any modification of it that may turn up, consequently there should be no further extension of fine gardening. There is however a space between these gardens and the Colosseum cut off from the park proper, and this it is proposed to convert into winding shrubberies, &c.—indeed, the contractor is already accumulating his materials for the work. After this every inch of the remaining open space will be required as playgrounds for the coming generation of children—big and little. Why, even now on a summer's evening many parts of this park are alive with little vivacious Londoners. To see them so thoroughly and healthfully enjoying the park is perhaps one of the best things a thinking man can see in it. There little London, full of rapture, is gathering up that health and strength in youth for which opportunities will be few when the battle of life begins in earnest. *W. Robinson.*

GENERAL FLOWER BEDDING.—No. V.

In providing a suitable display for the different seasons of the year, habit of plant as well as floral beauty, together with the proper position the different plants should occupy in a flower garden arrangement, must all be kept in view. Great numbers of plants, beautiful during both summer and spring, are nevertheless wholly unfit for purposes of general decoration, and can only be used with advantage in mixed borders, or in other situations in which other plants can aid them in maintaining the display after they get comparatively ineffective. In this class we must include Phloxes, than which few plants are more beautiful while in bloom, but unfortunately their gaiety is soon over, leaving a blank to be made up. Thus in a bed of Phlox verna I plant Duke of York Tulip, and edge with double white Daisy. The beautiful Phlox procumbens is best as an edging, or as a covering for the side of a raised bed, intermixed with a few plants of Scilla sibirica. Plants of similar habit may be treated in the same manner, and in the case of these, and many other spring flowers, such as Daisies, Arabis, Aubrietia, &c., the bed or edging should be planted thickly at first, as they seldom grow much afterwards, and if thin the effect in spring is apt to produce a certain amount of disappointment.

Among annuals there is great choice of colour; the pretty old-fashioned Virginian Stock makes a beautiful edging, but if grown in beds it should be intermixed with Vermillon Brillant Tulip, and edged with Pink Daisy, the rich colour of the Tulip setting off the light lilac of the Stock to excellent advantage. Collinsia verna is a new colour, with which Queen Victoria Tulip may be advantageously associated. Any person trying this Collinsia for the first time must not be discouraged if the seeds do not come up at the time they are expected, for from some cause or other I have known them to lay in the soil for at least three months

and then all at once to vegetate. It is therefore better to sow this annual in pans. Collinsia bicolor is also useful as a decorative plant, as is also Lasthenia californica, which is a beautiful yellow, and stands the winter in most places. Nemophila insignis has of late been much neglected for summer bedding in the south; it is of short duration, but in spring nothing can be more beautiful, especially when associated with an edging of white Daisy and a few Canary-bird Tulips. In the case of annuals an early or late spring makes all the difference in regard to their blooming; where there is convenience therefore a few should be sown in a pot, and afterwards pricked off into 60-sized pots. These will always prove sufficiently early for all purposes, if planted out on the first appearance of fine weather, and the pots may be used afterwards for spring cuttings of summer bedding plants. There are besides a few annuals that do not require any protection, but, on the contrary, are better out of doors. Of these the Silene, the Myosotis, and Saponaria are the best; Limnanthes Douglasii and grandiflora are also good in their way, but they flower later than most people consider a proper season to commence summer planting.

With materials such as these and others at command, I have no hesitation in saying that our beds and gardens should be a continuous mass of bloom during the greater part of the year; as soon as one variety of plant gets out of beauty another should be introduced, just as we do with various other crops in spring and summer. For summer ribbons it is found that certain kinds of plants are used almost everywhere, owing doubtless to their possessing properties to recommend them for that kind of ornamentation, a fact which is also equally the case with regard to spring ribbons. Let me take my own arrangement for the coming season as an example. The plants I employ are Ivy, Cerastium Biebersteini, and Queen Victoria Crocus, Red Daisy, Pink Daisy, White Daisy, Blue Pansy, Yellow Pansy, Dark Pansy, Creamy Silene, Yellow Wallflower and Anemone mixed, and Red Honesty at the back. These form a ribbon against a wall, but in many places there is no wall, and in that case the advantage of the arrangements mentioned at p. 819 will be apparent. Where no wall exists greater variety may be created, inasmuch as the lines may be wavy or serpentine, which is more pleasing than straight lines, and serves to show the various colours off to better advantage. To prove this we have only to take a circular bed and a square one, and compare them. The circular one is always the most effective; let us suppose it to be spring, and the flowers mixed Tulips—no other form of bed softens down their stiff, stately habit, so as to produce a pleasing effect, so well as circles or curves. *J. F.*

Home Correspondence.

New Hardy Blue Bedding Plant.—Many a garden is affected with smut and gas, and particularly botanic gardens, which to be of any use must be near towns; but by far the worst off in this respect is the Liverpool garden, where even the much-enduring Hawthorn seems to be on its last legs. This being the case, Mr. Tyerman devotes most attention to bedding, the only gardening it is possible to show a decent example of out-of-doors in the Liverpool Botanic. And his display of bedding plants is most extensive, novel, and beautiful —a leading feature in one design being a string of small circular beds running through a scroll pattern. They are filled with a blue flower, fresh and effective; it is not Purple King Verbena, for that is past its beauty here now, but Viola "montana," a plant likely to be of great use in the bedding department, and a great acquisition for those who sigh for a hardy bedding collection. It is grown in good soil and in a slightly hollowed situation; but these are not peculiar to the Liverpool garden, and the plant is considered by Mr. Tyerman his "best blue." A good blue is surely a great want in bedding. It was in fine bloom the time of my visit (6th Sept.), and had been so since the dawn of summer. Though it is known in the garden as Viola montana, it is apparently not that species. Doubtless it might be planted with advantage a few weeks earlier than the ordinary bedding plants. I would recommend gardeners to try it next year, particularly those in the district where it has proved so useful, and in the northern counties, where they are deprived of the enlivening presence of Coleus, and one or two other things that do well about and south of London. Viola lutea is also used with success as a bedding plant by Mr. Tyerman, and here and there it forms a pretty edging to the blue species. *W. Robinson.* [Mr. Tyerman can perhaps settle the question as to the name of this blue Viola.]

Californian Cucumber.—A very fine specimen of this Cucumber or Gourd has this year been grown by Mr. Graham, wood agent to the Duke of Newcastle at Clumber Park, Notts. The plant which produced it was raised by Mr. Graham, from seed forwarded to him from the township of Etobicoke, County of York, Canada West. In Upper Canada this species, the fruit of which sometimes attains the length of 6½ feet, is generally known under the name of "The Californian Cucumber," from its being indigenous to the gold region on the Pacific side of the continent, from which it was introduced to Canada only a few years ago. It is probably the same plant as that known in this country by the name of "The Snake Gourd;" that title being derived from the great propensity the fruit exhibits to curl and twist like a snake; by careful training, however, it may be grown quite straight. Mr. Graham's finest fruit is sound and healthy; last week it had attained the length of 5 feet 2 inches, and, owing to great care having been paid to training it, is as straight as any ordinary common garden Cucumber. The able garden-superintendent at Clumber considers the fruit in question to be a curiosity. *W. S., Sparken, Worksop.* [The true Snake Gourd is tender, and of doubtful utility, and is evidently different from the foregoing.]

The Weather Prophets.—I was tempted last spring to spend one shilling in what ought to have been one penny, to gain possession of a small thin pamphlet issued by Mr. Du Boulay. After reading 14 pages I came to the "Forecast of the Summer of 1865." I now quote the few lines:—"It is considered to be significant of a summer remarkable for its extreme coldness, thereby throwing back the crops for their full time of maturing and housing into the usual period of the autumnal rains; the whole period of their growth will be probably rendered unkindly for them by the presence of unwonted cold." Again, I read from a letter of a "Mr. Shepherd, C.E.," to the editor of the *Mining Journal*, "The general character of the spring, summer, and autumn will be, as I have over and over again asserted, *very bad indeed.*" (The italics are Mr. Shepherd's.) A year or two since a Dr. Plant, of Birmingham, prognosticated a most severe winter; it proved to be one of the mildest winters on record. When will these over-weatherwise gentlemen leave off their idle surmises? One would think after what the venerable and experienced meteorologist Arago asserted, that we should not see any more of these Murphy-like presumptuous weather prophecies. If I remember correctly, he candidly stated that he had most carefully studied meteorology for 20 years, and had come to the conclusion that he knew nothing and never should know anything sufficient to enable him to give a forecast of the seasons. Let us therefore hope that after this most glorious, sunny, agreeable, abundant season, we shall see no more shilling presumptuous pamphlets of "forecasts." *Observer.*

Victoria Regia.—The following is a short account of this Queen of Aquatics, as grown at Leigh Park, Havant, Hants, the country seat of W. H. Stone, Esq., M.P. The plant now in flower is a seedling from that of last year. It was planted out on May 12th, 1865, when it was very small, in a 48-sized pot, with only two small leaves on it. It has made excellent progress, and has now 15 leaves upon it, eight of which average 6 feet in diameter, exclusive of the rim, which is 2 inches deep. These gigantic leaves, which are light green above and vivid crimson below, are covered with numerous elastic prickles, about ¾ inch in length. The stalk of some of these is 1 inch thick, extends to 10 and 12 feet in length, and if our tank had been larger, they would doubtless have reached to even a greater length than that. The plant has produced six or seven flowers, and several others are showing their heads above the water. When this magnificent flower first unfolds itself it is pure white, with a pink centre, which increases in size as the bloom becomes older. When about a day old the whole is a pinky rose colour, and it throws off a sweet scent. The upper side of the calyx, which consists of four leaves, is pure white, the under side pale green, closely studded with short prickles. Of petals there are 100 when the flower is perfect; but in general they average from 80 to 100. When expanded the calyx measures from 12 to 14 inches in diameter; but it is concealed by the petals. The full-blown flower measures from 15 to 20 inches across. This Queen of Lilies is stated by Sir Robert Schomburgk to have been found growing in a currentless basin formed by nature in the river Berbice in British Guiana, South America, in 1837. *A. Young.*

Large Peaches.—I see (p. 868) that Mr. Umney's Peaches are larger than those which I gathered here from turfed borders, a circumstance at which I am not surprised, as I have practised in his immediate neighbourhood and therefore know its capabilities. In the neighbouring county (Sussex) I have seen Figs ripen on standards by the bushel, Peaches on an east aspect, and Grapes on any outhouse with a south aspect, all of which in the county of Durham must be grown under glass. We cannot, therefore, compare Durham with Surrey; but if Mr. Umney will sow down part of his Peach border and publish the result, he will confer a favour not only on myself but also on others. *L. Stevenson, Lambton Castle, Durham.*

Crocus nudiflorus.—How is it we do not grow this charming autumn-flowering plant in plenty? It is far cleaner and prettier than the Colchicum, and I think the best little plant that flowers at this season. A good show of it about the 1st of October would be very desirable in many gardens, and it is much to be desired that the Dutch would take it in hand for us and make it cheap like the spring kinds. *W. Robinson.*

Ouvirandra fenestralis.—In answer to my friend, "J., Dangstein, Petersfield," in reference to the article written by me at p. 299, I may state, that a few years since, when Ouvirandra was comparatively new, I had several plants, some in glass and some in earthen vessels, and I invariably found that atmospheric changes were injurious to the plants—sometimes they were too hot, and at times too cold. Being anxious to overcome this difficulty, I tried a plant in a large tub by plunging it nearly to the rim in the hot-water tank, where other aquatics were growing, and I felt quite delighted to find how fast it grew, for by the autumn the leaves nearly touched the sides of the tub (4 feet in diameter) all round, and quite as fine as those described by "J." The first cold night we had, the temperature of the house became low, and all those in pans on the benches turned black, the leaves rotting in a few days, leaving only a few young ones in the centre, while the plant in the tank remained as fresh as ever. I continued this treatment, and I found the plant as good at Christmas as it had been at Midsummer. At this time the Ouvirandra was one of the greatest botanical curiosities of the day, and to have a plant in the best health through the dull winter months was of considerable importance, as it was seen by thousands. During the dull season the plant rested, or nearly so, but retained the old leaves as good as ever. As the spring advanced it began to grow as rapidly as it had done in the previous summer. Therefore I attributed my success to keeping up a uniform temperature, or nearly so. I may say it might have been a few degrees lower in winter than summer, but not many. This plant was always clean, but the other plants were often subject to Conferve, though the same water was used. Had I to grow the plant again I should still adhere to my former treatment, and should not have the least doubt of meeting with similar success. *Thos. Brown, Exotic Nursery, Tooting.*

The Humming Bird Hawk Moth, Macroglossa stellatarum, or, as some of our country folks call it, "Nimble Dick" has been very abundant this year. In this neighbourhood the larvæ may be found in hundreds on the seashore, feeding on Galium verum, while the moth is constantly to be seen on the wing. There is, however, one point in its proceedings which puzzles me, and which perhaps Mr. Westwood or some of your entomological correspondents can explain. There is a long brick wall fully exposed to the sun near my house, and during the past summer I have frequently seen these moths flying from brick to brick and touching the mortar with their long proboscis, as they hover near the flowers of the Verbena or any of those many flowers from which they extract the sweets. What can be the object of this? On the other side of the wall they had flowers in abundance, but they preferred what seemed to be a complete waste of time to the more pleasant occupation of "sipping nectar." Doubtless they had an object. What was it? *D., Deal.*—The humming bird moth has been very abundant in this neighbourhood during the last summer, and now a second brood has appeared. Unlike the majority of the Sphingidæ it flies during the hottest sunshine, as do also the beautiful moths of the genus Plusia, of which the burnished brass (Plusia chrysitis) and the gamma moth (Pl. gamma) are well-known examples. *W., Oxford.*

Offensive Smell of Water in Tanks.—The smell of which your correspondent complains, is undoubtedly caused by the decomposition of vegetable matter in the water, and it may be prevented by putting a small quantity of charcoal into the cistern or tank; if broken up into small pieces the charcoal will float on the surface and will be found to be a perfect disinfectant. *T. C.*

White Nice and Syrian Grapes.—Having seen the large bunch of Grapes shown under the name of White Nice, by Mr. Fowler at the "International" Exhibition at Edinburgh, I am of opinion that it is the same as the Syrian of Speechly's Catalogue. I have seen the Syrian grown both at Welbeck and at Clumber, on Vines which I have no doubt were raised from the original Vine of Speechly's at Welbeck, and the shape of the bunch as well as that of the berries was exactly the same as that of Mr. Fowler's Grape. The only difference was in the colour. The Syrian when quite ripe is of a beautiful pearly colour, and when in perfection it is far from being a bad Grape for flavour. Speechly grew one bunch of the Syrian to the weight of 19½ lb., a fact of which there can be no doubt, for the late Duke of Portland told me that he saw it weighed, and that it was carried on a pole by two men to Wentworth, the seat of the Marquis of Rockingham. Speechly could never again grow a bunch so large on the same Vine; the large bunch in question grew by itself on the top of a strong rod that had formed a "congeries of eyes" producing six great shoulders or bunches. Of course such large bunches are only produced for some particular purpose, and can only be grown by leaving few bunches on the Vine, and thinning the berries very little to produce the required weight. I have never seen any sort of Grape, when the bunch was very large, of good colour, or the berries swelled to the size they do in moderate-sized bunches: in fact, to have the finest compact show bunches, all straggling shoulders ought to be clipped off. I have grown a Grape under the name of the White Nice, but I have long discarded it for its coarseness of flesh and thickness of skin, even when well ripened. The colour of the berries when quite ripe was the same as that of the Syrian, but the bunch was differently shaped, being much longer, and without the large shoulder of the Syrian. The Trebbiano is another Grape of the same section as the Syrian, but it produces a larger berry, and if kept till March or April the flavour is nearly as good as that of the Muscat. The Golden Hamburgh with me, on a heated border, has this year produced some excellent bunches, but I am sorry to say that

when quite ripe it is a bad traveller. Its large round berries grow on very slender footstalks, and when the bunch is shaken they all fall flat, and show badly in an exhibition. When well grown the Golden Hamburgh, in my opinion, is amongst white Grapes what the Black Hamburgh is amongst black ones, but it does not keep long when quite ripe, nor is it fit for travelling long distances. *William Tillery.*

Judges at Exhibitions.—The managers of horticultural exhibitions often make great mistakes in appointing judges. Because a man is eminent in one particular branch they conclude that he must be equally so in all, and accordingly they elect botanists or florists to be censors of fruits and vegetables, or good fruit growers to judge Orchids and Ferns. A notable instance of this occurred at ——— last autumn, when two noted florists were appointed to judge the Plums, Pears, and Apples, and a very pretty mess they made of it. Surely, when fruit-growers incur the expense and trouble of sending their productions to a Show, and by so doing make the exhibition attractive to the general public, they are entitled to so much consideration as to have it carefully judged by men who may be presumed to possess some knowledge of such things. *A Country Gardener.*

Asparagus.—About London young shoots of this are springing up in such profusion that a great many dishes have been gathered and sent to table, and I am told that as regards flavour they are excellent—in short, quite equal to spring-grown produce. I fear, however, that the result of this unseasonable supply will be a weakening of the roots; at all events, the beds will have to be well covered up and care taken that no frost gets to the roots, otherwise they will be likely to suffer. Has cutting thus late been general this warm autumn throughout the country? *F.*

Milky White Potato.—We beg to direct your attention to this new Potato, which we introduced last season. There is an old saying, that "the proof of the pudding is in the eating," and with this view we have forwarded for your acceptance a boiling of it, in order to enable you to judge of its taste, colour, and appearance when cooked. It is early, having been ripe these five or six weeks. It is a capital cropper, free from disease, and keeps in its present high condition until after Christmas. *J. C. Wheeler & Son, Gloucester.* [Milky White is a medium-sized, shallow-eyed, thin-skinned Potato, which, when cooked, is particularly white and floury, and excellent in flavour.]

Plane Trees.—At p. 847 it is stated that a Plane tree now exists on the shores of the Bosphorus, 90 feet high and 150 feet in circumference. Did any of your readers ever see a tree 30 feet in circumference; if so, let him imagine if he can a bole of five times the size. Even the Wellingtonia must hide his diminished trunk after this. *A Country Gardener.* [The statement copied from Dr. Daubeny's book is perhaps a misprint for 50 feet, or the trunk may be a composite one, or it may refer to the head, not the trunk.]

Foreign Correspondence.

New Zealand Gardening.—Probably in no one instance has the progress of Canterbury been more marked than in the science of horticulture. In spots where, a very few years ago, nothing was to be seen but a barren waste, where the most complete desolation reigned supreme, and where the ground was covered with the wildest and most rank native vegetation, gardens may now be seen on almost every side, rivalling in beauty and fertility those of old England. The great drawback to the natural beauty of the Canterbury plains was at first the total absence of those essential features to fine scenery—trees and water. True, we have the rivers Avon and Heathcote; but until their banks were planted, as is now the case, they rather disfigured than embellished the scenery, by adding to the general appearance of wildness and desolation. Now, however, trees combining every variety, from those familiar to us in the home country to the productions of Australia and Tasmania, are flourishing luxuriantly, forming a strange combination between the two hemispheres. Willows and Poplars flourish surprisingly, and the next generation may see our plains vieing with those of Lombardy, to which, in some of their general features, they bear a strong resemblance, and are supposed to be of the same natural origin.

The garden of Mr. Purdie is one which deserves notice. It is situated in the Papanui Road, and comprises altogether about 8 acres. A more unpromising site for a garden could hardly be imagined, and great labour has been expended to bring it into condition. The land actually under cultivation contains an almost endless variety of plants, trees, and shrubs, sheltered from the bleak winds which so often sweep over the plains and cause considerable damage both to the young growing plants and to the ripening fruits, by hedges trimly kept, composed of the Cape Broom. Adjoining this is a considerable area of ground, now being brought into cultivation, a work of no trifling difficulty, for it presents the aspect of a barren plain, the monotony of which is only broken by a scanty rough vegetation, composed of Cabbage trees and Negroheads. The ground, however, is a rich peaty soil, and when broken up will doubtless repay the energetic owner. The Flax plants, which grow on it in profusion, add to the fertility of the soil, as the decayed matter is found very useful for gardening purposes. The ground has to be first ploughed up, and then the large clods have to be broken, in order to produce a tolerable evenness of surface. A person who had seen the land a few years ago could hardly recognise the change which has taken place, or believe the rapid growth of the trees and shrubs. The garden contains an immense variety of plants: the Apple, Pear, and Peach trees being loaded with fruit. The early age at which fruit trees produce their crops, is one of the strangest incidents in the Canterbury gardens. Some of the Apple trees, barely 12 feet in height, and of a very small circumference, may be seen so loaded with fruit that the branches are actually weighed down with it. The blight has played sad havoc with some of them, and the young trees in many instances are as much disfigured and distorted as trees of old growth sometimes are at home.

Mr. Purdie possesses a fine collection of ornamental shrubs. One remarkable feature in his garden is the success which has attended his budding and grafting operations. This is especially noticeable in his specimens of the Holly. On standards of quite a recent growth he has budded some of the choicer sorts, which have taken surprisingly; some of these are of great beauty, especially the variegated sorts. The Coniferæ thrive most luxuriantly: indeed, these plants seem to do as well, if not better, in New Zealand than they do in England, and in a few years, owing to their rapid growth, they attain a considerable size. A fine specimen of Arbutus Unedo is greatly prized, on account both of its pretty foliage and its handsome fruit. The Virginian Cedar, and an endless variety of the same class of shrubs, are also to be seen, as well as some fine specimens of Pinus excelsa, P. maritima, &c. There is a beautiful Viburnum japonicum, a most valuable and ornamental shrub, distinguished by a dark evergreen foliage, and forming a most desirable addition to a shrubbery, as there is no great difficulty in rearing it. The Ilex cornuta thrives well, and is a very pretty sample of the Holly. Another plant of great elegance deserves mention, the Wistaria sinensis, better known in England as the Glycine. It has been common enough at home of late years, but on its first introduction was much valued. It is particularly suitable for this place, as it is easily propagated, and where we have so many verandahs it forms a very pretty creeper for them. The one in Mr. Purdie's possession is one of the few, if not the only sample in Canterbury. He possesses some elegant and valuable shrubs and plants from Tasmania; amongst them specimens of the Peppermint-tree, as yet but small. In their own home they attain a considerable height, the leaves possessing a pungent flavour. We must not omit to notice an old acquaintance, in the shape of the common Snowberry-tree, so familiar to us all. This shrub seems to thrive very freely in its new home, and promises to be an acquisition well worth fostering. The Chinese Privet grows well; it is a pretty plant, and easily propagated.

Societies.

Botanical of Edinburgh: *July* 13.—Dr. Dickson, President, in the chair. The following communications were read:—1. *Supplementary Notes upon the Vegetation of the Sutlej Valley.* By Dr. Cleghorn. After exploring the valleys of the Pabur, Giri, and Touse, tributaries of the Jumna, the author proceeded in April and May, 1862, to inspect the wooded tracts of Bassahir. The official report has been printed by the Punjab Government. The peculiarities of the Simla Flora were enumerated, and the table of mean temperature at Kotgur was given. The means of communication from Hindostan to Tibet, and the different kinds of rope bridge used in the Western Himalaya were explained. The want of medical aid in the intra-montane districts, and the remarkable faith of the people in the skill of European physicians, was alluded to. The frequency of goitre and the large amount of ophthalmic disease were mentioned. Agriculture is capable of little extension from the precipitous character of the hills and the small proportion of arable land. All the available ground is laid out in terraces, and the cultivation is carried on with great care; the soil is often good, and the small fields are enclosed with loose stone dykes. As soon as the snow melts ploughing commences, and the women are sent out with baskets of manure. Every cultivator heaps up before his door or under the house the dung of all the sheep and cattle, and mixes them with the dry Grass and leaves used for littering the animals. Oak, Pine, and Rhododendron leaves are most used for this purpose. To this are added the dried capsules of Poppies, Walnut shells, and Apricot stones, with refuse chaff when not required for fodder. Indeed, this branch of rural economy is well attended to by the hill tribes, and those substances having lain during the winter months are found to be well rotted in spring, when they are applied to the soil both at the time of sowing and when the Poppy and Tobacco plants appear above ground. In Kunawar, the lands of few villages produce more grain than the inhabitants require, and food is annually imported into the district. In times of scarcity the people eat Himalayan Chestnuts (Pavia indica) and Apricot kernels. These are soaked in water for a night to remove the bitterness, and are afterwards ground into flour and mixed with the inferior millets, forming large cakes. A great demand for food has arisen from the influx of sportsmen and other summer visitors, who annually increase in number. The Agri-Horticultural Society of the Punjab grants a yearly supply of vegetable seeds for distribution among the inhabitants, and encourage the growth of esculents in the Himalayan valleys. Many European and American vegetables have been introduced, and grow well. The Potato, in particular, thrives remarkably, though the inhabitants in the upper valley do not yet cultivate it to any extent. For several stages from Simla the increased cultivation of this esculent is very surprising, and it is largely exported to the plains of the Eastern Punjab for the commissariat stores of our European troops. The system of culture pursued was described. Steep slopes are preferred on account of drainage. The soil is generally loose and stony. The underwood is first cleared and burned, and the Deodar trees are removed—the Spruce Fir (Abies Smithiana) not being valued as timber is killed by barking, and the trunks fall in one or two years. The Oaks alone remain for shade, and are gradually felled for charcoal. After manure has been supplied to the soil, the Potatos are planted in the middle of April or May upon narrow terraces. At the close of the rains, five months after planting, the tubers are dug up fully ripe. They are packed tightly in woollen bags, and despatched, generally on mules, to the plains. These are relieved of their burden twice a day, when the sacks are thrown down carelessly at halting places, which bruises the Potatos. The plan of packing them in boxes might secure more careful transport. Turnips are sown after the cereals have been reaped; they are eaten fresh or stored for winter use. The author mentioned that, in crossing to the Asrang Valley, his guide carried no food except four or five half-dried Turnips not much larger than a billiard ball.—— 2. *Notes on the Forests of India.* By Dr. Brandis, Inspector-General of Forests in India. The author described the characteristic vegetation of the different classes of forests in Burmah, which he has superintended for 10 years, and contrasted their general appearance with those of the Sal Forests at the foot of the Himalaya and the less luxuriant forests of the Central Provinces; he also adverted to the system of valuation surveys, which has been introduced into British India, as the only safe basis of conservancy.—— 3. *On the Influence of Forests on Climate.* By M. Becquerel; Translated from the French and communicated by Mr. G. M. Lowe. Mr. Lowe gave a condensed account of M. Becquerel's paper on forests, and their effects on climate, read before the French Academy in May last (see p. 722). The first portion of the paper gives an account of the extent of forest land in France from the time of Julius Cæsar. The second is on the action of forests on climate. This, he says, depends, firstly, on their extent; secondly, on the height of the trees, and their nature, whether having caducous or persistent leaves; thirdly, on the amount of evaporation by the leaves; fourthly, on their capability of absorbing and radiating heat; and, fifthly, on the nature and physical condition of the soil and subsoil. This influence is also exerted on running streams and springs.—— 4. *On the History and Structure of Urococcus.* By C. Jenner, Esq. This little-known and rare plant was first noticed by Mr. Hassall in 1845, and was by him named Ourococcus, from the circumstance of a peduncular process, as he called it, depending from the nucleated cell, which it has in common with Agardh's Hæmatococcus and others. Mr. Jenner exhibited a set of microscopic preparations, and a series of beautiful drawings, executed by Mr. Neil Stewart, showing that the process called a peduncle by Hassall, and subsequently by Berkeley, Henfrey, and Braun, is in reality a stem, bearing on its apex the nucleated cell. Mr. Jenner showed the close affinity between Glœocapsa and Urococcus, and illustrated the more complicated structure of the latter by a reference to the simple structure of the former. Mr. Jenner gathered his plants in some caves on the West Coast of Arran.

British Association: *September* 7.—In the first day's sitting of the various Sections few subjects adapted for our columns were discussed. We take one or two of the most interesting passages.

In Section C. (Geology), the President, Sir R. I. Murchison, in the course of his address, observed, in reference to the first traces of life in geologic records, that the lowest sedimentary rocks, which had been generally considered azoic or devoid of life, had been found to contain a Zoophyte—the Eozoon canadense. This discovery of a Foraminifer in the very lowest known deposit, instead of interfering with, sustains, he said, the truth of the doctrine, that the lowest animals alone occur in the earliest zone of life, and this beginning was followed through long periods by creations of higher and higher animals successively. Thus, through the whole of the vastly long Lower Silurian period, so rich in all the lower classes of marine animals, whether Mollusks, Crustaceans, or Zoophytes, no one has yet detected a vertebrated creature. Fishes first begin to appear in the latest Silurian deposit, from which time to the present day they have never ceased to prevail: and new forms of vertebrata, adapted to each succeed-

ing period, have followed each other. In the overlying Secondary and Tertiary formations, higher and higher grades of animals successively appear, and the relics of man or his works have been detected in the youngest only of the Tertiary deposits, though certainly at a period long anterior to all history. We now well know that human beings co-existed with quadrupeds which are extinct; and we also know that the physical configuration of the surface has undergone considerable changes since such primeval men lived. There was a beginning as well as a progress of creation, and those writers, however eminent, who have announced that fishes, mollusks, and other invertebrata appeared together, have asserted that which is positively at variance with the results of the researches of this century. I adhere, he said, to my long-cherished opinion as to the great intensity of power employed in the production of dislocations of the crust of the earth, though I cannot subscribe to the doctrine that the ordinary action of deep seas remote from coasts can adequately explain the denudation of the old surface. Admiring the Huttonian theory, as derived from reasoning upon my native mountainous country Scotland, and fully admitting that on adequate inclines ice and water must, during long periods, have produced great denudation of the rocks, I maintain that such reasoning is quite inadequate to explain the manifest proofs of convulsive agency which abound all over the crust of the earth.

In Section D. (Zoology and Botany) a very interesting paper was read by Dr. Moffat on Phosphorescence in connexion with storms and diseases. He showed by means of tables, that the readings of the barometer were higher when phosphorus was non-luminous, than during its luminous periods; that the degrees of temperature and humidity were lower during the former than the latter condition, and that it was seldom luminous during the prevalence of the north wind. By similar tables he showed also that periods of phosphorescence invariably commenced with decreasing readings of the barometer, increasing temperature and humidity and the setting in of the south wind; and that they as invariably terminated with increasing readings of the barometer, decreasing temperature and humidity and the setting in of the north wind. The remarkable coincidence which exists between periods of phosphorescence and ozone periods, and those of non-phosphorescence and no ozone, the atmospheric conditions of luminous and ozone periods being those of the Equatorial or sea wind, and those of non-luminous periods and no ozone the conditions of the Polar or land wind, was next pointed out, the author proceeding to indicate the connexion which he believes to exist between the luminosity of phosphorus and storms and gales. The setting in of these storms, it was observed, is accompanied by diseases of the nervous and vascular systems, and diarrhœa, often attended with vomiting and cramps in the limbs; and, as a rule, it was observed that if any of these diseases took place, the barometer readings would decrease, temperature would increase, ozone, if absent, would appear, and the wind, if in north points, would fall back upon south points, and would increase in force; and that if the barometer readings were below the mean, and the temperature above the mean of the season, a storm would follow. From a series of experiments the author had satisfied himself that decreasing pressure and increasing temperature were favourable to phosphorescence of phosphorus, and consequently the development of ozone; and that increasing readings of the barometer and decreasing temperature were unfavourable to both. With regard to the cause of the diseases above named, the author was of opinion that they were the result of the retention of urea and other urinary solids in the blood, and diminished atmospheric pressure. The fact that the cutaneous transpiration and the evaporation from the surface of the lungs had an important influence upon health, he said was admitted by all physicians. Dr. Moffat concluded by observing that although storms are accompanied by some forms of disease, they are, nevertheless, highly beneficial in a sanitary sense; for they carry with them a store of Nature's deodoriser and disinfectant, ozone. He expressed his belief that phosphorescence had much to do with the production of atmospheric ozone, if it was not really its source; and that if phosphorus vapour possesses the property of rendering iron magnetic, as he believes it does, the phosphorescence of the ocean, the development of ozone, and the disturbance of magnets during storms, could be accounted for.

In Section E. (Geography and Ethnology) Lieut.-Colonel Pelly read a paper on the Comoro Islands, a group of four islands lying between the northern extremity of Madagascar and the East African coast. The most northerly is Comoro proper, an island about 30 miles in length, with an average breadth of about 10 miles. Nearest to this, and a little further south, is Mohilla, the smallest of the four. Johanna, lying south-east of Mohilla, and distant from it some 30 miles, is the second in respect of extent; and Mayotte, 30 miles south-east of Johanna, is third. The staple product of Mayotte is sugar; if well cultivated, the island might export from 15,000 to 20,000 tons per annum; but there is a great scarcity of labour; the population is stated to number about 7000 souls. The island of Johanna is a sultanat, without any direct relation with the other islands, and contains a population of 12,000. The climate is salubrious, sea breezes and frequent showers tempering the heat. The soil is composed of the detritus of volcanic rocks and humus. Coffee thrives excellently, and will probably form ultimately the staple product of the island. The trade of Johanna is at present not large, the total value of the past year's (1860) imports being about 4500*l.*, and it is carried on chiefly with Zanzibar and the French settlements at Mayotte and Madagascar. Mohilla is governed by a Queen related to the royal family of Madagascar. The island has a population of about 4000 souls. Of all the Comoro group Comoro proper is the most remarkable for the magnificence and wildness of its scenery. From its surface rises an active volcano, 8000 feet in height, which frequently vomits forth streams of lava, which flood its flanks and form new promontories and islands in the surrounding ocean.

Notices of Books.

Contributions to Natural History, chiefly in relation to the Food of the People. By a Rural D.D. Small 8vo., pp. 364. London: 1865.

In spite of a certain amount of flippancy, this little book, appearing at the present time when the food of the people is a matter for very serious consideration, will command some attention. The rural D. D. has collected in a series of articles, originally published in reviews, a variety of information on a large number of subjects. To Hippophagy, Mycophagy, Salmon rearing, Fish hatching, &c., chapters are devoted in his volume, and the vexed question, should we eat our horses? is revived and answered in the affirmative.

Those interested in the salmon rearing and fish hatching experiments will find here a resumé of all that has been accomplished up to the present time. The hints relative to the extension of the fish trade are worthy of attention. It is quite certain that many more varieties of fish might be sent to market than are received now, and with great advantage to the seafaring population as well as to the people at large, on the principle of the old motto that there are "more fish in the sea than ever came out of it." Now-a-days, when the beef of Old England seems likely to fail, and housekeepers are puzzled about their daily provisioning, they will read the account of the doings of the Acclimatisation Society with interest, and rejoice in the probability of having, before very long, the eland or antelope to help out at times as an article of food; and, says the rural D.D., "we are confident that the men of the next century will have at their tables the flesh of beasts, birds, and fish, and also fruits and vegetables, of which we know nothing save by report. In the good times coming, through the successful labours of the Acclimatisation Society of Great Britain, Ireland, and the Colonies, we hope to dine upon Chinese lamb and Chinese Yams, and to find them agreeable substitutes for British lamb and Lettuce; and as such things have appeared at the first annual dinner of this Society, it does not seem too sanguine to hope that we too may partake of such delicacies as kangaroo ham, Syrian pig, Canadian goose, guan, curassoa, pintail ducks, Honduras turkey, dusky ducks, and leporines."

CATALOGUES RECEIVED.—*E. G. Henderson & Son's Catalogue of Bulbs* is one of the more complete lists of bulbs, and contains besides the most extensive list of Herbaceous and Alpine plants we have met with for a long time past.—*Paul & Son's Rose Catalogue* is comprehensive and useful.—*G. Jackman & Son's Trade Catalogue of Plants* comprises Fruit trees, Roses, American plants, Coniferæ, and Ornamental trees and shrubs, with wholesale prices.—*W. Masters' Catalogue of Ornamental Plants* combines in some measure the characters of a garden guide and a nursery catalogue. Many useful hints may be gleaned from its perusal.—*A. Henderson's Bulbous and other Roots* is a brief list of the most useful.—*B. S. Williams' Catalogue* is in two parts, a Bulb list and a Pelargonium list, both of which may be consulted with advantage.—*A. Verschaffelt's Plantes Nouvelles* is chiefly occupied by new plants and Palms.—*J. Verschaffelt's Catalogue des Plantes*, and *Aug. Van Geert's Prix Courant*, are general lists of very extensive and varied collections of plants. In both the list of Camellias is very full, and descriptive.

Florists' Flowers.

As I am one of your good-natured and enthusiastic correspondents who seem to require a little ballast to keep me from toppling over, I must justify myself, as I recommended on their first appearance all those Roses named by "Rosa Anglica," with the exception of Lady Eardley, which I never had. Your correspondent says there are some others of the same range of colour. Maréchal Vaillant is of course one of them. I quite agree as to the superiority of C. Lefebvre over all Roses in every family. Next to him comes Senateur Vaisse, M. Bernardin, Duc de Rohan, and Gloire de Santenay, uncertain, but sometimes quite first-rate. These are the best crimsons. Next to them come Maréchal Vaillant, Madame Boutin, General Washington, and Madame Julie Daran. Alphonse Damaizin is good but small, and sometimes rough at the edges. Lacharme is fine but never full here. Souvenir du Comte de Cavour is fine, but not full. Turenne is a fine colour, and honey-combed in the centre. Still they are nice Roses, and in some lands would be quite full. I lately recommended in your pages 10 Roses of 1864. Now I will back the two first, namely, Madame Victor Verdier and Pierre Notting, to beat them all except the C. Lefebvre. They will be at least equal to all or any of the others. They have bloomed twice this year, and I cannot be mistaken. They are good at all points. Maucaulay, G. Prince, and Leopold Premier have flowered again, and justified my recommendation. Some of the others of last year have not bloomed again, but I will stand by my recommendation.

Your correspondent asks about M. Verdier's seedlings of 1865. Well, there are three here, and they are all very good—Rushton Radclyffe, Souvenir de W. Wood, and General de Hautpoul. The first I have described; the second is very dark, in the way of P. Camille de Rohan; and the last is a globular, full, and beautiful velvety crimson. R. Radclyffe is on strong Manetti stocks, and the other two on weak stocks; but, after a very trying summer, they are in abundant bloom, and they are all three free flowerers. I will stand by these three, and also by Duchesse de Caylus, Duc de Wellington, and Mdle. Amelie Halphen. There is another Rose of '65 now out, Medina Cœli. It is in the way of Madame C. Wood, but I fancy it will be better. I have others yet to bloom, and I will give a just account of them. I wish people would not breed from General Jacqueminot or Louise Odier; the former is too coarse and of drooping habit, and the latter is too small. There is, however, a Rose evidently derived from the latter, which is one of the best habited of its year, namely, Michel Bonnet, a pretty cupped Rose, but I fear it will not be large enough. I think that King's Acre will ultimately be found to be a very good Rose, of excellent growth, and healthy; it is globular, very full, but on neither series has it opened so freely as I could wish; it is a better coloured, highly improved, and better habited "Thomas Rivers." The noble Roses, M. Bernardin and Duc de Rohan, on weak stocks, did not open freely, but now they are among the best Roses here.

I agree with the praise bestowed on Acidalie, Jules Margottin, and John Hopper. Still there are others in the class of rose colour that never can be overpraised, namely, La Ville de St. Denis and W. Griffiths; they are good in growth, habit, and form. I have had them ever since they came out. In the same way as the last is excellent Chabrillant. Of large-sized Roses these are most excellent:—Baronne Prevost, Monsieur de Martigny, and Souvenir de la Reine d'Angleterre. They are of iron constitution, and perpetual bloomers here. When other Roses get dwarfed in size in the autumn, Washington and the three Roses just named will here on the Manetti stock be 4 inches in diameter. The same may be said of good old Triomphe de Paris, as yet the finest in volume of all high-coloured Roses, and excellent in every respect, throughout the year, and every year.

As regards Roses called after English people, John Hopper, Lord Macaulay, Lord Herbert, Souvenir de la Reine d'Angleterre, and Madame Rivers (only growable in fine deep loams), are the best. Lord Clyde, when not rough at the edges, is good. All the others that I have seen are worthless. As far as I have seen, the one called after me has been very fine and good; it will, in my opinion, abide in the catalogues. Souvenir de W. Wood I have spoken of. It is a dark, handsome, free-blooming, good-habited and efflorescent Rose. William Bull and John Keynes should be good, but I have not got them. Charles Wood is here, but has not yet bloomed. Concerning the Rose named in compliment to me, three nurserymen have complained that it does not grow well. That is the consequence of its being a good grower! The wood is strong and pithy, and hence the union is not intimate when grafted. Bud it, and you will find that it is a vigorous grower, of fine habit, a great bloomer, full-sized, circular, perfectly full to the centre, well disposed in its petals, of good substance and colour, opens freely in all weathers, and never, out of 40 or 50 blooms, have I seen one malformed.

As regards the number of Roses sent out in 1865, there were in the different families about 94. C. Lefebvre's year was the most fertile in good Roses of any that I remember. Usually not more than from 3 to 5 per cent. should be retained. Very extensive trade catalogues are in my opinion injurious to the Rose cause. Some catalogues are cut too close. One thing is certain, that if nurserymen retain good but delicate Roses, they will, in ordinary hands, and in inexpert hands, die! Some will in that case be so discouraged that they will not then purchase even good "doers." The lands of nurserymen are usually so good that they do not always know what will fail under inferior circumstances. Still, from their great experience in Roses, they ought to be able to give an approximate guess. Fungoid diseases of one kind or another occur every year sufficient to slaughter all the delicate Roses in a garden, such as M. Furtado, Louis XIV., M. Vidot, Col. de Rougemont, all grand Roses. Don't propagate or buy bad-foliaged, crumpled leaved Roses—crumpled leaves are allied to a bad constitution. They either spring from a bad constitution, or they will lead to it. In this respect I refer to Col. de Rougemont; one plant of B. Prevost will outlive

and cut-flower 100 plants of it. Free growth, good flower, tough skin—in brief, "constitution" is the word. Charles Lefebvre and Pierre Notting are now out, and most splendid; Pierre Notting is not far behind Charles Lefebvre. *W. F. Radclyffe, Tarrant Euston.*

The Apiary.

Your article on the supply of Food for Bees, which appeared on Sept. 16, page 870, caused me to inspect the state of my hives more closely than I should otherwise have done. I am sorry to be obliged to confirm all that you have stated as regards the very small amount which the bees have been able to collect during the months of July and August; the importance of timely inspection; and the necessity of supplying the requisite quantity of artificial food with as little delay as possible.

On my return home after a short absence in London, in consequence of your remarks I inspected the condition of my apairy. I find many of the hives are so very light, that there is little probability of their surviving the winter without abundant feeding. Among these are some stocks that a few weeks since I had firmly believed were amply provisioned, without being likely to require any help from me.

I believe much of this unfortunate state of affairs must be attributed to the very long period of fine and dry weather we have had, the bees having been induced to break in upon the greater part of what they had stored for winter consumption. There has been since the end of June but very little secretion of honey in the flowers, yet the bees have continued their apparent activity, and in most hives breeding has been rather extensively carried on. It would appear as if a fine dry autumn may occasionally be anything but a blessing to the bees.

I much fear that the mortality among bees during the coming winter and spring will be extremely large. Already have many hives in this neighbourhood died of starvation. One person near me has lost five swarms and stocks, and believes that all the rest of his hives will perish from the same cause.

The bee-keepers in this locality, who have sent their hives to the moors for the benefit of the heather, inform me that the results have not been satisfactory. This was owing, in a great measure, to the wet and cold weather which prevailed in this district during the month of August.

I am much interested in the Apiarian department of your periodical, and hope that others will help you in making it attractive.

A few weeks ago I forwarded to your Apiarian Editor a small Ligurian swarm, which came off from one of my best Italian stocks. I heard from him of its safe arrival, but I am anxious to know whether the young queen proves to be a breeder of pure Ligurians. I had every reason to hope that this would be the case; but as three of my young queens reared about the same time have turned out to be impure, and breeders of unmistakeable black bees, I fear that the one sent to your Editor may stand in the same category. I shall be glad to hear that in this supposition I am mistaken, and that she has proved to be in all respects worth his acceptance.

While in town I took the opportunity of calling at Messrs. Neighbours', where I inquired for the supers of honey-comb, mentioned by you as having been exhibited at the Royal Agricultural Show at Plymouth. Both the supers were very fine, particularly the glass octagon, contributed by Mr. S. B. Fox, of Exeter, which for richness of colour and pureness of combs, I have never seen surpassed. *Apis, Durham.*

Minute House Ants.—I am dreadfully pestered by myriads of diminutive red ants, about the eighth of an inch in length, which swarm over almost every eatable material. I have a room devoted to my honey harvest, and it may be imagined how these little pests do congregate in that locality. It is necessary that all the supers and dishes of honey be raised on large flower pots, standing in vessels of water. This plan I am also obliged to have carried out with respect to all dishes of meat and some other eatables, in the pantry; otherwise they would be attacked by thousands upon thousands of these ants. I have seen a sponge cake so alive with them, and perforated through and through, as to be quite unusable.

These unwelcome visitors were first noticed in our house about 20 years ago; since which we have never been free from them. They are but little seen in winter and early spring, but swarm prodigiously in autumn. I have never been fortunate enough to see any of their females or males, winged or otherwise.

It is believed that these minute ants were imported from some foreign country, possibly in the luggage of passengers. I should like to know to what species they belong, and if they have been known in England for a longer time than that I have mentioned as having been favoured with them. Can any one suggest a method of exterminating these ants? It seems impossible to discover the localities of their nests, as they do not appear to return home at night, nor can they ever be observed as going in one direction more than another. *Apiator.*

"Cottage Hive."—When bees are managed, like yours, on the swarming system, in ordinary straw hives, we should, as a rule, break up the swarms of the current year in preference to the old stocks, retaining only a swarm when required for filling any vacancy in the apiary or increasing the number of hives. By adopting this plan a larger quantity of saleable honey-comb is usually obtained, and the old stocks, having swarmed, will have young and prolific queens, whereas frequently very old queens are at the head of the swarms. These have the bad habit of dying off or becoming unprolific, and the fine swarms dwindle away and perish, to the great surprise of the owner, who cannot understand why swarms should die.

The best time to take these hives for their honey is early in August in all districts which are not abundant in heather. The brood should be carefully cut out and placed in a small box or bell-glass, over some other stock. The communication being opened, the bees will ascend and hatch out the brood. These young bees will tend greatly to strengthen the stock the following spring. The bees may be expelled from the hives by fumigating or driving, and should be united to other stocks or weak swarms. We should never think of destroying them, nor, if for that purpose sulphur were used, should we expect much of the brood to be subsequently hatched out.

Garden Memoranda.

Bothwell Castle.—Readers of the history of Scotland must be familiar with this name, which has played so important a part in ancient feudal times. The former old castle, with its battlemented round towers, is remarkable even at the present day for its excellent state of preservation; precipitated from above may be seen compact fragmentary masses of stone and lime, apparently as indestructible as if they had been the remnant of some volcanic eruption—a capital sample of the workmanship of the eleventh century. A glance into the interior shows that there has been a spacious open court about 60 yards long and 40 yards in breadth, at one end of which is what we take to be the banqueting hall, 60 by 30 feet, with numerous elliptic windows overlooking the court. Adjoining this is evidently the chapel, for here is a very good remnant of the font; and there, in the recess, is a tolerable indication that the altar must at one time have stood there. The strongest part of the building for defence is where the great and massive round tower still stands. It certainly is a very imposing structure, situated on a rocky ledge of the River Clyde, overlooking the more humble and less stately ruin of Blantyre Priory on the opposite side. Both ruins are very much clad and quite overtopped with Ivy, the roots of which have penetrated into the chinks of rock and stone, and in some cases assume large dimensions, being quite as thick as one's arm. The surroundings of wood, water, and lawn all contribute to enhance an effect which is quite as agreeable as it is imposing.

According to tradition, Bruce bestowed this castle upon Andrew Murray, who married his sister. It afterwards came into possession of Archibald the Grim and third Earl of Douglas, who had married a granddaughter of Murray's. The 4th, 5th, 6th, and 7th Earls inherited the title, after which it was forfeited to the Crown, and was successively possessed by the Crichtons, John Ramsay, and the Hepburns, Earls of Bothwell. After the Earldom of Bothwell was forfeited in the 16th century, it passed through several hands, until ultimately it reverted to the Douglas family, the heirs male of which became extinct in 1857. It then fell to the late Lady Montague, who died shortly after inheriting the estate; and it is now possessed by her daughter, the Countess of Home, who married the present 11th Earl in 1832, by whom she has a numerous issue. The family, although not sojourning much at Bothwell, evinces a very lively interest in the preservation of the castle, and in maintaining the "policies" or pleasure grounds in a high order of keeping. The new family edifice is not castellated, on the contrary it is a plain square building of considerable size, situated within a few minutes' walk of the old castle. The ground does not present great diversity of contour, except the undulating slopes receding from the river; but there are one or two pretty landscapes with the trough of the Clyde as a foreground, bounded by rich wooded slopes, and fine rural scenery in the distance.

There are some capital samples of timber of ancient growth distributed over the park. All common sorts have been judiciously thinned out, and Oak and Larch predominate to a much larger extent than is usually the case, a circumstance which gives a more interesting character to the woods than they otherwise would have, carpeted as they are in the early season with Anemone nemorosa, and in succession with the wild Hyacinth (Agraphis nutans), the Cowslip (Primula vera), and the highly decorative Daffodil (Narcissus Pseudo-Narcissus). Among the rarer and more interesting indigenous plants to be found here, are Neottia Nidus avis, Listera ovata, and Epipactis latifolia, three very interesting ground Orchids; Doronicum Pardalianches, Solidago Virgaurea, Inula Helenium, Sedum Telephium, Geranium phæum, Betonica officinalis, Pyrola minor, Polygala vulgaris, Clinopodium vulgare, and Origanum vulgare, all interesting plants to botanists. Not less interesting are the Ferns, which comprise such kinds as Polypodium Dryopteris, Phegopteris, and vulgare, Ophioglossum vulgatum, Polystichum aculeatum, Lastrea dilatata and Oreopteris, Blechnum boreale, Asplenium Trichomanes and Adiantum-nigrum, and Athyrium Filix-fœmina, Scolopendrium vulgare, and Cystopteris fragilis. What with historical associations, extensive pleasure grounds intersected with well laid-out roads and walks, and the contiguity of the Castle to Glasgow, which is distant only seven miles, it is not to be wondered at that the citizens of that important town avail themselves of the privilege of promenading and inspecting the grounds two days in the week—a concession which has been granted for some considerable time. On Saturday afternoon excursions take place for the benefit more especially of the "sons of toil," who cannot avail themselves of any other stated day, an advantage which is more and more embraced as it becomes known. Examples of this kind, although chiefly of local interest, cannot be too widely circulated, as their influence for good both directly and indirectly is of incalculable value, and tends to draw closer the bonds of amity between the poor and the rich.

As a gardening establishment, Bothwell Castle has long figured among the foremost in Scotland; and Mr. Turnbull's name, who will shortly, if he is spared, count 40 years in the service of the family, is well known and respected by all the leading gardeners in the country. His reputation as a Heath grower has been well established (see p. 793) and his kitchen and flower garden, by the results they present, amply testify to professional zeal and successful culture. The flower garden is formal in outline, sloping, and bounded by a low wall on the one side, and the kitchen garden wall on the other. It is subdivided into numerous figures with gravel walks, presenting, during spring and summer, a combination of floral beauty and handsome foliage, differing in some respects from most of the formal flower gardens which have come under my observation. Mr. Turnbull has never been a violent partisan of the bedding system, although its beauties and adaptation in some respects have wedded him to a proper use of the "scarlet, the yellow, and the blue," along with some of the choicer herbaceous plants and florists' flowers which receive "distinguished consideration." Very few have such a fine assortment of herbaceous plants in a border reserved for their cultivation as Mr. T., but he is not so desperately bigoted as to refuse to go along with the times, and get up effective combinations. Probably the best mixed border that has come under the cognisance of the writer is here; but observe, it is not one of that sort of "half mourning" beds that are more remarkable for names, species, and varieties, than for effect of any kind, keeping the artistic entirely from view. No, no! it is thoroughly effective. A display of gaudy ill-arranged colouring could not be tolerated in any well-managed garden. Well, this border runs parallel for about 200 yards with the low wall spoken of, which is covered with Tropæolum of sorts, a flower largely grown, including Eclipse, Brilliant, Atrosanguineum, Fireball, &c., but some seedlings saved from these sorts prove to be more prolific in flower and better in form. Then come Dahlias of sorts, intermixed with a variety of Delphiniums, Phloxes, and some other things; and then Geraniums, and the dull crimson Valerian, which is a most effective plant; then double white Rockets, yellow Calceolarias, Gazania, Lobelia, Alyssum in patches, but looking from one end all in lines, sloping from the wall top. Various plants are introduced besides these named, but the interest and the beauty kept up from May by this arrangement is unabating. A border such as this, instead of being made up of say half a dozen varieties of plants, may contain all the novelties of any particular plant or plants that one possesses, and while presenting an admirable contour, keeps the eye fixed from one end to the other, which is all that the malcontents of the modern system "hold a brief" for, with right on their side. The Dahlia clumps are elliptic in outline, and are charming because they are not only densely flowered, but because they are uniform, and set into so rich an edging of a broad band of Purple King—the softest of all of the Verbenas, and the outer edge a sheet of scarlet Miss Trotter. Old Mrs. Wheeler was a most effective centre patch, surrounded by Alba floribunda. In the large centre one was Ruby Queen, Blanche-fleur, and Fanny Dodds in double lines; the old purple Lord Mayor, which has a nice soft tone of colour; next Feverfew, then Calceolarias, and Firefly Verbena. One of the most effective of the beds was a large one, something after the figure 8 form, centred with Zelinda Dahlia, surrounded with white Feverfew, then Perilla, and next Purple King Verbena, the soft tone of the purple enhancing the effect of the Perilla, and broadly edged with Variegated Alyssum and blue Lobelia mixed. The Lobelia had been in fine flowering condition all the season, the individual plants being large and stocky when planted out, as Mr. T. sows in autumn, the seedlings in this way being ready for pricking out when the majority of growers are only sowing the seed. Rockery covered with Stonecrops, Saxifrages, Ferns, of which there is a choice collection, and other rock plants crop up in the design in salient spots; so do Roses, Rhododendrons, and some other American plants, reducing the squatty formality which many flower gardens are chargeable with. Phloxes and Pentstemons abound, and are of first-rate quality,

many of the seedlings of the former being of a high standard of excellence. But it is impossible in the compass of a single article to go into details, it is better therefore to proceed with the general outlines, leaving the reader to draw his own inference.

The kitchen garden is not only large and commodious, but the quarters of ground are in splendid condition, yielding a large and uniform crop of vegetables—the Peas, the Cauliflower, Celery, and Broccoli being of the most unexceptionable character at all times. Three rows of Peas grown for seed apart from the others were very remarkable as crops and croppers. The names of the sorts were Veitch's Perfection, Payne's Conqueror, and Lynn's Wrinkled Marrow, the two former carrying the palm for flavour and the latter for prolificacy. It is impossible to over-estimate the merits of these three sorts, which should be in everybody's hands. The orchard, which forms a valuable auxiliary to the kitchen garden proper, contains about four acres, and is situated on the outside of the west wall, screened from the view of the promenader by a high-growing hedge of Quicks. The herbaceous border is between the wall and this hedge, and contains such a variety as one does not stumble upon every day.

The houses, with the exception of one or two span-roofed structures for plant growing, are all of ancient date. The "old greenhouse," which faces the flower garden, must be one of the oldest in Scotland at present standing. It is a house about 70 feet long, divided in two, and built against the old brick wall. In winter and spring it is very gay with Camellias, of which there is a very finely grown collection, but, like some others, containing plants, both as regards number and size, far too large for the accommodation. Acacias, Epacris, and other New Holland plants help to furnish it; while in summer Geraniums, Fuchsias, and such like take their places. The other two plant-houses already spoken of are low, and well adapted for the cultivation of Geraniums, and forcing on plants for indoor decoration—a practice which had to be resorted to in days of yore. The Vineries, three in number, are also very old houses, rather sunk than otherwise, and not particularly well adapted for Vine growing; still Mr. Turnbull always manages to have good useful crops of Grapes. The Pine-houses, of which there are two, and one succession pit—the former having front shelves, which are filled with Orchids and ornamental plants—are very successfully managed, fruit being produced in quantities almost without intermission, and very fair-sized fruit, too, considering the quantity grown in limited space. In a comparative point of view, two plants occupy the place of one; and supposing these two plants to be Queens, which, speaking safely, yield an average with Mr. Turnbull of 3 lb. weight, they would be equivalent to one which with the extra growing space should produce a "6 lb. fruit,"—which is more the exception than the rule, to say nothing of the usefulness of the small-sized fruit. This I opine will be considered a fair enough illustration, and a common sense view of putting the question. One of the finest Pitcher plants (Nepenthes distillatoria) in the country is grown here, running up the rafters to the top of the house, clothed with an immense number of pitchers, and there is no knowing how much larger it might have been if it had not been reduced periodically to keep it within bounds. Of Orchids there are very good samples, especially of Oncidium Lanceanum, which is quite free of spot; Cattleya labiata, a fine plant; Lælia Perrinii; an immense Miltonia spectabilis; several excellently-managed Zygopetalums, and Calanthe veratrifolia. Dionæa muscipula is particularly well managed, growing in pots, standing in the stone kerb, with the Sphagnum around it as healthy and vigorous as you will find it growing in the bogs with the Sundew (Drosera rotundifolia) in its midst. There has been a capital crop of Royal George Peaches and Elruge Nectarines in a comparatively new lean-to house adjoining the Pine stove; trees clean and healthy, wood not too thick, and size of fruit good. The Peaches out of doors that have been planted since, or those that survived, the severity of the winter of 1861-2 are doing well, particularly a young plantation that has been put in lately. *J. A.*

Miscellaneous.

Waterproofing by Paraffin.—The rendering of textile fabrics, leather, &c., waterproof, has long and justly been looked upon as a matter of considerable importance. Many means have, at various times, been employed for the purpose, but all, or most of them, have been found open to objection. Wax and drying oils were the substances first used, then caoutchouc, and afterwards gutta percha, both by itself and along with drying oils; recently, paraffin has been adopted, but, if used by itself, it crystallises and separates from the fibres of the cloth, an inconvenience which is prevented by the addition of a small amount of drying oil. This mixture possesses the great advantage of rendering a fabric repellant of moisture, while at the same time it does not prevent the passage of air through it; and it affects but little, or not at all, the most delicate colours. It is particularly advantageous to leather, which it not only renders waterproof, but more durable and susceptible of a higher polish. *Intellectual Observer.*

Calendar of Operations.

(*For the ensuing week.*)

Those who contemplate making new orchards, removing large fruit trees, or replacing unhealthy young ones this year, should commence operations of a preparatory character immediately. In the first place secure if possible abundance of good loam; and if this can be obtained with some rough turf in it so much the better. The loam being provided and stacked in a high and sharp ridge, in order to throw off rain, the next thing is to thoroughly drain, if not already done, the site intended to be planted; without this all subsequent operations will end in disappointment. Perfect drainage being secured, stations may be formed for the trees, about the best kinds of which some observations will be made when the period of planting has arrived; in the meantime, we would advise a trench to be thrown out without delay around any large trees that are intended for removal. This will check late growth, and induce a disposition in the roots to throw out new fibres or small rootlets.

FLOWER GARDEN AND PLANT HOUSES.

Dutch Bulbs should be largely cultivated where a fine display is required; and where hardy shrubs are forced for the decoration of the conservatory, they should now be put in order for this purpose.

Auriculas.—See that frames in which these are to be wintered have a proper pitch, and that all the glass is sound, so that the plants may not be subjected to drip, which would infallibly ruin them. Free circulation of air should at all times be promoted. When properly managed few flowers are more hardy than the Auricula.

Carnations and Picotees.—In obtaining new varieties the best plan is to have them immediately; better plants can generally be got now than in spring, and they will have time to establish themselves before winter.

Hyacinths.—These should now be procured, potted, and placed in a cool dark place free from frost to make root. Out of doors will do, provided they are well covered over with cinder ashes or Cocoa-nut refuse. When well rooted they may be started into growth in heat as required.

Tulips.—The time has nearly arrived when all Tulip beds of the best description ought to be properly arranged for planting, so that the bulbs may be got into the ground in good time. Some means also should be adopted to shelter the bed or beds from heavy rain, as it is extremely prejudicial to the bulbs before they have begun to appear above ground; and in fact excess of moisture ought at all times to be avoided.

FORCING GARDEN.

Cucumbers.—Do not permit young plants to overbear themselves. It is much better to insure a constant moderate supply by judicious management, than to obtain overabundance at one time and little or nothing at another. Maintain a temperature of about 70°, and keep the atmosphere moist and agreeable for the growth of the plants.

Figs.—Where any are ripening keep the atmosphere as dry as can conveniently be done. Keep the shoots thin and neatly tied in, so as to expose them fairly to light and air, but avoid stopping at this season. Where the fruit is swelling keep the atmosphere moist, giving the foliage a good washing with the syringe.

Peaches.—The house which it is proposed to force early may now or soon be got ready for work. The surface of the borders, if exhausted by repeated waterings, should be carefully taken off with a fork, and replaced with fresh soil. Worn-out trees, if any, may also be replaced by bearing trees from the open walls.

Pines.—If circumstances should render it necessary to subject a portion of the stock intended for fruiting to a brisk temperature at once to induce it to start, the most promising plants should be very carefully selected for the purpose, and placed in a small house or pit by themselves. It is not, however, by any means desirable to start more plants into fruit at this season than may be absolutely necessary, for they will produce finer produce later in the season; where a separate house cannot be commanded for those which must be subjected to a high temperature, we would recommend the plants selected for fruiting to be placed in the warmest part of the house at command, filling the rest of the compartment with young stock.

Vines.—Those in pots for forcing for early work may now receive what pruning is necessary, provided they are in a state of rest. Let late Grapes have every attention as to thinning out decaying berries, and thorough ventilation, with occasionally a little fire-heat if the weather should become damp.

HARDY FRUIT AND KITCHEN GARDEN.

Continue to look over fruit and other stores frequently in order to see that all is sound.

Broccoli.—Forward plants should be earthed up as they advance in growth.

Cauliflowers.—Prepare stations for plants which it is intended to protect with hand-glasses; the soil for them should be rich, and the position, if possible, should be under a south wall; some put nine plants under a good-sized hand-glass, and in spring take five or six of them away, and plant them elsewhere.

Parsley.—Endeavour, as far as circumstances will permit, to have a good supply of this under safe protection; for there is generally a large demand for it, and in the event of a severe winter it is difficult to save it by the ordinary protection of hoops and mats.

Potatos.—No opportunity should now be lost for getting Potatos that are ripe out of the ground, and stored in a dry condition. Potatos may either be kept in narrow pits, with a little dry earth sprinkled among them, or in airy dark sheds. Before storing, however, take care to separate the bad ones from those that are sound.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Sept. 27, 1865, as observed at the Horticultural Gardens

Sept.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth. 1 foot deep.	Temperature. Of the Earth. 2 feet deep	Wind
Thurs. 21	2	30.090	29.981	67	52	59.5	53½	61	N E
Friday 22	3	30.288	30.227	70	32	51.0	62	60	N E
Satur. 23	4	30.421	30.367	69	44	56.5	62	61	N E
Sunday 24	5	30.417	30.399	74	35	54.5	61	60	N E
Mon. 25	6	30·379	30.302	75	38	56.5	60	59	E
Tues. 26	7	30.248	30.149	78	36	57.0	60	59½	E
Wed. 27	8	30.085	30.048	78	32	55.0	60	59	E
Average		30.275	30.210	73.0	38.4	55.7	60.6	59.9	

Sept. 21—Rain; overcast; mild at night.
— 22—Clear; fine; very fine; at freezing at night.
— 23—Fine; very fine throughout.
— 24—Fine; very fine; hot sun; cool at night.
— 25—Foggy; very fine throughout.
— 26—Foggy; hot and dry; very fine.
— 27—Foggy; hot, very dry air; at freezing at night.
Mean temperature of the week, ½ deg. above the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 39 years, for the ensuing Week, ending Oct. 7, inclusive

October.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds: N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday .. 1	63.5	45.2	54.4	21	0.53 in	2	2	3	2	7	17	4	[illegible]
Mon. .. 2	64.4	44.1	54.3	19	0.48	2	3	2	—	[illegible]	[illegible]	[illegible]	[illegible]
Tues. .. 3	63.7	44.5	54.1	16	1.01	2	3	2	1	11	[illegible]	[illegible]	[illegible]
Wed. .. 4	64.1	43.2	53.7	19	1.06	—	6	1	3	7	[illegible]	[illegible]	[illegible]
Thurs. .. 5	63.1	40.7	51.9	19	0.82	4	4	3	1	6	[illegible]	[illegible]	[illegible]
Friday .. 6	61.9	43.7	52.8	21	0.78	1	5	6	3	5	[illegible]	6	[illegible]
Satur. .. 7	62.6	44.2	53.4	19	0.58	2	6	4	2	4	13	3	[illegible]

The highest temperature during the above period occurred on the 4th, 1859—therm. 80 deg.; and the lowest on the 2d, 1850—therm. 17 deg.

Notices to Correspondents.

Auriculas: *F Smith.* The soil should be two-thirds of thoroughly sweetened turfy loam, and one-third of well decomposed manure; drainage about one-third the depth of the pot; aspect facing the north.

Basket Plant: *J Coin.* We do not remember any drooping plant, either stove or greenhouse, with flowers similar in colour to those of Plumbago capensis, that would do for a hanging basket, and to be in flower at this season of the year.

Crassulas: *Irish Subscriber.* The probable cause of your plants not blooming is that they have been too much and too constantly excited, probably by shifting at a wrong period. The last shift with all such free-flowering plants should be so timed that the pots may be filled with roots just about the period the growth is mature. The partial check which ensues induces the development of flowers.

Emigration: *Tunbridge Wells.* Cassell's Maps and Guides to Emigrants, in shilling numbers.

Ferns: *G P.* We should not advise you to raise the level of your beds by means of a few inches of leaf-mould, put on as a substitute for the usual protecting layer of cocoa fibre. The stronger ones might push through in spring, but the weaker would in all probability perish. We should rather take up the plants, add such (good turfy) soil as may be required, and replant at the desired level, protecting in the usual way by cocoa-fibre or newly collected tree leaves.

Galvanised Wire: *A Young Gardener.* Contact with metal is often injurious to plants, and in all probability has produced the *gumming* in your Peach trees. *M J B.*

Gladioli: *W Marshall.* Your seedlings are of fair average quality, but so far as we can see from the nearly exhausted spikes they do not present any marked advances on existing kinds. Nos. 33, 64, 80, and 81 appear to be the best of them, judged under these conditions. As a batch of seedlings for home decoration they are excellent and well varied. We have not the varieties named for comparison.

Indian Corn: *A W.* In your specimen some of the flowers of the male panicle have been transformed into female blossoms and are perfecting their seeds. Such an accidental disturbance of the normal development is not uncommon.

Insects: *S M O.* Your insect is the common Plusia chrysitis. *W.*

International Horticultural Exhibition: *Silvanus* asks if it is intended to offer any prizes for essays on cultivation, &c., at the forthcoming International Exhibition? We can not profess to be in the secrets of the Committee, but we imagine that this is not likely to have a place in their programme.

Names of Plants: *Farnham Castle.* Your Houlletia comes very near a New Grenada species described by Reichenbach under the name of H. picta. We will make further inquiries. —*J W B.* 1, Lastrea Filix-mas; 2, Polystichum lobatum; 3, Blechnum Spicant; 4, Polypodium vulgare. Ferns may not be nameable from small fragments of their fronds.—*T S.* 1, Verbena officinalis; 2, Senecio viscosa; 4, Euphrasia officinalis; 5, Armeria vulgaris. We do not name more than four plants at one time.—*R W.* 1, Escallonia macrantha; 2, Escallonia rubra; 3, Weigela rosea variegata; 4, Jasminum officinale.—*A W.* The seedlings which have sprung up spontaneously in your garden are Figs. They are not likely to be worth saving.—*J F R.* One of the hybrids between Anemone japonica and vitifolia.

Oak Galls. *H W K.* Nos. 1, 2, 3, are all Galls, though they were formerly considered, and two of them figured, as Fungi. They are not figured in the Encyclopædia of Plants, but one is given under the head Oak Spangles in the Arboretum et Fruticetum. *M J B.*

Pear Fungus: *Brockham.* Your Pear tree is attacked by the Fungus, Rœstelia cancellata. You must burn the leaves. *M J B.*

Queensland Quinine: *G T S.* The so-called quinine of Queensland is the bark of some Apocynaceous shrub. Specimens were exhibited in the Exhibition of 1862.

Sand: *S M P.* We cannot tell the composition of your sample of sand without analysis; but from its appearance we should hesitate to use it in propagating delicate plants. You should use silver sand.

Tropæolums and Petunias: *C Barker.* The blooms of both of these submitted to us by you are excellent in shape, size, and substance, and charmingly varied in colour. Among the first are some beautiful orange-yellows spotted with red, maroon, and among the latter are many handsomely striped and double kinds, which, whether in pots or beds, must produce a satisfactory effect.

Erratum.—In p. 891, col. *a*, line 30 from top, for "agreeable" read "equable."

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The CHRISTMAS QUARTER Commences October 6.

SMITHFIELD CLUB SHOW.
AGRICULTURAL HALL, ISLINGTON, Dec. 4 to 8.
IMPLEMENT DEPARTMENT.—The Last Day for receiving Entries for Implements and Machinery, &c., is Oct. 2 (the 1st falling on a Sunday.
Printed Forms for Entry, with Rules and Regulations, may be obtained of Mr. DAVID PULLEN, Assistant Secretary, at the Office of the Honorary Secretary, Corner of Half Moon Street, Piccadilly, London, W.

SMITHFIELD CLUB FAT CATTLE SHOW.—The ANNUAL SHOW of FAT CATTLE, SHEEP, and PIGS, will be held at the AGRICULTURAL HALL, ISLINGTON, on MONDAY afternoon, December 4, and four following days.
Intending Exhibitors are requested to apply for Certificate Forms by the reference letters as under.
CATTLE.—Form A. For an OX or STEER (in any Class).
" B. For a COW or HEIFER (in any Class).
" C. For a BEAST in Extra Stock.
SHEEP. " D. For a PEN of 3 WETHERS (in any Class).
" E. For a SINGLE SHEEP in Extra Stock.
PIGS. " F. For a PEN of 3 PIGS (in any Class).
" G. For a SINGLE PIG in Extra Stock.
ENTRIES for LIVE STOCK CLOSE NOVEMBER 1.
Prize Lists, Forms of Certificates, and all information may be obtained on application to Mr. DAVID PULLEN, Assistant Secretary, at the office of the Honorary Secretary, corner of Half-Moon Street, Piccadilly, London, W.
N.B.—All communications respecting the Show must be addressed to the Assistant Secretary, as above, and should bear outside the words "Smithfield Club."

The Agricultural Gazette.
SATURDAY, SEPTEMBER 30, 1865.

EXTENSION OF THE CATTLE PLAGUE TO SHEEP.—For some time past fears have been entertained that other animals besides the members of the ox tribe might be affected with the prevailing malady in some form or other, even if they should escape the disease in its most malignant shape. A month ago a case much resembling "plague" occurred in a goat. The animal had been in the owner's possession about ten days, feeding and milking well, when suddenly the milk was diminished in quantity, and the appetite was lost; discharge took place from the eyes and nostrils; the animal became excessively emaciated; soon the secretion of milk ceased entirely, and the breathing became laborious and quick. In the course of five or six days the goat died, and the *post-mortem* appearances agreed in all important particulars with those observed in cattle that had died of plague; there was the same characteristic lesion in the stomach, intestine, and bronchial tubes. Four other cases of disease in goats, analogous to cattle plague, were reported soon afterwards, belonging to a man whose cattle had first suffered; these cases also terminated fatally. Among Pigs a very similar affection, under the name of "typhoid fever," has been known for years, and it seemed almost unreasonable to hope that sheep should stand exempt; but all the evidence relating to the numerous outbreaks of pest on the Continent went to prove that sheep were not liable to take the malady, and hence a certain sense of security was felt by flock owners. Recently, however, numerous cases of malignant catarrhal disease have been observed in some parts of the country among sheep that had been associated with diseased cattle, and a conviction began to be entertained that although sheep might not be subject to be attacked with the true plague, they were nevertheless obnoxious to the influence of the infection to a certain degree.

Speculation upon the question is now at an end, and the alarming fact remains that our flocks are liable to suffer from the malady that has devastated and is devastating our herds, and still worse that the disease can be communicated from the sheep to the ox tribe as readily as from one infected ox to another.

Information of a positive kind at present implicates only the counties of Norfolk and Essex, but there is too much reason to fear that other places are not exempt.

The symptoms of the disease in the sheep are similar to those observed in cattle. The animal stands with head depressed, drooping ears, and arched back: the aspect is dull and dispirited, diarrhœa is present, and sometimes discharge from eyes and nostrils.

The characteristic *post-mortem* appearances are the usual inflamed condition of the mucous lining membrane of the fourth stomach, and also in many cases of the intestines. In some instances the folds of the third stomach are marked by red spots, an appearance which, although not invariable in cattle plague, is nevertheless when present a very decided indication of the existence of the disease in its most developed form. The membrane lining the windpipe and bronchial tubes is reddened more or less, and covered by that peculiar transparent or semi-transparent exudation so constant in the similar parts of diseased cattle. In fact so complete is the evidence, that no doubt can be entertained by any one who compares the indications of disease in the two animals, either living or dead.

Upon receipt of the intelligence, the Order in Council was amended, and now includes sheep and swine. The whole question of prevention and cure is terribly embarrassed by this new complication. It has already been found difficult to prevent the removal of infected cattle from place to place, and certainly it will be much more so in reference to sheep, in which the premonitory symptoms will necessarily be more obscure and difficult to detect. Short of forbidding all traffic in these animals while the plague lasts, there seems to be no way of preventing the transmission of infected flocks to healthy neighbourhoods.

Altogether the prospects of stock owners and breeders are at present rather gloomy. We hope, however, to be able to report more favourably next week.

WE have heard a good deal lately of the agricultural reaction against steam ploughing. Too much was written in its praise, they say, two or three years ago, and we have heard little of it since. Companies for systematically prosecuting it have, from one cause or another, in many cases failed to satisfy either their customers or their shareholders. And even individual proprietors of tackle for hire have lost money by their adventure. We do not believe in this alleged reaction. There may be less said and written on the subject than there was, and there may be here and there a single farmer of light land who, having adopted steam cultivation at considerable expense, thinks that upon the whole he might as well have continued as he was. Moreover, the death of the late JOHN FOWLER unquestionably diminished the personal interest in the subject of many a speaker and writer, who was urged by sympathy with the singularly amiable and genial character of a true and noble man. It is not talk, however, nor publication that constitutes real progress. There are more acres being cultivated this autumn by steam power than there ever were before; and there is not a single ploughland farmer, we dare to say, who is thus at work this season but has reason heartily to congratulate himself on his good fortune. There are hundreds of square miles of land in this country now which ought to be smashed up and aerated; but, which, too hard for horse-drawn ploughs, must remain iron-bound until rains having fallen and sunk, the land has become soft and waxy, capable of being turned over by horse-power, but no longer capable of receiving such efficient tillage as in its dry and hardened state a thorough tearing up would have given it. On these hard-bound lands the steam plough has been doing first-rate work during the past five weeks; and we hope ere long to lay before our readers a statement of its performance during the autumn months over a hundred English farms. How great the advantage thus effected for next year's fallow crop there needs no prophet to foretell. We reprinted from the *Oxford Journal* the other day a statement of the experience of Mr. MALINS, of Brackley, in root growing without manure. His success, like that of the Rev. S. SMITH, of Lois-Weedon, in the same county, in corn-growing without manure, is a first-rate testimony to the fertilising influence of tillage. Torn up in the autumn and never stirred again,

the well-drained calcareous loam which Mr. MALINS farms is drilled upon the flat after a spring harrowing, with 2 lb. of Swede seed sown early in April, and each plant, singled out 2 feet from its neighbours, thus finds a well filled, accessible and abundant store-house, which its roots gradually traverse, and which supplies the plant with nourishment enough without extraneous aid for a healthy, slowly growing, and ultimately heavy and productive crop. Having been over Mr. MALINS' Turnip fields, we can bear testimony to the accuracy of the report given last week (page 900). The 20 or 30-acre field we walked across had received nothing but a deep and efficient autumn tillage after Wheat, which succeeded a heavily manured Clover stubble. The depth and thoroughness of an autumn ploughing on well-drained calcareous loamy soil, occasionally adhesive, sometimes brashy, had already produced a very heavy crop of roots. Though sown so early, not a plant had run to seed; and though the lower leaves were withered and mealy with mildew, there was still a heart of fresh green leaf from which the roots, as sound as possible, were being fed. And this is no mere novelty; it is the eighth year of the practice, which has been uniformly successful. And we cannot doubt that not only here but everywhere the deepest tillage is now showing its superiority over ordinary cultivation (even where the latter has been supplemented with heavy dressings of artificial manure) in enabling the root crop to meet the withering effects of so prolonged a drought as we are at present suffering.

There cannot be a doubt of the superiority of steam tillage on heavy lands, whether in a steady drought, such as that of the present season, when the best work is done in fallowing wherever the force is sufficient to tear up the land—or in catching times when the best use is thus secured of such intervals of suitable weather as are granted to us.

THE CHAMPION PLOUGHING MATCHES.

WE trust you will permit us to notice an apparent misconception pervading your Leader on autumnal ploughing matches in a recent impression. Our object in attending these matches is not to embark in a personal competition with Messrs. Howard or any other single firm, but to make our ploughs and their capabilities more widely known, for we find daily evidence that there are hundreds and thousands of farmers throughout the kingdom who continue to use ploughs of antiquated and faulty construction, requiring greater power to draw them, costing more to keep in repair, and possessing other disadvantages which the modern ploughs do not.

Nothing is more common than the remark from farmers or their men, that "the new ploughs may be very well, but they will not work on my farm." To you who are posted up in all that is of the best and most modern construction, and are generously willing to give every one the credit for the same knowledge, it may seem a strange thing that we and other makers should incur so much trouble, but if you were more fully acquainted with the difficulty that there is to introduce improved ploughs into a district, and with the economy that arises to farmers from their use, we think you would not dismiss us or the farmers with the severe condemnation that closes your article.

It has been our practice for a great many years to attend more or fewer of these ploughing meetings, and from the kind reception we have invariably met with, and the interest taken by both farmers and the men in the work done, we are satisfied they are glad of the visits of the chief ploughmakers, and regard them as a useful and interesting addition to their meetings.

In conclusion, allow us to say that in the circulars we issue announcing our success, we invariably print the names or the number of all our competitors, and if of late Messrs. Howard's name has occurred more frequently than formerly, we trust that it will not thence be inferred that our competition is more directed against them than against any one else who chooses to enter the lists. *Ransomes & Sims, Orwell Works, Ipswich, Sept. 21.*

THE CATTLE PLAGUE.

[The following report by Professor Simonds to the Clerk of the Council announcing the communicability of the cattle plague to sheep, is by far the most serious publication on this subject during the past week.]

"Veterinary Department, 23, New Street, Spring Gardens, Sept. 25.

"Sir,—I beg to report that, acting on the instructions received from you to investigate without loss of time the statement received at your office relative to an outbreak of the cattle plague in a remote part of the county of Norfolk, supposed to have arisen from cattle having been in contact with some diseased sheep, recently brought to the premises, I have visited the district in question, and inquired into all the circumstances of the case. It appears that as far back as the 17th of August Mr. C. Temple, farmer and merchant, of Blakeney, received on his farm 120 lambs which he had instructed a dealer to procure for him for feeding purposes. The lambs were bought at Thetford Fair on the preceding day, and were immediately sent by rail to Fakenham, from which place they were driven to Blakeney, a distance of about ten miles. On their arrival they appeared to be fatigued to a greater extent than ordinary, which was, however, attributed to the heat of the weather and the exertion the animals had undergone. In addition to this the shepherd observed that several of them seemed unwell, and he remarked to his master that they did not appear to be 'a very healthy lot,' and that he thought it would be better to return them to the dealer. Within a day or two of this time the symptoms of illness were more marked in all the original cases, and many more of the animals had been attacked. On the 24th two of the worst cases were removed from the field to the farm premises, and were placed in a shed for treatment, in which afterwards a cow was put. On the 25th two of the lambs died, and in consequence of this, and of the large number which were now affected, the whole were brought, on the morning of the 27th, into the same yard where the shed previously alluded to was situated. There is also another shed, separated from this yard only by some old furze faggots, into which the cows were driven night and morning for being milked. The lambs remained in the yard till the morning of the 28th, when having had some medicine administered to them, they were returned to the fold and never came again near the cows. While in the yard three died, two on the 27th and one on the 28th, and on the following day two others died in the field. From this time the disease went on, so that by Friday last, the 22d of September, the day of my visit, 46 had either died or been killed, and 27 were in a very precarious condition. On the 7th of September, 10 days after the last exposure to the sheep, a cow gave evidence of being affected with the cattle plague, this animal being the one which had been put into the shed occupied by the diseased sheep on the 24th of August. A second cow was attacked on the 11th of September, and a third shortly afterwards, which was followed by others; so that by the 16th all the cows, six in number, a heifer, and a calf were all dead. My examination of the lambs showed that they were unmistakably the subjects of the plague. The symptoms agreed in almost every particular with those observed in cattle affected with the malady, and the *post-mortem* appearances were also identical. With a view to ascertain the true nature of the changes produced in the system prior to death, I had four of the lambs killed, and from these I took some diseased parts and forwarded them to the Royal Veterinary College without note or comment. These parts were examined by my colleague, Mr. Varnell, who at once recognised the special changes of structure which are caused by the cattle plague. The whole facts of the case leave not the least doubt of sheep being liable to the disease termed the cattle plague, and that when affected they can easily communicate the malady to the ox tribe; and moreover, that when so conveyed, it proves equally as destructive as when propagated from ox to ox in the ordinary manner. The case is also more important from having occurred in a place no less than 14 miles distant from any other where the cattle plague exists, thus placing beyond a doubt the fact of the malady being introduced among the cattle by the sheep alone. I regret to add that this is not a solitary case of sheep being affected by the cattle plague. I learned that some sheep were supposed to be similarly affected belonging to Mr. R. F. H. Harvey, M.P., on his estate at Crown Point, near Norwich. This place I also visited, and found a large flock of upwards of 2000 lambs, among which the malady was prevailing. A large number had been separated from the diseased, and gave no evidence of the malady. Very many, however, had died, and the disease was making rapid progress. I also examined many of the dead, and found the *post mortem* appearances to be identical with those seen in the other cases spoken of in this report. In this instance the malady was brought into the estate by the purchase of some cattle, which afterwards died from the disease, and which were unfortunately pastured with the sheep at the time the disease manifested itself. The whole matter is one of the greatest importance, and which I lose no time in submitting to you for the information of the Lords of the Council.—I have the honour to be, Sir, your most obedient servant, "JAS. B. SIMONDS."

2. FROM DR. LETHEBY ON MR. HARVEY'S FLOCK.—As I have just returned from an inspection of the infected flock on the Crown Point estate of Mr. R. F. H. Harvey, M.P., I have thought it probable that some of your readers might like to know a little of the history of the disease, and of the symptoms and prospects of cure. Mr. Harvey's estate is a short distance from Norwich. It is situated on high land, and the soil is a mixture of gravel and loam to the depth of 11 or 12 feet upon chalk; it is therefore well drained. About 1000 acres of it are Grass land, and most of it has been newly laid out. Upon this there are pastured nearly 2000 sheep, or rather lambs, which were purchased in April last, and which did well until the beginning of the present month, when two of them died with excessive diarrhœa. From that time to the present the disease has been spreading through the flock until a large portion of it has been affected.

The symptoms which I observed during my visit to-day were the following:—The animal at first appears to be somewhat feeble in its gait; it also looks heavy and stands with drooping head and ears. Its appetite fails, and it shows signs of severe febrile action by the heat of the head and ears, and by its seeking the shade and running to the water to drink. At this time a discharge begins to flow from the eyes and nose—the discharge being very limpid and colourless like water, not purulent, although there are occasional patches of ulceration about the nose from the irritation of flies. There is some difficulty of breathing, and the respiration is panting, and the animal moans as if in pain. Diarrhœa also occurs, but the discharge is never tinged with blood, as in the case of cattle, but is of a thin gruel-like consistence, and of a pale greenish yellow colour. From this time the animal either rapidly succumbs and dies, as if from exhaustion, or else it quickly recovers, 24 hours being the period which generally settles the issue of the case.

The experience which has been gained from the observations of the disease at Mr. Harvey's farm is that if diarrhœa does not occur the animal invariably dies; and that there is no relapse of the disease, nor any case where a sheep has been attacked a second time.

The treatment which has been adopted has been very simple and apparently very successful. In the first place the animals have been supplied with troughs containing a moderately strong solution of salt and water. This they have drunk as soon as the febrile symptoms have appeared, and their resorting to the water is often the earliest sign of infection, as their beginning to feed is the sign of recovery. The discharges from the eyes and nose and bowels attract a legion of flies, which freely deposit ova therein. It has, therefore, been found necessary to cleanse the animal from the discharges by frequently sponging the parts with a mixture of Macdougal's powder in water. Under this treatment about two-thirds of the animals have recovered, thus showing how barbarous and destructive is the proposition to "stamp out" the disease by killing every infected animal. If Mr. Harvey had pursued such a course of treatment he would assuredly in the end have lost every one of his 2000 sheep, whereas he will now save at least 1300 of them.

The *post-mortem* appearances were exhibited to me by Mr. Wells, the skilful veterinary surgeon of Norwich, who has watched the progress of the disease in the flock from the beginning, and who made a dissection of one of the dead animals in my presence. I observed that the intestinal canal was red and inflamed, the peritoneal vessels were gorged with blood, and the mucous membrane of the fourth stomach, as well as of the cœcum and beginning of the large intestine, was patched and spotted with bloody congestion, and all the aggregated glands of Peyer were so gorged with blood as to be distinctly visible through the outer walls of the intestines. In these respects, therefore, the appearances are very similar to those which have been observed in the cattle disease. The lungs, however, were much congested, and the right side of the heart was full of blood, while the left was empty, evidently showing that circulation had failed in the capillaries of the lungs. In this particular there is a difference in the *post-mortem* appearances of the cattle and sheep diseases, and pending the experimental inquiry which I am informed Professor Simonds is undertaking as to the communicability of the disease by inoculation from one species of animal to the other, it would be well to suspend our opinion as to the identity of the two diseases.

In conclusion I ought to say, that the public are indebted to Mr. Harvey for the pains which he has taken to unravel the mystery of these diseases, and for the opportunities which he has afforded those who, like myself, have taken an interest in the study of them. Above all, he has shown that it may perhaps have another origin than contagion from abroad, and that there are more successful ways of dealing with it than by "stamping it out." *Henry Letheby, M.B., 17, Sussex Place, Regent's Park, Sept. 27.*

3. —— The symptoms of the cattle plague being intense fever, a hot skin, and no perspiration, a vapour bath to open the pores might be of use to assist other medical treatment. A box connected with a steam pipe, in which the animal could either stand up or lay down, with its head exposed to the fresh air, might easily be constructed. This experiment may have already been tried. I have carefully read most of the accounts of the progress and treatment of the disease, but do not recollect the hot bath having been mentioned. *Falcon.*

4. ESSEX.—The cattle plague has not extended in this neighbourhood except in two or three cases, clearly traceable to infection from a neighbour's farm. The vigilance of inspection, and insisting on prompt and deep interment with quick lime, appears to have localised it, and prevented extensive mischief. In one case, about 10 miles from here, a valuable herd was destroyed by the murrain. It was afterwards discovered that a drover, to escape detection on the common road, drove at night a diseased cow through

the farmer's yard, and thus infected the herd. I am in hopes we shall escape the disease, for, with 56 head of cattle, it would be a serious matter. But for the compulsory powers, great destruction and loss would take place, for the desire to save something from the wreck renders some people regardless of their neighbours' welfare. Panic has produced much exaggeration and misrepresentation, and false report of the disease where none exists. In some cases the disease has been introduced by the purchase of recently dropped calves apparently healthy. It is only after several days that they exhibit signs of disease. *J. J. Mechi*, Sept. 20.

5. IMPORTATION FROM RUSSIA.—The cattle plague being at the present juncture a subject of general interest, not only as regards its devastations and remedy, but also in relation to its origin, the Committee of Foreign Importers, after a full investigation of the history of the Revel cargo, think that a statement of the facts elucidated put plainly before the public may assist to place the matter in a more satisfactory light. I have, therefore, been requested to send you a *résumé* of the transaction, which I shall do without comment, leaving to those who read to draw their own conclusions. Last winter contracts were entered into with landowners in Esthonia for the feeding of a number of cattle for the English market by a person who, not having the means of carrying out his arrangements, sought and obtained assistance from two responsible importers in this city. On the 23d of May last the steamer Tonning, of London, left Revel with a cargo of 321 oxen, 331 sheep, and three horses, and arrived in Hull on the 29th of the same month, without having suffered any casualty. The cargo was originally 322 oxen, but one was slaughtered in Revel on account of accidental injury; another animal suffered upon the voyage, but was landed at Hull in good health. In Hull the cattle underwent the usual veterinary inspection, and the inspector declared that he had never passed a cleaner lot of cattle, or in better condition. A portion of the cargo was disposed of in Hull, and another lot was sent to Manchester and sold, and no outbreak of disease followed in either of those towns. The remainder of the cattle, 175 in number, were forwarded to London and sold in the Metropolitan Market on the 1st of June in a perfectly healthy condition. Twenty of these last were subsequently sent to the victualling depôt at Gosport, inspected on the part of the Government and declared healthy on the 5th of June, after a lapse of 13 days from the date of shipment. I state this particularly, as 10 days are assumed to be the incubatory period of the disease. The speculation was, however, not profitable; the cattle were not of the weight and description that the London importers had been led to expect, and they therefore declined to afford further aid towards carrying out the undertaking. The importation of cattle from Russia came thus to an end, and neither directly nor through intermediate ports has any stock since arrived in England from Revel or any other Russian port. Between three and four weeks later the cattle disease first manifested itself in London. In tracing its origin much attention was given to the importation from Revel, and it was the person through whose instrumentality these cattle were introduced in this country, and who had subsequently threatened his supporters with hostile proceedings, who made the statements which led the investigator deputed by the Government to conclude that this cargo was the veritable cause of the "rinderpest" appearing in England.

It had never been shown that the outbreak of the disease in London was in the remotest degree traceable to contact with any part of this cargo; still, the assertion that the "rinderpest" was prevalent in that part of the Russian Empire whence these cattle were imported cast a certain doubt upon the transaction that, for a time, the Committee were unable to remove. More lately, however, documents—of which I send you copies—have come into the possession of the Committee, and a perusal of these certificates will, I believe, enable the public to judge the case upon its simple merits, and to decide to which evidence credence is to be given. *Charles Hicks*, 60, *West Smithfield*, *Sept.* 22.

[Then follow the certificates, which seem conclusive enough.]

6. FROM LORD SYDNEY TO MR. HELPS.

"Frognal, Foot's Cray, Kent, Sept. 20.

"Dear Mr. Helps,—You are probably overwhelmed with reports on the cattle disease, consequently my only object in giving you the history of what occurred to my beasts is to show the eccentricity of the malady. I had 11 beasts born and bred upon the estate from my own dairy cows, in the park here, of various ages. They were near to the farm homestead and away from every road or any possibility of contagion, and the park is bounded by a wall and wide plantation. Moreover, no new stock of any kind had been brought into it this year. Shortly after we met at Osborne (7th of August last), one animal was seized and died under the hands of a veterinary surgeon, to whose place it was removed. In time all the others after various intervals became affected, and nine have died, and two are now recovering—indeed I may say have recovered. They were the two youngest of the herd. My dairy cows and their calves are here, half a mile from the farm—perhaps less as the crow flies. They have never been affected in any way, nor have the milch cows of a tenant of mine whose meadows and farm lie between the two herds. And, as far as I can ascertain, when the first bullock was seized, no cattle were then affected in the neighbourhood nearer than 3¼ miles. The result, therefore, on my mind is, that although the malady is no doubt contagious, it must arise also from atmospheric causes over which no one has any control. You will perceive that nothing can be more eccentric than the course of this malady in this district. The day previous to my going abroad I happened to be looking over these animals. They were then healthy in every respect, and in good and healthy pasture, where they had been all the summer, and no butcher or any person who might bring contagion had been near them. I have just returned from the Hague. In Holland they think the disease was brought there by unsold animals returned from this country. The Prussian Minister there had just arrived from his estates in Silesia, and he told me that they had this malady for two years and were unable to find any remedy. The veterinary surgeons in Holland seem as ignorant as our own, and had no idea beyond an indiscriminate slaughter. As far as I can judge, all the symptoms were of a typhoid nature, and they yielded to stimulants, such as whisky and iron-water. Some of the cattle which died sank very suddenly, when they were apparently recovering. However, I am not going into the question of treatment, and only wished to show that the malady may come independent of all contagion. Believe me to be, yours faithfully,

"*A. Helps, Esq., Privy Council Office.*" "SYDNEY."

7. SUFFOLK: *Wattisfield.*—My attention has just been drawn to a letter in your paper with regard to an offence against the Orders in Council committed at Wattisfield in this county. In it my judgment has been somewhat found fault with, but there is a great inaccuracy in your report, to which I beg to draw attention. Twenty-six beasts out of the herd alluded to either died or were destroyed at Wattisfield; the remaining four of that herd I saw at Rickinghall Inferior, in my district, and condemned two of them. Mr. Robinson refused to have the two killed, removed the four out of the district, and then destroyed the two I had condemned. The other two may now, for anything I know, be, as they appeared to be when I saw them, in good health. *Edwin Pizey, Inspector, Ixworth, Suffolk, Sept.* 22.

The various Orders in Council which at different times have been published have been consolidated and re-issued in the following form; in which it will be seen that the word animal is at length made to apply not exclusively to ox, cow, and calf, but to include sheep, lambs, goats, and swine:—

1. This Order shall extend to all parts of Great Britain.

2. The said Orders dated respectively the 24th of July, the 11th, 18th, and 26th of August, 1865, are revoked, with the exception of so much of the said Order of the 24th of July, 1865, as empowers the Clerk of her Majesty's Privy Council to appoint inspectors within the limits of the metropolitan police district, provided that such revocation shall not affect any appointment made, or any act done, or penalty recoverable, under any order hereby revoked.

3. In this Order the word "animal" shall mean any cow, heifer, bull, bullock, ox, calf, sheep, lamb, goat, or swine; and the word "inspector" shall include any inspector appointed under this order, or under any of the said revoked orders.

4. Whenever the local authority, as hereinafter defined, shall be satisfied of the existence of the said disorder in, or have reason to apprehend its approach to, the district over which his or their jurisdiction extends, it shall be lawful for such local authority, if he or they shall think fit, from time to time to appoint one or more veterinary surgeon or surgeons, or other duly qualified person or persons to be an inspector or inspectors, for the purpose of carrying into effect the rules and regulations made by this order, within the district for which he or they shall have been appointed. And the same authority may, from time to time, revoke such appointment.

5. Subject to the powers herein reserved to the Clerk of her Majesty's Privy Council, the local authority within the City of London, and the liberties thereof, shall be the Lord Mayor; in any municipal borough in England and Wales, the mayor; in any petty sessional division in England or Wales (exclusive so far as relates to the jurisdiction of the inspector of so much of the said division as lies within the limits of a municipal borough for which an inspector has been appointed), the justices acting in and for such petty sessional division. The local authority in any burgh or town in Scotland which is subject to the jurisdiction of a provost or other principal magistrate shall be the provost or such principal magistrate; and in any other place in Scotland not within the jurisdiction of such provost or other principal magistrate, the justices of the county in sessions assembled.

6. Every inspector shall from time to time report to the local authority by which he is appointed the steps taken by him for carrying into effect the regulations prescribed by this order; and the local authority shall certify, in such manner as may be directed by one of her Majesty's principal Secretaries of State, the number of days that such inspector has actually been engaged in the performance of his duty, and the number of miles travelled by him while thus engaged.

7. Every inspector shall furnish the Lords of the Council with such information in regard to the said disorder as their lordships may from time to time require.

8. Every person having in his possession, or under his custody, any animal labouring under the said disorder shall forthwith give notice thereof to the inspector of the district within which such person resides, or if no inspector shall have been appointed for the district within which such person resides, then to the officers hereinafter named, according to the place of residence of the person obliged to give notice—that is to say, within the Metropolitan Police District, to the said Clerk of the Privy Council; within the city of London and the liberties thereof, to the Lord Mayor; within any other borough, burgh, or town subject to the jurisdiction of a mayor, provost, or other principal magistrate, to such mayor, provost, or other principal magistrate; elsewhere in England, to the clerk of the justices acting in and for the petty sessional division; and elsewhere in Scotland, to the clerk of the peace of the county.

9. Every inspector shall have power to enter upon and inspect any premises or place in which any animal or animals may be found within the district for which he is appointed, and to examine and inspect, whenever and wherever he may deem it necessary, any animal within such district.

10. Every inspector shall have power within his district to seize and slaughter, or caused to be seized and slaughtered, and to be buried, as hereinafter directed, in any convenient place, any animal labouring under the said disorder.

11. Every inspector shall have power within his district to cause to be cleansed and disinfected in any manner which he may think proper any premises in which animals labouring under the said disorder have been, or may be, and to cause to be disinfected, and if necessary destroyed, any fodder, manure, or refuse matter which he may deem likely to propagate the said disorder. And every owner or occupier of such premises shall obey any order given by such inspector for that purpose.

12. Every inspector shall have power within his district to direct that any animal which he suspects to be labouring under the said disorder shall be kept separate from animals free from the said disorder. And every person having in his possession or under his custody such animal shall obey any order given by such inspector for that purpose.

13. Every person having in his possession or under his custody any animal labouring under the said disorder shall, as far as practicable, keep such animal separate from all other animals, and shall not, if the animal be within a district for which an inspector has been appointed, remove the same from his land or premises without the licence of the inspector.

14. No person shall send or bring to any fair or market, or expose for sale, or send or carry by any railway, or by any ship or vessel coastwise, or place upon, or drive along, any highway or the sides thereof, any animal labouring under the said disorder.

15. No person in any district for which an inspector has been appointed shall, without the licence of the inspector, send or bring to or from market, or remove from his land or premises, any animal which has been in the same shed or stable, or has been in the same herd or flock, or has been in contact with any animal labouring under the said disorder.

16. No person shall place or keep any animal labouring under the said disorder in any common or unenclosed land, or, if the animal be in a district for which an inspector has been appointed, in any field or pasture, where in the judgment of the inspector such animal may be likely to propagate the said disorder.

17. All animals having died of the said disorder, or having been slaughtered on account thereof, shall be buried with their skins, and with a sufficient quantity of quicklime, or other disinfectant, as soon as practicable, and shall be covered with at least five feet of earth, or shall, in districts for which an inspector has been appointed, with the consent of the owner, be otherwise disposed of in manner directed by the inspector.

18. During the continuance of the "cattle plague" within the said city of London, or that part of the Metropolitan Police District which is under the jurisdiction of the Metropolitan Board of Works, no animal shall be brought or sent to the Metropolitan Cattle Market, or any other market within the said city or the said part of the Metropolitan Police District, except for the purpose of being there sold for immediate slaughtering; and every such animal, as soon as sold, shall be marked for slaughter in the manner in which cattle are ordinarily marked for slaughter in the Metropolitan Cattle Market.

19. Whenever any local authority, as hereinbefore defined, declares, by notice published in any newspaper circulating within his or their jurisdiction, that it is expedient that animals, as hereinbefore defined, or some specified description thereof, shall be excluded from any specified market or fair within that jurisdiction, for a time to be specified in such notice, it is hereby ordered, that after the publication of such notice it shall not be lawful for any person to bring or send such animals or description thereof into such market or fair; provided always, that this clause of this Order shall not, unless renewed by a further Order, be in force after the expiration of three calendar months from the date of this Order.

20. Every person offending against this Order shall, in pursuance of the said Act, for every such offence forfeit any sum not exceeding 20*l* which the justices before whom he or she shall be convicted of such offence may think fit to impose.

ARTHUR HELPS.

THE *TIMES* ON THE CATTLE PLAGUE.

THE Cattle Plague, by its extension to the sheep, and its continued ravages among our herds, has assumed such national importance as to claim the attention of all the skill and science which the country can command. This attention, we cannot but observe with regret, it has not yet received. Farmers and cattle-owners have been terrified at the sudden destruction of their stock, and have appealed, with almost the helplessness of an Oriental people, to the Government; and the Government, taken unawares, and compelled to act suddenly, could do no otherwise than adopt the advice of "eminent veterinary surgeons," and enforce the measures which these authorities have propounded with all the dogmatism of inadequate knowledge. Those measures, it must be admitted, are the clumsiest possible. A set of Inspectors who have probably never seen a case of cattle plague in their lives have been invested all over the country with absolute power to condemn cattle as suffering from the plague, and to slaughter, if it pleases them, whole herds of valuable animals. We have proclaimed that our so-called science provides us with no resources whatever, and that we have no other means of getting rid of the cattle plague than to destroy, if need be, all our cattle. To make a desert and call it peace is a policy which we think only worthy of imperial barbarism; but to destroy our cattle, and then pronounce ourselves free from the cattle disease, is the precisely similar practice which veterinary barbarism would impose upon us. Are there no men who possess a real knowledge of medicine at the disposal of the Government, and who could treat the subject in a more scientific manner?

We see hitherto no trace of that careful and patient observation of symptoms, that minute diagnosis, and that effort to meet the disease in its early stages, which characterise the treatment of human diseases by our modern surgeons. It is to this last point that we think it worth while to draw particular attention. It appears to us that the rough and careless manner in which the symptoms are at present observed affords no chance of the disease being treated in time either to prevent contagion or to allow an opportunity for

recovery. The veterinary surgeons inform the Council, and the Council, as they are obliged to do, inform the world upon their authority, that the symptoms of the disease are "great depression of the vital powers, frequent shivering, staggering gait, cold extremities, quick and short breathing, drooping head, reddened eyes, with a discharge from them and also from the nostrils of a mucous nature, raw-looking places on the inner side of the lips and roof of the mouth, diarrhœa, or dysenteric purging." We notice, in the first place, that the disease is here only described as it appears in its full development. Must the inspectors and veterinary surgeons whom we have referred to wait for such advanced symptoms as these before they pronounce that the cattle are suffering from the plague? Cattle do not suddenly break out into all these symptoms without some premonitory warning. Is it not possible to recognise the disease before it has reached such a fatal development? What chance is there, we should like to know, of preventing contagion if cattle are allowed to herd with others until such symptoms as these develope themselves? The mischief by that time is done, and their poisoned breath and noxious excrements have provided sufficient material of infection to inoculate the whole herd. The case of the sheep which we described the other day affords an instructive instance in point. These animals were received on the 17th of August, and immediately on their arrival the shepherd remarked that they appeared unhealthy. What was done? Were they in any way examined? Were the unhealthy ones carefully isolated from the others? On the contrary, they were all allowed to herd together, and not until the 24th were two of the worst cases removed from the field into a cowshed. The disease had obviously been affecting these sheep the whole week, and what wonder if the whole flock were infected? This may be an extreme instance, but it is still, we fear, an example of the reckless disregard which prevails of the early stages of the disease. When ignorant persons are told by the Privy Council to expect indiscriminately all the hodge-podge of symptoms which we have quoted, is it likely that they will detect the disease and treat it vigorously in its earlier and milder forms? Even when Lord Granville's cows were attacked by the disease, the first instance was treated only as a cold, and the "distinguished" veterinary surgeons who were called in at the last could not decide whether it was the cattle plague or not. Our correspondent "S. G. O." lately observed that the description of symptoms furnished by the Council reminded him of human beings prostrated by typhus fever, with their hands clutching at the bed-clothes. In other words they reminded him of human beings in an advanced stage of typhus. What would be thought of a doctor who neglected to treat a patient until such advanced symptoms as these were developed? It is obvious that all measures of precaution against contagion must absolutely collapse unless the disease can be detected at an earlier stage.

We find it very hard to suppose that more skilful and scientific treatment would not disclose some earlier symptoms of the disease, and would thus enable us the better both to prevent contagion and have some chance of effecting a cure. The disease is said to incubate for 10 days. Could it not be detected before the end of the 10 days? Suppose, for example, as seems highly probable, that the disease commences by affecting the lungs. Could not a skilful handler of the stethoscope detect some internal signs of the disease before it displayed itself in symptoms of external distress? The stethoscope, applied to human beings, frequently detects incipient disease of the lungs before the sufferer has any idea of his danger. But it is evident that such examinations as this, and such a careful observation of symptoms as we have suggested, can only be made by thoroughly well-instructed pathologists. An ordinary veterinary surgeon might as well endeavour to observe the state of the stomach by looking down the throat through a telescope. The practical conclusion, therefore, which such considerations suggest is that some thoroughly well-educated medical men should take the question in hand, and conduct a series of really scientific observations and experiments. Considering the importance of the disease, and the extraordinary light which might be thrown by it upon human epidemics, we should have thought that even our first physicians might have been induced to throw their energies into the subject. But, if they cannot do so, there are hundreds of able young physicians and surgeons anxiously awaiting an opportunity of distinction, and with their hands as yet unfettered by any extensive practice. Let it be remembered that no such opportunity for experiments can possibly be afforded in the case of the human subject. *Fiat experimentum in corpore vili* is the old rule, and here is the exact opportunity for practising it. Suppose the case of another herd like that of Lord Granville becoming afflicted with the disease. Let such a herd be immediately placed under the care of some scientific pathologist. Let him examine every animal by the stethoscope and by all the other resources of science; let them be carefully watched from day to day and from hour to hour, and the effect of every remedy carefully observed, and it is impossible that some results should not be attained. For this purpose the Government might wisely offer sufficient rewards to induce not only young men but experienced surgeons to devote their energies to the subject, and by this means they might obtain information which would emancipate them from the slavery of their present veterinary autocrats. Disease is a delicate, a mysterious, and an abstruse subject, and is not to be managed by every rough cow doctor who calls himself a veterinary surgeon. The Government have no doubt done their best in their emergency, but now that it is evident the disease is more than an emergency, let them appeal for more scientific assistance. If they hesitate, there is surely sufficient independent energy among our doctors and farmers to induce them to prosecute vigorous researches on their own responsibility. Let a young man discover an effectual method of treating this disease, and he will obtain for himself a far more satisfactory reward than any the Government Patent Office can offer. *Sept.* 28.

THE WINTER KEEPING OF SHEEP.

OWING to the drought of 1864, the root crop was deficient everywhere, and especially on the dry soils of the southern chalk district, where the scarcity of the roots so alarmed breeders that at the great autumnal fairs the prices of store lambs, compared with recent years, showed a reduction amounting to 30 per cent., and there was almost an equal fall in the price of breeding ewes—and this, with mutton at 5*s.* to 6*s.* per stone, and wool at 2*s.* to 2*s.* 6*d.* per lb.

Lambs therefore paid unusually well for wintering, although the market for them in the spring of 1865 was seriously affected by the unfavourable weather and by a panic in the wool trade. The following shows that "well bought is half sold."

200 lambs, which cost 22*s.* 6*d.* on September 12th, were kept on leas and stubble until November 3rd, then on Turnips until December 19th, when 50 of them were drafted to another flock getting a little cotton-cake. On the 3rd February fatting commenced with Linseed-cake in addition and cut Swedes. On the 7th April the 50 tegs were put on Rye with Mangels, and they were sold on the 4th of May at 61*s.* each.

The remaining 150 lambs were wintered as stores at little cost, on inferior Turnips uncut; they were put on Rye from March 8th till May 4th, when they were valued at 48*s.* each.

The district just referred to became so exhausted of its stock that at some of the later fairs the number of lambs and of ewes exhibited was less than one-fourth of the average. But in Essex, on six adjoining farms, including that from which I write, the number of sheep wintered has been greater than these heavy lands ever carried before. This has been effected by the extension of a system of management often practised on heavy land, that of eking out a scanty supply of green food by a liberal allowance of straw, chaff, and grain; which happily were good in quality, as well as plentiful and low in price in 1864.

By these means we were enabled last winter to keep 1500 sheep on about 650 acres of arable, and 350 acres of dry upland pasture—chiefly park surrounding a mansion. The arable land does not very well bear folding in winter, as a preparation for spring corn. Neither climate nor soil are favourable to Turnips, and notwithstanding our efforts in assisting Nature, our crops of Turnips, Rape, or Swedes, are never first-rate, and sometimes very bad. Strong stubbles, good Beans, Clover-seed, and Mangel are the specialities of the locality, and they indicate heavy land, corn-growing, and yard-feeding. Sheep have been generally "conspicuous by their absence," though even the heavy-land farmer is glad to winter a yard of them, instead of cattle, that he may keep some at least of the stock that pays best.

In the autumn of 1864 our root crops consisted of some white Turnips and Rape, eaten by the ewes in September, and of a very bad crop of Mangel, the whole of which was reserved for the ewes at lambing-time. In this predicament we wintered about 1000 half-bred lambs, more than 400 ewes, and some fatting sheep. All, except the fatting sheep, were folded on the stubbles, and allowed a daily run on the park of about an hour for each flock. The freshest Grass was reserved for the ewes, and a very meagre bite remained for the lambs; in fact, except for a few weeks in autumn, the parks afforded them little or nothing except exercise and water.

The flocks were divided between three separate farms, and their food was prepared at the respective homesteads. The treatment was in every respect similar; we shall therefore only notice in detail the management at one farm.

The following details are taken from our "Live Stock Book:"—

September 29th.—352 lambs in the parks, on a little Cotton-cake and some Oats, until November 4th, when they were folded on a Wheat stubble. Gave them 5 bushels of meal daily, mixed with 468 lb. of straw-chaff. Cost 3½*d.* each per week for meal.

December 20th.—Increased the food to 6½ bushels of meal and 1 bushel of oil-cake.

December 18th.—

	lb.
2¾ bushels of maize crushed and boiled	143
4½ bushels of mixed meal	200
1 bushel of oil-cake	50
	393

Cost 5½*d.* per week for corn and cake; chaff, 2¼ lb. each, between these and the ewes, the lambs eating rather less than 2 lb. each.

Eight pounds of rock-salt licked up by the 352 lambs per week.

January 23d.—The food was increased to 7½ bushels of meal, 2 bushels oil-cake, 2 bushels Rape-cake.

Mixture of Corn.

Wheat	4 parts
Barley	4 ,,
Oats	2 ,,
Maize	4 ,,

Cost per stone (14 lb.)

	s.	d.
Wheat	[illegible]	[illegible]
Barley	1	0
Oats	[illegible]	[illegible]
Maize	1	0
Oilcake	[illegible]	[illegible]
Rape-cake	0	[illegible]

EXTRACTS FROM STOCK BOOK

Lambs.

Payments. Nov. 4th, 1864.	£	s.	d.
352 lambs, cost at date, 30*s.* 9½*d.* each	542	2	3
Cost of keeping 24 weeks to April 21, 1865:—			
Corn and cake, as per granary book	245	16	9
Cutting 25 tons of chaff, at 6*s.* ..	7	13	0
Grinding 96 qr. 6 bsh. of corn, at 9*d.* ..	3	12	6
Attendance, at 19*s.* 10*d.* per week	23	16	0
Horse-labour, at 6*s.* per week	7	4	0
Coal, 3*s.* 2*d.* per week	3	16	0
Use of 21 troughs, at 3*d.* each p. month	1	11	6
Use of 180 hurdles, at 1*d.* each per month	4	10	0
1½ cwt. of rock salt	0	4	6
	£840	6	6

Remarks.

Total cost of keeping the lambs for 24 weeks, 298*l.* 4*s.* 3*d.*

Cost per head, 16*s.* 11*d.*

Cost, food only, 14*s.* 11*d.*

Value of the manure, reckoned at one-fifth the cost of the corn and cake, 49*l.* [illegible]

Cost of the lambs, per head, 2*l.* 7*s.* 8*d.*

Value of manure, per head, 2*s.* 10*d.*

No charge made for the straw chaff eaten on the land.

The tegs would probably have been sold at a profit in April; they were, however, put on Grass and Clover, and were fattened in the summer.

Good Wheat, Barley, Oat, and Bean straw was cut into fine chaff and sifted by a steam-power chaff-cutting machine made by Maynard, of Whittlesford. The chaff dressed from the grain was also used.

The main points in the preparation of the food were to use sweet straw cut fine and sifted, and to soften it without wetting it too much, by using a sufficient quantity of boiling liquid. One-fourth to one-half of the meal should be boiled (or steamed) into soup, thrown on the chaff, and the heap chopped over and well mixed with a wooden rake. Then stir and mix in the remainder of the meal and ground cake, and round up the heap. If properly prepared, the chaff becomes exceedingly sweet and palatable. It should be free from lumps of meal, or pudding, and equally moistened and cooked by proper mixture of the boiling liquor throughout the heap.

Maize-meal makes the best soup; Barley-meal makes a sticking paste that does not mix well with the chaff.

With Riche's and Watts's American grist-mill we grind from 30 to 40 quarters of corn a day, as fine as is needed for sheep or cattle, reducing the grinding account to a comparatively small sum.

The proportions of the different kind of grain were varied, from time to time, for the sake of that change of diet which is so conducive to health.

Linseed-cake, though relatively dear food, was probably a wholesome addition. Rape-cake, at 6*l.* per ton, was the cheapest ingredient; it was crushed fine and added dry. The sheep ate their food as usual, in spite of this rather bitter addition.

Oatmeal was relatively dear, but it is easy of digestion and wholesome. Wheat-meal was at first used sparingly, but the proportion was gradually increased, because, though costing more per stone than Barley or Maize, we became aware that, in nutritive value, it was decidedly superior.

Maize should not form more than one-fourth of the mixture of corn and cake, and it should be boiled; dry Maize-meal induces a feverish condition, unless used very sparingly.

A continuance of low prices for grain will oblige the English farmer to modify his system of feeding, and the preparation and use of his own produce on his own farm, will become an important branch of his business.

Under the system we have detailed the health of the sheep was very satisfactory. In two flocks of 300 lambs each the first loss that occurred was at the end of January, when a lamb tumbled into the drinking pan and was drowned.

With regard to the ewes, they had the same mixture of food as the lambs. As long as the pastures afforded them anything, they received ½ lb. to ¾ lb. of meal and cake. After Christmas they had 1 lb. of corn and cake daily, and about 2½ lbs. of straw-chaff.

On January 7th they were removed from the arable land to the pastures, and housed in a well-littered yard at night. We then made a slight change to less stimulating food, substituting for 1 bushel of meal 4 bushels of pollard and a load of Mangels daily. We were careful to let the ewes have access to water at all times: without this precaution there would have been risk of abortion, from their drinking to excess. The lambs began to drop the first week in February.

The judicious use of corn and dry food in feeding ewes is generally followed by a good crop of lambs—as was the case in the present instance. When roots are plentiful we give about 6 lb. a-head daily to the ewes, and ½ lb. of corn and cake with straw-chaff.

In the case of a teg, weighing about 8 stones, it is easier to fatten him on 12 lb. of roots daily, and 1 lb.

of corn and cake with chaff, than on 1½ lb. of the latter without the roots.

The use of dry food alone is costly and trying to the constitution of young or weakly animals. A teg, out of condition, would not bear it, while a sheep in good health and appetite would thrive. A yard of culled ewes, fed on dry food only, without succulent vegetables, fattened rapidly and paid for their food.

I do not record this example of sheep-farming for its general economy, but as an instance of reliance on dry food in a case of emergency; proving that a sheep farmer is not without resource under a failure of roots, while he has stacks of good straw on his farm.

To complete this picture of exceptional management, it should be stated that some of the stubbles folded last winter had been badly farmed, and were very much out of condition. The crops that followed, including Peas, Beans, Oats, Rape, and roots, were all strikingly benefited by the fold. Those who have experienced the slow and expensive routine of bringing an exhausted farm into good cultivation and condition, will understand the advantage of saving time in the process. Artificial manure is not the right remedy for this land. The manure-cart travels slowly, and cannot easily be set in motion at all without roots. The sheep-fold in such a case can hardly cost too much.

This narrative may be supplemented by a few remarks on the general economy of sheep-farming.

For the maintenance of an ewe flock during the whole year, some modification of the usual four-course rotation is required in order to provide summer food.

Throughout the southern chalk district of England, which is essentially a breeding district, the summer run for ewes is either found on the native Downs or is provided artificially by Sainfoin layers, by Tares and Clover, and in some instances by water-meadows. On the lightest soil the produce of artificial Grasses is not great in hot summers, but the run even of inferior pasturage, if water is provided, enables you to keep an ewe flock through the summer. By laying up less of the "seeds" to a hay-crop, and on suitable soils by laying down Grasses for two or three years' layer, a considerable addition might be made to the number of breeding flocks.

Where the rain-fall exceeds an average, an increase in the extent of pasture-land is desirable; but on other soils and climates arable farming is much more productive, and probably yields a larger balance of profit.

No greater benefit could be conferred on the light-land farmer than the introduction of some forage-plant, which would be to the sands what Sainfoin is to the chalk. We have seen Lucerne hanging on the side of a steep sand-hill in Surrey, green and luxuriant when other vegetation was scorched into hay, its deep roots finding their way into a subsoil moist from the drainage of higher land. This plant affects a warm free soil, and is very productive under liberal feeding.

Other crops which help to bridge over the awkward summer months are, on heavy land, early Turnips and Rape, sown at intervals in May; and the Cabbage, which by successional planting will produce food at all periods of the year. It is especially adapted to dry climates, because though a great water-drinker, it draws a large supply from the subsoil. The crop may be obtained at almost any period of the year that it may be required. On farms where food is scarce in July, August, and September, I recommend the following system:—Sow the first week of August, re-set the plants in October, plant out in March.

Early varieties, as the early York, may be sown in March in seed-beds, or even drilled in the field, and will be fit for use in autumn and winter. If Cabbages are removed, instead of being eaten on the land, the stalks will produce sprouts in spring, useful for ewes and lambs. The large Drumhead, however, does not sprout well.

At the present date (July 17th) my fatting ewes are doing very well on winter Beans, cut for them by a chaff-cutter in the field; and as the land needs the fold, this summary way of disposing of the crop may possibly pay as well as harvesting it.

The following example of fast-cropping on warm land in an early district presents the most rapid succession of crops that has come under my personal observation. All the green crops were folded off by sheep fed on cake or corn; they were kept clean by constant hoeing, and the seasons were favourable:—

4 crops in four years.

1854. Wheat, stubble ploughed once and sown with Rye.
1855. Rye, followed by Turnips after three ploughings
1856. Canadian Oats, stubble ploughed once and sown with Turnips.
1857. Peas, followed by Turnips.
1858. Wheat, stubble ploughed once and sown with Rye.
1859. Swedish Turnips, after one ploughing.

These crops were quite successful.

Heavy-land farmers say it is cheaper to buy corn for stock than to grow roots for them. But under liberal farming the cost per ton is reduced, because the expenses are not increased in the same proportion as the crop, and land kept in high order will bear the removal of a crop of roots without the injury to the succeeding crop of corn which occurs on land in bad heart. Corn may have been formerly grown at a profit without what is now called high farming, which is, however, indispensable to the successful cultivation of green crops. Nothing can be more evident than the immense and cumulative advantages derived from keeping the land in high condition and employing a large capital; not only do we secure increased production, but greater economy in the means of production. *Mr. Evershed, in the English Agricultural Society's Journal.*

THE WHEAT CROP OF 1865.

THE abundant Wheat crops of 1863 and 1864 have been followed by a crop varying much more according to soil and other local circumstances than either of its immediate predecessors. The amounts of produce yielded in any particular field, or on any particular farm, are, therefore, the less reliable as indications of the character of the harvest generally. I think, however, that from the results obtained in my experimental Wheat field, which has just yielded its 22d crop in succession, taken together with those obtained in fields on the same farm which have been treated more in accordance with ordinary practice, we may gather that on the heavier soils of the country, if moderately well-farmed, the Wheat crop of 1865 will turn out to be above an average, at any rate in quantity, if not in quality also.

The following Table gives the produce per acre and the weight per bushel of the dressed corn, obtained on several of the differently manured plots of the experimental field, in 1863, 1864, and 1865, and also the average produce on the same plots for the 13 years 1852—1864 inclusive, during which time (and in some cases for a longer period) the same description of manure has been applied year after year to the same plot. It may also be further explained, as in former reports, that the different "artificial manures" each contained the same mineral manure, but in combination either with different quantities of ammonia-salts, or with nitrate of soda:—

Plots.	How Manured each Year.	Harvests. 1863.	1864.	1865	Average of 13 Years 1852—1864.
	Bushels of Dressed Corn, per acre.				
3	Unmanured	17¼	16	13¼	15½
2	Farm-yard manure ..	44	40	37⅛	35¾
7	Artificial manure ..	53⅜	45¾	4[illegible]	37⅛
8	Ditto	55⅜	49⅞	4[illegible]	38⅞
9	Ditto	55½	51¼	44	35¾
	Weight per bushel of Dressed Corn.	Lb.	Lb.	Lb.	Lb.
3	Unmanured	62 7	62.0	60.6	56.9
2	Farm-yard manure ..	63.1	62 5	61.5	59 6
7	Artificial manure ..	62.6	63 1	61.6	58.8
8	Ditto	62 3	63.5	61.4	57.8
9	Ditto	62.1	62.6	61.1	57.5

It is seen that the land which had received no manure of any kind for more than 22 years gave considerably less produce in 1865 than in either 1864 or 1863, and less also by more than two bushels than the average of the last 13 years. The quality of the grain, as indicated by the weight per bushel, although inferior to that from the same plot in either 1864 or 1863, was nevertheless much above the average of the 13 years, the weight being nearly 4 lb. more. Where 14 tons of farmyard manure were applied every year, little more than 37 bushels of Wheat were obtained per acre in 1865, against 40 bushels in 1864, and 44 bushels in 1863. Still, the produce with the farmyard manure was higher in 1865 than the average of the previous 13 years, which amounted to less than 36 bushels. The produce by the different artificial manures was in 1865 from 5 to 7 bushels less than in 1864, and from 11 to 13 bushels less than in 1863; but, on the other hand, it was from 3 to 8 bushels more than the average of the preceding 13 years. Thus, though with each of the very different conditions of manuring, the produce of 1865 was materially less than that of 1864, and in a still greater degree less than that of 1863, it was at the same time in every case (excepting where entirely unmanured) notably higher than the average of the preceding 13 years. The weight per bushel of the dressed corn was also in every case higher in 1865 than the average of the 13 years, though lower than in 1864 or in 1863.

Turning from these results to those obtained under the ordinary management of the farm, it will be sufficient to state that the produce in four separate fields was, respectively, 38, 48, 48, and 51 bushels of Wheat per acre, amounts which represent a considerably higher yield than the average of the farm over a series of years.

There can, indeed, be no doubt, that on many light soils the Wheat crop of the season just past suffered both from the frosts of the winter and from the heat and drought of the summer, and that the better crops of the heavier lands have in many cases suffered, at any rate in quality and condition, from the unsettled harvest weather. At the same time I am disposed to think that the Wheat crop of 1865 will turn out to be, in the aggregate, little if any below an average one. And if we would find a period of successive seasons comparable in abundance with that of 1863, 1864, and 1865, we must go back for about 30 years, when the fairly abundant harvests of 1832 and 1833, the splendid crop of 1834, and the again abundant one of 1835, brought down the price of Wheat by the end of the last-mentioned year to 36*s*. per qr., notwithstanding the high protective duty then ruling. *J. B. Lawes, Rothamsted, Herts, Sept.* 25.

AGRICULTURAL STATISTICS, IRELAND, 1865.

[The following is the substance of Mr. Donnelly's report to His Excellency the Lord Lieutenant.]

THE abstracts are compiled from the summaries of the several districts as made up by the enumerators, and may differ slightly from the revised figures hereafter to be published; but I do not apprehend that any change which would affect their value for general purposes will be necessary.

	Acres.
The total acreage under all crops this year was ..	5,648,103
The total acreage in 1864 was (revised numbers) ..	5,676,321
Showing a decrease in the total extent under crops in 1865 of	28,218

The crops which *diminished* in extent were—

	Decrease	
	Acres	Acres.
CEREALS.		
Wheat	8,410	79,035
Oats	70,625	
GREEN CROPS.		
Turnips	3,404	4,057
Vetches and Rape	653	
Flax	..	14,159
Decrease		133,251

The crops which *increased* in extent were—

	Increase.	
	Acres.	Acres.
CEREALS.		
Barley	4,507	6,585
Bere and Rye	1,238	
Beans and Pease	840	
GREEN CROPS		
Potatoes	26,170	29,478
Mangel and Beet	301	
Cabbage	1,691	
Carrots, Parsnips, and other Green Crops ..	1,316	
Meadow and Clover	..	68,970
Increase		105,033

Although the foregoing statement shows a decrease of 28,218 acres in the total area under crops in 1865, there was an increase in the extent under Grass to the amount of 127,470 acres,—the area under "bog and waste unoccupied" having diminished by 101,543 acres. Woods and plantations also show an increase this year, and fallow a decrease.

The following abstracts exhibit the acreage under each crop in 1864 and 1865, and the increase or decrease in the latter year:

ABSTRACT OF CEREAL CROPS.

	1864.	1865.	Increase in 1865.	Decrease in 1865
	Acres.	Acres	Acres.	Acres.
Wheat	276,483	268,073	..	8,410
Oats	1,814,886	1,744,261	..	70,625
Barley	172,700	177,207	4,507	..
Bere and Rye ...	8,894	10,132	1,238	..
Beans and Pease..	16,090	16,930	840	..
Total ..	2,289,053	2,216,603	6,585	79,035

Decrease in Cereal Crops in 1865, 72,450 acres.

ABSTRACT OF GREEN CROPS.

	1864.	1865.	Increase.	Decrease.
	Acres	Acres	Acres.	Acres.
Potatos	1,039,724	1,065,894	26,170	..
Turnips	337,355	333,951	..	3,404
Mangel Wurzel and Beet Root ..	14,128	14,429	301	..
Cabbage	31,821	33,512	1,691	..
Carrots, Parsnips, and other Green Crops	23,149	24,465	1,316	..
Vetches and Rape	29,829	29,176	..	653
Total ..	1,476,006	1,501,427	29,478	4,057

Increase in Green Crops in 1865, 25,421 acres.

GENERAL SUMMARY.

	Acres.	Acres.
Decrease in Cereal Crops in 1865	72,450	122,609
Decrease in Flax in 1865	50,159	
Increase in Green Crops in 1865	25,421	94,391
Increase in Meadow and Clover in 1865 ..	68,970	
Total decrease in the extent of Land under Crops in 1865		28,218

The area under the several crops in each year from 1861 to 1865, inclusive, was as under:—

CROPS.	1861.	1862.	1863.	1864.	1865.
	Acres.	Acres.	Acres.	Acres.	Acres.
Wheat	401,243	356,321	260,311	276,483	268,073
Oats	1,999,160	1,977,528	1,953,883	1,814,886	1,744,261
Barley	198,955	192,302	171,892	172,700	177,207
Bere and Rye ..	11,582	12,128	8,659	8,894	10,132
Beans and Pease	14,017	15,202	15,153	16,090	16,930
Potatos	1,133,504	1,018,112	1,023,414	1,039,724	1,065,894
Turnips	334,104	376,715	351,436	337,355	333,951
Mangel and Beet Root	22,949	23,222	16,434	14,128	14,429
Cabbage	30,020	30,543	34,125	31,821	33,512
Carrots, Parsnips, and other Green Crops .	19,519	17,713	22,505	23,149	24,465
Vetches and Rape	31,280	30,830	29,988	29,829	29,176
Flax	147,957	150,070	214 099	301,693	251,534
Meadow and Clover	1,546,206	1,552,924	1,560,638	1,609,569	1,678,539

The returns of live stock for 1865, compared with 1864, show an increase in the number of cattle of

231,120; of sheep, 321,801; and of pigs, 241,413; and a decrease in horses of 14,291.

The following are the numbers for each year from 1855 to 1865, inclusive:—

Years.	Number of Horses.	Number of Cattle.	Number of Sheep.	Number of Pigs.
1855	556,287	3,564,400	3,602,342	1,177,605
1856	573,408	3,587,858	3,604,294	918,525
1857	599,782	3,620,954	3,452,252	1,255,186
1858	611,321	3,667,304	3,494,993	1,409,883
1859	629,075	3,815,598	3,592,804	1,265,751
1860	619,811	3,606,374	3,542,080	1,271,072
1861	614,232	3,471,688	3,556,050	1,102,042
1862	602,894	3,254,890	3,456,132	1,154,324
1863	579,978	3,144,231	3,308,204	1,067,458
1864	562,158	3,262,294	3,366,941	1,058,480
1865	547,867	3,493,414	3,688,742	1,299,893
Difference in Nos. between 1864 and 1865.	Decrease. 14,291	Increase. 231,120	Increase. 321,801	Increase. 241,413

The total estimated value of horses, cattle, sheep, and pigs this year, was 32,772,609*l.*, being an increase of 2,043,699*l.* compared with 1864. The value of live stock in each year from 1855 to 1865, inclusive, was as under:—

Estimated Value of Live Stock in Ireland in each Year from 1855 to 1865, calculated according to the rates assumed by the Census Commissioners of 1841, viz.:—For horses, 8*l.* each; cattle, 6*l.* 10*s.*; sheep, 22*s.*; and pigs, 25*s.* each.

Years.	Horses.	Cattle.	Sheep.	Pigs.	Total Value.
	£	£	£	£	£
1855	4,450,296	23,168,600	3,962,576	1,472,006	33,053,478
1856	4,587,264	23,321,077	4,063,723	1,148,156	33,120,220
1857	4,798,256	23,536,201	3,797,477	1,568,982	33,700,916
1858	4,890,568	23,837,476	3,844,492	1,762,354	34,334,890
1859	5,032,600	24,801,387	3,952,084	1,582,188	35,368,259
1860	4,958,488	23,441,431	3,896,288	1,588,840	33,885,047
1861	4,913,856	22,565,972	3,911,655	1,377,552	32,760,035
1862	4,823,152	21,156,785	3,801,745	1,442,905	31,224,587
1863	4,639,824	20,437,501	3,639,024	1,334,322	30,050,671
1864	4,497,264	21,204,911	3,703,635	1,323,100	30,728,910
1865	4,382,936	22,707,191	4,057,616	1,624,866	32,772,609
Difference in value between 1864 and 1865.	Decrease £114,328	Increase £1,502,280	Increase £353,981	Increase £301,766	Increase. £2,043,699

It is very satisfactory to observe the continued care bestowed on the rearing of young stock throughout the country, as appears by the Returns of this year, which exhibit an increase in the number of cattle, sheep, and pigs, under 1 year old, in each of the provinces, and almost in every county—the total increase of cattle under that age being 56,147; of sheep, 175,441; and of pigs, 220,285;—and we may confidently hope, that with a recurrence of such favourable seasons as the present, the value of live stock will soon reach the large amount (35,368,259*l.*) it had attained prior to the "Hay Famine" in 1859, by which, and the excessive rains of the three following years, the number of stock and the agricultural prosperity of Ireland in general were so injuriously affected.

Emigration.—In the first seven months of 1865 the Returns of emigrants obtained at the several ports of Ireland by the Enumerators, show that 62,262 persons left this country, stating it to be their intention not to return. In 1864 the number for the same period was 84,586, being in this year a decrease of 22 324. The emigration for the seven months referred to is given by provinces for 1864 and 1865, at page 20. The total number of emigrants from the commencement of the enumeration at the Irish ports, in May, 1851, to the 31st of July, 1865, is 1,591,487.

I beg to observe that on no former occasion during the 15 years in which I have had the charge of these statistics, has a more friendly interest been exhibited towards them, or a greater desire shown to learn the results of the enumeration. *William Donnelly, Registrar-General.*

Home Correspondence.

The Potato Disease.—I hear and read much respecting the devastation of the Potato rot; and at this juncture, when the cattle disease has diminished the quantity and increased the price of butcher's meat, it is more than ever necessary that such a valuable and nutritious esculent should be preserved. It can do no harm, but may do much good, if, with your permission, I can make known more extensively the means which I adopted for about 10 or 12 years in successfully preserving the bulk of my Potatos which were affected with disease. Many years ago I went to reside at Mossley Hill, about three miles from Liverpool, and there I cultivated, for my own use, about 30 acres of land. I found it advantageous for my horses, cows, pigs, and poultry, to plant 10 or 12 acres with Potatos each year. The first year I lost about half my crop by the disease. A neighbouring farmer told me that my land was too rich, and that I should have better Potatos if it was poorer. So I got off a 9-acre field a crop of Wheat, and carted a large quantity of sand to mix with the soil. But it was in vain. Nearly half the crop was again diseased. My neighbour then advised me to cut off the tops just as they began to turn brown, and accordingly the scythe was plied the following year, when the tops began to lose their greenness. It was all of no use, for, on digging up the tubers, there, with dreadful pertinacity, was the deadly enemy of the esculent. Utterly disheartened, I was about giving up the cultivation altogether, when I read a letter in *The Times*, which inspired me with hope. It was there recommended that, as quickly as possible after the Potatos were dug up, those not absolutely decayed should be washed, boiled or steamed, crushed, and salted in layers—in other words, pickled. I determined to try it, and the next year I planted in the same field of nine acres fresh sets of Flukes and Kemps. As soon as the tops began to show blight we commenced getting up, and carefully separated all which exhibited even the slightest tendency to disease. Each day at noon these were taken to the farmyard, were well washed in a flat and somewhat shallow tub with a birch-broom, and then received a second scrubbing in a second vessel. They were then boiled, for I had no steaming apparatus, and laid in one corner of a shed which I had partitioned off, and were then crushed by a wooden beater till they formed a layer three or four inches thick. A sprinkling of salt was then made over the layer, and in the evening the intermediate getting up was similarly treated. So we proceeded till all were got up, and I found that we had a heap of Potatos the size of the partitioned space, 9 ft. long, 5 ft. wide, and 6 ft. high, and the whole became one mass of Potato pulp, with just as much salt as kept it from putrefaction. During the winter and spring we fed with it the carriage horses, cows, pigs, and poultry. They all liked it, and all flourished upon it. We cut it down with a spade just as if we were cutting through butter. Our milk and butter were unsurpassed, and our hams and bacon could not, I think, be exceeded. Every year the same course was adopted with perfect success, and we cared little for the disease; for although there were a few Potatos in each crop too far gone to be saved, my farm servant was of opinion that we always made four-fifths of the "touched" Potatos useful. Having removed to a marine residence for health, I have discontinued farming; but I am convinced that if all would adopt the course which I did, a very large portion of what are called diseased Potatos would be saved and made useful for cattle, leaving a larger portion for the wants of man. If the writer of the letter which I saw in *The Times* about 12 or 14 years ago be still living, and should see this, I beg to tender him my hearty thanks for his suggestion; and, being desirous that it should be better known and made useful at this period of dear food, I ask the aid of your extensive circulation, that some, at least, may benefit by it. I am not an agriculturist, but merely farmed for my own gratification and for the use of my household. *Samuel Holme, Birklands, Southport, Sept.* 21.

Grass Land Culture.—Mr. Sanderson has done good service to the cause of bucolic progress by bringing before the public striking instances of successful, intelligent, and extensive application of capital to agricultural improvement. He is perfectly correct in stating that a Grass pasture may be more quickly and completely formed when the seeds are sown and grown without the competition of a corn crop. The sacrifice of the latter and of its straw is a heavy set-off or charge against the gain in time, or rather the growth and development of the Grasses. I fancy we are running a little mad on the subject of Grass land, because meat happens to be at a very high price. By all means have Grass where there is naturally a Grass climate—I mean a moist, pluvial, hilly, or elevated district unsuited for cereals; but to propose to lay down in pasture the fields of our dry, sunny, cereal and seed-producing districts, would be nationally a great mistake. As a rule, our south and east country pastures are drab-coloured during summer, while in Devonshire and along the western coast, and in Westmorland, Cumberland, &c., Grass and Turnips thrive luxuriantly. Ever-green Ireland strains from the Atlantic clouds their moisture, and is naturally pastoral and Potato-growing—the very soil and climate for Turnips. But have we not ample means for producing meat independent of natural Grass—winter Tares and Mangel, well manured; and has it not occurred to corn-growers that it pays better at present low prices (all things considered) to sell their corn crops and straw to their animals rather than to the factor or miller? An acre of either Wheat, Barley, Oats or Beans, if a good crop, will, if properly prepared with its straw, produce a large quantity of meat, especially if aided by a moderate quantity of cake and roots. If we treat our corn corps as we do our Grass—that is, consume them on the farm, the means for future production are left with us; not so when we sell them off. The history of our Grass parks and pastures (which occupy one-half of the kingdom) is generally a melancholy record of employing the purse and omitting to replenish it. The consequence is poverty, and a dying out of the best Grasses, replaced by Moss and worthless weeds. Cover these lands with sheep consuming cake and corn, add guano, and the rich fattening Grasses would soon reappear. If the scythe were supplanted by sheep's teeth, John Bull would no longer have to complain of short supplies and dear meat. The ordinary calculation is that 7 lb. of grain will produce 1 lb. of meat, net butcher's weight. As Wheat is under 1*d.* per lb., and meat is at 8*d.* to 9*d.*, it requires no conjuror to show that feeding will pay. *J. J. Mechi, Tiptree Hall, near Kelvedon, Essex, Sept.* 22.

Sheep Disease.—My experience as a farmer does not extend over seven years, but the way I prevented diarrhœa from developing itself into something worse among my stock may not be out of place at the present anxious moment, viz.:—About 10 years ago I noticed a very excessive crop of acorns, and, thinking that Nature must have provided this for some good purpose, it occurred to me that I would gather some of it; accordingly I proclaimed to the village boys and girls that I would give 2*d.* a gallon for all the acorns they could bring me to a certain date. The response was so overpowering that I was glad when the time expired, and I had several bushels delivered after that date at half the price. Well, my neighbours, the farmers, could not imagine what I was going to do with them. However I sent them to the mill to be ground into meal, and in a short time after I had occasion to treat a calf for diarrhœa, in which case I had about a pint of the acorn meal and about the same quantity of Oatmeal or bran—I am not sure which of the two latter—made in some milk and water so as to make it palatable, and one dose proved quite sufficient to stop the disease. I had several cases after this both in cows and sheep, treated in a similar way with similar success, but, of course, a cow or a horse requires a larger feed, if I may so call it, than a calf or a sheep. The news of my success in curing this disease (which happened to be very prevalent that season) spread far and wide, and my neighbours came to beg or buy some of my acorn meal, which I was only too glad to give them as freely as I give this information through your valuable columns. *Patriot, Parkeston, Ipswich, Sept.* 20.——The recent sheep disease which seems to have been so fatal, I believe to be merely the consequence of the heavy dews that have followed the extremely hot September days. Our sheep began coughing most boisterously—in fact, disturbing the whole place, and five (two ewes and three lambs) died. My bailiff at once had them all folded at night, and did not let them out until the dew was well off the Grass, and the sun was high; they also got half a pound twice a day, of Cotton-cake to stay their stomachs. Since that time all coughs have disappeared, and we have not had any deaths among nearly 900 sheep. The heavy autumnal dews are for some reason or other poisonous to vegetable and animal life. They mildew the Turnips, rust the Grass, and kill the sheep and lambs. By shutting up animals at night and in the early morning all this mischief is prevented. There can be no doubt that these dews are one of the agencies employed to decompose and destroy the mass of vegetable tissue that must somehow or other be got rid of in the course of the autumn. It is worth consideration whether yarding at night in the autumn might not go far towards preventing pleuro-pneumonia, if not rinderpest among cattle. *W. I., Cranwich, Sept.* 21.

The Smithfield Club and the Cattle Plague.—I am sure that whether a man is a breeder or feeder of horned cattle, or whether he is one of the public, he can, in any suggestion which he makes, have only the general welfare of the public at heart. The question of destruction of horned cattle by the plague now raging is so well known and admitted that nothing need be said on that point. Professor Simonds has pronounced that all cure is impossible. This being so, I suggest that as far as horned cattle are concerned, that it is not advisable to hold the usual Christmas Cattle Show at Islington this year. Salesmen, inspectors of cattle, herdsmen, and others are likely to convey to the metropolis there shown this infectious disease; and as some of the cattle there shown will most likely be purchased by butchers from many towns in different parts of England for Christmas purposes, this dire disease may be disseminated widely over this country. My remarks do not apply to sheep and pigs, which are not so affected as horned cattle. *W. F. Radclyffe, Rushton Rectory, Blandford, Dorset.*

Societies.

Royal Bucks: *Aylesbury.*—The following are passages from the address of Mr. Disraeli, M.P., at the recent annual meeting of this Society. He spoke of the Harvest, the Cattle Plague, and Local as compared with National Shows:—

1. *Of the Harvest.*—We have always held these meetings, the Royal Buckingham and Central Association after the harvest, and I think very wisely. At that moment the tension of great anxieties has arrived, and we are able to form some opinion as to our position. I know that the result of harvest is a subject upon which a man must be influenced by considerable moral courage to offer an opinion before an assembly of Buckinghamshire farmers. At the same time I believe I may venture to say—I may venture to congratulate you upon a fair harvest this year. Gentlemen, I must say I consider this an epithet which on the whole may describe the harvest throughout the country; but if I were to make, generally speaking, a locality in which a warmer epithet might be used, and instead of a "fair harvest" say a good harvest, I should say that is the case in the happy and favoured district in which we live. Remember this, that throughout the greater part of the county—I admit there are exceptions—throughout the greater part of the county you stacked your Wheat before the weather broke. Generally speaking, in the part of the county in which I reside we had the satisfaction of stacking our Wheat before the weather broke. I admit the brightness of our Barley was tarnished by the gusts and showers. That was a misfortune. But it is an ill wind—you know the rest; and the gusts and showers that tarnished the brightness of the Barley renovated and recovered, and to more than that in some instances, to the root crops. We therefore I think we may find some consolation and satisfaction in that circumstance. Remember our position in this year, and remember, when you were speculating in this and other rooms in the county upon the price of meat as a consequence of the want of food and fodder that would result, intimated that nothing was so unwise as to draw your conclusions from a contracted area of observation, and that I had

reason to hope that the root crop of England generally was not one that of the county of Buckingham. That expression proposed at the time considerable dissent, and some expressions of incredulity such as those we have heard this evening. But what was the result? The result was that which you all know—that throughout the North of England the root crops, while our fields were almost blasted, were exuberant and productive; and when you come to the great result—the price of meat—you find it was not affected in the degree in which it was supposed it would be affected, estimating the condition of the county of Buckingham. Within the last few weeks I have passed over the breadth of the county of Durham, through almost the whole of the North Riding of Yorkshire, and over a great portion of the county of Westmoreland. Those districts, last year so distinguished by the exuberant condition of the root crops, are now in a state much more resembling that of the county of Buckingham last year; and therefore, when I hear of calculations made from the mistake of drawing conclusions from too limited an area—as I did the other day in a neighbouring county—namely, that the price of meat would be kept down from the exuberance of the root crops, I beg to inform you that in the North of England, where such a considerable effect was last year produced on the price of meat from that cause, the reverse is now the case, and you may now sincerely congratulate yourselves on your own position. And I say, that although the harvest of England is a fair harvest, the harvest of Buckinghamshire has been a good harvest. But I admit that at this moment the agricultural mind, especially in this county, is not merely thoughtful of the result of the condition of the crops. We are in a state which naturally causes the utmost anxiety to all men, not merely connected with agriculture, but to all the inhabitants of this country, from that mysterious plague which has appeared, and which has produced such disastrous results, and may occasion consequences of the most fearful character.

2. *Of the Cattle Plague.*—I will not trouble you with any speculation as to the origin of the cattle pest. I believe that in this county—and I say it with pride—we have men as competent to give an opinion on the subject as any men in Her Majesty's dominions. But it is a subject on which all must speak with great distrust and diffidence. Her Majesty's Government have made up their minds that the disease has not been imported, and they have framed a great many measures by which they hope the evil may be averted or at least palliated; and although it may not be difficult to criticise some things that have been done or said, I must say that on their part there has been a sincere desire to do their duty, and that they are prepared to propose all such measures as may be considered necessary for the occasion. I admit that there are some measures which might be proposed which have not yet been proposed, but there may be differences of opinion on that head. There are a considerable body of men speculating on the calamities of the country, and who are tempted by low prices to buy tainted animals and circulate this fatal disorder. I should like to see such conduct on the part of such individuals acknowledged by the law as offences against the realm and made subject to a penalty. But it is not in the power of the Government—of the Privy Council—to act in such a direction at present. They can only act in deference to the powers which Parliament has granted them, and it is a grave question whether a Minister is to call Parliament together to attain such an object and would be justified in so doing. On the whole, I think there is an inclination on the part of the Government to meet the evil, and it is our duty to support them as much as we can, and where they are wanting to supply the deficiency. I have watched the conduct of the county of Buckingham with feelings of great anxiety, but also of justifiable pride. The manner in which the farmers of this county came forward at the beginning, showing their organising power, their capacity of self government, giving a tone to the general conduct of the country, was highly to their praise and honour. There was no want of sympathy or feeling on my part as to the course which ought to be taken by the proprietors of the soil. I thought from the beginning that there ought to have been a county meeting, at which the proprietors of the soil should have announced that they were prepared to acknowledge that the visitation was not a local but a national calamity, and I have no reason to believe that that feeling was not shared by others. But the time was pressing, the farmers were determined to act, and they did so with great judgment and discretion. They formed local societies, and it was obvious that it was totally impossible to follow them up, if the disease did not enter the county, by anything like a county movement with any effect. If that great calamity occurs—if the pest does enter the county and ravage our herds, I will be the first to sign a requisition to the High Sheriff to call a meeting, in order that the whole county may take such steps as they think will enable them to bear their share in the visitation, which must be looked upon as a national calamity, and not as a local visitation. The result of the cattle pest has been this—it has shorn the exhibition to-day of some of its greatest ornaments.

3. *Of Local Shows.*—When I analyse the catalogue I find some results and circumstances which, to me at least, are not satisfactory; and although I know it is not a pleasant thing to be critical or captious, I hope you will pardon me on this occasion if I briefly refer to it. If I look to the number of contributors to the exhibition, I find that nine-tenths of them are furnished by the county of Buckingham. That does not look as if there were any great competition with other counties. But what is more, these nine-tenths of the county of Buckingham consist of dwellers within a particular district of the county. That has a tendency as little as in the former institution to competition, which is supposed to be the mother of excellence. That is one feature well deserving attention. There is another which I do not like. I do not see that the landed proprietors of the county are included in the increase in the manner which we have a right to expect. Indeed, with the exception of one who is absent—the Squire of Aston Clinton (Sir Anthony de Rothschild)—whose boundless liberality and good-natured energy have exhibited themselves on these occasions with so much effect, I scarcely find any individual of that order doing what I conceive to be his duty to the county of Buckingham under these circumstances. And what is the cause of this? I cannot believe that the landed proprietors are deficient in a sense of duty. I know they are the reverse. I cannot believe that among the tenant occupiers of Buckinghamshire there is any want of emulation. I know from personal experience that the contrary is the fact. Gentlemen, I want to put the question before you in a business like point of view. It is not always viewed in that way, and can only be viewed properly through the medium of an enlarged and considerable experience. Now, what was the consequence of the great change in the laws which regulated agriculture some years ago? We are not here now to question the propriety of those changes which we have witnessed and which have entered into the controversy: but we have a right and it is our duty to ascertain the results of that change, and I say that the results of that change are no doubt these, that the owner and the occupier of the land can no longer count upon the price of Wheat as the principal source of his revenue or his rent. Well, though you are placed in a different position, you have more reason to complain than most men have, for a bountiful Providence has favoured the county of Buckingham in possessing the finest pastures in the country. It is not a local exaggeration when I say that there are pastures in this county not equalled by any in England, such as the pastures of Creslow, Broughton, &c., and when I mention the dairy farms of this county, which are so considerable that, by the last returns of Parliament, I observe that Buckinghamshire produces much more butter than any other county in England; and in the south of your county, where you depend more upon what is technically called the agriculture of land—though, no doubt, there are some distinguished exceptions, for there are some portions of land perhaps unequalled in England for their grain produce and their Wheat produce—I say, especially as to the south of the county, it is quite notorious that any man of energy and action who holds land in South Buckinghamshire finds he can only make money by being a stock farmer. You mainly depend upon your herds or flocks; but when you form societies like the present, the principle of which—to use the language of your constitution, and better language was never before employed—is—though I may not quote it correctly, but I give the spirit of it—to promote the cultivation and improvement of agriculture and husbandry, to improve stock, to encourage and foster all experiments that may tend to the advantage of the soil, to offer premiums for the emulation of all classes, and for the improvement of all implements in agriculture—I ask, What do those fine sentences mean? They mean this—that the society is formed really to maintain and increase the sources of your wealth. I do not think that the present system is one which will effect this object. The reason is that the position which we have taken is by far too local. The Royal Bucks Agricultural Association is the oldest agricultural Society in England. The Society worked well in its generation. To recognise humble merit, to reward humble skill, we may now with our more enlarged skill look upon as very inferior objects, but they were very important objects in those days, and they brought all classes of society belonging to the agricultural world together, and created feelings of mutual good will which from time to time have ever increased. Only read the objects of your society as set forth in your rules, which are:—"To promote and extend a knowledge of the theory and practice of agriculture and husbandry, the improvement of live stock in the district, and particularly to excite by premiums and otherwise a spirit of industry and emulation among all classes connected with agriculture, to encourage generally all useful improvements, experiments, and inventions, and to promote the better construction of implements in agriculture." These are the most noble objects men can propose to themselves. Is there any want of feeling on the part of the county to realise these objects? I deny it. I appeal to this society, to this meeting, to show the desire. But you see the result of these contracted schemes is that you can have no real competition, and you cannot, therefore, approach the realisation of the excellence spoken of in the objects of the society. You will consequently have inferior crops and stock, and find in the long run that you have not maintained or increased the sources of your wealth. I think the time has come when we ought to consider how we shall meet the difficulties of our position. How should we answer the question? Why have we not those great exhibitions which are an example and incitement to all England? There are landlords of this county most skilful and practical—who are occasionally members of the Royal Society of Agriculture, who take a leading part in its proceedings, and gain prizes elsewhere than in this county. We ought to maintain the excellence of our county, but this we shall not do by falling into the error of other counties, and thus diminish the sources of our prosperity. This is the practical point before us. I know there are difficulties in the subject. My opinion is this, that you have made a mistake in mixing two things together which ought never to have been united. I know there is some jealousy in talking about a general society throughout the county, where there are local societies, to say that that would interfere with their duties, arrangements, objects, &c.; but I assure you that is a complete delusion, for it would be impossible for a general society to reward the most skilful thatcher, for instance, of any given locality. There are, of course, local qualities, accomplishments, and virtues which only those who are on the spot can recognise and reward. Let those be attended to. Let us in this district maintain and fulfil those objects of a local nature; for I must confess my belief that all those local rewards which have been offered have hitherto been perfectly successful. At the same time let us by some decided step appeal to the county, so that we may have an annual exhibition of stock and skill which will test the position of the county of Buckingham in the country to which it belongs. That is what is wanted. I believe that such an appeal would be heartily responded to. Only make the proprietors of the soil understand that the Society is not a merely local society—confined to Aylesbury and its vicinity—and they will come forward and support it, and with a very small amount of effort your funds will be able to command the competition of all England. You know we do not give prizes merely to reward a few farmers of this county, but to improve their stock and skill, and thus to improve your wealth; if you open your Society even to all England you will not be sorry for the result, for you may depend upon it that the people of Bucks ought to be able to compete with those of any other county, and carry off a goodly number of prizes.

Farmers' Clubs.

CROYDON: *Improvement of Permanent Pasture.*—At a recent meeting of this Club, Mr. E. STABLES (of Fickleshole) said:—When I first came into Surrey I was somewhat puzzled with the Grass-land; as far as I could understand the general character of the soil, I thought it well adapted for Grass, and yet the generality of the Grass to be seen was very inferior. Having been brought up in a grazing district, and being accustomed to seeing the Grass-land farmed, cultivated, and well manured, and profitable crops and nutritious Grass grown, I was some time before I could realise the fact that the inferior Grass to be seen in this neighbourhood was chiefly attributable to the suicidal manner in which it is treated. Is it not as proper, and decidedly more profitable, to treat Grass land as it is arable land, liberally? I think it is, for various reasons. The one great reason which is becoming more and more decided every year, is the growing disparity existing between the price of live stock and corn; and as far as we can understand the causes now in operation, we may expect it to continue and increase. What might have been the price of butchers' meat at the present time if our manufacturing districts had been in prosperity we can only conjecture; but we are quite sure it would have been considerably higher than it is at present. That our Grass land is capable of great improvement there is no doubt—our first duty is to ascertain the cause of the deficiency. Perhaps it is wet: if so, it must be drained, or all other expense will be comparatively wasted. Wonderful effects are produced by even draining wet Grass lands. The coarse worthless herbage suited to wet land will disappear, as well as many noxious weeds, and speedily become replaced by herbage of a valuable nutritive kind. In some cases the land may have been sown with inferior kinds of Grass, and would be much improved by the application of some good seed. If so, I would recommend the field to be liberally treated with manure, and mowing one year instead of pasturing, and not cut the Grass too soon, but to allow it to get well ripe before being cut, by which means the roots of the old Grass will be very much thinned, and room made for new seed, which, if previously harrowed, then sown, harrowed again with light harrows, and well rolled immediately the old crop is removed, would be likely materially to improve the character of the herbage. This is a most effectual mode of getting rid of Thistles, Hardheads, &c. By one operation you will get rid of 95 per cent., and if you serve it the same the following year it will be a complete cure; but success in this instance depends much upon the previous liberal manuring. But the character of the herbage may be much modified and controlled by the judicious choice and application of artificial manures. If you wish to improve the quality apply a dressing of superphosphate or pulverised bones for several years consecutively, and if you give it a dressing of gypsum in the bargain so much the better; but if you wish for quantity irrespective of quality, I would recommend a mixture of soda and guano, or, as my practice has generally been, to apply a light dressing of superphosphate one year, guano next year, nitrate of soda another year, and so on. I have found this plan to answer very well, although it must be allowed that with the constant removal of stock from ordinary pasture land it must require a corresponding return in the shape of manure of some kind, notwithstanding the droppings of the animals. They cannot manufacture all the land grows into manure; they must draw on the land for the manufacture of flesh and bones. Our object should be to return to the land in the shape of manure what we take from it in the crop, whether the crop be corn, beef, mutton, veal, or any other produce. But as pasture land has the benefit of cattle droppings, it evidently does not require the extent of manure as meadow land where the entire crop is removed; yet we must allow that pasture land does require occasional manuring to preserve it in a state of efficiency. The character of the manure required will depend to some extent upon the kind of stock kept upon the land. If young growing cattle or milch cows have been grazed, they will have extracted the phosphate contained in the soil. It is estimated that a milch cow carries off at the rate of 30 lb. of phosphate per annum, hence the propriety of applying bones in some shape or other. There is no doubt that fold-yard manure is the very best general manure, but unfortunately on most arable farms it is too scarce an article, and as our success in farming depends much on the study and practice of economy, it appears more proper, as a general rule, to apply fold-yard manure where it can be ploughed in, although I do not think, as some people argue, that there is any great waste in the top-dressing with fold-yard manure. I think an occasional top-dressing with dung on meadow land, where the entire crop is mown and removed, may be allowed; but in the case of pasture land which gets the dung of the cattle pastured on it, and only requires a little more help, the propriety of using suitable artificial manures is evident. It is of importance that the droppings of the cattle should be frequently spread, and not allowed to remain just where they happen to fall. This is a very common neglect, by which much valuable manure is wasted or worse than wasted, as an over-dose is positively injurious. Where horses are grazed it is frequently necessary to use a harrow or cart to remove the dung from one part of the field to another, and, even when this is done, it will sometimes happen that one part of a field will be over-manured, and the Grass become coarse and refused by the cattle, in which case it is a good practice to mow that particular part, and remove the Grass into the yards. On most of the Surrey hill farms chalk is easy of access, and a good dressing of chalk would in many cases be of great service in increasing and sweetening the herbage. Chalk is said to be a mother of Grasses and Clovers, and if you apply it freely, say 50 cartloads to the acre, you may safely depend upon seeing your Grass become full of White Clover, &c., instead of the previous Moss and rubbish. I would strongly recommend the use of the bush-harrow, and also of the heavy land-roller, about the month of April. I am of opinion that most of the strong clay lands on the Surrey hills would be much better and more profitable as permanent pasture land. My own limited experience and observations teach me that the strong land to which I refer is especially adapted not only to grow Grass, but to grow good Grass, on which beasts will thrive and do well, and, especially if you allow them a little oilcake, make themselves fit for the shambles. When you intend to lay a field down to Grass, by all means have it in good heart, full of manure and thoroughly clean, and free from weeds; and sow good seed, not the sweepings of the hay loft, which are frequently full of weeds. I strongly recommend you to apply to Messrs. Sutton, or Lawson, or Gibbs, or some other respectable merchant or firm, whose commercial character would be a sufficient guarantee for a genuine unadulterated article, and also for a proper mixture of the different kinds of seeds suitable for the land; and do not pasture the young Grass the first year, but mow,

and mow early, not allowing the plants to run into seed, which will induce them to stock out and well occupy the ground.

Reviews.

The Journal of the Royal Agricultural Society of England. Second Series. Vol. I., Part 2. J. Murray.

The contents of this Number of the Agricultural Journal relate almost wholly to the live stock of the farm; and are thus in keeping with the present anxieties and plans and wants of the English farmer. Any attempt to take the book out of the rank of a mere work for consultation, and adapt it to the current interests of the members whom it reaches, but who have hitherto rarely read it, is to be commended; and though we look in vain through the pages of the present volume for any reference to the great calamity that has just overtaken our cattle, and multiplied the risks of stock farming, yet the many Essays on Sheep and Cattle, Dairy Farming. &c., show that the Editor is desirous of making the Journal more immediately useful than it has hitherto been.

The reports of the discussions before the Society are a very satisfactory portion of the volume. Dr. Budd's capital lecture on the pig disease is well illustrated with good woodcuts.

By the way, may we ask what has become of the 50*l.* prize offered by the Society for the best essay on agricultural education. Were any essays sent in to compete for it? and why do none of them appear?

We hope from time to time during the next few weeks to give such extracts from the several essays here published as will enable our readers to judge of the contents of the volume for themselves. They will find in it a very excellent report of the Plymouth Meeting, drawn up by Mr. Dent, M.P., as regards the live stock, and by Messrs. Coleman and Paget, M.P., as regards the implement department.

Agriculture, Ancient and Modern. Parts 14, 15, & 16. J. S. Virtue, Ivy Lane.

The numbers received since our last notice of this work continue the discussion of arboriculture—then proceed to the description of farm buildings and cottages, and treat of the apiary—the veterinary department—the diseases of horses, cattle, and sheep. There is thus still the characteristic lack of systematic arrangement to which we have referred as belonging to the book throughout. But notwithstanding this the "Old Norfolk Farmer" is generally an interesting and pithy narrator of things both new and old upon the several subjects which, whether in due order or disorder, he brings under the attention of his readers, and we doubt not that his book will be serviceable to agricultural intelligence and progress.

The Cotteswold Sheep. By James Marsh Read, C. H. Savory, Cirencester.

The articles descriptive of the Cotteswold sheep, and exhaustive, we may say, of its history, which were published some months ago in our columns are here collected. The pamphlet well deserves a place on the table of every one interested in our grandest breed of sheep. How large and wide-spread an interest is taken in the breed will be learnt from a single extract:—

"Perhaps, however, no other circumstance will show the estimation in which the Cotteswold sheep are held for use in other districts so much as the returns of those who sell them, and therefore we give a return of those sold, from information obtained from Mr. Villar, the extensive auctioneer, of Cheltenham, last season. From this return we gather that for the season of 1864, for 31 breeders, Mr. Villar sold 1014 Cotteswold rams, and these averaged 10*l.* 13*s.* 6*d.* each, and these 1014 sheep went for use into 26 counties and countries. This return represents the business done by only one auctioneer, and, had we been so fortunate as to get returns from other salesmen, doubtless the wide-spread use of these sheep would have been yet more apparent."

We hope this pamphlet, which so well describes this breed, will obtain as general a circulation.

Farm Memoranda.

[We take advantage of the immense body of agricultural evidence lately taken before the Hypothec Commission at Edinburgh to publish such extracts from it as will indicate the existing style of Scottish agriculture, and the enterprise and energy of Scottish agriculturists.]

(*Continued from p.* 904.)

BLEBO: *Alexander Bethune.*—I am a landed proprietor in the county of Fife. I have several small tenants, and half a dozen decent-sized farms. My gross rental is about 2500*l.* a year. I have farmed for 16 years, and have paid attention to farming since 1850. I have generally farmed about 200 acres of my own land—sometimes one farm and sometimes another. I have directed my attention to the working of the law of hypothec. I think that, looking back to the state of Scotland, when tenants had little or no capital, the effect of the law, together with leases, upon landlords, tenants, and the whole community, was remarkably good when it came into force; but now, I think it is just as bad in its effect on all these interests. I consider it injurious to the landlord, because it has a tendency to give him an inferior class of tenantry. It induces tenants to become occupiers of land, when it is not for their advantage, or the advantage of anybody else, that they should have it. It brings a great deal of odium upon the landowners, without giving them any real benefit—its apparent advantages being quite illusory. On well-managed estates, where only the real value of farms is taken from the tenants, I don't believe that the law is of importance; but I am sorry to say, from my observation of parts of Scotland, that I think there is a number of estates on which a weak class of tenantry have been admitted, and that, under the peculiar circumstances of agriculture at present, rents are promised which are not paid, the land is under-farmed, and it is affecting landlords that way. So much does it affect them, that, if some alteration in the law is not made, I think the tendency will be to bring about a further change in the proprietary of Scotland, and to throw a large amount of the land into the hands of the monied and mercantile interests. As to the tenants, I think they are tempted, by the credit which is given them by the landlord, to take farms which they are not competent for. These tenants start in difficulties, and remain in difficulties during their whole lease. The law also affects tenants in the way of damaging their credit, and it prevents them from obtaining money to carry on their trade. A number of tenants at present under-farm their land, and I think the want of capital on the part of tenants is very important in considering this question. I think the first person we have to look to is the proprietor, next the tenant, and lastly the public; for it is impossible to exaggerate the importance of agriculture to a country. With reference to merchants and others connected with supplying the land, I have no great sympathy with them. I think that they and our agriculturists have the remedy in their own hands; but I think it is a grievous hardship for smiths, wrights, and other small tradesmen, when the law is put in force. I have a great feeling in favour of the old proprietary of Scotland; but if they are not in a flourishing condition, and managing their land properly, let them be as old as Methuselah, they ought to get out of it. I should be sorry to see mere money power in this country getting land without paying smartly for it. With reference to my opinion that the present law damages the credit of tenant farmers, I think it is apparent, that the risk under the law of hypothec is so great that capital is very shy of confiding itself to that class. I entirely disapprove of a tenant entering on a farm with insufficient capital to stock and work it. I don't think any man should go into a farm which requires 1000*l.* to stock it, if he has less than that sum. He should not commence farming operations on credit; but I consider that he would be benefited by the abolition of the law, in respect that, if an unforeseen emergency should arise, he would be able to turn his credit to better account.

A FRENCH PRIZE FARM: *Masny.*—We have given on previous occasions copious details with reference to the Masny prize farm—a noted French model working; but perhaps it will be well to add the general results attained during the eleven years ending 1863. The profit and loss account of those years were as follows:—

Year.	Profits.	Losses.	Net profits
1853	2244*l.*	1484*l.*	760*l.*
1854	2405*l.*	1165*l.*	1240*l.*
1855	2733*l.*	1102*l.*	1631*l.*
1856	3559*l.*	1097*l.*	2462*l.*
1857	3902*l.*	1133*l.*	2769*l.*
1858	1234*l.*	1080*l.*	154*l.*
1859	2524*l.*	1235*l.*	1289*l.*
1860	2780*l.*	1274*l.*	1506*l.*
1861	771*l.*	2124*l.*	—
1862	2736*l.*	1795*l.*	941*l.*
1863	2313*l.*	1936*l.*	371*l.*

Ten out of the eleven years thus resulted in profits, although a loss of 1353*l.* was sustained in 1861. The definitive profits of the eleven years were thus 12,176*l.*, being an average of 1107*l.* per annum. The figures given are not without interest, as they show how grave are the vicissitudes to which agriculture is subject, since in 1861 there was a loss which exceeded the average profit, taking an average of the 11 years; while in another year (1858), the profit was reduced to about the tenth of the average. It will be readily understood how it is that the cultivator who has no personal fortune, or who enjoys no credit, or who spends too much in prosperous years, finds himself reduced to the rudest extremities when disastrous meteorological circumstances reduce the profits almost to nothing, and, nevertheless, require an exaggerated expenditure to save the little which Nature grants him. The year 1861, which yielded such deplorable results, was distinguished by a bad crop of cereals at the same time that prices were reduced by exaggerated foreign importations; while, still further, the price of Beet-root was lower than it was during the whole 11 years. These depreciations of profits were coincident, at Masny, with increased expenditure involved by preparations for the competition for the prize of honour. These remarks made, it remains a well-established fact, even by the table which the reader has under his eyes, that agriculture, like all other industries, largely remunerates the efforts of all those who devote themselves to it on favourable conditions. It should be observed, in fact, that the average profit of 1107*l.* per annum indicated above as having been obtained during the 11 years was calculated after an allowance of 5 per cent. on the working capital. Agriculture thus furnishes an evidently remunerative return on capital entrusted to it for a sufficiently long period, when the director of operations is intelligent and prudent. For the period with which we have been occupying ourselves, and which comprised two bad years, the working capital at Masny was as follows:—1853, 1854, 1855, 1856, 1857, and 1858, 6000*l.*; 1859, 8006*l.*; 1860, 9576*l.*; 1861, 11,27[illegible] 1862, 10,499*l.*; and 1863, 12,389*l.*—giving an average for the 11 years of 7977*l.* Including the allowance of 5 per cent. for interest, the average return upon the average capital was thus 18.42 per cent. per annum. It will be seen that the amount of capital engaged per acre worked was more than doubled in 1863, as compared with 1853. Truly M. Trévet, the director of this model French working, is a remarkable statistician; we wonder how many English farmers calculate the profits they acquire with as much nicety. *Mark Lane Express.*

Calendar of Operations.

As during the ensuing month we enter the proper seed-time for Wheat, when a less than common quantity of seed sown per acre will produce a better than common result at harvest-time in the case of all properly tilled soils, we quote here the remarks of Arthur Young and his latest Editor on the subject of Wheat culture, after the various crops which it succeeds:—

"Beans, if well cultivated, form a tolerable preparation for Wheat; I have seen in Kent a field of Wheat, which, as an experiment, was made to follow four preparations, viz., Beans, Clover, Tares, and fallow, and the first was superior to all the rest; next the Clover, then the Tares, and the worst was after the fallow. If the Bean stubble be clean, a paring implement or broadshare will cut through everything and loosen the surface sufficiently to enable the harrows to leave it as clean and fine as a garden, women attending to pick and burn. In other cases the scuffler or cultivator will do it better than the other implement. When the surface is clean and pulverised, either drill or sow the Wheat broadcast; in the latter case it may be covered either by a harrow, the scuffler, or a very small plough. On a tenacious soil, there need be no apprehension of Wheat becoming root-fallen from a loose bottom, but a new surface will be brought up that may be difficult to drill. If the soil be more loose and friable, and the fine surface which the operations had obtained be ploughed down, it will give the Wheat too loose a bottom, and there will be a chance of a root-fallen crop. In such cases, or in any that have a tendency to this circumstance, do not plough at all, but either drill directly or sow broadcast after the soil has been pulverised and cleansed by the scuffler; the seed may be covered by the same implement, which will save tillage, and obtain the probability of a larger produce. This is a new practice on strong land, but I have seen such success in it as leaves no reason for doubting the soundness of its principle. It should be remembered, that whatever other circumstances may influence the growth of tis grain, it loves a firm bottom to root in, and rarely flourishes where it is loose and crumbly, nor will a depth of such mould do unless the under stratum, in which it will attempt to fix its roots, be firm and fertile. The best basis is well-cultivated earth, firm from not having been lately disturbed.

"*Wheat after Clover.*—Clover forms so good a preparation for Wheat, as to yield ample crops at very little expense: so much so that, while the Norfolk husbandry, of 1, Turnips; 2, Barley; 3, Clover; 4, Wheat, is practicable on land dry enough for Turnips, and rich enough for Wheat, the agriculturist may well be satisfied with his profit. But after long repetition, it has been found that two evils gradually appear, which were unknown at the first introduction of it. Turnips now require ample manuring where they were once produced of larger size with little; and the Clover has become so subject to failures, that it is no longer easy to have it every fourth year. This has created the need of variations, but still retaining Clover as the preparation for Wheat. The husbandry, however, was very imperfect, from the mode of putting in the Wheat, which was merely by the harrow after ploughing, in which method (for the skim-coulter was unknown) the seed was too apt to fall into the seams of the furrows. The practice of dibbling was an improvement; in this method the seed was deposited in the centre of the slice, the regular treading which the land received pressed down the furrow, and gave a degree of firmness not otherwise attainable. The success was great; and had the labouring poor continued the accuracy which they began in dibbling, the practice would never have lessened; but they have done it of late years in so careless a manner, that drilling is everywhere coming in. We may mention here that various seed dibbles, depositing eight or 10 sets at once, and greatly diminishing labour, have been invented; in particular one going under the name of 'Sigma's,' manufactured by Mr. Powell, near Tonbridge Wells. Nevertheless, it remains true that the practice of drilling is now almost universal in England.

"Where the practice of dibbling remains, the land having been ploughed a fortnight or three weeks, is rolled down with a heavy roller, and then dibbled in

then to be bush-harrowed. Six pecks of seed are enough for two rows on a flag in this month. And another observation it is necessary to make, that if the land is known to be predisposed to mildew, an increase of seed on that account is right, whatever the soil or season; by reason of the well-known fact, that all thin crops suffer more from that distemper than such as are thicker.

"A very singular experiment of Mr. Ducket's, on preparing a Clover lea for Wheat, should here be mentioned. He had a field in which Wheat rarely escaped being greatly root-fallen; not to lose sowing it with that grain, and at the same time to guard against the malady, he scuffled it repeatedly, till he had torn up the Clover, and also gained tilth enough for the drill; then he collected the Clover fragments, and carted them into the farm-yard to make the bottom of a dung-heap, and drilled the field. The Wheat in this case having obtained a firm bottom in an unstirred soil, escaped the disease, and yielded an ample produce. The Clover root, which would have produced the dreaded looseness had it been turned down, made a large quantity of dung, and therefore was not lost to the farm, though the particular field was deprived of it. No saving of expense was here made, but an extra one incurred; but it secured a crop where otherwise there would have been none. This treatment is especially needed where there is much Rye-grass among the Clover. Indeed, unless a Rye-grass stubble be thus thoroughly disintegrated and fallowed, it is one of the worst preparations for the Wheat crop that we have.

"*Wheat after Tares.*—A good crop of winter Tares leaves the ground in such loose, rotten, and friable order, that on clayey soils it is in excellent condition for either green crops or Wheat. But sandy land may be too loose after Tares for Wheat, and in that case it is much better husbandry to sow Turnips, or plant Potatos on it, than prepare it for Wheat. However, if the farmer should determine to sow Wheat after Tares, the soil should be cleansed and pulverised by the scuffler, the Couch and rubbish should be burned, and the ashes spread, in which state, if the surface lies in such ridges as will keep the soil dry the following winter, the Wheat may be either sown or drilled without any ploughing. This has been practised with good success, and it is peculiarly suitable for either light or strong land.

"With such cautions on the part of the agriculturist as are before mentioned, Wheat succeeds very well after either Clover, Tares, Beans, Cabbages, Potatos, or Turnips."

To this we add that a single bushel of Wheat per acre is ample seeding in the early part of October on all well-cultivated land.

"*Beans.*—The growth of winter Beans has increased of late years in this country. They ripen early, and thus not only afford opportunity of a fallow before the seed time of the Wheat crop which follows them, but they are thus also less liable to the attacks of mildew and aphis, which often make their appearance on spring-sown crops later in the season. They seem also especially adapted to a lighter class of soils than has hitherto been considered fit for the Bean crop, and may thus be taken instead of Peas or other crops less valuable than themselves, and suitable for light land culture.

"The common culture is to scarify a Wheat or corn stubble of any kind, and harrow whatever Couch or other rubbish there may be in it, and burn it. Then cart on whatever manure you may be able to spare for it, and it is the experience of Mr. Lawes that the poorer kinds of farm-yard dung—such as are made from the litter of store cattle—will do as well for Beans as dung of richer quality. After 12 to 15 tons of dung have been thus spread broadcast, it is ploughed under and the land is harrowed. Two bushels of the small winter Bean are then sown by the Suffolk drill, with the levers of the seed coulters well weighted, so as to make a deep furrow. And they are thus sown in rows from 18 inches to 2 feet apart. A harrowing after the drill completes the operation.

"We may add that winter Beans are proper for the practice of what is called 'double culture.' Bean soils are very suitable for growing Parsnips on, and they may be sown in February, in intervals between the rows of Beans. Suppose the land to be already ploughed and manured—draw the plough through it at intervals alternately of 18 inches and 6 feet—in the furrows sow Beans, and cover them by harrowing the land down; then drill your Parsnip seed in early spring on the thus furrowed land as shallow as possible, by means of the Suffolk drill (first mixing about 5 lb. of the seed with the number of bushels of sand which the machine is set to sow), in rows 18 inches apart, two in each of the wide intervals between the Beans, and cover by bush harrowing. Let the rows be north and south, for the sake of a uniform distribution of daylight. Or the Beans may be sown by themselves in this manner, and the intervals left for Carrots to be sown in April. The interval of 6 feet is wide enough for the effectual cultivation of the land."

Notices to Correspondents.

Earnest. The Editor of the *Agricultural Gazette* would be glad to obtain a situation for one whom he can recommend as a farm or estate manager.

Reaping: *Young Farmer.* Your question never reached us; please to repeat it.

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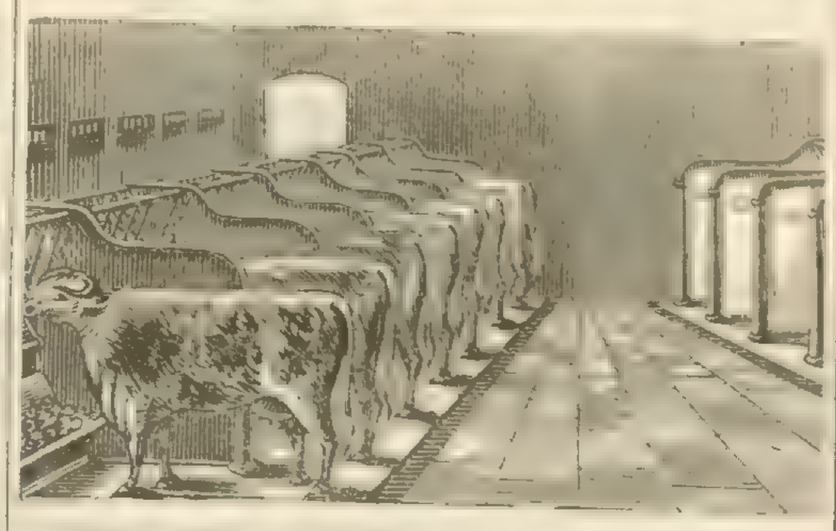

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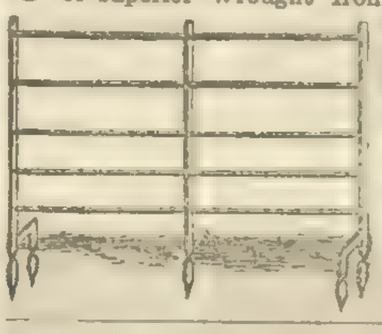

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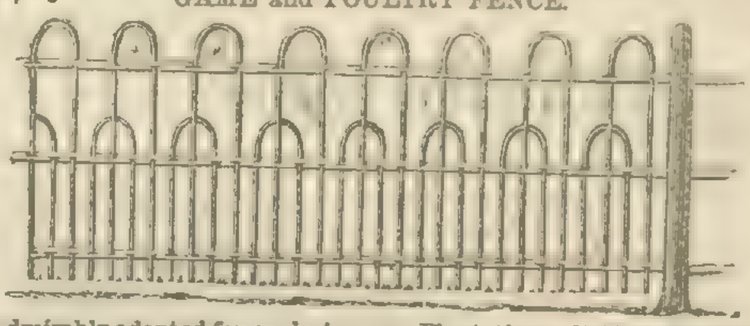

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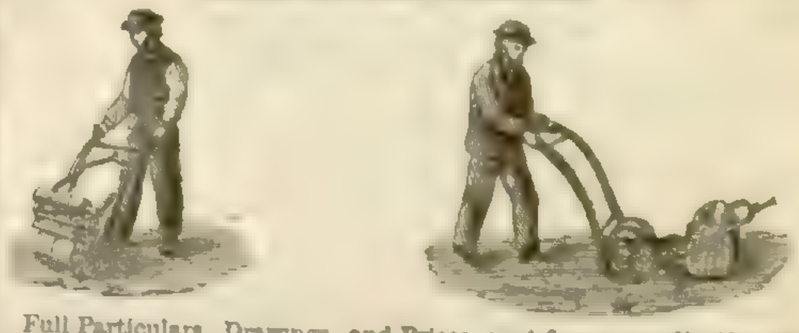

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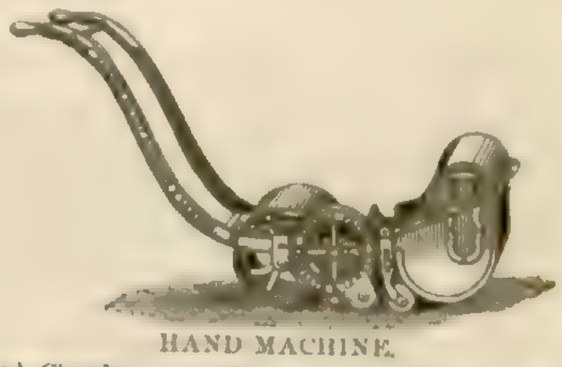


HAND MACHINE.

Illustrated Circulars, containing full particulars, sent free on application.

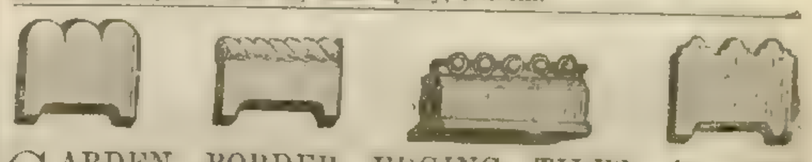
Alex. Shanks & Son, 27, Leadenhall Street, London, E.C.
Manufactory: Dens Iron Works, Arbroath.
A Stock of Machines always kept at 27, Leadenhall Street.

GREEN'S PATENT SILENS MESSOR, or NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

GREEN'S PATENT LAWN MOWERS have proved to be the best, and have carried off every Prize that has been given in all cases of competition. Above 26,000 have been sold since the year 1856.

Illustrated Price Lists of Lawn Mowers and Garden Rollers Free.

Thomas Green & Son, Smithfield Iron Works, Leeds; 2, Farringdon Road, Holborn Hill, London, E.C.; Hadwin's Buildings, Tithebarn Street, Liverpool; and 19, Eden Quay, Dublin.



GARDEN BORDER EDGING TILES, in great variety of patterns and material, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.

F. & G. Rosher, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.

Sole London Agents for FOXLEY'S PATENT GARDEN WALL BRICKS. Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also TESSELATED PAVEMENTS of more enriched designs than the above.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cements, &c.

To be obtained of F. & G. Rosher, at their Premises as above.

SILVER SAND (REIGATE, best quality), at the above addresses—14s. per Ton, or 1s. 3d. per Bushel; 2s. per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less.

FLINTS, BRICK BURRS or CLINKERS, for Rockeries or Grotto Work.

F. & G. Rosher.—Addresses see above.
N.B. Orders promptly executed by Railway.

PATENT GUTTA PERCHA SOLES.—Important to Gardeners.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. Glenny, Esq., the celebrated Florist:—

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles.—Your obedient servant, "G. Glenny.

Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Calbotype trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town or country.

The Gutta Percha Company, Patentees, 18, Wharf Road, City Road, London, E.C.

Card.

SAMUEL N. McGERROW,
GENERAL HORTICULTURAL BUILDER,
Knotty Ash, near Liverpool.

Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

Heating by Hot Water.

W. J. HOLLANDS, IRON MERCHANT,
31, Bankside, London, S.E.

HOT WATER PIPES, from Stock, per yard:—2-inch, 1s. 2d.; 3-inch, 1s. 10d.; and 4-inch, 2s. 4d. BENDS, from Stock, 1s. 6d., 2s. 6d., and 3s. each. THROTTLE VALVES, 10s., 13s., and 14s. each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day. A discount to the Trade.

Heating by Hot Water.

HOT-WATER PIPES, at Reduced Wholesale Prices, with Elbows, Syphons, Tee Pipes, and every other connection; Wrought and Cast-iron Boilers, Saddle, Conical, Cylinder, TUBULAR, and Elliptic, from 24s. each. Improved Boilers and Iron Stands to use without brickwork, 56s. each. Valves from 10s. 6d. each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Castings of every description in stock, at

Mr. LYNCH WHITE'S Iron Wharf, Upper Ground Street, Blackfriars Bridge, London, S. Price List on application.

CRANSTON'S PATENT BUILDINGS for HORTICULTURE, Highly Commended by the Royal Horticultural Society, South Kensington. Plans and Estimates free on application. Houses of the following sizes always in stock:—Span, 30 by 15 feet, and 24 by 12 ft.; Half-span, 24 by 10 ft.; Lean-to, 24 by 8 ft. Stereoscopic Slides of different houses post free for 6 stamps each.

Descriptive Book, fully illustrated, by post for 20 stamps from the Author and Patentee, JAMES CRANSTON, Architect, No. 1, Temple Row West, Birmingham.

Horticultural Works, Kensal Green, London, W.

W. T. AND J. TAYLOR (late JOHN TAYLOR & SONS), have on hand for Sale THREE very handsome WOOD and GLASS CONSERVATORIES made to order. Two of them were prepared for a gentleman residing in Park Lane, an objection being raised on account of their intercepting the view from the adjoining houses. They were not fixed.

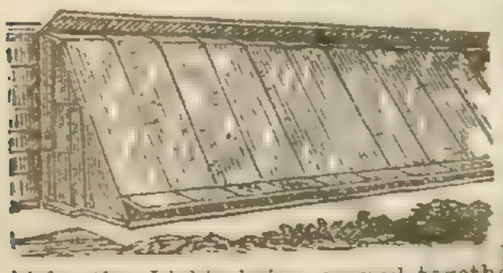
Designs and Prices fixed complete in any part of the United Kingdom forwarded upon application.

BURY and POLLARD'S CONICAL BOILERS for HEATING by HOT WATER, fixed at Seats of Duke of Newcastle, Lord Belper, &c., at Viscount Sydney's replaced, after being 20 years in constant use. Apply at
17, New Park Street, Southwark, London, S.E.

BURY AND POLLARD have just fixed, at Wollaton Gardens, for Lord Middleton, several BOILERS and LONG RANGES of PIPES.

Under the Patronage of Her Majesty.

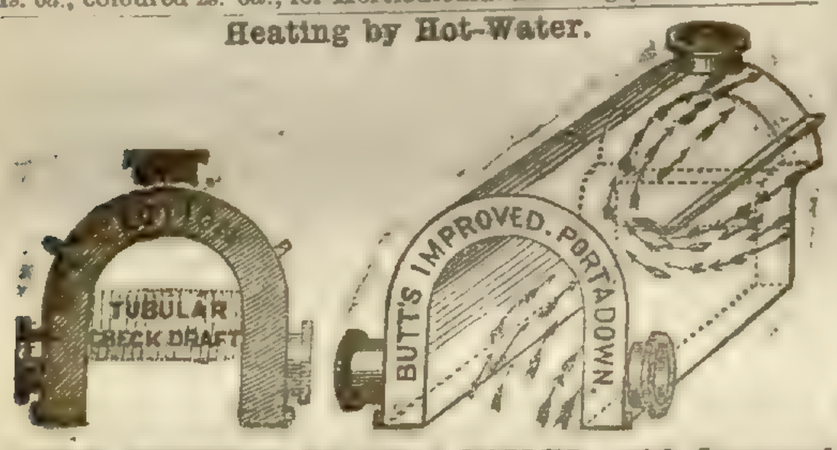
CLARK AND HOPE (LATE CLARK) 55, Lionel Street, Birmingham, MANUFACTURERS of METALLIC and WOODEN HOTHOUSES, CONSERVATORIES, VERANDAHS, &c., COPPER and WROUGHT IRON SASHES, SKYLIGHTS, &c., and HOT WATER APPARATUS for Horticultural and Domestic purposes.



C. & H. beg to call attention to their NEW TREE COVER, or Continuous Glass Covering for Garden Walls; which is constructed of Cast and Wrought Iron, glazed with or without putty, and fitted together with bolts and nuts, constituting a Tenant's Fixture. It can be made 6, 7, or 8 feet wide, and 10, 12, or 14 feet high; the Lights being opened together, by means of simple and durable machinery, in lengths of about 50 feet; and the cost does not exceed that of a wooden structure.

Further particulars, with prices, forwarded upon application; and on receipt of the amount in postage stamps, a Book of Designs, plain, 1s. 6d., coloured 2s. 6d., for Horticultural Buildings, &c.

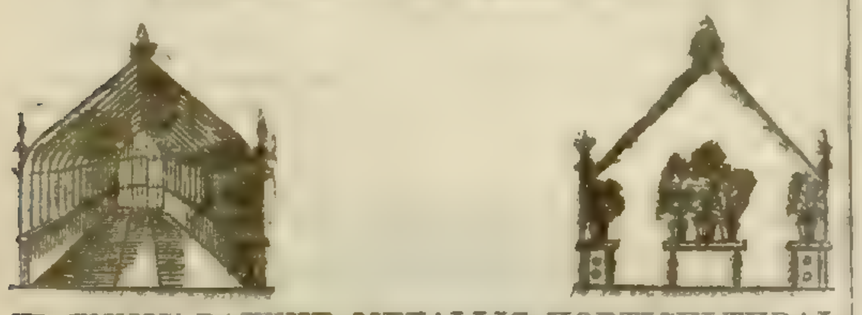
Heating by Hot-Water.



THE ORIGINAL SADDLE BOILER, with Improved Tubular Check Draft, Flued Ends, and Ribbed Sides, for Heating Greenhouses, Vineries, Forcing Pits, Public Buildings, &c. These Boilers possess increased heating surface capacity, power, economy in fuel, and are the only class of Boilers, all points considered, when properly fixed, that can be relied upon with safety for Heating Greenhouses, &c., of any extent, by Hot Water, and at a moderate price.

Gardeners interested in such work should write for List of Testimonials, sent Post Free on application to FREDERICK WILLIAM BUTT late of London), Portadown, Ireland.

Greenhouses—Heating Apparatus.



DENNIS' PATENT METALLIC HORTICULTURAL BUILDINGS are made from the best wrought iron, upon an entirely new principle. The combination of Iron and Glass under this Patent is perfect; the possibility of fracture is prevented, and a permanently water-tight roof insured. The leading practical advantages are extreme smallness of framing, admitting a maximum of light and heat, and perfectly neutralising atmospheric conduction.

They are thoroughly ventilated, exceedingly strong and durable, are speedily erected, and whilst maintaining their established superiority for Conservatories of the highest order, are acknowledged by the most eminent Horticulturists of the day to be the "desideratum of perfection," promoting perfect symmetry of growth and richness of colour, both for Fruit and Flowers.

From the complete adjustment of the constructional parts of these patent buildings, their manufacture is so facilitated that a comparison in point of cost with perishable wooden structures is most favourable.

THE GARDENER'S OWN GREENHOUSE
(Lately known as Dennis's Patent) is a Tenant's Fixture.

The Patent, Plant, Business, Machinery, and all connected with the above, have been transferred to T. H. P. DENNIS, who has determined to supply these really useful buildings at such a reduced scale of prices that every one desiring a Greenhouse may possess one.

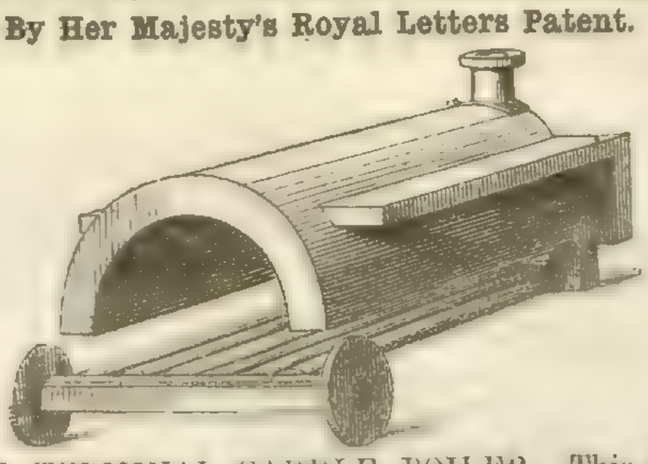
NOTE.—A No. 1 Lean-to, 12 ft. 8 in. by 9 ft., including honest 16-oz. Glass, £16 12s. 6d.

T. H. P. D. has introduced most important improvements in their finish and construction, and after numerous experiments has succeeded in arranging them as a TENANT'S FIXTURE, which he feels sure will be valued by gentlemen having limited tenures. With Mr. Rivers' adaptation they make excellent Orchard-houses, and afford all that can be desired in a profitable building.

Wood structures at the lowest price consistent with sound work.

Prospectuses and Estimates on application to T. H. P. DENNIS, Horticultural Builder, Hot-water Engineer, &c., Chelmsford Essex.

By Her Majesty's Royal Letters Patent.



THE TERMINAL SADDLE BOILER.—This is the Old Saddle made perfect, by the addition of an upright terminal end piece, which quite closes the arch and side flues, and forms the back of the furnace, doing away with all brickwork at the end, and adding one-third more heating surface to the boiler just where it is most exposed to the direct action of the fire.

To be seen at the Royal Horticultural Gardens, South Kensington; and is at work at the Victoria Nursery, Holloway, Mr. Williams having kindly consented to show it to any one who will call at that Establishment. Circulars, Prices, &c., on application to

J. IRELAND, The Works, Edward Street, Broughton Lane, Manchester.

EARTH CLOSETS (MOULE'S PATENT).
No Unwholesome Cesspools.
No Bad Smells.
No Water Pipes to get out of order.
The Best Night Commodes.
The Apparatus (price 25s. and 30s.) may be applied to any Closet at trifling cost, and is self-acting.
By its use a valuable Manure is saved, and Fertility to the Soil ensured.
Earth is recommended by the Privy Council, in their report on Cholera, as a deodoriser and disinfectant.

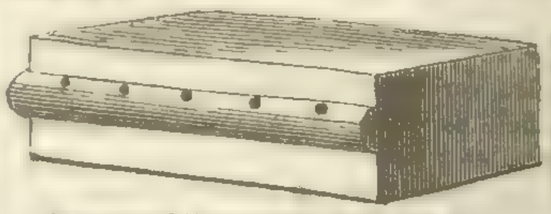
Extract from Letter received from the SECRETARY *of the* NATIONAL RIFLE ASSOCIATION.

"I am further directed to state that they (the Closets) proved of the greatest use, and were found to act admirably."

WHITE & Co., 29, Bedford Street, Strand, London, W.C.
OLDHAM SHOW, STAND 46.

SMITH, BECK, AND BECK'S GREENHOUSE AND HOTBED THERMOMETERS.—These Instruments are of the very best construction, and at moderate prices.
31, Cornhill, E.C.

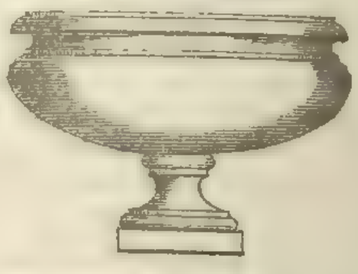
BEADED BRICKS for GARDEN WALLS (FOXLEY'S PATENT) may be had in any quantity of the Agents.



"N[illegible] build a Fruit Wall without seeing [illegible] Bricks and [illegible] the convenience [illegible] adopting them [illegible] Garden [illegible] 1865

Illustrated Prospectus, with List of Agents, on application to FOXLEY & HOLLAND, Stony Stratford, Bucks. London Agents Messrs. F. & G. ROSHER, Old Jamaica Wharf, Blackfriars, S.

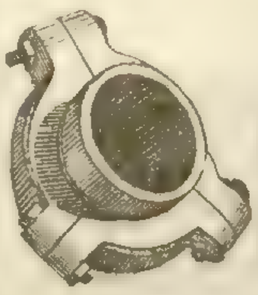
AUSTIN, SEELEY, AND CO.
Stock now comprises—



296 different kinds of VASES.
94 STATUES and FIGURES of CHILDREN.
70 FIGURES of ANIMALS and BIRDS.
About 200 FOUNTAINS, at prices from £10 to £400.
15 BASKETS from 1 to 10 feet diameter.
17 FLOWER BOXES for WINDOWS, &c.
6 GARDEN SEATS.
22 SUN-DIAL PEDESTALS.
22 ORNAMENTS for GATE PIERS.
And a great variety of BALUSTRADING and PEDESTALS.

369 to 375, Euston Road, Regent's Park, N.W.

PORTABLE HOT-WATER APPARATUS,
WITH TRUSS' PATENT JOINTS FOR HEATING CONSERVATORIES, HOTHOUSES, &c.



T. S. TRUSS

Begs to offer complete HOT-WATER APPARATUS for GREENHOUSES (consisting of 4-inch Pipes and Joints, Saddle Boiler, Fire Doors, Bars, Soot Doors, Damper, Supply Cistern, Feed and Air Pipes, Pipe Stands, &c., of the best quality), delivered to any Railway Station in England, and to erect the same within 25 miles of London, at the following prices:—

4-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection.
16 feet by 8 feet	£8 10 0	£2 0 0	30 feet by 12 feet	£11 15 0	£2 10 [illegible]
20 feet by 10 feet	9 0 0	2 0 0	40 feet by 15 feet	15 0 0	2 15 [illegible]
25 feet by 12 feet	10 5 0	2 5 0	50 feet by 15 feet	18 0 0	3 0 [illegible]

Erection beyond 25 miles of London, Railway Fare for one Man charged extra.

By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints.

Estimates and Plans forwarded on application to
T. S. TRUSS, C.E., 53, GRACECHURCH STREET, LONDON, E.C.

CUMMING & EDMONDS,
CONSERVATORY ARCHITECTS, HORTICULTURAL BUILDERS, and
HOT-WATER APPARATUS MANUFACTURERS,
STAMFORD BRIDGE, FULHAM ROAD, BROMPTON, LONDON, S.W.

CONSERVATORIES, HOTHOUSES, &c., erected in the best manner and Heated by Hot Water, with the latest improvements. CHURCHES, SCHOOLS, MANSIONS, WAREHOUSES, &c., efficiently Heated by Hot Water on the most approved principles.

All Work executed at the lowest prices compatible with good materials and workmanship.

SURVEYS made, and DESIGNS and ESTIMATES prepared and forwarded free of every expense.

G. CUMMING, eight years Managing and Estimating Clerk and Designer to Mr. H. ORMSON.

ONCE A WEEK.

SANS MERCI; or, KESTRELS and FALCONS,

A NEW NOVEL, BY THE AUTHOR OF "GUY LIVINGSTONE,"

WILL BE COMMENCED IN "ONCE A WEEK,"

IN THE NUMBER FOR OCTOBER 7, AND CONTINUED EVERY WEEK UNTIL COMPLETION.

CRAMER & CO.'S GUINEA SUBSCRIPTION

ENTITLES SUBSCRIBERS TO FIVE GUINEAS' WORTH OF SHEET MUSIC.

Selected from their extensive CLASSIFIED CATALOGUES (12 in number), furnished on payment of the Subscription.

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The value and extent of Messrs. CRAMER & Co.'s Copyrights require no comment; and their entire *répertoire* will be open to Subscribers under the new Guinea System.

Subscription—One Guinea, payable in advance; or, with postage, 25s.

CRAMER AND CO. (LIMITED), 201, REGENT STREET, W.

CRAMER & CO. (LIMITED) LET ON HIRE

THE FOLLOWING PIANOFORTES FOR THREE YEARS.

After which, and without any further payment whatever, the Instrument becomes the property of the Hirer:—

25 GUINEA PIANETTE, in ROSEWOOD or WALNUT	£2 12s. 6d. per quarter.
42 GUINEA DRAWING-ROOM MODEL COTTAGE, ROSEWOOD or WALNUT	£3 18s. 9d. per quarter.
60 GUINEA SEMI-OBLIQUE, ROSEWOOD or WALNUT..	£5 5s. per quarter.

Other Instruments, such as Grands, Semi-Grands, &c., may also be hired on the same system.

Every Instrument is warranted of the very best manufacture, inferior Pianofortes being entirely excluded from the stock. Quarterly Payments are required. Instruments packed free, and forwarded direct to the Country.

*** *Harmoniums on the same system.*

PIANOFORTE GALLERY (the Largest in Europe), 207 and 209, REGENT STREET, W.

SHAW'S TIFFANY.

For samples and prices apply to

J. SHAW & Co., 29, Oxford Street, Manchester.

Universal Microscope. Price £5 5s.

SMITH, BECK, AND BECK,

31, Cornhill, E.C., late 6, Coleman Street.

*** Catalogues sent on receipt of 6 postage stamps.

J. WARNER AND SONS, London,

Manufacturers of

BOHEMIAN

FLOWER VASES

AND

HYDRO-CARBON

LAMPS.

The Lamp lifts out of the Vase, requiring no fixing.

Is fitted either with

WARNER'S

KOH-I-NOOR,

OR THE ORDINARY

FLAT-WICK BURNER.

The Koh-i-Noor Burner produces a superior light to the Moderator, at a much less cost, and is not liable to get out of order.

The Vases are made in the best style of Bohemian Glass, and artistically decorated.

	Round Burner.	Flat.
Bead	23s. 6d.	14s. 6d.
Lines	25 0	16 6
Colour, Greek Border	30 0	21 0
Medallion (Antique)	32 0	23 0
Medallion (Antique)	32 0	23 0
fluted with gold lines	46 0	37 0
Ruby, richly decorated with gold..	63 0	54 0

Obtained of the Trade throughout the United Kingdom.

E. J. ARCHER'S "FRIGI DOMO." — Patronised by Her Majesty the Queen, the Duke of Northumberland for his Grace the Duke of Devonshire for Chiswick Gardens, Lindley for the Horticultural Society, Sir Joseph Paxton Royal Palace, Royal Zoological Society, &c.

PROTECTION from the SCORCHING RAYS of the SUN.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Felt, a perfect non-conductor of Heat and Cold, keeping, wherever used, a fixed temperature. It is adapted for all horticultural purposes, for preserving Fruits and Flowers from the rays of the sun, from wind, from attacks of insects, and from frosts. To be had in any required lengths.

Yard is wide	1s. 9d. per yard run.
2 yards wide..	3s. 6d. per yard.
An improved make, 2 yards wide ..	1s. 9d. per yard.
Improved make, 3 yards wide ..	2s. 8d. per yard run.

"Frigi Domo" Netting, 2 yards wide, 1s. 6d per yard run.

THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Lane, Cannon Street, City, and of all Nurserymen and Seedsmen throughout the kingdom.

"It is much cheaper than Mats as a covering."

Sauce.—Lea and Perrins'

WORCESTERSHIRE SAUCE.—This delicious Condiment, pronounced by Connoisseurs "THE ONLY GOOD SAUCE," is prepared solely by LEA & PERRINS. Purchasers are respectfully cautioned against worthless imitations, and must see that LEA & PERRINS' Names are on Wrapper, Label, and Stopper. ASK FOR LEA & PERRINS' SAUCE.

Wholesale and for Export, by the Proprietors, Worcester; CROSSE & BLACKWELL; Messrs. BARCLAY & SONS, London, &c.; and Grocers and Oilmen universally.

BRETONNE COWS.—The Nobility, Gentry, and others, are respectfully informed that they can be supplied with the above beautiful and profitable little animals in any number at the shortest notice. The great success and encouragement which has attended the efforts of the importer in introducing the Pure Breed of this useful and hardy Cow into the country, has induced him to extend his connection abroad, by appointing experienced Agents throughout Brittany, and he is now enabled to offer the public a constant supply of the choicest stock that can be obtained, at prices which defy all competition. The low cost, together with the high Milking qualities of this Breed, rendering them of great value to the Cottager, as well as the fancy Stock-keeper and Dairyman, the Importer has made arrangements to keep a large stock always on view. Price from 8 to **10 Guineas each**, delivered free to any Railway in London.

For further particulars, apply to Messrs. ROBERTSON & Co., 38, Crutched Friars, London, E.C.

South Coast.

TO BE LET, for a Term of Years, a FIRST-CLASS STOCK and CORN FARM of 150 Acres in the highest state of cultivation, with gentlemanly Residence, good and ample Homestead and Offices, situated 4 miles from Southampton. Entry at Michaelmas next will be given to a Tenant who will pay for unexhausted manures, &c., and take live and dead stock, crops, tillages, &c., at a valuation.

For further particulars and to treat, apply with references to Mr. JOSEPH BLUNDELL, Land Agent, &c., Bursledon, Southampton.

To Market Gardeners, Nurserymen, &c.

FOR SALE, an ELIGIBLE PIECE of LAND, commanding a Frontage to the Turnpike Road, at the west entrance to the Market Town of Fakenham, Norfolk, within a few minutes walk of the Great Eastern Railway Station, offering particular opportunity for an enterprising Gardener, establishing himself easily in a flourishing business, the land being now stocked with choice fruit and other trees recently planted, and also having a well therein with a plentiful supply of water.

For particulars apply to ROBERT ANSELL, Auctioneer, Fakenham.

Notice.—To Nurserymen and Florists.

TO BE DISPOSED OF, by Private Contract, an OLD ESTABLISHED BUSINESS in a flourishing Seaport Town. It consists of 5 Acres of Land in a high state of cultivation; 5 large Greenhouses, Pits, Frames, &c., well stocked with Fruit and Forest Trees, Evergreens, Roses, and Deciduous Shrubs. Access by two railways and steam boats. The lease can be renewed for 7, 14, or 21 years. Satisfactory reasons will be given as to parting with the above.

Apply to X. Y., care of G. Bedford, Esq., 62, Cannon Street, E.C.

Sales by Auction.

Uckfield Nursery, Uckfield, Sussex.

TO NOBLEMEN, GENTLEMEN, BUILDERS, NURSERYMEN, AND OTHERS.
UNUSUALLY EXTENSIVE AND HIGHLY IMPORTANT SALE OF VALUABLE NURSERY STOCK.

MR. ROBERT T. MARTIN has much pleasure in announcing that he has received instructions from the Messrs. **Cameron to submit to PUBLIC COMPETITION, on the Premises,** situate within five minutes' walk of the Uckfield Railway Station, London, Brighton, and South Coast Railway, on THURSDAY and FRIDAY, October 5 and 6, a portion of the valuable NURSERY STOCK, without the least reserve, the Lease of the Land having expired on which the portion for Sale is standing; including large quantities of fine-grown Evergreens, Deciduous Shrubs, Ornamental Fruit and Forest Trees, Standard Roses, &c. Comprising about 20,000 Laurels, 1300 Laurustinus, 1000 Portugal Laurels, 850 Evergreen Hollies, 800 Mountain Ash, 3000 Scotch Fir, 25,000 Larch ditto, 4500 Spruce ditto, 250 Silver ditto, 36,500 Ash, 2000 Standard and Dwarf Roses, 900 Laburnums, 120 Red Cedars, 50 Large Cedars of Lebanon, 2000 English and Wych Elm, 1000 Pinus austriaca, excelsa, and insignis, 350 Norway Maple, 400 Grafted Thorns, 1500 Standard, Dwarf, and Trained Pear Trees, 14,000 Apple ditto, 800 Plum ditto, 1900 Cherry ditto, 350 Peaches, Nectarine, and Apricot ditto, 2500 Gooseberry and Currant ditto, and a large quantity of Privet, Box Edging, Weeping Beech, Black Poplar, Hornbeam, Horse Chestnut, Variegated Maple, Almonds, Double-blossom Cherries, Phillyrea, Variegated Box, Common Yews, Arbor-vitæ, Weigela rosea, Sweet Bay, Forsythia viridissima, Cryptomeria japonica, Rhododendrons, and other Stock in great variety. N.B. The Stock may be viewed six days previous to the Sale.

Catalogues are being prepared, and will be in circulation six days preceding the Sale, and may be obtained on the Premises; at the principal Inns in the neighbourhood; and at the Office of the Auctioneer, Town House, Hailsham, Sussex.

Periodical Sale of Poultry, Pigeons, and Rabbits.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, October 4, at half-past 12 o'clock precisely, a First-class Assortment of POULTRY, PIGEONS, and RABBITS, from the Yards and Lofts of G. Manning, Esq., and other well-known Breeders, consisting of Game Bantams, Buff Cochins, Spanish, Brahmas, Dorkings, La Flèche, Hamburghs, Crève Cœurs, Rouen Ducks, &c. Also some good Rabbits and some choice Pigeons.

On view the Morning of Sale, and Catalogues had.

Sale No. 2511

A Consignment of Bulbs from Holland, from a well-known Grower; Rustic Garden Seats, &c.

MR. J. C. STEVENS will SELL by AUCTION, without reserve, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, October 4, at half-past 12 o'Clock precisely, a capital lot of HYACINTHS, TULIPS, CROCUSES, LILIES, NARCISSUS, RANUNCULUS, &c., from Holland; and a quantity of RUSTIC GARDEN SEATS, &c., from a celebrated Manufacturer.

On view the Morning of Sale, and Catalogues had.

Sale No. 2513

Dutch Bulbs, Rustic Garden Seats, Carnations, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, October 7, at half-past 12 o'clock precisely, a capital lot of RUSTIC GARDEN SEATS, VASES, STOOLS, BASKETS, STANDS, BRACKETS, TABLES, BOXES, &c., from a well-known Manufacturer; a fine assortment of BULBS from Holland, comprising most of the varieties, in lots to suit the Trade and private buyers; also a quantity of SEEDLING CARNATIONS, &c.

On view the Morning of Sale, and Catalogues had.

Acton Vale Nursery.

TO NOBLEMEN, GENTLEMEN, BUILDERS, NURSERYMEN, AND PUBLIC COMPANIES ENGAGED IN PLANTING.

MESSRS. PROTHEROE and MORRIS will SELL by AUCTION, on the Premises, Acton Vale Nursery, Uxbridge Road Middlesex, within 10 minutes' walk of the Acton Railway Station, on the North London Line, on MONDAY, October 16, and Three following days, at 11 o'Clock each day, without the least reserve, by order of Mr. F. Hopgood, Senior, the Lease having nearly expired, the Valuable NURSERY STOCK, consisting of a large and healthy assortment of Evergreens and Deciduous Shrubs, Ornamental Fruit and Forest Trees, including about [illegible] Common Laurels, 4000 Aucubas, 1000 Green Hollies, 200 Yews, 600 Phillyreas, 800 Spruce Fir, 5000 Eucalyptus, 3000 Privet, Bays, 1000 Lilacs, 500 Guelder Rose, Syringa, Ribes, 1000 Irish Ivies, &c., 2000 Limes, 5000 Poplars, Planes, Purple Beech, Chesnut, Sycamore, Thorns, Mespilus, Ailantus, &c.; several thousands of handsome Dwarf-trained, Untrained, Standard, and Pyramidal Plums, Cherries, Apples, and Pears; 1500 Dwarf-trained Peaches, Nectarines, Apricots; Figs (in pots), Currants, Gooseberries, 200 Vines; 7000 fine Standard and Dwarf Roses of the best kinds; 2000 strong Seakale plants, 2 years; Hardy Climbers, &c. May be viewed one week prior to the Sale.

Catalogues may be had (6d each, returnable to purchasers), on the Premises; of Messrs. HOPGOOD & JACOBS, Exotic Nursery, Shepherd's Bush; of the principal Seedsmen in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

Sunningdale Nursery, Bagshot, Surrey.

HIGHLY IMPORTANT AND EXTENSIVE SALE OF NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Noble to SELL by AUCTION, on the Premises, Sunningdale Nursery, Bagshot, Surrey, on MONDAY, October 30, and several following days, at half-past 12 o'clock precisely each day, in consequence of a large portion of the Land being required for the formation of two Public Roads, and a new Line of Railway, which necessitates entire new arrangements and immediate clearance of the Stock, the valuable NURSERY STOCK, including an unlimited variety of EVERGREEN, CONIFERÆ, and DECIDUOUS SHRUBS, scarcely to be met with in any other Establishment, bearing perfect evidence of the most skilful and careful cultivation, presenting an unprecedented opportunity to Noblemen, Gentlemen, and Public Companies forming and improving Plantations, and to the Trade for obtaining in large quantities that which is rare and excellent, comprising about—

10,000 Green Hollies, 1 to 7 ft.
3,000 Variegated and named Hollies, 1 to 6 ft.
8,000 Portugal Laurels, 2 to 4 ft.
15,000 Common Laurels, 2 to 3 ft., extra bushy.
5,000 Berberis japonica, 6in to 3ft
5,000 Berberis Darwinii, 1 to 6 ft.
3,000 Berberis dulcis, 2 to 4 ft.
20,000 American Arbor-vitæ, 1 to 2½ ft., fine.
500 Thuja Warreana, 2 to 6 ft., and aurea.
400 Thuja gigantea, 3 to 6 ft., bushy.
400 English and Irish Yews.
8,000 Laurus colchicum, 2 to 4 ft., very fine.
5,000 Cupressus Lawsoniana, 1 to 6 ft.
2,000 Abies Douglasii, 4 to 8 ft.
1,000 Abies nobilis, fine shape, 1 to 4 ft.
500 Abies Pinsapo, 1 to 6 ft., splendid specimens
Abies lasiocarpa, 2 to 3 ft.
1,000 A. Menziesii, 2 to 7 ft., extra fine
A. grandis
A. orientalis
5,000 **matchless specimens of A.** Nordmanniana, 1 to 7 ft.
1,500 **Araucaria imbricata, very** handsome, 2 to 10 ft.
1,500 Thujopsis borealis, splendid specimens
300 Pinus excelsa, 2 to 7 ft.
400 Pinus Cembra, 3 to 6 ft.
500 P. Strobus, 5 to 7 ft.
8,000 first-class P. austriaca, 1½ to 2 ft.
100 P. Benthamiana, 4 to 7 ft.
200 splendid specimen Cedrus Deodara, 6 to 10 ft.
100 Cedrus atlantica, 3 to 6 ft.
500 well furnished Cephalotaxus Fortunei-mas.
500 C. Fortunei-fœm.
250 fine Juniperus chinensis 2 to 8 ft.
300 J. sphærica, 3 to 7 ft.
300 J. argentea, 3 to 7 ft.
1,500 Wellingtonia gigantea, 2 to 8 ft., first-class
400 Chamæcyparis sphæroides, 3 to 4 ft.
500 C. sphæroidea variegata, 2 to 3 ft.
3,000 Retinospora ericoides, 1 to 2 ft.
100,000 good stout Larch Firs
10,000 Spruce Firs, 1 to 2½ ft.
4,000 Skimmia japonica, 6 to 18 in.
500 Sweet Gale, 1 to 2 ft.
4,000 Deutzia crenata, fl. pleno, 2 ft.
1,000 Forsythia viridissima, 3 to 4 ft.
3,000 strong Spiræa, by name
2,000 Arundo conspicua
5,000 Ligustrum ovalifolium, 2 to 3 ft.
2,000 Azalea amœna, 1 ft.
500 Yucca filamentosa
5,000 Lonicera aureo-reticulata
3,000 L. brachypoda
2,000 Quercus Ilex

50,000 choicest named RHODODENDRONS Standard and Dwarf, amongst which will be found 3000 extra bushy and well-grown Blandyanum; 3000 Mrs. John Waterer; 1000 John Waterer; 1000 Lady E. Cathcart; 1000 Bylsianum; 1000 Grand Arab; 1000 concessum; 1000 Brayanum; 1000 Fleur de Marie; 1000 Minnie; and also 50,000 Rhododendron ponticum, 1½ to 2 ft. Fruit Trees; 6000 Named Standard and Dwarf Roses, of the best varieties; 50,000 one-year seedling Laburnum, English; 10,000 one-year seedling Sycamore, strong; 50,000 one-year seedling Spanish Chesnuts; 30,000 one-year seedling, English and Spanish Oaks; 8000 Spanish Chesnuts, two years transplanted, 1 to 3 ft.; 50,000 Thorn Quicks, 1½ to 2½ ft.; 250 Salisburia adiantifolia; 1500 Crimean Ash, 2 to 4 ft.; 1000 Erica, by name; 5000 Lily of the Valley; 4000 Russian Violets; 5000 named Variegated and Green Ivies; 1000 White Spanish Broom, 2 to 3 ft., in pots; 6000 Erica herbacea; 2000 Gladioli, &c., &c.

May be viewed until the Sale. Catalogues may be obtained at 1s each, returnable to purchasers, on the Premises; of the principal Seedsmen in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex.

N.B.—The Railway communication is so complete, that Goods may be transmitted from Sunningdale Station to any part of England, Scotland, and Wales, without change of truck.

Notice of Sale.—Byfleet, Surrey.

MESSRS. WATERER AND SONS, AUCTIONEERS, Chertsey, Surrey, beg to announce that they have received instructions from the Proprietor to SELL by AUCTION on TUESDAY, November 14, and following days, without Reserve, the valuable young and choice NURSERY STOCK, about Two Miles from Weybridge Station on the South-Western Line, of which further particulars will appear.

HOTHOUSES FOR THE MILLION.

AWARDED A PRIZE MEDAL, 1862.

ON THE PRINCIPLE INVENTED AND PATENTED BY

SIR JOSEPH PAXTON, M.P.

COMBINING SIMPLICITY, CHEAPNESS, EXCELLENCE, AND DURABILITY.

BEING CAPABLE OF FULFILLING IN THE MOST PERFECT MANNER ALL THE REQUIREMENTS OF HORTICULTURE.

MANUFACTURED for the AGENTS, in LONDON; NEWTON in CARTMEL, LANCASHIRE; GLOUCESTER; COVENTRY; ABERDEEN, and PAISLEY ONLY in order to supply the Neighbouring Districts, and to save purchasers unnecessary expense in Carriage.

These PATENT GLASS HOUSES are composed of simple parts, and may be lengthened and arranged to form the boundaries of Gardens; they cost less than Brick and insure a certain crop of Fruit. As Portable Structures they may be removed and refixed at little expense; and though calculated for Gardens of the highest order, they are, from their cheapness, desirable for Market Gardens, where they may be made to cover any extent, as also for Suburban Villas and Cottage Gardens.

TESTIMONIALS.

"Grosvenor House, May 19, 1863.

"The Marquis of Westminster writes, in reply to Mr. Hereman's note, to say that he has much pleasure in informing him that the Glass Houses for Peaches, &c., which he constructed for him in Dorset, 1860, have fully answered their purpose, and prove very satisfactory."

"5, Prince's Gate, S.W., May 16, 1863.

"Sir,—I am happy to be able to inform you that the Lean-to Roof which you sent to me at Bryanstone is most successful, and I am quite satisfied will repay its cost.

"Mr. S. HEREMAN." "Yours &c., PORTMAN."

"Belgrave, near Leicester, May 20, 1863.

"Sir,—The Lean-to House which you supplied to me in 1860 has fully answered my expectations. The House is planted with Vines, and Figs on the back wall; there is no artificial heat, and, though last year was a most unfavourable one, some of the bunches of Black Hamburgh Grapes weighed more than a pound, and ripened well for the season.

"The material and construction of the house have proved highly satisfactory.

"Mr. HEREMAN." "Yours &c., ALFRED ELLIS."

"Johnson Hall, near Eccleshall, Staffordshire, May 11, 1863.

Sir,—I have had in operation for several years, Lean-to Vineries made with your 14 feet sashes at an angle of about 60 degrees, the lower or front wall being 3 feet high. Nothing can be more simple than their construction; the mode of ventilation is excellent, and entirely obviates the annoyance and breakage caused by movable sashes, and I feel much pleasure in recommending these structures.

"Mr. S. HEREMAN." "Yours, &c., EDWARD LYON."

"Wath-upon-Dearne, near Rotherham, May 12, 1863.

"Dear Sir,—The three small Glass Houses you sent me answer admirably. The Lean-to with 16 feet sashes covers now about 25 healthy and strong Vines; last year the produce and quality of the fruit were surprising. * * * I recommend every one who is so fortunate as to take pleasure in his garden, and who can afford the expense, to erect one or more of your cheap 'Hothouses for the Million'—a never-failing source of profitable amusement.

"I have other more costly and extensive glass structures, but, having regard to their cost and efficiency, they bear no comparison with those I had of you.

"I am surprised that market gardeners do not adopt them more generally.

"Mr. SAMUEL HEREMAN." "I remain, &c., G. P. NICHOLSON."

"Inverary [Castle] Gardens, May 21, 1863.

"Dear Sir,—I have much pleasure in bearing testimony to the efficiency of the Lean-to Houses which you erected here for covering in Peach and Fig trees. Although our wall is 12 ft. the fruit sets regularly over the whole surface, and, with the command of ventilation there, the fruit can be forwarded or retarded at pleasure.

"Mr. S. HEREMAN." "I remain, &c., JOHN CAIE" [Gardener to His Grace the Duke of Argyll.]

"The Grove, Stanmore, May 12, 1863.

"Dear Sir,—I am happy to inform you that the Glass House supplied by you answers my expectation. I am using one division for Cucumbers, and the other for bedding-out plants, which thrive remarkably well, being so near the glass, and having a thorough ventilation, which your mode of construction so amply secures.

"Mr. S. HEREMAN." "I remain, &c., W. LEWIS" [Gardener to Joseph Gillott, Esq.]

"Newton Nurseries, Chester, January 3, 1863.

"Sirs,—The 'Span-roofed House' you sent us is ALL WE COULD WISH, and suits us very well. We do not grow Grapes, and therefore cannot speak as to its efficiency in fruit growing, though there is nothing in the formation of the house to lead us to fear it would not grow anything as well as a 'Lean-to Roof.' * * * The House came to us in perfect order, and not a pane broken, and was at once put up and at work.

"Messrs. S. HEREMAN & Co." "Yours, &c., JAMES DICKSON & SONS."

"Linden, Wellington, Somerset, January 25, 1863.

"Sir,—The Span-roofed Vinery, which you furnished to me in the spring of 1862, answers admirably well for Vines which are grown without much forcing. Last autumn I had the finest Grapes I ever saw. * * * I also find it very useful for keeping Bedding Plants in during the cold, and in fact anything which only requires to be shielded from frost.

"Mr. S. HEREMAN." "Yours, &c., SILVAN [illegible]."

"Benham Park, Newbury, Berks, January, 1863.

"Sir,—I am pleased to inform you the Patent Glass Houses supplied by you 2 years ago have given great satisfaction. * * * We had a splendid crop of Muscats in one house; and in the other house West's St. Peter's, and Lady Downes' Seedling. We had an extra division put in to the Peach House: the trees have done wonders. I took the First Prize for Muscats, and First Prize for Nectarines grown in your Patent Glass House at the Newbury September Show.

"Mr. S. HEREMAN." "I am, yours, &c., JOHN JEFFREY [Gardener]."

"Ashurst, near Dorking, January 21, 1863.

"Sir,—In answer to your inquiry of the 19th, respecting the range of Houses furnished to Gardens in 1860 by you, I am pleased to say the Vines, &c., have been everything that could be wished for. As a proof of the quality of the fruit, I have received two First Prizes for Muscat Grapes in this range in 1863 and 1864. In my opinion these Houses are well adapted for Vineries, Orchard Houses, &c.

"Mr. HEREMAN." "I am, yours, &c., HENRY SMART [Gardener to R. A. Glass, Esq.]."

"Without any pretence to high finish or elaborate workmanship, which in such structures represent a mere waste of money, they are perfectly well made, and arrangement is as simple as ingenuity can render them. No rafters obscure the light and make them cumbrous. No sashes have to be pushed up or let down by ever-moving lines and weights, or by expensive mechanical contrivances; and yet all the ventilation requisite in such buildings is as perfectly secured. * * * * It is this portability that must give them a peculiar value in the eyes of the public. If we hire a house for two or three years, and are enthusiastic enough to fix up a greenhouse, it remains the absolute property of the landlord at the end of the term. But, if instead of fixing up we drop down one of these Hereman's, we pack it up and remove it with the watering-cans, wheel-barrows, and other implements."—*Dr. Lindley in* "THE GARDENERS' CHRONICLE," *July 28th*, 1860.

Circulars with LISTS of PRICES and CARDS to VIEW Houses in operation in the neighbourhood of London, also ESTIMATES for ORNAMENTAL CONSERVATORIES, GREENHOUSES, &c., to Designs can be had on application to

S. HEREMAN AND J. MORTON, AGENTS, 7, PALL MALL EAST, LONDON, S.W.

The SECOND EDITION of A HANDBOOK of VINE and FRUIT TREE CULTIVATION, as adapted to the above Patent Hothouses, containing Illustrations, Hints for Heating Houses, and General Directions for Cultivation, &c., may be had of Mr. HEREMAN, price 1s.; post free, 1s. 1d.

"The instructions given for the cultivation of the Vine and other crops are essentially practical, and are evidently written by one who has himself performed the operations before he attempted to instruct others."—*Cottage Gardener*, October 6, 1863.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 40.—1865.] SATURDAY, OCTOBER 7. {Price Fivepence. (Stamped Edition, 6d.

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GRAND EXHIBITION of PLANTS, FLOWERS, and FRUITS, in the GUILDHALL of the City of London, on TUESDAY and WEDNESDAY, Nov. 14 and 15, by the UNITED HORTICULTURAL SOCIETY. R. P. Glendinning, Hon. Sec.

To Nurserymen and Seedsmen.—Notice.

THE GARDENERS' YEAR-BOOK, ALMANACK, and DIRECTORY for 1866, by Robert Hogg, LL.D., F.L.S., will be Published on December 1. Any alterations in the style and Address of Firms are requested to be sent forthwith to the Editor, so that the necessary corrections may be made in the Directory portion.
"Journal of Horticulture" Office, 171, Fleet Street, London, E.C.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO.,
Seed Farmers, Merchants, and Nurserymen,
237 and 238, High Holborn, London, W.C.

NEW and GENUINE AGRICULTURAL, GARDEN, and FLOWER SEEDS.
Special prices and advantageous offers on application to
James Fairhead & Son,
Seed Growers and Merchants, 7, Borough Market, London, S.E.

RAYNBIRD, CALDECOTT, AND BAWTREE,
Seed Farmers and Merchants,
89, Seed Market, Mark Lane; and Basingstoke.
Prize Medals, 1851, for Wheat; 1862, for
"Excellent Seed Corn and Seeds."

Roses.

WM. PAUL (Son and Successor to the late A. Paul), begs to announce that his NEW DESCRIPTIVE CATALOGUE of ROSES is now ready, and will be forwarded on application, free by post. The stock is large and in splendid condition.
Paul's Nurseries, Waltham Cross, London, N.

PAUL AND SON'S ROSES.
The AUTUMNAL ROSES are still finely in BLOOM, at the "Old" Cheshunt Nurseries, 1 mile from Cheshunt Station, G.E.R.

Second to None.

DOBSONS' UNEQUALLED SEEDS.
CALCEOLARIA, 1s, 6d., 2s. 6d., 3s. 6d., 5s.
CINERARIA, 1s., 2s. 6d., 5s.
PRIMULA, 1s., 2s. 6d., 5s.
PELARGONIUM, 2s. 6d., 5s.
Sealed Packets, post free.
J. Dobson & Sons, Woodlands Nursery, Isleworth, W.

MR. WILLIAM MASTERS has Published a CATALOGUE of his PLANTS, which will be sent where required, a Stamp being enclosed with the application.
Mr. Masters has two dozen healthy PINE PLANTS to Dispose of at a moderate charge.
Exotic Nursery, Canterbury.

Pines.

B. S. WILLIAMS begs to announce that he has a fine Stock of the above, including all the best kinds. Prices on application.
Paradise and Victoria Nurseries, Holloway, London, N.

NEW GRAPE, "ROYAL VINEYARD," the best late White Grape extant. Strong planting Canes, 10s. 6d. each; strong fruiting, 21s. each.
B. S. Williams, Paradise and Victoria Nurseries, Holloway, London.

Vines, Vines, Vines.

E. B. HAYNES can now supply strong well-ripened CANES for Planting, 5s. and 7s. 6d. each. Extra strong for Fruiting in pots, 10s. 6d. and 12s. 6d. each.
Penge Nursery, Surrey.

Grape Vines.

MRS. G. S. DODS begs to offer splendid well-ripened CANES for Forcing, 7s. 6d.; for Planting out, 5s. Also AZALEA INDICA, 12 of the leading kinds in 48-pots, well set with flower, for 12s. ERICA HIEMALIS, fine plants in 48-pots, beautifully set with flower, at 9s. per doz.; Ditto in 32-pots at 12s. per doz.
Epsom Nursery, Surrey.

STRAWBERRY PLANTS.—Strong, for immediate planting. PRICED DESCRIPTIVE LIST may be had.
Stephen Brown, Nurseryman, Sudbury, Suffolk.

ORANGE and LEMON TREES, CAMELLIAS, AZALEAS, Large FERNS, BEGONIAS, &c., for SALE. On view.
Apply to Augustus Gardiner, The Bank, Highgate, N.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
Richard Smith, Nurseryman and Seed Merchant, Worcester.

Orchard-house Culture.

MESSRS. THOS. RIVERS AND SON invite those interested in the above culture to view their COLLECTION of FRUIT TREES and VINES, occupying houses nearly 3000 ft. in length. PEACHES and NECTARINES are now ripening.
The Harlow Station, G. E. Railway, is the most convenient for the Nurseries.
Nurseries, Sawbridgeworth.

Hardy Ornamental Trees and Shrubs.

OSBORN AND SONS invite lovers of Ornamental Planting to an inspection of the varied forms and foliage of their unrivalled collection of the above, to which they have for many years devoted especial attention.
PRICED CATALOGUES, consisting of upwards of 1500 species and varieties, may be had on application.
The Nurseries, Fulham, London, S.W.

CARTER'S GARDENER'S VADE-MECUM, AUTUMN SUPPLEMENT of DUTCH and CAPE BULBS and PLANTS, is now ready.

The Best Twelve Hyacinths Imported by

SUTTON AND SONS,
for Twelve Shillings.
Sutton & Sons, Royal Berks Seed Establishment, Reading.

Miniature Hyacinths.

SUTTON AND SONS can supply fine BULBS of the above at 4s. per dozen.
Royal Berkshire Seed Establishment, Reading.

Finest Dutch Flower Roots.

SUTTON'S AUTUMN CATALOGUE of the above is now ready, and may be had gratis and post free on application.
Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

Sutton's Unrivalled Collections of Bulbs.

SUTTON'S GUINEA COLLECTION of BULBS for BLOOMING in POTS and GLASSES.
SUTTON'S GUINEA COLLECTIONS for BEDS and BORDERS.
For particulars see SUTTON'S AUTUMN CATALOGUE, which may be had gratis and post free.
Sutton & Sons, Royal Berks Seed Establishment, Reading.

Dutch Bulbs.

CHARLES TURNER is prepared to execute orders with the finest varieties of HYACINTHS, TULIPS, CROCUS, NARCISSUS, &c. The roots have arrived in fine condition. CATALOGUES on application.
The Royal Nurseries, Slough.

J. SCOTT, Importer of DUTCH and other BULBOUS FLOWER ROOTS, has received large consignments, of best quality and in excellent condition.
DESCRIPTIVE PRICED LIST post free on application to
J. Scott, Merriott Nurseries, or Seed Stores, Yeovil, Somerset.

Hyacinths and other Dutch Bulbs.

WM. CUTBUSH AND SON beg to acquaint their numerous Patrons that they have received their usual Consignment of Choice HYACINTHS, TULIPS, CROCUSES, &c.
PRICED DESCRIPTIVE CATALOGUE post free on application.
Highgate Nurseries, London, N.

Hyacinths and other Choice Bulbs.

B. S. WILLIAMS begs to announce that his various IMPORTATIONS of DUTCH FLOWER ROOTS have arrived in fine condition, and that he is now prepared to execute all orders he may be favoured with.
A PRICED and DESCRIPTIVE CATALOGUE, including Lists of New and Rare Plants, post free to all applicants.
Paradise and Victoria Nurseries, Holloway, London, N.

BARR AND SUGDEN'S HYACINTHS, TULIPS, CROCUS, NARCISSUS, GLADIOLI, RANUNCULUS, ANEMONES, LILIES, AMARYLLIS, in splendid collections. See our AUTUMN FLORAL GUIDE, free and post paid on application.
Barr & Sugden, Seed and Plant Merchants, 12, King Street, Covent Garden, W.C.

Hothouse, Greenhouse, and Hardy Plants, Bulbs, &c.

LOUIS VAN HOUTTE, Nurseryman and Seedsman, Ghent, Belgium, begs to announce that his NEW PRICE LISTS, Nos. 109, 110, and 111, are to be had of Messrs. R. Silberrad & Son, 5, Harp Lane, Great Tower Street, London, E.C.
Louis Van Houtte's goods are delivered free out of the Custom House in London, without any expense whatever to the buyer, but *per contra* 5s. will be charged for each package.

E. G. HENDERSON AND SON offer SEED of CALCEOLARIA, CINERARIA, and PRIMULA of first class quality, at 1s., 2s. 6d., and 5s. per packet. Also the finest SCARLET and INTERMEDIATE STOCK, 6d. and 1s. each.
SEED of CYCLAMEN PERSICUM, of similar quality, 6d. and 1s. each, and in mixed colours 2s. 6d. per packet.
The Wellington Nursery, St. John's Wood, London, N.W.

Winter Flowers.

RHODODENDRON PRÆCOX, if potted immediately and placed under glass, will flower about Christmas. Plants with from 50 to 150 flower buds will be supplied at 3s. 6d. to 7s. 6d. each by the raiser. Discount to the Trade.
Isaac Davies, Larkfield Nursery, Wavertree, near Liverpool.

To be Sold Cheap.

ISAAC DAVIES being about to Remove and discontinue the Growth of Greenhouse Plants, has 4000 INDIAN AZALEAS, 1000 HEATHS, and from 2000 to 3000 other Plants to offer at reduced prices, all healthy well-grown stock. Prices and names on application.
Larkfield Nursery, Wavertree, near Liverpool.

WANTED, a few Thousand SEEDLING DEODARS.—Please state size and price to Mr. Jean Verschaffelt, Nurseryman, Ghent, Belgium.

A. WILKIN, Tiptree Nursery, Kelvedon, Essex, can supply the Trade with
1 to feet SPRUCE FIRS; 1 to 2 feet SEEDLING SYCAMORES; 3 to 5 feet ASPEN LEAF POPLARS; 3 to 5 feet LOMBARDY POPLARS; 1 year GIANT ASPARAGUS, &c.

Larch and Thorn Quicks.

R. HARTLAND begs to offer 1,000,000 3 and 4-year Transplanted LARCH, from 2 to 4 feet.
1,000,000 3 and 4-year Transplanted THORNS, from 1½ to 3 feet.
Prices on application, stating quantity required.
The Lough Nurseries, Cork.

To the Trade.

R. DONALD AND SON, of the Goldsworth Nurseries, Woking, Surrey (so long celebrated for the extensive collection and fine growth of Fruit, Conifers, Evergreens, Deciduous Trees, Shrubs, &c.), will be pleased to forward a PRICED CATALOGUE for present Season, free by post on application.

JOSEPH SMITH, Jun., has to offer the following:—1,500,000 RHODODENDRONS, 1,000,000 LARCH, 100,000 SCOTCH, 200,000 SPRUCE, 100,000 ALDER, 100,000 BIRCH, Ash; Ash, Mountain; Sycamore, Oaks, Black Italian Poplar, up to 8 feet; Chestnut, Horse and Spanish; Hazel, Willows, Privet, Laurels, &c., all Transplanted and good; Seedling Oaks, 1-year; Spruce, 2 and 3-years; Rhododendrons, 3-years. Price on application.
Moor Edge Nursery, Tansley, near Matlock, Derbyshire.

Great International Exhibition.

SEVERAL very fine Specimen ORNAMENTAL PLANTS, including CROTON VARIEGATUM and PICTUM, CORDYLINE INDIVISA, RHOPALA CORCOVADENSE, &c., all in very fine condition; also a very fine RHYNCHOSPERMUM, and other Flowering Plants, all fit for Exhibition, now on Sale.
Apply to William Dean, Bradford Nursery, Shipley, Yorkshire.

New Garden Seeds for Autumn Sowing.

SUTTON AND SONS can now supply the above, of excellent quality
PRICED CATALOGUES gratis and post free on application.
Royal Berkshire Seed Establishment, Reading.

1865 and 1866.

JOHN FRASER begs to announce that his NEW DESCRIPTIVE CATALOGUE of PLANTS, ROSES, FRUIT TREES, &c., for the Autumn of 1865 and Spring of 1866, may be had on application.
The Lea Bridge Road Nurseries, N.E.

THE CLIVEDEN COLLECTIONS of SPRING BLOOMING PLANTS, 12s. 6d., 25s., 50s., and 100s.
For particulars see our AUTUMN FLORAL GUIDE.
Barr & Sugden, 12, King Street, Covent Garden, W.C.

PELARGONIUMS and CINERARIAS.
Strong healthy Plants, at moderate prices.
See CATALOGUE, gratis and post free.
J. Dobson & Sons, Woodlands Nursery, Isleworth, W.

PELARGONIUM MRS. POLLOCK.—Strong Summer-struck Plants, well established in 60-pots, at 18s. per dozen.
The Trade supplied.
Alfred Fryer, Nurseries, Chatteris, Cambridgeshire.

SURPLUS STOCK.—An Amateur offers a few dozens of strong 2-years old cut down plants of MRS. POLLOCK GERANIUM, at 42s. per dozen for cash. Application to be made to Mr. Alfred Fryer, The Nurseries, Chatteris, Cambridgeshire.

CHEAP, CHEAP, CHEAP.—3 GERANIUM ITALIA UNITA; 3 GERANIUM MRS. POLLOCK; 6 choice GREENHOUSE FERNS; 6 choice HARDY FERNS for 21s.
The above are extra good Plants. Basket and packing included.
A Post-office Order made payable to John Barrett, Nurseryman, Bury St. Edmund's, Suffolk, will have immediate attention.

TO BE SOLD, by Private Contract, Forty large CAMELLIAS, in tubs and pots.—Inquire of
Mr. Ling, Gardener, Old Park, Nightingale Lane, Clapham Common.

Pinks.

CHARLES TURNER'S COLLECTION of Eighty Varieties, the finest in cultivation, and comprising several New kinds, is now ready in strong plants. Selection left to C. Turner, 9s., 12s., and 18s. per dozen pairs. LISTS on application
The Royal Nurseries, Slough.

SHOW TULIPS.—50 choice named sorts for 25s.
100 ditto, in 50 sorts, 45s.; 100 mixed from the above, 10s.
The Undersigned has no hesitation in stating that these are of the finest possible strain, and from one of the choicest collections in this country. John Morse, Nurseryman, Dursley.

SNOWDROPS, good roots, 17s. 6d. per 1000.
NARCISSUS POETICUS (Pheasant's Eye Narcissus), 5s. per 100.
ZONALE GERANIUM SEED, saved from the newest kinds, 1s. 6d. and 2s. 6d. per packet.
William Dean, Bradford Nursery, Shipley, Yorkshire.

J. IVERY AND SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

Wholesale Catalogue.

GEORGE JACKMAN AND SON will have much pleasure in forwarding on application, free by post, their DESCRIPTIVE and PRICED CATALOGUE of NURSERY STOCK for 1865 and Spring 1866.
Woking Nursery, Surrey.

To Suit the Times.

HOLLAND AND JONES have much pleasure in offering their distinguished CARNATIONS and PICOTEES at 9s. and 12s. per doz. pairs. See revised Catalogue.
Bradshaw Gardens, Chadderton, near Manchester.

CARNATIONS and PICOTEES for the Million.
Fine Strong Plants at reduced prices.
Every one should send for the revised CATALOGUE of CARNATIONS, PICOTEES, PINKS, PANSIES, ROSES, FRUIT TREES, BULBS, &c.
Holland & Jones, Proprietors, Bradshaw Gardens, Chadderton, near Manchester.

H. AND F. SHARPE,
Seed Growers and Merchants, Wisbech.
SPECIAL PRICED LIST of NEW SEEDS on application.

PAMPAS GRASS (GYNERIUM ARGENTEUM).—Several Thousands of strong plants, in pots, from 2 to 3 feet high, now ready for planting out, price 1s. each.
Sutton & Sons, Reading Nurseries.

New Grass Seeds for Exportation.

SUTTON AND SONS have received their supply of NEW GRASS SEEDS of the present year's growth in fine dry condition. Prices will be forwarded on application.
This is one of the best months for exporting Grass Seeds.
Sutton & Sons, Seed Merchants, Reading.

NEW TRIFOLIUM INCARNATUM.
" " late variety.
ITALIAN RYE-GRASS, imported Seed.
JAMES CARTER AND CO. have fine samples of the above at very low prices. Prices and samples on application.
James Carter & Co., 237 & 238, High Holborn, London, W.C.

5000 Bushels of Superb MUSHROOM SPAWN.—Samples to be seen at Mr. Proctor's, Salesman, Covent Garden Market.
H. Tyler, Child's Hill, Hampstead, N.W.

SUPERIOR MUSHROOM SPAWN, 5s. per Bushel. Mushroom Pamphlet, with New Appendix, 1s. 3d.; Market Gardening, 1s. 6d.; Cucumber and Melon, 1s.; Strawberry, new system, 1s.; Potato, &c., 1s. 6d.
PRINCE ALBERT WINTER CUCUMBER, 1s. per packet, Stamps or Order on Camberwell Green.
James Cuthill, Camberwell, London, S.

BRITISH HERO DWARF PEA.
From 50 to 100 quarters to offer at 12s. per quarter.
This Pea is acknowledged to be one of the best Dwarfs grown for either field or garden
Apply to Frank Warwick, Nurseryman and Seedsman, Stafford.

To Farmers, Gardeners, and Others.

EXCELLENT strong CABBAGE PLANTS of the following kinds may be had in any quantities at 2s. 6d. per 1000 for cash:—EARLY YORK, ENFIELD MARKET, EARLY BATTERSEA, ROBINSON'S LARGE DRUMHEAD, EAST ILKAM, RED DUTCH. A remittance must accompany the order.
Frederick Gee, Seed Merchant and Grower, Langley, near Slough, Bucks.

NEW PLANTS.

UPWARDS OF TWO HUNDRED PRIZES AND AWARDS HAVE BEEN MADE TO

WILLIAM BULL

FOR NEW AND RARE PLANTS ALONE AT THE PRINCIPAL LONDON FLOWER SHOWS

DURING THE PRESENT YEAR.

W. B. MENTIONS THIS AS CONVEYING SOME IDEA OF THE IMPORTANCE OF HIS COLLECTION.

In announcing the following NEW PLANTS, WILLIAM BULL begs to say they will all be found to maintain the high reputation of the Flowers previously sent out by him.

Allamanda Hendersoni.

The entire stock of this superb Plant has been purchased from Messrs. Arthur Henderson & Co., of Pine-apple Place.

It has been imported from Guiana, and is the largest flowered orange-yellow Allamanda known, the lobes closer and more finely formed than any other variety, and the blossoms immensely thick and wax-like. The plant blooms in a smaller state than any other of the large-flowered section, and when once it commences, possesses the excellent characteristic of being continuous blooming; thus the flowering period is prolonged throughout the season, so that it will be invaluable for exhibition purposes, and as a free-growing stove climber unequalled. The habit is close and good, and the foliage of a rich dark glossy green.

It has received two First-class Certificates for its superior merit.

A well-executed drawing of it, by Andrews, can be seen at my Establishment. Price 31*s.* 6*d.* each.

Purchasers wishing to cultivate this plant should be careful to get the true "A. Hendersoni," as since this plant has been announced, the name of Hendersoni has been added to the well-known old Allamanda Schotti (Henderson's) sent out many years ago, and this latter variety is now being offered as Allamanda Schotti Hendersoni.

Asplenium myriophyllum.

A most elegant stove Fern introduced from Chiapa, Mexico. The fronds are tufted, short stalked, about 6 inches long, lanceolate, the pinnules so small and fine that it is quite a gem, not only among Aspleniums, but in the whole Fern family, so that it is a plant that should be in the most select collection.

It has been frequently exhibited, and always received a First-class Certificate. Price 10*s.* 6*d.* each.

Azalea (indica) Grande Duchesse de Bade.

This extremely handsome rich-coloured variety will be found an acquisition in every collection. Its colour is a bright orange scarlet, flower well formed, sometimes showing a slight inclination to be double; petals very thick and wax-like, excellent habit.

Price 15*s.*, 21*s.*, and 31*s.* 6*d.* each.

Azalea (indica) Reine des Pays Bas.

Violet pink, margined with white, and richly spotted with deep crimson. This will be a favourite variety: it elicited universal admiration and obtained a Prize when exhibited as a Seedling at the Grand International Horticultural Exhibition held at Amsterdam last spring. Further remark on its merit is unnecessary.

The stock for circulation in Great Britain and Ireland has been purchased.

A well-executed drawing of it, by Andrews, can be seen at my Establishment. Price 21*s.* and 31*s.* 6*d.* each.

Bougainvillea lateritia.

A showy stove Climber, which can be also trained and grown as a specimen exhibition plant. Like the other Bougainvilleas its great beauty consists in the floral leaves or bracts which accompany the flowers, but instead of being mauve, as in the other kinds hitherto bloomed in this country, are of a salmony pink, and consequently a very distinct and desirable variety.

It has received three First-class Certificates during the past season.

The entire stock has been purchased from Mr. Charles Turner, of Slough.

A well-executed drawing of it, by Andrews, can be seen at my Establishment.

Specimen plants can be supplied now at 42*s.* and 63*s.* each. Small plants will be ready in the spring at 21*s.* each.

Dioscorea Anæctochilus.

This remarkable and handsome species has been introduced from the Amazon; it has broadly ovate-acuminate leaves which when mature are of a dark olive-green marbled with gold, with broad central golden band running through them. The young leaves are plain bright green, and the remarkable variation is developed as they acquire age.

It is a stove Climber, but can easily be trained and grown as a specimen plant for exhibition, for which it is well adapted on account of its handsomely variegated foliage.

Its resemblance to some of the members of that beautiful family the Anæctochilus has suggested the name, but unlike that family it is free growing and easily cultivated.

Price 42*s.*, 63*s.*, and 105*s.* each.

Epiphyllum truncatum tricolor.

The blossoms of this variety are unusually attractive, of a salmon orange passing into red, and having the centre of a rich purple, very handsome and distinct, much the best Epiphyllum ever offered, and a most desirable acquisition to our winter-blooming plants, its gay flowers at that season being most attractive.

This variety has received the highest award that can be made to a new plant. Price 10*s.* 6*d.* each.

Lastræa erythrosora.

A very handsome hardy evergreen Japanese Fern, well adapted for greenhouse or open air cultivation, for it is quite hardy, and the fronds are persistent throughout the winter, growing 2 or 3 feet high, with dark stripes, bold shining fronds, the fertile ones decorated by lines of red dots, which are the involucral scales overlying the spore cases.

It has received several Certificates of Merit as a distinct and desirable hardy Fern. Price 10*s.* 6*d.* each.

Peperomia argyræa.

This pretty ornamental stove plant has been introduced from Brazil, and is the handsomest species with which we are acquainted. It is of easy cultivation, with ovate cordate leaves of wax-like character and great substance, bright green ribs or veins with the intervening spaces white, giving the impression of burnished or frosted silver.

It has been awarded a First-class Certificate by the Floral Committee of the Royal Horticultural Society.

Price 31*s.* 6*d.* each.

Peperomia arifolia.

This exquisite little variegated plant has been introduced by the Royal Horticultural Society, through their collector Mr. Weir, from South America. Its leaves are thick and wax-like, bright green with white variegation, easily cultivated, yet as a small-growing stove plant quite an acquisition.

It has received every Certificate of Merit, and is a plant that can be strongly recommended.

Price 21*s.* each.

Primula intermedia.

There is always a charm about pretty Spring flowers, and this is a gem, and a perfectly hardy plant too; it is a hybrid between Primulas ciliata and minima; the habit is robust and vigorous, and it blooms in the most profuse manner, throwing strong trusses of flowers, on each of which is a very large number of pips. It is sweet-scented, and the colour a brilliant purplish-crimson or beautiful mauve, and is admirably adapted for spring-garden decoration, whether planted in beds, clumps, or edgings.

It received a First-class Certificate when exhibited at the Royal Botanic Gardens, Regent's Park, last spring.

The entire stock has been purchased from Mr. Thomas Fuller, of Leeds.

A well-executed drawing of it, by Andrews, can be seen at my Establishment. Price 10*s.* 6*d.* each.

Pteris cretica serrulata variegata.

An interesting variegated hybrid, intermediate between P. serrulata and P. cretica albo-lineata; the fronds are pinnate, and prettily serrated, each pinna banded down the centre with a white stripe, and instead of the spreading habit of the last-named Fern, its growth is more rigid and compact.

It has received various Certificates of Merit, and can be recommended for cultivation in a greenhouse.

Price 10*s.* 6*d.* each.

Sphacele cœrulea.

A useful winter-blooming plant belonging to the Labiatæ family. It is soft-wooded, with thick, ovate, serrated foliage, and if cultivated in a warm greenhouse, gives its pretty blue flowers all through the winter in the most abundant manner.

Price 10*s.* 6*d.* each.

Sphærogyne cinnamomea.

An ornamental plant introduced from Costa Rica, the aspect of which is really noble, for the leaves are about a foot and a half long, by 9 inches broad. Its cultivation is easy, and it succeeds admirably in a warm greenhouse or stove. The specific name is derived from the cinnamon-like character and colour of its stem, which makes a pleasing contrast to the massive light green foliage.

This plant can be recommended as a first-class novelty, well adapted for exhibiting as a foliage plant.

It has received various Certificates of Merit for its ornamental character. Price 42*s.* and 63*s.* each.

The Mustard Tree of Scripture, Salvadora persica.

This remarkably interesting plant is now offered for the first time in this country. It requires to be cultivated in a stove.

Price 105*s.* each.

New Double-flowering Mimulus.

In introducing these extraordinary Novelties Mr. W. B. thinks he cannot do better than quote the able and lucid description given of them in the *Gardeners' Chronicle*, April 15, 1865:—

"We have more than once had occasion to mention Mr. Bull's strain of Mimuluses, and we have now to notice another perfectly new strain, with veritable duplex Monkey-flowers, thorough hose-in-hose, as though the calyx, justifying the name, had taken to mimicking the corolla. In these remarkable curiosities the corolla exactly resembles some of the forms commonly known in gardens as Mimulus maculosus, but instead of the calyx being the usual form and green colour, this organ is converted into a coloured body almost exactly like the corolla in form, and, like it, brightly coloured and handsomely spotted. Looking at Mimuluses as decorative plants, this new feature is a very great advantage. No one can doubt or dispute the beauty of some of the fine varieties of Mimulus, but the defect, from a garden point of view is, that the flowers drop too soon—the beauty is not enduring. Now, leaving out of question altogether the fact that the ornamental part of the plant is at once doubled in quantity, there remains the very important fact, that be the corolla ever so fleeting and evanescent, when it falls, the plant to all intents and purposes remains in flower: the calyx is virtually in itself a flower as far as ornament is concerned, and this part does not fall like the corolla, but lasts as long as its substance will endure. The great merit of the new race is, that the flowers, as represented by the outer of the two floral whorls, remain persistent for a period hitherto unknown amongst Mimuluses."

This new strain is perfectly hardy, so that the varieties are valuable alike for open garden and greenhouse decoration.

During the past spring these Mimuluses received a First-class Certificate when exhibited before the Floral Committee of the Royal Horticultural Society, and a similar award at the Royal Botanic Society's Exhibition, Regent's Park.

A dozen of the most distinct varieties (as follows) have been selected, and are now offered for £3 the collection.

ANDERSONI.—Ground colour rich yellow, lower lobe blotched with deep crimson, the upper lobes and lower part of the throat beautifully spotted with a lightish pink.

BRIGHTNESS.—Rich sulphur ground, intensely marbled or belted with a beautiful vermilion crimson.

COQUETTE.—Clear pale primrose, the upper lobes having three or four distinct rosy crimson spots, and the lower lobe handsomely blotched with a light maroon, thus giving the flower a novel and pleasing appearance.

DIADEM.—A beautiful straw-coloured variety, the lobes blotched with rich carmine, while the lower part of the throat is intensely marbled with rosy pink, producing a striking effect.

ECLAT.—Bright orange, lobes heavily blotched with a rich and very dark maroon, the lower part of the throat thickly spotted with a polish crimson.

GLOWWORM.—Bright golden yellow, all the lobes heavily and largely blotched with a brilliant maroon spotted throat, a very attractive variety.

HEROINE.—Ground colour citron, heavily blotched and regularly spotted with crimson maroon. The flowers of this variety are frequently edged and banded with light crimson.

INCOMPARABLE.—Orange, prettily spotted and maculated with crimson, the lower lobe blotched with a glowing maroon.

LIVELINESS.—Bright yellow, lobes blotched and pencilled with a very rich velvety crimson, and frequently banded with brownish red.

NATIONAL.—Lemon, marbled with intense maroon round the lobes, the lower one blotched with deep crimson.

ROYALTY.—A deep golden variety, the lower lobe prettily marbled with bronze and blotched with beautiful velvety crimson, the throat thickly studded with spots of the same hue, very showy and fine.

WANDSWORTH.—Orange yellow ground, blotched on the lower lobe with dark vermilion, the upper lobes thickly spotted with the same colour. The throat also faintly spotted.

New Aucubas.

These new hardy evergreen shrubs are most desirable, and indeed they may be looked upon as the most permanently valuable introductions of modern times; many have been the plants recently added to our selections from Japan, but for decorative purposes none of them come up to these plants, and for this reason the common Aucuba is a shrub that grows and thrives in towns and cities than any other evergreen; it thrives where everything else dies, as some of the gardens of London testify; to us, however, it has hitherto been a fruitless shrub, now we have the male form of this plant, and as soon as it has efficiently circulated, all the Aucubas will be covered with bunches of berries about four times the size of those of the Holly, and of the brightest glossy red colour; this can now be at present in perfection, at my Establishment, as well as the male and female plants hereafter named.

Nothing in the way of hardy evergreen shrubs will at all compare with Aucubas when laden with their coral-like red berries.

As some little misunderstanding exists about Aucubas, perhaps it may be as well to state that the Aucuba is a diœcious plant, that is to say, some of its individuals produce only male, and others only female flowers, and that some eighty years ago the ordinary form was introduced from Japan, but the plant or plants so introduced happened to be females; by propagation the whole stock in Europe sprang from the original introduction, and Japan from the time being a sealed country, the male plant could not be obtained; the celebrated Chinese and Japanese traveller and collector, Robert Fortune, is due the merit of introducing the first male plants with which we are acquainted. Lately, however, there have been several most important and distinct varieties introduced by Dr. Van Siebold, including male and female kinds, with plain unspotted leaves; also others in both sexes having distinctly variegated foliage, as follows:—

FEMALE AUCUBAS.	s.	d.
Aucuba japonica foemina elegans	42	0
" " " latifolia ..	31	6
" " " limbata ..	21	0
" " " longifolia ..	21	0
" " " " variegata	31	6
" " " macrophylla .	31	6
" " " viridis.. ..	10	6

MALE AUCUBAS.	s.	d.
Aucuba japonica mascula angustata	[illegible]	[illegible]
" " " bicolor ..	[illegible]	[illegible]
" " " (*Fortunei*) .	[illegible]	[illegible]
" " " maculata ..	[illegible]	[illegible]
" " " viridis..	[illegible]	[illegible]

Amaryllis Imperatrice de Bresil.

A species with veritable blue flowers. When in blossom this plant is a truly enchanting object. It has been introduced from Brazil.

Price 31*s.* 6*d.*, 42*s.*, and 63*s.* each.

Anthurium grandis.

A strikingly beautiful ornamental stove plant introduced by the Royal Horticultural Society from South America, through their collector Mr. Weir. Its large cordate leaves in mature specimens are about 2 feet in diameter; the ground colour is of a velvety green intersected with whitish ribs and yellowish tinted veins; but in its young state the leaves are of a coppery pink hue, gradually changing into a beautiful green as the plant acquires age.

This is a most desirable acquisition to our fine-foliaged plants, and undoubtedly the best new ornamental plant of the season. It will prove an excellent plant for exhibition purposes.

This plant has also been distributed under the names of A. magnificum and A. cordifolium.

Price 31*s.* 6*d.*, 42*s.*, and 63*s.* each.

Aubrietia purpurea variegata.

This remarkable and highly interesting novelty is a well-defined variegated form of the well-known Aubrietia purpurea; every leaf broadly margined with white, thus making it an extremely effective object; indeed, the harmony of its pretty lavender blue flowers and neat variegation makes a most pleasing impression.

Being quite hardy this will be a useful plant for spring gardening, rockwork, &c., and unquestionably one of the prettiest novelties of the season.

A well-executed drawing of it, by Andrews, can be seen at my Establishment.

The entire stock has been purchased from Mr. D. Wood, Bank, Yorkshire. Price 5*s.* each.

Bignonia argyræa violescens.

A pretty ornamental stove Climber, introduced from South America. The leaves of this plant are exquisite, showing two or three tints of variegation at the same time; when young they are a purplish green with the mid-rib and veins bordered on each side with bright rose, and as they become matured change to a bright green with rose colour, with borders on each side of the mid-rib and veins of a white whiteness. The under surface of the leaves is bright purple, and so that with all these colours the plant produces an effect of the most pleasing description. Price 31*s.* 6*d.* each.

Cissus amazonica.

A neat and pretty stove Climber, with variegated lanceolate acuminate foliage; the surface of which is of a glaucous olive green intersected with silvery nerves, and of a deep crimson underneath.

Price 10*s.* 6*d.*, 15*s.*, and 21*s.* each.

Calonyction sanguinea.

An ornamental stove Climber introduced from Bonta[illegible], remarkable for its bold and effective cordate acuminate leaves, measure 10 inches or more in length, and 8 or 10 inches in breadth, reddish tinted while young on the under surface, the upper surface an olive green with prominent veins, which, with the mid-rib, tinted with dark red. It produces in the axils of the leaves [illegible] of flowers, the tubes of which are nearly 2 inches long, and the spreading measuring about 3 inches across. The flowers are of a delicate rosy flesh colour, with a deep magenta crimson eye.

Price 21*s.* each.

Franciscea Lindeni.

A free-flowering attractive variety, producing very large [illegible] mauve flowers, introduced from the interior of the province of St. Catherine's, Brazil. It is one of the best Franciscas ever offered, and a plant that can be strongly recommended.

It is of excellent habit, and free growth, merely requiring ordinary stove cultivation. Price 21*s.* and 31*s.* 6*d.* each.

Maranta Van den Heckei.

This ornamental stove plant is one of the best Marantas introduced up to the present time. It has been introduced from Para. It is of moderate size and of compact habit; the leaves are of a dark sea green, embellished by a large central line, surrounded by an undulated silver disc. Price 21*s.* each.

WILLIAM BULL'S LIST OF NEW PLANTS—(*Continued*).

Phegopteris sancta.

An extremely rare stove Fern, of small compact growth, with [illegible], oblong, bright green fronds; the pinnæ small and extremely [illegible].
Price 7s. 6d. each.

Rogiera gratissima.

The flowers of this plant will be perfect gems for bouquets. They are produced in elegant corymbs of a delicate pink colour. It blooms so freely that it is nearly always in flower, added to which it is [illegible] fragrant, and the habit of the plant is neat and compact. It has been introduced from Teopisca, Chiapas, at an altitude of [illegible] the level of the sea, consequently in the cold region, and if cultivated in a cold stove or warm greenhouse, it succeeds admirably.
Price 31s. 6d. each.

Selaginella Mertensi albo-variegata.

This pretty acquisition has a pure white, well-defined variegation, extending through the centre of the plant, which contrasts prettily with its otherwise bright green growth.
Price 10s. 6d. each.

Saxifraga Fortunei.

This is an exceedingly handsome Japanese plant; it produces fine corymbs of white blossom, at a season when flowers in the greenhouse are very scarce, viz. September, October, and November; being an easily cultivated plant, it is an exceedingly desirable introduction.
Price 10s. 6d. and 15s. each.

Skimmia oblata.

A most beautiful Japanese evergreen hardy shrub, producing berries of the brightest vermilion red; this is one of Mr. Fortune's discoveries, and proves to be quite distinct from all other Skimmias as yet known, in the remarkably oblate shape of its bright red berries, so obviously different from the dull red oblong fruit of other Skimmias. It is also strikingly distinct in its foliage, which is of a different texture, as well as in its habit from the other species known to us. It is a free-growing shrub with dense clear green leaves; the panicles of bright-coloured berries nesting amongst the foliage at the ends of the branches.
Price 31s. 6d. and 42s. each.

Smilax macrophylla maculata.

A variegated-foliaged stove Climber with large ovate acuminate leaves, which are bright green, spotted and maculated with white. It has been introduced from Mexico, and is of easy culture.
Price 21s. each.

Stauranthera grandiflora.

A charming stove plant recently introduced from Moulmein, with remarkably large glabrous leaves, strong and singularly incurved lateral; flowers light blue with bright yellow throat very freely produced, even on small plants.
Price 15s. each.

Stevensonia sechellarum, syn. Phœnicophorium sechellarum.

A rare and beautiful Palm from the Island of Seychelles. Its bilobed leaves are dark green, prettily variegated with orange, and the stems and leaf-stalks bristle with long needle-shaped spines.
Price 63s. each.

ESTABLISHMENT FOR NEW AND RARE PLANTS, KING'S ROAD, CHELSEA, LONDON, S.W.

THE FOLLOWING ORCHIDS will be forwarded on receipt of Post Office Order, payable at Boston Spa, to any address, and when six or more are taken package will not be charged: Cypripedium insignis, Dendrobium nobile, Catasetum grandiflorum, [illegible] each; Cypripedium barbatum, Odontoglossum grande, 6s. each; Aeropera Loddigesii, Dendrobium speciosum, Oncidium crispum, Oncidium altissimum, Oncidium flexuosum, Schomburgkia crispa, 7s. 6d. each. Cymbidium aloifolium, Calanthe cuprea, Calanthe Alandiæ, Cattleya Harrisonii, Cattleya species, Stanhopea oculata, 10s. 6d. each; Lælia superbiens, Oncidium bicallosum, 12s. 6d. each; Cattleya Trianæi, 15s.; Cattleya elegans, Lælia elegans, [illegible], well-rooted three-quarter specimen Epacrises in 36-inch pots, 18s. per dozen, 100s. per 100, best kinds, 12 varieties. Apply to
J. C. Parman, Boston Spa, near Tadcaster.

New Roses for 1865.

EUGÈNE VERDIER, Fils Aîné, Nurseryman, 2, Rue Dunois, Paris, will deliver to the Trade in November next, the NEW ROSES Jules Cesar, Madame Charles Baltet, Alba Matheus, Charles Rouillard, Fisher Holmes, John Grier, Jean Lambert, Miss Margaret Dombrain, Prince de Porcia, Professor Lindley, Souvenir d'Abraham Lincoln, William Rollisson.
DESCRIPTIVE CATALOGUE, with engraving of the Rose MARGARET DOMBRAIN, can be obtained of his Agents, Messrs Betham & Blackith, Cox's Quay, Lower Thames St., London, E.C.

Gladioli.

EUGÈNE VERDIER, Fils Aîné, Florist, 2, Rue Dunois, Paris, thinks it but right to inform his numerous friends that he has this year, 1865, obtained Seven First Prizes in Medals of Gold, Silver Gilt, and Silver for his COLLECTIONS of GLADIOLI.
He is happy also to say that his unrivalled COLLECTION, consisting of many hundreds and thousands of BULBS of each variety, are this year very large, fine, and healthy; 26 Roots are sent for every 25 ordered of the same sort, free of carriage to London, to care of Messrs. Betham & Blackith, Cox's Quay, Lower Thames Street, London, E.C., from whom CATALOGUES can be obtained.

New Gladioli for 1865.

EUGÈNE VERDIER, Fils Aîné, Florist, 3, Rue Dunois, Paris, specially recommends the following New Varieties, obtained from seed by M. Souchet:—EURYDICE, LORD BYRON, MARECHAL VAILLANT, MILTON, NEWTON, SHAKESPEARE. Also the varieties CHERUBIN, DIOMEDE, EMILE, GALILE, LE DANTE, MALVINA, VICTOR EMMANUEL, can likewise be well recommended.
The DESCRIPTIVE CATALOGUE can be obtained of Messrs. Betham & Blackith, Cox's Quay, Lower Thames Street, London, E.C.

Gladioli.

CHARLES VERDIER, Fils, Nurseryman, No. 32, Rue du Marché aux Chevaux, Paris (Successor to the old-established house of Victor Verdier & Charles Verdier), has published his DESCRIPTIVE CATALOGUE of GLADIOLI for the season which can be had on applying to his Agents,
Messrs. R. Silberrad & Son, 5, Harp Lane, Great Tower Street, E.C.
He recommends particularly the New Sorts as under:—
EURYDICE (Souchet).—Flower large, perfect form, pure white, flamed with lively carmine rose. Perfection.
LORD BYRON (S.)—Very brilliant scarlet, spotted and striped with pure white. A very effective plant.
MARECHAL VAILLANT (S.)—Flower large, good form, very brilliant scarlet, very large pure white spot. The shading of this fine plant produces an unequalled effect.
MILTON (S.)—Flower very large, perfect form, white slightly shaded with rose, very largely flamed with red. Extra.
NEWTON (S.)—Flower large, perfect form, dark crimson red, the centre white, with numerous white lines. A very fine new shade.
SHAKESPEARE (S.)—Flower very large, perfect form, white very slightly flamed with carmine rose, very large rose spot. Perfection.
Special CATALOGUES for the Trade.
Charles Verdier, Fils, has pleasure in announcing that all these Gladioli are in splendid condition, and that he sends out none but very healthy and vigorous bulbs.

AMBROISE VERSCHAFFELT, Nurseryman, Ghent, Belgium, begs to offer the following New Plants:—
ALTERNANTHERA AMŒNA, 8s.; Ditto SPATHULATA, 8s.
TELEANTHERA VERSICOLOR, 8s.; or the three sorts for 20s. These three remarkably fine Amarantaceous plants can be seen now at A. V.'s Nursery in their full beauty; they grow perfectly well in the open air.
CALADIUM DUC DE NASSAU, one of the finest foliaged plants sent out, 16s.
Six New CHRYSANTHEMUMS (LILLIPUT), the set of 6, 16s.
RHODODENDRON DUCHESSE DE NASSAU (Verschaffelt).—Very light rose colour, all spotted over, bloom of a beautiful effect, large truss and very free, quite hardy. 12s.; a few strong plants at 20s.
RHODODENDRON SALMONO-ROSEUM (Verschaffelt).—Very large bouquets, compact, lilac rose, with a salmon tint: very large spots of a brownish black, quite hardy; one of the finest and most distinct varieties ever raised. 12s.; a few strong plants, 20s.
ROSE HYB. EMPEREUR DU MEXIQUE.—Large bloom, double, very dark, first-rate flower. 10s.
All the above Plants are figured in Verschaffelt's Illustration Horticole.
A. V.'s New Catalogue (No. 77), is now ready, and can be obtained of Messrs. R. Silberrad & Sons, 5, Harp Lane, Great Tower Street, London, E.C.
A. V. also recommends his publication, the Illustration Horticole, published monthly, each Part containing three Coloured Plates, Price 18s. 6d. per year, free.

Seed Wheat from the Chalk.

BROWICK RED, NURSERY, GOLDEN DROP, CHIDHAM ROUGH CHAFF, and all the other most approved sorts of Wheat. Also HALLETT'S PEDIGREE, SHIRREFFS, &c., supplied by Raynbird, Caldecott, & Bawtree.
Winter Tares, Rye, Winter Barley, Winter Oats, Trifolium, &c. Samples and prices post free on application.
Address Basingstoke; or 89, Seed Market, Mark Lane, E.C.

Surrey White Wheat.

WAITE, BURNELL, AND CO., beg to offer the above very fine variety of WHITE WHEAT, which is highly recommended for poor and elevated soils. It has been tried against many varieties, among which may be named the Rough Chaff, Hunters Trump, and almost all other kinds of White Wheat, and has produced fully 15 per cent. greater crop. It has been perfectly free from blight and red rust when other varieties have been more or less affected.
Price 10s. 6d. per bushel.
A liberal discount to the Trade.
Seed Warehouse, 151, High Holborn, London, W.C.

Lobelia Snowflake.

Extract from Gardeners' Chronicle:—
"Mr. Cox, Gardener to Lord Beauchamp, exhibited a beautiful White Lobelia called Snowflake, to which a First-class Certificate was awarded. Floral Committee of the Royal Horticultural Society, July 25, 1865."

JOHN AND CHARLES LEE having acquired the stock of this desirable NEW BEDDING PLANT, they have much pleasure in offering SEED in SEALED PACKETS for present sowing for spring pot culture, for which it is well adapted.
As a BEDDING LOBELIA it stands unrivalled. The plant is of dwarf compact habit; the flowers are large, perfectly even, and of the purest white. The stock comes perfectly true from seed.
Price 2s. 6d. per packet. Price to the Trade on application.
Royal Vineyard Nursery and Seed Establishment, Hammersmith, W.

Monro's Rabley Cucumber.

JOHN MONRO begs to inform Cucumber Growers, Gardeners, and the Trade, that having had this season above 6000 feet of Glass planted with his RABLEY CUCUMBER, he has been able to save a fine lot of Seed, and is prepared to send it out true, in large Packets at 1s. per Packet. This is the best Winter or Summer Cucumber, and has always taken the First Prize whenever exhibited. May be ordered of any Seedsman. A liberal allowance to the Trade.
John Monro, Osborne Park Gardens, Potter's Bar Station, Barnet, N.

The Earliest Pea known is

CARPENTER'S EXPRESS, gathered May 7th, the earliest date on record. See testimonials in *Gardeners' Chronicle* of September 2 and 9. Price 2s. per quart.
To be had of Edward Carpenter, Seed Merchant and Grower, Brighton and Sussex Seed Warehouse, 96, St. James's Street, Brighton.
PRICED CATALOGUES of DUTCH BULBS now ready.

INVINCIBLE SCARLET SWEET PEA, For AUTUMN SOWING.
A First-class Certificate received from the Royal Horticultural Society, also a Certificate at the Crystal Palace Autumn Show.
Very fragrant, strikingly brilliant, distinct, and permanent in its colour. Packets of 30 seeds, 2s. 6d.; 10 Seeds, 1s.; 5 seeds, 6d.; Packets of 100 seeds, 7s. 6d. May be had of the principal Seedsmen throughout the kingdom, or of the raiser,
Stephen Brown, Seedsman, Sudbury, Suffolk.

To the Trade.

NEW SEEDLING LATE KIDNEY POTATO "FREEDOM."—The stock of this valuable variety, superior for quantity and quality to any grown in this locality, is now offered in One Lot, estimated at 400 Seed Bushels. Applications are requested within 14 days. (This Advertisement will not be repeated.)
Apply to Wm. Hand, Marsh Street, Newcastle, Staffordshire.

Testimonials.

"Sir,—In reply to yours respecting your Seedling Potato Freedom, I beg to say the seed you sent me for trial has proved very satisfactory both in quantity and quality. It is also one of the best we ever cooked; as a late variety I consider it very valuable. I shall be most happy to answer any further inquiry.—I am, Sir, yours respectfully,
"Wm. Hill, Keele Hall Gardens, Newcastle, Staffordshire."

"We, the Undersigned, being Members of the Newcastle-under-Lyme Horticultural Society, were witnesses to the getting up of a portion of the crop of the Seedling Potato Freedom, and found it considerably more than average, and have also tasted it and found it excellent. "W. H. Dutton,
"Wm. Barrow, Gardener,
"Moses Jenkinson, Nurseryman, &c., Dilworth, Hon. Sec."

COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 2s. per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the Patent Cocoa Fibre Company, Kingston-upon-Thames.

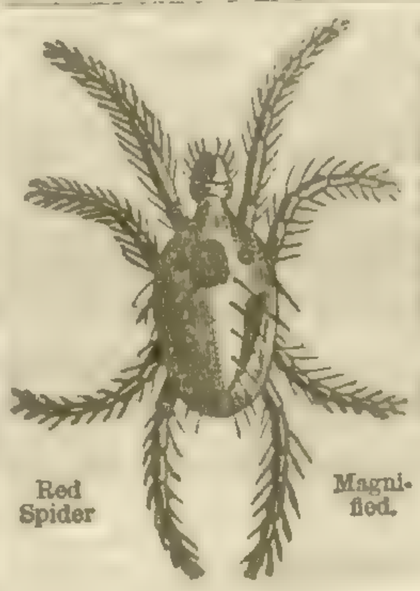
Postage Stamps or Post-office Orders payable to J. Barsham & Co.

Barsham's BRUSHES and MATS are sold in every town.

Caution.—Every Brush is stamped, J. Barsham's Patent.

To Florists and Others.

TOBACCO TISSUE for FUMIGATING, Manufactured, under Letters Patent, from Tobacco rolled into sheets, which allows it to consume slowly without the assistance of blowing, at the same time giving off a very powerful narcotic effect, and is entirely free from any chemical admixture, which is so destructive to tender Plants. It will be found more economical and very superior to the article generally used. 1 lb. samples, price 1s. 6d., will be forwarded on application to Messrs. Roberts & Sons, Tobacco Manufacturers, 54, St. John Street, Clerkenwell, E.C.



Red Spider — Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes, 1s. 3s., and 10s. 6d. each.

Wholesale by
PRICE'S PATENT CANDLE COMPANY (Limited).

Card.

JAMES SHEPHERD, Wood Label Manufacturer, Aberdeen.

BLAKE AND MACKENZIE, School Lane, Liverpool, and 61 Hanover Street, Glasgow.
DESCRIPTIVE and CULTURAL SEED POCKETS, GERMAN SEED ENVELOPES, &c. Samples and Prices on application.

E. T. ARCHER'S "FRIGI DOMO"—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.
PROTECTION from the SCORCHING RAYS of the SUN.
"FRIGI DOMO," a Canvas made of patent prepared flax and Wool, a perfect non-conductor of Heat and Cold, keeps, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length.
Two yards wide ... per yard run.
Four yards wide ... per yard run.
An improved make, 2 yards wide ... 1s. 9d. per yard run.
An improved make, 4 yards wide ... 2s. per yard run.
Also "Frigi Domo" Netting, 2 yards wide, 1s. 6d. per yard run.
Elisha Thomas Archer, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, and of all Nurserymen and Seedsmen throughout the Kingdom.
"It is much cheaper than Mats as a covering."

George Hall, late Manager to the late Saynor's Firm

He was for 30 Years in their Employ.

GEO. HALL AND SON'S Celebrated PRUNING and BUDDING KNIVES, SCISSORS, &c., may be obtained from the most respectable Nurserymen and Seed Merchants in the kingdom.
N.B. We only make one quality, the best that can be manufactured, regardless of expense, the same as the late Saynor's always made during their lifetime.
Horticultural Cutlery Works, Sheffield.

Caution to Gardeners.—When you ask for

SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark Saynor, and the corporate mark Britain Warranted, without which none are genuine.
S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by sellers and makers.
S. & C.'s Pruning and Budding Knives are the best and the cheapest in the market.
Paxton Works, Sheffield. Established upwards of 125 years.

AUSTIN, SEELEY, AND CO.'S Stock now comprises—

296 different kinds of VASES.
94 STATUES and FIGURES of CHILDREN.
70 FIGURES of ANIMALS and BIRDS.
About 200 FOUNTAINS, at prices from £10 to £400.
16 BASKETS from 1 to 10 feet diameter.
17 FLOWER BOXES for WINDOWS, &c.
6 GARDEN SEATS.
22 SUN-DIAL PEDESTALS.
22 ORNAMENTS for GATE PIERS.
And a great variety of BALUSTRADING and PEDESTALS.
369 to 375, Euston Road, Regent's Park, N.W.

GARDEN BORDER EDGING TILES, in great variety of patterns and material, the planer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.
GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.
F. & G. Rosher, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.
Sole London Agents for FOXLEY'S PATENT GARDEN WALL BRICKS. Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.
Also TESSELATED PAVEMENTS of more enriched designs than the above.
WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Gates, Cements, &c.
To be obtained of F. & G. Rosher, at their Premises as above.

SILVER SAND (REIGATE, best quality), at the above addresses—14s. per Ton, or 1s. 3d. per Bushel; 2s. per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less.
FLINTS, BRICK BURRS or CLINKERS, for Rockeries or Grotto Work.
F. & G. Rosher.—Addresses see above.
N.B. Orders promptly executed by Railway.

The Goldfinder Strawberry.

JAMES SCLATER AND CO., Devon Nurseries, near Exeter, as the largest Fruit Growers in the West, after 15 years' trial, can with all confidence recommend this fine STRAWBERRY, particularly to Market Gardeners, as the finest early known. Forces well, and is a most abundant and certain cropper. Fruit of this Strawberry grown in the open fields we sold in quantity in London, Manchester, Exeter, and other towns in the last week of the past May. The fruit is large and solid, and colour brilliant scarlet.

Strong Plants, 10*s.* the 100, or 80*s.* the 1000.

Orders received by Messrs. Hurst & Son, Seed Merchants, Leadenhall Street, London, E.C.; and Mr. James Veitch, Royal Exotic Nursery, Chelsea, S.W.

70,000 Carnations and Picotees, 40,000 Pinks of the choicest kinds, now ready for sending out.

Royal Nurseries, Great Yarmouth.

YOUELL AND CO. beg to offer to the Nobility, Gentry, and Trade generally, their extensive and superb Collection of the above, which are this season, as usual, strong and healthy, at the undermentioned prices.

CARNATIONS and PICOTEES.

Youell & Co.'s collection of these is probably the most extensive in the Trade, and having for a series of years paid special attention to their cultivation, introducing the best of the new varieties, they are enabled to offer them at the following prices for fine strong well-rooted plants:—

CARNATIONS, finest first-class varieties, by name, 18*s.* and 24*s.* per dozen pairs.

PICOTEES, finest first-class varieties, by name, 18*s.* and 24*s.* per dozen pairs.

Ditto, on yellow grounds, 20*s.* and 30*s.* per dozen pairs.

Finest mixed BORDER CARNATIONS and PICOTEES, 9*s.* per dozen pairs.

True old CRIMSON CLOVE CARNATIONS, 12*s.* per dozen pairs.

NEW ITALIAN YELLOW CARNATIONS.

Youell & Co. have succeeded in importing 25 very choice, distinct, and beautiful varieties of the above—the ground colours being a rich yellow, striped and suffused with various shades of scarlet, crimson, purple, plum, and blue; they are extremely hardy, very strong growers, highly fragrant, and will give general satisfaction. Price 3*s.* 6*d.* per pair, or 40*s.* per dozen pairs, of the most distinct kinds.

PERPETUAL FLOWERING or TREE CARNATIONS, Flowering Summer and Winter.

This deservedly popular class has of late received many additions to its hitherto general favourites. They cannot be too strongly recommended, not only for their delightful fragrance, but the brilliant display they afford during the autumn and winter months, either in the Greenhouse, Conservatory, or open Garden in Summer. Price 12*s.* to 18*s.* per dozen plants.

NEW SCARLET CLOVE CARNATION GARIBALDI.

Youell & Co. have much pleasure in offering the above magnificent variety, far surpassing any in cultivation; colour intense vivid scarlet, large and bold flowers, fine pod free from bursting; the delicious Clove scent which it possesses is not to be equalled in any of its class. Price 5*s.* per pair; if 12 pairs are ordered, £2.

NEW WHITE CLOVE CARNATION.

PRINCESS ALICE.—Youell & Co. beg to offer the above desirable variety, which possesses the same properties as Garibaldi, only differing in colour, being of the finest snowy white; undoubtedly the finest white and highly scented Clove Carnation ever offered. Price 5*s.* per pair; if 12 pairs are ordered, £2.

PINKS.

Our extensive Collection of these enables us to offer the finest first-class varieties by name, at 9*s.* and 12*s.* per dozen pairs.

Fine Mixed for Borders, 6*s.* per dozen pairs.

Trade price on application.

Royal Nurseries, Great Yarmouth, Norfolk.

Verbena Crimson King.

THOMAS METHVEN has much pleasure in announcing that he has arranged to send out the unrivalled VERBENA CRIMSON KING, which was raised in 1863 by Mr. David Thomson, at Archerfield, where it has been extensively used for the last two seasons. Its superiority consists in its great and continuous profusion of bloom, its vigorous and compact habit, and its healthy constitution. It is in fact a companion to the well-known Purple King, having all the good qualities of the latter variety, without its tendency to mildew or to become diseased in winter. Crimson King has fine bold crimson trusses of bloom, with petals of unusual substance, borne on short stiff stalks, which constitutes one of the very best plants for standing heavy rains without much injury. Either for masses or for lines it is considered by the many gardeners who have seen it this season at Archerfield to stand unrivalled for striking effect. The following testimonials which have been received by Mr. Thomson will more than corroborate what is said above of its merits.

From Dr. Robert Hogg, *of the Journal of Horticulture.*

"I was particularly struck with the brilliant colour and telling effect of your Crimson King Verbena, when I saw it for the first time on entering the Kitchen Garden at Archerfield, forming a line in the ribbon border on each side of the main walk. But when I entered the Flower Garden at Dirleton Castle, remarkable for its breadth and variety of colour, in the distance my eye rested on two brilliant masses standing boldly out from all the others, which I did not fail to see was produced by the same Verbena. I was particularly struck with its compact body of colour; and on placing it in proximity with Beaton's Stella Geranium, its depth was such as to give Stella an orange hue. You have great merit in having raised so valuable a decorative plant."

From Mr. Toward, *Osborne House, Isle of Wight.*

"Your Verbena Crimson King is one of the best varieties I have seen; its brilliancy of colour, profusion of bloom, and upright habit of growth will place it in the front rank.

From Mr. John Clarke, *Gardener to* Earl de Grey and Ripon, *Studley Royal, Ripon.*

"I was particularly struck with your Seedling Verbena Crimson King. It will indeed be a valuable acquisition to all who require dense masses of colour. I cannot give you a better testimony of my appreciation of it than by saying that immediately on my return to Edinburgh, I ordered 100 plants to be secured for me as soon as it is sent out."

From Mr. John Robson, *Gardener to* Viscount Holmesdale, *Linton Park, Kent.*

"For many years we have been on the outlook for a class of Verbenas having the upright growth and free-flowering qualities of Purple King, but differing from it in colour. Such a one Mr. D. Thomson has obtained in his Crimson King, which is equally adapted for massing, for edging, or for lines in ribbon borders; while for continuous blooming it promises to be superior to Purple King. It is deeper and richer in colour than the well-known Geranium Stella, and, although the latter was in its best trim at Archerfield, it was the unanimous opinion of several gardeners we met with, who, like ourselves, had seen this Verbena and Geranium Stella in juxtaposition at Archerfield, that the Verbena was by far the more brilliant of the two. There seems nothing left to wish for, unless it be for other Verbenas of like habit, but of different colours, not yet represented in this way."

From Mr. Thomas Lees, *Gardener to the* Earl of Haddington, *Tyninghame.*

"I have great pleasure in bearing the highest testimony to your Verbena Crimson King, having had opportunities of seeing it bedded along with other Verbenas in the gardens at Archerfield both last year and this. Both in fine weather and after dashing rains, it at all times was pre-eminent. Colour rich crimson, borne in great profusion. Habit of plant same as the well-known Purple King."

From Mr. H. Rose, *Gardener to the* Duke of Roxburgh, *Floors Castle, Kelso.*

"Having seen your Seedling Verbena Crimson King at Archerfield for two successive seasons, I am convinced that it is the best crimson in cultivation. Its habit is that of Purple King. It will be a great acquisition whether used for beds or ribbon borders."

From Mr. J. Bisset, *Gardener to the* Earl of Sefton, *Croxteth Park.*

"Crimson King Verbena, which I saw at Archerfield in great perfection, is of a most brilliant colour, much wanted in Verbenas. Habit good, being very erect and a great bloomer. I had great pleasure in giving an order for a quantity of this plant."

To be sent out next May at 18*s.* per dozen.

Orders are now being booked, and will be executed in rotation as they are received.

Leith Walk Nurseries, Edinburgh.—October 7.

WILLIAM BARRON, Sketty Nursery Farm, Swansea, offers the following:—

200,000 LARCH, 2½ to 3½ feet.	50,000 SCOTCH FIR, 1½ to 2½ feet.
200,000 „ 1½ to 2½ feet.	50,000 SPRUCE FIR, 2 to 4 feet.

30,000 BLACK ITALIAN POPLAR, 2 to 4 feet.

Alders, Ash, Beech, Birch, Elm, Sycamore, Holly, Hazel, Limes, Yews, Thorns for hedges, Privet, Laurels, Lilacs, Laburnums, Berberis Aquifolium, Rhododendrons, Ailantus glandulosa, Acer Negundo variegata, Purple-leaved Hazel, Conifers of sorts, choice varieties of Hardy Ornamental Trees and Shrubs with fine foliage, Roses &c. Hardy Ferns in quantity.

Prices post free on application.

Fort Prospect Nurseries, Limerick.

E. ABRAHAM begs to offer the undernoted, delivered free on rail here, at following prices for cash:—

LAURELS, 2 years, from 2 to 3 ft., 30*s.* per 1000.
LAURUSTINUS, 3 years, from 1 to 2 ft., 20*s.* per 100.
EVERGREEN OAKS, from 2 to 3 ft., 18*s.* per doz.
„ „ from 4 to 5 ft., 30*s.* per doz.

All the above are fine, free grown, well-rooted stuff.

JOHN JEFFERIES AND SON beg to offer handsome well-rooted plants of PINUS EXCELSA, 8 to 10 feet high, each 7*s.* 6*d.*, or 60*s.* per dozen.

AMERICAN ARBOR-VITÆ, 3 to 4 feet, 45*s.* per 100.
„ 4 to 5 feet, 55*s.* „
RED CEDARS, 1½ to 2 feet, 40*s.* per 100.
„ „ 2 to 2½ feet, 50*s.* „

Royal Nurseries, Cirencester.

MESSRS. G. BAKER AND SON having a large and fine stock of CLEMATIS and ROSES in pots, have much pleasure in offering them to the Trade, at the following low prices:—

CLEMATIS STANDISHII, 24*s.* to 30*s.* per doz.
„ FORTUNII, 24*s.* to 30*s.* per doz.
„ JACKMANII, 24*s.* to 30*s.* per doz.
„ RUBRO VIOLACEA, 24*s.* to 30*s.* per doz.
„ LANUGINOSA, 12*s.* per doz.
„ VITICELLA VENOSA, 6*s.* per doz.
„ SIEBOLDII, 6*s.* per doz.
„ AZUREA, 6*s.* per doz.
ROSES in 48-pots, 6*s.* per doz.
„ strong for forcing, 9*s.* to 12*s.* per doz.

Also a large Collection of American and General Nursery Stock.

American Nursery, Bagshot, Surrey.

NEW PLANTS.

AUBRIETIA CAMPBELLI (effective spring flower).
FUCHSIA BANKS'S BEAUTY.
VERONICA FRUTICOSA GLAUCA.
CLIANTHUS DAMPIERI, in varieties (seed only).

Coloured Plates, post free on receipt of Stamps, of the following:—
AUBRIETIA CAMPBELLI, 7*d.*
CLIANTHUS DAMPIERI ALBIFLORA, 1*s.* 1*d.*

For description of the above see E. G. Henderson & Son's New AUTUMN CATALOGUE, forwarded post free.

Wellington Nursery, St. John's Wood, London, N.W.

JEAN VERSCHAFFELT, Nurseryman, Ghent, Belgium, begs to announce that his NEW CATALOGUE for 1865 and 1866 is just published, and contains many interesting Novelties. To be obtained gratis on application, either to himself or to his Agents,

Messrs. R. Silberrad & Son, 5, Harp Lane, Great Tower Street, E.C.

Choice Zonale Geraniums, &c.

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Preference will be given to those persons who have been Subscribers for Fifteen Years and upwards. By order,

EDWARD R. CUTLER, Secretary, 14, Tavistock Row, W.C.

Printed Forms may be had upon application to the Secretary.

The Gardeners' Chronicle.

SATURDAY, OCTOBER 7, 1865.

MEETING FOR THE ENSUING WEEK.

SATURDAY, Oct. 14 { Royal Horticultural (Weekly Show), at South Kensington .. .. 2 P.M.

WHENEVER we shall have mastered the nature of epidemics we may hope to be in a fair way of understanding fashion and its caprices, for fashion has all the characteristics of a true epidemic. It springs up when and where least expected, first in a few isolated cases, then spreading in spite of opposition, right and left, crossing mountains, rivers, and oceans, suddenly appearing with the utmost violence in some great centre of civilisation, and marching onwards till the uttermost ends of the globe have been reached, and all nations have become acquainted with it. Then, and only then, it disappears, almost as suddenly and mysteriously as it sprung up. We have seen maps showing the course certain great epidemics have taken, and we should like to have similar ones illustrating the road those new fashions have travelled in which we are specially interested.

The fashion which is now spreading, epidemic-like, in our gardens is that of growing what are called fine-foliage plants. We have struggled hard against it, keeping it out as long as we could, but there is no denying the fact, that we have now fairly caught this new PHYLLOMANIA, this mania for fine foliage; and, whether we like it or not, we cannot shut our eyes to its existence. It has crept upon us so quietly and noiselessly that it is difficult to trace the country of its origin. Was it perchance of native growth? At first sight it would appear so. Our British Ferns, it might be argued, have given us a taste for foliage plants. The graceful tracery of their leaves was so bewitching that we could not help admiring, collecting, cultivating them; and attention once turned in that direction, soon engendered a rage for exotic Ferns and other foliage plants, till the whole culminated in the present Phyllomania. But, however plausible such an argument might be, we fear it does not hold good. If our native Ferns ever were bewitching, it is astonishing that their power has only been felt by the present generation, and that they exercised no kind of spell over our grandsires, who evidently regarded Ferns with no special sympathy. It is humiliating to admit that their beauty was not appreciated until, together with the other leaf plants, they became fashionable.

But in what country did the fashion, the rage for fine-foliage plants originate? We think we can trace it back to the Pacific Ocean. Throughout the whole of that great sea, north and south, the islanders, ever since we have known them, have cultivated plants with fine foliage. The rudest tribes, such as the Samoans, Tahitians, and even the cannibal Vitians, never fail to plant around their houses Dracænas, Crotons, Terminalias, Araliaceæ, and others having handsome foliage, and that in preference to flowers. In the North Pacific islands, such as Japan and its dependencies, where a regular system of gardening had for ages been established, the taste for foliage plants had a better chance of developing itself; and when the Dutch, who for a long time were the only people that kept up an intercourse with the Japanese, tried to obtain living types of the Japanese flora, they hardly ever procured any other than garden plants—from access to the interior being denied to foreigners. These they purchased from the nurserymen, and amongst the purchases the so-called "foliage plants" were largely represented. It was thus that the Netherlands caught the Phyllomania fever, which was soon to spread like an epidemic over Germany and France, assuming larger and larger dimensions, and ultimately establishing itself in Britain, turning us, amongst other things, into such worshippers of Ferns, that there is hardly a publishing house in London which has not brought out one or more books on Ferns, and hardly a botanical author of note in this country who has not tried to instruct us either how to collect, cultivate, or study Ferns.

The success which the Ferns achieved amongst us was the greatest triumph of flowerless plants over flowers ever recorded. The rage for fine-foliage plants had now fairly commenced; the floodgates were opened. All plants with variegated leaves became much sought after. A species which would not be looked at if preserving the natural green of its foliage, became at once an object of interest if labouring under a kind of albinism so as to make it appear mottled. But white and green, or yellow and green, were not enough to cause variety. The eye wanted more; and during the last few years the whole globe, inhabited and uninhabited, has been searched for plants with leaves having more than two colours—if possible all those of the rainbow. The search has been productive beyond expectation, and we have now in our Caladiums, Arums, Orchids, Begonias, Marantas, Cannas, and others, an endless series of these favourites, daily augmented by new additions, which enterprising nurserymen are dragging from the depths of tropical and semi-tropical forests.

The latest development of Phyllomania seems to be decidedly towards large and hard-leaved plants; all that are soft and weedy, such as Begonias, are to be cast aside. Here horticulture has lighted upon inexhaustible stores, and amongst them the most majestic and beautiful of all known plants, the great PALM TRIBE, about which we shall have a few words to say on a future occasion.

WE have been asked so frequently as to the FEDERATION of the Horticultural Societies of Belgium, and their connection with the International Exhibition and Congress held last year in Brussels, that we avail ourselves of the opportunity afforded us by a perusal of the statutes of the Federation, to answer some of the questions put to us. We do so the more readily, as some hints may possibly be gained from our continental neighbours as to the management of our own Show and Congress next year.

The Federation is established under the auspices of the Belgian Government, and comprises all the Societies of the country, who conform to the regulations and pay a certain small annual contribution to the general fund. The amount of this subscription depends upon the *status* and numerical importance of the several Societies. The object of the association is the furtherance of all branches of horticulture by periodical meetings of delegates from the various Societies, when matters relating to gardening in all its branches are discussed, and congresses organised. Two such general meetings are held annually, in connection, if possible, with the more important horticultural exhibitions of the season. A working committee is chosen from among the delegates, and one of the members of this committee is appointed by the Belgian Government to act as its representative at the meeting. In this way the claims of horticulture are made known in high quarters, and an intercourse maintained which cannot fail to be of utility to the science and practice of horticulture, as well as to the general public.

The relation between the Federation and the various local Societies thus seems to be of a similar kind to that existing between our Society of Arts and the Societies in union with it; or still more like in its organisation the British Medical Association, with its branch societies in each county.

The Federation offers prizes for the best essays on subjects connected with the various departments of gardening and the collateral sciences. These essays, if judged worthy, are printed in the annual Bulletin, in which publication are also included the reports of the various affiliated Societies, minutes of their proceedings, accounts of the various flower shows, &c.

It is clear that a central body like this, representing all or nearly all the local Societies of the kingdom, must have great weight and much greater opportunities of advancing horticulture than any one of the institutions separately; yet it does not in the least interfere with the independent action of each Society. By the efforts of a similar association of the Dutch Societies was carried out the brilliant horticultural exhibition at Amsterdam in April last, and the no less successful congress of botanists and practical gardeners.

Whether a similar combination of the numerous horticultural Societies scattered over these islands, for the purposes of joint action be desirable or not, is a question we should much like to see fairly discussed. JOHN BULL has a hatred of centralisation, and the Societies are, we fear, not free from jealousies, so that it might not be easy to establish such an association. In the meantime our provincial and metropolitan Societies have now the opportunity of forwarding the interests of the International Show in London next spring, and we earnestly hope that collectively as well as individually they will avail themselves of it to the utmost. Such a Show as we hope to see, must be the result of 'a long pull, and a strong pull, and a pull all together.'

FROM a correspondence in the *Times* of India we glean that the prospects of the successful culture of the Peruvian Cotton in Scinde are not at present very satisfactory.

The causes to which the want of success are attributed are various. Among them the cold night temperature, which stops the germination of the seeds, or checks the growth of the plant at a later period of its existence. The "boll worms" are also great enemies to the Cotton plant, destroying the young pods. A very suggestive letter is that signed "D.," and attributed to a highly competent observer, Mr. N. A. DALZELL. From this letter we extract the following remarks, merely adding our hearty wishes for the realisation of Mr. DALZELL'S golden dreams:—

"My object in writing, however, is to state that I think I have discovered the cause of this universal

want of success. Last October I visited a house on the outskirts of Poona, situated on the almost bare rock. This rock is a kind of earthy amygdaloid, which produces one of the poorest kinds of soil. In the compound of this house I saw three Peruvian Cotton plants growing in this poor soil; they were covered with pods, and the cotton in all of them was perfectly clean and of the finest quality. It must be noted, too, that these plants were entirely neglected, and were never watered. It may be concluded from this that the soils in which Peruvian seed has been sown have been too rich, and have yielded nothing but wood and leaves, and that a poor stony soil, like that around many of the Deccan hills, diminishes the luxuriance of the Cotton plants, and favours the formation of flowers and healthy pods. This observation is entirely in accordance with the fact well known to experienced gardeners, that whatever circumstances tend to diminish luxuriance and check rapid vegetation are more favourable to the production of flowers than leaves; and that a plant in a sterile soil and exposed situation flowers sooner and more abundantly than when in a rich and shady place. The Peruvian Cotton-plants which have hitherto turned out a failure, should be transplanted into a poorer soil. I send you a sample of the cotton picked off the rocky poor soil I mention, and you can send it, if you feel disposed, to the Secretary of the Chamber of Commerce. All the worthless soil of the Deccan might be clothed with Peruvian Cotton shrubs, yielding each from 5 oz. to 1 lb. of pure cotton, and may be thus converted into gold-fields.

"Poona, June 21, 1865."

—— To Mr. G. W. Rigden, of Canterbury, we are indebted for a piece of Oak from the ruins of the Chequers' Inn, the resort of the "Canterbury Pilgrims" in days of yore, and recently destroyed by fire. The wood is perfectly sound, and evidently is that of the sessile fruited Oak, which was formerly confounded with Chestnut. This question has been so thoroughly sifted in our columns in past years that we need only point out the improbability of the mediæval builders sending to Italy for Chestnut when, as at that time, our own forests yielded an abundant supply of Oak.

—— A correspondent calls attention to the well-known Cedar of Lebanon in Abney Park Cemetery, that is so intimately associated with the memory of Dr. Isaac Watts. "It is a splendid specimen, and is now laden with thousands of cones in various stages of growth, the contrast between the colour of which, especially the younger ones, and the very dark foliage of the tree, is very charming, and, as far as I know, very unusual in the immediate vicinity of London."

—— The Rev. S. Hadden Parkes, whose name will be remembered in connection with the Bloomsbury Window Gardening movement, states in a letter to the *Times*, that the Chief Commissioner has placed at his disposal for the working classes of London, the roots of the plants which have been the ornament of the Parks during the preceding summer. "I know," he observes, "from actual experience that it is possible with care and attention to keep such plants during the winter months. And if only we can induce the poor to make the effort, we shall be developing the idea of flower shows of window plants, and before long we shall see their results—increased beauty to the streets of London, a more cultivated taste among the working classes, and more cleanliness and comfort in the social life of the poor." The hint might be taken by the owners of private gardens at this season, when so large a number of summer plants are everywhere about to be destroyed.

—— Mr. N. Wilson, of the Jamaica Botanic Garden, informs us that the Bamboo is being largely exported from the island to New York, for the manufacture of paper. As much as 70 per cent. of clean fibre is obtained from it. The Bamboo (Bambusa gigantea) attains its full height of 80 to 100 feet in three or four months time, and the average growth during that period has been ascertained by measurement to be 8 inches in the 24 hours.

—— We find in the Report of the Colonial Botanist for the Cape of Good Hope an imputation on the courtesy and gratitude of European botanists, that we feel assured might be satisfactorily explained by defective postal arrangements, or by some other among the many mishaps that may arise in carrying on a distant correspondence. Mr. Chapman, to whom we owe many acknowledgments for services rendered to science, suggests that "as it may be inconvenient for European botanists to acknowledge by letter the receipt of every parcel of specimens which they may receive, they should take steps to forward systematically to their correspondents abroad an occasional pamphlet or circular, or a number of a periodical, communicating the latest information.

"I have," says Mr. Chapman, "for several years been forwarding specimens, which, except in one solitary instance (Dr. Harvey), I have never heard of again. There is always some inducement for a person to continue his services when he can find out what has become of his collections, or learns that they possessed some interest; while, on the contrary, people become disheartened and discouraged when they hear nothing more of their specimens, and have every reason to fear they have gone astray."

Now that complaints are made in this country that our old stock of Proteaceæ, Stapeliæ, Mesembryanthema, and succulents in general have died off, persons willing and able to help in renewing our collections and adding novelties to them are greatly to be encouraged, and we would gladly become the medium through which such labours might be acknowledged.

—— A correspondent of the *Athenæum* states, that during the recent Meeting of German Naturalists, held in Hanover, the weather continued fine, and the excursions made in the neighbourhood thus became a source of great enjoyment. One of them was to the newly-established Zoological Garden, a charming spot on the borders of a wood by which two-thirds of Hanover is surrounded, and through which excellent roads have been made. Another was to the Burg, a grove of fine Oaks, some of them nearly 1000 years old, where coffee and other refreshments were taken; and whence the whole company, including the ladies, proceeded to Herrenhausen, where the Royal Gardens had been thrown open and all the fountains played. The garden adjoining the Royal Château is still as it was at the time of George I., in the formal French style of Louis XIV., with straight walks, high hedges, fountains, and cascades. The theatre, cut out of trees, to which Thackeray alludes in his "Four Georges," has of late been used; but such a theatre, however pretty to look at on a sunny day or agreeable to be in on a summer evening, when the trees and hedges, which serve as scenery, are lit up by thousands of lamps, is of course quite unfit for anything but scenic display. The Orangery and botanic gardens attached to this French garden are amongst the most famous in Europe. You nowhere see finer Orange trees, some of them more than two centuries old, and in much finer condition than either at Berlin or Versailles. In the Botanic Gardens you find a great number of rare old plants, such as were to be seen in England before the fatal principle of "Selection not Collection" was adopted in our national establishments and recommended for imitation. The collection of Palms is the richest in Europe, though the dimensions attained by most of them are smaller than at Kew. At the first general meeting two papers were read, dealing with Darwin's theory, the one defending, the other attacking it. The enthusiasm with which a few years ago Darwinism was greeted is beginning to cool down; and Prof. Hallier, to whose lot it fell to defend it, did not earn a quarter as much applause as Prof. Schultz-Schultzenstein, of Berlin, who, in a very lucid manner, it is said, laid bare the weak points of the whole Darwinian structure, and boldly claimed all that was sound in Darwin's theory as German property, treated long ago by German *savants* in a more satisfactory scientific manner.

STRAWBERRY FORCING.

Having been invited to make a few remarks on the forcing of Strawberries, in answer to the inquiries of a correspondent, I willingly do so in the hope that they may be found of more than individual interest.

It will be necessary to treat of the subject under different heads, and as the most suitable Soil for the purposes of pot culture is the first thing to be considered, I will commence with that. The importance of selecting a suitable compost is very great, and is in fact the real base on which future success must rest. In the neighbourhood of large gardens we often find wild Strawberries of various kinds, growing up in secluded places from seeds carried thither by the birds; and if we examine the soil in which these plants have, as it were, located themselves, and in which they are found to be most luxuriant and healthy, we shall find in the majority of cases that the soil is more or less composed of clay. The Alpine is a notable exception to this rule, as it will grow on the tops of garden walls and sand rocks, but that too flourishes and fruits most abundantly on clay, so that altogether the natural instincts of the plant point to the necessity for selecting the stiffest and strongest loam we can procure. At the same time it is also necessary to crowd as much nourishment into the pots as is possible, consistent with the presence of a proper medium through which the roots may take it up. Now, a good stiff loam, congenial to the natural habits of the plant, will furnish that medium, and thoroughly decomposed night-soil, which has undergone at least three or four years of preparation, or well-rotted cow-dung, or failing these, the strongest and very best decomposed stable-dung that can be had, will afford the extra nourishment required—the merits of the manurial substances being about in the order in which I have mentioned them. These materials, then, when well incorporated, together with a little sand and leaf-mould, for inducing a more equable passage of water through the mass, will form a suitable compost. The proportions should be three barrows of loam to one barrow of night-soil; but if cow-dung or stable-dung is used, the proportion of these should be rather larger than in the case of night-soil, say one barrow and a half to the three of loam. To this quantity add nearly another barrow load of leaf-mould and sand. The compost should be thrown together in a heap some time previous to its being required, and should be occasionally turned over, so as to become well mixed together and ready for use early in June, at which time it will be necessary to commence the work of preparing the plants, which is the next stage in the regular order of proceeding.

The first week in June prepare the requisite number of 4-inch pots for the purpose of propagating the young runners, as soon as they are sufficiently advanced. Good drainage is important, but in the first stage this will be efficiently secured by placing one good crock over the orifice, covering it with a little Moss, and over that a small sprinkling of soot: then fill up with the compost, which should be pressed down firmly but not hard. As, however, the Strawberry is partial to hard ground, the error should be on the side of firmness rather than looseness. Have ready a sufficient number of pebbles or stones about the size of a hen's egg, or pegs made from the fronds of the common Brake; either are suitable for the purpose, but the two former cause the least trouble and may be more expeditiously used. It is advisable to take the first opportunity, when even a few runners are ready, to fasten them down on the top of the soil in the pots at once, and not to wait until there is enough for stock. The pots ought to be sunk a little depth into the ground, and arranged in rows close together for the convenience of watering. For example, supposing it to be desirable to propagate from two rows side by side, the pots should be plunged in a double row down the middle space between the two rows, so that persons either in gathering the fruit or watering the pots might pass on the outside of each row, and thus avoid the possibility of dragging the runners out of the pots, which is very often done when the pots are set promiscuously about the beds. As more runners become ready, repeat the operation until the whole stock required is completed. The earlier in the season all this can be done, the greater will be the chances of ultimate success.

I ought to have observed that only the strongest runners should be used, and they must simply be laid on the top of the soil, not pressed down, but kept in place by the weight of a pebble or peg as the case may be. Watering must be constantly attended to, for although the young plant will be kept alive by the parent, the root action cannot be properly developed if the soil is parched up. These may appear trifles to many, but it is necessary to understand and act upon them if perfect results are desired.

As soon as the earliest layers are well rooted, which is generally indicated by their strong growth and healthy appearance, and in most cases will take place in three weeks or a month according to circumstances and seasons, they should be separated from the parent plant, and shifted into 6-inch fruiting pots at once, making use of the already recommended compost. Especial care must be taken about the drainage, which may consist of one inch in depth of crocks, covered with Moss and sprinkled with soot as before. Care must also be taken that the plants are well watered some time before being shifted, and that during the operation the soil is pressed down as firm as, or even firmer than, the soil in the small pot. Observe, also, that when the plant is turned out of the pot the crock may be carefully removed, but the ball with its roots very carefully preserved unbroken. When this operation is complete, the soil should be half an inch below the rim of the pot, and the crown of the plant well above the surface of the soil.

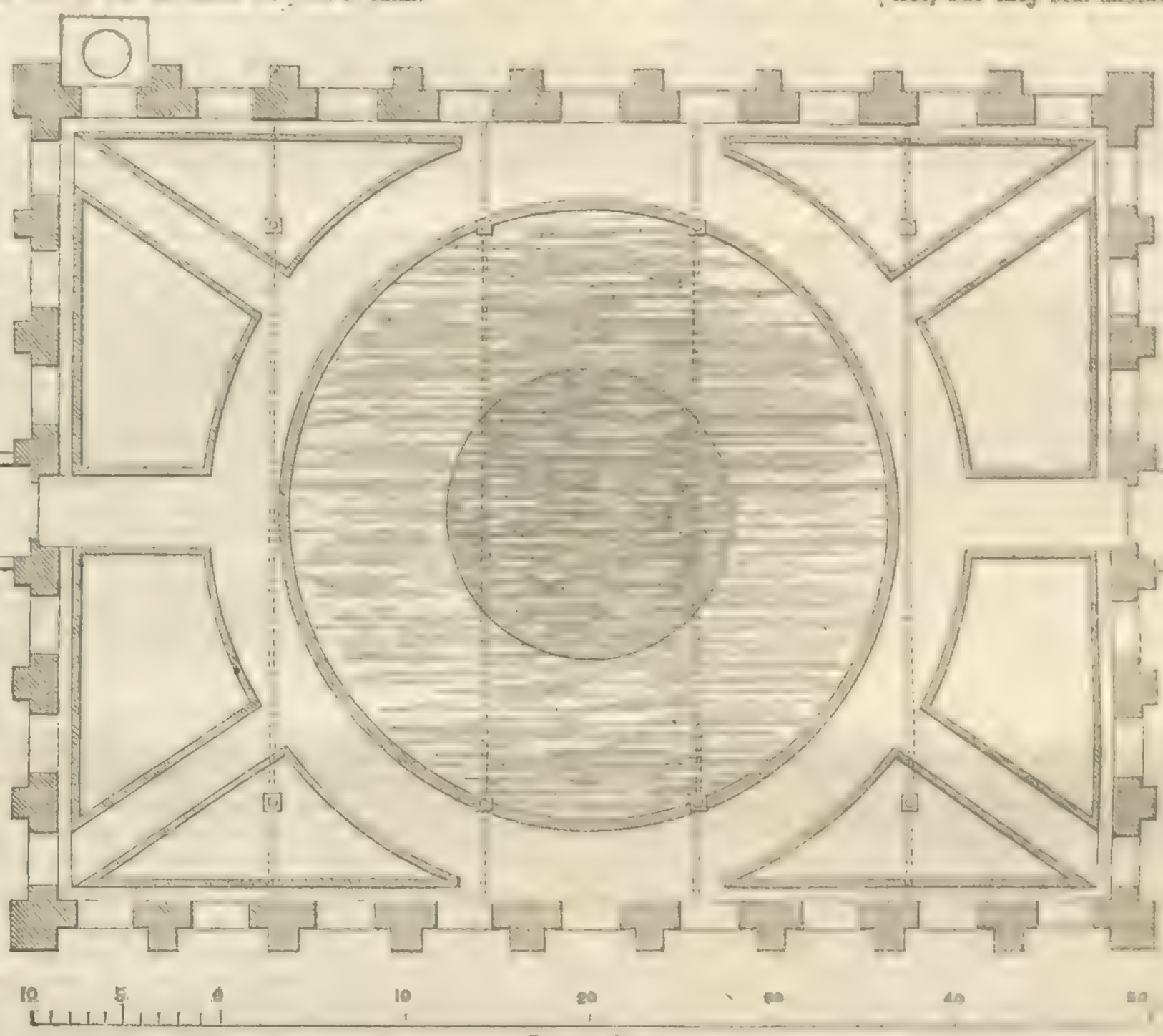
The next important consideration is to select a proper situation in which to place the pots to make their final growth before the winter; and as the formation of strong fruitful crowns, or flower buds, mainly depends upon the plants being fully exposed to the sun, it is necessary to select a level space, open to the sun, and tolerably sheltered from rough winds. Let it be well covered with finely sifted coal ashes, and on these place the plants in rows at one foot apart, and the pots one foot apart in the rows, centre to centre. Place them quincunx fashion, so that the sun may act well upon them, and the air may circulate freely about them, which is the only way to keep the plants short and stocky. If they are placed close together the plants will be drawn up weakly, and the crowns not being sufficiently exposed, will be small and attenuated, and by no means so well able to submit to the vicissitudes of rigorous weather, or so capable of carrying a remunerative produce of fruit.

Great care must be taken that the plants are never allowed to want for water. If they are so left for any time, the advent of red spider may be safely predicted, and red spider when once established is not easily eradicated. It is during this part of their growth that the advantage of a perfect system of drainage will become apparent, because if the soil is soddened in consequence of the water not percolating freely through it, the plant will dwindle and never form a flower bud capable of carrying fruit. Such plants should always be rejected, and to make up deficiencies arising from such causes an extra number should be potted over and above the stock required. In order to increase the strength of the plants, as soon as the roots have reached the outside of the pots they may be treated to some clear liquid manure, at least once a week, but rather oftener if the plants appear to like it. This, however, must only be for a few weeks

because as winter approaches the plants must be encouraged to go to rest, and therefore must not be stimulated. This will bring me to treat of the autumn and winter management. *John Cox.*

VICTORIA REGIA AT CHATSWORTH.

If the 1865 visitor to Chatsworth saw nothing but the magnificent Victoria regia there this season he would be rewarded for the call. It was the finest we have seen by far, completely furnishing the large circular tank, and displaying 15 fully developed leaves, all turned up 3 inches at the edge, and without a speck, besides the usual proportion of younger ones. Forty flowers had been developed up to the 10th of September. The water is kept warm—from 85° to 90°. There is plenty of food given to the plant—many loads of loam, instead of the small heap that some supply it with; and there is plenty of light and heat in the house. The Victoria has not yet been grown as large as it may be—even in this great tank the leaves have to be cut out of each other's way occasionally. As many of our readers may not have seen the magnificent Victoria House at Chatsworth, we reproduce some of the illustrations published in our volume for 1850.



Ground Plan.

ON PRUNING.

The following observations on this important subject were made at the Amsterdam Botanical and Horticultural Congress, by M. J. Van Hulle, the head gardener of the Botanic Garden of Ghent, and excited so much attention that the three first meetings of the horticultural section were entirely devoted to their discussion. M. Van Hulle's paper was read in the English, German, and Dutch languages. We lay before our readers the English version, with a few requisite verbal corrections:—

"You most likely know already how fully convinced I am of the general superiority of what we call the rational system (*taille raisonnée*) of pruning fruit trees; my intention is to explain in a few words what we mean thereby, and further, to submit this question to your consideration—whether you could not practise it in your country with the same success as we do in ours.

"In England you have generally small fruit but an abundant supply of it; you get it, however, more often by chance than by art. If the soil be stony, as in most places, either permeable or made so by drainage, you have, if not perfectly formed trees, at least beautiful ones and loaded with fruit. But if the soil be damp, rich, and consequently the growth vigorous, scarcely any fine fruit can be obtained, if the trees are not treated according to their requirements. To be able to do this, it is necessary, in all cases, to consider: firstly, the form to be given to the tree; secondly, the different parts of which the tree is composed; and thirdly, the functions which each of these parts has to fulfil.

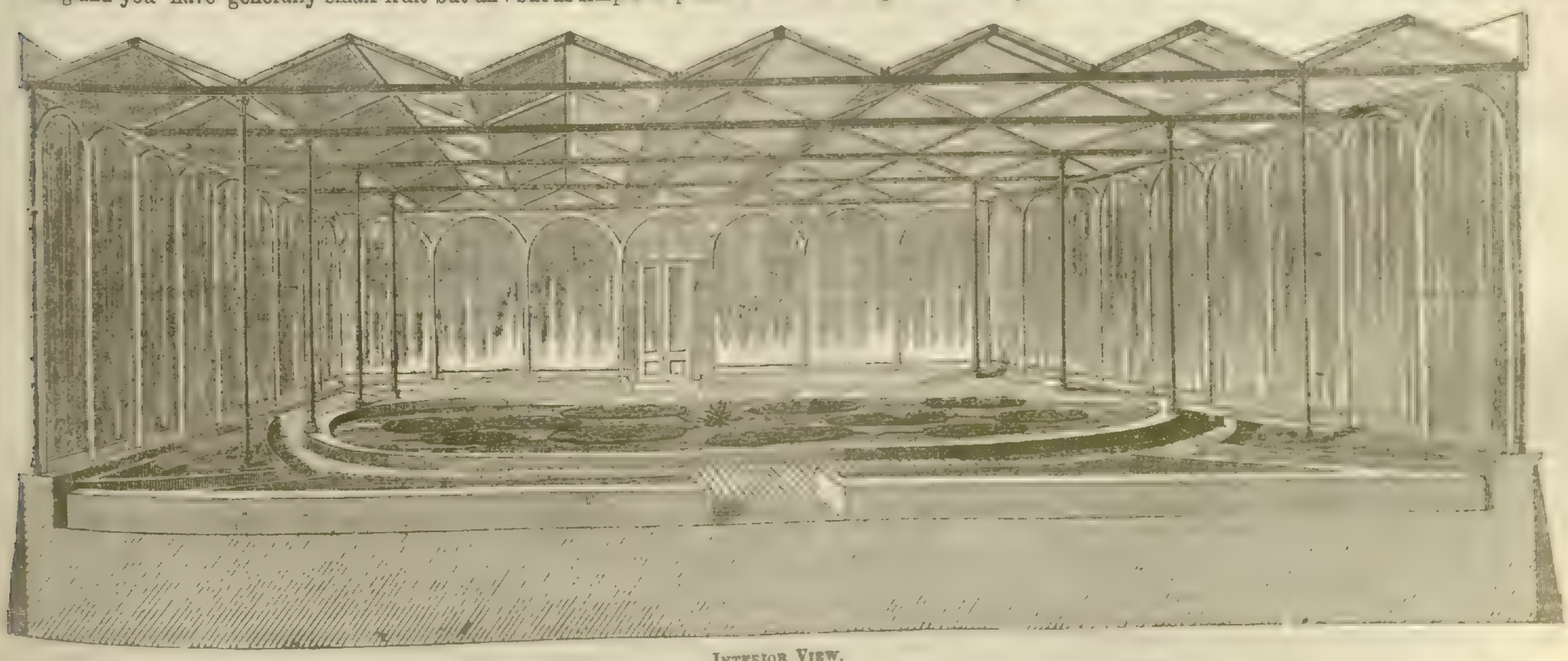
"It is by means of the leading or parent branches that the form of the tree is given. These forms may vary more or less, but should not be too complicated, but as simple as possible. The leading branches ought to be very straight, and instead of all spreading from the same point on the stem, or nearly so, a sufficient space should be left between each of them, the spaces being larger or smaller, according to the nature of the tree. In all cases, the intervals between the leading branches should be as equal as possible.

"If, in order to fill up the space, some of them are required to ramify or fork out, then it is with the lowest leading branches that the bifurcation is to be found; they must also be the strongest—symmetry must exist everywhere. Now, as we have observed, the leading branches give the form of the tree, but they bear another kind of wood, namely, the bearing branches which give the fruit twigs, and often also the reserve fruit twigs for the following year; so that, in every tree to be pruned, whatever may be its form, only three or four kinds of branches exist. This being admitted, the task of the pruner is much simplified: indeed, knowing that each of these four parts has its own functions to perform, and may not, unless exceptionally, be charged with that of another part, it will be much easier to operate than if no proper distinction at all were made, as in most old systems of fruit-tree pruning.

"Let us now see what are the functions of each of the above-mentioned branches, and how we can obtain the desired results; this is the essential point which the pruner ought to know and to observe. First, the leading branches must not give any fruit, but, after having been strongly established by former short prunings, they must become longer every year, in proportion to the greater or less vigour of growth. They must bifurcate or fork out where necessary, as I have already explained, and give at the same time on their last year's wood, the rudiments of the bearing branches of the following year, which, to be of good shape, should rather be too weak than too strong. If then the leading branches are left too long, the lowest eyes do not break, but they remain dormant, and leave the following year empty spaces. If they are cut too short, the bearing branches shoot out so vigorously that even by pinching them in summer and by leaving the leading shoot free, as is generally done, the growth cannot be stopped.

"Such are the most important considerations with respect to the leading branches; along these the bearing branches ought to be placed, at regular and convenient intervals, and be as short as possible, in order to prevent confusion, to admit the free action of sun and air, to take up less room, and also to produce and bear fruit better. All that remains to be

End Elevation.



Interior View.

done to accomplish this is to cut them the first year the length of two or three buds only, whether they have fruit buds or not. Too often this capital point is neglected, and empty spaces are sooner or later the consequences of this error. Now, on the bearing branches, the fruit shoots exist single and isolated, and remain for several years, as in almost all 'pepin' fruit trees (Apples and Pears); they should also be kept short by pinching, &c. In all cases these operations should be done in proportion to the strength of the tree. But if the fruit shoots produce fruit for one year only, as in almost all stone-fruit trees, and if of course it is necessary to renew them every year, care should be taken that the fruiting or fruit-giving shoot itself, or still better another (a reserve fruit twig) left on the same bearing branch, be destined to take the place of the former fruiting shoot which is cut off. Such are a few interesting points of the rational system followed in Belgium. As far as I have seen, both in your authors and in some of your gardens, this system is not much practised in England, except in the Horticultural Gardens at Chiswick, where, at my last visit, Mr. Thompson had begun to form some trees after the so-called new models."

Home Correspondence.

Douglas Fir.—Those who have seen the magnificent flagstaff in the Royal Gardens, Kew (149 feet high), will have some idea what this fine Fir is capable of becoming in its native forests. Thinking, therefore, that it might be interesting to know how well it thrives in the far North, I beg to furnish an account of a beautiful specimen of it which I lately saw growing amongst other Conifers in the grounds of Sir James H. Burnett, Bart., Crathes Castle, Deeside, Aberdeen. It was planted, when very small, in the spring of 1849 (17 years ago), and it is now upwards of 46 feet high, thus showing that it has increased, on an average, upwards of 2½ feet each year. It is one of the most handsome specimens I have ever seen, clothed as it is with fine healthy vigorous branches from top to bottom. There may be larger specimens in the country, but I consider the tree in question exceedingly interesting, showing, as it does, how well suited it is to our climate. Why is Douglas Fir not more extensively planted, seeing that in the very "home" of our native Scotch Firs, where they attain their largest size, it can equal them in point of hardiness, and far excels them in rapidity of growth? In contiguous woods I measured some examples of Scotch Fir, remnants of the great forests which once existed there, and I found them to be above 9 feet in circumference at 4 feet from the ground, and to be between 80 and 90 feet in height. They have clear trunks destitute of a single branch for 50 or 60 feet. Wellingtonias seem also to do exceedingly well; they are perfectly hardy and grow vigorously. *A. F. B., Chiswick.*

White Nice and Syrian Grapes.—The Grape called here the "Nice" has a larger leaf and bunch, and a smaller and rounder berry than the "Syrian." I should be glad to know if we are correct in the names. *David Finlay, The Gardens, Rokeby Park.*

Macroglossa stellatarum, or Humming-bird Moth.—As many of your readers seem to be interested in this beautiful moth, owing to its abundance this season, I may perhaps be allowed to put on record a contradiction to a statement quoted a week or two ago—that it is led to flowers by smell. Some years ago I had my drawing-room walls covered with an extremely well-made French paper, on which bunches of flowers occurred at regular intervals, and on several occasions I have seen this sphynx hovering over them, and vainly attempting to insert his proboscis. I think this is conclusive that it is guided to its food by sight and not by smell. *Isis.* —— I have observed the humming-bird moth flying towards the walls here, as if anxious to emit something sipped which was not agreeable to it. Nimble Dick is a very good name for it, for it is really very quick on the wing. I have caught seven this season, and I have one now living which I caught this morning. There has been a great abundance of them in this neighbourhood this season. *J. Noon, Welton, near Daventry.*—— As the appearance of the humming-bird moth seems a novelty in England, it may be interesting to know that we have observed it also in this neighbourhood early in the summer, and during the present warm weather scarcely a day passes without my seeing one hovering over Pelargonium flowers, but never alighting on anything, which makes it difficult to catch. I have, however, twice caught one in the house. It has also been seen in Leitrim as early as the beginning of June, and caused much surprise there, being mistaken for the real humming bird! Its loud hum is very peculiar, and I always know when one is near. *C. L., Co. Wicklow, Ireland.*——"C. W. D." mentions (p. 892) having seen four of these at one time. Here they may be seen by the score. I never before saw this moth in such numbers, but with the exception of wasps I am of opinion that most insects have this year been more than usually plentiful. Our little enemy the Codlin Moth (Carpocapsa Pomonella) must also have been present in great numbers, for the Apple crop in this part has suffered severely from the grub. Quite one-third has fallen from being what is generally termed worm-eaten. *D. Uphill, Moreton Gardens, Dorchester.*—— You have already mentioned the appearance of this insect in various places. I subjoin another record from the *Times*, the letter being signed "J. Y. Akerman, Abingdon:"—"The long-continued fine weather has been very favourable to the development of insect life. To this cause may be attributed the appearance of that curious insect commonly known as the 'humming-bird moth.' I have had one or two in my garden at intervals every day for the last four months, and my neighbours have been visited by it in like manner. I learn also that it has been frequently seen in several of the neighbouring villages, where hitherto it has been so great a stranger as to be unknown. This insect may be immediately recognised by its rapid flight and by its constantly feeding on the wing. I have not seen one of them perch. They seem to be very partial to the Larkspur; in fact, I have not seen them operate on any other flower this year. Can any of your readers account for the appearance of this moth?" *H. R.*

Basket Plants (see p. 920).—Campanula fragilis is a decidedly trailing plant, which, as regards colour of flowers, comes as near to Plumbago capensis as any flower with which I am acquainted. It produces blossoms in profusion, and is in full bloom now. A more suitable plant for a bracket or hanging basket it would be difficult to find. *J. M. W.*

Chrysanthemums on one Stem.—What constitutes a Chrysanthemum "grown on one stem" for exhibition? The schedule states that they are to be grown on one stem, the stem to be seen distinctly above the surface. Will it meet this, if after striking the cutting, the head is pegged down to make roots, and suckers allowed to come up? Or, after striking the cutting, must the plant be formed by frequent stoppings without pegging, cutting away all suckers that may come up, so as to show from 1½ to 2 inches of clear stem? *N. B.* [Undoubtedly the plants must be formed from ramifications issuing from the one stem, entirely above ground—and it can very well be done.]

Iresine Herbstii alias *Achyranthes Verschaffeltii.*—Being one of the first to recommend this for the decoration of the flower garden, after reading Mr. Robinson's remarks respecting it, I was particularly anxious to ascertain the reason why it should be condemned for that purpose. At Battersea I found it to be truly miserable, as your correspondent states, and at first I could scarcely believe that the plant I saw was the Achyranthes, it was so very different from my stock of it at home. In other parts of the Park where it was used for edgings and mixed beds, it was equally miserable, and, placed beside that gem of all bedding plants, Coleus Verschaffeltii, with its frosty white edging, it was miserable indeed. At the Ashburnham Nursery, Chelsea, I found the Achyranthes to be quite different in colour from what it was in the beds at Battersea, being of a rusty brown; while at the Park in question it was of a faded pink hue. It looked better at the Crystal Palace, Sydenham, than at any other place which I visited; even there, however, it was not good. I have over 700 plants of it in use at Osberton, where its colour is really beautiful; it is now thriving most excellently, while the Amaranthus is fast dying away. Mr. Glendinning told me on the 29th ult., that with the exception of a small quantity of it which he saw at Messrs. Dickson's, of Chester, he had not seen anything approaching the beauty of my plants at Osberton. I, therefore, still maintain the opinion which I first formed of it, viz., that it will eventually prove a boon to the flower gardener when better known and properly managed. The past summer has been too hot for it; to have it in perfection it should be planted in a moist, shady situation. It will then amply repay the cultivator, and will soon redeem its lost character. Indeed, as I before stated, it will stand at least 10 degrees of spring frost, and thrive in places in which the Amaranthus will not live. If next summer should prove a wet one, instead of one like the past, I believe that the Achyranthes would be the most effective plant in the flower garden. That it has been wrongly treated there can be no question, for instead of being planted in the shade, it has been fully exposed to a burning sun. Its colour is so good here that the Viscountess Milton, the lady whom I have the honour to serve, has so arranged the bedding for next season that the Amaranthus melancholicus will be quite superseded by the Achyranthes, two beds of which, edged with Mrs. Pollock, have been greatly admired during the past summer. I have sent a box full of it for your inspection, in order that you may see how fine its colour is with me. *Edward Bennett, Osberton Hall, Worksop, Notts.* [The colour was a fine rosy crimson, very beautiful; but if it must have moist shade, it can hardly keep a place in the parterre.]

Unseasonable Pear Blossoming.—In Sanford Lane, Stoke Newington, within three miles from Shoreditch Church, there is at the present time (September 25), a fine old Pear tree with not less than 150 blossoms fairly expanded on it. However common such a sight may be in the western or southern counties, I fancy that it is almost unique so near London, and deserves passing notice in your columns. *G. T. S.*

Planting in Peat.—The following remarks have reference to a narrow but deep tract of pure and very deep peat on my property, between brownstone hills on one side and limestone on the other. It is in a hollow, and water flows through it in various channels, and is to be found wherever a hole is dug at about two or three feet in depth. It was planted with Scotch and Spruce Fir about 35 or 40 years ago; these grew rapidly, and are now large healthy trees wherever they had sufficient room to spread their roots in the dry peat above water level. The Larch trees growing in this peat are remarkably large and healthy, with [illegible] clean trunks and spreading branches. Birch and Alder grow from seed like weeds. The Ash grows very freely, but the timber is not close in the grain. Poplars attain a huge size in a comparatively short time. The Weeping Ash grows well and luxuriantly, as does Evergreen Oak, Bay, and Red Cedar (Juniperus virginiana); one of the latter, about 25 feet high, is a mass of [illegible] dark green. Fuchsias grow most freely, even when neglected and allowed to contend with Briars. We had an Erica arborea fully 12 or 15 feet high, which was killed by the winter of 1854-55. Evergreens grow perfectly wild. The branches of Rhododendrons take root in all directions and will form a jungle if left to themselves, while on every bare and shaded bank their seedlings spring up in myriads. The following are the dimensions of a few plants of [illegible] years of age. One Rhododendron measures 13 feet in height and 18 feet in breadth; another 11 feet high and 13 broad, and I might find larger. A pink Azalea measures 10 feet high and 13 feet broad; an orange Azalea 11 feet in height and 13 feet in width; a healthy specimen of Rhododendron arboreum, which was covered from top to bottom with the richest bloom last March, measures 14½ feet in height and 16 feet in breadth. Your correspondent, "A Fen Man," inquires (p. 892) how Berberis Aquifolium will grow in peat. I only knew of one specimen of it so planted, and it was sickly for many years until it died; but some young plants of it are doing well. Different kinds of Hollies do very well indeed, and Laurels, Aucubas, and Arbutus flourish. The immense roots of ancient Pine, still red and resinous when cut, prove that this peat in which they are found, was most suitable for their growth. *A Subscriber from the South of Ireland.*

Foreign Correspondence.

New Zealand Gardening.—Mr. Swale's garden at Christchurch, almost entirely confined to the cultivation of fruit, comprises about an acre of ground, well sheltered from winds. The French Pears are here cultivated with great care and skill, as well as other sorts from Belgium and the Channel Islands, not forgetting the good old English sorts. Our English sorts are quite able to compete with foreign ones. We will just give one instance to illustrate this fact. When our English Chaumontel found its way over to Jersey and Guernsey, the fruit became much larger than it could be grown at home, owing to the more salubrious and warmer climate. We are not far behind the Guernsey people here with the old Chaumontel. Such good old kinds of English Pears as Knight's Monarch, Bergamots, and many other sorts will stand their ground, and cannot well be discarded. The collection of Pears in this garden numbers nearly 70 sorts. Flemish Beauty, or Fondante du Bois, as it is sometimes called, must, we were told, be gathered before it parts readily from the tree, otherwise the fruit becomes dry and musky; it is very probable that this Flemish variety is in the possession of many who may not be aware of the state in which it ought to be gathered in order to render it melting, sugary, and exceedingly delicious; the tree we saw was loaded with fruit, and was a perfect picture. Glou Morceau is a good bearer; hangs late on the tree, and is a very handsome Pear. Ganzel's Bergamot is rather a shy bearer, but blossoms profusely. It is excellent when ripe, and originated in England from the autumn Bergamot, to which it is superior, but less hardy. Other sorts were noticed in fruit, such as Beurré Rance, Beurré de Capiaumont, Passe Colmar, March Bergamot, and last, but not worst, Williams's Bon Chrétien, the branches being weighed down to the ground with Pears, just beginning to ripen. A good deal of the success in this garden with Pears has been through very seldom using the knife. Fruit trees in this country require very different management to what they do in the mother country. Mr. Swale states that in gardens in Christchurch he has seen Pear trees in particular slashed with the knife most fearfully by persons who had no knowledge of what they were doing. The reverse should be the case, and Nature suffered to take her course.

The variety of Apples cultivated here is far too numerous to admit of description. Among the most popular is Ribston Pippin, of which we noticed a great number of trees with heavy crops, and one in particular, which had been grafted on a Paradise stock. The advantage of grafting on stocks of this kind was very clearly illustrated by the samples of Apples we saw on the tree: they were much larger than on the other trees. Two or three of them were found to measure 12 inches in circumference. Last year six Apples from this tree obtained the first prize at our Horticultural Show; they were the finest Ribstons ever seen in Canterbury. Dumelow's Seedling, or Wellington, is an Apple well known both in the colonies and at home. It is an excellent kitchen Apple, a long keeper, not apt to shrivel or lose its briskness. We noticed some fine fruit of this sort on the trees; and we remarked, at the same time, good crops of the French Crab. The French Crab and Wellington Apples remain in season until the early sorts of Apples appear. Two seedling Apples turned out to be, one very like the French Crab,

and the other a good table Apple very much like Court of Wick. There are two sorts of Nonpareils and very large King of the Pippins, with numerous other sorts, not forgetting the old favourite Golden Pippin.

Most of the Peach trees were very heavily laden with fruit, no unusual thing in this country, very different from the mother country, where much labour is bestowed on their cultivation. The American Pound Peach found its way here from Sydney, and we saw about half a dozen Peaches on a young tree, justifying the name. We have in the colonies almost as many names for Peaches as we have for Apples, which causes a good deal of confusion.

Only two kinds of Nectarines have been fruited in this garden as yet, though many young trees of other kinds are flourishing. The merits of the Elruge are well known. The Stanwick found its way here from Sydney, and seems to do well. The flesh is stated to be exceedingly tender, juicy, rich, and sugary.

A great variety of Plums are grown, and amongst them some very healthy trees. They are classified according to colour of fruit, viz.: Black or blue-fruited, green-fruited, red or purple-fruited, white or yellow-fruited. The St. Martin's Quetsche seems to do well in this country, and it will be found in due course of time to be a great acquisition for the purpose of drying. It is very nice to eat from the tree as well.

The season for Cherries was gone by, but we may notice that Bigarreau Napoleon does well here. It is a good bearer, resembles the Bigarreau, but is darker coloured; no other Cherries equal it in size. The Black Tartarian is found to be a good black Cherry, and valuable for its earliness. All sorts of Cherry trees bear very abundant crops in Canterbury.

Of Miscellaneous Fruits, we noticed some round Damsons. Two sorts of Grapes, with a fair crop on each, namely, White Muscadines and Black Cluster, both very hardy. Also, some Medlars and Pear-shaped Quinces, and, last of all, some nuts of the true large Spanish Cob. The nuts came out from England direct some six years ago. The seedlings have been nursed ever since with great care, and the result is that the bush has a fair sprinkling of large nuts on it. This is no doubt the first time this sort of nut has fruited in Canterbury.

Societies.

Royal Horticultural: *Oct.* 3 (*Floral Committee*).—Charming collections of Roses, considering the season, were contributed on this occasion by Mr. Turner and Messrs. Paul & Son. Among the varieties were the fine new yellow Rose named Maréchal Niel, Madame Charles Crapelet, M. Vaillant, M. Victor Verdier, Charles Lefebvre, King's Acre, Duc de Rohan, Gloire de Dijon, Celine Forestier, Yellow Austrian Briar, Souvenir de Malmaison, and many others, for which special Certificates were awarded. Several Dahlias were also shown by Mr. Turner and Mr. Bragg, to the former of whom a Second-class Certificate was awarded for Le Domino Noir, a very dark fancy kind, boldly tipped with white. From Mr. Turner likewise came a collection of Lilliputian or Bouquet Dahlias, the names of some of the best of which were Little Virginie, Burning Coal, Little Mistress, Little Philip, Northlight, Progress, Little Wonder, and King of Purples. For these a special Certificate was awarded. A First-class Certificate was awarded to Mr. Rawlings for a medium-sized bedding Dahlia called Little Beauty, orange colour, tipped with red. Nerine Fothergilli came from Messrs. Paul & Son; and a charming mass of Solanum Capsicastrum hybridum, loaded with orange-red berries, about the size of marbles, was contributed by Mr. Macintosh of Hammersmith. This handsome new Solanum, which received a Certificate when shown on a former occasion, looks as if it would form an admirable plant for indoor jardiniers. The same exhibitor also showed a well-flowered Veronica, in the way of V. decussata, named Madame Jacotot. This promises to form a good companion to the well-known V. Andersoni, which this warm autumn has induced to flower in unusual profusion in open borders. In pots, however, these Veronicas have a highly ornamental appearance, and well deserve to be largely cultivated for the decoration of cool conservatories and greenhouses late in the season. From Mr. Priest came the narrow-leaved Asplenium dimorphum. Mr. Melville sent one or two Tropæolums, not in good condition; one or two Pelargoniums came from Mr. Geo. Smith, of Hornsey; Ipomœa Bona Nox and a species of Quamoclit from Mr. Earley; and a panful of a little red-leaved plant, called Alternanthera amœna, from Messrs. Downie Laird & Laing.

Oct. 3 (*Fruit Committee*).—Mr. Earley, gr. to F. Pryor, Esq., Digswell, received a 1st prize for three dishes of fine-looking dessert Apples, consisting of Cox's Orange Pippin, Ribston Pippin, and Sam Young. Mr. Cox, Redleaf, had a 2d prize for very good fruit of Cox's Orange Pippin, Pitmaston Nonpareil, and Ribston Pippin. From Mr. Whiting came Ribston Pippin, Sudbury Beauty, and a kind without a name. Mr. McLaren, Cardington, sent the Melon Apple, Ribston Pippin, and Margil. In other collections we noticed Fearn's Pippin, King of the Pippins, and Sam Young. Mr. Whiting furnished a collection of Pearmain Apples, consisting of very good specimens of Adams', Claygate (?), Parry's, Traveller's, Lamb Abbey, Winter, Mickleham, and Mannington's Pearmains, for which a 1st prize was awarded. In the class of three dishes of Pears Mr. Whiting was 1st with fine fruit of Thompson's, Marie Louise, and Comte de Lamy. Mr. Earley, who was 2nd, had Brown Beurré, Gansel's Bergamot, and Marie Louise. Mr. Ivery, of Dorking, sent the same varieties as Mr. Whiting. Mr. McLaren had Glou Morceau, Marie Louise, and Beurré Bosc. Mr. Ruffett, gr. to Lord Palmerston, had a beautifully grown Providence Pineapple, weighing 9 lb. 6 oz., for which a special Certificate was awarded. A dish of Muscat Hamburgh Grapes was contributed by Mr. Osborne, of Finchley, which, although somewhat deficient in colour and flavour, were awarded a 2d prize. An amber-coloured Grape, called Baxter's Seedling, was not considered to be any improvement on existing varieties. Mr. Graham's Cranford Muscat Grape upon trial fully confirmed all that the Committee had previously said in its favour. A Grape called Napoleon, shown by Mr. Ingram, of Frogmore, was considered, as has been indeed previously stated in our columns, to be a very useful sort for open walls; and good specimens of Black Prince from out of doors came from the Society's Garden at Chiswick. Mr. Alexander Stewart contributed a most excellent Peach, provisionally named Slindon Park, for which a First-class Certificate was awarded. It is a free-stone, as large as the Late Admirable, and in all respects a desirable melting late variety. A First-class Certificate was awarded to Messrs. Paul & Son for very good examples of Belle de Fontenay, and red and yellow Four Seasons Raspberries. From the Society's Garden came a collection of Plums, in which were good examples of Ickworth Imperatrice, Coe's Golden Drop, Dunmore a kind in the way of the last mentioned, and Coe's Late Red. The same collection also contained the Royal Bullace, a better sort than the ordinary white kind; and German Prince, an oval black Plum; Cushing, a yellow-fruited monthly Raspberry, and Brinkley Black Autumn Raspberry also came from the Society's Garden. Mr. Wm. Hand, Newcastle, contributed large handsome specimens of a new white Potato called Freedom, of which highly satisfactory accounts had been furnished from well-known authorities.

British Association.—We add a few more passages from the reports of the Sections:—

In Section B. (Chemical Science), Dr. S. Macadam read a paper on Esparto Fibre, or Spanish Grass, and its employment in the manufacture of paper. During the last three years, large quantities of a Grass obtained from Spain have been employed in this country in the manufacture of paper. Delivered in Great Britain, it costs about 5*l.* 10*s.* to 6*l.* per ton. The recent high price of rags has caused a demand for Esparto fibre; and should it continue, other countries, as Barbary, which yield the same Grass, will no doubt contribute largely to the supply. The chemical composition of an average sample is: moisture, 9.62; oil, 1.23; albuminous compounds, 5.46; ligneous fibre, 56.28; starch, gum, and sugar, 22.37; ash, 5.04. In the manufacture into paper, the material, first carefully cleaned, is subjected to the action of caustic soda. The fibre, however, is rather short in nature, and hence paper entirely made of it is extremely liable to tear. It is customary, therefore, to give strength by mixing the pulp from Esparto fibre with the pulp from rags, commonly in the proportion of equal parts. The paper so manufactured is largely employed as a printing paper, and the majority of the Scotch newspapers are now printed on it. The spent soda liquor, being of a caustic nature, is highly pernicious and destructive to fish, when it is run directly into a fishing stream; even if diluted to the extent of many times its own volume, the liquid possesses the power of killing them within a few hours. Two plans have been suggested and put in operation for the arrestment, more or less completely, of the soda liquor. The first, the boiling down of the ley, heating the residue with carbonaceous matter, such as fine coal or sawdust, and the recovery of the soda from the calcined mass; the second, the reception of the liquor in large open cesspools, where it may percolate through the soil. Both plans have been successful.

Dr. Macadam also read a paper on the Results of Agricultural Experiments made in 1864. The experiments referred to were undertaken at the author's suggestion by agriculturists in Roxburghshire, and form one of the first series of field experiments carried on in a systematic manner in Scotland. Twelve different manurial mixtures were used in the trials, and formed a set of experiments, whilst 10 farmers made arrangements for carrying out the experiments. These mixtures consisted of Peruvian guano, phosphatic guano, phospho-guano, bone-ash, superphosphate, guano-superphosphate, sulphate of ammonia, and ground bones, taken singly or mingled together in definite proportions. In each set of experiments the various operations were conducted on the same day with the plots of ground allotted to each manure. The soils on which the experiments were made were in part of a heavy nature, and in other part of a light character—the proportion of each being equal. Each experiment was conducted on a quarter of an acre, and the 12 experiments consequently required 3 acres on each farm. The crop was Turnips, and the yield or produce was weighed on the field. The results obtained were various on the different farms, as the manures which gave the largest return on one farm did not yield the largest crop on another. These variations are to be expected in all field experiments, and are due to the special circumstances or conditions of each field where the trials are made. Where only one set of experiments are conducted on a single farm, the local influences may materially affect the result; but where, as in the present case, the field operations are conducted on 10 farms, and the mean produce of the 10 trials is obtained, then the disturbing influences of one farm are counteracted or practically neutralised by those of the other farms. Taking the mean produce from the 10 trials, calculated to the same money value for each of the manures, the greatest return of crop was yielded by the dissolved phosphatic guano, followed closely by the Peruvian guano. Indeed, the difference in the produce obtained from the plots treated with these manures was so slight—only 19 lb. to the acre—that they may be regarded as having yielded the same results. In referring to these experiments, it must be remembered that the season of 1864 was exceptionally dry, though the drought was not so great in Scotland as it was in England. The results obtained, however, are valuable as representing the produce obtainable in a dry season; and as a similar series of field experiments are being made this year in the same district, an opportunity will be obtained for contrasting the results for both years.

In Section D. (Zoology and Botany) Dr. Cleghorn read a paper on the Deodar Forests of the Western Himalaya, and exhibited a sketch map, traced from the Great Trigonometric Survey, showing approximately the position and extent of the Deodar tracts between the Jumna and Indus rivers so far as ascertained. He dwelt upon the applicability of the wood of the Cedrus Deodara for railway purposes, for which it is found very valuable. A Government officer was, he said, now employed upon each of the great rivers of the Punjab for working the forest upon sound principles of conservancy. The quantity of Deodar timber brought down the Chenab alone in one year was not less than 12,000 tons. Allusion was made to an interesting and increasing trade in timber upon the Indus and Kabul rivers—an important subject in its commercial and political bearing. The Deodar grows at an elevation of from 5000 to 12,000 feet, in a cold and changeable climate. The natives of the Himalaya invariably prefer the Deodar for building purposes; it is used in the construction of temples, forts, and bridges in damp and exposed situations, with alternate layers of stone, and some of these buildings have stood for centuries. The underground behaviour of this wood in the permanent way has been so far satisfactory in the dry climate of the Punjab. A series of photographs by Col. C. W. Hutchinson, R.E., illustrating the characteristic vegetation of the Deodar tracts and other Himalayan trees, was exhibited by Dr. Cleghorn, who pointed out the good qualities and uses of the various species. He also gave a number of their dimensions and the rate of growth as indicated by concentric circles of the logs floated down the different rivers. The importance of conserving our Indian forests was first discussed at the British Association meetings in 1850 and 1851, and since then the subject has attracted great attention in India and England.

Mr. Tristram followed upon the same subject, remarking upon the peculiar isolation of certain trees of this kind, and mentioned the attempted growth of Cedars in Algeria by the French Government.

Col. Munro thought the Deodar would never be of any use if grown too quickly—the quality of the wood so much depends upon the soil in which it is grown. A discussion took place as to the identity of the Deodar with the Cedar of Lebanon, in which Dr. Thomson, Col. Munro, and Dr. Cleghorn took part.

Notices of Books.

The Orchard House, or the Cultivation of Fruit Trees under Glass. By Thomas Rivers. Twelfth Edition, enlarged and improved. London: Longmans. 12mo. Pp. 205.

Whatever may be said to the contrary, orchard-house culture is progressing. The very fact that this little manual has reached a twelfth edition is sufficient evidence of this, even were it not true, as Mr. Rivers however assures us it is, that within the last year more structures under the name of orchard houses have been built than during any former similar period. There are of course, as our author observes in his Preface—there are of course still doubters as to the feasibility of cultivating fruit trees under glass after this method. Let them, he continues, doubt on in peace; but nevertheless he does the very best thing to disturb and to dispel such doubts by recounting the successful results of his own experience—ever accumulating, and by the aid of which fresh ideas are suggested for each successive edition of a very pleasant reading and instructive book.

We are not going through the details of orchard-house culture, so thoroughly explained in these pages. Those who seek such information must go for it to the book itself. We rather prefer to linger amongst the Peach and Orange groves of which Mr. Rivers writes, and which must form the very elysium of the modern

fruit-grower. Oh the delights to be gathered amongst groves of standard Peach trees bearing "bushels of fruits!" and if these do not prove satiating enough, our imaginative readers may roam *in posse* amid "Orange trees under glass, giving fruit and flowers and a perfumed promenade" of the most luxurious character, where delicious Tangierines and Maltese and St. Michaels yield their "rich and sugary fruits" in prodigal abundance.

But though thus exciting pleasant dreams of Pomona's bounty, Mr. Rivers does not forget to be practical. The bushels of Peaches and the luscious Oranges are not to be had by merely dreaming of them, or even officiously cultivating them, but the trees must have the right sort of treatment. "There is one thing most necessary to be adhered to in the culture of standard and half-standard Peaches under glass—the ground must not be stirred after they are planted. This idea will of course be combatted by some gardeners. I can only repeat, let the surface of your house be as solid as a path, and do not listen to those who advise the contrary.

"A few words about the preparation of the borders of an orchard house before planting. Stir the borders with the fork or spade 22 inches in depth; if the soil be poor, some rotten manure may be mixed with it to that depth. It should rest a fortnight to settle before the trees are planted, and as soon as that operation is finished, tread all the surface firmly, and do not allow it to be shaded by placing too many trees in pots among the standards. If, after a few years, from bearing very heavy crops, the trees become a little exhausted, spread on the surface in March some of the rich compost recommended for surface-dressing, to about three-fourths of an inch in thickness, and allow the roots to feed upon it, but do not disturb them."

Those who have not read "The Orchard House" should do so forthwith, and think well over the modes of treatment they are directed to practise. That it affords matter for thought will be evident from this aphoristic sentence:—"A Peach tree would grow and bear better in the centre of a solid path, than in the richest, deepest, and most fertile soil of a kitchen-garden, if light and dry."

The Elements of Botany for Families and Schools: Published under the Direction of the Committee of General Literature and Education appointed by the Society for Promoting Christian Knowledge. Tenth Edition, revised by Thomas Moore, F.L.S., &c. London: Longmans. 12mo, pp. 204.

This little book, which has been in great part re-written, now forms a compendious guide to the elementary study of botany, and may be used with advantage in families and schools, as the title-page suggests. The paltry figures of the previous editions have been replaced by others selected from well-known standard works belonging to the publishers; about 150 of these being scattered through its pages. A very ample glossarial index is given. Not the least of its recommendations are the clear and legible type, and the careful manner in which it is printed.

Florists' Flowers.

I wish to offer a few remarks on the Dahlias at the late Crystal Palace Flower Show. Although a large number of blooms were staged at this exhibition, which was by far the best which has been held in the vicinity of the metropolis, and these on the whole were of fair quality, there was, nevertheless, to the critical observer a falling off both in quantity and quality compared with former years. The absence of the stands of Mr. C. Turner, Messrs. Saltmarsh, and many others, was inexplicable, unless the hot dry summer and prevalence of thrips prevented them from exhibiting. The alteration of the date of the exhibition, making it one week earlier than first announced, was not, in my opinion, beneficial, but rather the reverse, as the best blooms are always obtained in September, the colours being then more persistent, the flowers, moreover, holding on better in the long cool nights of September than in the usually hot and arid nights of August.

Amongst the new Dahlias sent out last spring, Leah stands pre-eminent in quality, although Bird of Passage, Edward Spary, George Wheeler, Stella Colas, Lady Gladys Herbert, Champion, Purple King, and Annie Weeks, must not be lightly passed over, as they are all fine, and will doubtless be found in winning stands for some years to come. Bird of Passage is very attractive, from its exquisite Picotee-like edge; and Lady Gladys Herbert is very novel and distinct; they are evidently first-class kinds.

Amongst older kinds I particularly noticed Peri, Mrs. Hogg, Chairman, Umpire, Garibaldi, Golden Drop, Baron Taunton, Miss Herbert, Foxhunter a fine scarlet, Brunette, British Triumph, Miss Henshaw, Earl Pembroke, Edward Purchase, Miss Herbert, Mrs. Trotter, Jenny Austin, and Lord Derby, as being very fine, especially those in Mr. Keynes' stand; nothing could be more beautiful than these varieties.

In the Fancy class, the best flowers were Magpie, Glory, Regularity, Formidable, Sam Bartlett, John Bunn, Queen Mab, Pauline, Marvellous, Lord Warden, Yearling Duck, lilac striped with black, and Garibaldi.

Seedlings were as usual very numerous. The best exhibited was that called Marquis of Winchester, a dark chocolate, and a noble flower. Next to this was Mrs. Savory, white, lightly edged with purple, a very useful addition to the class of laced flowers, but somewhat flat and low in the eye, evidently a very certain kind, but not equal to a fine bloom of Umpire. Yellow Triumph (Wheeler); Lady of the Lake, blush, edged with purple; James Backhouse, deep purple; George White, deep purple; Bullion, yellow; Master of Arts, fawn, a finely shaped flower, are all likely to be useful additions. These in fact are all that I noted as being equal to or improvements on existing kinds, although others would probably, if seen again, be found worthy of notice. Pope's Fanny Sturt, a deep red edged with creamy white; and John Bunn, orange striped with crimson, will be two good additions to the so-called fancy class. Messrs. Rawlings, Legge, Hopkins, Turner, and Keynes had many seedlings which, if grown in a season more suitable for the Dahlia than the present has been, would probably attract more attention. Amber Witch, amber edged with crimson-scarlet, is very showy and attractive, and I have seen nothing like it since Andromeda was cultivated.

A Second-class Certificate was awarded to a large coarse flower, with orange-yellow ground colour, striped and flaked with crimson, named Chang, after the Chinese giant; compared with this, old Lee's Bloomsbury was a model, and what the Judges could see in it to merit a second-class award, when many really fine seedlings were passed unnoticed, puzzled me as well as many other old exhibitors. It will, no doubt, if not a tall grower, be a showy border flower, and that is all. Such decisions as this give room for anything but eulogistic remarks on the judgment displayed.

I also noted an innovation which, if not stopped at once, will injure exhibitions not only of florists' flowers but of plants also. This was the giving an exhibitor "two prizes" in the same class, a proceeding directly at variance with all rules and regulations in florists' societies. It is unfair to exhibitors as a body, as it places the small grower entirely at the mercy of the large one, the latter being always able to select, from a large quantity, stands almost *ad libitum*; whereas the smaller grower with difficulty makes up a good stand, probably slightly inferior to the larger grower, and consequently loses what he justly considers his prize. This was evidently a sore point with many exhibitors; and the managers of Shows will do well to see that the wholesome regulation above alluded to is not again infringed.

Another reprehensible practice has sprung up of late years, and that is exhibiting seedlings along with named flowers. This is quite as unfair as taking two prizes in one class, as the raiser or purchaser of a seedling grows a goodly number, so as to be able to produce six first-class blooms on any given day, and is generally able, therefore, to place some in his stands, and these being generally improvements on existing kinds, those who so use seedlings gain an undue advantage thereby.

The two annexed rules used to be printed in every schedule of note in my younger days:—"No exhibitor to take more than one prize in each class." "Seedlings not allowed to be exhibited with named flowers in the stands." It would be well if they were again to be permanently adopted. In those days using seedlings in a stand would disqualify it. Now, however, both exhibitors and judges seem to ignore such questions, and the consequence is dissatisfaction. The true florist only requires a fair exhibition and no favour, and he is then well satisfied.

I would also add as a hint to the managers of exhibitions, that it is a great improvement in the arrangements if a green baize partition is run the whole length of the table. A dark background adds greatly to the appearance of the flowers, and prevents visitors seeing the backs of the stands. The want of such a centre gives a meagre aspect to the tables, however well they may be otherwise furnished. It would also be a great boon to exhibitors if the managers of shows would have stands of their own, for the autumn exhibitions especially, so that they might be all uniform in colour and size. At present it generally happens that scarcely two are alike, which is anything but pleasing to the eye. The cost would not be a material question, and any of the leading exhibitors would furnish the correct dimensions. Exhibitions would most undoubtedly be rendered much more attractive if the stands were uniform in size and colour. *William Heale.*

Is the Rose a Florists' Flower?—Under "Florists' Flowers" I find, at p. 894, a well-timed letter about the new Roses with which the French Rose growers gull our innocent English florists, who believe that a grand French name must mean something good.

I beg humbly to protest against our "Queen of Flowers" being classed as a florists' flower, which like the old-fashioned English florist seems to be on the wane. The latter, as far as I remember him, was rotund, ruddy, and remarkably good-natured; had a great turn for a pipe, which he smoked over his Tulips or Auriculas in a most enviable happy mood, particularly if he was looking over a Tulip with a "clean bottom," an Auricula with a perfect "thrum" (I think), and colours well defined, or a Carnation well arranged on its card. How well I remember some four or five of such men with their pipes gloating over their flowers, and the good-natured smile of utter contempt—yes, utter, although kind—they would give when I, a young enthusiast, ventured to call their attention to a bizarre Tulip, gaudy but "foul," to an Auricula not but "pin-eyed," or to a Polyanthus quite glaring in its coat of velvet and gold, labouring under the same defect.

This was long before the Dahlia period, and when the fancy for florists' flowers was confined to a class of good, industrious men, who spent their leisure hours among their favourites, and thus avoided the demoralising effect of the ale-house.

When Dahlias became fashionable they led to the same species of charlatanism among English florists that now exists among our French neighbours. New sorts in abundance were annually introduced at a guinea each, eagerly bought (but seldom paid for in cash) and soon forgotten. The Dahlia trade in those days was mostly by barter. I am, however, rambling from my subject, which should have been a protest against making the Rose a florists' flower. What are florists' flowers? They are now, I humbly submit, Auriculas, Carnations, Picotees, Pinks, Polyanthuses, Ranunculus, Dahlias, Chrysanthemums, Tulips, and Pansies; perhaps one or two others. These are, I submit, strictly homogeneous. There are no Cabbage or Moss Carnations, no Tea-scented Dahlias, no Bourbon Tulips, no climbing Pansies, no Nosegay Auriculas—every kind is after its kind, and no species exist as is the case with our grand genus Rosa, which is so beautifully diversified as to defy the art of the manipulating florist. All this handling and dressing of flowers before they are exhibited, the law utterly repudiates; no dressing can assist a fine shaped blossom of the most beautiful of flowers. In the list of florists' flowers I have given, the Auricula, the Polyanthus, the Pansy, and the Tulip—I almost think the two last named are sometimes assisted by a cunning florist—are those that are not dressed before being exhibited by the petals being carefully arranged with a small instrument. This applies more particularly to the Carnation and its relatives, to the Dahlia and Chrysanthemum, the petals of which are almost most carefully arranged before the flowers are submitted to the judges at flower shows. I have never yet been able to detect this dressing in Roses exhibited. I think it almost impossible to do so. For Nature so arranges the stiff petals of a fine double Rose, that her handy-work cannot be interfered with. *Rosa canina.*

The Apiary.

"I think that some account of my Bee-keeping in Shropshire may be interesting to your apiarian readers. I commenced in the spring of last year with two stocks; these I placed, not out of doors, but on a window-ledge in a corridor of the house, facing the south. The bees have communication with the open air by means of wooden troughs passing through the glass. I believe that the equalisation of temperature which this situation has afforded, has greatly conduced to the benefit of the stocks, which are remarkably strong. The bees commenced working very early in the spring, and with such effect that both hives, in addition to sending off a large swarm from each, have filled supers with more than 40 lb. of honey, the produce of the two being 83 lb. nett.

"I should, perhaps, say that one of the supers referred to above was finished by a swarm of this year, the stock which commenced it throwing off a swarm when it was about three-fourths filled. I removed the super with the bees that were in it, and placed it on the top of a strong swarm of this season, which completed the work in the most satisfactory manner without losing a day. There was no fighting between the bees thus united. The inconvenience which might be anticipated from this method of keeping bees in such situations, may easily be avoided by a proper arrangement of dividing boards, which an experienced bee-keeper will readily understand; the object being to prevent the escape of bees into the house.

"I am now feeding my weaker stocks, and whilst on the subject, should like to know whether any of your readers have noticed that sugar, given in syrup, crystallises in the cells. This appears to be the case in one at least of my hives; and I cannot help thinking that the bees must find it very difficult to remove, and that it must have an injurious effect on the prosperity of the stock. I have tried the mixing of a non-crystallising material, such as "Golden Syrup," with the sugar, but this prevents the bees taking it so readily.

"I can add my testimony to that of your other correspondents, with reference to the remarkable manner in which bees have attacked fruit this year; and also to the comparative absence of wasps. Is it possible that some of my large crop of honey this summer may have been derived from fruit? *Arthur Maw, Benthall Hall.*"

There is no reason for doubting that our correspondent's bees are comfortably and efficiently housed. Still his success must, in a large degree, be ascribed to the two successive, unusually prolific honey seasons with which we have been favoured. We have tried the keeping of hives in rooms, and in situations somewhat similar to the one described; but we have not had cause to be satisfied with the results. The great drawback to the prosperity of the bees is the cold draught which pours into and through the hive from air seeking to

enter the house by every crevice. This of course is more injuriously felt if the hive be not closely air-tight, with the exception of the one entrance aperture. We have had hives in a small glass-covered sort of balcony, used as a very diminutive greenhouse, situated on, and doing duty by admitting light to, a stairs landing. During summer the bees seemed to thrive well enough, but they dwindled away in the following winter and spring, and never recovered their strength so as to be able to do any good either for themselves or their owner. The cause of this non-success we attributed to the excessive draught, as well as to the occasional great variation in the temperature. In the present case the temperature seems to be tolerably equalised.

An apiarian friend has a glass-covered bee-room, in which he has worked some of his hives most successfully; but his other stocks kept in the garden outside have done equally well. Three years ago, from two hives, one located in this glass house, and the other in the open air, he took two enormous supers, weighing 112½ lb. and 109½ lb. respectively. Supposing the hive in the open air had not yielded its large supply, the glass bee-room would have obtained all the credit for yielding such a harvest, and would have been cried up accordingly as the very best possible locality for placing hives. As such rooms go, our friend's glass-covered apiary is the best we have ever seen. There can be little or none of the pernicious draught pouring into the hives, as there is no communication, save by a close-fitting door, with any part of the house.

Some years since we kept a globe hive in a large drawing room in which there was no fire during the winter. The bees prospered well until the spring, but then the great number of chilled bees which were constantly scattered and crawling about the ground in front, threatening the speedy depopulation of the hive, induced us to send it away to a distant apiary, where it speedily recovered its strength and prosperity.

The account of our correspondent's experience with bees situated as they are, is interesting, and we hope he will, at some future time, favour us with a report of his extended trial. The difficulty of preventing the bees escaping into the house, while manipulating with supers or otherwise, is a very serious objection. No system of dividing boards will answer completely, and it would be almost impracticable to keep any of the improved frame hives in such a situation. The best way to prevent any ill effects from the escape of bees when operating, would be to thoroughly darken the window at which the hives are kept, having light only at an open window in another part of the corridor.

But the fact, that the hives have done remarkably well in giving such supers of honey in addition to two large swarms, still remains, and goes far to prove that the position in which they were placed must be a good one, and there seems no reason for making any alteration in the arrangements. It was fortunate that there was no fighting with the bees removed in the super. We have, in similar circumstances, known every bee so united to a strange stock ruthlessly slaughtered. Bees seem remarkably uncertain in their instincts, and no apiarian, of whatever amount of experience, can say with certainty what may be the result of any given mode of management. We very frequently remove from hives that have swarmed partially filled supers, giving them to swarms or other stocks to be completed, but we have invariably expelled the bees prior to doing so.

With respect to sugar-syrup, supplied as food to bees, becoming crystallised in the cells, we frankly confess that we cannot understand it, having never in our own practice found it to become so. We have supplied such food by the hundred-weight, with no such results. Weigh out in the scales six pounds of loaf sugar to four pounds of water, boil for five minutes; if there is any honey to spare, stir in a pound or two after the syrup is removed from the fire. But even without the addition of the honey the sugar syrup ought not, if properly prepared, to become crystallised in the cells. Golden syrup does not seem ever to be relished by bees. We have long ago tried and discarded it.

Bees do not seem to gain any addition to their stores from their depredations on fruit; since, during the period of their fiercest onslaught, our hives have sensibly diminished in weight. The honey stored in your supers was collected prior to the first visits of the bees to fruit of any kind.

Ants.—With regard to the ravages by the small ants complained of by "Apiator," I think it is probable that they are tenanted not in one small locality but wherever there occurs a hollow in the wall from woodwork behind panels, or the skirting-board, or in the sashes. I have found a little flower of sulphur mixed with the top mould invariably drive the common ants away, whether out of doors or in a pot in the greenhouse, and sulphur has no pungent odour to be offensive in the house; but if this were not feared, plenty of chloride of lime applied to all cracks in the woodwork, or pushed under the skirting-board, or powdered carbonate of ammonia, would probably be more efficacious than sulphur. *Isis.*

M. B.—Bees obtain honey from the Ivy blossoms. In some localities, where this plant abounds, a very considerable addition to the stores is occasionally made. An old Ivy-covered wall will be so enlivened by the visits of innumerable bees, and by the loud and incessant humming of their flight, as to almost deceive some observers into the belief that a swarm had taken possession. The Ivy is now in bloom, and will remain so for a considerable time.

Garden Memoranda.

John Russel's, Esq., Mayfield, Falkirk.—That undulating portion of ground receding from the Frith of Forth as far inland as Falkirk, and running in a wavy line to the confines of Stirling, is, if not the most fertile, at least from a climatal point of view, among the most favoured spots in Scotland. When the rude blasts of winter are telling a tale of devastation and death upon out-door vegetation, not only in the highland portions of the country but in some of the more exposed and uncongenial parts of the county (Stirlingshire), this lower division is mildly dealt with. Trees and shrubs in particular revel in luxuriance, and those charming exotic novelties which it has been our object and ambition to naturalise, more especially in modern times, seem to take kindly to the climate and the treatment they receive. It has been averred, and that too with singular pointedness, that "the eye never gets weary of looking upon trees" that have grown in our forests, and clothed our landscapes for hundreds of years; but it must be conceded that the introduction of suitable and varied forms creates an additional zest to the fancy and ambition of the landscape gardener and the lover of Nature.

Mayfield is one of those places which have sprung up, Mushroom-like, within the last few years, adorned with all those rare introductions that have been sent home from China and Japan, and all the most notable Coniferæ that have been introduced from various parts of the world, not existing on sufferance, or diminutive in proportions, but of such bulk and in such health as to excite the admiration of all and sundry that come within their influence, and stimulate the zeal and ambition of a very worthy commercial gentleman to employ a portion of his means in extending to the utmost an already very numerous collection. The situation for the Pinetum and ornamental grounds has been well chosen, being one of those fertile slopes where the upper stratum consists of that fine mellow loam, rich in vegetable fibre, which is peculiar to the locality, and is sheltered from three points of the compass with timber of some age.

Many of the sorts introduced in the Pinetum are planted in groups of three or more, which very much enhances the general effect, especially where, as in this instance, the distance between the plants is considerable. The sooner that the formal style of planting these fine subjects in lines and squares is done away with the better, and Mr. Russel and his gardener, Mr. Sorley, are striking at the root of that style or mode of planting. True, there is no necessity for planting Conifers in groups on a lawn of a circumscribed character contiguous to a mansion, but where there is extent and shelter this grouping mode is a capital one. To particularise, or even to enumerate all the choice things grown here, would be simply to reproduce a catalogue; but as some things thrive better than others, and are more generally adaptable, the reader's attention may be directed to such as the universal favourite Picea Nordmanniana, which is growing faultlessly symmetrical, and making from 12 to 18 inches annually. This is certainly one of the finest of the tribe. Probably the most wonderful in point of growth is that famous one with which Douglas's name will ever be connected—Picea nobilis, which has these last two or three seasons made 3 feet every year, and which must eventually along with the former drive the common Silver Fir out of court. Pinsapo, too, the most rigidly formal of all tree Conifers, is vigorous in the extreme; and so are grandis, lasiocarpa, and amabilis, all much larger than one is in the habit of seeing, and not in the least degree affected by the climate; while the more common sorts, such as Abies Douglasii, excelsa, Morinda, and others, are doing well. Wellingtonias are maintaining the high character of being free in growth and abundantly hardy, not in the least affected with the disease which threatens in some localities to destroy their ornamental appearance for years. Cupressus Lawsoniana, Thujopsis borealis, which has coned for the last two years; and Thuja gigantea, Lobbii, Craigiana, and aurea, all of which are very general favourites, present nothing to cast a slur upon their character. The famous Deodar and the Chilian Araucaria are the very pictures of health, and form, along with all those mentioned, capital "individuals," either for the mixed multitude occupying the Grass lawn, or for groups in the Pinetum.

Among plants of more recent introduction, Thujopsis dolabrata, and the variegated form of this type, which, in my opinion, in this instance at all events, is a backward move, has stood out uninjured; and so have some of the varieties of Euonymus, which add much to the lustre of our gold and white variegations, as well as the beautiful Holly-like Osmanthus, with its highly-decorative Oleaceous berries. Retinosporas, too, in variety give promise of being safely reckoned in favourable spots as hardy. The handsome and unique Umbrella Pine has stood the test so far, but all these have never had the chance of being subjected to the rigours of a winter like that of 1860-61, to which it is to be hoped it may be some time before we have a parallel. The variegated Lonicera, trained in the form of a canopy, was a most beautiful object, and had flowered at Mayfield during the spring, standing out all last winter without the slightest protection. Here, too, were several plants of Lilium longiflorum japonicum in fine bloom, a handsome plant for mixed shrubbery borders, and not a whit more hardy than the glorious auratum, which has had more admirers than any novelty in any time. What a grand acquisition this will prove as a hardy plant in many localities! and if started away in a frame and planted out as we do our bedding plants, there can be no question but it will bloom out of doors before frost overtakes it.

Modern flower gardening has a diligent and a most successful student in the person of Mr. Sorley, who apparently has the thorough confidence of his employer, the best proof of which we have in his periodically despatching him to London and other places to see the various styles of gardening. That he profits by them we have a capital illustration of in one of the most successful designs that ever came within my cognizance, which is partly due, according to his own showing, to the successful combinations of colour and style adopted by Mr. Gibson at Battersea. No sooner had he seen the magnificent contrast between Coleus Verschaffelti and Centaurea ragusina, which must have struck the fancy of the most unobservant, than he conceived a plan of massing without flowers. The border is a portion of a series of terraces in front of the villa, and forms part of the balcony, from which you have a view of the country right in front. It is about 200 feet long and 12 feet wide. As a background Thujopsis borealis, Cupressus Lawsoniana, and Irish Yew alternate. Golden Yew grafted and Variegated Hollies are arranged in front of these; then a row of Pelargoniums, which were out of flower, owing to the heavy rains that occurred in August; but what with the green foliage and the breadth of light or variegated foliage, it was a much greater relief without flowers. Then in front of these was a broad band of Golden Chain and Cloth of Gold, broken at intervals with a large round patch of Coleus, alternating with Centaurea; then 30 inches of Gnaphalium lanatum closely cropped and pegged down, with lesser circular patches of Mrs. Pollock Pelargonium, Coleus, and Centaurea, alternating with the higher patches of Coleus and Centaurea at the back; then a thin line of Arabis lucida variegata, and lastly another line, like a stone kerb, of Cerastium tomentosum, next to a spacious terrace of Grass. The combination was like a beautiful piece, suitable for an evening dress of the most exquisite richness, dotted here and there with the crimson, gold, and grey, and is undoubtedly worthy of imitation. The effect of it is grand under any circumstances, but in the pluvial West, where rainfall is much above the average, and on that account hostile to flowers and the common style of bedding, this, depend upon it, is a very satisfactory way of getting out of a difficulty.

I have booked Arabis lucida variegata as one of the most handsome fellows, of quite a different style from Cerastium tomentosum, possessing all the characteristics of a first-rate "liner," superior even to the old variegata, being of a much denser habit, and the contrast between the gold, the green, and the white, personified in every leaf, being much more delicately and charmingly lovely. Other contrasts and blendings were numerous in various portions of the ground, but unless one diverges a little from the beaten track, to record them becomes merely a repetition of similar designs in other places. It must be remarked, however, that these grafted Golden Yews, and other evergreen plants of similar character, tone down that heaviness of green that occurs in mixed plantations, as was pointedly alluded to by your excellent correspondent "F.," some time ago, and agreeably diversify the contour of artistic flower gardening.

I must not dwell longer on this point, but at once revert to the in-door gardening of this establishment. The "Experimental" gardens at Edinburgh having now become a portion of Government property, being tacked to the present Botanical Gardens, it became necessary to dispose of the houses, and the principal buildings fell into Mr. Russel's hands. The large conservatory is converted into a "Winter Garden" at Mayfield, and measures about 80 by 20 feet, with a wide centre table, and a table all round the span or hip-roofed erection. The arrangement of the central table was rather novel; instead of having the tall plants in the centre and smaller plants sloping down, amphitheatre-like, there were rows of Alsophila australis, Dracænas of sorts, Yuccas of sorts, towards the edge, and low fine-foliage and other interesting plants, with Ferns in the centre, forming a long uninterrupted vista from one end of the house to the other, the umbrageous fronds of the Ferns, and handsome recurved foliage of the Dracænas hanging gracefully down over the heads of the smaller "fry." Several of Fortune's and Veitch's more recent Japanese introductions were here, including the male Aucuba in flower, and the female in fruit, the large crimson berries being quite a feast to the eye of those who have known and grown Aucubas so long without seeing them in the perfection of beauty. Several Euonymuses were also here, as well as Sciadopitys verticillata — the Umbrella Pine; the variegated Camellia in flower, a fac simile of the old single red; Sedum Sieboldii, several Retinosporas, and the handsome green, crimson, and white Saxifrage, which Mr. Fortune had so much difficulty in getting home alive. Among miscellaneous subjects there was a nice sample of Dichorizandra vittata rosea, an interesting marbled-

stemmed plant; several Cycads, of which C. Riuminiana was the most rare; Cordyline Veitchii, Peperomia arifolia, Anthurium leuconeurum, a fine plant of Musa vittata, and the handsome Pavetta borbonica, while in Ferns there were samples of the frizzled, crested, and multiform Athyrium Filix-fœmina; the handsome Lepidopteris (Todea) superba; Lomaria L'Herminieri, with fronds dark-brown when young, changing as they get aged to a dullish green; Neottopteris australasica, with its handsome fronds, each with a very prominent black midrib; and several Gymnogrammas both gold and silver. An attempt is being made to make the house an orchard house, at least to run up Vines on the one side and Peaches on the other; but it would be extremely undesirable to attempt too much and run the risk of spoiling both, as all such experiments, whether large or small, are sure to do. In another house, the large Camellias that were planted out in one of the experimental garden houses have been re-transplanted here, and that too with every symptom of success, albeit one of the plants, an old white, is about 17 feet high and 10 feet across. Imbricata and tricolor are also doing well, which says much for the care both in "lifting" and transit of such huge plants, which had to be conveyed fully 30 miles; and further convincingly shows that Camellias of great age and size, although growing rampant on a border, may be so dealt with successfully.

Mr. Russel has begun to grow Orchids, and has two houses specially built for their culture, containing a very nice collection for a beginner. Judging by the out-door decoration of this place, the character and kind of the articles employed, and the apparent determination of the proprietor to excel in all that he engages in, we may look forward to this as one of the rising Orchid collections of the day. In conclusion, it is but a graceful recognition of Mr. Russel's worth to place upon record the handsome manner in which he supports gardeners and gardening, by throwing open his beautiful grounds for the local horticultural Society's shows, and his urbanity and hospitality to all connected with the fraternity. *J. A.*

Miscellaneous.

Deposition of Dew.—So rapid has been the radiation of moisture from the earth's surface during the last few days, and so great the condensation which ensued in the mitigated temperature of the night, that the deposit in the rain gauge yesterday (Oct. 1) amounted to upwards of 0·01 inch. Allowing for evaporation from the heated gauge, which is exposed to the unmitigated rays of the sun, and from the more exposed funnel during the winds which prevailed, the aggregate quantity may be fairly estimated at an additional half inch, thus making from dew alone in four nights 1½ ton per acre. During this period the hygrometer at midnight has almost invariably indicated complete atmospheric saturation. *R. H. Allnatt, in Times.*

The Apple of Sodom.—Solanum sodomeum, found by Sibthorp in Sicily, of which a splendid figure is given in the Flora Græca, is a native of Africa and Syria. It obtained its name from being regarded as the plant which Hasselquist had identified with that bearing the famous Apples of Sodom, described by Josephus and by Tacitus as fair to the eye, but when plucked dissolving into dust and ashes. But for this identification Sibthorp must be regarded as an insufficient authority, as he never visited the Holy Land, and the species commonly met with at the Dead Sea is the Solanum coagulans of Linnæus, the S. sanctum of Forskahl, and the S. Hierochunticum of Dunal, described by the latter in De Candolle's Prodromus. Robinson, therefore, in his "Biblical Researches," appears to be mistaken in naming it the S. Melongena, a name given by modern botanists to a whole section of the Solaneæ, and not to the particular species which represents the true Apple of Sodom; nor does he seem warranted in adopting the suggestion originally thrown out by Seetzen, that the latter plant was an Asclepias. It is true that the Asclepias gigantea or procera, the Osher of the Arabs, is found in a few places on the borders of the Dead Sea, and its fruit when opened contains nothing but a dusty powder. According to Robinson, too, it resembles a large smooth Apple or Orange, hanging in clusters of three or four together, and when ripe of a yellow colour; if so, differing greatly from other members of the Asclepias tribe, whose seed-vessel certainly bears no sort of resemblance to either of these fruits. But I am assured on good authority, that the Asclepias alluded to is an extremely rare plant in that locality, whilst the Solanum is very common; and the interior of the Apple of the Solanum just mentioned is likewise, it is said, frequently converted into a powder-like dust, through the puncture of an insect. Upon the whole then, I am inclined to adhere to the older notion, that the latter was the plant intended. *Daubeny's Trees and Shrubs of the Ancients.*

Calendar of Operations.

(*For the ensuing week.*)

Owing to the wonderfully fine weather with which we are favoured, flower gardens are still comparatively gay. Keep all in connection with outdoor floral decorations therefore neat and clean, so as to set them off to as much advantage as possible. Let weeds, if any, be removed both from borders and walks, and keep the latter well rolled. All preparations for bulb planting should now be forwarded as much as possible, in order that active operations in reference to these matters may be commenced as soon as frost has put an end to the beauty of the bedding plants.

FLOWER GARDEN AND PLANT HOUSES.

In cool conservatories and greenhouses damp or insects soon do irreparable injury to soft-wooded plants, and these must soon receive careful attention if the plants are to be wintered in first-rate condition.

Calceolarias.—Narrowly watch these and fumigate lightly two or three evenings successively if thrips make their appearance, keeping the atmosphere moist and giving air on every favourable opportunity to prevent the foliage from flagging.

Camellias and Azaleas.—When these are housed see that all decaying leaves are removed, keeping the plants rather dry at the root. Allow them to have plenty of air while the weather continues favourable.

Cinerarias.—Plants for late blooming must now be kept cool and airy, and should not be allowed to suffer from want of pot-room. These must not be trusted in cold pits after this season, for they cannot endure frost without injury.

Crocuses.—These may be planted, provided beds are ready for their reception; they like a deep, light, rich sandy soil, but will thrive in an ordinary soil or situation. In planting, the bulbs should be covered from 2 to 3 inches with fine mould; and if an effective display during the first season is desired, plant thickly—not more than 2 inches apart. For edging borders and beds the Crocus is exceedingly useful; and, where planted in lines along the margin of walks, or in clumps of 3, 6, 12, or more bulbs each, and allowed to remain in the ground for several years, the effect of the masses of flower which they produce is all that can be desired. Care must be exercised, however, to protect them from mice, which are exceedingly partial to them, especially in winter.

Dahlias.—Save seed when ripe and dry from choice kinds.

Hollyhocks.—Stools of choice sorts may be lifted and potted, to supply cuttings, which strike readily on bottom heat; when struck pot off in nice light rich soil.

Hyacinths.—For blooming in-doors, either in pots or in any of the various contrivances that are used instead of pots, strong bulbs should be selected and planted in succession; place them in any dark cool situation for three or four weeks, to allow of their making roots, before exciting them into growth. If pots are used—and these are doubtless the best, if not the most ornamental—use good rich sandy soil, and secure perfect drainage; for a liberal supply of water is required during the blooming period, and if the drainage is defective, the soil is very apt to become soddened.

Pelargoniums.—These should be kept rather cool and dry, giving whatever water may be necessary on the mornings of fine days, so that all superfluous moisture may be dried up before the evening, avoiding the use of fire-heat except when necessary to prevent the temperature falling below 40°, or to dispel damp when this cannot safely be done by giving air.

Pinks.—Finish planting these out into their blooming beds, in order that they may get well established before winter.

Roses.—Examine those on pillars and trellises, and if the weather continues favourable see if the soil wants renewing or the kinds changing. For choice sorts roomy holes should be made, capable of containing three or four barrow-loads of well-prepared soil. Turfy loam of good quality is the chief thing; to this add a portion of rich rotten manure, and, if at hand, a little sandy peat or leaf-mould.

Tulips.—Prepare beds for these, and plant early next month. Examine the bulbs, and arrange them as determined on at blooming time.

FORCING GARDEN.

Cucumbers.—Look sharply after woodlice, which sometimes do much mischief. A cooked Potato put into a flower pot and covered with dry hay or Moss is a good trap. The best of all remedies, however, is Mr. Cuthill's plan of pouring boiling water round the insides of the pit or house close to the walls, care being taken not to injure the roots. Bearing plants in pots or boxes will now be benefited by being top-dressed with rich soil.

Mushrooms.—The surface of beds coming into bearing should be sprinkled with water a week or so before the Mushrooms make their appearance; this is better than watering after the Mushrooms are through.

Peaches.—Prune, wash, and tie such trees as have not already undergone these operations.

Pines.—Water plants in pots as little as possible at this season. Where the general stock is grown in this manner it is a good plan to cover the pots over 2 or 3 inches with the plunging material; where the bottom-heat will permit that to be done, it obviates the necessity of watering so frequently.

Vines.—The earliest house of these may now be pruned and the rods dressed. The border outside may also be covered with Fern leaves or straw.

HARDY FRUIT AND KITCHEN GARDEN.

Trench, dig, and ridge every spare inch of ground while the weather will permit these operations to be advantageously performed. This is particularly to be observed in gardens the soil of which is of a clayey character.

Celery.—Earth up as required while the weather is dry. Leaves affected with fly, which is troublesome this year, should be picked off and burned.

Root Crops.—Let Carrots be taken up and stored away; a few Parsnips for present use may also be taken up; they will, however, keep well in the ground, and thus circumstanced they may have a coat of manure spread over them for the next crop and be trenched in as wanted. All root crops, including Potatos, should be taken up and stored in as dry a state as possible.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Oct. 4, 1865, as observed at the Horticultural Garden.

Sept. and October.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth. 1 foot deep.	Temperature. Of the Earth. 2 feet deep.	Wind.
Thurs. 28	☽	30.175	30.144	74	37	55.5	60	58	E
Friday 29	9	30.224	30.141	68	36	52.0	60	58	E
Satur. 30	10	30.295	30.014	68	41	54.5	59	58	E
Sunday 1	11	29.998	29.859	71	38	54.5	59	58	E
Mon. 2	12	29.892	29.923	71	50	60.5	59	58½	E
Tues. 3	13	30.171	30.086	70	30	50.0	59	58½	E
Wed. 4	○	30.162	30.064	67	27	47.0	58½	58½	E
Average		30.131	30.018	69.8	37.0	53.4	59.2	58.3	

Sept. 28—Quite cloudless and clear, with very heavy dew; very fine.
— 29—Overcast; slight dry haze; very fine.
— 30—Fine; very fine throughout.
Oct. 1—Foggy; very fine.
— 2—Fine; very fine throughout.
— 3—Hazy; very fine; cold at night.
— 4—Foggy; dry haze; very fine; below freezing at night.
Mean temperature of the week, 1 deg. below the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 39 years, for the ensuing Week, ending Oct. 14, inc.

October.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Wind. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday.. 8	61.5	42.4	51.9	20	0.63 in.	1	7	4	4	5			
Mon. .. 9	60.5	42.5	51.5	22	0.52	—	8	2	2	5	1		
Tues. ..10	61.6	43.9	52.8	23	0.68	3	3	6	—				
Wed. ..11	61.9	42.8	52.4	20	0.34	2	5	3	2	4			
Thurs. ..12	61.7	42.4	52.0	22	1.00	2	2	3	1				
Friday ..13	61.7	42.3	52.0	20	0.33	2	4	4	1				
Satur. ..14	60.3	41.0	50.6	18	0.50	2	5	4	1				

The highest temperature during the above period occurred on the 14th, 1861—therm. 80 deg.; and the lowest on the 11th, 1868—therm. 25 deg.

Notices to Correspondents.

Cedronella cana: *W T.* It is a useful hardy herbaceous plant, decidedly better than C. mexicana.

Celery Fly: *R M G.* Next week.

Cinerarias: *C C.* The Fungus on your Cineraria leaves is Trichobasis senecionis. It probably was derived from the common Groundsel, on which it abounds. It is in vain trying any remedy. The plant is developed in the internal tissues, which no chemical can reach without destroying the mother plant itself. *M J B.*

Cholera: *E B.* Nonsense. There is no proof whatever that ripe fruit or properly cooked vegetables produce cholera. If people will eat too much of anything, no matter how wholesome it may be, they must run the risk of their own imprudence.

Grafting Camellias: *W P.* The best time to do this is in spring, before growth commences. Azaleas must also be grafted in early spring. They must be kept close after working, till the union is complete.

Names of Fruits: *T S P.* 1, Rymer; 2, Dutch Mignonne; 3, Dumelow's Seedling; 4, Cornish Gilliflower; 5, Blenheim Pippin.—*A W.* 1, 3, Beurré Diel; 2, Van Mons Leon le Clerc; 4, 5, Beurré Rance; 6, Autumn Colmar.—*T A B.* The Golden Noble Apple.—*Albion.* 2, Winter Nelis; 1, 3, unknown, and not first-rate.—*An Old Sub., North Wales.* Peaches: No. 1, Walburton Admirable, and very good; most valuable late Peach; 2, Barrington, inferior to the preceding.—*D J C.* 1, Beurré de Capiaumont; 2, Duchesse d'Angoulême, from a late blossom apparently; 4, Old Colmar; 5, Urbaniste; 6, Flemish Beauty.—*Mrs. G.* 72, Beurré Bosc; 94, Marie Louise; 66, perhaps same as preceding, but imperfect; 101, Louise Bonne (of Jersey); 103, Easter Beurré.—*M.* Old Colmar.—*Frederick K.* Louise Bonne (of Jersey).

Names of Plants: *R S.* The Grasses are both Bromus unioloides, of which B. Schraderi is a synonym. The difference in their quality seems to indicate that one may be a variety improved by cultivation.—*Bournemouth.* 1, Atriplex Halimus; 2, Baccharis halimifolia.—*Galpin.* 1, Vaccaria plumbaginoides; 2, crushed; 3, Salvia pratensis; 4, Hypericum hircinum.—*J B.* Your plant appears to be Bamboo Metake, which generally attains from 4 to 8 feet in height, but never so much as 18 or 20 feet.—*Isis.* Origanum Smyrneum, often popularly called the Hop plant.—*J L H C.* Specimens are not sufficient for identification.—*G. Gowier.* 1, Piptanthus nepalensis; 2, Salisburia adiantifolia.—*J B.* 1, Lastrea spinulosa; 2, Pteris aquilina; 3, Nephrodium mas; 4, Pteris scaberula.—*B.* Stokesia cyanea.—*D M P.* Bambusa Fortunii variegata.

Pentstemons: *Stuart & Mein.* No. 1, scarlet, and No. 3 purple, we should regard as acquisitions, as they appear to be large, well-formed, and full-coloured, but they are bad subjects to travel in the cut state.

Pinus excelsa: *G N.* Home-grown seed of this Pine is of comparatively little value, there being now so many better and handsomer kinds in cultivation.

Plum Trees: *S H Cadogan.* If your barren trees are very vigorous, we should advise you to lift them and to prune off all the strong coarse roots, replanting in good calcareous loam, and rather shallow. In any case they will be better in your clay soil for lifting and replanting in free loam, abundant drainage being provided.

Root-Grubbing: *Theta.* There is no machine for raising the roots of trees, except the transplanting machines. The clearing, or as we understand you, the clearing of tree roots would be more expensive if done by mechanical means than by the ordinary process of grubbing.

Vines: *Irish Subscriber.* The grafted Barbarossa would do very nicely in an early house, but would be much more valuable in a late one. It does not require so much heat as the Muscats, but to be grown in a late house with such sorts as Hamburghs and St. Peter's. The Black Hamburgh is the best stock as yet known for the Muscat Hamburgh, which is much benefited by being worked upon it. If the growth is very vigorous, one or two bunches may be taken from it the second year. We should advise the Black Hamburgh stock in preference to the others for the Royal Vineyard, which is a useful variety, and will hang well.—*A J.* The small brownish bodies on the Vine stalks are masses of cellular tissue and not Fungi. They seem to be analogous in structure to the lenticels of bark. Yours seems to be an ordinary case of shanking. *M J B.*

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THE ROYAL AGRICULTURAL SOCIETY of ENGLAND.
TENDERS are invited for the execution of the Works required to be done in the Erection of the Society's Show Yard, for the Annual Country Meeting, to be held at Bury St. Edmunds, July, 1866.
The Drawings and Specifications can be seen at the Office of the Secretary, H. Hall Dare, Esq., 12, Hanover Square, London, W., from the 1st day of November until the 1st day of December next, between the hours of 10 and 4. Printed Forms of Specification, Conditions, and Blank Schedule of Prices may be had upon payment of 10s. No Tender will be received unless made out on one of the Printed Forms furnished.
Separate Tenders are also invited for certain Movable Buildings, the Drawings and Specification for which can be seen at the same time and place, and printed Specification and Form of Tender may be had upon payment of 10s.
Sealed Tenders, endorsed "Tender for Show Yard Works," must be delivered in, addressed to the said H. Hall Dare, Esq., on or before 11 o'clock a.m., Wednesday the 6th day of December next.
The Society do not bind themselves to accept the lowest or any Tender. H. Hall Dare, Secretary.

Farm Buildings.

THE GENERAL LAND DRAINAGE and IMPROVEMENT COMPANY.
Directors.
The Right Hon. Lord Rivers, *Chairman.*
Thomas Chapman, Esq. | William Fisher Hobbs, Esq.
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This Company undertakes the Erection of Farm Houses, Farm Buildings, and Labourers' Cottages on Estates of every kind of tenure, whether Freehold, Entailed, Mortgaged, Trust, Ecclesiastical, Corporate, or Collegiate, or grant Loans for the purpose to landowners who desire to execute the works by their own Agents from their own designs.
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Incorporated by Special Act of Parliament in 1853.
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1. Drainage, Irrigation and Warping, Embanking, Inclosing Clearing, Reclamation, Planting, for any beneficial purpose Engines or Machinery for Drainage or Irrigation.
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4. The Erection of Farm Houses, Labourers' Cottages, and other Buildings required for Farm purposes, and the improvement of and additions to Farm Houses and other buildings for Farm purposes.
Landowners assessed under the provisions of any Act of Parliament, Royal Charter, or Commission in respect of any public or general works of Drainage or other improvements, may borrow their proportionate share of the cost, and charge the same with the expenses on the lands improved.
No investigation of title is required, and the Company being of a strictly financial character do not interfere with the plans and execution of the Works, which are controlled only by the Government Enclosure Commissioners.
For further information, and for forms of application, apply to the Honourable William Napier, Managing Director, 2, Old Palace Yard, Westminster, S.W.

HIGHLAND and AGRICULTURAL SOCIETY.
AGRICULTURAL EDUCATION.
The EXAMINATIONS for the SOCIETY'S CERTIFICATE and DIPLOMA will be held at the Close of the Winter Session of the Edinburgh University.
Candidates for the Certificate must be 18 years of age; those for the Diploma must be 21.
Candidates for the Certificate must be acquainted with Farm Accounts, Mensuration, and Surveying, and must possess a good knowledge of Practical Agriculture, and a general acquaintance with the Elements of Botany, Chemistry, and Natural History.
Candidates for the Diploma must have previously obtained the Certificate, and must possess a thorough knowledge of the Theory and Practice of Agriculture; of Mechanics and Mensuration; of the Physiology and Treatment of Domesticated Animals, and of the applications of Botany, Chemistry, and Natural History to Agriculture.
BOARD of EXAMINERS.

Science and Practice of Agriculture—Mechanics & Construction.	John Wilson, Prof. of Agriculture, Edinburgh University; George Hope, Fentonbarns; Robert Russell, Pilmuir; and John Wilson, Edington Mains.
Botany	Dr. Balfour, Professor of Botany, Edinburgh University.
Chemistry	Dr. Anderson, Professor of Chemistry, Glasgow University.
Natural History	Dr. Allman, Professor of Natural History, Edinburgh University.
Veterinary Surgery	Wm. Dick, Professor Edinburgh Veterinary College.
Field Engineering and Surveying	W. J. Macquorn Rankine, Professor of Civil Engineering, Glasgow University; and David Stevenson, C.E.
Book-keeping and Accounts	Kenneth Mackenzie, C.A., and Peter M'Lagan, of Pumpherston, M.P.

Further information in reference to the Examinations to be had on application to the Secretary of the Society, at 6, Albyn Place, Edinburgh. Jn Hall Maxwell, Secretary.

THE NATIONAL EXHIBITION of SPORTING and OTHER DOGS.—The SIXTH GREAT ANNUAL EXHIBITION will be held in the NEW CURZON EXHIBITION HALL, BIRMINGHAM, on MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, the 27th, 28th, 29th, and 30th of November next.
Copies of the Prize Lists and Regulations may be obtained from the Secretary, Mr. G. Beech, Rectory Chambers, Temple Row, Birmingham. The ENTRIES CLOSE on November 1.

THE BIRMINGHAM CATTLE and POULTRY SHOW, 1865.—The SEVENTEENTH GREAT ANNUAL EXHIBITION of FAT CATTLE, SHEEP, PIGS, DOMESTIC POULTRY, CORN, ROOTS, and IMPLEMENTS, will be held in Bingley Hall on SATURDAY, MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, November 25th, 27th, 28th, 29th, and 30th, when Prizes to the amount of £2080 will be awarded in the following divisions, viz.:—

FAT CATTLE	£815 15	BREEDING PIGS	£73 19
FAT SHEEP	328 6	ROOTS and CORN	71 8
FAT PIGS	61 13	POULTRY & PIGEONS	727 6

Prize Lists, Certificates of Entry, and every information may be obtained from the Secretary.
The ENTRIES CLOSE on WEDNESDAY, November 1.
John B. Lyttball, Secretary.
Offices, 13, Temple Street, Birmingham.

SMITHFIELD CLUB FAT CATTLE SHOW.—The ANNUAL SHOW of FAT CATTLE, SHEEP, and PIGS, will be held at the AGRICULTURAL HALL, ISLINGTON, on MONDAY afternoon, December 4, and four following days.
Intending Exhibitors are requested to apply for Certificate Forms by the reference letters as under.
CATTLE.—Form A. For an OX or STEER (in any Class).
" B. For a COW or HEIFER (in any Class).
" C. For a BEAST in Extra Stock.
SHEEP. " D. For a PEN of 3 WETHERS (in any Class).
" E. For a SINGLE SHEEP in Extra Stock.
PIGS. " F. For a PEN of 3 PIGS (in any Class).
" G. For a SINGLE PIG in Extra Stock.
ENTRIES for LIVE STOCK CLOSE NOVEMBER 1.
Prize Lists, Forms of Certificates, and all information may be obtained on application to Mr. David Pullen, Assistant Secretary, at the office of the Honorary Secretary, corner of Half-Moon Street, Piccadilly, London, W.
N.B.—All communications respecting the Show must be addressed to the Assistant Secretary, as above, and should bear outside the words "Smithfield Club."

The Agricultural Gazette.
SATURDAY, OCTOBER 7, 1865.

A very natural pressure is being brought to bear upon the veterinary profession because no specific has yet been discovered for the disease, and the Government, its advisers, and those also charged with the execution of its orders, are involved in a general attack. The pertinent question is asked, Are there no scientific men at the service of the Government to suggest some remedy for the existing state of things?—Up to the present time the answer is wanting.

There is no lack of suggestions from those whose inventive faculties are evidently in advance of their practical knowledge. Treatment at one time the most complicated and expensive, and at another the most simple, is advocated by enthusiastic theorists with the expression of a thorough conviction of success. One gentleman had found an enema of warm water effective in curing a favourite puppy of some distressing malady, and he accordingly, with an anxious desire to benefit his fellows, at once ran off to the owners of some diseased cattle and placed them in possession of his discovery; they naturally but ungenerously laughed at him for his pains, and his consolation now is to bemoan the profound stupidity and obstinacy of those who rejected a plan so effective and so easy of application.

The public are disposed to be credulous in reference to this matter. Accounts of successful cases are received and adopted with remarkable eagerness. Empiricism is in the ascendant, and science for the nonce must retire and wait the time, which will assuredly come, for utterance.

While perusing the perpetually recurring statements as to the perfect facility with which the disease may be cured, it can hardly have failed to occur to the readers of those reports that the authors of them are ignorant of the subject on which they write. Medical men may in some sort claim a right to speak generally on any subject relating to animal structure or animal disease; but they have no right to forget the great difference in the practice of human medicine as compared with the treatment of the lower animals, and no knowledge, however profound, of human anatomy, can qualify them to discuss the peculiarities of the internal structure of an ox or cow. In the absence of a complete acquaintance with the anatomy of the animal, and a practical knowledge of the symptoms and morbid appearances which characterise this plague, they have no right to assume a dictatorial tone. Some few of the medical profession have paid the necessary attention to the subject, and mastered its details, but strangely enough those are the men who are silent.

Another remarkable circumstance belonging to most of the reported methods of treatment is their universal success; save in our columns no one reads of failure—the most simple domestic remedies seem to arrest the disease, and in a day or two the patient is convalescent. Meanwhile, it never seems to occur to the public mind that these successful practitioners, who find their medicines so sure, may possibly have been treating and curing a cattle plague of the imagination, instead of the solid reality which the unsuccessful practitioners have to deal with.

It may be to some extent reassuring to state as a fact, without entering into details that would be premature, that the disease is being made the subject of minute investigation; that every symptom, however trivial, is recorded, and every morbid phenomenon carefully remarked; and further, that every rational plan of treatment is being, and has been for some time past, tried under the most favourable circumstances. Hydropathy, homœopathy, and allopathy, have all had their merits tested; chloric ether, Condy's fluid, carbolic acid, and even secret nostrums sanctioned by high authority and vaunted as certain cures, have all failed. Those agents which in non-scientific hands are infallible, seem to lose their potency when given under the direction of men who should be most competent to judge of their effects. Not for us is it to attempt to harmonise these discordant results; we have dealt with facts as we have found them, and in the spirit that has guided us throughout this inquiry, we are compelled to assert that the treatment of the cattle plague has not advanced one degree—the remedy for the evil has yet to be discovered.

Reports which are constantly sent from various parts of the country prove the disease to be still on the increase. Nor is this remarkable:—all the measures directed to be enforced in order to prevent its extension have been from the first met by a steady and determined opposition, and the law of contagion has had unlimited freedom of operation.

At the risk of being wearisome, we must repeat the statement made again and again, that the public does not realise the true nature of the malady, and it suits its humour just now to support the daily press in its opposition to "the unscientific and barbarous system of slaughtering instead of curing;" and as a result, the disease that might have been easily arrested at its commencement, has now burst the bounds and may not again be subject to control.

The power conferred upon inspectors to "seize and slaughter" seems to be the great grievance of the times, and yet in how really few instances has this power been exercised against the owner's consent, or while there appeared a reasonable hope of saving the animal. The great "slaughter" has been by the butcher, to whom the animals not yet in a state palpably unfit for human food have been consigned.

In our experience, the majority of sick animals have been subjected to treatment by the owner, or by some medical man anxious to try experiments; rarely by veterinary surgeons, whose advice is seldom sought for diseases of cattle. In fact, the object of the order to "seize and slaughter" has been entirely defeated, in consequence of the order not being carried into effect until it became a matter of little moment whether the animals were killed or left an hour or two longer to die from the disease. In striking contrast to our system of procedure is the following account of the way they manage these things in the neighbourhood of Tilsit and Courland:—

"The moment the plague shows itself in a cattle shed it is walled up, and no communication is allowed. All that were in it, healthy as well as diseased cows or cattle, even the men or women in attendance—for the attendants carry the complaint in their hands and clothes—are shut up. Such attendants are alone permitted to bury the dead cattle in a piece of ground enclosed for the purpose. All food is passed through a hole in the wall or enclosure; and if, perchance, the person giving over the food or fodder inadvertently touches the person

receiving it, he is also forced to enter the condemned space. When the cattle are all dead, or the disease has otherwise exhausted itself, everything in the shed is burned, all utensils and woodwork, and more especially the clothes of the attendants. Such is the mode of treatment here and in Courland, and it seldom fails to stay the progress of the complaint."

Our notions of the liberty of the subject would be slightly shocked if such a system as this were suddenly established and carried out in England. We cannot, however, expect to enjoy our freedom and not pay the price of enjoyment.

What is the best course to adopt no one seems to have an idea. The disease is advancing among our herds, and seems likely to devastate our flocks unless some very decided steps are taken by those who are most interested; but if every effort on the part of the Government to meet the difficulty is systematically opposed, we can only prognosticate confusion and disaster.

The Farmer's Poultry Yard generally means the range of the homestead, with the rafters of the cart sheds for roosting places, and disused mangers and lockers for laying boxes. It is practicable at a nominal expense to adapt almost any old out-building or shed to the simple requirements of the hen house. Let us start with four walls, a roof, and a door, or if that be considered extravagant, a lean-to attached to the barn-end or stable. Having the roof, the floor must be seen to. This should slope from the back of the building to the door, so that all the dung and dirt may easily be swept out. The floor should be formed of gravel, chalk, and clay rammed down hard enough to allow a birch or heath-broom to be drawn over it without disturbing the surface. Where a large number of fowls are kept, the dung is a valuable manure, and should be saved for mixing with other substances of less strength. In Sussex, where the best fowls are fatted for the London market, an old tub or hogshead is often kept outside the fowl-house door, into which all the droppings are placed, and sold from time to time to men who make it their business to collect it. The perches may be of the rudest description, as a pole or young tree sawn in half, and placed with the round sides uppermost in the most convenient position in the house, at a height of from 30 to 36 inches from the ground. The laying places may be made singly or in rows along one end or side, and consist simply of divisions about 24 inches apart, with a bead in front to prevent the eggs from rolling out. The ventilation may be left in a great measure to convenience; it is necessary only that there be a good current of air pass through the upper part of the house at least 3 feet above the perches. A good lock on the hen-house door is always advisable. The occupants of many a poultry-yard are accused of being non-productive, when their eggs constantly find their way into puddings and egg-cups they never were intended for.

If a large number of birds be kept, there will always be some of them that will lay away, or as it is called "steal" their nests. These should be watched as they separate themselves from the rest when let out in the morning; they may often be seen to make at once for a spot in hedge, ditch, cow-stall, or straw stack. A model row of nest boxes will not make hens lay just where you want them to, nor will old birds that have spent the earlier seasons of their life at perfect liberty be easily attached to a poultry house; but it may be accomplished by degrees, and when the young pullets are growing up they may easily be made to roost always in the house by being driven to it every evening with the hen when they first leave the coop.

It is commonly said that fowls eat so much that the chickens you rear cost more than those you buy. This may often be the case, but the same thing applies to every description of stock. Where fowls have the range of farmyard, stackyard, pigstyes, &c., the adults want but very little feeding; in threshing time, or when there are many pigs fatting, they hardly want feeding at all, but it is a good practice to throw down a little relish for them when they come to roost, just to induce them to return regularly at night. The careful poultry keeper will then run his or her eye over them to see if any prominent bird be missing; and if a hen be seen to come when the call is given, with ruffled feathers, raised wings, and a generally unusual or owl-like appearance, she must be watched when the others go up to roost, as most likely she has a nest-full of eggs, on which she proposes to sit without any one's permission. One thing should never be lost sight of—if the fowls be shut up at night they must be let out at daybreak. This may easily be managed by a little trapdoor being made to slide up and down, just large enough to let a fowl in and out; this may be lifted by whoever is first stirring in the yard. The egg collection from the nests and the floor sweeping may then be left for a leisure quarter of an hour in the course of the morning.

The feeding is a very important particular, and where lavishly and carelessly done, as is too often the case, failure is sure to be the result as regards the produce, and disgust at the expense and waste, on the part of the proprietor. How often is it not the case that the farmer, returning home to breakfast from his early survey, is horrified to find the front court strewed with corn which the sparrows and small birds are making short work of. His first idea is that a sack has burst in moving, but he knows the men would have swept up any that was so dropped. On inquiry he finds that "it was only a little thrown down for the chickens," when all the time there is more on the ground than his fowls would eat in three days. Fowls so fed cannot thrive; instead of ranging away in a healthy and natural pursuit of food, they fill their crops at once with a mass not easy of digestion; they are uncomfortable from repletion, squat about in corners, and drink immoderately from any dirty puddle. In such yards the birds are hardly ever healthy, they do not lay well, the chickens die, and the master, knowing how much food is consumed or rather wasted for so trifling and unsatisfactory a result, votes poultry keeping a snare and a delusion. On the other hand, where there is proper management, the birds when first let out get just a handful of meal (Oat or Barley), mixed into a stiff paste, thrown down among them. At first they run for it, fight for a bigger lump than common; but soon the keen edge of appetite is blunted, and they begin to disperse. One seems all at once to remember some heap or patch where he or she had a good repast yesterday, and takes half a dozen friends to finish exploring it. The feeder should then immediately cease the distribution, so that not a bit may be left on the ground; the whole flock will then disperse, some to the stack-yard, the pig-styes, and the barn-doors. Their owner coming home to breakfast passes a bevy of these looking out for insects and worms at the plough tail a field from home, and sits down to his eggs and bacon, or the grilled thighs of yesterday's roast fowl, with a keen appreciation of the usefulness of his birds, which is often enhanced by the knowledge that many of the little elegances and utilities he sees around the room were procured through the feathered part of his farm stock.

—— A Royal Commission has at length been appointed to investigate the origin and nature of the Cattle Plague, and to ascertain, as far as possible, the mode of treatment best adapted for the cure of the affected animals, and the regulations which may, with the greatest advantage, be made with a view to prevent the spreading of the said disorder, and to avert any future outbreak of it.

—— The following suggestion from Mr. Hallett, of the Manor Farm, Brighton, appears to deserve attention. He prefaces it with a statement of his own experience:—

"In August last I had the misfortune to suffer extensively from the cattle plague. Ten days after its first outbreak three calves in a walled building some 14 feet square were found to be attacked. One died; the other two, exhibiting the last symptoms of the disease, raw spots in the mouth, emphysema, putrid evacuations, mucous discharge from nose and eyes, shivering, panting, &c., were forthwith destroyed. There was in the same building a fourth calf which had been with the others three days, all sucking their daily supply of milk from the attendant's fingers out of the same pail. Here contact was close and complete, and at the end of the 'period of incubation' this fourth calf would be certain to develope the disease, and was accordingly shot; yet neither externally nor internally could a M.R.C.V.S., well acquainted with the plague, discover the slightest symptoms of it. How, then, can our system of inspection at fairs and ports afford any but a false security when during the period of incubation, that of real danger to the public, even a *post-mortem* yields no sign?

"I will now suggest what may appear at first sight somewhat startling, but which is, nevertheless, I believe, the only common-sense way of grappling at once and effectually with this pest, which in the last century raged throughout the country for 12 years.

"Let the Hon. Privy Council issue an order, to be renewed if necessary, that all cattle and sheep be for one month from its date kept strictly upon the premises where they now are (establishing a quarantine of 14 days for all "animals" imported), and upon receiving from any owner of cattle a certificate by a veterinary surgeon that his herd or flock is attacked, at once place an inspector in charge of it, and pay very close upon the full value of, or loss upon, any animals destroyed by or sold (with the inspector's sanction, and to be slaughtered upon the premises) from fear of it. Thus for one month we should mainly depend upon imported meat.

"Had this been done at the very outset the sum expended in compensation would not have been equal to an additional 1*d.* to the income-tax; and even now, if immediate action be taken, would probably not exceed that amount. To give this practical expression:—Any one charged upon 200*l.* per annum would pay an additional 16*s.* 8*d.*, or about ¼*d.* per lb., upon the annual meat consumption of his household. Already he pays upon meat alone an increased price of 2*d.* per lb., with every other kind of provisions also rising."

THE CROYDON SEWAGE.

The economical application of town sewage has long been illustrated at Beddington near Croydon, where, under the able management of Mr. John Marriage, the refuse of a population of some 17,000 is poured over 300 acres of land, producing abundant and luxuriant crops, whilst the purification of the water is so complete that before leaving the farm and returning to the stream from the source of which it was derived it is good drinking water. And it may be mentioned as a complete proof of this, that a proprietor occupying between Mr. Marriage and the river Wandle, who at first threatened legal proceedings, under the impression that Mr. Marriage could not purify the water, has just laid out a considerable sum of money in order to divert the stream and make use of it before it reaches the river. Here we have a most simple process—no costly scheme of deodorisation. No reservoirs and filter beds, or expensive machinery. An open ditch conveys the sewage as it is made on to the farm, where by natural gravitation and carriers it is passed over a sufficient area to cleanse it. The soil is the filter bed—Nature is so provident that nothing is allowed to escape, and except just before rain there is no perceptible smell. Houses are being built on land adjoining. The land is sufficiently cleansed by using it twice. On the average about a million gallons—equal to 4000 tons, is the supply per 24 hours, and this flows over 40 acres. It is calculated that as the same land receives ten applications yearly, and each time the water remains on three days, each acre receives about 6000 tons of liquid annually.

We had lately the pleasure of visiting for a second time this interesting experiment, and were confirmed in our former opinion that Mr. Marriage has succeeded in showing how the sewage of our towns may be profitably employed and the health of the locality secured—wherever we have the requisite conditions, viz, a narrow and rather long tract of tolerably porous soil, possessing a moderate and regular fall, conditions which may generally be found at a greater or less distance from our towns, for supposing that we have to convey the fluid farther than in this case, it is only a question of increased outlay in forming our channel. We believe that the porous nature of the soil is a point of great moment, and were surprised to find Mr. Marriage did not attach much value to this, as he believes that under good management sewage may be profitably used on any soil. We hope he is right, but his own experience rather militates against this view. The first season after using sewage the land was so soft and boggy that it was with difficulty the Grass could be removed—now it has become quite firm, the fine silt having been washed down. This is no disadvantage on his porous soil, but would be injurious on strong clay, preventing the circulation of air. Another point greatly influencing the result is the comparative humidity or dryness of the atmosphere. Contrary to preconceived opinion, the best results are invariably obtained in damp cloudy weather, when the flag of the Grasses thicken, and the tendency to throw up the seed stalk is checked. In hot dry weather, on the contrary, the plant runs to seed at the expense of the leaves. This was particularly noticeable last summer, and indicates that sewage will be most valuable in the northern and western districts of this country, and that it is not wise to estimate the produce to be obtained from London sewage by the results at Edinburgh.

Both natural pastures and artificial Grasses, as Italian and Pacey's Rye-grass, are watered, and it is interesting to compare the results. Up to a certain period, about three years, the artificial Grasses are most productive, and we are inclined to consider them as on the whole most profitable. As soon as the crop shows signs of weakness, the land is ploughed in spring, the surface consolidated, and Mangels planted; the sewage being applied once or twice during growth. A crop of Potatos follow, and in the autumn 3 bushels of Italian or Mixed Grasses are sown down. The first crop cut the following May is always the heaviest; we saw fully 12 tons per acre of green produce. If cut four times the average yield for the first year reaches about 30 tons per acre; this is never exceeded and seldom reached afterwards. As the Italian dies out it is replaced by coarse strong Grasses, amongst which the Agrostis stolonifera is prominent. In one or two instances so good a sward has been thus obtained that the land has been left for permanent Grass. We must not omit to notice one field bearing a good face, and containing a considerable proportion of Clover, that

was entirely self-sown. It was in corn, and the following spring a copious dressing of fluid was applied, and in seven weeks, so rapid was the growth of Seedling Grasses that the surface was covered. The quality of the produce appears good, the Italian Rye-grass especially, which contains much sugar. And we are bound to state that the stock upon the farm, horses and cows, were in excellent condition. Some 150 head of cattle are kept, and 50 or 60 horses taken into Grass. The bulk of the produce is either cut and tied into bundles for the London market or sold to the surrounding dairymen, who fetch it away, paying at the rate of from 4*l.* to 8*l.* an acre, according to crop. Haymaking is avoided as much as possible, but this year, in consequence of the season, the Grass has grown so fast that a considerable portion must be thus treated. The moisture of the ground, and the succulent nature of the crop, together with the loss occasioned by having to keep the liquid off the land whilst the haymaking is in progress, are serious drawbacks. An artificial process of drying would be a great boon. The hay is rather coarse and strong, and providing it heats sufficiently, of which there is little fear, makes useful fodder.

Now as to the value of the sewage. Our experience is as yet too limited to enable us to speak positively on this point. All who have seen the application at Beddington will admit that it is economical and practical, and exhibits a true picture of what may be expected under ordinary conditions, and therefore, whatever the result, we may safely rely upon it. The Commissioners, who had been experimenting for a long time, were obliged to hire land, in order to cleanse the water. They were in difficulties; the application was mismanaged; and they were glad to lease it to Mr. Marriage at about the same sum they paid; consequently the town of Croydon gets nothing for the sewage. The actual value of the land is, however, about half what is paid for it; we may therefore calculate that the sewage costs the tenant one-eighth of a penny per ton. Considerable outlay has been incurred in laying-out the land, grubbing up woods, &c., a portion of which has been paid for by the tenant, and Mr. Marriage is probably correct in stating that with his restrictions as to cleansing the water, and his heavy outlay, he could not afford to pay a farthing a ton. The sewage of Croydon is, owing to the gravelly nature of the soil, more diluted than would be the case generally, and we think it is fair to assume that if land is properly laid out to receive the sewage, it may be worth about ¼*d.* a ton. We believe that evidence has lately been given before the Committee on this subject to show a much higher value, but such evidence will only mislead. The sooner the inhabitants of our large towns understand that the sewage is not of the high value some estimate it, the better. There is not a single instance either in this country or abroad of a town actually making a profit of their sewage; in nearly every case the balance is considerably on the wrong side. The sewage must be got rid off; our rivers can no longer be polluted. With proper management vast quantities of produce may be obtained from that which too often is now an unmitigated nuisance, and corporations must be content to make the best terms they can. The vital importance of good drainage is illustrated in this case—Croydon, in the days of cesspools, ranked amongst the most unhealthy towns in England, and is now amongst the healthiest. *C.*

THE CATTLE PLAGUE.

[We continue to publish the letters of correspondents on this subject.]

1. From near Harwich.—Last evening I drove down to Harwich, eight miles from my residence, and as I entered the town never before were my feelings more pained. On the morning before, that is, on Wednesday morning, a vessel had arrived from Rotterdam containing about 1200 head of cattle, and the Government Inspector having inspected them, one, a heifer, was found to have had the murrain, and the consequence was that she was condemned and killed and buried, and the whole cargo, consisting of bullocks, calves, sheep, and pigs, was detained and not allowed to be moved away from the pens in which they were placed when taken out of the vessel. I drove as I entered the town past the whole of them that remained alive. As I entered the town, or the pier rather, where the vessel lay at anchor, scores of men were employed in slaughtering the various beasts as I passed the pens, and packing their carcases and carrying them to trucks ready for their being moved away on the rail to London and probably other places. It was painful to hear the mournful cries of the poor beasts as they stood and lay in the pens; indeed, I cannot describe the effect the different moanings, bellowing, bleatings, squeakings, and gruntings, &c., had upon my feelings. Harwich is a wretched place for water, and the consequence was that the poor cattle had not had any from the time they were put on board the vessel at Rotterdam, nor would they have any before the butchers and others employed put an end to their sufferings; the poor calves from their piercing cries, having had no milk, seemed to suffer the most. In addition to the diseased heifer on board the vessel, several sheep, I learned, had been suffocated from over-crowding, and were thrown overboard on the passage to England.

You may place implicit confidence in all I here write, for in addition to what I myself saw and heard, I sought out the inspector of police, a very intelligent man, and he confirmed all that I before had learned, and in addition he informed me that a milkman of Dovercourt, which adjoins Harwich, had lost two cows by the disease, which were killed and buried, and that a calf had dropped dead with it; and further, and which I think worthy of especial notice, that an ass, which the inspector of police saw alive and well at 12 o'clock in the day, was attacked with the disease, and at 5 o'clock of the same day died, decidedly of the same disease, that is, of the cattle murrain, the ass having strayed up to the place where one of the cows was killed and smelled the blood, and died in five hours after it was attacked. But I observe particularly that the two cows of the milkman, the calf, and the ass had died or been killed before the arrival from Rotterdam of the cargo of cattle, sheep, and hogs, and hence the disease was not imported to them.

You may make what use you please of this information, and rely upon it as substantially true. I believe there is no doubt whatever but the ass caught the disease as I have stated, nor is there any but that it was the real murrain known as the cattle pest.

2. From Mr. C. A. Elliott, Fulham.—I purchased 12 bullocks at a small fair at Findon, four miles from Worthing, Sussex, on the 14th of September. They were kept in my field near there until Tuesday, September 20, when they were sent by rail in two trucks, which were said to have been clean and lined, to New Wandsworth Station, where they were fed with hay and watered, and driven through Wandsworth, over Kew Bridge, to my farm in Boston Lane, Hanwell. I saw them every day. Late on Friday evening, the 22d, one of them appeared dejected and unwell, but as it was dark, and the symptoms slight, he was not treated until early the next morning, when he appeared much worse—running from eyes and nose; purged, discharge being like soap-suds, and the stench from it intolerable. He was separated from the rest, and half a pint of oil of turpentine and one pint of Linseed oil were given early. I saw him at 11 A.M. in the following state:—Ears and feet cold, breathing laborious, hair staring, &c.; repeated the turpentine and Linseed oil, after which he seemed worse; soon, however, he was purged freely, and then appeared better. Two wineglassfuls of the solution of permanganate of potash, or Condy's fluid, in a bottle of cold water, were given every hour. After taking the second dose he seemed warmer, and improved in every way. At 6 P.M. had little or no discharge; eyes looked better; breathing natural; urine passed freely, and he began to eat; he was so lively he could not be kept in the pen of hurdles. I considered him out of danger. On viewing the other bullocks I saw in five decided symptoms of the disease—yellow discharge from the eyes, a little from the nose, hanging down of the head, and an unmistakable dejected appearance. They were all (11 in number) driven into a pen, and half a pint of turpentine with one pint of Linseed oil given to each; they were then watered. The medicine acted both upon the bowels and kidneys; they then seemed better; had two wineglassfuls of Condy's fluid in a bottle of water given to them, and were fed with Linseed tea and hay. These bullocks have all improved, and were pronounced yesterday (26th) by the inspector to be healthy. On Monday I saw the bullock first taken ill; he appeared to be sinking from exhaustion, and died about 3 P.M., when he was buried with plenty of lime.

After I left Hanwell on Saturday, the 23d inst., I went to Worthing, and found my cow suffering from the disease. They had given the turpentine and oil twice during the day. This animal did not come in contact with the bullocks, though she was on the premises. When first taken ill she was purged, the motions being of a most nauseous smell. Symptoms at 11 P.M.—Suppression of milk, udder cold, ears cold, loss of appetite, and discharge from the eyes. In the morning seemed worse, the coat staring, and feet cold; gave two wineglassfuls of Condy's fluid, in water, every hour until she had taken a quart. After the second dose she seemed better, warmer, and gradually improved, and the next morning was convalescent. Had gruel, fennel seed, and old ale given two or three times from Sunday night to Monday night. On September 26 I called at 23, Spring Gardens, and saw Mr. Simonds, in order to ascertain if the above treatment could be tested anywhere in the early stage of the disease, when I was informed by the learned Professor that I could apply to the Lord Mayor, who had a bovine sanitarium. I was surprised to find that the Government had, as I understood, no such place. Mr. Simonds concluded by telling me that the inspector should call and report. I have since found out that not far from where my bullocks stood at the fair some Welsh beasts also stood which had been bought by a person in Sussex, and most of which died in a few days. My treatment was determined upon some time before the appearance of the disease. *Cyrus A. Elliott, Munster House, Fulham, Sept. 27.*

3. Edinburgh.—The plague is still raging with great virulence in the city and shire of Edinburgh. A census of the dairy cows of the town was taken on Thursday evening, when the number, which stood at 1657 on the 17th of August, just before the outbreak of the epidemic, was found to be reduced to 874. The whole decrease of 783, however, is not attributable to the epidemic, but in great measure to the panic: many dairy keepers have carried their stock to distant markets and run the risk of forced sales rather than incur the danger of infection. About 700 cows have been buried in the lime-pits, and about as many more have been disposed of in other ways. The sanitarium has proved an almost total failure, and but for the opportunity given for the study of the disease would not be worth keeping up. Among the fat and feeding stocks the disease wherever it has appeared has been nearly as fatal as among the dairy cows, and some fine herds have been almost totally disappeared under its fell swoop. The cattle trade has been utterly paralysed by the blow, and the spread of the disease since the Falkirk tryst of September has given rise to an agitation to put a stop for the time to all public markets. On Friday the magistrates of Edinburgh received an influential deputation calling upon them to stop the holding of Hallow Fair this year, and the magistrates resolved to consult counsel as to their legal power in the matter. The approaching markets of Dalkeith, Cupar, Haddington, and other places, have already been advertised off. Meantime meat is rising to a frightful price, and butter has risen about 4*d.* per lb. within the last few days. At a meeting held at Dalkeith on Friday, the Earl of Hopetoun presiding, it was resolved to recommend the county to impose a voluntary assessment on the proprietors and tenants to compensate those who have suffered losses by the plague.

4. On Indiscriminate Slaughter: From Messrs. Morris & Oakes of Leadenhall Market.—Too much power is placed in the hands of veterinary surgeons lately elevated to the dignity of Government inspectors, and these are in the habit of exercising their authority in an undue and arbitrary manner, in some cases destroying meat which is perfectly wholesome, and in others actually allowing diseased animals to be sent to the market for sale at the imminent risk of communicating the disorder to thousands of others. For an occurrence of this latter kind we see, from a statement made by Mr. Gibbins, chairman of the Markets' and Plague Committees, reported in *The Times* of Wednesday last, a sapient Government inspector, under whose certificate five cows affected with the disease were taken to the Metropolitan Market, is responsible. We are waiting anxiously to see whether any steps will be taken to bring the offending parties to a proper sense of their responsibility. But as a striking contrast to the supineness exhibited in this matter we would beg to call attention to another case reported in *The Times* of the 18th inst., in which two men were heavily fined, apparently as a punishment for selling good meat. The doctors pronounced the cattle diseased; on the other hand, the good practical evidence of two inspectors of the city markets, men who are thoroughly acquainted with the appearance of all kinds of meat, negatived this opinion, and the statement that the beasts were sold at a fair price as fit for human food ought to have settled the question; but the magistrate thought otherwise, he preferred the "eccentric" to the practical evidence, and the accused persons were convicted. Now, as practical butchers, we are deeply interested in the state of things which these two cases illustrate. The question touches us and those whom we represent nearly. We are large purchasers of the best meat we can obtain (cattle costing between 80*l.* and 40*l.* per head), and we view with much alarm the contagion likely to be introduced among healthy beasts, if infected ones are allowed to be sent among them. We do not wish to be at the risk of laying out a large sum of money at the market on Monday morning, and finding that we had by so doing incurred a heavy loss in consequence of disease breaking out among the cattle, the seeds of which had been sown in the infected market. We think we have, therefore, good reason to complain of the inefficiency of these Government inspectors on the one hand, and of their arbitrary and unjust exercise of power on the other.

5. From Mr. J. Stuart Menteth.—Some years ago I paid Earl Spencer a visit at his seat in Yorkshire, near Doncaster. He was a great breeder of Short-horns, and had the finest cattle of that breed I ever saw. Everything was done for the health and comfort of this herd. Among different useful matters most kindly imparted to me he told me he gave rock salt largely to his cattle, both in the house and in the field; and I well recollect, among the good effects of doing so, Lord Spencer considered it kept off all infection from his animals. And while murrain was raging in the herds around him not one of his caught that disease. Though the use of rock salt, both in the cowhouse and field, may not ward off the Russian pestilence, it is quite possible that the animals, having had access to this valuable saline stimulant, might, should they catch this disease, take it in a much more mitigated form, and fewer die of it. If it is found that giving salt to cattle both in the house and in the field partially prevents infection, it is well worth the attention of all cattle owners. In the United States of America there are scattered throughout that vast country 'salt licks' and deposits of rock salt. These are visited at different seasons of the year by all wild ruminating animals, for health. Thus Nature indicates the importance of salt to our cattle and sheep; and as Lord Spencer found the use of it among his cattle kept off the infection of the murrain, though it may not keep off the Russian plague, it may lessen its ravages and render it less fatal. *James Stuart Menteth, Mansfield House, Sept. 27.*

6. Alleged Rinderpest in Horses.—I am sorry to say that two horses have died with all the symptoms of the rinderpest. I have heard of another case from a veterinary surgeon who attended it, and who had the horse killed; he assured me that the *post mortem* confirmed all his suspicions—and he has had great experience among cattle. My object in sending this letter is not to create alarm, but to send you a recipe sent this week from Hungary by a friend of mine, Colonel Isaacson, the colonel of a dragoon regiment now in Hungary, who has recently had one squadron of horses attacked with the disease, and who has effectually stopped it. He sent it over to England for the benefit of his countrymen, if they should unfortunately need it. The extract from his letter given to me proves that the rinderpest is not new to him as attacking horses. He says, in a letter dated only September 13, from Debreczin, in Hungary:—"About a fortnight back the disease broke out in one of my squadrons. Two horses died within 24 hours. I then used the arsenic twice (I presume to every horse), and not one of the other horses took it. The two doses for 150 horses cost rather more than a shilling. It was given on a small piece of bread." The recipe is as follows:—"Homœopathic preservative against rinderpest: A dose of arsenicum (third potency or strength), consisting of eight or ten drops given every 36 hours, will prevent the disease breaking out. Any animal taken with the disease should have the same dose given every 10 or 15 minutes." He does not mention if the same dose has been applied to cattle; but the great value of the recipe as regards horses is that it comes from a gentleman of great experience in horses, who has practically tested it, and with great success. Should this horrible disease attack our horses, at all events we shall know what to do, while up to the present time no one appears able to cure our cattle,—and from all I hear the disease is spreading in every direction. I have received many communications since you were kind enough to publish my last letter, and find the opinion very general that if my view had

been acted upon, we might have "stamped out" the disease at the cost of perhaps a few thousands. He will be a bold man now who undertakes to guess how many hundreds of thousands it will cost the country, or how many farmers it will ruin. I think it a cause the Government ought to take up at once, but as it appears the Government will not take any other steps, might it not be suggested that a certain sum should be at once applied as the nucleus of an insurance company to be started on a large scale in London, in which all farmers might at once insure? I have a letter from a farmer, who says :—"I have acted upon your plan and killed some cattle at once, which I might have sent to market; but who is to compensate a poor man?" Whatever is done should be done at once. I advocated killing the sound cattle in an infected district because no one seemed able to cure them, and they could be eaten. We have not yet taken to eating our horses, and should they be attacked I believe I have been able to send a cure. If so, the gentleman who kindly sent it to England will have done a great service to his countrymen.—*Edmund Tattersall, Albert Gate, Sept.* 30.

7. The Bushey Park Herd of Cattle.—Bushey Park, or rather, we should say, the Bushey Paddocks, comprises about 87 acres of pasturage, upon which the Royal stud of racehorses are reared and fed. The stud at the present time numbers about 58 animals—stallions, mares, and colts. Colonel Maude, Equerry to her Majesty, is at the head of the establishment, and Mr. John Ransome, the well-known whip, is what is termed the stud groom, and has the general management of affairs. It is the custom at Bushey to purchase a certain number of cattle—a small herd, in fact—to eat off the rough Grass on paddocks after the horses have passed over it; and, accordingly, 12 Scotch polled Galloways were purchased at the last Barnet Fair, and added to the Bushey herd. In about 12 days after they were purchased one of them exhibited the usual signs of the cattle disease, was immediately separated from the rest, and was left in a shed by itself. Mr. Moon, of Kingston, the inspector of cattle, and, we believe, a veterinary surgeon, was called in, and prescribed for the diseased beast, but to no useful effect, for in three days it died. Brandy-and-water, we believe, was administered to the poor beast, with other things, but nothing given to it appeared to have the slightest salutary effect. The disease quickly spread through the herd, and in a fortnight the 12 beasts fell victims to its virulent attack. Everything was done that could be done, considering the ignorance that prevails generally as regards the nature of the disease, to save the lives of the infected animals, but it was all to no purpose, though a medical practitioner, we believe, was called in. But, though the Bushey authorities could not, even with medical aid, save their herd of cattle, they effectually and promptly buried them when dead, so that no disease should possibly emanate from them. The remains of the beasts lie in a grave, 6 feet deep and proportionately long, well covered over with lime; and the Grass upon which they fed has been cut down and burnt, and a good dressing of lime spread over it. The fences, also, in the paddocks are being tarred, the hovels and sheds cleaned out and limewashed, and the whole establishment is being put into a good sanitary state. None of the horses are affected by the disease, although it must have been, as it were, "under their very noses." These cattle, as we have said, were bought at Barnet fair, and had been inspected by practised veterinary surgeons, who were sent down to the fair, we believe, to prevent any infected animals from entering the market. This is not the only circumstance of diseased cattle being sold at Barnet fair. A farmer living in Hampshire bought at the fair nine head of cattle, and before he got home every one of them had either died of the disease or had been slaughtered by order of an inspector. Our only surprise is that any one should buy cattle at any fair while the disease among the animals is raging to the extent it unquestionably does at the present time.

8. Chlorine as a Disinfectant.—I called yesterday on a gentleman who had long owned a large estate on the Polish frontier. To my inquiry how he had managed to protect his herds from the plague when prevailing in Russia and Poland, he answered by singing the praises of chlorine. To that specific he said he and his neighbours were mainly indebted for the immunity they had so long enjoyed. To the disinfecting power of that noble gas they had owed an all but complete exemption from the murrain in the two dreadful years of 1854 and 1855, when the Polish herds were decimated by it; and a year ago, his son wrote him, the same agent had exercised its beneficent influence again, although the danger being less imminent, its use had been restricted to a few months only. On both occasions the great thing had been to reduce to a minimum the intercourse between the animal worlds of Poland and Prussia, and, when impossible to prevent it, to render communication innocuous by smoking, washing, and saturating with chlorine both man and beast passing over from the infected country. To this end it was ordered that no Polish ox, horse, dog, duck, goose, in fact no domestic animal whatever, should be allowed to trespass on Prussian ground. Wild beasts, too, were shut out as much as possible. The frontier had been lined by a continuous cordon of soldiers, who watched it with the utmost vigilance, and would not even allow swans, hens, or hares, to visit the Prussian territory. Many were the ducks shot down in mid-air, or while swimming on the little river that separates the two countries near my friend's estate. All hares in the neighbourhood were considered as interlopers, and punished accordingly, while as regarded horses, which by Prussian postilions had been driven over to Poland and back again, they had their hoofs washed with some chloric liquid, and their bodies regularly smoked with chlorine. Men were allowed, though certainly not encouraged, to pass to and fro; but each time they made their appearance at the Custom House they had to undergo a process of chlorine fumigation, which lasted from 10 to 20 minutes, and was charged 3*d.* per head. The Prussian stables on the border, too, were repeatedly smoked, white-washed, and painted with chloric substances. When a case of murrain occurred on the Prussian side of the border, a rare but not entirely avoidable contingency, the animal was killed without loss of time, and the place where the malady had shown itself hedged in by soldiers, and treated, in point of intercourse and communication with the rest of the world, as though it belonged to Russia. Then you had to smoke when leaving, and dared not take away any animals, even though you might have had them with you in going there. This, together with the ordinary precautions in regard to hides, horns, straw, and all animal and vegetable matter that may have come in contact with diseased beasts, will, my informant assures me, effectually protect one country against another, or even one village against the neighbouring one. To protect a village against itself, if the plague has once broken out in it, he deems, however, all but impossible. Simple as his advice seems to be, it is supported by the notable fact that in the cases it is based upon the rigorous application of these rules has resulted in rendering a political a sanitary barrier, which the malady, with all its venom, found impracticable. Chlorine, soldiers, and the utmost stringency in using both, is the long and short of his recipe. *Times Berlin Correspondent.*

ON POTATO CULTURE IN EAST LOTHIAN.

By the Lord Justice-Clerk.

[The following is a portion of his Lordship's summing up before the Jury to which the following case was referred :—*Miller* v. *Hunter* of Thurston, in which Mr. William Miller, sometime tenant of the lands of Oldhamstocks, Springfield, and others, on the estate of Thurston, East-Lothian, was pursuer, and Mr. Hunter of Thurston was defender. The question between the parties, after a long contest on points of law involving an appeal to the House of Lords, was tried in January last, when, after six days' trial, the jury found the pursuer entitled to 1068*l.* damages, exclusive of interest. A new trial was afterwards allowed, on the ground that the damages were excessive; and the same issue, which was in the following terms, was in the present trial again submitted to the jury :—"Whether the defender, by means of an interdict obtained by him against the pursuer, on or about 31st March, 1859, wrongfully prevented the pursuer from taking a waygoing black (Potato) crop from one-sixth part, consisting of 100 acres or thereby of the farm and lands of Springfield and Oldhamstocks, belonging to the defender, and of which the pursuer was tenant, or from any part thereof, to the loss, injury, and damage of the pursuer?" Damages were laid at 2000*l.* Witnesses having been examined for the pursuer and defender respectively, the Jury visited the farm. The following is the agricultural portion of the charge :—]

Consider in the first place the way in which the pursuer's claim was arrived at. It was quite obvious that his favourite mode of valuing the possession of the land in 1859 was on the supposition that he took a Potato crop from the whole. He said he would have made from that Potato crop a gross produce of 2000*l.* at least, and on this the profit would be somewhere about two-thirds of that amount. Mr. Hope, who was the leading witness upon this point, stated the case in this way. He said that he thought 81 acres of that land would have yielded 35 bolls an acre of Potatos, 27 large and 8 small, and that another 16 acres would have given 25 bolls. Mr. Hope thought that the total amount in that way for the 81 acres would be 2008*l.* 16*s.*; and for the 16, 275*l.* 4*s.*—in all, 2284*l.* He (the Lord Justice-Clerk) was stating that in the outset, as what might be called the largest view of the pursuer's case that had been attempted to be presented. But it must be apparent to them that throughout the whole of the evidence led for the pursuer the estimates that were made by the witnesses were all made on certain assumptions. There could not be the least doubt that land in East-Lothian would yield 35 bolls an acre of Potatos—nay, that some very special Potato land down about Dunbar would yield a great deal more some years. But 35 bolls an acre of Potatos was a very large yield on anything like ordinary land. Everybody must admit that, and everybody examined did admit it; and he thought it was impossible to doubt that these estimates were made on the assumption, in the first place, that the soil and climate of the land were suitable for growing Potatos; in the second place, that the season was favourable; in the third place, that the land had sufficient manure; in the fourth place, that there is in consequence of these things a plentiful crop; and in the fifth place, that in bringing out the total produce in money, there were good prices going in the market. Now if any of these elements failed, it went a long way to disturb the calculation and to destroy the value. Therefore he thought these were important things to consider in dealing with the pursuer's case :—Was this suitable soil and climate for the growth of Potatos, and was the season a good season—a good season for the growth of Potatos generally, and a good season for this land? Was there sufficient manure to produce a full crop of Potatos on that land that season—and were the prices that year of such an amount as would justify Mr. Hope and the others in stating the Potatos as worth 16*s.* a boll? These seemed to be the really important points for their consideration.

1. Now, as regarded the land, there was not any very great discrepancy in the evidence as to what was the character of the farm, and also as to what was the nature of the soil in the particular fields with which we have to deal. Thus, for example, Mr. Hope gave an account of the farm which was very well worthy of their consideration. He was asked, in the first place, about the six-shift rotation. He (the Lord Justice-Clerk) would read to them all Mr. Hope said about that matter :—

"I never knew of such an experiment as changing from the five to the six-shift in the last year of the lease, such as was proposed in this case. Without that change the tenant could not have had 97 acres of black crop in 1859. I think it was according to good husbandry to make the change in the last year, but never heard of such a thing being done. I cannot say which shift is best suited for the farm, as I have not been over it."

Now, it was a material observation certainly on Mr. Hope's evidence that he never, down to the present day, had examined that farm with a view to ascertain what was the character of the farm generally. But he said :—

"I was in the three fields. I was there only once in July 1863, for several hours. If the farm would not pay on the six-shift it would require to be brought back to the five shift by the incoming tenant, and in that case it would be against the rules of good husbandry to change in the last year of the lease. It would not be according to good husbandry if change under a lease could not be continued under new lease. From the tabular statements I saw nothing inconsistent with good prudential management. Land suitable for Beans is a strong soil. Oldhamstocks is a light friable soil. I don't think Beans would succeed there well. It looks to me like a Turnip farm. I think it would grow Tares very well, and four or five acres of Tares would be about the annual amount for such a farm."

Now, that was all that Mr. Hope said about the nature of the farm, soil, climate, or anything else. In short, Mr. Hope's knowledge of the farm was, as they must have seen, a very slight knowledge compared with that of many of the other witnesses. Mr. Smith, factor at Whittinghame, knew better about it; and he said :—

"The farm is a middling light soil. There is a good deal of gravel in it. I have never known in that locality 47 acres of Tares, or 47 acres of mixed Beans and Tares. It is not a place for Beans and Tares. I don't think Potatos are in use to be grown thereabouts. On Palmerton, a shade lower Potatos are grown; the soil is better, and the farm also lower. I don't think it would be profitable to grow Potatos on Oldhamstocks as an ordinary crop, but of course it might be different in a waygoing crop."

Then Mr. Law, another witness for the pursuer, said, with regard to the nature of the farm :—

"Some of it is very free good land for Grass and Turnips, some rather clayey and wet, and some moorish; there is more of the former than of the latter. Part is good Potato land on the east and south sides. Three of the four fields look rather good Potato ground. Backhill is not so good for Potatos, but about the average of the farm."

Now that seemed to be the most favourable view that was given by anybody of the nature of that farm, and of the nature of the four fields particularly in question. But there were several other witnesses examined upon the subject. He did not observe that the pursuer himself, Mr. Miller, was asked particularly about that; but the incoming tenant, Mr. Clark, was, and he certainly had had very good opportunities for that, as he had now been in possession of it for six years, and knew what kind of ground that was. The first brother who was examined gave this account of the four fields taking them separately :—

"Closehead is poor gravelly soil. It was in a very poor state. It had been run out and exhausted. It was not in a fit condition to grow Potatos. We put some Potatos into that land. We have now limed the whole of Closehead thoroughly in 1863 and 1864. It is much improved in condition, and we had Barley on it in 1860. We had a very poor crop. The field is in a very different condition now; but it will always be a poor field. Closehead is the worst field on the farm except Wilk lands. Wilk Park is partly level and partly very steep—twelve acres. Four or five acres have been ploughed three or four acres never been ploughed; all whins, was so when we came there; four or five acres are, I think, too steep for ploughing. I think the steep land is better than the level; there could not be more than one acre or one and a half acre planted with Potatos. This park not better than Closehead. It was in fair condition for the kind of soil. It is now limed; there is not much improvement in it. Then, as regards Backhill, it is cold, wet, and clay at the lower part, and sandy at the top. I don't think it suitable for Potatos. Hempy Shot.—There are 24 acres good level ground; 13 acres braes which have not been ploughed, and we don't plough them now; four acres never were ploughed, where there are trees growing. Of the 13 acres, eight might be ploughed with difficulty, and the rest are quite unsuitable. It is now drained and limed, and is much improved. We have had a few acres of Potatos in 1862 and 1863 in Hempy Shot, but I cannot say exactly how many they produced; but they were a fair crop."

Now that was the opinion that gentleman had after six years' experience of the nature of that ground. Then Mr. Hume, who was also a farmer in the neighbourhood of Dunbar, and therefore very near that place, told them that he was

"Well acquainted with Oldhamstocks for 40 years back, having been in the habit of visiting my brother. It is a very good stock farm; second-class farm as an arable farm; not all suitable for the six-shift. It would be ruinous to try it, having neither soil nor climate. I never heard of a farm being changed from the five to the six-shift in the last year of the lease. I don't think Potatos could have been grown in Oldhamstocks in 1859, except at a loss. Then, even if the manure were on the ground, it would still be so. Potatos had never been grown there except merely for the family and the servants. There are 25 acres of Hempy Shot that might have grown Potatos, but I am sure it would have proved a loss. It is not Potato land."

Then Mr. Curror, a Mid-Lothian farmer,—a man of large possessions and considerable experience, said :—

"Closehead is gravelly, hungry land; Wilk Park very little better—a good deal of it steep braes. These fields could not grow Potatos without a great deal of manure. Backhill—

Eight acres are rather strong land, and sandy in the other part. Hempy Shot.—Part of it good land; the rest not fit for Potatos."

Now the result of that seemed to be that this was not certainly what in ordinary circumstances might be called Potato land, and therefore it was not very surprising that in point of fact Potatos were never grown upon it as an ordinary crop—that there never had been any grown upon it except a few Potatos, such as were grown upon every arable farm for the use of the tenant's family and of the farm servants. They could not, therefore, take it as part of the basis of the calculations of the pursuer's witnesses that its climate and soil were suitable for the profitable growth of Potatos.

2 and 3. The next question came to be whether the year 1859 was a good year in the first place for Potatos, and in the second place for the growing of Potatos in such land. Now, that it was a good season generally for Potatos seemed to be admitted—not a wonderful season by any means; but they had been told by all the witnesses who remembered it that it was very dry at that particular part of the season, which was unfavourable to gravelly light soil. Those of the jury who were farmers would generally appreciate that, and those who were not would easily understand that such was not a good season for crops on a light and gravelly soil. But then they came in the next place to what appeared, next to the character of the soil of the farm, the most important part of the case, and that was whether in framing their estimate the pursuer's witnesses proceeded by allowing a sufficient amount for manure; and that brought them to the question whether a Potato crop could be grown with artificial manure alone—not anywhere, but on this land in 1859. There was a good deal of evidence upon this, which had been represented by both sides of the bar to be very conclusive. The pursuer's counsel told them it was in vain to contend that artificial manure would not grow Potatos, and that it was proved in point of fact that artificial manure had grown Potatos, and that with profit. The defender's counsel said, on the other hand, that it was altogether out of the question, and that the small exceptional cases showing profit made on those Potatos proved nothing, and that the general evidence of men of the most experience was that the thing was impossible. Now that was one question which they must solve for themselves. It lay at the very foundation of the case; therefore he made no apology for asking their attention to the principal part of the evidence bearing on that point, and it was the only other point upon which he would read any part of the evidence. Mr. Hope said in regard to this matter:—

"Sixty-nine acres of the ninety-seven of this farm in 1859, I would have manured with 4 cwt. of guano at 13*s.* and 4 cwt. of bones at 1*l.* 7*s.* per acre. I have done this myself often, but only after two years at least of Grass or after Turnip crop. This land had been worth 30*s.* an acre. I have done it on sandy land worth no more than 7*s.* 6*d.* an acre, but this was longer in Grass—perhaps 20 years. In ordinary cases I put 15 or 16 cartloads of farmyard manure and 4 cwt. of bones to the acre of Potatos. Four cwt. of bones is certainly not equal to 15 or 16 cartloads of farmyard manure."

Now, that was all he said upon the subject, he thought, except with reference to the particular fields. Backhill, he said, had been in white crop in 1858, Grass in 1857, and white crop in 1856:—

"I think this was suitable for the manure I proposed for these 69 acres. I have never done it, and I don't think it would do well. It is quite a right thing to grow Potatos after white crop, but I don't think 4 cwt. of guano and 4 cwt. of bones is good manuring for that. I give it in that case 15 or 16 cartloads of farm-yard manure, and 4 cwt. of guano."

Mr. Howden says—

"I have put 20 tons of farmyard dung to an acre of Potatos, and 4 to 5 cwt. of guano. I sow principally Regents; they generally sell at 20*l.* an acre. In 1859 I got 15*l.* the Scotch acre; subsequent years I got 20*l.* My experience with artificial manure alone was with 5 acres. It was clay land—Oats the year before. I gave it 3 cwt. of guano, and I sold them for 18*l.* a Scotch acre."

Now that was an example of the thing having been done—done no doubt upon a very small scale; and so far as he could see, nobody had ever tried it except upon a very small scale. But it was successful in Mr. Howden's case on a very small scale, to the extent of giving 18*l.* a Scotch acre; not a very large price, particularly as Mr. Howden's is pretty highly rented land. Mr. Purves was the next witness who spoke to this, and he said:—

"I have grown Potatos often with artificial manure alone—guano—about 2*l.* worth an acre, always after white crop. The artificial manure produced as good crops of Potatos as the farmyard manure, and in the same field."

But they would keep in view that Mr. Purves's land was on the red land of Dunbar; therefore, although it was successful there, it did by no means follow that it would be successful elsewhere; and they have heard enough about the peculiarity of the red land of Dunbar. Then came Mr. Herriot, whose experience certainly was the most startling of all, for he said:—

"I grow a few acres of Potatos every year with artificial manure alone. I have made 60 bolls an acre. It was on thin moorish land on Milne-Graden Mains. I used nothing but artificial manure, but it was very little over an acre; and this was in the year 1848."

Now certainly, if artificial manure with thin moorish land could yield 60 bolls an acre of Potatos, that was one of the most important facts in the recent history of agriculture they ever saw or heard of. He said no doubt Mr. Herriot was sincere in his belief that he accomplished that, but he was afraid it would not be very safe to rely upon that as a guide to any other body under similar circumstances to those in which Mr. Herriot was at the time placed; they would give what weight they thought proper to this. He said also:—

"I had 9 acres of Potatos, including the servants', in 1859; it was middling land, and manured with bone-dust and guano. I realised 35*l.* an acre, and the cost a little over 7*l.* an acre. I had a net profit of about 28*l.*, besides seconds, which I take at 2*l.* more."

That was his experience on his present farm at Easter Elliston, near Jedburgh, to which he entered in 1859. Now the next witness upon this subject was George Hall, a farmer at Lindrum. He said—

"I have used guano alone for Potatos in Perthshire, but never in Haddingtonshire. In Perthshire I have ploughed the ground out of lea and broken it down to plant Potatos, and was thus used with guano alone. On 9 acres of ground I used 3 cwt. of guano to the acre and nothing else. This was in 1860. They did not braird well, but what did braird, did well enough afterwards. We got 17*l.* an acre for them. It was on land worth 18*s.* to 20*s.* an acre. I generally grow about 18 to 20 acres of Potatos each year."

Now the peculiarity of that experiment of course was—and it was a distinct peculiarity—that that was after two years Grass. Then the witness Keppy, who was grieve upon this farm along with Mr. Miller, spoke to what he saw done at Townhead, in Berwickshire. He said—

"I raised a crop of Potatos with artificial manure after white crop, with 3 cwt. of guano and 3 cwt. of bones per acre. Cannot tell how many bolls we got, but it was a fair crop."

This, however, was all that he said of the Potatos on Townhead, grown with artificial manure. There were 9 acres of them after a failure of young Grass, and 9 acres after old Grass. Now he thought that was all the evidence of the pursuer's witnesses bearing upon that question; and they have brought forward, so far as he could see, five different witnesses, who said that they had cultivated Potatos with artificial manure in circumstances more or less successfully. On the other hand, the defender had brought two witnesses in particular; and he would confine the passages that he intended to bring before them from the defender's witnesses to these two—Mr. Dickson and Mr. Curror. Now Mr. Dickson said that—

"With 5 cwt. of artificial manure, I could not expect much Potatos at all. They would have been watery and useless. Potatos may be grown with artificial manure alone after old Grass, but after white crop on such land it is impossible. The effect upon that land would have been to scourge it, and it would have been contrary to the rules of good husbandry."

Further on, he says—

"I have experimented on growing Potatos with artificial manure, not after Grass, and found it would not do, though land in good order. It is not a usual mode of raising Potatos except after Grass. I am not aware of other people holding different opinions on this point. Experience has taught us that it is not a profitable way of raising Potatos. Potatos on the ground in question with artificial manure would not have been profitable in 1859. The raising of Potatos by artificial manures only has been a subject of great discussion. I experimented with it on my own ground. The experiments I made were public. Some experiments were also made by Mr. Finnie, which were published in the Highland Society's Journal. I got a medal from the Society for my experiments. This was before the year 1859."

Mr. Curror said—

"I don't think Potatos could be raised with artificial manure on such land as this. I have tried it on my own land, which is very superior to Oldhamstocks, and I failed. This was in Kinross-shire, where the land I had was let at 3*l.* to 4*l.* an acre."

That being the evidence on the manure question, it was only necessary to call attention to another of the points he had suggested for their consideration at the outset—that was, the foundation of the estimate of the pursuer's witnesses as regarded the matter of price.

[This, however, we do not extract, as it is not of public interest. We add further that the jury returned a unanimous verdict for the pursuer, assessing the damages at 656*l.* 4*s.* 3*d.*, including interest.]

CATTLE PLAGUE INSURANCE.

[The following letter from Sir J. Kay-Shuttleworth has been published.]

THE introduction and spread of the cattle plague presents a new problem to that system of personal liberty and self-government to which we are attached. Arbitrary Governments, possibly with the advice of men of great experience and scientific knowledge, have acted on their conceptions of the origin and mode in which the disorder is propagated, have prohibited importation, prevented all markets and fairs, isolated infected farms from all intercourse of man or beast, slaughtered all cattle that sickened, and paid an indemnity to the owner.

In this country the interference of the Government is much more cautious. Here we discuss in the public journals all the scientific questions as to the origin of the disease; its character, whether it is simply contagious or also epidemic; by what means the contagion spreads, and what are the conditions which promote its diffusion; what animals are susceptible to its attacks; whether the disorder undergoes any, and if so, what modifications in sheep or swine; the utility of inoculation; the establishment of cattle hospitals for its treatment, and the best remedial measures.

We ought to be on our guard lest, in the unrestricted freedom of our discussion, we either allow the time for effectual action in the suppression of the plague to pass, or impair the vigour of our efforts to limit its diffusion.

Those who are familiar with the modes of thought and habits of small farmers in remote districts must be aware of the necessity of simplicity in instructions as to all sanitary and preventive measures. As, in a free country, the Government mainly relies on the intelligence, activity, and energy of the people voluntarily to adopt and carry into execution whatever measures are necessary for their protection in such emergencies, it seems indispensable that the landlords should intervene on estates divided into small farms; should take care that every tenant is well informed as to all the orders and suggestions of the Privy Council; and on matters on which no instructions have been issued should lend the aid of whatever information they can obtain. Thus the knowledge of an educated class may be made useful to one which derives little information from reading.

The Privy Council have hitherto issued no suggestions as to the principles on which societies for mutual protection against losses from the cattle plague should be founded. These principles do not appear to be self-evident; for such associations are in course of formation, on plans so different that it is clear that many will issue only in disappointment and confusion, while others will fail to attract confidence and support. With the hope of contributing something towards the removal of the mists with which the questions connected with the organisation of such associations appear to be covered, I venture to address you. It may not be presumptuous to strive to point out what are some of the principles and the arrangements flowing from them which have to be defined.

The cattle plague societies are commonly called insurance associations. This is a dangerous name. It is more or less founded on the presumption that even with respect to the ordinary diseases of cattle the amount of risk has been ascertained against which an insurance has to be effected. The limit of the rate of payment in most cattle societies as an insurance for ordinary risks has been settled on the presumption that these risks do not exceed 2½ per cent. on the indemnity allowed. Thus, taking the average indemnity at 10*l.*, I am informed that most of these societies limit the contributions of their members to 5*s.* on each head of stock insured. But, owing to this limit and to imperfect management, many such associations have become bankrupt.

If the amount of risk arising from the ordinary diseases of cattle has not been ascertained, much less has it hitherto been possible to define the risk of the cattle plague. Whatever shall prove to be the mortality from the plague in the whole country, the losses in different counties or unions will be very various. It is, therefore, clear that an average risk, founded on the mortality of Great Britain, if it could be foreseen, would not be applicable to regulate the payment to an insurance fund only extending to any smaller area. Such an average would be as much below the losses of some counties or unions as it would be above those of others. Yet an approximation to the mortality likely to occur in the whole country might be arrived at by a careful comparison, made by experts, of the rate of mortality which has occurred in other countries, and especially in those most resembling England. A cattle insurance society for the whole country could probably only be founded upon some such data, affording presumptive evidence of an average amount of risk. Is there any probability that any private society would inspire sufficient confidence, or that anything short of the foundation of a national insurance society by the Government would succeed? Thus, if the whole mortality during the continuance of the cattle plague were likely to be one-fourth of the stock of Great Britain, and Mr. Henley's estimate that we have 8,000,000 of neat stock be correct, the death of 2,000,000 of neat stock would involve a loss to farmers of at least 20 millions of money. The premiums of insurance for eight millions of cattle would have to be calculated for the whole duration of the plague, and if the indemnity to be paid were estimated at two-thirds of the value, more than 13 millions of money would have to be subscribed to meet it. Insurers would have to make an average payment of nearly 1*l.* 13*s.* on every head of neat stock insured. For the sake of simplicity, I exclude the consideration of the insurance of sheep and swine.

But we may conceive that in some counties or unions the mortality might be greatly in excess of one-fourth, and that a proportionate payment would in that case be required from insurers.

Hence in the formation of local societies arise difficulties in settling the terms of association. Sometimes it is not perceived that the amount of risk has not been ascertained, and a definite annual payment is required, often at a low rate, on the presumption that it will be sufficient. In other associations the maximum of the cumulative payments which each member engages to make is fixed on the presumption that 5 or 10 per cent. on the average value of the stock will suffice. In one association I observe that 15 per cent. on this value has been adopted as the limit. It is clear that these several limits of liability are founded on no ascertained facts, even as to a general average of mortality likely to affect Great Britain, much less would they cover any instance of exceptionally great mortality in a more limited area. Wherever the stipulated payments do not cover the losses of the insurer last stricken, the association has failed to do justice, and it is obvious that many of these associations are founded on illusory hopes of such justice, and that, on the contrary, many persons who have paid every instalment of the calls,

will have to bear their own losses, unaided by the association, because its funds will have been exhausted.

Then, the extension of the system of mutual protection against losses from the cattle plague is hindered by the natural hesitation of the farmers to agree to an unlimited liability to meet the indemnities promised by the association to all its members who sustain losses, or, on the other hand, when the liability is limited, by the apprehension that the society may afford no effectual protection to those who last sustain loss. These difficulties would obviously be diminished in proportion as an approximation could be made to an estimate of an average loss, likely to occur in Great Britain, and the consequent settlement of the liability to calls on that average. But though the obstacles to the formation of societies might thus be reduced, they would still fail to meet claims in counties or unions where an exceptionally great mortality occurred. In the absence of a national association, the society for mutual protection in one county or union would be bankrupt before half the mortality had occurred in the insured stock of its members, while in another county or union the assigned limits of the calls might be far from being reached.

Another obstacle to the progress of mutual protection societies is the reluctance of small farmers to sign any contract deed, or even any document binding them to fulfil the conditions of the association. In lieu of this, some societies, composed of opulent and intelligent farmers, with extensive arable culture, have agreed that 50 per cent. of the indemnity of two-thirds of the value of the stock which have perished by the plague shall be retained to meet the future calls of the association. Where the farms are small and the farmers poor, this 50 per cent. of the indemnity of two-thirds of the value is indispensable to the farmer if he has purchased fresh stock. Consequently, societies composed mainly of small dairy farmers decline the suggestion of any such security for the payment of future instalments, or limit it to 10 per cent. on the indemnity. Moreover, these societies are often founded on the misconception that they are identical with insurance associations, with an ascertained risk, and that one rate of payment can, equitably to other members, insure a farmer against cumulative casualties. Thus, if a farmer have 20 head of stock, and pay the successive calls on this 20, he may lose them all; and it is conceived, in some societies, to be equitable to other members of the association that he should receive the indemnity, not only on this 20, but as often as he shall lose his whole stock, or encounter any additional casualty, without any increase of the rate of instalments to be required from him at any stage of those successive losses.

The extension of the cattle plague to sheep also raises questions as to the facility of its communication to them, and the rate of its diffusion and mortality, on which no sufficient information is generally possessed. Yet without sound data, sheep cannot be admitted as subjects of indemnity in existing societies, nor can separate associations be safely founded on entirely unknown risks.

I might almost indefinitely extend the enumeration of the difficulties attending the foundation and management of these societies. It will be clear to your readers that however ably the principles of such associations will be discussed and settled by the opulent and intelligent farmers of such counties as Norfolk and Bedfordshire, there is little hope of making some of these principles even intelligible to the small farmers of remote districts.

Moreover, the most intelligent farmers would obviously prefer a national association, founded on an approximation to the probable mortality of the whole of Great Britain, and managed by some responsible public authority, such as a Government Commission, to a society which would have to encounter the risk of a mortality which might greatly exceed the average. The Government has, with great advantage to the public, founded the Post Office Savings Banks, and more recently a system of annuities and other deferred payments, based on the general principles of life assurance. If the agricultural community is to be organised to meet the imminent national calamity of the cattle plague by a system of independent mutual protection, I conceive this can only be effectually done by the aid of the Government, exerted in some way similar to its interference in the two instances which I have cited. *James Kay-Shuttleworth.*

Home Correspondence.

The Champion Wheat Crop of the Season.—As Mr. Hallett says that it was not he who failed to secure Judges, I have forwarded his letter and my answer, which I shall esteem it a favour if you will publish. *Chas. Bates, Dagenham, Sept.* 25.

1. *Mr. Hallett to Mr. Bates.*—I have received a letter from Mr. Alderman Mechi declining to act, and I am not disposed to take any further steps in the matter. If you would like to run over here next week early and look at my Wheat, I shall be happy to see you. Really the difficulties of collecting a jury seem interminable. I think if you saw my Wheat it might lessen your regret at our failure to secure a jury.—*Frederic F. Hallett, The Manor House, Brighton, July* 17, 1865.

2. *Mr. Bates to Mr. Hallett.*—I am extremely sorry you have been disappointed in the choice you have made of judges. I have been fortunate enough to secure Mr. Hewitt Davis and Mr. Chas. Howard, so that I do hope you will appoint some one on your behalf at once, as there is plenty of time yet—they can inspect the crop better when cut. It will never do for you to abandon it at the eleventh hour, more particularly as you publicly challenged the United Kingdom. *Chas. Bates, Dagenham, July* 19, 1865.

Poultry.—Emboldened by the position of a paragraph on poultry in a recent impression, I venture to ask room for a few lines on the same subject. The majority of your readers will doubtless, ere now, have received their copy of the Journal of the Royal Agricultural Society of England, Second Series, Vol. I., Part 2, and they cannot fail to note from the table of contents, the deep attention the food supply of this country is receiving from practical and scientific men. Could not the influence of the first Agricultural Society of the day be brought to bear on poultry? The Council once regarded it favourably, and for a few years added it to their annual Shows. The good example was speedily followed by nearly all other Societies, whether county or foreign, and the result has been a marvellous improvement in and development of our different breeds of poultry; but at present we have done little more than learn how much room there was for it. I do not think I advance too much when I say that in all probability, had the Royal Agricultural Society continued its exhibition of poultry at its annual meetings, our farmers would by this time have taken steps for the introduction generally of the different birds as direct branches of live stock, and that we should have been more independent of our neighbours for our supplies. At the meetings of the Bath and West of England, the Birmingham, and numerous other important Societies, the poultry bay is always thronged. The money paid for admission at the doors and for purchase of birds tells well up, and the list of subscribers is constantly on the increase. It would be a graceful act to the wives and daughters of many of our agriculturists who take as much pleasure in their poultry yards as their husbands and brothers do in their cattle, if, when the great meeting of England's agricultural produce were held, they could contribute to its success. If, as an experiment, one or more classes were added to the prize list, say for fowls, turkeys, ducks, and geese, the entries would I am sure be sufficiently numerous to justify it, and the classes could be divided as experience should suggest. The prize list would be a guide to the intending purchaser of stock, the different districts of England would be fairly tested as to their poultry capabilities, and as is now the case with cattle, the breeds best suited to the different localities would be sought after and improved. The nucleus of a poultry stock is to be found on almost every farm in the country, and on the principle that a good bird costs no more to keep than a bad one, I think the subject, insignificant as it may appear, is worthy the attention of agriculturists generally. *Hants.*

Thistle Seeds.—Now is the season for Thistle seeding, and the winds will distribute them far and wide. Some say they are carried five miles annually. What should we say to any man who dare sow seed weeds broadcast over our lands? And yet, practically, those who permit Thistles to flourish and bloom unheeded either on their own or their neighbours' property, are guilty of a suicidal neglect. A visitor to my farm assured me that his relative brought an action against a neighbour who refused his application to have the Thistles cut down, and recovered damages and costs. Unfortunate holders of little fields and great hedge-rows had need watch attentively on this matter of seed weeds. Hence the great value of scarifying immediately after the corn is removed, for weeds then flourish and ripen their seeds very quickly and abundantly. I have known very practical farmers who did not believe that Thistles ever seeded, or at least produced seeds that would grow. *J. J. Mechi, Oct.* 5.

Crops in Gloucestershire.—The long continuance of dry weather threatens to stop the growth of roots, and a general opinion exists that this will lower the price of store sheep. Swedes and Rape have suffered much from mildew, and the young Clover and Sainfoin are also affected in the same way. There is (most likely as a consequence of the above) a considerable mortality among lambs. Wheat sowing is retarded for want of rain. Young Clover is remarkably good, and has been of much service to the sheep stock. Store cattle are somewhat easier to buy than for some months past. Sheep still maintain their price, and we saw one pen of ewe lambs sold yesterday for 62*s.* a head, and 50*s.* to 52*s.* is not uncommon for top lambs. *R. A. C. C.*

Wheat Steep.—I have for many years dressed my seed Wheat with a preparation of vitriol, with great success. No smut ever attacks the grain. *Falcon.*

Societies.

Albert Veterinary College: *Oct.* 2.—A new Veterinary College in London, having the above title, and springing out of one formed in Edinburgh a few years since, was this day formally opened at a branch establishment in the Queen's Road, Bayswater. The head college will, when completed, be situated in Chelsea, but, as no further advance has yet been made towards the erection of the structure there than the purchase of the ground upon which it is to stand from the Commissioners of Chelsea Hospital, the company, who are the promoters of the new college under the Limited Liability Act, deemed it wise, acting probably on the principle of "striking while the iron is hot," at once, while public attention is forcibly drawn by the prevailing cattle plague to the importance of veterinary knowledge, to inaugurate their new institution in the branch establishment at Bayswater.

Professor Gamgee delivered the inaugural address, which was listened to throughout with marked attention by a number of gentlemen evidently deeply interested in the subject of the discourse. After adverting to what he conceived to have been hitherto the causes of failure in teaching veterinary science, he observed that one of the first points he turned his attention to in Scotland was the prevalence of intestinal disorders among horses, and having collected religious statistics to prove that of the animals used by agriculturists nearly 60 died of colic out of every 100 that died of disease, he wrote and spoke on the so-called boiled meat system, feeding horses as we should carnivorous pigs, and pointed out the killing influence of draughts of turpentine, oil, and opium. He had drawn attention to the evils attendant on an importation of live stock without adopting proper precautions against the spread of disease, and had advocated the establishment of foreign stock markets and a rigid inspection of markets and fairs. After many years' efforts and steady investigation he thought it rather hard that the profession to which he belonged should be denounced as ignorant and inadequate for the occasion. There was in his opinion great reason for regret that Professor Simonds, who perceived the cattle disease early in June, and the Government, who issued an Order in Council on the 24th of July, did not adequately warn the farmers of the appearance of the disease. Acting under the advice of Professor Simonds, the Government said, full five weeks after the malady broke out in London, "that a contagious or infectious disorder, of which the nature is at present uncertain, has lately appeared and now prevails among cattle within the metropolis and the neighbourhood thereof." On the 29th of July he arrived in London, and on the 31st addressed a meeting at the Marylebone Institution on the subject of the strange disease. Thanks to the public press, it was at once known throughout the length and breadth of the land that the cattle plague was in the country, and farmers were put on their guard as to the purchases they might make. This alone saved many a man, he believed, from serious loss, and it was much to be regretted that the alarm was not given one month sooner. With regard to many associations formed for the insurance of cattle, he stated that they were working most unsatisfactorily, and he thought that if the Government could be guided so as to benefit by the opportunity, a system could be formed which would add to the public revenue, materially protect the farmers, and enable them to lull out the plague. An indemnity fund from the national purse was not required, but there might be a national cattle insurance system, in which every farmer would have confidence, and which in time would realise enough to defray the expenses necessary for the supervision of a national disease—a preventive system, affording substantial security to the farmer and his landlord, and helping at the same time to melt down the National Debt [!] Many people were impressed with the idea that the malady could be cured, but the cattle plague was more deadly and infectious than any other known disease affecting men or animals. Keeping stock in life implied favouring the extension of the disease, and the fact had ever been better established than that you must treat herds affected with this disease as you would glandered horses. Much as the opinion might jar upon the feelings of those who believed that God had granted a remedy for every disease, he asserted that severe cases of the Russian plague must ever be incurable. He referred to this subject for the purpose of showing that veterinary science was of the highest importance to any country; and, in conclusion, he begged to press on all the claims of the new institution, which he held to be the only one of its kind calculated to train men for the real object they should have in view.

At the conclusion of the address, of which the above is a brief summary, Professor Gamgee was much applauded by the gentlemen present, who then proceeded to inspect the premises in which they were assembled. The ground floor is laid out as stabling, closely adjoining which is a small pharmacy, stored with the requisite drugs and medicines for the patients who will in time occupy the stalls. The upper floor is assigned to the purposes of instruction and study, and contains a lecture hall, in which the inaugural address was delivered, a museum for the exhibition of anatomical specimens, a small library of books bearing on the peculiar science to which the institution is devoted, and a chamber for dissection. The arrangements of the whole building have been made simply for utility, and no money has been spent on mere show.

Reviews.

Road Locomotives. An Epitome of the New Road Locomotives' Acts for the use of Owners and Drivers. By T. Aveling. E. & F. N. Spon. 16, Bucklersbury.

This little handbook is all that its title calls it; and there never was a more appropriate authorship, for we owe more to Mr. Aveling, of Rochester, in the matter of road locomotives for agricultural purposes, than we do to any one else. The following is a portion of the preface:—

"The attempt to run locomotive steam engines on

common roads is not at all new; it is more than eighty years since they were first tried, and even then they appear to have been to some extent successful.

"In 1784 Watt patented a road locomotive with a wooden boiler. Trevithick, also, in the beginning of this century, invented and constructed a steam coach. Hancock, Gurney, and others followed, and then the invention was allowed to rest for more than twenty years, until it was again taken up with much energy by the late Mr. Boydell.

"The early engineers of road locomotives, although they displayed much ingenuity in their experiments, can only claim the title of pioneers; the complicated details of their inventions being now of no practical use.

"Improvements would probably have been made, and greater simplicity attained, but for the opposition of the turnpike trustees, Bills being hastily passed through Parliament imposing prohibitory tolls on road locomotives, in some cases amounting to 2*l.*

"The evidence before the House of Lords on railway bills clearly shows that the whole nation was afraid of the progress of steam power on both road and rail; and it is probable that road locomotives would have remained for some years longer in the shade but for the rapidly extending use of heavy steam-driven machinery for agricultural purposes; the displacement of horses by steam power having made it the more necessary that agricultural steam engines should be able to move themselves and the threshing and ploughing machinery they are employed to work from one farm to another.

"In the year 1861 Parliament passed an Act 'for Regulating the Use of Locomotives on Turnpike and other Roads, and the Tolls to be levied on such Locomotives and on the Waggons and Carriages drawn or propelled by the same.' By this Act the prohibitory tolls were removed and a just scale of tolls substituted. A clause, however, was inserted giving one of her Majesty's principal Secretaries of State power to restrict or prohibit the use of locomotives in certain districts. This power was in many cases unduly exercised—in some instances prohibitory orders affecting whole districts were granted at the request of a few individuals without consulting the magistrates or inhabitants, thereby neutralising benefits conferred in the Act referred to. This obnoxious clause, and the undue use made of it by Sir George Grey, produced great inconvenience and loss to the owners of agricultural locomotive engines, and in some instances steam ploughing companies were obliged to discharge their men and stop working.

"Application was made to Parliament, and the Locomotive Act of 1865 was passed, which removes the Home Secretary's power of restricting and prohibiting the use of locomotives, and places the power of making regulations for their use in the hands of the local authorities of towns whose population shall exceed 5000. This Act also removes the restrictions as to the use of engines within 25 yards of any roadway when employed in ploughing, and is to remain in force until September, 1867.

"The question of steam on common roads is now placed on a fair footing; and not only for agricultural purposes, but for the removal of heavy loads will the use of the road locomotive engine become more and more general.

"By some it has been feared that traction engines will exert a destructive influence on the roads. It is, however, well known to experienced road surveyors that the wide wheels of these engines benefit rather than injure roads. The relative damage done by the hoofs of horses in drawing carriages, compared with that caused by the wheels, is three to one in favour of the driving wheels. The steam horse consumes coal only when at work, while animal muscle must be continually renewed with hay and corn. The increase of the population of this country is now telling on the supply of meat, and the food of each horse displaced by steam power will keep two bullocks or five sheep.

"It cannot be denied that there still exists in the public mind a great prejudice against road locomotives on account of the supposed tendency to frighten horses, and this can only be removed by the unremitting care, attention, and civility of the drivers and attendants."

The following are the rules which the Act imposes on drivers:—

"1. Three persons at least are to drive or conduct locomotives, and if more than two waggons are attached thereto, an additional person to take charge of waggons.

"2. One of such persons when locomotive in motion to precede it on foot by not less than sixty yards, and to carry red flag constantly displayed, to warn riders and drivers of approach of locomotive, to signal the driver thereof when it shall be necessary to stop, and to assist horses, &c., passing.

"3. Drivers to give as much space as possible for other traffic.

"4. Whistle not to be sounded for any purpose.

"Cylinder taps not to be opened in sight of person riding, driving, leading, or in charge of a horse upon the road.

"Steam not to be allowed to attain a pressure exceeding limit fixed by safety valve, so that no steam shall blow off when locomotive on road.

"5. Locomotive to be instantly stopped when required by person preceding same, or any person with horse or carriage putting up his hand as a signal.

"6. Person in charge to provide two efficient lights to be affixed conspicuously, one at each side, on the front of the same, between the hours of one hour after sunset and one hour before sunrise.

"Penalty on owner for non-compliance with all or any of above not exceeding 10*l.*; but the owner may recover the penalty of the person in charge of, or in attendance upon locomotive, on proof that the same was incurred by reason of his negligence or wilful default."

Farm Memoranda.

[We take advantage of the immense body of agricultural evidence lately taken before the Hypothec Commission at Edinburgh to publish such extracts from it as will indicate the existing style of Scottish agriculture, and the enterprise and energy of Scottish agriculturists.]

(*Continued from p. 928.*)

Scottish Agriculture: *George Auldjo Jamieson, Esq.*—We have the charge, more or less directly, of several estates in various parts of Scotland, viz., in Lanark, Mid-Lothian, West Lothian, Perth, Forfar, Aberdeen, and Ross. The aggregate rental of the estates of which we have the management is about 100,000*l.* a year. I think the effect of the abolition of the law of hypothec would be exceedingly unfavourable to almost all classes of agriculturists—certainly to a very large proportion both of landlords and tenants. In the south of Scotland, very usual terms of payment are Candlemas and Lammas after reaping. If the law were altered, these rents would have to be paid at Whitsunday and Martinmas preceding—possibly six months sooner. This would be equivalent to cutting short the period of credit by at least nine months; while in the north of Scotland, the period of entry and of credit being different, the result would be to curtail the credit from 15 to 18 months. This would tell very much on the smaller tenantry. They would practically to a large extent be excluded from offering altogether. They would not have the means to stock their farms in many cases. The result over the whole country would be to withdraw from the tenantry of Scotland about 7,500,000*l.*, that being in my opinion a moderate estimate of the amount of one year's rental, of which at present the landlords allow the tenants the use. The extent of farms, and the class of tenantry, varies very much in the different parts of the country; and I do not think the interests or opinions of farmers in the Lothians or Fife can be at all representative of those in the north, where arable farms are very much smaller. I have made up a note of tenants on estates under our charge in various parts of the country, and I find that, leaving crofts under 10*l.* out of view, in Lanarkshire the average rental of farms on one estate was 150*l.* 1*s.*; in West Lothian, on two estates, the average rental was respectively 402*l.* 18*s.* 2*d.* and 319*l.* 16*s.*, or combining them, 356*l.* 8*s.*; in Perthshire, on one estate, the average is 235*l.* 17*s.* 1*d.*; in Forfarshire the average rental on two estates was respectively 130*l.* 10*d.* and 141*l.* 13*s.* 6*d.*; in Aberdeenshire, on six estates, the property of three separate proprietors, the average is 54*l.* 15*s.* 10*d.*, 65*l.* 9*s.* 3*d.*, 63*l.* 8*s.*, 64*l.* 4*s.* 8*d.*, 59*l.* 9*s.* 6*d.*, and 60*l.*; in Ross-shire, on one estate, the average is 79*l.* 4*s.* 2*d.* I find from a return I have got, that the average rent of farms in West Lothian above 50*l.*, is 169*l.* 9*s.*; but this ranges from an average of 336*l.* in the parish of Dalmeny, to 90*l.* in that of Whitburn. Including crofts, the contrast becomes even greater: in Aberdeen the average will then be 30*l.*; in Ross, 34*l.*; in Forfar, 115*l.*; in Perth, 160*l.*; in West Lothian, 300*l.*; and in Lanark, 76*l.* I have no doubt the average rent payable by each tenant in East Lothian, Mid-Lothian, and several parts of Roxburgh and Berwick is above that in West Lothian; but I have no experience in these counties. The advantages derivable from the present law of hypothec are, I think—1st, the security it affords to those who invest in land or on the security of land; 2d, the means it affords to landlords of providing tenants with a part of the capital necessary for the working of their farms; 3d, the opportunity it thus affords to smaller farmers entering on the employment, and thus recruiting the ranks of agriculturists by persons of skill and practice; and 4th, the inducement and opportunity it affords for the granting of leases of the long duration of 19 and 21 years. I don't think that the security which it gives to the landlord is given at the expense of the general dealers, any more than a bargain entered into in the ordinary affairs of life makes the party to it secure at the expense of others. I put the letting of land on the same footing as the lending of money. No person will lend money without taking such security as he considers necessary for the safety of his capital, and the regular payment of his interest; and if he takes such security as will render him a preferable creditor, the person who gives him that security is in the same position towards his other creditors, that a tenant is in towards his landlord. There is a very large number of persons who advance money on the security of land, and they are in the same position as the landlord—the position of being preferable creditors.

We very rarely advertise farms. In most of the estates under our charge, the farms are valued by some neutral person like Mr. Dickson, and if the factor and he coincide, the farm is offered at their valuation to the sitting tenant, unless there is something which makes it desirable to remove him. In very rare cases has there been any change. Sequestrations are almost unknown on most of the estates under our management. I have made some inquiries on the subject, and to take one case, Mr. C. Chalmers, who has had considerable experience in managing landed properties in Aberdeenshire and Kincardineshire for upwards of 40 years, "always regards sequestration as a proceeding of very unusual occurrence, and knows that it has been very rarely in the course of his experience that he has had to resort to it." I have obtained a return of the number of sequestrations used on a large estate in Aberdeen for the last five years. The rental is about 33,000*l.* a year, and there are about 1200 tenants. During these five years, there were in 1860, one for 90*l.*; in 1861, none; in 1862, one for 11*l.* 12*s.*, and one for 98*l.*; in 1863, none; in 1864, five for 76*l.* 10*s.*; in all, eight for 276*l.* 2*s.*, being an annual average of 1.6 in number and 55*l.* 4*s.* 5*d.* in annual amount. In not one of these cases were the proceedings followed out to sale. These five sequestrations in 1864 were taken against small tenants who had been for many years in arrear, just to get rid of them. They were for 40*l.*, 8*l.*, 9*l.*, 5*l.* 10*s.*, and 14*l.* respectively. I am sure that other parties dealing with these tenants could not have been great losers, because they were quite notoriously bankrupt, and the sequestrations were not resorted to till forbearance had been stretched beyond prudence. The law of hypothec enables a landlord to grant forbearance to tenants without risking his money. I have also obtained a return of the whole sequestrations used during the same period in the county of Linlithgow, and I find the following results:—In 1860, number of sequestrations, 4; amount, 836*l.* 5*s.* 11*d.*; in 1861, 2, 148*l.* 9*s.*; 1862, 8, 1320*l.* 1*s.* 10*d.*; 1863, 15, 3139*l.* 6*s.* 1*d.*; and in 1864, 5, 492*l.* 10*s.* Total sequestrations, 34; amount, 5936*l.* 12*s.* 10*d.* The valuation roll of the county for 1864 is 163,464*l.* In this list I find the same names recurring year after year, so that in reality, although there were 34 sequestrations, there were only nineteen parties sequestrated. The average amount sequestrated for in each year was 1187*l.*, the valuation of the county being 163,000*l.* In two of the 19 cases, the sequestrations were taken at my own instance; and the rental we have charge of in that county is about 10,000*l.* a year. *Q.* In arriving at seven and a half millions as the sum which you think tenants have of the landlord's capital throughout Scotland, did you make allowance for the farms that are fore-rented?—*A.* I took it roughly. I got from the almanack the valuations of the different counties, exclusive of burghs and railways; but I find that in Kinross, the valuation of which is 58,000*l.*, and in Lanark, where the valuation is 1,100,000*l.*, railways and canals seem to have been included. The gross amount of the rental of Scotland is 9,481,328*l.*, off which I took for railways and canals in these two counties, and to meet the forehand payment of rents, 2,000,000*l.*, leaving 7,500,000*l.* It was a very rough calculation, but I know that forehand rents are exceedingly rare. Sheep farms are mostly fore-rented, but they do not form a very considerable part of the rental. I do not know the practice as to farms in Roxburghshire and Dumfriesshire. If the law were abolished, tenants would lose on an average a year's interest by fore-renting. *Q.* Don't you think they pay anything for the use of this money for a year?—*A.* Indirectly the influence of the law is to enhance rents, and thereby no doubt they will. If it reduced rents, tenants would benefit to the extent to which they were reduced. Both landlords and tenants have a direct pecuniary interest in maintaining the law. *Q.* In what way has the tenant that interest?—*A.* Because he gets the use of the landlord's money. *Q.* But those tenants that have money?—*A.* You are speaking of classes of tenants as distinguished from the general bulk; my remarks apply to tenants as a class, and with reference to them I adhere to what I have said. The landlord derives this benefit, that it secures his rent. It also enables him to select deserving tenants with confidence, and it creates confidence in the mutual dealings between landlord and tenant, which I think exceedingly desirable. I don't think landlords are entitled to any security beyond what other capitalists possess, but no other capitalist would lend his capital without security. *Q.* Land is indestructible?—*A.* So is gold, practically. *Q.* But a tenant can run away with the gold, but scarcely with the land?—*A.* I don't see why a man with a farm worth 1000*l.* should not make himself equally secure as the man who has 1000 sovereigns. The latter won't lend them to anybody else unless he is sure of getting them back again. A tenant may destroy the land, and he may be unable to pay his rent. The value of land has certainly risen very much within 20 or 30 years, and a man who now invests in land will only get 3 per cent. for his money. *Q.* You think the abolition of the law would greatly reduce rents?—*A.* It is difficult to speculate on what the effect may be, because there might be remedial measures which we cannot anticipate, but the direct influence of the abrogation of the law would unquestionably be to affect the value of land. *Q.* And yet you have had very few sequestrations on the estates under your charge, and in Linlithgow they have only amounted to 10*s.* or 15*s.* per 100*l.*?—*A.* About that. *Q.* Do you think that landlords, in place of suffering this very small loss, would let their farms to men at a greatly reduced rent, simply

because they were able to fore-rent them?—*A.* But I look on sequestration as the exceedingly rare consequence of the law, as by no means marking the influence of the law itself. I should never take the number of sequestrations as the measure of the benefit derived from the law. I think sequestration is a thing to which a man in the management of land resorts only in the very last extremity. Rents are got without putting the law in force, but it is known that it could be put in force. I am against granting ameliorating leases to tenants, but my remarks on that subject applied to a system well known in the north of Scotland, where houses on the farms are really the property of the tenant. In a great part of Aberdeenshire till recently the houses on the farm were the property of the tenant. He built them, and at the end of the lease he had a claim on the landlord for repetition of the value. That is a system we have done away with wherever we could. I think the effect of the abolition of the law would be to prevent landlords from granting leases for 19 or 21 years. *Q.* If they could obtain more rent for their land under leases than they could get from yearly tenants, do you think they would not grant leases?—*A.* There is no saying to what that might tempt them, but it would make land no longer a certain investment, but a speculative one; because you would be trusting no longer to the security which the law gives, but speculating upon the substantiality and credit of the individual tenant. *Q.* You stated that persons succeeding to entailed estates had considerable difficulty in raising money when they succeed to their property, they not receiving their rents for 18 months; would that not be an argument for having the rents sooner paid?—*A.* I made the observation as showing that the advantage derived from the postponement of rents was not all on the side of the tenant, and that the landlord was put to some inconvenience to find the money to advance to the tenant.

Calendar of Operations.

October.—*Wheat sowing* was referred to last week. The furrows should be cleaned out by plough and spade, so as to leave a free passage for water, which might otherwise stagnate during winter.

Winter Beans should be sown this month on any Wheat or other stubble that has been prepared for their reception. The stubble should be worked, in the first place, with the grubber or cultivator, then manured broadcast with such a quantity of farm manure, up to 12 or 16 tons per acre, as the yards may be able to supply; then well harrowed, and ribbed over by the plough with shallow furrows, at intervals of 18 to 24 inches. The object of this is that the seed—sown by the drill in these furrows, and covered by two double turns of the harrows—may be deposited at a depth at which the drill, if not thus assisted, could not place them. Or the seed and manure may be ploughed under together; the former being sown by the barrow in every second or third furrow of the plough. Another mode of sowing Beans, whether of the spring or winter variety, which is adopted in Scotland, is to plough in the seed and manure every second furrow. The land, if light, is first ribbed across as soon as possible after the corn crop has been removed; then, just before sowing the Beans, harrow down the furrows, lay on the manure, cover in with two ploughs following each other, and drill the seed in the bottom of the furrow behind the last one. The dung can either be drawn into each furrow with forks, or all placed above the seed, as may be considered desirable. The seed should not exceed 2 bushels per acre. Where it is desired to cultivate Carrots or Turnips between the rows of Beans, as may often be done with advantage, sufficient space should be left between adjacent couples of Bean rows for the purpose. The two rows of Beans need not be more than 15 inches apart, and the spaces between the couples may be 7 feet—room enough for the two rows of spring-sown Carrots.

Winter Vetches may be sown now—some having been sown in September also—for successions next May and June. Three bushels per acre should be drilled in rows, 6 inches apart, on land that has borne corn the past season, and that has been manured, ploughed, and harrowed, as for Beans. It is well to sow half a bushel per acre of Winter Rye among the Tares.

Potatos should have been harvested before this month. They may be taken up either by the common or by the double mouldboard plough, which is made to undermine and throw open every other row, the tubers being gathered by women and children; and the alternate rows are to be similarly treated after these are completed: or by spade husbandry, in which case the whole operation is let to a party of men, who dig or fork up the tubers, and employ children to sort and gather them. This costs from 20*s.* to 25*s.* per acre. When the plough is used, the field is afterwards to be harrowed, to expose any tubers that may remain. In either case, the produce is to be carted home and secured in pits, or otherwise against the frost. To secure them in a sound condition, no fermenting matter should be near them. Perfectly dry "houses," thickly thatched to the ground, with channels to carry off the water, will secure the store for sale or consumption. That portion intended for seed should be "green'd," or air-hardened before storing, and, if possible, kept so cool and dry as to prevent sprouting.

Mangel Wurzel and Carrots may be harvested towards November—such of them as it is not intended to consume on the land where they have grown.

Rape or Coleseed will be ready for receiving the stock to be fed upon it.

It is well, if the farmer find himself possessed of sufficient manure in his yards at this season, to apply it on all the land which requires it, that is to be cropped early in spring. All land for spring Beans, early-sown Peas, Carrots, and Parsnips, should thus, if possible, be manured in October.

Fences.—Finish clipping, slashing, and cropping hedges; cleanse all ditches and water-courses; plant Holly hedges. Begin trenching for planting fresh hedges.

Grass Lands which were rested in the preceding month should now be stocked with the breeding ewes, with their ram; the ordinary grazing sheep remaining on Turnips, Rape, or other keep. The bullock pastures will require a sufficient quantity of store cattle or sheep to eat up all the rough Grass which remains, as it is essential to good grazing that once in every year all pastures should be well and cleanly eaten off. The droppings of the cattle are to be knocked or spread.

Water Meadows.—"The working-up" and repairs of anything connected with the operation of irrigation should be commenced; and it would be desirable to complete them as early as possible, that advantage may be taken of the November rains, the floods from which will be impregnated with enriching qualities from yards, roads, and newly manured fields that drain into the watercourses.

Live Stock: Health.—Horses are particularly susceptible, from the circumstance of their casting their coats—becoming at first almost bare, and then acquiring a coat of much greater length. They are thus, from their semi-naked state, more exposed to the vicissitudes of the weather, besides which, from sympathy with so large a surface as the skin, there is greater weakness throughout the system generally. They accordingly sweat readily with little exertion, and appear faint. Some horses are much more affected by these changes than others, and as a general rule, horses with coarse hair, gummy legs, and deficient breeding, are more influenced by the autumnal changes than well-bred animals, possessing naturally fine sleek coats. Coughs and catarrhs, with the more serious cases of inflammation of the windpipe and the air tubes generally, are common diseases at this season of the year, sometimes appearing as simple affections, and at others assuming an epizootic character, or existing as concomitants of influenza. Diseases of the skin, or rather of the subtegument, such as œdema or swelled legs, cracked heels, grease, &c., are now common.

In oxen and sheep we find catarrhs, coughs, and other kindred disorders, as in horses. Young cattle are liable to a very fatal disease, commonly termed Quarter-ill—which is produced by lying on the wet ground, or when it is covered with hoar frost. By housing early in the season this disease may be prevented. Epizootic diseases generally are more rife amongst cattle at this period of the year; the disease of the mouth and feet, called the epidemic, becomes prevalent towards its close; and that very fatal disease, pleuro-pneumonia, too, rages most in the autumn.

In sheep, too, the epidemic, which is more serious than with oxen, generally makes its appearance now, often remaining an unbidden guest throughout the winter. The foot-rot also prevails towards the latter end of the season on soft rich pastures, and that dreadfully fatal disease, the rot, which some years since used to decimate our flocks, though latterly not much heard of, extends its ravages most during the autumnal months. This is the proper season, on those farms where breeding stocks are not kept, to purchase sheep and cattle for the winter's manufacture of meat and manure.

Horses continue to receive their full allowance of corn; the Clover and Vetches, however, on which they have been feeding, having now failed, must be replaced by hay or Oat-straw chaff, with a small allowance daily of Carrots or Swedish Turnips. Bean straw may be used later.

Sheep must be folded during this month on the earlier Turnips and Rape, where they may receive oil-cake, or Beans, or Barley, in addition, according to the object of the farmer, or they may be folded on Clover lea, Turnips being brought to them, and either cut into troughs or spread over the land, which is thus manured for the succeeding crop of Oats or Wheat. They should have access to a covered trough containing salt. Grazing or yearling sheep will do well on Grass pastures. The best mode of consuming the winter food is to begin with the Rape, then go on with the common Turnips; next, the hybrids or Scotch yellows; and lastly, the Swedes, which should all have been taken up and pitted in open weather. Ewes ought, the first part of this month, to be put to the ram; and the ewes should be marked according to the week they are tupped.

Notices to Correspondents.

Books: *Agricola.* The Cyclopædia of Agriculture (Blackie), Book of the Farm (Blackwood), Our Farm Crops (Blackie), Handbooks of Dairy Husbandry and Farm Labour (Longmans), Farmer's Calendar (Warne), Mechi's How to Farm Profitably (Routledge), Outlines of Modern Farming (Virtue).

Guano: *An Old Subscriber.* It is not the proper use of guano to dust it over the leaves of Cabbage in order to destroy caterpillars. You can give the plant a sudden shake, and kill the fallen grubs with your foot sooner than you could dust it with guano.

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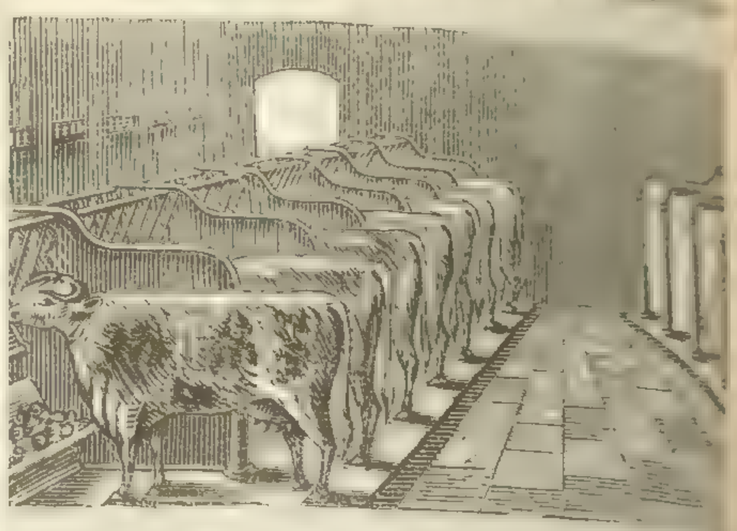

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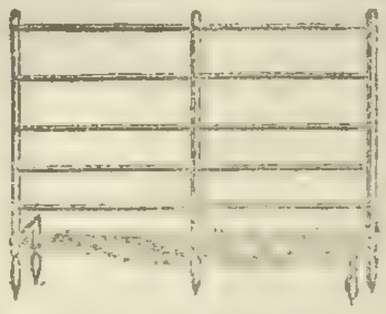

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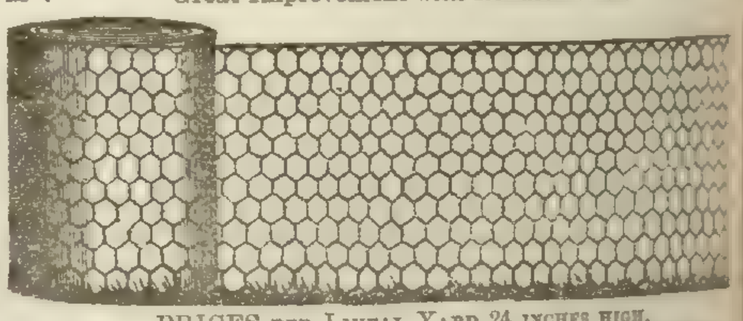

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		s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	[illegible]
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1½ in.	Smallest Rabbits ..	0 5	0 6	0 5¾	0 7	0 7	[illegible]	[illegible]
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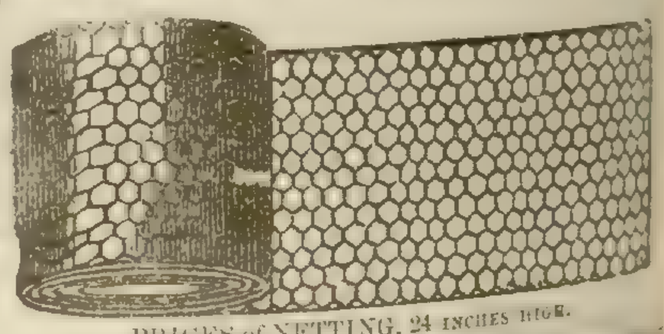

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87, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.

THE AGRICULTURAL HALL, ISLINGTON, CONTAINING AN ACRE OF GLASS, WAS SUPPLIED BY ME.

Mr. Rivers and the leading men in the Horticultural profession, as well as the Nobility, Gentry, and Merchants, have favoured me with Orders for Home use and for Exportation.

SHEET GLASS.

In Cases for Cutting up, averaging from 6 to 9 feet super.

Average Thickness, 15 to 16 oz.

4ths quality	.. ..	per 300 feet case	32s. 6d.	or about 1½d.	per foot.
3ds ,,	.. ..	,,	41 0	,, 1¾	,,
2ds ,,	.. ..	,,	60 0	,, 2¼	,,
Best ,,	.. ..	,,	92 0	,, 3¼	,,

Average Thickness, 21 oz.

4ths quality	.. ..	per 200 feet case	33s. 6d.	or about 2d.	per foot.
3ds ,,	.. ..	,,	42 0	,, 2½	,,
2ds ,,	.. ..	,,	63 0	,, 3¾	,,
Best ,,	.. ..	,,	89 0	,, 5½	,,

Average Thickness, 26 oz.

4ths quality	.. ..	per 200 feet case	44s. 6d.	or about 2¾d.	per foot.
3ds ,,	.. ..	,,	56 0	,, 3½	,,
2ds ,,	.. ..	,,	84 0	,, 5	,,
Best ,,	.. ..	,,	116 0	,, 7	

SHEET SQUARES, Cut to Order.

Average Thickness, 15 to 16 oz.

	Under 1 foot super.	Under 2 feet super.	Under 3 feet super.	Under 4 feet super.	Under 5 feet super.	Under 6 feet super.
4ths quality	1½d.	1¾d.	2 d.	2¼d.	2½d.	2¾d.
3ds ,,	1¾	2	2¼	2¾	3	3¼
2ds ,,	2	2½	2¾	3	3½	4
Best ,,	2½	3	3½	4	4½	5
Average Thickness, 21 oz.						
4ths quality	2¼d.	2¾d.	3 d.	3¼d.	3½d.	3¾d.
3ds ,,	2¾	3	3¼	3¾	4	4¼
2ds ,,	3	3½	3¾	4¼	4½	4¾
Best ,,	4	4½	5	5½	6	7
Average Thickness, 26 oz.						
4ths quality	3d.	3½d.	3¾d.	4 d.	4½d.	4¾d.
3ds ,,	3¾	4	4¼	4¾	5	5¼
2ds ,,	4¼	5	5½	5¾	6	6½
Best ,,	5¼	6½	7	7½	8	8½

15 oz. Squares usually kept in Stock, &c.

32 oz., 36 oz., and 42 oz. are also supplied in various quantities.

EXTRA WHITE or CRYSTAL SHEET GLASS, very superior for Pictures and best Glazing.

RUBY, GREEN, BLUE, YELLOW, COLOURED, ENAMELLED, GROUND, and FLUTED GLASS.

15 oz. Squares usually kept in Stock, packed in 100 ft. and 100 ft. Boxes.

Stock Squares.

				4ths.	3rds.	2nds.	Best.
6 by 4	7 by 5	8 by 6	9 by 7	9s. 6d.	10s. 9d.	12s. 6d.	14s. 8d.
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½				
10 by 8	12 by 9	12½ by 10½	14½ by 10½				
10½ by 8½	12½ by 9½	13 by 10	15 by 10				
11 by 9	13 by 9	13½ by 10½	13 by 11	10s. 6d.	12s. 0d.	14s. 8d.	17s. 3d.
11½ by 9½	12 by 10	14 by 10	14 by 11				
15½ by 10½	16 by 10	14½ by 11½	15 by 11	11s. 6d.	13s. 6d.	16s. 0d.	18s. 0d.

Stock Squares.

				Per 100 feet. 4ths.	3rds.	2nds.	Best
15½ by 11½	14 by 12	17 by 13	22 by 16				
16 by 10	14½ by 12½	18 by 13	24 by 16				
14½ by 11½	15 by 12	23 by 13	20 by 17				
15 by 11	15½ by 12½	18 by 14	22 by 17				
15½ by 11½	16 by 12	22 by 14	21 by 17	.. 11s. 6d.	13s. 6d.	16s.	18s.
16 by 11	16½ by 12½	24 by 14	20 by 18				
21 by 11	17 by 12	22 by 15	22 by 18				
13 by 12	18 by 12	24 by 15	24 by 18				
13½ by 12½	22 by 12						

ORCHARD HOUSE SIZES,

As recommended by and supplied to Mr. Rivers, and the leading Horticulturists of the day.

Average Thickness, 15 to 16 oz.

		4ths.	3rds.	2nds.	Best.
16½ Inches by 12½ Inches.					
20 ,, 12 ,,					
20 ,, 13 ,,					
20 ,, 14 ,,	Per 100 feet ..	11s. 6d.	13s. 6d.	16s.	18s.
20 ,, 15 ,,					
20 ,, 16 ,,					
20 ,, 17 ,,					

Average Thickness, 21 oz.

		4ths.	3rds.	2nds.	Best.
20 Inches by 12 Inches.					
20 ,, 13 ,,					
20 ,, 14 ,,	.. .. ..	14s. 6d.	18s. 6d.	24s.	27s. 6d.
20 ,, 15 ,,					
20 ,, 16 ,,					
20 ,, 17 ,,					

The above prices are only for the sizes stated, but if a quantity of any other size is required, they can be supplied at about 5 per cent. additional, provided time is allowed to manufacture them.

I have also a GREEN TINTED GLASS, which I can strongly recommend. In Summer it gives a cool appearance and in Winter a warm one.

PROPAGATING GLASSES.

3 inches diam.	0s. 4d.	each.	
4 ,, ..	0 5	,,	
5 ,, ..	0 6	,,	
6 ,, ..	0 7	,,	
8 ,, ..	0 10½	,,	
10 ,, ..	1 2	,,	
12 ,, ..	1 6	,,	
14 ,, ..	2 3	,,	
16 ,, ..	3 0	,,	
18 ,, ..	4 6	,,	
20 ,, ..	6 0	,,	

HAND GLASSES.

12 inches diam.	5s. 6d.	each.	
14 ,, ..	6 6	,,	
16 ,, ..	7 6	,,	
18 ,, ..	8 6	,,	
20 ,, ..	9 6	,,	
22 ,, ..	10 6	,,	
24 ,, ..	11 6	,,	

If removable tops, 1s. extra.

Painted and Glazed with Sheet Glass.

PRESERVE JARS.

In. diam.	Without. Lids.	With Lids.	
3 ..	0s. 4d. ..	0 6	each.
4 ..	0 5½ ..	0 8	,,
5 ..	0 7 ..	0 10	,,
6 ..	0 9 ..	1 1	,,
7 ..	0 10½ ..	1 2	,,
8 ..	1 2 ..	1 6	,,
9 ..	1 6 ..	2 0	,,
10 ..	1 10 ..	2 4	,,

These will be found preferable to any other kind of Jar.

CUCUMBER TUBES.

Ins. long.		each.
12 ..	0s.	10d.
13 ..	0	11
14 ..	1	0
15 ..	1	1
16 ..	1	2
17 ..	1	3
18 ..	1	4
19 ..	1	5
20 ..	1	6
22 ..	1	7
24 ..	1	9

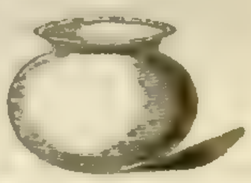
ROLLING PINS.

each	
1s.	3d.
1	4
1	6
1	8
1	9
1	10
2	0
2	2
2	3
2	4
2	8

MILK PANS.

6 inches diam.	0s. 5d.	each.	
8 ,,	0 8	,,	
10 ,,	0 10½	,,	
12 ,,	1 1	,,	
14 ,,	1 6	,,	
16 ,,	2 0	,,	
18 ,,	2 5	,,	
20 ,,	2 10	,,	
22 ,,	3 4	,,	
24 ,,	4 0	,,	

Intermediate sizes in proportion.



FISH GLOBES.

In. diam.		Qts.	each
8	¾ filled,	3..	1s. 3d.
9	,,	4..	2s.
10	,,	6..	2s. 6d.
11	,,	8..	3s.
12	,,	9..	3s. 9d.
13, 14, 15, 16	At same average according to weight.		7d. per lb.

If on feet, 9d. per lb.

GLASS TILES, in SHEET and ROUGH PLATE. PLATE GLASS, PATENT PLATE, and HARTLEY'S IMPROVED ROUGH PLATE.

PAINTS, COLOURS, VARNISHES, &c.

GENUINE WHITE LEAD, 30s. per Cwt.
SECONDS ditto, 28s. per Cwt.
LINSEED OIL PUTTY, 9s. per Cwt.
PINE OAK VARNISH, 10s. to 12s. per Gallon.
,, CARRIAGE ditto, 12s to 14s. per Gallon.
,, CRYSTAL or PAPER, 10s. to 12s. per Gallon.

WHITE ZINC PAINT, 34s. per Cwt.
One hundred weight of pure Zinc Paint, with 3 gallons of Linseed Oil, will cover as much as one hundred weight and a half of White Lead and 6 gallons of Linseed Oil.
Special Dryers for this paint.

GROUND PATENT DRYERS, 3d. to 4½d. per lb.
,, OXFORD OCHRE, 3d. to 4½d. per lb.
,, RAW UMBER, 4½d. to 6d. per lb.
,, BURNT Ditto, 6d. to 9d.
GREEN PAINT, all shades, 28s. to 60s. per cwt.
BLACK PAINT, 24s. to 36s. per cwt.

STUCCO PAINT, 24s. per cwt.
This paint adheres firmly to the walls, resists the weather, and is free from the glossy appearance of oil paint, resembling a stone surface, and can be made any required shade. It is mixed with rain or pure river water.

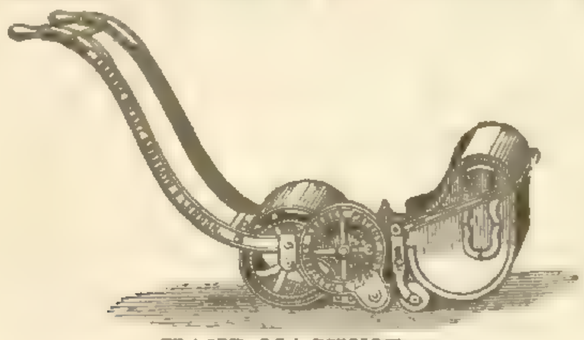
LINSEED OIL, 3s. per gallon
BOILED OIL, 3s. 6d. per gallon.
TURPENTINE, 5s. 6d. per gallon.
MINERAL Ditto, 3s. 6d. per gallon.
PREPARED OIL for ANTICORROSION, 4s. 6d. p. gal.
BRUSHES for Ditto.

IMPROVED ANTICORROSION PAINT, 28s. to 34s. p. cwt.
Anticorrosion Paint is extensively used for all kinds of work in exposed situations, in Brick, Stone, Compo, Iron, Iron Bridges, Conservatories, Greenhouses, &c., and is easily laid on by any ordinary workman.

MILLED LEAD in Sheet and Pipe of all Sizes. OLD LEAD bought or taken in exchange. LIFT PUMPS, WATER CLOSETS, & PLUMBER'S BRASS WORK of all kinds.

NETT CASH.

SHANKS' NEW IMPROVED LAWN MOWERS, Patronised on five occasions during the Season of 1864 by Her Majesty the Queen.

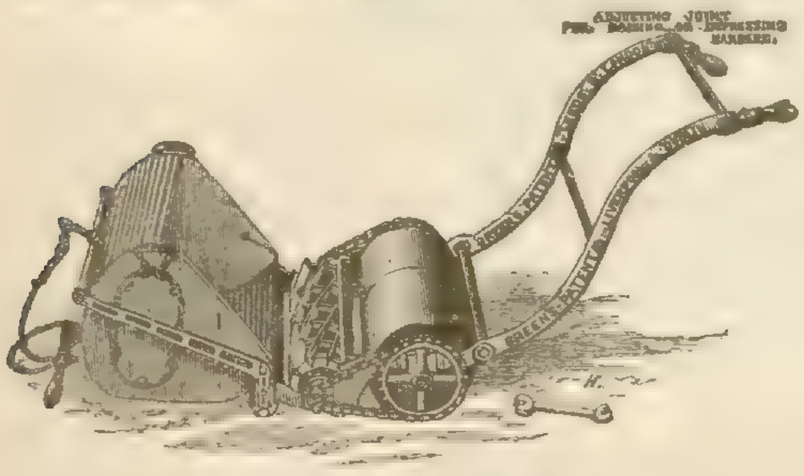


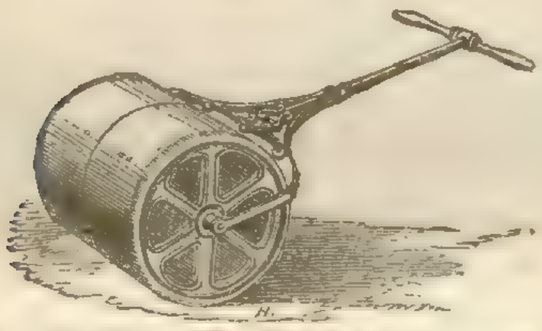
HAND MACHINE.

Illustrated Circulars, containing full particulars, sent free on application.

Alex. Shanks & Son, 27, Leadenhall Street, London, E.C.
Manufactory: Dens Iron Works, Arbroath.
A Stock of Machines always kept at 27, Leadenhall Street.

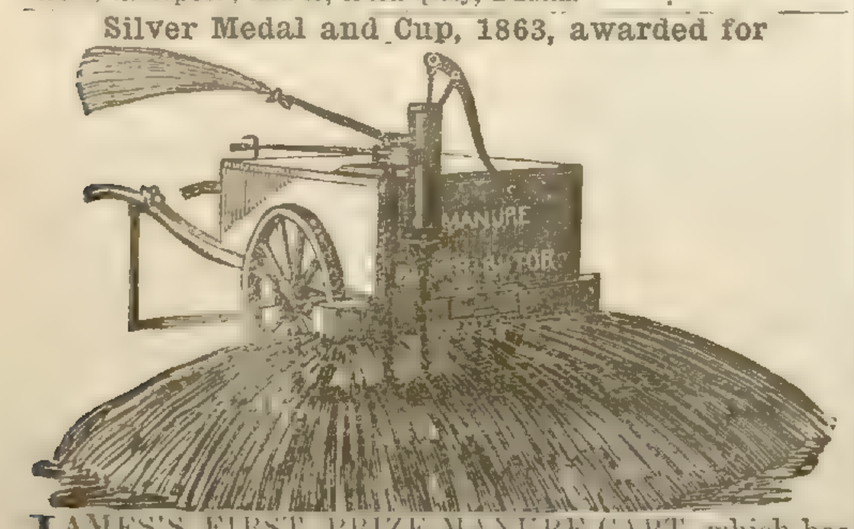
GREEN'S PATENT SILENS MESSOR, or NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.





GREEN'S PATENT LAWN MOWERS have proved to be the best, and have carried off every Prize that has been given in all cases of competition. Above 26,000 have been sold since the year 1856.
Illustrated Price Lists of Lawn Mowers and Garden Rollers Free.
Thomas Green & Son, Smithfield Iron Works, Leeds; 2, Farringdon Road, Holborn Hill, London, E.C.; Hadwin's Buildings, Tithebarn Street, Liverpool; and 19, Eden Quay, Dublin.

Silver Medal and Cup, 1863, awarded for



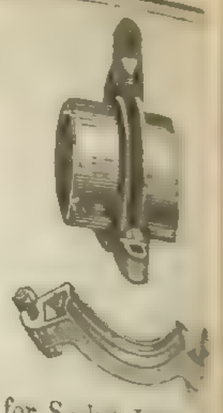
JAMES'S FIRST PRIZE MANURE CART, which has been awarded 20 PRIZES. Is now fitted up to answer for LIQUID MANURE, for supplying the STEAM PLOUGH, for WATERING STREETS, or for a FIRE ENGINE. Nearly 300 already sold.

Washing.

The last great improvement in Washing Machines is in James's new Patent PRIZE WASHING, WRINGING, and MANGLING MACHINES, awarded several FIRST PRIZES. Will Wash 20 Shirts in 20 Minutes, with much less injury than with the hand. More than 300 Sold.

Address, I. James, Tivoli Works, Cheltenham.

HOT-WATER APPARATUS,
WITH TRUSS' PATENT PIPE JOINTS.



T. S. TRUSS, C.E.,
53, GRACECHURCH STREET, LONDON, E.C.

By means of these Joints the work is executed in less than half the time required for Socket J[illegible] alterations can at any time be made, or the entire Apparatus removed and erected elsewhere with th[illegible] facility. A considerable saving in cost is also effected.

These Joints have been used for several years, giving entire satisfaction, and may be seen in [illegible] Royal Horticultural Society's Gardens, South Kensington and Chiswick, and many other places in Horticult[illegible] Public Buildings.

For a few prices, see last week's Advertisement.

ESTIMATES, PLANS, AND PRICE LISTS FORWARDED ON APPLICATION.

JAMES PHILLIPS & CO.,
HORTICULTURAL GLASS MERCHANTS,
180, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

REDUCED PRICES OF SHEET GLASS FOR HORTICULTURAL PURPOSES.

ENGLISH SHEET GLASS.
Packed in Crates of about 280 feet.

	16-ounce.	21-ounce.
Best	5½d.	7¼d.
Seconds	3¾d.	5d.
Thirds	2½d.	3½d.
Fourths	2¼d.	3¼d.

HORTICULTURAL GLASS,
Stock Sizes, 16-ounce. In 100 feet Boxes.
These prices only apply to the sizes stated.

				4ths.	3rds.
11 by 9	12 by 9	13 by 9	14 by 9	12s. 6d.	14s. 0d.
12 ,, 10	13 ,, 10	14 ,, 10	15 ,, 10		
13 ,, 11	14 ,, 11	..	..		
14 ,, 12	15 ,, 12	15 ,, 11	16 ,, 11	13s. 6d.	16s. 0d.
18 ,, 12	19 ,, 12	16 ,, 12	17 ,, 12		
16 ,, 13	17 ,, 13	20 ,, 12	21 ,, 14		
19 ,, 13	20 ,, 13	18 ,, 13	..		
16 ,, 14	17 ,, 14	21 ,, 13	..		
19 ,, 14	20 ,, 14	18 ,, 14	..	16 to 17 oz. to the foot.	

FOREIGN SHEET GLASS.
In Cases for cutting up, in Sizes as Manufactured.

	16-oz., 200 ft. £ s. d.	16-oz., 300 ft. £ s. d.	21-oz., 200 ft. £ s. d.
Best	3 7 0	..	5 14 0
Seconds	3 0 0	..	4 13 0
Thirds	..	2 5 0	2 10 0
Fourths	..	1 15 0	2 0 0

GLASS for ORCHARD HOUSES,
As supplied by us to Mr. Rivers, to the Royal Horticultural Society, and to most of the Nobility, Clergy, and Gentlemen of the United Kingdom.
Each Box contains 100 feet. The prices only apply to the sizes stated.
Squares 20 by 12, 20 by 13, 20 by 14, 20 by 15.

	16 oz. to the foot.	21 oz.
Fourth quality	13s. 6d.	15s. 0d.
Third quality	16s. 0d.	19s. 0d.
English	18s. 0d.	23s. 0d.

The above prices include the Boxes.
Best and Seconds are intended only for Picture Dwelling Houses.

SMALL SHEET SQUARES.
In 100 feet Boxes.

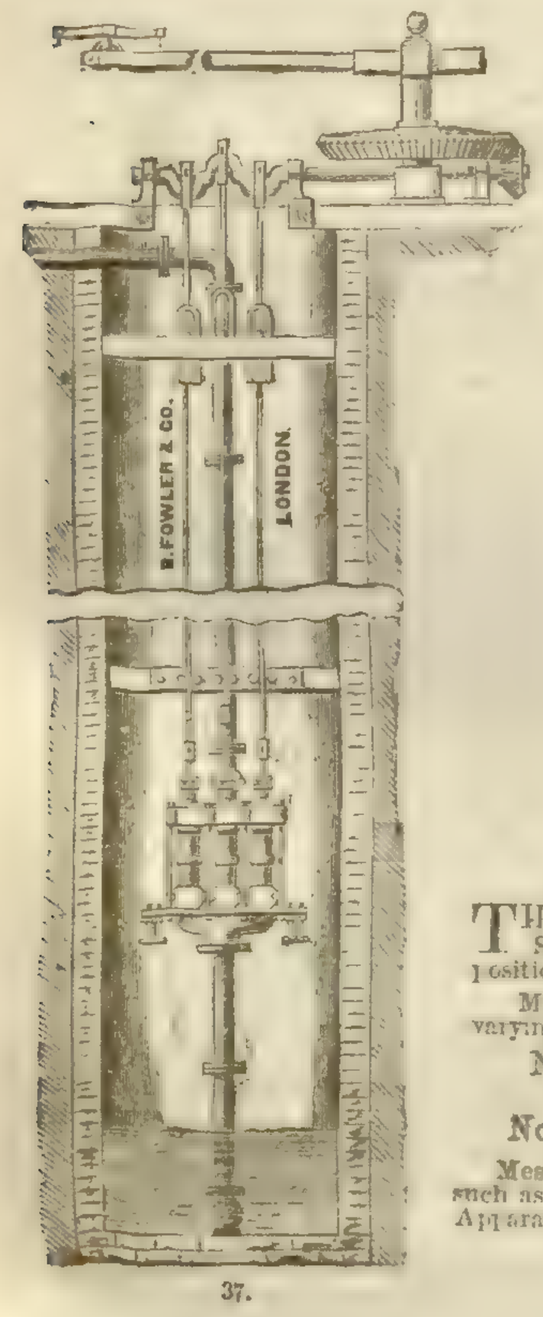
6 by 4	6½ by 4½	7 by 5	7½ by 5½	11s. 0d.
8 ,, 6	8½ ,, 6⅜	9 ,, 7	9½ ,, 7½	
		10 ,, 8	10½ ,, 8½	12s. 0d.

Boxes 2s. each, returnable at full price.
All small squares from 6 by 4 to 10½ by 8½ are cut to pieces, consequently there is only one quality.
London Agents for Hartley's Patent Rough Plate.
Perforated Glass for Ventilation.
Glass Shades, Ebony and Gilt Stands, Gas and Lamp Glasses, Chimney and Globes, &c.
Glaziers' Diamonds from 10s. to 21s. each.

GLASS TILES and SLATES in SHEET and ROUGH PLATE. PLATE GLASS, PATENT PLATE, and HARTLEY'S IMPROVED ROUGH PLATE. PAINTS, COLOURS, VARNISHES, &c.

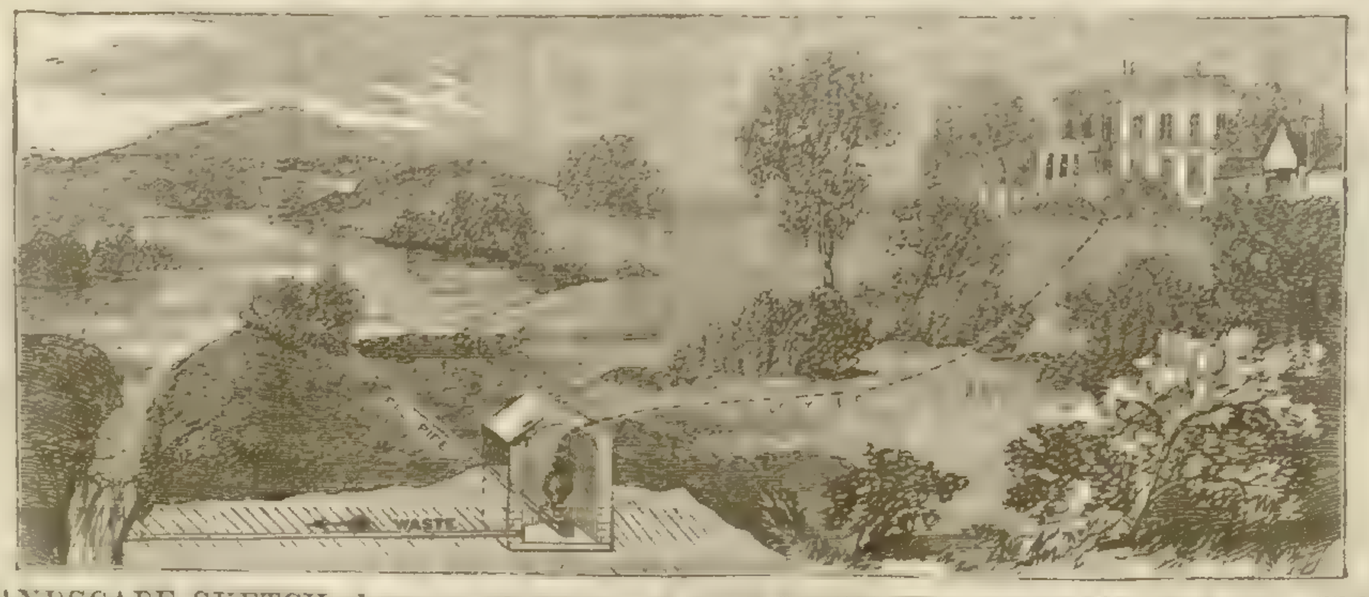
GENUINE WHITE LEAD.	FINE OAK VARNISH.	LINSEED OIL.
ANTI-CORROSION PAINT.	,, ,, CARRIAGE.	BOILED OIL.
LINSEED OIL PUTTY.	PATENT DRYERS.	TURPENTINE.

Lead in Sheets or Cut to Sizes, Lead Pipe, Lift Pumps, Water Closets, and Plumbers' Brass Work of every description.



37.

CLINTON & OWENS
(LATE BENJAMIN FOWLER & CO.)
MANUFACTURERS OF
PUMPS AND HYDRAULIC MACHINERY,
WHITEFRIARS STREET, FLEET STREET, LONDON, E.C.



THE LANDSCAPE SKETCH shows an adaptation of THE IMPROVED HYDRAULIC RAM. This is a simple Self-acting Machine, suited for raising a Supply of Water for use in Public and Private Establishments. Its adoption is not confined to positions as shown, but it is suited for any situation where a Fall can be obtained from a Stream, Brook, or Spring.

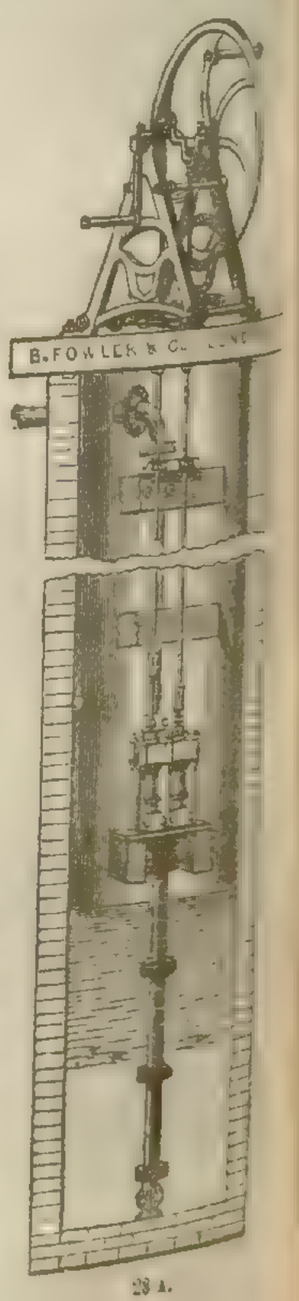
Messrs. Fowler have fixed a great many in various parts of the country for raising from 600 to 6000 or more Gallons per day to elevations varying from 30 to 300 feet, and forcing through main pipes 50 yards to several miles in length.

No. 37. IMPROVED TREBLE BARREL PUMPS with HORSE GEARING for Raising Water from DEEP WELLS for the supply of MANSIONS and PUBLIC BUILDINGS.

No. 28a. DOUBLE BARREL PUMPS for HAND-POWER for similar purposes.

Messrs. Fowler & Co. Manufacture and Erect every description of Engineer's Work required in Public or Private Establishments, such as Pumps for any purpose on the largest or smallest scale, Steam Engines, Water Wheels, Turbines, Warming and Drying Apparatus, Baths, Gas Works and Fittings. Estimates furnished from Plans or on inspection of position.

Price Lists of Pumps, &c. free on application.



28 A.

HOT-WATER APPARATUS for Greenhouses, Hot-houses, Vineries, &c. Estimates on application.
J. Jones & Sons, 6, Bankside, London, S.E.
For List of Prices see *Gardeners' Chronicle*, June 24, 1865.

Card.

SAMUEL N. McGERROW,
General Horticultural Builder,
Knotty Ash, near Liverpool.
Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

BURY and POLLARD'S CONICAL BOILERS for HEATING by HOT WATER, fixed at Seats of Duke of Newcastle, Lord Belper, &c., at Viscount Sydney's replaced, after being 20 years in constant use. Apply at
17, New Park Street, Southwark, London, S.E.

BURY AND POLLARD have just fixed, at Wollaton Nurseries, for Lord Middleton, several BOILERS and LONG RANGES of PIPES.

Heating by Hot Water.

W. J. HOLLANDS, Iron Merchant,
31, Bankside, London, S.E.
HOT WATER PIPES, from Stock, per yard:—2-inch, 1s. 2d.; 3-inch, 1s. 10d.; and 4-inch, 2s. 4d. BENDS, from Stock, 1s. 6d., 2s. 6d., and 3s. each. THROTTLE VALVES, 10s., 13s., and 14s. each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day. A discount to the Trade.

Heating by Hot Water.

HOT-WATER PIPES, at Reduced Wholesale Prices, with Elbows, Syphons, Tee Pipes, and every other connection; Wrought and Cast-iron Boilers, Saddle, Conical, Cylinder, Tubular, and Elliptic, from 24s. each. Improved Boilers and Iron Stands to use without brickwork, 56s. each. Valves from 10s. 6d. each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Castings of every description in stock, at
Mr. LYNCH WHITE'S Iron Wharf, Upper Ground Street, Blackfriars Bridge, London, S. Price List on application.

CRANSTON'S PATENT BUILDINGS for HORTICULTURE, Highly Commended by the Royal Horticultural Society, South Kensington. Plans and Estimates free on application. Houses of the following sizes always in stock:—Span, 30 by 12 ft.; Half-span, 24 by 10 ft.; Lean-to, 24 by 8 ft. Sketches of different houses post free for 6 stamps each. Descriptive Book, fully illustrated, by post for 20 stamps from the Inventor and Patentee, James Cranston, Architect, No. 1, Temple Row West, Birmingham.

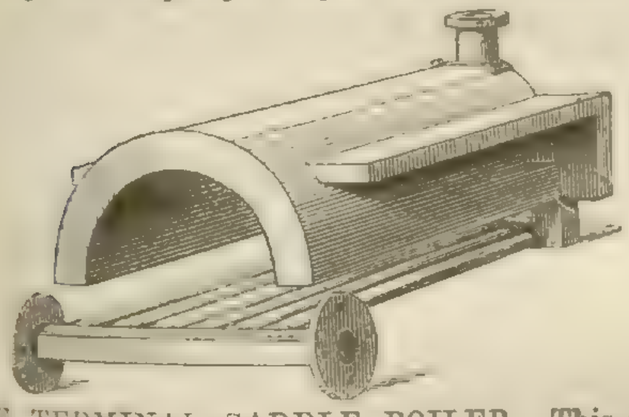
Horticultural Works, Kensal Green, London, W.

W. T. AND J. TAYLOR (late John Taylor & Sons), have on hand for Sale THREE very handsome WOOD and GLASS CONSERVATORIES made to order. Two of them were designed for a gentleman residing in Park Lane, an objection being taken on account of their intercepting the view from the adjoining houses. They were not fixed.
Designs and Prices fixed complete in any part of the United Kingdom forwarded upon application.

Midland Steam Power Horticultural and Hot-water Works, Loughborough.

T. G. MESSENGER, the Proprietor of the above Works, finding it necessary (through the great demand for his Horticultural Buildings and Heating Apparatus) to make large additions to his Premises, and to Fit the same with an entire set of STEAM-POWER MACHINERY, is now enabled to execute any Orders entrusted to him with the greatest dispatch, and at the lowest possible price consistent with good and substantial work.
Illustrated Catalogues, Working Model, Plans and Estimates, free on application.

By Her Majesty's Royal Letters Patent.



THE TERMINAL SADDLE BOILER.—This is the old Saddle made perfect, by the addition of an upright terminal end piece, which quite closes the arch and side flues, and gives the back of the furnace, doing away with all brickwork at the end, and adding one-third more heating surface to the boiler just where it is most exposed to the direct action of the fire.
To be seen at the Royal Horticultural Gardens, South Kensington; and at work at the Victoria Nursery, Holloway, Mr. Williams having kindly consented to show it to any one who will call at that Establishment. Circulars, Prices, &c., on application to
J. Ireland, The Works, Edward Street, Broughton Lane, Manchester.

Greenhouses—Heating Apparatus.

DENNIS' PATENT METALLIC HORTICULTURAL BUILDINGS are made from the best wrought iron, upon an entirely new principle. The combination of Iron and Glass under this Patent is perfect; the possibility of fracture is prevented, and a permanently water-tight roof insured. The leading practical advantages are extreme smallness of framing, admitting a maximum of light and heat, and perfectly neutralising atmospheric conduction.
They are thoroughly ventilated, exceedingly strong and durable, are speedily erected, and whilst maintaining their established superiority for Conservatories of the highest order, are acknowledged by the most eminent Horticulturists of the day to be the "desideratum of perfection," promoting perfect symmetry of growth and richness of colour, both for Fruit and Flowers.
From the complete adjustment of the constructional parts of these patent buildings, their manufacture is so facilitated that a comparison in point of cost with perishable wooden structures is most favourable.

THE GARDENER'S OWN GREENHOUSE
(Lately known as Dench's Patent) is a Tenant's Fixture.
The Patent, Plant, Business, Machinery, and all connected with the above, have been transferred to T. H. P. Dennis, who has determined to supply these really useful buildings at such a reduced scale of prices that every one desiring a Greenhouse may possess one.
Note.—A No. 1 Lean-to, 12 ft. 6 in. by 9 ft., including honest 16-oz. Glass, £16 12s. 6d.
T. H. P. D. has introduced most important improvements in their design and construction, and after numerous experiments has succeeded in arranging them as a Tenant's Fixture, which he feels sure will be valued by gentlemen having limited tenures. With Mr. Rivers' adaptation they make excellent Orchard-houses, and afford all that can be desired in a profitable building.
Wooden structures at the lowest price consistent with sound work.
Prospectuses and Estimates on application to T. H. P. Dennis, Horticultural Builder, Hot-water Engineer, &c., Chelmsford Essex.

Exhibition Prize Medal, 1862.

HOTHOUSES for the MILLION—On the principle invented and patented by Sir Joseph Paxton, M.P., combining simplicity, cheapness, excellence, and durability. SPAN-ROOF HOUSES, painted three coats, and glazed with English Sheet Glass, can be supplied ready for fixing, 21 ft. by 13 ft., 24*l.*; 43 ft. by 19 ft., 73*l.* 5s.; 64 ft. by 25 ft., 161*l.*
Illustrated Circulars, with Prices, can be had on application to Samuel Hereman & J. Morton, Agents, 7, Pall Mall East, London.
Also, A HANDBOOK on VINE and FRUIT TREE CULTIVATION, 2d Edition, price 1s.; post free, 1s. 1d.

The Only Stove without a Flue.

NASH AND JOYCE'S PATENT, for AIRING, DRYING, and WARMING HALLS, SHOPS, ROOMS, &c., a new especial Stove for Conservatories, Greenhouses, Fruit-Ripening, &c.: to burn without re-lighting all winter by filling with fuel every 12 hours. Temperature, any degree required, without varying. Price from 12s. 6d. to 6 guineas.
MINCING and SAUSAGE FILLING and MASTICATING MACHINES of the best makers, 10s. 6d.
The COTTAGE KNIFE CLEANER is the only rapid Cleaner and Polisher of Knives at a moderate price. 3s. 6d. to 10s. 6d. Prospectus post paid.
S. Nash, Ironmonger, 253, Oxford Street, W.C.; and Stove Depôt, 119, Newgate Street, London, E.C.

CLAYTON, SHUTTLEWORTH, AND CO., Engineers, Manufacturers of PORTABLE and FIXED STEAM ENGINES, Machinery for Pumping, Hoisting, Grinding, Sawing, &c., Engines for Steam Cultivation, Self-Moving Engines for Common Roads and Agricultural Purposes generally.
Stamp End Works, Lincoln, and 78, Lombard Street, London; also at Lowengasse, No. 44, Landstrasse, Vienna; and Gegenüber dem Bahnhof, Pesth.
Descriptive, Illustrated, and Priced Catalogues, Free per Post.
Special Drawings when required.
[*The best Steam Threshing Machinery made.*]

EARTH CLOSETS (MOULE'S PATENT).
No Unwholesome Cesspools.
No Bad Smells.
No Water Pipes to get out of order.
The Best Night Commodes.
The Apparatus (price 25s. and 30s.) may be applied to any Closet at trifling cost, and is self-acting.
By its use a valuable Manure is saved, and Fertility to the Soil ensured.
Earth is recommended by the Privy Council, in their report on Cholera, as a deodoriser and disinfectant.
Extract from Letter received from the Secretary *of the* National Rifle Association.
"I am further directed to state that they (the Closets) proved of the greatest use, and were found to act admirably."
White & Co., 29, Bedford Street, Strand, London, W.C.
OLDHAM SHOW, STAND 46.

Surrey.—Sheep Farm.

TO BE LET, with Immediate Possession, a FARM, with suitable Dwelling House and Out-offices, containing about 170 Acres of Arable, and 132 Acres of Grass Land.
For Particulars and Rent apply to Mr. Wood, East Clandon, near Guildford.—Hatchlands, Oct. 7.

To Market Gardeners, Nurserymen, &c.

FOR SALE, an ELIGIBLE PIECE of LAND, commanding a Frontage to the Turnpike Road, at the west entrance to the Market Town of Fakenham, Norfolk, within a few minutes' walk of the Great Eastern Railway Station, offering a particular opportunity for an enterprising Gardener establishing himself easily in a flourishing business, the land being now stocked with choice fruit and other trees recently planted, and also having a well thereon with a plentiful supply of water.
For particulars apply to Robert Ansell, Auctioneer, Fakenham.

To Seed, Corn, and Hop Merchants.

MESSRS. BARNARD, THOMAS, AND CO. are favoured with instructions to DISPOSE OF a very valuable BUSINESS in the SEED, CORN, and HOP TRADE. The Concern is probably the most extensive, and certainly the oldest established, in the West of England (having been in existence upwards of a century), and the connection is of the highest respectability. It has been carried on with very great success to the present time, and is now in complete working order. The Premises are held on Lease, with 14 years to run; are very central, and are admirably adapted for the Trade. There is a Retail Establishment attached. Reasons, which must be at once satisfactory, can be given for Disposing of this Business.
The Brokers will be happy to enter into negotiations (with Principals only), on receiving applications in the first instance in writing.
Albion Chambers, Bristol.—Oct. 7.

Sales by Auction.

SALE THIS DAY AT HALF-PAST 12 O'CLOCK PRECISELY.
Sale No. 2513.

Dutch Bulbs, Rustic Garden Seats, Carnations, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, October 7, at half-past 12 o'clock precisely, a capital lot of RUSTIC GARDEN SEATS, VASES, STOOLS, BASKETS, STANDS, BRACKETS, TABLES, BOXES, &c., from a well-known Manufacturer; a fine assortment of BULBS from Holland, comprising most of the varieties, in lots to suit the Trade and private buyers; also a quantity of SEEDLING CARNATIONS, &c.
On view the Morning of Sale, and Catalogues had.

Bulbs from Holland, Belgium, and Japan; Rustic Garden Seats; Hardy and Greenhouse Plants, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, October 11, at half-past 12 o'clock precisely, a first-class assortment of BULBS, comprising Dutch Hyacinths, Tulips, Narcissus, and other bulbs; also

IMPORTED DUTCH FLOWER ROOTS.

JAMES CARTER & CO.'S

FIRST IMPORTATION OF PICKED BULBS OF

HYACINTHS, CROCUS, TULIPS, NARCISSUS, ETC.,

HAS ARRIVED IN FINE CONDITION, AND THEY BEG RESPECTFULLY TO SOLICIT EARLY ORDERS.

James Carter & Co. have also to announce that the

AUTUMN SUPPLEMENT OF THE GARDENER'S AND FARMER'S VADE-MECUM

Is now published, and will be found to contain (with Cultural Directions) complete lists of DUTCH and CAPE BULBS, to which is added a LIST of PLANTS, including particulars of their large and important COLLECTION of FRUITING VINES in POTS, and STRAWBERRIES.

The Autumn Supplement will be forwarded Gratis and Post Free on application to

JAMES CARTER AND CO., 237 and 238, HIGH HOLBORN, LONDON, W.C.

Hardy Climbers.—To the Trade.

CLEMATIS JACKMANNI.—Large [illegible] purple, rugose and veiny in centre, 3s. each; 3[illegible]

CLEMATIS RUBRO-VIOLACEA.—Reddish [illegible] rate, fine, 3s. each; 30s. per dozen.

CLEMATIS STANDISHI.—Beautiful violet blue, 3s each [illegible]

Besides other good old varieties.

A CATALOGUE, including Description and [illegible] Clematises, will be forwarded free on application to

Geo. Jackman & Son, Woking Nursery, Surrey.

New Hardy British Ferns.

J. IVERY AND SON beg to announce that [illegible] now supply strong PLANTS of the undermentioned [illegible] and beautiful FERNS, both of which have received a [illegible] Certificate.

ATHYRIUM FILIX-FŒMINA APPLEBYANUM, 10s. 6d. each.

POLYSTICHUM ANGULARE WAKELEYANUM, 10s. 6d. [illegible] 15s. each.

For full description see CATALOGUE, which will be forwarded gratis on application to our Dorking Nursery.

SEEDLING FORCING GERANIUMS.

MRS. BRADSHAW (Jackson's).—Blush white, medium [illegible] claret spots feathered bright cherry; trusses large and [illegible] profuse bloomer, and of very dwarf habit. Price 5s.

SPOTTED ALMA (Jackson's).—Crimson rose, upper and [illegible] petals spotted and feathered marone, of dwarfer habit, and [illegible] multiflorous than the well-known favourite Alma. Price [illegible]

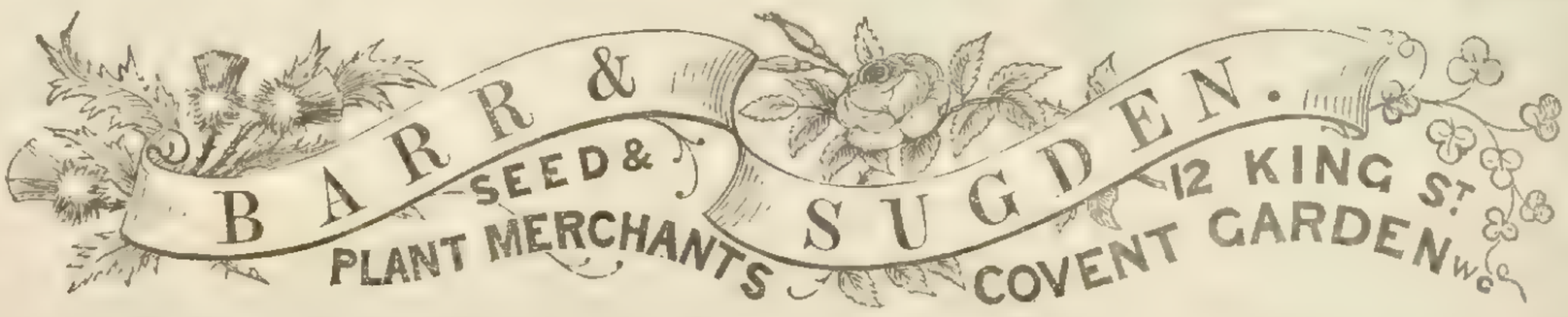
We strongly recommend the above as worthy companions [illegible] Lewis Loyd.

Thomas Jackson & Son, Nursery, Kingston, Surrey.

COLLECTIONS of BULBS.

The COVENT GARDEN COLLECTIONS,

Part for In and part for Out-of-door Decoration, 10s. 6d., 15s. 6d., 21s., 42s., 63s., & 105s.



COLLECTIONS of BULBS.

The PAXTONIAN COLLECTIONS,

For the Ornamentation of the Spring Garden, 10s. 6d., 15s. 6d., 21s., 42s., 63s., & 105s.

THE KENSINGTON GARDEN and CRYSTAL PALACE COLLECTIONS, for Ornamenting the Winter Flower Garden, 10s. 6d., 21s., 30s., 42s., 63s., & 105s.

THE CLIVEDEN SOUVENIR COLLECTIONS of BULBS.

No. 1.—HYACINTHS and CROCUS, 10s. 6d., 21s., 42s., & 84s.
No. 2.—RANUNCULUS and CROCUS, 7s. 6d., 15s., & 30s.
No. 3.—TULIPS and CROCUS, 12s. 6d., 25s., & 50s.
No. 4.—ANEMONES and CROCUS, 15s., 30s., & 60s.

For particulars of these Collections, and Splendid Collections of HYACINTHS, TULIPS, NARCISSUS, GLADIOLI, AMARYLLIS, ANEMONES, RANUNCULUS, see our FLORAL GUIDE.

THE CLIVEDEN COLLECTIONS of SPRING-BLOOMING PLANTS, drawn from the Stock at Cliveden.

50 PERPETUAL-FLOWERING CLIVEDEN YELLOW PANSIES.
50 PERPETUAL-FLOWERING CLIVEDEN BLUE PANSIES.
50 PERPETUAL-FLOWERING CLIVEDEN PURPLE PANSIES.
100 WHITE DAISIES.
100 PINK DAISIES.
100 BLUE FORGET-ME-NOT (MYOSOTIS SYLVATICA).
100 SILENE PINK.
50 MIXED COWSLIP.

The above, 105s.; Half the quantity, 50s.; Quarter do., 25s.; Eighth, 12s. 6d.

For History and Cultivation, see Essay in the "Journal of the Royal Agricultural Society" for February, 1862. No. XLVIII.

HALLETT'S

TRADE

WHITE PEDIGREE WHEAT,

MARK.

(ROUGH CHAFFED),

NOW OFFERED FOR THE FIRST TIME,

Grown upon the Summit of the Chalk Downs, and yielded over several Acres nearly Seven Quarters per Acre, the Crop on similar Light Soils being this year extremely bad.

This is a fine Millers' Wheat, in addition to possessing the extraordinary productiveness of the original *Red* Pedigree Wheat. Straw of medium length and very stiff, not being laid by bad weather. A Winter Wheat only.

SEED REQUIRED.

If Drilled in September, 4 Bushels on 10 Acres.
" October, 4 " 8 "
If Drilled in November, 4 Bushels on 4 Acres.
" December, 4 " 3 "

Note.—The ORIGINAL "RED" PEDIGREE WHEAT will be supplied if *specially named*, otherwise the above new White variety will this year, in all cases, be forwarded.

Price, including Bags:—ONE GUINEA a BUSHEL, or SEVEN GUINEAS the QUARTER by the Quarter or Half Quarter, delivered in Bags, sewed up and sealed, at the Brighton Railway Station, upon receipt of Cheque or Post Office Order, *without which it will not in any case be sent to unknown Correspondents.* Less than a Bushel will not be supplied.

TRADE

CHEVALIER PEDIGREE BARLEY.

MARK.

This has been "bred" in the same manner as the PEDIGREE WHEAT, viz.:—by repeated annual selection, re-starting in each year from a single grain.

Although grown upon a poor thin soil (resting immediately upon the chalk), which upon neighbouring farms produces Barley rarely weighing so much as 51 lbs. per bushel and fit only for grinding, the PEDIGREE BARLEY last year [this year's crop not yet threshed] weighed 57 lbs. per bushel, and produced 89½ bushels per acre.

Besides its astonishing productiveness, characteristic of all the PEDIGREE CEREALS, it possesses remarkable value for the maltster, *not a single grain failing to germinate and all growing equally.*

Although only a very limited area of it has this year been grown, it will, in deference to a generally expressed wish, be at once offered to the public instead of waiting until next year, and a Subscription List has been formed, to which gentlemen desirous of securing any of it for drilling next Spring, would do well at once to add their names, which, however, will not involve payment until it be ready for delivery, of which due notice will be given by printed circular.

SEED REQUIRED.

If Drilled in March, 1 Bushel on 3 Acres.
If Drilled in April, 1 Bushel on 2 Acres.

Price:—TWO GUINEAS a BUSHEL (including Bag), delivered in Bags sewed up and sealed, at the Brighton Railway Station, upon receipt of Cheque or Post Office Order, *without which it will not in any case be sent to unknown correspondents.* Less than a Bushel will not be supplied.

Note.—**As the quantity is so limited, it will, until exhausted, be sent out to Gentlemen in the order in which they have joined the Subscription List.**

FREDERIC F. HALLETT, F.L.S., THE MANOR HOUSE, BRIGHTON, SUSSEX.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 41.—1865.] SATURDAY, OCTOBER 14. {Price Fivepence. STAMPED EDITION, 6d.

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ADVERTISEMENTS *intended for the* **CURRENT WEEK'S NUMBER** *should reach the Office not later than* **THURSDAY.**

GRAND YORKSHIRE GALA, YORK.—The GREAT ANNUAL and FLORAL FETE will be held on the 13th and 14th June, 1866.
A SPECIAL PRIZE of £5 will be offered for the BEST SEEDLING WHITE ROSE, 6 Blooms.
Communications may be addressed to JNO. WILSON, Secretary.
Committee Room, 13, New Street, York.

To Nurserymen and Seedsmen.—Notice.
THE GARDENERS' YEAR-BOOK, ALMANACK, and DIRECTORY for 1866, by ROBERT HOGG, LL.D., F.L.S., will be Published on December 1. Any alterations in the style and Address of Firms are requested to be sent forthwith to the Editor, so that the necessary corrections may be made in the Directory portion.
"Journal of Horticulture" Office, 171, Fleet Street, London, E.C.

Public Notice.
WILLIAM RUMLEY, Proprietor of Sandryke Gardens, Gilling, Richmond, Yorks, HEREBY GIVES NOTICE that he has no connection with his brothers GEORGE and JOHN RUMLEY, and that he will not be answerable for any debt they may contract in his name, or in that of WILLIAM RUMLEY & SONS.
October 14, 1865.

NEW and GENUINE AGRICULTURAL, GARDEN, and FLOWER SEEDS.
Special prices and advantageous offers on application to
JAMES FAIRHEAD & SON,
Seed Growers and Merchants, 7, Borough Market, London, S.E.

RAYNBIRD, CALDECOTT, AND BAWTREE,
SEED FARMERS and MERCHANTS,
89, Seed Market, Mark Lane; and Basingstoke.
Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

H. AND F. SHARPE,
SEED GROWERS and MERCHANTS, Wisbech.
SPECIAL PRICED LIST of NEW SEEDS on application.

Genuine Garden and Agricultural Seeds.
JAMES CARTER AND CO.,
SEED FARMERS, MERCHANTS, and NURSERYMEN,
237 and 238, High Holborn, London, W.C.

New Garden Seeds for Autumn Sowing.
SUTTON AND SONS can now supply the above, of excellent quality.
PRICED CATALOGUES gratis and post free on application.
Royal Berkshire Seed Establishment, Reading.

CHRYSANTHEMUMS.—Extra fine bushy Plants, coming into flower. All the leading varieties. Prices very moderate. Apply to
JAMES DICKSON & SONS, The Newton Nurseries, Chester.

THE CLIVEDEN COLLECTIONS of SPRING BLOOMING PLANTS, 12s. 6d., 25s., 50s., and 100s.
For particulars see our AUTUMN FLORAL GUIDE.
BARR & SUGDEN, 12, King Street, Covent Garden, W.C.

Fruiting Vines.
E. G. HENDERSON AND SON offer the above, with splendid Canes of well-matured growth, with prominent eyes, sure to give a heavy crop of fruit, 10s. 6d. each.
LIST of SORTS sent on application.
Wellington Nursery, St. John's Wood, London, N.W.

Vines, Vines, Vines.
E. B. HAYNES can now supply strong well-ripened CANES for Planting, 5s. and 7s. 6d. each. Extra strong for Fruiting in pots, 10s. 6d. and 12s. 6d. each.
Penge Nursery, Surrey.

NEW GRAPE, "ROYAL VINEYARD," the best late White Grape extant. Strong Planting Canes, 10s. 6d. each; strong Fruiting, 21s. each.
B. S. WILLIAMS, Paradise and Victoria Nurseries, Holloway, London.

Pines.
B. S. WILLIAMS begs to announce that he has a fine stock of the above, including all the best kinds. Prices on application.
Paradise and Victoria Nurseries, Holloway, London, N.

STRAWBERRY PLANTS.—Strong, for immediate planting. PRICED DESCRIPTIVE LIST may be had.
STEPHEN BROWN, Nurseryman, Sudbury, Suffolk.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

Orchard-house Culture.
MESSRS. THOS. RIVERS AND SON invite those interested in the above culture to view their COLLECTION of FRUIT TREES and VINES, occupying houses nearly 3000 ft. in length. PEACHES and NECTARINES are now ripening.
The Harlow Station, G. E. Railway, is the most convenient for the Nurseries.
Nurseries, Sawbridgeworth.

CARTER'S GARDENER'S VADE-MECUM, AUTUMN SUPPLEMENT of DUTCH and CAPE BULBS and PLANTS, is now ready.

The Best Twelve Hyacinths Imported by
SUTTON AND SONS,
for Twelve Shillings.
SUTTON & SONS, Royal Berks Seed Establishment, Reading.

Miniature Hyacinths.
SUTTON AND SONS can supply fine BULBS of the above at 4s. per dozen.
Royal Berkshire Seed Establishment, Reading.

Finest Dutch Flower Roots.
SUTTON'S AUTUMN CATALOGUE of the above is now ready, and may be had gratis and post free on application.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Sutton's Unrivalled Collections of Bulbs.
SUTTON'S GUINEA COLLECTION of BULBS for BLOOMING in POTS and GLASSES.
SUTTON'S GUINEA COLLECTIONS for BEDS and BORDERS.
For particulars see SUTTON'S AUTUMN CATALOGUE, which may be had gratis and post free.
SUTTON & SONS, Royal Berks Seed Establishment, Reading.

Dutch Bulbs.
CHARLES TURNER is prepared to execute orders with the finest varieties of HYACINTHS, TULIPS, CROCUS, NARCISSUS, &c. The roots have arrived in fine condition. CATALOGUES on application.
The Royal Nurseries, Slough.

J. SCOTT, Importer of DUTCH and other BULBOUS FLOWER ROOTS, has received large consignments, of best quality and in excellent condition.
DESCRIPTIVE PRICED LIST post free on application to
J. SCOTT, Merriott Nurseries, or Seed Stores, Yeovil, Somerset.

Hyacinths, and other Dutch Bulbs.
WM. HOOPER has received large consignments of the above, of best quality, and in excellent condition. CATALOGUES free on application.
St. John's Hill Nursery, New Wandsworth.

Hyacinths and other Dutch Bulbs.
WM. CUTBUSH AND SON beg to acquaint their numerous Patrons that they have received their usual Consignment of Choice HYACINTHS, TULIPS, CROCUSES, &c.
PRICED DESCRIPTIVE CATALOGUE post free on application.
Highgate Nurseries, London, N.

Hyacinths and other Choice Bulbs.
B. S. WILLIAMS begs to announce that his various IMPORTATIONS of DUTCH FLOWER ROOTS have arrived in fine condition, and that he is now prepared to execute all orders he may be favoured with.
A PRICED and DESCRIPTIVE CATALOGUE, including Lists of New and Rare Plants, post free to all applicants.
Paradise and Victoria Nurseries, Holloway, London, N.

BARR AND SUGDEN'S HYACINTHS, TULIPS, CROCUS, NARCISSUS, GLADIOLI, RANUNCULUS, ANEMONES, LILIES, AMARYLLIS, in splendid collections. See our AUTUMN FLORAL GUIDE, free and post paid on application.
BARR & SUGDEN, Seed and Plant Merchants, 12, King Street, Covent Garden, W.C.

500 DUTCH BULBS, carriage free, Great Western Railway, 21s. Consist of best named HYACINTHS, Bedding HYACINTHS, TULIPS, CROCUSES, SNOWDROPS, &c. One of the cheapest and best collections offered.
Also on offer, 50,000 2-years TRANSPLANTED LARCH, 3 feet, strong, and 6000 3-years ditto, 5 feet, strong.
ROBERT H. POYNTER, Dutch Bulb Importer and Seed Merchant, Taunton.

J. IVERY AND SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

E. G. HENDERSON AND SON offer SEED of CALCEOLARIA, CINERARIA, and PRIMULA of first-class quality, at 1s., 2s. 6d., and 5s per packet. Also the finest SCARLET and INTERMEDIATE STOCK, 6d. and 1s. each.
SEED of CYCLAMEN PERSICUM, of similar quality, 6d. and 1s. each, and in mixed colours 2s. 6d. per packet.
The Wellington Nursery, St. John's Wood, London, N.W.

SAMUEL COX, NURSERYMAN, Ludlow, Shropshire, offers MRS. POLLOCK GERANIUM, 15s. per dozen, well established in 3-inch pots; also SCARLET GERANIUMS and VERBENAS, 12s. per 100 out of pots. All other Bedding Plants equally cheap. Price to the Trade on application.
RETAIL and WHOLESALE CATALOGUES sent post free.
Terms cash on receipt of goods.

PELARGONIUM MRS. POLLOCK.—Strong Summer-struck Plants, well established in 60-pots, at 18s. per dozen.
The Trade supplied.
ALFRED FRYER, Nurseries, Chatteris, Cambridgeshire.

Hoyle's and Foster's New Pelargoniums.
CHARLES TURNER begs to announce that the New Varieties of the above-named raisers are now ready, also in strong plants the finest established varieties of Show, French, and Fancy kinds at moderate prices. CATALOGUE on application.
The Royal Nurseries, Slough.

Wholesale Catalogue.
GEORGE JACKMAN AND SON will have much pleasure in forwarding on application, free by post, their DESCRIPTIVE and PRICED CATALOGUE of NURSERY STOCK for 1866 and Spring 1866.
Woking Nursery, Surrey.

Pinks.
CHARLES TURNER'S COLLECTION of Eighty Varieties, the finest in cultivation, and comprising several New kinds, is now ready in strong plants. Selection left to C. TURNER, 9s., 12s., and 18s. per dozen pairs. LISTS on application.
The Royal Nurseries, Slough.

CHEAP, CHEAP, CHEAP.—3 GERANIUM ITALIA UNITA; 3 GERANIUM MRS. POLLOCK; 6 choice GREEN-HOUSE FERNS; 6 choice HARDY FERNS for 21s.
The above are extra good Plants. Basket and packing included.
A Post-office Order made payable to JOHN BARRETT, Nurseryman, Bury St. Edmund's, Suffolk, will have immediate attention.

KONING AND CO., NURSERYMEN and SEEDSMEN, Sassenheim, near Haarlem, Holland, beg to announce to their friends and the Trade that their CATALOGUE of VEGETABLE and AGRICULTURAL SEEDS for 1866 will be ready within a few days, and will be sent post free to all applicants.

Roses.
WM. PAUL (Son and Successor to the late A. PAUL), begs to announce that his NEW DESCRIPTIVE CATALOGUE of ROSES is now ready, and will be forwarded on application, free by post. The stock is large and in splendid condition.
PAUL'S Nurseries, Waltham Cross, London, N.

Now ready, 1865 and 1866.
PAUL AND SON'S NEW ROSE CATALOGUE will be found a useful guide. Post free on application.
Old Cheshunt Nurseries, N.

To the Trade.
PAUL AND SON'S WHOLESALE LIST of ROSES, FRUITS, and general NURSERY STOCK is now ready.
Old Cheshunt Nurseries, N.

NEW ROSE CATALOGUE for 1865 and 1866, also GENERAL CATALOGUE of NURSERY STOCK.
Woodlands Nursery, Mareafield, near Uckfield, Sussex.
WM. WOOD & SON will be happy to forward copies of the above on application.

1865 and 1866.
JOHN FRASER begs to announce that his NEW DESCRIPTIVE CATALOGUE of PLANTS, ROSES, FRUIT TREES, &c., for the Autumn of 1865 and Spring of 1866, may be had on application.
The Lea Bridge Road Nurseries, N.E.

BUTLER AND McCULLOCH, SEED MERCHANTS, South Row (or Strand side), opposite Southampton Street, Covent Garden Market, London, W.C., beg to offer their unrivalled COLLECTIONS of FLOWER ROOTS at 10s. 6d., 15s., 21s., 25s., 50s., and 100s. each. Suitable for Greenhouse or Conservatory, for Flower Garden only, or for Greenhouse and Flower Garden, of which full particulars in their BULB CATALOGUE, which may be had post free on application.

DAPHNE CNEORUM.—Splendid plants of this lovely sweet-scented winter and spring-blooming plant, by the dozen, hundred, or thousand. Price on application.
W. B. JEFFRIES, Arboretum Nurseries, Ipswich.

PRIMULA SINENSIS FLORE PLENO ALBA, best variety; RUBRA ditto.—Very cheap by the dozen or hundred. For winter and spring flowering nothing can be more beautiful. Price of strong blooming plants on application.
W. B. JEFFRIES, Arboretum Nurseries, Ipswich.

STANDARD PORTUGAL LAURELS.—Very cheap, stems clean and straight; any height, from 3 to 6 feet; beautiful symmetrical heads, 6 to 12 feet in circumference. For particulars and price apply to
W. B. JEFFRIES, Arboretum Nurseries, Ipswich.

JOSEPH FRYER can supply a large quantity of LIMES, LOMBARDY POPLARS, LABURNUMS, LILACS, EUONYMUS JAPONICUS and VARIEGATUS, AUCUBA JAPONICA, &c., of various sizes. Also other General Nursery Stock.
Clarendon Nurseries, Camberwell, New Road.

A. WILKIN, Tiptree, Keivedon, Essex, can supply the Trade with 1 to 2 feet SPRUCE FIRS; 1 to 2 feet SEEDLING SYCAMORES; 3 to 5 feet ASPEN LEAF POPLARS; 3 to 5 feet LOMBARDY POPLARS; 1 year GIANT ASPARAGUS, &c.

Larch and Thorn Quicks.
R. HARTLAND begs to offer 1,000,000 3 and 4-year Transplanted LARCH, from 2 to 4 feet.
1,000,000 3 and 4-year Transplanted THORNS, from 1½ to 3 feet.
Prices on application, stating quantity required.
The Lough Nurseries, Cork.

To the Trade.
R. DONALD AND SON, of the Goldsworth Nurseries, Woking, Surrey (so long celebrated for the extensive collection and fine growth of Fruit, Coniferæ, Evergreens, Deciduous Trees, Shrubs, &c.), will be pleased to forward a PRICED CATALOGUE for present Season, free by post on application.

WANTED, 250 GREEN or VARIEGATED LAURELS, above 4 feet high. Delivered at any Railway Station in London, carriage paid.
Mr. EVANS, Post Office, Clapham, S., stating particulars and price.

TO BE SOLD, by Private Contract, Forty large CAMELLIAS, in tubs and pots. Inquire of
Mr. LING, Gardener, Old Park, Nightingale Lane, Clapham Common.

FOR SALE, Six handsome PALMS.—One Phœnix reclinata; two Phœnix dactylifera; two Latania borbonica; one other, same quality.
Inquire of Mr. CLIFF, 8, Allason Terrace, Kensington, W.

Wellingtonia gigantea.
FOR SALE, several dozen of the above Shrubs, between 3 and 4 feet high. A quantity of other Ornamental Trees, and about 200 ROSES. The ground must be cleared before the end of October. Apply to
S. P. JAFFA & Co., Edmonton House, Edmonton, N.; or Bury Nursery, Lower Edmonton, N.

SUPERIOR MUSHROOM SPAWN, 5s. per Bushel. Mushroom Pamphlet, with New Appendix, 1s. 3d.; Market Gardening, 1s. 6d.; Cucumber and Melon, 1s.; Strawberry, new system, 1s.; Potato, &c., 1s. 6d.
PRINCE ALBERT WINTER CUCUMBER, 1s. per packet. Stamps or Order on Camberwell Green.
JAMES CUTHILL, Camberwell, London, S.

To Farmers, Gardeners, and Others.
EXCELLENT strong CABBAGE PLANTS of the following kinds may be had in any quantities at 2s. 6d. per 1000 for cash:—EARLY YORK, ENFIELD MARKET, EARLY BATTERSEA, ROBINSON'S LARGE DRUMHEAD, EAST HAM, RED DUTCH. A remittance must accompany all orders.
FREDERICK GEE, Seed Merchant and Grower, Biggleswade, Beds.

PAMPAS GRASS (GYNERIUM ARGENTEUM).—Several Thousands of strong plants, in pots, from 2 to 3 feet high, now ready for planting out, price 1s. each.
SUTTON & SONS, Reading Nurseries.

New Grass Seeds for Exportation.
SUTTON AND SONS have received their supply of NEW GRASS SEEDS of the present year's growth in fine dry condition. Prices will be forwarded on application.
This is one of the best months for exporting Grass Seeds.
SUTTON & SONS, Seed Merchants, Reading.

NEW TRIFOLIUM INCARNATUM.
" " late variety.
ITALIAN RYE-GRASS, imported Seed.
JAMES CARTER AND CO. have fine samples of the above at very low prices. Prices and sample on application.
JAMES CARTER & Co., 237 & 238, High Holborn, London, W.C.

CHRYSANTHEMUMS, and How to have them Fine for Exhibition.—Use STANDEN'S GARDENER'S and AMATEUR'S FRIEND.

STANDEN'S GARDENER'S and AMATEUR'S FRIEND, a highly concentrated Inodorous Fertiliser, for Chrysanthemums and all kinds of Stove and Greenhouse Plants, Vines and other Fruit Trees in pots, &c.; also Vegetables, &c., in the open ground.

No. 1 FERTILIZER is the best adapted for Chrysanthemums and Hard-wooded Plants of every description.

No. 2 FERTILIZER is recommended for Soft-wooded Plants, Bulbs, &c.

Sample Canisters, 1s. & 2s. 6d. Bags, 5s. 6d., 10s. 6d., and 21s.

May be had of the leading Nurserymen and Seedsmen.

Barr & Sugden, Seed and Plant Merchants, 12, King Street, Covent Garden, W.C.

A List of Agents will shortly be published.

The Goldfinder Strawberry.

JAMES SCLATER and CO., Devon Nurseries, near Exeter, as the largest Fruit Growers in the West, after 15 years' trial, can with all confidence recommend this fine STRAWBERRY, particularly to Market Gardeners, as the finest early known. Forces well, and is a most abundant and certain cropper. Fruit of this Strawberry grown in the open fields we sold in quantity in London, Manchester, Exeter, and other towns in the last week of the past May. The fruit is large and solid, and colour brilliant scarlet.

Strong Plants, 10s. the 100, or 80s. the 1000.

Orders received by Messrs. Hurst & Son, Seed Merchants, Leadenhall Street, London, E.C.; and Mr. James Veitch, Royal Exotic Nursery, Chelsea, S.W.

THE LADY, a SEEDLING STRAWBERRY raised by Mr. Underhill, who was the originator of Sir Harry. Plants are now ready to be sent out (in lots of not less than 20). All applications must be accompanied by a Post Office Order on Birmingham, Postage Stamps, or Cash, to receive attention.

Prices of The Lady Strawberry Plant.

One hundred.. ..	£5 0 0	Fifty	£3 6 0
Seventy-five	4 5 0	Twenty..	1 10 0

Plants in Pots, not less than 10, at 2s. each, package included.

The above scale of prices will be slightly changed in August, 1866.

Mr. Underhill's Treatise, in English, French, or German, on the Cultivation of Strawberries, may be had through the Post. Price 1s.

Address, Mr. Richard Underhill, Sir Harry's Road, Edgbaston, Birmingham.

Choice Ranunculuses, Anemones, &c.

C. TYSO, Florist, &c., Wallingford, Berks, offers from his unrivalled stock—

RANUNCULUSES,	50 superb sorts, one each, 14s. to ..	£1 0 0
"	50 Seedling do. extra	2 10 0
"	100 Mixtures, 8s., 15s., and	1 0 0
ANEMONES,	50 fine double sorts, 10s. and	0 13 0
"	50 fine mixed colours, 3s. 6d. and	0 5 0

DUTCH and other BULBS. CATALOGUES gratis. Treatise on Ranunculus, free for 7 stamps; Do. on Anemone, 4 stamps.

Choice Zonale Geraniums, &c.

GEO. SMITH now begs to offer in Strong Plants the following New and select ZONALE GERANIUMS, viz., Admiral Proted, Adonis, Amelina Grisau, Boule d'Hesperides, Cybister, Demetrio Piccoli, Emily Vaucher, Eugénie Mezard, Fascination, Helen Lindsay, Henrietta Renard, Lady of Loretta, Lady Sarah, L'Eclair, Leon Berniau, Lucrece, Lord of the Isles, Madame Rudersdorff, Meteor, Mrs. Whitly, Nosegay, Ariel, Orange Globe, Perfection, Prince Imperial, Roi d'Italie, Senator, Snowball, Souvenir de l'Isère, Villafranca, and White Tom Thumb, at from 9s. to 12s. per dozen.

Beauté de Surennes, Christian Deegen, Clipper, Enamel, Glory, Highgate Rival, Ida, Mr. G. Natchet, Mr. Boucharlot, Princess, Prime Minister, Pink Beauty, Pigmy, Queen Mab, Red Riding Hood, Rose of Lee, The Clown, and Venus, 21s. per dozen.

BEATON'S Select NOSEGAY GERANIUMS, viz., Amy Hogg, Black Dwarf, Donald Beaton, Mr. W. Paul, Orange Nosegay, Magenta Queen, Indian Yellow, and Scarlet Gem. The set of 8 varieties for 12s.

DOUBLE FLOWERING SCARLET GERANIUMS.—Auguste Ferrier, 5s. each; Maréchal de Chanflourd and Triomphe de Gergoviat, 7s. 6d. each.

Also a first-class Collection of SHOW, SPOTTED, FANCY, and VARIEGATED GERANIUMS of the newest and most approved kinds, at from 12s. to 24s. per dozen.

STELLA VARIEGATA (Smith), valuable for all purposes, in fine plants, 7s. 6d. each.

Tollington Nursery, Hornsey Road, Islington, London, N.

AMBROISE VERSCHAFFELT, Nurseryman, Ghent, Belgium, begs to offer the following New Plants:—

ALTERNANTHERA AMŒNA, 8s.; Ditto SPATHULATA, 8s.

TELEIANTHERA VERSICOLOR, 8s.; or the three sorts for 20s. These three remarkably fine Amarantaceous plants can be seen now at A. V.'s Nursery in their full beauty; they grow perfectly well in the open air.

CALADIUM DUC DE NASSAU, one of the finest foliaged plants sent out, 16s.

Six New CHRYSANTHEMUMS (LILLIPUT), the set of 6, 16s.

RHODODENDRON DUCHESSE DE NASSAU (Verschaffelt).—Very light rose colour, all spotted over, bloom of a beautiful effect, large truss and very free, quite hardy. 12s.; a few strong plants at 20s.

RHODODENDRON SALMONO-ROSEUM (Verschaffelt).—Very large bouquets, compact, lilac rose, with a salmon tint; very large spots of a brownish black, quite hardy; one of the finest and most distinct varieties ever raised. 12s.; a few strong plants, 20s.

ROSE HYB. EMPEREUR DU MEXIQUE.—Large bloom, double, very dark, first-rate flower. 10s.

All the above Plants are figured in Verschaffelt's Illustration Horticole.

A. V.'s New Catalogue (No. 77) is now ready, and can be obtained free at Messrs. R. Silberrad & Sons, 5, Harp Lane, Great Tower Street, London, E.C.

A. V. also recommends his publication, the Illustration Horticole, published monthly, each Part containing three Coloured Plates, price 14s. 6d. per year, free.

Early Spring Feed.

SEEDS FOR AUTUMN SOWING.

PETER LAWSON and SON can supply of excellent quality—

ITALIAN RYE-GRASS | RYE
TRIFOLIUM INCARNATUM | WHITE MUSTARD
GREEN ROUND and GREEN GLOBE TURNIPS
SIX WEEKS TURNIP
CLOVER and NATURAL GRASS SEEDS for PERMANENT PASTURE, &c.

Also New Seed of BROMUS SCHRADERI, 2s. 6d. per lb., and the New Hardy Clover, TRIFOLIUM STRIATUM, 2s. per lb

GARDEN and FARM SEEDS carefully selected for exportation.

Peter Lawson & Son, The Queen's Seedsmen, 28, King Street, Cheapside, London, E.C.; and at Edinburgh.

Surrey White Wheat.

WAITE, BURNELL, AND CO., beg to offer the above very fine variety of WHITE WHEAT, which is highly recommended for poor and elevated soils. It has been tried against many varieties, among which may be named the Rough Chaff, Hunter's Prolific, and almost all other kinds of White Wheat, and has produced fully 15 per cent. greater crop. It has been perfectly free from blight and red rust when other varieties have been more or less affected. Price 10s. 6d. per bushel.

A liberal discount to the Trade.

Seed Warehouse, 181, High Holborn, London, W.C.

Seed Wheat from the Chalk.

BROWICK RED, NURSERY, GOLDEN DROP, CHIDHAM, ROUGH CHAFF, and all the other most approved varieties of Wheat. Also HALLETT'S PEDIGREE, SHIRREFF'S, &c., supplied by Raynbird, Caldecott, & Bawtree.

Winter Tares, Rye, Winter Barley, Winter Oats, Trifolium, &c. Samples and prices post free on application.

Address Basingstoke; or 89, Seed Market, Mark Lane, E.C.

Fruit Trees and their Management.

J. SCOTT'S PRICED FRUIT TREE CATALOGUE and DIRECTORY is now ready. It gives the names and descriptions of nearly 1000 kinds, with the best modes of Cultivation and Training. Is replete with interesting matter on Fruits and Fruit Trees, and is allowed to be the best work on the subject out. Price 1s., returnable to purchasers. The Collection is unsurpassed for healthiness and beauty, and for variety unequalled by any other Collection in the kingdom.

GENERAL NURSERY CATALOGUE gratis on application.

Address, Merriott, Somerset.

WILLIAM BARRON, Sketty Nursery Farm, Swansea, offers the following:—

200,000 LARCH, 2½ to 3½ feet.	50,000 SCOTCH FIR, 1½ to 2½ feet.
200,000 " 1½ to 2½ feet.	50,000 SPRUCE FIR, 2 to 4 feet.

30,000 BLACK ITALIAN POPLAR, 2 to 4 feet.

Alders, Ash, Beech, Birch, Elm, Sycamore, Holly, Hazel, Limes, Yews, Thorns for hedges, Privet, Laurels, Lilacs, Laburnums, Berberis Aquifolium, Rhododendrons, Ailantus glandulosa, Acer Negundo variegata, Purple-leaved Hazel, Conifers of sorts, choice varieties of Hardy Ornamental Trees and Shrubs with fine foliage, Roses &c. Hardy Ferns in quantity.

Prices post free on application.

WANTED IMMEDIATELY, 2000 PINUS AUSTRIACA, 2000 P. LARICIO, 36 P. PONDEROSA, 36 P. INSIGNIS, 36 ABIES DOUGLASII, 60 CRYPTOMERIA, 60 TAXODIUM, 500 RHODODENDRON PONTICUM, 200 ARBUTUS, 200 EVERGREEN OAK; the whole to be about 8 or 9 inches high. Please send lowest price, for all or any, to

George Frost, Nurseryman, Bampton, Devon.

800,000 STRONG TRANSPLANTED LARCH (on our favourite Larch ground). Smaller sizes in great abundance. Fine BIRCH, ALDER, SYCAMORE, HAZEL, HIGHLAND and AUSTRIAN PINE, CRABS for Stocks and Hedges, THORN QUICKS, &c. Specimen Shrubs and Ornamental Trees, &c. Our price is now fixed for the above.

Joseph Tremble & Sons, Penrith.

10,000 FINE EVERGREEN PRIVET, 2 to 3 feet, transplanted; Capital Standard 1 and 2-years trained MOOR PARK APRICOTS; NOBLESSE and ROYAL GEORGE PEACHES, 6-feet stems, 60s. per dozen. Several of best kinds of Gold and Silver-striped IVIES, to name, in pots, 8d. each, 7s. per dozen.

A special abridged WHOLESALE CATALOGUE, on application, of Yews, small Limes, Thorn, Quick, Hollies, Seedling Horse Chestnut, Oak, Beech, &c.

A. Godwin & Son, Ashbourne, Derbyshire.

Laurels, Larch, &c.

G. FROST begs to offer 500,000 LARCH, a portion of which is twice transplanted; 120,000 [illegible] 70,000 SPRUCE; 200,000 THORN or QUICK; 10,000 [illegible] SPANISH CHESTNUTS; 20,000 fine Transplanted LARCH, 1 to 3 feet. Also 1,000,000 1-year BEECH; 250,000 2-year and BEDDED SPRUCE; 100,000 1-year APPLES; 30,000 [illegible] ENGLISH OAKS; 200,000 GORSE or FURZE, 1-year and [illegible] and strong Transplanted.

Nurseries, Bampton, Devon.

JOSEPH SMITH, Jun., has to offer the [illegible] 1,500,000 RHODODENDRONS, 1,000,000 LARCH, SCOTCH, 200,000 SPRUCE, 100,000 ALDER, [illegible] Ash, Mountain; Sycamore, Oaks, Black Italian Poplar, [illegible] Chestnut, Horse and Spanish; Hazel, Willows, Privet, Laurels, [illegible] all Transplanted and good; Seedling Oaks, 1-year; Spruce, [illegible] 3-years; Rhododendrons, 3-years. Rhododendrons, [illegible] grafting. Price on application.

Moor Edge Nursery, Tansley, near Matlock, Derbyshire.

TREE SEEDS on OFFER.—Apple-pips, [illegible] berries, Holly berries, Sloes, Horse Chestnuts, Spanish nuts, Common Oaks, Beech Mast, Portugal Laurels, [illegible] Berberis Aquifolium, at Reduced Prices from early [illegible] out. Buyers requiring any or all of the above can obtain [illegible]

Robert H. Poynter, The County Seed and Nursery Establishment, Taunton. Terms, cash.

Northampton Nurseries.—Important to Planters.

JOHN PERKINS begs to call the attention of Noblemen, Gentlemen, and others engaged in Planting to his Large Stock of 1, 2, and 3-years BLACK THORN (for planting); of this he has upwards of Two Millions, the greater part of which is extra fine. Also Two Millions of LARCH FIR, 2 to 3 feet, and One Million of SPRUCE and SCOTCH FIRS, 2 to 3 feet, [illegible] large quantities of

Pinus austriaca	Green Box	Hawthorn
Berberis Aquifolium	Laurels	Beech
Berberis dulcis	Evergreen Privets	Beech
Single Gorse	Hornbeam	Beech
Oaks	Ash, &c.	

CEDRUS DEODARA, 3 to 4 feet, 4 to 6 feet, and 6 to 8 feet.

J. P.'s stock of all kinds of FRUIT, FOREST, ORNAMENTAL TREES, &c., is very extensive, and this season remarkably fine in excellent condition for removal, having been frequently transplanted. Samples sent on application to

52, Market Square, opposite the Corn Exchange, Northampton.

J. P. begs his correspondents will make use of the above for Address, as there are others of the same name in the town.

HARDY ORNAMENTAL TREES AND SHRUBS.

OSBORN & SONS

Invite lovers of Ornamental Planting to an inspection of the varied forms and foliage of their unrivalled Collection of the above, to which they have for many years devoted especial attention.

PRICED CATALOGUES, consisting of upwards of 1500 species and varieties, may be had on application.

THE NURSERIES, FULHAM, LONDON, S.W.

IMPORTED DUTCH FLOWER ROOTS.

JAMES CARTER & CO.'S

FIRST IMPORTATION OF PICKED BULBS OF

HYACINTHS, CROCUS, TULIPS, NARCISSUS, ETC.,

HAS ARRIVED IN FINE CONDITION, AND THEY BEG RESPECTFULLY TO SOLICIT EARLY ORDERS.

James Carter & Co. have also to announce that the

AUTUMN SUPPLEMENT OF THE GARDENER'S AND FARMER'S VADE-MECUM

Is now published, and will be found to contain (with Cultural Directions) complete lists of DUTCH and CHINA BULBS, to which is added a LIST of PLANTS, including particulars of their large and important COLLECTIONS of FRUITING VINES in POTS, and STRAWBERRIES.

The Autumn Supplement will be forwarded Gratis and Post Free on application to

JAMES CARTER AND CO., 237 and 238, HIGH HOLBORN, LONDON, W.C.

PAUL'S NURSERIES, WALTHAM CROSS, N.

WILLIAM PAUL,

(Son and Successor to the late A. Paul),

BEGS TO OFFER THE FOLLOWING LEADING ARTICLES OF FIRST-RATE QUALITY:—

ROSES.

STANDARDS, 15s. to 18s.; new sorts, 24s. to 42s. per doz. | DWARFS, 12s. to 18s.; new sorts, 24s. to 30s. per doz.
CLIMBING, 9s. to 12s. per doz.

The "ROSE GARDEN," Second Edition, with numerous Woodcuts, 6s. 6d.

DUTCH BULBS.

HYACINTHS, 6s. to 15s.; new sorts, 18s. to 30s. per doz. | POLYANTHUS NARCISSUS, 3s. to 6s. per doz.
BEDDING HYACINTHS, 18s. to 34s. per 100. | CROCUSES, 2s. to 4s. per 100.
EARLY TULIPS, 1s. to 4s. per doz. | GLADIOLI, 4s. to 12s. per doz.

And all other Bulbs equally reasonable.

BEATON'S GERANIUMS.

Reduction in price; the Set of 16 Varieties, 32s. These have now been thoroughly tested, and have proved even superior to the descriptions originally given of them; they have also been pronounced by many leading horticulturists indispensable in the future of every well-arranged flower garden.

FRUIT TREES, in and out of Pots.

Standard and Dwarf-trained Pyramid and Dwarf PEACHES, NECTARINES, APRICOTS, APPLES, PEARS, CHERRIES, PLUMS, GOOSEBERRIES, CURRANTS, RASPBERRIES, STRAWBERRIES, FIGS, and FILBERTS. A selection of all the really good sorts, both young and fruiting trees, in splendid condition.

GRAPE VINES.

Two Thousand Fruiting and Planting, including the newest sorts.

EVERGREEN and ORNAMENTAL TREES.

One Thousand Species and Varieties, selected in a great measure for the beauty of their foliage.

PRICED DESCRIPTIVE CATALOGUES free by post.

INVINCIBLE SCARLET SWEET PEA.
For AUTUMN SOWING.

A First-class Certificate received from the Royal Horticultural Society, also a Certificate at the Crystal Palace Autumn Show.

[illegible] strikingly brilliant, distinct, and permanent in its [illegible] 12 seeds, 2s. 6d.; 10 Seeds, 1s.; 5 seeds, 6d.; Packets of 100 seeds, 7s. 6d. May be had of the principal Seedsmen throughout the kingdom, or of the raiser,

Sampson Brown, Seedsman, Sudbury, Suffolk.

Brighton and Sussex Seed Warehouse.

CARPENTER'S EXPRESS, the EARLIEST PEA [illegible] gathered May 7. The earliest date on record.

[illegible] extracts from a few of the numerous Letters [illegible]

From [illegible], Gardener to Lord Lecorfield, *Petworth House, Sussex.*

"[illegible] Carpenter's Express Pea on the 20th November, and [illegible] on the 7th May. I had Daniel O'Rourke and [illegible] side by side, but gathered first from Carpenter's [illegible]"

From Mr. [illegible], *Gardener to* Marchioness of Bath, *Worthing, Sussex.*

"[illegible] of Carpenter's Express and Sangster's No. 1 [illegible] Carpenter's Express to be up about a week [illegible]"

From Mr. Kemsley, *Gardener to* C. Catt, Esq., *Brighton.*

"[illegible] of Carpenter's Express and Daniel O'Rourke side by side, and I gathered Carpenter's Express at least a fortnight [illegible] the other was ready."

From Mr. Dawes, *Gardener to* H. Pegg, Esq., *Brighton.*

"[illegible] of Carpenter's Express on the same day as [illegible] No. 1 and also Morning Star, and I gathered from [illegible] Express 12 days before either of the others."

From Mr. John Cox, *Gardener to* W. Wells, Esq., *Redleaf, Staplehurst, Kent.*

"[illegible] tried Carpenter's Express Peas, I beg to say that I [illegible] in quantity this season (1864) nine days in advance of any [illegible] variety."

Mr. Maxwell, *of The Gardens, Eaton Park, Oakham, in a letter to the* Gardeners' Chronicle *of June* 12, 1865, *on Early Peas, says:—*

"Carpenter's Express is a fortnight earlier than Sangster's No. 1, [illegible] days earlier than Dillistone's."

From Mr. C. Court, *Gardener to* Captain Pratt, *Chichester.*

"[illegible] Carpenter's Express side by side with Sangster's No. 1. [illegible] it to be seven days earlier."

From Mr. Alexander Stewart, *Gardener to* Colonel Leslie, *Slindon House, Arundel.*

"Carpenter's Express were sown side by side with Early Warwick [illegible] Prime, and I gathered from Carpenter's Express full a fortnight before either of the others."

The Editor *of the* Sussex Express *of the* 1st *July*, 1865, *reports the following:—*

"Thomas Jenner, Lewes, sowed both Carpenter's Express and Sangster's No. 1 on the same day, and gathered from Carpenter's Express eight or nine days before the other sort. This seems to be universally the case."

To CARPENTER'S EXPRESS PEAS have been awarded Two First-class Certificates at the Brighton Horticultural Society's Exhibitions as the Earliest Pea. 5s. per quart.

Early orders are solicited, as the stock is not large.

Edward Carpenter, Seed Merchant and Grower, 96, St. James Street, Brighton.

CATALOGUES on application.

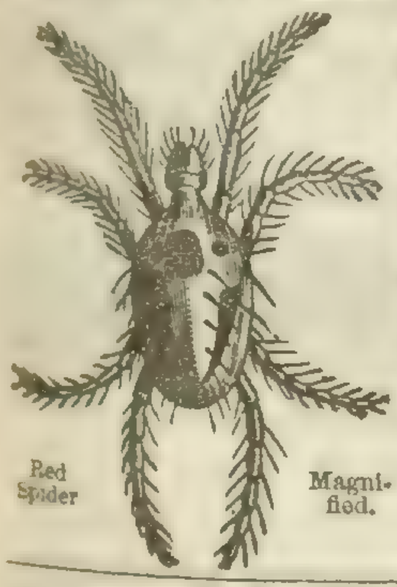
COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 2s. per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the Patent Cocoa Fibre Company, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. Barsham & Co.

Barsham's BRUSHES and MATS are sold in every town.

Caution.—Every Brush is stamped, J. Barsham's Patent.



GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes, 1s., 3s., and 10s. 6d. each.

Wholesale by
PRICE'S PATENT
CANDLE COMPANY
(Limited).

To Florists and Others.

TOBACCO TISSUE for FUMIGATING, Manufactured, under Letters Patent, from Tobacco rolled into sheets, which allows it to consume slowly without the assistance of blowing, at the same time giving off a very powerful narcotic effect, and is entirely free from any chemical admixture, which is so destructive to tender Plants. It will be found more economical and very superior to the article generally used. 1lb. samples, price 3s. 6d., will be forwarded on application to Messrs. Roberts & Sons, Tobacco Manufacturers, 34, St. John Street, Clerkenwell, E.C.

WHEAT SOWING.

DOWN'S FARMERS' FRIEND, for preventing the Smut in Wheat, and the ravages of the Slug, Grub, and Wireworm.

A 9d. packet is sufficient for 6 bushels of Seed Wheat, which can be dressed and fit to sow in a quarter of an hour.

Testimonials from the largest Wheat-growers in the kingdom, bearing testimony to its great power and efficacy, may be had of Agents, who are appointed for every district.

Full directions for use are given with each packet.

Prepared only by the Manufacturer, Wisbeach.

Caution.—To guard against [illegible] and consequent disappointment, see that the signature of Henry Down is on the label.

Agents in every Town throughout England, Scotland, and Ireland.

Dried Natural Flowers.

MESSRS. BOETTNER BROS., Nurserymen, Greussen, near Erfurt, Prussia, beg to call attention to their fine ARTIFICIALLY DRIED NATURAL FLOWERS, which they have now [illegible] to them from [illegible]

PRICE LISTS [illegible] may be had on application to their London Agents, Messrs. E. Scherpel & Son, 5, Harp Lane, Great Tower Street, E.C.

A Prize was awarded to Messrs. Boettner Bros. at the great Exhibition at Erfurt (September, 1865), for their Bouquets of Dried Flowers.

Caution to Gardeners.—When you ask for

SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the name Saynor, also the trade mark Oilers Warranted, without which none are genuine.

S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by sellers and makers.

S. & C.'s Pruning and Budding Knives are the best and the cheapest in the market.

Paxton Works, Sheffield. Established upwards of 125 years.

George Hall, late Manager to the late Saynor's Firm.

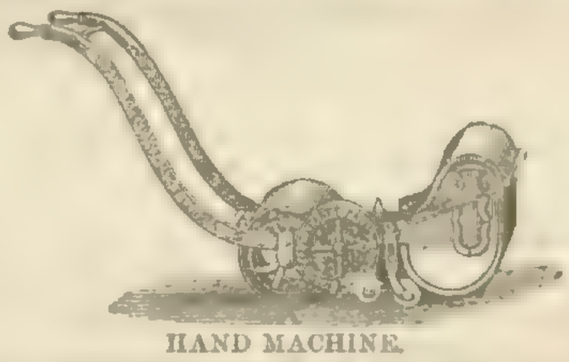
He was for 30 Years in their Employ.

GEO. HALL AND SON'S Celebrated PRUNING and BUDDING KNIVES, SCISSORS, &c., may be obtained from the most respectable Nurserymen and Seed Merchants in the kingdom.

N.B. We only make one quality, the best that can be manufactured, regardless of expense, the same as the late Saynors always made during their lifetime.

Horticultural Cutlery Works, Sheffield.

SHANKS' NEW IMPROVED LAWN MOWERS, Patronised on five occasions during the Season of 1864 by Her Majesty the Queen.

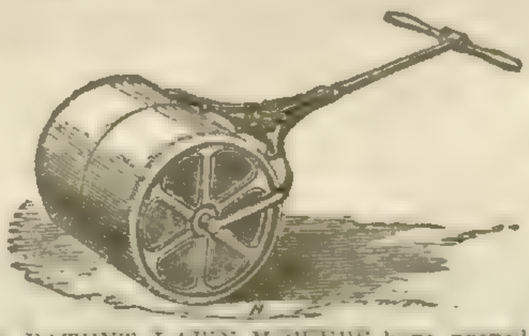


HAND MACHINE.

Illustrated Circulars, containing full particulars, sent free on application.

Alex. Shanks & Son, 27, Leadenhall Street, London, E.C.
Manufactory: Dens Iron Works, Arbroath.
A Stock of Machines always kept at 27, Leadenhall Street.

GREEN'S PATENT SILENS MESSOR, or NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.



GREEN'S PATENT LAWN MOWERS have proved to be the best, and have carried off every Prize that has been given in all cases of competition. Above 26,000 have been sold since the year 1856.

Illustrated Price Lists of Lawn Mowers and Garden Rollers Free.

Thomas Green & Son, Smithfield Iron Works, Leeds; 2, Farringdon Road, Holborn Hill, London, E.C.; Hadwin's Buildings, Tithebarn Street, Liverpool; and 19, Eden Quay, Dublin.

WELLS' PATENT PORTABLE GROUND VINERIES.—The above may be seen, with the Vines in full fruit, on application to

Mr. [illegible], Florist, High Street, Southend, Essex.

Card.

JAMES SHEPHERD, Wire Label Manufacturer, Aigburth.

BLAKE AND MACKENZIE, School Lane, Liverpool, and 64, Howard Street, Glasgow.

DESCRIPTIVE and CULTURAL SEED PACKETS, GERMAN SEED ENVELOPES, &c. Samples and prices on application.

Glass for Garden Purposes.

JAMES CHANCE AND CO.

[illegible]

	Each.—s. d.		Each.—s. d.
2 inches in diameter ..	0 [illegible]	[illegible] inches in diameter ..	1 [illegible]
3 " " ..	0 [illegible]	13 " " ..	[illegible]
4 " " ..	0 [illegible]	14 " " ..	2 6
5 " " ..	[illegible]	15 " " ..	[illegible]
6 " " ..	[illegible]	[illegible] " " ..	[illegible]
7 " " ..	0 [illegible]	[illegible] " " ..	[illegible]
8 " " ..	[illegible]	[illegible] " " ..	[illegible]
9 " " ..	1 [illegible]	[illegible] " " ..	[illegible]
10 " " ..	1 4	[illegible] " " ..	7 0
11 " " ..	1 6		

[illegible]

	Each.—s. d.		Each.—s. d.
4 inches in diameter ..	0 6	9 inches in diameter ..	1 8
5 " " ..	[illegible]	10 " " ..	2 0
6 " " ..	0 10	11 " " ..	2 6
7 " " ..	1 1	12 " " ..	3 0
8 " " ..	1 4		

CUCUMBER GLASSES.

	Each.—s. d.		Each.—s. d.
21 inches long ..	[illegible]	10 inches long ..	1 4
22 " " ..	1 [illegible]	11 " " ..	1 2
24 " " ..	1 8	12 " " ..	1 0
18 " " ..	1 6		

HAND GLASSES, with Open Tops.

	Each.—s. d.		Each.—s. d.
12 inches ..	6 6	18 inches ..	9 6
14 " ..	7 6	20 " ..	10 6
16 " ..	8 6	22 " ..	11 6
		24 " ..	12 6

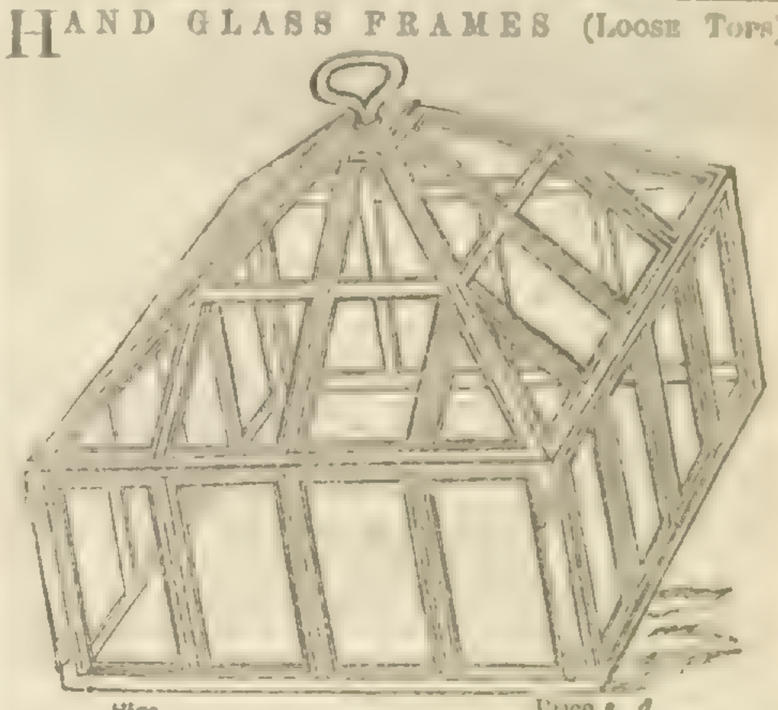
Painted and Glazed with 16 oz. Sheet Glass.

London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.

LINSEED OIL, Genuine WHITE LEAD, Carter's PAINTS, PAINTS of various Colours ready for use.

180, Bishopsgate Street Without, London, E.C.

HAND GLASS FRAMES (Loose Tops).



Size.	Price s. d.	
14 by 14 ..	4 0	Each.
18 by 18 ..	5 9	"
20 by 20 ..	6 6	"
22 by 22 ..	7 6	"
24 by 24 ..	8 6	"

Delivered Free to any Station in England if 12 or more are ordered.

J. Jones & Sons, 6, Bankside, London, S.E.

BEADED BRICKS for GARDEN WALLS (FOXLEY'S PATENT) may be had in any quantity of the Agents.

"No one should build a Fruit Wall without seeing the Bricks and consider the convenience of adopting them."—*Garden Oracle for* 1865.

Illustrated Prospectus, with List of Agents, on application to Foxley & Holland, Stony Stratford, Bucks. London Agents: Messrs. F. & G. Rosher, Old Jamaica Wharf, Blackfriars, S.

AUSTIN, SEELEY, AND CO.'s Stock now comprises—

296 different kinds of VASES.
94 STATUES and FIGURES of CHILDREN.
70 FIGURES of ANIMALS and BIRDS.
About 200 FOUNTAINS, at prices from £10 to £400.
15 BASKETS from 1 to 10 feet diameter.
17 FLOWER BOXES for WINDOWS, &c.
6 GARDEN SEATS.
22 SUN-DIAL PEDESTALS.
22 ORNAMENTS for GATE PIERS.
And a great variety of BALUSTRADING and PEDESTALS.

369 to 375, Euston Road, Regent's Park, N.W.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.

PROTECTION from the SCORCHING RAYS of the SUN.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.

Two yards wide ..	1s. 9d. per yard run.
Four yards wide ..	3s. 6d. per yard.
An improved make, 2 yards wide ..	1s. 9d. per yard.
An improved make, 3 yards wide ..	2s. 8d. per yard run.

Also "Frigi Domo" Netting, 2 yards wide, 1s. 6d. per yard run.

Elisha Thomas Archer, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, and of all Nurserymen and Seedsmen throughout the kingdom.

"It is much cheaper than Mats as a covering."

GRAY'S OVAL TUBULAR BOILER.

INTERNATIONAL EXHIBITION, Class IX., No. 2119.

Mr. Gray begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his

NEW OVAL TUBULAR BOILER,

acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in Gardeners' Chronicle *of International Exhibition, May* 24, *page* 476.

"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. Gray's variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so, the change, though a slight one, is no doubt an improvement."

They are made of all sizes, which, with prices, may be had on application.

JAMES GRAY, HORTICULTURAL WORKS,
DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.

SUTTON'S unrivalled COLLECTIONS of BULBOUS FLOWER ROOTS, for Blooming during the Winter and Spring. These are every year becoming more popularly cultivated, and the HYACINTHS, ANEMONES, TULIPS, &c., which we imported last season from the celebrated Dutch Florists, Messrs. de Boom, Veen, Byvoet, and others, having been so generally admired, we have imported from the same parties, and still more extensively.

SUTTON'S COLLECTIONS of HARDY FLOWER ROOTS for OPEN GROUND.

		£	s.	d.
No. 1.	A large and Choice Collection of ANEMONES, HYACINTHS, CROCUSES, TULIPS, RANUNCULI, NARCISSI, SNOWDROPS, IRISES, GLADIOLI, &c.	2	2	0
No. 2.	Ditto ditto, consisting of all the same kinds, in Reduced Quantities	1	1	0
No. 3.	A Small and Choice ditto	0	10	6
	SORTS for FLOWER POTS and GLASSES.			
No. 4.	A splendid Collection of HYACINTHS, JONQUILS, NARCISSI, EARLY TULIPS, New large CROCUSES, &c.	2	2	0
No. 5.	The same in Reduced Quantities	1	1	0
No. 6.	A Small and Choice Assortment	0	10	6

SUTTON'S AUTUMN CATALOGUE, containing DESCRIPTIVE LISTS of the best varieties of Hyacinths, Gladioli, Anemones, Crocuses, and other Bulbous Roots, and Choice Stove and Greenhouse Plants, Ferns, American Plants, Roses, Carnations, and other Florists' Flowers, Fruit Trees, New Garden Seeds, &c., is now ready, and may be had gratis and post free on application.

All Goods sent Carriage Free except small parcels, and 5 per cent. allowed for Cash Payments.

Sutton & Sons, Royal Berks Seed Establishment, Reading.

New Catalogue of Plants, Dutch Bulbs, &c.

ROBERT PARKER begs to announce that his NEW CATALOGUE, containing Select Descriptive and Priced Lists of New, Rare, and Beautiful Greenhouse, Hardy, and Stove Plants, Fruit Trees, Grapes, &c., Amaryllis, Crocuses, Gladioli, Hyacinths, Narcissus, Tulips, and other Bulbs, is now published, and will be forwarded to applicants.

Exotic Nursery, Tooting, Surrey, S.

Hothouse, Greenhouse, and Hardy Plants, Bulbs, &c.

LOUIS VAN HOUTTE, Nurseryman and Seedsman, Ghent, Belgium, begs to announce that his NEW PRICE LISTS, Nos. 109, 110, and 111, are to be had of Messrs. R. Silberrad & Son, 5, Harp Lane, Great Tower Street, London, E.C.

Louis Van Houtte's goods are delivered free out of the Custom House in London, without any expense whatever to the buyer, but *per contra* 5s. will be charged for each package.

MESSRS. G. BAKER AND SON having a large and fine stock of CLEMATIS and ROSES in pots, have much pleasure in offering them to the Trade, at the following low prices:—

CLEMATIS STANDISHII, 24s. to 30s. per doz.
" FORTUNII, 24s. to 30s. per doz.
" JACKMANNI, 24s. to 30s. per doz.
" RUBRO VIOLACEA, 24s. to 30s. per doz.
" LANUGINOSA, 12s. per doz.
" VITICELLA VENOSA, 6s. per doz.
" SIEBOLDII, 6s. per doz.
" AZUREA, 6s. per doz.
ROSES in 48-pots, 6s. per doz.
" strong for forcing, 9s. to 12s. per doz.
Also a large Collection of American and General Nursery Stock.
American Nursery, Bagshot, Surrey.

Major's New Gold-striped Thorn (Cratægus prunifolia variegata).

J. MAJOR AND SON, Knosthorpe, near Leeds, beg to announce that the above beautiful THORN is now ready to send out at 10s. 6d. each. The usual discount to the Trade.

Post-office Orders or Postage Stamps in payment.

"CRATÆGUS PRUNIFOLIA VARIEGATA (J. Major & Son).—The variegation is well marked and very pretty, and the colour is really golden, and not that sickly hue too frequently met with in so-called golden plants."—*Editor of Journal of Horticulture, Aug. 29, 1865.*

Lobelia Snowflake.

Extract from Gardeners' Chronicle:—

"Mr. Cox, Gardener to Lord Beauchamp, exhibited a beautiful White Lobelia called Snowflake, to which a First-class Certificate was awarded. Floral Committee of the Royal Horticultural Society, July 25, 1865."

JOHN AND CHARLES LEE having acquired the stock of this desirable NEW BEDDING PLANT, they have much pleasure in offering SEED in SEALED PACKETS for present sowing for spring pot culture, for which it is well adapted.

As a BEDDING LOBELIA it stands unrivalled. The plant is of dwarf compact habit: the flowers are large, perfectly even, and of the purest white. The stock comes perfectly true from seed.

Price 2s. 6d. per packet. Price to the Trade on application.

Royal Vineyard Nursery and Seed Establishment, Hammersmith, W.

THE FOLLOWING ORCHIDS will be forwarded on receipt of Post Office Order, payable at Boston Spa, to any address, and when six or more are taken package will not be charged:—Cypripedium insignis, Dendrobium nobile, Catasetum grandiflorum, at 3s. 6d. each; Cypripedium barbatum, Odontoglossum grande, 6s. each; Acropera Loddigesii, Dendrobium speciosum, Oncidium crispum, Oncidium altissimum, Oncidium flexuosum, Schomburgkia crispum, 7s. 6d. each; Cymbidium aloifolium, Calanthe cuprea, Cattleya Aclandiæ, Cattleya Harrisonii, Cattleya species, Stanhopea aculeata, 10s. 6d. each; Lælia superbiens, Oncidium bicallosum, 12s. 6d. each; Cattleya Trianæi, 15s.; Cattleya elegans, Lælia elegans, 25s.; 500 well-grown one-quarter specimen Epacrises in 36-inch pots, 15s. per dozen, 100s. per 100, best kinds, 12 varieties. Apply to

J. C. Padman, Boston Spa, near Tadcaster.

NEW PLANTS.

UPWARDS OF TWO HUNDRED PRIZES AND AWARDS HAVE BEEN MADE TO

WILLIAM BULL

FOR NEW AND RARE PLANTS ALONE

AT THE PRINCIPAL LONDON FLOWER SHOWS DURING THE PRESENT YEAR.

W. B. mentions this as conveying some idea of the importance of his Collection.

For Names and Descriptions of NEW PLANTS now being sent out, vide *Gardeners' Chronicle* of last week, p. 936.

ESTABLISHMENT for NEW and RARE PLANTS, KING'S ROAD, CHELSEA, LONDON.

GRAPE VINES.

B. S. WILLIAMS,

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.,

NOW HOLDS A

LARGE AND SUPERIOR STOCK OF THE ABOVE,

BOTH PLANTING AND FRUITING CANES, OF ALL THE BEST VARIETIES.

A PRICED LIST forwarded on application.

DUTCH FLOWER ROOTS.

JAMES VEITCH,

ROYAL EXOTIC NURSERY, CHELSEA, S.W.,

BEGS TO ANNOUNCE THAT HE HAS RECEIVED HIS

ANNUAL SUPPLY OF BULBOUS ROOTS FROM HOLLAND,

and is pleased to say that they are in excellent condition.

CATALOGUES are now ready, and will be forwarded pos.-free on application.

J. V. desires to impress upon those who patronise him the great advantage of giving him their orders early, as the successful Cultivation of Bulbs depends in a great measure upon their being planted early in the season.

MESSRS. E. G. HENDERSON & SON

RESPECTFULLY ANNOUNCE THE PUBLICATION OF THEIR

BULB CATALOGUE,

COMBINED WITH A COMPREHENSIVE

LIST OF HERBACEOUS AND ALPINE PERENNIAL PLANTS,

Extending to above 100 pages, the latter part giving the price of each species, with their respective colour, height, and season of bloom, &c. Also reference to Bulbous and Tuberous-rooted kinds, whether of Climbing or Creeping habit, and adaptation for marshy ground, or for water, with indications to those species requiring partial protection.

Forwarded Postage Free on application.

WELLINGTON NURSERY, ST. JOHN'S WOOD, LONDON, N.W.

COLLECTIONS of BULBS.

The COVENT GARDEN COLLECTIONS,

Part for In and part for Out-of-door Decoration, 10s. 6d., 15s. 6d., 21s., 42s., 63s., & 105s.

BARR & SUGDEN.

SEED & PLANT MERCHANTS 12 KING ST. COVENT GARDEN W.C.

COLLECTIONS of BULBS.

The PAXTONIAN COLLECTIONS,

For the Ornamentation of the Spring Garden, 10s. 6d., 15s. 6d., 21s., 42s., 63s., & 105s.

THE KENSINGTON GARDEN and CRYSTAL PALACE COLLECTIONS, for Ornamenting the Winter Flower Garden,

10s. 6d., 21s., 30s., 42s., 63s., & 105s.

THE CLIVEDEN SOUVENIR COLLECTIONS of BULBS.

No. 1.—HYACINTHS and CROCUS, 10s. 6d., 21s., 42s., & 84s.
No. 2.—RANUNCULUS and CROCUS, 7s. 6d., 15s., & 30s.
No. 3.—TULIPS and CROCUS, 12s. 6d., 25s., & 50s.
No. 4.—ANEMONES and CROCUS, 15s., 30s., & 60s.

For particulars of these Collections, and Splendid Collections of HYACINTHS, TULIPS, NARCISSUS, GLADIOLI, AMARYLLIS, ANEMONES, RANUNCULUS, &c., see our FLORAL GUIDE.

THE CLIVEDEN COLLECTIONS of SPRING-BLOOMING PLANTS, drawn from the Stock at Cliveden.

150 PANSIES ASSORTED | 200 DAISIES ASSORTED | 100 FORGET-ME-NOT | 100 SILENE | 50 COWSLIPS.

The above, 105s.; Half the quantity, 50s.; Quarter do., 25s.; Eighth, 12s. 6d.

FORGET-ME-NOT, blue	5s. 6d. per 100	DAISY, pink	10s. 6d. per 100	SAPONARIA, pink	5s. 6d. per 100 5 6 "
" " white ..	7 6 "	" white	10 6 "	" white	15 0 "
SILENE, pink	5 6 "	POLYANTHUS, mixed	12 6 "	ARABIS ALPINA	50 0 "
" white	5 6 "	COWSLIPS, mixed	12 6 "	" LUCIDA	

STANDEN'S GARDENER'S and AMATEUR'S FRIEND. See Advertisement, page 958.

American Plants, New Hardy Rhododendrons.

WATERER AND GODFREY'S PRICED and DESCRIPTIVE CATALOGUE of AMERICAN PLANTS, [illegible] in the Horticultural Gardens, South Kensington, free [illegible] This Catalogue fairly describes the Rhododendrons [illegible] growing, as well as some new and very handsome kinds [illegible] in their possession, and now for the first time offered.
Knap Hill Nursery, Woking, Surrey.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, [illegible] prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, [illegible]

*** Part II. (Exotic Ferns) will be issued as early as possible.
Foot's Cray Nursery, S.E.

CARNATIONS and PICOTEES for the Million.
Fine Strong Plants at reduced prices.
Everyone should send for the revised CATALOGUE of CARNATIONS, PICOTEES, PINKS, PANSIES, ROSES, FRUIT TREES, [illegible], &c.
Hepworth & Jones, Proprietors, Bradshaw Gardens, Chadderton, near Manchester.

NEW TEA-SCENTED ROSE MARECHAL NIEL.—This splendid Yellow Rose, being scarce in the Trade, can be [illegible], in lots, worked on the Manetti stock, at 3s. each, or three for 7s. 6d.
Also mixed STANDARDS, HALF-STANDARDS, and DWARFS of the leading kinds, at 8s., 9s., and 12s. per dozen.
Cash or reference from unknown correspondents.
A. Gibbs & Son, Ashbourne, Derbyshire.

Hardy Climbers.—To the Trade.

CLEMATIS JACKMANNI.—Large intense violet purple, rugose and veiny in centre, 3s. each; 30s. per dozen.
CLEMATIS RUBRO-VIOLACEA.—Reddish violet, sepals moderate, fine, 3s. each; 31s. per dozen.
CLEMATIS STANDISHII.—Beautiful violet blue, 3s. each; 30s. p. doz.
Besides other good old varieties.
A CATALOGUE, including Description and Treatment of Clematises, will be forwarded free on application to
Geo. Jackman & Son, Woking Nursery, Surrey.

NEW PLANTS.

AUBRIETIA CAMPBELLI (effective spring flower).
FUCHSIA BANKS'S BEAUTY.
VERONICA FRUTICOSA GLAUCA.
CLIANTHUS DAMPIERI, in varieties (seed only).
Coloured Plates, post free on receipt of Stamps, of the following:—
AUBRIETIA CAMPBELLI, 7d.
CLIANTHUS DAMPIERI ALBIFLORA, 1s. 1d.
For description of the above see E. G. Henderson & Son's New AUTUMN CATALOGUE, forwarded post free.
Wellington Nursery, St. John's Wood, London, N.W.

The Gardeners' Chronicle.

SATURDAY, OCTOBER 14, 1865.

MEETING FOR THE ENSUING WEEK.

Saturday, Oct. 21 { Royal Horticultural (Weekly Show), at South Kensington .. .. 2 P.M.

The efficacy of Root Pruning in the case of Fruit trees is, thanks to the labours of Mr. Rivers, pretty generally recognised in this country, and the circumstances which render such an operation desirable are equally well understood; but with reference to Forest trees the case is different, and many circumstances are overlooked to which attention ought to be directed.

A gardener would ordinarily see in the process merely a means for facilitating the removal or transplantation of the tree, and he would say that the removal of a number of branches, in proportion to the number of roots cut away, would compensate for any disadvantage that might arise from the supplies of food. As the supply is impaired, so should the demand be lessened.

Of course there is a certain amount of truth in this, but the result sought may be gained, unless great care be taken, at the expense of a deformed and enfeebled tree, and years must elapse before the ill-nourished tree can regain its vigour.

There are other things besides the facility for transplantation which ought to be considered when root pruning is to be carried out. What is the destination of the tree? Is it to be planted separately or in a group? Is it intended for an avenue or for shelter? A moment's reflection will show that these are not idle questions. By way of illustration let us take a tap-rooted tree: if such a tree be root-pruned, the result will be the production of a large number of small rootlets, that are useful, indeed, for obtaining food for the tree, but which are of no use as stays. This defect, it is true, may be remedied by efficient staking. It may, however, turn out to be positively injurious to have a dense mass of fibrous roots at the border of a field, for such roots will absorb much of the nourishment intended for the crop, while a tap-rooted tree, seeking its food at a greater depth, does comparatively little harm to the fibrous-rooted plants at its base. We make these remarks obviously not for the experienced planter, but in the hope of checking that indiscriminate root-slashing which we have too often seen carried on at this season by ignorant labourers to save themselves trouble. In these cases "conservative surgery" should furnish the rule of practice.

There is a certain class of people who seem to derive a melancholy satisfaction from making the worst of things. We can afford to smile at such self-tormentors, or to compassionate their infirmity when their apprehensions are ill founded or out of proportion to the magnitude of the danger; but when the danger is really great or imminent, no opportunity should be lost in trying to convince such persons that their method of procedure is sure to make the bad worse, while every endeavour should be made to induce them to do their best to repel, or if that be impossible, to palliate the evil. Just now the supply of animal food is a matter for most serious consideration, and as it is quite certain that an increased use of Vegetable Food in some form or other must be made, it becomes necessary, strange though it appears, to tell some people that vegetables and fruit form under proper precautions a wholesome diet.

We have been led to make these remarks because there is a very foolish and far too prevalent an idea that vegetables and fruit produce cholera. It may serve to dispel this popular fallacy to point out that there has been a less amount of diarrhœa this autumn than usual in spite of the hot weather, in spite of the abundance of fruit—nay, even in spite of a profusion of Plums! Moreover, we doubt if a single authenticated case of cholera can be attributed to a prudent use of fruit in due season.

That our remarks are not uncalled for, is evidenced by a fact that came within our own knowledge recently, where an elderly lady became the subject of true scurvy, and ultimately died, simply because from fear of taking the cholera, she had abstained from eating vegetable food in any shape! Now, few things are better established in medical science than the intimate connexion between scurvy and a want of a due supply of vegetable food. Such emergencies as the present ought to stimulate our gardeners and the members of our acclimatisation societies to increase the supply of vegetable food by the more extended culture of what we have already, and by the introduction of fresh articles fit for human consumption.

In the October number of the Popular Science Review we find an interesting article by Professor Gulliver on the nature and diagnostic value of Raphides and other plant crystals. The article in question is a summary of several memoirs on the same subject, published from time to time in various journals. The author considers that the existence or absence of these crystals is sufficiently constant to serve as a means of distinguishing one group of plants from another, and moreover has made use of the characters so afforded in some of his garden difficulties. "Thus," he says, "it proved at once easy and convenient as well as novel and interesting to pick out, simply by the raphidian character, seedlings of the exotic Onagraceæ from seedlings of other orders; and seedlings of Mesembryaceæ, which had also been sown in pots, and got confused with other pots of young Crassulaceæ, were as surely and quickly distinguished in like manner. * * * * A reserve bed, in which had been planted, and intended for removal when required, a Willow herb, various evening Primroses, Phloxes, Campions, and Rockets, had got into troublesome confusion, when nothing was easier than to discern all the Onagraceæ by the profusion of raphides in the roots and subterranean buds, before growth had revived in the winter and early spring."

Mr. Gulliver goes on to describe the principal forms of plant crystals, and notes their presence in certain natural orders and their absence in others. In Gymnogens he has seen no raphides at all, and yet the raphides, if we may so term them, of Welwitschia, are not the least curious feature of that extraordinary plant. We have not space to follow this expert microscopist through the several natural orders, but we have said enough to show that his researches are by no means unimportant. The only fear in a case like this is that the importance of the characters derived from these plant crystals may be exaggerated. Taken by itself the absence or presence of raphides is comparatively of little importance for diagnosis, but in conjunction with other points of distinction it may be valuable.

There are many circumstances in reference to these little crystals that require further investigation; such as the conditions under which they are formed; do age, soil, or other external conditions modify their form or their numbers? Are they always present in some plants, and as invariably deficient in others? The different forms under which these crystals appear—are they significant of corresponding diversities of origin? All these are subjects requiring fuller investigation, and, as we have seen, they hold out promise of practical utility. The observation of these raphides is an easy matter, and requires only a moderate magnifying power; hence we hope that some among our inquiring gardening friends may amuse themselves in their leisure, by endeavouring to add to the observations of Prof. Gulliver.

The few remarks we offered at p. 913 on the subject of the Education of Gardeners, has brought us a letter from our correspondent Mr. D. T. Fish, which as treating of matters deserving the serious consideration of the gardening fraternity, we venture to bring thus prominently under their notice. Mr. Fish observes, in respect to the status of gardeners:—

"Perhaps there is no class from whom so much is expected, and to whom so little is given in return. I do not chiefly allude to the vexed question of wages; that certainly is unsatisfactory enough, but will ultimately remedy itself. It is more than probable, however, that the falling off in intellectual capacity of modern young gardeners may originate in this vulgar cause. Perfect rectitude of character, wisdom, prudence and promptitude in the government of men and things, unwearied diligence, studious foresight, refined taste, agreeableness of manner person and address, and intellectual attainments of a high order, ought to count for something in the business marts of the world. And they do. The fact is, our extended trade and flourishing commerce is creating a growing demand for superior young men; and unless the condition of gardeners is bettered, their quality must deteriorate. Almost 99 out of every 100 gardeners who have pushed themselves to the front rank of their business, confess that were they starting afresh they would choose some other profession. The romance of gardening as a pursuit is subsiding before more utilitarian views; and it is generally felt that the wear and tear of a gardener's life, with the pecuniary sacrifice of all his early manhood in the acquirement of knowledge and experience, is but scantily recompensed by a salary ranging from 50*l.* to 100*l.* per annum.

"But gardeners have a more serious grievance than even this. With all our acquirements, including often a knowledge of half a dozen trades and almost as many or more professions, our intellectual and social status is comparatively nowhere. 'Only a gardener' is too often the contemptuous freezing remark we are compelled to hear, if by sheer force of talent or genius we attempt to push our way to literary eminence or claim a standing among the learned professions. More galling still are the patronising airs assumed by the local magnates of provincial society, whose only claim to distinction too often consists in that they had the wisdom to choose a business which filled their pockets without calling for the use of any high mental qualities. Such as these have neither the will nor the power to measure any man's worth by an intellectual standard. Money alone makes their men. Those that have this are good and great, and all are mean and despicable besides. Such views as these mould and fashion the world's opinions. Their tendency is to put down and keep down gardeners with large families in the lowest ranks of genteel starvation.

"It is folly to rail against and useless to ignore the existence of such tendencies as these in society. They mainly rule the world. If gardeners are to seek and keep that position which their general intelligence entitles them to hold, it must be by boldly confronting and nobly living down these prejudices. The monetary standard of excellence erected and sustained by the tyranny of the world's fashion, can only be overborne and destroyed by the sterling worth of our characters, and the eminence of our talents. Obvious merit and real mental power will compel the homage even of grovelling Mammon-worshippers. Individual gardeners are constantly using these as the levers by which to raise themselves to their proper place in the social and intellectual scale; but two sets of influences have prevented more from rising. The one is the want of encouragement from those above them; the other is an obstacle which gardeners themselves have created. Our ranks are crowded with men who neither respect themselves nor are worthy of the respect of others. Destitute alike of the power of controlling their appetites or their passions, they transform many a lovely scene of quiet rural beauty into a very Pandemonium, disgrace and degrade the name of gardener, and prove a pest to their employers, and a curse to their neighbourhood. Such men in our ranks injure our social and intellectual status more than all the outside world besides. It takes years sometimes to secure the respect of either men, masters, or the neighbourhood under such circumstances. We cannot, indeed, hinder such men from becoming gardeners; but masters may generally avoid employing them. The man who is ready to offer himself at the lowest wages is likely to be as ignorant of gardening as he is destitute of intellect, and a cheap gardener is always terribly dear at any price.

"But I gladly turn from this gloomy picture to a brighter one. Gardeners are receiving more encouragement to rise than they did. Apart from the higher appreciation of our services by good employers, the public are beginning to appraise our attainments more highly. This will prove a powerful stimulus to further exertion. Perhaps nothing has yet occurred in this country so well adapted to elevate gardeners and improve the science of gardening as the extension of the Society of Arts examinations

to Floriculture and Horticulture. Since reading your excellent remarks I have received the complete schedule of these examinations. In scanning over the list of prizes and certificates for 1865, I was astounded to find that not a single gardener had competed, except in the special subject of botany. Are arithmetic, mensuration, light, heat, chemistry, animal physiology, trigonometry, drawing, history, &c., of no use to gardeners? Or are our young men so destitute of intellect as not to care for the honour of a certificate or the value of a 5*l.* prize? Or are they profoundly ignorant of the whole scheme? Presuming that the latter must be the case, I beg as a favour that you will publish in full the whole list of Examinations for next year, with an abstract of the rules and conditions, &c. Until this is done, I will not believe that gardeners are afraid to enter the lists in the intellectual arena with clerks, shopkeepers, carpenters, tailors, &c.

"I know that had this system been in existence 20 years ago, I would have struggled hard for many of the prizes. As it is, I intend, if my many duties will allow me, to be examined in the two new branches that have just been added by the Society of Arts. Prizes or certificates of this kind should possess something of the value of a degree, and I know of no more likely mode by which gardeners may raise their social and intellectual status than by earnestly striving to win such honours. I trust, therefore, to meet a strong competition next April, so that the Society of Arts may be encouraged to continue and extend these prizes by witnessing the anxiety of gardeners to use every means placed at their disposal for their improvement and elevation."

—— The following note from Mr. Consul Swinhoe may be suggestive to growers of Orchids:—"I procured a few days since from a Chinese junk captain several species of Orchids which he had brought from the little-known island of Sama-sana, off the east coast of Formosa. Orchids are gathered and brought to this port for shipment to the northern ports of China as *medicine*. The chief business in this article is done by junkmen from this port of Takow with Sama-sana, whither they are brought by boat from Black Rock Bay. The Orchids are consequently from the high and steep mountain range on the east coast of this island." We are glad to learn that some of these Orchids are on their way to this country, as it is not unlikely that some of them will be new to science.

—— *Galignani* states that the northern departments of France are suffering from a pest which to them is as disastrous as an invasion of locusts in southern latitudes—that of vast and innumerable swarms of Noctua segetum, one of the night moths. Fire, acids, and other powerful agents have been tried against them in vain; for, notwithstanding the most unremitting toil and care, the insects multiply to an alarming degree, so as to threaten the total destruction of Beet, Endive, and Cabbages, fortunately the only vegetables they attack. They do not issue from their hiding-places until nightfall, when they repair to the Beet-plant, and with their sharp mandibles commit frightful havoc all round the neck without touching the leaves, so that at first sight one would not suspect the field to be other than in the most flourishing state. It is only in pulling up the plant by the roots that the effects of the visitation become apparent. The mischief done, the larvæ creep into the earth, where they remain at a depth of a couple of inches and change to chrysalids. Amongst the various remedies tried, one which promised success consisted in driving a number of fowls into the fields. The caterpillars were indeed devoured, but it seems they possess poisonous qualities, for all the poultry died of the effects of this food. There appears, says our authority, to be no other remedy but picking up the chrysalids one by one as they are brought to light by the plough.

—— We have lately had brought under our notice by Mr. Bull a very remarkable illustration of the Variability of Ferns. A crop of plants had been raised from the spores of Nephrodium molle cristatum, a very indifferently crested form of a very common Fern, a form indeed but slightly removed from the normal condition of the species, from the very slight degree of development manifested in the crests. In this batch of young plants occurred a considerable number—we are not informed as to the proportion—of most remarkable deviations from the parent plant. Many of them have the stipes and fronds repeatedly branched, and the parts everywhere densely crested, yet not assuming the character of N. molle corymbiferum; this form might be called ramosissimum, and is analogous to the magnificent form of Filix-mas bearing that name. Others, with more of the plane character of the normal state of the species, had well-crested apices both to the pinnæ and frond, and a forking of the stipes, though less developed than in the former: such a development as might be called ramosum. A third set, with very little of the plane portion in some cases, and none at all in others, bore a great glomerate crested head of crispy segments, and this form we propose to distinguish by the name of grandiceps, because it is fashioned after the manner of the varieties of our native Ferns to which this name has been given. Some other curious deviations occur, but they require further development. Of the history of the parent cristatum we are not informed; but we believe that in the hands of Mr. Sim, by whom it was introduced, the very beautiful and densely crested form called corymbiferum produced retrograde varieties, with a very small amount of the cresting so conspicuous in the parent, and it is possible that cristatum may owe its origin to this source. As bearing on the sportive character manifested amongst Ferns, the curious facts above adverted to are worth recording—corymbiferum, a finely crested form, yields retrograde forms, with an almost if not quite complete obliteration of the crests; while cristatum, itself scarcely crested, gives a profusion of the most densely branched and crested forms yet seen amongst the varieties of this widely distributed and very common Fern.

New Plants.

317. Odontoglossum Hallii, *Lindl. Bot. Reg.* xxiii. 1837, sub 1992; *Bot. Reg.* xxxi. *Misc.* 60; *Folia Orchidacea*, i. art. *Odontoglossum*, No. 6. *Rchb. fil. Xenia Orchidacea*, i. 178, tab. 63, fig. 1.

There are offered from time to time plants professedly of species much coveted by amateurs, but which do not prove to be true. For a long time all the Vanda cristata sent over to the Continent proved to be Vanda alpina; and what was sold as Odontoglossum Hallii, was always Odontoglossum præstans or superbiens. And yet to get Odontoglossum Hallii was most desirable. Dr. Lindley himself had called it "a most beautiful thing." It has the habit of Odontoglossum Lindleyanum, Rchb. fil., and bears a rich spike, or even, though seldom, a panicle. The flowers are nearly as large as those of Odontoglossum Insleayi itself. The sepals and petals are acuminate, tapering into very long points, in the way of a Brassia. The sepals are almost wholly of a chocolate-brown, with yellow margins, tips, and patches. The petals are lemon coloured, with deep chocolate blotches. The lip is nearly panduriform; the anterior part being larger, transversely ovate, acuminate, with numerous fringes and teeth on the margin; the centre of the basilar part covered with a crowd of acuminate lamellæ, the superior thinner, the anterior broader, and often bearing two teeth. It would appear to be white, with chocolate-brown blotches. The species is a special ornament of Ecuador, where it was discovered by Colonel Hall, and observed later both by Hartweg and Jamieson.

We only know the plant in a dried state. Our representation is perhaps incorrect, in being too small. We took it from the single flower glued on the base of the sheet in the Kew Herbarium. It is derived from Hall's specimen, being the type of Dr. Lindley's species. But long experience has taught us that such flowers sometimes get at least 1-4th, often 1-3d smaller, when dried, though, indeed, they may naturally vary a good deal in being smaller or larger. But among all the specimens we have seen, there were none smaller, and the spike represented in "Xenia" shows a variety with larger flowers.

This plant has ceased to be found only in Ecuador. The long-sustained wishes of collectors are crowned at length with success. It is in our reach—it grows in Belgium. We saw but a few days since remarkably healthy specimens which had arrived in an admirable state at Mr. Linden's splendid establishment. Our friend had sent over one of his travellers in search of the plant. We hope it will grow well when taken under cool treatment.

Among the results of the actual endemic Odontoglossomania (which was not imported to England, but originated in the neighbourhood of Congleton), the arrival of so splendid a plant will prove, we dare say, one of the most prominent. *Rchb. fil.*

DOUBLE-GLAZING AND ITS ADVANTAGES.

Owing to the total absence of single-glazed Orchid houses in this place (Berlin) and its vicinity, I am, as Mr. Warner rightly conjectured (see p. 676), totally unable, at least for the present, to give any accurate information respecting double-glazing, as compared with that of single or plain glazing, upon the flowering of Orchids, to which Mr. Warner's question refers.

I am confident, however, that if there really exists any difference of the kind it will certainly prove in favour of double-glazing, for it is an irrefutable fact that Orchids will succeed better in double-glazed houses than in the ordinary structures which are at present in use in England, and it is beyond all doubt that the most vigorous plants must necessarily produce the finest show of bloom, both in quantity and quality of flowers, provided the growth is well ripened and a proper season of rest allowed or even enforced. Moreover it is obvious that the atmosphere of a double-glazed house is far less exposed at all seasons to external influences, and consequently the respective degrees of heat and moisture which the plants require during their seasons of growth and rest, are kept up with a facility and regularity which those who have never had the opportunity, or to use the proper expression, "the pleasure" of cultivating Orchids in such a house, can hardly form any idea of.

In spite of all that has been said and written about intensity of light being absolutely necessary for a vigorous growth and copious blooming in Orchids, a considerable number of most successful and intelligent Orchid-growers are of the opinion that, during their season of growth, the greater majority of Orchids prefer a gentle subdued light, or accompanied by a proportionate degree of moisture, and a little less of the "fresh air" than what is but too often recommended and "administered" in such a quantity as totally to annul the effects of its invigorating qualities, by the amount of spot and other disfigurations which are so frequently brought on by its being admitted a little too "fresh" and generally too dry.

As for intensity of light during winter, the season of rest for most Orchids, and the beneficial influence of which, during that period, is certainly denied by nobody, I think a greater amount of it will on an average be secured by a double-glazed roof than by a common single one; for if the glazing is properly done, and both surfaces of glass made perfectly air-tight (a point of great importance), the sheet of air filling the intermediate space will be comparatively free from moisture, and consequently, on account of its dryness, will to a great extent prevent the formation of ice upon the outer panes, and effectually hinder frost from acting upon the inner ones: whilst in single-glazed houses, where moisture is continually and copiously condensing on the glass, the panes are, as soon as the temperature out of doors sinks below freezing point, unavoidably, and often to a very considerable thickness, covered with hoar-frost and even solid ice, which obviously offers far more obstruction to light than the additional surface of glass, which in so many other respects offers invaluable advantages. At any rate a double-glazed roof constructed of plain white glass will certainly not obstruct light to such a degree as is the case with "rough plate," which nevertheless is made use of so extensively throughout all England.

To strengthen my assertions, and to vindicate my partiality for this mode of construction, I shall mention a few examples illustrating the exuberance, as well in growth as in bloom, which Orchids are able to attain under its beneficial and inappreciable influence.

From among the collection of Moritz Reichenheim, Esq., a plant of Phalænopsis Schilleriana, received from J. Day, Esq., of Tottenham, about three years ago, having at the time of its arrival here three small leaves, the largest of which was 4½ inches long by 3 wide, was exhibited about 18 months afterwards, possessing six leaves, the two largest of which measured no less than 12½ inches in length and 5¼ in width, and bearing a spike of bloom with ninety-three (93) fully expanded and fine-sized flowers upon its ramified branches; several buds having moreover been broken off by accident before the plant reached the exhibition. This is certainly a degree of perfection which the plant was little thought capable of attaining when first introduced.

On another occasion this same collection furnished Vanda cœrulea, a splendid plant 3 feet high, clothed with the most faultless leaves from top to bottom, and bearing three glorious spikes of flowers. This plant, which at the time it was exhibited was the very picture of health, and was awarded an extra certificate by his Royal Highness the Crown Prince of Prussia, was however irretrievably ruined through the exposure which, in regard to such delicate and valuable plants, is unfortunately ever and everywhere more or less connected with exhibiting; yet the unexampled mass

of bloom which it had produced may also have contributed largely to its ruin, by bringing on exhaustion. Soon after its return from the exhibition it began to wither, lost its top, and never regained its vigour; it fortunately has lately produced four young plants, which in some measure compensate for the loss of their parent. A similar accident happened two years ago with a grand plant of Oncidium Lanceanum splendens, which, in the same collection, had attained a size and vigour seldom met with, and the impression which it made at the time it was exhibited will certainly be well remembered by many who saw it then in the full stage of its incomparably beautiful inflorescence. The plant at that time was literally covered with bloom, and formed a dense mass of three feet in diameter, of which there is not an atom left.

Of other exceptional plants which I have on different occasions seen in this collection, I may mention Angræcum sesquipedale, two feet and a-half high, the finest plant of its name which has ever come under my notice, and upon which I counted 11 fully expanded blossoms on three spikes last winter; and Acrides Larpentæ, with eight splendid spikes. This plant multiplies here with a rapidity quite uncommon among this section, five to six young plants being on an average taken off one shoot every year. There are also shoots of Vandas, especially of suavis Veitchii, which can evidently be excelled nowhere; some of them being from 7 to 8 feet high, and clothed with the most spotless and uniform leaves down to the very rim of the pot; and I have often seen four spikes, each with 12 to 14 flowers, on one growth. Of Saccolabiums, especially guttatum, Blumei, and retusum, there are some really gigantic specimens here, not unfrequently producing three splendid spikes from one growth.

Among the collection of L. Reichenheim, Esq., I have lately seen a plant of Phalænopsis Schilleriana with six leaves, the largest of which is fully 14 inches long by 5½ wide—has that size ever been surpassed in England?—as well as that of a Phalænopsis amabilis in the collection of A. Borsig, Esq., the largest of its seven leaves being no less than 13½ inches in length by 5 inches in width?

Another exceptional case worth mentioning is that of a Selenipedium caudatum which has flowered in the last-named collection, producing two scapes, one bearing two flowers, the largest of which measured from the end of the upper sepal, which was 6 inches long, to the ends of the petals fully 35 inches. Moreover, some of the rest of the Cypripediums, for instance the varieties of barbatum, even barb. majus superbum not excepted, as well as Cyp. superbiens (Veitchii) produce two flowers upon almost every scape.

The houses alluded to at p. 650, as being regularly divested of their extra roof during the hottest summer months, are those of the Messrs. Allardt, sons and successors of the late well-known and passionate Orchidophilist and nurseryman of that name, often mentioned in horticultural literature, especially in Paxton's "Flower Garden." One of these gentlemen, who personally attends to the cultivation of his Orchids, told me upon my inquiry as to the results obtained by this practice, that it was not on account of the Orchids that the extra lights were taken off, but on account of the hothouse plants cultivated under them; the Orchids being fastened upon blocks of wood, or planted in baskets, and all suspended along the iron sash-bars of the roofs, which are literally overburdened with them.

He further remarked, that if Orchid growing was a better paying business here in Berlin, and consequently proper space could be afforded for their cultivation, he should have them, with but very few exceptions, all planted in pots and kept under a double-glazed roof all the year round. The plants, although in general enjoying good health, are looking "desperately hungry."

Convinced as I am, of the usefulness and excellence of this system of construction, I hope it may at least receive a fair trial by some of your intelligent and enterprising cultivators; and although I must confess that, on account of the mildness of the English climate, it will probably never attain that degree of importance with you which it has for a climate like that of Berlin, yet I am perfectly confident that its merits once being properly tested, and the advantages which Messrs. Bewley and Warner have so explicitly enumerated, fully appreciated, it will find a most universal application.

Finally, I beg leave once more to remark that double-glazing can confidently be recommended for all houses wherein plants are to be cultivated which, during winter, require a temperature exceeding 45° Fahr.; and that Orchids which have been cultivated for years in double-glazed houses here, are on an average far healthier and certainly not less floriferous than those which I have seen cultivated with comparatively far greater trouble under single-glazed roofs, as well in England as in other countries. *A. R. E.*

THE CANADIAN RICE.

This plant, the Zizania aquatica of Linnæus, the Hydropyrum esculentum of Link, and the Lake Rice or Wild Rice of America, has latterly attracted so much interest from the attempts which have made by the Acclimatisation Society, and by private gentlemen, to introduce it to our northern lakes as a food for wild fowl, and so little seems known about it generally, if we may judge from the inquiries made respecting it, that we gladly reproduce the following passages from a pamphlet by Mr. Gorrie, printed at the private press of Messrs. Peter Lawson & Son, of Edinburgh.

"Although noticed by Loudon, Lawson, and other agricultural writers, in their descriptive enumeration of Cereal Grasses, the Zizania aquatica has never had that attention bestowed upon it by British cultivators, which it seems to deserve. The former author, in his Encyclopædia of Agriculture, states 'that it grows in great luxuriance, and produces abundance of bland farinaceous seeds, in all the shallow streams of the dreary wilderness in North-west America, between the Canadian lakes and the hilly range which divides Canada from the country on the northern Pacific Ocean. Its seeds contribute essentially to the support of the wandering tribes of Indians, and feed immense flocks of wild swans, geese, and other water-fowl, which resort there for the purpose of breeding.' And the same author, quoting from Pinkerton (Geog. iii. 330), adds that 'productive as is this excellent plant, and habituated to an ungenial climate, and to situations which refuse all cultivation, it is surprising that the European settlers in the more northern parts of America have as yet taken no pains to cultivate and improve a vegetable production which seems intended by nature to become at some future period the bread corn of the north.' Pursh, in his 'Flora Americana Septentrionalis,' published in 1814, describes the Z. aquatica as being frequent in shallow waters from Florida to the Canadian lakes. While modern authors mention it as being more common to the north than to the south of Lakes Ontario and Erie, they affirm that it is found in the greatest profusion and luxuriance on both sides of the British and United States boundary line of 49° N. lat., in the innumerable lakes of that vast central plain, in which are all the head waters of the great river system, which finds an outlet into the Gulf of Mexico through the Missouri and the Mississippi; into the Atlantic, through the great lakes, and the St. Lawrence; into Hudson's Bay, through Lake Winnipeg, the Saskatchewan and the Neilson Rivers; and into the Arctic Ocean by the Mackenzie' River. In this central region Schoolcraft estimates the number of lakes at about 10,000, which, according to Oliphant ('Minnesota,' p. 204), fall principally under two classes, those with clear sandy shores, and a considerable depth, and those with marshy margins, and abounding in Wild Rice. The former yields various species of fish; the latter serve not only as a storehouse of grain for the natives, who gather it in August and September, but they invite myriads of water-fowl into the region, and thus proves a double resource to them."

"The Wild Rice seems never to have formed an article of regular commerce in the American cities; yet it is invariably deemed an acceptable rarity by the citizens, and a looked-for present from friends returning in the 'fall' from its native localities. It is generally harvested by the Indian squaws, who collect it into their canoes by bending over the stems and threshing out the seeds with their paddles; the seed is then husked or prepared for use by a further process of drying in the sun, beating, and winnowing. According to a Toronto paper, it formed a principal and agreeable food of a missionary visiting party in 1855, in their journey from that city to the thinly inhabited and scattered stations on the North Red River, and other parts north-west of Lake Superior, where they readily procured it in a clean or husked state at the rate of about 4*s*. sterling per bushel. The Wild Rice bears no resemblance to the common Rice, or any of its varieties other than in name and aquatic growth. Like the cultivated Wheat, Rye, &c., it is of annual duration, and is surpassed by none of these in rapidity of growth, attaining in the summer months to heights of from 6 to 10 feet above the surface of the water, and thus converting immense districts of river and lake shores into thick fields of waving verdure, not unlike the reed grounds in some of our British rivers. Such places being well adapted for concealment, and easily penetrated by the light bark canoes of the Indians, are often referred to by American novelists in their descriptions of the strategic warfare of the Aborigines.

"That the Z. aquatica will be found suited for the climate of Britain may be fairly presumed, seeing that although (according to Johnstone's Physical Atlas) the Isotheres or line of summer mean temperature corresponding with Central Britain passes considerably northward of Lake Superior, yet it does not exceed the northern limit of its native growth, while the line representing the northern limit of Vine culture, corresponding with Paris, passes at least 7° south of Lake Itasca, the source of the Mississippi and of the Great Savannah on the St. Louis, which is described in Oliphant's Minnesota (p. 182) as a boundless swamp, covered, when he and his party visited it about the 12th of August, 1854, with Wild Rice, the stalks of which were 10 or 12 feet high, and the seed being quite ripe and very sweet, they amused themselves in plucking the ears and eating their contents as they pushed their canoe slowly along through the small channels, in which the Rice was often so thick that paddling was impossible.

"In Scotland the culture of the Canadian Rice was essayed by those eminent promoters of horticulture, the late Dr. Neill and the late Sir G. Mackenzie, of Coul, in Ross-shire, but without success, the seeds having apparently lost their vitality in their transmission from America. Hence it was supposed that their growth could only be insured by having them brought home in water or mud. A later experiment has proved this opinion to be fallacious. Dr. Neill obtained a second sample in 1837, which was sown in a 6-inch flower-pot in his greenhouse aquarium with another aquatic plant, seemingly with no better success than had attended the former attempt; but the other plant having grown, the pot remained undisturbed. In the second year, the Wild Rice came up strong and vigorous, and produced flowers and seeds in the course of the summer and autumn. The seeds were not very abundant, which may be accounted for by the contracted root-room afforded by the pot, the plants having scarcely attained a height of 18 inches. This fact proves that the dryness acquired by the seeds in their transit from Canada had not destroyed the vitality, as might have been inferred from the results of the first experiment, but had simply retarded its development.

"After many fruitless endeavours, having at last succeeded, through the kindness of Mr. Robert Maitland, of Toronto, in procuring a bushel of unhusked seed of the Z. aquatica from Rice Lake in the Newcastle district of Canada West, I have distributed it in various parts of the country among persons likely to take an interest in its culture. I am of opinion that the seeds should be sown without delay on the margins of lakes or sluggish streams, and in order to ensure their sinking in water, they may be rolled in pellets of clay. I would also recommend that they be subjected to as varied treatment as possible, even sowing some in flower pots and hothouse tanks where practicable. When the seeds are ripe let them be sown immediately by the sides of lakes, ponds, or rivers, so that the natural period may be secured for their brairding."

The Zizania was formerly cultivated in England by Sir Joseph Banks, and subsequently by others; but it is certainly the fact that the seeds do not readily germinate, in fact, do not usually germinate at all, unless dropped into mud under water as soon as they ripen; and being an annual it is probable that inattention to this circumstance, and the drying of the seeds in the ordinary way, has led to its being nearly lost. It does, however, here and there exist, though not in sufficient quantity to be of any use for the object which has latterly brought it into prominent notice.

PLANTS AND THE SOILS IN WHICH THEY GROW.

Any one interested in the relation between plants and the conditions under which they grow naturally, should pay a visit to an out-of-the-way corner of Dorsetshire, to wit, the Isle of Purbeck. This district, well known to the geologist for the variety and interest of its strata, to a select few for the beauty of its scenery, and to a still more select number for its botanical treasures, deserves fuller study than it has as yet had in reference to the distribution of its native plants. Such an investigation would not only be of interest to the botanist, but it would doubtless be suggestive and instructive to the horticulturist. Within the range of a very few miles going from north to south are the sandy Pine-capped hills, bounding the noble estuary of Poole harbour. Along the shores of this haven, and of the adjacent ones of Christchurch and Studland Bay, is a broad belt of sea-sand and dunes. Landwards of these is a vast tract of heath, moor, and bog, stretching up to the foot of the chalk range. Crossing this latter, and descending on the southern side, the pedestrian passes over thin seams of greensand and gault, which are followed by low cliffs of brightly-coloured Hastings sands. These gradually lose themselves in the valley, in which the town of Swanage is placed. To the south of this rise the bleak barren hills of the Purbeck and oolitic range, which run parallel with the chalk downs before mentioned. Here then, if anywhere, the student may trace out the relationship betwixt the soil and the plants growing on it. Let me proceed to notice a few of the more prominent facts relating to this subject, which a short sojourn in this attractive locality enabled me to glean. First, then, there are the sea-side plants, such as one meets with in similar situations in most parts of our island, and which need not be enumerated. But why is it that in the Hastings sand of Swanage Bay, south of the chalk, Cakile maritima grows in abundance, while in Studland Bay, on the other side of the downs, where the sand belongs to the tertiary series, the plant is scarcely to be seen? The nature of the soil here is so similar that we must look to other causes in order to account for its presence in the one place rather than in the other; and these are perhaps to be found in the more sheltered aspect on the one side of the downs as compared with the other.

An instance of what wonderfully diverse soils certain plants will flourish in, is afforded by Aster Tripolium. Many must be familiar with this plant growing by the acre in the salt marshes and mud flats of Kent, but here it grows in the chinks of the oolite rocks, with scarcely an atom of mould around its roots, and at such a height that it must only be wetted by the spray on rare occasions. Ammophila arundinacea may be taken as a representative sand plant; it occurs

abundantly in the dunes, while hardly a vestige of it is to be seen in the sands of Swanage Bay. Of the many bog plants I need say little; in this spot they are purely local, evidently tied by strictly moist conditions; and so, not without a pang, I leave these little gems for their near neighbours the Heath plants. Parts of the heathy district, especially on the hill tops, have been planted with Pinus sylvestris and Pinus Pinaster. It is curious to see how, under the shade of the former, the vegetation is scanty, while under the Pinasters the Heath plants flourish in comparative abundance. This may be because, in the latter case, the shade is less in amount, owing to the looser disposition of the branches, and the more scanty foliage. The Gorse in this district is almost entirely of the dwarf kind, Ulex nanus; and all three of the commoner Heaths grow in profusion, mingling gloriously with the bright yellow of the Furze. Traversing the heath to the foot of the chalk range, the abrupt transition of the vegetation is as remarkable as is the sudden change of soil; nevertheless on the northern slope of the chalk, a few stunted Heaths and a little dwarf Bracken may be found mixed with the Gorse; the Gorse is however no longer U. nanus, but U. europæus, dwarfed indeed by exposure, but still very different from the true dwarf Furze, the latter of which was at the time of my visit in full bloom, while not a blossom was to be seen on the common Furze. The Heaths and Furze which try to creep up the chalk range fail to reach the summit, so that on the south side not a Heath is to be seen. A few yards make all the difference between complete absence and tolerable abundance. The greensand formation is known here, as it is in similar situations in South Kent, by the abundance of Iris fœtidissima, hardly found off this soil in either place. The oolite range is very barren, nevertheless in the hollows and sheltered places a profusion of Carduus nutans may be seen, recalling the abundance of the plants on the dry oolite Oxfordshire hills. This plant may be found on the chalk and elsewhere, but its head-quarters, so far as this district is concerned, are the oolite hills. Here, as in Oxfordshire, it may be found with Marrubium vulgare. I forbear to enter into further details, having, I trust, said enough to show that something is to be learnt by the horticulturist as to the distribution of our wild plants, according to the kind of soil on which they grow. *M. T. M.*

THE CELERY FLY.

The following account of this troublesome little insect, condensed from our Volume for 1841, may, we hope, prove useful to many who are suffering severely this year from the attacks of the larvæ upon their Celery plants. Indeed it is scarcely possible to look at any beds of that useful vegetable, without noticing the blisters formed by the maggots upon the leaves, which are more or less green or brown, according to the age of the enclosed larvæ. On examining these blisters, they are found to be considerably inflated, and, on holding them up to the light, a maggot may be seen moving between the thin and somewhat transparent cuticles, where it has been consuming the parenchyma; those parts of the blisters where it commenced its operations being withered, they become ochreous or brown, and the other portions but recently deprived of the pulpy substance partake of a pale green tint; in this way one maggot will form a patch more than an inch in diameter before it is full-grown. Several frequently live together, or appear to do so; but this may happen from their cells uniting, as neighbouring larvæ increase their habitations during their progress to maturity. They have been found at work at Midsummer, but in July most of the blisters are empty. It is, however, in September and October that the plants are most disfigured and injured, when the maggots are often revelling in every leaf, and have not disappeared in some seasons even in November. These larvæ are of a glossy pale green, with the alimentary canal shining through the back; the head is attenuated and the tail obtuse, with a few tubercles (fig. 1). The maggots leave their habitations, and probably enter the earth to undergo their transformation to the pupa; this, however, is not absolutely necessary, for they change amongst the leaves when shut up in a box. These chrysalids (fig. 2) are nothing more than the indurated skins of the maggots, which are contracted, and become shining, ochreous, and horny, enclosing and protecting a delicate nympha of a charming green colour, which has been found perfectly formed in February, on opening the cases of some which had transformed late in the autumn.

The beautiful and elegant flies comprised in the genus Tephritis (the Celery fly is T. Onopordinis) which inhabit England amount to 40 species; they are very fond of sunning themselves upon the glazed leaves of plants exposed to the sun, when they skip and sidle along in a very peculiar manner; their wings being slightly elevated like those of a butterfly. They seem to be greatly attached to Thistles and allied plants, whither they resort to obtain food from the flowers. The females of many of the species have the apex of the abdomen furnished with a horny, attenuated process protecting the ovipositor;* as if it were for depositing the eggs between the calyces of such flowers; but it is otherwise in the Celery-fly, which, it may be presumed, lays its eggs upon or in the leaf. It is evident that there are two or more broods in a year, for the flies have been observed from the middle of May to the end of July on plants under paling, upon Laurel leaves, as well as various flowers in gardens. The larvæ are not confined to the Celery, for the fly has been bred from blisters on the leaves of Smyrnium Olusatrum (Alexanders), and they frequently infest the Parsnip leaves also.

The male flies of Tephritis Onopordinis of Fabricius (fig. 3) are shining ochreous, with a few black bristles on the head and thorax, which are dark ochreous; the lower part of the face and horns is yellowish; the latter droop and are furnished with a fine bristle or seta, which is black, except at the base. The eyes are deep green; a crescent space behind the scutel is pitchy; the body, which is five-jointed, is rusty brown and downy; the wings are much longer than the body, iridescent, prettily variegated with brown, leaving two transparent spots on the costal edge,

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1 2

and five large irregular ones on the inferior margin. The poisers are ochreous as well as the legs; these are pubescent, the feet being five-jointed and furnished with minute claws. The cross lines show the dimensions of the male; the female is larger and darker, especially the thorax, abdomen, and the brown markings on the wings.

Fortunately there are parasites which are destined to prey upon these destructive maggots; one is an Ichneumon, a figure of which is published in *Curtis's Brit. Ent.*, pl. 141, under the name of Alysia Apii. By strict attention to the Celery crops we may undoubtedly assist in keeping this troublesome insect under; for as soon as the withered leaves indicate the presence of the maggots, such as can be removed should be cut off and burnt, and the blisters in the others must be nipped so as to destroy the inmates.

* Curtis's Brit. Ent., pl. and fol. 241.

Home Correspondence.

Tagetes signata pumila is the best of all yellow annuals for summer and autumn decoration of the parterre. It is graceful and Fern-like in leaf and habit from the moment of coming up, and flowers profusely through the whole summer and autumn, retaining its neat habit and freshness till the last. Its allies, the African and French Marigolds, possess this habit of remaining fresh and flowery till late autumn more than any annuals, but this is quite distinct from them and very much dwarfer. It should be a boon to gardeners where the Calceolaria fails, as it has often done of late years. Its advantages can hardly be better illustrated than they are at Chatsworth, where there is a line of the plant running round the great conservatory garden nearly a quarter of a mile in length. Mr. Taplin considers it a valuable bedding plant, the more particularly so as from its being annual, the usual housing and propagation are saved. I may add that considerable improvements are being carried out by Mr. Taplin in the kitchen garden; the great conservatory is being repainted, and much of the rockwork, pathways, &c., that had got into a shaky condition, remade. *W. Robinson.*

Violets.—The history and origin of the Violet alluded to by your correspondent Mr. Robinson (see p. 916) is this:—four years ago I sowed seeds of all the species and varieties of Violet which I could then meet with, for the purpose of proving their permanency as species and varieties. Amongst others were the following:—Viola cornuta, calcarata, tricolor, arvensis, lutea, and montana; and as the results were highly interesting to myself, they may also probably be so to some of your readers. The seeds were sown early in the spring, and the plants flowered the same season. Cornuta came true in every instance, and is grown extensively here, but not as a bedding plant, as it does not flower sufficiently free late in the summer. Calcarata also came true from seed, but either from a debilitated constitution, unsuitable nature of our soil, or the impure character of our atmosphere, or from some other unknown cause, it has never thriven, and it is now lost to our gardens. Arvensis came partially true; there were some intermediate forms between arvensis and tricolor, but they had in all cases much smaller flowers than ordinary examples of tricolor, and they were paler in colour. Tricolor came of course very variable. Lutea, with the upper petals blue, and the lower ones yellow, produced variations almost identical with those of tricolor, but they were more hirsute, and had larger flowers. Lutea with flowers entirely yellow, yielded about one-half with tricoloured flowers, and the others wholly yellow, but in habit of growth they differed considerably, some being very dwarf, with light green shining leaves and large bright yellow flowers. The variety which we grow for bedding purposes, under the name of V. lutea var. belongs to the batch just alluded to, and is one of the most useful plants, being very dwarf, viz., not more than from 3 to 4 inches high, a continuous flowerer, and the blossoms are a beautiful bright yellow. Montana proved very variable in colour, not being spotted like tricolor, but varying from bright blue to pale, others resembled the parent plant, except that the leaves were much more lanceolate, and the stipules were more fully developed and deeply pinnated, the terminal pinnule being very long. The variety mentioned by Mr. Robinson is one of these. One other variety which we grow has leaves quite linear-lanceolate in form, with the terminal pinnule of the stipule nearly as long as the leaf, and of the same shape; the flowers of this are much brighter and of a deeper blue than those of the variety just named, but they are not produced so freely. Both sorts may be readily propagated from cuttings, are quite hardy, and have flowered most freely all through this very summer; even now (October 7) they are quite a mass of blossom; V. montana var. grows from 12 to 18 inches high, but it can be pegged close to the ground. *John Tyerman, Curator, Botanic Gardens, Liverpool.*

London-grown Mistleto.—As any facts relative to the "Flora of London," and its rapid absorption into bricks and mortar, must be worth recording, it may not be uninteresting to know that within less than a mile and a-half of Whitechapel Church, at a distance of not more than 20 feet from the road, within 6 feet of the ground, and in sight of the many thousands of passengers passing daily, there is growing, and has been during the last 22 years, a very fine plant of Mistleto! It is at present in apparently the best possible health, and shows an abundance of bloom for the ensuing season, but I regret to observe that the small tree (an Apple) upon which it is growing shows unmistakeable symptoms of rapid decay, threatening the destruction, within a very short period of its interesting parasite. I much deplore this for the sake of the rising generation of Londoners, few of whom, I suspect, have ever had an opportunity of seeing "the Mistleto bough" in a growing condition. *G. T. S.*

Plant Catalogues.—It is much to be regretted that we have no recently published Plant Catalogue. Sweet's, the only one arranged according to the natural system, was published in 1830; Don's in 1845; Loudon's, with Supplement, in 1850; and Pritzel's Index in 1855, the latter being a register of figures of plants only, but a book which I have found very useful. The immense number of new plants introduced since the latest of these works was published imperatively calls for a new and complete catalogue, and a new edition of or a supplement to either of the works just named would be a valuable acquisition. All of them have considerable merits, and there are many advantages peculiar to each, but the natural system arrangement seems to be the preferable one, as it allows an allied plant to be more readily found. I am aware of the great labour and expense which must attend the publication of a new catalogue. Any one who will take the trouble to write out the description of any one plant contained in a single line of either of the publications mentioned may satisfy himself of this; he will be surprised at the vast amount of information it contains; in fact, such books are gardeners' calendars as well as catalogues. I know also that a book of this kind has, as a matter of course, but a limited circulation, and it cannot be expected that a publisher will incur the expense of a new edition or supplement without the prospect of repayment. I have no doubt, however, that a large number of the numerous horticulturists with which the country now abounds would gladly become subscribers to such a work, and the Royal Horticultural Society itself would probably lend a helping hand, if indeed it ought not to take such a matter under its own especial patronage, so as to stamp the undertaking with an authority for its correctness. It has already set the example in its valuable Fruit Catalogue, published in 1842, with Supplement in 1853, which, owing to its correctness, and the valuable information which it contains, is a great authority in such matters, and the model according to which subsequent fruit lists have for the most part been arranged. I may add that the Society's new list, begun so long ago, should surely have been completed before this time. *George Wood. Rochford, Essex.* [We understand that a new edition of Paxton's "Botanical Dictionary" is in preparation.]

Peaches from Standards.—From seven dwarf standard trees of Royal George and Noblesse we have gathered this autumn no fewer than 145 dozen of ripe fruit, beautifully coloured and of excellent quality. The trees in question grow in the open quarters of the nursery, and have no doubt borne so abundantly in consequence of the very fine bright weather which we experienced in April, when they were in bloom,

winged insect life being busy then, few of their blossoms failed to set. *W. Abraham, Messrs. Donald's Nursery, Woking, Surrey.*

Moths.—The humming-bird hawk moth has been very numerous this summer in this neighbourhood. I have captured 26, and would be happy to exchange a few pairs; they are good specimens, evenly set, and have the trunk extended. The peacock butterfly has been very scarce; I have only seen one. The small tortoise-shell has, on the contrary, been very common; so has also been the red admiral. I have not seen one fritillary. Painted lady and comma have been very scarce, while the cabbage white has been quite a scourge. *G. Dunford, Long Eaton, Derbyshire.*——Cheshire is not considered to be very rich in entomology, but the humming-bird moth has been very common this year; in the flower garden here as many as five and six might be seen at once hovering over Verbena beds, to which they seemed very partial. They also seemed very fond of the Tritoma Uvaria, the flowers of which contain a great quantity of nectar. The silver Y, which much resembles the humming-bird in its habits, and which is generally very common at this season in most counties, is unusually so here this year. The larvæ of the death's-head moth have also been rather plentiful, five of the chrysalids having been found in a small Potato field close by. *D. Freeman, F. & A. Dickson & Sons' Nurseries, Chester.*

Emigration.—Can any of your correspondents oblige me with their experience respecting the suitability of Queensland as a field for gardeners? Many doubtless, who possess good ability, a tolerable education (often self-acquired), and are not frightened at hard work, would be much interested in being furnished with an impartial account of the climate of that part of Australia, the availability of the land grants, &c. Some information upon the subject, as well as the comparative advantages of New Zealand, would, I feel assured, greatly interest and perhaps benefit many besides myself. *A Gardener.*

Uvedale's St. Germain Pear.—There is now being exhibited at Ambleside, in the shop of Mr. Grier, nurseryman, a specimen of this Pear, which measures 14 inches in length, 8½ inches in girth, and weighs 2 lb. 2½ oz. It was grown at Grasmere in the open air on a wall in the garden of — Young, Esq., Forestside. Is not this very large? *T. S. P.*

Ceylon Timber Trees.—Can any of your correspondents inform me where a pamphlet published at Colombo, and comprising a descriptive list of Ceylon timber trees, can be procured? *C. P.*

The Salway Peach.—The merits of this fine late Peach are scarcely, I think, so well known as they deserve to be; the tree is hardy, and a most abundant bearer, producing fruit which frequently weighs from 9 to 10 oz. each. When well ripened the flavour is good, and the colour is so beautiful as to render the fruit quite ornamental on the dessert table. The period of ripening is at a time of year when there is a great dearth of wall fruit; this season it has been earlier than usual, owing to the great amount of sunheat which we have experienced, but in ordinary seasons the fruit is in perfection about the end of the present month and the beginning of next. *Henry Bailey, Jun., Shardeloes Gardens, Amersham, Bucks.*

Grapes Cracking.—Can any of your correspondents furnish me with a remedy for this evil? I have a young Charlesworth Tokay Vine in beautiful condition as far as growth is concerned. It has been planted three years, and is now fruiting for the second time. It has made wonderful growth, and seems to enjoy the following compost in which it is planted; viz. loam, rotted dung, and bones. The border, which is outside, is well drained. The fruit is about to change colour to amber. What can be done? *F. F.*

Iresine Herbstii alias *Achyranthes Verschaffeltii.*—I have read with much interest Mr. Bennett's remarks respecting this beautiful bedding plant (see p. 940), and I can conscientiously endorse his opinion as to its merits. At Heckfield this season it has more than fulfilled my most sanguine anticipations. My object in writing this is to save a really valuable plant from the disrepute which your own note must cast upon it, especially coupled as it is with Mr. Bennett's notion that shade and moisture are essential to ensure success in its culture. At this place we have it in combination with Mrs. Pollock Pelargonium in no fewer than four beds upon the terrace, which is not only not cool and shaded, but elevated and fully exposed to the morning sun, the aspect being due east. One of these beds being situated in the south-eastern angle is of course under the sun's influence at least two-thirds of the day, and this mass is if possible more brilliant in colour than the others. Under precisely the same circumstances and upon the same ground we have Coleus Verschaffeltii and Amaranthus melancholicus; but Lord Eversley and his friends all give the preference to the Iresine, although his lordship would be sorry to discard either of the others. From personal observation I know that Mr. Bennett's remarks about its appearance in metropolitan collections are just and true; but every person who has the advantage of Mr. Gibson's (of Battersea), and Mr. Gordon's (of the Crystal Palace) acquaintance, must be perfectly sure that it is no want of skill or energy on the part of either of these cultivators that has led to the results of which Mr. Bennett complains. May not atmospheric influences and the long continuance of easterly winds be to blame in the matter? I send for your inspection, with Lord Eversley's permission, specimens of the Iresine from our most exposed bed. I may perhaps remark, for the guidance of younger cultivators and amateurs, that I find a light rich earth, abounding in decayed vegetable matter, to suit the plant in question admirably. *J. C. Dwerrihouse, Heckfield, Hants.* [Your specimens are not quite so highly coloured as those furnished by Mr. Bennett; but they are nevertheless good.]

Cutting off Tree Roots from Flower Beds.—This has been done in Regent's Park, as follows:—A deep trench has been cut, and filled with rough gravel and concrete, forming an impervious wall 15 inches thick, through which the roots of trees can never penetrate. *W. R.*

Foreign Correspondence.

Cinchona Cultivation in Darjeeling.—Dr. Anderson's report for the month of May indicates an increase in the moisture of the atmosphere more favourable to vegetation than the weather that prevailed in April, and which had raised the mean minimum temperature of May by nine-tenths of a degree. These changes had favoured the growth of all the species of Cinchona. The greatest growth during the month (10¼ inches) among the measured plants had occurred in a fine plant of Cinchona micrantha at the lowest plantation, where this species is in the most perfect health. The most vigorous growth in Cinchona succirubra (6 inches) was also at this plantation. Cinchona officinalis, however, grew faster (8 inches), and was healthier in the cooler air of the fourth plantation. The number of cuttings made during the month was 6071. The number of plants, cuttings, and seedlings on the 1st June, 1865, was as follows:—C. succirubra, 14,350; C. Calisaya, 61; C. micrantha, 2004; C. officinalis, including varieties, 34,050; C. Pahudiana, 5092; making a total of 55,557.

Societies.

Thirsk Natural History.—The following are extracts from the report of the Curators on the scarce plants distributed this year by the Botanical Exchange Club, and which are notable on the score of critical interest:—

Ranunculus pseudo-fluitans, Newbould.—In the new edition of English Botany, Mr. Syme (who places it under R. peltatus along with R. floribundus, Bab.) says of this, it is a "very remarkable plant, and may be a distinct subspecies, as the Rev. W. W. Newbould inclines to think. Professor Babington unites it with R. heterophyllus, with which it agrees in the weak collapsing leaves; but in other respects it approaches R. peltatus, or rather R. floribundus, and is very possibly only a state of that plant induced by growing in running water. In habit it closely resembles R. fluitans, but has the segments of the leaves shorter, much less rigid, and less parallel, the stamens longer than the head of pistils, and the receptacle hispid." Mr. A. G. More sends us a supply of specimens from the neighbourhood of Dublin, and writes: "The plant seems as well marked by distinctive characters as any other of the British Batrachian Ranunculi except fluitans, circinatus, tripartitus, hederaceus, and cœnosus. To the general habit and appearance of R. fluitans it joins the floating leaves of R. peltatus. Its submerged leaves are long and very flaccid, whip-like, and much coarser than in any of the others, except fluitans. In the streams of Ireland it appears to be not unfrequent, and to take the place which R. fluitans occupies in England."

Viola intermediate between *hirta* and *odorata.*—Mr. T. R. A. Briggs sends from Limestone, in the neighbourhood of Plympton Maurice, in Devonshire, both living and dried examples of a Violet, with the following characters:—Habit of growth resembling that of V. odorata, the root-stock wide-creeping (in one of the specimens a foot long), and when luxuriant sending out stolons which bear tufts of leaves and flowers; petioles covered throughout with short stiff deflexed hairs, at the flowering time some of them 4 or 5 inches long, which is longer than the peduncles; leaves dull green and hairy all over above, paler and similarly hairy all over beneath, the largest so much cordate that there is only a narrow sinus left between the basal lobes, the point blunt, the crenations more than twice as broad as deep and densely ciliated; stipules lanceolate, their ciliations few and very short; peduncles weak, slender, 2 to 4 inches long when the plant is in flower, the upper part with only a few scattered hairs, the lower part more densely hairy, the bracts linear and slightly gland-ciliated, placed generally below the middle of the peduncle; sepals oblong, blunt, ciliated along the lower third of their edge; petals purplish-blue (less purple and more blue than in odorata), the base of the flower white, the upper and central pair about equal, a quarter of an inch across, the lateral pair each furnished above the base with a tuft of white hairs; the lowest one three-eighths of an inch across, obovate narrowing gradually downwards, distinctly emarginate, marked within with eight or ten branched purple lines, the spur mauve-purple, slightly hooked conspicuously exceeding the densely ciliated calycine appendages; anther spur curved, blunt, four to six times as long as broad; ovary rather pointed, furnished with a few spreading hairs. Sometimes Mr. Briggs has found the flowers scentless, or very nearly so, and at other times rather strongly scented. At Thirsk, even when the living specimens were first opened out in the basket in which they had been sent from Plymouth we could not detect any scent at all. Mr. Briggs says that "The calcareous district in which the plant occurs produces both odorata and hirta plentifully." We have not been able to identify it precisely with any of the numerous intermediate French forms described by Jordan and Boreau.

Viola Curtisii, Forster; *V. sabulosa*, Boreau.—Specimens ranging here have come before us this year from coast sandhills at Southport, Lancashire (J. E. Whalley), Malahide, Co. Dublin (A. G. More), the Kerry coast (Dr. D. Moore), Newcastle, Co. Down and the shore of Lough Neagh, near Shanes Castle, Co. Antrim (Rev. W. M. Hind). Mr. More considers the Malahide plant, which has sometimes all purple and sometimes all yellow flowers, a mere form of V. tricolor. It seems quite clearly shown now that both the purple and yellow flowered plant have the terminal lobe of the stipules sometimes toothed, as is also the case with the montane V. lutea. Such being the case we do not see that there is any important character to rely upon to separate these perennial-rooted coast sandhill Pansies from one another, and would consider them to form an intermediate link connecting the typical tricolor and typical lutea.

Stellaria uliginosa.—Mr. J. T. Boswell Syme sends a series of this plant to show the change which takes place in the leaves as the year advances. The specimens have been gathered upon Hampstead Heath, Middlesex, and are in sets of three, gathered in July, September, and October respectively. Whilst in the July examples the leaves are sessile and barely narrowed below, in the October ones the upper leaves are distinctly spathulate and in some of the lower ones the haft becomes a distinct petiole.

Spergularia.—With regard to this genus Mr. More writes: "The usually received names will again have to be changed. In a recent monograph Dr. Kindberg has identified his Lepigonum neglectum with the Spergularia salina of Presl's Flora Cechica. As this is the oldest name, our commonest seaside form will have to be thus called, whilst the L. salinum of Fries and Kindberg is to receive the new name of L. leiospermum, Kindberg. Again the name of L. rupestre will have to be assigned to its oldest claimant, a Brazilian plant, and thus we are led to adopt Lebel's manuscript name of rupicola for ours. The two species have been recently described for English Botany Supplement in accordance with these views.

Sanguisorba officinalis, has been found by Mr. More in some plenty on the banks of Lakes Cullin and Conn, in Mayo. It is new to the West of Ireland, having been known previously only in one Irish Station, viz.:—by the Bann, in Antrim.

Circæa intermedia.—Mr. Whittaker sends specimens from the neighbourhood of Matlock, in Derbyshire, all of which have thin cordate leaves and conspicuously winged petioles, but only some of them the setaceous bracteoles which are regarded as characteristic of C. alpina. It is not recorded as a plant of the Trent province.

Polycarpon tetraphyllum.—This, though now considered as confined to the Channel Islands and the south-west of England, is recorded on old authority from the neighbourhood of Hull. In the collection of the late Mr. Hailstone, of Bradford, a portion of which is now in the possession of Mr. Baker, there is a specimen of the true plant labelled as being from this locality, with a ticket in the handwriting of Mr. Brunton.

Sison Amomum.—This is admitted by Mr. Babington as a Scotch plant, but rejected by Messrs. Watson and Syme. A specimen in Mr. Winch's collection at Newcastle, from a field near the Hirsel Loch, Berwickshire, is the true plant.

Viburnum Lantana.—Noted by Mr. J. G. Baker, last May, in a station where it is not unlikely to be truly wild, a hedgebank near Leven Bridge, Cleveland, North Yorkshire. This is the only station in the county with which we are acquainted where it seems more likely to be indigenous than introduced. It has been found by the Rev. A. M. Norman, in Durham, in a hedge near Sedgefield, but he considers that it has most likely been planted there.

Verbascum nigro-pulverulentum, Smith.—Mr. Whittaker sends from Smith's original station, of Hellesdon, Norfolk, examples of this plant, gathered by the Rev. Kirby Trimmer. The following description is made partly from these, and one or two points are taken from the English Flora. Stem about 2 feet high, panicled above with erecto-patent branches, bluntly angular, thinly cottony throughout, the groundwork shining purplish-brown. Leaves soft in texture, blunt at the point, bluntly and irregularly crenate, the upper surface dull grey with a thin covering of down, the lower surface rather thickly covered with down and the veins conspicuous, the lower leaves large, stalked, not more than broadly ovate, the upper ones cordate sessile, or even a little clasping. Spike interruptedly panicled below, long, loose, both pedicel and calyx densely cottony. Corolla bright yellow, measuring nearly half an inch across when fully expanded; stamens densely hairy with violet-coloured hairs, shorter than the slightly hairy club-shaped stigma. Pedicel at least twice as long as the calyx.

Much like V. floccosum, from which it differs by its less woolly stems pedicels and calyces, less woolly and crenate leaves, longer pedicels, and by the colour of the hairs of the stamens, which are white in V. floccosum. There seems to be no question that our plant is identical with one that is well known and widely diffused upon the Continent, the V. Schottianum of Schrader, the V. nigro-floccosum of Koch, the V. mixtum of Ramond in De Candolle's "Flore Française." The Norfolk specimens agree well with the plant of Wirtgen's Fasciculus, No. 43. It is probable also that the V. thapso-nigrum of Withering is V. collinum Schrader, V. seminigrum Fries in part; and the V. nigro-lychnitis, of Babington, the V. Schiedianum, of Koch: all three being hybrids between V. nigrum and the other species.

Gentiana germanica.—Sent by Mr. A. G. More from the neighbourhood of Tring, both Bucks and Herts. The result of the examination of a considerable series of specimens from different parts of the Continent, is a conviction that the presence of a stalk to the capsule, which has been regarded as a mark by which this may be distinguished from G. Amarella, is valueless as a diagnostic character. It is sometimes present in the small-flowered G. Amarella, and in the large-flowered G. germanica every variation may be traced from a barely perceptible stalk to one half an inch in length.

Plantago Timbali, Jordan.—Sent by Mr. H. C. Watson, from Thames Ditton, Surrey, from amongst sown Clover. Probably not uncommon, but very easily passed over as ordinary P. lanceolata.

Neotinea intacta, Reich. fil.—This is an Orchidaceous plant which was added to the British Flora by Miss F. M. More, who gathered it in May last at Castle Taylor, County of Galway. There is an account of it by Professor Reichenbach in the January Number of the "Journal of Botany," accompanied by a coloured figure. Only some half-dozen specimens have yet been gathered. It is not very closely allied to any previously known British species, but was formerly referred by Lindley to Aceras. It is a plant of Asia Minor, the Canaries, Northern Africa, Greece, Italy, Spain, Portugal, and the South of France, so that its discovery in Ireland is of great geographical interest.

Potamogeton nitens, Weber.—This is a species new to Britain which has been found by Dr. Moore in Ireland, and Mr. G. E. Hunt in Loch Ascog, in Bute. It has been fully described and figured in the Journal of Botany, plate No. 33. Of the previously known British species it resembles P. heterophyllum most, but may be readily known by its clasping and broader-based lower leaves and peduncles scarcely thickened at the apex.

Polystichum Lonchitis.—Both Mr. Embleton and Mr. Richardson have sent specimens which unquestionably belong to this species, from a station in Northumberland, the exact locality of which it is not thought desirable to print, which is within 100 yards of the sea level. We are not aware of any other English locality which brings the species clearly within Mr. Watson's Mid-agrarian Zone. That in the county of Durham is at least 300 yards higher.

P. angulare.—Mr. Richardson sends also a characteristic example of this, which was not previously known clearly as a plant of the Tyne province, from the Cauledge woods, near Wooller, Northumberland.

Ophioglossum vulgatum.—Gathered by Mr. J. G. Baker last summer, on the Hambleton Plateau, N.E. Yorkshire, at an elevation of fully 350 yards above the sea level and in the Super-agrarian Zone.

Equisetum trachyodon var.—Mr. A. G. More sends from the banks of Lough Cullen, Mayo, a specimen of an Equisetum, which differs from the typical trachyodon by its looser sheaths with weak green teeth.

Chara alopecuroides, Delile.—Mr. More sends a supply of this very distinct species. He finds it only in brackish water, in the saltworks of Newtown, Isle of Wight. This is also new to Britain, and was described and figured at plate 9 of the Journal of Botany, but the plate hardly does justice to the habit of growth of the plant, the spikes being much more bushy than they are represented.

Introductions.—The principal plants which come under this head which we have to notice are Camelina sativa vera, fields at Foxford, Mayo (A. G. More); Trifolium elegans, roadside at Harton, Durham; Centaurea solstitialis, in a Lucerne field at Cleadon, Durham (J. G. B.), and Setaria viridis, field at Kenilworth, Warwickshire (H. Bromwich).

Entomological: *Sept.* 4.—F. Smith, Esq., V.P., in the chair. Mr. F. Bond exhibited some interesting varieties of Fidonia atomaria (a moth remarkable for the diversity in the colour and markings of the wings of the opposite sexes), namely, a male and female, both exhibiting the ordinary colour of the male, and another pair with the ordinary colours of the female; also some specimens of the common butterfly, Gonepteryx Rhamni, namely, a male having portion of one fore-wing coloured as in the female, and a female with portion of one fore-wing coloured as in the male; also some specimens of the rare Ennychia anguinalis. Mr. McLachlan exhibited some rare Neuroptera from Loch Rannoch, namely, Æshna borealis, Sialis fuliginosa, and two new species of Phryganeidæ. Professor Westwood mentioned some peculiarities he had observed connected with the development of the Ailantus silkworm. Mr. Dorville exhibited a specimen of Caradrina cubicularis with a number of small red Acari arranged symmetrically on the under surface of the wings. Mr. Stainton remarked on the great abundance of Chelifers which he had observed this summer fixed on the limbs of the common house-fly. Mr. Baly mentioned that in the neighbourhood of Aberdeen the common wasps were extremely abundant this summer. A letter was read from Mr. Stone, giving an account of the epidemic which has attacked the nests of wasps in the centre of England, whereby vast numbers have been entirely destroyed, so that scarcely any of the perfect wasps have been seen during the summer. He had also noticed that the earwigs, which on the other hand had been exceedingly numerous, had attacked many of the wasps'-nests and devoured the larvæ. Professor Westwood read a letter from a correspondent, in which it was stated that vast numbers of earwigs had congregated in the cover of a bee-hive, and destroyed the larvæ. Mr. F. Smith stated that he had not observed a single wasp or wasp's nest whilst collecting Hymenoptera at Bournemouth. Mr. Stainton exhibited some pods of Epilobium montanum, attacked by the larvæ of Laverna subbistrigella. Professor Westwood gave an account of the Exhibition of Economic Entomology and of Insect Products, opened on the 15th August in the Palais de l'Industrie, at Paris. Mr. Kirby exhibited a dwarf variety of Polyommatus Alexis, measuring only 8½ lines in the expanse of the fore wings. Mr. Stevens exhibited portions of a collection of insects just arrived from Damara Land, South Africa, including several rare species of Goliath beetles. Mr. Bond communicated a notice of the occurrence of vast clouds of winged ants around the steeple of St. Morris' Church, Coburg, which had been mistaken for smoke, and had occasioned great alarm among the inhabitants; and Mr. Wormald stated that he had recently observed the same occurrence about the spire of St. Alban's Abbey. A notice was also communicated of the poisonous effects of a species of black gnat on horses and mules in South America, as well as Sir Gardener Wilkinson's account of the poisonous fly named Zebub in Upper Egypt.

Notices of Books.

Manual of Geology. By the Rev. S. Haughton, M.D., F.R.S., Professor of Geology in the University of Dublin. London, 1865. Pp. 360.

This little volume comprises the substance of 15 lectures delivered at Trinity College, Dublin, and "is intended as an introduction to the more systematic treatises of Lyell, Dana, Jukes, and others." The chemical history of the globe we inhabit, the constitution, so far as is known, of the superficial and of the deeper portions, as well as of the surrounding atmosphere, are made the subjects of discussion with reference to the capabilities for existence afforded to the inhabitants of this planet. When oxygen was absent, for instance, we cannot conceive the existence of living creatures; and there is reason for believing that, below the granites, the earth's composition comprises sulphur, but no oxygen.

The composition of the stratified rocks, and their mechanical origin by deposition from water, and the formation of the various slates, sandstones, and limestones, with their associated minerals, are the subjects next treated of. In the third lecture the formation of nodules is considered, and allusion made to their value to the agriculturist, as for instance in Herefordshire, where a barren red sandstone is rendered fruitful by the nodular "corn" stones, which yield, by atmospheric disintegration or by the skill of the agriculturist, carbonates of lime, magnesia, and iron, to aid the otherwise poor soil.

Geological time and the length of period required to deposit the 20 miles thickness of strata that constitute the crust of the globe, form the subject of the next lecture. We need scarcely say that no very satisfactory conclusions are arrived at concerning this difficult subject.

The relative abundance of the various groups of animals and plants at the different geological epochs is next considered, in connection with which an outline of zoological classification is given. Then follows a systematic account of the various rocks of the several geological periods, which latter the author proposes to classify according to the prevailing fossils, thus: Malacozoic, Ichthyozoic, Saurozoic, Mastozoic and Anthropozoic, according to the preponderance of Molluscs, Fishes, Reptiles, Mammals, and lastly the existence of Mankind. The consideration of the geometrical laws that influence the forms of plants, animals, and minerals, forms the subject of the seventh lecture, wherein are also treated of the geometrical laws to which some of the instincts of animals are subject, *e. g.* the formation of the cells of the honey-comb. The following chapters are devoted to the history of the creatures that have lived at various times upon the earth's surface, from the Foraminifera up to the Mammalia. Space will not allow us to follow our author through these interesting chapters, which, however, we recommend specially to the notice of such of our readers as are desirous of obtaining some knowledge of fossils and of their relations to existing creatures; more advanced students will be glad to see the subject so well epitomised and illustrated with so many carefully selected and original woodcuts. The reader who expects to find an account of the more recent deposits of the peats and the gravels, with their remains of human art, will be disappointed, for little or nothing is said upon the subject in the volume before us, nor are some of the more recent discoveries, such as that of the Eozoon or the Archæopteryx, even alluded to. Fossil plants occupy much of the author's attention. "The upper palæozoic period," says Mr. Haughton, "might as well be denominated the age of plants as the age of fishes," and yet the determination of these plants is, from the imperfection of their remains, so difficult a matter, that it is with reluctance that professed botanists can be induced to give an opinion on the subject. In the tertiary period less difficulty exists, or we are even inclined to say there is a false facility which often leads palæo-botanists astray. The principal forms of fossil vegetation are noticed in these lectures, and the abundance of Ferns in the Carboniferous period is attributed to the larger proportion of carbonic acid in the atmosphere in those times than at present. There is an Appendix to the lectures on fossil plants, which should receive the consideration of those proficient in the geometry of plant life. The author asserts that the leaves of palæozoic fossil plants or their scars are in whorls, and are placed so that each one is intermediate in position to the leaves of the whorls above and below it. Now this is what happens in most opposite, decussate and whorled-leaved plants at the present day, and we cannot agree with Mr. Haughton that such an arrangement is indicative of a lower position in the scale of organisation than is the alternate arrangement of leaves. Such questions, to quote our author's sneering remark, "must be left for the consideration of those acquainted with the secrets of Creation."

In the concluding lecture the reader will find a general summing up of the evidence derived from the different fossils of the various epochs, and an account of the theories of Lamarck, Darwin, and others, which have for their object the explanation, so far as is possible, of the life history of the globe. In connexion with this subject we cannot forbear expressing our regret that Mr. Haughton, for whose ability we have so high a respect, should, because he differs in opinion from some other naturalists as to the mode in which the Creator has fashioned the inhabitants of this earth and regulated their successive appearance, impute to his opponents the disbelief in the existence of such a Creator, or at least lead others to infer that they deny "His constant and presiding presence moulding the history of the globe." Such statements are as ungenerous as they are uncalled for.

Bulletin de la Fédération des Sociétés d'Horticulture de Belgique. Gand, 1865. 8vo, pp. 567.

The first portion of this volume is devoted to matters of business connected with the Federation and its component Societies, while the latter portion of the volume contains a report on the state of horticulture in Belgium in 1864, by Professor Morren; a monograph of the Belgian Willows, by M. Wesmael; a treatise on the insects interesting to the horticulturist, by M. Dubois; some notes on pruning by M. Van Hulle (see p. 939), and other interesting matter, of which we hope to give our readers some particulars at a future time.

Books Received.—In the *Natural History Review* No. XIX., are notices of recently published works on the Zoology of British India, on the Entozoa, on Lucas' Duthiers' Natural History of Coral, and on Herbert Spencer's principles of Biology, already noticed in our own columns. In No. XX. of the same journal we have articles on the Zoology of Siberia, on that *rara avis*, the Great Auk, on Zoological Museums, the Physiology of the Sphæriaceæ, and among the original papers a note on Hybridism in Vegetables, by M. Naudin, to which we may have occasion to allude hereafter.—Parts XXVIII., XXIX., XXX., XXXI. of *Watts' Dictionary of Chemistry* bring the work up to Phenylamines, and sustain the well-earned repute of the publication.—*Lunar Influence on Temperature*, by J. P. Harrison, M.A., is an extract from the Proceedings of the Royal Society, from which it appears that as a general rule a high temperature prevails at the moon's first quarter, a low one after the moon.—The October number of the *Geological Magazine* contains, among other matter, an article by Mr. Carruthers, of the British Museum, on an undescribed cone from the coal measures. This the author proposes to name Flemingites, and sums up the differences between it and the nearly allied Lepidostrobus as follows:—Lepidostrobus—each scale of the cone supporting a single sporangium. Flemingites—each scale of the cone supporting a double series of sporangia. These two genera are closely allied to Lycopodium, while in the contents of their spore-cases they more nearly approach Rhizocarpeæ. The profusion of the discharged sporangia in some deposits is contrasted with the so-called "sulphur showers" produced by the shedding of the pollen in extensive Pine-forests in Scotland and Norway. A curious malformation of Equisetum is alluded to as in some degree intermediate between the ordinary structure of the last-named plant, and that of the Flemingites. In the same number is an account of the discovery in the Isle of Arran of erect stems of Lepidodendron, Halonia, &c., imbedded in volcanic ash, and placed upon beds of thin coal and shale of the lower carboniferous series.

Catalogues Received.—*William Paul's Descriptive Catalogue of a Selection of Roses* is a well-digested

list of the best sorts. Among novelties Black Prince, Dr. Lindley, Globosa, and Lady Suffield are expected to be sent out next spring.—*William Wood & Son's Descriptive Catalogue of Roses*, and *Descriptive Fruit Catalogue*, are both carefully prepared.—*Van Houtte's Catalogue des Plantes de Serres*, No. 110, contains very full descriptive lists of the best Azaleas and Camellias.—In *Brunon Boddaert's Prix-Courant de Camellias, Rhododendrons, Azalea indica, &c.*, the Camellias are briefly described.

Florists' Flowers.

Will you kindly give me a little space in your columns to reply to your correspondent Mr. William Heale, in reference to his criticisms (see p. 942) upon the Crystal Palace Dahlia Show. First, he complains of a falling off with respect to Dahlias, both in quantity and quality, compared with displays of that flower in former years. With regard to quantity, I may mention that we have not the number of exhibitors which we had some 10 or 15 years ago. Nearly all our best amateur cultivators live close to London, and the operations of the builder, have in almost every case driven them out of the field. With regard to quality of bloom, however, I maintain that the late show was a good average one. As to the absence of the stands of Mr. Turner and Messrs. Saltmarsh, I may state that Mr. Turner has ceased to show Dahlias, and that Messrs. Saltmarsh but very rarely exhibit at our metropolitan shows.

Your correspondent considers the alteration of the date on which the Show was to have taken place to have been a mistake. I, on the contrary, think that it was a wise arrangement, for had the date not been altered, the Show would have interfered with that held in Scotland, and both exhibitions would have been thereby injuriously affected.

I quite agree with your correspondent in his estimate of Leah; it was predicted last year that it would be first-rate. A reference to your Paper of some months ago will show that such was the fact.

With regard to the seedlings of the present year, your correspondent describes Marquis of Winchester as one of the best. The judges appear to have thought so too, for they awarded it a First-class Certificate. Your correspondent adds, "next comes Mrs. Savory;" well, the judges awarded this a First-class Certificate also, but in doing so I am of opinion that they strained a point, although I willingly admit that it is clean and attractive. How, however, is it possible to compare this flower with Umpire, which your correspondent has done? I believe that there are no two Dahlias more totally distinct than these.

From what has been stated it will be seen that the judges and your correspondent are on this occasion agreed as to which were the best Dahlias. As regards the second-class flowers, however, he says, "the decision of the judges gave room for anything save eulogistic remarks upon the judgment displayed." Now it is just possible that your correspondent's individual opinion may be correct. It is however at variance with the combined judgment of all the principal growers that were present, in addition to that of the ordinary judges engaged upon the occasion.

Exception is taken especially to a flower named Chang, which took a Second-class Certificate, "while many really fine flowers were passed by unnoticed;" and then your correspondent names Yellow Triumph as one of the latter. Chang, according to my notes, is an immense back-row flower, very showy, flat, and somewhat coarse as shown—hence the award of a Second-class Certificate. It is added, however, that it will be useful in its class; and your correspondent may take my word for it, that upon every occasion on which he shows 24 Fancies equal to Chang, he will invariably see 1st prize awarded to his exhibition.

Mr. Heale next alludes to the innovation of allowing one exhibitor to take two prizes in one class. He forgets, however, that the Crystal Palace Exhibition is not that of a florists' society. The Palace people cater for the public, not for the florist; and offering prizes as they do without requiring any entrance fee, it seems to me that they have a right to dictate their own terms.

Another reprehensible practice, it is argued, is that of allowing seedlings to be exhibited along with named flowers. Why not? If the grower has, either by purchase, good fortune, or close attention to the saving of seed, secured a good variety, by all means let him have the advantage of it; for if it be an advantage, most certainly he has deserved it. I quite recollect that the old Metropolitan Society of Florists, which was the parent of nearly all that followed, allowed this practice. Your correspondent is therefore mistaken, when he says that every schedule of note in his younger days forbade the showing of seedlings along with named flowers.

The green baize background mentioned decidedly improves the effect as regards plants, but in the case of cut flowers I do not think there can be any advantage in using it.

With reference to uniformity of stands, I admit that that is most desirable, and most societies stipulate that they shall be so, both as regards size and colour, and that where they are not, the judges should be instructed to disqualify the exhibition. *William Holmes.*

The Apiary.

"A few days ago we copied (says the *Globe*) from the *Glasgow Morning Journal* a paragraph reporting the Invasion of a Fruiterer's Shop at Oban by Bees. The proprietor of the shop, writing to the same journal some days later, says:—'Since the notice of the invasion of my shop by bees the annoyance has continued, though I have smoked the premises every day. Yesterday, the young woman who keeps the shop had to shut up and take herself off, as the bees were unusually cross, and prone to use their stings. Indeed, I was myself afraid during the afternoon to enter the passage leading to the back shop, and the public outside had difficulty in moving along, owing to the swarms of bees, which, round the door and windows, were literally in clouds. In spite of the free use of brimstone they tried to force themselves through the keyhole and shutter-bolt holes. After I had done with the smoking process the shop was opened, but in two hours the enemy had full possession of the premises. I closed and smoked again, which finished the work for that day. This morning at half-past 7 I opened as usual, but before 9 o'clock I had to run with all the skeps, mugs, and plates of honey out of the shop into a back store, and to plug up every hole through which air could penetrate. While so engaged I was attacked by the bees, who stung me through my cap and veil. To-day I again smoked the shop, which since the removal of the honey has not been so much run upon.'"

We have not met with the paragraph alluded to as having already appeared in the *Glasgow Morning Journal*, but the substance of it is apparent from what follows in the extract from the second letter written to the same journal, which we have just quoted. There is nothing very remarkable in the attack of bees on honey or sweets, wherever, or whenever, access to such can be obtained by them, but the statement which strikes us as being most noticeable is that of the attack on persons in and about the place and neighbourhood. We have had most determined invasions of our honey room, which is situated in the basement of the house, although the bees have to come round and descend a considerable distance to reach it. If inadvertently left open for only a very short time, the pioneers of the foraging party are quickly about the spot, and but little further time will elapse before the onslaught is made in good earnest. The thousands of bees flying in and out of the passages, and the roar kept up by them, are frequently causes of intense alarm to passers by, but we have never known a single weapon used by the marauders on such occasions. They are usually too intent on their immediate object to resent even tolerably rough treatment. In the case which occurred at Oban, the insects must have been infuriated by the fumes of the smoke, and we strongly suspect that they were beaten and knocked down by the persons in attendance at the store. The bees are very apt to pitch about individuals at such times for temporary rest; probably the fears of the latter construed so harmless a proceeding into one of assault, and by their violent action rendered these peaceably-disposed robbers positively vicious.

The eagerness with which bees will pursue their attempt at spoliation, when once fairly incited to the work, is marvellous, as is also the rapidity with which they appropriate the spoils if means are not taken to prevent them. After the attack has been established, even if doors and windows are then closed, every crevice is diligently tried and explored. It is also extraordinary how long afterwards they remember the occurrence, and tenaciously cling to the spot, ready to take advantage of any oversight.

This brings us to the chief object of these remarks. At this trying period of the year it is very important that the bee-master should be extremely careful to avoid leaving about any hives, combs, or dishes used in the deprivation of the honey harvest. Bees may be educated to rob, and in an apiary where the refuse of combs is placed out for them to clear away any honey which may be present, an incessant attempt at plundering other hives will prevail. With strong colonies there is little damage done, except a considerable loss of life from the constant duels which occur, but the weaker stocks stand but a poor chance, and are very frequently destroyed altogether.

After such a remarkable season as the one just passed away, when for the last 12 weeks little or no honey has been stored, and many hives are reduced to starvation point, there is more reason for being doubly careful to avoid anything which may tend to excite the bees during the working hours of the day. Even feeding becomes now, if necessary, an evil, only to be carried on at night. Having many hives to attend to, we have tried giving food by day, in well closed-up feeders, but it will not do; the bees become excited in the extreme, and all the stocks in the apiary, whether fed or unfed, partake in the excitement. By feeding at night this is to a great extent avoided. It is also our belief that food supplied at night is made of much greater real service to the bees, and is more likely to be stored in the cells for future use.

It is well now to contract the entrances, particularly of the weaker stocks, which gives the bees greater power to resist attempts at invasion. As winter approaches and these attempts cease, the entrances may be somewhat enlarged, as we believe a tolerably free admission of air, provided it is without draught, to be conducive to health generally and to freedom from dysentery in particular. We would also again strongly advise all apiarians who have not already done so to inspect their hives. Within the last few days we have found some of our stocks which two months ago were well provisioned with sealed food, to be almost completely destitute. Hives that were not previously inspected from a conviction that they were perfectly safe for the winter, are found to be almost at the point of starvation. Therefore it is that we advise immediate inspection, and a liberal supply of many pounds to each hive that may require it.

Feeding Bees.—I am surprised at the quantity of food which a strong hive can convey down from a bottle-feeder in a single night. Having a large glass bottle, such as is used for lozenges, I filled it with food similar to that recommended by you at page 870, and it held 4½ lb. It was placed over the hive at 6 P.M., and was perfectly empty when looked at the following morning, at 8 o'clock. This I have repeated three or four times with similar results, and I believe I may have to thank you for being the means of saving my only two hives from death by starvation. *Wm. Shortt.*

Garden Memoranda.

Woodstock Park.—Travellers in Ireland should not lose the opportunity of seeing this interesting place. Going to it, either from Waterford or Kilkenny by rail, the proper station to get out at is Thomastown. Hill and vale, wood and water, form the chief features of the landscape from Thomastown to Innistiogue—a village which stretches most romantically from the banks of the river Nore, up a very steep ascent, to the lodge gate at Woodstock. A well-made carriage drive of moderate length leads in a very direct way through the park to the mansion.

Various important works have recently been going on here, and in carrying them out Mr. McDonald, the gardener, has very judiciously kept the natural character of the place carefully in view. A new garden, recently finished, is an illustration of this. Given an elegant Grecian style of house overlooking a magnificent landscape, stretching far enough for the eye to travel over without fatigue, how is this house and landscape to be most appropriately connected? or, in other words, what foreground is to be given to the picture? Obviously a mere flower garden would not be sufficient; a mere mass of flaunting colour would not do in summer, still less would mounds of cold earth and streaks of brickdust and Kilkenny coal do in winter. True, a lawn of green Grass and a few trees and shrubs judiciously placed would certainly not be out of character. But then there is abundance of material of that description too. The problem has been solved by placing in close proximity to the house a winter garden, so planned as just to admit of the introduction of sufficient flower to enliven the scene without marring the general effect. This garden is connected with the house by a low parapet wall of granite, the stones of which are remarkably well cut by native workmen. The garden consists of four sunk panels, with intersecting walks and a handsome granite centre piece. The designs in the panels are strictly for the introduction of lines and masses of evergreen shrubs. Dwarf Portugal Laurels and Laurustinus are extensively used, and what may be called the framework of the picture consists of Box and common Yew, the former being planted as an edging to the latter. The horizontal line is here and there broken by handsome upright-growing shrubs, which serve to enlighten so strictly formal a design,

It is not, however, this new winter garden, beautiful as it is, which will most attract the attention of a visitor to Woodstock; the natural lawn with its noble arboretum is the grand feature. The general contour of the ground is eminently fitted for displaying to advantage the beauties of the numerous and costly Conifers which adorn it. Looking from the house across the winter garden, to the left of the parapet wall is a beautifully-made croquet ground, thence the wooded valley descends rapidly to the river far below. To the right of the winter garden the ground ascends with an easier slope, till the view is interrupted by a number of full-grown specimens of Pinus Hartwegii, as large and as hardy as the common Scotch Fir. On this slope, carpeted with the smoothest turf, are growing singly splendid specimens of Pines, Cypresses, Cratægus, Liquidambar, and other things, all of which contribute to make up an interesting arboretum. Conspicuous among these, and fortunately standing in a most commanding position, is an Araucaria imbricata worth going to Woodstock to see. The outline of this tree is perfect. It is conical in shape, the branches lengthening by the easiest gradation from the top downwards; the trunk is tapering, and some 2 feet in diameter at the base, while the whole height of the tree is 42 feet. Pinus insignis, when of the size which it has acquired here, is also a very fine tree, to which in habit and colour it is difficult to find a rival. Picea cephalonica, Thujopsis borealis, Cryptomeria japonica, Cupressus funebris, and a host of other Conifers, are also all large and handsome. As an instance of what Mr. McDonald facetiously called "queer doctoring," it may be mentioned that a specimen of Pinus Gordoniana, some 15 feet high, showed symptoms of approaching death. So far gone was it that its

consignment to utter oblivion was determined on, when Mr. McDonald, like a wise husbandman, obtained leave to "dig about it and dung it"—the result is that if it should ultimately die it will not be before it has shown unmistakable signs of reviving life. All around what appeared to be a sapless and lifeless trunk, are numbers of green and healthy-looking shoots bursting forth, some of them being already 6 and 8 inches long. The appearance which this tree presents is highly curious, and, in a physiological point of view, highly interesting. Let us, however, leave this part of the grounds, and let us take a view of the rockery and Araucaria avenue. These two are mentioned together because they are near each other. The rockery is placed where it ought to be, in front of a precipice, and consists of large blocks of stones thrown up into broken cliffs and low scattered masses. Here, growing plentifully, are Osmunda regalis, and many other of our more admired native Ferns, together with Stonecrops, Saxifrages, &c. Over one of the mimic cliffs Linaria Cymbalaria hangs in graceful sprays; and along the foot of the rocks Spiræa filipendula adorns the crevices with its delicate pinnately cut leaves, while on the summit of another mimic cliff are several plants of Pampas Grass. Some of the miniature valleys are even made to assume a subtropical character by the introduction of a few tropical plants.

The Araucaria avenue will by-and-by be a grand affair. It consists of a long straight vista as seen from the windows of the house in an oblique direction; a very level and solid Grass walk is carried up the centre, and it is planted on both sides, at regular distances apart, with what are already fine examples of Araucaria imbricata. How grand will be its appearance when the plants have attained the size of the giant already described!

Leaving the dressed ground, we plunge into a ravine and thread our way through what would almost seem to be a primeval forest—not, however, without rugged walks, revealing here and there vistas of picturesque beauty. Here we get a glimpse of the noble river—there of a cascade tumbling down the rugged rocks on the opposite shore—and now we reach "the cottage on the cliff," embowered as it is in most umbrageous seclusion, and overlooking a tangled ravine, a hundred feet or more in depth, a perfect labyrinth of rock, tree, bush, Fern, and Moss. How often the interior of this cottage is scoured in the course of a year would perhaps puzzle the lady who acts as major-domo to tell, but it is certain that everything shines as white as the lawn of Autolycus.

There are yet many interesting features about Woodstock which must be passed over lightly, such as a very neat terrace flower-garden on one side of the house, the grounds near the gardener's residence, &c. Enough, however, has been said to furnish some idea of the general character of the place. One view, obtained from the carriage drive as one approaches Innistiogue, returning from the house, however, deserves notice. The river is seen winding down the valley, with many picturesque hills both right and left. The village, with its ancient-looking bridge spanning the river, is partially revealed, reminding one of the rumbling brig on the Scottish Devon, the old bridge of Kelso, or the far-famed Dunkeld. *J. D.*

Miscellaneous.

Profits on Mushrooms.—Recently, at the Sheriff's Court, Red Lion Square, before Mr. Humphreys, coroner, as assessor, and a special jury, a compensation case, "Inglish *v.* the Metropolitan Railway Company," occupied the Court nearly the whole day. The claim was for 716*l.*, in respect of premises and business as a nurseryman at Kensington. It appeared that the claimant, Mrs. Inglish, widow of Mr. Inglish, who had carried on the business for years, was a Mushroom grower, and had a number of beds. The railway had taken possession of the ground, and a loss had been sustained. It was stated in evidence that the profits on Mushrooms amounted to from 100 to 150 per cent. One witness said if 50*l.* were expended in twelve months, or perhaps in six months, the sum realised would be 200*l.* Several witnesses were called on both sides, and the assessor, in placing the case before the jury, remarked that the profits on Mushrooms had no doubt surprised them. In addition to the compensation for the place, the jury could compensate the claimant for the loss of the business, and also in reference to the profits on Mushrooms. The jury eventually assessed the compensation at 250*l.*

The Diet of Worms.—Many persons are not aware of the fact, that the earthworm really does live upon earth. It is sometimes stated in popular works on zoology that the worm picks out portions of leaves, Grass, &c., and devours them; but this is quite a mistake—the earthworm lives upon earth. It must not be supposed that it assimilates the mineral constituents of the soil; its gastric and biliary secretions dissolve the decomposing animal and vegetable matters which are invariably contained in rich soil, and it is these which are assimilated. The earthworm could not live upon earth that had been burnt and deprived of its organic constituents. In a similar way the arenicola, or lug-worm, which lives in the sands exposed by the action of the tide, gorges itself with that substance, and extracts the matters which it contains fit for nutriment. More frequently, however, the "lug" lives in the rich clays of creeks and saltings which abound in animal and vegetable matters. It is worthy of observation that a very large quantity of earth or sand, as the case may be, has to be gorged before any appreciable amount of nutriment is extracted; at the same time the swallowing of earth is an assistance to the worm as it burrows in the ground, inasmuch as large quantities of material are thereby removed from its path and ejected behind. The appearance of those curious little masses of digested earth on the surface is thus caused, by means of which the earthworm effects such wonderful changes on the surface of the ground, turning up the earth, burying the stones, and producing a fresh and fertile soil where formerly was a barren waste. The mode in which the earthworm swallows the earth is somewhat curious: its pharynx is extremely muscular, and provided with an internal muscular tunic, which acts within like the piston of an air-pump; anything to which the mouth is applied is thus sucked in and passed on by the action of the muscular walls of the pharynx and œsophagus. There is no doubt that worms do an immense deal of good by their feeding on the earth; and as to their biting the roots of plants and shrubs, as is sometimes said of them—why, it is all nonsense. They could not do it, if they wished, as they have no teeth; they are quite satisfied with the earth, and if it is freshly manured, they like it all the better. It is this last fact which brings them round the roots of trees, and has made some people suppose that they come to bite them; whereas they really come after the accompanying manure. *E. R. Lankester, in Science Gossip.*

Calendar of Operations.

(*For the ensuing week.*)

Now that we have had rain enough, all sorts of evergreens, if not already done, should be planted. Any shrubs or trees considered too tender for our climate should be planted in as warm situations as possible, in order that their young wood may get well ripened. The stronger-growing Roses may be at least partially pruned in order to prevent winds from swaying them so as to affect the roots. Tender Tea-scented varieties in beds in cold places may be taken up and put in thickly by the heels in a sheltered place, or receive some kind of protection where they stand. Laying turf and other ground operations may still be proceeded with.

FLOWER GARDEN AND PLANT HOUSES.

All walks and drives should now, if not already done, have a thorough cleaning; this will carry them through till next May, or nearly so. Let lawns be well rolled, and receive a good mowing close on the heels of it, which will keep them in repair for a long time to come.

Camellias.—Plants started early last spring will soon be again in flower; therefore these and others should be well attended to with water.

Cinerarias.—If mildew is troublesome, dust with sulphur the moment the pest is perceived. Forward plants may require a shift, and if so, use a rich compost for the purpose, consisting of good fibrous loam and well-decayed leaf-mould, with a proper admixture of silver sand. Let the plants be placed thinly on the shelves on which they stand, and as near the glass as possible. Fumigate occasionally to kill green fly.

Japan Lilies.—As soon as the bulbs are sufficiently matured, which will be known by the decay of the leaves and stems, they had better be repotted; not that this is of importance at present, but it will economise space, and prevent the operation being neglected until after they have made fresh roots. The soil in which they have been growing ought to be entirely removed from the bulbs, and the latter divided as may be thought proper, for there will always be found about the crown of the parent some small bulbs, which may be placed in 4-inch pots. If the ripening has been complete, the roots will not be troublesome: but if not, there will be found a quantity of fresh roots remaining. When such is the case, leave them to themselves for some time longer; never pot while it is necessary to cut or break the stronger roots, but strip your fingers through them, in order to remove those that are decayed. The pots should be just sufficiently large to receive the bulb and strong roots adhering to it; give a moderate watering to settle the soil, and place them in a greenhouse or cool pit. They will require no further attention until the season begins to excite vegetation, when they must be regularly attended to. Water as soon as you see signs of growth, but sparingly until they have made leaves, &c., to draw up and give off moisture.

FORCING GARDEN.

Cucumbers.—Stop laterals, and remove even main shoots where too much crowded. Keep up a bottom heat of about 85°, and a moist atmosphere. Let the top heat range from 65° to 70° by night, and from 70° to 75° by day.

Pines.—We may now look forward to every day dawning duller and later than its predecessor, and as the power of the sun declines, so also must our artificial temperatures be somewhat decreased, and in exact accordance with the latter must the amount of moisture be regulated. Take care that the latter is not so excessive as to condense in quantity upon the glass, &c., close up the laps, or run down into the hearts of the plants. To prevent this, evaporating troughs should be more sparingly filled. In clear favourable weather, when a greater quantity of air can be admitted, the amount of moisture may be slightly increased. Watering should be done with great care, and syringing is only admissible on the mornings of very fine days.

Vines.—In the anxiety to keep houses containing fruit sufficiently dry, be careful to avoid the extreme even in that direction. If the houses are kept too dry by fire-heat, the berries will shrivel, an evil nearly as bad, with regard to some kinds, as decay, the result of opposite management. It is easy to comprehend what is wanted; but to regulate the atmosphere to a nicety requires more care and judgment than is generally to be found. If not already done, let all spare time now be devoted to cleaning the sashes of the different structures, pits and frames included, from the dust and dirt accumulated upon them during the summer. Nothing conduces more to the health and well-being of their occupants than the free admission of light.

HARDY FRUIT AND KITCHEN GARDEN.

Storing fruit and root crops, wheeling manure, and trenching and ridging will now or very soon be the chief work to be done here. Alterations, if any, should also be proceeded with while the weather is favourable.

Cauliflowers.—Let those under hand-lights have all the air possible, protecting them only from frost, rain, and very cold winds. The lights should be quite closed during severe weather only, and the tops should be tilted in wet; but during fine mild weather they should be lifted off and set on bricks, to keep them clean. Watch closely for slugs, and check their ravages by timely applications of soot. A little finely sifted clean coal-ashes is an excellent thing for covering the surface of the soil between young plants of any kind.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Oct. 11, 1865, as observed at the Horticultural Gardens.

October.	Moon's Age.	Barometer.		Temperature.					Wind	Rain.
				Of the Air.			Of the Earth			
		Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Thurs. 5	16	29.998	29.955	69	25	47.0	55½	58	E.	
Friday 6	17	29.999	29.952	70	26	48.0	57	54	E.	
Satur. 7	18	29.902	29.587	68	44	56.0	56	56	E.	
Sunday 8	19	29.500	29.377	70	43	56.5	56	56	S.E.	
Mon. 9	20	29.384	29.283	72	43	57.5	57	56½	S.E.	
Tues. 10	21	29.298	29.258	56	51	53.5	57	56	S.W.	
Wed. 11	☽	29.283	29.190	64	48	56.0	57	59	S.W.	
Average.		29.623	29.514	68.4	40	54.2	56.5	56.8		1.18

Oct. 5—Slight fog; cloudless and dry air; very fine below; freezing at night.
— 6—Foggy; fine; very fine; frosty at night.
— 7—Slight fog; fine; overcast; rain.
— 8—Rain at 6 A.M.; hazy; overcast at night.
— 9—Rain in showers throughout the day; heavy rain at night.
— 10—Foggy; cloudy with clear intervals; frequent heavy showers of short duration.
— 11—Partially overcast; heavy clouds; showers and sunshine alternately; overcast.

Mean temperature of the week, 2 1-5th deg. above the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 39 years, for the ensuing Week, ending Oct. 21, 1865.

October.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds.											
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.				
Sunday..15	58.9	40.9	49.9	20	1.04 in.	2	2	4	1	1	1	6	5				
Mon. ..16	58.8	40.3	49.6	18	0.56	—	6	5	1		5	1	[illegible]	4			
Tues. ..17	58.5	41.2	49.8	17	0.31	—	5	5	—		2	1	3	[illegible]			
Wed. ..18	58.2	41.2	49.7	18	0.85	3	3	4	1		3	8	1	4	[illegible]		
Thurs. ..19	59.8	40.2	50.0	20	0.61	2	3	6	3		2	0	9	4			
Friday ..20	59.5	40.0	49.7	17	0.34	—	6	1	3		6	1	1	[illegible]			
Satur. ..21	58.5	39.9	49.2	17	0.64	3	7	4	4		5	8	3	[illegible]			

The highest temperature during the above period occurred on the 15th, 1842—therm. 74 deg.; and the lowest on the 15th, 1861—therm. 24 deg.

Notices to Correspondents.

Books: *C P.* The Encyclopædia you mention was, we believe, never published.—*A B.* Thomson's Treatise on the Cultivation of the Grape Vine.—*Lichfield.* Cuthill's Treatise on Market Gardening round London.—*A Very Old Subscriber.* Oliver's Elementary Botany, Lindley's School Botany, Page's Geology.

Gardeners' Examinations: *A Journeyman Gardener.* We will answer your questions next week.

Grapes: *North Wales.* The bunch of Grapes could not be found much fault with, considering that the Vine which produced it was one of those which were lifted and replanted last March, each bearing from eight to twelve good-sized bunches. If you have kept plenty of healthy foliage the Vines will do very well next season, and then their quality may be fairly tested. They are not so thin-skinned as the Black Hamburgh sometimes is, but on the whole they are very good.

Mulberry: *Chester.* We cannot undertake to name seedlings, especially from a single leaf. That sent is, however, so elegantly cut that you should keep your eye on the plant, to see if the leaves retain their present form as the plants grow older.

Names of Fruits: *Rusticus.* As there is no Cerasus domestica, we presume you mean Prunus domestica, which is the species whence is derived the cultivated Plum. The Mirabelle is a preserving Plum.

Names of Plants: *J B W.* 1, Hibiscus Manihot; 2, Spilanthes oleracea fusca.—*A H.* Asplenium bulbiferum.—*R F.* Momordica Charantia; East Indies, emetic and purgative.—*Bedhampton.* Datura Stramonium, or Thorn Apple. It frequently comes up in the way you mention. It is very poisonous.—*B.* Zauschneria californica. —— The specimens of Berberis in fruit sent by a correspondent, whose initials have been lost, seem to be nothing more than forms, probably seedlings, of the common Berberry.—*F N S.* Dianella sanguinalis.—*J Box.* Not fertile, but apparently Pleopeltis pustulata.—*A Friend.* Pleroma elegans.

Potatos: *J F.* The substance on your Potatos is the Common Web Fungus (Rhizoctonia Crocorum). It is very destructive to Asparagus and other crops. *M J B.*

Transplanting Old Espalier Trees: *Old Subscriber.* If the roots have been cut round as you state, and proper care be taken in lifting and replanting, there will be little risk incurred in transplanting your Apple trees, though they are 20 years old and 16 inches in girth. The roots must of course be got up without injury, all the finer ones carefully preserved, and the coarser ones shortened. In replanting they must be worked in in layers amongst fresh friable earth, and a good watering must be given after planting, in order to settle the soil close about them. It will not be necessary to shorten the lateral branches, but of course they should be closely spurred in. You will gain many useful hints from Mr. Rivers' Miniature Fruit Garden.

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SUPERPHOSPHATE of LIME .. .. £6 6 per ton.
MINERAL SUPERPHOSPHATE .. 5 5 ,, ,,
PERUVIAN GUANO direct from the Importers, and all other Chemical Manures of value.
AMERICAN and other CAKES at market prices.
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No. 1. The Works may be Designed and Executed entirely by the Landowner's Agent, and the Company employed only to supply the loan and conduct the matter through all the official Forms for Charging the Outlay on the Estate.
No. 2. The Company will supply Plans, Specifications, and Estimates for any Improvements to be executed by the Landowner's Agent as under No. 1. In each of these cases the Landowner will be solely under the control of the Enclosure Commissioners.
No. 3. The Company will undertake the entire responsibility of the Improvements, prepare the Plans, execute the Works, and finally charge on the Estate the actual amount expended, with their Commission thereon, approved by the Enclosure Commissioners.
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THE NATIONAL EXHIBITION of SPORTING and OTHER DOGS.—The SIXTH GREAT ANNUAL EXHIBITION will be held in the NEW CURZON EXHIBITION HALL, BIRMINGHAM, on MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, the 27th, 28th, 29th, and 30th of November next.
Copies of the Prize Lists and Regulations may be obtained from the Secretary, Mr. G. Birch, Rectory Chambers, Temple Row, Birmingham. The ENTRIES CLOSE on November 1.

THE BIRMINGHAM CATTLE and POULTRY SHOW, 1865.—The SEVENTEENTH GREAT ANNUAL EXHIBITION of FAT CATTLE, SHEEP, PIGS, DOMESTIC POULTRY, CORN, ROOTS, and IMPLEMENTS, will be held in Bingley Hall on SATURDAY, MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, November 25th, 27th, 28th, 29th, and 30th, when Prizes to the amount of £2080 will be awarded in the following divisions, viz.:—

FAT CATTLE	£815 15	BREEDING PIGS ..	£73 19
FAT SHEEP	328 6	ROOTS and CORN ..	71 8
FAT PIGS	61 14	POULTRY & PIGEONS	727 6

Prize Lists, Certificates of Entry, and every information may be obtained from the Secretary.
The ENTRIES CLOSE on WEDNESDAY, November 1.
John B. Lathall, Secretary.
Offices, 13, Temple Street, Birmingham.

SMITHFIELD CLUB FAT CATTLE SHOW.—The ANNUAL SHOW of FAT CATTLE, SHEEP, and PIGS, will be held at the AGRICULTURAL HALL, ISLINGTON, on MONDAY afternoon, December 4, and four following days.
Intending Exhibitors are requested to apply for Certificate Forms by the reference letters as under.
CATTLE.—Form A. For an OX or STEER (in any Class).
,, B. For a COW or HEIFER (in any Class).
,, C. For a BEAST in Extra Stock.
SHEEP. ,, D. For a PEN of 3 WETHERS (in any Class).
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,, G. For a SINGLE PIG in Extra Stock.
ENTRIES for LIVE STOCK CLOSE NOVEMBER 1.
Prize Lists, Forms of Certificates, and all information may be obtained on application to Mr. David Pullen, Assistant Secretary, at the office of the Honorary Secretary, corner of Half-Moon Street, Piccadilly, London, W.
N.B.—All communications respecting the Show must be addressed to the Assistant Secretary, as above, and should bear outside the words "Smithfield Club."

ROYAL AGRICULTURAL SOCIETY of ENGLAND.
EDUCATION PRIZES.
ONE HUNDRED and FIFTY POUNDS.
The LAST DAY of ENTRY for the CAMBRIDGE LOCAL EXAMINATIONS in December next, in connection with which the above Prizes will be given, is NOVEMBER 1, 1865.
Application for Forms of Recommendation should be made without delay to the Hon. Sec., Royal Agr. Education Committee, 12, Hanover Square, London, W., from whom further particulars may be had on application.—Oct. 14.

The Agricultural Gazette.
SATURDAY, OCTOBER 14, 1865.

It is only in Norfolk, under the leadership of a public-spirited landed proprietor and of an energetic tenant farmer, that the landowners of the country have seemed to realise the position in which they stand to the cattle plague. Even a subscription of 500*l.*, however, towards a county insurance society, most imperfectly represents the degree in which a great landed proprietor is interested in the subject; and the offer of a noble lord to add a certain per-centage to all that his tenantry may recover from their own mutual insurance associations on account of losses, shows a much truer appreciation of the state of the case.

We often hear of the proprietor and his tenant sailing in the same boat, and it is perfectly true that both are dependent on the judgment, pluck, and money of the latter. If the farmer's capital be destroyed, it is plain that the rent-producing fund is lost; and moreover, if he loses either head or heart under the disaster which has befallen him, it will be the worse for his landlord as well as for himself.

We learn that the disease has attacked the dairy herds around Guildford. Many a small cowkeeper has lost his whole stock, and in one instance a herd of 108 cows, the property of a tenant farmer, has been wholly destroyed. He had, however, like most of his neighbours, insured his stock on the first approach of the plague. A London cowkeeper, who holds land in that district, found a month or two ago that there was something wrong with his cattle in his town cowhouse, and so he brought the whole herd bodily down by train to his farm; and in this way it is believed that the plague was introduced. As soon as it appeared, the tenant farmers at a public meeting, attended also by many landowners, resolved to distribute the burden by a mutual insurance association. We understand that the energetic man who led the movement was wise enough—foolish enough as the event would make some think him—to say:—"It is useless, gentlemen, to make our case one for charity, or beg round the county for assistance. We must buckle-to and bear the brunt ourselves."—And though the thing is hardly credible, we are told that this independence so offended county gentlemen that men who had brought their notes for 20*l.* and 50*l.* towards the establishment of a County Association kept their pockets buttoned. Was not this, however, just the spirit that should have been encouraged? This speech, and still more the response to it, for 20,000*l.* worth of cow stock was that very day insured, and the quantity has since been doubled in the petty sessional division of Guildford alone—this speech showed that as to both their judgment and their pluck the tenantry were sound. It is for the landlords, however, to remember that neither of these without farm capital will pay the rent. And we think that it would have been in every way a wiser thing if, instead of leaving the tenantry around Guildford unaided in their difficulty, the landowners of the district had undertaken, in the very outset, a share in that burden which must inevitably fall upon them in the long run.

This calamity has shown us that there was a risk hanging over the farmer and his capital which neither party to the bargain at all contemplated when the agreement to pay so much rent for so much land was made. It is in equity, therefore, not in charity, now that this risk has borne such disastrous fruit—that the proprietor of the land should feel moved to share the burden which has fallen upon his tenant.

And even upon the grounds suggested by the lower motives, it may be wise to undertake at once the share which properly belongs to him—for the burden will ultimately fall the heavier for the want of timely effort. And the plan of adding a percentage to whatever sums are recovered by a tenant from an insurance company seems the best way of maintaining undiminished in efficiency that whole agency of head and heart and capital on which the owner, the tenant, and the labourer alike depend.

Diseased Milk.—The investigations upon the microscopic characters of milk taken from animals suffering from plague, or recovering from it, have developed results which are anything but consolatory to the consumers of that article of diet. In our last observations upon this subject we took occasion to suggest the importance of avoiding the use of milk, containing morbid elements, as food for children. And where any doubt exists, some substitute should at once be employed: a mixture of eggs, well beaten and diluted with thin barley-water and sweetened, would be palatable, nutritious, and harmless. Microscopic examination at once sets the question of purity at rest, but such a test is not at all times at hand. In its absence the more simple domestic operation of boiling may be employed, not as an absolute test of perfect purity, but as a guarantee of wholesomeness. No very bad specimen of milk can be boiled without undergoing coagulation, or curdling, but at the same time, milk containing morbid elements in moderate amount will not show any indication of impurity under this treatment. Boiling is at any rate the only chemical operation that can be adopted generally, and it should invariably be had recourse to as some slight protection.

It will be in a certain sense interesting, if not reassuring, to our readers to be enlightened upon the subject, and for this purpose we quote from the notes of recent microscopic examinations.

For the information of unscientific readers we may premise that the elements that will be alluded to are the milk corpuscles or cream globules, pus cells, which are the principal constituents of the matter of abscesses; and granular cells such as are found in fluids exuded during inflammation. According to the preponderance of the two latter products will be the morbid condition of the milk.

No. 1. Milk from a cow dying of the plague.

The fluid is thick, yellow in colour, and when poured into a vessel does not show any froth upon the surface; the occurrence of froth upon the surface of milk is said to be an indication of its goodness—not a trustworthy test, however, as many experiments have proved.

Under the microscope this specimen presented

the following characters. Milk globules small and clustered together; numerous pus cells are intermingled with the milk globules, and give to the fluid its viscidity and colour. Specific gravity, 1020.

No. 2. Milk from a cow after a few days' illness; two quarts are obtained at each milking.

The milk is thin, but shows froth upon the surface when poured into a vessel.

Under the microscope the milk globules are few in number, small in size, and scattered. Pus cells are present, and also a few granular cells. Specific gravity, 1024.

No. 3. Milk from the case No. 1 a few days later; the cow now gives 4 quarts per day.

Under the microscope pus cells and granular cells are present in addition to the milk globules. Specific gravity 1024.

No. 4. Milk from a cow suffering from plague in a severe form. Only a small quantity can be obtained, which is thick and yellow in colour, and has a peculiar animal smell.

Under the microscope this specimen proved to be charged with pus cells and large granular cells.

Some further examinations of cream from diseased milk have been made, and in most instances prove that some morbid elements still remain in it. Sometimes the quantity is less than in the milk and sometimes greater, so that the hope expressed in recent observations on this point cannot be longer entertained. All that can be said is, that cream from diseased milk is sometimes free from morbid elements, but at others it contains them in abundance. This circumstance shows the absolute necessity of a large number of examinations being made before any conclusions of a general nature are drawn.

It may probably be objected that when animals are badly affected or dying of the disease, the quantity of milk obtained would be too small to make it worth while to use it; this is doubtless true in certain instances where the secretion is almost arrested, but many animals suffering from the malady very severely continue to give a considerable quantity of milk, from two to four quarts per day, and as they improve in health the secretion is gradually increased, without a corresponding improvement in its quality. The next examples are selected from cases that were improving when the milk was examined, or otherwise were considered to have perfectly recovered.

No. 1. A Dutch cow recovering eight days after the attack, gives 2 quarts of milk per day. In this specimen the pus cells are very abundant, the granular cells are fewer in number. Specific gravity 1023.

No. 2. A cow that has recovered from the disease and gives 4 quarts per day.

A portion of the milk after standing for some time separated into two parts; a quantity of flocculent deposit falling to the bottom of the vessel, and leaving a serous looking fluid at the top. The deposit under the microscope consisted of pus cells and oil globules, and the fluid altogether is more allied to pus than to milk.

No. 3. A cow that has been well since August 20. This was a very severe case, and the only one that recovered out of 20 attacked. For some time past this cow has been giving 9 or 10 quarts of milk a day.

The fluid looks and tastes well. Specific gravity 1028. Under the microscope a few pus cells and granular cells are to be observed. These morbid elements are not sufficiently abundant to render the milk unwholesome, but their presence in the milk of an animal so long after recovery is very significant.

At the very commencement of the outbreak we called public attention to this point, but the general adherence to a notion that somehow became prevalent, that the milk ceased to be secreted as soon as a cow was attacked, established a feeling of security, which these investigations prove to be false and dangerous.

Our readers must decide for themselves as to the proper course to be adopted under these circumstances. There is no disputing the facts that milk highly charged with diseased products is obtained in considerable quantities from cows at different periods of the attack and after recovery. It is also true that in many sheds there are no cows left excepting those that have had the disease; some of these animals are giving seven or eight quarts per day.

There is no positive evidence of injury having resulted from the consumption of the milk given by these sick and convalescent animals, but still inflammatory products are not precisely what one would select for part of the daily dietary. There are only two ways out of the difficulty, either to have all the milk sold examined by competent persons, or what is more simple, to do without it for the present altogether.

The very interesting announcement of a discovery of rich phosphatic deposits in North Wales was made by Dr. Voelcker at the recent meeting of the British Association at Birmingham. A phosphatic limestone, and a bed of black shale largely impregnated with phosphate of lime, has been discovered by Mr. Hope Jones, of Hooton, Cheshire, whilst he was searching for other minerals in the neighbourhood of a place called Cwmgynen, about 20 miles west of Oswestry. The phosphate deposits occur not far from the clay-slate and lead-bearing districts of Llangynog. The rocks are Silurian, of the Llandeilo series.

Mr. Hope Jones has traced the phosphatic beds a long distance; they are continuous for about two miles.

The black phosphatic slate or band is fully 18 inches thick, and the limestone bed from 8 feet 6 inches to 9 feet. The vein which separates the two deposits from each other is 14 to 16 inches wide, and filled partially with white pipe-clay, calcareous spar, and copper and iron pyrites.

The following is Dr. Voelcker's account of these two beds after 10 or 12 complete and a large number of partial analyses of the various minerals:—

"First, we have the non-phosphatic clay slate, forming the strata of the locality. In most specimens, I found the amount of phosphoric acid too small for quantitative determination; in one specimen, however, I obtained .28 of phosphoric acid.

"In the next place, we find a bed of black shale, 18 inches in thickness. This shale contains variable quantities of phosphoric acid. Towards the summit of the hill it is not nearly so rich in phosphate of lime as at a lower depth. Thus, in specimen No. 3, taken from a higher level, I find only 24.07 of phosphoric acid, equivalent to 48½ per cent. of tribasic phosphate of lime; while in another sample, taken at a lower level, I find as much as 29.67 of phosphoric acid, which is equivalent to 64.16 per cent. of phosphate of lime.

"The mine at Cwmgynen, as worked at present, produces specimens containing from 54 to 66 per cent. of phosphate of lime. Blocks weighing above 1 cwt., I am informed, are now worked out, which resemble intimately the specimen in which I find 64 per cent. of phosphate of lime.

"Lastly, we have to take a glance at the composition of the black limestone beds. The darker-coloured varieties contain graphite, and are richer in phosphate of lime than the lighter-coloured specimens. In the latter I find only from 10 to 20 per cent. of phosphate of lime; in the darker varieties from 30 to 35 per cent.

"The limestone beds contain a good deal of carbonate of magnesia (5 to 8 per cent.) On burning, they furnish a lime which is very valuable for agricultural purposes; for the farmer who applies this lime to his land not only supplies it with lime, a constituent required by every description of agricultural produce, but also with the still more important mineral constituent of plants—phosphoric acid. It is scarcely necessary to observe that it is chiefly the phosphoric acid in bones which renders the latter so valuable as a fertiliser; nor need I specially dwell on the fact that the application of this newly-discovered phosphate of lime is, in point of fact, almost equivalent to 'liming' and 'boning' in one operation."

ON WHAT DOES THE VALUE OF A TON OF ROOTS DEPEND?

I reply, on the mode of their administration. We should never forget that every ton of roots contains about 9-10ths of a ton of water, consequently, that we give to the animal which consumes only roots nearly a gallon of water (10 lb.) with 1 lb. of dry matter. What would our groom say to this in our nag stable? "Gripes and purgation" would be his reply, especially if this water had a temperature nearly to the freezing point. What a tax upon the urinary organs! These are the very means used in the hydropathic establishments at Malvern to reduce the bulk of some overcorpulent Alderman or bon-vivant, whereas the object of every farmer who wishes to see a profit, should be to increase bulk and prevent purging or diabetes. One can hardly wonder at the immense losses suffered in stock by "blowing" (windy flatulence) and scouring caused by cold watery masses abstracting heat from the stomach and chilling and cramping its powers. Well may they rejoice in Thorley and other producers of stimulating and warming cattle food to counteract such mismanagement.

In wet and frosty weather, alternating, and a wet bed to lie upon, we cannot wonder that a thousand tons of Turnips have hardly produced a cwt. of meat. Roots are food or physic, according to circumstances, therefore, as physic, we know they cannot conduce to the farmer's profit. The best estimators say that with animals unsheltered it requires 150 lb. of Turnips to make 1 lb. of mutton, or with shelter 100 lb. to 1 lb. Now, as 1 lb. of mutton contains probably only ¼ of a lb. of dry matter, the rest being water, it follows that it takes 150 lb. of Turnips to make ¼ lb. of dry substance in the pound of meat.

150 lb. of Turnips contain 135 lb. of water (16 gallons), and as our Scotch friends often give to their bullocks 150 lb. as a daily allowance, we can well understand how wisely they act in adding to this dry stock. Let us avail ourselves of our pulpers and chaff-cutters, mix it all in due proportion according to temperament, &c. A certain amount of moisture is indispensable, seeing that our own bodies contain 76 per cent. of water, although our forefathers once believed that we were all solid, and that Harvey's theory of the circulation of the blood was a great error.

But to return to our Turnips and their profitable conversion: it is quite clear to me, from long practice and observation, that we must by steam power grind our corn into meal, break or grind our cake, cut our straw or hay mixed into fine short chaff (about one eighth of an inch), pulp our roots, and so intermix the mass that it may suit the digestive organs, and thus be converted more profitably and with less risk to the animal's health.

If 1*d.* per lb. in the price of meat makes to some farmers a difference of 1000*l.* per annum, surely the same rule will hold good in regard to the cost of producing this meat, and the cost of a few tons of coal for the steam engine can be of little comparative importance.

I know that many considered I was wrong and extravagant in advocating the use of a fixed engine on a farm of 170 acres, but if that farm is to produce as it ought to do, and as mine of 170 acres does, 37,400 lb. of meat, and over 600 quarters of corn annually, and if much of that corn and cake, with abundance of roots, are to be properly prepared for the animal's stomach, there must be steam power, mill stones, chaff-cutters, pulpers, pumps, cake-breakers, threshing machine, &c. The farmer who makes 3 lb. of meat where his neighbour only makes 1 lb. produces, of necessity, three times as much manure as his neighbour, and must of course grow more of corn and everything else. Going to the barn door only for money is a poor affair, especially at present prices; we must look to corn and stock combined, and, if the latter is to return to us a good price for our root and green crops, the present generally rude and crude system must be changed. We must have covered yards, straw cut up for litter, no dung heaps, but rich unwashed manure carted at once to the land—a sort of fold in the dung cart. When we consider that of the daily excrement of our animals 13 parts out of 14 are urine, and in that urine is all the *soluble* portion of the manure; that there is more dry matter in the urine than in the solid manure; and that this dry matter of the urine is worth 17*l.* 4*s.* per ton, while the dry matter of the solid is only worth 4*l.* 16*s.* (see Dr. Letheby's tables in my book, page 412)—well may the farmer prefer the sheep fold to the open farm-yard manure, so much being wasted and washed away from the latter.

The success of the farmer is essentially a landlord's question, for he is sure to participate in a tenant's prosperity. Therefore I would say to purchasers of land—consider, before you buy, whether it may not be more profitable to you and your tenant to lay out some 20*l.* an acre in drainage, buildings, machinery, &c., with a suitable residence for a farmer of capital, rather than to purchase a more extended estate, the purchase money of which would leave nothing for landlord's improvements.

Tenants possessing capital are unwilling to take dilapidated farms with inferior residences, once suited to a primitive condition, which is fast giving way before a more advanced, intelligent, and wealthy race of agriculturists. If landlords desire to have first-class tenants, they must also take a new view of agriculture, and adapt their farms to modern practice and requirements. I know so many wealthy people who buy farms as a mere matter of investment, looking only at the present rentals—and then they complain that their tenants are backward, poor, and insufficiently capitalled. The acres of this country do not increase—on the contrary, the extension of towns and cities, railways and factories, is gradually limiting the agricultural area. The only thing possible is to vastly increase the produce of those acres, by intensifying agricultural practice. Landlord and tenant must co-operate in this necessary work. No end of money is wanted to do this, but will and belief are primary necessary—then means will be found to obtain the capital. Every necessitous foreign potentate who chooses to pay a good per-centage to one of our leviathan city firms, gets from us his loan of millions, and repeats the operation when the market is favourable and money overflowing. In the meantime poor Agriculture makes no such effort, but with folded arms and melancholy mien stands bewailing her uncapitalised and helpless condition, too proud to ask and pay for that assistance which associated capital could confer, and has already conferred, on other interests which are more acute.

What might not be done for agriculture under the Limited Liability and Limited Partnership Acts? There is always plenty of land for sale in the markets. Individuals, in the absence of such companies, either decline to improve their purchases, or, for want of agricultural knowledge, blunder on to an unprofitable

result. Companies, aided by talented advisers, of whom we have plenty of known good men, could purchase land, improve it, and thus derive a safe and permanent interest.

According to our talented friend Denton, we want 100 millions or so to drain our 20 millions of undrained acres, and I could readily point out a channel in the shape of residences, covered yards, machinery, and a number of other necessary and profitable improvements that would require and absorb some 200 to 300 millions more. But where is the money to come from? Was not the same question asked when railways were first proposed? and has it not come from somewhere to the extent of 400 millions!—daily increasing?

The fact is, farming is in its mere infancy, but the time is coming when, owing to that great man Liebig and other choice spirits, it will rank as a science and as a profession, unclouded by those dark mists of doubt, want of knowledge, and prejudice, which prevent its profitable development. Had companies such as I speak of existed, showing a good percentage, several of my millionnaire acquaintances would, I am convinced, have invested largely in them. There is nothing more certainly profitable than agricultural improvement.

The rent of land might thus be, in many instances, doubled, and the farmer's profit increased to 20*s.* or 23*s.* per acre, where now it is only half that amount, or even less, and in too many instances a loss of capital.

Money to any amount may be got on mortgage at 4 per cent.; but how can people invest in Agricultural Improvement Companies when none such exist?—I mean companies which purchase lands with their own capital, and invest their own capital in improving such lands. Under such companies, tenants with capital would be too happy to hold land having long leases, with the right to the game, and untrammelled politically. That is the way to bring into the agricultural arena a flood of tenant capital and intelligence.

I have gradually diverged from my ton of Turnips, but after all, the profitable consumption of them depends upon the questions I have mooted. It is of no use to talk to men about more stock, more machinery, and the other requisites for a more profitable meat and corn making. They say, look at these buldings; my landlord cannot or will not help me and do his share. I would readily pay him 6 per cent. for covered yards, &c., but he won't hear of it, so that after all I may be excused for "spinning such a tough yarn" out of "on what does the value of a ton of roots depend."

The importance of producing our own food abundantly and cheaply is, to my mind, a paramount question. Everybody is anxious about cotton, but if the question were put to the British public whether they would rather go without their clothes or their food for a month, I fancy corn would carry the day against cotton. The ever-recurring appetite demands our best attention, and it is as great a mistake to buy our food from foreigners as to buy our clothing. That we have the means of producing the former with a profit by intelligent improvement I have long since been practically convinced. To lend our money to foreigners to enable them to compete with us in corn growing instead of employing our people at home is a great financial blunder. I am surprised that our sharp "getters up" of public companies in the City have not turned their attention to agriculture. I presume that they have tried, but found bucolic stolidity too much even for their powers of persuasion. It is not a slight rebuff that can repel their advances. *J. J. Mechi, Oct.* 5.

THE CATTLE PLAGUE.

[We continue to publish the letters of Correspondents on this subject.]

1. About 32 years ago I became Curate of Mapowder, in Dorset, in the following way. The living then belonged to Mr. Shipley, who desired Dr. Gray, Bishop of Bristol, who ordained me, to nominate a curate for him. I received a kind letter from the Bishop, asking me to take the curacy, adding, "Mr. Shipley is very liberal." Indeed he was, for he gave me 35*l.* a-year to give to the poor, and the stipend and land added to this amounted to 200*l.* per annum. It was the best preferment the Bishop ever had to give away. Being there, I had an opportunity of seeing this plague. A great many cattle died of it. The symptoms were precisely the same as those lately mentioned in the periodicals; the pest is known in the vale of Black Moor as "the bladder." The year it occurred in was an exceedingly hot one. It was not imported, but locally generated by cold dewy nights succeeding intensely hot days. I had about from 32 to 34 heifers and cows grazing. Finding that cattle were dying around me, I kept both eyes open, and watched my kine. Several of them were taken ill, and some were very bad. I did not, however, lose one of my cattle. The tongues and eyelids were much swollen; the vagina was swollen also, as if the animal was about to calve. It was evidently a through and through inflammation. It was plain that something must be done, and done quickly too. I immediately separated the diseased ones, put them into a house, bled them sharply, gave them 8 oz. of Epsom salts, gruel, bran mashes, a little hay, and chilled water with nitre. I stopped the inflammation, and in a few days the animals were able to go to Grass. I continued to watch the herd, and as soon as I saw the eyes heavy and tearful, I bled the animal and stopped the painful suppuration. I remember that some of the animals had a short husky cough.

I may mention that while I was at Mapowder, my kind friend the late Mr. James, steward to Lord Beauchamp, and father of Mr. James and Charles James, the distinguished graziers, introduced his first Hereford sire, which he bought of Mr. Turner, of Noke, Hereford. It is some years since I saw their beautiful herd. I shall soon have an opportunity of seeing them, as I have been summoned by one of the young ladies to perform the marriage ceremony, according to a promise I made to her when a little child. I will then report upon the herd.

Though some of the above is what the doctors would call "a foreign substance," yet I trust the Editor will allow me to express my gratitude for the kindness of the late Bishop Gray, and also of my much esteemed friend, the late Mr. James.

In conclusion, I believe that this plague is contagious, but I also believe it may be locally generated. The weather suited to it is excessive heat followed by dewy and cold nights. Lowlands are more likely to produce it than hill tops, because the dews, which are equal to the solar heat, are heavier in valleys than on high grounds. Perspiration is estopped, the kidneys are chilled, and in due time suppuration finds its way to the nostrils, which are two of the emunctories. There is, however, one caution I must give as regards bleeding. You must feel the pulse. To bleed when the pulse is feeble is death! If you should not discover the illness till it has assumed a typhoid form, you must use stimulants. Iron and camphor in equal parts are excellent for any animal in a state of febrile exhaustion. It is the best remedy for dogs in distemper (which is a typhus fever, and inflammation of the whole mucous membrane of the animal), when suppuration takes place. This cattle plague is said to be typhus. I may mention that I saved the lives of two of my parishioners in typhus fever (both are alive now), James and Jane Gosnay, of Gussage St. Michael's, Dorset, about 35 years ago, by giving them drop after drop for hours (for swallowing was agony) of port wine. They were given over by the doctor, and were nearly black in the face. I should think that port wine would be a good stimulant as well as styptic for animals suffering from this typhoid plague. *W. F. Radclyffe, Tarrant Rushton.*

2. Infection of Sheep: Norfolk Cattle Plague Association.—A deputation of the Committee of this Association assembled by the invitation of R. J. H. Harvey, Esq., M.P., at Crown Point, on Thursday last, to meet Dr. Letheby and Professor Simonds, with whom were also Dr. Budd, of Clifton, Mr. Ceely, of the Medical Department of the Privy Council, and Professor Varnell, of the Royal Veterinary College, on the question of the disease in sheep now prevailing on his estate. The company proceeded first to inspect a lot of sheep near, which were at first supposed to be a healthy lot.

Professor Simonds said, when he was at Crown Point a few days ago, Captain Lambart had told him that he could take him to a large number of animals that were convalescent, and which he regarded as free from disease; but when he had been brought to the lot, he found that there were a number that had not had the disease at all; others were in the early stage of the disease, and others there were which had had the disease and had recovered.

Mr. Harvey said all he knew about the disease was that when they had a cold day, and there had been only one such since the animals were attacked, instead of 25 animals dying, five only were found dead on the following morning. They were originally herded together. Unfortunately the cattle had died, so they could no longer herd with the sheep, and the only thing he had observed was, that after a cold day a much smaller number had died. He had tried various changes of diet, as putting 12 on Linseed, 12 on oatmeal, and had tried different things, but they found that it did not make any difference, for his shepherd said all those had died. The disease was going through the whole, and there were a certain number which recovered, and which were not attacked with the disease again. When he went among the flock, the shepherd was able to point out to him the sheep which would probably recover. The animals had been on the estate for three or four months, and were worth from 25*s.* to 27*s.* at that time.

Mr. Read said he thought the best way to test whether the disease affecting the sheep was the cattle plague or not, was to try whether cattle could be inoculated from sheep, and *vice versâ.*

Mr. Harvey gave the deputation authority to act as Mr. Read should think proper in killing animals for *post mortem* examination, &c., and they then proceeded to a large pasture adjoining Mr. Wells's farm, in which were about a score of the animals in various stages of the disease.

Some of these were examined by the professional gentlemen. Three were taken for *post mortem* examination, one especially, for the matter exuding from the nostrils, which was intended as inoculating matter and for microscopical examination.

On arriving at the place where the animals which had died of disease were buried, a pit about 10 feet long, 6 feet wide, and 6 feet deep, was open, and contained a large number of animals which had died subsequent to the last pit being closed, after 9 P.M. on Wednesday. They were ranged three deep, and had been thrown in with their skins on—in fact, as they had been picked up from the place where they had died. That pit, the company present were informed, would be filled with the animals dying up to 9 P.M. of that day. Captain Lambart stated that the number of sheep at first was 2074, out of which about 1200 were now living, a considerable proportion of which have not yet had the disease. The first death occurred on the night of the 9th of September. The number of animals that died ranged from 25 to 50 per day, and on one occasion the mortality reached 72. When the committee were in the field one sheep was marked, which the shepherd was ordered to take to the place of burial that it might at once be killed for examination.

Three other sheep were killed for examination, and two of these were flayed; two others which had died of the disease were also flayed for a *post mortem.* In the first animal that was examined, which had been slaughtered, and which had been apparently suffering from the disease two or three days, a peculiar fretted appearance similar to the marks made on the hand by pressing a thimble on it, were found on the inner surface of the small intestines, the fretted appearance being in spots in some parts of the intestines and in others more extended. That appearance had been seen in beasts affected with the cattle plague. The bronchial tubes were found to be choked up with lymph, some of which was removed for microscopical examination. No filaria (an entozoa) were found in any part of the lungs, though careful search was made. The case was not so bad a one as that recently sent to Dr. Letheby for examination.

The second animal examined was one in an earlier stage of the disease, having only been attacked on the morning of Thursday; the peculiar spots were, however, found on the intestines, though not so marked as in the former case.

The third animal examined was one that had died during the morning, while the party were at luncheon. The lungs were hepatised, sinking when placed in water; the liver was in a very bad condition. On the coat of the fourth stomach there were marked indications of the cattle plague, as well as very large patches in the intestines.

Dr. Letheby said the appearances in the stomach were exactly the same as those found in cattle plague.

Mr. Wells said that appearance was invariably found in the fourth stomach of the diseased animals.

Dr. Letheby said there were two experiments which ought to be made; one was to take one hundred of those sheep and to place them on better feed and watch the result.

Mr. Woods, in the course of the post-mortem examination, expressed a wish that the whole subject should be discussed after the examination; what would be the advantage of having practical men present if they were not to have the opportunity of discussing the matter? He was prepared to bring before them evidence to combat that which they had seen before them on that occasion, and unless they had the opportunity the visit of the deputation was perfectly useless. He was about to ask the shepherds relative to what they had seen.

Dr. Budd asked, were the questions relative to the morbid anatomy of the sheep?—to which Mr. Woods replied in the affirmative.

Both Dr. Budd and Professor Simonds would not allow a shepherd to be examined as to the morbid anatomy of the sheep. The former said if the shepherd could tell him anything about the keep which the sheep had had, or of anything which had led to that disorder, he would listen to him, but Mr. Woods might as well ask him (Dr. Budd) about the workings of a watch, of which he knew nothing, and to take his opinion, as to ask a shepherd anything whatever about the morbid anatomy of the sheep.

Professor Simonds said they might as well be asked what the small-pox was, and set them up as authorities.

Mr. Woods: And so they were; they cured more than any other persons did.

Dr. Budd stated that the appearance he had seen in the animals examined, resembled those which were seen in animals dying of the cattle plague, and which were believed to be characteristic of that disorder, but at the same time he would rather withhold a final opinion on the point till the test of inoculation had been applied. He was, however, inclined to the opinion that it was the same disease in cattle and sheep, but would not say so for certain, because experiments were wanted before coming to a final conclusion. He would say that it was in the highest degree incumbent to take exactly the same preventive measures in the case of sheep as it was absolutely proved to be in the cattle plague. His impression was that it was cattle plague in sheep; he had in an essay expressed himself rather to the opposite opinion, that the disease did not extend to sheep, but he now said that there were certainly some appearances which were exactly like those in the dead bodies of oxen dying of the cattle plague, and which were supposed to be characteristic of it.

Professor Varnell said, from what he had seen, that he was, if anything, a little stronger inclined than Dr. Budd to the opinion that this disease was capable of being communicated from cattle to sheep.

Mr. Woods said his opinion was very strong, and he was prepared to bring that opinion to the test of evidence, which was contrary to that expressed by the professional gentlemen, but they could not then discuss the matter at that late hour.

3. From Mr. Buckland.—Last week, when at Herne Bay, attending to my oyster culture experiments, my friend, Mr. A. D. Bartlett, Superintendent of the Zoological Gardens, happened to be with me. During a conversation relative to the Cattle Disease, its causes, and the possibility of finding a remedy, Mr. Bartlett suggested that the plan which he adopted at the Gardens in the year 1851, when the lions, tigers, and other carnivora were attacked by a disease that threatened destruction to the whole of them, should be tried for the Cattle Disease. I have now by me a copy of the Report (dated October 29, 1851), furnished by Mr. Bartlett to the Council of the Zoological Society. He describes the symptoms of the lions, &c., as follows:—

"Dulness and uneasiness, nervous twitchings, sneezing, serous discharge from the nose, mouth, and eyes, loss of appetite, great general prostration, followed by inflammation and ulceration of the throat, gullet, and nasal passages."

The treatment adopted was as follows:—Mr. Mitchell, who was at the time secretary to the society, accompanied by Mr. Bartlett, called upon an eminent surgeon (under whose auspices I myself held the post of house surgeon at St. George's Hospital), and asked his advice. It was to give chlorate of potash. The proper dose for a large animal being unknown, Mr. Bartlett, considering that it was desirable to produce a sudden and not gradual stimulus to the poisoned blood, administered it according to the following formula, which is given in his Report:—

"Treatment for Lions.—Reduce the food to half the usual quantity; add 20 grains of the chlorate of potash to the food. Into every quart of water dissolve 80 grains of chlorate of potash, and give the lion to drink. Continue the above three or four days, then discontinue one day; repeat two or three days, then if the symptoms abate lessen the dose; repeat occasionally till the disease disappears."

The animals attacked by this disease during the epidemic of 1851 were—four lions, three lionesses, two tigers, two cheetahs, and four leopards; of these one lion and one lioness died on the 20th of August, before the chlorate of potash treatment was commenced. Not a single death occurred after its exhibition, although the animals above-mentioned all suffered from the disease with strongly marked symptoms. Since this date Mr. Bartlett has found the chlorate of potash treatment to be most beneficial to the animals under his charge, be they antelopes, deer, carnivora, or other denizens of the Gardens.

We therefore both think that we should not be justified in withholding these facts from the public at the present juncture, for we are of a strong opinion that chlorate of potash given in large doses to cattle when suffering under this disease will, if the beast be not too far gone, prove of the greatest efficacy. It will doubtless save the lives of many already attacked by the disease, and all the cattle in a suspected neighbourhood should certainly have a dose (even when they exhibit no symptoms) given them once in every six or seven days, as a precautionary measure.

In order to show the little danger of the means employed, it must be mentioned that on the 29th of August, 1851, three lions drank six quarts of water, in which had been dissolved 480 grains of chlorate of potash. Besides this, they each had 20 grains in the food, making a total of 540 grains between three lions in one day. The proper dose for an adult ox or cow would commence with half an ounce given morning and evening. On the following day, if the symptoms do not diminish, the dose might be doubled, decreasing it on the third day to the half ounce; under any circumstances, discontinue it on the fourth day and give the system a day's rest, and then give

smaller doses daily till the animal is convalescent. The best mode of administering it is as follows:—Dissolve half an ounce of chlorate of potash in one quart of boiling water; add to this two quarts of cold water. The animal being thirsty from the disease will drink these three quarts, and then give him his full quantity of water; he will drink the water containing the medicine, if allowed to become thirsty, and voluntary drinking is far better than any drenching.

SOCIAL SCIENCE CONGRESS.

[The following is a condensed report of Professor J. Gamgee's paper at Sheffield on the Cattle Plague.]

This most malignant of all fevers is one of the indigenous maladies of the East. From time to time, during centuries past, it has lurked in the Asiatic and European steppes, killing slowly the rude grey oxen of the Russians, and exterminating the cattle of districts and countries to which it is usually foreign, and into which it has been accidentally introduced. Not unfrequently the active agents in the propagation of the plague have been droves of sick oxen dying on the roadside, and otherwise indicating their dangerous condition. The periodic extensions of the malady in the lines of communication established by trade led to our attention being forcibly directed to the subject as the importation of foreign stock increased in this country. We knew that so soon as any direct communication was established by cattle-dealers between Russia and England, the murrain of the steppes could not fail to be imported. This opinion we expressed repeatedly, and even indicated that the malady would reach us through the Baltic. All we wanted was that any cargo of cattle direct from Russia should be subjected here to regulations such as those which are in force in Austria and Prussia; but we were freely told that, until the cattle plague came, no one would be convinced of the importance of, or necessity for, such measures. The cattle plague has come; it has reached us through the Baltic. As we are compelled to trace plagues in men and animals to their origin if we wish to devise means for their prevention, it is evident that in relation to the present outbreak it was necessary to ascertain all we could as to its cause. It is certain that to the west of the Czar's dominions the plague never originates spontaneously. That is a truth as much established in the minds of scientific men as the preservative influence of vaccination against small-pox in man, or the purely contagious character of the sheep pox.

When I first saw the steppe murrain amongst the cows of the London sheds, on the 29th of July, I knew that the disease must have been imported. On making inquiries we found that a cargo of Russian cattle and sheep had been brought from Revel to Hull. It was the first cargo that had yet come to us direct from a Russian port, and 14 days after a portion of that cargo was first exposed in the Metropolitan Cattle Market the strange disease was seen in Copenhagen Fields. An agricultural society in Esthonia had agreed to supply a certain number of cattle and sheep free on board a steamer at Revel last May. That society had insuperable difficulties in fulfilling its contract from the scarcity of oxen fit for the London market. The terms of agreement with the London salesmen were that the animals were to be supplied free on board, fit for the London trade, but many of the cattle did not come up to the proper standard of weight and fatness. The number supplied was short, and 46 animals were obtained from St. Petersburg to make up the cargo; but their condition was so bad that only 13 of them were chosen by the person representing the London importers. Of all the cattle brought to Revel to be shipped for London three had to be slaughtered diseased by a butcher, a fourth died in the yard before being delivered on board, and an action was brought against the English agent for the price of this animal, which he would not, and did not, pay. A fifth animal showed signs of illness on the passage, and when the cargo arrived off a Danish port a letter was sent from the London salesman intimating that "the things," meaning the cattle, should be taken to Lowestoft, instead of London, so as to avoid the doctors. For some reason or other they were afterwards landed still further from London, at the port of Hull, and there subdivided for sale at different markets. One half left Hull for London at once, and that half propagated the disease. Why the other half did not do so is of no importance to us, as we constantly find, in tracing contagious diseases amongst cattle, that, two farmers having bought a herd between them, the one half purchased by one man remains in health, and the other half dies. The cattle sent to London stood in the London market on the 1st of June, and some of them were exposed again afterwards for sale. They must have communicated the disease to foreign cows near them, for it was these cows which conveyed the malady into the London sheds. On the 24th and 27th of June the plague was already raging in different dairies, and since then it has been widely disseminated.

Some may still think we are too positive in our assertions on this point, and there are those who charge us with want of modesty for openly asserting what we believe to be the truth in relation to the origin, progress, and prevention of the cattle plague. Unfortunately, we too well know that veterinary science in this country has been most imperfectly taught and studied. But we are asked to confess ignorance on the disease now ravaging our herds. We are told "that there is no existing disease respecting which medical men would dogmatise so unhesitatingly as the veterinary surgeons have done respecting the cattle plague;" and we are told "that the doctors are looked up to because they have done good work, because they have diminished the fatality of our human diseases, and are daily at least endeavouring to acquire new victories over nature." Now, there is scarcely a medical subject on which you would engage to find a hundred of the best men unanimous in their opinion; but we have had congresses with nearly 200 of the most learned veterinarians in Europe, when, on the subject of the steppe murrain, no difference of opinion could be said to exist. It might be positive assertion, it might be dogmatism, that the disease was incurable, that it was also propagated by contagion, and that to diminish its ravages we must slaughter the sick and infected; but the verdict of the best men in the world, medical and veterinary, is unanimous on these points. That verdict is as unanimous as any conclusion would be at a meeting of doctors if the subject of human small-pox was broached, and the invariable origin of this disease in contagion, and its prevention by vaccination, were discussed. As Professor Seifmann justly observes in his report, just published, if we could cure the cattle plague, it is doubtful whether we should venture to do so, considering the danger of thereby keeping up many sources of contagion. As to the curability of the disease we have had some experience during the present outbreak. A small proportion of the animals subjected to medical treatment have recovered. We have treated many, and left many to take their chance. The result proves that those left to themselves have done as well as those that have been treated with all the remedies suggested from the commencement. The chance of cure depends altogether on the severity of the attack, and whenever attempts have been made to follow up a considerable number of cases, and treat them carefully, the result has been a mortality varying from 85 to 95 per cent. It is not astonishing that cures have been advertised, and wonderful results announced. In the last century hundreds and thousands of cures were advertised; and the imaginary remedies were pointed out. I do not believe in anything of the kind. I am one of those members of my profession who decline to advertise and proclaim "wonderful cures." The recovery of one or two apparently desperate cases encourages experiments as to treatment, but, so far as our experience has gone, the prosecution of trials has resulted in loss and disappointment. From the commencement of the outbreak one of my principal objects has been to discover how we might determine before ordinary observers that an animal had the disease. If remedies can be found to prove of service, they must be applied before the changes of structure are so far advanced as to render it impossible to restore health. Susceptible animals might, from the moment of attack, be declared, to all intents and purposes, dead. If the existence of the disease is discovered three or four days after, and even before it is detected by ordinary processes, I do not believe, even then, that its progress can be arrested. So far as my observations now extend, I believe that from 24 to 48 hours before any very obvious signs of ill-health, such as dulness, loss of appetite, &c., are observed, it is possible to indicate that animals are under the influence of the malady. I have no great hopes of success from treatment even at this early stage; but all will admit that it is something to have ascertained how at the earliest possible moment sick cattle may be distinguished from diseased cattle. I cannot pledge myself that our observations are invariably accurate, but we feel great confidence in judging the symptoms. Their eyes are dried and their noses moist, yet the animals may ruminate and not display symptoms of attack. By testing the temperature of the whole of the animals, we find it rises gradually as the disease extends; at first rapidly, then more slowly, until the heat reaches 105°, 106°, or 107°—fever heat. This heat of the system could be determined most accurately; there is no speculation about it. Out of a large dairy three or four animals may be picked out that are affected.

Before entering on the proposals made for the prevention of the cattle plague, I may be permitted to allude to the contrast offered between veterinarians and doctors, by which it is implied that we have done nothing to acquire new victories over Nature. On former occasions reference has justly been made to the manner in which, under a proper organisation, no less deadly a disease than glanders in horses has been well nigh banished from our cavalry stables. This has been a victory over Nature, but it has been due to the early slaughter of sick and infected animals. When small-pox ravaged our flocks in 1862, treatment, inoculation, and vaccination were resorted to, until I called the farmers together and told them how to kill out the disease. In three weeks the malady was stopped. This year, too, small-pox broke out in Sussex, and as the disease was no less imported than the steppe murrain, the early slaughter of diseased animals at once extinguished every trace of the pest. Having ascertained that it was the true Russian plague which had reached these islands, we hesitated not to advocate the means found most efficient abroad of preventing contagion by killing the sick. We were at once met by doubts expressed as to the origin of the malady, and assertions stated as to its dependence on conditions of the atmosphere. Government said it lacked power to control the progress of the malady, and I suggested the formation of a national association for the prevention of cattle disease. At once steps were taken to diffuse useful information on the disease, and call upon civic authorities, railway and steamboat companies, &c., to aid. Local insurance societies soon came into favour. I attended various country meetings to show the fallacies of local association, and the justice of my remarks has been amply verified by the letter from Sir James Kay Shuttleworth in the *Times* of the 5th inst. A fortnight back, at Northampton, I spoke of the importance of a Government cattle insurance system. From the commencement I have been opposed to any indemnity from the public purse, and it has been my endeavour to show that, if Government were properly guided in this matter, it could meet the difficulties of the case, and secure control over stock for the effectual suppression of so virulent a malady as the one now raging. It is true that there are other measures to be adopted, and gross abuses to be corrected. The one measure not to be advocated is directing the energies of veterinarians to the cure of the disease. Adopt this course, and there is an end to any proper action whereby the plague may be banished from Great Britain. Turn to the written histories of typhus and yellow fever, of human small-pox and cholera, and tell us what has been done by curative means. The doctors who have gained victories over Nature have gained no victories over these maladies but by the adoption of preventive measures. Animals can be dealt with differently to men, and a hundred outbreaks of cattle plague might be quoted to prove that to kill is to save the lives of thousands and tens of thousands. To spare the knife implies propagating and perpetuating the malady.

A LONDON COW-HOUSE.

Meeting in a crowded London street the other day a friend who had been lately travelling through many English counties, we asked if he had been nominated to serve, as he was well qualified to do, on her Majesty's Commission of Inquiry into the Cattle Plague, of which we had just heard? His reply was, that he had been in and out among stock farmers within the past month all over the Midland Counties, and he had neither seen nor heard of "Rinderpeste;" that he believed veterinary surgeons and agricultural journalists together had, for their own purposes, manufactured this great rumour of disaster among herds; that they had thus done much greater injury to the meat trade, by its influence on the markets, than tenfold the actual and immediate mischief of the disease itself, if that had been borne in silence; that a medical man of his acquaintance who had had ten cows attacked by the disease had actually cured six of them; and that in short the evil, calamitous enough for many London cow-keepers, was a mere local fever, the product of close accommodation, bad air, and lack of drainage in the pent-up London cow-houses.

A few hours afterwards we walked through a London cow-house, situated in the lower part of a Belgravian Mews. It was 25 feet wide, 12 feet high, with opening windows on one side, and large openings in the ceiling on the other, affording perfect ventilation. It was drained down the central gutter into a trapped sewer. The cows' stalls were seven feet wide for couples; and the arrangement of troughs for water and for food was all that could be desired. We could see the whole accommodation at a glance, for the house was empty. It had been swept clean by the plague! Here then was an example altogether at variance with the confident and cynical declaration of our friend. The accommodation was perfect—the drainage, air, and food and treatment had been sweet, and clean, and good—and yet the "Rinderpeste" had cleared out the establishment. Moreover, the owner was one of the foremost and most intelligent in the trade—taking the lead in the excitement, carefulness, and anxiety which the first rumours of its attacks had produced, and making every effort to keep it at a distance from himself.

And nothing is more curious in the history of this epizootic disease than the extreme irregularity of its attacks. The cow-houses pent up in the very centre of the metropolis are said to be entirely free from it, while animals in roomy suburban byres, and even those at pasture, have been struck down in numbers by its virulent attacks. The worst examples are not in places where, a livelihood having to be made, the most is extracted from the area rented and the food bought, but in the model and even fancy cow-houses of our aristocracy. The pet herd of Miss Burdett Coutts, Lord Granville's large establishment, and others conducted liberally, with every regard to cleanliness and wholesome treatment, furnish the most frightful instances of extreme virulence that are known. And on Saturday se'nnight Lord Sydney, writing from Frognal, Foot's Cray, Kent, described his own experience as bad as any of them. He had in the park 11 beasts, born and bred on the estate from his own dairy cows. They were near to the homestead, and away from every road or any possibility of contagion, and the park is bounded by a wall and made plantations. Moreover, no new stock of any kind had been brought into it this year. Never-

theless, here on the 7th of August one animal was seized and died under the hands of a veterinary surgeon, to whose place it was removed. In time all the others became affected; nine have died and two have recovered. When the first bullock was seized, no cattle had been affected in the neighbourhood nearer than three miles. The conclusion to which Lord Sydney asked is, that though the malady is no doubt contagious, it must nevertheless often arise from atmospheric causes over which there is no control. Be this, however, as it may, we cannot in the least assent to our friend's idea that the prevalent fear is unreasonable, or that the fatality of the disease has been exaggerated, notwithstanding that he had not met with instances as he travelled through the Midland Counties. We, too, travel to and fro, wherever matters of agricultural interest require examination or report; and to take an example of another kind for an illustration, although thousands of mowing machines exist and are employed in the Grass-land districts of the country, it is not once in 50 miles of a railway journey in July that we see any other mower than the scythe at work. There are 4,000,000 head of cattle in this country; and notwithstanding that not one in a thousand of them have been yet attacked with the disease, or that an agricultural tourist through the Midland Counties did not meet with it, the "Rinderpeste" is most properly a frightful thing to every stock-owner in the country. It has nearly decimated the dairy herds of London; and it is not without reason that County Associations, insuring solely against the risk of this disease, are everywhere being established. And more injury will be done to the meat trade of the country, as we believe, if the reckless policy advocated by our friend be followed, than though every stock-owner in the country should be so impressed by the frightful character of this new risk under which he holds his herds, as to resolve at once to insure in the nearest office for the purpose, and to determine, as far as possible, to keep out of the store cattle market during the autumn. This is an injunction which is now rendered ten-fold more imperative than it was, by the liability which sheep at length have shown to take and carry the infection. Near Norwich, Professor Simonds reports that at least two large flocks have been attacked by a fatal disorder, resembling "Rinderpeste" in all its distinctive features. And within the past week even horses, according to Mr. Tattersall, have proved to be not exempt.

This is no mere rumour manufactured by the journalist—it is a most disastrous calamity, and too much fear of it cannot be excited. Better have trade stagnate as the consequence of this fear, and consumers, dealers, and the public generally thus be made to share the common burden, then let mere recklessness convert what may still possibly be a manageable evil into an overwhelming plague, which shall ultimately sweep our pastures and our feeding stalls as bare as many a London cow-house already is.

Wherever, therefore, store stock must be bought, let the greatest precautions be observed to keep them long enough in careful quarantine. Every head of purchased stock ought to be kept at least a fortnight in absolute seclusion. The fields they graze should not be entered; or if the cattle must be kept in yards or sheds, the man having care of them must be considered full of danger to all the other stock upon the farm, and not be suffered to come near any other cattle, or near any one in charge of them.

Nothing is more clearly made out than the extreme virulence and activity of the poisonous contagion which seems to be conveyed with wonderful facility from one place to another. *Oxford Journal.*

THE ORKNEYS.

The climate of Orkney is moist and mild; there are neither such warm summers nor such cold winters as in the south and west of Scotland. In June 1861, however, a child died at Kirkwall from sunstroke. But such heat is very unusual. A gentleman who has lived in Orkney the greater part of his life told me that he had seldom seen ice strong enough to bear a man's weight. The Gulf Stream is, no doubt, the cause of this.

The length of daylight makes these islands a desirable summer residence. I have myself read a newspaper without difficulty at midnight in the month of June; and I have been told by a friend who lives in Orkney that on the shortest day he has read the *Times* at 4 o'clock P.M. by daylight, or rather by the beautiful twilight of that region, for in winter the sun is only about four hours above the horizon.

The soil is in many parts mossy, but there is almost everywhere a stiff clay underneath, and this, when ploughed up and mixed with the Moss, makes a very good loam. In many places the ground merely requires to be "tickled with the plough that it may smile with the harvest," as somebody has said. With such a soil and such mildness of climate, Orkney is likely to become a very rich agricultural district. The prevalent moistness and the withering sea breeze will, however, always make the farmer's returns from grain crops more or less uncertain.

There is perhaps no district in Scotland where so much is being done in the way of improving the land. In 1814 very considerable progress had been made on some of the larger estates in Orkney, more especially in the North Isles, where Turnips were pretty extensively grown, and at least one flock of fine Cheviot merino sheep was profitably kept; but it was not until about 25 years ago that the agricultural movement began in earnest.

Previous to that time the sea had been the sole support of the working man. He rented land, and paid his rent out of fish and seaweed. Leases of land were not given to small tenants, and of course no improvement was possible. Small crofts were held on the run-rig system, and a croft was supposed to do its work if it raised some stunted Oats, Bere, and a few Potatos. The women were generally the farmers, while the men fished.

It is not many years since Orkney made out of her sea-weed alone an annual income of 15,000*l.*, 20,000*l.*, and even 25,000*l.* There is a kind of sea-weed, the Fucus palmatus, commonly called Tangle, thrown up in great abundance on the shores of the Orkneys and also of the Western Isles. From this a substance called kelp is made, valuable from the large amount of iodine it contains, and once extensively used in the manufacture of soap and glass. Its value at one time ranged from 8*l.* to 16*l.* per ton, and during the war, when the importation of Barilla from Spain was prohibited, it reached the price of 20*l.* per ton. Orkney kelp always brought double the price of that of the Western Isles or of Ireland.

The process of kelp-making is as follows:—The sea-weed is collected and dried, and put into a hole in the ground about 3 feet wide. A live coal is then put in, and the heap is allowed to smoulder. During the smouldering it is stirred with an iron hook, until in course of time it gets into a state somewhat like molten lead. When it cools and dries, it is kelp. Besides iodine it contains Glauber salts, common salt, and carbonate of soda.

Owing to the reduction of duty on Barilla, which is both cheaper and better for glass-making, the manufacture of kelp is no longer remunerative, and as a general rule, kelp-making in Orkney has given place to farming.

It was not until after the failure in the kelp trade in 1832, and the establishment of weekly steam communication with Edinburgh in 1833, that it occurred to some of the larger proprietors on and near the mainland, that something might be made of the soil, to balance the loss of income from kelp. Even the most sanguine could not have anticipated, that, in a few years, improved farming, and communication with southern markets, would raise the export value of bacon and eggs alone to a larger sum than had ever come into the islands from the kelp trade.

In saying a few words on the present state of agriculture in the Orkneys, I shall take the island with which I am best acquainted as a type of the whole. It is perhaps below some, and above others, but it is a fair representative.

In the island of Shapinshay, which contains about 7000 acres, only 730 were under cultivation 15 years ago, when the rental of the whole island was 601*l.* The thriftlessness of the farming of these days is well illustrated by an anecdote I had from Mr. Balfour, the proprietor. His father, observing that one of his tenants was always in difficulties, though he did not pay a farthing of rent, said to him one day, that he was surprised at his being so much in want, seeing that he had a good croft, and paid nothing for it. "Oh, Captain Balfour," he replied, "I *dae* pay a rent."—"Why, what rent do you pay?"—"Weel—I *sud* pay a hen." He thus took shelter under the fact, that a hen was exigible, but he did not venture to say it was paid.

Another tenant, whose rent of 10*s.* had been reduced in successive years to 7*s.* 6*d.*, 5*s*, and 2*s.* 6*d.*, was at length, for his importunity's sake, allowed to sit free. This kept him quiet a year or two, but at the end of that time he presented himself on the rent day to the laird, who, at a loss to know what more he could want, said, "Well, Robert, do you wish for a further reduction of rent?"—"Oh, Captain," he replied, "ye're joking me noo; but I just cam to say that if ye dinna big me a barn I maun flit."

The island is now in a very satisfactory state of cultivation, about 5000 acres being under the plough, although the rental is as yet only about 1500*l.*

The rise in the price of land is surprising. Thirty years ago it was thought valueless, and could be bought for an old song. One half of Shapinshay was purchased by the grandfather of the present proprietor in 1796 for 1200*l.*; in 1846 the other half, though not better land, sold for about 14,000*l.* A dozen years ago Shapinshay imported meal for the support of its inhabitants; it now exports largely grain, Potatos, cattle, sheep, pigs, eggs, &c.

Any one who takes a trip to Orkney will see, as he sails into Kirkwall Roads, a noble mansion, which for elegance and size would attract attention anywhere; and he will be at a loss to think what could induce a man to build so fine a house so far out of the world. But if the traveller were to pass a week with Mr. Balfour, and have a talk and a walk with him over his estate, and see how much has been done, and is still doing through his encouragement and residence among his people; if he could see the cheerful, independent, yet thoroughly respectful bearing of his tenants towards him, as if every face said plainly, "The world is going well with me; I have enough to eat, drink, and put on, and I expect to be better off still, and I know that my landlord sympathises with me and helps me,"—if he saw all this, as I have, he would be at no loss to understand why Mr. Balfour has cast in his lot with his people and made his home with them.

One plan adopted to encourage the improvement of the land is to charge for the first seven years a merely nominal rent—6*d.* or 1*s.* per acre. For the second seven years there is a small rise in the rent, and for the third seven a reasonable rent is charged, according to the state of the land. Another plan is:—A large piece of comparatively waste or half-cultivated land is squared off and made into farms. The previous rent is a little raised, and a lease is granted for 21 years, on the understanding that if at the end of seven years the improvements stipulated for have been carried out, one-third of the rent shall be remitted towards payment of the expense of them. After the first seven years no further remission is made, and the rent is raised 15 per cent. each successive seven years, till an average rent be charged.

The rental of the whole of Orkney is above 50,000*l.*, and is constantly increasing, perhaps at the rate of 2000*l.* a year; and the condition of the people is improving every year in consequence. In the three banks at Kirkwall there are understood to be deposits, made chiefly by the middle and working classes, to the amount of 300,000*l.* These are large figures, but they cease to be surprising when you are told that, at a moderate computation, 10,000 head of cattle, a large proportion of them Short-horns, are exported annually, besides a great number of pigs and sheep. Compare this with the traffic, not a great many years ago, when a sloop of 70 tons burden, making ten trips a-year, was found to be almost sufficient. Fifteen years ago beef was sold at 2*d.* per lb., butter at 6*d.*, eggs at 3*d.* a dozen, cows from 30*s.* to 2*l.* The average price of two-year-olds raised in Orkney is now from 12*l.* to 15*l.* "*Good Words*" *for September.*

Home Correspondence.

Education.—One of the most important questions of the present day is Education, bearing, as it does, so prominently on the welfare of the rising generation. The subject is surrounded with difficulties. In all schools there appears to be a want of some systematic method to act upon, in order to adapt the instruction given to the calibre of the variety of youthful intellect existing amongst a number of boys; and at the same time to fill their minds with matter best suited to the occupations the students will have to follow in after life. It is a mistake to expect the same amount of knowledge from youths of a similar age who may differ in ability. One may have memory—another judgment—a third application—a fourth steadiness of purpose. Now, each of these lads possessing a peculiarity of character, to treat them all alike, because they have arrived at a certain age, would be as absurd as to place an equal weight upon several beams of equal dimensions, without considering the nature of the trees from which they were cut. In schools, to class the quick and slow together requires great judgment, otherwise the former may be unduly elevated, and the latter painfully depressed, to the prejudice of both. The master frequently attributes to stupidity what is merely a want of power in a pupil to catch the meaning of an explanation so quickly as his more precocious companion, though when he fairly comprehends the question he is more likely to retain a knowledge of the subject than the volatile youth. Unfortunately the sharp boy is too often attended to, and the duller neglected. Many persons who undertake the tuition of youths are wanting in a most essential qualification—the study of human nature, so necessary to enable masters to form a correct opinion on individual character, by which the treatment of his pupils may be regulated. A modest and diffident lad is often ruined by the intemperate conduct of his teacher, who forgets the trouble his own instructor experienced in making him understand what he has not the patience to impart to the boys under his charge. Much more might be said on the fitness and unfitness of men who undertake the office of schoolmaster; however, the main point discussed in the *Agricultural Gazette* is not general education so much as the preparation of youths who are destined to cultivate the land and produce animal and vegetable food for man and beast. The practical part of this trade requires an early apprenticeship; a sound education, such as may be received at any good school, is indispensable. A thorough grounding in writing, reading, and arithmetic, with a love of knowledge impressed upon the individual, and by making study a pleasure rather than a task, will be sufficient guarantees—under the blessing of God—for moderate success in any undertaking, however difficult, and more useful than cramming, and filling the heads of boys with stuff that will never be of any service to them, and which they really do not appreciate, having only got it up for the occasion, and exhausted a fair stock of intelligence in the exercise of memory only, to enable examining masters to report favourably of the progress of the scholars—a kind of wholesale advertisement at the expense of the youth's brains. It is doubtful how far an establishment exclusively for the education of farmers' sons would be advantageous to them. It is generally considered preferable to mix lads at a public school with those who will in after life come in contact with each other. Boys who rub

shoulders together, and interchange ideas with those above and below them in the social scale, have their minds better stored with valuable knowledge to carry them through the world than if they were kept amongst their own class and trade. A youth who wishes to become a practical agriculturist cannot spare more time at school than is necessary to fit him for self-instruction as he advances in years and experience. It is important to direct the young to a class of literature, to be studied when the boy leaves school, which will provide a store of information. School education is the pioneer, opening out the road, clearing away the rubbish, and showing the path to knowledge—but whether the man deliberately follows the track pointed out, avoiding the dangers and temptations he will meet with, or madly rushes on to his destruction, must depend upon himself. There is more learnt after than at school. *Falcon.*

Cholera and Cattle Disease.—The following paper was drawn up by the Rev. H. Moule, the inventor of the "Dry Earth System," at the request of the Secretary of the Hereford Society for Aiding the Industrious; and the Committee of this Society—feeling the great importance of the subject, especially at the present time, and hearing that the system has now been tried for some years past with most encouraging success—have resolved to circulate it throughout the city and the whole county. Copies may be had, gratuitously, at the Society's Office, No. 50, Commercial Street, Hereford; and the Committee will be thankful to any clergyman or other friend who will undertake to have a copy sent to every house in his parish, and to call attention to, and where necessary, explain it. Any communication, by letter or otherwise, will at once be attended to. *J. Venn, Sec., Hereford, Sept.* 9.

"The cattle disease and the cholera may both be greatly checked in their progress or even averted; and at all times the health of human beings and of cattle may be greatly promoted by the adoption of a plan which in itself is perfectly simple, and within the reach of every one. The secretions, both of human beings and of the brute creation, are among the most active agents in spreading and fostering disease, when they are allowed to ferment and the exhalations from them are suffered to escape, or when they drain into ponds from which the cattle drink, or into household wells, or into streams which supply water to the neighbourhood.* It is of the utmost importance, therefore, properly to dispose of these secretions, and the plan suggested is as follows:—1st, as regards cattle: Into a shed or outhouse near the stable or cowshed, or pigsty, let a sufficient quantity of earth or clay be carted. When that earth or clay is tolerably dry (the drier the better), let a portion of it be sifted through a sieve with a quarter-inch mesh; every day let this be applied in sufficient quantity to absorb the liquids, and let the solid secretions be swept as often as possible into a heap with this earth: or the floor of the stable, &c., might be so constructed that the liquid secretions should drain either into a hollow at the outer end of it, or into a shallow pit or vault, either of them being nearly filled with dry and sifted earth. In a very few days the absence of ammonia from the atmosphere of the building will strikingly suggest the efficacy of the disinfecting power. Do any object to the trouble and perhaps the expense of this? The value of the manure thus saved will more than compensate for both. 2dly, as to human beings threatened by cholera, or any other epidemic or infectious disease: Professor Miller, in his Report recently circulated by the Privy Council, with reference to the threatened approach of cholera, recommends that all secretions should be covered with a layer of powdered charcoal or of lime, or, if these be not at hand, with fresh or dry earth. It has, however, for some years been fully established that earth or clay, dry and sifted, is quite as efficient for deodorising purposes, and (as the writer believes) for disinfecting purposes, as charcoal; and far more so, and every way far better, than lime. Into the vaults then, as at present ordinarily constructed, let a considerable quantity of such earth be immediately thrown, and let addition to this be made from time to time. This will prove a great remedy; but it requires a very large quantity of earth—and because of the drainage, which may flow from the vault into some water supply, it may prove very partial in its effect. An out-door vault for the purpose of proper supply of earth should as soon as possible be constructed. This should be water-tight. It should be about 3 feet deep; and if it be carried under the whole floor, and if there be no opportunity of removal from behind, that removal can be effected without the slightest offence through a trap-door in the floor. Such vaults may be and are constructed for closets inside a house, the opening for removal being made through the foundation and basement of the wall. But for the sick room, or hospital, or prison, or private house, there are earth closets or commodes of a most simple and efficient construction, which may be used as a receptacle both of liquid and solid secretions, in which those secretions can be immediately covered with earth. Thus all fermentation is prevented, and no exhalation or offensive smell can escape into the room, and no offensiveness is found in the removal of the secretions. In cases in which parties cannot incur the small expense of these commodes in a sick room—in many a cottage, for instance—it will be well to have a box of dry earth in the sick room, and apply it by means of a small scoop. When the earth has been used once, it may be dried and sifted, and used a second time, or even several times over. This is important when it is difficult to get the earth (as in towns), or when the manure has to be carried to a distance. The manure may be applied at once to the garden or field; or may be allowed to accumulate, under cover, until wanted for use. The accumulation is quite inodorous, and becomes rapidly dry. Several of these closets were used with great success in the recent Rifle Camp at Wimbledon; and the system advocated by Mr. Moule is now fully and successfully established in almost every gaol and barrack in India. A paper on the subject, read by Mr. Moule before the Society of Arts, and printed in their Journal for May, 1863, has been reprinted by the Supreme Government, and sent by them to every station. The Punjab Government have translated the paper into the language of the people of that Province. And some of the highest medical officers in that country speak of the inventor as one of India's greatest benefactors.

Disease among Dairy Cows in Ireland.—Permit me to draw the attention of your readers to a new form of disease which has broken out amongst the cattle in this neighbourhood and in many other parts of the island. It appears to be epidemical, and is chiefly confined to the dairy cows. The symptoms are: the forelegs from the knee to the elbow get in some instances very much swollen; the animal becomes lame, and is attended by a good deal of fever; at the end of three or four days the legs present the appearance of having been blistered, and discharge a watery kind of fluid, and if neglected break out in large sores. At present I have not had the opportunity of tracing the complaint further. The whole of our dairy cows were attacked simultaneously, and the means adopted were to give each beast a drink composed of 1½ lb. of Epsom salts, 1 ounce nitre and 1 ounce sulphur, and 1 lb. treacle, and the affected parts were washed with a solution of "Cliff's Antiseptic Fluid" diluted with 40 times its bulk of water. Practically speaking they were all well next day, with the exception of one. In this case the disease appeared to be deeply seated, the swelling was considerable, and fomentation with hot water was had recourse to, and when it broke the discharge was much thicker; in fact, matter had formed. At the time I am writing I cannot report her any better, and she certainly does not appear any worse. Her appetite is good, and we are feeding her on bran mashes, Linseed, and sliced Turnips. Should any of your correspondents have met with the disease, I and many more of your readers on this side the Channel would be greatly obliged if they would give us their experience. *Joseph Earps, Home Farm, Newtownbarry.*

The Potato Disease.—In a valuable paper, contributed to the Royal Agricultural Society's Journal for 1858 by Jeffery Lang, M.D., great stress is laid upon what the author considers to be an established fact, namely, that the "disease" never attacks Potatos that are buried more than four inches beneath the surface of the soil. This statement is well supported in the paper alluded to, not only by numerous examples but by experiments upon healthy tubers buried at different depths, and afterwards watered with water which had been previously in contact with diseased Potato tops. In all cases we are assured that, after continuing the experiment for some time, the disease was induced in Potatos lying within three inches of the surface, but that those buried at a greater depth than four inches invariably escaped uninjured. Upon this is based some valuable hints on Potato cultivation. If this notice will induce any of your readers to examine their Potato fields, with a view to discover whether a deep layer of soil is a sufficient protection against the dreaded "blight," my object in writing to you will be attained. *X. Y. Z.*

* Some of the most rapid and malignant cases of cholera with which the writer ever met, occurred in a cottage which was clean and fairly ventilated, but the vessels from which he discovered to be emptied into a badly constructed drain, from which the leakage found its way into the household well.

Societies.

Albert Veterinary College: *Oct.* 10.—*Theory and Practice of Agriculture.*—Professor Coleman this day opened his course of Lectures on Agriculture at this institution. The following are extracts from his lecture:—

In introducing myself and the course of lectures which I shall have the honour of delivering in this institution on the "Theory and Practice of Agriculture," it is desirable that I explain to you what I believe can be conveyed in such a course, and what is beyond our reach. Agriculture is an art, differing from most arts in this, that the variations of practice are innumerable; hardly two farms can be found identical as to soil, climate, &c., and hence success will depend upon a steady acquisition of experience, which can only be acquired on a farm, and which is often best acquired in the locality where you are to farm. I am anxious that this should be realised at starting, and that no student should join this class under an impression that, after a course of lectures and readings, he will be fit to undertake profitably the management of land. It is true, undoubtedly, that much valuable information may be acquired here; but such will be valueless unless grounded on, or supplemented by, practical experience, which can only be gained by observation and habit. A student endowed with book-learning may become a great talker—may discourse learnedly, and to the admiration of the ignorami, on soils, manures, rotations, &c.; but put such an one on a farm, tell him to arrange his labour, plan rotations, and adapt his live stock to the food he has grown, and above all to produce at the year's end a percentage on the capital, and where is he? Well, he may be there, but the balance will be on the wrong side of the account. If, then, this business is so practical, and so much depends upon field work, the question may be asked, what is the good of lectures? Why not commence and finish the education of the farmer with this practical teaching? If farming were a mere practical art, if we had reached perfection in that art, if one practice prevailed, and variations were not innumerable, then there might be reason in the question; but agriculture is a science as well as an art. Good practice is the carrying out of scientific truths, and true science points out the reasons for, and gives the explanation of, practice. Science is as it were the key by which we unlock the machinery that has hitherto been hid from our gaze, and are enabled to trace the movements of the various forces by which the figures on the dial are put in motion. It follows, then, that an insight into the principles which regulate our practice, the study of the laws by which plants and animals live and move and have their being, must lead to an intelligent and improving practice. Endowed with this knowledge, we shall no longer be content to follow blindly in the footsteps of others, stumbling every now and then, in the semi-obscurity, upon some improvement as it were haphazard. We shall be prepared to receive practical teaching with more implicit confidence than before, because we shall be enabled to understand the reasons for particular systems, and at the same time be in a position to suggest improvement. For a long period the union of science and practice was not a happy one, and lacked that mutual respect so necessary for the *entente cordiale*. It was a cat and dog life—contempt on the one hand, unbelief on the other. The scientific man was disgusted with the ignorance that would not be taught; the practical man doubted the accuracy of teaching diametrically opposed to his experience. Was the ignorance all on one side? Were the farmers alone to blame? I answer no. We had another example of the trite old saying, "A little knowledge is a dangerous thing." The chemist experimenting in his laboratory obtained certain results upon which he generalised, and, never thinking that he might have only half the truth, thundered out his denunciations against practices which, in his ignorance, he called wasteful. I may be allowed to give two examples. A practice prevailed in certain circumstances of spreading manure on the land, and leaving it thus exposed to the action of the weather, often for weeks, before it is ploughed in. What remains looks often little better than dry straw. What has become of the rest? The chemist had found ammonia invariably produced from the decomposition of manure. This ammonia, which is a most important food of plants, in a free state or as carbonate of ammonia, is extremely volatile, passing rapidly away into the air; and if it so existed, no doubt the practice to which we allude would be most wasteful. But here was the error of the chemist. Nature is more provident than to risk this loss. The same causes that produce ammonia from the fecal matter generate an acid called humic acid from the straw; these, having a mutual affinity, unite; and the resulting compound, "humate of ammonia," is non-volatile, but highly soluble. Now, mark the *rationale* of the farmer's practice. Every shower—nay, every recurring dew—carries down into the soil a portion of this precious compound. The soil possesses the power of taking it up from the water, storing it away, and giving it up again to the roots of plants as required; and we may believe that thus the ammonia and other soluble matter is far more generally distributed through the surface soil, with less risk of loss than if the manure had been at once buried five or six inches deep. For a second illustration I would refer to the controversy that was waged for a long time as to the practice of paring and burning. A practice prevails in some districts, where the soil consists of a mixture of lime and clay, of breaking up the Sainfoin leas—a pasture plant that remains down five or six years—by paring, that is, shearing off the vegetable matter with some half-inch or inch of soil, and burning the whole. This practice, notwithstanding its undoubted success, was loudly condemned, and not, it must be confessed, without apparent reason. The soil is naturally very shallow, and contains very little vegetable matter; and here we were dissipating all this, and reducing our soil. Shallow paring, however. That which we lost could be collected in one broad-leaved crop, consumed on the ground; while the changes in the mineral food, in the ashes which remained, were most important: and Dr. Voelcker has shown that a good crop of ashes contains the manuring value of 2 tons of bones. No wonder then that, during the days when the science was thus dealt out to the farmers, the union was not a happy or prosperous one. As an instance of direct benefit received from science to practice, I would notice Liebig's recipe to mix sulphuric acid with bones. The immediate advantage of this plan, by rendering the phosphate of lime more soluble, and economising the bones, was great, but was as nothing to its indirect action in developing the mineral supply of phosphate, without which our Turnip crops would long since have been minus their phosphatic dressings. The agriculturists—even those denied these great advantages in practice—prove, by the eagerness with which they listen to the teaching of scientific men, that they value and believe in such knowledge, and the rising generation, if they are to maintain their place in the great race of life—must study the natural sciences in their application to agriculture,—they must understand the laws upon which life and growth depend. I, therefore, trust that your time will not be thrown away in attending these lectures. Many of you probably are not destined to farm in this country, or to make farming your business at all; to those that are will find much matter that will be of value to them, and be introduced to a general knowledge of many a science. Some will no doubt come to this institution as a preparation for life in the colonies, and to these our studies appear to be peculiarly suited. Experience has proved beyond question that the acquisition of practical knowledge of the details of English husbandry is almost entirely useless to the settler; everything is so different, that he has to acquire his experience de novo. But the study of the physiology and pathology of our domestic animals will be invaluable to the man whose success mainly depends upon good management of live stock. The principles of chemistry and the general knowledge of the laws which regulate the growth of plants are all likely to turn to practical account—at least, it is impossible to say how valuable a knowledge may prove. And it does, therefore, appear to me that this institution must prove attractive, and offer special advantages to those who are looking to our colonies as the theatre of their exertions. And lastly, those who come here to study for the veterinary profession—and who, of course, will form a large majority—will surely find the advantage of obtaining a general knowledge of the principles of agriculture. Most of you must look forward to a future in some rural district and amongst the farmers, and will be all the better able to give advice upon the management of stock if you understand something of the farmer's business.

[The Professor then proceeded to develop the syllabus of the course of lectures which he proposes to give at this institution.]

Farmers' Clubs.

Docking: *Prospects of the Farmer.*—At the recent annual meeting of this Farmers' Club the Earl of Leicester spoke as follows on the present prospects of agriculturists:—I am afraid that I cannot congratulate you upon meeting under propitious circumstances. We have harvested the very worst Wheat crop that I ever recollect in this district, the natural result of having had no flag, no plough in, an unpropitious seed time, and early and severe frosts in the spring. I am afraid our prospects for the future Wheat crop are not very bright. It is very desirable that in this district of the county we should get our Wheats in early. It is now the 6th of October, and there is very little land prepared for the Wheat crop. Our Barleys on our light lands were burnt up, and on all lands they were badly got up. Yet as the Barley harvest was tolerably general throughout the country during a period of wet weather, I think that our Norfolk Barleys are likely to hold their own, and those who hold such samples as were contemptuously discarded last year are likely to meet, I trust, with a fair price. While our Barleys were being drenched we were rejoicing in the hopes of an abundant root crop. The extraordinary drought of the last five weeks has destroyed that prospect. Our Mangels are good, but Turnips must be deficient in quantity if not in quality. I am more and more satisfied of the beneficial results pertaining to deep cultivation for the root crop, and I am satisfied that one deep ploughing, and only one ploughing in the early winter, is the best means of retaining the moisture in the land, without which the Turnip crop must be a failure. It is true that beef and mutton are fetching extraordinary prices, but we have to give nearly butchers' prices for our store stock.

Our light-land arable land farms in West Norfolk are not adapted for the breeding of either cattle or sheep; therefore we do not derive that advantage from the high price of meat which we otherwise should do. And now, gentlemen, we are threatened with a disease in our cattle and our sheep; but I think that from the exertions of the committee of our association, and especially through the exertions of Mr. Read—to whom we are deeply indebted for the prompt and vigorous measures which were taken to prevent diseased cattle from infecting the healthy—with proper caution on our part and with a prospect of cooler weather, I trust we may escape severe losses from this calamity. This is a long list of grievances, but I think that we have learnt something from our trials that will be of service to us even in years of abundance. Continued prosperity causes the energies of man to lie dormant, and in the trials and difficulties we have had lately to contend with we have learnt some things. We have learnt that hay—the most costly crop we can grow—is not a necessary item in our produce. We have learnt the value of straw as a feeding article. We have learnt how to economise our root crop. And if we have learnt that it is desirable to give deep cultivation to the roots of our plants to enable them to seek moisture in the earth, the trials that have been given us have not been, I trust, in vain. But we have not met here solely for the purpose of talking over our own affairs, but to consider what progress we have made in improving the condition of the labourer. Although we may not be altogether prosperous at the present time, I think that I may say that he is. Labour is abundant, wages are high, and bread is cheap, and I think we may rejoice upon the moral and physical improvement of our labourer. Drunkenness used to be a common vice in this district. It was no uncommon thing to see a man intoxicated. But I think I can say that for some years I have not seen one of my labourers the worse for drink. It was impossible at one time to get any work done without an allowance of beer; it was beer here, beer there, and beer everywhere. Now I never make any allowance of beer to any of my labourers; I give a full equivalent in money. They prefer it, and I am quite sure that they, their wives, and their families are the gainers by it. I am satisfied also, gentlemen, that there is no work but what can be done better without the beer that the men are in the habit of getting than with it. Many of my men are teetotallers. I do not think that it is desirable that men who can abstain from drinking malt or spirituous liquors in excess should bind themselves by a pledge, but those who find they cannot control themselves and abstain from excess have done a wise thing in doing so. They cannot obtain the beer that we drink, they cannot obtain the light wines of Germany and France, which will quench our thirst without causing intoxication. If they drink they must drink the drugged beer of the publican, which tends to excite their thirst and to cause excess, or they must drink the wretched stuff which is made at home, which is quite sufficient in itself to make any man a teetotaller.

Newcastle.—At a late monthly meeting of this Farmers' Club, Mr. Weeks, of Ryton, read a paper on the storing and consumption of root crops. He said: The object of this introduction is to induce members of this Club to discuss freely the points raised. It is admitted that dry weather is best for pulling and storing, and not in a house; and that fermentation, frost, and permanent germination should be avoided. First, then, for cattle—Should the whole crop be pulled and stored, or a portion left and taken as required? For sheep—Should the whole or a portion only be stored? Second—In pulling, should the top be cut close off, and often a slice of the Turnip along with it, the instrument used being stuck into the Turnip to pull it up? or should a portion—say an inch—of the stem be left? Should the tails or roots be cut off or only cleared of soil? Storing—Are they best in triangular heaps, say a base of 4 or 6 feet sloping regularly to the top? Or in oblong ones, any width you please, 3 or 4 feet thick, covered with straw; the object in the latter case being to provide against frost only? Or in small heaps in the fields where they were grown; or in a furrow, being opened, packed close in, and covered on each side? Or set as close as they can stand with their tops on, either in the field where they grew, or removed to a more convenient place? I have read of the tops of Swedes being salted down for future use. Has any gentleman any experience in that way? Mangel—Are not triangular heaps, covered and ventilated, the best way of keeping them? Now to the consumption. Cattle—Are they to be given in cold open folds, in long troughs, a cart-load at a time, to serve the whole day; or are they to be sliced and given alone; or pulped, mixed with cut hay and straw used fresh; or allowed to ferment spontaneously, or steamed before being given? And cannot some other ingredients be added to the mass to make the mess more palatable and nutritious? I observe that a celebrated cattle food maker is now offering to sell cattle spice, with which you can season your own food at one-half the cost. Cannot the farmer prepare his own cattle food and seasonings? Sheep—Should they be netted on the crop, brake after brake, until the whole is finished; or should they have them cut, and other things given them in addition to corn, either in the Turnip field or on Grass? Would not sheep be better with some cover while on Turnips in winter? Lastly, will it not be advisable to keep the Turnip cutter and pulper, the straw cutter, mill, and steamer going? These, then, are some of the salient points that information upon would be most valuable at the present time, and I believe it will be both interesting and profitable to consider what I have ventured to bring before you, the discussion of which I now leave in your hands.

Mr. E. I. J. Browell said: Last year he placed his Swede Turnips against a long wall facing the north, and covered them up with straw, and they kept very well. He thought the food given to cattle should be reduced to a smaller bulk. In the case of Turnips, they found that, speaking roundly, 90 per cent. of them consisted of water. Oilcake was a very rich strong food both for flesh and fat-forming qualities; straw was rich in the respiratory part of food, and the formation of fat; and so far was Barley, which perhaps some of them might be giving to their cattle this winter. Beans approached more nearly to oilcake. It appeared to him, though he did not speak from any great experience, that they should cut or pulp the Turnips, and mix hay or straw with them, and give along with it a little oilcake, Beans, Barley, or bran.

Mr. Jacob Wilson did not think that a very large quantity of Turnips was good for cattle. A 60-stone bullock ought not to have more than nine stones of Swedes a day. A while ago, he tried the plan with some 60-stone bullocks in boxes, and they did very well on it. Some younger bullocks running in the open fields, were eating about 14 stones a day; when the large bullocks went out, the younger ones were placed in the boxes, and in the course of a week or two they voluntarily reduced themselves to nine stones per day. That would show the superiority of box-feeding to open places. Pulping, he believed, would be very much resorted to this winter, and he would recommend the use of Palm Nut meal, which had been used with considerable advantage in some parts of the south of England, and it only cost about 7*l.* a ton. Experience rather went against pulping in the north, but perhaps this season would make them think otherwise, as they would be driven to it. The success of all feeding consisted in a proper mixture of food. He agreed with Mr. Browell as to the storing of Swedes on the south side of some dry hedge.

The Chairman said that, as their Turnip crop had failed, he would suggest that they consume their own produce; because, if they went into other markets to buy seed and cake, they would find it very expensive. He was one of the old school, but he had turned over his cattle to one who had had experience, and he never saw them in better condition. He was certain of this—they were eating only one-half the quantity of Turnips they formerly did, and he had no doubt that with giving them about 6 stones each a day, with about 7 or 8 lb. of meal, they would be about 50 stones at Christmas. The expense per week was about 7*s.*, and if they obtained 9*s.* per stone for beef, there would be a profit of 2*s.* He did not think that, with the bad crop of Turnips and an advance in the price of beef, he should be in a worse position than if the crop of Turnips had been excellent.

Mr. J. Wilson moved a vote of thanks to Mr. Weeks. There was a point which deserved their careful consideration, especially those who farmed strong land—Whether or not they could have a substitute in the way of a crop for Turnips? He thought they could grow Cabbages. A friend of his in Worcestershire farmed some very strong land, on which he grew a large quantity of Cabbages, producing 16*l.* an acre. That he thought was as good as a Turnip crop. If they could not feed sheep on strong land in winter, there was no reason why they could not do so in summer. With regard to the feeding of sheep, he had for many years followed the system of cutting the hay for them. There was very little waste, and the sheep did very well on it.

Derbyshire: *Autumnal Cultivation.*—Mr. Baker, of Kedleston, read a paper on this subject (Dr. Hitchman in the chair). He said: I propose to consider the merits of the system, first upon the advantage it affords in making an attack upon our natural enemies (weeds) in their weakest state—and I don't think it will require any very strong argument on my part to make this apparent, as you are all aware of the fact; but we may as well just look into the consequences of delay. In the first place, examine these pests immediately after the corn is cut; we then find them in a general way in a comparatively sickly state, with roots penetrating about 2 inches into the ground; but if they are left unmolested for a week or two we shall find them double that depth, and it will, of course, be necessary to cultivate the deeper to eradicate them, which cannot be done without considerable additional labour and cost, and then not so successfully as if the work had been commenced at an earlier period, as the difficulties of working out the twitch and the like increase in proportion to the depth of the cultivation required. Therefore, if the operation is commenced immediately after the corn is off the land, a mere skimming of from 2 to 3 inches deep will be sufficient to insure being under the roots, and with the usual harrowings, &c., the earth will be shaken out sufficiently to enable the rubbish to be collected, and carted off as a foundation bedding to the yards, or to be taken to the general rubbish heap of the farm to be used with lime for future crops, or as an absorbent of liquid manure. But I must here remind you that it is always necessary to use the skim with great care as regards depth, as if it is not worked deep enough to get under the twitch much mischief will be done by cutting off the points of the roots. I must also state that I have had considerable experience in the use of the fork and basket upon land that has not too much twitch upon it, and I can very strongly and confidently recommend this practice to your notice as the cheapest, cleanest, and most satisfactory system that can be adopted. . . . . This forking system was always strongly recommended by the late Mr. Pusey, as well as by Mr. Hudson, of Castleacre, and others; and when the fork is used as above, early in the season, the land will only require a very superficial working, merely for the purpose of setting the annual weeds growing previous to the winter ploughing, and if the dung can then be spared, I think it should be carted on previous to the ploughing, as the land is then in a good state to carry the carts, and consequently the dung will be put on with comparatively little exertion to the team, and without injury by poaching the land. This will be found an immense advantage as regards the preparation for any crop that may be required to be sown in the spring, particularly on what is called "strong land," as a simple scuffling will prepare it for the reception of either Dills, Oats and Dills, Dills and Rape, and the like, and any of them can profitably be eaten off with sheep in the summer, as a substitute for a dead fallow. Should the land be required for Cabbage or roots of any kind, it will only be necessary to apply the artificial manure by hand upon the surface, and then ridge up the land for the reception of the seed. Here, again, I must strongly impress upon you the necessity and importance of carrying on all operations connected with root cultivation simultaneously. I say, then, let us get everything in the best possible and most forward state, so that when our root crops are to be put in, all operations connected therewith can be done with alacrity. To ensure the power of doing this, cultivate, and, I say, dung in the autumn if possible. Another advantage of this autumn cultivation is that by it we take advantage of what is generally a leisure time of the year. Then why allow what I may call this golden opportunity to slip through the fingers with indifference, especially in a county where, in a general way, we have rather long winters, which retard early spring operations? Depend upon it, the time has come when we must bestir ourselves, and shake off what is called the bare fallow system. Why, as you know to your cost, it has become a household word that "Wheat don't pay." Then how can we afford to go on paying two years' rent and taxes for one crop, and with one-fourth or a fifth of the arable land (as is the case in some districts) in fallow? There is a very strong inducement for us to give this matter our best and most serious consideration at the present moment, for what do we hear outside but an outcry about the probability of a scarcity of meat, which should, I think, lead us to consider how we can best provide for the growing meat demand in future. Let us all put our "shoulders to the wheel" in this matter, and, by taking advantage of this leisure season of the year, with the fork and basket, or with a comparatively superficial skimming, clear away the twitch, &c., immediately after harvest, and after the annual weeds have well started, well and thoroughly plough the land deeply before the wet season of the year commences, by which the land will be put into the most favourable position to receive a free circulation of the air, as well as the full benefit of the frosts and winter weather, which are so desirable. . . . I believe it is possible to grow green crops successfully on strong or other land with only one good ploughing previous to the ridge plough, and if the dung can be got on and ploughed in with the stubble so much the better. And now for one moment let us consider the advantages to be derived from this autumn cultivation, with respect to what I may call enabling us to husband the natural moisture of the soil in the spring, which is another very important feature in successful root cultivation. I can remember the time when we never thought of attempting to clean the land intended for roots until after the spring corn was all sown. Then with ploughs, the drag, harrow, &c., we got off the first crop, and the same thing was repeated until the land was thought clean enough to sow. By this time we had worked away a very important week or two (or even month or two), as well as a good portion of tilth; and if the season happened to be a fine one, the soil became so dry that the seed could not vegetate, and of course it remained in a dormant state till rain came. As a natural consequence the crop was generally a defective one, and principally in consequence of not having the land ready to sow in season. I may also state that when spring cultivation was our general practice we frequently sowed a few acres at a time, as the land was prepared, which afforded a very good experiment upon the merits of early, medium, and late sowing; and from that experience I strongly recommend comparatively early sowing—say for Mangels not later than about the 20th of April, and for

Swedes the last week in May. Well then, from what I then saw of the advantages of early and medium root sowings I was induced to do all in my power to put myself into such a position by autumn cleaning and dunging as would enable me to sow a larger quantity of land at the earlier periods, and before I could satisfy myself I was obliged to be busy with the fork, &c., as soon as the corn was off the land. By that I could generally sow 16 acres with roots in a day, with 10 horses, viz., two each on four-ridge ploughs, and one each with two double drills, and thus get over a large breadth of land almost at any time with a prospect of the seed vegetating immediately after it was sown, as I had all the natural moisture retained in the soil. . . . What would be a better substitute or adjunct than roots to grains? Bare fallows might be tolerated when Wheat was selling at 60*s.* per quarter, and meat was not so much in demand as at the present time, and with the defective implements that we possessed formerly; but there can be no inducement for the practice now, as the tables have completely turned round, and we have the very best of implements at our command. I say, then, it behoves us to do all we possibly can to take such advantages of these things as are likely to be most beneficial to ourselves, and, at the same time, useful to the public at large. Then let us have no more "dead fallows," or at any rate let them be the exceptions; let us be up and at our enemies in the autumn, and then by early deep ploughing put the land into such a position as to secure a winter fallowing, and thus enable us to take advantage of the best season for sowing anything that may be thought desirable as a fallow crop.

Dr. Hitchman said: I am glad to hear Mr. Baker advocate manuring in autumn. All cartage on heavy soils is so mischievous when they are moist that to get the manure on in dry weather is a great boon, and fortunately science has discovered that the manure can be safely deposited on clay lands long before it is required by the crop. In fact, it is best there. Its ammonia, its phosphates, and all its valuable constituents are thus preserved—imprisoned in the molecules of the soil—until taken therefrom by the rootlets of the growing crop. Mr. Thompson discovered this law, and it has been confirmed by Way, Liebig, and others. I have myself experimented much in a small way, testing the absorbing powers of clay, and am satisfied that all the valuable salts are safely preserved in the soil and will not be washed away by rains. Mr. Baker referred to ploughing deep to husband the moisture. It is a relief to me to hear so practical a man advocate deep ploughing and a thorough pulverising of the soil for such a purpose; because I was startled to read in the *Derby Mercury* some observations made at the Uttoxeter Show, by a gentleman whom I have regarded as an authority in agriculture, which, were they correct, would overturn all my experience, and all that science has taught me respecting the proper management of soil for retaining due moisture and ministering to the support of plants in times of drought. This gentleman is reported to have said, "On his own farm he had strictly observed the rule never to use the plough in the preparation of the land for fallows for Turnips, but to skim over the surface so as not to disturb the subsoil, and thus to keep in the moisture." So long ago as 1701 Jethro Tull told us—"Make one land very fine by frequent deep ploughing, and let another be rough by insufficient tillage—then plough the field in the driest weather, you will find every fine land turned up moist, but every rough land will be dry as powder." In times of drought moisture ascends from below by capillary attraction, just as a piece of thread placed with one end in the water would become all wet from the moisture below, so do molecules of earth carry moisture from below upwards, provided the subsoil be porous; again, a very great source of moisture in dry seasons is the night dew, which permeates the well-tilled porous soils, conveying all its rich treasures of nitrogen for the supply of the plant, but which dews could not penetrate to the rootlets of the growing Turnip on lands which are simply skinned upon the surface.

Farm Memoranda.

[We take advantage of the immense body of agricultural evidence lately taken before the Hypothec Commission at Edinburgh to publish such extracts from it as will indicate the existing style of Scottish agriculture, and the enterprise and energy of Scottish agriculturists. In the present extract particulars are given about the agriculture of Lincolnshire, by way of contrast.]

(*Continued from p. 952.*)

Lincolnshire Agriculture: (No. 1). *Mr. John Higgins, jun.*—I am a land-agent and farmer in Lincolnshire. My father is the general agent and superintendent of estates with a rental of 77,000*l.* a year. He is also factor on Mr. Nisbet Hamilton's Lincolnshire estates. I have been in business with him for the last 20 years, besides farming on my own account. The size of my own farm is about 800 acres, and I pay about 30*s.* per acre rent. The periods of entry to farms in Lincolnshire commence in the autumn for sowing Wheat. The outgoing tenant either sows the Wheat and is compensated for the seed and labour, or he allows the incoming tenant to enter and sow the Wheat. The entry to the fallow land is on the 1st of December under the agreement; on the 1st of March the tenant enters for sowing spring corn, except where a little time is given when the Turnips are not eaten off; and on the 14th of May he enters to the home-steading and house, which completes the entry. Leases are an exception to the rule, and I may say a rare exception. The general rule is that under strict law the possession is yearly, and terminable by six calendar months' notice in writing from either party. On well-managed estates a written agreement is considered necessary; and where there is a written agreement it is usually adapted to the custom of Lincolnshire. There is a schedule of allowances for unexhausted improvements, and that constitutes the tenant's security against any arbitrary dismissal from his farm. By that schedule he is paid for his improvements according to a scale which is generally specified in the agreement. By unexhausted improvements I mean anything laid out on the farm from which a profit has not been derived by the tenant. The rents are payable in October, six months after the entry is completed. The crop has not only been reaped, but is the property of the incoming tenant; he has either sowed it himself, or paid the outgoing tenant for seed and labour. He does not actually pay the rent till he has reaped the crop. The second half-year's rent is payable at the following Ladyday, which is 25th March. *Q.* What are the securities which the landlord possesses for the punctual payment of his rent? —*A.* The landlord is generally satisfied with the account which is given of the candidate for the farm. If he is a very young man, or there are any circumstances which lead the landlord or his agent to feel any doubt on the subject, he frequently requires the candidate to give him the name of another person as joint-tenant. That is an extreme case; but generally from knowing his character or reputation, or by a few inquiries on the subject, the landlord or his agent becomes satisfied that he is a trustworthy person, and lets him the farm. If he falls in arrear, the landlord has his remedy under the English law of distraint. Under that law the landlord may, without any judicial authority, put an officer of the law in possession of such effects upon the farm as he thinks will cover the amount of the arrears. The officer takes an inventory, and gives the person in arrear notice at the foot of the inventory, that, if the rent is not paid within five days, he himself will sell the effects. The landlord may do this as soon as the rent is due, but not before the day of payment arrives. I am not aware that he has any security before the day of payment, but in some agreements provision is made that on demand the rent shall be paid quarterly; so that he has that additional security. An ordinary creditor cannot make his debt available against the tenant, till he has satisfied the landlord—that is, if the rent is due. Having levied his execution, he is obliged to pay the landlord if the rent is due. The distress can only be put in force against goods actually on the farm, except where a clandestine removal, prompted by fraudulent conduct, shall take place; but this must be for the purpose of eluding payment. I believe the landlord cannot follow goods and possess himself of them after a *bonâ fide* sale, even if the *bona fides* was only on the part of the purchaser; there must be collusion before he can do so. The landlord's power to take the goods so fraudulently removed is limited to 30 days after their removal. The landlord, however, runs a very great risk in following property, because the *onus* rests on him of showing that there has been clandestine or fraudulent conduct; and, if he cannot prove the fraud or collusion, he will be liable in an action of damages. If goods are removed after the officer of the law has been put in possession, the landlord could follow them. The distress applies to everything found on the premises, whoever it belongs to; and it even goes the length of cattle sent to the farm to graze. It also applies to cattle which have strayed, provided they have escaped through the owner's negligence, and have been a night and a day without recovery being made. When I say that the distress applies to all goods on the farm, I mean that it applies to corn growing as well as to corn that has been reaped. The landlord may also distrain the goods of a sub-lessee, whether such sub-lessee has paid his rent to the lessee or not. The Act 14 and 15 Vict. c. 25, provides that growing crops seized and sold under an execution are liable, so long as they remain on the farm, for accruing or subsequent rent, but they cannot be taken possession of till the rent is due. The right of distress extends to rent in arrear for one year provided there has been a bankruptcy, but for six years provided there are no other claims urged against the tenant. The landlord does not lose his right of distress by taking security for the rents in the shape of a bond or bill. Suppose the tenant has a counter claim against the landlord, that does not affect the landlord's right of distress. In our district our experience may extend over 40 years, as my father's has done, without bringing the factor to the cognisance of more than five or six cases where the law of distraint has required to be used. I have been in business for nearly 20 years, and I have only had one case where I had to recover rent through the arbitrary process of distraint; and I have a statement in my father's handwriting in which he says, "Our receipt of rents for the Crown and other landlords in England amounts in the aggregate to 77,000*l.* per annum, and for a period of 47 years we have only had occasion to resort to the law of distress six or seven times. For the rents due up to last October, the whole amount of arrears involved in these estates yielding 77,000*l.* of rent was under 10*l.*" As often as a fresh rent accrues the landlord can distrain if he has not included every in his inventory. The landlord's rights under the law of distraint are preferable to those of all other creditors; and whatever the distraint may produce belongs to the landlord, including the expense of distraint. My father has the management of one estate in England on which there are leases for 21 years, and the law is the same with reference to distraint as in year-to-year tenancies, with slight exceptions; but, on non-payment of the rent, the lease becomes void—generally in 21 days after each half-year—if payment is not made. In a crown lease which I looked at the other day I find that the tenant getting into arrear makes the lease void. One great security which the landlord has for the recovery of his rent is what is called tenant-right; because, if a tenant under the schedule of allowances makes a large bill, that is a security to the landlord, the tenant cannot claim it from the landlord until he has paid his rent. Waygoing crops were at first intended as a security for rent; but the landlords are now doing away with these, feeling that they no longer require a security in that form, because they have a good security in the power they have to retain payment of the tenant's account for unexhausted improvements. The tenant's bill for unexhausted improvements is subject to the scrutiny of valuers appointed on the part of the landlord and the tenant, and is settled by them or their umpire. (No. 2.) *Mr. James Martin.*—I am a land-agent and tenant farmer at Wainfleet, near Boston, in Lincolnshire. I concur generally with Mr. Higgins' evidence. The terms of entry in our county differ; some are at 2[illegible] of March, some at 6th of April, or new Lady Day and old Lady Day. Where the agreements contain provision for quarterly payments, the right of distress may be used when the quarterly term arrives. Leases are the exception in Lincolnshire. In Oxfordshire I know there are some cases in which there are leases for 7, 14, and 21 years, and these leases contain a provision that non-payment of rent shall, at the option of the landlord, terminate the lease—within 14 or 21 days generally. We don't collect the rents due on 6th April till July, and those due on 6th October we collect from November to January. My rent is due on 25th September, and I don't pay it till February. The right of distress exists for the whole of that period. The improvement allowances are expressed as follows in an agreement on one of the estates for which I am agent:—"To be allowed on quitting, where a corn crop has not been taken, for all the bones or other artificial manures used in the last year; also half the Linseed cake consumed by cattle or sheep on the said farm, providing there be no more used than the average of the three preceding years, and half of the same has been used in the straw yard. No underdraining to be paid for unless sanctioned by the landlord or his agents, and done at least 3 feet deep, and with pipe tiles of not less than 2 inches bore; when so done, and the tenants finding tiles and labour, to be allowed on a seven years' principle; no cartage to be paid for excepting done in the last year of the tenancy. Lime and marling to be allowed on a five years' principle. The bills for underdraining, liming, and marling to be examined and approved by the agents the next rent-day after the work is completed. Labour on summer or dead fallows on lands marked heavy land in schedule, but not otherwise, to be paid for, providing the land has been properly ploughed four times, and the amount not to exceed 2*l.* per acre. No rent, rates, or taxes to be allowed." That is a specimen of the covenants added to the agreement for the purpose of carrying out the tenant-right. The seven years principle deducts one-seventh each year, so that in the eighth year the tenant will get nothing. There is no reference made to the quality of the bones or oilcake, only we don't admit cotton-cake. The farmer would get the same for boiled bones as for good bones that had not been boiled, supposing that he had used them for three years; but all the accounts are produced to us, and we pay according to the real value. All accounts must be paid before they are allowed by the landlord. I should consider 10*l.* an acre of capital necessary for taking a farm of 500 or 600 acres. The quantity of land in Grass varies very much; on the average, about a third is pasture. The extent of my farm is 900 acres; and my father and brothers farm 2400 acres. As to the rotation of crops, some farms have half corn, quarter seeds, and quarter Turnips; others three-fifths corn, one-fifth seeds, and one-fifth Turnips. We leave it in the option of the tenants to take the corn as they like. The five-field course is Turnips, Barley, seeds, Oats, and Wheat; the six-field on deep soil is half white corn, one-sixth seeds, one-sixth Turnips, one-sixth Pulse crop (Beans, Peas, Tares or Vetches). The rotation there is not to have two white crops together—Turnips, Barley, seeds, Wheat, Pulse crop, and then any white crop.

Wester Ross: *Sept.* 26.—From the unusual heat and drought of summer the crops ripened much earlier than usual. Our harvest was begun upon the 10th of August, the cutting was completed on the 4th September, and carting to the stackyard was finished on the 8th September. In 12½ days six scythemen cut 160 acres, or about two acres per hand per day; and in four days

thereafter the whole was in the stackyard in first-rate condition. In wet seasons, when straw was abundant, I have had upwards of 100 stacks; this year, off the same extent of land, I have only 52. As the crop was unusually light, I had two scythes fewer at work than I have had for years, and consequently the expense is considerably less. The whole cost of cutting, gathering, binding, leading, stacking, and threshing is 22*l.*, or 2*s.* 9*d.* per acre. It is to be remembered, however, that all the half-year servants were engaged in the work, and that the cutting, which is the more costly part of harvest operations, was mainly performed by the ploughmen. The wages of scythemen per day are 3*s.*, binders 2*s.* 6*d.*, women for gathering 1*s.* 9*d.*, and girls for raking 1*s.* 2*d.* It is not supposed that there will be as great a shortcoming in grain as there is in straw. The stacks already threshed have yielded pretty satisfactorily, although the yield per acre is not large. The whole crop was brought to the stackyard in the best condition, without one sprouted sheaf; and, although the Oats are not heavy per bushel, the Wheat and Barley are expected to weigh well. The farmers when now met together have facts to talk of. One tells that he put the crop of upwards of 70 acres into 19 stacks; another says that one of his stacks contains the crop of 9 acres, and a third says that he put the produce of 15 acres into his mill-barn, threshed it, and the yield was 11 qrs. of Oats! The heat and drought of summer still continue, and the Turnips have become quite discoloured with mildew. The growth of the earlier sowings has been stopped for some time, and they have entirely lost their natural colour. The later sowings have kept their colour better, but are now fading also. Turnips cannot now be a full crop, nor will they be of good quality. Potatos are particularly fine, and as yet the tubers are free from disease. The soil is so dry and hard that it is with difficulty it can be turned with the plough. Our stock are in a thriving, healthy condition, and there is no word of the approach of the plague. Steps are being taken, however, to prevent its coming, and prepare for its approach.

Miscellaneous.

An Unexpected Prize.—At an agricultural dinner held in Lincolnshire a few days since, Mr. W. North, whilst proposing "The Town and Trade of Boston," begged permission of the Chairman to exercise a privilege conceded to him by the stewards—that of awarding a judge's prize, which the official judges had overlooked. (Laughter.) It would be fresh in the recollection of many present (said Mr. North) that at the last annual meeting he had the distinguished honour to receive a white hat—(roars of laughter)—as a prize for the worst stacking and the most slovenly stack-yard. He had carefully preserved the prize—(laughter)—and having made an inspection of a great many farmsteads, he had met with one that he considered fairly entitled its owner to be the holder of the hat for the ensuing 12 months; and having brought the hat with him to the meeting, he had very great pleasure in awarding it to the gentleman he had just alluded to, and that was the Vice-Chairman, Mr. W. Welsh. (Roars of laughter.) Mr. North said the hat had never fitted him—(laughter)—and therefore he could very cheerfully part with it. Then, amid the convulsive laughter of the company, he handed the hat and box over to Mr. Welsh, and resumed his seat.

Notices to Correspondents.

Albert Veterinary College, *Queen's Road, Bayswater, London.* We learn that tenant farmers and others in the country and provincial towns may, for the yearly payment of one guinea, secure the following privileges:—1, Advice by letter; 2, Reports on special outbreaks of disease, and attendance in the country if necessary on payment of travelling expenses and a nominal fee of one guinea per day; 3, The examination and treatment of such animals sent to the College free of all charge except for keep.

Butter: *C H.* Wash the butter thoroughly by means of Hancock's press in water in which a little nitre has been dissolved. You will see a number of recipes given in the Handbook of Dairy Husbandry, price 1*s.* 6*d* (Longmans).

Cattle Plague: *W. Marshall.* We will collect the information before the winter. Meanwhile we shall be happy to publish individual reports, such as the one you have sent.—*Reader.* The *Times* announces that the Hereford Town Council have resolved to exclude all horned stock from the great October fair.

Oilcake: *N J A.* There are machines for breaking oilcake, by which it is reduced partly to small fragments and partly to powder. It is generally put in the troughs after they have been cleaned out from the previous meal—chaff or Turnips. We have also given cake broken and mouldered down in water, thrown over mixed hay and straw chaff, to cattle and sheep. Give from 2 to 4 or 6 lb. of cake to oxen or cows, and from ½ to 1 lb daily for sheep.

Swedes and Rape-seed: *Gulielmus* says:—A retailer of agricultural seeds sold a farmer Rape-seed, thinking it to be, as asked for, Skirving's Turnip seed: now, by the custom of the seed trade, does the seller warrant the seed—that is, does a warranty arise by implication without words, by usage or custom of the trade? What is the value of an acre of Skirving's Swede Turnips, and what of Rape-seed, each good average fair crop? [A seedsman supplying Rape for Swede seed is certainly in equity liable for the consequent loss of his customer, but as to the possible issue of an action at law you must consult your solicitor. A fair crop of Rape may be worth less than, as much as, or more than, a fair crop of Swedes. In the fen district it is worth more, but generally it is worth considerably less. It may yield on common soils 6 to 8 tons of food per acre, and Swedes may yield 14 to 18 tons per acre. And the consuming price of green cattle food is about 6*s.* a ton.]

Wheat after Beans: *Z.* We prefer taking Wheat after Wheat with an intervening crop of Beans, to taking the two without an intervening crop, even though the Beans be not manured.

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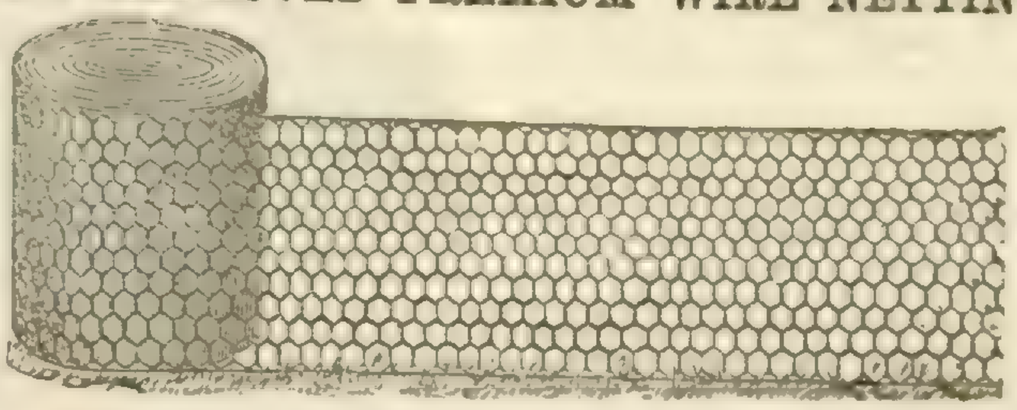

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1⅝ inch	Small Rabbits, Hares, &c.	4*d.*	4½*d.*	4½*d.*	6*d.*	5½*d.*	7*d.*	7*d.*	9*d.*
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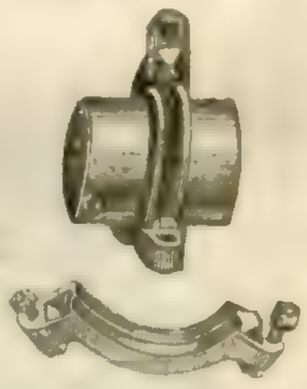

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BURY AND POLLARD have just fixed, at Wollaton Gardens, for Lord Middleton, several BOILERS and LONG RANGES of PIPES.

Heating by Hot Water.

W. J. HOLLANDS, IRON MERCHANT, 31, Bankside, London, S.E.

HOT WATER PIPES, from Stock, per yard:—2-inch, 1*s.* 2*d.*; 3-inch, 1*s.* 10*d.*; and 4-inch, 2*s.* 4*d.* BENDS, from Stock, 1*s.* 6*d.*, 2*s.* 6*d.*, and 3*s.* each. THROTTLE VALVES, 10*s.*, 13*s.*, and 14*s.* each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day. A discount to the Trade.

Heating by Hot Water.

HOT-WATER PIPES, at Reduced Wholesale Prices, with Elbows, Syphons, Tee Pipes, and every other connection; Wrought and Cast-iron Boilers, Saddle, Conical, Cylinder, TUBULAR, and Elliptic, from 21*s.* each. Improved Boilers and Iron Stands to use without brickwork, 56*s.* each. Valves from 10*s.* 6*d.* each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Castings of every description in stock, at

Mr. LYNCH WHITE'S Iron Wharf, Upper Ground Street, Blackfriars Bridge, London, S. Price List on application.

CRANSTON'S PATENT BUILDINGS for HORTICULTURE, Highly Commended by the Royal Horticultural Society, South Kensington. Plans and Estimates free on application. Houses of the following sizes always in stock:—Span, 30 by 15 feet, and 24 by 12 ft.; Half-span, 24 by 10 ft.; Lean-to, 24 by 8 ft. Stereoscopic Slides of different houses post free for 6 stamps each.

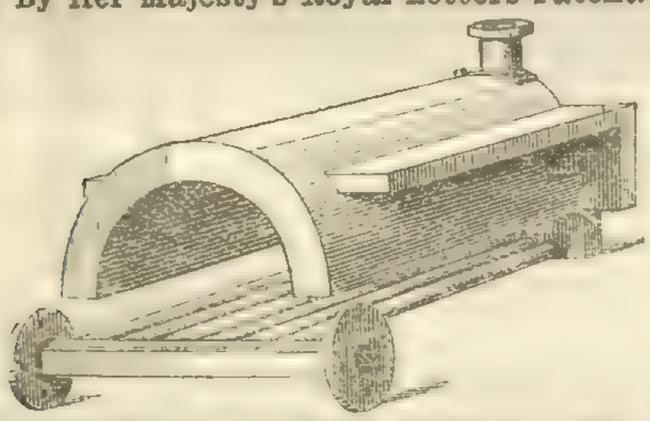
Descriptive Book, fully illustrated, by post for 20 stamps from the Author and Patentee, JAMES CRANSTON, Architect, No. 1, Temple Row West, Birmingham.

Horticultural Works, Kensal Green, London, W.

W. T. AND J. TAYLOR (late JOHN TAYLOR & SONS), have on hand for Sale THREE very handsome WOOD and GLASS CONSERVATORIES made to order. Two of them were prepared for a gentleman residing in Park Lane, an objection being raised on account of their intercepting the view from the adjoining houses. They were not fixed.

Designs and Prices fixed complete in any part of the United Kingdom forwarded upon application.

By Her Majesty's Royal Letters Patent.



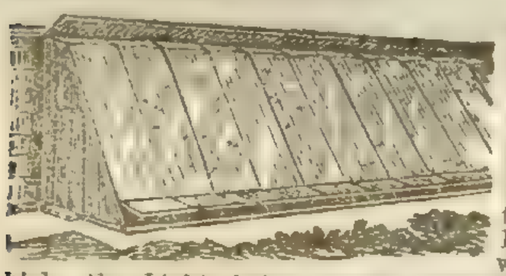
THE TERMINAL SADDLE BOILER.—This is the Old Saddle made perfect, by the addition of an upright terminal end piece, which quite closes the arch and side flues, and forms the back of the furnace, doing away with all brickwork at the end, and adding one-third more heating surface to the boiler just where it is most exposed to the direct action of the fire.

To be seen at the Royal Horticultural Gardens, South Kensington; and is at work at the Victoria Nursery, Holloway, Mr. Williams having kindly consented to show it to any one who will call at that Establishment. Circulars, Prices, &c., on application to

J. IRELAND, The Works, Edward Street, Broughton Lane, Manchester.

Under the Patronage of Her Majesty.

CLARK AND HOPE (LATE CLARK) 55, Lionel Street, Birmingham, MANUFACTURERS of METALLIC and WOODEN HOTHOUSES, CONSERVATORIES, VERANDAHS, &c., COPPER and WROUGHT IRON SASHES, SKYLIGHTS, &c., and HOT WATER APPARATUS for Horticultural and Domestic purposes.



C. & H. beg to call attention to their NEW TREE COVER, or Continuous Glass Covering for Garden Walls; which is constructed of Cast and Wrought Iron, glazed with or without putty, and fitted together with bolts and nuts, constituting a Tenant's Fixture. It can be made 6, 7, or 8 feet wide, and 10, 12, or 14 feet high; the Lights being opened together, by means of simple and durable machinery, in lengths of about 50 feet; and the cost does not exceed that of a wooden structure.

Further particulars, with prices, forwarded upon application; and on receipt of the amount in postage stamps, a Book of Designs, plain, 1*s.* 6*d.*, coloured 2*s.* 6*d.*, for Horticultural Buildings, &c.

Greenhouses—Heating Apparatus.

DENNIS' PATENT METALLIC HORTICULTURAL BUILDINGS are made from the best wrought iron, upon an entirely new principle. The combination of Iron and Glass under this Patent is perfect; the possibility of fracture is prevented, and a permanently water-tight roof insured. The leading practical advantages are extreme smallness of framing, admitting a maximum of light and heat, and perfectly neutralising atmospheric conduction.

They are thoroughly ventilated, exceedingly strong and durable, are speedily erected, and whilst maintaining their established superiority for Conservatories of the highest order, are acknowledged by the most eminent Horticulturists of the day to be the "desideratum of perfection," promoting perfect symmetry of growth and richness of colour, both for Fruit and Flowers.

From the complete adjustment of the constructional parts of these patent buildings, their manufacture is so facilitated that a comparison in point of cost with perishable wooden structures is most favourable.

THE GARDENER'S OWN GREENHOUSE
(Lately known as Dench's Patent) is a Tenant's Fixture.

The Patent, Plant, Business, Machinery, and all connected with the above, have been transferred to T. H. P. DENNIS, who has determined to supply these really useful buildings at such a reduced scale of prices that every one desiring a Greenhouse may possess one.

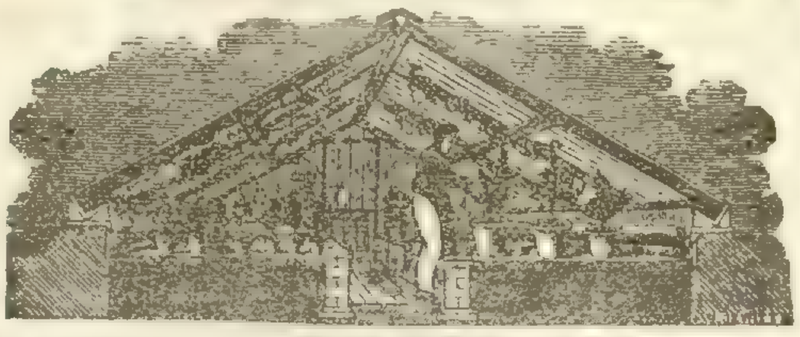
NOTE.—A No. 1 Lean-to, 12 ft. 6 in. by 9 ft., including honest 16-oz. Glass, £16 12*s.* 6*d.*

T. H. P. D. has introduced most important improvements in their finish and construction, and after numerous experiments has succeeded in arranging them as a TENANT'S FIXTURE, which he feels sure will be valued by gentlemen having limited tenures. With Mr. Rivers' adaptation they make excellent Orchard-houses, and afford all that can be desired in a profitable building.

Wood structures at the lowest price consistent with sound work.

Prospectuses and Estimates on application to T. H. P. DENNIS, Horticultural Builder, Hot-water Engineer, &c., Chelmsford, Essex.

Exhibition Prize Medal, 1862.



HOTHOUSES for the MILLION.—On the principle invented and patented by Sir Joseph Paxton, M.P., combining simplicity, cheapness, excellence, and durability. SPAN-ROOF HOUSES, painted three coats, and glazed with English Sheet Glass, can be supplied ready for fixing, 21 ft. by 13 ft., 24*l.*; 43 ft. by 19 ft., 73*l.* 5*s.*; 64 ft. by 25 ft., 161*l.*

Illustrated Circulars, with Prices, can be had on application to SAMUEL HEREMAN & J. MORTON, Agents, 7, Pall Mall East, London.

Also, A HANDBOOK on VINE and FRUIT TREE CULTIVATION, 2d Edition, price 1*s.*; post free, 1*s.* 1*d.*

Card.

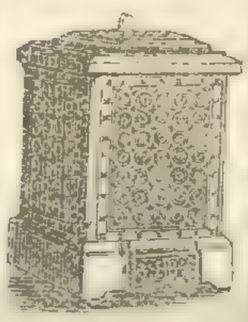
SAMUEL N. McGERROW,
GENERAL HORTICULTURAL BUILDER,
Knotty Ash, near Liverpool.

Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

Exhibition Prize Medal, 1862.

MUSGRAVE'S PATENT SLOW COMBUSTION STOVE.

This Stove is the nearest approach to Warming by Hot Water.



It will burn in Churches from Saturday till Sunday evening, without attention during the hours of worship. In Halls will burn day and night for weeks, with little care. Capable of Warming a large Apartment for 24 hours, at a cost of 3*d.*; and deserving of special attention, because of its safety, healthfulness, durability, and extreme simplicity.

It is also made for small Conservatories, with a vapour chamber.

For particulars of the above, and of MUSGRAVE'S PATENT STABLE and COW-HOUSE FITTINGS, which attracted so much attention at the Exhibition, address

MUSGRAVE BROTHERS, Ann Street Iron Works, Belfast.

This Stove can be seen in operation at Messrs. COX & SON, 38, Southampton Street, Strand, W.C.

The Only Stove without a Flue.

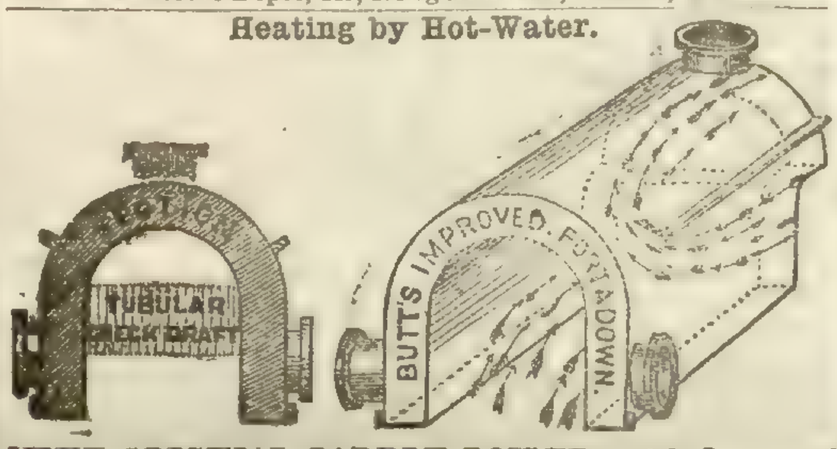
NASH AND JOYCE'S PATENT, for AIRING, DRYING, and WARMING HALLS, SHOPS, ROOMS, &c., a new especial Stove for Conservatories, Greenhouses, Fruit-Ripening, &c.; to Burn without re-lighting all winter by filling with fuel every 12 hours. Temperature, any degree required, without varying. Price from 12*s.* 6*d.* to 6 guineas.

MINCING and SAUSAGE FILLING and MASTICATING MACHINES of the best makers, 10*s.* 6*d.*

The COTTAGE KNIFE CLEANER is the only rapid Cleaner and Polisher of Knives at a moderate price. 3*s.* 6*d.* to 10*s.* 6*d.* Prospectus post paid.

S. NASH, Ironmonger, 253, Oxford Street, W.C.; and Stove Depôt, 119, Newgate Street, London, E.C.

Heating by Hot-Water.



THE ORIGINAL SADDLE BOILER, with Improved Tubular Check Draft, Flued Ends, and Ribbed Sides, for Heating Greenhouses, Vineries, Forcing Pits, Public Buildings, &c. These Boilers possess increased heating surface capacity, power, economy in fuel, and are the only class of Boilers, all points considered, when properly fixed, that can be relied upon with safety for Heating Greenhouses, &c., of any extent, by Hot Water, and at a moderate price.

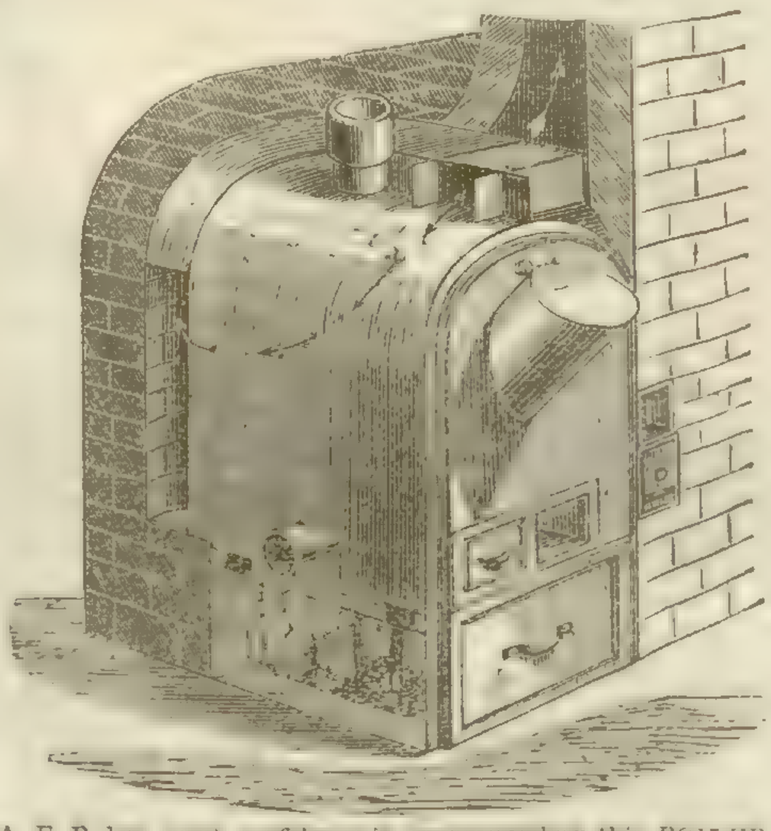
Gardeners interested in such work should write for List of Testimonials, sent Post Free on application to FREDERICK WILLIAM BUTT late of London), Portadown, Ireland.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

Milbank's Self-feeding Hot-water Boiler.

Manufactured and Sold only by

A. E. PHILLIPS, High Street, Chelmsford, Essex.



A. E. P. has great confidence in recommending this BOILER to Gentlemen, Gardeners, Nurserymen, and the Public, having for some time tested its capabilities. It is simple in construction, inexpensive in fixing, and the most economical in the consumption of fuel of any Boiler before the public. It is very powerful for heating purposes; the whole strength of the Fire is in contact with the water surface—NO BRICKWORK ABSORBING THE HEAT. The new arrangement of the Flue Box causes the entire heat of the fire to circulate over the entire outside surface before entering the chimney shaft. The Boiler is set under a dome of brickwork, whereby a double action is given to the fire.

A. E. P. will be happy to forward a List of Testimonials.

Greenhouses, Conservatories, and all kinds of Glass Structures are erected by A. E. PHILLIPS, at the lowest possible cost. Plans and Estimates given free of charge. Architects' Plans carefully carried out. Estimates for Heating Conservatories, Churches, Chapels, or Public Buildings, on the most economical principle. The proper execution of all works guaranteed. Experienced workmen will be sent to all parts of the country

EARTH CLOSETS (MOULE'S PATENT).

No Unwholesome Cesspools.
No Bad Smells.
No Water Pipes to get out of order.
The Best Night Commodes.
The Apparatus (price 25*s.* and 30*s.*) may be applied to any Closet at trifling cost, and is self-acting.
By its use a valuable Manure is saved, and Fertility to the Soil ensured.
Earth is recommended by the Privy Council, in their report on Cholera, as a deodoriser and disinfectant.

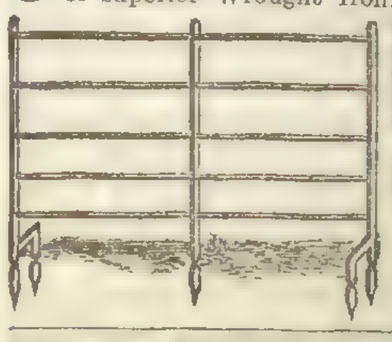
Extract from Letter received from the SECRETARY *of the* NATIONAL RIFLE ASSOCIATION.

"I am further directed to state that they (the Closets) proved of the greatest use, and were found to act admirably."

WHITE & Co., 29, Bedford Street, Strand, London, W.C.
OLDHAM SHOW, STAND 46.

Iron Hurdles, Fencing, and Gates.

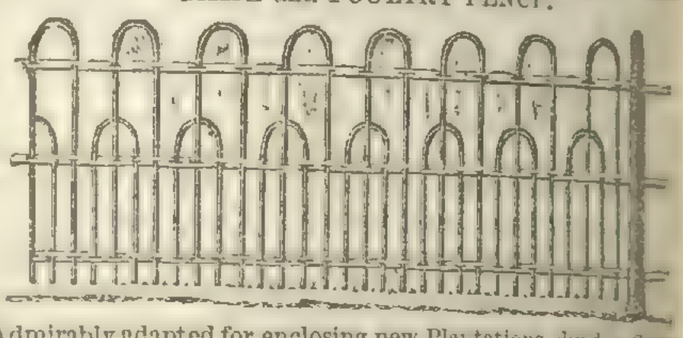
COTTAM'S HURDLES are made in the best manner of superior Wrought Iron. SHEEP HURDLES, [illegible] each; CATTLE HURDLES, [illegible] each; CONTINGOUS FENCE [illegible] 8*d.* per foot; FIELD GATES [illegible] 25*s.* each. Illustrated Price [illegible] application.



ENTRANCE GATES, RAILS, and IRON WORK of every description. Designs and Estimates [illegible]

COTTAM & Co., No. 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W.

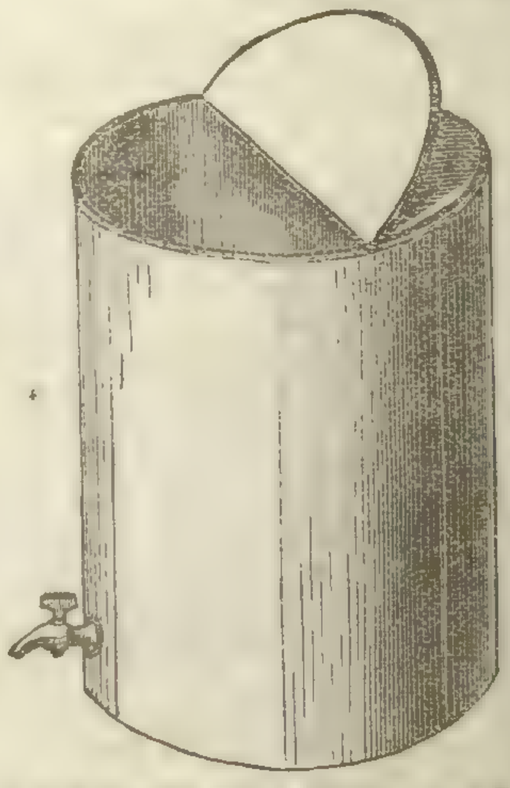
W. S. UNDERHILL'S Patent WROUGHT IRON GAME and POULTRY FENCE.



Admirably adapted for enclosing new Plantations, dividing Grounds, &c. It effectually prevents trespass, and is low in price (varying from 6*d.* to 1*s.* 6*d.* per yard and upwards), neat in appearance, strong and durable.

Manufactory, St. Mary's Works, Newport, Salop. London Agent, Mr. R. WINDER, 18, Abingdon Street, Westminster, S.W., where Samples may be seen.

GALVANISED IRON WATER CISTERNS
Cheap, light, and durable, will not rust or corrode, and keep water perfectly sweet.



To hold	Each
30 gallons,	1s. [illegible]
50 gallons,	[illegible]
80 gallons,	[illegible]
100 gallons,	[illegible]
120 gallons,	[illegible]
140 gallons,	[illegible]
200 gallons,	[illegible]
250 gallons,	[illegible]

With Lid and Brass Tap.

GALVANISED WIRE STRAND CABLE FENCING.
GALVANISED IRON ROOFING.
IMPROVED GALVANISED WIRE NETTING.
HURDLES, HURDLES, HURDLES, 1*s.* 9*d.* to 3*s.* 9*d.* per [illegible]
PATENT STRAINING PILLARS, &c.
GALVANISED IRON PUMPS.
GALVANISED SWING WATER BARROWS.
LAWN MOWERS, GARDEN ROLLERS.
ASPHALTE ROOFING FELT, 1*d.* per square foot.

MOTLEY & GREEN, late H. J. MORTON & Co.
Illustrated Catalogues and Estimates free on application.
12, Great George Street, Leeds.

J. WARNER AND SONS, London,
Manufacturers of

BOHEMIAN
FLOWER VASES
AND
HYDRO-CARBON
LAMPS.

The Lamp lifts out of the Vase, requiring no fixing.

Is fitted either with

WARNER'S
KOH-I-NOOR,
OR THE ORDINARY
FLAT-WICK BURNER.

The Koh-i-Noor Burner produces a superior light to the Moderator, at a much less cost, and is not liable to get out of order.

The Opal Vases are made in the best style of Bohemian, beautifully decorated.

	Round Burner
With Gold Bead	23*s.* 6*d.*
With Gold Lines	25 0
With Rose Colour, Greek Border	30 0
With Red Medallion (Antique)	32 0
With Blue Medallion (Antique)	32 0
Ruby Glass, fluted with gold lines	46 0
Emerald or Ruby, richly decorated with gold	63 0

May be obtained of the Trade throughout the United Kingdom

SHAW'S TIFFANY.
For samples and prices apply to
J. Shaw & Co., 29, Oxford Street, Manchester.

GREEN TARPAULINGS, 32s. per doz., size [illegible] with Eyelet-holes, any other sizes in proportion; [illegible] material sent free; can be had in any required size. [illegible] WAGGON TARPAULINGS, TARRED ROPE, [illegible] per lb. HORSES' LOIN CLOTHS lined with [illegible] DRIVING APRONS, 10s. GARDENERS' [illegible] waterproof, 4s each. POLICEMEN'S CAPES, [illegible] ARKS of GARDEN, FISHING, and RABBIT NETS. R. Richardson, 99, Euston Road, London, N.W.

SMITH, BECK, AND BECK'S GREENHOUSE and BEDDED THERMOMETERS.—These Instruments are of the best construction, and at moderate prices.
31, Cornhill, E.C.

PATENT GUTTA PERCHA SOLES.—Important to Gardeners.—The Gutta Percha Company have [illegible] to acknowledge the receipt of the following letter from G. Glenny, Esq., the celebrated Florist:—
"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend others to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the [illegible] parts to the worn parts, as easily as if it were so much dough. It is the duty of all persons who must occasionally wet their feet to adopt a material that completely defies damp. Many a [illegible] would escape colds and rheumatism by the use of Gutta Percha Soles.—Your obedient servant, "G. Glenny.
Every variety of Gutta Percha articles, such as Mill Bands, Tubing [illegible], Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints [illegible], Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags [illegible] Rings, Galvanic Batteries, Calbotype trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers [illegible] country.
The Gutta Percha Company, Patentees, 18, Wharf Road, City Road, [illegible], E.C.

GARDEN BORDER EDGING TILES, in great variety of patterns and material, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.
F. & G. Rosher, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.
N.B. London Agents for FOXLEY'S PATENT GARDEN WALL BRICKS. Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.
Also TESSELATED PAVEMENTS of more enriched designs than the above.
WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cements, &c.
To be obtained of F. & G. Rosher, at their Premises as above.

SILVER SAND (REIGATE, best quality), at the above addresses—14s. per Ton, or 1s. 3d. per Bushel; 2s. per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less.
FLINTS, BRICK BURRS or CLINKERS, for Rockeries or Grotto Work.
F. & G. Rosher.—Addresses see above.
N.B. Orders promptly executed by Railway.

Oil Paint no longer Necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully [illegible] cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the [illegible] at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which Hill & Smith will forward on application.
From Chas. E. B. Smedley, Esq., *The Grange, near Boston.*
"I have much pleasure in giving you a reply to your inquiries about the Black Varnish I have had from you for the last two years. It has answered my expectations fully, and as far as I am able to judge, it is the best material for preserving iron fencing, gates, and other wood work exposed to the air; and I can with safety recommend it as the best and cheapest article that is yet out. Wishing you every success."
Sold in casks of about 30 gallons each, at 1s. 6d. per gallon, at the Manufactory, or 1s. 8d. per gallon paid to any Station in the kingdom. Apply to Hill & Smith, Brierly Hill Iron Works, near Dudley, and 21, Cannon Street West, E.C., from whom only it can be obtained.

BEDSTEADS, BATHS, and LAMPS. WILLIAM S. BURTON has 12 Large Show Rooms, devoted exclusively to the separate display of Lamps, Baths, and Metallic Bedsteads. The stock of each is at once the largest, newest, and most varied ever submitted to the public, and marked at prices proportionate with those that have tended to make his establishment the most distinguished in this country.

Bedsteads, from	12s. 6d. to £20 0s. each.
Shower Baths, from	8s. 0d. to £6 0s. each.
Lamps (Moderateur), from ..	6s. 0d. to £7 7s. each.

All other kinds at the same rate.
Pure Colza Oil .. .. 4s. 3d. per gallon.
WILLIAM S. BURTON, GENERAL FURNISHING IRONMONGER by appointment to H.R.H. the Prince of Wales, sends a CATALOGUE gratis and post paid. It contains [illegible] illustrations of his illimited Stock of Sterling Silver and Electro-Plate, Nickel Silver and Britannia Metal Goods, Dish Covers, Hot-water Dishes, Stoves, Fenders, Marble Chimney-pieces, Kitchen Ranges, Lamps, Gasaliers, Tea-Trays, Urns and Kettles, Clocks, Table Cutlery, Baths, Toilet Ware, Turnery, Iron and Brass Bedsteads, Bedding, Bed-Room Cabinet Furniture, &c., with Lists of Prices, and plan of the 20 large Show Rooms, at 39, Oxford Street, W.; 1, 1a, 2, 3, and 4, Newman Street; 4, 5, and 6, Perry's Place, and 1, Newman Yard, London, W.

CORNS and BUNIONS.—A Gentleman, many years tormented with Corns, will be happy to afford others the information by which he obtained their complete removal in a short period, without pain or any inconvenience.—Forward address on a stamped envelope to W. Goodall, Esq., Epsom, Surrey.

Universal Microscope. Price £5 5s.
SMITH, BECK, AND BECK,
31, Cornhill, E.C., late 6, Coleman Street.
*** Catalogues sent on receipt of 6 postage stamps.

BROWN AND GREEN'S KITCHEN RANGES
THE PRIZE MEDAL, 1862.
The New Patent (Granted April, 1865).
"A CLOSE RANGE and an OPEN CHEMNEY." Combines the perfect cure of Smoky Chimneys, and the many other advantages for which Brown & Green's Ranges have long been celebrated, with free Ventilation of the Kitchen, and a [illegible] and [illegible] convenience.
No Close Heat in Small [illegible]. Prospectuses Free by Post.
Frederick Thomas, 72, Bishopsgate Within, E.C.

For Purity and Excellence of Quality,
COLMAN'S GENUINE MUSTARD
OBTAINED THE
ONLY PRIZE MEDAL
at the Great Exhibition, 1862.
Trade Mark, THE BULL'S HEAD, on each Package.
Their Genuine and Double Superfine are qualities particularly recommended for family use. Sold by all Grocers and Druggists.
J. & J. Colman, London.

Sauce.—Lea and Perrins'
WORCESTERSHIRE SAUCE.—
This delicious Condiment, pronounced by Connoisseurs "THE ONLY GOOD SAUCE," is prepared solely by Lea & Perrins.
The public are respectfully cautioned against worthless imitations, and should see that Lea & Perrins' Names are on Wrapper, Label, Bottle, and Stopper. Ask for Lea & Perrins' Sauce.
*** Sold Wholesale and for Export, by the Proprietors, Worcester; Messrs. Crosse & Blackwell; Messrs. Barclay & Sons, London, &c.; and by Grocers and Oilmen universally.

BRETONNE COWS.—The Nobility, Gentry, and others, are respectfully informed that they can be supplied with the above beautiful and profitable little animals in any number at the shortest notice. The great success and encouragement which has attended the efforts of the importer in introducing the Pure Breed of this useful and hardy Cow into the country, has induced him to extend his connection abroad, by appointing experienced Agents throughout Brittany, and he is now enabled to offer the public a constant supply of the choicest stock that can be obtained, at prices which defy all competition. The low cost, together with the high Milking qualities of this Breed, rendering them of great value to the Cottager, as well as the fancy Stock-keeper and Dairyman, the Importer has made arrangements to keep a large stock always on view. Price from 8 to 10 Guineas each, delivered free to any Railway in London.
For further particulars, apply to Messrs. Robertson & Co., 38, Crutched Friars, London, E.C.

WANTED to RENT, on Lease, from 1 to 5 ACRES of LAND (suitable for Gardening purposes), with COTTAGE, within 20 miles of London.
Address T. R., care of Wyatt & Home, 3, Tavistock Street, Covent Garden, W.C.

Surrey.—Sheep Farm.
TO BE LET, with Immediate Possession, a FARM, with suitable Dwelling House and Out-offices, containing about 170 Acres of Arable, and 132 Acres of Grass Land.
For Particulars and Rent apply to Mr. Wood, East Clandon, near Guildford.—Hatchlands, Oct. 7.

Notice.—To Nurserymen and Florists.
TO BE DISPOSED OF, by Private Contract, an OLD ESTABLISHED BUSINESS in a flourishing Seaport Town. It consists of 5 Acres of Land in a high state of cultivation; 5 large Greenhouses, Pits, Frames, &c., well stocked with Fruit and Forest Trees, Evergreens, Roses, and Deciduous Shrubs. Access by two railways and steam boats. The lease can be renewed for 7, 14, or 21 years. Satisfactory reasons will be given as to parting with the above.
Apply to X. Y., care of G. Bedford, Esq., 62, Cannon Street, E.C.

To Seed, Corn, and Hop Merchants.
MESSRS. BARNARD, THOMAS, AND CO. are favoured with instructions to DISPOSE OF a very valuable BUSINESS in the SEED, CORN, and HOP TRADE. The Concern is probably the most extensive, and certainly the oldest established, in the West of England (having been in existence upwards of a century), and the connection is of the highest respectability. It has been carried on with very great success to the present time, and is now in complete working order. The Premises are held on Lease, with 14 years to run; are very central, and are admirably adapted for the Trade. There is a Retail Establishment attached. Reasons, which must be at once satisfactory, can be given for Disposing of this Business.
The Brokers will be happy to enter into negotiations (with Principals only), on receiving applications in the first instance in writing.
Albion Chambers, Bristol.—Oct. 14.

To Nurserymen, Florists, and Others.
MR. BRIANT, Auctioneer, Kennington Park, Surrey, begs to announce, from the most successful Sales he has hitherto had of Nurserymen's and other Stocks, he is ready to undertake the SALE of LARGE or SMALL STOCKS at a specified amount, including Advertisements, Printing, and all other expenses.
Auction Offices, Kennington Park, Surrey, S.

Preliminary Announcement.
IMPORTANT SALE of upwards of 600 PINE PLANTS and FRUIT, HOTHOUSES, &c., with Heating Apparatus complete, in Peak Gardens, Sidmouth, Devon.
Particulars and day of Sale will appear in next week's *Gazette*.
C. Spear, Auctioneer, Sidmouth.

Notice of Sale, Tottenham, Middlesex, N.
MR. A. RICHARDS will SELL the strong NURSERY STOCK, in Phillip Lane, on TUESDAY, October 24.
Further particulars will appear.

Sales by Auction.

Standard Roses, Pyramid Fruit Trees, Consignment of Bulbs from Holland, Rustic Seats, &c.
MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, October 18, at half-past 12 o'Clock precisely, STANDARD ROSES, fine bushy heads, straight stems, and good varieties; PYRAMID and DWARF PEAR, PLUM, CHERRY, APPLE, and APRICOT TREES; Consignment of HYACINTHS, TULIPS, CROCUSES, and other Bulbs from Holland; and some RUSTIC GARDEN SEATS, &c.
On view the Morning of Sale, and Catalogues had.

Mitcham.
To Market Gardeners and Others.
ROBT. W. FULLER is instructed by the Executrix of the late Mr. John Bunce, to SELL by AUCTION, on the Premises, Roberson's Road, close to Fieldarch Gate, Mitcham, on TUESDAY, October 17, at 11 for 12 o'Clock, the whole of the valuable LIVE and DEAD STOCK, including 12 powerful Draught Horses, a capital Pony, quiet to ride or drive; two Market Vans, two Waggons and two Carts, three Spring Carts, four Tumbrels, a [illegible] Drill, five Ploughs, five Horse Hoes, Land Rollers, Scarifier, Harrows, iron Clod Crusher, Land Presser, Chaff and Weighing Machines, Thill, Trace and Chaise Harness, Rick and Cart Cloths, Sacks, Hurdles, Ladders, 500 Bushel and other Baskets, Lawn Mowing Machine, 14 Frames and Lights, Russian Mats, numerous Field and Garden Tools and Implements, Washing Tubs, Water Butts, quantity of Peas, Onions, Potatos, and Manure; about 10 cwt. of Savoy, Cabbage, Onion, and other Seeds; also some Household Furniture, and various other Effects.
May be viewed the day prior; and Catalogues had at the place of Sale; the principal Inns at Mitcham, Merton, Tooting, and Wimbledon; at Garraway's Coffee House, London; and at the Auctioneer's Offices, 37, High Street, Croydon.

Acton Vale Nursery.
To Noblemen, Gentlemen, Builders, Nurserymen, and Public Companies Engaged in Planting.
MESSRS. PROTHEROE and MORRIS will SELL by AUCTION, on the Premises, Acton Vale Nursery, Uxbridge Road, Middlesex, within the [illegible] of the Acton Railway Station, on the North London Line, on MONDAY, October 16, and Three following days, at Half-past Twelve each day, without the least reserve, by order of Mr. [illegible], Senior, who is leaving very early expired, the Valuable NURSERY STOCK, consisting of a large and healthy assortment of Evergreens from the Nurseries of Messrs. Oriental [illegible], Lawrence, 4000 Aucubas, 1000 Green Hollies, 200 Yews, 200 Deciduous Trees, 500 Spruce Firs and Retinosporas, 200 Plants, Bays, 100 Laurels, 500 Grecian Lilac, Syringa, Ribes, 1000 Irish Yews, &c., 300 Limes, 200 Poplars, Cedars, Purple Beech, Chestnut, Sycamore, Thorns, Mespilus, Acacias, &c.; several thousand [illegible] Forest Trees, Unclaimed, Standard, and Pyramid Pears, Cherries, Apples, and Plums; 1500 Dwarf Trained Peaches, Nectarines, Apricots, Fan-trained, Currants, Gooseberries, [illegible], 200 fine Standard and Dwarf Roses of the best kinds; 500 strong Seakale plants, 2 years; Hardy Climbers, &c. May be viewed one week prior to the Sale.
Catalogues may be had (6d. each, returnable to purchasers), on the Premises; of Messrs. Horsdon & Jacobs, Exotic Nursery, Shepherd's Bush; of the principal Seedsmen in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

Sale of Dutch Bulbs, Standard and Dwarf Roses, &c.
MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., on SATURDAY, October 21, instead of Friday, October 20, at 1 o'Clock precisely, a first-class Collection of DUTCH BULBS, consisting of the finest Double and Single Hyacinths, Narcissus, Jonquils, Anemones, Crocus, Tulips, Ranunculus, Gladiolus, Snowdrops, &c.; a fine Assortment of 300 handsome STANDARD and DWARF ROSES; selected AMERICAN PLANTS, including Ghent and other Azaleas, Hybrid Rhododendrons, Kalmias, &c.
On view the Morning of Sale. Catalogues had at the Rooms, as above, and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Holloway.
To Gentlemen, Nurserymen, Builders, &c.
MESSRS. PROTHEROE AND MORRIS are instructed by Mr. James Martin to SELL by AUCTION, on the Premises, Finsbury Park Nursery, Holloway, close to the Seven Sisters Road Railway Station, on the Great Northern line, on THURSDAY, October 26, at 12 o'Clock, without reserve, the ground being required immediately to be cleared for Building purposes, the whole of the GREENHOUSE PLANTS, also about 200 Choice Hardy and Dwarf Roses, some fine Evergreens, two Greenhouses, of which one is quite new, 70 ft. long by 10 ft. wide each, two ranges of Pits, about 900 capital Glass Lights, [illegible] for the erection of Span-roof greenhouses, and other purposes, several Light Boxes, Watering Pots, Syringes, and sundry effects.
May be viewed three days prior to the Sale. Catalogues may be had at 3, Clarence Place, Seven Sisters Road, Holloway, N.; the Cock, Highbury, N.; of the principal Seedsmen in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex.

Sunningdale Nursery, Bagshot, Surrey.
Highly Important and Extensive Sale of Nursery Stock.
MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Noble to SELL by AUCTION, on the Premises, Sunningdale Nursery, Bagshot, Surrey, on MONDAY, October 30, and Nine following days, at half-past 12 o'clock precisely each day, in consequence of a large portion of the Land being required for the formation of two Public Roads, and a new Railway, which necessitates entire new arrangements and [illegible] of the Stock, the valuable NURSERY STOCK, including an unlimited variety of EVERGREEN, CONIFERÆ, and DECIDUOUS SHRUBS, scarcely to be met with in any other Establishment, bearing perfect evidence of the most skilful and careful cultivation, presenting an unprecedented opportunity to Noblemen, Gentlemen, and Public Companies forming and improving Plantations, and to the Trade for obtaining in large quantities that which is rare and excellent, comprising about—

10,000 Green Hollies, 1 to 7 ft.
3,000 Variegated and named Hollies, 1 to 6 ft.
3,000 Portugal Laurels, 2 to 4 ft.
15,000 Common Laurels, 2 to 3 ft., extra bushy.
5,000 Berberis japonica, 6in to 3ft
5,000 Berberis Darwinii, 1 to 6 ft.
3,000 Berberis dulcis, 2 to 4 ft.
20,000 American Arbor-vitæ, 1 to 2½ ft., fine.
500 Thuja Warreana, 2 to 6 ft., and aurea.
400 Thuja gigantea, 3 to 6 ft., bushy.
400 English and Irish Yews.
8,000 Laurus colchicum, 2 to 4 ft., very fine.
5,000 Cupressus Lawoniana, 1 to 6 ft.
2,000 Abies Douglasii, 4 to 8 ft.
1,000 Abies nobilis, fine shape, 1 to 4 ft.
500 Abies Pinsapo, 1 to 6 ft., splendid specimens
Abies lasiocarpa, 2 to 3 ft.
1,000 A. Menziesii, 2 to 7 ft., extra fine
A. grandis
A. orientalis
5,000 matchless specimens of A. Nordmanniana, 1 to 7 ft.
1,500 Araucaria imbricata, very handsome, 2 to 10 ft.
1,500 Thujopsis borealis, splendid specimens
300 Pinus excelsa, 2 to 7 ft.
400 Pinus Cembra, 3 to 6 ft.
500 P. Strobus, 5 to 7 ft.
8,000 first-class P. austriaca 1½ to 2 ft.
100 P. Benthamiana, 4 to 7 ft.
200 splendid specimen Cedrus Deodara, 6 to 10 ft.
100 Cedrus atlantica, 3 to 6 ft.
500 well furnished Cephalotaxus Fortunei-mas.
500 C. Fortunei-fœm.
250 fine Juniperus chinensis 2 to 8 ft.
300 J. sphærica, 3 to 7 ft
300 J. argentea, 3 to 7 ft.
1,500 Wellingtonia gigantea, 2 to 8 ft., first-class
400 Chamæcyparis sphæroidea, 3 to 4 ft.
500 C. sphæroidea variegata, 2 to 3 ft.
3,000 Retinospora ericoides, 1 to 2 ft.
100,000 good stout Larch Firs
10,000 Spruce Firs, 1 to 2½ ft.
4,000 Skimmia japonica, 6 to 18 in.
500 Sweet Gale, 1 to 2 ft.
4,000 Deutzia crenata, fl. pleno, 2 ft.
1,000 Forsythia viridissima, 3 to 4 ft.
3,000 strong Spiræa, by name
2,000 Arundo conspicua
5,000 Ligustrum ovalifolium, 2 to 3 ft.
2,000 Azalea amœna, 1 ft.
500 Yucca filamentosa
5,000 Lonicera aureo-reticulata
3,000 L. brachypoda
2,000 Quercus Ilex

50,000 choicest named RHODODENDRONS Standard and Dwarf, amongst which will be found 3000 extra bushy and well-grown Blandyanum; 2000 Mrs. John Waterer; 1000 John Waterer; 1000 Lady E. Cathcart; 1000 Bylsianum; 1000 Grand Arab; 1000 concessum; 1000 Brayanum; 1000 Fleur de Marie; 1000 Minnie; and also 50,000 Rhododendron ponticum, 1½ to 2 ft. Fruit Trees; 6000 Named Standard and Dwarf Roses, of the best varieties; 50,000 one-year seedling Laburnum, English; 10,000 one-year seedling Sycamore, strong; 50,000 one-year seedling Spanish Chesnuts; 30,000 one-year seedling, English and Spanish Oaks; 8000 Spanish Chesnuts, two years transplanted, 1 to 3 ft.; 50,000 Thorn Quicks, 1½ to 2½ ft.; 250 Salisburia adiantifolia; 1500 Crimean Ash, 2 to 4 ft.; 1000 Erica, by name; 5000 Lily of the Valley; 3000 Russian Violets; 5000 named Variegated and Green Ivies; 1000 White Spanish Broom, 2 to 3 ft., in pots; 6000 Erica herbacea, &c.
May be viewed until the Sale. Catalogues may be obtained at 1s. each, returnable to purchasers, on the Premises; of the principal Seedsmen in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex.
N.B.—The Railway communication is so complete, that Goods may be transmitted from Sunningdale Station to any part of England, Scotland, and Wales, without change of truck.

Sale of Plants at Ealing Park, Middlesex.
MESSRS. RUSHWORTH, JARVIS, AND ABBOTT beg to notify that the THIRD DAY'S SALE of the EFFECTS of William Laurence, Esq., at Ealing Park, on THURSDAY NEXT, the 19th inst., will include the extensive Collection of very fine CAMELLIAS, and a large variety of STOVE and GREENHOUSE PLANTS.
Catalogues may be had on the Premises; and at the Offices of the Auctioneers, 22, Savile Row, W.; and 19, Change Alley, E.C.

Notice of Sale.—Byfleet, Surrey.
MESSRS. WATERER AND SONS, Auctioneers, Chertsey, Surrey, beg to announce that they have received instructions from the Proprietor to SELL by AUCTION on TUESDAY, November 14, and following days, without Reserve, the valuable young and choice NURSERY STOCK, about Two Miles from Weybridge Station on the South-Western Line, of which further particulars will appear.

For History and Cultivation, see Essay in the "Journal of the Royal Agricultural Society" for February, 1862. No. XLVIII.

HALLETT'S

TRADE

WHITE PEDIGREE WHEAT,

MARK.

(ROUGH CHAFFED),

NOW OFFERED FOR THE FIRST TIME,

Grown upon the Summit of the Chalk Downs, and yielded over several Acres nearly Seven Quarters per Acre, the Crop on similar Light Soils being this year extremely bad.

This is a fine Millers' Wheat, in addition to possessing the extraordinary productiveness of the original *Red* Pedigree Wheat. Straw of medium length and very stiff, being laid by bad weather. A Winter Wheat only.

SEED REQUIRED.

If Drilled in September, 4 Bushels on 10 Acres.
" October, 4 " 8 "
If Drilled in November, 4 Bushels on 4 Acres.
" December, 4 " 3 "

Note.—The ORIGINAL "RED" PEDIGREE WHEAT will be supplied if *specially named*, otherwise the above new White variety will this year, in all cases, be forwarded.

Price, including Bags:—ONE GUINEA a BUSHEL, or SEVEN GUINEAS the QUARTER by the Quarter or Half Quarter, delivered in Bags, sewed up and sealed, at the Brighton Railway Station, upon receipt of Cheque or Post Office Order, *without which it will not in any case be sent to unknown Correspondents.* Less than a Bushel will not be supplied.

TRADE

CHEVALIER PEDIGREE BARLEY.

MARK.

This has been "bred" in the same manner as the PEDIGREE WHEAT, viz.:—by repeated annual selection, re-starting in each year from a single grain.

Although grown upon a poor thin soil (resting immediately upon the chalk), which upon neighbouring farms produces Barley rarely weighing so much as 51 lbs. per bushel and fit only for grinding, the PEDIGREE BARLEY last year [this year's crop not yet threshed] weighed 57 lbs. per bushel, and produced 89½ bushels per acre.

Besides its astonishing productiveness, characteristic of all the PEDIGREE CEREALS, it possesses remarkable value for the maltster, *not a single grain failing to germinate and all growing equally.*

Although only a very limited area of it has this year been grown, it will, in deference to a generally expressed wish, be at once offered to the public instead of waiting until next year, and a Subscription List has been formed, to which gentlemen desirous of securing any of it for drilling next Spring, would do well at once to add their names, which, however, will not involve payment until it be ready for delivery, of which due notice will be given by printed circular.

SEED REQUIRED.

If Drilled in March, 1 Bushel on 3 Acres.
If Drilled in April, 1 Bushel on 2 Acres.

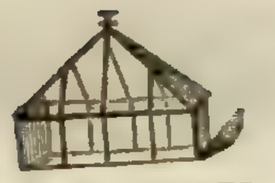
Price:—TWO GUINEAS a BUSHEL (including Bag), delivered in Bags sewed up and sealed, at the Brighton Railway Station, upon receipt of Cheque or Post Office Order, *without which it will not in any case be sent to unknown Correspondents.* Less than a Bushel will not be supplied.

Note.—As the quantity is so limited, it will, until exhausted, be sent out to Gentlemen in the order in which they have joined the Subscription List.

FREDERIC F. HALLETT, F.L.S., THE MANOR HOUSE, BRIGHTON, SUSSEX.

NEW TARIFF OF GLASS AND HORTICULTURAL GOODS.

THOMAS MILLINGTON,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PRESERVE JARS.

GLASS AND COLOUR MERCHANT,

87, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

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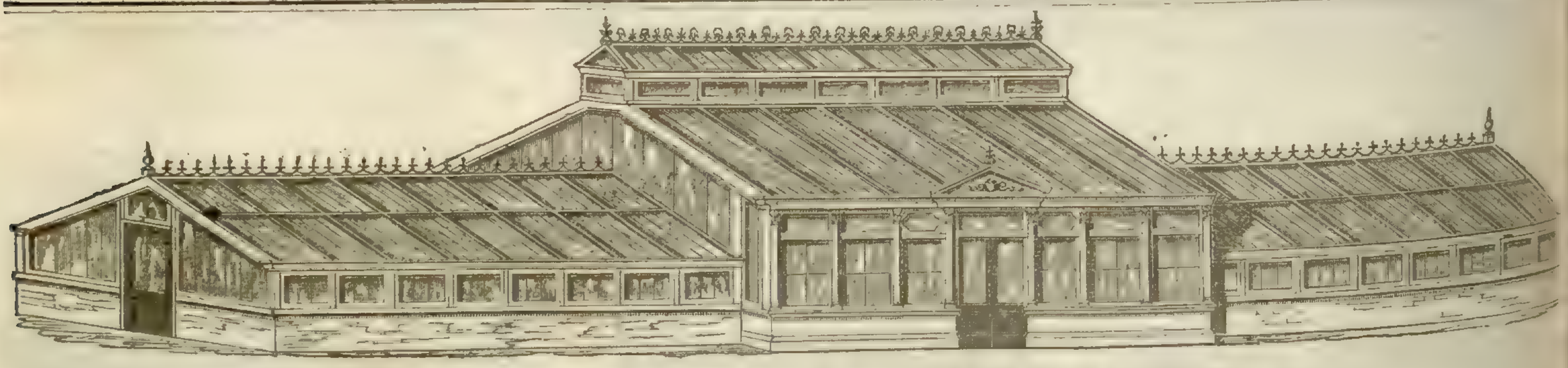
REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.

See Advertisement the first week in the month, or on application.



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MANUFACTURED BY STEAM POWER MACHINERY.

LOWEST PRICES AND BEST MATERIALS.

DESIGNING, BUILDING, HEATING, AND VENTILATING ON THE MOST APPROVED AND SCIENTIFIC PRINCIPLES.

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HORTICULTURAL BUILDER, AND HOT-WATER APPARATUS MANUFACTURER,

STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

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THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 42.—1865.] SATURDAY, OCTOBER 21. {Price Fivepence. STAMPED EDITION, 6d.

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GRAND EXHIBITION of CHRYSANTHEMUMS, MISCELLANEOUS FLOWERS, and FRUITS, in the GUILDHALL of the City of London, on TUESDAY and WEDNESDAY, November 14 and 15. Intending Exhibitors may obtain Schedules on application to the Honorary Secretary. Certificates will be awarded, and the profits will be devoted to the Benefit Fund. Carriage paid on parcels of Fruit from the country.
R. P. GLENDINNING, Hon. Sec., Chiswick Nursery.

High Beech, Essex, N.E.
J. DICK begs to intimate that he and THOMAS FINCH have (on account of the ill-health of the latter) DISSOLVED PARTNERSHIP by mutual consent. The Nursery and Seed Business will henceforth be carried on by JAS. DICK alone.
(Signed) JAS. DICK, THO. FINCH.

RAYNBIRD, CALDECOTT, AND BAWTREE, SEED FARMERS and MERCHANTS, 89, Seed Market, Mark Lane; and Basingstoke. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

H. AND F. SHARPE, SEED GROWERS and MERCHANTS, Wisbech. SPECIAL PRICED LIST of NEW SEEDS on application.

Genuine Garden and Agricultural Seeds.
JAMES CARTER AND CO., SEED FARMERS, MERCHANTS, and NURSERYMEN, 237 and 238, High Holborn, London, W.C.

NEW and GENUINE AGRICULTURAL, GARDEN, and FLOWER SEEDS. Special prices and advantageous offers on application to JAMES FAIRHEAD & SON, Seed Growers and Merchants, 7, Borough Market, London, S.E.

Fruiting Vines.
E. G. HENDERSON AND SON offer the above, with splendid Canes of well-matured growth, with prominent eyes, sure to give a heavy crop of fruit, 10s. 6d. each. LIST of SORTS sent on application. Wellington Nursery, St. John's Wood, London, N.W.

Grape Vines.
S. GLENDINNING AND SONS have a splendid lot of extra fine Fruiting Canes. PRICED LIST may be had on application. Chiswick Nursery, London, W.

VINES.—A quantity of strong well-ripened CANES (8 to 10 feet), including the best sorts, for Fruiting in pots, offered by J. DICK (late J. Crawford) at very moderate prices. High Beech Nurseries, Essex, N.E.

NEW GRAPE, "ROYAL VINEYARD," the best late White Grape extant. Strong Planting Canes, 10s. 6d. each; strong Fruiting, 21s. each.
B. S. WILLIAMS, Paradise and Victoria Nurseries, Holloway, London.

Pines.
B. S. WILLIAMS begs to announce that he has a fine stock of the above, including all the best kinds. Prices on application. Paradise and Victoria Nurseries, Holloway, London, N.

PINES.—To be Sold Cheap, Fifty 1 and 2-year old QUEENS, clean and healthy. Apply to R. SOUTH, The Gardens, Manor House, Upton, E.

PINES.—A quantity of very fine QUEEN PINE PLANTS in all sizes, from a stock that never had scale, to be sold. Apply to M. RICHARD, Market Gardener, Page Green, Tottenham, N.

QUEEN PINE SUCKERS for SALE. Warranted clean. Apply J. HANNAN, The Gardens, Cyfarthfa Castle, Merthyr Tydvil.

To the Trade.—Moor Park Apricots.
MR. VEITCH having a surplus stock of fine, healthy, [illegible]-trained DWARF-TRAINED TREES, will be happy to [illegible] on application. Royal Exotic Nursery, King's Road, Chelsea, S.W.

Strawberries, Established in Pots for Forcing.
JAMES VEITCH offers strong plants of all the leading varieties, prices of which will be forwarded on application. Royal Exotic Nursery, King's Road, Chelsea, S.W.

HEAVY LANCASHIRE SHOW GOOSEBERRY TREES, 6s. per dozen. CATALOGUES on application. HOLLAND & JONES, Bradshaw Gardens, Chadderton, near Manchester.

Strong Standard Apples, Pyramid Pears, and LARCH FIR, 1½ to 4½ feet.
CHARLES BURGESS, The Nurseries, London Road, Cheltenham, has a fine stock of the above, and a general assortment of NURSERY STOCK. Prices on application.

Hardy Ornamental Trees and Shrubs.
OSBORN AND SONS invite lovers of Ornamental Planting to an inspection of the varied forms and foliage of their unrivalled collection of the above, to which they have for many years devoted especial attention. PRICED CATALOGUES, consisting of upwards of 1500 species and varieties, may be had on application. The Nurseries, Fulham, London, S.W.

The Best Twelve Hyacinths Imported by SUTTON AND SONS, for Twelve Shillings. SUTTON & SONS, Royal Berks Seed Establishment, Reading.

Miniature Hyacinths.
SUTTON AND SONS can supply fine BULBS of the above at 4s. per dozen. Royal Berkshire Seed Establishment, Reading.

Finest Dutch Flower Roots.
SUTTON'S AUTUMN CATALOGUE of the above is now ready, and may be had gratis and post free on application. SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Sutton's Unrivalled Collections of Bulbs.
SUTTON'S GUINEA COLLECTION of BULBS for BLOOMING in POTS and GLASSES. SUTTON'S GUINEA COLLECTIONS for BEDS and BORDERS. For particulars see SUTTON'S AUTUMN CATALOGUE, which may be had gratis and post free. SUTTON & SONS, Royal Berks Seed Establishment, Reading.

Dutch Bulbs.
CHARLES TURNER is prepared to execute orders with the finest varieties of HYACINTHS, TULIPS, CROCUS, NARCISSUS, &c. The roots have arrived in fine condition. CATALOGUES on application. The Royal Nurseries, Slough.

J. SCOTT, Importer of DUTCH and other BULBOUS FLOWER ROOTS, has received large consignments, of best quality and in excellent condition. DESCRIPTIVE PRICED LIST post free on application to J. SCOTT, Merriott Nurseries, or Seed Stores, Yeovil, Somerset.

Hyacinths, and other Dutch Bulbs.
WM. HOOPER has received large consignments of the above, of best quality, and in excellent condition. CATALOGUES free on application. St. John's Hill Nursery, New Wandsworth.

Hyacinths and other Dutch Bulbs.
WM. CUTBUSH AND SON beg to acquaint their numerous Patrons that they have received their usual Consignment of Choice HYACINTHS, TULIPS, CROCUSES, &c. PRICED DESCRIPTIVE CATALOGUE post free on application. Highgate Nurseries, London, N.

Hyacinths and other Choice Bulbs.
B. S. WILLIAMS begs to announce that his various IMPORTATIONS of DUTCH FLOWER ROOTS have arrived in fine condition, and that he is now prepared to execute all orders he may be favoured with. A PRICED and DESCRIPTIVE CATALOGUE, including Lists of New and Rare Plants, post free to all applicants. Paradise and Victoria Nurseries, Holloway, London, N.

CARTER'S GARDENER'S VADE-MECUM, AUTUMN SUPPLEMENT of DUTCH and CAPE BULBS and PLANTS, is now ready.

BARR AND SUGDEN'S HYACINTHS, TULIPS, CROCUS, NARCISSUS, GLADIOLI, RANUNCULUS, ANEMONES, LILIES, AMARYLLIS, in splendid collections. See our AUTUMN FLORAL GUIDE, free and post paid on application. BARR & SUGDEN, Seed and Plant Merchants, 12, King Street, Covent Garden, W.C.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS. RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

J. IVERY AND SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

THE CLIVEDEN COLLECTIONS of SPRING BLOOMING PLANTS, 12s. 6d., 25s., 50s., and 100s. For particulars see our AUTUMN FLORAL GUIDE. BARR & SUGDEN, 12, King Street, Covent Garden, W.C.

CARNATIONS and PICOTEES. Twenty Pairs of fine named SHOW FLOWERS for £1, package included. WOOD & INGRAM, Nurseries, Huntingdon.

CARNATIONS and PICOTEES for the Million. Fine Strong Plants at reduced prices. Every one should send for the revised CATALOGUE of CARNATIONS, PICOTEES, PINKS, PANSIES, ROSES, FRUIT TREES, BULBS, &c. HOLLAND & JONES, Proprietors, Bradshaw Gardens, Chadderton, near Manchester.

Hoyle's and Foster's New Pelargoniums.
CHARLES TURNER begs to announce that the New Varieties of the above-named raisers are now ready, also in strong plants the finest established varieties of Show, French, and Fancy kinds at moderate prices. CATALOGUE on application. The Royal Nurseries, Slough.

PELARGONIUM MRS. POLLOCK.—Strong Summer-struck Plants, well established in 60-pots, at 15s. per dozen. The Trade supplied. ALFRED FRYER, Nurseries, Chatteris, Cambridgeshire.

MRS. POLLOCK GERANIUM.—To be Sold, for £2 10s., 24 large Stock Plants. To be seen at 5, Verey's Cottages, Perry Hill, Lower Sydenham, S.E.

SAMUEL COX, NURSERYMAN, Ludlow, Shropshire, offers MRS. POLLOCK GERANIUM, 15s. per dozen, well established in 3-inch pots; also SCARLET GERANIUMS and VERBENAS, 12s. per 100 out of pots. All other Bedding Plants equally cheap. Price to the Trade on application. RETAIL and WHOLESALE CATALOGUES sent post free. Terms cash on receipt of goods.

THE GIANT VIOLET, bearing a finer bloom and a more beautiful perfume than any other kind of Violet, is now in full bloom and in good condition for planting out. Terms 12s. per dozen Roots. JOHN STEDMAN, Thornton Heath, Surrey, S.

VIOLETS now in full bloom, and in first-rate condition for planting out.—A large stock of all kinds of VIOLET PLANTS, including the GIANT, NEAPOLITAN, RUSSIAN, LONDON, CRIMEA, &c. Lists of prices on application. JOHN STEDMAN, Thornton Heath, Surrey, S.

KONING AND CO., NURSERYMEN and SEEDSMEN, Sassenheim, near Haarlem, Holland, beg to announce to their friends and the Trade that their CATALOGUE of VEGETABLE and AGRICULTURAL SEEDS for 1866 will be ready within a few days, and will be sent post free to all applicants.

Now ready, 1865 and 1866.
PAUL AND SON'S NEW ROSE CATALOGUE will be found a useful guide. Post free on application. Old Cheshunt Nurseries, N.

To the Trade.
PAUL AND SON'S WHOLESALE LIST of ROSES, FRUITS, and general NURSERY STOCK is now ready. Old Cheshunt Nurseries, N.

NEW ROSE CATALOGUE for 1865 and 1866, also GENERAL CATALOGUE of NURSERY STOCK. Woodlands Nursery, Maresfield, near Uckfield, Sussex. WM. WOOD & SON will be happy to forward copies of the above on application.

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WM. PAUL (Son and Successor to the late A. PAUL), begs to announce that his NEW DESCRIPTIVE CATALOGUE of ROSES is now ready, and will be forwarded on application, free by post. The stock is large and in splendid condition. PAUL'S Nurseries, Waltham Cross, London, N.

H. LANE AND SON'S CATALOGUES of ROSES, TREES, SHRUBS, FRUIT, RHODODENDRONS, AZALEAS, &c., are now ready, and may be had on application at The Nurseries, Great Berkhampstead, Herts.

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EUGÈNE VERDIER Fils Ainé, NURSERYMAN, 3, Rue Dunois, Paris, is now publishing his complete CATALOGUE of NEW ROSES, numbering 40 varieties, which he can strongly recommend. The Catalogue to be obtained of his Agents, Messrs. BERNAM & BLACKITH, Cox's Quay, Lower Thames Street, London, E.C.

1865 and 1866.
JOHN FRASER begs to announce that his NEW DESCRIPTIVE CATALOGUE of PLANTS, ROSES, FRUIT TREES, &c., for the Autumn of 1865 and Spring of 1866, may be had on application. The Lea Bridge Road Nurseries, N.E.

New Garden Seeds for Autumn Sowing.
SUTTON AND SONS can now supply the above, of excellent quality. PRICED CATALOGUES gratis and post free on application. Royal Berkshire Seed Establishment, Reading.

Wholesale Catalogue.
GEORGE JACKMAN AND SON will have much pleasure in forwarding on application, free by post, their DESCRIPTIVE and PRICED CATALOGUE of NURSERY STOCK for 1865 and Spring 1866. Woking Nursery, Surrey.

E. G. HENDERSON AND SON offer SEED of CALCEOLARIA, CINERARIA, and PRIMULA of first-class quality, at 1s., 2s. 6d., and 5s. per packet. Also the finest SCARLET and INTERMEDIATE STOCK, 6d. and 1s. each. SEED of CYCLAMEN PERSICUM, of similar quality, 6d. and 1s. each, and in mixed colours 2s. 6d. per packet. The Wellington Nursery, St. John's Wood, London, N.W.

TO BE SOLD, by Private Contract, Forty large CAMELLIAS, in tubs and pots.—Inquire of Mr. LING, Gardener, Old Park, Nightingale Lane, Clapham Common.

FOR SALE, a handsome ARAUCARIA EXCELSA (Norfolk Island Pine), 14 feet high.—Price on application to T. PRICE, 5, Denmark Road, Cold Harbour Lane, Camberwell, S.

Oak, Elm, &c.
WOOD AND INGRAM have a very large stock of SEEDLING ENGLISH OAK, 1 and 2 years, ENGLISH ELM, 1 and 2 years, HAZEL, 1 year; MAPLE, 1 year, transplanted and strong. Transplanted LARCH, [illegible] feet. Prices on application. Nurseries, Huntingdon.

THOMAS SEARLE has a large quantity of LOMBARDY POPLARS, clean-grown, stout, 10 to 12 feet each; fine EVERGREEN PRIVETS, 3 feet; LILACS, EUONYMUS, and general Nursery Stock, all equally good. Price on application. Villa Nursery, Rochester Square, Camden Town, N.W.

JOHN BLAKE AND SONS, Dangan Nurseries, Summerhill, County Meath, offer large quantities of the following:—THORN QUICK, 1 and 2-year; 1-year LARCH, SCOTCH SPRUCE, ALDER, ELM, BEECH, SYCAMORE, ASH, OAK, SILVER FIR, and a quantity of trees fit for forest planting. WHOLESALE PRICE LISTS to be had on application.

A. WILKIN, Tiptree, Kelvedon, Essex, can supply the trade with 1 to 2 feet SPRUCE FIRS, 1 to 2 feet SEEDLING SYCAMORES; 3 to 5 feet ASPEN LEAF POPLARS; 3 to 5 feet LOMBARDY POPLARS, 1-year GIANT ASPARAGUS, &c.

To the Trade.
R. DONALD AND SON, of the Goldsworth Nurseries, Woking, Surrey (so long celebrated for the extensive collection and fine growth of Fruit, Cuttings, Evergreens, Deciduous Trees, Shrubs, &c.), will be pleased to forward a PRICED CATALOGUE for present Season, free by post on application.

SUPERIOR MUSHROOM SPAWN, 5s. per Bushel. Mushroom Pamphlet, with New Appendix, 1s. 6d.; Market Gardening, 1s. 6d.; Cucumber and Melon, 1s.; Strawberry, new system, 1s.; Potato, &c., 1s. 6d. PRINCE ALBERT WINTER CUCUMBER, 1s. per packet. Stamps or Order on Camberwell Green. JAMES CUTHILL, Camberwell, London, S.

FOR SALE, a large quantity of CABBAGE, CAULIFLOWER, and LETTUCE PLANTS, of the best sorts, at low prices.—Apply to Mr. M. AUSTIN, Tonbridge Road, Maidstone.

To Farmers, Gardeners, and Others.
EXCELLENT [illegible] PLANTS of the following [illegible] at 2s. 6d. per 1000 for [illegible]—EARLY YORK, ENFIELD MARKET, EARLY BATTERSEA, WOODS'S PRINCE ALBERT, LAY'S, RED DUTCH, [illegible], Beds.

NEW TRIFOLIUM INCARNATUM.
" " late variety.
ITALIAN RYE-GRASS, imported Seed.
JAMES CARTER AND CO. have fine samples of the above at very low prices. Prices and sample on application. JAMES CARTER & CO., 237 & 238, High Holborn, London, W.C.

New Grass Seeds for Exportation.
SUTTON AND SONS have received their supply of NEW GRASS SEEDS of the present year's growth in fine dry condition. Prices will be forwarded on application. This is one of the best months for exporting Grass Seeds. SUTTON & SONS, Seed Merchants, Reading.

NEW PLANTS.

AUBRIETIA CAMPBELLI (effective spring flower).
FUCHSIA BANKS'S BEAUTY.
VERONICA FRUTICOSA GLAUCA.
CLIANTHUS DAMPIERI, in varieties (seed only).

Coloured Plates, post free on receipt of Stamps, of the following:—
AUBRIETIA CAMPBELLI, 7*d.*
CLIANTHUS DAMPIERI ALBIFLORA, 1*s.* 1*d.*

For description of the above see E. G. HENDERSON & SON'S New AUTUMN CATALOGUE, forwarded post free.

Wellington Nursery, St. John's Wood, London, N.W.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

*** Part II. (Exotic Ferns) will be issued as early as possible.

Foot's Cray Nursery, S.E.

FERNS, BRITISH and EXOTIC: the largest Collection in the Trade for Wardian Cases, Greenhouse, Open Ferdery, &c. FERN CASES, filled complete, from 4*s.* 6*d.* each. CAMELLIAS and AZALEAS, set with flower buds, 18*s.*, 21*s.*, and 24*s.* per dozen. DUTCH BULBS, in fine condition. All kinds of STOVE and GREENHOUSE PLANTS; EVERGREEN, DECIDUOUS and FLOWERING SHRUBS, &c. German and Norwich CANARIES. All kinds of Foreign AVIARY BIRDS, CAGES, &c.

R. GREEN, 154, Kingsland Road, N.E.; and the Bedford Conservatories, Covent Garden, W.C.

Hardy Climbers.—To the Trade.

CLEMATIS JACKMANNI.—Large intense violet purple, rugose and veiny in centre, 3*s.* each; 30*s.* per dozen.
CLEMATIS RUBRO-VIOLACEA.—Reddish violet, sepals moderate, fine, 3*s.* each; 30*s.* per dozen.
CLEMATIS STANDISHII.—Beautiful violet blue, 3*s.* each; 30*s.* p doz.
Besides other good old varieties.

A CATALOGUE, including Description and Treatment of Clematises, will be forwarded free on application to

GEO. JACKMAN & SON, Woking Nursery, Surrey.

Major's New Gold-striped Thorn (Cratægus prunifolia variegata).

J. MAJOR AND SON, Knosthorpe, near Leeds, beg to announce that the above beautiful THORN is now ready to send out at 10*s.* 6*d.* each. The usual discount to the Trade.

Post-office Orders or Postage Stamps in payment.

"CRATÆGUS PRUNIFOLIA VARIEGATA (J. MAJOR & SON).—The variegation is well marked and very pretty, and the colour is really golden, and not that sickly hue too frequently met with in so-called golden plants."—*Editor of Journal of Horticulture, Aug.* 29, 1865.

THE FOLLOWING ORCHIDS will be forwarded on receipt of Post Office Order, payable at Boston Spa, to any address, and when six or more are taken package will not be charged:—Cypripedium insignis, Dendrobium nobile, Catasetum grandiflorum, at 3*s.* 6*d.* each; Cypripedium barbatum, Odontoglossum grande, 6*s.* each; Acropera Loddigesii, Dendrobium speciosum, Oncidium crispum, Oncidium altissimum, Oncidium flexuosum, Schomburgkia crispum, 7*s.* 6*d.* each; Cymbidium aloifolium, Calanthe cuprea, Cattleya Aclandiæ, Cattleya Harrisonii, Cattleya species, Stanhopea oculata, 10*s.* 6*d.* each; Lælia superbiens, Oncidium bicallosum, 12*s.* 6*d.* each; Cattleya Trianæi, 15*s.*; Cattleya elegans, Lælia elegans, 25*s.*; 500 well-grown one-quarter specimen Epacrises in No. 36 pots, 15*s.* per dozen, 100*s.* per 100, best kinds, 12 varieties. Apply to

J. C. PADMAN, Boston Spa, near Tadcaster.

Lobelia Snowflake.

Extract from GARDENERS' CHRONICLE:—

"Mr. Cox, Gardener to Lord Beauchamp, exhibited a beautiful White Lobelia called Snowflake, to which a First-class Certificate was awarded. Floral Committee of the Royal Horticultural Society, July 25, 1865."

JOHN AND CHARLES LEE having acquired the stock of this desirable NEW BEDDING PLANT, they have much pleasure in offering SEED in SEALED PACKETS for present sowing for spring pot culture, for which it is well adapted.

As a BEDDING LOBELIA it stands unrivalled. The plant is of dwarf compact habit: the flowers are large, perfectly even, and of the purest white. The stock comes perfectly true from seed.

Price 2*s.* 6*d.* per packet. Price to the Trade on application.

Royal Vineyard Nursery and Seed Establishment, Hammersmith, W.

WATERER AND GODFREY beg to submit the following List to the notice of intending planters. Everything is in the finest possible health, and all have been repeatedly and recently removed:—

HOLLIES, the QUEEN, or best Gold-striped; hundreds of plants, 4, 5, and 6 feet high.
HOLLIES, WATERER'S, magnificent plants, 3, 4, and 5 feet high, by 10 and 15 feet in circumference; many of these plants are 25 years old and are matchless.
HOLLIES, STANDARD WATERER'S and QUEEN, and other Variegated Hollies, from 15 to 30 years growth, in large numbers.
HOLLIES, COMMON GREEN, 8, 10, 12, and 15 feet high; invaluable for immediate effect.
BOX, GREEN and VARIEGATED, 4, 5, and 6 feet high.
YEWS, COMMON ENGLISH, an immense stock of fine plants, 4, 5, 6, 8, and 10 feet high.
YEWS, IRISH, 6, 8, and 10 feet high.
YEWS, GOLDEN, hundreds 5, 6, and 8 feet high; grafted many of them 25 years ago.
PHILLYREA ILICIFOLIA, 5, 6, and 7 feet.
PHILLYREA BUXIFOLIA, 5, 6, and 7 feet.
THUJA LOBBII, 5, 6, 7, and 8 feet high; these are all from seed, and are perfectly beautiful.
THUJA AUREA.—This plant originated at Knap Hill, and our stock contains hundreds 3, 4, and 5 feet high, 7 to 15 feet in circumference; perfect globes.
THUJA GIGANTEA, 7, 8, and 10 feet high.
CHINESE JUNIPER, by the hundred, 4, 5, 6, and 7 feet high; some very beautiful plants, 10 and 12 feet high.
THUJOPSIS BOREALIS, large numbers, 4, 5, 6, and 7 feet high, and wide in proportion.
CUPRESSUS LAWSONIANA, many thousands 5, 6, 7, and 10 feet high.
ABIES ORIENTALIS, 4, 5, 6, to 10 feet high; remarkably handsome plants.
ABIES PINSAPO, 3, 4, 5, up to 12 feet high; splendid specimens.
ABIES ALBERTI, 4, 5, and 6 feet.
ARAUCARIA IMBRICATA, by far the largest stock in the Trade, from 2 to 10 feet high.
PINUS NOBILIS, by hundreds, 3, 4, 5, 6, and 7 feet high; these are really most beautiful specimens, none of them are grafted.
PINUS NORDMANNIANA, 3, 4, 5, 6, up to 10 feet high; these are all seedlings and very handsome plants.
PINUS LASIOCARPA, 3, 4, and 5 feet; hundreds of most beautiful seedling plants.
PINUS MAGNIFICA, 2 and 3 feet, very handsome.
CEDRUS DEODORA, 4, 5, 6, 7, 8, and 10 feet high; a stock of more than 20,000 of the finest plants imaginable.
CEDRUS AFRICANA, 3, 4, 5, 6, and 10 feet.
CEDRUS LIBANI, 3, 4, 5, 6, and 10 feet.
WELLINGTONIA GIGANTEA, an enormous quantity, 2, 3, 4, 5, 6, and 8 feet.

Of all the commoner kinds of FIRS, such as Benthamiana, Douglasii, excelsa, insignis, &c., we have large quantities and of all sizes, as also of the more ordinary kinds and sizes of EVERGREENS, such as Hollies, Aucubas, Red Cedars, Box, Phillyreas, Bays, Laurustinus, Common and Portugal Laurels, Yews.

AMERICAN PLANTS. We have more than 40 acres of land devoted exclusively to the cultivation of Rhododendrons and other American Plants, and purchasers may select from a stock which for quantity and quality is second to none.

STANDARD RHODODENDRONS, the finest plants in the Trade, hundreds of them 25 and 30 years old.

☞ PRICED CATALOGUES free on application.

The Knap Hill Nursery is readily reached by train (40 minutes) from Waterloo to Woking. An inspection is solicited from intending purchasers, who will not be disappointed in the extent and quality of our plants or our prices.

Knap Hill Nursery, Woking, Surrey.

CHRYSANTHEMUMS, and How to have them Fine for Exhibition.—Use STANDEN'S GARDENER'S and AMATEUR'S FRIEND.

STANDEN'S GARDENER'S and AMATEUR'S FRIEND, a highly concentrated Inodorous Fertiliser, for Chrysanthemums and all kinds of Stove and Greenhouse Plants, Vines and other Fruit Trees in pots, &c.; also Vegetables, &c., in the open ground.

No. 1 FERTILIZER is the best adapted for Chrysanthemums and Hard-wooded Plants of every description.

No. 2 FERTILIZER is recommended for Soft-wooded Plants, Bulbs, &c.

Sample Canisters, 1*s.* & 2*s.* 6*d.* Bags, 5*s.* 6*d.*, 10*s.* 6*d.*, and 21*s.*

May be had of the leading Nurserymen and Seedsmen.

BARR & SUGDEN, Seed and Plant Merchants, 12, King Street, Covent Garden, W.C.

A List of Agents will shortly be published.

HENRY MAY begs to offer the under-named fine stock:—

12 superb STANDARD ROSES, named, 18*s.*; per 100, 100*s.*
12 superb DWARF BUDDED ROSES, named, 9*s.*; per 100, 60*s.*
12 superb DWARF ROSES, on own Roots, named, 9*s.*; per 100, 60*s.*
12 superb STANDARD APPLES, 6 feet stems, 15*s.*; per 100, 100*s.*
12 superb STANDARD APPLES, 4 to 5 feet stems, 10*s.*; per 100, 75*s.*
12 superb DWARF BUSH APPLES, 9*s.*; per 100, 60*s.*
12 superb DWARF BUSH PEARS (on Pear), 9*s.*; (on Quince) 15*s.*
12 superb GOOSEBERRIES, 2*s.*; per 100, 10*s.*; per 1000, 80*s.*; per 10,000 £35
12 superb CURRANTS, RED and WHITE, 2*s.*; per 100, 10*s.*
12 superb HOLLYHOCKS, 9*s.*; per 100, 50*s.*; per 1000, £20.
12 fine bushy PORTUGAL LAURELS, 3 times transplanted, 6*s.*
12 fine bushy PINUS AUSTRIACA, 3 times transplanted, 1½ to 2 ft., 4*s.*
12 fine bushy CHINESE ARBOR-VITÆ, 2 ft., 3 times transplanted, 9*s.*
12 fine bushy AMERICAN ARBOR-VITÆ, 3 feet, 3 times transplanted, 4*s.*
12 fine bushy PINUS EXCELSA, 3 feet, 3 times transplanted, 18*s.*
12 fine bushy CEDRUS ATLANTICA, 3 feet, 3 times transplanted, 36*s.*; 3*s.* 6*d.* each
12 fine bushy AMERICAN BLACK SPRUCE, 3 feet, 3 times transplanted, 12*s.*
12 fine bushy LAURUSTINUS, blooming plants, 2 feet, 9*s.*
12 fine bushy WELLINGTONIA, from seed, 1 foot, 18*s.*; 1½ foot, 24*s.*
12 fine bushy WELLINGTONIA, 2 feet, 36*s.*; 2½ feet, 42*s.*
100 fine named HARDY HERBACEOUS PLANTS, 40*s.*
100 " " ROCK or ALPINE PLANTS, 50*s.*
200,000 extra fine LARCH, well rooted, 3½ to 5 feet
300,000 " " " 2 to 3 feet
500,000 " " " 1½ to 2 feet

All the above are extra fine clean well-grown Plants and Trees, and will transplant safely. CATALOGUES sent free on application to

HENRY MAY, The Hope Nurseries, Bedale, Yorkshire.

TO BE SOLD, for Cash, all twice Transplanted:—

	Per 1000.		Per 100.		Per dozen	
	s.	*d.*	*s.*	*d.*	*s.*	*d.*
40,000 well-grown LARCH, 3 to 5 feet high ..	25	0	3	6	1	0
3,000 strong YEWS, 2½ to 3½ feet high	180	0	30	0	4	0
8,000 strong QUICK, 2½ to 3½ feet high	15	0	2	6		
3,000 HORSE CHESTNUTS, 3 to 5 feet high ..	80	0	10	6	2	0
3,000 " " 5 to 7 feet high ..	110	0	17	6	3	0
14,000 very strong COMMON PRIVET, 4 to 5 feet	20	0	3	0		
10,000 SPRUCE, 1½ to 2½ feet high	30	0	4	0	1	0
1,000 BERBERIS AQUIFOLIUM, good bushes, 2 to 2½ feet high	80	0	12	6	2	0
300 BERBERIS DULCIS, 2½ to 3 feet high ..	..		10	0	1	6
300 SPIRÆA, good, 2½ to 3 feet high	..		25	0	2	6
2,500 COMMON ELM, 4 to 5 feet high	30	0	5	0	1	6
250 SNOWBERRY, 3 to 4 feet high	..		15	0	2	0
350 CUPRESSUS SEMPERVIRENS, 2½ to 4 ft.	..		25	0	3	6
300 LABURNUMS, 4 to 6 feet high	..		25	0	3	0
100 COMMON LILAC, 2½ to 3½ feet high ..	..		25	0	3	0
300 ACACIA, 7 to 9 feet high	..		25	0	3	10
200 BIRCH, large, 3 to 4 feet high	..		6	0	1	3
200 MOUNTAIN ASH, 4 to 6 feet high ..	..		17	6	2	6
200 SWEET BRIARS, 3 to 5 feet high	..		12	6	2	0
200 RED DOGWOOD, 2½ to 3½ feet high ..	..		12	6	2	0
300 BLACK WILLOW, 4 to 6 feet high ..	..		15	0	2	6
500 BALSAM POPLARS, 7 to 9 feet high ..	..		15	0	3	0
300 SCARLET OAK, 1½ to 2 feet high	..		10	0	1	6
500 MAPLE, 2 to 3 feet high	..		15	0	2	6
2,000 ASH, 2 to 3 feet high	30	0	5	0	1	0
400 ASH, 5 to 7 feet high	..		10	0	1	6
400 WHITE AMERICAN SPRUCE, 1 to 2 feet	..		10	0	1	6
500 HALF STANDARD ROSE, best sort ..	..		60	0	9	0
800 STANDARD ROSE	..		75	0	12	0

100 IRISH YEWS, 3 to 4 feet high, 1*s.* 3*d.* each.
100 " " 4 to 5 feet high, 2*s.* each.
100 " " 5 to 6 feet high, 3*s.* each.
20 " " 7 to 8 feet high, 4*s.* 6*d.* each.
3,000 strong LAURELS, good stuff.

J. C. PADMAN, Boston Spa, near Tadcaster.

THE LADY, a SEEDLING STRAWBERRY by Mr. UNDERHILL, who was the originator of Sir Harry, are now ready to be sent out (in lots of not less than 2[illegible]. A[illegible] tions must be accompanied by a Post Office Order or Bri[illegible] Postage Stamps, or Cash, to receive attention.

PRICES OF THE LADY STRAWBERRY PLANT.

One hundred.. ..	£5	0	0	Fifty	[illegible]
Seventy-five	4	5	0	Twenty.. . .	[illegible]

Plants in Pots, not less than 10, at 2*s.* each, packag[illegible]

The above scale of prices will be slightly changed in A[illegible]

Mr. UNDERHILL'S Treatise, in English, French, or G[illegible] Cultivation of Strawberries, may be had through the P[illegible]

Address, Mr. RICHARD UNDERHILL, Sir Harry's Ro[illegible] Birmingham.

Fruit Trees and their Management.

J. SCOTT'S PRICED FRUIT TREE CATALOGUE and DIRECTORY is now ready. It gives the names and descriptions of nearly 1000 kinds, with the best modes of Cu[illegible] and Training. Is replete with interesting matter on [illegible] Fruit Trees, and is allowed to be the best work on the [illegible] Price 1*s.*, returnable to purchasers. The Collection is u[illegible] for healthiness and beauty, and for variety unequalled by any Collection in the kingdom.

GENERAL NURSERY CATALOGUE gratis on application.

Address, Merriott, Somerset.

Planting Season.

JAMES SMITH'S DESCRIPTIVE CATALOGUE of FOREST and ORNAMENTAL SHRUBS, AMERICAN [illegible] EVERGREEN and FLOWERING PLANTS, HARDY FERNS [illegible] is now ready, and will be sent post free to any address on ap[illegible]

J. SMITH takes this opportunity to invite Planters to [illegible] Nurseries, and to give themselves as much time as possible [illegible] of the Nurseries lies two miles away.

The Nurseries cover an area of more than 70 Acres, of [illegible] Acres are Rhododendrons, and are grown at an elevation of a[illegible] 1000 feet. N.B.—The Trade supplied.

The Home Nursery is within 10 minutes' walk of Darley St[illegible]

Post address—JAMES SMITH, Darley Dale Nurseries, near Ma[illegible]

WANTED, 250 GREEN or VARIEGAT[illegible] HOLLIES, above 4 feet high. Delivered at any R[illegible] Station in London, carriage paid.

Mr. EVANS, Post Office, Clapham, S., stating particulars a[illegible]

JOSEPH SMITH, JUN., has to offer the following: 1,500,000 RHODODENDRONS, 1,000,000 LARCH, 1[illegible] SCOTCH, 200,000 SPRUCE, 100,000 ALDER, 100,000 BIRCH [illegible] Ash, Mountain; Sycamore, Oaks, Black Italian Poplar, up [illegible] Chestnut, Horse and Spanish; Hazel, Willows, Privet, Laure[illegible] all Transplanted and good; Seedling Oaks, 1-year; Spruce, [illegible] 3-years; Rhododendrons, 3-years. Rhododendrons, single stem, grafting. Price on application.

Moor Edge Nursery, Tansley, near Matlock, Derbyshire.

10,000 FINE EVERGREEN PRIVET, 2 [illegible] transplanted; Capital Standard 1 and [illegible] trained MOOR PARK APRICOTS; NOBLESSE and R[illegible] GEORGE PEACHES, 6-feet stems, 60*s.* per dozen. Several [illegible] kinds of Gold and Silver-striped IVIES, to name, in pots, [illegible] 7*s.* per dozen.

A special abridged WHOLESALE CATALOGUE, on ap[illegible] of Yews, small Limes, Thorn, Quick, Hollies, Seedling Horse Ch[illegible] Oak, Beech, &c.

A. GODWIN & SON, Ashbourne, Derbyshire.

Northampton Nurseries.—Important to Planters.

JOHN PERKINS begs to call the attention of Noblemen, Gentlemen, and others engaged in Plant[illegible] his Large Stock of 1, 2, and 3-years BLACK THORN ([illegible] planting); of this he has upwards of Two Millions, the greater p[illegible] which is extra fine. Also Two Millions of LARCH FIR, [illegible] and One Million of SPRUCE and SCOTCH FIRS, 2 to 3 feet [illegible] large quantities of

Pinus austriaca	Green Box	Hol[illegible]
Berberis Aquifolium	Laurels	Bee[illegible]
Berberis dulcis	Evergreen Privets	Beech
Single Gorse	Hornbeam	Elms
Oaks	Ash, &c.	

CEDRUS DEODARA, 3 to 4 feet, 4 to 6 feet, and 6 to [illegible] feet.

J. P.'s stock of all kinds of FRUIT, FOREST, ORNAMENTAL TREES, &c., is very extensive, and this season remarkably fine in excellent condition for removal, having been frequently transplanted. Samples sent on application to

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J. P. begs his correspondents will make use of the above Address, as there are others of the same name in the town.

Now Ready.

DOBSON'S EXTRA CHOICE SEEDS, Post Fr[illegible]
CALCEOLARIA, 1*s.* 6*d.*, 2*s.* 6*d.*, 3*s.* 6*d.*, and 5*s.*
CINERARIA, 1*s.*, 2*s.* 6*d.*, and 5*s.* | PRIMULA, 1*s.*, 2*s.* 6*d.*, an[illegible]
DOBSON'S SUPERB NEW PELARGONIUMS.
DOBSON'S SUPERB NEW CINERARIAS.
See Catalogue, Post Free.

J. DOBSON & SONS, Woodlands Nursery, Islewort[illegible]

UPWARDS OF 60 PRIZES FOR ROSES DURING THE PAST SEASON.

PAUL & SON,

OLD CHESHUNT NURSERIES, CHESHUNT, N.,

BEG TO ANNOUNCE GENERAL PRICES FOR THE SEASON FOR

ROSES, FRUITS, HOLLYHOCKS, ETC.

Roses selected from our stock of above 100,000 of first-rate quality.

STANDARDS and HALF-STANDARDS, 18*s.* to 30*s.* doz. | DWARF STANDARDS and DWARFS, 9*s.* to 18*s.* [illegible]

NEW ROSES of 1865 (a first-rate year), 30*s.* to 42*s.* per doz.

DWARFS and STANDARDS of NEW YELLOW NOISETTE, MARECHAL NIEL, 5*s.* each.

Fruits, all well educated Trees.

APPLES, 5 to 6 feet, fine stems, Standards, 18*s.*; Pyramids, 18*s.* to 30*s.*; Dwarf-trained, 30*s.* to 36*s.* per doz.

PLUMS, CHERRIES, PEARS, Standards, 24*s.*; Pyramids, 24*s.* to 42*s.*; Dwarf-trained, 42*s.* per dozen.

PEACHES, NECTARINES, and APRICOTS, all well trained, Standards, 7*s.* 6*d.* to 10*s.* 6*d.*; Dwarfs, 5*s.* each

VINES and FIGS, very strong for Planting, or for Fruiting, 60*s.* per dozen.

RASPBERRIES, 16*s.*; CURRANTS and GOOSEBERRIES, 24*s.* to 30*s.* per 100.

HOLLYHOCKS, in fine variety, 9*s.* to 12*s.*; new kinds, 18*s.* to 30*s.* per dozen.

CONIFERÆ, DECIDUOUS and EVERGREEN ORNAMENTAL TREES and SHRUBS, all at reasonable prices.

RHODODENDRONS and AMERICAN PLANTS in quantity, at our

NEW AMERICAN NURSERIES, HIGH BEECH, ESSEX.

NEW PRICED DESCRIPTIVE ROSE, FRUIT, and other LISTS free on application.

F. CLARK (Successor to CHAUNDY & Co.) has to offer a large quantity of fine strong trained PEACHES, NECTARINES, APRICOTS, PLUMS, CHERRIES, PEARS and APPLES, PYRAMID PEARS and APPLES, of the most [illegible] and a large collection of STANDARD and DWARF ROSES, ORNAMENTAL SHRUBS, CONIFERÆ, &c.,

[illegible] fine specimens of CEDRUS DEODARA, 12 to [illegible] THUJA AUREA, WELLINGTONIA GIGANTEA, &c. Price on application.

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FOR SALE, the property of a Gentleman, a good Collection of STOVE PLANTS, consisting of Two splendid Specimen Stephanotis, Specimen Ferns, Flowering and Foliage Begonias &c. To be sold a Bargain. For price and particulars apply to WILLIAM BROWN, Nurseryman, Stamford.

To the Trade.

JEAN VERSCHAFFELT, Ghent, begs to offer the following at the undermentioned low prices, viz. :—

CALLA INDICA, nice plants with buds, best varieties, £5 per 100.
" " large plants on stems 12 to 15 ins. high, £8 to £10 per 100.
" " stocks fit for grafting, £1 per 100.
CALLAS, large plants, 1 to 1½ ft. high, without buds, £5 per 100.
" " plants with buds, £6 per 100.
" " plants, strong, £8, £10, £12, and upwards per 100.
" " strong bushy plants, on large stocks, beautifully set, £4 per doz.
" " stocks fit for grafting, £1 8s. per 100.
ARUNDO DONAX VARIEGATA, fine strong plants in pots, £1 4s. per dozen.
LILIUM LANCIFOLIUM ALBUM, £2 per 100.
Ditto, extra large bulbs (the largest ever offered), £2 10s. per 100.
" LANCIFOLIUM RUBRUM, £2 per 100.
" [illegible] sized bulbs, £3.
LILIUM LANCIFOLIUM PUNCTATUM (true), extra size of bulbs, £2 8s. per dozen.

Early Orders are respectfully solicited, and are to be directed to JEAN VERSCHAFFELT, Nurseryman, 43, Rue de la Caverne, Ghent, Belgium.

☞ Cash or reference required from unknown correspondents.

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ALTERNANTHERA AMŒNA, 8s.; Ditto SPATHULATA, 8s.
TELEIANTHERA VERSICOLOR, 8s.; or the three sorts for 20s.

These three remarkably fine Amaranthaceous plants can be seen at A. V.'s Nursery in their full beauty; they grow perfectly [illegible]

[illegible] DUC DE NASSAU, one of the finest foliaged plants [illegible]

[illegible] CHRYSANTHEMUMS (LILLIPUT), the set of 6, 16s.

[illegible] ANDRON DUCHESSE DE NASSAU (VERSCHAFFELT).—[illegible] rose colour, all spotted over, bloom of a beautiful [illegible] truss and very free, quite hardy. 12s.; a few strong [illegible]

[illegible] ANDRON SALMONO-ROSEUM (VERSCHAFFELT).—Very [illegible] compact, lilac rose, with a salmon tint; very [illegible] of a brownish black, quite hardy; one of the finest [illegible] distinct varieties ever raised. 12s.; a few strong [illegible]

[illegible] EMPEREUR DU MEXIQUE.—Large bloom, double, [illegible] flower. 10s.

[illegible] Plants are figured in VERSCHAFFELT's Illustration [illegible]

[illegible] Catalogue (No. 77) is now ready, and can be obtained [illegible] R. SILBERRAD & SONS, 5, Harp Lane, Great Tower [illegible] London, E.C.

[illegible] also recommends his publication, the Illustration Horticole, [illegible] monthly, each Part containing three Coloured Plates, [illegible] per year, free.

The Earliest Pea known is

CARPENTER'S EXPRESS, gathered May 7th, the [illegible] date on record. See testimonials in *Gardeners'* [illegible] September 2 and 9. Price 5s. per quart.

To be had of EDWARD CARPENTER, Seed Merchant and Grower, [illegible]righton and Sussex Seed Warehouse, 96, St. James's Street, [illegible]

[illegible] CATALOGUES of DUTCH BULBS now ready.

INVINCIBLE SCARLET SWEET PEA, For AUTUMN SOWING.

[illegible] Certificate received from the Royal Horticultural [illegible] a Certificate at the Crystal Palace Autumn Show. [illegible], strikingly brilliant, distinct, and permanent in its [illegible] packets of 30 seeds, 2s. 6d.; 10 Seeds, 1s.; 5 seeds, 6d.; [illegible] of 12 seeds, 7s. 6d. May be had of the principal Seedsmen [illegible] the Kingdom, or of the raiser,

STEPHEN BROWN, Seedsman, Sudbury, Suffolk.

To the Trade.

SUTTON'S KINGLEADER (or CARTER'S FIRST CROP) PEA.

MESSRS. SUTTON, anticipating a large demand this [illegible] for the above popular Pea, respectfully recommend [illegible], the stock being limited.

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" Jacob Wrench & Son, London Bridge, London, E.C.
" Waite, Burnell, & Co., 181, High Holborn, London, W.C.

Price to the Trade on application.

[illegible] & Sons, Royal Berkshire Seed Establishment, Reading.

Seed Wheat from the Chalk.

BROWICK RED, NURSERY, GOLDEN DROP, [illegible], ROUGH CHAFF, and all the other most approved [illegible] Also HALLETT'S PEDIGREE, SHIRREFF'S, [illegible] by RAYNBIRD, CALDECOTT, & BAWTREE.

[illegible] Tares, Rye, Winter Barley, Winter Oats, Trifolium, &c. Samples and prices post free on application.

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Surrey White Wheat.

WAITE, BURNELL, AND CO., beg to offer the above [illegible] variety of WHITE WHEAT, which is highly [illegible] for poor and elevated soils. It has been tried against many varieties, among which may be named the Rough Chaff, Hunter's Trump, and almost all other kinds of White Wheat, and has produced fully 15 per cent greater crop. It has been perfectly [illegible] and free from rust when other varieties have been more or [illegible]

Price 10s. 6d. per bushel.

A liberal discount to the Trade.

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Early Spring Feed.

SEEDS FOR AUTUMN SOWING.

PETER LAWSON AND SON can supply of excellent quality—

[illegible] RYE-GRASS
[illegible] INCARNATUM | RYE
[illegible] and GREEN GLOBE TURNIPS
[illegible] TURNIP
[illegible] NATURAL GRASS SEEDS for PERMANENT [illegible], &c.

[illegible] BROMUS SCHRADERI, 2s. 6d. per lb., and the [illegible] TRIFOLIUM STRIATUM, 2s. per lb.

[illegible] FARM SEEDS carefully selected for exportation.

[illegible] & Son, The Queen's Seedsmen, 28, King Street, [illegible], E.C.; and at Edinburgh.

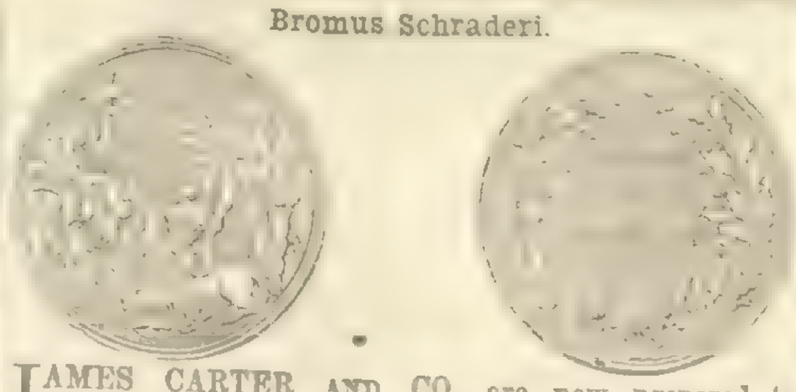
Dried Natural Flowers.

MESSRS. BOETTNER BROS., NURSERYMEN, [illegible] Erfurt, Prussia, beg to call attention to their fine [illegible] DRIED NATURAL FLOWERS, which they have [illegible] in a state of perfection, that it is difficult to tell [illegible] from the plant.

[illegible] of these very beautiful novelties may be had on [illegible] to their London Agents, Messrs. R. SILBERRAD & SON, [illegible] Lane, Great Tower Street, E.C.

[illegible] was awarded to Messrs. BOETTNER BROS. at the great Exhibition of Erfurt (September, 1865), for their Bouquets of Dried Flowers.

Bromus Schraderi.



JAMES CARTER AND CO. are now prepared to execute orders for the above valuable Forage Plant in quantity. Price per bushel on application.

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CAUTION.—Every Brush is stamped, J. BARSHAM'S Patent.

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TOBACCO TISSUE for FUMIGATING, Manufactured, under Letters Patent, from Tobacco rolled into sheets, which allows it to consume slowly without the [illegible] of flowering, at the same time giving off a very powerful, narcotic effect, and is entirely free from any chemical admixture, which is so destructive to tender Plants. It will be found [illegible] and very superior to the article generally used. 1lb. samples, price 4s. 6d., will be forwarded on application to Messrs. ROBINSON & SONS, Tobacco Manufacturers, 54, St. John Street, Clerkenwell, E.C.

Red Spider — Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. It gets red of [illegible], and if the solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes, 1s., 3s., and 10s. 6d. each.

Wholesale by PRICE'S PATENT CANDLE COMPANY (LIMITED).

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DOWN'S FARMERS' FRIEND, for preventing the Smut in Wheat, and the ravages of the Slug, Grub, and Wireworm.

A 9d. packet is sufficient for 6 bushels of Seed Wheat, which can be dressed and fit to sow in a quarter of an hour.

Testimonials from the largest Wheat-growers in the Kingdom, bearing testimony to its great power and efficacy, may be had of Agents, who are appointed for every district.

Full directions for use are given with each packet.

Prepared at the Manufactory, Woburn, Beds.

CAUTION.—To guard against fraudulent imitation and consequent disappointment, see that the signature of HENRY DOWN is on the label.

Agents in every Town throughout England, Scotland, and Ireland.

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GREEN'S PATENT SILENS MESSOR, or NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

GREEN'S PATENT LAWN MOWERS have proved to be the best, and have carried all every Prize that has been given in all cases of competition. Above 20,000 have been sold since the year 1856.

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94 STATUES and FIGURES of CHILDREN.
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About 200 FOUNTAINS, at prices from £10 to £400
15 BASKETS from 1 to 16 feet diameter
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6 GARDEN SEATS.
22 SUN-DIAL PEDESTALS.
22 ORNAMENTS for GATE PIERS.
And a great variety of BALUSTRADING and PEDESTALS.

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GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.

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ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also TESSELATED PAVEMENTS of more enriched designs than the above.

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SILVER SAND (REIGATE, best quality), at the above addresses—14s. per Ton, or 1s. 3d. per Bushel; 2s. per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less.

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F. & G. ROSHER.—Addresses see above.

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JAMES PHILLIPS AND CO. beg to submit their prices as follows:—

PROPAGATING GLASSES

	Each.—s.	d.		Each.—s.	d.
2 inches in diameter ..	0	3½	12 inches in diameter ..	1	9
3 " " ..	0	4½	13 " " ..	2	0
4 " " ..	0	5½	14 " " ..	2	6
5 " " ..	0	6½	15 " " ..	3	0
6 " " ..	0	8	16 " " ..	3	6
7 " " ..	0	10	17 " " ..	4	0
8 " " ..	1	0	18 " " ..	5	0
9 " " ..	1	2	19 " " ..	6	0
10 " " ..	1	4	20 " " ..	7	0
11 " " ..	1	6			

BEE GLASSES.

	Each.—s.	d.		Each.—s.	d.
4 inches in diameter ..	0	6	9 inches in diameter ..	1	8
5 " " ..	0	8	10 " " ..	2	0
6 " " ..	0	10	11 " " ..	2	6
7 " " ..	1	1	12 " " ..	3	0
8 " " ..	1	4			

CUCUMBER GLASSES.

	Each.—s.	d.		Each.—s.	d.
24 inches long	2	0	16 inches long	1	4
22 " "	1	10	14 " "	1	2
20 " "	1	8	12 " "	1	0
18 " "	1	6			

HAND GLASSES, with Open Tops.

	Each.—s.	d.		Each.—s.	d.
12 inches	6	6	18 inches	9	6
14 "	7	6	20 "	10	6
16 "	8	6	22 "	11	6
			24 "	12	6

Painted and Glazed with 16-oz. Sheet Glass.

London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.

LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS, PAINTS of various colours ground ready for use.

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CLAYTON, SHUTTLEWORTH, AND CO., ENGINEERS, Manufacturers of PORTABLE and FIXED STEAM ENGINES, Machinery for Pumping, Hoisting, Grinding, Sawing, &c., Engines for Steam Cultivation, Self-Moving Engines for Common Roads and Agricultural Purposes generally.

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"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles.—Your obedient servant, "G. GLENNY.

Every variety of Gutta Percha articles, such as Mill Bands, Tubing Soles, Sheet, Pump Buckets, Fire Buckets, Hosses, Union Joints Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags Curtain Rings, Galvanic Batteries, Calliotype trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town or country.

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ROBERT PARKER begs to announce that his NEW CATALOGUE, containing Select Descriptive and Priced Lists of New, Rare, and Beautiful Greenhouse, Hardy, and Stove Plants, Fruit Trees, Grapes, &c., Amaryllis, Crocuses, Gladioli, Hyacinths, Narcissus, Tulips, and other Bulbs, is now published, and will be forwarded to applicants.

Exotic Nursery, Tooting, Surrey, S.

500 DUTCH BULBS, carriage free, Great Western Railway, 21s. Consist of best named HYACINTHS, Bedding HYACINTHS, TULIPS, CROCUSES, SNOWDROPS, &c. One of the cheapest and best collections offered.

Also on offer, 50,000 2-years TRANSPLANTED LARCH, 3 feet, strong, and 6000 3-years ditto, 5 feet, strong.

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Hothouse, Greenhouse, and Hardy Plants, Bulbs, &c.

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These are every year becoming more popularly cultivated, and the HYACINTHS, ANEMONES, TULIPS, &c., which we imported last season from the celebrated Dutch Florists, Messrs. de Boom, Veen, Byvoet, and others, having been so generally admired, we have imported from the same parties, and still more extensively.

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		£	s.	d.
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CARTER'S COLLECTIONS of PICKED BULBS.—For the convenience of those of our Customers who do not wish the trouble of selecting for themselves, we offer the under-mentioned COLLECTIONS of BULBS, which contain, respectively, all the sorts required for the purpose mentioned; and, the choice of varieties being left to ourselves, we offer the entire Collection at a much lower rate than if the sorts had been chosen at the option of the Purchaser.

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JAMES VEITCH,

THE ROYAL EXOTIC NURSERY, CHELSEA, S.W.,

DESIRES TO CALL PARTICULAR ATTENTION TO HIS

MAGNIFICENT COLLECTION OF THE ABOVE.

BUSHY PLANTS, of all the leading varieties, 42s., 60s., 84s., to 105s. per dozen, according to size.
HALF SPECIMEN BUSHY PLANTS, of fine shape, 10s. 6d. to 21s. to 31s. 6d. each.
Very fine SPECIMEN PLANTS, 31s. 6d. to 63s. to 105s. to 210s. each.

All well set with Buds, and in perfect health.

PAUL'S NURSERIES, WALTHAM CROSS, N.

WILLIAM PAUL

(SON and SUCCESSOR to the late A. PAUL,)

BEGS TO OFFER THE FOLLOWING LEADING ARTICLES OF FIRST-RATE QUALITY:—

ROSES.

STANDARDS, 15s. to 18s.; new sorts, 24s. to 42s. per doz. | DWARFS, 12s. to 18s.; new sorts, 24s. to 30s. per doz.
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The Gardeners' Chronicle.

SATURDAY, OCTOBER 21, 1865.

MEETING FOR THE ENSUING WEEK.

SATURDAY, Oct. 28 { Royal Horticultural (Weekly Show), at South Kensington .. .. 2 P.M.

THEORY and practice unfortunately do not always agree, and of course a similar diversity exists between the professors and the practical men. Some there are who, when troublesome facts come in the way of their pet notions, make short work with the offenders, keep to their theory, and, like the Frenchman, shrug their shoulders and say, "so much the worse for the facts." Others, the practical men, keep to their facts, forgetful, it may be, that after all they only see through a glass darkly, and that the facts they observe may be susceptible of more than one interpretation.

We allude to this subject because there are many points in which it is positively discreditable to theorists and practical men that such discrepancies should so long exist. Take the case of timber, for instance. The physiologists tell us for the most part that FAST-GROWN TIMBER is the STRONGEST; the reader will find in the "Theory of Horticulture," p. 413, ed. 2, a summary of the arguments on this subject, and those arguments seem as satisfactory to the physiologist, as they are the reverse to the practical forester.

Hear what one of our correspondents, Mr. JAMES GRIGOR, says on this point in our present volume, p. 867. He attributes the great durability of the wood of the Scotch Pine grown in the North to the inclement climate and consequent slow circulation of the sap. But these statements are to a physiologist satisfactorily disposed of in the work just named, as well as by the counter statements of M. CHATIN, to whose paper we have referred on more than one occasion.

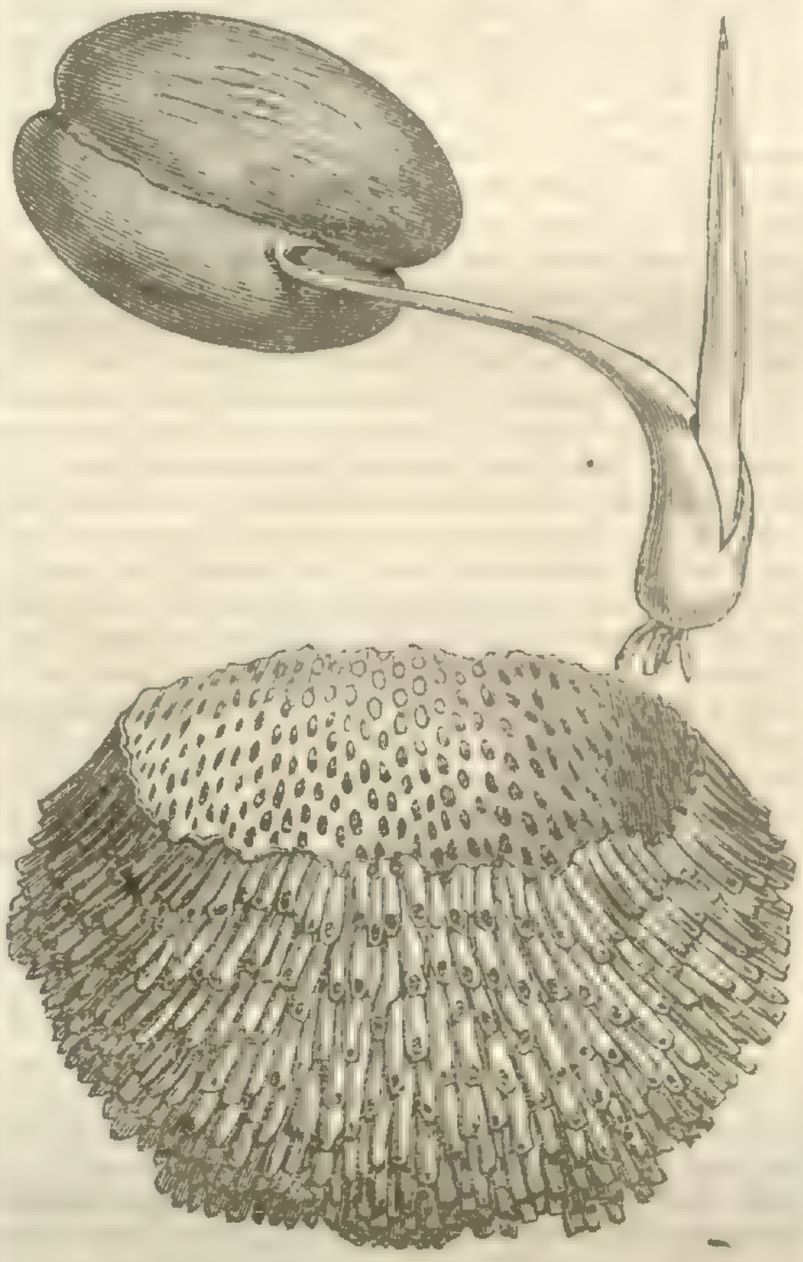
Mr. GRIGOR is supported in his views by Mr. HUTCHISON, of Carlowrie, who in an able paper on the culture of Coniferæ in the Transactions of the Scottish Arboricultural Society, to which we shall have other opportunities of alluding, lays it down as an "undeniable axiom that the slower the growth, the closer the grain and the firmer the texture of the wood."

On the other hand, the physiologists tell us that the more rapid and energetic the growth, the quicker is the transformation of the soft sap-wood into heart-wood; hence in two trees of the same age, the one grown in a poor soil, the other in a rich one, there will be a predominance of sap-wood in the former, of heart-wood in the latter, and the thicker the several layers of wood the smaller proportion of sap-wood will there be found. Hence the most valuable qualities of timber—hardness, durability, and elasticity—are quite compatible with the greatest thickness of the annual layers. Microscopic investigation shows us that the inner portion of each annual layer, that formed in spring, has very nearly the same thickness in all cases, whether grown in rich or in poor soil, and is made up of thin slender tubes of little strength; while the outer portion, formed at a later period, is thick in proportion to the rapidity of its growth, and is made up of thick, strong wood cells filled with hard woody deposit.

Now there is doubtless some truth on both sides; and we hope it will not be long before we get at the whole truth of the matter, in order that this by no means unimportant subject may be rescued from the battle-field of conflicting statements.

ONE of the most striking objects in the noble collection of woods at Kew is an extraordinary cauldron-shaped body of considerable diameter, pierced with hundreds of small oval holes about the size of a thimble, with hollow tubes corresponding on the outside, through which the roots penetrate to the ground, and of such an intensely hard consistence and indestructible character, that when the DOUBLE COCOA-NUT tree (Lodoicea sechellarum), of which it constitutes the base, perishes, it is left behind, and preserves its form for many years. Our attention was especially called to it by the late Sir W. J. HOOKER, at whose suggestion the subjoined figure was made by Mr. FITCH expressly for this Journal.

When the Nut first germinates the cotyledon is extremely obtuse and sac-shaped below, where it gives out a number of roots, as in the figure; each succeeding leaf partakes somewhat of the same character below, where, according to Mr. SWINBURN WARD's description, they cluster



and support each other, no stem appearing above the ground. The tree continues in this state from 15 to 25 years, when the stem is first formed. Meanwhile, as the roots are sent out in every direction, the tissues harden round their base and in the interstices till they become as solid as the shell, and form a distinct socket round the softer bulbous base of the plant within. If the report be true, which, however, requires confirmation, that the base of the trunk plays freely within this socket when struggling against the wind, either the central portion of the root must ultimately become free, or else a portion of the basal tissue must be protruded with each nascent root. It is scarcely, indeed, conceivable that with such a multitude of roots radiating in every direction any motion should be possible. The socket has been found quite perfect and entire in every respect 60 years after the tree has been cut down.

If we mistake not, something of the same kind takes place in other Palms, though not to the same extent. A young plant of Borassus flabelliformis in the Museum seems to illustrate the matter. It is of little consequence whether the roots penetrate the base of the leaves, as in many Endogens, or not, as the leaves would ultimately decay, though not till after several years, and leave the base of the stem free.* *M. J. B.*

AMONG the numerous topics of interest mooted at the Congress of Botanists at Amsterdam last spring, few were more important than one relating to the NAMES OF PLANTS. The subject has also been taken up by more than one of the foreign horticultural journals, and it may possibly form one of the matters for consideration at our own meeting next year.

We allude to the barbarous, silly, unpronounceable names which deter so many from the pursuit of the delightful science, and which form a stumbling block alike for the educated scholar and the more humbly educated gardener, for the purpose of pointing out to botanists that they are often unconsciously the means not merely of disgusting amateurs in the way we have mentioned, but also of giving rise to a practice from which they and all honourable men shrink. A plant is received as new—it receives a name; anon it is discovered that the plant has been described and named before, perhaps in some out-of-the-way publication having but a limited circulation; hence arises a synonymy, often increased, as every botanist knows to his cost, by the imperfect description of the species in the first instance. "Well, what of that?" says the pure botanist; "that is our affair, and a mighty troublesome one it is, and it does not concern you horticulturists." But, nevertheless, it does concern the horticulturist, and it is of serious importance to the plant buyer. An upright tradesman has no desire to palm off an old friend under a new name, and yet from inadvertence he may often do so; while a brother tradesman, with less sensitive morality, may for a time find it advantageous to make use of both names. Assuredly a plant buyer does not care to give the same price for an old plant with a new name as he does for a *bonâ fide* new plant, and yet this sort of thing happens daily, rarely we hope from design, but very frequently from ignorance.

Professor KOCH, of Berlin, has pointed out one way of meeting the evil, at any rate in part. Certain botanists are especially noted for their acquaintance with special families; some devote their attention particularly to Orchids, some to Ferns, some to Palms, and so forth. Such a division of labour is extremely beneficial. The botanist who, with a sufficient grounding in the general principles of his science, occupies himself with certain groups chiefly, is more likely to advance science than he who flits from order to order, as the bee from flower to flower.

A botanist such as we have mentioned, should, as Professor KOCH suggests, act as referee to the horticulturist. A supposed new Orchid should be sent for identification to him who has the best knowledge of Orchids, and so in other cases.

The man of science would have no interest in attaching a name, except on scientific grounds; if he were to do so on any other pretence, discovery would soon ensue, and his reputation for honesty would be quickly imperilled. On the other hand, the honest man of commerce would know that he had taken the best means open to him of securing a correct name for his plant, and of preventing any falsification, accidental or of design.

In connexion with the names of plants another point was mooted at the same Congress by Dr. ASCHERSON, viz. the impolicy of attaching a Latin name to a mere garden variety of a well-known species; such a practice, of course, often leads to disappointment on the part of purchasers, and this might be obviated by giving simply a vernacular name, English, French, or German as the case might require, and by reserving the Latin name for the original species.

Of course neither of these proposals would do away with synonymy and its attendant evil results, but they would at least be steps in the right direction, and they would also tend to draw into closer alliance the student and the practical man. How greatly such an alliance would raise Horticulture and strengthen Botany we shall have other opportunities of showing.

—— IN our impression of July 14, 1860, we gave a figure of a remarkable variety of PAPAVER BRACTEATUM, in which some, and at times all the petals were united together by their margins, so as to form in the latter case a perfect cup. This singular variety has been in cultivation for some time in France, though it does not appear to be well known even there, according to M. CARRIÈRE, from whose notice of the cultivation of the plant in a recent number of the "Flore des Serres" we compile the following remarks:—Apart from its morphological interest, few plants are so effective for fine colour, and hence it has become desirable to propagate it by a process which has been proved to answer well and speedily, not only for this particular plant, but also for all the varieties of perennial Poppies, which rarely come true from seed. The process is this:—In September, when the growth of the year is almost completed, the plant is taken up, and its long fleshy roots are cut into pieces 2 to 3 inches in length. These are potted in peat earth, and placed in the propagating pit, either under

* For further information we refer our readers to two papers in the Journal of the Linnean Society for 1864 and 1865.

a bell-glass or frame or even without such protection. The earth is kept moderately moist, and in the course of a month a number of small colourless pimples of cellular tissue are observed springing from the central portion of the cut surface, and also just within the circumference. These grow into true buds, provided with leaves and roots. It is probable that this mode of securing cuttings from roots is applicable to a great number of plants in which this mode of propagation has not been tried.

—— We glean from a recent number of the *Revue Horticole* that an attempt has already been made in certain districts of France to introduce into the primary schools instruction in the rudiments of Agriculture and Horticulture, in a manner suited to the tender capacities of the youthful mind. M. de la Roy states that the attempt has been followed by good results, and that it is effected by means of a series of copybooks, which serve for writing from a copy or from dictation, and which comprise the principal points of importance in those sciences of which the young scholars daily see application made by their parents in the garden or the field. This is worth bearing in mind, now that the Education of Gardeners is exciting attention.

—— We are happy to be able to announce the publication of the second part of Bentham and Hooker's *Genera Plantarum*, and hope that it may be speedily followed by a third.—Another long-expected book is also on the eve of publication, viz., Lindley and Moore's *Treasury of Botany*.

—— A correspondent of the *Builder* suggests the following plan to Destroy Ants in houses, which he had practised with much success:—The parts of his house which were infested were syringed with fluoric acid. In about one hour after there was not one insect to be seen alive—it entirely destroyed them. Spirits of tar, commonly called oil of tar, were used in a similar case about three years ago, and the place has been quite free from the annoying insects ever since. It is suggested in case of any difficulty in procuring fluoric acid, that sulphuric acid would probably answer the same purpose. If fluoric acid be used, it must be done with a leaden syringe, while if sulphuric acid be chosen a glass one must be employed; both, moreover, require careful management, as they are painfully destructive to the skin.

—— We are informed that Mr. J. Smith, the late Curator of the Royal Botanic Garden, Kew, is desirous of disposing of his Herbarium, either as a whole or in separate collections.

It consists of a very complete collection of Ferns, and also a general one of Flowering Plants:—

I.—The Fern collection represents more or less fully the Fern Flora of the islands of the West Indies, North America, Mexico, Central America, Peru, New Granada, Venezuela, Guiana, Brazil, Tropical Western Africa, South Africa, Mauritius, Ceylon, India, the Malayan Peninsula and Islands, the Philippine Islands, Hong Kong, Formosa, China and Japan, Australia, Tasmania, New Hebrides, Sandwich and other islands of the Pacific.

Each species, with few exceptions, is on a separate sheet of stout white paper, 21 inches by 13 inches, with name, synonymes, and references written on the sheet, to which are also added the name of the country and that of the collector. Each sheet contains one, two, or more specimens of a species; the various peculiarities and geographical range of individual species are thus well illustrated, and have been particularly attended to in the formation of this collection. The number of species is about 2000, including many that are rare and interesting. The total number of sheets amounts to 6,460. The whole collection is scientifically arranged, and contained in a cabinet 6½ by 6½ feet, divided into 55 compartments. This collection was considered by Sir William Hooker to be second only to his own.

II.—The collection of Flowering Plants consists of about 5,000 species, representing nearly the whole of the natural orders; of these 1,600 are native specimens, and 3,300 garden plants, chiefly collected between the years 1824 and 1844, the older specimens being on paper of less than the usual herbarium size; the larger number, including Proteaceæ, Myrtaceæ, New Holland Acaciæ and other Leguminosæ, Epacrideæ, &c., &c., are all on full-sized herbarium paper, and are arranged in their respective orders. The garden specimens are plants introduced by our early collectors, as Masson, Cunningham, Bowie, and others, many of which are singular and remarkable, and are not now in the gardens of this country. The 1,600 native specimens are chiefly selections from the Indian collections of Wallich, the herbaria of Lambert, Gardner, Cunningham, and Bowie. Besides the above there is a collection of Gramineæ, Cyperaceæ, Junceæ, &c., amounting to about 480 species; it consists chiefly of garden specimens, collected between the years 1826 and 1836, and they are believed to be all correctly named. The general collection contains a small set of curious Australian terrestrial Orchids, introduced by Cunningham during the years 1824-5 and 6, and which flowered at Kew. There is also a special collection of Garden Ferns, consisting of 460 species, all fixed on paper of the usual herbarium size; likewise several small special collections.

Mr. Smith also wishes to dispose of the Manuscript of his son, the late Mr. Alexander Smith, which he had intended for publication, under the title of "Economic and Commercial Botany," being a history of the uses and statistics of all plants known to be made use of by man in all countries, for food, clothing, medicine, manufactures, mechanical arts, &c. It is contained in 30 octavo and one folio volume, and is believed to be the most complete work on the subject yet compiled.

THEORY AND PRACTICE OF VENTILATION.
No. I.

The subject of Ventilation is wide as the world, deep as the ocean, subtile as heat, and high as those heavens that constitute or provide the elevated machinery for the aëration of the globe. It affects, or is affected by, most forms and all conditions of matter, making solids liquids and gases subservient to its great purposes. Perpetual motion and incessant change are the processes by which ventilation is accomplished, and heat is the active agent that sustains the ceaseless activity of these processes. Primarily, then, the sun may be said to ventilate, as it enlightens and warms the earth. But in the performance of this function, as in the execution of the other two, the sun is most powerfully helped by the earth and water, while the air leaps down to minister to each, and kindly mediates between them all. But for the presence of the atmosphere as the grand connecting link between solids and fluids, the sun could neither warm, vivify, nor enlighten the world; and it may seem a useless truism to assert, that without an atmosphere there could be no ventilation. Yet it is quite possible to conceive of an air that would have supported life, and yet have been immoveable. But happily for our welfare our atmosphere is so constituted in its relation to the economy of the universe, that motion is a necessary condition of its existence. It is tremblingly sensitive to the influence of heat. The surface of the world is so formed, clothed, and furnished, and so placed in relation to the sun, the chief source of heat, that it is physically impossible that either earth or ocean or the superincumbent air that rests alike upon both, and maintains each in their respective places, can ever become or continue to be of one uniform temperature. This fact, the variety of temperature throughout the atmosphere, is the foundation of the science of ventilation. Air can only be moved from one place to another in two ways. It must either be driven by mechanical force, or it must move itself. It is needless to add that the latter is Nature's method. Let us inquire how she does it, that it may also become ours; for Nature is not only our oldest but our wisest teacher.

By the addition of heat to air its particles are separated further from each other than they were before. The heat exerts an expansive and diffusive power, the air occupies a greater space, and consequently becomes lighter. Now light air will of course rise through and sail along the surface of heavy air, just as a cork or piece of wood will upon water. But a volume of air, large or small, cannot pass from one place to another without creating a vacuum. Air being an extremely subtile and elastic fluid, of course other portions of air rush in to supply the place of the heated air, and thus an indefinitely extended movement is caused throughout the atmosphere by the slightest disturbance of its temperature. It thus appears that it is impossible to discuss the question of ventilation apart from that of heating. The former is but an episode or necessary offshoot of the latter, and both must be looked at together if either is to be properly understood.

The sun is nevertheless the primary source of all our warmth. A wide belt of the earth's surface is heated to a permanent temperature of 80° by his direct rays. This belt is about three thousand miles broad, and from the fact of day and night being of nearly equal length there throughout the whole year, it is called the equatorial, or equal zone. A part of this space most immediately under the sun's influence becomes heated beyond all the other parts. Consequently the air there rapidly ascends into space, and creates a vacuum on the earth's surface, which originates and sustains a movement throughout the entire atmosphere. The object of this movement is to moderate the excessive heat of the centre of the earth between the tropics, and to temper the cold of the frigid zones.

To effect this distribution of solar heat, two great agents are used. The one is hot air; the other hot water. I will notice hot air first, and the first thing that demands attention here is the mode by which the air becomes warm. It is not heated mediately by the sun. This is a marvellous and infinitely important fact. If the air were heated from above by the direct action of the sun's rays upon it, as the crust of the earth is heated in part, it would at once become an immovable fluid. It would also absorb all the heat before any of it reached the surface of the earth. It would disarrange the whole system of the universe, dissipate the air itself into space, and by removing the only barrier that can keep down our heat, chill the surface of the earth into perpetual barrenness. But the Almighty has ordered it so that the air shall be heated from below and not from above. It is the great carrier of solar heat to our world. But it refuses to absorb or be warmed by its burden. It does more; it increases the amount of heat in the process of conveyance, and throws down upon the surface of the earth much more than it receives from the sun. After performing this beneficent service the air rests for a few moments from its labours on the warm bed which it has made. But it only rests to brace itself for new work. On the surface of the earth it is endowed with new wings of caloric, and starts afresh on its great mission of watering, feeding, or ventilating the world. I [illegible] unduly extend these papers to trace it minutely [illegible] all its journeyings, but an epitome of its course [illegible] sary to the comprehension of the science of our [illegible]

I have already adverted to the hot belt that [illegible] round the centre of the world. This is Nature's [illegible] blast furnace. It creates an upward current [illegible] great as to neutralise the power of horizontal [illegible] near the centre of the earth. Hence here we [illegible] the equatorial calm that owes its existence to [illegible] that at this spot the currents of air are almost [illegible] dicular. It is easy to see how the air here must [illegible] Two currents of nearly equal force, sweeping [illegible] either pole, and meet at the equator. This on the principles of mechanics would produce rest by a [illegible] brium of force. The highly heated surface of the [illegible] however, at once expands the dense cold air, and it [illegible] straight up in virtue of being thus lightened by heat.

It is not quite so easy to learn at first [illegible] how the ascending current is stopped and brought [illegible] to earth again. Artificial draughts are mostly dependent upon the height and heat of the shaft. This natural chimney is warm, and it extends to a height of [illegible] 80 miles. Nevertheless, the natural draught is [illegible] trolled and stopped in the same way as our artificial ones. The higher the heated air ascends the [illegible] it goes. It must therefore finally reach a [illegible] place. As soon as the ascending current becomes cooled down to the temperature of the surrounding [illegible] of air, it stops. One degree colder, and it begins its return journey to earth, impelled downwards by the moment of its own weight. We owe the return of the air to our world entirely to the fact that the upper strata of the air are the coldest. It was thought at one time that the temperature sank in regular gradation, that every degree of altitude were lost so many of heat; the result of Mr. Glaisher's recent explorations in the [illegible] upsets this theory. Still the great general fact remains that insupportable cold forms the boundary line [illegible] vertical as it does of our longitudinal space. The heavens above and the poles at the extremities are [illegible] against us by similar barriers. Heavy masses of [illegible] stop our progress to the one, and a thin attenuated [illegible] arrests our path to the other, but cold or the negation of heat forms the gates of both, and to these gates of shivering cold we are solely indebted for the preservation of our atmosphere, and, impossible as it may appear, to the conservation of our heat.

This o'erarching dome of cold is also the cause of the ventilation of the universe. The ascent and return of the atmosphere as described is entirely owing to the power of cold to contract elastic fluids. Thus a constant circulation of the air, from the surface of the world to the higher regions of the atmosphere and back again, is maintained. But there is also a circulation, which may be defined as a horizontal—but being mostly a vertical one. Currents of hot [illegible] diverge north and south from the great warming [illegible] of the world, as well as ascend straight up into space. These are also arrested and driven back towards the equator, again to be reheated, by cold. Traveling in the higher regions of the atmosphere, they are condensed, as it were, by the icy breath of the Arctic regions; descend lower and lower until they reach almost to the surface of the earth, and are again driven back by their increased specific gravity to the spot from whence they came. Or perhaps it would be more correct to say that the heat of the Torrid Zone not only circulates the warm air throughout the world, but draws back the cold to be reheated. Be this as it may, the fact is certain, that a [illegible] circulation is maintained by extremes of temperature. From various facts, such as the different diameters of the earth at different latitudes, the varying heights of the atmosphere at various temperatures, and the [illegible] rates of speed at which the mass of the earth and [illegible] atmosphere revolve at every part of the surface, the vertical and horizontal circulations of the atmosphere seldom or ever intersect each other at right angles; they cross, interlace, blend with and oppose each other at every possible angle, and thus secure a complete intermixture of the great aërial ocean. *D. T. Fish.*

TRANSPLANTING TREES AND SHRUBS.

From the far distant days of the Jewish Kings down to our own, no one has questioned the truth of the axiom, that "there is a time to plant," or as we should have phrased it, "to transplant;" but it is not very clear to those most interested in the matter, when that time is. Confining myself for the present to one department—the transplanting of trees and shrubs—I would beg of young gardeners and others particularly to bear in mind the following short sentence, which I consider as the very marrow of the whole matter, and which in all my horticultural reading I do not remember to have seen enunciated; it is as follows:—There is a time in the course of the year when [illegible] does a tree good. This being such an exceptional case, the fact has to be mastered and made serviceable, for it is of the highest importance to the planter.

Planting and watering, as of old, all know; but the science of mutilating plants to mend them, is not quite

so clear. Two missionaries following each other, like Paul and Apollos, are said to plant and water, showing that in those early days trees and shrubs were managed just as we see the delving and drenching done now; but the ripening of the wood and the maturing of blossom-buds for future fruit depend so much upon the exact amount of sunshine and drying wind on the one part, and of rain or other water supply on the other, that the time comes, as I have stated above, when any process whereby a large portion of the water is kept out of the system does the tree or shrub essential service. There are but few persons who have not the means of proving this by actual experiment, but, as in the case of root pruning, the good done is laid to other causes. In ringing fruit trees the same thing is done, for the supply is partially cut off, and the checking of the descending sap gets the credit of the fruitfulness induced; but let any one examine a common Gooseberry bush after the fruit has been nicely ripened, if wet weather should set in, the fruit will soon show that the plant is thoroughly saturated with wet; the berries taste of the water imbibed, and many of them burst open and forthwith rot; whereas, had the earth kept dry and the foliage been protected from wet, the fruit would have kept sound for a very long time.* In September and frequently in August, long before we should think of plucking up and planting trees and shrubs, they will bear it with impunity and even be benefited by lack of moisture, but this relates only to plants before they are gone into winter quarters, and presupposes that there is a little margin of summer still left to elaborate the juices already stored in the system.

I am aware that this doctrine will be cavilled at, but its practice forms one section of the art of transplanting well, and it is put in practice for other reasons than those which hold good later on in the season—to which I will direct attention hereafter, and try if possible to heal the wounds of winter planting by coating the rootlets with mud, further protecting them from their mortal enemy, dryness, by immersing the roots of the newly planted trees in puddle, for although puddle under ordinary culture is the worst form that good soil can assume, yet in winter and spring-planting puddling is the most important part of the process.

It is very necessary in planting or transplanting trees and shrubs to get a clear idea first of all of the object one has in view, in order that the means may be regulated accordingly. That a plant lives after being transplanted is no mark that the work has been well done. From time immemorial Cabbage plants have been torn up by the roots and dibbled in as if their roots were iron, and clods bruised with the dibble could not harm them. Surely Satan himself must have set the first clodhopper a Cabbage planting. *A. Forsyth.*]

* The fruit of the Melon, when ripe, gives a fine illustration of this doctrine to any one who watches the simple but truly efficient ways by which Nature shifts the scene for a fresh act. The Melon cuts a ditch round the neck of its footstalk when it has done with earth, and looks to another quarter for the future. The leaves of deciduous trees, when healthy, cut themselves off in like manner.

DOUBLE-GLAZING AND ITS ADVANTAGES.

The question of double-glazing and its so-called "advantages" has now assumed an aspect of so decidedly an important a character that it behoves all those who are in a position to question its efficacy to stand out and avow their opinions. The necessity of such a step is all the more urgent and obvious when we consider that a growing host is personally interested in all matters pertaining to an efficient along with an economical mode of constructing houses for the well-being of exotic plants of all kinds, and that to the columns of the horticultural press we should look for a thoroughly practical opinion upon the subject. In fact the opening up of this matter involves a question quite revolutionary in its character, and therefore of paramount importance, because it goes to the very bottom of the pockets of all who are charmed with its novelty and enamoured with its "beneficial influences," all at first seeming *couleur de rose;* but a day of reckoning must come, and it seems a fair question to put—have the results met the most sanguine anticipations? So far the answer has been triumphantly in the affirmative; and "A. R. E." (p. 962), convinced of the "usefulness and excellence" of the double-glazing system on the Continent, strongly recommends its general adoption in this country, making use of the names of "Bewley and Warner" as pioneers of a system which is to work wonders in the cultivation of Orchids, distinctly throwing down the gauntlet to us English gardeners, clenching his argument, too, by the most forcible of all illustrations—facts: that is to say, the dimensions of certain plants grown under double glass in the neighbourhood of Berlin.

This is certainly a legitimate mode for "A. R. E." to adopt in vindication of his partiality for double-glazing; and if we, who have been adhering to the old system, could not show a parallel, there might be some good grounds, apart from the scientific discussion of the matter, for believing that double-glazing would be beneficial in the extreme. As a practical gardener, however, the first question that occurs to me to ask is this—has single-glazing proved so detrimental to the growth of Orchids or any other plants, that double-glazing has become a necessity? Are the conditions essential to good health, especially in Orchid culture, only to be looked for in a house all but hermetically sealed from the influence of atmospheric air? The name of Mr. Warner was mentioned as an authority, and an apostle of the double-glazing system, but I find when I go to Broomfield that all the Orchid houses are of the common order, and I see examples of Vanda and Phalænopsis that might well be rivalled but could not be excelled for exuberance; I go to Mr. Day's, Mr. Rucker's, Mr. Basset's, &c., and see plants, many of them remarkable as examples of first-class cultivation, in houses of similar construction. The same remark applies to Messrs. Low & Co.'s numerous houses, Mr. Williams', and some of Mr. Veitch's. It is impossible then to arrive at any other conclusion than that they answer the purpose. And what next? True, Mr. Bewley has had double-glazed houses for some time, which unfortunately I have not seen; and so has Mr. Veitch and several of the other gentlemen named; but the plants so far do not appear to be more remarkable under the one condition than the other.

Three different collections are named as containing plants of a very praiseworthy character; but, I would ask, is the reasoning of "A. R. E." sound—is the deduction logical as to all this being brought about by the effects of double-glazing? I do not require to hold a brief for the Orchid-growing fraternity of this country—"their works bear witness;" but I could point out hundreds of plants quite as remarkable, some of them far more so, that have never been under a double glass roof. If the highest degree of Orchid cultivation were attainable by observing one fundamental rule, and ignoring, or at least treating all the others as subsidiaries, then I would frankly acknowledge the force of "A. R. E.'s" argument; but as all Orchid growers know that soil, air, circulation, moisture, and some other minor things, form important agents in the routine of successful culture, I hold they are entitled to be considered in forming an estimate of the success of any one's practice.

In order that we may appreciate the merits of both systems, let me take up the standard recognised and propounded by "A. R. E.," and claim results which I am about to specify for single-glazed roofs, which is simply measuring success by that gentleman's own wand; and what do I find? In order to be accurate I have taken the sizes, and the plants are open to inspection. Phalænopsis Schilleriana, a plant with eight leaves, the largest of which measures 14 inches long by 5½ inches wide, which produced last spring exactly 110 flowers, 105 of which were fully expanded at one time. "A. R. E.'s" sample has therefore been "surpassed in England." Vanda suavis Veitchii as grown here is 7 feet high from the bottom of the lower leaves to the top of the plant, has 18 breaks, some of which are 4 feet high, and has produced spikes each 16-flowered. Vanda insignis, that fine yellow-ground variety, has more than 50 breaks, is over 8 feet high, and is, I presume, quite as remarkable as the plants we are triumphantly asked to match. Both these plants are clothed from top to bottom, and are scarcely ever out of bloom. [They are magnificent examples of first-class cultivation.] Cypripedium caudatum has borne three flowers on a scape, and the petals according to my note book are 23 inches long, which, if taken along with the length of the dorsal sepal, would make them not much less than the one in the Berlin collection. Oncidium Lanceanum has also grown here wonderfully well, with leaves 21 inches long by 5 inches wide; but in one instance where I had grown a plant quite 3 feet across, with a score of flower spikes, it became "spotted;" and it was only by reducing it into pieces, and tying them upon blocks, that its life was saved. I have them in lesser sizes, with leaves of the above dimensions without a blemish. The Vanda cœrulea referred to must have been a unique plant in every respect, eclipsing by far anything I have ever seen—it is a plant in fact that I cannot succeed in growing satisfactorily.

But now that we are tilted, the one country against the other, the one mode of glazing against the other, let us examine a few more plants, keeping still to the same collection. Cattleya labiata Pescatorei has produced 12 spikes on one plant, with 40 flowers—probably the most gorgeous example of superb colouring ever witnessed in any plant. Lycaste Skinneri has pseudobulbs measuring 8 inches in circumference by 5 inches long; and in one instance has produced 12 flowers from a single bulb. One plant, 3 feet across the bulbs, has had 65 flowers open at one time. Anguloa Clowesii, in one instance, has over 50 pseudobulbs, the largest of which measures 9¼ inches in circumference by 8½ inches long, and has produced 60 flowers at one time. Dendrobium albo-sanguineum, a plant at one time lost to the country, has pseudobulbs here 18 inches long by 3 inches in circumference. Odontoglossums are generally good, but one or two sorts may be illustrated. O. grande has produced 15 flowers on a branched spike; O. Pescatorei has bulbs which measure 6½ inches round by 3½ inches long; O. Uro-Skinneri, 8 inches in circumference by 6 inches long; and lastly O. Reichenheimi, 10 inches round and 6½ inches long. Such instances as these, at all events, and numerous others both here and elsewhere that could be quoted, ought to make gentlemen and their gardeners pause before coming to the conclusion that single-glazing must be looked to as a thing of the past.

In touching briefly upon the second question promulgated by me I speak with a little more diffidence, not because I doubt the force of the conclusions, but simply because they have not been tested by my own practical experience. I hold, however, on principle, that a house that requires to be made "perfectly air-tight," as is enjoined by the supporters of the double-glazing system, is, in direct proportion to its air-tightness, hostile to that consolidation of tissue which invigorates the constitution of the plant. A very good case in point I observed some months ago at the Chelsea Botanic Garden, where two cases were similarly placed out-of-doors, the one with double glass and the other with single, filled with Ferns and some other choice plants, similar in character and kind. So far as the experiment went it was clearly in favour of the single glass, but doubtless the Curator can further enlighten us upon this point. To a want of a proper circulation of air, must be added the subdued light, especially in our northern climate, where wintry days are dull and short—all tending to increase the evil. These points must be satisfactorily got over, else all our practical axioms carried out and divulged aforetime are subverted. Add, again, the extra expenditure entailed, and judge accordingly.

Place upon the other side the saving of fuel, which may be equal to one-third, and the condensation of moisture in a more natural form—two points that are indisputable, and the less fluctuation likely to arise from extremes of temperature out of doors, which may be of consequence in some parts of the Continent, but which in my opinion is greatly over-estimated by some in this country, because it happens to be quite the converse of what the plants are accustomed to in the countries where they are indigenous.

According to my ruling, then, we are bound to find in favour of the "use and wont" system in this country. In countries like Russia, where intense cold prevails, double-glazing becomes a necessity; but whatever be the necessity for purposes of safety in any country, it has yet to be demonstrated, with evidence more exhaustive than has been placed on record, that plants will thrive better under a double than under a single glass covering. *James Anderson, Meadow Bank.*

TRUFFLES AND TRUFFLE CULTURE.*

The numerous varieties of Fungi that are exposed for sale in the markets of France and Italy must induce a feeling of surprise that so little attention has been paid to their culture by the horticulturists both of Great Britain and the Continent. The Mushroom is the only species at all commonly made use of in this country; the Blewitt may sometimes, indeed, be seen in Covent Garden, but it is a species far inferior in flavour to many others of our Fungi, and it is certainly not the produce of our gardens. Truffles, which are frequently seen, and so highly esteemed in Continental markets as to command a high price, are comparatively rarely to be met with in our own, and even Covent Garden can boast but of one native kind, and that an inferior one—viz., Tuber æstivum. There are, however, various reasons for this neglect of Nature's benefits that operate with us, that do not apply with equal force to our Continental neighbours, such as distressing cases of poisoning from the indiscriminate use of Fungi gathered by persons ignorant of the qualities of the various species, a danger in great measure guarded against abroad by the appointment of an official person capable of determining the noxious or innocent nature of the species brought for sale. What tends, however, still more perhaps to increase our objection to their use, is the natural inaptitude of our countrymen to acquire the art of cookery, which is a very important element in suiting these plants to human digestion; added to which, there is the difficulty of adopting new customs, or changes of diet. Were a taste for these productions, however, once established, we should soon find numerous species brought forward as valuable additions to our means of sustenance.

Notwithstanding that Truffles have been considered articles of luxury, and have commanded a high price from the time of the Romans down to the present, and that it has ever been the aim of horticulturists to bring them into the number of regular garden crops, they seem hitherto to have defied all efforts to reclaim them, and to resemble, in their intractable disposition, the wild ass, "whose house has been made the wilderness, and the barren land his dwellings, who scorneth the multitude of the city, and the range of the mountains is his pasture." If this, then, be a correct representation of their character, it is a question whether it would not be easier to cultivate them by assisting Nature in her own way, than to restrict her within our limits by forcing these denizens of the forest to occupy a place in our kitchen gardens. It would seem indeed, that the amount of shade they demand is such as to be incompatible with the requirements of a garden. But let us see what has been done hitherto in the various endeavours to grow Truffles by the assistance of art. And here we cannot do better than give the information with which the Messrs. Tulasne present us in their beautiful work on Hypogæous Fungi. They mention four species of Truffles exclusively in use in France—viz., T. melanosporum, T. brumale, T. æstivum, and T. mesentericum, of which two, or perhaps three, occur in Great Britain. Tuber æstivum is apparently the only species to be met with in a recent state in our shops; T. mesentericum may at times occur, but it has

* From the *Journal of the Royal Horticultural Society of London.*

not yet been noticed there. T. brumale, if our plant be identical with Tulasne's, has hitherto been found in England of too small a size to be worth sending to market. In Italy there are other kinds, one of which, T. magnatum, commands a higher price than any other; and in the southern parts of Italy, Sicily, Syria, and Africa, another species, Terfezia leonis, is of common use as an article of food.

The true Truffles have rough seeds, which, seen under the older and imperfect microscopes, resembled somewhat a Truffle in miniature, and early writers concluded that the mature plant was merely one of these seeds largely developed in all directions. The Tulasnes have proved, however, by careful observations, that they germinate in the same way as do those of most other Fungi, viz., by giving origin to delicate threads, which spread in the surrounding soil, and that from such threads the young Truffles arise, probably after some kind of impregnation, which is as yet, notwithstanding the researches of recent observers, involved in obscurity. The fact of the existence of a mycelium in Truffles, resembling that of Mushrooms, must be taken into consideration in any attempt that may be made to cultivate them.

The soils in which edible Truffles are found in France are always calcareous or calcareous clays, which accords generally with my own experience. Tuber mesentericum occurs, however, in ferruginous sands, as is also the case with another species, Hydnotrya Tulasnei, which, or a closely allied kind, is largely eaten in Bohemia, under the name of Czerwena Tartoffle. Messrs. Tulasne describe the soil of a Truffle district near Loudun, Vienne, as composed of rolled fragments of calcareous matter, mixed with fine quartzose sands, lying on a thick bed of compact marly clay, which easily splits up into thin layers. It contains, in 1000 parts, 500 of calcareous matter, 325 of clay and iron, 150 of quartzose sand, and 35 parts, more or less, of vegetable mould. But they attribute a still greater influence in the production of these plants to the presence of trees—a condition necessary perhaps to their growth, in order to keep off the heat of the direct sun-rays. Our authors testify, indeed, that this is not always indispensable; and I have seen Truffles dug up on the bare sloping sides of the Italian mountains.

Some persons have supposed that these Fungi are parasitic on the roots of trees. This the Tulasnes expressly deny, on the strength of observations and inquiries instituted to that end; and I can confirm them in this matter, and would remark that the frequent presence of certain galls attached to the small roots of the Oaks, resembling young Truffles so strongly as often to deceive me for a time, may have given origin to this error.

Some trees appear to be more favourable to the production of Truffles than others. Oak and Hornbeam are especially mentioned; but besides these, Chestnut, Birch, Box, and Hazel are alluded to. I have generally found Tuber æstivum under Beech trees, but also under Hazel; Tuber macrosporum under Oaks, and T. brumale under Oaks and Abele. The men who collect Truffles for Covent Garden obtain them chiefly under Beech, and in mixed plantations of Fir and Beech. The Truffle grounds of France are remarkable for the sterility of the surface, the cause of which has given rise to many conjectures—viz., that Truffles exercise a prejudicial influence on all plants in contact with or proximity to themselves, by appropriating their nutriment in a manner similar to the Rhizoctoniæ; but a more probable reason of this sterility is the frequent digging to which the Truffle grounds are subjected by the collectors; for, as Truffles are not truly parasitic, it would attribute an inconceivable amount of influence to their mycelium to suppose them capable by its means of destroying all the surrounding vegetation. And we may remark that some species occur in grassy places, as in the forest of Vincennes, according to Tulasne; and so with T. macrosporum and T. brumale, as I find them. It seems to be a better explanation of this sterility, so generally accompanying Truffles, that they can only succeed well where they find a comparative freedom from other vegetable growth, arising from causes independent of themselves, and that they are the result, and not the cause, of this sterility.

In common with many other Fungi, Truffles do not bear to be disturbed in their early stages; so that the collectors are careful in their researches after the summer species, as T. æstivum and T. mesentericum, not to stir the ground more deeply than is absolutely necessary, as by so doing they would destroy the winter crop of the more valuable kinds, T. melanosporum and T. brumale. Any disturbance of the soil in the winter, when the latter are mature, does no harm, but rather aids in their culture, by rendering the mould more suitable for the germination of their spores and the growth of their mycelium. From Messrs. Tulasnes' observations it would seem that three or four months suffice for the development of these plants; they state that they have met with Tuber mesentericum about as large as grains of millet in the beginning of October, which must acquire their full size before the end of December; for about that time they find this species in its mature condition alone. And it is supposed that the warm rains of August are highly conducive to the fertility of the Truffle-ground, and that the abundance or scantiness of the crop depends very much on the nature of that period. These plants grow without any special care or tendance; but as they are not unfrequently found, both in France and Italy, on the borders of corn fields, where they are ploughed up in the cultivation of the land, it would seem that they succeed as well in ground that has been stirred and manured, as in that which has been left in its natural condition.

Some notion may be obtained of the extent to which the trade in Truffles is carried on in France, when we read that in the market of Apt about 1600 kilogrammes (about 3500 lb.) are exposed for sale every week in the height of the season, and that the lowest estimate of the quantity sold during the winter amounts to 15,000 kilogrammes (nearly 33,000 lb. weight). According to another account, the Department of Vaucluse yields from 25,900 to 30,000 kilogrammes annually. The vast quantity that must, therefore, be procured and sold in all the French provinces where they grow, and the large revenue arising therefrom should be a great inducement to the proprietors of suitable localities to attempt their cultivation in England.

Many trials have been made to subject these vegetables to a regular system of culture, but hitherto without success. We owe to the Count de Borch and M. Bornholtz the chief accounts of these attempts. They inform us that a compost was prepared of pure mould and vegetable soil, mixed with dry leaves and sawdust, in which, when properly moistened, mature Truffles were placed in winter, either whole or in fragments, and that, after a lapse of some time, small Truffles were found in the compost. But the result was discouraging rather than otherwise. The most successful plan consisted in sowing acorns over a considerable extent of land of a calcareous nature; and when the young Oaks had attained the age of 10 or 12 years, Truffles were found in the intervals between the trees. This process was carried on in the neighbourhood of Loudun, where Truffle-beds had formerly existed, but where they had long ceased to be productive—a fact indicating the aptitude of the soil for the purpose. In this case no attempt was made to produce Truffles by placing ripe specimens in the earth; but they sprung up of themselves from spores probably contained in the soil. The young trees were left rather wide apart, and were cut for the first time about the 12th year from the sowing, and afterwards at intervals of from seven to nine years. Truffles were thus obtained for a period of from 25 to 30 years, after which the plantations ceased to be productive, owing, it was said, to the ground being too much shaded by the branches of the young trees, a remedy for which might have been found by thinning out the trees; but this would not be adopted till all the barren tracts called "galluches" had been planted. The brushwood, by being thus thinned out, would be converted into timber trees; and the Truffle grounds rendered permanent like those of Poitou, which are commonly situated under the shade of lofty trees. It is the opinion of the Messrs. Tulasne that the regular cultivation of Truffles in gardens can never be so successful as this so-called indirect culture at Loudun, &c.; but they think that a satisfactory result might be obtained in suitable soils by planting fragments of mature Truffles in wooded localities, taking care that the other conditions of the spots selected should be analogous to those of the regular Truffle grounds; and they recommend a judicious thinning of the trees, and clearing the surface of brushwood, &c., which prevents at once the beneficial effects of rain and of the direct sun rays. It is added that this species of industry has added much to the value of certain districts of Loudun and Civray, which were previously comparatively worthless, and has enriched many of its proprietors, who now make periodical sowings of acorns, thus bringing in a certain portion of wood as Truffle-grounds each year. At Bonardeline, for instance, the annual return from Truffles in a plantation of less than half an acre was from 4*l.* to 5*l.* Another case is adduced in the arrondissement of Apt, where several proprietors have made plantations: the trees are left about 5 or 6 yards apart; and so soon as their branches meet and shade the ground too much they are thinned out.

The districts of England especially suited to produce Truffles would thus appear to be situated on the great band of calcareous beds which run diagonally across the island from the south-eastern corner of Devonshire to the mouth of the Wash in Norfolk, occupying all the country that lies to the south-east of such a line, including the counties of Somerset, Dorset, Wilts, Gloucester, Hampshire, Berkshire, Kent, Hertfordshire, and parts of Northampton, Norfolk, and Lincoln; and it is to the proprietors of lands in those districts that we must look for any successful attempts to cultivate these Fungi.

A great proportion of the Truffles exposed for sale in Covent Garden come from Wiltshire and Hampshire, and the opinions of those who make it their business to collect them coincide completely with those of Messrs. Tulasne cited above. I have been informed by one of these men, that whenever a plantation of Beech, or Beech and Fir, is made on the chalk districts of Salisbury Plain, after the lapse of a few years Truffles are produced; and that these plantations continue productive for a period of from 10 to 15 years, after which they cease to be so. It has been observed that the species most available for culinary purposes with us is Tuber æstivum, a species considered in France as of far less value than T. melanosporum and T. brumale, and it might be worth while to obtain well-matured specimens of these species from France, and distribute them while quite fresh in some locality producing the indigenous kinds, to ascertain if we could not thus obtain a superior race of Truffles. Tuber æstivum is commonly worth about half-a-crown per pound in Covent Garden, whilst in Italy Tuber magnatum fetches from 15 to 17 francs, and T. melanosporum almost as much. Should horticulturists be tempted to try their skill in the artificial production of these Fungi, they should bear in mind the conditions most suitable to their nature, as above recorded. They might succeed, for instance, in producing them in Filbert plantations, or in gardens thickly set with fruit trees, and they should plant mature specimens in well trenched ground on a calcareous substratum, and be careful not to stir the soil to any depth till the autumn or winter of the following year, in order not to disturb the mycelium, and it would be well, perhaps, in case they find a successful result, not to take too largely of the crop for the first year or two, but to give them time to establish themselves thoroughly in the locality. It would seem, however, that when once established, deep stirrings of the soil would tend rather to encourage than to check their increase, as giving the mycelium a lighter soil in which to vegetate, and preventing the growth of roots of surrounding trees, &c., which might deprive the Truffles of the requisite nutriment.

It might be well to try the growth of Tuber macrosporum, as it is an indigenous species, and might become a source of profit, notwithstanding its Garlic odour. Those who possess woods or plantations of Beech on calcareous soils, which are not already productive of Truffles, might succeed perhaps in rendering them so, by trenching patches of ground beneath the trees, so as to clear away the brushwood, Grass, and roots for a considerable space, and planting ripe Truffles in the trenched spaces, and then allowing time for them to produce their mycelium. And when the roots of surrounding trees again encroach on the selected spots, they might be checked by deep digging around their margins. *C. E. Broome.*

Home Correspondence.

Iresine Herbstii alias *Achyranthes Verschaffeltii*—I am pleased to learn that this has succeeded so well at Heckfield, and that it is likely to become an established favourite in our flower gardens. It is now being sought for in all quarters. I have received many letters respecting its culture and colour, the dulness of which in most cases is complained of. I find, however, that all the plants which have proved unsatisfactory have been in an open situation, exposed to the full rays of the sun. Nevertheless, I have no hesitation in saying that atmospheric influences have little to do with the colour, but soil and situation may; for instance, at Worksop, three miles from here, masses of it are as badly coloured as those at Battersea. Again, at Handsworth, 16 miles from here, they are the same, while at Osberton, as many can testify, they are now magnificent. As to shade, one of the workmen at the Crystal Palace said to me, "We have some of the Achyranthes in the borders, shaded by shrubs, that are nicely coloured, while, as hundreds can prove, those exposed to the sun near the Rose Mount are anything but good." Mr. Wills, of Oulton Park, when speaking of it, says, "the plants appear to want more moisture and a more shady position than I have seen accorded them." It has doubtless, as I have stated, been wrongly treated in most places. Of this there can be no question, for instead of being planted in the shade it has been for the exposed to the burning sun. I am therefore still, I think, in a position to prove that exposed beds in a dry and fully open to the sun's rays are not suitable to the successful culture of this plant. The past comparatively sunless weather and the soaking of rain the beds have had, have effected a marked improvement in the colour of the plants—a circumstance which proves what I have previously stated, that shade is better than the hot sun; when exposed to the latter the colour has a brown cast, but when planted in a more shady situation it is magnificent. Even my own plants have wonderfully improved since I sent the boxfull for your inspection. I therefore repeat that I feel fully justified in saying what I previously did respecting it. Let it not be understood, however, that this plant absolutely requires a moist shady situation, for it can be grown well, as Mr. Dwerrihouse states, in an exposed place, nevertheless the colour is far more beautiful, without any of that brown cast about it when grown in comparative shade. In the case of exposed places, soil and moisture have no doubt much to do with it, but when grown as I have before recommended, its colour will be always fine. *Edward Bennett, Osberton, Worksop.*—I have much pleasure in forwarding for your inspection a small quantity of Iresine Herbstii. It has been growing here all the summer, fully exposed to the burning sun, and has been the admiration of all who have seen it. I have no hesitation in saying that this Iresine will eventually prove to be one of the best plants in cultivation for the ornamentation of the flower garden or parterre. *Alexander Dowdeswell, Gardener to the Rt. Hon. Lord Chesham, Latimers.*

[This sample is very finely coloured.]

White Nice and Syrian Grapes.—Considerable difference of opinion seems to exist amongst some of your correspondents as to the correct name of the Grape which I showed at the late International

Exhibition at Edinburgh, under the name of White Nice. Permit me, therefore, to direct their attention to the "Fruit Manual," p. 118, where that variety is described as follows: "White Nice—Bunches very large and loose, with several shoulders. Berries medium sized, round, and hanging loosely on the bunches. Skin thin, but tough and membranaceous; greenish white, becoming pale amber-coloured as it ripens. Flesh firm and sweet." Also to "The Book of the Garden," p. 633, which says: "Nice—Bunches of the largest size, loose, with extending shoulders; berries medium-sized; form globular; skin rather tough; colour greenish white, changing, when fully ripened in the sun, to a yellowish green; leaves of large size, very downy underneath; whole plant robust and strong, sets freely, and is a very great bearer." These descriptions are exactly applicable to the variety grown here as the White Nice, and generally known in Scotland under that name. The Syrian is described in the "Fruit Manual," page 115, as follows:—"Bunches immensely large, broad-shouldered and conical; berries large, oval; skin thick, greenish white, changing to pale yellow when quite ripe; flesh firm and crackling, and when well ripened, of good flavour." These two varieties of Grapes, when ripe, are easily distinguished from each other. The White Nice has downy leaves, produces rather loose bunches, with numerous long shoulders, and medium-sized round berries, in colour resembling a well-finished Muscat of Alexandria. The Syrian forms more compact bunches, with transparent oval berries, above medium size, of a light yellowish white colour. To have them in perfection both these varieties should hang two or three months after they change colour. The three bunches which I showed in Edinburgh were grown on a Vine planted seven years ago, and trained under a rafter 22 feet in length. They weighed respectively 12 lb. 9½ oz., 11 lb., and 9 lb. 6½ oz.; in all 33 lb. Had they been less severely thinned, and the shoulders been unpinched, they would have been considerably heavier. The Vine, notwithstanding such a crop, increases greatly in vigour. *Archibald Fowler, Castle Kennedy, Stranraer.*

Cucumber Disease.—I have this year a disease amongst my Cucumbers different from anything with which I am acquainted. The evil appears in the shape of spots on the leaves, which in some instances look as if burned by the sun, but mostly as if they had been eaten by some insect. The fruit has the appearance of being pierced so as to cause the sap to ooze out for a time, after which it stops and the wound heals over, the covering being brown, with a hard surface like rust. That part, therefore, swells no more. Sometimes the fruit is affected when nothing can be seen to be the matter with the plant, and on the other hand I have sometimes had sound fruit from diseased plants. The malady attacks them at all stages of growth; after a plant has been affected, it however sometimes outgrows the mischief, and one may sometimes be diseased while another plant in the same bed is free from it. Can you afford me any information on the subject? *A Cucumber Grower.* [We do not see anything different in your Cucumber disease from that which has perplexed cultivators so many years, and of which the cause has never been discovered. The disease assumes various forms. *M. J. B.*]

Salway Peach.—I can confirm all that Mr. Bailey has said (see p. 965) in favour of this Peach. In addition to the good qualities which he has ascribed to it, it will hang upon the tree a long time after it is fit for table, a point of importance, as by protecting the trees with glass I believe the fruit might be kept till the end of November. *H. Chilman, Ashtead House, Epsom.*——At this time of the year nothing can surpass the beauty of the Salway on the dessert table. The fruit of this variety shown by Mr. Turner, of Slough, at the International Exhibition in Dublin on October 3, to which was awarded a medal, was the most beautiful I have ever seen in the way of Peaches, and wherever the latter are grown the Salway should be the chief autumn variety. *Charles M'Donald, Woodstock Park.*

Tagetes signata pumila.—At p. 197 I strongly recommended this as a valuable plant for garden decoration. I stated that one of the best things which had come under my notice was Tagetes pumila. Its neat habit, serrated foliage, profusion of pretty orange-coloured flowers, and long duration, stamp it as one of the most useful of bedding plants. I also at the same time recommended it as a substitute for the Calceolaria, in places where the latter cannot be depended upon. Mr. Robinson echoes what I had previously stated, and points to Chatsworth, where it can now be seen in great beauty. I need say no more respecting it—its being extensively used at Chatsworth speaks for itself. I am sorry to say that this season a tall-growing variety (tenuifolia) has been sent me instead of it, a circumstance which has quite spoiled the effect of my beds. *Edward Bennett, Osberton Hall, Worksop.*

Tom-tits and Celery Fly.—A few days before your republication of the description of the insect which is the cause of what is commonly called Celery blight, my ubiquitous friends the tom-tits discovered that the larvæ were fit for eating; and a few dozen tits were actively engaged in flitting up and down the rows of Celery in the kitchen garden here, in search of what must be to them as great a treat as fried grasshoppers are to a Hottentot. Although two men were digging on the adjoining plot, the tits pertinaciously examined every leaf; and the result was that the larvæ were cleared in two days. Let us, therefore, save our small birds. *J. W. Laurence, Farnham Castle.*

Maréchal Niel Rose.—Perhaps little can be added to the already well-won reputation of this fine Rose. A plant entirely out of doors, without any protection, has opened really fine blooms during the past week with us, thus establishing its thorough perpetual-blooming character. We notice that some of the French houses throw out adroit hints that this Rose has not been generally distributed correct to name. We have, however, seen it in many of our principal nurseries, and have not on our part discovered a single wrong one. Though the method of sending it out was not generally approved of, we believe the distributor to be a thorough Rosarian, and certainly not likely to be mistaken in a Rose so distinct, in wood at least, from the two varieties said to have been substituted for it, viz., Jane Hardy and Miss Gray. *Paul & Son, Cheshunt, N.*

Foreign Correspondence.

West Indian Fibres.—I am sorry to say that I have not much to report concerning the horticulture of this island, which is fast lapsing into its primæval state, with a population of little better than daring barbarians, who are daily getting worse. Only very recently the negroes plotted an insurrection, with the object of killing all the white people on the island, and parting their property among themselves, so that the arts and sciences have but a poor chance among such people. I enclose a list of the fibres I sent by special request to the Dublin Exhibition, and I had no sooner done so than I was requested to send another collection to Erfurt. Similar collections were also exhibited in London and Paris, where they excited great attention. In spite of this there has been no good result in a mercantile point of view, although there is no place in the world where fibrous plants thrive better. Many thousands of tons of Bananas and Plantains rot annually. With efficient machinery we could supply fibre to a great extent.

I have been fortunate in discovering several of what I believe to be new Ferns, and I should be happy to collect and forward at the proper season Tree and other Ferns to cultivators in England. *Nathl. Wilson, Botanic Garden, Bath, Jamaica.*

List of Fibres sent to the Dublin Exhibition from the Botanic Garden at Bath, Jamaica, March, 1865.

Abelmoschus esculentus, Okro (cultivated).
,, moschatus, Musk Okro.
Adansonia digitata, Baobab Tree.
Ananassa sativa, Pine-apple.
Anona palustris, Cork-wood or Alligator Apple.
,, muricata, Sour Sop.
Agave Keratto, American Aloe.
,, "sissilana."
Arum macrorhizon.
Artabotrys odoratissima.
Bambusa gigantea, Bamboo.
Bœhmeria nivea, Rhæa fibre of India.
,, cordata.
Bixa Orellana, Arnotto.
Bromelia Pinguin, Pinguin.
,, Karatas.
Calathea zebrina, Zebra Plant.
Carludovica palmata.
Caryota urens, Kittool fibre, a Palm.
Carolinea insignis.
Cocos nucifera, Cocoanut Palm.
Cordia macrophylla.
Curcuma longa, Turmeric.
Cochlospermum hibiscifolium.
Daphne tinifolia, Burn-nose Bark.
Eriodendron anfractuosum, Silk Cotton Tree.
Gossypium hirsutum, Cotton Shrub.
Guazuma ulmifolia, Bastard Cedar.
Helicteris jamaicensis, Screw Tree.
Heliconia braziliensis, Wild Plantain of Brazil.
,, Bihai, Wild Plantain of Jamaica.
Hibiscus rosa sinensis, Shoe-black.
,, Lampas.
,, Sabdariffa, Indian Sorrel.
Ismene calathina, a gigantic Lily.
Kleinhofia hospita.
Kydia calycina.
Lagetta lintearia, Lace Bark.
Malachra capitata, Wild Okro.
Malvaviscus arboreus, Wild Mahoe.
Momordica Luffa, Vine Strainer
Musa sapientum, Banana.
,, paradisiaca, Plantain.
,, Cavendishii, Chinese Plantain.
,, violacea.
,, textilis, Manilla Hemp.
,, Ensete.
Ochroma Lagopus, Down Tree.
Pandanus spiralis, Screw Pine.
,, moschatus, Screw Pine.
,, variegatus javanica.
Pothos violacea, Wild Cocoa.
Paritium elatum, Mahoe or Cuba Bast.
,, tiliaceum, Sea-side Mahoe.
,, latifolia.
Ricinus communis, Castor Oil Plant.
Sanseviera zeylanica, Bow-string Hemp.
,, guineensis.
,, angolensis.
Sida jamaicensis, Broom-weed.
,, mollis.
,, dumosa.
,, hirsuta.
Triumfetta semitriloba, Burweed.
Theobroma Cacao, Chocolate.
Tillandsia serrata, Wild Pine, Epiphytal.
Urena sinuosa.
,, Typhalæa.
Varronia curassavica, Black Sage.
Yucca aloifolia, Dagger Plant.
,, gloriosa.
,, filamentosa, &c.

Notices of Books.

Neerlands Plantentuin. Onder redactie van Dr. C. A. J. A. Oudemans. Aflevering I.—VIII. Groningen: J. B. Wolters.

This is a new Dutch periodical devoted to Garden Botany, and written wholly in the Dutch language. Each double Part contains three chromo-lithograph plates with descriptions, and a variable amount of miscellaneous text. The plants figured are not selected for their novelty, as the following list of those issued in the Parts before us will show:—*Begonia Lapeyrousii*, a hybrid between hydrocotylifolia and incarnata, with blush-white flowers, partaking mainly of the aspect of the latter parent; *Prunus japonica flore albo pleno*, with abundant double white flowers; *Cyclamen vernum, Galanthus nivalis, Azalea indica* var. *Dieudonné Spae, Ardisia crispa, Wigandia caracasana*; *Iris Kæmpferi* var. *Le Souvenir*, a shaded lilac sort of considerable beauty; *Eranthis hyemalis*; *Convallaria majalis foliis aureo-striatis*; a group of French *Pelargoniums*, and *Rhododendron ferrugineum*, the two last very indifferently executed.

An Illustrated Key to the Natural Orders of British Wild Flowers. By J. E. Sowerby. 8vo, pp. 42, tab. ix. London: Van Voorst, 1865.

This is simply an enumeration, with brief characters, of the orders of British plants, taken from Professor Babington's Manual. The genera of each family are named, and the number of species is also added. One small coloured figure is given to illustrate each of the 112 orders. We can hardly think the book will prove of much use, even as a "sort of key" to the *British Wild Flowers* of the same author.

Winter in the South of Europe; or, Mentone, The Riviera, Corsica, Sicily, and Biarritz. By J. Henry Bennet, M.D. Third edition, 1865. London: Churchill Pp. 442.

The first edition of this pleasant book has already received favourable mention in our columns, but this third edition contains so much new matter as to render a second notice desirable.

It appears that at rare intervals a glimpse of the Corsican mountains is to be obtained at Mentone, a glimpse quite sufficient to allure Dr. Bennet from his second home, and induce him to explore that comparatively little-known island. The results of that exploration are given in the volume before us, together with notices of the history, the romantic customs, the vegetation of the Great Napoleon's native land, together with a good deal of information of a kind that will be highly appreciated by the tourist. One main object of Dr. Bennet's visit was to ascertain the fitness of the island as a place of winter sojourn for invalids, and herein he seems to have succeeded to his heart's content, for he considers Ajaccio as an admirable and most charming winter station, and adds: "I feel quite proud of this achievement, for I had divined it on geological, meteorological, and geographical grounds before I started on the journey." The Doctor, in pursuing his investigations, does not trust to hearsay report or even to meteorological records, but he looks about him and ascertains the character of the vegetation, and by the facts so obtained corrects the inferences drawn from other sources. "The vegetation of Ajaccio and the neighbourhood," says our author, "indicates a climate at least as warm as that of Nice, perhaps even a shade warmer. The Olive, the Orange, the Prickly Pear, thrive with great luxuriance. In the principal street there is a double row of good-sized Orange trees planted out in the soil, the effect of which is charming. * * * The Lemon tree grows also, and bears fruit out of doors, but only, as at Nice, in sheltered and protected spots. It is evident that there are no prevailing winds felt; for the trees on the shores of the bay, east, west, and north, and in the neighbourhood of the town, grow perfectly straight."

Here are the author's deductions as to the winter climate of Palermo (Sicily):—"It cannot be very cold, indeed it can scarcely ever freeze, as the Lemon tree thrives, becoming a large tree in the open air, and a few degrees of frost kills it. The nights, however, being cool from December to April, and the sun-heat considerable, the daily transition of temperature must be marked as on the Riviera. But instead of being dry and bracing, as is the climate of the North Mediterranean coast, the climate of Palermo must be rather moist and relaxing." These deductions are supported by meteorological observations made by Professor Schina. This book must needs form part of the equipment of any traveller bound for the sunny South, while it will cheer many who have to brave out an English November at home.

The September number of the *Botanical Magazine* contains portraits of the following plants:—*Liparis atropurpurea*, a purple-flowered unattractive terrestrial Orchid found in Ceylon.—*Phalænopsis Schilleriana*, a large-flowered form from the collection of Mr. Veitch.—*Alströmeria* (*Bomarea*) *densiflora*, one of the climbing species of this now too-much neglected genus; the leaves are ovate acuminate, and the flowers in terminal umbels are of a reddish crimson; it was introduced by Mr. Veitch.—*Hæmanthus incarnatus*, a South African bulbous plant, with large recumbent obovate-obtuse leaves, and heads of small flesh-coloured flowers, flowered by Mr. Wilson Saunders.—*Lankesteria Barteri* from West Africa, flowered at Glasnevin; it is a shrubby stove plant, with ovate oblong acuminate leaves, and terminal spikes crowded with showy primrose-coloured flowers.—*Euphorbia Montieri*, a curious Spurge from South-west Africa, whence it was sent to Kew by J. Montiero, Esq. It is a very remarkable looking plant, with thick fleshy stems, producing leafy branchlets, the leaves spathulate, and the inflorescence at first a single involucre terminating the branchlet, the latter subsequently dividing into an umbel of three rays. It has no beauty to recommend it.

The October number, to which Dr. Hooker's name is attached as Editor, opens with a beautiful figure of the charming *Calathea Veitchiana*, better known in gardens as Maranta Veitchiana. It is a very handsome plant, introduced by Mr. Veitch from Western Tropical South America, through his collector, Mr. Pearce. The leaves are broadly ovate elliptical, elegantly marked with grey-green on a dark green ground, and rich purple behind, while the flowers are in a dense head on a sceptre-like

scape, whitish, the large upper bracts empty as in Eucomis.—*Dianthus chinensis laciniatus*, the D. cincinatus of Lemaire, one of the large deeply fringed Japanese Pinks recently introduced. The favourite Indian Pink, it is remarked, appears like the Zinnia, after long cultivation in Europe and Japan, to have broken out into several very striking varieties well worthy the attention of our florists.—*Dendrobium Tattonianum*, named in compliment to Lord Egerton of Tatton (p. 890); the plant is a native of North Australia, and has recently been sent to England by Mr. J. G. Veitch; the flower-scape rises erect from near the top of the pear-shaped or fusiform stems, the flowers being small and scattered, pleasantly scented, white tipped with yellow, the lip deep mauve on its disk.—*Stachytarpheta bicolor*, a suffruticose stove herb, with ovate toothed leaves, and spikes of pale blue white-throated long-tubed flowers, which are rather of a weedy character; it comes from Bahia.—*Mesembryanthemum acinaciforme*, the large purple flowers of which should do something towards bringing these now neglected plants again into notice.—*Dendrobium Johannis*, a N. Australian species, described at p. 890. It has terete stems, bearing near the top numerous erect spikes of flowers, in which the sepals and petals are dark brown and twisted, and the lip yellow; the flowers exhale a pleasant odour of honey.

The *Florist and Pomologist* figures *Anemone angulosa*, already described at p. 698; and *Anthurium Scherzerianum*, one of the most ornamental of stove plants introduced of late years, and which has gone on improving so rapidly in appearance, as it has acquired vigour by judicious culture, that, as well remarked, the original figure in the "Botanical Magazine," issued only four years ago, shows the plant "ludicrously inferior" to what it has already become, the scarlet spathes being in the earlier figure represented as scarcely more than an inch in length, while they are now shown to have attained nearly three times that size. This plant has been frequently shown by Mr. Veitch in excellent condition during the past season.

The figures in the *Floral Magazine* comprise—*Pelargoniums, William Hoyle* and *Charles Turner; Rose Princess Mary of Cambridge; Lobelia coronopifolia*; the brick-red *Bougainvillæa lateritia; Epidendrum vitellinum majus; Cyclamen europæum Peakeanum*, a continuous-blooming sweet-scented variety obtained from the south of Europe; *Allamanda Hendersoni*; and *Picotees, Milton* and *Mrs. Fisher*.

In *La Belgique Horticole* (Nos. 8 and 9), Professor Morren figures *Bertolonia guttata*, one of Mr. Veitch's handsome new spotted-leaved Melastomads; *Franciscea Lindeniania*, one of the large-flowered species, apparently a good deal like F. eximia; and *Cypripedium Crossii*, represented as having chequered leaves, and very handsome flowers, in which the dorsal sepal is pale lined with green towards the base, transversely barred with crimson about the middle, from whence red veins extend into the pure white apex, the petals being also tipped with crimson, lined with green, and bearing a few purple spots along the upper edge; the lip is represented to be of a reddish colour. It would seem to be a very ornamental plant.

L'Horticulteur Français (No. 9) figures two striped *Verbenas: Anna Gerard* and *Belle Alliance*, the first very much like Mr. Cooling's Annie, the other more copiously flaked with deep crimson; and *Rose Marguerite Dombrain*, a large cupped-flowered Hybrid Perpetual variety, flesh-colour shaded with deeper rose, raised by M. Eugène Verdier fils.

Books Received.—Parts IX. and X. of the new edition of *Webster's Dictionary* bring that valuable work from "Scantling" to "Utilitarian."—Part VI. of *Brande's Dictionary* contains as usual many articles which show that recent acquisitions to our knowledge are not overlooked in this re-issue of a standard work. Under the head of landscape gardening is this piece of advice, as good now as ever:—"Let selected and beautiful nature be constantly taken as the model, and success must follow."—The *Technologist* for October contains among other matter, an article on the supply of resin, with numerous reports from our foreign consuls on the resin-producing capabilities of their several districts; also on the manufacture of paper from wood-pulp, as well as from numerous other fibrous materials.—The October number of the *Pharmaceutical Journal* continues its report on Pharmacy at the Dublin Exhibition; and, among other subjects discussed at the recent pharmaceutical conference at Birmingham, has a paper on the effects of soil and cultivation on the development of plants.—*Report of the United States Patent Office for the year* 1862, 2 vols. Of these one, containing 446 pages, consists wholly of illustrations.—Coloured prints of *Aubrietia Campbellii* and of *Clianthus Dampieri marginata elegans*, from Messrs. E. G. Henderson. The first of these has been fully described by us at p. 506 of our last year's volume; its history has also been given by Mr. Campbell, who raised it, at p. 1133 of the same volume. The Clianthus, as represented, is a white variety of the charming C. Dampieri, with the blossoms neatly and regularly edged with scarlet, the black boss being present as in the type. If at all equal to the representation it must be very handsome, and cannot fail to be an acquisition to our gardens.

Catalogues Received.—*John Scott's Descriptive Catalogue of Fruit Trees* gives full descriptions of a large collection of fruits, as well as a good deal of information on the general management of fruit trees.—*Descriptive Catalogue of Nursery Stock* by the same.—*T. Warner's Catalogue of Fruit Trees*, &c., is also descriptive, but briefer than the foregoing.—*Van Houtte's Catalogues des Plantes de Plein Air* is devoted to herbaceous plants, and hardy trees and shrubs. There is a very full descriptive list of Hardy Rhododendrons.

Florists' Flowers.

During these few years past I have been in the habit of seeing a collection of Ixias, and I have often felt surprised that these beautiful half-hardy summer-flowering Cape bulbs are not much more generally grown than they are. They are so varied in colour—ranging as they do from glowing magenta and bright crimson to the most delicate pink—they are also so easily managed, that the limited attention which they have hitherto received must in a great measure be attributable to unacquaintance with the rare beauty and merits of the flowers, rather than to any incapacity as to cultivation. I well remember seeing some eight years ago at Dropmore beds of Ixias on a Grass plot, and so singularly gay were the flowers seen there on one of the brightest and sunniest days of the month of June, that since that time I have always been an enthusiastic advocate for their more extended cultivation. Just at this time of year, when orders are being given to seedsmen for the spring supply of bulbs, it may not be undesirable to offer "a word in season" as to some of the best and most striking varieties of this flower, the following selection of which cannot fail to afford the cultivator the most lively satisfaction:—

Anais, pale buff or fawn, tinged with deep lilac, and having a rosy purple centre.

Aurantiaca major, a very fine variety; bright golden yellow, with reddish stripes at the back of each petal.

Aurora, golden buff ground, striped and suffused with rosy purple; an early flowering variety.

Bucephalus, deep magenta, very fine and showy, a "flower that should be in every collection."

Beauty of Norfolk, cream, tinged with magenta, and having a brown eye; large and most beautiful.

Cæsar, very much resembling Aurantiaca major in character, but a smaller and less striking flower.

Cyrus, pale golden buff, with dense marking of rosy purple on the back of each segment of the flower.

Crateroides, bright rosy crimson; one of the most showy varieties in cultivation.

Cupid, blush, tinged with deep pink; very pleasing in colour.

Dolphin, golden fawn, tinged and pencilled with rose; eye rosy purple. A variety much in the same way as Phœbe, but not so fine.

Diana, pale lilac and rose, with amaranth eye.

Hemisphere, yellow and deep rose, with dark centre.

Hybrida longiflora, pale rose, with dark eye; flowers very striking when fully expanded.

Lady of the Lake, glowing magenta, with dark centre; a beautiful and striking flower.

Maculosa, clear rosy pink, with bright crimson eye; a very favourite variety among growers.

Magnifica, rich golden yellow, tinged with red, and salmon eye, exceedingly fine. This variety is considered by some to be one of the best in cultivation.

Nelsoni, sulphur, with marking of deep rose, and dark eye; very fine.

Ophir d'or, bright crimson, tinged with orange.

Plautus, rich golden yellow with dark centre, having broad stripes of deep rose on each segment of the flower.

Phœbe, pale golden buff, exquisitely marked with rose; eye bright crimson; a beautiful variety.

Pallas, pale orange, with rosy purple stripes, and dark centre; very fine.

Rosea multiflora, delicate pink tinged with bright rose, centre deep pink; novel and fine.

Silas, very like Anais, but much larger and better; a very fine variety.

Sulphurea spicata, sulphur, with rosy flame on each segment; eye dark.

Theseus, blush, with rosy purple eye, tipped and striped with the same colour.

Titus, bright yellow, with dark eye; very showy.

Wonder, a semi-double flower; colour rich glowing rose; extra fine.

Viridiflora, pale green, with dark centre; very novel indeed.

Though some of these varieties may appear too closely to resemble others, yet they are in fact very different.

Ixias succeed best when cultivated in the open ground. They should be planted in rough peat with which some good leaf soil has been mixed. The strong bulbs scarcely require the addition of any silver sand to this, but the smaller and invariably weaker bulbs should be planted in a compost which should comprise fully one-third of silver sand. The border in which they are to be planted should occupy as warm a situation as possible; it should be sheltered from the effects of hard frosts, and on no account must the soil of the beds be allowed to get dry when the plants are in a growing state. The beds should be raised about six inches above the ground level, and the bulbs should be planted by the end of November, and buried from three to four inches deep. The beds should also be sheltered from the effects of heavy rains as soon as possible after the bulbs are planted: too much moisture at this period will induce rot; and when the plants are in bloom some shelter from heavy rains should also be extemporised, as the moisture lodging on the thick spikes of blossoms will often cause the stalk to snap by reason of the superincumbent weight.

If cultivated in pots, a soil compounded of good fibrous peat, leaf-mould, and sand, in about equal proportions, should be used. Put from three to four bulbs in a 32-sized pot, and place them in a cold frame for the winter, sheltering from hard frost; when they have made growth, say to the height of 6 inches, they should be removed to the greenhouse to flower.

The Sparaxis, Babiana, and Tritonia are of the same family as the Ixia, but the last is known from the Sparaxis by not having, like it, a jagged sheath; from the Babiana by having a dry seed-pod instead of a berry; and from the Tritonia by having the stamens inserted at the bottom of the petals instead of on the tube of the flower. Two or three varieties of Sparaxis are worthy of cultivation, viz., grandiflora, the best variety, superb rich crimson maroon, with yellow eye; Angelique, pure white, with yellow eye; and Vesuvius, Emmanuel, red, suffused with yellow, very showy.

The culture of the Babiana is almost entirely confined to B. villosa, which has violet-coloured flowers. It seeds freely, and if sown in the autumn will sometimes produce plants to flower the following summer if generously grown.

Two varieties of Tritonia, T. crocata and rosea, are very often catalogued as Sparaxis. T. crocata has flowers of a fine pinky salmon colour; T. rosea has very showy blossoms of bright orange rose; T. Brilliant, with flowers of an intensely brilliant light orange, is said to be an extremely fine new variety, but I have not yet seen it. Like the Sparaxis they are very gorgeous and showy, and flower about the same time. The culture of the Sparaxis, Babiana, and the Tritonia should be the same as that recommended for the Ixia. The two varieties of the Tritonia, crocata and rosea, differ materially from and must not be confounded with Tritonia (Crocosma) aurea. *Quo.*

The Apiary.

"What kind of Feeder," says a Welsh correspondent, "do you advise for the Stewarton hives? From its being under a makeshift cover only, I have been managing to feed from the bottom one of mine that required feeding; but not easily or satisfactorily. Perhaps the bottle plan might be applicable here too, notwithstanding that the openings in the top of the hive are long slits. I cover the top with a crown board, clamped to prevent warping, and have thought of cutting a round hole in the centre of it, and then withdrawing the centre slide; but as this would uncover all the length of the slit or opening, from the centre to the front edge, as well as the part required in the centre, and as a crown-board never fits quite close, it appears to me that it would be necessary to contrive some plan to prevent the air from entering at the top in an injurious manner, and I would like to know what you think about that, in order to be ready for next season.

"A more immediate want is to know how to condense the moisture during winter in these hives. I suppose that to do this a circular hole must be cut in the crown-board, a slide withdrawn, and some such plan as I will mention in the next paragraph adopted to keep the top air-tight. What then would you use for the purpose of condensation? The circular leaden or zinc trough, with a bell-glass, recommended by Taylor? And when should it be put on?

"With regard to spring feeding (which I am afraid will be requisite in two cases), it appears to me that it will be absolutely necessary to contrive some way of making the top air-tight between the hive and the crown-board, when the slide is withdrawn, lest the air which will enter should create that 'cold current' though the open slit which Taylor tells us must be carefully guarded against in the breeding season. It has occurred to me that possibly a piece of cotton wadding cut the shape of the top of the hive, with an opening in the middle, and placed between the hive and the crown-board, would, if the latter were pressed down by a couple of weights, make the top air-tight, and that in that case the centre slide might be safely opened in spring. What do you think? And would this plan be necessary in autumn feeding, and also in winter ventilation? Perhaps a little air would not matter in autumn.

"I am about to remove my hives into a house I have made for them. At first I had only makeshift covers, but I took care in placing the hives to put them exactly 2 feet apart in the place the house is to stand, so that the entrances in the house will be to an inch in the same places as the entrances of the hives now are, except that they must all be one foot more forward. Do you think I may do this now, say in another week? The hives are well protected from cold.

"They must also have new floor boards to suit the house. I intend to raise each hive where it stands now on three wedges, half an inch thick, in the evening; and when the bees have all gone up, quietly transfer the hives to the floor boards on a form behind. Then close the entrances with stops fitted with perforated zinc, and put them in the house when it has been moved to its proper place. This is the best plan I can think of.

"I have fed up the two swarms from the hive of last year I told you of, after having strengthened the second swarm—a mere handful—with some condemned bees, but it has turned out a very expensive job. I have given the two nearly half a hundredweight of honey and sugar to make bees and honey, 20 lb. in one case, 17 lb. in the other."

We use and should recommend the bottle feeder for Stewarton hives. One slide only need be partially withdrawn to the width of the diameter of the neck

of the bottle. There is no necessity for the bottle to be placed in the centre. If a block of wood with a central hole, through which the neck of the bottle can be thrust, is used, the slide can be drawn out further. Place a piece of perforated zinc over the narrow opening, on which invert the bottle, having previously tied over the mouth a piece of fine cap net. Throw a cloth over the bottle, and put on any kind of temporary covering. The bees will not take down the food so rapidly as if they had access to the entire diameter of the opening to the bottle; but this is of no consequence.

As regards condensing the moisture in hives during the winter, we have long ago discarded any appliances adapted for that purpose. It is, in our opinion, not only unnecessary, but absolutely injurious, and decidedly contrary to all the habits and instincts of bees. Our apiary for many years has passed through each succeeding winter with as little loss of hives as any other with which we have been acquainted, and no moisture-catching apparatus has been used. On the contrary, we endeavour to have our tops as closely cemented as possible. In our earlier bee-keeping days condensers were in use on all our hives, and, whether as a consequence or not, the average mortality was very large. By the very means taken to prevent accumulation of moisture within the hives the evil is increased, owing to the cold surfaces exposed, and to the cold air which finds its way through any crevice. The only precaution we take for preventing any injurious effects from internal moisture, is that of tilting our hives forward, by placing a wedge or two of wood of about 1½ inch thick under the back of the floor-boards. This allows condensed moisure to run to the front and out of the entrance. In addition to this, we usually remove from our larger-sized frame boxes the two side combs, to be replaced in spring.

The feeding in spring may be carried on in the same manner as before stated, only a much smaller quantity must be given at a time, and a smaller bottle fitted in a wooden block is desirable. Care must be taken in this, as well as in the other case, that the neck of the bottle goes sufficiently through to rest on the zinc on the top of the hive.

In transferring the hives into the bee-house there is no cause to fear any ill effects from the future position of their entrances being a foot or so more forward. The bees will quickly find their own. But with respect to the floor-boards, it is a pity that it is necessary to change them at this season, and break up the at present securely fastened hives. But if it must be done, we should alter the plan proposed slightly. Separate the hive from its board, lay three wedges on the new board, and quickly lift off the hive, resting the edges on the slips of wood. If any bees remain on the board, bring them on it close to the stock, and they will quickly run in. Now let down the hive gradually by removing one wedge at a time, and not a bee need be crushed.

We are not surprised at the result of the feeding of the two weak hives. It is just what we stated in a previous communication that it would be. But at any rate the hives are most probably safe until the spring. No doubt but that some comb has been made, and breeding promoted, so that these two hives are in a favourable condition for commencing their next campaign.

Garden Memoranda.

Moncrieffe House.—This, the delightful residence of Sir Thomas Moncrieffe, Bart., is situated about three miles south-east of Perth, on a somewhat extended platform at the base of a range of hills, which extend westward from the junction of the rivers Tay and Earn, gradually diminishing in height until they become finally lost in the plain. The park, which is undulating and of considerable extent, inclines gradually from the level portion of the ground to the river Earn, which is its southern boundary. The western end is skirted by the great Northern road, from which it is separated by a stone wall. The beautiful mountain—the Hill of Moncrieffe—is its northern boundary; it rises up abruptly behind, and extends onwards a distance of more than two miles before it reaches the river at the extreme end of the parks. It is finely clothed with thriving hard-wooded timber, amongst which a considerable admixture of Larch, Spruce, and Scotch Firs has been planted. These trees contrast finely with grey rocks, which rise up perpendicularly at intervals along the face of the whole ridge, and produce a fine effect. Below the hill in question the park is also magnificently wooded, both in the shape of groups and masses, and there are likewise many remarkable single specimens of trees scattered about, of which we noticed the following, viz. two stupendous forms of Horse Chestnut growing near the mansion, one of which in 1825 measured 15 feet in circumference at the height of 3 feet from the ground; in 1859 it measured 17 feet at the same distance from the ground; its girth is now 17 feet 6 inches. At the height of 7 feet 6 inches from the ground the trunk divides into three immense limbs, and again at 16 feet in height, into many more redoubtable arms, covering with its ponderous branches, which reach the ground, an area of 252 feet in circumference—a glorious object, and probably not only one of the largest, but also one of the oldest trees in Scotland. A handsome Ash, 90 feet in height, with a clear stem of 30 feet, measures in girth 11 feet at 3 feet from the ground. Several good specimens of Scarlet and Turkey Oaks may also be found amidst gigantic Limes, Planes, Elms, and Oaks; of these latter one was 11 feet 3 inches round at 3 feet from the ground, and it is 90 feet in height—a noble specimen. Here and there thriving well-protected examples of Coniferæ occur, among which we remarked Picea nobilis and Nordmanniana, Wellingtonia gigantea, the broad-leaved Douglas Fir, and others equally interesting. A fine old Walnut is 60 feet high, and measures at 3 feet from the ground 13 feet 6 inches in circumference. Another remarkable Ash deserves notice; it is 100 feet high, and has a girth at 3 feet from the ground of 14 feet 6 inches, covering with its spreading branches an area of 270 feet in circumference. Towards the lower portion of the park, immediately facing the house, is a mass of plantation, consisting chiefly of dark Firs, which produce a fine effect on account of the contrast which they make with the round-headed, hard-wooded trees with which they are associated. In the midst of this plantation is a "curling" pond, which is usually covered with ice on the first setting in of frost, and contiguous to it is a remarkable White Willow. An old tree had been blown down and decapitated, and from the ancient trunk, which is some 10 feet in length, and nearly perfectly decayed, save some live bark on one side, a noble head has been formed, which on account of its comparatively frail support is regarded by many with interest. Several good specimens of Purple Beech and round-headed Thorns are also very effective objects in a landscape really rich in natural beauties.

The house, as has been already stated, is situated on level ground, overlooked by hills; it is a large four-storied commodious building of simple architecture, and is about a mile distant from the Bridge of Earn station of the North British Railway. Passing the new and beautiful buildings of the Bridge of Earn, the road crosses the river of that name, and entering the park sweeps onward until it reaches the eastern front of the mansion, where the main entrance is situated. From this point the pleasure ground extends eastward, and is separated from the road by a light iron fence. As this road is, however, also that by which access is gained to the stables and offices, the privacy of the gardens is in consequence much interfered with. The propriety of removing the entrance to the opposite side has therefore been suggested, an alteration which would not involve much expense or cause the removal of more than a very few trees, which might come in the way of the proposed line of new drive. From this point a better line of junction would be effected with the magnificent western approach, by which we departed, through an avenue of ancient Beech a mile or so in length, to where it joins the great Northern road,—one of Telford's noblest works—and which is led gracefully onwards round the shoulder of the hill. From the elevated ground here a charming view presents itself. In the fore-ground is situated the beautiful city of Perth, with its towers and spires, its handsome bridges spanning the broad, clear, placid waters of the Tay, one of the largest of British rivers, which rolls majestically onwards to the German Ocean. On the right the finely wooded hill of Kinnoul rises up abruptly from the river's edge to a considerable altitude, the numerous villas and gardens with which it is adorned appearing to much advantage thus elevated in position. Beyond are the woods of Scone, amidst which the magnificent palace of that name rears its towers, the whole being encircled by the lofty and rugged range of the Grampian Mountains—altogether a glorious scene. Retracing a little, and leaving the public road, we gradually ascend by a broad carriage drive to "Moredun top," the highest peak of Moncrieffe Hill, on the summit of which there is a flagstaff, inclosed within a ring of considerable size. The scenery from this spot, as Pennant says in his History, is the "glory of Scotland." It includes the broad valley of Strathearn, one of the richest and best cultivated districts in the North. When we saw it a few weeks ago the whole was of a golden hue, ready for the sickle, as far as the eye could penetrate; not a single fallow field could be seen—all was under crop. In the midst of the valley the river winds fantastically with an almost imperceptible current, forming a conspicuous feature of the lovely landscape. On its banks and prominent points, embosomed in trees amidst wide-spread lawns, may be seen castles and mansions, the residences of the nobility and landed gentry, while comfortable villages and detached cottages occur at intervals, and substantial farm steadings, with their tall chimneys and fixed machinery, rear their heads in all directions. The broad crystal stream, too, is spanned by several handsome bridges, and the whole is well backed up by the mountains of the Ochill range, some of which are beautifully and artistically covered with dark Pine woods, producing an admirable effect.

Descending from the hill top, one looks down upon the plain below as on a map. Proceeding onwards, we pass the front of rocks (where pebbles and agates of good quality are found) by well-directed walks. As we get nearer the bottom of the hill we observe in the open spaces many well-protected thriving specimens of choice Coniferæ, rising up over a luxuriant and very effective carpeting of Bracken. Among them were the broad-leaved variety of Douglas Fir, several fine specimens of Wellingtonia gigantea, Cryptomeria japonica, Cupressus Lawsoniana, all in beautiful condition. There were also two good plants of Araucaria imbricata of considerable size, apparently doing well. These had been removed from the ground lower down in the park, where they had suffered from the severe winter of 1860-61. A Purple Beech placed here made an effective contrast. Pinus Cembra, too, seemed much at home in this elevated situation. On the right hand of the walk, near the bottom of the hill, and amidst the partial shade of lofty trees, there is an admirably constructed marble-fitted dairy, with a thatched projecting roof, forming a colonnade all round—an admirable mode of protecting the walls from the fierce rays of the summer sun. *D.*

(*To be continued.*)

Miscellaneous.

Mr. Noble's Sale.—This important sale of Nursery Stock, rendered necessary on account of portions of his ground at Sunningdale being required for public roads and railways, is, as will be observed, announced to take place on the 30th of this month and following days; and as some of the lots are of a different description from what are usually offered at such sales, it may be well to direct attention to them. Of Wellingtonias, there are some admirable specimens, two dozen or more of which are from 8 to 10 feet in height, beautifully symmetrical in form, and well suited for removal, having been annually transplanted. Of smaller plants of this giant tree there are also many hundreds. Araucaria imbricata and Deodars, both large and small, are likewise abundant, as are also Chinese Junipers, and Juniperus sphærica, the last a very hardy neat-growing kind, in the way of J. chinensis. Of Abies nobilis and Nordmanniana we noticed many charming examples, varying in height from 3 feet to 5 feet. Cupressus Lawsoniana and Thujopsis borealis may also be had by hundreds, fine bushy plants, varying from 2 feet to 3 feet in height. Thuja gigantea, the glossy refreshing green of which is now made to play so important a part in our little artificial landscapes, is likewise plentiful, both in the shape of fine plants of considerable size, and of others of smaller growth. Retinospora obtusa, which stood out last winter unscathed, is offered in the form of small plants. The American Arbor-vitæ, of which excellent evergreen hedges are made, may be had in hundreds, as may also Abies Douglasii, the compact-growing A. orientalis, A. grandis, A. Pinsapo, Pinus insignis, P. austriaca (which is one of the best of all trees to plant for shelter), Common Spruce, and Larch. Foremost among plants of other descriptions are Rhododendrons, which comprise many unproved seedlings, the result of crosses from the best varieties, as well as the best named and more common kinds. Of these there are many thousands. The last are found to make valuable underwood. Berberis Aquifolium and Darwinii, both of which may be had in abundance, are likewise useful for the same purpose, as is also Cotoneaster Simmondsii, which is now furnished with beautiful coral-coloured fruit. Hollies—Weeping, Variegated and Common, are grown in large quantities, as are also Portugal Laurels, nice little bushes; the Colchic Laurel, which is found to be even hardier than the common kind, the young growths of the latter being injured, while those of the former escape; and the oval-leaved Privet. Finely-grown plants of the double-blossomed Deutzia crenata are to be offered in considerable numbers, as are also examples of the Japanese Honeysuckle (Lonicera aureo-reticulata), the leaves of which when seen in perfection approach in beauty even those of an Anæctochilus. Andromeda floribunda, and hardy Heaths, plants suitable for the ornamentation of rock-work, are likewise catalogued, together with large quantities of Roses, many of the latter on the Manetti stock. Everything offered appears to have had the greatest amount of cultural care possible bestowed upon it. Those who have grounds to plant should therefore not overlook so good an opportunity of doing so with materials well suited for the purpose.

Araucaria Rulei.—The newest of all the Araucarias, and perhaps one of the most remarkable, whether as to its place of growth or its habit, is the A. Rulei, Muell. This was first known in England in 1861 or 1862, when small specimens of the foliage were received by Sir W. J. Hooker, at Kew. The native habitat of this species is very limited; the whole of the trees as yet discovered occupying a radius of only half a mile, and this on the summit of an extinct volcano, where the changes of season produce the greatest extremes of drought and heat, or rain and cold winds, and where no other vegetation exists for hundreds of feet below. It grows on a parallel latitude with A. Bidwilli, but situate at double the elevation of the habitat of that tree. It was discovered and introduced from Port Molle by Mr. W. Duncan, collector to John Rule, Esq., of Victoria, in honour of whom Dr. Mueller has given it its specific name. It is a tree rising some 50 or 60 feet high, branching in like manner to A. imbricata, but the branches more thickly arranged round the stem, and these of a more rigid and tubular form, forking in all directions, at equi-distances, in a most symmetrical manner. The leaves are very closely imbricated, of a dark shining green colour. Its nearest affinity is with A. imbricata, which it resembles in a

remarkable degree in many points, but in others it is wholly distinct. Its beauty is said far to surpass the last-named species, or even of any other species known. The cones are nearly spherical, the scales about an inch broad, terminating with a long projecting narrow point, or scale, about an inch long. Of the economic uses of this species nothing is yet known, though it is probable the seeds are eaten, like some of the other species. Mr. W. Bull, the well-known nurseryman of the King's Road, Chelsea, introduced this rare plant into this country. *J. R. Jackson, in Intellectual Observer.* [A figure will be found in our volume for 1861, p. 868.]

Study of Natural History.—The following letter on this subject from Mr. Carlyle is given in the *Edinburgh Courant*:—"For many years it has been one of my constant regrets that no schoolmaster of mine had a knowledge of natural history, so far at least as to have taught me the Grasses that grow by the wayside, and the little winged and wingless neighbours that are continually meeting me with a salutation which I cannot answer, as things are. Why didn't somebody teach me the constellations too, and make me at home in the starry heavens which are always overhead, and which I don't half know to this day? I love to prophesy that there will come a time when, not in Edinburgh only, but in all Scottish and European towns and villages, the schoolmaster will be strictly required to possess these two capabilities (neither Greek nor Latin more strict), and that no ingenuous little denizen of this universe be thenceforward debarred from his right of liberty in those two departments, and doomed to look on them as if across grated fences all his life!" Carlyle's longing to know the Grasses by the wayside will no doubt recall to many the questions put by Balzac to his gardener before writing "Le Lys dans la Vallée." Book-learned men have constantly this sort of desire to get at the heart of another kind of life than that they have studied to satiety.

Berries from the Tree of Knowledge.—"By all means let classics be retained: as the handmaids of more useful branches of study. Valueless themselves, they may be made a vehicle to convey what is invaluable." Thoroughly satisfied of the truth of this principle, an Oxford M.A. of eminence—he took (he mentions) high botanical honours, though "comparatively weak" in Latin and Greek—determined to test it at a recent middle-class examination. The result was a paper in Latin prose translation, of which, he admits, the candidates "could make nothing," but which he still "cannot but consider a move in the right direction." We subjoin it; adding also the interpretation, as sent—which, we may add, the words seem to us to bear "vix aut ne vix quidem" in some places—for the benefit of the mere classic.

Translate:

Morum te nigram juraveris: morum vero albam fecisti. Solvi, vixdum rubum cæsium, vaccinium tuum myrtillum: teste virgine berberin circumvolitante, et baccâ sambuci patre tuo. Dederas et cheirographum: sed atramentum oxycoccus palustris. Equidem non pendo unius fragarii ribes taxi baccæ simile: permittam tamen omnibus chiococcum, te rubum Idæum prorsus exstitisse: vaccinium autem, senior, dic.

You may swear yourself black, Berry; but you have made a mull, Berry. I paid your bill, Berry, as soon as due, Berry; as the young woman in the bar, Berry, and your father, the elder Berry, know. I don't care a straw, Berry, for a goose, Berry, like you, Berry; but I'll let folks know, Berry, that you've made yourself a regular ass, Berry: and whort'll Berry senior say?

The style of the Latin is more or less that of Cicero's letters; though we think he would certainly have expressed some of his ideas—towards the end especially—in different language. We are not altogether satisfied of the rectitude of the "move." Surely it is pushing the Oxford theory a little too far. We commend the English version (fragments of which seem, unaccountably, familiar to us) as a useful *memoria technica*, to the notice of mothers and governesses. *Pall Mall Gazette.*

Ailantus Silkworm.—The long continuance of warm weather has greatly favoured the experiments made in the rearing of the Bombyx cynthia. In the enclosure within the Jardin d'Acclimatation, in the Bois de Boulogne, may be seen at the present moment a large number of these worms, of the third generation of this season, feeding in the open air on the Ailantus, or spinning their cocoons. The creatures are of great size, and seem to be in perfectly healthy condition. The cocoons are generally formed at the extreme end of the branches, or rather of the leaves, for the Ailantus has long compound leaves, with many leaflets, like the Ash, where no bird, however light, could rest and make a meal of the occupant, and the worms take the curious precaution, before commencing the cocoon, to attach several threads of their web to the leaf-stalk as high as the third or fourth leaflet, so that if that on which the cocoon is fixed were to be broken from its stalk, it would still be held pendent by these stay-threads. *Journal of the Society of Arts.*

Calendar of Operations.

(*For the ensuing week.*)

Although the weather is still comparatively favourable, all half-hardy plants intended to be wintered out of doors should now or very soon receive some kind of protection. Various materials are used for this purpose, but the principal point to be aimed at is to keep the plants dry, as well as to protect them from cold; for it is well known that they will endure a much lower degree of temperature without injury if the ground is dry below them, and if the stems are kept dry, than when in a wet soil, and exposed to rain. Deciduous plants may be tied together as soon as the leaves have fallen; the ground about their roots may be covered with ashes or Cocoa-nut fibre, and the stems thatched over with Fern or straw. Evergreens may be protected with a covering of mats, or some other material of that description, put on so as to open towards the north in favourable weather. Leaves, ashes, old tan, and many other articles are all useful, and can be got together now for the protection of tender herbaceous plants. Branches of Evergreens are also extremely valuable for tying against plants on walls. Mats should now be got in readiness for covering frames and pits.

FLOWER GARDEN AND PLANT HOUSES.

At this season every effort should be employed to keep up a good display of bloom in Conservatories and Greenhouses. They will now be used much more than when the weather is favourable for out-door exercise; their inmates, if attractive, will therefore be much more valued now than they would be at any other period.

Chrysanthemums.—Care must be taken to keep these in good condition. A little weak liquid manure given occasionally will assist them in making a better display than they otherwise might do.

Crocuses.—While bulbs of these in pots are kept in a dark place, very little water need be given, merely sufficient to keep the soil, Moss, or sand from becoming too dry. When the roots have made some progress, the crowns will soon make their appearance; and as soon as these are observed, remove the plants to the greenhouse or conservatory.

Pelargoniums should be kept rather cool and dry, giving whatever water may be necessary on the mornings of fine days, so that the superfluous moisture may be dried up before the evening, and avoiding the use of fire-heat except when necessary to prevent the temperature falling below 40°, or to dispel damp when this cannot safely be done by giving air.

FORCING GARDEN.

Cucumbers.—These must be well attended to in order to ensure success. A temperature of about 70° should be maintained, which will allow a little air to be given on comparatively cool and dull days. Stop progressing shoots at every second joint, and pinch off all tendrils and young fruit that are not wanted to swell as soon as they appear.

Peaches and Nectarines.—Prune and otherwise prepare the trees in the earlier houses for forcing, and cover the outside border with leaves or litter, for the purpose of excluding frost and heavy rains.

Pines.—Stock expected to furnish fruit next summer and autumn should not be too much checked, indeed it may be kept growing slowly all the winter, which is perhaps the most certain method of preventing its starting too early in spring. Where the plants likely to fruit without making further growth are considered insufficient to meet the demand until next autumn, the stronger plants of those for late fruiting should be encouraged to make growth as early as can be done without weakening the foliage, with the view of preparing them for starting in April.

Vines.—Houses which it is intended to commence forcing early should have some fermenting materials placed on the borders so as to encourage the roots a little before the Vines are excited; this will be of great service towards getting the buds to push strongly and without loss of time.

HARDY FRUIT AND KITCHEN GARDEN.

Apple stores should be often examined, picking out all that show symptoms of decay. Any of the more choice varieties of Pears that do not ripen properly should be removed to a warm dry room for a few days, which will be found to greatly improve them. Keep all fruit as cool and dry as possible. If frost is excluded from the house it can scarcely be too cool, where the object is to preserve fruit plump and sound as long as possible.

Asparagus.—Young plantations of this will probably still retain their freshness; in which case the tops ought not to be cut off yet. It is a common custom after the beds are cleaned to spread manure on the surface, and then to dig the alleys and cover the dung with part of the soil. This top-dressing can only benefit the plants by rain washing its nutritive particles down to the roots. It might, therefore, lie exposed all winter, and be forked in when the beds are dressed in spring. If the alleys are filled with roots they ought to be dug out; a dressing of manure should be lightly turned in instead.

Beet.—This may now be taken up and housed. In lifting great care should be exercised not to break off the end of the root or to wound the skin, for when this happens the colouring matter escapes in the process of boiling. Trim off the larger leaves and store the roots in dry mould or sand, like Carrots.

Cabbages.—Where the late dry weather has hitherto prevented these from being planted, now that wet has come, no time should be lost in getting them in. Where they have been well looked after they will be good-sized plants, and if carefully transplanted they will be as forward next spring as if they had been put in earlier. Earth up Coleworts.

Celery.—Take advantage of dry weather, in order to give a general earthing-up.

Endive.—Let this be blanched, by placing flower pots inverted over it when it is dry.

Lettuces.—Plant Cabbage kinds in frames for winter use. Hardy Cos varieties may also still be planted on warm sheltered borders, to come into use in spring.

Tomatos.—Unripe fruit, if any, should now be gathered, and hung up in a warm place, where they will ripen sufficiently to be of service.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON
For the Week ending Oct. 18, 1865, as observed at the Horticultural Gardens

October.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth. 1 foot deep.	Temperature of the Earth. 2 feet deep	Prevailing Winds
Thurs. 12	23	29.520	29.437	64	27	45.5	54	57	S.W.
Friday 13	24	29.732	29.600	63	32	47.5	57	57	S.W.
Satur. 14	25	29.946	29.893	56	42	49.0	56	56	S.W.
Sunday 15	26	29.980	29.885	56	32	44.0	56	56	N.W.
Mon. 16	27	29.914	29.627	59	47	53.0	56	56	W.
Tues. 17	28	29.270	29.154	64	35	49.5	55	55	S.W.
Wed. 18	29	29.091	28.998	55	41	48.0	55	55	N.E.
Average		29.636	29.542	59.5	38.5	48.0	55.5	55.7	

Oct. 12—Fine; rather windy; fine; slight frost at night
— 13—Foggy; masses of dusky white clouds; fine, at freezing
— 14—Slight fog; overcast; rain at night.
— 15—Foggy; overcast; fine; dense fog: at freezing.
— 16—Foggy, slight haze; heavy rain at night.
— 17—Rain early; fine; light clouds and deep blue sky, fine
— 18—Foggy; barometer very low; cold rain from N.E. heavy rain at night.

Mean temperature of the week, 2 deg. below the average.

STATE OF THE WEATHER AT CHISWICK
During the last 39 years, for the ensuing Week, ending Oct. 28

October.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday..22	59.0	42.9	51.0	22	0.96 in	2	1	4	1	1	11	7	1
Mon. ..23	58.2	39.8	49.0	20	0.56	3	2	1	3	4	11	5	1
Tues. ..24	58.2	39.2	47.7	17	0.88	1	4	4	—	1	9	7	1
Wed. ..25	58.3	38.7	48.5	18	0.89	4	6	7	3	4	7	2	1
Thurs. ..26	55.5	36.8	46.2	16	0.52	5	7	3	2	7	7	1	1
Friday ..27	55.0	39.3	47.2	24	0.92	2	7	3	1	7	7	2	1
Satur. ..28	54.6	36.7	45.7	23	1.06	2	7	3	—	7	12	3	1

The highest temperature during the above period occurred on the 22d, 1863—therm. 69 deg.; and the lowest on the 23d, 1838—therm 17 deg.

Notices to Correspondents.

Books: *C D.* Yes. The translation into Arabic of the work on Babylonian Agriculture is in the Library at Leipzig.

Diseased Pears: *Christ's College.* The Louise Bonne is affected with rust, a disease which arises from sudden chills. The tubercles on the Passe Colmar appear to be an exaggeration of the disease which is so common on leaves, and which sometimes affects the young fruit. The cause is unknown. *M J B.*

Fir Trees on Chalk: *W S.* Fir trees will grow on most soils if they are not surcharged with water. As you want to plant only for shelter, they may be used in your bleak situation with shallow tenacious soil, on a subsoil of chalk and flint, provided there is free drainage. We should recommend you to plant Scotch Fir, common Spruce, and Pinus austriaca, which latter is more likely to succeed than the Pinaster.

Fuchsias: *T I* will feel obliged by any one informing him where he can obtain a plant of F. cylindracea, which he is most anxious to add to his collection.

Fungi: *W C Trevelyan.* Your Fungus is Pterula multifida Fr., of which we have an authentic specimen. It is slightly different from its peculiar locality. The species has recently been detected in Sweden, and is described in Monographia Hymenomycetum Sueciæ. *M J B.*

Gardeners' Examinations: *Opaque.* Persons employed in nursery gardens would be as eligible as those employed in any other kind of garden—that is to say, if gardening is really their profession.—*A Journeyman Gardener.* The prizes are, as we understand, open to competition amongst gardeners of any grade who may present themselves for examination and comply with the conditions. The *Gardeners' Chronicle* and the Horticultural Society's prizes are quite distinct from those given by the Society of Arts. We cannot say why the Horticultural Society chose Botany as the subject for its prizes, unless it were to encourage young gardeners to study the scientific and higher branches of their profession. As to why what you call such a "rubbishing book" as the "Cottage Gardeners' Dictionary" should be named as a text book. We believe the indication of text books is left to the examiners. The *Gardeners' Chronicle* prizes go to the candidates who gain the highest number of marks (being equal at least to a Second-class Certificate) in either Floriculture or Fruit and Vegetable culture, and at the same time gain at least a Second-class Certificate in Book-keeping or Mensuration.

Humming bird Moth: *T S P., The Craig, Windermere,* would be obliged by any of our correspondents favouring him with a few larvæ or chrysalids of this moth.

Names of Plants: *G.* The Eucalyptus that stands out at Kew is there named E polyanthemus. We are unable to name yours from the leaf sent.—*H J.* The White Hickory, Carya alba; and Pyrus torminalis, the Wild Service; the latter is indigenous.—*S Evans.* 1, Manna Ash, Ornus europæa; 2, North American Nettle tree, Celtis occidentalis; 3, True Service, Pyrus Sorbus.—*Sheen.* Fruits of Ailantus glandulosus, and of Catalpa syringæfolia, trees which rarely perfect their fruits in this country, except in hot seasons like the present.—*A D B.* The Achimenes appears to be cupreata, now called Cyrtodeira cupreata. Clematis microphylla, a New Holland species, requires a greenhouse.—*S S.* 1, Lastrea quinquangularis; 3, Davalhia bullata; 3, Adiantum hispidulum.—*J G S.* Juglans nigra.

Potato Disease: *H H.* The cause of the Potato disease is well known. It arises from a little Fungus, Peronospora infestans. Climatic conditions may assist or prevent its development. The present year in many districts is by no means exceptional as regards its prevalence. *M J B.*

Sewage Plant: *G T S.* We will inquire.

Snails: *J W.* writes: "My garden is infested with small snails to such an extent that I can grow almost nothing for them. What is the best way of getting rid of them, and the proper time for using the means recommended?" We should try the plan of turning in a pair of ducks (or more, according to the size of the garden), which would probably clear the snails without doing much damage, if looked after.

Transplanting Trees: *An Old Subscriber.* The trees present in the way you describe ought to move without injury, especially as the distance is so trifling. The balls must be well braced together, and the lifting power efficient so as to avoid crushing the balls. See page 147 of our Volume for 1863.

Wages: *T H.* We do not think the publication of your letter would better your position, but we will shortly see what can be said on the subject.

Manures and Feeding Stuffs.

RAYNBIRD, CALDECOTT, AND BAWTREE. Address, 89, Seed Market, Mark Lane; or Basingstoke. Samples and prices on application.

THE LONDON MANURE COMPANY (Established 1840), Have now ready for delivery WHEAT MANURE, for Autumn Sowing. DISSOLVED BONES, for Dressing Pasture Lands. SUPERPHOSPHATES of LIME, &c. Genuine PERUVIAN GUANO and NITRATE of SODA, ex Dock Warehouse, SULPHATE of AMMONIA, FISHERY SALT, &c. Offices, 116, Fenchurch Street, E.C. Edward Purser, Secretary.

LAWES' WHEAT MANURE for AUTUMN SOWING. A supply of the above Manure is now ready for delivery, at J. B. Lawes' Factories, Deptford, and Barking Creeks. Price £8 per ton. Two to three cwt. per acre to be harrowed into the land before the seed is sown. It can be obtained of Mr. Lawes, or through any of his appointed Agents; also
SUPERPHOSPHATE of LIME .. .. £6 6 per ton.
MINERAL SUPERPHOSPHATE .. 5 5 ,, ,,
Genuine PERUVIAN GUANO direct from the Importers, and all Chemical Manures of value.
AMERICAN and other CAKES at market prices.
Address John Bennet Lawes, Offices, 1, Adelaide Place, London Bridge, E.C.; and 22, Eden Quay, Dublin.

Autumn Sowing.—Odams's Blood Manure for Wheat.

Manufactured by the Patent

NITRO-PHOSPHATE or BLOOD MANURE COMPANY, LIMITED, consisting of Tenant Farmers occupying upwards of 50,000 Acres of Land.
Chairman.—John Clayden, Littlebury, Essex.
Managing Director.—James Odams.
Particulars of this Standard Manure may be obtained at the Offices; C. T. Macadam, Secretary; or of the Local Agents. Chief Office, 100, Fenchurch Street, London, E.C.; Western Counties Branch, Queen Street Station, Exeter; Manufactories, Plaistow, Essex; and Ebford, near Topsham, Devonshire.

LIME MANURE GRATIS in the immediate neighbourhood of Covent Garden Market. Apply to Essex & Sons, 28, Stanhope Street, Clare Market, W.C.

Agricultural Improvements.

MR. BAILEY DENTON maintains a large Staff for the Execution of all Works of Land Improvement, and for the preparation of Plans and Designs of Farm Buildings, Farm Houses, and Labourers' Cottages, &c. Mr. Denton's charge for conducting Under-Drainage is 5s. per acre; and for reporting upon contemplated improvements, for preparing Plans of Works to be executed by Landowners, and for Superintending the Erection of Farm Buildings, and the Execution of any other Works determined upon, according to a fixed scale, depending on the amount of service required.
22, Whitehall Place, Westminster.

Drainage of Land.

MR. C. F. HUMBERT, F.G.S., of Watford, Herts, and formerly Senior Surveyor to the Tithe Commission, a Land Surveyor and Land Agent, more than 20 years established in practice, undertakes Works of Drainage either at a contract price, or to lay out and overlook the same at a commission of 5s. per acre; and he has at his command a staff of experienced workmen. His custom is to charge merely the expenses out of pocket in making the preliminary Survey and Estimate where the works are not carried out.

THE LANDS IMPROVEMENT COMPANY. Incorporated by Special Act of Parliament in 1853. 2, Old Palace Yard, Westminster, S.W.
Directors.
The Right Hon. the Lord Naas, M.P., *Chairman.*
F. L. Dashwood, Esq. | Sir C. H. J. Rich, Bart.
William Hope, Esq., V.C. | Sir Wm. Russell, Bart., M.P.
John Horatio Lloyd, Esq. | G. R. H. Somerset, Esq.
The Hon. Wm. Napier | Philip Twells, Esq.
J. Folliott Powell, Esq.
To Landowners, the Clergy, Estate Agents, Surveyors, &c., in England and Wales, and in Scotland.
The Company advances money, unlimited in amount, for the following works of Agricultural Improvement, the whole outlay and expenses in all cases being liquidated by a rent charge for 25 years.
1. Drainage, Irrigation and Warping, Embanking, Inclosing, Clearing, Reclamation, Planting, for any beneficial purpose, Engines or Machinery for Drainage or Irrigation.
2. Farm Roads, Tramways and Railroads for agricultural or farming purposes.
3. Jetties or Landing places on the sea coast or on the banks of navigable rivers or lakes.
4. The Erection of Farm Houses, Labourers' Cottages, and other Buildings required for Farm purposes, and the improvement of and additions to Farm Houses and other buildings for Farm purposes.
Landowners assessed under the provisions of any Act of Parliament, Royal Charter, or Commission in respect of any public or general works of Drainage or other improvements, may borrow their proportionate share of the cost, and charge the same with the expenses on the lands improved.
No investigation of title is required, and the Company being of a strictly financial character do not interfere with the plans and execution of the Works, which are controlled only by the Government Enclosure Commissioners.
For further information, and for forms of application, apply to the Honourable William Napier, Managing Director, 2, Old Palace Yard, Westminster, S.W.

THE GENERAL LAND DRAINAGE and IMPROVEMENT COMPANY. Offices, 22, Whitehall Place.
The Right Hon. Lord Rivers, Chairman.
J. Bailey Denton, Principal Engineer.
Under this Company's Act Tenants for Life, Trustees, Mortgagees, Guardians, Committees of Incompetent Persons, Beneficial Lessees, Corporations (Ecclesiastical or Municipal), Incumbents, Charitable Trustees, &c., may effect the following Land Improvements, and charge the outlay and expenses on the estate improved, by way of rentcharge, to be paid by half-yearly instalments, viz.:—
1. All works of Drainage, Irrigation, Warping, and Embankment.
2. The Erection of Farmhouses, Cottages for Agricultural Labourers, and all kinds of Farm Buildings.
3. The Construction of Roads.
4. The Grubbing and Clearing of old Woodlands, Enclosing, Fencing, and Reclaiming Land.
The owners of Estates, not entailed, who may be desirous to avoid the expense or inconvenience of a Legal Mortgage, may also charge their Estates with an Outlay in Improvements under the simple and inexpensive process of the Company's Act.
The Term of Years for the Rentcharge is fixed by the Landowner, so as to adapt the amount of Annual Payment to the circumstances of the Tenants.
No Investigation of Title being required, and the Charge not being affected by Encumbrances, no Legal Expenses are incurred.
The Arrangements for Effecting Improvements are threefold:—
No. 1. The Works may be Designed and Executed entirely by the Landowner's Agent, and the Company employed only to supply the Loan and conduct the matter through all the official Forms for Charging the Outlay on the Estate.
No. 2. The Company will supply Plans, Specifications, and Estimates for any Improvements to be executed by the Landowner's Agent as under No. 1. In each of these cases the Landowner will be solely under the control of the Enclosure Commissioners.
No. 3. The Company will undertake the entire responsibility of the Improvements, prepare the Plans, execute the Works, and finally charge on the Estate the actual amount expended, with their Commission thereon, approved by the Enclosure Commissioners.
Landowners may thus obtain what assistance they require from the Company, and no more, in effecting the objects in view.
Works of Drainage and other Improvements are also executed on Commission for Landowners, who merely require the skill and experience of the Company's Officers and a Staff in constant practice.
Applications to be addressed to William Clifford, the Secretary, at the Office of the Company, 22, Whitehall Place, London, S.W.

THE ROYAL AGRICULTURAL SOCIETY of ENGLAND.
TENDERS are invited for the execution of the Works required to be done in the Erection of the Society's Show Yard, for the Annual Country Meeting, to be held at Bury St. Edmunds, July, 1866.
The Drawings and Specifications can be seen at the Office of the Secretary, 12, Hanover Square, London, W., from the 1st day of November until the 1st day of December next, between the hours of 10 and 4. Printed Forms of Specification, Conditions, and Blank Schedule of Prices may be had upon payment of 10s. No Tender will be received unless made out on one of the Printed Forms furnished.
Separate Tenders are also invited for certain Movable Buildings, the Drawings and Specification for which can be seen at the same time and place, and printed Specification and Form of Tender may be had upon payment of 10s.
Sealed Tenders, endorsed "Tender for Show Yard Works," must be delivered in, addressed to the said H. Hall Dare, Esq., on or before 11 o'clock A.M., Wednesday the 6th day of December next.
The Society do not bind themselves to accept the lowest or any Tender.
H. Hall Dare, Secretary.

THE NATIONAL EXHIBITION of SPORTING and OTHER DOGS.—The SIXTH GREAT ANNUAL EXHIBITION will be held in the NEW CURZON EXHIBITION HALL, BIRMINGHAM, on MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, the 27th, 28th, 29th, and 30th of November next.
Copies of the Prize Lists and Regulations may be obtained from the Secretary, Mr. G. Beech, Rectory Chambers, Temple Row, Birmingham. The ENTRIES CLOSE on November 1.
The PRIZES offered amount to £700.

THE BIRMINGHAM CATTLE and POULTRY SHOW, 1865.—The SEVENTEENTH GREAT ANNUAL EXHIBITION of FAT CATTLE, SHEEP, PIGS, DOMESTIC POULTRY, CORN, ROOTS, and IMPLEMENTS, will be held in Bingley Hall on SATURDAY, MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, November 25th, 27th, 28th, 29th, and 30th, when Prizes to the amount of £2080 will be awarded in the following divisions, viz.:—

FAT CATTLE	£815 15	BREEDING PIGS ..	£73 19
FAT SHEEP	328 6	ROOTS and CORN ..	71 8
FAT PIGS	61 13	POULTRY & PIGEONS	727 6

Prize Lists, Certificates of Entry, and every information may be obtained from the Secretary.
The ENTRIES CLOSE on WEDNESDAY, November 1.
John B. Lathall, Secretary.
Offices, 13, Temple Street, Birmingham.

SMITHFIELD CLUB CATTLE SHOW, AGRICULTURAL HALL, LONDON, December 4, 5, 6, 7, and 8.—SPACE to be LET in the NEW ARCADE Entrance to the Cattle Show, for the Exhibition and Sale of Carriages, Harness, Saddlery, Waterproof Clothing, Railway Rugs, Garden Implements, and Machinery for domestic use, &c.
For Terms, apply at the Secretary's Office, Agricultural Hall, Barford Street, Islington, N.

SMITHFIELD CLUB FAT CATTLE SHOW.—The ANNUAL SHOW of FAT CATTLE, SHEEP, and PIGS, will be held at the AGRICULTURAL HALL, ISLINGTON, on MONDAY afternoon, December 4, and four following days.
Intending Exhibitors are requested to apply for Certificate Forms by the reference letters as under.
CATTLE.—Form A. For an OX or STEER (in any Class).
,, B. For a COW or HEIFER (in any Class).
,, C. For a BEAST in Extra Stock.
SHEEP. ,, D. For a PEN of 3 WETHERS (in any Class).
,, E. For a SINGLE SHEEP in Extra Stock.
PIGS. ,, F. For a PEN of 3 PIGS (in any Class).
,, G. For a SINGLE PIG in Extra Stock.
ENTRIES for LIVE STOCK CLOSE NOVEMBER 1.
Prize Lists, Forms of Certificates, and all information may be obtained on application to Mr. David Pullen, Assistant Secretary, at the office of the Honorary Secretary, corner of Half-Moon Street, Piccadilly, London, W.
N.B.—All communications respecting the Show must be addressed to the Assistant Secretary, as above, and should bear outside the words "Smithfield Club."

ROYAL AGRICULTURAL SOCIETY of ENGLAND.
EDUCATION PRIZES.
ONE HUNDRED and FIFTY POUNDS.
The LAST DAY of ENTRY for the CAMBRIDGE LOCAL EXAMINATIONS in December next, in connection with which the above Prizes will be given, is NOVEMBER 1, 1865.
Application for Forms of Recommendation should be made without delay to the Hon. Sec., Royal Agr. Education Committee, 12, Hanover Square, London, W., from whom further particulars may be had on application.—Oct. 21.

The Agricultural Gazette.

SATURDAY, OCTOBER 21, 1865.

We have often described in these columns establishments—*markets* they may be called for their great extent—where enormous quantities of agricultural produce are manufactured—many thousand quarters of Wheat, for example, weekly into flour and meal—or many tons weight of bacon daily from many hundreds of fat hogs weekly. We have now another instance of the kind before us—the establishment of a private firm, whose goods are now known all over the world—where, from a comparatively small beginning, the growth of a quarter of a century has at length covered nearly two acres with buildings in which many thousand sacks of flour, many hundred tons of butter, many million eggs, and many hundred thousand gallons of milk are annually converted. We do not refer to the tons of sugar, currants, treacle, &c., which are every week brought into consumption here, for they are not the agricultural produce of this country, and we aim at interesting English agricultural readers only.

And if any one imagines that a manufactory of this extent is not properly an agricultural subject, let him just consider what area of land thus finds a market for its produce. The milk consumed must need nearly 1000 cows to yield it, and these, as ordinarily spread on dairy farms, would occupy four or five square miles of pasture land; the butter used corresponds to the production of many times as many cows as yield the quantity of milk. So here are 30 square miles of Grass, whose dairy produce all comes here. To supply the eggs required, the produce of nearly 20,000 hens must be collected. The Wheat flour manufactured here, if we suppose the average produce of the country over a district wholly arable, cultivated on the four-field course, needs nearly 30,000 acres of plough land. Here then, in all, is the Wheat and dairy produce of probably 80 to 100 square miles of territory, and we should add the eggs of a thousand British homesteads were it not that those employed are chiefly foreign, constituting about 100th part of the whole egg-import of the country. We imagine, then, if only on the score of their influence as great buyers in the market of agricultural produce, that occasional reference to such establishments as this is quite within the scope of an agricultural journal.

We are referring now to the Biscuit manufactory of Messrs. Huntley & Palmers at Reading. There are here a 50-horse power engine and 800 men and boys employed in converting all the raw materials we have named into many thousand tons a year of manufactured goods. About 40 tons of coal (inclusive of the quantity needed for the engine boilers) are here used weekly in driving off in ovens both the water naturally present in these raw materials (for a sack of flour weighs 28 lb. more than the ship's biscuit into which it is manufactured) and the water mixed directly or as milk in dough. A sack of flour weighing 2½ cwt. needs ¾ of a cwt. of milk or water to make it dough, and thus 1 cwt. of water is driven off for every sack of flour consumed. Of course the heat is also used in *baking*—its operation is prolonged beyond the period needed for mere desiccation, in order to the partial roasting which we imagine to be chemically equivalent to the partial combustion of the goods. The quantity of coal required to drive off a known weight of water in the conversion of dough into biscuit, which we had supposed might teach us something as to the possibility of artificial haymaking, cannot therefore, we fear, throw much light on that subject. It is, nevertheless, one of the items illustrative of the extent to which enterprise and intelligence have led to success in a great commercial undertaking, and examples of this kind are usefully brought under the occasional notice of agricultural readers. The process of manufacture here may be described as follows:—

The various raw materials are brought to one end of a series of buildings; and in the mixing room, where they are first brought together, specified quantities of flour, sugar, butter, white or yolk or whole egg, treacle, &c., according to the nature of the article required, are weighed and measured out into the receiving pans of a pair of scales, which stand over the hopper of a mixer. There are six such hoppers in the room, and when the quantities proper for biscuit, gingerbread, or cake, or whatever the article required may be, are thus allotted, the pan is emptied, and the whole mass of 1 or 2 cwt. or more finds its way down a wooden tube through the floor. In the lower room there are a number of mixers continually at work, four of which are horizontal circular iron pans, which revolve rapidly under a heavy corrugated roller whose axis hinges radially on the centre of the revolving pan. This revolves more slowly, with its whole weight resting on whatever may be lying in the trough. The attendant is continually turning the mass from the rim to the centre, and *vice versâ*, and thus the mixture, whatever it may be, becomes in 10 or 20 minutes a homogeneous dough. In the so-called vertical mixer, a sort of horizontal cylindrical pug mill with radial arms is about one quarter full of the stuff, which is thus continually being lifted, torn, and dropped, and thoroughly commingled.

In a quarter of an hour or more a cwt. or two of dough becomes thus tolerably prepared for use. This is then taken to successive pairs of heavy iron cylinders, between which it is repeatedly passed and repassed, doubled up in mass on one side, and issuing in a thin leathery sheet upon the other, until it has become absolutely homogeneous and possessed of just the requisite temper and tenacity.

These cylinders are in some cases detached machines, and then the dough, when thus properly attempered, is taken from them to the biscuit machines. In other cases they form fixed attachments to the biscuit-making machines, and then the dough being taken from the mixer and passed once or twice through these cylinders, is at length received in a thin continuous layer, about 3 feet wide, upon a travelling canvas, and thus passed under the stamping apparatus, by which oval, round, or angular pieces almost contiguous are punched upon the sheet; and the waste intervening or interstitial portion, still forming a continuous sheet, being lifted at one end, is carried over a roller and delivered on one side to be rolled over again, while the biscuit pieces left upon the travelling canvas are received on wirework trays and passed through the ovens.

This stamping or punching of the biscuits is done in different forms of machine. In one, vertical stamps are used. They are pressed on perhaps a foot length of the sheet of dough at once, and work up and down, thus stamping the whole surface as the dough passes under it and proceeds, in its stamped condition, as already described, to have the waste portion of the

surface left between the biscuit pieces lifted from it and removed.—Then there is an automaton stamper, in which a frame of punches of the proper form is pushed against the sheet of dough as it passes over a cylinder, from which it lifts the biscuits by an intermittent motion, depositing them upon a travelling canvas. This it does just in time to return to the charge as a sufficient length of dough has again appeared to receive it and refill it. In this case the quantity of the remaining interstitial portion of the sheet of dough is reduced to a minimum; for whether it hangs together or not is unimportant; it drops into a receptacle where it is taken for re-use.—Lastly, there is the revolving cylinder, whose whole surface is moveable in and out to the extent which the thickness of the biscuit needs—the cutting edges between the biscuit-dies and the separating interstices alone remaining fixed. The movable surface of the biscuit punches is moved in and out at one part of the revolution; and the movable surface of the insterstitial pieces is moved in and out at another part of the revolution. The consequence is that as the cylinder revolves upon the sheet of dough, its whole surface becomes filled and clogged to the depth of a biscuit thick, and the biscuit pieces are pushed out at one place on to a travelling canvas, and the interstitial waste pieces are pushed out at another place into a receptacle, whence they are carried back for use again.

In every case the biscuits are received on wire-work trays, as well as iron plates, and these are carried to the entrance of the so-called revolving oven floor. These are iron webs, 4 feet wide, and 30 or 40 feet long, revolving on rollers at either end of a long oven, and thus constituting the moving floor of a hot-air chamber. The trays of biscuit pass in at one end at such a rate that any particular cake or biscuit laid upon them remains for 8 minutes up to 30 minutes exposed to the heat. And thus the dough, which is continually going in as stamped fragments at one end, is coming out as biscuit, hot and crisp and *made*, at the other.

There are about 10 stamping machines and automaton cutting machines continually at work; and there are so many both of revolving ovens and common ovens, as represent a baking surface altogether of above 5000 square feet constantly at work. One of the machines is in direct communication with the oven, by which of course the labour of carrying between the two is saved. In this case the dough, received from the mixer and from its own waste receptacle, is passed through in a continuous sheet on to the stamping cylinder, which is continually delivering its circular or lozenge-shaped pieces on to a constantly revolving iron web, which carries the whole right through the oven beside which it works, and at the other end of which accordingly these trays of finished biscuit are continually issuing.

It must not be understood that the manufacture here is confined to machine-made biscuit. Every variety of article of the kind, made partly by hand, and partly by machine, is supplied to the trade. Machines like our own drain-tile tools are continually pushing out long lines of fretted sweetened dough, which, cut up into fragments, make one kind of fancy ware. Cracknels, another kind, are made by subjecting the stamped biscuit pieces to boiling water until the heat expands their moisture into steam, when they rise to the surface, and are skimmed off and thrown into cold water, to be again somewhat hardened in their expanded form before baking. Many hands are employed in rolling out paste so thin (for a particularly thin wafer biscuit) that machinery has not yet been found able to deal with it. Many other fancy kinds of cake and biscuit are more or less made by hand. And it is found that the general interests of the concern are served by a portion of the goods or of the processes being thus manipulated, a portion only of the whole being dependent on machinery. There is a higher standard of quality continually before the manufacturer to be maintained in the machine-made goods when the ideal standard which is in this case more than nearly reached by a clever working man is thus continually presented. And it is well to have a school for individual skill thus constantly attached to a manufacturing establishment; so that there is thus an advantage in having one or more departments or sections of the manufacture in the hands of skilled artificers.

As regards the machine-made goods, the tools, though in the main unaltered from year to year, yet have to be adapted from time to time to the varying demand for particular forms of biscuit, and nothing is more necessary to commercial success than prompt attention to the earliest signs of varying demand. As an illustration of this we were informed that it was but the other day that a particular form of little biscuit, about the size of a pigeon's egg, but flatter, was first introduced; but so rapidly has the demand arisen for this little "pearl" biscuit, as it is called, that the consumption of flour for these alone is now at the rate of some thousands of sacks per annum.

The trays full of baked articles of all kinds are carried as they leave the ovens to the lift, which takes them all to an upper story, and there they are distributed in trucks on shunting railways all over the upper floor of the buildings—some of them to drying rooms, and others at once to the packers, by whom they are weighed into cases, or, in variously apportioned mixtures, placed in tins and boxes for transmission to all parts of the world. The manufacture of tins and boxes for this purpose, part of which is carried on upon the premises, is not the least curious item in the system of thorough organisation by which so large a manufacture is carried on with the utmost economy of labour and material within a limited area.

And thus the flour, milk, water, sugar, ginger, spice, treacle, butter, eggs, currants, almonds, raisins, &c., delivered from railway trucks and vans at one end of the series, after traversing warehouse, mixing-rooms, machines and ovens, lifts and drying rooms, and packers, is ready for delivery into warehouses or directly into railway trucks and vans again. There need be no accumulation anywhere, and it requires not more than a few hours for the whole process to have been accomplished; and the various substances which entered in the morning as the raw material of the manufacture may be ready packed for delivery to customers before night. In point of fact the stay of the material on the premises during the process of manufacture is not necessarily more than an hour or two.

We feel certain that our readers have not considered this short account of a great market and manufacture of agricultural produce to be out of place in these pages. There only remains to be added, in reference to the relation of master and servant here, which is a subject interesting to all employers, whether agricultural or otherwise, that the wages paid vary from 30*s*. a week for skilled labourers to 15*s*. a week for common labour, and from 4*s*. to 8*s*. a week for boys. And these wages have a special agricultural interest; for it is impossible to doubt that much of the great rise in the price of butchers' meat during the past few years is owing to the much larger sum paid to labourers throughout the country. And thus the prosperity of the various manufacturing industries has a mighty influence over that of our agricultural districts. We have only to add, that in the management of the large body of labourers here it has been the endeavour of the employers to study both the independence and the welfare of the people. The only piece of coercion that is exercised is to insist on every one subscribing to a sick fund from 1*d*. to 6*d*. a week, according to his wages.* Opportunities, such as reading room and occasional social gatherings afford, are offered to those among them who choose to share in the attendant expenses. The whole establishment appears to present a capital example of success as the result of well-organised labour and machinery, inventive and administrative power, and good business management.

THE game laws and the relation of landlord and tenant on the subject of the wild animals maintained upon the land occupy attention on the Continent as well as here. Not only are they discussed by the Midland Farmers' Club, the Social Science Congress, Mr. BRIGHT and Mr. HOPE, but French Bishops comment upon the subject, and seem to have as bad an opinion of a chasseur as the POPE has of a Freemason. In Austria, according to the *Gazette des Courses*, the number of animals that come under the head of game must be considerable, while those that are simply considered noxious and destroyed whenever there is a chance are countless. The number of animals and birds killed during the *chasse* of 1864 and 1865 in Bohemia alone is thus quoted in the *Journal des Débats* of October 10. It should be remembered that the season is described as below the average:—

Bucks, 1342; deer, 1855; wild boars, 587; roebucks, 9764; hares, 488,824; rabbits, 6271; foxes, 6461; otters, 249; badgers, 238; martins, 2262; polecats, 23,109; squirrels, 14,494; hedgehogs, 208; black game, 510; ditto large, 1688; gélinottes, 1867; pheasants, 62,174; partridges, 586,195; quails, 14,415; woodcocks, 4811; ducks, 17,452; herons, 1240; snipes, 1811; woodpigeons, 3262; great bustards, 941. In birds of prey:—great eagles, 87; horned owls, 217; kites and buzzards, 9372; vultures, 8839; falcons, 6741; small owls, 8168; the list closes with 168,118 magpies. It is calculated that the eatable part of this hecatomb would weigh more than 3000 tons. The weight of stags' horn was computed at 1[illegible] kilos. The money produce of the portion sold was as under:—For game sold, 785,465 florins; [illegible] stags' horn sold, 6485 florins: raw skins, 21[illegible] florins; dressed skins, 100,240 florins; fat and grease, 587 florins; total, 1,900,064 florins. The French paper very coolly adds that there is no fear of that quantity of game being killed in France, as it is only in districts of old Germany and some counties of England that so much exists.

It must be patent to all readers that where vultures, kites, and buzzards are to be killed by the thousand, agriculture is sacrificed to large woods and forests. It is curious to us to note among the birds killed some varieties that we should only be too glad to have on our own lands. The great bustard for instance; he seems to throw our ideas back a whole age. Salisbury Plain, Stonehenge, the Druids—all come up in a crowd at the mention of this, the noblest bird that has belonged to us, as a compatriot. The number slaughtered in our list is 941. The writer pays 14*l*. the pair for some young ones alive in Hamburgh last year. They are marvellous devourers of all kinds of small vermin, especially farmers' pests. Of mice they will kill any number, and enter gravely into the fun.

One thing must suggest itself to all, in the perusal of so curious a statistical paper, and that is, how close must be the supervision that collects all such items! The "garde-champêtre" has to watch lest an unlucky magpie should be "potted," and he not told of it, and we can picture to ourselves the red-tapeism and the circumlocution office that collates and prepares for publication such a list.

THE CATTLE PLAGUE.

[We continue to publish the letters of Correspondents on this subject.]

1. FROM MR. JAMES CAIRD.—Having had an opportunity while passing through Holland of making myself acquainted with the measures adopted by the Dutch Government to deal with this terrible disease, I do not lose a moment in communicating them to you. Its commencement is clearly traced to a cargo of cattle returned from England (the price having been deemed unsatisfactory) in the beginning of August. These animals were distributed among the pastures near Schiedam, and in the neighbourhood of Rotterdam. When the disease appeared, a panic was occasioned, and the animals affected, or exposed to infection, were killed. As these were fat or fattening cattle, the remedy did not cause a serious loss. But when the disease spread to the dairy cows, more rational measures were adopted.

A Commission was named to watch and record the progress of the disease. They report to Government its progress and character, the number affected, and the results, and the modes of treatment found most effective. This is published from day to day, so that the public are kept informed in an authentic manner of all that is going on. The most successful treatment is thus at once made public, and unnecessary panic is prevented.

The only case now in which the remedy of destruction is adopted is when the disease manifests itself suddenly in an isolated place. Then the whole stable is slaughtered, and in many instances that extreme remedy has been found adequate, and the disease has not extended. But wherever the disease has shown itself in several herds in the same locality, remedial measures are adopted. Isolation of the individual, and medical treatment according to the symptoms of each, accompanied with cleanliness and warmth, are the principles of treatment. No certain specific has been discovered, but a rational treatment, according to varying symptoms, is practised, with warm clothing and nourishing drinks to sustain the strength. The result of this treatment has been that 25 per cent. have recovered. The cows return to milking condition, and there has been no instance of an animal becoming a second time affected.

The most successful treatment is said to have been by homœopathy. This has been practised by two Belgian practitioners, who volunteered their services to the Dutch Government. By them 50 per cent. of the animals which were sick had been cured, and out of 148 sound animals treated by them with preventive medicines, and placed in contact with diseased cattle, not more than four had taken the disease. These gentlemen are at this moment continuing their practice, and I was assured, that should it prove equally successful on a week's further trial, the results would be made public for the general benefit.

The contagious character of the disease (however otherwise propagated) is so undoubted that the Government have drawn a distinct cordon round a portion of South Holland, within which alone the disease has yet manifested itself, and within which the Government are hopeful they may confine it.

It has not yet spread to sheep. The disease manifested itself on the rich pasture, not in cow-houses. And

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* RULES:—"1. The Contributors to this Fund shall consist of all persons employed in the Biscuit Factory, excepting those who may be members of other Benefit Societies; to whom it shall be optional to subscribe to this Fund."

"3. Each member shall, every Friday evening, have deducted from wages, his or her weekly contribution to the Fund, according to the scale herein laid down; that is to say, every person receiving wages shall pay, and when sick shall receive according to the following scale, with this exception, that no member of another Benefit or Assurance Society shall be allowed to subscribe for a larger amount from this fund, in case of Sickness, than would make up his Income from all sources, to more than three-fourths of his wages:—

Weekly Wages.	*Weekly Payments.*	*Sick Pay.*
Under 4*s*.	1*d*.	2*s*.
4*s*. 6*d*. to 5*s*.	1½*d*.	3*s*.
5*s*. 6*d*. to 6*s*. 6*d*.	2*d*.	4*s*.
7*s*. to 8*s*. 6*d*.	2½*d*.	5*s*.
9*s*. to 10*s*.	3*d*.	6*s*.
10*s*. 6*d*. to 12*s*.	4*d*.	8*s*.
13*s*. to 14*s*.	5*d*.	10*s*.
15*s*. to 16*s*.	5½*d*.	11*s*.
17*s*. and upwards	6*d*.	12*s*.

cattle are at this season still on the pastures, and are generally in fine condition.

The disease has now been two months in Holland, and the panic created by it in a country whose chief wealth is cattle, has been very great. And yet the actual loss has been far less than was believed. Up to the last official statement 3319 animals had been attacked, of which 1169 died, 674 were slaughtered, 717 recovered, and the remainder were under treatment. In proportion to the whole number of cattle in the country, less than three in every 1000 have yet been attacked by the disease, and not two in 1000 have perished. *James Caird, The Hague, Oct.* 13.

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2. From Mr. Graham, of Capellie.—I own a herd of 120 Ayrshires and a flock of from 300 to 400 sheep, and, notwithstanding, feel no fear of the pest, either as to its reaching my cattle and sheep or of its being curable if it visited them. I believe that the so-called cattle plague is not spontaneous in this country, but contagious, and therefore I take care not to introduce among my stock any cattle or sheep from market, truck, or boat where diseased animals have been. I purchase from farmers on their own farms, and only from those whose herds and flocks have not been affected by any contagious disease, or which have not come recently from any public market. I take care, also, that any one who has been lately in a cattle-market shall not come within my cow-houses. I thus am not apprehensive about my stock being attacked by the cattle plague; but more, I feel quite confident that if they were I should be able to cure them, and that without much difficulty. It is now a good many years since pleuro-pneumonia took its place as one of our cattle diseases. It was authoritatively pronounced, it is still generally believed to be, incurable, just as rinderpest is now declared, *ex cathedrâ*, to be incurable. I know pleuro-pneumonia to be curable, and that most easily. I believe the same of rinderpest, and by means of the very same treatment. In what do pleuro-pneumonia and rinderpest differ? Only in the part of the body affected. In what are they the same? In the immediate cause, which is inflammation. What removes inflammation in the one disease, or rather in the phase of the same disease, and restores the affected animal, ought to remove it in the other, and save the sufferer. How, then, is inflammation subdued in a case of pleuro-pneumonia? Simply thus:—Take three table-spoonfuls of sulphur, three table-spoonfuls of nitre, and half a table-spoonful of ground ginger; mix these in a pound or so of treacle, diluted with warm water. Administer the dose at once. Take three soft horse-rugs or blankets; saturate them with cold water; wring them thoroughly; first put one on from horn to tail, wrapping it carefully round neck, chest, and body, and securing it with a hay rope, and do the same successively with the other two sheets. Then put three dry rugs or blankets on carefully, and secure them all round with a common rope. When the dry cloths have become wet, and the wet ones dry, pull all off, and put over and round the animal a well-toasted rug or blanket. If the legs are cold, twist a hay rope round them. Give as much warm drink as will be taken from time to time. Within two hours perspiration should be at full work, causing water to drop from the skin, assisting the action of the bowels and kidneys, and pulling the sulphur all through the system. In nine hours the animal should be chewing its cud. If not, and if it do not then look a good deal relieved, repeat the dose and application. If, after other nine hours, you are not satisfied, do not despair, but repeat the dose and application again. I feel unhesitatingly confident that if animals afflicted with rinderpest were thus treated they would be saved, just as I have thereby unfailingly saved the subjects of pleuro-pneumonia when seemingly on the point of death. I have this very day (Monday, the 9th of October) received a strong confirmation of the justness of my expectation. On Saturday last (the 7th) I put in the *Glasgow Herald* a notice of this mode of treating pleuro-pneumonia as likely to be successful in cases of rinderpest. In the neighbourhood of Denny, towards the ground of Falkirk Tryst, cattle have been dying of the disease since last Tryst. The favourite milch cow of a private gentleman was seized with rinderpest on Saturday morning. Between 2 and 3 in the afternoon it seemed to be expiring. The dose and application prescribed in the *Herald* were resorted to. In a couple of hours there was a copious evacuation, black as tar, and indescribably offensive. The cow soon looked somewhat better, but not quite satisfactory. The application was repeated, but without the dose which should have been given. Yesterday the milk began to return, and this morning she is greedy for food, chewing her cud and giving milk. They were giving her rice, which is harmless, and Lettuce, which I trust may not do her harm, but she should rather have got a little bit now and then of fine hay and some Linseed jelly, without any green food for a day or two.

I am greatly puzzled at what is done at present in some places, and can account for it only by the want of reason which distinguishes panic. An animal in a public market is seen to be unmistakably amiss, and be it's ailment or state of discomfort what it may, it is accused of rinderpest, and is condemned to die. It is sent to be transformed into what is called artificial manure, which manure must by and by be sent to the country; which manure, when at the farm, may be exposed to the dairy stock to sniff over, perhaps to walk through, on the way to their pastures; and which manure must, at all events, be spread on the ground to assist in producing a crop. What then? Will a panic arise against artificial manure made from rinderpest carcases? But this is not what most bewilders me. The animals among which the condemned one has been are permitted to be sold and taken all over the country. They may have the disease, though not so advanced as to show itself, but at any rate they may, and I believe do, carry the infection with them, to spread it wherever they go. In regard to pleuro-pneumonia, I know that it is as safe to introduce, among a clean stock, an animal visibly affected with that disease as it is to introduce one apparently well, but out of a herd where the disease is; and in regard to rinderpest I believe the same. If public markets are to be interfered with, the only policy which can be adopted with a probability of success is to stop all public markets for a stated time. At the same time the fact ought not to be ignored that, in this part of the country at least, more cattle have fallen before milk fever and pleuro-pneumonia, and more sheep have died of rot, than have yet perished naturally from rinderpest. Herds of dairy cows, to my own knowledge, have been swept away without a record against pleuro-pneumonia, but now there is not a solitary victim, real or supposed, of rinderpest which is not trumpeted forth as if the results were a judgment on the land instead of a blood-red condemnation of our want of science and skill. *Alexander Graham, Capellie, near Glasgow, Oct.* 9.

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3. On the Above.—I have read with much interest the letter of Mr. Alexander Graham. The following information may prove useful in the present emergency, as suggesting a preventive against the cattle plague, and it confirms the beneficial effects of the medicine which Mr. Graham recommends as a cure. I have for many years reared from 30 to 40 calves annually, and was subject to considerable losses in the autumn and spring from the young animals being attacked with quarter-evil, which carried them off in a few hours, selecting generally the most healthy and thriving.

On the recommendation of Mr. Hayward, of Folkington, Sussex, I have for the last 10 or 12 years administered to the young stock, in the early autumn and spring, before turning them out to Grass, a dose composed of two ounces of sulphur and one ounce of nitre mixed in a pint of warm water. I have not lost a single animal after, although I have on more than one occasion before, giving this medicine. Some weeks ago this dose was given to all my horned stock, some 160 in number, and it shall be repeated. I have found about one-half of the above quantity of sulphur and nitre given to each sheep in the spring decidedly beneficial. *John Thornhill Harrison, Stonehouse, Gloucestershire, Oct.* 13.

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4. Metropolitan Cattle Plague Committee.—At a recent meeting of a sub committee of the Metropolitan Cattle Plague Committee, Dr. White, of Hackney, said the present system of indiscriminate slaughter of the animals affected was a disgrace both to the veterinary and medical professions.

Mr. Guerrier said last Tuesday fortnight a herd of cattle, on landing at Harwich, were stopped on account of one animal which was supposed to have rinderpest. Of the herd 108 were killed in consequence, but the owner of 10 of them had the option of allowing his lot to undergo quarantine, and he availed himself of it. The result had been that the 10 were sold in the Metropolitan Market in a perfectly healthy state a few days ago. The whole of the 108 were sound when they were slaughtered, and they were killed simply because one of the herd was supposed to be infected.

Mr. Game, a member of the committee, mentioned another case. Of 22 milch cows, he said, belonging to a cow-keeper at Greenwich, 10 died, and four more became seriously ill, so much so that he sent to a "knacker," asking him to take them away. The reply was that he was so busy that he should not be able to kill them for a couple of days. Upon that the cow-keeper began treating the poor infected animals himself, using for that purpose drinks and such other remedies as he had long been familiar with. The result was that they had gradually recovered, and were now to be seen grazing in a field in the neighbourhood with other cows, and yielding milk in abundance.

Mr. Rudkin read a letter from Mr. William Jones, a cow-keeper, at 3, New Street, Whitechapel, stating that out of 30 cows, all of which had been condemned by the Government inspectors, he had cured 24, and giving a list of the cows so cured and to whom they belonged.

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5. Edinburgh.—The following is the report presented by the medical committee appointed by the Lord Provost and Magistrates of the city of Edinburgh to investigate the disease:—

The committee having been engaged only for the limited period of one week in the performance of the important duties committed to them—duties which necessarily involve the long, accurate, and patient observation of the phenomena of a new disease—cannot be expected at this early period to have completed the investigation in so thorough a way as to enable them to draw up a conclusive report. Having, however, been requested by the Lord Provost and Magistrates to prepare an interim report, in order to guide them as to the best means of preventing the spread of the disease, and to afford to owners of cattle practical hints as to what they should do in the present emergency, the committee beg to submit the following remarks founded on their observations and inquiries, so far as they have yet gone. The committee gladly acknowledge the valuable assistance which has been given them by Dr. Smart, one of their number, who has already made most important contributions to our knowledge of the pathology of Rinderpest, and whose zeal, ability, and perseverance in devoting himself to a scientific and experimental investigation of the disease is worthy of all commendation.

Having thus premised, the committee proceed to state their views in detail as succinctly as possible.

2. No amount of filth will generate Rinderpest *de novo*, but it undoubtedly predisposes cattle to take the disease by weakening their resisting powers; and it tends greatly to intensify the poison, and to help to propagate it. The poison of Rinderpest seems to be a specific poison, just as the poison of smallpox or of scarlet fever is a specific poison.

3. This contagion, then, consists of a subtle specific poison, inappreciable by the senses which is developed in the living bodies of cattle affected by the disease. Whether it can be propagated by inoculation is a question which still remains to be tested.

4. The poison of Rinderpest, in common with that of other diseases, technically called zymotic, when exuded from the lungs, or from the skin, or from the excretions of infected cattle, being introduced, chiefly as it is believed, by inhalation, into the lungs of healthy cattle, passes into the blood, where it multiplies itself. The whole mass of the blood becomes rapidly affected, and, thus changed, is carried in the course of the circulation, to every tissue and organ of the body.

5. It seems not improbable that infection may be carried by the poison adhering to the clothes of those in attendance on diseased cattle.

6. Whether sheep are liable to take Rinderpest, or whether, if not liable to take disease, they can, after being brought in contact with diseased cattle, carry the infection to healthy cattle, are problems which are now being submitted in this city to tests calculated to be decisive of these questions.

7. Howsoever the poison may have been introduced into the system, it is certain that for some days after its introduction, whilst the changes in the blood, already referred to, are going on, there may be, and there are in general, no external symptoms appreciable even by a minute and experienced observer; nevertheless there is little reason to doubt that during that period, which is technically called the period of incubation, animals thus infected are capable of imparting the disease to healthy animals with which they may be brought in communication.

8. The period of incubation seems generally to last for six or seven days, but it may extend to 10 or to 14, or even to 21 days, though these longer periods are probably exceptional.

9. If these views be correct, then it is obvious that not only is the isolation of healthy from infected cattle imperatively demanded, but that there is great risk, under present circumstances, in bringing together droves of cattle, as at fairs and markets, seeing that amongst them may be included infected animals capable of communicating infection, even though they may exhibit no outward symptoms of the disease detectable by the most experienced veterinarians.

10. It would appear to the committee to be the legitimate practical induction from these premises that fairs and markets for the sale of lean and store cattle should be for the present suspended. The greatest caution should also be exercised in regard to the traffic in fat cattle. If markets for fat cattle could be avoided, and some other arrangements could be made by which the butchers could supply themselves, that course would be highly desirable. But if such markets be unavoidable, then it would be desirable, as suggested by Mr. Swan, the eminent cattle salesman, that they should be held more frequently than at present—say twice a week instead of once a week—so that the lots of cattle purchased by the butchers might be at once slaughtered without any delay, instead of its being necessary to keep some of them for several days before being slaughtered, at some risk of spreading infection.

11. The committee are decidedly of opinion that cases of Rinderpest may and ought to be treated with a view to cure. They believe that the disease, especially if seen in its very earliest stages, is amenable to treatment; that even where the symptoms have lasted for some time, and have assumed a grave aspect, the case is not to be looked on as hopeless, and its treatment abandoned. They feel themselves warranted in stating their belief that, under proper tending, diet, and medical treatment, attention to all of which is essential to success, a not inconsiderable percentage of cattle attacked by Rinderpest may be saved.

12. The tendency of an epizootic, as of a human epidemic, to become milder in its type after it has lasted for some time, is known and acknowledged by medical men. If this hold good in regard to Rinderpest, as is most likely to be the case, it may fairly be expected that the disease will become milder and more tractable, and that the proportion of deaths will be notably diminished.

13. After what they have just said, the committee need hardly add that they deprecate and strongly protest against the system of indiscriminate slaughter which has been recommended, and to a large extent acted on throughout the country. This desperate course has probably caused the loss of many valuable animals, which, under appropriate treatment, might have been saved.

14. In the view of the successful treatment of Rinderpest, it is of the utmost importance that the disease should be carefully looked for, so that it may be detected in the early stage; and it is also of great importance that those who are in charge of cattle should be conversant with the earliest symptoms.

15. The Committee therefore deem it advisable here to give a brief description of the symptoms by which the disease may be recognised. They are as follows—viz., The infected animal looks dull, its ears hang backwards; its skin feels cold; it begins to loath its food, and soon thereafter ceases to chew the cud. The milk begins to diminish in quantity—it does not cease, however, to flow in the earliest stages; its quality is at first little altered, but soon becomes changed, and about the end of the first week, if not sooner, it is found to be scanty, thick, yellowish, and creamy. The earliest distinctive morbid appearance is seen in the vulva, which is unnaturally red, with generally a few bluish streaks, the red colour gradually deepening as the disease advances. At a considerably later stage there is superadded a raised, patchy, eruptive appearance. In all the stages, generally, though not constantly, there exudes a white stringy discharge. Simultaneously with the appearance on the vulva, the mouth also shows distinctive appearances. There is a marked bluish ring round the root of the teeth, gradually extending over the gum to the inside of the lip. These appearances on the vulva and in the mouth are seen in no other disease of cattle but Rinderpest. The pulse is always accelerated. The number of beats in health may be stated at 40 to 45 per minute in the field, and 50 to 60 in the byre. In Rinderpest the beats mount up to 80, 90, and 100. The respiration is also hurried—instead of from 18 to 20 inspirations per minute as in health, the inspirations in Rinderpest mount up to 40, 50, 60, or even considerably higher. Besides being quick, the breathing often becomes laboured and noisy. This is more especially the case when the disease is complicated with pleura—a not unfrequent occurrence. The bowels are generally costive in the early stage, though sometimes there is "scouring" (diarrhœa). When the case is going on unfavourably, the symptoms all become aggravated, the roughness of the muzzle of the lip increases, the strength diminishes, and the animal dies, apparently from exhaustion. When the case is going on favourably, the animal begins to look cheery, carries its ears forward, begins to take its food and to chew the cud, the milk returns and gradually assumes its natural appearance. The distinctive appearances on the vulva and inside the mouth disappear very slowly.

16. The committee do not consider it necessary on the present occasion to enter minutely on the pathological conditions of Rinderpest, especially as these have been so accurately described by Dr. Smart in his report, to which they refer those who wish to study them in detail. They would only here advert shortly to several particulars as elucidating the principles on which treatment should be based:—

A. The blood in Rinderpest is materially changed. It has a thick, black, tarry appearance. It sometimes coagulates, but oftener not.

B. Invariably in the early stage, even before the vulva and mouth have become affected, the lining membrane of the fourth stomach, and of the whole intestinal canal from that stomach downwards, shows appearances of disease. This is indicated by what is at first a mere blush of redness on the surface of the lining membrane, quite appreciable, however, when compared with the pale fawn-coloured appearance found in the healthy state. As the disease advances, the redness, which is due to congestion of the vessels, increases, and the membrane becomes altered and softened.

C. There is generally extreme loading of the stomachs with food, and the third stomach (the monyplies) is impacted with a hard, dry mass, which swells it out into the form of a large round ball.

D. The lining membrane of the air passages also shows a congested, red appearance.

17. Rinderpest is evidently a disease of low type, and the tendency to death is by exhaustion. This being the case, it is clear that violent and lowering treatment is wholly inadmissible, and calculated to operate most injuriously.

18. The committee would next allude to the particular indications of treatment. The animal should as soon as the disease is detected, be separated from other cattle, and placed in a comfortable outhouse, byre, loose box, or stable, well ventilated, but not cold. If wooden sheds be used, they should be so constructed as to admit of being easily kept warm—say at a temperature of about 70°. The greatest attention must, of course, be paid to cleanliness. The manure should be frequently removed, and all of it submitted to the action of disinfectants, of which the best is the chloride of lime (bleaching powder).

19. It is of great importance to promote the circulation of the skin, and to restore the natural heat of the surface. For this purpose the animal should be carefully and vigorously rubbed down, and then covered with a warm rug. Warm drinks of gruel, bran tea, or hay tea should be copiously administered, and these should constitute the only food of the animal in the early stage. The animal, which is generally thirsty, may be allowed as much cold water as it wishes. Stimulant diaphoretics and diuretics will also be found useful, as tending to promote the action of the skin and kidneys, and thus to relieve internal congestion, and to aid in eliminating the poison of the disease from the system. Dr. Smart's formula is 2 ounces of the aqua acetatis ammoniæ (Mindererus' spirit), with 1 ounce of sweet spirits of nitre; and with this he combines as a stimulant 6 drachms of the carbonate of ammonia in 9 ounces of water. This may be given three times in the day.

20. The loaded state of the alimentary canal, which is so constant an occurrence in Rinderpest, requires to be relieved by the use of mild laxative medicines, given very early in the disease. But strong saline and drastic purgatives must on no account be used, as their action would not only exhaust the animal's strength, but would prove most injurious by the irritation it would occasion to the mucous lining of the intestines in its highly congested and tender state. Professor Dick prefers as a laxative linseed-oil in doses of 16 ounces, to which he adds half a mutchkin of whisky. Dr. Smart recommends a laxative consisting of two ounces of sulphur, one ounce of nitre, one ounce of pounded ginger, and one pound of treacle, with water to make a quart.

In some cases scouring (diarrhœa) proves a troublesome symptom, for the relief of which Professor Dick recommends the use of lime water in doses of a quart, to which he adds from half an ounce to an ounce of laudanum, and this he gives three times a day till the diarrhœa has been subdued.

The use of stimulants should follow upon these remedies, or, if need be, they may be given simultaneously with them. The carbonate of ammonia is that which seems to act most beneficially, and this may be given in six-drachm doses three times a day. To promote convalescence tonics are prescribed. These may consist of either sulphate of iron in half-ounce doses, given twice a day as recommended by Professor Dick, or of powder of cinchona in doses of one ounce and a-half, given once a day as recommended by Dr. Smart.

21. Such is a sketch of what the committee consider a rational system of treatment, at once safe and simple. Cases of recovery have unquestionably taken place, some of them under the eyes of members of the committee, in animals so treated, and it seems worthy of a fair and extensive trial.

22. The committee are anxious to receive communications as much as possible in detail as to the results of the above or any other treatment that may be tried throughout the country. The committee entertain no prejudice for or against any particular system of treatment; they desire authentic information. They do not believe in any specific for the cure of Rinderpest. They believe that in this, as in all other diseases, sound pathological knowledge of the disease constitutes the only reliable basis for safe or successful treatment. They believe further that the treatment they have recommended can only prove successful if all the items be carefully and faithfully carried out in practice, whether as regards diet, regimen, tending, or medicine.

The committee have only, in conclusion, to ask indulgence for a necessarily imperfect report, and to state that they will continue their investigations both scientifically and practically, in the hope of being able ere long to communicate to the Lord Provost and Magistrates the result of further observations and experiments which may throw light on the steps best adapted for the prevention and cure of a terrible disease, which now constitutes nothing less than a national calamity.

Submitted in name and by appointment of the committee by
ANDREW WOOD, M.D., Chairman.

AGRICULTURAL MUSEUMS.

SCIENTIFIC naturalists are not the only special class who feel that they have a grievance in the management of our museums. The body in whom we are most interested—the agriculturists—more than any other has been neglected. If the present collections are hidden, unarranged, and imperfectly utilised, at least both the men of science and the general public must acknowledge that some efforts have been made to meet their wishes—specimens have been procured and immense stores of material accumulated. It is not so with the agriculturist—no effort at all has been made to provide materials from which his speciality may be studied; and yet, speak to any one on the subject of agriculture, and its importance and high position as a science will be at once admitted, and the justice of its claims for encouragement and assistance from the country readily acknowledged.

If that be so, it is singular how little its progress has been cared for. As to the formation of museums, it is almost literally true that everything that has been done has been the work of one single firm: with one exception, we believe that every existing museum has been more or less due to the exertions of Messrs. Peter Lawson & Son, the nurserymen, of Edinburgh.

The first agricultural museum which was formed was that of Messrs. Drummond at Stirling. This has been closed for many years.

The second was formed by Messrs. Lawson in connection with their establishment in Edinburgh. This was afterwards presented by them to the Highland and Agricultural Society, and wholly kept up at the Lawsons' expense until very recently.

The third was also made by Messrs. Lawson. It was a work of great toil and labour, and was specially prepared for the Great Exhibition in 1851. After the close of that Exhibition it was presented to the Museum at Kew (then in its infancy), where it remains a permanent attraction.

These gentlemen were also in 1855, on the occasion of the International Exhibition at Paris, intrusted by the British Government to illustrate the present position of Agriculture in the United Kingdom for the Exhibition. A very extensive collection was formed by them for this purpose, including a collection of heads of the principal breeds of oxen and sheep. At the close of the Exhibition the whole was transferred to the Conservatoire des Arts et Metiers at Paris, where it now remains.

The next was the Agricultural Museum of the Royal Society, Dublin. This also was, to a considerable extent, indebted to Messrs. Lawson & Son.

The Agricultural Museum at the Crystal Palace was also formed by the Messrs. Lawson.

The South Kensington Museum contains a tolerable but insufficient and unequal agricultural collection. The nucleus of this also was formed by the Lawsons.

There is an Agricultural Museum in the Royal Agricultural College at Cirencester. This was wholly formed by Messrs. Lawson & Son, and presented to the College, in token of the interest they felt in this useful institution.

The only existing museum in the formation of which these gentlemen seem not to have had a share is that of the late Professor Low, and which is now attached to the agricultural chair in the University of Edinburgh; but even here the whole of the vegetable products were prepared by the ubiquitous Lawsons for the learned professor.

It thus appears that the only national or university museum which has not ignored agriculture is the South Kensington Museum. That attached to the Edinburgh chair cannot be called a part of the University Museum; it is a class museum, which, it is unnecessary to say, is a wholly different thing.

Perhaps it may be pleaded by the British Museum that such a collection is not within its scope, being of a technical nature, and that the different objects of which it should be composed may be found in it under different heads, as botany, zoology, &c. The first excuse may be sound, but the second certainly is not. The breeds of cattle are not to be found in the British Museum, and the varieties of farm-produce are not to be seen either in the botanical department there or at Kew, excepting what has been done by Messrs. Lawson. But admitting that it is a technical subject, and therefore that it should be shoved off to South Kensington, let us see what is done for it there.

It may be taken for granted that Messrs. Lawson's part of the work, which more especially relates to agricultural vegetable products, is good; their past success is a sufficient guarantee of that: and a good foundation is usually the precursor of a good superstructure. The models and patents, of course, contain matter of much agricultural interest, but it has never been worked. It has been left to grow of itself, and of course great blanks and inequalities exist; but here the collection nearly terminates. Examples of the different breeds of domestic animals—one of the most attractive and interesting subjects of which an agricultural museum can take cognisance—are wholly awanting; for a head or two of a sheep or an ox cannot be called illustrations of breeds. These small nibblings at the subject show that it has been thought of, and that is all; they equally show that neither the importance of the subject nor the proper way to treat it has been understood; or, probably, it would be fairer to say, has not been recognised. The idea of palming off a stuffed head stuck against the wall as a representation of the entire animal or an illustration of a breed, could never have been seriously entertained as the "be all and end all" of the subject. It is obviously a compromise, by which an attempt is made to meet the call for illustration of breeds without putting the hand very deep into the breeches' pocket. It is a mere temporary sop in the pan, to tide the matter over for the present. Like all compromises, it is satisfactory to no one. It cannot be very satisfactory to the administrators of the funds to have expended a good deal of money uselessly, for the mere purpose of stopping exclamation for the moment; and it is less satisfactory to the agriculturist to be fobbed off with a parcel of useless heads when he wanted real illustrations. A head is utterly useless—it is worse than useless, for it may deceive. Two sheep, differing materially in other points, may be very much alike in the head. Perhaps our neighbours may think that, as Cuvier could reconstruct a whole animal from a single bone, the agricultural Cuviers of the present day should be able to divine the rest of the proportions of the animal from a sight of the head. Something, no doubt, may be learned from physiognomy; but we distrust it ever since our salad days, when some blockhead would insist that we had "a singing face," and on the strength of that deception visage called upon us, who do not know one note of music from another, to make a fool of ourselves for the entertainment of the company: so we should distrust any one who told us that the head of an ox on the wall had a milking face, or that its long nose portended long legs, or its broad cheeks a round barrel.

The thing is nonsense. If any good is to be done by a collection of this kind, it is absolutely indispensable that good representations of the entire animal, showing all its essential points, should be exhibited. It is the combination of characters which constitutes a breed, not any one special character, and the import of these characters can only be learned by taking them together, and seeing their bearing and relation to each other, and not judging from isolated portions.

The best mode of representing the different breeds is a matter of detail, and one attended with considerable difficulty. One negative point we have at least ascertained, and that is that it is not by stuffed heads. But will stuffed bodies do any better? There are a couple of stuffed sheep (merinos, if we recollect rightly) preserved in the Crystal Palace, but they have been preserved and stuffed with hay in the ordinary fashion, so that it depends upon the stuffer whether the points were preserved or not.

Those who have seen Mr. Waterton's collection at Wakefield will recollect the nondescript which he published as a frontispiece to his "Wanderings," which he challenged naturalists to make out, but which was merely a distorted skin of the head of some animal—it matters not of what animal, for almost any one would do equally well—fashioned while moist, and dried perhaps on a mould, so as to assume a human resemblance to the human countenance. The value of a specimen at all times greatly depends upon the stuffer. Those who excel are mostly men who have the natural instinct of an artist, and who, had they been educated, and had opportunities been afforded them, might have made themselves a name as sculptors or painters. But to show an animal's points it is necessary to know them. To throw the loose flapping skin of a sheep to a stuffer and tell him to stuff it as a Southdown will be of small avail unless he knows what a Southdown is; and even although he were supplied with a living model of a Southdown from which to work, he would still be at sea unless he knew wherein the points lay—where and what were the differences between a Southdown and all others, and even then the eye of an outsider might fail to distinguish traits which to the agriculturist are plain and distinguishable enough. It is plain, therefore, that stuffing will not do.

A better plan would be to make models of a perfect animal—perfect at least according to our present lights, as the points of perfection may vary as our knowledge increases and the breed improves. South Kensington should furnish this, and casts should be supplied at cost price to all the local agricultural societies or other institutions which desire them. They might be skilfully coloured, or supplied with a tight-fitting true skin stretched over the model, but even this might be dispensed with. A good coloured cast should answer all purposes. For cattle, we confess for the sake of increasing the interest and attractiveness we should like to see the cast bearing a skin.

The best test of the fitness of anything for its purpose is for one to put himself in the position of the person who is to use it, and, after trying it in imagination, to ask himself how it answers. Let us apply the test to the South Kensington Museum *qua* Agricultural. Let us suppose ourselves to be intending emigrants to Australia, visiting the museum in the expectation of learning something about sheep and wool, on which our future success in life is to depend. Every one knows that farming is

> "A liberal art, that needs no pains
> Of study, industry, or brains."

Unlike other things it requires no teaching; a knowledge of it comes by nature. It may therefore be assumed that we, in common with most other emigrants bent on undertaking the farming business, are innocent of all previous knowledge of the subject, and we come into the museum with our minds a perfect blank—a *tabula rasa*, on which is to be written the ideas that we may pick up in the course of a forenoon's stroll through it. We make for the wools, and we see an admirable collection of the different kinds, all assorted, and the various uses to which they are put admirably illustrated. We soon see or guess at the kind that is to be most profitable; but as to the beast which produces it, and the countries which suit it and those which do not, we are left in the most complete ignorance. In fact, the cart has been put before the horse, for it is much more important for the producer to know the right breed from which the material is to be obtained, than to see the uses to which it is to be put after he has produced it, sold it and pocketed the proceeds. His interest in it is by that time much enfeebled. There ought to be, not far from the wool, a good representation of the breed which produces it. It is surely a most grievous blank in any industrial and technical museum that there are no specimens of animals, the manufacture of which themselves, not less than the manufacture of the materials which they supply, occupies such a large share of the industry of our population. *Journal of Agriculture.*

STEAM CULTIVATION.

I HAVE received the following evidence upon this subject from Mr. Hutchinson :—

STEAM CULTIVATION.—Mr. Hutchinson has in partially prepared, and has disinterestedly to submit, the following statement of account to the thoughtful consideration of agriculturists,

SMITH'S SYSTEM.—INVESTMENT, £500.

One Portable Engine, 10 Horse Power; Cultivator 3 feet wide, 8 tines.

Cost in detail of Steam Cultivation in 1862, based on payments made for Steam Cultivation at Denton Lodge, in Bedfordshire, as published. *

127 days employed, 773 acres cultivated, 6 acres per day.

Manual labour for three men and four boys	£75	9	10	£93	12	1
Manual labour for three men and four boys, extra in harvest month	15	2	6			
Coals, 66 tons at 16s. 6d. on the farm				54	9	0
Oil, 14 gallons 1 quart	£3	18	0	24	5	5
Repairing and strengthening cultivating apparatus, **including iron shares** ..	20	7	5			
Horse and water cart 127 days at 4s., attendance charged above				25	8	0
Horses for moving engine and apparatus from field to field				4	10	0
One-third of 54*l.* 17*s.* ready money, value of steel wire rope, 1400 yards, ¾ inch in circumference †				18	5	8
Annual fund to produce 100*l.*, which, together with 54*l.* 17*s.* cost of wire rope above provided for, and 25*l.* 3*s.* value of old apparatus to break up at the end of 25 years, will give 180*l.* original cost of **apparatus at 3½ per cent.**				2	11	4
A year's interest at 5 per cent. on 180*l.* cost of apparatus				9	0	0
A year's interest at 5 per cent. on 320*l.*, cost of engine				16	0	0
Estimated cost of annual repairs of engine (cost this year 16*l.* 4*s.* 5*d.*) ..				16	0	0
Estimated additional cost every fifth year for thorough restoration of engine, 80*l.*, one fifth each year ..				16	0	0
Annual fund to produce 160*l.*, which, with 80*l.* above provided, and 80*l.* for old engine to break up at the end of **25 years, will give 320*l.* original cost of** engine at 3½ per cent.				4	2	2
Insurance of engine for 200*l.* against fire		1	1	0		
Three fifths of this sum to steam cultivation **and two-fifths to threshing corn,** cutting fodder, &c.		53	3	2	31	17	11
Cost of cultivation, 6*s.* 10*d.* per acre according to the above †				£263	19	8

* "Fire and Water *versus* Corn and Hay," an Essay on Steam Cultivation, rejected by the Royal Agricultural Society of England. Messrs. Simpkin, Marshall, & Co., London; or Lawrence Ridge, Grantham; and by order of any bookseller. Price 9*d.* (with a copy of this comparative statement appended).

† Since publishing the Essay it has been found by experience, that, instead of one half (27*l.* 8*s.* 6*d.*), one-third of the cost of wire rope, 18*l.* 5*s.* 8*d.*, would have been sufficient, reducing the cost 3*d.* per acre.

Now, sir, I must beg that you will allow me to make some remarks upon this.

It may be seen that my tackle, costing 500*l.*, is backed against Fowler's, costing 1378*l.* 14*s.* 9*d.* Fowler's was a double engine set, the Newcastle "best application," except that it is a few horse-power per engine more than the Newcastle "best application" was, which, as you know by advertisement in your Paper, I have held challenged for 1000*l.* ever since the Newcastle meeting. It may also be seen that my implement, 3 feet in width, worked by a 10-horse power engine, did 773 acres in 127 days, averaging 6 acres per day, whereas Fowler's 6-feet implement, worked by two 14-horse power engines, did only 691 acres in 125 days, averaging only 5½ acres per day. So much for the little implement and power as to quantity. [How about the depth of the work?—that ought to have been specified.] Now, then, for the cost.

To do 'the 773' acres' in 127 days, mine employed three men and four boys, at a cost of 93*l.* 12*s.* 4*d.* Fowler's, to do 691 acres in 125 days, employed four men and three boys, at a cost of 142*l.* 16*s.* 2*d.* So much for the little implement as to cost in manual labour. How many times have I been twitted about employing more labour than Fowler! It now turns out that in actual practice I employ the least, and at much the least cost.

Now for the coal. Mine to do this 773 acres consumed 66 tons, at 16*s.* 6*d.*, costing 54*l.* 9*s.*: Fowler's to do 691 acres consumed 154 tons, at 16*s.* 6*d.*, costing 127*l.* 1*s.* So much for the little implement as to the consumption and cost of coal, which is worth noting, especially as this Newcastle "best application" was reported to have done its work at Newcastle *almost* without any, though now in actual practice it burns more than double that of the little one.

Now for the wear and tear. Mine stands at 24*l.* 5*s.*, Fowler's at 40*l.* 15*s.* 8*d.* So much for the little implement as to its wear and tear. What will the Royal Agricultural Society of England's judges say to this, especially to those who have adopted, or are inclined to adopt, the application of steam—by far the cheapest and most effectual known mode of cultivating land.

If any disciple either of Smith or of Fowler think justice is not done in this parallel comparative account, he is free and is invited, [illegible], to make a statement of his own, founded on a well-kept account of one or other of the several existing steam cultivation companies, or of any private agriculturist.—*Manthorpe Lodge, Grantham, October 9, 1865.*

FOWLER'S SYSTEM.—INVESTMENT, £1378 14*s.* 9*d.*

Two Locomotive Engines, each 14 Horse Power; Cultivator 6 feet wide, 7 tines.

Cost in detail of Steam Cultivation in 1864, based on payments made by the Steam Cultivation Company, at Whitchurch, Shropshire, as published.

125 days employed, 691 acres cultivated, 5½ acres per day.

£112	16	2	52	16	5	Manual labour for four men, to June 30, as per published accounts.
			70	7	3	Manual labour for four men, to Dec. 31, as per published accounts.
			4	0	0	Manual labour for four men, by way of bonus, as per published accounts.
			15	12	6	Manual labour for three boys at 1*s.* each, paid by the employer.
127	1	0				Coals, 154 tons at 16*s.* 6*d.* on the farm (according to horse power as per contra), ditto
49	15	8	6	4	8	Repairs and oil to June 30, as per published account.
			19	18	0	Repairs and oil to Mr. Fowler to June 30, as per published account.
			14	13	0	Repairs and oil to Mr. Fowler to Dec. 31, as per published account.
			0	0	0	Repairs and oil to Mr. Smith to Dec. 31, as per published account (25*l.* charged below).
59	0	6				Horses, &c., to supply water to engines, 125 days at 8*s.* paid by employer
1	10	0				Extra coal for removing engines and apparatus from field to field, ditto.
2	19	0				One-third of 8*l.* 17*s.* ready money value of two steel wire ropes, each 1400 yards, and one 90 yards, ¾ inch diameter.
1	12	10				Annual fund to produce 64*l.*, which together with 89*l.* 17*s.* cost of wire rope already provided for, and 16*l.* 7*s.* 9*d.* value of old apparatus to break up at the end of 25 years, will give 170*l.* 4*s.* 9*d.* original cost of apparatus, omitting the four-furrow plough, 80*l.* not used, and 25*l.* for water cart above considered, at 3½ per cent.
8	12	1				A year's interest at 5 per cent. on 170*l.* 4*s.* 9*d.* cost of apparatus.
			60	8	6	A year's ditto at ditto on 1208*l.* 10*s.* cost of engines, &c.
			25	0	1	Estimated cost of annual repair of engines (say amount of Mr. Smith's **bill as per published account).**
			60	8	0	Ditto additional cost every fifth year for thorough restoration of engines, 302*l.* one fifth each year.
			15	10	5	Annual fund to produce 60*l.*, which with 30*l.* above provided and 20*l.* for old engines, &c., to break up at **the end of 25 years, will give 1208*l.* 4*s.*** original cost of engines at 3½ per cent.
			3	19	3	Insurance of engines for 755*l.* against fire
99	3	9	165	6	3	Three-fifths of this sum to steam **cultivation and two-fifths to threshing** corn, cutting fodder, &c.
£504	10	6				Cost of cultivation, 14*s.* 7*d.* per acre according to the above.

NOTE.—No notice has been taken of the cost of management or of the adaptability of the respective class of engines for threshing corn, cutting fodder, &c., in farm yards.

SUMMING-UP.—Had the Company invested 1500*l.* in three sets of Smith's appliances (requiring only 121*l.* 5*s.* 3*d.*, in addition to the capital, *treated*, above), it might have cultivated three times 773, or 2319 acres—or, at the most reduced calculation, three times 691, or 2073 acres in 125 days (one season), at a cost of 708*l.* 5*s.* 6*d.*; against 375 days (three seasons), at a cost of 1511*l.* 11*s.* 3*d.* with Fowler's appliances. Gentlemen, consider your verdict.

especially the Chester judges, where they awarded the great 500*l.* prize, and where they fixed my wear and tear at 20 per cent., and Fowler's at only 15 per cent.; and what is Mr. Amos's (the consulting engineer of the Society) judgment worth, when in actual practice the working of Mr. Fowler's most improved tackle comes out so much in excess in wear and tear of mine.

Now for the water supply. Mine cost 25*l.* 8*s.*; Fowler's cost 50*l.* So much for the little implement as to its water.

Now for the shifting of tackle. Mine cost in horse labour 4*l.* 10*s.*; Fowler's cost in the consumption of coal 4*l.* 10*s.* So much for the little implement that needs horses to shift it, for the big-un consumed its coal costing 4*l.* 10*s.*, while the master who kept the little tackle only paid the 4*l.* 10*s.* from one of his pockets to the other, for he would have been obliged to have kept the horses with which he shifted, whether he shifted with them or not. Those persons or company of persons who will have tackle to shift itself must pay dear for their whistle.

I need not trouble you with interest and other estimates, for they are all on the side of the little one, so much so that the little one's 773 acres were done at a cost of 263*l.* 19*s.* 8*d.*, or 6*s.* 10*d.* per acre; whereas the big-un's 691 acres cost 504*l.* 10*s.* 6*d.*, or 14*s.* 7*d.* per acre. This proves the soundness of my judgment when I challenged the Newcastle "best application" out for 1000*l.* (See your Paper every week since the Newcastle meeting.)

Here is a point that I must not overlook when reading on Fowler's side about "annual fund," &c. I read thus: "Omitting the four-furrow plough, 80*l.*, not used." Why, then, this Shropshire Company "pooh-poohs" the Royal Agricultural Society of England's judgment at Chester, where it awarded its great 500*l.* prize to this very old roll-over plough, the thing that the Royal Agricultural Society would have, with its man Fowler to work it, whether it would work profitably or not; for this Shropshire Company will not work it at all, and I know that they have a good reason (if they would tell us) for not using it. It is that it is very costly to work, and the work when done is of but little value. So much for Master Smith's little implement and tackle that did battle at Chelmsford in 1858—that has stood first and foremost in the battle ever since; and now it stands ready to do battle against any application, especially against a "best application," whether that "best application" be backed by a Royal Society or not.

Now, to support the preceding doings of the little tackle by "Smith," I will give you some evidence worked out this autumn by myself.

On Wednesday, Sept. 13, I brought out my old tackle, and at 9 A.M. it was fixed and started on my heavy land field No. 4; after doing that it was shifted to No. 3; after doing that it was shifted to No. 2, and after doing that it was shifted to No. 1, which it finished on Monday 25th, at 2 P.M. These four fields of hilly, uneven, and very heavy land contain 38 acres. On Monday afternoon the tackle was shifted two miles to my No. 3 light land, 13 acres, which was finished on Wednesday 27th, at 2 P.M., making a **total of 51 acres in 6½ days, or an average of nearly eight acres per day, shifts and all included.** The quality of the work, or rather smashing, done was first rate. The consumption of coal was 4 tons 3 cwt. **at 15*s.* per ton, which, with the labour,** made up a total of 3*s.* 8*d.* per acre, leaving the wear and tear, a **mere trifle,** to be added. From No. 2 light land the **tackle was shifted** to No. 5 light land, 12 acres, on which I set my steam-power ridging and subsoiling plough to work, ridging and subsoiling the land at one operation, and leaving it ready without any further operation for next year's root crop. This was finished **on Friday 27th at 6.10 P.M. This is the sum total of** my work for 1865. The total consumption of coal was 5 tons 14 cwt. I shall not need the tackle out again till after next harvest, yet my land is all clean, and may be kept so for ever with no additional yearly application of steam power beyond a similar application yearly to the one shown above. 112 acres is the extent of ploughed land.

Let our horse-farmers reflect over all this. They may be deaf to what I say, or blind to what I write, upon the question of steam cultivation; but the facts **above prove that it is their pockets that** go to rack for their deafness and blindness. I am speaking plainly to them, I know, and I mean it, for I have facts to support me. I have spoken plainly to the deaf ears and blind eyes of the Royal Agricultural Society of **England, and now I am laying** the plain facts of Mr. Hutchinson, with some evidences of my own, before them and the public, to awaken them one and all from their slumber. **I make no apology for this plain talk, for the case needs it.** *William Smith, Woolston, Bletchley Station, Bucks, Oct. 16, 1865.*

Home Correspondence.

Irrigation and Drainage.—I was interested in reading an article on the application of sewage at Croydon in the *Agricultural Gazette* of the 7th inst. Is there any instance of success where the sewage has been applied to a flat surface without natural or artificial sub-drainage? My own impression is that, as in the case of ordinary water meadows, sub-drainage is absolutely necessary. If any one of your numerous correspondents can answer the question, it will very likely prevent some grand mistakes being made, in many cases where it is intended to utilise the sewage of towns. *J. C. Clutterbuck.*

The Champion Wheat Crop of the Season.—In my letter in your Number of Sept. 23, page 903, I said:—"The facts were that on the 1st July I wrote to Mr. Bates that although my crop was much injured I should not withdraw. He and I at once named our respective members of the jury, all of whom declined to act. At length Mr. Bates wrote that he had secured Mr. Charles Howard and Mr. Hewitt Davis, whom I at once accepted as sole arbiters. At Mr. Bates's request I wrote to Mr. Howard, thus 'secured,' inviting him to Brighton, at which he expressed his surprise, saying that he had not consented to act." This is the exact truth. At the very outset Mr. Bates wrote that he had nominated Mr. Hadley, of the City Flour Mills, and I at once replied, naming Mr. J. A. Clarke, of Long Sutton. Then, immediately preceding the letters he **published last week, Mr. Bates wrote as follows:—**

(Copy) "July 11, 1865.

"Dear Sir,—I enclose Mr. J. Hadley's refusal. What is to be done next?—there is not much time to be lost.

"(Signed) CHARLES BATES."

Had he not most unfortunately omitted to send you this letter, he would not have even appeared to impugn my statement. I have just threshed my crop and beg to send you samples of it, which I think will bear comparison with any other in every respect. The weight is 63 lb. per bushel. I inclose my letter of the 28th June, and subjoin a statement of the crop, with the remark that this year upon similar light land you might have gone miles without finding a single acre with 40 bushels upon it. A neighbour occupying many hundred acres told me that his Wheat would not average 20 bushels per acre.

"June 28, 1865.

"Dear Sir,—The Wheat crop in this district was generally much injured by the severe and protracted winter. My competing field of 'Hunter's White' was half destroyed by the wireworm, and cannot possibly be the crop I had a right to expect as a fair illustration of the rational seeding which I

advocate. Although not a success, it is, however, not such a failure as to render the comparison (in the terms of our conditions of withdrawal) 'uninstructive and useless,' and therefore, although convinced that I cannot be absolutely successful, I wish the competition carried through, as I am equally satisfied that some deductions valuable to agriculture may be practicable. "(Signed) Fred. F. Hallett."

1864: Drilled with 12½ gallons of seed on 6¾ acres. 1865: Crop 44 bushels of well-dressed Wheat per acre, as sample sent; weight, 63 lb. per bushel. Including headlands of almost pure chalk; no manure or top-dressing applied. Only one bushel taken out of every 60 in dressing up the accompanying sample. *Frederic F. Hallett, The Manor House, Brighton, Oct.* 11.

[The Hunter's White Wheat sent to us is a bold, full-berried sample of grain, and an ear with 14 spikelets on each side, bearing three and four and five seeds each, or in all about 110 grains. The Velvet Chaff White is a rather clearer and finer sample of grain, and an ear with 10 and 11 spikelets on either side, containing three and four seeds each.]

Cattle Plague.—I venture to suggest that you would be doing a public service to the grazing interest, if you were to give in your columns a tabular statement of the counties and parishes in which the disease had broken out. It would direct the attention of parties interested to infected localities, and it would inform your agricultural readers, through the eye, of the progress or retrogress of the disorder. I subjoin my contribution to the tabular statement:—

County.	Parish.	How introduced; if known.
Cambridge ..	Mepal .. .. .. (No other place at present.)	By calves from the Metropolitan Market.

W. Marshall, Ely.

London Cow-houses.—There is much talk and writing about "Rinderpest," but there are quite pests enough at home without going to a foreign land for two additional syllables of which few know the meaning. I was in conversation this morning with a person who told me that he had seen in the neighbourhood of Bishopsgate Street a cow-house, with a number of cows in it, in which no daylight ever entered, or not sufficient, as gas was always burning; the only inlet for air (fresh—query) was the door, and there was the outlet for foul air also. I suppose there must have been considerable contention between the two airs as to entrance or exit. The cows remained in the house some 12 months or more, and I suppose were then sold out to be eaten. Can such a place be otherwise than the source of disease—is it not a centre or starting point to taint the whole neighbourhood? Can the cows be otherwise than diseased, tied up by the neck, in a vitiated atmosphere, with no daylight, and with unnatural food? Can the milk be otherwise than diseased, the people otherwise than diseased who consume diseased and putrid milk? And then, when the unfortunate cow can no longer give putrid milk, the diseased carcase is sold and consumed to breed further disease in man—and then comes in the medical man with his potions and pills, and nostrums, and wise saws. Twenty years back, when living in London, some milk, left over night, was put on the breakfast table; the putrid filthy smell emitted from it was most disgusting. It was the last time that I ever drank milk in my tea in the city. Fresh air, cleanliness, wholesome food, exercise, prevent disease—foul vitiated air, putrid food, filth, and being tied to a post for months together, produce disease. When will people awake and leave off wallowing in the mire of ignorance and stupidity, producing disease and death, and work for the apothecary, undertaker, and grave-digger. *One who thinks that a crust of wholesome bread is better than a pound of putrid flesh from a London Cow-house.*

Thistle Seeds.—Mr. J. J. Mechi mentions at p. 950, Oct. 7, that some say that they are carried five miles annually. One autumn I was with the members of a Natural History Society dredging some 14 miles out at sea off the east coast. The wind was east, and during the afternoon many seeds of Thistles passed by the ship It was thought they had come from the continent. I was told by a sea captain that he had at this season of the year frequently met them at 50 to 100 miles from land. *R. D.*

Farmers' Clubs.

Newcastle: *Oct.* 14.—The following resolution, moved by Mr. Wilson, of Woodhorn Manor, Morpeth, was this day unanimously adopted at a meeting of this Club:—"That this Committee petition the Home Secretary (Sir George Grey) to take measures to stop the importation of foreign (live) cattle and sheep for the next six months; this being in their opinion the only means of eradicating the Rinderpest from this country; and they recommend also that every facility should be given for the importation of dead meat, so as not to interfere with the supply of the food of the people."

Witham: *Oct.* 5.—At the annual meeting of this Society, which has been originated by the tenants of the Braxted Park Estate (but which, there is reason to hope, will shortly become a district Society, and occupy the same ground as the former Witham Society), the following discussion took place:—

Mr. Alderman Mechi said the people of this country now numbered nearly 30,000,000, and they must be fed; it was quite clear that to feed them some different mode must be used to the time when there were only 10,000,000 with the same area of land; and this called for great improvements and judicious investment of capital both on the part of the landlord and the tenant, because permanent agricultural improvement could only be carried out by the joint action of both. It was a very large subject, and he was not going into details, but of this he was sure, after 20 years' experience, that there was nothing more profitable than judicious agricultural improvement. Where a man could afford, as he could, to pay himself a double rental, and make 1*l.* per acre tenants' profit as well (and probably some did much better), it was unmistakable evidence that agricultural improvement was highly profitable. But, then, were they agreed as to what was agricultural improvement? (A Voice, "I should say not," and laughter.) He remembered being told 20 years ago by practical men of those days that water would never pass through stiff clay; but those 20 years had passed by, and he could now congratulate many of his friends upon having found the profit and advantage of draining stiff clays. Again, he was told that straw was of no use for feeding purposes, but he had lived to see the time when straw cut up fine and pulped with roots (he was not going to tell them all that could be done with a ton of roots) was used as food, and animals would grow fat upon it a great deal faster than they used to do. Upon covered yards, also, he had come to a definite conclusion; and he hoped the Chairman would make covered yards instead of those which had just been burnt upon Mr. Gooday's farm. They did not cost more, and if the straw was cut fine and put under the animals it could be carried direct to the land, and would produce more profitable results than if put upon a dung heap, twice turned and twice carted. They had convincing evidence of this in the sheep-fold—the simple application of the excrement to the soil, and its well-known beneficial results. These were points upon which he had made up his mind as sources of profit in farming. As to thin sowing, he thought he might congratulate the country, and this county in particular, upon the great change which had come over the notions of farmers in that respect. There was abundant evidence that the quantity of crop did not in any way depend upon the quantity of seed. They might put as much corn as they liked upon badly-farmed land and it would not produce a good crop; but where land was well drained and well filled with manure they would increase the produce. As an illustration he might mention that last year from one peck of Wheat per acre he grew 7 qrs. 3 bushels, and 2¾ tons of straw; this year, from half a peck per acre, he had 7 qrs. 2 bushels, but the straw they had not time to weigh. (Laughter.) Gentlemen laughed—(A Voice, "Well we may")—but he could tell them it was not for want of will. Last harvest, they would recollect, was a difficult one, and with several different parcels it was not easy to do it satisfactorily; but he believed they would agree that the largest quantity of corn almost always produced the greatest weight of straw. It was laid down by men of experience in the Royal Agricultural Society's Journal that where the corn was 30 per cent. the straw was 70 per cent., and he believed it to be a rule that the greater the crop the greater the straw. He didn't ask them to put in half a peck per acre—what he asked them was to make experiments for themselves, and adopt that from which they found the best result. When people told him they had not tried this or that, but they knew it would not do on their soil, he could not give them credit for being good farmers. Let them go on, throwing aside their strong old prejudices: if any gentleman would say he had tried a certain experiment fairly and found it not to answer, he (Mr. Mechi) was ready to take off his hat to him; but when he referred back to his father or his grandfather he could not value such a man's independence or his judgment. Of course they could not make improvements in agriculture without putting increased capital into the soil; but that capital would be found as it had been found in other cases. If any one 30 years ago had said that they could find 300,000,000*l.* of money to make railways and change the whole carrying system of the country, he would not have been believed; but that sum had been found, and he believed there was room to invest 400,000,000*l.* in the improvement of agriculture, and that such an investment would be very much to the interest of the country. He would now touch upon another subject. (Laughter). Were gentlemen amused at his having a good crop? He was happy to say that his 40 acres of Wheat averaged 7 quarters per acre.

Mr. Wakeling: I never knew a great man grow great crops but he soon failed.

Mr. Mechi would not enter upon that subject: but certainly no man ever grew rich by growing smaller crops than his neighbours. He would now enter upon a subject as to which there would be no difference of opinion. He was glad to see that the owner of Braxted Park had come out strong in agriculture. At one time he didn't profess to know much about it; but he had made progress; and in draining the field in which the ploughing took place to-day, the land had been greatly improved.

Mr. Quihampton: That was always a good field.

Mr. Mechi: I deny it.

Mr. Quihampton: It used to grow nearly 5 quarters per acre.

Mr. Mechi had passed the field nearly every [illegible] ing for the last 20 years, and had watched it [illegible] land was wet and the crops insignificant; but by [illegible] ing it 4 ft. deep the water after a fall of rain [illegible] off by the pipes, the crops throve, and [illegible] profits must naturally be increased. He [illegible] to be an instance of the spirit of their Chairman [illegible] he hoped Mr. Du Cane would go on in the path [illegible] cultural improvement. It cost money, no doubt [illegible] he hoped money would be poured into [illegible] abundantly, because he knew it would be paid [illegible] again. He reckoned that from 30*l.* to 35*l.* an acre [illegible] the fee simple of the land—might be well [illegible] covered yards, draining, and residences; and [illegible] outlay was judiciously made it would be better [illegible] landlord, better for the tenant to pay a proper rental, better for the labourer, and by reason of increase of produce, very much better for the country at large. He begged to propose the good health [illegible] their Chairman, and hoped he would long be spared [illegible] make himself useful in the cause of agriculture and [illegible] other ways.

Mr. John Hutley said they might look round for 50 miles, and they would find that those farmers who had kept, like himself, to the four-course system stood their ground the best of any men in the country. As steward to the late Lord Western he used to have little to do with these fine improvements, for if any new scarifier came out his Lordship would have it directly but he used to call them "nettle-creepers;" and [illegible] would repeat that the man who had been upon the regular system and did it well would best stand [illegible] ground.

Mr. Mechi: The "doing it well" means a great [illegible]

The Chairman (Mr. Du Cane, M.P.) said he had listened [illegible] the greatest interest to the speech of Mr. Mechi, and [illegible] of Mr. Hutley. He always liked to see the battle between the old world and the new carried out in an amicable spirit [illegible] of the objects of their Society was to promote free and [illegible] discussion upon all points connected with agriculture, and [illegible] thought that owners of land would probably find their [illegible] in carrying out a just mean between the extremes of the old world and the extremes of the new. It was stated a few [illegible] ago in a leading article in the *Times* that there were two [illegible] the British farmer never forgave—being offered advice [illegible] being congratulated upon his prosperity. He was [illegible] that both Mr. Mechi and himself had been guilty [illegible] the first unpardonable offence, but he certainly was not going to fall into the error of committing the second. He might congratulate them, so far as this immediate neighbourhood was concerned, that the harvest had been more abundant than that of other parts of the kingdom [illegible] might also congratulate them (and of course it was a subject [illegible] congratulation and of thankfulness), that in this neighbourhood they had been almost entirely free from the inroads of a fearful visitation—the cattle plague. But these were merely selfish subjects of congratulation. There was no doubt that, taking the country generally, the yield of [illegible] was very far below the average; and there was no [illegible] however free certain districts might hitherto have been [illegible] that plague was a fearful visitation, not only upon the farmer but upon all classes of the population. He trusted [illegible] hardly say that he sympathised very sincerely with them [illegible] in the calamity that had fallen upon him; and that [illegible] he spoke in his private capacity as a landlord, or in his capacity as a Member of Parliament, he should be [illegible] co-operate, as far as he could, in the efforts they were [illegible] so manfully and so independently to meet that calamity. At the same time, speaking in his private capacity, he was [illegible] prepared to go the length of some speakers in different parts of the country; for instance, he could not endorse the [illegible] of a brother M.P.—Lord Robert Montague—that it was the duty of the Government to re-imburse the farmer for every beast slaughtered by order of an inspector—that, in fact, the loss of individuals by the cattle plague should be made good at the expense of the general taxpayers of the country. He could not for a moment endorse such a [illegible] nary view. No doubt the farmers would be great sufferers, but the calamity would press not upon farmers only, but upon the lower portion of the middle class of society, and upon the whole of the industrial classes. For the present let them meet this cattle plague as they were now doing: let them combine together to form Mutual Insurance Societies, carry out as strictly as they could the orders of the Privy Council, and, above all, let them use the most powerful disinfectants and keep their cattle sheds as clean and well ventilated as possible. Should these means fail, it might be necessary for the direct interference of the Government, and that no cattle arriving from a foreign port should not undergo a certain quarantine. He hoped such steps might not be necessary, but that with their present exertions and precautions, and with the advance of cold weather, they might succeed in arresting the progress of this fearful disease. They were under a great obligation to Mr. Marks for the loan of his field, more especially since it had given rise to so [illegible] animated discussion. All he (Mr. Du Cane) knew was that he was informed that the field wanted draining, and he was anxious, to the extent of his means, to assist his tenant in carrying out reasonable improvements, he set to work and drained it according to the best authorities upon the subject of draining. There seemed to be a difference of opinion between Mr. Mechi and Mr. Quihampton as to the benefit of the operation, and he thought they could have no better authority than the tenant, who would be able to tell them what was the crop he got before, and the sort of crops he had got since. He gave them the health of Mr. Marks, with thanks for the loan of his field.

Mr. Marks, after returning thanks for the compliment, said with regard to the field in question he had one crop before it was drained, and since it had been drained he had [illegible] more corn. But he did not attribute the extra produce to the drainage, but to good farming. When he took it it was in a dreadful state of weeds; the seasons had been [illegible] he had farmed the land fairly, and had grown better crops than were grown before; but he thought in a wet season 4 ft. drains would be of no use, and that 3 ft. ones would have been better.

Mr. Quihampton had known the field 30 years, and for [illegible] years it was farmed by an intimate friend. He had [illegible] known it grow over five quarters an acre; and he was [illegible] lieve there was a better field upon the farm. Mr. Mechi had his own farm a bog, but most of it was worth [illegible] acre before he bought it. The extent of his drainage was about a couple of acres, and that had been blazoned [illegible] world as making "two blades of grass grow where one grew before." He called that humbug. Many of the [illegible] Mr. Mechi's farm better than he did himself, and [illegible] farmed it; and as for his advice he wouldn't give a snap [illegible] finger for it.

Mr. Fairhead, whose health was proposed in connexion with the kindred societies, said he should like to take a middle course in this discussion. For 14 years he had watched Mr. Meek's farming, and he must say he had learnt something worth learning; and even when he had seen things to be avoided he felt that the experiments had done good in that way. He certainly could not go with Mr. Hutley in stickling to the four-course shift. He should be puzzled to tell where he made his last crops, but his farm was always open to inspection, and he held that every farmer must be his own judge.

The Midland: *The Game Question.*—At the last general meeting of this Club this subject was introduced by Mr. Robotham, who said that to his own knowledge the produce of Mr. Benion's farm of 72 acres, at Buckley Grange, was sold in 1859 for less than 47*l.*, or about a thirteenth of what it would have brought but for the vermin called game. A rick of Wheat, the produce of 5 acres and a half, went for 5 guineas. There was also in Mr. Benion's possession a large quantity of meadow land, which was boned at the tenant's expense in 1857. There was no stock on it except rabbits from the 22d September, 1858, and its produce up to the 2d February, 1860, was sold for 7*l.* 9*s.* He could point to many instances in which tenants had been quite eaten out of house and home by game. It would be said that farmers suffering much from game might leave and take other farms. But that was, in most instances, impossible, because they were so impoverished by game eating their crops that they had no capital; while landlords who did not preserve game, being invariably improvers, required tenants with capital and skill. Besides the game-preserving, landlords' agents would not say much in favour of any tenant who had been troublesome about game. Excessive game preserving had a most discouraging and depressing effect upon tenants, for who could work so energetically and hopefully to raise crops which were sure to be eaten up by game, as he would if he had only the seasons to contend against? It was not wonderful that men having so much to discourage them should go on in the old jog-trot as long as they could, exhausting all their energies in efforts to meet current engagements; and when at length they failed to do that, the game preserver who had paralysed them swept away all they had for rent, leaving nothing for other creditors; and he could foresee that if the question were properly discussed, and it could be proved to the people of this country, that they were paying 2*d.* per lb. more for meat than they need do if game were not so excessively preserved, all classes would insist on a repeal or modification of the game laws. He had made a calculation by which he had arrived at the following conclusion—that of the 32 million acres of land in England there are 16 million acres on each of which there is, on an average, a hare or a rabbit. He considered that one hare to every 4 acres was a fair allowance for sporting purposes. Therefore there was an excess of 12 millions of hares or rabbits—say 6 millions of each—which for food would be worth, say—hares, at 3*s.* each, 900,000*l.*; rabbits, at 1*s.* each, 300,000*l.*; total, 1,200,000*l.* Taking it that two hares and one rabbit eat as much as a sheep, it followed that if only the excessive quantity of game were destroyed, 3 million more sheep might be kept, which, at 12 months old, would be worth 40*s.* each, making 6,000,000*l.* worth of food, instead of 1,200,000*l.*; or equal to an indirect tax of 4,800,000*l.* on the food of the people—as large a sum as would pay for all the cattle imported for more than a year. He only reckoned what food the game would consume; but it was well known that they destroyed much more than they ate. Besides, they were not killed off at a certain age like sheep. Therefore the sum set down as the value of hares and rabbits was much over the mark, while at the present prices the sum for the sheep was much under it; so that, taking it that two hares and two rabbits ate as much as a sheep and destroyed as much more, the indirect tax on food would be seen to be at least ten millions sterling—a greater sum, he believed, than was ever paid in one year in the palmy days of protection as a tax on food. In conclusion, Mr. Robotham read a letter which he had received from Mr. John Bright, M.P., in answer to an invitation to attend a public meeting on the subject. It was to the effect that he did not think much good could be done by holding a public meeting in Birmingham. The towns were known to be against the game laws, but so long as the county constituencies sent game preservers to Parliament, the members for towns could do nothing for farmers. "As to changes in the game laws," Mr. Bright went on to say, "I see no great good in them. What you want is the repeal of all laws which are made with the object of favouring the preservation of game. The fundamental principle of the tenant farmers should be this—that they should have absolute and undisputed ownership of, and control over, all animals which live upon the produce of their land. They occupy land and pay rent for it; they risk all they have—their money, their time, their labour, their hopes, their present and their future—in the cultivation of their farms. The horses, cows, sheep, and swine are theirs—the crops are also theirs, and the hares, and rabbits, and game of every kind living upon their farm should also be theirs. Till this is the settled law, and also the practice of the country, the tenant farmers will never hold the position to which they have a just claim, and the evils of game laws and game preservation will never be wholly removed."

Mr. Brawn said: While they could not but acknowledge warmly the efforts of some landlords to make the welfare of their tenants their chief concern, there was no wisdom in disguising the fact that there were estates where the tenant-farmer in his struggle for subsistence met with very little consideration; where game accumulated and crops decayed. As to the destruction of crops by game, he might state that during the present summer he met two persons from different parts of the country, and asked how were their Mangels? The answers of both were pretty nearly the same—"I shall have none; the hares ate them up when they were about the size of my finger." He would ask those gentlemen who were revelling in the prospect of 30 tons of Mangels per acre how they would like that? He might also ask how many tons of Mangels and how many carcases of beef and mutton each of those hares consumed whilst indulging in those finger luxuries! High farming and game preserving were utterly incompatible. He differed with Mr. Robotham in speaking of the "Night Poaching Act," as to a poacher being a thief. He thought it spoke volumes in condemnation of the game-preserving system that it made the tenant-farmer look upon the midnight depredator as his best friend, and the thief-catcher as his most inveterate enemy. That the game laws required alteration he thought was unquestionable, but he had not studied the subject enough to enable him to state precisely what that alteration should be.

Mr. Osborn was of opinion the excessive preservation of game was fast assuming the dimensions of a national calamity, and fast loosening the ties which had formerly existed between the cultivators and owners of the soil. It was, moreover, one cause of the increased price of meat of late years. Mr. Osborn then proposed:—

"That this Club desires in the most emphatic manner to call attention to the serious losses which are being inflicted upon tenant farmers in many localities by the excessive preservation of game, and to the necessity which exists for a general and earnest appeal to be made to landed proprietors, in order to induce them to take immediate steps for abating the evil."

Mr. Bigge stated that the discussion last autumn on farm agreements had induced him to take an opportunity which was afforded him of making some experiments on an estate of 8000 acres in Shropshire under his management. He discharged all the keepers, intimating to the tenants that the landlord was fond of shooting, and wished to reside on his property in amity with them all. They had liberty to course hares and to destroy rabbits at all seasons of the year by ferrets, but not to shoot on the farms. The result was that in a week's shooting this year 550 brace of birds were killed, instead of 250, as formerly. This was a practical proof that if farmers were treated in a liberal and straightforward manner by their landlords they would respond to it.

Mr. Masfen thought they were all running their heads against the supposition that the landlord was the owner of the hares, rabbits, and pheasants; but when they took a farm the game belonged to them, until they entered into a covenant with the landlord allowing him to reserve them; so that really and truly the giving of them up was the farmer's own act. The preservation of game debarred an enterprising man from investing capital in the land, as he had no security that he would be remunerated for his outlay. On one estate of 16,000 acres there had never been a reaping machine or steam plough allowed, and the tenants had been compelled to leave 5 feet of space on each side of the hedge-rows for game preservation. He had no wish to separate the interests of landlords and tenants, but they must try to shun men who imposed such restrictions. The underletting of game to a person who had no interest except in killing as much as he could was a great grievance. The winged game were not so prejudicial as the hare and rabbit vermin; and the farmers were willing to find fair sport for their landlords, but not for battue-mongers and professional poulterers.

The resolution was carried unanimously.

Mr. Osborn then moved—

"That the excessive preservation of game is not only injurious to the tenant farmer, but at the same time is a fruitful source of crime, entailing a great annual cost for prosecutions, which are increasing from year to year; while the game laws at present in force are most objectionable, as leading to the opinion on the part of a portion of the population that these laws are the result of class legislation, and prejudicial to the welfare of the community at large."

He remarked that during the last year there had been more than 10,000 prosecutions for infractions of the game laws, and he considered those persons who preserved game to an excessive extent, more particularly rabbits, were responsible for these prosecutions.

Mr. T. B. Wright, in seconding the resolution, referred to an article contributed to Morton's "Cyclopedia of Agriculture" by Mr. Bright, M.P., where the passage which had been quoted from the evidence of the late Lord Hatherton before a committee of the House of Commons would be found. That article had generally been considered to supply a fair and temperate view of the question under discussion; and he (Mr. W.) was of opinion that since it was written, about 20 years ago, some change for the better had taken place. As every one who took an interest in agriculture must know, there were frequent cases of great hardship inflicted upon tenant farmers by the undue preservation of game, but at the same time he thought there were some circumstances that might lead them to conclude that the evil was diminishing. During the discussions by that Club on the tenure of land, Mr. Randell had informed them that on some estates in Worcestershire the winged game were now alone preserved. Other instances of more just and liberal arrangements had been mentioned, and on these grounds they might hope that those landed proprietors who had not yet so fully recognised their duty in this respect, would be prepared to listen to the just complaints of their tenantry, and no longer subject them to a grievous wrong.

Mr. Robotham moved, as an amendment—

"That the present system of letting farms, wherein the landlord exercises the sole and exclusive right to the game is strikingly selfish and unsatisfactory in its operation, exhibits the fallen and se[illegible] mitting to the po[illegible] as exemplified in [illegible] ents, leading t[illegible] terminating in the ruin of the tenants. [illegible] for the exercise of joint and mutual co-operation of all parties interested by restoring a proper independence to the farmers, and rescuing their property from destruction."

Mr. Joseph Wright did not think it would answer the purpose of the Club to adopt Mr. Robotham's resolution, as the tendency of it would be to create enemies. They were making progress, but very slow indeed, for they found that only two or three landlords had adopted enlightened views in the course of the last 20 years, during which period many tenant farmers had been ruined. He thought they ought to act as temperately as possible in introducing the question. Mr. Robotham, in his paper, might have taken an instance in his own neighbourhood, where more than 2000*l.* a year had been taken out of the pockets of the tenants by the preservation of game; and now that they had a new Parliament, their grievances should be laid before it in the shape of a Tenant Right Bill.

After some discussion the original motion was carried. *Abridged from Midland Counties Herald.*

Reviews.

The Journal of Agriculture. No. 90. C. & E. Layton, 150, Fleet Street.

In the current number of this Journal the "Old Norfolk Farmer" writes of fish manure, describing the manufactory at Concarneau, in the department of Finisterre, and enumerating the various attempts which, with that exception, have hitherto been failures, to make the manufacture of fish manure a profitable undertaking. "Martin Doyle" describes the successful reclamation of seaside marsh land on the side of Wexford harbour. The farming of the upper ward of Lanarkshire is the subject of an interesting descriptive article. The three national agricultural meetings at Plymouth, Clonmel, and Inverness are respectively discussed. The Cattle Plague is the subject of two short papers. The series of contributions on Crops and Cropping and on Water and its Uses, respectively, receive additions. Farms and Farming Life in Flanders fill a sheet. Native and Foreign Fowls, Arboriculture, Fish Acclimatising, the Farmer's Note Book, and the Agricultural Summary for the quarter, fill the remainder of the work. Its contents are thus sufficiently various and attractive.

Farm Memoranda.

[We take advantage of the immense body of agricultural evidence lately taken before the Hypothec Commission at Edinburgh to publish such extracts from it as will indicate the existing style of Scottish agriculture, and the enterprise and energy of Scottish agriculturists.]

(Continued from p. 871.)

Howden, Selkirkshire: *Mr. Wm. Fletcher.*—I have been a farmer for 40 years, and my father and grandfather were farmers. Howden is about 700 acres imperial. It is nearly all arable. I keep nearly 400 acres in rotation, and the rest in pasture. The rent is above 500*l.* I have another farm in the north corner of Roxburghshire of 120 acres, rent 150*l.* I left an adjoining one at Whit Sunday last of 250 acres. I was a farmer in Lauderdale for many years. I have several times experienced inconvenience from the law of hypothec. On one occasion I bought, at a neighbouring farmer's door, a brood sow just about pigging, and unfit to be removed to the nearest market. I was anxious for that breed, and a few days after brought her home, a distance of about half a mile. She three days afterwards pigged a litter of 10 pigs; but the tenant was sequestrated a week after, and the landlord's factor demanded the sow back. I resisted on the ground that she could not be taken to any other market in the state she was; but the matter was referred to a highly respectable solicitor in Kelso, who gave it against me, and the sow had to be returned three weeks afterwards, with her 10 pigs. That was a loss of 5*l.*, and I felt much aggrieved. Another case was that of a farmer in Lauderdale, to whom I had sold some seed corn and never got payment. He was an excellent farmer, with 600 or 700 acres, of which 550 would be arable. In the course of four years he laid out 1100*l.* in lime, and he had required a cash-account from a banker in Galashiels to the extent of 1000*l.* His cautioner died, and he tried to get another, but every one to whom he went declined on account of the law of hypothec; and he came to me with tears in his eyes, and said he would be obliged to give up his farm. He lost about 2000*l.* in the farm—1100*l.* in lime, and

600*l.* in fencing and improvements; and though he had to pay for the straw of 200 acres when he entered, the landlord would not allow the creditors to take it, stating that the tenant was only entitled to it at the end of the 19 years' lease. The straw would come to more than 200*l.*; and he had put up a threshing-mill, for which he got nothing but the removal value. The rent was 630*l.*, but after his improvements it was let at a rise of 110*l.* on a lease of 19 years. I think the dividend was 8*s.* per pound to his creditors; the landlord was paid in full. The creditors allowed him 20*l.* to assist him to remove, and also two cows and all his household furniture; the landlord when applied to would not allow him anything. I believe he would have done well if he had got a cautioner, and that he would have benefited by his liberal outlay. His successor, I believe, made several thousand pounds out of the farm, and last year left to take a larger farm elsewhere. Had the money been his own, he would have carried on successfully; and had it not been for the law of hypothec, he would, I believe, have got a cautioner. If the law of hypothec were done away with, I see nothing to prevent a farmer getting money on loan as well as a merchant. I believe bankers are deterred from lending money by the law of hypothec. As one of the trustees I tried what we could to carry on the farm, but the landlord would give us no facilities. The creditors, without a dissenting voice, would have lain out of their money if the landlord had let us carry on the farm. The farmer was thought a first-rate farmer. Although he got a first cautioner, he could not get a second. He came to me and said that several of those to whom he applied would have lent him money but for the law of hypothec. I think the law of hypothec has a tendency to make the landlord depend not on character and skill, but on capital to stock the farm. *Q.* Your friend was ruined by farming on borrowed money, and you think the abolition of the law of hypothec would enable farmers more readily to borrow money?—*A.* I think it would be advantageous to the tenant, when he runs short, that he should not have to quit a farm in which he has sunk so much capital. *Q.* But under the law of hypothec the tenant virtually borrows money from the landlord for a year and a half or two years; is not that the most convenient way of borrowing money?—*A.* I am of a different opinion. I think the tenant gives as much credit to the landlord as the landlord does to the tenant. Suppose a farm of 500 acres of arable land, farmed under a five-shift course—that would make 200 acres of grain, 200 of Grass, and 100 of Turnips; and suppose the rent to be 32*s.* an acre, that is 800*l.*, entry at Whitsunday—by giving the tenant 18 months to pay, the landlord gives a credit of 1200*l.* Now turn to the other side. The first year of the lease the tenant has 100 acres of fallow land for Turnips; but at first he limes only 50 acres, which, at 3*l.* 10*s.* each, is 175*l.* The outgoing tenant has the straw of the waygoing crop, which the incoming tenant requires to purchase, 200 acres at 30*s.*—300*l.* The second summer he limes the whole of his fallow break—100 acres at 3*l.* 10*s.* each—350*l.* He has also to buy foreign manure for his Turnips, probably about 200*l.*; but I think the tenant gets the benefit of that to a certain extent, and I will count only the half sunk into the land. By putting in foreign manures the tenant gets a crop, which probably returns him half the value the first year, but the other half is sunk into the land. All these are outlays which the tenant, if he fails at the beginning of the lease, cannot carry away. He has generally to pay a considerable sum for carriage for building, and I think I am within the mark when I say 100*l.* for that. He cannot put up a threshing-mill under 100*l.*; and if thrown to the door, that is the best half of the price lost—50*l.* I have therefore shown that the tenant lends or sinks 1105*l.* to the landlord against 1200*l.* lent by the landlord, making a balance of 95*l.* for which the tenant only gets credit. All these sums so lent or sunk by the tenant could not be carried away by creditors, and would permanently benefit the land. *Q.* Is lime a permanent benefit to the land?—*A.* I would consider it should be taken out in 19 years. I go on the next year with my calculation, and show the tenant has sunk 1325*l.*, the landlord still crediting the tenant with 1200*l.*, for the tenant is always a year and a half behind. The tenant, in fact, is sinking more money every year for five or six years, and the whole value is often not taken out at the end of 19 years. It is the last five years of the lease that should realise the profit. It might be fair enough to ask the tenant to prepay or fore-rent the last five years of his lease or find caution for a year's rent. There is no danger the first 14 years of the lease, for the tenant is always putting in quite as much as the landlord is giving him credit for. All that is taken in Lauderdale for granted is, that he is a good, judicious, and liberal farmer. If the law were changed, I think the landlord would be more particular in inquiring into the character and skill of offerers. In Lauderdale it used to be the constant practice to advertise the farms. On stock farms, I think when entry is at Whitsunday the first payment should be the Martinmas following; it might even be Lammas, but on arable farms they ought to be back-rented. I know of a case where fore-rent was offered but refused, in consequence of the law of hypothec. The landlord, having the law of hypothec on his side, knew he would have a better competition without fore-rents. The landlord in question always took the highest offer. I never knew a case in which the highest offer was refused; and farms were sometimes let to people who were not practical farmers. One was a baker, who took a farm of 400 acres and failed, paying 2*d.* per pound to his creditors. I know of other two cases in Lauderdale where the landlord was paid, but the creditors got nothing. In that district there have been six or seven sequestrations in 10 years out of 20 or 30 farmers. The estate to which I refer has been much improved of late years by the tenants. I could mention a case there where a farmer laid out a great deal of money for improvements, but at the end of the lease another's offer was taken, and he got nothing for his improvements. Good tenants do not like not to be improving their farms. When I left my farm in Lauderdale, I expected to get it again. My rent was 310*l.* for 340 acres, and I had improved it so that it was worth a great deal more; but a man who had not been a farmer, and was reported to have a small capital, was preferred at 600*l.*—the landlord trusting to the security of the hypothec. It is commonly reported that the tenant has been sequestrated every year for three years. It is six years since I left Lauderdale. I am at present on the borders of the stock-farmers of the Duke of Buccleuch. They seem all to be safe. I am glad to say sequestrations are not frequent there. I do not hear the Selkirkshire tenantry complain of the law of hypothec. They are all in comfortable circumstances, being in the near neighbourhood of the Duke of Buccleuch. I am in favour of the total abolition of the law of hypothec. I think it would be hailed as a great boon by agriculturists generally. It would be a great improvement both to landlord, tenant, and merchant.

Miscellaneous.

Testimonial to Mr. R. O. Pringle.—A well-merited testimonial was recently presented to Mr. Pringle, who has been so long connected with the *Irish Farmers' Gazette*, and who has now undertaken the editorial duties of the *Scottish Farmer*. The presentation consisted of a well-filled purse of sovereigns and a very handsome piece of plate, with the following inscription:—"Presented, with a purse of sovereigns, to Robert Oliphant Pringle, by a number of friends in Ireland, in appreciation of his services in promoting agricultural improvements, especially while in connection with the *Irish Farmers' Gazette*.—Dublin, 28th September, 1865." Mr. Richard Chaloner, Kingsfort, Moynalty, who occupied the chair, read an address, to which Mr. Pringle made a suitable response.

A new Means of Increasing the Fertility of Land has been invented, and, it is said, successfully tried at Annaberg near Bonn. It is well known that humus, or upper mould, the most valuable constituent of soils, is formed by the action of the atmosphere on the animal and vegetable matter contained in the earth. The air, however, coming into contact only with the surface of our planet, this fertile substance is generated to but an insignificant depth, and after so many centuries of sowing and reaping covers the soil rather as a thin coating than as a distinct layer separate from the rest. The object of the new invention is to extend the generating of humus to the lower strata, by introducing air into the bowels of the earth. To this end pipes, very similar to the ordinary drains, but riddled with narrow apertures, are laid down at a depth of from 3 feet to 6 feet. Instead of a central drain, they lead to a hearth, where a fire rarefying the air causes a constant draught to pervade the pipes. The atmosphere thus freely entering and issuing from the pipes preserves its normal condition underground, and through the numerous apertures approaches the strata which contains the roots. Thus the soil is loosened, and penetrated by oxygen so effectually, that though the air from above may be shut out from the hearth, the fire will continue to burn all the same. The invention, or rather the experiment, which may be destined to mark a useful progress in agriculture, was first designed by Herr Nomenbruck, and executed under the superintendence of Dr. Hardstein, both attached to the Agricultural Academy connected with the University of Bonn. Although quite a new thing, it is stated to have already added to the capacities of the soil. *Times Berlin Correspondent.*

Calendar of Operations.

October.—*The Meat Manufacture.*—There is no more effectual method of increasing our supplies of animal food than the substitution of a green crop, such as the Vetch, the Cabbage, or the Mangel Wurzel—all clay-soil plants—for the naked fallow. The substitution could be effected without expense, that is, at a cost paid for by the additional returns it would produce; a crop of 24 tons per acre once in 4 or 6 years would be a clear gain of animal food to the amount of 90 or 60 lb. respectively per acre annually over those districts which admit of the change.'

Meat grows cheaply when cattle are treated according to their powers of converting food. To give the same rich food to an ill-bred steer as you would to a Short-horn or Hereford ox would result merely in the greater part of it being burned in the lungs of the animal, and most of the remainder being thrown into the dung-heap. Choose cattle, sheep, or pigs possessed of that tendency to early maturity which good breeding gives, feed them liberally on good food, cooked or crushed or pulped to facilitate digestion, and place them during feeding in warmth and comfort, and they will make meat rapidly and economically.

The greatest success probably is attained when you feed such cattle during summer in loose boxes, giving them fully-grown Italian Rye-grass and Clover, with two or three lb. of Bean meal over a little hay chaff daily. In September and October gradually accustom them to Swedish Turnips, and continue the hay chaff, adding to the Bean-meal about 1 lb. of Linseed-meal boiled to mucilage and thrown over it. When they take to Swedish Turnips wholly, *i.e.*, not more than of a cwt. daily a-piece—give them in addition 8 or 12 lb. of this hay-chaff, 1 or 2 lb. of Linseed-meal, and 3 to 5 lb. of Bean-meal daily, according to their size. In spring gradually displace the Swedes by Mangel Wurzel. And if the food is ever distasteful to them, change it—as Linseed and Beans for oil-cake, &c.

It is the most recent experience that roots should be pulped and mixed with chaff a day or so before being used.

Whether or not the advantage of pulping is derived from its inducing a larger consumption of straw first cut and mixed with the pulp than when offered to cattle uncut, it is decidedly an advantage to the arable farmer, for a large quantity of straw is on ploughland generally used wastefully in litter, and a portion of it will be saved for use as food with economy and profit.

The following memoranda on this subject, extracted from contributions to the twentieth volume of the English Agricultural Journal, appear to be conclusive on the subject.

Mr. Lawrence, of Cirencester, says:—

"We find that, taking a score of bullocks together fattening, they consume per head per diem three bushels of chaff mixed with just half a hundredweight of pulped roots, exclusive of cake or corn; that is to say, rather more than two bushels of chaff are mixed with the roots, and given at two feeds, morning and evening, and the remainder is given with the cake, &c., at the mid-day feed, thus:—We use the steaming apparatus of Stanley, of Peterborough, consisting of a boiler in the centre, in which the steam is generated, and which is connected by a pipe on the left hand with a large galvanised iron receptacle for steaming food for pigs, and on the right with a large wooden tub lined with copper—in which the cake, mixed with water, is made into a thick soup. Adjoining this is a slate tank of sufficient size to contain one feed for the entire lot of bullocks feeding. Into this tank is laid chaff about 1 foot deep, upon which a few ladles of soup are thrown *in a boiling state*: this is thoroughly mixed with the chaff with a three-pronged fork, and pressed down firm; and this process is repeated until the slate tank is full, when it is covered down for an hour or two before feeding time. The soup is then found entirely absorbed by the chaff, which has become softened, and prepared for ready digestion.

"We continue the use of Rape-cake as the most economical food, notwithstanding all that has been said and written against it. There is doubtless more or less Mustard seed often grown with the foreign Rape-seed. The essential oil generated from the former by the chemical action hereafter explained would be injurious to animals; but we have found this adulteration to be rendered quite harmless when exposed to a temperature of 212—the boiling point—and the soup allowed to simmer a few minutes at that temperature before it is thrown over the chaff. Our adoption of Rape-cake has been based on the comparative analyses by Dr. Voelcker, as the average result of his examination of several samples of each. These analyses exhibit very little difference in the feeding value of Linseed and Rape-cake, while the market value of the one is usually double that of the other. Our experience of the use of Rape-cake, thus used, extends over a period of ten years of feeding from 20 to 24 bullocks annually. We have not had a single death during that period, and the animals have been remarkably free from any kind of ailment. Rape cake not being as palatable to animals as Linseed-cake, we do not exceed 4 lb. per head per diem; and we add in the trough to each animal, with each mid-day feed, two lb. of meal. We rarely exceed this allowance, excepting in the case of very large oxen; we commence with one lb. of cake per head, and increase this gradually up to four lb., when we begin mixing the meal. We have found the cost, on an average, including attendance and fuel, to be 6*s.* per head per week, exclusive only of the cost of the chaff-cutting. One man and a lad, at 15*s.* per week, pulp the roots by a hand machine, and fill the litter, clean, and cook the food for 23 bullocks, and cut and steam the roots for and feed 24 fatting pigs, having the chaff only cut to their lands. This just fully occupies their time."

Mr. Duckham, of Baysham Court, Ross, Herefordshire, says:—

"The advantages of pulping roots for cattle are—Economy of food: for the roots being pulped and mixed with the chaff either from threshing or cut hay or straw, the whole is consumed without waste, the animals not being able to separate the chaff from the pulped roots, as is the case when the roots are merely sliced by the common cutter: neither do they waste the fodder as when given without being cut.

"2. The use of ordinary hay or straw. After being mixed with the pulp for about 12 hours fermentation commences, and this soon renders the most mouldy hay palatable, and animals eat with avidity that which they would otherwise reject. This fermentation softens the straw, makes it more palatable, and puts it in a state to assimilate more readily with the other food; in this respect I think the pulper of great value, particularly upon corn-farms where large crops of straw are grown, and where there is a limited acreage of pasture, as by its use the pastures may be grazed, the expensive process of haymaking reduced, and consequently an increased number of cattle kept. I keep one-third more, giving the young stock a small quantity of oilcake, which I mix with the chaff, &c.

"3. Choking is utterly impossible, and I have only had one case of hove in three years, and that occurred when the mixture had not fermented.

"4. There is an advantage in mixing the meal with the chaff and pulped roots for fatting animals, as thereby they cannot separate it, and the moisture from the fermentation softens the meal and ensures its thorough digestion; whereas, when given in a dry state without any mixture, frequently a great portion passes away in the manure."

On the value of the process for a grazing farm with but a small quantity of ploughland, Mr. Corner, of Woodlands, Holford, Bridgewater, thus speaks:—

"My plan is, first commencing with the grazing beasts, to cut about an equal quantity of hay and straw, and mix with a sufficient quantity of roots (mostly Mangel) to well moisten the chaff; and as the beasts advance in condition I lessen the straw and increase the hay, and in their further progress I mix—in addition to all hay, chaff, and roots—from six to ten lb. per day to each bullock of Barley and Bean-meal, according to its size—and I have them large sometimes. I sold last week for the London market a lot of Devon oxen, of very prime quality, averaging in weight upwards of 100 stone imperial each.

"For my horses, cows, yearlings, and oxen—the latter to be kept in a thriving condition and turned to Grass, and kept through the summer for Christmas, 1860—I cut nearly all straw with a very small quantity of hay, and this the offal of the rick. These also have as many pulped roots as will moisten the chaff, except the horses, and to them I give along with bruised Oats just enough roots to keep their bowels in a proper condition. To the two or three-year-old beasts I give some long straw and a part chaff and the offal (if any) of the food of the above lots of stock.

"My farm is but a small one, under 200 acres. My predecessor always mowed nearly all the pastures for hay, which is about half the farm, and with this scarcely ever grazed any beasts, and kept but very few sheep. Since my occupation I scarcely ever exceed ten acres of meadow with one field of seeds for hay. I keep from 250 to 300 large-size Leicester sheep, and graze from 20 to 25 large-size beasts a-year, with other breeding stock in proportion.

"I consider the pulping of roots is better for fatting pigs than anything else. My plan is to have a large two-hogshead vat as near the pulping machine as possible, so as to fill it with a malt-shovel as it comes from the machine; at the same time I keep a lad sprinkling meal (either Barley or Indian Corn) with the roots, and this is all done in 15 or 20 minutes: it is then ready for use to be carried to the pigs in the stalls alongside the fatting beasts. I never could fat a pig with profit until I used pulped roots."

On feeding horses with pulped roots, Mr. Slater, of Weston Colville, Cambridgeshire, says:—

"I give all my cart-horses a bushel per day of pulped Mangel, mixed with straw and corn-chaff. I begin in September, and continue using them all winter and until late in the summer—nearly if not quite all the year round; beginning, however, with smaller quantities, about a peck, and then half a bushel, the first week or two, as too many of the young growing Mangel would not suit the stock. I believe pulped Mangels with chaff are the best, cheapest, and most healthy food horses can eat. I always find my horses miss them when I have none, late in the summer. I give them fresh ground every day. Young store-beasts, colts, &c., do well with them; but I do not think they could be used with any advantage with a flock of sheep; they are, however, useful for fattening bullocks, inducing them to eat any food you may wish to give them."

These remarks illustrate the influence of the mode in which food is given upon the economy of the meat manufacture. Whenever the root crop is inferior, or the hay crop badly harvested, the pulper, for economising the former, and for enabling the easy consumption of the latter, is a great economy. Steaming food is another great assistance to the feeding. Mr. Lawrence's account of the advantage of steaming food has been already given.

Notices to Correspondents.

Diseased Wheat: *M A.* If you crush one of the grains and moisten it, and let it lie for a few hours and then examine it through a microscope, you will find it a mass of moving eel-like animalcules.

Potato Plough: *William Harmer.* "A. Z." probably referred to Howard's Potato Plough, but he will doubtless be kind enough to say.

Sainfoin, &c.: *Creta.* Will you excuse a week's delay? You shall have an explicit answer next week.

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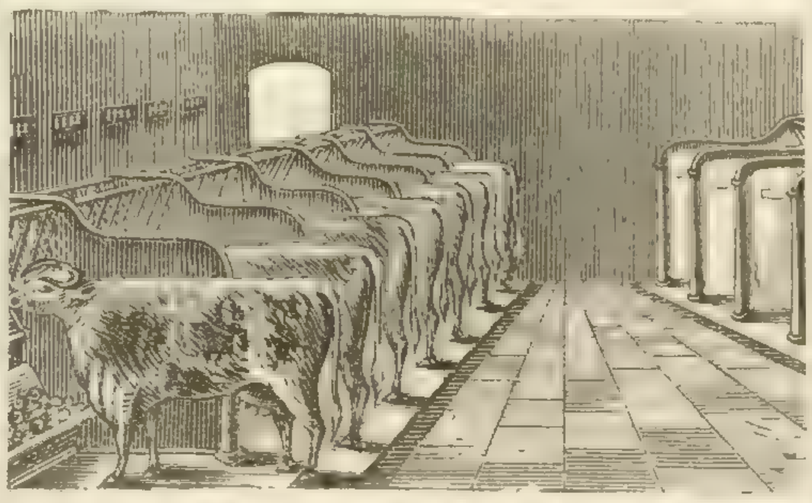

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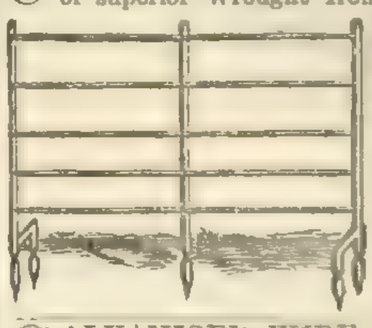

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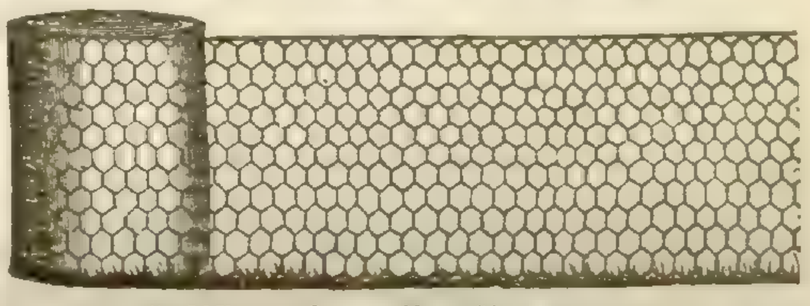

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Elisha Thomas Archer, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, and of all Nurserymen and Seedsmen throughout the kingdom.
"It is much cheaper than Mats as a covering."

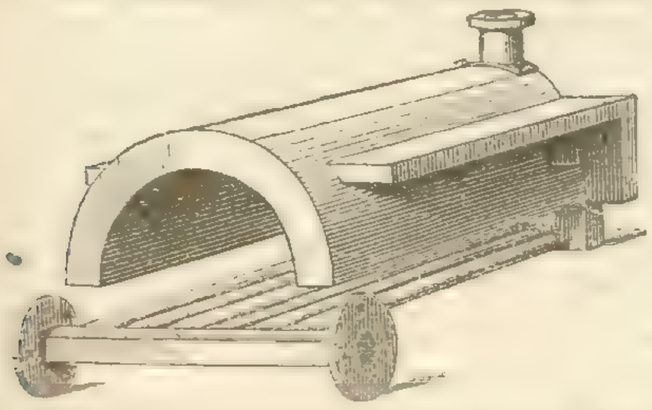
Exhibition Prize Medal, 1862.

HOTHOUSES for the MILLION.—On the principle invented and patented by Sir Joseph Paxton, M.P., combining simplicity, cheapness, excellence, and durability. SPAN-ROOF HOUSES, painted three coats, and glazed with English Sheet Glass, can be supplied ready for fixing, 21 ft. by 13 ft., 24*l.*; 43 ft. by 19 ft., 73*l.* 5*s.*; 64 ft. by 25 ft., 161*l.*

Illustrated Circulars, with Prices, can be had on application to Samuel Hereman & J. Morton, Agents, 7, Pall Mall East, London.

Also, A HANDBOOK on VINE and FRUIT TREE CULTIVATION, 2d Edition, price 1*s.*; post free, 1*s.* 1*d.*

By Her Majesty's Royal Letters Patent.



THE TERMINAL SADDLE BOILER.—This is the Old Saddle made perfect, by the addition of an upright terminal end piece, which quite closes the arch and side flues, and forms the back of the furnace, doing away with all brickwork at the end, and adding one-third more heating surface to the boiler just where it is most exposed to the direct action of the fire.

To be seen at the Royal Horticultural Gardens, South Kensington; and is at work at the Victoria Nursery, Holloway, Mr. Williams having kindly consented to show it to any one who will call at that Establishment. Circulars, Prices, &c., on application to J. Ireland, The Works, Edward Street, Broughton Lane, Manchester.

Midland Steam Power Horticultural and Hot-water Works, Loughborough.

T. G. MESSENGER, the Proprietor of the above Works, finding it necessary (through the great demand for his Horticultural Buildings and Heating Apparatus) to make large additions to his Premises, and to Fit the same with an entire set of STEAM-POWER MACHINERY, is now enabled to execute any Orders entrusted to him with the greatest dispatch, and at the lowest possible price consistent with good and substantial work.

Illustrated Catalogues, Working Model, Plans and Estimates, free on application.

Heating by Hot Water.

W. J. HOLLANDS, Iron Merchant, 31, Bankside, London, S.E.

HOT WATER PIPES, from Stock, per yard:—2-inch, 1*s.* 2*d.*; 3-inch, 1*s.* 10*d.*; and 4-inch, 2*s.* 4*d.* BENDS, from Stock, 1*s.* 6*d.*, 2*s.* 6*d.*, and 3*s.* each. THROTTLE VALVES, 10*s.*, 13*s.*, and 14*s.* each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day. A discount to the Trade.

Heating by Hot Water.

HOT-WATER PIPES, at Reduced Wholesale Prices, with Elbows, Syphons, Tee Pipes, and every other connection; Wrought and Cast-iron Boilers, Saddle, Conical, Cylinder, Tubular, and Elliptic, from 24*s.* each. Improved Boilers and Iron Stands to use without brickwork, 56*s.* each. Valves from 10*s.* 6*d.* each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Castings of every description in stock, at

Mr. LYNCH WHITE'S Iron Wharf, Upper Ground Street, Blackfriars Bridge, London, S. Price List on application.

CRANSTON'S PATENT BUILDINGS for HORTICULTURE, Highly Commended by the Royal Horticultural Society, South Kensington. Plans and Estimates free on application. Houses of the following sizes always in stock:—Span, 30 by 15 feet, and 24 by 12 ft.; Half-span, 24 by 10 ft.; Lean-to, 24 by 8 ft. Stereoscopic Slides of different houses post free for 6 stamps each.

Descriptive Book, fully illustrated, by post for 20 stamps from the Author and Patentee, James Cranston, Architect, No. 1, Temple Row West, Birmingham.

HOT-WATER APPARATUS for Greenhouses, Hot-houses, Vineries, &c. Estimates on application.

J. Jones & Sons, 6, Bankside, London, S.E.

For List of Prices see *Gardeners' Chronicle*, June 24, 1865.

BURY and POLLARD'S CONICAL BOILERS for HEATING by HOT WATER, fixed at Seats of Duke of Newcastle, Lord Belper, &c., at Viscount Sydney's replaced, after being 20 years in constant use. Apply at

17, New Park Street, Southwark, London, S.E.

BURY and POLLARD have just fixed, at Wollaton Gardens, for Lord Middleton, several BOILERS and LONG RANGES of PIPES.

Card.

SAMUEL N. McGERROW,

General Horticultural Builder,

Knotty Ash, near Liverpool.

Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

Horticultural Works, Kensal Green, London, W.

W. T. and J. TAYLOR (late John Taylor & Sons), have on hand for Sale THREE very handsome WOOD and GLASS CONSERVATORIES made to order. Two of them were prepared for a gentleman residing in Park Lane, an objection being raised on account of their intercepting the view from the adjoining houses. They were not fixed.

Designs and Prices fixed complete in any part of the United Kingdom forwarded upon application.

Cheap Greenhouse Stoves.

DEANE and CO.'S Patent VENTILATING and SUSPENSION STOVES are simple, cheap, and efficient; have been largely adopted and approved; will burn many hours without attention, and at a small cost for fuel. Prices of Suspension Stoves, 20*s.*, 30*s.*, 38*s.*, and upwards. Ventilating Stoves, 50*s.*, 60*s.*, 70*s.*, 90*s.*

HOT-WATER APPARATUS for Conservatories, Greenhouses, Hothouses, Forcing Pits, &c., erected and fitted up complete.

Deane & Co., 46, King William Street, London Bridge, E.C.

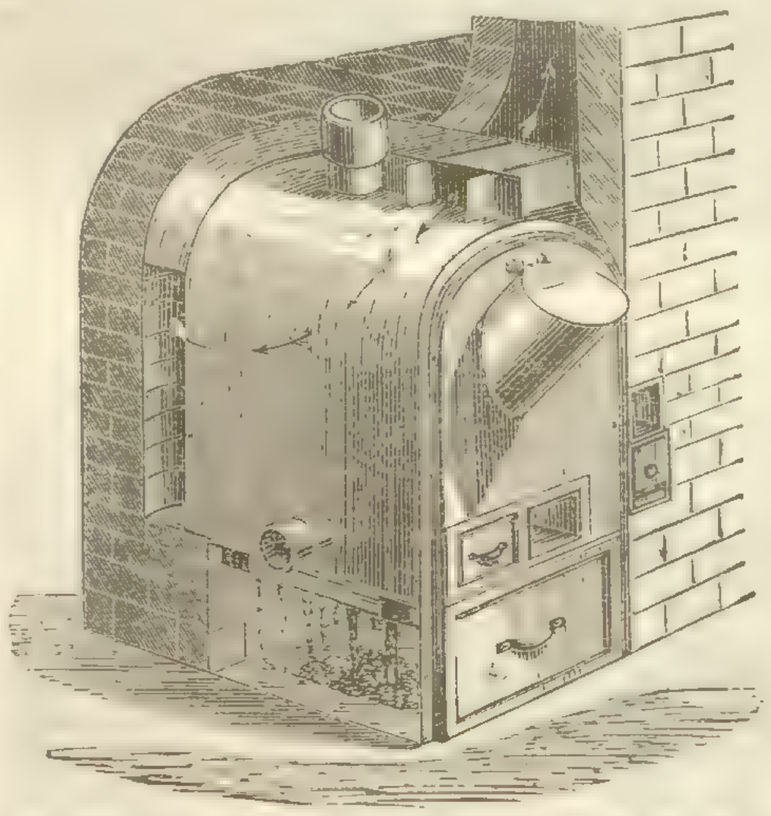
Established A.D. 1700.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

Milbank's Self-feeding Hot-water Boiler.

Manufactured and Sold only by

A. E. PHILLIPS, High Street, Chelmsford, Essex.



A. E. P. has great confidence in recommending this BOILER to Gentlemen, Gardeners, Nurserymen, and the Public, having for some time tested its capabilities. It is simple in construction, inexpensive in fixing, and the most economical in the consumption of fuel of any Boiler before the public. It is very powerful for heating purposes; the whole strength of the Fire is in contact with the water surface—no Brickwork absorbing the Heat. The new arrangement of the Flue Box causes the entire heat of the fire to circulate over the entire outside surface before entering the chimney shaft. The Boiler is set under a dome of brickwork, whereby a double action is given to the fire.

A. E. P. will be happy to forward a List of Testimonials.

Greenhouses, Conservatories, and all kinds of Glass Structures are erected by A. E. Phillips, at the lowest possible cost. Plans and Estimates given free of charge. Architects' Plans carefully carried out. Estimates for Heating Conservatories, Churches, Chapels, or Public Buildings, on the most economical principle. The proper execution of all works guaranteed. Experienced workmen will be sent to all parts of the country

The Only Stove without a Flue.

NASH and JOYCE'S PATENT, for AIRING, DRYING, and WARMING HALLS, SHOPS, ROOMS, &c., a new especial Stove for Conservatories, Greenhouses, Fruit-Ripening, &c.; to burn without re-lighting all winter by filling with fuel once 12 hours. Temperature, any degree required, without varying. Price from 12*s.* 6*d.* to 6 guineas.

MINCING and SAUSAGE FILLING and MARTICATING MACHINES of the best makers, 10*s.* 6*d.*

The COTTAGE KNIFE CLEANER is the only real Cleaner and Polisher of Knives at a moderate price 3*s.* 6*d.* to 10*s.* 6*d.* Prospectus post paid.

S. Nash, Ironmonger, 253, Oxford Street, W.C.; and Stove Depôt, 119, Newgate Street, London, E.C.

Greenhouses—Heating Apparatus.

DENNIS' PATENT METALLIC HORTICULTURAL BUILDINGS are made from the best wrought iron, upon an entirely new principle. The combination of Iron and Glass in this Patent is perfect; the possibility of fracture is prevented, and permanently water-tight roof insured. The leading practical advantages are extreme smallness of framing, admitting a maximum of light and heat, and perfectly neutralising atmospheric condensation.

They are thoroughly ventilated, exceedingly strong and durable, are speedily erected, and whilst maintaining their superiority for Conservatories of the highest order, are acknowledged by the most eminent Horticulturists of the day to be the "desideratum of perfection," promoting perfect symmetry of growth and richness of colour, both for Fruit and Flowers.

From the complete adjustment of the constructional parts of these patent buildings, their manufacture is so facilitated that a comparison in point of cost with perishable wooden structures is most favourable.

THE GARDENER'S OWN GREENHOUSE

(Lately known as Dench's Patent) is a Tenant's Fixture

The Patent, Plant, Business, Machinery, and all connected with the above, have been transferred to T. H. P. Dennis, who has determined to supply these really useful buildings at such a reduction of prices that every one desiring a Greenhouse may possess one.

Note.—A No. 1 Lean-to, 12 ft. 6 in. by 9 ft., including Lowest Price Glass, £16 12*s.* 6*d.*

T. H. P. D. has introduced most important improvements in the finish and construction, and after numerous experiments has succeeded in arranging them as a Tenant's Fixture, which he feels sure will be valued by gentlemen having limited tenures. With Mr. Rivers' adaptation they make excellent Orchard-houses, and afford all that can be desired in a profitable building.

Wood structures at the lowest price consistent with sound work.

Prospectuses and Estimates on application to T. H. P. Dennis, Horticultural Builder, Hot-water Engineer, &c., Chelmsford, Essex.

PATENT WORCESTERSHIRE RANGE.

PRIZE MEDAL 1862. Awarded for excellence.

The Advantages of the above Range.—Two Ovens are heated with the same amount of Coal as one of any other.

Convenience of Cooking. Great saving of Fuel and Labour, Universal Adaptability, Cleanliness, Comfort, Durability, and for simple arrangement is not surpassed.

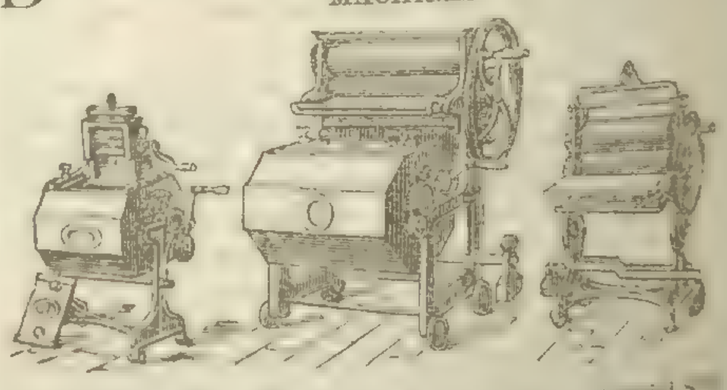
Warranted to CURE a SMOKY CHIMNEY.

Inventors and Manufacturers, Jones & Rowe, Worcester.

London Agents, Barron, Son, & Wilson, Ironmongers to Her Majesty, 436, West Strand.

ILLUSTRATED CATALOGUES, with Prices and Books of Testimonials, forwarded on application.

BRADFORD'S NEW "VOWEL" WASHING MACHINES

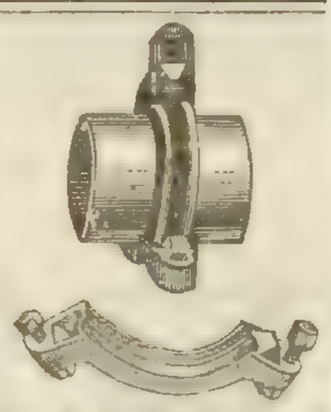


A remarkable success. Approved by Laundresses. Awarded Prize Medals this year (the only Medals at Dublin and Cork International Exhibitions). The letters of unquali[illegible] received from purchasers daily (many with permission to publish) justify the Patentees in publicly soliciting a trial, which is free of carriage or expense

Thomas Bradford & Co., 63, Fleet Street, London, E.C.; Cross Steps, Manchester; Dawson Street, Dublin. Catalogues [illegible]

HOT-WATER APPARATUS,

WITH TRUSS' PATENT PIPE JOINTS.



T. S. TRUSS, C.E.,

53, GRACECHURCH STREET, LONDON, E.C.

By means of these Joints the work is executed in less than half the time required for Socket Joints, and alterations can at any time be made, or the entire Apparatus removed and erected elsewhere with the greatest facility. A considerable saving in cost is also effected.

These Joints have been used for several years, giving entire satisfaction, and may be seen in use at the Royal Horticultural Society's Gardens, South Kensington and Chiswick, and many other places in Horticultural and Public Buildings.

For a few prices, see last week's Advertisement.

ESTIMATES, PLANS, AND PRICE LISTS FORWARDED ON APPLICATION.

NEW TARIFF OF GLASS AND HORTICULTURAL GOODS.

THOMAS MILLINGTON,

GLASS AND COLOUR MERCHANT,

87, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

HAND GLASSES.

PRESERVE JARS.

MILK PANS.

REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.

See Advertisement the first week in the month, or on application.

Shortly will be published, beautifully bound, from a design by JOHN LEIGHTON, *price* 10*s.* 6*d.*,

MRS. CAUDLE'S CURTAIN LECTURES.

ILLUSTRATED WITH A CHROMO-LITHOGRAPH, AND MANY WOODCUTS,

By CHARLES KEENE.

BRADBURY, EVANS, AND CO., 11, BOUVERIE STREET, E.C.

"OUVRAGE COURONNÉ" OF THE IMPERIAL SOCIETY OF HORTICULTURE OF FRANCE.

FRUIT TREES: Their Scientific and Profitable Culture. From the French of M. DU BREUIL, adapted for English Cultivators. With 191 Engravings. Price 6s. 6d. bound in cloth. "Will unquestionably teach how to prune and train fruit trees to perfection."—*The Field.*

WILLIAM WESLEY, Paternoster Row, E.C.

GENERA PLANTARUM ad exemplaria imprimis in Herbariis Kewensibus servata definita; auctoribus G. BENTHAM [illegible] Vol. I., Pars II., sistens Dicotyledonum Polypetalarum Ordines XI. Leguminosæ—Myrtaceæ. Price 14s.

LOVELL REEVE & Co., 5, Henrietta Street, Covent Garden, W.C.; WILLIAMS & NORGATE, 14, Henrietta Street, Covent Garden, W.C.

Caution to Gardeners.—When you ask for

SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get [illegible] SAYNOR, also the corporate mark OBTAIN [illegible] which both are genuine.

We regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by sellers and makers.

S. & C.'s Pruning and Budding Knives are the best and the cheapest in the market.

Paxton Works, Sheffield. Established upwards of 125 years.

George Hall, late Manager to the late Saynor's Firm.

HE WAS FOR 30 YEARS IN THEIR EMPLOY.

GEO. HALL AND SON'S Celebrated PRUNING and BUDDING KNIVES, SCISSORS, &c., may be obtained from the most respectable Nurserymen and Seed Merchants in the [illegible]

N.B. We only make one quality, the best that can be manufactured, regardless of expense, the same as the late Saynors always made during their lifetime.

Horticultural Cutlery Works, Sheffield.

JURY AWARDS, DUBLIN EXHIBITION.—Honourable Mention for IMPROVED STEAMING and BATH APPARATUS and appliances, awarded to FREDERICK THOMAS, 72, Bishopsgate Within, E.C. Bath-rooms fitted up in the best manner.

BROWN AND GREEN'S KITCHEN RANGES.—The PRIZE MEDALS, London, 1862, and Dublin, 1865. The New Patent, "A Close Range with an Open Chimney," cures smoky Chimneys, avoids all close heat or smell. Prospectus post free.

FREDERICK THOMAS, 72, Bishopsgate Within, E.C.

A CLOSE RANGE with an OPEN CHIMNEY.—Prize Medal awarded to BROWN & GREEN at the Dublin International Exhibition. No Smoky Chimneys. No close heat or smell.

FREDERICK THOMAS, 72, Bishopsgate Within, E.C.

DEANE'S, The Monument, LONDON BRIDGE, Established A.D. 1700.

DEANE'S TABLE CUTLERY, celebrated for more than 150 years, remains unrivalled for quality and cheapness. Stock is most extensive and complete, affording a choice suited to the tastes and purses of every purchaser. The following are some [illegible] Ivory-handled Knives, each blade being of the best [illegible] name, and warranted:—

	s. d.	s. d.	s. d.	s. d.	s. d.	s.	s.	s.
[illegible] per doz	12 0	14 0	16 0	19 0	23 0	25	29	33
[illegible] "	11 6	12 0	12 0	15 0	18 0	20	23	28
[illegible] per pair	5 0	5 0	5 6	6 6	7 6	8	9	11

ELECTRO-PLATED SPOONS and FORKS.—The best manufacture, well finished, strongly plated. Every article stamped with our mark, and guaranteed.

	Fiddle.		Reeded.		King's.		Lily.
	2nd.	Best.	2nd.	Best.	2nd.	Best.	Best.
Per oz.	s. d.	s. d.	s.	s.	s.	s.	s.
Table Spoons	33 0	40 0	44	58	54	66	58
Table Forks	31 0	38 0	44	56	54	64	56
Dessert Forks	23 0	29 0	32	40	37	46	40
Dessert Spoons	24 0	30 0	32	42	37	48	42
Tea Spoons	14 6	18 0	22	26	26	32	26
Gravy Spoons, each ..	6 6	7 6	9	11	11	12	10

DISH COVERS and HOT-WATER DISHES.—DEANE & Co. invite particular attention to their varied and excellent assortment of these Goods, to which they are continually adding all modern approved patterns in Electro-Plate, Britannia Metal, and Tin.

	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.
Britannia Metal, set of 5 ..	3 0	3 6	3 10	4 6	5 10	5 15
Britannia Metal, set of 6 ..	4 5	4 13	5 0	5 8	7 7	7 17
Block Tin, set of 6	0 18	1 10	2 0	2 2	2 8	2 17
" " 7	1 4	2 0	2 13	2 17	3 4	3 10
[illegible] Plate, set of 4 ..	12 8	12 12	14 0	5 0	15 15	26 4

[illegible] Illustrated Catalogue and Priced Furnishing List, gratis and [illegible]

[illegible] & Co., 46, King William Street, London Bridge, E.C.

BEDSTEADS, BATHS, and LAMPS.—WILLIAM S. BURTON has 12 Large Show Rooms, devoted [illegible] to the separate display of Lamps, Baths, and Metallic [illegible] The Stock of each is at once the largest, newest, and [illegible] ever submitted to the public, and marked at prices proportionate with those that have tended to make his establishment the most distinguished in this country.

Bedsteads, from .. .. .. 12*s.* 6*d.* to £20 0*s.* each.
Shower Baths, from .. .. 8*s.* 0*d.* to £6 0*s.* each.
Lamps (Moderateur), from .. 6*s.* 0*d.* to £7 7*s.* each.
All other kinds at the same rate.
Pure Colza Oil .. .. 4*s.* 3*d.* per gallon.

WILLIAM S. BURTON, GENERAL FURNISHING IRONMONGER by appointment to H.R.H. the Prince of Wales, sends a CATALOGUE gratis and post paid. It contains upwards of 600 Illustrations of his illimited Stock of Sterling Silver and Electro-Plate, Nickel Silver and Britannia Metal Goods, Dish Covers, Hot-water Dishes, Stoves, Fenders, Marble Chimney-pieces, Kitchen Ranges, Lamps, Gaseliers, Tea-Trays, Urns and Kettles, Clocks, Table Cutlery, Baths, Toilet Ware, Turnery, Iron and Brass Bedsteads, and Bed Room Cabinet Furniture, &c., with Lists of Prices, and Plans of the 20 large Show Rooms, at 39, Oxford Street, W.; 1, 1a, 2, 3, 4, Newman Street; 4, 5, and 6, Perry's Place, and 1, Newman Yard, W.

AUTUMN.—COUGHS, COLDS, ASTHMA, and INFLUENZA are speedily Cured by the use of SPENCER'S TONIC ELIXIR.—Prepared with great care by the Proprietors, [illegible] & Co., 8, Crane Court, Fleet Street, London, E.C. May [illegible] Medicine Vendors in the Kingdom, in bottles at 1*s.* 1½*d.* [illegible] each.

CORNS and BUNIONS.—A Gentleman, many years [illegible] tormented with Corns, will be happy to afford others the information [illegible] which he obtained their complete removal in a short period, [illegible] pain or any inconvenience.—Forward address on a stamped envelope to W. GOODALL, Esq., Epsom, Surrey.

Manufacturers to the Queen and Prince of Wales.

FRY'S HOMŒOPATHIC ROCK ICELAND MOSS PEARL COCOA.

FRY'S SOLUBLE CHOCOLATE.

J. S. FRY & SONS, Bristol and London, are the only English Manufacturers of Cocoa [illegible] Medals, 1862.

For Purity and Excellence of Quality,

COLMAN'S GENUINE MUSTARD

OBTAINED THE

ONLY PRIZE MEDAL

at the Great Exhibition, 1862.

Trade Mark, THE BULL'S HEAD, on each Package.

Their Genuine and Double Superfine are [illegible] particularly recommended for family use. Sold by all Grocers and Druggists.

J. & J. COLMAN, London.

Sauce.—Lea and Perrins'

WORCESTERSHIRE SAUCE.—This delicious Condiment, pronounced by Connoisseurs "THE ONLY GOOD SAUCE," is prepared only by LEA & PERRINS. The public are respectfully cautioned against worthless imitations, and should see that LEA & PERRINS' Names are on Wrapper, Label, Bottle, and Stopper. ASK FOR LEA & PERRINS' SAUCE.

*** Sold Wholesale and for Export, by the Proprietors, Worcester; Messrs. CROSSE & BLACKWELL; Messrs. BARCLAY & SONS, London, &c., and by Grocers and Oilmen universally.

DINNEFORD'S FLUID MAGNESIA.—The Medical profession for 30 years have approved of this pure solution of Magnesia as the best remedy for Gout and Stomachic disorders of every kind; and as a mild aperient it is especially adapted for Ladies and Children. Prepared solely by DINNEFORD & Co., Chemists, &c., 172, New Bond Street, London, W.; and sold throughout the World by all respectable Chemists. CAUTION.—See that "DINNEFORD & Co." is on each bottle and red label over the cork.

8th Edition, 13th Thousand, price 2*s.* 6*d.*; post free, 32 stamps.

HUNT on the SKIN; a Guide to the Treatment of Diseases of the Skin, Hair, and Nails, with Cases. By THOMAS HUNT, F.R.C.S., Surgeon to the Dispensary for Diseases of the Skin, 214, Charlotte Street, Fitzroy Square. "Mr. Hunt has transferred these diseases from the incurable class to the curable."—*Lancet.* "Many of these disorders have been only lately rescued from the class of incurable maladies. Among the labourers who have most contributed to this improvement Mr. Hunt takes a very prominent rank."—*Medical Times.*

London: T. RICHARDS, 37, Great Queen Street, W.C.

Valuable Remedies for the Afflicted.

DR. ROBERTS'S CELEBRATED OINTMENT, called THE POOR MAN'S FRIEND, is confidently recommended to the Public as an unfailing remedy for Wounds of every description, a certain Cure for Ulcerated Sore Legs, if of 20 years' standing; Cuts, Burns, Scalds, Bruises, Chilblains, Scorbutic Eruptions and Pimples on the Face, Sore and Inflamed Eyes, Sore Heads, Sore Breasts, Piles, Fistulas, and Cancerous Humours, &c. Sold in pots at 1*s.* 1½*d.*, 11*s.*, and 22*s.* each. Also the PILLS FOR SCROPHULÆ, confirmed by 60 years' experiment to be, without exception, one of the best alterative medicines ever compounded for purifying the blood, and assisting Nature in all her operations. Hence they are used in Scrofula, Scorbutic Complaints, Glandular Swellings, particularly those of the Neck, &c. They form a mild and superior family aperient that may be taken at all times without confinement or change of diet. Sold in boxes at 1*s.* 1½*d.*, 2*s.* 9*d.*, 4*s* 6*d.*, 11*s.*, and 22*s.* Sold Wholesale by the Proprietors, BEACH & BARNICOTT, at their Dispensary, Bridport; by the London Houses [illegible] and all respectable Medicine Vendors in the United Kingdom and Colonies.

Observe: No medicine sold under the above name can possibly be genuine, unless "BEACH & BARNICOTT, late Dr. ROBERTS, Bridport," is engraved on the Government stamp affixed to each package.

To Fruiterers and Greengrocers.

FOR IMMEDIATE DISPOSAL, a first-class BUSINESS as above, situated in one of the best localities, and doing a large Family Trade. Has been in the same hands for the last 10 years; now retiring from business.

Those who can command £500 may apply to J. E., 21, Queen's Road, Bayswater, W.

South Hampshire.

TO BE LET, a good RESIDENCE, and first-class FARM of 150 Acres, with Immediate Possession.

For particulars apply to Mr. JOSEPH BLUNDELL, Land Agent, &c., Bursledon, Southampton.

Surrey.—Sheep Farm.

TO BE LET, with Immediate Possession, a FARM, with suitable Dwelling House and Out-offices, containing about 170 Acres of Arable, and 152 Acres of Grass Land.

For Particulars and Rent apply to Mr. WOOD, East Clandon, near Guildford.—Hatchlands, Oct. 21.

Grafton Court Farm (Belmont Estate), near Hereford.

TO BE LET, from Candlemas next, the above FARM, now in the occupation of Mr. THOS. BIRCH, comprising about 111 Acres of Arable and 55 Acres of Pasture and Orchard Ground, the whole being thoroughly Underdrained. The Dwelling House and Farm Buildings are in good condition, and form a very superior Homestead.

The Terms and Conditions of Letting may be had on application to Mr. BAILEY DENTON, 22, Whitehall Place, S.W.; or to Mr. BIRCH on the spot.

Nursery Stock.

MR. A. RICHARDS will SELL on the Premises, Philip Lane, Tottenham, near the High Cross, on TUESDAY, October 24, at 1 o'Clock, the stock of EVERGREENS, including Common Laurels from 6 to 9 feet high, Portugal ditto, Aucubas, Arbor-Vitæ, Yews, Spruce Firs, Rhododendrons, Wellingtonias, Standard Roses, and Fruit Trees, &c.

Sales by Auction.

Fruit Trees, Shrubs, Roses, Dutch Bulbs, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, October 25, at half-past 12 o'Clock precisely, a First-class Assortment of Trained, Pyramid, Standard, and Dwarf PEACH, APPLE, PLUM, PEAR, and APRICOT TREES, STANDARD and DWARF ROSES; BULBS from Holland; SHRUBS; Rustic Garden Seats, Chairs, Tables, Stools, Baskets, &c.

On view the Morning of Sale, and Catalogues had.

Tree Ferns and Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, October 26, at half-past 12 o'Clock precisely, without reserve, a consignment, of DICKSONIA ANTARCTICA and ALSOPHILA AUSTRALIS, from Melbourne. Also two cases of TREE FERNS, imported by Mr. Cutter from Van Diemen's Land; and 50 lots of imported ORCHIDS, from Mr. Linden, of Brussels, consisting of Odontoglossum Hallii, Lycaste Warscewiczii, Cattleya Devoniana, and Oncidium (new species); and a small collection of choice established ORCHIDS.

On view the Morning of Sale, and Catalogues had.

Annual Sale of Quicks, Forest Trees, &c.

MESSRS. NEWBOLD AND OLIVER are instructed by Mr. S. Robinson, Shaw House, Melbourne, near Derby, to OFFER by AUCTION on TUESDAY, October 24, upwards of One Million Quick Seedlings, TRANSPLANTED [illegible] QUICKS, [illegible] of Customers.

Holloway.

IMPORTANT TO GENTLEMEN, NURSERYMEN, BUILDERS, MARKET GARDENERS &c.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. J. Martin to SELL by AUCTION, on the Premises, [illegible] Nursery, Holloway, close to the Seven Sisters Road Railway Station on the Great Northern line, on THURSDAY, October 26, at 12 o'Clock, without reserve, the ground being required immediately for Building purposes, the Whole of the [illegible] PLANTS, [illegible] Stove and Hard Wood Plants, [illegible] two Greenhouses, [illegible] over; two ranges of Pits, upwards [illegible] Purposes, several Lots of Building Materials, [illegible] effects.

May be viewed [illegible] had at the Premises, Seven Sisters Road, Holloway, N.; the Crown, Highbury, N.; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Sale of Dutch Bulbs, Standard and Dwarf Roses, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., on SATURDAY, October 28, instead of Friday, October 27, at [illegible] BULBS, [illegible] Hyacinths, Anemones, Crocus, Tulips, Ranunculus, Gladiolus, Snowdrops, [illegible] and DWARF ROSES, [illegible] AMERICAN PLANTS, [illegible]

On view the Morning of Sale. Catalogues had at the Rooms, as above; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Sunningdale Nursery, Bagshot, Surrey.

HIGHLY IMPORTANT AND EXTENSIVE SALE OF NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Noble to SELL by AUCTION, on the Premises, Sunningdale Nursery, Bagshot, Surrey, on MONDAY, October 30, and [illegible] in consequence of the [illegible] formation of [illegible] necessitates entire new arrangements and immediate [illegible] of the Stock, the valuable NURSERY STOCK, including an unlimited variety of EVERGREEN, CONIFERÆ, and DECIDUOUS SHRUBS, scarcely to be met with in any other Establishment, bearing perfect evidence of the most skilful and careful cultivation, [illegible] unprecedented opportunity to Noblemen, Gentlemen, and Public Companies forming and improving Plantations, and to the Trade for obtaining in large quantities that which is rare and excellent, comprising about—

10,000 Green Hollies, 1 to 7 ft.
3,000 Variegated and named Hollies, 1 to 6 ft.
3,000 Portugal Laurels, 2 to 4 ft.
15,000 Common Laurels, 2 to 3 ft., extra [illegible]
5,000 Berberis [illegible]
5,000 Berberis Darwinii, 1 to 6 ft.
3,000 Berberis dulcis, 2 to 4 ft.
20,000 American Arbor-vitæ, 1 to 2½ ft., fine.
[illegible] Thuja Warreana, 2 to 6 ft., and [illegible]
400 Thuja [illegible], 4 to 6 ft., bushy.
400 English and Irish Yews.
8,000 Laurus colchicum, 2 to 4 ft., very fine.
5,000 Cupressus Lawsoniana, 1 to 6 ft.
2,000 Abies Douglasii, 4 to 8 ft.
1,000 Abies nobilis, fine shape, 1 to 4 ft.
500 Abies Pinsapo, 1 to 6 ft., splendid specimens
Abies lasiocarpa, 2 to 3 ft.
1,000 A. Menziesii, 2 to 7 ft., extra fine
A. grandis
A. orientalis
5,000 matchless specimens of A. Nordmanniana, 1 to 7 ft.
1,500 Araucaria imbricata, very handsome, 2 to 10 ft.
1,500 Thujopsis borealis, splendid specimens
500 Pinus excelsa, 2 to 7 ft.
400 Pinus Cembra, 3 to 6 ft.
500 P. Strobus, 5 to 7 ft.
8,000 first-class P. austriaca 1½ to 2 ft.
100 P. Benthamiana, 4 to 7 ft.
200 splendid specimen Cedrus [illegible]
[illegible] taxus Fortunei-mas.
500 C. Fortunei-foem.
250 fine Juniperus chinensis 2 to 8 ft.
300 J. sphærica [illegible]
[illegible] 2 to 3 ft.
[illegible] Retinospora ericoides, 1 to 2 ft.
100,000 good stout Larch Firs
10,000 Spruce Firs, 1 to 2½ ft.
4,000 Skimmia japonica, 6 to 18 in.
500 Sweet Gale, 1 to 2 ft.
4,000 Deutzia [illegible] pleno, 2 ft.
1,000 Pernettya [illegible], 3 to 4 ft.
3,000 strong Spiræa, by name
2,000 Arundo conspicua
5,000 Ligustrum ovalifolium, 2 to 3 ft.
[illegible] Azalea [illegible], 1 ft.
[illegible] Yucca [illegible]
[illegible] L. [illegible] and [illegible]
[illegible] L. [illegible]
[illegible] Quercus Ilex

50,000 choicest named RHODODENDRONS, Standard and Dwarf, amongst which will be found 500 extra [illegible] and well grown Barclayanum; 500 Mrs. John Waterer, 500 John Waterer, 1000 Lady E. Cathcart, 1000 [illegible], 500 Grand Arab; 1000 caucasicum; 500 Brayanum; 500 Fragrantissimum, 500 Maximum; and also [illegible] Rhododendrons, [illegible] 1½ to 2 ft. Fruit Trees, [illegible] Named Standard and Dwarf Roses, [illegible] 50,000 one-year seedling Laburnums, English; [illegible] one-year seedling Sycamore, strong; [illegible],000 one-year seedling Spanish Chestnuts; 30,000 one-year seedling English and Spanish Chestnuts, two years transplanted, 1 to 1½ ft.; [illegible] Thorn Quickset, 1½ to 2½ ft.; 250 Scandinavian Mountain Ash; 500 Crataegus Ash, 1 to 1½ ft.; 500 Erica, by name; 500 Lily of the Valley; 500 Russian Violets; 5000 named Variegated and Green Ivies; 1000 White Spanish Broom, 2 to 3 ft., in pots; [illegible] Ac.

May be viewed until the Sale. Catalogues may be obtained at 1*s.* each, returnable to purchasers, on the Premises; of the principal Seedsmen in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex.

N.B.—The Railway [illegible] that Goods may be transmitted from Sunningdale Station to any part of England, Scotland, and Wales, without change of truck.

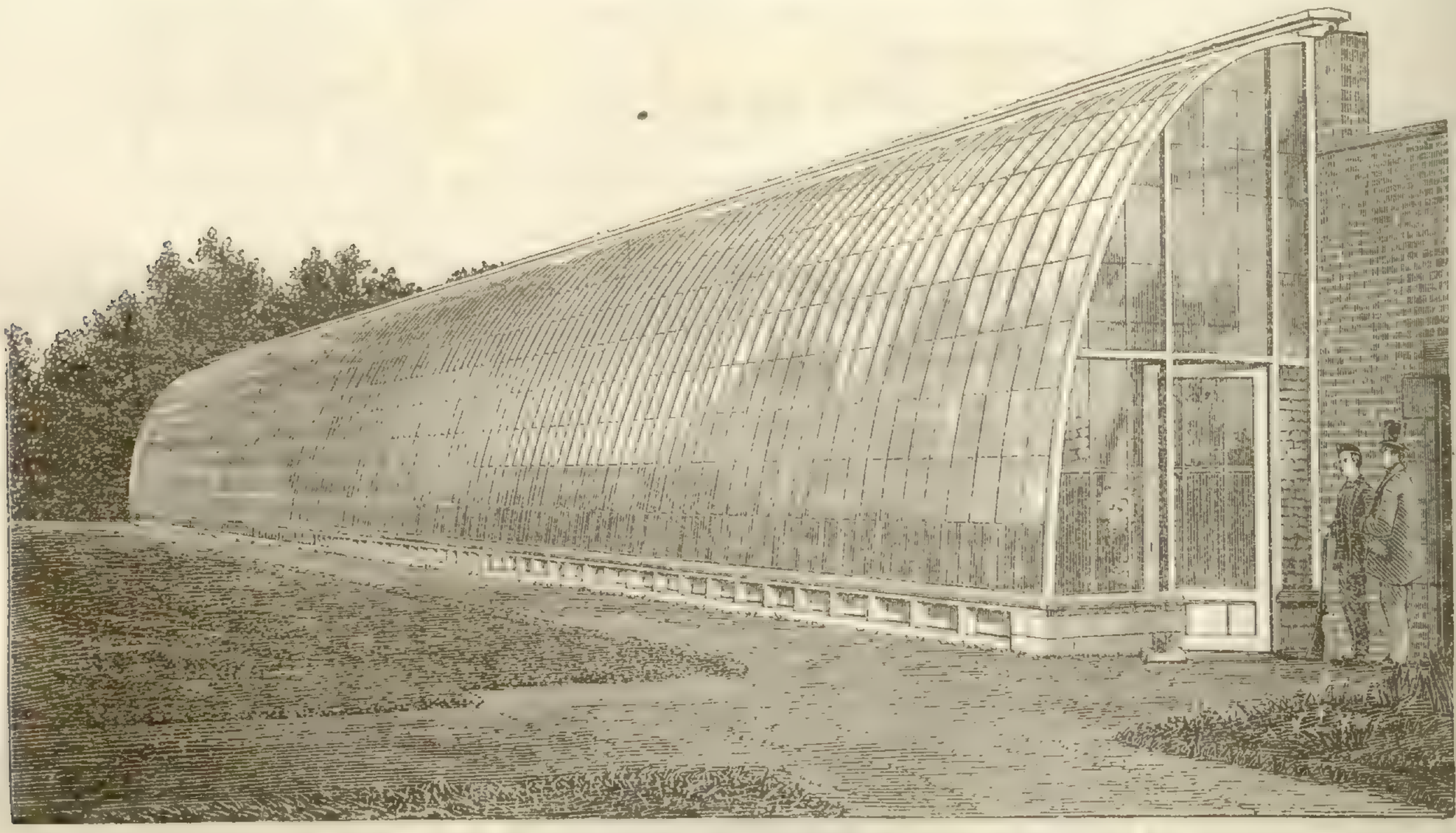
To Gentlemen, Nurserymen, and Others.

MESSRS. J. WATERER AND SONS will SELL by AUCTION, on TUESDAY, November 14, and the following days, at 11 for 12 o'clock precisely, on the Premises near Pervis's Bridge, Byfleet, Surrey, about two miles from the Weybridge and Woking Stations, by order of the Proprietor, without reserve, the Valuable NURSERY STOCK, comprising 4000 Standard, Half-Standard and Dwarf Perpetual Roses of the most approved sorts; [illegible] Conifers, including Lawsonianas, Menziesii, Wellingtonia gigantea, Cedrus Deodara, Pinus Picea, Thuja Lobbii, Thujopsis borealis, Abies Pinsapo, P. austriaca, P. Douglasii (3 to 5 feet), Cryptomeria japonica, P. excelsa, P. Webbiana, tortuosa, and others; 6000 Siberian and American Arbor-vitæ, 2 to 6 feet, 4 Arbor-vitæ, and 3 Yew Hedges, from 3 to 5 feet; 3500 Hybrid Rhododendrons, 700 Worked ditto, 50 Standard ditto, 14,000 Seedling and Bedded Rhododendron Ponticum, 40 Pans of Seedling ditto, 10,000 Seedling ditto, from 6 inches to 1 foot; 46 Pans of Seedling Pinus Laricio; 800 Azaleas, various; 300 Kalmia latifolia, 60 Rhododendrons, 17 Aucubas, 12 Phillyreas, 14 Laurustinus and 3 Heath, Stools and Layers; 5000 Green Hollies, 8000 Common Laurel, 600 Laurustinus, 600 Irish Yews, 1 to 2 feet; Silver and Weymouth Pine Firs; 3000 Spruce Firs, 1 to 3 feet; Hemlock Spruce, Aucuba [illegible], Fruit Trees and Plants, Red, White, and Black Currants, [illegible] Acacia, [illegible] Plantagenet, and a great variety of other Stock, the whole of which is in a most perfect and safe state for removing, having been transplanted within the last two years. Time for removing will be allowed until the 25th March, 1866, agreeable to the Conditions of Sale.

May be viewed one week previous to the Sale, and Catalogues had upon the Premises, and of Messrs. WATERER & SONS, Auctioneers and Valuers, Chertsey, Surrey, who will forward them on application by Post.

IRON HORTICULTURAL BUILDINGS

(DESIGNED BY MR. HALLIDAY, CHIEF GARDENER AT SCONE PALACE).



ALEXANDER SHANKS & SON

RESPECTFULLY SOLICIT THE ATTENTION OF THE NOBILITY, GENTRY, AND GARDENERS TO THE

IRON HORTICULTURAL BUILDINGS MANUFACTURED BY THEM.

The peculiarity of these HOUSES consists in the unique design of the Elliptic Girders, which are made of Cast Iron. These are quite light, but made strong by means of simple Tie Rods, so that Cross Bearers, Stays, Columns, and the other appliances met with in ordinary Wooden Erections are dispensed with, while lightness and elegance of appearance is at the same time secured. The advantages in point of durability and elegance of the Iron Houses over those constructed of Wood, will manifest in the specimens, that A. S. & Son have every confidence in referring to the Erections already put up.

TESTIMONIALS.

From James Alexander Pierson, Esq., *of The Guynd.*

"23d January, 1863.

"Gentlemen,—I delayed sending you my recommendation of the Peach House you erected for me last year, as I wished to see how it would stand the severe frost and stormy weather we have had.

"I am glad to say it has done you every justice, and, besides being a very ornamental and graceful light-looking building, it promises to be very durable, and the trees under it look very thriving. I can therefore conscientiously praise it, and would give it a preference over every other kind of building for the purpose.—I am, &c., "(Signed) Jas. Alex. Pierson."

From James Meikle, Esq., *of Wardieburn House, near Edinburgh.*

"Wardieburn House, Edinburgh, 25th February, 1865.

"Dear Sirs,—I have much pleasure in adding my testimony to the superior excellence of your Curvilinear Iron Girder Houses over ordinary wooden houses. Their spaciousness, airiness, and general elegance greatly overbalance any defect which may be supposed to exist in the difference between the heat-parting principle of wood and of iron, and the breakage of glass from the contraction of the iron in frosty weather, and its expansion in hot weather, is in my experience a mere myth; one pane only has been broken in my house during the past winter, which cannot be accounted for. There may be certain horticultural purposes where the more uniform the temperature is the better, neither too hot by day nor too cold by night, and for which *double* glass may be the most suitable. In such cases the framework may be more easily constructed of wood. But for an ordinary Vinery, Peach House, or Conservatory the Iron Houses are greatly superior. The expense, too, is not much greater, after taking into account the greater length of the curve over that of the straight line; and the heating arrangements, including the valves and the steaming trays, are excellent, and work very well, and I see no way in which they can get out of order. The valve is as tight as that of a gas-pipe, and there are no washers. In fact, there is nothing to decay.—Dear Sirs, yours truly, "(Signed) James Meikle."

From John Macnab, Esq., *of Findlater Lodge, Trinity, near Edinburgh.*

"Messrs. A. Shanks & Son, Arbroath, having recently erected a Conservatory for me here in immediate connection with my drawing-room, I have to express my entire satisfaction with it in design, execution, and working capabilities, as graceful, simple, and easily and effectively heated. I recommend Messrs. Shanks' Conservatories to all who wish to possess the most perfect and at same time moderately priced specimens of this kind. "(Signed) John Macnab."

From Hugh Mackenzie, Esq., *of Ardross and Dundonnell.*

"Dundonnell House, 14th November, 1863.

"Sirs,—Notwithstanding the continuous gales and severe weather, the Glass House finished, and the structure and design are so light and elegant, and at the same time so substantial effective, that it is most pleasing to the eye; and will, I am confident, give us full satisfaction is in full working order. Your men tell us that it is quite original in design, but I think it only to be known to make it a favourite one. For many reasons the curvilinear is, I think, better for Vineries, Greenhouses, &c., than the old lean-to, and is unquestionably more particularly when it adjoins a house, as ours does.

"I am very happy to have it in my power to bestow unqualified commendation upon and workmanship, and when it is in full operation I shall have much pleasure in letting you it answers practically. I am also happy to be able to bestow equal praise upon your workmen, been steady and zealous and well-behaved during the seven weeks they have been here.—I re

"(Signed) Hugh Mack

From Antonio Brady, Esq., J.P., F.G.S., &c., *Maryland Point, Stratford, E.*

"24th February,

"Gentlemen,—In reply to your letter just received, I have no hesitation in complying request you make for my opinion on your Horticultural Structures. They are in my preferable to wooden erections. The Conservatory you put up for me last autumn satisfaction. I feared the contraction and expansion of the iron might be dangerous to the am happy to say my fears have as yet proved groundless, for, notwithstanding the unusually changeable weather we have had this winter, not a pane has been broken by this cause. I wooden houses, but I give a decided preference to your Iron Structures as being more light as well as being cheap and durable.—I am, &c., "(Signed) Antonio Brady, J.P., F.G.S.

From the Right Hon. the Earl of Dalhousie, &c., *Brechin Castle.*

"7th June,

"Lord Dalhousie has much pleasure in expressing to Messrs. Shanks his entire satisfaction the Iron Orchard House erected by them in the gardens at Brechin Castle, both in regard beauty of the design, and the solidity of the work. He thinks it right to add that the charge work is very reasonable."

WOODEN HORTICULTURAL BUILDINGS.

ALEXANDER SHANKS and SON will be glad to furnish PLANS and ESTIMATES of WOODEN HORTICULTURAL BUILDINGS of every description to who prefer them to Iron Structures. It is almost needless to state that, in estimating for such Buildings, all the improved appliances for ample Ventilation and Heating which are introduced into the Iron Structures will, as far as practicable, be also introduced into the Wooden ones. A. S. & Son feel confident of ability to make such Structures as cheaply and as satisfactorily as is done in any part of the country.

HEATING BY HOT-WATER.

A. S. and SON have a staff of experienced Workmen in their employment for this particular kind of work; they at the same time take advantage of every approved application Manufacture of the Materials, and have consequently more than usual facilities for Erecting and guaranteeing a satisfactory Working Apparatus at a very moderate cost

CATALOGUES, WITH ILLUSTRATIONS OF HOUSES, ETC., FORWARDED ON APPLICATION.

PLANS AND ESTIMATES WILL ALSO BE FURNISHED.

ALEXANDER SHANKS and SON, DENS IRON WORKS, ARBROATH, N.B.; and
27, LEADENHALL STREET, LONDON, E.C.

A. S. & Son keep a stock of their celebrated Lawn Mowers at 27, Leadenhall Street, from which Orders can be at once executed.

Editorial Communications should be addressed to "The Editor," Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by William Bradbury, of 13, Upper Woburn Place, in the Parish of St. Pancras, in the Co. of Middlesex, and Frederick Mullett Evans, of No. 11, Bouverie Street, in the Precinct of Whitefriars, City of London, Printers, at their Office, Lombard St., Precinct of Whitefriars, City of London, and Published by them at the Office, No. 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said Co.—Saturday, October 21, 1865.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 43.—1865.] SATURDAY, OCTOBER 28. {Price Fivepence. Stamped Edition, 6d.

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GRAND EXHIBITION of CHRYSANTHEMUMS, MISCELLANEOUS FLOWERS, and FRUITS, in the GUILDHALL of the City of London, by the UNITED HORTICULTURAL SOCIETY, on TUESDAY and WEDNESDAY, Nov. 14 and 15. Intending Exhibitors may obtain Schedules on application to the Honorary Secretary. Certificates only will be awarded, as the profits will be devoted to the Benefit Fund. Carriage of parcels of Fruit paid from the country.
ROBERT P. GLENDINNING, Hon. Sec.
Temporary Offices of the Society, 56, Basinghall Street, City, E.C.

HORTICULTURAL SOCIETY of LIVERPOOL.—The THIRD GREAT EXHIBITION of CHRYSANTHEMUMS and FRUIT will be held in St. George's Hall on WEDNESDAY, November 22.
ENTRIES CLOSE on November 20. For Schedules, &c., apply to ROBERT W. KER, Hon. Sec., 4, Basnett Street, Liverpool.

H. AND F. SHARPE, SEED GROWERS and MERCHANTS, Wisbech.
SPECIAL PRICED LIST of NEW SEEDS on application.

Genuine Garden and Agricultural Seeds.
JAMES CARTER AND CO., SEED FARMERS, MERCHANTS, and NURSERYMEN, 237 and 238, High Holborn, London, W.C.

NEW and GENUINE AGRICULTURAL, GARDEN, and FLOWER SEEDS.
Special prices and advantageous offers on application to JAMES FAIRHEAD & SON, Seed Growers and Merchants, 7, Borough Market, London, S.E.

RAYNBIRD, CALDECOTT, AND BAWTREE, SEED FARMERS and MERCHANTS, 89, Seed Market, Mark Lane; and Basingstoke. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

HENRY FLINTHAM, SEED and FRUIT MERCHANT, Market Place, Rotherham.
Prompt Returns made for Consignments of Fruit and other Produce sent on Commission by Merchants or Growers. References to London, Liverpool, Hull, Scotland, or Ireland.

Fruiting Vines.
E. G. HENDERSON AND SON offer the above, with splendid Canes of well-matured growth, with prominent eyes, sure to give a heavy crop of fruit, 10s. 6d. each. LIST of SORTS sent on application.
Wellington Nursery, St. John's Wood, London, N.W.

Grape Vines.
S. GLENDINNING AND SONS have a splendid lot of extra fine Fruiting Canes. PRICED LIST may be had on application.
Chiswick Nursery, London, W.

Vines.
JOSEPH MEREDITH has his usual Stock of well-ripened PLANTING and FRUITING VINES.
The Vineyard, Garston, near Liverpool.

THE TRUE BLACK ALICANTE, a magnificent Late Grape.—The above variety may be had genuine from JOSEPH MEREDITH, The Vineyard, Garston, near Liverpool, who devotes nearly the whole of his Establishment to Vine growing.

QUEEN PINE SUCKERS for SALE. Warranted clean.
Apply to J. HANNAN, The Gardens, Cyfarthfa Castle, Merthyr Tydvil.

HEAVY LANCASHIRE SHOW GOOSEBERRY TREES, 6s. per dozen. CATALOGUES on application.
HOLLAND & JONES, Bradshaw Gardens, Chadderton, near Manchester.

Strong Standard Apples, Pyramid Pears, and LARCH FIR, 1½ to 4½ feet.
CHARLES BURGESS, The Nurseries, London Road, Cheltenham, has a fine stock of the above, and a general assortment of NURSERY STOCK. Prices on application.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

Hardy Ornamental Trees and Shrubs.
OSBORN AND SONS invite lovers of Ornamental Planting to an inspection of the varied forms and foliage of their unrivalled collection of the above, to which they have for many years devoted especial attention.
PRICED CATALOGUES, consisting of upwards of 1500 species and varieties, may be had on application.
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THE CLIVEDEN COLLECTIONS of SPRING BLOOMING PLANTS, 12s. 6d., 25s., 50s., and 100s.
For particulars see our AUTUMN FLORAL GUIDE.
BARR & SUGDEN, 12, King Street, Covent Garden, W.C.

J. IVERY AND SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

Dutch and Other Flower Roots.
BUTLER AND McCULLOCH'S AUTUMN CATALOGUE of the above sent free by post on application.
BUTLER & McCULLOCH, Seed Merchants, South Row, Covent Garden Market, London, W.C.

Dutch Bulbs.
CHARLES TURNER is prepared to execute orders with the finest varieties of HYACINTHS, TULIPS, CROCUS, NARCISSUS, &c. The roots have arrived in fine condition. CATALOGUES on application.
The Royal Nurseries, Slough.

DUTCH BULBS.—A large Collection, in fine condition, at unusually low prices.
R. GREEN, 154, Kingsland Road, N.E.; and the Bedford Conservatories, Covent Garden Market, W.C.

Hyacinths, and other Dutch Bulbs.
WM. HOOPER has received large consignments of the above, of best quality, and in excellent condition. CATALOGUES free on application.
St. John's Hill Nursery, New Wandsworth.

Hyacinths and other Dutch Bulbs.
WM. CUTBUSH AND SON beg to acquaint their numerous Patrons that they have received their usual Consignment of Choice HYACINTHS, TULIPS, CROCUSES, &c. PRICED DESCRIPTIVE CATALOGUE post free on application.
Highgate Nurseries, London, N.

The Best Twelve Hyacinths Imported by SUTTON AND SONS, for Twelve Shillings.
SUTTON & SONS, Royal Berks Seed Establishment, Reading.

Finest Dutch Flower Roots.
SUTTON'S AUTUMN CATALOGUE of the above is now ready, and may be had gratis and post free on application.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Sutton's Unrivalled Collections of Bulbs.
SUTTON'S GUINEA COLLECTION of BULBS for BLOOMING in POTS and GLASSES.
SUTTON'S GUINEA COLLECTIONS for BEDS and BORDERS.
For particulars see SUTTON'S AUTUMN CATALOGUE, which may be had gratis and post free.
SUTTON & SONS, Royal Berks Seed Establishment, Reading.

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SPRING GARDENING.
200,000 CROCUS, 100,000 SNOWDROPS,
50,000 HYACINTHS, 100,000 TULIPS, &c.
BARR & SUGDEN, Seed and Plant Merchants, 12, King Street, Covent Garden, W.C.

LARGE YELLOW CROCUS and MIXED DOUBLE and SINGLE HYACINTHS in quantities to offer to the Trade.
Price on application to JAMES FAIRHEAD & SON, Seed Merchants, 7, Borough Market, London, S.E.

New Catalogue of Plants, Dutch Bulbs, &c.
ROBERT PARKER begs to announce that his NEW CATALOGUE, containing Select Descriptive and Priced Lists of New, Rare, and Beautiful Greenhouse, Hardy, and Stove Plants, Fruit Trees, Grapes, &c., Amaryllis, Crocuses, Gladioli, Hyacinths, Narcissus, Tulips, and other Bulbs, is now published, and will be forwarded to applicants.
Exotic Nursery, Tooting, Surrey, S.

CARNATIONS and PICOTEES.—Twenty Pairs of fine named SHOW FLOWERS for £1, package included.
WOOD & INGRAM, Nurseries, Huntingdon.

New Garden Seeds for Autumn Sowing.
SUTTON AND SONS can now supply the above, of excellent quality.
PRICED CATALOGUES gratis and post free on application.
Royal Berkshire Seed Establishment, Reading.

Superb Double Hollyhocks.
NURSERIES, SAFFRON WALDEN.
WILLIAM CHATER'S ANNUAL DESCRIPTIVE CATALOGUE of the above is now ready, and shall be forwarded to any address on receipt of one postage stamp.
WILLIAM CHATER, Nurseries, Saffron Walden, Essex.

Wholesale Catalogue.
GEORGE JACKMAN AND SON will have much pleasure in forwarding on application, free by post, their DESCRIPTIVE and PRICED CATALOGUE of NURSERY STOCK for 1865 and Spring 1866
Woking Nursery, Surrey.

PELARGONIUM MRS. POLLOCK.—Strong Summer-struck Plants, well established in 60-pots, at 15s. per dozen. The Trade supplied.
ALFRED FRYER, Nurseries, Chatteris, Cambridgeshire.

Hoyle's and Foster's New Pelargoniums.
CHARLES TURNER begs to announce that the New Varieties of the above-named raisers are now ready, also in strong plants the finest established varieties of Show, French, and Fancy kinds at moderate prices. CATALOGUE on application.
The Royal Nurseries, Slough.

E. G. HENDERSON AND SON offer SEED of CALCEOLARIA, CINERARIA, and PRIMULA of first-class quality, at 1s., 2s. 6d., and 5s. per packet. Also the finest SCARLET and INTERMEDIATE STOCK, 6d. and 1s. each.
SEED of CYCLAMEN PERSICUM, of similar quality, 6d. and 1s. each, and in mixed colours 2s. 6d. per packet.
The Wellington Nursery, St. John's Wood, London, N.W.

KONING AND CO., NURSERYMEN and SEEDSMEN, Sassenheim, near Haarlem, Holland, beg to announce to their friends and the Trade that their CATALOGUE of VEGETABLE and AGRICULTURAL SEEDS for 1866 will be ready within a few days, and will be sent post free to all applicants.

Splendid New Caladiums.
A. VAN GEERT, NURSERYMAN, Ghent, Belgium, begs to announce to Amateurs and the Trade that he is now prepared to supply the following SIX NEW HYBRID CALADIUMS:—C. Chantini fulgens, C. Duc de Morny, C. Lamartini, C. Mme. Andrien, C. Mme. Houllet, and C. Thibautii. The Six for £5.

1865 and 1866.
JOHN FRASER begs to announce that his NEW DESCRIPTIVE CATALOGUE of PLANTS, ROSES, FRUIT TREES, &c., for the Autumn of 1865 and Spring of 1866, may be had on application.
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NEW ROSE CATALOGUE for 1865 and 1866, also GENERAL CATALOGUE of NURSERY STOCK
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WM. WOOD & SON will be happy to forward copies of the above on application.

H. LANE AND SON'S CATALOGUES of ROSES, TREES, SHRUBS, FRUIT, RHODODENDRONS, AZALEAS, &c., are now ready, and may be had on application at
The Nurseries, Great Berkhampstead, Herts.

Roses.
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Now ready, 1865 and 1866.
PAUL AND SON'S NEW ROSE CATALOGUE will be found a useful guide. Post free on application.
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To the Trade.
SALVIA PATENS.—All sound New Seed, by the 1000 or 100.
H. HARMAN, Denham, Uxbridge.

A. WILKIN, Tiptree, Kelvedon, Essex, can supply the Trade with 1 to 2 feet SPRUCE FIRS; 1 to 2 feet SEEDLING SYCAMORES; 3 to 5 feet ASPEN LEAF POPLARS; 3 to 5 feet LOMBARDY POPLARS; 1-year GIANT ASPARAGUS, &c

To the Trade.
R. DONALD AND SON, of the Goldsworth Nurseries, Woking, Surrey (so long celebrated for the extensive collection and fine growth of Fruit, Coniferæ, Evergreens, Deciduous Trees, Shrubs, &c.), will be pleased to forward a PRICED CATALOGUE for present Season, free by post on application.

THOMAS SEARLE has a large quantity of LOMBARDY POPLARS, clean-grown stuff, 10 to 12 feet high; fine EVERGREEN PRIVETS, 3½ feet. LILACS, EUONYMUS, and general Nursery Stock, all equally good. Price on application.
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SEVERAL BUSHELS of HAWS and HORSE CHESTNUTS; also a large number of Strong LARCH, BEECH, ASH, and SYCAMORE. For prices apply to
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TO the TRADE and OTHERS.—1, 2, and 3-years TRANSPLANTED LARCH, SILVER, SPRUCE, SCOTCH and AUSTRIAN FIRS, OAK, ALDER, BIRCH, THORN, CRAB, BEECH, &c., free to any Station in England at a stated price.
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WANTED, 5000 or 10,000 HOLLIES, 1-year Seedling, 2 years Bedded, for Budding. Send Price and Sample to
J. C. WHEELER & SON, Gloucester.

To Nurserymen.
WANTED, 3500 EVERGREEN FOREST TREES, delivered at Slough, Bucks.
Send price and size to B. P., *Gardeners' Chr*[illegible]

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Apply to DRECHORN & AITKEN, Nurserymen, Kilmarnock, N.B.

TO BE DISPOSED OF, at low prices, a large quantity of various FLOWERING SHRUBS, from 5 to 10 feet high.
Prices on application.
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FOR SALE, several dozen of the above Shrubs, between 3 and 4 feet high. A quantity of other Ornamental Trees, and about 200 ROSES. The ground must be cleared before the end of October Apply to
S. P. JAFFA & Co., Edmonton House, Edmonton, N.; or Bury Nursery, Lower Edmonton, N.

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PRINCE ALBERT WINTER CUCUMBER, 1s. per packet. Stamps or Order on Camberwell Green.
JAMES CUTHILL, Camberwell, London, S.

To Farmers, Gardeners, and Others.
EXCELLENT strong CABBAGE PLANTS of the following kinds may be had in any quantities at 2s. 6d. per 1000 for cash:—EARLY YORK, ENFIELD MARKET, EARLY BATTERSEA, ROBINSON'S LARGE DRUMHEAD, EAST HAM, RED DUTCH. A remittance must accompany orders.
FREDERICK GEE, Seed Merchant and Grower, Biggleswade, Beds.

New Grass Seeds for Exportation.
SUTTON AND SONS have received their supply of NEW GRASS SEEDS of the present year's growth in fine dry condition. Prices will be forwarded on application. This is one of the best months for exporting Grass Seeds.
SUTTON & SONS, Seed Merchants, Reading.

To the Trade.
TO BE SOLD, Cheap, many Thousand strong Plants of PAMPAS GRASS (Gynerium argenteum). Also a large quantity of ACORNS for Sowing. Price on application to
FREDERICK PERKINS, Bedford Road Nurseries, Northampton.

LOUIS VAN HOUTTE, NURSERYMAN, GHENT,

DIRECTOR OF THE ROYAL HORTICULTURAL SCHOOL OF THE BELGIAN GOVERNMENT,

Begs to announce that his Goods are Delivered Free at Messrs. R. SILBERRAD AND SON'S Office, without any expense whatever to the Buyer, but *per contra* 5*s*. will be charged on each package.

List of Genera in Van Houtte's Catalogue No. 109.

The so-called DUTCH BULBS are all planted here before the end of October, and consequently till another year no finer Bulbs can be procured.

Amaryllis, Ammocharis, Amorphophallus, Anemone hepatica, **Anomatheca**, **Anthurium**, **Arum**, Asterostigma, Babiana, Bobartia, Brodiæa, **Brunswigia**, **Calanthe**, **Calliprora**, Calopogon, Camassia, Chrysophyllum, Cissus, **Coburgia**, **Coccocypselum**, **Colchicum**, **Convallaria**, Cordyline, Corydalis, Cossignya, Crinum, **Crocosmia**, **Cumingia**, **Cycas**, Cyclamen, Cypella, Cyrtanthus, Dischidia, **Dracontium**, **Erythronium**, **Eucharis**, Eucodonopsis, Eurycles, Ferraria, Galanthus, **Gardenia**, **Gesnera**, **Gloxinia**, Griffinia, Hæmanthus, Hymenocallis, Hypoxis, **Imantophyllum**, **Ipomœa**, **Iris**, Ixia, Lycoris, Mappa, Maranta, **Nægelia**, **Nerine**, **Ornithogalum**, Pancratium, Pandanus, Pentlandia, Phædranassa, **Phormium**, **Ranunculus**, **Reineckia**, Rogiera, Sanguinaria, Sanseviera, Sarana, **Saurauja**, Scilla, Serapias, Sisyrinchium, Sparaxis, Sphærogyne, Stenomesson, Sternbergia, Trichonema, Triteleia, Tritonia, Tropæolum, Uvularia, Vallota, Zauna.

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Abelia, Abutilon, Acacia, Acampe, Acanthophippium, Acanthus, Acineta, Acrocomia, Adenandra, Aerides, Agapanthus, Agathea, Agave, Agnostus, Alocasia, Alstrœmeria, Amaryllis, Amphicome, Andromeda, Angræcum, Anguloa, Anæctochilus, Anopterus, Ansellia, Anthurium, Aphelexis, Aralia, Araucaria, Areca, Arenga, Arthrotaxis, Arundina, Arundo, Asteha, Astrocaryum, Attalea, Azalea indica, Bactris, Bambusa, Banksia, Barkeria, Berberidopsis, Berberis, Bettolonia, Beschorneria, Bessera, Bignonia, Blandfordia, Bletia, Bolbophyllum, Bomarea, Bonapartea, Boronia, Brabejum, Brachysema, Brahea, Brassavola, Brassia, Broughtonia, Burlingtonia, Cactuses, Calamus, Calanthe, Calathea, Calceolaria, Callicarpa, Calonyction, Camellia, Caryota, Cassia, Castanea, Castanospermum, Cattleya, Centaurea, Cephalotus, Ceratopetalum, Cereus, Chamædorea, Chamærops, Chorisema, Chrysoglossa, Chysis, Cirrhopetalum, Cissus, Clianthus, Coburgia, Cocos, Cœlogyne, Colletia, Convolvulus, Correa, Coryanthes, Corypha, Cosbæa, Crocosmia, Crowea, Cummingia, Cunninghamia, Cupressus, Cycas, Cyclamen, Cyclopia, Cycnoches, Cymbidium, Cypella, Cypripedium, Cyrtanthus, Cyrtopodium, Cytisus, Dacrydium, Dæmonorops, Dammara, Dasylirion, Daviesia, Dendrobium, Desfontainea, Dillwynia, Dioscorea, Dipladenia, Diplothemium, Disa, Dracæna, Drimys, Drosera, Drymophlæus, Echinocactus, Echinopsis, Echites, Edwarsia, Elæagnus, Elæis, Elæodendron, Enkianthus, Entelea, Epacris, Epidendrum, Eranthemum, Eriopsis, Eriostemon, Eucodonopsis, Eucomis, Eurybia, Euterpe, Euonymus, Ferns, Fitz-Roya, Galeandra, Gastrolobium, Gastronema, Gentiana, Geonoma, Gesnera, Gompholobium, Gonocalyx, Grammatophyllum, Grevillea, Griselinia, Guilielma, Habranthus, Hakea, Hardenbergia, Harina, Helichrysum, Hemiandra, Heterotoma, Hibbertia, Houlletia, Hovea, Huntleya, Hyophorbe, Hyphæne, Ilex, Illicium, Indigofera, Iochroma, Ionopsis, Iriartea, Jovellana, Jubæa, Kennedya, Kleinia, Knightia, Korthalsia, Labichia, Lacæna, Lachenalia, Lælia, Læliopsis, Lagerstrœmia, Lambertia, Lapageria, Latania, Laurelia, Laurus, Leiospermum, Leptotes, Leucophyton, Leucopogon, Libertia, Libocedrus, Licuala, Ligularia, Ligustrum, Lilium, Limatodis, Lithospermum, Livistona, Lomatia, Luculia, Luzuriaga, Lycaste, Magnolia, Mahonia, Malortiea, Mamillaria, Manettia, Mappa, Maranta, Marianthus, Martinezia, Mauritia, Metrosideros, Metroxylon, Miltonia, Mitraria, Monochætum, Mutisia, Myrtus, Nandina, Odontoglossum, Œnocarpus, Olea, Oncidium, Oncosperma, Ophiopogon, Opuntia, Orchids, Oreodoxa, Ornithogalum, Ourisia, Oxalis, Oxylobium, Palms, Pandanus, Paphinia, Parochetus, Passiflora, Pelargonium, Pescatorea, Phædranassa, Phajus, Phalænopsis, Philesia, Phœnicophorium, Phœnix, Phyllocladus, Physurus, Pilocereus, Pimelea, Pinanga, Pincenectitia, Pinus, Piperomia, Pittosporum, Plectocomia, Pleroma, Podocarpus, Pogonia, Polianthes, Primula, Pritchardia, Pultenæa, Punica, Quadria, Quercus, Raphia, Raphiolepis, Regelia, Reineckia, Renanthera, Restrepia, Rhapis, Rhodea, Rhodeleia, Rogiera, Rubus, Sabal, Saccolabium, Sarcanthus, Sarcopodium, Sarracenia, Sauraujа, Sauromatum, Saxe-Gothea, Saxifraga, Schismatoglottis, Schizostylis, Schomburgkia, Scottia, Seaforthia, Sedum, Selenipedium, Sempervivum, Serissa, Skimmia, Smilax, Sobralia, Solanum, Sollya, Sophronitis, Stanhopea, Stenanthera, Stenocarpus, Stenomesson, Stevensonia, Syagrus, Synechanthus, Tacsonia, Tasmannia, Tecoma, Testudinaria, Thibaudia, Thrinax, Torreya, Trichinema, Trichopilia, Trithrinax, Tropæolum, Uropedium, Vaccinium, Vanda, Vanilla, Verschaffeltia, Wachendorfia, Wallichia, Warrea, Wärscewiczia, Watsonia, Weinmannia, Witsenia, Xanthorrhœa, Yucca, Zamia, Zygopetalum.

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Abies, Acantholimon, Acanthus, Acer, Achillea, Aconitum, Acorus, Actæa, Actinidea, Adenophora, Adonis, Ægopodium, Æsculus, Agrostemma, Ailanthus, Aira, Ajuga, Akebia, Alnus, Alstrœmeria, Althæa frutex (Hibiscus syr.), Alyssum, Amelanchier, Amorpha, Ampelopsis, Amygdalus, Andromeda, Androsace, Anemone, Anthericum, Apios, Apples, Apricots, Aquilegia, Arabis, Aralia, **Araucaria**, **Arenaria**, **Arisæma**, Aristolochia, Armeniaca, Armeria, Arthrotaxis, Arum, Arundo, Asclepias, Asphodelus, Asplenium, Aster, Asterocephalus, **Astragalus**, **Astrantia**, **Astilbe**, Athyrium, Aubrietia, Aucuba, Aulne, Azalea, hardy, Bambusa, Baptisia, Bellis, Berberis, Betonica, **Betula**, Bignonia, Biota, Blechnum, Bocconia, Bomarea, Broussonetia, Buddleya, Butomus, Cæsalpinia, Calophaca, Calopogon, Caltha, **Calycanthus**, **Calystegia**, Campanula, Caragana, Carex, Castanea, Catalpa, Catananche, Ceanothus, Cedrus, Celastrus, Celtis, Cephalanthus, **Cephalotaxis**, **Cerastium**, **Cerasus**, Cercis, Ceterach, Chænomeles (Cydonica jap.), Chamæcyparis, Cheiranthus, Cherries, Chelone, Chimonanthus, Clematis, **Clethra**, Colutea, Comptonia, Convallaria, Corchorus (Kerria), Coreopsis, Cornus, Corthusa, Corydalis, Corylopsis, Corylus, Cotoneaster, **Cratægus**, **Cryptomeria**, Cucumis, Cunninghamia, Cupressus, Cyclamen, Cydonia, Cypripedium, Cystopteris, Cytisus, Czackia, Dactylis, Delphinium, **Dentaria**, **Deutzia**, **Dianthus**, Dictamnus, Dielytra, Diervilla (Weigela), Dioscorea, Dodecatheon, Draba, Dracocephalum, Dracunculus, Echinacea, **Elæagnus**, Epilobium, Epimedium, Eranthis, Eremostachys, Erica, Erodium, Erpetrin, Eryngium, Euphorbia, Eurya, Euonymus, Exocordia, **Fagus**, **Farfugium**, Ferns, hardy, Festuca, Forsythia, Frankloisters, Francoa, Fraxinus, Funkia, Gaillardia, Gaulthiera, Gazania, Genista, Gentiana, **Geranium**, **Geum**, Ginko, Gladiolus gandav. dwarfs ramosus, Glechoma, Gleditschia, Glycyrrhiza, Griselinia, Gunnera, **Gymnocladus**, Gynerium, Gypsophila, Hedera, Hedysarum, Helenium, Helleborus, Helonias, Hemerocallis, Hepatica, Heracleum, Heterotropa, Hibiscus, **Hieracium**, **Hoteia**, **Hovenia**, Hydrangea, Hypericum, Iberis, Ilex, Indigofera, Iris, Jasminum, Jeffersonia, Juglans, Juncus, Juniperus, **Kalmia**, **Kerria**, Kniphofia (Tritoma), Koelreuteria, Lamium, Larix, Lastrea, Lathyrus, Laurus, Ledum, Leontice, **Lespedeza**, Leucojum, Lintris, Libocedrus, Ligularia, Ligustrum, Lilium, Linnæa, Linum, Liquidambar, Liriodendron, Lonicera, Lotus, **Lupinus**, **Lychnis**, Lythrum, Maackia, Maclura, Magnolia, Mahonia, Malus, Malva, Megasia (Saxifr.), Melissa, Melittis, Menispermum, **Mentha**, **Menziesia**, Mespilus, Michauxia, Monarda, Moræa, Morina, Morus, Myosotis, Napæa, Narthex, Nordmannia, **Nymphæa**, **Œnothera**, *Omissions*, Onoclea, Ophiopogon, Ophrys, Orchis, Orme (Ulmus), Ornus (Fraxinus), Orobus, Orontium (Rohdea), Osmanthus, **Osmunda**, **Ourisia**, Oxalis, Paeonie herbaceæ Coll. Calot. Parm., Paliurus, Papaver, Pardanthus, Paulownia, Pavia, Peaches, **Pears**, **Periploca**, Pernettya, Phalaris, Phellodendron, Philadelphus, Phlomis, Phlox, Phormium, Plums, Physalis, Picea, **Pinus**, **Pterosperma**, Platanthera, Platanus, Platycodon, Plumbago, Podophyllum, Polemonium, Polygonatum, Polygonum, Polypodium, Polystichum, Populus, **Potentilla**, **Primula**, Prunnopitys, Prunelia, Prunus, Ptelea, Pterocarya, Pterostyrax, Pulmonaria, Punica, Pyrethrum, Pyrus (Poirier) japon. (Cyd.), Quercus, Ramondia, Ranunculus, Raphiolepis, Rehmannia, Reineckia, Retinospora, Rhamnus, Rhaponticum, Rheum, Rhexia, Rhodiola, Rhodod. (Hardy), Rhodora, Rhodotypus, Rhus, Ribes, Robinia, Rohdea, Roses anemoneflores, Banks, Bengale, bract. (rem.), Capucines, **Roses**, **Cent-feuilles** mousseux, Damas hyb. de Noisette et d'Ile-Bourbon, Ile-Bourbon, Lawrenceana, Noisette, Provins panachés, &c. remontants (hybr.), Thé, Rottlera, Rubus, Rudbeckia, Salisburia, Salix, Salvia, Sambucus, Sanguinaria, Sauromatum, Saxifraga, Scabiosa, Sciadopitys, Scolopendrium, Scrofularia, Scutellaria, Sedum, Sempervivum, Sequoia, Serapias, Shepherdia, Sidalcea, Silene, Silphium, **Sisyrinchium**, **Skimmia**, Smilacina, Solanella, Solidago, Sorbus, Spergula, Spigelia, Spiræa, Stachyurus, Staphylea, Statice, Stephania, Stipa, Stokesia, Strawberries, Struthiopteris, Sureau (Sambucus), Swertia, Symphytum, Symphoricarpos, Syringa, Tamarix, Taxus, Tecoma (Bignonia), Tellima, Thalictrum, Thermopsis, Thuia, Thuiopsis, Thymus, Tiarella, Tilia, Tilleul (Tilia), Torreya, Tricyrtis, Trifolium, Trillium, Tritoma, Trœne (Dracæna), Trollius, Tropæolum, Tulipier (L.), Tussilago, Ulmus, Umbilicus, Uvularia, Vaccinium, Valorada, Veratrum, Verbascum, Vernis du Japon (Ailanthus), Veronica, Viburnum, Vignes vierges (Ampelopsis), Vinca, Viola, Viorne (Viburnum), Virginia, Vitis (Vigne d'ornement), Weigela, Wellingtonia, Wistaria, Woodsia, Woodwardia, Yucca, Xanthorrhœa.

These THREE CATALOGUES (Nos. 109, 110, and 111) are to be had at the Office of Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London, E.C.

LOUIS VAN HOUTTE, Nurseryman, Ghent (Belgium), begs to call special attention to the following PLANTS included in his CATALOGUE No. 110:—

HOTHOUSE PLANTS.—ABUTILON MEGAPOTAMICUM (VEXILLARIUM), 10*d*. ALOCASIA LONGILOBA and TIGRINA, at 20*s*. each. Double-flowering WEST INDIAN AMARYLLIS, 5*s*. The Blue-flowering AMARYLLIS IMPERATRICE DU BRESIL (PROCERA), 20*s*. to 40*s*. BIGNONIA ARGYRÆA VIOLESCENS, 20*s*. DIPLADENIA NOBILIS, strong roots, in bud, 6*s*. 6*d*. EUCODONOPSIS NÆGELIOIDES, an exceedingly fine Gesneriaceous plant, figured in No. I. of the XVIth Volume of the "Flore des Serres," 8*s*. PANDANUS ORNATUS, 10*s*. 6*d*. to 30*s*. ANÆCTOCHILUS NOBILIS, 24*s*. A very extensive collection of small-sized PALMS at a very moderate rate.

GREENHOUSE PLANTS.—PERUVIAN ALSTRŒMERIA (all shades of colours; robust, erect habit, in the way of the Alstrœmeria brasiliensis, fit for pot culture, and flowering in the first spring in the greenhouse), 12 strong-rooted plants in pots for 20*s*. BESSERA MINIATA, 4*s*., a bulb bearing bell-shaped flowers in umbels, white and scarlet. IOCHROMA TONELIANA, large indigo-blue flowers, 2*s*. 6*d*. A New MARIANTHUS, with orange flowers, 4*s*. ORNITHOGALUM AUREUM, 3*s*. 3*d*. PAROCHETUS COMMUNIS, 10*d*., a celestial-blue flower, size and form of a Pea, Clover leaves, fit for hanging baskets.

LEGRELLE'S POMEGRANATE, with white margined clear orange flowers, 10*d*.

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FRUIT TREES, and especially the new BELGIAN PEARS from Van Mons, Bivort, [illegible] Bouvier, Dumortier, Esperen, Baugnier, Fontaine, Dumont, Coloma, Sterckmans, Knoop, [illegible] Deblois, &c.

☞ A fine Collection of 100 distinct and first-rate BELGIAN PEAR TREES for 6*s*., [illegible] Pyramids.

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By LOUIS VAN HOUTTE, NURSERYMAN, Director and Professor of the Royal Horticultural School of the Belgian Government, at Ghent, assisted by MM. Bo[illegible] BRONGNIART, F. BURVENICH, ALPH. DE CANDOLLE, CARRIERE, COEMANS, CREPIN, DECAISNE, DESBOIS, DUCHARTRE, GOEPPERT, KOCH, LECOQ, LINDEN, MIQUEL, N[illegible] PLANCHON, PUTZEYS, DE PUYDT, PYNAERT, REICHENBACH, VERLOT, VON SCHLECHTENDAL, VON SIEBOLD, &c.

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All the Plants in LOUIS VAN HOUTTE'S Catalogue, which are published in the "Flore des Serres," have the word FLORE attached.

The first two Numbers of the Sixteenth Volume will be ready next week, and can be seen at Messrs. R. SILBERRAD'S Office.

Separate Numbers are not sold. The next Plates are—1, Eucodonopsis nægelioides; 2, 3, 4, 5, four double-size plates of 16 kinds of VAN HOUTTE'S Amaryllises; 6. [illegible] plate of the green-leaved Aucuba japonica, bearing fruit; 7, 8, two double plates of Jackman's Clematis; 9, Dendrobium formosum, double plate; 10, Pardanthus chinensis, [illegible] 11, the Bourbon Rose, Madem. Josephine Guiet. The next Plates in the following Numbers will be—the Peruvian Alstrœmerias, double plate; Veitch's Maranta Veitchiana, [illegible] double plates; Linden's Maranta illustris, and rosea vittata; the Maréchal Niel Rose, double plate; Vanilla Phalænopsis, *Rchb.*, double plate; Podophyllum Emodi, double [illegible] Gesnera (Nægelia), Sceptre cerise; three double plates, representing the variegations in Azalea indica punctulata; the Odontoglossum Blunti; VAN HOUTTE'S Zygopetalum cerinum, *Rchb.* (Huntleya, Pescatorea); the Blue Amaryllis, Imperatrice du Brésil, double plate, &c.

To the Trade.

JEAN VERSCHAFFELT, Ghent, begs to offer the following at the undermentioned low prices, viz. :—

AZALEA INDICA, nice plants with buds, best varieties, £5 per 100.
" " fine plants on stems 12 to 15 ins. high, £8 to £10 per 100.
" " stocks fit for grafting, £1 per 100.
CAMELLIAS, fine plants, 14 to 15 ft. high, without buds, £5 per 100.
" " with buds, £6 per 100.
" " stronger, £8, £10, £12, and upwards per 100.
" " bushy plants, on large stocks, beautifully set, £4 per doz.
" " " £1 8s. per 100.
NEW DONAX VARIEGATA, fine strong plants in pots, £1 4s. per dozen.
LILIUM LANCIFOLIUM ALBUM, £2 per 100.
Ditto, extra large bulbs (the largest ever offered), £2 10s. per 100.
LILIUM LANCIFOLIUM RUBRUM, £2 per 100.
" " extra sized bulbs, £3.
LILIUM LANCIFOLIUM PUNCTATUM (true), extra size of bulbs, £2 8s. per dozen.

Early Orders are respectfully solicited, and are to be directed to Jean Verschaffelt, Nurseryman, 43, Rue de la Caverne, Ghent, Belgium.

☞ Cash or reference required from unknown correspondents.

AMBROISE VERSCHAFFELT, Nurseryman, Ghent, Belgium, begs to offer the following New Plants :—

ALTERNANTHERA AMŒNA, 8s.; Ditto SPATHULATA, 8s.
CELEIANTHERA VERSICOLOR, 8s.; or the three sorts for 20s. These three remarkably fine Amarantaceous plants can be seen now at A. V.'s Nursery in their full beauty; they grow perfectly well in the open air.
CALADIUM DUC DE NASSAU, one of the finest foliaged plants extant, 10s.
SEVEN NEW CHRYSANTHEMUMS (LILLIPUT), the set of 6, 16s.
RHODODENDRON DUCHESSE DE NASSAU (Verschaffelt).—Very light rose colour, all spotted over, bloom of a beautiful effect, large truss and very free, quite hardy. 12s.; a few strong plants at 20s.
RHODODENDRON SALMONO-ROSEUM (Verschaffelt).—Very large bouquets, compact, lilac rose, with a salmon tint; very large spots of a brownish black, quite hardy; one of the finest and most distinct varieties ever raised. 12s.; a few strong plants, 20s.
NEW HYB. EMPEREUR DU MEXIQUE.—Large bloom, double, very dark, first-rate flower. 10s.

All the above Plants are figured in Verschaffelt's Illustration Horticole.

A. V.'s New Catalogue (No. 77) is now ready, and can be obtained free at Messrs. R. Silberrad & Sons, 5, Harp Lane, Great Tower Street, London, E.C.

A. V. also recommends his publication, the Illustration Horticole, published monthly, each Part containing three Coloured Plates, price 14s. 6d. per year, free.

A. VAN GEERT, Nurseryman, Ghent, Belgium, begs to offer the undernamed useful articles, at very moderate prices :—

2 LATANIA BORBONICA, young plants in pots, a fine Palm for table decoration, easily grown in a cool house, £2 2s.
25 ALSOPHILA EXCELSA, stout seedling, a Tree Fern for the greenhouse, £1 15s.
50 LASTREA ÆMULA, a beautiful hardy Fern, £1 10s.
12 PTERIS BIAURITA, fine greenhouse Fern, 6s.
24 OSMUNDA REGALIS CRISTATA, 18s.
2 ALSOPHILA LATEBROSA, a fine new Tree Fern, strong plants, £1 10s.
100 FERNS in varieties, £2 5s.
25 LYCOPODS in varieties, 15s.
24 EXOTIC ORCHIDS, for cool house, £4.
12 GLOXINIAS, in fine varieties, £1 5s.
100 ACHIMENES, in fine varieties, 18s.
24 DASYLIRIONS, in three varieties, strong plants, £2 10s.
12 fine plants of CHAMÆROPS HUMILIS (nearly hardy) £1 16s.
6 ditto of ROEZLIA REGIA, also nearly hardy, £1 5s.
12 ERYTHRINA CRISTA-GALLI, 6s.
100 choice STOVE PLANTS, £2 10s.
100 " GREENHOUSE PLANTS, £2 10s.
100 " CONIFEROUS PLANTS, £3 10s.
24 PASSIFLORA CŒRULEA (hardy), 8s.
100 CAMELLIAS, with flower buds, £6.
6 " " strong plants, £1 10s.
100 " without buds, £3 10s.
" " stronger plants, £5.
100 choice INDIAN AZALEAS, with flower buds, £4 to £6.
100 GHENT AZALEAS, Seedlings, 4-years old, 18s.
100 Choice Hardy RHODODENDRONS, fine plants, £4.
25 Choice Hardy RHODODENDRONS, with flower buds, £1 15s.
12 RHODODENDRON NUTTALLII, strong plants, £1 10s.
12 RHODODENDRON VIRGATUM, very pretty, from Himalaya, 18s.
24 Fine varieties of TREE PÆONIES, £2.
[illegible] Varieties of choice herbaceous PÆONIES, 18s.
[illegible] ASCLEPIAS TUBEROSA, flowering roots, £1 1s.
[illegible] fine STANDARD ROSES, £4 10s.
[illegible] fine half " " £3.
12 MAGNOLIA GRANDIFLORA, 12s.
" MACROPHYLLA, £1 10s.
" TRIPETALA, £1 10s.
[illegible] Young plants of YUCCA ALOEFOLIA, £1 10s.
[illegible] HEMLOCK SPRUCE FIR, 2-year old, £2.
[illegible] AMPELOPSIS QUINQUEFOLIA, £1 5s.
[illegible] ABIES NORDMANNIANA, £1 5s.
[illegible] GLYCINE SINENSIS, strong plants, £1 10s.
[illegible] LOMARIA DISCOLOR, strong plants, 18s.
1 Ounce Seed of CUPRESSUS LAWSONIANA, 10s.

No less quantity than above-mentioned can be supplied for the quoted prices.

References or remittances from unknown Correspondents.

Seed Potatos.

H. AND F. SHARPE invite the attention of the Trade to the following 8 varieties of SEED POTATOS, which they have grown from the finest selected stocks; they comprise all the sorts worthy of cultivation. The quality is excellent, being free from disease, and prices very moderate :—

Early Ashleaved Kidney	Early Oxford
Myatt's prolific Kidney	" Forty-fold
White Imperial Kidney	Daintree's Earliest
Early Kerr, very fine	Early Dalmahoy Round
" Martin's Globe	" Cockney
" Gilbert Globe	" British Queen
" Fenn's Seedling	Fluke Kidney
" Round Frame	Yorkshire Regent

Seed Growing Establishment, Wisbech, Cambs

Cucumbers, Cucumbers.

J. HAMILTON, Cucumber Seed Grower, begs to announce that his two unrivalled CUCUMBERS, INVINCIBLE and BRITISH VOLUNTEER, are now ready at 2s. 6d. per packet; see *Gardeners' Chronicle* for August 26. May also be had of the following Seedsmen :—

Sutton & Sons, Royal Berks Seed Establishment, Reading.
J. & C. Lee, Royal Vineyard Nursery, Hammersmith, London, W.
Fisher, Holmes & Co., Handsworth Nursery, Sheffield.
G. & W. Yates, Market Place, Manchester.
Little & Ballantyne, Carlisle.

Wellington Place, near Carlisle.

Early Spring Feed.

SEEDS FOR AUTUMN SOWING.

PETER LAWSON AND SON can supply of excellent quality—

ITALIAN RYE-GRASS	RYE
TRIFOLIUM INCARNATUM	WHITE MUSTARD
GREEN ROUND and GREEN GLOBE TURNIPS	
SIX WEEKS TURNIP	

CLOVER and NATURAL GRASS SEEDS for PERMANENT PASTURE, &c.

A New Seed of BROMUS SCHRADERI, 2s. 6d. per lb., and the very Hardy Clover, TRIFOLIUM STRIATUM, 2s. per lb.

GARDEN and FARM SEEDS carefully selected for exportation.

Peter Lawson & Son, The Queen's Seedsmen, 28, King Street, Cheapside, London, E.C.; and at Edinburgh.

Bromus Schrade

JAMES CARTER AND CO. are now prepared to execute orders for the above valuable Forage Plant in quantity. Price per bushel on application.

237 and 238, High Holborn, London, W.C.

To the Trade.

SUTTON'S RINGLEADER (or CARTER'S FIRST CROP) PEA.

MESSRS. SUTTON, anticipating a large demand this season for the above popular Pea, respectfully recommend early orders, the stock being limited.

The following Seedsmen have already ordered a supply :—

Messrs. Cooper & Bolton, 152, Fleet Street, London, E.C.
" Hurst & Son, 6, Leadenhall Street, London, E.C.
" Minter, Nash, & Nash, 60, Strand, London, W.C.
" Jacob Wrench & Son, London Bridge, London, E.C.
" Waite, Burnell, & Co., 181, High Holborn, London, W.C.
" Nutting & Sons, 60, Barbican, London, E.C.

Price to the Trade on application.

Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

The Earliest Pea known is

CARPENTER'S EXPRESS, gathered May 7th, the earliest date on record. See testimonials in *Gardeners' Chronicle* of September 2 and 9. Price 5s. per quart.

To be had of Edward Carpenter, Seed Merchant and Grower, Brighton and Sussex Seed Warehouse, 96, St. James's Street, Brighton.

PRICED CATALOGUES of DUTCH BULBS now ready.

INVINCIBLE SCARLET SWEET PEA, For AUTUMN SOWING.

A First-class Certificate received from the Royal Horticultural Society, also a Certificate at the Crystal Palace Autumn Show.

Very fragrant, strikingly brilliant, distinct, and permanent in its colour. Packets of 30 seeds, 2s. 6d.; 10 Seeds, 1s.; 5 seeds, 6d.; Packets of 100 seeds, 7s. 6d. May be had of the principal Seedsmen throughout the kingdom, or of the raiser,

Stephen Brown, Seedsman, Sudbury, Suffolk.

Surrey White Wheat.

WAITE, BURNELL, AND CO., beg to offer the above very fine variety of WHITE WHEAT, which is highly recommended for poor and elevated soils. It has been tried against many varieties, among which may be named the Rough Chaff, Hunter's Trump, and almost all other kinds of White Wheat, and has produced fully 15 per cent. greater crop. It has been perfectly free from blight and red rust when other varieties have been more or less affected. Price 10s. 6d. per bushel.

A liberal discount to the Trade.

Seed Warehouse, 181, High Holborn, London, W.C.

COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 2s. per bag.

For particulars, and how use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the Patent Cocoa Fibre Company, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. Barsham & Co.

Barsham's BRUSHES and MATS are sold in every town.

Caution.—Every Brush is stamped, J. Barsham's Patent.

WHEAT SOWING.

DOWN'S FARMERS' FRIEND, for preventing the Smut in Wheat, and the ravages of the Slug, Grub, and Wireworm.

A 9d. packet is sufficient for 6 bushels of Seed Wheat, which can be dressed and fit to sow in a quarter of an hour.

Testimonials from the largest Wheat-growers in the Kingdom, bearing testimony to its great power and efficacy, may be had of Agents, who are appointed for every district.

Full directions for use are given with each packet.

Prepared at the Manufactory, Woburn, Beds.

Caution.—To guard against fraudulent imitations and consequent disappointment, see that the signature of Henry Down is on the label.

Agents in every Town throughout England, Scotland, and Ireland.

Red Spider

Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be applied 48 hours before use. It gets rid of smut, and is free from poison, [illegible] decoction, powders and shaking of trees. A solution of [illegible] is recommended for growing Plants; one from 1 to 15 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes, 1s., 2s., and 5s. each.

Wholesale by

PRICE'S PATENT CANDLE COMPANY (Limited).

To Florists and Others.

TOBACCO TISSUE for FUMIGATING, Manufactured, under Letters Patent, from Tobacco rolled into sheets, which allows it to burn slowly without the assistance of blowing, at the same time giving off a very powerful insecticide. It is entirely free from any chemical admixture, which is so destructive to tender Plants. It will be found more economical and very superior to the article generally used. 1 lb. samples, price 3s. 6d., will be forwarded on application to Messrs. Roberts & Sons, Tobacco Manufacturers, 54, St. John Street, Clerkenwell, E.C.

Glass for Garden Purposes.

JAMES PHILLIPS AND CO. beg to submit their prices as follows :—

PROPAGATING GLASSES

	Each.—s.	d.		Each.—s.	d.
2 inches in diameter ..	0	3½	12 inches in diameter ..	1	0
3 " " ..	0	4½	13 " " ..	2	0
4 " " ..	0	5½	14 " " ..	2	6
5 " " ..	0	6½	15 " " ..	3	0
6 " " ..	0	8	16 " " ..	3	6
7 " " ..	0	10	17 " " ..	4	0
8 " " ..	1	0	18 " " ..	5	0
9 " " ..	1	2	19 " " ..	6	0
10 " " ..	1	4	20 " " ..	7	0
11 " " ..	1	6			

BELL GLASSES

4 inches in diameter ..	[illegible]	[illegible]	[illegible] ..	1	[illegible]
6 " " ..	[illegible]	[illegible]	10 " " ..	[illegible]	[illegible]
6 " " ..	[illegible]	[illegible]	11 " " ..	[illegible]	[illegible]
7 " " ..	1	1	12 " " ..	[illegible]	[illegible]
8 " " ..	1	4			

CLOCHE GLASSES

21 inches diameter ..	[illegible]	[illegible]	12 inches diameter ..	1	1
18 " " ..	[illegible]	[illegible]	14 " " ..	1	2
21 " " ..	1	[illegible]	16 " " ..	1	[illegible]
18 " " ..	1	6			

HAND GLASSES, with Open Top.

1 inches	[illegible]	[illegible]	18 inches	[illegible]	[illegible]
1 "	7	6	20 "	10	6
16 "	8	6	24 "	12	6

Painted and Glazed with 16-oz. Sheet Glass.

London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.

LINSEED OIL, Genuine WHITE LEAD, Carson's PAINTS, PAINTS of various colours ground ready for use.

180, Bishopsgate Street Without, London, E.C.

AUSTIN, SEELEY, AND CO.

296 different kinds of VASES.
64 STATUES and FIGURES of CHILDREN.
70 FIGURES of ANIMALS and BIRDS.
About 200 FOUNTAINS, at prices from £10 to £[illegible]
15 BASKETS from 1 to 10 feet diameter.
17 FLOWER BOXES for WINDOWS, &c.
6 GARDEN SEATS.
22 SUN-DIAL PEDESTALS.
22 ORNAMENTAL GATE PIERS.
And a great variety of GARDEN TERRACE ORNAMENTS, suitable for Gardens, Terraces, Lawns, &c.

GARDEN BORDER EDGING TILES, in great variety of patterns and [illegible] for [illegible] GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense. [illegible]

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.

F. & G. Rosher, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.

Sole London Agents for FOXLEY'S PATENT GARDEN WALL BRICKS. Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also TESSELATED PAVEMENTS of more elaborate designs than the above.

WHITE GLAZED TILES, for Large Work or Dairies, Larders, Kitchen Ranges, Baths, &c. [illegible] Paving Bricks of great durability, Dutch and Accrington Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Spades, Cements, &c.

To be obtained of F. & G. Rosher, at their Premises as above.

SILVER SAND (REIGATE, best quality), at the above addresses—[illegible] per Ton, or [illegible] per Bushel; 2s. per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less.

FLINTS, BRICK BURRS or CLINKERS, for Rockeries or Grotto Work.

F. & G. Rosher.—Addresses see above.
N.B. Orders promptly executed by Railway.

Caution to Gardeners.—When you ask for

SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark Saynor, also the trade mark Obtain Warranted, without which none are genuine.

S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been put forth in a similar way, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by sellers and makers.

S. & C.'s Pruning and Budding Knives are the best and the cheapest in the market.

Paxton Works, Sheffield. Established upwards of 125 years.

George Hall, late Manager to the late Saynor's Firm.

He was for 30 Years in their Employ.

GEO. HALL AND SON'S Celebrated PRUNING and BUDDING KNIVES, &c., may be obtained from the most respectable Nurserymen and Seed Merchants in the Kingdom.

N.B. We only make one quality, the best that can be manufactured, regardless of expense, the same as the late Saynors always made during their lifetime.

Horticultural Cutlery Works, Sheffield.

PATENT GUTTA PERCHA SOLES.—Important to Gardeners.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. Glenny, Esq., the celebrated Florist:—

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and have found them [illegible] in all weathers, and with the greatest [illegible] I should not be without them. As a matter of economy I would recommend Gardeners to use them, for they repay the extra price at all times by wearing [illegible] from the thick parts of the leather parts, so that it will wear so much [illegible]. I think it the duty of all [illegible] personally wet their feet to adopt a practice that conducts [illegible] Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles.—Your obedient servant, "G. Glenny."

Every variety of Gutta Percha articles, such as Mats, Boards, Tubing, Soles, Sheets, Pump Buckets, Fire Buckets, Bosses, Union Joints, Funnels, Bottles, Boots, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Cake Dripping trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town or country.

The Gutta Percha Company, Patentees, 18, Wharf Road, City Road, London, E.C.

Lobelia Snowflake.

Extract from Gardeners' Chronicle :—

"Mr. Cox, Gardener to Lord Beauchamp, exhibited a beautiful White Lobelia called Snowflake, to which a First-class Certificate was awarded. Floral Committee of the Royal Horticultural Society, July 25, 1865."

JOHN AND CHARLES LEE having acquired the stock of this desirable NEW BEDDING PLANT, they have much pleasure in offering SEED in SEALED PACKETS for present sowing for spring pot culture, for which it is well adapted.

As a BEDDING LOBELIA it stands unrivalled. The plant is of dwarf compact habit: the flowers are large, perfectly even, and of the purest white. The stock comes perfectly true from seed.

Price 2s. 6d. per packet. Price to the Trade on application.

Royal Vineyard Nursery and Seed Establishment, Hammersmith, W.

RHODODENDRON PRÆCOX.—A beautiful bushy-growing plant, with a dark green Myrtle-like leaf, bearing a profusion of rosy-lilac flowers, about as large as the Indian Azalea, which expand about April in the open ground and Christmas under glass. It was exhibited in London, and I received a most flattering opinion of it from Mr. Thomas Moore and other eminent judges, who considered it worthy a First-class Certificate. This opinion has been fully borne out by the number of orders I have received from the leading Nurserymen, one firm having purchased 136, and another 72 during the last two years. Having yet a fine stock I have now reduced the price to 3s. 6d., 5s., and 7s. 6d. for bushes with from 50 to 150 flower buds. A few extra large, with more than 1000 flower buds, £5 5s. each. All orders will receive immediate attention addressed

Isaac Davies, Larkfield Nursery, Wavertree, near Liverpool.

S. PONSFORD AND SON beg to offer to the Trade and large Purchasers GENERAL NURSERY STOCK, especially Chinese Arbor-vitæ, Variegated Hollies, Laurels, Euonymus, &c.; Limes, Mountain Ash, Poplars, Planes, &c. Mulberries, extra fine of all sizes. Prices on application. Hyacinths, Crocus, Tulips, &c. CATALOGUES gratis.

Loughboro Park Nurseries; and Brixton Place, Brixton, Surrey, S.

To the Trade.

JOSEPH FRYER, Clarendon Nurseries, Camberwell, has a large quantity of LILACS, various sorts, 3 to 7 feet; EUONYMUS JAPONICA, 1 to 4 feet; ALTHÆA FRUTEX, 1 to 3 feet; AUCUBAS, 1 to 4 feet; LIMES, 3 to 10 feet; MULBERRIES, 3 to 7 feet; LOMBARDY POPLARS, 4 to 10 feet; and other Nursery Stock at low prices.

WM. POLLARD begs to offer good AMERICAN ARBOR-VITÆ, 6 to 12 inches, 6s. per 100; 12 to 18 inches, 10s. per 100. CRYPTOMERIA JAPONICA, 12s. per 1000; PICEA PINSAPO, 5s. per 100, 60s. per 1000; PINUS HALEPENSIS, 12s. per 1000; CEDRUS ARGENTEA, 8s. per 100, 60s. per 1000; CEDRUS LIBANI, 10s. per 100, 80s. per 1000, all 1-year Seedlings.

Ferrybridge Nursery, Yorkshire.

W. VIRGO AND SON have a surplus stock of fine, healthy, and well-grown FRUIT, FOREST TREES, &c., of the undermentioned kinds, viz.:—Arbor-vitæ, in sorts; Berberis, in sorts; Privet, Portugal and Common Laurel, Evergreen Box, Weymouth Pine, Spruce and Balm of Gilead Firs, Laburnums, Turkey Oak, Scarlet Maple, Scarlet and White Thorns, Apples, Pears, Plums, and Roses in dwarfs and standards. Height, size, and prices can be obtained on application.

The Nursery, Wonersh, near Guildford, Surrey.

To Noblemen and Gentlemen about to be engaged in Planting.

DICKSONS AND CO., Nurserymen, Seedsmen, and Florists, Waterloo Place, Edinburgh, have this season a large and very healthy stock of Seedling and Transplanted LARCH (native and Tyrolese), True Native Highland SCOTCH FIR, Spruce, Oak, Plane or Sycamore, Spanish Chestnut, Alder, Ash, Elm, Thorn Quick, Beech, Evergreen Privet, Poplar, Willow, &c., as well as all other kinds of Forest and Ornamental Trees and Shrubs, Fruit Trees, Roses, Greenhouse and Stove Plants, Herbaceous and Alpine Plants, Ferns, &c.

Their Forest Trees, which are grown on exposed ground, are this season finely ripened, and can be sent with perfect safety to any part of the kingdom.

Samples and prices will be sent free on application.

Northampton Nurseries.—Important to Planters.

JOHN PERKINS begs to call the attention of Noblemen, Gentlemen, and others engaged in Planting to his Large Stock of 1, 2, and 3-years BLACK THORN (for covert planting); of this he has upwards of Two Millions, the greater part of which is extra fine. Also Two Millions of LARCH FIR, 3 to 4 feet; and One Million of SPRUCE and SCOTCH FIRS, 2 to 3 feet. Also large quantities of

Pinus austriaca	Green Box	Hazel
Berberis Aquifolium	Laurels	Birch
Berberis dulcis	Evergreen Privets	Beech
Single Gorse	Hornbeam	Elms

Oaks | Ash, &c.

CEDRUS DEODARA, 3 to 4 feet, 4 to 6 feet, and 6 to 8 feet.

J. P.'s stock of all kinds of FRUIT, FOREST, ORNAMENTAL TREES, &c., is very extensive, and this season remarkably fine and in excellent condition for removal, having been frequently transplanted. Samples sent on application to

52, Market Square, opposite the Corn Exchange, Northampton.

J. P. begs his correspondents will make use of the above full Address, as there are others of the same name in the town.

HARDY NURSERY STOCK, SELLING OFF, at the Nursery of the late MR. VEITCH, on the Topsham Road, near Exeter.

This Stock is remarkably fine, frequently transplanted, and of the most suitable sizes for removal. It comprises complete collections of FRUIT TREES (trained and untrained), Gooseberries, Currants, and other small Fruits, true to name; HARDY EVERGREEN and DECIDUOUS TREES and SHRUBS; CONIFERS, fine Specimens, as well as young stock; fine STANDARD and DWARF ROSES; ROSES in POTS; RHODODENDRONS, AZALEAS, HEATHS, KALMIAS, and other hardy American plants; VINES, a very choice variety, suitable either for immediate fruiting in pots, or for planting in vineries: true to name; ORCHARD HOUSE TREES, in pots, in a bearing state, &c. The prices fixed are exceedingly low, and purchasers will in every respect be dealt with liberally.

Apply to Mr. Manning, Manager, at the Nursery, Topsham Road. Experienced practical men sent out to Lay out Grounds, and Superintend Planting.

N.C.—The Trade will find this a most advantageous opportunity of supplying themselves with an unusually select Stock at very low prices.—Exeter, October 26, 1865.

SUTTON'S unrivalled COLLECTIONS of BULBOUS FLOWER ROOTS, for Blooming during the Winter and Spring.

These are every year becoming more popularly cultivated, and the HYACINTHS, ANEMONES, TULIPS, &c., which we imported last season from the celebrated Dutch Florists, Messrs. de Boom, Veen, Byvoet, and others, having been so generally admired, we have imported from the same parties, and still more extensively.

SUTTON'S COLLECTIONS of HARDY FLOWER ROOTS for OPEN GROUND.

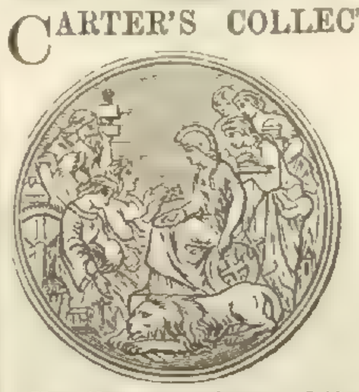
		£	s.	d.
No. 1.	A large and Choice Collection of ANEMONES, HYACINTHS, CROCUSES, TULIPS, RANUNCULI, NARCISSI, SNOWDROPS, IRISES, GLADIOLI, &c.	2	2	0
No. 2.	Ditto ditto, consisting of all the same kinds, in Reduced Quantities	1	1	0
No. 3.	A Small and Choice ditto	0	10	6
	SORTS for FLOWER POTS and GLASSES.			
No. 4.	A splendid Collection of HYACINTHS, JONQUILS, NARCISSI, EARLY TULIPS, New large CROCUSES, &c.	2	2	0
No. 5.	The same in Reduced Quantities	1	1	0
No. 6.	A Small and Choice Assortment	0	10	6

SUTTON'S AUTUMN CATALOGUE, containing DESCRIPTIVE LISTS of the best varieties of Hyacinths, Gladioli, Anemones, Crocuses, and other Bulbous Roots, and Choice Stove and Greenhouse Plants, Ferns, American Plants, Roses, Carnations, and other Florists' Flowers, Fruit Trees, New Garden Seeds, &c., is now ready, and may be had gratis and post free on application.

All Goods sent Carriage Free except small parcels, and 5 per cent. allowed for Cash Payments.

Sutton & Sons, Royal Berks Seed Establishment, Reading.

CARTER'S COLLECTIONS of PICKED BULBS.



For the convenience of those of our Customers who do not wish the trouble of selecting for themselves, we offer the under-mentioned COLLECTIONS of BULBS, which contain, respectively, all the sorts required for the purpose mentioned; and, the choice of varieties being left to ourselves, we offer the entire Collection at a much lower rate than if the sorts had been chosen at the option of the Purchaser.

No. 1. Complete Collection of Bulbs for Forcing, including Basket and Packing, price 84s.
No. 2. Complete Collection of Bulbs for Forcing, including Basket and Packing, price 42s.
No. 3. Complete Collection of Bulbs for Forcing, including Box and Packing, price 21s.
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PRICE LIST gratis and post free on application to James Carter & Co., 237, 238, and 261, High Holborn, London, W.C.

500 DUTCH BULBS, carriage free, Great Western Railway, 21s. Consist of best named HYACINTHS, Bedding HYACINTHS, TULIPS, CROCUSES, SNOWDROPS, &c. One of the cheapest and best collections offered.

Also on offer, 50,000 2-years TRANSPLANTED LARCH, 3 feet, strong, and 6000 3-years ditto, 5 feet, strong.

Robert H. Poynter, Dutch Bulb Importer and Seed Merchant, Taunton.

EDWARD TAYLOR, Nurseryman, Malton, Yorkshire, offers the following at the prices affixed :—

GLADIOLUS BRENCHLEYENSIS, good flowering roots, 12s. 6d. per 100.
BLUE and Large YELLOW DUTCH CROCUS, 10s. per 1000.
Dwarf-trained APRICOTS, 24s. per dozen.
Dwarf-trained PEACHES and NECTARINES, 30s. per dozen.
Strong SEAKALE ROOTS, 6s. per 100, 40s. per 1000.
ASPARAGUS ROOTS, 1-year, 10s. per 1000.
" " 2-year, 12s. 6d. per 1000.
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Dwarf ROSES, the best named sorts, 40s. per 100.

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Prices of The Lady Strawberry Plant.

One hundred	£5 0 0	Fifty	£3 6 0
Seventy-five	4 5 0	Twenty	1 10 0

Plants in Pots, not less than 10, at 2s. each, package included.

The above scale of prices will be slightly changed in August, 1866.

Mr. Underhill's Treatise, in English, French, or German, on the Cultivation of Strawberries, may be had through the Post. Price 1s.

Address, Mr. Richard Underhill, Sir Harry's Road, Edgbaston, Birmingham.

B. S. WILLIAMS begs to direct special attention to the undermentioned, of which he now holds a fine stock. PRICED and DESCRIPTIVE LISTS can be had on application.

VINES.—Strong Planting and Fruiting Canes of all the best varieties, including the new Grape ROYAL VINEYARD.

PINES.—Strong Fruiting and Succession plants, and cuttings of all the leading kinds.

BECK'S NEW PELARGONIUMS.—For the present season, at the moderate price of 10s. 6d. each; also a large assortment of the best PELARGONIUMS and GERANIUMS, including Beck's best NOSEGAYS.

DUTCH BULBS.—Splendid roots of the strongest flowering HYACINTHS for glasses or pots, at 6s., 8s., 9s., 10s. and 12s. per dozen. POLYANTHUS, NARCISSUS, CROCUS, Early TULIPS, and all other bulbs.

ENGLISH-GROWN SEEDLING GLADIOLI, 9s. and 12s. per dozen, ready next month. As the supply of these is limited, early orders are solicited.

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CARNATIONS and PICOTEES for the Million. Fine Strong Plants at reduced prices.

Every one should send for the revised CATALOGUE of CARNATIONS, PICOTEES, PINKS, PANSIES, ROSES, FRUIT TREES, BULBS, &c.

Holland & Jones, Proprietors, Bradshaw Gardens, Chadderton, near Manchester.

British Fern Catalogue.

ROBERT SIM can now send, post free for six penny stamps, Part I. (British Ferns and their varieties, 32 pp.) including prices of Hardy Exotic Ferns) of his New and Revised DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

*** Part II. (Exotic Ferns) will be issued as early as possible.

Foot's Cray Nursery, S.E.

Hardy Climbers.—To the Trade.

CLEMATIS JACKMANNI.—Large intense violet purple, rugose and veiny in centre, 2 to 2½ feet bine; 3s. per dozen.

CLEMATIS RUBRO-VIOLACEA.—Reddish violet, sepals medium fine; 30s. per dozen.

CLEMATIS STANDISHI.—Beautiful violet blue; 30s. per dozen.

Besides other good old varieties.

A CATALOGUE, including Description and Treatment of Clematises, will be forwarded free on application to

Geo. Jackman & Son, Woking Nursery, Surrey.

VIOLETS, now in full Bloom, and in first-rate condition for Planting out (very fine strong Roots). A large stock of all kinds of VIOLET PLANTS, including the Giant, Neapolitan, Crimea, London, Russian, &c.—All the above-mentioned sorts bloom from October till May.

CATALOGUES of Prices on application.

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New Roses for 1865.

EUGÈNE VERDIER Fils Ainé, Nurseryman, 3, Rue Dunois, Paris, is now publishing his CATALOGUE of NEW ROSES, numbering 48 varieties, which he can strongly recommend.

The Catalogue to be obtained of his Agents, Messrs. Betham & Blackith, Cox's Quay, Lower Thames Street, London, E.C.

New Tea-scented Rose, Marechal Niel.

EUGÈNE VERDIER Fils Ainé, Nurseryman, 3, Rue Dunois, Paris, has the honour to inform his friends and the public generally, that as the above magnificent variety is very rarely to be met with in the Trade, he has decided to place at their disposal One Thousand very fine specimens of this year's grafts, denominated in France *œils dormants*.

Prices can be obtained direct of Eugene Verdier Fils Ainé; or of London of his Agents, Betham & Blackith, Cox's Quay, Lower Thames Street, E.C.

TO BE SOLD, for Cash, all twice Transplanted.

	Per 1000. s.	d.	Per 100 s.	d.
40,000 well-grown LARCH, 3 to 5 feet high	25	0	3	6
3,000 strong YEWS, 2½ to 3½ feet high	180	0	30	
8,000 strong QUICK, 2½ to 3½ feet high	15	0	2	6
3,000 HORSE CHESTNUTS, 3 to 5 feet high	80	0	10	6
3,000 " " 5 to 7 feet high	140	0	17	8
14,000 very strong COMMON PRIVET, 4 to 5 feet	20	0	3	0
10,000 SPRUCE, 1½ to 2½ feet high	30	0	4	
1,000 BERBERIS AQUIFOLIUM, good bushes, 2 to 2½ feet high	80	0	12	6
300 BERBERIS DULCIS, 2½ to 3 feet high	..		10	
300 SPIRÆA, good, 2½ to 3 feet high	..		25	
2,500 COMMON ELM, 4 to 5 feet high	30	0	5	
250 SNOWBERRY, 3 to 4 feet high	..		30	
350 CUPRESSUS SEMPERVIRENS, 2½ to 4 ft.	..		25	
300 LABURNUMS, 4 to 6 feet high	..		25	
100 COMMON LILAC, 2½ to 3½ feet high	..		25	
300 ACACIA, 7 to 9 feet high	..		25	
200 BIRCH, large, 3 to 4 feet high	..		6	
200 MOUNTAIN ASH, 4 to 6 feet high	..		17	
200 SWEET BRIARS, 3 to 5 feet high	..		12	6
200 RED DOGWOOD, 2½ to 3½ feet high	..		12	6
300 BLACK WILLOW, 4 to 6 feet high	..		15	
500 BALSAM POPLARS, 7 to 9 feet high	..		15	
300 SCARLET OAK, 1½ to 2 feet high	..		11	
500 MAPLE, 2 to 3 feet high	..		15	
2,000 ASH, 2 to 3 feet high	30	0	5	
400 ASH, 5 to 7 feet high	..		10	
400 WHITE AMERICAN SPRUCE, 1 to 2 feet	..		10	
500 HALF STANDARD ROSE, best sort	..		60	
800 STANDARD ROSE	..		75	

100 IRISH YEWS, 3 to 4 feet high, 1s. 3d. each.
100 " " 4 to 5 feet high, 2s. each.
100 " " 5 to 6 feet high, 3s. each.
20 " " 7 to 8 feet high, 4s. 6d. each.
3,000 strong LAURELS, good stuff.

J. C. Padman, Boston Spa, near Tadcaster.

COLLECTIONS of BULBS.

The COVENT GARDEN COLLECTIONS,

Part for In and part for Out-of-door Decoration, 10s. 6d., 15s. 6d., 21s., 42s., 63s., & 105s.

BARR & SUGDEN. SEED & PLANT MERCHANTS 12 KING ST. COVENT GARDEN WC

COLLECTIONS of BULBS.

The PAXTONIAN COLLECTIONS.

For the Ornamentation of the Spring Garden, 10s., 15s. 6d., 21s., 42s., 63s., & 105s.

200,000 CROCUS, 100,000 SNOWDROPS, 50,000 HYACINTHS, 100,000 TULIPS, SCILLA SIBIRICA, NARCISSUS, RANUNCULUS, ANEMONES, &c.

THE CLIVEDEN COLLECTIONS of SPRING-BLOOMING PLANTS, drawn from the Stock at Cliveden.

150 PANSIES ASSORTED | 200 DAISIES ASSORTED | 100 FORGET-ME-NOT | 100 SILENE | 50 COWSLIPS.

The above, 105s.; Half the quantity, 50s.; Quarter do., 25s.; Eighth, 12s. 6d.

FORGET-ME-NOT, blue	5s. 6d. per 100	DAISY, pink	10s. 6d. per 100
" " white	7 6 "	" white	10 6 "
SILENE, pink	5 6 "	POLYANTHUS, mixed	12 6 "
" white	5 6 "	COWSLIPS, mixed	12 6 "
SAPONARIA, pink	5s. 6d. per 100		
" white	5 6 "		
ARABIS ALPINA	15 0 "		
" LUCIDA	50 0 "		

STANDEN'S GARDENER'S and AMATEUR'S FRIEND, the best Manure for Chrysanthemums, &c. See Advertisement, page 1009.

Fruiting Vines, Camellias, &c.

JAMES CARTER AND CO. have NOW on VIEW at their Crystal Palace Nursery, Perry Hill, Sydenham, S.E., a large and choice COLLECTION of extra strong FRUITING VINES in Pots, well ripened, and sure to produce a heavy crop of Fruit, at from 6s. 6d. to 12s. 6d. each; also, a large assortment of the best kinds of CAMELLIAS, well set with Buds, at 24s. to 42s. per dozen; also, a choice COLLECTION of CHRYSANTHEMUMS, fit for present season's blooming, at 6s. per dozen.

PRICE LISTS gratis and post free on application to

JAMES CARTER & Co., 237 and 238, High Holborn, London, W.C.

Fruit Trees and their Management.

J. SCOTT'S PRICED FRUIT TREE CATALOGUE and DIRECTORY is now ready. It gives the names and descriptions of nearly 1000 kinds, with the best modes of Cultivation and Training. Is replete with interesting matter on Fruits and Fruit Trees, and is allowed to be the best work on the subject out. Price 1s., returnable to purchasers. The Collection is unsurpassed for healthiness and beauty, and for variety unequalled by any other Collection in the kingdom.

GENERAL NURSERY CATALOGUE gratis on application.

Address, Merriott, Somerset.

CHRYSANTHEMUMS, and How to have them Fine for Exhibition.—Use STANDEN'S GARDENER'S and AMATEUR'S FRIEND.

STANDEN'S GARDENER'S and AMATEUR'S FRIEND, a highly concentrated Odorous Fertiliser, for Chrysanthemums and all kinds of Stove and Greenhouse Plants, Vines and other Fruit Trees in pots, &c.; also Vegetables, &c., in the open ground.

No. 1 FERTILIZER is the best adapted for Chrysanthemums and Hard-wooded Plants of every description.

No. 2 FERTILIZER is recommended for Soft-wooded Plants, Bulbs, &c.

Sample Canisters, 1s. & 2s. 6d. Bags, 5s. 6d., 10s. 6d., and 21s.

May be had of the leading Nurserymen and Seedsmen.

BARR & SUGDEN, Seed and Plant Merchants, 12, King Street, Covent Garden, W.C.

A List of Agents will shortly be published

American Plants, New Hardy Rhododendrons.

WATERER AND GODFREY'S PRICED and DESCRIPTIVE CATALOGUE of AMERICAN PLANTS, as cultivated in the Horticultural Gardens, South Kensington, free on application. This Collection fully justifies the encomiums on its most worth growing, as well as some few and very handsome kinds exceedingly rare in possession, and never before offered.

Kings Ho Nursery, Woking, Surrey.

Hardy Scarlet Rhododendrons.

JOHN WATERER'S CATALOGUE of HARDY SCARLET and other CHOICE RHODODENDRONS as annually displayed in the Royal Botanic Gardens, Regent's Park, can now be had on application.

It contains faithful descriptions of all the varieties really worthy of cultivation, as well as a selection of HARDY CONIFERS, with heights and prices, with ORNAMENTAL EVERGREENS, FOREST TREES, &c.

The American Nursery, Bagshot, Surrey.

Rhododendrons.

JOHN WATERER begs to offer the following Six RHODODENDRONS, in good, strong, healthy plants, at 6l. 6s. the Set, the usual discount to the Trade:—

SIDNEY HERBERT	MRS. FITZGERALD
JOSEPH WHITWORTH	THE WARRIOR
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The American Nursery, Bagshot, Surrey.

New Rhododendrons.

JOHN WATERER is prepared to execute Orders for the following Six RHODODENDRONS at the subjoined price. They are this season offered for the first time, and are particularly recommended for the following qualities, viz, Hardiness, fine Foliage, Free Bloomers, and as being perfectly distinct from any other known kinds.

ALEXANDER ADIE.—Brilliant rosy scarlet.
SIR JAMES CLARK.—Dark shaded crimson.
SIR WILLIAM ARMSTRONG.—A very bright crimson.
THE DUCHESS OF SUTHERLAND.—Nearly white centre bordered with rose.
LADY EMILY PEEL.—A very bright rose, intensely marked with chocolate-coloured spots.
RAPHAEL.—Reddish crimson, and large bold flower.

The Set for 6l. 6s. Usual discount to the Trade.
The American Nursery, Bagshot, Surrey.

NEW PLANTS.

AUBRIETIA CAMPBELLI (effective spring flower).
FUCHSIA BANKS'S BEAUTY.
VERONICA FRUTICOSA GLAUCA.
CLIANTHUS DAMPIERI, in varieties (seed only).

Coloured Plates, post free on receipt of Stamps, of the following:—
AUBRIETIA CAMPBELLI, 7d.
CLIANTHUS DAMPIERI ALBIFLORA, 1s. 1d.

For description of the above see E. G. HENDERSON & SON'S New AUTUMN CATALOGUE, forwarded post free.

Wellington Nursery, St. John's Wood, London, N.W.

BUTLER AND McCULLOCH, SEED MERCHANTS, South Row (or Strand side), opposite Southampton Street, Covent Garden Market, London, W.C., beg to offer the unrivalled COLLECTIONS of FLOWER ROOTS at 10s. 6d., 15s., 21s., 25s., 50s., and 100s. each. Suitable for Greenhouse or Conservatory, for Flower Garden only, or for Greenhouse and Flower Garden, of which full particulars in their BULB CATALOGUE, which may be had post free on application.

CAMELLIAS, WELL SET WITH BLOOM BUDS.

JAMES VEITCH,

THE ROYAL EXOTIC NURSERY, CHELSEA, S.W.,

DESIRES TO CALL PARTICULAR ATTENTION TO HIS

MAGNIFICENT COLLECTION OF THE ABOVE.

BUSHY PLANTS, of all the leading varieties, 42s., 60s., 84s., to 105s. per dozen, according to size.
HALF SPECIMEN BUSHY PLANTS, of fine shape, 10s. 6d. to 21s. to 31s. 6d. each.
Very fine SPECIMEN PLANTS, 31s. 6d. to 63s. to 105s. to 210s. each.

All well set with Buds, and in perfect health.

NEW GARDEN PLANTS

FOR EXTENSIVE DECORATION IN EARLY SPRING AND SUMMER MONTHS.

Aubrietia Campbelli (syn. A. Hendersoni).

This beautiful variety is one of the most desirable hardy spring-flowering perennial herbaceous plants for the decoration of the Flower Garden yet introduced, having received several First-class Certificates of Merit for its special value in Early Spring-flowering Groups.

It forms a remarkably neat, dwarf, and compact growth, resembling the well-known A. deltoidea or A. purpurea, equally tuft-like, 2 to 3 inches in height; its ovately-deltoid-formed leaves are arranged like its kindred species in close erect terminal leaf-tufts, of a sub-rosulate outline, from the axils of which are produced a profusion of rich violet-purple salver-like blossoms, so densely covered that in established growth the plants, when grouped, appear like violet-blue flower mounds, couched in lowly but attractive beauty upon the ground-surface. Its period of bloom extends from March until July, and, without the aid of secondary colours, it forms charmingly effective groups at a period when continuous-flowering plants are not plentiful.

It is strikingly adapted for forming select riband rows, parterres, or flower belts during the period alluded to; and, by superior culture in pots, is valuable as portable specimens for placing in vase groups or baskets on terraces, or in cool conservatory promenades, and appears to great advantage when seen skirting the front ground-level of select rockwork, or fringing the borders of terrace slopes.

It thrives in all ordinary garden soils, either upon the declivities of raised grounds or in the open borders, in miniature flower groups, or in extensive riband lines, being unequalled in its rich colour and unique effect by any other known plant of similar growth and season of bloom.

Those Cultivators who wish to possess a Coloured Plate previously may receive one post free by forwarding seven stamps.

Plants—1s. 6d., 2s. 6d., and 5s. each.

Scilla sibirica.

A beautiful little hardy bulbous plant, two to four inches in height, blooming in the early spring months, thriving in ordinary soil, and blooming profusely, with pendent azure-blue bell-shaped blossoms, quite unequalled for marginal effect in flower gardens, or for front effect in baskets, vases, or belts. 16s. per 100; 2s. 6d. per dozen.

The Golden Blotched Daisy.

Crimson-flowered, 6d. each; White-flowered (new), 1s. each.

Veronica fruticosa glauca.

A very neat and distinct new species introduced from New Zealand, the entire stock being purchased by Messrs. E. G. HENDERSON & SON. It forms a compact, densely-branched, dwarf, half-hardy shrub, with small glaucous ovately oblong leaves, squarrosely decussate in outline, and numerous terminal heads of white flowers in the spring and early summer months.

Its very glaucous white foliage constitutes a striking feature in itself, and would produce a marked contrast if grouped or planted out in flower beds or on rockwork. 3s. 6d. and 5s.

Fuchsia Beauty (Banks).

A beautiful exhibition variety, with broad bright carmine scarlet sepals, gracefully recurved; the corolla pure lavender colour, cup-shaped, of a model outline; growth free and vigorous, adapted for pyramid or bush specimens. This beautiful variety Mr. Banks has selected out as one of the best. Will be sent out in October, 1865. 10s. 6d. each.

A CATALOGUE of the most extensive Collection of General HERBACEOUS and ALPINE PLANTS, with valuable Columns of Reference, forwarded free on application.

E. G. HENDERSON AND SON, WELLINGTON NURSERY, ST. JOHN'S WOOD, N.W.

PAUL'S NURSERIES, WALTHAM CROSS, N.

WILLIAM PAUL

(SON and SUCCESSOR to the late A. PAUL,)

BEGS TO OFFER THE FOLLOWING LEADING ARTICLES OF FIRST-RATE QUALITY:—

ROSES.

STANDARDS, 15s. to 18s.; new sorts, 24s. to 42s. per doz. | DWARFS, 12s. to 18s.; new sorts, 24s. to 30s. per doz.
CLIMBING, 9s. to 12s. per doz.
The "ROSE GARDEN," Second Edition, with numerous Woodcuts, 6s. 6d.

DUTCH BULBS.

HYACINTHS, 6s. to 15s.; new sorts, 18s. to 30s. per doz.
BEDDING HYACINTHS, 18s. to 34s. per 100.
EARLY TULIPS, 1s. to 4s. per doz.
POLYANTHUS NARCISSUS, 3s. to 6s. per doz.
CROCUSES, 2s. to 4s. per 100.
GLADIOLI, 4s. to 12s. per doz.
And all other Bulbs equally reasonable.

BEATON'S GERANIUMS.

Reduction in price; the Set of 16 Varieties, 32s. These have now been thoroughly tested, and have proved even superior to the descriptions originally given of them; they have also been pronounced by many leading horticulturists indispensable in the future of every well-arranged flower garden.

FRUIT TREES, in and out of Pots.

Standard and Dwarf-trained Pyramid and Dwarf PEACHES, NECTARINES, APRICOTS, APPLES, PEARS, CHERRIES, PLUMS, GOOSEBERRIES, CURRANTS, RASPBERRIES, STRAWBERRIES, FIGS, and FILBERTS. A selection of all the really good sorts, both young and fruiting trees, in splendid condition.

GRAPE VINES.

Two Thousand Fruiting and Planting, including the newest sorts.

EVERGREEN and ORNAMENTAL TREES.

One Thousand Species and Varieties, selected in a great measure for the beauty of their foliage.

PRICED DESCRIPTIVE CATALOGUES free by post.

The Gardeners' Chronicle.

SATURDAY, OCTOBER 28, 1865.

MEETING FOR THE ENSUING WEEK.

SATURDAY, NOV. 4 { Royal Horticultural (Weekly Show), at South Kensington .. .. 2 P.M.

WE are informed that the date fixed for the opening of the INTERNATIONAL HORTICULTURAL EXHIBITION and CONGRESS is May 22d. The Show will continue till May 25th.

ALMOST every autumn, and especially after hot summers, such as we have enjoyed this year, there appear in our columns, and in those of our contemporaries, notices of trees which blossom a second time. This UNSEASONABLE FLOWERING occurs chiefly in trees that blossom early in the spring; thus it will be noticed that the trees usually mentioned as exhibiting this phenomenon are the Horse Chestnut, the Laburnum, certain sorts of Apples and Pears, the Persian Lilac, &c. Again, it will be found, as a general rule, that these trees are isolated, or at any rate fully exposed to sun and air, that they grow on a dry sterile soil, and that they lose their leaves early; in other cases the trees have been transplanted and their roots injured.

In attempting to get at the rationale of the process, from the facts we have above stated, we must first of all eliminate those cases, such as the Glastonbury Thorn, in which the production of flowers out of due season is the result of some special endowment, some idiosyncrasy as a medical man would say, handed down it may be from generation to generation, and originally due to some cause, the nature of which we are not at present able to explain. What we have now to consider are cases in which the untimely blossoming does not happen constantly, but only so long as certain conditions, such as those before mentioned, are complied with, and which peculiarity is not reproduced in the offspring.

M. DE SCHŒNEFELD, who has paid some attention to this subject, considers the phenomenon due to a premature and unduly protracted arrest of vegetation in summer. A lengthened summer drought checks the flow of sap, thickens it, and so predisposes to the formation of flower and fruit-buds; after this comes a moist autumn, perhaps; new action is taken on, the buds expand again, a second spring occurs. In transplanted trees, or in those which have been cut back in spring, the process of flowering is retarded from similar causes. Such plants as the latter, it is true, do not

flower twice, but having been prevented from blooming at the usual time, in consequence of their growth having been arrested for a while, they produce their flowers when circumstances at length become favourable, so that in either case the unseasonable blossoming is the result of some check, some period of rest, which past, the plant bursts into life again. It is easy to see the bearing this has on practical horticulture; for instance, if it be required to have Lilac blossoms in autumn, it is quite possible to have them by pinching off the flower buds in early spring. We have ourselves accomplished the feat in Rhododendrons, which often produce a second crop of flowers in autumn, poor indeed in colour and form, but it is for the horticulturist to improve upon that. Nature shows him how; he has but to follow her guidance in that matter as in all others.

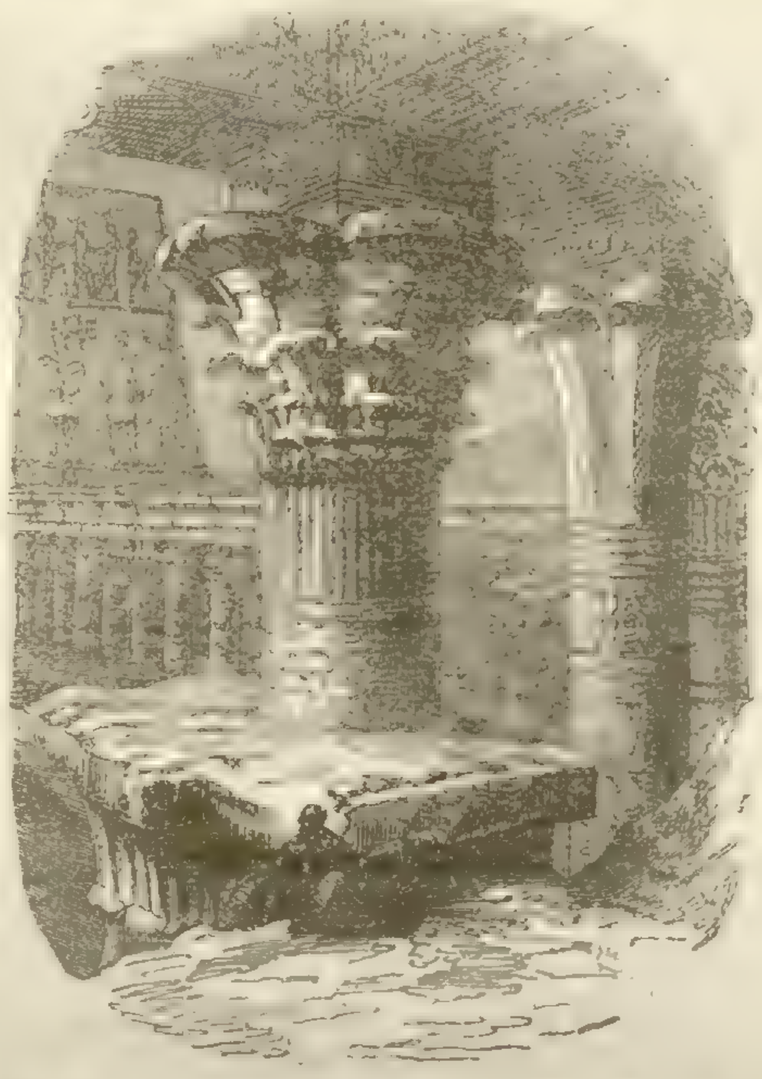
The same principles are involved in the operation of forcing. It is merely a question of altering the time at which a plant shall rest and that in which it shall grow.

There are certain other curious points connected with this subject, which we merely mention now, as we may perhaps revert to them on another occasion. Such among others is the fact that in some of the trees that blossom twice in the year, the second flowers are produced from buds which occupy a different position on the plant from the ordinary flower-buds—which would, in fact, if the order of things were not changed, be developed into leaf-buds and not into flower-buds.

If it be true that we have fairly caught the taste for fine-foliage plants—have become veritable Phyllomaniacs, it is singular that the noblest and most elegant of all plants, the Palms, are as yet so sparingly represented in our hot and greenhouses. There is without exception no class of plants which has exercised so mighty a spell over mankind as this royal race, and no one can seriously occupy himself with Palms and their history without speaking of them in somewhat enthusiastic terms. The most unimpressive minds feel a thrill of delight when first beholding a grove of Palms; it is a sight never to be forgotten by people brought up as we are amongst Oak and Pine forests. The painter transfers it to canvas, the poet writes about it, the architect imitates it in his art, and the gardener—why, of course he, who can outdo all the others by availing himself of the great resources of his art, conjures up in our dull northern climes the most striking features of the sunny South by cultivating Palms in the open air, in greenhouses, or in stoves, as his means will allow. At least this he ought to do; but this, we are sorry to add, as a rule he does not.

It must not be imagined that the spell which Palms exercise upon mankind is a matter of recent growth, due to the refinement of taste which modern civilisation has wrought amongst us. On the contrary, it began to operate in antiquity. It is the true origin of that species of tree-worship which once had such a hold upon all nations of the Eastern hemisphere, which still exists in full force in parts of Asia, Africa, and Polynesia, and which survives even here in the decoration of our houses at Christmas time with Mistleto and Holly, or wassailing our Apple trees on Twelfth Night Eve. If tree-worship had passed away without leaving any other traces we should have little reason to be thankful for it, but we are indebted to it for two of the most noble styles of architecture which the human mind ever conceived—the Grecian and the Gothic.

Let us explain. The Date Palm at an early period of history must have engaged man's attention in an eminent degree. It grows, to begin with, in a tract of country where atmospheric moisture of any kind is so scanty that its leaflets, unlike those of other Palms, are constructed so that at their base they form little receptacles, and thus catch every drop of moisture. It has no branches like other trees, or as the Gingerbread Palm (Hyphæne thebaica), with which it is occasionally associated. It has several features in common with man which no explanation could remove from the minds of primitive people. Its body is covered with hair, like the body of man; its head, once cut off, would no more grow again than that of any human being; the male and female are represented by different trees, and it is well known that the female would die an old maid unless some bachelor should take compassion on her. Add to this that the whole population at that time relied upon Dates as their staple food, as is still the case in those countries. Moreover, take into consideration the impression produced upon an unimaginative people, when after travelling for days in dry, dusty, waterless deserts, with nothing in sight but grey drifting sands and skeletons of animals perished on the road, they suddenly entered a grove of Date Palms, affording water, shade, fuel, food, and repose. They must have been made of stern material if all this had made no lasting impression upon them. As they lay under the trees and saw the evening breeze gracefully playing with the feathery leaves which formed bold arches over them, gilt by the last rays of the setting sun, and soon to be silvered by the rising moon—a forcible appeal must have been made to the religious element of their composition, and these Palm groves must have appeared to them places peculiarly suited for the purposes of worship. And such indeed was the case. Palm groves, and those of the Date in particular, were deemed peculiarly sacred. As civilisation advanced, and regular temples were built, the architect naturally took for his type, what must ever have been associated with his religious feelings—the Palm grove. Hence we find that the oldest Egyptian temples are simply copies of Palm groves. As will be seen in our woodcut, this is evident amongst others in the great Temple at Edfoo, where the leaf of the Date tree has been almost slavishly imitated.



The Greeks stole this, as many other ideas, from the Egyptians, without acknowledging the obligation; and after improving upon it by their unrivalled taste, they handed it down to us as Grecian architecture. Nor do our obligations to the Date Palm end here. We must remember that the oldest pointed arches are to be found in Egypt, and that the Date Palm has been the prototype in the Gothic style of architecture, a pointed arch being simply the meeting of two Palm leaves. In some of the oldest Gothic cathedrals the Palm leaf and its pinnæ are distinctly traceable; and the notion that our Beech woods led to the conception of the Gothic style cannot be entertained by any one familiar with the genius, if we may say so, of the two kinds of plants.

The spell which Palms exercise over men's minds lasts long after their more intimate connection with these plants has terminated. At the time of our Saviour, ages had elapsed since the Jewish people were taught to have any peculiar veneration for a tree worshipped by so many other nations. Yet at Christ's triumphant entry into Jerusalem one of the means used to demonstrate their joy was to cut down Palm leaves and strew them on the ground. To obtain a branch of the sacred Palm was one of the highest honours amongst the heathen nations of antiquity, and "to carry off the palm" is still an intelligible phrase of our language, and in daily use by many people, who, thanks to the present state of things, have never seen a Palm in their lives. Is it not high time that gardeners should free themselves from the reproach that they, of all people, are the only ones indifferent to the beauties of the noblest of all plants?

Apropos to the season we may invite especial attention to some forcible remarks on Transplanting which will be found in our present issue, and others which were printed at p. 986. The points principally insisted on by our correspondent as most conducive to a successful result in the carrying out of this important operation are these:—Plant early, and puddle the roots.

Now, the advantages of early transplanting, which have been often insisted on, rest on a threefold basis. There is first of all the fact which is well stated by Mr. Forsyth in these words:—"The time comes *** when any process whereby a large portion of the water [which might naturally be imbibed] is kept out of the system, does the essential service," by facilitating that ripening process which is necessary to health, necessary to the consolidation of wood in the case of timber trees, necessary to the maturation of flower-buds in the case of fruit trees, and necessary to the building up of a sound constitution in trees and shrubs of all kinds, whether ornamental or useful. Then there is the second advantage, and that no slight one, to be derived from the increased earth temperature which exists at an early as compared with a late period of the autumn—a temperature which sets the vegetable machine in motion, so far as root-action is concerned, and places it in the most fitting condition for progress when spring comes. It has been ascertained, from observations by Mr. Thompson, that in the neighbourhood of London the earth is in the month of August from 8° to 10° warmer than in October, and in September about 6° higher than in October, 10° to 12° higher than in November, and 16° or 17° higher than in December. The gentle stimulus which this increased earth temperature of the early autumn provides, is and must be of immense importance in the re-establishment of transplanted trees and shrubs.

The practice of puddling the roots at the time of transplanting is one on which differences of opinion appear to exist. Practical men like our correspondent resort to it with eminent success, but then it is argued on the other side that weak or sickly trees may by such a process become gorged with water to the further detriment of their health, and even the destruction of the fibrous portions of their roots. The inference seems clear to be this: that healthy vigorous stock should always selected for planting, and that this, instead of suffering from the process, will be so far benefited that the loss to the tree will be reduced to a minimum, and consequently growth will recommence in spring with just that amount of check only which, as already mentioned, is favourable to the development of a sound constitution.

We had lately occasion to call attention to the fact that the Mycelium of Fungi may be developed to a considerable extent in leaves, causing the total or partial decay of their tissues, without acquiring anything like a full development. This is very strikingly illustrated in a very curious case of disease in Vines which has been sent us from Worcester. The Vines, it is to be observed, are affected in two houses and also in a cold pit, and though the disease has occurred before, it is peculiarly prevalent this year. When once it gets into a house it spreads with great rapidity, a circumstance which indicates something more than a mere local affection. It is quite new to us as far as this country is concerned, but is probably a form of the same disease as that described by Dunal in 1853, under the name of Rougeau, after observations by M. Esprit Fabre,* a Botanist who has made several valuable communications to science.

The disease before us, whether on plants in houses or otherwise, occurs in the form of irregular spots on the leaves, in which the tissue is dead and in some cases falls out, leaving unsightly apertures. Where, however, it attacks a principal nerve, it is more permanent, and sometimes induces a deep rose-coloured tint in the neighbouring tissues, which calls to mind exactly the diffused patches of Dunal's Rougeau, in which the greater part of the substance dries up, so that in many cases the leaves fall long before the maturity of the fruit. In the true Rougeau either the halo or the whole of the surface of the rods, as well as the leaves, is diseased, and in aggravated cases the plants perish. Similarly in the case before us, the disease is by no means confined to the leaves and petioles, but descends to the shoots, where it forms dark spots, the substance of which is depressed in the centre, and the border more or less raised above the surrounding green tissues. The colour in the centre varies from grey to reddish brown, and the whole resembles very closely what is figured in the same plate with the Rougeau

* Observations sur les Maladies régnantes de la Vigne, par M. Esprit Fabre, d'Agdé, mises au jour par M. Felix Pomier, Montpellier, 1853.

under the name of "Anthracnose maculée," a name intended to indicate the carbonisation of the tissues. Dunal was not able to find any distinct fungous tissue in his spots, but we observe not only very abundant mycelium, but a mass of minute cells exactly resembling those which so often occur in the genus Orthidea; and besides this a multitude of minute bodies endowed with molecular motion, resembling those bodies which are called stylospores rather than true fructification.

It is not possible to make any positive assertion about the identity of this disease with one or both of those which occurred at Montpelier, but it is at least probable that it is very closely allied. The Rougeau is very contagious, and it is therefore much to be hoped that this disease, which resembles it again in this respect, will not spread. The only way of checking the Rougeau is to cut the plants off close to the ground, in which case the new vigorous shoots are frequently healthy. If, however, the practice is delayed too long, it is found that the roots are so much affected that either no shoots are sent out, or only very weak ones. If two-thirds or even three-fourths of the rods are affected there is still some hope of recovery, but there is none if the disease has proceeded further. It would be interesting to know whether the disease recurs, and whether the main stem also is affected; and in due course we hope that our correspondent "J. F. R." will give us this requisite information. *M. J. B.*

— Some time ago an inquiry was made in our columns as to the Sex of very large Bay Laurels that had withstood the rigours of the winter of 1860–61. This is an important matter, no less in a cultural point of view than in a physiological aspect. The subject resolves itself into this broad question: What are the circumstances that favour the production of male or female flowers respectively? To get a satisfactory reply a large body of evidence must be collected, and it may be the means of stimulating further inquiry into this interesting subject to point out that among Conifers particularly, the young plants, when they begin to flower, produce blossoms of one sex only, either male or female, as the case may be, and it is only after the lapse of two or three years that flowers of both sorts are produced. It is possible that a species which in the southern parts of this island begins by producing female flowers only, might in the north show male blossoms first. We do not say that this is the case, but we should be glad to receive information from our correspondents on this head, the more so as the accuracy of Mr. Knight's observations on the sex of the flowers of Cucurbits, as modified by heat or other external conditions, has, and we think with justice, been called into question.

— The *Journal of Agriculture* for Nova Scotia, in alluding to the annual exhibition of the Fruit Growers' Association of that colony, to be held at Wolfville in October, says:—"There is in the possession of the Association a silver medal of the Royal Horticultural Society of London, awarded to this Association for the collection of fruits sent from the exhibition held at Kentville in October, 1863, which will be open to competition by the members of the Association only, for the best lot of the following six sorts of Apples, 12 of each sort:—Gravenstein, Yellow Bellefleur or Bishop's Pippin, Ribston Pippin, Baldwin, Nonpareil, and Rhode Island Greening. The silver medal must be taken three years in succession before it will become the property of the successful competitor."

— Mr. H. J. Church gives, in *The Chemical News*, the following method for making Skeleton Leaves:—"The leaves are boiled for two minutes, then transferred to a strong solution of permanganate of potash and gently heated. In an hour or two the laxer tissues may be easily removed by means of a brush. Sulphurous acid or a solution of chloride of lime may be used for bleaching them. The stains of permanganate of potash upon the fingers are easily washed off by dilute sulphuric acid."

— It is stated that a new method of Destroying the Insects which infest old trees has been employed with success by M. Robert, who it appears has thus saved the old Elms of the Boulevard d'Enfer from decortication. The operation is thus described in "Cosmos:"—A little of the old bark is shaved off in order to facilitate the operation; then the whole of the trunk of the tree is impregnated with a concentrated solution of camphor in alcohol. This, it is said, not only destroys all the insects then in them, but prevents others from attempting to penetrate the bark.

— A Handbook of Physiological Botany is announced for publication by Professor Hofmeister, with the assistance of Messrs. A. de Bary, Th. Irmisch, R. Pringsheim, and J. Sachs. The work will appear in sections. The first part will contain an account of the plant cell, and a general sketch of the organography of plants, by Professor Hofmeister. The subject of the formation of shoots will be undertaken by Th. Irmisch, and the anatomy of the organs of vegetation in vascular plants by M. A. de Bary. The second part will include the morphology and physiology of Fungi and Liver Worts by A. de Bary; the Editor contributing a similar article on the Mosses and vascular Cryptogams. The third part, also by Professor Hofmeister, will be devoted to the reproduction of the Phanerogamia. The fourth part will, it is announced, comprise the subject of experimental physiology, by J. Sachs. The importance of this work is attested by the names of the contributors.

— We understand that the Council of the Caledonian Horticultural Society have awarded the Neill Prize for the triennial period, 1862–65, to Mr. William Thomson, gardener, Dalkeith Park, for his eminence as a Scottish horticulturist.

STRAWBERRY FORCING.

(Concluded from page 939.)

The proper method to be adopted for the preservation of the plants through the winter will very much depend upon the stock and convenience at command. If the stock be a moderate one, and pit room plentiful, I should recommend the pots to be plunged in cold pits early in October, and the lights to be left entirely off until the advent of frosts; and as these increase in severity, and are likely to be hurtful to the crowns, the pits should be efficiently protected. If, on the contrary, the stock is reckoned by thousands, a few only of the earliest potted and strongest plants should be so treated for early purposes, and the remainder laid on their sides in coal ashes, and piled up in the form of ridges, which will afford an equal facility for the application of covering material, and is indeed a method by many preferred to any other. In practice, however, I have found that the method is not material, if only care is taken to preserve the plants from severe frosts, and to let them have plenty of light and ventilation.

Much of the success to be attained in the forcing of this delicious fruit will depend upon the structures which are available for carrying the plants through the different stages of growth. These consist for the most part of pits, Peach-houses, Vineries, and Pine stoves, in all of which proper provisions may be made for the purpose. I need here allude only in passing to the improved structures of the present day, which have been designed especially for the purposes of Strawberry forcing, for which they are exceedingly well calculated, inasmuch as they combine certain conditions which are known to be indispensable, with a greater command over them, and a greater facility in applying them. The fundamental points of cultivation, however, remain unaltered by the structures employed; and as good fruit may be produced in very inferior structures, sometimes in fact mere makeshifts, as in the best constructed houses, only they entail more trouble, and the operations are conducted very often at the expense of extreme neatness. We may therefore conclude that it is immaterial what particular kind of structure is employed for the purpose of Strawberry forcing, provided that the necessary conditions are present in an available form, and those conditions may be shortly defined to be the power of applying a temperature, increasing gradually according to the different stages of growth, together with an absolute command over the ventilation.

Now, with regard to a gradually increasing temperature, this is to be attained in a variety of ways. It may be secured in one structure, having the command of heat, but there will be only one crop at a time. With two available structures a better supply may be depended upon; but where there are plenty of houses and pits, it becomes very easy to keep up a regular supply by transferring the plants from one to the other as they require it. This affords an opportunity of starting a certain number every week or fortnight, according to the quantity required, so as to keep up a constant succession. In a general way, a pit, having the command of heat to start the plants in, a Peach-house or similar structure for the second stage, and a Vinery in full work, or a Pine stove, to ripen the fruit off, will be amply sufficient for a very good supply. When there is only one house at command there may be a good supply at one time, but no regular succession can be kept up. The supply may however be very much increased by the aid of a pit in addition, and this pit may be heated with hot-water pipes, or flues, or it may be a Mac Phail pit heated with dung linings, or a deep cold pit filled with a mixture of stable litter and tree-leaves previously turned about often in order to get rid of the rank fermentation. This latter plan is an excellent one for starting plants late in February, and on through March and April; but cannot be trusted for earlier purposes, because it is most probable that the heat would decline just when most wanted. If therefore the fruit be required early, the temperature must be wholly under control; and for that purpose there is nothing better than a pit with the requisite command of heat. By the aid of such a pit, and with the additional convenience of a Vinery to finish the fruit off, a good supply may be obtained, both early and in succession.

The mode of working will be the same in every case: a certain number of pots, regulated according to the demand or convenience for forcing, should be introduced into a temperature which for a few days should not be much above that of the external atmosphere, but may then be gradually raised until the night temperature, which requires the most careful attention, takes a range from 55° up to 60°, until the fruit is set, after which an increase of 5° may be allowed. The day temperature being so much influenced by external conditions is not so thoroughly under control, but as a general rule the range to be aimed at by fire-heat is from 60° in the earlier stages, up to 75° during the ripening process. Of course a bright sunshine will often increase this temperature considerably, but as that affords an opportunity of giving abundance of air, it is beneficial rather than otherwise.

From the first day that the plants are introduced into heat until the fruit is gathered, the greatest attention must be paid to watering. Any neglect on this point is irretrievable after the plants are in full growth. It ought properly to be the work of one person, and should never be indiscriminately performed, but regulated according to the condition of the plants. It is for this reason that no precise directions can be given, because the quantity required varies with the state of growth. In the early stages the amount required will be considerably less than when the plants are in vigorous action, but at no time must they be allowed to become so dry as to cause the leaves to flag. The most copious supply will be necessary from the time the fruit is set and swelling, up to the colouring point. Symptoms of defective drainage must always be looked for and corrected. Syringing must be resorted to evening and morning (with the exception of a few days when the plants are in bloom), up to the time when the fruit begins to colour; and both for syringing and watering it is best to use, if possible, soft rain water, and that invariably of the same temperature as that of the internal atmosphere of the structure. This is highly important, for if the plants are chilled through any sudden application of cold water, a check is sure to be given to the principle of vitality, and this often results in blindness, curious malformations of the fruit, and other mysterious appearances which puzzle the uninitiated.

The use of liquid manure is important during the swelling process, and should always be resorted to as soon as the fruit is set. Twice a week is not too often for its application to plants in vigorous health, and it should always be quite clear when used, and diluted in proportion to its strength. A very good method of preparing a quantity is to put the excrements of animals, either biped or quadruped, or both together, into a large tub or butt, to which may be added a small portion of soot, and then fill up with water, the mixture to be put together some time before being required, and to be frequently stirred about until the strength is extracted, and then left to settle. It is better to use it rather weak than overstrong, and its use must be discontinued when the fruit begins to colour.

Another most important consideration is that of Ventilation. The want of a careful attention to this will often render all other efforts nugatory, so that from the very commencement the plants should be inured to a free current of air, whenever it is possible to admit it without danger, and that can only arise from exposing the plants suddenly to extremely cold and cutting draughts. From the amount of moisture required about the plants the atmosphere would soon become too stagnant and damp, if ventilation did not step in to correct it, for which reason a certain portion of air should always be left on at night, and this must be increased early in the morning, more or less, according to the state of the external atmosphere. By thus inuring the plants at all times to the play of fresh air, they become so far hardened as to be much less liable to suffer from sudden exposure to cold and cutting draughts. To carry this system out well there must be a good command of heat, so that the operator should be able to regulate the temperature by ventilation, rather than be obliged to keep the house close to economise the heat.

It is important, also, that the plants should be kept as near the glass as possible. The rays of light in passing through glass lose their power of acting beneficially upon plants in proportion to the distance at which they are placed from it. Thus, when close to the glass, the plants grow strong, healthy, and stocky, but as the distance is increased so do they become attenuated and drawn out, so as to be really smaller in all their parts, and thereby less able to bring good fruit to perfection.

Among the minor causes by which the superior quality of the fruit is influenced, is that of thinning. Healthy plants will always throw up and set many more fruits than they are able to bring to perfection. As a general rule, the earliest blooms produce the finest fruit. All the small ones should therefore be nipped out as soon as possible after the fruit is set, leaving from 12 to 18 or 20 on each plant, according to its strength.

The time required to produce ripe fruit, from the period of starting, varies with the season. Thus plants started the first week in December should yield ripe fruit by the first week in March; but as the season advances and the sun becomes more powerful, the time required is much less, so that good fruit may be produced on an average, in 11 weeks. Whilst on this

point, however, it may be as well to remind cultivators that very early forcing, say any time before the third week in January, should never be entered upon where a full crop is desired, and is only eligible in large places where both the stock and the conveniences for forcing are so abundant that a half crop may be made to meet the requirements, by putting a double number of pots to work. Plants started after the time above mentioned may be reasonably expected to produce a full crop.

Previous to being introduced into the forcing houses the plants should always have a portion of the surface soil in the pot removed, and its place supplied with fresh compost; the pots also should be scrubbed clean. The question as to whether saucers should be used to the pots, is rather a vexed one. In my opinion they are not necessary, but there may be some particular cases in which they may be found useful. Thus, for example, where every attention can be paid to the watering and syringing, I would never use them; but there are cases in which a man's hands are so tied for want of labour—he knowing full well that the want of water will be fatal to success, and that he cannot always apply it at the right time—that he will naturally and gladly resort to their use, in order that the plants may not suffer.

I think I have touched upon all the salient points connected with the forcing of this delicious fruit. I will conclude by observing that if the forced plants are healthy and free from red spider, they may be planted out at good distances apart, say from 30 to 36 inches, in well-prepared soil, with a chance of a tolerable autumn crop, and the certainty of a splendid crop the next summer. To ensure this, however, great attention must be paid to the watering, for some time after planting. *John Cox.*

ON TRANSPLANTING TREES AND SHRUBS.

(Continued from p. 987.)

When the leaves have dropped, and trees and shrubs assume the dormant state, the natural season for transplanting has come; and where large plantations are being made it becomes necessary to plant every day when the work can be done, that is to say, the planter must begin as early in the season as he can, and carry on as late as he can. Under these circumstances the principal danger is dryness. The old adage has it, "Put a tree in the ground before Christmas and tell it to grow; but if it is left till after Christmas you must ask it to grow." It is therefore clear that the times and the seasons have everything to do with this business, as all experience, ancient and modern, goes to establish.

Land tilled only a few inches deep is very easily dried; hence depth of tillage or trenching is essential to success in arboriculture. Land trenched two feet deep early in the season will, however, imbibe such a supply of moisture in the winter months as will keep the roots of the trees moist till nearly midsummer under ordinary circumstances; and as there is no royal road to success in this old-fashioned art, the plough, the pick-helve, and the pointed shovel must face the difficulty at a heavy expenditure of wages.

The earth being finely pulverised, and the plants honestly planted before the old year goes out, nothing need be said here of the trees put in before January; but after that we come to the time when the nature of the work to be done before the trees can be got in, demands that they be planted as late as they can be to live. I have planted the Rock Rose tribe (Helianthemums and Cistuses) in the scorching sun and drying winds of April on stony ground, high and dry, and every plant has succeeded, and has not only lived, but also flowered. I need not say that putting the plants in earth and watering them in the usual way would not have succeeded. I believe three days would have killed them all, for it must be borne in mind that every plant was put upon a small hillock of stones, so that when it did grow and flower it might fall gracefully to the ground and display its marvellous beauty to the best advantage. These were all planted in prepared mud, and just as a stone-mason would lay a bed of mortar on the stones of his building, and then place another block, so did we with the Cistineæ, which are rightly named Rock Roses, for they delight in a hillock of stone-brash, and a fine large pebble or boulder is an excellent sun-blind between the rootlet and the air. Few persons have any idea of the power that a heavy stone has in maintaining moisture over a root.

Finely powdered peat soil, finely powdered clay, or peat and clay reduced to a mortar-like state, and plenty of sand or stone-brash added, will with water make an excellent puddle for the more delicate kinds of shrubs and costly trees as above stated. For ordinary trees, when the pit is made, and the plant put in, and a part of the fine soil added, it will suffice to let the water flow, and work the earth with the foot into a puddle there and then, and afterwards cover in. It will be many a day before that puddle is in the same state as earth not puddled. It is in quite a distinct state, and goes closer and more compactly together than any amount of dry ramming or treading without water could secure. Earth that is puddled does not take water freely; hence it is not desirable to puddle the upper layer, as the after watering would be rendered less serviceable if the puddle were on the surface. You might as well pour water on a duck's back as pour it on high dried peat earth or moist clay puddle; neither of these would take it in.

Cow-dung added to clay makes an excellent puddle for trees, such as nursery stock when first sent out. It is made of the consistency of paint or cream with water in a pit or tub, and kept stirred, just as the paper maker contrives to stir the pulp he uses to an even consistency, by which he can give paper an exact weight or thickness. He knows how to stir a tub of gruel for his own interest, and woe to the gardener that will not do as much for the beautiful objects entrusted to his care.

Now, whether the plants come from one's own nursery, or whether they are purchased, the puddle ought to be part of the business of transplanting. Every rootlet as soon as dug up should get this salve applied to its wounds; and afterwards those that plant and those that water may go their rounds rejoicing, for half their work has been done when the feeders have had this surcoat laid on. *Alex. Forsyth.*

GENEALOGICAL TREE OF THE PEACH TRIBE.

Under this title M. Carrière is publishing a series of articles in the "Revue Horticole." The subject is so interesting, and is treated in so lucid a manner, that we need offer no apologies for laying before our readers in a condensed form the substance of M. Carrière's papers. The first article is accompanied by a figure representing an imaginary Peach tree—a genealogical Peach tree—by means of which he explains the formation of the different races of Peaches and Nectarines that we have now in cultivation. The main trunk, A, represents the primitive Peach; this gives off near the base two branches—one to the left, one to the right; above these, after an interval, two similar branches sprout out. Each of these primary branches gives off numerous branchlets after the same fashion; these branchlets give origin to tertiary ramifications, and so on. This can be understood without reproducing M. Carrière's plate. Of the two lowermost primary branches, that on the left, which henceforth we will call B, is supposed to represent the Clingstone Peaches; that on the right, C, the Freestone Peaches. The two upper branches, D and E, indicate respectively the Clingstone and the Freestone Nectarines. For illustration's sake, M. Carrière takes the main trunk to represent the group Peach, of which B, C form two species of one genus, and D, E two species of another genus.

Each of these species ramifies and produces races, varieties, and the like, and M. Carrière's object is to show how these varieties originate, and how, having originated, they may be referred by their characters to their proper place on the "tree."

Having thus introduced the subject, M. Carrière leaves the Peaches for a time and enters into some generalities connected with the life history of plants, which we need not reproduce here, but which nevertheless will repay perusal, from the clearness and elegance with which they are treated. We cannot refrain from extracting the following—"The law that brings about the extension of the type by the modification of individuals may be considered as the result of two opposing forces; the one tends constantly to modification and change, the other to fixity and permanence. Each is constantly in operation, but with unequal force. Indeed, had they equal power, as they act in opposite directions, progress would be impossible, and things would remain for ever at a standstill, which is certainly not the case. From this it results that the modifying principle is more powerful than the conservative one."

In illustration of what he has before said, and by way of introducing the subject of the Peach, M. Carrière takes the cases of the China Aster and of the Stock. In reference to the former he writes as follows:

"When first introduced from China into France towards the middle of the 18th century the China Aster had single flowers of a pink, violet, or lilac colour, but the stems were slender, so that the flowers were apt to droop. At the present time, from the numerous seedlings which have been raised from the Asters, plants have been obtained of great diversity in habit and appearance. Some are tall, with rigid erect stems, others are almost stemless, and all intermediate forms between these extremes may be met with. The flowers of these varieties present the greatest differences one from another in colour, in form, and in size, and what is most remarkable is that they all reproduce themselves (keep true), and so form distinct races, even though grown side by side.

"Some of the races are so entirely different from the others that if their origin were not known, they would be taken for different species. It will readily be admitted that all these forms of Aster are the result of natural selection and not of hybridisation, for with what pollen could the Aster be fertilised, since it is the only species of its kind, and there is no other species in cultivation among allied genera sufficiently near it to allow of cross fertilisation? Again, these plants are rarely visited by insects (?), and these latter would have difficulty in reaching the stigma, as this is much shorter than the tube which contains it.

"The Stock furnishes us with still more remarkable facts. If we take, for example, as our starting point the plant usually considered as the representative of the type, we shall see that its leaves are densely clothed with short white hairs so as to appear hoary, and, as it were, felted; but amongst the seedlings varieties have been obtained with flowers of a white, red, lilac, pink, violet, or yellow colour. We see moreover that each of these varieties, after having become permanent enough to form 'races,' has given origin to 'sub-varieties,' differing in habit, but producing flowers very like in colour those of the parent plant. These sub-varieties become permanent in their turn, and form other races; so from the original Stock we have obtained several very distinct series, each comprising a number of individuals.

"But this is not all, for from this first type smooth-leaved varieties have originated, and this smoothness of leaf has become hereditary, so that we have now two principal groups of Stocks, one with hoary leaves, the other with smooth leaves, each of which may be subdivided into minor groups containing other varieties."

M. Carrière proceeds then to point out the analogies between the Stocks and the Peach group. "For," says he, "there is first a downy leaved group, which produces a great number of varieties which form races; from these sub-varieties proceed; after a time a new type appears, differing from the first in the absence of hair on the leaves, and which, like the first, originates a great number of races. Now in the Peach we see first a type with downy fruit, which in course of time produces varieties which become permanent; after a time another type with smooth fruit appears (Nectarines) which also produces varieties and races, and becomes *mutatis mutandis*, the exact counterpart of the Peach group.

"Analogous facts to those which occur in the Asters and Stocks, and which prove that without any inter-crossing any 'type' can, by virtue of its own inherent vitality, that is to say, by modified descent, give rise to new races, may be met with in the Beet-roots, the Cabbages, the Onions, &c. Among these plants new varieties spring up constantly, fix themselves, and perchance form races as stable as those which are commonly termed species. There are some races which are so constant that they cannot be made to degenerate or to return to their original types; such are the majority of Cabbages, Lettuces," etc.

(To be continued.)

Home Correspondence.

Unseasonable Blossoming.—The great heat and attendant lack of moisture of the past summer, followed up as it has been by an excessive amount of rain, has forced into blossom now many shrubs that ought naturally to have flowered next spring. The Laburnums have felt this influence, and in many cases are almost as floriferous as they would be at their natural season. I might enumerate many more in this category, but will only take a few as examples. Some Thorns that have not produced fruit are now showing a second set of flowers. Apples and some sorts of Pears are doing the same—in the case of some of the Apples even though they have already produced fruit. Some Magnolias usually produce a second set of flowers, and are this year more than usually full of bloom. Magnolia glauca Thompsoni has not shown any disposition for this late flowering; its relative M. glauca sempervirens has bloomed in abundance. But the most singular occurrence is amongst the varieties of Rhododendrons, some sorts of which are literally covered with blossom now, such as many varieties of R. ponticum, viz., roseum, undulatum, &c., while not a single instance has occurred with me of the untimely blossoming of the very early kinds. In fact, not one bloom has appeared on any of the kinds raised from arboreum, or any of the Indian blood, nor even from caucasicum, all of which are sought after by those wishing early bloom in the forcing houses. No Rhododendron with pure North American blood, such as maximum or catawbiense, has been at all affected by the peculiarities of the season. Kalmia latifolia has not opened a blossom, nor has K. angustifolia, whilst roseum, always an autumn-flowering plant, is more floriferous than ever. Thus neither the very early nor the very late Rhododendrons have been affected; the intermediate ones are those which are now full of flower. *William Masters, Exotic Nursery, Canterbury.*

Another Bedding Viola.—Since writing the note about Viola montana, I have had a parcel from Mr. J. Wills, late of Oulton Park Gardens, and now of Bootrydes Park, Burnley, Lancashire, containing fresh specimens of Viola cornuta, which has been used with great success at Oulton Park during the present season. The specimens were full of bloom, and the flowers deliciously sweet—colour, a delicate mauve. It is a dwarfer and more compact plant than the Liverpool one. Mr. Wills says it has been in full flower the whole season—since March and April; the beds must have been very flowery from which the specimens were cut in October. It is singular that the two Violets should have been tried and proved good in one season; both are certainly worth a place in every summer garden where variety is sought or taste employed. *W. R.*

Polemonium cœruleum variegatum.—Mr. D. Thomson, of Archerfield, writing recently, speaks as follows of this prettily marked plant:—"I have been surprised that in all your peregrinations you have never stumbled

upon it as a bedding plant. We grow it here in quantity, and it is not excelled by anything for beauty and grace. The non-gardening public take it to be a variegated Fern. I expect you Londoners will be scrambling for it to 'send out' by-and-by, after we have it by the thousand, as was the case with Centaurea ragusina." Hitherto it has only been grown as a rather scarce and delicate variegated plant about London. It must look very pretty as an edging, &c., when well and cleanly grown. *W. Robinson.*

Silver-striped Hawk Moth.—Your entomological readers may be interested in hearing of the capture of a fine specimen of this moth (Chærocampa celecrio), which occurred here a few days ago; it is supposed that the larva fed on a Vine growing on the premises of the captor, and if so, hopes may be entertained of a moderate supply in the spring. I have in my possession a very good specimen of the Death's-head Moth caught in the town; it seems to be commoner than usual this year. The long drought has been very favourable for the development of Sphingidæ, and many fine specimens of the rarer kinds have been seen in this district. *J. Dale, Coleshill, Warwickshire.*

Mistleto on the Oak.—There is now growing on an Oak tree by the side of the drive leading to Eastnor Castle, the seat of Earl Somers, situated between this town and Ledbury, no fewer than five large bunches of Mistleto, apparently in the greatest luxuriance. I discovered them a few days ago, on the right-hand side, about a quarter of a mile from the Deer-park gates, going down from the Malvern and Ledbury Road. Mention has been made in your pages of Mistleto having been found on Oak trees in different parts of the country, amongst which is named Ledbury in Herefordshire, but the information has been received with doubt. If those, however, who may still be unbelievers in the matter will pay me a visit, I will direct them to the spot where it is growing. *G. Butcher, Great Malvern.*

Peach Houses.—We hear and read a good deal about early forcing Peach houses, and also about the proper methods of erecting orchard houses for Peach culture on the forcing system, but no one appears to think it correct in practice that houses should be constructed to retard fruit beyond the time of their ripening on the open walls. Nevertheless this is quite as easy as constructing houses for early work. If we take May as the first month in which Peaches can be got for table by forcing, they can, by retarding, be had up to November, thus yielding a supply, where there is a demand, for somewhere about seven months. I have been watching this for several years, and have proved this season, that in a house I could gather fine Barrington Peaches two weeks after the last of the same sort were gathered from a wall with a south by east aspect, where it was planted to come in later. We are gathering at present from a seedling of Mr. Rivers's, got several years ago, but of which unfortunately the name is lost. A Salway inside the house is still green and hard. This result is obtained merely by causing a current to circulate through the house night and day in the spring and summer; and where late Peaches are a desideratum, the plan could be easily carried out upon a large scale. There is this advantage also, that under glass they can be shut up at any season, and kept from wet and cold now. *F.*

The Humming-bird Moth.—This seems to be a merry moth, flitting about from flower to flower. I notice that in the many intimations of its occurrence which have appeared in the papers, Scarlet Pelargonium, Jasmine, Scarlet Verbena, and Larkspur, have been specially mentioned as subject to its visits; but if we may judge from the frequency of the notices, the Scarlet Pelargonium is the favourite. *M. C. W.*—— I have kept one of these alive for the last five days in a Hyacinth-glass, occasionally putting into the glass a few Geranium flowers. I may add, that at times the humming, in conjunction with echo from the glass, almost made one imagine that there was a musical box in some hidden corner of the room. *A. Ramsay, Castleborough, County Wexford, Ireland.* [The specimen was a genuine example of this moth.]

Maréchal Niel Rose.—I wish that I could endorse the opinion expressed in your pages (see p. 989) that the veritable Maréchal Niel has not been personated by one or two well-known American ladies, to wit—Jane Hardy and Isabella Gray. It was not from hearsay but from my own observation that I announced this fact in my new Rose Catalogue; and I am ready to make affidavit that I have seen Jane Hardy in the Maréchal's uniform, and in more than one place, both in England and on the Continent. I read also in a French catalogue, which has just reached me, that "among the plants of this magnificent Rose which were sold last autumn, it is found that some are not the true variety." In one instance I found "Jane" in full bloom with the Maréchal's badge on her coat. Now, "Jane," I do not wish to be hard with you, but this is a little too bad. You compel me to say that the Maréchal having politely given me the first flowers he produced in England, I cannot allow his fame to be even temporarily clouded by an impersonation unworthy of him. You are much alike in general aspect, but his eyes are farther apart than yours, and although a soldier he is less rough than you are. He is also less inclined to *embonpoint.* Your appearance, as might be inferred from your conduct, is somewhat tortuous; his, manly, erect, and straightforward. You more closely resemble "Isabella Gray," he is more like to "Chromatella." Ah! Jane, you have shown bad taste in this adventure. You are ambitious of being great, but the path of glory is not the path for you. Withdraw, withdraw. You are pretty, and should be content. Think on what Walter Savage Landor has told us, that "women, like the plants in the woods, derive their softness and tenderness from the shade." *William Paul, Waltham Cross.*

Stoneless Berberries.—Some time ago I was in Dorsetshire, where I found splendid trees of Berberry, with bushels of fruit on them, entirely without stones. Upon asking a gardener about them, he told me that all the Berberry bushes there, whether wild or in gardens, were stoneless. Upon this I wrote to a west-country nurseryman to get me some plants of this variety. He tells me that he can send them to me, but that they will have stones until they become old trees. Some 20 years ago I purchased six plants of stoneless Berberry of a celebrated nurseryman, and after watching them for years, when they fruited, they had rather larger seeds than usual, and continue to bear them. Can any light be thrown upon this matter? I think Berberry preserve one of the most delicious there is, and I am obliged to make it of the common kind because I cannot get the other. Possibly this notice may make some kind person tell me how to get plants of the stoneless variety. *W. D. F.*

Copper-coloured Beech.—I have seen a copper-leaved Beech produce an abundance of beautifully-coloured copper-leaved seedlings. They were as dark as I ever saw the parent tree, and in rather more proportion than half. The trees in nurseries are, I think, grafted or budded. *W. D. F.*

Double-glazing.—A Phalænopsis Schilleriana in the collection of L. Reichenheim, Esq., with six leaves, the largest of which is 14 inches long and 5¼ wide, has been named (see p. 963) as an illustration of the advantages of double-glazing. We have one here that has never been in a double-glazed house, which has six fine healthy leaves upon it, the longest of which is 15 inches, the widest 5 inches. About the middle of June last it threw up a flower-spike, which, when it reached the height of 18 inches, produced a young plant at its point. The latter has now three leaves upon it, the largest of which is 9 inches in length. In July it sent up another spike about 2 feet high, which has likewise formed a plant at its point, and it has a small leaf at the next two joints, where I think plants may also be produced. *E. Mitchell, Gardener to R. F. Ainsworth, Esq., Manchester.*——In reference to Mr. Anderson's remarks (see p. 987), as to my name being put forward as an authority on this subject, allow me to state that all I have ever done or written in the matter has been merely to elicit facts. At the same time I believe that a well-constructed double-glazed house will be useful to Orchid growers. I do not at present know one which combines all the points necessary for their cultivation, and I am so far in love with the plan of double-glazing that I intend to have a house like Mr. Bewley's in order to try experiments on certain species of Orchids. We are much indebted to "A. R. E." (see p. 962), for giving us so much information about houses and Orchids at Berlin. It must be evident that plants are grown satisfactorily and flowered well under double glass, and equally evident that splendid plants are grown under single glass by Mr. Anderson. I have no notion, however, that the question as to whether single or double-glazing is best, will be settled by isolated instances of excellence either on one system or the other. My idea is that when a house shall be devised, easily convertible from a double to a single roof, then Orchid growers will have a better opportunity than now of growing some species which at present are difficult to manage. The question of expense is not of much moment, if the health of valuable plants is improved. On the other hand it is quite certain from my own experience that single-glazed Grape houses, costing only 1*l.* per foot run, 12 feet wide, are sufficient to grow many (and those some of the most beautiful and cheapest) Orchids in great perfection. *Robert Warner, Broomfield.*

Tagetes.—I grow a variety of this, but I am unacquainted with its proper name. Mr. Bennett (see p. 989) speaks of three varieties, one of which, tenuifolia, he names as having caused him some disappointment, owing to its being too tall for beds, which is the only thing of which I have to complain in reference to my plant. I have been blaming the richness of the soil, when perhaps the natural habit of the variety is alone at fault. I am also told that the tall variety is a shy-blooming plant, which is not the case with me, for my beds of it have been perfect masses of flower for these last three months. I consider the Tagetes to be a very excellent and durable bedding plant, which is more than can be said of Calceolarias, especially of late years. I grow the Tagetes by tens of thousands, and I think that it must soon become a general favourite. *R. W., Darlington.* [Your plant appears to be what is known in gardens as T. tenuifolia.]

Double-flowering Peach.—I have read several accounts in your late Numbers of standard Peaches producing a crop this year. I know little about Peach or other trees, and shall be glad if you will inform me if it is usual for a double-blossomed Peach to bear fruit. This inquiry arises out of the following facts. In my border, which almost entirely consists of stiff clay dug up and wheeled thither, I found a small (as I thought) shrub, with five or six double blossoms of a bright rose colour on it. I was very pleased with it, but did not know how it came there. I showed it to the gardener and others, but got no information about it, except that it was either a Peach or an Almond. However, some time afterwards I found five blossoms had set, and produced an Almond-shaped fruit. I concluded that it was an Almond tree. After an absence at the seaside of three months, I found four remaining, still retaining the Almond shape, but much larger in size; on plucking them they proved to be deliciously flavoured Peaches. They had no colour, and two of them were united near the base by a fleshy joint. The plant has made remarkably thick well-ripened new wood, notwithstanding the peculiar soil in which it is planted, and has a most healthy foliage. *C. H. W., Loughton.* [It is not an uncommon thing for double-blossomed Peaches to set fruit, and even to ripen them, especially in such a warm summer as that which we have just experienced.]

Worms.—You state from "Science Gossip" (see p. 968), that earth-worms eat nothing but earth. No doubt this is true in the main, but do they not greedily suck in all decayed vegetable substances? For instance, a worm will in one night pull in yards of string, and give it a sort of masticated look, though of course, having no teeth, it cannot chew it. *W. D. F.*

Foreign Correspondence.

Australian Vegetation.—In the last number of my Fragmenta I have briefly reviewed the Palms of Australia, 13 in number. The most interesting is the Alexandra Palm (Ptychosperma Alexandræ, *F. M.*), recently brought to light from the vicinity of the Fitzroy River of East Australia. It is one of the most graceful forms of the princely tribe of plants to which it belongs, being even more beautiful than the noble Seaforthia elegans. It attains the height of 80 feet. Having through Mr. Edward Bowman obtained a quantity of seed, I hope to be able to introduce this fine Palm into many European collections. In the same number of the Fragmenta I have given an account of several new Fern trees, of which one especially is remarkable for its gracefulness, having, although 8 feet in height, a caudex only 1 inch thick. This Fern tree is named Alsophila Rebeccæ. In the previous number of the Fragmenta I have referred to the Australian Pandaneæ. Robert Brown was only acquainted with two; now we know seven, if the three Freycinetias shall finally prove distinct.

Pittosporum tenuifolium and eugenioides are found so far south in New Zealand, that I should think these fine trees will prove perfectly hardy in the milder parts of Britain. Where they grow in their native country sharp frosts are not unusual in the winter, as well as heavy snowfalls. If they can be naturalised without much trouble, nothing could surpass the ease with which these noble trees might be generally distributed, as the seeds keep well and germinate readily. There are other New Zealand plants from the southern parts of the Middle Island, which merit the attention of European horticulturists. In the Mediterranean of course New Zealand plants would be in their element, wherever humidity and shelter prevail.

I have had the gratification of introducing the best variety of Mocha Coffee into the Feejee Islands. The plants sent from the Botanic Garden of Melbourne have proved very much more prolific than the ordinary variety previously introduced. One of the young trees, about three years old, bore at the first harvest 14 lb. weight of berries. The Chinese Tea plant has also found its way into the islands from my establishment, and seems to prosper there. At Ipswich, in Queensland, the Connecticut Tobacco has gained the palm over all the other varieties which I was instrumental in distributing in that part of Australia. The Shiraz Tobacco ought to grow well in some of the mountain districts of South Europe, where the autumnal dew-fall is regular. *Ferd. Mueller.*

Societies.

Queensland Horticultural: *August* 8.—The following report of this exhibition of garden produce is condensed from the *Brisbane Courier*:—

The tables appear to have shown an excellent display of flowers, fruits, vegetables, cereals, and other miscellaneous articles. The Botanic Gardens furnished Camellias, a good specimen of Maltese Clover, which thrives abundantly in Queensland, especially on light sandy soils, and a variety of miscellaneous shrubs and flowers. There were also two excellent samples of New Orleans and Sea Island Cotton from the same collection, from which likewise came some fine large Pine-apples, Chinese Yams, two specimens of Indian Yams, Native Bananas, Liquorice plant, and Passion fruits.

Among vegetables, the honest old-fashioned Potato, the Cauliflower, Cabbage, Lettuce, Celery, Carrots, Turnips, Beet, Rhubarb, Peas, Spinach, Onions, Pumpkins, Parsley, and Beans, put to flight the old complaint that nothing in the shape of vegetables can be grown in the colony. True, there are long seasons of drought; but contingencies of weather, it must be remembered, are incident to most climates. Nothing has been shown yet to prove that the agriculturist or horticulturist in Queensland has any difficulties to

contend with, which, with patience, perseverance, and a knowledge of the soil, he may not be quite equal to cope with and surmount in the end.

There were some good specimens of Rye-grasses from the Acclimatisation Society; three consecutive cuttings were shown, and one could hardly credit the rapidity of their growth without referring to the labels affixed to them. A specimen of New South Wales Prairie Grass, more for its rarity than its use, we presume, was also exhibited. Lovers of Tobacco fumes were doubtless gratified to witness the progress not only of the growth of the leaf, but also of its manufacture. "The native article" can now be supplied to a considerable extent, and, judging from its colour, and the clean firm manner in which it was presented, there can be little doubt as to its excellence. There were also specimens of Virginia and Kentucky leaf in the raw state. There was a large collection of preserves (bottled), and a jar of honey (English), tastefully arranged bouquets, and a specimen of wax flowers. Colonial wines were also exhibited. Of fruits, in addition to the sorts named, there were Oranges, Limes, Lemons, Citrons, Cape Gooseberries, Granadillas, and Brazilian Cherries.

Notices of Books.

Les Bonnes Fraises, manière de les Cultiver pour les avoir au maximum de beauté (with a Calendar, and Instructions based on the experience of fifteen years). By Ferdinand Gloede. Paris, 1865. Pp. 151.

The author of this little book has evidently given much attention to the varieties of Strawberries, and their cultivation. He gives instructions for their management in the open ground, and in the forcing house, with a calendar of operations having reference thereto, for the different months of the year; and a descriptive list of what he considers good sorts. This list is very extensive, and contains most if not all the kinds recently sent out. It is followed by select lists of early and late varieties, and of the largest, most handsome, and most exquisitely flavoured kinds, as well as of those rejected as no longer worthy of cultivation.

In treating of the choice of Soil, the author maintains, contrary to the assertions of many persons, that the Strawberry will succeed in all soils, with a little care—very little in comparison with the numerous enjoyable results. I have seen, he adds, Strawberries succeed perfectly well in the almost pure sands of Fontainebleau, in the openings of the forest in the neighbourhood of Thomery. I have seen them yield a remarkable produce, cultivated in the paved courts of a large city, well exposed to air and sun, but where it may be said there was no soil. There the proprietor, an enthusiastic amateur, made holes a foot in diameter, and as much in depth, filled them with a compost prepared beforehand for the purpose, and in it he planted his Strawberries. At the end of two years he turned out both compost and Strawberries, and replaced them by fresh compost and by other Strawberries, and thus he was enabled to continue their cultivation for many years, having the satisfaction of seeing his table abundantly furnished with superb and excellent fruit.

For strong moist clay soils the preferable kind of manure is horse-dung, or that of fowls, rabbits, or sheep. For a light warm soil, cow or pigs' dung is to be preferred. The times and manner of planting recommended are much the same as those practised in this country.

The author strongly insists on cutting off the runners. The difference of produce between that of a plant with the runners regularly cut off, and one left to emit them freely, is, he says, incredible. Digging between the rows is to be avoided; and the old leaves should be left for the protection of the plants till February or March. Snails frequently make great ravages as the Strawberries approach maturity, but by laying down little heaps of bran, of which they are very fond, and to which they crowd, they may be easily collected at night or early in the morning.

All Strawberries, it is remarked, are not indiscriminately good for the purpose of preserving. In this country the Scarlets are generally preferred; but the author states that the flesh should be firm and buttery, such as that of the British Queen, La Châlonnaise, and Carolina Superba, mixed with some Alpines, and with some Strawberries having red flesh to give colour.

Very good descriptions are given of upwards of 130 varieties. These are followed by a list of 85 sorts which still exist, but are for the most part disappearing little by little, being surpassed by better varieties more recently obtained. This again is followed by another list of 68 sorts finally rejected as altogether unworthy of cultivation. The varieties comprised in these two lists are very properly condemned; but still the sorts thought worthy of description are too numerous for cultivation, and it would have been very desirable if the author had given a much reduced selection, consisting of not more than 20 or 30 sorts. This his long experience would have enabled him to have done with just discrimination; and it would have left fewer to be tried by cultivators—for this has generally to be done before any sort can be planted extensively.

Books Received.—*Tea*: a Poem, by Charles Barwell Coles (Longmans). If all tea were like this poem, there would be but few consumers.——*Memorials of the King's School, Canterbury*, by the Rev. J. S. Sidebotham, contains a history of the school from its foundation to the present time, a list of the masters and of the more distinguished among the pupils. In this latter category occur the names of Marlowe the dramatist, Richard Boyle, the "great Earl of Cork," William Harvey the discoverer of the circulation of the blood, Lord Thurlow, Rev. W. Frend, James Six of thermometer notoriety, Lord Tenterden, Bishop Broughton, Sir George Gipps, and many others.——*Geraldine, Gustave Vasa, Richard Whittington, Le Chemin de Fer* (Relfe). These are "little dramas" in the French language, intended for representation by the pupils in schools or in private families, and are well adapted for the purpose for which they are intended.

Catalogues Received.—*Thomas Rivers' Descriptive Catalogue of Roses*, the 32d Edition, is very select, and therefore all the more useful to the purchaser. Respecting the Climbing Devoniensis Mr. Rivers remarks:—"Some persons, ignorant of the nature of cultivated Roses, have disputed the claims of this Rose to be a climbing pillar Rose. It evidently originated in some strong shoot of Devoniensis, and has retained its character by budding. Here it has made shoots 15 feet long without putting forth any blossoms; these generally break forth in autumn. These climbing deviations are no rarity. Géant des Batailles has sported into a climber."—*Charles Turner's Catalogue of Roses, Fruit Trees, &c.*; also *Select List of Pelargoniums*. Among Pears, British Queen is highly spoken of—as it well deserves; and in Strawberries Ingram's Fairy Queen is pronounced excellent, and highly to be recommended. There is a good selection of hardy trees and shrubs. The Pelargonium list contains Hoyle's and Foster's new varieties.—*John Jefferies & Son's Catalogue of Nursery Stock.*

Florists' Flowers.

It is not many years since Tom Thumb was introduced as a novelty. At that time it was a great advance upon the Bedding Pelargoniums then in existence, and it is still one of the best we have for bedding purposes. The immense demand for this variety gave an impetus to the efforts of the hybridiser, and we soon had Attraction, Perfection, Eclipse, Punch, and Crystal Palace Scarlet *alias* Trentham Scarlet, with a host of others whose names are forgotten. The five varieties just named, however, still stand their ground for decorative purposes, and although every year novelties are introduced which are said to be superior, the greater portion are consigned to oblivion as being inferior to these old favourites. Trentham Rose and Christine keep their position as the best in their respective colours, although Roi d'Italie is a fine addition to the rosy-scarlet class. Our old favourite Madame Vaucher is, I think, eclipsed by White Tom Thumb; Stella, however, must not be overlooked, as no one who has seen the magnificent beds of this variety at the Crystal Palace would be without it, and it is in my opinion by far the best of the Nosegays for bedding purposes; Cybister is beautiful in colour, but grows too strongly out of doors, and is best adapted for pot culture. The last two years has given us some really good acquisitions, especially as regards form, and no doubt Dr. Lindley, sent out last year, is the best shaped sort we have; and next to this come Mons. G. Nachet and The Clipper, all different shades of scarlet. M. Nachet is a splendid variety for pot culture, as is also The Clipper, both throwing up fine trusses of flower in great profusion. Beauté de Suresnes, bright pink with a white eye, is a beautiful variety, and for pot culture will be highly esteemed, the trusses being thrown well up above the foliage, which is a great advantage.

My principal object, however, in writing these few remarks is to notice the new varieties sent out last spring, as many of your readers may not have facilities for taking notes or for seeing them in bloom. I have had an opportunity of inspecting a collection consisting of upwards of 60 varieties of the present year, and I find that amongst those from the Continent the various shades of salmon-colour predominate, or rather, I should say, salmon-colour edged and shaded with white. Amongst these Madame Gueffier, Coquette de Rueil, Madame Rougier, Charles Rouillard, M. Barre, Madame Hery, Madame Lierval, Dame Blanche, Carneum perfectum, and Madame Loussel appear to be the best. The most novel are Coquette de Rueil, curiously striped; Madame Rougier, salmon flushed with rose, a fine variety; Charles Rouillard, edged with crimson; M. Barre, salmon flushed with crimson, very free blooming; Madame Hery, very fine shape, purplish salmon colour. Dame Blanche and Carneum perfectum are somewhat alike, and both have broad margins of white to the salmon ground colour.

In Whites we have Marie Mezard, very pure, with a slight shade of pink in the centre; Madame Barillet, pure white, with a light purple shade in the centre; both these are dwarf varieties, likely to be useful for bedding. White Perfection (Henderson) is of very fine shape, and evidently an advance in this colour.

The double varieties comprise Triomphe de Gergoviat, Auguste Ferrier, and Maréchal de Chanflourd. These appear to be all alike, and, as I am informed, are the produce of the same plant, distributed by different persons—hence the various names. These varieties are very curious, and will form a nucleus for the hybridiser to improve upon. They possess one exceedingly good quality, which is, that the petals do not drop as in the ordinary varieties, but adhere to the calyx and seed vessel to the last, and wither and decay with the stalk; this alone will make them valuable for bouquets. Ranunculiflorum flore-pleno I have not seen, but it is described to me as being the best double kind. Next year I am told is to bring us something grand in the way of double varieties.

Amongst the Scarlet varieties, the best are Triomphe de Courcelles, large and showy, somewhat like Roi d'Italie, but brighter, and with fine horse-shoe foliage; Constant Hualtt, very free, trusses well thrown up above the foliage; Queen Mab (Hally), free and fine horse-shoe foliage; Red Riding Hood, dwarf and free; Merion, rosy red, with shade of purple, a fine well-formed flower; Rose of Lee, orange scarlet, a little starry, foliage in the style of Commander-in-Chief; Venus, very like Queen Mab; Pygmie, dwarf and free, fine horse-shoe foliage, very showy; Boule de Feu, bright vermilion-scarlet, good shape, very effective; Glory (Smith), orange scarlet, tolerably good shape; Prime Minister (Smith), vermilion-scarlet, very showy, good form; Chieftain, dwarf and free, but starry; Little Treasure, dwarf, and very useful for bedding; Prince Hubert, a large dull scarlet, fine truss, and good for pot culture.

Pink-coloured kinds, with the exception of Beauté de Suresnes, before noticed, are no improvement, excepting Madame Barre, which is much brighter than Helen Lindsay, and likely to make a good bedder. Gloire de Roses and Serena are pretty, and that is all that can be said about them.

Of Rose-colours, Enamel, of fine form, but bearing small truss, is still useful for pot-culture. Victorie de Puebla, deep rose, almost red, is an attractive variety, but a little starry.

Madame Werle, ivory white, flushed and edged with crimson, is a very beautiful variety, especially for pot culture.

There is no individual variety equal in shape to Dr. Lindley, but most of those named will be found useful for pot culture. They will require another season's trial before their real merits for bedding will be ascertained. I am pleased to see Zonale Pelargoniums are much more extensively grown in pots for the autumn decoration of conservatories, &c. Nothing is more effective in the autumn than well-grown plants of them, and fine specimens are annually staged at the September Exhibition of the Brighton Horticultural Society. In potting, rich compost should be avoided, as rich compost tends to promote rank vigorous growth and paucity of flowers. Stout sturdy plants, fed when showing the flower buds with weak liquid manure, will be found most useful.

An amateur raiser in this neighbourhood has several seedlings with three top and three bottom petals in each flower, making a complete circle; if these continue true to their character it will be a step in the right direction. Mr. Salter told me the other day that the finest zonale he had seen this year was Jules César, not yet sent out. I believe this is in the style of Roi d'Italie, and is described as larger, finer in form, and brighter in colour than that variety. He also named Christian Dregen and M. Thiers as being particularly fine scarlets.

I would advise cultivators to procure as early as possible when sent out—Le Grand (Smith), a fine crimson purple Nosegay, bearing immense trusses, and a free pot variety; and Wiltshire Lass, a fine deep pink, said to be a fine bedding variety. Of the Nosegays sent out this season and raised by the late Mr. Donald Beaton, the best are in my opinion—Amy Hogg, Donald Beaton, Orange Nosegay, and Glowworm. [We would add Indian Yellow, the masses of which at Walthamstow were very fine.] These are very useful additions to the class, and will doubtless make good masses. The only objection I have to Nosegays is the tendency they have to hold the decayed petals in the centre of the truss, giving it an untidy appearance. This seems to be the fault of all the class. *William Heale.*

Carnations and Picotees.—The complaint made some time since in the columns of one of our most influential gardening papers, that the culture of Picotees and Carnations has rapidly declined of late years in the South of England, is unquestionably true; nor is it difficult to find the reason, for, independently of the fact that the rage for bedding-out plants is fatal to florists' flowers, and, indeed, to many other branches of gardening, there is so much of care and trouble required in their cultivation, that when the stimulus of prizes is withheld, those who have grown them abandon their culture, and give their attention to other matters. When we state this, we do not mean to imply that they are difficult of cultivation (not one-tenth part so much so as the Auricula), but that they require patience and attention in a larger measure than the bedding-out system demands at the hands of its followers. Unlike the Rose, too, they will flourish in the centre of a town, provided there be sunlight and air; indeed, two of the most successful growers we ever met with grew their flowers in a crowded part of the Irish metropolis. It would be needless for us to enter into the details of their cultivation, except simply to correct an error which many persons have fallen into, viz., that of growing them in very highly manured soil. This has not only the effect of causing many of the flowers to "run," but also to engender a highly artificial state of constitution, which becomes, after a

time, fatal to them—a less exciting compost, thoroughly sweetened and well exposed to the action of frost, being much more suitable for them. *Floral Magazine.*

Irias.—Your correspondent "Quo" is not quite correct (see p. 990) as to the right time for planting Ixias. October is the proper month for that operation, which should never be postponed beyond the early part of November. It is only too in the most favoured parts of England that these floral gems can be grown out of doors with success. A south border should always be chosen for them, and the bed should not only be raised, as "Quo" recommends, but it should also be rounded, in order to prevent any lodgment of water on it. It should, moreover, be hooped, and during severe frost and wet weather protected with a covering of mats. With the assistance of a cold frame, however, no one in any part of England need be without a bed of Ixias, Sparaxis, Babianas, or Tritonias. All that need be done to secure success is to plant the bulbs in large 60-sized pots, three in each, and to plunge the pots in ashes in the frame, leaving the lights off, except during wet weather and severe frost. Early in May, when the plants are well up, the pots should be plunged in the bed as thickly as possible. When the plants have done blooming, the pots may be lifted to make room for autumn flowers, and put into a spare border until the roots have become ripe. *Barr & Sugden*, 12, *King Street, Covent Garden.*

The Apiary.

The following account of the Loss by Suffocation of a fine stock of bees, may possibly be both interesting and instructive. I may premise that my experience in bee-keeping has been but limited, or perhaps this misfortune would not have occurred, or at any rate would not have proved so disastrous. In June I became possessed of an improved hive, with the appearance of which, when it came to hand, I was greatly pleased. I had not to wait long for a swarm, which was first hived in an ordinary butt, prior to being successfully lodged in the new hive the same evening. The bees worked so vigorously that they soon outstripped a swarm which I had hived a fortnight previously in a Stewarton box, and everything promised well for my being in possession of a first-rate stock for next year. A short time since an apiarian friend, who kindly assists me with his advice in the management of my bees, called to see how they were progressing, and was immediately struck with the appearance of something being wrong with this particular stock. He then found that a sliding door which was affixed to the entrance had accidentally or otherwise become closed. Whether some person had incautiously meddled with this door, or by lifting off and replacing the outer case of the hive, had unintentionally closed it, or whether the heat of the weather had caused it to become loosened, and consequently to drop, could not be ascertained. On lifting the door with caution in case of a rush of exasperated bees, all was still as death; not a bee came out; and on looking in at the window it was evident that all the combs had given way from the intense heat raised by the imprisoned insects. It was indeed a "Black Hole of Calcutta" for these unfortunates. A large mass of bees, dead and blackened with honey, was piled on the door-board; a few only were alive in the top part of the hive. The combs had all collapsed, and were so softened that no use whatever could be made of them. On being informed of the disaster, I repaired to the apiary, and was horror-struck at the sight, and with the thought of what the poor creatures must have suffered.

It was evident at once that nothing could be done to save any portion of the bees or their works. I was truly astonished at the progress this swarm had made, and consequently the more grieved that the simple slipping down of a zinc shutter over the entrance-way should be the cause of so dire a calamity.

It was evident that the stoppage must have occurred some time between the cessation of labour for the day on the evening previously and the early morning, as all the bees had been made prisoners. The other hives were working, or pretending to work, vigorously, but only a few robbers, attracted by the scent, were to be seen hovering about this particular stock. It could not, however, be helped, and nothing remained but to remove all traces of the spoil, or the bees of the adjoining stocks would become experienced robbers, not merely of this, but of their weaker neighbours.

I firmly resolved to remove all door or entrance slides from any hives then in my possession, and on no account to allow any to be attached in future. *R. V., Exeter.*

Earwigs v. *Bees.*—In your report of the Meeting of the Entomological Society, held Sept. 4, Mr. Stone adverted to the unusual number of earwigs, and of their having in many instances destroyed the larvæ of wasps' nests. Professor Westwood also read a letter from a correspondent, in which it was stated that vast numbers of earwigs had congregated in the cover of a bee-hive and destroyed the larvæ.

Several of my stocks have been infested externally with earwigs, but one in particular, during the entire summer, has been favoured with them to an enormous extent. On lifting off the outer case and coverings, for the purpose of examining from time to time the progress in a super, many hundreds of earwigs have been disturbed and killed, but on the next occasion, within a day or two, quite as large a number would again be found. But I have not in a single instance had cause to believe that these pests were in any way a source of serious annoyance to the bees. Many of these stocks gave me swarms or supers of honey, and the hive which, beyond any others, was infested with the earwigs, in addition to filling a beautiful super with 55 lb. net weight of honey-combs, threw off a remarkably fine swarm.

I think, therefore, that there must have been an inherent weakness in the stock alluded to by Mr. Westwood's correspondent, otherwise the earwigs would not have been suffered to enter the hive in sufficient force to effect any serious injury to the larvæ. I am convinced that the scarcity of wasps during the last season is not in any material degree to be attributed to the attacks of earwigs. It is far more reasonable to ascribe this mortality of the queen wasps to the cold weather which prevailed about the time that they had commenced their nests and first deposit of eggs. *Apiator.*

Country Rector. We do not advise that any hive, whether of wood or straw, be painted. It has been found that the material of hives so treated becomes saturated with condensed moisture to a much greater extent than when no paint is used. Many years ago we painted all the straw hives then in our apiary, and found the result to be highly unfavourable; not one of them ever did any good afterwards, and eventually the bees died out. For a long time we continued to paint our wooden hives, not dreaming that there could be any real objection to the practice. Still our bees would perish from some cause unknown; but at length we noticed how hives so treated became during the winter and early spring unusually affected with damp from condensed moisture, and at last we arrived at the conclusion that boxes coated with paint are decidedly unsuitable habitations for bees. About the same time that our straw hives were painted, we tried Roman cement as an outer protective covering with even worse results. This we found would not do at all. The interior of the hive in cold weather was invariably very damp, and the bees did not long survive the winter. This plan therefore was speedily discontinued. The objection to paint does not apply to outer cases. All hives should be protected from sun and rain, and there is no better plan than separate cases for each hive. These should be painted. The colour usually used is green; but we think a light stone colour far superior. Green, or any dark colour, draws the heat too much, which is decidedly unfavourable to honey storing. Whether accidentally or not is doubtful, but we have found our hives, the cases of which have been painted of a light stone colour, to be, as a rule, more prosperous than those in the same apiary which were painted green, supposing both to be exposed to the same amount of sun heat. When boxes are kept in a bee-house, or under the shelter of a roof of any kind, there is not the slightest necessity for their being painted.

Garden Memoranda.

Moncrieffe House (*Concluded from p.* 991).—The pleasure ground is situated on the same level piece of land as that on which the mansion is built, and extends from the main entrance eastwards to the kitchen garden, on which it abuts on the western and southern sides; a sunken wall divides it from the park on the south, and a well-secured fence from a road which passes along the bottom of the hill on the northern side; it contains an area of some 13 acres in extent, through which broad walks are judiciously led, displaying to advantage the rich treasures of these charming grounds. Amongst a multitude of fine trees are some remarkable Portugal Laurels and masses of Rhododendron on the turf. Associated with these we noticed good specimens of Tulip Tree, Purple Beech, Thorn, Acacia, Turkey Oaks, and Weeping Ash. A white Willow is 65 feet high, and is 16 feet in circumference at 3 feet from the ground, covering with its pensile silvery-leaved branches an area of 32 yards in diameter; altogether forming a magnificent object, which contrasts finely with a good specimen of Copper Beech, and a noble-looking Silver Fir some 90 feet in height, the stem of which is 10 feet 4 inches in girth. The beautiful branches, which weep to the turf, cover an area of 42 yards in circumference. Taxodium sempervirens is a fine specimen, green and beautiful. There are also nice examples of the recurved Juniper, Golden Ash, Black Spruce, common Elm, cut-leaved Beech, variegated Oaks, and Irish Yews. A Weeping Birch forms a remarkable object, and contrasts admirably with all around it. Wellingtonia gigantea, planted in 1859, is 11 feet 3 inches in height; Picea Nordmanniana, although not particularly large, is remarkable for its glaucous and beautiful appearance. Deodars are present in the shape of single specimens; and there are also noble groups of Arbor-vitæ. Some large trees of the Wild Cherry are also very effective, especially when clad in their deep red autumn livery—they are useful, too, in the autumn months in diverting the birds from fruit in the garden. Cratægus tanacetifolia, Siberian Crab, common Berberis, and others, are judiciously scattered about. A magnificent Spruce Fir measures 8 feet in girth; it is a perfect cone from top to bottom, where it covers with its branches an area of 162 feet in circumference.

The south aspect wall of the garden is covered with flowering plants, amongst which we observed Magnolias, Jasmines, Roses, Wistarias, Cotoneaster, Almonds, Ceanothus, Deutzias, and others of similar character. At the base of the wall is a narrow border filled with dwarf flowering plants, and a broad walk in front. On the south side is a Rosary, which is planted with a good selection of choice kinds; there are also clumps of Dahlias and other flowering plants, associated with masses of Rhododendrons and other pleasing shrubs, amongst which, scattered about, are nice specimens of Rhus Cotinus, Rose Acacia, Arbutus, Cedar of Lebanon, Thujopsis borealis, Cupressus Lawsoniana, and Black Spruce. There is also a noble specimen of Golden Holly, and a very remarkable tree of Weeping Birch, as well as some enormous Lime trees, a few of which ought to be removed, as they do considerable damage to the ornamental wall, and with their shade destroy a great portion of the interior of the garden. On the south side is a mausoleum—an ancient Ivy-covered ruin in a Fir thicket, in which are some noble Larches and Ash; the latter are covered for a considerable distance up the bole with Ivy.

The kitchen garden consists of two divisions: one portion, a parallelogram, contains 2½ acres; the other is irregular in form, comprising 1¼ acre, and the whole is inclosed by somewhat lofty stone walls, on which fruit is grown very successfully. The ground slopes a little to the south, and the soil is of a deep loamy character, well suited for the cultivation of both fruit and vegetables. Some old standard, or rather "rider" Peaches, cover a wall, from which heavy crops are annually obtained. Figs, Apricots, and Plum trees are also very productive. Half-standard Apple trees too produce splendid specimens of spotless fruit. In the centre of the northern wall of the largest division of the garden, an excellent range of glass was erected a few years ago; it is 136 feet in length, and is divided into five compartments. The first is a span-roofed greenhouse, running north and south, with one end resting on the garden wall; it is 22 feet 4 inches long and 20 feet wide; it has a stage in the centre, and a bench on either hand, commencing at the door, which is in the southern end. It was filled with flowering plants in the shape of nice specimens; in the centre of the stage was a good plant of Cycas revoluta. The next house is a vinery, 35 feet long, 15 feet wide, and 13 feet high—a "lean-to." It contained some admirable bunches of finely swelled well-coloured Grapes, consisting of Lady Downes' and Black Prince; the back wall was covered with Brown Ischia Figs, and on the floor were some admirably trained pot specimens of Azaleas. The centre house of the range is also a span-roofed greenhouse; it is 30 feet long and 21 feet wide, and is staged and shelved precisely as the end house. It was filled with gay specimen plants, amongst which some fine masses of Liliums occupied the centre of the stage, keeping company with a huge Myrtle, which had been struck from a sprig taken from the wedding bouquet of the present baronet's mother some 41 years ago. Eucharis amazonica, Witsenia corymbosa, Celosias, Pelargoniums, Fuchsias, Achimenes, Statices, &c., filled in the remaining portions of the stage and benches. The third house is a lean-to Grapery, of the same dimensions as the other Vinery; the young Vines in this house had been nearly destroyed by wireworm, when rape-dust was forked into the border, which apparently stopped their ravages. This house also contained some excellent Grapes, and the Passiflora edulis was fruiting freely. The other house is a span-roofed stove of the same dimensions as the end greenhouse; it contains a nice selection of well-grown plants, numbers of which had recently taken honours at the exhibition of the Royal Horticultural Society of Perthshire. Conspicuous amongst them were some beautiful Ferns and fine-foliaged plants—Caladiums, Hedychiums, Bananas, Coleus, Dracæna, Euphorbia, Dieffenbachia, and many others, had a fine appearance amidst beautifully powdered Fern fronds. Passion-flowers, Cissus, and other creepers were slightly festooned over the roof, from which were suspended neat wire baskets containing tolerable specimens of Oncids, Cattleyas, &c., the whole producing an excellent effect. The whole range is admirably aërated by ventilators, which all lift up simultaneously by means of machinery of a very simple description. The heating, too, is all that can be desired; it is effected by means of water circulating in iron pipes from Meiklejohn's boiler.

The ground in front of the range of glass just mentioned is laid out ornamentally, and divided from the garden on either side by admirably kept Holly hedges; the upper portion, which forms a terrace, consists of symmetrical beds having broad Box edgings, with gravel paths between them. The lower portion is in the panel style on turf, with equidistant rows of circular beds on either side of the broad gravel walk which proceeds from the centre of the range of houses to the extremity of the garden. The whole of this garden has been very gay this season with choice bedding plants, admirably arranged—the broad silver-edged Arabis and Cerastium being chiefly used for edging plants where such were required. Saponaria calabrica, Perilla nankinensis, Humea elegans, and the Crystal Palace Nasturtium were most effectively displayed, and we were particularly struck with the beauty of that gorgeous Iridaceous bulb the Gladiolus, which was splendidly in bloom. The main walk from the entrance on the western side has also been gay this year with flowers in the ribbon style, the back line being composed of Hollyhocks of superior kinds. This walk crosses the garden terrace immediately in front of the range of houses. The other borders were prodigally covered with autumn-flowering Phloxes and other herbaceous plants.

The walks here, like most of those in Scotland, are kept hoed and raked, consequently they are loose and much less agreeable to walk on than a smooth well-rolled

surface, a practice which has doubtless arisen from the want of binding gravel. Here it is of a bluish tint, obtained from the river, and is possibly of a more suitable character than that in general use. The broad walks of the new park at Dundee are apparently surfaced by a similar material, in the same style as shells are employed on the magnificent walks in the Royal Horticultural Society's Garden at South Kensington, or snow-white spar on the broad walks of the grand terrace at Chatsworth.

There are other glass erections on an elevated situation immediately behind the main range. These were erected some 40 years ago for the cultivation of the Pine-apple, which, however, has long since been discontinued. The central portion is 55 feet long and 14 feet wide, in two divisions, in which are excellent crops of Grapes; the other portion is 100 feet long and 8 feet in width, and is chiefly employed in producing Cucumbers and Melons, and preparing plants for the decoration of the main range of houses. These pits are now in a somewhat dilapidated condition, and it is proposed to convert the whole into half-span erections.

Behind the main range of houses is an excellent well fitted-up fruit room. The Mushroom house, in the same range of building, is also well constructed; it is heated, and has a slate ceiling. There are also a good potting shed and seed room. On the opposite side is an Auricula stage. In this portion of the grounds were some well-grown specimens of Chrysanthemums, together with stores of Primulas, Cinerarias, and similar plants used for winter decoration. Here, too, were very nice examples of Heath, Epacris, Camellias, Azaleas, Cytisus, and many others ready to be moved into their winter quarters.

Moncrieffe has long been remarkable, both for the beauty of its situation and for its successful gardening. For nearly 40 years of the early part of this century the late Mr. Mitchell was famous as a cultivator of stove and greenhouse plants, his Heaths being only second to those famous specimens that used to be grown in the New Botanic Garden at Edinburgh. Auriculas and Carnations, too, were especial objects of his care. Nor has the place retrograded under the active management of Mr. Bissett, the present superintendent, who has for a series of years managed the repairs and improvements on this large estate, and directed most successfully the whole of its gardening operations. We left delighted with all we had seen. *D.*

Miscellaneous.

Hops in France.—It appears from official returns that the cultivation of Hops in France has increased considerably of late years. The Hops planted in the department of the Bas Rhin in 1857 covered a superficies of 574 hectares (2½ acres each), and there have been 120 additional hectares planted within the last eight years. M. Heuzé, in a communication to the Imperial Agricultural Society, attributes this increase in the culture of Hops to the improvement in agriculture. It must be observed, at the same time, that the quantity of Hops imported is increasing every year. In 1845 there were only 721,000 kilogrammes imported, while in 1855 there were 1,556,000 kilogrammes. The landowners in the Bas Rhin are at present making every exertion to supply a sufficient quantity for home consumption, and to enable the country to be independent of foreigners for a supply. It is said that French brewers, for a great number of years, were accustomed to make beer without Hops. They substituted for the Hop plant Coriander seed, Wormwood, and the bark of Box-wood, but the bad quality of the beer thus produced disgusted their customers, and they compelled brewers to use Hops, as the only substance which can produce a wholesome beverage. It is stated that every inhabitant in France consumed, on an average, in the year 1825, nine quarts of beer. The consumption increased in the year 1837 to nearly 20 litres, and since then it has progressively increased. *Journal of the Society of Arts.*

Ants and Cocci.—Not long ago, whilst in an Orchid house, I noticed a great quantity of ants running here and there upon the leaves of Calanthe vestita and Limatodes rosea. My curiosity made me examine their movements, when to my surprise I saw them milking, as it were, a species of coccus which infested the leaves of the plants. Now I had heard of this before, but, like many more persons, thought it was but a tale; but now I had found out the whole method, and here it was in full operation before my eyes. The ant gently stroked the coccus with the two antennæ, and sometimes with the legs; after this the coccus excluded a small round white substance, which the ant ate, and then commenced upon another coccus. Perhaps some persons may doubt, but to all those I say get a plant infested with coccus, place a colony of ants upon it, and surround the whole with water, so as to prevent escape, and then they will be convinced. A few weeks after this incident my attention was drawn to a still stranger sight, viz., in a hothouse I had cleaned several small plants of Passiflora princeps, and placed them upon a shelf. One day, while watering these plants, I noticed three large domes of earth surrounding the stems of three P. princeps I had cleaned. At the time I thought it was perhaps the work of worms, so I turned the plant out of the pot, and found to my astonishment, not worms, but a colony of ants, snugly enjoying their new home; and when I looked at the stem of the plant I found a quantity of cocci attached, the earth forming quite a chamber for them; so I came to the conclusion that the ants had formed this chamber, and brought the coccus into a state of slavery, so as to serve for food when wanted. *J. F., Clapton, in Science Gossip.*

Calendar of Operations.

(*For the ensuing week.*)

The time is at hand when ungenial weather may frequently drive labourers in-doors, where a stock of work should now be provided. The tying of new mats, cutting and picking of shreds for the walls, cleaning old nails, drawing bast for the coming season, arrangement of herbs, examining stores, making flower-sticks, labels, &c., washing and putting away all spare striking or other glasses, making straw or reed mats, protectors for tender plants, as well as making a stock of besoms and baskets for the ensuing year, are matters of as great consideration as out-door business, and should be got forward betimes. All superfluous or dead things in pots should be emptied out, and the dirty pots from every part placed in a corner of the shed, ready for washing. Plenty of broken pots should also be housed in a shed corner to be crushed and sorted; they may be fairly reckoned amongst the most important things connected with the potting shed. Any one having old half-worn sashes without glass, may readily make a most useful straw cover of them, well adapted for covering Endive and other salads, Parsley, &c.; as also for placing over early crops of Potatos, Radishes, Carrots, &c. When covered equally, three or four long sticks or laths should be placed on them in a line with the sash bars, and bound down to the latter in a few places by tar twine. If housed when out of use, they will last a couple of years.

FLOWER GARDEN AND PLANT HOUSES.

The flower garden is now so far robbed of its beauties, that if not already done, steps should be taken immediately to secure a desirable arrangement for the next year; this is necessary before the flowers are decayed. Let all observations as to improper heights or misarrangement of any kind therefore be made.

Bulbs.—Attention should now be paid to bulbs grown in the open air, as they ought to form a conspicuous part of every garden. This is the time for laying in a stock and planting; the latter operation, indeed, should be no longer delayed, for it is desirable that every bulb should be well rooted before winter. Bulbs are in general planted too far apart, and there are too few of them to make a good display. Yet what can better repay the labour and money expended on them? How dull would the garden be for many months if this interesting class of flowers were neglected! Buy Crocuses by thousands, and Tulips and Hyacinths by hundreds. Remember they all increase very readily, and with care the outlay will be repaid with interest. Crocuses and Tulips multiply without much trouble. If borders are preferred to separate beds, the following plan will be found advantageous. Let the outer row be Crocuses, the next Hyacinths, and the third, or inner row, Tulips. Do not be afraid of planting too thickly, but let there be 2 or 3 inches space between each kind of bulb. The Crocuses will be out of bloom by the time the Hyacinths are in their prime, and the foliage of the former will make a pretty fringed border for the latter. Oval or round beds have a fine effect when planted in this way; the beauty is prolonged, and the whole may be cleared away in time for the spring bedding. In planting, dig a trench about 4 inches deep around the bed, and as wide as required. Let the bottom be well loosened, and then place the bulbs in order upon it. Cover with about half an inch of rotten leaf-mould and sand. During winter be careful to guard against the ravages of mice, for they often devour thousands of Crocuses and Tulips before they are observed. The Crocuses may be mixed, or planted in alternate rows of various colours. The same plan may be pursued with Hyacinths. For planting in the open air, purchase mixed sorts, single and double white, red, and blue. These mixtures generally contain many fine sorts. Snowdrops, Crown Imperials, Narcissus, &c., may also now be placed in clumps.

Chrysanthemums.—These will soon be coming into bloom, and care must be taken to see that they do not suffer from want of water. A little weak liquid manure given occasionally will assist them in making a better display than they otherwise might do.

FORCING GARDEN.

Cucumbers.—A temperature of about 70° should still be maintained. This will allow of a little air being given on comparatively cool and dull days. Stop progressing shoots, and pinch off tendrils.

Peaches and Nectarines.—Cover the outside border of the early house with leaves or litter, for the purpose of excluding frost and heavy rains. Tie in the trees, and get all ready for starting when required.

Pines.—Where the plants likely to fruit without making further growth are considered insufficient to meet the demand until next autumn, the stronger plants of those for late fruiting should be encouraged to make growth as early as can be done without weakening the foliage, with the view of preparing them for starting in April.

Vines.—Houses which it is intended to commence forcing the beginning of next month, should, if not already done, now have some fermenting materials placed in the borders so as to encourage the roots a little before the Vines are excited. This will be of service towards getting the buds to push strongly and without loss of time.

HARDY FRUIT AND KITCHEN GARDEN

Storing fruit and root crops, and clearing up for winter, will now be the chief work to be done in. All alterations required should also be proceeded with without delay while the weather is favourable.

Celery and Endive.—Earth up the former and tie up the latter on dry days.

Peas.—It is a common custom to sow Peas at this time on a warm south border; but they are subject to so many casualties during winter, that it is much more economical to wait till spring, sow in boxes under glass, and transplant when cold weather is over. Those, however, who have not the necessary means to follow this method, may sow now or very soon in the open ground. Spring sowings under the same circumstances will, however, come in very little later if any than those sown at this season.

Wall Trees.—Where new borders are required for these, they should now be pushed forward with all dition. Where the subsoil is cold and wet it ought be thoroughly drained, and some means should used to prevent the roots from going too deep.

Winter Greens.—Destroy weeds, if any, among these, and stir the ground or earth up as may deemed necessary.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON
For the Week ending Oct. 25, 1865, as observed at the Horticultural Society's Garden.

October.	Moon's Age.	Barometer.		Temperature.					
				Of the Air.			Of the Earth.		
		Max.	Min.	Max.	Min.	Mean	1 foot deep	2 feet deep	
Thurs. 19	●	29.298	29.078	45	26	35.5	53	55	N.W.
Friday 20	1	29.540	29.401	44	24	34.0	51	54	W.
Satur. 21	2	29.569	29.548	47	40	43.5	53	53	[illegible]
Sunday 22	3	29.417	29.329	54	41	47.5	53	52	N.W.
Mon. 23	4	29.662	29.559	60	42	51.0	53	52	N.E.
Tues. 24	5	29.588	29.374	51	47	49.0	53	52	W.
Wed. 25	6	29.903	29.843	58	29	43.5	52	52	W.
Average		29.568	29.447	51.3	35.5	43.4	53.0	53	

Oct. 19—Constant heavy rain; cold rain; fine at night, [illegible]
— 20—Clear and cold; fine, but cold; frosty.
— 21—Rain; hazy and damp, overcast.
— 22—Constant; very heavy rain throughout
— 23—Rain; densely clouded; overcast, slight rain.
— 24—Boisterous; showery; lightning 10–11 P.M.
— 25—Clear and boisterous, clear and cold, fine at night.
Mean temperature of the week, 6 deg. below the average.

STATE OF THE WEATHER AT CHISWICK
During the last 39 years, for the ensuing Week, ending Nov. 4.

October and Nov.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds.						
						N.	N.E.	E.	S.E.	S.	S.W.	W.
Sunday..29	53.7	35.2	44.4	18	0.63 in	4	8	4	[illegible]	[illegible]	[illegible]	[illegible]
Mon. ..30	55.0	38.2	46.6	19	0.98	3	8	4	3	[illegible]	[illegible]	[illegible]
Tues. ..31	53.8	38.1	45.9	20	0.88	1	4	5	4	[illegible]	[illegible]	[illegible]
Wed. .. 1	54.3	38.3	46.2	22	0.58	3	2	6	3	4	[illegible]	[illegible]
Thurs. .. 2	54.3	37.7	46.0	17	0.61	1	4	6	2	2	[illegible]	[illegible]
Friday .. 3	53.4	36.9	45.2	18	0.82	2	3	5	—	[illegible]	[illegible]	[illegible]
Satur. .. 4	51.9	36.7	44.3	20	0.44	2	5	2	1	[illegible]	[illegible]	[illegible]

The highest temperature during the above period occurred on the 2d, 1857—therm. 64 deg.; and the lowest on the 3d [illegible] 19 deg.

Notices to Correspondents.

Books: *Young Gardener.* The French lessons in Cassell's Popular Educator, and which we believe have been published separately, will doubtless answer your purpose.

Currants: *H H.* Black Naples, Knight's Large Red, and White Dutch will probably meet your requirements.

Gardeners' Examinations: *A D.* We will try and make room for your letter shortly.

Livingstone Expedition: *I T.* Your best plan is to write to the Secretary of the Geographical Society, 15, Whitehall Place, London.

Names of Fruits: Correspondents should not be unreasonable in their demands. We really cannot undertake to [illegible] whole basketfuls of different fruits, and in future must make it a rule, as indeed we have done on previous occasions, to name more than six sorts at one time, whatever number may be sent.—*O P G.* 2, Glou Morceau; 3, Marie Louise; 5, Napoleon; 12 and 14, Beurré Sterckmans; not numbered, Vicar of Winkfield.—*Anon.* Hollandbury.—*P B.* 1, [illegible] thornden; 2, Emperor Alexander; 3, Dumelow's Seedling; 4, Pile's Russet.—*Mrs. G. Hankey.* 18, Délices d'Hardenpont; 46, Vineuse; 47, Napoleon; 71, White Doyenné; 1, not known.—*G P.* Cheadle, Comte de Lamy, Doyenné [illegible]. *G W S.* 2, London Pippin; 3, not known; 4, [illegible] Bearer; 5, Blenheim Orange; 6, not known.—*S.* [illegible] 1, Keswick Codlin; 3, Alexander; 4, Dumelow's Seedling; 5, Worthless.—*G W.* No. 1, Duchesse d'Angoulême.—*Luff.* Your Apple appears to be the Sudbury Beauty, [illegible] by Dr. M'Lean.—*W Thompson.* Bon Chrétien Fondant.—*J Box.* 1, Scarlet Nonpareil; 3, Glou Morceau; 4, [illegible] de Lamy; 7, Sturmer Pippin.—*G E R, Dublin.* Your [illegible] is probably a seedling from the Scarlet Crofton; it is [illegible] but has the bright crimson streaks and something [illegible] flavour of that sort; it is about the size of a Golden [illegible] and has a rich sweet flavour.

Names of Plants: *Somerset.* Apparently Quercus [illegible]. Can you send us another acorn, together with a [illegible] bud?—*G G.* 1, Hypolepis tenuifolia; 2, Doodia [illegible]; 3, Lastrea decurrens.—*Verex.* 1, Thujopsis borealis; [illegible] 2, Juniperus phœnicea; 3, Thuja gigantea.—*G P.* [illegible] bodium areolatum; 2, Onychium lucidum; 3, [illegible] assimile; 4, Adiantum formosum.—*J B.* 1, Adiantum [illegible] pidulum; 2, Adiantum pedatum.—*C R W.* Campyl[illegible] Pteris) biaurita.—*T S.* Litobrochia tripartita.—*T H.* 1, [illegible] stigma venenosum (Calabar Bean); 2, Abrus precatorius, seeds used as weights by Indian diamond merchants.—[illegible] other correspondents will be answered next week.

Pear Leaves: *W M.* Your leaves are affected with Fusicladium cancellata. Collect at once and burn the leaves. *M. J.* [illegible]

Seedling Fuchsia: *G Fry.* Your seedling "Artist" [illegible] small leaves and elegantly formed medium-sized well-proportioned flowers with neatly recurved sepals, the sepals coral red, and the corolla deep violet. If the habit is good it must be a graceful variety.

THE LONDON MANURE COMPANY
(ESTABLISHED 1840).
Have now ready for delivery
WHEAT MANURE, for Autumn Sowing.
DISSOLVED BONES, for Dressing Pasture Lands.
SUPERPHOSPHATES of LIME, &c.
PERUVIAN GUANO and NITRATE of SODA, ex Dock
SULPHATE of AMMONIA, FISHERY SALT, &c.
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LAWES' WHEAT MANURE for AUTUMN SOWING.
A supply of the above Manure is now ready for delivery, at Lawes' Factories, Deptford, and Barking Creeks. Price £5 per ton. [illegible] per acre to be harrowed into the land before the [illegible] Wheat, to be obtained of Mr. LAWES, or through any of his [illegible]
SUPERPHOSPHATE of LIME .. .. £6 6 per ton.
MANILLA SUPERPHOSPHATE .. 5 5 „ „
PERUVIAN GUANO direct from the Importers, and all other Manures of value.
AMERICAN and other CAKES at market prices.
Address JOHN BENNET LAWES, Offices, 1, Adelaide Place, London Bridge, E.C.; and 22, Eden Quay, Dublin.

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NITRO-PHOSPHATE or BLOOD MANURE COMPANY, LIMITED, consisting of Tenant Farmers occupying upwards of 30,000 Acres of Land.
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Particulars of this Standard Manure may be obtained at the Offices; T. MCADAM, Secretary; or of the Local Agents. Chief Office, 10, Fenchurch Street, London, E.C.; Western Counties Branch, Queen Street Station, Exeter; Manufactories, Plaistow, Essex; and Stoke, near Topsham, Devonshire.

LIME MANURE GRATIS in the immediate neighbourhood of Covent Garden Market.
Apply to ESSEX & SONS, 28, Stanhope Street, Clare Market, W.C.

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For further particulars and Analysis apply to Messrs. SMITH or their Agents.
JOHN COLEMAN, 150, Leadenhall Street, E.C., London Agent.

£1000 UPON the WOOLSTON TACKLE against the NEWCASTLE "best application."
WILLIAM SMITH, Woolston, Bletchley Station.

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be seen at Work in every Agricultural County in England. For particulars apply to
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The Right Hon. Lord RIVERS, Chairman.
J. BAILEY DENTON, Principal Engineer.
Under this Company's Act Tenants for Life, Trustees, Mortgagees, Guardians, Committees of Incompetent Persons, Beneficial Lessees, Corporations (Ecclesiastical or Municipal), Incumbents, Charitable Trustees, &c., may effect the following Land Improvements, and charge the outlay and expenses on the estate improved, by way of rentcharge, to be paid by half-yearly instalments, viz.:—
1. All works of Drainage, Irrigation, Warping, and Embankment.
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The Arrangements for Effecting Improvements are threefold:—
No. 1. The Works may be Designed and Executed entirely by the Landowner's Agent, and the Company employed only to supply the Loan and conduct the matter through all the official Forms for Charging the Outlay on the Estate.
No. 2. The Company will supply Plans, Specifications, and Estimates for any Improvements to be executed by the Landowner's Agent as under No. 1. In each of these cases the Landowner will be solely under the control of the Enclosure Commissioners.
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Applications to be addressed to WILLIAM CLIFFORD, the Secretary, at the Office of the Company, 22, Whitehall Place, London, S.W.

THE LANDS IMPROVEMENT COMPANY.
Incorporated by Special Act of Parliament in 1853.
2, Old Palace Yard, Westminster, S.W.
DIRECTORS.
The Right Hon. the Lord NAAS, M.P., *Chairman*.
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William Hope, Esq., V.C.
John Horatio Lloyd, Esq.
The Hon. Wm. Napier
J. Follett Powell, Esq.
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TO LANDOWNERS, THE CLERGY, ESTATE AGENTS, SURVEYORS, &C., IN ENGLAND AND WALES, AND IN SCOTLAND.
The Company advances money, unlimited in amount, for the following works of Agricultural Improvement, the whole outlay and expenses in all cases being liquidated by a rent charge for 25 years.
1. Drainage, Irrigation and Warping, Embanking, Inclosing, Clearing, Reclamation, Planting, for any beneficial purpose, Engines or Machinery for Drainage or Irrigation.
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No investigation of title is required, and the Company being of a strictly financial character do not interfere with the plans and execution of the Works, which are controlled only by the Government Enclosure Commissioners.
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MR. BAILEY DENTON maintains a Large Staff for the Execution of all Works of Land Improvement, and for the preparation of Plans and Designs of Farm Buildings, Farm Houses, and Labourers' Cottages, &c. Mr. Denton's charge for conducting Under-Drainage is his net fees and for superintending such contemplated Improvements, for preparing Plans of Works to be executed by Landowners, and for Superintending the Execution of Farm Buildings, and the Execution of any such Works, he proposes to charge according to a fixed scale, depending on the amount of service rendered.
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MR. J. BEAUMONT, LAND AGENT, SURVEYOR, and DRAINAGE ENGINEER (for several years Assistant to Mr. Josiah Parkes), undertakes the Planning and Execution of Works of Drainage, and Estate Improvements generally, including Embankments and River Works; Embankment of Marshes and Waste Lands; Irrigation and Warping; the Erection of Farm Buildings, Labourers' Cottages, &c., either at the private cost of the Landowner, or through the medium of the various Land Improvement Acts.
Estates Surveyed and Mapped, or Inspected and Reported upon for contemplated Improvements.
22, Parliament Street, Westminster, S.W.

THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND.
TENDERS are invited for the execution of the Works required to be done in the Erection of the Society's Show Yard, for the Annual Country Meeting, to be held at Bury St. Edmunds, July, 1866.
The Drawings and Specifications may be seen at the Office of the Secretary, 12, Hanover Square, London, W., from the 1st day of November until the 1st day of December next, between the hours of 10 and 4. Printed Forms of Specification, Conditions, and Bill of Schedule of Prices may be had upon payment of 1s. No Tender will be received unless made out on one of the Printed Forms furnished.
Separate Tenders are also invited for certain Meadow Buildings, the Drawings and Specification for which may be seen at the same time and place, and printed Specification and Form of Tender may be had upon payment of 1s.
Sealed Tenders, endorsed "Tender for Show Yard Works," must be delivered in, addressed to the said H. Rase Dent, Esq., on or before 11 o'clock A.M., Wednesday the 6th day of December next.
The Society do not bind themselves to accept the Lowest or any Tender. H. RASE DENT, Secretary.

THE NATIONAL EXHIBITION of SPORTING and OTHER DOGS.—The SIXTH GREAT ANNUAL EXHIBITION will be held in the NEW CURZON EXHIBITION HALL, BIRMINGHAM, on MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, the 27th, 28th, 29th, and 30th of November next.
Copies of the Prize Lists and Regulations may be obtained from the Secretary, Mr. G. Lynn, Rectory Chambers, Temple E.C., Birmingham. The ENTRIES CLOSE on WEDNESDAY NEXT, November 1. The PRIZES offered amount to £700.

THE BIRMINGHAM CATTLE and POULTRY SHOW, 1865.—The SEVENTEENTH GREAT ANNUAL EXHIBITION of FAT CATTLE, SHEEP, PIGS, DOMESTIC POULTRY, CORN, ROOTS, and IMPLEMENTS, will be held in Bingley Hall on SATURDAY, MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, November 25th, 27th, 28th, 29th, and 30th, when Prizes to the amount of £2080 will be awarded in the following divisions, viz.:—

FAT CATTLE	£815 15	BREEDING PIGS ..	£77 19
FAT SHEEP	328 6	ROOTS and CORN ..	71 5
FAT PIGS	61 13	POULTRY & PIGEONS	727 6

Prize Lists, Certificates of Entry, and every information may be obtained from the Secretary.
The ENTRIES CLOSE on WEDNESDAY, November 1.
JOHN B. LATHALL, Secretary.
Offices, 13, Temple Street, Birmingham.

SMITHFIELD CLUB FAT CATTLE SHOW.—The ANNUAL SHOW of FAT CATTLE, SHEEP, and PIGS, will be held at the AGRICULTURAL HALL, ISLINGTON, on MONDAY afternoon, December 4, and four following days.
Intending Exhibitors are requested to apply for Certificate Forms by the reference letters as under

CATTLE.—Form	A	For an OX or STEER (in any Class).
„	B	For a COW or HEIFER (in any Class).
„	C	For a BEAST in Extra Stock.
SHEEP. „	D.	For a PEN of 3 WETHERS (in any Class)
„	E.	For a SINGLE SHEEP in Extra Stock.
PIGS. „	F.	For a PEN of 3 PIGS (in any Class).
„	G.	For a SINGLE PIG in Extra Stock.

ENTRIES for LIVE STOCK CLOSE NOVEMBER 1.
Prize Lists, Forms of Certificates, and all information may be obtained on application to Mr. DAVID PULLEN, Assistant Secretary, at the office of the Honorary Secretary, corner of Half-Moon Street, Piccadilly, London, W.
N.B.—All communications respecting the Show must be addressed to the Assistant Secretary, as above, and should bear outside the words "Smithfield Club."

The Agricultural Gazette.
SATURDAY, OCTOBER 28, 1865.

NOTHING is more fitful or capricious than the attacks of Cattle Plague which are reported from time to time. Lord GRANVILLE's herd was declared to have become infected by his herdsmen having habitually passed through the field in which the cows belonging to a neighbour had died. They might have trod in the cow-dung there, and thus brought the poison with them. But it is a curious fact, which makes this theory untenable, that the neighbour to whose field reference is thus made, stocked it again with cows within a few weeks after his loss; these have remained healthy ever since, and it was not till a fortnight after he had done so that the first cow in Lord GRANVILLE's cow-house suffered. Take another example:—

Mr. COLLINSON HALL, at Navestock near Brentwood, is in the midst of the disease: neighbours have suffered all around him: his own farm is intersected in every direction with public roads. His principal cow-house is in the angle of a crossing of this kind, and men are in and out of it all day long, walking to it along the public roads, which are in direct communication with infected farms. His cow stock, upwards of 100, have been healthy hitherto. He has them in several separate lots, turning them daily into the Grass fields, and keeping each lot always and absolutely apart from its neighbours. The only precaution used is to employ a herd boy with them, who never suffers any of them to approach the boundaries of the fields, whether they abut upon the public road or only on a neighbour's land. Here is an instance where the risk of infection is a maximum, and yet no harm has yet happened. On the other hand, the single cow of a clergyman in a neighbouring parish, living in a secluded paddock, and never approached except by the "gardener," subjected thus to a minimum of risk, has taken the disease and died.

There is in this very uncertainty, which, however, is seen in epidemics just as it is in epizootics, a strong and we believe a wholesome addition to the frightfulness of the calamity which will, we hope, drive men vigorously to the work of mutual insurance. There is a strong objection, often expressed, to anything which tends to equalise profits in a community; we cannot, however, suppose any objection to a process which should help to equalise losses. The publication of full information about produce and consumption—timely and trustworthy information on agricultural statistics—is not generally popular with men of business as tenant farmers—and we have heard the argument that it would put men more fairly on a par in the choice of times for sales and purchases met by the objection, "We would rather not be on a par; let those who have been at pains to gather safe information for their guidance have the advantage of it. It is not only personally, but generally, better that there should be this premium upon energy, activity, and intelligence." We can however hardly believe that the argument, however it may apply to profits, will occur to any one in the case of losses, especially losses by a disaster which seems to set all carefulness at naught. Men are willing enough to assure against fire; there is no reasoning on the ground of keeping all the advantage of extra carefulness to himself, ever arising to condemn the insurer who pays a small premium to cover his own risk, and thus help to cover that of his neighbour also. And no doubt the terror of this new calamity will drive men into mutual insurance. Selfishness will urge it, not forbid it, and public spirit, also, will no doubt help it forward.

We are glad to find that some of our county societies for this purpose have thus already grown, one may almost say, into great banking institutions. We referred the other day to the local insurance company for the Petty Sessions district of Guildford, where 40,000*l.* worth of stock were in two days insured at a premium of half-a-crown in the pound, with liability to successive sixpenny calls up to that amount. We learn that the County Association at Gloucester has already 400,000*l.* worth of dairy stock upon its books and there too the liability is at present limited to 12½ per cent., or half-a-crown in the pound. The tenant farmers in the Vale of Gloucester have thus bound themselves in the amount of 50,000*l.* to bear one another's burdens. And there has, we believe, been no better illustration in our day of the increased capacity for combination and mutual action which the hitherto isolated agriculturist now displays.

In town cow-houses the system of management is so entirely different from that of country dairies that the prompt stock owner, while he runs a greater risk of the disease, does not run so heavy a risk of immediate loss. His cows are continually shifted as their milk fails, and are thus kept in a fatting condition during the milking process. The universal system therefore is, as soon as a cow refuses her food or suddenly shrinks in her milk, to slaughter her at once. The carcase is always fair beef; and whatever the disease may be, if the first loss of appetite is acted on at once, the beef is undistinguishable in appearance, and probably is not different in reality, from the flesh of a perfectly healthy animal.

Be this as it may, there cannot be a doubt that London is now supplied every week with carcases which are killed lest the lack of appetite which has been noticed should be the first symptom of the cattle plague. It is not a very pleasant commentary on this fact that larger quantities of meat are now weekly condemned by the market inspectors in the City than have ever hitherto been the case. If so many more cwt. are every week condemned as bad in a supply of various quality, there must be so many more tons per week on the verge of absolute unfitness which escape detection.

It is satisfactory that we hear nothing more of the liability of sheep to take the disease from cattle. The sheep which Messrs. SWAN, of Edinburgh, placed in the Sanatorium there have been in the same place now for many weeks, with successive series of plague-stricken cattle which have been fruitlessly subjected to treatment beside them and died, but they have as yet shown no signs of the disease.

We observe that the whole subject is to be dis-

cussed on Monday, November 6, before the London Farmers' Club, to whom it is to be introduced by Mr. Charles Howard, of Biddenham, near Bedford.

THE GUESS OF AN AMATEUR.

Doctors are at their wits' end. They are at best estate "guessers;" and it is possible that one of the unscientific may "guess" as near the mark as the "scientific."

In my last contribution I referred to the necessity of early depletion. In inflammatory cases the absorbent vessels are turgid, and the quickest relief is by depletion. Depletion is at the very head of stimuli acting on the absorbent vessels; medicine is a long time in relieving those vessels—too long for such a rapid and deadly complaint as the cattle plague. The absorbent vessels being gorged, they cannot take up the medicines destined to act through them; the issue is, the fever becomes typhus, typhus becomes plague, and the animal dies putrid. Let us review some of the inflammatory complaints to which cattle, no less than human beings, are subject. I believe that in most cases cold is the exciting cause of most of, if not all, the internal inflammations. By vegetarians it is called "radiation," so destructive to vegetable life, especially in the spring of the year, when after a hot day dews fall plentifully, and the wind, N.E., freezes it to hoar frost. Extreme cold, by a quick transition succeeding a broiling day, chills the whole surface of the animal, and produces fever. Let us, however, specify some of the diseases which are best arrested by early depletion. I am a bold man even to talk of depletion. Formerly doctors and 'vets" bled for every cause—now they will not bleed or any cause. Man dies of tubercles, and beast dies of inflammation of the lungs, or goes broken-winded. 1. Carditis, or inflammation of the heart; 2, Peritonitis, inflammation of the membrane lining the abdomen; 3, Gastritis, or inflammation of the stomach; 4, Enteritis, or inflammation of the bowels; 5, Splenitis, or inflammation of the spleen; 6, Nephritis, or inflammation of the kidneys. I believe that in severe cases of the above, depletion is the first and quickest remedy, and that it enables other auxiliaries to take effect. Let us, however, take one more case, viz., that of pleuro-pneumonia, a fine Greek name, which is used to describe the lining and substance of the lungs. Pleuro means the lining—pneumonia means the substance of the lungs. Pleuro-pneumonia combined, means the inflammation of both these important parts of man or beast. I contend that early bleeding is the quickest, surest, and best estoppel of the disease, and of bad consequences should the subject survive. Let us take the case of influenza in horses, which proceeds from checked perspiration—the grand cause of maladies in our fine but variable climate.

Since I have been here, some years ago horses died of pleuro-pneumonia, beginning with influenza. My mare was taken with it. Her eyes were swollen, as if she had been beaten with a stick, and the tears rolled down her cheeks. I sent to the house for the cheapest doctor in inflammatory cases in the world, the "fleam." I bled her severely—about 6 quarts—put a sheep-skin over her loins to sweat her loins and kidneys, and gave her nitre and gruel. I kept her warm, but gave her plenty of air; I bandaged all four legs. I saved her from death, and did not leave behind broken wind! A fortnight to Grass (Dr. Green!) and she was all right! With regard to bleeding, it should be in the very first stage; to bleed late might be death. Moreover, in bleeding, the age, the sthenic or asthenic state of the animal must be considered; and further observe, you can take more blood from a lean than from a fat animal, and also more blood from an animal with a small heart than from an animal with a large heart. In health an animal with a large heart has not so quick and full a pulse, as an animal with a small heart. In bleeding you must have reference to these things; it is a matter of judgment.

Let us relieve the article by a couple of anecdotes. My father was a racing and hunting man. He lived till he was 84 years of age. He had seldom less than 30 horses about, of one kind or another. He told me as the result of his long experience, "that he lost several valuable horses by not bleeding, but he never lost one that he bled early." He added, "for inflammation of the lungs bleed till the horse is faint. Do not bleed by driblets day after day. You will weaken the horse without stopping the inflammation. If you don't at once stop the inflammation, the inflammation will stop the horse."

Anecdote the 2d, or case in point. Some years ago a lady sent for me to see her mare that was ill. I went, and found her labouring under a violent inflammation of the lungs. She blew at the mouth and nostrils, and heaved violently at the flank. I told her servant "John" to get the fleam. "Lor, sir," said John, "Missus would not hear of it. You had better see her." I knew she was a homœopath, and the issue of my interview. I told her what it was, and the last hope. She took out of a cabinet an "infant" decanter, about the size of a thimble, told me to hold up my "infidel" hand and doled into it 4 little white specks, scarcely visible, called Arnica [? Aconite], adding—"this has entirely superseded the lancet!" In vain was remonstrance. So I closed up my hand, and went with the "supersedeas." I rolled them up in paper, and greased the paper to insure delivery. The globules were delivered faithfully, and I went home. Not the next day but the day after "John" came to me, saying, "Missus has sent me to say the 'Hos' is dead."

Let us turn now from anecdotes to a joke truly black—I mean the plague, called pestis. The plague is typhus gravior. The yellow fever, another form of marsh miasma, is typhus icteroides. These are deadly complaints, but both, especially the former, bear great analogy to the cattle plague. In Turkey, I believe that their first act in typhus gravior is to bleed, with a view of causing the absorbent vessels, which are turgid, to take up the medicines administered. The complaint, however, is so rapid that remedies usually fail. The following things as regards the human plague are remarkable:—

Firstly, it is well known in the Levant that the plague advances from south to north. It usually begins at Grand Cairo, spreads to Alexandria, and thence passes through Syria to Smyrna and Constantinople.

Secondly, a dead body will not communicate the plague so readily as a living being; from which I infer that the chief communication is not by contact, but by inspiration. I believe that to be the case with the present cattle plague. It is not communicated by the "contact" or touch of the body of the diseased, but by the contact of the breath, *alias* by inspiration, and hence one diseased animal will infect a herd in a little time. Instead of contagion use the word infection by inspiration. I fancy there must be abrasion of the skin for the disease to spread by simple contact. I may be wrong. Finally, I believe that the first things to be done are to bleed—to act upon the kidneys, to open the pores of the skin, and relieve the bowels. After that is done, support is the next important thing. Port wine, barm, bark and ammonia, iron and camphor are all good things in typhus, and they are all innocent in their natures. I hope false delicacy will not hinder any one from criticising my article. The great object is to arrive at truth, and discover the "Catholicon and remedium efficax."

Remember the words "obsta principiis—venienti occurrite morbo." Bleed and physic your herd before they catch the disease in your neighbourhood, if the weather is sultry. Keep your eye on the herd. If an animal separates itself from the herd, looks dull about the eyes, does not ruminate, and stares in its coat, you may be sure it is breeding the complaint. Then is the time to physic and bleed. I am going to visit a farm in my neighbourhood, where, I hear, kine, sheep, and pigs are affected. I will report. *W. F. Radclyffe, Tarrant Rushton.*

ADVANTAGES OF FARMERS' CLUBS.

[The following inaugural address was given by the Rev. Prebendary Brereton on the opening of the Barnstaple Farmers' Club the other day.]

The advantages of a farmers' club are not necessarily limited to its members, but may extend to the district in which it is formed, and even to the agricultural profession generally, and through the influence of that profession to the common welfare. I propose accordingly to make a few brief remarks: first, on the benefits which any individual farmer might reasonably expect to derive from joining a farmers' club; next, to consider the advantages which a flourishing society of this kind would probably confer on the neighbourhood; and lastly, to indicate a few of the questions of agricultural and public interest which might suitably occupy attention and elicit discussion at the collective meetings of the members. In suggesting the advantages which might induce individual farmers to join a club, and in appealing at once to considerations of self-interest, I fear that I shall seem to some to be pitching the inauguration address of our new Club to a somewhat sordid key. Only let me remind you that in such associations each member gives as well as receives. I shall, however, attempt to show that the advantages which each individual at once confers and derives through his membership are, or ought to be, quite beyond the measure of the sum of money he subscribes, whether he considers that subscription chiefly as a payment for value to be received, or as a contribution to the benefits of others.

1. Among the advantages which farmers' clubs offer to their members I will notice first those of convenience:—

The rooms of a well-conducted club ought to combine some of the public conveniences of an inn with some of the private comforts of a home. I trust, however, that the ladies and the landlords will not take alarm at this statement, or fear lest the attractiveness of the club should lead to their desertion. For the present, at least, the committee of the Barnstaple Farmers' Club hold out no inducements to its members to forsake their habitual resorts for bed and board. But, short of eating and sleeping, there are few conveniences of a private or public house which may not be enjoyed by the members of a club at a very moderate cost. It is no slight advantage to have at one's own command in the market town a place in which to sit and talk, to read or write, to be warmed or cooled, without the sense of intrusion, without asking or thanking, or any of the restraints which more or less attach to the relation of host and guest. So long, therefore, as a farmer's business makes it desirable for him to attend a weekly market, the convenience of belonging to a club must deserve his consideration; and if any farmer in this room is disposed to inquire at what cost these advantages may be procured, I am happy to be able to inform him that they are already secured to the members of the Barnstaple Club for a payment of about 2½*d.* per week. But the advantages of co[illegible] conferred by the joint ownership of furnished rooms in a [illegible] situation, though too obvious to be passed over, [illegible] only introductory to higher benefits. When the [illegible] farmer, heated with the sun or a bargain, [illegible] by frost or ill-luck, has sought rest and [illegible] club-room, he finds not only his chair [illegible] the cool window in summer or the cheerful [illegible] but also a table spread with books, journals, and [illegible] information and amusement. And if, like a true [illegible] countryman, he likes talking and listening better than [illegible] and writing, where will he be so likely to meet the [illegible] he wants with whom to bandy a joke or maintain an argument [illegible] as at the club? I am almost ashamed to repeat that [illegible] literary and social advantages are all secured to the member [illegible] our Club for the sum I just mentioned of 2½*d.* per week. [illegible] I may possibly be addressing some who think these [illegible] and social advantages are so inconsistent with the requirements [illegible] of business as to be "dear at any price." There are men [illegible] accounted wise in their generation, who think that no good [illegible] ever yet come—in a pecuniary sense—from reading, writing, [illegible] and conversation. They know that a fool and his money are [illegible] soon parted; and having observed that the wider intercourse [illegible] with other men which reading, writing, and conversation [illegible] much promote, awakens tastes and desires that are only to be [illegible] gratified by the expenditure of money, they come to the [illegible] clusion that whatever thus tends to the parting with money [illegible] has in it the nature of folly. It may be a thankless task [illegible] explain to a man of this description the convenience and [illegible] enjoyments offered by a comfortable reading room. Others [illegible] may feel the want of such conveniences and enjoyments—

"But loss of pence, full well he knows,
Would trouble him much more."

If I had any taste for the philosophical speculations [illegible] vogue, and were disposed to hazard a conjecture as [illegible] origin of the human race, I might be tempted when I [illegible] men of this kind, to suggest another ancestry for man [illegible] of the monkey tribe. Of course, when once we depart [illegible] traditions and instincts that claim a supernatural [illegible] a super-bestial pedigree for our race, one hypothesis [illegible] admissible as another. Those who would describe the [illegible] species as a naturally-selected family of the order [illegible] pursue a course of reasoning described in rhetoric as [illegible] though I am not aware that either their arguments [illegible] spines have as yet been extended to that printed [illegible] which must decide the question. But the collateral suggestion which I venture to throw out for some future philosophic discussion is simply whether another order of the animal world than the Monkeys might not claim the honour, if [illegible] it be, of man's origin. According to the great naturalist's classification there is an order of animals whose character is that they are born with a pouch or pocket. Now, there would require strong evidence to convince me of any relationship between a man and an ape, yet (bearing in mind the class of persons of whom I am now speaking) I am not disposed to be so sceptical as to their possible derivation from kangaroos. For though I do not think that any man was yet born with a tail, I feel sure that many men are born with pockets. Instinctively do they feel through that sixth sense which, in addition to the ordinary five, they have inherited by the mysterious selections of nature from ancestral apes. And if, in obedience to this predominant instinct, they are content to forego the gratification of their other faculties, and prefer 2½*d.* in the pocket to the evident advantages which that sum might procure them in a farmer's club, what can one say? Though, even on the assumption that the instincts of the pocket are as natural to men as those of sight and hearing, I cannot but think that close pocketedness is a diseased rather than a healthy symptom, and might be described in medical language as a morbid retention of the pence. But though the disease is a serious one, and its consequences very grave, I am not disposed on that account to treat it homœopathically, by serious remonstrance or even rebuke. I have ventured to try a very mild alterative. Laughter certainly distends the sides, and, perhaps, even a smile may have some effect in restoring a healthy elasticity to the marsupial membrane.

2. I pass on to speak of the advantages which a farmers' club may confer on the district in which it flourishes.

Such an institution is calculated to give dignity to the principal occupation of the inhabitants. It asserts the public importance of that occupation, and the respect and consideration which it claims is extended not only to the actual members of the club, but to all who are worthily engaged in the same pursuit. And I may be permitted to say that, on other grounds I rejoice to see this Club established; while I am very sensible of the honour it confers upon me as its President, I rejoice most to think that it will add honour on the occupation to which—with much care and [illegible] and heavy discouragement—so many worthy men of respectable families in my own neighbourhood have committed all their energies and resources. Not that our [illegible] proposes or will be able to give any artificial stimulus to the farmer's pursuits by patronage or premiums. This is [illegible] much as may be desirable by larger and more influential societies. But while societies like the Royal Agricultural, the Bath and West of England are better fitted to hold exhibitions and to certify excellence in stock or implements [illegible] those which have a narrower range, they necessarily overlook and by comparison discourage, average merit and [illegible] aspirations. I will not deny that North Devon—and the Barnstaple district in particular—gained both credit and advantage from the show of the Bath and West of England Society held here a few years since, and that the [illegible] Royal Agricultural Society's show held this year at Plymouth have been substantially felt amongst us. But I doubt whether the effect of those two great societies has been at all so great in our district as that of the farmers' club at Bideford, whose example we with thankful admiration are cordially following. The good sense and spirit with which the members of this club have pursued a steady course of mutual instruction and protection, seeking and communicating information, encouraging discussion, detecting adulterations, and generally pursuing public objects, have raised the character of farming in the neighbourhood, and, I believe (to a considerable degree), the character of the neighbourhood. Good as well as evil, health as much as disease, is apt to spread, and is readily communicated. Public spirit is infectious, public societies are contagious. Especially the result when public spirit has begun to show itself, and public societies have begun to be formed in a class who—possessing almost more power and holding a larger share in the commonwealth than any other—had yet become, through sheer lack of spirit, proverbially ignorant, helpless, and disunited; while their best friends could only wish and devoutly hope that they might awaken from their torpor, and become (for their own sake and the sake of all) alive to the real advantages of their position. *O fortunati nimium, sua si bona norint, Agricolæ.* ["Oh, happy farmers, if they only knew their advantages.'] When public spirit led the farmers to begin to form themselves into public societies, the whole neighbourhood, I say, was inspirited and its character raised. But there are other more direct advantages which a farmers' club might, I think, confer upon the district in which it is formed. By preparatory discussion and inquiry it might remove much [illegible] delay, uncertainty, and risk, with which so many new [illegible]

[illegible] are at present received:—so many new dangers and difficulties encountered. How useful might be the results if those who, either in their individual, collective, or representative capacities, are called upon from day to day to take the lead in action, had the opportunities which a club would offer of considering principles, of ascertaining opinions, of comparing experiences. With how much added confidence would they as farmers, as guardians, as waywardens, or as magistrates, conduct ordinary transactions, or meet extraordinary emergencies, if the general rules that apply to all political and social affairs, and the various modifications of those rules which the events of life or the discoveries of science suggest or require, were periodically made matters of friendly and free discussion.

3. And if the neighbourhood in which we live may thus practically reap permanent advantages from the institution of this Club, so also it may be reasonable to anticipate that the interests of agriculture generally, and even those of national welfare and human progress, will receive some contributions from the humble but practical work for which we are now associating.

If every soldier should on the day of his enlistment think that he may some day become a distinguished General, so should our Club on this day of its birth aspire to do some service, the fruits of which may be appreciated in a much wider district than its own. I could, I think, without presumption, venture to select a few agricultural questions upon which for some time the earnest attention of England and the civilised world is likely to be fixed. Any practical contributions towards their solution will be esteemed of the highest value. Such contributions may for the most part come from individuals; but I believe that some of the most valuable will be given by associated bodies of intelligent men who have taken pains to understand the questions at issue, and who have worked together in seeking for a true and satisfactory answer. Some of these questions are purely agricultural, but many of them are so mixed up with other departments of human life and knowledge that many other views than those of the pure and simple farmer must be taken into account. For this reason I hope that our farmers' club will always include among its members many gentlemen who, like myself, are directly and principally engaged in other occupations than farming. I hope that other members as well of my own as of the legal and medical professions will think as I have done, that they are not departing from the obligations by which every member of a profession ought to feel himself loyally bound to it as the employment of his life, if they associate themselves—not merely by way of amusement, but seriously and practically—with the farmers of those who in rural districts must necessarily form the most important portion of the community. I hope that at least some of the medical and legal gentlemen of this town will with others of the clergy) see by degrees that this Club offers them a most suitable opportunity of enabling the more strictly agricultural members—by the aid of their various acquirements—to enter reasonably and hopefully upon the high task of investigating some of the great practical questions of our day. And inasmuch as these questions affect intimately the prosperity of the whole community, and as there are no class of men who depend more on general prosperity than those engaged in commerce and trade, I hope that this Club will never lack among its members gentlemen who will worthily represent those great interests. Still, after all that we the outsiders may be able to contribute, I must not forget that it is to the agricultural class themselves, the owners and occupiers of land, that this Club not only offers its principal, personal, and local advantages, but must look for any valuable contributions it may be able to render to the great agricultural questions of the day. I have only to name a few of those questions to make this obvious. The condition of the farmer—the mutual obligations of landlord and tenant—the desirableness of larger or smaller occupancies—the adjustment of local and general taxation—the improvement of the soil by cultivation—the relative profits of Grass or tillage—the most profitable breeds of animals—the true principles of mutual insurance applied to agricultural property—and the best sanitary precautions apart from insurance. Even this slight enumeration of questions which are occupying general attention in the public press and before the legislature, but which are all most legitimate subjects for discussion in a farmers' club, must, I think, convince any one that as they will never be satisfactorily solved without a thorough mutual understanding and co-operation between the owners and occupiers of the land, so will they best elicit that understanding and co-operation when landlords and tenants meet in the same society, in the same rooms, and confer freely together. It is my sincere hope that the Barnstaple Farmers' Club, this day inaugurated, will long be the means of bringing together for consultation and co-operation, on the great practical matters of rural life, men of all classes, views, and parties.

THE CATTLE PLAGUE.

We continue to publish the letters of Correspondents on this subject.

1. Report by Dr. Smart to the Magistrates of Edinburgh on the Cattle Plague.—In compliance with my instruction from the magistrates, I now submit an interim report on the symptoms and treatment of cows affected with cattle plague. The magistrates, who were desirous that a rational system of treatment should be based upon my exposition of the pathological conditions of the disease, suggested this experimental inquiry, and it was undertaken at their request. Having secured a suitable byre in town, and the services of experimental assistants, I admitted the first cow for treatment on the 21st of September. Since that period, 13 in different stages of the disease have been under treatment. Of that number two have died. Of the two deaths the disease in one was complicated with double pleuro-pneumonia, which precluded recovery; and the other was admitted in the advanced stage of the disease, and died a few hours thereafter. Of the remaining 11 there are five recoveries, and it is premature to express any opinion of the rest, as they have not yet been sufficiently long under treatment.

I.—Symptoms of the Disease.

1. *Period of Incubation.*—This is the latent period of the disease, beginning with the reception of the poison by the animal, and terminating when the symptoms of its development in the system become apparent. The duration of this period has been variously stated, but all my observations lead me to conclude that it terminates on the seventh day, by the outward manifestation of distinctly recognisable indications. These are

2. *The Earliest Recognisable Symptoms.*—They are enumerated as nearly as possible in the order in which they appear. 1. Loss of appetite. This shows itself (1) by an aversion to all sorts of "green food." The next day or the following there is (2) indifference to food of any kind. The animal still eats, but languidly, does not lick out the pail, or leaves a portion of the meal, and soon the greater refuses food altogether. She now ceases to chew the cud, and from this time there is a remarkable constipation, with progressive diminution of the milk. She looks depressed, stands much in the same position, with drooping head and twitching ears. The ears, horns, and other extremities are now scarcely sensibly above their natural temperature. The breathing is yet but slightly accelerated, and the expiration (or outbreath) perceptibly prolonged, and the pulse rises a few beats in the minute. It is at this period the arching of the vagina reddens, and the colour increases as the disease advances. This appearance of the vagina is the most characteristic and reliable mark of the disease at this stage. A faint red or purple line about the same time appears on the under gum along the roots of the teeth. All these symptoms extend within a day or two of the incubation period. The diseased condition of the internal organs after death clearly points to this and the preceding period of the disease as the proper time for successful treatment, before destructive changes have too far advanced.

3. *More advanced Symptoms.*—The breathing is now more accelerated, oppressed, sighing, and laborious. The number of respirations vary generally from 36 to 70 per minute. The pulse is more rapid (from 60 to 110 pulsations per minute) and weaker. There is continued loss of appetite, constipation, and thirst. The superficial membranes of the mouth, especially of the inner side of the upper lip, congested, and a viscid discharge appears in the vagina. A similar appearance is seen on the membrane of the vagina where it joins the skin. The milk is scanty, and entirely changed to cream, or there is none at all. All the other symptoms are more decidedly pronounced. The likelihood of recovery is greatly diminished by delaying treatment to this period.

4. *Most advanced Symptoms.*—They are those which shortly precede death, and are manifested by any very marked outward signs of pain. The breathing is now slow, very laborious, and moaning or grunting. Pulse now very small. Where purgatives have not been given there is great distension of the abdomen, and obstinate constipation. Too fluid and sometimes sanguineous discharges from the bowels, which occur in some cases, are the results generally of the too frequent use of irritant drugs. The superficial membrane of the mouth peels off from the gums and lips, leaving the surface raw; and frequently, but not invariably, there is a viscid discharge from the eyes, nostrils, and vagina. The animal now dies without a struggle, apparently from simple exhaustion.

The "staring hide" and "arched back," so frequently mentioned as distinctive features of this disease, while characteristic of the advanced forms of pleuro-pneumonia, are not at all marks of the Rinderpest. There is no cough or lung symptom in the pure and uncomplicated examples of the disease.

II.—General Principles of Treatment.

These are based upon a knowledge of the pathology of the disease, and indicate the line of treatment to be adopted in dealing with it.

1. *The Animal Temperature is Lowered and Deficient.*—This has to be restored and maintained. To do so the affected animal is protected from all direct draughts of air, placed in a house or byre with an equable temperature not under 70° Fahr., and the hide thoroughly cleaned and rubbed down, and a warm covering kept on the animal throughout the progress of the case.

2. *The Stomachs are Loaded and Distended with Food.*—This condition, by preventing access of medicine and suitable nourishment, presents a very great obstacle to treatment. But it also indicates the line of treatment to be adopted at this stage, namely, to remove the hurtful accumulation as quickly as possible. This must be done by mild purgation, suited to the already irritable condition of the lining membrane of the stomach and bowels. The medicines here indicated are gentle relaxants combined with diuretic action.

3. *Extreme Vital Depression is characteristic of the Disease throughout its entire Progress.*—This is combined with a very peculiar and rapidly destructive change of some of the internal structures. Stimulants to support the depressed vital powers, and resist, as far as possible, this tendency to destructive dissolution, are thus clearly indicated from the very commencement. And as it is of importance to make the healthy organs subserve the purpose of removing from the blood the morbid materials that may exist in it and in the general system, stimulant treatment should conjoin with it remedies fitted to excite the functional activity of the two great eliminators of this class, namely, the skin and kidneys. Hence stimulant, diaphoretic and diuretic action are here indicated. Regular milking of the diseased cow, in order to prevent the retention in the blood of the elements of the milk, is also, on the same general principles, clearly indicated throughout the entire course of the disease.

4. It almost appears an axiom to say that a properly regulated and rational system of nursing is in the treatment of disease in cattle, as in man, of very great importance to the comfort of the sick, and as an aid to their recovery. In the present example, no method of combating the malady can be of any use in which careful nursing does not form the basis of every other effort to restore health. It is not idle to repeat this, because, in any system of treatment hitherto made public, the importance of this fact has either been insufficiently recognised, or entirely overlooked. Hence arises the necessity of there being kind, skilful, and experienced attendants, and a well-regulated dietary.

III.—Remedies.

These are few, simple, and selected on the principles above stated. My experience of their suitableness is every day more established by fresh examples of their efficacy. There are yet only three kinds of drugs which I found it requisite to employ.

1. Laxative, with diuretic action. This is principally used in the early, but often required at other periods, in the progress of the disease. It is composed of—

Laxative.

Nitrate of potash } of each 1 oz.
Powdered ginger }
Powder of sublimed sulphur, 2 oz.
Treacle, 1 lb.
Water to make a quart, and well mixed.

This quantity is given night and morning, or, if requisite, oftener, until scouring is produced. Afterwards an occasional bottle will maintain their free, without excessive, action.

As the vital powers sink rapidly, there should be no little delay as possible in administering stimulants. I have found the following mixture, possessing stimulant, diuretic, and diaphoretic properties, very efficacious:—

Stimulant.

Carbonate of ammonia, ½ oz.
Sweet spirit of nitre } of each 1½ oz.
Spirit of camphorene }
Cold water, 8 oz. Mix.

This dose, from the commencement of treatment, is administered thrice a day during the entire course of the disease. When prostration is great it is sometimes needful to conjoin it with the laxative given along with all other medicines. In such cases the doses are smaller.

When convalescence is fully established, a simple tonic hastens recovery. I find none so good and safe as cinchona bark. The best quality only should be used, and given in doses of ½ oz. of the powder.

This tonic in the early period of convalescence is combined with the stimulant, and at a later period with a quart of good sweet ale given each day. It is best administered at night. With the exception of an occasional dose of aperient (two tablespoonfuls to any medicine the animal is getting, or in the food) to alleviate straining and control excessive diarrhœa, no other drugs are used.

IV.—Diet.

It should be simple and well-digested nourishment, well cooked, and given in small and regulated quantities. I use the following:—Bran mash. It is composed of four handfuls of bran, four handfuls brewers' draff, ½ lb. of linseed, ½ lb. of bruised Turnips, well boiled, and by them, and given night and morning. At most, by a dozen or more pints, there is with ½ lb. of linseed, well boiled in 4 quarts of water. In addition to these, some raw Turnip (2 lb., for example, of Green Globe) and ½ lb. of hay, may be allowed in small quantities during the 24 hours. To allay thirst, 3 to 4 quarts of water, previously boiled and allowed to cool, is given in mouthfuls during the day. This constitutes the full diet of a decided convalescent. Half of this diet is too much, during the acute course of the disease, too much. In such cases the same kind of food and periods of giving it are followed. There are some animals that for a time refuse all food, not excepting gruel. In such cases the gruel is administered by the bottle thrice daily, along with or after the medicine. The animal should get a little mash so soon as it takes it voluntarily. It is often expedient to miss a meal, especially whenever symptoms of an unfavourable indication appear. These are not of unfrequent occurrence during the course of treatment. Grass is given, and the quantity of hay and Turnip increased as there is progress towards more perfect recovery.

V.—Symptoms of Convalescence.

The more obvious indications are—1. Recovery of appetite; 2. Greater animation; 3. Return of breathing and pulse to their normal condition; 4. Increase of milk; 5. Chewing the cud.

VI.—Summary of Treatment.

1. The animal is at once taken from its ordinary food and separated from the rest. 2. Placed in a well-aired byre or house free from draughts, and the temperature of which is maintained at 70° F. or 75° F. 3. The animal is well rubbed down, and thoroughly cleaned and covered with a good rug. 4. If there be constipation, begin with laxative and continue night and morning, or, if required, oftener until there is free scouring. 5. Let there be no delay in giving the stimulant, and, if needful, combine it with the laxative. 6. Defer giving ale and bark until convalescence appears. 7. To obviate straining or excessive purging, two tablespoonfuls of laudanum night and morning may be added to other medicine. 8. Be careful to avoid overfeeding, as an error in diet may prove fatal. 9. See that the cow is well milked night and morning (even where there is no pain) during the course of the disease. 10. All the droppings should be at once disinfected by solution of chloride of lime, and quickly removed. 11. The affected animals should be frequently and closely examined, and threatening indications treated as they arise.

To many it will be more interesting and perhaps more instructive than a general statement, if I present the daily record of a number of cases successfully treated by me at the experimental byre. The cases selected were recognised by all the members of the medical committee as undoubted cases of Rinderpest, and their treatment and progress observed and noted from day to day. The following notes are from my daily journal of the cases:—

Examples of Cattle Plague Successfully Treated.

Case No. 1.—A cow from an infected byre in the Canongate, admitted on the 21st September. This cow, when I saw her, was very weak, and I expected her to die the same night. The breathing was laborious and sighing, and she was cold all over. Had taken no food for five days before she was brought, and her milk and cudding had been quite arrested during the same period. She was not put under treatment until next day, when she was thoroughly rubbed down and covered with double rugs. As there is already scouring, she is to have stimulants three times a day, and to be fed entirely on gruel. She gets worse apparently for two days, scouring is excessive and mixed with blood. But on the 25th she is so weak as to be allowed a little mash. The temperature is good, scouring less, and abundance of healthy urine. During the following two days there is no apparent progress. The breathing is very oppressed. Pulse, 100 per minute, has not strength to rise, and she is breathless and exhausted after any effort. On the 28th she is decidedly better; she is warmer, more animated, and looks eagerly for her gruel, some of which she took herself for the first time. The urine is abundant, and the dung more natural. Today she gets a bottle of ale twice, with stimulant. On the 30th she was allowed to eat her fill of hay, and was cropped for 24 hours. This was accompanied by diarrhœa and straining, which was corrected by an ounce of laudanum night and morning. During the next few days she makes a little progress. Gets stimulants twice, and sometimes thrice a-day, and bottle of ale with tonic powder. On the 3rd October the pulse is 72 and getting stronger, and the respirations are 36 per minute. She has got cheese for food to-day, and convalescence is decided. She is more lively—no scouring. Temperature good, but the side over the back and on both sides of the neck is puffed up with air (under it general emphysema of the cellular tissue) and when struck emits a drumming sound. The following day she evinced the most unequivocal sign of advanced convalescence—viz., cudding. She was now getting two small meals with a little Turnip and Grass, the stimulant twice, and at evening the bark in warm ale and gruel. Milk returning. From this period there was rapid and favourable progress. Her pulse and breathing are now natural. She is quite recovered, the cow, but will be returned to the owner in excellent condition in a day or two. The puffiness of the skin is every day getting less. I have not seen a more hopeless case than this for treatment, and her recovery is full of encouragement.

Second Case.—A cow from an infected byre. Put under treatment on the 28th September. She had taken no food nor had been seen cudding for two days previously. Pulse 96. Constipation, and loaded paunch. The vagina showed the characteristic colour. To remove constipation she was at once treated with laxative night and morning. On the 1st October the journal notes that the pulse is 96, weak, and respiration 72 per minute and oppressed. Free scouring, which lasts to next day, and is moderated by a tablespoonful of laudanum night and morning along with the stimulant. Next day signs of convalescence appear; she takes a little mash night and morning, and free scouring abated. October 4.—Convalescence is more marked; pulse, breathing, temperature becoming more natural, and indications of returning milk. October 7.—At the rate of returning health she is now permitted to take some meal, night and morning, with a little Turnip, hay, and Grass. The milk is returning rapidly; breathing tranquil. The treatment throughout of this case has been that mentioned above—viz., laxative, stimulant, and tonic in the order mentioned. The cow was returned to her owners in excellent condition some days ago.

Third Case.—Cow from an infected byre. Admitted on the 9th September. When I saw her all the marks of the disease were present. Pulse 100, and weak; breathing oppressed; no

appetite; very depressed and thirsty; reddened vagina and gums—constipation. Had laxative mixture, and was freely scoured by a single bottle of it. To have stimulant mixture three times a-day. The animal remains in an undecided state during the next three days, refusing food, except gruel, and a little thin mash. October 3.—The pulse is 60, and respiration 48 a minute. She is more lively, eats a little better. Same treatment continued as above, and to have a tonic powder and ale at night. October 6.—The pulse is still high—viz., 80; the respiratories are 48, and the breathing is oppressed; otherwise, her condition is not markedly changed. October 9.—Signs of convalescence are now quite decided. Appetite quite restored, and she takes the full meal of a decided convalescent greedily. The milk is much increased in quantity, and is improving in quality, but the pulse and breathing are still a little too high. This arises from a slight attack of pleurisy, which she has caught since admission to the byre.

Fourth Case.—From an infected byre. A fine Ayrshire cow, admitted 26th September. She had taken no food for two days before her admission. She was dull, losing milk, oppressed in her breathing, and the pulse was 100. The other signs of the disease were present—viz., reddened vagina and gums. As she was costive, laxative was given, and she was freely scoured next day. Stimulant treatment was next adopted, and her diet consisted of small mashes twice a day, with gruel at midday. On the 1st October the pulse was 96, respirations 48 per minute, temperature natural, but she was dull, and had no appetite. On the following day signs of improvement appeared and continued. The treatment now consisted of stimulant twice a-day, and ale and bark at night. On the 9th the journal states that she is decidedly convalescent; milk greatly increased in quantity, and improving in quality. Gets full diet, and takes it eagerly. This cow will be sent home in a day or two.

Fifth Case.—Cow from an infected byre, where 10 had previously died of the disease. Admitted 1st October. She had all the distinctive marks of the disease already enumerated, and was treated on similar principles. For three days her pulse was 95, and her respiration attained the extraordinary number of 102 a minute. There is nothing particular in the details of her treatment. She is now, after seven days' illness, quite convalescent, giving full milk, chewing cud, and taking full diet. She will be sent home in the course of a day or two. *Andrew Smart, M.D., 28 Alva Street, October 9, 1865.*

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2. Is Rinderpest Spontaneous in the Country?—It is now universally allowed that this malady, which destroys more horned cattle than all the other complaints to which they are subject, is always introduced into this country by foreign cattle. Wollstein, Metzler, Keck, Laubender, and some other physicians, thought that the malady might be spontaneously generated, and even Adami was for a time of the same opinion. Adami once tried the following experiment:—Having gradually heated the blood of an ox until it got putrid, he placed it close to a healthy one-year old calf which was shut up alone in a stable. On the fourth day the calf began to shiver, to move its head to and fro, and to breathe heavily. On the sixth day it ate but little, and seemed much out of sorts. On the seventh day—the third from the outbreak of the fever—all the symptoms were aggravated. On the eighth day the animal neither ate nor drank, its eyes were red and projecting, its mouth hot and foaming, and its pulse quick and hard. On the 15th day the calf died, and a *post mortem* examination of the carcase was at once made. The lungs, which were much inflated, and loaded with coagulated blood, had dark brown spots on them; the löser (probably the third stomach) and the labmagen (rennet-bag) were highly inflamed, and the löser was crammed with dry food; the gall-bladder was twice the usual size. On the fourth day after the outbreak of the fever a perfectly healthy six months' old calf was placed close to the above-mentioned animal. On the ninth day the second calf sickened, and showed the same symptoms as the first had done. Vinegar and camphor were exhibited, and the animal gradually recovered. Adami was highly pleased that his experiments had turned out so well, but he soon, to his great annoyance, learned that the Rinderpest had for some time been raging in the district from which the blood used had been obtained. At a later period Adami, Lanzisi, Ramazzini, Camper, De Haen, Vink, Opitz, and Hanold made other experiments; and at last they came to the conclusion that the Rinderpest is never spontaneously generated in the west of Europe. It is a mistake to suppose that the malady is indigenous in Hungary and Galicia, for it never appears in those countries unless it has been prevalent in Wallachia and the Bukovina. In the opinion of the above-mentioned veterinarians and of Fracastori, Gazola, Geedike, Le Clerc, Bourgelat, Berg, Halber, Vicq-d'Azyr, and Abilgaard, the Rinderpest was originally generated in Central Asia and in the south-east of Europe. *Times Vienna Correspondent.*

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3. From the Earl of Winchilsea.—Does it not strike you as monstrous that there should be authority vested in her Majesty's Council to issue an order (upon its own and sole responsibility, without the concurrence of Parliament) virtually confiscating an enormous property of a certain description without the pretence of an indemnity to the unfortunate owners?

In other countries which have been attacked by the cattle disease, the Governments have adopted most peremptory measures, slaughtering whole herds, drawing a *cordon sanitaire* round large areas, and preventing not only the egress of cattle, but that of dogs, men, and animals generally. All this sounds arbitrary enough to an Englishman, and at first he may, perhaps, congratulate himself upon not being a Prussian, Austrian, or Dutchman. But is his position preferable to theirs? Nay, is it not, if you come to examine it, far worse? The Government of each of these nations buys up the cattle before it orders them to be destroyed. With us it destroys (by the fiat often enough of inspectors whose judgment can hardly be relied upon) without so much as offering the sufferer the market value per head of a diseased beast.

Now, I do not mean to assert that in some cases the destruction of a herd may not be the readiest way of arresting the progress of contagion, but I think it can hardly be asked of the proprietor that he should willingly concur in the sacrifice. The worst has happened to him. He has got the plague among his cattle, which will probably destroy three-fourths of them. I do not think you will readily persuade him that he will improve his position by voluntarily slaughtering the rest, and burying them at his own expense. If, then, the interests of the country require such a holocaust, let it buy before it kills and buries

Stop your fairs and markets if you will for a time; prevent an owner of infected stock from selling off his land; but do not interfere with his efforts to cure by ordering peremptory slaughter at the discretion of inspectors in whom few place any confidence, so difficult is the diagnosis of the disease, at any rate in its incipient state. If you will, however, insist upon death as the only safeguard against further infection, let your Chancellor of the Exchequer (a man, no doubt, equal to the occasion) devise the means of including in his Budget for next year the necessary expenditure by which the public may acquire the right of slaughter, and kill its own, not other people's beasts.

Let competent valuers be called in wherever notice is given of the presence of the disease, and let them say what the stock upon the farm (with the disease declared) is worth at the time of valuation. Let the country buy it, should slaughter be judged necessary, at that rate, which will probably be about one-third or one-fourth of its value previous to infection, and let the bill be divided afterwards among the taxpayers generally.

Since the introduction of free-trade, every country that could furnish it has been ransacked for live stock to supply the London market. With the first importations arrived pleuro-pneumonia, till then an unknown disease, and at first almost as fatal as this rinderpest. I can speak from experience, having had some 60 or 70 beasts in 100 attacked with it about three years ago, out of which I lost 40. It is generally considered that we are indebted to Holland for this scourge. All usual sources of importation having been laid under contribution to the extent of their capability, it remained for some enterprising speculator to chance a supply from Russia, although the perpetual prevalence of cattle disease in the Steppes was a matter of notoriety. With one of the earliest cargoes, if not the very first, the plague arrived, and (as quarantine and insulation are hardly practicable in such a country as Great Britain) has spread rapidly.

Thus, for the sake of a paltry profit to an individual speculator, thousands of pounds will be sacrificed, and a panic which interferes with all the agricultural centres of the country has arisen.

So much for the efficiency with which those charged with the inspection of foreign cattle previous to its passing from the ports to the local markets have discharged their duty. It would almost appear that the manners and customs of some parental Governments are more calculated for the benefit of the community than this unlimited free trade, conducted upon the principle "that any one is at liberty (in pursuance of his own interests) to make sure of an individual gain, regardless of the damage he may entail on his neighbours," and it would moreover appear that free trade has its duties as well as its advantages, among the former of which may well be reckoned the liability for losses clearly consequent on its too careless development.

The disease once introduced, the London market system could hardly fail in distributing it broadcast through the provinces, pretty much after the fashion that Britannia is to be seen—if one of them still survives—sowing letters, in Mulready's original postage envelopes.

The unsaleable beasts from each London market being forthwith railed off, at a loss, to be sold at the country markets for whatever they will fetch, make concentration of a malady utterly impossible.

Thus we may fairly say the plague entered by negligence, was distributed by the desire of shifting loss, and has become domesticated by all the ramifications of untraceable contagion.

I believe that, like the pleuropneumonia of late years and the murrain of a century ago (for an account of which one need only turn to the "Gentleman's Magazine)," this pest will die out, become subdued in its character, or a remedy will be found for it; still this state of things will demand time, is at best problematical, and can neither pay for present losses nor allay the panic which is at present as irrepressible as the negro.

Were some large cotton or other manufactory employing hundreds of workmen suddenly to develope cholera, and were an Order in Council to be issued thereupon, commanding the building to be razed to the ground and the machinery burnt without indemnity to the ower, I would gladly be informed of the nature and extent of the outcry that would follow; the "Black Country" would go into permanent rebellion; and yet such a proceeding would neither be more unjust nor more ridiculous than the issuing of an order commanding the destruction of infected cattle, on public grounds, without an indemnity to the owner.

Let the authorities carry out free trade in its entirety; by which I understand the full and indefeasible right of any one possessing a diseased cow to take it to market and sell it for anything it will fetch; or else, if prudence and precaution oblige them to act otherwise, let them compound with the owner and come to terms upon which they may become entitled to buy the beast and slaughter it in the common interest

Upon such terms, and upon none other, is the public entitled to take cattle. If they do not pay, they steal; and if they steal, they break the Commandments, which exist *de se* and *per se*, and are good against one or a thousand, a pickpocket or Great Britain. *Winchilsea and Nottingham, Eastwell Park, Oct.* 18.

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4. From Mr Graham, of Capellie.—In the cattle plague report from Kirkliston, near Edinburgh, which appeared in the *Scotsman* of the 17th inst., it is stated that a dairyman there had 25 cows, one of which died, four were sold to a butcher, as they were in good condition and seemingly unaffected, and 20 were apparently well. Ten of them, however, were afterwards attacked, and the report goes on to say:—"One of the 10 attacked, and which seemed very ill on Sunday evening, was wrapped up in wet blankets, overlapped with dry ones, and dosed with the prescription recommended by Mr. Graham, of Capellie. Yesterday morning she was able to eat, gave a considerable portion of milk, and was apparently in a good state of health." It is unfortunate that all the 10 had not been thus treated; and allow me to suggest that whenever one animal is attacked, all the others in the same byre should at once be treated, making this alteration in the dose—that 1½ spoonfuls instead of three spoonfuls of nitre should be administered, but making no change in the quantities of sulphur and ginger. *A. Graham, Capellie.*

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5. A Century Ago.—I don't know whether you will think it of sufficient interest just now to give publicity to the accompanying extracts from the cashbook of an eminent grazier at Moulton, near this town, in and about the year 1747, when the cattle plague, it appears, raged in England, but you are at liberty to make any use you think proper of such extracts. The circumstances related therein seem so singularly to coincide with the present state of affairs that you may, perhaps, think it worth while to publish the same. I may say, then, that the book in question contains the accounts of purchases and sales of beasts by a Mr. J[illegible] formerly of Moulton—all in his own hand[illegible] May, 1727, to September, 1792—and the accounts send you are interspersed at their several dates. The book is now in the possession of Mr. Henry H[illegible] of Moulton, a descendant of Mr. Hardy. A[illegible] *Spalding, Oct.* 23.

"Extracts from an Old Cattle Book [illegible] Mr. John Hardy, of Moulton.

"1747. There was such a Violent Distemper [illegible] Beasts, that it was thought there Dyed [illegible] Hundred Thousand in this year. The [illegible] this Distemper were a runing at the Eyes and N[illegible] the Ears, and a Scouring in the body, and [illegible] which I apprehend was according to the [illegible] it was thought Infectious, therefore a st[illegible] any Fairs or Markets for the Sale of [illegible] Distemper, by an Order of Council; wh[illegible] all Beasts as soon as discovered to have [illegible] removed from the herd they were in, and [illegible] dead; their hydes cut and slashed in such a manner as to make 'em useless, and then directly to be buryed; all [illegible] of Beasts, who obeyed this Order, for a Beast worth Fo[illegible] pounds, was entitled to Two, and no more if the Beast [illegible] worth Twenty; all under Four pounds, half the value. [illegible] owner suffered his Beast to dye, he was then entitled to [illegible] shillings. If the hyde was not worth Twenty [illegible] half the value of the hyde, if cut and buryed as before mentioned. Severall other Laws were made by His Majesty in Council, [illegible] order to prevent the Spreading of it, but had not the desired effect.

"This distemper first appeared in England in October, [illegible] amongst the Cows near London, and kept spreading [illegible] ward; the first that fell in Lincolnshire were the [illegible] William Emmins in Holbeach Marshes, in S[illegible] the next it broke out with was Mr. Th. Wright [illegible] Marshes, in January, 1747; and in February, [illegible] Fenn in Moulton Eagate and presently became [illegible] that I dare not venture to buy any more Beasts [illegible] was enacted by Parliament, whatever orders were [illegible] King in Council was a Law."

Another entry runs thus:—

"1749. March 18. Bought Twenty-one Beasts of [illegible] Hill, a Jobber, which he was to hazard a certain [illegible] which time eleven of 'em dyed. I paid him for the [illegible] Ten 70*l*."

And another thus:—

"1759. On Sunday the 18th of February was used a [illegible] of Prayer with Thanksgiving, for the Ceasing of the [illegible] temper amongst the horned Cattle throughout England [illegible] his Majesty's Command. I believe it is near Tw[illegible] it has appeared in any part."

N.B.—Mr. Hardy appears to have been in a very [illegible] way of business as a grazier from 1727 to 1792—the transactions every year being very numerous and [illegible] in large lots of beasts; but in 1747 he appears to have made only three purchases, and then occurs in his book the above entries.

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6. A Russian Remedy.—I beg to be allowed to make known for the benefit of all a remedy against the "Typhus" now raging in England. When this disease broke out in the Ukraine during the Crimean War, it was of such [illegible] service to me, that of 600 head of cattle I lost but [illegible] The remedy is simply the following:—As soon as the first symptom of the malady (dryness of the skin) shows itself the diseased animal should be placed in a vapour bath [illegible] down, the moist temperature of which should be [illegible] cause too great a difficulty in breathing. The [illegible] should be rubbed dry, covered over with several [illegible] blankets, and put in a stall thoroughly sheltered from [illegible] the greatest care being taken to prevent its catching [illegible] This is of the utmost importance in the treatment. [illegible] draughts and food easily digested were then given [illegible] me. This simple treatment has already twice saved [illegible] Russia from great losses. For the last one and [illegible] I have farmed and bred cattle. The first 15 I spent [illegible] lenburg, and the last 18 in Russia, where I managed the [illegible] estates of Count A. Bobrinsky. I then remained [illegible] short time, and now for three years I lease a farm [illegible] to Count P. Shouvaloff. Both estates are in the [illegible] of Kieff. From my heart I trust this simple treatment [illegible] be of as much service to my fellow-farmers in England [illegible] been to me, and I entreat your Excellency [illegible] interest to cause the greatest possible publicity to be given [illegible] this treatment. The vapour bath I used was of a very [illegible] tive construction, and consisted of a room, the floor [illegible] was not level, but raised at one side so that the animal [illegible] be brought by degrees into a higher temperature. The [illegible] I obtained by means of an oven covered with iron [illegible] which water was poured after the room had been [illegible] heated to a temperature of 35 deg. Réaumur. *H. F. [illegible] Talnoe, Sept.* 8.

"To His Excellency Sir A. Buchanan, K.C.B., &c."

Home Correspondence.

Quality of Steam Cultivation.—Your question [illegible] my remark about the quantity of work done by [illegible] tackle *v.* Fowler's—"How about the depth of [illegible] that ought to have been specified"—I will do my [illegible] to answer. I have no knowledge whatever as to the [illegible] depth Fowler's worked, but I have as to the [illegible] my own. Mr. Hutchinson's pamphlet, "Fire and [illegible] *v.* Corn and Hay," runs thus:—

"The farm is situate at Dunton Lodge, near Biggleswade, in the county of Bedford, and is the property of the [illegible] Brownlow. It consists of 546 acres of very deep [illegible] uniform texture, extending downwards at least [illegible] At the period of the commencement of our accounts [illegible] completely overrun with Twitch and noxious weeds [illegible] so, that it was necessary to mow the Twitch before [illegible] cultivated, and, when cultivated, the roots of the [illegible] withering on the surface, caused it to present the appearance of a hay-field. Before our accounts commence, it had been well and efficiently drained at the cost of the landlord [illegible] whose hands it fell in the spring of 1861, when, after [illegible] was extensively advertised, and viewed by some [illegible] persons, not one responsible tenant would accept [illegible] rent of 25*s.* per acre. The landlord, being thus [illegible] take it into his own occupation, purchased a steam [illegible] apparatus (which had been worked three seasons [illegible] cost of 180*l*, and a new 10 horse-power double cylinder [illegible] engine, at a cost of 320*l*. The work was commenced [illegible] before Midsummer, and was continued from day to day [illegible] the two seasons, according to the tabular statements [illegible] mitted."

The tabular statements follow, showing costs [illegible] results, and then the pamphlet finishes thus:—

These tabular statements have demonstrated, we [illegible] most conclusively, both parts of our proposition, that cultivation by steam power can be accomplished at less cost than by

[illegible] and the result with regard to produce is [illegible]. We have seen, that the objects of this farm, [illegible] such immediate duty, [illegible] that it [illegible] has been [illegible] by the use of [illegible] so that the depth of our natural soil is [illegible] considerably [illegible] and broking through the under crust (if we may so term [illegible]) the natural power of this soil has been increased. The [illegible] power of holding moisture of [illegible] by the action of the atmosphere and the [illegible] which [illegible] is much more readily absorbed [illegible] and there is an elasticity beneath the foot which [illegible] the meager-cultivated soil clearly distinguishable, as we [illegible] [illegible] the land was steam-cultivated, the second [illegible] the third was [illegible] cultivated land, the third was [illegible] This shows that the "little one" worked its land to active deep to a good result. *William Smith, Wadstow, Fitzhilly Station, Bucks, Oct. 23.*

Cattle Plague.—I concur in the remarks you made last Saturday as to the apathy shown by the great body of landowners in the matter of the cattle plague, notwithstanding that when the tenants are sufferers, to a greater or lesser extent must they also suffer. I enclose a copy of the rules of a Society formed in this district, by which you will see that the landowners have not only ascertained their true position, but have also acted on it in a truly liberal spirit. The society formed has proved a great success, and was originated by the five principal landowners of this district, viz. the Earl of Zetland, Capt. Chalmer, Sir J. Lawson, J. T. Wharton, and A. H. T. Newcomen, Esqs., who offered to meet their tenants half-way for whatever amount of money was required. The gross estimated rental of the farms was adopted as the basis on which the rates were to be made, as you will see by Rule 5. So whatever sum the tenant pays, it is supplemented by an equal sum from his landlord. There has been in this county several attempts to get up assurance societies, but I know of none whose success is as complete as that whose rules I enclose, and which, if followed, might prove useful in other quarters. The following are some of the rules:—

The Sedgefield Cattle Society. Rules.

1. The Committee shall have power to make calls upon the members for contributions to the funds of the Society, but no one shall exceed the sum of Sixpence in the Pound upon the gross estimated Annual Rental of the Property, at which any member is assessed to the Poor's Rate as owner or occupier.

2. Every member of the Society shall contribute to the funds thereof, in proportion to such gross estimated Annual Rental, and any owner who may also be an occupier shall contribute in both capacities in the same proportions.

4. The sum to which any member may become entitled, shall not exceed two-thirds of the value of any Beast or Beasts dying of the Plague; and shall in no case exceed the sum of Twenty Pounds for any one Beast.

7. No member of the Society shall at any time take into Pasture or in any manner harbour in or upon any part of his Farm or Premises any Cattle not his own property, without the consent in writing of the Committee and signed by the Chairman.

W. J. Moscrop, Kirkleatham, Redcar.

Paper from Lucerne Roots.—A Frenchman has taken out a patent for a new substitute for rags as a material for paper. It is the fibrous root of the Lucerne, which he says can be reduced to a pulp admirably adapted for the manufacture. We dare say it can, and so can 50 other substances, but they all lack the indispensable requisite,—cheapness of preparation. Of the thousand experiments tried within the last few years only one has succeeded—the manufacture of straw, and that only in part. Straw paper is too brittle, prints badly, and is not durable, but it is cheap, and its use must to some extent relieve the demand for rag-made paper. The ideal substance for making paper is a fibre requiring no bleaching, easily worked up, as durable as flax, and costing about 2*d.* a pound; and it is very doubtful whether we shall ever get it. It is difficult to see how any fibre can be cultivated more cheaply than cotton, and cotton is far too dear. *P. M. G.*

Foreign Correspondence.

[The following very interesting letter, received by Mr. Harrison, of Frocester Court, Stonehouse, Gloucestershire, has been forwarded to us for publication.]

CHRISTIANIA: *Sept.* 29, 1865.—*Dairy Statistics.*—Perhaps you will remember two young Norwegians, who were very cordially received on your farm in the summer of 1864. One of them gave you a promise, which he did not keep, namely, to give you an account of the results of cattle feeding at the Royal College of Agriculture at Aas (in the neighbourhood of Christiania). It is now his intention to pay his debt, although he is very unaware of the fact that the payment will take place in very bad English.

The cultivated parts of the model farm, belonging to the College, contain 1074 maal, equal to 270 acres of land. At the time when the College undertook the farm, in 1859, the land was in a miserable state of cultivation; the new system of culture has not yet gone over the whole farm, but you will see our progress by the following statement of the crops in the years 1859 to 1863:—

Year	Rye	Barley	Average	Oats	Peas	Beans	Rye	Wheat	Beans	Mangel-Wurzel (Turnips and Swedes)	Oats	Potatoes
	Tons.	Bush.	Bush.	Bush.	Bush.	Bush.	Bush.	Bush.	Bush.	Bush.	Bush.	Bush.
1859	[illegible]	[illegible]	[illegible]	—	[illegible]	—	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1860	[illegible]	[illegible]	[illegible]	—	[illegible]	—	[illegible]	[illegible]	—	—	[illegible]	[illegible]
1861	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]
1862	[illegible]	[illegible]	[illegible]	—	[illegible]	—	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]
1863	[illegible]	[illegible]	[illegible]	—	[illegible]	—	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Difference per cent.	[illegible]	[illegible]	[illegible]	—	[illegible]	—	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Natural pasture	[illegible]											

In the production of hay the green crop consumed by the live stock during the summer is not included. This may be estimated at upwards of [illegible] tons of hay (at the rate of [illegible] of the living weight of the cattle every day for 120 days).

The stock of cattle was on the 1st of April, 1864, as follows:—

Of pure Ayrshire breed, [illegible] oxen, [illegible] cows, [illegible] young cattle.
Of Norwegian breed, [illegible] cows.
Of mixed breed, [illegible] young cattle.

We mean to ascertain which breed is most suitable for our country, but nothing certain can yet be said about that question.

The total production of milk was in 1863, [illegible] gallons, in 1861, [illegible]; in 1862, 10,[illegible]; in 1863, 14,[illegible], in 1864, 21,154 gallons. The daily amount of food given to each cow of the Ayrshire breed will be seen from the following Table:—

	Chemical Constituents						Average Hay-value
	Quantity	Protein	Fat	Carbon. Hydrates	Dry substances		
	lb.	lb.	lb.	lb.	lb.		lb.
Oilcake	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
Bran of Rye and leavings of Flour	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		4.4
Turnip	[illegible]	[illegible]	[illegible]	5.26	4.[illegible]		10.4
Straw	[illegible]	[illegible]	[illegible]	4.91	[illegible]		[illegible]
Hay	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		10.4
Total for each cow	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
Total for 1000 lb. living weight	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		4.[illegible]

Twenty Ayrshire cows have been fed after this plan in 245 days, and have consumed hay or hay-value, at an average to an amount of 1.21 of their living weight; in 120 summer days, 1.[illegible] of their living weight, making together [illegible] lb. of hay-value. The corresponding production has been 21 calves, weighing together 1350 lb.; increase in their own weight 440 lb., making together 1820 lb.; besides 13,290 gallons of milk. To the production of 1820 lb. living weight, it is calculated that [illegible] lb. hay-value have been consumed. Then to the production of milk 257,000 lb., or 4.37 lb. hay-value to each pot (equal to .2124 gallon of milk), or 2.91 lb. hay-value to each lb. of milk. In the following Table you will find the results for the two years 1863 and 1864 (the year is reckoned from 1st April to 1st April, and the year from ¼ 1862 to ¼ 1863 is called 1863):—

Year ending	Total living weight	Average living weight	Fodder consumed (hay value)	Thereof: To the production of calves and increase in living weight	Thereof: To the production of milk	Proportion of fodder to living weight	Production of milk: Total	Production of milk: Of each cow	Production of milk of 100 lb. hay value		Cost of production to 1 gallon of milk
	lb.	lb.	lb.	lb.	lb.		gallons	gallons	gal.	lb.	d.
Lady Day 1863	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	52.54	4.1
Spring 1864	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	4.4

It will be observed that the feeding is very abundant, and that it was more abundant in the year ending the spring of 1864. In the said year the cost of production was a little greater than in 1863, but the difference is too small and the experience too short, so that we need not conclude that the cows have been fed too abundantly in 1864; on the contrary, the results are very favourable.

The best cows of the Ayrshire stock give the following results:—

Name	Living Weight ¼ 1862	Living Weight ¼ 1863	1863	1864	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Calved.
Brany	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Nov. 25.
Grassie	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Oct. 3 (twins).
Dandy	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Apr. 28.
Ferden	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Mar. 6.
Marie	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	May 18.
Helga	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Nov. 18.

One of the cows, Ferden, who gave during the year 738 gallons, calved Jan. 1, 1863, and ceased the milking Nov. 26, 1863. During these 10 months and 25 days she gave in all 940 gallons, namely, in January, 131; February, 122; March, 120; and from April 1 to November 26, 568. The highest milking in one day was 4.9 gallons.

Our Norwegian cows do not give such large quantities of milk, but are smaller, and consume less hay. Three cows of Trolemark breed had, at an average, 814 to 842 lb. living weight, and produced 522 gallons of milk, which makes .66 gallon to each lb. of living weight, while the Ayrshire cows gave a little less. But from that single fact of course nothing certain can be concluded.

The total production of milk was in 1864 disposed of in the following manner:—

Breeding of calves	4482 gallons
Sold	[illegible] "
To the dairy	[illegible] "
Total	[illegible]

The [illegible] gallons employed in the dairy have given 3410 lb. of butter and 4000 lb. of cheese (*meager*), besides that 810 gallons of skimmed milk have been sold from the dairy.

(The weights and measures above given are calculated from the Norwegian measures according to the following Table:—

Maal, equal to	4 acres.
Tønde (Tunnel)	[illegible] bushels.
Ab (pound)	[illegible] pound avoirdupois.
Skp. lb (Skippund) = 320 lb.	[illegible]
Pot	[illegible] gallons.
¼ skiling	1d.

The above figures are all taken from official returns).

We are about to have an agricultural show at Christiania. The number of cattle shows increases every year, and so does the interest taken in them, and their good influence cannot be doubted. *A. N. Kiær, Statistiske Bureau, Christiania, Sept. 29.*

Farmers' Clubs.

CHESTER (LE-STREET).—*Economy of Food.*—Mr. H. Horn read a paper on this subject.—By economising, I do not mean that we should save the food and starve our cattle, but rather to consider what is best to use in place of, or as an auxiliary to, the Turnip, so as to fatten our animals soonest and cheapest to fit them for the butcher. There is a great loss of food, say Turnips, from having the feeding troughs in our yards uncovered. When once the sliced Turnips get thoroughly wet, the animals will not eat them until reduced to the last extremity; and we are either obliged to throw them out amongst the manure, or allow the cattle to half-starve by lingering over them. We advocate that uncovered troughs in fold yards should be numbered amongst the things that were. Our Turnips this year are as valuable as gold, and we repudiate the practice of allowing them to stand in the open fields till they are half-spoiled by the frosts. I think we need not attempt to prove to practical agriculturists how much better food Turnips are that have been stored before the frosts, than those that have stood the inclemency of the winter's storms. I would recommend to have them pulled before Christmas, and in rooting and topping them to be careful not to injure the bulb; and those which are intended to be kept until the spring ought not to be rooted clean, but merely the straggling roots and fibres cut off, and as much clay left on as possible. By this means the bulb is best preserved, although there is the little additional labour of again cleaning them in the spring. I would store them in oblong heaps, formed with stake and rail, 7 feet wide and 3 feet deep, having them nicely rounded on the top, covered thickly with straw, and nicely tied down with straw ropes.

With the view of economising the Turnips, and making as much of them as possible, it is by some strongly recommended to pulp them, mixing them

with cut straw. We all know that when cattle low in condition are first put upon Turnips they suffer greatly from scouring, and it is allowed that they do better when stinted to a small quantity. We can easily imagine that this stinting is not natural, however, as the large roomy stomach of the ox must be filled before he lies down to ruminate, and there is a difficulty in getting him to eat straw in sufficient quantity. We get over this, however, when we have the Turnips pulped and the cut straw mixed with them. The latter straw counteracts the watery influence of the Turnip, which contains between 75 and 80 per cent. of water. Pulped Turnips afford every facility for the ready admixture of other kinds of artificial food, such as the different kinds of cake, broken small, ground, or diluted, also the different kinds of meal, &c. I last year saw an experiment, which was conducted over several months—cattle fed on pulped Turnips alongside of others fed upon Turnips cut in the usual way into slices. The two lots of cattle were much on a par as to condition, but the lot fed upon pulp had been kept on a much smaller quantity of roots, thereby effecting a considerable saving. Even in good Turnip seasons it is found more profitable to supplement them with artificial food than to follow the old method of using only Turnips and straw.

The principal artificial food that farmers are in the habit of buying is Linseed cake. We are aware that there is nothing better for feeding purposes than this cake, but we are of opinion that it is often bought at too high a price. It is often adulterated with bran and other ingredients; the only safeguard is in dealing with a person of the highest respectability, or what is better, having samples of our purchases analysed by a good chemist. The number of cakes and prepared cattle condiments is legion; some are equal to the best of Linseed cake, while others are second to it, and others again nowhere. They are all useful, however, in keeping down the price of cakes in general. Good Cotton seed-cake has been proved to be a good feeding article; but some are prejudiced against it from having used it injudiciously. Cotton cake made from the whole Cotton seeds contains a good deal of woody fibre or indigestible matter; and when given to stock in too large quantities it has sometimes had a bad effect; but the fault there lay more in its abuse than its use. Decorticated Cotton cake, that is cake made from the kernel of Cotton seed, has been proved by analysis to be equal to the best of Linseed cake, and this has also been borne out in practice. It is largely used in the feeding of sheep, and with good effect. Cotton cake should be of a bright yellow colour, with but few of the black particles of husk, brittle, and easily broken. It can be bought from 5*l.* 10*s.* to 6*l.* per ton, whereas Linseed cake costs from 10*l.* to 11*l.* per ton. I believe that Rape cake is often undervalued; it costs only about half the price of Linseed cake—whereas its elements have been shown by Prof. Way's analysis to have all the value of oilcake. The great difficulty is in getting stock to eat Rape cake—it has something rancid about it. It is often used to advantage by being broken very small, and used with a little oilcake or Barley meal, &c. By being dissolved in warm water, or mixed with cooked food, it loses all its rancidity, and stock eat it with a relish. There is a great economy in using cooked food, especially for young stock; besides, it is healthy, being a preventive against quarter-ill; it is also very beneficial for milk cows. But I would not advocate its adoption in feeding for the butcher, as it makes the beef soft and flabby. I have spoken of the above different kinds of cake, but I have no doubt it will be a question with some whether they are to buy cake or use the grain grown upon their own farms. I would be inclined to advocate the use of both; but as grain is so low, I would use it more largely than purchased food, for I think nothing is offered in the market cheaper than Barley meal, but to get the full benefit of that meal, I would use it with a little of one of the above-mentioned cakes.

As regards sheep, their Turnips can be most profitably supplemented with the same artificial food as is given to cattle. The three cakes I have named above are all largely used in the feeding of sheep. I believe that hay and straw are greatly undervalued as food for sheep; and to get the full benefit of it, I would have it cut and put in boxes, 20 inches wide at the top and 12 inches at the bottom, dividing them with a partition running up the middle, and covered over with a saddle roof, so that they may form a double box. The division up the middle will prevent the wind from blowing out the fodder, and by this means there is no waste. The old-fashioned hay heck is a nuisance: sheep were not intended to pull their meat from above and tread it among their feet, and I must confess I like to see them working in the low boxes amongst their cut chaff.

Logie and Lecropt: *Hindrances to the Profitable Cultivation of the Soil.*—Mr. M'Laren said:—1. I find it much easier to discover an obstruction than to find out a remedy. At the present day the greatest hindrance to agricultural improvement is over high rents. I am far from wishing to see the old system of protection again resorted to, but I cannot help thinking that it is too bad to ask the grain-growing farmer to pay the whole cost of giving cheap bread to the million. I suppose few will attempt to prove that farming was a fortune-making occupation, even in the palmy days of protection, and I am sure that no one will attempt to show that rents have been at all lowered in proportion to the fall in corn. I am happy to observe that some few of our more liberal and intelligent landlords have voluntarily come forward and made considerable abatements to their tenants, but I regret to say that these are yet few and far between; and though I am neither a prophet nor the son of a prophet, I venture to predict that theirs will be found to be the wisest and best policy in the long run, for it is a well ascertained fact that no estate can continue prosperous with a poor tenantry; because, as a matter of course, a poor tenant soon makes a poor farm, and poor farms will ultimately make poor proprietors in spite of fate. The question will very naturally be put—But why do you offer too high rents for land? The answer is simple—We must either offer too high rents, leave the profession we were brought up to, or emigrate to another country. The short-lived period of high prices during the Russian war brought a host of amateur farmers into the country, every one with the new doctrine on their tongue's-end, that free trade in corn, instead of reducing the price of grain, was greatly to enhance it, so that every farm that came into the market was let higher and higher, till the old practical farmer had no chance whatever of treating with his landlord on anything like reasonable terms. I know we shall be told that is all over now; well, so it is, but a 19 years' lease taken at that time is not over yet, nor quite so easily got over. 2. The game laws come next, and if they are not the greatest hindrance to agricultural improvement, they are certainly the most unreasonable and unjust. The country seems now pretty much alive on that subject, and I have but little fear, if farmers could be induced to stick together, that, by a long pull and a strong pull and a pull all together, the time is not far distant when these laws must either be greatly modified or altogether abolished. 3. The price of labour during the last 10 or 15 years has also considerably increased. Ploughmen, who were then paid from 15*l.* to 17*l.* per annum, are now getting from 20*l.* to 24*l.*, with rations as formerly; and smiths', mill-wrights', and joiners' wages have risen in proportion—thus still increasing the cost of production. It is not in the nature of things that any legitimate trade will long remain unremunerative, particularly that of providing food for an ever increasing population. 4. But it will be asked—How are we to overcome adverse seasons; the competition for land and labour; and meet in our markets the productions of foreign countries more favourably situated than we are? To do this we must have the land put into the best possible state of cultivation, that it may produce the best paying crops. It must be thoroughly drained, the fences straightened as far as the natural features of the country will allow, sufficient accommodation provided for rearing and feeding cattle, liberty to make the most of the land without wasting it, and the whole crop grown upon the farm secured to the tenant—in other words, not consumed by game. At whose expense is this to be done? The proprietor, if he has the means; if not, abolish the law of entail and let there be free trade in land, so that a portion of a property may be sold and funds provided to improve the remainder, or that money may be borrowed to do so at a reasonable percentage. Land could then be exambed, the farms made convenient to the steadings, and the steadings made suitable to the farms. Were the land or raw material, so to speak, put in a proper state by the proprietor, he would be more careful to select, and he might reasonably expect to find tenants who would develop the resources of the land and keep it in a proper state of fertility; for as men are very much moulded by circumstances, you will seldom find liberal, generous, large-hearted men farming thin, wet, unimproved soils, where their energies are cramped, their capital wasted, and it may be their hands tied up by restrictive conditions in cropping, and above all, their crops destroyed by game and their accompaniment of other vermin. It is most unfair to place men in such circumstances and then point the finger at them, saying—Oh! they are ignorant, they have no ability, they want capital, and so on. The permanent improvements being effected by the proprietor, and the tenant's capital reserved for the stocking and cropping of the farm, greater attention should be paid than at present to the production of beef, mutton, and wool. To set down an invariable rule as applicable to each farm would just be to commit the same error that we have been condemning—a fixed unalterable rotation, but in most cases portions of a farm might be laid down in permanent pasture, and the most profitable way of doing so is to sow it out without a grain crop, topdress it occasionally with short farmyard manure, or lime compost, and feeding sheep upon it with oilcake; the greater part of the roots grown upon the farm to be pulped and mixed with cut straw, by which means a great deal more stock could be kept than by the present mode of consuming roots and straw. The cattle to be kept in covered courts, or in well sheltered courts, opening to the south, and sheep could be wintered in the fields on chaff and pulped roots, whereas otherwise they could not be properly kept at all. The whole may be summed up thus:—Place land on a sound commercial footing, by abolishing the law of entail, so that there might be free trade in land; also annul the law of hypotheo, and the game laws; then capital would flow into the cultivation of the soil as a safe and profitable investment, and give the tenants freedom of action as to working the land: then their energies would be called into play, their intellects sharpened, and they would be no longer called dull country clowns.

Mr. Peat said—I very much agree with Mr. M'Laren's remarks. The restrictive clauses in our leases are now very much out of place, and refer more to a system of farming that was adopted in the past, than what is acknowledged as expedient to be followed now. The want of sufficient accommodation for retaining workers on the farm, housing for the increased number of stock kept, and fences enclosing our fields, are some of the evils which impede our success very much; but the fundamental fault with the stiff Carse soils at present is that they are not able to yield an equivalent for the rent at present paid for them. I think it will be conceded that we are industrious enough; indeed, I think it is sometimes to our loss in combining so much—the farmer, the grieve, and the workman—in one person; and the crops we raise are more uniform and more productive now than before. It is the produce of our crops yielding so little money in the market that makes our business so unprofitable. It was computed a number of years ago that 46*s.* per quarter for Wheat, and 28*s.* per quarter for Barley was a fair average, while the average for the last four years has not been beyond 36*s.* per quarter for Wheat, with the other kinds of grain in a similar proportion. We have improved our position by paying more attention to cattle: but while they help, they do not nearly compensate for the change. I calculated our losses, by the fall of prices in grain, as equivalent to 34*s.* an acre; and the gain, on the increased value of live stock, equal to 8*s.* an acre, leaving us losers at present to the extent of 26*s.* an acre. Mr. M'Laren has told you that the price of work has greatly increased; perhaps some of our dryfield friends are not aware that there is as much labour connected with 32 Scotch acres of Carse land as an able-bodied man with a pair of good work horses is able to accomplish, exclusive of harvest workers. After paying all expenses, and interest on capital, and looking at the close attention needed to farm and tid these stiff soils, the rents would require to be very low at present before a practical man could procure a margin for his maintenance from them.

The Poultry Yard.

Let us suppose the adult birds scattered after their morning meal over the farm-yard and adjacent grounds in search of insect food, shed corn, &c. The poultry-house should now be swept, the dung collected into its appointed receptacle, the eggs taken from the nest—those intended for setting marked, those intended for market put into a place of safety. Now is the time for the detection of any sickly or ailing bird. If one be noticed crouching under a wall, with ruffled plumage, or running from puddle to puddle, drinking from each, or taking up food in its beak and dropping it without swallowing, such an one should be caught up and examined. Most likely the crop will be found distended with water, the only food in it gathered into a hard ball, and seemingly obstinately resisting the digestive action; the skin of such a bird is generally wrinkled, dry, and hot, infested with vermin, and of that appearance known to most people as "goose-flesh." The simplest and most effectual treatment for such a case is—when the food in the crop has the ball-like appearance above-mentioned, a copious dose of warm water should be administered immediately, and the hard substance gently moved about the crop with the hand; the action of the warm water on it will nearly always soften and disperse it. Next a dose of at least a table-spoonful of castor-oil should be given (if the bird be adult), and the patient shut up in a spare coop or dry out-house, where the floor is not paved or bricked. The food should be of a soft nature, easy of digestion, such as Barley-meal, or better still, the scraps of bread from the house; as the bird gets on, and the digestion of the food becomes more easy and regular, the diet may be varied, and when apparently convalescent, the fowl may be allowed to run at liberty with the others. Great care is requisite at the time of Wheat sowing, that none of the dressed corn be allowed to lie about where the fowls can get at it; hardly a season passes but that whole stocks are poisoned by this means. The first symptoms are incessant thirst, blackening of the comb, bright staring eye, cramp in the limbs, and a red, heated skin. The treatment above mentioned will be found very useful, but the doses of castor-oil must be repeated at intervals of 24 or 30 hours, according to the severity of the symptoms. The first amendment will be noticed in the comb, which will seem to get rather softer and moist, the skin also will lose part of the puckered appearance. Birds recovering from such attacks should always be shut away by themselves for a week or ten days, and should be but sparingly fed. In visiting the hens that have little chickens, and are cooped away in the orchard, stack-yard, or dry pasture, the first thing is to move the coop to a fresh spot; this should be done every day, and in the summer twice a day; next, all the drinking vessels for the little chickens should be rinsed out and refilled, but not with rain-water.

or with water that has been in wooden tubs or vessels. The little chickens require feeding many times in the day, but the same principle should be carried out with them as was laid down in a previous paper—directly two chicks do not run after the same piece, cease feeding. The fatting coops should be in a warm building. Where beasts are stall-fed, if a corner can be found for the chicken coop under the same roof, the birds will thrive well from the warmth of the atmosphere, and the quiet of the place. A very important thing with regard to fatting fowls is that they should be fed at day-break. We commonly hear such a complaint as the following:—"We had a coop made on the best plan, gave our chickens lots of the best food, and found the longer we shut them up the thinner they became." Nine times out of ten the cause of such a state of things is, that when fed in the morning about 7 o'clock the poor birds have been pining and fretting a long time for food; they peck each other's feathers, get restless, and lose more flesh in those two or three hours than they put on all day afterwards. Very often when they are fed, enough food is thrown to them to last them nearly all day, so that from seeing it always before them they get to dislike it. Instead of that, a trough should be fixed along the front of the coop, which should be kept filled with clean bright gravel or grit, the stones in it not being too large for the birds to swallow easily. Two or three narrow boards the length of the coop, and about 4 inches wide, should always be kept clean and in readiness for feeding time. The food, which should consist of Barleymeal or Oatmeal, should be mixed in only a sufficient quantity at a time to serve for one meal. It is made with water, milk, or pot liquor from the kitchen; any scrap of fat or grease is a help. When the fowls are first put up to fat it should be mixed to a constituency not greater than treacle, spread out on one of the above-mentioned boards, and placed in front of the coop. When the birds have had enough, the board should be withdrawn, washed, and laid by in readiness for the next meal. In looking through the young birds intended for breeding stock, those that do not seem favourable specimens should be drafted into the fatting pens at once. It must always be remembered that as soon as birds are really fat they must be killed, or they will fall away, and become what poulterers call clung. When, in winter, the ground is covered with snow, a space should always be swept in which to feed the fowls, as they suffer terribly if the snow gets with their food—it acts on them as the strongest purgative; consequently in snowy weather the birds require rather better and more generous diet than usual. *Hants.*

Reviews.

1. *The Cattle Plague; its History and Treatment and Prevention.* By A. J. Murray, M.R.C.V.S., Professor of Veterinary Surgery at the Royal Agricultural College, Cirencester. (Taylor & Francis, Red Lion Court, Fleet Street.)
2. *The Nature and Treatment of the Cattle Plague.* By R. H. Allnatt, M.D., A.M. (J. Churchill & Sons.)
3. *Rinderpeste; its Prevention and Cure; and Gypsum as a Sanitary Agent.* By J. J. Lundy. (Simpkin, Marshall & Co.)
3. *The Cause, Prevention, and Treatment of the Cattle Plague.* By J. Parkin, M.D., F.R.C.S. (Hatchard & Co.)
5. *The Cattle Plague of* 1865, *and its Cure.* By E. H. (Epps & Co., 170, Piccadilly.)
6. *On the Right Use of Iron and other Remedies in the Cattle Plague.* Considered in a Letter to Sir F. Kelly, M.P. By R. Druitt, M.R.C.P. (A. Renshaw, 306, Strand).

These are a sample of the many publications to which the prevailing epizootic has given rise. Mr. Murray's pamphlet, which has been named before in these columns, is a simple history of the disease and statement of its symptoms, and of the *post-mortem* appearances which it produces; and there is in it a recommendation of sulphuric acid and gentian (½ oz. and 1 oz. respectively in water twice a day) as medicine.

Dr. Allnatt recommends various alkaline or saline matters for purifying the poisoned blood; and he declares that the only successful results which have been obtained have followed that mode of treatment. Common salt, nitre, carbonate and chlorate of potash, and sulphate of magnesia, 2 or 3 ounces apiece, mixed and given in 2 quarts of water, is his dose for an ox.

Mr. Lundy is wild upon gypsum. Neither crops nor animals can grow healthily without it; and its use as a fixer of ammonia would hinder disease, and might have hindered Rinderpeste. This particular plague, however, is more connected with the absence of manganese from the body! Sprengel found one part in 100,000 of cows' urine to be manganese.

"It may be that the oxide of manganese, separated from the permanganate of an alkali (like any of Condy's Fluids) by the liberation of the ozonic-oxygen (the natural scavenger for all organic putridities), is one cause of the cure of the disease by simply supplying the want of manganese in the system. To the healthy as well as diseased, manganese acts as a tonic like iron, and a portion of the liberated oxygen from the permanganate no doubt combines with the hydrogeneous gases, and passes off as water, precipitating sulphur, or forming sulphate of potash or soda, in either case assisting to liberate the stomach, which might otherwise remain charged with 'wind' and undigested food, that being a great desideratum in attempting to cure the disease."

So much for No. 3 upon our list.

Dr. Parkin's pamphlet combats the doctrine of contagion as ordinarily understood, and argues for the conveyance of the poison through the air. As to prevention, it recommends the shelter of animals in infected districts from the night air. Air should be admitted from leeward, not from windward, into cow-houses. As to treatment, it recommends the use of various forms of carbon, and especially the use of it in the gaseous form, as carbonic acid, soda water, brewers' yeast, &c.; naphtha and various oils, liquid carbons, are also recommended. Stimulants are forbidden, except as a last resource.

Pamphlet No. 5, by E. H., is a homœopathic discourse on Belladonna, Bryonia, Ammonia, Arsenicum, Phosphorus, in the drop doses indicated by the successive symptoms.

Lastly, we have a pamphlet on the right use of iron. Dr. Druitt says—

"We seek a remedy which shall not be poisonous in itself; which shall have tonic or nutritive virtues; which shall restrain excessive discharges; and which shall have the power of deodorising and disinfecting the contents of the alimentary canal. Such a remedy is the tincture of sesquichloride of iron; and here I quote, from the Third Volume of the "Obstetrical Transactions," a cure in which the patient's condition bore the strongest resemblance to that of a cow just beginning to die of the cattle plague. There was a zymotic disease, an exhausting diarrhœa, and a most fetid state of secretions; and when the latter two conditions were removed, the patient began to get well. The tincture of sesquichloride of iron has been largely used in erysipelas and other zymotic diseases of low type: and although I have seen it fail, yet I believe it deserves a thorough trial. The dose should be large, and it should be given till its effects are seen in the animal's motions, which ought to be rendered black and inodorous."

We add another extract from Dr. Druitt's letter to Sir F. Kelly, which seems to us much the best of the series we have thus enumerated:—

"The Mineral Acids, well diluted—as the nitric, muriatic, and sulphuric—do in a lesser degree what the tincture of steel does. Their influence in atonic diarrhœa is marvellous; and we ought to know their results in the rinderpest. Small quantities of opium may be added.

"The Trisnitrate of Bismuth in ounce doses would deodorise the alimentary canal, and soothe it, and restrain diarrhœa. I have published cases, showing how, in threatened ulceration of the bowels, the human alimentary canal may be quieted by adequate doses of this excellent drug. See *Medical Times and Gazette* for 1862, vol. ii., p. 595.

"Sulphite of Potass and other compounds of sulphurous acid have great virtue in checking fermentation, and have been proposed by Polli as remedies in zymotic fevers.

"The admirable preparations of Mr. Condy, the permanganate of potass, &c. We want experiments with large doses of these. But I suspect they are of more value as preventives than as curatives—to disinfect unwholesome water, to rinse the mouths of animals exposed to contagion, and the like.

"There is the class of Creosotes—medicines, such as carbolic acid, which check fermentation, act as antiseptics and deodorisers, and are capital in certain cases of dyspepsia and diarrhœa.

"Here then we have half-a dozen remedies, and the example I have given from practice on man shows the precise method in which good results are to be looked for. I reiterate again the necessity of disinfecting the whole tract of bowels, of restraining discharge, and of rendering the fæcal matter innocuous to the patient and her neighbours,—all this, too, as a means of helping the patient to live through her disease till its fury be overpast.

"Whiskey, sweet spirits of nitre, beef-tea, and other nourishment, should be given freely.

"There are other remedies, too, as yeast in large quantities, whose *modus operandi* is probably that of an antiseptic, and others. Enough if I can succeed in inducing any one who can do so with safety to make a resolute series of experiments on diseased animals.

"One good effect the cattle plague is sure to leave behind—it is the increased cleanliness of cattle stalls, and greater humanity in the mode in which the poor creatures are conveyed by rail and steamer."

Farm Memoranda.

Orbliston, Morayshire: *Mr. James Geddes* gives evidence as follows:—I am acquainted with the opinions of the tenantry on agricultural questions, in the counties bordering on the Moray Firth. The Duke of Richmond's farms are arable; there are few pastoral farms in the district. We enter at Whitsunday to the houses and fallow land, and first and second year's Grass, and third year's Grass if any. A large proportion of the district is on a five-course shift. We pay for the Grass on entering, or at Martinmas, also for the working of the fallow, and for the dung and straw of the farm. The landlord is bound to relieve the outgoing tenant of these, and the incoming tenant takes it off him again. We enter on the arable land at the separation of the crop. We pay our first rent 18 months after entry, and on some estates not till the subsequent Candlemas. We have, as I have shown, large sums to pay when we enter. The valuation of the Grass, fallow, dung, and straw generally amounts to more than a year's rent. On a well-managed farm I have seen it amount to a rent and a half. Sometimes that is only partly paid on entering, and the balance at first Martinmas. There is a considerable diversity of opinion among the tenantry of the district as to the law of hypothec; but the general feeling among intelligent and practical farmers and professional men is, that there ought to be a large modification of the law, and that is quite my own. I think a *bonâ fide* sale, wherever it takes place, ought to be protected. I should be disposed to give the landlord a certain security, but I would curtail his right of hypothec to 40 days after the stated term for paying the rent. We use foreign manures very nearly to the extent of another rent, and we also use feeding-stuffs largely. The quantities used have been increasing very fast within the last two years, more particularly this season. We are consuming a great deal of the grain we grow on the farm, mixing Oats, Wheat, or Barley—ground or bruised along with oil-cake—in short, manufacturing food in every way we can. We are obliged to throw more capital into the land, and I believe but for that we could do no good or save ourselves. On the Duke of Richmond's estates there are not many farms above 300*l.*, and only two above 500*l.* The tenants do a good deal on these estates. We have to lay out a considerable sum upon buildings. I recently renewed the lease of both my farms from the Duke of Richmond, and had to lay out between 400*l.* and 500*l.* on building houses; and if I went down during the currency of my lease, they would fall to the landlord. But the tenants are told that they don't pay so high a rent as they would have to do, but for their expenditure on these buildings. I should say that, as a whole, the Duke's estate is moderately rented. Taking into account what the tenants have to do with reference to these buildings, I should say it is only fairly rented. I know one tenant near me, who has had to lay out five or six rents in building houses and improving the farm for himself, the Duke only giving wood and slates. That is a great outlay for a tenant, but there is a very good feeling between the Duke and his tenantry. In some cases the tenant must support the houses to a valuation of say 1000*l.*, and if he likes to build to the extent of 500*l.* further by agreement, that is allowed for at the end of the lease; but in some cases the houses are handed over to the tenant on inventory, and that inventory must be supported. If they are not worth the sum at the end of the lease, the tenant has to pay the difference; but, if they are worth more, he receives nothing.

Chatteris, Isle of Ely.—Summer has been reluctant to leave us. Early in this month we still had the temperature and brilliancy of a June or July day. April and September have been two of the finest and warmest months we remember to have had in any one year. We can only regret that this beautiful weather should in anywise have interfered with agricultural operations, as it was so thoroughly enjoyable. However, it was on the whole beneficial rather than otherwise, enabling us by steam cultivation to aerate our strong soils, and to clean them from every noxious weed; it has also enabled us to take up the Potato crops most satisfactorily and economically; it has further penetrated our corn stacks, and made the grain, which was soft and unfit for use a few weeks ago, now dry and hard and fit for the miller. But the time arrived when we were anxious to sow Wheat, and but very few fields retained sufficient moisture to make sowing a safe operation; and on our Fen soils we find early sowing possesses many advantages over late; hence the great desire for rain, that this work may not be retarded beyond its proper time. [Recent rains have no doubt fully satisfied this desire.]

The threshing-machine fully confirms our previously expressed opinion as to the value of the Wheat crop. Complaints are universal. From inquiry and observation we conclude that the average of this neighbourhood cannot exceed 3 quarters per acre, which is 1½ quarter per acre below an average crop, and more than 2 quarters below our own average last year. Added to this the quality is in most instances much inferior to either of the two previous years, and will yield more than one-third less flour per acre. On a few forward gravelly lands the crop is rather better, and the quality is likewise better than on the general run of fen farms; but we see no prospect for the fen farmer this year but to lose money, and that in rather larger sums than is agreeable.

We have not threshed any spring corn at present; we therefore defer until we have more definite information our report of these crops.

We have seized the fine weather of the last month for pushing on with steam cultivation, and have "smashed up" 120 acres, which are now exposed to atmospheric influences, ready to absorb every fertilising element they may contain. When the rain descends, the hard, scorched clods will fall like lime, and give us as fine a seed-bed on our Bean stubbles, where cultivated, as could be desired.

We have a few fields where the soil is well pulverised that have retained sufficient moisture to enable us to sow Wheat, and we have commenced to-day, and shall be able to continue with two drills through the week, and then, unless rain falls, we must stop.

On cool lands, Kohl Rabi and Mangels are doing well, and will afford an abundance of winter keeping; but on hot dry soils the sunshine of the last month has proved injurious, and the crop will be less than was at one time expected. Coleseeds, too, are generally poor; occasionally we see a good crop, but this is the exception. Our pastures are burnt up again, and the vigorous verdure of August has disappeared.

There has been a heavy loss amongst lambs throughout the entire neighbourhood. Older sheep have kept healthy. The cattle plague has appeared at Mepal, four miles distant, and for a time was confined to one farm, but has since appeared in an adjoining one. It was supposed to have been brought by some calves from the Metropolitan market. We think very stringent rules should be adopted to prevent the spread of such a fearful malady. To day a fair has been held at Peterborough, and to-morrow we shall have droves of cattle passing along our roads, probably

spreading disease all around us. We cannot resist the conviction that it would be wise to prohibit cattle being shown at fairs and markets until the disease has passed away. *A. S. R.*

Miscellaneous.

Comparative Merits of Various Breeds as Cream Producers.—Within the last few years, owing to the high prices obtained for butter, &c., in the neighbourhood of our large towns, it has become a matter of importance that strict and careful attention should be given to the dairy produce of the farm; and I was therefore induced to undertake a series of experiments upon the various breeds of milch cattle generally kept in this country, with the view of ascertaining their comparative value as cream producers upon different descriptions of food; and after three years of careful investigation, I beg to lay the result of my labours before the public, for the benefit of my brother farmers and others interested in the subject. The results were obtained by the aid of the ordinary cream test glasses, three in number, and checked by one made specially for me by Messrs. Negretti & Zambra, and carefully graduated to .00ths. In the first experiment the cows were grazed during the day, having hay and chaff only morning and evening.

Experiment 1.

Breed.	Mean Temperature.	Per centage of Cream.
Pure Short-horn	52°	15.32
Pure Ayrshire	54	13.47
Pure Devon	50	14.87
Pure Channel Islands	52	18.65
Cross from Channel Islands and Short-horn	49	17.92
Pure Brittany	53	19.27

In the next experiment (where the breeds are placed in their order of merit), each cow had in addition 1 lb. of Linseed cake per diem.

Experiment 2.

Breed.	Mean Temperature.	Per centage of Cream.
Brittany	48°	20.00
Channel Islands	51	18.98
Cross Breed	53	18.21
Short-horn	50	16.02
Devon	49	15.31
Ayrshire	52	14.14

In Experiment 3, each cow had, in addition to Grass, a fair allowance of chaff, with one quart of brewers' grains and one measure of Thorley's condimental food daily.

Experiment 3.

Breed.	Mean Temperature.	Per centage of Cream.
Brittany	50°	20.70
Channel Islands	49	18.82
Cross Breed	50	18.24
Short-horn	51	16.09
Devon	52	16.07
Ayrshire	50	14.09

In the following trial each cow had the same food as in the last, except that 1 lb. of Freman & Harden's Royal Patent Cake was substituted for Thorley's food.

Experiment 4.

Breed.	Mean Temperature.	Per centage of Cream.
Brittany	54°	22.00
Channel Islands	53	20.00
Cross Breed	48	19.05
Short-horn	50	17.95
Devon	52	16.09
Ayrshire	51	13.94

For the fifth experiment 1 lb. of Palm nut meal (from Messrs. Smith, of Liverpool) was substituted for the cake, in other respects the food was the same as in No. 3.

Experiment 5.

Breed.	Mean Temperature.	Per centage of Cream.
Brittany	53°	21.50
Channel Islands	53	19.08
Cross Breed	52	18.60
Short-horn	50	18.56
Devon	51	17.00
Ayrshire	54	14.84

From the two last experiments it will be seen that the cows lowest in the scale as cream producers show a greater improvement when fed upon a material containing much fatty matter (Palm meal containing upwards of 25 per cent. of fat) than upon food consisting of little fat, but much albuminous and mucilaginous matter, while the reverse is observed in the breeds higher up the scale. In the foregoing experiments three trials were made at each time, and each experiment repeated three times, over a space of three years (the trials being made shortly after each calving), and the same animals employed in all the experiments except the last year, when two of the cows proved not in calf. The figures, therefore, are a fair average of the animals I had under trial, and are the result of nearly 270 examinations. *G. T. Gape, Esq., Elm House, Winkfield, Windsor, in the "Scottish Farmer."*

Hellard's Cheese-maker.—Among the machines which did not compete for prizes may be mentioned Hellard's (Uttoxeter) cheese-maker, one of the most ingenious tools in the yard, combining the merits of Cockey's and Keevil's machines with a great many well-devised and efficient additions. It was awarded a silver medal. It consists of a circular pan, made of tin, copper, or brass, having taps at its side for running off the whey at intervals as required. This pan, which is mounted upon an iron frame, turns on an axis, and may be tilted at pleasure to cause the whey to flow off quickly. Above the pan, and supported by two cast-iron weights and a cross-beam, a very effective system of leverage is provided, giving pressure to a vertical rod or rack, to which is attached the perforated pressing plate or sinker. This sinker is lowered into, or raised out of, the pan by means of a chain and ball of equal weight with it, as in the action of the weights to a sash window. To enable the dairy servant to get at the curd more easily, the pressing plate, when raised, may be placed in a perpendicular, horizontal, or inclined position by means of a very simple self-acting movement. It is also made to revolve, that it may be more readily cleaned. The machine is mounted upon rollers, and by detaching the pan, which is done in a few seconds, it will pass through a doorway 30 inches wide. The knives for cutting up the curd are of ingenious construction, somewhat resembling, in the arrangement of their curved surfaces, the screw of a steam-ship; they revolve upon a centre in the pan, and are so arranged that while one-half of the knives are cutting the curd down the other half are cutting it up, and, by reversing the motion, a contrary action upon the curd is obtained; many of the objections to revolving knives are in this way obviated. The entire machine is well-adapted to the capabilities of any dairy servant. All wheels, cogs, and complicated machinery are avoided; it occupies less space, is more portable, and requires less labour and skill than any other. The pressure upon the curd increases as the sinker descends, is self-acting, and is easily regulated from 1 cwt. upwards, thus enabling the dairy servant to go about her other duties while the curd is being gathered. And after the whey has been expelled from the curd, it is pressed into the vat—thus making the cheese throughout in one apparatus. By the use of this machine, all the operations are performed in the simplest manner, and with the utmost cleanliness, as the curd is untouched by the hands till removed in the form of cheese. The machines are made in many sizes, and at prices within the reach of any dairy farmer. We are glad to have this opportunity of publishing a full account of what we believe to be a very efficient and ingenious addition to the list of dairy tools. *Oxford Journal.*

Inoculation for Pleuro-pneumonia in Australia.—"1. Destroy all Cattle undoubtedly Diseased.—On the appearance of the disease do not hesitate to destroy any cattle showing symptoms of ill-health. To inoculate cattle which have contracted disease in a positive form will not often act as a cure, and it is also unlikely that any large proportion of such will recover; therefore it is better to destroy them, especially as by so doing a plentiful supply of the lymph or virus for inoculation will be procured. 2. How to Procure the Inoculating Substance called the Virus or Lymph.—On opening the animal the lung will be found swollen and a portion of it hepatised, or become like liver—solid, hard, and heavy—the weight so much increased as to sink in water. On cutting into the part of the lung between the sound and hepatised part you will find veins of the lymph or virus in the form of jelly. This is what is required for inoculation. You must get it in a perfectly pure form to inoculate with success. In a proper state for use it should resemble in colour calf's-foot jelly; if lighter in colour it is so much better in quality, being purer. To get it sufficiently pure, cut away all parts that are in any way tinged with blood,—then take out the part of the lung containing the veins of lymph, cut this portion into strips, and let it drain into a vessel—afterwards strain the fluid thus procured through muslin or calico, and any corruption will be removed, leaving the lymph in a proper state for use. This will generally turn into jelly on getting cool. It is preferable to use the lymph from an animal fresh killed, although, if you cannot get one to kill, that from a dead animal may be used. If pure and kept in a cool place, it will remain fresh for four or five days. 3. How to Perform the Operation.—For the operation the cattle should be put in a crush pen. Then take hold of the tail by the end and make an incision with a lancet-shaped knife—the incision to be into the skin (not into the muscle or near the bone), about an inch from the end, up the tail, and about a quarter of an inch in length. If cut too deep the cattle will be apt to lose their tails, therefore do not cut quite through the skin, and avoid if possible to draw blood. In order to make the inoculation more certain, make another incision of the same kind an inch or so above the first. In applying the virus, put it into those incisions with a small piece of bone or other material shaped like a spoon, and the operation is complete. Inoculating knives can be got, but the method above described is more certain. The whole process should be completed as quickly as possible, and the cattle turned out at once, therefore the more labour you can procure for the occasion the better. With a crush pen that will hold 16 to 20 head, and about eight hands at work, 1000 head can be easily done in a day. The labour would be thus distributed—two operators, one working on each side of the pen, two men carrying the virus in saucers following, two squaring tails, and filling up with the assistance of two other hands attending to the gates. Our informant has himself, with sufficient labour, done 1200 in a day, and with only one hand he says he can do 300 to [illegible] tumbler full of the virus will be suffi[illegible] head with the double incision, and this [illegible] be got from 10 to 20 animals thoroughly [illegible] disease is frequently contracted from saliva [illegible] upon the Grass, and there is no doubt that it [illegible] infectious." *Australian Paper.*

Calendar of Operations.

October: *Mangel Harvest.*—The end of [illegible] the proper time in which to harvest this crop; [illegible] till later there is great risk of its being dest[illegible] frost. This was, in fact, the fate of a large [illegible] the crop in 1859, owing to its having been left [illegible] field during two or three days of severe weather [illegible] latter end of this month. The leaves were st[illegible] the first night's frost; and as the severity [illegible] weather lasted over several days, the bulbs were [illegible] frozen through, and they rotted soon after that. [illegible] had a lesson then on the need of early harvesting [illegible] crop, and protecting it for use in spring.

In illustration of the method of harvesting [illegible] other root crops, I will describe the plan a[illegible] Whitfield Farm, near Berkeley, Gloucestershire [illegible] it has been the custom to grow about 40 or [illegible] annually of Swedes and Mangel Wurzel. [illegible] one-half of this has been Swedes, 20 acres [illegible] Mangel Wurzels, and 10 acres, or thereabouts [illegible] Belgian Carrots. The whole of these crops [illegible] pulled and carted home for consumption in [illegible] yards, and cattle boxes during winter. It was [illegible] custom to let the whole work to five or six men [illegible] undertook to pull and top and fill the bulbs [illegible] for about 7*s.* per acre for Swedes, 8*s.* or 9*s.* for M[illegible] Wurzels, and 20*s.* for Carrots. The last [illegible] needed to be half dug when being pulled, [illegible] reference to the others, which were grown [illegible] about 26 inches apart, five men would undertake [illegible] pulling, each man taking two rows, and pl[illegible] roots pulled, so that the whole eight rows lay [illegible] eight or ten boys and women topped and [illegible] roots as they lay upon the ground, cutting the [illegible] inch or so from the crown of the root, so [illegible] leaves fall separate; and eight or nine boys and [illegible] with a man, filled the carts as they came up. [illegible] carts were sufficient to keep a continual succession ready to be filled, when the distance to the [illegible] not exceed 800 or 1000 yards; and the work [illegible] accomplished at the rate of about 5 acres [illegible] Turnips daily.

The pulling is easily done in the case of a good [illegible] The larger the roots the easier it is to pull [illegible] of the ground. It is in the case of stunted, [illegible] roots, with fangs and forked growth, that any [illegible] arises. To meet a case of this kind, it may [illegible] cases be advisable to undercut plants as they [illegible] the rows, by a horse-drawn tool fashioned [illegible] purpose; but this is more frequently needed [illegible] Turnip crop, and will be named hereafter.

The following is an actual record of one year's [illegible] rience on Whitfield Farm, when some 40 acres [illegible] work had to be done. It includes an account [illegible] hands employed by the contractors in lifting [illegible] of Mangels and Swedes, and the time they took [illegible] the work, and the tons of roots placed in the [illegible]

18—	Nature of the crops, and No. of the Field.	Men pulling.	Women and boys cutting roots.	Filling the carts. Men	Filling the carts. Women & boys
Oct.	Taking up Mangels				
17	No. 6 field	5	10	1	9
18	No. 6 ,,	5	10	1	[illegible]
19	No. 10 ,,	5	10	1	[illegible]
21	No. 10 ,,	5	10	1	9
22	No. 2 ,,	5	10	1	9
23	No. 2 ,,	5	10	1	9
	Swedes No. 22 ,,	5	10	1	9
24	No. 24 ,,	5	10	1	9
		40	70	7	[illegible]

The contract was for 29 acres of Mangel at 6*s.* 6*d.* per acre .. .. [illegible]
Ditto, ditto, 11 acres of Swedes at 5*s.* 6*d.* .. [illegible]

Total .. .. £[illegible]

The wages earned by the contractors, and paid by them to the hands they employed.

47 days of a man at 2*s.* a day .. .. £[illegible]
70 days of a woman at 10*d.* per day .. [illegible]
63 days of boys and girls at 9*d.* per day [illegible]

Total .. .. .. £[illegible]

Leaving 2*l.* 9*s.* 5*d.* to be divided amongst the [illegible] more than their daily wages of 2*s.*

Horse work in hauling the roots to the store.

				Tons.
No. 6,	3 days of 3 horses	=9	days,	[illegible]
,, 20,	1½ day of 5 ,,	7½	,,	242
,, 2,	1½ day of 5 ,,	7½	,,	1[illegible]
No. 22 & 24,	2 days of 6 ,,	12	,,	192
		36		930

930 loads or tons carted by 36 days of 1 horse is [illegible] horse per day.

The expense of carting 930 tons off 40 acres of Mangels and Swedes.

36 days of a horse and cart, at 3*s.* per day .. £5 [illegible]
7 days of a man to back and tip the carts in the stores at 2*s.* .. .. .. [illegible]
17½ days of a boy leading carts at 8*d.* [illegible]

Or at the rate of 3*s.* 4*d.* per acre .. £6 [illegible]

The expense of carting the heap and tilting them.			
1 man, 7 days, 28 days, at 4s. per day ..	£5	12	0
1 man and 1 woman, 7 days each, 28 days, at 1s.	1	8	4
Or 1s. 7½d. per acre	£13	5	4

So that the total expense of harvesting the root crop of 40 acres was for pulling, &c., 12l. 9s., or 6s. 3d. per acre. For carting 800 tons home, 6l. 13s. 8d., or 3s. 4d. per acre. For storing them, 3l. 5s. 4d., or 1s. 7½d. per acre.

The expense of harvesting 40 acres of roots, 22l. 8s., or 11s. 3½d. per acre.

In this case the crop was taken to a plot of land close by the farm buildings, and there piled up in heaps made in the following manner:—Two rows of hurdles are placed upon a firm piece of ground, parallel to one another, and 3 feet apart. The interval between these is filled with roots, the carts bringing them from the field being backed between them, and tilted up at the proper place. The roots are piled up above the hurdles in a ridged or roof-like form, and are afterwards covered with straw, roughly drawn out as a thatch, which is kept in its place by the weight of long poles resting upon it. At intervals of 2 or 3 yards faggots are placed in the centre of the heap, inclining backwards, and reaching from the ground to the roof. These act somewhat as chimneys, and facilitate a due ventilation of the heaps, thus hindering any tendency to heating or putrefaction in the roots.

When one heap is completed, another is built within a foot of it, the passage left being intended as a channel for the egress of the water which drops from the thatch, and for the circulation of air. No security against frost, at the sides of contiguous heaps, is required, further than that which is afforded by the interlocking of the bushy eaves of their respective roofs. When, however, a series of heaps has thus accumulated, a rough dead-wood hedge should be constructed around them, and the space between it and the hurdles, which may be 12 or 18 inches, should be loosely filled with straw.

I have annually kept many hundred tons of Swedes, Carrots, and Mangel Wurzels in this way, without losing any considerable portion by putrefaction. It fulfils the three conditions of success in the preservation of root crops through the winter—it furnishes security from the frost and wet, and at the same time it provides a sufficient ventilation of the heaps.

A dozen such rows of trees, each 3 yards or more wide, and on an average 4 feet high, and perhaps 30 yards long, would hold 1000 tons. It is the work of piling up the roots as the carts bring them in, setting hurdles for them as the work proceeds, and thatching over, that is specified in the above tables as costing 1s. 7½d. per acre.

This was a systematic wholesale piece of work, and was thus conducted cheaply. To place in safety a valuable crop of roots, at a cost of less than 6d. a ton, is a very cheap and profitable thing; and no doubt where there is a large stock to keep on through spring and summer, the practice of storing roots will extend.

However, whether for Swedes or Mangel Wurzel, it is well to leave the heap for a week uncovered, except by leaves or straw, to allow all fermentation to cease, and the roots to partly dry, or they will be liable to heat and rot. *Morton's Farmers' Calendar.*

Notices to Correspondents.

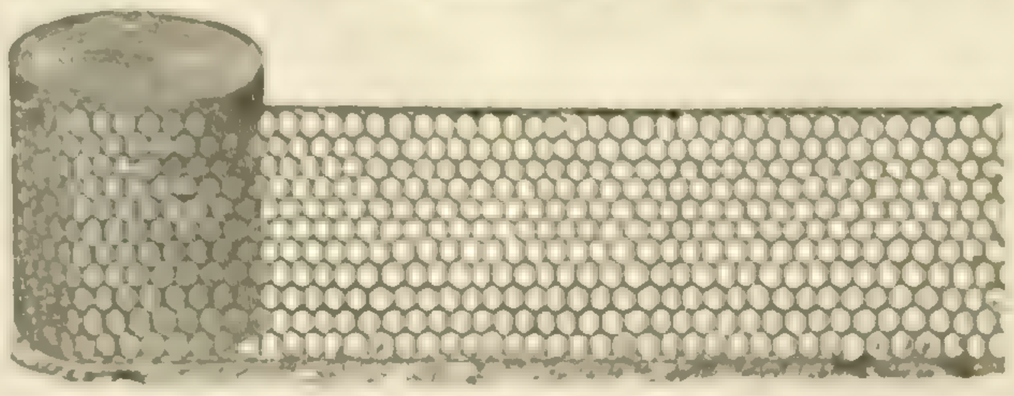
SAINFOIN, &c.: *Cotta* says:—I have a 6 acre field which last October was sown with Trifolium after a corn crop, since which it has not been cropped. It has been subsoiled and grubbed and harrowed, and is now being ploughed, &c., again, in order to get it thoroughly clean, as I intend to sow it with Sainfoin, to remain, and either Oats or Barley in the spring; but the land is poor, and I am told by a farmer friend in the neighbourhood, if I dung it with farm-yard dung it will not suit Barley. I should be obliged by your opinion on this point, and also, if (as I should have to purchase the farm-yard manure, which costs me about 7s. per ton delivered on the field) I could substitute mineral manure, and if so, what quantity and sort, for the dung, of which I intended to put from 12 to 15 tons per acre now, and plough the land again in the spring. Mine is a chalk soil, about 10 or 12 inches deep. I should also be glad to know if you recommend in my case, as the crop is intended to remain as long as it is profitable, the common or the Giant Sainfoin. [We would apply 10 tons of dung now and 3 cwt. per acre of superphosphate before Barley seed-time in spring. Sow 4 bushels of rough (unhulled) seed per acre. The Giant Sainfoin is, we believe, the best. It is drilled at a second sowing after the Barley is put in; and there is no particular management required. The Barley will benefit by the superphosphate. There is of course no better preparation for Barley on your land than the sheep-fold; but the crop will be all the better for the dung put on in autumn.]

TREACLE FOR FEEDING: *R.* The kind of molasses used for cattle feeding is not molasses in the condition imported into England, which quality contains a considerable amount of sugar, and was lately fetching a value of 17s. 6d. to 18s. per cwt., but molasses, the refuse of the refineries in England, which is clearer and more liquid, but the lower kinds of which do not contain so large a sweetening property. The commonest refiners' molasses were lately worth 14s. 6d. to 15s. per cwt.—it is termed scum, and is often used for cattle-feeding. In using it for pigs, common rice-meal, at 4s. per cwt., is mixed with it, the rice being very fattening. Dirty or damaged whole rice, worth 9s. per cwt., is also frequently used alone for poultry, and this, or rice-meal, with tonic and warming condiments, such as Spanish Beans and ginger, are thought to constitute a large proportion of the many kinds of feeding powders and cakes for cattle. The commonest sugar is worth 26s. per cwt., and Mr. Mechi's suggestion that it might be used for cattle will doubtless be acted upon if the prices continue to fall.

FARM BAILIFF.—The Editor would be glad to get a place as Farm Bailiff for a young man who is well acquainted with the management of land and stock, a good veterinarian and surveyor, and well acquainted with steam cultivation and machinery; he is also a good accountant.

NEW IMPROVED PREMIUM WIRE NETTING.

GREAT IMPROVEMENT.



WITH REDUCED PRICE.

PRICES PER LINEAL YARD, 24 INCHES HIGH.

Size of Mesh	Mostly used for	Light Japanned	Light Galvanized	Medium Japanned	Medium Galvanized	Strong Japanned	Strong Galvanized	Extra Strong Japanned	Extra Strong Galvanized
2¼ inch	Horses, Dogs, Poultry ..	3d.	4d.	3¾d.	5d.	4½d.	6d.	6½d.	7d.
2 inch	Game or Poultry Netting	3½d.	4½d.	4d.	6d.	5d.	6½d.	6½d.	8d.
1½ inch	Small Rabbits, Hares, &c.	4d.	4½d.	4½d.	6d.	5½d.	7d.	7d.	9d.
1¼ inch	Smallest Rabbits	5d.	6d.	5½d.	7d.	7d.	8d.	10d.	11d.

Quantities of 100 yards upwards delivered free at nearly all the principal Railway Stations and Shipping Ports in England; and 200 yards upwards delivered free to most parts of Scotland and Ireland.

*** *Every description of Netting warranted to give satisfaction, and if not approved will be exchanged or may be returned unobjectionably.*

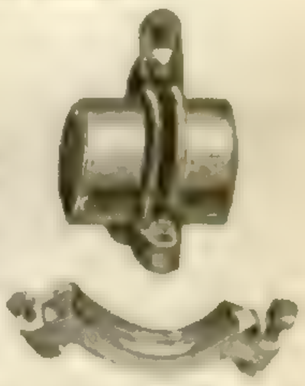
J. B. BROWN AND CO. OFFICES: 18, CANNON STREET, CITY, LONDON, E.C.,
Nearly opposite ST. SWITHIN'S LANE and LONDON STONE, and near LONDON BRIDGE.

WAREHOUSE (where Netting is kept in stock), 148, UPPER THAMES STREET, E.C., opposite the CITY OF LONDON BREWERY, and close to the LONDON BRIDGE STEAM BOAT PIER.

PORTABLE HOT-WATER APPARATUS,

WITH TRUSS' PATENT JOINTS FOR HEATING CONSERVATORIES, HOTHOUSES, &c.

T. S. TRUSS



Begs to offer complete HOT-WATER APPARATUS for GREEN-HOUSES consisting of 4-inch Pipes and Joints, Saddle Boiler, Fire Doors, Bars, Seat Doors, Damper, Supply Cistern, Feed and Air Pipes, Pipe Stands, &c., of the best quality, delivered to any Railway Station in England, and to erect the same within 25 miles of London, at the following prices:—

4-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House	Apparatus complete	Erection	Size of House	Apparatus complete	Erection
16 feet by 8 feet	£8 10 0 ..	£2 0 0	30 feet by 12 feet	£11 15 0 ..	£2 10 0
20 feet by 10 feet	9 0 0 ..	2 0 0	40 feet by 15 feet	15 0 0 ..	2 15 0
25 feet by 12 feet	10 5 0 ..	2 5 0	50 feet by 15 feet	18 0 0 ..	3 0 0

Erection beyond 25 miles of London, Railway Fare for one Man charged extra.

By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints.

Estimates and Plans forwarded on application to

T. S. TRUSS, C.E., 53, GRACECHURCH STREET, LONDON, E.C.

CUMMING & EDMONDS,

CONSERVATORY ARCHITECTS, HORTICULTURAL BUILDERS, and

HOT-WATER APPARATUS MANUFACTURERS,

STAMFORD BRIDGE, FULHAM ROAD, BROMPTON, LONDON, S.W.

CONSERVATORIES, HOTHOUSES, &c., erected in the best manner and Heated by Hot Water, with all the latest improvements. CHURCHES, SCHOOLS, MANSIONS, WAREHOUSES, &c., efficiently Heated by Hot Water on the most approved principles.

All Work executed at the lowest prices compatible with good materials and workmanship.

SURVEYS made, and DESIGNS and ESTIMATES prepared and forwarded free of every expense.

G. CUMMING, eight years Managing and Estimating Clerk and Designer to Mr. H. ORMSON.

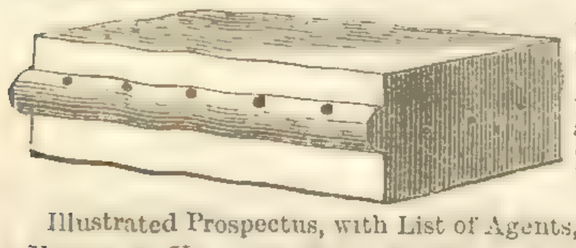
THE IMPROVED LEATHER DRIVING STRAPS for MACHINERY are stronger for a given weight, more effective, more durable, and cost considerably less than any other kind of driving belt.

SPECIAL STRAPS for PORTABLE ENGINES.

TURNER'S Patent Strap and Hose Company.

Manufactory: Armit Works, Greenfield, near Manchester.
Warehouse: 81, Mark Lane, London, E.C.
Mr. H. FERRABEE, Agent.

BEADED BRICKS for GARDEN WALLS (FOXLEY'S PATENT) may be had in any quantity of the Agents.



"No one should build a Fruit Wall without seeing the Bricks and consider the convenience of adopting them."—*Garden Oracle for* 1865.

Illustrated Prospectus, with List of Agents, on application to

FOXLEY & HOLLAND, Stony Stratford, Bucks. London Agents: Messrs. F. & G. ROSHER, Old Jamaica Wharf, Blackfriars, S.

Oil Paint no longer Necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

From ROBT. RAIKES, Esq., *East Dale, near Brough, Yorkshire.*

"I have used your Black Varnish for park palings and consider it to be the most durable and best thing of the kind I have ever seen. I think it might be applied with still greater advantage to iron fencing instead of paint, and it is my intention so to employ it in future."

Sold in casks of about 30 gallons each, at 1s. 6d. per gallon, at the Manufactory, or 1s. 8d. per gallon paid to any Station in the kingdom.

Apply to HILL & SMITH, Brierly Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C., from whom only it can be obtained.

SMITH, BECK, AND BECK'S GREENHOUSE and HOTBED THERMOMETERS.—These Instruments are of the very best construction, and at moderate prices.

31, Cornhill, E.C.

EARTH CLOSETS (MOULE'S PATENT).

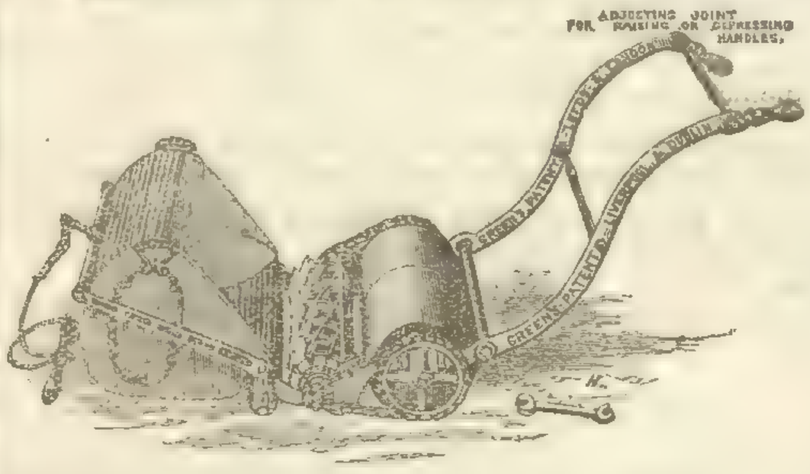
No Unwholesome Cesspools.
No Bad Smells.
No Water Pipes to get out of order.
The Best Night Commodes.
The Apparatus (price 25s. and 30s.) may be applied to any Closet at trifling cost, and is self-acting.
By its use a valuable Manure is saved, and Fertility to the Soil ensured.
Earth is recommended by the Privy Council, in their report on Cholera, as a deodoriser and disinfectant.

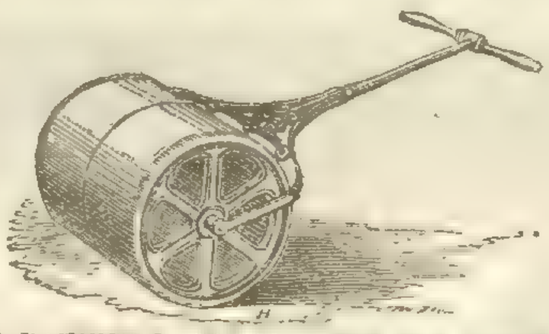
Extract from Letter received from the SECRETARY *of the* NATIONAL RIFLE ASSOCIATION.

"I am further directed to state that they (the Closets) proved of the greatest use, and were found to act admirably."

WHITE & Co., 29, Bedford Street, Strand, London, W.C.
OLDHAM SHOW, STAND 46.

GREEN'S PATENT SILENS MESSOR, or NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.





GREEN'S PATENT LAWN MOWERS have proved to be the best, and have carried off every Prize that has been given in all cases of competition. Above 26,000 have been sold since the year 1856.

Illustrated Price Lists of Lawn Mowers and Garden Rollers Free.

THOMAS GREEN & SON, Smithfield Iron Works, Leeds; 2, Farringdon Road, Holborn Hill, London, E.C.; Hadwin's Buildings, Tithebarn Street, Liverpool; and 19 Eden Quay, Dublin.

E. T. ARCHER'S "FRIGI DOMO."—[illegible] by her Majesty the Queen, the Duke of [illegible] Syon House, his Grace the Duke of Devonshire [illegible] Professor Lindley for the Horticultural Society [illegible] for the Crystal Palace, Royal Zoological Society, &c.

PROTECTION from COLD WINDS and [illegible] "FRIGI DOMO," a Canvas made of patent [illegible] Wool, a perfect non-conductor of Heat and Cold [illegible] it is applied, a fixed temperature. It is adapted [illegible] and floricultural purposes, for preserving Fruit [illegible] scorching rays of the sun, from wind, from attack [illegible] morning frosts. To be had in any required length [illegible]

Two yards wide .. .. 1s. 9d. per yard
Four yards wide.. .. .. .. 3s. 6d. per yard
An improved make, 2 yards wide .. 1s. 9d. per yard
An improved make, 3 yards wide .. 2s. 9d. per yard

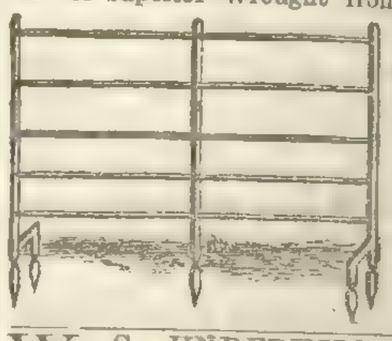
Also "Frigi Domo" Netting, 2 yards wide, 1s. 6d. per yard.

ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, Trinity Lane, Cannon Street, City, and of all Nurserymen throughout the kingdom.

"It is much cheaper than Mats as a covering."

Iron Hurdles, Fencing, and Gates.

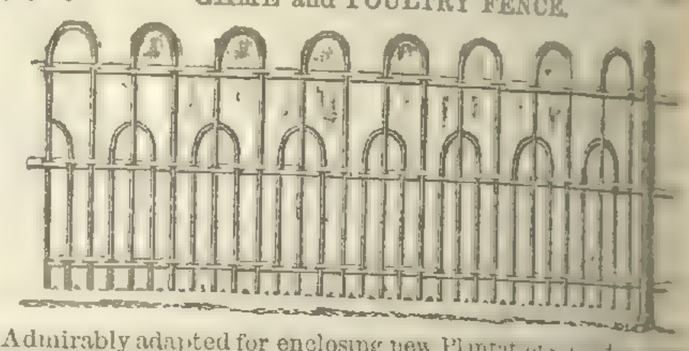
COTTAM'S HURDLES are made in the best of superior Wrought Iron. SHEEP HURDLES [illegible] each; CATTLE HURDLES [illegible] each; CONTINUOUS FENCE 8d. per foot; FIELD GATES 25s. each. Illustrated Price List [illegible] application.



ENTRANCE GATES, RAILS and IRON WORK of every description. Designs and Estimates [illegible]

COTTAM & Co., No. 2, Winsley Street (opposite the Pantheon), Oxford Street, London.

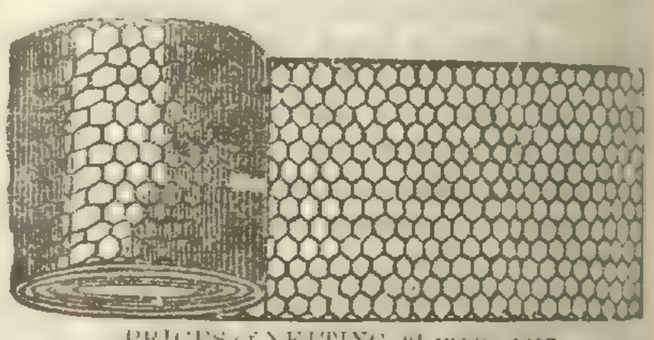
W. S. UNDERHILL'S Patent WROUGHT GAME and POULTRY FENCE.



Admirably adapted for enclosing new Plantations, [illegible] &c. It effectually prevents trespass, and is low in price (from 6d. to 1s. 6d. per yard and upwards), [illegible] in appearance, [illegible] durable.

Manufactory, St. Mary's Works, Newport, Salop. London [illegible] Mr. R. WINDER, 18, Abingdon Street, Westminster, S.W. [illegible] Samples may be seen.

GALVANISED WIRE NETTING.



PRICES of NETTING, 24 INCHES HIGH.

Size of Mesh.	Proof against	Light, per Yard.	Medium, per Yard.	Strong, per Yard
2½ inch	Hares, Dogs, Poultry, &c.	4d.	5d	6d
2 inch	All kinds of Game ..	4½d.	5d.	6½d
1⅝ inch	Small Rabbits, Hares, &c.	4½d.	6d.	7d
1½ inch	Ditto Ditto ..	6d.	7d.	9d

100 Yards and upwards Carriage Free.

GALVANISED IRON WATER CISTERNS.
GALVANISED CABLE STRAND FENCING.
GALVANISED IRON PUMPS.
GALVANISED SWING WATER BARROWS.
GALVANISED IRON ROOFS and BUILDINGS.
LAWN MOWERS, GARDEN ROLLERS.
ASPHALTE ROOFING FELT, 1d. per square foot.
HURDLES, HURDLES, HURDLES, 1s. 9d. to 3s. [illegible] per [illegible]

MOTLEY & GREEN, late H. J. MORTON & Co.
Illustrated Catalogues and Estimates free on application.
12, Great George Street, Leeds.

GRAY'S OVAL TUBULAR BOILER.

INTERNATIONAL EXHIBITION, CLASS IX., No. 2119.

Mr. GRAY begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his

NEW OVAL TUBULAR BOILER,

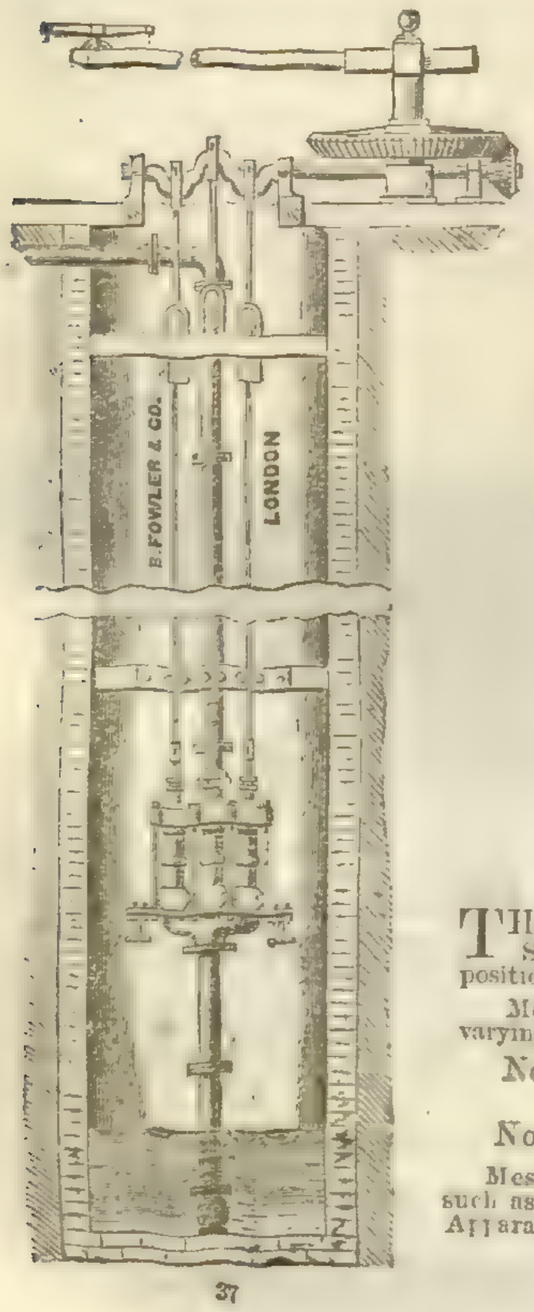
acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in Gardeners' Chronicle *of International Exhibition, May* 24, *page* 476.

The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. GRAY's variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so, the change, though a slight one, is no doubt an improvement."

They are made of all sizes, which, with prices, may be had on application.

JAMES GRAY, HORTICULTURAL WORKS,
DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.



37

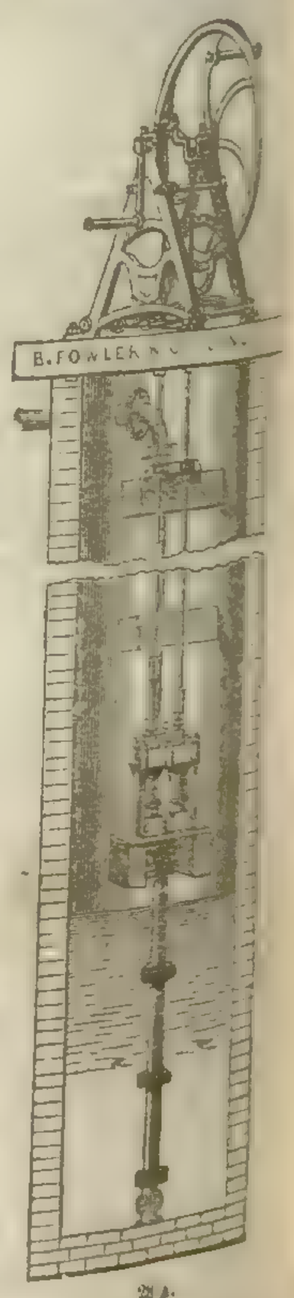
CLINTON & OWENS

(LATE BENJAMIN FOWLER & CO.)

MANUFACTURERS OF

PUMPS AND HYDRAULIC MACHINERY,

WHITEFRIARS STREET, FLEET STREET, LONDON, E.C.



THE LANDSCAPE SKETCH shows an adaptation of THE IMPROVED HYDRAULIC RAM. This is a simple Self-acting Machine, suited for raising a Supply of Water for use in Public and Private Establishments. Its adoption is not confined to positions as shown, but it is suited for any situation where a Fall can be obtained from a Stream, Brook, or Spring.

Messrs. FOWLER have fixed a great many in various parts of the country for raising from 600 to 6000 or more Gallons per day to elevations varying from 30 to 300 feet, and forcing through main pipes 50 yards to several miles in length.

No. 37. IMPROVED TREBLE BARREL PUMPS with HORSE GEARING for Raising Water from DEEP WELLS for the supply of MANSIONS and PUBLIC BUILDINGS.

No. 28*a*. DOUBLE BARREL PUMPS for HAND-POWER for similar purposes.

Messrs. FOWLER & Co. Manufacture and Erect every description of Engineer's Work required in Public or Private Establishments, such as Pumps for any purpose on the largest or smallest scale, Steam Engines, Water Wheels, Turbines, Warming and Drying Apparatus, Baths, Gas Works and Fittings. Estimates furnished from Plans or on inspection of position.

Price Lists of Pumps, &c. free on application.

28 A.

Card.

SAMUEL N. McGERROW,
GENERAL HORTICULTURAL BUILDER,
Knotty Ash, near Liverpool.
Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

BURY and POLLARD'S CONICAL BOILERS for HEATING by HOT WATER, fixed at Seats of Duke of [illegible], Lord Belper, &c., at Viscount Sydney's replaced, after [illegible] in constant use. Apply at
[illegible] New Park Street, Southwark, London, S.E.

BURY AND POLLARD have just fixed, at Wollaton Gardens, for Lord Middleton, several BOILERS and LONG RANGES of PIPES.

Heating by Hot Water.

W. J. HOLLANDS, IRON MERCHANT,
71, Bankside, London, S.E.
HOT WATER PIPES, from Stock, per yard:—2-inch, 1s. 2d.; [illegible] 3-inch, and 4-inch, 2s. 4d. BENDS, from Stock, 1s. 6d., 2s. 6d., [illegible] each. THROTTLE VALVES, 10s., 12s., and 14s. each. Other [illegible] at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to. [illegible] Discount to the Trade.

Heating by Hot Water.

HOT-WATER PIPES, at Reduced Wholesale Prices, [illegible] Elbows, Syphons, Tee Pipes, and every other connection; [illegible] Boilers, Saddle, Conical, Cylinder, TUBULAR, [illegible] and Cast-iron Boilers, Saddle, Conical, Cylinder, Tubular, [illegible] each. Improved Boilers and Iron Stands to [illegible] 20s. each. Valves from 10s. 6d. each. Patent [illegible] Furnace Doors, Furnace Bars, Supply Cisterns, and [illegible] in stock, at
LYNCH WHITE'S Iron Wharf, Upper Ground Street, Blackfriars, London, S. Price List on application.

GRANSTON'S PATENT BUILDINGS for HORTICULTURE, Highly Commended by the Royal Horticultural Society, South Kensington. Plans and Estimates free on application. Houses of the following sizes always in stock:—Span, 20 by 12 ft.; Hip-roofs, 24 by 10 ft.; Lean-to, 24 by 8 ft. [illegible] Sketch of different houses post free for 6 stamps each. [illegible] Book, fully illustrated, by post for 20 stamps from the Patentee, JAMES GRANSTON, Architect, No. 1, Temple Street, Birmingham.

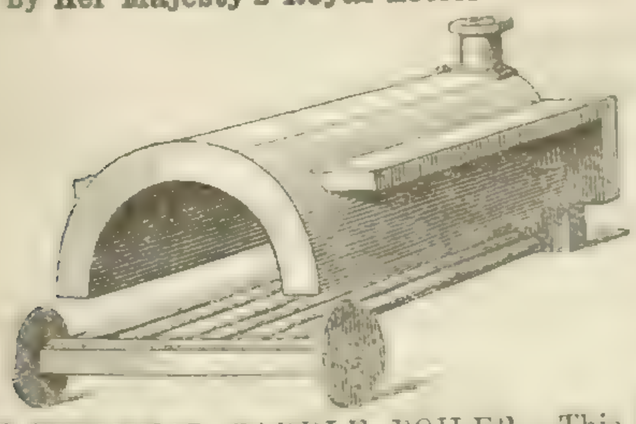
Horticultural Works, Kensal Green, London, W.

W. T. AND J. TAYLOR (late JOHN TAYLOR & SONS), have on hand for Sale THREE very handsome WOOD and GLASS CONSERVATORIES made to order. Two of them were prepared for a gentleman residing in Park Lane, an objection being raised on account of their intercepting the view from the adjoining houses. They were not fixed.
Designs and Prices fixed complete in any part of the United Kingdom forwarded upon application.

The Only Stove without a Flue.

NASH AND JOYCE'S PATENT, for AIRING, DRYING, and WARMING HALLS, SHOPS, ROOMS, &c., a new especial Stove for Conservatories, Greenhouses, Fruit-Preserving, &c.; to Burn without re-lighting all winter by filling with fuel every 12 hours. Temperature, any degree required, without varying. Price from 12s. 6d. to 6 guineas.
MINCING and SAUSAGE FILLING and MASTICATING MACHINES of the best makers, 10s. 6d.
The COTTAGE KNIFE CLEANER is the only rapid Cleaner and Polisher of Knives at a moderate price. 3s. 6d. to 10s. 6d. Prospectus post paid.
S. NASH, Ironmonger, 253, Oxford Street, W.C.; and Stove Depôt, 119, Newgate Street, London, E.C.

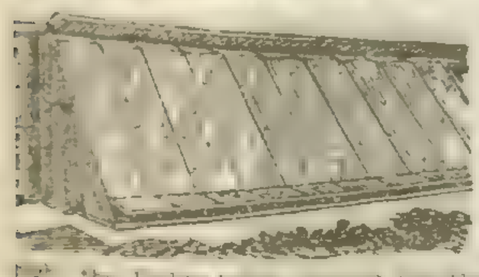
By Her Majesty's Royal Letters Patent.



THE TERMINAL SADDLE BOILER.—This is the old Saddle made perfect, by the addition of an upright terminal end piece, which quite closes the arch and side flues, and forms the back of the furnace, doing away with all brickwork at the end, and adding one-third more heating surface to the boiler just where it is most exposed to the direct action of the fire.
To be seen at the Royal Horticultural Gardens, South Kensington; and is at work at the Victoria Nursery, Holloway, Mr. Williams having kindly consented to show it to any one who will call at that Establishment. Circulars, Prices, &c., on application to
J. IRELAND, The Works, Edward Street, Broughton Lane, Manchester.

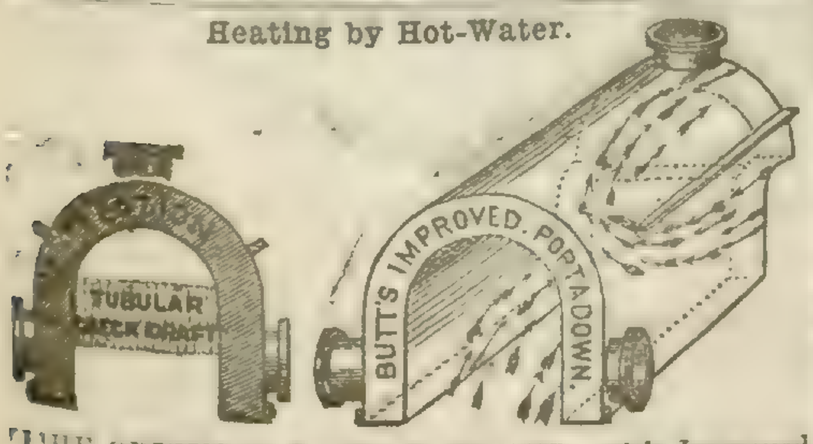
Under the Patronage of Her Majesty.

CLARK AND HOPE (LATE CLARK) 55, Lionel Street, Birmingham, MANUFACTURERS of METALLIC and WOODEN HORSES, CONSERVATORIES, VERANDAHS, &c., COPPER and WROUGHT IRON SASHES, SKYLIGHTS, &c., and HOT WATER APPARATUS for Horticultural and Domestic purposes.



C. & H. beg to call attention to their NEW TREE COVER, or Continuous Glass Covering for Garden Walls; which is constructed of Cast and Wrought Iron, glazed with or without putty, and fitted together with bolts and nuts, constituting a Tenant's Fixture. It can be made 6, 7, or 8 feet wide, and 10, 12, or 14 feet high, the ladder being opened together, by means of simple and durable machinery, in lengths of about 50 feet; and the cost does not exceed that of a wooden structure.
Further particulars, with prices, forwarded upon application; and on receipt of the amount in postage stamps, a Book of Designs, plain, 1s. 6d., coloured 2s. 6d., for Horticultural Buildings, &c.

Heating by Hot-Water.



THE ORIGINAL SADDLE BOILER, with Improved Tubular Check Draft, Flued Ends, and Ribbed Sides, for Heating Greenhouses, Vineries, Forcing Pits, Public Buildings, &c. These Boilers possess increased heating surface capacity, power, economy in fuel, and are the only class of Boilers, all points considered, when properly fixed, that can be relied upon with safety for Heating Greenhouses, &c., of any extent, by Hot Water, and at a moderate price.
Gentlemen interested in such work should write for List of Testimonials, sent Post Free on application to FREDERICK WILLIAM BUTT (late of London), Portadown, Ireland.

Exhibition Prize Medal, 1862.

HOTHOUSES for the MILLION.—The [illegible] invented and patented by Sir Joseph Paxton, M.P., combining simplicity, cheapness, excellence, and durability. SPAN-ROOF HOUSES, painted [illegible], glass, can be supplied ready for [illegible] 24 ft. by 12 ft., [illegible] 15 ft. by 10 ft., 73l. 5s.; 24 ft. by 12 ft., [illegible]
Illustrated Circulars, with Prices, may be had on application to SAMUEL HIGGINS, 8, J. Mansion, Arcade, [illegible] Street, London.
Also, A HANDBOOK on VINERIES and FRUIT HOUSES, CULTIVATION, 2d. Edition, post free, 1s. 4d.

Exhibition Prize Medal, 1862.

MUSGRAVE'S PATENT SLOW COMBUSTION STOVE.
This Stove is the nearest approach to Warming by Hot Water. It will burn 12 Cwt. of Coke from Saturday to Saturday morning, without attention. It is the best Stove for houses, with [illegible] Cottages, Warehouses, Apartments, Offices, Conservatories, Greenhouses, Churches, Schools, Chapels, Halls, Vestries, Lodges, &c. [illegible] MUSGRAVE'S PATENT SLOW COMBUSTION STOVE, [illegible] Horse Clothing, [illegible] at the Exhibition.
Manufactured by the Inventors, Alan Street, Iron Works, Leicester.
This Stove may be seen, in operation, at Messrs. Cox & Son's, 5, Spring Gardens, Strand, W.C.

BRETONNE COWS.—The Nobility, Gentry, and others, are respectfully informed that they can be supplied with the above beautiful and profitable little animals in any number at the shortest notice. The great success and encouragement which has attended the efforts of the importer in introducing the Pure Breed of the Cow, and hardy Cow into the country, has induced him to extend his connection abroad, by appointing agents in Normandy and Brittany, and he is now enabled to offer the public a constant supply of the choicest stock that can be obtained, at prices well deserving competition. He has now, together with Mr. Mulsay, purchased this Breed, and he is thus enabled to offer the Cows as well as the fancy Stock-keeper and Importer has made arrangements to keep a large stock always on hand. Prices from 5 to 10 Guineas each, delivered free to any Railway in London.
For further particulars, apply to Messrs. Lemmon & Co., 28, Crutched Friars, London, E.C.

Silver Pheasants.

WANTED, a few HENS, either to Purchase or to Exchange for Cock Birds.—Apply to S. P. Robertson & Scott, News Agents, 13, Hanover Street, Edinburgh.

Nursery on a High Road near London.

TO BE DISPOSED OF, a Compact and well Stocked OLD ESTABLISHED NURSERY of about one Acre, well fitted with Houses, Pits, &c., all in good condition.
Apply to Mr. Rennie, [illegible], 23, Moorgate Street, City.

Notice.—To Nurserymen and Florists.

TO BE DISPOSED OF, by Private Contract, an OLD ESTABLISHED BUSINESS in a flourishing Seaport Town. It consists of 5 Acres of Land in a high state of cultivation; 5 large Greenhouses, Pits, Frames, &c., well stocked with Fruit and Forest Trees, Evergreens, Roses, and [illegible]. Served by two railways and steam boats. The Lease can be renewed for 7, 14, or 21 years. Satisfactory reasons will be given as to parting with the above.
Apply to X. Y., care of G. Bedford, Esq., 77, Cannon Street, E.C.

To Nurserymen and Market Gardeners.

TO BE SOLD or LET, a SMALL FARM, most eligibly situated about a mile from a Station on the Great Eastern line, comprising a Dwelling House, Farm Buildings, and upwards of 11 Acres of rich Loamy Soil, well suited for Fruit Trees, Seed Crops, and Vegetables. Labour is cheap and plentiful.
Apply to Mr. H. RAYNBIRD, Messrs. Raynbird, Calder H. & Lawrence, Seedsmen, Basingstoke.

Sales by Auction.

Ringwood Nursery.
IMPORTANT SALE OF NURSERY STOCK, FIT FOR GENTLEMEN'S FARMS' PLANTING.

MR. E. SAUNDERS has received instructions to SELL by AUCTION, on THURSDAY, November 9, at 12 o'Clock, a portion of the valuable STANDING STOCK of Mr. W. Housden, who is retiring from the business, consisting of Larch, Gentlemen's Ornamental Plantations, Scotch Firs, Spruce and Scotch Firs, Ash of various sizes, Quercus Ilex, Hazel, and 1-year Quercus Robur, and a variety of other Forest Trees, Flowering Shrubs, Evergreens, &c.
May be viewed any day preceding the Sale. Catalogues may be had a week prior to the Sale, of Mr. Housden, or of the Auctioneer, Ringwood.

Tottenham, Middlesex.

VERY VALUABLE FREEHOLD BUILDING AND MARKET GARDEN LAND, CLOSE TO THE STATION ON THE GREAT EASTERN RAILWAY.

MESSRS. NORTON AND TRIST have received instructions to OFFER for SALE, at the London Tavern, Bishopsgate Street, on WEDNESDAY, November 8, at 1 o'Clock precisely, in 15 Lots, about 70 ACRES of very valuable FREEHOLD LAND, situate in the town of Tottenham, Middlesex, close to the Station, and within six miles of the Metropolis, a considerable portion of the estate being extremely eligible for Building purposes. Lot 1 comprises a valuable Enclosure of Freehold Building Ground, situate opposite the Waterworks and close to the Station, having a frontage to two roads, [illegible] Lot 2, a [illegible] Cottages, and [illegible] Lot 3, an enclosure of [illegible] the engine house, admirably adapted to the Station, and [illegible] and containing about 2a. 0r. 13p. Lot 3, for the Erection of Cottages, [illegible] Hall Farm fronting Chestnut Road, which is [illegible] minutes' walk of the Tottenham Station, having a considerable [illegible] Dwelling House, contained in the same, and [illegible] Sitting Rooms, Kitchen, Store Room, containing Six Bedrooms, [illegible] Garden, Wash-house, and other Conveniences, Two Cottages, Stabling for numerous Horses, Barn, Cart Lodge, and other Outbuildings, [illegible] Orchard and Garden Ground, the whole containing about [illegible] Lot 4, a valuable Enclosure of Freehold Building Ground, fronting the proposed new road, situate between Lots [illegible] and the railway, and containing about Four Acres. Lots [illegible] to 9 inclusive, comprising several valuable Enclosures of Market Gardens and Accommodation Land, principally Freehold, situate adjoining the Railway, and containing together about 56a. 0r. 19p. Lot 10 [illegible] comprising several Plots of Marsh Land, situate in Great Lea Marsh, called the River Lea, and containing together about 17a. 0r. 1p. These Lots and also Lots 6 and 7 are subject to Lammas rights.
Particulars may shortly be had at the Rose and Crown, High Cross, Tottenham; Angel, Edmonton; White Hart, Clapton; of Messrs. CLUTTON, Surveyors, 9, Whiteball Place, S.W.; at the London Tavern; and of Messrs. NORTON & TRIST, 62, Old Broad Street.

Roses, Fruit Trees, Dutch Bulbs, Garden Seats, Laurels, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, Oct. 28, at half-past 12 o'Clock precisely, a First-class Assortment of BULBS, received direct from Holland and Belgium, consisting of Double and single Hyacinths, Tulips, Crocuses, Snowdrops, Lilies, Narcissus, Iris, Jonquils, &c. Standard, Half-Standard, and Dwarf ROSES, Pyramid and Dwarf APPLES, PEARS, PLUMS, APRICOTS, and CHERRY Trees, Rustic Garden Seats, Vases, Stools, Chairs, Baskets, &c. Laurels and other Plants.
On view the Morning of Sale, and Catalogues had.

1200 Fruit Trees from France.

[illegible]

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, November 1, at half-past [illegible] an importation of [illegible] Fruit Trees, [illegible] Standard, Half-Standard, and Dwarf Roses, Pyramid and Dwarf Apples, Pears, Plums, Apricots, Cherries, Peaches, Nectarines, Figs, Mulberries, Quince and Ornamental [illegible] Rustic Seats, &c.
On view the Morning of Sale, and Catalogues had.

Consignment of Plants from Ghent and an Importation of Bulbs from Holland.

MR. J. C. STEVENS will SELL by AUCTION, at [illegible] W.C., on SATURDAY [illegible] CAMELLIAS, [illegible] GAILARDIAS, [illegible] MAGNOLIAS, [illegible] Catalogues.

Sunningdale Nursery, Bagshot, Surrey.

[illegible] MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, [illegible] evidence of the most skilful and careful cultivation, [illegible] unprecedented opportunity to Nurserymen, Gentlemen, and Public Companies forming and improving Plantations, and to the Trade for obtaining in large quantities that which is rare and [illegible] comprising about—
10,000 Green Hollies, 1 to 7 ft.
3,000 Variegated and named Hollies, 1 to 6 ft.
3,000 Portugal Laurels, 2 to 4 ft.
15,000 Common Laurels, 2 to 3 ft., extra bushy.
[illegible] Berberis Darwini, 1 to 6 ft.
[illegible] Berberis dulcis, 2 ft. 6 in.
2,000 Arbutus Andrachne, 1 to 3 ft. [illegible]
[illegible] Thuja Wareiana, 1 to 4 ft., and [illegible]
400 Thuja gigantea, 5 to 6 ft., bushy.
[illegible] English and [illegible]
5,000 Laurustinus, [illegible] ft., very fine.
5,000 Cupressus Lawsoniana, 1 to 6 ft.
[illegible] Abies Douglasii, 1 to 7 ft.
[illegible] Abies [illegible], fine specimens, 1 to 4 ft.
500 Abies Pinsapo, 1 to 6 ft., splendid specimens.
Abies [illegible], 1 to 3 ft.
1,000 A. Morinda, 2 to 7 ft., extra fine.
A. grandis.
A. [illegible]
[illegible] fine specimens of A. Nordmanniana, 11 to 7 ft.
1,500 Arbutus Unedo, very handsome, 1 to 10 ft.
1,500 Thujopsis Borealis, specimens.
[illegible] Pyrus Cydonia, 1 to 6 ft.
500 P. Strobus, 5 to 7 ft.
8,000 first-class P. austriaca, 1½ to 2 ft.
100 P. Benthamiana, 4 to 7 ft.
200 splendid specimen Cedrus Deodara, 6 to 10 ft.
[illegible], 3 to 6 ft.
[illegible] Cephalotaxus [illegible]
[illegible] C. harringtonia.
[illegible] Juniperus chinensis, 4 to 8 ft.
[illegible], 1 to 2 ft.
[illegible], 1 to 2 ft.
1,000 Weeping Japanese [illegible] fine class.
[illegible] C. japonica sphaeroides.
[illegible]
500 C. sphaeroidea variegata, 2 to 3 ft.
3,000 Retinospora ericoides, 1 to 2 ft.
[illegible]
4,000 Skimmia japonica, 6 to 18 in.
[illegible] Gold, 1 to 2 ft.
[illegible] pieces, 2 ft.
[illegible], 1 to 4 ft.
[illegible] strong Spiræa, by name.
[illegible] Azaleas in variety.
5,000 Rhododendron [illegible], 1 to 2 ft.
[illegible] Azalea, 1 ft.
[illegible]
[illegible]
2,000 Quercus Ilex.
50,000 choicest named RHODODENDRONS Standard and Dwarf, [illegible] Rhododendron: 3000 Mrs. John Waterer, [illegible] John Waterer, [illegible] Lady L. Cadogan, [illegible] Grand Arab, [illegible] Rhododendron ponticum, 1½ to 2 ft. Fruit Trees; [illegible] Standard and Dwarf Roses, of the best varieties; 50,000 [illegible] Spruce, Chestnuts, Scarlet, strong, [illegible] Spanish Oaks, [illegible] Spanish Chestnuts, [illegible] Quercus Cerris, [illegible] 1 to 3 ft., [illegible] 1000 Elms, by name, [illegible] Varieties, [illegible] 5000 named Varieties of Green Peas, 100 White Spanish Broom, 2 to 3 ft., [illegible]
May be viewed and Catalogues may be obtained at the Nursery, [illegible] of the principal Seedsmen, London; [illegible] Varieties, Alnwick Nurseries, [illegible]
N.B.—The Nursery [illegible] Stock to any part of England, Scotland and Wales, [illegible]

Sale of Dutch Bulbs, Standard and Dwarf Roses, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at [illegible] Church Street, [illegible], on [illegible] at 1 o'Clock precisely, a [illegible] of BULBS, consisting of the finest Double and Single Hyacinths, Narcissus, Jonquils, Anemones, Crocus, Iris, Ranunculus, Crown Imperials, & [illegible] STANDARD and DWARF ROSES, [illegible] AMERICAN PLANTS, including Giant and other Azaleas, Hardy Herbaceous Plants, &c.
[illegible] Nurseries, Leytonstone, Essex, N.E.

To Gentlemen, Nurserymen, and Others.

MESSRS. J. WATERER AND SONS WILL SELL by AUCTION, on TUESDAY, November 14, and the following days, at 11 for 12 o'clock precisely, on the Premises near Pyrford Bridge, Byfleet, Surrey, about two miles from the Woking and Weybridge Stations, the Valuable NURSERY STOCK, comprising [illegible] Standard and Dwarf Trees, [illegible] 500 Conifers, including Lawson's, Menzies, Weldonii, Douglasii, Cedrus Deodara, Pinus Picea, Thuja Lobbii, Thujopsis gigantea, Abies Pinsapo, P. austriaca, P. Douglasii (3 to 5 feet), borealis, [illegible] Hedges, [illegible] Seedling and Bedded Rhododendron Ponticum, 1½ feet of Seedling ditto, 10,000 Seedling ditto, from 6 inches to 1 foot; 46 Pure Seedling Pinus Laricio; 800 Azaleas, various; 300 Kalmia latifolia, [illegible] 3 Heath, stools and layers, [illegible] 600 Laurustinus, 600 [illegible] feet; Hemlock Spruce, Austrian Pine Firs; 3000 Spruce Firs,

NEW TARIFF OF GLASS AND HORTICULTURAL GOODS.

HAND GLASSES.

THOMAS MILLINGTON,

GLASS AND COLOUR MERCHANT,

87, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

PRESERVE JARS

REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.

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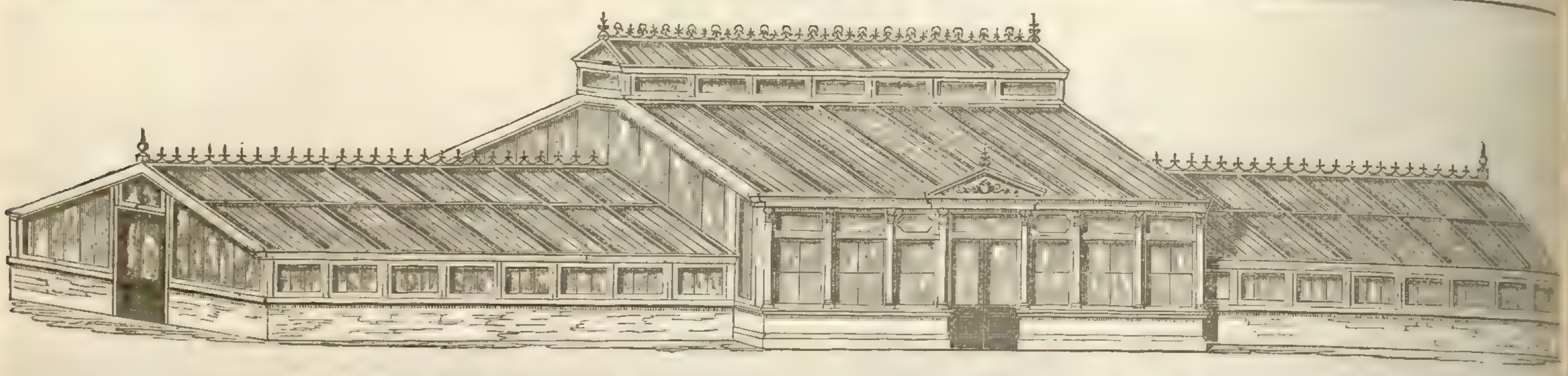
MILK PANS



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Plans, Specifications, and Estimates on application.

HENRY ORMSON, F.S.A.,

HORTICULTURAL BUILDER, AND HOT-WATER APPARATUS MANUFACTURER,

STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

PATENT WROUGHT-IRON ORNAMENTAL CONSERVATORY.

This elegant CONSERVATORY is for SALE. It was specially Designed and Exhibited in the Grounds of the Dublin International Exhibition.

THE ONLY PRIZE MEDAL

WAS AWARDED FOR IMPROVEMENTS IN THE CONSTRUCTION AND APPLICATION OF WROUGHT-IRON TO HORTICULTURAL BUILDINGS IN FAVOUR OF

T. H. P. DENNIS,

HOT-WATER ENGINEER, PATENTEE, and GENERAL HORTICULTURAL BUILDER in WOOD and IRON,

CHELMSFORD, ESSEX.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 44.—1865.] SATURDAY, NOVEMBER 4. {Price Fivepence. Stamped Edition, 6d.

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ROYAL BOTANIC SOCIETY of LONDON, Regent's Park.—The Days fixed for the Exhibitions next year are—GENERAL EXHIBITIONS, WEDNESDAYS, May 9, June 6, and July 4. SPRING FLOWERS, SATURDAYS, March 17, April 7 & 21. The Days for the AMERICAN PLANTS will be advertised in the Spring.
By Order of the Council.
J. De C. Sowerby, Secretary.

THE STOKE NEWINGTON CHRYSANTHEMUM SOCIETY
(*President*—Shirley Hibberd, Esq., F.R.H.S.),
Will hold its NINETEENTH ANNUAL EXHIBITION in STOKE NEWINGTON on THURSDAY and FRIDAY, November 9 and 10.
W. T. Howe, Hon. Sec.

BRISTOL, WEST of ENGLAND, and SOUTH WALES CHRYSANTHEMUM and FRUIT SOCIETY.
The SECOND ANNUAL SHOW of CHRYSANTHEMUMS and FRUIT will be held in the Rifle Drill Hall, Queen's Road, Clifton, on THURSDAY, November 16, when upwards of £80 will be given in Prizes. No Entrance Fee for exhibiting.
Schedules may be obtained of the Nurserymen in Bristol, or of
J. Hobbs, Hon. Sec., Imperial Fire Office, Bristol.

HORTICULTURAL SOCIETY of LIVERPOOL.—The THIRD GREAT EXHIBITION of CHRYSANTHEMUMS and FRUIT will be held in St. George's Hall on WEDNESDAY, November 22.
ENTRIES CLOSE on November 20. For Schedules, &c., apply to Robert W. Ker, Hon. Sec., 4, Basnett Street, Liverpool.

Exhibition of Chrysanthemums.
JOHN SALTER'S unique COLLECTION of these beautiful flowers (including the New Varieties for 1866), is NOW in BLOOM. The WINTER GARDEN is open every day except Sunday, admittance free.
Versailles Nursery, William Street, Hammersmith, W., near Kensington Railway Station.

RHODODENDRON PRÆCOX.—Plants of the above, as described in this Paper of last Saturday, can yet be supplied, with from 50 to 150 flower buds, at 3*s.* 6*d.*, 5*s.*, and 7*s.* 6*d.* each, by the Raiser, Isaac Davies, Larkfield Nursery, Wavertree, Liverpool.

The Best Twelve Hyacinths Imported by
SUTTON AND SONS,
for Twelve Shillings.
Sutton & Sons, Royal Berks Seed Establishment, Reading.

Sutton's Unrivalled Collections of Bulbs.
SUTTON'S GUINEA COLLECTION of BULBS for BLOOMING in POTS and GLASSES.
SUTTON'S GUINEA COLLECTIONS for BEDS and BORDERS.
For particulars see SUTTON'S AUTUMN CATALOGUE, which may be had gratis and post free.
Sutton & Sons, Royal Berks Seed Establishment, Reading.

Dutch Bulbs.
CHARLES TURNER is prepared to execute orders with the finest varieties of HYACINTHS, TULIPS, CROCUS, NARCISSUS, &c. The roots have arrived in fine condition. CATALOGUES on application.
The Royal Nurseries, Slough.

Hyacinths, and other Dutch Bulbs.
WM. HOOPER has received large consignments of the above, of best quality, and in excellent condition. CATALOGUES free on application.
St. John's Hill Nursery, New Wandsworth.

Hyacinths and other Dutch Bulbs.
WM. CUTBUSH AND SON beg to acquaint their numerous Patrons that they have received their usual Consignment of Choice HYACINTHS, TULIPS, CROCUSES, &c.
PRICED DESCRIPTIVE CATALOGUE post free on application.
Highgate Nurseries, London, N.

CARTER'S GARDENER'S VADE-MECUM, AUTUMN SUPPLEMENT of DUTCH and CAPE BULBS and PLANTS, is now ready.

BARR AND SUGDEN'S HYACINTHS, TULIPS, CROCUS, NARCISSUS, GLADIOLI, RANUNCULUS, ANEMONES, LILIES, AMARYLLIS, in splendid collections. See AUTUMN FLORAL GUIDE, free and post paid on application.
Barr & Sugden, Seed and Plant Merchants, 12, King Street, Covent Garden, W.C.

BUTLER AND McCULLOCH'S ILLUSTRATED PRICED CATALOGUE, containing particulars of their Choice COLLECTIONS of DUTCH and CAPE FLOWERING BULBS, sent free and post paid upon application.
Butler & McCulloch, South Row, or Strand side, opposite Southampton Street, Covent Garden Market, W.C.

Hothouse, Greenhouse, and Hardy Plants, Bulbs, &c.
LOUIS VAN HOUTTE, Nurseryman and Seedsman, Ghent, Belgium, begs to announce that his NEW PRICE LISTS, Nos. 108, 109, 110, & 111, are to be had of Messrs. R. Silbbrrad & Son, 5, Harp Lane, Great Tower Street, London, E.C.
Louis Van Houtte's goods are delivered free out of the Custom House in London, without any expense whatever to the buyer, but *per contra* 5*s.* will be charged for each package.

Genuine Garden and Agricultural Seeds.
JAMES CARTER AND CO.,
Seed Farmers, Merchants, and Nurserymen,
237 and 238, High Holborn, London, W.C.

NEW and GENUINE AGRICULTURAL, GARDEN, and FLOWER SEEDS.
Special prices and advantageous offers on application to
James Fairhead & Son,
Seed Growers and Merchants, 7, Borough Market, London, S.E.

H. AND F. SHARPE,
Seed Growers and Merchants, Wisbech.
SPECIAL PRICED LIST of NEW SEEDS on application.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING AND COMPANY, Limited, Seed Farmers and Merchants,
89, Seed Market, Mark Lane, E.C.; and Basingstoke.
Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

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Market Place, Rotherham.
Prompt Returns made for Consignments of Fruit and other Produce sent on Commission by Merchants or Growers.
References to London, Liverpool, Hull, Scotland, or Ireland.

New Garden Seeds for Autumn Sowing.
SUTTON AND SONS can now supply the above, of excellent quality.
PRICED CATALOGUES gratis and post free on application.
Royal Berkshire Seed Establishment, Reading.

Wholesale Catalogue.
GEORGE JACKMAN AND SON will have much pleasure in forwarding on application, free by post, their DESCRIPTIVE and PRICED CATALOGUE of NURSERY STOCK for 1865 and Spring 1866.
Woking Nursery, Surrey

1865 and 1866.
EDWARD P. FRANCIS AND CO.'S NEW DESCRIPTIVE CATALOGUE is now ready, and will be forwarded gratis on application. Intending purchasers will find it to be a most useful guide. The Nurseries, Hertford, Herts.

J. IVERY AND SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

SPRING GARDENING.
200,000 CROCUS, 100,000 SNOWDROPS,
50,000 HYACINTHS, 100,000 TULIPS, &c.
Barr & Sugden, Seed and Plant Merchants, 12, King Street, Covent Garden, W.C.

LARGE YELLOW CROCUS and MIXED DOUBLE and SINGLE HYACINTHS in quantities to offer to the Trade.
Price on application to James Fairhead & Son, Seed Merchants, 7, Borough Market, London, S.E.

ROSES.—A DESCRIPTIVE CATALOGUE of ROSES, by Thos. Rivers, free per post.
Nurseries, Sawbridgeworth.

NEW ROSE CATALOGUE for 1865 and 1866, also GENERAL CATALOGUE of NURSERY STOCK.
Woodlands Nursery, Maresfield, near Uckfield, Sussex.
Wm. Wood & Son will be happy to forward copies of the above on application.

H. LANE AND SON'S CATALOGUES of ROSES, TREES, SHRUBS, FRUIT, RHODODENDRONS, AZALEAS, &c., are now ready, and may be had on application at
The Nurseries, Great Berkhampstead, Herts.

Roses.
WM. PAUL (Son and Successor to the late A. Paul) begs to announce that his NEW DESCRIPTIVE CATALOGUE of ROSES is now ready, and will be forwarded on application, free by post. The stock is large and in splendid condition.
Paul's Nurseries, Waltham Cross, London, N.

Now ready, 1865 and 1866.
PAUL AND SON'S NEW ROSE CATALOGUE will be found a useful guide. Post free on application.
Old Cheshunt Nurseries, N.

Roses and Vines.
JAMES DICK begs to offer several Thousand ROSES in 60-pots, including the best sorts, at the very low figure of 3*s.* 6*d.* per dozen, ready money. Also a quantity of first-rate GRAPE VINES for Fruiting in pots or Planting-out.
High Beech Nurseries, Essex, N.E.

1865 and 1866.
JOHN FRASER begs to announce that his NEW DESCRIPTIVE CATALOGUE of PLANTS, ROSES, FRUIT TREES, &c., for the Autumn of 1865 and Spring of 1866, may be had on application.
The Lea Bridge Road Nurseries, N.E.

THE CLIVEDEN COLLECTIONS of SPRING BLOOMING PLANTS, 12*s.* 6*d.*, 25*s.*, 50*s.*, and 100*s.*
For particulars see our AUTUMN FLORAL GUIDE.
Barr & Sugden, 12, King Street, Covent Garden, W.C.

PELARGONIUM MRS. POLLOCK.—Strong Summer-struck Plants, well established in 60-pots, at 15*s.* per dozen.
The Trade supplied.
Alfred Fryer, Nurseries, Chatteris, Cambridgeshire.

CARNATIONS and PICOTEES.—Twenty Pairs of fine named SHOW FLOWERS for £1, package included.
Wood & Ingram, Nurseries, Huntingdon.

Azalea indica Stella (Veitch).
THOS. DAVIES AND CO. beg to offer strong Plants of the above fine AZALEA, with four to six branches, at 7*s.* 6*d.* each. Smaller plants, 5*s.*, with the usual discount to the Trade.
Wavertree Nursery, near Liverpool

N. LAWRENCE'S CATALOGUE of NURSERY STOCK includes Roses, Coniferous trees, Miscellaneous Deciduous and Evergreen Shrubs, Fruits, &c. Can be had on application.
The Nurseries, Station Street, Chatteris, Cambridgeshire

Splendid New Caladiums.
A. VAN GEERT, Nurseryman, Ghent, Belgium, begs to announce to Amateurs and the Trade that he is now prepared to supply the following SIX NEW HYBRID CALADIUMS:—C. Chantini fulgens, C. Duc de Morny, C. Lamartini, C. Mme. Andrien, C. Mme. Houllet, and C. Thibautii. The Six for £5.

Fruiting Vines.
E. G. HENDERSON AND SON offer the [illegible] splendid Canes of well-matured growth, with prominent eyes, sure to give a heavy crop of fruit [illegible]
LIST [illegible]
Wellington Nursery, St. John's Wood, London, N.W.

VINES, from Eyes. Now ready, a DESCRIPTIVE CATALOGUE of GRAPES, by Thos. Rivers, free per post.
Nurseries, Sawbridgeworth.

Grape Vines.
S. GLENDINNING AND SONS have a splendid lot of extra fine Fruiting Canes
PRICED LIST may be had on application.
Chiswick Nursery, London, W.

QUEEN PINE SUCKERS for SALE
[illegible]
Apply to J. Hannan, The Gardens, [illegible] Castle, Mexico Terr.

HEAVY LANCASHIRE SHOW GOOSEBERRY TREES, [illegible] per dozen. CATALOGUE [illegible]
Holland & Jones, Broadway Gardens, Cambridge, and Mansfield.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS
Richard Smith, Nurseryman and Seed Merchant, Worcester.

Winter flowering Heaths.
JOHN FRASER [illegible] Nurseries, N.E., begs to [illegible] of [illegible] Winter flowering sorts, now coming into full bloom. The prices will be given on application. A [illegible] of [illegible] requested from unknown correspondents. [illegible]

DAPHNE CNEORUM.—Splendid plants of this lovely sweet-scented Winter and Spring flowering plant [illegible] hundred, or thousand. [illegible]
W. B. Jeffries, Arboretum Nurseries, Ipswich.

JOSEPH ERLMELL AND SONS [illegible] Nurseries, Penrith. Prices fixed [illegible] FOREST STOCK.

Greenhouse Plants.
ISAAC DAVIES being about to REMOVE and [illegible] tinue the Cultivation of the [illegible] healthy Plants to offer at 25 per cent. discount.
Larkfield Nursery, Wavertree, Liverpool.

A. WILKIN, Tiptree, Kelvedon, Essex, can supply the Trade with 1 to 2 feet SPRUCE FIRS; 1 to 2 feet SEEDLING SYCAMORES; 3 to 5 feet ASPEN LEAF POPLARS; 3 to 5 feet LOMBARDY POPLARS; 1-year GIANT ASPARAGUS, &c.

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The following Resolutions form the basis of the Scheme :—

1. That there shall take place in London, in 1866 (in the Garden of the Royal Horticultural Society, at South Kensington), a Grand International Horticultural Exhibition and Congress, to be open four days, from May 22 to May 25, and to which the leading Botanists and Horticulturists throughout Europe shall be invited.

2. That Two Morning Meetings (of the nature of a Congress) shall be held, at which Papers prepared by leading Botanists or Horticulturists shall be read, the Papers to be previously printed in English and French, or German, and circulated, and discussion thereon invited.

3. That there shall be Two Conversazioni, at which Foreigners invited to assist at the Exhibition and Congress shall have the opportunity of meeting with our own leading Horticulturists, Botanists, Exhibitors, &c.

4. That there shall be a Banquet, to which leading Foreign Visitors shall be invited as guests, and to which also Ladies subscribing will be admitted. Tickets 3 Guineas each.

5. That the Committee will endeavour to arrange that the most easily-accessible English Gardens, in which some feature of British Gardening—such as "Forcing," "Decorative Gardening," &c.—is well illustrated, shall be open to Foreign Visitors.

6. That a Subscription List be opened for the purpose of obtaining the F[illegible] necessary to the formation of a liberal Prize List (the Prizes offered amount to [illegible] £2500), the erection or part erection of the necessary Exhibition Building, [illegible] entertainment of Foreign Visitors, and for the working expenses of the Exhi[illegible] and Congress; and that a Guarantee Fund be also entered on.

7. That Gentlemen subscribing TEN GUINEAS shall be entitled to one D[illegible] Ticket of the value of £3 3s.; to one Card of invitation to each of the S[illegible] available for one Gentleman and two Ladies; and to Eight Tickets of admiss[illegible] the opening of the Horticultural Show, when the admission by payment w[illegible] One Guinea each person. Subscribers of FIVE GUINEAS, or Guarantors of £[illegible] receive one Card of invitation for each Soirée, available for one Gentleman [illegible] two Ladies, and Four Tickets for the opening of the Horticultural Show. Subs[illegible] and Guarantors of smaller amounts will receive in proportion.

8. Subscribers' Tickets may, if desired, be commuted, so as to be available for [illegible] Banquet, three of the before-mentioned Tickets for the opening of the Exhi[illegible] being exchangeable for one Dinner Ticket, provided that notice of such wi[illegible] exchange them is given before the 31st of March, 1866. Subscribers' Ticket[illegible] used on the opening day will admit on any subsequent day, in the manner [illegible] stated thereon.

Gentlemen willing to lend their support to this undertaking will perhaps be kind enough to communicate at once with the Secretaries.

A SECOND LIST of SUPPORTERS will be published shortly.

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INTERNATIONAL HORTICULTURAL EXHIBITION.—*(Continued).*

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Mr. Robert Hanbury, F.R.H.S., Poles, Ware	10	10	0	—		
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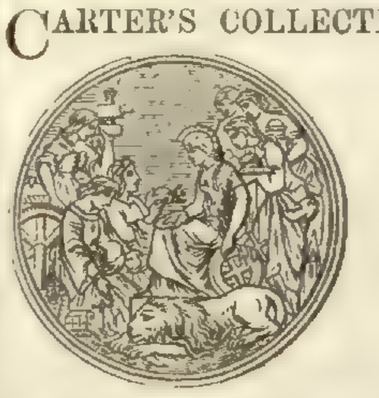

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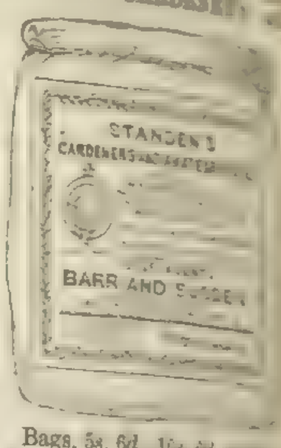
STANDEN'S GARDENER'S and AMATEUR'S FRIEND, a highly concentrated Inodorous Fertiliser, for Chrysanthemums and all kinds of Stove and Greenhouse Plants, Vines and other Fruit Trees in pots, &c.; also Vegetables, &c., in the open ground.
No. 1 FERTILIZER is the best adapted for Chrysanthemums and Hard-wooded Plants of every description.
No. 2 FERTILIZER is recommended for Soft-wooded Plants, Bulbs, &c.



Sample Canisters, 1s. & 2s. 6d. Bags, 5s. 6d., 1[illegible]
May be had of the leading Nurserymen and [illegible]
Barr & Sugden, Seed and Plant Merchants, 12, K[illegible] Covent Garden, W.C.
A List of Agents will shortly be published

Carnations, Picotees, and Pinks.
Royal Nurseries, Great Yarmouth
YOUELL AND CO. beg to offer to the Nobility and Trade generally, their extensive and superb [illegible] the above, which are this season unusually strong and [illegible] the undermentioned prices.
NEW SCARLET CLOVE CARNATION GARI[illegible]
Youell & Co. have much pleasure in offering the above variety, far surpassing any in cultivation; colour [illegible] scarlet, large and bold flowers, fine pod free from [illegible] delicious Clove scent which it possesses is not to be [illegible] of its class. Price 5s. per pair; if 12 pairs are ordered, [illegible]
NEW WHITE CLOVE CARNATION PRINCESS ALI[illegible]
Y. & Co. beg to offer a few pairs of the above desirable [illegible] which possesses the same properties as Garibaldi, only different colour, being of the finest snowy white. Price 5s. per pair; if [illegible] are ordered, £2 10s.
PERPETUAL FLOWERING or TREE CARNA[illegible]
Flowering Summer and Winter.
This deservedly popular class has of late received many addi[illegible] to its hitherto general favourites. They cannot be too strongly recommended, not only for their delightful fragrance, but [illegible] brilliant display they afford during the autumn and winter months either in the Greenhouse, Conservatory, or open Garden during [illegible] Summer months. Price 12s., 18s., and 24s. per dozen plants.
CARNATIONS and PICOTEES.
Youell & Co.'s collection of these is probably the most extensive [illegible] the Trade, and having for a series of years paid special attention [illegible] their cultivation, introducing the best of the new varieties, they are [illegible] enabled to offer them at the following prices for fine strong [illegible] rooted plants:—
CARNATIONS, finest first-class varieties, by name, 18s. and 24s. per dozen pairs.
PICOTEES, finest first-class varieties, name, 18s. and 24s. per dozen pairs.
Ditto, on yellow grounds, 20s. and 30s. per dozen pairs.
Finest mixed BORDER CARNATIONS and PICOTEES, [illegible] dozen pairs.
True old CRIMSON CLOVE CARNATIONS, 12s. per dozen pairs.
YOUELL'S FIRE KING, very brilliant, 18s. per dozen pairs.
NEW ITALIAN YELLOW CARNATIONS
Youell & Co. have succeeded in importing 25 very choice [illegible] and beautiful varieties of the above—the ground colours [illegible] yellow, striped and suffused with various shades of scarlet, purple, plum, and blue; they are extremely hardy, [illegible] growers, highly fragrant, and will give general satisfaction. [illegible] 3s. 6d. per pair, or 40s. per dozen pairs, of the most distinct kinds.
PINKS.
Their very extensive and unrivalled Collection of all the [illegible] kinds in cultivation. In Strong Plants, 9s. to 12s. per dozen. Fine Mixed Border varieties, 6s. per dozen pairs.
Royal Nurseries, Great Yarmouth

WATERER AND GODFREY beg to submit the following List to the notice of intending planters. [illegible] thing is in the finest possible health, and all have been [illegible] and recently removed:—
HOLLIES, the QUEEN, or best Gold-striped; hundreds [illegible] 4, 5, and 6 feet high.
HOLLIES, WATERER'S, magnificent plants, 3, 4, and [illegible] by 10 and 15 feet in circumference; many of these [illegible] 25 years old and are matchless.
HOLLIES, STANDARD WATERER'S and QUEEN, [illegible] Variegated Hollies, from 15 to 30 years growth, in large [illegible]
HOLLIES, COMMON GREEN, 8, 10, 12, and 15 feet high, [illegible] for immediate effect.
BOX, GREEN and VARIEGATED, 4, 5, and 6 feet high.
YEWS, COMMON ENGLISH, an immense stock of [illegible] 4, 5, 6, 8, and 10 feet high.
YEWS, IRISH, 6, 8, and 10 feet high.
YEWS, GOLDEN, hundreds 5, 6, and 8 feet high; [illegible] of them 25 years ago.
PHILLYREA ILICIFOLIA, 5, 6, and 7 feet.
PHILLYREA BUXIFOLIA, 5, 6, and 7 feet.
THUJA LOBBII, 5, 6, 7, and 8 feet high; these are all from [illegible] are perfectly beautiful.
THUJA AUREA.—This plant originated at Knap Hill, and [illegible] contains hundreds 3, 4, and 5 feet high, 7 to 15 feet [illegible] ference; perfect globes.
THUJA GIGANTEA, 7, 8, and 10 feet high.
CHINESE JUNIPER, by the hundred, 4, 5, 6, and 7 feet high, very beautiful plants, 10 and 12 feet high.
THUJOPSIS BOREALIS, large numbers, 4, 5, 6, and 7 feet [illegible] wide in proportion.
CUPRESSUS LAWSONIANA, many thousands 3, 4, 5, [illegible] high.
ABIES ORIENTALIS, 4, 5, 6, to 10 feet high; remarkably [illegible] plants.
ABIES PINSAPO, 3, 4, 5, up to 12 feet high; splendid specimens.
ABIES ALBERTI, 4, 5, and 6 feet.
ARAUCARIA IMBRICATA, by far the largest stock in [illegible] from 2 to 10 feet high.
PINUS NOBILIS, by hundreds, 3, 4, 5, 6, and 7 feet high, [illegible] really most beautiful specimens, none of them are grafted.
PINUS NORDMANNIANA, 3, 4, 5, 6, up to 10 feet high, [illegible] all seedlings and very handsome plants.
PINUS LASIOCARPA, 3, 4, and 5 feet; hundreds of these [illegible] seedling plants.
PINUS MAGNIFICA, 2 and 3 feet, very handsome.
CEDRUS DEODARA, 4, 5, 6, 7, 8, and 10 feet high; [illegible] than 20,000 of the finest plants imaginable.
CEDRUS AFRICANA, 3, 4, 5, 6, and 10 feet.
CEDRUS LIBANI, 3, 4, 5, 6, and 10 feet.
WELLINGTONIA GIGANTEA, an enormous quantity [illegible] and 8 feet.
Of all the commoner kinds of FIRS, such as Douglasii, excelsa, insignis, &c., we have large quantities [illegible] sizes, as also of the more ordinary kinds and sizes of EVERGREENS such as Hollies, Aucubas, Red Cedars, Box, Ph[illegible] Laurustinus, Common and Portugal Laurels, Yews.
AMERICAN PLANTS.—We have more than [illegible] devoted exclusively to the cultivation of Rhododendrons [illegible] American Plants, and purchasers may select from a stock [illegible] quantity and quality is second to none.
STANDARD RHODODENDRONS, the finest plants [illegible] hundreds of them 25 and 30 years old.
☞ PRICED CATALOGUES free on application.
The Knap Hill Nursery is readily reached by train from Waterloo to Woking. An inspection is solicited from purchasers, who will not be disappointed in the extent and [illegible] our plants or our prices.
Knap Hill Nursery, Woking, Surrey.

NEW GARDEN PLANTS
FOR EXTENSIVE DECORATION IN EARLY SPRING AND SUMMER MONTHS.

Aubrietia Campbelli (syn. A. Hendersoni).
This beautiful variety is one of the most desirable hardy spring-flowering perennial herbaceous plants for the decoration of the Flower Garden yet introduced, having received several First-class Certificates of Merit for its special value in Early Spring-flowering Groups.
It forms a remarkably neat, dwarf, and compact growth, resembling the well-known A. deltoidea or A. purpurea, equally tuft-like, 2 to 3 inches in height; its ovately-deltoid-formed leaves are arranged like its kindred species in close erect terminal leaf-tufts, of a sub-rosulate outline, from the axils of which are produced a profusion of rich violet-purple salver-like blossoms, so densely covered that in established growth the plants, when grouped, appear like violet-blue flower mounds, couched in lowly but attractive beauty upon the ground-surface. Its period of bloom extends from March until July, and, without the aid of secondary colours, it forms charmingly effective groups at a period when continuous-flowering plants are not plentiful.
It is strikingly adapted for forming select riband rows, parterres, or flower belts during the period alluded to; and, by superior culture in pots, is valuable as portable specimens for placing in vase groups or baskets on terraces, or in cool conservatory promenades, and appears to great advantage when seen skirting the front ground-level of select rockwork, or fringing the borders of terrace slopes.
It thrives in all ordinary garden soils, either upon the declivities of raised grounds or in the open borders, in miniature flower groups, or in extensive riband lines, being unequalled in its rich colour and unique effect by any other known plant of similar growth and season of bloom.
Those Cultivators who wish to possess a Coloured Plate previously may receive one post free by forwarding seven stamps.
Plants—1s. 6d., 2s. 6d., and 5s. each.

Scilla sibirica.
A beautiful little hardy bulbous plant, two to four inches in height, blooming in the early spring months, thriving in ordinary soil, and blooming profusely, with pendent azure-blue bell-shaped blossoms, quite unequalled for marginal effect in flower gardens, or for front effect in baskets, vases, or belts. 16s. per 100; 2s. 6d. per dozen.

The Golden Blotched Daisy.
Crimson-flowered, 6d. each; White-flowered (new), 1s. each.

Veronica fruticosa glauca.
A very neat and distinct new species introduced from New Zealand, the entire stock being purchased by Messrs. E. G. Henderson & Son. It forms a compact, densely-branched, dwarf, half-hardy shrub, with small glaucous ovately oblong leaves, squarrosely decussate in outline, and numerous terminal heads of white flowers in the spring and early summer months.
Its very glaucous white foliage constitutes a striking feature in itself, and would produce a marked contrast if grouped or planted out in flower beds or on rockwork. 3s. 6d. and 5s.

Fuchsia Beauty (Banks).
A beautiful exhibition variety, with broad bright carmine scarlet sepals, gracefully recurved; the corolla pure lavender colour, cup-shaped, of a model outline; growth free and vigorous, adapted for pyramid or bush specimens. This beautiful variety Mr. Banks has selected out as one of the best. Will be sent out in October, 1865. 10s. 6d. each.

A CATALOGUE of the most extensive Collection of General HERBACEOUS and ALPINE PLANTS, with valuable Columns of Reference, forwarded free on application.
E. G. HENDERSON AND SON, WELLINGTON NURSERY, ST. JOHN'S WOOD, N.W.

American Plants, New Hardy Rhododendrons.

WATERER AND GODFREY'S PRICED and DESCRIPTIVE CATALOGUE of AMERICAN PLANTS, [illegible] Horticultural Gardens, South Kensington, free [illegible] This Catalogue fairly describes the Rhododendrons [illegible] as well as some new and very handsome kinds [illegible] and now for the first time offered.

Knap Hill Nursery, Woking, Surrey.

Hardy Scarlet Rhododendrons.

JOHN WATERER'S CATALOGUE of HARDY SCARLET and other CHOICE RHODODENDRONS as annually [illegible] at the Royal Botanic Gardens, Regent's Park, can now be [illegible] descriptions of all the varieties really worthy of [illegible] as well as a selection of HARDY CONIFERS, with [illegible] ORNAMENTAL EVERGREENS, FOREST [illegible]

The American Nursery, Bagshot, Surrey.

Rhododendrons.

JOHN WATERER begs to offer the following Six RHODODENDRONS, in good, strong, healthy plants, at 4*l.* 4*s.* [illegible] the usual discount to the Trade:—

SIDNEY HERBERT	MRS. FITZGERALD
JOSEPH WHITWORTH	THE WARRIOR
SIR ROBERT PEEL	SURPRISE

The American Nursery, Bagshot, Surrey.

New Rhododendrons.

JOHN WATERER is prepared to execute Orders for the following SIX RHODODENDRONS at the subjoined price. They are this season offered for the first time, and are particularly recommended for the following qualities, viz. Hardiness, fine Foliage, fine Blossoms, and as being perfectly distinct from any other [illegible]

ALEXANDER ADIE.—Brilliant rosy scarlet.
SIR JAMES CLARK.—Dark shaded crimson.
SIR WILLIAM ARMSTRONG.—A very bright crimson.
THE DUCHESS OF SUTHERLAND.—Nearly white centre [illegible] with rose.
LADY EMILY PEEL.—A very bright rose, intensely marked with [illegible] spots.
[illegible].—Reddish crimson, and large bold flower.

The Set for 6*l.* 6*s.* Usual discount to the Trade.

The American Nursery, Bagshot, Surrey.

S. DONSFORD AND SON beg to offer to the Trade and large Purchasers GENERAL NURSERY STOCK, especially Chinese Arbor-vitæ, Variegated Hollies, Laurels, [illegible], &c.; Limes, Mountain Ash, Poplars, Planes, &c. [illegible], extra fine of all sizes. Prices on application. Hyacinths, [illegible], Tulips, &c. CATALOGUES gratis.

Knightsbridge Park Nurseries; and Brixton Place, Brixton, Surrey, S.

W. VIRGO AND SON have a surplus stock of fine, healthy, and well-grown FRUIT, FOREST TREES, &c., of the undermentioned kinds, viz.:—Arbor-vitæ, in sorts; Berberis, in [illegible], Privet, Portugal and Common Laurel, Evergreen Box, Wych [illegible] Pine, Spruce and Balm of Gilead Firs, Laburnums, Turkey and Scarlet Maple, Scarlet and White Thorns, Apples, Pears, Plums, and Roses in dwarfs and standards. Height, size, and prices can be [illegible] application.

The Nursery, Wonersh, near Guildford, Surrey.

LARGE LAURELS, &c.

LAURELS, 4 to 6 ft., and bushy	ABIES MORINDA, 6 to 8 feet
HOLLYREAS, 4 to 6 feet, do.	DEODARS, 6 to 15 feet
SWEET BAYS, 2 to 4 feet, do.	LIMES, PLANES, ELMS,
LAURUSTINUS, 2 to 3 feet, do.	SYCAMORES, POPLARS,
PINUS EXCELSA, 4 to 6 feet	LABURNUMS, 8 to 20 feet

The whole have been lately transplanted, and will move safely. Prices on application, stating size and quantity required.

JAS. MCRONALD, Chichester.

Planting Season.

JAMES SMITH'S DESCRIPTIVE CATALOGUE of FOREST and ORNAMENTAL TREES, EVERGREEN and FLOWERING SHRUBS, AMERICAN PLANTS, HARDY FERNS, &c., is now ready, and will be sent post free to any address on application.

J. SMITH takes this opportunity to invite Planters to inspect his Nurseries, and to give themselves as much time as possible, as one of the Nurseries lies two miles away.

The Nurseries cover an area of more than 70 Acres, of which 14 Acres are Rhododendrons, and are grown at an elevation of more than [illegible] feet.

N.B.—The Trade supplied.

The Home Nursery is within 10 minutes' walk of Darley Station. Post address—JAMES SMITH, Darley Dale Nurseries, near Matlock.

Fruit Trees and their Management.

J. SCOTT'S PRICED FRUIT TREE CATALOGUE and DIRECTORY is now ready. It gives the names and descriptions of nearly 1000 kinds, with the best modes of Cultivation and Training. Is replete with interesting matter on Fruits and Fruit Trees, and is allowed to be the best work on the subject out. Price 1s., returnable to purchasers. The Collection is unsurpassed for healthiness and beauty, and for variety unequalled by any other Collection in the kingdom.

GENERAL NURSERY CATALOGUE gratis on application.

Address, Merriott, Somerset.

Fruit Trees, Roses, Ornamental Trees and Shrubs, &c.

THOMAS WARNER respectfully informs his Patrons and the Public generally that his PRICED and DESCRIPTIVE CATALOGUE of the above for the present season is now ready, and may be had free on application.

The Nurseries now occupy 70 Acres of ground. The Stock of SALE FRUIT TREES alone exceeds 200,000, all true to name, consisting chiefly of Dwarf and Standard Trained Trees for Walls, Standards for orchards, and Pyramids and Espaliers for Gardens; all of which have been [illegible] with much care, and very many of them have borne large crops of Fruit during the past summer.

The ROSES are very strong and healthy plants; the collection includes most of the New and fine varieties, both of English and Continental origin.

The ORNAMENTAL TREES, EVERGREENS, and general Nursery Stock, having been regularly transplanted, are in fine health, and in the best possible condition for removal, and well worthy the attention of persons contemplating planting. An inspection is respectfully invited.

The Nurseries, Leicester Abbey.

To Noblemen and Gentlemen about to be engaged in Planting.

DICKSONS AND CO., NURSERYMEN, SEEDSMEN, and FLORISTS, Waterloo Place, Edinburgh, have this season a large and very healthy stock of Seedling and Transplanted LARCH (native and Imported), True Native Highland SCOTCH FIR, Spruce, Oak, Ash, Sycamore, Spanish Chestnut, Alder, Elm, Thorn, Beech, Evergreen Privet, Poplar, Willow, &c., as well as all other kinds of Forest and Ornamental Trees and Shrubs, Fruit Trees, Roses, Greenhouse and Stove Plants, Herbaceous and Alpine Plants, Ferns, &c.

These Forest Trees, which are grown on exposed ground, are this season very thinly opened, and can be sent with perfect safety to any part of the Kingdom.

Samples and prices will be sent free on application.

HARDY NURSERY STOCK, SELLING OFF, at the Nursery of the late MR. VEITCH, on the Topsham Road, near Exeter.

This Stock is remarkably fine, frequently transplanted, and of the most suitable sizes for removal. It comprises complete collections of FRUIT TREES (trained and untrained), Gooseberries, Currants, and Strawberries, Fruits, true to name; HARDY EVERGREEN and DECIDUOUS TREES and SHRUBS; CONIFERS, fine Specimens, in every variety; fine STANDARD and DWARF ROSES; ROSES in POTS, RHODODENDRONS, AZALEAS, HEATHS, KALMIAS, and other hardy American plants; VINES, a very [illegible] variety, suitable either for immediate fruiting in pots, or for [illegible] in borders, true to name; ORCHARD HOUSE TREES, in pots, in a bearing state, &c. The prices fixed are exceedingly low, and purchasers will in every respect be dealt with liberally.

Apply to Mr MANNING, Manager, at the Nursery, Topsham Road. Experienced practical men sent out to Lay out Grounds, and superintend Planting.

N.B.—The Trade will find this a most advantageous opportunity of supplying themselves with an unusually select Stock at very low prices.—Exeter, Nov. 4.

B. S. WILLIAMS begs to direct special attention to the undermentioned, of which he now holds a fine stock:

PRICED and DESCRIPTIVE LISTS are in hand on application.

VINES.—Strong Flowering and Fruiting Canes of all the best varieties, including the new unique BOYAL VINEYARD.

PINES.—Strong Fruiting and Succession Plants, and suckers of all the leading kinds.

BECK'S NEW PELARGONIUMS.—For the present season, at the moderate price of 18*s.* per doz., I offer a large assortment of the best PELARGONIUMS and GERANIUMS, including BEATON'S best NOSEGAYS.

DUTCH BULBS.—Specified sorts of the strongest flowering HYACINTHS, for forcing or pots, at 6*s.*, 8*s.*, 10*s.* and 12*s.* per dozen. POLYANTHUS, NARCISSUS, CROCUS, early TULIPS, and all other bulbs.

ENGLISH-GROWN SEEDLING GLADIOLI, 5*s.* and 7*s.* per dozen, ready next month. As the supply of these is limited, early orders are solicited.

Paradise and Victoria Nurseries, Holloway, London, N.

2000 VINES, from Eyes, strong and extra strong, for immediate Fruiting in Pots, and for Planting-out; including all the leading varieties, with short-jointed, and thoroughly ripened Canes, many of which will produce from 4 lb. to 8 lb. of Grapes next season. Prices and particulars upon application to

JAMES DRUMMOND & SONS, The Newton Nurseries, Chester.

500 DUTCH BULBS, carriage free, Great Western Railway, 21*s.* Consist of best named HYACINTHS, Bedding HYACINTHS, TULIPS, CROCUSES, SNOWDROPS, &c. One of the cheapest and best collections offered.

Also on offer, 50,000 2-years TRANSPLANTED LARCH, 3 feet, strong, and 6000 3-years ditto, 3 feet, strong.

ROBERT H. FORSTER, Dutch Bulb Importer and Seed Merchant, Taunton.

ORCHIDS.—In VAN HOUTTE'S Advertisement (*Gardeners' Chronicle*, Oct. 28, p. 1006) read DENDROBIUM FORMOSUM GIGANTEUM instead of D. FORMOSUM (the type), after ODONTOGLOSSUM BLUNII omit the words "Van Houtte."

Palms.

LOUIS VAN HOUTTE, NURSERYMAN, Ghent, Belgium, having read in last week's *Gardeners' Chronicle* (Oct. 28) an appeal to Horticulturists, with the view of inducing them to cultivate this noble tribe of Plants, begs to offer the following PALMS in good-sized specimens:

Areca alba	**Caryota urens**	**Livistona sinensis**
aurea	Chamærops Fortunei	subglabosa
Catechu	humilis	Metroxylon elatum
concinna	**Palmetto**	**Oreodoxa ventricosa**
crinita	Cocos australis	Phœnix dactylifera
humilis	Corypha elata	farinifera
lutescens	Dictyosperma longipedunculata	reclinata
Nibung	Elais guineensis	Pritchardia Martiana
oleracea	Elais guineensis var. crocarpa	Raphia Ruffia
pumila	Euterpe edulis	Rhapis flabelliformis
rubra Hort. non Bory	Geonoma Gheisbreghtii	Sabal Adansonii
rubra (true) Bory	Hyphæne natalensis	umbraculifera
sapida	Iriartea setigera	Seaforthia elegans
speciosa	Latania aurea	Stevensonia seychellarum
Verschaffelti	**Loddigesi**	**Thrinax elegans**
Arenga obtusifolia	rubra	Verschaffeltia splendida
Attalea excelsa	Livistona australis	Wallichia Grandidieri
Calamus adspersus	Rossii	
Getah		
Caryota propinqua		

The whole Collection (one of each for £14); or any one singly at the prices affixed in L. V. H.'s Catalogue No. 119, pages 7, 8, & 9.

☞ LOUIS VAN HOUTTE has no objection to exchange with Botanical Gardens.

AMARYLLIS.—Five Double Plates of LOUIS VAN HOUTTE'S AMARYLLISES may be seen at Messrs. R. Silberrad & Son's Office, 5, Harp Lane, Great Tower Street, London, E.C.

No objection to send these Five Plates for one day's inspection to any person wishing to see them, and who may be unable to call at Harp Lane, but a guarantee must be given (on application for the same) to return them by first post free of postage to Messrs. R. Silberrad & Son's Office.

New Catalogue of Plants, Dutch Bulbs, &c.

ROBERT PARKER begs to announce that his NEW CATALOGUE, containing Select Descriptive and Priced Lists of New, Rare, and Beautiful Greenhouse, Hardy, and Stove Plants, Fruit Trees, Grapes, &c., Amaryllis, Crocuses, Gladioli, Hyacinths, Narcissus, Tulips, and other Bulbs, is now published, and will be forwarded to applicants.

Exotic Nursery, Tooting, Surrey, S.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

*** Part II. (Exotic Ferns) will be issued as early as possible.

Foot's Cray Nursery, S.E.

Notice to the Public.

HENRY STROUD, NURSERYMAN, Green Lanes, Stoke Newington, N., has a Surplus Stock of fine DUTCH BULBS, consisting of 100,000 HYACINTHS, TULIPS, CROCUS, NARCISSUS, LILIUMS, &c., in upwards of 100 varieties.

The following Bulbs for £1:—50 Hyacinths, in 10, 20, or 30 varieties; 100 fine early Tulips, 5 sorts; 150 Crocuses, 4 sorts; 12 large Narcissus, 4 sorts; 24 Pheasant-eye Narcissus, 24 Jonquils, and 1 Lilium lanciflium rubrum, true. Half the above, 10*s.* 6*d.*

Fine Bulbs of LILIUM LANCIFOLIUM RUBRUM, 6*s.* per doz., or 40*s.* per 100.

N.B.—To save trouble all orders to be prepaid.

TO GENTLEMEN PLANTING.—In consequence of some of my Nursery Grounds being required for building, I am induced to offer a large quantity of the following, cheap:—STANDARD ROSES, DWARF ROSES, and Dwarf Roses in Pots, Standard Dwarf FRUIT TREES, Standard Ornamental Trees and Shrubs, large specimen CEDRUS DEODORA, varying from 10 to 15 ft. high, and a general collection of Evergreens, Azaleas, Plants, &c., including some of the newest and best kinds of RHODODENDRONS, and some very large trees, suitable for making an immediate third.

Catalogues to be had on application.

R. NEAL, The Nurseries, Wandsworth Road, S.W.

HENRY MAY begs to offer the undermentioned fine stock:—

12 superb STANDARD ROSES, named, 18*s.*; per 100, 100*s.*
12 superb DWARF BUDDED ROSES, named, 9*s.*; per 100, 60*s.*
12 superb DWARF ROSES, on own Roots, named, 9*s.*; per 100, 60*s.*
12 superb STANDARD APPLES, 6 feet stems, 15*s.*; per 100, 100*s.*
12 superb STANDARD APPLES, 4 to 5 feet stems, 10*s.*; per 100, 75*s.*
12 superb DWARF BUSH APPLES, 9*s.*; per 100, 60*s.*
12 superb DWARF BUSH PEARS (on Pear), 9*s.*; (on Quince) 15*s.*
12 superb DWARF BUSH PEARS (on Pear), 9*s.*; per 100, 1*ss.*; per 1000, 8*s.*; per 10,000 £5
12 superb GOOSEBERRIES, 2*s.*; per 100, 10*s.*; per 1000, £3
12 superb CURRANTS, RED and WHITE, 2*s.*; per 100, 10*s.*
12 superb HOLLYHOCKS, 9*s.*; per 100, 5*ss.*; per 1000, £3
12 fine bushy PORTUGAL LAURELS, 3 times transplanted, 6*s.*
12 fine bushy PINUS AUSTRIACA, 1 time transplanted, 1*s.* to 2 ft., 4*s.*
12 fine bushy CHINESE ARBOR VITÆ, 2 ft., 2 times transplanted, 9*s.*
12 fine bushy AMERICAN ARBOR-VITÆ, 3 feet, 3 times transplanted, 4*s.*
12 fine bushy PINUS EXCELSA, 1 feet, 2 times transplanted, 15*s.*
12 fine bushy CEDRUS ATLANTICA, 1 feet, 3 times transplanted, 9*s.*; 2*s.*, 6*d.* each.
12 fine bushy AMERICAN BLACK SPRUCE, 3 feet, 3 times transplanted, 12*s.*
12 fine bushy LAURUSTINUS, becoming plants, 2 feet, 9*s.*
12 fine bushy WELLINGTONIA, from seed, 1 foot, 18*s.*; 1½ foot, 24*s.*
12 fine bushy WELLINGTONIA, 2 feet, 9*s.*; 2½ feet, 42*s.*
100 fine named HARDY HERBACEOUS PLANTS, 40*s.*
100 " " ROCK or ALPINE PLANTS, 40*s.*
200,000 extra fine LARCH, well rooted, ½ to 1 foot
200,000 " " " 2 to 3 feet
500,000 " " " 1½ to 2 feet

All the above are extra fine clean well grown Plants and Trees, and will transplant safely. CATALOGUES sent free on application to

HENRY MAY, The Hope Nurseries, Bedale, Yorkshire.

NEW PLANTS.

AURICULA CAMELLIA, effective spring flower.
FUCHSIA FANKS'S FIRE FLY.
YELLOW ALPINE ROSE, CLARA.
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CATALOGUE [illegible]

STEPHEN BROWN, Seed Grower and Nurseryman, Wolverhampton, Staffs.

NATIONAL ROSE SHOW.—The [illegible] of the National Rose Show [illegible] as the representative of the Queen of Flowers, and it has been [illegible] that it should not pass unnoticed. It is therefore proposed to present a TESTIMONIAL to the REV. S. REYNOLDS HOLE, of Caunton Manor, to whom it owes its origin, and who continues to be its [illegible] by his personal influence to its success. The project has already received the approval of some of the most distinguished horticulturists in the kingdom, both Amateurs and Growers for sale.

Subscriptions will be received by the Rev. H. Harewood Dennison, Deal, or by Mr. CHARLES TURNER SHARPE, Secretary to the Fund.

FLOWER and FRUIT SHOW in the GUILDHALL, City of London, on TUESDAY and WEDNESDAY, Nov. 14 and 15, by the UNITED HORTICULTURAL SOCIETY. Under the Patronage of the Lord Mayor, Sheriffs, and Members of Parliament for the City. The whole of the Profits to be devoted to the Benefit Fund.

The magnificent New Roof of the Guildhall will be open for public inspection for the first time on this occasion, together with the splendid Decorations, Stalactite Chandeliers of Arras, Candelabra, &c., used on Lord Mayor's Day.

Chrysanthemums, Foliage Plants, Fruit, Fern Cases, Cut Flowers, &c. Band of the Coldstream Guards. Brilliant Illumination at dusk.

Private View for Members and their friends, at which the Lord Mayor will preside, First Day at 12 o'clock; open to the public at 1. Second Day open at 10 A.M. Close each day at 8 P.M. Admission each day, 1*s.*

Gardeners' Tickets, 6*d.* each, may be obtained on application to any of the Committee.

Temporary Offices, 56, Basinghall Street, City, E.C.

Chiswick. ROBT. PIRIE GLENNINNING, Hon. Sec.

The Gardeners' Chronicle.

SATURDAY, NOVEMBER 4, 1865.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY,	Nov. 7	Royal Horticultural Flora and Fruit Committees at S. Kensington ... 11 A.M.
SATURDAY,	— 11	Royal Horticultural Weekly Show, at South Kensington ... 2 P.M.

IT is but a short time since it was our sad duty to announce the deaths of two of the great chiefs of Botany and Horticulture, Sir WILLIAM HOOKER and Sir JOSEPH PAXTON. Once again we have painful news to communicate, and this time the blow falls yet more nearly home than before. The trio is completed—Dr. LINDLEY is no more. From a life of incessant activity he passed into the sleep of death on Wednesday morning last. We need say no more now, as our readers will feel that it is to them, as to ourselves, a personal sorrow.

WERE all that we now call SPECIES created as such, or are some of them merely the offspring of antecedent species? This is one of the questions that have attracted of late years much attention. If the latter hypothesis be accepted, if species be assumed to be derivative, then another question arises that has been equally warmly discussed, viz., as to how the new species have sprung from the old, and what are the circumstances that have brought about this change? In a supplementary chapter to M. NAUDIN's new memoir on Hybridism in Vegetables, reproduced in the October number of the *Natural History Review*, we learn that this distinguished physiologist is a firm believer in the derivative origin of species, and that he has arrived at that opinion from the study of the variations to which cultivated plants are liable, and which variability he considers is not limited to cultivated plants, but pertains also to species in a wild state. There are, says M. NAUDIN, some 700 or 800 kinds of Solanum disseminated over an immense extent of country in the Old and New

World. All are specifically distinct; but all resemble each other in a certain sum of common characters, which are of much greater consequence to the systematic botanist, who has to classify them, than are the comparatively superficial points which distinguish one species from another. Now, do these common characters, these analogies which all the species have, exist fortuitously, or simply because it has pleased GOD that they should exist? If each species had an independent origin, then the analogies just alluded to must depend either on chance, which is an absurdity, or on a supernatural fact, that is to say a miracle, two elements which do not pass current in science. Allow on the other hand, a common ancestor to all these species, endow its offspring with an inherent power of variation, and gradually you will arrive by the sole act of evolution at species, races, and varieties.

The superficial traits will vary from one form to the other, but the common essential foundation will always subsist. M. NAUDIN considers that the forms that have originally a common origin, and which in the course of ages have become multiplied, have always followed divergent paths, and that, in consequence, it is contrary to Nature to suppose that species can be changed one into the other, or that two species can be melted into one by hybridization. These views do not prevent M. NAUDIN from recognising the unceasing presence of Divine intervention in the phenomena of the present world.

"The formation of an embryo in a fecundated ovule, the development of this embryo into a feeble plant which bursts its integuments, and finally its transformation into a great tree, which in its turn is adorned with flowers, and reproduces its race—all these things are neither less marvellous, nor less incomprehensible, nor less divine, than the creation of the world; they are, to speak truly, real creations, since they give place to beings which had no previous existence. Nevertheless, since we see the phenomena succeeding each other, and following in a logical order, it does not come into our minds that they are supernatural matters."

M. NAUDIN does not offer any opinion as to the circumstances that have brought about the existence and perpetuation of some forms, and the decadence and disappearance of others. We do not therefore see how M. NAUDIN has forestalled "English savants of the highest distinction," as he fancies he has, still less his own illustrious compatriot LAMARCK.

IN a recent Part of the Transactions of the Scottish Arboricultural Society is contained an elaborate paper on the "INTRODUCTION AND CULTIVATION of the newer CONIFERÆ and other Forest Trees, with special reference to the climate of Great Britain and Ireland," by ROBERT HUTCHISON, Esq., of Carlowrie. The writer has collected a great number of reports from various parts of the country, which he prints *in extenso*, without, however, giving, as he might have done, the names of his informants. Referring our readers to the paper itself for the details, we proceed to mention some of the results of Mr. HUTCHISON's researches.

One most important consideration as regards a successful result is the natural habit or idiosyncrasy of the tree. Thus our summers and autumns are too short it is found for those species which push forth their young shoots early in spring, or continue to grow on late in autumn. Such among others are Abies Morinda, Picea cephalonica, P. Pichta, Pinus Pinsapo, P. macrocarpa, P. Webbiana, P. Lambertiana, and Cupressus torulosa. Even in Devonshire Cedrus Deodara, Abies Morinda, and A. Menziesii sometimes suffer from spring frost.

The next important question is the selection of a suitable soil. An average loam with a dry subsoil is the best as a general rule, while soils of a close adhesive nature—chalk, undrained clay lands, and deep spongy Moss, are condemned as being for the most part unsuitable. These results are, we believe, in accordance with general experience; though we have known cases in which the Wellingtonia, for instance, has succeeded admirably in soil of a boggy nature. The injurious effects of exposure are insisted on, and in reference to this point the author says, "All the Himalayan and many of the South Californian varieties will thrive on a north, when they will positively die if exposed to a south aspect."

Young plants on their own roots, reared from seeds derived from a healthy vigorous tree, are recommended in preference to others raised from cuttings or grafts, or taken from a weakly source.

The injurious effect of the proximity of large towns and factories is then alluded to, in support and illustration of which we may instance the common Arbor-vitæ as we see it near London. A mile or two from the great thoroughfares we find this plant struggling to exist, with a few green shoots at the top of the plant, and below a blackened mass of half-dead twigs; half a mile further a difference is recognisable, the green increases, and the smoke-begrimed twigs are less visible. And so when we get a few miles out we find the shrub bedecked with green, and with scarcely a leafless spray.

Mr. HUTCHISON recommends the pruning of the side shoots with the view of favouring the development of the leader, and of rendering the plants less liable to injury from rabbits. Pruners are advised to leave their thinnings on the ground, as the rabbits prefer them to the standing trees. Frequent transplantation is recommended for the sake of procuring a denser habit and a more graceful form.

Few trees withstand the effects of wind so badly as Conifers. There is one notable exception to this rule in the case of Pinus austriaca, which we have seen by the seashore, and also on its native mountain sides, scarcely at all affected by the force of the winds.

Taken altogether this is a valuable contribution to our knowledge on these points, and might have been made more so by a more extended research. Our own columns would have furnished numerous records which would have made the report more complete.

IT has been observed in several parts of England, that the REMAINS of the STIGMA, which usually vanish almost entirely, are retained in many instances at the apex of GRAPES, in the form of a little short cylindrical brown corpuscle. On a microscopic examination this is found to consist of dried stigmatic tissue, mixed more or less copiously with old pollen grains, and in many instances where the air is sufficiently moist, minute moulds are developed on the tissues. In some instances we have seen this extending to the berry itself, and ultimately causing a slight degree of decomposition. The mere contact of the threads of moulds with healthy tissue is often sufficient to induce decomposition, and when once a mould is established, it often extends with frightful rapidity. In its incipient stage it might easily escape notice, except very closely examined, but this could not be the case with some specimens which have just been communicated, where the patch of mould has caused a strange depression at the apex of the berries, spreading on every side for a quarter of an inch or more, and resembling in form an advanced vaccination pustule, though not in colour, the centre being white with a bluish tinge, while the circumference, from the oozing out of the juice, is of a bright red. The mould is undoubtedly the common Penicillium, and we do not think that any skill of the cultivator could check its progress when once established, while it would require a very acute eye to ascertain the presence of any disease in its embryo condition; the only chance in that case being the most complete ventilation, with a very dry air. We confess that we had not ourselves observed the fact of the permanence of the stigma till it was pointed out to us by a correspondent, with an indication that mould sometimes appeared at its base, and it was in consequence of this communication that we became aware that the mould sometimes spreads and causes decay, an exaggerated form of which is now before us.

While on the subject of disease, it may be well to notice more particularly than we were able to do in our answers to correspondents, a curious affection to which some Pears have this year been subject. Most cultivators must have observed a sort of canker which occurs in Apples, especially in Ribstone Pippins, in consequence of which the flesh is mottled with brown decayed dry spots, calling to mind the well-known features of the Potato murrain. The Pears in question were covered with large unsightly warts, which we believed to be identical in nature with those which so commonly occur on the leaves. On dividing the fruit, however, though there were no external indications of decay, we found brown spots resembling very closely those above mentioned. We have never seen these before in the Pear, and as we are unable to explain the cause of this occurrence in Apples, where they are very frequent, it can scarcely be expected that we should have any better fortune in a comparatively rare example of the malady. It is certain that fruit keeps very badly this year, a circumstance which we are inclined to attribute to the great difference which has existed between nocturnal and diurnal temperature. We feel quite sure at least that this has been the case with stone fruit, and we believe it to be the same with the other products of the fruit garden. *M. J. B.*

—— THE FUNERAL of Dr. LINDLEY is arranged to take place at the New Cemetery at Acton, on Monday next at noon.

—— We are enabled to report very favourably of the PITMASTON DUCHESSE D'ANGOULÊME PEAR, figured by us at p. 1108 of our last year's volume. Mr. STEVENS, the gardener at Malvern Hall, where it is grown, has sent us a remarkably fine sample, measuring exactly 12 inches round the thickest part, and 8½ inches from the insertion of the stalk to the eye, and weighing 21 oz. The quality proved to be excellent, the flesh being melting, juicy, and high-flavoured. We regard it as being in every respect first-rate. We learn from Mr. STEVENS that the tree has this season borne over fruit of nearly equal size with that we have alluded to.

—— Beware of NEW POTATOS! This favourite esculent contains a vegetable base of deleterious quality called solanine, which is especially developed in the plant when it is shooting. Dr. HAAF has ascertained that solanine not only exists in a considerable proportion in the shoots, but in the tuber itself, and at two extreme periods of its existence, viz., when scarcely formed, and when very old, the skin containing more of it than the pulp. Hence people that chiefly live upon Potatos should beware of new ones, which are generally so highly prized as delicacies; they ought at least to be peeled, and rather boiled than fried, because water carries off a good deal of the solanine.

—— We hear that the SEEDLING PELARGONIUM exhibited during the past summer by Mr. FLEMING, at Cliveden, before the Floral Committee, and to which one or two First-class Certificates were awarded, has passed into the hands of Mr. TURNER, of Slough. Several of them are in the style of DONALD BEATON's best strain, to which we have often made allusion. Others, such as Cliveden Rose, are, as far as we are aware, peculiar in colour; and being also remarkable for their clear and brilliant tints, they will, like the series we have just alluded to, prove fine acquisitions for flower-garden decoration. The advent of so many new tints amongst bedding Pelargoniums will be learned with satisfaction by many a flower-gardener.

—— We learn that it is proposed to present a testimonial to the Rev. S. REYNOLDS HOLE, who we deem deserves such a mark of recognition from the Horticultural world, as the promoter of the National Rose Show.

—— The abundance of flowers which have this autumn been produced upon the JERUSALEM ARTICHOKE has made us regret that no one (so far as we know) has adopted the means of securing seed by growing the plant under glass, so as to put us in the way of obtaining new and more hardy varieties of this useful and productive esculent.

—— Dr. FERD. MUELLER, of the Botanic Garden, Melbourne, writes to the effect that he "would be glad to receive fresh, well-ripened, carefully dried and packed Pine seeds of any sorts, in exchange for Australian seeds, from any European garden, in quantity." Dr. MUELLER's object is to establish the different species of Firs from various parts of the globe in masses, with a view to their final naturalisation in the Australian forests.

—— In a recent number of the Botanical section of the Journal of the Linnean Society, Mr. BENTHAM has published a note on the genera DARWINIA and BARLINGIA, to which, as it unluckily, however necessarily, involves a change of nomenclature, we deem it necessary to direct the attention of our readers. Three species among others, most of them of great beauty, with heads of flowers enclosed in involucres of richly coloured petal-like bracts, have been figured in the Botanical Magazine under the names of Genetyllis tulipifera, G. macrostegia, and G. fimbriata. The first of these three was described in our own columns in the year 1854, under the name of Hedaroma tulipiferum; the second was published by the late Sir W. HOOKER as G. macrostegia. All these three are now referred to Darwinia; thus Hedaroma tulipiferum is by the authority of the learned President of the Linnean Society to bear the name of Darwinia macrostegia: Sir W. HOOKER's Genetyllis macrostegia is to be henceforth called Darwinia Hookeriana, and G. fimbriata suffers only the change of its generic name. A Rose by any other name would smell as sweet, and so these beautiful plants will lose none of their attractions in the eyes of cultivators by this, we suppose, inevitable change of appellation. Whatever names they now bear or will in future be distinguished by, we shall hope to see soon in our greenhouses many more than the three we now possess.

—— We are glad to learn that the manuscript of Professor ANDERSSON of Stockholm on the genus SALIX is, after eight years' labour, now completed by the accomplished author, and forwarded for publication in a forthcoming volume of DE CANDOLLE's Prodromus. It is a matter of congratulation that so very difficult a

genus should have fallen into the hands of a Scandinavian botanist so well qualified for its examination, and who has spared neither time, travel, nor labour to perfect his work.

The genus in question is quite the most variable in the world. Upwards of a thousand species have been sought to be distinguished by various botanists, working in various parts of Europe and North America. These have, we are told, been reduced by Dr. Andersson to about 200 species.

When it is remembered that the Willows have their male and female flowers on different trees—that for the most part they flower before the development of the leaves—that they present great facilities for intercrossing, and are otherwise extremely variable, the difficulties that Prof. Andersson has had to encounter will be appreciated, and the value of his conscientious labour proportionately estimated. We would fain hope that our friend's fame may have the long-enduring vitality of the Willow!

New Plants.

318. Cœlogyne biflora, *Parish MSS.*

(Erectæ) pseudobulbo pyriformi monophyllo, folio lineari-ligulato acuto, uni- biflora, floralibus vaginis membranaceis acutis, ovario pedicellato triquetro, sepalis ligulatis subacutis, lateralibus ab apice ad dimidium carinatis, petalis ligulato-oblongis subacutis, labello oblongo-ligulato, ante medium utrinque minute angulato, callo parvo rotundato in ipso disco inter hos angulos, columnæ alis semioblongis juxta foveam et pene antheram.

A botanical curiosity, bearing ligulate acute leaves, not reaching a span in height, and flowers not an inch long. Yet it is quite new in the genus, to see such a species bearing a callus in the middle of the lip. The flower is white, with two small brown blotches before the callus. It is a Moulmein rarity, discovered by the Rev. C. Parish, whose name we hasten to attach to the plant. We obtained it, we need scarcely say, from Messrs. Low's rich stores.

319. Stanhopea saccata, *Batem. Orch. Mex. & Guat.* t. 15! *Lindl. Folia Orch.* Stanhopea, No. 15. Stanhopea radiosa, *Lemaire, Ill. Hort.* vi. p. 72; viii. pl. 270.

This, one of Mr. Bateman's eldest botanical children, is no doubt one of the best of the Stanhopeas; and though it would appear that these plants are now out of fashion, they have not ceased to be interesting. We saw this autumn at Consul Schiller's, with much pleasure, a variety whose highly-coloured flowers were not much inferior to those of Stanhopea tigrina itself. Another interesting variety, with an unusually broad lip, we saw represented in Mr. Wilson's portfolio. We found that the plant did not yield the ungrateful smell of several Stanhopeas, but gave out a most agreeable perfume of cinnamon. Let us add, that we felt the necessity of reducing the above-quoted synonym. *H. G. Rchb. fil.*

ORCHIDS AND THEIR CULTIVATION.—No. IX.

Having discussed at some length the mode of constructing Orchid houses calculated to diffuse light and heat, and to secure ventilation among the plants in a way to promote robust health and abundant bloom, it now becomes necessary to enter more fully into cultural details. In order that my advice and nostrums may be appreciated and understood, it will be better to adhere to some plan of arrangement, whereby a subject so extensive in its character and bearings, and which requires an unusual amount of intelligent observation as well as consistent conformity with the laws of Nature, may be correctly interpreted so as to command success.

I must be pardoned for choosing to treat the subject, after the usual hackneyed style, under three great heads; for as the plants I have to do with cover a certain area of the temperate, semi-tropical, and tropical regions of the earth, they must, of necessity, be provided with a corresponding climate; and for that, if for no other reason, it will be most convenient so to allocate and comment upon them. It is needless here to adopt the argumentative strain in favour of two houses with which beginners make their first essay, for so much would have to be said to illustrate both sides of the question fully that it would form too great a digression from the general plan, and I shall incidentally, if not formally, treat upon it in due course. These three divisions I shall distinguish as the Cool, the Intermediate, and the Tropical; and as cool Orchids have engaged so much attention and enlisted so much sympathy of late, I will begin with that division.

The first question that suggests itself to the grower is what kind of soil will these cool plants require so as to induce rampant root propagation, and as a necessary sequence, fine healthy leaves and pseudobulbs? It might therefore be expected that I should, after the usual mode, propound my practice in a general dissertation on soil, following it up by remarks on the species and varieties that are most at home under cool treatment. Had I found all the genera and varieties that have in turn found their way to this country from the alpine regions of New Grenada, Guatemala, Mexico, Brazil, and other countries, luxuriating satisfactorily in one particular compost, then that would have been the course adopted; but as they appear more or less to differ constitutionally, although subjected in other respects, at least in point of atmospheric treatment, to a uniform system, it will be better to take each genus by itself.

Were the flower-loving community to be polled, over the length and breadth of the country, the numbers would point with singular unanimity to the Odontoglossum as the chief among the genera bearing cool treatment, possessing, as it does, forms as remarkable as they are varied in size and outline, and yielding, when well managed, a profusion of bloom that would vie in richness of colouring with the most decorative of common flowers. Odontoglossum cultivation, it may be remarked, is merely in its infancy; for now that importations have arrived successfully from several ports, including Bogota, and that wavy ridge of mountains that stretches across the province of New Grenada, we are likely to have such an augmentation of varieties as will please and astonish all who come within their influence. Lovers of flowers that are in an affluent position are becoming affected to such a degree with the beauty of known varieties, and the certain absence of everything that any but a botanist would look upon as worthless, that it will require a very powerful disinfectant to counteract the progress of such a very harmless disease. In days past many valuable "little bits" were sacrificed because, as people were told, plants coming from a purely tropical country, almost within hail of the equator, so to speak, must of course get tropical treatment; but now that things are better understood there will be few losses, and one may predict in a few years a glorious representation of the family of Odontoglots.

Speaking of composts for Epiphytes, I would say, from information gleaned from several sources, including the testimony of collectors on the spot, that I do not think it is absolutely necessary to be guided in all respects by natural conditions in furnishing a medium for root action. Nay, more—I go a step further, and say it would be a positive loss, as is evidenced by a great many samples that have come under my personal observation, and with which I have had to do. Surely it is about as opposite treatment as can well be imagined when Odontoglossum grande, which grows naturally on the stumps of trees in Guatemala, is in this country grown in a compost largely charged with both ammonia and phosphates; and there can be no doubt that the latter is by far the most sensible and satisfactory way of treating it, in order to ensure high health and an abundant bloom. Both Dean Herbert and Dr. Lindley were right when they said that "plants do not grow naturally in the soil best suited for them;" probably it would have been more literally correct if they had said, plants do not *always* so grow, because in certain chosen spots in their native home they are found to attain the acme of perfection. From the airy character of Orchid seeds they must be dispersed over a varied surface, in the same way as our own Groundsels or Dandelions, and some of course fall upon "stony ground," eking out a miserable existence, and affording a capital illustration of the struggle between life and death, while others revel in the height of luxury in an element more suitable for root development. More really depends upon the cultivator than people imagine, for if he were to tie himself hand and foot to any special routine suggested by the soil or the conditions under which plants are found, he would lamentably fail in doing his duty. Excellence in any department is only attained by repeated and well-considered efforts, and the plodding, experienced practitioner is always endeavouring to strike out in a direction calculated to produce the most salutary effects.

The compost I have found most suited for the growth of established Odontoglots of all kinds, is found in bogs and marshes, but it has to pass through a certain ordeal before it is fit for use. The main ingredient is that elastic fibrous material which has grown on the top of the peat for ages, which is an agglomeration of dead vegetable matter, and which although almost constantly immersed in water, retains all the toughness of living Grasses. This is greatly superior, in my opinion, for general Orchid growing, to the best Wimbledon or other peat, which certainly is full of fibre, but contains too large a proportion of earthy particles, and these go a certain way to prevent that aëration so highly desirable in the case of almost any compost. This compressed vegetable matter that I refer to, is incorporated with a little humus, and when dug out is heavily charged with water. In some places I have found it fit for use 12 inches in depth, while in other parts of the bog not more than 6 inches can be obtained. However it is dug out in squares, after the fashion of "peats" which are used in some parts of Scotland for fuel, where coal is at a ransome. It is allowed to stand until dry, then carted home, and piled up in an open shed, where, having all the advantages of air currents, and of being preserved from rain for a few months, it gets into the desirable condition of being almost as tough as flax, so that the tearing of it is, I presume, scarcely less difficult than the picking of oakum! There is not a particle of sand in this bog stratum, which is, moreover, not found in those peaty slopes that rest on the white sandstone, the fibre of which is good enough in its way, but by no means equal to the material I have described. It was only after using such "stuff" as the Wimbledon peat and other fibrous materials obtained from what might be called dry barren slopes, that I found out this ingredient; and I have proved that it is beyond question the most valuable material that I have experimented upon.

The next important article is the Sphagnum, which is found in great abundance in the same bogs; and I may state that it was in a hunting expedition after this that I began to examine and found out the compressed vegetable matter which I look upon as invaluable. There seems to be no want of Sphagnum of the finest quality in and around London, and doubtless the other material may also be got for the digging. To proceed, I take two-thirds of the black fibrous matter and one-third of Sphagnum, incorporate them well together, and then introduce a little sprinkling of sheep or horse droppings, which must be as dry as a cake of Mushroom spawn, so that it can be broken and rubbed through the fingers into small particles, in order to furnish a greater proportion of ammonia to the roots than they would otherwise get from the simple compost. This heap of compost, even when firmly compressed, is as elastic as an old mossy Grass lawn; and were it not so, I could neither predict nor look for very superior examples of cultivation. Prepare ingredients of this kind, grow the plants in houses such as I have described, do not spare the water during the growing season, let the ventilation be as suggested, and always keep a little fire-heat going in the summer months, and see that the temperature does not fall below 40° if possible in severe weather. If the cultivator attend to these directions, he ought to succeed. It is a grand thing to have in bloom, as I have had, a plant of the old O. grande with 120 flowers on about 20 spikes. It was grown from a ten-and-sixpenny plant in the way just mentioned. There is not the slightest difficulty in growing these plants if a little sensible attention be paid to them.

To gentlemen and gardeners who are beginning the cultivation of Orchids, I would say, buy a few established plants of a common sort; for there is a certain risk in beginners buying rare things and getting hold of plants that have been so much fatigued in their journey homewards, that it is difficult to induce resuscitation in many of them; grow them in a warm greenhouse, and strengthen your collections as you gain confidence in yourselves; and then, instead of having to go a day's journey to see these exotic beauties, we shall have them scarcely less common than Camellias and Azaleas. *James Anderson, Meadow Bank.*

PARIS UNIVERSAL EXHIBITION OF 1867.

The Secretary of the Science and Art Department of the Committee of Council on Education has issued a series of papers referring to the Paris Universal Exhibition, to be held in 1867. Intending exhibitors are requested to apply for space as early as possible, and at all events to do so before the 28th February, 1866. The general regulations fill 17 pages of a small folio pamphlet, those especially applicable to British and Colonial exhibitors being printed in red ink.

We must refer our readers to the regulations themselves (which may be had on application to the Secretary of the Department, at South Kensington) for full details. Meanwhile we extract a few particulars relating to matters coming more especially within the scope of this Journal.

The articles to be exhibited are arranged in 10 groups, each of which is subdivided into numerous classes (95 in all). The groups are as follows:—

Group 1.—Works of Art.

Group 2.—Apparatus and application of the liberal Arts.

Group 3.—Furniture and other objects for the use of dwellings.

Group 4.—Clothing (including fabrics) and other objects worn on the person.

Group 5.—Products (raw and manufactured) of mining industry, forestry, &c. Under this head Class 41 includes "products of the cultivation of forests, and of the trades appertaining thereto. Specimens of different kinds of trees. Wood for cabinet-work, for building purposes. Fire-wood. Timber for ship-building: staves; cleft timber shingles. Cork; bark for textile purposes. Tanning, colouring, odoriferous, resinous substances. Products obtained from forests: charcoal and dried wood; raw potash; turnery; basket-work; straw work; wooden shoes, &c."

Class 42 comprises "products of shooting, fishing, and of the gathering of fruits obtained without cultivation. Among the latter are included vegetable products of the earth obtained without culture: Mushrooms, Truffles, wild fruit, Lichens used as dyes, food, and fodder; fermented sap; Peruvian bark; useful barks and filaments; wax, resinous gums; India-rubber, gutta-percha, &c."

Class 43 is devoted to "agricultural products (not used as food) easily preserved, such as textile materials; raw cotton, flax and hemp scutched and unscutched, textile vegetable fibres of all kinds; wool in its grease; cocoons of the silkworm. Various agricultural products used in manufactures, in pharmacy, and for household purposes; oleaginous plants; oils, wax, resin. Tobacco. German tinder. Tanning substances. Dyeing substances. Preserved fodder."

Group 6 is intended to illustrate "apparatus and processes used in the common arts, including, among other things (Class 48), agricultural apparatus, and processes used in the cultivation of fields and forests.

Plans of culture, distribution of crops and management. Apparatus for agricultural works; drainage, irrigation. Plans and models of farm buildings. Tools, implements, machines and apparatus used in husbandry, sowing and planting, harvesting, preparation and preservation of crops. Carts and other rural means of transport. Locomotives and horse gins. Manures, organic or mineral. Apparatus for the physical and chemical study of soils. Plans of different systems of re-planting, managing, and cultivating forests. Apparatus used in the cultivation of forests, and in the trades appertaining thereto."

The 7th Group comprises food (fresh or preserved) in various states of preparation, thus:—

Class 67.—Cereals and other eatable farinaceous products; and the products derived from them.

Class 71.—Vegetables and fruit.

Class 72.—Condiments and stimulants.

Class 73.—Fermented drinks, wines, beers, &c.

The 8th Group is intended for the exhibition of live stock and specimens of agricultural buildings under the following classes:—Class 74, farm buildings and agricultural works; 75, horses, asses, mules; 76, Bulls, buffaloes, &c.; 77, sheep, goats; 78, pigs, rabbits; 79, poultry; 80, sporting dogs and watch dogs; 81, useful insects; 82, fish, Crustacea, and Mollusca.

We reproduce the 9th Group *verbatim*:—

"9th Group.—Live Produce and Specimens of Horticultural Works.

"*Class* 83. *Hothouses and Horticultural Apparatus.*—Gardeners', nurserymen's, and horticulturists' tools. Apparatus for watering, for keeping turf in order, &c. Large conservatories and apparatus appertaining thereto. Window conservatories. Aquariums for aquatic plants. Fountains and other means employed for ornamenting gardens.

"*Class* 84. *Flowers and Ornamental Plants.*—Species of plants, and examples of culture exhibiting the characteristic types of the garden and dwellings of each country.

"*Class* 85. *Vegetables.*—Species of vegetables and examples of culture exhibiting the characteristic types of the kitchen gardens of each country.

"*Class* 86. *Fruit trees.*—Species of trees and examples of culture exhibiting the characteristic types of the orchards of each country.

"*Class* 87. *Seeds and Saplings of Forest trees.*—Species of trees and examples of culture illustrating the processes followed in each country for replanting forests.

"*Class* 88. *Hothouse Plants.*—Illustrations of the mode of culture adopted in various countries, with a view either to pleasure or utility."

In the 10th and last Group, the articles are to be exhibited with the special object of improving the physical and moral condition of the people.

Further particulars will no doubt be forthcoming as to the horticultural and agricultural exhibitions, and with these we shall endeavour to make our readers duly acquainted.

ON THE CULTIVATION OF PALMS.

The great obstacle to the general cultivation of these princes of vegetation (as Linnæus well calls the Palms), lies, as I think, not in any prejudice against them, nor in any indifference to their elegance and stately beauty, so much as in a general opinion that only plant-houses of colossal magnitude are suited for their reception. A stature of 50 to 80 feet is common among them, and even those species, few in number, which do not develop a stem, for the most part throw out their foliage over a circle some 20 feet in diameter. The great majority of horticulturists cannot afford to devote so much space to a single plant, and the result is that the princes of vegetation are practically abandoned to the princes of horticulture, or to great national establishments such as Kew.

But if plant growers, and especially plant purveyors, were aware that a considerable number of species possessing much grace and some variety, which never exceed a height of from 6 to 20 feet, or a thickness of stem not surpassing that of a walking stick, exist in regions readily accessible, and already searched to some extent by botanic explorers, possibly we might see these lovely forms more familiarly in our stoves. I have before me Mr. Wallace's "Palm Trees of the Amazon," a work which, though not the production of a professed botanist, may doubtless be relied upon for such details as come within the scope of our present inquiry. In this pretty little volume he has described and figured several species which might be grown to adult size without any inconvenience in a thousand hothouses in England. There is that interesting Palm, Iriartea setigera, from whose stem the Indian makes his fatal gravatana, or tube, through which he projects his unerring arrow by the force of his breath. The stem of this species never exceeds the thickness of one's wrist, and is more commonly that of the finger; while its height varies from 15 to 20 feet. The leaves are few, pinnate, with the pinnæ abruptly cut off and notched at their ends; and the fruit forms an ornamental bunch of bright orange berries of the size of our hips. The elegant Leopoldina pulchra is of about the same thickness, but less lofty in stature, ranging from 10 to 15 feet. But there are others much less than these. Mauritia pumila, a curious little species with radiate fan-leaves, and a stem armed with conical spines, is only 8 to 10 feet high, while Lepidocaryum tenue, the smallest of fan-leaved Palms, and one of great grace, is no thicker in the stem than one's finger, and scarcely taller than one's head.

It is, however, to two genera of American Palms that I would chiefly point attention, since they yield none but minute species. They are named Geonoma and Bactris. Of the former, G. multiflora, a kind with leaves like those of ordinary pinnate Palms, attains a height of 8 to 15 feet, and has a slender reed-like stem, prettily divided into joint-like rings. G. paniculigera is 6 to 9 feet high, with a similar stem, but its leaves are divided into a few broad pinnæ. G. rectifolia is still smaller, with similar leaves less expanding, a more loosely-jointed stem, and a bunch of shining black berries of the size of Currants. But the genus Bactris is our *cheval de bataille.* Wallace assigns 46 species of this one genus to South America, of which he describes and figures eight. These appear all to be of minute dimensions, of most elegant form and habit, none with crowded or expansive foliage, but with sufficient variety to make them all worth growing. One (unnamed) attains 20 to 25 feet in stature, but is of excessive tenuity; while most of them range below 10 feet. B. pectinata is about 8 feet high, with ample leaves of the ordinary pinnate or pectinate form, a slender smooth stem, and a bunch of scarlet globular fruit, not so big as Red Currants. This has the foliage, the leaf bases, and the spathes, clothed with prickly bristles, while another (also unnamed) has rings of reversed spines set at short intervals around the stem. B. integrifolia has a stem not so thick as the little finger, and 9 feet high, with broad entire leaves cleft at the tip. But what shall we say to B. simplicifrons and B. tenuis, Palms in which the stem is never thicker than a goose-quill, and 6 feet in height? Here are two charming little Palms, which may be cultivated in a stove of the most unpretending dimensions, removed to the drawing-room, or set upon the dining-table! There is quite sufficient diversity between them; the latter has three or four sparsely pinnate leaves; in the former these organs are broad and simply cleft; in both the bases are prickly; the fruit is like a compact bunch of tiny Red Currants. These would make a pretty pair.

Where are these little Palms to be procured? They are scattered, in more or less abundance, through the forests which border the Rio Negro and other tributaries of the Upper Amazon. At least all those mentioned by Mr. Wallace have this habitat, but then these rivers were the field of his exploration, and we may reasonably suppose that all along the slope of the Andes, other but similar kinds may be found. Now these regions are being diligently searched for Orchids; magnificent Odontoglossa grow in these Andean valleys; and several experienced collectors are even now, if I am not misinformed, busy in that teeming region. If these gentlemen were but instructed to seek for the minuter Palms, particularly of the genera Geonoma and Bactris, and to send home the ripe seed, I think there can be no doubt that the result would be equally satisfactory to them as collectors, and to us as growers.

Nothing is simpler or easier than the successful transmission of Palm seed. I have myself sent quantities of different kinds from Jamaica to England without any difficulty, and without any failure, by observing the following precautions. The fruit, perfectly ripe, is packed in a box or barrel, or any similar vessel, with about an equal quantity of earth, in that state of dampness in which it is dug up in average weather; it must not be watered by any means. The seeds and the earth should be thoroughly mixed together, or may be put in alternate layers. In this condition they will endure a long voyage, and are found, on being unpacked, already sprouting, and ready for immediate potting off. I believe it is almost useless to attempt transmission of Palm seed except in earth. These details in practice, however, I willingly leave to the superior experience of others; it is enough if I have directed attention to a great desideratum. *P. H. Gosse, F.R.S.*

CYCLAMENS.

As the season has arrived when our stock of these charming spring flowers should be examined, and if necessary, shifted, a few notes on their culture may not be unwelcome to many. Though few plants will endure harsher treatment than some of the varieties of Cyclamen, yet few, if any, will more thoroughly repay the cultivator for a proper study of their habits, or attention to their more immediate requirements. There are many excellent practitioners in other matters who never could treat Cyclamens with anything like success. The cause of failure was always attributed to a constitutional weakness in the bulbs, but I may be able to show that the fault lays in another direction.

It is a fact that the demand for flowering bulbs of Cyclamens has from the time of the first introduction of some of the varieties of C. persicum, been greater than the supply; the consequence has therefore been that seed of some of the better varieties has been imported in quantity, and some has also been saved rather promiscuously from varieties in this country. From the time of sowing this seed saleable bulbs have been produced, having been pushed on in a high temperature, in often less than from 18 to 24 months. This treatment, so inconsistent with the general habits of Cyclamens which are found near the base of their native hills embedded for weeks in snow, greatly weakens the young bulbs, causing them to have but a very small crown. This however is but one of two causes which operate unfavourably in the case of Cyclamens. The whole of the seedlings just raised are in demand. They are therefore kept and grown without its ever having occurred to the cultivator, as might have been imagined, inter-impregnation among the varieties had taken place; thus the species have been broken into, and though an occasional novelty has sometimes been met with, not more than 20 per cent. could be counted upon as being fit for a painstaking cultivator. And yet, who thinks of throwing away a Cyclamen? I say, therefore, if quintuple the amount is given for them, choose good ones. Have strong, stiff, erect stalks, pure-coloured flowers, substance and good form, and there need be no fear of failure.

As a rule, the Cyclamen would succeed better than it does if it were kept cooler than we usually keep it, except when, by a little gentle forcing, it is wanted to flower earlier than it is customary to have it. It will, however, at all times have finer flowers if placed in a gently heated airy atmosphere just when the blooms are beginning to expand. In order to keep Cyclamens as long in bloom as possible, it is requisite to remove them to a cooler temperature than that in which they have been when the flowers have attained their full size. After flowering they should be removed to an open airy situation, where they will have the benefit of the morning and forenoon sun, but they like a little shade later in the day. They do well either plunged in pots or turned out under an east wall, taking them up when they have commenced growing, or before cold, wet autumnal weather has set in.

The only compost in which I have seen Cyclamens thrive, is a mixture of two parts turfy yellow loam, one of peat and thoroughly decayed leaf-mould, mixed together, one of thoroughly rotted cow-dung, sifted very fine, and a dash of sand—the latter being put around the roots. Let these materials be thoroughly incorporated and made as firm as possible. The bulbs, which should be kept well up, must nevertheless be firmly fixed in the soil.

In saving seed, let it always be done from the most distinct-coloured flowers. Any deviation from this mostly produces blossoms of a washy, indistinct, and often displeasing hue. Sow as soon as the seed is gathered. Never, however, permit a plant to seed unless you expressly wish it to do so, as seed-bearing weakens it. Seedlings sown as I have stated will be sufficiently large to prick off in the early part of June; no place suits them better than a properly prepared and beaten border under a wall having an easterly aspect. Planted out here they make fine little bulbs for removal in the autumn, thus saving much unnecessary labour. Having flowered them and tested their properties, they might, if there is sufficient room, be planted out along the front edge of a conservatory or greenhouse border, where they may be permitted to remain until the soil in the immediate neighbourhood of their roots had occasion to be renewed. Thus situated they will flower well. Mr. Parsons, of Danesbury, an excellent cultivator, treats them in this way; and in addition to their great sweetness and gaiety he is thus enabled to cut thousands of blooms every year for indoor decoration. *Earley, Digswell, Herts.*

KITCHEN GARDEN PLANTS.—No. VI.

The Cauliflower.

Dr. Johnson was by no means alone in his taste when he gave utterance to the often quoted passage, "Of all flowers give me the Cauliflower." By careful selection this generally esteemed vegetable has been brought to a very high state of excellence, and has, however, no doubt attained to some extent by a sacrifice of constitution, and, as in the case of the Broccoli, the most delicate in flavour are those which are found to be most affected by frost.

The Early London, or Early Short-legged, alias the Paris, is a good useful variety of Cauliflower, and is very much used by gardeners. The large Late Asia, Late German, or Late London, is almost a counterpart, though considered to be a larger and later variety. The "strain" of Cauliflower has large and compact white heads, and is generally regarded as a successor to the Walcheren. Waite's Alma is considered by some to be the same as the Early London, but by others to be identical with the Walcheren. Be that as it may, one or other of these two sorts is often sent out for the staple and most popular Cauliflower of the day. The Walcheren, which is considered to be earlier than the Early London, and hardier than that variety, because the flower is better protected by the leaves. When well grown, the heads are large and white, and excellent in flavour.

Lenormand's is said to be a very early French variety, extensively grown for the Paris markets. It appears to be closely allied to the Walcheren, from which it differs only in name.

The Frogmore Forcing, Early Dwarf Erfurt, or Nonpareil, Erfurt Mammoth, are but different names for the same variety. It is somewhat uncertain in character, but when it comes good, it is, as it deserves to be, highly esteemed. It is said to withstand drought better than

any other kind. It is very dwarf and compact, yielding small heads of solid flower, remarkably white and crisp, and it does not run so freely to seed as some other varieties. A very fine selected stock of this, known as the Early Dwarf Mammoth, unquestionably one of the finest stocks of a dwarf Early Cauliflower ever seen, was in the hands of one of the London wholesale houses some four or five years ago. It has, however, unfortunately disappeared, or nearly so. Singular to say, in order to keep it to this point of perfection, it was found necessary to save the seed in this country.

The Stadtholder, or Standhonder, as it is sometimes called, is a fine selected stock of the Walcheren; it is rather earlier under some circumstances in "turning in" than that variety, better protected, and therefore hardier. The leaves fold themselves over towards the centre of the flower, and spread out over it; while those of the Walcheren do this somewhat obliquely and irregularly, and so leave the delicate flowers more exposed to the action of frost and wet.

Too rich a soil can scarcely be devoted to the growth of this favourite vegetable. A strong loam well worked and dressed with the best rotten manure, and care in keeping the plants well watered in dry weather, will produce Cauliflowers in the greatest perfection. Liquid manure can always be administered with advantage, but water must be given in hot dry weather, or shrunken, hard, undeveloped heads will be the result. If seed is sown in heat about the middle of March or the first of April, and the young plants are planted out as soon as the weather will permit, a good number may be expected to "turn in" before the summer closes, while the remainder will come in during the early part of winter, unless cut down by very severe weather. If sown in the open ground early in May the produce will be fit for winter use. In planting it is a good plan to take out a trench as for Celery, say a foot deep and the same in width, filling half its depth with good short manure, which should be well mixed with the soil. The young Cauliflowers may then be planted in the middle of the trench, 2 feet apart. If more than one row is wanted, the trenches should be at least 2 feet distant from each other. In very dry weather a soaking of water once a week will materially assist them. Each time this operation is performed a portion of the soil may be worked down into the trench, which will prevent evaporation.

Cauliflower seeds are imported from Holland, France, and Germany. Enormous breadths of ground are employed in the cultivation of Cauliflowers on the Continent, and so keen is the competition among the growers that there is little fear of a very bad stock of any variety being supplied during the summer months. Specimen heads are sent over from Holland to the different seed establishments in London, and some of these have weighed as much as 8 or 9 lb. each. Holland may therefore be regarded as a country highly suitable for the growth of this vegetable. *Quo.*

Home Correspondence.

Fourcroya cubensis.—A plant of this is now flowering with us. Its stem is about 23 feet in height, or rather length, as it is trained horizontally under the roof of a house which is only 16 feet in height. It is, I think, more elegant than F. longæva. Like it, our plant is becoming freely viviparous. *W. H. Baxter, Botanic Garden, Oxford.* [The flowers enclosed are somewhat Yucca-like, of a green colour, and have a delicate lemon-like perfume. The adventitious buds occur in the form of small bulbs springing from the axils of the bracts, by the side of the flowers; so that in this case, at any rate, the bulbs are not the representatives of flowers, but merely of ordinary leaf buds.]

Humming-bird Moth.—We are never any summer without this moth feeding on the flowers of the Pelargoniums, which grow to the height of 15 feet or more along the whole side of the house, and it is to this cause that I attribute its constant presence in more or less numbers according to the warmth of the summer. This year they appeared in hundreds, a dozen or more to be seen at a time hovering over the Pelargonium blossoms, and darting their long and flexible tongue, more than an inch long, into every flower. So late as the 28th October a young lady caught one under a glass feeding on a flower in her room. On taking it into the garden and removing the glass it was so fearless that it instantly commenced feeding on a Pelargonium flower close to her, and kept within a few inches of her hand. I have also caught them, as well as the Convolvulus sphinx, on some Marvel of Peru I had in my hand. This year also we had great numbers of the silver gamma moth. *A Subscriber, Penrhos.*

Stoneless Berberries.—Your correspondent "W. D. F." (see p. 1013) will find some notice of this variety in your last year's volume, pp. 1064, 1133, 1158, and also in Loudon's Arboretum, vol. i., p. 301. Loudon says, "Miller and also Duhamel, both state that suckers taken from this variety commonly produce fruit with seeds; that, as the tree grows older, the seeds become fewer, and that it is the age of the plant that at last causes the fruit to be seedless; in that case this plant must be considered more a variation than a variety." "W. D. F." does not tell us in what part of Dorsetshire he found this variety, and Dorsetshire extends from Portland Bill northward more than 40, and from Lyme Regis eastward more than 50 miles. A more precise description of the locality would perhaps enable some of your correspondents to get suckers from trees which, in their own native Dorsetshire, are undoubtedly stoneless. I have generally found this a better plan when variation came with age than resorting to a nurseryman. It may possibly be in the power of some of your correspondents, who may have in due season gathered their stoneless fruit, to tell us how long we may confidently expect the result, and when our heart may begin to grow sick with hope deferred. And some may even be able to tell us whether the result does not depend in some degree upon the soil, or on the situation, and may know instances in which two suckers taken from the same stoneless tree have produced, in two different soils or situations, the one a stoned, the other a stoneless fruit. I shall be glad to see some information of this sort in your columns, as the inquiry of "W. D. F." has put me on the look out for this variety (true). *Diss.*

Bézique.—Can any of your readers supply rules for playing this French game of cards? It appears to be quite a new game, and is sold without directions, which is not a likely mode of ensuring a very extensive sale. The wives of many of your subscribers will feel grateful to any lady or gentleman who can and will enable them to find amusement in what is said to be such a "fashionable and favourite game in Paris;" and they desire to seek information through the medium of your Paper, hoping, and very much disposed to believe, that they shall not seek in vain. *Many Country Ladies.* [Gallantry compels us to insert this letter, but we must remind our fair correspondents that our columns are hardly a fit place for such inquiries.]

Root Fungi.—I was employed professionally the other day to report on the cause of death of a fine Wellingtonia gigantea, measuring 12 feet in height, 24 feet in circumference of branches, and 2 feet round the stem. It will therefore at once be apparent that it was a fine plant, and standing as it did on a commanding spot in the grounds of Portnall Park, the seat of Colonel Challoner, you may imagine the sorrow of the owner to lose so fine an ornament. The cause of death was soon discovered. The noble plant, in luxuriant health, apparently destined to overtop its neighbours (some fine old Oaks), had been struck down by an unseen and unsuspected enemy. A sickly hue was observed to spread over the branches; all that skill and intelligence could devise was done for it, but, alas! its doom was fixed, and in a short time this much-cherished favourite was a dried stick. Some of your readers will doubtless, ere this, have whispered to themselves "Fungi." True, the cause of death was Fungi. Fungous spawn had penetrated every part of its system; a white kind of network was found under the bark of all its roots, a small piece of which I send for your inspection. Let us now hope for auspicious weather to enable me to replace this tree by planting another, some 6, 8, or 10 feet high. I do not fear the operation of transplanting, but I confess that I am a little alarmed at the "hidden hand" just alluded to, although I shall plant some distance from where the other tree stands. The following questions, however, arise in my mind: first, Can the Fungi be detected in the soil? secondly, How far will it run from the tree, and can it travel in any other way than by train, *i. e.*, can it travel through the earth without the aid of roots of trees to carry it? *Charles Noble, Sunningdale Nursery, Bagshot.* [It is very difficult to say how far fungous spawn may not extend, especially when the species is unknown. As the enemy is probably some Polyporus or Thelephora, it is not likely that it should of itself travel very far; but every fibre of the root may be affected, and may propagate the mischief, even if the new tree is planted at some distance. It would therefore be prudent to trench the ground deeply, and get out if possible every fibre. We had a noble Cupressus macrocarpa affected in the same way, but whether death was due to previous drought, or to fungous spawn more immediately, we could not say positively. In any case the dead roots should be removed. *M. J. B.*]

Lobelia cardinalis.—This fine old plant surely ought to have a place in more flower gardens than it has at the present day. When grown in good rich soil and copiously watered it is a very effective bedding plant. In wintering the roots, however, I always find that I lose a great proportion of them. If any of your correspondents therefore will give their experience on this point, they will much oblige me. My method is to place them closely together in a cool frame, filling the intervening spaces with moderately dry soil, and covering the frame with litter during severe weather. *H. T. H.*

Picea Webbiana.—Amongst the many kinds of Conifers which have been introduced from different parts of the world into this country from time to time, perhaps none is more beautiful or ornamental than this tree really is when grown in perfection. It has indeed been too readily pronounced by many to be almost useless in this climate, in consequence of late spring frosts destroying its young growth. We have a fine young specimen of it growing here on the lawn, over 15 feet in height and 34 feet in circumference, which has this year produced 17 cylindrical purple cones, measuring 6 inches in length and 7½ inches in circumference, yielding, as I have heard, a beautiful violet dye. With Mr. Whiteman's permission I have sent you two cones for your inspection. If we could only see this fine tree growing in its native climate, where it attains from 100 to 150 feet in height, and 30 feet in diameter, we should I think be ready to pronounce it the crowning grandeur of the Himalayas, from whence it was introduced. A single specimen on a lawn, with its beautiful silvery foliage and fine purple cones, combined with its stately habit of growth, surpasses every other tree in beauty. Even if it were as tender as it is represented to be, why is it not more extensively planted in sheltered situations, as I am sure it ought to have a place in every collection? In short, no Pinetum can be called perfect without it. I may just add that the Deodar grows exceedingly well with us, and that we have some rare specimens of it; if this tree were more extensively planted, it might be looked upon not only as an ornament but as a valuable timber tree. On account of its hardiness and rapidity of growth it cannot be too highly recommended. *F. Day, Theydon Grove, near Epping, Essex.* [The cones in question are well formed, and extremely handsome.]

Sparaxis grandiflora.—Can any of your correspondents account for the following strange occurrence in my garden? A bed of this Sparaxis planted thickly with sound bulbs in October, 1864, came up and flowered abundantly this spring (1865) and the bulbs having died down again as is usual with them, were not taken out of the ground, but the bed was filled with plants of Lobelia speciosa for summer decoration. At the end of the summer the Lobelia having ceased to flower was removed, and the Sparaxis began to shoot up again through the bed, but after a little while I observed that no shoots appeared over an oval portion of the bed, comprising about one-fourth of the whole. On searching to ascertain the cause of this, I found that all the roots in this portion of the bed were completely rotten, while the remainder of the roots were perfectly sound and shooting vigorously. As it often happens that perfectly sound bulbs of Sparaxis, particularly of grandiflora, lie dormant for a whole year, and do not shoot at all, I had hoped that this might be the case in this instance, but I have never known or heard of the roots in a portion of a bed thus decaying thoroughly, apparently without any cause to which the remainder of the bed was not equally exposed. Position can have nothing to do with the matter, as the bed lies in an open part of a Grass garden, and is exposed to no kind of disadvantage. Let me hope therefore that somebody may be able to give some explanation of the cause of my loss. *W. E. G., Belgrove, Queenstown, Cork.*

Golden Hamburgh Grape.—Mr. Tillery states, and truly (see p. 917), that "this, amongst white Grapes, is what the Black Hamburgh is amongst black ones, but the footstalks are tender." This I have never discovered during the ten years I have been growing it, nor have I seen the evil complained of in any garden which I have visited. Let Mr. Tillery visit Mr. Scott, gr. to Lord Sherborne, in Gloucestershire, who has grown a large house of this Golden Hamburgh from the time it was first let out; or Mr. Miller, gr. to the Earl of Craven, at Coombe Abbey, Coventry; or the Royal Horticultural Society's Gardens at Chiswick, and I think he will hear nothing about tender footstalks. Respecting packing and travelling, I have found it always equal to the Black Hamburgh; for instance, no Grapes could have travelled better than what have been shown of it from Scotland and other distant parts of the country, at our fruit shows in London. Mr. Scott began cutting a house of Golden Hamburgh on the 1st of July last, and its contents were nearly all sent to London; no complaints were made of their not travelling properly. It is a hardy Grape, and grows and ripens its fruit perfectly on a south wall out of doors, as I myself have proved. It forces well, requires no bottom-heat, but plenty of air at all times, and if that be attended to we shall never hear of delicate footstalks or any other complaint. As for its not keeping after it is ripe, if the house is properly ventilated and kept moderately dry it will keep as long as other thin-skinned Grape. In my own house, a cool one, I have kept it for three months at a time, and I consider that quite long enough to keep any Grape. I am convinced that if Mr. Tillery, with his practical knowledge, will give the Golden Hamburgh a little more attention, he will find it everything that he can desire. *M. Busby, Woodfield Cottage, Harrow Road.*

Foreign Correspondence.

Queensland.—The following report of the Selector of Agricultural Reserves upon Meunga Creek Rockingham Bay, River Mackay, River Macalister, Valley of the Herbert, and Sea-View Range, just made public, may possibly be of use to such of our readers as contemplate emigrating to Queensland:—

"I examined," says Mr. Walter Hill, the Selector, "the country on the banks of the Meunga Creek for a distance of 10 miles, by a width varying from 1 to 2 miles, and found about 7500 acres available for agriculture. Of these there are, on the right bank, 3000 acres of forest, and 500 acres of scrub land; and on the left bank, about 4500 acres forest, and 500 acres scrub. The whole area is pretty well watered, and the quality of the soil, generally, is adapted to tropical and semi-tropical agriculture; but a large proportion of it, being heavily timbered, would, I am afraid, offer great obstacles to the small farmer.

"In the hope of discovering country more eligible for the purposes of an Agricultural Reserve, I extended

my tour of inspection to the Mackay River, as shown on the Admiralty Chart. I examined the banks of this river to a distance of 16 miles from the estuary, and found them for the most part extremely low, and almost uninterruptedly fringed with Mangroves. The lands immediately adjoining were, in many places still lower, and being naturally swampy, and subject to periodical inundation with brackish water, were chiefly remarkable for the exuberance of their marine vegetation.

"From the Mackay I proceeded in a boat to an unnamed freshwater river, about two miles to the south-west. Upwards from the mouth I found the land all sandy for about a mile; thence for two miles the banks are fringed with Mangroves, and this again is replaced for the next 12 miles by tropical vegetation, consisting chiefly of the genera Myristica, Guettarda, Sciadophyllum, Mimusops, Wermia, Morinda, Livistonia, Musa, Amomum, Dracontium, with numerous other trees and shrubs peculiar to these districts.

"One feature I noticed, in examining this river, was the peculiar density of the scrub on each bank, the belt of which in some places could not have been less than a mile in breadth. In fact, I never witnessed in any of the colonies so dense or so luxuriant a growth of scrub trees and plants as was presented on the banks of this river. This fact alone sufficiently testifies to the inherent richness of the soil; and the additional fact of there being in the very centre a river containing at all times an abundant flow of the purest fresh water down to its very embouchure, ought to be an adequate guarantee that the soil is well adapted to the cultivation of tropical or semi-tropical produce.

"I next proceeded overland to examine the soil adjoining the scrub, and nearer the head of the river. On reaching the necessary elevation, I was struck with the magnificent and romantic scene which suddenly presented itself: extensive plains, stretching towards the north, south, and west, with scarcely a tree upon them, covered with luxuriant Grass, watered with several large lagoons filled with pure water, and embracing many thousands of acres of the richest agricultural land that I have seen in the Australian colonies. It is, moreover, worthy of remark, that beyond these plains the land is of a gently undulating character, in many places thinly timbered, and so varied in quality as to be capable of yielding in perfection all the products peculiar to a tropical climate.

"I am of opinion that the whole of this country, including the land along the banks of this excellent river for miles round, should be set apart for agricultural purposes.

"There is one particular feature in the country here referred to, to which I would beg to draw special attention; that is, the facilities afforded on these extensive plains for irrigation, both by the extent of the lagoons, the number of the creeks, and the convenient sites for the erection of machinery to raise and distribute the water. Nevertheless, the day is probably very distant when artificial means will need to be resorted to—the rather, because this district is more favoured in respect of natural water resources than any other part of the colony with which I have become acquainted.

"In disposing of this matter, I have thought it right to give a name to the river alluded to, more particularly as owing to the richness of the soil upon its banks, it is likely to become the centre of a large and flourishing population. I have, therefore, christened it the 'Macalister,' after the name of the present Minister for Lands and Works.

Having completed my examination of the districts above referred to, I proceeded to inspect the land in the valley of the Herbert River, and also that on Sea View Range. The land in the former district available for agricultural purposes is very scattered, and the spots average from 300 to 1500 acres in extent. With regard to Sea View, I observed on the table land of the Range a considerable area of excellent soil, well suited for purposes of agriculture, and, what is more important, the whole of the adjacent country is well watered, and remarkable for salubrity."

Societies.

ENTOMOLOGICAL: *Oct.* 2.—F. Pascoe, Esq., F.L.S., President, in the Chair. The death of Dr. Schaum, one of the honorary members of the Society, was announced. Mr. Kirby exhibited the very rare moth, Sterrha sacraria, taken near Brighton in July. Mr. Stevens exhibited a fine series of butterflies, captured in Borneo by Lieut. De Crespigny; and Mr. Jenner Weir a specimen of Xylina petrificata, coloured nearly like X. semibrunnea; he also observed that he had noticed that the lesser earwig uses its caudal forceps in closing its wings after flight. Mr. McLachlan exhibited some species of Phryganeidæ taken in the ice caves of the Swiss Alps by the Rev. J. F. Brown: and Mr. Evans two malformed specimens of the red admiral butterfly. W. W. Saunders, Esq., exhibited the pseudobulb of an Orchis from New Granada entirely destroyed by two species of limpet scale insects (fam. Coccidæ). He believed there was no fixed period of the year for the breeding of the insects, and had never seen a male of either of the species exhibited. Dr. Wallace stated that a specimen of Argynnis Lathonia had been taken at Colchester by Mr. Harwood at the end of September. He also entered into numerous details relative to the propagation and growth of the Ailantus silkworm (Bombyx Cynthia), which he had cultivated with great success at Colchester in the open air, having obtained a grant of a portion of a railroad embankment for a plantation of the trees on which the insects feed. Mr. Saunders made some observations against the comparative value of the timber of the Ailantus, contrary to the statements of M. Guérin Méneville. Mr. S. Scudder, from Boston, U.S.A., exhibited a remarkable fossil insect from the Devonian Rocks of North America, which from the fragment of its wings appeared to have been allied to Ephemera, and to have measured at least 5 inches in expanse. It had been discovered in New Brunswick by Mr. Hart. He also made some observations on the Bombyx Polyphemus, which feeds on the Oak in North America, and makes cocoons of silk, very similar to those of the Ailantus moth. Mr. S. S. Saunders, her Majesty's Consul at Corfu, exhibited a remarkable series of Strepsipterous insects of the genus Hylecthrus, in different stages of growth; and Mr. F. Bond some excellently preserved caterpillars of British moths. Mr. MacLachlan read descriptions of various new exotic and British Trichoptera, and Mr. Walker the description of a new genus of Chalcididæ. The continuation of a memoir on the Buprestidæ of Australia (of which beautiful family it was supposed that 800 species were natives of that continent, 350 inhabiting South Australia), by Mr. C. A. Wilson, of Adelaide, was also read. M. Henri Deyrolle's work on the Buprestidæ of the Eastern Archipelago, collected by Mr. Wallace, was also exhibited.

Notices of Books.

The British Hemiptera, Vol. I. By John William Douglas and John Scott. London, 8vo. 627 pages and 21 plates. Printed for the Ray Society. 1865.

It had long been a subject of reproach to the entomologists of England that several entire orders of insects remained completely neglected, whilst others, as the Lepidoptera and Coleoptera, were almost universally collected and studied. This was of course properly attributed in a great degree to the want of descriptive works on such neglected tribes, as experience had always shown that as soon as a good descriptive manual appeared on any tribe of the objects of Nature, there soon sprang up a goodly number of collectors and observers of such objects. So far as the order Diptera or two winged flies and the minute families of moths were concerned, this want was remedied some years ago by the publication of the "Insecta Britannica," a series of works in which all these neglected orders were to have found a place, and we believe arrangements were made for the publication of the Hemiptera; but the series was discontinued before much progress was made in the last-named order. Since that time, Mr. McLachlan has worked out the difficult order Trichoptera, and we have now before us the result of four or five years "almost undivided attention to the order" by Messrs. Douglas and Scott, who have been long and favourably known as most indefatigable British entomologists.

This result consists in a volume which the Ray Society has just issued, which, as far as it goes, may fairly claim to be one of the most satisfactory and useful hitherto published by that Society. It contains careful descriptions of all the Heteropterous Hemiptera hitherto discovered in this country, so far as known to the authors, amounting to 356 different species, all the descriptions having been made from actual specimens, with a very few exceptions.* The insects included in this work are popularly known under the name of field bugs, and are all furnished with a jointed proboscis or sucker, lying along the breast, enclosing several very fine bristles, which are thrust by the insects into the leaves or stems of plants, from which in most instances the insects derive their nutriment, occasionally doing considerable mischief, as in the case of the Lygus campestris, a small active greenish or greyish species which at this period of the year is found abundantly on Chrysanthemum plants, of which it sucks the juices from the small buds, distorting them in their growth. In all these insects the wings are carried flat upon the back, by which character they are distinguished from the Homopterous Hemiptera, which have the wings carried roof-wise, and which include the injurious tribes of Aphides, Cuckoo-spit insects, &c.

In the execution of their labours the authors seem almost entirely to have followed the recent work of Fieber on the European Hemiptera. We consequently find an enormous number of genera introduced for the first time into the British lists, the 356 species being divided into not fewer than 160 genera, whilst in the works of Stephens and Curtis, 60 genera sufficed for their reception. Of these 160 genera, we find that 91 are established upon single species, whilst instead of eight or 10 families into which the genera were distributed in the works of Latreille, Stephens, &c., not fewer than 64 are here adopted, without any attempt at tabulation, or even indication of their leading characters extending through 40 pages, so that the primary labour to a tyro of discovering the family of a given species is very great, and by no means satisfactory, as may be seen by comparing the characters of closely allied families, especially among the Capsini or Capsidæ, which are actually divided into 20 different families, although Fieber, following previous writers, had wisely kept them under one.

As to specific synonymy, the work before us is nearly exhaustive, so far as foreign and especially the more recent publications are concerned. English writers, especially the earlier ones, as Turton, Stewart, Berkenhout, Donovan, &c., are almost ignored, so that the student of their writings (quoted as they all are properly in Stephens' Catalogue) will have to work out the synonymy afresh with the assistance of the Stephensian Collection, fortunately purchased by the trustees of the British Museum. The Curtisian Collection unfortunately is lost to this country, having been purchased by the University of Melbourne in Australia, and thus the means of identification of certain species introduced into Curtis's British Guide is lost, as in the case of Coreus V-album of Kirby, which was in the cabinet of Curtis, but not in that of Stephens. Now this last-named species is neither mentioned in the body of their work, nor in their list of reputed British species by Messrs. Douglas and Scott. So the Amex venator of Donovan is ignored, and the student must himself determine whether it be the Gonocerus venator (p. 114) or the Verlusia rhombea (Linn. p. 116—quadratus, Wolff & Fabricius, to which Curtis refers it). Again, in p. 345, we find a generic name introduced as new which had been long ago employed for a most remarkable Dipterous genus. These instances out of many which we might quote, will show what appear to us the chief drawbacks in an otherwise excellent work, the plates of which contain illustrations of all the genera, in Mr. Robinson's best style.

* Mr. Stephens, in his Systematic Catalogue, brought up the number of species to 337.

The 35th number of the Journal of the Linnean Society (Botanical division), contains among other subjects an account of the Chatham Islands by Henry Travers, Esq.; a paper on the Structure of Bonatea speciosa, with reference to its fertilisation, by Roland Trimen, Esq. This Orchid, like most others, is well adapted for fertilisation by means of insects. Professor Oliver supplies a Note upon some Japanese plants collected by Mr. Oldham. Among these plants is a variety of Viscum album, the common Mistleto, and Utricularia vulgaris. Veitchia japonica, originally described in our Journal, from imperfect material, turns out to be merely a species of Abies with deformed cones.

Mr. Bentham, in a paper elsewhere alluded to, refers some species of Genetyllis, all of Hedaroma, Polyzone, Cryptostemon, and Schuermannia, and some of Chamælaucium, to the genus Darwinia. The inconvenience of these changes will hence in a measure be compensated for, by the smaller number of names to be remembered. The last paper in this number is by Rev. W. A. Leighton, and is devoted to an account of 163 Lichens collected in Arctic America by Sir John Richardson.

CATALOGUES RECEIVED.—*Dreghorn & Aitken's Catalogue of Herbaceous and Alpine Plants* is an extensive and carefully prepared list. We notice in it some fine and rare things, *e. g.*, Chrysobactron Hookeri, "unsurpassed as an exhibition plant;" and Eritrichium nanum, "one of the loveliest of Alpine gems, producing sheets of Forget-me-Not-like flowers" over a carpeting of silky silvery leaves. It is also very neatly and carefully printed. Their *Catalogue of Gladioli* also comprises most of the finer sorts in cultivation.

The Apiary.

"I was much surprised," says "An Old Bee-keeper," "at reading the condemnation of VENTILATION OF BEE-HIVES during winter promulgated at p. 991. Surely this is a mistake. Without ventilation the copious condensation of internal moisture, with all its attendant and frequently fatal evils, is inevitable in woollen hives, whilst when ventilation is duly attended to, these evils are averted, and permanent prosperity is the result."

In reply to our correspondent, whose opinions as "An Old Bee keeper" we highly value, we may first state that the remarks in the article referred to by him did not so much apply to ventilation *per se*, as to ventilation combined with condensation. It may be that he has also some impression of our being totally opposed to ventilation, from some imperfect recollection of the substance of our reply to a Shropshire correspondent on the 7th October. But this applied solely to the draught through hives occasioned by stationing them in lofts, corridors, or rooms, where a strong current of air would be likely to pour through any opening or means of entrance.

This is a subject which may well call for discussion—we will not use the usual stock phrase, lest we might be accused of perpetrating a pun—and we should be glad of the results of the observations of other apiarians. We confess that on the whole our experience as to ventilating hives has not been such as to recommend the practice to others. We have, during the 20 years of our career as apiarians, experimented in this respect to a great extent. First, condensing glasses were used, and the immense quantity of water occasionally collected made us quite enamoured of the principle. But unfortunately for our pet theory, the hives did not thrive any the better; the interiors were

still damp, and the combs still became green, brittle, and mouldy. Then we tried covering the central aperture in the crown of the hive with perforated zinc, and substituting an empty box or straw hive for the condensing glass. This we were inclined to believe to be a very great improvement. But as the central portion of a hive is that in which the first batch of brood in the spring is almost invariably reared, we were led to the conclusion that a current of cold air rushing up through the centre of the breeding combs must be highly injurious; we know that it was occasionally the cause of a portion of the brood becoming chilled and abortive.

Our next experiment consisted in placing an empty hive below the stock, compelling the bees to pass through it in order to reach the combs. This we found a great improvement on any plan previously tried, and had little reason to complain of the prosperity of the hives so treated. The empty box was removed in the spring, usually in March. Since then we have learned that this plan is largely adopted by the Ayrshire bee-keepers, and those who adopt the Stewarton system. This is a different style of ventilation, and the same objections cannot be urged against it. Air is freely admitted below, but there is no pernicious current through the hive. Therefore, on the whole, if any means of ventilating hives be resorted to, we should be disposed to recommend the adoption of the foregoing mode as being likely to be advantageous rather than the contrary.

When the system of bar-and-frame hives became largely carried out in our apiary, we found that the side combs in the large-sized boxes with ten frames usually became very mouldy. By removing before winter a frame on either side, to be replaced in the spring, much of the evil was obviated. But we have been compelled to come to the conclusion that, as a rule, hives unmeddled with in this way have usually made a more forward start in spring, and consequently have been in a better position to take advantage of the early honey-harvests which have of late been the fashion in the south of England. In no season has this been more apparent than during the last, when hives which had remained entirely undisturbed, were in so much more forward a state than others which had been taken more care of, that we have almost been induced to alter our whole system of practice. Many of our stocks which had not been disturbed since the previous autumn, either for the temporary removal of side combs, cleaning, or renewal of floor-boards, &c., were sufficiently populous to commence operations in their supers, long before those differently treated were in a position to do so.

Bees will, if left to their own instincts, sedulously close up with propolis, all crevices in their hives; even the holes in perforated zinc, placed over the apertures in their crowns, are generally completely filled up. This is more particularly noticeable just after the close of the honey season in autumn, as if they were aware of the necessity for making everything as snug and air-tight as possible for the coming winter. We all know how easily bees become chilled, and can suppose how difficult it must be for them to keep up the requisite amount of internal heat to prevent their succumbing during periods of intense cold.

With hives possessing a very abundant population, artificial ventilation does not seem to be productive of so much injury as where the population is scanty, or but moderately strong. We saw a most remarkable instance of this in the apiary of a friend, early last spring. Having become possessed of a Woodbury frame hive, he set his carpenter to work to manufacture some like it. In addition to several other mistakes, this clever country worker in wood did not seem to think it at all necessary to clamp or frame the top-boards. The consequence was, that in one of the hives, stocked with a fine swarm the previous summer, the top curled up to such an extent that it only rested for about half an inch in the centre, being raised about three inches at each side, so that the whole upper surface of the combs was virtually exposed. A light wooden case, with ample means of ventilation, covered the entire hive. The bees were so very numerous that no injurious effect had resulted. On removing the case to inspect the hive, the bees warmly resented the exposure, and poured up, exhibiting very decided signs of great irritation. In another instance the bees had evidently suffered from the effects of the warping of the cover and free admission of air, being weak and listless. It was evident that the strength of the one hive enabled it to resist any ill effects, and possibly may have conduced to keeping it in a healthy condition. Not so, however, in the case of the weaker colony; that could not recover itself in time to be of any use to the owner, in the way either of supers or swarms.

Garden Memoranda.

Dangstein.—The plant-treasures of Dangstein are already well-known to the readers of this Journal; but it is one of those places that are perennially interesting—full of variety and life. The immediate cause of my visit to it may be traced to some diminutive but very curious subjects, now standing with the fine batch of Sarracenias grown there. I went, in short, to see eight "live" specimens of Darlingtonia californica—a plant probably not elsewhere in cultivation in the British Isles. Possibly many of your readers do not know what this Darlingtonia is like; possibly they may have raised a weedy leguminous plant of that name from seed, as I did; certain it is that many gardeners familiar with Dionæa and fond of Cephalotus are quite unacquainted with Darlingtonia. Well, it may be described as a Sarracenia with a split lip, more singular than that very singular genus, and more difficult to cultivate, as we may infer from the fact of its not being in cultivation, except here, though it has been imported and tried by good cultivators *. These are seedling plants raised by Mr. Vair; they are little more than an inch high, and the longest pitchers perhaps two, but each perfectly developed in its own small way, and quite healthy. The youngest pitchers come with an undivided acuminate lid, but they are few; the rest look like the heads of young unfledged birds, with the beak pointed against the ground, split up the middle, and widely divergent. The plants are grown in a house with north aspect—temperature from a winter average of 50°, to 65° and 70° in summer; moisture abundant; potted in pots well drained like Orchid pots; soil: sphagnum, sand, a little peat, and minute potsherds.

But what a ponderous bench of Sarracenias! and what a treat it must be to the gardener continually among what Carlyle would probably call "the Formalities" to get a peep at these. I had no idea of meeting such a capitally grown and full collection here, and had almost began to think it hopeless to grow Sarracenias, &c, in places not directed by a Bain or a Baines, and was agreeably surprised. Mr. Vair grows S. flava nearly, or quite as large, as Mr. Baines, of Bowden, does; Drummondii larger than I have seen it elsewhere; purpurea and the others very fine. They are grown exactly as are the Darlingtonias—the same house, soil, and temperature. But there is a hollow rim outside the edge of the pot, cast with it, and holding about an inch of water. Its outer edge is a little lower than that of the pot, of course to prevent fluids going in the wrong direction. It is useful to keep abundant moisture round the plants, and seems on the whole a very sane improvement. Suppose one wanted to keep away snails from a plant they were fond of supping off, what mode of so doing so good as this little canal? For Fern growing, &c., Mr. Vair has had some cast with a rim deeper and an inch or two lower down the side of the pot, big enough to hold a little soil on which to grow Selaginellas, and therewith hide the pots.

I do not propose to give the reader what is known to gardeners as "a good look round,"—only a peep in here and there. From daylight, then, with the Sarracenias, we will transfer ourselves to "the hush of night," with that grand old plant Ipomœa Bona-nox, which is expanding its transcendently beautiful pure white flowers, 6 inches and more in diameter, with a delicious fragrance—not exactly wasted upon the desert air, for several persons have come out to look at it that would not think of hothouses after supper for anything else except the night blooming Cactus, and that is a poor thing compared to this creeper, which keeps expanding its flowers after dark for nearly the whole year round. "What a pity it flowers at night!" said one of the party. It would be ten times a greater pity it should flower during the day! (except in public gardens locked up at dusk or 6 o'clock), for then it could not be cut in its opening beauty to grace the drawing-room just when the ladies enter it, and to delight and astonish—not the natives, but the visitors. It makes the room too almost as sweet as the stove in which it grows.

From this we will emerge again into daylight and hasten to the Ouvirandra, as this is one of the few places in which that curiosity is well and regularly grown. Here as elsewhere there are evidences of its capriciousness, as fine plants that sent leaves to the edges of lined tubs, 4 feet in diameter, all chose to lose the greater portion of their large leaves a few weeks ago, but now they are starting afresh, no doubt to make fine plants by next year. Their culture as pursued here was described a few weeks ago (see p. 892). In one little respect Mr. Vair gains a few points as regards the cleanness and look of the plants. Except immediately round the neck of each plant the gravel and small spar is not spread on the soil, into which it would sink, and by which it would get half covered—dirt being washed up in a cloud at every watering, but on slates which rest on brickbats placed on the soil, and thus the mud is not disturbed by watering, and the pebbles look clean. Mr. Vair believes shade to be essential to the plant. Mr. Bain, of Dublin, has certainly no doubt upon this point, for I have always found his pans containing the Ouvirandra covered with a handlight, and that covered with an old copy of a newspaper. Mr. Vair, too, has proved that it does not require very warm water to grow in, which is true enough; two of the best pans I have seen were in Messrs. Jackson's nursery, Kingston, in large inverted bell-glasses in the Orchid-house. Berneriana was one of them, and in full and beautiful flower; but that it can be grown well in hot water there cannot be a doubt, as Mr. Berry, gardener at Dalvay, in Morayshire, used to grow it very large and seed it freely in water heated to from 80° to 100°. With Mr. Bain it does not grow so larg as in other places, but he never loses it, or has it go back or lose its leaves as is the case with other people; the leaves, on the contrary, always remain clean and wiry. This I am quite sure arises from the fact of the roots of his plants never touching a particle of putrid stinking soil, and consequently never rotting away. He grows it on sods of firm fibrous peat, placed on potsherds, and has a little hole with a cork in it at the bottom of each pan, by which he can draw off all the water once a week, or as often as he likes—just the sort of "wrinkle" one would expect to pick up in the College Botanic Gardens. Mr. Vair tried a little stream of water directed through the tank, but as that did no good, it was stopped. Plants have been grown here with nearly 300 leaves on them. Under the leaves they place white dairy tiles—a capital plan to show the lattice work.

These tiles are also placed behind the beautifully cut Trichomanes, of which there is a fine lot, including good plants of the exquisite trichoideum, and many other rare, and probably some new things in this way. The collection of Ferns is good, and contains many rarities and novelties. These delicate Ferns occupy one side of a warm low stove, and opposite them on the other, forming an admirable contrast, are half a dozen cases of Anæctochilus and dwarf ornamental-leaved plants, including the rare A. Bulleni, and others not often seen; but here, as in many other gardens, Anæctochili were much better grown a few years back, though the same conditions repeated now fail to produce a good result.

Against the back wall of the Orchid house was a creeper very appropriate to such a position—Vanilla lutescens, with stems and general growth very much fatter and larger than the common Vanilla, and producing large flowers occasionally. It is not often that a private garden possesses medicinal plants, as they are very rare even in the best public ones, but they have rarities in this way at Dangstein, and in fact grow a very full collection of such plants, wanting few but the Clove—and who does not want that? and the true Strychnos, a difficult thing to lay hands on. The curator of some botanic garden in a hot region would confer a great boon on his British contemporaries by sending over a lot of fresh seeds of such things as the Clove, Nutmeg, Strychnos nux vomica, Bread Fruit, Jack Fruit, Mahogany, Cinchonas, &c., or in fact of any valuable tropical fruit or medicinal plant. Perhaps it would be better to plant fresh seeds in a Wardian case, when they would probably vegetate on the voyage.

I have lately had a case of plants from Mauritius, with young Clove plants among others. These plants died on their way (almost the only things that did not come in perfect condition), but Mr. Horne, sub-curator of the Mauritius Botanic Garden, when sending the case, sprinkled a few seeds of the Clove here and there in the soil, and in the Bamboo pots in which the other plants came, and these grew, nearly every one of them, well, and I have got a dozen nice young plants, which it is hoped will live over the winter in a warm pit.

Apropos of the carriage of plants, there is here a little Dendrobium beginning to sprout out, which was sent from Moulmein, India, to Dangstein, England, in a letter to Mr. Vair.

Over the medicinal and other interesting plants hangs the Granadilla, with a good crop of fruit. To attain this end, Mr. Vair finds it necessary to fertilise the blossoms—not, strange to say, with the pollen of the Granadilla flowers, but with that of Passiflora cœrulea, which is found much more effective. *Wm. Robinson.*

* It has been raised, we believe, in other cases. Some few years since it was shown at one of the summer metropolitan exhibitions by Messrs. Jackson & Son, of Kingston.

Miscellaneous.

The Laurels of the Ancients.—The term Laurus was employed by the ancients with the same degree of laxity as that in which they indulged in the case of the Acanthus, the Acer, and the like, just as that, with regard to the same term, which is admitted into the popular phraseology of the present day. We speak of the common Laurel, the Bay, the Portugal, the Alexandrian, the Laurustinus, &c., shrubs no farther related than in the one character of being evergreen shrubs, applicable to the same uses in ornamental gardening. In like manner Pliny enumerates the Tinus, a plant which must have been the Viburnum Tinus, the Laurustinus of the moderns, belonging to the family Caprifoliaceæ (although some, even in his time, considered this as a tree of a separate class). Then follows the Royal Laurel, sacred to Apollo, and known as the Augustan, being used in triumphs to encircle the brow of the conqueror, which is the Bay, or Laurus nobilis of Linnæus, belonging to the family of Laurineæ, and possessing something of the aroma so remarkable in certain tropical species of the same family, namely, in the Cinnamon and Cassia, plants noticed by Theophrastus and Pliny, but not as occurring in Europe. The Bay Laurel itself has been regarded by some as a questionable native of Europe, and even Pliny seems to speak of it as though it were of foreign extraction, when he alludes to the care with which it was preserved, as was the case in the Villa of the Cæsars. But this was an exceptional case, arising from the veneration felt for that particular branch of Laurel, which, as the story goes, was held in the beak of the hen that an eagle had let fall from a loft unhurt into the lap of the Empress Livia; and at any rate the

discovery of this plant amongst the Tuffs of Castelnau, in Provence, as stated by M. Planchon in a late work on the subject, proves that it existed antecedently to man in the south of France. The crackling which takes place when the leaves are put into the fire, arising from its oil becoming volatilised, and bursting the walls of the cells within which it had been imprisoned, was regarded by the Romans with superstitious fear, and deterred them from applying the shrub to profane purposes, or even from using it for fires at the altars. See Pliny, lib. xv., 40. The Bay was called the Barren Laurel, as the male and female flowers are on separate trees. Sibthorp identifies it with the Δάφνη of Dioscorides, but the plant now known as Daphne is the D. Laureola, or Spurge Laurel, which is probably the species called by Pliny Daphnoides. * * * Other varieties are also mentioned, which it is not easy to identify, but amongst them does not occur that which is the commonest of any at the present day, using the term Laurel in its popular sense, viz., the Cerasus Laurocerasus, or Laurel Cherry, this appearing to have been unknown to the ancients, having been introduced into Europe from Trebizond in 1576, by Clusius, under difficulties nearly as great as those stated with respect to the Cedar of Lebanon. *Daubeny's Trees and Shrubs of the Ancients.*

The Coffee Trade.—The gradual decrease in the consumption of coffee, usually attributed to the increased consumption of tea, appears to be a most serious matter for the coffee-growers, whose whole prosperity depends upon this particular branch of commerce. The Planters' Association in Ceylon have forwarded a petition to the Chancellor of the Exchequer, that of late years the consumption of coffee has been steadily declining, the deliveries for 1864 showing a falling off of more than 12,000 cwt. as compared with 1863, and of nearly 28,000 cwt. as compared with 1862; while the consumption of tea, on the other hand, has been rapidly on the rise, the deliveries for 1864 showing an increase of about 3,500,000 lb. over 1863, and nearly 10,000,000 lb. over 1862. The petitioners urge that this contrast is owing in great measure to the reduction of 5*d.* per lb. in the duty on tea effected in 1863. They fear that the late further reduction of 6*d.* per lb. will render the contrast even more striking, and their fears are justified by the fact that, in the first five months of this year, 1865, the deliveries of coffee for home consumption were upwards of 20,000 cwt. less than in the corresponding five months of last year. They point out that, whereas the present duty on tea of 6*d.* per lb. may be taken as 17 per cent. of the value of the produce, the duty on coffee at 3*d.* per lb. is above 35 per cent. of its value, and finally, to prevent a further aggravation of these results, and to place coffee in a position to compete on even terms in the home market with tea, the petitioners "pray that in the coming year a reduction may be proposed in the duty on coffee proportionate to that already carried with regard to tea." Messrs. Travers observe that "it is not impossible after all that the loss of trade in the home market may be more than made up by an increased demand on the Continent. At Hamburg, the greatest coffee market in Europe, from which the supplies for the interior of Germany and the countries to the north are derived, the demand is constantly increasing, and the prices have been rising for some years past." This, we believe, is the case all over the Continent. To meet this increased demand the cultivation is everywhere spreading, and especially in our possessions in India and Ceylon. In some minor places, however, as, for instance, in Borneo and Réunion, the cultivation of the plant has been much neglected, whilst in other parts its introduction is looked forward to with sanguine expectation as the source of a great export trade. This is so more especially in Feejee, where there are at present 20,000 coffee trees in a most flourishing condition, two-thirds of which will bear fruit next year. *Journal of the Society of Arts.*

Sicilian Vegetation.—Owing to its physical conditions, a decided undercliff or Riviera commences at the south suburbs of Messina, protected from the north and north-west by the coast chain, and gradually less and less exposed to the north-east as it descends southwards. Under these influences of protection, and of exposure to the south-east sun, a wonderful change takes place. Nature bursts into extreme southern luxuriance; not so much on the advanced or more exposed headlands, which still catch the north-east wind, as in the intervening bays or sheltered ravines. Vegetation at once assumes a very advanced southern character. Stately Orange trees, sometimes as large as moderate-sized Oaks, and Lemon trees overtopping two-storied houses, become the rule. I saw in April Oleander trees 20 feet high; the White Mulberry and the Almond trees were in full leaf, and the latter had fruit full size, evidently stoning; Fig trees were in leaf, and the fruit large; the Vines had made shoots four or five feet long. What is called the Black Mulberry tree was still all but leafless, as at Palermo, only a few buds and terminal leaves appearing. Few if any cultivated flowers were to be seen, with the exception of Carnations in full bloom in pots or vases on the balconies which most houses of any pretensions possess. Wild flowers were numerous in the orchards and in the fields, prominent among them the Gladiolus, which was growing in great profusion. Barley and Oats were in the ear, and Wheat was some two feet high; indeed, spring vegetation was certainly more advanced than I had seen it in any other part of Sicily. The name given to a village in the more southern portion of this region—Giardini (gardens) implies the recognition in former days, as well as now, of exceptional fertility. *Bennet's Mentone, 3d Edition.*

Calendar of Operations.

(*For the ensuing week.*)

The heavy rains which we are now experiencing will have the effect of softening the ground, left dry by the late hot summer and comparatively showerless autumn, and will enable all operations in the way of planting to be pushed forward under advantageous circumstances. Root pruning may also now be proceeded with. The principle upon which it rests, diminishing the supplies, is unquestionably correct, but the manner of applying it is in some instances as unscientific as pruning Gooseberry trees with hedge-shears. A trench is commonly dug out within a short distance of the stem, and the whole of the roots, good, bad, and indifferent, are cut off without distinction; the effects of this rude mutilation are often very unsatisfactory. The same principle, however, carried out in a more efficient way is productive of the very best results. In the case of wall trees, taking up and replanting generally gives them sufficient check. The strong downward-growing and ill-placed roots can then be removed in proportion to the vigour of the trees, while those retained can be spread out in a proper position, that is, nearly horizontal. By this method (which also affords greater facilities for trenching, raising, or draining the border) a tree suffers less, and yet is sufficiently checked to alter its habit; the roots being likewise brought to the surface and properly spread out, are less liable to penetrate too deeply in the ground, which always tends to promote luxuriant growth and consequent barrenness. Old wall trees which, from their size, it is impracticable to transplant, we would root-prune; not, however, in the way alluded to above, but by undermining the roots and cutting off the lower and stronger ones only.

FLOWER GARDEN AND PLANT HOUSES.

While the weather is favourable look carefully over half-hardy stock, and if any has not already received sufficient protection, let no time be lost in rendering it as secure as possible for the winter.

Climbers.—Particular attention should be paid to securing as much light as possible in all structures containing plants; and where the rafters or roofs are used as trellises for climbers, the latter should be reduced within convenient bounds, as the growth of nearly all is or ought now to be completed. Late autumn-flowering sorts as yet unpruned, such as Mandevillas and Ipomœas, will now be sufficiently ripened for the purpose, but little more should be done after removing the changed leaves than to prune the weakest shoots; their final pruning should be deferred till March or April. If larger and stronger shoots are cut now, they are apt to commence growing, in spite of the moderate temperature, and thus expend the strength which ought to be reserved till spring. The shoots of Maurandyas should be considerably reduced in bulk, as they are affected by the slightest damp during winter. If any of the late-growing Passion-flowers or other creepers impede the ingress of light, they should be reduced; deferring, however, their final pruning until they are about to commence their new growth in spring.

Pelargoniums.—Give air whenever the weather will admit of it; but avoid cold draughts, and keep out frost. On the other hand, be careful not to use too much fire-heat. Training and shifting must also receive attention.

FORCING GARDEN.

Cucumbers.—Give those growing in pits all the light possible by taking off the covering early in the morning, and keeping the glass clean. Be careful that red spider does not establish itself upon plants which may be the case in Pine stoves, where the drier atmosphere favours its increase.

Pines.—Do not allow cold weather to seal up the ventilators; the admission of air must, of course, be gradually reduced in accordance with the advancing season, but this is a very different matter to almost discontinuing it. Let water be very sparingly used during dull weather, but have an eye to those plants which stand near flues or hot-water pipes, as they are liable to get dry before their neighbours.

Vines.—In some instances houses from which the fruit is cut will by this time be converted into greenhouses; the Vines require to be kept cool and dry, and the plants want very nearly the same treatment; frost, however, must be carefully excluded. While the plants are in these temporary dormitories, particular care should be taken to keep them perfectly clean and free from insects of all descriptions, or these latter will leave broods behind them, which will be very troublesome another season. If possible, avoid putting plants into those houses in which the fruit is still hanging; but if it is necessary to do so, let them be of such kinds as require the smallest quantity of water during winter.

HARDY FRUIT AND KITCHEN GARDEN.

Examine fruit and root stores to see if all is in a state of good preservation; any fruit still out of doors should now be gathered.

Cauliflowers.—These should be examined every three or four days, and those which have arrived at maturity, if not required for immediate use, should be lifted when dry, and after tying their leaves together should be laid in by the heels in a sheltered situation, or hung up in an airy shed, where they will be protected from wet and frost.

Peas and Beans.—Those who reside in very favourable localities may now make a sowing of these for an early crop. The seeds should be sown on the level side of low ridges, the crowns of which will protect the young plants from cold winds, and the soil between will aid in keeping the soil dry. Some chopped Furze, or other similar material, should be sown along with the seed, to prevent the depredations of mice. There is a chance, in warm dry localities, that these early sowings will produce good crops; but in medium or late situations the chance of success is very small. In the latter case there is less trouble and more certainty, as has been previously stated, in sowing in boxes or turves early in spring, and planting them out with a slight shelter towards the end of March.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the Week ending Nov. 1, 1865, as observed at the Horticultural Society's Garden.

October and Nov.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth. 1 foot deep	Temperature of the Earth. 2 feet deep	Wind
Thurs. 26	7	29.631	29.162	58	35	46.5	52	52	[illegible]
Friday 27	8	29.001	28.950	57	25	41.0	53	52	[illegible]
Satur. 28	9	29.793	29.474	50	23	36.5	53	52	N
Sunday 29	10	29.391	29.116	58	44	51.0	51	50	[illegible]
Mon. 30	11	29.297	29.144	63	38	45.5	51	51	[illegible]
Tues. 31	12	29.278	29.278	50	27	38.5	51	51	[illegible]
Wed. 1	13	29.952	29.826	46	22	34.0	50	51	W
Average		29.506	29.279	53.1	30.5	41.8	51.5	51.3	

Oct. 26—Rain; boisterous with rain; fine.
— 27—Fine; overcast; fine, cloudy and windy, overcast
— 28—Cloudy and cold; clear; fine at night, sharp frost
— 29—Rain, boisterous with heavy rain, fine at night
— 30—Rain; heavy showers and sunshine alternately, heavy
— 31—Heavy rain, and boisterous; slight frost at night.
Nov. 1—Clear; rain; clear; sharp frost at night

Mean temperature of the week, 4 deg. below the average.

The quantity of rain which fell in the last month amounted to 6¼ inches, a greater depth than has fallen in any month during the 40 years

STATE OF THE WEATHER AT CHISWICK

During the last 39 years, for the ensuing Week, ending Nov. 11 inc.

November.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Wind. N	NE	E	SE	S	SW	W	NW
Sunday.. 5	53.2	37.3	45.5	20	0.69 in	4	3	4	4	5	[illegible]	[illegible]	[illegible]
Mon. .. 6	52.9	37.6	45.3	19	0.76	2	7	2	3	3	[illegible]	[illegible]	[illegible]
Tues. .. 7	52.3	37.1	44.7	18	1.02	2	7	2	5	4	[illegible]	[illegible]	[illegible]
Wed. .. 8	51.1	34.8	42.9	18	0.58	2	5	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Thurs. .. 9	50.6	34.0	42.3	15	0.40	3	4	5	3	3	[illegible]	[illegible]	[illegible]
Friday ..10	50.4	34.5	42.4	22	0.67	3	6	4	2	5	[illegible]	[illegible]	[illegible]
Satur. ..11	50.4	34.5	42.4	15	1.02	3	6	7	1	7	[illegible]	[illegible]	[illegible]

The highest temperature during the above period occurred on the 5th, 1852, and 6th, 1834—therm. 63 deg.; and the lowest on the [illegible] 1864—therm. 17 deg.

Notices to Correspondents.

Books: *C J P.* There is ample choice for you. The Octavo Nature-Printed British Ferns, in two vols. (Bradbury & Evans); Hooker's British Ferns (Reeve); Popular History of British Ferns (Routledge); Seemann's British Ferns; One View (Van Voorst), all furnish coloured figures. They range from three guineas to about as many shillings.—*TH* [illegible] is one book which more than another should be mastered by every gardener, it is Lindley's Theory and Practice of Horticulture.—*Constant Subscriber.* Thomson on the Vine.

Darlingtonia: *J V., Dangstein.* Many thanks.

Fruit Trees: *Querist.* For a north wall, Morello Cherry is the most suitable. The Jargonelle Pear does very well in that situation, in the south of England at least, and [illegible] Plums. The Blenheim Pippin is good for a standard; [illegible] Orange Pippin, Ribston Pippin, Scarlet Nonpareil, [illegible] Wick, and Court pendu Plat, are excellent dessert varieties for espaliers ||

Fungi: *Antifungi.* We fear the quicklime will injure the plants and not destroy the deep-seated Fungi. Lift the plants; stir the ground well, and try quicklime, pouring a solution of Glauber's salts, and you will probably kill the spawn, while the gypsum which will result from the chemical action will be a good manure. The ground is, however, too wet at present. *M J B.*

Grapes: *Thirsk.* Your Grapes, especially the black ones, were a mass of corruption when they arrived. The white Grapes had brown spots on them, such as often appear on them when the roots are in a bad condition. The sudden rush of sap after long drought has in your case been quite enough to produce the mischief you describe. *M J B.*

Names of Plants: *T W.* 1, Pteris argyræa; 6, Selaginella Martensii; 8, Asplenium fragrans. These happen to be well marked plants, else it would be utterly impossible to name from such fragments as you have sent.—*Early Frost.* 1, Armeria; 2, Helenium autumnale; 3, Buphthalmum salicifolium.—*C B.* 1, Silene rupestris; 2, Arnica montana; 3, Arabis alpina; 4, Anchusa officinalis.—*G H.* Probably in a state of Chenopodium rubrum, but it is impossible to name such scraps with certainty.—*Thirsk.* Eupatorium [illegible] of gardens.—*D U.* Arauja (Physianthus) albens. Could you kindly favour us with another fruit of it? And can any say whether or not this plant has fruited before in this country?—*Georgius* 1, Gypsophila repens; 2, Geum sanguineum, var.; 3, Clematis glauca.—*J C.* It is impossible to name Oaks from an inspection of their acorns. Send a small spray of each, with leaves, buds, and acorns attached. Acorns may be sown now; but take measures to protect them as much as possible from vermin.—*S* 1, Juniperus chinensis; 2, Sequoia sempervirens; 3, [illegible] Deodara.

Peach Trees: *S E.* Your trees are suffering from scale. The only certain preventive, we believe, is careful watching and immediate sponging wherever the coccus occurs. Cherry trees will sometimes injure the trees as much as the insects.

Pitmaston Duchesse d'Angoulême Pear: *J S.* The fruit alluded to in another part of the Paper. Your first specimen had got astray.

Price List: *Nelson.* Thanks for your letter. Your suggestion shall be acted on. Apply to Webber & Co.

Tulip Tree: *C P.* If the branches of your tree, 8 feet [illegible] planted last autumn, but which did not shoot out [illegible] summer, are plump and not more or less sapless, we would recommend you to cut off the greater part of them. [illegible] see that the roots are kept moist, especially through the drying weather of next spring, when it will doubtless put forth young shoots.

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The Agricultural Gazette.
SATURDAY, NOVEMBER 4, 1865.

MEETING FOR THE ENSUING WEEK.

MONDAY, NOV. 6 { London Farmers' Club .. .. 6 P.M. (Mr. C. Howard on the Cattle Plague.)

ON Wednesday last the Royal Agricultural Society began its monthly Council Meetings again; and its Educational and other committees recommenced their labours. On Tuesday last a Gloucestershire Farmers' Club also recommenced its monthly meetings. The subject under discussion was Agricultural Education, which was considered, as before a company of farmers it was sure to be, from the strictly professional point of view; and we hope that hereafter we may have to report a useful and satisfactory negotiation between the local and the national Societies as the result of the week's proceedings.

It so happens that the minority of the Education Committee in Hanover Square, who failed to carry their views on the education question before the Council, are nearly all Gloucestershire men; and it is thus fitting enough that the next attempt to urge the subject on the central Society from that professional point of view which it has hitherto resolutely ignored, should be made from that county. It is now proposed that a scheme be organised and published for an annual examination in agriculture, by which the agricultural knowledge, proficiency, and skill of young men resident in or belonging to the county may be determined; and at which they may be induced to present themselves by the offer of prizes for superiority. Both the Principal of the Royal Agricultural College and Colonel KINGSCOTE, M.P., a member of the Agricultural Society's Education Committee, who were present at the meeting of the Kingscote Farmers' Club last Tuesday, cordially accepted the suggestions on the subject in the Paper which was read, and which is given at length in the following pages.

The alleged impossibility of directing an efficient examination into the practical knowledge and attainments of an agricultural student or apprentice was ridiculed by men who have had ample experience in agricultural education. And the possibility of collecting in the county, or in that province on the Society's map to which the county belongs, ample funds to provide for all the expenses of the proposed annual competition, together with sufficient prizes to induce the competition in question, was generally believed. Inquiries are at once to be instituted on this subject, and at the next monthly meeting it is to be hoped that an encouraging report will be received. If it shall appear that the project will command the support of the leading landowners of the county, the whole scheme will then require discussion and elaboration in detail, and it will be time to open a negotiation with the Agricultural Society of England. The awards of merit must be by the National Society's examiners, in order to give them sufficient value and importance. And it is hardly likely that the Society will altogether refuse its assistance to a well-considered local effort of this kind; even though it be exclusively professional attainments that it is desired to promote.

If, through the Gloucestershire Club, the Central Society shall be induced, however indirectly, and in only one of its provinces, thus to lend its sanction to an agency professedly for the promotion of a strictly agricultural education, we may then hope to see it acting in the other provinces upon its map in like manner; and the subject of a professional education for farm apprentices and students may thus after all come to receive that favourable consideration from the Royal Agricultural Society which has hitherto been denied to it.

ON Wednesday last Mr. MACDUFF, of Bonhard, was elected Secretary to the Highland and Agricultural Society, in the place of Mr. HALL MAXWELL, C.B., who has lately resigned. He takes a chair that has been filled for 20 years by a man of unusual energy and public spirit. The Highland Society may be said to have leapt into new life during the term of Mr. MAXWELL's office, which has now extended over a period of 20 years. From a comparatively languid and inefficient plight, it has sprung into the living activity and strength, as well as mere position, of a really National Society. Its membership now embraces all the leading tenantry and landowners of North Britain. Its annual shows are no longer mere provincial holidays, but agricultural gatherings of the whole country; and, besides its annual central effort, the connection between it and the local societies has been cultivated to the great advantage of annual ploughing matches and local competitions everywhere. Its roll of members has risen from 2600 to 4200 since 1845. The amount of its invested capital, during a period when no one could accuse it of listlessness or inactivity, has risen from 34,000*l.* to upwards of 47,000*l.*; and its annual revenue has increased 1000*l.* Some of the enormous growth which these figures indicate, has no doubt been the fruit of that general access of energy and life in British agriculture, of which we see proofs everywhere. But neither can we doubt that the prosperity of this great Society has been mainly owing to the active course of usefulness by which its popularity has been ensured, and in which it has been often led and always kept by its invincible and indefatigable Secretary. From the midst of the continual movement that has been observable during his career, two points in particular may be selected as especially deserving of notice, and the most noteworthy of all was, we may say, exclusively his own. The collection of the agricultural statistics of Scotland during four years was accomplished almost entirely by his own personal influence with Scottish agriculturists; so that about 1000 of the flower of Scottish tenantry were induced by him actively to co-operate; and thus a task which Government appears to despair of accomplishing in England, was carried through by Mr. HALL MAXWELL, originally single handed. In this and many other achievements his success has been attributable to a characteristic mixture of genial tact and the imperative mood—both warm and *hot* vitality; and the difficulties which a public-spirited and independent man will always meet, and which an active and strong-willed nature sometimes creates for itself, have thus either been disarmed or overcome. Mr. MAXWELL received the Companionship of the Bath as the well-earned reward of his successful labours here.

The other great step which the Society has taken during the term of Mr. MAXWELL's office has been an attempted expression of its interest in the subject of agricultural education. This has yet to bear its fruit—but planted as the germ has been, we cannot doubt that a vigorous growth is to ensue; and that in the long run this will be looked back upon as one of the most important of the many useful steps which the Society has taken during the career of its energetic officer.

No wonder that a good deal of interest is felt in Scotland in the appointment of a successor to so able and earnest-minded a man. And no wonder that the project for an efficient expression of gratitude to the officer who is leaving them—mooted originally by the leading men in both the rank and file of Scottish agriculture, has been heartily taken up by all classes in and out of the National Society.

WE have received the Prize Lists and Programmes of the 17th Annual Show of the BIRMINGHAM AND MIDLAND COUNTIES' EXHIBITION, and observe that considerable additions

and alterations have been made in the number and value of premiums offered, the whole being now upon a most liberal scale, and the total amount reaching the sum of 2080*l*.

MUSEUM OF THE ROYAL AGRICULTURAL COLLEGE.

In the article on Agricultural Museums, reprinted in the *Agricultural Gazette* of last week from the "Journal of Agriculture," there occurs a mis-statement about the Museum of the Royal Agricultural College, which I beg permission to correct. Our Museum was not "wholly formed by the Messrs. Lawson, and presented by them to the College." It owes, indeed, many valuable and beautiful specimens to the generosity of the Messrs. Lawson, but it has been largely augmented by other gifts and by purchases. It now contains, for the most part in orderly arrangement, the chief specimens with which the several teachers at the College illustrate their lectures; but at the same time mere curiosities, which turn many a museum into a raree-show, are rigidly excluded. Everything exhibited is of real teaching value, and has a more or less direct bearing on agriculture as a practical art, or on the scientific laws which underlie all the operations and regulate all the produce of the farm.

The chief sources of the collection in the College Museum are as follows:—

1. The complete series of models of roots, tubers, &c.; the cereals, Grasses, and agricultural seeds given by Messrs Lawson.

2. A case of British and foreign Grasses presented by Messrs Sutton & Sons, of Reading.

3. A collection of foreign farm-products, manures, prepared foods, &c., presented by the Committee of Council on Education: this collection was obtained through the authorities at South Kensington, and was originally in the Exhibition of 1862.

4. Specimens illustrative of cattle pathology, anatomy and therapeutics. These comprise preparations and models, and were in chief part purchased of the late Professor of Veterinary Surgery, Mr. Brown.

5. A rich geological collection, both of fossils and rocks. The specimens were partly collected by the first Professor of Geology in the College, the late Dr. S. P. Woodward: the series has been greatly augmented by the purchase by the Council of the collection made by the late Professor of Geology, Mr. Buckman, and it has been further increased by the recent gift of Sir W. Vernon Guise.

6. A mineralogical collection, partly the gift of the Rev. W. Dansey, since enriched by some beautiful specimens presented by Sir W. Vernon Guise, and other donors. Among the minerals will be found those most important in an agricultural point of view, as well as the chief metallic ones, with which all intending settlers in a new country should be familiar.

7. Soils, manures, food-constituents, feeding materials, and important chemical products are being continually added to the Museum from various sources.

In some departments our Museum is richer than in others, but as far as space and opportunities permit, our deficiences are being gradually supplied. Additions to our models of implements and machines are greatly needed, while good photographs of the various breeds of cattle and sheep would be of service.
A. H. C.

AGRICULTURAL EDUCATION.

[The following paper was read before the Kingscote Farmers' Club on Tuesday last by Mr. J. Chalmers Morton.]

You are probably aware that within the last two or three years the Royal Agricultural Society of England has had its attention directed to that clause in its Charter which declares it to have been incorporated for "the promotion of the education of those who are dependent upon the cultivation of the land for their support." These are the words of the Charter. As soon as a committee of its Council had been appointed to consider what ought to be done in discharge of the duty which thus devolved upon it, two distinct opinions on the subject arose, and gradually became consolidated. And after prolonged discussion, one was ultimately espoused by a sufficient majority of the Council, and the report in accordance with it having been adopted by a general meeting of the Society, it is now about to be carried into action. There was never, I believe, in the whole course of this discussion any difference of opinion whatever as to what is desirable for a thorough education in order to good and successful agriculture. Everybody was agreed that good schooling during youth is necessary in order to good manhood, to whatever occupation that manhood may be devoted. There was perfect agreement upon the all importance of a good and authoritatively prolonged schooling for the boy, whether as a man he is to adopt a profession or to become a tradesman or a farmer. Mr. Acland may be said to have led the discussion on the one side and Mr. Holland on the other. I believe there was no difference whatever between these gentlemen on the importance of the primary education which the tenant farmer as much as any other man of business needs in order to be respectable, influential, and successful in the station which he occupies. I have no doubt that Mr. Holland, equally with Mr. Acland, feels that the consideration accorded to agriculturists as a body, the position they occupy in public opinion, the influence they exert, must ever be in exact proportion to the intelligence, the self-reliance, and the power which their education has given them. And, still more, both of these authorities no doubt believe that the social position, the personal influence, and even the professional success of the individual farmer depend very much upon those qualities of head and heart for which he is indebted, not to his professional but to his general and preliminary education during boyhood and youth.

It was not therefore in any degree whatever upon the relative importance in a complete agricultural education of this preliminary schooling on the one side, and of the subsequent professional studies and apprenticeship on the other that any difference arose. The discussion lay simply upon what it was fit and proper for the Agricultural Society to do. One party believed that the Agricultural Society should confine itself to helping forward *agricultural* education; the other party believed that it might do what it could to help forward the preliminary education of farmers' sons. This latter was Mr. Acland's opinion and advice. It was founded on his belief, first, that the preliminary and general education during boyhood and youth is the only foundation on which a good agricultural or any other good position during manhood is possible; and secondly, that this preliminary schooling for the sons of farmers has hitherto been defective. It was also in some measure influenced by the impression that this preliminary and general education is the only part of the whole educational process which is capable of effective stimulant or guidance by any system of prizes or examination. Mr. Acland believes that more will be done towards the improvement of agricultural education by a well-directed schooling than in any other way; and he also believes that this, and only this, is capable of being tested and stimulated by examinations and by prizes. He was accordingly induced the Society to vote a certain sum of money to be awarded as prizes to those sons of farmers or of members entering for this particular competition who shall have best acquitted themselves at the various local school examinations by the delegates of the Universities. This course was adopted at the general meeting last May, and we shall soon hear what degree of success has attended the first trial to which it has been subjected. I did what I could at the general meeting in question to oppose its adoption, on the ground that it was leaving our duty towards *agricultural* education, which is specified in the Charter, altogether neglected; but I hope with all my heart that having been adopted, it may prove successful, and that the publicity given to the subject may have resulted in a large number coming forward as competitors for the Society's prizes; so that in this way an effective stimulant may have been put in operation to the educational advantage of many country boys.

It must be noted, however, that the Charter which specifies "the promotion of the education of those who are dependent on the cultivation of the land for their support" has in some measure to be explained away, in order to justify the adoption of this particular course; for the words which it uses can hardly be considered to justify an outlay towards the general education of boys, whether they are to be ultimately dependent on the cultivation of the land for their support or not.

Mr. Holland's advice to the Society was, I think, founded upon quite as enlarged a view of the whole subject as that of Mr. Acland, and it was certainly influenced more than his by the obvious meaning of the words in the Charter of the Society which I have just quoted. Mr. Holland, equally with Mr. Acland, believes in the absolute necessity of a good general education; he as much as any man urges the great importance of raising the standard of attainment as high as possible before young men set themselves to the especial art and the especial apprenticeship by which agricultural efficiency is obtained. But he believes, first, that the general standard of intelligence and of education amongst tenant farmers has been rapidly rising during the past two generations, and that there is now a greater and more general anxiety on their part for the good education of their sons than there ever hitherto has been. He believes, secondly, that in the new modes of cultivation which have of late years been adopted, and in the new applications of scientific knowledge to farm practice which the last 20 years have witnessed, there is within the strictly professional part of an agricultural education an immense territory, as it were, of useful knowledge, open to the sons as farmers, which their fathers did not know, in the mastery of which they ought to be guided and helped. And he believes, lastly, that guidance and assistance can be offered to young men towards their attainment of proficiency in these the practical and professional parts of an agricultural education, by prizes and examinations, not so exclusively as he thinks that spur and rein can by prizes and examinations be brought to bear upon their attainment of proficiency in the branches of a general and preliminary education. It is mainly, I believe, on these three grounds that Mr. Holland argues that the Society ought to keep within the instructions of their Charter, and confine themselves to the strictly professional part of an agricultural education.

There is less need than ever there was to urge upon the attention of agriculturists the importance of a good general education for those who are to succeed them—there is more need than ever there was to urge upon them the great value of special and professional instruction—and it is just as possible to promote by prizes and examinations the studies and the industry necessary to professional attainment as it is to promote by prizes and examinations the attainment of a high standard of general education.

These are the three propositions which I believe with Mr. Holland are perfectly defensible, and out of which I think the Society ought, in accordance with its Charter, to have seen its way towards instituting annual examinations and prizes for agricultural students, so that professional attainment might have been encouraged and rewarded. And these are the three propositions by which I hope that the Kingscote Farmers' Club may be induced to lend a hand to the National Society in connection with this subject.

Before stating, in detail, in what way this may be done, I will ask leave to read a passage on the subject from a paper on Agricultural Education, which was read before the English Agricultural Society last May. The question, what has to be done in connection with this subject, was answered thus:—

"There are probably about [illegible] farms of 200 acres and upwards in this country, occupied therefore by men of a certain social and pecuniary position in society, whose sons may thus command a fair middle-class education. If the professional life of these men average as much as 30 years, then 1000 young men of this class are every year draughted in this country from the rank of agricultural student or apprentice to that of professional agriculturist. Now we may assume that there is at least a period of three or four years in the student or apprentice life of each when [illegible] strictures and guidance would be productively needed; and it thus appears that there is always a [illegible] of young men in England open to the influences which this Society might, and I believe, ought to exert. To apply the rein and spur to this large body therefore is the work which has to be done.

"How is it to be done? I know no other way of offering the stimulus and guidance which are needed than the old fashioned plan of offering prizes to candidates and determining their relative merits by examination. It is the guidance of experience [illegible] and the stimulus of desired professional success and of honourable good social position, which are needed to the guidance and the stimulus by which [illegible] and will always be efficient. Nevertheless, it is consistent with an examination, that [illegible] prizes and distinctions be [illegible] examinations are [illegible] rewards which education [illegible] and that the programme of [illegible] is an effective addition to the natural [illegible] of instructors.

"I have, I think, been successful, that this system of examination and reward [illegible] applicable to the agricultural [illegible]. It is alleged that there is a [illegible] of practical knowledge and efficiency [illegible] might be made with [illegible] through which [illegible] taking their [illegible] steps in turn, and there certainly it is [illegible]. But, indeed, I am quite certain that [illegible] in agricultural examinations, whether they be for determining the industry [illegible] be passed, or agents [illegible] of a bailiff before he [illegible] an examiner to ascertain [illegible] has been [illegible] student or apprentice.

[illegible] examinations [illegible] efficient agriculture [illegible] the Society seeks the [illegible] The whole country [illegible] the Society visits [illegible] Newcastle, and Penrith, [illegible] the Wirral Farmers' Club [illegible] Birmingham, the [illegible] Midland Farmers' Club in Staffordshire, the Hingham [illegible] the Market Harborough Farmers' Club. Any of these, I am [illegible] there is more than one in any [illegible] districts—then two or more united [illegible] I would readily accept a commission [illegible] this subject. It is surely [illegible] that in every one of the [illegible] should be annually collected [illegible] farmers and others [illegible] to be awarded by the [illegible] and prizes [illegible] in every district [illegible] rewards, great [illegible] right that, stirred up [illegible] that such [illegible] increase immensely [illegible] substantial aid [illegible] the local Royal Agricultural Society's [illegible]

I should be uncommonly glad if the plan thus suggested were tried by the Kingscote Farmers' Club in the neighbourhood. I believe that if a committee of this Club were appointed to draw up a plan for an annual examination of any agricultural students belonging to or resident in the county who might present themselves, and were to submit this plan to the landowners of the county, sufficient funds would be annually subscribed for the prizes to be awarded and for the expenses that would be incurred, and I feel certain, also, if the Kingscote Farmers' Club were to go to the Royal Agricultural Society, with their plan thus organised and sanctioned in this way, that the Society would feel bound by its Charter to meet them half-way, to appoint its own examiners to assist in the determination of merit, and to offer its own prizes in addition to those offered through the Club.

The prizes might be books, medals, money, or even [illegible] perhaps up to 40*l* or 50*l* a year, worth perhaps [illegible] to 150*l* in all; the candidates should be young men intending to be farmers or land-agents or landowners—*bonâ fide* agricultural students, in short—resident in or belonging to the county; the tests by which their right to these prizes is to be determined

should try both their knowledge and their skill—their acquaintance with the management of land and crops and animals, their knowledge of the theory which underlies farm practice, and their individual skill in the various operations in which farm practice consists.

This is the plan, as I shall state at length directly. I don't know whether it appears wild and impracticable to you or not; but I hope to succeed in convincing you that it might ultimately attract the general attention of young men who are to be farmers—that it would lead many of them to employ in useful professional study much spare time now wasted, and that it would have a wholesome influence on the next generation of agriculturists. Perhaps in place of "county" it would be well to extend the district to the province on the Society's map to which Gloucestershire belongs, and that includes I believe Herefordshire and Worcestershire as well as Gloucestershire.

Before attempting to state the plan more in detail, I will ask what probability there is of its being accepted not merely by this Club, but by a sufficient number of subscribers in the county to ensure its success. The first difficulty in the way of its adoption now is that the low prices for the produce of our corn-fields and the great risk hanging over the cattle in our pastures make the present time extremely unfavourable for its introduction. That of course is true enough; but the subject is just now before the Royal Agricultural Society, and it seems to me that if any plan of the kind is to be brought forward at all, it must be now or never, however unfortunate the time may be.

The great difficulty, however, no doubt is that it is good schooling for their boys, much more than scientific or practical instruction after they have left school, that tenant farmers are most anxious about.

If any scheme were proposed which would bring good schooling within reach of their sons and of their means, it would no doubt excite very great interest and be very warmly welcomed. Mr. Acland's plan sympathises with this acknowledged need, and has the appearance of a contribution towards supplying the want thus felt; and no doubt a first consideration of it therefore leads one rather to favour it as a project which offers help, however slight, towards the great want of the day. I venture, however, to submit to you that the existence and the prevalence of a real anxiety on this subject is a hundredfold better security for the demand being ultimately well met and supplied by those whose proper business it is, than any small effort towards the supply on the part of any agricultural society can be. This felt want, which secures the popularity of Mr Acland's scheme for using the moneys subscribed for agricultural improvement towards the preliminary education of sons of farmers, whether they are themselves to be farmers or not, is itself to my mind the complete and sufficient proof that no such scheme is wanted. This felt want is already resulting in more and better education being procured for the rising generation in country districts than ever any previous generation had. It is already resulting in the establishment of large schools—often of county schools—a work in which county gentlemen and men of all grades in any county may properly take great interest, whether they belong to agricultural societies or not. But the supply of such schooling, or even the encouragement of it, is not properly the work of agricultural societies as such. What they have to do so is to promote the improvement of agriculture; and thus agricultural education, but not the preliminary education of country boys in general, is a work in which they may properly take great interest. To me it seems that the sure popularity of any scheme for promoting the general education of boys, and the comparative coldness with which any scheme for promoting the professional agricultural education of young men is received, are all the proof one needs that the latter of these schemes requires all the aid that agricultural societies can give it, and that the former needs none.

Of course we all know perfectly well that this better education from boyhood upwards is what more than anything else will benefit the next generation of tenant farmers—even as farmers, and still more as men; but that is a matter which is being gradually worked out already, and we need not, because it is all important, put other important aims and purposes altogether out of sight, or divert to it that share of effort and attention which is properly claimed from us by them.

I have already quoted a paper which was read last May before the Royal Agricultural Society, in which my object was to urge upon the Society that they should direct their attention, which as an agricultural society they might properly do, to the professional education of agricultural students. The education of the whole class of boys from amongst whom one and another step out to choose an agricultural career, was not my subject, and I contended it was not theirs. That was of course a much higher subject than any that could come before me as a member of the Agricultural Society; but there was no reason on that account why an attempt should not be made to deal with the much humbler, but though far inferior, yet important subject that did belong to the Agricultural Society, *namely*, how a well-educated boy should be made a good farmer. A clever writer in the *North British Agriculturist*, with whom I entirely sympathise in the estimate he forms of the relative importance of the good education which a lad should have for mere manhood's sake, whatever be the profession he may adopt, and the special education which thereafter he requires, nevertheless imagines that the purpose of my paper was to magnify the professional training as compared with the essential education on which it ought to be founded; and he exclaims to the editor:—

"You are at present writing articles on hypothec, game-laws, and other farmers' grievances—Why do these things exist if farmers think them unjust? Why do they constantly take land, knowing that it is too dear? Why do they give their strength, and their time, and their brains, and their capital for less remuneration than other people, and either occupy land by the year at the mercy of another, or sign leases with conditions such as those which have been quoted in the *North British Agriculturist?* Mainly, I maintain, because they are educated just as Mr. Morton wants them to be educated."

In another place he says:—

"The object of Mr. Morton seems to be that the lad should plough like a ploughman, stack like a stacker, shear sheep like a shepherd, and otherwise assist He will do nothing of the kind. He will at first enjoy the liberty he has so early acquired; he will think himself a man; and after some years of a lazy life, he may be able to manage the practical work of a farm as well, but certainly not one whit better than if, as a well-educated youth, he had gone for a year in early manhood to study farming at a farm, carrying with him a disciplined mind, and the cultivated brain of a man."

I quote these passages, notwithstanding their personal injustice, because they express, as strongly as I believe we all wish to express it, the feeling that after all it is an enlarged and liberal, and to the extent which time allows a thorough general education during boyhood and youth, which more than anything else is needed in order to increase the power and raise the position of any profession whatever—agricultural or other. But though we all hold this no doubt as strongly as this writer does, that is no reason for putting things to improper uses. An agricultural society is a body in which men associate for a certain definite purpose. There are some good things which thus properly come under their consideration and patronage. But there are other good things and even other better things which do not belong to us; and the conviction that there are more important things outside of our proper objects must not hinder us from giving due attention to those purposes for which in particular we have banded ourselves together. We shall certainly be all the more likely to serve our generation usefully if we keep ourselves or even *confine* ourselves to the work which properly belongs to us. And thus it is that while we may individually believe the general education of our sons to be by far the most important purpose of our lives, yet, associated as we are in a society for agricultural improvement, we may feel bound to confine our attention here to that professional training by which after this preliminary education they are to be fitted for their career as farmers.

The three points which I quoted as the grounds of Mr. Holland's advice to the Royal Agricultural Society on this subject were—1st, that the general education of boyhood is already receiving more anxious and earnest attention in country districts than it has ever done before, so that it does not need any external spur or help; 2d, that the scope of the professional education of the farmer has been of late years wonderfully extended, so that there is a field not yet properly worked nor even in general properly appreciated, over which agricultural students and apprentices ought to be urged; and 3d, that it is possible to guide and stimulate their useful studies in this field by prizes and examinations—just as possible in this way to urge to effort in the field, the laboratory, and lecture-room, as it is in this way to urge to effort in the grammar-school or college.

Of the first point I shall say no more than has been enough to convince myself that although agricultural societies should resolve that this preliminary schooling, as I call it, is no part of their business, yet there is no fear of its being neglected. Those who have the guidance of societies and public agencies are rather apt to forget, that the real work of the country is being done, not by them, but by each inhabitant of the country for himself. Agricultural education, whether in the sense of Mr. Acland or of Mr. Holland, is proceeding and will proceed pretty much as it has done hitherto. It is the relationship of father and son throughout the country that is the real security for that—the real incentive to it—the real guide of it. And however agricultural societies may act or refuse to act, farmers, more alive than ever to the value of education, will do their best for the general education of their children; and more alive also than ever, as they must be, to the difficulties of making a living off the land, they will do their best for the "professional" education of the son or sons intended to succeed them on the farm. It is in the latter point, however, where so great a novelty (comparing the knowledge of one generation with that of another) as the application of science to agriculture is at length making itself felt, that external stimulus and guidance are especially needed. For, notwithstanding the many exceptions which every neighbourhood can show, it is the undoubted fact that the tenant farmers of this country have risen and are rising more rapidly than any other in that general educational standing and intelligence which the Agricultural Society of England have thought proper to take under their especial patronage; but which, as I believe, needs that patronage so much less than the strictly agricultural education which they might have taken up. Small as the educational influence of any societies, whether national or local, over the great body of farmers in their district may be, it will be more efficient if brought to bear on their own proper work, in the field which properly belongs to them, and on ground where guidance and incentive are really needed, than it is likely to be when directed to work which is not that of an agricultural society, but of the Universities, the College of Perceptors, and other educational bodies—which moreover is not in a field belonging in any proper sense to an agricultural society, nor on ground where any help is wanted.

I hope therefore that if the Kingscote Farmers' Club should think proper to offer its co-operation to the English Agricultural Society, in any scheme for promoting agricultural education in this part of the country, it will confine itself exclusively to the professional part of agricultural training, which the National Society has hitherto neglected.

I could quote to you many letters from farmers and others in all parts of the country unanimous in the opinion that in virtue of that improved general education which the Society is only now about to take up—but which has been in active operation for a generation past—the existing generation of English agriculturists stand much higher in point of intelligence than the preceding one; and in that we have the best security for the care which the future generation of them are now receiving. I will, however, quote only one, the letter of Mr. Anthony Fewster, whom we all know:—

"Looking back from my point of view, embracing a retrospect of two generations, the advance of the agriculturist in education, in general intelligence, and in social standing is enormous, and the advance is still progressive. Comparing the present generation with their fathers, the mental and moral improvement is very striking."

Admitting, therefore, the pre-eminent importance of the subject of general education—believing too, rightly or wrongly, that the members of this Club in their anxiety on this subject would gladly, if it were possible, rather have any influence which this Club may possess directed in promotion of this on which they feel so strongly—but knowing that this general education is already satisfactorily progressing, and believing that an agricultural society should confine itself to strictly agricultural subjects, I hope that the discussion this evening may be confined to the question whether it be not possible to lend the National Agricultural Society a hand in the promotion, not of general education, but of the technical and professional training which a well-educated boy requires before he can become a farmer.

Let us then refer now to the remaining two parts of Mr. Holland's case, viz, the fact that there is a great and imperfectly cultivated field for the professional education of the farmer, and the fact that young men may be directed and induced to work in this field by prizes and examinations.

On the first of these points, what is it, let me ask, that a young man needs besides land of another and money of his own, in order to make a living by farming? He needs Knowledge, Skill, and Tact. If we call them "scientific" knowledge, "technical" skill, and "business" tact, and thus more accurately define our meaning, we do not thereby limit it, but rather extend the scope of it. All the knowledge of the skilful and successful farmer is part and parcel of one or other of the sciences; and the more and better that he knows of such natural truth as his own practice illustrates and teaches by example, the more likely are his skill and tact to avoid mistakes and to reap their full reward. I submit to you that the agricultural progress which has been witnessed by the current generation has wonderfully increased the field and increased the need of all these several branches of a perfect agricultural training.

As to the need of "business" ability:—we have now to bear the brunt of a competition for land with amateurs and enthusiasts, which has raised its value to rent greatly beyond what is its natural price for agricultural purposes. We have to contend with an extraordinary development of industry in other trades and manufactures, which has raised the price of labour far beyond what it used to be. We have to meet the world-wide competition of other food producers in the English market, thus beating down the value of much of our field produce far below those market standards which we used to try by artificial means to maintain. There are extraordinary alterations in the relative prices of our various articles of produce which must gradually lead to altered arrangements; there is business to be done, not only in the local markets, but with manure and food manufacturers in distant towns, and even with importers of English stock in different parts of the world. Is it not plain that there is unusual need and unusual opportunity in farming now-a-days for the exercise of shrewdness, tact, and enterprise?

Then as to the need of technical and practical skill: it seems to me that masters need it more than ever on the farm, and I am told of young men now taking farms that they generally possess it less than they used to do. Our labourers work less than formerly in the groove that used to satisfy them. Of course I am not lamenting this, but only stating what I believe will be generally admitted to be the fact. The sons seek better-paid employment, and there is not so much of the old-fashioned almost inherited skill handed down from father to son on which masters could depend for the execution of their orders. The relationship between master and servant is not (at least in many districts it is not) so strong and lasting as it was; and all this makes the need of special skill on the part of the master greater than it used to be. He must be able not only to give orders, but to direct their execution, on

the score of a diminished skill in agricultural labour; and still more I contend does he need this skill more than he used to do, on the ground of the greater intensity, as I may call it, now-a-days, of farming.

It is because agriculture has to do with living things that there is such especial need in it of careful, skilful superintendence. Animal life needs it more than vegetable life, and either of them need it more than is required in dealing with the dead stuff of a merely material manufacture; but the progress of agriculture has been shown in the diminution of bare fallows, in the adoption of altered rotations, in the immense purchases now made of imported manures and imported foods; and all this has gone to increase the quantity of living things upon a farm. We grow more plants upon our acres than we used to do, and we feed more animals. And on this ground, as well as because of the altered relation of master and servant on our farms, there is now especial need of practical skill on the part of the young farmer. But what is the fact? I do not know anything about it here, but elsewhere I am told that land is generally being taken by young men with much less of this practical skill than used to be thought necessary.

Thus Mr. Dudding, of Wragby, Lincolnshire, who believes in the superior intelligence of the present generation, says—

"That the practical part of the business of a farmer is in advance I do not believe. The young men of my father's time, 40 or 50 years ago, were accustomed to ploughing, grooming their own horse, and attending to a certain quantity of stock—in fact, taking part in any of the practical work on the farm. Now this is very different; not one in ten of the higher class of farmers would be capable upon commencing business of directing from his own practical experience the various operations on his farm."

And Mr. Clare Sewell Read, of Norfolk, comparing the younger of the present generation with the past, says:—

"As sound practical farmers, I don't think they are much improved; but of course their knowledge of the principles and science of agriculture must be greater."

And in Sussex, Mr. Ellman says:—

"I believe that the present race of farmers are not so well informed upon the general working of the land as the last generation, but we possess many appliances which formerly were unknown. I may say that I know of no young man in this neighbourhood, of the age of 22, who is capable of conducting a large farm to advantage unless entirely trusting to an experienced bailiff."

And it appears to be the general opinion that the present generation of young men among the tenantry, to whom, on the score of general intelligence, there is generally conceded a higher social position than their fathers had, possess no such superiority as regards that professional ability or skill which now more than ever appears to be required.

Lastly, there is the professional intelligence on which this skill ought to be founded. What an immense field is open to us here, compared with what there used to be. Formerly a man's professional career as farmer was limited to the area represented weekly at the local market town. The practice which long experience had established in the district was the sum and substance of all the discussions in which he could take part. If a theorist intruded, it was generally with some lop-sided or imperfect truth which distorted his own judgment and was soon laughed to scorn by that of his practical hearers. If a strong-minded practical man, such as the late John Smith, of Bowldon, formed one of the comparatively small circle, his extension of the field of thought and of discussion was confined to the urgent recommendation of mere points of farm practice—the expedient of stifle-burning, for example; or the substitution of a six-field for a five-field rotation of crops. How is it now?

John Smith had an occasional agricultural correspondence, which remains to us, with a friend in Scotland, and he used on rare occasions, with much labour and expense, to travel beyond the county, and thereafter bring plenty of fresh material for hearty conversation with his friends at home. How is it with us? We have the penny post that gives us correspondents everywhere, the railway system which promptly takes us anywhere, and the penny daily paper that brings everywhere, as you may say, to us. It is no longer the mere farm, or parish, or market town which limits our agricultural intelligence and insight; we have the farm practice of the whole kingdom continually before us, and periodically the National Society steps from one county to another, and brings the farmers of the whole kingdom into actual converse with ourselves. Nor is this all. It is not nearly all. We have now the advantage which the enthusiastic labours of men of science for at least a quarter of a century have given us, of a full knowledge being accessible of the natural properties and relations to one another of the substances with which the farmer deals. Here we come into the region which those practical men who have succeeded without this knowledge call "theory." It is no theory at all. It is as truly real and absolute and substantial truth as anything that can be dealt with by the horse and cart or butcher's scales. The relations to one another of the several kinds of material atoms of which the world is built, are the subject of immutable laws which govern, whether we know it or not, the results which we gather in the harvest field and market place, as much as they do the multitude of examples where (carefully secluded from disturbing circumstances) they have been studied in the laboratory.

A large and comprehensive knowledge of these laws, and of their relations to the experience of the farmer, was not possible to those who took their farms 20 and 30 years ago. It is possible to any young man who takes a farm at present. And is it not desirable that he should have it? Is it not well that besides the mere knowledge that such and such results will follow such and such a practice in the field, a man should know *all* about it, with that completer understanding which sees the process apart from its circumstances, and distinguishes between the essential history of the case and the mere local colouring in which that history is wrapped. The practical value of this scientific knowledge has been already proved by the light which it has thrown on the action of manures and on the processes of the meat manufacture, *i. e.*, on the growth of both plants and animals. It would be easy to illustrate the advantage which such knowledge must confer upon the farmer at any length, but it is not necessary to do so here, for you have already acknowledged this advantage by the chemistry class which has been formed here, and taught during the past season by Professor Church, of Cirencester; so that this county has the honour of having led the way in the acknowledgment of the value of scientific knowledge, both by the establishment of the Royal Agricultural College, and by the formation of local classes for the study of the sciences of agriculture.

Well, then, gentlemen, I think I have stated at sufficient length the largeness of the field over which a strictly agricultural education extends. The student or apprentice must acquire in it knowledge, skill, and tact before he is properly qualified as a farmer, and the severity of competition everywhere has made them all more necessary than ever for his success. And while I have admitted in all humility the comparatively greater importance of the preliminary general education of boyhood and youth, I may appeal to you whether, after however slight a survey of the extent of knowledge which a thorough good agriculturist requires, there is not even here, in the strictly professional training which he ought to undergo after leaving school, ample scope for that enlargement of the whole aim and mind of the man which is the best fruit of what is called a liberal education, and on which we must depend for the ultimate influence and position of agriculturists as a body.

My opponent, as he thinks himself, in the *North British Agriculturist*, takes the case of a lad leaving school early and half educated for that agricultural training which he requires, and he says:—

"Before he gets the length of starting with his capital, what has been the education of this lad from 14 to 20?—for education of some kind he must get. I think I can tell you. He has learned to brown pipes and smoke no end of tobacco."

And then follows his passage, already quoted, about the advantage of coming well educated to the work of the farm.

The better educated a lad comes to learn his business as a farmer the better is it for himself and for his subsequent professional career, but when once he does start work in the agricultural groove, whether his education be defective or not, let us not leave him to the pipes and liberty and laziness which my friend foretells for him; let us see if, whether in a College, or on farms, he cannot be induced to take an interest in the studies and the operations by which the knowledge and the skill of the thoroughly well-educated agriculturist are to be acquired.

It is here then that I believe the Agricultural Society of England ought to have taken him in hand. Their periodical examinations, whenever and wherever such services were requested, would have tested the proficiency of agricultural students in two at least of the three essential conditions of professional success.

The great objection to this course was the alleged impossibility of determining agricultural proficiency by examinations. Doubtless you cannot ascertain the tact or business ability of a young man in this way, but you can ascertain his knowledge and his skill, and that is at least as much as can be tested by the board of naval examiners who pass cadets and lieutenants on board ship, and who are believed in as a guarantee of their professional intelligence and skill.

I would not have these examinations and competitions to be mere verbal catechism. There is already almost everywhere, or there used to be in the classes for sons of farmers at our ploughing matches, a precedent for the much more elaborate trial of skill by which I should like to see the agricultural students and apprentices of a county make good their claim to the Society's honours and rewards. The *North British Agriculturist* is quite right in saying that I would have the young man plough like a ploughman, shear like a shepherd, thatch like a thatcher, and pleach a fence like a hedger, and there is no reason why his ability in all these capacities should not be well tested by a board of agricultural examiners. Of course there is no doubt that his scientific knowledge could and should be properly ascertained both by a series of written questions and by a conversational examination. So also could most of his practical knowledge be tested in this way. The ordinary rules of farm practice, the processes of tillage and of manuring, the details of crop cultivation from beginning to end, the history of the horse, ox, and sheep, from colt and calf and lambhood upwards, like that of all other domesticated animals, can be described by any one acquainted with them, and an acquaintance with them can therefore be tested by question and answer. I have said we can test in this way the temper, tact, and common sense in which capacity for business consists, but even here we can determine the degree of knowledge on which much of this capacity depends. There is no reason that I know of why men contending for the prize of superior merit here should not have their ability tested by being set to the making out of an inventory and valuation on entering to any farm that might be made the subject of their examination. I contend, therefore, that taking both practical examination in-doors and actual trial out of doors into account, it *is* possible to determine in this way the agricultural proficiency of candidates for prizes. And I think it cannot be disputed that the institution of local, or county, or provincial examinations in this way, supported by adequate premiums, must tend to stimulate many a young man of the district, county, or province in question to the better equipment of themselves as farmers. It would, in other words, promote agricultural education, and thus tend directly to the work of agricultural improvement which is the proper object of agricultural societies.

My proposal therefore is, that this Farmers' Club, after a sufficient discussion of the project here, or before a committee of its members, issue a circular letter to landowners and others in this district, county or agricultural province, declaring the nature and importance of the object, and asking for annual contributions towards the prize fund, which must of course be the mainspring of the affair. If you could obtain 150*l.* or 200*l.* a-year promised for 5 or 10 years within the limits of the district, then you might fairly go to the National Society and claim from them some assistance both of money and of men. If the local club undertook the arrangements for the field trials of skill and of practical knowledge, and the National Society undertook the examinations into science and practical knowledge—if the local club brought an annual contribution from the district of 150*l.*, and the National Society offered another 100*l.*—we should have both a thorough test and determination of agricultural proficiency, and we should have in both honour and emolument attractions enough, I believe, to induce many a young man to give much more time to self-improvement than he would otherwise have done, and both Society and Club would be working within the limits of their proper fields of operation.

I know examinations in agriculture for mere distinctions and diplomas have hitherto been almost a failure. The Society of Arts tried it for several years, but they have had to give it up for want of candidates. The Highland and Agricultural Society have had hardly any candidates for their diplomas. I can't help thinking that the localising of the affair, and the local interest which will thereby be created in its favour, may secure success here notwithstanding failure elsewhere. And as regards the particular province on the Society's map which includes this county, there are at least two reasons why we might especially expect success in it. The first is that this county has already shown a good example in the same direction. It will be quite a fitting thing that the Kingscote Farmers' Club, with its county or provincial scheme for agricultural examinations, should follow the Cirencester and Fairford Farmers' Club, through whose agency, stirred up by the late Robert Jeffries Brown, the Royal Agricultural College was founded. The second reason for expecting success in Gloucestershire is that we have already occasion in this county at Cirencester a body of professed agricultural students, to whom a stimulus of this kind would be serviceable, and from whom we should unquestionably see many a candidate for the local and national honours to be dispensed; and it will certainly be an additional merit in the scheme if any usefulness or help should thereby accrue to an Institution which deserves well of the country as the Royal Agricultural College. And lastly, as a third reason for expecting a successful issue here, if we except the name of Professor Wilson of Edinburgh—the minority of the Agricultural Society's Education Committee who supported Mr. Holland's views, which I have been endeavouring to defend, are all Gloucestershire men—Mr. Holland himself, Mr. Charles Randall, and Colonel Kingscote are all owners or occupiers of land in Gloucestershire, and if the Kingscote Farmers' Club should feel disposed to act on the suggestions I have made, they can hardly fail of obtaining in this county through the gentlemen whom I have named, a favourable consideration of the proposal.

THE CATTLE PLAGUE.

1. My father in carving used occasionally to knock a glass off the table and smash it, but it was never his own fault, but the fault of those who put the glass in his way. Much the same is it with the "contagionists"—when disease attacks them they look around to see where they have "caught" it, not knowing that it has become developed within themselves, by circumstances and conditions which they have greatly under their own control. Unquestionably, when once an epidemic is developed in any one individual it is contagious; but it does not follow that the first attacked "caught" it. The world is supposed to have been created; if so, was the cattle disease created at the same time, or has it been subsequently sent—from heaven or the other place—or did it issue from Pandora's box?

must have had a beginning, and if not directly sent to our earth, it must have been spontaneously, or, more correctly, gradually developed under circumstances favourable to its development; and if originally developed under the said favourable circumstances, why can the development not take place any number of times under similar circumstances, the same with other contagious diseases, as small-pox, scarlet fever, &c.? But, however the case may be, it is satisfactory to find that a few persons are taking a common-sense view of the disease and treating it in a common-sense manner; in witness thereof see the letter in your Paper from Mr. Graham, of Capellie. Whether it be inflammation, or fever arising from infection, or from the locking up in the body of the excretory or excrementitious matter of the blood, the treatment is the same, and that is by acting on the excretory organs, to get rid of the matter improperly locked up in the body, the only outlets being the skin, the kidneys, and intestinal canal. There is no way of charming disease away by specifics. You must open the door and let him out the natural way; assist Nature, as Mr. Graham has done. After cleaning out the viscera and acting on the kidneys, there is nothing to equal sweating, by whatever means it may be produced; but if the disease is active the treatment must be so also, and it is no use giving in until reaction takes place. As an instance, this time last year I was attacked with muscular rheumatism or lumbago, but of so violent a character that I could neither walk, stand, sit, kneel, nor lie down; the slightest movement, bringing into action the muscles of the back, was most excruciating, the sensation being as if the muscles were being torn in pieces, and I could not help ballooing out on the slightest motion. I was puzzled what to do, but was sensible that active treatment must be adopted, as I was getting worse. My wife suggested a sweating bath, and with her assistance and continuous baths, aided by a gentle purgative, I mastered the attack in seven hours from taking the first bath. I took four baths between 8 o'clock in the evening and 3 in the morning, lying down between each bath, and remaining in the bath until slight feelings of exhaustion came on; at 3 o'clock I was so far better that I dropped asleep until 5 o'clock; three more baths completed the cure, one about 10 o'clock in the day, and one on each of the two following days. One word more, Mr. Editor, upon how contagious diseases enter the body. If or when they do enter by infection, it is through the stomach, not through the lungs—nothing but pure atmospheric air ever enters the air-cells of the lungs; all impurities are taken up by the mucous membrane, and are either expectorated or pass into the stomach, and thence into the blood by the lacteals. That may be a new idea to some, but it is nevertheless a fact; the blood is never rendered impure by air taken into the lungs, but the lungs may not take in sufficient oxygen to oxidise the blood, leaving it over-charged with carbon; that is a condition entirely dependent upon exercise, or a diseased state of the lungs. Having written until I am tired, I will now wish you good day, Mr. Editor. *Philosopher.*

2. The following Cattle Plague Returns have been issued by the Veterinary Department of the Privy Council Office. They do not profess to give the total number of cases which have occurred in Great Britain, but only those which have been ascertained from the official information received at the office from inspectors, whether appointed by the Clerk of the Council or by the local authorities. The divisions of England are those of the Census:—

—	During week ending October 28	During week ending October 21.	Total cases reported from the commencement of Disease.				
			Attacked.	Killed.	Died.	Recovered	Remaining.
1. Metropolitan Police District	158	194	5773	2557	2529	202	485
2. South Eastern Co.	205	154	3284	1169	1667	197	251
3. South Midland Co.	230	94	833	373	282	42	136
4. Eastern Counties.	335	183	3031	1051	1482	161	337
5. South Western Co.	3	11	116	51	45	7	13
6. West Midland Co	31	9	214	74	112	4	24
7. North Midland Co	18	32	109	54	41	6	8
8. North Western Co.	42	39	176	55	75	6	40
9. Yorkshire	113	39	253	66	126	11	50
10. Northern Counties	34	86	472	212	201	24	35
11. Monmouthshire & Wales	28	60	180	51	110	4	14
12. Scotland	666	828	3182	1153	1241	184	604
	1873	1729	17,673	6866	7912	848	2047

The *Times* has the following remarks on the previous week's returns: At length we have got some statistics of the Cattle Plague, and a ghastly look they wear. Upwards of 14,000 animals are known to have been attacked by the Plague since its first appearance, and of these nearly 12,000 have died. To be sure more than 5000 of these victims were killed to save curing, but they swell the total loss of stock. As to the recoveries, there are registered just 707, which would be only 5 per cent. on the whole attacks; but then the proportion can, of course, only be measured by the number of cases in which cure was attempted. The metropolitan district appears to have suffered most, as might naturally be expected, though perhaps the tale is swelled in this case by the greater completeness of the reports. Then come the South-eastern Counties, and then the Eastern—which, however, according to the classification adopted, include only Essex, Norfolk, and Suffolk,—and then Scotland. These four districts account for upwards of 12,000 cases out of the whole 14,000, leaving only some 2000 casualties for all the rest of England and Wales. In fact, there are whole groups of counties where but a score or two of cattle have been lost. This is certainly reassuring, but we must observe that the returns from which we quote only profess to represent the cases reported to the authorities, and are not supposed to express the actual extent of the visitation. They are correct enough, no doubt, as showing the distribution of the disorder, but not as measuring its ravages. More satisfactory assurance may be derived from a discussion in the Common Council last week, when questions were asked about the progress or decline of the disease in the metropolis. To this, the Chairman of the Markets Committee replied that, as he had no information from the London cow-sheds, he could not answer the question directly or positively. What he could say, however, was that there were very few diseased animals brought to market. On the last two market days two sick animals had been discovered, and no more. But this was not the whole extent of the evidence. Mr. Gibbins was able to add that, though the markets could show such clean bills of health, it was not owing to any restriction or diminution of supplies. On the contrary, the number of cattle coming from abroad was greater than had ever been known, while milch cows were to be found as pure and as productive as usual. This is certainly welcome intelligence. The general wholesomeness of the meat brought to market during this season of infection has been remarkable. Probably the increased care and vigilance of the authorities, now naturally on the alert, have more than compensated for the greater prevalence of disease. At all events the actual supply has been little interfered with, though prices have risen.

SOCIAL SCIENCE CONGRESS.

[The following is the paper on the Game Laws read by Mr. Hope, of Fenton Barns, the President of the Edinburgh Chamber of Commerce.]

After giving the history of legislation on the subject, he said:—At present, almost every newspaper in Scotland is discussing the effect of proposed alterations or modifications for the amendment of these laws, and at least some advocate their total abolition. Even a cursory examination of them will show how vindictive, if not ferocious, the penalties are for any infringement of their enactments. Their effect is also most disastrous on the morals of the labouring class in the rural districts. Within the last 20 years the convictions under them have increased from 5000 to upwards of 10,000 in England alone. The losses sustained by tenant-farmers from the destruction of their crops by game has long been a cause of just complaint, and it is admitted by every competent judge that high or profitable farming is incompatible with game preserving. I have a strong belief myself that all game laws might be utterly abolished with great advantage to the whole community; and if a more stringent law of trespass was thought necessary, that no special damage was instructed, a penalty not exceeding 40s. might be recoverable like other debts, besides compensation for any damage, even the carrying off of hares or pheasants by wilful trespassers; but I appear here as representing the Scottish Chamber of Agriculture, and I propose simply to advocate the resolutions agreed to by that body, and to show that these laws ought to be modified and amended, so as at least to render them more in harmony with justice and right feeling.

There can be no reason for a qualification Act being in force in Scotland, when none is required in England. In the latter country a tenant had full right to the game on his land unless he voluntarily divest himself of it in his agreement with the landlord, but in Scotland a tenant cannot hunt or kill game without the special authority of his landlord, however long his lease may be, even though it were renewable for ever. It is even matter of doubt if the owner of an entailed estate can legally grant a lease of the game for a term beyond his own life. On the other hand, proprietors and all authorised by them may hunt or kill game at pleasure in the fields and enclosures occupied by a tenant. Doubtless, a landlord had full right to make his own terms in parting with his land, provided he can get people to agree to them; but to let land first to grow crops, and then, it may be, to let the right of consuming these crops, or to retain it for himself, is, to say the least of it, unwise on the part of the agricultural tenant, and not very creditable on the part of the proprietor. In Scotland, tenants are invariably assured that the game will be kept down, so as to prevent injury to the crops, and this promise is generally kept by the great majority of landowners. Still, there are numerous instances of great losses to tenants, particularly where hares and rabbits are preserved. It is true many tenants bind themselves to refrain from seeking all redress for losses from game, however much their crops may be destroyed. It is exceedingly foolish, but it is more so in appearance than reality, as game damages are found to cost more in recovery, even when successful, than the amount claimed—that is to say, if the landlord litigates the case, as he has it in his power to do, and generally does. If the suit is commenced before the Sheriff, it can be taken to all the higher Courts successively; but even if begun before the Lord Ordinary in Scotland, it can be carried to the Outer House, and then the Inner, and finally to the House of Lords. The decision there is final on the merits, but the amount of the claim has to be settled by a jury trial, which may result in a new or second trial on the ground of the damages being excessive. The expense and anxiety of this course of action makes it wisdom on the part of the tenant to submit to the first loss, and endeavour as speedily as possible to get quit of the farm. Were actions for game damages to be final before the Sheriff or paid magistrate, justice would be more easily attainable, and landlords would then become more chary of increasing game to an unreasonable amount.

2. But besides the actual damage done by game, it is the cause of more jealousy and quarrels betwixt landlord and tenant than all other causes put together.

I was lately shown a letter written by a proprietor to one of his tenants, dated early last month, and of which I took a copy, as a curious specimen of the light in which some proprietors view their tenants, and the [illegible] conduct they sometimes, unconsciously, use towards them. In this letter the landlord complains that the son of the tenant "had been shooting rabbits, and without the slightest excuse in the way of their damaging your crops. Some time previously my keeper and gardener saw your son and another person near ——, having a greyhound with a loose rope round his neck. Of course it is not difficult to conjecture what was intended. You are yourself, I believe, aware of an incident where your son, and I believe two other persons, were distinctly seen to course several hares. Whether this was on my ground or that adjoining, I am uncertain. However, I fancy it is very doubtful whether the proprietor's permission was given to such a proceeding." Finally, he "hopes he may have been misinformed;" but does not think having him for a tenant a subject for congratulation. Now, there is not one word about game in this tenant's lease. Rabbits are by law game and not game; but they were not game to the tenant in this case, and he could shoot or trap them as he chose. The landlord, in fact, admits this, though he seems to think the rabbits should have first damaged the tenant's crops. I would ask, what did they live and multiply on but the crops? They could not be there at all without damaging them. Then the boy seen with the greyhound and the rope round his neck (a boy under 9 years of age) on the public road; why, he was simply taking home the animal that had strayed from a neighbouring farm, the same where the coursing took place. This story of the coursing is a beautiful illustration of the sort of tales carried by gamekeepers to their masters, and of the credulity of the latter. The keeper had seen "distinctly" this tenant's son and two other persons course several hares, but were unable to say whether it was on this farm or that, though it was on an estate where the tenant had leave to course, and where the boy went by invitation. Mark also the view the landlord takes of what he styles "such a proceeding" (the coursing of hares by a tenant). "I fancy it is very doubtful whether the proprietor's permission was given." The arrogance of this letter will be more apparent when I tell you that this tenant has spent several thousand pounds (not a penny of it made by farming) in bringing into cultivation some 200 acres, by trenching, liming, draining, and fencing with stone walls what was previously a barren heath. He was under no obligation to do so, and it is doubtful whether he will recover the whole of his capital; but one thing is certain—he will at the close of his lease return the farm to the landlord worth a great increase of rent, the effect of these permanent improvements effected by him with his own capital. Few tenants care about shooting or hunting. I believe not one in ten would use the privilege if they had it, and I have come to this conclusion from my knowledge of those who have or have had the sporting on their farms. But there is one thing they do dislike, and that is, being watched and challenged for herd boys firing guns, and sheep dogs frightening hares. I will say further, tenants are glad to see the landlords sporting on their farms, provided the game is only sufficient for fair sport, and that it is not preserved for a single day's murderous slaughter, as is now the fashion, and the produce sent to the poulterer, to the diminution of that produce which should have been sent to the butcher. Partridges, even when numerous, do comparatively little harm to crops. Pheasants are very destructive, but they are confined to particular localities, where they are reared under hen coops, and fed by the hand when young. They are excellent birds on the table, but I cannot see the sport of shooting such large half-tame animals.

3. Cultivated land in the neighbourhood of preserves should be in the owner's hands, but if farmers do hire land in such situations, they know what they may expect:—

Sometimes preserves adjoin the farms of other proprietors, and I have known some hard cases where the tenants' crops were greatly injured year after year by game reared on adjoining properties, and the tenants refused all redress. But hares and rabbits are the great causes of complaint, and they increase rapidly if simply let alone. On many farms Swedish Turnips cannot be left on the ground during the winter without great loss, as the hares break the skin of root after root, which renders them liable to be easily destroyed by frost. It is often impossible to lift them in the autumn without poaching the land in wet weather, and even if they could be removed, they are worth much more to consume by sheep in spring on the land where they grow. A perusal of the evidence given before Mr. Bright's Committee on the Game Laws cannot fail to prove the difficulties farmers have frequently to contend with in regard to game, and the damage done to their crops by hares in particular. The evidence of the late Mr. Pusey, Sir Harry Verney, and Lord Hatherton is most conclusive on these points. I will only quote a few words from Lord Hatherton's evidence:—"I soon found, as a farmer desirous of introducing among my tenantry and into the neighbourhood a better system of cultivation, that it was utterly hopeless to do so unless I completely destroyed the hares; for the attempt merely to reduce them was useless, for a good season repaired their numbers to such an extent that I found there was no effectual cure but destruction." And again:—"Hares will travel miles to the nearest field of Swede Turnips"—a statement which I can personally corroborate. I have even counted 100 hares on a young Grass field on a spring morning, not half-a-dozen of which remained on the farm during the day, but retreated to their cover, fully two miles off. No one who farms land extensively, or who takes a practical interest in agriculture, will continue long to consider hares game, or anything else but a nuisance. The Marquis of Tweeddale is well known throughout the kingdom as a most enlightened practical agriculturist. I do not know a single person who makes his bread by farming whose reputation for skill in agriculture stands so high as his lordship's does in East Lothian, or who has done so much in introducing and promoting a profitable system of farming. Now, his lordship preserves partridges and pheasants for sport to his friends; but hares are not permitted to consume either his own crops or those of his tenants. Lord Tweeddale also sets a noble example to other landed proprietors by his systematic destruction of wood pigeons, which are a pest that cause more loss and expense to farmers as a body than even game; but they have increased to their present enormous numbers simply from extensive woods and plantations being devoted to the rearing of game, and by gamekeepers destroying all birds of prey. But to return to hares: I think it must be evident that their preservation in a cultivated country is quite irreconcileable with the interest of the general population. Whatever I have said as to hares applies with double force in regard to rabbits. Let both, then, on all cultivated land, be considered by the law as vermin, and after that landlords may make what stipulations in their leases they choose regarding them. There is one thing I decidedly protest against; and that is a licence, for even the smallest amount, being necessary for their destruction any more than for the killing of rats and mice. If

a farm were let on condition that rats were to be preserved for the sport of the landlord, and should a farm-labourer accidentally or even systematically destroy them, I do not think any penalties could be inflicted on such a person or even on the tenant of the farm. But if the licences are retained (unless the sanction of the proprietor is granted for destroying them), nothing will be gained by any change that can be proposed.

4. I know it is said, why do not farmers make such stipulations in their agreements with their landlords as to ensure their freedom from game ravages?

Doubtless it is in the power of a tenant to refuse to occupy land unless the game is let along with the right of cropping; but this is not and has never been the custom. The game has ever been universally reserved by the proprietor; it is impossible to obtain land on any other condition, and those who insist on having the game may make up their minds to retire from the profession of a tenant-farmer. It is the law, and the law only, that enables the proprietor to carry out his terms in regard to game. The tenant is the weaker party, and surely it is not asking too much to have so far abolished this law which enables the stronger party to carry out measures so detrimental to the rural population. But there are ways in which some farmers protect themselves from hares, and one is by having an active man on the farm who knows how to set a wire. This is much more common than is generally supposed, but it frequently leads to great evils. I have known some old men who have snared hares from their youth, and who never went further; but as a rule it is merely a training for those who make midnight incursions into pheasant preserves. By a single night's work in these preserves as much money is realised as by a month of honest labour. Riotous dissipation and idleness are sure to follow. Necessity soon compels them to try it again and again. If caught at last, to gaol with them is the order. The chaplain there finds it impossible to effect the slightest reformation in them, as they indignantly deny they are thieves. They confess to having broken a law, but then it is a law of man's making, not of God's creating—for no one can say these laws carry on their front the broad impress of truth and justice, which all laws ought to have.

5. One great improvement in the administration of these laws would be to have the trial of offences under them conducted before the paid magistrates in England and the Sheriffs of Counties in Scotland, in place of the Justices of the Peace as at present.

In the Night Poaching Act sheriffs are mentioned, and have jurisdiction; and all transportable offences must be tried by the Court of Justiciary. Now, Justices of Peace are almost the only individuals interested in this matter; while their powers of punishment are great and arbitrary, and their judgments on the merits are final and conclusive. In both common and statute law judges are debarred from sitting in judgment where they or their friends have the remotest interest; but these game laws have been enacted and are maintained for the sole benefit and pleasure of the very men selected to try offenders against them. One of the worst features of the game-laws is the cumulative penalties that may be heaped on an offender. A person trespasses in pursuit of game. He is taken in the act; and a Justice of the Peace fines him for such trespass. But he has killed a hare or pheasant; a second fine is inflicted for being in unlawful possession of game, not being a duly qualified person. If he pays these two fines, he is next brought up for want of a certificate; and instances are by no means rare of persons being thus punished three times for the one offence.

[Mr. Hope then proceeded to state what the game laws are in Scotland, concluding as follows:—]

The resolutions adopted by the Scottish Chamber of Agriculture were:—

"1st, That hares and rabbits be dropped from the game list.

"2d, That all prosecutions for offences against the game laws be transferred from the Justices to the Sheriffs of the respective counties.

"3d, That cumulative penalties for the same offence be abolished.

"4th, That damages be made eligible by statute in all cases of injury caused by increase of game during the currency of the lease—the amount to be determined under the authority of the Sheriff."

If effect were given to these resolutions by legislative enactment, it would satisfy by far the greater proportion of agricultural tenants, and would tend much to make a better feeling in society; and if the complexities of these laws were simplified, and their cumulative severity diminished, the object at which they aim would be better attained, as they would more generally enlist in their favour the feelings of the community.

The Chairman (Mr. Holland, M.P.) thought that in connection with this subject the association ought to be very much obliged to Mr. Hope for favouring them with his very interesting paper, and he congratulated Mr. Hope on the fact that the subject of the game laws was the first that was brought under the consideration of the members of that Chamber of Agriculture which he himself had been the chief means of founding in Edinburgh. The question of the game laws had now been before the public for a long period. Ever since Mr. Bright's committee made their report, it had been brought forward from time to time, and that report had been quoted—quotations from it had been read with avidity by those who were most interested in the management of game and in the prevention of its being a check upon the occupiers of the soil. He felt convinced that—before many years were over—the feeling of the public and of the landed proprietors would induce them to make such a change in the law as would benefit the occupiers, and at the same time would produce on the part of the labourers a great inducement to avoid those immoral habits which had arisen under the system of game preservation, and which had caused so very much crime in the course of those years during which the game laws had been in existence.

Mr. Henry Wilson, Mansfield, Notts, said that until the public mind was brought to bear on the subject, they could scarcely expect to get any alteration in the game laws. He was surprised to hear some of Mr. Hope's statements, as, for example, that there had been 10,000 convictions for offences against these laws; and he thought if these facts were placed prominently before the public they would see that this was a matter which affected not the owners or occupiers of land only, but the whole community. One very important consideration was the position which the landlords themselves occupied through the operation of these laws. Only yesterday, he was told by a respectable farmer that he had got notice to quit his farm. On asking the reason, the farmer informed him that he had been fool enough to talk too much about the game laws. He had been complaining of the damage done by the game to his crops, and his landlord, not liking to hear so much about the matter, gave him notice to leave. That was the way in which free speech on this subject was sought to be put down.

Mr. George Hurst, Bedford, said that a great deal of the poaching which was so much complained of arose, not from the fact of the preservation of game, but from the very unfortunate circumstances in which the agricultural labourer was too often placed. During the winter months and a great part of the summer, a great proportion of the agricultural labourers in the country were unemployed; and as their remuneration when they were working was small, they were glad to take advantage of any opportunity of adding to their own and their families' subsistence. He thought the game laws might be greatly improved, especially in the way of simplification; but he did not see how they could do away with them altogether. The game must belong either to the owners or to the occupiers of the land; and, as between the one and the other, an agreement must determine who had the right to kill game. He did not see that the tenant had anything to complain of if he took his farm knowing that the landlord reserved to himself the entire right of shooting over it. If damage were done to the crops from game, it was one of the consequences of the agreement the farmer had entered into.

Mr. Hope said that in Scotland there was no such thing as a labourer being unemployed for part of the year. The agricultural labourers there were equally well employed throughout the whole season. With regard to the legislation necessary if the game laws were abolished, he had distinctly stated in his paper that if the game laws were abolished altogether they must have a trespass law, and that that law should be made to apply even where no damage had been done. He would, however, have the penalty of moderate amount, say about 40s., which would probably prevent some of those murderous conflicts which took place between the gamekeepers and the poachers, the latter being tempted to resist to the utmost owing to the severity of the penalty.

Home Correspondence.

The Cattle Plague and Quarter-evil.—As I have received notes from gentlemen in Bedfordshire and Somerset inquiring about the recipe against quarter-evil, it may be well if you could give a notice that the recipe is one ounce of saltpetre (nitre), and two ounces of flour of brimstone (brimstone); the animals being kept in the yards on a little hay until the following morning. *John Thornhill Harrison, Frocester Court, Stonehouse, Gloucestershire.*

Fowler v. *Smith.*—Having been a constant reader of the *Agricultural Gazette* for the last 10 years, I have been often amused at the pungent remarks of Mr. Smith, of Woolston, on the subject of steam cultivation, and like many others have admired the pluck and obstinacy of the proprietor of the "Little Implement," if not the implement itself; and though holding very different opinions on the same subject, having been smitten with the prevailing idea that Mr. Smith has sold many more sets of tackle through the ingenuity of his argument than that of his implement, I have hitherto hardly dared to contradict him in public print; still, from reading his article on Steam Cultivation in your last week's Paper, I am almost compelled to add a little of my experience on the other side of the question. I may observe, that as I am not an implement manufacturer, or agent for the sale of any implements whatever, I have no personal interest in the dispute as to which is the "best application;" but being about the largest proprietor of steam cultivating machinery in England, I think I may fairly lay claim to some experience in the matter, and I must really tell Mr. Smith that the comparative statement of the cost, &c., of the two sets of tackle that he publishes, is a very one-sided affair, as nothing whatever is said about the depth and quality of the work done, and it is attempted to put in competition as to matter of cost, two widely different articles:—the one, a large powerful set of tackle, suitable for hiring out, and that has to work in a heavy country, and move from place to place (sometimes probably 10 or 15 miles), and that is called to go into the worst farms and the worst fields on those farms, and expected to tear up the ground 10 or 15 inches deep; and the other is a small set, kept at home on one farm, probably set out to suit them, and only moving from field to field, and perhaps many of the same fields three or four times over, and only working about 6 inches deep. Hence the difference between 6*s.* 10*d.* and 14*s.* 7*d.* per acre, which no doubt would occur under such different circumstances; but the value and quality of the work done in most of the public and private trials that I have witnessed as between Smith and Fowler, is as a garden rake to a spade; and to prove to Mr. Smith that that is the real relative estimation that they are held in in heavy clay countries, I may inform him that I have for the last two years and a half let out two sets of Fowler's large double engine tackle in this county, and they have never lost a day's work except from bad weather or breakages, and that there are also in my neighbourhood six or seven sets of Mr. Smith's own small tackle, nearly all of which are to be let out, but are scarcely ever employed except when mine can't go, though they charge only 6*s.* per acre and I charge 20*s.*, and consider it worth all the money, and of course so do my customers, or they would not pay for it. And now, passing over the matter of cost, I may take the next head, "quantity of work done," and the same remarks apply to that. It is a very easy matter no doubt for Mr. Smith to do, as he tells us, nearly 8 acres a day (for six days in September) on his own farm, where he has been over and over the same ground with the same implement a dozen times, and not very deep now. But when I tell Mr. Smith and your readers that in the 25 working days of last September, I cultivated with one of my sets of tackle exactly 225 acres, or 9 acres a day, and that on seven different farms of stiff heavy clay land that had never been steam-ploughed before, and tore it up from 12 to 18 inches deep, I think you will all agree that notwithstanding Mr. Smith's claims for his little pet, there is quite as much and more praise and credit due to the great tackle and the great inventor who devoted his whole life to its perfection. *Joseph Nicholls, Queen-Camel, Somerset, Oct.* 24.

The Champion Wheat Crop.—If Mr. Hallett will refer to my statement, page 878, Sept. 16, he will find these words:—"Mr. Hallett withdrew from the trial in consequence of not being able to secure judges." Mr. Hallett still denies this; will he therefore tell us whom he did secure? He also says that he has just threshed his crop, and that it will bear comparison with any other in every respect; then why does he not go on with the trial? I am quite ready. I am sorry, Mr. Editor, you did not publish our correspondence that Mr. Hallett sent you; it would have placed matters in their right light. *Charles Bates, Dagenham, Oct.* 28.

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

Monthly Council: *Wednesday, Nov.* 1.—Present: Lord Tredegar, President, in the chair; Earl Cathcart, Lord Chesham, Lord Feversham, Lord Walsingham, Major-General the Hon. A. N. Hood, Sir J. V. Shelley, Bart.; Sir T. Western, Bart., M.P.; Mr. Acland, M.P.; Mr. Amos, Mr. Barthropp, Mr. Bowly, Mr. Burgess, Mr. Cantrell, Colonel Challoner, Mr. Clayden, Mr. Dent, M.P.; Mr. Druce, Mr. Brandreth Gibbs, Mr. Hamond, Mr. Holland, M.P.; Mr. Jonas, Mr. Lawrence, Mr. Pope, Mr. Randell, Mr. Rigden, Mr. Sanday, Mr. R. Smith, Mr. Thompson, Mr. Torr, Mr. Henry Wilson, Mr. Jacob Wilson, Mr. Frere, Professor Simonds, and Dr. Voelcker.

The following New Members were elected:—

Atchison, William, 18, Cannon Street, London, E.C.
Boolds, Cornelius C., Plymouth
Bulteel, John, Pamflete, Ivybridge
Cooper, Jonathan R., Manor House, Barton, Bury St. Edmunds
Day, Richard, Hodroyd Hall, Wakefield
De Westphalen, Count Clemens, Laer, viâ Cologne
Garnier, Charles, M.A., 11, Grove Street, Oxford
George, Richard, Waterston House, Puddletown, Dorchester
Huntland, William, Rodley, Westbury-on Severn
Houghton, John S., Railway Hotel, Southampton
Loye, Philip, Kingston Villa, Mannamead, Plymouth
Lyle, Joseph, Bonython, Helston, Cornwall
Smith, Roger, Plymouth
Turnham, George, Barnham, Thetford

Finances.—Major-General the Hon. A. N. Hood, Chairman, presented the report, from which it appeared that the Secretary's receipts during the past three months had been duly examined by the Committee and by Messrs. Quilter, Ball, & Co., the Society's accountants, and found correct. The balance in the hands of the bankers on the 31st October was 870*l.* 14*s.* 5*d.* The quarterly statement of subscriptions and arrears to 30th September, and the quarterly cash account, were laid on the table. The Committee recommended that the sum of 2000*l.* be sold out of the funds. This report was adopted.

Journal.—Mr. Thompson, Chairman, reported that the prize of 50*l.* for the best Essay on Middle-class Education had been awarded to the paper bearing the motto—"Mind rules Matter." The President having opened the envelope, announced the writer to be Mr. Robert Valentine, Burcott Lodge Farm, Leighton Buzzard. The papers written by the Rev. Lewis Evans, Sandbach, and the Rev. W. H. Beever, were Commended.

Show-yard Contracts.—Mr. Torr reported the recommendation of the Committee that the insurance on the Society's plant be increased to 2000*l.*, and that Messrs. Easton & Amos be instructed to insure the machinery belonging to the Society, which is now in their keeping.

"The Committee considered the details of the preliminary plan prepared by the Surveyor, under the direction of the Committee, and agreed to the same with some slight modifications. It was determined to construct sleeping places for the herdsmen and shepherds at the end of every alternate row of shedding. The Committee considered the rough plan prepared for the construction of new entrances, and the various offices attached thereto, and agreed to certain alterations. Also the form of specifications for the construction of—1st, the showyard, &c.; 2d, the erection and removal of the offices and buildings now the property of the Society. The surveyor was directed to prepare corrected plans in accordance with the decision of the Committee, and to make the necessary corrections in the forms of specifications. The Committee directed the above should be printed for delivery to persons intimating their intention to tender, on payment of 10*s.* each. It was determined that advertisements be inserted in the undermentioned papers, inviting tenders, stating that the plans can be inspected at the Society's office after the 1st Nov.:—*Bell's Messenger, Mark Lane Express, Gardeners' Chronicle, Builder, Building News, and Midland Counties Herald.*

This report was adopted.

Bury Meeting.—On the motion of Sir John Shelley, seconded by Major-General the Hon. A. N. Hood, Monday, July 16, 1866, was named for the opening of the Bury meeting.

A letter from the President of the Royal and Imperial Agricultural Society of Vienna was read, announcing their forthcoming Exhibition of Live Stock

and Agricultural Machinery on the Prater of Vienna, in May, 1866.

Earl Cathcart, with a view to the due satisfaction of Exhibitors, moved that the following instructions be added to the instructions to the Judges of Implements, viz., "The Judges in the miscellaneous department are instructed to visit every stand of Implements in its numerical order, and to report accordingly, to place on the notice board each evening the number of the Stand with which they will commence their inspection on the following morning, and at 1 o'clock each day the number of the Stand from which they will proceed at 2 o'clock." The motion was seconded by Mr. Thompson, and carried.

On the proposition of Lord Cathcart it was arranged that Professor Voelcker should deliver a lecture at the Society's house, on Tuesday, the 12th December, at 8 P.M., on Disinfectants, in relation to efficiency and cost, including all the more recent chemical discoveries, and having reference to buildings, ships, railway trucks, and generally to the health of live stock, the prevention of infection, and the treatment of infected hides and carrion. The inquiry will not lose sight of the influence of the free use of the several disinfectants as regards the agricultural value of the manure so treated.

Smithfield Club: *Nov.* 1.—At a meeting of the Council, Earl Spencer, President, in the chair, it was resolved:—

1. "That the Show be held this year."

2. "That the date of the Show be altered to Monday, 11th of December, instead of the 4th."

3. "That no beast, sheep, nor pig that has been exhibited at any Show within one month previous to the Smithfield Club Show be allowed to enter the Agricultural Hall."

4. "That each Exhibitor be required to produce a Certificate from a qualified veterinary surgeon showing that each animal is free from the Rinderpest, and has not been on the same farm where infected animals have been within 21 days previously."

5. "That the Stewards, the Hon. Secretary, the Chairman of the Agricultural Hall Company, and Professor Simonds form a Committee to make arrangements as to disinfected conveyances, in which animals for the Show may be carted from the railway termini in London. And to communicate with the railway authorities in reference to the conveyance of animals over their respective lines."

6. "That the Royal Veterinary College be requested to make the necessary arrangements for a thorough inspection of every animal on its arrival at the Hall, and for Veterinary Inspectors to be in attendance both by night and day."

7. "That with the concurrence of the Agricultural Hall Company, the Show shall close on the Thursday evening instead of the Friday."

The Poultry Yard.

I am only a Cottager, living in a two-roomed house which I get for the keeping, so that there is no cost there; and my garden is a plot in a field without division from those of my neighbour. The lane close by is a constant thoroughfare, and I have no run for poultry. I get my living by means of a donkey and cart; and the donkey lives on the road-side, with an occasional mouthful of any hay I can buy. But, taking it altogether, I don't suppose any one has less convenience than I have for keeping birds. There was no accommodation, no run, and all the food that I should give them must be bought; and add to this, I knew nothing about it. I don't suppose any Londoner could be more ignorant, and though the valley where I live is full of mills and cottages, I am a hundred miles from London. When I saw a hen picking and eating the leaves of the Buttercup, or "Craizey," as we calls it, I thought that it must be as it would be if I should catch myself at such a thing, because it must be starving. I have since found that they eats a lot of green living stuff; and seeing that they can't get out, on to my garden even, unless I has time to stand by and watch lest they get on to my neighbours' bits and takes to scratching them, I find there is nothing pleases them better than if I can pitch into their hovel a basket-full of the Grass that the mowing-machine cuts off the gentleman's lawn close by. Cabbage-leaves and Turnip-greens, too, is a good thing to give them. It is close quarters for them with me, to be sure. I have got 14 birds now altogether, *i.e.*, 13 hens and a rooster, and the bit of a covering I knocked up for them in my garden of any old paling stuff and pieces of slab, and thatching it with straw, keeping it open to the south (I estimate it cost me 30*s.*) is 6 yards long and 4 yards wide, and hardly high enough for me to stand upright. I began about four years ago. I find that it cost me about 2*l.* 8*s.* a year for food, and I can sell, one year with another, about 4*l.* worth of eggs from them. I don't rear no chickens. It isn't much for my trouble, but then I put it that it is so much, whatever it is, on to a *deal of enjoyment*. It's wonderful what differences there is in the temper and quality of hens. There is just as much to do—and quarrelling and comforting too among them, as there is among a lot of children, I'll be bound, and I and my wife, we lives by ourselves. The most that I buy them is Wheat or Barley and graves—the bacon-factory graves is a deal better than the tallow-chandler's graves; there isn't quite the fat to it, and hens don't care about the fat. It is the hard and stringy parts cut up and boiled for them that they care about; not that the hardness is good, for they want it boiled to make it of a more pulpy nature, but the hard fibre corresponds more to fleshy matter than the fat, and that last they don't care so much about. It's wonderful the differences there is in the food for them; and those that take delight in watching of them can see in a very short time what suits best. I never found more good from anything in my life than I did from a lot of old and spoilt or rotten cheese, as you might call it, that I got for 2*d.* a pound. A little of that instead of their graves did a great deal better for them, and graves will cost 1½*d.* or 2*d.* a pound, too, so that the saving was all in the goodness of the food. I haven't got anything like the room that I should like for them of course—no yard, nor Grass plot that they can be fed on—and so I have to put the grain that I give them into vessels for them. The old cast-off packing case—made of a hoop or two and a bottom to them, in which the American cheeses comes over, is what I uses. A two-quart measure of the Barley or Wheat—with a bit of graves, according to discretion, or something of that, is what I put into their boxes for them in the day, *i.e.*, I put it into the boxes as often as it is empty, which is just about once every day. It is about the 2 bushels of grain by the month that they need, or not quite so much, and then if I can't give them a bit of green stuff out of my own garden, or a bit of Grass from the hedge, or from the garden handy to me, perhaps I can let them out in the early part of the day in summer, and stand by a watching them for an hour or two mornings and evenings, to see either then or in the sunny part of the day in winter, that they don't do mischief. They do very well at that. I find that they are better in than out in the heat of the day; they get languid, and it hurts them so that they don't recover. Grass is a deal better run for them than arable or garden. There is more worms in Grass, and there is Grass food for them, too, that they need. I am very particular about their water; they have as good water as I have myself, and in as clean a vessel. It is pure spring water which comes out at different places all aiong our valley in great plenty, and I take care to wash the vessels they has it in. They have their roosting sticks across the hovel, and about a half a dozen boxes and nesties along the bottom on one side, and they are quarrelling oftentimes, seven or eight of them, like a parcel of children, to get out of doors, to get the first into the six nesties.

I find that they begin about Valentine's Day. John Sherwood—he says he has noticed it is pretty handy the same time as the rooks begin their nest building, but I have noticed it is generally about Valentine's Day—the middle of the February month, and that is a little earlier, and then they go on perhaps four eggs a week apiece up till moulting time, in September and October. We never get many eggs after the middle of October, but in September I have had 176 eggs laid from 13 hens (three or four of them moulting, however), when they were having the decayed cheese, and then they were selling for about 1*d.* apiece, so that it answered very well. I find that a bird at four or even five years old, if healthy, is as good a layer as if younger. In my four years' experience I lost one this year, and not above two during the four years by illness, so that I have not had occasion to buy many since I began, and I have the same birds that I had four years ago. I never have any difficulty in selling my eggs, because people know they have them fresh and fresh. When they take to wanting to set, I cover them down in a basket or sieve, letting them stay there, just giving them food once a day, till the tendency of setting has gone past, and that will be in three days at most. I never found that dipping them in water is good. This is my account that I kept for the years 1863 and '64, from October to September—that was only 11 months. I have not kept a particular account since, because I was satisfied after that that they were answering their purpose:—

	£	s.	d.
1863.—3 Oct., 1 sack of Wheat	1	0	0
1864.—4 Jan., Barley	0	0	7
" 18 Feb., Graves	0	4	9
" 5 March, Barley	0	4	6
" " Wheat	0	1	4
" 27 March, Graves	0	4	9
" 31 March, Barley	0	4	0
" 27 June, Barley	0	4	3
" 15 July, Barley	0	4	4
	2	9	6
Barley sold out	0	1	3
	£2	8	3
Against eggs sold	£3	17	8

No account is taken of what was used in the house, which may be 5*s.* worth.

I believe, according to the price I got for them, that the 4*l.* 2*s.* 8*d.* worth of eggs might be 1200 or 1300 in number. So that you may say each hen would lay about 120 to 130 eggs a year.

I don't want to put my name, but I may say that there has been a many about here that have begun since me, but they have given it up, for they found it don't pay. It wants a good deal of looking after, and if a man can't take pleasure in that he will lose by it. I could go on talking about it for an hour longer; and I've thought oftentimes that with my experience and the thoughts that comes into my head I could 'most write a book of it—and with your experience, Sir, bless ye, and my few facts, and your flourishes, I'll bound you could make quite a pretty lecture. *N.*

Poultry Keeping.—The following are the costs and receipts of the produce of 10 hens and 1 chanticleer, in 1846, and of 12 hens, 1847. In the first year two couple of ducks and one drake were of the family, but not in the second. The food was all bought at a high market price: the produce sold in the village. The fowls are kept clean, and well housed and attended to; fed regularly three times a day when young, and have the run of a large grazing yard in the day time. This year I am varying their diet, giving them occasionally cooked liver, scraps of fat, and boiled Potatos, with the best shorts and Barley:—

Costs—1846.	£	s	d
40 pints groats ..	0	8	6
" Oats ..	0	19	4
Barley meal	0	19	0
Barley..	1	0	6
Tail Wheat	1	0	0
Eggs for sitting hens	0	3	4
Collecting eggs, &c.	0	5	0
	£4	16	2

Receipts.—1846	£	s	d.
For eggs, averaging 8½ per dozen	0	15	8
10 ducks, at 1*s.* 9*d.*	0	17	6
12 do., at 1*s.* 8*d.* ..	1	0	0
82 chickens, at 1*s.* 6*d.*	6	5	0
	£8	13	2
Deduct costs	4	16	2
Profit ..	£3	15	0

1847.	£	s.	d
For 16 pints groats .	0	8	4
9 bushels Barley ..	2	14	0
Barley meal	0	7	9
Collecting eggs, &c.	0	2	9
	£3	7	10

1847	£	s	d
For eggs, at 9*d* per dozen	2	11	6
60 chickens, at 1*s.* 6*d*	5	10	0
8 cockerels, at 1*s.* 6*d*	0	12	0
	£8	13	6
Deduct costs .	4	7	10
Profit of 12 hens	£5	5	0

Richard Pigott, Stokeferry.

On Preserving Eggs: *South Molton.* M. Burnouf recommends in *Le Bélier*, a French journal of agriculture, the following method of preserving eggs:—Dissolve in two thirds of warm olive oil one-third of beeswax, and cover each egg completely with a thin layer of this pomade with the end of the finger. The egg shell by degrees absorbs the oil, and each of its pores becomes filled with the wax, which hermetically seals them. M. Burnouf affirms that he has eaten eggs kept two years in this manner, in a place not exposed to too great extremes of temperature. He thinks also that the grain may in this manner be preserved for a considerable time. And the following in another place:—Take eggs when newly laid, and place them, with the anal end downwards, carefully perpendicular in a board perforated with holes for the purpose. It should be, say 2 feet by 1 foot 6 inches, and have legs at the four corners about 3 inches long. This will enable them to be piled one upon another to any extent, as they are filled. Eggs put in thus fresh from the nests in August and September will keep till winter as good as fresh ones, not only for cooking but eating.

Aylesbury Ducks. I do not consider the Aylesbury ducks more delicate than any others, if it be borne in mind that they lay much earlier than their fellows. In mild weather they lay in February, and their young, hatched in March, require more care than if they appeared in May. The eggs should be set under hens, as the ducks are notoriously bad mothers, and the young should be kept from water at least a fortnight after they are hatched. *J. B.*

Reviews.

The Veterinarian Review and Stockowner's Journal. September. Simpkin, Marshall, & Co.

The veterinarian journals are of course full of the cattle plague subject, but the present number of the Review is also useful and instructive on the subject of the ordinary health of our live stock. It contains a continuation of the reports we formerly published on this subject, and we shall extract some of the information which it gives regarding the health of live stock in Scotland during last year, in illustration, as we presume it may be taken, of the condition of things under ordinary circumstances:—

"Aberdeenshire.—*W. Adam, Banchory Ternan.*—Pleuro-pneumonia in cattle has almost disappeared in this district. Foot-and-mouth disease has prevailed to a very great extent during the past year, but when the animals were properly attended to none of the cases proved fatal. Black quarter is very common in this district among young cattle, and invariably proves fatal. Animals in low condition, removed from poor pastures to a more generous diet are most liable to this disease."

"Ayrshire: *R. Mackie, Galston.*—Pleuro-pneumonia in cattle has twice made its appearance in this district, and on both occasions raged for nearly two years. It seems very doubtful at times how the disease originates; in some cases it can be readily traced to contagion, breaking out after fresh importations of stock; in other cases, parties have no idea how the disease originated among their stock. I believe that this disease may lie lurking in the system for months before it shows itself, and I have often observed that neighbouring farmers suffer from it the following year. When pleuro-pneumonia breaks out among dairy cows, they generally abort if they have reached the fifth month of pregnancy. On an average one-third of the cases prove fatal, and with the exception of careful nursing and isolation of the affected animals, all treatment has proved useless. Foot-and-mouth disease often spreads all over the district, and often proves very troublesome, more especially among milch cows, the teats and udder being affected, and the secretion of milk almost entirely suspended. During the months of March and April black quarter was rather prevalent among young stock, and about five per cent. died. A small quantity of oil cake given to each animal daily during the winter acts very beneficially as a preventive for this disease."

"Berwick: *J. H. Calder, Swinton Hall, Coldstream.*—I have heard of no cases of pleuro-pneumonia or foot-and-mouth disease in this neighbourhood during 1864. Sickness in hoggs was very prevalent when they were first put on Turnips, from 7th October until 17th December, and a good many of the cases terminated fatally. I lost 19 out of a flock of 300.

In the spring and early part of the summer of 1864 I saw many lots of cattle suffering from foot-and-mouth disease exposed for sale in public markets, but heard of no serious or fatal results."

"CAITHNESS: *George Brown, Wick.*—There have been no cases of pleuro-pneumonia in this county for a number of years, and I have heard of no cases of foot-and-mouth disease during the past year. There have been about the average number of cases of diarrhœa in calves, and cases of quarter ill among young stock rather below the average. During the year 1864, the losses among sheep have been very small compared with former years."

"DUMFRIES: *Robert Borland, Closeburn.*—Pleuro-pneumonia has only appeared to my knowledge in one instance, among a lot of fat cattle, where nothing of its origin was positively known. Foot-and-mouth disease prevailed to a considerable extent last autumn among cattle; and on my own farm, the disease appeared among a lot of cattle I bought at Newcastle fair. A good many deaths occurred among hill sheep last spring, from scouring, brought on by the severe weather. Pigs died in large numbers, from a kind of convulsive fits, accompanied with loss of power in the limbs."

"EDINBURGH: *J. H. Coates, Penicuik.*—Foot-and-mouth disease has been very prevalent both in cattle and sheep bought in the Edinburgh market. Sickness has prevailed pretty extensively among hoggs. I have lost about 10 per cent. in the course of the year. Animals suffering from contagious diseases are very often exposed for sale in the Edinburgh market, which I believe is one of the principal causes of spreading such diseases all over the country."

"FORFARSHIRE: *Donald Falconer, Arbroath.*—I am not aware of any cases of pleuro pneumonia in cattle within three miles of Arbroath, but to the east and south there have been several cases, milder than usual; origin doubtful. Foot-and-mouth disease far less prevalent than in former years; almost no cases in this immediate neighbourhood, with the exception of one farm, where it appeared in January, and ran through the whole stock; cause unknown."

"KINCARDINESHIRE: *A. Simpson, Fettercairn.*—There have been very few cases of pleuro-pneumonia in this district. For some time it has been entirely confined to farms where fresh cattle have been bought in. This disease is not so virulent now as it was some years ago. A large proportion of the cases recover with proper treatment and careful nursing. I have no doubt this disease often originates from the want of proper food, ventilation, and cleanliness, and that foreign cattle may be perfectly free from pleuro-pneumonia when put on the boat, and before they reach the store farm be diseased not so much from contagion as the harsh treatment they suffer *en route*. Foot-and-mouth disease has not been at all prevalent during the past year."

"PERTH: *P. Galloway, Loan of Erroll.*—I have heard of a few cases of pleuro-pneumonia, but it has not prevailed to any extent during the past year. Foot-and-mouth disease was very prevalent during the months of November and December, more especially among cattle bought at Falkirk tryst and Hallow fair."

"MORAYSHIRE: *John Cruickshank, Elgin.*—Stock are generally pretty healthy in this county. Pleuro-pneumonia has been brought to it on several occasions, but during the past year I have not heard of a single case of pleuro-pneumonia or of foot-and mouth disease. We generally hear of a few deaths among calves and one-year-olds from black quarter, and this year I should think there have been about the usual number of cases. Scab and foot-rot are the principal diseases that affect sheep in this district."

"ROSS-SHIRE: *D. M'Kenzie, Dingwall.*—Pleuro-pneumonia is unknown in this part of the country. Although I have been a farmer for 40 years, I have never yet seen a single case of this disease. I have only heard of one flock of sheep affected with foot-and-mouth disease; they all recovered in the course of six or seven days."

"ROXBURGH: *W. Robertson, Kelso.*—During the latter half of 1864, and up to the present time (February, 1865), we have been suffering from a very extensively distributed and virulent outbreak of pleuro-pneumonia in cattle. It was brought to us (as at other times, when we have suffered above an average) by the importation of foreign cattle. The losses have been very considerable, both directly and indirectly. Foot-and-mouth disease below the average number of cases."

"SELKIRK: *John Lee, Oakwood.*—I have only heard of a few cases of pleuro-pneumonia in this district during the past year. Among my own stock I had 40 cases or foot-and-mouth disease; only 10 escaped. One cow and three calves died, the others all recovered."

"WIGTON: *James Cumming, Port William.*—I have only heard of the existence of pleuro pneumonia on one farm where a large dairy stock is kept. The farmer says very little about it; but it is supposed he has not lost less than 20 cows."

Farm Memoranda.

[We continue to give extracts from the evidence taken before the Royal Commission on the Law of Hypothec, illustrating as it does the enterprise and energy of Scottish agriculture.]

The Manure Trade.—Mr. William Hope (re-examined).—When you were examined on a former occasion, you stated that you sold 190,000*l.* worth of manures per annum; was all that sold to farmers, or was part of it sold to wholesale dealers?—*A.* I understood the question then put to me was as to the amount of manures that we sold annually, and answered it accordingly; but I have since divided the amount as correctly as possible, and find that we sell nearly three times the quantity wholesale that we do retail. The tonnage, however, does not represent the value exactly, because the goods sold wholesale are chiefly bones, ash, and manufactured manures, which, as compared with Peruvian guano and nitrate of soda, &c., are of much less money value; and hence I calculate that the money turned with farmers alone will be, say, 100,000*l.* annually. Of that sum, as near as I can estimate, one-half, or 50,000*l*, is sold upon credit terms. *Q.* Assuming that to be correct, what would the per-centage of loss upon farmers' bankrupt estates amount to?—*A.* Taking the per-centage of losses made with farmers, whether they have become publicly bankrupt or have made private settlements, and estimating the amount at present put down as doubtful debts, I would say that, if I add to the sum formerly stated as lost by my firm in two years, namely, 2400*l.*, the amount considered doubtful, and the realisation of which is dependent upon many contingencies, it amounts to upwards of 3500*l.* within two years, or say 3½ per cent. upon our sales to farmers. There are cases where tenants under sequestration to their landlords have good reason to expect that, with the indulgence of the creditors, they will ultimately reclaim their position, and, having every desire to give them such an opportunity, we frequently allow our accounts with them to stand over; in others, their estates are in the hands of trustees to work out their leases. In one case, where we have a considerable sum owing, the matter stands thus:—Previous to Whitsunday, 1863, the tenant agreed to leave his farm, having lost a deal of money in it. He advertised a sale of his stocking, &c., and considered that when it was over he could pay all his creditors, having the growing crop to pay the landlord; but, a few days before the sale, the law-agent for the landlord intimated to the tenant, that, unless he was allowed to uplift the entire proceeds of the sale, he could not allow it to go on. The tenant had no choice, and was driven into an agreement, whereby this agent not only collected the proceeds of the sale, but got full control over the crop; and the result is that until this day, the tenant, notwithstanding his utmost efforts, has been unable to get any settlement with this agent, and is at present—nearly two years after the date of his sale—unable to inform his creditors whether or not he can pay them anything. He states that the agent informs him that he is still due the landlord money, which, he says, is impossible, unless the landlord brings against him reductions in rent got years ago, which were given permanently, and not with the intention of being recovered at a future time. The tenant considered, previous to this, that he was in a position to pay his creditors 20*s.* in the pound. He left the farm, and it is relet. We don't sell much manure through agents. If any one is to blame for making bad debts, it is principally ourselves. *Q.* You told us that you would sell cheaper if the law were abolished?—*A.* We sell cheaper for cash than for credit. I said that if we had no risks to run, such as we have under the law of hypothec, we should be able to sell at comparatively less cost. *Q.* Do you sell cheaper to landlords?—*A.* We sell cheapest to all who pay ready money, but it is seldom we are honoured with visits from landlords, and hence we have no special terms for this class of customers. *Q.* But supposing they don't pay cash?—*A.* If they don't pay cash, they get it at the credit prices. *Q.* Then it is not the law of hypothec that makes you sell dearer to tenants?—*A.* Undoubtedly. *Q.* Then why don't you sell cheaper to landlords?—*A.* At the moment I could not say we make a difference; but we sell so little to landlords, that I don't know that I could give a case where we make any difference. If the law of hypothec were abolished, so that our risks were lessened, we would certainly be enabled to reduce our scale of charges. *Q.* Suppose the law were abolished, would you alter the scale of prices?—*A.* I think the tendency would be to alter it to a certain extent. As a class, small tenants pay very regularly indeed; one reason being, that they come to us expecting no credit, and they generally bring the money in their hand. If we had the law of hypothec to protect us, I would not object to lying out of our money till the farmer's crop was reaped. We would sell universally upon credit terms, if we had the hypothec to protect us.

Miscellaneous.

The Cattle Plague.—It is said, on good authority, that the Commission on the Cattle Plague will report very strongly on the prospect of wide and serious loss to the agricultural capital of the country from the plague, and advise the summoning of Parliament in December. *Spectator.*

The Third Annual Meeting of the Gloucestershire Root and Grain Society is to be held at Gloucester on the 9th of November, when, in addition to the prizes offered by the Society, there will be a number of special premiums for competition. Amongst these we may notice that Mr. Wadley contributes a silver cup, value five guineas, for 12 Swedes, certified to have been drawn from a patch of not less than four acres, manured with the London Manure Company's manure, and a similar prize for 12 Mangels, the conditions being the same; Messrs. Foster Brothers, ten guineas for 12 Swedes, from not less than five acres, manured with phospho guano; and Mr. John Chadwick, five guineas for 12 Swedes, from not less than four acres, manured with Messrs. Norrington's superphosphate. Prizes are offered by the Society for Swedes, White Round or Pomeranian, Lincolnshire Red Globe, Green Globe, Yellow Scotch, Grey Stone, and Tankard Turnips; Long Red, Long Yellow, Yellow or Orange, and Red Globe Mangels; Red and White Carrots, Parsnips, Cow Cabbage, Kidney and Round Potatos, Red and White Wheat, and Barley, as well as for Fruit and Chrysanthemums. Mr. A. C. Wheeler, of Gloucester, is the honorary secretary.

Notices to Correspondents.

ECONOMIST: *B M.*—The Swede seed which you used has been mixed with Rape.

GAS-LIME: *Subscriber.* It is a mixture of caustic lime and carbonate of lime, with lime containing combined with it sulphuretted hydrogen, &c., which has been taken by it out of the coal gas which is passed over it for purification. In so far as it is combined with this sulphuretted hydrogen, it will, by exposure to air, become gypsum. A waggon load, or as much sometimes as two waggon loads per acre, is used. They generally make it into a compost with earth, and turn it over several times before putting it over the land. It is more commonly applied to clay land than light soil. Coal ashes may be useful to put on coarse Grass land where there s no Clover. We wil endeavour to obtain analyses for you.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY (Limited).

Registered under the Companies' Act, 1862, by which the liability of each Shareholder is limited to the amount of his Shares.

CAPITAL, £50,000, in 5000 Shares of £10 each (with power to increase), to be issued as follows:—

2,500 PAID-UP SHARES.—Deposit on application £5 per Share, and Allotment £5 per Share.

2,500 ORDINARY SHARES.—Deposit on application £1 per Share, and on Allotment £1 per Share.

No call to exceed £2 per share, and after the first, no calls to be made at less intervals than three months.

A minimum rate of interest of 6 per cent. per annum guaranteed upon the paid-up capital.

Directors.

Mr. HUGH EDWARD RAYNBIRD, Basingstoke, Hampshire.
Mr. WILLIAM WATSON CALDECOTT, Basingstoke, Hampshire.
Mr. FRANCIS BAWTREE, Andover, Hampshire.
Mr. WILLIAM DOWLING, Over Wallop, Stockbridge, Hampshire.
Mr. ALFRED DOWLING, Nether Wallop, Hampshire.
Mr. EDWARD DREW, Calcot, Kingscote, Wotton-under-Edge, Gloucestershire.
Mr. MARTIN IVENS, Eydon, Banbury, Northamptonshire.
With power to add to their number.

Bankers.—The Hampshire Banking Company.

Solicitors.

Messrs. Stevens & Beaumont, 6, Old Jewry, London.
Messrs. Lamb, Brooks, & Challis, Basingstoke.

Auditor.—Geo. Barnes, Esq., Newbury.

Secretary.—Mr. G. E. Goldsmith, Basingstoke.

CHIEF OFFICE—Basingstoke.

PROSPECTUS.

This Company is formed for the purpose of carrying on and extending the business of RAYNBIRD, CALDECOTT, & BAWTREE, and W. & A. DOWLING, as Corn, Seed, Manure, and Oilcake Merchants, and uniting them under the title of "RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, & Co., Limited."

The union of old-established Firms, whose business relations give them a large share of a profitable trade in the markets they attend, and whose connection for the sale of Agricultural Seeds extends to all parts of the country, will place the new Company in a position to commence its operations at once with great advantages. There will be no new business to work up; but a good basis is already formed, admitting, by the employment of a larger capital, of a very wide and indeed almost unlimited extension of trade amongst the agricultural interest.

The Chief Office of the Company will adjoin the New Corn Exchange at Basingstoke, where a very considerable portion of the business of the locality is transacted.

The town of Basingstoke possesses the great advantage of a complete railway development, by which direct communication may be obtained to all parts of England, including the principal shipping ports of London, Southampton, and Bristol. Branch establishments will be carried on at Salisbury, Andover, Wallop, and Newbury, and increased as occasion may require. Constant attendance will be given at Mark Lane, and Stores are secured at some of the most important stations on the South Western and Great Western Railways.

The important branch of milling Trefoil and Sainfoin—in which the Messrs. DOWLING have long stood foremost—will be continued under their direct supervision.

The situation in the centre of an agricultural district, almost entirely devoted to arable farming, and the proverbially dry climate of the southern counties, so favourable for the development of seed crops to perfection, are so many elements in favour of the position to be gained by the Company.

For the security of the Shareholders, it is arranged that the remuneration of the Directors will only become payable out of the profits, and after payment of other charges against the Company, including a minimum interest of 6 per cent. per annum on the paid-up capital.

A considerable amount of the capital will be subscribed for by the united Firms and their immediate friends; the remainder is offered to the public with the view of placing the Company upon a wide basis, and affording to those desirous of making a legitimate investment in trade an opportunity of doing so without the risks connected with partnership carried out in the usual way.

The agreement entered into with the Company by Messrs. RAYNBIRD, CALDECOTT, & BAWTREE, and W. & A. DOWLING is:—

"That each Firm discharges its separate liabilities, and hands over to the Company its Stock at a Valuation, and its Book Debts guaranteed to the full value of the debts on realisation, the Company to pay a sum for Good-will in fully paid up Shares, equal to two years' purchase of the average yearly profits realised by each Firm during the last three years, together with 12½ per cent. of any profits made by the Company beyond 10 per cent. per annum.

The Directors engage that they will not enter into similar business transactions for their individual advantage for three years, or during their tenure of office.

The Articles of Association may be inspected at the Office of the Company or of the Solicitors.

FORM OF APPLICATION FOR SHARES.

1. *Application for Paid-up Shares.*

£5 per Share payable on application, and £5 per Share on allotment.

To the Directors of RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, & Co., Limited.

Gentlemen, request you to allot Shares of £10 each in RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, & Co., Limited, and hereby agree to accept such Shares, or any less number that may be allotted to , subject to the regulations of the Company, and to pay the further deposit of £5 per Share on allotment, and further authorise you to enter name in the Register of the Company for the number of Shares which may be allotted to

Name in full .....
Profession or business .....
Address in full .....
Usual signature .....
Date.. .....

2. *Application for Ordinary Shares.*

£1 per Share payable on application, and £1 on allotment.

To the Directors of RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, & Co., Limited.

Gentlemen, request you to allot Shares of £10 each in RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, & Co., Limited, and hereby agree to accept such Shares, or any less number that may be allotted to , subject to the regulations of the Company, and to pay the further deposit of £2 per Share on allotment, and such calls as may be made in respect of such Shares, and further authorise you to enter name in the Register of the Company for the number of Shares which may be allotted to

Name in full .....
Profession or business .....
Address in full .....
Usual signature .....
Date .....

NOTICE is HEREBY GIVEN, that APPLICATIONS for SHARES in the above COMPANY must be made to the Hampshire Bank, Basingstoke, on or before November 13, on which day the Lists will be closed.

By order,
GEO. EATON GOLDSMITH, Secretary.

Brighton and Sussex Seed Warehouse.

CARPENTER'S EXPRESS, the EARLIEST PEA known, gathered May 7. The earliest date on record.

The following are extracts from a few of the numerous Letters received —

From Mr. JONES, *Gardener to* Lord Leconfield, *Petworth House, Sussex.*

"I sowed Carpenter's Express Pea on the 20th November, and gathered the first dish on the 7th May. I had Daniel O'Rourke and Carpenter's Express side by side, but gathered first from Carpenter's Express."

From Mr. MARSH, *Gardener to* Marchioness of Bath, *Worthing, Sussex.*

"I made a sowing of Carpenter's Express and Sangster's No. 1 side by side, and I found Carpenter's Express to be up about a week before Sangster's."

From Mr. KEMSLEY, *Gardener to* C. Catt, Esq., *Brighton.*

"I made a sowing of Carpenter's Express and Daniel O'Rourke side by side, and I gathered Carpenter's Express at least a fortnight before the other was ready."

From Mr. DAWES, *Gardener to* H. Pegg, Esq., *Brighton.*

"I made a sowing of Carpenter's Express on the same day as Sangster's No. 1 and also Morning Star, and I gathered from Carpenter's Express 12 days before either of the others."

From Mr. JOHN COX, *Gardener to* W. Wells, Esq., *Redleaf, Staplehurst, Kent.*

"Having tried Carpenter's Express Peas, I beg to say that I gathered in quantity this season (1864) nine days in advance of any other early variety."

Mr. MAXWELL, *of The Gardens, Exton Park, Oakham, in a letter to the* GARDENERS' CHRONICLE *of June* 12, 1865, *on Early Peas, says:—*

"Carpenter's Express is a fortnight earlier than Sangster's No. 1, and 10 days earlier than Dillistone's."

From Mr. C. COURT, *Gardener to* Captain Pratt, *Chichester.*

"I grew Carpenter's Express side by side with Sangster's No. 1, and found it to be seven days earlier."

From Mr. ALEXANDER STEWART, *Gardener to* Colonel Leslie, *Slindon House, Arundel.*

"Carpenter's Express were sown side by side with Early Warwick and Early Frame, and I gathered from Carpenter's Express full a fortnight before either of the others."

THE EDITOR *of the* SUSSEX EXPRESS *of the* 1*st July*, 1865, *reports the following:—*

"Mr. Thomas Jenner, Lewes, sowed both Carpenter's Express and Sangster's No. 1 on the same day, and gathered from Carpenter's Express eight or nine days before the other sort. This seems to be universally the case."

To CARPENTER'S EXPRESS PEAS have been awarded Two First-class Certificates at the Brighton Horticultural Society's Exhibitions as the Earliest Pea. 5*s.* per quart.

Early orders are solicited, as the stock is not large

EDWARD CARPENTER, Seed Merchant and Grower, 96, St. James Street, Brighton.

CATALOGUES on application.

SUTTON'S RINGLEADER (or CARTER'S FIRST CROP) PEA.

THE EARLIEST IN CULTIVATION.

This Pea was introduced to the public last season simultaneously by Messrs. SUTTON & SONS and Messrs. James Carter & Co., both parties being entirely ignorant of the fact that the stocks from which they had raised their supplies were obtained a few years since from the same locality, and in fact from the same person who originated it. Of all the kinds tried against Ringleader (or First Crop) none have proved so early.

The price charged last season was the same by both vendors, viz., 2*s.* 6*d.* per quart, and the demand at that time being so great as to prevent our holding a sufficient quantity for seeding, the price cannot be reduced this season.

The following are Extracts from a few of the numerous Letters received relative to this unrivalled Early Pea :—

From Mr. WILLIAM DOWELL, *Gardener to* Sir George Chetwynd, *Grenden Hall, Atherstone, May* 24, 1865.

"Your 'Ringleader' is earlier than any Pea I have ever grown. I shall gather a dish to-morrow morning, the 26th of May, which is by far the earliest Pea we have had."

From Mr. W. POVEY, *Gardener to* H. P. Best, Esq., *Donnington Grove, near Newbury, May* 24.

"I planted your 'Ringleader Pea' on the last day of February; on the same day I planted 'Daniel O'Rourke' and other early sorts. Your 'Ringleader' is uncommonly well podded, and the pods are filling fast. I have no doubt they will be cleared, and the ground planted, before I pick from any of the other early sorts."

From Mr. JAMES PEARSON, *Gardener to* H. Bentley, Esq., *Woodlesford, Leeds, May* 25.

"Your 'Ringleader Pea' is six days earlier than Dillistone's, and is the most promising Pea I have grown."

From Mr. H. HARRISON, *Dedham, May* 26.

"Your 'Ringleader Pea' has proved with me by far the earliest, and will be cleared off the ground before the others have done blossoming. I consider the 'Ringleader' the quickest Pea of any of the early sorts grown in this neighbourhood."

From the Rev. WILLIAM WOOD, *Prestwood Parsonage, Great Missenden, May* 27.

"I expect your 'Ringleader' Pea will be a fortnight earlier than 'Sangster's No. 1' sown on the same day; in fact, it is earlier than any Pea which my gardener has known. The garden lies high, and is exposed to the cold."

From Mr. BAILEY WADDS, *Gardener to* S. A. Sykes, Esq., *Raywell, Brough, May* 29.

"I have this year sown your 'Ringleader' Pea against your Early 'Champion,' which I have hitherto found the earliest in cultivation, and I am glad to tell you that it came into bloom ten days earlier. It has been covered with blossoms from top to bottom. I am sure it is a valuable addition to our early Peas."

From Mr. GEORGE SCRYMGER, *Holme Park, Sonning, May* 29.

"I have great pleasure in reporting favourably of your new early Pea 'Ringleader.' It was sown the same day as five of the most popular early sorts. I gathered from it on the 26th of May, which is 14 days earlier than I shall of any of the other varieties. It is also very prolific; altogether with me it has proved an acquisition."

From WILLIAM THOMAS REW, Esq., *Coombershead, Tiverton, May* 30.

"Your 'Ringleader' Pea has quite proved worthy of its name. I planted it side by side on the same day with Sangster's No. 1 (which has hitherto been my earliest), but now the 'Ringleader' has blossomed at least one week before the others, and from all appearances will be fit to gather quite a fortnight before them. My garden is in a very high and exposed situation, as well as rather late."

From JOHN FORD, Esq., *Merton Hall, Warwick, May* 31.

"My gardener sowed on the 12th of January, side by side, 'Sutton's Ringleader,' 'Sutton's Champion,' 'Early Essex Rival,' and 'Dillistone's Early Prolific' Peas. 'Sutton's Ringleader' was in bloom first, coming in the 3d of May, the others a week or so later."

From Messrs. DOBSON & SON, *Woodlands Nursery, Isleworth.*

"We tried your 'Ringleader' Peas last season with 'Dillistone's,' and it was from a week to 10 days earlier. It is certainly the earliest Pea that has come under our notice."

From the GARDENERS CHRONICLE, *August* 12, 1865.

"*Peas.*—On the 28th of March I sowed Sutton's 'Ringleader,' and had a splendid crop in less than eight weeks, which I allowed to ripen. I then sowed the ripe seed on July 10th, and have now a capital crop of Peas, the second crop having been six weeks only in growing, and the two crops have been produced in less than 5 months. I beg to forward you a sample, the pods in which you will observe are well filled.—*Thomas Fudder, White Horse, Bingfield, Berks.*"

Retail price 2*s.* 6*d.* per quart. **Price to the Trade on application.**

PRICED LISTS of FLOWER ROOTS, GARDEN SEEDS, FARM SEEDS, &c., gratis and post free.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Sutton's Ringleader (or Carter's First Crop) Pea.

THE EARLIEST PEA IN CULTIVATION.

MESSRS. SUTTON, anticipating a large demand this season for the above popular Pea, respectfully recommend early orders, the stock being limited.

The following Seedsmen have already received a supply:—

Messrs. Cooper & Bolton, 152, Fleet Street, London, E.C.
" Hurst & Son, 6, Leadenhall Street, London, E.C.
" Minter, Nash, & Nash, 60, Strand, London, W.C.
" **Jacob Wrench & Son, London Bridge, London, E.C.**
" **Waite, Burnell, & Co., 181, High Holborn, London, W.C.**
" **Nutting & Sons, 60, Barbican, London, E.C.**
" Thorburn & Co., New York, U.S.A.
" Dobson & Son, Woodlands Nursery, Isleworth, W.

Price to the Trade on application.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading

INVINCIBLE SCARLET SWEET PEA.

For AUTUMN SOWING.

A First-class Certificate received from the Royal Horticultural Society, also a Certificate at the Crystal Palace Autumn Show.

Very fragrant, strikingly brilliant, distinct, and permanent in its colour. Packets of 30 seeds, 2*s.* 6*d.*; 10 Seeds, 1*s.*; 5 seeds, 6*d.*; Packets of 100 seeds, 7*s.* 6*d.* May be had of the principal Seedsmen throughout the kingdom, or of the raiser,

STEPHEN BROWN, Seedsman, Sudbury, Suffolk.

The Essex Rival Pea.

THOMAS ELEY, of Sible Hedingham, near Halsted, Essex, who introduced the above-named PEA last year, has much pleasure in again inviting attention to this very excellent variety, the merits of which have been well and sufficiently tested by a general public during the past season, the result having been the receipt of many most flattering reports of the extraordinary fine qualities of this Pea, fully endorsing the representations given of it at its first introduction.

Mr. ELEY wishes to remind his numerous patrons that the ESSEX RIVAL may be sown in November to secure a gathering in May.

Price 1*s.* 6*d.* per quart.

Price to the Trade on application.

To be obtained of Mr. THOMAS ELEY, Sible Hedingham, near Halsted, Essex.

Also of the following appointed Agents:—

Messrs. Peter Lawson & Son, 28, King Street, Cheapside, London, E.C.
Messrs. Fraser, Richardson, & Goad, 82, Bishopgate Within, E.C.
Messrs. Cooper & Bolton, 152, Fleet Street, E.C.
Mr. James Veitch, Royal Exotic Nursery, Chelsea.
Messrs. Saltmarsh & Son, Moulsham Nurseries, Chelmsford.
Mr. B. Cant, St. John's Nursery, Colchester, Essex.
Mr. George Taber, Seed Merchant, Rivenhall.
M. Paul Tollard, Nurseryman and Florist, 4, Place des Trois Maries, [Paris, France.

To Farmers, Gardeners, and Others.

EXCELLENT strong CABBAGE PLANTS of the following kinds may be had in any quantities at 2*s.* 6*d.* per 1000 for cash:—EARLY YORK, ENFIELD MARKET, EARLY BATTERSEA, ROBINSON'S LARGE DRUMHEAD, EAST HAM, RED DUTCH. A remittance must accompany all orders.

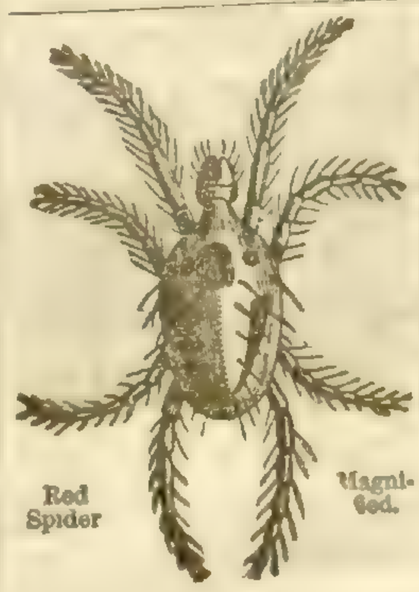
FREDERICK GEE, Seed Merchant and Grower, Biggleswade, Beds.

A. VAN GEERT, NURSERYMAN, Ghent, Belgium, begs to offer the undernamed useful articles, at very moderate prices:—

100 LATANIA BORBONICA, young plants in pots, a fine Palm for table decoration, easily grown in a cool house, £2 2*s.*
24 ALSOPHILA EXCELSA, stout seedling, a Tree Fern for the greenhouse, £1 15*s.*
50 LASTREA ÆMULA, a beautiful hardy Fern, £1 10*s.*
12 PTERIS BIAURITA, fine greenhouse Fern, 6*s.*
24 OSMUNDA REGALIS CRISTATA, 18*s.*
2 ALSOPHILA LATEBROSA, a fine new Tree Fern, strong plants, £1 10*s.*
100 FERNS in varieties, £2 5*s.*
25 LYCOPODS in varieties, 15*s.*
24 EXOTIC ORCHIDS, for cool house, £4.
100 GLOXINIAS, in fine varieties, £1 5*s.*
100 ACHIMENES, in fine varieties, 18*s.*
24 DASYLIRIONS, in three varieties, strong plants, £2 10*s.*
12 fine plants of CHAMÆROPS HUMILIS (nearly hardy) £1 16*s.*
6 ditto of ROEZLIA REGIA, also nearly hardy, £1 5*s.*
12 ERYTHRINA CRISTA-GALLI, 6*s.*
100 choice STOVE PLANTS, £2 10*s.*
100 " GREENHOUSE PLANTS, £2 10*s.*
100 " CONIFEROUS PLANTS, £3 10*s.*
24 PASSIFLORA CŒRULEA (hardy), 8*s.*
100 CAMELLIAS, with flower buds, £6.
6 " " strong plants, £1 10*s.*
100 " without buds, £3 10*s.*
100 " " stronger plants, £5.
100 choice INDIAN AZALEAS, with flower buds, £4 to £6
100 GHENT AZALEAS, Seedlings, 4 years old, 18*s.*
100 Choice Hardy RHododendrons, fine plants, £4.
25 Choice Hardy RHododendrons, with flower buds, £1 15*s.*
12 RHODODENDRON NUTTALLII, strong plants, £1 10*s.*
12 RHODODENDRON VIRGATUM, very pretty, from Himalaya, 18*s.*
24 Fine varieties of TREE PÆONIES, £2.
24 Varieties of choice herbaceous PÆONIES, 18*s.*
100 ASCLEPIAS TUBEROSA, flowering roots, £1 1*s.*
100 fine STANDARD ROSES, £4 10*s.*
100 fine half " " £3.
12 MAGNOLIA GRANDIFLORA, 12*s.*
12 " MACROPHYLLA, £1 10*s.*
100 " TRIPETALA, £1 10*s.*
100 Young plants of YUCCA ALOEFOLIA, £1 10*s.*
1000 HEMLOCK SPRUCE FIR, 2-year old, £2.
100 AMPELOPSIS QUINQUEFOLIA, £1 5*s.*
100 ABIES NORDMANNIANA, £1 5*s.*
100 GLYCINE SINENSIS, strong plants, £1 10*s.*
12 LOMARIA DISCOLOR, strong plants, 18*s.*
1 Ounce Seed of CUPRESSUS LAWSONIANA, 10*s.*

No less quantity than above-mentioned can be supplied for the quoted prices.

References or remittances from unknown Correspondents.



Red Spider — Magnified.

COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 2*s.* per bag.

For particulars, and how use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped, J. BARSHAM'S Patent.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* each.

Wholesale by

PRICE'S PATENT CANDLE COMPANY (LIMITED).

SUPERIOR FIBROUS PEAT for Orchids, American Plants, and general Potting purposes, may be had loaded at Farningham Road Station, on the London, Chatham, and Dover Railway, or delivered in London, or any part not too distant, by applying to THOMAS JESSEE FRANKS, Farningham, Kent.

GENUINE TOBACCO PAPER, in 4-lb packets. Price on application to

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Certain Death to Insect Life.

TOBACCO TISSUE for FUMIGATING.—To Florists, Gardeners, and others this new article is strongly recommended for the purpose of destroying insect life in Greenhouses, Pits, &c., being inoffensive to vegetable life, and free from any injurious properties. It is prepared into Sheets or Tissue, and is entirely free from any chemical admixture to create combustion. It will be found more convenient and very superior to the articles generally used.

Sold by the Seedsmen, Nurserymen, and others, and by Messrs. ROBERTS & SONS, Tobacco Manufacturers, 54, St. John Street, Clerkenwell, London, of whom samples, with testimonials, may be obtained.

EARTH CLOSETS (MOULE'S PATENT).

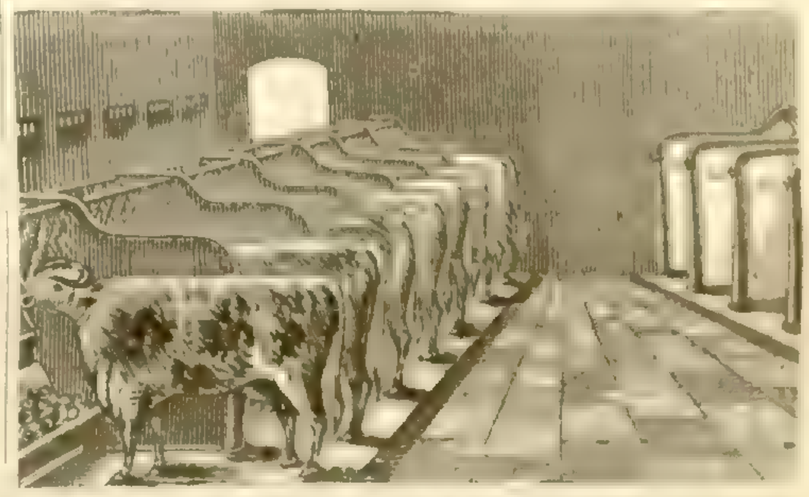
No Unwholesome Cesspools
No Bad Smells
No Water Pipes to get out of order
The Best Night Commodes.
The Apparatus (price 25*s.* and 30*s.*) may be applied to any Closet at trifling cost, and is self-acting
By its use a valuable Manure is saved, and Fertility to the Soil ensured.
Earth is recommended by the Privy Council, in their report on Cholera, as a deodoriser and disinfectant.

Extract from Letter received from the SECRETARY *of the* NATIONAL RIFLE ASSOCIATION.

"I am further directed to state that they (the Closets) proved of the greatest use, and were found to act admirably."

WHITE & Co., 29, Bedford Street, Strand, London, W.C.
OLDHAM SHOW, STAND 46.

MUSGRAVE'S PATENT IRON COW STALLS and PIGGERIES, with fresh Air Inlets, as used in the Government Model Farms.

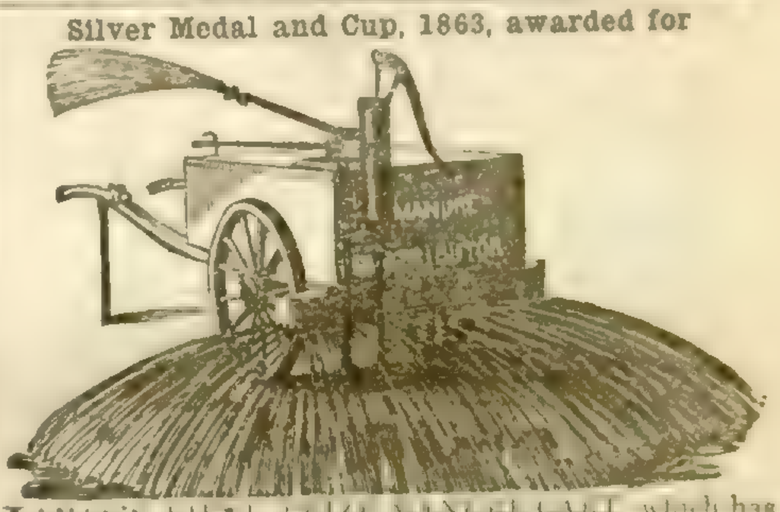


MUSGRAVE'S PATENT STABLE and HARNESS FITTINGS, adopted by His Royal Highness the Prince of Wales for Sandringham.
MUSGRAVE'S PATENT SLOW-COMBUSTION STOVES, employed by the Ecclesiastical Commissioners.

The PATENT IRON COW STALLS and AIR INLETS are perfect in their arrangements for Feeding and Ventilation; every part being of iron they are indestructible, inexpensive, very compact, cleanly, and healthful for the animal. Should sickness occur, if the iron work be painted and the walls washed with lime, they can neither harbour nor communicate contagion. This system is fast is found to be the only true SAFEGUARD AGAINST THE SPREAD OF DISEASE.

Priced Engravings of all these Inventions sent post free on application to MUSGRAVE BROTHERS, Ann Street Iron Works, Belfast.

Silver Medal and Cup, 1863, awarded for



JAMES'S FIRST PRIZE MANURE CART, which has been awarded 20 PRIZES, is adapted to carry for LIQUID MANURE, for supplying the STEAM PLOUGH, for WATERING STREETS, or for a FIRE ENGINE. Nearly 500 already sold.

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The last great improvement in Washing Machines is in JAMES'S new Patent PRIZE WASHING, WRINGING, and MANGLING MACHINES, awarded several FIRST PRIZES. Will Wash 25 Shirts in 20 Minutes, with much less injury than with the hand. More than 300 Sold.

Address, I. JAMES, Tivoli Works, Cheltenham.

GARDEN BORDER EDGING TILES, in great variety of patterns and material, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" borders, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.

F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.

Sole London Agents for FOXLEY'S PATENT GARDEN WALL BRICKS. Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also TESSELATED PAVEMENTS of more enriched designs than the above.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cements, &c.

To be obtained of F. & G. ROSHER, at their Premises as above.

SILVER SAND (REIGATE, best quality), at the above addresses—14*s.* per Ton, or 1*s.* 3*d.* per Bushel; 2*s.* per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1*s.* per Ton less.

FLINTS, BRICK BURRS or CLINKERS, for Rockeries or Grotto Work.

F. & G. ROSHER.—Addresses see above.

N.B. Orders promptly executed by Railway.

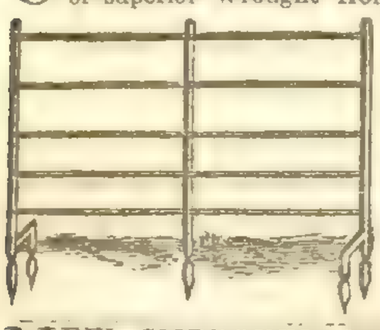
W. S. UNDERHILL'S NEW PATENT IRON FENCE for GARDENS, LAWNS, &c.
Manufactory: Newport, Salop.

Warranted the strongest and most durable Fence ever offered at corresponding prices. It is easily repaired if broken from accidents, can be rolled up most compactly when not in use, is admirably adapted for exportation, and can be had of any height and mesh required, at prices from 4*d.* to 1*s.* 6*d.* per yard and upwards.

For further particulars apply at the Manufactory; or of the London Agent, Mr. R. WINDER, 18, Abingdon Street, Westminster, S.W.

Iron Hurdles, Fencing, and Gates.

COTTAM'S HURDLES are made in the best manner of superior Wrought Iron. SHEEP HURDLES, from 4*s.*; CATTLE HURDLES, from 4*s.* 11*d.* each; CONTINUOUS FENCE, from 8*d.* per foot; FIELD GATES, from 25*s.* each. Illustrated Price List on application.



ENTRANCE GATES, RAILING, and IRON WORK of every description. Designs and Estimates free of

COTTAM & Co.,
No. 2, Winsley Street
(opposite the Pantheon),
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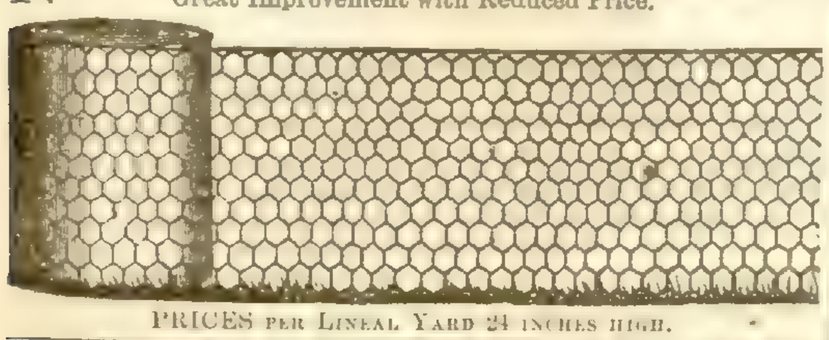
NEW IMPROVED PREMIUM WIRE NETTING.
Great Improvement with Reduced Price.



PRICES PER LINEAL YARD 24 INCHES HIGH.

Size of Mesh.	Mostly used for	Light. Jap	Light. Gal	Medium Jap	Medium Gal	Strong. Jap	Strong. Gal	Extra Strong. Jap	Extra Strong. Gal
		s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
2½ in.	Hares, Dogs, Poultry	0 3	0 4	0 3½	0 5	0 4½	0 6	0 5½	0 7
2 in.	Game or Poultry Netting	0 3½	0 4½	0 4	0 5	0 5	0 6½	0 6½	0 8
1½ in.	Small Rabbits, Hares, &c.	0 4	0 4½	0 4½	0 6	0 5½	0 7	0 7	0 9
1½ in.	Smallest Rabbits ..	0 5	0 6	0 5½	0 7	0 7	0 9	0 9	0 11
1 in.	Pheasantries, &c. ..	0 9	0 11	10½	1 1½	1 3	1 6	1 9	2 0
¾ in.	Aviaries, &c.	1 0	1 3	1 3	1 6	1 6	1 9	..	..

Quantities of 100 yards or upwards delivered free to nearly all the principal Railway Stations and Shipping Ports in England; and 200 yards or upwards delivered free to most parts of Scotland and Ireland.

*** Every description of Netting warranted to give satisfaction, and if not approved will be exchanged, or may be returned unconditionally.

IRON HURDLES, CONTINUOUS BAR FENCING, IRON and WIRE FENCING, FENCING WIRE, FIELD and ENTRANCE GATES, GARDEN ENGINES, GARDEN ROLLERS, GARDEN SEATS and CHAIRS, CAST IRON VASES, and every description of HORTICULTURAL and AGRICULTURAL MACHINES, TOOLS and appliances.

Lists Free on application. Every article guaranteed to be satisfactory.

J. B. BROWN & Co. Office: 18, Cannon Street, City, London, E.C.; nearly opposite St. Swithin's Lane and "London Stone," and near London Bridge.

Warehouse (where Netting is kept in stock), 148, Upper Thames Street, E.C.; opposite the City of London Brewery, and close to the London Bridge Steam Boat Piers.

Oil Paint no longer Necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

From Major RT. BELL, *Sandhoe, Northumberland.*

"I have much pleasure in saying I have known your Black Varnish to be used for some time by friends of mine, and they all speak highly of it, which has induced me to get the quantity I have from you. That I have used looks remarkably well."

Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the kingdom.

Apply to HILL & SMITH, Brierly Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C., from whom only it can be obtained.

Caution to Gardeners.—When you ask for

SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the corporate mark OBTAIN WARRANTED, without which none are genuine.

S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by sellers and makers.

S. & C.'s Pruning and Budding Knives are the best and the cheapest in the market.

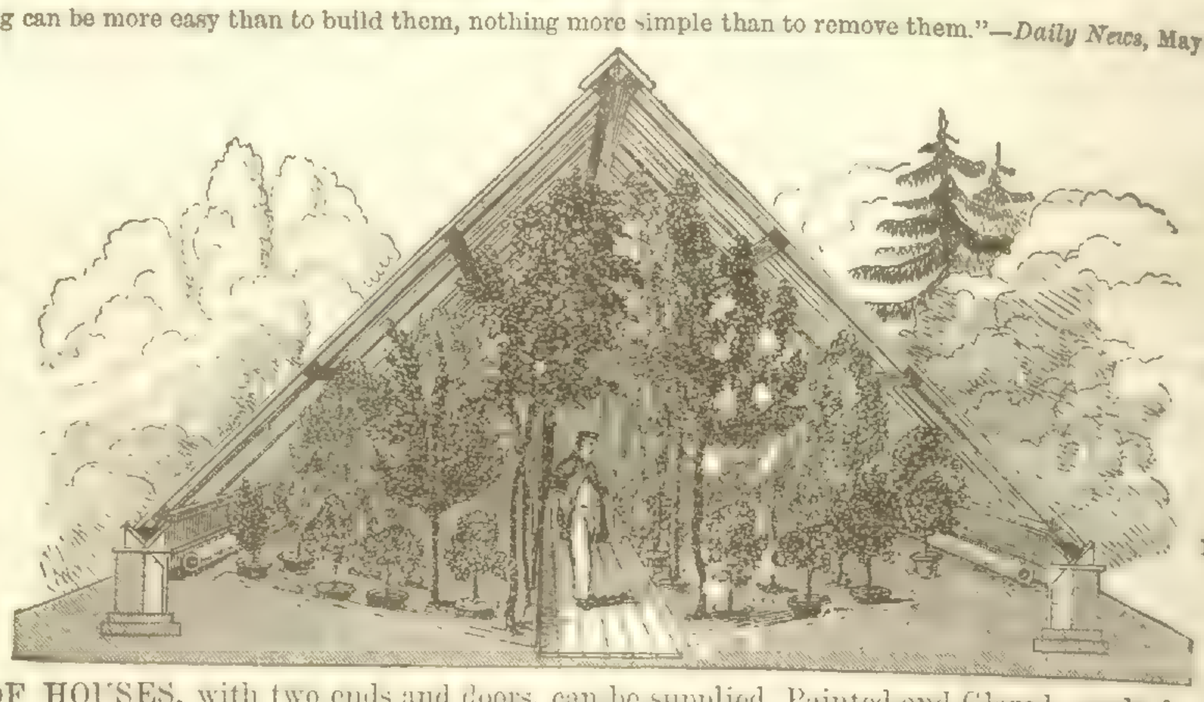
Paxton Works, Sheffield. Established upwards of 125 years.

HOTHOUSES FOR THE MILLION.
AWARDED A PRIZE MEDAL, 1862.
INVENTED AND PATENTED BY
SIR JOSEPH PAXTON, M.P.

Manufactured for the Agent, in London; Newton in Cartmel, Lancashire; Gloucester, Coventry, Aberdeen, and Paisley ONLY.

"Nothing can be more easy than to build them, nothing more simple than to remove them."—*Daily News*, May 22, 1862.

COMBINE SIMPLICITY, CHEAPNESS, AND DURABILITY.



FULFIL ALL THE REQUIREMENTS OF HORTICULTURE.

SPAN-ROOF HOUSES, with two ends and doors, can be supplied, Painted and Glazed, ready for fixing, 21 ft., 16 ft., 32*l.*; 42 ft. by 16 ft., 54*l.*; 54 ft. by 19 ft., 88*l.*; 64½ ft. by 22 ft., 130*l.*, &c., &c.

ILLUSTRATED CIRCULARS, with Prices, can be had on application to
SAMUEL HEREMAN and J. MORTON, AGENTS, 7, PALL MALL EAST, LONDON, S.W.

A HANDBOOK of VINE and FRUIT TREE CULTIVATION, as adapted to the above Patent Hothouses, may be had of Mr. HEREMAN. Second Edition, price 1*s.*; post free, 1*s.* 1*d.*

PATENT WROUGHT-IRON CONSERVATORY.

INTERIOR VIEW.

THIS ELEGANT CONSERVATORY IS FOR SALE.

It was specially Designed and Exhibited in the Grounds of the Dublin International Exhibition.

The ONLY PRIZE MEDAL was awarded for Improvements in the Construction and Application of Wrought-iron to Horticultural Buildings in favour of

T. H. P. DENNIS,
HOT-WATER ENGINEER, PATENTEE, and GENERAL HORTICULTURAL BUILDER in WOOD and IRON,
CHELMSFORD, ESSEX.

NEW TARIFF OF GLASS AND HORTICULTURAL GOODS.

THOMAS MILLINGTON,
GLASS AND COLOUR MERCHANT,
87, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

HAND GLASSES.

PRESERVE JARS.

REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.

MILK PANS.

See Advertisement the first week in last month, or on application.

George Hall, late Manager to the late Saynor's Firm,
HE WAS FOR 30 YEARS IN THEIR EMPLOY.

GEO. HALL AND SON'S Celebrated PRUNING and BUDDING KNIVES, &c., may be obtained from the most respectable Nurserymen and Seed Merchants in the kingdom.

N.B. We only make one quality, the best that can be manufactured, regardless of expense, the same as the late Saynors always made during their lifetime.

Horticultural Cutlery Works, Sheffield.

GALVANISED IRON WATER CISTERNS.

Cheap, light, and durable, will not rust or corrode, and keep water perfectly sweet.

To hold	Each.
30 gallons,	18*s.* 6*d.*
50 gallons,	22*s.* 6*d.*
80 gallons,	31*s.* 0*d.*
100 gallons,	36*s.* 0*d.*
120 gallons,	39*s.* 0*d.*
140 gallons,	42*s.* 6*d.*
200 gallons,	60*s.* 0*d.*
250 gallons,	72*s.* 0*d.*

With Lid and Brass Tap.

GALVANISED WIRE STRAND CABLE FENCING.
GALVANISED IRON ROOFING.
IMPROVED GALVANISED WIRE NETTING.
HURDLES, HURDLES, HURDLES, 1*s.* 9*d.* to 3*s.* 9*d.* per yard.
PATENT STRAINING PILLARS, &c.
GALVANISED IRON PUMPS
GALVANISED SWING WATER BARROWS.
LAWN MOWERS, GARDEN ROLLERS.
ASPHALTE ROOFING FELT, 1*d.* per square foot.

MOTLEY & GREEN, late H. J. MORTON & Co.
Illustrated Catalogues and Estimates free on application.
12, Great George Street, Leeds.

Cheap Greenhouse Stoves.

DEANE AND CO.'S Patent VENTILATING and SUSPENSION STOVES are simple, cheap, and efficient; have been largely adopted and approved; will burn, many hours without attention, and at a small cost for fuel. Prices of Suspension Stoves, 20*s.*, 30*s.*, 38*s.*, and upwards. Ventilating Stoves, 50*s.*, 60*s.*, 70*s.*, 90*s.*

HOT-WATER APPARATUS for Conservatories, Greenhouses, Hothouses, Forcing Pits, &c., erected and fitted up complete.

DEANE & Co., 46, King William Street, London Bridge, E.C.
Established A.D. 1700.

J. WARNER AND SONS, London,

Manufacturers of

BOHEMIAN
FLOWER VASES
AND
HYDRO-CARBON
LAMPS.

The Lamp lifts out of the Vase, requiring no fixing.

Is fitted either with
WARNER'S
KOH-I-NOOR,
OR THE ORDINARY
FLAT-WICK BURNER.

The Koh-i-Noor Burner produces a superior light to the Moderator, at a much less cost, and is not liable to get out of order.

The Opal Vases are made in the best style of Bohemian Glass, and beautifully decorated.

	Round Burner	Flat
With Gold Bead	25*s.* 6*d*	14*s.* 6*d*
With Gold Lines	25 0	16 0
With Rose Colour, Greek Border	30 0	21 0
With Red Medallion (Antique)	32 0	23 0
With Blue Medallion (Antique)	32 0	23 0
Ruby Glass, fluted with gold lines	46 0	37 0
Emerald or Ruby, richly decorated with gold	63 0	54 0

May be obtained of the Trade throughout the United Kingdom.

GREEN'S PATENT SILENS MESSOR, or NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES

GREEN'S PATENT LAWN MOWERS have proved to be the best, and have carried off every Prize that has been given in all cases of competition. Above 26,000 have been sold since the year 1856.

Illustrated Price Lists of Lawn Mowers and Garden Rollers Free.

THOMAS GREEN & SON, Smithfield Iron Works, Leeds; 2, Farringdon Road, Holborn Hill, London, E.C.; Hadwin's Buildings, Tithebarn Street, Liverpool; and 19 Eden Quay, Dublin.

To Nurserymen and Market Gardeners.

TO BE SOLD or LET, a SMALL FARM, most eligibly situated about a mile from a Station on the Great Eastern line, comprising a Dwelling House, Farm Buildings, and upwards of 41 Acres of land, [illegible] for Fruit Trees, Seed Crops, and Vegetables. [illegible]

Apply to Mr. H. Lavender, Messrs. [illegible], Dowding & Co., Solicitors, Bury St. Edmunds.

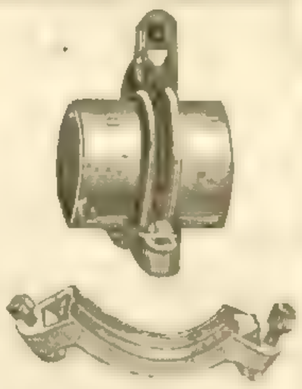
MR. URLWIN'S SALE.—WANTED, the ADDRESS of the PERSON who BOUGHT the RHUBARB ROOTS.
Apply by letter, C. W. ALDERSON, Langley Lane, South Lambeth, S.

Tulips.

TO BE SOLD by PRIVATE CONTRACT, the choice COLLECTION of TULIPS belonging to the late Mr. HOLMES, of New Hampton, also TULIP STAGE, 6 ft. long by 23 ft., with Canvas and Rollers, Cabinet, Hoops, &c.
Apply to PROTHEROE & MORRIS, American Nurseries, Leytonstone, N.E.

HOT-WATER APPARATUS,

WITH TRUSS' PATENT PIPE JOINTS.



T. S. TRUSS, C.E.,

53, GRACECHURCH STREET, LONDON, E.C.

By means of these Joints the work is executed in less than half the time required for Socket Joints, and alterations can at any time be made, or the entire Apparatus removed and erected elsewhere with the greatest facility. **A considerable saving in cost is also effected.**

These Joints have been used for several years, giving entire satisfaction, and may be seen in use at the Royal Horticultural Society's Gardens, South Kensington and Chiswick, and many other places in Horticultural and Public Buildings.

For a few prices, see last week's Advertisement.

ESTIMATES, PLANS, AND PRICE LISTS FORWARDED ON APPLICATION.

JAMES PHILLIPS & CO.,

HORTICULTURAL GLASS MERCHANTS,

180, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

REDUCED PRICES OF SHEET GLASS FOR HORTICULTURAL PURPOSES.

ENGLISH SHEET GLASS.

Packed in Crates of about 280 feet.

	16-ounce.	21-ounce.
Best	5½*d.*	7¼*d.*
Seconds	3¾*d.*	5*d.*
Thirds	2½*d.*	3½*d.*
Fourths	2¼*d.*	3¼*d.*

HORTICULTURAL GLASS,

Stock Sizes, 16-ounce. In 100 feet Boxes.

These prices only apply to the sizes stated.

	4ths.	3rds.
11 by 9, 12 by 9, 13 by 9, 14 by 9; 12 „ 10, 13 „ 10, 14 „ 10, 15 „ 10; 13 „ 11, 14 „ 11	12*s.* 6*d.*	14*s.* 0*d.*
14 „ 12, 15 „ 12, 15 „ 11, 16 „ 11; 18 „ 12, 19 „ 12, 16 „ 12, 17 „ 12; 16 „ 13, 17 „ 13, 20 „ 12, 21 „ 14; 19 „ 13, 20 „ 13, 18 „ 13 .. ; 16 „ 14, 17 „ 14, 21 „ 13 .. ; 19 „ 14, 20 „ 14, 18 „ 14 ..	13*s.* 6*d.*	16*s.* 0*d.*

16 to 17 oz. to the foot.

FOREIGN SHEET GLASS.

In Cases for cutting up, in Sizes as Manufactured.

	16-oz., 200 ft.	16-oz., 300 ft.	21-oz., 200 ft.
	£ *s.* *d.*	£ *s.* *d.*	£ *s.* *d.*
Best	3 7 0	..	5 14 0
Seconds	3 0 0	..	4 13 0
Thirds	..	2 5 0	2 10 0
Fourths	..	1 15 0	2 0 0

GLASS for ORCHARD HOUSES,

As supplied by us to Mr. Rivers, to the Royal Horticultural Society, and to most of the Nobility, Clergy, and Gentlemen of the United Kingdom.

Each Box contains 100 feet. The prices only apply to the sizes stated.

Squares 20 by 12, 20 by 13, 20 by 14, 20 by 15.

	16 oz. to the foot.	21 oz.
Fourth quality	13*s.* 6*d.*	15*s.* 0*d.*
Third quality	16*s.* 0*d.*	19*s.* 0*d.*
English	18*s.* 0*d.*	23*s.* 0*d.*

The above prices include the Boxes.

Best and Seconds are intended only for Pictures or Dwelling Houses.

SMALL SHEET SQUARES.

In 100 feet Boxes.

6 by 4 .. 6½ by 4½ .. 7 by 5 .. 7½ by 5½; 8 „ 6 .. 8½ „ 6¾ .. 9 „ 7 .. 9½ „ 7½; 10 „ 8 .. 10½ „ 8½	11*s.* 6*d.*
	12*s.* 6*d.*

Boxes 2*s.* each, returnable at full price.

All small squares from 6 by 4 to 10½ by 8½ are cut from pieces, consequently there is only one quality.

London Agents for Hartley's Patent Rough Plate.

Perforated Glass for Ventilation.

Glass Shades, Ebony and Gilt Stands, Gas and Lamp Glasses, Chimney and Globes, &c.

Glaziers' Diamonds from 10*s.* to 21*s.* each.

GLASS TILES and SLATES in SHEET and ROUGH PLATE. PLATE GLASS, PATENT PLATE, and HARTLEY'S IMPROVED ROUGH PLATE. PAINTS, COLOURS, VARNISHES, &c.

GENUINE WHITE LEAD.	FINE OAK VARNISH.	LINSEED OIL.
ANTI-CORROSION PAINT.	CARRIAGE.	BOILED OIL.
LINSEED OIL PUTTY.	"PATENT" DRYERS.	TURPENTINE.

Lead in Sheets or Cut to Sizes, Lead Pipe, Lift Pumps, Water Closets, and Plumbers' Brass Work of every description.

Sales by Auction.

Sunningdale Nursery, Bagshot, Surrey.

MESSRS. PROTHEROE AND MORRIS respectfully announce that Mr. NOBLE'S SALE on the premises as above, will continue MONDAY, November 6, and three following days, at half-past 12 o'Clock each day. The most valuable portion of this extensive stock of EVERGREENS and CONIFERÆ, SHRUBS, choice RHODODENDRONS, &c., is yet to be offered. Those who are making Plantations would do well to embrace this opportunity.

Catalogues may be had on the Premises; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

Sale of Dutch Bulbs, Standard and Dwarf Roses, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., on THURSDAY, November 9, at 1 o'Clock precisely, a first-class Collection of DUTCH BULBS, consisting of the finest Double and Single Hyacinths, Narcissus, Jonquils, Anemones, Crocus, Tulips, Ranunculus, Glad[illegible], Snowdrops, &c.; a fine Assortment of [illegible] STANDARD and DWARF ROSES; selected AMERICAN PLANTS, including Giant and other Azaleas, Hybrid Rhododendrons, Kalmias, &c.

On view the Morning of Sale. Catalogues had at the Rooms as above, and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Ringwood Nursery.

IMPORTANT SALE OF NURSERY STOCK, FIT FOR GENTLEMEN'S PRESENT PLANTING.

MR. E. SAUNDERS has received instructions to SELL by AUCTION, on THURSDAY, November 9, at 12 o'Clock, a part of the valuable NURSERY STOCK of Mr. W. Hounslow, who is reducing his Stock, most of which is fit for Gentlemen's present Planting; [illegible] a large quantity of Larch, Spruce and Scotch Firs, also of 2-year Seedling Scotch Firs, 1-year ditto Hazel, and 1-year Cattle Oak, and a variety of other Forest Trees, Flowering Shrubs, Evergreens, &c.

May be viewed any day preceding the Sale. Catalogues may be had a week prior to the Sale, of Mr. Hounslow, or of the Auctioneer, Ringwood.

Kilburn, W.

ABSOLUTE SALE OF VALUABLE NURSERY STOCK, WORTHY THE ATTENTION OF NURSERYMEN, GENTLEMEN PLANTERS, AND OTHERS. THE GROUND TO BE CLEARED FOR BUILDING PURPOSES.

MR. F. W. SEARLE will SELL by AUCTION, at Kilburn Park Nursery, Carlton Road, W., on MONDAY, November 13, and following days, at 11 o'Clock each day, the entire NURSERY STOCK, including fine Forest Trees of handsome growth, Standard Pears and Plums, Pyramid Apples, &c.; Trained Fruits, Evergreens too numerous to enumerate, [illegible] Flower Roots, Scarlet Geraniums, Seed Potatoes, &c.; Span-roof Greenhouses and Hot-water Apparatus, Lances of Pits, Implements and Tools, the Water-roof Fruit-room Cottage, Tool House and Shed, Fencing, &c.

On view Friday and Saturday prior. Catalogues of the principal Seedsmen in Town; at the Nursery, of F. W. Searle, Horticultural Agent, &c., 23, Colonnade, Street, E.C., and Tottenham, N.

To Gentlemen, Nurserymen, and Others.

MESSRS. J. WATERER AND SONS will SELL by AUCTION, on TUESDAY, November 14, and two following days, at 11 for 12 o'clock precisely, on the Premises near Pyrford Bridge, Byfleet, Surrey, about one mile from Weybridge and Woking Stations, by order of the Proprietor, without reserve, the Valuable NURSERY STOCK, comprising the Standard, Half-Standard and Dwarf Perpetual Roses of the most approved sorts; 5000 Conifers, including Lawsoniana, Menziesii, Wellingtonia gigantea, Cedrus Deodara, Pinus Picea, Thuja lobbii, Tsuga Douglasii, horealis, Abies Pinsapo, P. austriaca, P. Douglasii, [illegible], Cryptomeria japonica, P. excelsa, P. Wallichiana, [illegible], others; [illegible] and American Arbor-vitæ, [illegible] & Arbor-vitæ, and [illegible] New Hedges, [illegible] Rhododendrons, 700 Worked ditto, 50 Standard ditto, [illegible] Seedling and Budded Rhododendrons, [illegible] ling ditto, 10,000 Seedling ditto, from 6 inches to [illegible] feet, 50 Pinus Seedling Pinus Laricio; 800 Azaleas, various; 300 [illegible], 50 Rhododendrons, 17 Azaleas, 12 [illegible], 12 [illegible] and 6 Heath, Stools and Layers, [illegible] Laurel, 600 [illegible], [illegible] Pine Firs; [illegible] Spruce Firs, [illegible] feet, Hemlock Spruce, Araucaria japonica, Ericas, Standard and Dwarf Pears and Plums, Red, White, and Black Currants, [illegible], Red-leaf Alder, 100 Late vegetable Cheese, Mixed Stocks, [illegible] Ornamental Planting, and a great variety of other Stock, the whole of which is in a most perfect and safe state for removing, having been Transplanted within the last two years. Time for removing will be allowed until the 25th March, 1866, agreeable to the Conditions of Sale. May be viewed one week previous to the Sale, and Catalogues had upon the Premises; and of Messrs. WATERER & SONS, Auctioneers and Valuers, Chertsey, Surrey, who will forward them on application by Post.

UPWARDS OF 60 PRIZES FOR ROSES DURING THE PAST SEASON.

PAUL & SON,

OLD CHESHUNT NURSERIES, CHESHUNT, N.,

BEG TO ANNOUNCE GENERAL PRICES FOR THE SEASON FOR

ROSES, FRUITS, HOLLYHOCKS, ETC.

Roses selected from our stock of above 100,000 of first-rate quality.

STANDARDS and HALF-STANDARDS, 18*s.* to 30*s.* doz. | DWARF STANDARDS and DWARFS, 9*s.* to 18*s.* doz.

NEW ROSES of 1865 (a first-rate year), 30*s.* to 42*s.* per doz.

DWARFS and STANDARDS of NEW YELLOW NOISETTE, MARECHAL NIEL, 5*s.* each.

Fruits, all well formed Trees.

APPLES, 5 to 6 feet, fine stems, Standards, 18*s.*; Pyramids, 18*s.* to 30*s.*; Dwarf-trained, 30*s.* to 36*s.* per dozen.

PLUMS, CHERRIES, PEARS, Standards, 24*s.*; Pyramids, 24*s.* to 42*s.*; Dwarf-trained, 42*s.* per dozen.

PEACHES, NECTARINES, and APRICOTS, all well trained, Standards, 7*s.* 6*d.* to 10*s.* 6*d.*; Dwarfs, 5*s.* each.

VINES and FIGS, very strong for Planting, or for Fruiting, 60*s.* per dozen.

RASPBERRIES, 16*s.*; CURRANTS and GOOSEBERRIES, 24*s.* to 30*s.* per 100.

HOLLYHOCKS, in fine variety, 9*s.* to 12*s.*; new kinds, 18*s.* to 30*s.* per dozen.

CONIFERÆ, DECIDUOUS and EVERGREEN ORNAMENTAL TREES and SHRUBS, all at reasonable prices.

RHODODENDRONS and AMERICAN PLANTS in quantity, at our

NEW AMERICAN NURSERIES, HIGH BEECH, ESSEX.

NEW PRICED DESCRIPTIVE ROSE, FRUIT, and other LISTS free on application.

PAUL'S NURSERIES, WALTHAM CROSS, N.

WILLIAM PAUL

(Son and Successor to the late A. Paul,)

BEGS TO OFFER THE FOLLOWING LEADING ARTICLES OF FIRST-RATE QUALITY:—

ROSES.

STANDARDS, 15*s.* to 18*s.*; new sorts, 24*s.* to 42*s.* per doz. | DWARFS, 12*s.* to 18*s.*; new sorts, 24*s.* to 30*s.* per doz.
CLIMBING, 9*s.* to 12*s.* per doz.
The "ROSE GARDEN," Second Edition, with numerous Woodcuts, 6*s.* 6*d.*

DUTCH BULBS.

HYACINTHS, 6*s.* to 15*s.*; new sorts, 18*s.* to 30*s.* per doz.
BEDDING HYACINTHS, 18*s.* to 34*s.* per 100.
EARLY TULIPS, 1*s.* to 4*s.* per doz.
POLYANTHUS NARCISSUS, 3*s.* to 6*s.* per doz.
CROCUSES, 2*s.* to 4*s.* per 100.
GLADIOLI, 4*s.* to 12*s.* per doz.
And all other Bulbs equally reasonable.

BEATON'S GERANIUMS.

Reduction in price; the Set of 16 Varieties, 32*s.* These have now been thoroughly tested, and have proved even superior to the descriptions originally given of them; they have also been pronounced by many leading horticulturists indispensable in the future of every well-arranged flower garden.

FRUIT TREES, in and out of Pots.

Standard and Dwarf-trained Pyramid and Dwarf PEACHES, NECTARINES, APRICOTS, APPLES, PEARS, CHERRIES, PLUMS, GOOSEBERRIES, CURRANTS, RASPBERRIES, STRAWBERRIES, FIGS, and FILBERTS. A selection of all the really good sorts, both young and fruiting trees, in splendid condition.

GRAPE VINES.

Two Thousand Fruiting and Planting, including the newest sorts.

EVERGREEN and ORNAMENTAL TREES.

One Thousand Species and Varieties, selected in a great measure for the beauty of their foliage.

PRICED DESCRIPTIVE CATALOGUES free by post.

Fruiting Vines, Camellias, &c.

JAMES CARTER AND CO. have NOW on VIEW their Crystal Palace Nursery, Perry Hill, Sydenham, S.E., and choice COLLECTION of extra strong FRUITING VINES in Pots, well-ripened, and sure to produce a heavy crop of Fruit, from 10*s.* 6*d.* to 12*s.* 6*d.* each; also, a large assortment of the best Italian CAMELLIAS, well set with Buds, at 24*s.* to 42*s.* per dozen; a choice COLLECTION of CHRYSANTHEMUMS, fit for present season's blooming, at 6*s.* per dozen.
PRICE LISTS gratis and post free on application to
James Carter & Co., 237 and 238, High Holborn, London, W.C.

Hardy Climbers.—To the Trade.

CLEMATIS JACKMANNI.—Large intense violet purple, rugose and veiny in centre, 2 to 2½ feet bine; 30*s.* per dozen.
CLEMATIS RUBRO-VIOLACEA.—Reddish violet, sepals moderate fine; 30*s.* per dozen.
CLEMATIS STANDISHI.—Beautiful violet blue; 30*s.* per dozen.
Besides other good old varieties.
A CATALOGUE, including Description and Treatment of Clematises, will be forwarded free on application to
Geo. Jackman & Son, Woking Nursery, Surrey.

Lobelia Snowflake.

Extract from Gardeners' Chronicle:—
"Mr. Cox, Gardener to Lord Beauchamp, exhibited a beautiful White Lobelia called Snowflake, to which a First-class Certificate was awarded. Floral Committee of the Royal Horticultural Society, July 25, 1865."

JOHN AND CHARLES LEE having acquired the stock of this desirable NEW BEDDING PLANT, they have much pleasure in offering SEED in SEALED PACKETS for present sowing for spring pot culture, for which it is well adapted.
As a BEDDING LOBELIA it stands unrivalled. The plant is of dwarf compact habit: the flowers are large, perfectly even, and of the purest white. The stock comes perfectly true from seed.
Price 2*s.* 6*d.* per packet. Price to the Trade on application.
Royal Vineyard Nursery and Seed Establishment, Hammersmith, W.

Notice.—Cheap Plants

W. B. JEFFRIES'S COLLECTIONS gave such satisfaction last year, that he is induced to offer even greater bargains this Season, viz.:—12 Evergreens and Flowering Shrubs, 12 Herbaceous Plants, 6 Ornamental Trees, 6 Rhododendrons, 6 Hybrid Roses, 6 of the beautiful Calandrinia umbellata, 6 Gladioli, 6 Carnations, 6 new Perpetual Dessert Raspberries, full of delicious fruit from June to October; 6 choice Coniferæ, including Araucaria imbricata, &c., on receipt of Post-office Order for 20*s.*; or half the quantities, 10*s.* 6d.
Arboretum Nurseries, Ipswich.

Seed Potatos.

H. AND F. SHARPE invite the attention of the Trade to the following varieties of SEED POTATOS, which they have grown from the finest selected stocks; they comprise all the sorts worthy of cultivation. The quality is excellent, being free from disease; and prices very moderate:—

Early Ash-leaved Kidney	Early Oxford
" Myatt's prolific Kidney	" Forty-fold
Webb's Imperial Kidney	Daintree's Earliest
Early King, very fine	Early Dalmahoy Round
" Martin's Globe	" Cockney
" Golden Globe	" British Queen
" Foxe's Seedling	Fluke Kidney
" Round Frame	Yorkshire Regent

Seed Growing Establishment, Wisbech, Cambs.

SEED WHEAT.—Selected Rough-chaffed, Club-headed, Taunton-Dean, &c. Also Hallett's Original Red, New White Dwarf Pedigree, and extraordinary Chevalier Barley, improved by Pedigree. Prospectuses, with prices, &c, on application to
Abraham Hardy, General Seed Agent, and late the celebrated Seed Grower Maldon, Essex.

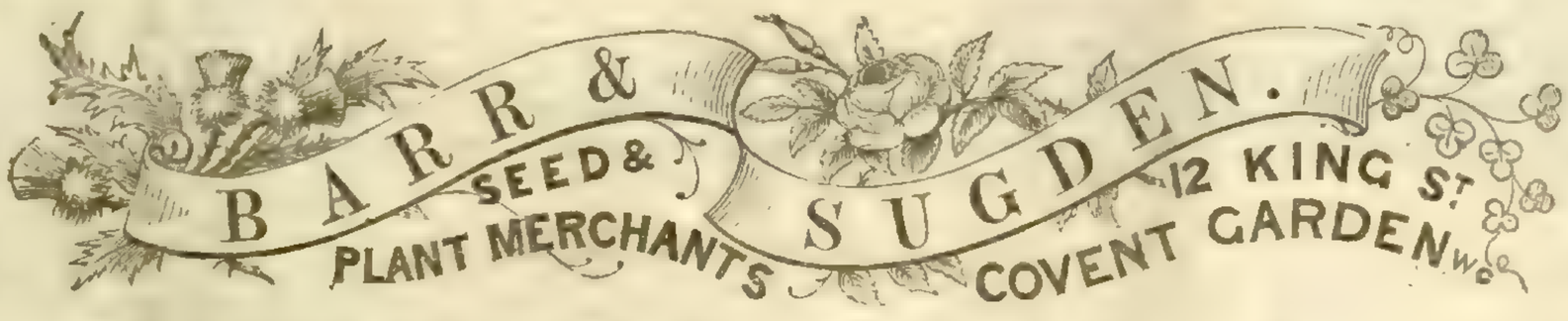
SEED WHEAT.—The Advertiser has to offer a very superior WHITE WHEAT, equal to the finest Talavera, and quite hardy. This Wheat was saved from a Single Ear of Corn, selected by him for its extraordinary appearance. It has now been grown at Fovant, in Wiltshire, for three years, and has fully established the character given it. Any Agriculturist wishing to improve his stock will do well to try this superior sample. Price 10*s.* per bushel; Sacks, 2*s.* each. Ample testimonials given if required.
The above will be forwarded on receipt of a Post-office Order to Mr. Aaron Futcher, Agriculturist, Fovant, Wilts; or to Mr. J. Keynes, Florist and Seedsman, Salisbury.

Surrey White Wheat.

WAITE, BURNELL, AND CO., beg to offer the above very fine variety of WHITE WHEAT, which is highly recommended for poor and elevated soils. It has been tried against many varieties, among which may be named the Rough Chaff, Hunter's Trump, and almost all other kinds of White Wheat, and has produced fully 15 per cent. greater crop. It has been perfectly free from blight and red rust when other varieties have been more or less affected. Price 10*s.* 6*d.* per bushel.
A liberal discount to the Trade.
Seed Warehouse, 181, High Holborn, London, W.C.

COLLECTIONS of BULBS.

The COVENT GARDEN COLLECTIONS,
Part for In and part for Out-of-door Decoration, 10*s.* 6*d.*, 15*s.* 6*d.*, 21*s.*, 42*s.*, 63*s.*, & 105*s.*



COLLECTIONS of BULBS.

The PAXTONIAN COLLECTIONS,
For the Ornamentation of the Spring Garden, 10*s.* 6*d.*, 15*s.* 6*d.*, 21*s.*, 42*s.*, 63*s.*, & 105*s.*

200,000 CROCUS, 100,000 SNOWDROPS, 50,000 HYACINTHS, 100,000 TULIPS, SCILLA SIBIRICA, NARCISSUS, RANUNCULUS, ANEMONES, &c.

THE CLIVEDEN COLLECTIONS of SPRING-BLOOMING PLANTS, drawn from the Stock at Cliveden.

150 PANSIES ASSORTED | 200 DAISIES ASSORTED | 100 FORGET-ME-NOT | 100 SILENE | 50 COWSLIPS.

The above, 105s.; Half the quantity, 50s.; Quarter do., 25s.; Eighth, 12s. 6d.

FORGET-ME-NOT, blue	5*s.* 6*d.* per 100	DAISY, pink	10*s.* 6*d.* per 100
" " white	7 6 "	" white	10 6 "
SILENE, pink	5 6 "	POLYANTHUS, mixed	12 6 "
" white	5 6 "	COWSLIPS, mixed	12 6 "

SAPONARIA, pink	5*s.* 6*d.* per 100
" white	5 6 "
ARABIS ALPINA	15 0 "
" LUCIDA	50 0 "

STANDEN'S GARDENER'S and AMATEUR'S FRIEND, the best Manure for Chrysanthemums, &c. See Advertisement, page 1032.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by William Bradbury, of 13, Upper Woburn Place, in the Parish of St. Pancras, in the Co. of Middlesex, and Frederick Mullett Evans, of No. 11, Bouverie Street, in the Precinct of Whitefriars, City of London, Printers, at their Office, Lombard St., Precinct of Whitefriars, City of London, and Published by them at the Office, No. 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said Co.—Saturday, November 4, 1865.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 45.—1865.] SATURDAY, NOVEMBER 11. {Price Fivepence. {Stamped Edition, 6d.

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GUILDHALL GRAND FLOWER SHOW.
One Shilling.

GUILDHALL GRAND FRUIT SHOW.
One Shilling.

GUILDHALL.—COLDSTREAM GUARDS' BAND.
One Shilling.

GUILDHALL NEW GOTHIC ROOF.
One Shilling.

GUILDHALL as on LORD MAYOR'S DAY, with magnificent display of CHRYSANTHEMUMS, PALMS, FERNS, &c.—TUESDAY, 14th, 1 to 8 o'Clock; WEDNESDAY, 10 to 8 o'Clock.—Admission One Shilling.

CRYSTAL PALACE.—GREAT DISPLAY of CHRYSANTHEMUMS at NEXT SATURDAY'S CONCERT and PROMENADE, November 18th, and MONDAY the 20th. Twenty Guineas will be given in Prizes for the best Groups. Particulars may be had on application to
I. Wilkinson, Crystal Palace, Sydenham.

BRISTOL, WEST of ENGLAND, and SOUTH WALES CHRYSANTHEMUM and FRUIT SOCIETY.
The SECOND ANNUAL SHOW of CHRYSANTHEMUMS and FRUIT will be held in the Rifle Drill Hall, Queen's Road, Clifton, on THURSDAY, November 16, when upwards of £80 will be given in Prizes. No Entrance Fee for exhibiting.
Schedules may be obtained of the Nurserymen in Bristol, or of
J. Hobbs, Hon. Sec., Imperial Fire Office, Bristol.

TOWN HALL, BIRMINGHAM.—ENTRIES for the GREAT FRUIT SHOW will CLOSE on TUESDAY, Nov. 21. Schedules, &c., on application to Alex. Forrest, Secretary, Queen Chambers, 8, Cherry Street, Birmingham.

Exhibition of Chrysanthemums.
JOHN SALTER'S unique COLLECTION of these beautiful flowers (including the New Varieties for 1866), is NOW in BLOOM. The WINTER GARDEN is open every day except Sunday, admittance free.
Versailles Nursery, William Street, Hammersmith, W., near Kensington Railway Station.

Chrysanthemums.
ADAM FORSYTH begs to inform his friends and the public that his Specimen and other CHRYSANTHEMUMS are NOW in FLOWER, and can be seen every day, Sunday excepted.
Brunswick and Shacklewell Nurseries (opposite West Hackney Church), Stoke Newington.

NEW and GENUINE AGRICULTURAL, GARDEN, and FLOWER SEEDS.
Special prices and advantageous offers on application to
James Fairhead & Son,
Seed Growers and Merchants, 7, Borough Market, London, S.E.

H. AND F. SHARPE,
Seed Growers and Merchants, Wisbech.
SPECIAL PRICED LIST of NEW SEEDS on application.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING AND COMPANY, Limited, Seed Farmers and Merchants, 89, Seed Market, Mark Lane, E.C.; and Basingstoke.
Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

Genuine Garden and Agricultural Seeds.
JAMES CARTER AND CO.,
Seed Farmers, Merchants, and Nurserymen,
237 and 238, High Holborn, London, W.C.

JOSEPH TREMBLE AND SONS, The Nurseries, Penrith.—Prices fixed for 1865-66 for extensive FOREST STOCK.

HENRY FLINTHAM, Seed and Fruit Merchant, Market Place, Rotherham.
Prompt Returns made for Consignments of Fruit and other Produce sent on Commission by Merchants or Growers.
References to London, Liverpool, Hull, Scotland, or Ireland.

New Garden Seeds for Autumn Sowing.
SUTTON AND SONS can now supply the above, of excellent quality.
PRICED CATALOGUES gratis and post free on application.
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PELARGONIUM MRS. POLLOCK.—Strong Summer-struck Plants, well established in 60-pots, at 15s. per dozen.
The Trade supplied.
Alfred Fryer, Nurseries, Chatteris, Cambridgeshire.

J. IVERY AND SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

1865 and 1866.
EDWARD P. FRANCIS AND CO.'S NEW DESCRIPTIVE CATALOGUE is now ready, and will be forwarded gratis on application. Intending purchasers will find it to be a most useful guide. The Nurseries, Hertford, Herts.

N. LAWRENCE'S CATALOGUE of NURSERY STOCK includes Roses, Coniferous trees, Miscellaneous Deciduous and Evergreen Shrubs, Fruits, &c. Can be had on application.
The Nurseries, Station Street, Chatteris, Cambridgeshire.

Huntingdon Nurseries.
WOOD AND INGRAM'S General CATALOGUE of NURSERY STOCK, including Seedling and Transplanted Forest Trees, Ornamental Trees and Shrubs, Roses, and Fruit Trees now ready, and will be sent free on application.

VINES, from Eyes.—Now ready, a DESCRIPTIVE CATALOGUE of GRAPES, by Thos. Rivers, free per post.
Nurseries, Sawbridgeworth.

Grape Vines.
S. GLENDINNING AND SONS have a splendid lot of extra fine Fruiting Canes.
PRICED LIST may be had on application.
Chiswick Nursery, London, W.

Fruiting Vines.
E. G. HENDERSON AND SON offer the above, with splendid Canes of well-matured growth, with prominent eyes, sure to give a heavy crop of fruit, 10s. 6d. each.
LIST of SORTS sent on application.
Wellington Nursery, St. John's Wood, London, N.W.

Fruiting Vines.
HUSSEY AND SON have a few fine Plants of the above to offer, with magnificent Canes of well-ripened wood, and sound prominent eyes, at 10s 6d. each.
Mile End Nursery, Eaton, Norwich.

To the Trade.
FINE DWARF-TRAINED PEACHES and NECTARINES.
FRANCIS AND ARTHUR DICKSON AND SONS can supply the above in fine, clean, healthy Trees.
Prices moderate, which will be forwarded on application.
"Upton" Nurseries, Chester.

DAMASCENE or PERSHORE PLUM, fine 2-years stuff; LARCH, strong, 3 feet high; also PRIVET BERRIES, Common ACORNS, HORSE CHESTNUTS and SPANISH CHESTNUT SEED, A 1 quality, for Sale.
Apply to Robert H. Poynter, The County Nursery and Seed Establishment, Taunton.

HEAVY LANCASHIRE SHOW GOOSEBERRY TREES, 6s. per dozen. CATALOGUES on application.
Holland & Jones, Bradshaw Gardens, Chadderton, near Manchester.

Strong Standard Apples, Pyramid Pears,
and LARCH FIR, 1½ to 4½ feet.
CHARLES BURGESS, The Nurseries, London Road, Cheltenham, has a fine stock of the above, and a general assortment of NURSERY STOCK. Prices on application.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
Richard Smith, Nurseryman and Seed Merchant, Worcester.

Forest Trees, Ornamental Trees, and Shrubs.
PETER LAWSON AND SON'S CATALOGUE for the current Season is now ready, and will be forwarded, free, on application. Edinburgh and London.

Forest, Fruit Trees, Shrubs, &c.
H. AND R. STIRZAKER will have pleasure in forwarding their WHOLESALE PRICE LIST of the above on application. Skerton Nurseries, Lancaster.

Winter-flowering Heaths.
JOHN FRASER, Lea Bridge Road Nurseries, N.E., begs to offer fine plants of ERICA HYEMALIS, and other Winter-flowering sorts, now coming into full bloom. The prices will be given on application. A reference or remittance respectfully requested from unknown correspondents.

The Nurseries, Folkestone.
JAMES MEIKLE has on hand some fine specimen EVERGREEN and DECIDUOUS TREES and SHRUBS; many of them of a large size and in excellent condition. As the ground must be cleared immediately they will be Sold Cheap.

THOMAS SEARLE has a large quantity of LOMBARDY POPLARS, clean-grown stuff, 10 to 12 feet high; fine EVERGREEN PRIVETS, 3½ feet. LILACS, EUONYMUS, and general Nursery Stock, all equally good. Price on application.
Villa Nursery, Rochester Square, Camden Town, N.W.

M. CROOK AND SONS have to offer to the Trade and others from 200,000 to 300,000 strong LARCH, from 3 to 4½ ft. high, all healthy and well grown. Prices on application.
M. C. & Sons have also a large stock of good sound SHALLOTS to Dispose of. Prices reasonable.
Walton-le-Dale Nurseries, Preston, Lancashire.

LARCH.—Very fine, 3 and 4-feet, strong and well grown, 15 to 20—1000. Price on application to
N. Lawrence, Nurseryman, Station Street, Chatteris, Cambridgeshire

THORN QUICKS.—A large quantity extra strong 5-years Transplanted to Dispose of. For price, &c., apply to
B. Whitham, The Nurseries, Reddish, near Stockport.

Haws and Holly Berries.
WANTED, a large quantity of the above. Apply to
B. Whitham, The Nurseries, Reddish, near Stockport.

WANTED, FOREST TREES, from 1 to 2 feet, as under:—BIRCH, BEECH, COMMON and TURKEY OAKS, HORNBEAM, SCOTCH FIRS, and ASH. Lowest price required.
Address, Wm. Wood & Son, Maresfield, near Uckfield, Sussex.

SEVERAL BUSHELS of HAWS and HORSE CHESTNUTS; also a large number of Strong LARCH, BEECH, ASH, and SYCAMORE. For prices apply to
D. H. Higgins, The Nurseries, Clonmel, Ireland.

UNDERWOOD PLANTING.—A large quantity of SPANISH CHESTNUT PLANTS, 3 to 4 feet, for SALE, surplus of stock reared for private use; also a quantity of SEEDLINGS. For samples and price apply to
Mr. Puttick, Easebourne, Midhurst, Sussex.

HORSE CHESTNUTS WANTED.—Parties willing to collect and deliver sound HORSE CHESNUTS are requested to inform the Undersigned what quantity and at what price.
Mr. Martin, Centre Avenue, Covent Garden.

To Nurserymen and Others.
FOR SALE, ENGLISH CHESTNUTS for Seed, grown on the Cobham Hall Estate.
Apply to Mr. Geo. Franks, Thong, near Gravesend, Kent.

TO BE SOLD, Cheap, for Cash, a quantity of very fine strong TRANSPLANTED LARCH.
Apply to Dreghorn & Aitken, Nurserymen, Kilmarnock, N.B.

ALFRED LEGERTON, Seed Merchant, 5, Aldgate, London, E.—Special quotations for CARROT and all other GARDEN and AGRICULTURAL SEEDS upon application.

To the Trade.
FOR SALE, a splendid lot of strong healthy GENISTAS, 4s., 6s., to 8s. per dozen; also a fine lot of well-grown CHRYSANTHEMUMS, from 6s. to 9s. per dozen.—Apply to
W. Tresedder, Nurseryman, Cardiff, South Wales.

Dutch Bulbs.
CHARLES TURNER is prepared to execute orders with the finest varieties of HYACINTHS, TULIPS, CROCUS, NARCISSUS, &c. The roots have arrived in fine condition. CATALOGUES on application.
The Royal Nurseries, Slough.

Hyacinths and other Dutch Bulbs.
WM. CUTBUSH AND SON beg to acquaint their numerous Patrons that they have received their usual Consignment of Choice HYACINTHS, TULIPS, CROCUSES, &c.
PRICED DESCRIPTIVE CATALOGUE post free on application.
Highgate Nurseries, London, N.

BUTLER AND McCULLOCH'S ILLUSTRATED PRICED CATALOGUE, containing particulars of their Choice COLLECTIONS of DUTCH and CAPE FLOWERING BULBS, sent free and post paid upon application.
Butler & McCulloch, South Row, Strutton Ground, opposite Southampton Street, Covent Garden Market, W.C.

BARR AND SUGDEN'S HYACINTHS, TULIPS, CROCUS, NARCISSUS, GLADIOLI, RANUNCULUS, ANEMONES, LILIES, AMARYLLIS, in special collections. See our AUTUMN FLORAL GUIDE, free on post paid application.
Barr & Sugden, Seed and Plant Merchants, 12, King Street, Covent Garden, W.C.

A LARGE QUANTITY of DUTCH BULBS in fine condition, much below the usual prices. The largest stock of BRITISH and FOREIGN FERNS in the trade. FERN CASES of every description, fitted complete, from 4s. 6d. to 6 guineas each.
R. Green, 14, Kingsland Road, N.E.; and the Inverted Conservatories, Covent Garden Market, W.C.

CARTER'S GARDENER'S VADE-MECUM, AUTUMN SUPPLEMENT of DUTCH and CAPE BULBS and PLANTS, is now ready.

Winter and Spring Gardening.
BARR AND SUGDEN, Seed and Plant Merchants, 12, King Street, Covent Garden, W.C. Sent carriage paid
The No. 1 ASSORTMENT of WINTER-FLOWERING BULBS, 21s
No. 2 ASSORTMENT of SPRING-FLOWERING BULBS, 21s
The FLORAL GUIDE free on application.

CLIVEDEN SPRING-BLOOMING PLANTS.
See Advertisement, page 1064.
STANDEN'S GARDENER'S and AMATEUR'S FRIEND. See Advertisement, page 1056.
Barr & Sugden, Seed and Plant Merchants, 12, King Street, Covent Garden, W.C.

200,000 CROCUS, 100,000 SNOWDROPS, 100,000 TULIPS, 50,000 HYACINTHS, for Winter and Spring Blooming.
Barr & Sugden, Seed and Plant Merchants, 12, King Street, Covent Garden, W.C. FLORAL GUIDE free on application.

LARGE YELLOW CROCUS and MIXED DOUBLE and SINGLE HYACINTHS in quantities to offer to the Trade. Price on application to James Fairhead & Son, Seed Merchants, 7, Borough Market, London, S.E.

1865 and 1866.
JOHN FRASER begs to announce that his NEW DESCRIPTIVE CATALOGUE of PLANTS, ROSES, FRUIT TREES, &c., for the Autumn of 1865 and Spring of 1866, may be had on application.
The Lea Bridge Road Nurseries, N.E.

NEW ROSE CATALOGUE for 1865 and 1866, also GENERAL CATALOGUE of NURSERY STOCK.
Woodlands Nursery, Maresfield, near Uckfield, Sussex.
Wm. Wood & Son will be happy to forward copies of the above on application.

H. LANE AND SON'S CATALOGUES of ROSES, TREES, SHRUBS, FRUIT, RHODODENDRONS, AZALEAS, &c., are now ready, and may be had on application at
The Nurseries, Great Berkhampstead, Herts.

Roses.
WM. PAUL (Son and Successor to the late A. Paul) begs to announce that his NEW DESCRIPTIVE CATALOGUE of ROSES is now ready, and will be forwarded on application, free by post. The stock is large and in splendid condition.
Paul's Nurseries, Waltham Cross, London, N.

Now ready, 1865 and 1866.
PAUL AND SON'S NEW ROSE CATALOGUE.
See Note on Forcing Roses. Post free on application.
Old Cheshunt Nurseries, N.

Select List of Show Roses, Old and New.
Consult
JOHN KEYNES' CATALOGUE.
Salisbury.—Nov. 11.

ROSES.—A DESCRIPTIVE CATALOGUE of ROSES, by Thos. Rivers, free per post.
Nurseries, Sawbridgeworth.

The Nurseries, Folkestone.
JAMES MEIKLE is now sending out his COLLECTION of ROSES. They are strong Plants. DWARF, on the Manetti Stock, price 9s. to 12s. per dozen; MANETTI CUTTINGS, prepared for planting, cheap; price per 1000 on application. Planted now they will be strong for flowering next season.

Wholesale Catalogue.
GEORGE JACKMAN AND SON will have much pleasure in forwarding on application, free by post, their DESCRIPTIVE and PRICED CATALOGUE of NURSERY STOCK for 1865 and Spring 1866.
Woking Nursery, Surrey.

Splendid New Caladiums.
A. VAN GEERT, Nurseryman, Ghent, Belgium, begs to announce to Amateurs and the Trade that he is now prepared to supply the following SIX NEW HYBRID CALADIUMS:—C. Chantini fulgens, C. Duc de Malakoff, C. Lucretia, C. Mme. Andrieu, C. Mme. Houllet, and C. Triomphe. The Six for £5.

New Grass Seeds for Exportation.
SUTTON AND SONS have received their supply of NEW GRASS SEEDS of the present year's growth in fine dry condition. Prices will be forwarded on application.
This is one of the best months for exporting Grass Seeds.
Sutton & Sons, Seed Merchants, Reading.

To the Trade.
TO BE SOLD, Cheap, many Thousand strong Plants of PAMPAS GRASS (Gynerium argenteum), in pots. Also a large quantity of ACORNS for Sowing. Free on application to
Frederick Perkins, Bedford Road Nurseries, Northampton.

Gladioli, Liliums, &c.

STEPHEN BROWN'S Collection of GLADIOLI comprises about 200 varieties of the finest, for which see Catalogue, containing Descriptive Lists, in Four Sections, of the early and later kinds, with Cultural information.

Superb LILIUMS, in 60 varieties; IRIS, in five divisions of about 100 varieties; PÆONIES, in 50 varieties, and an extensive Collection of other DUTCH, CAPE, FRENCH, and other BULBS and TUBEROUS ROOTS, together in about 1000 varieties.

CATALOGUES on application.

Stephen Brown, Seed Grower and Nurseryman, Sudbury, Suffolk.

1,000,000 Norway Spruce Firs

For Coverts and Plantations, in various sizes, from 1 foot up to 3 feet, twice and thrice Transplanted.

WM. JACKSON AND CO., Nurserymen, Bedale, Yorkshire, have the above to offer at moderate prices; also a very extensive general NURSERY STOCK, including fine specimen CONIFERS and ORNAMENTAL TREES of large sizes in splendid condition, all well rooted and hardy grown.

Wm. Jackson & Co. will be glad to see purchasers at their Nursery, which is 5 miles from Northallerton, and 5 minutes walk from the nearest station. Prices and further particulars on application.

Alder, &c.

I. AND J. GAITSKELL have a large stock of strong ALDER, 3 to 6 feet; STANDARD and DWARF APPLE TREES, COMMON and PORTUGAL LAURELS, COTONEASTER, POPLARS, DWARF ROSES, IRISH YEWS, GHENT and other AZALEAS, and PINUS EXCELSA, 4 to 6 feet, &c.

Prices to the Trade or others on application.
The Nurseries, Hall Santon, Whitehaven.

I. AND J. GAITSKELL'S Nursery Stock comprises a general and select assortment of the various FOREST and FRUIT TREES, CONIFERÆ, and other ORNAMENTAL TREES, EVERGREEN and FLOWERING SHRUBS, &c., the robust and healthy appearance of which has been remarked by all who have seen them. CATALOGUES gratis on application.

Plants given to compensate for long carriage.
The Nurseries, Hall Santon, Whitehaven.

NEW GARDEN PLANTS

FOR EXTENSIVE DECORATION IN EARLY SPRING AND SUMMER MONTHS.

Aubrietia Campbelli (syn. A. Hendersoni).

This beautiful variety is one of the most desirable hardy spring-flowering perennial herbaceous plants for the decoration of the Flower Garden yet introduced, having received several First-class Certificates of Merit for its special value in Early Spring-flowering Groups.

It forms a remarkably neat, dwarf, and compact growth, resembling the well-known A. deltoidea or A. purpurea, equally tuft-like, 2 to 3 inches in height; its ovately-deltoid-formed leaves are arranged like its kindred species in close erect terminal leaf-tufts, of a sub-rosulate outline, from the axils of which are produced a profusion of rich violet-purple salver-like blossoms, so densely covered that in established growth the plants, when grouped, appear like violet-blue flower mounds, couched in lowly but attractive beauty upon the ground-surface. Its period of bloom extends from March until July, and, without the aid of secondary colours, it forms charmingly effective groups at a period when continuous-flowering plants are not plentiful.

It is strikingly adapted for forming select riband rows, parterres, or flower belts during the period alluded to; and, by superior culture in pots, is valuable as portable specimens for placing in vase groups or baskets on terraces, or in cool conservatory promenades, and appears to great advantage when seen skirting the front ground-level of select rockwork, or fringing the borders of terrace slopes.

It thrives in all ordinary garden soils, either upon the declivities of raised grounds or in the open borders, in miniature flower groups, or in extensive riband lines, being unequalled in its rich colour and unique effect by any other known plant of similar growth and season of bloom.

Those Cultivators who wish to possess a Coloured Plate previously may receive one post free by forwarding seven stamps.

Plants—1s. 6d., 2s. 6d., and 5s. each.

Scilla sibirica.

A beautiful little hardy bulbous plant, two to four inches in height, blooming in the early spring months, thriving in ordinary soil, and blooming profusely, with pendent azure-blue bell-shaped blossoms, quite unequalled for marginal effect in flower gardens, or for front effect in baskets, vases, or belts. 16s. per 100; 2s. 6d. per dozen.

The Golden Blotched Daisy.

Crimson-flowered, 6d. each; White-flowered (new), 1s. each.

Veronica fruticosa glauca.

A very neat and distinct new species introduced from New Zealand, the entire stock being purchased by Messrs. E. G. Henderson & Son. It forms a compact, densely-branched, dwarf, half-hardy shrub, with small glaucous ovately oblong leaves, squarrosely decussate in outline, and numerous terminal heads of white flowers in the spring and early summer months.

Its very glaucous white foliage constitutes a striking feature in itself, and would produce a marked contrast if grouped or planted out in flower beds or on rockwork. 3s. 6d. and 5s.

Fuchsia Beauty (Banks).

A beautiful exhibition variety, with broad bright carmine scarlet sepals, gracefully recurved; the corolla pure lavender colour, cup-shaped, of a model outline; growth free and vigorous, adapted for pyramid or bush specimens. This beautiful variety Mr. Banks has selected out as one of the best. Will be sent out in October, 1865. 10s. 6d. each.

A CATALOGUE of the most extensive Collection of General HERBACEOUS and ALPINE PLANTS, with valuable Columns of Reference, forwarded free on application.

E. G. HENDERSON AND SON, WELLINGTON NURSERY, ST. JOHN'S WOOD, N.W.

TO BE SOLD, for Cash, all twice Transplanted:—

	Per 1000.	Per 100.	Per dozen
	s. d.	s. d.	s. d.
40,000 well-grown LARCH, 3 to 5 feet high ..	25 0	3 6	1 0
8,000 strong QUICK, 2½ to 3½ feet high	15 0	2 6	
3,000 HORSE CHESTNUTS, 3 to 5 feet high ..	80 0	10 6	2 0
3,000 " " 5 to 7 feet high ..	140 0	17 6	3 0
4,000 very strong COMMON PRIVET, 4 to 5 feet	20 0	3 0	
10,000 SPRUCE, 1½ to 2½ feet high	30 0	4 0	1 0
1,000 BERBERIS AQUIFOLIUM, good bushes, 2 to 2½ feet high	80 0	12 0	2 0
300 SPIRÆA, good, 2½ to 3 feet high	..	25 0	2 6
2,500 COMMON ELM, 4 to 5 feet high	30 0	5 0	1 0
250 SNOWBERRY, 3 to 4 feet high	..	15 0	2 0
350 CUPRESSUS SEMPERVIRENS, 2½ to 4 ft.	..	25 0	3 0
300 LABURNUMS, 4 to 6 feet high	..	25 0	3 0
100 COMMON LILAC, 2½ to 3½ feet high ..	..	25 0	3 0
300 ACACIA, 7 to 9 feet high	..	25 0	3 0
200 BIRCH, large, 3 to 4 feet high	..	6 0	1 0
200 MOUNTAIN ASH, 4 to 6 feet high ..	..	17 6	2 6
200 SWEET BRIARS, 3 to 5 feet high	..	12 6	2 0
200 RED DOGWOOD, 2½ to 3½ feet high ..	..	12 6	2 0
300 BLACK WILLOW, 4 to 6 feet high	..	15 0	2 0
500 BALSAM POPLARS, 7 to 9 feet high ..	..	15 0	3 0
300 SCARLET OAK, 1½ to 2 feet high	..	10 0	1 6
500 MAPLE, 2 to 3 feet high	..	15 0	2 0
2,000 ASH, 2 to 3 feet high	30 0	5 0	1 0
400 ASH, 5 to 7 feet high	..	10 0	1 6
400 WHITE AMERICAN SPRUCE, 1 to 2 feet	..	10 0	1 6
500 HALF STANDARD ROSE, best sort ..	..	60 0	9 0
800 STANDARD ROSE	..	75 0	12 0

100 IRISH YEWS, 3 to 4 feet high, 1s. 3d. each.
100 " " 4 to 5 feet high, 2s. each.
100 " " 5 to 6 feet high, 3s. each.
20 " " 7 to 8 feet high, 4s. 6d. each.
3,000 strong LAURELS, good stuff.

J. C. Padman, Boston Spa, near Tadcaster.

Fruit Trees.

MESSRS. THOMAS RIVERS AND SON beg to submit to the public a Synopsis of their FRUIT TREE CULTURE, now extending over nearly 100 acres.

APPLES on Crab Stocks.—Dwarf maiden trees, pyramids in a bearing state, lateral trained trees and standards for orchards.

APPLES on Paradise Stocks.—Pyramids, dwarf bearing bushes, maiden trees for single cordon training, trained trees for double cordons for edgings, lateral trained trees for espaliers, and pyramids in pots.

APRICOTS.—Standard, half-standard, and dwarf-trained trees for walls; pyramids, very fine and handsome, in pots; bearing bushes, large trees in pots; trained trees for double lateral cordons for glass ridges; standard and dwarf maiden trees and half-standard and standard bearing trees in pots for planting out in orchard houses.

CHERRIES, of the Duke tribe on Mahaleb Stocks; Pyramids full of Blossom-buds; Bushes, ditto; Pyramids, in Pots; Dwarf trained Trees for Walls and Espaliers; and Dwarf Maiden Trees for Cordons. Cherries on this Stock are the most prolific and beautiful of all garden trees.

CRABS.—Siberian and Scarlet, pyramids.

CURRANTS.—Pyramids and bushes.

FIGS.—Bearing trees in pots for forcing, &c.

GOOSEBERRIES.—Pyramids and bushes.

GRAPES.—Bearing Vines for fruiting in pots, smaller Vines for planting out or for ground vineries.

MEDLARS.—Standards and pyramids.

MULBERRIES.—Standards for orchards, pyramids and dwarfs in pots for orchard-house culture.

NUTS.—Grafted Half-Standards, most prolific Trees for Gardens, and Bushes on their own roots.

ORANGES.—Bearing trees in pots of Tangierine, St. Michael's, Maltese Blood, and other sorts.

PEACHES and NECTARINES.—Standard, half-standard, and dwarf maiden trees; standards, half-standards (on stems 2 ft. to 2 ft. 6 in.), and dwarfs trained for walls; double cordons for glass ridges; pyramids in pots, nicely shaped trees; bushes, bearing trees in pots for forcing; ditto for orchard-house culture; and standards and half-standards in pots, bearing trees, for planting out in orchard houses.

PEARS on Pear Stocks.—Standards for orchards, pyramids and dwarf maiden trees, standards and dwarfs laterally trained for walls or espaliers.

PEARS on Quince Stocks.—Maiden trees for vertical or lateral cordons, pyramids and bushes, bearing trees; lateral trained trees for walls or espaliers, double lateral cordons for glass ridges or for edgings, upright trained trees, double grafted trees, and pyramids, bearing trees, in pots.

PLUMS.—Standards for orchards, pyramids and dwarf bearing bushes, standards and dwarf-trained trees for walls or espaliers, double lateral cordons for glass ridges, pyramids, half-standards, and bushes in pots for orchard-house culture.

QUINCES.—Standards and pyramids.

RASPBERRIES.—Summer and Autumn, canes of.

SERVICE TREE.—Pyramids.

STRAWBERRIES.—Runners, transplanted.

WALNUTS.—Standards and dwarfs of the Prolific Walnut.

Now ready, a Descriptive Catalogue of Fruits, a Descriptive Catalogue of Grapes, a Catalogue of Orchard-House Trees, a Descriptive Catalogue of Roses. In the Miniature Fruit Garden, Thirteenth Edition, price 3s., Ground Vineries and Glass Ridges for Fruit Culture are described.

Carriage of all packages paid to London.
Nurseries, Sawbridgeworth.

PAUL'S NURSERIES, WALTHAM CROSS, N.

WILLIAM PAUL

(Son and Successor to the late A. Paul,)

BEGS TO OFFER THE FOLLOWING LEADING ARTICLES OF FIRST-RATE QUALITY:—

ROSES.

STANDARDS, 15s. to 18s.; new sorts, 24s. to 42s. per doz. | DWARFS, 12s. to 18s.; new sorts, 24s. to 30s. per doz.
CLIMBING, 9s. to 12s. per doz.
The "ROSE GARDEN," Second Edition, with numerous Woodcuts, 6s. 6d.

DUTCH BULBS.

HYACINTHS, 6s. to 15s.; new sorts, 18s. to 30s. per doz.
BEDDING HYACINTHS, 18s. to 34s. per 100.
EARLY TULIPS, 1s. to 4s. per doz.
POLYANTHUS NARCISSUS, 3s. to 6s. per doz.
CROCUSES, 2s. to 4s. per 100.
GLADIOLI, 4s. to 12s. per doz.
And all other Bulbs equally reasonable.

BEATON'S GERANIUMS.

Reduction in price; the Set of 16 Varieties, 32s. These have now been thoroughly tested, and have proved even superior to the descriptions originally given of them; they have also been pronounced by many leading horticulturists indispensable in the future of every well-arranged flower garden.

FRUIT TREES, in and out of Pots.

Standard and Dwarf-trained Pyramid and Dwarf PEACHES, NECTARINES, APRICOTS, APPLES, PEARS CHERRIES, PLUMS, GOOSEBERRIES, CURRANTS, RASPBERRIES, STRAWBERRIES, FIGS, and FILBERTS. A selection of all the really good sorts, both young and fruiting trees, in splendid condition.

GRAPE VINES.

Two Thousand Fruiting and Planting, including the newest sorts.

EVERGREEN and ORNAMENTAL TREES.

One Thousand Species and Varieties, selected in a great measure for the beauty of their foliage.

PRICED DESCRIPTIVE CATALOGUES free by post.

COLLECTIONS of BULBS.

The COVENT GARDEN COLLECTIONS,

Part for In and part for Out-of-door Decoration, 10s. 6d., 15s. 6d., 21s., 42s., 63s., & 105s.

COLLECTIONS of BULBS.

The PAXTONIAN COLLECTIONS,

For the Ornamentation of the Spring Garden, 10s. 6d., 15s. 6d., 21s., 42s., 63s., & 105s.

WINTER and SPRING GARDENING (Orders amounting to 21s. sent carriage paid).

200,000 CROCUS, 100,000 SNOWDROPS, 50,000 HYACINTHS, 100,000 TULIPS, SCILLA SIBIRICA, NARCISSUS, RANUNCULUS, ANEMONES, &c.

THE CLIVEDEN COLLECTIONS of SPRING-BLOOMING PLANTS, drawn from the Stock at Cliveden.

150 PANSIES ASSORTED | 200 DAISIES ASSORTED | 100 FORGET-ME-NOT | 100 SILENE | 50 COWSLIPS.

The above, 105s.; Half the quantity, 50s.; Quarter do., 25s.; Eighth, 12s. 6d.

FORGET-ME-NOT, blue	5s. 6d. per 100	DAISY, pink	10s. 6d. per 100
" " white ..	7 6 "	" white	10 6 "
SILENE, pink	5 6 "	POLYANTHUS, mixed	12 6 "
" white	5 6 "	COWSLIPS, mixed	12 6 "
SAPONARIA, pink	5s. 6d. per 100		
" white	5 6 "		
ARABIS ALPINA	15 0 "		
" LUCIDA	50 0 "		

STANDEN'S GARDENER'S and AMATEUR'S FRIEND, the best Manure for Chrysanthemums, &c. See Advertisement, page 1056.

RICHARD SMITH,
NURSERYMAN and SEED MERCHANT, Worcester.

ROSES.—12 of the very best Standard, Perpetual, and Moss Roses for 18s.; 50 for 63s.; 100 for £5.
12 ditto Dwarf do. do. for 12s.; 50 for 42s.; 100 for 75s.
12 ditto, New Sorts of 1865, for 24s.
Descriptive List on application.

FORTY ACRES of FRUIT TREES.—Apples, Pears, Plums, Cherries, Peaches, Nectarines, and Apricots in every form desired for Fruiting.

DWARF-TRAINED TREES, by the Thousand, Hundred, or Dozen.
APPLES, PEARS, PLUMS, CHERRIES, PEACHES, and NECTARINES.
Fine, flat, well-trained, of best quality, and true to name.

PYRAMID APPLES, PEARS, PLUMS, CHERRIES.
Beautiful Trees for Garden or Orchard Houses.

ORCHARD-HOUSE TREES, Fruiting in Pots.—Peaches, Nectarines, Apricots, Cherries, Plums, Pears, Apples, Vines, and Figs.

EVERGREENS for Ornamental Planting or Avenues, handsome, well grown, and transplanted within the last two years. For prices of smaller sizes and quantities, see Conifer List.

At 30s. per dozen:—

Abies alba, 5 to 7 feet	Juniperus thurifera, 3 to 4 feet
" Douglasii, 3 to 4 feet	Laurel, Colchic, 5 to 6 feet
" inverta, 1½ to 2 feet	" Portugal, Pyramids, 3 to 4 ft.
" orientalis, 1½ to 2 feet	Pinus cembra, 3 to 4 feet
Arbor-vitæ, American, 6 to 7 feet	" excelsa, 5 feet
" Siberian, 4 to 5 feet	Taxodium sempervirens, 7 to 8 ft.
Cedar, Red, 5 to 6 feet	Thuja Lobbii, 3 to 4 feet
Cryptomeria viridis, 4 to 5 feet	" aurea, 1½ foot
Cupressus Lawsoniana, 3 to 4 feet	" compacta, 1½ to 2 feet
" fragrans, 3 feet	Thujopsis borealis, 3 feet
Irish Yew, 4 to 5 feet	Wellingtonia gigantea, 2 feet

At 42s. per dozen:—

Abies Douglasii, 4 to 5 feet	Pinus excelsa, 6 feet
" inverta, 2 to 2½ feet	" Lambertiana, 3 to 4 feet
" orientalis, 2 to 2½ feet	" insignis, 3 to 4 feet
" pyramidalis, 2 to 2½ feet	Thuja Lobbii, 4 to 5 feet
Araucaria imbricata, 2 to 2½ feet	" compacta, 2 to 2½ feet
Arbor-vitæ, Siberian, 5 to 6 feet	" aurea, 2 feet
" American, 7 to 8 feet	Thujopsis borealis, 4 feet
Cedar, Red, 6 to 8 feet	Wellingtonia gigantea, 2½ feet
Cupressus Knightii, 6 to 7 feet	Yew, Irish, 5 to 5½ feet
" Lawsoniana, 4 to 4½ ft.	Laurels, Pyramid, Portugal, 4 to 4½ feet
Juniperus thurifera, 4 to 5 feet	" Colchic, 6 to 7 feet
Pinus Cembra, 4 to 5 feet	

At 60s. per dozen:—

Abies inverta, 2½ to 3 feet	Juniperus thurifera, 5 to 6 feet
" Douglasii, 5 to 5½ feet	Laurels, Pyramid Portugal, 5 ft.
" Menziesii, 5 to 6 feet	Pinus excelsa, 6 to 8 feet
" orientalis, 2½ to 3 feet	" Lambertiana, 5 to 6 feet
" pyramidalis, 3 to 4 feet	" Cembra, 5 to 6 feet
Araucaria imbricata, 2½ to 3 feet	Thuja japonica, 2½ to 3 feet
Arbor-vitæ, Siberian, 6 to 7 feet	" aurea, 2½ feet
Cedrus Deodara, 6 feet	Taxodium sempervirens, 8 to 10 ft.
Cupressus Knightii, 7 to 8 feet	Wellingtonia gigantea, 3 feet
" Lawsoniana, 5 feet	Yew, Irish, 6 feet

At 84s. per dozen:—

Abies Douglasii, 7 to 8 feet	Cedrus Deodara, 7 to 8 feet
" inverta, 3 to 4 feet	Juniperus thurifera, 6 to 7 feet
" Menziesii, 6 to 8 feet	Pinus excelsa, 8 to 10 feet
" orientalis, 3 to 4 feet	Taxodium sempervirens, 10 to 12ft.

Each:—

Abies Douglasii, 8 to 10 ft., 12s. 6d.	Picea nobilis, 2½ to 5 ft., 21s. to 63s.
" " 10 to 12 feet, 15s.	" Nordmanniana, 2½ to 4 feet, 10s. 6d. to 42s.
" " 12 to 15 feet, 21s.	" " 4 to 6 feet, 42s. to 84s.
" inverta, 4 to 5 feet, 10s. 6d.	" Pinsapo, 3 to 5 ft., 10s 6d. to 42s.
" " 6 feet, 21s.	Pinus excelsa, 10 to 12 feet, 10s. 6d.
Araucaria imbricata, 3 to 4 feet, 7s. 6d. to 21s.	" " 12 to 15 feet, 15s.
" " 4 to 8 ft., 21s. to 84s.	" Lambertiana, 6 to 8 feet, 10s. 6d. to 21s.
Cedar of Lebanon, 8 to 10 feet, 21s.	Thuja incurvata, 8 to 9 ft., 10s. 6d.
Cedrus Deodara, 8 to 10 ft., 10s. 6d. to 21s.	Taxodium sempervirens, 12 to 15 feet, 10s. 6d. to 15s.
Picea nobilis, 2 to 2½ feet, 10s. 6d. [to 21s.	

American Arbor-vitæ, for Hedges, 3 to 4 feet, at 50s. per 100.
" " " 4 to 5 feet, at 75s. "
" " " 5 to 6 feet, at 100s. "

FLOWERING and STANDARD ORNAMENTAL TREES. At 12s. per dozen:—

Ash, Mountain, 7 to 9 feet	Chestnut, Spanish, 6 to 8 feet
Acacia, 7 to 9 feet	Hornbeam, 8 to 10 feet
Birch, Weeping, 8 to 10 feet	Poplar, Silver, 8 to 10 feet
Crab, Siberian, scarlet, 6 to 7 feet	" Lombardy, 9 to 10 feet
" yellow, 6 to 7 feet	Pyrus spectabilis, 6 to 7 feet

At 18s. per dozen:—

Almond, flowering, 7 to 8 feet	Chestnut, Spanish, 8 to 10 feet
Acacia, 8 to 10 feet	Cytisus, 3 to 4 feet
Ash, Mountain, 9 to 12 feet	Elm, Chichester, 8 to 10 feet
Acer Negundo, 6 to 8 feet	Poplar, Lombardy, 11 to 12 feet
Birch, 10 to 12 feet	" Silver, 10 to 12 feet
Crab, Siberian, yellow, 7 to 8 feet	Pyrus spectabilis, 7 to 8 feet
" scarlet, 7 to 8 feet	Thorn, double pink, 6 to 7 feet

At 30s. per dozen:—

Almond, flowering, 8 to 10 feet	Cytisus in variety, 4 to 5 feet
Acer Negundo variegata, 6 to 8 ft.	Poplar, Silver, 12 to 15 feet
Acacia, ball, 6 to 7 feet	Thorns, double pink, 8 to 10 feet
Chestnut, scarlet, 6 to 8 feet	Willow, Ameri. Weeping, 6 to 8 ft.

RICHARD SMITH'S LIST of all the EVERGREEN FIR TRIBE, suitable for Britain, giving size, price, popular and botanical names, derivations, description, form, colour, foliage, growth, timber, use in arts, native country and size there, situation, soil, and other information, with copious Index of their synonymes.
Enlarged Edition, free by post for 12 postage stamps.

RICHARD SMITH'S FRUIT LIST contains a sketch of the various forms of Trees, with Directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Cropping, Treatment under Glass; also their synonymes, quality, size, form, skin, colour, flesh, flavour, use, growth, duration, season, price, &c.
Free by post for one stamp.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

The Essex Rival Pea.

THOMAS ELEY, of Sible Hedingham, near Halsted, Essex, who introduced the above-named PEA last year, has much pleasure in again inviting attention to this very excellent variety, the merits of which have been well and sufficiently tested by a general public during the past season, the result having been the receipt of many most flattering reports of the extraordinary fine qualities of this Pea, fully endorsing the representations given of it at its first introduction.
Mr. ELEY wishes to remind his numerous patrons that the ESSEX RIVAL may be sown in November to secure a gathering in May.
Price 1s. 6d. per quart.
Price to the Trade on application.
To be obtained of Mr. THOMAS ELEY, Sible Hedingham, near Halsted, Essex.
Also of the following appointed Agents:—
Messrs. Peter Lawson & Son, 28, King Street, Cheapside, London, E.C.
Messrs. Fraser, Richardson, & Gead, 82, Bishopsgate Within, E.C.
Messrs. Cooper & Bolton, 152, Fleet Street, E.C.
Mr. James Veitch, Royal Exotic Nursery, Chelsea.
Messrs. Saltmarsh & Son, Moulsham Nurseries, Chelmsford.
Mr. B. Cant, St. John's Nursery, Colchester, Essex.
Mr. George Taber, Seed Merchant, Rivenhall.
M. Paul Truffaut, Nurseryman and Florist, 4, Place des Trois Marches, [Paris, France.
Richard Lowe & Co., High Green, Wolverhampton, Staffordshire.

New Pea.

HOOPER'S RIVAL PEA, the earliest of the early, and much better cropper than most of the new first early sorts.
Price 2s. 6d. per quart.
HOOPER & Co., Seed Merchants, Covent Garden, London, W.C.

The Earliest Pea known is

CARPENTER'S EXPRESS, gathered May 7th, the earliest date on record. See testimonials in Gardeners' Chronicle of September 2 and 9. Price 1s. per quart.
To be had of EDWARD CARPENTER, Seed Merchant and Grower, Brighton and Sussex Seed Warehouse, 96, St. James's Street, Brighton.
PRICED CATALOGUES of DUTCH BULBS now ready.

INVINCIBLE SCARLET SWEET PEA, For AUTUMN SOWING.
A First-class Certificate received from the Royal Horticultural Society, also a Certificate at the Crystal Palace Autumn Show.
Very fragrant, strikingly brilliant, distinct, and permanent in its colour. Packets of 30 seeds, 2s. 6d.; 10 Seeds, 1s.; 5 seeds, 6d.; Packets of 100 seeds, 7s. 6d. May be had of the principal Seedsmen throughout the kingdom, or of the raiser,
STEPHEN BROWN, Seedsman, Sudbury, Suffolk.

THE EARLIEST and BEST OUT-DOOR GROWN PEA we have tasted this season—vide Journal of Horticulture of the 13th of June, 1865; it was also favourably noticed in the Gardeners' Chronicle of June 3, 1865.
The above Early Pea is now being sent out by ROBERT H. FOYNER, at 1s. 6d. per quart. Height 2 feet. The land was gathered from in good condition as early as the 29th of May, and was sent to the Editor as above on the 28th.
None genuine except from accredited Agents.
All over two quart packages free on Great Western Railway.
ROBERT H. FOYNER, Seed Merchant, Faringdon.

Sutton's Ringleader (or Carter's First Crop) Pea.
THE EARLIEST PEA IN CULTIVATION.

MESSRS. SUTTON, anticipating a large demand this season for the above popular Pea, respectfully recommend early orders, the stock being limited.
The following Seedsmen have already received supply:—
Messrs. Cooper & Bolton, 152, Fleet Street, London, E.C.
" Hurst & Son, 6, Leadenhall Street, London, E.C.
" Minter, Nash, & Nash, 60, Strand, London, W.C.
" Jacob Wrench & Son, London Bridge, London, E.C.
" Waite, Burnell, & Co., 181, High Holborn, London, W.C.
" Nutting & Sons, 60, Barbican, London, E.C.
" Thorburn & Co., New York, U.S.A.
" Dobson & Son, Woodlands Nursery, Isleworth, W.
" J. & C. Lee, Hammersmith, W.
Price to the Trade on application.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

SUTTON'S RINGLEADER (or CARTER'S FIRST CROP) PEA.
THE EARLIEST IN CULTIVATION.
This Pea was introduced to the public last season simultaneously by Messrs. SUTTON & SONS and Messrs. James Carter & Co., both parties being entirely ignorant of the fact that the stocks from which they had raised their supplies were obtained a few years since from the same locality, and in fact from the same person who originated it. Of the kinds tried against Ringleader (or First Crop) none have proved so early.
The price charged last season was the same by both vendors, viz., 2s. 6d. per quart, and the demand at that time being so great as to prevent our holding a sufficient quantity for seeding, the price cannot be reduced this season.

The following are Extracts from a few of the numerous Letters received relative to this unrivalled Early Pea:—

From Mr. WILLIAM DOWELL, *Gardener to* Sir George Cartwright, *Grendon Hall, Atherstone, May* 24, 1865.
"Your 'Ringleader' is earlier than any Pea I have ever grown. I shall gather a dish to-morrow morning, which is by far the earliest Pea we have had."

From Mr. W. POVEY, *Gardener to* H. P. Hunt, Esq., *Donnington Grove, near Newbury, May* 24.
"I planted your 'Ringleader Pea' on the last day of February; on the same day I planted 'Daniel O'Rourke' and other early sorts. Your 'Ringleader' is uncommonly well podded, and the pods are filling fast. I have no doubt they will be cleared, and the ground planted, before I pick from any of the other early sorts."

From Mr. JAMES PEARSON, *Gardener to* H. Bentley, Esq., *Woodlesford, Leeds, May* 25.
"Your 'Ringleader Pea' is six days earlier than Dillistone's, and is the most promising Pea I have grown."

From Mr. H. HARRISON, *Dunham, May* 26.
"Your 'Ringleader Pea' has proved with me by far the earliest, and will be cleared off the ground before the others have done blossoming. I consider the 'Ringleader' the quickest Pea of any of the early sorts grown in this neighbourhood."

From the Rev. WILLIAM WOON, *Prestwood Parsonage, Great Missenden, May* 27.
"I expect your 'Ringleader' Pea will be a fortnight earlier than 'Sangster's No. 1' sown on the same day; in fact, it is earlier than any Pea which my gardener has known. The garden lies high, and is exposed to the cold."

From Mr. BAILEY WADDS, *Gardener to* S. A. Sykes, Esq., *Raywell, Brough, May* 29.
"I have this year sown your 'Ringleader' Pea against your Early 'Champion,' which I have hitherto found the earliest in cultivation, and I am glad to tell you that it came into bloom ten days earlier. It has been covered with blossoms from top to bottom. I am sure it is a valuable addition to our early Peas."

From Mr. GEORGE SCRYMGER, *Helme Park, Sowerby, May* 29.
"I have great pleasure in reporting favourably of your new early Pea 'Ringleader.' It was sown the same day as five of the most popular early sorts. I gathered from it on the 26th of May, which is 14 days earlier than I shall of any of the other varieties. It is also very prolific; altogether with me it has proved an acquisition."

From WILLIAM THOMAS REW, Esq., *Chandershead, Tavistock, May* 30.
"Your 'Ringleader' Pea has quite proved worthy of its name. I planted it side by side on the same day with Sangster's No. 1 (which has hitherto been my earliest), but now the 'Ringleader' has blossomed at least one week before the others, and from all appearances will be fit to gather quite a fortnight before them. My garden is in a very high and exposed situation, as well as rather late."

From JOHN FORD, Esq., *Merton Hall, Warwick, May* 31.
"My gardener sowed on the 12th of January, side by side, 'Sutton's Ringleader,' 'Sutton's Champion,' 'Early Essex Rival,' and 'Dillistone's Early Prolific' Peas. 'Sutton's Ringleader' was in bloom first, coming in the 3d of May, the others a week or so later."

From Messrs. DOBSON & SON, *Woodlands Nursery, Isleworth.*
"We tried your 'Ringleader' Peas last season with 'Daniel O'Rourke,' and it was from a week to 10 days earlier. It is certainly the earliest Pea that has come under our notice."

From the GARDENERS' CHRONICLE, *August* 12, 1865.
"*Peas*.—On the 28th of March I sowed Sutton's 'Ringleader,' and had a splendid crop in less than eight weeks, which I allowed to ripen. I then sowed the ripe seed on July 10th, and have now a capital crop of Peas, the second crop having been six weeks only in growing, and the two crops have been produced in less than 3 months. I beg to forward you a sample, the pods in which you will observe are well filled.—*Thomas Fulder, White House, Ronald, Leeds.*"

Retail price 2s. 6d. per quart. Price to the Trade on application.
PRICED LISTS of FLOWER ROOTS, GARDEN SEEDS, FARM SEEDS, &c., gratis and post free.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY (Limited).
Registered under the Companies' Act, 1862, by which the liability of each Shareholder is limited to the amount of his Shares.
CAPITAL, £50,000, in 5000 Shares of £10 each (with power to increase), to be issued as follows:—
2,500 PAID-UP SHARES.—Deposit on application £1 per Share, and on Allotment £5 per Share.
2,500 ORDINARY SHARES.—Deposit on application £1 per Share, and on Allotment £1 per Share.
No call to exceed £2 per Share, nor shall the same be made to be payable at less intervals than three months.
A limited rate of interest of 6 per cent. per annum guaranteed upon the paid-up capital.
Bankers.
Solicitors.
Auditors.
Secretary.
Offices.

This Company is formed for the purpose of carrying on and extending the business of Raynbird, Caldecott, & Bawtree, and W. & J. Dowling, as Corn, Seed, Manure, and Oilcake Merchants, and trading under the firm of Raynbird, Caldecott, Bawtree, Dowling, & Co., Limited.
[illegible] and whose connection, for business of Agricultural character, extends to all parts of the country, will place the new Company in a position to commence its operations at once with good prospects. There will be no new business to work up, but it is expected to be greatly increased, admitting, by the employment of a larger capital, of a very wide and indeed almost unlimited extension of trade amongst the agricultural interest.
The Chief Offices of the Company will adjoin the New Corn Exchange at Basingstoke, where a very considerable portion of the business of the locality is transacted.
The town of Basingstoke possesses the great advantage of the completed railway development, by which direct communication may be obtained to all parts of England, including the principal ports of London, Southampton, and Bristol. Large establishments will be carried on at Southampton, Andover, Winchester, and Newbury, increased as occasion may require. Corn and other stores will be given at Mark Lane, and Stores are contemplated at some of the important stations on the South Western and Great Western Railways.
The important branch of malting, flour, and seeds, as well the Messrs. Dowling have long stood foremost—will be continued under their direct supervision.
The situation in the centre of an agricultural district, connected by railway branches, and the prevailing use of oilcake of the southern counties, is favorable for the development of local crops in particular, and in many channels in favour of the profits to be gained by the Company.
For the security of the Shareholders, it is stipulated that the remuneration of the Directors will be limited to a small proportion of the profits, and after payment of other charges against the Company, including a minimum interest of £6 per cent. per annum on the paid-up capital.
A considerable amount of the capital will be subscribed by the united Firms and their immediate friends, the remainder is offered to the public with the view of placing the Company upon a wide basis, and affording to those desirous of making a profitable investment a share in a business of long standing, well conducted, and with partnership carried out at the same time.
The agreement entered into with the Vendors to Messrs. RAYNBIRD, CALDECOTT, & BAWTREE, and W. & J. DOWLING, is—
"That each Firm discharges its separate liabilities, and transfers over to the Company its Stock at a Valuation, and its Book Debts guaranteed to the full value of the debts as realised, the Company to pay a sum for Good will in the form of Shares equal to two years' purchase of the average net profits realised by each Firm during the last three years, together with 5½ per cent. of any profits made by the Company beyond 10 per cent. per annum.
The Directors engage that they will not enter into similar business transactions for their individual advantage for three years, or during their tenure of office.
The Articles of Association may be inspected at the Office of the Company or of the Solicitors.

FORM OF APPLICATION FOR SHARES.
1. *Application for Paid-up Shares.*
£5 per Share payable on application, and £5 per Share on allotment.
To the Directors of RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, & Co., Limited.
Gentlemen, I request you to allot me [illegible] Shares of £10 each in RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, & Co., Limited, and I hereby agree to accept such Shares, or any number less than that may be allotted to me, subject to the regulations of the Company, and to pay the further deposit of £5 per Share on allotment, and the further sums from time to time due in the Register of the Company for the number of Shares which may be allotted to me.
Name in full .....
Profession or business .....
Address in full .....
Usual signature .....
Date .....

2. *Application for Ordinary Shares.*
£1 per Share payable on application, and £1 on allotment.
To the Directors of RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, & Co., Limited.
Gentlemen, I request you to allot me [illegible] Shares of £10 each in RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, & Co., Limited, and I hereby agree to accept such Shares, or any number less that may be allotted to me, subject to the regulations of the Company, and to pay the further deposit of £1 per Share on allotment, and such calls as may be made in respect of such Shares, and the further sums from time to time due in the Register of the Company for the number of Shares which may be allotted to me.
Name in full .....
Profession or business .....
Address in full .....
Usual signature .....
Date .....

NOTICE is HEREBY GIVEN, that APPLICATIONS for SHARES in the above COMPANY must be made to the Hampshire Bank, Basingstoke, on or before November 15, on which day the Lists will be closed.
By order,
GEO. EATON GOLDSMITH, Secretary.

Vines, extra extra strong.

FRANCIS AND ARTHUR DICKSON AND SONS have now ready for sending out some 2000 extra fine well-ripened VINES, including all the New and leading kinds, true to name. Many as thick as the "little finger."

LIST of kinds, with prices, sent free by post on application.

"Upton" Nurseries, Chester.

2000 VINES, from Eyes, strong and extra strong, for immediate Fruiting in Pots, and for Planting-out; including all the leading varieties, with stout, close-jointed, and thoroughly ripened Canes, many of which will produce from 4 lb. to 8 lb. of Grapes next season. Prices and particulars upon application to

James Dickson & Sons, The "Newton" Nurseries, Chester.

Fruiting Vines, Camellias, &c.

JAMES CARTER AND CO. have NOW on VIEW at their Crystal Palace Nursery, Perry Hill, Sydenham, S.E., a large and choice COLLECTION of extra strong FRUITING VINES in Pots, well-ripened, and sure to produce a heavy crop of Fruit, at from 10*s.* 6*d.* to 12*s.* 6*d.* each; also, a large assortment of the best kinds of CAMELLIAS, well set with Buds, at 24*s.* to 42*s.* per dozen; also, a choice COLLECTION of CHRYSANTHEMUMS, fit for present season's blooming, at 6*s.* per dozen.

PRICE LISTS gratis and post free on application to

James Carter & Co., 237 and 238, High Holborn, London, W.C.

Pitmaston Duchess d'Angouleme Pear.

THOS. HEWITT, Nurseryman, Birmingham and Solihull, has a very limited number of MAIDEN TREES of the above excellent NEW PEAR. Price 10*s.* to 15*s.* each.

T. H. has also a supurb collection of named GLADIOLUS, 12*s.*, 18*s.*, and 24*s.* per dozen. Fine mixed, 6*s.* per dozen.

PRIMULA FIMBRIATA, of the finest strain, 2*s.* 6*d.* per packet.

B. S. WILLIAMS begs to direct special attention to the undermentioned, of which he now holds a fine stock. PRICED and DESCRIPTIVE LISTS can be had on application.

VINES.—Strong Planting and Fruiting Canes of all the best varieties, including the new Grape ROYAL VINEYARD.

PINES. Strong Fruiting and Succession plants, and suckers of all the leading kinds.

BECK'S NEW PELARGONIUMS. For the present season, at the moderate price of 10*s.* 6*d.* each; also a large assortment of the best PELARGONIUMS and GERANIUMS, including BEATON'S best NOSEGAYS.

DUTCH BULBS.—Splendid roots of the strongest flowering HYACINTHS for glasses or pots, at 6*s.*, 8*s.*, 9*s.*, 10*s.* and 12*s.* per dozen. POLYANTHUS, NARCISSUS, CROCUS, Early TULIPS, and all other bulbs.

ENGLISH-GROWN SEEDLING GLADIOLI, 9*s.* and 12*s.* per dozen, ready next month. As the supply of these is limited, early orders are solicited.

Paradise and Victoria Nurseries, Holloway, London, N.

CHARLES B. SAUNDERS, Nurseryman, &c., Jersey, has the following surplus articles to offer this season, of fine growth, for which he respectfully solicits orders.

BLACK HAMBURGH, BLACK VICTORIA, and MUSCAT of ALEXANDRIA VINES, 30*s.* per dozen.
Dwarf Fruiting PEAR TREES, best sorts, Pyramidal and Trained, 20*s.* to 30*s.* per dozen.
Dwarf Fruiting APPLE TREES, 12*s.* to 18*s.* per dozen.
Dwarf-trained APRICOT and NECTARINE TREES, 24*s.* to 36*s.* per dozen.
QUINCE STOCKS for PEARS, of fine size, 6*s.* per 100.
GUERNSEY ELMS and TURKEY OAKS, fine strong stuff, 7 to 10 feet, 50*s.* per 100.
CAMELLIA STOCKS, fit for grafting, 30*s.* to 40*s.* per 100.

Besides a general and extensive Nursery Stock, CATALOGUES of which may be obtained on application.

For Prices of Roses and Fruits,

See large Advertisement, p. 1052.

PAUL AND SON, Old Cheshunt Nurseries, Cheshunt, invite an inspection at their Nurseries of the above, as well as of their large stock of YOUNG CONIFERÆ, FOREST and ORNAMENTAL TREES and SHRUBS.

The Nurseries are one mile from Cheshunt Station, two miles from Waltham. Flies in constant readiness at the latter Station of Great Eastern Railway.

Fruit Trees, Roses, Ornamental Trees and Shrubs, &c.

THOMAS WARNER respectfully informs his Patrons and the Public generally that his PRICED and DESCRIPTIVE CATALOGUE of the above for the present season is now ready, and may be had free on application.

The Nurseries now occupy 70 Acres of ground. The Stock of SALE FRUIT TREES alone exceeds 200,000, all true to name, consisting chiefly of Dwarf and Standard Trained Trees for Walls, Standards for Orchards, and Pyramids and Espaliers for Gardens; all of which have been cultivated with much care, and very many of them have borne fine crops of Fruit during the past summer.

The ROSES are very strong and healthy plants; the collection contains most of the New and fine varieties, both of English and Continental origin.

The ORNAMENTAL TREES, EVERGREENS, and general Nursery Stock, having been regularly transplanted, are in fine health, and in the best possible condition for removal, and well worthy the attention of persons contemplating planting. An inspection is respectfully invited

The Nurseries, Leicester Abbey.

Fruit Trees and their Management.

J. SCOTT'S PRICED FRUIT TREE CATALOGUE and DIRECTORY is now ready. It gives the names and descriptions of nearly 1000 kinds, with the best modes of Cultivation and Training. Is replete with interesting matter on Fruits and Fruit Trees, and is allowed to be the best work on the subject out. Price 1*s.*, returnable to purchasers. The Collection is unsurpassed for healthiness and beauty, and for variety unequalled by any other Collection in the kingdom.

GENERAL NURSERY CATALOGUE gratis on application.

Address, Merriott, Somerset.

W. VIRGO AND SON have a surplus stock of fine, healthy, and well-grown FRUIT, FOREST TREES, &c., of the undermentioned kinds, viz.:—Arbor-vitæ, in sorts; Berberis, in sorts; Privet, Portugal and Common Laurel, Evergreen Box, Weymouth Pine, Spruce and Balm of Gilead Firs, Laburnums, Turkey Oak, Scarlet Maple, Scarlet and White Thorns, Apples, Pears, Plums, and Roses in dwarfs and standards. Height, size, and prices can be obtained on application.

The Nursery, Wonersh, near Guildford, Surrey.

S. PONSFORD AND SON beg to offer to the Trade and large Purchasers GENERAL NURSERY STOCK, especially Chinese Arbor-vitæ, Variegated Hollies, Laurels, Euonymus, &c.; Limes, Mountain Ash, Poplars, Planes, &c. Mulberries, extra fine of all sizes. Prices on application. Hyacinths, Crocus, Tulips, &c. CATALOGUES gratis.

Loughboro Park Nurseries; and Brixton Place, Brixton, Surrey, S.

Transplanted Larch and Quicks.

CHIVAS AND WEAVER (late George Chivas), Chester, offer several Millions of TRANSPLANTED LARCH, from 1½ to 4½ feet, very stout, grown in an exposed situation; specially fine plants, and at prices greatly in favour of the buyers. Also several Millions of TRANSPLANTED QUICKS, a large quantity of which are of great strength; strong English Oaks, superior Spruce, up to 2½ feet, together with a general stock of other Forest Trees, as well as a large stock of Evergreens and Ornamental Trees; many Thousand fine Standard Apples, and extra strong Transplanted Apple Stocks.

For prices and conditions of free delivery, see CATALOGUE, which will be forwarded on application.

BUTLER AND McCULLOCH, Seed Merchants, South Row (or Strand side), opposite Southampton Street, Covent Garden Market, London, W.C., beg to offer the following choice COLLECTIONS of DUTCH and CAPE FLOWERING BULBS, all of the first size and quality.

FOR GREENHOUSE.

No. 1.	No. 2.	No. 3.	No. 4.	No. 5.	No. 6.
100*s.*	50*s.*	25*s.*	21*s.*	15*s.*	10*s.* 6*d.*

FOR FLOWER GARDEN.

No. 7.	No. 8.	No. 9.	No. 10.	No. 11.	No. 12.
100*s.*	60*s.*	40*s.*	25*s.*	21*s.*	10*s.* 6*d.*

FOR GREENHOUSE and FLOWER GARDEN.

No. 13.	No. 14.	No. 15.	No. 16.	No. 17.	No. 18.
105*s.*	52*s.* 6*d.*	42*s.*	21*s.*	15*s.*	10*s.* 6*d.*

All orders amounting to 21*s.* and upwards sent carriage paid.

Butler & McCulloch, Covent Garden Market, W.C.

SUTTON'S unrivalled COLLECTIONS of BULBOUS FLOWER ROOTS, for Blooming during the Winter and Spring. These are every year becoming more popularly cultivated, and the HYACINTHS, ANEMONES, TULIPS, &c., which we imported last season from the celebrated Dutch Florists, Messrs. de Boom, Veen, Byvoet, and others, having been so generally admired, we have imported from the same parties, and still more extensively.

SUTTON'S COLLECTIONS of HARDY FLOWER ROOTS for OPEN GROUND.

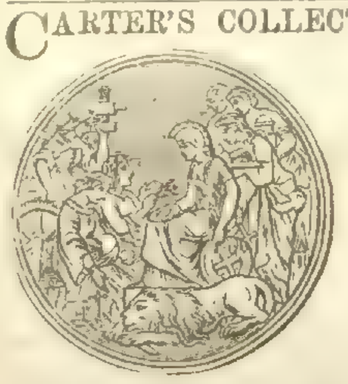
		£	s.	d.
No. 1.	A large and Choice Collection of ANEMONES, HYACINTHS, CROCUSES, TULIPS, RANUNCULI, NARCISSI, SNOWDROPS, IRISES, GLADIOLI, &c.	2	2	0
No. 2.	Ditto ditto, consisting of all the same kinds, in Reduced Quantities	1	1	0
No. 3.	A Small and Choice ditto	0	10	6
	SORTS for FLOWER POTS and GLASSES.			
No. 4.	A splendid Collection of HYACINTHS, JONQUILS, NARCISSI, EARLY TULIPS, New large CROCUSES, &c.	2	2	0
No. 5.	The same in Reduced Quantities	1	1	0
No. 6.	A Small and Choice Assortment	0	10	6

SUTTON'S AUTUMN CATALOGUE, containing DESCRIPTIVE LISTS of the best varieties of Hyacinths, Gladioli, Anemones, Crocuses, and other Bulbous Roots, and Choice Stove and Greenhouse Plants, Ferns, American Plants, Roses, Carnations, and other Florists' Flowers, Fruit Trees, New Garden Seeds, &c., is now ready, and may be had gratis and post free on application.

All Goods sent Carriage Free except small parcels, and 5 per cent. allowed for Cash Payments.

Sutton & Sons, Royal Berks Seed Establishment, Reading.

CARTER'S COLLECTIONS of PICKED BULBS.



For the convenience of those of our Customers who do not wish the trouble of selecting for themselves, we offer the under-mentioned COLLECTIONS of BULBS, which contain, respectively, all the sorts required for the purpose mentioned; and, the choice of varieties being left to ourselves, we offer the entire Collection at a much lower rate than if the sorts had been chosen at the option of the Purchaser.

No. 1. Complete Collection of Bulbs for Forcing, including Basket and Packing, price 84*s.*
No. 2. Complete Collection of Bulbs for Forcing, including Basket and Packing, price 42*s.*
No. 3. Complete Collection of Bulbs for Forcing, including Box and Packing, price 21*s.*
No. 4. Complete Collection of Bulbs for Conservatory and Outdoor Planting, including Basket and Packing, price 84*s.*
No. 5. Complete Collection of Bulbs for Conservatory and Outdoor Planting, including Box and Packing, price 42*s.*
No. 6. Complete Collection of Bulbs for Conservatory and Outdoor Planting, including Box and Packing, price 30*s.*
No. 7. Complete Collection of Bulbs for Conservatory and Outdoor Planting, including Box and Packing, price 15*s.*
No. 8. Complete Collection of Bulbs for Outdoor Planting only, including Basket and Packing, price 84*s.*
No. 9. Complete Collection of Bulbs for Outdoor Planting only, including Box and Packing, price 42*s.*
No. 10. Complete Collection of Bulbs for Outdoor Planting only, including Box and Packing, price 21*s.*

PRICE LIST gratis and post free on application to James Carter & Co., 237, 238, and 261, High Holborn, London, W.C.

New Catalogue of Plants, Dutch Bulbs, &c.

ROBERT PARKER begs to announce that his NEW CATALOGUE, containing Select Descriptive and Priced Lists of New, Rare, and Beautiful Greenhouse, Hardy, and Stove Plants, Fruit Trees, Grapes, &c., Amaryllis, Crocuses, Gladioli, Hyacinths, Narcissus, Tulips, and other Bulbs, is now published, and will be forwarded to applicants.

Exotic Nursery, Tooting, Surrey, S.

LARGE LAURELS, &c.

LAURELS, 4 to 6 ft., and bushy	ABIES MORINDA, 6 to 8 feet
PHILLYREAS, 4 to 6 feet, do.	DEODARS, 6 to 15 feet
SWEET BAYS, 2 to 4 feet, do.	LIMES, PLANES, ELMS,
LAURUSTINUS, 2 to 3 feet, do.	SYCAMORES, POPLARS,
PINUS EXCELSA, 4 to 6 feet	LABURNUMS, 8 to 20 feet

The whole have been lately transplanted, and will move safely Prices on application, stating size and quantity required.

Jas. McRonald, Chichester.

ANDREW G. DALY, Nurseryman, Newry, Ireland, will Sell to the Trade 150,000 strong 1-year Seedling BERBERIS DARWINII at 12*s.* 6*d.* per 1000; they are well grown, many of them from 4 to 5 inches; 1,000,000 strong 2-year Seedling THORNS at 3*s.* per 1000; 1000 bushels of HAWS, at 1*s.* 6*d.* per bushel. He can also offer 2000 upright IRISH YEWS, five times removed, trained to one stem, all handsome plants, 5 to 7 feet high; these will be sold a great bargain. Carriage paid to Liverpool of all goods.

Newry Nurseries.—To the Trade.

G. R. DAVIDSON, Nurseryman, Seedsman, and Florist, begs to offer 1,500,000 of 2-year Seedling THORNS, 10 to 18 inches; 400,000 Transplanted 3-year old THORNS; 30,000 PORTUGAL LAURELS, Transplanted, 12 to 18 inches; a large lot of COMMON LAUREL, 1-year, from cuttings, about 18 inches; together with a General Stock of FOREST TREES, all of strong healthy growth.

George R. Davidson, Nursery and Seed Establishment, Newry, Ireland.

To Noblemen and Gentlemen about to be engaged in Planting.

DICKSONS AND CO., Nurserymen, Seedsmen, and Florists, Waterloo Place, Edinburgh, have this season a large and very healthy stock of Seedling and Transplanted LARCH (native and Tyrolese), True Native Highland SCOTCH FIR, Spruce, Oak, Plane or Sycamore, Spanish Chestnut, Alder, Ash, Elm, Thorn Quick, Beech, Evergreen Privet, Poplar, Willow, &c., as well as all other kinds of Forest and Ornamental Trees and Shrubs, Fruit Trees, Roses, Greenhouse and Stove Plants, Herbaceous and Alpine Plants, Ferns, &c.

Their Forest Trees, which are grown on exposed ground, are this season finely ripened, and can be sent with perfect safety to any part of the kingdom.

Samples and prices will be sent free on application.

American Plants, New Hardy Rhododendrons.

WATERER AND GODFREY'S PRICED and DESCRIPTIVE CATALOGUE of AMERICAN PLANTS, as exhibited in the Horticultural Gardens, South Kensington, free on application. This Catalogue fairly describes the Rhododendrons most worth growing, as well as some new and very handsome kinds exclusively in their possession, and now for the first time offered.

Knap Hill Nursery, Woking, Surrey.

Hardy Scarlet Rhododendrons.

JOHN WATERER'S CATALOGUE of HARDY SCARLET and other CHOICE RHODODENDRONS as annually displayed in the Royal Botanic Gardens, Regent's Park, can now be had on application.

It contains faithful descriptions of all the varieties really worthy of cultivation, as well as a selection of HARDY CONIFERS, with heights and prices, with ORNAMENTAL EVERGREENS, FOREST TREES, &c.

The American Nursery, Bagshot, Surrey.

Rhododendrons.

JOHN WATERER begs to offer the following Six RHODODENDRONS, in good, strong, healthy plants, at 4*l.* 4*s.* the Set, the usual discount to the Trade:—

SIDNEY HERBERT	MRS. FITZGERALD
JOSEPH WHITWORTH	THE WARRIOR
SIR ROBERT PEEL	SURPRISE

The American Nursery, Bagshot, Surrey.

New Rhododendrons.

JOHN WATERER is prepared to execute Orders for the following Six RHODODENDRONS at the subjoined price. They are this season offered for the first time, and are particularly recommended for the following qualities, viz, Hardiness, fine Foliage, Free Bloomers, and as being perfectly distinct from any other known kinds.

ALEXANDER ADIE.—Brilliant rosy scarlet.
SIR JAMES CLARK.—Dark shaded crimson.
SIR WILLIAM ARMSTRONG.—A very bright crimson.
THE DUCHESS OF SUTHERLAND.—Nearly white centre bordered with rose.
LADY EMILY PEEL.—A very bright rose, intensely marked with chocolate-coloured spots.
RAPHAEL.—Reddish crimson, and large bold flower.

The Set for 6*l.* 6*s.* Usual discount to the Trade.

The American Nursery, Bagshot, Surrey.

RHODODENDRONS.—Hardy Scarlet and other RHODODENDRONS; a most beautiful and extensive assortment of 200 named varieties. Strong bushy plants, £10 per 100; fine hybrid sorts, 50*s.* per 100.

KALMIA LATIFOLIA, 1 foot, 20*s.* per 100.
AZALEA PONTICUM, fine bushy plants, 20*s.* per 100.

Also a large general stock of FRUIT, FOREST, and ORNAMENTAL TREES; EVERGREEN and DECIDUOUS SHRUBS, CONIFERÆ, and ROSES, extending over 60 acres.

PRICED CATALOGUES and every information obtainable on application to

W. H. Rogers, Red Lodge Nursery, Southampton.

1865 and 1866.

WILLIAM BARRON begs to announce that his NEW DESCRIPTIVE CATALOGUE of CONIFERÆ and other ORNAMENTAL PLANTS, RHODODENDRONS, ROSES, FRUIT TREES, &c., for the Autumn of 1865 and Spring of 1866, is now ready, and may be had post free upon application.

Elvaston Nurseries, Borrowash, near Derby.

E. G. HENDERSON AND SON offer SEED of CALCEOLARIA, CINERARIA, and PRIMULA of first-class quality, at 1*s.*, 2*s.* 6*d.*, and 5*s.* per packet. Also the finest SCARLET and INTERMEDIATE STOCK, 6*d.* and 1*s.* each.

SEED of CYCLAMEN PERSICUM, of similar quality, 6*d.* and 1*s.* each, and in mixed colours 2*s.* 6*d.* per packet.

The Wellington Nursery, St. John's Wood, London, N.W.

NEW PLANTS.

AUBRIETIA CAMPBELLI (effective spring flower).
FUCHSIA BANKS'S BEAUTY.
VERONICA FRUTICOSA GLAUCA.
CLIANTHUS DAMPIERI, in varieties (seed only).

Coloured Plates, post free on receipt of Stamps, of the following:—
AUBRIETIA CAMPBELLI, 7*d.*
CLIANTHUS DAMPIERI ALBIFLORA, 1*s.* 1*d.*

For description of the above see E. G. Henderson & Son's New AUTUMN CATALOGUE, forwarded post free.

Wellington Nursery, St. John's Wood, London, N.W.

To Lovers of Spring Flowers.

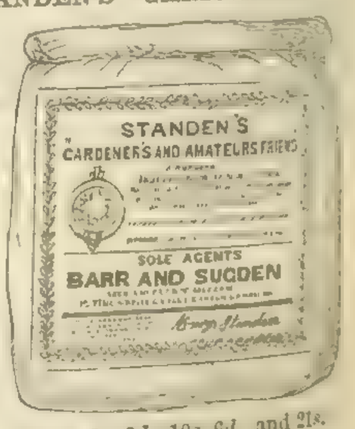
MESSRS. DILLISTONE BROTHERS AND CO. can now supply 50 Choice Spring-flowering HERBACEOUS PLANTS to name for 10*s.* 6*d.*; also strong STRAWBERRY PLANTS, per 100, 3*s.* 6*d.* All the leading varieties.

CATALOGUES on application to

Dillistone Brothers & Co., Sturmer and Woodland Nurseries, near Halstead, Essex.

CHRYSANTHEMUMS, and How to have them Fine for Exhibition.—Use STANDEN'S GARDENER'S and AMATEUR'S FRIEND.

STANDEN'S GARDENER'S and AMATEUR'S FRIEND, a highly concentrated Inodorous Fertiliser, for Chrysanthemums and all kinds of Stove and Greenhouse Plants, Vines and other Fruit Trees in pots, &c.; also Vegetables, &c., in the open ground.



No. 1 FERTILIZER is the best adapted for Chrysanthemums and Hard-wooded Plants of every description.

No. 2 FERTILIZER is recommended for Soft-wooded Plants, Bulbs, &c.

Sample Canisters, 1*s.* & 2*s.* 6*d.* Bags, 5*s.* 6*d.*, 10*s.* 6*d.*, and 21*s.*

May be had of the leading Nurserymen and Seedsmen.

Barr & Sugden, Seed and Plant Merchants, 12, King Street, Covent Garden, W.C.

A List of Agents will shortly be published.

EDWARD TAYLOR, Nurseryman, Malton, Yorkshire, offers as under:—

GLADIOLUS BRENCHLEYENSIS, good blooming roots, 12*s.* 6*d.* [per 100
100 GOOSEBERRIES, in 50 fine named varieties, 10*s.* per 100.
100 DWARF ROSES, in 50 choice named sorts, 40*s.* per 100.
12 STANDARD ROSES in 12 varieties, 10*s.* per dozen.
Large Blue and Yellow DUTCH CROCUS, 10*s.* per 1000.
GIANT ASPARAGUS and SEA KALE ROOTS in any quantity.

CATALOGUES gratis on application.

Hardy Climbers.—To the Trade.

CLEMATIS JACKMANNI.—Large intense violet purple, rugose and veiny in centre, 2 to 2½ feet bine; 30*s.* per dozen.

CLEMATIS RUBRO-VIOLACEA.—Reddish violet, sepals moderate, fine; 30*s.* per dozen.

CLEMATIS STANDISHI.—Beautiful violet blue; 30*s.* per dozen.

Besides other good old varieties.

A CATALOGUE, including Description and Treatment of Clematises, will be forwarded free on application to

Geo. Jackman & Son, Woking Nursery, Surrey.

To Gentlemen Planting.

IN CONSEQUENCE of some of my Nursery Grounds being required for Building, I am induced to offer a large quantity of the following, cheap:—

STANDARD ROSES, DWARF ROSES, and Dwarf Roses in Pots, Standard Dwarf FRUIT TREES, Standard Ornamental Trees and Shrubs, large specimen CEDRUS DEODARA, varying from 3 to 15 ft. high, and a general collection of Evergreens, American Plants, &c., including some of the newest and best kinds of RHODODENDRONS, and some very large trees, suitable for making an immediate blind.

CATALOGUES to be had on application.

R. Neal, The Nurseries, Wandsworth Common, S.W.

Lobelia Snowflake.

Extract from GARDENERS' CHRONICLE:—

"Mr. Cox, Gardener to Lord Beauchamp, exhibited a beautiful White Lobelia called Snowflake, to which a First-class Certificate was awarded. Floral Committee of the Roya Horticultural Society, July 25, 1865."

JOHN AND CHARLES LEE having acquired the stock of this desirable NEW BEDDING PLANT, they have much pleasure in offering SEED in SEALED PACKETS for present sowing for spring pot culture, for which it is well adapted.

As a BEDDING LOBELIA it stands unrivalled. The plant is of dwarf compact habit: the flowers are large, perfectly even, and of the purest white. The stock comes perfectly true from seed.

Price 2s. 6d. per packet. Price to the Trade on application.

Royal Vineyard Nursery and Seed Establishment, Hammersmith, W.

To the Trade.

CUPRESSUS LAWSONIANA SEED (true), of excellent quality, and warranted crop of present season. Price, postage paid, 5s. 2d. per oz.; 32s. per half lb.; 60s. per lb. nett. From unknown Correspondents a remittance must accompany order.

WHOLESALE CATALOGUES of GENERAL NURSERY STOCK can be had, after 10th inst., on application to

THOS. CRIPPS, Nurseryman, Tunbridge Wells, Kent.

CARNATIONS and PICOTEES for the Million. Fine Strong Plants at reduced prices.

Every one should send for the revised CATALOGUE of CARNATIONS, PICOTEES, PINKS, PANSIES, ROSES, FRUIT TREES, BULBS, &c.

HOLLAND & JONES, Proprietors, Bradshaw Gardens, Chadderton, near Manchester.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. I.

*** Part II. (Exotic Ferns) will be issued as early as possible.

Foot's Cray Nursery, S.E.

TO BOTANISTS and FERN COLLECTORS.—A Collection of nearly all the PLANTS of NORWAY, including the Alpine, Sub-Alpine, and Arctic varieties, about 1200 Species, carefully dried and classified according to the Linnean system, with their Botanical names and localities. Most of the specimens are in duplicate or larger numbers. The Collection will be sent free to the Hull Railway Station for £20.

Apply to T. BENNETT, Christiania, Norway.

Lilium auratum.

WM. T. CATLEUGH can supply strong BULBS at 5s., 7s. 6d., and 10s. 6d. each; or 54s., 84s., and 120s. per doz. These Bulbs have been proved during the last two years, and found to contain many choice varieties. Terms cash.

Hans Street, Chelsea, S.W.

FLOWER and FRUIT SHOW in the GUILDHALL, City of London, on TUESDAY and WEDNESDAY, Nov. 14 and 15, by the UNITED HORTICULTURAL SOCIETY. Under the Patronage of the Lord Mayor, Sheriffs, and Members of Parliament for the City. The whole of the Profits to be devoted to the Benefit Fund.

The magnificent New Roof of the Guildhall will be open to public inspection for the first time on this occasion, together with the splendid Decorations, Statuary, Banners, Stands of Arms, Chandeliers, &c., used on Lord Mayor's Day.

Chrysanthemums, Foliage Plants, Fruits, Fern Cases, Cut Flowers, &c. Band of the Coldstream Guards. Brilliant Illumination at dusk.

Private View for Members and their friends, at which the Lord Mayor will preside, First Day at 12 o'clock; open to the public at 1. Second Day open at 10 A.M. Close each day at 8 P.M. Admission each day, 1s.

Gardeners' Tickets, 6d. each, may be obtained on application to any of the Committee.

Temporary Offices, 56, Basinghall Street, City, E.C.

Chiswick. ROBT. PINCE GLENDINNING Hon. Sec.

The Gardeners' Chronicle.

SATURDAY, NOVEMBER 11, 1865.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY,	Nov. 14	United Horticultural (Flower and Fruit Show), at the Guildhall..	1 P.M.
WEDNESDAY,	— 15		
THURSDAY,	— 16	Linnean	8 P.M.
SATURDAY,	— 18	Royal Horticultural (Weekly Show), at South Kensington	2 P.M.

THE history of Dr. LINDLEY'S CAREER, as sketched on another page, adds one more testimony to the exceeding value of conscientious work. From first to last, one of the main characteristics of our departed friend seems to have been his power of work. A sound constitution and robust health enabled him to undertake and carry on labours such as no ordinary man could do. Conscious of strength, and fired with zeal which no amount of opposition could quench, he laboured on, leaving nothing undone, while there was still anything to be done, till he unfortunately forgot that there might be limits of endurance beyond which even his iron will must bend, his energies succumb; and so we have to mourn the loss of one who might still, perchance, have been of service to his fellows for some years longer, could he have been persuaded to relax his efforts, and allow some rest to that over-tasked brain. But he is gone! we have but to honour his memory, to learn the lessons his life sets before us, and to apply them as best we can according to our several qualifications. Work alone would not have raised Dr. LINDLEY to the high position he enjoyed in the estimation of those best qualified to judge; it was his conscientious, systematic mode of working, his undeviating purpose, his fearless independence of spirit.

It is no matter for surprise that such a temperament should have sometimes clashed with that of others of easier mould. Once convinced of the rectitude of his purpose it mattered not who or what opposed him, and there are many who, having in times past differed in opinion from him, will now own that he was ever straightforward and earnest in his convictions.

Vacillation—irresolution—these were qualities so opposite to those he himself possessed, that it is no wonder that they received but scant pity from him. Circumlocution was another thing which he held in utter abhorrence. Tell him straightforwardly what you wanted, and he would serve you to the best of his ability. Beat about the bush, and you provoked his impatience. He had no time to waste. He expected others to be, as he himself was, clear, concise, and to the point in his statements. His elementary books show this; many of them are quite axiomatic, almost too much so for speculative students. But these and other points are well known to the readers of this Paper, many of whom have been thrown into contact with him.

Speak we now of his powers as a lecturer. With some experience of lecturers and lectures, we are enabled to say that Dr. LINDLEY had few rivals in the art of laying before the student, in the clearest way, the main facts of the case. His language was correct, fluent, and lucid; not adorned with ornate phrases and elegant expressions meaning nothing, but so replete with information, and that information so well digested, so perfectly arranged, that not a sentence could be lost with impunity. Those who remember his demonstrations in Regent Street will endorse these statements, still more those whose happy fortune it was to have attended his botanical lectures at Chelsea. In the ordinary class rooms where Botany was systematically taught, the profusion of details of which the student had little or no means of seeing the practical bearing, disgusted many (and this is still the case as a rule), who looked upon the botanical lectures as a nuisance and a waste of time. But at Chelsea the dry bones were made to live. By his eminently practical way of making use of the illustrations which the Garden afforded him, the Professor, although destitute of the aid of drawings such as he had in his class-room at University College, and trusting solely to a piece of chalk and a black board for his diagrams, managed to make his auditory, or the more earnest among them, not only familiar with the structure and medicinal properties of the plants before them, but enabled them to understand and appreciate the practical bearings of many points in physiology, in morphology, and in what may be termed speculative botany, and thus succeeded in demonstrating the value of the study of this science for its own sake, for its practical utility, and for its special importance as a means of training for the profession they were about to enter.

An objection has been raised to some of his earlier works on systematic botany and classification, on the ground that in each successive book he advocated a different arrangement of plants from that which he had previously done. Those who make this objection should recollect the state of Botanical Science in England at the time these books were published. The influence of the Linnean system was still predominant. The natural system was a novelty in this country. By its very nature it required, and still requires, constant revision and change. It is essentially a science of progress, and in those early days of its existence in this country, the changes were necessarily more frequent and more extensive than they are now. To charge a man with inconsistency because he moves with the age is absurd. To say that errors do not exist in Dr. LINDLEY's works would be equally absurd. But let us not withhold our tribute of gratitude to the man who has given us the "Vegetable Kingdom;" and in reference to his services to Horticulture let us not forget, among a host of other things for which we have to thank him, the keen interest and watchful anxiety over the affairs of the Horticultural Society, his constant endeavour to maintain its position and increase its influence as a scientific body, and his active assistance to DOUGLAS and other travellers sent out to collect new and interesting plants for cultivation in this country. These were benefits not conferred on the Society alone, but through it on the public in general. We ought not soon to become forgetful of the impulse he gave to the cultivation of Orchids by his numerous publications on these singular and beautiful plants, or of the benefits he rendered to our craft by his constant association of Practice with Science, and especially by the publication of the "Theory and Practice of Horticulture."

IT may be asked, what do people seek, or rather what do they ordinarily find, in FLOWER GARDENS? It is perhaps not too late to put this question; for though the answer may readily present itself, it is well to articulate it distinctly, seeing it is attended by important corollaries. In the flower garden we seek fresh air and exercise, enjoyed amid pleasant surroundings; we desire to gratify a sense of natural beauty as exhibited in form and colour; and we indulge our interest in rare or elegant species and varieties of plants. MILTON well summarises these delightful objects, when in one of his minor poems, he speaks of

> [illegible] retired Leisure,
> That in trim gardens takes his pleasure.

What we seek, then, in flower gardens is PLEASURE, and it is proper to formularise this truth, for it immediately suggests the principle that there must necessarily be diversities of tastes in flower-gardening. This indeed is merely saying that people differ in their tastes and pleasures—a very common-place remark, no doubt, but one very frequently forgotten.

Take, for example, the autumnal flower garden—the bedded-out parterres—a style so popular at present, yet occasionally decried from sheer ignorance, or from want of thought as to the true objects of this form of floriculture. Some particular case of it is under the ultimate command of a fair lady, we shall suppose. To her it is a sort of open-air drawing-room, carpeted with turf, walled in by verdurous trees, and having for ceiling the blue sky. And it is gloriously furnished for her. She may be very slightly acquainted with plants; she may hardly know a Lobelia from an Ageratum, or a Verbena from a Calceolaria; and yet she may have an exquisite perception of form and colour in their general effects. Independently of her right to gratify her tastes, her pleasure derived from the flower garden may be a very considerable addition to the attractions of her autumnal sojourn in the country. Other people may view the garden with different eyes. The gardener who designed it has an artistic pleasure in his success. Some friendly critic from a distance may compare it with other places, and may enter into curious questions as to the adaptations of its parts, and the elaborate perfection of the whole. Again, the propagator of plants finds a pleasant subject of observation in the decorative capacities of particular varieties. He takes deep interest in considering how the Firefly Verbena maintains its contest with Lady Victoria Scott, how the Golden Chain Pelargonium holds out against Mrs. Pollock, and whether the doughty Tom Thumb has not been obliged to succumb to the Orange Nosegay, or BEATON's Indian Yellow. Even the admirer of high finish may have positive enjoyment in unconsciously realising MILTON's idea of a pleasure garden, to the effect, namely, that it should be *trim*.

But there is another source of pleasure in flower gardens, and that is, the interest many take in particular species or varieties of plants. Botanists and florists—in this respect they may be regarded as one—do not much affect the bedding-out system. It is true that in certain botanic gardens, such as Kew, Liverpool, and other places, there are fine specimens of autumnal parterres, but these occur rather because the managers think it their duty to cater, so far, to the public taste, than from any predilection they have for that popular style. Their tastes rather tend to individual plants; and they for the most part find infinitely more enjoyment in a single shrub or tree, than in the most elaborate design of human contrivance. An amateur in Rhododendrons, for example, in doing the honours of his place, will pause at times, and direct attention to the play of colours; to the contrast of the brilliant white or scarlet blossoms with deep green foliage, or will point out the translucent tints produced by the light falling on the blooms raised above the level of the eye; but his whole heart expands, while he stands enraptured, and half worships a splendid Lady Eleanor Cathcart, or a Gazelle, a Gem, a Broughtoni, or whatever other variety he may have included among his favourites. And then he has histories of many of them. "I myself grafted that Album elegans on a 6-feet stock now 3 inches in diameter, with a top 10 or 12 feet high. That John Waterer was a present from the excellent old man whose name it bears. That Minnie was supplied by Mr. STANDISH himself, and was among the first let out." Or suppose we visit a grower of Orchids. His collections are arranged in some subtle order of his own, but he hardly ever thinks of general effects. He leads at once to his cherished treasures. "Look at that Oncidium," he says, "or this Phalænopsis;" or again, "that Vanda, or this Angræcum sesquipedale. Remark the number of spikes and flowers, the length and breadth of leaves, and the luxuriance of the whole plant. Observe the effects of cool culture on that Odontoglossum from New Grenada, and the benefits of warm treatment as shown on this Dendrobium from Burmah." We should find instances of similar enthusiasm in the Rose fancier, or in the grower of Chrysanthemums, or of what used to be called florists' flowers. His eye

gleams with a light, and his voice rings with a music, which only lovers of flowers for their own sakes, can ever know. And who shall sneer, or censure the speciality of such tastes as these? Assuredly no one who has the true spirit of horticulture, or who deserves ever to set his foot within a flower garden.

The sources of pleasure in floriculture are manifold and various, and he is the greatest gainer who can enjoy the most of them to the full. Certainly a man should suspect himself of some deficiency in culture when he cannot enter into pursuits from which he perceives others deriving pure and simple enjoyments. Perhaps there is too much impatience on both sides. La Rochefoucauld, in one of his famous maxims, remarks that our self-love is more hurt by the condemnation of our tastes than by dissent from our opinions. This was true, it seems, of French human nature in his time, and it is partly true of English human nature still. We agree to differ on matters of politics and religion. It is even respectable to have a definite opinion of one's own. It is allowable to ride a hobby pretty vigorously, if we do not ride down other people. Why then should there not be full toleration of our neighbours' tastes in flower gardening? And why should we not cherish more tastes than one? The owner of a picture gallery may regard a Titian or a Murillo as the glory of his collection; but he may attach a high value to a Claude Lorraine or a Turner, and he may be glad to possess a fine Rembrandt, a Cuyp, or a Wilkie. Such a catholicity of taste betokens high culture, and a mind above the cant and pedantry of criticism. The late illustrious Prince Consort pronounced gardening one of the fine arts; and so far as it rises above the mere supply of the kitchen and the table, it deserves to be recognised in that character. Wherever gardening terminates in pleasure—pleasure pure and simple—it is undoubtedly one of the fine arts, as much so indeed as music, painting, or poetry. Recent writers have shown that all that men do—*quicquid agunt homines*—may be classified either as work or play, and that play—in other words, whatever ministers exclusively to amusement or pleasure, is the ground principle in the fine arts. Probably this dictum would require to be a little guarded, for there are some arts, followed for amusement, which are far from being fine arts. No deduction, however, need to be made from gardening, for, in its essential nature, it was pure enough to be the employment of Paradise. It is still fitted to be the medium of the purest and most exquisite pleasures. Let its votaries recognise its dignity, and act in accordance with its character. But whether regarded as a fine art, or a source of pleasure, or simply the means of amusing play, let it not be made the arena of bitter strife or sectarian exclusiveness. They are very silly children, if such indeed there be, who restrict themselves to one kind of play.

A Wiltshire correspondent has pointed out to us a fact in relation to Vine Culture, which seems to be worth the consideration of practical men who have to deal with Grape growing in a level country. He has established a cold Vinery in what he describes as a very successful way, the sorts grown being the Black Hamburgh and the Muscadine. The result and its explanation are thus set forth in his own words:—"I think a good part of my success in growing the Black Hamburgh so well, is in a great measure owing to the circumstance of a well being placed in the middle of the bed. When the bed of the Vinery was made, the drainage was made to slope towards this well. The result is so good, that I think in a low garden it would be worth making a well for this purpose alone."

Such is our correspondent's view, and there is something feasible about it. A shallow well, or even more than one, sunk in a Vine border below the level at which the drainage is put in, must draw off superfluous water which at any time might collect amongst the materials of which the latter is composed, and that more speedily and effectually than would be done by a mere drain, unless the latter had a very sharp outfall; because in such a case the slope or fall towards the well could be regulated to any pitch. Of course, on a hill side, all this would be of less importance than in a flat country, but then there is this additional advantage resulting from the adoption of what we may call the well-system of drainage, that while the water would be effectually removed, the soil would be aërated without further trouble. In short, it seems to us that the simple expedient of the well, with its conducting drains, would aërate the border as efficiently as a distinct series of air drains, such as are sometimes introduced to supplement the water drains, at a considerable cost of labour. At any rate, the hint our correspondent gives is worth remembering wherever it may prove applicable, and may be especially useful in the case of the gardens of amateurs.

—— We have lately received another addition to the crested forms of Filix-mas, and this time from Scotland. It has been found by Mr. Walter McKay in the woods of Camperdown, and may be distinguished amongst Fern growers by the name of McKayi. The peculiar features of this variety, which is a well-marked one, are the pyramidate general outline of the pinnæ, especially the lower ones, which are nearly half as broad again as those towards the upper end; the remarkably (for this species) acute form of the pinnules which are serrated, and in the lowest pinnæ rather deeply cut, something in the way of remota; and in the incurved apices of the pinnæ, which terminate in small but well-defined crests. These features give it a distinct character, so that it will be a welcome addition to the already numerous varieties which have been brought to light by the keen eyes of modern Fern-hunters.

—— Mr. D. Hanbury has been good enough to forward us some thoroughly dried Seeds of Xanthoxylum alatum. On examination the embryo may be discovered lying in the albumen. Some of our readers may remember that this plant produces seeds from certain of which young plants have been raised, although no trace of stamens or of pollen has hitherto been detected! It is a pity that some other plants are not equally prolific.

—— We are glad to be able to announce, since there is this year no Chrysanthemum Show at the West end of London, that the United Horticultural Society will hold a Flower and Fruit Show in the City, on Tuesday and Wednesday next, at which we have no doubt these fine autumnal flowers will be well represented. Chrysanthemums, Foliage Plants, Fruits, Fern-cases, and Cut-flowers are invited. The show is to take place in the Guildhall, under the patronage of the Lord Mayor.

—— The French correspondent of the leading journal states, on the authority of the "Journal de Saone-et-Loire,' that the Academy of Maçon has this year adjudged the prize for Viticulture to a landed proprietor named Dubois, who, among other acts of beneficence to improve the condition of the peasantry, has organised the young women of his parish under the care of a skilful Vine-dresser, by whom they have been taught the art of pruning the Vine, and such other operations as do not require the muscular force of a male Vine-dresser. These young women are known as the Vigneronnes du Maçonnais.

—— The Funeral of the late Dr. Lindley took place at Acton on Monday last, in the presence of numerous friends and representatives of Botany and Horticulture, among whom we noticed Mr. Bentham, Dr. Hooker, Dr. Thomson, Professor Reichenbach, Sir Wentworth Dilke, Mr. Fortune, Mr. Gibson, Mr. Veitch, Mr. Eyles, &c., &c. We hope shortly to be able to present our readers with an Engraving from the portrait of one who for so many years occupied so high a position in the world of Horticulture.

THE LATE DR. LINDLEY.

John Lindley was born at Catton, near Norwich, on the 5th of February, 1799, being a descendant of a good Yorkshire family. His father was a nurseryman of considerable ability, and is known to gardeners as the author of "A Guide to the Orchard and Kitchen Garden." Dr. Lindley was educated at the Grammar School at Norwich, of which Dr. Valpy was then head-master, Sir Wm. Hooker having been a pupil at the same school a few years before. As a boy, Lindley distinguished himself by his industry and quickness, although he had some difficulty in learning lessons by rote. At this time his inclinations led him to the study of plants and antiquities, and he is known to have spent much of his pocket-money in hiring books on the latter subject, which he read with such avidity that his schoolfellows bestowed on him the nickname of "Old Antiquity." He left school when he was about 16, and shortly afterwards went to Belgium on business for the late Mr. Wrench, of Camberwell, the well-known seed merchant. After his return from Belgium he remained at home with his father for a few years, and devoted himself indefatigably to botanical, horticultural, and entomological pursuits. His first scientific acquaintance was with Sir William, then Mr., Hooker, who was 14 years older than himself. At the time of which we speak, Mr. Hooker lived at Norwich, and was in the habit of visiting Lindley at Catton to procure plants and insects. The acquaintance was continued after Mr. Hooker's removal to Halesworth. It was at this latter place that Lindley made a translation of "Richard's Analyse du Fruit," setting himself to his task with so much devotion that he completed it at a single sitting, having worked at it for three days and two nights without intermission. This translation was published in 1819.

About this time there seems to have been a prospect of Lindley proceeding to Sumatra and the Islands of the Malayan Archipelago, and in order to inure himself to a tropical climate, he walked backwards and forwards from Catton to Norwich more than once during the heat of a summer's day. On one occasion, when on a visit to Mr. Hooker, he was discovered by his hospitable entertainer sleeping on the floor of his bedroom, as a preparation for the hardships of his intended voyage. For some reason or other this project was abandoned, and owing to his father's reverses in business, Lindley was left to fight for himself. At this juncture he was introduced by Mr. Hooker to Sir Joseph Banks, and in 1818 or 1819 proceeded to London, where he was employed by Sir Joseph as his assistant librarian. Dr. Lindley always spoke in the warmest terms of the liberality and kindness of his patron, whose assistance was the more acceptable, as Lindley, to his honour be it said, had made himself responsible for his father's debts. Sir Joseph also recommended him to Mr. Cattley, who was desirous of finding an editor for the "Collectanea Botanica," in which many of the fine plants he cultivated were figured and described by Lindley. This work was published in 1821, and is remarkable for the faithfulness and beauty of its illustrations. It was dedicated to Mr. Sabine by its editor, who was even at that time able to sign himself a member of the Imperial Academy of Naturalists of Bonn. In 1820 Lindley published his "Rosarum Monographia," which was dedicated to Mr. Charles Lyell, of Kinnordy, the father of the present Sir Charles Lyell. Mr. Lyell was so pleased with the work that he sent the author a cheque for 100*l*. With this money Lindley bought a dissecting microscope, and a small herbarium which formed an important addition to his own collection. In 1820 he was again at Halesworth, and it was whilst searching the ditches in the neighbourhood with Mr. Hooker that they found some Duckweed in flower; a description of this by Lindley appeared in his friend's "Flora Scotica," in 1821. In the same year the Monograph on the genus Digitalis was published, illustrated partly by himself, but chiefly by Ferdinand Bauer. In this year was published a folio volume of plates taken from Chinese drawings, collected by Van Braam, and preserved in Mr. Cattley's library. No editor's name is appended to this book, but it seems probable from the Latin preface that Lindley arranged these plates for publication. Neither descriptions nor (with few exceptions) analyses accompany these figures, which were issued more as curiosities and specimens of Chinese art than as botanical drawings. Nevertheless, stress is laid in the preface just alluded to on the figures of new pentandrous Bauhinias, of new Rosaceæ, and new Orchidaceæ.

In 1822 Lindley became Garden-Assistant Secretary to the Horticultural Society, of which Mr. Sabine was then Honorary Secretary. At this time the garden at Chiswick was in process of formation, partly under Lindley's superintendence. This duty he performed with his usual ardour, rising early and summoning to their work those less active than himself, in order that the orchard might be planted before winter. In 1826 he was appointed sole Assistant Secretary to the Horticultural Society, having duties to perform both in London and at Chiswick. From this time he may be said to have become the mainspring of the Society, upon which depended its efficient working as it advanced in prosperity, requiring his daily attendance during office hours in Regent Street, or once a week at the Garden, besides frequent extra work in the early morning. In 1830, at the time of Mr. Sabine's resignation, owing to over-sanguine expectations and untoward circumstances, with which however, Dr. Lindley had been entirely unconnected, the Society had got into difficulties, which taxed his energies and attention to the utmost to overcome. In conjunction with Mr. Bentham, who had succeeded Mr. Sabine as Honorary Secretary, he worked out a plan for holding at the Garden general exhibitions of flowers and fruit in lieu of the old expensive fêtes, which, although tried again in 1831 under the most favourable circumstances, failed completely in promoting the objects or the resources of the Society. These exhibitions proved to be the means of restoring the Society to its former prosperity, and became the model on which similar exhibitions were established both in or about the metropolis and in all parts of the country. On these days Lindley's duties were extremely onerous, and can only be realised by those who have had the management of similar displays. He was always in the Garden before six in the morning, and he never left it until after six in the evening. Nor were the meetings in Regent Street less the object of Lindley's care, and there must be many persons grateful for the information he afforded on these occasions respecting interesting subjects connected with horticulture. Before Mr. Bentham's resignation in 1841, arrangements were made by which almost the whole business till then performed by the Honorary Secretary should, in addition to his own duties, fall upon Dr. Lindley, who took the designation of Vice-Secretary, the succeeding Honorary Secretaries, first Dr. Henderson, then Mr Gowen, and afterwards Dr. Royle, taking very little active part in the management. In this office he continued until 1858, when he resigned, and became

Secretary to the Society and Member of Council, a position which he held until his failing strength and the overwhelming business of the Exhibition of 1862 obliged him to give up any further participation in the management of the Horticultural Society.

It may here be mentioned that the Doctor worked as hard in arranging the Chiswick fêtes during the last few years of their continuance as he did at their commencement, although he strongly disapproved of them at that time, well knowing the state of the finances of the Society. Had Dr. Lindley done nothing more than attend to the affairs of the Society he would have accomplished as much as most men could have done, but his energy was inexhaustible, and until he had passed 50 years of age he never knew what it was to feel tired either in body or mind. In addition to the Horticultural Society he had his lectures both at University College and at the Botanic Garden of the Society of Apothecaries at Chelsea, in which latter establishment he held the office of Præfectus Horti, as well as his own personal researches to engage him. His connection with University College began in the year 1829, and he continued to lecture in that Institution until 1861, when he resigned. Upon his resignation he was made Emeritus Professor, at the instance of Professor De Morgan, and was subsequently appointed to the office of Examiner of Botany in the University of London from 1861 to 1863. He devoted great care and attention to his lectures, making large rough drawings for their illustration. For many years his class was very large, but as the number of botanical lecturers (many of whom had been his pupils) increased, his class fell off in numbers. Dr. Lindley never read a lecture, but he invariably prepared notes, and paid great attention to the arrangement of his matter. His lectures were remarkable for their clearness, their conciseness, and the profuseness with which they were illustrated. Among his early pupils was Mr. Griffith, the well-known Indian botanist, for whom Dr. Lindley always expressed the highest admiration. The lectures at Chelsea were of a less formal character, but eminently practical. Their value has been attested by large numbers of medical men, both abroad and at home. They were discontinued in 1853. Dr. Lindley also occasionally lectured at the Royal and other scientific institutions in London. It was mainly for the use of his classes that he published several of his best known botanical works, but his two great general works, the "Vegetable Kingdom" and the "Theory of Horticulture," were the results of long-continued labour bestowed on the collecting and digesting a vast store of materials. In his zeal for promoting the study of the Natural System, he had very early formed a plan for a Genera Plantarum which should embody all the improvements on the Jussieuan arrangement introduced by Brown, DeCandolle, and others, as well as the views which his own numerous observations had induced him to entertain, and for many years his leisure hours were chiefly devoted to the examination of plants for this purpose. Seeing, however, as he advanced, that the completion of a Genera would be a work of far greater duration than he had originally contemplated, he gave a sketch of his ideas of arrangement in the "Introduction to the Natural System of Botany" (1830), in the "Nixus Plantarum" (1833), and in the "Key to Structural and Systematic Botany" (1835). Soon afterwards, on the announcement of a "Genera Plantarum" by the celebrated Austrian botanist Endlicher, he finally gave up all idea of preparing one himself, and embodied the result of his preparatory labours in his "Natural System of Botany," or 2d edition of the Introduction published in 1836. This is perhaps the most carefully elaborated of all Lindley's works, and suggested to Endlicher the issue of his "Euchiridion Botanicon" (1841); this in its turn supplied several of the ideas carried out by Lindley in expanding his Natural System into that most useful book, the "Vegetable Kingdom" (1846), by which his name will perhaps be best known to posterity.

The "Outlines of Botany," appeared first in 1830; its principal contents, modified and re-arranged, together with a revision of the "Nixus Plantarum," formed the above-mentioned "Key to Structural and Systematic Botany," which was translated into several foreign languages, including Hungarian, and was subsequently enlarged in a new edition under the title of "Elements of Botany" (1841). He had also in 1832 published a more detailed and comprehensive work, entitled "Introduction to Botany," which went through two editions, and was the foundation of his subsequent shorter elementary works.

In 1829 appeared the "Synopsis of the British Flora," in which, following the example of his predecessors, Hooker and Gray, the British flowering plants were arranged according to the Natural System. The "Flora Medica" was published in 1838. A work on a similar subject, "Medical and Economic Botany," made its appearance 11 years later. The "School Botany," which in its improved form has gone through several large editions, was first published in 1839. A work with a similar object was published in 1837-8, in two volumes, under the title of "Ladies' Botany." In 1837 appeared a splendid Monograph on the Victoria regia, of which only 25 copies were circulated.

These were by no means Lindley's only works. The greater part of the descriptions in Loudon's "Encyclopædia of Plants" were drawn up by him. He conducted the whole of the "Botanical Register," except during the first few years: and, with very little assistance, "Lindley and Paxton's Flower Garden," besides contributing to several of Paxton's works in horticultural botany. The botanical articles in the "Penny Cyclopædia" down to the letter R (the excellence of which has been generally acknowledged), and a "Treatise on Botany," published by the Society for the Diffusion of Useful Knowledge, were all from his pen; besides the greater part of the eighth, and the whole of the ninth volume of Sibthorp's "Flora Græca," published from 1835 to 1837. The elegance of the Latin preface to the ninth volume has been much admired, but though Dr. Lindley was a good Latin scholar, this preface was, we believe, revised by his friend Professor Key, of University College. From 1831 to 1837 he was engaged with Mr. William Hutton in the "Fossil Flora of Great Britain," a work in three volumes, containing figures and descriptions of fossil vegetables found in this country. As in elementary botany, so in horticulture he commenced with a small work, entitled "Outlines of Horticulture." This was followed by the "Theory of Horticulture," first published in 1840, which, after having been reproduced in America and translated into nearly every European language, not excepting Russian, at length reached a second edition in England in 1855. Dr. Lindley was very proud of this work, and has often been heard to say that in his opinion it was, upon the whole, the best of all his productions, the "Vegetable Kingdom," perhaps, excepted. Until the second edition appeared, and the title was altered from "Theory of Horticulture" to "Theory and Practice of Horticulture," this work had but a very slow sale in England, although its reputation on the Continent and in America was very great.

Then there were his works on Orchidaceous plants, to which he had more particularly devoted his attention for many years. The "Sertum Orchidaceum," a magnificent work in folio, with beautifully coloured plates, mostly drawn by Miss Drake, appeared in numbers, and was completed in 1838. The "Genera and Species of Orchidaceous Plants" also came out in parts, between 1830 and 1840; and a second edition of the latter, under the title of "Folia Orchidacea," was commenced in 1852, but unhappily this has never been completed, the last part having been issued in May, 1859. Many of the books we have mentioned, and these are not all that were produced by his busy pen, were illustrated either by his own skilful pencil, or by that of his two daughters.

In addition to the works we have just mentioned, Lindley was a frequent contributor to the Transactions of the Horticultural Society from 1822 to 1848. He drew up reports on the new plants in the Society's Garden, on various ornamental plants, and also added remarks on several points of morphological or physiological interest, such as the mode of formation of double flowers, the action of frost on plants, the rate of growth by plants at different times during the day, &c. We have already alluded to the 8vo Journal of the Horticultural Society, 1846—1855; though Lindley did not himself write much in these volumes, it is to his careful editing and research that they owe their principal value. In the "Transactions of the Linnean Society" we find in the year 1820 a paper beautifully illustrated by Dr. Lindley on the Pomaceæ, and a shorter notice in a subsequent year on the Anatomy of the Roots of Ophrydeæ. In the volumes of the Journal of the same Society are also several important papers of Lindley's, chiefly referring to Orchidaceous plants.

The records of the British Association also testify to his diligence and to the variety and extent of his labours.

(To be continued.)

ORIGIN OF THE PEACH.

Mr. Rivers, in his excellent "Catalogue of Fruit Trees" just published, says:—"In describing this fruit (Early Silver) the first of a new type of Peaches, I am tempted to digress slightly from the beaten path of a fruit catalogue and give my theory as to the origin of some of our old kinds of Peaches. I believe that the old White Nectarine was one of the earliest introductions from the East to Europe, and to it, in my opinion, we owe those pale Peaches, the Noblesse, Malta, and White Magdalen, so remarkable for the piquancy of their flavour. I have been led to think so from my having formed a new race of Peaches by sowing the stones of the New White Nectarine, the only variety that has for many years been cultivated in England. The first generation gave me the Early Silver Peach, one or two other pale colour Peaches, and several White Nectarines. The second and third generations have given me one or two very early Peaches, as large as the Noblesse, yet ripening a fortnight earlier than the Red Nutmeg, also two or three large late Peaches, all of them possessing the peculiar racy Noblesse flavour, and likely to be of value.

"It is quite impossible to convey to the pomological world the remarkable things that the Orchard-house has in the short range of ten years brought out, so as to give a greater and more complete knowledge of the origin and nature of Peaches and Nectarines than has been obtained in a century by the Continental writers. The French pomologists of the present day are almost ridiculous in their knowledge, or want of knowledge, of Peaches and Nectarines. If Messrs. Decaisne & Carrière could reside for five years near a good Orchard-house they would not write as they do about Peaches. I am tempted or provoked to write thus, because a French pomologist will not believe that anything peculiar or good in fruit can ever take place out of France. The large Peach which I have named Prince of Wales was raised from the stone of a Pitmaston Orange Nectarine; out of ten seedlings of the second generation—i.e. stones of the Prince of Wales Peach; five are Peaches much like the present, three are Orange Nectarines, and two are White-fleshed Nectarines. The first generation from that odd little yellow Nectarine, Fairchild's Early, were all exactly like the parent, varying but little in size, but the second generation, raised from these seedlings, has proved most remarkable. The trees, some 10 or 12 in number, all blossomed last spring simultaneously, the blossoms all exactly alike—large, with long irregular petals. I was so disappointed on seeing this, feeling that no departure from the original sort had taken place, although I knew the fruit was from fertilised flowers, that I was on the point of having all the trees destroyed. To my great present satisfaction this was not done. They have all borne fruit. Out of the ten trees five are Peaches—one a bright orange, the others pale-fleshed, and of delicious flavour; five are Nectarines, three of which now give bright orange-coloured fruit, of the size of the Violette Hâtive Nectarine, and two with white flesh. The flavour of the Peaches is sprightly and Nectarine-like. This is indeed the case with nearly all the Peaches raised from Nectarine stones; hence I have formed an opinion that I shall found new races of Peaches from the Nectarine."

TROPICAL BOTANY.—No. I.

Perhaps no section of the science of botany has been less discussed than the influence of tropical seasons upon vegetation, arising most probably from the fact that few European authors on this science know anything of the tropics. We should, however have expected a more exact knowledge than the following passage from Darwin shows:—"In consequence," writes this celebrated naturalist and traveller, "of the leaves of trees not being shed periodically, the inhabitants of the inter-tropical regions lose perhaps one of the most glorious sights in the world—the first bursting into full foliage of the leafless tree." Now this is a spectacle by no means uncommon in the tropics, as every one who travels through an Indian jungle from January to April may witness. We may not experience the delight which the inhabitants of temperate climates feel on the approach of Spring, when all vegetation recovers simultaneously from a temporary death, when all Nature puts on her gay attire, and a cheering impression pervades the mind of the constancy of Nature to her appointed periods of revival. But, on the other hand, there is scarcely a month in the tropical year in which we may not see young leaves and tender shoots springing from leafless branches, although at any one period there is no general burst of nature, no general resurrection of the types of bygone generations, to bring with it images of hope or fear, or to call up analogies with the higher destinies of man. Dr. Gardner, in his "Travels in Brazil," states that the low woods in the interior present in the dry season the same appearance which the woods of cold climates do in winter, heat effecting in the one instance what cold does in the other. And it is precisely the same with us in India, only that we should ascribe the fall of the leaf to drought rather than to heat.

The appearances of Spring in temperate climates are accounted for by an increase of temperature. Heat is the all-pervading agent which there calls vegetable life into existence, and every degree of heat above the freezing point finds its corresponding plant, whose functions are then called into play.

It has been laid down by botanists, as Sir J. Herschel informs us, that a plant flowers when the sum of the mean diurnal temperatures (or rather, as maintained by M. Quetelet on apparently better grounds, that of the squares of those mean temperatures), from the epoch of the first movement of the sap in spring, attains a definite amount, differing for each species of plant, but invariable for the same under all circumstances. Now, this may be all very well in temperate climates, where heat is the sole agent, but it is quite inapplicable to the tropics, where a special vitality seems to overrule all other influences. Thus we find the Mango blooming at Shikarpoor at a temperature of 40° F., and at 65° to 75° at Bombay. Thus in the tropics every known physical influence, with regard to trees at least, is set at nought by facts which confound us. They send forth tender leaves and blossoms in the coldest month, and although this phenomenon is observable in almost all months of the year, it is in that month which is both the hottest and the driest taken together (March), that the greatest number of trees begin to sprout. M. Planchon, a distinguished French botanist, writing of the Cochlospermum, which sends forth its gaudy blossoms in March, considers the phenomenon as a very remarkable one; and it is truly more than remarkable that Nature should have chosen to put forth her tenderest productions at a time when the heat and drought would seem great enough to wither up all vegetation.

Those *savans* who have no experience of the tropics

and who have written on this subject, have often fallen into great errors. Thus Professor Daniell, of meteorological celebrity, states that in tropical climates the sap never ceases to flow. Professor Sacci states that the heat indispensable to vegetable life is never suspended in the tropics, which enjoy an eternal summer. It is scarcely necessary to say that these statements are incorrect, and that every species of tree has its winter, or in other words, its natural period of rest, in which all functions are suspended. If, as another philosopher has said, the ardour of the sun, without the tribute of rain, causes trees to suspend their functions, yet it is equally true that these very same circumstances do not prevent many others from resuming all their vegetative activity.

The European horticulturist tells us that the production of flowers and the bearing of fruit are exhausting functions, and that plants after that have need of rest. This cannot, however, be universally true. We have many trees, such as the Mango and the Jambool, which ripen their fruit just before the annual rains, and no sooner do they feel the influence of these, than they start off with undiminished vigour, throwing out leaves and young branches, which are to bear fruit the following season. Trees of this kind have a prolonged period of activity from January to September.

It is evident that tropical trees do not obey one general law, and that what acts as a stimulus to one kind has no effect on another. It may be that each species is regulated by a kind of special vitality, which atmospheric changes of temperature, moisture, and light cannot explain.

There may be some general law, but if there is, it seems to have little connexion with, or dependence upon, external circumstances. If we were asked, what are the immediate causes of the appearance of Spring, we should say that they were water ascending in the stems of trees under the influence of physical forces; but this would never account for the tropical Spring taking place at the very period when there is a minimum amount of moisture in the ground as well as in the air. However closely we may investigate the subject of seasons, to account for the various appearances in tropical vegetation, we are brought to the conviction that the causes lie too deep for us, and that wherever the vital principle is active, the investigation is beset with insurmountable difficulties; and that we shall probably never discover why the Cotton-tree flowers in January and the Tamarind in June; or why the same order always prevails in the leafing of plants; why the Birch should invariably precede the Oak, and the Oak the Ash. The Book of Nature presents us with mysteries as great as the Book of Revelation, and of both we must be content to be ignorant. *N. A. Dalzell.*

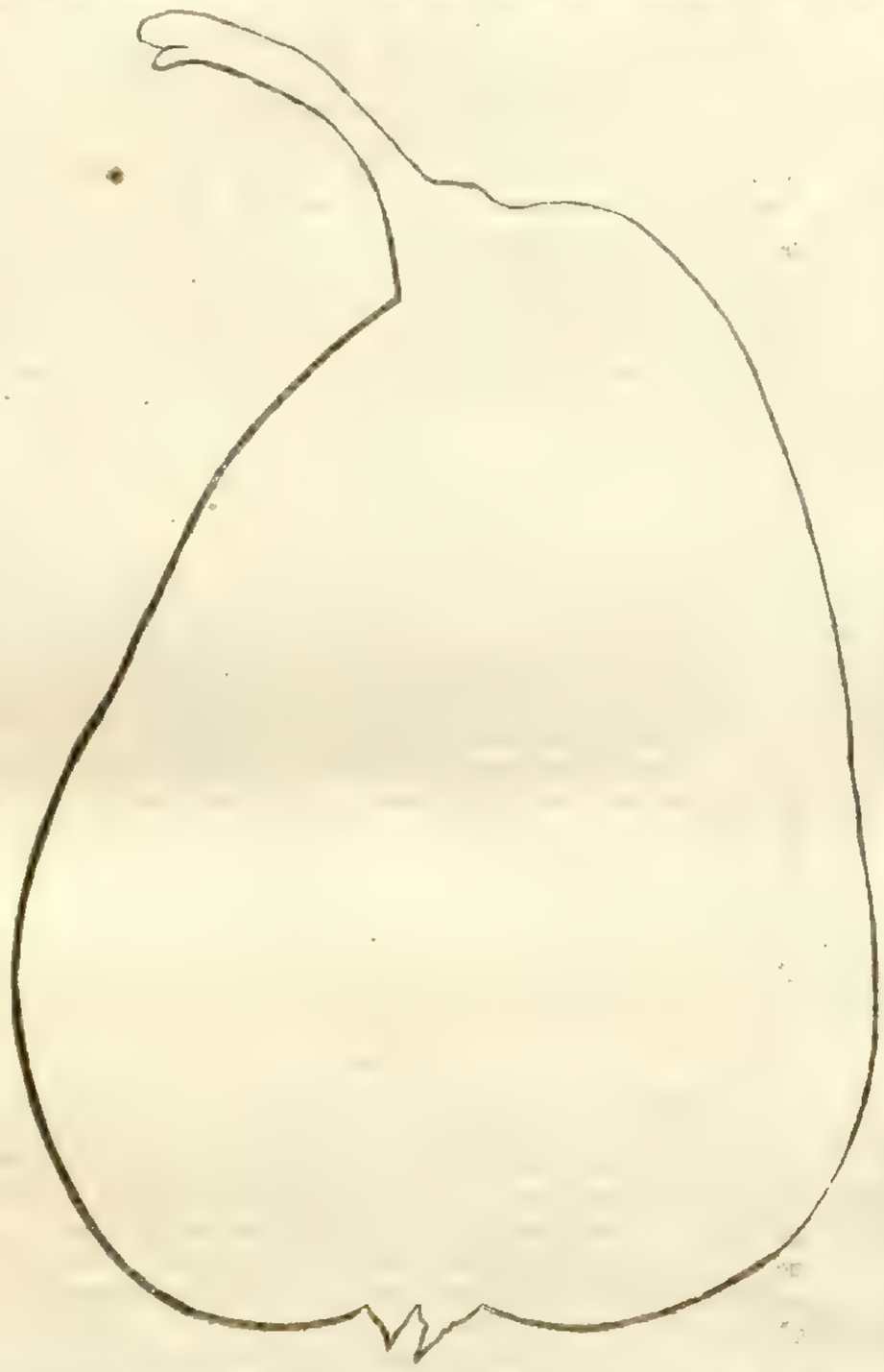
NEPENTHES RAFFLESIANA.

Those who were at the Edinburgh International Exhibition could not fail to have noticed the splendid example of Raffles' Pitcher-plant which was shown by Mr. Mitchell of Hamilton Palace—a plant quite 7 feet high, and clothed from top to bottom with leaves of the most exuberant growth, the majority of them adorned with huge pitchers. As I have had an opportunity of seeing the plant since, and noting its strange physiological character, I wish to inquire whether the variability it exhibits in pitcher formation is of common occurrence in that variety. The lower pitcher-like appendages are much inflated from the base to the centre, after which they become gradually contracted to the mouth, and hang very elegantly; they have two prominent wings planted on the ridges which run nearly parallel from the base to the mouth of the pitcher. This appears to me to be the normal form of these tendrilified leaves, but the younger leaf appendages present a totally different appearance, and but for their being the produce of the same plant, might be considered as belonging to quite another species. Those referred to are widest at the mouth, measuring there 2½ inches across, and tapering towards the base or foot-stalk; and what is most singular, while the mouth is much more substantially adorned with the overlapping lid peculiar to the race, there is an almost total absence of wings, and the ridges, instead of being parallel, converge from the mouth to the base. This is no isolated example, for these peculiarities apparently become more fixed as the plant advances in growth.

So far as my experience goes, this appears to be quite a physiological phenomenon, as I have both seen and possess plants of quite an opposite tendency. In fact, in the case of what might be called suffruticose Nepenthes, practical men have so far had nearly all their examples with tendrilified leaves without pitchers, the plants rather inclining to flower and produce young shoots, which, when rooted and set growing on their own account, produce pitchers up to a certain stage, and then again show the reproductive tendency, without yielding those curious and ornamental developments so attractive to the eye. I have a plant fully as tall as Mr. Mitchell's, which has not produced a pitcher for the last two years, but it has flowered, and turns out to be a female. Whether the fact of its bearing flowers, or its sex, has anything to do with its not producing pitchers, I am not physiologist enough to know; albeit it had given up bearing pitchers twelve months previous to its flowering, so that it is my belief, if there be any hitch, that it is attributable to sex. I would therefore like to know whether male plants are more freely pitcher-bearing than females? Treatment may have something to do with it. Mr. Mitchell grows his Nepenthes in a moist shady stove in what might be called a "north house," but Mr. Veitch grows his equally shady, moist, and tropical, and in his case the tendencies so far are retrogressive in pitcher-bearing, and reproductive, therefore progressive, as regards the multiplication of the species or variety. *J. A.*

NEW PEARS.

No. 1. *Marie Louise d'Uccle.*—A variety of Marie Louise, so named from Uccle, a village near Brussels. This very excellent Pear differs from its type in having a peculiar and fine aroma—that of the Gansel's Bergamot—and also in growing freely when grafted on the Quince stock, on which it soon forms a robust and prolific pyramid. In shape it often approaches nearly to that of Marie Louise; its colour, when ripe, is generally yellow, with large blotches of russet. In some seasons the russet largely predominates. Its usual time of ripening is October and early in November, varying, as is common with Pears, according to site, soil, and season. It is decidedly a very fine variety, and worthy of extensive cultivation.



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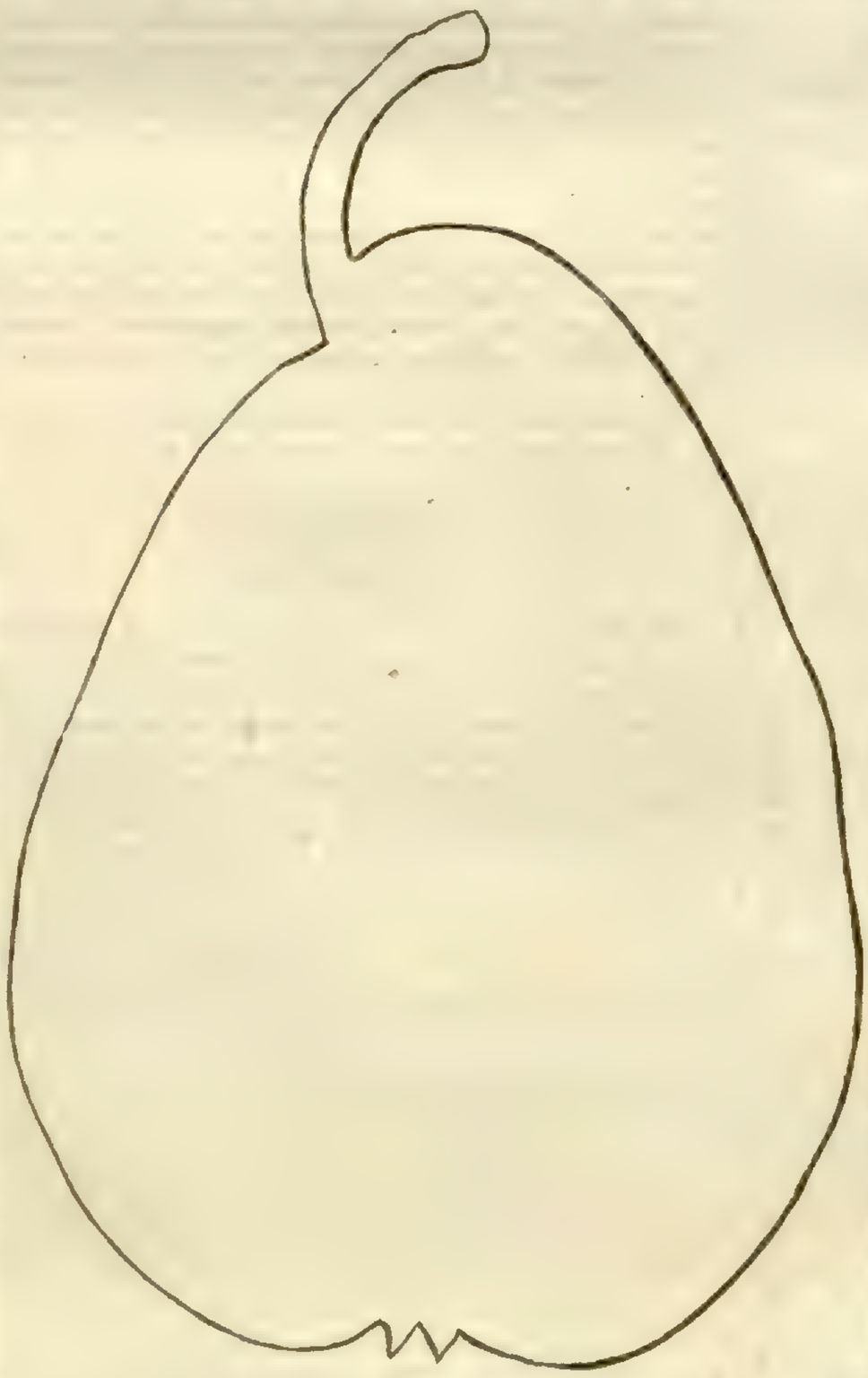

No. 2.

No. 2. *Conseiller de la Cour*, alias *Maréchal de la Cour.*—This in some soils and under good cultivation is one of the largest dessert Pears, having this season attained the weight of 19 ounces at Caunton Manor, near Newark, Notts. It seems to succeed well in our northern counties, its habit being remarkably robust and vigorous, and the tree not inclined to canker. There are but few varieties of the Pear that succeed so well on the Quince stock, the union of the bud or graft with the stock being perfect, and its growth in one season often 6 feet from the bud. When ripe its skin is of a yellowish green, its flesh melting and good,—in some seasons very good; but much depends upon soil and site, which influence the flavour and texture of Pears to an extent almost incredible. On the whole, this fine large Pear deserves a place in all gardens where a collection of any extent is cultivated.

Home Correspondence.

The Golden Hamburgh Grape.—I am much obliged to Mr. Busby for calling my attention to places where this variety is said to be seen in perfection; but having grown bunches of it 4 lb. in weight, with the berries 3½ in. in circumference, I have no particular wish to see it better grown elsewhere. With respect to its carrying qualities, I have had some experience in sending it long distances for the last three years, and it invariably did not travel so well as Black Hamburghs, Muscats, and other Grapes. I was not aware that it had ever been sent from Scotland to any of the London fruit-shows,—in fact, although so showy a Grape, its appearance on the exhibition tables has been very infrequent. As I have said before, it is a noble Grape, both in look and in flavour, when well grown, but it will take all Mr. Busby's time to write it up as a favourite variety, for some of the best cultivators of Grapes have failed in growing it successfully. *William Tillery.*

Salvia splendens. — This fine old plant is not half so much cultivated as it ought to be; some cuttings struck early last spring were planted out in a border not by any means favoured in situation, yet they grew very fast, and by the end of September were bursting into bloom all over, when they were taken up carefully with balls, potted on the spot, and they now are the most conspicuous plants we have in the conservatory, — far exceeding in that respect Salvia fulgens treated in the same way. It is needless to say that care is required in handling a plant so easily broken, but it richly deserves all the attention that is necessary for success in its cultivation. *J. W. C.*

Bézique.—Your correspondents "Many Country Ladies" (see p. 1037), will find the rules for Bézique in Vol. 5 of McMillan's Magazine, Nov. 1861, to April 1862, page 138. *A. C. P., Clifton, Bedale.*

Theory and Practice of Ventilation.—I rejoice to see Mr. Fish's articles on this most interesting subject, which, strange to say, is still so little understood even by too many good and practical gardeners. I trust Mr. F. will forgive me if I call his attention to, not a misstatement, but an imperfect statement on the most important point of all, in which he says, "Heat exerts an expansive and diffusive power; the air occupies a greater space, and consequently becomes lighter." This is of course quite true, but he goes on to say, "Now, light air will of course rise through and sail along the surface of heavy air, just as a cork will upon water." Would it not be more correct to say that light air does not rise because it is light, but because it offers less resistance to the cold air, which, being heavier, always sinks below it, and so forces it to rise? Let this once be understood, and we shall see fewer of those sliding top sashes opened to "give air," but in reality throwing down an avalanche of cold on the tender shoots, and in turn forcing out all the soft and precious moisture in which vegetation naturally delights. If the cold air is admitted at the bottom of the house, free ventilation will be insured, and a constant supply of fresh air provided night and day without injury to the plants, and without the enormous waste of heat caused by the old, but now, I hope, nearly exploded plan of ventilating from above. Mr. Fish is quite right with regard to his facts, but his statement will be more likely to do good

if he gives a more simple explanation of his reasoning. *T. P.*

Rats.—Oil of amber and ox-gall mixed in equal parts, added to thin oatmeal and flour sufficient to form a paste, will kill these pests; after dividing the paste into little balls, lay them in the middle of the place or part infested. When these balls have been eaten they cause intense thirst, so much so that if vessels of water be placed close by, the rats will drink until they die on the spot. *South Durham.*

Lobelia cardinalis.—Your correspondent "H. T. H." should divide his plants of this in the autumn. He may then select the strongest suckers, and plant them from 2 to 3 inches apart, in a frame on a mild bottom-heat. Give them air on all favourable occasions, but they must be protected from frost; in the spring he will have fine strong stocky plants. I formerly used to pack this Lobelia away closely together when I lifted it from the beds, but losing numbers of it, I adopted the plan just described, and now I rarely lose a plant. I may add that this variety is very impatient of confinement in pots; it succeeds best planted out. *H. J. F.*

Root Fungi.—Early in the present year I had some hundreds of Conifers, which I noticed were rapidly losing health and assuming a sickly hue, that steadily increased. I saw that they were attacked by Fungi, and that some means must at once be taken to check the evil. Many of the plants were 11 and 12 feet in height. The greater part of them consisted of Deodars, Pinus excelsa, Abies Douglasii, A. Menziesii, and Cupressus Lawsoniana. The remainder were Wellingtonias, Abies Webbiana, A. Morinda, Arborvitæ, &c. All were planted in a nursery, the soil of which was for the most part about one-half shingle, and the subsoil entirely of that description. I had all the plants taken up, and every particle of soil shaken from their roots. I found that every plant was attacked by Fungi, and that most of them had lost at least two-thirds of their roots, which were entirely covered with and penetrated by minute thread-like processes, forming a thick network all over them—sometimes, indeed, assuming the appearance of small lumps of spawn. After the plants were taken up, I had the roots well washed in pure water until not a particle of spawn could be seen on them; what were left were then cut back to 3 or 4 inches beyond the decayed parts. On examining the soil in which the trees had been planted, I found partially decayed leaves and small pieces of decayed wood, which were doubtless the cause of the mischief. Leaf-mould had been applied to give the plants a start, which however, as will be seen, was in the wrong direction. Every leaf and every bit of wood was a nucleus of disease; nevertheless I was compelled to plant again, and that on the same ground, having no other. I however partly removed the soil and put maiden loam in its place. "No more leaf-soil for me." Trenches were opened, and the plants were well puddled in and staked in cases where they required that kind of support. Some 1000 plants were treated in this manner, to which was added syringing morning and evening in very hot weather. The loss has been less than one per cent. A Wellingtonia has grown 6 inches in height since it has been subjected to the operations just described, and it is pushing innumerable side shoots, some of which are an inch in length. I should state that the plants were lifted and replanted in the latter end of March. If I should find even larger trees attacked by Fungi, I should not hesitate to treat them as I have just mentioned. *Herbert W. Cordle, Coollattin Park, Carnew, Wicklow.*

Double Grafting Vines.—I have found that double-grafting of the Golden Hamburgh Vine has strengthened the footstalks of its berries. On its own roots in a late Vinery and in an unheated border it produced large loose bunches with weak footstalks. Desiring to have it in an early Vinery, I worked it on the Black Hamburgh, on which it grew vigorously, but still it produced loose bunches with tender footstalks. The same spring and in the same house, I had it worked on a strong shoot of the Muscat of Alexandria, which had been grafted on the Black Hamburgh the previous spring. Cutting back the Muscat to within 6 inches of the Black Hamburgh, the scion of the Golden Hamburgh was worked on the Muscat, adopting the common tongue system of grafting. It fruited at the same time as the above, but the result was different, the bunches being compact and well filled with berries, having strong footstalks, apparently fit to stand carriage equally well with any other Grape, and in every respect like a well-finished bunch of its "black brother." *J. Miller, Manor Gardens, Worksop, Notts.*

Medicinal Plants.—Mr. W. Robinson, in speaking of the medicinal collection of plants at Dangstein, says that the Clove and Strychnos nux-vomica "are difficult to lay hands on." I have before me a catalogue of M. Linden, of Brussels, in which I find the Clove quoted at 10 fr. each or 75 fr. (3*l.*) for a dozen, and the Strychnos at 25 fr. each. The Monodora grandiflora, same price, and Swietenia Mahagoni, 15 fr. Very few, I am sure, will grudge these prices to finish their collections. The Jack-fruit, Bread-fruit, Cinchonas, Chérimoyer, Ebony wood, and a host of other things, equally interesting, are offered at similar prices. *H. K., Pontchartrain, France.*

International Exhibition of 1866.—I am glad to learn (see pp. 1030 and 1031) that a good beginning has been made in collecting subscriptions for this grand display of horticultural produce, the undertaking being one in which every one, in England at least, should feel great interest, inasmuch as it will do good service to the country generally. It cannot fail to increase the taste for horticulture among us; indeed, an increased taste for Nature's productions generally will inevitably be created by holding an international show such as we hope to see next spring. Plants will thus be brought together that have never been exhibited before in this country, not because they are not grown here, but because they have not hitherto been appreciated by the managers of our great flower shows. The amount of prizes offered will be certain to secure an exhibition worthy of the country in which it is to take place. We have, indeed, an excellent chance of producing a most satisfactory result. Fine-foliaged plants alone, when well arranged, would, I imagine, cover between 2 and 3 acres; room must be found sufficient to show off large specimen Palms, Tree Ferns, Cycads, and Coniferæ, &c., of which the grand objects of an exhibition like this will doubtless consist. These must as a matter of course be so placed amongst the flowering plants as to produce the best possible effect. It is not difficult to picture to the mind what a grand sight this will be. Some may say, "But from whence are these plants to come?" Even should our Continental neighbours not bring them over, there need be no fear that we shall not find plenty of specimens that have never had any encouragement to be brought out before. Although the latter may have had many admirers, yet managers of shows have kept them back. The time has, however, arrived, when we must make alterations, or the taste for flower shows will decay. Take, for instance, the Battersea Park Gardens; what numbers have admired the Tropical Garden there, owing to the introduction of fine-foliaged plants. Similar improvement is required in our shows. Horticulture, like everything else, demands fresh subjects of inquiry to give it life and interest with the people, who get tired of the continual sameness. I am sorry to see so few nurserymen's names on the list of subscribers, but I hope that after the advertisement of Saturday last they will come forward and join the ranks freely. For so short a time the amount of contributions is marvellous, indicating hopes of great success, notwithstanding that many hundreds of people have not yet heard of the scheme. When they do, subscriptions will doubtless pour in faster than ever. Let us hope that every one that can render help will do their best towards carrying out this truly national undertaking, in order to make it an honour to the country, especially as many foreigners are to be invited. Let us not only subscribe liberally ourselves, but let us try to induce our friends also to help. A great deal may be done by introducing the subject, and explaining the good that is likely to emanate from such an affair as this is sure to prove. *B. S. W.*

Foreign Correspondence.

New Zealand Gardening.—The new botanic garden at Christchurch, now under the process of formation, is favourably situated at Avonside, and is about 3 acres in extent, possessing a good, rich loamy soil, well suited to the purpose for which it is intended, and occupying one of the pleasantest parts of Christchurch. In this garden quantity will not be taken into consideration at all; but rarity and newly-introduced trees, shrubs, evergreens, and Conifers will always meet with a fair trial. An accumulation of plants in Canterbury which have enriched the plains, induces the owner to commence arranging them into shape; so that their value may be truly and faithfully appreciated, having regard to the advance of knowledge in the science of botany and horticulture. Among the objects of interest already planted out, and looking healthy, may be mentioned the following:—

Of Ornamental trees there are some very healthy examples of Æsculus rubicunda, worked on the common sort; and we were told that Pavia flava was on its way out from England, and would be very soon in our gardens. Of Thorns there is a good variety:—Cratægus pyrifolia, C. macrantha, C. Crus-galli, C. prunifolia, C. tanacetifolia, and C. Douglasii, the last beautifully in fruit, the haws being twice the size of those of the common Thorn. No doubt that Thorns will be extensively planted before long—nothing more ornamental for plantations can well be obtained. Variety should be the first consideration of all planters. There are also a good many trees of the double white, double red, and single red Thorns. Amongst other trees may be seen Gymnocladus canadensis, Aleppo Ash, American Ash, Morus alba, two varieties of the double-blossomed Cherry, double white-flowering Chinese Peach, and many other novelties.

Of Conifers, the collection is quite in its infancy; still there are a few worth notice. For instance, growing in a healthy state, is Pinus maritima, P. Pinaster, P. Pinea, P. Pumilio, P. montana, P. sylvestris, P. Sabiniana, P. ponderosa; also a beautiful specimen plant of the Red Spruce Fir. From the habits of P. Pumilio and P. montana, they appear quite equal to P. maritima for planting in sandy places, both of them growing very dwarf and bushy, and being very ornamental and hardy.

In this garden it is intended to cultivate as many native evergreens as possible, many of them being equal in beauty to our common Laurel; also native Taxads, as soon as they can be obtained. Nothing can well be handsomer for our gardens than the native Veronicas already in cultivation, numbering a dozen distinct species. Of evergreens and shrubs the variety is almost endless; some of the choicest are:—Magnolia grandiflora and M. auonæfolia, both doing well, and very ornamental evergreens. The two varieties of Japan Spindle-tree are also very ornamental. Of Hollies, doing well, there are Ilex cornuta, I. Aquifolium recurva, ferox-aurea, aureo-marginata, and albo-marginata; also Viburnum Tinus lucidum, shining-leaved and very distinct from the common Laurestine; with Viburnum suspensum, japonicum and rugosum. The latter in course of time will make a grand addition to our shrubberies. To these may be added Spiræa prunifolia flore-pleno; Juniperus sinensis; Buxus latifolia; Ligustrum japonicum, beautifully in flower; Daphne Mezereum in fruit, which is rarely ever seen here; and last amongst many which must be passed over, Symphoricarpus racemosus, a dense mass of white berries and flowers. No garden should be without this ornamental shrub.

Tender annuals flower here in profusion, such as the double Zinnia, Lobelia ramosa, scarlet annual Flax, Portulacas of different colours, and many other choice flowers.

Societies.

Royal Horticultural: *November* 7.—W. Wilson Saunders, Esq., in the Chair. Several new Fellows were elected. The chairmen of the Floral and Fruit Committees having respectively reported the awards made by those bodies, the Rev. M. J. Berkeley made some observations on the subjects before the meeting, in the course of which he explained the differences between the several races of Gourds, all of which had, he said, been referred by M. Naudin to four types, namely, Cucurbita Pepo, maxima, moschata, and melanosperma. The first was always distinguishable by its furrowed foot-stalks; in the second the foot-stalks were not furrowed, and the skin was usually tender; the third was a delicate plant which rarely perfected fruit in our climate; and the fourth might be known by its black seeds. He also mentioned that while so many of the true Gourds were wholesome, and largely used for food, the Lagenarias, or Bottle-Gourds were, he believed, in all cases deleterious. Major Clarke made a few comments on a fine collection of Medicinal and Economical plants exhibited by Mr. Bull, to which the Floral Committee had awarded a Special Certificate. The Chairman then drew attention to the recent loss which had been sustained by the Society, as well as by the sister sciences of Botany and Horticulture, in the decease of Dr. Lindley, one of the ablest botanists of the present age, and a prince among horticulturists, whose laborious life had been devoted with eminent success to the advancement of Horticulture and Botany; and, intimating that the Council had just passed a vote of condolence to Mrs. Lindley, he invited the meeting to adopt a similar resolution, which was unanimously agreed to.

Nov. 7 (*Floral Committee*).—Among the subjects produced on this occasion were several varieties of Chrysanthemum from Mr. Salter of Hammersmith. One of these, called Gloria Mundi, a deep rich golden yellow, finely incurved, and of excellent form, was very beautiful, and received, as it deserved, a First-class Certificate; a similar award being also made in the case of Golden Ball, a stiff petaled flower of a golden amber colour. Golden Beverly, a soft clear yellow, charming in tint, and of great depth, though as shown not so evenly incurved as the first-named, received a Second-class Certificate; it seemed to be a free-bloomer, and for ornamental purposes will be a most valuable acquisition. Another variety, with short stiff petals, rosy purple inside and paler on the exposed outer surface, named Hereward, obtained also a Second-class Certificate. With these were shown White Trevenna, a pretty white variety for pot culture; and Prince of Anemones, a large Anemone-flowered sort, of good form but rather dull (pinkish rose) in colour. Mr. Bull received a First-class Certificate for a species of Cuscuta (probably C. reflexa) growing on Ivy. The little white bells on the filiform leafless stems, resemble Lily bells strung on threads, and are deliciously fragrant; it was rewarded as a curiosity. To the same exhibitor a Second-class Certificate was given for Selaginella Martensii albo-variegata, the branches of which were freely blotched with white. Mr. Bull also had a common Aucuba in berry, to which, as well as to the collection of medicinal plants noticed above, consisting of 47 species, a Special Certificate was given. From Messrs. Osborn & Sons came Parochetus communis, a trailing blue-flowered papilionaceous plant, said to be hardy, and likely to be useful as an autumn-blooming basket plant for greenhouses; to this a Second-class Certificate was given. Mr. Fleming showed some variegated Primulas and Pelargoniums, which the Committee desired to see again when more advanced. One of the latter seemed likely to be an improvement on the variety called Golden Chain.

Nov. 7 (*Fruit Committee*).—A Special Certificate was awarded on this occasion to Mr. Downing, gr., Marbury Park, for very fine specimens of Pomegranates, ripened in an ordinary greenhouse. Mr. Challis, of Wilton Park, sent an example of Charlotte Rothschild Pine-apple, weighing 6 lb., for which a Certificate

was awarded. A similar mark of distinction was also conferred on fine-looking roots of Dewar's Short-topped Beet, a kind very like the Castlenaudary. From the garden of the Society came a collection of Apples, and Diamant Traube Grape, a fine variety of the Sweetwater class, by no means new, but well worthy of more general cultivation than it has hitherto received. Mr. Vair, gr. to Lady Dorothy Neville, furnished a fruit of Monstera deliciosa, apparently not quite ripe. A collection of Gourds was shown from the garden of the Society, and some rare kinds of the same class of fruits were exhibited by the Rev. M. J. Berkeley.

Notices of Books.

Genera Plantarum, &c., auct. G. Bentham et J. D. Hooker. [The Genera of Plants, defined according to specimens principally preserved in the Herbaria of Kew. By George Bentham and Joseph Dalton Hooker. Vol. I., Part 2. Containing the Polypetalous orders of Dicotyledons, from Leguminosæ to Myrtaceæ.] Large 8vo., pp. 433 to 735. Reeve & Co.; Williams & Norgate.

More than three years have elapsed since we recorded in our columns the publication of the First Part of this important work, upon the commencement of which we then congratulated the botanical world. We have now the pleasure to announce the appearance of a Second Part. Long as the interval between the issue of the two appears when measured by the value of the work, and by our impatience to get possession of it, it needs but a glance at its pages to convince us that no time has been lost. The First Part, consisting of 432 pages, completed the series of Thalamifloral orders, divided by our authors into two great series—Thalamifloræ and Discifloræ—and included a single order (Connaraceæ) of Calycifloræ, the third and last division of Polypetalous Exogens. The Second Part, now before us, contains about 300 pages, and gives 11 orders of Calycifloræ, beginning with the vast group of Leguminosæ, which alone occupies 166 pages. Rosaceæ, Saxifrageæ, and Crassulaceæ follow; then come five small orders, the largest of which is Droseraceæ, with 110 species; and Combretaceæ and Myrtaceæ complete the Part. We learn from a notice on a fly-leaf that Melastomaceæ, Lythrarieæ, and seven other orders, including Cucurbitaceæ, are nearly ready for publication, and would have been included in the present Part but for the severe illness of Dr. Hooker, which prevented the necessary final revision, without which they could not be sent to press. As we rejoice to know that this illness is now a thing of the past, we may look forward to a speedy completion of the first volume of the work, Umbelliferæ and Araliaceæ being now alone wanting to complete the tale of Polypetalous orders, with which we are told, it is to be brought to a conclusion.

The orders included in the present Part occupy very nearly the same relative position as in the "Prodromus" of DeCandolle, to the arrangement of which our authors seem inclined to adhere, not sticking to it servilely, but not deviating from it without good cause. Droseraceæ, which DeCandolle places in Thalamifloræ, we find in the present Part closely associated with Saxifrages, which our authors consider to be their nearest affinity. Indeed, they include Parnassia in that order, which alone of all the reputed Droseraceæ is markedly perigynous. Our authors not only follow DeCandolle in considering Halorageæ distinct from Onagrarieæ, but regarding them as much less closely related than is commonly supposed, they place them at some distance apart. Gyrocarpus and Illigera, two genera of somewhat doubtful relationship, are included among Combretaceæ.

The favourable opinion which we were able to express of the First Part of the "Genera Plantarum," has been confirmed by experience. So far as we have been able to learn, there is but one opinion as to the practical utility of the work. The facility with which genera can be determined with its help, is, no doubt, mainly due to the admirable diagnostic tables, the preparation of which must have given our authors much trouble. The value of these depends essentially on the correctness of the generic characters, which have evidently been carefully tested by comparison with the herbarium. It is most satisfactory to all working botanists to have at last a good manual, which when complete will, to the extent of the material available, form a standard work based upon an examination of many or all the species of each genus. The orders now gone over, with a few more soon to follow, are those which (short of Endogens) most of all required revision, so that more rapid progress may by and by be hoped for, and the completion of the work is not beyond the bounds of possibility.

It is well known to all botanists that the great order of Leguminosæ, here estimated to contain 6500 species, has for many years been a special object of study to one of the authors of the work before us. Mr. Bentham has in a variety of forms published his views of the classification of this vast order, sometimes describing the species of a particular tribe, at another all the forms which inhabit some particular country. He has in fact been long regarded as the greatest authority with regard to it, and it is most important to have his matured views of the order, which he divides as usual into three sub-orders, the limits of which are considered as well defined. Such is not the case unfortunately with the 23 tribes, for the distinction of which he has in vain sought to find satisfactory characters. So far as we can judge, the other orders, great and small, are all worked out with equal care. Errors of detail will no doubt be discovered, but their discovery will be a matter of time and labour. It is probable too that the publication of this work will lead anew to great discussions on the principles of classification, the vastly increased number of correct data now available in its pages affording a fresh starting point for speculative botanists.

We are disposed to regard as one of the most satisfactory features of the work that it sets itself steadfastly in opposition to the prevailing tendency to the undue multiplication both of orders and of genera. Few men have an equal right, from extensive knowledge, to speak with authority on the question of the proper limitation of both. Throughout the work the authors go as far as possible in the direction of synthesis, uniting with the larger orders a number of less extensive types which are generally regarded as independent. Thus Rosaceæ include Chrysobalaneæ, Amygdaleæ, Sanguisorbeæ, and Pomaceæ, and under the Saxifrage order we find not only Escallonieæ and Cunonieæ, but also Philadelphus, Ribes, Hydrangea, Francoa, Roussea, and Brexia, all of which have at one time or other been regarded as the types of separate families. Chamælaucieæ, Lecythideæ, and Napoleona are in like manner included in Myrtaceæ. The same principle is carried out with regard to genera. Indeed some of the reductions, though no doubt quite sound, are at first rather startling. Thus, under Prunus we find not only Cerasus, but also Amygdalus and Armeniaca, and the tribal name Amygdaleæ gives place in consequence to Pruneæ. Cydonia is joined with Pyrus, from which it only differs by the number of ovules; and Sanguisorba with Poterium, neither the unisexuality of the flowers, nor the number of stamens, affording a constant character. Astragalus includes Phaca, but not Oxytropis. Ervum is brought under Vicia, Orobus under Lathyrus, and many other less familiar instances might be adduced.

The careful estimates of the number of species in each genus is another very important feature of the work. In the case of large genera, they can of course be regarded as approximations only, as no exact reckoning can be made without a detailed study of all the species. The present Part contains the characters of 700 genera, which are estimated to contain 11,000 species. In the former Part there were a few less than 1300 genera, and about 13,000 species. Taken together, the proportion of genera to species is as 1 to 12; but whereas in the First Part the ratio was as 1 to 10, in the Second Part it is roughly as 1 to 15. The cause of the greater proportion no doubt is, that the Second Part contains the orders Leguminosæ and Myrtaceæ, the latter with 1800 species, while in the First Part one order only (Cruciferæ) exceeds 1000 species, and that only by a very few. The proportion of genera to species is, as a rule, greater in small orders. Thus in Hamamelideæ there are 15 genera, all well marked types, to 30 species. In the present Part 24 genera contain upwards of 100 species. Of these seven contain more than 200 species, but only two of the seven, namely, the genera Acacia and Eugenia, have more than 500.

In a few cases we observe that a familiar name gives place to a less known one, in obedience to the laws of priority. Thus, Jonesia gives place to Saraca, Genetyllis to Darwinia, Adamia to Dichroa. We suppose that these changes are necessary, but we confess that we look on them with regret, from an unwillingness to part with old familiar friends. Happily they are not numerous, and it may be hoped that the present work will, for all future time, be regarded as of sufficient weight to induce botanists to accept it as a standard, and to refuse to adopt any future alterations.

Florists' Flowers.

Before I begin to offer a few remarks on Roses, I must ask leave to express my regret—a world-wide regret—at the death of Dr. Lindley, whose useful and distinguished career was above any panegyric that I can bestow. He paid me the greatest compliment that I ever received, in going to South Kensington to hear my elementary Rose Lecture, destined for young beginners. He said, "I am far from well, and very shaky; I have attended no other lectures, but I was determined to come and hear you!" When I saw the black band of the *Gardeners' Chronicle* I knew that the great Master Spirit of Botanical Science was gone, and was very sorry; I also felt great sympathy for his family.

There is one thing that his removal suggests, and that is, we must all do our best to support his successors, who will find no ordinary difficulty in following in the steps of their most distinguished predecessor.

Let us turn now to Roses. As the time has arrived to purchase Roses, it may be of service to speak of such as I have proven to be worthy of adoption I see no reason to withdraw my previous recommendations.

Roses of 1864.—Madame V. Verdier, Pierre Notting, Lord Macaulay, Baronne Pelletan de Kinkelin, Lord Herbert, George Prince, Eugène Verdier, Leopold Premier, La Duchesse de Morny, and Lord Clyde. These were the subjects of my previous recommendation. I am now inclined to add Madame Devreux Donville. It did not open well in the first series, but it opened well in the second series.

Roses of 1865.—Madame Moreau, Rushton Radclyffe, Duchesse de Caylus, Duc de Wellington, Madlle. Amélie Halphen, General d'Hautpoult, Achille Guillard, crimsons; Elizabeth Vigneron, soft silvery rose; Souvenir de W. Wood, very dark blackish crimson. These appear to be meritorious Roses. The summer has been a trying one. I have made no allowance for these blooms. As regards their growth, I have made a little allowance. Their power of winter-endurance I have not yet tested. As regards their blooms, they have been good in their outline, and in the disposition and substance of their petals, and free openers. I doubt not, that when they are on strong stocks they will give great satisfaction. It requires two winters and two summers to test novelties before we can say confidently that, looking at them at all points, they should stay permanently in the catalogues. Of these plants of 1865 some were scarcely bigger than a crow's quill when they arrived, and as the summer has been torrid, droughty, and fungoid, I am surprised and pleased that they have passed so good a degree. The poor little plants seemed to say with Napoleon at St. Helena, "I don't live, I only exist!" *W. F. Radclyffe, Tarrant Rushton.*

Temple Chrysanthemums.—Every year, in dreary dark November, the London public is permitted to pay a visit to the gardens of the Middle and Inner Temple, in order to see the fine display of Chrysanthemums provided for it there by Mr. Broome and Mr. Dale, a treat of which it freely avails itself. Mr. Broome's best bed, which is about 66 yards in length, protected at the sides with canvas and mats, and glazed at the top, is now in great beauty; indeed better than we have seen it for some years past. Among yellows, Jardin des Plantes still stands in the first rank, and Beverly occupies a similar position among white kinds. Among other coloured sorts, the gems appear to be Nil Desperandum, Jagg, Sparkler, Lady Slade, Aureum multiflorum, White Queen of England, Prince Alfred, Dupont de l'Eure, Sir G. Bowyer, General and Lady Harding, Oliver Cromwell, Vesta, Hercules, Ranunculus, Prince of Wales, King of Denmark, Florence Nightingale, Lady Russell, Lord Palmerston, St. Patrick, Nonpareil, Venus, White Globe, Alfred Salter, Cardinal Wiseman, and Trevenna, the last a highly promising new kind, of which mention is made in another column. These are all at present in great perfection, and reflect much credit on Mr. Broome's management, especially in such a season as that which we have just experienced. Mr. Dale's plants are for the most part wholly uncovered, and although they are loaded with bloom buds, the latter, owing to the coldness, dampness, and dulness of the weather, refuse to open freely. Only a few bright warm days are wanted to render his borders and prettily-arranged beds of Pompons a real blaze of floral beauty, and, for the sake of the labour and attention he has bestowed on them, let us hope that he may not be disappointed. As it is, his collection, like that of Mr. Broome, is well worth inspection.

The Apiary.

At the close of the honey season it is too much the custom among bee-keepers to allow their hives to take their chance. This will not answer if continued prosperity of an apiary is to be expected. A proper system of Winter Management must be carried out, otherwise success the following season will be entirely a matter of accident, and not of good handling. It is by no means unusual to find bee-keepers bewailing the non-prosperity of their apiaries, declaring themselves unable to account for it, as their hives had done so well the previous summer, and had been thought to be necessarily in good condition to stand the winter. This hap-hazard mode of bee-management will not do; no wonder that so many proclaim themselves as belonging to the order of disappointed bee-keepers. In favourable seasons, a good honey harvest may be occasionally obtained by the most careless of them; but when we see men who year after year, maintain their apiaries in the best possible condition for making the most of any kind of season, good, bad, or middling, that may occur, we naturally are led to the conclusion, that proper care and judicious treatment must be exercised at seasons of the year when too frequently hives and their inmates are neglected because, in consequence of their quiescent condition, they do not excite much interest in their welfare.

Much, if not all, of what ought to be attended to, it would have been better to have carried into effect considerably earlier than the present date, but even yet there is a good deal that can still be done to remedy any neglect that an apiary may have been subjected to. The object of this paper is to supply a few hints on the best autumnal and winter management of hives, some of which it may still be not too late to adopt.

At the end of September it will be advisable to institute a thorough examination of all the hives in an apiary. Remove all supers, whether partially filled or not. Carefully preserve and tie up those that are furnished with any combs, as they are of great value the following year. Remove, also, any nadirs that may have been partly furnished with combs. In some cases it may be good management to place empty boxes under stocks,

these boxes must not be provided with any top or cover. This ensures a good circulation of air without causing any draught. They must be removed in March or April following. If this plan is adopted, no top ventilation is at all necessary. The entrance must of course be at the lowest part of the hive, after being thus raised.

At this same period, also, every hive should be carefully weighed, and if the internal contents do not amount to from 15 to 20 lb., food should be supplied with no niggard hand until that weight has been attained. The excitement of feeding should not be kept up longer than can be helped, otherwise a great waste of food will be the result. Let the daily supply be given regularly each evening until enough has been taken down; and this must be ascertained by actually weighing the hive, and not by judging of the quantity of food which may have been consumed.

We very frequently come across persons who possess one or more very populous hives, which are very insufficiently provided with stored food. These owners, believing themselves to be extremely liberal, afford each of such colonies, perhaps a pound or so of boiled sugar syrup, possibly most correctly administered in the duly authorised bottle-feeding style. It is considered that all has been done that need be done, to make them safe for the winter. Great is the astonishment, and great the bewailing of such bee-keepers, when, in the following spring, they discover that these hives have perished during the winter of actual starvation. Instead of a paltry pound of food—probably at least 20 lbs. for each hive would not have been an ounce too much to have made it safe until spring. The question will then be, whether it is worth while to expend so much in the necessary food, or whether it would not be advisable to at once unite the bees to some other stock. It is often profitable to unite the bees of two such impoverished colonies, and liberally supply with food; but the owner must be prepared to meet an expense almost equal to that required in purchasing a swarm. A niggardly supply will be found not merely false economy, but utter waste.

This important matter being accomplished to the satisfaction of the apiarian, he may next visit all his bee stands, cleaning them, and dislodging all spiders and their webs. A vast number of bees are destroyed by spiders during the autumn months. It may be well to repair and paint any cases or stands that may require it, or the rains of winter may penetrate. If a hive becomes drenched in winter, it remains damp for a very long time, and the bees may suffer.

All cloths or similar coverings should be removed from about the hives; they become damp and frosty, and are frequently deleterious to the well-being of the bees. It is a mistake to suppose that such wrappings tend to keep hives warmer and in better health.

We have more to say on the subject of hive protection, and of autumnal and winter management, but must defer doing so until a future Number.

Garden Memoranda.

Leicester Abbey Nursery.—Mr. Warner's nursery enjoys the advantage of being within a pleasant and easy walk of the thriving town of Leicester, and yet sufficiently distant to escape the injurious influences of the smoke from the factories and the town. One portion of the nursery is situated on the site of the ancient Abbey of Leicester, hence called the Abbey Nursery; the massive stone wall, which anciently surrounded and protected the Abbey and its dependencies, still stands and encloses a portion of the present nursery grounds. Mr. Warner's residence is within the walls, and adjoins the ruins of an ancient mansion, probably built of the materials of the dismantled Abbey; this too, in its turn, is fast crumbling to decay.

To the antiquarian and the student of history, this spot will ever be interesting, as witnessing the last scene in the eventful life of the great Cardinal, who for many years ruled an arrogant king and a great country. Wolsey, under the ban of the royal displeasure, sick in mind and body, shorn of his power and riches, made his weary way to Leicester Abbey, celebrated for its princely hospitalities, and, on being announced, was welcomed and received with hearty sympathy by the Abbot and monks. The dying man said, "Father Abbot, I am come to lay my bones among you." Or as Shakespeare puts it:—

> " . . . . . Oh father Abbot,
> An old man broken with the storms of state,
> Is come to lay his weary bones among ye;
> Give him a little earth for charity!"

Nothing remains above ground to indicate the character or extent of the Abbey of Leicester. On the consecrated ground, and perhaps over the very altar stone (?), we find flourishing with unwonted luxuriance fruit trees, shrubs, and flowers; and although we may think it desecration thus to cultivate and to rudely trample on hallowed ground, there is the reassuring thought that fair flowers and sweet fruits are better and more graceful on such ground than Nettles, weeds, ruin, and desolation. The good monks of these old abbeys were the first to bring the art of gardening into repute in England, and we owe to them the early introduction of many of our fruits and flowers; and could they revisit the scene of their former labours in this Abbey garden, they might regard with melancholy satisfaction, flowers, pure and beautiful, springing with perennial verdure from their forgotten graves.

If some of our great nurseries do not equal our gardens in their rich displays of floral beauty, or in the effective disposition of trees and shrubs about the ornamental or pleasure grounds, in horticultural importance, and in the examples offered by nurseries of the successful pursuit of a branch of the art of gardening, they merit at least to be placed on an equality with them. One of the first things we see on entering the Abbey Nursery is an orchard house, the invention of one of our most energetic and enlightened nurserymen (Mr. Rivers). With what delight would the reverend Fathers of this Abbey have received an invention that would have given them the climate and fruits of sunny France and Italy! The orchard house at the Abbey Nursery is 82 feet long, 26 feet wide, and 8 feet high at the sides. Like all such structures it affords a dry and healthy place for recreation and exercise in all weathers, while it protects and preserves from all ungenial influences the trees cultivated within it. Mr. Warner has devoted his orchard house chiefly to Peach trees; about 50 standard trees are therein planted and *not* kept in pots, and are healthy and prolific.

It is not only that these Peach trees are valuable in the production of fruit—they serve two other nursery purposes; having those climatic circumstances secured to them which they enjoy, they grow freely, and afford a supply of healthy buds which are required for the delicate operation technically called budding. As it is of the first importance to a nurseryman to possess and supply all the various kinds of Peaches true to name, the possession of an orchard house filled with fruiting trees, enables the careful cultivator to test the correctness of his named fruits, and to supply the gardening public with the veritable sorts required.

In this essentially practical nursery, we find comparatively few flowers, and no attempt to attract notice by a meretricious display. The proprietor appears to indulge in no hobbies, but gives attention to those things suited to the locality, and demanded by his customers. The only attempt at effective planting we found in two broad borders within an avenue of Irish Yews, on each side of a walk of upwards of 100 yards in length. These borders are planted with specimens of some of the hardy and useful trees, shrubs, and herbaceous plants cultivated in the nursery. By this arrangement visitors have an opportunity of selecting the ornamental shrubs they may require, without the trouble of exploring the more remote portions of these extensive grounds. Conspicuous amongst other examples of hardy and handsome trees we noticed the beautiful Cupressus Lawsoniana, the equally handsome Thujopsis borealis, and thriving young trees of the gigantic Wellingtonia, which amateurs limited in the extent of their garden grounds had better eschew, if they would escape being utterly overshadowed. Associated with the great tree we find the lovely little Thuja aurea, a dwarf compact little tree which the amateur with a yard of ground may venture to cultivate. The old but nevertheless elegant Juniperus sinensis always claims notice, and is one of the tribe of Junipers which should be included in every collection of hardy shrubs and trees. The various kinds of Variegated Hollies are planted out, and brighten the borders with their gold and silver foliage. The beautiful Pampas Grass, with its long spikes terminated with feathery plumes, is planted at intervals along the borders, and contributed a marked feature in the general effect. The curious and striking plant, Tritoma Uvaria, with its great spikes of red and yellow blossoms, was also represented in some vigorous masses of healthy growth.

Leaving the show walk, we enter into one of the many divisions of this large nursery, a space about 2½ acres in extent, and sub-divided into four quarters 20 yards in width, with intervening walks. As Mr. Warner appears to confine his attention to really hardy and useful trees, it may be interesting to those about to plant, to give the names of the more striking and valuable amongst them. The first quarter that claims notice is occupied by some 1200 Cedrus argentea, one of the most interesting and beautiful trees we possess; next occurs Cedrus Deodara, an elegant hardy tree from the Himalayas, and like its congener Libani, gifted with omnivorous appetite, thriving in any soil and position; another division contains about 1500 plants of the best and hardiest of the Arbor vitæs, sibirica; it is one of the few things which withstood the great frost of 1860, a recommendation which many of our choice exotic trees fail to possess. Succeeding these useful trees we have the American Arbor-vitæ, and near it another variety called tartarica, not less handsome than the first mentioned, but less valuable on account of its liability to lose branches and become disfigured. A quarter containing many thousands of Irish Yews next occurs, and near it a large quantity of the hardy and beautiful Juniperus sinensis. A fine Mulberry tree grows in this portion of the nursery, and this season it ripened a large crop of fine fruit. Some handsome specimens of Weeping Beech and Cedrus Libani serve to vary the uniformity which characterises a nursery garden.

A walled-in enclosure north of the house is allotted to cold pits, used for raising hardy trees and shrubs. No less than 22 lines of pits are employed for this purpose. South of the central buildings are four greenhouses, employed in the summer for growing young Vines, and in the winter for housing various kinds of nursery stock. Behind the house is a section of the nursery subdivided by Yew hedges into open spaces eight yards in width, in which are placed the various kinds of Ivy, climbing Roses, etc., spaces covered with the beautifully variegated Periwinkle, Laurustinus, Berberis Darwinii, Deutzia gracilis, Pyrus japonica, Berberis japonica and Fortunei, and many other valuable shrubs and trees.

We next enter a space enclosed by the walls of the Abbey, and probably a portion of the Abbey garden, the first part of which is devoted to dwarf pyramidal Pear trees. The varieties have been selected as being most likely to suit the locality, and two of each kind are planted, to test their recommendation in that respect. This is a practice on the part of a nurseryman we cannot sufficiently commend. A Pear may be excellent in France, or Jersey, or even in the South of England, and yet flavourless and of no value cultivated in the midland or northern divisions of this country. Large standard orchard trees, Pears, Apples, and Plums, are distributed throughout the nursery, adding greatly to its interest, and considerably, we should say, to the profit of the proprietor.

We noticed in this division of the nursery an extensive plantation of stock trees and shrubs, technically called "stools," which are trees cut to the ground, and encouraged to form a profusion of shoots which are used for cuttings, or layers. We also observed that the borders north of the walls are planted with cuttings; no less than 30,000 cuttings of the Manetti Rose for stocks for Roses are thus planted.

Plantations of Arbor-vitæ, Araucaria, Pinus Cembra, Wellingtonia, are arranged over a considerable space of ground in rows 5 feet apart, the intervening spaces being filled with seedling Yews, Hollies, Thuja aurea, and other trees and shrubs.

Entering another division of the Abbey garden, separated from that we have just described by one of the massive stone walls which intersect the place, we again find quarters filled with well-grown shrubs, principally deciduous; besides which we notice extensive plantations of Aucuba, a shrub which seems thoroughly at home in this nursery garden. This shrub, which has been so long and so highly esteemed, will, we venture to say, increase in favour, owing to the recent introduction of the male plant from Japan, by which we shall be able to fertilise the blossom of our old favourite, and add the new feature of bright berries to its other recommendations.

Proceeding southwards, we enter upon a space of ground of about 5 acres in extent, upon a portion of which it is supposed the ancient Abbey stood; we meet here with large quarters of Moor Park Apricot, some 600 or 700, two years old, and trained to stakes. Each tree had from seven to nine shoots, and from 4 to 5 feet in length; the branches and leaves were exceedingly clean, bright, and vigorous—in fact, almost too much so. The circumstances which induce this luxuriance are worth remarking—the soil is naturally a good alluvium, and is largely mixed with the debris of old building, broken stones, lime, and even the bones of the ancient monks may be supposed to form a part of the present mixture; large quarters of trained Peach trees are associated with the Apricots, and are equally remarkable for vigorous growth. This part of the nursery is bounded by the river Soar, and further protected by the old wall of the Abbey, which is built along the banks of the river. This low part of the nursery, while enjoying certain advantages, is affected injuriously by its proximity to the river, and the low land near it, being liable to suffer from the nipping frosts of spring.

Returning towards the house, we pass along the southern division of the nursery, observing extensive plantations of Currants and Gooseberries, fine young healthy bushes fit for removal, and also large numbers of Pinus austriaca, Wellingtonia gigantea, Pinus insignis, Thujopsis borealis, all hardy and useful things. The divisions of the nursery we have thus cursorily glanced at amount altogether to 37 acres, and we have necessarily passed many things without notice; our object has been to describe some of the marked features of this great wholesale emporium for trees and shrubs, and make practical comments on those things of general interest to the horticultural world.

We proceed to visit a portion of the nursery called the Frontfield Nursery; we cross the main road to do so. This nursery is 20 acres in extent, and possesses an excellent soil, a loamy drift derived from the new red sandstone, resting on gravel, and is on more elevated ground than the Abbey Nursery. The health and vigour of the Laurels and other nursery stock attest its suitability for the purpose to which it is devoted. This nursery is parcelled out into lands 20 yards wide, and has two cross main roads. We remarked, in the first place, extensive plantations of Laurel, Yew, Arbor-vitæ, Box, Chestnut, Oak, Larch, Poplar, and lastly Quick, a thing extensively demanded in this agricultural neighbourhood. Apple stocks, apparently raised from Apple and Crab seeds, indiscriminately, occupy a very large space. As we refine on our fruit-tree culture we shall become more particular in the selection of stocks for our fruit trees. The union of stock and scion, like other unions, is not always harmonious; the result to the tree is sometimes premature decay or inferior produce. The indiscriminate raising of seedling Apples from mixed seed is objectionable, and will, we hope, in time be amended. Somewhat more care is taken to suit the taste of the Plum, which is worked partly on a stock called the Brussels, and partly on another variety raised

from German seed. The wild Cherry is used as a stock for the Bigarreau and White-heart Cherries, the Mahaleb for the May Duke and Morello. The Peach is budded on the Mussel and Black Damask. In France the Almond is used as a stock, and purchasers of Peach trees in that country should remember that trees will not live on so tender a stock in this country.

In the various quarters of this part of the nursery are trained Apricots, Peaches, Pears, and Cherries, all exhibiting remarkable vigour and health; we also find numbers of dwarf pyramidal Apple trees or Apple stocks for small gardens, evidencing a growing taste for fruit culture amongst amateurs. Owing to judicious grafting an amateur may now cultivate successfully large numbers of dwarf Pears and Apples in a small space of ground. Crossing the road, which here again divides the nurseries, we enter into a division 8 acres in extent, occupied as a nursery only four years since, and now filled with nursery stock.

Mr. Warner enjoys the singular advantage of working a farm and nursery conjointly. The farm, which is 270 acres in extent, adjoins the nursery, and whenever additional land is wanted for nursery purposes, it can without difficulty be appropriated. This new division is chiefly filled with Roses and fruit trees; of the former there are here above 10,000, and summing up the number of fruit trees found here and in other parts of the nursery, we find that the whole amounts to the extraordinary quantity of 200,000 trees. In proceeding through the different quarters we notice great plantations of standard Apples, and others growing into standards. It will be interesting perhaps to follow the history of an Apple tree while in the nurseryman's hands. Raised from seed, the stock at two years old is fit for budding; after that operation has been performed, the first year a tolerably long shoot is formed, the second the shoot is allowed still further to extend itself, and forms a head; the side branches, left by some to give strength to the tree, are pruned off the following spring, and the tree is then ready for sale. We noticed one quarter of Apple trees pruned as pyramids, four and five years old, offering many temptations to a fruit grower, the trees being full of bearing wood.

The Plum occupies no inconsiderable space in this nursery, we saw about 6000 of one variety alone ready for sale; it is the kind called Denyer's Victoria, and is one of the most prolific we possess. Amongst other nursery stock we remarked a large quantity of budded Elms growing most luxuriantly; all the varieties are worked on the Wych Elm; there are some 20,000 prepared for sale in this way.

North of the Abbey walls is another portion of the nursery about 6 acres in extent, chiefly filled with fruit trees in various stages of growth. Our survey of these extensive and interesting nurseries finished here; the extent of ground occupied by them is 57 acres, and we have seldom seen that extent of ground better or more profitably or more judiciously occupied. The whole nursery reflects great credit on the management of Mr. Warner, who acts under his relative, and brings energy, enthusiasm, and knowledge, to bear on the working out of the many problems in vegetable physiology involved in the cultivation of the diverse trees, shrubs, and plants grown in the Abbey Nursery at Leicester.

Miscellaneous.

Sticklebacks' Nests. — Let me ask the reader to accompany me, in thought, any day in the months of May and June, to a pond or shallow stream. We will take with us a hand-net, and a tin or zinc can, for the capture of specimens, and a separate vessel for the nests and eggs. Let us suppose that we are on the bank of a clear pond; now for a stickleback's nest. I lie flat down upon the Grass, and gently move away with my hand the floating leaves of the pond-weed (Potamogeton natans) and the green Conferva, and look about me. Ah! do you see that little fish with crimson breast, and eyes like emeralds sparkling; see how wide awake he looks; depend upon it he has a nest not far away. And here it is, very plainly to be seen, partly covered with the sand and mud at the bottom of the water. Do you notice these roundish holes in the nest? Just touch it with the end of your walking-stick. Bravo, little stickles! he is at you like a bull-dog. How angry he is; if his power were equal to his will, he would swallow us all up. Now we can easily catch him. So I put my net near his nest, and over the net he swims, and out of the water he comes, and I put him in my collecting tin. Now, let us watch the nest, and see what will happen. Here they come, a hungry group of sticklebacks of all ages, and alas! for the depravity of piscine nature, they are attacking the nest and devouring the precious morsels inside. Let us restore the father fish to his native element and his familiar haunts. Quick, or the work of destruction will be complete. In he goes, and for a moment seems to have lost all recollection of past events. But no! he is "coming to himself," and witnesses that marauding crowd, and now he rushes boldly to the rescue of his house and family, first tilting at one and then at another of the enemy, until, *mirabile dictu*, he has driven every vanquished foe far from the scene of carnage, a very Diomede in the fray—

> "So raged Tydides, boundless in his ire,
> Drove armies back, and made all Troy retire."

But he has other work to do, he must repair the home of his young family so ruthlessly attacked; and now he hastens hither and thither, carrying in his mouth little bits of weed and stick, and dubs them into his nest till the work of repair is completed. *Rev. W. Houghton, in Intellectual Observer.*

The Tobacco Trade at New Orleans.—In 1863-4 the supplies of tobacco here were too trifling to establish a regular market, and there has been but little improvement since. The stock has varied from 594 hogsheads in September 1864, to 1031 in December last, and 873 recently. In comparing the year's business with 1863-4, it appears that the total supply has consisted of 3004 hogsheads, embracing 594 hogsheads on hand at the commencement of the year and 2410 received since, against a supply of 1638 hogsheads last year. The exports have comprised 1831 hogsheads against 797. The reported sales have been confined to 300 hogsheads against 514. Prices have exhibited a wide range. *Journal of the Society of Arts.*

Calendar of Operations.

(*For the ensuing week.*)

PROTECTION from frost will doubtless soon demand attention in every department, and particularly in regard to pits and frames. These usually contain some of the most useful plants for both in-door and out-door decoration, as well as the choicer and more tender kinds of vegetables. In protecting these useful structures effectually and economically, it is of the first importance to keep them, and everything about them, as dry as possible. This points out the superiority of wooden shutters over mats or any other textile manufacture which is not impervious to moisture. Another advantage is in their not lying too close to the glass, as a cavity is thus secured, which, in conjunction with the non-conducting properties of the wood, tends to prevent the escape of heat. To this we may add that they are more easily put on or removed, and prevent the breakage of glass, which is scarcely avoidable in handling frozen mats. They are a little expensive in the first outlay, but their durability, combined with the advantages just enumerated, is sufficient to silence any objection upon that head. Where mats are used, they should be hung or spread in the most convenient place for drying them during the day, as they are by this attention rendered much more serviceable in excluding frost. During very severe weather it is a common practice to place a layer of hay or straw between the mats and the glass.

FLOWER GARDEN AND PLANT HOUSES.

As soon as any of the flowering plants in the conservatory become shabby, they should be removed to make room for Chrysanthemums and others which are coming into flower. In arranging these, let the situation of each be suited as much as possible to the nature of the plant. With regard to temperature, also, some require to be placed in the warmest parts of the conservatory, while others will be satisfied with a simple protection from frost.

ACHIMENES.—A batch of these may now be started in heat for stove and warm conservatory decoration. They may either be grown in pans or pots, according to the taste and requirements of the cultivator.

AURICULAS. — Give these air on all favourable occasions; remove dead leaves, and keep the surface of the soil free from Moss. Water sparingly.

BEDDING PLANTS.—Cover securely at night, especially when frosty, but during favourable weather give air pretty freely during the day.

CALCEOLARIAS.—Herbaceous sorts in pots will now be well established, and will require little attention beyond that of frequently fumigating them to keep down green-fly. Such as are required to bloom a little earlier than the others may soon be shifted. In doing this it is a good practice always to sink the ball a little, in order to admit of a top-dressing of fresh mould being put over the riper parts of the young wood, which thus treated soon emits roots, to the material increase of the strength of the plants. Thorough drainage, too, is a point to which particular attention must be paid if healthy well-bloomed specimens are desired.

CAMELLIAS.—Any now coming into blossom should be liberally supplied with water. Air must also be given whenever the weather is favourable.

CHINESE PRIMULAS.—Forward plants must be well attended to with water, and carefully kept out of the way of cold currents of air. As soon as those now in beauty have faded, replace them with others coming into flower.

PELARGONIUMS. — Plants of these intended for flowering early should be placed as near the glass as possible. Let the night temperature range between 40° and 50°, and see that none of the plants suffer from want of water.

VIOLETS.—These will soon be in flower. Their beauty and fragrance will be increased by letting them have plenty of air whenever the weather is sufficiently mild for that purpose.

FORCING GARDEN.

CUCUMBERS.—Do not push these too much at this dull season; but keep down thrips and red spider in houses heated with hot water by maintaining a moist healthy atmosphere.

PINES.—Plants intended for fruiting during the summer must now have careful attention. Let them have a steady bottom-heat, and a top heat of about 65° at night, allowing the thermometer to rise 10° or 15° higher during the day time.

VINES.—Let any fermenting material upon borders of the early house be examined, to see that it does not get either too hot or too cold; the former will render it necessary to open it out or remove a portion of it; but in the latter case it should be turned over and a fresh portion be mixed up along with it. Avoid a high temperature at night, and admit air freely in fine weather, using the side ventilators only when it is showery.

HARDY FRUIT AND KITCHEN GARDEN.

All kinds of pruning should be pushed forward with as much expedition as possible, while the weather is favourable for that kind of work. Also let trenching of vacant ground be done with all convenient despatch.

CAULIFLOWERS.—These, together with Endive and Lettuces in frames, must be frequently examined, and divested of decaying foliage. A little lime and soot sprinkled upon the ground will also be beneficial in keeping them free from the ravages of slugs.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Nov. 8, 1865, as observed at the Horticultural Garden

Nov.		Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth 1 foot deep.	Temperature of the Earth 2 feet deep	Wind	Rain
Thurs.	2	14	29.980	29.907	53	28	40.5	49	50	S.W.	[illegible]
Friday	3	○	30.066	29.993	53	23	38.0	49	49¼	N.W.	[illegible]
Satur.	4	16	30.135	30.119	51	31	41.0	48	49¼	N.	[illegible]
Sunday	5	17	30.161	30.121	43	34	38.5	48	48¼	N.E.	[illegible]
Mon.	6	18	30.140	30.131	42	35	38.5	47½	48	N.E.	[illegible]
Tues.	7	19	30.108	30.026	42	38	40.0	47½	48	N.E.	[illegible]
Wed.	8	20	29.942	29.911	43	38	40.5	48	48	N.E.	[illegible]
Average			30.076	30.029	46.7	32.4	39.5	48.1	49.5		[illegible]

Nov. 2—Frosty with fog; very fine; slight frost; rain.
— 3—Foggy; exceedingly fine; sharp frost at night.
— 4—Foggy; clear; very fine throughout.
— 5—Foggy; clear; very fine at night.
— 6—Cloudy; fine; cloudy at night.
— 7—Overcast and cold; fine but cold; rain at night.
— 8—Foggy; cloudy; overcast at night.

Mean temperature of the week, 5½ deg. below the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 39 years, for the ensuing Week, ending Nov. 18 1865

Nov.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday..12	50.3	35.7	43.0	16	0.50 in.	4	5	8	3	3	7	[illegible]	[illegible]
Mon. ..13	49.8	33.6	41.7	21	1.16	2	9	4	2	7	6	5	4
Tues. ..14	48.2	34.7	41.5	19	1.24	6	5	4	5	2	7	5	5
Wed. ..15	48.6	32.9	40.2	17	0.34	3	6	5	3	4	10	5	2
Thurs. ..16	48.7	34.4	41.5	13	0.34	6	3	5	3	5	9	6	2
Friday ..17	47.9	33.2	40.1	18	0.38	9	5	3	1	8	8	2	3
Satur. ..18	48.0	34.0	41.0	19	0.56	3	7	3	2	4	12	3	5

The highest temperature during the above period occurred on the 12th, 1841—therm. 63 deg.; and the lowest on the 15th, 1840—therm. 18 deg.

Notices to Correspondents.

BOOKS: *A B.* Books will not supply the place of actual observation. Try Oliver's Lessons in Elementary Botany.

BRASSICA RAPA: *W B H.* The pods are dilated at the upper part into a sort of membranous bag, containing below two stalked flower buds, which originate from the placentæ like ovules. At the upper portion true ovules occur in a rudimentary state; some of them clothed with coarse tuberculated hairs, such as are found on the leaves. *M T M.*

GRAPES: *J E K.* Neither of the sorts you mention are likely to do well permanently in a cold Vinery. We should prefer to plant young Vines of a hardier kind, rather than to graft on the more delicate sorts. The Buckland Sweetwater, a fine Hamburgh-like white Grape, the value of which has now been well proved, might be advantageously introduced; and if you prefer high-flavoured fruit, you might also plant the Chasselas Musqué.

LONDON PLANE: *O P.* It is Platanus acerifolia, common in every nursery, but frequently confounded with Platanus occidentalis. It will thrive in almost any kind of soil, but prefers that which is moderately moist.

MAGNOLIA: *Mary.* M. macrophylla rarely produces seeds in this country. Yours seem likely to grow. Sow them at once in shallow pans, with light soil, and raise them in a nearly spent hotbed.

MUSCATS: *Ireland.* Your Muscats are very slightly rusted, so slightly that it may have escaped your notice when they were young. The single affected Vine is probably subject to occasional cold draughts. One or two of the berries are slightly spotted, but only to such a degree as may be expected at this season. *M J B.*

NAMES OF FRUITS: *B W.* 1, not known; 2, Beurré d'Arenberg; 70, imperfect specimen; 83, Eyewood; 45, Brown Girl; 41, Thompson's.—*Mrs G Hankey.* 72, Duchesse d'Angoulême; 84, Comte de Lamy.—*J G.* 1, Stunner Pippin; 2, not known; 3, Silver or Pine apple Russet; 5, Greave's Pippin; 6, not known; 4, Margil.—*B F.* 1, Beurré Rose; 2, not known; 5, not known; 3, Napoleon; 6, not known; Pear without number, Vicar of Winkfield.—*J Barnett.* 1, Grey Doyenné; 2, Red Doyenné; 3, not known; 6, Round Winter Nonsuch; 4, Winter Ribston; 5, Springrove Codlin.—*G W G.* 1, Flanders Pippin; 2, not known; *Peggy Smut.* Not known.—*D.* 1, Napoleon; 2, not known; 3, Fondante d'Automne. —— 1, not known; 2, Beurré Langeliers; 6, Louise Bonne of Jersey; 5, Beurré de Capaumont; 4, not known.

NAMES OF PLANTS: *Harden.* Our rule is to name only four plants at one time. 1, Nephrolepis exaltata; 2, Adiantum setulosum; 3, Pilea serpyllifolia; 4, Polystichum angulare multifidum. The plant in flower is Siphocampylus bicolor.—*W S.* A very curious variety of Polystichum Lonchitis, which we shall notice further at an early opportunity.—*Rustic.* We cannot undertake to name plants from leaves alone.—*P D M.* Acer platanoides.—*Chester.* Yes, it is Pinus palustris.

PHYSIANTHUS: *D U.* Received with thanks. Its proper name is Aranja albens. It is the same plant as that to which you allude. Your note shall be published shortly.

RESTIO: *H L.* We only know of one now in the country, R. subverticillatus. Some are fine things, attaining a height of 14 feet.

SEEDLING GRAPE: *M B.* Your seedling white Grape has nothing in its nature to make it desirable. If it ripened a month before the Black Hamburgh it might be worthy of culture.

COMMUNICATIONS RECEIVED. J. R. J., Kew.—A. Verschaffelt, Ghent.—W. Summerby.—Senilis.—A. B.—M. Carriere.—B. W.—C D.—J. F.

LAWES' WHEAT MANURE for AUTUMN SOWING.
A supply of the above Manure is now ready for delivery, at J. B. Lawes' Factories, Deptford, and Barking Creeks. Price £8 per ton. Two to three cwt. per acre to be harrowed into the land before the seed is sown. It can be obtained of Mr. Lawes, or through any of his appointed Agents; also

SUPERPHOSPHATE of LIME .. .. £6 6 per ton.
MINERAL SUPERPHOSPHATE .. 5 5 „ „

Genuine PERUVIAN GUANO direct from the Importers, and all Chemical Manures of value.
AMERICAN and other CAKES at market prices.

Address John Bennet Lawes, Offices, 1, Adelaide Place, London Bridge, E.C.; and 22, Eden Quay, Dublin.

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(Established 1840).
Have now ready for delivery
WHEAT MANURE, for Autumn Sowing.
DISSOLVED BONES, for Dressing Pasture Lands.
SUPERPHOSPHATES of LIME, &c.

Genuine PERUVIAN GUANO and NITRATE of SODA, ex Dock Warehouse, SULPHATE of AMMONIA, FISHERY SALT, &c.
Offices, 116, Fenchurch Street, E.C. Edward Purser, Secretary.

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PALM-NUT MEAL, Manufactured by Alexander M. Smith & Co., Kent Street Mills, Liverpool.
£6 a Ton free to Rail or Boat in Liverpool.
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In Bags containing 2 cwt. each, branded A.M.S. L.
"This valuable Meal, containing above 20 per cent. of fatty matter, is recommended as an economical food to mix with home-grown produce." (See Dr. Voelcker, R. A. S. E. Journal, Vol. I., 2d Series, page 176).
For further particulars and Analysis apply to Messrs. Smith, or their Agents, Messrs. Humphries & Co., Bristol.
John Coleman, 150, Leadenhall Street, E.C., London Agent.

THE LANDS IMPROVEMENT COMPANY.—Notice is hereby Given, that on and after the 13th instant, the OFFICES of the Company will be at No. 3, PARLIAMENT STREET.
William Napier, Managing Director.
2, Old Palace Yard, Westminster, Nov. 11.

THE GENERAL LAND DRAINAGE and IMPROVEMENT COMPANY. Offices, 22, Whitehall Place.
The Right Hon. Lord Rivers, Chairman.
J. Bailey Denton, Principal Engineer.

Under this Company's Act Tenants for Life, Trustees, Mortgagees, Guardians, Committees of Incompetent Persons, Beneficial Lessees, Corporations (Ecclesiastical or Municipal), Incumbents, Charitable Trustees, &c., may effect the following Land Improvements, and charge the outlay and expenses on the estate improved, by way of rentcharge, to be paid by half-yearly instalments, viz.:—

1. All works of Drainage, Irrigation, Warping, and Embankment.
2. The Erection of Farmhouses, Cottages for Agricultural Labourers, and all kinds of Farm Buildings.
3. The Construction of Roads.
4. The Grubbing and Clearing of old Woodlands, Enclosing, Fencing, and Reclaiming Land.

The owners of Estates, not entailed, who may be desirous to avoid the expense or inconvenience of a Legal Mortgage, may also charge their Estates with an Outlay in Improvements under the simple and inexpensive process of the Company's Act.

The Term of Years for the Rentcharge is fixed by the Landowner, so as to adapt the amount of Annual Payment to the circumstances of the Tenants.

No Investigation of Title being required, and the Charge not being affected by Encumbrances, no Legal Expenses are incurred.

The Arrangements for Effecting Improvements are threefold:—

No. 1. The Works may be Designed and Executed entirely by the Landowner's Agent, and the Company employed only to supply the Loan and conduct the matter through all the official Forms for Charging the Outlay on the Estate.

No. 2. The Company will supply Plans, Specifications, and Estimates for any Improvements to be executed by the Landowner's Agent as under No. 1. In each of these cases the Landowner will be solely under the control of the Enclosure Commissioners.

No. 3. The Company will undertake the entire responsibility of the Improvements, prepare the Plans, execute the Works, and finally charge on the Estate the actual amount expended, with their Commission thereon, approved by the Enclosure Commissioners.

Landowners may thus obtain what assistance they require from the Company, and no more, in effecting the objects in view.

Works of Drainage and other Improvements are also executed on Commission for Landowners, who merely require the skill and experience of the Company's Officers and a Staff in constant practice.

Applications to be addressed to William Clifford, the Secretary, at the Office of the Company, 22, Whitehall Place, London, S.W.

THE LANDS IMPROVEMENT COMPANY.
Incorporated by Special Act of Parliament in 1853.
2, Old Palace Yard, Westminster, S.W.
Directors.
The Right Hon. the Lord Naas, M.P., *Chairman.*

F. L. Dashwood, Esq.	Sir C. H. J. Rich, Bart.
William Hope, Esq., V.C.	Sir Wm. Russell, Bart., M.P.
John Horatio Lloyd, Esq.	G. R. H. Somerset, Esq.
The Hon. Wm. Napier	Philip Twells, Esq.
J. Follett Powell, Esq.	

To Landowners, the Clergy, Estate Agents, Surveyors, &c., in England and Wales, and in Scotland.

The Company advances money, unlimited in amount, for the following works of Agricultural Improvement, the whole outlay and expenses in all cases being liquidated by a rent charge for 25 years.

1. Drainage, Irrigation and Warping, Embanking, Inclosing, Clearing, Reclamation, Planting, for any beneficial purpose, Engines or Machinery for Drainage or Irrigation.
2. Farm Roads, Tramways and Railroads for agricultural or farming purposes.
3. Jetties or Landing places on the sea coast or on the banks of navigable rivers or lakes.
4. The Erection of Farm Houses, Labourers' Cottages, and other Buildings required for Farm purposes, and the improvement of and additions to Farm Houses and other buildings for Farm purposes.

Landowners assessed under the provisions of any Act of Parliament, Royal Charter, or Commission in respect of any public or general works of Drainage or other improvements, may borrow their proportionate share of the cost, and charge the same with the expenses on the lands improved.

No investigation of title is required, and the Company being of a strictly financial character do not interfere with the plans and execution of the Works, which are controlled only byt he Government Enclosure Commissioners.

For further information, and for forms of application, apply to the Honourable William Napier, Managing Director, 2, Old Palace Yard, Westminster, S.W.

THE NATIONAL POULTRY COMPANY
(Limited).
Capital, £25,000, in 2500 Shares of £10 each. Deposit £1 per Share on application, and £1 on Allotment. Calls not to exceed £2 per Share, and at intervals of not less than Three Months.
Bankers.—The London and County Bank and its Branches.
Superintending Manager.
G. Kennedy Geyelin, C.E., Author of "Poultry Keeping in a Commercial Point of View."
Temporary Offices.—6, Martin's Lane, Cannon Street, E.C.
Poultry Farm, Bromley, Kent, S.E.
ABRIDGED PROSPECTUS.

The object of this Company is to undertake the Rearing of Poultry on a sufficiently large scale to render it at once an important and lucrative commercial enterprise.

The calculations which have been made and carefully tested leave no doubt that a very large return will be made to the Proprietors on the capital invested.

Some of the best breeds of French and English Poultry have been obtained, and the operations of the Company have already commenced on a site adjoining the Railway at Bromley, in Kent.

Full Prospectus, with Forms of Application for Shares, may be obtained at the Bankers, and at the Offices and the Works of the Company.

Postponement of the Exhibition for One Week.

THE BIRMINGHAM CATTLE and POULTRY SHOW.—The SEVENTEENTH GREAT ANNUAL EXHIBITION of FAT CATTLE, SHEEP, PIGS, DOMESTIC POULTRY, CORN, ROOTS, and IMPLEMENTS, will be held in BINGLEY HALL, on SATURDAY, MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, December 2, 4, 5, 6, and 7.

The Exhibitors and the Public will be admitted to Bingley Hall to witness the Judging of the Cattle, Sheep, Pigs, Roots, and Corn, on SATURDAY, December 2, at 9 o'Clock A.M., upon payment of 10s each. There will be no admission to the Poultry department until after the judging is completed.

The PRIVATE VIEW will take place on MONDAY, December 4; Admission to Non-Subscribers until 5 o'Clock, 5s.; after that hour, 1s.

The Exhibition will also be open on TUESDAY, WEDNESDAY, and THURSDAY; Admission, 1s

For SPECIAL RAILWAY ARRANGEMENTS see the advertisements and bills of the several companies.

John B. Lythall, Secretary.

Offices, Temple Street, Birmingham.

The Agricultural Gazette.

SATURDAY, NOVEMBER 11, 1865.

—— Our readers will find in another page a full report of Mr. Howard's excellent and elaborate paper on the Cattle Plague, read on Monday last before the London Farmers' Club. In the course of the discussion which ensued, we had the history of the visitation again described by Professor Simonds, who vindicated the conduct of the Privy Council in connection with the subject. Sir G. Jenkinson, of Gloucestershire, on the other hand, condemned the Orders in Council which had been issued. Other speakers detailed the circumstances under which particular farms and districts had suffered. But upon the whole the discussion, though unusually prolonged, added little to the well-digested statement of the whole case in Mr. Howard's lecture.

—— We are requested to announce that an International Show of Cheese will take place at Paris on the 20th and 21st December, when gold, silver, and bronze medals will be awarded to exhibitors of the finest cheeses. The entries close on the 1st December, and forms of entry, with all information, will be supplied on application to his Excellency the Minister of Agriculture, Paris.

—— A Special Meeting of the Council of the Birmingham Cattle and Poultry Show was held on Thursday at the Queen's Hotel in that town, Mr. R. C. Chawner in the chair, when the following resolution, of which notice had been given, was proposed by Mr. T. B. Wright, and seconded by Mr. T. Horley, jun.:—

"The attention of this meeting having been called to the Order in Council, dated the 31st ult., and to the existence of the cattle plague in many parts of the country—Resolved,—That it would be injudicious and improper to hold a show of cattle this year in Bingley Hall, as previously contemplated, and that an intimation to the effect that no cattle will be admitted be forwarded immediately to those persons who have filled up cattle certificates of entry; but that the arrangements for the other divisions of the Show be carried forward, and the rates of charge for exhibiting agricultural and horticultural implements, &c., reduced, in order that the whole building may be occupied."

The resolution was opposed by Mr. Wm. Woodward, Mr. Henry Osborn, Mr. John Lowe, Mr. Wm. Fowler, jun., the Chairman, and other gentlemen, and ultimately negatived. Mr. Councillor Lowe afterwards proposed a motion, of which he had given notice, for the postponement of the Show for one week, from the 25th November to the 2d December, which was adopted.

Imagine a long and narrow building, mainly of wood, whose side elevation presents to you two tiers of flooring open through wirework grating to the air; with, above these, a felt roofing, and beyond them a further elevation containing louvre boards for ventilation, surmounted by glass roofing for light. Its section is about 8 yards wide and 4 yards high, including a central passage of 5 feet width under the glass roof; and apartments in two tiers on either side, both of which present a perfectly sheltered room to the inner passage, as well as the open divisions (seen outside) to the air. You enter at one end and look down a long avenue, well lighted and well ventilated; and (by means of an air culvert underneath it), if necessary, well warmed.

This is Mr. Geyelin's idea of a poultry house, as described in his exhaustive treatise on poultry breeding,* lately published. And it is no longer now a mere idea. We have lately visited the Home for Poultry, near Bromley, in Kent, where the idea has been carried out by the National Poultry Company with every prospect of a successful issue. Only one of a series of six such breeding houses which are proposed has been as yet erected. The whole, however, when completed, with accompanying yards for the rougher and more wholesale management of common birds for food, and an establishment both for setting and for fattening fowl, will ultimately, it is believed, turn out many thousand head of fattened poultry annually, and many thousands, too, of the purest blood for breeding purposes in the year. You enter the building at one end, and look down a clean bright avenue, 350 feet in length. As you traverse this passage you see through the double-floored and open grating on either side families of the best French breeds—Crêvecœur, La Flèche, and Houdan (each containing six hens and a cock)—also of Dorkings, Cochin Chinas, Hamburghs, Brahma Poutras, Spanish, &c., the best breeds known in England. Each family has a space of 4 yards in length, with a corresponding length without, in the one case open to the inner passage, in the other open to the air; in the former a deep sandy floor, in the latter a bit of farm yard as it were, well bedded with straw. In the former are their roosts and their feeding boxes and drinking troughs, and from it, encroaching on to the central passage, they enter the laying nests—basins filled with earth or hay—snugly secluded from the observation of the others. All this is on the ground floor; above them, about 7 feet from the ground, is another floor, on which chickens, also provided, as we have said, with an inner and an outer chamber, are reared. They have the care and comfort of an artificial mother!—a low cupboard, as it were, with its ceiling thickly fringed with hanging wool, under which they run for warmth and shelter—and they looked healthy, prosperous and well.

Many of the families and broods here, looking in condition fit for the Bingley Hall exhibition, where some of them no doubt will show themselves, have been already for six months in this confinement, and there seems no reason to doubt the assertion that good and healthy breeding condition can be maintained under such circumstances without that prolonged and extensive daily run which country birds generally receive. Of course great care is taken to provide them with proper food. It is one part of the scheme that these long buildings are to be separated by land for market gardening, by which the manure from them may be utilised, and on which also green food may be grown for the maintenance of the birds. The daily food for the breeding fowl is mixed bran and Barley, with Cabbage and other green stuff chopped up, Animal matter, too, is added in small quantity. The contrivances used as feeding-boxes and drinking fountains are exceedingly ingenious.

There are altogether 100 of these separate and double-floored establishments, each 4 yards long, placed end-to-end on both sides of the central avenue in the one long series which alone has been as yet erected; and between them, on both sides, young Vines are creeping upwards, which next year will help to beautify the interior, and perhaps provide a canopy of fruit as well as leaf. At the end is the accommodation for sitting hens and fatting fowl. Small coops, very closely packed in darkness, are provided for both purposes, both the processes being best carried out in perfect quiet, broken only by the visit of the feeder or the crammer twice or thrice a day during the period of three weeks which both the hatching and the fattening seem to need. Here, too, is a room where artificial incubators are soon to be at work; and as the artificial mothers, where care is taken to provide well broken food and sufficient shelter, seem to be successful, we shall no doubt soon have well-grown birds produced in quantity—almost manufactured by machinery.

Here, too, is an establishment—also rather closely packed, as it seemed to us—for breeding, rearing, and feeding rabbits of special sorts for which there is a demand. Beyond, again, in detached wooden buildings, provided with extensive yards, large quantities of more common sorts of fowls are being fed. Turkeys also are being crammed in quantity; and provision is made for

* Poultry Breeding in a Commercial Point of View, &c. By G. K. Geyelin, C.E. Simpkin & Marshall.

the breeding and rearing of ducks. It is impossible to doubt that good organisation, wholesale production, division of labour, and careful superintendence, will be followed by the same economical and profitable results in poultry management as in other "manufactures." And it is very proper that the immense field which our imports show is open in this country for the growth of poultry and of eggs should be made the subject of a partnership enterprise of the kind on which the National Poultry Company have entered. The Company are still only gathering their stock. Some hundreds of first-class birds, for the supply of what may still be called the demand for fancy breeds, have been procured from France and from the best breeders here. And only a few hundreds of common birds are feeding. But when once the place is fully stocked, and the large contracts which our great hotels and clubs would gladly make are in full operation, the Company will no doubt have real power and place among the great commissariat agencies of the metropolis.

We shall hereafter call the particular attention of our readers to the plans of Mr. Geyelin, as described in his very instructive treatise.

CHEMICAL NOTES.

By Professor A. H. Church, M.A., F.C.S.

Spent Galls as a Manure.—Vast quantities of nutgalls are imported into this country for the sake of the tannic acid which they contain. This acid (with several other substances allied to it or derived from it) is largely employed in tanning, dyeing, photography, the manufacture of ink, and in medicine. Having heard that the spent galls are eagerly sought after as a manure for market garden crops, and that the favourable effects of their application to the soil are very marked, I thought that an analysis of them might prove of interest. The sample of spent galls analysed was placed at my disposal by Messrs. Hopkin & Williams, manufacturing chemists, of London and Wandsworth. The nut galls retain something of their original form; they are morever hard and tough though porous. The subjoined analytical details seem to show that much of their stimulative action on vegetable growth should be assigned to the mechanical improvement of the soil which they effect, and to the carbonic acid which they engender during their decay. Of the chief manurial elements they do, however, contain a distinct though small proportion. The calculated money value of the spent galls would indeed not exceed 28*s.* per ton, if we assume the highest usual data, but at present it is premature to say whether they are worth purchasing at all, and if so, under what agricultural conditions their use is likely to prove advantageous.

Analysis of Spent Galls.

Water	10.91
* Organic matter	85.64
Potash	.90
Phosphoric acid	.17
Silica, alumina, oxides of iron and copper	2.38
	100.00

Use of Carbolic Acid as a Precaution against the Cattle Plague.—Chloride of lime and permanganate of potash, though excellent disinfectants, have their disadvantages. Chloride of lime produces irritating vapours, and from its powerful chemical action does other work besides destroying the virus of infection. Permanganate of potash can act only when in solution, the ozone which it yields does not seem to make its escape from the liquid, and thus it can scarcely be considered as an effective purifier of the air. A third disinfectant—carbolic acid—is, however, a volatile substance, the vapour of which readily diffuses itself. The offensive smell of sulphuretted hydrogen or of an untrapped drain is destroyed in a few minutes by the introduction of a piece of cloth moistened with carbolic acid; and there is good reason to believe that the offensive odour is not merely masked but really destroyed. This is not the place to dilate generally upon the uses of carbolic acid, but we may state that the value of this agent in medicine, surgery, and dentistry, is becoming day by day better known. I wish now to point out a good way of using carbolic acid as a precautionary measure against contagion or infection.

To keep the air of a building used for cattle clean and pure, a piece of flannel may be loosely fixed to a board, and then soaked with some rough carbolic acid (costing 1*s.* per pound—one pound will last for months). The board is then hung up within the building.

With horned cattle another mode may be adopted. A piece of thick flannel, an inch or two broad, is made into a ring, and passed a short distance on to the horns of the animal; this flannel ring is then painted over with carbolic acid.

The object of both these plans is to diffuse the purifying vapour of carbolic acid in the air surrounding the animals. The experiments have been tried in several localities, and the general health of the animals is reported as particularly excellent. So far no case of the cattle plague has occurred in any animal so treated, though some of the trials are being carried on in the midst of an infected district. I offer no opinion as to the efficacy of my precautionary measure, but I consider that there are fair grounds for anticipating its success. A writer in the *Times* lately recommended "dead oil" as a disinfectant; carbolic acid has the concentrated virtues of dead oil. *A. H. C., Royal Agricultural College.*

* Containing nitrogen, 1.15; equal to ammonia, 1.32.

STEAM CULTIVATION.

Fowler *v.* Smith.

Mr. Joseph Nicholls, of Queen-Camel, Somerset, has kindly come forward to assist us upon the subject of steam cultivation. I shall pass over that part of his letter where he "admires my pluck," and go at once to business. He tells us that he is "not an implement maker or an agent for the sale of any implements whatever, and that he has no personal interest in the dispute as to which is the 'best application.'" Upon the first point I can balance off with him, for I am "not an implement maker or agent for the sale of any implements whatever," but I am personally interested in the dispute as to which "is the best application," not because I have ever received any pecuniary advantage from the sale of the "Little Implement," for I have spent every farthing that I have earned by such sale (yes, more farthings than I have ever earned by such sale) in the promotion of steam cultivation generally, and I never expect to net a farthing by such sale. My two principal patents date March, 1855, and January, 1856; therefore the 14 years' monopoly granted to me by them will soon be over, and as the Royal Agricultural Society of England has done its best to choke the spread of steam cultivation, it has pretty well choked the sale of the "Little Implement" (without being able to shove the big one ahead, and we will see presently what Mr. Nicholls' help to them is worth), for I have only sold four of them this year. Now, if such a sale goes on for the next four years, there is no chance whatever of my ever netting a farthing by such sale; therefore upon that point I am talking as disinterestedly as Mr. Nicholls, for he tells us that he is "about the largest proprietor of steam-cultivating tackle in England—that he has for the last two years and a half let out two sets of Fowler's large double engine tackle in his county." Then how can he be disinterested when he has got over 2000*l.* at stake upon it? I am willing to hear a man who has had practice upon the subject, and I will pay due respect to what Mr. Nicholls is telling us now, but he must not imply that he is less interested in a pecuniary point of view in the matter than I am myself.

The battle has been and is now between the Royal Agricultural Society of England and William Smith, of Woolston. The Royal Society would have its old plough, and then it would have its locomotive engine. William Smith started with the cultivator and common portable engine, and stands by them now. The Royals have been obliged to succumb to the cultivator, and the great battle now going on is as to which is the engine, the common portable or the locomotive. Mr. Hutchinson's comparative statement is strong evidence on the side of the common portable. I have remarked upon it, and I beg that you will allow me to remark upon Mr. Nicholls' letter.

Where did Mr. Nicholls, two years and a half ago, get "two sets of Fowler's large double engine tackle" from? Two years and a quarter ago at Worcester, Fowler brought out his *first* set of double engine tackle. That set was broken in my own sight in the trial field, and since that period I have never heard much about tackle made upon that principle. A year and a quarter ago at Newcastle Mr. Fowler brought out another double engine set, the set upon which we are now talking. Large double engine sets upon that principle have been sent out since that period. How Mr. Nicholls could have got a large double engine set by Fowler two and a half years ago I cannot for the life of me understand. Is it true that he did get it then? and is it true that he has had that length of practice with it? Let him explain.

Mr. Nicholls tells us that the comparative statement of Mr. Hutchinson is "a very one-sided affair." To support that he tells us that "nothing whatever is said about depth and quality of the work done." Let me refer him to the letter that you kindly published for me in your Paper of October 28 last; he will there find that the work to be done was of the roughest and heaviest character, and that the work when done was of good quality to a depth of 10 inches, and that it ended in a good result. By it he may also see that the tackle was three years old when it went to Dunton Lodge. I can tell him that it did upwards of 2000 acres on Mr. Pike's farm at Stevington, before it went to Dunton Lodge.

We are then told that the contest is unequal by "two widely different articles; the one a large powerful set, suitable for hiring out, and that has to work in heavy country and move from place to place (sometimes probably 10 or 15 miles), and that is called to go into the worst farms and the worst fields on those farms, and expected to tear up the ground 10 or 15 inches deep; and the other is a small set, kept at home on one farm, probably set out to suit them, and only moving from field to field, and perhaps many of the same fields three or four times over, and only working about 6 inches deep."

Now there is no evidence here, it is a mere matter of opinion. Yet it is true that they are two very different articles, but how the comparison of cost can be a "one sided affair" I cannot understand, for as I read and understand the statement, the time taken to [illegible] the tackle from farm to farm is not charged in the 125 days, and we have nothing whatever to show that the work done in Shropshire was done deeper, or a number of times over, than that at Dunton Lodge. It would be quite impossible to do it to a better result.

I must have a word at "probably set out to suit them." The farm at Dunton Lodge was not "set out" to suit the Woolston tackle, for the Woolston tackle does not need farms "set out" to suit it at all, for it can do any farm, be its fields what shape or form they may, no matter how irregular in shape or form. It is the Fowler tackle that needs farms "set out" to suit it. If they are not, the quantity of work left to be done with horses is very considerable. Mr. Moscrop, in his prize essay published in the Royal Agricultural Society's Journal, No. LI., Part 2, p. 331, writes thus upon that point:—"The field was in a trapezoidal form, with a road running along one side of it, on which the engine travelled while engaged in the cultivation. The eastern boundary fence lay in a line nearly perpendicular to the road, and formed a good starting point for the steam cultivator. When the spot indicated by the dotted line was reached, we had the alternative of either wasting time by working the steam plough in short and decreasing lengths, or, as was done, leaving the remainder to be ploughed with horses. The corner, about two acres, was cultivated entirely with horses." Here, then, is positive evidence that Fowler's tackle needs fields set out to suit it, for the following will show that it was Fowler's tackle that Mr. Moscrop was writing about, for he writes in the essay above referred to, at p. 322—"Our experience has been confined to cultivation with a Fowler's 12 horse-power engine;" yet, strange to say, that although they left these large corners, they, during the first year of their working (1860), did not average three acres per day in doing 309 acres. On the same farm the second season they did a little over four acres per day on an average over 631 acres; and the third year they did a little over four acres per day. The depth the last year was, on 400 acres, 9 inches; and on 102 acres, 7 inches. This to some extent supports the quantity of work per day done in Shropshire, but more about depth presently. It is now quite clear that it is Fowler's tackle that needs fields made to suit it.

Now let us have a word at the "large powerful set of tackle suitable for hiring out." Is it so? Let me refer him to a report in the *North British Agriculturist* of Oct. 25, 1865, on Mr. Wright's farm at Beal, worked by a Fowler's 14-horse engine set bought at Newcastle in 1864. There he may read thus:—"Mr. Wright considers the obstacles to steam ploughs are—the great outlay of capital in purchasing one, with the necessary implements and tackle; the expense of repairs; the damage done to stiff headlands during wet weather by the engine and water cart; and the impossibility on a clay farm of moving the engine along the headlands when a sudden fall of rain occurs—or even a heavy shower may render it necessary to stop operations, and thus a loss of time of the persons engaged in working the engine and tackle." There is another bit of evidence in the same paper of November 1, 1865, in a report on the farm of Mr. Fawcus, of Elford, Bamborough. It runs thus—"One of Fowler's 14-horse engines, with tackle, including plough and cultivator, was got shortly after the harvest of 1864. Since that time 300 acres have been ploughed, a portion twice and a portion three or four times. Difficulties had to be contended with, partly on account of the land being naturally retentive of moisture, imperfect drainage aggravating the evil. The steam tackle not being received early in the autumn, before the wet weather set in, which continued the whole winter, the engine was bogged several times, and some breakages took place. There a good deal of time was lost, particularly in the spring, when it was of great consequence to get on with the work." Mr. Nicholls supports all this himself, for he says that "they have never lost a day's work from bad weather or breakages." Then, I say again, is such a set of tackle "suitable for hiring out?" There is positive evidence that it cannot move in wet weather. It would not hurt if rain only stopped it while it was falling, for men do not like working in the wet; but this tackle will not move after it has done raining until the land becomes dry again. This, as Mr. Wright says, must cause "a loss of time of the persons engaged in working the engine and tackle," and therefore the cost per acre must necessarily be increased. This may to some extent account for the Shropshire people not having done more at a less cost. We must not expect such winters and springs than the last has been, yet Mr. Fawcus's is a sad account of the stoppages caused by wet weather (in a dry year), particularly in this spring. The breakages from all quarters are shown to be heavy. Then I cannot see that these are recommendations for tackle to go out by hire. Can men send out such tackle that is subject to such a loss of time in wet weather, both to itself and men, as well as heavy breakage, without charging an extra price per acre? Certainly not. We may leave the damage to headlands

... to speak for itself. But as a recommenda-... Mr. Nicholls tells us "that there are also in his ...hbourhood six or seven sets of Mr. Smith's own ... tackle, nearly all of which are to be let out, but ... scarcely ever employed, except when mine can't ... though they charge only 6s. per acre and I charge ... This may be true; I know nothing about it, ...ept that I have in that quarter of this little isle a ...ery considerable number of sets. They have gone ..., but I know not as to whether they are used ...vately or for hire. I never inquire about them, for ... know from my own practice that they can do good work if they are properly managed. Let Mr. Nicholls give the names and addresses of the gentlemen to whom he refers; we may then be able to get evidence upon the question.

Mr. Nicholls says: "the value and quality of the work done in most of the public and private trials that I have witnessed as between Smith and Fowler, is as a garden rake to a spade." Where he has witnessed these public and private trials I cannot say. At Chelmsford, in 1856, my little implement made some very good work on the heavy land that Fowler's plough could not be made to enter. Fowler had not a cultivator there. At Chester, the next place where we met, and where Fowler received the great 500*l.* upon trials worked out upon a false entry, and where also the Society awarded to a mere agent of mine a large gold medal of honour for the practical work done by my implements, Mr. Fowler had not a cultivator at that meeting. The next time we met was at Teddesley, where Mr. Fowler made but a very poor cut with the first introduction of a cultivator. The next meet was at Warwick, where Fowler entered one horse and ran another; a 12-horse engine of Smith's of course being changed secretly for the 10-horse engine he entered. The cultivating work done there by Fowler's was vastly inferior to that done by my implements. The next and last time where we met was at Worcester. Here is what the judges said about my tackle when contending for the prize for which it was entered:—"Mr. Smith with his 10 horse double cylinder engine, driving his windlass and 3-tined grubber with 4-inch spud points in the usual way. Throughout the whole of this trial he preserved a uniform and steady pace, making by far the best work over ridge and furrow, and stirring the soil most effectually." Then, with such evidence as this before me, I ask Mr. Nicholls to tell us where these public and private trials have been witnessed by him, for it is evident that it was none of those noticed above. Let us have no hole in the corner work. Let him out with it. Mr. Nicholls, before finishing his letter, gives a little about "quantity of work done," and says that although I may do on an average, in September, on my own farm, nearly 8 acres a day, yet "not very deep now," he has done in the 25 working days of "last September 9 acres a day on seven different farms, from 12 to 18 inches deep." What would his average be when wet weather is included, and what is the value of work done from 12 to 18 inches deep! It is quite evident that wet weather would and does interfere with him, and it is quite clear to me that he is making a plaything with his tackle by going from 12 to 18 inches deep the first time over. I have gone as much as 24 inches deep at once by way of experiment; but I know from practice, that on my heavy clay land, that had not under horse culture been worked more than 5 inches deep, 10 inches will be enough for many years to come. The hard, horse-trodden under-crust is thoroughly broken through, the air and water passes freely through the under soil, and the extra 5 inches in depth brings quite new clay enough for the present; and if I were to do more than that, I should bring up more clay at once than is needed, and fool my tackle about to a worthless purpose.

Mr. Nicholls has brought but little evidence to prove that his large powerful tackle is suited for him, or that it is accepted as such, for he himself proves that he is obliged to go to seven farms to find 225 acres of work—an average of 34 acres on each farm. In June last Mr. J. A. Clarke, of Long Sutton, showed forth in the *Times* that the contract system was the only means of introducing steam tillage upon small and medium-sized holdings.

In 1860 I addressed a letter to the farmers of England. It was published in your Paper as well as circulated in various other ways: from it I quote thus:

"Before showing the best practical application, I may state that 5 acres on heavy and 7 on light land have been found to be an average day's work; that September, October, and March, are the best months for applying steam-power to the cultivation of the soil; that after deducting Sundays, and a few days for threshing and stoppage by rain, the working days for September and October may be put down at 45. This, multiplied by 5 for heavy and 7 for light land, gives 225 acres and 315 as the quantity of land that can be cultivated once over with a set of tackle within those months. By this it is clearly seen that if steam power is to be generally applied to the cultivation of the soil, every large farmer must possess a set of tackle of his own. Two or three small farmers may have a set between them or hire one of another, according to arrangement, for September and October will not wait, and if the work is to be done well it must be done in those months."

Now, from the practice I have had since that period, I am fully convinced that not only the large farmers must possess tackle of their own, but so must the smaller ones. Two whose farms join may join in the possession of a set, or hire one of the other, according to arrangement. To that extent the contract system may do, but no further, for the months of September and October will not wait, and I am the more fully convinced that if the work is to be done well it must be done in those months; for the days of November, December, January, and February are so short, dirty, and dark, that it will never be done well in those months. A little work may be done in March, and that is all, for the land, if farmed well, must during the rest of the year be in crop. Besides those short, dirty, and dark days before referred to, there is another point of vast importance—that of smashing up all the land in September and October as roughly as possible, the larger the lumps the better for the land that is to lie through the winter before seeding, so that it may freely admit the percolation of the water and the action of the atmosphere during the whole of the four winter months.

Who are the men, or company of men, who can find tackle to hire it out only in September and October, about 45 days in a year, and make it pay!

Mr. Nicholls has brought his practice to bear upon this question by letting us know that he did 225 acres of heavy land in 25 of the working days of last September—a dry September. What would he have done if it had been a wet one! and what would he do in 45 days, the average workable day for portable engine tackle in an average of seasons! According to his own showing it would not exceed 400 acres. What must his charge per acre be to pay him for his time in superintendence, interest of money, and wear and tear on this great outlay! Such an outlay of capital ought to keep him a gentleman. Those are points that he must consider before he can make a case for locomotive engines, and let me remind him that he can have but little help in the shape of threshing, for if the land is to be cultivated by steam power, engines must be too thick upon the ground for him to have much chance. In a moderately dry season his can do 400 acres and that's all. The less powerful portable ones will do less of course—then their number must be great. He has but very little to support him. Mr. Hutchinson has shown that the Shropshire Company's charge per acre is a very high one—14*s.* 9*d.* per acre. The Gloucester and Durham Companies are things of the past. The Wakefield Company is upon its last legs, with only 1*s.* for its shareholders, who drop all interest for their money, and their Secretary (Mr. Clay) works for nothing and boards himself. Such support will not help him much on the locomotive engine. He and the Royals must show hard if they show it by William Smith and the little portable engine.

Mr. Nicholls shows that there are in his district some little portable engine sets of tackle. There are in that district a very considerable number. And as soon as I can get the Royal's "choker" out of the way, that it is found "impossible" to move even after a heavy shower, they will go a-head again, for they can find other employment besides cultivating—for they will have the threshing, grinding, &c., on the farm where they are employed during the winter months, and the cost of such tackle is but a mere trifle, especially if the sale of horses is taken into account, and it ought to be. About 380*l.* is all that is needed, and there are plenty of farmers in this country who can pull out such a sum.

Now, sir, taking it all in all, I cannot see that Mr. Nicholls has made it clear that Mr. Hutchinson's is "a one-sided affair," or that there is anything unfair in his comparisons. On the other hand, I think I have plenty of evidence to bear probing, that a locomotive engine is a very slippery concern, especially to company shareholders. Money vested upon such slippery tackle is very slippery stuff itself. The Gloucester and Durham Companies have found it so, the Wakefield Company is now getting into the same boat, and if we wait but a little we shall see the Shropshire men all rowing with them together. I hope Mr. Nicholls will take care of his half-pence. The contract system applied to Fowler's tackle has done the contracting man up before to-day, but I will not show up individuals, although I am ready to have a fling at any steam cultivating company whenever I can get a chance.

Wm. Smith, Woolston, Bletchley Station, Bucks, Nov. 6.

THE OBJECTS OF FARMING.

The papers with the above heading which appeared in June and July last, were interrupted by the more absorbing topics of the general election, the harvest, and lastly, of the cattle disease. As these are now for the most part passed away, with their anxieties and their losses, leaving behind them but their scars for a memorial, their lessons for our tuition, we may perhaps find leisure again to recur to those principles of farming which I was advocating, and gather up the improvements which would follow from their adoption. We saw reason to believe that by greatly increasing our stock, and growing corn crops two years out of three, we might sell off double the quantity of corn, and more than double the quantity of meat now usually produced, at the same time increasing the condition of the land and realising a much higher profit—or an ample remuneration for the increased capital and labour bill.

The following Table will give an idea of the difference on a 400-acre farm, managed, 1st, on the old 4-course, and 2dly, on the new 3-course system:—

1st, 200 acres *Arable* and 200 *Grass*.

To rent, tithe, rates and taxes, 200 acres of arable land, say ..	£300	By corn sold— 50 a. = Wheat, 150 qrs. 50 a. = Barley, 200 qrs.	£650
Labour and bills ..	400	By stock—	
Corn for horses and sheep	200	Ewes or lambs .	300
		Pigs	50
	900	Heifers (straw-yard)..	50
To balance, being profit on capital, say 1000*l.*, or 15 per cent. ..	150		£1050
	£1050		
To rent of Grass, tithe, rates, and taxes .	£300	By hay, 50 tons.. ..	£150
Labour and repairs .	60	By stock, Grass fed— 100 sheep, 50 steers ..	250
Profit	40		
	£400		£400

2d, 200 acres *Arable* and 200 *Grass*, 3-course.

To rent, &c., as above ..	£300	By corn sold, 600 qrs.	*£1100
Labour and bills ..	600	By stock, corn fed— 50 beasts, 10*l.*	500
Corn bought, cake, &c.	800	400 sheep, 30*s.*	600
Hay do., from Grass land	150	100 pigs, 5*l.* ..	500
	1850		£2700
To balance, being profit on capital, say 2500*l.*, or 38 per cent. ..	950		
	£2800		
To rent, &c., of Grass land, as above.. ..	£300	By hay sold off, 100 tons, at 5*l.*	£500
Labour and ashes, composts, &c.	200	By do. consumed .	150
		By feed	100
	500		£750
To balance, profit ..	250		
	£750		

So that the first man with 1000*l.* invested will make under 200*l.* a year; whereas the second, with 2000*l.*, will realise nearer 1200*l.* a year. Nor are the contingent advantages less than the above. A man farming so highly is nearly independent of seasons. While his neighbour is suffering from blights, droughts, or rains, his corn will be as near as may be 5 quarters to the acre every year; his Cabbages and Mangels will be double the weight of his neighbour's roots. Again, his labour, though heavier, will be more equalised. Instead of running over the country at harvest time to get casual hands, he will contrive, by the use of machinery and the command of a larger staff, to get in his hay and corn with no more extra help than the families of his usual hands can supply. All will be contented and work smoothly together, and the work of hay and harvest time be got over while the sun shines—which I fear has not been the general experience of this summer. His labourers also will be more handy and more trustworthy. Instead of an idle and stupid lot who can do only one thing, say hoeing, and that while you are looking at them, the high farmer will have secured an intelligent set who are used to engines and machinery, are quicker at understanding orders, and far less careless in executing them. They have a greater interest in the farm, and consequently he suffers less from their neglect, both in his stock and in annual repairs. Should he be laid up or called away from home, things will suffer less from his absence. I am aware that in all farming experience the actual are far inferior to the calculated profits and that the results of a year seldom accord with our expectations, but with the exception of one important item, disease of stock, the high farmer is, as I have just said, less exposed to disappointment through an unpropitious season than the man whose land is in low condition. In other respects their losses are probably nearly equal, but the one has to suffer deduction from a small profit, the other from a large one. And with regard to stock, there can be no doubt that the few last years have been decidedly unhealthy to all descriptions of animals on the farm. Our pigs have been decimated by a fever, our cattle and sheep have been plagued with foot and mouth disease, the cattle with the more fatal pleuro-pneumonia, and latterly by the most fatal plague. But against all these we must set the increased and increasing price of meat, a price which will fully cover all ordinary casualties, and leave an ample margin for severer visitations, which if not entirely preventible by cleanliness and food and water, and careful attention, may at any rate be greatly lessened through the different insurance societies, which will undertake three quarters of the risk. To sum up the objects a farmer should keep steadily before him in a few words—cultivate deeply, and keep the land clean; keep a large quantity of stock, and so manure highly; the corn will then grow of itself in double quantity, and even at low prices pay. *J. B. M.*

THE LONG-HORNS.

An interesting article in the "Farmers' Magazine" for August last has drawn our attention to this hardy and very useful breed of cattle. The fashionable breed of the present day no doubt are the Short horns, especially in the midland counties; but it must be

* At page 634 this figure was erroneously set down at 6000*l.* instead of 1200*l.*

admitted that all breeds not only have their admirers, but are by good judges considered most suitable for different parts of the kingdom. In Herefordshire, the "white faces" or "middle horn" have the decided preference, and no doubt are first-class grazing animals, but are of little use as milkers. In North Devon, those models of perfect symmetry, which appear indigenous to that part of England, are considered to possess first-rate quality, but never make heavy weights. In Scotland the "polled Angus" are considered unrivalled, whilst the "Sussex" and the "Suffolk polled" are equally prized in those respective counties. In some parts of the counties of Leicester, Warwick, and Derby, the Long-horns are still considered the most serviceable breed, and have been kept with great care as a pure race of animals for more than a hundred years. Lately, at our local shows, they have come up to the Short-horn standard, and won prizes from them. At the Sparkenhoe Show at Ashby, the splendid ox of Sir J. H. Crewe, Bart., of Calke Abbey, took the 1st prize from the Short-horns, and other similar victories have been gained by the Long-horns. At the Royal Agricultural Show held at Plymouth this year, the sum of 30*l.* was awarded to Mr. R. H. Chapman, of Upton, near Nuneaton, for his Long-horns; and in the report of the Royal Journal, just published, on the animals exhibited there by J. D. Dent, Esq., M.P., senior steward, it is stated "that his grand old Long-horn bull was one of the greatest curiosities of the show," the 1st prize in his class being awarded to him. A portrait of Mr. Chapman's steer appears in the "Farmers' Magazine" with the following article:—

"This steer was bred and fed by Mr. R. H. Chapman, and was considered by competent judges to be one of the best of the breed ever exhibited. In 1863 he took in prizes 25*l.*, and two Silver Medals, viz., 1st prize of 10*l.*, and Medal, at the Smithfield Club; 1st prize of 5*l.*, and Medal, at the Birmingham Show; and 10*l.* at Leicester as the best ox or steer of any breed, under four years old, bred and fed in the county. He was also sold to the butcher at three years and eight months old for 50 guineas.

"The Long-horns have been bred at Upton for more than 100 years. The founder of this herd, Mr. George Chapman, went there in 1745, and commenced selecting Long-horns in 1756, when he hired a noted bull called Twopenny, from Mr. Robert Bakewell, of Dishley, and acquired the reputation of being a careful and judicious breeder of this sort up to his death in 1802. Bakewell once said that 'George Chapman had one of the best herds of Long-horns that he knew anywhere.' For the next half century purity of breed and usefulness for dairy purposes were cultivated in the herd by his son, Mr. Samuel Chapman, and this stock at the present time is in the hands of his grandson.

"It is thus that a breeder rhapsodises on this now almost obsolete kind of stock, at least in the show-yard, where they are regarded chiefly as curiosities—'Previous to the year 1791 history does not afford such a case of extraordinary prices for stock as were realised at Mr. Fowler's sale, when a great number of breeders assembled at Rollright from almost every county in England. Two two-year-old heifers were resold at an advance of more than 40 guineas, and Garrick, Sultan, and Young Sultan, which fetched 645*l.* 15*s.*, or an average of 215*l.* 5*s.*, might have been resold at an advance of nearly 50 guineas each. Eight years produce of Nell, daughter of Old Nell and Twopenny, sold for more than 1000 guineas. At the Croxall sale in 1811, Dishley Daisy and her calf were sold for 239*l.* 8*s.* Shakespeare was knocked down to the bid of 420*l.*, and it is said that the enormous sum of 700 guineas was offered and refused for a Long-horn bull named Tiger.' An old writer says, 'that the superiority of Long-horns of this period was a natural or constitutional property of furnishing meat upon those parts of them which sell for most by the pound from a given quantity of food.' What, then, has been the cause of their going out of fashion? An extract from a letter of a Short-horn breeder, who has been well known as a first-rate judge of cattle for the last half-century, will best answer this question. He says: 'I have no doubt, if the breeding of stock 50 years ago had been as well understood as at the present day, and right principles had been carried out, but that the Longhorn breed of cattle would have occupied a very different position to what they do at the present time. I consider the breeders of Long-horns of that period committed the same error as the breeders of Leicester sheep in breeding in-and-in, looking too much to fine and beautiful looks, and neglecting the strength of constitution and depth of flesh, which always must be at the foundation of all good animals. I do think a good Long-horn cow will produce as great a return for the food she consumes as the best animals of other breeds.' Another gentleman who is a warm admirer of Short-horns, writes rather amusingly as follows:—'Certainly the best and handsomest Long-horns I have ever seen I have seen recently, and, for Long-horns, they are indeed fine animals. I admire the enthusiasm with which a few cling to this expiring race; it reminds me of the zeal with which the Stuarts' cause was upheld through family feelings long after the worthlessness of that cause, or rather of the Stuarts, had been recognised and doomed by the general mass of mankind; and I fancy some of the breeders of Long-horns stick to them because their ancestors were breeders of the same kind for generations. I have read much of their history, and am familiar with their ancient fame; but I am strong in the belief that they have been dispersed for better breeds, and will never be resuscitated again; a few good Tories may stick to them, as some fine old English gentlemen cling to knee-breeches and top-boots; but these fine old worthies will all soon follow the shade of the noble Sir Tatton Sykes. All honour to their memories! they belonged to the best sort of the best Englishmen.' The vastly improved standard to which the Long-horns have the last few years been brought at our national shows, proves there is no fear of the above predictions being verified, and the more so as the Long-horns are in the hands of such men as Sir J. H. Crewe, Bart., W. T. Cox, Esq., M.P., and Colonel Inge, of Leicester sheep celebrity. The showyard is considered the arena to decide the merits of various breeds; but if it is true, which is confidently asserted, that the Long-horns exceed other breeds in dairy and cheese-making produce, with less food, it should be remembered that not mere appearance, but that which pays the most after expenses are defrayed, is the test of real value; for it has been well said that 'a well-filled cheese-room is the best furnished room for a tenant-farmer.' A writer on one of our national shows a few years since found fault with a Long-horn cow for not being fat before she was seven years old. He entirely overlooked the fact that she had produced four calves, and made cheese and butter for four years, a feat which perhaps no other cow in the exhibition had done, and was then sent to the show with a year's feeding and not forced from birth, as a great many animals are for the sole purpose of exhibition. The Long-horns appear to be a breed which can be profitably kept until a great age. Bakewell had a cow called Old Comely, which bred well, and lived to the age of 26 years, and when killed the fat on her sirloin was 4 inches thick; and we met with a butcher a short time ago, who stated that he killed one of this breed at 22 years of age, quite fat also. There is no doubt that the Short-horn "Herd Book" has been of great value to that breed; more recently the Hereford men have established one, and we recommend the Long-horn breeders to register such information and facts as may be most useful to guide them in the laudable endeavour to raise the breed to its rightful position. What breed can boast of a longer pedigree than the Long-horns? Holme Pierrepoint, Babraham, and Warlaby will ever have a mystic charm; these world-renowned places, with many others, have a thousand pleasant reminiscences of bygone associations. So to Long-horn breeders will Rollright, Dishley, and Brailsford ever be considered as classic ground. There are spots in most lands to which historical records give a national and lasting interest, some for heroic deeds of valour in the battle-field, and some for the victories of the manufacturers of food for our ever-increasing population; and it must be acknowledged that in the improvement of our domestic animals there is a wide field for the man of science and genius. Dr. Johnson observed that 'fox-hounds and race-horses are very fine animals indeed in their way, but it is a mistake to neglect the humble race of quadrupeds; for it is not denied that the ass, for instance, does more service in return for the cost of his keep and grooming than any other animal.' The Long-horns have their peculiar and distinctive marks of character, perhaps more than any other breed. A white back, coloured sides, with some spots on the shoulder or thigh, and graceful curving horns; in some cases in Long-horns brindled sides are preferred, of a dark cast, as it is generally supposed the darker colours indicate more strength of constitution. Some Long-horn herds are wonderfully alike in character, the progeny hardly ever deviating from the pure type of their ancestors. It is reported of Sir R. Gresley, of Drakelow, who bred Long-horns some 80 years ago, that he took much delight in keeping a dairy of cows similar in colour and shape."—*Leicester Journal.*

THE CATTLE PLAGUE.

By a letter from a friend just received, I learn that the "Rinderpest" now prevailing here has attacked his beasts suddenly, with great malignity, some 300 miles north-east of Sydney, and reports have reached us from the Neilgherries of the cattle dying there of the same disease, and instances are not wanting in England where the murrain has appeared in localities far removed from all sources of contagion or infection.

Further proof is not needed of this visitation being universally epidemical and originating in some altered condition of the atmosphere, and hence all our precautionary measures, even with exclusion of all foreign animals from the kingdom (wise and necessary as such measures may be in the opinion of many), may not save us from invasion; and I hold to my oft-expressed belief, that this disease might fall upon us at any moment.

We know literally nothing respecting the laws governing epidemics, and many may remember how the profession stood aghast on the first appearance of cholera in England, and how sorely baffled we were in all our attempts to account for the many novel circumstances attendant on its progress. We saw one side of rivers depopulated, while the other side was safe from the scourge—one side of a street suffering in all the malignity of the pestilence, while the other side continued comparatively healthy—a village without a single case, between two other villages sorely smitten.

To every inquiry I had but one reply, "I know nothing about it;" and up to the present moment, were I now in practice, truth would compel me to give the same answer. We all had some opinions on the subject, I had mine, and they still have a hold on my imagination. Now, I know of no possible disturbing cause so capable of affecting generally the conditions of our atmosphere as electricity. We have ample evidence of its mighty and all-pervading influence throughout the universe, and 30 years since, or thereabout, I asked a question respecting that matter, which of course was "pooh-poohed" down; the question was—"Can the enormous, indeed incalculable amount of electricity known to be continually generated and set free by the friction of steam through the tubes of our locomotives and other steam machinery in operation all over the world, be in any way operative on our atmosphere?" The public had an opportunity of witnessing at the Polytechnic the startling effects of the electricity collected in a Leyden jar by one puff of steam from a small engine boiler, issuing through some brass tubes, and on being set free it could fuse metals and dissipate the diamond. I need not dwell on this, but it might well give rise to the question I put—"What becomes of all the liberated electricity; is it wholly inoperative?"

Of course I got laughed at, nevertheless I predicted that if it should in any degree unsettle those proportions of the elements constituting our atmosphere, even infinitesimally, both animal and vegetable life, dependent on the exactitude of these proportions of 20 to 80 of oxygen and nitrogen, must inevitably become sensible of it, and suffer in all their delicate vital functions; since if this pabulum vitæ, this primum mobile, is in the slightest degree changed, all those incomprehensibly fine chemico-vital actions must be affected, and produce changes appreciable to us only by some alterations in their conditions of health. The vegetable kingdom, from its slighter resisting powers, I conjectured might first manifest some changes, and then man and animals would subsequently suffer. Since that time it would appear that Schönbein has detected a new element in the atmosphere, called by him "ozone," and supposed to be oxygen in some way affected or combined with electricity. Now, has this oxygen been taken from our atmosphere?—has one particle of the 20 of oxygen been changed or modified through this freed electricity? We are told that ozone is ever varying in its proportions in the atmosphere, and that these changes are more evident during epidemical visitations. I pretend to no satisfactory knowledge on these points, and I am unwilling to trespass much longer on your patience. I know that for the last 30 years we have scarcely ever been free from some sort of epidemical visitation, either in the vegetable or animal kingdoms, and our seasons have been disturbed by most unusual variations, and it is my firm conviction that until we become far more conversant with electrical laws, and some of those undoubted influences exerted by electricity on our atmosphere, we shall remain as much in the dark as physiologists in regard to the causes of many of our most important diseases, and our profession would do well to take the torpedo and gymnotus into their deliberative councils, to lighten their darkness, and set them free from the bondage of quackery.

I believe the disease will prevail so long as the atmosphere is in its present epidemic disposition. At first most cases end fatally, as its highest point of malignant saturation usually continues three or four weeks, after which the vis medicatrix (if not impertinently interfered with) will prevail, and the nervous forces will resume their proper play, when, with appropriate food made slightly stimulant by spices and the aromatic spirit of ammonia, pure air and exercise will be all that is wanting to set the poor creatures on their legs again. *Tenera.*

P. S.—To the remark that "plague, pestilence, and famine" have been visitants of the earth in all past ages, it may be replied, that since the world was created, electric action and electric disturbances have been in continual operation, and that the present source of its generation may yet further add to the disturbing force.

STEAM CULTIVATION.

Fowler *v.* Smith.

Mr. Simon Hutchinson, professing to give an impartial and disinterested account of the cheapest and most effectual mode of cultivating land by steam power, ventures to draw a comparison between a set of Smith's tackle as worked by himself, and a set of double 14 horse-power engines as worked by the Shropshire Steam Cultivating Company. Such statements, emanating from a gentleman of Mr. Hutchinson's standing, might seriously affect steam cultivation generally, and influence the decision of many who are anxious to adopt the application of steam power to their land; and unless strong proofs of practical experience can be advanced to contradict such statements, the public might naturally conclude that the working of two engines was altogether too expensive, and almost a perfect failure. Practically, I can contradict such statements, and I can only compare the two systems to a race between a donkey and a horse. The former may, by chance or accident, win a race, but would any sensible man prefer the ass to the horse? We know the fable, where the tortoise beat the hare.' In such a position does the small tackle

of Mr. Smith's stand with respect to Mr. Fowler's double 14 horse-power engine set, for when properly managed they can easily cultivate from 20 to 25 acres per day, and during the time that Mr. Smith's tackle is hitching and preparing to start, they can almost finish the day's work. But still, the praise Mr. Hutchinson bestows upon the working of his small tackle very convinces me that the very working of land by steam power is a correct principle, whether conducted on a small scale or a large one, and the great demand from foreign countries for steam ploughs, together with the increasing progress in their manufacture at Bedford, and more especially at Leeds, must convince the most prejudiced that its advantages are being known and appreciated.

But the practical question which requires solving is this—can the farmer obtain a greater advantage from purchasing or from hiring? Are the majority of farmers in a position to buy steam cultivating machinery? Have they ever qualified to undertake the management of such expensive machinery? Have they facilities for repairing breakages? Have they farms commensurate with the demands of the steam plough?—for unless the engines can be fully employed, their advantages are not fully obtained. In the system of hiring and letting out, one inspector can take the entire management of a district, and certain districts can be provided with the necessary tackle; any shaped field can be worked by the two engines set, and no horses are required to move them from field to field. We know the great advantages of threshing machines in the country. We have many proofs now of the still greater advantages of steam ploughing tackle when let out on hire. The farmer is less dependent upon the seasons, whether dry or wet; he can keep a less number of horses throughout the winter months, when they are in the stable 16 hours and only working eight; he can grow his horses into money by working young ones freely on his farm, and giving the engines all the heavy work—in fact he can almost insure his crops, when otherwise there would be great risk incurred; for if, for instance, compelled to work his fallow land in the spring, he might in a dry summer throw his chance of a Turnip crop away. Such are some few of the advantages of steam cultivation generally, but I am satisfied that the system of working two engines is the greatest boon ever introduced for agricultural purposes; inasmuch as the farmer requires no additional capital, runs no risk of missing his season, and can reduce his working expenses considerably. I have worked as engineer with Fowler's small tackle for upwards of three years. I have also worked upwards of 100 double engine sets in Egypt, where we averaged above 15 acres per day, and I can assert that 6 acres per day is not an average quantity for the small tackle. I have done for weeks together upwards of 12 acres per day with it when working for others, and I am now engaged to work three double engine sets in this neighbourhood, as the demand for their services is so great; and I am confident that they can almost do double the quantity of work in the week in comparison with the small set.

But do not let idle words alone satisfy the public with regard to these statements. We are prepared with the North Lincolnshire Steam Cultivating Company's engines to work one week upon any soil in any county, and give Mr. Hutchinson's set of tackle two days' start in the week for any sum he can raise, in order that we may repudiate his fallacy. That will prove practically the advantage of each set, far better than any imaginary accounts; and as for comparisons between one set of tackle and another, one worked in the year 1862, and another in the year 1864, and perhaps in great dissimilarity of soil, the one light and sandy, the other perhaps heavy clay—why, positively no fair or proper comparison could be drawn. Let Mr. H. name his county, fix his soil, light or heavy, and if we do not sleep, as did the hare, I have no fear of the results. If, in working, Mr. Hutchinson meets with an accident, his time for repairs shall be allowed, and *vice versâ*, and no advantage whatever shall be taken in proving the superiority of either the one or the other. I admit that the outlay in the first instance in the purchase of the large tackle is very considerable, but if the wear and tear is less, and the quantity of work done is equal to the outlay, then the advantage is apparent. Supposing one set of tackle, costing 2678*l.* 14*s.* 9*d.*, can earn 8*l.* per day by working 16 acres at a charge of 10*s.* per acre, and another small set can earn 3*l.* per day by working 6 acres—at the end of the six days one set earns 48*l.*, while the other is earning 18*l.*; and at the end of the month one set is earning 192*l.*, while the other is earning only 72*l.* Why, surely, at the end of the year the greater outlay is realising a much larger percentage; and if I am to include the cost of labour upon both sets, the advantage to the large set would be still greater, as fewer men and horses are required to work it.

I now leave Mr. H. to consider my offer. He has thrown down the gauntlet and challenged any disciple, either of Smith's or Fowler's, to enter the field against him. I do so with a firm conviction that his statements are incorrect; that he is altogether misleading the public, and inducing them to purchase machinery which is not the best adapted to ensure the greatest profits at the same cost or the least expense; and I am much surprised that any practical or sensible man should express opinions or give publicity to statements so utterly at variance with common sense and sound judgment. *Richard Toepffer, Manager to the North Lincolnshire Steam Cultivating Company, Kirton-in-Lindsey, Lincolnshire.*

Clay Soils.—The owners and occupiers of our stiff clay soils have hitherto laboured under great disadvantages, for whilst engaged in the cultivation of a soil containing the elements of great fertility, it is yet at certain times of so obdurate and intractable a nature as almost to defy any attempt that may be made to deal with the ordinary horse-plough. The soil, saturated with moisture at one time, and dried to brick-like texture at another, presents a most uninviting material to deal with; and indeed, when the land is in such a state, the work with horses is generally deferred. The purchase of this favourable opportunity is, however, at the expense and loss of time, and the precious interval between harvest and seed-time is lost, not be regained. The present autumn Wheat seed-time will probably show the truth of this, for the dry and brilliant summer weather having lasted so long into the season, the ploughing has been deferred by waiting for rain to soften the bound and hardened surface, and the seed-time will certainly be late, and very possibly a troublesome time for wet lands. In order to obviate the ill consequences resulting from delay, the clay land farmer is compelled to keep an excessive amount of horse strength; he knows perfectly well that the work must be kept well forward in advance of the seasons, no matter what the expense may be, for in this lies the secret of the successful tillage of heavy land. To effect this, however, with horse-power becomes a most expensive work, for whilst an abundant and excessive amount of horse strength is not too much at one time, yet at another, from adverse weather, the whole staff of men and horses are alike useless and idle, constituting a very great and almost unavoidable expense. How is this difficulty to be met? It is very certain that changes in the season will occur, and to be successful you must work with the weather and not against it; and with all the toil, energy, and perseverance, the capital, the drainage that is necessary for the cultivation of stiff clay land, clay is still clay, and whoever depends upon horse labour is sure to be brought to grief; the work will not be completed in proper time, and consequently done in a bad manner. Moreover, the frosty weather will arrive, putting a stop to seed operations—the irresistible forces of Nature apparently dead against the farmer; and all this arising not so much from a want of will, energy, and determination, as from a want of power to do the proper work at the proper time.

Enough has been written in these columns to point the way to a very much better and much less dependent position, and to a power, viz. that of steam, as being better able to cope with the great resistive nature of clay; and although "Fowler's Steam Plough," we are informed, may be seen at work in every county in England, there are still large tracts into which it has not penetrated, and probably will not till a new class of tenantry take possession of the farms. One great obstacle is the expense connected with the purchase of such a costly set of machinery, incurred chiefly by the endeavour to overcome the great resistance afforded by the travelling or passage of a heavy locomotive on the soil, and the draught consequent upon the yoking of three or four ploughs together as an implement of cultivation. Many people care not to go or to inquire beyond their impression that the adoption of steam power would be much too costly for them, and so dismiss the subject from their minds altogether; and it is a question that will be decided some day whether the Royal Agricultural Society of England, in giving prizes and confining their attention too much to the keeping of the old form of the plough in view as a necessary appendage in the progress of steam power as applied to the working of the soil—whether in so doing they have entered upon a wrong principle, and thrown obstacles in the way of a proper and successful application. Your readers will have seen an elaborate and well-detailed account and working of the two systems, "Smith's" and "Fowler's." I feel pleasure in adding testimony to the efficient working of the former in connection with the ordinary portable double cylinder farm engine. A simple working implement is "Smith's Cultivator," yet withal constructed upon an excellent principle—that of the ship's anchor—and prevented only from pulling up or stopping a powerful engine by the wheels which regulate its depth; it forms a valuable implement for the tearing or bursting up the soil, and upon a farm of 400 or 500 acres it is equal to an annual saving or the keeping of from 8 to 10 horses. It is well, as Mr. Smith observes, that the farmers should reflect on this, and there is a question for the landlords to consider—whether they will be content to take an almost nominal rental for their cold clay, when the produce of the land may be very much increased under a proper style of cultivation and sufficient power to work the soil. *W. S. G.*

I have examined the statement recently in your columns of the relative cost of Smith's and Fowler's steam cultivation. I defer for the present exposing the unfairness of this calculation, and confine myself to my own experience this autumn with Fowler's tackle, which I wish to be compared with Mr. Smith's experience of his own, as given in the latter part of his letter. We began on Saturday, 2nd September, and continued at work steadily till Monday the 18th September, 14 days, shifts included; 114 acres being accomplished in that time. The coal cost 10*s.* a ton; 6 tons 6 cwt. were consumed, which, with the labour, makes up a cost per acre of 1*s.* 8½*d.*, or less than half Mr. Smith's expense—so far at least as I understand his calculation. As I reckon it, his coal cost him 1*s.* 2*d.* per acre, while Fowler's engine only cost me 6½*d.* per acre for coal. Again, in labour, the "Woolston" seems to have cost Mr. Smith 2*s.* 6*d.* per acre, while Fowler's only cost me 1*s.* 2*d.* per acre. In neither case is wear and tear taken into account. I had also a "drag" or heavy harrow attached to the cultivator, but for which the consumption of coal would have been less still. As to shifting tackle, every horse I have was hard at work that fine dry weather, and it was an immense advantage that the engine was able to roll off to a distant field, dragging anchor, cultivator, ropes, and rope porters, without any assistance, and the coal is included in the 6½*d.* per acre. I hope that others of your steam-cultivating readers will give their experience, but it would be an advantage if you would give us a tabulated form, so that we may all compare like with like; at present there is a good deal of uncertainty in our comparisons. *Henry J. Wilson, Newlands, Mansfield, Oct. 30.*

In giving the following statement of steam cultivation on this farm and neighbourhood, I wish it to be understood that I have no interest in any way in recommending one manufacture in preference to another, believing all to have some good points; even the worst application is better than horses for tilling the soil. Having read with great pleasure Mr. Hutchinson's doings with Mr. Smith's tackle, I think all who have laboured to perfect steam cultivation will agree that it is unfair to select a set from any steam ploughing company, and compare their expenses against work done on private farms. Mr. Hutchinson, no doubt, worked at the proper season, including harvest time, extra long days and extra wages, whereas the steam ploughing company had perhaps to travel long distances for work, and those who have let out their tackle for hire know to their loss that the roughest pieces generally fall to their lot. I therefore feel it a duty to the late Mr. Fowler and his representatives to give a short account of our doings. My experience with steam cultivation commenced at the Chester Show, where the late Mr. Langston ordered from Mr. Fowler our first set of tackle, although I cannot boast of so well-kept an account of our work from that date up to the present as Mr. Hutchinson shows for one year. It is no secret to state that the Chester tackle passed through several degrees of costly improvements, yet after all, and considering it had to face the stubborn subsoil for the first time, our cost per acre did not exceed horse ploughing in this district. However, the old engine is now fitted with clip drum, and doing excellent work with a 7-tined grubber, on 700 acres of hill land for a tenant (Mr. Hewer), who purchased it for 400*l.* Mr. Langston next ordered a 12-horse set at the Leeds meeting; this tackle arrived early in August and has worked the 4-furrowed plough but little; however, it and the 7-tined grubber ordered at the Battersea meeting, which I purchased, the full set for 600*l.* two years ago when taking this farm, have done, on the average, 500 acres each year, averaging 8 acres per day, costing for labour, oil, coals, and water-cart, 1*l.* 3*s.* 8*d.* I may here state that our repairs have not exceeded 10*l.* per year. The Leeds rope is still in work, although about 300 yards is much worn; the rest will stand two years longer, so that cost of rope per acre will not amount to much. And why have we been able to accomplish this good work? Mr. Langston saw years ago the necessity of well draining his land and removing useless fences as well as timber, and it is also a great pleasure to see Lord Ducie, his successor, fully carrying out further improvements to forward steam cultivation. The third set (14 horses) was ordered near three years ago for the use of the tenantry on this estate; it has done much work, particularly this season; their breakages few, considering their work has principally been the first time over; yet their expenses will exceed mine per acre, they having, like the Shropshire Company, to travel for work. The fourth set (10-horse) was ordered at the Worcester meeting by a tenant, Mr. Craddock, who requests me to say he has done a deal of grubbing with his narrow 7-tined implement, besides threshing, grinding, &c.; his only breakage has been the crank shaft. I am sure his farm, like the rest, is much improved by steam tillage, and he also states he has reduced his horses to six on over 500 acres of land. I believe each lot of tackle is in good order; and those who wish to benefit by steam must not depend upon steam ploughing companies. Our crops increase, and the grubber is used much more than the plough. *Matthew Savidge, The Lodge Farm, Sarsden, Chipping Norton, Nov. 3.*

Having accidentally seen one of your Papers of the 23d ult., I beg a small space in your columns to say a few words respecting the tables of steam cultivation shown in it. First, it is my opinion that the work shown for Fowler's powerful set of steam apparatus is very much given to mislead people, as the quantity is not half that which can be easily done. Having the management of one of Fowler's double sets of tackle (not so powerful as the Whitchurch Steam Plough

Company), I beg to enclose the following statement from Oct. 1, 1864, to Sept. 30, 1865:—51 days cultivating 569 acres, 102 days ploughing and digging 527¾ acres. The above has been generally on strong clay land, at depths varying from 7 to 15 inches. The horse and manual labour on the above has been 1 horse, 4 men, and 1 boy, 153 days each; the 4 men and 1 boy includes the man to cart water. During last autumn I dug 193 acres in 19 successive days, in strong clay land, including removals, with implement 40 inches wide. I trust this will find a space in your valuable Paper, and be of service to some persons thinking of investing capital in steam cultivation. I may add that we work entirely for hire, and have had many removals while doing this work. *Charles Hill, Dogsthorpe, Peterborough.*

Home Correspondence.

The Irrigation Works at Buscot Park.—Buscot Park Estate, the property of Robert Campbell, Esq., comprises an area of 4550 acres, and is situated entirely on the Oxford clay. As this geological formation is well known to be unfavourable to the production of springs, as a natural consequence there is not a spring of water on the whole estate. The river Thames runs by the estate for 3½ miles, and the river Cole, a tributary of the Thames, 4½ miles. Mr. Campbell is the owner of a weir on the Thames, at which he has the right to dam the water up to a certain fixed datum; he is also part owner of the tolls, and therefore has a direct interest in the navigation of the river. The estate has been thoroughly underdrained; the outfalls are into the Thames and Cole; but the water furnished by the drainage to these streams is supplied intermittently, as, in times of rainfall, the water is run off more rapidly than would otherwise be the case in the absence of drainage. It is this underdraining of the country (which on the one hand has tended materially to improve the quality of our crops, but on the other hand acts prejudicially upon our rivers, and also in dry seasons on the lands themselves) that led Mr. Campbell to carry out the works of irrigation now in progress, which works have for their object the restoration of the balance that has been disturbed by the drainage, and are nearly as follows:—Three thousand acres of the estate are intended to be circumscribed by two lines of catch-water drains. The upper line of catch-water drain is intended to lead off all the rain water falling on the higher parts of the estate into two or three impounding reservoirs having an area of upwards of 50 acres. The other line of catch-water will lead the rain water falling on the lower parts of the estate into two reservoirs having an area of about 15 acres. There is also a large summit or distributing reservoir of nearly 30 acres in the highest lands on the estate. The water collected in the first series of reservoirs is intended to be pumped by steam power into the large summit reservoir, or directly over the land; and the water collected on the lower part of the estate will be led from the reservoirs constructed to receive it to a water-tight pumping well at the Thames, from whence it will be raised by a Poucelet water-wheel and pump into the distributing reservoir. The only use that is intended to be made of the Thames water is to supply the power necessary to raise the water collected on the lower parts of the estate to the summit reservoir; and the water-wheel for accomplishing this object will be fixed at the weir at which Mr. Campbell has the right to dam the water up under certain restrictions. Having given you an outline of the construction of the intended works, I need now only say that the water collected in upwards of 90 acres of reservoirs will be distributed, principally in the summer months, over the surface of from four to seven hundred acres of land, and, after passing off the land, a considerable portion of this water will find its way into the Thames at the very period of the year when it is most required. As the success of the scheme depends to some extent on the care with which the water of the upper Thames is stored, so that the greatest amount of power shall be got from it, the interests of Mr. Campbell are identical with those who require the water either for their mills, the supply of water for towns, or for navigation. I trust you will be enabled to see from the foregoing description that not a drop of water is intended to be taken from the Thames, but that, on the other hand, the works now in progress of construction will collect the rainfall of 3000 acres of land at periods of the year when it is not required, but is rather prejudicial to the interests of navigators and mill owners, and will distribute it in periods of drought, when most useful. *Baldwin Latham, Croydon, Oct.* 17. [The above report to the *Oxford Journal*, by the engineer to the works, was written in reply to the rumour that Mr. Campbell was taking water from the river.]

A Bovine Cry.

"What meaneth the lowing of these oxen?"
Ye farmers, listen to our tale,
We tell you what the facts is,—
We're ill with typhus, deadly pale:
The "nostrum" is poleaxes!
They knock us on the head by scores,
Which will not pay your taxes.
Inspectors are a mighty bore,
And so are all poleaxes;
'Twere well indeed in time of need
To show some Christian feeling,—
They give us whops, whop after whops,—
Fine scientifick healing!
To quiet limbs and aching jaws
The poleaxe is most certain,
But over skill, alas! it draws
An everlasting curtain.
Avaunt, ye doctors, and ye "vets,"
Learn what a solemn fact is,—
Poleaxe won't pay the farmer's debts,
May "plague" seize your poleaxes!

W. F. Radclyffe, Tarrant Rushton.

Farmers' Clubs.

LONDON: *Nov.* 6.—*The Cattle Plague.*—At this, the first meeting for the winter season of the Central Farmers' Club, Mr. C. HOWARD read a most instructive paper on the Cattle Plague, from which we make the following extracts:—

It is my intention to sketch briefly the history and nature of the disease, to notice its appearance in this country, and to remark upon the curative and remedial or preventive measures.

1. *Nature and History of the Disease.*—It will be remembered that when the alarm note was sounded by the veterinary professors upon the appearance of the cattle plague in England, it was treated very lightly, both by the public and the farmers; the opinion in some quarters being that it was an endeavour on the part of one or more of these veterinary gentlemen to write themselves into notice and place. Those, however, who were acquainted with the frightful ravages the disease had made in the herds of every country in which it had appeared, felt that the agricultural interest was about to be exposed to one of the greatest calamities that could overtake it. First, then, as to its nature and history. It appears that cattle plague, which differs not only in intensity but in kind, is no new disease; it was known, according to some authorities, as long ago as the third century. We read, also, of a grievous murrain in the time of Moses: whether akin to the present murrain or not we have no evidence. It has at various periods committed fearful havoc among the cattle of several countries on the continent and in more distant territories. It is stated, that from the year 1793 to 1795 it destroyed in Italy between three and four million animals, and in France, from 1713 to 1796, not less than 10 million. Upon the whole continent of Europe it is computed that some 200 millions of cattle perished from cattle plague during the last century, and in more recent times in Russia one million have perished in a single year. In Egypt it was introduced in 1841, by the importation of foreign cattle, and in three years some 350,000 were destroyed. I learn also from my brother, who has lately visited that country, that in the year 1864 above one million head of cattle died there. So great was the mortality, that the Egyptian farmers, left without draught animals, were driven to mechanical appliances for the tillage of their soil; hence the large orders that were received in this country a year or two since for steam engines and steam ploughs. From the best veterinary authorities in our own country and on the continent we learn that the spontaneous development of rinderpest takes place only in the East: as, with cholera morbus, this appears to be its natural home. Various causes are assigned, such as the soil, climate, its peculiar vegetable products, and the breed and management of the cattle. I learn from some writers on the subject, that true rinderpest is simply malignant typhus fever; but that another kind or form of the murrain is typhoid fever, accompanied by inflammation of the lungs, or aggravated pleuro-pneumonia. Other varieties of the murrain are described, into which I do not propose to enter; what we have to do with is the type or form of the murrain now prevailing in the country, which is said to closely resemble, if not to be, typhoid fever. It is undoubtedly much more contagious than any known disease, either of man or animal; so much is this the case, that these same authorities consider it can be and has been carried from diseased to healthy cattle by dogs, sheep, goats, and even marching armies, while the soldiers and other animals have been unaffected by it. Some go so far as to maintain that flies even are carriers of the poison. As to the question whether sheep being brought into contact with diseased animals take the disease or not, it seems at present a disputed point. In my own neighbourhood, a number of sheep belonging to a friend of mine have been grazing in the same field in which were a number of badly diseased bullocks, and although they ate the food upon which the bullocks had breathed, and a portion of their saliva had fallen, up to the present time no harm has befallen the sheep. It is therefore open to question whether, in the much-discussed Norfolk case, the sheep were the victims of this dreadful scourge; upon this, however, we may hear more this evening. The disease does not develop itself after coming into contact with diseased animals. As to the time, however, great difference of opinion exists: some say for from four to 14 days, others to 21 days. It may be known from the following symptoms: Great dulness, frequent twitchings and shivering, staring coat, arched back, drooping head, with a mucous discharge from the nose, reddened eyes, with a watery discharge, quick and short breathing, ulcerated lips and roof of mouth, cessation of rumination, with diarrhœa or dysenteric purging; the animals rapidly sink, and die in from 12 hours to eight or 10 days, in most instances the second day, after falling. The cattle plague first made its appearance in England in 1744, and remarkably enough, as in the present outbreak, the cows near London were its first victims. Various accounts are given of its introduction, but most agree that it was an importation. It raged with more or less virulence until 1757, when it ceased, after having destroyed many hundreds of thousands of cattle. Great alarm was felt then as now. Orders in Council prohibited the holding of fairs and markets, and ordered all beasts showing symptoms of the plague to be destroyed and buried. Various reasons were assigned for its appearance.

It was curious that the parties who came prominently forward to uphold the epidemic theory were either interested in the cattle trade or were over-zealous supporters of the system by which foreign cattle are admitted; while, on the other hand, it was held to be a contagious disease—and that an imported one—by men of the highest standing in the veterinary profession. Latterly, however, the epidemic view has been dropped by the press; and, from the experience of the past few weeks, I think—to say nothing of the origin of the contagion—he would be a bold man indeed who would stand up and defend this theory. I am aware that statements have been put forth of spontaneous outbreaks; but well-authenticated proofs of spontaneous generation, as far as I know, are not forthcoming. On the other hand, however, we have cases without number where the disease is clearly traceable to contact with affected animals. To confine myself to my own district, I may state that in every instance the attacks can be traced to the introduction of diseased animals. The first case was through the purchase of London calves at Leighton Buzzard market; the next at Harlington, through the purchase of diseased bullocks at Newport Pagnell fair; another at Marston, where a diseased cow was driven through a lane, a hedge only parting it from some grazing bullocks—these immediately took the disease. Mr. Kilpin (a member of this Club), the owner of the cattle, and who has lost 33, occupies another farm (Bickerings Park) some three or four miles distant. The disease, in a few days, [illegible] also. As no other reason can be given, the belief is [illegible] was conveyed by the men who had been in [illegible] the diseased beasts at Marston. Another case [illegible] Dean. Thirty Welsh runts were bought at Leicester [illegible] in a week after, fell with the disease. The last [illegible] was that 25 had died. I learn also that others [illegible] same fair had fallen and died in various parts of [illegible] I will only mention one other well-known case, which [illegible] not far from my place. In August last, a large [illegible] and Irish beasts were taken to Newport Pagnell fair [illegible] lots were sold, which went into different parts of the [illegible] Each lot is known to have infected the respective [illegible] hoods to which they were taken. The unsold [illegible] same cattle were driven to Barnet fair, and [illegible] Hampshire; and I learn from a friend of mine that [illegible] died on their road home.

2. I now come to a more important part of [illegible] subject—the curative, remedial, or preventive measures.

First, then, as to the curative: Much has been said [illegible] written upon the modes of cure: again the press [illegible] public were somewhat hard upon the veterinary [illegible] So far as I understand the position taken by these [illegible] it is this—that the disease lies in the system [illegible] symptoms being manifest so long that when the [illegible] fall the chances of cure are so small, and the [illegible] rounding herds so great, that the most prudent [illegible] politic course is to slaughter the animal, and thus [illegible] spread of the malady. The chances appear to be [illegible] attempting to cure one animal risk is incurred, by [illegible] alive, of spreading it to a hundred others. From [illegible] come under my own observation, it appears to me [illegible] some remedy is discovered upon which the farmer [illegible] doubtedly rely, the course thus advocated is the best [illegible] cattle-owner to pursue. Had the animals to which I [illegible] been promptly slaughtered on the first indication [illegible] disease, instead of curative measures being attempted [illegible] total loss would have been considerably less. A [illegible] respectable veterinary surgeon of many years' standing [illegible] my locality thinks with the much-abused professors that [illegible] pole-axe is the best remedy. We must not forget that [illegible] these gentlemen to pursue a contrary course they might [illegible] run up a long bill against their clients; their practice has at least the merit of disinterestedness. Like all other diseases, the chances of recovery depend upon the intensity of the attack. At best, however, they are but few: for from a report which has been recently published of the number of animals that have been attacked, I find that only from 4 to 5 per cent. has survived. It appears that the veterinary professors who advocate the immediate slaughter are backed up in their views by the most eminent veterinary surgeons on the Continent. These gentlemen have had far more experience and more abundant opportunities of studying the various forms and stages of the disease than our English members of the profession. It will be remembered that when in 1863 the small-pox broke out among the sheep in the south-west of England, it was exterminated in less than a month by the slaughter of very few flocks. Having said thus much respecting the veterinary profession, there [illegible] point to which they might probably have given [illegible] attention; I allude to premonitory symptoms. If [illegible] informed, I believe the profession maintain that [illegible] monitory symptoms are to be discovered until the [illegible] hopelessly fall, a view which appears to me and [illegible] non-professional people most inexplicable and exceptionable. Perhaps I might be allowed most respectfully to urge [illegible] the profession that every scientific and other [illegible] should be resorted to in order to discover whether there [illegible] some slight symptoms not hitherto noticed in the early stage of the disease. This is my only hope that this at present mysterious malady may be successfully treated. A [illegible] professional friend of mine, who has had many opportunities of observing infected cattle, informs me that he has [illegible] that for days before the animal falls the breathing is [illegible] uneasy, and subsequently more laboured: the breath of the animal is also offensive. The outbreak of the cattle plague has brought out a host of quacks, eager to reap a harvest [illegible] the misfortunes of others. Pamphlets and advertisements are abundantly circulated. The vinegar dealer maintains that bathing the animal with that liquid is a *certain* cure: others interested in the sale of gypsum, carbolic acid, and [illegible] articles, publish statements urging their preventive properties, and so on, down to the more humble country farrier, who perhaps may head his advertisement "No cure, no pay." [illegible] homœopathic treatment has been brought forward, and [illegible] its share of public attention. According to Professor Gamgee no medical treatment can be said to have been successful for as large a proportion of animals have got well without any treatment, as those upon which the doctors and others had tried their remedies. The practice adopted of wrapping round the bodies of diseased animals blankets or woollen cloths appears to be a sensible one, and has, we are assured by General Cotton and others, been [illegible] of service. So many plans have been recommended, that were I to go into this part of the subject, my paper would be of undue length. I see in this morning's papers, however, that some very important statements were made at Norwich on Saturday last by Lord Bury. It appears that some 470,000 cases of rinderpest have been treated in Holland: 45 per cent. have been saved through the means of homœopathic and allopathic treatment, the homœopathic treatment having proved, according to this authority, the most successful; but as the [illegible] to which the noble lord alludes was set on foot by homœopathic practitioners, due allowance must be made for the [illegible] vities of the gentlemen sent over.

3. I am come to the last and by far the most important part of my subject—the remedial or preventive measures. The old adage of "Prevention is better than cure" was never more fitting than in the present case.

The farmers themselves can do much in preventing the fearful disease from spreading and taking a permanent [illegible] in this country, first in cheerfully acquiescing in the [illegible] recommended, of abstaining from all dealing and [illegible] cattle for a given period (to this I will shortly further [illegible] The grazing of cattle on roadsides should be imperatively [illegible] bidden; animals should be supplied with generous food [illegible] pure water. If half-starved animals—of which, I am [illegible] to say, there are a large number still to be found in England [illegible] are left to shiver under hedges, or at best racked up with [illegible] in cold, comfortless yards, the owners must not expect [illegible] danger approaches, to escape the contagion. All [illegible] ings should be kept clean, well ventilated, and occasionally limewashed; or perhaps, what is better [illegible] chloride of lime or other disinfectants should be freely used. It has been said, but with what truth I cannot say, that one of the best disinfectant modes is that of fumigating the noses of the animals every day. This plan has been put forth by men of experience on the Continent: and as it is inexpensive, and no harm could result from its adoption, I have singled it out as one of the most feasible modes I have met with. When an animal is attacked and it is resolved to attempt a cure, the early and perfect isolation is a matter of the first importance. Having [illegible] at what owners themselves may do, I now come to a more important question to the farmers of England, viz., what steps

[illegible] be adopted by Government in this and any future out-[illegible] to eradicate and prevent the disease spreading. It is [illegible] we are indebted to the Continent for a large supply of [illegible] and sheep, and no thoughtful man now-a-days would [illegible] interfere with the free importation of food for our [illegible]: at the same time, we as farmers have a right to [illegible] the Government such precautionary measures [illegible] the most valuable animals in the known world [illegible] victims to diseases introduced by foreign importa-[illegible] During the last 20 or 25 years the British farmer has [illegible] frightful losses in his cattle, from diseases that [illegible] previously unknown in this country: it has been stated, [illegible] what truth I cannot say, that these diseases have [illegible] more animal food than has been imported during the [illegible]; but certain it is, that our own herds would [illegible] far more numerous, and consequently our own [illegible] feeding the people far greater, had these diseases [illegible] out of the country. In 1857, our Government was [illegible] the rinderpest, which was raging on the Continent, [illegible] introduced here. Professor Simonds was sent there [illegible] agricultural societies of the three kingdoms, on a [illegible] of inquiry. Luckily, we at that time escaped the [illegible] visitation. As the introduction of the disease was at [illegible] possible, I consider that the Government should [illegible] upon a thorough inspection, and not allowed it [illegible] a mere farce as it has been. The idea of one man [illegible] examine some six animals a minute, or nearly as fast [illegible] could count them, and this perhaps in the night, is [illegible]. To make the inspection thorough, a larger [illegible] of inspectors must be appointed. Should the country [illegible] this course on the score of expense, let the owners [illegible] animals pay a small fee per head for the veterinary [illegible]. The most rampant free-trader could not, I imagine, [illegible] this very small piece of "protection." Had such [illegible] as I advocate been adopted, England might [illegible] have been spared the present outbreak; and here I [illegible] that it would be well for us to take a leaf out [illegible] the foreigner's book. I would call your attention to the [illegible] facts: I have on several occasions had to send Short-[illegible] bulls to the Continent; before shipping them I have [illegible] required to sign a certificate and get it counter-signed by [illegible] authorities, that no infectious disease had been [illegible] in my neighbourhood for the previous six or twelve [illegible]. Russia requires this condition, and yet England [illegible] scarcely an obstacle to the introduction of her [illegible] distempers into these islands. I believe, however, [illegible] Government is waking up; for I learn from Prof. Simonds [illegible] examination of imported cattle is in a more satis-[illegible] state. Whitehall has issued its Orders in Council, and [illegible] some of these have not been altogether satisfactory, [illegible] evince a desire on the part of the Government to arrest [illegible] progress of the disease. Here I would observe that when [illegible] legislation is attempted upon the cattle question, [illegible] the Government will not be thwarted and opposed [illegible] it was the session before last upon the "Cattle [illegible] Diseases Bill." I could not join many of [illegible] friends in their opposition to this Bill; it con-[illegible] many good clauses, and had it been carried it would [illegible] have been found most beneficial. I learn that it was [illegible] by the Government, not altogether by the opposi-[illegible] it met with here, but through that of the Irish members, [illegible] thought it would damage their export trade. The Irish [illegible], be it remembered, were the very first to call out [illegible] they saw danger at their own doors; and, through [illegible] opportunity, have induced the Government—and, as I [illegible], properly—to stop the importation of cattle into their [illegible]. To revert to the Orders in Council: The stoppage of [illegible] and markets is a step in the right direction. The order [illegible], however, have been peremptory, and not left to the [illegible] of the local authorities, as a partial stoppage was [illegible]. I firmly believe that had farmers ceased from [illegible] at fairs and markets when the plague first [illegible] out, we should have known but little about it [illegible] inconvenience will be caused by this regulation, [illegible] good will perhaps result from it; farmers will have [illegible] more business with each other, and less with the [illegible], who of late years has not only fixed the [illegible] of the stock, but has had the lion's share of the profits. [illegible] little good, however, will attend the stoppage of fairs [illegible] markets so long as men can purchase animals from infected [illegible] and drive them when and where they please—[illegible], as butchers and others can attend the metropo-[illegible] market and send the animals alive from there into the [illegible]. The Order in Council states that no animal shall be [illegible] to this market unless for immediate slaughtering. In [illegible] opinion it should also have stated that it should not leave London alive. This leads me to another point. Should England continue to be visited with plague among her cattle, the establishment of markets for foreign animals at the various ports of debarkation is worthy of consideration; or, perhaps, what would be better still, the erection of abattoirs at the several ports. The animals could be slaughtered and sent to the various dead-meat markets of the country. Old Smithfield will require something to fill it, and I do not know to [illegible] better purpose the Corporation of London could put it. I am aware it will be said that this course would entail loss upon the foreigner. It might do to a small extent; but when really so much is at stake—the welfare, I may say the very life, of the seven or eight millions of cattle of these islands—this ought not to be considered. We are bound, the good Book says, "to take care first for those of our own household." Memorials have been sent from some parts of the country to the Home Secretary, requesting that measures may be taken to stop the importation of foreign cattle and sheep for the next six months, such, in the opinion of the memorialists, being the only means of eradicating the plague. The resolution adopted by the Committee of the Newcastle Farmers' Club is as follows:—"That this Committee petition the Home Secretary [illegible] measures to stop the importation of foreign cattle and [illegible] for the next six months, such being, in their opinion, [illegible] means of eradicating the rinderpest from this [illegible]; and, also, that in their opinion every facility should [illegible] for the importation of dead meat, so as not to interfere [illegible] supply of the food of the people"—a course not likely [illegible] adopted, and, looking to the millions of consumers, it is [illegible] which I cannot concur. That part of the Order in Council relating to the appointment of inspectors and the powers given to them, is open to great objection, and is of a [illegible] arbitrary nature. If the appointments were given to none [illegible] men, there would not be much injury done; but where unskilful men are appointed, "vested with a little brief authority," we cannot but think great losses have been entailed upon private individuals, by the unnecessary slaughter of a [illegible] number of animals. If Government intends to compen-[illegible] the owners of cattle for such slaughter, there will not be much to complain of, except the loss to the nation. I am not surprised to find that there is a very strong opinion in many parts of the country, that it would only be a matter of justice on the part of the Government that where animals have been slaughtered by orders of their inspectors some compensation should be made. This view was strongly urged [illegible] Winchilsea, in a forcible letter to the *Times* on [illegible]. Others go further, and consider that compensa-[illegible] should be made to all who have suffered any loss by the [illegible]. This view of the question is so well put by the com-[illegible] "Newark Cattle Plague Compensation Associa-[illegible] an address to the Privy Council, that I will quote [illegible] words: "The committee respectfully would submit to [illegible] lordships that inasmuch as the owners of English cattle in this country have been in no wise instrumental in introducing this disease, it appears to the committee to press with peculiar hardship upon the English cattle-owner, if he has to bear the entire loss caused by the introduction of a foreign disease, consequent upon the importation of foreign cattle for the benefit of the community at large; that the subject should be treated, as it is in fact, as a national question; that those who have suffered any loss, by reason of the plague, should be deemed equitably entitled to some remuneration from the national exchequer." I do not know what Mr. Gladstone—who, I hope, entertains a more kindly feeling towards the agricultural interest than some are disposed to give him credit for—will say to this. It would, however, be well to remind him of what all men in office like—a precedent. The Orders in Council during the last century provided that a measure of compensation should be made to all those whose animals were destroyed in conformity with the regulations then issued. Whether or not the country will listen to the suggestion, one thing is certain, the farmers cannot be twitted with having done nothing to help themselves. Praiseworthy efforts have been made in most counties, by owners of stock banding themselves together to indemnify each other against apprehended losses. It appears, however, from inquiries I have made upon the subject, that with two exceptions only, viz., Banbury and Hertford, these associations have not been formed upon a legal basis: this is an important matter. Mr. Hall Pratt, an eminent authority upon such matters, informs me that to render any assurance association legal, it must be registered under the Joint Stock Companies' Act of 1862; and unless this is done, proceedings cannot be taken against members for the recovery of the amounts due from them. And what is perhaps of more importance, there is no limit to the liability incurred by individual members. The principles upon which these associations are established are as numerous almost as the counties in which they are in action. If they are to gain a permanent and successful footing, it strikes me they must, like fire insurance offices, be few in number, and embrace all diseases.

4. *The Cattle Trade.*—Having touched upon these various points, there is one other to which I would invite your particular attention. The question of effectually dealing with the cattle plague, without resorting to such rigid measures as would paralyse the whole cattle trade of the country, has had my best and serious consideration.

I have come to the conclusion that a simple plan might be adopted which would soon put an end to the malady. In the first place stop all fairs and markets for a given time, except for the sale of fat stock; due precautionary measures being adopted to prevent such animals leaving any town or place until slaughtered. It should be ordered that in any village or township where the disease should break out, an inventory of all cattle be at once taken; that none should be allowed to pass through or out of that village or township, or perhaps the adjoining one as well, so long as there was any case in it, and for three weeks after, and that a heavy penalty be inflicted for a breach of this law. I think the police might be employed in this service (unless their new duties of looking after the poachers would prevent them), that the veterinary inspectors should see all cattle weekly according to the inventory, and that no animal should be buried or otherwise made away with without a certificate from the inspector. If this regulation were to be put into practice, it would be at once ascertained where diseased beasts were to be found; the murrain would soon be narrowed in its limits, and very soon effectually stamped out, and this without the enormous inconvenience to farmers and others by the adoption of more rigid measures. In a highly interesting pamphlet written by the late M. Renault, and published recently under the authority of the French Government, I find that similar, only more despotic steps have been adopted by Austria and Prussia for some years past on their eastern frontier; and, at the present moment, France, by its prefects, is enforcing even more rigorous measures. I quote also from Lord Bury again, who says: "That on the appearance of the disease the Dutch Government immediately drew a sanitary cordon for a considerable distance around the locality. Agents and sentries were appointed to watch all the roads, and to prevent any movement of stock outside the infested district, which contains about 250 square miles. The success of this step had been established by the fact that while within it about 5000 cases of the rinderpest had occurred, outside of it there had been only three cases." Gentlemen, I now leave the matter in your hands, feeling assured that your time will be well occupied in discussing a subject which so much affects not only the farmers, but the masses of this great country. For we cannot disguise the fact that, should the cattle plague continue to increase, as from the late returns appears to be the case, meat will advance to such a price that it will be beyond the reach of thousands who have hitherto enjoyed this luxury. Such is the state of things in countries where its ravages have been severe. My brother (Mr. James Howard) informs me that when he was in Cairo last spring, beef was from 2*s.* 6*d.* to 3*s.* per lb. I earnestly hope that such measures will be taken as will prevent any such calamity befalling our highly-favoured land.

Mr. Howard then read letters which had been received from Mr. Smallbones, of Deutsch Kreutz, Hungary; from Mr. Air, of Cairo; and from Mr. C. S. Read, M.P., for which we must find room next week.

The Poultry Yard.

NOVEMBER.—During the present month there is much to be done. All the surplus birds that are not intended for stock, or for exhibition, should now be sold. Where, as on many farms, there is an off-hand barn or homestead, it is a very excellent plan to keep at it all the drafted stock of poultry; for instance, if the breed be Dorkings, and there be some latish chickens, about the development of which you are in doubt, they can there be allowed full range, until they show whether or no they will pay for their keep. The hens and pullets intended for setting in the spring, may also there be turned out. The old breeding birds should be put together at the close of the month; should be well fed, and their eggs carefully saved for setting. If intended for market, the chickens that are ready to send in April will fetch almost as much per head as they will per couple later in the year. The grand difficulty has hitherto been to find broody hens at the right time, when most wanted. There is now a patented incubator, which will very shortly be before the public, that may very possibly be made to play a very important part in the production of food; as by it, poultry may be hatched and reared at any time of the year. It is a fact, that in the neighbourhood of Aylesbury, in the village of Berton, and some others that rejoice in the sobriquet of "Duck-end," the hire of a broody hen about the second or third week in December will often range from four to six shillings. High feeding, care, and attention will make healthy young birds lay in the winter, but in many districts it is very difficult to get sitting hens at all at that time. Where it is an object to have early chickens, it is always advisable to keep a few Cochin China hens, as they are invaluable for sitters, and are in full laying when eggs are very scarce.

The choice and selection of a stock of poultry for a farmyard is a matter that requires more consideration than is usually given to it. It not unfrequently happens that the nucleus of the yard is a pen of birds the gift of a friend or the purchase at an exhibition or auction. They are turned down in the yard to take their chance with its denizens, the descendants of gifts or purchases made years ago. The two varieties may not be suited for crossing, the result is unsatisfactory, and the purchase money considered as a loss. The simplest and best plan, although at first the most expensive, is to clear off all the old birds (unless of a really good breed) and to start with a stud of really well-bred specimens of some standard variety, and for the first season to save for breeding all the pullets hatched. By so doing a good number may be in readiness for the second. This is only necessary where a few birds form the entire stock. Another plan which answers very well, is, where there are already common fowls, to kill off or sell all the cock birds and old worn-out hens, reserving only the pullets and young hens that are in full profit; with these should be put down a cock and two or three hens of a good breed, and theirs should be the only chickens saved. This plan requires attention and observation to select the pure-bred chickens from the half-breds when the time comes for fatting and killing. When, as has been before incentioned, there is a second homestead or lodge, the pure birds may be kept at one place, and their chickens may be reared at the other, so that the adult breeding birds have the entire run of one yard to themselves. As regards the choice of breeds suitable for a farmyard there is a great diversity of opinion, and much good may be done by comparison of results obtained by some of our most successful breeders. *Hints.*

The Moa of New Zealand.—The marvellous adventures and journeys of Sindbad the Sailor have at some time or other been familiar to most of us. It would seem that his gigantic bird, the Roc, had, however, at some remote date a distant relation in the Moa or Dinornis. From time to time accounts have reached this country of the native traditions respecting this gigantic bird, now supposed, and with good reason, to be extinct. Bones of it have been found from time to time, and from them Professor Owen and other naturalists have drawn on science and imagination as to its probable size and shape. We now have a link that is a very important one in the chain of construction; and that is the arrival of an egg of this bird from New Zealand. It was discovered by a man in the employment of Mr. Fyffe, at Kai Koras. He was digging the foundation of a house, and on the side of a small mound came upon the egg in question. It was in the hands of a skeleton Maori, and with the skeleton there were numerous tools of sharpened stone, including a spear-head, axe, &c. In digging out the egg it was slightly injured, but the pieces were preserved. It measures 10 inches long, 7 inches broad, and the shell is about the thickness of a shilling. It was brought over in the ship "Ravenscraig," and will be sold by auction by Mr. J. C. Stevens, of King Street, Covent Garden, on the 24th inst.

TRAVELLING OF EGGS. When sittings of eggs are forwarded by railway, it is usual to pack them in hay or soft straw, which, by its elasticity, prevents all shaking, and enables the eggs to be forwarded any distance without injury. This season I forwarded two sittings of eggs to the far north of England, one packed most carefully in bran, the other in hay; of the first not one egg hatched, whilst every one of the second produced a chick; and of a sitting that I received this season, which was similarly packed, every egg was fertile, although the basket had travelled from the north by coach, rail, and carrier. *Tegetmeier.*

Farm Memoranda.

BONNINGTON FARM, held by Mr. James Melvin, is situated about three miles south from the Ratho station on the Edinburgh and Glasgow Railway, and close to the boundary between the counties of Mid-Lothian and West-Lothian, or Linlithgowshire. The farm-steading and a considerable proportion of the land lies at an elevation of 400 feet above the level of the sea. Some of the farm lies indeed somewhat lower, but other parts of it are even higher than the elevation we have stated. Owing to its position it commands a wide view, extending from the rich and highly cultivated valley of the Almond in the foreground, to Fife and the Ochils, and even in a north-westerly direction to the still more distant Grampians.

It was in 1836 that Mr. Melvin commenced farming at Bonnington, and very soon after that event he began to lay the foundation of a Leicester flock in Buckley blood—the most fashionable blood of the day—which he afterwards crossed with rams from Paulett and Wiley. This system he kept up until about 12 years ago, being at that time a strong advocate for the English type of Leicester, but finding that his

sheep, although extremely neat, had not sufficient size or outcome to pull down the scales as they required to do, Mr. Melvin turned to what are now well known as the Border Leicesters, and having resorted to Lord Polwarth's and Mr. Stark's far-famed flocks, he has effected an entire change in the character of the Bonnington sheep, the best proof of which being the increasing demand he experiences every year for his rams, and the regularly improving prices he has been obtaining for them. At the last sales of the Lothian Ram Society, held last month, which, being but a young association, has not as yet the prestige of the Kelso sales to run up prices, Mr. Melvin sold 80 shearling rams at an average of nearly 10*l*. Customers for the Bonnington rams came from all quarters—from John o'Groat's, and beyond it, and even from the other side of the world altogether. At the last Kelso ram sales, Mr. Melvin made a decided stand at the first for "No. 5," the best of Lord Polwarth's lot, and though followed hard in the contest, it ended in Mr. Penny declaring in Mr. Melvin's favour on a bid of 95*l*., being the highest price yet attained for a Border Leicester shearling. After doing service this season in Mr. Melvin's flock, "No. 5" will proceed next month to New Zealand, being the fitting chief of a flock of about 100 Border Leicester and Lincoln rams, at present at Bonnington, which Messrs. James Morton & Co., of Glasgow, are sending out to Southland, New Zealand.

In the Bonnington flock we found that the ewes, of which there are 200, are long-sided, full-quartered, roomy sheep; and throughout the flock, young and old, there is that strong family likeness which indicates good breeding; the clean cut jaw, nice wool, quality, and size, telling very decidedly of the Polwarth blood which runs in them. The family likeness will, we expect, be well brought out in the lot of shearling rams which Mr. Melvin will have next year for his friends, one capital ram (one of Lord Polwarth's sheep) having tupped over 100 ewes last year at Bonnington, and of the produce about 70 are tup lambs.

Mr. Melvin does not give his ewe lambs anything beyond a half supply of Turnips, cake being excluded from their dietary, as he goes on the safe principle that it is better not to attempt to give them more size than his land would carry properly. The land is for the most part a tilly clay, and when in pasture does not fatten a sheep like land elsewhere, requiring an extra half-pound of cake daily to bring them up to the mark, as compared, for instance, with land about Kelso. For many years he carried out the same principle in feeding his tup lambs, namely, half Turnips and no cake; but latterly the views of his customers have changed, and he finds that a moderate allowance of cake is not lost on his tup lambs. These are all kept until after they are shorn, and a selection is then made of those which are to be retained for sale, while the rejected are finished for the butcher. This is a better plan than selecting those which are to be kept while they are young, as it often happens that some which would furnish into capital sheep as they got older, are rejected when the selection is made early.

Several years have passed since we became convinced from experience of the benefits of autumn cleaning stubbles preparatory to a root crop, and as we occasionally meet with some who are not prepared to think so highly of the system as we do, we confess it was with considerable pleasure we found that Mr. Melvin has been carrying it out for some time past, whenever it could be done properly. He uses the ordinary grubber for the purpose, the only difference being that the chisel-toothed tines are superseded by others of a triangular or V-shape, which are about 7½ inches broad at the broadest part. These are made of malleable iron, cast-iron being useless at Bonnington, owing to the underlying rock being near the surface in several places. The farm was all drained many years ago on the Deanston plan, that is, with drains 2½ feet deep and about 36 feet apart; but when a deeper system of draining became common, most of it was drained a second time, with two-inch pipes sunk 4 feet. The old shallow drains, however, are still working well.

The rotation followed includes two manured green crops in its course, one year's hay, and two or three years' Grass: say (1) Oats; (2) Potatos; (3) Wheat; (4) Turnips; (5) Barley; (6) hay, and then pasture. There are occasional variations from this as circumstances require: for example, we saw a capital crop of Potatos growing close to the steading in a field which had produced a crop of hay last year. The tups got their Turnips last winter on it, and the land was then ploughed and prepared for Potatos, which were put in with plenty of dung, a heavy clean crop being the result. In common with all the farmers in that part of the country, Mr. Melvin has until now been in the habit of taking out large quantities of dung from Edinburgh, the canal which passes the lower part of his farm being very convenient for that purpose. But since it has been proved that there is great danger, and indeed a certainty of spreading the cattle plague by manure brought from infected places, he has wisely given up getting Edinburgh dung in the meantime, although the want of it will doubtless be a serious inconvenience. Mr. Melvin has experimented largely with all kinds of artificial manures, and for some time he used a good deal of nitrate of soda as a top-dressing for Grass, but he has abandoned it in favour of guano, bones, and phosphatic manures generally. He applies his top-dressing chiefly to his Grass fields, preferring doing so to top-dressing Oats after Grass, finding that the plan he follows produces better returns than when the artificial manure is applied direct to the cereal crop.

The Turnip crop is partly eaten on the ground, the lighter portion of the land being selected when this is done, and partly on the Grass fields. Upwards of 100 head of cattle are fattened during winter; and this year Mr. Melvin has been particularly fortunate, having procured a capital lot from Ireland before "cattle plague" had made its appearance in this country. Those beasts have since been going on an out-farm, and, for this year, Mr. Melvin is independent of the store cattle fairs.

Labourers are not easily got in the neighbourhood of Bonnington, partly owing to a large quarry which keeps a number of able hands constantly employed, but chiefly owing to the numerous paraffin works which have been opened at no great distance, the constant smoke from which sends a haze all over the country, obscuring the prospect, and even discolouring the fleeces of sheep; but it tells of a largely increased and well-employed population, and, consequently, a greater circulation of money, which, of course, compensates for a multitude of minor annoyances. *From The Farmer.*

Miscellaneous.

Landlord and Tenant.—Now, I so far agree with this position that I think the basis of the connection between landlord and tenant is undoubtedly the simple basis of contract. That I quite concur in, and I wish that some of those gentlemen who speak on the subject would always remember their own doctrine, because we frequently see principles laid down as applicable to the property and obligations of those two classes which are not founded on contract, but upon some abstract notions of right. It appears to me that the contract is undoubtedly the basis of that relation. A landlord when he lets his land gives up everything which he does not specially bargain to retain. A tenant, when he takes land, takes everything which he has bargained to take, and nothing more. But, after all, this is mere bare, hard, stony logic, and we cannot live upon logic; we must have something better than that to live upon, and there is something in the connection between landlord and tenant which puts it out of the question that the relation should be one of pure and simple commerce. In the first place, the mere duration, the mere length of the relation, removes it at once from that footing. I need not refer to those tenants who have held their land for generations—who themselves and their forefathers have occupied the same farm under successive generations of the same family of proprietors. I will not refer to these cases; they are cases, no doubt, which the progress of time is gradually tending to diminish, though there are still a very large number of tenants of that class in this country. But, take the ordinary case of a man taking a farm for 19 years from another. I say that of itself constitutes a connection which renders it impossible that the relation between them should be one of pure commerce. Why, just think what a 19 years' lease involves! Nineteen years, counting from early life, carries a man to middle age. If a lease is given in middle age, it carries him on very far towards the decline of life. If it is given in the decline of life, no man can expect to see the end of it. I say, therefore, that the mere duration of the connection between those two persons—the man who lets his land, and the other who takes the land for 19 years—constitutes a relationship which is necessarily more intimate and personal than a mere commercial relation between a manufacturer and those whom he employs, or between a shopkeeper and those with whom he deals. There must be give and take in the relations between landlord and tenant. It is very well to have a written agreement—quite right to have a written agreement—and in Scotland, in nine cases out of ten, we have it; but I say that the relations between those two men cannot be exactly measured by what is written in the four pages of that lease. There are generally some things in which the landlord wishes to be obliged by his tenant; there are almost always many other things in which the tenant wishes to be obliged by his landlord. There are advances to be made for draining, or for building, or for other purposes; there are various offices, in short, of good neighbourhood and goodwill, if there were nothing else, which render the connection much more intimate than that of mere commerce. And that is the basis upon which the influence of landed property must continue to rest—upon the good feeling and mutual interchange of good offices between the landlord and the tenant. If there are any who think that this is an illegitimate influence, and who wish to see it diminished, I am afraid they must bear with it, because, after all, it is not an artificial result, not the result of artificial laws of any kind, but arises from the nature of the connection, and is to be found in the nature of things. *Duke of Argyll at Inverary.*

Scotland v. *England.*—I think there can be no doubt whatever that, although we are certainly on a level, and I should say ahead of England in many respects, yet, as regards the cleanliness of our houses, and the general outward aspect of our cottages, I think England is decidedly ahead of Scotland. Among the smaller tenantry, and even among the cottages in England, one sees more neatly-kept houses, and, above all, more neatly-kept gardens; and no stranger passing through Scotland, coming from England, can fail to observe the contrast which, in many districts of the country, at least, prevails in that respect. Even tenants of a high class, persons of very great intelligence, and of considerable capital, are accustomed, and are contented to live in Scotland in houses and with surroundings which certainly would not be allowed by a similar class in England. I had a curious example of that not long ago with a farmer who paid, I think, a rent of not less than between 600*l*. and 700*l*. a year, a person of very great intelligence. When I went to visit him I found that the garden—such garden as it was—was at a considerable distance from his house, and that the ground which was in immediate proximity to his door was the pigstye of the establishment—and I can assure you that on knocking at his door the odour which met one's nose was anything but agreeable, and certainly very inferior to that of a bed of Mignonette. On making some observations to this farmer, as to why he did not object to such proximity, which had existed for many years, he took what I must say was really a very Scotch view of the question—very practical, very useful, but not at all sentimental. His reply was, "Weel, I ha'e keepit my health extraordinar' wi' thank ye." *Duke of Argyll at Inverary.*

Calendar of Operations.

NOVEMBER.—*Wheat Sowing* should proceed as the Turnip fields are cleared; the quantity of seed should be slightly increased as the season advances.

Turnips.—Such Turnips as it is intended to draw for consumption in the yards should be pulled in the early part of the month; and where the practice prevails of pitting the whole crop on the fields where they are grown, it should be completed during November. To pull, and top, and throw into heaps a crop of the common or Swedish Turnip will cost from 5*s*. to 7*s*. per acre; when they are to be carried from the field, the better way is to throw them into rows, four or six drills together.

Mangel Wurzel should be all harvested. The cost of pulling, topping, and throwing into carts will be from 7*s*. to 9*s*. per acre.

Carrots and Parsnips should all be dug and secured in November. They are lifted by a spade or fork. One woman cuts the tops as fast as two men can lift the roots. The whole process, including filling the carts, will cost from 18*s*. to 25*s*. per acre. Some give from 8*d*. to 10*d*. per load of 40 bushels for harvesting. Every root crop, excepting perhaps the common or Swedish Turnip, should be housed or pitted as they are dug.

Stubbles.—The horses will be kept at work upon the corn stubbles this month. Those fields intended for Beans and Peas next spring should be ploughed first; then those for Carrots and Mangel Wurzel; last, those for Swedes and Turnips.

Claying or Marling Land.—Some of the labour of this month, on light land farms, may be profitably directed to this process, wherever clay or marl is accessible. It is spread over the surface at the rate of from 50 to 100 cubic yards per acre. Chalk, in like manner, may be raised and spread during this month. The threshing of all kinds of grain, as straw or corn is required for home use, or as the state of the market appears to advise, continues at intervals.

Fences.—Plant hedges of Thorn, Beech, Hornbeam, Box, Yew, Maple, Privet, or anything with which it may be desirable to form a fence. Dig and clean on both sides of all young hedges; remove all Couch, Docks, and, in fact, all perennial weeds. Manure where thought necessary. Repair posts and rails, or whatever kind of temporary protection may have been used.

Cider.—This is the best season for preparing this liquor.

Grass Lands must now be thinned to their accustomed winter stock, which ought rarely to exceed one sheep per acre.

Water Meadows.—Irrigation is commenced; and attention should be paid to carry the water over every part, as far as quantity permits. Turn off the water on a mild morning, keen winds and frosty air being injurious to the young Grass.

Live Stock.—Horses may have a somewhat diminished allowance of Oats towards the end of November; hay or straw and Carrots being continued.

Cattle are to be treated as in October. The daily allowance of oil-cake or of Beans and Linseed may be gradually increased up to 6 or 8 lb. each, or a mixture of 4 to 6 lb. of Bean meal, with 2 or 3 lb. of Linseed; and the daily allowance of Turnips may also be increased. They must be kept dry and warm, with a plentiful supply of litter.

The Sheep which it is intended to feed in sheds should be placed under shelter towards the end of this month. As a general rule, they will do equally well on from 1-8th to 1-10th the quantity required by the cattle. Ewes ought, at the close of this month, to be taken from the rams, and placed thinly on their winter pastures. Lambs ought to have warm covered shelter provided for them—ready of access, and well supplied with litter, so as to be kept dry, which is all-important. They must be allowed as much space of Turnips (which should all be cut for them) or of Rape in their folds as they will easily consume, and no more. Keep up a

water increase, their quantity of artificial food; give free access to common salt, in a covered tub; attend constantly to their feet, and, if necessary, dress them with a mild caustic mixture; those which are inclined to purging, bleed at both nostrils. Grazing or yearling sheep, on Grass pastures, ought to have one half pint of Barley, or similar food, daily. Sheep requiring a smearing for ticks, may be attended to this month. Mercurial ointment must be avoided after a recent change of keeping.

Pigs.—Store pigs are now fed on steamed Turnips and a small quantity of meal; and those which are fattening, on Turnips, Potatos, and Barley or Bean meal.

Dairy Farm.—The cows, when the Grass fails, either receive, as in the southern counties is the practice, one feed of hay in the day, or are tied up in cow-houses or sheltered in well-littered yards, as is the practice farther north. Water should be served to them; and they may receive Mangel Wurzel tops or Cabbage, or Turnip tops, along with their hay. As winter advances the milk gradually diminishes; and in small dairies cheese-making ceases.

Moorland Farm.—Have the bathing or smearing finished by the middle of this month at latest. When that is done, put flannel jackets on the hogs; they may either be sewed to the wool, or fastened with tape. Each jacket costs about 3½*d.*, and will last three or four years if well taken care of. Tups are now put to the ewes. In low and sheltered situations, where the ewes are crossed with a Leicester tup, this should be done at the beginning of the month; but in high situations the latter end of it is soon enough, that the lambs may not come before there is food to support them. From 50 to 60 ewes to a tup are quite enough, when they are allowed to range over an extensive grazing. Ewe hogs, if to receive Turnips, should be put on now, and each day allowed a run off to Grass or Heather. If Cheviot hogs are not already on Turnips, put them on now. Old sheep, which are not sold, should be removed from their grazing, and put on Turnips. Overstocking now is very prejudicial.

Frosted Mangels.—As a good many casualties of this kind always happen during a sudden change to winter weather, we quote the following passages on the subject:—

It is perhaps well to bear in mind that the experience of 1859 proved Mangel Wurzel capable of preservation even after being frozen, and capable of wholesome use as food even though partly rotted by the frost. It is well to avoid all risk by timely harvest work; but it is not wise, if frost should have attacked the crop before it has been harvested, to abandon it. The following proof of this was adduced, along with many others, in a paper recently contributed to the Bath and West of England Agricultural Society's Journal. Mr. Chadwin, of Tollard Royal, Salisbury, speaking of a heavy crop of Mangels caught by the severe frosts of October, 1859, says:—"I tried several of the roots, and they were perfect masses of ice. I knew it would be useless trying to store them then, and therefore allowed them to remain a fortnight or three weeks after the frost had gone before taking them up. On finding that the frost had thoroughly left them, I put on all the strength I could, and stored them in the field, in long heaps, 7 feet wide at the base, tapering to the top, covering them with short straw or litter, and throwing over this 7 to 8 inches of soil, leaving it quite rough, without patting it down, and leaving the top of the heap without soil for ventilation. The heaps were never opened all the winter. When they were opened in May, the roots were found to be in a most perfect state of soundness, and I believe they might have been kept so till the following year."

On the value of frosted Mangels as food, the following testimony seems conclusive. Mr. E. Bowly, of Siddington, near Cirencester, says of the same year:—"The Mangels of 1859 were seriously injured by the very severe frost in October, when few had even commenced getting them up. This I think they very much recovered, and those who had the courage to store them in the ordinary way reaped the advantage they always possess for spring feed; but many, like myself, were fearful of permanently securing them. We got them together and covered them with straw, intending to pick them over again and throw out any that appeared injured by the frost; but straw will not effectually keep out frost, and the very severe weather which followed again injured them most severely; we were therefore obliged to consume them immediately, instead of, as usual, reserving them for spring feed. I gave them to every description of stock, and without any apparent injury; indeed, the sheep and cattle did well on them, although many, indeed most of them, were in a soft state."

It is well, unless the land be wet and a great deal of earth cling to the roots, to do nothing to cleaning them, but to throw them into the carts as they are pulled, excepting only that the leaves are first cut off. This is done by a single chop of the knife, and at such a distance from the head that the leaves shall fall separate. It is best, too, not to cut the tap-root off, but to leave the root entirely untouched by the knife.

Notices to Correspondents.

Vetches: *J Reid.* The difference between the Spring and the Winter Vetch plants, is one merely of habit and hardiness.

COCOA-NUT REFUSE delivered within 2¼ miles of Charing Cross, at 2s. per bag.

For particulars, and how use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the Patent Cocoa Fibre Company, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. Barsham & Co.

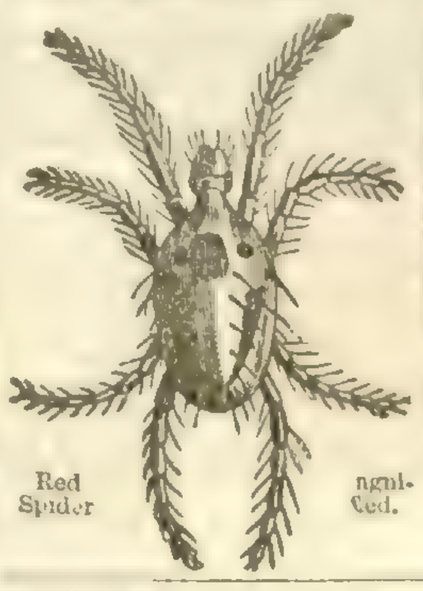
Barsham's BRUSHES and MATS are sold in every town.

Caution.—Every Brush is stamped, J. Barsham's Patent.

Certain Death to Insect Life.

TOBACCO TISSUE for FUMIGATING.—To Florists, Gardeners, and others this new article is strongly recommended for the purpose of destroying Insect Life in Greenhouses, Pits, &c., being manufactured, under Letters Patent, from pure Tobacco rolled into Sheets or Tissue, and is entirely free from any chemical admixture to create combustion. It will be found more economical and very superior to the article generally used.

Sold by all Seedsmen, Nurserymen, and others; and by Messrs Roberts & Sons, Tobacco Manufacturers, 64, St. John Street, Clerkenwell, London, of whom samples, with testimonials, may be obtained.



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GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

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Apply to Hill & Smith, Brierly Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C., from whom only it can be obtained.

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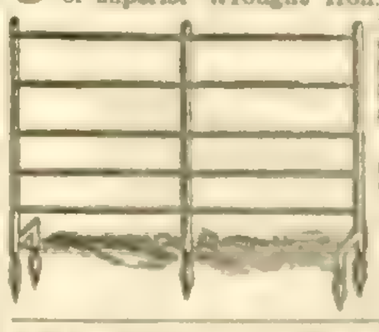

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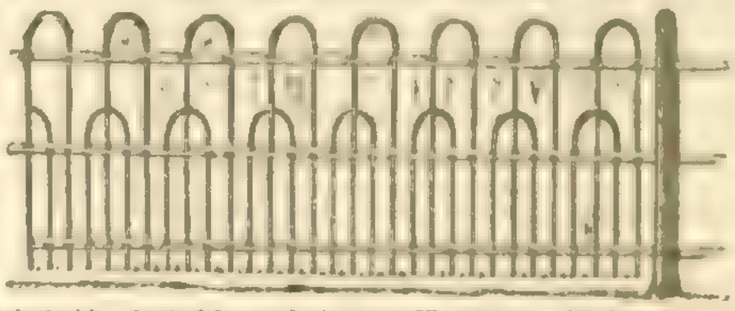

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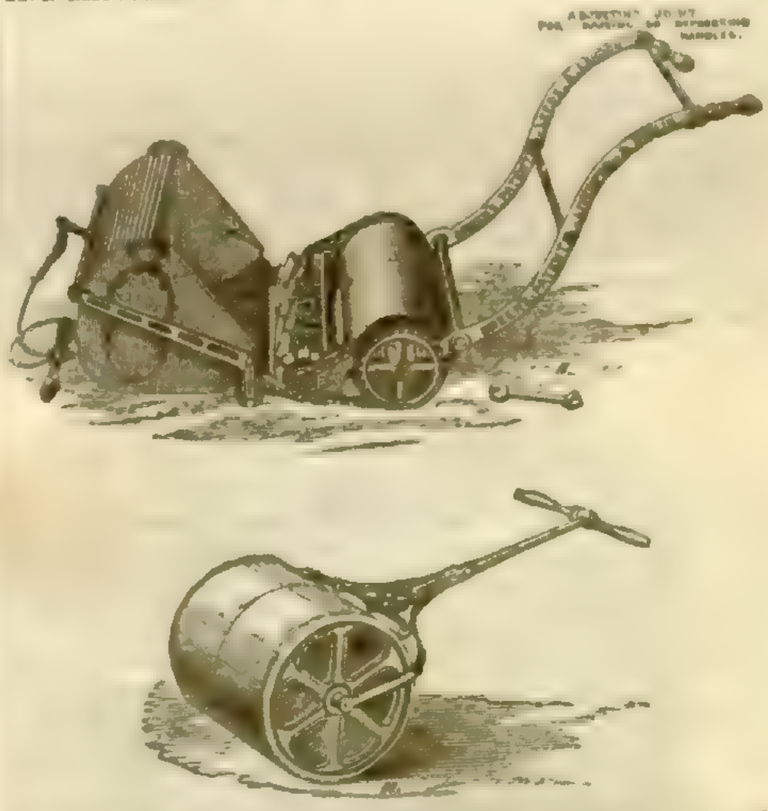
GREEN'S PATENT SILENS MESSOR, or NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.



GREEN'S PATENT LAWN MOWERS have proved to be the best, and have carried off every Prize that has been given in all cases of competition. Above 26,000 have been sold since the year 1856.

Illustrated Price Lists of Lawn Mowers and Garden Rollers Free.

Thomas Green & Son, Smithfield Iron Works, Leeds; 2, Farringdon Road, Holborn Hill, London, E.C.; Hadwin's Buildings, Tithebarn Street, Liverpool; and 19 Eden Quay, Dublin.

PATENT GUTTA PERCHA SOLES.—Important to Gardeners.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. Glenny, Esq., the celebrated Florist:—

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles.—Your obedient servant, "G. Glenny.

Every variety of Gutta Percha articles, such as Mill Bands, Tubing Soles, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags Curtain Rings, Galvanic Batteries, Calbotype trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town or country.

The Gutta Percha Company, Patentees, 18, Wharf Road, City Road London, E.C.

The Only Stove without a Flue.

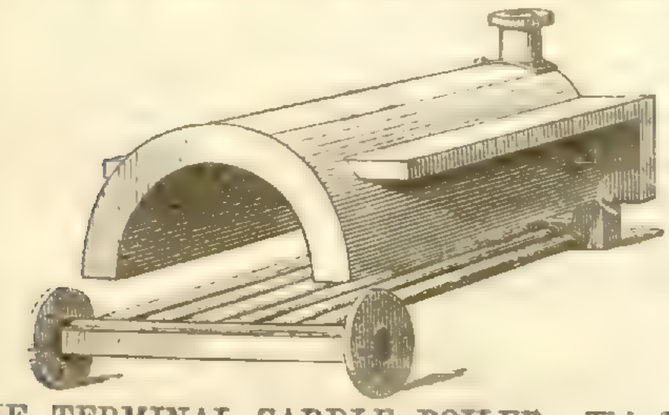
NASH AND JOYCE'S PATENT, for AIRING, DRYING, and WARMING HALLS, SHOPS, ROOMS, &c., a new especial Stove for Conservatories, Greenhouses, Fruit-Ripening, &c.; to Burn without re-lighting all winter by filling with fuel every 12 hours. Temperature, any degree required, without varying. Price from 12*s.* 6*d.* to 6 guineas.

MINCING and SAUSAGE FILLING and MASTICATING MACHINES of the best makers, 10*s.* 6*d.*

The COTTAGE KNIFE CLEANER is the only rapid Cleaner and Polisher of Knives at a moderate price. 3*s.* 6*d.* to 10*s.* 6*d.* Prospectus post paid.

S. NASH, Ironmonger, 253, Oxford Street, W.C.; and Stove Depôt, 119, Newgate Street, London, E.C.

By Her Majesty's Royal Letters Patent.

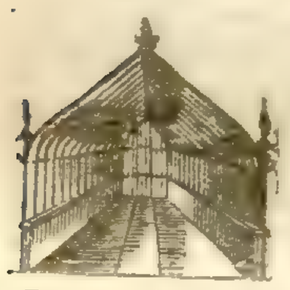


THE TERMINAL SADDLE BOILER.—This is the Old Saddle made perfect, by the addition of an upright terminal end piece, which quite closes the arch and side flues, and forms the back of the furnace, doing away with all brickwork at the end, and adding one-third more heating surface to the boiler just where it is most exposed to the direct action of the fire.

To be seen at the Royal Horticultural Gardens, South Kensington; and is at work at the Victoria Nursery, Holloway, Mr. Williams having kindly consented to show it to any one who will call at that Establishment. Circulars, Prices, &c., on application to

J. IRELAND, The Works, Edward Street, Broughton Lane, Manchester.

Greenhouses—Heating Apparatus.



MEDAL

DUBLIN

EXHIBITION.

THE ONLY PRIZE MEDAL FOR GREENHOUSES HAS BEEN AWARDED TO

T. H. P. DENNIS for IMPROVEMENTS in the CONSTRUCTION and APPLICATION of WROUGHT-IRON to HORTICULTURAL BUILDINGS.

DENNIS'S PATENT WROUGHT-IRON PRIZE MEDAL CONSERVATORIES are of the highest order.

DENNIS'S PATENT WROUGHT-IRON PRIZE MEDAL GREENHOUSES perfectly neutralize atmospheric conduction.

DENNIS'S PATENT WROUGHT-IRON PRIZE MEDAL VINERIES promote vigorous growth and richness of colour.

DENNIS'S PATENT WROUGHT-IRON PRIZE MEDAL ORCHID HOUSES and STOVES, with double-glazed roofs, are a complete arrangement.

DENNIS'S PATENT WROUGHT-IRON PRIZE MEDAL ORCHARD HOUSES (as supplied to Mr. Rivers), induce perfect symmetry and unfailing result.

DENNIS'S PATENT WROUGHT-IRON PRIZE MEDAL GERANIUM and PLANT HOUSES, are thoroughly ventilated and admit a maximum degree of light.

DENNIS'S PATENT WROUGHT-IRON PRIZE MEDAL CUCUMBER and MELON HOUSES are specially arranged and heated upon T. H. P. D.'s improved system.

DENNIS'S PATENT WROUGHT-IRON PRIZE MEDAL PINERIES, when heated upon T. H. P. D.'S improved system, are calculated to secure the growth of first-class fruit.

DENNIS'S PATENT PRIZE MEDAL FORCING HOUSES are eminently superior for all early work.

DENNIS'S PATENT WROUGHT-IRON PRIZE MEDAL STRAWBERRY HOUSES admit a complete flood of air and light.

The above Patent Houses can be glazed with or without putty.

These Houses are now protected by three Royal Letters Patent, and from the complete adjustment of their constructional parts will vie most favourably with Wood Structures in point of cost.

Designs and Estimates prepared for single or complete ranges of Houses in Wood or Iron.

Illustrated Catalogues on application to the Patentee,

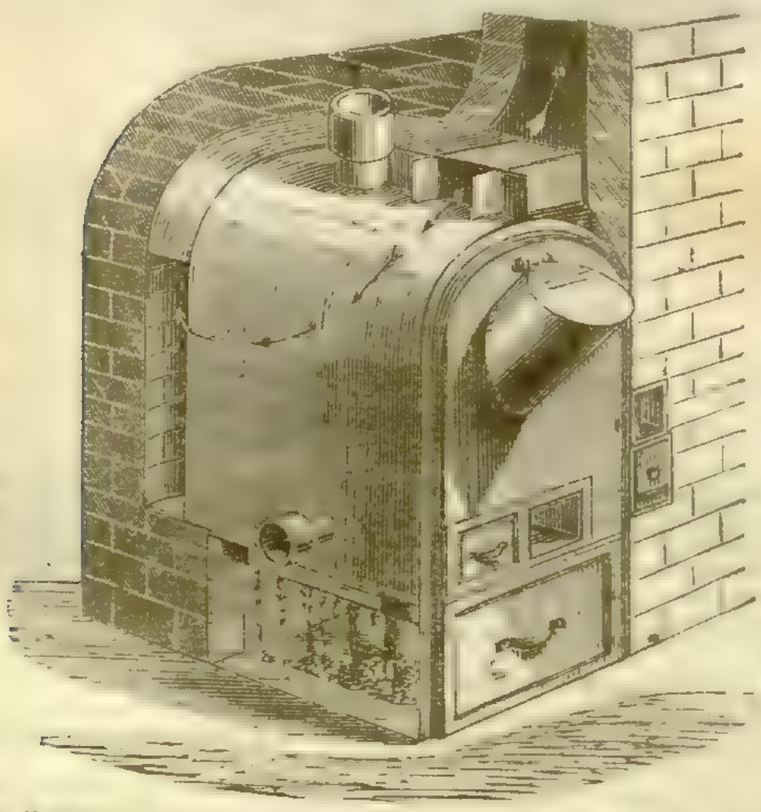
T. H. P. DENNIS, Horticultural Builder and Hot-Water Engineer, Chelmsford.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

Milbank's Self-feeding Hot-water Boiler.

Manufactured and Sold only by

A. E. PHILLIPS, High Street, Chelmsford, Essex.



A. E. P. has great confidence in recommending this BOILER to Gentlemen, Gardeners, Nurserymen, and the Public, having for some time tested its capabilities. It is simple in construction, inexpensive in fixing, and the most economical in the consumption of fuel of any Boiler before the public. It is very powerful for heating purposes; the whole strength of the Fire is in contact with the water surface—NO BRICKWORK ABSORBING THE HEAT. The new arrangement of the Flue Box causes the entire heat of the fire to circulate over the entire outside surface before entering the chimney shaft. The Boiler is set under a dome of brickwork, whereby a double action is given to the fire.

A. E. P. will be happy to forward a List of Testimonials.

Greenhouses, Conservatories, and all kinds of Glass Structures are erected by A. E. PHILLIPS, at the lowest possible cost. Plans and Estimates given free of charge. Architects' Plans carefully carried out. Estimates for Heating Conservatories, Churches, Chapels, or Public Buildings, on the most economical principle. The proper execution of all works guaranteed. Experienced workmen will be sent to all parts of the country

Exhibition Prize Medal, 1862.

HOTHOUSES for the MILLION.—On the principle invented and patented by Sir Joseph Paxton, M.P., combining simplicity, cheapness, excellence, and durability. SPAN-ROOF HOUSES, painted three coats, and glazed with English Sheet Glass, can be supplied ready for fixing, 21 ft. by 13 ft., 24*l.*; 43 ft. by 19 ft., 73*l.* 5*s.*; 64 ft. by 25 ft., 161*l.*

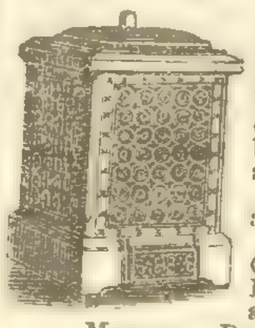
Illustrated Circulars, with Prices, can be had on application to SAMUEL HEREMAN & J. MORTON, Agents, 7, Pall Mall East, London.

Also, A HANDBOOK on VINE and FRUIT TREE CULTIVATION, 2d Edition, price 1*s.*; post free, 1*s.* 1*d.*

Exhibition Prize Medal, 1862.

MUSGRAVE'S PATENT SLOW COMBUSTION STOVE.

This Stove is the nearest approach to Warming by Hot Water.



It will burn in Churches from Saturday till Sunday evening, without attention during the hours of worship. In Halls will burn day and night for weeks, with little care. Capable of Warming a large Apartment for 24 hours, at a cost of 3*d.*; and deserving of special attention, because of its safety, healthfulness, durability, and extreme simplicity.

It is also made for small Conservatories, with a vapour chamber.

For particulars of the above, and of MUSGRAVE'S PATENT STABLE and COW-HOUSE FITTINGS, which attracted so much attention at the Exhibition, address

MUSGRAVE BROTHERS, Ann Street Iron Works, Belfast.

This Stove can be seen in operation at Messrs. COX & SON, 38, Southampton Street, Strand, W.C.

Cheap Greenhouse Stoves.

DEANE AND CO.'S Patent VENTILATING SUSPENSION STOVES are simple, cheap, and efficient; have been largely adopted and approved; will burn many hours without attention, and at a small cost for fuel. Prices of Suspension Stoves, 20*s.*, 30*s.*, 38*s.*, and upwards. Ventilating Stoves, 45*s.*, 60*s.*, 70*s.*, &c.

HOT-WATER APPARATUS for Conservatories, Greenhouses, Hothouses, Forcing Pits, &c., erected and fitted up complete.

DEANE & CO., 46, King William Street, London Bridge, E.C.

Established A.D. 1700.

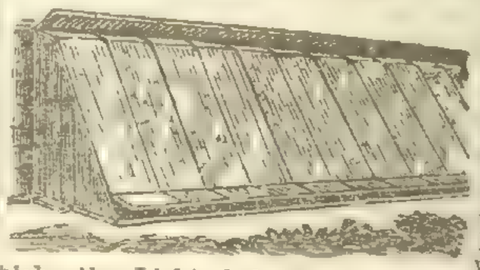
Horticultural Works, Kensal Green, London, W.

W. T. AND J. TAYLOR (late JOHN TAYLOR) have on hand for Sale THREE very handsome GLASS CONSERVATORIES made to order. They were prepared for a gentleman residing in Park Lane, but were raised on account of their intercepting the view from the mansion houses. They were not fixed.

Designs and Prices fixed complete in any part of the Kingdom forwarded upon application.

Under the Patronage of Her Majesty.

CLARK AND HOPE (LATE CLARK) 55, Lionel Street, Birmingham, MANUFACTURERS of METALLIC and WOOD HOUSES, CONSERVATORIES, VERANDAHS, &c., COPPER and IRON SASHES, SKYLIGHTS, &c., and HOT WATER APPARATUS for Horticultural and Domestic purposes.



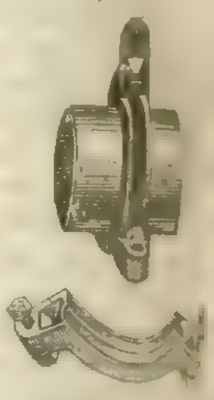
C. & H. beg to draw attention to their NEW COVER, or Glass Covering for Walls; which is composed of Cast and Wrought Iron glazed with Putty, and fitted with bolts and nuts, facilitating a Temporary Roof. It can be made [illegible] wide, and [illegible] high; the Lights being opened together, by means of simple durable machinery, in lengths of about 50 feet; and the cost does not exceed that of a wooden structure.

Further particulars, with prices, forwarded upon application; on receipt of the amount in postage stamps, a Book of Designs, 1*s.* 6*d.*, coloured 2*s.* 6*d.*, for Horticultural Buildings, &c.

PORTABLE HOT-WATER APPARATUS,

WITH TRUSS' PATENT JOINTS FOR HEATING CONSERVATORIES, HOTHOUSES, &c.

T. S. TRUSS



Begs to offer complete HOT-WATER APPARATUS for GREEN-HOUSES (consisting of 4-inch Pipes and Joints, Saddle Boiler, Fire Doors, Bars, Soot Doors, Damper, Supply Cistern, Feed and Air Pipes, Pipe Stands, &c., of the best quality), delivered to any Railway Station in England, and to erect the same within 25 miles of London, at the following prices:—

4-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection.
16 feet by 8 feet	£8 10 0	£2 0 0	30 feet by 12 feet	£11 15 0	£2 [illegible]
20 feet by 10 feet	9 0 0	2 0 0	40 feet by 15 feet	15 0 0	2 [illegible]
25 feet by 12 feet	10 5 0	2 5 0	50 feet by 15 feet	18 0 0	3 0 [illegible]

Erection beyond 25 miles of London, Railway Fare for one Man charged extra.

By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints.

Estimates and Plans forwarded on application to

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CUMMING & EDMONDS,

CONSERVATORY ARCHITECTS, HORTICULTURAL BUILDERS, and

HOT-WATER APPARATUS MANUFACTURERS,

STAMFORD BRIDGE, FULHAM ROAD, BROMPTON, LONDON, S.W.

CONSERVATORIES, HOTHOUSES, &c., erected in the best manner and Heated by Hot Water, with all the latest improvements. CHURCHES, SCHOOLS, MANSIONS, WAREHOUSES, &c., efficiently Heated by Hot Water on the most approved principles.

All Work executed at the lowest prices compatible with good materials and workmanship.

SURVEYS made, and DESIGNS and ESTIMATES prepared and forwarded free of every expense.

G. CUMMING, eight years Managing and Estimating Clerk and Designer to Mr. H. ORMSON.

Card.

SAMUEL N. McGERROW,
GENERAL HORTICULTURAL BUILDER,
Knotty Ash, near Liverpool.

Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

BURY and POLLARD'S CONICAL BOILERS for HEATING by HOT WATER, fixed at Seats of Duke of Northumberland, Lord Belper, &c., at Viscount Sydney's replaced, after being 30 years in constant use. Apply at
17, New Park Street, Southwark, London, S.E.

BURY AND POLLARD have just fixed, at Wollaton Gardens, for Lord Middleton, several BOILERS and LONG RANGES of PIPES.

Heating by Hot Water.

W. J. HOLLANDS, IRON MERCHANT,
31, Bankside, London, S.E.

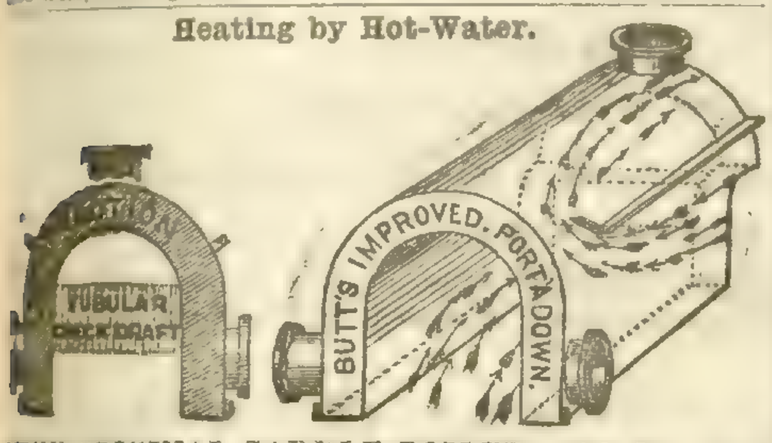
HOT WATER PIPES, from Stock, per yard:—2-inch, 1*s.* 2*d.*; 2½-inch, 1*s.* 10*d.*; and 4-inch, 2*s.* 4*d.* BENDS, from Stock, 1*s.* 6*d.*, 2*s.* 6*d.*, and 3*s.* each. THROTTLE VALVES, 10*s.*, 13*s.*, and 14*s.* each. Other Connections at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day. A discount to the Trade.

Heating by Hot Water.

HOT-WATER PIPES, at Reduced Wholesale Prices, with Elbows, Syphons, Tee Pipes, and every other connection; Cast-iron Boilers, Saddle, Conical, Cylinder, TUBULAR, &c., from 24*s.* each. Improved Boilers and Iron Stands to fix in brickwork, 56*s.* each. Valves from 10*s.* 6*d.* each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Castings of every description in stock, at
Mr. LYNCH WHITE'S Iron Wharf, Upper Ground Street, Blackfriars Bridge, London, S. Price List on application.

CRANSTON'S PATENT BUILDINGS for HORTICULTURE, Highly Commended by the Royal Horticultural Society, South Kensington. Plans and Estimates free on application. Houses of the following sizes always in stock:—Span, 30 by 15 feet, and 24 by 12 ft.; Half-span, 24 by 10 ft.; Lean-to, 21 by 8 ft. Stereoscopic Slides of different houses post free for 6 stamps each.
Descriptive Book, fully illustrated, by post for 20 stamps from the Author and Patentee, JAMES CRANSTON, Architect, No. 1, Temple Row West, Birmingham.

Heating by Hot-Water.



THE ORIGINAL SADDLE BOILER, with Improved Tubular Check Draft, Flued Ends, and Ribbed Sides, for Heating Greenhouses, Vineries, Forcing Pits, Public Buildings, &c. These Boilers possess increased heating surface capacity, power, economy and are the only class of Boilers, all points considered, when properly fixed, that can be relied upon with safety for Heating Greenhouses, &c., of any extent, by Hot Water, and at a moderate price.
Gardeners interested in such work should write for List of Testimonials, sent Post Free on application to FREDERICK WILLIAM BUTT (late London), Portadown, Ireland.

Greenhouse.

TO BE SOLD, a Second-hand LEAN-TO GREENHOUSE, 30 feet long by 15 feet wide, in good condition.—Apply to Mr. J. SURMAN, Nursery, Lavender Place, Wandsworth Road, S.W.

GREENHOUSES for SALE, fit for use.—One, Two, and Three-Light GARDEN FRAMES. Single Frame, 10*s.* 6*d.* each. PIT LIGHTS, various sizes, kept in stock; Ditto, made to order, 2-inches thick, at 8*d.* per foot. Apply to
JAS. SMITH, 205, King Street, Hammersmith, W.

Caution to Gardeners.—When you ask for

SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the corporate mark OBTAIN WARRANTED, without which none are genuine.
S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by sellers and makers.
S. & C.'s Pruning and Budding Knives are the best and the cheapest in the market.
Paxton Works, Sheffield. Established upwards of 125 years.

George Hall, late Manager to the late Saynor's Firm.
HE WAS FOR 30 YEARS IN THEIR EMPLOY.

GEO. HALL AND SON'S Celebrated PRUNING and BUDDING KNIVES, &c., may be obtained from the most respectable Nurserymen and Seed Merchants in the kingdom.
N.B. We only make one quality, the best that can be manufactured, regardless of expense, the same as the late Saynors always made during their lifetime.
Horticultural Cutlery Works, Sheffield.

THE IMPROVED LEATHER DRIVING STRAPS for MACHINERY are stronger for a given weight, more effective, more durable, and cost considerably less than any other kind of driving belt.
SPECIAL STRAPS for PORTABLE ENGINES.
TURNER'S Patent Strap and Hose Company.
Manufactory: Armit Works, Greenfield, near Manchester.
Warehouse: 81, Mark Lane, London, E.C.
Mr. H. FERRABEE, Agent.

E. T. ARCHER'S "FRIGI DOMO." — Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.
PROTECTION from COLD WINDS and MORNING FROSTS. "FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever applied, a fixed temperature. It is adapted for all horticultural and agricultural purposes, for preserving Fruits and Flowers from the injurious rays of the sun, from wind, from attacks of insects, and from late frosts. To be had in any required lengths.

Two yards wide	1*s.* 9*d.* per yard run.
Four yards wide..	3*s.* 6*d.* per yard.
An improved make, 2 yards wide ..	1*s.* 9*d.* per yard.
An improved make, 3 yards wide ..	2*s.* 8*d.* per yard run.
"Frigi Domo" Netting, 2 yards wide,	1*s.* 6*d* per yard run.

MESSRS THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Guildhall Lane, Cannon Street, City, and of all Nurserymen and Seedsmen throughout the kingdom.
"It is much cheaper than Mats as a covering."

GARDEN TARPAULINGS, 32*s.* per doz., 8 ft. by 4 ft., with Brass Eyelet holes, other sizes in proportion, colour a brown, for covering Vine Borders, Pits, Frames, and other purposes. WATERPROOF CAPES, 3 ft. deep, 4*s.* LONDON CAPES, 24*s.* and 30*s.* per doz. HORSES' LOIN CLOTHS, lined with Woollen, 7*s.* each. DRIVING APRONS, lined with Flannel, 1*s.* WAGGON and CART COVERS, Patent Felt, 12*s.* 6*d.* each, 12 by 7 yards. Composition for Ditto, or Painting Outbuildings, &c., at 5*d.* per gallon. All kinds of Garden, Fishing, Sheep, and Cattle Nets.
N.B. Five Tons of Galvanized Wire Rope for Fences, £10 per ton. Netting Work, 2-inch mesh, 4½*d.* per square yard. 150 yards strong 2-inch-mesh Wire Fencing, 3 ft. high, 10*d.* per yard.
R. RICHARDSON, 99, Euston Road, London, N.W.

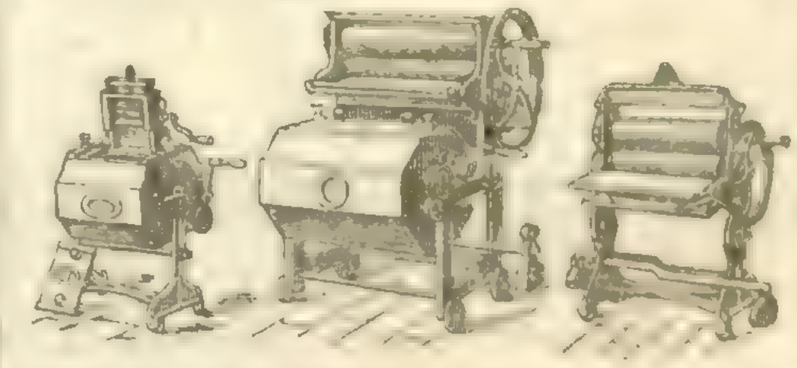
£1000 UPON the WOOLSTON TACKLE against the NEWCASTLE "best application."
WILLIAM SMITH, Woolston, Eccleshall Station.

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be seen at Work in every Agricultural County in England. For particulars apply to
JOHN FOWLER & Co., 28, Cornhill, London, E.C.; and Steam Plough Works, Leeds.

AGRICULTURAL IMPLEMENTS.—Steam Engines, Threshing Machines, Pumps, Carts, Waggons, Ploughs, Harrows, Chaff Cutters, Coke Breakers, Turnip Cutters, Chaires, Garden Tools, &c. Improved Wire Netting. Delivered carriage free.
Price Lists per post.
BURGESS & KEY, 95, Newgate Street, London, E.C.
Works, Brentwood, Essex.

SMITH, BECK, AND BECK'S GREENHOUSE and HOTBED THERMOMETERS.—These instruments are of the very best construction, and at moderate prices.
31, Cornhill, E.C.

BRADFORD'S NEW "VOWEL" WASHING MACHINES.



A remarkable success. Approved by Laundresses. Awarded Seven Prize Medals this year (the only Medals at Dublin, and Cologne International Exhibitions). The letters of unqualified approval received from purchasers daily (many with permission to publish) justify the Patentees in publicly soliciting a trial, which is allowed free of carriage or expense.
THOMAS BRADFORD & Co., 63, Fleet Street, London, E.C.; Cathedral Steps, Manchester; Dawson Street, Dublin. Catalogues post free.

DEANE'S, The Monument, LONDON BRIDGE,
Established A.D. 1700.

DEANE'S TABLE CUTLERY, celebrated for more than 150 years, remains unrivalled for quality and cheapness. The Stock is most extensive and complete, affording a choice suited to the taste and means of every purchaser. The following are some of the prices for Ivory-handled Knives, each blade being of the best steel, bearing our name, and warranted:—

	s. d.	s. d.	s. d.	s. d.	s. d.	s.	s.	s.
Table Knives, per doz.	12 6	14 0	16 0	19 0	23 0	25	29	33
Dessert ditto "	11 6	12 0	12 0	15 0	18 0	20	23	28
Carvers, Joint, pr pair	5 0	5 0	5 6	6 6	7 6	8	9	11

ELECTRO-PLATED SPOONS and FORKS.—The best manufacture, well finished, strongly plated. Every article stamped with our mark, and guaranteed.

	Fiddle.		Reeded.		King's.		Lily.
	2nd.	Best.	2nd.	Best.	2nd.	Best.	Best.
Per dozen.	s. d.	s. d.	s.	s.	s.	s.	s.
Table Spoons	33 0	40 0	44	58	54	66	58
Table Forks	31 0	38 0	44	56	54	64	56
Dessert Forks	23 0	29 0	32	40	37	46	40
Dessert Spoons ..	24 0	30 0	32	42	37	48	42
Tea Spoons	14 6	16 0	22	26	26	32	26
Gravy Spoons, each ..	6 6	7 6	9	11	11	12	10

DISH COVERS and HOT-WATER DISHES.—DEANE & Co. invite particular attention to their varied and excellent assortment of these Goods, to which they are continually adding all modern approved patterns in Electro-Plate, Britannia Metal, and Tin.

	£ s	£ s.	£ s.	£ s.	£ s.	£ s.
Britannia Metal, set of 5 ..	3 0	3 6	3 10	4 6	5 10	5 15
Britannia Metal, set of 6 ..	4 5	4 13	5 0	5 8	7 7	7 17
Block Tin, set of 6	0 18	1 10	2 0	2 2	2 8	2 17
" " 7	1 4	2 0	2 13	2 17	3 4	3 10
Electro-Plate, set of 4 ..	12 8	12 12	14 0	5 0	15 15	26 4

New Illustrated Catalogue and Priced Furnishing List, gratis and post free.
DEANE & Co., 46, King William Street, London Bridge, E.C.

FENDERS, STOVES, FIRE-IRONS, and CHIMNEY-PIECES.—Buyers of the above are requested, before finally deciding, to visit WILLIAM S. BURTON'S SHOW-ROOMS. They contain such an assortment of FENDERS, STOVES, RANGES, CHIMNEY-PIECES, FIRE-IRONS, and GENERAL IRONMONGERY, as cannot be approached elsewhere, either for variety, novelty, beauty of design, or exquisiteness of workmanship. Bright stoves, with ormolu ornaments, £3 8*s.* to £33 10*s.*; bronzed fenders, with standards, 7*s.* to £5 12*s.*; steel fenders, £3 3*s.* to £11; ditto, with rich ormolu ornaments, from £3 3*s.* to £18; chimney-pieces, from £1 8*s.* to £100, fire-irons, from 3*s.* 3*d.* the set to £4 4*s.* The BURTON and all other PATENT STOVES, with radiating hearth-plates.

CUTLERY, WARRANTED.—The most varied assortment of TABLE CUTLERY in the world, all warranted, is on Sale at WILLIAM S. BURTON'S, at prices that are remunerative only because of the largeness of the sales.

Ivory Handles.	Table Knives per Dozen.		Dessert Knives per Dozen.		Carvers per Pair.	
	s.	d.	s.	d.	s.	d.
3½-inch ivory handles	12	0	9	6	4	6
3½-inch fine ivory handles	15	0	11	6	4	6
4-inch ivory balance handles	18	0	14	0	5	0
4-inch fine ivory handles	25	0	19	0	7	6
4-inch finest African ivory handles	33	0	26	0	11	0
Ditto, with silver ferules	40	0	33	0	13	0
Ditto, carved handles, silver ferules ..	50	0	43	0	17	6
Nickel electro silver handles, any pattern .	25	0	19	0	7	6
Silver handles, of any pattern	84	0	54	0	22	0
Bone and Horn Handles—Knives and Forks per dozen.	s.	d	s.	d.	s.	d.
White bone handles	11	0	8	6	2	6
Ditto, balance handles	21	0	17	0	4	0
Black horn rimmed shoulders	17	0	14	0	4	0
Ditto, very strong riveted handles ..	12	0	9	0	3	0

The largest stock in existence of Plated Dessert Knives and Forks, in cases and otherwise, and of the New Plated Fish Carvers.

CLOCKS, CANDELABRA, BRONZES, and LAMPS.—WILLIAM S. BURTON invites inspection of his Stock of these, displayed in two large Show Rooms. Each article is of guaranteed quality, and some are objects of pure Vertu, the productions of the first manufacturers of Paris, from whom WILLIAM S. BURTON imports them direct.

Clocks from	7*s.* 6*d.* to £45.
Candelabra from	13*s.* 6*d.* to £16 10*s.* per pair.
Bronzes from	18*s.* to £16 16*s.*
Lamps, moderateur, from	6*s.* to £9

Pure Colza Oil, 4*s.* 3*d.* per gallon

WILLIAM S. BURTON, GENERAL FURNISHING IRONMONGER by appointment to H.R.H. the Prince of Wales, sends a CATALOGUE gratis and post paid. It contains upwards of 600 Illustrations of his illimited Stock of Sterling Silver and Electro-Plate, Nickel Silver and Britannia Metal Goods, Dish Covers, Hot-water Dishes, Stoves, Fenders, Marble Chimney-pieces, Kitchen Ranges, Lamps, Gasaliers, Tea-Trays, Urns and Kettles, Clocks, Table Cutlery, Baths, Toilet Ware, Turnery, Iron and Brass Bedsteads, Bedding, Bed Room Cabinet Furniture, &c., with Lists of Prices, and Plans of the 20 large Show Rooms, at 39, Oxford Street, W.; 1, 1a, 2, 3, and 4, Newman Street; 4, 5, and 6, Perry's Place, and 1, Newman Yard, London, W.

J. WARNER AND SONS, London,
Manufacturers of

BOHEMIAN
FLOWER VASES
AND
HYDRO-CARBON
LAMPS.

The Lamp lifts out of the Vase, requiring no fixing.
Is fitted either with
WARNER'S
KOH-I-NOOR,
OR THE ORDINARY
FLAT-WICK BURNER.
The Koh-i-Noor Burner produces a superior light to the Moderator, at a much less cost, and is not liable to get out of order.

The Opal Vases are made in the best style of Bohemian Glass, and beautifully decorated.

	Round Burner	Flat
With Gold Bead	22*s.* 6*d.*	14*s.* 6*d.*
With Gold Lines	25 6	16 6
With Rose Colour, Greek Border	30 0	21 0
With Red Medallion (Antique)	32 0	23 0
With Blue Medallion (Antique)	32 0	23 0
Ruby Glass, fluted with gold lines	46 0	32 0
Emerald or Ruby, richly decorated with gold .	63 0	54 0

May be obtained of the Trade throughout the United Kingdom.

South Hampshire.

TO BE LET, a good RESIDENCE, and first-class FARM of 150 Acres, with immediate possession.
For particulars apply to Mr. JOSEPH BLISSERAL, Land Agent, &c., Bursledon, Southampton.

TO BE LET, a SMALL NURSERY, with a large quantity of Glass, eligibly situated in a thriving neighbourhood, 12 miles from London, and one from a station on the Great Eastern line.—Apply to A. G., Post Office, Loughton, Essex.

To Nurserymen and Market Gardeners.

TO BE SOLD or LET, a SMALL FARM, most eligibly situated about a mile from a Station, on the Great Eastern line, comprising a Dwelling House, Farm Buildings, and upwards of 44 Acres of rich Loamy Soil, well suited for Fruit Trees, Seed Crops, and Vegetables. Labour is cheap and plentiful.
Apply to Mr. H. RAYNBIRD, Messrs. Raynbird, Caldecott, Rawtree, Dowling & Co., Seedsmen, Basingstoke.

F. W. SEARLE, HORTICULTURAL AGENT and AUCTIONEER, begs to intimate to Nurserymen, Florists, and the Trade generally that henceforth he will direct his attention particularly to this branch of the Business—soliciting the consideration of the Trade.
Offices, Tottenham, N., and Coleman Street, E.C.

Sales by Auction.

Kilburn.—Four days absolute Sale of Nursery Stock.

MR. F. W. SEARLE will SELL by AUCTION, at Kilburn Park Nursery, Carlton Road, Kilburn, N.W., on MONDAY NEXT, November 13, and following days, the entire Stock of FOREST TREES and EVERGREENS, Dwarf, Trained and Pyramidal Fruits, Standard and other Roses, Rhododendrons, Azaleas, Climbers in variety, Flower Roots, Rhubarb, Strawberries, Seed Potatoes, Greenhouse Plants, Spacious Greenhouse, ditto Hot-house and complete Hot-water Apparatus, Ranges of Pits, the Materials of Cottage, Sheds, &c.; Fencing, Tools, &c.
On view. Catalogues 6*d.* each, returnable to purchasers, of the principal Seedsmen; at the Nursery; or of the Auctioneer, 28, Coleman Street, E.C., and Tottenham, N.

Sale of Dutch Bulbs, Standard and Dwarf Roses, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., on THURSDAY, November 16, at 1 o'clock precisely, a first-class Collection of DUTCH BULBS, consisting of the finest Double and Single Hyacinths, Narcissus, Jonquils, Anemones, Crocus, Tulips, Ranunculus, Gladiolus, Snowdrops, &c.; a fine Assortment of 300 handsome STANDARD and DWARF ROSES; selected AMERICAN PLANTS, including Ghent and other Azaleas, Hybrid Rhododendrons, Kalmias, &c.
On view the Morning of Sale. Catalogues had at the Rooms, as above; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Consignment from Ghent for absolute Sale.
IMPORTANT TO GENTLEMEN, NURSERYMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION, at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., on TUESDAY, November 21, at half-past 12 o'clock precisely, about 400 CHOICE CAMELLIAS and AZALEA INDICA, compact plants, 1 to 3 feet, consisting of the most approved kinds, beautifully furnished with bloom buds; Ericas, Epacris, 1000 remarkably fine Bulbs of Lilium lancifolium rubrum, punctatum, roseum, album, &c.; about 400 very handsome Standard, Half-Standard, and Dwarf Roses, with clean straight stems, bushy heads, and fibrous roots, including the finest Hybrids, Bourbons, Chinas, &c., together with a rich assortment of American Plants, &c.
On view the Morning of Sale. Catalogues had at the Rooms, as above; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

To Gentlemen, Nurserymen, and Others.

MESSRS. J. WATERER AND SONS will SELL by AUCTION, on TUESDAY, November 14, and two following days, at 11 for 12 o'clock precisely, on the Premises near Pervee's Bridge, Byfleet, Surrey, about two miles from the Weybridge and Woking Stations, by order of the Proprietor, without reserve, the Valuable NURSERY STOCK, comprising 4000 Standard, Half-Standard and Dwarf Perpetual Roses of the most approved sorts; 5000 Conifers, including Lawsoniana, Menziesii, Wellingtonia gigantea, Cedrus Deodara, Picea Pinsapo, Picea Nobilis, Abies Douglasii (3 to 5 feet), Cryptomeria japonica, C. excelsa, C. Webbiana, tortuosa, and others; 6000 Siberian and American Arbor-vitæ, 2 to 6 feet; 4 Arbor-vitæ, and 3 Yew Hedges, from 3 to 5 feet; 3500 Hybrid Rhododendrons, 700 Worked ditto, 50 Standard ditto, 14,000 Seedling and Bedded Rhododendron Ponticum, 40 Pans of Seedling ditto, 10,000 Seedling ditto, from 6 inches to 1 foot; 46 Pans of Seedling Pinus Laricio; 800 Azaleas, various; 300 Kalmia latifolia, 60 Rhododendrons, 17 Aucubas, 12 Phillyreas, 14 Laurustinus and 3 Heath, Stools and Layers; 5000 Green Hollies, 8000 Common Laurel, 600 Laurustinus, 600 Irish Yews, 1 to 2 feet; Silver and Weymouth Pine Firs; 3000 Spruce Firs, 1 to 3 feet; Hemlock Spruce, Aucuba japonica, Ericas, Standard and Dwarf Pears and Plums, Red, White, and Black Currants, 25,000 Bedded Quick, Bedded Alder, 100 Lots valuable choice Mixed Shrubs, fit for immediate Ornamental Planting, and a great variety of other Stock, the whole of which is in a most perfect and safe state for removing, having been Transplanted within the last two years. Time for removing will be allowed until the 25th March, 1866, agreeable to the Conditions of Sale.
May be viewed one week previous to the Sale, and Catalogues had upon the Premises; and of Messrs. WATERER & SONS, Auctioneers and Valuers, Chertsey, Surrey, who will forward them on application by Post.

Ivery's Nonsuch Lettuce.

WM. IVERY begs to inform the Trade that he has harvested the above in fine condition, and is now ready to supply orders. Price per dozen or 100 packets on application.
Trade purchasers will be advertised in the *Chronicle* early next year.
Hanover Nursery, Peckham, S.E.

To Farmers, Gardeners, and the Trade.

EXCELLENT STRONG CABBAGE PLANTS may be had in large or small quantities of the following well-known good sorts at 2s. 6d. per 1000 for cash:—Early Nonpareil, Early York, East Ham, Robinson's, Large Drumhead or Cattle.
A SPECIAL PRICE LIST of NEW SEEDS on application.
A remittance must accompany all orders.
FREDERICK GEE, Seed Merchant and Grower, Biggleswade, Beds.

Erin's Queen Dwarf Ashleaf Potato.

WAITE, BURNELL, AND CO. have the pleasure of again introducing this really true and pure stock of the Ashleaf variety, which gave great satisfaction during the past season. It is very dwarf in the haulm, foliage of a dark green colour, very early, and invaluable for frames. Price 10s. 6d. per bushel.
A liberal discount to the Trade.
Seed Warehouse, 181, High Holborn, London, W.C.

Seed Potatos.

H. AND F. SHARPE invite the attention of the Trade to the following varieties of SEED POTATOS, which they have grown from the finest selected stocks; they comprise all the sorts worthy of cultivation. The quality is excellent, being free from disease; and prices very moderate:—

Early Ash-leaved Kidney	Early Oxford
,, Myatt's prolific Kidney	,, Forty-fold
Webb's Imperial Kidney	Daintree's Earliest
Early King, very fine	Early Dalmahoy Round
,, Martin's Globe	,, Cockney
,, Golden Globe	,, British Queen
,, Foxe's Seedling	Fluke Kidney
,, Round Frame	Yorkshire Regent

Seed Growing Establishment, Wisbech, Cambs.

SEED WHEAT.—The Advertiser has to offer a very superior WHITE WHEAT, equal to the finest Talavera, but quite hardy. This Wheat was saved from a Single Ear of Corn, selected by him for its extraordinary appearance. It has now been grown at Fovant, in Wiltshire, for three years, and has fully established the character given it. Any Agriculturist wishing to improve his stock will do well to try this superior sample. Price 10s. per bushel; Sacks, 2s. each. Ample testimonials given if required.
The above will be forwarded on receipt of a Post-office Order to Mr. AARON FUTCHER, Agriculturist, Fovant, Wilts; or to Mr. JOHN KEYNES, Florist and Seedsman, Salisbury.

Surrey White Wheat.

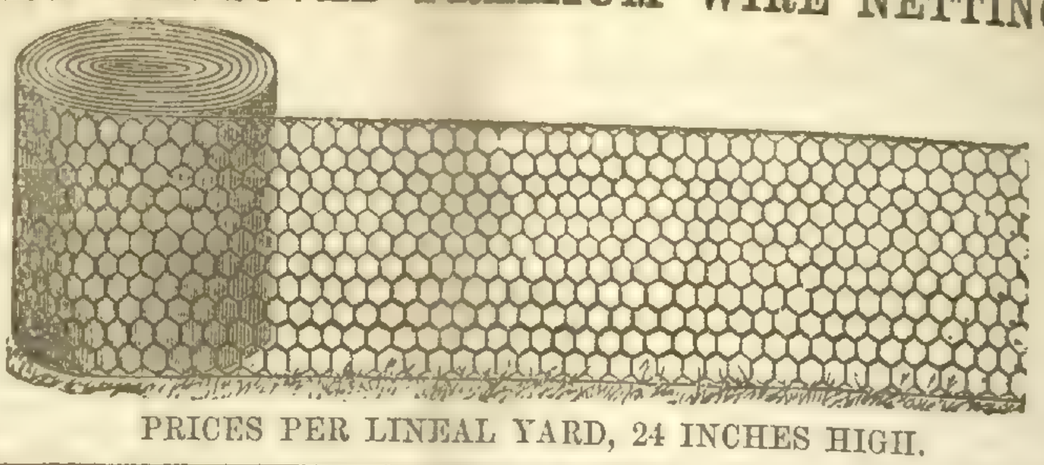
WAITE, BURNELL, AND CO. beg to offer the above very fine variety of WHITE WHEAT, which is highly recommended for poor and elevated soils. It has been tried against many varieties, among which may be named the Rough Chaff, Hunter's Trump, and almost all other kinds of White Wheat, and has produced fully 15 per cent. greater crop. It has been perfectly free from blight and red rust when other varieties have been more or less affected. Price 10s. 6d. per bushel.
A liberal discount to the Trade.
Seed Warehouse, 181, High Holborn, London, W.C.

THOMAS J. BOOTH can supply a first-class PEAT, suitable for Orchids (same as recommended by Mr. Anderson in *Gardeners' Chronicle*, page 1035), in large or small quantities.
Samples with price on application.
Rainhill Nursery, Prescot, Lancashire.

THOMSON'S STYPTIC for PREVENTING the BLEEDING of VINES after PRUNING, is Manufactured and Sold by JOHN YOUNG & SON, Dalkeith, N.B., and can be had of all Nurserymen and Seedsmen, in Bottles, price 3s., with directions for application. None is genuine unless the Label on each Bottle bears the Signature of WILLIAM THOMSON.

NEW IMPROVED PREMIUM WIRE NETTING.

GREAT IMPROVEMENT,



WITH REDUCED PRICE.

PRICES PER LINEAL YARD, 24 INCHES HIGH.

Size of Mesh.	Mostly used for	Light.		Medium.		Strong.		Extra Strong.	
		Japanned.	Galvanized.	Japanned.	Galvanized.	Japanned.	Galvanized.	Japanned.	Galvanized.
2¼ inch	Hares, Dogs, Poultry ..	3d.	4d.	3¾d.	5d.	4½d.	6d.	5½d.	[illegible]
2 inch	Game or Poultry Netting	3½d.	4¼d.	4d.	5d.	5d.	6½d.	6½d.	[illegible]
1⅝ inch	Small Rabbits, Hares, &c.	4d.	4¾d.	4¾d.	6d.	5½d.	7d.	7d.	[illegible]
1½ inch	Smallest Rabbits	5d.	6d.	5¾d.	7d.	7d.	9d.	9d.	[illegible]

Quantities of 100 yards or upwards delivered free at nearly all the principal Railway Stations and Shipping Ports in England; and 200 yards or upwards delivered free to most parts of Scotland and Ireland.

*** *Every description of Netting warranted to give satisfaction, and if not approved will be exchanged or may be returned unconditionally.*

J. B. BROWN AND CO. OFFICES: 18, CANNON STREET, CITY, LONDON, E.C.,
Nearly opposite ST. SWITHIN'S LANE and LONDON STONE, and near LONDON BRIDGE.
WAREHOUSE (where Netting is kept in stock), 148, UPPER THAMES STREET, E.C., opposite the CITY of LONDON BREWERY, and close to the LONDON BRIDGE STEAM BOAT PIER.

GRAY'S OVAL TUBULAR BOILER.

INTERNATIONAL EXHIBITION, CLASS IX., No. 2119.

Mr. GRAY begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his

NEW OVAL TUBULAR BOILER,

acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in Gardeners' Chronicle *of International Exhibition, May* 24, *page* 476.

"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. GRAY's variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; this being so, the change, though a slight one, is no doubt an improvement."

They are made of all sizes, which, with prices, may be had on application.

JAMES GRAY, HORTICULTURAL WORKS,
DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.

NEW TARIFF OF GLASS AND HORTICULTURAL GOODS.

THOMAS MILLINGTON,

GLASS AND COLOUR MERCHANT,
87, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

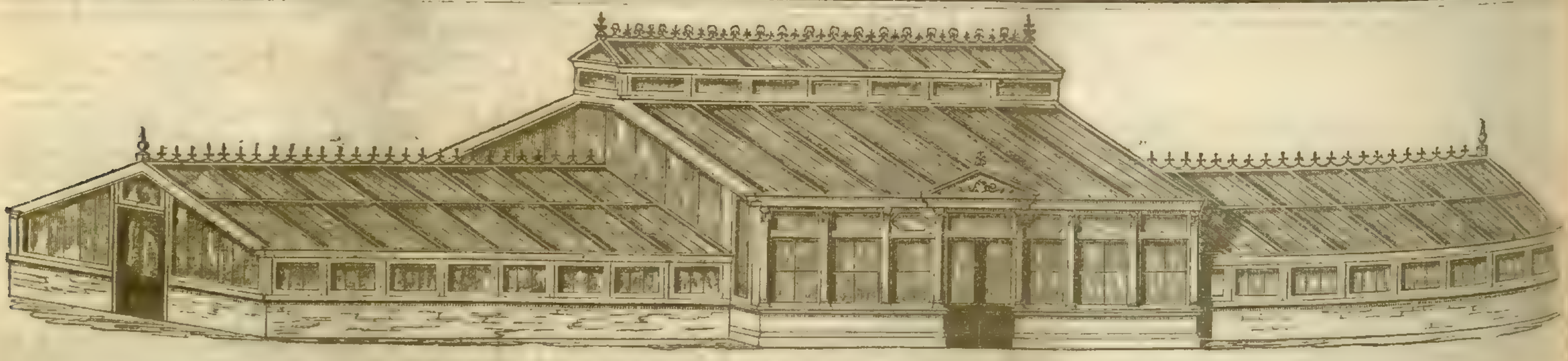
HAND GLASSES.

PRESERVE JARS.

REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.

MILK PANS.

See Advertisement the first week in last month, or on application.



HORTICULTURAL BUILDINGS

MANUFACTURED BY STEAM POWER MACHINERY.

LOWEST PRICES AND BEST MATERIALS.

DESIGNING, BUILDING, HEATING, AND VENTILATING ON THE MOST APPROVED AND SCIENTIFIC PRINCIPLES

Plans, Specifications, and Estimates on application.

HENRY ORMSON, F.S.A.,
HORTICULTURAL BUILDER, AND HOT-WATER APPARATUS MANUFACTURER,
STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 46.—1865.] SATURDAY, NOVEMBER 18. {Price Fivepence. Stamped Edition, 6d

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ADVERTISEMENTS *intended for the* CURRENT WEEK'S NUMBER *should reach the Office not later than* THURSDAY.

ROYAL HORTICULTURAL SOCIETY. INTERNATIONAL FRUIT SHOW, SATURDAY, Dec. 9, to SATURDAY, Dec. 16, inclusive. English Amateurs and Gardeners are reminded that the Society are offering FOUR GOLD MEDALS in Class 5, on the terms stated in Paragraphs 6, 7, 8, and 9 of the Schedule.

TOWN HALL, BIRMINGHAM.—ENTRIES for the GREAT FRUIT SHOW, which will take place simultaneously with the Cattle Show, on SATURDAY, MONDAY, and TUESDAY, December 2, 4, and 5, will CLOSE on TUESDAY NEXT, Nov. 21. Schedules, &c., on application to ALEX. FORREST, Secretary. Queen Chambers, 8, Cherry Street, Birmingham.

Chrysanthemums.

ADAM FORSYTH begs to inform his friends and the public that his Specimen and other CHRYSANTHEMUMS are NOW in FLOWER, and can be seen every day, Sunday excepted. Brunswick and Shacklewell Nurseries (opposite West Hackney Church), Stoke Newington.

Exhibition of Chrysanthemums.

JOHN SALTER'S unique COLLECTION of these beautiful flowers (including the New Varieties for 1866), is NOW in BLOOM. The WINTER GARDEN is open every day except Sunday, admittance free. Versailles Nursery, William Street, Hammersmith, W., near Kensington Railway Station.

NEW CHRYSANTHEMUMS, 1865, are now ready in strong Plants at 5s. per doz. W. HOLMES, Frampton Park Nursery, Hackney, N.E.

1865 and 1866.

EDWARD P. FRANCIS AND CO.'S NEW DESCRIPTIVE CATALOGUE is now ready, and will be forwarded gratis on application. Intending purchasers will find it to be a most useful guide. The Nurseries, Hertford, Herts.

N. LAWRENCE'S CATALOGUE of NURSERY STOCK includes Roses, Coniferous trees, Miscellaneous Deciduous and Evergreen Shrubs, Fruits, &c. Can be had on application. The Nurseries, Station Street, Chatteris, Cambridgeshire.

Huntingdon Nurseries.

WOOD AND INGRAM'S General CATALOGUE of NURSERY STOCK, including Seedling and Transplanted Forest Trees, Ornamental Trees and Shrubs, Roses, and Fruit Trees, is now ready, and will be sent free on application.

Wholesale Catalogue.

GEORGE JACKMAN AND SON will have much pleasure in forwarding on application, free by post, their DESCRIPTIVE and PRICED CATALOGUE of NURSERY STOCK for 1865 and Spring 1866. Woking Nursery, Surrey.

ALEXIS DALLIERE, NURSERYMAN, Ghent, Belgium, begs to inform Amateurs and the Trade that he has just published his NEW GENERAL CATALOGUE for 1865-66, which may be obtained free from his Agents, Messrs R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, E.C.

J. IVERY AND SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

PELARGONIUM MRS. POLLOCK.—Strong Summer-struck Plants, well established in 60-pots, at 15s. per dozen. The Trade supplied. ALFRED FRYER, Nurseries, Chatteris, Cambridgeshire.

VIOLETS, now in full bloom and in first-rate condition for planting out.—A large stock of all sorts of Violet Plants, including the Giant, Neapolitan, Russian, London, Crimea, &c., &c. LISTS of PRICES on application. JOHN STEDMAN, Violet Grower, Thornton Heath, Surrey, S.

H. AND F. SHARPE, SEED GROWERS and MERCHANTS, Wisbech. SPECIAL PRICED LIST of NEW SEEDS on application.

ALFRED LEGERTON, SEED MERCHANT, 5, Aldgate, London, E. Special quotations for CARROT and all other GARDEN and AGRICULTURAL SEEDS upon application.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO., SEED FARMERS, MERCHANTS, and NURSERYMEN, 237 and 238, High Holborn, London, W.C.

NEW and GENUINE AGRICULTURAL, GARDEN, and FLOWER SEEDS. Special prices and advantageous offers on application to JAMES FAIRHEAD & SON, Seed Growers and Merchants, 7, Borough Market, London, S.E.

HENRY FLINTHAM, SEED and FRUIT MERCHANT, Market Place, Rotherham. Prompt Returns made for Consignments of Fruit and other Produce sent on Commission by Merchants or Growers. References to London, Liverpool, Hull, Scotland, or Ireland.

Hyacinths and other Dutch Bulbs.

WM. CUTBUSH AND SON beg to acquaint their numerous Patrons that they have received their usual Consignment of Choice HYACINTHS, TULIPS, CROCUSES, &c. PRICED DESCRIPTIVE CATALOGUE post free on application. Highgate Nurseries, London, N.

BUTLER AND McCULLOCH'S ILLUSTRATED PRICED CATALOGUE, containing particulars of their Choice COLLECTIONS of DUTCH and CAPE FLOWERING BULBS, sent free and post paid upon application. BUTLER & McCULLOCH, South Row, or Strand side, opposite Southampton Street, Covent Garden Market, W.C.

BARR AND SUGDEN'S HYACINTHS, TULIPS, CROCUS, NARCISSUS, GLADIOLI, RANUNCULUS, ANEMONES, LILIES, AMARYLLIS, in splendid collections. See our AUTUMN FLORAL GUIDE, free and post paid on application. BARR & SUGDEN, Seed and Plant Merchants, 12, King Street, Covent Garden, W.C.

Dutch Bulbs.

CHARLES TURNER is prepared to execute orders with the finest varieties of HYACINTHS, TULIPS, CROCUS, NARCISSUS, &c. The roots have arrived in fine condition. CATALOGUES on application. The Royal Nurseries, Slough.

A LARGE QUANTITY of DUTCH BULBS, in fine condition, much below the usual prices. The largest Collection of BRITISH and FOREIGN FERNS in the trade. FERN CASES of every description, filled complete, from 4s. 6d. to £5 5s. each. R. GREEN, 154, Kingsland Road, N.E.; and the Bedford Conservatories, Covent Garden Market, W.C.

CARTER'S GARDENER'S VADE-MECUM, AUTUMN SUPPLEMENT of DUTCH and CAPE BULBS and PLANTS, is now ready.

Winter and Spring Gardening.

BARR AND SUGDEN, SEED and PLANT MERCHANTS, 12, King Street, Covent Garden, W.C. Sent carriage paid. The No. 1 ASSORTMENT of WINTER-FLOWERING BULBS, 21s. No. 2 ASSORTMENT of SPRING-FLOWERING BULBS, 21s. The FLORAL GUIDE free on application.

CLIVEDEN SPRING-BLOOMING PLANTS. See Advertisement, page 1100.

STANDEN'S GARDENER'S and AMATEUR'S FRIEND. See Advertisement, page 1080. BARR & SUGDEN, Seed and Plant Merchants, 12, King Street, Covent Garden, W.C.

200,000 CROCUS, 100,000 SNOWDROPS, 100,000 TULIPS, 50,000 HYACINTHS, for Winter and Spring Blooming. BARR & SUGDEN, Seed and Plant Merchants, 12, King Street, Covent Garden, W.C. FLORAL GUIDE free on application.

FINEST DUTCH CROCUS, from 1s. 6d. to 3s. 6d. per 100. Finest BORDER TULIPS, 6s. per 100. SINGLE and DOUBLE SNOWDROPS, 2s 6d. per 100. See WILLIAM HOOPER'S GENERAL BULB CATALOGUE, free on application to St. John's Hill, Wandsworth, S.W.

LILIUM AURATUM BULBS WANTED. — State average weight of each Bulb and price per dozen for cash. BARR & SUGDEN, 12, King Street, Covent Garden, W.C.

To the Trade.

FINE DWARF-TRAINED PEACHES and NECTARINES. FRANCIS AND ARTHUR DICKSON AND SONS can supply the above in fine, clean, healthy Trees. Prices moderate, which will be forwarded on application. "Upton" Nurseries, Chester.

HAMPTON COURT BLACK HAMBURGH VINE.—Strong plants from Eyes of this excellent Grape, 5s. each; 50s. per dozen. T. JACKSON & SON, Nursery, Kingston, S.W.

Grape Vines.

S. GLENDINNING AND SONS have a splendid lot of extra fine Fruiting Canes. PRICED LIST may be had on application. Chiswick Nursery, London, W.

Fruiting Vines.

E. G. HENDERSON AND SON offer the above, with splendid Canes of well-matured growth, with prominent eyes, sure to give a heavy crop of fruit, 10s. 6d. each. LIST of SORTS sent on application. Wellington Nursery, St. John's Wood, London, N.W.

VINES, from Eyes.—Now ready, a DESCRIPTIVE CATALOGUE of GRAPES, by THOS. RIVERS, free per post. Nurseries, Sawbridgeworth.

Fruiting Vines, in large pots, extra strong Canes.

GRAPE VINES, IN 6-INCH POTS, FOR PLANTING OUT.

WM. WOOD AND SON having a very superior stock of the above, beg to solicit early orders to insure the strongest Canes. Address, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

DAMASCENE or PERSHORE PLUM, fine 2-years stuff; LARCH, strong, 3 feet high; also PRIVET BERRIES, Common ACORNS, HORSE CHESTNUTS and SPANISH CHESTNUT SEED, A 1 quality, for Sale. Apply to ROBERT H. POYNTER, The County Nursery and Seed Establishment, Taunton.

HEAVY LANCASHIRE SHOW GOOSEBERRY TREES, 6s. per dozen. CATALOGUES on application. HOLLAND & JONES, Bradshaw Gardens, Chadderton, near Manchester.

WILLIAM HOOPER, St. John's Hill, Wandsworth, S.W., begs to offer GOOSEBERRIES, Red, Black, and White CURRANTS, good sorts, all clean and well grown, 2 years transplanted, 4s. to 6s. per dozen. Strong SEA KALE roots, from 10s. to 12s. per 100. Prices of Fruit Trees and Ornamental Trees and Shrubs on application.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS. RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

SUTTON'S RINGLEADER PEA (or CARTER'S FIRST CROP), the EARLIEST in CULTIVATION, as see correspondence in *Gardeners' Chronicle* of May and June last, also testimonials in this week's Paper.

Napoleon or Climax Peas.

MR. S. A. DAINTREE, of Fen Drayton, St. Ives, Hunts, has a few quarters of these fine PEAS for Sale, at 64s. per quarter.

1865 and 1866.

JOHN FRASER begs to announce that his NEW DESCRIPTIVE CATALOGUE of PLANTS, ROSES, FRUIT TREES, &c., for the Autumn of 1865 and Spring of 1866, may be had on application. The Lea Bridge Road Nurseries, N.E.

NEW ROSE CATALOGUE for 1865 and 1866, also GENERAL CATALOGUE of NURSERY STOCK. Woodlands Nursery, Maresfield, near Uckfield, Sussex. WM. WOOD & SON will be happy to forward copies of the above on application.

H. LANE AND SON'S CATALOGUES of ROSES, TREES, SHRUBS, FRUIT, RHODODENDRONS, AZALEAS, &c., are now ready, and may be had on application at The Nurseries, Great Berkhampstead, Herts.

Roses.

WM. PAUL (Son and Successor to the late A. PAUL) begs to announce that his NEW DESCRIPTIVE CATALOGUE of ROSES is now ready, and will be forwarded on application, free by post. The stock is large and in splendid condition. PAUL'S Nurseries, Waltham Cross, London, N.

Now ready, 1865 and 1866.

PAUL AND SON'S NEW ROSE CATALOGUE. See Note on Forcing Roses. Post free on application. Old Cheshunt Nurseries, N.

Select List of Show Roses, Old and New.

CONSULT JOHN KEYNES' CATALOGUE. Salisbury.—Nov 18.

ROSES.—A DESCRIPTIVE CATALOGUE of ROSES, by THOS. RIVERS, free per post. Nurseries, Sawbridgeworth.

The Nurseries, Folkestone.

JAMES MEIKLE is now sending out his COLLECTION of ROSES. They are strong Plants. DWARF, on the Manetti Stock, price 9s. to 12s. per dozen; MANETTI CUTTINGS, prepared for planting, cheap; price per 1000 on application. Planted now they will be strong for budding next season.

ON SALE, a choice Collection of EXOTIC FERNS, including above 100 varieties. A cheap bargain to a purchaser of the whole lot. Apply to Mr. WARCUP, Gardener, Marsden Hall, Burnley.

Quick.

CHARLES SHARPE AND CO., Sleaford, have a large quantity of the above to offer. Price and Sample sent on application.

Forest Trees, Ornamental Trees, and Shrubs.

PETER LAWSON AND SON'S CATALOGUE for the current Season is now ready, and will be forwarded, free, on application. Edinburgh and London.

Forest, Fruit Trees, Shrubs, &c.

H. AND R. STIRZAKER will have pleasure in forwarding their WHOLESALE PRICE LIST of the above on application. Skerton Nurseries, Lancaster.

Winter-flowering Heaths.

JOHN FRASER, Lea Bridge Road Nurseries, N.E., begs to offer fine plants of ERICA HYEMALIS, and other Winter-flowering sorts, now coming into full bloom. The prices will be given on application. A reference or remittance respectfully requested from unknown correspondents.

The Nurseries, Folkestone.

JAMES MEIKLE has on hand some fine specimen EVERGREEN and DECIDUOUS TREES and SHRUBS; many of them of a large size and in excellent condition. As the ground must be cleared immediately they will be Sold Cheap.

G. FROST offers 120,000 1-year and 2-year Transplanted SCOTCH, fine stuff; LAURELS, 1 to 3 feet; LARCH, 1 to 2 feet; THORNS, 1 to 2 feet; GORSE, 1 and 2-year Seedling, and 1 and 2 year Transplanted; also 1-year APPLES, BEECH and OAK. WANTED, a few ACORNS of EVERGREEN OAKS. Nurseries, Bampton, Devon.

M. CROOK AND SONS have to offer to the Trade and others from 200,000 to 300,000 strong LARCH, from 3 to 4½ ft. high, all healthy and well grown. Prices on application. M. C. & Sons have also a large stock of good sound SHALLOTS to Dispose of. Prices reasonable. Walton-le-Dale Nurseries, Preston, Lancashire.

LARGE ENGLISH and IRISH YEWS.—Handsome single-stemmed ENGLISH and IRISH YEWS, 7, 8, and 9 feet high. Price according to size and number required on application to T. JACKSON & SON, Nurseries, Kingston, S.W.

LIMES.—Wanted, about 80 well-grown TREES, not under 14 feet high, with good heads. Must be warranted to move safely. Apply, stating price delivered, to W. ROWLANDS, Esq., Manor Park, Blackheath Park, Kent, S.E.

LARCH.—Very fine, 3 and 4-feet, strong and well grown, 15 to 20—1000. Price on application to N. LAWRENCE, Nurseryman, Station Street, Chatteris, Cambridgeshire.

TO BE SOLD, Cheap, for Cash, a quantity of very fine strong TRANSPLANTED LARCH. Apply to DREGHORN & AITKEN, Nurserymen, Kilmarnock, N.B.

UNDERWOOD PLANTING.—A large quantity of SPANISH CHESTNUT PLANTS, 3 to 4 feet, for SALE, surplus of stock reared for private use; also a quantity of SEEDLINGS. For samples and price apply to Mr PUTTICK, Easebourne, Midhurst, Sussex.

HORSE CHESTNUTS WANTED.—Parties willing to collect and deliver sound HORSE CHESNUTS are requested to inform the Undersigned what quantity and at what price. Mr. MARTIN, Centre Avenue, Covent Garden.

FORTY-FOLD POTATO (THE TRUE VARIETY). Price on application to JAMES DICKSON & SONS, 102, Eastgate Street, Chester.

SEA KALE.—For Sale, 50,000 extra strong Roots for Forcing. For particulars apply to Mr. JOHN GALLACHER, Sutton, Surrey, S.

New Grass Seeds for Exportation.

SUTTON AND SONS have received their supply of NEW GRASS SEEDS of the present year's growth in fine dry condition. Prices will be forwarded on application. This is one of the best months for exporting Grass Seeds. SUTTON & SONS, Seed Merchants, Reading.

B. S. WILLIAMS begs to direct special attention to the undermentioned, of which he now holds a fine stock. PRICED and DESCRIPTIVE LISTS can be had on application.

VINES.—Strong Planting and Fruiting Canes of all the best varieties, including the new Grape ROYAL VINEYARD.

PINES.—Strong Fruiting and Succession plants, and suckers of all the leading kinds.

BECK'S NEW PELARGONIUMS.—For the present season, at the moderate price of 10s. 6d. each; also a large assortment of the best PELARGONIUMS and GERANIUMS, including BEATON'S best NOSEGAYS.

DUTCH BULBS.—Splendid roots of the strongest flowering HYACINTHS for glasses or pots, at 6s., 8s., 9s., 10s. and 12s. per dozen. POLYANTHUS, NARCISSUS, CROCUS, Early TULIPS, and all other bulbs.

ENGLISH-GROWN SEEDLING GLADIOLI, 9s. and 12s. per dozen, ready next month. As the supply of these is limited, early orders are solicited.

Paradise and Victoria Nurseries, Holloway, London, N.

Pitmaston Duchess d'Angouleme Pear.

THOS. HEWITT, NURSERYMAN, Birmingham and Solihull, has a very limited number of MAIDEN TREES of the above excellent NEW PEAR. Price 10s. to 15s. each.

T. H. has also a superb collection of named GLADIOLUS, 12s., 18s., and 24s. per dozen. Fine mixed, 6s. per dozen.

PRIMULA FIMBRIATA, of the finest strain, 2s. 6d. per packet.

CHARLES B. SAUNDERS, NURSERYMAN, &c., Jersey, has the following surplus articles to offer this season, of fine growth, for which he respectfully solicits orders.

BLACK HAMBURGH, BLACK VICTORIA, and MUSCAT of ALEXANDRIA VINES, 30s. per doz., fruiting rods, 7 to 8 ft. long
Dwarf Fruiting PEAR TREES, best sorts, Pyramidal and Trained, 20s. to 30s. per dozen.
Dwarf Fruiting APPLE TREES, 12s. to 18s. per dozen.
Dwarf-trained APRICOT and NECTARINE TREES, 24s. to 30s. per dozen.
QUINCE STOCKS for PEARS, of fine size, 6s. per 100.
GUERNSEY ELMS and TURKEY OAKS, fine strong stuff, 7 to 10 feet, 50s. per 100.
CAMELLIA STOCKS, fit for grafting, 30s. to 40s. per 100.

Besides a general and extensive Nursery Stock, CATALOGUES of which may be obtained on application.

Lancashire Show Gooseberries and Currants.

M. A. LAKE, The Nurseries, Bridgewater, has to offer several thousand of the above, of the choicest kinds.

EVERGREEN HOLLIES, from 1 to 2 feet, and EVERGREEN PRIVET; also HORSE CHESTNUTS, ELMS, OAKS, SYCAMORE, MAPLE, and POPLARS, of sorts; fine Trees, from 10 to 12 feet.

Prices moderate, which will be forwarded on application.

ONE of the LARGEST and BEST COLLECTIONS of FRUIT TREES in ENGLAND.

APPLES, in 300 sorts, on Doucin, Pomme Paradis, and Free Stocks: Dwarf-trained, Pyramids, and Standards.

APRICOTS, 24 sorts, Dwarf-trained and Maiden, extra fine trees.

CHERRIES, 50 sorts on Mahaleb: Dwarf-trained, Pyramids, and Standards, a magnificent stock.

PEACHES and NECTARINES, 50 sorts, Dwarf-trained for walls, splendid trees.

PEARS, 550 sorts on Pear Stocks, and 250 sorts on Quince Stocks. They are offered as Dwarf-trained, Pyramids, and Standards; the Pyramids are from 2 to 12 feet high, full of fruit buds and well root-pruned.

PLUMS, 100 sorts, in Dwarf-trained, Pyramid, and Standard, healthy and fine.

Also CURRANTS, FIGS, GRAPES, MEDLARS, NUTS, QUINCES, RASPBERRIES, STRAWBERRIES, and WALNUTS, all free from stuntedness, canker, or blight of any kind.

DESCRIPTIVE PRICED CATALOGUE, with cultural directions and many useful notes, sent free. It is allowed to be the best Catalogue on Fruit Trees out.

The VEGETABLE and AGRICULTURAL CATALOGUE is also ready, gratis.

Apply to J. SCOTT, Merriott, Somerset.

NURSERY STOCK, UNSURPASSED for BEAUTY, HEALTH, and VARIETY.

FOREST TREES are grown in large breadth, and are supplied at low prices.

CONIFEROUS TREES and SHRUBS are extensively grown in all sizes from 1 to 12 feet, and at prices to tempt purchasers.

DECIDUOUS SHRUBS are fine in quality, numerous in variety, and low in price.

DEODAR CEDARS are offered at 2s. 6d. to 5s. each, height from 4 feet to 8 feet.

BIOTAS, CUPRESSUS, JUNIPERS, PINUSES, THUJAS, and many other families, are grown in large numbers, and in height varying from 1 to 12 feet.

DESCRIPTIVE PRICED CATALOGUES are ready to be sent gratis; also the SEED CATALOGUE.

Apply to J. SCOTT, Merriott, Somerset.

Fruit Trees.

MESSRS. THOMAS RIVERS AND SON beg to submit to the public a Synopsis of their FRUIT TREE CULTURE, now extending over nearly 100 acres.

APPLES on Crab Stocks.—Dwarf maiden trees, pyramids in a bearing state, lateral trained trees and standards for orchards.

APPLES on Paradise Stocks.—Pyramids, dwarf bearing bushes, maiden trees for single cordon training, trained trees for double cordons for edgings, lateral trained trees for espaliers, and pyramids in pots.

APRICOTS.—Standard, half-standard, and dwarf-trained trees for walls; pyramids, very fine and handsome, in pots; bearing bushes, large trees in pots; trained trees for double lateral cordons for glass ridges; standard and dwarf maiden trees and half-standard and standard bearing trees in pots for planting out in orchard houses.

CHERRIES, of the Duke tribe on Mahaleb Stocks; Pyramids full of Blossom-buds; Bushes, ditto; Pyramids, in Pots; Dwarf trained Trees for Walls and Espaliers; and Dwarf Maiden Trees for Cordons. Cherries on this Stock are the most prolific and beautiful of all garden trees.

CRABS.—Siberian and Scarlet, pyramids.

CURRANTS.—Pyramids and bushes.

FIGS.—Bearing trees in pots for forcing, &c.

GOOSEBERRIES.—Pyramids and bushes.

GRAPES.—Bearing Vines for fruiting in pots, smaller Vines for planting out or for ground vineries.

MEDLARS.—Standards and pyramids.

MULBERRIES.—Standards for orchards, pyramids and dwarfs in pots for orchard-house culture.

NUTS.—Grafted Half-Standards, most prolific Trees for Gardens, and Bushes on their own roots.

ORANGES.—Bearing trees in pots of Tangierine, St. Michael's, Maltese Blood, and other sorts.

PEACHES and NECTARINES.—Standard, half-standard, and dwarf maiden trees; standards, half-standards (on stems 2 ft. to 2 ft. 6 in.), and dwarfs trained for walls; double cordons for glass ridges; pyramids in pots, nicely shaped trees; bushes, bearing trees in pots for forcing; ditto for orchard-house culture; and standards and half-standards in pots, bearing trees, for planting out in orchard-houses.

PEARS on Pear Stocks.—Standards for orchards, pyramids and dwarf maiden trees, standards and dwarfs laterally trained for walls or espaliers.

PEARS on Quince Stocks.—Maiden trees for vertical or lateral cordons, pyramids and bushes, bearing trees; lateral trained trees for walls or espaliers, double lateral cordons for glass ridges or for edgings, upright trained trees, double grafted trees, and pyramids, bearing trees, in pots.

PLUMS.—Standards for orchards, pyramids and dwarf bearing bushes, standards and dwarf-trained trees for walls or espaliers, double lateral cordons for glass ridges, pyramids, half-standards, and bushes in pots for orchard-house culture.

QUINCES.—Standards and pyramids.

RASPBERRIES.—Summer and Autumn, canes of.

SERVICE TREE.—Pyramids.

STRAWBERRIES.—Runners, transplanted.

WALNUTS.—Standards and dwarfs of the Prolific Walnut.

Now ready, a Descriptive Catalogue of Fruits, a Descriptive Catalogue of Grapes, a Catalogue of Orchard-House Trees, a Descriptive Catalogue of Roses. In the Miniature Fruit Garden, Thirteenth Edition, price 3s., Ground Vineries and Glass Ridges for Fruit Culture are described.

Carriage of all packages paid to London.
Nurseries, Sawbridgeworth.

PEACH TREES for Cordons; Pyramidal PEACH, APRICOT, and NECTARINE TREES, in pots, full of blossom buds, 5 to 6 feet in height, for diagonal cordon training or pot culture. Average price, 5s. each. The above have all been under close summer pinching, and are very handsome Trees.

Messrs. THOS. RIVERS & SON, Nurseries, Sawbridgeworth.

Fruit Trees, Roses, Ornamental Trees and Shrubs, &c.

THOMAS WARNER respectfully informs his Patrons and the Public generally that his PRICED and DESCRIPTIVE CATALOGUE of the above for the present season is now ready, and may be had free on application.

The Nurseries now occupy 70 Acres of ground. The Stock of SALE FRUIT TREES alone exceeds 200,000, all true to name, consisting chiefly of Dwarf and Standard Trained Trees for Walls, Standards for Orchards, and Pyramids and Espaliers for Gardens; all of which have been cultivated with much care, and very many of them have borne fine crops of Fruit during the past summer.

The ROSES are very strong and healthy plants; the collection contains most of the New and fine varieties, both of English and Continental origin.

The ORNAMENTAL TREES, EVERGREENS, and general Nursery Stock, having been regularly transplanted, are in fine health, and in the best possible condition for removal, and well worthy the attention of persons contemplating planting. An inspection is respectfully invited

The Nurseries, Leicester Abbey.

RICHARD SMITH,
NURSERYMAN and SEED MERCHANT, Worcester.

ROSES.—12 of the very best Standard, Perpetual, and Moss Roses for 18s.; 50 for 63s.; 100 for £5.
12 ditto Dwarf do. do. for 12s.; 50 for 42s.; 100 for 75s.
12 ditto, New Sorts of 1865, for 24s.
Descriptive List on application.

FORTY ACRES of FRUIT TREES.—Apples, Pears, Plums, Cherries, Peaches, Nectarines, and Apricots in every form desired for Fruiting.

DWARF-TRAINED TREES, by the Thousand, Hundred, or Dozen.

APPLES, PEARS, PLUMS, CHERRIES, PEACHES, and NECTARINES.
Fine, flat, well-trained, of best quality, and true to name.

PYRAMID APPLES, PEARS, PLUMS, CHERRIES.
Beautiful Trees for Garden or Orchard Houses.

ORCHARD-HOUSE TREES, Fruiting in Pots.—Peaches, Nectarines, Apricots, Cherries, Plums, Pears, Apples, Vines, and Figs.

EVERGREENS for Ornamental Planting or Avenues, handsome, well grown, and transplanted within the last two years. For prices of smaller sizes and quantities, see Conifer List.

At 30s. per dozen:—

Abies alba, 5 to 7 feet	Juniperus thurifera, 3 to 4 feet
" Douglasii, 3 to 4 feet	Laurel, Colchic, 5 to 6 feet
" inverta, 1½ to 2 feet	" Portugal, Pyramids, 3 to 4 ft.
" orientalis, 1½ to 2 feet	Pinus cembra, 3 to 4 feet
Arbor-vitæ, American, 6 to 7 feet	" excelsa, 5 feet
" Siberian, 4 to 5 feet	Taxodium sempervirens, 7 to 8 ft.
Cedar, Red, 5 to 6 feet	Thuja Lobbii, 3 to 4 feet
Cryptomeria viridis, 4 to 5 feet	" aurea, 1½ foot
Cupressus Lawsoniana, 3 to 4 feet	" compacta, 1½ to 2 feet
" fragrans, 3 feet	Thujopsis borealis, 3 feet
Irish Yew, 4 to 5 feet	Wellingtonia gigantea, 2 feet

At 42s. per dozen:—

Abies Douglasii, 4 to 5 feet	Pinus excelsa, 6 feet
" inverta, 2 to 2½ feet	" Lambertiana, 3 to 4 feet
" orientalis, 2 to 2½ feet	" insignis, 3 to 4 feet
" pyramidalis, 2 to 2½ feet	Thuja Lobbii, 4 to 5 feet
Araucaria imbricata, 2 to 2½ feet	" compacta, 2 to 2½ feet
Arbor-vitæ, Siberian, 5 to 6 feet	" aurea, 2 feet
" American, 7 to 8 feet	Thujopsis borealis, 4 feet
Cedar, Red, 6 to 8 feet	Wellingtonia gigantea, 2½ feet
Cupressus Knightii, 6 to 7 feet	Yew, Irish, 5 to 5½ feet
" Lawsoniana, 4 to 4½ ft.	Laurels, Pyramid, Portugal, 4 to 4½ feet
Juniperus thurifera, 4 to 5 feet	" Colchic, 6 to 7 feet
Pinus Cembra, 4 to 5 feet	

At 60s. per dozen:—

Abies inverta, 2½ to 3 feet	Juniperus thurifera, 5 to 6 feet
" Douglasii, 5 to 5½ feet	Laurels, Pyramid Portugal, 5 ft.
" Menziesii, 5 to 6 feet	Pinus excelsa, 6 to 8 feet
" orientalis, 2½ to 3 feet	" Lambertiana, 5 to 6 feet
" pyramidalis, 3 to 4 feet	" Cembra, 5 to 6 feet
Araucaria imbricata, 2½ to 3 feet	Thuja japonica, 2½ to 3 feet
Arbor-vitæ, Siberian, 6 to 7 feet	" aurea, 2½ feet
Cedrus Deodara, 6 feet	Taxodium sempervirens, 8 to 10 ft.
Cupressus Knightii, 7 to 8 feet	Wellingtonia gigantea, 3 feet
" Lawsoniana, 5 feet	Yew, Irish, 6 feet

At 84s. per dozen:—

Abies Douglasii, 7 to 8 feet	Cedrus Deodara, 7 to 8 feet
" inverta, 3 to 4 feet	Juniperus thurifera, 6 to 7 feet
" Menziesii, 6 to 8 feet	Pinus excelsa, 8 to 10 feet
" orientalis, 3 to 4 feet	Taxodium sempervirens, 10 to 12 ft.

Each:—

Abies Douglasii, 8 to 10 ft., 12s. 6d.	Picea nobilis, 2½ to 5 ft., 21s. to 63s.
" " 10 to 12 feet, 15s.	" Nordmanniana, 2½ to 4 feet, 10s. 6d. to 42s.
" " 12 to 15 feet, 21s.	" " 4 to 6 feet, 42s. to 84s.
" inverta, 4 to 5 feet, 10s. 6d.	" Pinsapo, 3 to 5 ft., 10s. 6d. to 42s.
" " 6 feet, 21s.	Pinus excelsa, 10 to 12 feet, 10s. 6d.
Araucaria imbricata, 3 to 4 feet, 7s. 6d. to 21s.	" " 12 to 15 feet, 15s.
" " 4 to 8 ft., 21s. to 84s.	" Lambertiana, 6 to 8 feet, 10s. 6d. to 21s.
Cedar of Lebanon, 8 to 10 feet, 21s.	Thuja incurvata, 8 to 9 ft., 10s. 6d.
Cedrus Deodara, 8 to 10 ft., 10s. 6d. to 21s.	Taxodium sempervirens, 12 to 15 feet, 10s. 6d. to 15s.
Picea nobilis, 2 to 2½ feet, 10s. 6d. to 21s.	

American Arbor-vitæ, for Hedges, 3 to 4 feet, at 50s. per 100.
" " " 4 to 5 feet, at 75s. "
" " " 5 to 6 feet, at 100s. "

FLOWERING and STANDARD ORNAMENTAL TREES. At 12s. per dozen:—

Ash, Mountain, 7 to 9 feet	Chestnut, Spanish, 6 to 8 feet
Acacia, 7 to 9 feet	Hornbeam, 8 to 10 feet
Birch, Weeping, 8 to 10 feet	Poplar, Silver, 8 to 10 feet
Crab, Siberian, scarlet, 6 to 7 feet	" Lombardy, 9 to 10 feet
" yellow, 6 to 7 feet	Pyrus spectabilis, 6 to 7 feet

At 18s. per dozen:—

Almond, flowering, 7 to 8 feet	Chestnut, Spanish, 8 to 10 feet
Acacia, 8 to 10 feet	Cytisus, 3 to 4 feet
Ash, Mountain, 9 to 12 feet	Elm, Chichester, 8 to 10 feet
Acer Negundo, 6 to 8 feet	Poplar, Lombardy, 11 to 12 feet
Birch, 10 to 12 feet	" Silver, 10 to 12 feet
Crab, Siberian, yellow, 7 to 8 feet	Pyrus spectabilis, 7 to 8 feet
" scarlet, 7 to 8 feet	Thorn, double pink, 6 to 7 feet

At 30s. per dozen:—

Almond, flowering, 8 to 10 feet	Cytisus in variety, 4 to 5 feet
Acer Negundo variegata, 6 to 8 ft.	Poplar, Silver, 12 to 15 feet
Acacia, ball, 6 to 7 feet	Thorns, double pink, 8 to 10 feet
Chestnut, scarlet, 6 to 8 feet	Willow, Ameri. Weeping, 6 to 8 ft.

RICHARD SMITH'S LIST of all the EVERGREEN FIR TRIBE, suitable for Britain, giving size, price, popular and botanical names, derivations, description, form, colour, foliage, growth, timber, use in arts, native country and size there, situation, soil, and other information, with copious Index of their synonymes.

Enlarged Edition, free by post for 12 postage stamps.

RICHARD SMITH'S FRUIT LIST contains a sketch of the various forms of Trees, with Directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Cropping, Treatment under Glass; also their synonymes, quality, size, form, skin, colour, flesh, flavour, use, growth, duration, season, price, &c.

Free by post for one stamp.

RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

HENRY MAY begs to offer the under-named fine stock:—

12 superb STANDARD ROSES, named, 18s.; per 100, 100s.
12 superb DWARF BUDDED ROSES, named, 9s.; per 100, [illegible]
12 superb DWARF ROSES, on own Roots, named, 9s.; per 100, [illegible]
12 superb STANDARD APPLES, 6 feet stems, 15s.; per 100, [illegible]
12 superb STANDARD APPLES, 4 to 5 feet stems, 10s.; per 100, [illegible]
12 superb DWARF BUSH APPLES, 9s.; per 100, [illegible]
12 superb DWARF BUSH PEARS (on Pear), 9s.; per 100 [illegible]
12 superb GOOSEBERRIES, 2s.; per 100, 10s.; per 1,000, [illegible] 10,000 £35
12 superb CURRANTS, RED and WHITE, 2s.; per 100, [illegible]
12 superb HOLLYHOCKS, 9s.; per 100, 50s.; per 1000, £20
12 fine bushy PORTUGAL LAURELS, 3 times transplanted, [illegible]
12 fine bushy PINUS AUSTRIACA, 3 times transplanted, 1[illegible]
12 fine bushy CHINESE ARBOR-VITÆ, 2 ft., 3 times transplanted, 1[illegible]
12 fine bushy AMERICAN ARBOR-VITÆ, 3 feet, 3 times transplanted, 4s.
12 fine bushy PINUS EXCELSA, 3 feet, 3 times transplanted, 1[illegible]
12 fine bushy CEDRUS ATLANTICA, 3 feet, 3 times transplanted, 36s.; 3s. 6d. each
12 fine bushy AMERICAN BLACK SPRUCE, 3 feet, 3 times transplanted, 12s.
12 fine bushy LAURUSTINUS, blooming plants, 2 feet, 9s.
12 fine bushy WELLINGTONIA, from seed, 1 foot, 18s.; 1½ foot, [illegible]
12 fine bushy WELLINGTONIA, 2 feet, 36s.; 2½ feet, 42s.
100 fine named HARDY HERBACEOUS PLANTS, 4s.
100 " " ROCK or ALPINE PLANTS, 50s.
200,000 extra fine LARCH, well rooted, 3½ to 5 feet
300,000 " " " 2 to 3 feet
500,000 " " " 1½ to 2 feet

All the above are extra fine clean well-grown Plants and Trees, and will transplant safely. CATALOGUES sent free on application to

HENRY MAY, The Hope Nurseries, Bedale, Yorkshire.

To Gentlemen Planting.

IN CONSEQUENCE of some of my Nursery Grounds being required for Building, I am induced to offer a large quantity of the following, cheap:—

STANDARD ROSES, DWARF ROSES, and Dwarf Roses on Stems, Standard Dwarf FRUIT TREES, Standard Ornamental Trees and Shrubs, large specimen CEDRUS DEODARA, varying from [illegible] to [illegible] high, and a general collection of Evergreens, American Plants, &c., including some of the newest and best kinds of RHODODENDRONS, and some very large trees, suitable for making an immediate blind.

CATALOGUES to be had on application.

R. NEAL, The Nurseries, Wandsworth Common, S.W.

LARGE LAURELS, &c.

LAURELS, 4 to 6 ft., and bushy	ABIES MORINDA, 6 to 8 feet
PHILLYREAS, 4 to 6 feet, do.	DEODARS, 6 to 15 feet
SWEET BAYS, 2 to 4 feet, do.	LIMES, PLANES, ELMS,
LAURUSTINUS, 2 to 3 feet, do.	SYCAMORES, POPLARS,
PINUS EXCELSA, 4 to 6 feet	LABURNUMS, 8 to 20 feet

The whole have been lately transplanted, and will move safely. Prices on application, stating size and quantity required.

JAS. MCRONALD, Chichester.

1865 and 1866.

WILLIAM BARRON begs to announce that his NEW DESCRIPTIVE CATALOGUE of CONIFERÆ and other ORNAMENTAL PLANTS, RHODODENDRONS, ROSES, FRUIT TREES, &c., for the Autumn of 1865 and Spring of 1866, is now ready, and may be had post free upon application.

Elvaston Nurseries, Borrowash, near Derby.

W. VIRGO AND SON have a surplus stock of fine healthy, and well-grown FRUIT, FOREST TREES, &c., the undermentioned kinds, viz.:—Arbor-vitæ, in sorts; Berberis, sorts; Privet, Portugal and Common Laurel, Evergreen Box, Weymouth Pine, Spruce and Balm of Gilead Firs, Laburnums, Turkey Oak, Scarlet Maple, Scarlet and White Thorns, Apples, Pears, Plums, and Roses in dwarfs and standards. Height, size, and prices can be obtained on application.

The Nursery, Wonersh, near Guildford, Surrey.

S. PONSFORD AND SON beg to offer to the Trade and large Purchasers GENERAL NURSERY STOCK, especially Chinese Arbor-vitæ, Variegated Hollies, Laurels, Euonymus, &c.; Limes, Mountain Ash, Poplars, Planes, and Mulberries, extra fine of all sizes. Prices on application. Hyacinths, Crocus, Tulips, &c. CATALOGUES gratis.

Loughboro Park Nurseries; and Brixton Place, Brixton, Surrey.

To Nurserymen and Others.

JOHN PERKINS, SEN., has the following to offer at moderate prices:—

2,000,000 LARCH FIRS, 3 to 4 feet.
1,000,000 SPRUCE and SCOTCH FIRS, 2 to 3 feet.
2,000,000 BLACK THORN, 1, 2, and 3 years.
2,000 CEDRUS DEODARA, from 4 to 8 feet.

Dwarf-trained PEACHES, NECTARINES, APRICOTS, and CHERRIES, Standard PEARS, &c.

Prices of the above on application to JOHN PERKINS, 32, Market Square, opposite the Corn Exchange, Northampton.

Newry Nurseries.—To the Trade.

G. R. DAVIDSON, NURSERYMAN, SEEDSMAN, and FLORIST, begs to offer 1,500,000 of 2-year Seedling THORNS, 10 to 18 inches; 400,000 Transplanted 3-year old THORNS; 3,000 PORTUGAL LAURELS, Transplanted, 12 to 18 inches: a large lot of COMMON LAUREL, 1-year, from cuttings, about 18 inches together with a General Stock of FOREST TREES, all of strong healthy growth.

GEORGE R. DAVIDSON, Nursery and Seed Establishment, Newry, Ireland.

Planting Season.

JAMES SMITH'S DESCRIPTIVE CATALOGUE of FOREST and ORNAMENTAL TREES, EVERGREENS and FLOWERING SHRUBS, AMERICAN PLANTS, HARDY FERNS, &c., is now ready, and will be sent post free to any address on application.

J. SMITH takes this opportunity to invite Planters to inspect his Nurseries, and to give themselves as much time as possible, as one of the Nurseries lies two miles away.

The Nurseries cover an area of more than 70 Acres, of which 11 Acres are Rhododendrons, and are grown at an elevation of more than 1000 feet. N.B.—The Trade supplied.

The Home Nursery is within 10 minutes' walk of Darley Station. Post address—JAMES SMITH, Darley Dale Nurseries, near Matlock.

Transplanted Larch and Quicks.

CHIVAS AND WEAVER (late GEORGE CHIVAS), Chester, offer several Millions of TRANSPLANTED LARCH, from 1½ to 4½ feet, very stout, grown in an exposed situation, specially fine plants, and at prices greatly in favour of the purchaser. Also several Millions of TRANSPLANTED QUICKS, a large quantity of which are of great strength; strong English QUICKS, superior Spruce, up to 2½ feet, together with a general stock of other Forest Trees, as well as a large stock of Evergreens and Ornamental Trees; many Thousand fine Standard Apples, and extra strong Transplanted Apple Stocks.

For prices and conditions of free delivery, see CATALOGUE, which will be forwarded on application.

To Noblemen and Gentlemen about to be engaged in Planting.

DICKSONS AND CO., NURSERYMEN, SEEDSMEN, and FLORISTS, Waterloo Place, Edinburgh, have this season a large and very healthy stock of Seedling and Transplanted LARCH (native and Tyrolese), True Native Highland SCOTCH FIR, Spruce, Oak, Plane or Sycamore, Spanish Chestnut, Alder, Ash, Elm, Thorn, Quick, Beech, Evergreen Privet, Poplar, Willow, &c., as well as all other kinds of Forest and Ornamental Trees and Shrubs, Fruit Trees, Roses, Greenhouse and Stove Plants, Herbaceous and Alpine Plants, Ferns, &c.

Their Forest Trees, which are grown on exposed ground, are this season finely ripened, and can be sent with perfect safety to any part of the kingdom.

Samples and prices will be sent free on application.

ON SALE, a large quantity of strong LARCH, SPRUCE, PRIVETS, and 2-years BEDDING QUICKS.

LARCH, 2 to 3 feet, 17s. 6d. per 1000.
" 3 to 4 feet 6 inches (very fine), 22s. 6d. per 1000.
PRIVETS, 3-years Transplanted, 17s. 6d. per 1000.
QUICKS, 2-years Bedding, for Railway and Enclosure purposes, 6s. to 8s. per 1000.
HOLLIES, very fine, 3 to 5 feet; price according to size.

Apply to SAMUEL ROBINSON, Shaw House, Melbourne, near Derby.

LAUREL.—For Sale, several Thousands of well-grown transplanting LAUREL PLANTS, from 2 to 3 feet high, at the Finsbury Station on the London and South-Western Railway; quantities not less than 1000, at 30s. per 1000.
Apply to Mr JEFFERY, Old Wardour Castle, Salisbury, Wilts.

TREES SOLD, for Cash, all twice Transplanted:—

	Per 1000.		Per 100.		Per dozen	
	s.	d.	s.	d.	s.	d.
Scotch Grown LARCH, 3 to 5 feet high ..	25	0	3	6	1	0
Spanish QUICK, 2½ to 3½ feet high	15	0	2	6		
HORSE CHESTNUTS, 3 to 5 feet high ..	80	0	10	6	2	0
" 5 to 7 feet high ..	140	0	17	6	3	0
Hedging COMMON PRIVET, 1 to 3 feet	20	0	3	0		
SILVER ELE, 1 to 2½ feet high	30	0	4	0	1	0
BERBERIS AQUIFOLIUM, good bushes, 2 to 3 feet high	80	0	12	6	2	0
SPIREA, good, 2½ to 3 feet high	..		25	0	2	6
COMMON ELM, 4 to 5 feet high	30	0	5	0	1	6
MOUNTAIN ASH, 3 to 4 feet high	..		15	0	2	0
CUPRESSUS SEMPERVIRENS, 2½ to 4 ft.	..		25	0	3	6
LABURNUMS, 4 to 6 feet high	..		25	0	3	0
COMMON LILAC, 2½ to 3½ feet high ..	..		25	0	3	0
ACACIA, 7 to 9 feet high	..		25	0	3	10
ACACIA, large, 3 to 4 feet high	..		6	0	1	3
WEPING ASH, 4 to 6 feet high ..	..		17	6	2	6
SWEET BRIARS, 3 to 5 feet high	..		12	6	2	0
GREEN DOGWOOD, 2½ to 3½ feet high ..	..		12	6	2	0
BLACK WILLOW, 4 to 6 feet high ..	..		15	0	2	6
BALSAM POPLARS, 7 to 9 feet high ..	..		15	0	3	0
SCARLET OAK, 1½ to 2 feet high	..		10	0	1	6
MAPLE, 2 to 3 feet high	..		15	0	2	6
ASH, 2 to 3 feet high	30	0	5	0	1	0
ASH, 4 to 7 feet high	..		10	0	1	6
WHITE AMERICAN SPRUCE, 1 to 2 feet	..		10	0	1	6
HALF STANDARD ROSE, best sort ..	..		60	0	9	0
STANDARD ROSE	..		75	0	12	0

IRISH YEWS, 3 to 4 feet high, 1s. 3d. each.
" " 4 to 5 feet high, 2s. each.
" " 5 to 6 feet high, 3s. each.
" " 7 to 8 feet high, 4s. 6d. each.
Flowering LAURELS, good stuff.
J. C. PADMAN, Boston Spa, near Tadcaster.

Ivery's Nonsuch Lettuce.

WM. IVERY begs to inform the Trade that he has harvested the above in fine condition, and is now ready to supply orders. Price per dozen or 100 packets on application.
Prize purchasers will be advertised in the *Chronicle* early next year.
Hanover Nursery, Peckham, S.E.

Cucumber and Melon Seed.

CUTHILL'S IMPROVED PRINCE ALBERT, set by Long Gun, always there when wanted, 1s. per packet. Splendid BLACK SPINE, 1s.; other sorts. Trade supplied.
A NEW MELON from Australia, 1st Prize, named by me Golden Perfection; flesh cream with light green, delicious flavour, oval, 1 foot long, weight 6 lb., 2s. 6d. per packet. No allowance to the Trade; other sorts, 1s.
Mushroom Spawn, 5s. Pamphlet on ditto, with new appendix, and Dr. Lindley's last note to me in September said my pamphlets ought to be in every one's hands.
JAMES CUTHILL, Camberwell, London, S.

Seed Potatos.

H. AND F. SHARPE invite the attention of the Trade to the following varieties of SEED POTATOS, which they have grown from the finest selected stocks; they comprise all the sorts worthy of cultivation. The quality is excellent, being free from disease; and prices very moderate:—

Early Ash-leaved Kidney	Early Oxford
Myatt's prolific Kidney	" Forty-fold
Fox's Imperial Kidney	Daintree's Earliest
Early King, very fine	Early Dalmahoy Round
" Martin's Globe	" Cockney
" Golden Globe	" British Queen
" Foxe's Seedling	Fluke Kidney
" Round Frame	Yorkshire Regent

Seed Growing Establishment, Wisbech, Cambs.

Surrey White Wheat.

WAITE, BURNELL, AND CO. beg to offer the above very fine variety of WHITE WHEAT, which is highly recommended for poor and elevated soils. It has been tried against many varieties, among which may be named the Rough Chaff, Hunter's Trump, and almost all other kinds of White Wheat, and has produced fully 15 per cent. greater crop. It has been perfectly free from blight and red rust when other varieties have been more or less affected. Price 10s. 6d. per bushel.
A liberal discount to the Trade.
Seed Warehouse, 181, High Holborn, London, W.C.

New Cereals.

SHIRREFF'S RICHARD WHEAT.—A cross with Talavera and Shirreff's Bearded White, varieties yielding the best flour of British Grain. The ear is large and handsome, neither wide nor close set, the notches being well studded with seeds. The chaff is cream coloured, bald and strong. The grain in size, form and colour, resembles the male breeder Talavera, and appears to inherit the flouring properties of both parents, without being liable to blight and sprout like Talavera in certain seasons. The straw is remarkable for stoutness and length, usually exceeding Shirreff's Bearded White by 5 inches, and Talavera by 9 inches. This hybrid, constitutionally adapted to the British climate, is true from seed.
SHIRREFF'S LONGFELLOW OAT.—Judging from the climatic results of the present year, this recent selection has longer straw and larger grain than any variety cultivated in Scotland. The chaff is white, the grain silvery white, long, filled from end to end with meal, and fitted either for feed or milling purposes.
These varieties, uniting quality of grain with quantity of straw, seem to supply the desideratum of cereals for high farming by giving the means of keeping up the manurial condition of the land, and lessening the need of top-dressing in spring—too often fatal to corn crops on high-farmed land.
THE WHEAT FAMILY, male, female, and offspring, with their different crops, and the NEW OAT, will be exhibited at the ensuing Smithfield Show, on the Stand of PETER LAWSON & SON, Corn Merchants, Edinburgh, and prizes received for crop 1866, by
PATRICK SHIRREFF, Haddington.

The Earliest Pea known is

CARPENTER'S EXPRESS, gathered May 7th, the earliest date on record. See testimonials in *Gardeners' Chronicle* of September 2 and 9. Price 5s. per quart.
To be had of EDWARD CARPENTER, Seed Merchant and Grower, Brighton and Sussex Seed Warehouse, 36, St. James's Street, Brighton.
PRICED CATALOGUES of DUTCH BULBS now ready.

Sutton's Ringleader (or Carter's First Crop) Pea.

THE EARLIEST PEA IN CULTIVATION.

MESSRS. SUTTON, anticipating a large demand this season for the above popular Pea, respectfully recommend early orders, the stock being limited.
The following Seedsmen have already offered a supply:—
Messrs. Cooper & Bolton, 152, Fleet Street, London, E.C.
" Hurst & Son, 6, Leadenhall Street, London, E.C.
" Minter, Nash, & Nash, 60, Strand, London, W.C.
" Jacob Wrench & Son, London Bridge, London, E.C.
" Waite, Burnell, & Co., 181, High Holborn, London, W.C.
" Nutting & Sons, 60, Barbican, London, E.C.
" Thorburn & Co., New York, U.S.A.
" Dobson & Son, Woodlands Nursery, Isleworth, W.
" J. & C. Lee, Hammersmith, W.
" Osborn & Sons, Fulham, London, S.W.
Price to the Trade on application.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

SUTTON'S RINGLEADER (or CARTER'S FIRST CROP) PEA.
THE EARLIEST IN CULTIVATION.

This Pea was introduced to the public last season simultaneously by Messrs. SUTTON & SONS and Messrs. James Carter & Co., both parties being entirely ignorant of the fact that the stocks from which they had raised their supplies were obtained a few years since from the same locality, and in fact from the same person who originated it. Of all the kinds tried against Ringleader (or First Crop) none have proved so early.
The price charged last season was the same by both venders, viz., 2s. 6d. per quart, and the demand at that time being so great as to prevent our holding a sufficient quantity for seeding, the price cannot be reduced this season.

The following are Extracts from a few of the numerous Letters received relative to this unrivalled Early Pea:—

From Mr. WILLIAM DOWELL, *Gardener to* Sir George Chetwynd, *Grenden Hall, Atherstone, May* 24, 1865.
"Your 'Ringleader' is earlier than any Pea I have ever grown. I shall gather a dish to-morrow morning, which is by far the earliest Pea we have had."

From Mr. W. POVEY, *Gardener to* H. P. Best, Esq., *Donnington Grove, near Newbury, May* 24.
"I planted your 'Ringleader Pea' on the last day of February; on the same day I planted 'Daniel O'Rourke' and other early sorts. Your 'Ringleader' is uncommonly well podded, and the pods are filling fast. I have no doubt they will be cleared, and the ground planted, before I pick from any of the other early sorts."

From Mr. JAMES PEARSON, *Gardener to* H. Bentley, Esq., *Woodlesford, Leeds, May* 25.
"Your 'Ringleader Pea' is six days earlier than Dillistone's, and is the most promising Pea I have grown."

From Mr. H. HARRISON, *Dedham, May* 26.
"Your 'Ringleader Pea' has proved with me by far the earliest, and will be cleared off the ground before the others have done blossoming. I consider the 'Ringleader' the quickest Pea of any of the early sorts grown in this neighbourhood."

From the Rev. WILLIAM WOOD, *Prestwood Parsonage, Great Missenden, May* 27.
"I expect your 'Ringleader' Pea will be a fortnight earlier than 'Sangster's No 1' sown on the same day; in fact, it is earlier than any Pea which my gardener has known. The garden lies high, and is exposed to the cold."

From Mr. BAILEY WADDS, *Gardener to* S. A. Sykes, Esq., *Raywell, Brough, May* 29.
"I have this year sown your 'Ringleader' Pea against your Early 'Champion,' which I have hitherto found the earliest in cultivation, and I am glad to tell you that it came into bloom ten days earlier. It has been covered with blossoms from top to bottom. I am sure it is a valuable addition to our early Peas."

From Mr GEORGE SCRYMGER, *Holme Park, Sonning, May* 29.
"I have great pleasure in reporting favourably of your new early Pea 'Ringleader.' It was sown the same day as five of the most popular early sorts. I gathered from it on the 26th of May, which is 14 days earlier than I shall of any of the other varieties. It is also very prolific; altogether with me it has proved an acquisition."

From WILLIAM THOMAS REW, Esq., *Coombershead, Tiverton, May* 30.
"Your 'Ringleader' Pea has quite proved worthy of its name. I planted it side by side on the same day with Sangster's No. 1 (which has hitherto been my earliest), but now the 'Ringleader' has blossomed at least one week before the others, and from all appearances will be fit to gather quite a fortnight before them. My garden is in a very high and exposed situation, as well as rather late."

From JOHN FORD, Esq., *Merton Hall, Warwick, May* 31.
"My gardener sowed on the 12th of January, side by side, 'Sutton's Ringleader,' 'Sutton's Champion,' 'Early Essex Rival,' and 'Dillistone's Early Prolific' Peas. 'Sutton's Ringleader' was in bloom first, coming in the 3d of May, the others a week or so later."

From Messrs. DOBSON & SON, *Woodlands Nursery, Isleworth.*
"We tried your 'Ringleader' Peas last season with 'Dillistone's,' and it was from a week to 10 days earlier. It is certainly the earliest Pea that has come under our notice."

From the GARDENERS' CHRONICLE, *August* 12, 1865.
"*Peas.*—On the 28th of March I sowed Sutton's 'Ringleader,' and had a splendid crop in less than eight weeks, which I allowed to ripen. I then sowed the ripe seed on July 10th, and have now a capital crop of Peas, the second crop having been six weeks only in growing, and the two crops have been produced in less than 5 months. I beg to forward you a sample, the pods in which you will observe are well filled.—*Thomas Fulder, White Horse, Binfield, Berks.*"

Retail price 2s. 6d. per quart. Price to the Trade on application.
PRICED LISTS of FLOWER ROOTS, GARDEN SEEDS, FARM SEEDS, &c., gratis and post free.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

THE EARLIEST and BEST OUT-DOOR GROWN PEA we have tested this season—vide *Journal of Horticulture* of the 13th of June, 1865; it was also favourably noticed in the *Gardeners' Chronicle* of June 1, 1865.
The above Early Pea is now being sent out by EDWARD H. PORTER, at 1s. 6d. per quart. Packed free. The seed was gathered from an early and fine crop as early as the 25th of May, and was sent to the Editor as above on the 29th.
None genuine except from accredited Agents.
All over two quarts packed free on Great Western Railway.
Edward H. Porter, Seed Merchant, Taunton.

INVINCIBLE SCARLET SWEET PEA.
FOR AUTUMN SOWING.
A First-class Certificate received from the Royal Horticultural Society, also a Certificate at the Crystal Palace Autumn Show.
Very fragrant, strikingly distinct, distinct, and permanent in its colour. Packets of 40 seeds, 2s. 6d.; 10 Seeds, 1s.; 6 seeds, 6d.; Packets of 100 seeds, 7s. 6d. May be had of the principal Seedsmen throughout the kingdom, or of the raiser,
STEPHEN BROWN, Seedsman, St. Peter's, Suffolk.

The Essex Rival Pea.

THOMAS ELEY, of Stisted Hedingham, near Halsted, Essex, who introduced the above popular PEA last year, has much pleasure in now offering it to the very excellent variety, the merits of which have been well and sufficiently tested by a general public during the past season, the result having been the receipt of many most flattering reports of the extraordinary fine qualities of this Pea, fully endorsing the representations given of it at its first introduction.
Mr. ELEY wishes to remind his numerous patrons that the ESSEX RIVAL may be sown in November to secure a gathering in May. Price 1s. 6d. per quart.
Price to the Trade on application.
To be obtained of Mr THOMAS ELEY, Stisted Hedingham, near Halsted, Essex.
Also of the following appointed Agents:—
Messrs. Peter Lawson & Son, 98, King Street, Cheapside, London, E.C.
Messrs. Fraser, Richards, & Good, 76, Bishopsgate Within, E.C.
Messrs. Cooper & Bolton, 152, Fleet Street, E.C.
Mr James Veitch, Royal Exotic Nursery, Chelsea.
Messrs. Saltmarsh & Son, Moulsham Nurseries, Chelmsford.
Mr B. Card, St. John's Nursery, Colchester, Essex.
Mr George Baker, Seed Merchant, Rivers Road, Paris, France.
M. Paul Tollard, Nurseryman and Florist, 4, Place des Trois Maries.
Richard Lowe & Co., High Green, Wolverhampton, Staffordshire.

The Yorkshire Hero Pea.

E. P. DIXON AND SON, SEED MERCHANTS, 57, Queen Street, Hull, beg to announce that they have this year harvested a fine crop of their YORKSHIRE HERO PEA, a variety sent out by them, which has amply sustained the very high character given of it, being remarkably prolific and of delicious flavour. This Pea is similar in appearance to Veitch's Perfection, but much dwarfer, about a fortnight earlier, and far more prolific, upwards of 70 pods are frequently found upon a stem. It is also a Pea which withstands the mildew better than any other, and we have every confidence in saying that it is the best Pea extant.
All who have grown the Yorkshire Hero Pea have pronounced it to be the best variety of its class, and one which will become a great favourite in every garden. Price 2s. per quart.

TESTIMONIALS.

From Mr. THOMAS GEAR, *Gardener to the* Right Honourable the Earl of Yarborough, *Brocklesby Park Gardens.*
"I grew the Yorkshire Hero Pea the last season, and found it an abundant bearer and an excellent Pea of the Marrow sort. It resisted the hot weather of July, and remained quite green to the last, while other sorts at the same time were covered with mildew."

From Mr. WILLIAM BROWN, *Gardener to* Sir T. A. Clifford Constable, Bart., *Burton Constable Gardens.*
"I am highly pleased with your new Pea, 'The Yorkshire Hero,' and shall give it my best recommendation. I believe it to be the best Dwarf Pea grown, and much superior to Veitch's Perfection, as it is dwarfer, much earlier, and more prolific."

From Mr. JAMES ROBERTSON, *Gardener to the* Dowager Countess of Ripon, *Norton Hall Gardens.*
"It gives me great pleasure to contribute my meed of praise to the very excellent Pea sent out by you last season, under the name of 'The Yorkshire Hero.' I sowed it in the months of March, May, and June, each of which sowings were equally productive, indeed very prolific, and in point of flavour cannot be surpassed. Several gentlemen in this neighbourhood tasted, and spoke very highly of it, and I think it a remarkably distinct variety, and one that will become a general favourite."

From Mr. WALTER HARDIE, *Forester to the* Right Honourable the Earl of Yarborough, *Brocklesby Park Nursery.*
"Having grown the 'Yorkshire Hero' Pea, I can bear testimony to its excellence in every respect, especially its delicious flavour and productiveness."

From Mr. GEORGE FAIRBANKS, *Gardener to* Joseph Robinson Pease, Esq., *Hesslewood House, near Hull.*
"I had some of the 'Yorkshire Hero' Peas from you the past season, and can truly say that it is a most excellent sort; being early, dwarf, of most delicious flavour, and an extraordinary bearer, it withstood the mildew better than any other Pea we had."

From Mr. W. KEMP, *late Gardener to* Sir Thomas Beckett, Bart., *Somerby Park.*
"The Yorkshire Hero Pea is a special variety of the Wrinkled Marrow, 2½ feet in height, very branching, and an abundant bearer, requires sowing very thin in good rich soil, and will produce from 60 to 70 well-filled pods of a most delicious flavour, and very thin in the skin, full 10 days or a fortnight earlier than Veitch's Perfection, and superior in every respect; it is the best Pea I am acquainted with, and will become a general favourite in every garden, not requiring such an unsightly forest of sticks to support them as most sorts do. I may further mention that from the part of seed I had from you I have saved 6 pecks of well shelled Peas, which I can easily dispose of at 1s. per quart to those who saw them in bearing."

From R. R. BROWN, Esq., *Bridlington Quay.*
"I have great pleasure in subscribing my testimony in favour of the wonderfully productive qualities of your Yorkshire Hero Pea; they are very large, and at the same time delicious eating, and I can pronounce them, with the greatest degree of truth, to be the best dwarf Pea I have ever grown."

Price 2s. per quart. Price to the Trade on application.
E. P. DIXON & SON, The Yorkshire Seed Establishment, 57, Queen Street; also 76 and 77, High Street, Hull.

THOMAS J. BOOTH can supply a first-class PEAT, suitable for Orchids (same as recommended by Mr Anderson in *Gardeners' Chronicle*, page 1036), in large or small quantities.
Samples with price on application.
Rainhill Nursery, Prescot, Lancashire.

COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 1s. per bag.

For particulars, and how use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped, J. BARSHAM'S Patent.

Certain Death to Insect Life.

TOBACCO TISSUE for FUMIGATING.—To Florists, Gardeners, and others this new article is strongly recommended for the purpose of destroying Insect Life in Greenhouses, Pits, &c., being manufactured, under Letters Patent, from pure Tobacco rolled into Sheets or Tissue, and is entirely free from any chemical admixture to create combustion. It will be found more economical and very superior to the article generally used.
Sold by all Seedsmen, Nurserymen, and others; and by Messrs ROBERTS & SONS, Tobacco Manufacturers, 54, St. John Street, Clerkenwell, London, of whom samples, with testimonials, may be obtained.

NEW PRIZE MELONS.

E. G. HENDERSON & SON

respectfully offer the following Varieties as worthy of a place in all selections of DESSERT FRUIT, having received high commendations in favour of their superior quality and growth.

Wills's Oulton Park Hybrid (scarlet-fleshed).
Fruit round, of medium size, from 2 to 2½ lb. in weight; flesh salmon-scarlet, very rich in flavour, remarkably tender and melting. Considered by the eminent judges to whom it was submitted on two occasions as "a great acquisition among Melons." Plant is vigorous in growth, not subject to canker or die off at the ear; a free setter, and by judicious treatment yielding a second crop almost equal to the first.
Of this variety Dr. Hogg bears his testimony as follows:—"Your Melon is the finest scarlet-fleshed variety I ever tasted, and very distinct, and it deserves the highest Certificate which has been awarded."

Wills's Green Pine-apple Gem (green-fleshed).
This beautiful and distinct variety in growth is of an excellent constitution, free and vigorous, not subject to disease at the collar or base of the stem, an abundant bearer, sure setter, swelling its fruit off regularly, which is round, rather larger than the "Scarlet Gem," from which it was obtained by a cross with the "Hybrid Cashmere" variety. The fruit is generally smooth, but sometimes beautifully netted. Flesh green as grass, tender and very melting, of a rich Pine-apple flavour. It was regarded by the appointed censors, by whom it was awarded a Certificate, as the best green-fleshed Melon in cultivation.

The above varieties of Melons received their respective Testimonials of Merit from the Fruit Committee of the Royal Horticultural Society.

Seed Packets, 2s. 6d. and 5s. each. The Trade supplied.

E. G. HENDERSON AND SON, WELLINGTON NURSERY, ST. JOHN'S WOOD, N.W.

Hardy Scarlet Rhododendrons.

JOHN WATERER'S CATALOGUE of HARDY SCARLET and other CHOICE RHODODENDRONS as annually displayed in the Royal Botanic Gardens, Regent's Park, can now be had on application.

It contains faithful descriptions of all the varieties really worthy of cultivation, as well as a selection of HARDY CONIFERS, with heights and prices, with ORNAMENTAL EVERGREENS, FOREST TREES, &c.

The American Nursery, Bagshot, Surrey.

Rhododendrons.

JOHN WATERER begs to offer the following Six RHODODENDRONS, in good, strong, healthy plants, at 4*l.* 4*s.* the Set, the usual discount to the Trade:—

SIDNEY HERBERT	MRS. FITZGERALD
JOSEPH WHITWORTH	THE WARRIOR
SIR ROBERT PEEL	SURPRISE

The American Nursery, Bagshot, Surrey.

New Rhododendrons.

JOHN WATERER is prepared to execute Orders for the following Six RHODODENDRONS at the subjoined price. They are this season offered for the first time, and are particularly recommended for the following qualities, viz, Hardiness, fine Foliage, Free Bloomers, and as being perfectly distinct from any other known kinds.

ALEXANDER ADIE.—Brilliant rosy scarlet.
SIR JAMES CLARK.—Dark shaded crimson.
SIR WILLIAM ARMSTRONG.—A very bright crimson.
THE DUCHESS OF SUTHERLAND.—Nearly white centre bordered with rose.
LADY EMILY PEEL.—A very bright rose, intensely marked with chocolate-coloured spots.
RAPHAEL.—Reddish crimson, and large bold flower.

The Set for 6*l.* 6*s.* Usual discount to the Trade.
The American Nursery, Bagshot, Surrey.

RHODODENDRONS.—Hardy Scarlet and other RHODODENDRONS; a most beautiful and extensive assortment of 200 named varieties. Strong bushy plants, £10 per 100; fine hybrid sorts, 50*s.* per 100

KALMIA LATIFOLIA, 1 foot, 20*s.* per 100.
AZALEA PONTICUM, fine bushy plants, 20*s.* per 100.

Also a large general stock of FRUIT, FOREST, and ORNAMENTAL TREES; EVERGREEN and DECIDUOUS SHRUBS, CONIFERÆ, and ROSES, extending over 60 acres.

PRICED CATALOGUES and every information obtainable on application to

W. H. Rogers, Red Lodge Nursery, Southampton.

RHODODENDRONS, of all the finest sorts of Hardy Hybrid Scarlets, &c., such as Barclayanum, Brayanum, Vandyke, Rubens, Concessum, Alarm, &c., extraordinarily well set for bloom, from 1 to 2 feet, extra fine stuff for potting for Conservatory decoration, or planting in the open ground. Price 42*s.* to 60*s.* per dozen. Better plants of these kinds cannot be had.

ANDROMEDA FLORIBUNDA, AZALEAS, older kinds of RHODODENDRONS, &c., very finely set for bloom; also plants of Fortune's and Jackman's NEW CLEMATIS, extra strong. All the NEW AUCUBAS, in strong plants. Some of the New Green-leaved and the Old Aucuba may be had with berries on them.

A CATALOGUE may be had on application.

H. McMillan, Nurseryman and Seedsman, Kingston-on-Thames.

American Plants, New Hardy Rhododendrons.

WATERER AND GODFREY'S PRICED and DESCRIPTIVE CATALOGUE of AMERICAN PLANTS, as exhibited in the Horticultural Gardens, South Kensington, free on application. This Catalogue fairly describes the Rhododendrons most worth growing, as well as some new and very handsome kinds exclusively in their possession, and now for the first time offered.

Knap Hill Nursery, Woking, Surrey.

To the Trade.

CUPRESSUS LAWSONIANA SEED (true), of excellent quality, and warranted crop of present season. Price, postage paid, 5*s.* 2*d.* per oz.; 32*s.* per half lb.; 60*s.* per lb. nett. From unknown Correspondents a remittance must accompany order.

WHOLESALE CATALOGUES of GENERAL NURSERY STOCK can be had, after 10th inst., on application to

Thos. Cripps, Nurseryman, Tunbridge Wells, Kent.

CARNATIONS and PICOTEES for the Million. Fine Strong Plants at reduced prices.

Every one should send for the revised CATALOGUE of CARNATIONS, PICOTEES, PINKS, PANSIES, ROSES, FRUIT TREES, BULBS, &c.

Holland & Jones, Proprietors, Bradshaw Gardens, Chadderton, near Manchester.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

*** Part II. (Exotic Ferns) will be issued as early as possible.

Foot's Cray Nursery, S.E.

NEW PLANTS.

AUBRIETIA CAMPBELLI (effective spring flower).
FUCHSIA BANKS'S BEAUTY.
VERONICA FRUTICOSA GLAUCA.
CLIANTHUS DAMPIERI, in varieties (seed only).

Coloured Plates, post free on receipt of Stamps, of the following:—
AUBRIETIA CAMPBELLI, 7*d.*
CLIANTHUS DAMPIERI ALBIFLORA, 1*s.* 1*d.*

For description of the above see E. G. Henderson & Son's New AUTUMN CATALOGUE, forwarded post free.

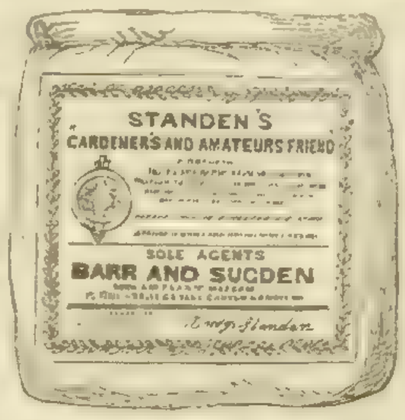
Wellington Nursery, St. John's Wood, London, N.W.

CHRYSANTHEMUMS, and How to have them Fine for Exhibition.—Use STANDEN'S GARDENER'S and AMATEUR'S FRIEND.

STANDEN'S GARDENER'S and AMATEUR'S FRIEND, a highly concentrated Inodorous Fertiliser, for Chrysanthemums and all kinds of Stove and Greenhouse Plants, Vines and other Fruit Trees in pots, &c.; also Vegetables, &c., in the open ground.

No. 1 FERTILIZER is the best adapted for Chrysanthemums and Hard-wooded Plants of every description.

No. 2 FERTILIZER is recommended for Soft-wooded Plants, Bulbs, &c.



Sample Canisters, 1*s.* & 2*s.* 6*d.* Bags, 5*s.* 6*d.*, 10*s.* 6*d.*, and 21*s.*

May be had of the leading Nurserymen and Seedsmen.

Barr & Sugden, Seed and Plant Merchants, 12, King Street, Covent Garden, W.C.

A List of Agents will shortly be published.

Lobelia Snowflake.

Extract from Gardeners' Chronicle:—

"Mr. Cox, Gardener to Lord Beauchamp, exhibited a beautiful White Lobelia called Snowflake, to which a First-class Certificate was awarded. Floral Committee of the Roya Horticultural Society, July 25, 1865."

JOHN AND CHARLES LEE having acquired the stock of this desirable NEW BEDDING PLANT, they have much pleasure in offering SEED in SEALED PACKETS for present sowing for spring pot culture, for which it is well adapted.

As a BEDDING LOBELIA it stands unrivalled. The plant is of dwarf compact habit: the flowers are large, perfectly even, and of the purest white. The stock comes perfectly true from seed.

Price 2*s.* 6*d.* per packet. Price to the Trade on application.

Royal Vineyard Nursery and Seed Establishment, Hammersmith, W.

E. G. HENDERSON AND SON offer SEED of CALCEOLARIA, CINERARIA, and PRIMULA of first-class quality, at 1*s.*, 2*s.* 6*d.*, and 5*s.* per packet. Also the finest SCARLET and INTERMEDIATE STOCK, 6*d.* and 1*s.* each.

SEED of CYCLAMEN PERSICUM, of similar quality, 6*d.* and 1*s.* each, and in mixed colours 2*s.* 6*d.* per packet.

The Wellington Nursery, St. John's Wood, London, N.W.

Hardy Climbers.—To the Trade.

CLEMATIS JACKMANNI.—Large intense violet purple, rugose and veiny in centre, 2 to 2½ feet bine; 30*s.* per dozen.

CLEMATIS RUBRO-VIOLACEA.—Reddish violet, sepals moderate, fine; 30*s.* per dozen.

CLEMATIS STANDISHI.—Beautiful violet blue; 30*s.* per dozen.

Besides other good old varieties.

A CATALOGUE, including Description and Treatment of Clematises, will be forwarded free on application to

Geo. Jackman & Son, Woking Nursery, Surrey.

BUTLER AND McCULLOCH, Seed Merchants, South Row (or Strand side), opposite Southampton Street, Covent Garden Market, London, W.C., beg to offer the following choice COLLECTIONS of DUTCH and CAPE FLOWERING BULBS, all of the first size and quality.

FOR GREENHOUSE.

No. 1.	No. 2.	No. 3.	No. 4.	No. 5	No 6
100*s.*	50*s.*	25*s.*	21*s.*	15*s.*	10*s.* 6*d.*

FOR FLOWER GARDEN.

No. 7.	No. 8.	No. 9.	No. 10.	No. 11.	No. 12.
100*s.*	60*s.*	40*s.*	25*s.*	21*s.*	10*s.* 6*d.*

FOR GREENHOUSE and FLOWER GARDEN.

No. 13.	No. 14.	No. 15.	No. 16.	No. 17.	No. 18.
105*s.*	52*s.* 6*d.*	42*s.*	21*s.*	15*s.*	10*s.* 6*d.*

All orders amounting to 21*s.* and upwards sent carriage paid.

Butler & McCulloch, Covent Garden Market, W.C.

ROYAL HORTICULTURAL SOCIETY.

SCHEDULES for the SPRING and SUMMER EXHIBITIONS

TO BE HELD AT

THE GARDEN, SOUTH KENSINGTON, W., IN 1866.

FACILITIES FOR CARRIAGE OF PLANTS TO THE SOCIETY'S SHOWS.

The Council are pleased to be able to announce to Exhibitors that the principal Railway Companies have acceded to their request to allow Plants intended for the ROYAL HORTICULTURAL SOCIETY'S SHOWS to be carried on more favourable terms than ordinary goods, and Tickets may be had on application to the Assistant Secretary, authorising the bearers to get vehicles containing Plants intended for the Royal Horticultural Society's Shows, to be carried in railway trucks by passenger trains on the lines of railway mentioned below, at the single fare for a four-wheeled carriage for the double journey, the owners taking all risk of conveyance; and delivering at, and removing from, the Companies' Stations such vehicles at their own expense:—

LONDON and NORTH WESTERN	LONDON, BRIGHTON, and SOUTH COAST
GREAT WESTERN	GREAT NORTHERN
SOUTH WESTERN	GREAT EASTERN
LONDON, CHATHAM, and DOVER	SOUTH EASTERN.

LIST OF PRIZES.

Show of Camellias, Hyacinths, and Spring Flowers.—Thursday, March 15, 1866.

Class.
1.—18 Hyacinths, distinct. Nurserymen. £1 10*s.*, £1, 10*s.*
2.—12 Hyacinths, 6 kinds. Amateurs. £2, £1, 10*s.*
3.—6 Hyacinths, distinct. Open. £1, 15*s.*, 10*s.*
4.—6 Hyacinths, distinct, grown in windows, in pots or glasses. Amateurs. £1, 15*s.*, 10*s.*
5.—6 Hyacinths, new kinds of 1865-6. Open. £1, 15*s.*, 10*s.*
6.—6 Narcissi, distinct. £1, 15*s.*, 10*s.*
7.—12 Pots of Tulips, 6 kinds. Nurserymen. £1 10*s.*, £1, 15*s.*
8.—12 Pots of Tulips, 4 kinds. Amateurs. £1 10*s.*, £1, 15*s.*
Note.—Hyacinths in the above classes must have one bulb in each pot; Tulips, three bulbs in each pot.
9.—Crocuses, collection of. Nurserymen. 15*s.*, 10*s.*
10.—Crocuses, 12 pots of. Amateurs. 15*s.*, 10*s.*
11.—6 Forced Hardy Shrubs. £3, £2, £1.
12.—6 pots of Lilies of the Valley. Open. £1, 15*s.*, 10*s.*
13.—6 Chinese Primulas, various colours. Open. 15*s.*, 10*s.*, 5*s.*
14.—3 Chinese Primulas. 10*s.*, 5*s.*
15.—12 Camellias, cut blooms, distinct. Open. £1, 15*s.*, 10*s.*
16.—6 Camellias in flower, distinct. Open. £3, £2, £1.
17.—3 Camellias in flower, distinct. Amateurs. £2, £1 10*s.*, £1.
18.—4 Camellias in flower, distinct. Nurserymen. £2, £1 10*s.*, £1.
19.—Camellia, single specimen. Open. £1, 15*s.*, 10*s.*
20.—3 Greenhouse Acacias, distinct. £1 10*s.*, £1, 15*s.*
21.—3 Epacrises, distinct. £1 10*s.*, £1, 15*s.*
22.—6 Rhododendrons, 4 kinds. Open. £2, £1 10*s.*, £1.
23.—Rhododendron, single specimen. Open. £1, 15*s.*, 10*s.*
24.—Miscellaneous Collection of Plants in flower. Open. £1 10*s.*, £1, 10*s.*

Show of Early Azaleas, Roses, and Spring Flowers.—Thursday, April 12, 1866.

Class.
1.—9 Azaleas, distinct. Nurserymen. £2, £1 10*s.*, £1.
2.—6 Azaleas, distinct. Amateurs. £2, £1 10*s.*, £1.
3.—6 Azaleas, distinct. Nurserymen. £1 10*s.*, £1, 15*s.*
4.—3 Azaleas, distinct. Amateurs. £1 10*s.*, £1, 15*s.*
5.—Azalea, single specimen. Open. £1, 15*s.*, 10*s.*
6.—9 Roses in Pots, distinct. Nurserymen. £2, £1 10*s.*, £1.
7.—6 Roses in Pots, distinct. Amateurs. £2, £1 10*s.*, £1.
8.—New Roses in Pots, of 1865-6, not fewer than 6 kinds. Open. £2, £1 10*s.*, £1.
9.—Rose, single specimen in Pot. Open. £1, 15*s.*, 10*s.*
N.B.—Roses to be grown and exhibited in Pots not exceeding 10 inches in diameter.
10.—6 Cinerarias, distinct. Open. £1 10*s.*, £1, 15*s.*
11.—6 Calceolarias, distinct. £1, 15*s.*, 10*s.*
12.—6 Amaryllids, distinct. £1 10*s.*, £1, 15*s.*
13.—12 Auriculas, 3 grey-edged, 3 white-edged, 3 green-edged, and 3 selfs, distinct kinds. Nurserymen. £1 10*s.*, £1, 15*s.*
14.—8 Auriculas, 2 of each class, distinct. Amateurs. £1 10*s.*, £1, 15*s.*
15.—6 Alpine plants, distinct. Open. £1, 15*s.*, 10*s.*
16.—6 Polyanthus, distinct. Open. £1, 15*s.*, 10*s.*
17.—4 Cyclamens. Amateurs. 15*s.*, 10*s.*, 5*s.*
18.—Collection of Cyclamens. Open. £1 10*s.*, £1, 10*s.*
19.—24 Pansies, cut blooms, 12 distinct kinds. Open. 10*s.*, 5*s.*
20.—8 Pansies in Pots, distinct. Open. 15*s.*, 10*s.*, 5*s.*
21.—Miscellaneous Collection of Plants in flower. Open. £1 10*s.* £1, 15*s.*

May Show.—Thursday, May 3, 1866.

All tender Plants will be Exhibited in the Conservatory.
1.—6 Stove and Greenhouse Plants, in flower, distinct. Open. £6, £4, £2.
2.—12 Orchids, in flower, distinct. Nurserymen. £10, £7, £5.
3.—9 Orchids, in flower, distinct. Amateurs. £9, £7, £5.
4.—6 Orchids, in flower, distinct. Open. £6, £4, £2.
5.—1 Specimen Orchid, in flower. Open. £2, £1, 10*s.*
6.—9 Greenhouse Azaleas, in flower, distinct. Open. £10, £7, £5.
7.—6 Greenhouse Azaleas, in flower, distinct. Amateurs. £6, £4, £2.
8.—1 Specimen Azalea, in flower. Open. £2, £1, 10*s.*
9.—6 Hardy or Half Hardy Rhododendrons, distinct, in flower. £3, £2, £1.
10.—9 Pelargoniums, in flower, distinct. Open. £8, £6, £4.
11.—6 Pelargoniums, in flower, distinct. Amateurs. £5, £3, £2.
12.—1 Specimen Pelargonium, in flower. Open. £1 10*s.*, £1, 10*s.*
13.—9 Roses in pots, in flower, distinct. Open. £9, £7, £5.
14.—6 Roses in pots, in flower, distinct. Amateurs. £6, £4, £2.
15.—1 Specimen Rose in Pot, in flower. Open. £1 10*s.*, £1, 10*s.*
16.—6 Exotic Ferns, distinct. Open. £4, £3, £2.
17.—12 Hardy Ferns, distinct. Open. £4, £3, £2.
18.—Miscellaneous Collection of Plants in flower. Open. £3, £2, £1.

Great International Horticultural Exhibition and Botanical Congress. Tuesday, May 22, to Friday, May 25, 1866.

Special Show.

COMPETITION for PRIZES offered by FELLOWS.

Thursday, June 14, 1866.

PRIZES offered by HIS GRACE the DUKE of BUCCLEUCH, President of the Society.

1.—The best 9 Plants sent out in 1865. £9.
2.—The best 9 Plants sent out in 1864 and 1865. £5.
3.—The best 36 Roses, single trusses, including Roses sent out in 1864 and 1865. The number of New Roses exhibited will be taken into consideration in determining the Prize, £6.
4.—The best collection of New Roses of 1864 and 1865. £5

PRIZE offered by Mr. W. WILSON SAUNDERS, F.R.S., Member of Council and Secretary.

5.—The best collection of healthy, well-grown Economic Plants, such as the following:—Tea (2 or 3 varieties), Sugar, Coffee, Cotton (several varieties), Cocoa, Indigo, Gutta Percha, Rice, Cinchona, Jute, Black Pepper, Nutmeg, Sago, Palm, Arrowroot, Ginger, Cardamom, Vanilla, Allspice. Exotic. £10.

N.B.—Preference will be given to plants in fruit or in flower, and exhibitors are recommended to group them, as far as possible, according to their uses.

PRIZE offered by the LADY DOROTHY NEVILL, Fellow of the Society.

6.—The best 10 Specimens of Exotic Ferns, £10.

PRIZE offered by MAJOR R. TREVOR CLARKE, Member of Council.

7.—For the best Collection of Bromeliads, £5.

PRIZE offered by DR. ROBERT HOGG, F.L.S., Fellow of the Society.

8.—For the best Collection of Sub-Tropical Fruits grown in this country, such as Oranges, Shaddocks, &c., Loquat, Cape Gooseberry, Dates, Guava, Prickly Pear, &c., £5.

PRIZE offered by Mr. W. WILSON SAUNDERS, F.R.S., Member of Council and Secretary.

9.—For the best Collection of Tropical Fruits grown in this country, £10.

PRIZE offered by Mr. G. F. WILSON, F.R.S., Member of Council.

10.—For the best 12 Strawberries in pots, grown in an orchard house, £1

PRIZES offered by the COUNCIL for the SOCIETY

The Council will give a Second Prize, amounting to one half the First Prize, in each of the above Classes.

Great Rose Show, Thursday, June 28, 1866.

The National Rose Show is incorporated with this Exhibition.

Class Cut Roses.
1.—72 kinds. 1 truss of each. Nurserymen. £6, £4, £3, £2.
2.—48 kinds. 3 trusses of each. Nurserymen. £6, £4, £3, £2.
3.—24 kinds. 3 trusses of each. Hybrid Perpetuals only. Nurserymen. £4, £3, £2, £1.
4.—24 kinds, 1 truss of each. Nurserymen. £3, £2, £1, 10*s.*
5.—48 kinds. 1 truss of each. Amateurs. £6, £4, £3, £2.
6.—36 kinds. 1 truss of each. Amateurs. £5, £4, £3, £2.
7.—24 kinds. 1 truss of each. Amateurs. £4, £3, £2, £1.
8.—12 kinds. 1 truss of each. Amateurs. £3, £2, £1, 10*s.*
8.—18 New Roses of 1864 and 1865, single trusses, distinct kinds. Open. £2, £1 10*s.*, £1, 15*s.*
10.—12 trusses of any new kind of 1864. Open. £1 10*s.*, £1, 10*s.*, 7*s.*
11.—12 trusses of any other kind. Open. £1 10*s.*, £1, 10*s.*, 7*s.*
12.—12 Yellow Roses (single trusses), not less than 6 kinds. Open. £1 10*s.*, £1, 10*s.*
13.—For the best exhibition of Yellow Roses, of any one or more kinds of, not less than 24 trusses. £3, £2, £1.
14.—12 Tea-scented and Noisette Roses (single trusses). Amateurs. £2, £1 10*s.*, £1.
15.—12 Tea-scented and Noisette Roses (single trusses). Nurserymen. £1 10*s.*, £1, 15*s.*
16.—12 Tea and Noisette Roses, distinct kinds (single flowers). Open. £1 10*s.*, £1, 15*s.*
17.—Decorated Basket or Vase of Roses. Open. £3, £2, £1.
18.—6 Bouquets of Roses. 6 distinct kinds, 5 trusses to each bouquet. Each bouquet to be shown separately, in a Hyacinth glass or somewhat similar stand. Open. £3, £2, £1
19.—6 Moss Roses, distinct kinds. Open. £1, 15*s.*, 10*s.*
20.—24 Roses, not less than 10 distinct kinds, in pots not exceeding 8 inches in diameter. Open. £6, £4, £3.
21.—20 New Roses, not less than 10 distinct kinds, in pots not exceeding 8 inches in diameter. Open. £6, £4, £3.

Lilium auratum.

WM. T. CATLEUGH can supply strong BULBS at 5s., 7s. 6d., and 10s. 6d. each; or 54s., 84s., and 120s. per doz. These Bulbs have been proved during the last two years, and found to contain many choice varieties. Terms cash.
Hans Street, Chelsea, S.W.

1,000,000 Norway Spruce Firs

For Coverts and Plantations, in various sizes, from 1 foot up to 3 feet, twice and thrice Transplanted.

WM. JACKSON AND CO., NURSERYMEN, Bedale, Yorkshire, have the above to offer at moderate prices; also an extensive general NURSERY STOCK, including fine specimen CONIFERS and ORNAMENTAL TREES of large sizes in splendid condition, all well rooted and hardy grown.
The Jackson & Co. will be glad to see purchasers at their Nursery, which is 5 miles from Northallerton, and 5 minutes walk from the Railway station. Prices and further particulars on application.

New Catalogue of Plants, Dutch Bulbs, &c.

ROBERT PARKER begs to announce that his NEW CATALOGUE, containing Select Descriptive and Priced Lists of New, Rare, and Beautiful Greenhouse, Hardy, and Stove Plants, Fruit Trees, Grapes, &c., Amaryllis, Crocuses, Gladioli, Hyacinths, Narcissus, Tulips, and other Bulbs, is now published, and will be forwarded to applicants.
Exotic Nursery, Tooting, Surrey, S.

Sutton's Unrivalled Collections of Bulbs.

SUTTON'S GUINEA COLLECTION of BULBS for BLOOMING in POTS and GLASSES.
SUTTON'S GUINEA COLLECTIONS for BEDS and BORDERS.
For particulars see SUTTON'S AUTUMN CATALOGUE, which may be had gratis and post free.
SUTTON & SONS, Royal Berks Seed Establishment, Reading.

The Gardeners' Chronicle.

SATURDAY, NOVEMBER 18, 1865.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY,	Nov. 21	Royal Horticultural (Floral and Fruit Committees), at S. Kensington ..	11 A.M.
WEDNESDAY,	— 22	Liverpool Horticultural (Chrysanthemum and Fruit Show), at St. George's Hall	1 P.M.
SATURDAY,	— 25	Royal Horticultural (Weekly Show), at South Kensington	2 P.M.

IS HORTICULTURE A SCIENCE? This question has often been asked, and our attention has been more than once called to it of late, in connection with the life and labours of Dr. LINDLEY. He, to use the words of the late President of the Royal Society, "raised Horticulture from the condition of an empirical art, to that of a developed science." We have then the authority of the Royal Society for stating that Horticulture *is* a Science. We do not propose at this time to consider the arguments that might be advanced in support or in denial of this opinion, but we assert that in spite of much pure empiricism, and much that is doubtful, yet the defects and shortcomings of Horticulture do not invalidate its claim to be ranked among the sciences.

As it was Dr. LINDLEY's aim, in conducting the *Gardeners' Chronicle*, to raise Horticulture, and to give it its proper position both in the eyes of men of science and in those of the general public, so it must be the work of us, his successors, to continue what he began: to avail ourselves of every opportunity to promote the best interests of Horticulture, to advance it, to raise its tone, and to give it yet higher rank among the experimental sciences. In so doing we shall not only be adopting the best means of assisting its progress, but also of furthering the material interests of all those who, either as a means of livelihood or on æsthetic considerations, are conscientious devotees of this most useful science. For our own part we look upon Horticulture as a branch of the science of Botany—applied Botany, that is to say, bearing the same relation to the mother science that the practice of medicine does to the principles of physiology; and just in proportion as the horticulturist, professional or amateur, departs from the teachings of Botany, including of course vegetable physiology, so does he degrade his calling or his amusement—a proceeding more perilous to himself than to the science, for that, either here or elsewhere, *must* progress. Such persons should remember that their interests are bound up with Horticulture, and as that advances, so will their own prospects improve.

We look, then, to the closer intimacy between Botany and Horticulture, between the students of the one and the practitioners of the other, as one of the most powerful means of advancing both. The horticulturist must go to the botanist for the determination, and if necessary the description and baptism of his newly imported plants; he must go to him for advice in matters relating to grafting and to hybridisation; he must consult the physiologist upon many points relating to culture, such as the principles to be followed in pruning, in forcing, and in a number of other operations to which we need not specially allude, as they will at once suggest themselves to our readers. On the other hand, the benefits which the botanist may derive from the horticulturist are equally marked. Who can know so well the "habit" of plants, who see so much of their variability, as the horticulturist? Who can furnish such important evidence as to the constancy and value of the points by which a botanist is led to distinguish one species from another? Who could supply such an armoury of facts to the physiologist, relating to hybridisation, dimorphism, and acclimatisation, as the horticulturist? Who has such opportunities as the horticulturist of proving the value, for general or special culture, of plants and shrubs made known by the botanist as likely to be valuable for ornament, for use, for food, or for other economic purposes? The botanist in his study or his herbarium, knows only half the plant—the dead part, the mummy, but the horticulturist has the advantage of seeing it in a living state, of watching its development from the sprouting of the seed to the production of the fruit, and has in this way immense advantages over the mere botanist. Clearly then an alliance of the two classes of workers is a thing eminently desirable for both parties. The slender ties which at present connect them are to us a matter of greatest regret. We hope those who read these lines will help us to strengthen the bonds of union, and render service alike to Botany and Horticulture.

A school of Horticulture, such as we hear it whispered is in contemplation at Chiswick, would do much to bring about the results we have mentioned. It is somewhat strange that we in this country, where Horticulture is supposed to be practised in its highest perfection, should be without such institutions. Our continental friends have forestalled us in this, but it is never too late to follow good example. We look upon the improved education of gardeners as one of the means for ameliorating their condition. Continually complaints are reaching us as to the inadequacy of their wages, the imperfections of their houses, the degrading and arbitrary restrictions to which they are frequently subjected. The labourer is always worthy of his hire, and as Horticulture advances and its ministers contribute to its progress, and show themselves worthy by their knowledge and conduct, so will the grievances of which they now complain (and too often justly) be diminished, and "gardeners" in the highest sense of the word, will, like the art they practise, increase in estimation.

We have great expectations too from the International display and the Botanical Congress of next year. Horticulturists and botanists will then be brought into contact in a way which has never before been accomplished in this country, though here again we lag behind both Holland and Belgium. It would be unreasonable to expect that many immediate practical benefits will accrue from this association, but indirectly, and in the course of a short time, we look for the greatest advantages to both branches of the science from these and similar meetings, and we earnestly hope that all the horticulturists and all the botanists, all the lovers of plants of whatever degree, will join their forces, and present us, not only with a splendid floral display, but also with the best guarantees for the future advancement of Horticulture and Botany.

For our own part we beg our readers to favour us, as they favoured Dr. LINDLEY, with communications and facts on all and every branch of Horticulture, as well as on collateral subjects. Without their co-operation this Journal could not have attained its present position; without their aid it cannot maintain it now. In the preface to the second edition of the "Theory of Horticulture" Dr. LINDLEY has acknowledged the obligations he was under to the contributors to this Journal for facts and suggestions supplied by them. And as we hope to receive assistance from others, so we hope to be able to aid them in return. It will be our endeavour to lay before them the most recent facts relating to horticultural science and to horticultural practice; to give early notice of new plants as they appear; and to present a chronicle of the progress of Horticulture in the various districts of our own country, as well as on the Continent and in our distant colonies. Foreign Correspondence we look on as hardly less important than Home Correspondence. In the letters of our friends beyond the seas we get important information as to the climate and vegetation of their several districts, from which the home cultivator may derive valuable hints for the treatment of his plants.

Landscape gardening, the production of florists' flowers, and the massing them in ornamental gardens—all these we look upon when properly carried out as branches of the fine arts, and, as such, deserving fullest recognition in our columns. In fine, though fully conscious of the difficulties under which we, in common with Horticulture in general, must labour, now that our Chief has fallen, we hope, with the aid of our friends, to retain that favourable opinion which has for so long a time been passed upon the *Gardeners' Chronicle*.

The mission before us, then, we interpret to be this:—to bear our part in elevating and expanding the science of Horticulture, and to bring into unison the scientific and practical elements of which it is constituted; in devoting our best energies to the fulfilment of these we shall at the same time be taking the best possible means of carrying out another branch of that mission, namely, the improvement and elevation of the position of the professional gardener. To this end we ask for the help of all who have at heart the well-being and the advancement of Horticulture.

WE are delighted to find that the prospects of the INTERNATIONAL HORTICULTURAL EXHIBITION AND CONGRESS are so bright. Nearly 3000*l.* have already been subscribed, and upwards of 3800*l.* guaranteed. The arrangements recently concluded with the Royal Horticultural Society provide that the Exhibition shall be held either in the western portion of the Society's Garden, or on the site of the Great Exhibition of 1862. The use of the Conservatory and of the Western and Upper Arcades is also granted to the Committee, with a right of way through the Southern Arcades if the Show, or any portion of it, should be held on the vacant space to the south of the Gardens. The Horticultural Society also undertake to lend to the Committee of the International Exhibition their staging and other appurtenances, and to place at their disposal the services of the staff of the Society for the week. The Committee are to receive all moneys taken for admission to the Garden during the continuance of the Show, which will be open to the public from Tuesday, May 22, till the following Friday evening.

The Fellows of the Horticultural Society are to waive their right of admitting friends during the week, but will have personal admission to the Garden throughout that period, with this exception, that they will not be admitted into the Conservatory or Arcades on Monday and Tuesday during the staging and judging of the plants; and they are to have free access to the Exhibition in the Western Annexe (or in the southern spot of ground already alluded to, should it be found more convenient to erect the tent in that situation) only on the Wednesday.

In return for these privileges, the Committee of the International Show and Congress engage to admit Fellows and Debenture Holders as above mentioned, to pay 300*l.* to the Society on taking possession of the Garden, to provide on each of the Show days three bands of music, and to restore the Western Annexe to the state in which they found it.

So far well; it rests now with the plant lovers, the horticulturists, and the botanists to come forward and support this Exhibition to the utmost of their power. Sufficient has already been done to show that there is every prospect of success—that success must now be made a triumph. We Englishmen must not forget that we are in arrears in this matter. Belgium and Holland have forestalled us. In both countries we received the most cordial welcome and the profusest hospitality, and we saw displays some departments of which were decidedly superior to anything of the kind we could have shown at the time. But we hope our exhibitors have learnt a lesson, and that many of those noble specimens which we know exist in the country, but which are rarely seen at our flower shows, will be forthcoming for the delight of horticulturists of all grades, and the promotion of the "Science and Practice" of Horticulture throughout Europe.

WE have received a letter from M. NAUDIN, in which he complains that his meaning has been misunderstood in the leading article of November 4 on the subject of the ORIGIN OF SPECIES. He writes "that he never had any idea of having forestalled any one whatsoever with respect to the subject in question, and that he is very sure that he has never said or written anything which could make one believe that he attributed to himself the priority of an hypothesis which many others had made before him. His intention was merely to express his satisfaction that he was not singular in believing in the common origin of species, and that his opinion was that also of distinguished savans, a circumstance which was strongly corroborative of that which he had himself formed."

When translating the passage sent to us by

M. Naudin in manuscript, for the Natural History Review, our own impression was just what he himself alleges in his letter. The distinctive marks between the views of Darwin and others are admirably stated in a note heading the translation in question, and we have great pleasure in transcribing them.

"What Mr. Darwin has done is:

"1. To show that the operation of natural selection must eventually result in the co-ordination of the derivative individuals into more or less definable groups, which we call species, genera, orders, &c.

"2. To demonstrate that such a process actually takes place in minor groups, both of the animal and vegetable kingdoms.

"3. To show how the main facts of classification, development, and geographical distribution are all consonant with and explicable upon the hypothesis that organised beings are all derivative, and have been ruled by natural selection in everything relating to their development, whether as to grade of perfection, numbers, magnitude, or diffusion over the earth's surface. It is the application of this demonstrably proved law of natural selection, together with the fact that the struggle for existence must lead to the extinction of the weaker races, to the speculation of the derivative origin of species, that is the novel point which Mr. Darwin has brought out, and which raises the said speculation to the rank of a legitimate hypothesis; and it is the fact of the derivative origin of species being no longer a speculation, but an hypothesis (or as some say a theory), that has necessitated its careful consideration by every scientific biologist, and its acceptance by many at once and by more as time advances." *M. J. B.*

—— A fruit of Monstera deliciosa (of which a figure was given in this Journal, 1864, p. 962) was exhibited at the Horticultural Society on the 7th of November, and was pronounced excellent by every one who tasted it, having very much the flavour of a good Banana, with an addition of briskness which was a decided improvement. Every one, however, complained that little prickles were left on the tongue or fauces which were far from agreeable. On removing the green lid which covers the upper part of each berry, little transparent sharp points were visible, to which the annoyance was clearly due. On examination, multitudes of bundles of raphides, like microscopic needles, were at once apparent, but it was clear that these, if capable of penetration, were not the only prickles. On examining the projecting points, which were even more abundant in the green cover or disc when divided vertically, they were found to consist of a peculiar tissue, resembling very closely the hairs which occur on Peziza stercorea, but without any articulations. They vary much in diameter, some of them being $\frac{1}{500}$th of an inch across, with very thick walls and a narrow tube. They are pointed behind as well as above, and have a tendency to become branched. In some cases, indeed, where the diameter was much smaller, we found them forked three or four times, but still pointed behind and slightly waved, looking very much like the spicules in some sponge. As our specimens became withered before we could examine them, we were unable to ascertain their connection with or origin from the accompanying tissue, but we hope some day to reexamine the matter with better materials. *M. J. B.*

—— M. Boussingault states, in a paper on the Functions of Leaves recently read before the French Academy of Sciences, that leaves exposed to the action of hydrogen or nitrogen lose, as in carbonic acid, their decomposing power. This he attributes to the circumstance that they are deprived for a long time of the supply of oxygen, which is necessary for the removal of carbonic acid, by slow combustion.

—— A delicate compliment was paid to the learned President of the Linnean Society at its first meeting for this session, in the shape of a basket-full of the Fruits of Benthamia fragifera. They were sent up from the West of England by Dr. Prior; and being well ripened, they had a very handsome appearance.

—— A correspondent has kindly forwarded us an account of the Planting of Trees in the parish of Little Gonerby by Grantham. It is proposed to plant a large number of ornamental and useful trees by the sides of the principal thoroughfares, so that the parish will ultimately assume very much the appearance of a park studded with buildings. Great interest seems to be taken by the inhabitants in promoting this desirable step, and the Duke of Rutland has shown his sympathy with the movement by presenting a fine specimen of the Taxodium sempervirens, and also numerous other handsome trees of different sorts. There can be no valid reason why this excellent example should not be followed in hundreds of our towns and villages. Once make it a common thing, and the silly mischief of thoughtless boys would cease. The matter has practical bearings as well as mere æsthetic ones. We might have avenues of Ailantus for the silkworms, or even lines of Walnut and other fruit trees as are so commonly met with abroad, where the depredations must be trifling, or the practice would not be continued. We think the authorities of Little Gonerby entitled to great credit for this praiseworthy act.

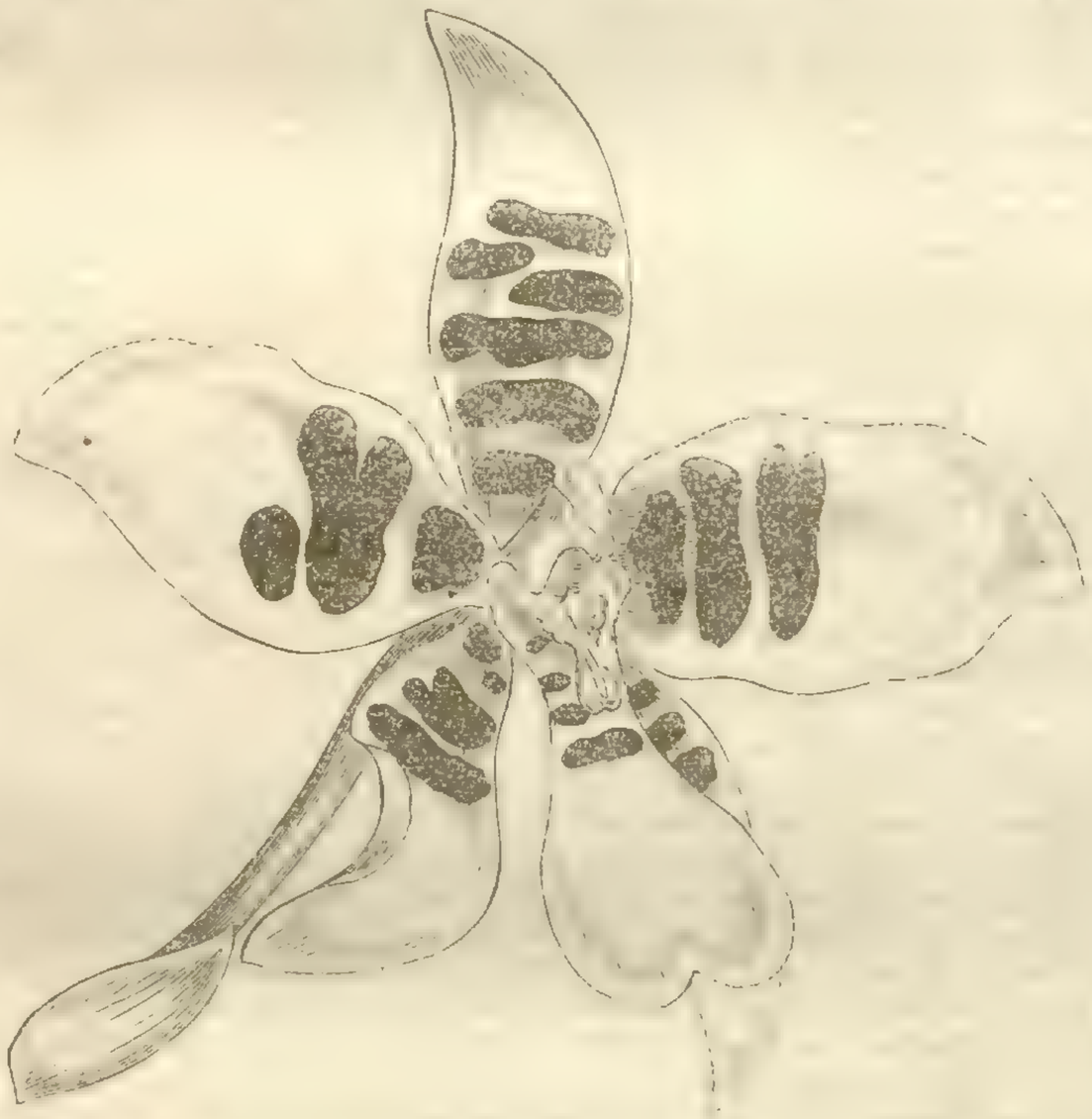
—— Mr. Bull has forwarded us flowers of the Cuscuta exhibited by him at the meeting of the Horticultural Society on November 7, and mentioned in our columns (p. 1061). The calyx is beautifully spotted with purple warts, the corolla is comparatively large and bell-shaped, and the scales within form beautiful objects under a magnifying glass, from the elegance of their fringe. Professor Oliver has, we believe, determined, that this curious and interesting plant is the Cuscuta reflexa of Roxburgh.

New Plants.

320. Odontoglossum Schlieperianum, *Rchb. fil. MSS.*; alias Odontoglossum Warscewiczii, *Bridges* at Stevens' sale, April 25, 1856! Odontoglossum grande pallidum, *Klotzsch! in Hort. Berol.*

Aff. Odontoglosso Insleayi, *Lindl.* Labello basi utrinque semiovato, carina baseos centrali lineari, carinula crenulato utrinque retrorsa, lamella semioblonga apice utrinque juxta carinam, columnæ basi æquali tabulam non proferente.

We have known this plant for a long time—nearly 10 years. It made its first public appearance at a sale



at Mr. Stevens' auction rooms, where the nomenclature was not quite *au niveau* of science, notwithstanding that some rough brightly-coloured sketches of the true species were exhibited beside the bulbs of what afterwards proved to be widely different plants. Thus the pseudobulbs of this species were arranged under the representation of Odontoglossum Warscewiczii, *Rchb. fil.*, a plant yet unintroduced, but which will one day prove, we dare say, a most dangerous rival of such splendid plants as Odontoglossum crispum, *Lindl.*, O. Bluntii, *Rchb. fil.*, and last, but not least, the lovely O. Alexandræ, *Batem.* itself. When the plants flowered, there was naturally much dissatisfaction, and the plant itself seemed to have disappeared. More recently we have obtained flowers grown by Mr. Linden, and subsequently by Mr. Moritz Reichenheim of Berlin, by Consul Schiller of Hamburgh, and by Adolph. Schlieper, Esq., of Elberfeld, a zealous collector of Orchids, to whom it is inscribed.

The plant has also been well observed in England, both by Messrs. Bateman and Day. We hesitated to publish our views, since we did not know whether there were three species or one, or whether this was not a dimorphism of Odontoglossum Insleayi, for it bears such an extraordinary likeness to this species, that it might be its twin. Yet we have ascertained that our plant always flowers in late summer, while Odontoglossum Insleayi would appear to be a winter flowerer. We may add that the colours of O. Insleayi (with the sharp horns on the lip, so well represented in Mr. Bateman's *Orchid. Mex. & Guatemala*, and the projecting table of the base of the lip) are much brighter, the sepals, petals, and lip being marbled to the tips with rich and deep cinnamon, while ours is of a light yellow, and only the inferior parts of the flower are marbled. Odontoglossum Insleayi, too, always shows a very prominent table under the stigma.

We have been anxious to obtain some information respecting the habitat of these plants. It would seem that Odontoglossum Insleayi inhabits Mexico or [illegible] We have obtained dried specimens from Mechoacan and have never seen them in any other herbarium. Odontoglossum Schlieperianum is probably confined to Costa Rica, from which place came the plants of the above-mentioned sale. It has also been observed and collected by Mr. Wendland the younger, whose very interesting Orchids will soon be published. *Rchb. fil.*

THE LATE DR. LINDLEY.

(*Concluded from p. 1059.*)

Not content with the labours to which we have already referred, Dr. Lindley and other gentlemen, including the late Sir Joseph Paxton, determined in 184[illegible] supply a long-felt want in the shape of a first-class horticultural journal, and the *Gardeners' Chronicle* accordingly made its appearance. Of its success it is not for us to speak; but it is not too much to say, that the excellence of the articles contributed by the Editor, and the [illegible] with which he conducted the horticultural department of the journal in question for nearly 25 years, has been acknowledged both by the friends and rivals of the publication. In these columns he did his utmost to raise the position of Horticulture by laying before the public in the clearest manner the physiological [illegible] involved in the various operations of gardening, and the best methods of cultivation; while his vast knowledge of plants and of their requirements gave a special value to his writings. Nor were what may be termed the personal interests of his readers uncared for. With indefatigable perseverance and untiring patience he set himself to work to detect fraud and to expose the practices of the unprincipled. He was a steady advocate of the improved education of gardeners, seeing that a powerful remedy for the grievances under which many of them labour. Nor did his interest in them cease here. Dr. Lindley was a staunch supporter of the Gardeners' Royal Benevolent Institution and rendered great assistance to that useful association both with pen and purse.

It is not unnatural that a man possessing Lindley's peculiar mental qualifications, his energy, his straightforwardness, his method, should be often consulted by the members of the Government or other public bodies on matters with which he was familiar. Among what may be termed public services, may be mentioned the report made in 1838 by Dr. Lindley, with the assistance of the late Sir Joseph Paxton and of the late Mr. John Wilson (then gardener to the Earl of Surrey), on the state of the Royal Gardens, a report which revealed an amount of incompetence and extravagance on the part of the majority of the then Royal gardeners, which is now happily forgotten. As has been stated in our notice of the life of the late Sir William Hooker, Dr. Lindley recommended that the Royal Gardens at Kew "should be made over to the nation, and should ultimately become the head-quarters of botanical science in England, its colonies and dependencies." The nomination of Sir William Hooker to the directorate of that establishment and the placing of the garden on its present footing, were matters in which Dr. Lindley felt the highest possible interest, and it was always a subject of gratification to him that he had been instrumental in promoting the important objects just mentioned.

During the Potato famine, Dr. Lindley and others were commissioned by Sir Robert Peel to proceed to Ireland and report on the actual state of things there, and the Minister is well known to have been much influenced by the report of this Commission in his determination to affect the repeal of the Corn Laws. Many of our readers may still remember the long and ultimately successful battle Lindley fought in this Paper for the cause of plate glass. It may be said, indeed, that to him to a great extent belongs the credit of having placed glass houses within the reach of persons of moderate means. Dr. Lindley's peculiar powers were also often made available by the authorities of the Excise department in the detection of adulterations and the exposure of fraud. Perhaps, however, the greatest, although possibly the least known of his public services, are those in connection with the Island of Ascension. For many years he was consulted on this subject by the Admiralty, and the present state of this previously barren island is mainly due to the following of his judicious advice, and to the skill of those officials who were sent out from time to time upon his recommendation to carry out his instructions. Dr. Hooker's name should also be associated with that of Dr. Lindley in reference to this subject, he having visited the island, and reported on its condition and the means of improving it.

Dr. Lindley, as is well known, had an excellent herbarium, which, although inferior to some others in extent, is surpassed by none in condition. Upon this he devoted the whole of what he called his leisure hours, receiving great assistance in its arrangement and conservation from his excellent wife. The collection of Orchidaceous plants is quite unrivalled, and has lately been made over to the authorities

at Kew, having been purchased last summer at their instigation by the Government. His library also is large and well chosen, and both display in an eminent degree those characteristics of order, neatness, and method which formed such marked features in Dr. Lindley's character.

The Professor was an enthusiastic volunteer, and drilled constantly as a full private of the South Middlesex corps until he could no longer hold his rifle, from a painful affection of the thumb.

Dr. Lindley was in bad health for some years before he died. In 1851 he was one of the jurors appointed to investigate and report on the substances used for food displayed in the Great Exhibition of that year. The duties of this office, in conjunction with his other labours, were so onerous, that he became in consequence seriously ill. A period of rest, however, sufficed to restore him, and he recommenced his work with his usual ardour. At the time of the Exhibition in 1862 he was induced, much against the advice of his family, to take charge of the whole colonial department, and although constantly complaining of headache, from which he had never before suffered, he refused to abandon his post, and after the Exhibition was closed, it was seen that Lindley's mental and bodily powers had received an injury from the effects of which they were never to recover. He was soon compelled to resign the Secretaryship of the Horticultural Society, with which he had then been connected for 40 years. It was at this time that some of his friends subscribed for a portrait of him by Mr. Eddis, and the excellent likeness now in the Society's Meeting Room, is from the brush of that distinguished artist. Soon afterwards a chaste and elegant epergne in silver was also presented to Dr. Lindley. The value of the gift was enhanced by the appropriateness of the design, which commemorated the Professor's researches among Orchids, Roses, and other plants.

Dr. Lindley was a member of about 60 scientific societies, including every botanical and horticultural society of note in Europe and America. He became a Fellow of the Linnean as early as 1820, and of the Royal in 1828. He received the degree of Doctor of Philosophy from the University of Munich in 1832. In 1841 he was elected an honorary member of the Royal Academy of Science of Berlin, and in 1853 a corresponding member of the French Institute. In 1857 he received from Lord Wrottesley, the President of the Royal Society, the Royal Medal, awarded to him in recognition of the value of his labours in various branches of scientific botany, and more especially for his learned and comprehensive works on the natural orders of plants, on the Orchidaceæ, and on theoretical and practical horticulture.

In his address on this occasion the President, when speaking of Lindley's acquirements, made allusion to his original and vigorous intellect, his quick appreciation of affinities, the clearness of his method, and the lucidity of his style. He showed that Lindley regarded systematic botany as the sister science of the comparative anatomy of animals, and like it depended for the value of its results upon the number and variety as well as the completeness and accuracy of the naturalist's observations, and upon his powers of combination. His lordship also alluded to the patience and skill that Dr. Lindley manifested in the dissection of the singularly complicated structure of the Orchids. In reference to horticulture the following expressions were used:—"Nor is it too much to say, that it is mainly due to his efforts that this branch of knowledge has risen from the condition of an empirical art to that of a developed science." Allusion was also made to the consistent efforts that Dr. Lindley had made to establish and diffuse a knowledge of the natural system of botany in this country. To these remarks, from the recognised expositor of the feelings and judgment of scientific men in Great Britain, we need make no addition.

Although Dr. Lindley's family and friends were aware of his precarious state, his sudden death took them somewhat by surprise. He retired to rest as usual on Tuesday, the 31st of October; on the following morning early he was seized with a fit of apoplexy, and gradually sank. He has left a widow (the daughter of Anthony Freestone, Esq., of St. Margaret's, Southelmham, Suffolk), to whom he was married in 1823, and whose devotion to him throughout life was unceasing. His three children also survive him.

Dr. Lindley was of average height, with dark brown hair, and ruddy complexion. He had only one serviceable eye, the other having been useless from infancy. His figure was erect, and his walk firm. He was hot in temper and impatient of opposition, but on the other hand he had the warmest of hearts and the most generous of dispositions. His love of young children, and the sacrifices he would make for them, are instances of this. By his own family circle he was idolised, and greatly beloved by all admitted to the privilege of familiar friendship with him. To young men he was always ready to lend a helping hand. He was incapable of a mean action; and nothing roused his anger or provoked his indignation so much as any approach to jobbery or underhand schemes.

He was a man of most extraordinary energy and resolution. His power of work was astonishing; whatever he undertook he did with the utmost conscientiousness, never flagging until he had done it, and he was a splendid example of what can be accomplished by a man of strong will habitually acting up to his oft-repeated saying, that by method, zeal, and perseverance nothing was impossible. Though by no means old when he died, he outlived several of his intimate friends, of whom it is only necessary to name Wallich, Royle, Curtis, Henslow, Sir Joseph Paxton, and Sir William Hooker. His own loss will be severely felt not only by the lovers of Botanical science, but by nearly every one in this country in any way connected with Horticulture, for his circle of acquaintance was a large one, and he was not only respected by those who knew him, but greatly beloved by all who knew him well.

THEORY AND PRACTICE OF VENTILATION.

No. II.

Of scarcely less importance to us than the fact that the air is coldest at its highest elevation, is the truth that the surface of the earth is warmer than the air. Were it otherwise, the cold dense air of the polar regions, instead of, as it does now, finding its way back to be heated along the lower regions of the atmosphere, would rush along the surface of the earth, and tread out a path of blighted desolation with its icy feet right up to the tropics.

Having thus glanced at the origin of atmospheric heat, and the principles that govern its general circulation, I will try to explain the actual process of its heating. This process, called convection, may be defined as a system of reciprocal exchanges. The principle upon which it works is one of barterage, giving away so many particles of hot air for an equivalent of cold air. It does business on liberal principles, and gives away rather more than it takes back, so that there is ever room for the raw material, cold air, in its manufactory. It differs from both radiation and conduction. These are distributors of heat—convection is a dealer in the article. It is just as careful to receive cold air as to distribute warm. The best illustration of convection is to be seen in boiling water. Scattering into it a small portion of cochineal, which is of about the same density, its colour reveals the movements of the fluid. An impetuous stream will arise in the centre, and other currents will descend at the sides. If, however, the fire is pretty equally applied round the vessel, these currents and counter-currents will be increased almost to infinity. They are all governed, however, by this great general law—that fluids strive to find rest in an equilibrium of temperature. This state of repose they endeavour to reach by a displacement of particles. Even the boiling water varies in temperature. A difference of from one to three degrees may be found in it; hence the violent ebullition and apparent confusion. Neither does the motion cease with the cessation of boiling; for hours afterwards the lighter atoms of the water go on arranging themselves on the top of the heavier and colder portion. Nor does convection cease until the whole is cooled down to one uniform temperature, if, indeed, that can ever happen in our climate.

A similar process is constantly going on throughout the air. Could they be rendered visible, we should be astonished at the swiftness, number, and diversity of its currents. In fact, we do occasionally catch glimpses of them, for the air is not perfectly transparent. That rapid vibratory motion, observable from intensely heated surfaces on hot days, and seen proceeding from the upper openings of hothouses, is simply air and vapour of water in rapid transit. The same thing is seen when a bright sunbeam darts through a semi-darkened room. The dust atoms in this case reveal the eddying currents. Seen, or unseen, and they are generally unseen, these currents flow on and on for ever. For so sensitive is the air to the influence of heat, that the mere breathing of an infant in a large room would maintain its entire atmosphere in violent agitation. This agitation is caused by the efforts of the air to maintain itself in a state of rest. An unequal system of heating renders repose impossible. Convection works on bravely to secure uniformity of density throughout the entire mass of the air; the sun puts out his whole power to destroy it; and so the two great processes are carried on in apparent antagonism, and yet in profound harmony, for the heating and ventilation of the world.

It is only by a perfect comprehension of the action and reaction of these two forces on each other that a perfect theory of artificial ventilation can be formed. Fortunately, in relation to this subject there is or ought to be a perfect analogy between Nature's method and our own. In each case alike there is a heating power, a distributing medium, and a conserving force. For what the sun, the atmosphere, and the cold overhead and at the poles are to Nature's plan, the heating apparatus, the glass, the outside shade, the external cold, and the air of the house are to ours; therefore in our limited spheres we ought to be able to work with the same means to the same ends, and achieve similarly successful results.

I will now proceed to notice the great hot-water system, Nature's third method of heating and ventilating the world. Water takes part in these great processes in all its forms of water, ice, and vapour. The sun does not simply heat and ventilate, but also waters the earth. He is the great water lifter, water carrier, and water distributor for the universe. Bending down over the surface of the moist earth, lakes, rivers, and seas, he drinks up an enormous draught of water, enough to keep all the rivers in the world flowing. His drinking powers are determined and controlled by the amount of heat he bestows on any particular spot. Where that heat is little he drinks least, where it is greatest he drinks most. Around the hot belt of the earth already described the sun takes a draught that would sink the level of the sea there 15 feet lower in the course of the year, were it not replenished. The average annual consumption or rather distribution of water by the sun may be roughly estimated by such facts as these:—that he lifts up enough to supply all the wants of the vegetable and animal kingdom, and leaves plenty to spare in the course of one year to cover a level space the size of the earth's surface to a depth of 8 feet, supposing that it could all be collected together without any of it being relifted!

I shall have occasion to return to this subject, and will only advert to a few general principles here. The first is, that a large expenditure of heat is involved in lifting and carrying this large quantity of water. The amount of heat necessary to convert water into vapour, or in other words, to carry it up into the air, depends upon the temperature of the water. Ice requires most, cold water next, and hot-water of course least of all. As these conditions originate in the varying quantities of heat already existing in the water, it follows that where most water is raised the greatest amount of heat will be expended; also that the expenditure of heat is synonymous with the production of cold. Hence the extraordinary activity of the sun in raising water within the tropics, keeps down the temperature of these regions to an average of about 80°. The large amount of water diffused throughout the atmosphere, also modifies and ameliorates its whole character, forms a screen to exclude at times the fierce glare of the sun, colours the air with the most brilliant hues, and becomes a powerful agent in securing its complete ventilation.

The heat made use of in expanding water to the state of vapour is not lost. It ascends or sails through space with its watery burden. Presently it comes into contact with cold, whose business it is to guard the portals of the world, and to see that nothing, however subtile, can pass through. The water hears and obeys the authoritative order to stop. A rearrangement of its particles begins. How this is accomplished no one can tell with certainty. It is probable that electricity comes and shivers the water-carriage at a stroke, liberating the caloric and compressing the watery vapour with the instantaneousness of thought. It is known that in thunder clouds, if not in all others, electricity abounds, and some such office it may perform. But common and old as is the phenomenon of rain, philosophers cannot positively explain its cause. This much is known, that as cold air is unable to hold in suspension so much water as hot air, the passage of warm air through cold must condense part of its moisture, and that water, being so much heavier than the air, cannot remain as such in the atmosphere, and therefore falls as rain or snow. It is important for our purpose to note here, that whenever vapour is thus condensed into water, heat is liberated and set free. Thus the heat used in converting water into vapour on the hot surfaces of sea or land is discharged in the cold regions of the atmosphere. In the act of conversion from vapour into water, large vacuums are created in the atmosphere, which this liberated heat does not seem able to fill up. The dispersion of this heat in the midst of cold strata and the creation of these empty spaces, that were previously occupied with water distended to more than 2000 times the space it requires in its normal condition, creates endless eddies and currents in the air. Hence wind, that is ventilation, is expected with rain; and in fact water in the form of vapour in the air is one of the most powerful means of keeping it in perpetual motion. Combustion, respiration, and decomposition are constantly assisting the sun in the elevation and distribution of aqueous vapours throughout the air, and it is impossible to exaggerate the influence of water as a disturbing, that is a ventilating force throughout the atmosphere. *D. T. Fish.*

P.S.—I am much obliged for "T. P.'s courteous correction. I adhere, nevertheless, to my original statement. Light air does rise through and sail along the top of cold air, for the reason that I stated. Heat, not cold, is the cause of the motion. The present communication and forthcoming remarks on the two antagonistic forces of elasticity and density will render this still more clear. *D. T. F.*

DOUBLE-GLAZING.

Although this subject has been several times commented upon, it has not yet received that attention which I anticipated it would have done from practical gardeners, the persons *par excellence* best fitted to bear witness in this important question. Mr. Anderson has given us (see p. 987) a comprehensive *resumé* of the system of "double-glazing," and at the same time has adduced some logical arguments in favour of single-glazing. Further testimony in support of his views is, however, still wanted.

It is, indeed, time that definite information in this matter should be laid before the public, as I find that many gentlemen and their gardeners entertain the idea that single-glazing will shortly be numbered among the relics of antiquity, and that double-glazing is already the *ne plus ultra* of all good hothouse

building, irrespective of the uses to which such houses are to be appropriated—the plan being considered equally well adapted for general plant or fruit houses, as for Orchids.

Now, although I endorse most of Mr. Anderson's statements, it is not my intention to contradict all that has been advanced in reference to double-glazing. I do feel bound, however, to state that the benefits ascribed to it have been so extravagantly extolled as to lead amateurs and others into the belief that it is absolutely essential in all classes of horticultural structures; this I need not say is a great mistake. Hitherto double-glazing has been advocated mainly for Orchid-houses, and among its advantages are named saving of fuel, uniformity of temperature, increased natural condensation of moisture, and a greater command of that perfect ventilation which is so essential to plant growing of every kind.

But on the other hand it may be asked, is double-glazing so efficient as to have no disadvantages? I think not, and in confirmation of my opinion let us examine it during the four seasons of the year, commencing with spring. For ordinary purposes I believe it will be found that the objections to double-glazing are very numerous.

If, as I have read, the "blanket of air" obtained by a hermetically sealed space between two roofs, has proved to be so non-conductive as to render a period of several days necessary to reduce the temperature inside the house to that of the surrounding atmosphere, is it not a rational inference to conclude that the rays of the few hours' bright light allotted to us during spring would thus be made almost entirely powerless, to the great detriment of perfect ventilation? By thus diminishing solar warmth, and I may add light also at a season when ventilators are but seldom and cautiously opened, is not the interior atmosphere rendered more stagnant than if the house were single-glazed? Moreover, is it advisable never to vary the temperature of Orchid houses, but on the contrary to keep the plants almost simmering in steam? And lastly, if this mode of treating Orchids be conducive to success, what is to be understood by the remarks made by many of our leading horticulturists, who suggest that the excessive heat and nursing hitherto bestowed upon Orchids is productive of sickliness and stagnation rather than of vigour and exuberance of growth? That Orchids will flourish under single-glazed roofs has been fully proved, not only by Mr. Anderson, but by others; it has been said, moreover, that they even eclipse in size and beauty those cultivated under double glass, which has, however, produced in one or two instances fine plants; but this by no means constitutes double-glazing the *sine quâ non* which some would have us believe it to be.

These remarks, although associated with the season of spring, apply with equal force to that of autumn; and as regards summer, I believe the unanimous opinion to be, that the outer roof is not only superfluous at that season, but if allowed to remain on would prove to be a positive evil.

Double-glazing has doubtless advantages during the cold nights of winter, but the removal of the outer roof by day appears to me to be a desideratum, and in support of this opinion I beg to state that the plan of using a thick woollen or flannel roller covering for the roof has been adopted with a success fully equal to that ascribed to double-glazing, with the following additional advantages, viz.,—that it can be removed daily and at pleasure, and that it costs only a tithe of the expense of a double roof. The material usually employed for horse-cloths when laid close to the roof about watering or shutting-up time will of course become damp, and thus effectually prevent air from entering between the laps of the roof, diminish the condensing power of the glass, retain a uniformity of temperature during the night at a great saving of fuel, and fill the house with that natural dew which has been so exultingly described as the peculiar result of double-glazing. If all the good effects therefore of double-glazing, without its accompanying evils, can be obtained at so much less cost, I think that the sooner the practice I have named is made known the better. That success has attended the adoption of this plan for two years I can bear testimony, and I entirely coincide with the opinion of many who are enabled by a comparison of the two systems to form a decision, that this simple method is even superior to double-glazing. *G. Deal, Chelsea.*

Home Correspondence.

The late Dr. Lindley.—We have this year met with three severe losses in the death of Sir W. Hooker, Sir Joseph Paxton, and the distinguished Editor of the *Gardeners' Chronicle;* and it is well that there should be a fitting memorial of each of these eminent men, if only as an encouragement to those now entering into life, who may feel themselves prompted by the bent of their genius to follow in the same footsteps. I attended the course on Botany delivered by Dr. Lindley to the students of University College, London, in the year 1832; and although my previous acquaintance with the admirable lectures of Prof. DeCandolle at Geneva was calculated to render me rather fastidious on such matters, I came away with a most favourable impression of the accuracy, grasp of mind, clearness of conception, command of the subject, and power of imparting information, which were displayed by one who was perhaps at that time the only English expositor of the Jussieuan system now so universally adopted. For, at a period not long anterior, when Dr. Lindley, then a young man, delivered his inaugural lecture at the same institution, he startled many of the old disciples of Sir James Smith by his frank and thorough exposure of the superficial character of the artificial system of classifying plants, which their master had, by his influence amongst British botanists, been the principal means of leaving up to that day almost unquestioned. But what most impressed me in Dr. Lindley's character was the indomitable activity of mind and body which he displayed at the period alluded to, and in which he persevered up to a late period of his life. I found it some effort at that time to leave my lodgings in London in time to make my appearance in the lecture room at 8 o'clock in the morning, but I was sure to find there at his post Dr. Lindley, ready prepared with his matter and illustrations, although compelled, in order to do so, to take advantage of one of the earliest stages which plied between his country residence near Turnham Green and the metropolis, previously to which, I was told, he generally had made his round of the Horticultural Gardens at Chiswick, which he superintended. But this would have been less remarkable had not the subsequent hours of the day been occupied in London by the routine of duties connected with the Secretaryship of the Horticultural Society, with the Lectureship of the Chelsea Garden, &c., and his nights engrossed in those profound and intricate researches on philosophic and structural Botany, which have conferred upon his name so high an European reputation. When to all this was added the great labour imposed upon him by the share he took in the International Exhibition, we cannot wonder, however much we may deplore, that the energies of his mind should have been exhausted and broken down under such a pressure of work and of anxiety. *Charles Daubeny, Botanic Gardens, Oxford.*

Magnolia Soulangeana.—I do not know whether or not it is an uncommon thing in this country for this Magnolia to ripen its seed; but as no case of the kind has ever before come under my observation, I venture to mention it. The Magnolia in question grows against a south wall, and was covered with blossoms in April last. Generally I break off the seed-vessels, and had done so this year; a few, however, escaped, and in one of them a large red seed is found near the base, the remainder of the seed-vessel being sterile. I may add that in my garden this year the Jerusalem Artichoke has blossomed freely, and that the common Scotch Briars have borne several autumn flowers. *G. F. de Teissier, Rector of Brampton, near Northampton.*

Mildness of the Season.—In the neighbourhood of Bridgewater, Somerset, on the 5th inst., Raspberries ripened out of doors, and Green Peas were to be had in many places. The Cornel, or Dogwood, was in full bloom for the second time, no fruit having been the result of the first blossoming. The common Male Fern was also noticed to be sending up new fronds as in spring. The berries on the Spindle Tree are more abundant than they have been for years. *Alfred Haviland, Bridgewater.*

Osiers.—Will one of your correspondents inform me where I can get Osier cuttings, and information as to planting a new Osier bed in a damp locality, which seems suitable for this, and for nothing else. *G. T. Hoare, Godstone.*

Chrysobactron Hookeri.—In noticing Dreghorn & Aitken's Catalogue at p. 1038, you speak of Chrysobactron Hookeri. Can any of your correspondents say whether they have ever bloomed it, and by what treatment? *A. R.* [It flowered at Kew in 1851; and comes from subalpine pastures in New Zealand. The address is King Street, Kilmarnock.]

Arundo conspicua.—Seeing this plant noticed last year as being a rival to Pampas Grass, I obtained a plant early in the spring; it has grown pretty freely, but has not shown any symptoms of flowering, although the Pampas Grass near to it has done so profusely. Will some reader be good enough to inform me what sort of a bloom it has, and whether the plant requires a wet situation or not? Mine is planted on good ground, rather dry than otherwise. Perhaps it is not old enough yet to bloom, yet it is a full yard in diameter. If it in a smaller degree resembles the Pampas Grass it will be a great acquisition, but if it blooms sparingly and requires special treatment, not easy to be given everywhere, it will not become popular. *J. W. C.* [It is a native of New Zealand in moist places, grows 8 feet high, and has large white panicles of flowers from 1 to 2 feet long, with drooping branches.]

Seedlings from Japanese Plants.—Seedlings have been raised here this year from each of the following kinds of the lately imported Japanese plants, viz., Aucuba japonica vera, Rhaphiolepis (Photinia) ovata, and Lilium auratum. The seedlings of Aucuba were raised from the A. japonica vera or green Aucuba, females which had been fertilised by variegated males. The berries were gathered about Christmas, and the young plants have been coming up for the last two months. I think there will be several new varieties among them. The seedlings of Rhaphiolepis ovata were raised from imported plants. I think this will turn out to be a valuable addition to evergreen shrubs. It has proved hardy, and it is described by Mr. Fortune as being one of the finest things which he met with in Japan. It bears a purple berry twice the size of a common Haw, and ripens in October. The plants came up in spring. The seedlings of Lilium auratum were raised from a remarkably fine plant which was noticed in your Paper on the 20th of August last. *John Barron, Elvaston Nurseries, Derby.*

Potato Disease.—It may be worthy of notice that almost the whole of the plants belonging to the natural order Solanaceæ, which have been lately introduced into this country, and grown in gardens as ornamental foliaged plants, have been subject to a spotting and decaying of the leaves, in many respects similar to the now too-well known Potato disease, a fact strikingly contradictory of the hypothesis of some who attribute the Potato malady, *ab initio*, to a worn-out constitution. Can this disease, which is so free in its onset upon fresh subjects, be the veritable Fungus which plays such havoc with the Potato, or is it a variable form of the same? *William Earley, Digswell.*

Stoneless Berberries.—I have to apologise for not before answering the question of "Diss" (see p. 1037), and thanking him for his communication. The place in Dorsetshire where I observed the Berberries was Piddle Hinton, about five miles from Dorchester. The trees I saw loaded with stoneless fruit bear out "Diss's" view, as they were very old ones, but a sharp gardener there affirmed that all Berberries in that quarter, both wild and in gardens, were stoneless. I have written to him for further information. I observed an old Berberry of this variety at Stroud last year. On the other hand, I have old trees, I suppose at least 40 years old, the fruit of which is nearly all stone, and I never saw a stoneless Berberry in the midland counties or in the north. *W. D. F.*

Black Barbarossa Grape.—I see that in a contemporary, exception is taken to the advice given in the *Gardeners' Chronicle* of Oct. 7, as to the position which this Grape should occupy in our Vineries. The statement there made is that the Barbarossa is more valuable as a late than an early Grape, and the advice based thereon is that it should therefore be planted in a late house with Hamburghs, St. Peter's, &c., not requiring the heat necessary for Muscats. I believe that up to the present period this is the way in which the Barbarossa has been treated; and the many fine bunches of this Grape that have appeared upon our exhibition tables from year to year testify to the value of this mode of treatment. A most perfect bunch of Grapes of this variety was exhibited by the Royal Horticultural Society at their Autumn Exhibition of Fruits in 1864, the size and colour of the berries being the admiration of all who saw them—so much so that it obtained a separate editorial notice in the *Gardeners' Chronicle* of Oct. 22 (p. 1010). This bunch was taken from a Vine grafted on the Black Hamburgh, and growing in the large conservatory at Chiswick, where little fire-heat is used, and where the Muscats do not ripen perfectly, but where the Black Hamburgh and St. Peter's do well. Therefore, with all deference to the opinion of Mr. Pearson, who draws his conclusions from one solitary case, I must venture to say that advice calculated to produce such results, must be considered just the reverse of what he pleases to call it. *S.*

Foreign Correspondence.

Report of the Brisbane Botanic Garden.—Since the date of my last report, no extensive alterations or improvements in the general features of these gardens have been undertaken, the operations having been chiefly confined to repairing and keeping in order the ground already under cultivation. A second lagoon, similar to the one at present occupied by the pink Water Lily (Nelumbium Leichhardtii), has been completed, and is now filled with various species of Nymphæa and Nuphar. I shall, however, as soon as practicable, devote a portion of this lagoon to the Victoria regia. I have long been desirous of forming a Cinchona plantation; and a collection of plants of the best species of Cinchona having been kindly promised by Sir William Denison, Governor of Madras, and also by Dr. Thwaites, of Ceylon, I hoped soon to be able to effect this, by employing for their cultivation a large portion of the ground at present used as a Banana plantation. Two Wardian cases of these valuable plants were forwarded from India by Sir William Denison, and also a case from Ceylon by Dr. Thwaites; but in consequence of their long detention at Galle, caused by the break-down of the mail steamer, and much of the glass in the cases having been broken, the plants were all dead when they arrived here. I much regret this, as the cultivation of the Cinchona having been attended with complete success in India and Ceylon, the same results may reasonably be expected in this Colony.

The plantations of Tea, Coffee, Cinnamon, Indigo, Senna, &c., continue to thrive satisfactorily; and the great interest shown in these useful plants by a large number of visitors may be regarded as a sufficient proof of the advantage of such plantations, as a means of directing public attention to many commercially valuable plants which may be successfully and profitably cultivated here.

A great many varieties of Pine-apples and Vines were planted six years ago, with the view of testing

their comparative merits; but the ground selected for the purpose being of too easy access to the public, no opportunity was afforded of comparing the different fruits of these. The plants are now removed to a more convenient place, and I hope to give a more satisfactory account of them in my next report.

Some tropical and semi-tropical trees and shrubs which have previously borne fruit in these gardens, produce a more abundant crop as they increase in size and age. Of these the Sweet Sop (Anona squamosa), the Cherimoyer (Anona Cherimolia), and Anona muricata are, perhaps, the most desirable for cultivation. The useful Jaco tree (Artocarpus integrifolia) of the East Indies has also produced a large quantity of fruit. The Cassava (Jatropha Manihot), the tubers of which furnish a food much valued in the West Indies, &c., has succeeded well. The variety in the garden is that known as the Sweet or Blue Cassava, and is considered the best.

Amongst recent introductions of useful plants, I have to mention the receipt of a large number of plants of the Cork tree (Quercus Suber), through the kindness of Mr. George Macleay; the whole of these have already been distributed to persons residing in different parts of the colony, and from whom the plants will no doubt receive the care and attention which they so well deserve. Also the Java Almond (Canarium commune), and the beautiful Indian Mesua ferrea, which will be well adapted for ornamental purposes. The Maltese Clover, or French Honeysuckle (Hedysarum coronarium) has not realised the expectations I had formed of its value as a fodder plant. It does not flourish well in summer, and many persons whom I have supplied with seeds have attempted its cultivation, but without success.

In my late journey to the north, I was enabled to collect many useful and interesting indigenous plants, which will prove valuable for cultivation in the gardens, but especially so for purposes of exchange. Of those, a Scitamineous plant may be regarded as particularly interesting, its fruit supplying the aborigines of the north with a food as highly prized by them as the Bunya Bunya by the natives of the southern districts. This plant was seen by Carron, in Kennedy's unfortunate expedition, and described by him as a singular Pine-apple-looking plant. It is, I believe, new to science, and the great value of its fruit as an article of food has been hitherto unknown. I had also an opportunity of collecting seeds of a species of Eugenia, known to the settlers as the "Cherry tree," which produces a delicious fruit; of a new and very handsome Cycadaceous plant, as well as of Cycas media, the native Banana (Musa Jackii), and also the Nelumbium Leichhardtii, all of which furnish the natives with edible fruit. I also collected many fine Fern plants, some of which are new to the Australian Flora. Many other valuable plants might have been procured, had the due discharge of my other important duties allowed sufficient time and opportunity to become acquainted with the rich and extremely varied flora of Rockingham Bay.

The incorporation of the Queen's Park with the Botanic Gardens will be a valuable acquisition to the latter, and will afford an opportunity of extending their usefulness, and also of improving them generally as a place of healthful recreation. To carry out this object, very extensive alterations will be necessary—making walks, draining, planting, &c. These will be proceeded with as expeditiously as the means at my command will allow. Improvements are now in progress in the Government Domain, which will be continued as opportunities may occur. I shall also shortly prepare a suitable piece of ground in the gardens, for croquet playing. I may also mention that a further addition of six cast-iron garden seats has been made, which are now placed in suitable situations.

Whilst tendering my acknowledgments for the additional labour granted me, I would observe that it will be readily absorbed in the contemplated alterations, and in the general work of the gardens. In consequence of the extremely short notice given me, I regret having been quite unable to send any contributions to the Dublin Exhibition.

For the forthcoming International Exhibition of Fruits at Kensington, I am now preparing some specimens of fruits, which will be forwarded by the September mail. In accordance with a desire expressed by the Government, I shall endeavour to make as extensive a collection of indigenous seeds as the opportunities afforded me will allow, as by means of these, very advantageous exchanges may be effected. I have again to acknowledge the continued kindness of Messrs. Harris & Co., Brisbane, and the firm of the Black Ball line of packet ships, who still gratuitously convey Wardian cases of plants to England, and use the same care in their conveyance.

The Botanic Library, since my report for 1862, has received many additions of botanical, horticultural, and agricultural works, chiefly obtained by purchase. A very valuable case of these was received from Sir William Hooker and Dr. Hooker, of the Royal Gardens, Kew, in return for the sum of 100*l.*, which had been forwarded to Sir William Hooker. The amount voted for this purpose, for 1864, has been expended in the purchase of books in the Australian colonies. Many more persons visit the Library for the purpose of reading than formerly. *Walter Hill, Colonial Botanist and Director of the Botanic Gardens, Brisbane.*

Societies.

United Horticultural: *Nov.* 14 *and* 15.—An exhibition of Chrysanthemums, miscellaneous Flowers, and Fruits, took place under the auspices of this Society in Guildhall on Tuesday and Wednesday last, and was in all respects highly successful, a result with which all must be pleased, inasmuch as the surplus proceeds of this and of other shows held by the same Society, are, we understand, to be devoted to the establishment of a Benefit Fund for Gardeners. With this charitable end in view the Hall, with its ancient trappings and decorations, as on Lord Mayor's Day, was kindly placed for the occasion in the hands of the promoters of the Fund, who received no remuneration for their time and services, while the different exhibitors obtained only Certificates, to which no money value is attached, for the fine display of fruits and flowers which they produced, all being anxious that funds should be raised as speedily as possible for carrying out the scheme referred to.

Cut blooms of Chrysanthemums were tolerably numerous, and occupied portions of the central tables. Anemone-flowered sorts were shown by Messrs. James, George, Forsyth, Rowe, Howe, and Cox. Among them were Queen Marguerite, Empress, Gluck, George Sands, Fleur de Marie, Louis Bonamy, Mrs. Pethers, Princess Marguerite, Madame Godereau, St. Margaret, Prince of Anemones, Marguerite de Wildemar, and Antonius, the last a very handsome yellow variety.

Large-flowered varieties came from Messrs. Forsyth, James, Morgan, Wheldal, Delvalle, Rowe, Howe, Drain, Parker, Slade, Ward, Moxham, and Heale. Among the different kinds were beautiful blooms of Jardin des Plantes, which still stands at the head of bright yellows; White Globe, large and fine; Beverley, Empress of India, Prince and Princess of Wales, Venus, Sam Weller, Mr. Brunlees, Rev. Joshua Dix, General Slade, Prince Alfred, Pio Nono, Beauty, Novelty, Nil Desperandum, Antonelli, General Bainbrigge, Lady Harding, Doctor Brock, Robert James, Nonpareil, Orange Perfection, St. Patrick, Maréchal Duroc, Golden Ball, Lady St. Clair, Queen of England, Pearl, King of Denmark, Themis, Plutus, Mrs. Holborn, Golden Eagle, Abbé Passaglia, Cherub, Oliver Cromwell, Duke of Wellington, Anaxo, Hercules, Madame Lebois, Imogene, Eve, Princess Louis of Hesse, Lucidum, Mrs. Haliburton, Dr. Maclean, Little Harry, Lord Ranelagh, and Donald Beaton.

Plants of Chrysanthemums were contributed by Messrs. Forsyth and George, and groups of the same showy flower by Messrs. Crute and Delvalle. These were all highly interesting exhibitions, the plants being both well grown and flowered. Among them were some cleverly-managed standards, both of large and small-flowered varieties, the skilful introduction of which into the different collections served to break up that uniformity of appearance in them of which some have been heard to complain.

Groups of fine-foliaged plants were placed here and there round the hall with excellent effect. These come from Messrs. Williams, E. G. Henderson, Rhodes, Wheeler, Prestoe, Wilson (gr. to W. Marshall, Esq.), and Monk (gr. to J. Drewitt, Esq.) Among them were Ferns, the graceful Cupania filicifolia, Sphærogyne latifolia, Ficus Porteana, Palms, Anthuriums, Cyperus, Yuccas, &c.

Mr. Bull had the fine collection of officinal and medicinal plants shown the other day to the Royal Horticultural Society, and a valuable group of Aucubas, most of which were covered with berries.

Messrs. Low & Son furnished some admirable Tree Ferns, whose giant stems and noble heads of elegant fronds were the admiration of the crowd of visitors brought together on the occasion. From the same establishment also came an interesting collection of winter-blooming Orchids, consisting of the charming little Cattleya marginata, Sophronitis grandiflora, the handsome varieties of Calanthe vestita, and one or two Oncidiums.

Fruit formed an important feature of the show. A smooth-leaved Cayenne Pine-apple, weighing 10 lb., came from Mr. Page, gr. to W. Leaf, Esq., of Streatham. Mr. Sparrow, gr. to Lord Ebury, at Moorpark, had a Providence, and a good Queen was furnished by Mr. Howard, gr. to J. Brande, Esq., Balham. Mr. Young, Leigh Park, also sent two or three well-grown Pines. From Messrs. Lane came some famous bunches of Black Barbarossa Grapes, together with Foster's Seedling, Raisin de Calabre, Buckland Sweetwater, Chavoush, Black Hamburgh, Frankenthal, Esperione, Alicante, and Black Prince, all in a state of excellent preservation; Trebbiano and a Black Grape stated to be related to Barbarossa were shown from Welbeck by Mr. Tillery; and we also noticed what appeared to be Trebbiano ripened in the open air.

Mr. Wells had one of his patent Ground Vineries (see p. 268), in which were exhibited 36 bunches of Black Hamburgh Grapes, averaging 1½ lb. each. They were excellent in flavour, but a little deficient in colour. It was stated that 45 feet run of these Lilliputian Vineries had produced this season no fewer than 93 bunches of good Grapes, a result certainly very much in favour of this comparatively new mode of Grape growing.

Apples filled one entire table. They came from numerous exhibitors, among which we recognised the names of Messrs. Newton, Rhodes, Turner, Parsons, Williams, McIndoe, Richhill, Watson, Keller, Baker August, Beasley, and Mortimore. Among the table varieties were good fruit of Fearn's Pippin, Cox's Orange Pippin, Golden Reinette, Wadhurst Pippin, Downton, Scarlet and Braddick's Nonpareils, Franklin's Golden Pippin, Holland Pippin, Sam Young, Margil, Cornish Gilliflower, Court of Wick, Court Pendu Plat, Adams's Pearmain, and King of Pippins. Kitchen sorts comprised, among others, Blenheim Orange, Reinette du Canada, Alfriston, Gloria Mundi, Emperor Alexander, and Wellington.

Pears, which came from nearly the same exhibitors, comprised among table kinds, highly-coloured fruit of Forelle or Trout Pear, Beurré Diel, Glou Morceau, Easter Beurré, Van Mons Leon le Clerc, Beurré Rance, Swan's Egg, Duchesse d'Angoulême, Knight's Monarch, Urbaniste, Beurré Clairgeau, Chaumontel, and others, many of which, as well as of the Apples, were wrongly named. Among varieties for culinary purposes, were Catillac and Uvedale's St. Germain. Other fruit consisted of Quinces, Medlars, and Cox's Late Red and Blue Imperatrice Plums.

Miscellaneous subjects consisted of handsome-looking Fern cases from Messrs. Carter and Barr & Sugden; a large assortment of Gourds from the last-named exhibitor and Mr. Young of Highgate; a collection of Gourds and Grasses from Messrs. Sutton, fine specimens of Onions from Messrs. Cuthbush; and a small group of Vegetables from Mr. Dewar, of Newcastle. Among the latter were good White Celery, Dewar's Short-topped Beet, Easton's Giant Leek, and Potatos. From Mr. Shirley Hibberd came a large collection of Potatos and Ivies. Mr. Hally, of Blackheath, had a group of tricolor-leaved Zonal Pelargoniums. Mr. Howard, gardener to Mr. Brande, showed some tastefully made-up Bouquets, around which, during the whole afternoon, was a crowd of admiring spectators. Samples of Collyer and Roberts' tobacco tissue for purposes of fumigation were also shown on this occasion.

Horticultural of Edinburgh: *Nov.* 14 (*Annual Meeting*).—Mr. Thomson in the chair. The abstract statement of the accounts for the past year showed that there was a total balance on hand of 317*l.* 7*s.* 1*d.* The Society had paid 520*l.* 10*s.* 6*d.* in prizes during the season. The subscriptions from members amounted to 47*l.* 11*s.*, and the receipts at the different shows to 946*l* 16*s.* 6*d.* The donations to the Society for the purposes of shows amounted to 377*l.* 3*s* 6*d.* The total charge, including a balance from last year, was 1113*l.* 10*s.* 9*d*, and the expenditure amounted to 796*l.* 3*s.* 8*d.* The Treasurer's very satisfactory report was unanimously agreed to. The Chairman then reviewed the movement which had taken place in the spring with reference to the contemplated union of the Society with the Caledonian Horticultural Society; and stated that a report had been drawn up by a committee of both associations. That report he read to the meeting. It set forth that the joint-committee were unanimously of opinion that the union of the two Societies should take place; that the name of the united Society should be the Royal Caledonian Horticultural Society; that the subscriptions for members should be one guinea, and gardeners 10*s.* and 5*s.* The joint committee recommended that the council of the united Society should be composed of four amateurs, four nurserymen, and four practical gardeners; that the president should be his Grace the Duke of Buccleuch, and the vice-presidents his Grace the Duke of Argyle, Earl of Dalkeith, Earl of Stair, and the Earl of Haddington He spoke strongly in favour of the proposed union, and remarked that it would do good to both Societies. Mr. John Lamont moved the approval of the report, which was seconded by Mr. John Downie, and unanimously agreed to. The Chairman remarked that the union of the Societies would be consummated if the members of the Caledonian Society approved of the report, as they had done. A vote of thanks was awarded to Mr. Young, the secretary, for his indefatigable exertions in connection with the Society; and a similar compliment was paid to Mr. Cumming, the treasurer.

Notices of Books.

La Végétation du Spitzberg, comparée à celle des Alpes et des Pyrenées. Par Charles Martins, Professeur d'Histoire naturelle à la Faculté de Médecine de Montpellier, Directeur du Jardin des Plantes de la même Ville, &c. Extracted from the Academy of Sciences and Literature of Montpellier.

Professor Martins is one of the most agreeable and popular writers on the vegetation of Europe that we know of; he has travelled extensively, from Spitzbergen, far within the Arctic circle, to the borders of the Great Sahara, and from the Biscayan Pyrenees to Asia Minor, and has given in various papers and publications graphic sketches of the botany, geology, climate, and often of the physical geography too, of some of the most interesting countries he has visited in his tours. Never profound, and with no pretensions to originality, he nevertheless chooses sufficiently important subjects, collects materials industriously, marshals his facts skilfully, expresses his ideas forcibly; and having the tact and knowledge that enable him to seize prominent botanical features and subordinate them well to the mental vision, he never fails to leave vivid and very accurate impressions on the reader's mind. He has

further the good sense to avoid obtruding too much of his own personal exertions or experience, just introducing so much of himself as keeps the reader alive to the fact that the author speaks from actual observation.

The object of the present essay is to show cause for the theory that the plants which are common to Spitzbergen, Lapland, and several isolated mountains in the Pyrenees and Alps, have not been independently created in their various localities, but have had a common, and this an Arctic origin. The means of dispersion has been the glacial epoch, which first chased them from hyperborean to temperate regions, when the returning warmth drove them up the mountains of southern Europe in one direction, and back to the Polar regions in the other; a theory which originated we believe with our own Darwin, and was subsequently more fully developed by the late Edward Forbes in his celebrated essay on the Distribution of British Plants, published in the first volume of the Records of the Geological Survey of Great Britain.

Spitzbergen, whose plants are the most Arctic known, contains, according to Martins, no less than 93 flowering plants, a figure which has gradually been arrived at by the exertions of collectors during a period of nearly 200 years! for it will scarcely be believed that this remote inhospitable spot was botanised upon so early as 1675, by Frederick Martins, of Hamburgh, who described and figured 11 species of land plants; succeeding him in 1775, Captain Phipps brought 12 species, that were named and described by Solander; Scoresby obtained 15, described by Brown in 1820. General Sabine, the present President of the Royal Society, in 1823 collected 24, which were described by Sir W. Hooker, who also determined 40 species gathered by Parry's officers in 1827. In the same year Sommerfeldt enumerated 42, collected by Keilhau in the southern parts of the group. In 1838 Martins himself and Vahl visited Spitzbergen, and raised the number to 57. Since then the number has augmented to 93, chiefly by the labour of M. Malmgren, Botanist to the Swedish Scientific Commission under Torell, which form the subject of an excellent memoir by Malmgren himself. Of Cryptogams, on the other hand, 152 species have been ascertained, but with these Professor Martins does not concern himself.

Of these plants but one is used for food, the Cochlearia fenestrata, a species of Scurvy Grass, closely allied to and probably a variety of C. officinalis; its more southern form is acrid and bitter, and Professor Martins attributes the absence of these properties in the Arctic plant to the deficiency of light or heat; an analogous instance is mentioned by Dr. Hooker in Sir James Ross's Antarctic Voyages, in the case of the Celery of Fuegia, a plant most closely allied to, if not identical with the poisonous Wild Celery of Europe, but which in that cold sunless region affords an excellent salad and pot-herb.

In the enumeration of the 93 flowering plants Prof. Martins indicates what are considered by him to be strictly Arctic, and what are likewise natives of France. The strictly Arctic are—

Ranunculus arcticus.	Taraxacum phymatocarpum
Parrya arctica.	Polemonium pulchellum.
Braya purpurascens.	Hierochloe pauciflora.
Draba, 5 species.	Dupontia psilosantha.
Stellaria, 2 species.	,, Fischeri.
Arenaria Rossii.	Poa abbreviata.
Potentilla, 2 species.	Glyceria angustata.
Saxifraga flagellaris.	Catabrosa vilfoidea.

Festuca brevifolia.

Unfortunately he does not distinguish between the well-marked and badly-marked or even bad species, for some of the plants are in the opinion of almost all botanists scarcely even entitled to rank as varieties, and others are considered mere Arctic forms, whose characters are rather due to deficient nourishment than to morphological change. This is especially the case with most of the Drabas, with one or both of the Stellarias and Potentillas, Ranunculus, Taraxacum, and Festuca, whilst the Polemonium, Poa, and Glyceria, are scarcely more than Arctic forms of plants found in lower latitudes. The Saxifraga is found in the Himalaya, of which Professor Martins was probably not aware. Hence there are perhaps not more than six or eight of the above list of 23 species which could universally be allowed to be good.

A few of the other plants which are common to Spitzbergen and Scandinavia are in the same category, which it is important to bear in mind, as none of them appear in the Florulas with which Professor Martins proceeds to compare the Spitzbergen one.

Of these the first is the cone of the Faulhorn, altitude 2683 metres, which is covered with snow for eight months of the year, and on which Martins and his friend Bravais collected in four years 132 species. Of these, eight are also natives of Spitzbergen, viz.:—

Ranunculus glacialis.	Dryas octopetala.
Cardamine bellidifolia.	Erigeron uniflorus.
Silene acaulis.	Saxifraga oppositifolia.
Arenaria biflora.	Polygonum viviparum.

Again, on the Jardin, in the midst of the Mer de Glace, near Chamouni, altitude 10,000 feet, there have been collected 87 flowering plants, of which five are also natives of Spitzbergen, viz., the above Ranunculus, Cardamine, Arenaria, Erigeron, and Cerastium alpinum, about the same numerical proportion as the Faulhorn exhibits.

The Grands Mulets, altitude 10,000 feet, on Mont Blanc, boasts of 24 flowering plants, of which the Cardamine, Silene, Erigeron, and Saxifraga, together with Trisetum substriatum, are Spitzbergen plants, viz., one-fifth of the whole.

On Monte Rosa, at an elevation of 3158 metres, the Messrs. Schlagintweit collected 47 flowering plants, of which 10 are natives of Spitzbergen—also about one-fifth of the whole.

The top of the Pass of St. Theodule, above Zermatt, in the Monte Rosa Alps, is Prof. Martins' next point of comparison; here he finds 13 plants, of which three are natives of Spitzbergen, again not far from one fifth.

Lastly, he takes the summit of the Pic du Midi de Begorre, in the Pyrenees, 2877 metres above the sea; whereon Ramond, after 35 ascents, collected 71 Flowering plants. Of these, seven are natives of Spitzbergen, or no less than one-tenth of the whole. It is a very remarkable fact that of these, three are not natives of Lapland, viz., Poa cenisia, Draba nivalis, and Arenaria ciliata, the last a most distinct plant; the two others are probably forms of widely extended species.

To appreciate fully the force of Professor Martins' argument, it must be borne in mind that the assemblage of plants in the several localities are very different. Thus of the 72 Pyrenean plants only 35 are natives of the Faulhorn, and 15 of the Jardin; whilst but 13 are common to all these localities, the Pic du Midi being richer in arctic species than any of them. Finally, Prof. Martins asks whether this difference is to be attributed to the greater elevation of the Peak, or to other circumstances, a question he considers unanswerable in the present state of science; but the fact proves in his estimation the common geographical origin of the species in question.

Useful and instructive as Prof. Martins' writings are, they betray a want of scientific accuracy in many points that detract much from their value; of this the present essay offers several conspicuous examples. Thus in the fourth line of the first page we are told that the winter of Spitzbergen lasts for 10 months of the year; and in the fifth succeeding line that the summer is three months long! In the fifth line of the first page, that the last traces of animal life are found at Spitzbergen, and again further on, that the European Fauna has there its extreme polar limits, forgetful of the fact that the Polar ocean teems with genera and species of three classes of the animal kingdom, Mollusca, Articulata, and Radiata, besides fish and marine mammals in abundance. So too in the following page, Table Rock is said to be the most northern rock that rises from the bosom of the glacial sea, whereas a reference to the map would have showed him Ross's Islet, a spot all the more remarkable as long being the most northerly land known, and having been actually botanised upon by the late great navigator and good naturalist, Sir James Ross, whose name it bears.

Such blemishes might easily be guarded against, and would be, were Prof. Martins not too apt to sacrifice accuracy to fine writing in his graphic introductory sketches.

Florists' Flowers.

The Chrysanthemum is *par excellence* the flower of this season, that is to say, the autumnal season; and Mr. Salter's collection is that which any one who desired to gain all the information which could be obtained respecting it would naturally resort to without fear of disappointment. Notwithstanding that this Exhibition has now become so established an annual treat that most lovers of this useful autumnal flower are familiar with it, we may safely assert that we have never seen it in better condition than it is this year. The arrangement is much the same as that observed in previous seasons, but the blooms, which are most abundant, are individually larger and finer than we ever before remember to have seen them.

Of varieties sent out for the first time in May last the following well deserve notice, viz., Mr. Brunlees, a good show flower, deep orange in colour, well filled in the centre, and beautifully incurved. Album multiflorum, a finely incurved white, slightly tinted with blush, but not quite compact enough in the centre to make it a desirable flower for purposes of exhibition; for conservatory decoration, however, it will be found invaluable. To these may be added Ranunculus, a clean-looking show flower of medium size, crimson in colour, with paler backs to the petals, and nicely incurved. Golden Ball is also a beautifully incurved round flower, bright orange in colour, tipped with gold, and flushed with the same hue on the back of the petals. This and Aureum multiflorum, both charming early-flowering sorts, are now in great beauty. Blanche of Castile is another fine white show flower, as is also Jago, which is a large dark purplish violet. Pink Pearl promises to be a good decorative plant, but for purposes of exhibition hardly good enough. Prince of Wales, dark violet, is a large-sized good show flower, which is already in nearly every winning stand. To white varieties has been added a valuable kind in the shape of Virgin Queen, which when in perfection forms a perfect ball of snowy whiteness. Mr. Wyness, violet puce, though a useful flower, can scarcely ever hope to be more than a good kind for conservatory decoration, but for that purpose it should not be overlooked. Eve, pale sulphur, is a medium-sized, well incurved, clean-looking kind, which can scarcely fail to become a general favourite. Mrs. Kaines, blush, is another excellent show variety, which comes into flower later than most other sorts, to which it forms a good succession. From the fawn-coloured Doctor Brook, Mr. Salter has succeeded in raising a clear yellow sport in all respects as good as the Doctor himself; this, therefore, is a real acquisition. To the new kinds now under notice may moreover be added Hercules, which is one of the largest Chrysanthemums in cultivation, surpassing in that respect even Queen of England or Alfred Salter; it is in the way of Garibaldi, finely incurved, and will make a useful show flower. Aureum floribundum, a canary-coloured variety, is too small to make a successful show flower; but for purposes of ordinary decoration it will prove invaluable. Venus, finely incurved, delicate lilac, in the way of Lady Slade, but paler in colour, is already acknowledged to be a good show flower, being in most stands of winning Chrysanthemums this year.

Foremost among new flowers of this season must be named Gloria Mundi, a seedling from the beautiful Jardin des Plantes, and perhaps the only one ever raised from that fine variety. It possesses all the good qualities of its parent, to which it adds a better shape, being well filled up in the centre. This cannot fail to be an acquisition. Golden Beverly is another fine kind, of a different shade of colour from the last. Crimson Velvet, which we did not see fully expanded, promises to be one of the richest and highest coloured flowers yet raised, surpassing in brilliancy even the handsome Julie Lagravère. Titania, yellow, laced with rose, is worth attention on account of its singularity of colour; but it is scarcely suitable for purposes of exhibition. Undine, pearly white, tinted with rose, is in the way of Eve, from which it is a sport. Fulgidum, bright red inside, with a yellow back, is a good incurved variety, as is also Hereward, which is in the style of Prince Alfred, but lighter in colour. Empress Eugénie is a fine large peach-coloured kind. These are a few of the best sorts to which names have been given; there are, however, many Seedlings yet unnamed which promise to form excellent additions to the respective classes to which they belong.

Of well-known older kinds there is a magnificent display. Among whites we noticed Beverley, White Queen of England, Mrs. Haliburton, Antigone, Florence Nightingale, Vesta, and White Christine. Conspicuous among yellows were Jardin des Plantes, Mrs. Miles, Yellow Perfection, Sulphureum superbum, and Seraph. Blush-coloured sorts comprised Princess of Wales, Cleopatra, Her Majesty, Hermione, Beauty, Princess Louis of Hesse, and Queen of England. Foremost among rose-coloured kinds were Belladonna, Maréchal Duroc, Luther, Lady Slade, Princess Marie, and Christine. Among red varieties were Julie Lagravère, Sir Stafford Carey, Dr. Rozis, Lord Clyde, Prince Albert, and Rifleman. The rose-purple class comprised Prince Alfred, Sam Slick, and Progne. Among orange sorts were Bernard Palissy, Orange Perfection, Little Harry, Dupont de l'Eure, Grange Lodge Rival, and General Slade; while in the class of browns may be placed Antonelli and General Bainbrigge. These are first-class varieties, without which no collection can be complete.

Out of doors, as well as under glass, Mr. Salter has also this season an excellent exhibition. Among Pompons Prince Victor is a new kind which we had nearly forgotten to name. It is in the way of Bob, but is darker in colour, and possessing as it does a good habit, it will doubtless be found to make a useful kind for all cultivable purposes.

The Apiary.

"Twenty-two years ago I wrote a short treatise on the 'Profitable Management of Bees,' for the readers of the *Gardeners' Chronicle*. The treatise appeared in the first six numbers of this Journal for 1844. I then tried to show that the English bee-keepers would never get large results till they kept hives very much larger. Since then I have been in many parts of England, and in no county have I found a single hive half large enough. Three weeks ago I visited my native village in Lanarkshire, when I ascertained that the bee-keepers there are more alive than ever to the advantage of having large hives. Some 30 or 40 years since, the best swarms, swarming in June and July, gained the weight of 70 lb. and 80 lb. by the end of the season. Now they weigh from 100 lb. to 120 lb. in fine seasons. This year one weighed 130 lb. before it was taken to the Heather in the first week of August. Formerly it was considered a fair day's work for a swarm or hive to gather from 2 lb. to 4 lb. per day: but now advanced and advancing bee-keepers in the same village expect to realise far more than this. They give their bees scope and space. The philosophy of the whole lies in this, that the queen bee is a wonderfully productive creature, laying ten times more eggs than the numbers guessed at by the bee doctors who have written books on the subject. The number of cells in a superficial inch of comb, and the number of inches of comb in a given hive multiplied (and the cells are filled with fresh brood every three weeks for about five or six months of the year), tell us that the queen, which lays all the eggs, is very prolific. But to take the numbers that such calculations give for the number of eggs laid by the queen is hasty and inaccurate, to say the least. In order to make the matter tangible and understandable, let me take one of Neighbour's hives,

so well known throughout England. Suppose it full of combs and bees, with a queen in the height of the breeding season. Let me take nine more of the same hives, equal to it every way, and remove nine of the queens. Now place all the hives on a large board, or all on the top of one another, with doors or channels of access from one to all of them. The one queen left would lay eggs enough for all the ten hives, and every bit of comb would be as well filled with brood as if all the ten queens were laying. Hence, those who keep small hives compel their bees to destroy countless numbers of eggs laid by their queens. Well, then, if our English bee-keepers wish to get large swarms, the naked bees as they hang on a branch to weigh 7 lb. and 8 lb. instead of 3 lb. and 3½ lb.—in short if they wish to have large harvests of honey, they must keep hives very much larger than the sizes used at present. But let me warn them against running in the right direction too fast. The change from small to large hives ought to be made gradually, say about one-third or one-half larger every year. Bees properly managed are very profitable and most interesting. My father, then a common labourer, made 90*l.* in one year by his bees; and last year a friend of mine in the same parish in Lanarkshire made 40*l.* from nine or ten stock hives." *A. Pettigrew, Brighton Grove, Manchester.*

We are glad to see a communication from so old a contributor to our columns on apiarian matters as Mr. Pettigrew. We quite agree with him in believing that the majority of the hives used throughout the country are much too small, but we think he goes too far when he advocates the use of hives ten times the size of Neighbour's hive, that is to say, hives containing about 11,000 cubic inches; nor do we believe that a queen-bee ever existed which was capable of filling the combs with brood in a hive of such dimensions.

We have long been fully alive to the fact that the queen-bee is very much more prolific than most of the writers of bees have asserted her to be. Some years since we adopted, rather extensively, hives containing about 1760 cubic inches of comb-building space; these we have frequently found nearly full of brood and eggs, but we have, after a considerable trial, been compelled to come to the conclusion that a somewhat smaller-sized hive is best adapted for affording large supplies of honey in supers. If it is desirable to use hives of such dimensions, we cannot see the force of the caution against adopting them at once; surely, if bees will thrive at all in them, there can be no valid reason why they should not be adopted forthwith. But we cannot advise our readers to stock their apiaries with hives nearly approaching to the size of those advocated by Mr. Pettigrew.

The wonderful doctrine of Parthenogenesis in the Honey Bee was first promulgated about 12 years since by Herr Dzierzon, a clever German bee-master and naturalist. When he first called attention to this extraordinary doctrine of true Parthenogenesis or production by the queen without any intercourse with the male or drone bee, he raised such a swarm of opponents in nearly all the naturalists in Europe, who advanced such a host of objections against such a theory being true, that Dzierzon himself began to doubt the correctness of what he had seen with his own eyes.

A number of his opponents set to work to prove the fallacy of Dzierzon's theory, but every experiment that was properly conducted only proved its correctness; Professor Theodore von Siebold (one of the most distinguished German naturalists and physiologists), fully confirmed this doctrine, and after laborious dissections and microscopical investigations, he discovered a set of voluntary muscles for imparting some of the male element which is stored up in the spermatheca, to every worker egg during its passage through the "common oviduct."

He also discovered lively spermatozoids in the semen of the drones, as well as in the contents of an impregnated spermatheca, and detected the same spermatozoids in worker eggs, whilst they were entirely wanting in those eggs that would produce drones.

This long and acrimonious dispute was at last conclusively settled: all honour be to Herr Dzierzon, as it has explained many of the mysteries of the hive, in which the great king of bee masters, the illustrious Huber, after discussing the effects of retarded impregnation, exclaimed "It is an abyss wherein I am lost." All other great bee-masters have been equally lost in this abyss, until Dzierzon discovered the doctrine of true parthenogenesis, and it is now an established fact that the queen has the power, at will, to lay drone or unfructified eggs or fertilised worker eggs.

It has been stated by a number of writers on bees that the queen has to lay worker eggs for a certain length of time, and then a quantity of drone eggs; but I have seen queens, in my glass observatory hives, lay worker eggs, then a few drone eggs, and immediately worker eggs again, all in a few minutes, and I saw these worker and drone eggs hatched out into perfect bees, which conclusively proves that the queen has the power to fructify the eggs or not at will.

I always like to fully confirm or not, all these theories about bees, by my own experiments. So, having received some Ligurian queens from Switzerland on the 22d of September last year, I thought that it would be a conclusive confirmation of this wonderful doctrine, if I could raise a queen very late in the season, after every drone had disappeared for several weeks. On the 7th October I examined the combs in one of the stocks, to which I had joined one of the imported Ligurian queens on the 23rd of September, and found a large quantity of eggs laid in three combs. I took out one of the combs and put it into another stock, from which I removed the queen.

October 18. Examined the combs, and found five royal cells sealed.

October 22. Found one of the queens just ready to leave its cradle; the next day the other young queens were thrown out.

October 26. Examined the combs, and saw the queen.

November 14. Again examined the combs, and could not find a single egg laid. I saw the virgin queen, now 23 days old.

February 24, 1865. I found a drone pupa on the alighting board.

February 27. Examined the combs and found drones hatched and drone brood in all stages of development in two combs, containing only worker cells. I saw young drones emerge from these cells. Removed these combs as specimens, also a few of the drones that were hatched. I put in the hive, bar-frames containing drone combs.

March 6. I found eggs and brood in two combs.

March 31. A number of drones flying out.

April 7. Examined the combs and found about one quarter of the bees were drones. I supplied the stock with several worker brood combs, and saw the queen frequently from April to June. She continued to lay eggs that only produced drones—not in the regular order that a fertile queen lays eggs, but here and there one, so that the combs with the sealed drone brood had a very singular appearance; she also sometimes laid two or more eggs in one cell, which in some cases came to maturity, the bees enlarging the entrance to the cell to the size of two cells, and then covering the two larvæ with one large conical cover.

There could hardly be a clearer confirmation of this wonderful doctrine, as I never read or heard of a queen being hatched so late in the season as the 22d day of October, and afterwards kept until the June following, producing only drones.

The experiment was very successful and most interesting; but I should occupy too great a space of your valuable Paper, if I were to give all the memoranda that I made respecting this stock. *William Carr, Clayton Bridge, Newton Heath, near Manchester, Nov.* 11.

Garden Memoranda.

Autumn Gatherings.—The Liverpool Botanic Garden is very unfortunate as to situation, the smoke affecting it worse than any other. Indeed it could not be so much begrimed in Bloomsbury Square, so the best thing one can do is to wish it removed to a purer air and pleasanter site. There are plenty of places in the neighbourhood of the city in which all sorts of gardening would be possible, and no city can afford a botanic garden better than Liverpool. Bedding is, however, defiant of all smoke, and of this Mr. Tyerman takes such advantage as to produce the most telling and novel display of bedding in any botanic garden. There is a greater variety of plants used than is common in bedding arrangements, and this, in addition to great taste in arrangement and skilful colouring, adds to the interest greatly. Among the plants used are the Violas, mentioned elsewhere by me; Achillea ægyptiaca and aurea; Dactylis glomerata, extensively and effectively; Oxalis corniculata rubra; while in the "subtropical" was Geranium anemonæfolium, which is really a very good thing, growing 3 feet high in a rich bed, and displaying that free Ricinus-like vigour of growth and green, without which it is not so pleasant to see a "subtropical" plant in the open air. It might be put in the list of the really free and good things for varying the flower garden. The purple-leaved Plantago major also comes in well as a hardy bedding plant, and is valued, as Coleus does no good in the garden. Iresine is having its first and last trial; it does no good in these parts, and looks parboiled; and Amaranthus hardly grows. London gardeners are not the worst off in the world! Herbaceous plants, &c., are extensively grown, and there is a good deal of interest in that direction. Indoors the plants are making simultaneously a well-directed attempt to lift the roof off the larger houses, but it is useless proposing any patchwork for them. They want enlarging as badly as the garden wants removing, and both works must be done together. They contain a fine collection of Ferns, and there is a cold house, with rockwork, in which hardy Ferns do finely, and another building—a long house, with north aspect—in which Mr. Tyerman will try with the hardy Ferns a great number used to higher temperatures which he believes will do well on rockwork in this new inherited house. The collection of Ferns is nearly as fine as any in Britain. From 10,000 to 15,000 people sometimes visit the garden on Sundays within the past few years. There is life and growth in the management of the garden, and it could not be in better hands.

The Manchester Botanic Garden is not, like the Liverpool one, supported by the Corporation, but must support itself or die, like most Britons. It, too, I am glad to say, is in a prosperous and growing state, gaily decorated, but paying also some attention to botanical gardening proper. This has been a most successful season, the receipts being 15 per cent. greater than in ordinary years; the subscribers increase; 40*l.* are sometimes taken on Saturday afternoons for admission to the promenade. The Orchids and house plants generally are in admirable condition. Mr. Findlay proposes to make a herbaceous ground this winter, and other alterations; but much cannot be done in this way till the debt is paid off, as the greater portion of annual profit goes to alleviate it. The shows are successful, Orchids being perhaps better represented at the early ones than elsewhere, excepting London, and hardly excepting that. It is cheering to know that our provincial gardens are getting on this way, the more particularly as none of the rich rising towns seem to care about establishing gardens, and a few years since one might have supposed a deep sleep to have fallen on botanic gardens, except where supported by Government.

The Sheffield garden, too, is in a promising condition under the management of Mr. Ewing — the debt having been paid off, and the grounds and trees being in capital order. It is fortunately on the right side of the town, and thus escapes noxious vapours. The moment you enter on the lawn you are reminded of the Botanic Gardens, Regent's Park—and not unnaturally of course, as Mr. Marnock laid out both. It is pleasantly diversified — has a symmetrical and handsome range of glass well filled with plants suited to a botanic garden, and plenty of showy ones among them. Mr. Ewing is very fortunate with Sarracenia purpurea, and has many plants of it in robust health. He grows it in the greenhouse well up to the glass, the plants in peat and pots standing in pans of water. There has been lately built a very useful plant house at a cost of 300*l.* It would be well, indeed, if every town as large as Sheffield had as good a botanic garden — one better laid out or more charmingly situate is rare indeed.

I strayed into the Birmingham Garden during the visit of the British Association to that town, but there was very little to see there, though the garden is not the worst as regards situation and arrangement. Perhaps, as usual, the money is the difficulty, but I did not learn. The houses are in a poor state; most trouble is taken with the bedding plants, but, on the whole, the garden is unworthy of the town.

During the present year the centre span of Mr. Bewley's large orchard house at Rockville has been divided off and converted into a noble stove, 84 feet long. It makes a capital introduction to the great Fernery, being continuous with it. There is a winding walk leading to the Fernery entrance through large specimens of fine-leaved plants, Pandanuces, Musas, &c., planted out on mounds and in beds covered with a ground-work of the better Selaginellas and neat creeping plants. Musa vittata was in fruit, and the contents of the house luxuriantly healthy, though not more than six months planted.

The great Fernery is as beautiful as ever—any improvement on its condition during the past two years is hardly possible. Among the Begonias which creep about among the Ferns, &c., splendida is very remarkable for the size of its leaves and their effect. They are over 2 feet long and quite elephantine in proportion. The plants are in first-class condition under the management of Mr. Sayers. *R.*

Miscellaneous.

Literary Pedigrees.—The curious in these matters have been tracing the parentage of Lord Palmerston's popular phrase, "the fortuitous concourse of atoms," with praiseworthy diligence. Those who were not aware that the words have been long in common use with students of old and modern philosophies began by crediting the late Premier with their origination. Then somebody said he must have learnt them from Dugald Stewart. Then South had the credit given him. Now we learn that Locke uses the phrase; while at the same time other writers quote from Cicero to show that Locke only repeated what the old Roman had said before him. In fact, however, the idea embodied in the phrase is far older than Cicero, who, like the Roman philosophers in general, went to the Greeks for the materials of his abstract thought. The theory about these "atoms," whose chance combinations were supposed to have produced the existing organic universe, is to be found discussed in Aristotle's "Physics," and, what is just now most remarkable, in immediate connection with a theory identical with that which is propounded by Mr. Darwin in his "Origin of Species." These atoms were believed to have been perpetually moving about from all eternity, forming a countless variety of organic combinations, out of which combinations only those survived to perpetuate themselves "in their kind" which came off victorious in the universal conflict for organic existence. As described by Aristotle, the philosophers in question asserted that rain is not designed to make the corn grow, but that rain happens to be the means of propagating the existence of grain, therefore grain, "by the force of natural selection," continues to flourish on the earth. If the rain had not happened to be ready to nourish the corn as soon as the fortuitous concourse of atoms made the first

corn, grain would immediately have become extinct; till, in the never-ending shuffling of the cards, the same atomic combination would once more turn up. The real theory of Mr. Darwin is, indeed, summed up by Aristotle in a single sentence:—*Ὅπου μὲν οὖν ἅπαντα συνέβη, ὥσπερ κἂν εἰ ἕνεκα τοῦ ἐγίνετο, ταῦτα μὲν ἐσώθη ἀπὸ τοῦ αὐτομάτου συστάντα ἐπιτηδείως· ὅσα δὲ μὴ οὕτως, ἀπώλετο καὶ ἀπόλλυται καθάπερ Ἐμπεδοκλῆς λέγει τὰ βουγενῆ καὶ ἀνδρόπρωρα.* "When all things happened to be produced just as it would have been if they had constructed with a definite design (*ἕνεκα τοῦ*), those combinations were preserved which happened to fall in with the general working of the whole; and those which did not thus fall in perished, and still perish, like the minotaurs and sphinxes that Empedocles speaks about." It is impossible to translate the sentence except periphrastically, but its meaning is abundantly clear; and it shows that the Darwin theory is at least 2000 years old. The only difference between the old and the new speculation is, that while the new school use the word "law" as indicating the relationships of the ultimate atoms, the ancient speculators attributed everything to a power which they call "necessity." *Pall Mall Gazette.*

Mendacious Puffing.—The art of puffing, says the "Pharmaceutical Journal" for November, has been carried to a magnificent height. Not content with placarding his announcements on walls and hoardings, the aspiring advertiser now displays himself on the roofs of omnibuses, both within and without. Some months ago, we were startled to see upon one of these vehicles the word Opoponax, in letters a foot high. What could it mean? Opoponax, an obsolete drug of most repulsive odour—who in his sober senses could prevail on the public to purchase that? But the mystery has been resolved by the advertisement of an enterprising perfumer, claiming a doctor's degree, who after 17 stanzas, worthy of an Aldgate tailor, ventures the following assertions:—That Opopanax Chironium, a plant of Sicily, produces flowers of exquisite fragrance, some of which in a dry state were brought from Mexico (!) "after the return of the British and Spanish expedition," by "a well-known amateur botanist, distinguished for his services at sea," and that this circumstance has led to their importation as an article of commerce, and use as the basis "from which is distilled the now famous opoponax!" As all this is given as serious scientific information, and rendered plausible by a reference to Professor Balfour, and a quotation from Bescherelle's French Dictionary, besides half-a-dozen words of Greek, it might really be supposed a piece of curious and trustworthy intelligence, instead of most mendacious puffery. It might certainly strike a thoughtful reader as somewhat puzzling how the "British and Spanish Expedition" should bring from Mexico the dried flowers of a plant of Greece and Italy; how this plant, which is remarkable for its fœtid juice, should afford a perfume of extraordinary fragrance; and how, if the Opoponax plant exists in Mexico in sufficient abundance to be collected, it has never been obtained by any one of the numerous botanists who have traversed that country in all directions, but that its discovery was reserved for the "well-known amateur" of naval celebrity. But these are little matters into which it is not to be supposed that the public will inquire too nicely, though it is well to throw out a wholesome caution about dangerous imitations, and the necessity of remembering where the only genuine article can be purchased.

Vintage of 1865.—The extreme heat which prevailed during the vintage produced a curious result. The Grapes being in general very ripe fermented in the vats with extraordinary rapidity. A great portion of the saccharine matter had not time to be converted into alcohol, and in countries like Burgundy, where wine growers do not leave the wine very long in vat, fearing it may become hard and rough, the wine, on account of the saccharine matter remaining in it, will ferment for a long time in the cask. These wines will consequently require much care, not only from the danger of excessive fermentation during their transport while young, but even after they are lodged in the consumer's cellar. The excess of saccharine matter will render the wine liable to ferment at every change of weather, and if the cellar is not sufficiently cool the fermentation may produce acidity. There is no doubt that the wines of this year's growth are of excellent quality, but they will require great attention before they arrive at maturity. *Times.*

Acacia Fibre.—At a recent meeting of the Imperial Agricultural Society of the Haute Garonne, M. de Planat presented several samples of thread he had obtained from the bark of the Acacia, and of the Chinese Mulberry-tree. The Acacia which produces this thread grows in every description of soil. It usually attains the height of from 60 to 75 feet. The wood is hard, and takes a fine polish, and is in great demand for furniture and for flooring. It is less dense than oak, but it grows much more rapidly, and it has been used in replanting the Pyrenees. It is likewise planted for ornament. The thread spun from its bark is very useful in the manufacture of ropes and coarse cloth suited to farmers' use.

Sicilian Vegetation.—The Southern character of the vegetation recedes under the cooling influence of the vast snow-covered plains of Mount Etna; the Fig trees have only terminal leaves, and the fruit is very small; the white Mulberry trees and Vines have also only a few leaves; the Black Mulberry trees are mere sticks, scarcely having their buds formed. Lemon and Orange trees still appear, but only in sheltered valleys and depressions, and are often protected by high walls; neither are they as large, as vigorous, as tree-like. The Olive-tree, however, holds his own, as also do the Opuntiæ or Barbary Figs. The latter are extensively cultivated throughout Sicily as hedges, and for the sake of their fruit. They grow to the height of some 12 or 15 feet, in a very singular grotesque manner, and assert their claim to being dicotyledonous plants by becoming regular trees, with a large round trunk and bark. This transformation of the flat, fleshy, leaf-shaped branches is quite remarkable. *Bennet's Mentone, 3d Edition.*

Calendar of Operations.

(*For the ensuing week.*)

AT this time of the year it is of the utmost importance so to arrange stock in houses as to secure a due proportion of space to each plant. All retarded autumn flowers should have as light a situation as possible. Above all things, if not already done, let every sash receive a thorough washing, both those of the houses and also those of the frames or pits. In order to keep glass clean as long as possible, let mats and covering of all kinds be constantly suspended on rails or posts. This is absolutely necessary, not only for the glass, but for the sake of proper economy.

FLOWER GARDEN AND PLANT HOUSES.

Conservatories will now require considerable nicety of management. Atmospheric humidity cannot by any means be entirely dispensed with, yet this if unskilfully applied will produce drip. The best plan is to keep as low a temperature as can possibly be allowed, say from 40° to 45° at night, and to leave a little back and front air on all night if the weather is at all favourable. The front air must be very moderate, or the atmospheric moisture, instead of passing quietly away by the back apertures, will be condensed as it arises. With a good roof covering in the case of small conservatories, 40° would be sufficient, and then there would be atmospheric moisture enough at all times without the special application of water.

CAPE HEATHS.—Let these have close attention as to watering; if they stand unfortunately near hot-water pipes, they may become suddenly very dry. Keep up a quiet ventilation day and night if possible; let the air steal in moderately, and dispense with strong fires.

PELARGONIUMS.—Give air whenever the weather will admit of it; but avoid cold draughts, and keep out frost. On the other hand, be careful not to use too much fire-heat. Training and shifting must also receive attention.

ROSES.—If tender sorts are not already protected, no time should now be lost in regard to this matter. The tops of standards, worked on ordinary stocks, may be guarded by means of straw bands bound amongst and over their branches, or by tight canopies firmly fixed. Beds or masses of certain kinds of Teas, or other tender kinds, should have some porous material strewed amongst them, to afford a little protection, especially during severe weather. Cocoa-nut refuse or even a coating of half-decayed leaves would answer the purpose of protecting their stems a little. Four or five inches of such materials may keep them safe in the event of a severe winter. If it is desirable to protect the tops efficiently, mats thrown lightly on them will suffice, taking care, on the breaking up of frost, to expose cautiously, and not until after they have become thawed.

SOILS.—Compost yards, if not already filled with the different soils used for potting, must have immediate attention whenever the weather is dry. One of the most important points in this department is to see that the drenching autumn rains have every facility for escape. The best of soils, be they ever so well harvested, will become soured in a very short period by the lodgment of stagnant water. A good compost yard on this account should be a steadily inclined plane, and the soils or composts should invariably run the way of the descent in parallel ridges. Those who are procuring loam now may let it remain on the ground where dug until hard frozen; it may then be carted away without destroying its texture.

FORCING GARDEN.

CUCUMBERS.—Attend closely to these; a little neglect now would render all previous pains and labour useless. Give air as often as the weather will permit, but make it a point to shut up warm. Use additional coverings on cold nights, which will save fuel, and be better for the plants.

PINES.—Winter watering of Pines in pots is rather a doubtful proceeding; a better way with general stock is to cover over the pots with Cocoa-nut refuse, or some such material, 2 or 3 inches thick, provided the bottom-heat is in proper condition.

VINES.—If any portions of the stems of Vines about to be forced are near the influence of hot-water pipes, they should be bound with Moss, old mat, or any other material, to ward off the dry heat. Keep the temperature low at present in houses started. Do not give air unless to depress the thermometer, or to avoid a superabundance of rank steam from fermenting matter. Let the syringe be applied two or three times a day, suffering the wood to become dry between the applications.

HARDY FRUIT AND KITCHEN GARDEN.

Trench, dig, and ridge every spare inch of ground when frost permits; this is particularly to be observed in gardens inclining to a clayey texture. During frost let the manure necessary be wheeled out for the whole of the spring cropping, laying it in heaps, either on the spot where it will be wanted, or as near as possible to it. That portion not required for immediate digging in should be piled in small mounds and covered over with soil, to prevent loss by evaporation.

FRUIT TREES.—Planting ought now to be pushed forward with vigour. With regard to bush fruit, if dressings with hot lime and soot when the trees are wet were more attended to, we should not hear so much of the ravages of birds upon the buds, and we would recommend their application also to standard Plum trees wherever practicable, as they not only keep them free from Moss and Lichen, but assist in the extirpation of those insects, in the search for which birds commit such ravages.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Nov. 15, 1865, as observed at the Horticultural Garden

Nov.	Moon's Age.	Barometer.		Temperature.					Wind	Rain.
				Of the Air.			Of the Earth			
		Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep		
Thurs. 9	21	30.042	29.967	48	30	39.0	49	48	N.E.	.08
Friday 10	"	30.246	30.158	49	22	35.5	49½	48½	N.	.00
Satur. 11	23	30.249	30.238	47	35	41.0	48	47	S.W.	.00
Sunday 12	24	30.404	30.361	49	26	37.5	47½	47	E.	.00
Mon. 13	25	30.389	30.218	53	27	40.0	47½	47	E.	.00
Tues. 14	26	30.089	30.040	51	45	48.0	46	47	S.E.	.00
Wed. 15	27	30.309	30.066	54	31	42.5	48½	47½	W.	.04
Average		30.247	30.148	50.1	30.8	40.5	48.0	47.3		.05

Nov. 9—Fine; cloudy; clear and fine at night; slight rain.
— 10—Clear and very fine; sharp frost.
— 11—Overcast throughout.
— 12—Slight fog; foggy; overcast at night; slight frost.
— 13—Fine throughout; clear, with slight frost at night.
— 14—Overcast; fine; overcast; fine at night.
— 15—Rain; densely clouded; clear with bright sun; very fine.
Mean temperature of the week, 1½ deg. below the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 39 years, for the ensuing Week, ending Nov. 25, 1865.

Nov.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds.							
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday..19	48.6	34.0	41.3	16	0.87 in.	1	5	4	4	5	12	2	6
Mon. ..20	49.0	31.7	41.8	13	0.35	1	7	3	—	7	9	[illegible]	4
Tues. ..21	49.5	36.5	43.0	24	0.41	4	5	4	3	6	[illegible]	4	3
Wed. ..22	49.2	34.0	41.6	22	0.80	3	4	6	3	4	9	8	2
Thurs. ..23	47.3	34.5	40.4	17	0.95	1	6	3	2	6	12	6	3
Friday ..24	47.4	32.2	39.8	12	0.61	5	8	3	2	5	8	3	1
Satur. ..25	46.4	33.4	39.9	20	0.34	3	4	7	3	7	9	3	3

The highest temperature during the above period occurred on the 25th, 1863—therm. 62 deg.; and the lowest on the 23d, 1858—therm. 9 deg.

Notices to Correspondents.

ACROSTICS: *Senilis.* Declined, with thanks.

CHRYSANTHEMUM: *R. Stokoe.* Your white Cedo Nulli is an interesting sport. The variety has already produced others equally distinct. Such changes are not uncommon amongst these flowers.

CRYPTOMERIA: *L S.* In your specimens the axis was lengthened and extended beyond the cones. This is common in this plant and in the Larch. The identity of the bracts of the cone with the leaves is well shown in some of these cases.

DOUBLE ANTIRRHINUMS: *Chiswick.* Your flowers are doubled by the multiplication of the petals, in this case disunited. No stamens or pistils are visible.

ELM TREES: *W G.* Trees vary so much, under the influence of different conditions and in different localities, that it is not easy to arrive at the probable age of your specimens of the common Elm of healthy growth, 3 feet 6 inches in diameter, including bark, at 4 feet from the ground. Some Elm trees of rather larger size than those you mention were cut down about 16 years ago in a plantation near the city of Durham, and these were supposed to be about 130 years old. According to statistics published by Loudon, trees of the size of those about which you inquire may vary in age from 70 to 120 or 130 years.

FUNGI: *M T M.* Your fruit is attacked by Oidium fructigenum. *M J B.*

LEAF-MOULD: *P P C.* This, unless the leaves are thoroughly decomposed, often acts as poison. Instances are not wanting in which Rhododendrons have suffered from it. The notice to which you allude was a valuable addition to our knowledge on the subject. *M J B*

NAMES OF FRUITS.—*Oranges:* 1, Wild Pulpless Orange; 2, Lime; 3, Common Lime; 4, Tangierine; 5, Sweet Lime; 6, St. Michael's. *Apples:* 1, Lord Nelson; 2, Dutch Tulip; 3, unknown; 4, Hoary Morning; 5, Fearn's Pippin; 6, Scarlet Nonpareil.

NAMES OF PLANTS: *C S.* 1, Lastrea Filix-mas; 2, Lastrea dilatata; 3, Asplenium Adiantum-nigrum.—*J Silver.* The Fern is what is generally called Polypodium trichodes, but more correctly Lastrea tenericaulis.—*Harden.* 5, Woodwardia radicans; 6, Asplenium bulbiferum; 7, Scolopendrium vulgare var.; 8, Doodia caudata.—*H B.* Pteris flabellata.—*J S M.* It is Lomaria gibba, one of the handsomest of greenhouse Ferns.—*J C P.* Your Orchid is a handsome variety of Epidendrum dichromum, a newly introduced and very desirable species, that was figured for the first time in the Botanical Magazine last year.—*J M, Dumfries.* Populus nigra.—*Cotton.* 1, Pomaderris vacciniifolia. All the others destitute of flowers.—*Youngster.* 1, Reineckia carnea; 2, Potentilla hirta; 3, Boronia pulchella.—*T M S.* Dimorphanthus elatus.—"*Pop. Mon.*"—Populus nigra.—*A R H.* 1, 2, Impossible to determine from the scraps sent; 3, Juniperus communis; 4, Chrysanthemum segetum.

RASPBERRIES: *Jupiter.* The old canes of Raspberries may be cut out at any time during the winter, now or later, as may be most convenient. A selection of the strongest young ones should be tied up in their place, and the rest rooted out.

VINES: *Jupiter.* Your question is not definite enough to enable us to advise you. We do not, for instance, know if the place is healthy or unhealthy, or if the house "heated with hot-water pipes" is a greenhouse or a hothouse. If the former, your best plan would be to leave the Vine alone, merely removing the dying leaves, until after the turn of the year, when it should be pruned. If unhealthy, lift the roots, introduce fresh soil (a mixture of good loam, old lime rubbish and crushed bones), and replant near the surface.

COMMUNICATIONS RECEIVED.—E. A. O., Chelsea.—J. C. P.—M. Naudin.—A. H. C.—A. H.—W. Bull.—P. P. C.—W. Earley.—J. Anderson.—W. Thomson.—H. S. (next week).—W. G. G.—W. N.

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THE NATIONAL EXHIBITION of SPORTING and OTHER DOGS.—The SIXTH GREAT ANNUAL EXHIBITION will be held in the NEW CURZON EXHIBITION HALL, BIRMINGHAM, on MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, December 4, 5, 6, and 7.
The PRIVATE VIEW on Monday, December 4; Admission 5s. On Tuesday, Wednesday, and Thursday, admission 1s.
For SPECIAL RAILWAY ARRANGEMENTS see the Advertisements and Bills of the several Companies.
GEORGE BEECH, Secretary.
Offices, Rectory Chambers, Temple Row, Birmingham.

SMITHFIELD CLUB CATTLE SHOW.—NOTICE.—ADVERTISEMENTS for CATALOGUES should be sent before the close of the present month. For terms, &c., apply at the Offices of the Agricultural Hall Company (Limited), Harford Street, Islington. By order, S. SIDNEY, Secretary.

The Agricultural Gazette.
SATURDAY, NOVEMBER 18, 1865.

WE have not hesitated to fill more than half the space at our disposal this week with the Report of her Majesty's Commissioners appointed to inquire into the Cattle Plague. A document on which the action of the Government in this matter will, in all probability, be founded, ought to be in the hands of every stockowner in the kingdom in its entirety; and it must therefore receive all the publicity in our power. It will be seen that while a good deal of diversity of opinion has arisen out of the evidence which has been taken, yet, barring the judgment of only one of their body, the Commissioners are unanimous upon a number of important conclusions. The majority, indeed, would confine all living animals of the class to the farms or byres or homesteads where they at present are—they would suffer no living ox, cow, or calf to pass the boundaries of their owner's holding for a period long enough to ensure the destruction of the poisonous contagion—they would make the supply of meat depend wholly, whether from home or foreign sources, on the carcase trade. This is the idea to which Mr. HALLETT, of Brighton, gave expression many weeks ago, and to which most of the scientific men on the Commission adhere; and no doubt, were the plan possible, it would be successful. A powerful minority, however, including Lords SPENCER and CRANBORNE, Mr. C. S. READ, M.P., and Dr. BENCE JONES, do not believe such a measure possible; the prohibition would be evaded, both in those districts where the disease has not yet declared itself, but where it may at any time be in incubation, and all around the centres of the meat trade, where the sudden and inevitable rise in prices would offer the strongest temptation to the evasion of any prohibitive regulation that might be imposed. The Commissioners however, excepting Mr. M'CLEAN, who dissents on the grounds, mainly, that the evil, however great its actual dimensions, is not relatively to other interests and industries so great as to justify an interference with them for its correction, are unanimous on a number of important measures, for which therefore in all probability we may shortly look. In the first place they recommend the abrogation of the existing power of inspectors to enter premises to direct the slaughter of infected animals. This, had it been vigorously exercised in the first instance, might have quelled the disorder, but now that that has spread so widely it is of no service, and, moreover, the complement to such a measure, viz., the compensation of owners for this forcible interference with their rights and ownership, cannot be entertained. The provisions, therefore, which are recommended are confined mainly to the direction of an absolute cessation of sales of lean and store stock, the regulation of slaughter-houses, the provision that animals sold for meat should be immediately slaughtered, and the maintenance of a stricter cordon between infected and uninfected districts.

There are also stringent regulations proposed in connection with the foreign trade; and the herding of cattle in uninclosed lands is to be forbidden.

These are the principal points in which the Commission may be said to be unanimous, and for which, therefore, we may look for some action on the part of the Government.

The disease is still spreading. Professor SIMONDS announced at the Farmers' Club meeting last week that that day had brought them notice of its breaking out in 290 fresh herds, and whatever measures of restriction and precaution are desirable, ought to be taken at once.

PUBLIC opinion will undoubtedly support Mr. HOLLAND in the new Parliament when he shall again introduce measures affecting the Veterinary Profession and the Cattle trade, more vigorously than it did last year. We cannot doubt that the importance which recent events have given to the Veterinary profession, and the disastrous risks which stockowners have incurred and realised through our unregulated cattle trade, will enable him to carry measures in which last year he was opposed and overcome. Meanwhile we again call attention to a passage from his address read two years ago before the Social Science Congress at Edinburgh, in the hope that the ideas then enunciated may receive a full discussion before Parliament meets.

The following is a portion of Mr. HOLLAND's address on that occasion:—

I believe that much good would ensue from the appointment of an Inspector-General of Live Stock Traffic throughout the United Kingdom. His duties should be to collect trustworthy information as to the health of stock, whether imported from abroad or circulating in the home trade. He would have to keep himself in communication with the different inspectors of towns, fairs, and markets throughout the country; to visit different localities, to give attention to the reports of outbreaks of disease, and more especially to the spread of contagious disorders in all countries from which importations are made to this. It would be the duty of such an inspector to investigate special outbreaks of disease, with a view to determine the causes producing them, and he would suggest to the Privy Council proper measures to arrest the progress of such disease; and, whilst in communication with local inspectors, and adopting with them special precautionary measures against the propagation of disease should it appear in any district, he would report to the Privy Council what steps ought to be taken on the occasion. Besides, he should report annually on the diseases of animals in the United Kingdom. Such a report would enlighten farmers as to the best means of protecting their stock in health, and would directly lead to a great diminution in the traffic of diseased animals. But here exists another difficulty. Who are to be the inspectors? Are they to be, as they too frequently are at present, unqualified men for the office, chosen frequently through corporate interest rather than on account of their veterinary knowledge; or are they to be well educated, scientific, veterinary practitioners? Indubitably they ought to be the latter; but where are these to be found? My belief is, that from the want of a high grade of education amongst professional men, the farmer has taken up the impression that medical treatment could do nothing for him; that spending money in attempting to cure his diseased animals was a farce; and hence he has had further inducement to send his sick animals to market whilst life was still in them. Had there been in existence a sufficient number of well qualified veterinary practitioners, he would have acted otherwise, and not have incurred such serious losses as he has done through the dissemination of contagious and infectious diseases.

Statistical returns up to the present time show that the number of members of the Royal College in practice in the United Kingdom is only 1018, whilst the number of those who assume the title of veterinary surgeon is 1244, and those practising as farriers 1109.

The number, 1244, who unscrupulously assume the title of veterinary surgeons, which the possession of the diploma alone ought to confer, affords a striking proof that the profession requires legislative support. It is expedient that persons requiring veterinary medical aid should be enabled to distinguish the qualified from the unqualified practitioner; and it is a gratification to

know that a measure is to be brought next session before Parliament, having for its object the punishment of such persons as shall wilfully or falsely take or use the name of veterinary surgeon, and practise under that title without being duly qualified to assume it. At the same time the framers of this Bill have taken care that it shall not be retrograde in its action, and that its provisions shall not affect any person actually practising as veterinary surgeon previously to October [1864].

Upon a more perfect system of inspection, both at our ports and in our markets, and upon a wider spread of scientific professional knowledge, do I rely for improvement in the quality of food supplied to consumers, for a diminution of sickness and death arising from the consumption of diseased meat and milk, and further, to the same sources do I look for a diminution of the immense losses incurred by farmers and graziers through slaughtering for food, instead of attempting to cure, their diseased animals.

ARE SHEEP LIABLE TO THE CATTLE PLAGUE?

BEFORE giving the condensed report which follows of Mr. Woods' able lecture on this subject before the Wayland Agricultural Society last week, we quote Professor Simonds' reference to this subject at the recent meeting of the London Farmers' Club. Professor Simonds said:

The question has been put to me whether the disease is capable of being communicated from the ox to other animals, and whether those animals can in reality communicate the disease to others. If the question be whether or not sheep are especially susceptible of this affection, I have no hesitation in saying that they are. Those who know me best as a professional man, and who know what have been my advantages over many others—I take no credit to myself on that account—will, I think, feel that I would not be the first man to hoist the danger-signal, and that if I do hoist it, it is because that is necessary. I have hoisted the danger-signal with regard to sheep. I say that sheep have got the disease, and have got it as thoroughly established in their system as oxen. Mr. Harvey, of Norfolk, had 2,000 sheep at Crown Point. He bought a number of Irish steers at Norwich market, and the cattle and the sheep communicated together, the former having previously become infected with the disease. Within a short time 107 or 110 cattle died. Assuming that the sheep were susceptible of the disease—they were, he might observe, placed under favourable circumstances for its extension — what is the result? Up to the present time, out of 2,000 sheep at Crown Point, 1,400 have died; and the very fact that 1,400 sheep out of 2,000 have died in the course of a couple of months ought to be sufficient to convince persons who know anything at all about sheep diseases that this is not an ordinary affection. But I go further; and I say that we have taken the discharges from the eyes and nostrils of Mr. Harvey's sheep, and inoculated sheep in London with the matter, and we have produced the disease in the sheep so inoculated. Again, we can show clearly enough that the sheep were labouring under a contagious disease, and a contagious disease allied to the rinderpest. We have exposed cattle to the same sheep that were inoculated from cattle, and the cattle so exposed have taken the disease from the sheep by ordinary infection. With such facts before you, I do not see how you can doubt that my view of the disease of the sheep is a correct one. The case of Mr. Harvey's sheep is not an isolated one; there is also the case of the Blakeney sheep occurring within a few miles. A number of sheep were bought at Thetford, were sent to Blakeney, and took the disease with them, having been exposed to the infection previously. The disease was communicated to the cattle, and nearly all of them died in a few days. I might mention other cases which have occurred in Norfolk, Suffolk, and Essex. I will give you two in Essex—one being the case of a number of ewes, and the other of a lot of lambs. The ewes were bought in June in two lots—nineteen in one lot, and twenty in another, and a more healthy set of ewes a man could not look upon. I saw them again and again, and they seemed exceedingly healthy, and were worth 3*l.* a-piece. The cattle plague, however, was introduced on the farm by some bullocks that were driven. These cattle were put into a field adjoining a field of sheep, the separation being a gate-communication between the fields, and a low hedge. The result was that the disease spread from the cattle to the sheep, and at the date of the last report, out of 90 ewes 48 had died. The ewes were well managed. Two rams were put with them, and one of these also died. The other case was that of 147 lambs bought at Colchester. The disease manifested itself in them, and spread to the cattle on the same farm; and a great part of the cattle are now dead. Here, then, we have a free interchange of the disease between cattle and sheep, as the result of exposure and inoculation.

We now give a condensed report of the lecture of Mr. Woods, of Merton, on this subject. It is in a decidedly contrary sense to the above assertion of Professor Simonds.

Mr. Woods said: he had made some inquiry as to the symptoms shown by Mr. Harvey's sheep, and was satisfied from what he was able to gather, that there were great doubts as to whether it was the cattle plague which existed among those sheep. Mr. Harvey, at his suggestion, decided to ask a deputation of practical men to meet Professor Simonds and Dr. Letheby at Crown Point, and to take the opinion of the practical men on the state in which the sheep might be found. Mr. Harvey had provided for them at Crown Point a very sumptuous luncheon, and while this is proceeding he would ask the meeting to take a walk with him across Mr. Harvey's fields, and take a practical view of the state in which he found the lambs, and he would state the opinions enforced upon his mind by what he saw.

He must confess that he was very much struck when he found that 2000 sheep had been living together, folded together, and treated as one flock. If the management of practical men in this district, and he might say in every part of the county, was worth anything, the system adopted at Crown Point must have been wrong. There was a great quantity of coarse Grass, such as he felt sure no practical man would think of feeding lambs upon, and he found also that a great many of the fields, which were divided by iron fences, where the animals lay, were covered with excrement, which he had no doubt had lain there for a long time, and which, doubtless, created a very disagreeable effluvium that must have been perceptible to the organs of the lambs. There was another point with which he was particularly struck, and that was that there was a long road divided from the fields by a wire fence, and that road appeared as if it was a receptacle for the lambs, which were probably taken there every day to be trimmed or otherwise treated, and if there happened to be a shower of rain, he felt certain that that road must have been nothing more nor less than a complete cesspool of excrement mixed with rain. He found, too, that those animals, during the early part of the summer, had been fed in the park where they were then feeding, and it must necessarily be imagined that the fields in which so large a number of lambs had lain were considerably soiled with their excrement. After the rains of August, Mr. Harvey said there was a great flush of vegetation—the Grasses that had been dormant during the whole of the summer sprang up and produced a large amount of succulent food. He thought he need not ask any practical man in that room his experience as to the effect that succulent Grasses from fields that had previously been heavily fed with sheep must have produced on lambs, for many of them had seen it, and they all knew that it must be highly injurious. It should also be understood that those animals had no artificial food given to them—they had nothing but what the park produced, and that, as he had said, was of a very succulent character. There was no change of pasture, and no change of food. He thought, consequently, that those he was addressing would say, that even in what he had already stated there was quite sufficient to produce a disease similar to what many of them had seen in their flocks before. But there had come to his knowledge one important fact connected with the flock at Crown Point which had never yet appeared before the public, and having heard it incidentally it was only by considerable care that he was able to arrive at its truth. They all knew that when lambs had been living on dry and bare pastures, when probably some feverish state of the system was produced, the very last thing they would think of doing would be to allow them an unlimited supply of water. Their experience told them that their great aim and object when their lambs in hot weather had been kept long without water was not to let them run to it indiscriminately, if they let them have it at all. But he had ascertained that during the hot month of August, and about a week or two before the disease broke out, Mr. Harvey's lambs broke away from the shepherd more than once or twice, and got down to the Thorpe river, where they not only drank the water, but rushed in, many of them going overhead, and a great many over their backs; the consequence being that they not only suffered from the effects of drinking the water, but also from the chill that must necessarily have been produced to the system by their immersion. But let the meeting listen to the account of the kind of water they had to drink:—

"The river near Crown Point is, in the summer months, very foul, and the stench sometimes is very bad for a mile lower down the river. The surface of the water is sometimes covered with a thin coating of the refuse thrown into this river, which I have seen skimmed off to prevent the stench."

He had also received from Mr. Harvey that morning a letter, from which the following was an extract:—

"In reply to your note, it is very possible my lambs drank the river water, which has the sewage of Norwich emptied into it, as they were frequently by the river side, and it is true the river is sometimes so offensive it is difficult to be there without being sick."

He would ask those whom he was addressing whether as practical men they would think it right and judicious—whether they did not think it would produce consequences of which they would be very much afraid, if they were to allow their flocks to drink such water as that? But it did not stop there, for he had ascertained as a fact that during three months the lambs frequently broke away to a small pond near Crown Point, which was nothing more nor less than a complete mass of animalculæ, and whether this could be beneficial to lambs or not, his own experience was not sufficient to say, further than that he thought it must have been decidedly wrong to have let the lambs have that water. He now came to another point to which he must call attention. They would have read that at the meeting of Saturday week, Mr. Forrester admitted that the treatment of the lambs was decidedly wrong, and such as no practical man would think of following without expecting that it would produce something like 15 or 20 per cent. of deaths under ordinary circumstances; but when he found the percentage came to 50 or 60 he held that there must have been something more than common, and that to all intents and purposes it must have been cattle plague because so great a number of the lambs had died. Now he joined issue with Mr. Forrester on this. He contended that the greater the number of sheep there were together, the greater the loss they were liable to. To meet this point of Mr. Forrester's he would ask them to allow him to tell them that Mr. Palmer, of Foulmere, lost 55 lambs out of 107. Now, what he would ask was this: If Mr. Palmer had had 2000 sheep in one lot instead of 107, what would have been the proportion he would have lost, the sheep having all the advantages of change and everything that could be given to them? [Mr. Woods then referred to the case of other flocks, in which the mortality had been even greater per cent. than that in Mr. Harvey's flock.] Another point to which he wished to call attention was this. He (Mr. Woods) had it on the strongest possible evidence, and that was from Mr. Harvey himself, in his own handwriting, that 11 lambs sickened and died before a single bullock was taken ill.

He would now ask them to listen attentively while he read a description of the appearance of the disease among the Crown Point sheep, as stated by Dr. Letheby in his letter to the *Times* of the 27th September. He wished attention to be paid to this, because he should read other people's descriptions of the symptoms among their lambs, and ask them whether they did not see a strong similarity. Dr. Letheby said:—

The symptoms which I observed during my visit to-day were the following:—The animal at first appears to be somewhat feeble in its gait; it also looks heavy, and stands with drooping head and ears. Its appetite fails, and it shows signs of severe febrile action by the heat of the head and ears, and by its seeking the shade and running to the water to drink. At this time a discharge begins to flow from the eyes and nose—the discharge being very limpid and colourless like water, not purulent, although there are occasional patches of ulceration about the nose from the irritation of flies. There is some difficulty of breathing, and the respiration is panting, and the animal moans as if in pain. Diarrhœa also occurs, but the discharge is never tinged with blood, as in the case of cattle, but is of a thin gruel-like consistence, and is of a pale greenish yellow colour.

The next description of the symptoms he should read was that given by Mr. Pitts, of Starston:—

Dulness and drooping, loss of appetite, appearance of pain, coughing, sinking of flesh, discharge from eyes and nose, and thin flux.

Mr. Robinson, of Oakley Hall, near Bishop Stortford, described the symptoms thus:—

Deadness of coat, loss of appetite, hanging down the head and ears, extreme weakness, excessive thirst, and scouring.

Mr. Nelmes described the symptoms among the eight flocks in Monmouthshire as follow:—

Refusal of food, drooping ears, dull appearance, violent discharge from the nose, shortness of breath, rapid sinking of flesh, scouring, and appearance of pain; coughing, the more violent when disturbed.

He had received several other descriptions of a similar character. He wished the meeting to refer to the description given 30 years since by Mr. Youat of the symptoms shown by lambs with inflammation of the lungs, and they would find that it corresponded in almost every particular with the description given by Dr. Letheby, as noticed in Mr. Harvey's sheep and, with some little difference—allowing for each gentleman's power of description—with the symptoms shown by each of the flocks of sheep to which he had just referred. This testimony showed clearly enough that the disease of which he was speaking had been a recognised disease 30 years ago, the symptoms then being the same as now.

He would now return to the learned professors and agricultural gentlemen whom he had left at luncheon with Mr. Harvey, and proceed with them to the *post mortem* examination of the dead lambs, a considerable number of which lay about. Now, with respect to the *post mortem* appearances in the lambs at Crown Point there was nothing particularly remarkable in the first two or three cases. There was great inflammation of the viscera, extreme congestion of the lungs, and the livers were diseased. As to the lungs, they were what in medical phraseology is termed hepatised, which meant that they would readily sink in water. It should be understood that there were two or three shepherds there, and they had, on their own account, opened one or two lambs, and there saw distinct spots, which the learned professors afterwards made so great a matter of. The practical gentlemen were inclined to have produced evidence, and to discuss, not only the question of the *post mortem* appearances, but as to what was the general condition of the sheep; but from some cause or other, best known to the other gentlemen, they declined, and thus ended the meeting at Crown Point. The great point that was made as to any significant and marked proof of the lambs having had the rinderpest was, so far as he could see, that they had these spots on the fourth stomach. There was not one lamb examined after death at Crown Point but its lungs were more congested than he had ever previously noticed to be the case either in sheep or other animals, and the lungs of the animal that had the spotted stomach were more congested than those of either of the other animals. If, therefore, it was a feature that cattle with the rinderpest had healthy lungs, assuming that the sheep also had rinderpest, it was a direct reverse of that feature to find that they had unhealthy lungs. They had been told lately that the lungs of hoggets were more susceptible of disease than those of beasts. But was this the fact? He asked those whom he addressed, as practical men, to say whether they had not seen and heard, in their experience, of 25 per cent. more of cases of lung disease in cattle than in sheep. It was a strange and startling fact, that in the two days following the meeting at Crown Point, Mr. Rising had a sheep taken with a disease the symptoms of which were similar to those observed at Crown Point. Mr. Smith examined the carcase of that sheep, and found unmistakeable evidence of those spots on the stomach; and yet there was no cattle plague on Mr. Rising's farm, nor had any been known to be in the neighbourhood. Consequently, if that sheep had the cattle plague, the cattle plague must be an epidemic, because the disease was not taken by infection or contagion. He would now read what Dr. Letheby said was the immediate cause of the death of Mr. Harvey's sheep:—

The immediate cause of death in the sheep is extreme congestion of the lungs, amounting in many cases to hepatisation. This is a constant *post mortem* sign in the sheep, and is rarely or never seen in the cattle plague.

[A large number of cases were then quoted of sheep dying with similar symptoms on farms where there was no cattle plague.]

After the *post mortem* examinations, some objections being taken by practical men to the conclusions arrived at by the medical gentlemen, it was determined that there should be a trial of sheep at Crown Point, and he believed it was decided at a meeting of the Cattle Plague Association that there should be 40 sheep taken from what were considered the best of Mr. Harvey's lot, though when they wanted out of that lot to find a healthy lamb to make an experiment upon for the satisfaction of the professors, they confessed they could not find one. This showed that the whole of them were more or less in an unhealthy state. Twenty were to be taken from animals said to be convalescent; 22 were to be taken which were nearly dead, and 20 more to be bought, and if he was right they were to be good, strong, healthy, well fed lambs, and there were to be 10 of Mr. Read's shearlings. Let them now see what the treatment of these sheep had been. Mr. Harvey's sheep were taken from Grass land, they had been running on a wide space; and Sir Thomas Beauchamp's sheep—and he had this from Sir Thomas Beauchamp's agent—had been running in his park, and on new layers. Those sheep were placed in a small fold, upon black land, and young growing Turnips were given them to eat. They were not allowed to run out as flockmasters were in the habit of letting their sheep do when the lambs were put on Turnips. He believed all flockmasters trained the lambs to eat Turnips for three weeks or a month before they regularly put them on that food, for fear they would be killed outright if put on to Turnips all at once. Then the Turnips given to the sheep were such that he was quite sure they would kill any lot of sheep. Consequently the meeting must feel, as practical men, that the trial was not only a trial whether the animals would take the disease, but a strong trial as to whether or not they would live under such treatment. The result which he had received up to that morning was as follows:—From Mr. Harvey's best lot of 40, 12 had died; from the 20 said to be convalescent, seven had died; from the 22 nearly dead, 13 had died; from the 20 of Sir Thomas Beauchamp's, three had died; and the 10 shearlings of Mr. Read's were all well. The two last named lots had been with the affected animals since the 10th of October, and only three of Sir Thomas Beauchamp's had died; while the whole of Mr. Read's shearlings—the five that were put in the field with the infected animals, and the five that were put in the park with the infected animals—were all living and doing well. He went to Norwich, and learning that there was to be a committee of medical gentlemen to make a *post mortem* examination of that animal and of the animal that was said to have died from inoculation, he felt it his duty to be present and see what took place. He was present, and he would say that the *post mortem* appearances of Sir T. Beauchamp's lambs were these:—It had consolidated lungs, terrible inflammation of the viscera, great emaciation of frame, and there were clear and evident specks of what were called the cattle plague; but when they came to look into it, it was admitted by the medical gentlemen on all hands that it was a diseased animal when it went to Crown Point, and had not died from cattle plague. Let them look, then, at the sequel. If the sheep did not die from cattle plague, what could the medical gentlemen say about the spots with which the fourth stomach was covered, and which were like the spots found in the animals they said had died of cattle plague at Crown Point? With regard to the sheep that had been inoculated, the *post mortem* appearances were similar in some respects to those of the other animal, except that there was an absence of any spots on the fourth stomach. The mucous lining of the stomach was certainly thicker, but there were no spots. Had it died from inoculation? He had no hesitation in saying it had not. He would now give them some very strong and positive evidence in direct contradiction to what the medical committee had set forth.

[Then follows testimony from Glasgow, Edinburgh

and Watford, on the failure of prolonged attempts to communicate the plague to sheep].

He would now turn to Mr. Harvey, who, they learnt, had 550 sheep left that were doing well, but that was chiefly because Mr Harvey had an intelligent shepherd, who knew how to treat sheep, and not only gave those sheep change of food, but gave them highly nourishing food. He (Mr. Woods) had heard that Mr. Harvey had been advised to slaughter the whole of his flock when they were first seized, and when he had something like 1800 or 1900 lambs on his farm. In Wiltshire, one flock was slaughtered chiefly because the sheep were suffering from a disease like that at Crown Point; but Mr. Harvey, with a nobleness of conduct that did him infinite credit, and for which he deserved the hearty thanks of every flockmaster in England, determined not to spread the panic, but to see it out. Count Nesselrode, a Russian nobleman, and an extensive landed proprietor, was staying at Merton Hall, and had authorised him to state to that meeting that in 1861 he lost the whole of his large herd of cattle from rinderpest. He had at that time 10,000 sheep running on the same land with the infected cattle, but not a single sheep was attacked with the disease. Count Nesselrode had entirely given up keeping cattle in consequence of the rinderpest, and kept sheep only, for it was found that they did not take the disease, although it had been tried to be made out that there had been cases of rinderpest; but it was always proved to have arisen from improper feeding and management. Science had done much for agriculture, and might do much more; but it had made many mistakes, and one among the number that would take the first rank was the endeavour to persuade the public that the rinderpest existed among the sheep at Crown Point.

The following is the letter of Dr. Wood of Edinburgh to Mr. Woods on] the experiments in the Sanatorium there:—

"The experiments as to the sheep and the rinderpest to which you allude were these. We placed eight sheep of different breeds in the sanatorium, where there was a constant succession of rinderpest cattle. The sheep for fourteen or fifteen hours out of the twenty-four were shut up in the sanatorium. The remaining time they were allowed to graze in an adjoining field. While in the sanatorium they had free scope to move about through all parts of it, and were exposed to the exhalations from the diseased cattle and from the droppings, which I believe to be highly contagious. For three weeks the experiment was carried on—at the end of that time the sheep were as healthy as when the experiment began. This seems to prove that if sheep are liable to take the contagion of rinderpest, which I doubt, at all events they cannot possibly be susceptible of it in any rate like that which has regard to the infection of healthy cattle from diseased cattle—a most virulent contagion, the most virulent indeed known to me. The sheep thus experimented on have been turned out to graze in a field with four or five healthy cattle. They have run together for, I think, about 10 days. The sheep still keep well; the cattle have not become affected. It would seem, therefore, so far as the experiment has yet gone—evidently not far enough as yet, however—that sheep do not readily carry the contagion of rinderpest by means of their wool. With regard to the question you put as to the state of the lungs after death in bullocks which have died of rinderpest—in a certain proportion we have found, combined with pure rinderpest phenomena, the pathological appearance found in cases of pleura. But in general, though there be congestion and redness of the bronchial passages, there is not consolidation or hepatization of the lungs. In the rinderpest, too, the blood is preter-naturally black, and though sometimes fluid, perhaps oftener firmly coagulated."

[We very much regret having been forced to cancel so large a portion of Mr. Woods' very interesting lecture.]

THE CATTLE PLAGUE.

THE following is the first Report of the Commissioners appointed to inquire into the origin and nature, &c., of the Cattle Plague, dated October 31, 1865:—

TO THE QUEEN'S MOST EXCELLENT MAJESTY.

Your Majesty was pleased, by your Commission dated the 29th day of September, 1865, to intrust to us the task of investigating the origin and nature of a disorder which now prevails among the cattle of Great Britain, and is generally designated the Cattle Plague, and of ascertaining as far as possible the mode of treatment best adapted for the cure of the affected animals, and the regulations which may with the greatest advantage be made with a view to prevent the spreading of the said disorder, and to avert any future outbreak of it. Your Majesty was at the same time pleased to ordain that we, or any five or more of us, might have liberty to report to you our proceedings under the Commission from time to time, should we judge it expedient to do so.

The terms of the Commission therefore authorise us, if we think fit, to report specially to your Majesty on any part of the subject committed to us, reserving other parts of it for further investigation. The nature of the calamity under which England and Scotland are at present suffering, and which may at any moment attack Ireland, the extensive growth of the disease, its destructive character, and the imperfect success which has hitherto attended all endeavours to arrest its progress, make it clearly our duty to take this course, and to lose no time in humbly presenting to your Majesty such recommendations as, after careful consideration, we believe the emergency to require. We shall introduce them with a brief statement on the history of the disease and on its general character.

I. RECENT ATTACK.

The disease which is the subject of this inquiry was first observed and recognised in Great Britain towards the close of the month of June.

Two English cows had been purchased on the 19th of June in the Metropolitan Cattle Market by a cowkeeper residing in Islington, in whose sheds they were when the symptoms of disease attracted, on the 27th, the notice of the veterinary surgeon in charge. Similar symptoms were observed on the 28th by the same surgeon in a cow belonging to a dairyman in Hackney, which had been purchased in the same place and on the same day. Two Dutch cows in a Lambeth shed, likewise bought in the market on the 19th, were attacked on the 24th. The malady broke out immediately afterwards in many London dairies, and spread with extreme rapidity, destroying great numbers of animals. The Islington cowkeeper lost her whole herd of 93; she afterwards bought more, and lost them also, making 106 or 107 in all. An inspector who had charge of a great part of the north and north-east of London states that in his own district more than 4-5ths have either died or been slaughtered, and the general average within the precincts of the metropolis is probably at least as high. Very early in July it appeared in Norfolk; a little later in Suffolk and Shropshire; then in one county after another, and before the end of the month it had invaded Scotland. In all the earlier cases at least, it seems to have been directly traceable to purchases made in the Metropolitan Market; but Norwich Hill and other country markets speedily became, in their respective districts, subordinate centres of infection. On the 14th of October it had extended into 29 counties in England, 2 in Wales, and 16 in Scotland, and was still advancing.

The subjoined tabular statement, prepared by the Veterinary Department of the Privy Council Office from such official information as that department has received from inspectors throughout the country, has already appeared in the public papers:—

—	Attacked.			Total cases reported from the commencement of the Disease.				
	Week ending October 14	Week ending October 21.	Week ending October 28	Attacked.	Killed.	Died.	Recovered.	Remaining.
1. Metropolitan Police District	158	194	158	5773	2557	2529	202	485
2. South Eastern Co.	225	154	205	3284	1169	1667	197	251
3. South Midland Co.	73	94	230	833	373	282	42	136
4. Eastern Counties..	141	183	335	3081	1051	1482	161	387
5. South Western Co.	17	11	3	116	51	45	7	13
6. West Midland Co.	31	9	31	214	74	112	4	24
7. North Midland Co	8	32	18	109	54	41	6	8
8. North Western Co.	28	39	4	176	55	75	6	40
9. Yorkshire	26	39	112	253	66	126	11	50
10. Northern Counties	47	86	34	472	212	201	24	35
11. Monmouthshire & Wales	45	60	33	180	51	110	4	14
12. Scotland	257	828	666	3182	1153	1241	184	604
	1054	1729	1873	17 673	6866	7912	848	2047

It must be remarked, however, that such statements as this cannot be accepted as accurate accounts—which, indeed, they do not profess to be—of the real state and progress of the disease. They represent such cases only as the several inspectors have been able to detect since they were respectively appointed. But information reaches the inspector indirectly, by accident, or by common report; and a butcher, jobber, dairyman, or farmer has strong motives for not disclosing to the inspector anything that he can easily hide. We were told by a London cowkeeper that, of 41 cows which died or were slaughtered on his premises, the inspector got only the knacker's receipt for the 11 that actually died of the disease. It must therefore, we fear, be assumed that the cases reported form but a small proportion of those which have actually occurred; and it would be unsafe to draw from them any inference as to the amount of loss actually incurred by the plague.

Meanwhile, from the same general centre, the Metropolitan Market, it appears to have crossed the sea to Holland with some Dutch oxen which had been shipped from Rotterdam to London, had been exposed during three successive market days, and, not finding a sale at an adequate profit, had been reshipped from London to Rotterdam. The disease broke out among them soon after their return, when they were pasturing at Kethel, near Schiedam, in a long strip of meadow, on which other strips abutted, each occupied by stock. It spread at once in many directions, and soon overran the whole province of South Holland, and thence, we believe, it has been from time to time reimported into this country. The measures adopted in the Netherlands seem to have been at the outset less stringent than was desirable; too much discretion was left to the local authorities; but the provinces of North Holland, Utrecht, and Guelderland have, by strictly guarding their respective frontiers, protected themselves in a great measure from the contagion.

In both France and Belgium importation from England has been prohibited, and stringent and minute regulations have been issued by the Government of each country with a view to extinguish the disease wherever it might break out. These measures appear to have been successful. Only a few isolated and somewhat doubtful cases have been hitherto reported from each of these countries.

Twenty-three days at least before the first outbreak in London, a parcel of Russian bullocks, the first, it is asserted, that were ever brought direct from that country to England,* were sold in the Metropolitan Market by the importer, a London cattle salesman. They had been shipped at Revel and landed at Hull; part of them had there been sold, and sent to various places in the north of England, and the rest despatched to London. The southern provinces of Russia are, if not the birth-place, the constant home of a disease which, as we shall hereafter show, is identical with the cattle plague, and to this cargo the introduction of the plague into England has been often and confidently ascribed. Some obscurity hangs over the earlier history of the transaction. That the province of Esthonia, where the cattle were contracted for, and where the bulk of them, at least, were collected, was at and before the date of shipment free from the plague, is certified by authority which we should be reluctant, and indeed have no ground, to question. But it is alleged by the importer's agent, who procured and shipped the animals and had charge of them on the voyage, that a few (13 out of 321) were not Esthonian, but part of a larger lot brought in vans from the neighbourhood of St. Petersburg to make up the number required; and he further alleges that out of this lot two were ill at Revel with a disease which he believes to have been the cattle plague. This part of his story is flatly contradicted by his principal, as his assertion that the animals were not examined on landing is by the Customs' inspector at Hull.† It must be added that he does not know the disease otherwise than by description; that of the 321 imported none appear to have shown any signs of disease, except one, which was ill on the voyage, but looked well when it reached London; and that no animal is proved to have contracted the disease in the Metropolitan Market from the 1st (the date of its supposed introduction) to the 19th (that of its supposed transmission to the Islington, Lambeth, and Hackney cows), a negative circumstance of no great weight, since an early case of the malady may easily have been mistaken for one of pleuro-pneumonia, but not to be left out of consideration. The facts, then, though by no means inconsistent with the theory which attributes the appearance of the plague in England to the Revel cargo, fall far short of establishing that theory, unless we assume that the event cannot possibly be accounted for in any other way. Further inquiry may throw new light on the question. At present we are not able to pronounce a decided opinion on it; nor, for the practical conclusions which we are about to offer, is it material on which side the truth lies.

Another explanation has been suggested in the following extract of a letter from her Majesty's Consul-General at Hamburg:—

"Mr. Schrader, an intelligent veterinary surgeon, who is specially employed by the Hamburg Government to examine cattle and sheep shipped for foreign ports, has informed me he thinks it most probable that the murrain has been introduced into England by importation from Holland. He states that in the course of the last spring a considerable number of Hungarian cattle were conveyed from Vienna into Holland through Germany by land carriage and river navigation; that at the same time the rinderpest had broken out in the neighbourhood of Vienna, particularly in the village of Florisdorf; and that in the month of May a number of cattle at or near Utrecht in Holland had been attacked by it. Although, therefore, the murrain in Holland broke out with much greater violence at a later period of year, it would be quite possible that it passed from the Dutch ports into England so early as the month of May last. With respect to the rumour of diseased cattle having been imported into England from the Russian port of Revel in Esthonia, either directly or by way of Lubeck, no credit is attached to it here; and, indeed, the great distance of Revel both from Great Britain and from the cattle districts in Southern Russia seems to render it unlikely that diseased cattle should have reached England from that port without any observation."

One fact mentioned in this letter, and which has also been elicited in evidence, deserves particular attention, since it is of more than historical importance. Hungarian and Galician cattle now undoubtedly come in considerable numbers to the English market. "Large quantities," says one dealer, "are sent every week." Hungary and Gallicia, from their neighbourhood to the steppe country of Russia in Europe, are often attacked by the plague, and Hungary, at least, has suffered severely from it during the present year. The completion of the two great lines of railway which, traversing Central and Southern Germany, now connect Hamburg and Rotterdam with both Vienna and Lemberg, have opened to us these new supplies. Respecting the average duration of the transit we have no precise information, nor do we at present know how far it may be abridged in particular cases, nor by what regulations it is guarded at the beginning or end of the journey. We may have occasion to recur to this point hereafter; at present we advert to it only as suggesting a possible solution of the question how the cattle plague reached England.

II. FORMER ATTACKS.

That the disease in question is contagious, that the contagion is extraordinarily swift and subtle, and that it is most destructive in its effects, there can be no doubt whatever.

The manner in which it has spread, travelling perceptibly, for the most part, in the track of animals brought from some centre of infection, and establishing a new centre wherever it has been suffered to effect a lodgment; the very difficulty that has been often found, even where the fact of infection was certain, in tracing the exact means by which the infection was conveyed; the havoc it has made in open pastures not less than in the London cowsheds, and against which fresh air, wholesome food, and careful tending seem to have afforded no defence, would be quite enough to establish these conclusions, even if no light were thrown upon them by past history or by the experience of other countries. Of the witnesses, indeed, whom we have examined, even those who believe it to have been spontaneously generated here acknowledge that it is contagious, and, with hardly an exception, admit that it is new in England.

But we see no reason to question the evidence which has been produced before us, proving that it is the same disease as that which has been long known under the name of the rinderpest (cattle plague), or steppe murrain. The symptoms during life, the results of *post-mortem* examination, and the whole train of general characteristics are precisely the same, or varied only by such minute shades of difference as we might expect to find in different breeds and climates. A comparison of what we see with the full descriptions contained in foreign medical works leaves on this head no doubt at all; and no doubt is entertained by competent and trustworthy witnesses who have had and used opportunities of personal observation both here and abroad. The whole experience gained of it in countries where it is not, as here, a stranger—countries frequently infested by it, where its effects are perfectly well known, its nature has been carefully studied, and the strictest measures have been devised and are enforced by law to detect and extirpate it as often as it crosses the frontier, becomes, therefore, at once available for our guidance. These measures are wholly based on the view that the disease propagates itself by contagion, and by contagion alone, and the extreme stringency of them proves in the most forcible manner the virulence and activity of the evil which they are designed to keep at bay. They are measures indeed which never could be enforced,—they involve sacrifices to which no people could be reasonably asked to submit—unless in the presence of a dreaded enemy and under a sense of overwhelming necessity. The same view is, we believe, universally held among the eminent veterinarians of Germany, men of high education and intelligence, and it has recently been endorsed by the Congress of veterinary surgeons held at Vienna in August last, which was attended by members of the profession from almost every country in Europe.

This is not, however, the first time that this plague has visited England. Fatal murrains among cattle, analogous to, if not identical with it have at various times appeared here. In 1348–9, after the black death had produced great mortality among men, a grievous plague attacked cattle, which perished by thousands. A great rise in the price of food followed, notwithstanding an abundant harvest. The diseased cattle were slaughtered, and infected herds were as much as possible separated from those which were sound, while the herdsmen who attended the former were not allowed to come in contact with the latter. About a century later, in 1murrain of the same kind committed great devastation. There is no accurate account of the symptoms exhibited by cattle attacked during these murrains, and we are therefore unable to ascertain whether they were different from or identical with the present disease; but there is every reason to believe that the distemper which in 1715 made a brief inroad but was promptly expelled, and which in 1745 renewed the attack and held its ground till 1757, was exactly the same as the present plague. Of this we have proof in the descriptions extant of the symptoms then observed, and of the morbid appearances after death. In a paper communicated to the Royal Society in January, 1746, by Dr. Mortimer, he ascribes the origin of the murrain to two calves imported from Holland by a farmer living near Poplar, early in 1745. The spring and summer had been very wet, the autumn dry and cold, the early winter cold and damp. The disease communicated to the cows of this farmer spread through Essex, reached London, and was propagated in various directions from the metropolitan markets. It entered Berkshire, however, by two cows bought at a fair

* A copy of an entry from the books of the London Custom House has been sent to us, from which it would appear that 20 Russian oxen were landed at London from St. Petersburg on the 4th of July, 1860. The point is of no importance.

† It is proper to add that we have been furnished with the original certificate, dated the 29th of May, and signed by the two veterinary surgeons who were charged with the examination of the cargo, that they had examined it, and that it was sound and free from disease, as well as with a subsequent declaration by them to the same effect.

in Essex. Almost simultaneously with its appearance in London a violent distemper broke out among the horned cattle of Argyllshire, sweeping off 4000 beasts; but there is no exact information as to the nature of the Scotch murrain. The disease for some time advanced in a manner which appeared to justify the Government in treating its attacks as mere local outbreaks, and it was nearly a year after its first appearance that the country became sufficiently aroused to use national measures for the repression of it. But by this time it had taken too deep root for these to be effective. A commission for Middlesex was appointed on the 7th of November, 1745. The Commission, with the short experience of 1715 to guide them, appointed various cowkeepers and butchers as inspectors of cattle, and instructed them:—

1. To inspect cowhouses and to separate sick from sound cows.

2. To see that all cowhouses and yards were kept thoroughly clean.

3. To kill all sick cows and calves, to slash their hides so as to render them useless, with several cuts from head to tail and round the body, and then to bury them in graves 10 feet deep, with two bushels of unslacked lime to each cow.

4. To certify to the destruction of cows, for each of which the Treasury gave 10s.

5. To see that proper returns were made by cowkeepers as to their losses.

The disease having spread beyond Middlesex, an Act was passed and received the Royal Assent on the 13th of February, 1746, empowering the Crown to issue, through the Privy Council, rules and directions in order to prevent the distemper spreading among horned cattle.

On the 12th of March, 1746, an Order in Council was passed in which the incurable nature of the malady is set forth, and the following regulations appear:—

1. Cowkeepers must slaughter infected beasts, and bury them entire, with slashed hides, 4 feet deep, covered with lime. (The direction as to the use of lime was subsequently revoked.)

2. All hay and litter used by diseased animals must be burnt. No herdsman who has attended a diseased beast is to go near a sound one without changing his clothes.

3. Infected sheds must be thoroughly washed all over, then disinfected with burning sulphur, &c., again repeatedly washed with vinegar and water, and not used for two months.

4. Convalescent animals are not to be mixed with sound ones for one month, and not then till they have been well curried and cleansed with vinegar and water.

5. Flesh and entrails of diseased cattle are not to be given as food to other animals.

6. No man whose herd is infected is to be allowed to drive any cattle, whether diseased or not, beyond the boundary of his farm; and, even when disease has disappeared, his herd is to be held infected for a month.

7. Local authorities, such as churchwardens, overseers, constables, or cattle inspectors (who may be appointed), are charged to see the execution of this order. They are to report to each meeting of justices and make exact returns.

8. These local authorities are to persuade owners to divide up their herds into separate parts; they are not only to see to the burying of diseased cattle, but also the burial of all infected dung.

9. Cattle travelling on roads are to be stopped and examined.

10. Horses, buildings, or yards used for cattle, sound or diseased, are to be carefully kept clean.

11. Compensation for slaughtered cattle is to be paid at the rate of 4½d. per head; for calves, 1½d.

Towards the end of the year the Government found that the local authorities had not assisted them vigorously in the execution of the first order, and they issued a second to the effect, that from the 25th of December for three calendar months no person should send to fairs or market any cattle except for immediate slaughter, or "buy, sell, or expose to sale" any cattle except those which are ready for immediate slaughter. Nor is this privilege of selling fat cattle permitted to any one whose herd is infected. Therefore all beasts going to fairs or markets must be provided with passes from a justice, or, failing him, from other competent local authorities, given on the owner's oath that his cattle are and have been for a month free from the plague.

No raw hides shall be sold or allowed to be transported without like passes, but hides and horns of diseased beasts must absolutely be destroyed, and a compensation of 1½d. per hide is given.

A third Order in Council was issued, proscribing the district from the Humber and Trent, and not allowing cattle to be driven out of it northwards from the 25th of December, 1747, to the following 25th March.

On the 13th of February, 1747, an Act to amend and extend the powers of the previous Act was passed, and this was followed, up to 1755, by various continuing and enlarging statutes. In addition to the measures before specified, these statutes also provided that sales of cattle should only take place when the seller had had them in his possession for 40 days; calves were not allowed to be sold, in order that they might be preserved for breeding purposes, and severe restrictions were put on the sale of the hides of diseased animals.

Various orders were issued during the year 1747, stopping local fairs and empowering local authorities to do so when they found it expedient.

The plague, in consequence of these orders, was extinguished where the local authorities acted with vigour, but lingered in other places, whence it spread after a time as rapidly as ever. In consequence of this, in September, 1747, there is a new suspension of all fairs and markets and of all movements of cattle, except for slaughter, throughout the kingdom for three months. This was modified afterwards, sound lean cattle being allowed to be changed on clean pastures, and cows being allowed to go to bulls when both were sound.

The same result followed this new order as the predecessors. The disease was extinguished in many districts, but lurked in others where the local authorities had been lax in taking after the execution of the order. Hence, in December, 1749, the Council admits its failure in putting down the disease, and now again prohibits all movements of cattle except for slaughter, and the place of slaughter must be within two miles of the spot where the cattle are on the 14th of December, 1750.

The requirement that cattle should be slaughtered only within two miles of their stands was found very grievous by London and Westminster, and the outcry raised against it by these influential places produced a revocation of it within a month of its use.

"Unfortunately," says Mr. Youatt, "in this well-known work, the restrictions with regard to the sale or removal of cattle and communication between different districts were so frequently evaded that it was either impossible or impolitic to enforce the penalties." (Youatt, "Cattle, their Breeds and Diseases," p. 99.) The system of compensation was carried on for some years, until the Government found it produced serious frauds. Every animal that was ailing, or had diseases of any kind, was killed and charged to the Government as having died by the plague, and in consequence of these frauds compensation was abandoned. One cause of the ill success of the repressive measures adopted in these decrees is in the words of Layard, who, writing over a [illegible] ago,—"The disease, being local in a manner, started and only breaks out now and then in small places where, for want of proper cleansing after the infection, or carelessness in burying the carcasses, the putrid fever is still preserved, and is ready, at a proper constitution of the air, or upon being uncovered, to disperse such a quantity of effluvia that all the cattle which have not had it will be liable to infection."—(Layard, "The Distemper among Horned Cattle," p. 39.)

For some time after the revocation of the Order of 1747 each county proscribed neighbouring infected counties, and refused to receive their cattle. The roads from the county to the town were strictly guarded, and cattle hides, carcases, and tallow from any infected counties were carefully excluded. These measures, however, had but a very partial effect. Cheshire lost in the first half of 1757 and three months of the preceding year about 70,000 head of cattle, and many other counties in proportion. For the next two or three years this local war against the disease was allowed to be waged, the Government occasionally interfering when the magistrates permitted fairs in places likely to be injurious to neighbouring counties. It continued up to 1764 with considerable variation, the plague being intense in some counties, milder in others, and absent from many, until it wore itself out. There is no accurate record within our knowledge of the mortality produced by it. In the third year of the attack, 30,000 head were slaughtered under the Orders in Council, and a far larger number perished by the disease. During its course it must have destroyed several hundred thousand cattle.

There was some dispute as to the means by which England received its infection in 1715 and 1745, but it is certain that the plague was raging in different parts of western Europe at that time. Wherever during war Russian and Austrian parks of cattle followed the movements of armies, the cattle plague appeared, and spread gradually to the adjacent countries. France in this way received it at least half a dozen times in the last century.* From 1711 to 1714 foreign authors state that western Europe lost 1,200,000 head of cattle by the plague, while from 1745 to 1748 (a period which includes three years of the great English attack) 1,500,000 are are believed to have perished in western and central Europe. These figures are probably not exaggerated, considering the great losses sustained by particular States. Thus the Dutch [illegible] in the four years from 1745 to 1749, lost 200,000 head, and Holland, in the three years beginning with 1746, lost 311,000 head. These disasters attracted the attention of Governments and scientific men, and the long peace which began in 1815 permitted the adoption of those careful and systematic measures of prevention which, in the countries bordering on Russia, have been maintained ever since with various modifications, and, on the whole, with numerous success. It was ascertained that Europe usually received the infection through Russian steppe cattle sent into Poland and Hungary. These cattle feed in vast numbers on the luxuriant herbage of the steppes in the Russian provinces watered by the lower part of the Dnieper and its tributaries. Large herds of them are annually driven to different parts of Russia, to Poland, Galicia, and Hungary, and often carry with them the seeds of disease in their train. In 1862 the number attacked by the plague in the Austrian dominions was [illegible], of which 1[illegible] died. In 1863 it again revived and [illegible] not only Galicia, but the whole of the kingdom of Hungary and its dependencies, the Bukowina, Dalmatia, Carniola, Lower Austria, Moravia, and Styria. Fourteen per cent. of the cattle in these countries took the infection, and the average mortality, as stated in Schmidt's "Jahrbuch der Gesammten Medicin," 1865 (p. 96), was as follows:—

	Per cent.		Per cent.
Hungary	[illegible]	Moravia	[illegible]
East Galicia ..	[illegible]	Lower Austria ..	[illegible]
Croatia and Slavonia ..	81.6	West Galicia ..	[illegible]
Military Frontier ..	83	Bukowina and Styria ..	1[illegible]

It should be added that the number attacked in the last two provinces was small.

III. Description of the Plague.

Our present experience, then, our past experience, and the experience of foreign countries, concur so far as they respectively go; they identify the English plague of 1865, the murrain of 1745, and the rinderpest of Eastern Europe, as the same disease, and they yield some clear and well ascertained results, which may be briefly stated as follows:—

The cattle plague is, in the language of medicine, a specific disease, belonging to the class of contagious fevers. The contagious matter is subtle, volatile, prolific in an unexampled degree. It is conveyed in a most virulent form in the excretions from the diseased animal. Any portions of those excretions may serve as a vehicle for it. We know not the limit of time within which it may preserve itself from them, nor to what distance it may not be diffused. It may travel, we know, in the hide, horns, hoofs, and carcasses of the dead animal; the offal, therefore, is highly dangerous. It lurks undiscovered in the system for a period about which some difference of opinion exists, which certainly is not less than five days, usually seven or eight, but appears to be more prolonged in some cases. Towards the end of this period of incubation, but at what precise point we do not know, it becomes capable of diffusing itself by contagion. A diseased animal may, therefore, be infectious before it shows any signs of disease, or, at all events, before the malady betrays itself to any but a very clear and very critical observer. The proportion of cases in which it is fatal is extraordinarily large. No specific has been discovered which neutralises or expels the poison; judicious treatment may have a contrary effect; but that is all. The point that remains, therefore, at which foreign governments and foreign Governments have arrived,—the conclusion that it is better a priori to kill a diseased animal, by a few thousands, where by so doing you can kill an infected germ of disease, instead of suffering that germ to linger and to spread, while you are attempting a cure, for the precarious prospect of an insignificant saving to [illegible], is fully justified by experience, which shows that, when the plague propagated from a single germ, speedily becomes unmanageable, spreads from herd to herd, from province to province, and from country to country, multiplies in a continually increasing ratio, and extends itself only after [illegible] and a long series of years. It may be effectually confined by prompt and unsparing measures. The experience of Prussia is especially valuable in this respect. The plague has often appeared, says Professor Gerlach, in the provinces bordering on the Russian empire, in East Prussia, Posen, and Silesia, but it has never since 1831 penetrated westwards, even as far as Brandenburg. Lastly, we must add, it has not been found to give way before cold weather or rain. The reverse seems to be the case. It is worse, Professor Gerlach informs us, "in cold and wet weather, and better in warm and dry weather;" "it spreads," says Mr. Erne, "as fast in a mild as in a hard season." The murrain of 1745 broke out here in early spring, the temperature of the preceding year having been low, and it is stated to have raged most violently during the winter, and to have diminished in intensity with the advance of summer.

These conclusions, which are all that for our present purpose it is necessary to state, are far, of course, from exhausting all that is known upon the subject. Beyond what is known, however, there is a large field of inquiry which may be usefully explored. To observe carefully the premonitory and progressive symptoms of the disease under various conditions—to determine precisely the period of incubation, the effect of general and of preventive agencies (including under the latter head disinfectants, therapeutical measures, and inoculation)—to ascertain within what range and under what modifications the poison may be communicated from a diseased cow to other animals of the same or different species—these are branches of inquiry which will take time. With a view to the thorough examination of them, we have obtained the assistance of men eminent in various departments of science, and we hope to be able to report on them hereafter. But we have now to deal with more pressing questions. Are the measures hitherto adopted to stifle the plague at home and stop its entrance from abroad effectual for the purpose? If not, what other measures are likely to be effectual? To these questions, having early satisfied ourselves of the general character of the disease, we at once directed our attention; and the evidence which we have received has been chiefly taken with a view to them.

IV. Preventive Measures already taken.

The preventive measures hitherto adopted by your Majesty's Government may be briefly stated.

By an Act of Parliament passed in 1848, and continued by several subsequent Acts to the present time, the Lords and others of your Majesty's Privy Council, or any two or more of them, are authorised to make from time to time such orders and regulations as to them shall seem necessary for the purpose of prohibiting or regulating the removal to or from such parts or places as they may designate in such orders of sheep, cattle, horses, asses, or other animals, or of meat, skins, hides, horns, hoofs, or other part of any animals, or of hay, straw, fodder or other articles likely to propagate infection; and also for the purpose of prohibiting any yard, stable, outhouse, or other place, or any waggons, carts, carriages, or other vehicles; and also for the purpose of directing how any animals dying in a diseased state, or any animals, parts of animals, or other things seized under the provisions of the Act are to be disposed of, and also for the purpose of causing notices to be given of the appearance of any disorder among sheep, cattle, or other animals, and to make any other orders or regulations for the purpose of giving effect to the provisions of the said Act, and again to revoke, alter, or vary any such orders or regulations, and it is enacted that all provisions for any of the purposes aforesaid in any such orders contained shall have the same force and effect as if the same had been inserted in the Act; and that all persons offending against the Act shall for each and every offence forfeit and pay any sum not exceeding £50, or such smaller sum as the Council may in any case by such order direct.

Under the powers conferred by this Act several Orders in Council have been issued, dated respectively the 24th of July (14 days after the first notice of the outbreak was given by Professor Simonds to the Privy Council office), the 11th, 18th, and 25th of August, 1865, the substance of which was afterwards embodied in a consolidated order dated the 22d of September, 1865. This consolidated order contains the regulations now in force relating to England, Wales, and Scotland. Some further orders have been made prohibiting the importation of horned cattle and sheep, and regulating the importation of hides, from Great Britain into Ireland, and likewise prohibiting importation into the Island and Bailiwick of Jersey.

(a.) Under these orders inspectors have been appointed by the Clerk of the Council for the Metropolitan Police District, as well as the rest of Great Britain, the appointment of inspectors to Cattle-Markets in England with the justices of each Petty Sessional Division, in Scotland with the County Justices in Sessions, within municipal boroughs the power is vested in the mayor or provost. The slaughter, however, may only be authorised where the local authorities are satisfied of the existence of the disease in, or have reason to apprehend its approach to, their district (which was added on the 25th of August), the district over which their jurisdiction extends.

(b.) Every inspector is empowered to enter and inspect all premises within the district in which any animal (this word is defined as including neat cattle, sheep, goats, and swine) may be found, to order slaughter, and bury animals diseased and to disinfect the premises, and to order the separation of animals suspected of being diseased.

(c.) Carcases of diseased animals are forbidden, absolutely, to be sold or exposed for sale, to be sent by highway, railway, or navigable vessel, or, lastly, to turn out on common or uninclosed land any diseased animal. If within an hour's distance, [illegible] the inspector or a cattle-[illegible] of premises from their premises any animal which is diseased or has been in the same shed or herd, or in contact with a diseased animal; or be found any diseased animal in any field or pasture which, in the inspector's judgment, it would be dangerous to propagate the disorder.

(d.) The local authorities may by published notice, exclude all animals, or any specified description of them, from any fair or market within their jurisdiction; and no animal is to be sent to the Metropolitan Cattle Market so long as the plague exists within the metropolitan police district, "except for the purpose of being there sold for immediate slaughtering, and every such animal, as soon as sold, shall be marked for slaughter in the same manner in which cattle are ordinarily marked for slaughter in the Metropolitan Cattle-Market." The last-named provisions date from the 22nd of September.

Inspectors have been appointed under these orders in a large number of districts. Office-boards at the port of London, or at any of the outports, are supplied in addition by inspectors appointed by the Board of Customs, who are now [illegible] arrangements, except in a very few cases where no [illegible] can be procured.

These orders have not prevented the growth of the plague, nor can we persuade ourselves that they will materially serve to arrest it, now that it has spread so widely.

Inspection is the foundation on which the chief reliance is placed. But it is not enough [illegible] an inspector with the [illegible] powers as to diseased [illegible] certainly [illegible] a beast to diseased [illegible] during the period [illegible] a cattle-[illegible] practitioner [illegible] that it is all [illegible] of competent persons [illegible] The demand have been found equal to the [illegible] of cattle. [illegible] has been [illegible] whether it has called forth an adequate [illegible] cases have been [illegible] or others [illegible] charged with this [illegible] office. It must be [illegible] inspectors, and to [illegible] single-handed in [illegible] enemy, with a private practice, and [illegible] farmers and butchers to whom he looks for employment, [illegible] to perform, and is [illegible] concealing the [illegible] it.

An important step was taken in preventing stock from being sent to the Metropolitan Market, except for immediate slaughter. But how is this provision enforced? The beast, if sold, is marked by clipping the hair of the tail, and this is understood to mean that he is marked for the butcher. But such a mark is soon [illegible] as soon as the [illegible] is sold, [illegible] or not, there is nothing to prevent [illegible] being carried into the country, turned out to graze, or round, while unsold animals are not marked at all. Cases of this kind, where the animals carried infection with them, have been brought to our notice,

* Much interesting information on this part of the subject is contained in a memoir by M. Renault, President of the Veterinary School of Alfort, transmitted to the French Minister of Agriculture, and published in several French and English newspapers.

In fact, of all the cattle which are sent from the country into London, about one-third, after having stood in the market, are distributed again from London over the country.

The discretionary power given to local authorities of closing wholly or partially fairs and markets is still more important, provided it be exercised generally, promptly, and firmly. But, in the first place, such a power is not proper to be intrusted to mayors of boroughs and justices of petty sessional divisions. Wider interests are concerned than these little circles inclose. The mayor of a town, to which its market brings large and regular profits, is not the fittest judge of the expediency of closing that market before it becomes a source of infection to the surrounding rural district. All justices are not equally firm, equally ready to do an unpopular thing, equally convinced of the magnitude of the calamity. A large number of markets and fairs have, it is true, been closed, one by one, against lean or store cattle; the example once set has been gradually followed. But what has been done has not been done uniformly. In some places all fairs and markets for both store and butcher's stock have been stopped; in others those for store stock only. The periods of stoppage also have been very various. Here, however, uniform action is everything. Restraints on the ordinary course of business and traffic must be of brief continuance if they are to be strictly enforced; they must be sharp and sweeping if they are to be brief. What is necessary to be done should be done at the same time, wherever it is necessary, or it might almost as well not be done at all. In the second place, the prohibition is easily evaded, and does not go far enough for even its limited object. It is evaded (this also has been repeatedly urged on us) by auctions and other public but unauthorised sales, conducted without even those imperfect checks and safeguards which exist at a market or fair.* Small jobbers, too, we are informed, are beginning to roam the country with droves, out of which they supply customers who are not nice as to what they buy. It would be difficult to invent means better adapted to sow infection broadcast.

We are convinced, then, that other measures are required. We proceed to consider what those other measures should be. In doing so we shall endeavour to point out clearly the general course which we think should be pursued, without entering into details, which more properly belong to your Majesty's Government.

V. PREVENTIVE MEASURES RECOMMENDED.

We are perfectly sensible that this is a question of extreme difficulty. The difficulty lies in the magnitude of the sacrifices we have to call for, the inadequate notion which prevails of the extent of the evil to be subdued, the facilities for dishonest evasion and the **risks from inadvertence which spring up with every attempt to mitigate those sacrifices. For it must be observed that we have not merely to guard against criminal or unscrupulous acts; nothing is easier than for a man, without being guilty of so much as gross negligence, to become the means of spreading infection over a whole country.**

* Let us first say a word about the system employed with so much success in Prussia; we mean the system of *cordons*, by which infected places are isolated, and the disease either suffered to exhaust itself, or stamped out by indiscriminate slaughter. Nothing can be more efficacious where the disease is confined to a very few points; but in order to be efficacious the isolation must be complete and must be soon over, and slaughter (as the Germans themselves hold) is merely wasteful where the number of animals is large. When the disease has widely diffused itself, and disappears at one point only to appear at another, the difficulties of isolation become greater and the chances of its being efficacious less. We need hardly add that in countries accustomed to a strict half-military police and the constant presence of soldiery, where men and cattle are lodged in close packed villages encircled by tracts of open ground, and where the system itself is well known and the necessity for it felt, it finds facilities which would be wanting among our lanes and scattered homesteads, with a people to whom it was novel, and who are unused to restraints and jealous of interference. These considerations are by no means conclusive against the application of it, with some modifications, to England, far less against resorting to it in Ireland, but they warn us against expecting too much from it, or relying on it alone.

Against a disease which is highly contagious, undiscoverable at a certain stage, and too widely diffused for an army of inspectors to cope with it, there is clearly but one remedy which would be certainly and absolutely effectual. That remedy is to prohibit everywhere for a limited time any movement of cattle from one place to another. Enforce this, and within a time which cannot last very long the disease is at an end. It must stand still, and it must starve for want of nutriment. This great sacrifice would certainly eradicate the evil: we cannot say so of any sacrifice less than this.

We are perfectly sensible of the vast train of losses and inconveniences, public and private, which must attend upon such a measure; and the possibility of mitigating them by circumscribing the prohibition in different ways, without rendering it ineffective, is a point to which we have given the most anxious consideration.

The distinction which may be drawn between lean and fat stock, or rather between cattle moved from place to place for the sake of grazing or fattening, and cattle moved with a view to immediate slaughter, here suggests itself at once. In the case of store stock the risk of propagating infection is, on the whole, great, and the evil of stopping circulation is less. The farmer who has lean animals to dispose of, and the farmer who has winter food for them to consume, must undoubtedly suffer; and there might be reason to apprehend some diminution in the supply of winter-fed stock for the spring and early summer of next year. But it must be remarked that the fear of infection now deters many farmers—in infected counties, indeed, all but the very needy or the imprudent—from buying at store markets, and that the persons who would lose most by the application of the remedy are also those who are most deeply interested in the matter, and will be the greatest losers if no effectual remedy is found. We have little difficulty, therefore, in arriving at the conclusion, not only that public sales of lean stock should be suspended for a time, but that private sales, over which it is impossible to exercise an effective control, should be stopped likewise.

On the other hand, to interfere with the circulation of fat stock is to interfere directly with the meat market; and to embarrass it is to raise, for a time at least, the price of meat. To require that every bullock sold for slaughter shall be slaughtered on the premises of the seller will undoubtedly, in a multitude of cases, be inconvenient to both farmer and butcher. There will be difficulties about the actual slaughtering, about the disposal of hides and offal, about transport; and these difficulties appear still more serious when we consider the manner in which the live meat trade is now carried on, through salesmen and jobbers, and the vast quantities of fat cattle continually in motion to and from London, and from one market to another. A large system of trade and transport will have to be deranged, and many new arrangements to be made, and the cost of effecting these changes on the spur of the moment must fall, to a considerable extent, on the consumer of meat.

If the distinction be admitted, however, many other questions arise. In the first place, how is it to be enforced? If a privilege is conceded to cattle destined for the butcher, how are we to make sure that a particular animal is really destined for the butcher, or that he will be slaughtered immediately, or slaughtered at all, or that he will not scatter infection on his road? May he be driven home by the nearest country butcher who will buy him, or must he be sent to market? May he go to any market, or only to one where conveniences for slaughtering and for careful inspection are or can be provided? May he, if unsold, be sent home again, or transported from one market to another, or, if not, what chance will the seller have, should the market be overstocked, of making a fair bargain? In considering these points it must be borne in mind that a butcher has, as some witnesses have remarked to us, facilities which a farmer has not for concealing the presence of the disease, and that he has not those motives for being on his guard against it which the farmer has. A farmer who brings home a diseased animal may probably lose his whole herd. But it is often the butcher's interest to ask no questions.

Answers more or less complete may be furnished on all the points above enumerated, and precautions may be devised with a view to each of them. In general terms it may be stated that such precautions must in the main rest on some or all of the following expedients: On a modified adoption of the *cordon* system; on the imposition of new and peculiar legal obligations upon butchers, and probably upon drovers, railway companies, and the authorities in charge of markets; lastly, on a system, more or less extensive, of permits, certificates, or declarations. We ought not, however, to shrink from distinctly saying that no answers can be given, which, in our judgment, are perfectly satisfactory, and no precautions invented on which it is possible entirely to rely: and that we believe it to be best for the country, and even for the interests which will suffer most in the first instance, that the prohibition against the circulation of cattle should be maintained in its integrity.

We have stated frankly the difficulties and sacrifices for which the country must be prepared should this proposition be carried into effect. Of these difficulties the one which will probably be felt most strongly relates to the supply of food to the great towns. Fears have been expressed that to close the Metropolitan market, for instance, against the influx of cattle from the country would create a famine. We have already seen that the attempt to restrict the markets of London and Westminster during the plague which raged here in the reign of George II. was given up on account of the clamour which it created: and it may be argued that the same thing would happen now. Circumstances, however, have widely changed. In the days of George II. meat could only be transported to London alive; even the roads along which the cattle travelled were what we should now think few and bad; there was little importation from abroad, and some difficulty must have been often found in supplying the wants of the metropolis by the ordinary means of communication. Now, every place where fat cattle are fed in large numbers is approached by railways, which can transport dead as well as live meat; and it seems no unreasonable demand to require that, for the sake of averting a calamity of almost incalculable magnitude, London should be content to be supplied with dead meat from the provinces, instead of constituting herself a hot-bed of infection by receiving twice a week great throngs of living cattle. This change is, indeed, in itself economical and advantageous, and appears to be gradually taking place as a natural consequence of the extension of the railway system. There is obviously an immense waste of labour in bringing the live animal to London in order that certain portions of its carcass may be consumed as human food; dead meat is more easily carried than the living creature, and it seems quite as reasonable to carry the butcher to the ox as to bring the ox to the butcher. We are informed that from Aberdeen alone upwards of 1,000 carcases are sent up weekly to the English metropolis during eight months of the year, and 300 or 400 during the remaining four months, and that special dead meat trains leave Aberdeen on this errand five days in the week. Nor is it to be forgotten that London is at the present moment fed in a great measure with foreign cattle. From the 16th of September to the 18th of October last, both inclusive, the number of English beasts in the market was but 14,645 to 20,185 foreign. It must further be observed—and this is the most important point—that a general prohibition is capable of being thoroughly enforced. The mere presence of a beast on any highway will be sufficient to prove the infraction of the rule. Any plan which, while laying down the general prohibition, admits exceptions in favour of cattle removed to particular places or for particular purposes, must rest upon the ascertainment of facts more or less complicated, to be proved by certificates from local authorities, upon the accuracy of which, experience warns us, little reliance can be placed. The liberty to remove cattle for particular purposes is sure to be extended and abused for other purposes. A man has only to profess an intention in accordance with the law in order, by a little dexterity, to obtain under such a system the utmost facility for violating the law. It will be a long time before the rules are understood, and the period in which they are violated through ignorance will be succeeded by the period in which they are evaded by design. England is probably the worst country in the world for the working a system of certificates, permits, licences, and passports, and the temptation to violate the rules will be very great, for the thought that naturally occurs to every one whose herd is attacked is to conceal the existence of the disease until he has got rid of those animals which do not yet show symptoms of its presence. To the objection, true as far as it goes, that the embarrassment thus thrown in the way of trade will probably tend to raise the price of meat, it may be answered—first, that such a rise in the price of meat will afford at the expense of the community the means of reimbursing the trade for the sacrifices it has made for the common benefit; and, secondly, that the immense destruction of cattle which such a measure is alone calculated to prevent, is likely to raise the price of meat to a higher point, and for a longer time, than a regulation which really does little more than change the place of slaughter from large towns to country districts and places of importation. In the period from 1745 to 1757 almost every measure, short of the one which we are considering, was tried in vain. The disease at first advanced slowly, but it lasted 12 years, and then died out, apparently for want of animals susceptible of its influence, although the difficulty of communication from one part of England to another offered at that time the fairest chance for the success of palliative measures. England has now to contend with the plague under disadvantages never experienced by any other country. The density of her population, the large quantity of her horned stock, and, above all, the enormous facility of communication by railroad, make her peculiarly liable to the ravages of a contagious disorder, and render the prospect of eradicating it within any reasonable time, either by slaughter or by curative and disinfecting measures, almost hopeless.

RECOMMENDATIONS.

1. *Suspension of Cattle Traffic in Great Britain.*

For the reasons stated above we feel ourselves compelled to recommend to your Majesty that such measures shall be taken as may be requisite to invest, with as little delay as possible, some high officer of your Majesty's Government with the power of suspending for a limited time the movement of cattle from one place in Great Britain to another, for extending or shortening such period, and for renewing the prohibition as often as circumstances may render necessary.

1a. *Suggested Regulations as to Cattle Traffic, should Recommendation 1 not be Adopted.*

We believe that this measure offers, as we have already said, the only certain means of eradicating the disease, and we conceive that the end amply justifies us in proposing to the nation so great a present sacrifice. In submitting this, however, as our first recommendation to your Majesty, we are well aware that it is likely to excite much opposition; that the difficulties to which we have adverted may to some appear insurmountable, and that to those who do not regard the cattle plague in so serious a light as we do, the remedy may seem worse than the evil. This view may possibly be shared by your Majesty's Ministers; we think it right, therefore, to go further, and to indicate the measures which might, in our opinion, be advantageously adopted, should an absolute suspension of the movement of cattle in Great Britain not be enforced.

a. For a period to be fixed, and which might, if necessary, be extended, no lean or store stock should be permitted to be sold at any fair or market, and sales of such stock by auction or advertisement, or in any other manner whatever, should be prohibited.

b. Cattle might be moved for immediate slaughter to a market or to a slaughterhouse licensed for use, but only under a licence for transit granted by the magistrates in Petty Sessions. The licence for transit should certify to the healthiness of the district from which the cattle come. With this exception, and except in the case of cattle driven from one part of the same farm to another, the transit of cattle over any public road (including railways), or in any coasting vessel, should be absolutely prohibited.

c. Precautions should be taken that every animal sold for butcher's meat be slaughtered within a short and fixed period. It may be convenient for this purpose that no slaughter-house should be used without a licence from the local authorities, and no such licence given except on the butcher's undertaking to have all cattle which may be sold or consigned to him driven direct to the slaughter-house or premises attached to it, from whence they are not to be moved alive. Cattle sold at a fair or market should not be allowed to leave the precincts of the borough or other place where the fair or market is held (in the case of London, the Metropolitan Police District) alive. To insure this object, it might be required that cattle entering a fair or market should be branded or marked on entrance, and cattle sold elsewhere to a butcher similarly marked at the time of sale, and that it should be penal for any one but a butcher to have a marked animal in his possession. If any regulation of this kind is adopted, it would be advisable that in every place where a public market is held, lairs should be provided in which unsold animals could remain from one market day to another.

d. It would be desirable to draw some more distinct line between infected and uninfected districts than is at present traced by the Orders in Council. For this purpose, whenever a case of infection is discovered, or is known to have existed within a certain period before the time when these measures may come into operation, the district should be "proclaimed" as infected in the *Gazette* and the county papers. The egress of live cattle from a proclaimed district should be strictly prohibited, but cattle slaughtered within it and certified by the district inspector to be fit for food might be sent out of it, under proper safeguards for disinfection. Provision should be made for enabling districts which had been proclaimed to be publicly set free, on proof being furnished that all risk from infection was at an end.

This latter proposal would, if adopted, strengthen the inducements of the inhabitants of infected districts to rid themselves of the disorder, and those of their neighbours to watch vigilantly against its approach.

2. *Powers of Inspectors.*

We are of opinion that the power to seize and slaughter vested in inspectors by the Consolidated Order may properly be withdrawn; or that, if retained, it should be exercised only in cases where the inspector's directions as to the separation of sound from diseased stock, &c., or any general preventive or sanitary regulations issued by the Government, are not complied with. This power is right and useful when the disease has appeared only at isolated spots and attacked a few animals; the public benefit is then very great, and the private sacrifice small; but in proportion as it extends, the hope of thus arresting its march diminishes, the inevitable waste increases, and the sense of hardship tends to become insupportable. In principle, a system of compulsory slaughter should be complemented by a system of compensation, and the objections to promising compensation to individuals out of the public treasury on an extensive scale appear to us insurmountable.

3. *Foreign Cattle.*

No reference has hitherto been made to cattle imported from abroad. Should our first recommendation be entertained, and an absolute embargo placed on all traffic in cattle within Great Britain, we think that imported cattle should be slaughtered at the ports of landing. We are further of opinion that cattle should be allowed to land at certain ports only, where proper facilities can be afforded for inspection and transport. In the other alternative, it will be sufficient to say that foreign cattle, if passed by the Customs' inspectors, and not coming from an infected district, may be sent by railway to any market in Great Britain, but shall be then subject to the same regulations as British cattle.

4. *Uninclosed Lands.*

During the period of prohibition, whether absolute or limited, no cattle should be allowed to be turned on common or uninclosed land.

5. *Periodical Returns.*

It is highly desirable that steps should be taken for obtaining periodical returns of the horned cattle and sheep within the area of every parish of Great Britain, and of their sanitary condition, with especial reference to the present disease.

6. *Ireland.*

* Before this Report is concluded, some reference should be made to the peculiar circumstances of Ireland. The disease not having as yet broken out in that country, there is no necessity for the measures which have been recommended for Great Britain. It is still possible, by the adoption of suitable precautions, to avert the calamity from Ireland altogether. The importation of cattle into that country has already been prohibited for some weeks past. Considering, however, the destructive character of the disease, it will not be judicious to rely upon that precaution alone for escaping it. The evidence which has been laid before us leaves little doubt that it can be conveyed by persons who have been in contact with infected animals, as well as by the animals themselves. In case it should, by any accident, be carried over, the Government should be in readiness to eradicate it from any spot in which it may appear; and unless preparations are made for doing so before the plague shows itself, the authorities will hardly be in a condition to act with the necessary speed and vigour when the emergency arises. In Prussia, upon whose eastern frontier the disease frequently appears, a system of precaution has been adopted for stopping its further progress, which has

* A later order, issued on the 31st of October, prohibits, wherever fairs or markets have been closed by the local authority, the "bringing or sending" of animals to any place for the purpose of exhibition or sale, and the receiving, exhibiting, buying, or selling of animals so brought or sent.

hitherto met with invariable success. It would probably not be difficult to make provision for the application of similar measures to Ireland, and so to secure to it a permanent immunity from the calamity under which Great Britain is at present suffering. But the extreme rapidity with which the disease spreads makes it important that all arrangements for stamping it out, in case of its possible appearance, should be made without delay.

We append to this Report a short series of practical suggestions, drawn up by those members of the Commission who are professionally qualified to deal with sanitary subjects, and which may be useful at the present time to owners of cattle.—ROBERT LOWE, LYON PLAYFAIR, RICHARD QUAIN, E. A. PARKES, THOS. WORMALD, ROBERT CEELEY, CHARLES SPOONER. Oct. 31.

The following is a separate Report of Earl Spencer, Viscount Cranborne, Mr. Read, and Dr. Bence Jones :—

We are unable to join the other members of the Commission in recommending the total stoppage of all movement of cattle in Great Britain. It is true, that, if such a measure were practicable, it would be more effectual than any other in extirpating the disease. But we do not believe it to be practicable. It would involve an interference with the course of trade at variance with our national habits; and it would demand sacrifices from large numbers of people, who are removed from the presence of the disease, and who will, therefore, not see the necessity for so stringent a measure. The sudden transformation of the enormous cattle trade by which the large towns are supplied into a dead meat trade would involve difficulties and dangers of the most formidable kind. The foreign trade, which at this moment furnishes a considerable proportion of the meat consumed in the large towns, would also be seriously interfered with. The price of meat would, in consequence, rise materially and suddenly.

These difficulties would lead to the evasion of the prohibition. And if it is largely evaded, as we think probable, it will be worse than useless.

We prefer, therefore, the measures of a less stringent character, which are recommended as an alternative in the above Report. They demand no greater sacrifice than will readily be made to arrest the progress of so serious an evil; and therefore we believe that they are likely to be thoroughly carried out.

In the other recommendations of the Report we heartily concur.—SPENCER, CRANBORNE, CLARE SEWELL READ, HENRY BENCE JONES.

We are of opinion, however, that store animals may be permitted to move from the farm of the seller to that of the buyer, provided they have a certificate from a justice of the peace acting in the district where the sale takes place, showing that they are free from disease, and that they have been located for a certain time on the farm of the seller.

Oct. 31. SPENCER, CLARE SEWELL READ.

The following is a separate Report of Mr. M'Clean :—

I dissent from the Report on the following grounds :—

I consider that the magnitude of the calamity against which it is intended to guard in no way justifies the interference with the traffic in cattle which the Commissioners in their Report recommend, and that the evils which would arise to the community from even a limited prohibition of the movement or of the importation of foreign cattle would far exceed the losses which may arise from the prevailing disorder.

By the last return issued by the Veterinary Department of the Privy Council Office—which, as regards the number of animals which have died of the cattle plague, is correct, and although not strictly accurate in other respects, may be considered fairly to represent the progress and present extent of the ravages of the disease—it appears that up to the 21st of October, 1865, a period of rather more than four months from the time when the disease first appeared in Islington, 14,083 animals had been attacked; that of these 6711 had died, 5119 had been slaughtered, 707 had recovered, and 1546 remained under treatment.

The estimated number of horned cattle in Great Britain is about 7,000,000, so that less than one per 1000 of such cattle have died of the disease in four months, or about one per day for every 116,000 head.

During the same period of four months, sound and healthy cattle, of the average value of (say) 15*l.* 15*s.* per head, have been imported from foreign countries at the average rate of 1000 per day, so that by the operation of the present system, involving careful inspection at the ports of landing, the gain to the country has been 166 sound cattle for each one that has died of the disease.

The growing necessities of the community in the matter of animal food, and the comparatively trifling extent of the injury hitherto inflicted by the disease, do not justify any exceptional legislation or any systematic interference by Government with the trade in cattle, a trade which, taking its position among the other great branches of national industry, must be subject to its own peculiar risks and liabilities.

The existing Orders in Council, enforced by the exertions of landowners, farmers, and graziers who have embarked their capital in the trade, appear to be sufficient for its protection; while by insurance or otherwise the parties interested should indemnify themselves against loss without appealing to the community to interfere for the preservation of their property by exceptional legislation.

Since the year 1750 the circumstances of the country and of the cattle trade have entirely changed, and no comparison can fairly be instituted between its state at that period and the present time.

In the year 1750 and the subsequent years of the cattle plague, the trade in cattle was one of the principal industries of the country, and any loss sustained by the owners was almost irremediable, as there were then no available means of importing cattle from foreign countries for supplying the people with animal food.

In 1864 circumstances were very different. In that year the computed net value of the articles imported into the United Kingdom was nearly 275,000,000*l.*, of which upwards of 40,000,000*l.* was for alimentary supply, exclusive of spirits, wine, tobacco, and other exciseable articles.

During the same year the computed net value of the articles exported was 212,656,542*l.*, making a total value of 487,520,468*l.*, while the amount of all descriptions of property and profits assessed to the income-tax was 326,775,501*l.*, about one-ninth of which was for occupation of land, and probably not so much as one-eighteenth was due to pastoral occupation.

The estimated value of property which it is proposed to protect by penal laws and quarantine regulations, to be carried out at the expense of the community and to their serious loss, inconvenience, and certain discontent, is about 60,000,000*l.*, or about one-eighth of the annual value of the national imports and exports.

The importance of the cattle trade, as compared with the other branches of national industry, is much less in 1864 than it was in the year 1750, while the numbers of the people, their wealth, and means of purchasing animal food, have greatly increased.

The consumption of animal food is not now confined exclusively to the wealthy, but it has become the necessary food for the working classes, and the use of it is so general that so long as the disease can be discovered at a period when the flesh of the animal is perfectly good and fit for human food, it is impossible in this populous country for the disease to spread to any great extent, as all beasts showing the slightest symptoms of disease would be immediately slaughtered by the owner for his own protection.

As the demand, as shown by our imports of cattle, is greater than the home supply, there would only be partial loss when lean cattle had to be slaughtered.

The opinions expressed by witnesses of experience on the proposal to supply London exclusively with meat killed and brought from a distance were not favourable to the plan.

It is further to be considered that any prohibition to the importation of foreign cattle would affect and derange the whole of our commercial relations and means of communication with foreign countries.

It would create distrust at home and abroad as to the safety of investing capital in establishing, by steamboats and otherwise, cheap and regular routes by means of which food is provided for the community.

It would deprive the foreigner of an important exchangeable commodity, in many cases the only one he has to offer, and possibly lead foreign Governments to impose restrictions on the export of any food from their respective countries that might prove very detrimental to this kingdom.

The farmers of Great Britain cannot produce food enough for the people. Agricultural produce, including cattle, meat, butter, poultry, &c., to the value of more than 40,000,000*l.* sterling, has to be imported yearly from beyond the seas. Any legislation which should interfere with this supply, and the employment of the means which at great expense have been provided for its conveyance to this country, would inflict an incalculable amount of injury, and would occasion great and immediate suffering to the labouring classes, many of whom would be thrown out of work, while the price of provisions would be enhanced, and many of them now able to use animal food would be deprived of it. This would interfere with the value of labour, and with our means of competition with other countries by increasing the cost of our manufactures.

With these facts and considerations before me, and after carefully considering the nature and extent of the present disorder in cattle, I am of opinion that it does not at present justify any further restriction in the movement or trade of cattle, and that the powers now vested in her Majesty's Privy Council are sufficient to prevent the spreading of the said disorder, and to avert any future outbreak of it.

Oct. 31. JOHN ROBINSON M'CLEAN.

A Supplement to this Report giving sanitary recommendations will be published next week.

STEAM CULTIVATION.

FOWLER'S SYSTEM.

WE enclose copy of a letter and report received from Grosvenor Hodgkinson, Esq., M.P., respecting the cost of working his steam plough, which perhaps you would like to insert in your next issue. *John Fowler & Co., 28, Cornhill, London.*

SIRS,—Having noticed a statement headed "Steam Cultivation (Smith's *v.* Fowler's)." in the *Gardeners' Chronicle* of 21st of October, 1865, I have prepared a statement of my operations with your apparatus from the date of its purchase to the end of 1864, being two years and four months. My account for the present year will, I think, show a still more favourable result. As the account is for comparison with the accounts published by Mr. Hutchinson, I have prepared it in the same form and on the same principle as those accounts; but in my opinion such a form of account is by no means perfect.

It is impossible to judge of the value of work without knowing the nature of the land and the depth of cultivation, &c., and it is very possible that the work stated to be done by the apparatus in Shropshire at 14*s.* 7*d.* per acre may be better worth its cost than that stated to be done by Mr. Smith's system in Bedfordshire, at 6*s.* 10*d.* per acre. It is difficult to understand how a cultivator with three tines, and a width of 3 feet, worked by a 10-horse power engine, and on a system requiring a much heavier draught of rope, could do as large an area of work as a seven-tine cultivator 6 feet wide, worked by two 14-horse power engines, unless the former work was of a much lighter and shallower description than the latter. Without going out of my own parish, I could find farmers who get over as much ground per day with two wretched horses as others with four good horses, but the work done by the four is better worth its higher cost than the work done by the two is worth its low cost.

I see in the Bedfordshire account that seven hands (three men and four boys) are charged 14*s.* 10*d.* per day, while in the Shropshire account the same number of hands (four men and three boys) cost 23*s.* 10*d.* per day. This alone would make a difference of 1*s.* 6*d.* per acre.

The amount also charged by Mr. Hutchinson for oil and repairs seems very low, and though the account mentions iron shares as included, it is silent as to rope porters, which in rough work form an important item of breakage and wear and tear.

It is necessary to bear in mind that the acreage cost, as shown by my account, includes work (1164 acres) done with the ploughing and digging breasts, with which only about half as much work can be done as is done with the cultivators, and which I should not do at all if I did not consider it much more valuable for many purposes than cultivating. As by the cultivating process alone I averaged 9 acres per day, it follows from the figures in my account that if the whole had been cultivated, the cost would have been 5*s.* 6*d.* per acre, or 1*s.* 4*d.* less than Mr. Hutchinson's cost, and this too for work a great part of which was done with the addition of a drag behind the cultivator. *Grosvenor Hodgkinson, Winthorpe Hall, near Newark, Nov.* 1865.

STEAM CULTIVATION.—FOWLER'S SYSTEM.

INVESTMENT, 960*l.*

One 14 horse power locomotive engine, self-moving anchor, four-furrow plough, seven-tine cultivator, 6 feet wide, rope porters, water cart, wire rope.

Cost in detail of Steam Cultivation for two years and four months at Balderton, Notts, arranged as nearly as possible on the same principle as the Accounts published in the *Gardeners' Chronicle* of 21st October, 1865.

338½ days employed, 1164 acres ploughed ($5\frac{6}{10}$ acres per day), 1184 acres cultivated (9 acres per day). Most of the cultivating was done with the addition of a large drag behind the cultivator.

	£ s. d.	£ s. d.
Manual labour, 3 men and 2 boys, besides water-cart	185 18 0	
Extra wages in harvest month	25 7 0	
		211 [illegible]
Coals, 290 tons 4 cwt. The actual cost, including lading, being	.. ..	[illegible]
Oil, 92 gallons. The actual cost being	27 9 8	
Repairs of engine and apparatus, 1150 yards of new wire rope, new shares, &c. The whole cost was 282*l.* 5*s.*, of which 70*l.*, the amount estimated to belong exclusively to the engine, is charged below	212 0 5	
		[illegible]
Horse and water-cart and attendance at 4*s.* 6*d.* per day. Not being fully employed, the water-cart, except when the apparatus was working at a great distance from the water supply, was used to take water to the stock also		76 [illegible]
Horses for moving apparatus; the engine is a locomotive		8 [illegible]
The full cost of new wire rope being included in the above item of 212*l.* 0*s.* 5*d.*, and the stock of rope with the 1150 yards purchased, being better at the end of the two years and four months than at commencement, no separate charge is necessary.		
Annual fund to produce 200*l.*, which, with 84*l.*, the cost of wire rope provided for above, and 62*l.*, the value of apparatus, to break up at the end of 25 years, will give 346*l.*, original cost of the apparatus at 3½ per cent.		5 [illegible]
Two years and four months' interest on 346*l.*, the cost of the apparatus, exclusive of engine, at 5 per cent.		40 7 [illegible]
Two years and four months' interest on 650*l.*, the cost of the engine, at 5 per cent.	£75 16 8	
Actual cost of repairs of engine for two years and four months	70 0 0	
Estimated additional cost every fifth year 162*l.* 10*s.*, one-fifth each year, say for two years and four months ..	75 16 8	
Annual fund to produce 325*l.*, which with 162*l.* 10*s.* above provided, and 162*l.* 10*s.* for old engine to break up, will give 650*l.*, the original cost of the engine, at 3½ per cent.	8 6 10	
Insurance of engine	4 18 0	
	£234 18 2	
Three-fifths of this sum to steam cultivation and two-fifths to threshing		140 [illegible]
		£915 [illegible]

Cost per acre of both ploughing and cultivating, a great part of the latter being also dragged with a heavy drag at the same operation, being 7*s.* 9*d.* per acre.

NOTES ON THE ABOVE ACCOUNT.

The coals used were of low price and inferior quality, hence the large weight consumed. Subsequent experience shows that it is more economical to use a better quality of coal.

The actual cost of wire rope is given in the above account, and not a mere estimate of much lower amount, as given in the account published in the *Gardeners' Chronicle*. The wear of rope on rough clay fallows in dry seasons is necessarily large, from the difficulty of keeping the ropes in the porter pulleys.

All the work was done to a greater depth than had previously been reached by horse work. The plough effectually buried the manure and Clover lea, and no horses being required on the farm for ploughing except on the headlands, the farm in question (nearly 700 acres are arable) has for the last two years been worked with 15 horses instead of double the number, which were previously required. With a cultivator alone no such saving would be effected on land of the description of the farm referred to.

The Whitchurch Steam-Ploughing Company.—I have had a lengthy correspondence with Mr. S. Hutchinson respecting a statement he has thought fit to publish, comparing his operations at Dunton Lodge with the operations of this Company.

This statement is thoroughly fallacious. He says he cultivated 773 acres, and coolly puts it down against our 691 acres. Let us see how he arrives at his 773 acres. Taking the quantities from the farm map, only makes 331 acres; deducting for fences, roads, &c., the quantity actually operated upon would not be more than 311 acres. Mr. Hutchinson, however, takes the map quantity, 331, and swells it up to 773 acres by working some of his fields three and four times over, and reckoning each time of going over the same land as though it had been a fresh operation.

Now, we actually broke up our 691 acres of land, on 48 different farms, travelling 248 miles, and no doubt our acreage ought to have been a little more, the farmers generally understating the quantity. Mr. Hutchinson puts us down as working 125 days, but a good portion of this time was spent in travelling. He worked his 127 days on the land, as he had no removal.

Without going further into particulars, every one must see the absurdity and injustice of comparing the working of a small set of tackle, which only cultivated 12 fields on one farm, with the working of a large set, going all over a dairy district, always employed upon the very hardest land, and breaking it up from 12 to 16 inches deep—at least 6 inches deeper than was ever disturbed before.

I am thoroughly convinced that we could not have done our work at all with the "little insignificant tackle;" besides, the great expense of horses in our long removals would have been fatal to the success of this Company. Our engines and tackle have never received the slightest aid from horses, either in removals, working, or difficulty. We certainly have many disadvantages owing to the smallness of the fields—often only 3 or 4 acres—the small quantity of work we get

upon each farm, and the long removals. In fact, ours is not an arable district at all, and should be looked upon as an exceptional case, yet we have done well in every sense.

Whatever Mr. Hutchinson or Mr. Smith may write respecting our operations, is a matter of perfect indifference to us, but as Messrs. Fowler have been so roughly and so unfairly assailed, in justice to them I feel called upon to show that the so-called "Comparative Statement" is not founded on fact. *R. Thursfield Smith, Manager of the Whitchurch Steam Ploughing and Cultivating Company, Limited, Whitchurch, Salop, November 8.*

Having read with much interest Mr. Hutchinson's recently published statement of steam cultivation with Smith's tackle, and his comparison to Fowler's, I think every man who knows anything of Fowler's tackle will condemn the very unfair and unjust comparison made.

I have no reason to doubt the accuracy of Mr. Hutchinson's figures as to his own work, but I very much doubt whether he has not chosen the most unfavourable case he knew or ever heard of to represent Fowler, and think he would have displayed more judgment had he paused before publishing his statement, so decidedly in favour of one, to the great and meant detriment of the other system. It certainly behoves every man to think his own system the best until he finds out a better, but to my mind he is far from justified in making such an odious comparison as the one referred to, especially when not founded on justice.

My simple wish being to show that Fowler's tackle is capable of doing greater things than represented, I beg to say that I have used one of Fowler's sets for seven years, and now lay before you the aggregate work done and expenses from Sept. 1, 1862, to Sept. 1, 1865, on this farm of 600 acres with 10-horse engine, 4-furrow plough, and 7-tine cultivator.

Days.	Work Done.	Expenses.			
Ploughing and scarifying, 213	Ploughing and scarifying, 1510 acres	Wages, ploughing	£157	8	6
Threshing, 74	Threshing, 920 acres	,, threshing	114	14	8
		Coals	137	14	5
		Engineers and tradesmen	45	8	2
		Coals, grease, &c.	22	7	0
		Shares and renewals	49	0	0
			£526	12	9

The above includes shifting from place to place. With regard to rope I may state that I had a new 400 yards in Sept. 1861, which is still in use, and a new 200 and 100 yards in March, 1862, which are now in good repair, and look to do as much more as they have done; so that I put down a sum of 50*l.* as being sufficient for ropes for the last three years. The interest, depreciation, &c., I will allow the public to put on for themselves.

I have with much reluctance taken up my pen, but seeing as I do an old friend unfairly attacked, I feel it a duty to raise a helping hand. *James Arnot, Woodcote, Surrey, Nov. 10.*

Home Correspondence.

Steam Cultivation.—Mr. Richard Toepffer has, according to his own showing, had no practice upon the tackle in question. He has worked a set of Fowler's small tackle for three years, but he gives us no evidence. His telling us about going to Egypt is not evidence, for we are not going there to learn to cultivate by steam-power. His telling us that he is *going* to work the tackle in question in Lincolnshire is not evidence. In his first paragraph he says, "Practically I can contradict Mr. Hutchinson." Yes, anybody can contradict, but it is evidence that is wanted, not contradiction. In his second paragraph what evidence there is goes against him. He says, "Can the farmer obtain a greater advantage from purchasing or from hiring? Are the majority of farmers in a position to buy steam cultivating machinery? Have they ever qualified to undertake the management of such expensive machinery? Have they facilities for repairing breakages? Have they farms commensurate with the demands of the steam plough?" Now, he does not give any evidence upon the questions, but goes on talking. The evidence, taking the literal meaning of these questions, is nothing as to whether it is best to purchase or hire. The majority of farmers have not the means of buying our expensive machinery. They would not understand it if they had. The breakages would be considerable, and they have no means of repairing them; besides, their farms are not fit for it. Such evidence as that will never help the big tackle on. His third paragraph is a mere bit of bounce—"to work one week upon any soil in any county." Mr. Hutchinson has done his 127 days' work at Danton Lodge, and he has given costs, &c., as well as results. Let Richard Toepffer find 778 acres as tough and rough work as that was, then go and do it, giving us cost and results—his evidence will then be worth having. His last paragraph is a mistake, for Mr. Hutchinson did not challenge "to enter the field," but to show a statement of well-kept accounts, &c. The evidence in this letter is against the big tackle.—I must thank Mr. "W. S. G." for his kindness, and go on to Mr. Wilson—"6½*d.* per acre for coal" at "10*s.* a ton." The Royal Agricultural Society's report on the Worcester Meeting shows that in Class 2, Fowler's cost per acre for coals at 1*s.* per cwt. was 1*s.* 8*d.*, and in Class 1, 2*s.* 7*d.* The work on the first plot mere scratching, on the last well done. This proves that Mr. Wilson's work must have been mere scratching. It is an old saying and a true one, that a man never damages a case more than by proving too much. Mr. Wilson has done this, for no one will believe that 1 cwt. of coal will smash up an acre of land.—Mr. Savidge is very fair, except when he says it is unfair to match company tackle against private tackle. Now as the time for shifting was not included in the 125 days, the mere cost of men's time going with it is scarcely worth notice, but Mr. Savidge's last words are, "those who wish to benefit by steam must not depend upon steam ploughing companies." Those words by Mr. Savidge ought to be printed in large gold letters. Mr. Savidge would not have used them, if he had not have been convinced upon the point, but being given by a man of so much practice, they must be respected.—Mr. Hill is wrong in saying that the work, &c., is given to mislead people, for Mr. Hutchinson gave it as he received it. His evidence is fair as far as it goes. *William Smith, Woolston, Bletchley Station, Bucks, Nov. 14.*

Albert Veterinary College. — In acknowledging through your well-read Journal the present of a valuable and complete collection of Grasses from Messrs. Sutton & Sons, of Reading, generously presented to our Institution, free of charge, I take the opportunity of informing the agricultural public, that it is the wish and intention of the College authorities to form as complete an Agricultural Museum as is possible, in which shall be displayed the varieties of our cultivated plants, and their manufactured products; the manures used in their growth, together with plans and models of agricultural machinery; and in short, the object will be to illustrate as far as may be the products of the farm, and the various means by which such products are obtained. London has been hitherto deficient in a collection such as this. The Kensington Museum, it is true, gives us in its food collections some idea of the various articles that constitute the food of the human race, but affords no information as to the comparative value of the different well-marked varieties of our principal crops; the influence of climate and cultivation, both on the external form and nutritive properties, and many other interesting points. Again, we have no good models of agricultural machinery—a collection of these, aided by drawings, would illustrate the rapid strides that have been made in this direction. It is proposed to provide a large and convenient apartment in the new building. And as this museum, when sufficiently complete, will be open at stated times for inspection, it will, we trust and believe, form an attractive collection to all those who take an interest in agricultural progress. I will only add that, on behalf of the Company, contributions will be gratefully received by your obedient servant, *John Coleman*, 150, *Leadenhall Street, E. C.*

Sheep-shearing Rules.—The alterations made by the Council of the Royal Agricultural Society in respect to the shearing of sheep exhibited at their meetings, have given so much dissatisfaction to exhibitors, that with your permission I venture a few remarks thereon, hoping thereby to elicit some considerations on the hardships exhibitors suffer from the Council insisting upon a very imperfect regulation on the shearing of sheep shown at the Royal Society's meetings. The Society makes it imperative that each specimen shown shall be shorn bare on or after the 1st of April of the year in which they are exhibited. Such a rule seems wise and good. So it would be, provided there were any known means of determining at the time the show takes place, nearly three months after the time they are to be shorn bare, if a sheep were really barely shorn. But there are no means of getting proof upon this question, and the Society therefore resorts to "sheep inspectors," who in all probability have paid little attention to the effect of food in promoting the growth of wool, or the difference in quantity of wool grown by some sheep to others. Consequently, after a breeder has gone to a great expense and trouble in preparing an animal for show, and after having perhaps sent it hundreds of miles to a show, his chance of being allowed to compete rests upon a circumstance that no one can possibly define, for the most experienced breeders are positive in their expression of opinion that no one, however long his practice and however good his judgment, could state definitely whether a sheep had been shorn bare three or even two months after it had been shorn. Therefore a breeder is put in a similar position to a person who runs a wheelbarrow race blindfolded, the goal being quite imaginary. Nor is this all, for the object of the Society is defeated, inasmuch as to increase the length and quantity of wool is an important improvement in agriculture; but as the rule now stands, if a breeder has an animal that shows a greater disposition to grow wool than common, he knows that to exhibit this animal would be certain to get him disqualified, and therefore the Society does not get exhibited at its shows those possessing the maximum wool-growing tendencies. Would it not be more to the purpose if instead of checking, as undoubtedly the present regulation does, the greatest wool-bearing sheep being exhibited, the Society were to insist upon a part of the body being left unshorn, say of about double the size of a crown piece. In yearling sheep there could be no deception, and it is a point necessary for them to be informed upon, as the quantity and quality of wool must be an important element for consideration in awarding prizes to sheep. In conclusion, we lay it down as a fundamental truth that no one is competent to answer the questions put to the sheep inspectors at the Royal Agricultural Society's meetings, as to whether a sheep has been shorn bare three months previously; and therefore to allow a rule to exist upon which definite proof cannot be produced, is to lay exhibitors open to great loss and inconvenience, and likely to do them injustice, besides tending to lessen the number of specimens exhibited. *An Exhibitor.*

Michaelmas Rents on Corn Averages.—I again avail myself of the return of the close of the farmer's year to send you for the information of your agricultural readers, and more especially those who may have adopted the system of corn rents, based on the average price of Wheat, or of Wheat, Barley, and Oats, a statement of the average prices, founded on the returns published weekly in the *London Gazette*. For the year ending Michaelmas, 1865, the average prices are as follows:—

	s.	*d.*	
Wheat	40	2¼	per imperial qr.
Barley	29	1	,,
Oats	24	4¼	,,

The highest and lowest prices during the same period are as follows:—

	Highest price.	*s.*	*d.*	Lowest price.	*s.*	*d.*	Difference *s.*	Difference *d.*
Wheat	Sept. 8, 1865	66	7	Dec. 30, 1864 / Jan. 6, 1865	37	10	8	9
Barley	Sept. 5, 1865 / Sept. 12, 1865	51	2	June 20, 1865 / July 18, 1865	27	2	3	11
Oats	Aug. 1, 1865 / Aug. 8, 1865 / Aug. 29, 1865	24	0	Jan. 6, 1865	18	10	5	2

Charles M. Willich, late Secretary and Actuary University Life Assurance Society, 2, Montpelier Square, Brompton, S. W., Nov. 6.

Societies.

BATH AND WEST OF ENGLAND: *Nov.* 11.—The Salisbury meeting was fixed to commence on Monday, June 4th, 1866, and it was directed that all entries of Stock, Poultry, Implements, and Works of Art be made by the 14th of April.

The Stock Prize Sheet was accepted and confirmed: the Society's prizes amounting to 1092*l.*: those offered by the Salisbury Local Committee to 150*l.*, total prizes for Stock, 1242*l.* In the prize sheet, Devon, Herefordshire, and Shorthorn cattle are all placed on the same footing. In the sheep classes several additions have been made; prizes are now offered for Leicesters, Cotswolds, other Longwools, South Downs, Hampshire Downs, Shropshires, Oxford Downs, Somerset and Dorset Horns, and Mountain sheep. In the horse classes there are prizes of 50*l.* for the best thoroughbred stallion; 30*l.* and 15*l.* for the best stallion for agricultural purposes; and prizes varying from 25*l.* to 10*l.* and 5*l.* for mares, colts, &c. total prizes for horses 275*l.* The prizes for pigs remain the same as last year; the amount being 64*l.* Mr. Miles, of Dixfield, Exeter, again renews the offer of prizes for shoeing smiths.

The following is a list of the Salisbury Local Prizes:—Channel Islands Cattle: a 1st and 2d prize of 5*l.* and 3*l.* respectively for bulls of any age, two-year old bulls, yearling bulls, dairy cows, three-year old heifers. Cattle of any breed: a 1st and 2d prize of 5*l.* and 2*l.* respectively for dairy cows; ditto for heifers. Sheep prizes of 5*l.* and 3*l.* for pens of Hampshire Down ram lambs, and ditto for pens of ewe tegs in their wool, part to be shorn in the yard. A prize of 5*l.* for the best pair of working cart horses. Prizes of 5*l.* and 3*l.* for the best New Forest pony; similar prizes for the best mare and foal, and 5*l.* for the best pair of ponies. Prizes of 5*l.* and 3*l.* for Berkshire boar pigs; ditto for breeding sows; ditto for the three best breeding sows above four and not exceeding eight months old. Prizes of 10*l.*, 5*l.* and 3*l.* for Wiltshire cheese; 5*l.* for the best sack of Wheat grown within 20 miles of Salisbury, and 5*l.* for the best sack of Barley: total, 150*l.*

Poultry Prizes.—Dr. Brent, one of the stewards of poultry, brought up the prize sheet for his department. The total amount of prizes offered is 150*l.*

Arts Department.—On the motion of Mr. H. Williams, seconded by Mr. Drewe, the sum of 400*l.* was voted for the erection of a new arts building at the Salisbury meeting.

Reviews.

THE ALMANACS.—1. *The Farmers' Almanac and Calendar for* 1866. By C. W. Johnson, Esq., F.R.S. W. Ridgway, 169, Piccadilly.

2. *Morton's New Farmers' Almanac.* Blackie & Son, Paternoster Row.

3. *Thorley's Illustrated Farmers' Almanac.* Published by J. Thorley.

They are respectively in the 25th, 11th, and 8th year of their publication, and we are promised another from Edinburgh shortly, so that there is ample supply of the demand for such periodicals. The publications for this year are all of them in the style to which their

readers have long become accustomed. Mr. Johnson's Almanac contains, besides the usual calendarial matter, a well-digested account of the agricultural topics which have come up for discussion in the history and literature of the previous year, with a good deal of useful and homely and friendly advice on farm and garden and household matters, garnished with fragments of poesy.

Mr. Morton's is a closely packed collection of extracts from the agricultural publications of the year, and paragraphs giving the sales and markets, the legal decisions, statistics, and the general history of agriculture during 1865. There is also information on the work to be done from month to month upon the farm and in the garden, and various memoranda and notices of domestic and personal usefulness; instructions on disinfection as against epidemics, &c.

Mr. Thorley's Almanac is a trade advertisement.

We quote two passages from the first of these Almanacs, in one of which Mr. Johnson, we presume, himself gives kindly and weighty advice, and in the other he gives an opportunity to Mr. Evershed to give a pithy and suggestive reminder to the cattle feeder.

The Water we Drink.—The inhabitant of rural districts, when he visits the metropolis, is disgusted with this cockney thoughtlessness; he little suspects that he is doing similar things at home. Let us accompany him there, and ask him a few questions as to the disposal of his house sewage and the drainage of his homestead. He will very commonly inform us that his house is well provided in that respect; that all the sewage (which varies in amount from 30 to 60 gallons every day) is received into a tank; that that cesspool is lined with bricks laid without mortar, and is in "a nice porous soil," so that the sewage soaks away almost as fast as it enters the tank. On further inquiry he will instruct us that the house-well, and perhaps that which supplies his live stock, is placed not many yards from the cesspool, and is sunk into, and perhaps through, the very same nice porous stratum as that in which the tank is placed. Now, as the sewage which permeates this kind of sandy or gravelly stratum does not by the consequent filtration part with anything but what is mechanically suspended, it is evident that all the soluble or saline matters of the sewer (or the drainage from the farmyard) descend into and mingle with the water-bearing stratum from whence the well derives its supply. In some places this is not so much the case in the winter as in the summer months. In the wet seasons of the year, when the land-water is copious, the level of the water in the well is higher than that of the liquid mass in the cesspool, and then there is no drainage from the tank towards the well; but when in the drier months of the year the springs are low, the water-line of the well sinks below that of the sewage in the tank, and then the current is directed from the cesspool towards and into the well. It is in such cases that the good housewife gravely informs us that "the heat of the weather has given the water of the well a little turn."

Mr. Evershed on Cattle-feeding.—Putting an animal into good condition is like filling a tub with a hole in it. It is necessary to pour in faster than the contents run out, and the quicker this is done the less the waste. The first office of food, after building up the body, is to support the wear and tear of life. It is only when food is supplied in excess of what is required for that purpose that the animal begins to fatten. The earlier the process of fattening commences, and the sooner it is over, the greater is the economy in the use of food, because the least possible quantity of it has been used for the support of the body.

The Poultry Yard.

*Poultry Breeding in a Commercial Point of View.**—This is the subject of a very complete and indeed exhaustive essay lately published by Mr. Geyelin, who is agent for the National Poultry Company, whose establishment at Bromley we lately described. The contents include a full description of the poultry house devised by its author, with references to the natural history and characters of the various breeds of poultry bred or known in England—observations on food and drink—and on the produce in fattened and breeding fowl, feathers, and manure. There are also chapters on diseases, marketing, machinery, &c. The reports to the Company on poultry breeding in France, and on the prospects of the speculation in England, are also very interesting. The whole is fully illustrated with plans, drawings, and sections wherever illustrations are necessary. Two sets of estimates are appended—one on the profits of rearing fowl of approved sorts for breeding purposes, where the young birds at 12 months old are valued at 10*s.* each; the other on the profits of eggs for consumption and of rearing birds for the poulterer. We quote a passage on the preservation of eggs, on which a correspondent writes a paragraph below:—

"The shell of the egg being porous, to admit air to the chicken during the process of incubation, allows also part of the liquid to evaporate, and the air to permeate when they are not used soon after being laid, and the air acting on the animal matter produces early decomposition and putrefaction, particularly so in a fecundated egg, in which the germ is first decomposed. Clear eggs, the produce of hens who have not been with a cock, keep fresh much longer. This can easily be exemplified by putting an old fecundated egg and an old clear egg under a hen whilst sitting, when it will be found that after the 21st day the fecundated egg is putrid, and the clear egg fit for use. To exclude the air from the egg, and to prevent the evaporation of its liquid, it has been proposed by some writers to pack the eggs in salt, lime, bran, sawdust, &c.; by others to keep the eggs immersed in lime-water, in salt-water, or both combined; others, again, suggest to varnish or oil the eggs, and some even to parboil them.

"There can be no doubt that, were the object to be accomplished solely to preserve the eggs from getting putrid, some of these suggestions might be employed to advantage; but there is more required than simply to preserve the egg from putrefaction; for instance, for kitchen use, and the breakfast table, eggs ought not only to be preserved fresh, but also free from any foreign flavour, such as lime, salt, bran, sawdust, varnish, and oil must necessarily impart to the egg through its porous shell; and as for breeding from such preserved eggs, it is out of the question. Who has ever seen any chickens hatched from salted or mouldy eggs, or from such as have been varnished or oiled, which latter process stops up the pores through which the air, so indispensable to the formation and development of the chicken, must be admitted?

"Now the most effective, simple, and economical plan for truly preserving eggs, and without imparting to them any foreign flavour, or rendering them unfit for hatching purposes, is to use the patent stoppered glass jars with vulcanised india-rubber joints, and proceed thus:—

"Immediately after collecting the eggs, put the jar in hot water, and when thoroughly warm, so as to rarify the air, place the eggs in the jar, the pointed end uppermost, and pack and line with paper shavings or cocoa fibres to prevent them from breaking; then close the jar before taking it out of the water, and it will be found that eggs preserved by this method will be fit for hatching 12 months after, and that those intended for the breakfast table will be as fresh as on the day when laid."

* Poultry Breeding in a Commercial Point of View, &c. By G. K. Geyelin, C.E. Simpkin & Marshall.

Preserving Eggs.—Having read in your Paper of the 4th inst. a troublesome way of preserving eggs fresh, I can state a much simpler plan that I was told a few days ago. I have tried it, and have given fresh laid eggs and eggs that were laid three or four months to several persons, and they could not tell any difference. Put Roche lime in any convenient vessel, pan, tub, or barrel, and put water on it, stir it up and make white-wash; the next day it is fit for use. As soon as the eggs are laid and cold put them into the lime-water; as the water evaporates put more on to keep the eggs covered. The eggs must not be washed or wiped. It will not make them fresh, but it will keep them as good as when put in, for a length of time. I saw an egg eaten that was good and sweet, and the white like a fresh laid egg, that I had in lime-water for two years. I have a few now that have been laid since the summer of 1863; they are now coated over with lime that has dried on them, as they were in a shallow pan, and the water evaporated, but they were in the thick part, that was like plasterer's putty. *A Subscriber.*

General Rules to be observed in Poultry Breeding.—1. The hens selected to breed from should be kept apart from the cock until they are at least 12 months old, and the cock should not be less than 18 months old before he is put with hens, as a too early call on nature degenerates the breed. 2. Whatever races are selected they should be the most perfect specimens that can be obtained, as the first outlay will repay itself. 3. That the distinct races be kept strictly separate except where it is intended to obtain a cross breed, and for this the finest specimens of both races and sexes should be selected. 4. Not more than six hens should be allotted to a cock. 5. After the third breeding year it is advisable either to sell the stock or to fatten them for the market, as they become less fecund, and their progeny are apt to degenerate. 6. The eggs should be collected at least three times a day, as in a fecundated egg, when set upon for a few hours, the germ very soon gets developed and the egg is afterwards unfit for hatching. 7. The stock must be fed regularly at sunrise and the afternoon an hour before going to roost. *Geyelin's Poultry Breeding.*

Vitality of Eggs. The vital principle varies from the very first, according to the vigour of the parents of the inclosed embryo, and, in the end, appears not to be suddenly extinguished, but to fade away into gradual powerlessness. Those who are anxious to secure a valuable variety, one chicken of which is worth a whole brood of ordinary sorts, will run all risks; after seven or eight weeks their chance is not utterly gone. Some of the chicks will be found dead in the shell, but those that are hatched, if they survive the first 48 hours, are not afterwards more weakly or troublesome than others.

How to have Fresh Laid Eggs all Winter. In February or March set a broody hen, with a sitting of game eggs. The pullets, if liberally fed, will begin to lay in September, and will continue laying through the winter. I have several hens which have been in an egg and have laid an egg in 20 weeks. Cochins will lay through the winter, and should then be set on the earliest Dorking eggs.

Farm Memoranda.

West Sussex Farm: *Nov.* 13.—After a long delay Wheat sowing has been commenced, and put in in good order for the most part. Some have got far towards finishing, as the past week was fit for sowing all through, and the land where at all dry worked so easily that a far greater breadth than usual was put in in the time; and though we had so heavy a rain in the end of last month and beginning of this, the land is all now dry, and ploughs up more lightly than it usually does at this time of the year. We are now getting the Wheat stubbles ploughed up deeply with four horses, and if the weather continues as it is, we shall get it up tolerably healthy for the winter, and the spring work will be so much lighter.

The cattle plague does not appear to get worse here about, and it is hoped that it will soon disappear. But it has very much deranged the farmer's winter plans, as we were afraid to buy store beasts, and those that were nearly fit for the butcher have been sold off; and were it not for foreign cattle, meat before many months would be much dearer than it is now. There have been rumours of having Chichester market closed, but such views do not obtain much favour, and we do not think they deserve it, as the market is all but closed for lean cattle and nearly all others, the past three or four markets not averaging above a dozen beasts of every kind. Indeed, it has never been a regular market for store cattle, and beef never came in very large supply; but a good deal of the beef has been bought at the farm and taken away as wanted, and so with pork; but the supply of mutton has been large, and perhaps more than doubled within the past 12 years; and standing between Brighton and Portsmouth, there is always a good sale—the best going eastward, and the inferior to Portsmouth—and the number of stock sheep has largely increased. Formerly grazing farmers went to Weyhill and bought their winter stock, but now fewer do so, but buy at home from time to time. And for sheep, fat and lean, the market is increased four-fold within the past 10 years, and being held in the streets, a controversy has arisen about its removal on sanitary grounds, and the dispute gets hot at times among the citizens; but the farmers have not said much in the matter, and perhaps they would hardly know how to decide. It is sometimes inconvenient if one has cattle, sheep, and pigs to sell, as they stand far apart, but then it is so much cleaner and drier to move about; but there is no doubt it will have to be moved, perhaps before long, on sanitary grounds alone.

There are fewer unemployed hands now than there have been at this time of the year before, and there are signs that there will not be sufficient for the work before long, and then the need of homes for the labourer will make itself felt.

The root crop still remains green, but the Swedes are small and woody, and the Turnips where late are very small. Mangel has turned out a good crop, and is now all stored. Potatos have kept pretty well since they were taken up, though many of them were previously diseased. The best sorts to resist the disease are the Scotch Rocks, and the York Regents are bad. *G. S.*

Mappowder.—According to promise, I went to Mappowder on November the 8th (my own and also my brother's birthday), to perform my promise. After uniting the happy couple, the wedding breakfast, and throwing "the old shoe," accompanied by hearty wishes, I reviewed, in company with Mr. Levi Groves, of Binghams Melcombe, who has a most distinguished Hereford herd, a selected portion of the Mappowder Herefords. The first to which our attention was called, were six Hereford heifers fattening for the shambles. They were all splendid, but two were especially so. I never saw finer or more perfect heifers than these two. The next visit was to "Sir Sampson" (2208 in the Herd Book), bought for 70 guineas. He is by Sir Benjamin. I never saw an animal so good over his back and rumps. To speak by a figure, the sumptuous wedding breakfast might have been spread there! A capital handler, and fine head and forehand, wanting only a little more fulness behind the shoulders. Sixty of the herd are in calf to him.

I dare say most graziers know that, if an animal is extra good in the hind quarter, he is often a little wanting behind the shoulders, and *vice versâ.* In fact it takes two good ones to make a gold medaller. The animal that is most level all over is the best. Close by the side of the bull was a splendid yearling heifer calf, got by Sir Sampson out of a cow which I will name presently. It bids well. The next brought up for review were the 2-years old 1st prize winners at Hereford. They were both splendid. I liked on the whole the largest best, but the other was of very fine quality.

After these were reviewed, six more were driven up. They were all splendid animals, but, as before, two were superior to the others—a cow and heifer. The heifer was extra, but the cow was extra extra, and the best and most perfect animal that I ever saw. I believe it was a Hereford purchase. The yearling calf got by "Sir Sampson" was out of her, and the Hereford prize heifer, that I have mentioned before as my choice of the twain, was also out of her.

It is 16 miles from Rushton to Mappowder, and I could not find time before returning to go and see the whole herd, but I am satisfied that a Hereford reviewer, even Mr. Duckham, would not be disappointed. The worthy family, I am sure, would be highly approved of. I had but one sorrow that day—I looked for my kind and valued friend, but, alas! he was gone!

I have promised Mr. Levi Groves in course of time to go and pay him a visit and review his beautiful herd of Herefords. I will, in such case, report on them by his permission.

I must not forget to mention my servant's observation on the fine vale of Blackmoor, as I passed over

the high hill of Bull-barrow, which on a clear day commands a view nearly to Bath. "The Crystal Palace is the greatest wonder I ever saw, and that vale is the next greatest wonder."—"What," said I, "is the third wonder?"—"Why, sir, those Herefords!"

There are these things that I especially admire in the Herefords: their quietness, and their backs, rumps, setting on of the tail, chucks, fleshy thighs, flanks, bosoms, and their small bone below the knee. It is now seven years since I saw the whole of the fine herd. I can see by the samples shown to me that improvement has taken place. *W. F. Radclyffe, Tarrant Rushton.*

Calendar of Operations.

Gorse.—The following memorandum on this subject is taken from Morton's *Farmer's Calendar*:—"Gorse when cultivated as food for cattle, will yield a first cutting in November. It is cut with a small hook, somewhat resembling a reaping hook, but broader and more circular in the blade. A labourer accustomed to this work will speedily hew down whatever quantity of Gorse may be required. A hundred faggots are considered a good day's work, supposing the Furze to be strong and from 2½ to 3 feet high. The usual price for cutting is about 5*d.* to 6*d.* per score. Each faggot weighs from 15 to 20 lb.; and when bruised it takes 2 or 2½ faggots to make a bushel. The quantity of this description of green food which may be obtained from an acre will vary according to the thickness, height, and quality of the Furze; 2000 faggots may be reckoned an average crop, and will yield 800 to 1000 bushels of the crushed food. It is crushed either with a machine, half chaff-cutter, half mill, for the purpose, or simply with mallet and block.

"The food is usefully given to all kinds of stock. It is not to be expected, of course, that horses fed on green food can perform the same amount of work as others that are fed on such nutritious substances as hay and corn; but for the common purposes of husbandry, they can be kept in working order when partially fed on Gorse, and have coats as soft and silky as if they had been fed on Carrots, and kept in a warm stable. One great advantage to be derived from the feeding with Gorse is that it becomes fit for use at the time the horses are housed in autumn, and by occasionally using it during winter, it enables the farmer to dispense with a larger proportion of hay until the spring, when the horses are harder worked, and, of course, require to be better fed. For milch cows there is not a better description of winter food, or one that is more relished by them, than Gorse after it has been properly bruised.

"The average quantity given to working cattle is about 2½ bushels a day, with straw. On this meagre fare, it is astonishing how much labour they will perform. A moderate-sized cow will consume from 3 to 3½ bushels a day; but 2 or 2½ bushels, with a few Turnips and a few pounds of hay, may be considered a fair allowance."

Miscellaneous.

The Death of Mr. Hugh Watson, late of Keillor.—We regret to announce the death of this distinguished Scottish agriculturist, which took place at the Den, Perth, on the 10th inst. We take the following paragraph from *The Farmer*:—"At November, 1861, Mr. Watson retired from active life, having given up the Keillor farm, after occupying it for 54 years, under the Wharncliffe family; and the footing on which he stood with the noble proprietor will be best understood by the following anecdote, which was related by Mr. Watson at the farewell dinner given to him on his leaving Keillor:—'Twenty or thirty years ago, when making a survey of Keillor farm, for the purpose of improving it, the landlord and he (Mr. Watson) came to speak of the rent; but two words were not necessary on that subject, for Lord Wharncliffe just said, "I may safely leave it to yourself, Watson; for after what I have seen to-day, I think you have a better right to be here than I have."' When Mr. Watson entered upon Keillor farm, it was partly in a waste state, undrained, and unenclosed, but under his management it soon assumed a very different appearance, and when he retired from it, he left it in the highest state of cultivation. But it was not merely as a skilful cultivator that Mr. Watson won the distinguished reputation which has been so long attached to his name. What Colling was to the Shorthorn, Mr. Watson was to the polled Angus breed of cattle. He found them a narrow, thin-skinned, unsymmetrical description of animals, but, by the judicious system of breeding which he followed, he succeeded in securing improved symmetry, greater substance, and more mellow handling, with a propensity to fatten and a quality of flesh which has rendered the 'Angus doddies' one of the best breeds of British cattle. Mr. Watson, in fact, made the character of the Angus breed, and the Keillor herd is that to which all breeders of that description of cattle are anxious to trace back."

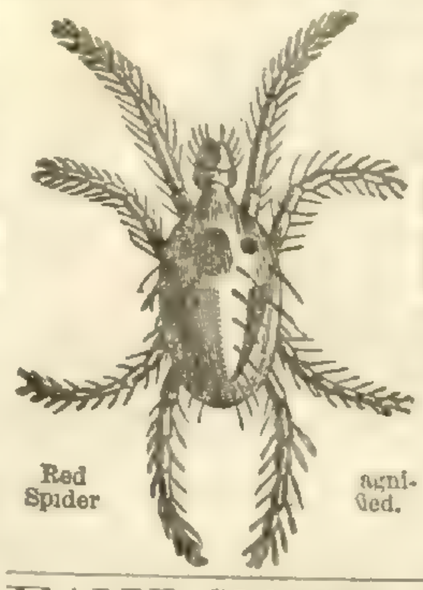
Notices to Correspondents.

BARLEY: *H C F.* Mr. Damen is well known in Dorchester. No doubt prices have risen since his address.

FEEDING STUFFS: *A Reader.* Mark Lane is the cheapest market anywhere

MILK: *N Y.* The difficulty is going now; keep out light and you keep out heat in great measure. Cold water is, of course, the main agent; but a dark cellar will help you.

GENUINE TOBACCO PAPER, in 4-lb. packets.
Price on application to
HENRY APPLEBY, Foreman to Messrs. Ivery & Son, Dorking, Surrey.



GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* each.

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PRICE'S PATENT
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EARTH CLOSETS (MOULE'S PATENT).
No Unwholesome Cesspools.
No Bad Smells.
No Water Pipes to get out of order.
The Best Night Commodes.
The Apparatus (price 25*s.* and 30*s.*) may be applied to any Closet at trifling cost, and is self-acting.
By its use a valuable Manure is saved, and Fertility to the Soil ensured.
Earth is recommended by the Privy Council, in their report on Cholera, as a deodoriser and disinfectant.

Extract from Letter received from the SECRETARY *of the* NATIONAL RIFLE ASSOCIATION.
"I am further directed to state that they (the Closets) proved of the greatest use, and were found to act admirably."
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OLDHAM SHOW, STAND 46.

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For samples and prices apply to
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Caution to Gardeners.—When you ask for SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the corporate mark OBTAIN WARRANTED, without which none are genuine.
S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by sellers and makers.
S. & C.'s Pruning and Budding Knives are the best and the cheapest in the market.
Parton Works, Sheffield. Established upwards of 125 years.

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Manufactory: Newport, Salop.
Warranted the strongest and most durable Fence ever offered at corresponding prices. It is easily repaired if broken from accidents, can be rolled up most compactly when not in use, is admirably adapted for exportation, and can be had of any height and mesh required, at prices from 4*d.* to 1*s.* 6*d.* per yard and upwards.
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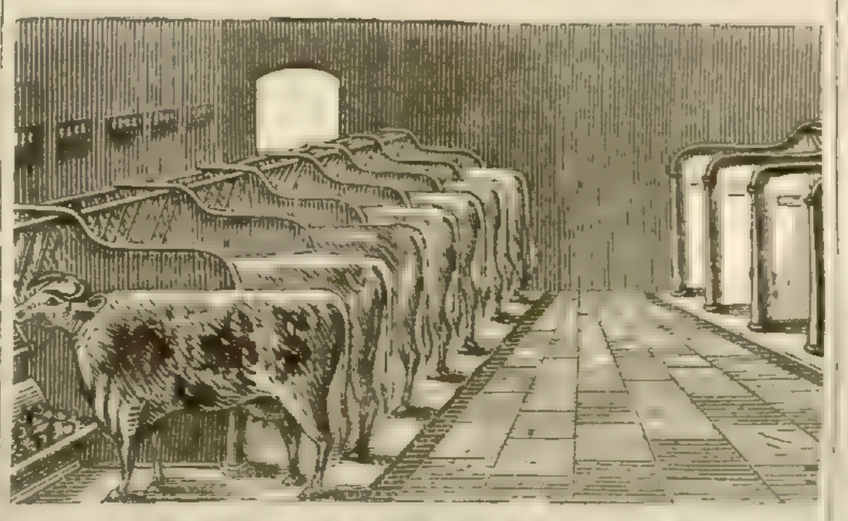
MUSGRAVE'S PATENT IRON COW STALLS and PIGGERIES, with fresh Air Inlets, as used in the Government Model Farms.



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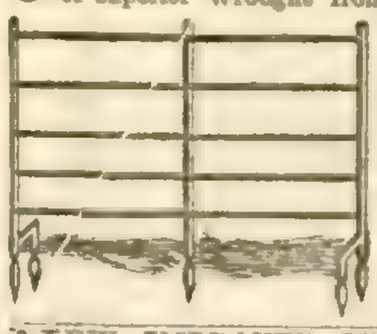

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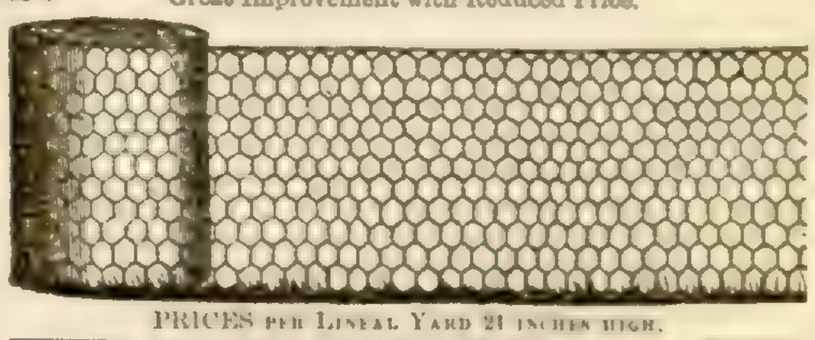

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Size of Mesh.	Mostly used for	Light. Jap	Light. Gal	Medium Jap	Medium Gal	Strong. Jap	Strong. Gal	Extra Strong. Jap	Extra Strong. Gal
		s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
2½ in.	Hares, Dogs, Poultry	0 3	0 4	0 3½	0 5	0 4½	0 6	0 5½	0 7
2 in.	Game or Poultry Netting	0 3½	0 4½	0 4	0 5	0 5	0 6½	0 6½	0 8
1⅔ in.	Small Rabbits, Hares, &c.	0 4	0 4½	0 4½	0 6	0 5½	0 7	0 7	0 9
1½ in.	Smallest Rabbits ..	0 5	0 6	0 5½	0 7	0 7	0 9	0 9	0 11
1 in.	Pheasantries, &c. ..	0 9	0 11	10½	1 1½	1 3	1 6	1 9	2 0
¾ in.	Aviaries, &c.	1 0	1 3	1 3	1 6	1 6	1 9	..	..

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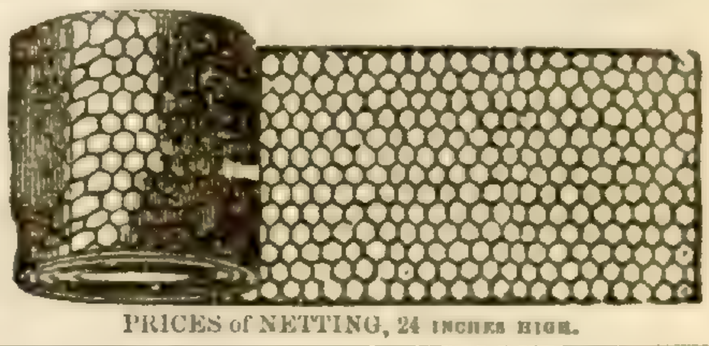

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Size of Mesh.	Proof against	Light, per Yard.	Medium, per Yard.	Strong, per Yard.	Extra strong per Yard.
2½ inch	Hares, Dogs, Poultry, &c.	4*d.*	5*d.*	6*d.*	7*d.*
2 inch	All kinds of Game ..	4½*d.*	5*d.*	6½*d.*	8*d.*
1⅔ inch	Small Rabbits, Hares, &c.	4½*d.*	6*d.*	7*d.*	9*d.*
1½ inch	Ditto Ditto ..	6*d.*	7*d.*	9*d.*	11*d.*

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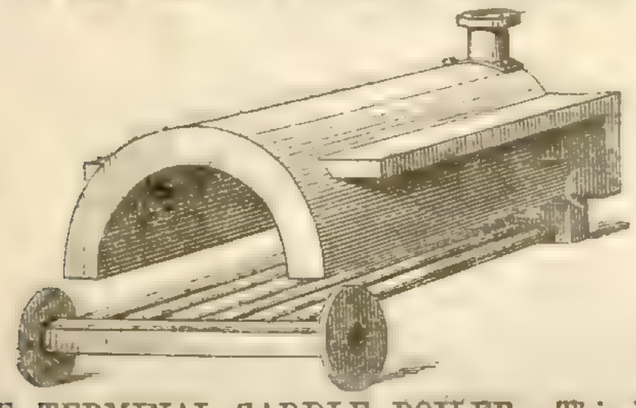

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The Only Stove without a Flue.

NASH AND JOYCE'S PATENT, for AIRING, DRYING, and WARMING HALLS, SHOPS, ROOMS, &c., a new especial Stove for Conservatories, Greenhouses, Fruit-Ripening, &c.; to Burn without re-lighting all winter by filling with fuel every 12 hours. Temperature, any degree required, without varying. Price from 12*s.* 6*d.* to 6 guineas.

MINCING and SAUSAGE FILLING and MASTICATING MACHINES of the best makers, 10*s.* 6*d.*

The COTTAGE KNIFE CLEANER is the only rapid Cleaner and Polisher of Knives at a moderate price. 3*s.* 6*d.* to 10*s.* 6*d.* Prospectus post paid.

S. Nash, Ironmonger, 253, Oxford Street, W.C.; and Stove Depôt, 119, Newgate Street, London, E.C.

Midland Steam Power Horticultural and Hot-water Works, Loughborough.

T. G. MESSENGER, the Proprietor of the above Works, finding it necessary (through the great demand for his Horticultural Buildings and Heating Apparatus) to make large additions to his Premises, and to Fit the same with an entire set of STEAM-POWER MACHINERY, is now enabled to execute any Orders entrusted to him with the greatest dispatch, and at the lowest possible price consistent with good and substantial work.

Illustrated Catalogues, Working Model, Plans and Estimates, free on application.

Dublin Exhibition Medal, 1865.

The ONLY PRIZE MEDAL for HORTICULTURAL BUILDINGS has been awarded to

T. H. P. DENNIS, Horticultural Builder in Wood and Iron, Hot-Water Engineer and Patentee, Chelmsford, Essex.

PATENT GALVANIZED METAL GREENHOUSES, "The Gardener's Own;" are tenant's fixtures.

PATENT GALVANIZED METAL ORCHARD HOUSES as supplied to Mr. Rivers, with his improved ventilation; are the most economical erection for this important branch of gardening.

PATENT GALVANIZED METAL VINERIES, CUCUMBER and MELON HOUSES, STOVES, PEACH HOUSES, &c.

PATENT GALVANIZED METAL GREENHOUSES, "The Novelty," are tenants' fixtures and the cheapest buildings extant as a Lean-to, 20 ft. long, including glass, with 8 ft. rafter, £10; 10 ft., £12 17*s.* 6*d.*; 12 ft., £16 16*s.*

PATENT GALVANIZED METAL WALL TREE COVER should be possessed by every one who has a garden wall; it is a tenants' fixture, and costs for walls, 6 ft. high, 8*s.*; 7 ft., 9*s.*; 8 ft., 10*s.*; 9 ft. 11*s.*, per foot run including glass.

PATENT GALVANIZED METAL and WOOD GROUND VINERIES and DWARF ORCHARD HOUSES, from 12*s.* 6*d.* to 25*s.* per pair, unglazed.

PATENT GALVANIZED METAL PIT LIGHTS, 4*d.* per foot.

PATENT GALVANIZED METAL HAND GLASS FRAMES, will not rust nor break, do not require painting, and are the best in use. Prices from 4*s.* to 8*s.* 6*d.* each. Special prices for quantities.

Illustrated Catalogues and estimates on application.

Card.

SAMUEL N. McGERROW,
General Horticultural Builder,
Knotty Ash, near Liverpool.

Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

Heating by Hot Water.

W. J. HOLLANDS, Iron Merchant,
31, Bankside, London, S.E.

HOT WATER PIPES, from Stock, per yard:—2-inch, 1*s.* 2*d.*; 3-inch, 1*s.* 10*d.*; and 4-inch, 2*s.* 4*d.* BENDS, from Stock, 1*s.* 6*d.*, 2*s.* 6*d.*, and 3*s* each. THROTTLE VALVES, 10*s.*, 13*s.*, and 14*s.* each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day. A discount to the Trade.

CRANSTON'S PATENT BUILDINGS for HORTICULTURE, Highly Commended by the Royal Horticultural Society, South Kensington. Plans and Estimates free on application. Houses of the following sizes always in stock:—Span, 30 by 15 feet, and 24 by 12 ft.; Half-span, 24 by 10 ft.; Lean-to, 24 by 8. Stereoscopic Slides of different houses post free for 6 stamps each.

Descriptive Book, fully illustrated, by post for 20 stamps from the Author and Patentee, James Cranston, Architect, No. 1, Temple Row West, Birmingham.

Horticultural Works, Kensal Green, London, W.

W. T. AND J. TAYLOR (late John Taylor & Sons), have on hand for Sale THREE very handsome WOOD and GLASS CONSERVATORIES made to order. Two of them were prepared for a gentleman residing in Park Lane, an objection being raised on account of their intercepting the view from the adjoining houses. They were not fixed.

Designs and Prices fixed complete in any part of the United Kingdom forwarded upon application.

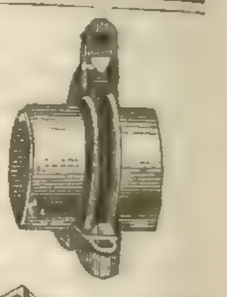
Heating by Hot Water.

HOT-WATER PIPES, at Reduced Wholesale Prices, with Elbows, Syphons, Tee Pipes, and every other connection; Wrought and Cast-iron Boilers, Saddle, Conical, Cylinder, Tubular, and Elliptic, from 24*s.* each. Improved Boilers and Iron Stands to use without brickwork, 56*s.* each. Valves from 10*s.* 6*d.* each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Castings of every description in stock, at

Mr. LYNCH WHITE'S Iron Wharf, Upper Ground Street, Blackfriars Bridge, London, S. Price List on application.

HOT-WATER APPARATUS,

WITH TRUSS' PATENT PIPE JOINTS.



T. S. TRUSS, C.E.,

53, GRACECHURCH STREET, LONDON, E.C.

By means of these Joints the work is executed in less than half the time required for Socket Joints, and alterations can at any time be made, or the entire Apparatus removed and erected elsewhere with the greatest facility. A considerable saving in cost is also effected.

These Joints have been used for several years, giving entire satisfaction, and may be seen in use at the Royal Horticultural Society's Gardens, South Kensington and Chiswick, and many other places in Horticultural and Public Buildings.

For a few prices, see last week's Advertisement.

ESTIMATES, PLANS, AND PRICE LISTS FORWARDED ON APPLICATION.

NEW TARIFF OF GLASS AND HORTICULTURAL GOODS.

HAND GLASSES.

THOMAS MILLINGTON,

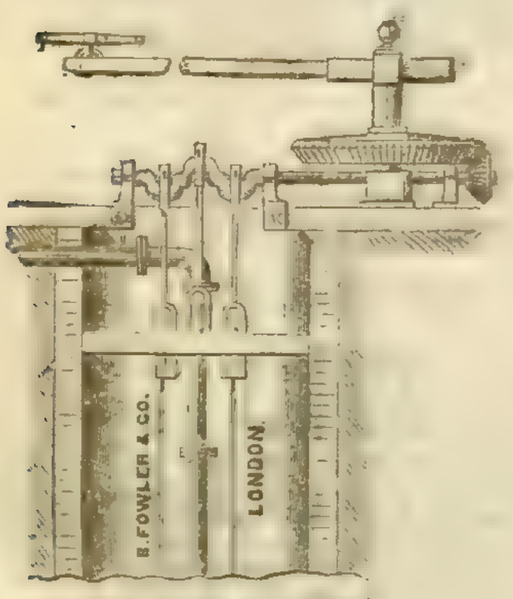
GLASS AND COLOUR MERCHANT,

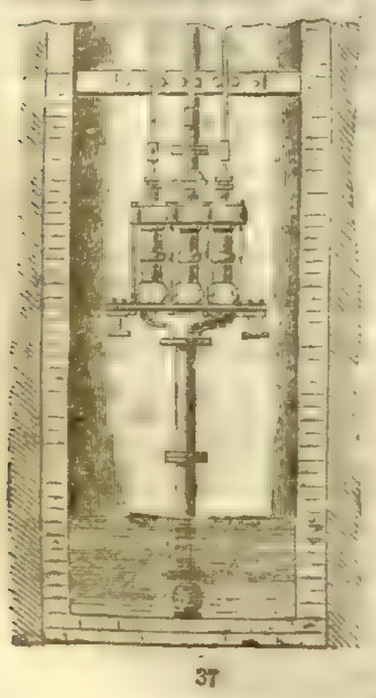
87, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

PRESERVE JARS.

MILK PANS.

REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.





37

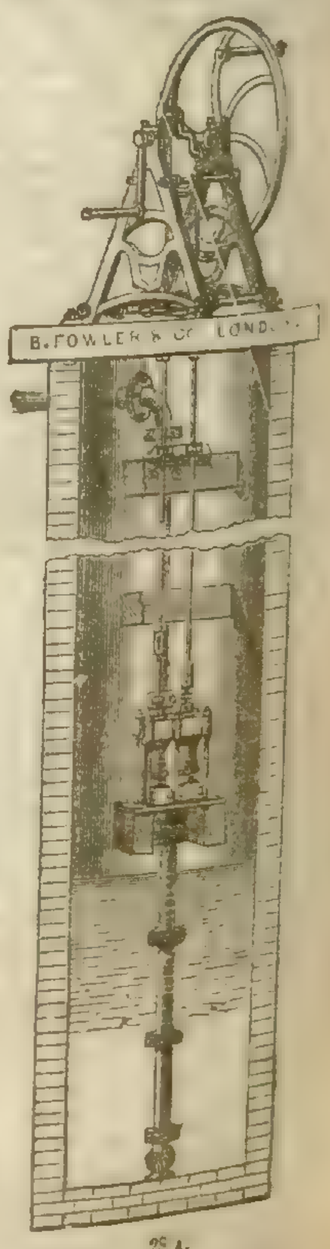
CLINTON & OWENS

(late BENJAMIN FOWLER & CO.)

MANUFACTURERS OF

PUMPS AND HYDRAULIC MACHINERY,

WHITEFRIARS STREET, FLEET STREET, LONDON, E.C.



28 A.

THE LANDSCAPE SKETCH shows an adaptation of THE IMPROVED HYDRAULIC RAM. This is a simple Self-acting Machine, suited for raising a Supply of Water for use in Public and Private Establishments. Its adoption is not confined to positions as shown, but it is suited for any situation where a Fall can be obtained from a Stream, Brook, or Spring.

Messrs. Clinton & Owens have fixed a great many in various parts of the country for raising from 600 to 6000 or more Gallons per day to elevations varying from 50 to 300 feet, and forcing through main pipes 50 yards to several miles in length.

No. 37. IMPROVED TREBLE BARREL PUMPS with HORSE GEARING for Raising Water from DEEP WELLS for the supply of MANSIONS and PUBLIC BUILDINGS.

No. 28*a*. DOUBLE BARREL PUMPS for HAND-POWER for similar purposes.

Messrs. Clinton & Owens Manufacture and Erect every description of Engineer's Work required in Public or Private Establishments, such as Pumps for any purpose on the largest or smallest scale, Steam Engines, Water Wheels, Turbines, Warming and Drying Apparatus, Baths, Gas Works and Fittings. Estimates furnished from Plans or on inspection of position.

Price Lists of Pumps, &c. free on application

Cheap Greenhouse Stoves.

DEANE AND CO.'S Patent VENTILATING and SUSPENSION STOVES are simple, cheap, and efficient; have been largely adopted and approved; will burn many hours without attention, and at a small cost for fuel. Prices of Suspension Stoves, 25s., 28s., 38s., and upwards. Ventilating Stoves, 50s., 60s., 70s., 90s.

HOT-WATER APPARATUS for Conservatories, Greenhouses, Hothouses, Forcing Pits, &c., erected and fitted up complete.

DEANE & Co., 46, King William Street, London Bridge, E.C.
Established A.D. 1700.

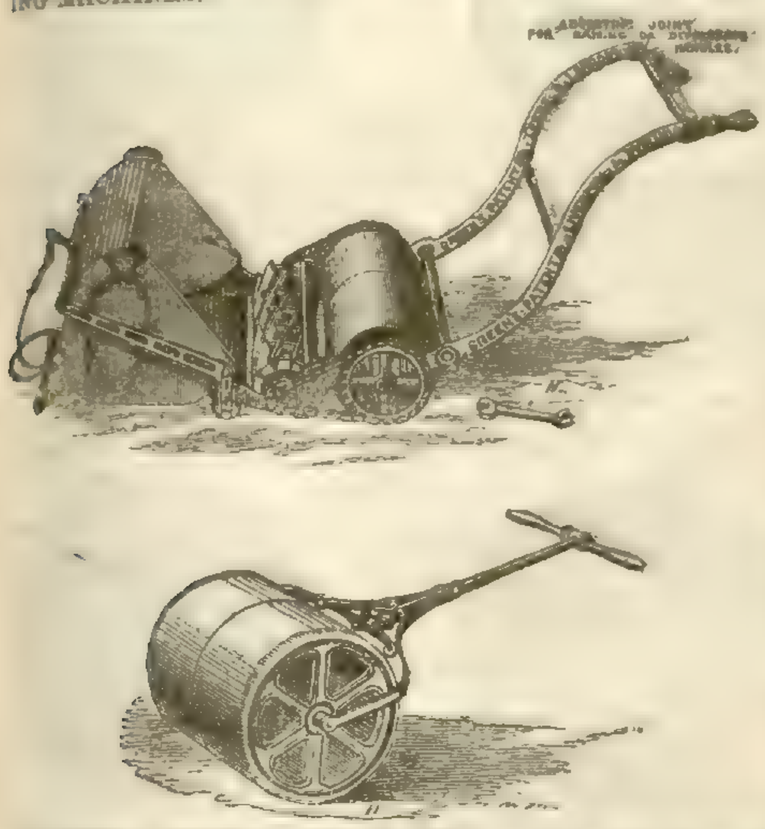
GREENHOUSES for SALE, fit for use.—One, Two, and Three-Light GARDEN FRAMES. Single Frame, 18s. 6d. each. PIT LIGHTS, various sizes, kept in stock; Ditto, made to order, 9 inches thick, at 8d. per foot. Apply to

JAS. SMITH, 205, King Street, Hammersmith, W.

SMITH, BECK, AND BECK'S GREENHOUSE and HOTBED THERMOMETERS.—These Instruments are of the very best construction, and at moderate prices.

31, Cornhill, E.C.

GREEN'S PATENT SILENS MESSOR, or NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.



GREEN'S PATENT LAWN MOWERS have proved to be the best, and have carried off every Prize that has been given in all cases of competition. Above 26,000 have been sold since the year 1856.

Illustrated Price Lists of Lawn Mowers and Garden Rollers Free.

THOMAS GREEN & SON, Smithfield Iron Works, Leeds; 2, Farringdon Road, Holborn Hill, London, E.C.; Hadwin's Buildings, Tithebarn Street, Liverpool; and 19 Eden Quay, Dublin.

JURY AWARDS, DUBLIN EXHIBITION.—Honourable Mention for IMPROVED STEAMING and BATH APPARATUS and appliances, awarded to FREDERICK THOMAS, 72, Bishopsgate Within, E.C. Bath-rooms fitted up in the best manner.

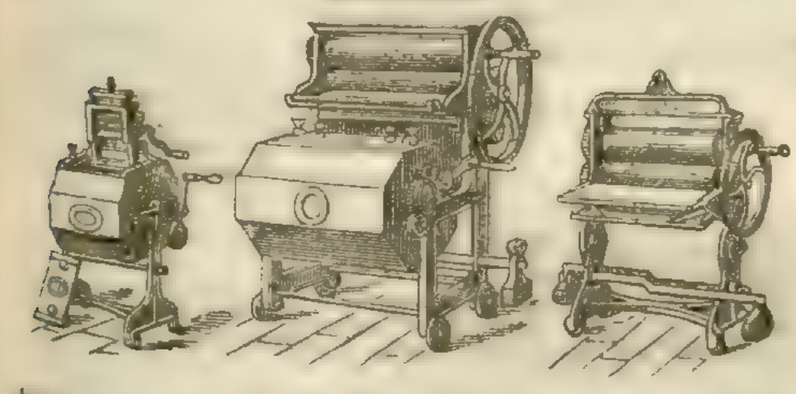
BROWN AND GREEN'S KITCHEN RANGES.—The PRIZE MEDALS, London, 1862, and Dublin, 1865. The New Patent, "A Close Range with an Open Chimney," cures smoky Chimneys, avoids all close heat or smell. Prospectus post free.

FREDERICK THOMAS, 72, Bishopsgate Within, E.C.

A CLOSE RANGE with an OPEN CHIMNEY.—Prize Medal awarded to BROWN & GREEN at the Dublin International Exhibition. No Smoky Chimneys. No close heat or smell.

FREDERICK THOMAS, 72, Bishopsgate Within, E.C.

BRADFORD'S NEW "VOWEL" WASHING MACHINES.



A remarkable success. Approved by Laundresses. Awarded Seven Prize Medals this year (the only Medals at Dublin and Cologne International Exhibitions). The letters of unqualified approval received from purchasers daily (many with permission to publish) justify the Patentees in publicly soliciting a trial, which is allowed free of carriage or expense.

THOMAS BRADFORD & Co., 63, Fleet Street, London, E.C.; Cathedral Yard, Manchester; Dawson Street, Dublin. Catalogues post free.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.

PROTECTION from COLD WINDS and MORNING FROSTS. "FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.

Two yards wide	1s. 9d. per yard run.
Four yards wide	3s. 6d. per yard.
An improved make, 2 yards wide ..	1s. 9d. per yard.
An improved make, 3 yards wide ..	2s. 8d. per yard run.

Also "Frigi Domo" Netting, 2 yards wide, 1s. 6d per yard run.

ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, and of all Nurserymen and Seedsmen throughout the kingdom.

"It is much cheaper than Mats as a covering."

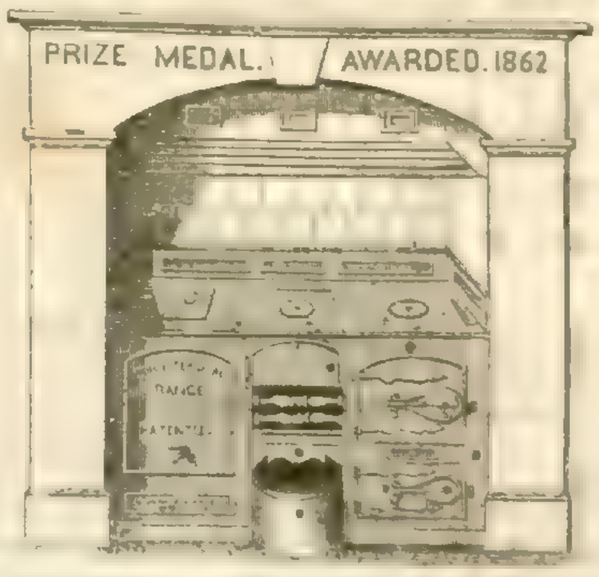
PATENT GUTTA PERCHA SOLES.—IMPORTANT TO GARDENERS.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. GLENNY, Esq., the celebrated Florist:—

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the sound parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles.—Your obedient servant, "G. GLENNY.

A very variety of Gutta Percha articles, such as Mill Bands, Tubing Hose, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints Corks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags Urinal Rings, Galvanic Batteries, Calbotype trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town or country.

The GUTTA PERCHA COMPANY, Patentees, 18, Wharf Road, City Road London, E.C.

PATENT WORCESTERSHIRE RANGE.



PRIZE MEDAL 1862. Awarded for excellence.

The ADVANTAGES of the above RANGE.—Two Ovens are heated with the same amount of COAL as one of any other.

CONVENIENCE of COOKING. Great saving of Fuel and Labour, Universal Adaptability, Cleanliness, Comfort, Durability, and for simple arrangement is not surpassed.

Warranted to CURE a SMOKY CHIMNEY.

Inventors and Manufacturers, JONES & ROWE, Worcester.

London Agents, BARRON, SON, & WILSON, Ironmongers to her Majesty, 436, West Strand.

ILLUSTRATED CATALOGUES, with Prices and Books of Testimonials, forwarded on application.

J. WARNER AND SONS, London,

Manufacturers of

BOHEMIAN

FLOWER VASES

AND

HYDRO-CARBON

LAMPS.

The Lamp lifts out of the Vase, requiring no fixing.

Is fitted either with

WARNER'S

KOH-I-NOOR,

OR THE ORDINARY

FLAT-WICK BURNER.

The Koh-i-Noor Burner produces a superior light to the Moderator, at a much less cost, and is not liable to get out of order.

The Opal Vases are made in the best style of Bohemian Glass, and beautifully decorated.

	Round Burner	Flat.
With Gold Bead	23s. 6d.	14s 6d
With Gold Lines	25 6	16 6
With Rose Colour, Greek Border	30 0	21 0
With Red Medallion (Antique)	32 0	23 0
With Blue Medallion (Antique)	32 0	23 0
Ruby Glass, fluted with gold lines	46 0	37 0
Emerald or Ruby, richly decorated with gold.	63 0	54 0

May be obtained of the Trade throughout the United Kingdom.

Milk Walk.

TO BE LET, a MILK WALK, with Refreshment Rooms, Cottage, and about 16 acres of Grass Land, adjoining the sylvan glades of Larpool, and within a mile of the fashionable watering place of Whitby.

Apply to Mr. FERME, Whitby.

TO BE DISPOSED OF, a first-class NURSERY and SEED BUSINESS, in and near one of the principal towns in England. None need apply who have not from £2000 to £3000 at hand, the present proprietor wishing to retire.

Address, X. Y. Z., *Gardeners' Chronicle* Office, W.C.

Kendal.

TO BE LET on LEASE, the BIRDS PARK FARM, about 190 acres, with good House and Buildings, within three-quarters of a mile of the town, nearly all Grazing Land in good condition. Possession of part immediately, remainder usual time in spring. Also 5 acres good Grazing Land in centre of town, close to market, and newly drained. Thomas Airey, the present tenant, will show the Land.

For terms apply to Mr. R. KNOWLES, East Plain, Flookborough, Newton in Cartmel.

Berwickshire.

TO BE LET on LEASE, UNFURNISHED, or partially FURNISHED, WEDDERBURN CASTLE, situated in the Parish of Dunse, and within two miles of the Dunse and Edrom Stations on the North British Railway.

The House contains five Public Rooms, seven Bedrooms, besides Servants' Apartments. There are Stables for ten horses, Double Coach-houses, Byres, Yards, &c.; a good Kitchen Garden, and seven Cottages for Servants, together with about 220 imperial Acres of excellent Grass Land and Ornamental Plantations.

Immediate possession can be had to the House, Gardens, Pleasure Grounds, and Offices, and to the Pasture Land on the 1st January, 1866. Fox Hounds and Hariers hunt in the neighbourhood, and good Trout Fishing and Shooting may be obtained if required.

For particulars apply to Mr. A. HUTTON, Factor, Milne Graden Coldstream. David Swanston, the Steward at Wedderburn, will show the House and Lands.—Milne Graden, November 18.

To Nurserymen, Florists, and Gardeners.

ROSE HILL NURSERY, BRIGHTON.

TO BE LET, with Immediate Possession, a very compact HORTICULTURAL ESTABLISHMENT, situated at the north part of the above improving town, surrounded by villas and other property, securing a good trade. The present occupier (who is relinquishing the professional) has successfully carried on a business for 9 years, and devoted every attention to improve the Hot-water Apparatus, Vine Borders, Potting Sheds, &c. Grounds are about 5 acres, a nice convenient Dwelling House attached, a Show House for the sale of plants, seeds, &c.; and 11 others, consisting of Graperies, Peach House, Forcing Houses for plants, Greenhouses, Pits, and Frames. The whole of the Graperies stocked with productive Vines, having been recently planted. New Borders made with the most appropriate compost; the Peach House well stocked with trees; the Plant Houses stocked with suitable sorts to command sale; also the Borders and Quarters with hardy plants. A Seed and Jobbing Trade; 11 years unexpired Lease, at the end of which 21 more are secured. The whole to be taken to at valuation unless otherwise agreed on. To any skilful and industrious man such a opportunity seldom offers.

For particulars of terms, &c., apply to Mr. SPARY, Queen's Graperies; or Mr. CRUTTENDEN, Rose Hill Nursery, Brighton.

Coventry.

TO BE DISPOSED OF, the old established NURSERIES, eligibly situated in the best thoroughfare within five minutes' walk of the Coventry Railway Station, nearly 7½ Acres of valuable Land, cropped with Fruit Trees and other Nursery Stock; Vinery, Greenhouses, ranges of Pits, capital Seed Shop, Sheds, Greenhouse Plants, Utensils in Trade, altogether presenting a rare opportunity to any energetic Man, having every facility for carrying out a first-class business.

For particulars apply to PROTHEROE & MORRIS, American Nurseries, Leytonstone, Essex, N.E.

Sales by Auction.

SALE THIS DAY AT HALF-PAST TWELVE PRECISELY.

Consignment of Plants and Bulbs from Holland and Belgium.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, November 18, at half-past 12 o'Clock precisely, without reserve, a splendid assortment of FRUIT TREES, Roses, Specimen Conifers, Hardy Evergreens, Hyacinths, Tulips, Crocuses, Narcissus, &c., from Holland; Rhododendrons, Aloes, Lilliums, &c., from Ghent; Rustic Garden Seats, &c.

On view the Morning of Sale, and Catalogues had.

Periodical Sale of Poultry and Pigeons.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, November 21, at half-past 12 o'Clock precisely, a first-class assortment of POULTRY and PIGEONS, from the yards and lofts of well-known breeders and exhibitors.

On view the Morning of Sale, and Catalogues had.

Standard Roses, Fruit Trees, Specimen Conifers

AND SHRUBS, CAMELLIAS, AND OTHER GREENHOUSE PLANTS, DUTCH BULBS, &c.

MR. J. C. STEVENS will sell by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, November 22, at half-past 12 o'Clock precisely, a Consignment of CAMELLIAS and other GREENHOUSE PLANTS from Ghent; Standard, Pyramid, and Trained Fruit Trees, Rhododendrons, Hardy Azaleas, &c., from Holland; 1500 Standard Roses from several growers (fine plants and good varieties), and a Collection of specimen Conifers for Lawns; Portugal Laurels, Irish Yews, Hollies, and other Plants from well-known growers in Surrey and Middlesex.

On view the Morning of Sale, and Catalogues had.

Imported Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Room, 38, King Street, Covent Garden, W.C., on THURSDAY, November 23, at half-past 12 o'Clock precisely, an importation of splendid NEW ORCHIDS, received from Mr. J. Linden's Collection in South America, comprising the following very choice sorts in fine condition:—

Oncidium cuculatum macrochilum	Cattleya superba
Oncidium Diadema	Trichopilia sp nova
" macranthum	Odontoglossum Halli
	" cirrhatum

A CASE of ORCHIDS collected by the late Mr. Bridges in Central America. Also a consignment of Plants from Sidney, consisting of Orchids, Ferns, &c.

On view the Morning of Sale, and Catalogues had.

Egg of the Moa or Dinornis, from New Zealand.

MR. J. C. STEVENS has received instructions to offer for SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on FRIDAY, Nov. 24, at 2 o'Clock, a Specimen, nearly perfect, of this VERY RARE and REMARKABLE EGG, the Bird of which is now presumed to be quite extinct. The Egg has just arrived, per Ship "Ravenscraig," and is probably the Dinornis ingens of Owen.

The Egg will be on view the Day prior and Morning of Sale.

Consignment of Plants from Holland.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, November 25, at half-past 12 o'Clock precisely, a splendid Assortment of Dwarf trained CHERRY, APRICOT, PEACH, APPLE, PEAR, and PLUM TREES; Specimen Conifers for Lawns, Standard and Dwarf Roses, Hardy Shrubs, &c.

On view the Morning of Sale, and Catalogues had.

Consignment from Ghent for absolute Sale.

IMPORTANT TO GENTLEMEN, NURSERYMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION, at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., on TUESDAY, November 21, at half-past 12 o'clock precisely, about 400 CHOICE CAMELLIAS and AZALEA INDICA, compact plants, 1 to 3 feet, consisting of the most approved kinds, beautifully furnished with bloom buds; Ericas, Epacris, 1000 remarkably fine Bulbs of Lilium lancifolium rubrum, punctatum, roseum, album, &c.; about 400 very handsome Standard, Half-Standard, and Dwarf Roses, with clean straight stems, bushy heads, and fibrous roots, including the finest Hybrids, Bourbons, Chinas, &c., together with a rich assortment of American Plants, &c.

On view the Morning of Sale. Catalogues had at the Rooms, as above; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Sale of Dutch Bulbs, Standard and Dwarf Roses, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., on THURSDAY, November 23, at 1 o'Clock precisely, a first-class Collection of DUTCH BULBS, consisting of the finest Double and Single Hyacinths, Narcissus, Jonquils, Anemones, Crocus, Tulips, Ranunculus, Gladiolus, Snowdrops, &c., a fine Assortment of 300 handsome STANDARD and DWARF ROSES; selected AMERICAN PLANTS, including Ghent and other Azaleas, Hybrid Rhododendrons, Kalmias, &c.

On view the Morning of Sale. Catalogues had at the Rooms, as above; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Stoke Newington.

To GENTLEMEN, NURSERYMEN, BUILDERS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. JAMES KIRTLAND to SELL by AUCTION on the premises, Albion Road Nursery, Stoke Newington, N.E., on MONDAY, Dec. 4, at 11 o'Clock, a portion of the valuable NURSERY STOCK, consisting of Evergreen and Coniferæ Shrubs; ornamental Fruit and Forest Trees, including fine bushy Aucubas, Common and Portugal Laurels, Thujas aurea and chinensis, Hybrid and Pontucum Rhododendrons, Green Hollies, Privet, Cedrus Deodara, Standard Apples, Dwarf-trained Peaches, Nectarines, Apricots, and Cherries; Acacias, Laburnums, Weeping Ash, Willows, Elms, &c.; a fine assortment of Standard and Dwarf Roses, White and Yellow Brooms, Ghent Azaleas, &c.; with a variety of Greenhouse Plants.

May be viewed prior to the Sale. Catalogues may be had on the premises, and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

To Market Gardeners and Others.

MR. GOMME has received instructions from the Executors of the late Mr. W. H. Chapman, to SELL by AUCTION, on the Premises, near the Seven Stars, Starch Green, New Road, Hammersmith, W., on THURSDAY NEXT, November 23, at 11 for 12 o'Clock, all the STOCK and IMPLEMENTS in the TRADE appertaining to the Business of a MARKET GARDENER, comprising Two nearly new Large Spring Vans, a Strawberry Van, Dung Carts, a strong useful Black Mare, 15 hands; Two large Waterproof Market Cloths, Potato Earther, Scarifier, Horse Hoe, Rounds, Barges, Sieves, 16 Round Ladders, Shades, Forks and Barrows, Capital Four-Wheel Chaise, Four Sets of Harness, Iron Hurdles, Erections of Sheds, and Stabling, and numerous useful Effects; together with the choice young Nursery Stock, consisting of Lancashire Lads and Dobson's Monarch Gooseberry Trees, White Currant, Wellington Apple, Morello Cherry, Quatas and other Pear Trees, Rhubarb Roots, Two large Walnut Trees (select).

May be viewed two days prior to the Sale, and Catalogues had of Messrs. FARNELL & BRIGGS, Solicitors, Isleworth, W.; Green Man, Covent Garden, W.C.; Mail Coach, Farringdon Street, E.C.; of Mr. J. S. GOMME, Auctioneer, 10, Bucklersbury, E.C.; and of the Surveyor and Land Agent, 99, King Street, Hammersmith, W.

PAUL'S NURSERIES, WALTHAM CROSS, N.

WILLIAM PAUL

(SON and SUCCESSOR to the late A. PAUL,)

BEGS TO OFFER THE FOLLOWING LEADING ARTICLES OF FIRST-RATE QUALITY:—

ROSES.

STANDARDS, 15*s.* to 18*s.*; new sorts, 24*s.* to 42*s.* per doz. | DWARFS, 12*s.* to 18*s.*; new sorts, 24*s.* to 30*s.* per doz.
CLIMBING, 9*s.* to 12*s.* per doz.

The "ROSE GARDEN," Second Edition, with numerous Woodcuts, 6*s.* 6*d.*

DUTCH BULBS.

HYACINTHS, 6*s.* to 15*s.*; new sorts, 18*s.* to 30*s.* per doz.
BEDDING HYACINTHS, 18*s.* to 34*s.* per 100.
EARLY TULIPS, 1*s.* to 4*s.* per doz.
POLYANTHUS NARCISSUS, 3*s.* to 6*s.* per doz.
CROCUSES, 2*s.* to 4*s.* per 100.
GLADIOLI, 4*s.* to 12*s.* per doz.
And all other Bulbs equally reasonable.

BEATON'S GERANIUMS.

Reduction in price; the Set of 16 Varieties, 32*s.* These have now been thoroughly tested, and have proved even superior to the descriptions originally given of them; they have also been pronounced by many leading horticulturists indispensable in the future of every well-arranged flower garden.

FRUIT TREES, in and out of Pots.

Standard and Dwarf-trained Pyramid and Dwarf PEACHES, NECTARINES, APRICOTS, APPLES, PEARS CHERRIES, PLUMS, GOOSEBERRIES, CURRANTS, RASPBERRIES, STRAWBERRIES, FIGS, and FILBERTS. A selection of all the really good sorts, both young and fruiting trees, in splendid condition.

GRAPE VINES.

Two Thousand Fruiting and Planting, including the newest sorts.

EVERGREEN and ORNAMENTAL TREES.

One Thousand Species and Varieties, selected in a great measure for the beauty of their foliage.

PRICED DESCRIPTIVE CATALOGUES free by post.

UPWARDS OF 60 PRIZES FOR ROSES DURING THE PAST SEASON.

PAUL & SON,

OLD CHESHUNT NURSERIES, CHESHUNT, N.,

BEG TO ANNOUNCE GENERAL PRICES FOR THE SEASON FOR

ROSES, FRUITS, HOLLYHOCKS, ETC.

Roses selected from our stock of above 100,000 of first-rate quality.

STANDARDS and HALF-STANDARDS, 18*s.* to 30*s.* doz. | DWARF STANDARDS and DWARFS, 9*s.* to 18*s.* doz.
NEW ROSES of 1865 (a first-rate year), 30*s.* to 42*s.* per doz.
DWARFS and STANDARDS of NEW YELLOW NOISETTE, MARECHAL NIEL, 5*s.* each.

Fruits, all well formed Trees.

APPLES, 5 to 6 feet, fine stems, Standards, 18*s.*; Pyramids, 18*s.* to 30*s.*; Dwarf-trained, 30*s.* to 36*s.* per dozen.
PLUMS, CHERRIES, PEARS, Standards, 24*s.*; Pyramids, 24*s.* to 42*s.*; Dwarf-trained, 42*s.* per dozen.
PEACHES, NECTARINES, and APRICOTS, all well trained, Standards, 7*s.* 6*d.* to 10*s.* 6*d.*; Dwarfs, 5*s.* each.
VINES and FIGS, very strong for Planting, or for Fruiting, 60*s.* per dozen.
RASPBERRIES, 16*s.*; CURRANTS and GOOSEBERRIES, 24*s.* to 30*s.* per 100.

HOLLYHOCKS, in fine variety, 9*s.* to 12*s.*; new kinds, 18*s.* to 30*s.* per dozen.
CONIFERÆ, DECIDUOUS and EVERGREEN ORNAMENTAL TREES and SHRUBS, all at reasonable prices.
RHODODENDRONS and AMERICAN PLANTS in quantity, at our

NEW AMERICAN NURSERIES, HIGH BEECH, ESSEX.

NEW PRICED DESCRIPTIVE ROSE, FRUIT, and other LISTS free on application.

Vines, extra extra strong.

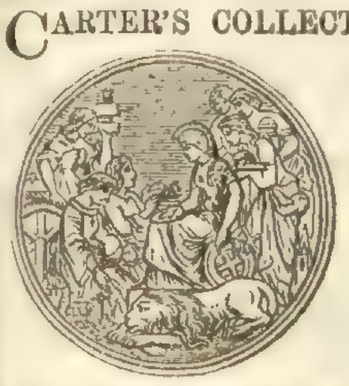
FRANCIS AND ARTHUR DICKSON AND SONS have now ready for sending out some 2000 extra fine well-ripened VINES, including all the NEW and leading kinds, true to name. Many as thick as the "little finger."
LIST of kinds, with prices, sent free by post on application.
"Upton" Nurseries, Chester.

2000 VINES, from Eyes, strong and extra strong, for immediate Fruiting in Pots, and for Planting out; including all the leading varieties, with stout, close-jointed and thoroughly ripened Canes, many of which will produce from 4 lb. to 8 lb. of Grapes next season. Prices and particulars upon application to
JAMES DICKSON & SONS, The "Newton" Nurseries, Chester.

Fruiting Vines, Camellias, &c.

JAMES CARTER AND CO. have NOW on VIEW in their Crystal Palace Nursery, Perry Hill, Sydenham, S.E., a large and choice COLLECTION of extra strong FRUITING VINES in Pots, well-ripened, and sure to produce a heavy crop of Fruit, from 10*s.* 6*d.* to 12*s.* 6*d.* each; also, a large assortment of the best kinds of CAMELLIAS, well set with Buds, at 24*s.* to 42*s.* per dozen; also, a choice COLLECTION of CHRYSANTHEMUMS, fit for present season's blooming, at 6*s.* per dozen.
PRICE LISTS gratis and post free on application to
JAMES CARTER & Co., 237 and 238, High Holborn, London, W.C.

CARTER'S COLLECTIONS of PICKED BULBS



For the convenience of those of our Customers who do not wish the trouble of selecting for themselves, we offer the under-mentioned COLLECTIONS of BULBS, which contain, respectively, all the sorts required for the purpose mentioned; and, the choice of varieties being left to ourselves, we offer the entire Collection at a much lower rate than if the sorts had been chosen at the option of the Purchaser.

No. 1. Complete Collection of Bulbs for Forcing, including Basket and Packing, price 84*s.*
No. 2. Complete Collection of Bulbs for Forcing, including Basket and Packing, price 42*s.*
No. 3. Complete Collection of Bulbs for Forcing, including Box and Packing, price 21*s.*
No. 4. Complete Collection of Bulbs for Conservatory and Outdoor Planting, including Basket and Packing, price 84*s.*
No. 5. Complete Collection of Bulbs for Conservatory and Outdoor Planting, including Box and Packing, price 42*s.*
No. 6. Complete Collection of Bulbs for Conservatory and Outdoor Planting, including Box and Packing, price 30*s.*
No. 7. Complete Collection of Bulbs for Conservatory and Outdoor Planting, including Box and Packing, price 15*s.*
No. 8. Complete Collection of Bulbs for Outdoor Planting only, including Basket and Packing, price 84*s.*
No. 9. Complete Collection of Bulbs for Outdoor Planting only, including Box and Packing, price 42*s.*
No. 10. Complete Collection of Bulbs for Outdoor Planting only, including Box and Packing, price 21*s.*

PRICE LIST gratis and post free on application to JAMES CARTER & Co., 237, 238, and 261, High Holborn, London, W.C.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY, Limited,
CORN, SEED, MANURE, and OILCAKE MERCHANTS,
Address, 89, Seed Market, Mark Lane, E.C.; or Basingstoke.
Samples and Prices Post free on application.
Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

Smithfield Club Show.—Stand No. 98 (Galleries).

WILLIAM SKIRVING begs to announce to his Friends and the Public that he will ATTEND, as usual, at the ensuing London Cattle Show (Agricultural Hall, Islington), to Exhibit ROOTS and Take Orders for AGRICULTURAL SEEDS of the most approved kinds.
Liverpool.—November 18.

To Farmers, Gardeners, and the Trade.

EXCELLENT STRONG CABBAGE PLANTS may be had in large or small quantities of the following well-known good sorts at 2*s.* 6*d.* per 1000 for cash:—Early Nonpareil, Early York, East Ham, Robinson's, Large Drumhead or Cattle.
A SPECIAL PRICE LIST of NEW SEEDS on application.
A remittance must accompany all orders.
FREDERICK GEE, Seed Merchant and Grower, Biggleswade, Beds.

COLLECTIONS of BULBS.

The COVENT GARDEN COLLECTIONS,

Part for In and part for Out-of-door Decoration, 10*s.* 6*d.*, 15*s.* 6*d.*, 21*s.*, 42*s.*, 63*s.*, & 105*s.*

COLLECTIONS of BULBS.

The PAXTONIAN COLLECTIONS,

For the Ornamentation of the Spring Garden, 10*s.* 6*d.*, 15*s.* 6*d.*, 21*s.*, 42*s.*, 63*s.*, & 105*s.*

WINTER and SPRING GARDENING (Orders amounting to 21*s.* sent carriage paid).

200,000 CROCUS, 100,000 SNOWDROPS, 50,000 HYACINTHS, 100,000 TULIPS, SCILLA SIBIRICA, NARCISSUS, RANUNCULUS, ANEMONES, &c.

THE CLIVEDEN COLLECTIONS of SPRING-BLOOMING PLANTS, drawn from the Stock at Cliveden.

150 PANSIES ASSORTED | 200 DAISIES ASSORTED | 100 FORGET-ME-NOT | 100 SILENE | 50 COWSLIPS.

The above, 105s.; Half the quantity, 50s.; Quarter do., 25s.; Eighth, 12s. 6d.

FORGET-ME-NOT, blue	5*s.* 6*d.* per 100	DAISY, pink	10*s.* 6*d.* per 100	SAPONARIA, pink	5*s.* 6*d.* per 100
" white	7 6 "	" white	10 6 "	" white	5 6 "
SILENE, pink	5 6 "	POLYANTHUS, mixed	12 6 "	ARABIS ALPINA	15 0 "
" white	5 6 "	COWSLIPS, mixed	12 6 "	" LUCIDA	50 0 "

STANDEN'S GARDENER'S and AMATEUR'S FRIEND, the best Manure for Chrysanthemums, &c. See Advertisement, page 1080.

Editorial Communications should be addressed to "The Editor," Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by WILLIAM BRADBURY, of 13, Upper Woburn Place, in the Parish of St. Pancras, in the Co. of Middlesex, and FREDERICK MULLETT EVANS, of No. 11, Bouverie Street, in the Precinct of Whitefriars, City of London, Printers, at their Office, Lombard St., Precinct of Whitefriars, City of London, and Published by them at the Office, No. 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said Co.—SATURDAY, November 18, 1865.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 47.—1865.] SATURDAY, NOVEMBER 25. {Price Fivepence. {Stamped Edition, 6d.

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ROYAL HORTICULTURAL SOCIETY.—INTERNATIONAL FRUIT SHOW, SATURDAY, Dec. 9, to SATURDAY, Dec. 16, inclusive. English Amateurs and Gardeners are reminded that the Society are offering FOUR GOLD MEDALS in Class 5, on the terms stated in Paragraphs 6, 7, 8, and 9 of the Schedule.

Chrysanthemums.

ADAM FORSYTH begs to inform his friends and the public that his Specimen and other CHRYSANTHEMUMS are NOW in FLOWER, and can be seen every day, Sunday excepted.
Brunswick and Shacklewell Nurseries (opposite West Hackney Church), Stoke Newington.

NEW CHRYSANTHEMUMS, 1865, are now ready in strong Plants at 5s. per doz.
W. HOLMES, Frampton Park Nursery, Hackney, N.E.

200,000 CROCUS, 100,000 SNOWDROPS, 100,000 TULIPS, 50,000 HYACINTHS, for Winter and Spring Blooming.
BARR & SUGDEN, Seed and Plant Merchants, 12, King Street, Covent Garden, W.C. FLORAL GUIDE free on application.

LILIUM AURATUM BULBS WANTED.—State average weight of each Bulb and price per dozen for cash.
BARR & SUGDEN, 12, King Street, Covent Garden, W.C.

FINEST DUTCH CROCUS, from 1s. 6d. to 3s. 6d. per 100. Finest BORDER TULIPS, 6s. per 100. SINGLE and DOUBLE SNOWDROPS, 2s 6d. per 100.
See WILLIAM HOOPER'S GENERAL BULB CATALOGUE, free on application to St. John's Hill, Wandsworth, S.W.

N. LAWRENCE'S CATALOGUE of NURSERY STOCK includes Roses, Coniferous trees, Miscellaneous Deciduous and Evergreen Shrubs, Fruits, &c. Can be had on application.
The Nurseries, Station Street, Chatteris, Cambridgeshire.

Huntingdon Nurseries.

WOOD AND INGRAM'S General CATALOGUE of NURSERY STOCK, including Seedling and Transplanted Forest Trees, Ornamental Trees and Shrubs, Roses, and Fruit Trees, is now ready, and will be sent free on application.

ALFRED LEGERTON, SEED MERCHANT, 5, Aldgate, London, E.
Special quotations for CARROT and all other GARDEN and AGRICULTURAL SEEDS upon application.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO., SEED FARMERS, MERCHANTS, and NURSERYMEN, 237 and 238, High Holborn, London, W.C.

NEW and GENUINE AGRICULTURAL, GARDEN, and FLOWER SEEDS.
Special prices and advantageous offers on application to JAMES FAIRHEAD & SON, Seed Growers and Merchants, 7, Borough Market, London, S.E.

HENRY FLINTHAM, SEED and FRUIT MERCHANT, Market Place, Rotherham.
Prompt Returns made for Consignments of Fruit and other Produce sent on Commission by Merchants or Growers.
References to London, Liverpool, Hull, Scotland, or Ireland.

H. AND F. SHARPE, SEED GROWERS and MERCHANTS, Wisbech.
SPECIAL PRICED LIST of NEW SEEDS on application.

FORTY-FOLD POTATO (THE TRUE VARIETY). Price on application to
JAMES DICKSON & SONS, 102, Eastgate Street, Chester.

EARLY KIDNEY POTATOS.—Webb's Telegraph, first early, 20s. per bushel; Webb's President, second early, 18s. per bushel; Webb's Imperial Kidney (best Potato known for all purposes), 12s per bushel.
Apply to Mr. WEBB, Calcot Gardens, Reading.

EARLY PEAS, BEANS, &c.—Orders can now be executed for the above, in New Seed, Crop 1865.
JAMES CARTER & Co., 237 and 238, High Holborn, London, W.C.

DIXON'S YORKSHIRE HERO PEA.—All who have grown this Pea pronounce it to be "the best" extant. See Testimonials in *Gardeners' Chronicle* of November 18
Price 5s. per quart. Price to the Trade on application.
E. P. DIXON & SON, 57, Queen Street, Hull.

THE INVINCIBLE SCARLET SWEET PEA. The Trade can still be supplied. Price on application.
STEPHEN BROWN, Seed Grower, Sudbury, Suffolk.

SUTTON'S RINGLEADER PEA (or CARTER'S FIRST CROP), the EARLIEST in CULTIVATION, as see correspondence in *Gardeners' Chronicle* of May and June last, also testimonials in this week's Paper.

To the Trade.

BALLANTYNE AND SON are now booking orders for MUSSELBURGH LEEK, True, grown expressly for their own retail trade. Early orders are respectfully solicited. Price on application.
Nursery and Seed Establishment, Dalkeith, N.B.

SEA KALE.—For Sale, 50,000 extra strong Roots for Forcing. For particulars apply to
Mr. JOHN GALLACHER, Sutton, Surrey, S.

Yellow Globe Mangel Seed.

MR. S. A. DAINTREE, of Fendrayton, St. Ives, Hunts, has a good stock of the above of his own growth and selection, which he offers to the Trade at 30s. per cwt., nett cash. Samples on application.

BUTLER AND McCULLOCH'S ILLUSTRATED PRICED CATALOGUE, containing particulars of their Choice COLLECTIONS of DUTCH and CAPE FLOWERING BULBS, sent free and post paid upon application.
BUTLER & McCULLOCH, Seven Row, or Strand side, opposite Southampton Street, Covent Garden Market, W.C.

BARR AND SUGDEN'S HYACINTHS, TULIPS, CROCUS, NARCISSUS, GLADIOLI, RANUNCULUS, ANEMONES, LILIES, AMARYLLIS, in splendid collections. See our AUTUMN FLORAL GUIDE, free and post paid on application.
BARR & SUGDEN, Seed and Plant Merchants, 12, King Street, Covent Garden, W.C.

Hyacinths and other Dutch Bulbs.

WM. CUTBUSH AND SON beg to acquaint their numerous Patrons that they have received the usual Consignment of Choice HYACINTHS, TULIPS, CROCUSES, &c.
PRICED DESCRIPTIVE CATALOGUE post free on application.
Highgate Nurseries, London, N.

Winter and Spring Gardening.

BARR AND SUGDEN, SEED and PLANT MERCHANTS, 12, King Street, Covent Garden, W.C. Sent carriage paid
The No. 1 ASSORTMENT of WINTER-FLOWERING BULBS, 21s
No. 2 ASSORTMENT of SPRING-FLOWERING BULBS, 21s
The FLORAL GUIDE free on application.

NEW ROSE CATALOGUE for 1865 and 1866, also GENERAL CATALOGUE of NURSERY STOCK.
Woodlands Nursery, Maresfield, near Uckfield, Sussex.
WM. WOOD & SON will be happy to forward copies of the above on application.

H. LANE AND SON'S CATALOGUES of ROSES, TREES, SHRUBS, FRUIT, RHODODENDRONS, AZALEAS, &c., are now ready, and may be had on application at
The Nurseries, Great Berkhampstead, Herts.

Roses.

WM. PAUL (Son and Successor to the late A. PAUL) begs to announce that his NEW DESCRIPTIVE CATALOGUE of ROSES is now ready, and will be forwarded on application, free by post. The stock is large and in splendid condition.
PAUL'S Nurseries, Waltham Cross, London, N.

Now ready, 1865 and 1866.

PAUL AND SON'S NEW ROSE CATALOGUE. See Note on Forcing Roses. Post free on application.
Old Cheshunt Nurseries, N.

Select List of Show Roses, Old and New.

CONSULT
JOHN KEYNES' CATALOGUE.
Salisbury—Nov. 25.

ROSES.—A DESCRIPTIVE CATALOGUE of ROSES, by THOS. RIVERS, free per post.
Nurseries, Sawbridgeworth.

ROSES.—2000 first-rate ROSES, in 60-pots, to be Sold for 3s. per dozen, ready money, leaving the selection to J. C., who will send nothing but good sorts. Apply to
JAMES CRAWFORD, High Beech, Essex.

1865 and 1866.

JOHN FRASER begs to announce that his NEW DESCRIPTIVE CATALOGUE of PLANTS, ROSES, FRUIT TREES, &c., for the Autumn of 1865 and Spring of 1866, may be had on application.
The Lea Bridge Road Nurseries, N.E.

To the Trade.

STANDARD and HALF STANDARD ROSES. SPRUCE FIRS, from 2 to 3½ feet.
H. MINCHIN has a quantity of the above to offer cheap. Prices on application. The Nurseries, Hook Norton, Oxon.

The Nurseries, Folkestone.

JAMES MEIKLE is now sending out his COLLECTION of ROSES. They are strong Plants. DWARF, on the Manetti Stock, price 9s. to 12s. per dozen; MANETTI CUTTINGS, prepared for planting, cheap: price per 1000 on application. Planted now they will be strong for Budding next season.

The Nurseries, Folkestone.

JAMES MEIKLE has on hand some fine specimen EVERGREEN and DECIDUOUS TREES and SHRUBS; many of them of a large size and in excellent condition. As the ground must be cleared immediately they will be Sold Cheap.

Fruiting Vines.

E. G. HENDERSON AND SON offer the above, with splendid Canes of well-matured growth, with prominent eyes, sure to give a heavy crop of fruit, 10s. 6d. each.
LIST of SORTS sent on application.
Wellington Nursery, St. John's Wood, London, N.W.

VINES, from Eyes.—Now ready, a DESCRIPTIVE CATALOGUE of GRAPES, by THOS. RIVERS, free per post.
Nurseries, Sawbridgeworth.

Fruiting Vines, in large pots, extra strong Canes.

GRAPE VINES, IN 6 INCH POTS, FOR PLANTING OUT.
WM. WOOD AND SON having a very superior stock of the above, beg to solicit early orders to insure the strongest Canes. Address,
Woodlands Nursery, Maresfield, near Uckfield, Sussex.

HAMPTON COURT BLACK HAMBURGH VINE.—Strong plants from Eyes of this excellent Grape, 5s each, 50s. per dozen.
T. JACKSON & SON, Nursery, Kingston, S.W.

Grape Vines.

S. GLENDINNING AND SONS have a splendid lot of extra fine Fruiting Canes.
PRICED LIST may be had on application.
Chiswick Nursery, London, W.

To the Trade.

FINE DWARF-TRAINED PEACHES and NECTARINES
FRANCIS AND ARTHUR DICKSON AND SONS can supply the above in fine, clean, healthy Trees.
Prices moderate, which will be forwarded on application.
"Upton" Nurseries, Chester.

HEAVY LANCASHIRE SHOW GOOSEBERRY TREES, 6s. per dozen. CATALOGUES on application.
HOLLAND & JONES, Bradshaw Gardens, Chadderton, near Manchester

DAMASCENE or PERSHORE PLUM, fine 2-years stuff; LARCH, strong, 3 feet high; also PRIVET BERRIES, Common ACORNS, and BERBERIS AQUIFOLIUM for Sale.
Apply to ROBERT H. PONTER, The County Nursery and Seed Establishment, Taunton.

Fruit Trees.

CHARLES TURNER [illegible] well-grown [illegible]
CATALOGUE [illegible]
The Royal Nurseries, Slough.

British Queen Pear.

CHARLES TURNER [illegible] of this fine NEW PEAR, [illegible] and Maiden Trees
The Royal Nurseries, Slough.

Strong Standard Apples, Pyramid Pears, and LARCH [illegible]

CHARLES BURGESS, The Nurseries, London Road, Cheltenham, [illegible] the above, and [illegible] of NURSERY STOCK [illegible] on application.

ORCHARD HOUSE TREES [illegible] PEACH [illegible] himself with [illegible]
Mr. JAMES [illegible]
The Trees are packed with great [illegible]

ORCHARD-HOUSE TREES, [illegible] PEACHES, NECTARINES, APRICOTS, [illegible] PLUMS, PEARS, APPLES, VINES, [illegible]
RICHARD SMITH, Nurseryman, [illegible]

WEBB'S PRIZE COS FILBERTS, [illegible] Nuts and Filberts. Trees of these splendid Nuts to be [illegible] of Mr. WEBB, Calcot Gardens, Reading. Catalogues on application.

To the Trade.

CUPRESSUS LAWSONIANA SEED [illegible] of best quality, Crop of 1865. Price 5s per oz., post free [illegible] oz., 20s., 8 oz., 30s.
CHARLES BURGESS, The Nurseries, London Road, Cheltenham.

WELLINGTONIA and CUPRESSUS.—WELLINGTONIA GIGANTEA, [illegible] plants, 3, 4, and 5 feet, [illegible] offered in the spring. Also CUPRESSUS LAWSONIANA, [illegible] feet.
THOMAS S. WARD, Hale Farm Nursery, Tottenham, N.

CEDRUS DEODARA for SALE, [illegible] Fine healthy Trees [illegible]
Apply to the Bailiff, at Trewin, [illegible] South Wales.

TO the TRADE.—10,000 LARCH SEEDLINGS, Cheap. They are fine young healthy [illegible] 15 to 18 inches, twice transplanted, and well [illegible] Apply to
W. ROSSITER, Nurseryman and Seedsman, Plymouth, Devon.

THE GREAT NURSERIES of CORDIER, at Bernay (Eure), France.
More than 100,000,000 FOREST TREES [illegible]
" 3,000,000 APPLES [illegible]

Forest Trees, Ornamental Trees, and Shrubs.

PETER LAWSON AND SON'S CATALOGUE for the current Season is now ready, and will be forwarded, free, on application. Edinburgh and London.

NEW CATALOGUE of FOREST TREES, EVERGREENS, &c., now ready. Free upon application to
JAMES DICKSON & SONS, Newton Nurseries, Chester.

Quick.

CHARLES SHARPE AND CO., Sleaford, have a large quantity of the above to offer. Price and Sample sent on application.

To Planters of Larch and Quick.

SAMUEL COX, NURSERYMAN, Lincoln, has a large quantity to offer, from 1 to 3 feet high. Price on application. Also STANDARD ROSES, first [illegible] per dozen; DWARF, strong, 12s per [illegible] CATALOGUES [illegible]

Larch and Scotch Fir.

MITCHELL AND YOUNG, Brechin, N.B., beg to offer to the Trade 10,000 LARCH, [illegible] feet, and [illegible] SCOTCH FIR, 9 to 12 inches, [illegible]
Samples and prices on application.

LARCH.—Very fine, 3 and 4-feet, strong and well grown, 15 to 20—1000. Price on application to
N. LAWRENCE, Nurseryman, Station Street, Chatteris, Cambridgeshire.

TO BE SOLD, Cheap, for Cash, [illegible] very fine strong TRANSPLANTED LARCH.
Apply to DREGHORN & AITKEN, Nurserymen, Kilmarnock, N.B.

LAURELS.—For Sale, several [illegible] and thriving LAUREL PLANTS, [illegible] each, delivered at the Finsbury Station of the London and South Western Railway, in quantities not less than [illegible]
Apply to Mr. JUDDY, [illegible]

LARGE ENGLISH and IRISH YEWS.—Handsome large-stemmed ENGLISH and IRISH YEWS, 7, 8, and 9 feet high. Price according to [illegible] and number required on application to
T. JACKSON & SON, Nurseries, Kingston, S.W.

LARGE EVERGREENS.—A [illegible] of LARGE EVERGREENS, DECIDUOUS SHRUBS, &c. FOREST, and ORNAMENTAL TREES, [illegible] of Nursery Stock [illegible]
R. T. PENNELL'S Nurseries, [illegible]

WANTED, several [illegible] ASH, 4 to 6 feet [illegible]
J. C. WOOD & SON, [illegible]

To Gladiolus Growers.

SUTTON'S PRICED LIST of the best Sorts cultivated this Season is now ready, and will be forwarded post free.
Sutton & Sons, Royal Berks Seed Establishment, Reading.

Early Spring Flowers.

WEBB'S GIANT POLYANTHUS, and GIANT COWSLIPS, and other varieties, [illegible] List and prices on application to Mr. WEBB, [illegible] Reading.

PELARGONIUM MRS. POLLOCK.—Strong Summer-struck Plants, well established in 3-pots, [illegible] per dozen.
The Trade supplied.
ALFRED FRYER, Nurseries, Chatteris, Cambridgeshire.

TO NURSERYMEN and OTHERS.—100 SMALL CAMELLIAS and AZALEAS, well [illegible]
Apply at 1, Provident Cottages, Ball's Pond Road, Kingsland, N.E.

J. IVERY AND SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

Elvaston Nurseries.—Important to Planters.

WILLIAM BARRON begs to offer the following at extremely low figures to Noblemen, Gentlemen, and others engaged in Planting on a large scale:—

PINUS LARICIO (true).—This highly ornamental tree surpasses the Larch both as to rapidity of growth and quality of timber. It will thrive where the Larch will not. It is also used as spars and masts in the French navy. Two-year Seedlings.

PINUS ROMANA.—Two-year Seedlings.

PINUS PALLASIANA.—Two-year Seedlings.

ABIES MENZIESII.—Few people are aware of the value of the timber of this beautiful tree. 2½ to 3 feet.

PICEA NOBILIS.—Very fine. 6 to 9 inches.

BERBERIS DARWINII.—Too much cannot be said of this fine evergreen species. It is hardy, and the profusion of its orange-coloured blossoms, together with the quantity of berries which it bears (of which pheasants are very fond,) render it one of the most attractive and desirable plants for lawn, as well as cover planting, ever introduced. One-year Seedlings.

BERBERIS WALLICHIANA.—One-year Seedlings.

MAHONIA JAPONICA.—These plants cannot be too highly recommended. For cover planting they must become favourites. Their foliage is magnificent; they produce fruit in abundance, much relished by pheasants, &c., and are proved to be the hardiest of all hardy plants. 6 to 12 inches.

Prices will be forwarded on application.

Elvaston Nurseries, Borrowash, near Derby.

To Gentlemen Planting.

IN CONSEQUENCE of some of my Nursery Grounds being required for Building, I am induced to offer a large quantity of the following, cheap:—

STANDARD ROSES, DWARF ROSES, and Dwarf Roses in Pots, Standard Dwarf FRUIT TREES, Standard Ornamental Trees and Shrubs, large specimen CEDRUS DEODARA, varying from 3 to 15 ft. high, and a general collection of Evergreens, American Plants, &c., including some of the newest and best kinds of RHODODENDRONS, and some very large trees, suitable for making an immediate blind.

CATALOGUES to be had on application.

R. NEAL, The Nurseries, Wandsworth Common, S.W.

Fruit Trees, Roses, Ornamental Trees and Shrubs, &c.

THOMAS WARNER respectfully informs his Patrons and the Public generally that his PRICED and DESCRIPTIVE CATALOGUE of the above for the present season is now ready, and may be had free on application.

The Nurseries now occupy 70 Acres of ground. The Stock of SALE FRUIT TREES alone exceeds 200,000, all true to name, consisting chiefly of Dwarf and Standard Trained Trees for Walls, Standards for Orchards, and Pyramids and Espaliers for Gardens; all of which have been cultivated with much care, and very many of them have borne fine crops of Fruit during the past summer.

The ROSES are very strong and healthy plants; the collection contains most of the New and fine varieties, both of English and Continental origin.

The ORNAMENTAL TREES, EVERGREENS, and general Nursery Stock, having been regularly transplanted, are in fine health, and in the best possible condition for removal, and well worthy the attention of persons contemplating planting. An inspection is respectfully invited

The Nurseries, Leicester Abbey.

NURSERY STOCK, UNSURPASSED for BEAUTY, HEALTH, and VARIETY.

FOREST TREES are grown in large breadth, and are supplied at low prices.

CONIFEROUS TREES and SHRUBS are extensively grown in all sizes from 1 to 12 feet, and at prices to tempt purchasers.

DECIDUOUS SHRUBS are fine in quality, numerous in variety, and low in price.

DEODAR CEDARS are offered at 2s. 6d. to 5s. each, height from 4 feet to 8 feet.

BIOTAS, CUPRESSUS, JUNIPERS, PINUSES, THUJAS, and many other families, are grown in large numbers, and in height varying from 1 to 12 feet.

DESCRIPTIVE PRICED CATALOGUES are ready to be sent gratis; also the SEED CATALOGUE.

Apply to J. SCOTT, Merriott, Somerset.

ONE of the LARGEST and BEST COLLECTIONS of FRUIT TREES in ENGLAND.

APPLES, in 300 sorts, on Doucin, Pomme Paradis, and Free Stocks: Dwarf-trained, Pyramids, and Standards.

APRICOTS, 24 sorts, Dwarf-trained and Maiden, extra fine trees.

CHERRIES, 50 sorts on Mahaleb: Dwarf-trained, Pyramids, and Standards, a magnificent stock.

PEACHES and NECTARINES, 50 sorts, Dwarf-trained for walls, splendid trees.

PEARS, 550 sorts on Pear Stocks, and 250 sorts on Quince Stocks. They are offered as Dwarf-trained, Pyramids, and Standards; the Pyramids are from 2 to 12 feet high, full of fruit buds and well root-pruned.

PLUMS, 100 sorts, in Dwarf-trained, Pyramid, and Standard, healthy and fine.

Also CURRANTS, FIGS, GRAPES, MEDLARS, NUTS, QUINCES, RASPBERRIES, STRAWBERRIES, and WALNUTS, all free from stuntedness, canker, or blight of any kind.

DESCRIPTIVE PRICED CATALOGUE, with cultural directions and many useful notes, sent free. It is allowed to be the best Catalogue on Fruit Trees out.

The VEGETABLE and AGRICULTURAL CATALOGUE is also ready, gratis.

Apply to J. SCOTT, Merriott, Somerset.

Transplanted Larch and Quicks.

CHIVAS AND WEAVER (late GEORGE CHIVAS), Chester, offer several Millions of TRANSPLANTED LARCH, from 1½ to 4½ feet, very stout, grown in an exposed situation; specially fine plants, and at prices greatly in favour of the buyers. Also several Millions of TRANSPLANTED QUICKS, a large quantity of which are of great strength; strong English Oaks superior Spruce, up to 2½ feet, together with a general stock of other Forest Trees, as well as a large stock of Evergreens and Ornamental Trees; many Thousand fine Standard Apples, and extra strong Transplanted Apple Stocks.

For prices and conditions of free delivery, see CATALOGUE, which will be forwarded on application.

LILY OF THE VALLEY.—FOR FORCING.

JAMES VEITCH

BEGS TO OFFER

ROOTS OF LARGE FLOWERING LILY OF THE VALLEY

IN CLUMPS SPECIALLY PREPARED FOR FORCING.

These Clumps are strongly recommended, having for many years carried off the principal Prizes at the leading Spring Flower Shows; and this year the crowns being well developed, promise a finer Show of Blooms than usual.

Early Orders are solicited.

ROYAL EXOTIC NURSERY, CHELSEA, S.W.

NEW PRIZE MELONS.

E. G. HENDERSON & SON

Respectfully offer the following Varieties as worthy of a place in all selections of DESSERT FRUIT, having received high commendations in favour of their superior quality and growth.

Wills's Oulton Park Hybrid (scarlet-fleshed).

Fruit round, of medium size, from 2 to 2½ lb. in weight; flesh bright salmon-scarlet, very rich in flavour, remarkably tender and melting. Considered by the eminent judges to whom it was submitted on two occasions as "a great acquisition among Melons." The plant is vigorous in growth, not subject to canker or die off at the collar; a free setter, and by judicious treatment yielding a second crop almost equal to the first.

Of this variety Dr. HOOG bears his testimony as follows:—"Your Melon is by far the finest scarlet-fleshed variety I ever tasted, and very distinct, and well deserves the highest Certificate which has been awarded."

Wills's Green Pine-apple Gem (green-fleshed).

This beautiful and distinct variety in growth is of an excellent constitution, free and vigorous, not subject to disease at the crown or base of the stem, an abundant bearer, sure setter, swelling fruit off regularly, which is round, rather larger than the "Scarlet Gem," from which it was obtained by a cross with the "Hybrid Cashmere" variety. The fruit is generally smooth, but sometimes beautifully netted. Flesh green as grass, tender and very melting, a rich Pine-apple flavour. It was regarded by the appointed committee by whom it was awarded a Certificate, as the best green-fleshed Melon in cultivation.

The above varieties of Melons received their respective Testimonials of Merit from the Fruit Committee of the Royal Horticultural Society.

Seed Packets, 2s. 6d. and 5s. each. The Trade supplied.

E. G. HENDERSON AND SON, WELLINGTON NURSERY, ST. JOHN'S WOOD, N.W.

PAUL'S NURSERIES, WALTHAM CROSS, N.

WILLIAM PAUL

(SON and SUCCESSOR to the late A. PAUL,)

BEGS TO OFFER THE FOLLOWING LEADING ARTICLES OF FIRST-RATE QUALITY:—

ROSES.

STANDARDS, 15s. to 18s.; new sorts, 24s. to 42s. per doz. | DWARFS, 12s. to 18s.; new sorts, 24s. to 30s. per doz.
CLIMBING, 9s. to 12s. per doz.

The "ROSE GARDEN," Second Edition, with numerous Woodcuts, 6s. 6d.

DUTCH BULBS.

HYACINTHS, 6s. to 15s.; new sorts, 18s. to 30s. per doz.
BEDDING HYACINTHS, 18s. to 34s. per 100.
EARLY TULIPS, 1s. to 4s. per doz.
POLYANTHUS NARCISSUS, 3s. to 6s. per doz.
CROCUSES, 2s. to 4s. per 100.
GLADIOLI, 4s. to 12s. per doz.

And all other Bulbs equally reasonable.

BEATON'S GERANIUMS.

Reduction in price; the Set of 16 Varieties, 32s. These have now been thoroughly tested, and have proved even superior to the descriptions originally given of them; they have also been pronounced by many leading horticulturists indispensable in the future of every well-arranged flower garden.

FRUIT TREES, in and out of Pots.

Standard and Dwarf-trained Pyramid and Dwarf PEACHES, NECTARINES, APRICOTS, APPLES, PEARS, CHERRIES, PLUMS, GOOSEBERRIES, CURRANTS, RASPBERRIES, STRAWBERRIES, FIGS, and FILBERTS. A selection of all the really good sorts, both young and fruiting trees, in splendid condition.

GRAPE VINES.

Two Thousand Fruiting and Planting, including the newest sorts.

EVERGREEN and ORNAMENTAL TREES.

One Thousand Species and Varieties, selected in a great measure for the beauty of their foliage.

PRICED DESCRIPTIVE CATALOGUES free by post.

COLLECTIONS of BULBS for In-door Decoration, 10s. 6d., 21s., 30s., 42s., 63s., 84s., and 105s.

COLLECTIONS of BULBS for Out-door Decoration, 10s. 6d., 21s., 30s., 42s., 63s., 84s., and 105s.

THE GOLDEN-RAYED **LILIUM AURATUM.**

Fine Established Bulbs, which have been two seasons in this country, and will probably flower in April, 1866. 7s. 6d., 10s. 6d., and 15s.

Smaller roots, one season in this country, 3s. 6d. and 5s.

WINTER and SPRING GARDENING (Orders amounting to 21s. sent carriage paid).

200,000 CROCUS, 100,000 SNOWDROPS, 50,000 HYACINTHS, 100,000 TULIPS, SCILLA SIBIRICA, NARCISSUS, RANUNCULUS, ANEMONES, &c.

THE CLIVEDEN COLLECTIONS of SPRING-BLOOMING PLANTS, drawn from the Stock at Cliveden.

150 PANSIES ASSORTED | 200 DAISIES ASSORTED | 100 FORGET-ME-NOT | 100 SILENE | 50 COWSLIPS.

The above, 105s.; Half the quantity, 50s.; Quarter do., 25s.; Eighth, 12s. 6d.

FORGET-ME-NOT, blue	5s.	6d.	per 100	DAISY, pink	10s.	6d.	per 100	SAPONARIA, pink	5s.	6d.	per 100
" " white	7	6	"	" white	10	6	"	" white	15	0	"
SILENE, pink	5	6	"	POLYANTHUS, mixed	12	6	"	ARABIS ALPINA	50	0	"
" white	5	6	"	COWSLIPS, mixed	12	6	"	" LUCIDA			

STANDEN'S GARDENER'S and AMATEUR'S FRIEND, the best Manure for Chrysanthemums, &c. See Advertisement, page 1105.

Nursery and Seed Establishment (Established 1787).

THOMAS KENNEDY AND CO., NURSERYMEN, SEEDSMEN, and FLORISTS, Dumfries, N.B.

DESCRIPTIVE PRICED CATALOGUES forwarded to any address on application.

F. PERKINS begs to offer the following, all of which are in fine condition for removal:—

LIMES, 6 to 8, 8 to 10, and 10 to 12 feet.
COPPER BEECH, 5 to 6, and 6 to 8 feet.
LOMBARDY POPLARS, 6 to 8, 8 to 10, and 10 to 12 feet.
HORSE CHESTNUTS, 6 to 8 feet.

Also a large quantity of LARCH FIR, 1½ to 2, 2 to 3, and 3 to 4 ft.
PAMPAS GRASS, fine in pots. Prices on application to
FREDERICK PERKINS, Bedford Road Nurseries, Northampton.

ONE MILLION Transplanted 3, 4, and 5-years HAWTHORN QUICK, 12s. 6d. to 20s. per 1000; sample of 100 for 2s. 6d. stamps. Half-a-Million Transplanted LARCH, from 15s. to 25s. per 1000; samples of 100 for 2s. 6d. stamps. Strong EVERGREENS and CONIFERS. Prices on application.
GEORGE DAVISON, Hereford.

ONE MILLION strong HAWTHORN QUICK, 15s. to 20s. per 1000; samples of 100 for 2s. 6d.
Half a Million strong LARCH, 18s. to 25s. per 1000; samples of 100 for 2s. 6d., will be sent on application.
Large EVERGREENS, extremely cheap. Prices according to quantity required.

24s. per dozen:—
ABIES DOUGLASII, 3 to 4 feet; A. ALBA, 5 to 6 feet; A. MENZIESII, 3 to 4 feet; A. MORINDA, 3 to 4 feet.
ARBOR-VITÆ, American, 4 to 5 feet; Chinese, 6 to 7 feet.
BIOTA GLAUCA, 2 feet; B. AUREA, 1½ feet; B. JAPONICA, 2 feet; B. COMPACTA, 2 to 3 feet.
CUPRESSUS LAMBERTIANA, 4 to 5 feet; C. LAWSONIANA, 3 feet; C. GOVENIANA, 3 feet.
PINUS EXCELSA, 4 to 5 feet; P. AUSTRIACA, 4 feet; P. INSIGNIS, 3 to 4 feet; P. PYRENAICA, 2½ feet; P. PALLASIANA, 2 to 3 feet.
LAURUSTINUS, fine bushes, 2 to 3 feet through.
PORTUGAL LAURELS, 3 to 4 feet.
YEW, IRISH, 4 to 5 feet; YEW, COMMON, 4 to 5 feet.
Prices for larger Evergreens on application.
GEORGE DAVISON, White Cross Nurseries, Hereford.

Notice,—Cheap Plants.

W. B. JEFFRIES'S COLLECTIONS gave such satisfaction last year, that he is induced to offer even greater bargains this season, viz.:—12 Evergreens and Flowering Shrubs, 12 Herbaceous Plants, 6 Ornamental Trees, 6 Rhododendrons, 6 Rock Roses, 6 Daphne Cneorum, 6 of the beautiful Calandrinia umbellata, 6 Gladioli, 6 Carnations, 6 new Perpetual Dessert Raspberries, full of delicious fruit from June to October; 6 choice Conifers, including Araucaria imbricata, &c., on receipt of Post-office Order for 20s.; or half the quantities, 10s. 6d.
Arboretum Nurseries, Ipswich.

Lobelia Snowflake.

Extract from GARDENERS' CHRONICLE:—

"Mr. Cox, Gardener to Lord Beauchamp, exhibited a beautiful White Lobelia called Snowflake, to which a First-class Certificate was awarded. Floral Committee of the Royal Horticultural Society, July 25, 1865."

JOHN AND CHARLES LEE having acquired the stock of this desirable NEW BEDDING PLANT, they have much pleasure in offering SEED in SEALED PACKETS for present sowing for spring pot culture, for which it is well adapted.

As a BEDDING LOBELIA it stands unrivalled. The plant is of dwarf compact habit: the flowers are large, perfectly even, and of the purest white. The stock comes perfectly true from seed.

Price 2s. 6d. per packet. Price to the Trade on application.
Royal Vineyard Nursery and Seed Establishment, Hammersmith W.

TO THE TRADE.—The Subscriber begs leave to intimate to the Trade in general that he has saved this season a quantity of fine GLOBE QUILLED CHINA ASTER SEED, and can offer it at 3s. 6d. per oz. These Asters consist of nine leading colours, and have obtained First Prizes for some years past, but more especially this year at the Edinburgh International and other principal flower shows in Scotland. The above he can warrant to give satisfaction.
JOHN TAYLOR, Midfield Cottage, Inveresk, Musselburgh.

GLADIOLI.—First Prize for 24 varieties at the Crystal Palace in 1864; First and Second Prize for 24 varieties at the Crystal Palace in 1865; First Prize for 6 varieties at the Royal Horticultural Society in 1865, have been awarded to

KELWAY & SON, Langport, Somerset.

PRICED CATALOGUES, containing full descriptions of upwards of 300 varieties—amongst them many new ones—27 of which obtained First-class Certificates during the past season, are now ready, free by post on application.

THOMAS J. BOOTH can supply a first-class PEAT, suitable for Orchids (same as recommended by Mr. Anderson in *Gardeners' Chronicle*, page 1035), in large or small quantities.
Samples with price on application.
Rainhill Nursery, Prescot, Lancashire.

New Grass Seeds for Exportation.

SUTTON AND SONS have received their supply of NEW GRASS SEEDS of the present year's growth in fine dry condition. Prices will be forwarded on application.
This is one of the best months for exporting Grass Seeds.
SUTTON & SONS, Seed Merchants, Reading.

Smithfield Club Show.—Stand No. 98 Galleries.

WILLIAM SKIRVING begs to announce to his Friends and the Public that he will ATTEND, as usual, at the ensuing London Cattle Show (Agricultural Hall, Islington), to Exhibit ROOTS and Take Orders for AGRICULTURAL SEEDS of the most approved kinds.

Liverpool.—November 25.

DIXON'S YORKSHIRE HERO PEA is the best Dwarf Green Wrinkled Marrow in cultivation. See Testimonials in *Gardeners' Chronicle* of November 18.
Price 2s. per quart. Price to the Trade on application.
E. P. DIXON & SON, Yorkshire Seed Establishment, 137, Queen Street, Hull.

Retiring from Business.

JAMES TOUGH, in retiring from the NURSERY and SEED BUSINESS, which he has carried on in Kirkcaldy for the past 43 years, most respectfully and gratefully returns his best thanks to his numerous Customers for the patronage so liberally bestowed upon him during that long period.

He at the same time begs to intimate having disposed of his Stock of Nursery Plants and Seeds to his well-known neighbours, EDWARD SANG AND SONS, whom he takes the liberty of recommending as his Successors in Business.
Kirkcaldy—Nov. 25.

FOR SALE, at half price, a SPAN-ROOF GREENHOUSE, 30 feet by 15; Hot-water Pipes, 3-inch, complete.
A SPAN-ROOF HOTHOUSE, 30 feet by 11; Hot-water Pipes, 4 in.
A Four-room Brick-built COTTAGE complete.
FOREST and FRUIT TREES, Dwarf and Standard ROSES.
EVERGREENS, SHRUBS, fine PRIVET HEDGES, &c.
GERANIUMS in great variety. Two large POTTING SHEDS.
At H. STILWELL'S, Kilburn Park Nursery, Carlton Road, W.

COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 2s. per bag.

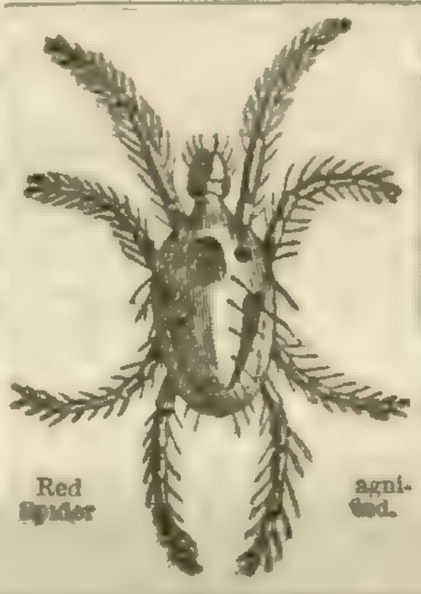
For particulars, and how use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped, J. BARSHAM'S Patent.

PALM-NUT MEAL, Manufactured by ALEXANDER M. SMITH & Co., Kent Street Mills, Liverpool.
£6 a Ton free to Rail or Boat in Liverpool.
£6 12s. 6d. delivered to Rail in Bristol.
£6 17s. delivered to Rail in London.
In Bags containing 2 cwt. each, branded AMS L.
"This valuable Meal, containing above 20 per cent. of fatty matter, is recommended as an economical food to mix with home-grown produce" (See Dr. Voelcker, R. A. S. E. Journal, Vol. I., 2d Series, page 176).
For further particulars and Analysis apply to Messrs. SMITH, or their Agents, Messrs HUMPHRIES & Co., Bristol.
JOHN COLEMAN, 150, Leadenhall Street, E.C., London Agent.



Red Spider. Aphis.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes, 1s., 3s., and 10s. 6d. each.

Wholesale by
PRICE'S PATENT CANDLE COMPANY (LIMITED).

Certain Death to Insect Life.

TOBACCO TISSUE for FUMIGATING.—To Florists, Gardeners, and others this new article is strongly recommended for the purpose of destroying Insect Life in Greenhouses, Pits, &c., being made of [illegible] Tobacco [illegible] and very superior to the [illegible] Sold by all Seedsmen, Nurserymen, and Oilmen; and by Messrs. [illegible] Clerkenwell, London, of whom samples, with testimonials, may be obtained.

THOMSON'S STYPTIC for PREVENTING the BLEEDING of VINES after PRUNING, is Manufactured and Sold by JOHN YOUNG & SON, Dalkeith, N.B., and can be had of all Nurserymen and Seedsmen, in Bottles, price 2s., with directions for application. None is genuine unless the Label on each Bottle bears the Signature of WILLIAM THOMSON.

Thomson's Styptic for Preventing the Bleeding of Vines.

BALLANTYNE AND SON have been appointed Agents for the Sale of THOMSON'S STYPTIC, which is highly recommended as being the most effectual [illegible] and all who have tried it testify to its worth. [illegible] with full directions for use. [illegible]
The Nursery and Seed Establishment, Dalkeith.

Removal of Large Trees.

TREES FROM 50 FEET DOWNWARDS REMOVED ANY DISTANCE BY

WILLIAM BARRON'S TRANSPLANTING MACHINES.

Five different sizes kept for the Removal of Trees of various dimensions, any of which may be had, with efficient men to work them, at a moderate charge.

A List of Prices for the hire of such machines will be forwarded, post free, on application.

Machines made to order.
Elvaston Nurseries, Borrowash, near Derby.

Caution to Gardeners.—When you ask for

SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the corporate mark ORIGINAL WARRANTED, without which none are genuine.

S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by us, and makers.

S. & C.'s Pruning and Budding Knives are the best and the cheapest in the market.

Paxton Works, Sheffield. Established upwards of 125 years.

GREEN'S PATENT SILENS MESSOR, or NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

GREEN'S PATENT LAWN MOWERS have proved to be the best, and have carried off every Prize that has been given in all cases of competition. Above [illegible] year 1858.

Illustrated Price Lists of Lawn Mowers for Gardens, Bowlers, Free.

THOMAS GREEN & SON, Smithfield Iron Works, Leeds; 2, Farringdon Road, Holborn Hill, London, E.C.; Hadwen's Buildings, Tithebarn Street, Liverpool; and 19, Eden Quay, Dublin.

THE IMPROVED LEATHER DRIVING STRAPS for MACHINERY are stronger for a given weight, more effective, more durable, and cost considerably less than any other kind of driving belt.

SPECIAL STRAPS for PORTABLE ENGINES.
TURNER'S Patent Strap and Hose Company.
Manufactory: Armit Works, Greenfield, near Manchester.
Warehouse: 81, Mark Lane, London, E.C.
Mr. H. FERRABEE, Agent.

Heating by Hot-Water.

THE ORIGINAL SADDLE BOILER, with Improved Tubular Check Draft, Fluted Fronts, and Ribbed Sides, for Heating Greenhouses, Vineries, Forcing Pits, Public Buildings, &c. These Boilers possess increased heating surface, capacity, power, economy in fuel, and are the most [illegible], when properly fixed, [illegible] Greenhouses, &c., of any extent [illegible] price.

Gardeners [illegible] List of Testimonials, [illegible] Post Free on application to JEFFERICK WILLIAM BUTT (late of London), Portadown, Ireland.

PATENT GUTTA PERCHA SOLES.—IMPORTANT TO GARDENERS.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. GLENNY, Esq., the celebrated Florist:—

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, that being so much in my garden as I generally am in all weathers, and with the greatest [illegible] I would in no account be without them. As a member of gardening [illegible] I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the [illegible] at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet to adopt a material that completely defies them. Many a gardener would escape colds and [illegible] by the use of Gutta Percha Soles.—Yours [illegible] G. GLENNY."

Every variety of Gutta Percha articles, such as Mats, Rings, Tubing, Soles, Sheet, Print Blocks, Lace Brackets, Hooks, Lamp Jackets, Flasks, Bottles, Bowls, Chamber Vessels, Foot Baths, Stamps, Gas Curtain Rings, Galvanic Batteries, Collodion Tubes, &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town or country.

The GUTTA PERCHA COMPANY, Patentees, 18, Wharf Road, City Road, London, E.C.

FOR SEASON 1866.

SEEDS IN SEALED PACKETS POST FREE.

B. S. WILLIAMS,

PARADISE and VICTORIA NURSERIES, HOLLOWAY, LONDON, N.,

BEGS TO OFFER THE FOLLOWING VALUABLE SEEDS.

They have each been carefully tried by competent judges, and proved to be quite equal in their qualities to the description given of each below.

Malvern Hall Melon (Scarlet Flesh).

A valuable variety. This kind has been proved by the side of 30 of the best to be the earliest to ripen, and the freest in setting its fruit. The following description of it by Mr. Edlington, Head Gardener to the Earl of Stamford, Wrotham Park, in the *Scottish Gardener*, conveys a very just idea of its properties. He writes:—

"I have no hesitation in asserting that the above Melon is second to none in cultivation. I might even go a step further and not err in placing it first on the list of Scarlet-fleshed kinds. Gem, grown in the same house, and subjected exactly to the same treatment, bore no comparison in any one point. The Malvern Hall is most delicately flavoured, remarkably thin-skinned, a very free setter, and early. These properties, in my judgment, constitute a first-class Melon.

"The Malvern Hall is nicely ribbed and moderate in size; those I grew this season averaged 2¼ lb.—a size I consider amply large enough for ordinary desserts. Those who have not grown the Malvern Hall I recommend to do so, and those who have will, I think, agree with my remarks."

Price 2s. per packet.

Williams's Matchless Red Celery.

This variety has been in cultivation for several years, and all who have grown it pronounce it to be the best Red Celery. It is a dwarf grower and remarkably hardy, not apt to run to seed, but will last good till the middle of April. In flavour it is much superior to the other varieties, always possessing that sweet crispness which several of the other kinds, under some cultivation, entirely lack. When more known, its excellent qualities will cause it to become the leading variety.

Price 1s. per packet.

Digswell Prize Endive

Is chiefly valuable for its hardihood and good hearting qualities. As a curled-leaved sort, holding that happy medium between a coarse weedy kind and varieties so endwarfed and curled as to be of very small size, and very readily cut off by slight frosts, it took the First Prize at the International Fruit and Vegetable Show, R.H.S., 1864, and again the First Prize at the Dublin International Fruit, Root, and Vegetable Show, Oct. 3, 1865.

Price 1s. per packet.

FIRST-CLASS EDGING PLANT,

Oxalis corniculata rubra.

A valuable perennial Ribbon-border Plant. A writer in the "Journal of Horticulture" thus speaks of it:—

"For edging purposes in narrow borders or small beds there is no plant of its colour so admirably adapted. It is compact in habit, rarely exceeding from [illegible] inches high, with foliage resembling the finest tinted Beet, and surpassing the Perilla in my estimation. In its younger growths it resembles the Amaranthus melancholicus ruber; but as it advances, the foliage assumes a darker tint. It strikes freely at any season, as freely as a Verbena, and will bear the same winter treatment, or it may be raised from seed, but it is a rather difficult matter to secure seed, owing to the extreme irritability of the seed-vessels characteristic of this class of plants."

If sown in February and March, like Lobelia speciosa, and treated like it, nice plants are obtained for planting out in May. Good plants may also be secured by sowing in pots in a frame late in summer, and, when large enough to handle, pricking off in small pots in sandy loam with a little leaf-mould and sand, and wintering in a cool frame. It is a charming plant for the lower fissures of rockwork. The flowers are bright yellow.

Price 1s. 6d. per packet.

Prices to the Trade on application.

To Nurserymen and Others.

JOHN PERKINS, Sen., has the following to offer at moderate prices:—

2,000,000 LARCH FIRS, 3 to 4 feet.
1,000,000 SPRUCE and SCOTCH FIRS, 2 to 3 feet.
2,000,000 BLACK THORN, 1, 2, and 3 years.
2,000 CEDRUS DEODARA, from 4 to 8 feet.

Dwarf-trained PEACHES, NECTARINES, APRICOTS, and CHERRIES, Standard PEARS, &c.

Prices of the above on application to John Perkins, 52, Market Square, opposite the Corn Exchange. Northampton.

STANDARD PORTUGAL LAURELS. — Splendid imitation of the Orange Trees seen in France, 4 to 7 feet high, handsome symmetrical heads, perfect pictures, 10s., 15s., 20s., 30s., and 40s. each, according to size.

VINES.—Extra strong for fruiting, 30s. per doz. Lists of sorts, with sample of the wood, sent free for 2 stamps.

DAPHNE CNEORUM.—Very fine plants of this lovely winter and spring-blooming plant for the conservatory or garden. Very few more to offer. Price per 100 or doz. on application.

IRISH IVY.—Very fine bushy plants, 6 to 8 feet, 9s. per doz.

YEWS and PORTUGAL LAURELS.—2 to 3 feet high, fine bushy plants, 2 and 3 feet through, 12s. per doz. Six times transplanted.

W. B. Jeffries, Arboretum Nurseries, Ipswich.

RICHARD SMITH,
Nurseryman and Seed Merchant, Worcester.

ROSES.—12 of the very best Standard, Perpetual, and Moss Roses for 18s.; 50 for 63s.; 100 for £5.
12 ditto Dwarf do. do. for 12s.; 50 for 42s.; 100 for 75s.
12 ditto, New Sorts of 1865, for 24s.
Descriptive List on application.

FORTY ACRES of FRUIT TREES.—Apples, Pears, Plums, Cherries, Peaches, Nectarines, and Apricots in every form desired for Fruiting.

DWARF-TRAINED TREES, by the Thousand, Hundred, or Dozen.
APPLES, PEARS, PLUMS, CHERRIES, PEACHES, and NECTARINES.
Fine, flat, well-trained, of best quality, and true to name.

PYRAMID APPLES, PEARS, PLUMS, CHERRIES.
Beautiful Trees for Garden or Orchard Houses.

ORCHARD-HOUSE TREES, Fruiting in Pots.—Peaches, Nectarines, Apricots, Cherries, Plums, Pears, Apples, Vines, and Figs.

EVERGREENS for Ornamental Planting or Avenues, handsome, well grown, and transplanted within the last two years. For prices of smaller sizes and quantities, see Conifer List.

At 30s. per dozen:—

Abies alba, 5 to 7 feet	Juniperus thurifera, 3 to 4 feet
„ Douglasii, 3 to 4 feet	Laurel, Colchic, 5 to 6 feet
„ inverta, 1½ to 2 feet	„ Portugal, Pyramids, 3 to 4 ft.
„ orientalis, 1½ to 2 feet	Pinus cembra, 3 to 4 feet
Arbor-vitæ, American, 6 to 7 feet	„ excelsa, 5 feet
„ Siberian, 4 to 5 feet	Taxodium sempervirens, 7 to 8 ft.
Cedar, Red, 5 to 6 feet	Thuja Lobbii, 3 to 4 feet
Cryptomeria viridis, 4 to 5 feet	„ aurea, 1½ foot
Cupressus Lawsoniana, 3 to 4 feet	„ compacta, 1½ to 2 feet
„ fragrans, 3 feet	Thujopsis borealis, 3 feet
Irish Yew, 4 to 5 feet	Wellingtonia gigantea, 2 feet

At 42s. per dozen:—

Abies Douglasii, 4 to 5 feet	Pinus excelsa, 6 feet
„ inverta, 2 to 2½ feet	„ Lambertiana, 3 to 4 feet
„ orientalis, 2 to 2½ feet	„ insignis, 3 to 4 feet
„ pyramidalis, 2 to 2½ feet	Thuja Lobbii, 4 to 5 feet
Araucaria imbricata, 2 to 2½ feet	„ compacta, 2 to 2½ feet
Arbor-vitæ, Siberian, 5 to 6 feet	„ aurea, 2 feet
„ American, 7 to 8 feet	Thujopsis borealis, 4 feet
Cedar, Red, 6 to 8 feet	Wellingtonia gigantea, 2½ feet
Cupressus Knightii, 6 to 7 feet	Yew, Irish, 5 to 5½ feet
„ Lawsoniana, 4 to 4½ ft.	Laurels, Pyramid, Portugal, 4 to 4½ feet
Juniperus thurifera, 4 to 5 feet	„ Colchic, 6 to 7 feet
Pinus Cembra, 4 to 5 feet	

At 60s. per dozen:—

Abies inverta, 2½ to 3 feet	Juniperus thurifera, 5 to 6 feet
„ Douglasii, 5 to 5½ feet	Laurels, Pyramid Portugal, 5 ft.
„ Menziesii, 5 to 6 feet	Pinus excelsa, 6 to 8 feet
„ orientalis, 2½ to 3 feet	„ Lambertiana, 5 to 6 feet
„ pyramidalis, 3 to 4 feet	„ Cembra, 5 to 6 feet
Araucaria imbricata, 2½ to 3 feet	Thuja japonica, 2½ to 3 feet
Arbor-vitæ, Siberian, 6 to 7 feet	„ aurea, 2½ feet
Cedrus Deodara, 6 feet	Taxodium sempervirens, 8 to 10 ft.
Cupressus Knightii, 7 to 8 feet	Wellingtonia gigantea, 3 feet
„ Lawsoniana, 5 feet	Yew, Irish, 6 feet

At 84s. per dozen:—

Abies Douglasii, 7 to 8 feet	Cedrus Deodara, 7 to 8 feet
„ inverta, 3 to 4 feet	Juniperus thurifera, 6 to 7 feet
„ Menziesii, 6 to 8 feet	Pinus excelsa, 8 to 10 feet
„ orientalis, 3 to 4 feet	Taxodium sempervirens, 10 to 12ft.

Each:—

Abies Douglasii, 8 to 10 ft., 12s. 6d.	Picea nobilis, 2½ to 5 ft., 21s. to 63s.
„ „ 10 to 12 feet, 15s.	„ Nordmanniana, 2½ to 4 feet, 10s. 6d. to 42s.
„ „ 12 to 15 feet, 21s.	„ „ 4 to 6 feet, 42s. to 84s.
„ inverta, 4 to 5 feet, 10s. 6d.	„ Pinsapo, 3 to 5 ft., 10s. 6d. to 42s.
„ „ 6 feet, 21s.	Pinus excelsa, 10 to 12 feet, 10s. 6d.
Araucaria imbricata, 3 to 4 feet, 7s. 6d. to 21s.	„ „ 12 to 15 feet, 15s.
„ „ 4 to 8 ft., 21s. to 84s.	„ Lambertiana, 6 to 8 feet, 10s. 6d. to 21s.
Cedar of Lebanon, 8 to 10 feet, 21s.	Thuja incurvata, 8 to 9 ft., 10s. 6d.
Cedrus Deodara, 8 to 10 ft., 10s. 6d. to 21s.	Taxodium sempervirens, 12 to 15 feet, 10s. 6d. to 15s.
Picea nobilis, 2 to 2½ feet, 10s. 6d.	

American Arbor-vitæ, for Hedges, 3 to 4 feet, at 50s. per 100.
„ „ „ 4 to 5 feet, at 75s. „
„ „ „ 5 to 6 feet, at 100s. „

FLOWERING and STANDARD ORNAMENTAL TREES. At 12s. per dozen:—

Ash, Mountain, 7 to 9 feet	Chestnut, Spanish, 6 to 8 feet
Acacia, 7 to 9 feet	Hornbeam, 8 to 10 feet
Birch, Weeping, 8 to 10 feet	Poplar, Silver, 8 to 10 feet
Crab, Siberian, scarlet, 6 to 7 feet	„ Lombardy, 9 to 10 feet
„ yellow, 6 to 7 feet	Pyrus spectabilis, 6 to 7 feet

At 18s. per dozen:—

Almond, flowering, 7 to 8 feet	Chestnut, Spanish, 8 to 10 feet
Acacia, 8 to 10 feet	Cytisus, 3 to 4 feet
Ash, Mountain, 9 to 12 feet	Elm, Chichester, 8 to 10 feet
Acer Negundo, 6 to 8 feet	Poplar, Lombardy, 11 to 12 feet
Birch, 10 to 12 feet	„ Silver, 10 to 12 feet
Crab, Siberian, yellow, 7 to 8 feet	Pyrus spectabilis, 7 to 8 feet
„ scarlet, 7 to 8 feet	Thorn, double pink, 6 to 7 feet

At 30s. per dozen:—

Almond, flowering, 8 to 10 feet	Cytisus in variety, 4 to 5 feet
Acer Negundo variegata, 6 to 8 ft.	Poplar, Silver, 12 to 15 feet
Acacia, ball, 6 to 7 feet	Thorns, double pink, 8 to 10 feet
Chestnut, scarlet, 6 to 8 feet	Willow, Ameri. Weeping, 6 to 8 ft.

RICHARD SMITH'S LIST of all the EVERGREEN FIR TRIBE, suitable for Britain, giving size, price, popular and botanical names, derivations, description, form, colour, foliage, growth, timber, use in arts, native country and size there, situation, soil, and other information, with copious Index of their synonymes.
Enlarged Edition, free by post for 12 postage stamps.

RICHARD SMITH'S FRUIT LIST contains a sketch of the various forms of Trees, with Directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Cropping, Treatment under Glass; also their synonymes, quality, size, form, skin, colour, flesh, flavour, use, growth, duration, season, price, &c.
Free by post for one stamp.
Richard Smith, Nurseryman and Seed Merchant, Worcester.

To Noblemen and Gentlemen about to be engaged in Planting.

DICKSONS and CO., Nurserymen, Seedsmen, and Florists, Waterloo Place, Edinburgh, have this season a large and very healthy stock of Seedling and Transplanted LARCH (native and Tyrolese), True Native Highland SCOTCH FIR, Spruce, Oak, Plane or Sycamore, Spanish Chestnut, Alder, Ash, Elm, Thorn Quick, Beech, Evergreen Privet, Poplar, Willow, &c., as well as all other kinds of Forest and Ornamental Trees and Shrubs, Fruit Trees, Roses, Greenhouse and Stove Plants, Herbaceous and Alpine Plants, Ferns, &c.

Their Forest Trees, which are grown on exposed ground, are this season finely ripened, and can be sent with perfect safety to any part of the kingdom.

Samples and prices will be sent free on application.

ON SALE, a large quantity of strong LARCH, SPRUCE, PRIVETS, and 2-years BEDDING QUICKS.
LARCH, 2 to 3 feet, 17s. 6d. per 1000.
„ 3 to 4 feet 6 inches (very fine), 22s. 6d. per 1000.
PRIVETS, 3-years Transplanted, 17s. 6d. per 1000.
QUICKS, 2-years Bedding, for Railway and Enclosure purposes, 6s. to 8s. per 1000.
HOLLIES, very fine, 3 to 5 feet; price according to size.
Apply to Samuel Robinson, Shaw House, Melbourne, near Derby.

To the Trade.

W. P. LAIRD and SINCLAIR, Dundee, N. B., will be glad to make cheap offers of the following:—

SEEDLINGS.—1-yr. and 2-yrs. Larch; 2-yrs. Pinus Laricio; 1-yr. Sycamore; 2-yrs. Apples; 2-yrs. Oaks; 1-yr. and 2-yrs. Pinus maritima; 1-yr. White Broom; 2-yrs. Ash; 1-yr. Elm; 1-yr. Hazels; 1-yr. Hollies.

TRANSPLANTED.—Strong Larch, various sizes; 2-yrs. Scotch Fir; Silver Fir, 9 to 12 inches, fine clean leaders; strong Thorns; Irish Yews, 3 to 4 feet; Irish Junipers, various sizes; Azalea pontica, 6 to 12 inches; Daphne neapolitana. Named Carnations. Potatos, best Garden varieties.

N.B. A few of the True Old DOUBLE WHITE ROCKETS to spare.

Transplanted Larch and Native Scotch Fir.

FOR SALE, a quantity of LARCH and SCOTCH FIR, grown in a private Nursery, and not now required. The Scotch Fir Seedlings were supplied by the Subscribers, raised from Seed gathered in the Highland Forests, and the Larch from the finest Tyrolese Seed. Both have been twice Transplanted, and having been grown for private use have had ample room and every attention paid to them.

The Larch are 3 to 4½ feet high, strong and healthy; the Scotch Fir are 1½ to 2½ feet, strong and well rooted.

Samples and price may be had on application to
Jas. Dickson & Sons, Nurserymen, Hanover Street, Edinburgh.

To Gentlemen, Gardeners, and Others Planting.

J. OGDEN begs to offer a considerable quantity of his SURPLUS STOCK on very advantageous terms to Wholesale Purchasers, being desirous of clearing a large portion of his Grounds for Replanting. The Plants offered consist chiefly of English and Irish Yews, Junipers, Green and Worked Hollies, Laurels, Standard Evergreen Oaks, and Box; Aucubas, Siberian Arbor-vitæ, Rhododendrons, Ericas, Ledums, Kalmias, Green and Variegated Box, Berberis, of sorts; Spruce and Scotch Firs, Austrian and Weymouth Pines, grown thin for single trees; Standard Roses, Deutzias, Weigelas, Spiræas, Lilacs, Laburnums, Syringas, Acacias, Limes, Flowering Thorns, Purple and Cut-leaved Beech; Weeping Trees in great variety; a general assortment of Fruit Trees, &c. Prices on application. Nurseries, Coventry.—Nov. 25.

NEW CEREALS.—RICHARD'S WHEAT, a HYBRID and LONGFELLOW OAT.

THE WHEAT FAMILY, male, female, and offspring, with their seeds of different crops, and the NEW OAT, will be exhibited at the approaching Smithfield Show, on the Stand of Peter Lawson & Son, and orders received for crop 1866, by
Patrick Shirreff, Haddington.

Caution.—Nuneham Park Onion.

WM. CUTBUSH and SON having purchased the entire stock of this superb ONION, beg to CAUTION their friends and the public against the gross misrepresentations of a person in the service of a London Seed Firm, who booked and received cash from a gentleman for Seed at the Guildhall, where the Onion was exhibited last week, the order having subsequently been executed with another variety totally distinct. We therefore beg to state that no one will be able to supply it true, except our accredited Agents, whose names will be announced in the *Gardeners' Chronicle*.
Highgate Nurseries, London, N.

To Farmers, Gardeners, and the Trade.

EXCELLENT STRONG CABBAGE PLANTS may be had in large or small quantities of the following well-known good sorts at 2s. 6d. per 1000 for cash:—Early Nonpareil, Early York, East Ham, Robinson's, Large Drumhead or Cattle.

A SPECIAL PRICE LIST of NEW SEEDS on application.
A remittance must accompany all orders.
Frederick Gee, Seed Merchant and Grower, Biggleswade, Beds.

PATERSON'S FAMED SEEDLING POTATOS.—Messrs. Sutton & Sons, Reading (after having grown our approved varieties of NEW POTATOS, and found them equal to reports from the leading Agriculturists throughout the country, and well worthy of extensive cultivation), have been appointed our AGENTS for BERKS and surrounding districts for the Sale of our Potatos.
Wm. Paterson & Son, Seed Potato Merchants and Seedling Raisers, Dundee.

Erin's Queen Dwarf Ashleaf Potato.

WAITE, BURNELL, and CO. have the pleasure of again introducing this really true and pure stock of the Ashleaf variety, which gave great satisfaction during the past season. It is very dwarf in the haulm, foliage of a dark green colour, very early, and invaluable for frames. Price 10s. 6d. per bushel.
A liberal discount to the Trade.
Seed Warehouse, 181, High Holborn, London, W.C.

Seed Potatos.

H. and F. SHARPE invite the attention of the Trade to the following varieties of SEED POTATOS, which they have grown from the finest selected stocks; they comprise all the sorts worthy of cultivation. The quality is excellent, being free from disease; and prices very moderate:—

Early Ash-leaved Kidney	Early Oxford
„ Myatt's prolific Kidney	„ Forty-fold
Webb's Imperial Kidney	Daintree's Earliest
Early King, very fine	Early Dalmahoy Round
„ Martin's Globe	„ Cockney
„ Golden Globe	„ British Queen
„ Foxe's Seedling	Fluke Kidney
„ Round Frame	Yorkshire Regent

Seed Growing Establishment, Wisbech, Cambs.

The Essex Rival Pea.

THOMAS ELEY, of Sible Hedingham, near Halsted, Essex, who introduced the above-named PEA last year, has much pleasure in again inviting attention to this very excellent variety, the merits of which have been well and sufficiently tested by a general public during the past season, the result having been the receipt of many most flattering reports of the extraordinary fine qualities of this Pea, fully endorsing the representations given of it at its first introduction.

Mr. Eley wishes to remind his numerous patrons that the ESSEX RIVAL may be sown in November to secure a gathering in May.
Price 1s. 6d. per quart.
Price to the Trade on application.

To be obtained of Mr. Thomas Eley, Sible Hedingham, near Halsted, Essex.

Also of the following appointed Agents:—
Messrs. Peter Lawson & Son, 28, King Street, Cheapside, London, E.C.
Messrs. Fraser, Richardson, & Goad, 82, Bishopgate Within, E.C.
Messrs. Cooper & Bolton, 152, Fleet Street, E.C.
Mr. James Veitch, Royal Exotic Nursery, Chelsea.
Messrs. Saltmarsh & Son, Moulsham Nurseries, Chelmsford.
Mr. B. Cant, St. John's Nursery, Colchester, Essex.
Mr. George Taber, Seed Merchant, Rivenhall.
M. Paul Tollard, Nurseryman and Florist, 4, Place des Trois Maries, [Paris, France.
Richard Lowe & Co., High Green, Wolverhampton, Staffordshire.
Mr. Christmas Quincy, Market Place, Peterborough.
Mr. A. F. Godward, Florist, &c., Southend, Essex.

DIXON'S YORKSHIRE HERO PEA.—For Testimonials of this valuable New Pea, see *Gardeners' Chronicle* of November 18.
Price 2s. per quart. The Trade supplied.
E. P. Dixon & Son, Yorkshire Seed Establishment, 57, Queen Street, Hull.

New Pea.

HOOPER'S RIVAL PEA, the earliest of the early, and much better cropper than most of the new first early sorts.
Price 2s. 6d. per quart.

Hooper & Co., Seed Merchants, Covent Garden, London, W.C.

The Earliest Pea known is

CARPENTER'S EXPRESS, gathered May 7th, the earliest date on record. See testimonials in *Gardeners' Chronicle* of September 2 and 9, October 16, and November 6. Price 5s. per quart. Trade price on application.

True seed to be had only of Edward Carpenter, Seed Merchant and Grower, Brighton and Sussex Seed Warehouse, 96, St. James's Street, Brighton; and of Messrs. Wood & Son, Nurserymen, Maidenhead; Messrs. Osborn & Sons, Nurserymen, Fulham, S.W.; and Messrs. W. Bryce & Co., Seed Merchants, Glasgow.

PRICED CATALOGUES of DUTCH BULBS now ready.

THE EARLIEST and BEST OUT-DOOR GROWN PEA we have tasted this season—vide *Journal of Horticulture* of the 13th of June, 1865; it was also favourably noticed in the *Gardeners' Chronicle* of June 3, 1865.

The above Early Pea is now being sent out by Robert H. Poynter, at 1s. 6d. per quart. Height 3 feet. The kind was gathered from good condition as early as the 20th of May, and was sent to the Editor as above on the 28th.

None genuine except from accredited Agents.
All over two quart packages free on Great Western Railway.
Robert H. Poynter, Seed Merchant, Taunton.

Sutton's Ringleader (or Carter's First Crop) Pea.

The Earliest Pea in Cultivation.

MESSRS. SUTTON, anticipating a large demand this season for the above popular Pea, respectfully recommend early orders, the stock being limited.

The following Seedsmen have already ordered a supply:—
Messrs. Cooper & Bolton, 152, Fleet Street, London, E.C.
„ Hurst & Son, 6, Leadenhall Street, London, E.C.
„ Minier, Nash, & Nash, 60, Strand, London, W.C.
„ Jacob Wrench & Son, London Bridge, London, E.C.
„ Waite, Burnell, & Co., 181, High Holborn, London, W.C.
„ Nutting & Sons, 60, Barbican, London, E.C.
„ Thorburn & Co., New York, U.S.A.
„ Dobson & Son, Woodlands Nursery, Isleworth, W.
„ J. & C. Lee, Hammersmith, W.
„ Osborn & Sons, Fulham, London, S.W.
„ J. Veitch, Chelsea, London, S.W.
„ Rutley & Co., 412, Strand, W.C.

Price to the Trade on application.

Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

SUTTON'S RINGLEADER (or CARTER'S FIRST CROP) PEA.
The Earliest in Cultivation.

This Pea was introduced to the public last season simultaneously by Messrs. Sutton & Sons and Messrs. James Carter & Co., both parties being entirely ignorant of the fact that the stocks from which they had raised their supplies were obtained a few years since from the same locality, and in fact from the same person who originated it. Of all the kinds tried against Ringleader (or First Crop) none have proved so early.

The price charged last season was the same by both vendors, viz., 2s. 6d. per quart, and the demand at that time being so great as to prevent our holding a sufficient quantity for seeding, the price cannot be reduced this season.

The following are Extracts from a few of the numerous Letters received relative to this unrivalled Early Pea:—

From Mr. William Dowell, *Gardener to* Sir George Chetwynd, *Grenden Hall, Atherstone, May* 24, 1865.

"Your 'Ringleader' is earlier than any Pea I have ever grown. I shall gather a dish to-morrow morning, which is by far the earliest Pea we have had."

From Mr. W. Povey, *Gardener to* H. P. Best, Esq., *Donnington Grove, near Newbury, May* 24.

"I planted your 'Ringleader Pea' on the last day of February; on the same day I planted 'Daniel O'Rourke' and other early sorts. Your 'Ringleader' is uncommonly well podded, and the pods are filling fast. I have no doubt they will be cleared, and the ground planted, before I pick from any of the other early sorts."

From Mr. James Pearson, *Gardener to* H. Bentley, Esq., *Woodlesford, Leeds, May* 25.

"Your 'Ringleader Pea' is six days earlier than Dillistone's, and is the most promising Pea I have grown."

From Mr. H. Harrison, *Dedham, May* 26.

"Your 'Ringleader Pea' has proved with me by far the earliest, and will be cleared off the ground before the others have done blossoming. I consider the 'Ringleader' the quickest Pea of any of the early sorts grown in this neighbourhood."

From the Rev. William Wood, *Prestwood Parsonage, Great Missenden, May* 27.

'I expect your 'Ringleader' Pea will be a fortnight earlier than 'Sangster's No. 1' sown on the same day; in fact, it is earlier than any Pea which my gardener has known. The garden lies high, and is exposed to the cold."

From Mr. Bailey Wadds, *Gardener to* S. A. Sykes, Esq., *Raywell, Brough, May* 29.

"I have this year sown your 'Ringleader' Pea against your Early 'Champion,' which I have hitherto found the earliest in cultivation, and I am glad to tell you that it came into bloom ten days earlier. It has been covered with blossoms from top to bottom. I am sure it is a valuable addition to our early Peas."

From Mr. George Scrymger, *Holme Park, Sonning, May* 29.

"I have great pleasure in reporting favourably of your new early Pea 'Ringleader.' It was sown the same day as five of the most popular early sorts. I gathered from it on the 26th of May, which is 14 days earlier than I shall of any of the other varieties. It is also very prolific; altogether with me it has proved an acquisition."

From William Thomas Rew, Esq., *Coombershead, Tiverton, May* [illegible]

"Your 'Ringleader' Pea has quite proved worthy of its name. I planted it side by side on the same day with Sangster's No. 1 (which has hitherto been my earliest), but now the 'Ringleader' has blossomed at least one week before the others, and from appearances will be fit to gather quite a fortnight before them. My garden is in a very high and exposed situation, as well as rather late."

From John Ford, Esq., *Merton Hall, Warwick, May* 31.

"My gardener sowed on the 12th of January, side by side, 'Sutton's Ringleader,' 'Sutton's Champion,' 'Early Essex Rival,' and 'Dillistone's Early Prolific' Peas. 'Sutton's Ringleader' was in bloom first, coming in the 3d of May, the others a week or so later."

From Messrs. Dobson & Son, *Woodlands Nursery, Isleworth*.

"We tried your 'Ringleader' Peas last season with 'Dillistone's,' and it was from a week to 10 days earlier. It is certainly the earliest Pea that has come under our notice."

From the Gardeners' Chronicle, *August* 12, 1865.

"*Peas.*—On the 28th of March I sowed Sutton's 'Ringleader,' and had a splendid crop in less than eight weeks, which I allowed to ripen. I then sowed the ripe seed on July 10th, and have a fine capital crop of Peas, the second crop having been six weeks only growing, and the two crops have been produced in less than [illegible] I beg to forward you a sample, the pods in which you will observe are well filled.—*Thomas Fielder, White Horse, Binfield, Berks.*"

Retail price 2s. 6d. per quart. Price to the Trade on application.

PRICED LISTS of FLOWER ROOTS, GARDEN SEEDS, FARM SEEDS, &c., gratis and post free.

Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

Extra, extra strong Fruiting Vines.

FRANCIS AND ARTHUR DICKSON AND SONS, The "Upton" Nurseries, Chester, beg to direct attention to their very large stock of the above, which includes the newest and best varieties in cultivation. They have been pronounced to be "magnificent stuff" by all who have seen them, and they believe a finer lot of Vines were never grown. Inspection invited.
Prices and all particulars on application.
Sample plants sent if desired.

2000 VINES, from Eyes, strong and extra strong, for immediate Fruiting in Pots, and for Planting-out; including all the leading varieties, with stout, close-jointed, and thoroughly ripened Canes, many of which will produce from 4 lb. to 8 lb. of Grapes next season. Prices and particulars upon application to
JAMES DICKSON & SONS, The "Newton" Nurseries, Chester.

Lancashire Show Gooseberries and Currants.

M. A. LAKE, The Nurseries, Bridgewater, has to offer several thousand of the above, of the choicest kinds.
EVERGREEN HOLLIES, from 1 to 2 feet, and EVERGREEN PRIVET; also HORSE CHESTNUTS, ELMS, OAKS, SYCAMORE, MAPLE, and POPLARS, of sorts; fine Trees, from 10 to 12 feet.
Prices moderate, which will be forwarded on application.

WILLIAM HOOPER, St. John's Hill, Wandsworth, S.W., begs to offer GOOSEBERRIES, Red, Black, and White CURRANTS, good sorts, all clean and well grown, 2 years transplanted, 4s. to 6s. per dozen. Strong SEA KALE roots, from 8s. to 12s. per 100. Prices of Fruit Trees and Ornamental Trees and Shrubs on application.

PEACH TREES for Cordons; Pyramidal PEACH, APRICOT, and NECTARINE TREES, in pots, full of blossom buds, 5 to 6 feet in height, for diagonal cordon training or pot culture. Average price, 5s. each. The above have all been under close summer pinching, and are very handsome Trees.
Messrs. THOS. RIVERS & SON, Nurseries, Sawbridgeworth.

B. S. WILLIAMS begs to direct special attention to the undermentioned, of which he now holds a fine stock. PRICED and DESCRIPTIVE LISTS can be had on application.
VINES. Strong Planting and Fruiting Canes of all the best varieties, including the new Grape ROYAL VINEYARD.
PINES.—Strong Fruiting and Succession plants, and suckers of all the leading kinds.
BECK'S NEW PELARGONIUMS.—For the present season, at the moderate price of 10s. 6d. each; also a large assortment of the best PELARGONIUMS and GERANIUMS, including BEATON'S best NOSEGAYS.
DUTCH BULBS.—Splendid roots of the strongest flowering HYACINTHS for glasses or pots, at 6s., 8s., 9s., 10s. and 12s. per dozen. POLYANTHUS, NARCISSUS, CROCUS, Early TULIPS, and all other bulbs.
ENGLISH-GROWN SEEDLING GLADIOLI, 9s. and 12s. per dozen, ready next month. As the supply of these is limited, early orders are solicited.
Paradise and Victoria Nurseries, Holloway, London, N.

CHARLES B. SAUNDERS, NURSERYMAN, &c., Jersey, has the following surplus articles to offer this season, of fine growth, for which he respectfully solicits orders.
BLACK HAMBURGH, BLACK VICTORIA, and MUSCAT of ALEXANDRIA VINES, 30s. per doz., fruiting rods, 7 to 8 ft. long.
Dwarf Fruiting PEAR TREES, best sorts, Pyramidal and Trained, 20s. to 30s. per dozen.
Dwarf Fruiting APPLE TREES, 12s. to 18s. per dozen.
Dwarf-trained APRICOT and NECTARINE TREES, 24s. to 30s. per dozen.
QUINCE STOCKS for PEARS, of fine size, 6s. per 100.
GUERNSEY ELMS and TURKEY OAKS, fine strong stuff, 7 to 10 feet, 50s. per 100.
CAMELLIA STOCKS, fit for grafting, 30s. to 40s. per 100.
Besides a general and extensive Nursery Stock, CATALOGUES of which may be obtained on application.

To the Trade.

CUPRESSUS LAWSONIANA SEED (true), of excellent quality, and warranted crop of present season. Price, postage paid, 5s. 2d. per oz.; 32s. per half lb.; 60s. per lb. nett. From unknown Correspondents a remittance must accompany order.
WHOLESALE CATALOGUES of GENERAL NURSERY STOCK can be had on application to
THOS. CRIPPS, Nurseryman, Tunbridge Wells, Kent.

CLIVEDEN SPRING-BLOOMING PLANTS.
See Advertisement, page 1102.
STANDEN'S GARDENER'S and AMATEUR'S FRIEND. See Advertisement, page 1105.
BARR & SUGDEN, Seed and Plant Merchants, 12, King Street, Covent Garden, W.C.

Hardy Climbers.—To the Trade.

CLEMATIS JACKMANNI.—Large intense violet purple, rugose and veiny in centre, 2 to 2½ feet bine; 30s. per dozen.
CLEMATIS RUBRO-VIOLACEA.—Reddish violet, sepals moderate, fine; 30s. per dozen.
CLEMATIS STANDISHI.—Beautiful violet blue; 30s. per dozen.
Besides other good old varieties.
A CATALOGUE, including Description and Treatment of Clematises, will be forwarded free on application to
GEO. JACKMAN & SON, Woking Nursery, Surrey.

1865 and 1866.

WILLIAM BARRON begs to announce that his NEW DESCRIPTIVE CATALOGUE of CONIFERÆ and other ORNAMENTAL PLANTS, RHODODENDRONS, ROSES, FRUIT TREES, &c., for the Autumn of 1865 and Spring of 1866, is now ready, and may be had post free upon application.
Elvaston Nurseries, Borrowash, near Derby.

Alder, &c.

J. AND J. GAITSKELL have a large stock of strong ALDER, 3 to 6 feet; STANDARD and DWARF APPLE TREES, COMMON and PORTUGAL LAURELS, COTONEASTER, POPLARS, DWARF ROSES, IRISH YEWS, GHENT and other AZALEAS, and PINUS EXCELSA, 4 to 6 feet, &c.
Prices to the Trade or others on application.
The Nurseries, Hall Santon, Whitehaven.

J. AND J. GAITSKELL'S Nursery Stock comprises a general and select assortment of the various FOREST and FRUIT TREES, CONIFERÆ, and other ORNAMENTAL TREES, EVERGREEN and FLOWERING SHRUBS, &c., the robust and healthy appearance of which has been remarked by all who have seen them. CATALOGUES gratis on application.
Plants given to compensate for long carriage.
The Nurseries, Hall Santon, Whitehaven.

Winter-flowering Heaths.

JOHN FRASER, Lea Bridge Road Nurseries, N.E., begs to offer fine plants of ERICA HYEMALIS, and other Winter-flowering sorts, now coming into full bloom. The prices will be given on application. A reference or remittance respectfully requested from unknown correspondents.

M. CROOK AND SONS have to offer to the Trade and others from 200,000 to 300,000 strong LARCH, from 3 to 4½ ft. high, all healthy and well grown. Prices on application.
M. C. & Sons have also a large stock of good sound SHALLOTS to Dispose of. Prices reasonable.
Walton-le-Dale Nurseries, Preston, Lancashire.

D. S. THOMSON begs to inform intending Planters that he has a large assortment of TREES and SHRUBS in excellent condition for planting, being well-rooted, young and healthy. An enormous quantity of IVIES and HARDY CLIMBING PLANTS on reasonable terms. Planting contracted for.
The Nursery, 3 minutes' walk from the Wimbledon Station, Main Line South Western Railway.

Surplus Stock of Evergreens, &c.

WILLIAM BOOSEY, The Nurseries, Middlewich, Cheshire, will be glad to furnish, on application, special quotations for Transplanted EVERGREENS, &c., consisting of Hollies, Siberian Arbor-vitæ, Berberis Aquifolium, Pinus austriaca, Pinus excelsa, Abies Menziesii, Portugal Laurels, Yews, Cotoneaster, Pernettya, Lombardy Poplar, Horse Chestnuts, &c., of various sizes and of excellent quality.

Sutton's Unrivalled Collections of Bulbs.

SUTTON'S GUINEA COLLECTION of BULBS for BLOOMING in POTS and GLASSES.
SUTTON'S GUINEA COLLECTIONS for BEDS and BORDERS.
For particulars see SUTTON'S AUTUMN CATALOGUE, which may be had gratis and post free.
SUTTON & SONS, Royal Berks Seed Establishment, Reading.

New Catalogue of Plants, Dutch Bulbs, &c.

ROBERT PARKER begs to announce that his NEW CATALOGUE, containing Select Descriptive and Priced Lists of New, Rare, and Beautiful Greenhouse, Hardy, and Stove Plants, Fruit Trees, Grapes, &c., Amaryllis, Crocuses, Gladioli, Hyacinths, Narcissus, Tulips, and other Bulbs, is now published, and will be forwarded to applicants.
Exotic Nursery, Tooting, Surrey, S.

BUTLER AND McCULLOCH, SEED MERCHANTS, South Row (or Strand side), opposite Southampton Street, Covent Garden Market, London, W.C., beg to offer the following choice COLLECTIONS of DUTCH and CAPE FLOWERING BULBS, all of the first size and quality.

FOR GREENHOUSE

No. 1	No. 2	No. 3	No. 4	No. 5	No. 6
100s.	50s.	25s.	21s.	15s.	10s. 6d.

FOR FLOWER GARDEN.

No. 7	No. 8.	No. 9.	No. 10	No. 11	No. 12
100s.	60s	40s	25s.	21s	10s. 6d.

FOR GREENHOUSE and FLOWER GARDEN

No. 13.	No. 14	No. 15.	No. 16.	No. 17.	No. 18.
105s.	52s 6d.	42s.	21s.	15s	10s 6d.

All orders amounting to 21s. and upwards sent carriage paid.
BUTLER & McCULLOCH, Covent Garden Market, W.C.

Dutch Bulbs—Second consignment, great bargains.

W. B. JEFFRIES has received Fifty Cases where he only expected Two, and has determined to sell them off at cost price in 20s. and 10s. 6d. collections, containing a splendid assortment for the Garden and Conservatory.
DESCRIPTIVE CATALOGUE for one stamp.
Arboretum Nurseries, Ipswich.

NEW PLANTS.

AUBRIETIA CAMPBELLI (effective spring flower).
FUCHSIA BANKS'S BEAUTY.
VERONICA FRUTICOSA GLAUCA.
CLIANTHUS DAMPIERI, in varieties (seed only).
Coloured Plates, post free on receipt of Stamps, of the following:—
AUBRIETIA CAMPBELLI, 7d.
CLIANTHUS DAMPIERI ALBIFLORA, 1s. 1d.
For description of the above see E. G. HENDERSON & Son's New AUTUMN CATALOGUE, forwarded post free.
Wellington Nursery, St. John's Wood, London, N.W.

To the Trade.—New Flower Seeds for 1866.

W. THOMPSON, SEEDSMAN, Tavern Street, Ipswich, respectfully announces to the Trade, that he is now able to supply SEED of the following interesting Novelties, of which full descriptions and prices may be had on application:—

Waitzia grandiflora	Portulacca grandiflora
Waitzia acuminata alho-purpurea	Cedronella cretica
Waitzia acuminata citrina	Pentstemon grandiflorus
Palafoxia Hookeriana	Actinella grandiflora

Machaeranthera glabra
W. T. can also supply Seeds of his previous introductions at very moderate prices.

Exhibition of Chrysanthemums.

JOHN SALTER'S unique COLLECTION of these beautiful flowers (including the New Varieties for 1865), is NOW in BLOOM. The WINTER GARDEN is open every day except Sunday, admittance free.
Versailles Nursery, William Street, Hammersmith, W., near Kensington Railway Station.

CHRYSANTHEMUMS, and How to have them Fine for Exhibition.—Use STANDEN'S GARDENER'S and AMATEUR'S FRIEND.

STANDEN'S GARDENER'S and AMATEUR'S FRIEND, a highly concentrated Inodorous Fertiliser, for Chrysanthemums and all kinds of Stove and Greenhouse Plants, Vines and other Fruit Trees in pots, &c.; also Vegetables, &c., in the open ground.

No. 1 FERTILIZER is the best adapted for Chrysanthemums and Hard-wooded Plants of every description.

No. 2 FERTILIZER is recommended for Soft-wooded Plants, Bulbs, &c.

Sample Canisters, 1s. & 2s. 6d. Bags, 5s. 6d., 10s. 6d., and 21s.
May be had of the leading Nurserymen and Seedsmen.
BARR & SUGDEN, Seed and Plant Merchants, 12, King Street, Covent Garden, W.C.
A List of Agents will shortly be published.

Rhododendrons.

JOHN WATERER begs to offer the following Six RHODODENDRONS, in good, strong, healthy plants, at 42. 4s. the Set, the usual discount to the Trade:—

SIDNEY HERBERT	MRS. FITZGERALD
JOSEPH WHITWORTH	THE WARRIOR
SIR ROBERT PEEL	SURPRISE

The American Nursery, Bagshot, Surrey.

New Rhododendrons.

JOHN WATERER is prepared to execute Orders for the following Six RHODODENDRONS at the subjoined price. They are this season offered for the first time, and are particularly recommended for the following qualities, viz. Hardiness, fine Foliage, Free Bloomers, and as being perfectly distinct from any other known kinds.
ALEXANDER ADIE.—Brilliant rosy scarlet.
SIR JAMES CLARK.—Dark shaded crimson.
SIR WILLIAM ARMSTRONG.—A very bright crimson.
THE DUCHESS OF SUTHERLAND.—Nearly white centre bordered with rose.
LADY EMILY PEEL.—A very bright rose, intensely marked with chocolate-coloured spots.
RAPHAEL.—Reddish crimson, and large bold flower.
The Set for 42s. Usual discount to the Trade.
The American Nursery, Bagshot, Surrey.

Hardy Scarlet Rhododendrons.

JOHN WATERER'S CATALOGUE of HARDY SCARLET and other CHOICE RHODODENDRONS as annually displayed in the Royal Botanic Gardens, Regent's Park, can now be had on application.
It contains faithful descriptions of all the varieties really worthy of cultivation, as well as a selection of HARDY CONIFERS, with heights and prices, with ORNAMENTAL EVERGREENS, FOREST TREES, &c.
The American Nursery, Bagshot, Surrey.

American Plants, New Hardy Rhododendrons.

WATERER AND GODSELL'S PRICED and DESCRIPTIVE CATALOGUE of AMERICAN PLANTS, as exhibited in the Horticultural Gardens, South Kensington, free on application. This Catalogue fully describes the Rhododendrons most worth growing, as well as some new and very handsome kinds exclusively in their possession, and now for the first time offered.
Knap Hill Nursery, Woking, Surrey.

CARNATIONS and PICOTEES for the Million.
Fine Strong Plants at reduced prices.
Every one should send for the revised CATALOGUE of CARNATIONS, PICOTEES, PINKS, PANSIES, ROSES, FRUIT TREES, BULBS, &c.
HOLLAND & JONES, Proprietors, Broadstone Gardens, Chadderton, near Manchester.

British Fern Catalogue.

ROBERT SIM sends new send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and REVISED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
*** Part II. (Exotic Ferns) will be issued as early as possible.
Fort Pitt Nursery, S.E.

E. G. HENDERSON AND SON offer SEED of CALCEOLARIA, CINERARIA, and PRIMULA of first class quality, at 1s., 2s. 6d., and 5s. per packet. Also the finest SCARLET and INTERMEDIATE STOCK, 6d. and 1s. each.
SEED of CYCLAMEN PERSICUM, of similar quality, 6d. and 1s. each, and HARDY CYCLAMEN 2s. 6d. per packet.
The Wellington Nursery, St. John's Wood, London, N.W.

SPRING-BLOOMING PLANTS, FLOWER ROOTS, &c.—Pyrethrum, Violets, Pink, Red and White Daisy, Alyssum, Lavender, Asters, Wallflowers, Chrysanthemum Marshalii, Cows, Gerbera, Gentiana acaulis, and a general collection of Rock and Herbaceous Plants.
THOMAS S. WARE, Hale Farm Nurseries, Tottenham, N.

1865 and 1866.

EDWARD P. FRANCIS AND CO.'S NEW DESCRIPTIVE CATALOGUE is now ready, and will be forwarded gratis on application. Intending purchasers will find it to be a most useful guide. The Nurseries, Hertford, Herts.

ALEXIS DALLIERE, NURSERYMAN, Ghent, Belgium, begs to inform Amateurs that he has just published his NEW GENERAL CATALOGUE for 1865-66, which may be obtained free from his Agents.
Messrs. R. SCHIRMER & Son, 4, Harp Lane, Great Tower Street, E.C.

RAYNFIRD, CALDECOTT, HAWTREE, DOWLING, AND COMPANY, Limited,
CORN, SEED, MANURE AND GENERAL MERCHANTS,
Address, 89, Seed Market, Mark Lane, E.C., or Leicester.
Samples and Prices post free on application. Prize Medals 1851, for Wheat; 1862, for Dressed Seed Corn and Seeds.
*** SMITHFIELD SHOW.—STAND No. 8, G. GALLERY.

Lilium auratum.

WM. T. CATLEUGH can supply strong BULBS at 5s., 7s. 6d., and 10s. 6d. each; or 54s., 84s., and 120s. per doz.
These Bulbs have been grown during the last two years, and found to contain many choice varieties. Terms cash.
Hans Street, Chelsea, S.W.

Wholesale Catalogue.

GEORGE JACKMAN AND SON will have much pleasure in forwarding on application, free by post, their DESCRIPTIVE and PRICED CATALOGUE of NURSERY STOCK for 1866 and Spring 1867.
Woking Nursery, Surrey.

New Catalogues.

JAMES VEITCH has the pleasure to announce that the following NEW CATALOGUES are now ready, and will be forwarded post free on application:—
CATALOGUE of HARDY TREES, SHRUBS, CONIFERÆ, AMERICAN PLANTS, &c.
CATALOGUE of FRUIT TREES, with descriptions.
CATALOGUE of ROSES, with coloured plates.
Royal Exotic Nursery, Kings Road, Chelsea, S.W.

New Seeds, Growth of 1865.

ROYAL BERKSHIRE SEED ESTABLISHMENT

SUTTON AND SONS are now prepared to execute orders for all kinds of GARDEN SEEDS.
The prices are moderate and the quality fine, owing to their having been harvested well.
Royal Berkshire Seed Establishment, Reading.

ANNUAL GREAT FRUIT and CHRYSANTHEMUM SHOW, at the TOWN HALL, BIRMINGHAM, simultaneously with the Cattle Show, on SATURDAY, MONDAY, and TUESDAY, December 2d, 4th, and 5th.
SATURDAY, PRIVATE VIEW, from Twelve until Five P.M., 2s. 6d.; after that hour, until Ten P.M., 1s.
MONDAY, from Ten A.M. to Ten P.M., 1s. PROMENADE CONCERT in the Evening, particulars of which will be announced.
TUESDAY, from Ten A.M. to Nine P.M., 1s. An excellent Band, under the direction of Mr. Davis, the celebrated Harpist, will be in attendance each day.
Handsworth Horticultural Society's Tickets are available on either day. A. FOREST, Secretary.
Queen Chambers, 5, Cherry Street, Birmingham.

The Gardeners' Chronicle.

SATURDAY, NOVEMBER 25, 1865.

MEETING FOR THE ENSUING WEEK.

SATURDAY, Dec. 2 { Royal Horticultural (Weekly Show), at South Kensington . . . . . 2 P.M.

THE general INFLUENCE of CLIMATE on the growth and ripening of hardy FRUITS is known to everybody. The facts are continually presenting themselves to the observation of cultivators; yet these facts, and the principles to which they lead, have not been studied to the extent they deserve, and which, from their importance, might have been expected. On this account we venture to bring the subject before our readers, not with the design of supplying all that is lacking, for that is beyond our space and leisure, but to suggest fresh inquiries, and in the hope that some of those who have suitable opportunities will be induced to carry forward the necessary investigations.

We would not, indeed, forget what has been done already. For about 40 years, very careful registers have been kept in the gardens of the Royal Horticultural Society at Chiswick, recording regular and continuous observations of temperature, rainfall, evaporation, &c., and which have been from time to time published in the Transactions and Journals of the Society. These registers are in high repute among continental meteorologists. They form the basis of many of the valuable

remarks on climate in the late Dr. LINDLEY's admirable "Theory and Practice of Horticulture." More recently, the British and Scottish Meteorological Societies have been instituted; and these bodies have established stations, appointed observers, and have published their observations either *in extenso*, or in their condensed results. We have now before us eight numbers of the new series of the "Journal of the Scottish Meteorological Society," and we find in it much interesting matter bearing either directly or indirectly both on agriculture and gardening. For example, in a map of the Isothermals of the British Isles in January and July, deduced from an average of five years ending in 1861, it appears that the basin of the Thames is in July the warmest region of the United Kingdom, and that it is only approached by the sea coasts of Devonshire and Cornwall, and at length equalled at a line running through the Land's End itself.

It is rather remarkable, however, that plants, and particularly fruit trees, though they in the main obey, do not very servilely respect any of the isothermal lines we have yet seen. Temperature has a principal influence on vegetation, but it is only one of the elements which rule its development. In his *Géographie Botanique*, M. ALPHONSE DECANDOLLE finely remarks that a plant is a sort of natural thermometer—only a sort of one however; for it is a living organism, and the presence of life in it distinguishes it from a dead instrument, which is acted on merely by external mechanical causes. A plant is a thermometer which never recedes, and whose progress is ever onward. You may cause its growth to stagnate, or you may destroy its structure by cold, but you cannot force it to shrink into itself, or withdraw its blossoms when once they have expanded. Still a plant is in many respects an admirable index of climate. Its growth is stimulated by an increase of temperature, by a given amount of sunshine, by currents of the atmosphere, by aqueous vapour, by electricity, and possibly other agencies which our senses, and even our most delicate instruments, may fail to detect. These elements, in their totality, go to make up what we usually call climate in relation to fruit. And there are besides the principle of vitality, and the natural constitution of the plant, modifying these external influences. Still, making allowance for all peculiarities, a given plant, such as a Vine, or a Peach, may be assumed as an instrument by which to measure the summer climate of any particular region: as such we propose to employ them, or at least to state some facts which show how they may be thus employed.

Of course it is to be kept in mind, that, after all, temperature is one of the principal agencies in vegetation, and that the effective warmth of the air and soil decreases, in proportion as the latitude of places and their elevation above the sea increase. Everyone knows that the further north we go, the colder the weather becomes; and the higher we ascend a mountain, the more the thermometer falls. Climate, then, may be regarded as in a sort of inverse ratio compounded of the latitude and altitude of the place. Of this general rule, however, there are various modifications which are interesting to horticulturists; but as the phenomena are somewhat complicated, we shall to-day restrict ourselves to those that relate to latitude.

Take the Vine for an example. It is stated in the *Ampélographie Française*, a work of great statistical precision, as well as much artistic beauty, published some years ago under the auspices of the Imperial Government, that only in Creuze, and if we remember right, Cantal, central and elevated departments of France, Grapes cannot be ripened in the open air. According to the younger DECANDOLLE the profitable culture of vineyards is to the south and east of a line running obliquely from S.W. to N.E., from near Vaunes in Brittany, in lat. 47° 45′, to near Dusseldorf on the Rhine, in lat. 50° 43′. On the west and north of this line the vineyards are comparatively few; and the culture of the Grape is said to have receded, a fact which led ARAGO to suppose that there has been a deterioration of climate in Brittany and Normandy. The same inference has been drawn from the old traditions of vineyards in the south of England, in places where they could hardly be supposed to exist in the present day. Whatever may be the validity of these inferences, and we cannot now pause to discuss them, we suppose it known to all our readers, that Grapes ripen on walls and the roofs of cottages in the vicinity of London. In the latitude of Edinburgh, some 4½° farther north, the Vine blossom hardly ever sets in the open air. It is said that in one fine season the berries were not only formed, but were partially coloured on a wall at Portobello, a watering place a few miles east of Edinburgh. At Erskine House, Renfrewshire, on the southern shore of the Frith of Clyde, the Black Hamburgh Grape is annually ripened on a hot wall, so as to be suitable for the table. On the same wall the fruit of the common Mulberry is brought to maturity. There are thousands of persons in Scotland interested in horticultural pursuits who, having never crossed the Tweed, have never seen a Mulberry.

Most dessert Apples are grown in Scotland on walls, and some of them are even allowed to occupy spaces in south aspects which, in England, are strictly destined to stone fruits. It has been said, perhaps with too much acerbity, that north of the Humber one never meets with an Apple grown on a standard, that is worth eating. Scotland has Pears of her own, such as the Muirfowl Egg and the Black Achan, of a hardy character, and fit for the table; but our northern brethren have to grow all their finer French and Flemish Pears on walls, and are not always successful in doing so. The old Chaumontel Pear—once perhaps in higher repute than it is now—grows, or used to grow, on standards in the Horticultural Society's Garden at Chiswick; and in a recent visit we saw a fair crop of this Pear on a young espalier tree. We knew an ardent fruit grower near Edinburgh, who laboured for half a lifetime to grow this Pear; and yet, though he trained it against a south wall and treated it with his best skill, did not obtain a couple of dozen of Pears during the whole period. In fine seasons, and in the warmest situations near Edinburgh, such Pears as Beurré d'Aremberg and Marie Louise have been known to ripen on pyramids; but to secure the maturity of the finer and later sorts, such as Passe Colmar, Winter Nelis, or Beurré Rance, the trees must be planted against the southern aspects of walls.

All this, some will think, is quite what might have been expected, for 4½ degrees of latitude must make a vast difference in climate. Well; but let us look to Peaches. It will not be denied that they yield sufficiently precarious crops, even in the neighbourhood of London. The prevalence of orchard houses is a sufficient proof of that. We need not say that the growth of Peaches is not a whit more certain near Edinburgh, though in average seasons they do ripen there, with the exception of the latest varieties. At Culloden House, near Inverness, which is nearly 2° north of Edinburgh, the middle season Peaches, such as the Noblesse, ripen perfectly almost every year in the open air; and the same success is attained at Cromarty House, on the other side of the Moray Frith, and at Tarbat House in Eastern Ross. Figs and Apricots, too, succeed admirably in all of these gardens. The Greengage Plum, which is rarely grown on standards near Edinburgh, ripens abundantly without the aid of walls at Culloden House, and in other favourable localities near Inverness. These facts show plainly enough that latitude is not the only source of the climatic influences which tell on the maturation of fruits.

The same conclusion is still more strongly brought out by the results of gardening in Norway. The following facts are derived from an interesting chapter on the vegetable productions of that country, appended by the Rev. Mr. BARNARD to his volume on "Sport in Norway," and they are given on the authority of Dr. SCHÜBELER, Conservator of the Botanical Gardens at Christiania. "The Apple grows wild in lowlands up to Throndlijen, latitude 63° 25′, and in a cultivated state up to lat. 65°. There are 346 varieties known in Norway. Apples weighing 25½ ounces have been known; and an Apple tree at Hardranger has yielded 38 to 39 bushels. Apricots against walls will ripen in average summers as far north as lat. 61°. The Cherry is cultivated as a standard as far north as lat. 66°; there are 22 varieties in cultivation. The Grape: many varieties are grown against walls in the south of Norway. In average summers they will ripen up to lat. 61°. The favourite sorts are the Isabella and Catawba, *i.e.*, varieties of Vitis Labrusca. The Peach will ripen against walls up to lat. 61°. Of Pears there are 66 varieties of the finer sorts in the country. The Plum (the Greengage), as a standard and against walls, ripens as far north as lat. 64°." To this last notice it is significantly added, "It should be borne in mind that the word *ripen* is used in a botanical sense, viz., that the fruit is perfectly developed. In the usually accepted sense, a ripe Plum at this latitude would not perhaps be all that could be desired." Still it can hardly be supposed that a botanist would call a fruit ripe whose kernel would not grow; and still less would people continue to cultivate Peaches or Plums of which the fruit was never better than the thinnings of Apricots employed by cooks in this country to make tarts. With every deduction, then, the produce of the Norwegian gardens and orchards, as compared with those in the north and north-west of our island, presents a very interesting problem to the students of climate. For the present we must defer any attempt at its solution.

WE have lately called attention to two PARASITES which have proved extremely destructive in AUSTRALIA, the one so prevalent as almost to prevent the cultivation of Hollyhocks, and the other very injurious to Plum trees. We have just received from Mr. GEORGE MACLEAY a leaf of Maize with the following note:—"This leaf was forwarded by Sir WILLIAM MACARTHUR, of Camden Park, in the Colony of New South Wales, where this pest has, in the lower country at least, for two years running, destroyed all the cereal crops." On examination it appears to be a form of the common rust, Uredo Rubigo vera, but with rather larger spores, though, as far as we can find, with no essential difference. Professor HENSLOW first, we believe, pointed out the connection of this with Puccinia graminis, of which it seems to be a secondary form, while Uredo linearis is only the Puccinia in a young state. DESMAZIÈRES published a Uredo on Maize leaves (No. 1075 of his dried specimens), which differs principally in having rufous-brown instead of orange-yellow spores, for we see no difference in their size or shape. In DESMAZIÈRE's plant, however, we find spores of a Puccinia which is perhaps different from P. graminis. It is seldom that rust is very injurious in this country to cereals, except it attacks the glumes or seed, which is sometimes the case; but it is much dreaded on the Continent, where it is sometimes as destructive as it is reported to have been in Australia.

Rust has been peculiarly abundant this year on Grass, giving sometimes a decided tint to whole fields, and covering the clothes and shoes of those who walked through it with a thick coat of orange powder. Speculations have in consequence been prevalent as to its possible connection with cattle murrain, a notion as unfounded as that which was put forward by some one in the *Times* as to the possibility of cholera arising from Phallus fœtidus, as if that abominably disgusting Fungus were something new, whereas it may be found any year in the plantations at Kew in almost any quantity, and is abundant in most districts of Great Britain as far as Aberdeenshire. Rust has been just as prevalent in Grass in former seasons as in the present, and it is very possible that when eaten in any considerable quantity it may induce disease of some kind. It is extremely probable that gangrene in sheep and beasts often arises from the Grass being infected with ergot, and it would certainly be advisable to make some experiments, when rust is again abundant in our Grass fields, to see whether it has any deleterious properties. Mr. W. INGRAM called attention to this matter a few years ago, though he had no opportunity of putting it to proof.

As regards the prevalence of rust and mildew, Lord EVERSLEY has lately made an observation which is worth recording. It has long been remarked that Pea crops are most subject to mildew after drought, a circumstance which is certainly at variance with popular notions on the subject, according to which damp is the cause instead of drought. It is true indeed that damp favours growth when the Fungus is once established, but in the first instance it is not the best climatic condition. Hop mildew, for example, is the offspring of dry not of damp weather. Lord EVERSLEY remarks generally that mildew makes its appearance after there has been a stagnation of the juices from drought. So long as plants remain in a growing state, they escape the attacks of these parasites. There is, we believe, a great deal of truth in the observation, and the same principle may be applied to many of the diseases to which plants are subject, where they do not arise from real parasites. It is when the roots have been suffered to become unnaturally dry, or when they are in such a condition as to convey an insufficient degree of nourishment, that disease often appears; and so again, when fruit is quite ripe and there is little interchange between it and the plant, moulds are apt to settle on their surface and produce decay, which would have had no power of doing injury while the juices were in active circulation.

The following extract from the "British Medical

Journal," Nov. 4, 1865, will form a curious corollary to the above observations.

"It is stated that in France cases have occurred in which inoculation with Oidium Tuckeri, or the Fungus which causes the Vine disease, has proved fatal to human beings. Wounds accidentally made with the instrument used for cutting off the diseased Vine shoots have presented, according to Dr. COLLIN (Medical Inspector of the Mineral Waters of St. Honoré, Nièvre) marked evidence of poisoning. In some cases the persons thus wounded have died in from 20 to 25 days, notwithstanding the most energetic treatment. Messrs DESMARTES and BOUCHET, of Vitrany, have also concluded, from their experience, that deleterious effects are produced by the Oidium, but they seem rather disposed to establish a coincidence between the epidemic development of the Oidium and a greater frequency of certain forms of inflammation of the mucous membranes. The subject has been submitted to the consideration of the Academy of Medicine of Paris (Quarterly Journal of Science)." *M. J. B.*

—— WE have from time to time noticed the exertions of the Rev. S. H. PARKES in fostering a love of plants among the poor inhabitants of some of the dingiest and most squalid neighbourhoods of London. The following extract from the *Pall Mall Gazette* expresses our own feelings on this subject so well, that we reproduce it without further comment:—"The Rev. S. H. PARKES is a sensible man as well as a benevolent one, and that is saying a good deal. He has been distributing the flower plants in the Parks, which the winter would have killed, among the London poor, with the permission of Mr. WILLIAM COWPER. If he will, during the winter and when the spring comes round, ascertain what has been the fate of the 20,000 plants thus given away, he will gratify a by no means impertinent curiosity. And if he finds that even a small proportion of the whole number have survived the transplanting and the dust, smoke, and inevitable flower-killing accompaniments of a poor man's lodging, he will gratify not only himself, but rationally benevolent people in general throughout the country. It may seem a small thing to get up a fondness for Verbenas and Pelargoniums among the hard-working and ignorant poor. Our grandfathers would have laughed at or denounced the whole affair as tending to effeminacy and perhaps to republicanism. In those days manliness was too often thought inconsistent with a love for music, painting, or poetry; and if an old soldier or sailor took to gardening, it was merely forgiven him as a hobby. We are wiser now, at any rate to some extent. We are learning that the cultivation of refining pleasures tends directly to the strengthening the character of men and women of all classes; and that the daily tending a few pots of flowers brightens the hours of the poor and weary with a ray, however dim and feeble, of something like that enjoyment without which we feel that our own labours would be scarcely endurable. In Mr. PARKES' account of his appropriation of the gifts we are glad to find that about 3000 plants went to London workhouses, and nearly 1000 to the hospitals. People are rapidly coming to understand that amusements are an important element in the cure of disease."

—— From a correspondence in the *Revue Horticole*, we learn that a similar diversity of opinion exists as to the MERITS of IRESINE HERBSTII in France, as prevails in this country. M. HERINCQ gives it as his opinion that the plant succeeds best in the shade, while M. BRUANT'S experience leads him to the conclusion that full exposure to the sun and a plentiful supply of water is best suited to the plant. Have any of our correspondents noticed that the leaves lose their red colour almost entirely when dried for the herbarium? It has been so with us.

—— We have the most lively satisfaction in announcing the arrival at Kew of ripe SEEDS of CINCHONA officinalis (Condaminea) from Ceylon, where they have been ripened under the fostering care of the able director of the Peradenia Botanic Garden, Dr. THWAITES. Other seeds from the same source have been sent to Queensland, Mauritius, South Africa, Jamaica, and Trinidad, so that we need no longer be under apprehensions that the supply of quinine will be exhausted, owing to the ignorance and recklessness of South American bark gatherers. We offer our hearty congratulations to Dr. THWAITES on his being the first to send seeds from other than native plants.

—— One of the most instructive and interesting displays, held annually in Birmingham during the Exhibition week, is the GREAT FRUIT SHOW at the Town Hall. This exhibition will open to the public on Saturday, December 2, and continue until the following Tuesday night. Liberal prizes are offered to fruit growers in this country, also to those resident in the Midland districts; but no doubt the most interesting portion of the Show will be the Class open to the Channel Islands and the Continent. Here an excellent rule is introduced, which cannot fail to make the exhibition highly instructive to those who are in search of information, viz., "that all the fruits must be as correctly named as possible, and that the country or county in which they were grown, must be plainly written and placed on each dish of fruit." Good prizes are also offered for Chrysanthemums.

—— MRS. PINCE'S BLACK MUSCAT GRAPE, of which a sample has been obligingly forwarded to us by Mr. PINCE, of Exeter, possesses, so far as we can judge from an examination of the fruit, qualities which should recommend it strongly to the cultivator. The bunches are long, compact, and tapering; the berries full medium-size, oval, purplish-black, with stout footstalks, a thickish skin, firm flesh, and fine musky flavour. Some two years ago it gained a First-class Certificate at South Kensington. The flavour is exquisite, and in the opinion of good fruit growers it will be invaluable as the latest of all Muscat Grapes, doing away with the necessity of forcing early Muscats, the tenacity of its green footstalk, and the firmness of its flesh being favourable to its keeping. The fruit lasts from February up to April. We understand it has proved very prolific as a pot Vine, a plant with a single rod, in a 12-inch pot, having ripened 6 bunches of 1½ lb. weight each. Every berry sets, owing to the vigour of the pollen; and severe thinning is requisite. The First-class Certificate given to it by the Fruit Committee was well deserved.

—— Can any of our correspondents throw any light upon a fibrous material introduced recently and coming into extensive use as a substitute for Cuba bast, under the name of "JAPAN FLAX?" A sample forwarded by a correspondent has great resemblance to the fibre of Phormium tenax (New Zealand Flax). Neither the plant producing the fibre nor the country whence it is introduced is yet known with certainty by the authorities at the Kew Museum.

New Plants.

THE following description of a magnificent new species of Cycadeous plant, from tropical Eastern Australia, has been forwarded to me by its discoverer Mr. Walter Hill, the Director of the Brisbane Botanic Gardens. A living plant has been received at the Royal Gardens, Kew, also sent by Mr. Hill. *J. D. Hooker, Director.*

321. CATAKIDOZAMIA, *Hill.*

C. HOPEI, *Hill:* Stem sometimes attaining a height of 60 feet, and from 9 inches to a foot in diameter. Rachis flat, with a prominent central nerve above, rounded beneath, slightly pubescent; the base thick, rounded, and covered with a close velvety tomentum. Pinnæ linear-lanceolate, falcate, acuminate, quite entire, smooth, nearly a foot long, and about an inch in width.

The cone arises singly from the centre of the crown of leaves. Female cone from a foot to 18 inches in length, and about 8 inches in diameter. Scales cordato-reniform, with the points strongly recurved, and a tetragonal stipes equal in length to the fruit. Nut subovate, angular, but variable in shape, covered with a thin shining orange pulp. Male cone about the same length as the female, but less than half its thickness.

This species differs from C. Macleayii (Hill) in the much more noble aspect of the plant, its loftier stem, larger fronds, and broader pinnæ, which are of a darker green colour; in the distinct form of the rachis, which is rounded beneath and flat above, not acutely and prominently 4-angled as in that species; and finally in the fruit, the nut in the present species being not more than one-third the size of that of C. Macleayii.

The plant above described is dedicated to the Hon. Louis Hope, of Cleveland, Queensland, on account of his active and generous patronage of Horticulture, Agriculture, and Botany in this colony.

RAINFALL IN OCTOBER.

THE quantity of rain which fell in the month of October this year being unusually large, it has been thought that the following Table, which exhibits the depth of rain in every corresponding month, from 1826 till 1865 inclusive, may prove useful to all who take an interest in such matters.

Year.	Ins.	Year.	Ins.	Year.	Ins.	Year.	Ins.
1826 ..	2.14	1836	3.62	1846	5.51	1856	2.40
1827 ..	4.06	1837	2.39	1847	1.75	1857	4.01
1828 ..	1.18	1838	2.36	1848	2.93	1858	1.36
1829 ..	1.60	1839	2.28	1849	2.18	1859	2.55
1830 ..	0.98	1840	1.35	1850	1.55	1860	1.60
1831 ..	3.81	1841	4.61	1851	2.01	1861	1.04
1832 ..	3.09	1842	1.71	1852	3.87	1862	3.00
1833 ..	2.37	1843	4.19	1853	3.78	1863	1.56
1834 ..	0.43	1844	4.13	1854	2.61	1864	1.42
1835 ..	4.05	1845	1.39	1855	6.15	1865	6.25
	2.871		2.798		3.237		2.519

It will thus be seen that last October was the wettest during the 40 years indicated, the amount being no less than 6.25 inches. The October next to this in point of wetness occurred in 1855, the amount then being 6.15 inches. The driest October during the period was that of 1834, when only 0.43, or less than half an inch, fell.

The annual quantity which falls at Chiswick on an average of 38 years is 23.723 inches; the proportion for nine months is consequently 17.792 inches. In the nine months previous to October in the present year we had 17.720 inches, or within $\frac{1}{10}$th inch of the average quantity for that time, leaving only 5.931 inches to be made up of an annual average quantity in the three remaining months of the year. We have, however, had more than this in October alone by ¼ inch; so that this quantity, and all that has fallen or may yet fall in November and December, will be in excess of the amount for the year.

There being an arrear as regards the fall of rain at the commencement of the present year, some of our readers will doubtless be anxious to know how the rainfall now stands:—

The arrear in question was	10.1 inches.
At the end of September it was ..	10.3 inches.
At the end of October it was reduced to	6.02 inches.

There must, therefore, be a fall of 6 inches extra before the average amount is made up; and until this is the case, the springs will not rise to their wonted level.

There is an old well in the garden of the Royal Horticultural Society at Chiswick, which, on account of some Ferns that took shelter in its sides, was never closed in, and it serves as a gauge for measuring the level of the springs, or the height to which the watery stratum rises in the gravelly subsoil. It did not rise much during the heavy fall in October, but shows more now when the water has had some time to collect in the gathering-ground and percolate through the soil. It should be observed when the rain gauge indicates that the arrear of rainfall is made up. ‖

DOUBLE ROOFS.

As the discussion upon this subject is now taking a practical form, let us hope that we may have the merits or demerits of this system of glazing carefully pointed out, for although your Berlin correspondent may thoroughly approve of double roofs, there are others even in the immediate neighbourhood of that city with whom they find little favour, although they have had long experience of them. Among the latter may be named M. Gaerdt at Moabit, the very intelligent gardener of M. Borsig, who when he reads this, will, I have no doubt, furnish his own opinion of them.

There can be no doubt that double roofs originated in Germany, perhaps at Berlin, as the Palm-house and many of the garden structures at that place have the appearance of great age; and with a temperature 20° below zero for a long period in winter, one can readily understand the great advantages that may be derived from a glass house having a double roof, because the air-filled space between the two roofs would of itself be sufficient to keep out a great amount of frost—an important consideration in the case of any accident happening to the heating apparatus. No fair comparison can, however, be made between the climate of England and that of Berlin; indeed, the summer at the latter place is such that many of the Palms cultivated there would be better, I imagine, uncovered at that season than under glass. Indeed, I would treat them like Orange trees or Standard Bays during the summer months. For example, not many yards from a Palm-house which I saw at Berlin, partly under the shade of large trees, was a good-sized irregular pond, in which all the best varieties of Nymphæa were blooming as finely as I have ever seen such plants either at Kew or at the Crystal Palace. The Victoria regia had been equally fine during the summer, and the quantities of seed-pods on the Nelumbium clearly proved with what success that plant had also been grown there out of doors. This pond had a constant supply of hot water running into it, but no covering had been placed over it; in short, its size would have made any attempt to roof it over difficult. This proves that if the winter there is extremely cold, the summer is also far hotter than ours. A double roof in winter may therefore then be a great advantage, but the upper roof should be capable of removal in summer. Even under existing circumstances, however, the collections of fine-foliaged plants which I saw at Berlin appeared to be in excellent health.

The only example of double-glazing we have as yet to look to in this country is that at Rockfield, and upon referring to notes taken last season, I find that the principal plants in that house were Tree and other Ferns, which although in robust health might even be kept so out of doors in such summers as the past. We have, therefore, at present no positive proof that double roofs can be applied advantageously to horticultural erections in general, even without taking into account the extra expense that they would incur. Such roofs over general collections of winter and autumn-flowering plants would in our climate probably have a tendency to draw them up, and an absence of light would also in all probability prevent that amount of colour from being infused into the flowers which we generally get under a single roof.

In Berlin most of the plants used for winter decoration are what are termed foliage plants, such as Dracænas, &c., which, doubtless, from the construction of the houses and the heat rendered necessary there, have been found the most suitable for that climate. With us the matter is very different. While therefore double roofs may be necessary there, they may not possess the same advantages in England. *J. F.*

MESSRS. PATERSON'S POTATOS.

WE have on several occasions alluded to the efforts for the improvement of the Potato, made by Messrs. Paterson & Son, of Dundee, and we have now to state that these efforts have been acknowledged by the presentation to them of a silver claret jug and epergne at a public dinner held at the Royal Hotel, Dundee, on the 10th inst., "in consideration of the great amount of

labour and money they have expended during the past 40 years in endeavouring to improve and renew that most valuable of all roots, the Potato, and in recognition of the success which the firm has attained this season at the Dublin International, the Liverpool and Manchester Agricultural, and the Erfurt International Exhibitions—they having been awarded the chief prizes at each competition." The epergne is to bear the following inscription:—

At a public dinner, given to Messrs. William & George Paterson, this Epergne, along with a Claret Jug, was presented to Mr. William Paterson, (to descend to Mr. George Paterson, should he survive his father), in the name of the subscribers—landed proprietors, farmers, potato merchants, and other friends—as a mark of their respect for him, and also of their admiration of his successful exertions during the past 40 years to improve and renew the Potato plant.

Dundee, 10th Nov. 1865.

In presenting the testimonial, the chairman (ex-Bailie Yeaman) observed:—

"This meeting has been brought together in the most spontaneous manner, and I believe on account of a thorough appreciation of the great services which the Messrs. Paterson have rendered to the country. There are none that will challenge the great importance of the Potato to this country in mostly all points of view. We recollect the year '46, when the severe blight first attacked the Potato crop, and the great calamity which befell the country generally at that time, but particularly the inhabitants of the Sister Isle, where 'the plant was almost swept away.' A Royal Commission was then appointed in order to discover the cause of the Potato blight, and gentlemen of science were engaged in trying to discover a remedy for it, so that the Potato might be restored to its former vigour. Now, this investigation created very grave interest, and I believe no gentleman in the country (although many agricultural and scientific men devoted much time to trying experiments in order to restore that useful root to its former vigour), did more to bring about that happy result than did Mr. Paterson. He betook himself to the keeping up and improving of the breed, and set about growing the Potato from the plum or apple. It is now nine years since Mr. Paterson experimented in this way, and two years ago he had 100 tons of different improved varieties of this excellent esculent, grown from the seeds which he had himself prepared. Now, gentlemen, Mr. Paterson has, from time to time, persevered in improving and selecting the best and strongest plants, so that he might get the quality brought to the greatest state of perfection—quality with the greatest health of constitution; so that it might stand the climate of our country, or indeed of any country; and so that he might have the root restored to its former state of excellence. He has succeeded in bringing forward several choice qualities, and these have been distributed over the length and breadth of the land; and if we can conceive the great amount of good which the result of Mr. Paterson's labours and enterprise in this matter has been to the community, we must surely agree that words are unable to express our gratitude."

Mr. W. Paterson and Mr. G. Paterson both responded. In the course of his remarks the latter gentleman read the following statement prepared by his father:—

"From early life I have taken a deep interest in the Potato plant. My father being a cultivator of fruit and vegetables in this quarter, it gave me a favourable opportunity of observing the growth of the Potato, from the most delicate garden variety to the strongest kinds grown in this country. My notice was first attracted by some of the earlier sorts weakening in constitution, and in the course of a few years becoming almost extinct or worthless as a useful and paying crop. I next turned my attention to the more robust field varieties then grown, and with the like result I then formed an opinion (from which I have never had cause to depart), that the Potato plant was only designed to serve its generation, the same as in animal life, and that without a constant and successive renewal from the seed, it was quite probable this most valuable esculent might be lost to mankind altogether. About 40 years ago a disease termed 'curl' attacked the plant, causing it to become quite stunted, both in haulm and tuber, and ever since then the plant has been liable to visitations of disease in one shape or other—such as soft rot in the ground, decay after storing, &c.; and some seasons it was not only difficult but almost impossible to find a regular braird, while whole fields were a total blank through this cause. Every preventive and restorative of which I could conceive I tried, in order to regenerate the plant, but with little satisfaction. In 1846 we had the first visitation of the fatal blight, which nearly destroyed the whole crop of this country, and which has since then annually manifested itself all over to a greater or less extent. In 1847, in conjunction with Professor Johnston (who was commissioned by our Government to inquire into the cause of the epidemic, and if possible find an antidote) and other scientific gentlemen, we made various and extensive experiments in order to attain the end in view. As to the cause, many conjectures were put forth, but as to the remedy, that never was arrived at. My own conviction regarding the Potato blight is that there is no direct cure for it, but that it is entirely due to atmospheric action on the plant, it having the seeds of disease within itself, and that it will be always more or less subject to it. Before arriving at this conviction, I planted year after year all the varieties I could obtain from the coldest and warmest countries, used all the manures I could think of and tried by different processes of planting and lifting, by preparing the ground and seed, to arrive at some satisfactory result. During the growing season I have microscopically examined the plant at all its stages, and I have remained in the field in July (the growing season), when the blight would overtake the plant with virulence, during sultry weather, and seen the damp or moisture evaporate from the haulm, when the disease became stayed, and no recurrence of it took place until the like weather returned. From that time I determined on carrying out my original idea of raising and improving seedling varieties. The York Regent was the first Potato that answered in this quarter after the blight, in preference to varieties from Archangel and other cold climates. Then followed the White Rock. This variety took my especial attention. With its strong robust constitution and vigorous habit, it proved the ablest variety to resist the disease of any then grown, but from its rough appearance and its then inferiority in quality, farmers would not take to it. Now it has become one of the most useful varieties grown, and of excellent quality. In 1854 I obtained from almost every country where the Potato is found, a collection of the best sorts, and planted them side by side in the open field, in order to get as complete and fresh a variety as possible. The experiment was successful. Through the agency of insects and otherwise there was a thorough mixture, and from the seed or apple then produced sprang these improved varieties which I have now given out to the public. Through the medium of the newspaper press and otherwise, public attention has been very widely directed to my experiments, and orders for seed have been received from many parts of the world. We have sent considerable quantities to Australia, New Zealand, India, Germany, France, Russia, Denmark, Sweden, &c."

Mr. Paterson continued—"Before sitting down, I would say a word or two as to the necessity of close attention being constantly given to the culture and propagation of the Potato, and the selection of proper kinds. Five years ago we had a quantity of blue seedlings, that looked well, yielded largely, and seemed all of the same kind; but they had all apparently one fault—they were bluish in the inside. We had almost made up our minds to condemn them, but thought we would give them another chance, when on cutting them up for seed I came upon one which, though apparently similar to the rest outside, differed in being white within. I paused—a thought struck me—I had accidentally, I imagined, fallen on a distinct variety of the blues. Thus incited to minute observation, I was able to select a small basketful of this kind out of a heap of two cart-loads, and I had them carefully planted. At the end of the season we got from them a large crop, of first-rate quality, free from disease, of strong constitution, and white within. Gentlemen, these blue Potatos were what are now known as 'Paterson's Blues'—a Potato which, I think, is destined soon to take a lead in the field. From that small basketful we have been able to secure this year somewhere about 100 tons. Now, gentlemen, the value of that accidental discovery of mine consists in this, that it goes to show us that many good and healthy kinds of Potatos may, from the want of observation, have been lost to us in the past, and that we ought in the future to observe and select carefully. In the vegetable, as well as in the animal kingdom, the inferior predominate in number over the superior kinds; and therefore the necessity for rejecting the bad, and choosing and caring for the good. The Chairman spoke of our Government taking up this matter of the culture of the Potato. I think that is a suggestion worthy of notice. It really is a matter of national importance. You all know the value of the Potato as an esculent, to mankind; you know its great value to the farmer for the feeding of stock; you all recollect the dreadful calamity which befell the country in 1846, when, throughout the length and breadth of the land, the plant was struck with the fatal blight. Suppose that the scourge was again laid on the land, it would be impossible to estimate the fearful effects. Should not then some general and systematic plan be devised and carried into effect by the Government, for the purpose of adopting means of keeping up strong and healthy kinds of Potato? Even this year disease has existed in several places to no small extent; and the sooner something is done the better. I do not know what Government could do; but possibly they could get skilled parties appointed over the country—call them Inspectors—whose duty it would be to take due means to secure the careful culture and propagation of the plant, and keep to us the best and healthiest and strongest kinds, from whatever source they can be got. Good seed is of first importance, but a judicious and plentiful application of dung is scarcely of less importance; and here, as to dung, I may remark, that I think the best manure for Potatos is farmyard, with a little guano added for a stimulant. I do not say that the disease can be wholly warded off—in my opinion it cannot—but I think much can, and ought to be, done to mitigate its evils."

We add from the *Dundee Advertiser* some further remarks on the same subject:—

The opinion held by Mr. Paterson is that the Potato plague is entirely due to atmospheric causes, and that the disease is incurable. The only plan, he thinks, by which the Potato plant can be preserved is that which he has pursued so successfully during the last nine or ten years, viz., the rearing of a succession of hardy varieties to replace those that have become, through continued cultivation, weak and unable to resist the disease. Mr. Paterson despairs of being able to eliminate from the atmosphere the causes of the disease, but he proposes to oppose to its blighting influence robust and healthy plants capable of setting its inroads at defiance. He cannot tame atmospheric asperities down to the endurance of the Potato, but he will train the Potato to habits of endurance, until it is able successfully to withstand the assaults of the atmosphere. His efforts in this direction have been remarkably successful. To rear Potatos from the plum requires a series of years, and to rear good and marketable varieties requires more than time—it requires an exercise of great judgment and scientific discrimination. It is not a difficult matter to rear Potatos of some kind from the plum—that has often been done; but Mr. Paterson's special merit consists in his having done it in such a way as to produce a race of hardy Potatos capable of resisting disease, remarkably prolific, and of superior quality. It is a source of no little satisfaction to ourselves that the various reports of Mr. Paterson's seedlings we have published from time to time, and which many were disposed to regard as apocryphal or at least exaggerated, have been fully corroborated by the testimony of the most eminent agriculturists and horticulturists in all parts of the kingdom. These valuable seedlings have been grown and tested as to their productiveness and quality, both in the garden and in the open field; they have been exposed to every variety of soil and climate—and the universal testimony regarding them is that they are greatly superior to the old sorts. Wherever these new varieties have been planted side by side with the old kinds the difference in favour of the former has been visible to the mere superficial observer.

Home Correspondence.

The late Dr. Lindley.—What Nelson was to our navy, and Wellington to our army, Dr. Lindley was to our botany—a leader and director; and we cannot easily estimate the loss we have sustained by his death. Thirty years ago I well remember Dr. Lindley at the Horticultural Society's Exhibitions at Chiswick, when they were but in their infancy, and he could personally attend and see to everything connected with botany and horticulture that was to be exhibited. Always anxious to be courteous where he could be, and obliged to maintain rule and order everywhere, his was no ordinary task, but it is to these beginnings that we owe the present exhibitions of flowers and fruits in England, with all the latest improvements. These things took place 30 years ago, and consequently belonged to another generation, before the bulk of our present exhibitors had been educated in the art—ay, before many of them had been born. Never had any botanist such opportunities of examining plants as Dr. Lindley, for all England was ever in direct communication with him; and he was personally accessible to gardeners, and even to under gardeners, when they could give an account of themselves, and did not disgrace the blue shalloon apron—the only badge that I ever knew the craft to don. When any one had carried his skilful treatment to a successful issue, either with fruits or flowers, it was anxiously calculated whether the results could be exhibited at any of the three great summer shows at Chiswick, which were really the summer "assizes" for fruit and flowers, and things judged right there could not be gainsaid afterwards. It was this centralisation that gave such opportunities of seeing plants, flowers, and fruits, to all London men, whether amateur gentlemen or humble gardeners; for I recollect well that in the Horticultural Society's Rooms in Regent Street, Dr. Lindley gave a kind of lecture on the plants there exhibited, a running commentary on the list, whereby the quaint peculiarities of plants apparently unimportant were brought to light, and credit given where credit was due on the score of superior cultivation. Before the Horticultural Society's Exhibitions, and before Dr. Lindley instructed pupils in botanical knowledge, the native talent for English botany, and the practical knowledge necessary to cultivate plants and fruits in this country, were at a very low ebb. When Mr. Green exhibited at Chiswick an Epiphyllum a yard wide, and forming a cone a yard high, literally covered with scarlet blossoms, it was hailed by all as a new order of things; and this, as every other new idea that came up, whether in plants or fruits, became by means of the *Gardeners' Magazine* and *Gardeners' Chronicle* the property of the craft; so that the Cactus tribe got shifted from their hereditary lime-rubbish into rich loam and dung; and the Vine leaf, as another example, got subjected to a heat that the old hands believed would have burnt it to powder, and yet it lived and bore fruit, large and fine, until a bunch of Hamburgh Grapes was brought from Oak-hill to Chiswick, 8½ lb. weight. Mrs. Lawrence's splendid specimens of flowering plants set other exhibitors astir; and when the scaly bulb of a Lily only large enough to fill a tea cup was sold for 30*l.*, it behoved the nurseryman to "consider the Lilies of the field, how they grow," so as to increase the costly commodity without delay. I mention these things as datum pegs to show our progress. People not conversant with plants can form no idea of the intense joy that such men as the late Dr. Lindley must have felt when they saw plants in perfection, majestic as in the Cedar, graceful as in the Vine, fair and fragrant as in the Rose, quaint and magnificent as in the Orchids, pure and lovely as in the Water Lilies—

"Such the stern joy that warriors feel
In foemen worthy of their steel."—*Scott.*

To have lived so long, and to have seen so much beauty annually brought to his door, must have been luxury indeed; and as the Doctor was Editor of the chief medium of communication among plantsmen everywhere, it seemed as if all their joys, ay, and even their grievances, had to be laid at his feet. In his peaceful path he lived honoured and beloved by such a circle as it has seldom been the lot of any one to influence. His victories were peaceful, with none of the clarion *éclat* of the warrior; but his wonderful labours will long keep his memory green; and their name is legion, who, like myself, have been patronised by Dr. Lindley, and who therefore, as in duty bound, speak of his friendship with gratitude, and hold his name in honour. *Alex. Forsyth.*

Coniferæ on Undrained Clay, together with a few Remarks on Root Fungi.—I perceive in your notice (see p. 1034) of Mr. Hutchison's paper in the Transactions of the Scottish Arboricultural Society, on the introduction of the newer Coniferæ, &c., that you state it to be laid down as a general rule by Mr. Hutchison that undrained clay is an unsuitable soil for Conifers. From my own personal experience of very retentive undrained clay, I can say that Scotch Fir and Silver Fir will grow rapidly, and be handsome and sound trees for at least 70 years on it; that Larch and Spruce will grow vigorously and remain sound, the former for 15 or 20 years, the latter for a few years more—facts from which I draw the conclusion that if our well-known Conifers can be planted with profit on retentive clay, it is at least probable that some of the newer kinds will also succeed on that kind of soil. I am strongly of opinion that in planting a foreign tree we should choose mould as nearly as possible resembling its native soil, but I think, from what I have stated, that it is worth trying new kinds of trees on all our soils. I am surprised to see it asserted that few trees withstand the effects of wind so badly as Conifers, with the exception of the Austrian Pine. Living, as I do, close to the sea-shore, I find that the Silver Fir especially holds its head erect against the sea-blast, one tree in particular standing high above Oak, Ash, Beech, Horse-Chestnut, and Sycamore, all apparently of the same age and in an exposed situation. In a less degree I find Scotch Fir, Larch, Spruce, and Maritime Pine to stand well in exposed situations. With regard to what is said of the liability of certain Conifers to be injured by late frosts, I can say, that at this place, on the south-east coast of Ireland, at an elevation of about 50 feet above the sea, the following kinds of Conifers, named as delicate even in Devonshire, have never been injured, viz.: Abies Morinda, Pinus Pinsapo, Cupressus torulosa, and Cedrus Deodara. The last has been injured by harsh north-easterly blasts where planted near the sea. A healthy plant of Picea Webbiana has been kept back to a mere bush by repeated injury to its young shoots from late spring frosts following mild weather in early spring, until last year, when it succeeded in pushing up a splendid leader, followed by an equally good growth this year. I hope that as the head gets up it will get out of the influence of hoar frosts. A friend of mine

has a healthy P. Webbiana, growing at an elevation of probably not less than 300 or 400 feet above the sea on poor shingly land, and it has no appearance of ever having been injured by frost, whilst my tree, planted in gravelly loam in a sheltered spot scarcely 40 feet above the sea level, has been, as I have said, repeatedly injured. The effect of the difference of soil on the foliage of the two trees is evident, my tree richly deserving the encomiums passed on the foliage of its race by your correspondent Mr. H. Day, of Theydon Grove (see p. 1037). I hope I may some day see on my tree purple cones like those of which he speaks. In another part of your Paper (see p. 1037) I perceive the account of the death of a Wellingtonia attributed, and probably with justice, to root Fungi. Is not this tree peculiarly liable to death from this cause? or is it only liable to it under certain conditions of soil and climate? I will venture to say that if it is as susceptible of being attacked by root Fungi in its native forests as it appears to be with us, it would long ago have disappeared from the face of the earth, for where will you find a native forest that is not full of dead timber above and below the surface of the ground? Or if all trees were equally liable to be attacked in this way, it would be dangerous to cut a tree down in a plantation for fear of its decaying roots spreading death to its neighbours, and the ordinary operation of thinning a Fir plantation would cause the death of the whole within a very short time. I do not deny that under certain conditions Fungi will spread from the roots of a dead tree to those of a living one; but I think that it happens rarely. This is a subject well worthy of the attention of foresters, as a relative of mine, alarmed at general statements on the subject, would not replant some ground until he had all the old roots grubbed up, and I believe was deterred from planting as much as he had intended on account of the expense of the operation, which he believed to be indispensable to the health of the young trees. *C., Gorey, Ireland.*

Stoneless Berberries (see p. 1084).—It may be interesting to know that there is a beautiful clump of stoneless Berberries at the ancient seat of the Marquis of Northampton, Compton Wynyates, Warwickshire. Suckers are being constantly taken from them, and for years past I have known of many that have produced stoneless fruit at once—in short, I have never heard of the reverse taking place. *Geo. Scriven, Agent.*

Arundo conspicua does well in the southern counties and is worthy a more extended trial there than it has yet had, but much good is not likely to result from planting it in the north, or in cold or exposed places. I have seen it grow and flower freely in Surrey, and in Mr. Pince's beautiful rock-garden at Exeter. However, though well worth growing where it does well, it can never compete with the Pampas Grass in the open air in this country. But there is another use for it, and that a noble one—let it be the Pampas Grass of the winter garden or large conservatory. Grown in small tubs or large pots, richly fed, and freely watered, it will luxuriate in such structures, and prove, when its drooping silvery plumes are in perfection (and they last a considerable time) the most distinct and beautiful thing one could select to place among conservatory plants of the usual type. I strongly recommend it to such of your readers as have to furnish conservatories, winter gardens, or even a large show-house. *Wm. Robinson.*

Conifers in New Zealand.—Your correspondent (see p. 1061), after stating in reference to the new garden that "quantity will not be taken into consideration at all; but rarity, and that newly-introduced trees, shrubs, evergreens, and Conifers will always meet with a fair trial," goes on to observe:—"For instance, growing in a healthy state, are Pinus maritima, P. Pinaster, P. Pinea, P. Pumilio, P. montana, P. sylvestris, P. Sabiniana, P. ponderosa, and the Red Spruce Fir." Is this maritima our austriaca?—if so, give it its proper name and place as a *quasi* of the Corsican Pine; or, if an *alter ego* of Pinaster, let us know the fact. I infer from what is stated of Pumilio and montana that they are our two *quasi* pygmies of sylvestris. I hope your correspondent will be more explicit in his nomenclature of "the Firs and Pines" when he again writes to us about them, for they are now as fashionable as Ferns in Old England. *Senilis.*

Wellingtonia gigantea.—Those who have seen the bark of this tree arranged on a frame 116 feet in height, at the Crystal Palace, will be able to form some idea of the wonderful dimensions at which it arrives in its native climate. The tree from which the bark in question was taken, though dead, still measures upwards of 360 feet in height, 140 feet to the first limb, 15 feet in diameter, at 100 feet in height, and has a trunk 90 feet in circumference, measuring outside the bark, which is said to be 18 inches in thickness. Eighty of these trees, we are informed, vary from 18 to 30 feet in diameter in California, and measure from 200 to 400 feet in height, and, strange to say, all of them have English names. One is called the Father of the Forest, and though it has been blown down some 60 years, it still measures 440 feet in length; but it is supposed once to have stood upwards of 450 feet in height. The native locality in which these giants are growing is said to be during summer one of the most delightful places in the world, and there is little doubt that if some of the beautiful valleys in England were planted with Wellingtonias, in a few years their general appearance would be greatly improved. In order to show how well the Wellingtonia is adapted to this climate, I beg to furnish an account of a specimen which we have growing here on the lawn. In 1855 it was in a 60-sized pot, and was only about 6 inches in height. I planted it in well-prepared soil, consisting chiefly of good loam, it which it has attained over 23 feet in height; it measures 4 feet 9 inches at the base, and 43 feet in circumference round the branches. It has produced 18 cones, 2 inches in length and 3 inches in circumference, two of which I have sent for your inspection. These seem small, considering that they are the produce of the giant of the forest. Our tree has been planted 10 years, thus showing an increase in height of 2 feet 3 inches each season. It is well furnished with branches from top to bottom, and is also an exceedingly handsome specimen. Wellingtonias I consider ought to be planted in every situation where large Conifers are required in the way of ornament. I may add, that the Araucaria imbricata grows exceedingly well with us, and that we have a fine specimen of it, some 25 feet in height, beautifully branched from top to bottom. *H. Day, Theydon Grove, near Epping, Essex.* [The cones sent are somewhat smaller than above mentioned. There is no greater discrepancy between the size of the tree and the size of the cone in Wellingtonia than there is between the acorn and the Oak that bears it.]

Grafting Vines.—I have had under my care a newly-planted Vinery, wherein amongst other sorts are a White Frontignan and a Trebbiana, both of which it is desired to replace with varieties more adapted for early forcing, especially in the latter case. I should be glad if Mr. Thomson would give me his opinion as to the probable results of the Duchess of Buccleuch Vine being grafted on the former; and if he, or any other correspondent, could state how the Buckland Sweetwater would do on the latter. I may add that the Vines in question are as strong and healthy as possible, having been planted two years last May, and this year they have borne fine crops of fruit. *H. J. C.* [The White Frontignan is a bad stock for any Vine, but the Duchess of Buccleuch would do on it as well as would any other Vine. The Trebbiana will grow the Buckland Sweetwater very well; but it is not a good stock for any Vine that is to be forced early. It in this respect somewhat resembles the Black Barbarossa. If there are Black Hamburgh Vines in the house it would be better to cut out the two in question altogether, and to inarch on the Hamburghs, as side shoots, a Vine of the Duchess of Buccleuch and Buckland Sweetwater. In this way "H. J. C." would have the varieties he desires, on stocks whereon they would be sure to do well. I frequently do this when I wish to increase the varieties of Vines in the same house. *W. Thomson.*]

Chrysobactron Hookeri (see p. 1084).—This has flowered here every season for these last six years. It is grown in the open border, and is quite unprotected in winter. Rich loam and leaf-mould suit it best, but it will thrive in any soil. Upwards of 30 spikes of flowers were borne on one of the plants here; they are of a golden yellow colour, and far outrival in beauty any border plant in bloom at the same time. It ripens seeds in abundance, from which young plants are freely produced. *George Stirling, Comely Bank Garden, Edinburgh.*——I have flowered this on a warm border in deep sandy peat, and have been much disappointed with it. I fear it is not worth growing except in a botanic garden, and scarcely there, but I only judge from a solitary specimen. *Wm. Robinson.*——I am happy to say that this fine hardy herbaceous plant has flowered freely here for the last five years; this season it sent up seven fine spikes of flowers, which produced seeds freely self-sowing themselves around the mother plant. The soil in which it grows is a heavy yellow loam, and it likes shade. *James Gray, Gardener, Newfield, Kilmarnock, N. B.*——For the last two or three seasons Chrysobactron Hookeri has flowered freely with us in an ordinary herbaceous border, without having any particular attention bestowed upon it. It was planted in a moist, shady situation, in a mixture of peat and loam. It is easily propagated from seeds, which in fine seasons are produced in abundance. Seedlings, however, will not bloom for four or five years. *Dreghorn & Aitken, Kilmarnock.*

Gardeners' Wages in Nurseries.—A rise of wages in every description of trade is now taking place, with the exception of those of the gardener in the nursery, which still remain at 12*s.* per week. When one considers the long hours, the great destruction of clothes in the drawing of trees, wet or dry, with no reduction of hours of labour on Saturdays; and adds to these the high price of provisions and rent, it is inexplicable how a man with a family can exist on 12*s.* per week. The large profits of the nursery and seed business, and the great trade now doing, should surely admit of a little better pay. We are told by the nurserymen that we come to them to obtain situations. This is true, but how few in the trade trouble themselves to obtain them, or to assist us. I know of men who have been kept in expectation for two or three years, until their small savings have all been spent. Surely the nurseryman's profits would allow a rise to 15*s.* per week; it would be to his advantage, for more work would be got from the men. *G. C.*

Belle de Fontenay Raspberry.—I can strongly recommend this variety to the notice of any one requiring a first-rate autumn Raspberry, it being large, very prolific, and a most abundant bearer. We have been gathering fruit daily from it for these last six weeks, and at the time at which I now write (Nov. 22), its canes are literally covered with fruit. It has also this advantage, that owing to this fruit growing pretty close to the stem and the leaves being of a pendulous character, the fruit gets protected from any slight frost that may occur about this season. It is quite distinct from all others I have ever seen. *W. H. Mountford, Kinmel Park, St. Asaph.*

Societies.

Royal Horticultural: *Nov.* 21.—J. Bateman, Esq., in the chair. One new Fellow, viz., Mr. Norman, of Princes Gate, was elected. The Chairmen of the Floral and Fruit Committees having respectively reported the awards made by these bodies, the Rev. M. J. Berkeley made some observations on the subjects exhibited. He adverted in the first place to a branch of Black Frontignan Vine, from Mr. Young, gr. to Lord Fitzwilliam, in which one eye had produced the usual black-coloured fruit of that variety, while another eye on the same shoot, without any grafting or budding, furnished a bunch of white Grapes, which upon trial was found to possess the same Frontignan flavour as that of the black bunch. Such sports, it is well known, are not uncommon among Chrysanthemums; but in the case of the Vine a greater degree of novelty attaches to them. The remarks on the fruit of Monstera deliciosa, given at p. 1082 of our last Number, next occupied attention; as did also a white Thunbergia from Mr. Earley, of Digswell, which was considered to be a form of T. fragrans of Roxburgh. In this country, however, it seems to be perfectly inodorous. A seedling Imatophyllum, from Mr. Bull, was thought to belong to the same class as the old I. Aitoni. Mr. Bateman favoured the meeting with a few remarks respecting the Orchids present, in the course of which he observed that it would be seen that they formed by far the largest proportion of the winter-blooming plants exhibited, constituting one among other claims to our attention which they possess. In connection with the Bird's-beak Oncid (Oncidium ornithorhynchum), which although pink, is figured in Humboldt's great work as yellow, he took the opportunity of alluding to some of the mistakes into which travellers not unfrequently fall, when they come to arrange at home the materials often hastily obtained on their journeys. Dendrobium Tattonianum, found by Mr. J. G. Veitch on the coast of North Australia (see p. 890), and named by Mr. Bateman in compliment to Lord Egerton of Tatton, was next mentioned in terms of praise, inasmuch as though still at first sight somewhat unattractive, the blossoms were nearly twice as numerous as those on the plant when first exhibited; and as the specimen produced on this occasion was still small, the beauty of this Dendrobe, which has the additional good quality of being fragrant, may yet be expected to be even much greater than it is at present. It was stated, moreover, to be an excellent drawing-room plant, as confinement of that kind even for weeks together seemed to exercise no injurious effect upon it. In reference to the charming Calanthe Veitchii, which it may be recollected is a hybrid between Limatodes rosea and Calanthe vestita, Mr. Bateman said that he had hoped that Orchids constituted a Royal race into whose preserves the hybridist would not dare to enter, and that much as he appreciated his labours in other departments of Flora's dominion, he nevertheless felt a kind of inward satisfaction whenever failure attended his attempts to raise cross-bred Orchids. In the case before him, however, he was forced to admit, though it nearly choked him to do so, that a magnificent result had been obtained, inasmuch as the hybrid in question was certainly one of the finest winter-blooming Orchids in cultivation, a fact which all who had the good fortune to see Mr. Rucker's glass-houses at the present time would confirm, for they are, he said, quite gay with the rich rosy flowers of Calanthe Veitchii. Odontoglossum Alexandræ, a glorious example of which was shown by Messrs. Low, of Clapton, next came under review. This new Odontoglot is one of Mr. Weir's contributions from Santa Fé de Bogota, and, as it is eminently beautiful, and sure to be a favourite, Mr. Bateman did not scruple to dedicate it to the illustrious Princess whose name it bears (see p. 1083, 1864). Messrs. Low's traveller, Mr. Blunt, was, however, at work in the same country, and a specimen of this plant sent home by him, on being submitted to Prof. Reichenbach, was considered by that botanist to be sufficiently distinct from Mr. Bateman's O. Alexandræ to merit another name. He therefore called his new Odontoglot, O. Bluntii. Examples of both were shown in flower on Tuesday, and although O. Bluntii was much handsomer than that to which the name of Alexandræ was attached, it was the opinion of some persons present that the two were varieties of one and the same species. Mr. Bateman is therefore of opinion that he must fall back on the chivalry of the German, in this case to allow the loyalty of the English to have its way, and that the name Alexandræ, instead of Bluntii, must be given to the best variety of this fine Odontoglot. He concluded by alluding in terms of praise to a fine collection of Lycaste Skinneri which was contributed by Mr. Veitch, which

he said had been grown all this year without fire heat. In illustration of the suitability of this Lycaste for room decoration, he mentioned that a plant of it had existed in his gardener's kitchen in perfect health for no less a period than two years.

Nov. 21 (*Floral Committee*).—The Society's Garden furnished on this occasion a fine collection of Dracænas, among which were D. Banksii, Veitchii, and australis, all long narrow-leaved kinds; the red-leaved D. terminalis and ferrea; and D. heliconiæfolia and fragrans, both with ample deep green foliage. Mr. Earley received a Second-class Certificate for the white Indian Thunbergia alluded to by Mr. Berkeley. In Mr. Veitch's fine group of Lycaste Skinneri, which received a Special Certificate, the best were distinguished by the names of L. superba, pallida, grandiflora, and purpurata. The same eminent nurseryman likewise contributed the canary-coloured greenhouse bulbous plant called Urceolina pendula; Vanda cœrulea, a fine winter-blooming Orchid; a charming specimen under a bell glass of Bertolonia guttata, the leaves of which are beautifully dotted all over with red spots; and the Dendrobium Tattonianum, Calanthe, and Oncidium, alluded to by Mr. Bateman. A large plant of the robust-growing Violet named The Czar, was shown by Mr. F. J. Graham, who also furnished one or two other sorts of Violets. In addition to the Odontoglots mentioned above, Messrs. Low showed examples of O. gloriosum and O. radiatum, both of which belong to the section of which O. grande stands at the head. To O. radiatum a First-class Certificate was awarded. A beautiful collection of hardy Ferns, for which a Special Certificate was given, was shown by Mr. Ivery, of Dorking; it consisted of different varieties of Polystichum angulare, and of the common Scolopendrium, Lastrea, and Polypodium. Among them was also a slender-growing variety of Athyrium Filix-fœmina, with fronds beautifully crested at the top, to which the name of Applebyanum has been given; this received a First-class Certificate.

Nov. 21 (*Fruit Committee*).—From Mr. Pince, of Exeter, came a handsome fruit of the Smooth-leaved Cayenne Pine-apple, weighing 5¾ lb. A very fine boxful of Cox's Orange Pippin Apple was shown by Mr. Turner, of Slough, from whom also came Cornish Aromatic and Blenheim Orange Apples. Mr. Wilson, Gishurst Cottage, Weybridge, had magnificent specimens of Chaumontel Pears that had been grown on a tree in a pot in an orchard house, but which had been set out of doors to ripen. Large fruit of Uvedale's St. Germain Pear were furnished from the neighbourhood of Bedford by Mr. Swannell. A beautiful collection of Pears was contributed by Mr. Earley, from whom also came remarkably fine Shallots. From Inverness-shire were Royal Russet, Nonsuch, Hollandbury, Scarlet Nonpareil, and Manx Codlin Apples, as large and fine as examples of the same kinds grown in the south of England. In the class of three dishes of Apples put up for competition, Mr. Earley had the 1st prize for fine fruit of Golden Pippin (?), Cockle Pippin, and Sam Young. Mr. Turner was 2d with Cox's Orange Pippin, Cornish Gilliflower, and Rosemary Russet. Mr. Whiting had Cox's Orange Pippin, Adam's Pearmain, and Ribstone Pippin. From Mr. Cox came Old Harvey, Sam Young, and Old Nonpareil. For the best dish of Pears the 1st prize was won by Mr. Turner, who exhibited beautiful fruit of Huyshe's Victoria. Mr. Ivery had an equally meritorious dish of Winter Nelis. Mr. Ruffett furnished admirable examples of Chaumontel, for which a 2d prize was awarded. From Mr. Cox came very fine large specimens of Winter Nelis, and beautifully coloured examples of the Forelle or Trout Pear. Mr. Lee, of Cliveden, had Clifton Nonsuch Apple, a kind said to be suitable alike for table or kitchen use, and Bon Gustave Pear, a large kind, of which Mr. Lee speaks in favourable terms. A collection of Gourds was shown from the garden of the Society; and specimens of the Club Gourd came from the Rev. Mr. Berkeley.

Linnean: *Nov.* 2.—G. Bentham, Esq., President, in the chair. Dr. Prior exhibited specimens of Benthamia fragifera, with ripe fruit, grown at Tatton House, Kingston, near Taunton. Arthur, Viscount Walden; Dr. Bhau Dagee, and J. B. Langley, Esq., were elected Fellows. The following resolution, moved by W. W. Saunders, Esq., and seconded by Dr. Thomson, was unanimously agreed to:—"That this meeting is desirous of recording at the earliest opportunity the sincere and profound regret which it has felt at the death of Sir William Jackson Hooker, who during so many years had been the acknowledged head of botanical science in Britain, the labours of whose life had been devoted to giving at once a scientific and a practical character to the study of the vegetable kingdom, not only by his own numerous and valuable works, but by the encouragement and assistance he afforded to every working botanist, at home and abroad, with whom he was brought into contact. The meeting is especially desirous of giving expression to its grateful recognition of the liberality with which Sir William Hooker opened his most extensive herbarium and library to the use of botanists, and of which this Society has fully felt the benefit in the numerous papers read at its meetings, which could not have been prepared without much assistance. That the meeting also earnestly desires to express to Lady Hooker its sincere and respectful condolence, and to assure her of its deep sympathy in her affliction." It was also agreed that this resolution should be entered on the minutes, and communicated to Lady Hooker. The following papers were read:—1. *On Hilebrandia, a new genus of Begoniaceæ*, by Prof. Oliver. The only species of this new genus, H. sandwicensis, is, as its name indicates, a native of the Sandwich Islands, having been collected there by Dr. Hillebrand. The genus differs from all Begoniaceæ hitherto described, in having an ovary with the upper one-third free, and open above in the exserted portion, owing to the non-cohesion and divergence of the constituent carpels at the apex, as in Datisca and Reseda; and in the presence of small cucullate petaloid organs, which Professor Oliver regards as true petals. In other respects the plant is closely allied to Begonia, some of the shrubby species of which it resembles. The remarkable character of an open ovary is an important confirmation of the view first definitively advanced by Dr. Lindley, that the Begoniaceæ are nearly related to the Datiscaceæ.——2. *On the Law of Leaflet-Genesis*, by Harland Coultas, Esq.; communicated by E. Newman, Esq. The blades of lobed leaves, the author observed, must be regarded as a composition of partially-formed and organically united leaflets. As the lobe represents that portion of the lamina of the leaflet which is completed, it follows that the terms bilobed, trilobed, quinquelobed, and septemlobed, express the number of leaflets of which the whole blade is a composition, and indicate the extent to which their formation has been carried. So also the words bipartite, tripartite, &c., are indicative of a still higher degree of development, and intimate that the entire blade of each leaflet has been nearly completed by Nature. In the digitate leaf each leaf-blade is fully formed, its separation having been carried down to the petiole, to which it is articulated. This articulation alone distinguishes compound from simple leaves. The passage from the digitate to the pinnate form is simply effected by the genesis of an axis or common support by the leaflets, which thus become separated and distributed on either side of that axis. The formation of this axis is considered by the author as the result of the superior vital activity of the leaflets of the pinnate leaf; whilst in the digitate leaf that axis is rudimentary simply because the leaflets are deficient in the vital power necessary to form one.——3. *Enumeration of Indian Lemnaceæ*, by M. Sulpiz Kurz; communicated by Dr. Anderson. This paper consisted of a description of a new Indian Duckweed, Lemna oligorhiza, and a general enumeration of all Indian Lemnaceæ. The new species showed such similarity of structure to Spirodela polyrhiza, that the author found it necessary to reunite the latter genus with Lemna. Telmatophace, he observed, possessed the habit of Wolffia, but appeared to be essentially the same as Lemna, though in the absence of complete information he retained it for the present.——4. *Lichenes Novæ Zelandiæ quos ibi legit anno* 1861, *Dr. W. Lauder Lindsay*, by Dr. Nylander; communicated by Dr. Lindsay.——5. *List of Fungi collected in Otago, New Zealand*; by Dr. W. Lauder Lindsay.——6. *Letter from Swinburne Ward, Esq., to Sir W. J. Hooker, on the Coco de Mer (Lodoicea sechellarum) in the island of Praslin.* The letter, dated August 8th, 1865, announced the despatch to Kew of the stem and socket of a full-grown Coco de Mer, from a small tree of the female sex, about 30 feet high. In the younger trees, those of tender years at least, and in which the stems have not appeared above ground, it was stated (on the authority of the owner of the property from which this tree was obtained) that the socket is not formed, and the whole base of the uprooted tree rots quickly. One tree, cut down on the same property not long ago, measured 186 feet, including the leaves; and others still standing are not less than 150 feet high, males, quite straight in the stem, and growing in open marshy ground with nothing but sedgy Grass around them. Praslin was described as a lovely little island, in which Oranges might be successfully cultivated in many parts, as wild Citrons, Limes, Lemons, Bigarades, &c., are very abundant in all the fertile valleys; while the marshes are capable of producing sufficient Rice to supply all Seycheiles, though next to nothing is now grown.

November 16.—G. Bentham, Esq., President, in the chair. Sir David Barclay, Bart., Rev. W. A. Leighton, Capt. H. Pulleine, G. Sigersen, M.D., and Marmaduke Wilkin, Esq., were elected Fellows. The following papers were read:—1. *Notes on Medicago, Crocus, &c., as affording facilities for the intercrossing of distinct flowers*, by the Rev. G. Henslow.——2. *Contributions to a Monograph of the Aphroditacea, part* 2, by Dr. Baird.——3. *On the Spicula of the Regular Echinoidea*, by C. Stewart, Esq.; communicated by Prof. Huxley.——4. *Account of a newly-discovered British Fish of the family Gadidæ, and of the genus Conchia*, by Jonathan Couch, Esq.——5. *Observations on British Salpæ*, by Dr. McIntosh.

Notices of Books.

Elements of Physics; or, Natural Philosophy written in non-technical Language. By Neil Arnott, M.D., F.R.S. Sixth and completed edition. Part II. Pp. 322. Longmans. 1865.

Some time ago (see p. 391, 1864) a notice of Dr. Arnott's first volume was published in this Paper, wherein, if we recollect aright, attention was called to the singularly ingenious and practical turn of his mind, his great and varied experience as a traveller, his constant desire in his writings to avoid scientific technicalities, and to express himself in a way that should be intelligible to educated people of ordinary capacity. It was this characteristic of the Doctor's mind, this love of popularising science, that made his articles in the "Penny Cyclopædia" so generally acceptable, and stamped him as the most proper person that could be found to superintend all that portion of it which relates to Natural Philosophy. Before his time, knowledge of this kind was confined to comparatively few individuals, and writers in general did not care to make themselves intelligible to outsiders. In Mr. Knight's "Passages of a Working Life" one sees how much writing of this kind was needed, and Dr. Neil Arnott was the very man prepared to do it. To his ingenuity the public is indebted for some very excellent inventions and improvements in regard to stoves, fuel and chimneys, and the then little known subject of ventilation; and every body has heard of that masterpiece of inventive ingenuity, the singular application of scientific principles to the hydrostatic bed.

The first volume contained 400 pages; the second volume treats of the imponderables—heat, light, electricity, and magnetism; these are arranged under Part 4 of the general subject. Part 5 is a very brief sketch of popular astronomy, and a very short appendix is added, with merely a few pages on popular geometry, &c. The treatise on heat begins with the difficulty persons have at first to conceive the fact, that an apparently empty room is really full of air, exerting a great pressure in every direction, and then goes on describing the successive steps by which men have arrived at their present knowledge of the nature of heat, and shows by experiment that heat cannot be exhibited apart from matter, nor proved to have inertia or weight. All this is very pleasant reading, and our old friend Count Rumford, the forerunner of the Doctor in some of the facts and experiments relating to heat, is often introduced with his experiments, making water boil "by causing a blunt borer to rub against a mass of metal immersed in water," &c. Here, as everywhere in Dr. Arnott's writings, one notices the abundance of facts which always make a subject interesting, and the tendency of his mind to bring out the practical use of every piece of information. Thus he cannot give a description of "the heat transferrer" without showing that brewers may use the instrument as a refrigerator to cool their hot wort, while in baths and washhouses the heat of the waste water may be utilised as it runs down the escape pipe. It would not be natural for Dr. Arnott to close the subject of heat without a page or two upon his famous stoves, and his recommendation that fires should be lighted from the top and made to burn downwards, with the use of a throttle valve and a blower, and the possibility of admitting "fresh air to a room through a channel from the outside, which discharges under the fender;" and of course he draws attention to the two facts,—1st, that much of the disease causing premature mortality among men, is produced by ill-managed temperature, dependent often on faults of ventilation; and 2nd, that the store of coal-fuel in the bowels of the earth applicable to human purposes is limited, and may be exhausted. To waste this precious fuel is not to act like prudent parents thinking of the interest of descendants.

There is no need for us to enter with the Dr. upon his treatise on light, written in the same lucid style, describing the human eye, long and short sight, perspective, the telescope, and microscope; electricity, with its application to telegraphic purposes; magnetism, which is comprehensively treated in a few pages; and astronomy, which is given rather more at length. He contrives to make each subject interesting and intelligible, which is no inconsiderable merit.

Part XXXII. of *Watt's Dictionary of Chemistry*, extending from Phenylamines to Phosphorus, contains an important article on the Aniline dyes to which our fair readers owe various shades of violet, mauve, black, red, yellow, green, blue, &c.——Part VII. of *Brande's Dictionary* brings the work down to the word Marquess, and includes the important subject of Magnetism.——In Part XI. of *Webster's Dictionary* we find an appendix containing an "explanatory and pronouncing vocabulary of the names of noted fictitious persons and places; including also familiar pseudonyms, surnames bestowed upon eminent men, and such analogous popular appellations as are often referred to in literature and conversation." This is a curious and valuable addition, wherein the reader will find an account of the Cock Lane Ghost and of Mr. Pecksniff. Those of our readers fond of fun will find great amusement in seeing the odd associations which the alphabetical arrangement necessitates.——The November number of the *Pharmaceutical Journal* comprises articles on "mendacious puffing" with reference to "Opoponax," a word familiar to many denizens of the London streets, and also to readers of manuals of materia medica; but the application of the word in the two cases has no more resemblance than Macedon to Monmouth. Also on the flower farms of France, extracted from the "American Gardener's Monthly," &c., &c.——The *Technologist*

for November has a notice of the Oak silkworm of China, which produces a kind of silk inferior to that obtained from the Mulberry-feeding worm, but supposed to have useful qualities not possessed by either silk, wool, or cotton. In the same number are interesting articles on the history of commerce, the propagation of trout in America, and on Cleveland wine.—— The number of the *Geological Magazine* for the present month, in addition to other matters, has two papers on fossil botany which may interest our readers. The first is on a Tree Fern (Caulopteris punctata, Goepp.), discovered in the Upper Greensand of Dorsetshire. Mr. Carruthers, who we rejoice to see continues his investigations into the nature of the vegetation of our globe at former epochs, gives an account of the stem of the Fern just named, the leaf scars of which are much like those of a Dicksonia. Too much stress must, however, not be laid on the leaf scars, as their form and appearance is apt to vary according to age and other circumstances, nor is the shape of these markings always the same in all parts of the same plant. The specimen alluded to has "five very slight constrictions, produced by seasonal interruptions to growth;" similar constrictions have been observed in the stems of Lastrea Filix-mas and Polystichum Lonchitis by Mr. Carruthers, who alludes to the fact that "cold is not the only physical cause of interruption, but that a periodic dry wind, as on the coast of China, an extreme heat without moisture as in several tropical regions, and other causes, may produce a season of rest in plants like that resulting from winter in our temperate regions." The other paper to which we have alluded is one by Mr. Mitchell, "On some hitherto unrecorded Leaf-forms from the Pipe Clay of Alum Bay, Isle of Wight." The most interesting fact recorded in this paper is the "discovery of two flower remains, which appear to resemble Porana œningensis, Heer." According to the figure, the specimens found have a perianth, or perhaps a corolla (?) with five separate oblong segments, at the base of which, internally, is a thickened ring, which may be a disc or the indication of stamens.

Catalogues Received.—*W. Chater's Catalogue of Hollyhocks* is one of the best that can be consulted by growers of that flower.—*W. Drummond & Son's Catalogue of Forest, Ornamental, and Fruit Trees*, has separate lists of Weeping trees, of hedge plants, of edging plants, and of underwood, besides good general collections.—*E. P. Francis & Co.'s Descriptive Catalogue of Roses.—F. & A. Dickson & Sons' Catalogue of Roses.—André Leroy's (Angers) Descriptive Catalogue of Fruit and Ornamental Trees* is very elaborate, a great amount of information being tabulated under the various heads.—*Alexis Dallière's (Gand) Prix Courant* for 1865-6.—*J. Weeks & Co.'s Horticultural Buildings* is an illustrated catalogue, containing designs for horticultural erections of various character, and may be referred to with advantage by persons about to commence buildings of this character.

The Apiary.

We resume our remarks on the Winter Management of an Apiary (see p. 1062), and purpose saying a little respecting proper hive-protection.

Where straw hives of the ordinary pattern are concerned, the old-fashioned straw-hackle, if new, and well fastened down to the stand, constitutes a very efficient cover. In the south of England hives so protected usually swarm early. But the mischief is that these covers, or hackles, as they are called, are too often allowed to rot as they stand, becoming harbours for mice and all sorts of noxious vermin, as well as permitting rain to percolate and saturate the crowns of the hives. We, therefore, should recommend their being altogether discarded from the apiary of any one who desires to improve on the common country method of bee-keeping.

A rather well-known and practical apiarian writer, known by the *nom de plume* of "Upwards and Onwards," some years since advocated in the columns of another periodical (and was somewhat ridiculed for so doing) the substitution of large milk-pans for the usual straw hackles. These require to be secured to the stands or weighted down by a heavy stone. Though not very picturesque in appearance, yet their advocate asserted them to be very efficient protectors, and that hives so covered will be usually in better condition and health than when hackles are employed. There was a warm controversy on this subject, but there is no doubt that large-sized earthenware milk-pans, when the hives are sufficiently flat in the crown to support them steadily, make admirable covers to straw hives. No cloths or pieces of old sacking must be allowed, as is too often the case, to intervene between the top of the hive and its milk-pan cover. But we imagine that in seasons of great cold or intense heat, it would be advisable that the earthenware should not quite touch the crown of the hive; we therefore propose that a narrow hoop of straw, say two or three bands in thickness, cut off from any old straw hive, be inserted below the cover. This would prevent any injurious effects from the above-mentioned cause, and would prove equally effective in preventing the penetration of heat under a burning sun.

The foregoing plans have the recommendation of being inexpensive, and of being adapted to the means of the poorest cottager; but where the matter of cost is of little consequence, there is no mode of ensuring thorough protection to hives, whether in winter or summer, equal to that of separate wooden cases, with moveable roofs. As we purpose giving descriptions of the best forms of hives, and of other requirements of "The Apiary" as opportunity occurs, we will not now stay to describe the cases which have been found the most useful and convenient for all the manipulations necessary in an apiary managed on an improved system.

Whether in winter or in summer, let there be a space for free circulation of air between the hives and the inside of the cases, which should be furnished with apertures for ventilation made under the eaves of the roofs. Anything approaching to closeness or stagnation of air is detrimental to the prosperity of bees.

There is one simple precaution with respect to all methods of protecting hives in winter, which is too frequently neglected, and that is, the use of means to prevent the covers being blown off. How trying it is to the bee-master to be disturbed in the night by the noise of a violent gale, when the thought flashes across his mind that his hive-covers are not securely fastened. He hears the rain descending in torrents, and dreads the mischief that may be doing among his bees. How anxiously he rises in the morning and pays his hurried visit to the scene of probable disaster! Happy indeed is he if he finds his alarms to be groundless. But how much wiser to remove all cause for anxiety, so that if disturbed in the night, however the elements may rage, the careful bee-keeper may rest, comforted with the assurance that no harm from such a cause can accrue to his favourites.

A few iron pins passing through the parts of the cases which may overlap, brass hooks and eyes, or pieces of tarred cord passed across the roofs and tied under the stand, will be found sufficient for the purpose.

Garden Memoranda.

Meadow Bank, Glasgow, the Seat of Thomas Dawson, Esq.—Meadow Bank is situated close to the village of Uddingstone, in a retired spot a few miles from the busy city of Glasgow, and only a short distance from the high road leading from Glasgow to Bothwell Bridge, famed in history for its battle. Further on is Hamilton Palace and Bothwell Castle. Meadow Bank is bordered on the one side by the railway leading from Glasgow to London, from which latter place it is well worth a journey to see, owing to the magnificent collection of Orchids for which it is celebrated; for, go when you will, there is always to be found a grand display of bloom. In addition to the Orchids, however, Meadow Bank has other attractions. It overlooks the river Clyde, which, viewed in connection with gay flowers, beautiful trees, and ranges of glass houses, has a charming effect—the one blending beautifully with the other. After leaving the railway, you enter the grounds under an arch, through a pair of large wooden gates: a splendid avenue of Pinus austriaca, and a broad road several hundred feet long, lead to the dwelling-house. Every one of the Pine trees in question is a perfect specimen of its kind. The broad turf edging, well-proportioned road, and the gay flowers on each side produce a good effect; the borders contain many old favourite flowers, such as Sweet Williams, Stocks, and annuals of various kinds. The Pine trees are backed up by a good collection of Horse Chestnuts, which, when covered with white and scarlet flowers in spring, cannot fail to have a fine appearance. These noble, hardy trees ought to be planted more extensively than they are, there being nothing to equal them for effect in park scenery, especially when shown in the shape of single specimens. There are also some fine Coniferæ here, such as Abies Nordmanniana, which is one of the most beautiful of the class to which it belongs. Associated with it are likewise Pinus grandis, Thuja gigantea, several varieties of the graceful Cupressus Lawsoniana, Thujopsis borealis, and many others. On the right-hand side of the entrance is a long walk, the borders of which are filled with herbaceous plants; many of these are Phloxes, which are extremely useful plants for large borders, and they grow finer here, and indeed throughout Scotland generally, than they do in England. The climate being cooler they get more moisture and less sun-light, and they seem to thrive better in stiff than in light soils. Associated with these is a good collection of Hollyhocks and Dahlias, the whole being supported by a wall, against which are planted the best kinds of hardy climbers, intermixed amongst which was the showy Tropæolum canariense, the whole having a good effect. Many hardy climbers flower in spring, and by introducing summer-blooming ones among them a good display is maintained until frost sets in. Behind the wall just mentioned is the railway bank, which is some 40 feet in height, and which, with good judgment, has been planted with Pines, which are making satisfactory progress. Thus, instead of the railway spoiling the place, as it does in many instances where the banks are left bare, a fine effect has been produced, especially when viewed from ground lower than the banks themselves. On the left-hand side of the entrance is another walk, of about the same length as the one before mentioned. On each side of this are planted Coniferæ and Rhododendrons, of the latter a splendid collection, which promises to furnish a profusion of bloom next spring.

Mr. Dawson cultivates numbers of hardy as well as tender plants, with the view of making his place interesting at all seasons. In short, valuable plants are met with on all sides, among which many hours might be pleasantly passed. In the proprietor of Meadow Bank, plants of all descriptions have a steady admirer, who does not even overlook the most common flowers, which he still cultivates, although he has such a host of beautiful treasures from far-off climes. The avenue of Pine trees conducts the visitor to a well-kept flower-garden, which is laid out and planted in summer with much taste—a real acquisition, as one may have fine flowers and good colours, but if they are badly arranged, their effect is lost. In many of the beds the centre consisted of tall plants, such as Gladioli, Stocks, &c., which helped to break up that formality which we generally find in most flower-gardens. The centre bed of the arrangement was planted with Centaurea ragusina, a plant with charming foliage, and edged with Lobelia speciosa. Four fine beds consisted of Pelargonium Stella, which is one of the best varieties for bedding purposes; this was edged with Variegated Arabis. There were, moreover, beautiful beds of Purple King Verbena, Calceolaria, Gazania splendens, Gladioli, Stocks, Pentstemons, Scarlet and Variegated Pelargoniums, &c. On the opposite side a long border was planted with Purple King Verbena, in which were round beds up the centre planted with Scarlet Pelargoniums and Calceolaria amplexicaulis, edged with Cerastium tomentosum; these beds had a good effect, although the Verbena was not so vigorous as it should have been, owing to the border being from its situation too warm. In front of this garden is a beautiful grassy bank, sloping down to the Clyde; and in the distance are the ruins of Blantyre Castle, which are covered with Ivy.

After leaving Mr. Dawson's dwelling-house a walled garden is entered, planted with all kinds of bedding plants; a ribbon border in this garden has been very beautiful this season. It consisted of Variegated Veronica in the centre, two rows on each side of Pelargonium Brilliant, then two rows of Pelargonium Golden Chain, edged with Lobelia speciosa. On a back border was the showy Œnothera Lamarckiana, which makes an excellent background plant; the next row consisted of Scarlet Pelargoniums; the 3d, Stocks; 4th, Calceolaria Prince of Orange; 5th, Lobelia speciosa; 6th, Variegated Arabis. Next the greenhouses was another border, planted with Alyssum variegatum and Verbena Admiral Dundas, which is a fine kind for bedding; the front row of this border consisted of Lobelia speciosa. There was also here a fine bed of Pentstemons, which when well grown, as these were, are a great ornament of our flower gardens. In the centre of some of the beds were Standard Dahlias, the stems of which being long gave the flowers of other kinds below a chance of growing satisfactorily. Further on is the Rose garden, on each side of which are the Orchid-houses. The Roses are in beds, and are chiefly dwarfs and half standards. The best were John Hopper, Beauty of Waltham, Duchess of Norfolk, Souvenir de Malmaison, Gloire de Dijon, Lord Raglan, and Eugène Appert. It has been stated that Roses will not do well in the north of Scotland, but here they appear to succeed admirably, being vigorous in growth and full in bloom.

The kitchen garden is not large, but compact and well walled in, and the vegetables in it show that they are well looked after. Fruit trees on walls were, when I saw them, bearing abundance of fruit, and the wood seemed well ripened. In my next I will advert to other departments of this highly interesting establishment

B. W.

Miscellaneous.

Corsican Vegetation.—The botanical productions of Corsica assimilate, as might be presumed, to those of the countries that surround it. The north, by its vegetation, approximates to the Riviera, the east to the Italian coast, the west to Provence and Spain, whilst the south shows African affinities. Taking a general view, I should say that the vegetation in the lower regions very much resembles that of the Riviera. In the plains on the coast cereals and Indian Corn are grown in considerable abundance, and succeed admirably. The Mulberry tree, also, is cultivated in great perfection, and as the climate is suited both to its growth and to the rearing of the silkworm, there is a great opening in this direction for the Corsicans. On the lower hills and mountain valleys the Olive tree thrives and flourishes. The Vine is also cultivated with great success, and admirable wine is made, of a rather full-bodied character, especially on Cap Corso and about Sartene. Higher up, the Chestnut tree grows to a magnificent size, and produces fruit of the very best quality. Entire districts, especially on the eastern side of the island, are covered with splendid Chestnut forests. One of the eastern districts, indeed, having the little town of Piedicroce for its centre, is called the Castagniccia, or Chestnut country. It has ever been famous in history for the unconquerable intrepidity and love of freedom of its inhabitants. Throughout centuries of tyranny and oppression in Corsica they have never been entirely subdued, and that principally owing to their Chestnut trees. Formerly, and even now, their main food is the

Chestnut, with scant assistance from the oil of the Olive trees, the wine of the Vines, and the flesh of the wild sheep or mouflon—a native of the adjacent mountains. The Chestnut tree wants no cultivation whatever, no watching. Like the Bread-fruit tree of the tropics it produces fruit that only requires gathering when ripe, and in this climate it never fails to produce a crop. Thus the inhabitants of the Castagniccia could fight all the year round and yet live. They might be hemmed in on all sides in their mountain fastnesses, all ingress might be stopped for years, and yet they might flourish. These times have passed away; for more than half a century there has been peace in Corsica, but still the inhabitants of the Castagniccia retain their desultory habits. They live, I am told, in sober idleness; play at cards and talk politics all day, and work as little as they can possibly help. Their artificial modern wants, even, are easily supplied by the sale of the surplus crop, now rendered easy by the increased facility of communication with the Continent. The cultivation of the Olive tree on a large scale would appear to engender the same apathy and disinclination to work on the part of the peasantry. There is one region called the Balagna, extending from St. Fiorenzo to Calvi, comprising a series of smiling hills and of lovely fertile valleys, which is a very garden of Olive trees. It is renowned throughout the island for its richness and for its luxuriant fertility. A leading proprietor informed me that the peasantry, all proprietors, led the same *far niente* life of easy enjoyment as their countrymen in the Chestnut districts. The Olive tree requires a little more trouble, it is true, than the Chestnut; it has to be pruned and manured every year or two, the fruit has to be crushed, and the oil sold. Still all this, like the labour of the Irish cottier on his Potato ground, takes but little time. Every year or two an abundant, easily earned harvest of oil pays off debts and leaves a surplus to live on until the next be ready. Why should he work, says the peasant, when his future is thus secure? People cannot live, however, upon oil alone. It must be sold to maintain the grower, and owing to this reason no doubt, the Balagna has from time immemorial been conquered and held by those who held the adjacent coast. Above the range of the Chestnut tree we meet with the Pinus maritima, and above that, along with it in some regions, the Pinus Larix, or Larch. This tree is a native of Corsica, and in no part of Europe does it grow to greater luxuriance and perfection. In some of the primitive forests, noble trees, more than 120 feet in height, are found. Above the Pines come the Beech, then the Birch, and then the eternal snows. *Bennet's Mentone, 3d Edition.*

Araucaria Ridolfiana and A. Saviana.—Two species similar to this [brasiliensis] have been described: the first by M. Savin, under the name of A. Ridolfiana—this has been proved by Professor Parlatore to be nothing more than a form of A. brasiliensis; the second by Professor Parlatore, who has given it the name of A. Saviana, and considers it a very distinct species. This plant is growing in the Botanic Garden of Pisa, where it was planted in the open air in 1846, and is now a flourishing tree. It may also be seen growing in the Botanic Garden of Florence. In both these it has borne cones. These, in their young state, strongly resemble A. brasiliensis, with the exception that the spines of the scales are much longer, very uniformly recurved, and curled so far back as to completely cover the junction of the two scales. So dense are the spines on these young cones that the scales are completely hidden by them, and the cone much more resembles a fine head of Fullers' Teazel than the fruit of a Coniferous tree. In the mature cone the scales are much more fully developed, and the spines have the appearance of small recurved hooks. *J. R. Jackson, in Intellectual Observer.*

Durability of White Cedar.—An example of the great durability of White Cedar (Thuja occidentalis) is afforded by the journal of the early botanical traveller Michaux, which has just been published by the Abbé Brunet, of Quebec:—"On my way to Hudson's Bay, I reached in the month of August the lake Chicoutimi, near the 48th degree of latitude, and there found the church erected in 1728 (as indicated by the date placed over the principal entrance) by the Jesuit fathers for the natives of the vicinity. This building, made of squared timbers of White Cedar placed upon each other, was in good preservation; and although these beams had never been covered either within or without, the wood at the depth of half a line was not the least altered, after a lapse of more than 60 years." This little chapel was still standing in 1857. It is not only its durability but also its lightness that causes the Cedar to be so much used for telegraph and fence posts.

The Mole.—Dull and sombre as the mole appears to be, it is by far the fiercest and most active mammal within the British Isles. Indeed, so remarkable is it for both these qualities, that I doubt whether the great feræ of tropical climates can equal it either in ferocity, activity, or voracity. We need not pity the mole for the dull life which we suppose it to lead below the ground. There the mole is happy, and there only can it develop its various capabilities. We must not judge other beings by ourselves. We are apt to envy the swallow for its sunny flight through the air in chase of flies, and to pity the mole for its darkling passage through the earth in chase of worms. Yet there is no doubt but that both beings receive equal pleasure in carrying out the object of their existence, and that the mole feels no less gratification in the capture of a worm than the swallow in the capture of a fly. Such, at all events, is the inference which is to be drawn from the manner in which the mole acts when it has seized a worm; for no one can witness the active eagerness with which it flings itself upon its prey, and the evident enjoyment with which it consumes its hapless victim, without perceiving that the creature is exultantly happy.—*Homes without Hands.*

Calendar of Operations.

(*For the ensuing week.*)

Within the last 10 or 12 years, the benefit of getting the roots of fruit-bearing trees in some degree under our command, by confining them near the surface, has begun to be appreciated; but even now that system is not by any means so generally followed as it ought to be. For the formation of fruit-tree borders, no general rule can be laid down which would be applicable to all cases: the practice must be regulated by the quality of the soil and by the nature of the sub-soil. That in which almost all kinds of fruit trees are the most productive and the most permanent, is what is called "strong loam;" that is, loam rather inclining to a clayey than to a sandy texture. Perfect drainage is, however, essential in such soil, more especially if the under stratum is a stiff clay. To facilitate this, and to prevent the roots from penetrating into bad soil, a layer, 6 or 8 inches thick, of stones, brick-bats, or other hard rubble, should be spread evenly over the bottom as trenching proceeds, observing particularly to make the bottom of the border quite smooth, and with a regular fall of 6 inches from the wall to the tile-drain, which must be laid along the front, a few inches below the bottom of the border, to carry off surplus water. The depth of soil should be governed by its texture and quality. Of such as is now treated of, 2 feet in medium depth will be amply sufficient for the support of any tree whatever. If of a more clayey nature, 15 inches at the wall, gradually deepening 6 inches to the front of the border, is a proper depth. In very light soil, a greater depth should be given, say 2 ft. or 2 ft. 6 in. Where the subsoil is not wet, nor in any other way inimical to vegetation, the layer of rubble at the bottom may be dispensed with. As we would diminish the depth, so likewise we would increase the width of wall-borders. Some writers have advised them to be as wide as the wall is high; but this is a very objectionable rule. For a 12-feet wall (and for permanent trees none ought to be lower) the border should be at least 18 feet wide; if 20, so much the better; but in that case the necessary walk along the front might be made to pass over the prepared ground, so that the roots could extend beneath it. In all cases, the surface of the border ought to be somewhat higher than the level of the walk, more or less according to circumstances. Where a garden is so unfortunately situated that thorough drainage is impracticable, the borders for the finer kinds of wall trees may with great advantage be elevated a foot or more above the general surface. It is scarcely necessary to observe, that no stimulating manure should be mixed with the soil in which fruit trees are planted. If these hints, and those we have from time to time given upon planting, be acted upon, and the branches are allowed ample space to extend, there will be but little necessity for the now fashionable system of root-pruning.

FLOWER GARDEN AND PLANT HOUSES.

Continue to remove plants getting out of flower from the conservatory, in order to make room for Chrysanthemums and others which are coming into beauty. While the present mild weather continues, let the temperature be kept as low as possible.

Achimenes.—If not already done, a batch of these may now be started. They may either be grown in pans or pots, according to taste.

Auriculas.—Give these air on all favourable occasions; remove dead leaves, and water sparingly.

Bedding Plants.—During the present favourable weather give air pretty freely to these during the day.

Calceolarias.—Such as are required to bloom a little earlier than the others may now soon be shifted. In doing this it is a good practice always to sink the ball a little, in order to admit of a top-dressing of fresh mould being put over the riper parts of the young wood. Thorough drainage, too, is a point to which particular attention must be paid.

Camellias.—Any now coming into blossom should be carefully attended to. Air must be given them whenever the weather is favourable.

Chinese Primulas.—Continue to keep forward plants of these well attended to with water. As soon as any in beauty have faded, replace them with others coming into flower.

Pelargoniums. — Plants of these intended for flowering early should be placed as near the glass as possible. Let the night temperature range between 40° and 50°, and see that none of the plants suffer from want of water.

Violets.—The beauty and fragrance of these will be increased by letting them have plenty of air whenever the weather is sufficiently mild for that purpose.

FORCING GARDEN.

Cucumbers. — Be content with only moderate forcing at this season; but keep down thrips and red spider in houses heated with hot water by maintaining a moist healthy atmosphere.

Pines.—Plants intended for fruiting during the summer must now have careful attention. Let them have a steady bottom-heat, and a top heat of about 65° at night, allowing the thermometer to rise 10° or 15° higher during the day time.

Vines.—Examine fermenting material upon borders of the early house, in order to see that it does not get either too hot or too cold. Avoid a high temperature at night, and admit air freely in fine weather, using the side ventilators only when it is showery.

HARDY FRUIT AND KITCHEN GARDEN.

The prevalence of rain lately will have made heavy land much too wet to be worked with advantage; it will therefore be best to defer for a time all labour which involves the stirring of the soil. In the absence of other work, deciduous hedges might be trimmed, the prunings of fruit-trees collected and burnt, rotting leaves and dung for composts turned, stored roots examined, &c. On wet days straw mats might be made.

Fruit Trees.—According as the weather is more or less favourable, the various operations of planting, pruning, nailing, or digging, amongst the smaller fruit trees, should be forwarded. With regard to the last work, the ground being lightly turned over, chiefly for the sake of neatness, and not for the purpose of cropping, it might be done when digging in other cases would be injudicious. Preserve cuttings for propagation of the best Gooseberries and Currants, also suckers of Raspberries to make new plantations.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON

For the Week ending Nov. 22, 1865, as observed at the Horticultural Garden.

Nov.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth 1 foot deep.	Temperature. Of the Earth 2 feet deep	Wind	Rain
Thurs. 16	28	30.090	30.046	54	42	48.0	46½	47	S W	
Friday 17	29	29.804	29.783	54	29	41.5	49	47	"	
Satur. 18	●	30.161	30.049	50	28	39.0	50	48	S W	
Sunday 19	1	29.894	29.659	55	49	52.0	48	47	S W	
Mon. 20	2	29.566	29.359	57	44	50.5	51	48	S W	
Tues. 21	3	29.298	29.255	58	43	50.5	51	48	S W	
Wed. 22	4	29.172	28.835	53	43	48.0	51½	49	S W	
Average		29.712	29.603	54.4	39.7	47.0	49.5	47.7		

Nov. 16—Foggy; overcast throughout; slight rain.
— 17—Densely overcast; slight rain; clear at night, slight frost.
— 18—Clear; very fine; overcast; slight frost.
— 19—Rain; densely overcast, showery, heavy rain at night.
— 20—Rain; slightly overcast at night.
— 21—Densely clouded; showery; clear.
— 22—Boisterous with rain; strong gale; clear; much lightning at night.

Mean temperature of the week, 5½ deg. above the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 39 years, for the ensuing Week, ending Dec. 2, 1865.

Nov. and Dec.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds N	N.E.	E	S.E.	S	S.W.	W	N.W.
Sunday..26	47.2	33.2	40.2	20	0.70 in	2	6	6	2	4	10	1	4
Mon. ..27	47.1	34.3	40.7	18	0.88	1	5	5	1	7	9	2	4
Tues. ..28	48.4	35.0	41.7		1.21	2	4	3	2	10	7	2	4
Wed. ..29	47.9	34.1	41.0	19	0.56	4	1	8	3	6	4	4	2
Thurs. ..30	48.0	34.4	41.2	21	0.30	4	4	4	3	4	3	3	3
Friday .. 1	48.4	35.1	41.8	17	0.25	2	2	3	4	5	8	1	4
Satur. .. 2	47.7	33.9	40.8	17	0.51	2	4	4	1	5	13	3	1

The highest temperature during the above period occurred on the 1st, 1857—therm. 62 deg.; and the lowest on the 30th, 1864—therm. 14 deg.

Notices to Correspondents.

Catalogue: *G Turner.* The address is Kilmarnock, N.B.

Conifers: *C Palmer.* Libocedrus tetragona grows naturally in swampy places amongst the mountains of Chili and Patagonia, just below the snow line. The Sciadopitys is from the mountains of Japan. Plant them in good loamy soil. The Sciadopitys seems naturally slow-growing while young.

Gardeners' Education: *E L H.* We will make inquiries.

Names of Fruits: *S H.* There is great uncertainty and difficulty in naming isolated fruits. Take Pears as an example. During the last 10 or 15 years scores of new Pears have been received from Belgium and France: these have been grown a year or two and propagated, and have been distributed to some extent, but proving to be inferior in quality or unsuited to our climate, they have been discarded, and are for the most part forgotten. We recommend our correspondents not to trouble themselves about inferior sorts of which they may have lost the names, but instead thereof, if the tree be healthy, to work it with some of the sorts which are well known to be of good quality.

Names of Plants: *E C.* We do not undertake to name varieties of florists' flowers; yours, however, are—1, Souvenir; 2, Aurore Boreale; 3, like Astree Brilliante; 4, Madame Domage. —*H M.* 1, Pteris cretica albo-lineata; 2, Asplenium fontanum; 3, Polypodium vulgare cambricum; 4, Asplenium marinum. —*C.* 1, Phlebodium areolatum; 2, Polystichum capense. Centradenia grandifolia.—*F H.* Canna Warscewiczii.—*H P.* Ruscus racemosus.—*Arvon.* Euonymus europæus.—*Young Gardener.* You should send better specimens, and, as we so often repeat, not more than six at one time.—1, Retinospora; 2, Juniperus virginiana; 3, Juniperus virginiana; 8, Thujopsis dolabrata; 10, Juniperus communis; 4, Taxodium distichum.—*R P.* Maxillaria picta.

Tarragon: *Rev W M R.* This plant, known technically as Artemisia Dracunculus, is a native of the South of Europe, where its leaves are employed to give flavour to vinegar and sauces. It is not infrequent in old-fashioned gardens, but finds little favour among our cooks, but this is a matter of taste. The word Tarragon is from the Spanish tarragona, and is supposed to be a corruption of the Latin dracunculus, dragon; whence also Dracunculus. We do not at the moment see the relationship that exists between the plant and dragons, great or small—perhaps its piquant flavour may supply the clue.

Vines: *E O.* You will do quite right to have a portion of the old wood removed from your Vines which have become straggling and disorderly, and replacing it by young vigorous rods, which might be pruned on the short spur system. As you require a supply of fruit, you can arrange to remove the old Vines gradually—say in two or three years. The young rods should be pruned back to about six eyes, and allowed to bear not more than two bunches of Grapes the first year.

Communications Received.—Le Rhone.—W. M. R.—C. P.—Hooper & Co. (next week).—S. J. A. S.—Pomology (next week).—Ray Society (yes, certainly).—M. Van Houtte.

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BINGLEY HALL, BIRMINGHAM.—The SEVENTEENTH GREAT ANNUAL EXHIBITION of FAT CATTLE, SHEEP, PIGS, DOMESTIC POULTRY, CORN, ROOTS, and IMPLEMENTS, will be held in BINGLEY HALL, on MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, December 4, 5, 6, and 7.
For SPECIAL RAILWAY ARRANGEMENTS see the Advertisements and Bills of the several Companies.

CURZON EXHIBITION HALL, BIRMINGHAM.—The SIXTH NATIONAL EXHIBITION of SPORTING and other DOGS will be held in the new CURZON EXHIBITION HALL, Birmingham, on MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, December 4, 5, 6, and 7.
For SPECIAL RAILWAY ARRANGEMENTS see the Advertisements and Bills of the several Companies.

SMITHFIELD CLUB CATTLE SHOW,
AGRICULTURAL HALL, LONDON
MONDAY, December 11, and three following days.

SMITHFIELD CLUB CATTLE SHOW,
AGRICULTURAL HALL, LONDON.—FOUR DAYS.

SMITHFIELD CLUB CATTLE SHOW.—NOTICE.—ADVERTISEMENTS for CATALOGUES received not later than DECEMBER 1.

The Agricultural Gazette.

SATURDAY, NOVEMBER 25, 1865.

A NEW Order in Council is published just as we are about to go to press: and we are thus unable to do more than very shortly describe the new regulations which it declares. The power of seizure and slaughter possessed by the veterinary inspectors is now limited to cases where their orders for the separation and seclusion of infected animals have been disobeyed. Increased powers are conferred on local authorities for the prohibition of cattle traffic for purposes of sale or exhibition within their respective districts. And as regards the metropolitan district, no animals (*i. e.* "cow, heifer, bull, bullock, ox, and calf") are to be exposed for sale, except for the purpose of immediate slaughter. It is plain that the local authorities named in previous Orders now possess the power of putting in force a large portion of the recommendations of the Cattle Plague Commissioners in their respective districts—for the words enable them to forbid the removal of cattle "to any place whatever within their jurisdiction" for the purpose of exhibition or sale. There is a provision, however, that nothing is to prevent cattle-owners from exhibiting or selling on their own land or premises animals belonging to them, which have been on such land or premises not less than 14 days previous to such sale.

The number of cattle attacked by the plague, as reported to the authorities, continues to increase week by week—1765 for the week ending Nov. 4, and 2580 and 2669 for the two succeeding weeks respectively. The whole number of cases reported is now 27,432, of which 8998 were killed, 12,680 died, and 1777 recovered.

THE particulars stated above represent all the action that has yet been taken by the Government on the Report of the Cattle Plague Commissioners, and it may therefore be presumed that the whole of their recommendations will not be enforced. As it is well put by the *Economist*, prohibitive measures are impracticable: we cannot hinder the movement of cattle which it is proposed to forbid.

"We cannot watch all the roads of England. We have not the police, nor the soldiers, nor the local organisation to do so. On the Continent, where the population is used to a half military Government, defers to it, crouches under it, the difficulty, though still vast, might be surmounted. It might be possible to induce a very deferential population to obey such a *ukase* for the most part; and it might be possible by a network of *espionage* and police to detect and punish exceptional and casual offenders. But in England we have neither the same sentiment of obedience nor the same engines of detection. No one who knows the rural districts of England will imagine that the small farmers, the small drovers (and these are the persons with whom we must practically deal), will abandon all their old habits, will change their usages of trade, will submit to certain loss and often instant ruin, because a rule of law says they must. And if they do not submit, if they drive their cattle as before, where is the detective force to discover them, or the compulsory force to prevent them? There is in counties so fortunate as to possess a rural police, perhaps one policeman to 5 or 6 square miles of ground. How is he to look after all the bulls, all the bullocks, all the cows, and all the heifers within his beat? All that would in fact happen would be that one offender in 300 would be detected, and be brought up at petty sessions."

Moreover it would be necessary to forbid the movement of people also, as well as of cattle, for infection is, it appears, capable of transmission by any moving thing whatever. And even were the movement of contagion hindered for the time required according to the authorities for its destruction, we should nevertheless be always liable to fresh attacks. Our foreign trade in cattle has now become enormous, and the source of rinderpest will remain always threatening us. We are liable to repeated attacks of this plague, and, without neglecting careful preventive measures, such as every stockowner will institute for his own protection, and such as Government is *able* to carry out for his protection against the evil-doer, we must ultimately fall back on the only true mode of eradication, which is *cure*. The following are the remarks of the *Economist* on this subject:—

"The true mode of eradication is *cure*. It is true that medical science is still imperfect in its treatment of these diseases. But there has been no necessity to make it perfect. Scientific men do not frequent the pastures of South-eastern Europe, and they have no occasion, and, indeed, no opportunity, to treat the cattle there. They cure rich men in cities, not poor cattle in prairies. There has been no motive to study this disease, and therefore it has not been studied. The adjacent countries have met its inroads by methods of prohibition, and, being ruled by despotic governments, and having only a sparse and obedient population, they have in some degree succeeded; there has never been a real application of English science to cure this malady. Mr. CAIRD, one of the best authorities on the subject, says that in Holland 73 per cent. are cured, and every presumption indicates that a little experience will reduce this unknown, and therefore terrific, malady within ascertained limits and acknowledged principles."

Treatment hitherto, it must be confessed, has proved unavailing. In Holland, indeed, a large proportion of recoveries has been reported in cases treated homœopathically; but there is so much doubt resting on returns of this kind, from the uncertainty as to the nature of the disease whose cures have been alleged, that we have not thought it worth while to report upon the subject.

It appears at length, however, that influential men, dissatisfied with the profession of utter helplessness, which is all that we receive from our best veterinary authorities, have associated themselves for "the trial of preventive and curative treatment in the cattle plague by the homœopathic method." The Duke of MARLBOROUGH is chairman, and Mr. CAIRD is vice-chairman of the Association, which comprises many of the most distinguished men in the agricultural world.

The following is the address which they have issued:—

"While in this country the general impression seemed to be that all remedial measures against the cattle plague were unavailing, and that in order to limit the extension of the disease, the only resource was the destruction of the affected animals, a report arrived from Holland that a certain amount of success had attended preventive and curative treatment by the administration of homœopathic medicines. On investigation this report appeared to be so well founded as to make it desirable that this method should receive a fair and full trial here. With this object certain noblemen and gentlemen, not all of them homœopathists, have formed themselves into an association together with the officers and council of the British Homœopathic Society, with the view of affording assistance and advice to those who might be desirous of obtaining information as to the mode of putting this treatment in practice. The great mortality which has characterised the disease in this country, and the admitted want of any authoritative guidance as to treatment, appears to offer a fitting opportunity for such intervention.

"The directions now issued are not put forward as prescriptions which profess to be a certain cure for the disease. They are founded on a knowledge of remedies the action of which has been observed in man and animals both in health and disease, and which in Holland and in this country have already proved beneficial in the treatment of the Cattle Plague. The disease may alter its type and require a change of treatment, and more exact information may induce the medical section of the Association to modify their directions from time to time. In order to judge of their effects, it is of the utmost consequence that accurate returns of the results should be sent to the Association. With this object blank forms will be distributed with these directions, and all who make trial of this method are earnestly requested to fill up the forms and send them to the Secretary."

The address of the Secretary to this Association is 6, Adelphi Terrace, Strand, W.C., and we have elsewhere published the directions for treatment which they have issued. Of the memoranda which it contains, Nos. 8, 9, and 10, are in all probability the most important; nevertheless it has been thought proper to copy the whole in full detail in another page, as a large number of authentic cases will doubtless be thus collected under the guarantee of so many good names—enough, we hope, to decide conclusively upon the merits, if of nothing else, at least of good nursing as a curative agent. Meanwhile the disease, which appears to

be in some measure losing its virulence where it has been long resident, is committing great havoc in the new districts, both in England and Scotland, to which it has extended.

—— The Root Shows at Gloucester and at Reading—the one mainly organised by Messrs. Wheeler, and the other, which has now for 19 years been carried out single-handed by Messrs. Sutton—seem to have been unusually successful. Although the common Turnips are not so fine as usual, other kinds are as large and well-grown as ever, and the Mangels shown were never better. The Gloucester Association is, we presume, for the most part, a mere county show. The Reading exhibition, though confined, we believe, to the customers of a single firm, is yet a display which levies its contributions from all parts of the country, and may therefore be considered to be more generally indicative of the maximum growths throughout the whole country. The Mangels, Cabbages, Swedes, Kohl Rabi, and Carrots shown here were extraordinarily fine; and that is in accordance with general experience. We suppose better crops of Carrots and of Mangel Wurzel were never grown than we have had this year.

—— The weather of the past few weeks is stirring up the owners and occupiers of low-lying lands to a re-consideration of their interest in the subject of drainage. We see that both in Cheshire and in Somersetshire meetings are being held with a view to the extension and improvement of arterial as well as field drainage. Mr. Grantham, Mr. Bailey Denton, and other authorities on the subject, are being called upon for assistance and advice; and a subject which dry seasons have latterly driven somewhat into the background, is again asserting an importance which becomes urgent and undeniable only when the downfall exceeds evaporation in so marked a degree as to cause an inundation. It is not only then, however, that the subject is of real agricultural importance. The evils of stagnant water *in* the land are in the long run quite as great as those of water stagnant *on* it. They are not so obvious, and thus are borne unremedied, doing mischief all the while which is capable of profitable correction. We are glad therefore to learn that floods are enforcing attention to an evil which otherwise is liable to be borne in silence and almost unconsciously.

STEAM CULTIVATION.

Fowler *v.* Smith.

As I am responsible for the publication of Mr. Hutchinson's comparative statement in your Paper, I will proceed at once to the correction of Mr. Hodgkinson's statement in your Paper of Nov. 18, and as Mr. R. T. Smith has brought my name in question, I will then proceed at once with his letter:—

	£	s.	d.
Mr. Hodgkinson places the investment at 960*l.* This is not quite correct, for the large drag behind the cultivator is not included. As the value of the work done by it is questionable, I will not make a charge in my corrections	0	0	0
Coal, 290 tons 4 cwt. To make the comparison fair, this must be charged at 16*s.* 6*d.* per ton, for we all know that coal at Newark (be the quality what it may) is shillings a ton less cost than it is in South Bedfordshire. The correction is	45	19	9
5*l.* 2*s* 8*d.* is allowed for an annual fund to produce 200*l.*, but it must be multiplied by 3, for the three seasons that Mr Hodgkinson worked the tackle. His "two years and four months" will not do, for the tackle can do nothing through the winter till next season—therefore he must pay for three years Mr. Hutchinson's pamphlet shows that he was fair upon that point, for he started at Dunton Lodge in June, 1861, and finished in Oct., 1862, yet he charged himself with two years' interest, &c., and I must charge Mr. Hodgkinson three years upon all points. The correction is ..	10	5	4
5 per cent. on 346*l.* for apparatus for three years; the correction is	11	10	8
5 per cent. on 650*l.* for engine for three years; and as it did not qualify itself for the deduction of 2-5ths for threshing, as Mr. Hutchinson's at Dunton Lodge did, the correction is..	52	0	0
70*l.* for repair of engine; the correction is	28	0	0
75*l.* 16*s* 8*d.*, for the 2-5ths of 162*l.* 10*s.*; the correction is	52	0	0
8*l.* 6*s.* 10*d.*, an annual fund to produce 325*l.*, &c., must be multiplied by 3 as well as having the 2-5ths corrected; the correction is	20	0	6
4*l.* 18*s.* insurance; the correction is	1	19	6
	£221	15	9
Now bring in Mr. Hodgkinson's	915	6	6
Total	£1137	2	3

Or an average of 9*s.* 9*d.* per acre.

The correction of 2-5ths for the engine is made, believing that Mr. Hodgkinson did not use it for threshing purposes, it being an engine not well calculated for such work. On Saturday last I wrote to him, asking him whether he had used it for such purpose, and what the nature of the soil was on which the tackle worked at Balderton, which I believe to be light, well fit for Turnip growing. At all events, a year ago I visited the Rt. Hon. the Speaker's farm near there, when the right hon. gentleman told me that he had been to see a set of Fowler's tackle at work within a mile or so of Newark, on very light soil; and as Balderton is about that distance, I jump at the conclusion that it was there where the right hon. gentleman went, and that Mr. Hodgkinson's farm is light land. I am supported in this view by Mr. Hodgkinson's silence upon the point. Had it been good heavy tough stuff, like Dunton Lodge, he would have been safe to have told us. Should it turn out that he has used his engine for threshing purposes, we shall have to deduct just 1*s.* per acre. The average will then stand at 8*s.* 9*d.*, a good round sum too for light land when compared with the rough, tough work done at Dunton Lodge at 6*s.* 10*d.* an acre. Mr. Hodgkinson's evidence is of no use to the big one, for according to my dull understanding it is sent out of court to get its case amended.

Mr. Hodgkinson introduced his statement with some remarks. I will just notice one—

"It is difficult to understand how a cultivator with three tines, and a width of 3 feet, worked by a 10-horse power engine, and on a system requiring a much heavier draught of rope, could do as large an area of work as a 7-tined cultivator, 6 feet wide, worked by two 14-horse power engines, unless the former work was of a much lighter and shallower description than the latter."

I will explain: come along with me, and let us see them both at work. Let us see Jack first. His 10-horse engine conveys its power over rollers to the implement.

"Now, Jack, you are set down for a 10-acre piece, and have just begun it."—"Yes, master." "Pull the implement out, and connect the two ends of the ropes together. Now can you and your assistant put the whole length of rope in motion?"—"Yes, master," and with the pull of these two men away it all goes. There, Mr. Editor, that settles Mr. Hodgkinson's 'heavier draught of rope.' "Now, Jack, put your implement in again. How far are your three tines apart?"—"In No. 3 they are 10 inches, and in No. 3B they are 12 inches apart." "How wide are your shares?"—"In No. 3 they are 4 inches, and in No. 3B they are the first one 4 inches, and the last two 6 inches each" "What length of cutting edge do those implements present to the soil, and what width of land do they smash up?"—"No 3 presents 12 inches of cutting edge and smashes a width of 32 inches, and No. 3B presents 16 inches of cutting edge, and smashes a width of 36 inches" "What depth do you work?"—"About 10 inches." "Go on, and keep on until you have done, except stopping for food and sleep."—"Yes, master, I shall, for we shall have nothing to hinder us."

Now, Mr. Editor, let us go on to John.

"Well, John, you have got a nice length here. What is the length?"—"300 yards, sir." "You are making good work."—"Yes, we are." "Your cultivator has seven tines, and clears a width of 6 feet?"—"Yes, sir." "What is the width of your shares?"—"4 inches each, and they present 28 inches of cutting edge to the land." "Have you got a good engine?"—"Ah! we just have." "What is the power of it?"—"14-horse." "Do you at times work two 14 horse power engines?"—"Yes." "Does one of them stand still while the other does the work —"Yes." What depth are you working?"—"About 10 inches." "Go on, and keep on until you have done."—"Yes, sir." "You are dashing the land about well, John."—"Yes, we just are; we send a lump here, and a lump there, and let the sunshine into it." "What are you stopping for, John?"—"Oo, nothing." "Well, but they are stopping."—"Oh, for nothing; only a broken clip. We shall be on again directly." "What shall you stop for next?"—"I can't tell you that." "Then, you get stopped a bit?"—"A little now and then"

Now, Mr. Editor, you see that Jack's 10-horse engine has got only 12 or 16 inches of cutting edge to pull through the soil to smash up a width of from 32 to 36 inches. On the other hand, you see that John's 14-horse engine has got 28 inches of cutting edge to pull through the soil to clear a width of 72 inches. John tells you that he has got a good engine, and sure enough it must be, for it pulls double the width of cutting edge through the soil, and breaks up double the width of land to what Jack's 10-horse engine does, both implements going the same depth. Now, sir, I will tell you a little about this good engine of John's. It may be a 14-horse engine, yet I will prove to you that it is worked up to 45-horse power. What! you prove to me that this 14 horse engine is worked up to 45-horse power? Here is my witness, Mr. David Greig, of the firm of Fowler & Co., of Leeds. Just look into this little book, sent out by the Midland Institute, Birmingham, called "A Paper on the Application of Steam-power to Machinery," by the late Mr. John Fowler and Mr. David Greig, of Leeds, read by Mr. Greig before that Society on May 4th, 1865, Frederick J. Bramwell, Esq., in the chair. In reply to the Chairman, here are Mr. Greig's words:—

"The indicative power of the engine was about 45 horse-power, of which about 75 per cent. would be available at the implement, giving a traction force of about 30 cwt. total upon the implement." Now, sir, you can understand how it is that John's 14-horse engine can pull his 6-feet cultivator through the soil, dashing it about in all directions, and you can also understand why John is obliged to stop while the "breakages" are repaired. And Mr. Hodgkinson may now understand how it is that Jack's tackle can get on to the end of his work, while John's is obliged to stand for the repair of breakages, &c. John's engine and tackle is overloaded; the consequence is breakage and a bad average, with great costs. John's ropes are worn out when they have got 50 horse-power lift in them, while Jack's engine and tackle is taxed at about its nominal power, keep on steadily to the end, and leave off with a good average and light cost, be the soil or depth of work what they may.

I will now go on with Mr. R. T. Smith. Here is a letter that I have addressed to him:—

"Woolston, Bletchley Station, Bucks, Nov. 15, 1865.

"Sir,—In the last paragraph of your letter published in this week's *Bell's Weekly Messenger* and *Mark Lane Express*, my name is brought in question. I therefore ask you to send to me the names and addresses of the occupiers of the 48 farms mentioned in the letter, as well as giving the quantity of work done on each farm, and the time when done.

"I ask this upon public grounds, to enable me to institute a thorough inquiry into the matter.—I am, Sir, your obedient servant, "William Smith."

"To Mr. R. T. Smith, Manager of the Whitchurch Steam Ploughing and Cultivating Company (Limited), Whitchurch, Salop."

Here is the reply:—

"The Whitchurch Steam Ploughing, Cultivating, and Threshing Company (Limited). Office at R. T. Smith's Implement Show House, Whitchurch, Nov. 16, 1865.

"Sir,—Yours of yesterday is to hand, inquiring the names of the occupiers of the 48 farms, &c. There can be no objection to furnish you with these particulars, but first let us how the question stands. In *Bell's Messenger* of the 23d ult., you published Mr. Hutchinson's comparative statement with a long letter of your own, slashing into every body, from the Royal Agricultural Society downwards. Now, I say that statement is untrue, and therefore all your conclusions based upon it must be worthless. Let the ground be cleared as we go on. Answer my letter which appeared in the *Mark Lane Express* and *Bell's Messenger* this week. Let the public know whether my statement is true. I say Mr. Hutchinson only cultivated 311 acres. You say he cultivated 773 acres. When this question is settled, I shall be quite ready to meet you on the points you are now so anxious to raise. But I shall decline holding a public and private controversy with you at the same time. As you choose to commence in the public papers, through that medium alone shall I be willing to continue it.—Yours, very truly,

"W. Smith, Esq. "R. Thorsfield Smith."

Now, Sir, in due time I have no doubt but that Mr. Hutchinson will square himself upon the question of "truth," but I must go a little into that question with Mr. Smith, for he says, "You say he cultivated 773 acres." Now, it was Mr. Hutchinson who said that, and I who remarked upon it. Therefore we must chalk the first mistake up to Mr. Smith, and I use the word "mistake" advisedly, for there is a wide difference between it and an untruth. I fix him with the former.

As Mr. Smith has now published the letter referred to above in your Paper, I now publicly ask for the names and addresses of the occupiers of the 48 farms in question, with the quantity of work done on each farm, as well as the time when done, and I ask it upon public grounds, to enable me to institute a thorough inquiry into the matter. *William Smith, Woolston, Bletchley Station, Bucks, Nov. 21.*

P.S. Mr. Arnot joins in the general cry: "It is unfair to compare the working of a Company against work done by an individual." Yet he, like all the rest, has failed in his evidence brought forth to support that cry; for his evidence is in no form, and is of no weight at all, and he would make you believe Mr. Hutchinson has chosen the most unfavourable case he knew of to represent Fowler. In this he is wrong; for Mr. Hutchinson wrote to me the other day, informing me that Mr. —— told him that he could name stronger cases. *W. S.*

THE CATTLE PLAGUE.

1. *Pay for What you Kill.*—The British farmer can bear the pressure of a grievous calamity that is carrying death through his herds of horned cattle with terrific virulence and a daily accelerated rapidity of destruction, but he is not prepared to bend meekly beneath a tyrannical injustice. The time is long past when there existed any chance of "stamping out" the plague by summarily dealing with centres of contagion, yet inspectors continue to decree wholesale slaughter of animals that may be the companions of those attacked. This is an Hibernian mode of saving the lives of cattle in imminent danger, and the owners could but have lost all in case the disease had (most improbably) smitten each one of the number. But if this butchery is designed to protect other herds—that is, if it is for the supposed advantage of the public,—then, I say, the public ought in equity to compensate the farmer for all beasts doomed by the public officer to the bullet or the pole axe.

I make no appeal to national charity for my kine that may fall before the destroying angel, but I claim full repayment for every head of my stock that may be wantonly killed by Government order for the presumed good of the nation. *John Algernon Clarke, Long Sutton, Lincolnshire—in the Times.*

2. *Animalcules.*—I wish to notice shortly the following sentence in the Report of Cattle which died last week at Bradford:—"Examined by microscope, mucus from the throat, and other matter, presented to view millions of animalculæ." Do you think that by taking measures on the first appearance of characteristic illness—any irritation of the mucous membrane, running at the nose, &c.—the surface of the membrane could be so treated by syringe, or by the sponge on whalebone, through the nostrils, throat, and otherwise, as to clear away or deprive of vitality the rudiments of animalculæ in process of development, and leave the membrane usefully braced? It strikes me, from analogies in the treatment of human patients, that a suitable application administered in time to every accessible part of the mucous membrane by enemas, &c., might be well worth a trial. I should be very glad if you thought it well to test this. *Anon.*

3. *Compensation.*—Many must have read with pleasure and interest Mr. C. Howard's capital lecture upon the Cattle Plague, reported in your last week's Paper. Will you allow me to make a few remarks on the same subject?

The origin of the present outbreak I fear we shall

never satisfactorily ascertain, but I think it mischievous to propagate the idea that it is epidemic and has broken out spontaneously in this country, inasmuch as it is liable to render farmers less careful in taking every possible precaution to avoid contagion, in the belief that all such precautions may be frustrated by a spontaneous outbreak.

I would also mention the palpable absurdity, as it appears to me, of having one general inspector for each district, and that usually a veterinary surgeon, for who so likely to carry the disease with him to hundreds of homesteads as the popular "vet," who after a *post mortem* examination of a beast that has died of rinderpest hurries off either to see another reported case, or probably to examine some ailing animal that happens to be on his way home. Let him, moreover, be as careful as possible, it is almost incredible (if the disease be as virulently contagious as represented) that he should be continually going to farmyard after farmyard in an infected district without carrying it along with him.

But what I want chiefly to have mooted is the manifest injustice of our Government, after having, in all probability, been the means, through want of proper precaution, of importing the disease into this country, passing an arbitrary law which gives its inspectors power to authorise the immediate slaughter of diseased, or supposititiously diseased, cattle, without one word as to compensation to the owner for such slaughter.

I am far from saying that the much-condemned poleaxe is not the quickest, surest, and best remedy; but I hold such a law both impolitic and unjust—impolitic because it frustrates its own object, and has spread the plague more widely about the country instead of checking it.

We know, for example, that men must and will look first to their own interest, and often even though it be evidently to their neighbour's detriment; consequently, if the disease attack their herd, they immediately pass off as many of their animals as they can unknown to the district inspector; these, probably having the disease, though undeveloped at present, and not showing any of the outward symptoms, are bought either by innocent or unprincipled persons, and perhaps go from party to party, spreading contagion everywhere, until they finally find a resting place in some quiet home hitherto untainted, but thus rendered a seething focus of malignant disease.

Now I contend, that had the Privy Council, when passing the law for wholesale destruction, at the same time announced their determination to give a certain compensation (the higher the better, as being more effectual), the disease would ere this have been almost if not quite extirpated, for then the owner of any diseased beast, finding the Government almost as good purchasers as any private individual, would not have run the risk of incurring the penalty for selling from a herd already infected, and which penalty even merciful magistrates could then have found no plea for evading. Had this course been adopted at first, how much suffering would it not have saved, and how many thousands of beasts spared for the use of the community at large, for it is by no means a farmer's question only, but a thoroughly national one. The injustice of the Order in Council as it now stands is too patent to require comment.

Mr. Howard has touched upon the possible future compensation by Government for beasts slaughtered by order of their inspectors, and also to the memorial from the Newark Cattle Plague Compensation Association, showing the hardship of the present clause in the Order in Council; but, Mr. Editor, if the Government have any such intention, delay in announcing it is most terribly expensive, for reasons already stated, and every week adds immensely (since the disease is continually spreading) to the ultimate sum required. Would Government at once issue such an order for compensation, and moreover establish, as Mr. Howard recommends, a strict cordon around all infected districts, I feel sure we should even now soon hear the last of the terrible rinderpest in this country. *A Warwickshire Farmer.*

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4. *Prevention.*—Obviously, from its very rapid spread and the deaths among cattle which have taken place in the short period of about 18 to 20 weeks, the Government measures taken to oppose the plague are quite inefficient, and although hopes of the Royal Commission have induced more silence than perhaps has been wisdom, the incompleteness of their Report and the conflict of that body now make it more imperative to submit the matter to the supreme commission of public opinion. It is the public which is interested, and the narrow view of it being merely a farmers' question is both unworthy of the Government and common sense of the people. The special question is the people's food. That it will fall heavily and ruinously upon individual cow-keepers and farmers the short experience of the past months has proved. Any violation of sound free-trade principles, now an integral part of the policy of this country, by the interposition between natural danger and risk to the buyers and feeders of cattle, must tend to raise the price of this indispensable description of the people's food, whilst it tends to depreciate the value of the store ox in the hands of the breeder. The butcher is interfered with in the free exercise of his accustomed dealings. I do not complain of these natural results, but name them to show that this national infliction is so heavy that it is economy to institute extreme measures for a short period, and so stamp out the disease, than risk the suffering from it for probably years. Austria, in 1863, by setting a police cordon around every farm, &c., as soon as it had a beast attacked, and preventing any of its inmates, even down to a dog or cat, from egress or ingress, stamped the plague out in eight months, whilst Egypt, which was visited with it about the same time, lost in 1863 upwards of 300,000 head of cattle, and the loss since has swelled the number to upwards of 1,000,000, raising the price of beef at Cairo to the famine height of 2*s.* 6*d.* to 3*s.* a pound, which it was about six weeks ago. Whatever may be our sentimental ideas, and the self-alleged value of our freedom, such childishness must submit to rigorous measures when a great and unexperienced calamity and emergency comes upon us. In a danger like the one under consideration, let us not fiddle-faddle as our Orders in Council have done, and lose a year by the step-by-step progress adopted.

Let us taboo the farm, parish, or district as the case may be, and draw the boundary line a mile or more distant from the spot where the affected cattle may be, and a proper officer should be set apart to attend to the affected, and prevent any from passing over a confined inner line, and prevent any others from approaching, which, should any do, he should be kept in quarantine till thorough disinfectants are applied, and he receive a pass from the appointed authorities. Obviously, as has been pointed out, all the exuviæ, &c., should be burnt, and after the extinguishing of the plague at that spot, all the buildings well disinfected, under and by public authority. It will be said, this would be a public expense. No doubt; and as the disease is of short duration in its incubation and after progress, obviously the time for these rigorous measures to fully stamp out this plague would be proportionally short. It is now affecting every dinner-table in the kingdom by the inevitable increase of price of animal food, a natural concomitant of the effect it has upon the trade in cattle—and so it is pecuniarily a people's business; and being so, it becomes a Government that should have intelligence equal to the emergency, to spend the sprat to catch the herring, and no doubt a wise liberality would assist to shorten the stamping-out period. The ordering by the Government inspectors the slaughtering of cattle affected is not for the interest of the cattle owner, but to prevent the spread of the disease, and thus to preserve the nation's interest and the people's food; therefore the public should pay at least such a proportion of the value of the beast the Government Inspector orders to be killed, as would add a proper incentive to the owner to call in at the earliest possible moment the public officer. If a beast is to be killed like a mad dog, which from past experience the instinctive feeling and judgment of all is to do, the sooner the better, as this stops the further production of that disastrous material—infectious material.

At least in all tabooed places any fat beast should be prevented from going beyond, and if to be slaughtered let it be done on the spot, and only the meat transported. All authorities, and the most eminent on these matters the strongest, agree that the dung, &c., is the most effectual in propagating the plague, and cattle taking it through being exposed to the virus thus in connexion have the plague the severest. Here, in Darlington, butchers tell me they are getting cattle from Newcastle; now we know that a beast may have the disease, and that it, and particularly its dung, may be highly infectious, yet no outward sign noticeable to our ken can be detected. Thus a butcher may slaughter a beast, and whilst its flesh may be wholesome, yet see the danger of the manure dropped along the street and swept up by the Board of Health and sold to the surrounding farmers, and the same risk to the cows, &c., moving along the same path; besides, the butchers' manure heap is also a most dangerous source. The corporation of Middleborough collects the manure of the butchers and sells it to the farmers in railway waggons for many miles around. I am also told that there is a weekly trade in pigs from Newcastle to Darlington, and when we find our Continental fellow-sufferers, who, from their adjoining Russia, have frequent introductions of this plague, really do believe that a wild bird may convey the infection, and take much trouble to kill any seen coming from the tabooed places, surely in all rigorous measures no single possibility should be permitted, so that, at the furthest, six weeks should so stamp it out as to leave very little embers to be strictly surrounded and confined. Town manure from the streets and butchers should be burnt, except that all cattle traffic was stayed by converting them into meat on the spot of their feeding, and all store cattle allowed to move under great restrictions and precautions. As to the curative attempts, these should be confined to large towns, such as Edinburgh, Manchester, &c., where a large amount of scientific and experimental talent and knowledge, with the accustomed thirst for discovery, exist; and good prizes should as incentives be offered for success, to be awarded by a commission or appointed body. The inspectors and employers should be paid a subsisting weekly sum, with a suitable premium should they stamp the disease out in six weeks, or in proportion to its diminution; and as the police are a very efficient body, and omnipresent, they should be actively employed, and suitable extra rewards given to them for satisfactory results. Again, obviously the seller of cattle has the best chances to know the risks his stock has been subject to, and the innocent buyer may be in perfect ignorance, as so many cases we have seen prove. Surely it would therefore be wise policy, and more just, that the seller should lose at least half the bargained price of the cattle, should they show symptoms, such as a jury or some body should judicially determine, that the beasts must have been under infection at the time of delivery. Our forefathers, 120 years ago, after years of experience, adopted some such expedient, and it worked by stimulating caution and care upon the seller. I met a dealer a month ago in Yorkshire driving cattle to the railway to be sent off to M———, and in conversation I showed him the risks the cattle would run, and which he agreed to, but added—"I sell them; and it is not for me to do anything more than put them upon the rail." Surely, in such a national disaster as the present infliction of this plague is, our laws must be made so as to give all parties a self-interest and a lively incentive in the saving of the people's food, such as we see in a poor country where fresh meat is usually uncommonly cheap. I have seen a heifer of about 34 imperial stones sell in Africa for 25*s.*, yet this plague in 2½ years has destroyed 1,000,000 head, and raised beef to a famine price of 2*s.* 6*d.* to 3*s.* per lb.—more than fully four-fold dearer than it was six months ago in this country. *W. Wooler, Sadberge Hall, Nov.* 15, 1865.

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5. *Commissioners' Report.*—The following is a supplement to the Report published last week:—

SANITARY RECOMMENDATIONS.*

On the subject of preventive and medical treatment the Commissioners have received, both from this country and from abroad, discouraging but decided evidence that all methods hitherto adopted have been found unsuccessful. Nevertheless, being of opinion that medical science may still be able to discover agents capable of mitigating the virulence of the malady, the Commissioners have drawn up a scheme of investigation into the nature of the disease, and have intrusted different inquiries to scientific men of great skill and ability, who will make reports on the subjects intrusted to them at the earliest possible moment.

In the meantime a few sanitary suggestions may be offered, which are calculated to be useful to farmers and dealers in cattle. These may be divided into the following heads:—

I. The general precautions which should be taken by cattle owners to prevent the spread of the disorder.

II. The special precautions required when the plague is in the neighbourhood.

III. The measures, preventive and remedial, which should be taken when the plague breaks out in a locality.

IV. Measures for disinfecting sheds and cattle which have been infected.

I. GENERAL PRECAUTIONS TO PREVENT THE SPREAD OF THE DISORDER.

1. As no successful plan of treatment has yet been proposed, the owners of cattle must, in the meantime, rely chiefly upon those hygienic measures which the experience acquired in other diseases show to be important in preventing the spread of contagion, and in diminishing the intensity and area of an attack, when, in spite of such measures, they invade a locality hitherto uninfected. In the case of the cattle plague it is certain that no sanitary precautions can prevent the spread of the disease when it is actually introduced; still, from analogy, we may draw the conclusion that some effect may be produced on the rapidity of the spread, or on the virulence of the disease, by placing cattle in the conditions most favourable to health.

2. With this view it is important to secure strict cleanliness, good drainage, efficient ventilation, and to prevent overcrowding in all cattle sheds and cowhouses. No accumulations of litter fouled by the voidings of animals should be permitted in, or even close to, the houses or sheds in which cattle are kept. Chloride of lime, carbolic acid, or the powder containing carbolate of lime and sulphite of lime should be used. The latter is probably the best; it contains a well known disinfecting substance which is formed when sulphur is burnt, and also a strongly antiseptic material, creosote, from coal tar. The sheds themselves should be swept and washed daily, and sprinkled with disinfectants. But such purification of the air of cattle sheds or houses will be insufficient to preserve health if the cattle be over crowded. Pure air and nourishing diet are of great importance in protecting animals from the attacks of disease. Pure water, derived from sources uncontaminated by drainage from surrounding dungheaps, or from the absorption of vitiated air which hovers around them and in the sheds of cattle, is equally essential.

Every farmer should look to the housing of his cattle in the present emergency, as he would look to the housing of his own family, if cholera or other formidable disease were in his neighbourhood. Thorough cleanliness of the houses, good drainage, freedom from evil smells, nourishing diet with pure air and water, cannot give immunity from the disease, but they may offer obstacles to its propagation.

II. SPECIAL PRECAUTIONS NECESSARY WHEN THE DISORDER IS IN THE NEIGHBOURHOOD.

Whenever the plague is known to be in the neighbourhood, or to be approaching it, the following conditions must be borne in mind:—

1. The natural voidings of a diseased animal, as well as the discharges which come from its mouth, nose, and eyes, during the progress of the disorder, can be carried by men and animals so as to infect sound cattle, and in this way the disease is often propagated. A farmer should therefore at once give orders that none of his own labourers should go near infected beasts, and that none of the labourers working on the farm where there are diseased cattle should approach his stock. Even when veterinary surgeons visit cattle affected with the plague, they should, if they have been with diseased beasts, first thoroughly cleanse their clothes, wash their hands in a solution of chloride of lime, and rub the soles of their shoes with disinfecting powder.

2. Both sheep and dogs can carry seeds of the disease, so that they should be carefully looked after, lest, in having access to diseased cattle, they may attach to themselves portions of excrement or discharges, and communicate the contagion to sound cattle. The farmer will do well to recollect that both sheep and goats take the plague in a virulent form, although they are not, perhaps, quite so susceptible to the influence of the contagion as horned cattle; but even when they do not

* Suggestions in the sense of many of these recommendations have been already drawn up by Prof. Simon and by Dr. Thudichum for the Privy Council, and have been circulated.

take the disorder, the wool of the sheep and the hair of goats can long retain the morbific matter, and then transfer it to cattle.

3. The particles of the poison can be drifted by the wind to some distance, experience having shown that a space of considerably more than a hundred yards affords no protection; therefore if a farmer has the opportunity he should remove his stock to the furthest possible distance from that of his infected neighbour.

4. If a farmer have reason to think that some of his beasts may have been near infected animals, he should at once wash them over with the solution of disinfecting soap or with a tepid solution of chloride of lime, carefully sponging out the nostrils and mouth so as to remove all portions of discharges which may have been collected.

5. He should vigorously attend to the hygienic measures described in the last section.

III. Preventive and Remedial Recommendations when the Plague has attacked a Locality.

1. Should, unfortunately, the plague reach the farm or cow-shed, it will be the cattle owner's duty to separate without delay the diseased from the sound stock. At once, and before any symptoms of the malady have appeared in the animals which may have been in contact with the diseased beast, he should place them in roomy, well-cleansed and dried, well-aired and disinfected sheds, having previously washed their bodies with water containing disinfecting soap, or with a tepid solution of chloride of lime; he will thus place them in the best condition to resist the further spread of the disease. But if he do not possess the necessary accommodation for the removal of the healthy animals, he ought, after separating the diseased beast, to make a thorough disinfection of the house or shed, in the manner to be described afterwards, before he permits the sound stock to remain in it.

2. The sick beast, if allowed to remain alive, should be well rubbed down and thoroughly cleansed, be kept in a warm but well-ventilated and clean shed, and be covered with a clean horse rug. The animal will thus be put in a favourable condition to receive such curative treatment as the veterinary surgeon or farmer may consider it expedient to employ

3. Having failed to obtain any assurance of the existence of effective curative methods, the Commissioners only venture for the present to indicate some general suggestions as to diet and treatment, which may be useful to farmers.

a. Kind of food.—One of the early symptoms of the disease is that the appetite fails and rumination ceases. When a dissection is made of an animal that has died of the plague, the stomachs are usually found to contain from 100 to 200 lb. of undigested food. This mass of matter interferes with the functions of nutrition in the case of new food, and, further, hinders the action of medicine which may be administered, by greatly retarding its absorption. As soon, therefore, as the beast shows the early symptoms of the disease, its ordinary food should be changed; and, as rumination has stopped, the dry food should be replaced by warm liquid stimulating mashes given in moderate quantity.

b. Warmth of the air.—It is stated that the temperature of the air of the stall should be kept warm; probably not lower than 60° Fahr.

c. Warmth to the skin.—It is desirable to keep the skin of the animal as warm as possible, and if it can be done, to promote perspiration. Without expressing any decided opinion as to the exact efficacy of steam or hot-air baths, we yet believe the evidence is sufficient to warrant a fair trial of these measures.

d. It is important to lose no time in beginning the treatment of the complaint with salines or diaphoretics, or even stimulants, according to the judgment of the veterinary surgeon as to the state of the disease. Every hour that is lost lessens the chance of a successful result. After cattle have been exposed to infection, some veterinary surgeons consider it useful to give saline and febrifuge medicines at once, even though it is not certain the animal has taken the disease.

e. When diarrhœa occurs, there seems little doubt that it should be controlled, and not encouraged.

f. The animal must be supported as much as possible by very nutritious food.

g. Milking cows should be regularly milked as long as any milk can be got. The milk, of course, should not be used as food.

The general diffusion of the disorder through the system leaves little hope that any local treatment is likely to prove effective.

When the animal shows signs of convalescence it should only be very gradually restored to the dry food requiring rumination. It may be treated with moderate stimulants and tonics, among which bark and iron are considered to be the most efficacious.

IV. Measures for Disinfecting Infected Sheds and Cattle.

1. When animals attacked with the plague have become convalescent, they ought to be kept apart from sound beasts for three weeks, and even then not be permitted to associate with them till they have been washed and disinfected as described previously.

2. During all the time that animals suffer from the disease, the litter fouled by them, with the dung and discharge on it, should be burned, and not be allowed to mix with other manure. It contains the poison in a concentrated form, and it is questionable whether it can be disinfected efficiently.

3. The sheds in which the diseased animals have been must be thoroughly purified and disinfected. The roof and walls should be washed with lime. The floor and wood-work, after being thoroughly washed with water containing washing soda, should be again washed all over with a solution of chloride of lime, containing 1 lb. to a pailful.

4. The hides and horns of animals which have died of the disease ought to be buried with the animal, according to the Orders in Council. But the hides and horns of those which have been killed to escape the spread of the infection must be dipped in, or thoroughly mopped all over, and, in the case of the hides, on both sides, with water containing 4 lb. of chloride of lime to three pailfuls of water. Unless this be done with care, a most fertile source of contagion will be preserved.

5. The attendants upon diseased beasts should not be allowed to go near the sound animals in the same farm.

6. Every one who has had the plague in his premises should feel the responsibility which rests upon him to destroy, by careful cleansing and disinfection, every trace of the disorder which may be left on his pastures or stalls, or on his cattle, their horns, hides, manure, and litter. Under favourable circumstances for its preservation, the contagious poison has been kept, with all its virulence unimpaired, for many months. Unless therefore each person uses his utmost effort to extinguish the seeds of the plague which lurk about his farm, they may become a centre of contagion, which will again spread it abroad through the country, and render unavailing the sacrifice necessary for the speedy suppression of this terrible scourge.

6. Directions for Homœopathic Treatment.—The following directions have been issued by the Homœopathic Association referred to in a leading article, chiefly for the guidance of non-professional persons:—

Preventive Medicine.—Arsenicum album—dose, 10 drops of the 3d dilution daily, given in a table-spoonful of water. If a large herd is to be treated, mix 12 drachms in two quarts of water, and give one tablespoonful of the mixture for a dose. This should be given to all cattle in the infected district and its neighbourhood, and to all cattle which have been exposed to infection.

In case of an Attack, send for the nearest veterinary surgeon practising homœopathy, or one who will undertake to carry out the treatment. If neither of these is within reach, it being of the utmost importance to lose no time, as soon as the animal shows the first symptoms, which generally are swelling and redness of the nostrils, hanging the head, alteration of the natural heat of the ears, horns and skin,—diminished appetite—and in cows, redness of the vulva or bearing, and diminution of the milk, give Belladonna, 10 drops of the 3d dilution in a tablespoonful of water every two hours for 24 hours, and if the animal gets no worse, continue this medicine for two or three days or longer; only giving the dose every four hours, or, as the symptoms decline, every eight hours.

If the Attack increases in Severity.—Should unfavourable symptoms appear after this medicine has been given 24 hours, then give Arsenicum album (3d dilution), 10 drops every three hours. These symptoms are as follow:—Great and irritating discharge from the nostrils; shivering with alternate cold and heat of surface; great thirst; feeble pulse; loss of muscular power; inflammation and swelling of the eyes, with great secretion of tears; dribbling of mucus from the mouth, with red spots on the gums and roof of the mouth; foul breath; with or without great looseness of the bowels; slimy evacuations, with very offensive smell; tenderness and indications of pain in the belly.

Supervention of other Symptoms.—If, during the course of the disease, the muscles of the shoulders and hind quarters twitch and jerk, the animal has a staggering gait, and a paralytic appearance of the limbs on getting up, with vesicular spots, like small blisters, in the mouth and nostrils, give Rhus toxicodendron, 3d dilution, 10 drops in a tablespoonful of water every three hours, and if improvement sets in, continue the medicine; if no improvement, after 24 hours, return to the Arsenicum.

When the Lungs are affected.—If the lungs appear to be more affected than any other organ, the breathing quick and difficult, with wheezing and rattling in the windpipe and frequent cough, give Phosphorus, 3d dilution, 10 drops every three hours, for 24, 36, or 48 hours; after which return to the Arsenicum.

If symptoms like "Hove" occur.—If the animal appears as if "hove," with oppressed breathing and groaning as the chief symptoms,—give Ammonium causticum, 10 drops 3d dilution, every two hours, till these symptoms abate.

For Weakening Diarrhœa.—Sometimes, although the animal is recovering, a weakening diarrhœa continues or sets in,—give Phosphoric acid (3d dilution), 10 drops three times a day.

External Bathing and Washing.—The nose, mouth, eyes, and vulva or bearing to be washed three or four times a day with tepid water.

Diet (in the Acute Stage).—Abstain from giving ordinary food, and give only gruels of Oatmeal or other farinaceous substances. Grains and distiller's wash on no account to be given during any period of the disease. In the Convalescent Stage.—Return very gradually to ordinary food. Hay and green food to be sparingly given.

Supplementary Directions.—The greatest cleanliness, careful attention and nursing of the sick animals are absolutely necessary. Litter and dung to be frequently and carefully removed—the use of MacDougal's disinfecting powder is strongly recommended. The farmer or his bailiff should superintend the giving of the medicines at the proper time, as cattle are often lost from inattention to this point. A small horn for giving the medicine is sold by all Homœopathic chemists; this should be kept very clean, and the horn used for giving the medicine to the sick beasts should be kept separate, and not used for any other purpose. Great care should be taken to prevent any communication between the sick and the healthy animals. Animals that are recovering should be kept separate from the healthy, as the discharge from the nose, mouth, and eyes continues for some time, and may convey infection.

The Office of the Association is open daily from 10 to 4, where all communications may be addressed.

Instructions and information from the Secretary may be obtained gratuitously on enclosing a stamped envelope inscribed with the full address of the person applying.

The medicines may be procured at any homœopathic chemist, but in one case of urgency, application may be made to the Secretary, who will forward the order to a recognised chemist.

6, *Adelphi Terrace, Strand, London, W.C., Nov.* 20, 1865.

7. *The Use of a Bull.*—I trust that if ever the recommendation of the Royal Commission has to be carried out in its integrity, some provision will be made for the local traffic necessary from the fact that but a small number of farmers are the possessors of a bull. In my own neighbourhood considerable inconvenience has already been experienced in this matter. The disease has been prevalent in an adjoining parish, but has not yet extended into mine, except that two cases occurred some time back in a butcher's paddock; the only farmer, however, who keeps a bull, and, I should add, a large quantity of stock besides, has since then wholly interdicted the visits of his neighbours. It seems unreasonable to blame an individual for what is proposed to be done by the whole kingdom, yet, as you may suppose, much dissatisfaction has been expressed, and a largely increased price has been offered, hitherto in vain. If this proceeding be at all general, it is obvious that the derangement of the supply of milk will quickly be experienced, and we must also look forward to an enhanced price of cows. A few timely suggestions on your part may do much to mitigate the evil, and may show how far individuals can provide for their own safety without wholly ignoring the necessities of their friends. *Faunus.*

ARE SHEEP LIABLE TO THE CATTLE PLAGUE?

Permit me, through the medium of the *Agricultural Gazette*, most heartily to thank Mr. Woods for his very valuable lecture on the diseases of sheep. That Mr. Woods is quite correct in the views he has so clearly expressed in his lecture I unhesitatingly state is capable of very many proofs. I myself, and years ago, have seen several flocks of lambs affected with all the symptoms described by Professor Simonds, and clearly and demonstratively originating from the treatment they received, namely, from their having been pastured upon improper food, or from having had no water, or only such as was in a state of putridity and full of animalcules—in fact, the same kind of liquid putridity which never fails to produce typhus whenever it is drunk to any extent by either men or beasts.

But, strange as it may read, there is a notion in this part of England that sheep under no circumstances require water; often and often again have I had arguments with my neighbours, and I lament to write with some of my nearest ones also, on this subject, but I never could make a single proselyte; all with one consent stuck closely to the notion that "sheep never required water," when I have replied that in low meadows abutting on rivers, or even where mounds keep sheep so placed from the rivers, the succulent herbage and fogs and dews may supply those animals with ample sufficiency of liquid aliment, and oftentimes with too much. But I refer to different localities and different kinds of food, namely, to high and dry pastures, and to times of long droughts and hot weather, in all of which cases I have maintained that it was the severest cruelty as well as ruinously impolitic not by some means or other to give the animals pure water, or let them have a supply of it. I observe here particularly that I do not use the term "clear," because I have known water in tanks and stagnant places nearly pellucid to the eye, but on examining it I have found it to have been teeming with deadly poisons, whereas a thick and nearly muddy water may have nothing in it unwholesome.

But, to return to Mr. Woods; and in doing so I will, among others, give two cases, clearly confirming the views he has so ably advocated in his valuable lecture.

The first of these cases was a flock of lambs of, I think, about 150, three or four years since. It was here generally talked about that the lambs were dying fast, and no one could tell why. This being in an adjoining parish, and as I well knew the honest and respectable owner of the lambs, I made diligent inquiries about the disease, and how the animals were treated, and in what kind of field they were (the weather, I observe, being hot and dry). I found that the herbage in the field was as brown and dry as old hay; and the poor suffering lambs had no water, good or bad. I saw the owner, and endeavoured to induce him to remove the flock immediately to where they could have succulent food and pure water, but my arguments were in vain, as all the replies I got were that sheep required no water; and so they continued in the field, dying one after another, until about two-thirds had died, when the owner in despair sold the remainder to a dealer, who put them into a meadow, wherein I heard the whole, or nearly so, recovered.

The next case was one nearer my home, and in all the circumstances of it it differed but little from the other. It was of a flock of lambs, bought and put into a high and dry field of closely eaten down Clover, and the weather was hot and dry, and so continued for a long season. I passed that field twice or three times a week regularly, and I observed that the lambs began to droop soon after they were put into it, and then one after another they began to die; but before they got to this state, I earnestly entreated the owner to remove them, or give them a regular supply of pure water, of which he had a copious supply on his farm; but I could make no impression, nor receive any replies, except the stereotyped one that "sheep never required water." But on several occasions I added, "Well, my friend, if it be as you say, yet as your flock is clearly suffering dreadfully from want of water, and as I see this, and know it, and as it pains me more than I can express, do, I pray you, for my sake, give the poor creatures some water." But I could not succeed, and so the greater number died, and the remainder became emaciated, and, I think, worthless.

Now on one occasion, with the owner himself, I examined the few remainder of them, when I saw—and to publish this is the real object of this letter—the symptoms were as near as possible the same as those described by Professor Simonds; and I have no doubt whatever that, were it possible for two flocks of lambs to be anywhere in the same state now as those two flocks were, they would officially be condemned, and ordered to be killed, covered with quicklime, and buried. I observe, Mr. Editor and my readers, that more per cent. of each of these flocks died, than died or were killed out of Mr. Harvey's.

But probably most of my readers will hardly credit that such a notion that "sheep required no water" could get into the heads of any perfectly sane men—but let us see. At the latter period, now two years since, I was dining at the Cups Hotel, Colchester, with a party of very respectable agriculturists and a London agent, when I purposely brought this latter case before them for discussion; but all to a man were against me. "Sheep required no water," and "sheep could do without water," was the burden of all their songs; and so I have since given up the hope of proving to the contrary in despair. Nor is there less absurdity in the modern treatment of cattle—modern, I write, for what I condemn could not have existed some 50 years back, for then, as far as my experience went, and it was ample, no one would have put a flock of sheep in a hot and dry autumn in an upland pasture wherein there was no water for them, as is done in modern times. But as to cattle, I have seen parts of cargoes of cattle after having been stifled up in a close vessel, driven to pasture in low valleys by the side of rivers where the

cold frosty fogs have enveloped them so completely that they could only be seen when approached near them, and where the cold was nearly as intense as it was in the brooks of running water; and yet you heard nothing but the mournful cry, that the cattle had gotten the consumption, dignified by some by the more, as it is thought, classic and scientifical name of pneumonia.

But another modern improvement is this, and which I fear has gotten among the cow-keepers of the metropolis, and has perhaps been the cause of the present cattle murrain, or if it were imported from elsewhere, among those ladies and gentlemen it found plenty of unlicensed cow lodging-house keepers to give it entertainment. But what I am alluding to is this: some few years since a maggot got into cattle-feeders' heads persuading them to feed the beasts in graves, just large enough to contain each beast put in, and some 6, 8, and 10 feet deep, wherein each was to remain eating, and drinking, and purging, and scouring, until the whole had filled up the graves in that way, when they were cleaned out, and the beasts buried again, and so forth, until a jury would decide that natural death or the poleaxe cleared the graves for other tenants of the same quadruped race. My readers, pray do not laugh. Some years since a friend and myself went with permission to visit an establishment whereat this modern system of cattle feeding was in high vogue; but on passing the sheds we could not see a single ox or cow, and so we went and found a functionary called the "Looker," and of him we inquired where the bullocks were? when he replied, "In the stalls." But we replied that we had been through the whole, but could not find any; whereupon he led us back to the self-same buildings, where, a little more light having been let in, we could see the backs of the beasts, each in his deep grave before us, and as comfortable, as Sir Walter Scott would have expressed it, "as a puddock (a toad) under a harrow." But so much for modern refinement and improvements, and the advances made in national education!

I again thank Mr. Woods for his most valuable lecture, and you, Mr. Editor, for publishing so large a portion of it. *Geo. Wilkins, Wix Parsonage, Nov.* 20.

THE MEAT MANUFACTURE.

Land yielding 12 or 15 tons of green food per acre yearly without any labour but that of repairing the fences which divide it, destroying the Docks and the Thistles which invade it, and supplying manure to maintain it, is producing more at less expense than perhaps it could do in any other condition. It is not in such cases as this, then, that our comparison must be made: there is much *poor* pasturage in the country, which lies, nevertheless, under a climate proper for arable farming; and it is about this that the question obtains.

There is no doubt that over much of this, which, though drained, would not yield 30 tons of green food per acre in four years, an equal quantity might, if it were properly cultivated, be obtained in Turnips and Clover, with probably two tons of straw and 60 or 70 bushels of grain in the same time. Grass is probably more nourishing per ton than Turnips; but when the one is consumed in all weathers by unsheltered animals, and the other in well-bedded houses, it may be doubted whether the resultant produce of meat may not be about the same in either case—with a clear balance, of course, of so much grain as food for man in favour of arable culture. But this matter requires a detailed estimate, and this I shall endeavour to give, merely premising that the above figures are not given without reason; as on the farm I write from, three-quarters of which were formerly Grass, a stock of about 40 head of oxen fattening to 60 or 70 stones, and between 200 and 300 sheep fattening to 24 lb. a quarter, with 50 or 60 pigs, are now kept during winter, and about half those numbers during summer, where formerly a herd of 25 cows and about 20 yearling and two-year-old heifers, with a few pigs, were maintained in store condition; while, in addition to the above, the land now permits an annual sale off it of about 4000 bushels of Wheat.

Grassland worth 30*s.* per acre of annual rent may be supposed to yield eight tons of Grass per acre per annum; and this may be believed able, by careful consumption, to produce nine imperial stones of beef; or at 6*d.* per lb. a money value per acre of 18*l.* 18*s.* in six years.

The same land, broken up, would, under good management, yield during the 1st year, 25 cwt. of Wheat straw; 2d year, 24 tons of Mangel Wurzel; 3d year, 25 cwt. of Wheat straw; 4th year, 18 tons of Swedish Turnips; 5th year, 20 cwt. of Barley straw; 6th year, 10 tons of Clover, or 52 tons of green food, and three and a-half tons of litter, in six years, besides the produce of grain. Of course it is easy so to state figures as to arrive at any result that may be desired; but in the above I have gone upon what I believe to be reasonable data, viz.:—That 24 or 25 cwt. of hay is a probable produce from land of such value; that hay is one-fifth or more of the Grass from which it is made; that the growth of aftermath is to the growth up to hay harvest as 1 to 3 on such land.

We know from experience that Turnips consumed without any artificial food, as it is called, given with them, will not generally yield more than 1 lb. of beef or mutton for every 150 lb. of green food; and giving Grass credit for a little more nourishment than this, we have assumed that 140 lb. of it will yield the same meat.* On the side of arable land, again, I have stated amounts of produce which from several years' experience I know to be probable.

The 52 tons of green food (supposing the straw to be all used as litter) will on the above datum yield 776 lb. of beef, and this at 6*d.* per lb. is worth 19*l.* 8*s.*, an amount rather larger than that which was the whole return from the Grass, while here we have in addition the produce of three crops of grains. Whether the whole extra expense of this mode of managing the land will be more than paid by this extra produce is hardly within the province of this inquiry.

It is hardly worth while considering the case of arable land wholly devoted to meat-producing crops, and we therefore go on to compare in this respect the various rotations of crops commonly adopted.

If a cultivation wholly of green crops, or of crops for consumption by cattle on arable land, would pay, it would be a source of immense wealth in many parts of Ireland, where waste land reclamation proceeds so slowly mainly because of the unprofitableness of corn cultivation under their watery skies. The results of the above estimate, however, must be the standard with which to compare the productiveness of Grass, and it has been seen that the former, besides the large crops of grain on the arable land, yields more meat than the latter. The conclusion which therefore seems to be unavoidable is, that in cases when equal skill and care have been brought to bear both on arable and pasture farming, the latter might be converted without diminishing, and probably with an increase to the national supply of animal food.

(*a*) The Norfolk, or four-course rotation, may be supposed able to yield in the 1st year 25 cwt. of Wheat straw per acre; 2d year, 19 tons of Swedish Turnips; 3d year, 20 cwt. of Barley straw; 4th year, 11 tons of Clover and Grass. This is equal to 30 tons of green food in four years, or 7½ tons per acre per annum, a quantity which, at the rate of one for every 150 lb., is able to produce about 1 cwt. of beef per annum.

(*b*) In the second, when this rotation is extended one year by keeping the Grass down two years, we may suppose a somewhat larger acreable produce of green crop. Thus—1st year, 25 cwt. of Wheat straw; 2d year, 20 tons of Swedes; 3d year, 20 cwt. of Barley straw; 4th year, 11 tons of Clover; 5th year, 9 tons of Clover—giving 38 tons as the produce of five years, or nearly the same acreable produce per annum as in the former case.

(*c*) We now may take the Dunbar (East Lothian) six years' course of crops as our third rotation, and here we may expect—1st year, 20 tons of Swedes; 2d year, 20 cwt. of Barley straw; 3d year, 12 tons of Clover; 4th year, 25 cwt. of Wheat straw; 5th year, 25 cwt. of Bean straw; 6th year, 25 cwt. of Wheat straw—which will yield 32 tons of green food, or 478 lb. of meat per acre in six years, a quantity equal to about 80 lb. per acre per annum.

(*d*) Our last instance shall be selected from Professor Low's work, where it is praised for its suitability to rich clays. It may yield—1st year, nothing, summer fallow; 2d year, 25 cwt. of Wheat straw; 3d year, 12 tons of Clover; 4th year, 25 cwt. of Oat straw; 5th year, 25 cwt. of Bean straw; 6th year, 20 cwt. of Barley straw. It thus produces 12 tons of green food in six years, or 30 lb. of meat per acre per annum.

It is proper to remark that the above estimates are more likely to be relatively than positively true; the datum on which their produce of meat is calculated is of course subject to the vicissitudes which affect all agriculture, and stultify all farm estimates: the herd which is to convert this food may be carried off by disease, and its produce of meat will then of course be anything rather than 1-150th the weight of the food. But all the rotations named are liable to this risk alike, and it may therefore be useful to compare them:—

Name.	Period.	Lbs of meat produced per acre per annum.
a. Norfolk	4 years	110
b. Ditto	5 ,,	110
c. Dunbar	6 ,,	80
d. Low	6 ,,	80

Home Correspondence.

Steam Cultivation: Fowler v. *Smith.*—When Mr. William Smith, of Woolston, published the comparative statement of cost of steam cultivation as between his own set and one of Fowler's, I felt bound in justice to Fowler to make some remarks upon the other side of the question, thinking that if such a statement and comparison became public without any contradiction, it might very seriously mislead the general body of readers of the agricultural papers. I find, however, that since I wrote those remarks, several others interested in steam cultivation have taken up the subject, therefore any remarks that I may now make will only be needed in reply to Mr. Smith's questions, put to me through your Paper, as none of the criticisms made in my observations do in any way prove that it was fair, or otherwise than one-sided, to compare the cost of a small set of tackle upon a home farm always under the master's eye, to a large set travelling about the country for work in a new district, where their expenses would sure to be heavy. If Mr. Smith or Mr. Hutchinson had wanted to make a fair comparison, why did they not take a set of Fowler's under similar circumstances to their own? There was no difficulty in doing so, as the details of cost and quantity of work done by some scores of such sets have been already published in the different agricultural papers. Mr. Smith tells me that I might have known what "the depth and quantity of the work done" was by reading his letter of Oct. 28; but if he looked at the date of my letter (Oct. 24) he would readily see that I could not tell on the 24th what he was going to say on the 28th; and now we hear about that depth, it appears that after several previous workings of seven inches it did eventually get down 10 inches deep; and he questions the advisability of going so much as 12 or 18 inches deep with a cultivator, on account, he says, of bringing up so much clay. I am not aware that it is necessary to bring up any more clay with a cultivator working 18 inches deep than one working 8 inches. The object and advantage of a cultivator, and especially Fowler's, is that it moves the soil and lets the water down without bringing the clay up. It is not fair for any one to take a few extraordinary good days as an average of the year's working—see Mr. Smith's 8 acres a day for just six days in September; and my only excuse for showing him that I did 225 acres in the whole 25 working days of September, or 9 acres a day average, including all moving, was to show the superiority of Fowler's system over Smith's in the matter of moving from place to place. He seems surprised that I should have to move to seven different farms for the 225 acres, and perhaps will be more so when I tell him that I had to go into 23 different fields on those farms to get the 225 acres; which 23 moves alone would have taken Smith's tackle and six or eight horses nearly 20 days out of the 25 to have accomplished, judging from the rate they moved at Worcester, when under his own personal inspection, and with his best men, and plenty of them. Mr. Smith asks, "where are the men or company of men that can afford to let out a set of tackle for hire only 45 days a year?" I ask him, where are the men that can afford to buy a set of tackle worth 500*l.*, and work it only eight days a year, as he does? But it does not appear necessary that any one should have a set, and let it out only 45 days a year. I let out mine four or five times as many days as that, and instead of 400 acres, as Mr. Smith puts me down at, I want to see 1200 or 1400 acres. Mine commenced in March this year, and has nearly done that already, and the ground is not a bit too wet yet for ploughing and digging, at which mine has been employed ever since the middle of October, when the rain came. Mr. Smith tells us that Fowler's cultivator can't work in wet weather. Can Smith's? Or, if they could, would either of them be doing much good? My recollection of seeing a set of Mr. Smith's tackle at work in wet weather at Exeter, in 1863, in the same field with a set of Howard's and Fowler's, was that in half an hour after the operation it was impossible to see where Smith's had been and where it had not—and that in a Clover lea in June. Mr. Smith says, and rightly, that the best months for cultivating are September and October, especially if dry; but can his cultivator always work when it is dry? There was a set of his tackle bought on purpose for letting out for hire about 16 miles from here, which worked in its own neighbourhood during the autumn of 1863; but in the dry autumn of 1864, three or four of the farmers in that parish applied to me to send them down a set of "Fowler's," to cultivate three or four hundred acres, as the ground was too dry and hard for Smith's tackle to work, which I did; so during those dry months of September and October Mr. Smith's tackle was locked up in a barn, because the ground was too hard, till the winter rains came, and then it was too soft, so that set did none at all—worse even than the Shropshire people. Now Mr. Smith will ask me again, probably, as he did in last week's Paper, to give the names and addresses of the gentlemen, but at the end of his letter, after complimenting the Gloucester, Durham, Wakefield, and Shropshire Companies on their success, he very fairly says, that though he likes to criticise Steam Cultivating Companies, he will not show up private individuals; and I entirely coincide with him, that though a public Company and their accounts are fair subjects for public criticism, the private affairs and misfortunes of individuals are not, therefore I must decline publishing names. There is only one other point in Mr. Smith's letter that I need notice; I stated that I had had Fowler's double-engine tackle for about two years and a half. Mr. Smith denies it, and asks me to explain. I have therefore referred back to my old accounts, and find that I purchased my first set in July 1863, and it is now November 1865, so that is only two years and four months, instead of two years and a half. I am sorry I made the mistake, but it was quite un-

* The best grazing land in Lincolnshire we are told, on first-rate authority, will, under the best circumstances, feed an ox and a sheep from New May-day till Old Michaelmas. The former will gain 20 stone, or 280 lb., and the latter 10 lb. a quarter, or 40 lb. in the time. The acre will thus yield 320 lb. of meat. Its produce of Grass may be 16 tons—perhaps more. This is 1 lb. of meat for every cwt. of Grass, but we must remember that the Grass of such land differs from the average in the quality as well as the quantity of its produce.

intentional, and of very little consequence. In further explanation to Mr. Smith, I beg to inform him that I have now also the very identical set that he says "was broken in his sight at Worcester," and which cost 8*s.* 6*d.* to repair, I am informed. I have had many such breakages as that, and some a great deal heavier; yet, notwithstanding all that, and 3000*l.* first cost, as well as the fate of the defunct Steam Cultivating Companies, and Mr. Smith's prophecies of the existing ones, I am very well satisfied with the present result, and confident enough for the future. *J. Nicholls, Queen Camel, Ilchester, Somersetshire, Nov.* 15.——You did the public and myself the favour to publish my statement of the working and of the cost of the two systems at Dunton Lodge, and by the Whitchurch Steam Cultivation Company, the expenses in both cases having been published previously; the former in 1863, the latter in 1865. The accuracy of the payments made in either case no one can dispute, and the estimated items, right or wrong, are made, as near as may be, on the same principle. I have had a correspondence with the Secretary of the Company, who took several strong objections to inferences portrayed by my statement, and I have replied to every point of importance, with the intention, avowed on his part, to publish the same; instead of doing this, he has commenced a fresh attack through the public press, but I decline to travel over the same ground a second time with him; consequently, I appeal to you to publish our correspondence. I am having slips printed to send for the purpose. *Simon Hutchinson, Manthorpe Lodge, Grantham, Nov.* 18. [We published the Secretary's account of this correspondence, and shall be happy to publish Mr. Hutchinson's account of it, but for the correspondence itself we fear we have not room.]

Societies.

SOCIETY OF ARTS: *November* 16.—*The Cattle Plague.*—At the opening meeting for the Session 1865-6, Mr. HAWES, the Chairman of the Council, made the following reference to what the Society had done in past times in connection with this subject:—The Society from its earliest foundation directed its attention to the encouragement of the breeding of cattle and sheep; and I have, with the assistance of Mr. Davenport, found one paper among others, from which I hope it will not be uninteresting to read some extracts.

This paper, written by Mr. Dossie, a member of the then acting committee of the Society, was printed in 1771. It is entitled a paper on "The Murrain or Pestilential Disease which appeared among our Cattle in 1769-70, and on the Methods of Preventing Infection, and on the Medicinal Treatment of Beasts seized with it," which appear as applicable now as they then were.

After observations on the liability of cattle and sheep to disease, the writer says: "There is, however, a disease incidental to neat cattle, which, propagating itself by infection, raging at times in most countries in Europe, and carrying destruction wherever it comes, that it may truly be called a pestilence, has in its turn visited our island and made us experimentally sensible of its dreadful consequences. It prevails with great malignity at this time on the shores of the Continent opposite to us, whence some sparks of the contagion have been lately brought and kindled here in more than one place, as is imagined;" and he continues, "It is, indeed, only under particular circumstances, as will be shown, that cattle are susceptible of this infection, because when most diffused over the country it extinguishes entirely of itself in favourable periods when the general state of animals is healthful, as we have twice experienced in the present century. But the irregularity of the late seasons, and particularly the great alternations of heat and cold, the continuance of wet weather, and the frequency of easterly winds, all of which are injurious to animal strength, and conspiring in this year, have manifestly weakened both vegetables and animals, and have consequently rendered the cattle peculiarly susceptible of this infection, as well as mankind to those infectious distempers to which they are subject." * * * The writer then continues, "The effects of the contagion were (at first) confined to a few beasts. But it is to be apprehended, from the increased disposition of cattle to receive it in consequence of the unfavourable circumstances of the season, we have most mischievous consequences to dread from the infection if again introduced; and whoever will examine well the orders and regulations of the Government, made to hinder the spreading of the contagion, will find we can have little dependence upon them for our security against this momentous evil."

The writer then proceeds to investigate the causes of this distemper—the manner in which its contagion acts—the symptomatic appearances it exhibits—and the mode and success of the trials made to prevent infection and to cure the disease. He says, "many voluntary writers have published treatises on this subject, and professors of physic and academic bodies have been called upon by the authority of several governments to deliver their opinions upon it; but little success to practical utility has resulted from such labours."

He then endeavours to supply the information which was wanting, but this I cannot extract, though I hope the more important portions of this valuable paper will be hereafter given in our Journal.

By the historical notice of the disease we find that it appeared in the 18th century, in 1710 and 1711, when it was first observed in Hungary; from thence it went to Dalmatia, to Padua, and spreading over the Venetian States, was disseminated through the whole of Italy, and passed, in 1713, to Germany by the Tyrol, from whence it was communicated north to Denmark and Sweden, introducing itself about the same time into Great Britain. After this, under the influence of more favourable seasons, the contagion abated, and in about nine years the infection seemed exterminated in most of these countries. About 1730 the disease appeared again, but the infection was soon extinguished; regulations by the Government were issued for its suppression. In 1740-41 it broke out in the south-east of Europe, and made its way as before, having been brought thither, it was believed, from Holland, and caused great devastation of the cattle for several years. In 1756 it raged with great violence for some time, when it gradually abated, and, as far as it appeared, the infection was wholly lost, and did not reappear till the autumn of 1768, when it broke out afresh in two or three places—not, there is reason to believe, from the relics of the former contagion, but by new contagion brought from foreign parts, for while England was free from it for several years, it visited other places, Denmark and Jutland in particular, where it was more severe than had ever before been known.

From the result of careful inquiry during the latter invasion of the disease in several parts of Europe, the following observations were made:—

1. The infection of this disease prevails only at particular times anywhere; acts with greater violence at some times and some places than at others; affects only part of the cattle anywhere, and those with various degrees of malignity.

2. That where the infection does not subsist, it never comes but after some general cause has weakened the habit of the beasts in general—such as severe cold; want of sufficient and wholesome food; repeated alternations of heat and cold; moist air, replete with putrid vapours; long continuance of easterly winds; or, what is more frequent, the combination of two or more of these causes. Thus, he adds, we find contagion invading every part of Europe in 1701, when the season had been so inclement the year before as to destroy a great part of the sheep in England. In 1741, when, after a very intense frost from December to April, by the rigour of cold and the scarcity of fodder the cattle had been reduced to a debilitated state, aggravated by the constant easterly wind of the summer and autumn following.

I cannot follow all the remarks upon the principles which the writer believes affect contagion generally, but he asserts that the weaker animals are first and most severely attacked, and more frequently die under it; and he gives as the result of his inquiry that, though infection is the efficient cause of the murrain in cattle, yet there is a predisposing cause or particular state absolutely necessary to its acting or taking effect, and after inquiring into the causes of these predisposing conditions, he states his conclusions to be—

1. That the murrain is communicated by transmission of contagious matter from infected to sound beasts, and that it is only in this way the disease is spread.

2. That it is never communicated through the air.

3. That the contagious matter retains its power a considerable time.

4. That the infection will generally be exhibited in a few days; in a few cases it may not show itself for six or seven, and that after 10 days there is no fear of the disease.

5. That the separation of cattle to prevent or to ascertain the existence of contagion need not in any case exceed 14 days.

Mr. Dossie then enters at great length into a minute examination of the symptoms and treatment of the disease, and examines in detail the various modes of treatment to prevent it, and to cure it after it has appeared, which have been practised in England and foreign countries. He concludes by saying, "But alike has been the success of all the proposed remedies of these several classes, which is, that a remarkably greater number of the beasts to which they have been administered have died in proportion to that of those who have been left to nature."

The cause of this he carefully examines, and says:—"The inefficiency of the supposed remedies for the murrain is less to be regretted, because a great part of them would be attended with such expense and trouble as would render their general use inexpedient. Whatever method of cure is proposed to be serviceable must be practicable, with a moderate share of trouble and expense."

The symptoms of the disease and its progress in every stage and the appearance after death are next described, and he concludes thus:—"Hence it follows that the way to assist nature against attacks of this disease is to keep up the animal strength by such invigorating means as are compatible, in other respects, with a salutary economy," and he recommends as best suited for this purpose, "astringent febrifuge, gummous parts of vegetables, and vinous liquors," and explains by what means these remedies are to be applied so as to bring them within reasonable cost.

The rest of the paper is devoted to the examination of the Orders in Council, and the means recommended for preventing contagion; and in order to insure that the importance of the question may be fully appreciated, a statement is added, extracted from the statistical records of North and South Holland, of the loss of cattle in the twelve months commencing April 1st, 1769:—

Cattle infected	221,115
Died of disease	159,128
Cattle infected in the summer months, from April 1 to September 30, 1769	86,423
Died	63,181
Cattle infected in the winter season, from Oct. 1, 1796, to April 30, 1770	134,696
Died	95,497

And the total number estimated to have died in all the united provinces was above 300,000.

The paper then concludes with these words:—"It behoves every individual, according to his station, to do his utmost to avert this impending danger—one of the most heavy calamities which can befal any European country, and especially England, where the luxurious habits of the common people, and the difficulty of obtaining a supply of cattle from other places, and the high prices of the necessaries of life, would render a scarcity of horned beasts, and consequently of all other provisions, peculiarly grievous and intolerable."

If this would have been so 100 years ago, what would be the calamity of such a loss of cattle now? We could hardly look at the prospect which awaits us without the deepest anxiety, did we not feel assured that every possible precautionary measure is being taken by the Government, and more particularly by the owners of cattle, to prevent infection from spreading, and to maintain our stock in the best possible condition, though at the same time we cannot but be sensible that an unreasonable fear of infection may produce a more serious effect on the supply of food next year, or even the year after, than the loss of cattle by disease this year. The importance of this subject leads me, however, to the consideration of the question whether, even in ordinary times, those on whom we rely for the production of our food are using the land entrusted to their care so as to secure for the dense population of these islands the greatest and cheapest supply of animal food. Although I have scarcely a right, from my want of practical knowledge, to say a word on this subject, I cannot refrain from suggesting that whilst we have the best and cheapest means at command to obtain whatever corn and other cereals we require from all parts of the world, our means of obtaining any important supply of animal food from foreign countries are very limited and most unsatisfactory, for I find in Mr. Steet's paper, that whereas in 1853 we imported 125,253 beasts and 232,037 sheep, we only imported 150,838 beasts and 433,733 sheep in 1863, the one quantity being a little more than six months' and the other scarcely three months' consumption of London. It appears, therefore, looking to these facts, that greater attention should be devoted to the production in these islands of animal food than to that of vegetable food; and I am assured by those on whose knowledge and practical skill I can rely, that although to increase materially our supply of cattle and sheep would require some change in the present mode of cultivating our land, still that the land so cultivated would employ more agricultural labour, more capital in farming, and be more profitable than under the present system, which appropriates so large a portion of our soil to the cultivation of cereals which can be produced cheaper abroad, to the neglect of the breeding of sheep and cattle, which can only be produced in the numbers we require at home. It appears to me that the people of this country are as yet only deriving a portion of the benefit they ought to receive from Free-trade in agricultural products, and that until all parties, landlords and tenants, co-operate with a determination to produce the largest quantity and the best quality of animal food, we shall be exposed in ordinary times to a gradual but certain augmentation of its price as our population increases, and at intervals, when disease attacks sheep and cattle, to prices so high as to take it out of the reach of the great body of the people, and thereby seriously injure the health and productive power of the nation, and materially increase the liability of our population to the ravages of disease.

I cannot pass from this very interesting subject without directing the attention of the Society to the great want, at a period like the present, when our cattle are being attacked by a most fatal disease, of properly authenticated agricultural statistics. Serious as the loss of cattle from the ravages of the murrain may be, its amount is sure to be exaggerated, and the price of meat unduly enhanced, for the want of accurate knowledge of its extent and progress. Every one is considering how this pestilence can be stayed, how the cattle attacked can be saved, and how we can best recover the loss which is sure to take place, so as to provide sufficient animal food for our population. But unfortunately we are without any means of obtaining reliable information by which these facts can be accurately ascertained, for surely, had we accurate information, we should not hear of cattle being destroyed by thousands in an ignorant panic of fear of

infection. We have every return that can be desired of the quantity and quality of every article imported and exported, and of our mineral products, but we have no returns relating to our agricultural productions. The appearance of this disease will, I hope, enforce upon our agriculturists and our members of Parliament the necessity of immediate steps being taken for the annual collection of official returns respecting this all-important branch of our national industry. It will be a great subject for the new Parliament to enter upon, perhaps the only one in connexion with our internal trade which is entirely free from previous legislation, and which is therefore open to the introduction of a system which shall combine with efficiency and simplicity the most perfect returns of every description of produce from the soil of this country.

It is only from the knowledge afforded by official returns that, in times like the present, when a fatal disease suddenly attacks our herds, we can, with sufficient rapidity, introduce economy of consumption and stimulate supply, so as to avoid a scarcity of animal food, any material deficiency in which must be most injurious to the health and prosperity of the nation.

Reviews.

Eyton's Herd Book of Hereford Cattle. By T. Duckham, Ross. Vol. VI.

Mr. Duckham has issued another volume of his triennial publication. It is supplemented by a very full and instructive lecture on the Rise and Progress of the Hereford breed of cattle, which its author delivered before the Royal Agricultural College. So that there is for the general reader a capital "study" of the whole subject, as well as a detailed list of the particulars of which at the present day it consists. What these particulars are—about 600 bulls and 600 or 700 cows and heifers—their pedigrees and owners, and in many instances their actual appearance, for the volume is well illustrated—is described in the 360 pages of this small octavo volume. How wide-spread and important a breed the Herefords have been is apparent from the number and locality of the herds, nearly 300 of which are here enumerated. It is not the least part of Mr. Duckham's many public services that he has induced the Hereford breeders thus to unite for their mutual benefit, in maintaining a Herd-Book for the record of their animals, which was on the point of being abandoned for want of support. Many another instance of his public spirit could be given; and at the close of what may be considered one of his last successes of this kind, namely, the capital meeting of the Bath and West of England Society at Hereford, which owed a great deal to his energetic guidance and organisation, it was resolved that a testimonial should be presented to him, as token of the good-will and approval of his county and of agriculturists generally. We have not heard of this movement since, but we trust that it is quietly winning its way to a successful issue.

Science and Practice in Farm Cultivation. By James Buckman, F.L.S., F.G.S., Late Professor of Geology and Rural Economy at the Royal Agricultural College. Robert Hardwicke, 192, Piccadilly. 1863.

In this handsome and amply illustrated volume we have seven successive "parts," giving instructions respectively—How to grow good root crops—How to grow good Grasses—How to grow good Clovers—How to grow good corn—How to grow good fences—How to grow good timber—and How to grow good orchards. It is a full and explicit discussion of the whole plant cultivation of the farm, and cannot fail to obtain a wide and most useful circulation among plant cultivators.

The author keeps to his own aspect of the subject throughout; and in his instructions it is the plant rather than the soil on which he bestows especial attention. Thus of root crops it is their origin from wild beginnings, trueness, or degeneracy of sort, and adulteration of seed that he discusses; and his conclusions are as follows:—

"First.—Cultivated roots are improved wild ones, only to be obtained by gardening on the small, or farming on the large scale; this gardening or farming being carried on by certain operations at certain seasons which we have comprehended under the term of cultivation processes.

"Second.—The difference in sort of roots is caused either by cross-breeding as the result of accident or design, or of the education of some particular propensity which has been acted upon by the intelligent seed-grower.

"Third.—The maintenance of sorts in purity depends upon careful selection of the right variety for the seedling examples.

"Fourth.—The preservation of a good outline or shape of root can only be maintained by selecting those of good form to seed from; for, as running to seed, multiform top, forkiness, 'finger-and toe' in roots, is evidence of wild growth, so then, cultivated plants assuming this form are considered as degenerate, and seed from such roots produces a malformed and poor crop.

"Fifth.—The difficulties of getting good seed—whether of trueness to sort, from carefully selected bulbs, or free from adulteration either of old with new seed, or a mixture of Charlock and others of the same family—are very great. Where, however, good seed can be depended upon, it is much cheaper, though at a considerable increase of first seeds cost, as not only quality but the quantity of live so considerably depends upon the truth and honesty of the seedsman.

"Sixth.—Injuries from insect attacks, though serious as affecting the yield, are yet not due to the seed; and anbury, if it be due to insects, only occurs in the Turnip crops, and then in particular soils. The true insect attacks to be averted by simultaneous action.

"In fine—Good seed, of a true sort,—care in growth,—and watchfulness of enemies, includes the Science and Practice of Root Cultivation."

Then in his chapter on Grasses—they are individually described and depicted—an account is given of the weeds of pastures and of the modes of destroying them. "In arable culture," we are told, "one-half the expense is in one way or another connected with weeding, and we are of opinion that if only 1s. per acre were spent on the weeding of pastures, it would yield 300 per cent. of profit on the outlay." Mr. Buckman also gives in this section of the book good practical instruction in the laying down and subsequent management of permanent Grass lands, which we shall hereafter extract for our readers.

We need not analyse in detail the subsequent "parts" of the book. Our readers will find in it satisfactory information plainly given on many of the aspects presented by most of the subjects in which the plant cultivator is interested. The whole is printed in large type, and accompanied by a large number of illustrations on wood and stone. The last part, on Orchards, concludes with a chapter on the abuse of drink, to which readers in the western counties would do well to direct their attention.

The author has during the past two or three years left the professorial chair and the work of constant and laborious scientific teaching for the practical carrying out of his teachings in the field; and it is during the comparative leisure of a Dorsetshire farmer's life that he has produced a volume which has appeared at intervals during the past 18 months, and has but just been completed.

—Alas! for the hard and heavy blows so often dealt by death in happy homes, deadening and destroying the interest of public men in their work, even as it attains its achievement and success. Our readers have often had to thank Professor Buckman for papers from his pen on points where the practice of the farmer and the researches of the botanist and naturalist approach or overlap each other. It is not, therefore, of a stranger that we speak, and we may be allowed for once to go beyond the bare relationship subsisting between a reviewer and an author for an expression of the sympathy which he commands far beyond the circle of private intimacy and friendship.

The Poultry Yard.

Breeds of Fowls to Keep.—"A Farmer's Wife," living in Berkshire, writes to ask what breed of fowls she can keep to the greatest advantage, not as a hobby, but as a portion of the farm stock. In reply to her question, all breeds thrive and do well in Berks. Wokingham market is reckoned that of all others in which fatted fowls sell the dearest, and there is hardly a week in the year that the best fowls sold there do not fetch as much as those quoted at the highest price in our Leadenhall returns. The staple breed of the district is the Dorking, bred without any attention to colour. We should recommend "A Farmer's Wife" to start with a well-selected stock of good young Dorkings of all dark grey colour, as much alike as possible. It is always advisable in buying poultry stock, even when only for breeding for killing, to have such as are pleasing to the eye, because it frequently happens that half a dozen birds may be picked out of the produce that will sell at a good price for breeding stock.

Many people fancy the Dorkings to be tender in constitution, but when they are well cared for, there are few birds that will better repay the attention, none that will bring a better price at market, or more meat of fine quality to the scale in proportion to the quantity of food consumed. Where the intention is to keep but one breed, there is none that answers better than this one.

That this opinion is fast gaining ground among agriculturists and others concerned in the poultry supply, is evident from the improving size and quality of a great proportion of the poultry sent to market. Where, a few years since, the fowls sent from Lincolnshire, Cambridgeshire, and Essex were small squat birds, they are now large and full of growth, and of much better quality, consequent on the introduction of the Dorking breed. Surrey, Sussex, and Kent, to which three counties (with the corner of Berkshire joining Surrey) London owes its entire supply of market fowls of first quality, send Dorkings only; and the crates of the dealers may be examined day after day without finding a bird that does not show some traces, if not the principal characteristics, of the breed.

Game and Poultry for the Colonies.—Messrs. Thompson's ship Martha Birnie, which left the East India Docks for Melbourne on Thursday last, took out, under the care of Mr. Thatcher, who has already made some very successful voyages for the Acclimatisation Society of Melbourne, a large and important collection of the above. It comprised hares, pheasants, partridges, sand grouse, Impeyan pheasants, Bahama ducks, ostriches, Virginian nightingales, starlings, &c. A large flock of pure Persian goats, collected with great care in Asia, was also on board. The hares consigned to different gentlemen in the colony, the sand grouse, starlings, and some of the other birds for the Acclimatisation Society, were shipped by Messrs. Baily & Son, Mount Street, who also sent by the same vessel an extensive collection of the principal breeds of poultry, including grey Dorking, Game, Brahma Poutra, Crêvecœur, La Flèche, and other fowls; black, white, and game Bantams, swans, ducks, Roman pigeons, and some of the very large Belgian rabbits.

A Surgical Operation performed by a Duck.—In my poultry yard there is a large bathing tub for the health and recreation of some ducks. Into this I lately threw some hard crusts of bread, which were dangerously tempting to voracious birds; the bread was, however, harmlessly swallowed, except by one duck, which floundered out of the tub in a state of uneasiness and surprise.

"She quaked, but did not quack from fear,"

because her guttural utterance was choked. I perceived by a lump in its gullet, and certain spasmodic movements, that an obstruction was there, and I was about to cut a plant switch (recollecting an *impromptu* operation* performed in a somewhat similar case), when I saw an abler practitioner interposing aid. Another duck (she ought to have a capital D), after a knowing side-way look of diagnostic observation, went up to the gasping victim of voracity, and seemed as if about to introduce her bill into the impeded trachea; but, apparently on second thought, she applied it two or three times smartly to the outside of the gullet, and so neatly and delicately in touch as to press the obstacle downwards. No member of the Royal College of Surgeons could have performed this operation more ably. All was done *secundum artem*, without anything of quackery, except what was manifested in the pleased articulations of the relieved sufferer, while she wriggled her tail feathers in gratitude.

"Instinct and Reason, how do we divide?
'Tis the fool's ignorance and the pedant's pride."

In our duck's case, there was more than manifestation of an animal impulse for self-preservation or continuance of kind—of impulse leading to act without knowing for what end or purpose. But the duck determined and acted on this sudden and (to her) novel emergency, and in the only way that could have succeeded. She perceived the cause of the obstruction, and at once used the relieving instrument which her Creator had given to her. This was not an instance of the results of inherited or acquired habits. It bore some resemblance, but no true analogy, to the habit which horses have to relieve cutaneous irritation by mutual friction, on the "scratch me and I'll scratch you" principle. For example, I had a spirited old horse and a little pony mare which were strongly attached to each other (the horse, alas! has lately died), and when they were let out in a Grass field, and had rolled on the ground and gambolled sufficiently, they would regularly scratch each other with lips and teeth, on the shoulders, necks, and backs, according as their respective itchings required, each animal changing its position relatively with the mouth of the other until the pleasurable scratch was given in the right spot. Habit rendered them quite expert and intelligent in this operation. In this and such instances there is no indication of any reasoning faculty, but as the duck did not operate from habit, nor from mechanical or sympathetic impulse, did not some reasoning faculty influence her conduct? *Martin Doyle.*

London Markets.—The dread of a general disease among the poultry in France now causes almost as much agitation in country communities there as the cattle plague, and the consequent price of butchers' meat, has created here. The Paris correspondent of the *Times* quotes at some length in one of his letters some statistics as to the poultry supply in France, which will show the importance there attached to it, and must show us how far behind we are in its production. We are making some slight progress towards the better development of this branch of trade, and one important step in the matter is the result of a public meeting recently held in the City, in which a resolution was carried unanimously to petition the Government to place in the hands of the Board of Works the site intended for the new poultry market at Smithfield. The reason of this is alleged to be the utter supineness of the Corporation of the City in the matter. It is a great disgrace to London that such ill contrived and cramped places as Leadenhall and Newgate Market should be the only marts for the wholesale distribution of poultry, &c. The former receives the greater part of the entire supply of both poultry and game. But there is hardly any day in the whole winter season when there are not too many cases, hampers, and crates of poultry and game in it to allow of the whole being unpacked and displayed for sale on the day of its arrival. This is a great drawback and loss both to senders, salesmen, and consumers. It is to be hoped that the matter will not be allowed to drop now that it apppears to be vigorously taken in hand, and that we may look for the result of the meeting above mentioned either in the completion of the new market by the Corporation to whom the duty belongs, or by their resigning it at once into the hands of those who would alter the appearance of that dismal wilderness of Smithfield, and give to London a poultry market which would not be such a disgrace to her as is her present one.

The Laying of Eggs takes place in the morning

* One of the most distinguished of the many excellent Dublin surgeons is said to have dismounted from his horse on seeing a boy in danger of suffocation from something which had stuck in his throat, and relieved him by introducing the pliant end of a switch, which he had in his hand at the moment, into the trachea: he merely peeled and smoothed the ready instrument for the prompt and skilful hand.

during the summer months and gradually later in the day as the winter approaches until moulting time arrives, when the hens cease laying till they have their new feathers, which takes about two months. Although a hen can only lay a determined number of eggs during her lifetime, yet her laying may be stimulated by an appropriate diet, as also by a genial temperature kept in the poultry home. It has been satisfactorily proved that under such circumstances a hen will lay at least 30 eggs more during the winter months, a time when they are most valuable both for artificial hatching and consumption; and taking an establishment with 2000 laying and 1000 breeding hens, the extra profit will be as follows:—

3000 hens at 30 extra eggs=90,000 at 15*s.* per 100, 675*l.*

to be ascribed solely to a warm temperature and appropriate diet; but this is not the only advantage derived from a genial temperature during the winter months; it may save, perhaps, hundreds of pounds in the loss of poultry from diseases caused by exposure to damp and colds. As the laying can be forced by artificial means, so can it also be retarded; and when it is intended to keep some hens for laying during the time that others are moulting, which generally begins in September, it is only necessary to pull out the feathers of such hens and thus produce an artificial moulting about two months sooner, say early in July, when they will cease laying until their feathers have grown again.

Food.—The food for the breeding and laying stock can be composed of a mixture of the various cereals coarsely ground and made into a stiff paste. This food should be put in the feeding fountains, where it cannot be wasted or dirtied. Occasionally, in fine weather, whole grain can be thrown broadcast in the open run. Finely-chopped vegetables, such as the waste of the kitchen garden, Mangel Wurzel, Swedes, &c., in a green state, mashed boiled Potatos, and rice; minced boiled meat mixed into a paste with the liquor from the meat, and seasoned with salt, pepper, finely powdered oyster shells, or a little chalk, forms a genial condiment. The broken victuals from hotels, large establishments, &c., can also be used with great advantage for the food of poultry. Powdered charcoal, oxide of iron, and flour of sulphur mixed alternately at certain intervals with their food, will keep them in perfect health. *Geyelin's Poultry Breeding.*

Calendar of Operations.

NOVEMBER: *Horse Keep.*—The following Tables give the various rations for autumn and winter keeping respectively adopted by a number of authorities:—

STABLE FEEDING DURING AUTUMN.

Name and Address.	Hay.	Oats.	Beans.	Clover, &c.	Weekly cost.
	lb.	lb.	lb.		s. d.
W. Gater, Botley ..	168	63*	32*	..	12 0
W. C. Spooner ..	112	84	24	..	11 0
T. Aitken, Spalding	..	37½	..	ad lib.	7 6?
,, ,,	..	37½	35	ad lib.	10 0?
T. P. Dods, Hexham	..	105	..	ad lib.	10 6?
,, ,,	ad lib.	105	..	..	10 6?
A. Ruston, I. of Ely	ad lib. ½	84	10	Straw. ad lib. ½	9 0?
A. Simpson, Beauly	168	70	14	Bran, ½ bush. 24 lb.	10 0
H. J. Wilson, Mansfield	..	52½	..	Straw. ad lib.	7 3?
,, ,,	42	87½	..	ad lib.	9 0

In this table the * means that the grain is crushed or ground.

Miscellaneous.

Size of Farms in Scotland.—I have obtained an abstract or analysis of the valuation rolls made up under the recent Act, showing the rents paid by tenants under different heads of the following counties, viz.:—

	THE NUMBER OF TENANTS WHO PAY RENTS RANGING						
	From 100*l.* to 200*l.*	From 200*l.* to 300*l.*	From 300*l.* to 400*l.*	From 400*l.* to 500*l.*	From 500*l.* to 700*l.*	From 700*l.* to 1000*l.*	Above 1000*l.*
Haddingtonsh..	58	50	40	33	57	46	41
Berwickshire ..	87	72	54	56	84	67	41
Roxburghshire.	170	115	95	58	71	59	30
Dumfriesshire .	537	209	92	47	41	17	3
Perthshire ..	944	382	165	80	47	27	9
Kinross-shire ..	70	39	27	11	5	4	..
Forfarshire ..	415	223	131	74	91	34	13
Kincardineshire	262	78	44	18	17	7	1
Total ..	2543	1168	648	377	413	261	138

I have no doubt that the middle or smaller class of tenants in other counties in Scotland form by far thr largest proportion of tenants, and to them I consider the law of hypothec as especially valuable. It is universally known in Scotland, that the middle or smaller class of tenants is a most industrious and deserving class, and many men of eminence in agriculture and otherwise have risen from them. *Mr G. Dalziel before the Hypothec Commission.*

Rinderpest in Sheep.—During the last few weeks several experiments have been undertaken in Edinburgh, at the request of the French Government, to test the accuracy of the statement that sheep are liable to be affected with rinderpest. In a first series of experiments, four sheep were kept in the same stable with animals very seriously affected with rinderpest, and were, besides, inoculated with the secretions obtained from the same animals. The results appear to have been entirely negative. In a second series of experiments, four sheep were inoculated with the lachrymal secretion and with the milk of cows affected with rinderpest; of these, one is stated to have exhibited on the sixth day after the inoculation symptoms of ill-health. Subsequently all the symptoms of rinderpest became developed, and the animal died yesterday morning. We understand that at the post-mortem examination, which was immediately performed in the presence of Professor Maclagan and Dr. Andrew Wood, the lesions which are considered to be characteristic of rinderpest were found to exist. In order to prove more conclusively the nature of the disease which caused the death of the sheep experimented upon, a calf was, on Saturday, inoculated with some of the secretions obtained from it. As yet, the animal appears to be in perfect health. If, as is confidently expected, it fall a victim to rinderpest, no doubt can be entertained that the statement that sheep may become affected with the cattle plague is perfectly correct. We understand that experiments undertaken in London have led to the same result. *Scotsman.*

Notices to Correspondents.

POTATOS: *M A.* You should have got gas-lime together in compost months ago, and turned it frequently if you are going to use it now. A "waggon load" per acre is a common dressing. You may apply it broadcast, and leave it for some weeks before turning it in. You should plant early in spring, early sorts in early soils, and so you will run least risk of the disease.

STABLE FEEDING DURING WINTER.

No.	Name and Address.	Hay.	Oats.	Beans.	Roots.	Sundries.	Straw.	Weekly Cost.
		lb.	lb.	lb.		lb.	lb.	s. 6.
1	Professor Low—Elements of Agriculture ..	56*	56*	..	Potatos 56†	..	56*	6 6
2	H. Stephens—Book of the Farm	112	35	..	Turnips 112	..	..	6 0
3	J. Gibson, Woolmet—H. Soc., 1850	..	84	..	217†	Potatos 217†	112	9 0
4	— Binnie, Seaton	..	70*	28*	243†	Barley 42†	ad. lib.	11 6
5	— Thomson, Hangingside	..	84	14	336	14	ad lib.	9 6
6	W. C. Spooner, Ag. Soc. Journ., vol. ix. ..	..	63	..	42	..	196	4 9
7	T. Aitken, Spalding, Lincolnshire	ad lib. (⅔)	37	35	..	..	ad lib. (½)	9 0
8	G. W. Baker, Woburn, Bedfordshire	..	60*	20*	..	..	..	9 8
9	R. Baker, Writtle, Essex	70	42	..	..	..	140	5 0
10	J. Coleman, Cirencester	..	84	16	..	..	ad lib.	7 3
11	T. P. Dods, Hexham	..	95	..	56	..	ad lib.	8 0
12	J. Cobban, Whitfield	84*	60*	..	..	Linseed 3½	ad lib.*	7 3
13	S. Druce, jun., Ensham	112	52	..	Swedes 70	..	2 bu.*	7 0
14	C. Howard, Biddenham	ad lib. (⅔)	52	17	84	..	ad lib. ½*	8 6?
15	J. J. Mechi, Tiptree	49*	70*	..	M. Wurzel 210	..	ad lib.*	7 6
16	W. J. Pope, Bridport	2*	84	..	..	..	ad lib.	9 0?
17	S. Rich, Didmarton, Gloucestershire	168	63	..	..	Grains 2 bush.	ad lib.	10 8
18	H. E. Sadler, Lavant, Sussex	140	84	..	..	..	..	9 9
19	J. Morton, Whitfield Farm	..	126	..	Carrots 350	..	ad lib.	10 9
20	E. H. Sandford, Dover	56	42	..	..	Bran 12	ad lib.	5 6
21	A. Simpson, Beauly, N. B.	..	49	7	105	Tail Corn 21	ad lib.*	5 6
22	H. J. Wilson, Mansfield	42	52½	..	..	Bran 21	ad lib.	6 6?
23	F. Sowerby, Aylesby, North Lincolnshire ..	112	28	Cut Oat Sheaf		..	ad lib.*	8 0?

Where an asterisk (*) is attached to any item, it is to be understood that the corn has been bruised or ground, or the hay or straw has been cut into chaff; where a dagger (†) is appended, the article so marked has been boiled or steamed; a mark of interrogation (?) indicates that the result so marked is uncertain, owing to some indefiniteness in the account given.

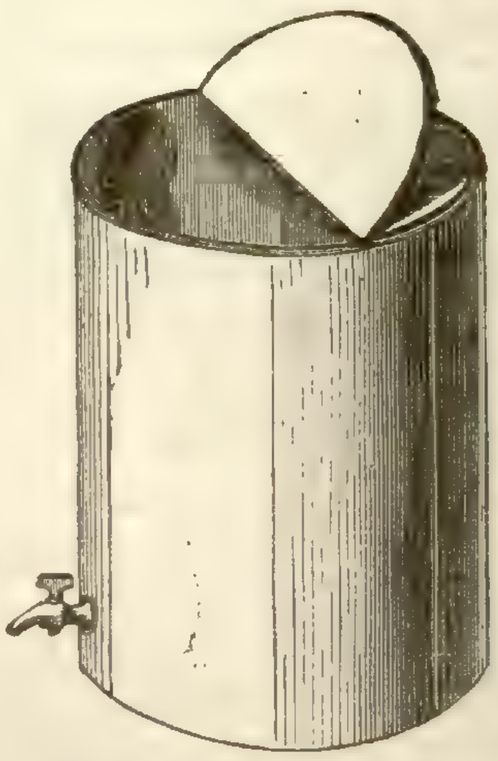
Iron Hurdles, Fencing, and Gates.

COTTAM'S HURDLES are made in the best manner of superior Wrought Iron. SHEEP HURDLES, from 4s. 11d. each; CATTLE HURDLES, from 4s. 11d. each; CONTINUOUS FENCE, from 8*d.* per foot; FIELD GATES, from 25s. each. Illustrated Price List on application.

ENTRANCE GATES, RAILING, and IRON WORK of every description. Designs and Estimates free on application.

COTTAM & Co.,
No. 2, Winsley Street
(opposite the Pantheon),
Oxford Street, London, W.

GALVANISED IRON WATER CISTERNS.
Cheap, light, and durable, will not rust or corrode, and keep water perfectly sweet.



To hold	Each
30 gallons,	16s. 6d.
50 gallons,	22s. 6d.
80 gallons,	31s. 0d.
100 gallons,	36s. 0d.
120 gallons,	39s. 0d.
140 gallons,	42s. 0d.
200 gallons,	60s. 0d.
250 gallons,	72s. 0d.

With Lid and Brass Tap.

GALVANISED WIRE STRAND CABLE FENCING.
GALVANISED IRON ROOFING.
IMPROVED GALVANISED WIRE NETTING.
HURDLES, HURDLES, HURDLES, 1s. 9d. to 3s. 9d. per yard.
PATENT STRAINING PILLARS, &c.
GALVANISED IRON PUMPS.
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LAWN MOWERS, GARDEN ROLLERS.
ASPHALTE ROOFING FELT, 1*d.* per square foot.
MOTLEY & GREEN, late H. J. MORTON & Co.
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For samples and prices apply to
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Oil Paint no longer Necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

From CHAS. E. B. SMEDLEY, Esq., *The Grange, near Boston.*

"I have much pleasure in giving you a reply to your inquiries about the Black Varnish I have had from you for the last two years. It has answered my expectations fully, and as far as I am able to judge, it is the best material for preserving iron fencing, gates, and other work exposed to the air; and I can with safety recommend it as the best and cheapest article that is yet out. Wishing you every success."

Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the kingdom.

Apply to HILL & SMITH, Brierly Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C., from whom only it can be obtained.

GARDEN BORDER EDGING TILES, in great variety of patterns and material, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.

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Sole London Agents for FOXLEY'S PATENT GARDEN WALL BRICKS. Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also TESSELATED PAVEMENTS of more enriched designs than the above.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cements, &c.

To be obtained of F. & G. ROSHER, at their Premises as above.

SILVER SAND (REIGATE, best quality), at the above addresses—14*s.* per Ton, or 1*s.* 3*d.* per Bushel; 2*s.* per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1*s.* per Ton less.

FLINTS, BRICK BURRS or CLINKERS, for Rockeries or Grotto Work.

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NEW TARIFF OF GLASS AND HORTICULTURAL GOODS.

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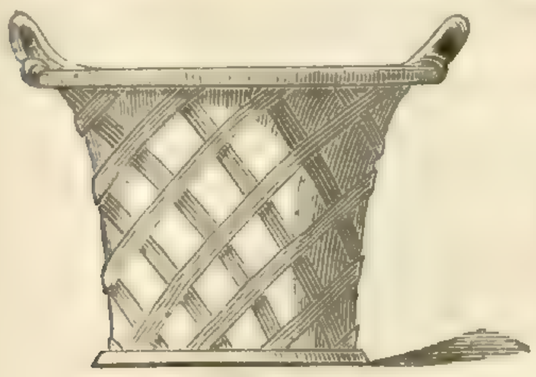
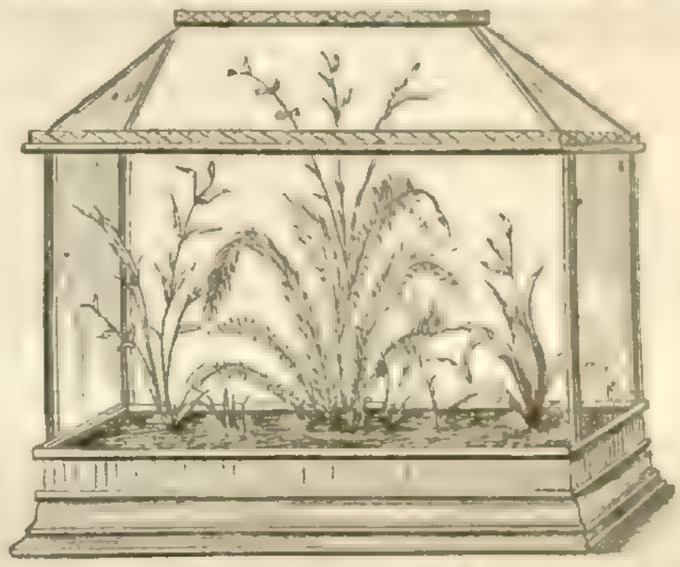
IN SUBMITTING DRAWINGS AND PRICES OF FLOWER BASKETS, WE BEG TO SAY THEY ARE MADE OF FINE CLAY, WELL FINISHED, AND SUITED FOR THE SITTING-ROOM AS WELL AS THE GARDEN.



No. 1.

FLOWER BASKETS.

	Each.—s.	d.
8 inches diameter	2	0
9 " "	2	3
10 " "	2	6
11 " "	2	9
12 " "	3	0
13 " "	3	3
14 " "	3	9
15 " "	4	6
16 " "	5	0
17 " "	5	6
18 " "	6	6
19 " "	7	6
20 " "	8	6
21 " "	10	0



FERN CASES.

	£	s.	d.
12 inches long	1	0	0
14 " "	1	3	0
16 " "	1	6	0
18 " "	1	10	0
20 " "	1	14	0
22 " "	1	18	0
24 " "	2	2	0
26 " "	2	10	0
28 " "	3	0	0
30 " "	3	10	0

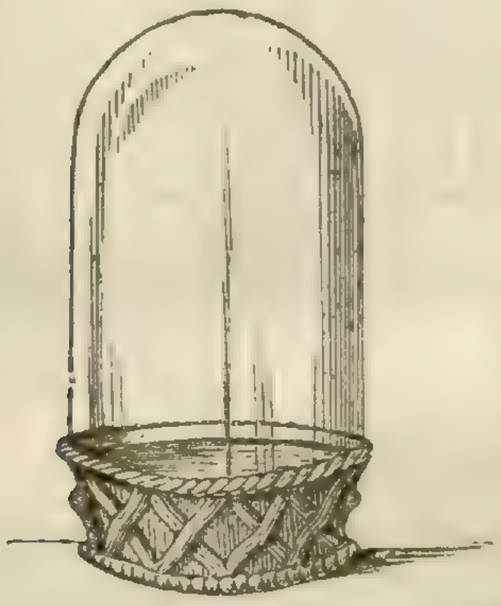
BEST ROUND AQUARIA,

With Ebony Stands.

	Each.—s.	d.
12 inches diameter	5	0
13 " "	6	0
14 " "	8	0
15 " "	9	0
16 " "	10	0
17 " "	12	0
18 " "	13	0
19 " "	14	0
20 " "	15	0

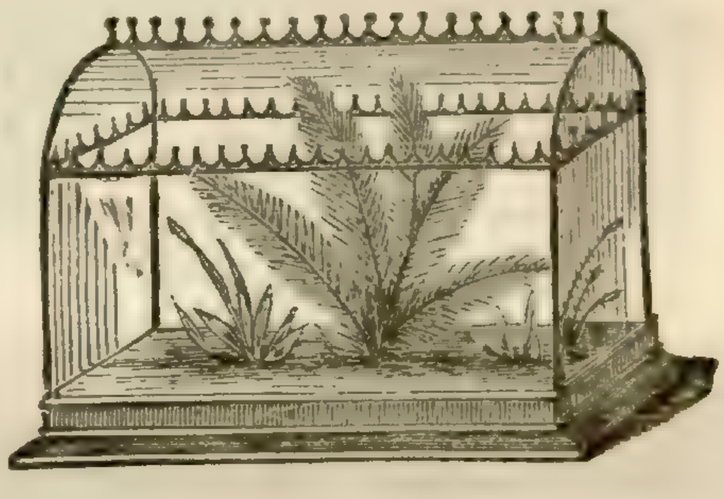
ZINC AQUARIA.

	£	s.	d.
12 inches long	0	18	0
14 " "	1	1	0
16 " "	1	4	0
18 " "	1	7	0
20 " "	1	10	0
24 " "	1	16	0



GLASS FERN SHADES and STANDS.

	Glass Fern Shades. s.	d.	Clay Stands. s.	d.	Glass Stands. s.	d.
6 inches	1	4	1	6	1	0
7 "	1	8	1	6	1	3
8 "	2	0	1	9	1	6
9 "	2	6	2	0	1	9
10 "	3	3	2	3	2	0
11 "	4	0	2	6	2	6
12 "	5	6	2	9	3	0
13 "	7	6	3	0	3	6
14 "	10	0	3	3	4	0
15 "	14	0	3	6	4	6
16 "	18	6	3	9	5	0



FERN CASES.

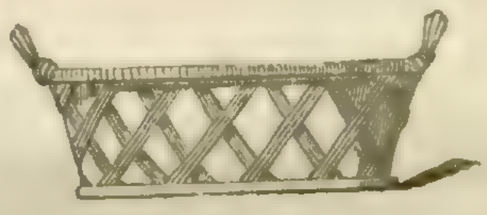
With Circular Tops, 3*s.* extra on above prices.

AQUARIUMS of various shapes and dimensions.

HYACINTH and FLOWER DISHES.

	Each.—s.	d.
6 inches diameter	1	0
9 " "	1	6
12 " "	2	6

Hyacinth Dishes are a new article intended to contain a number of roots bedded in sand and covered with moss, instead of the common Hyacinth Glass.

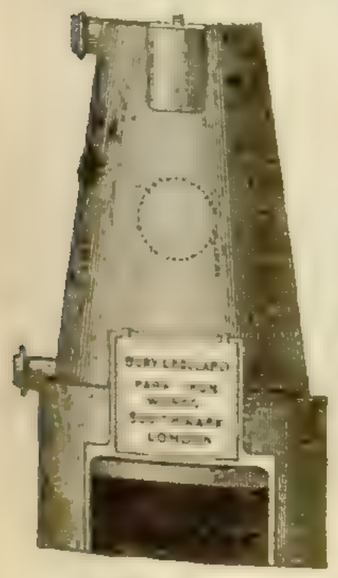


No. 2.

FLOWER BASKETS.

	Each.—s.	d.
7 inch	1	6
8 "	1	9
9 "	2	0
10 "	2	3
11 "	2	6
12 "	2	9
13 "	3	0
14 "	3	3
15 "	3	6
16 "	3	9
17 "	4	0
18 "	4	6
19 "	5	0
20 "	5	6

Glass Shades for Ornaments, Propagating Glasses, Milk Pans, Cucumber Tubes, Glass for Horticultural Purposes, Paints of all Shades, and various Miscellaneous Articles, see separate Lists.



BURY & POLLARD, LONDON, MANUFACTURERS.

HEATING BY HOT WATER.

Public and Private Buildings, Manufactories, Conservatories, &c., Heated on the most improved system, combined with perfect Ventilation. Baths fitted upon economical principles connected with Kitchen Ranges, ready for use night or day, without extra fire. Success in all cases guaranteed. Estimates free. References to hundreds of the Nobility's Seats, Botanical Societies, Public Buildings, Banks, Manufactories, &c. Several Boilers and long ranges of Pipes just fixed at Wollaton Gardens for Lord Middleton, by BURY AND POLLARD, Sole Manufacturers of the Improved CONICAL BOILERS, which are adapted for setting in Brickwork, or as shown in sketch they require No BRICKWORK, and which Boilers have, for their durability and economy, attained a celebrity far surpassing any other Boilers ever invented.

PARK IRON WORKS, 17, NEW PARK STREET, SOUTHWARK, LONDON, S.E.

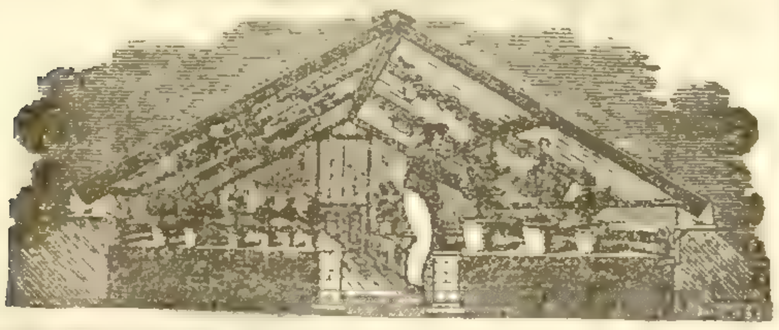
N.B.—PATENT WINDMILLS for Pumping and Driving Farm Machinery, from Half-Horse Power upwards. To be seen daily at work as above.

Bury & Pollard having completed the order for the India Board, and the Government Gardens at Agra, are again supplying Her Majesty's Government for Ascension.

WIND ENGINES for ASCENSION.—The Admiralty Department officially report the two large Wind Engines supplied by BURY AND POLLARD three years ago for Ascension, as working most satisfactorily.

BURY AND POLLARD always keep a large Stock of their BOILERS, together with HOT-WATER PIPES of the best description.

Exhibition Prize Medal, 1862.



HOTHOUSES for the MILLION.—On the principle invented and patented by Sir Joseph Paxton, M.P., combining simplicity, cheapness, excellence, and durability. SPAN-ROOF HOUSES, painted three coats, and glazed with English Sheet Glass, can be supplied ready for fixing, 21 ft. by 13 ft., 24*l.*; 43 ft. by 19 ft., 73*l.* 5*s.*; 64 ft. by 25 ft., 161*l.*

Illustrated Circulars, with Prices, can be had on application to Samuel Hereman & J. Morton, Agents, 7, Pall Mall East, London.

Also, A HANDBOOK on VINE and FRUIT TREE CULTIVATION, 2d Edition, price 1*s.*; post free, 1*s.* 1*d.*

The Only Stove without a Flue.

NASH AND JOYCE'S PATENT, for AIRING, DRYING, and WARMING HALLS, SHOPS, ROOMS, &c., a new especial Stove for Conservatories, Greenhouses, Fruit-Ripening, &c.; to Burn without re-lighting all winter by filling with fuel every 12 hours. Temperature, any degree required, without varying. Price from 12*s.* 6*d.* to 6 guineas.

MINCING and SAUSAGE FILLING and MASTICATING MACHINES of the best makers, 10*s.* 6*d.*

The COTTAGE KNIFE CLEANER is the only rapid Cleaner and Polisher of Knives at a moderate price. 3*s.* 6*d.* to 10*s.* 6*d.* Prospectus post paid.

S. Nash, Ironmonger, 253, Oxford Street, W.C.; and Stove Depôt, 119, Newgate Street, London, E.C.

Exhibition Prize Medal, 1862.

MUSGRAVE'S PATENT SLOW COMBUSTION STOVE.

This Stove is the nearest approach to Warming by Hot Water.

It will burn in Churches from Saturday till Sunday evening, without attention during the hours of worship. In Halls will burn day and night for weeks, with little care. Capable of Warming a large Apartment for 24 hours, at a cost of 3*d.*; and deserving of special attention, because of its safety, healthfulness, durability, and extreme simplicity.

It is also made for small Conservatories, with a vapour chamber.

For particulars of the above, and of MUSGRAVE'S PATENT STABLE and COW-HOUSE FITTINGS, which attracted so much attention at the Exhibition, address

Musgrave Brothers, Ann Street Iron Works, Belfast.

This Stove can be seen in operation at Messrs. Cox & Son, 38, Southampton Street, Strand, W.C.

Cheap Greenhouse Stoves.

DEANE AND CO.'S Patent VENTILATING and SUSPENSION STOVES are simple, cheap, and efficient; have been largely adopted and approved; will burn many hours without attention, and at a small cost for fuel. Prices of Suspension Stoves, 20*s.*, 30*s.*, 38*s.*, and upwards. Ventilating Stoves, 50*s.*, 60*s.*, 70*s.*, 90*s.*

HOT-WATER APPARATUS for Conservatories, Greenhouses, Hothouses, Forcing Pits, &c., erected and fitted up complete.

Deane & Co., 46, King William Street, London Bridge, E.C.
Established A.D. 1700.

Under the Patronage of Her Majesty.

CLARK AND HOPE (late Clark) 55, Lionel Street, Birmingham, Manufacturers of Metallic and Wooden Hothouses, Conservatories, Verandahs, &c., Copper and Wrought Iron Sashes, Skylights, &c., and Hot Water Apparatus for Horticultural and Domestic purposes.

C. & H. beg to call attention to their NEW TREE COVER, or Continuous Glass Covering for Garden Walls; which is constructed of Cast and Wrought Iron, glazed with or without putty, and fitted together with bolts and nuts, constituting a Tenant's Fixture. It can be made 6, 7, or 8 feet wide, and 10, 12, or 14 feet high; the Lights being opened together, by means of simple and durable machinery, in lengths of about 50 feet; and the cost does not exceed that of a wooden structure.

Further particulars, with prices, forwarded upon application; and on receipt of the amount in postage stamps, a Book of Designs, plain, 1*s.* 6*d.*, coloured 2*s.* 6*d.*, for Horticultural Buildings, &c.

GRAY'S OVAL TUBULAR BOILER.

INTERNATIONAL EXHIBITION, Class IX., No. 2119.

Mr. Gray begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his

NEW OVAL TUBULAR BOILER,

acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in Gardeners' Chronicle *of International Exhibition, May* 24, *page* 476.

"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. Gray's variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so, the change, though a slight one, is no doubt an improvement."

They are made of all sizes, which, with prices, may be had on application.

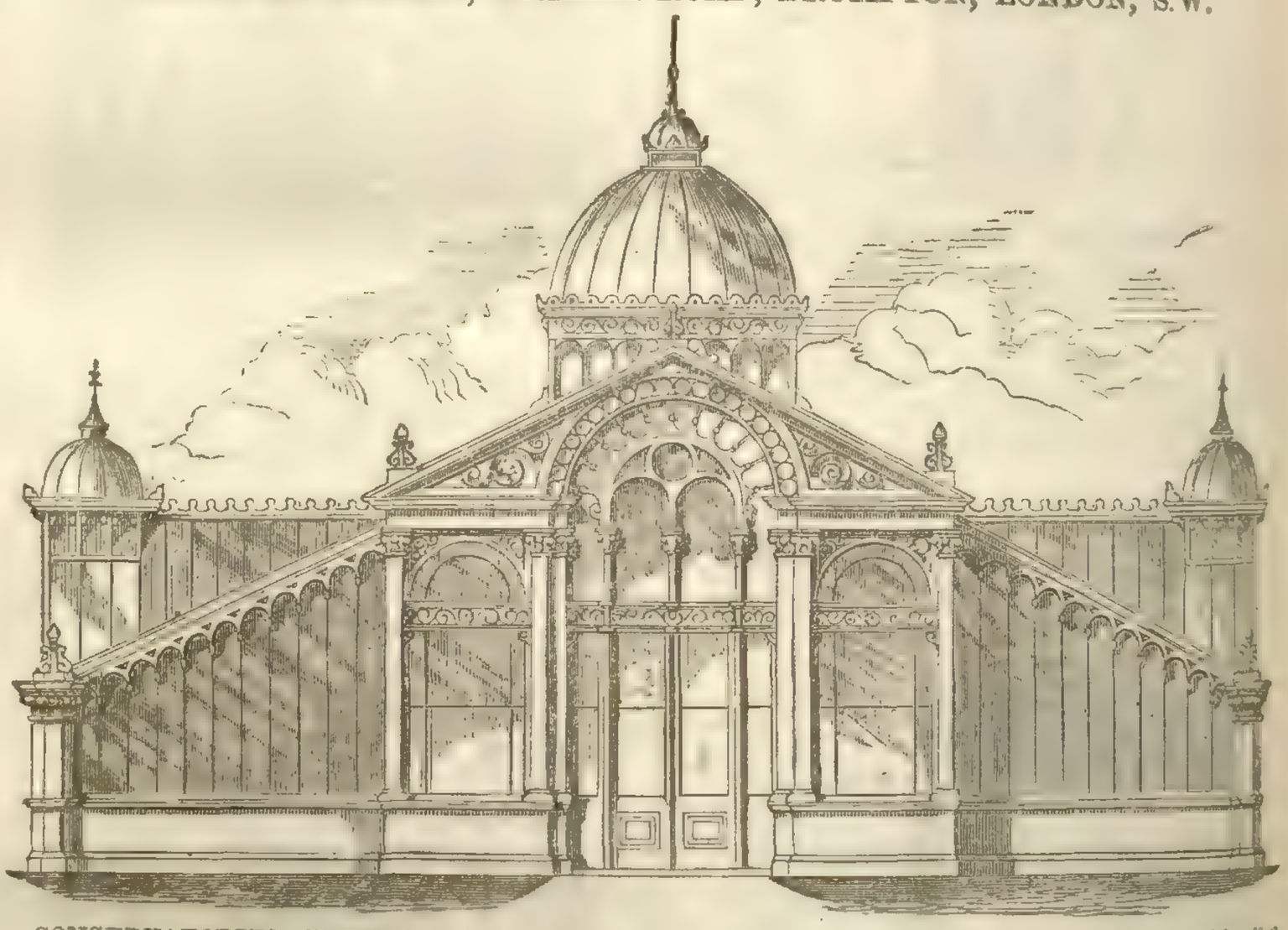
JAMES GRAY, HORTICULTURAL WORKS,
DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.

CUMMING & EDMONDS,

CONSERVATORY ARCHITECTS, HORTICULTURAL BUILDERS, and

HOT-WATER APPARATUS MANUFACTURERS,

STAMFORD BRIDGE, FULHAM ROAD, BROMPTON, LONDON, S.W.



CONSERVATORIES, HOTHOUSES, &c., erected in the best manner and Heated by Hot Water, with all the latest improvements. CHURCHES, SCHOOLS, MANSIONS, WAREHOUSES, &c., efficiently Heated by Hot Water on the most approved principles.

All Work executed at the lowest prices compatible with good materials and workmanship.

SURVEYS made, and DESIGNS and ESTIMATES prepared and forwarded free of every expense.

G. CUMMING, eight years Managing and Estimating Clerk and Designer to Mr. H. Ormson.

CAUTION.

THE SUCCESS AND GREAT EXTENT OF BUSINESS ORDERS WITH WHICH

HENRY ORMSON

FIRST CLASS PRIZE MEDAL
FOR ORMSON'S CONSERVATORY,
at the International Exhibition.

Has been favoured by the Nobility, Gentry, &c., in all parts of the United Kingdom, for the last 20 years, have been the cause of some persons making use of his name as a subterfuge for obtaining Orders for themselves.

H. ORMSON trusts such pretensions will be treated with proper consideration, as he confidently assures his patrons, and others, that the more putting forth of these pretensions is no guarantee whatever for Horticultural Buildings and Heating Apparatus being constructed in his superior style, so well known in all parts of the country for many years past.

H. ORMSON always has been, and still continues to be his own Manager, and carefully Superintends, personally, every Department of his Business. All Orders with which he may be favoured will at all times receive his most careful attention, and every HORTICULTURAL BUILDING and HEATING APPARATUS erected by him will be Designed and Constructed on the most approved and scientific principles; and from his extensive experience, and knowledge of horticultural science, will also be properly adapted to the successful cultivation of all descriptions of Exotic Plants and Fruits.

FIRST CLASS PRIZE MEDAL
FOR ORMSON'S PATENT JOINTLESS TUBULAR BOILER
At the International Exhibition.

Plans, Specifications, and Estimates on application.

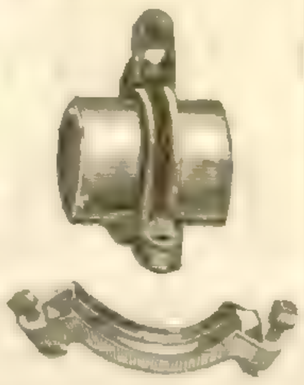
HENRY ORMSON, F.S.A.,

HORTICULTURAL ARCHITECT, BUILDER, AND HOT-WATER APPARATUS MANUFACTURER,
STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

PORTABLE HOT-WATER APPARATUS,

WITH TRUSS' PATENT JOINTS FOR HEATING CONSERVATORIES, HOTHOUSES, &c.

T. S. TRUSS



Begs to offer complete HOT-WATER APPARATUS for GREEN-HOUSES (consisting of 4-inch Pipes and Joints, Saddle Boiler, Fire Doors, Bars, Soot Doors, Damper, Supply Cistern, Feed and Air Pipes, Pipe Stands, &c., of the best quality), delivered to any Railway Station in England, and to erect the same within 25 miles of London, at the following prices:—

4-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection.
16 feet by 8 feet	£8 10 0	£2 0 0	30 feet by 12 feet	£11 15 0	£2 10 0
20 feet by 10 feet	9 0 0	2 0 0	40 feet by 15 feet	15 0 0	2 15 0
25 feet by 12 feet	10 5 0	2 5 0	50 feet by 15 feet	18 0 0	3 0 0

Erection beyond 25 miles of London, Railway Fare for one Man charged extra.

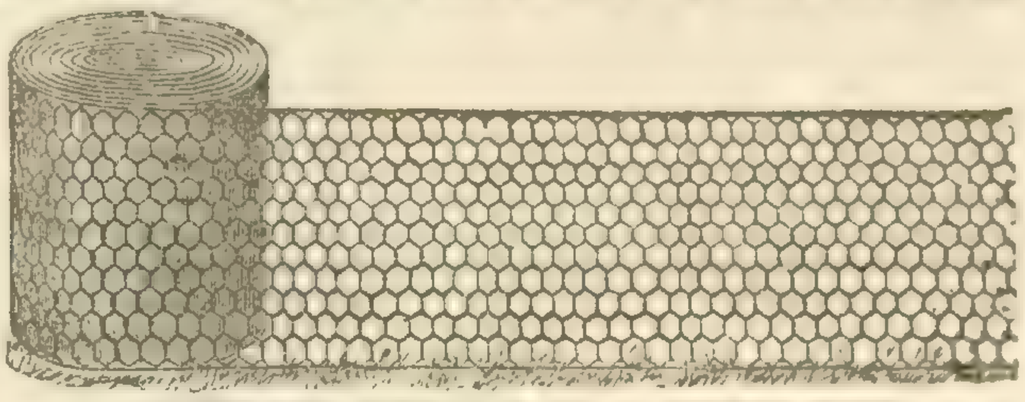
By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints.

Estimates and Plans forwarded on application to

T. S. TRUSS, C.E., 53, GRACECHURCH STREET, LONDON, E.C.

NEW IMPROVED PREMIUM WIRE NETTING.

GREAT IMPROVEMENT,



WITH REDUCED PRICE.

PRICES PER LINEAL YARD, 24 INCHES HIGH.

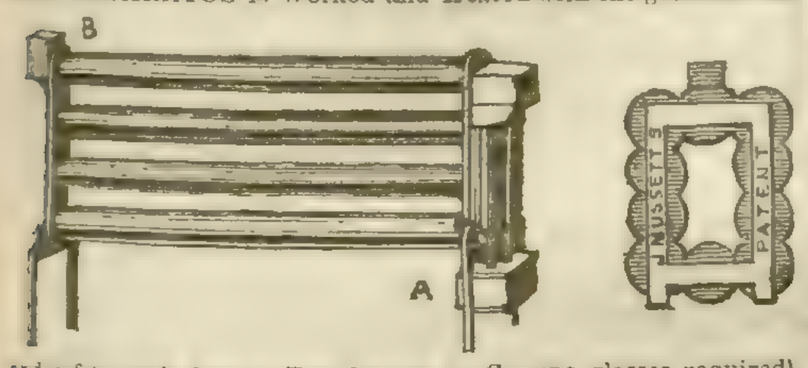
Size of Mesh.	Mostly used for	Light. Japanned.	Light. Galvanized.	Medium. Japanned.	Medium. Galvanized.	Strong. Japanned.	Strong. Galvanized.	Extra Strong. Japanned.	Extra Strong. Galvanized.
2½ inch	Hares, Dogs, Poultry ..	3d.	4d.	3¾d.	5d.	4½d.	6d.	5½d.	7d.
2 inch	Game or Poultry Netting	3½d.	4½d.	4d.	5d.	5d.	6½d.	6½d.	8d.
1½ inch	Small Rabbits, Hares, &c.	4d.	4¾d.	4¾d.	6d.	5½d.	7d.	7d.	9d.
1¼ inch	Smallest Rabbits	5d.	6d.	5¾d.	7d.	7d.	9d.	9d.	11d.

Quantities of 100 yards or upwards delivered free at nearly all the principal Railway Stations and Shipping Ports in England; and 200 yards or upwards delivered free to most parts of Scotland and Ireland.

*** *Every description of Netting warranted to give satisfaction, and if not approved will be exchanged or may be returned unconditionally.*

J. B. BROWN AND CO. OFFICES: 18, CANNON STREET, CITY, LONDON, E.C.,
Nearly opposite ST. SWITHIN'S LANE and LONDON STONE, and near LONDON BRIDGE.
WAREHOUSE (where Netting is kept in stock), 148, UPPER THAMES STREET, E.C., opposite the CITY of LONDON BREWERY, and close to the LONDON BRIDGE STEAM BOAT PIER

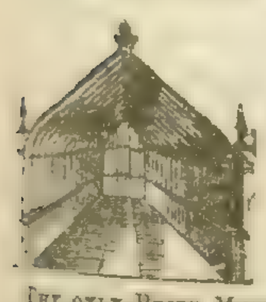
MUSSETT'S PATENT PORTABLE HOT-WATER APPARATUS is Worked and Heated with the greatest ease



and safety with One or Two Lamps, or Gas (no glasses required). Surpasses everything of the kind for Heating Conservatories, Greenhouses, Pits, Frames, Fern Cases, &c., Churches, Chapels, Schools, Halls, Shops, &c., with expedition and economy. Price £2 10s. complete. An Illustrated Prospectus to be had on application. Enclose a stamp.

J. MUSSETT, Winstanley Road, Clapham Railway Junction, London.

Greenhouses—Heating Apparatus.



MEDAL
DUBLIN
EXHIBITION.

THE ONLY PRIZE MEDAL FOR GREENHOUSES HAS BEEN AWARDED TO T. H. P. DENNIS for IMPROVEMENTS in the CONSTRUCTION and APPLICATION of WROUGHT-IRON to HORTICULTURAL BUILDINGS.

DENNIS'S PATENT WROUGHT-IRON PRIZE MEDAL CONSERVATORIES are of the highest order.

DENNIS'S PATENT WROUGHT-IRON PRIZE MEDAL GREENHOUSES perfectly neutralize atmospheric conduction.

DENNIS'S PATENT WROUGHT-IRON PRIZE MEDAL VINERIES promote vigorous growth and richness of colour.

DENNIS'S PATENT WROUGHT-IRON PRIZE MEDAL ORCHID HOUSES and STOVES, with double-glazed roofs, are a complete arrangement.

DENNIS'S PATENT WROUGHT-IRON PRIZE MEDAL PINERY HOUSES (as supplied to Mr. Rivers), induce perfect symmetry and unfailing result.

DENNIS'S PATENT WROUGHT-IRON PRIZE MEDAL GERANIUM and PLANT HOUSES, are thoroughly ventilated and admit a maximum degree of light.

DENNIS'S PATENT WROUGHT-IRON PRIZE MEDAL CUCUMBER and MELON HOUSES are specially arranged and heated upon T. H. P. D.'s improved system.

DENNIS'S PATENT WROUGHT-IRON PRIZE MEDAL PINERIES, when heated upon T. H. P. D.'S improved system, are calculated to secure the growth of first-class fruit.

DENNIS'S PATENT PRIZE MEDAL FORCING HOUSES are eminently superior for all early work.

DENNIS'S PATENT WROUGHT-IRON PRIZE MEDAL STRAWBERRY HOUSES admit a complete flood of air and light.

The above Patent Houses can be glazed with or without putty.

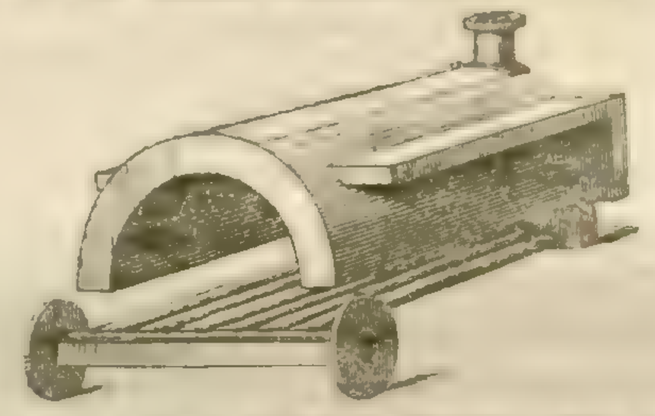
These Houses are now protected by three Royal Letters Patent, and from the complete adjustment of their constructional parts will be most favourably with Wood Structures in point of cost.

Designs and Estimates prepared for single or complete ranges of Houses in Wood or Iron.

Illustrated Catalogues on application to the Patentee,

T. H. P. DENNIS, Horticultural Builder and Hot-Water Engineer, Chelmsford.

By Her Majesty's Royal Letters Patent.



THE TERMINAL SADDLE BOILER.—This is the Old Saddle made perfect, by the addition of an upright terminal end piece, which quite closes the arch and side flues, and forms the back of the furnace, doing away with all brickwork at the end, and adding one-third more heating surface to the boiler just where it is most exposed to the direct action of the fire.

To be seen at the Royal Horticultural Gardens, South Kensington; and is at work at the Victoria Nursery, Holloway, Mr. Williams having kindly consented to show it to any one who will call at that Establishment. Circulars, Prices, &c., on application to

J. IRELAND, The Works, Edward Street, Broughton Lane, Manchester.

EARTH CLOSETS (MOULE'S PATENT).

No Unwholesome Cesspools.
No Bad Smells.
No Water Pipes to get out of order.
The Best Night Commodes.
The Apparatus (price 25s. and 30s.) may be applied to any Closet at trifling cost, and is self-acting.
By its use a valuable Manure is saved, and Fertility to the Soil ensured.
Earth is recommended by the Privy Council, in their report on Cholera, as a deodoriser and disinfectant.

Extract from Letter received from the SECRETARY *of the* NATIONAL RIFLE ASSOCIATION.

"I am further directed to state that they (the Closets) proved of the greatest use, and were found to act admirably."

WHITE & Co., 29, Bedford Street, Strand, London, W.C.
OLDHAM SHOW, STAND 46.

To Nurserymen, Florists, and Gardeners.

ROSE HILL NURSERY, BRIGHTON.

TO BE LET, with Immediate Possession, a very compact HORTICULTURAL ESTABLISHMENT, situated at the north part of the above thriving town, surrounded by villas and other property, securing a good trade. The present occupier (who is relinquishing the Profession) has successfully carried on a business for 9 years, and devoted every attention to improve the Hot-water Apparatus, Vine Borders, Potting Sheds, &c. Grounds are about 2 acres, a nice convenient Dwelling House attached, a Show House for the sale of plants, seeds, &c., and 11 others, consisting of Graveries, Peach House, Forcing Houses for plants, Greenhouses, Pits, and Frames. The whole of the Graperies stocked with productive Vines, having been recently planted. New borders made with the most appropriate compost, the Peach House well stocked with trees; the Plant Houses stocked with suitable sorts to command sale; also the Borders and Quarters with hardy plants. A Seed and Jobbing Trade; 11 years unexpired Lease, at the end of which 21 more are secured. The whole to be taken to at valuation unless otherwise agreed on. To any skilful and industrious man such an opportunity seldom offers.

For particulars of terms, &c., apply to Mr. SPARY, Queen's Graperies; or Mr. CHRISTENSEN, Rose Hill Nursery, Brighton.

TO BE LET, and entered upon immediately, TWENTY-FIVE ACRES of excellent MARKET GARDEN LAND at Millbrook. For terms apply to

Mr. Wm. Ross, Land Agent, &c., Nursling, near Southampton.

TO BE LET, about ONE ACRE and a HALF of good LAND, with about 6000 feet of Glass, all in good order, and well stocked with young and useful stuff fit for market. The Nursery and Seed Business has been established nearly seven years. A Cottage will be found.

Apply to A. G., Post Office, Hampton, Middlesex.

Nursery and Seed Business to be Disposed of.

TO BE SOLD, in the neighbourhood of London, an old established NURSERY and SEED BUSINESS, in good repair, with an excellent connection. The Nursery has for many years been noted for its cultivation of FRUIT TREES, and the Seed Business has a good retail connection. This is an eligible opportunity for any one who wishes to enter the trade.

For particulars apply by letter only to J. M. D., "Journal of Horticulture" Office, 171, Fleet Street, E.C.

To Agriculturists, Horticulturists, and Florists.

TO BE DISPOSED OF, IMMEDIATELY, a well-established BUSINESS in the flourishing town of Ipswich, one of the most prosperous towns in the county of Suffolk, and having communication by rail and water to any part of the kingdom.

The Premises consist of a Span-roof Conservatory, Vinery, Propagating and Horticultural Stove, all on the most approved principle by Messrs. Clarkson, with Hot-water Apparatus, &c., regardless of cost.

The Dwelling House and Shop are in good repair, consisting of 3 Bedrooms, Sitting-room, Kitchen and Cellar. The Shop has a Counter fitted with convenient appurtenances, and is situated in the best part of the town, near the post-office, principal hotel and banks, and two minutes' walk from the railway station. The town is one of the most delightfully situated in the county, and a beautiful river runs at the foot.

The business has been successfully carried on for upwards of 20 years, and the only reason for disposing of the same is the death of a son. Apply by letter to

Mr. J. JEFFERIES, Woodbridge, Suffolk.

Sales by Auction.

Important Sale of Bulbs and Plants.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, November 28, at half-past 12 o'Clock precisely, a splendid collection of LILIUM LANCIFOLIUM album, rubrum, roseum, and punctatum; Double and Single HYACINTHS, of all colours; Early and Late TULIPS, CROCUSES, NARCISSUS, RANUNCULUSES, GLADIOLI, ANEMONES, &c., from the well-known farm in Holland. Also a quantity of HARDY PLANTS from growers in Surrey and Middlesex, consisting of fine Rhododendrons, Cupressus Lawsoniana, Pinus Cembra, Cryptomeria japonica, Portugal Laurels, Green Hollies, Standard Laurels, American Arbor-vitæ, Dwarf-trained Fruit Trees, &c., and some Rustic Garden Seats, Vases, Stools, Chairs, Baskets, &c.

On view the Morning of Sale, and Catalogues had.

Roses, Fruit Trees, and Shrubs.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, November 29, at half-past 12 o'Clock precisely, a splendid variety of Dwarf Tea, Noisette, and Dwarf HYBRID TEA ROSES, Standard and Dwarf ROSES, Hardy and Ornamental SHRUBS, &c., from well-known growers.

On view the Morning of Sale, and Catalogues had.

Consignments of Plants from Holland, Surrey, and Middlesex.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, December 2, at half-past 12 o'Clock precisely, a fine rare assortment of Dwarf Trained, Standard, Half Standard, Dwarf, and Pyramid CHERRY, PEAR, PLUM, PEACH, and APRICOT TREES; Standard, Half Standard, Dwarf and Weeping Roses; Raspberry Canes, Grape Vines, Currant Trees, Pyramid Variegated Hollies, Rhododendrons, American Arbor-vitæ, Portugal Common Laurels, Cryptomeria japonica, Pinus Cembra, Irish and Common Yews, Wellingtonia gigantea, and a variety of other Ornamental and Hardy Shrubs.

On view the Morning of Sale, and Catalogues had.

Sale of Dutch Bulbs, Standard and Dwarf Roses, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., on TUESDAY, November 28, at 1 o'Clock precisely, a first-class Collection of DUTCH BULBS, consisting of the finest Double and Single Hyacinths, Narcissus, Jonquils, Anemones, Crocus, Tulips, Ranunculus, Gladiolus, Snowdrops, &c.; a fine Assortment of fine handsome STANDARD and DWARF ROSES; selected AMERICAN PLANTS, including Ghent and other Azaleas, Hybrid Rhododendrons, Kalmias, &c.

On view the Morning of Sale. Catalogues had at the Rooms, as above; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Stoke Newington.

To GENTLEMEN, NURSERYMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. JAMES KIRTLAND to SELL by AUCTION, on the premises, Albion Road Nursery, Stoke Newington, N.E., on MONDAY, Dec. 4, at 12 o'Clock, a portion of the valuable NURSERY STOCK, consisting of Evergreen and Deciduous Shrubs, ornamental Fruit and Forest Trees, including fine large Aucubas, Common and Portugal Laurels, Tree Ivies and Cupressus, Hybrid and Pontic Rhododendrons, Green Hollies, Privet, Cedrus Deodara, Standard Apples, Dwarf-trained Pears, Nectarines, Apricots, and Cherries; Azaleas, Labburnums, Weeping Ash, Weeping Elms, &c.; a fine assortment of Standard and Dwarf Roses, White and Yellow Brooms, Ghent Azaleas, &c., with a variety of Greenhouse Plants.

May be viewed prior to the Sale. Catalogues may be had on the premises, and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

Consignment from Ghent for absolute Sale.

IMPORTANT TO GENTLEMEN, NURSERYMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at 38 and 39, Gracechurch Street, on TUESDAY, December 5, at half-past 12 o'Clock precisely, about 500 CAMELLIAS and AZALEA INDICA, comprising of the most approved kinds, beautifully covered with bloom buds; Ericas, Epacris, fine specimen Palms in Kentia Belmoreana, fragrantissima, rubrum, punctatum, &c., also a very good assortment of Stove and Greenhouse Plants, Ferns, Aquatics, &c.

On view the Morning of Sale. Catalogues had at the Rooms, as above; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Specimen Orchids, Stove Plants, &c.

MESSRS. WALKER AND ACKERLEY are instructed to SELL by AUCTION, at their Gallery, 55, Church Street, Liverpool, on FRIDAY, December 8, the entire Choice and Valuable Collection of ORCHIDS, STOVE PLANTS, &c., the property of a Private Gentleman, who is about to give up their cultivation, comprising among others, the following high-priced sorts in fine condition:—

Aerides Fieldingii	Angræcum Dupetithouarsii
.. maculosum	Dendrobium Pierardi
Cattleya labiata (best variety)	Lælia anceps
.. Aclandiæ	.. purpurata
.. crispa superba	Odontoglossum crispum
Cœlogyne Lyncianum	Phalænopsis amabilis
Saccolabium retusum	.. grandiflora
.. violaceum	Vanda cærulea
Sophronitis grandiflora	Lycaste Skinneri

May be viewed on Thursday, December 7, and Catalogues and further information may be obtained on application to WILLIAM HENDERSON, Nurseryman and Seedsman, 2, Market Cross, Kirkcudbright; and at Messrs. WALKER & ACKERLEY'S Offices, 55, Church Street, Liverpool, on or after November 30.

INTERNATIONAL HORTICULTURAL EXHIBITION AND BOTANICAL CONGRESS.

TO BE HELD IN LONDON IN MAY, 1866.

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HER MAJESTY THE QUEEN.

PATRON.

HIS ROYAL HIGHNESS THE PRINCE OF WALES.

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The following Resolutions form the basis of the Scheme :—

1. That there shall take place in London, in 1866 (in the Garden of the Royal Horticultural Society, at South Kensington), a Grand International **Horticultural Exhibition and Congress, to be open four days, from May 22 to May 25, and to which the leading Botanists and Horticulturists throughout Europe shall** be invited.

2. That Two Morning Meetings (of the nature of a Congress) shall be held, at which Papers prepared by leading Botanists or Horticulturists shall be read, the Papers to be previously printed in English and French, or German, and circulated, and discussion thereon invited.

3. That there shall be Two Conversazioni, at which Foreigners invited to assist at the Exhibition and Congress shall have the opportunity of meeting with our own leading Horticulturists, Botanists, Exhibitors, &c.

4. That there shall be a Banquet, to which leading Foreign Visitors shall be invited as guests, and to which also Ladies subscribing will be admitted. Tickets 3 Guineas each.

5. That the Committee will endeavour to arrange that the most easily-accessible English Gardens, in which some feature of British Gardening—such as "Forcing," "Decorative Gardening," &c.—is well illustrated, shall be open to Foreign Visitors.

6. That a Subscription List be opened for the purpose of obtaining the Funds necessary to the formation of a liberal Prize List (the Prizes offered amount to over £2500), the erection or part erection of the necessary Exhibition Building, the entertainment of Foreign Visitors, and for the working expenses of the Exhibition and Congress; and that a Guarantee Fund be also entered on.

7. That Gentlemen subscribing TEN GUINEAS shall be entitled to one Dinner Ticket of the value of £3 3*s.*; to one Card of invitation to each of the Soirées available for one Gentleman and two Ladies; and to Eight Tickets of admission to the opening of the Horticultural Show, when the admission by payment will be One Guinea each person. Subscribers of FIVE GUINEAS, or Guarantors of £50, will receive one Card of invitation for each Soirée, available for one Gentleman and two Ladies, and Four Tickets for the opening of the Horticultural Show. Subscribers and Guarantors of smaller amounts will receive in proportion.

8. Subscribers' Tickets may, if desired, be commuted, so as to be available for the Banquet, three of the before-mentioned Tickets for the opening of the Exhibition being exchangeable for one Dinner Ticket, provided that notice of such wish to exchange them is given before the 31st of March, 1866. Subscribers' Tickets not used on the opening day will admit on any subsequent day, in the manner to be stated thereon.

Gentlemen willing to lend their support to this undertaking will perhaps be kind enough to communicate at once with the Secretaries.

A SECOND LIST of SUPPORTERS will be published shortly.

COMMITTEE ROOMS—ROYAL HORTICULTURAL GARDENS SOUTH KENSINGTON, W.

OFFICES—1, WILLIAM STREET, LOWNDES SQUARE, LONDON, S.W.

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THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 48.—1865.] SATURDAY, DECEMBER 2. {Price Fivepence. Stamped Edition, 6d.

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ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON.
A MEETING of the FRUIT and FLORAL COMMITTEES will be held on TUESDAY NEXT, December 5, at 11 o'clock.

Chrysanthemums.
ADAM FORSYTH begs to inform his friends and the public that his Specimen and other CHRYSANTHEMUMS are NOW in FLOWER, and can be seen every day, Sunday excepted.
Brunswick and Shacklewell Nurseries (opposite West Hackney Church), Stoke Newington.

NEW CHRYSANTHEMUMS, 1865, are now ready in strong Plants at 5s. per doz.
W. Holmes, Frampton Park Nursery, Hackney, N.E.

BUTLER AND McCULLOCH'S ILLUSTRATED PRICED CATALOGUE, containing particulars of their Choice COLLECTIONS of DUTCH and CAPE FLOWERING BULBS, sent free and post paid upon application.
Butler & McCulloch, South Row, or Strand side, opposite Southampton Street, Covent Garden Market, W.C.

SURPLUS STOCK of IMPORTED DUTCH BULBS.
See large Advertisement, page 1148.
Barr & Sugden, Seed, Bulb, and Plant Merchants, 12, King Street, Covent Garden, W.C.

FINEST DUTCH CROCUS, from 1s. 6d. to 3s. 6d. per 100. Finest BORDER TULIPS, 6s. per 100. SINGLE and DOUBLE SNOWDROPS, 2s. 6d. per 100.
See William Hooper's GENERAL BULB CATALOGUE, free on application to St. John's Hill, Wandsworth, S.W.

To Gladiolus Growers.
SUTTON'S PRICED LIST of the best Sorts exhibited this Season is now ready, and will be forwarded post free.
Sutton & Sons, Royal Berks Seed Establishment, Reading.

FRENCH GLADIOLI.
The Newest and most beautiful Varieties.
Barr & Sugden, Seed, Bulb, and Plant Merchants, 12, King Street, Covent Garden, W.C.

J. DOBSON AND SONS have a fine healthy stock of GERANIUMS and CINERARIAS, now ready for sending out. Prices very moderate.
See CATALOGUE post free.
Woodlands Nursery, Isleworth, W.

To the Trade.
DOBSON AND SONS' Sealed Packets of Extra CHOICE SEEDS, as supplied to the leading Seedsmen, &c., in the United Kingdom and abroad, are now ready.
TRADE LIST post free.
J. Dobson & Sons, Seedsmen, Isleworth, W.

WELLINGTONIA and CUPRESSUS.—WELLINGTONIA GIGANTEA, strong and handsome plants, 3, 4, and 5 feet, and nearly as much through; were all lifted in the spring. Also CUPRESSUS LAWSONIANA, 4 to 5 feet.
Thomas S. Ware, Hale Farm Nursery, Tottenham, N.

1865 and 1866.
EDWARD P. FRANCIS AND CO.'S NEW DESCRIPTIVE CATALOGUE is now ready, and will be forwarded gratis on application. Intending purchasers will find it to be a most useful guide. The Nurseries, Hertford, Herts.

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WOOD AND INGRAM'S General CATALOGUE of NURSERY STOCK, including Seedling and Transplanted Forest Trees, Ornamental Trees and Shrubs, Roses, and Fruit Trees, is now ready, and will be sent free on application.

THE INVINCIBLE SCARLET SWEET PEA.
The Trade can still be supplied. Price on application.
Stephen Brown, Seed Grower, Sudbury, Suffolk.

EARLY PEAS, BEANS, &c.—Orders can now be executed for the above, in New Seed, Crop 1865.
James Carter & Co., 237 and 238, High Holborn, London, W.C.

FORTY-FOLD POTATO (The True Variety).
Price on application to
James Dickson & Sons, 102, Eastgate Street, Chester.

EARLY KIDNEY POTATOS.—Webb's Telegraph, first early, 20s. per bushel; Webb's President, second early, 16s. per bushel; Webb's Imperial Kidney (best Potato known for all purposes), 12s. per bushel.
Apply to Mr. Webb, Calcot Gardens, Reading.

To the Trade.
BALLANTYNE AND SON are now booking orders for MUSSELBURGH LEEK, True, grown expressly for their own retail trade. Early orders are respectfully solicited. Price on application.
Nursery and Seed Establishment, Dalkeith, N.B.

Yellow Globe Mangel Seed.
MR. S. A. DAINTREE, of Fendrayton, St. Ives, Hunts, has a good stock of the above of his own growth and selection, which he offers to the Trade at 30s. per cwt., nett cash. Samples on application.

Genuine Garden and Agricultural Seeds.
JAMES CARTER AND CO.,
Seed Farmers, Merchants, and Nurserymen,
237 and 238, High Holborn, London, W.C.

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Special prices and advantageous offers on application to
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Prompt Returns made for Consignments of Fruit and other Produce sent on Commission by Merchants or Growers.
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H. AND F. SHARPE,
Seed Growers and Merchants, Wisbech.
SPECIAL PRICED LIST of NEW SEEDS on application.

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Special quotations for CARROT and all other GARDEN and AGRICULTURAL SEEDS upon application.

Nursery and Seed Establishment (Established 1787).
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Seedsmen, and Florists, Dumfries, N.B.
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WM. PAUL (Son and Successor to the late A. Paul) begs to announce that his NEW DESCRIPTIVE CATALOGUE of ROSES is now ready, and will be forwarded on application, free by post. The stock is large and in splendid condition.
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Now ready, 1865 and 1866.
PAUL AND SON'S NEW ROSE CATALOGUE.
See Note on Forcing Roses. Post free on application.
Old Cheshunt Nurseries, N.

Select List of Show Roses, Old and New.
Consult
JOHN KEYNES' CATALOGUE.
Salisbury.—Dec. 2.

ROSES.—A DESCRIPTIVE CATALOGUE of ROSES, by Thos. Rivers, free per post.
Nurseries, Sawbridgeworth.

NEW ROSE CATALOGUE for 1865 and 1866, also GENERAL CATALOGUE of NURSERY STOCK.
Woodlands Nursery, Maresfield, near Uckfield, Sussex.
Wm. Wood & Son will be happy to forward copies of the above on application.

To the Trade.
STANDARD and HALF STANDARD ROSES.
SPRUCE FIRS, from 2 to 3½ feet.
H. Minchin has a quantity of the above to offer cheap. Prices on application. The Nurseries, Hook Norton, Oxon.

To the Trade.—Hybrid Perpetual Roses.
HUSSEY AND SON have several thousand fine Plants of the above, all first-class varieties, to offer. STANDARDS at £3 per 100. DWARFS, budded on Manetti stocks, £2 per 100.
Mile End Nursery, Eaton, Norwich.

1865 and 1866.
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The Lea Bridge Road Nurseries, N.E.

Wholesale Catalogue.
GEORGE JACKMAN AND SON will have much pleasure in forwarding on application, free by post, their DESCRIPTIVE and PRICED CATALOGUE of NURSERY STOCK for 1865 and Spring 1866.
Woking Nursery, Surrey.

Early Spring Flowers.
WEBB'S GIANT POLYANTHUS, and GIANT COWSLIPS, and other varieties, largest stock in England.
List and prices on application to Mr. Webb, Calcot Gardens, Reading.

PELARGONIUM MRS. POLLOCK.—Strong Summer-struck Plants, well established in 60-pots, at 15s. per dozen.
The Trade supplied.
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DWARF-TRAINED PEACHES, NECTARINES, and APRICOTS; Standard APPLES, and THORNS; Dwarf-trained VICTORIA PLUM, fine, and at reasonable prices.
Paul & Son, Old Cheshunt Nurseries, N.

To the Trade.
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FRANCIS AND ARTHUR DICKSON AND SONS can supply the above in fine, clean, healthy Trees.
Prices moderate, which will be forwarded on application.
"Upton" Nurseries, Chester.

To the Trade.
RASPBERRIES.
CARTER'S PROLIFIC, 15,000 to 20,000. Can be had of
Richard Chatfield, Market Gardener, Seven Oaks, Kent.
4 to 6 ft., £4 per 1000; 3 to 4 ft., £3; under 3 ft., £2.

HEAVY LANCASHIRE SHOW GOOSEBERRY TREES, 6s. per dozen. CATALOGUES on application.
Holland & Jones, Bradshaw Gardens, Chadderton, near Manchester.

WEBB'S PRIZE COB FILBERTS, and other Prize Nuts and Filberts. Trees of these splendid Nuts to be had of Mr. Webb, Calcot Gardens, Reading. Catalogues on application

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
Richard Smith, Nurseryman and Seed Merchant, Worcester.

ORCHARD HOUSE TREES, in Pots.—Any Gentleman requiring PEACH or NECTARINE TREES in pots, can supply himself with large and very superior Trees by applying to
Mr. James Clarke, Knowsley Cottage, Prescot.
The Trees are parted with from want of space.

VINES, from Eyes.—Now ready, a DESCRIPTIVE CATALOGUE of GRAPES, by Thos. Rivers, free per post.
Nurseries, Sawbridgeworth.

HAMPTON COURT BLACK HAMBURGH VINE.—Strong plants from Eyes of this excellent Grape, 5s. each; 50s. per dozen.
T. Jackson & Son, Nursery, Kingston, S.W.

Grape Vines.
S. GLENDINNING AND SONS have a splendid lot of extra fine Fruiting Canes.
PRICED LIST may be had on application.
Chiswick Nursery, London, W.

Fruiting Vines.
E. G. HENDERSON AND SON offer the above, with splendid Canes of well-matured growth, with prominent eyes, sure to give a heavy crop of fruit, 10s. 6d. each.
LIST of SORTS sent on application.
Wellington Nursery, St. John's Wood, London, N.W.

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WM. CUTBUSH AND SON have a fine stock of the above. CATALOGUE gratis on application.
Highgate Nurseries, London, N.

British Queen Pear.
CHARLES TURNER has strong Fruiting Pyramids of this fine NEW PEAR, 5s. each; also Dwarf-trained, Bush, and Maiden Trees.
The Royal Nurseries, Slough.

Fruit Trees.
CHARLES TURNER has these of extra size, with well-ripened wood set for bloom, and in great variety.
CATALOGUES on application.
The Royal Nurseries, Slough.

Fruit Trees.
S. GLENDINNING AND SONS invite attention to their superb stock of healthy well-grown FRUIT TREES.
PRICE LIST on application.
Chiswick Nursery, London, W.

To Nurserymen.
NINE BUSHELS of EVERGREEN OAK ACORNS.
Offers received for the Parcel.
Barr & Sugden, 12, King Street, Covent Garden, W.C.

THE GREAT NURSERIES of CORDIER, at Bernay (Eure), France.
More than 100,000,000 FOREST TREES for Plantations.
" 3,000,000 APPLES and other Fruit Trees for exportation

Seedling and Transplanted Forest Trees, &c.
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Dundee, N.B.
Special quotations to the Trade on application.

Forest Trees, Ornamental Trees, and Shrubs.
PETER LAWSON AND SON'S CATALOGUE for the current Season is now ready, and will be forwarded, free, on application. Edinburgh and London.

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CHARLES SHARPE AND CO., Sleaford, have a large quantity of the above to offer. Price and Sample sent on application.

To Planters of Larch and Quick.
SAMUEL COX, Nurseryman, Ludlow, has a large quantity to offer, from 1 to 5 feet high. Price on application. Also STANDARD ROSES, first-class kinds, own selection, 18s. per dozen; DWARF, strong, 12s. per dozen. CATALOGUES post free.

Larch and Scotch Fir.
MITCHELL AND YOUNG, Brechin, N. B., beg to offer to the Trade 150,000 LARCH, 1½ to 2 feet, and 100,000 SCOTCH FIR, 9 to 12 inches, all healthy and well grown.
Samples and prices on application.

Larch and Scotch Fir.
W. WITTY AND SON have to offer 200,000 LARCH, from 2 to 2½ feet, stiff and well-rooted; and 50,000 SCOTCH FIR, from 12 to 18 inches; all healthy and well grown.
The Nurseries, Cottingham, near Hull.

LARCH FIRS, BERBERIS AQUIFOLIUM, and TREE BOX for Covers; also FRUIT TREES of all kinds, to be Sold cheap, surplus stock. Also PRIVET BERRIES.
Robt. H. Poynter, Seedsman and Nurseryman, Taunton, Somerset.

WANTED, 40 LARCH FIRS, 12 to 14 feet; 50 BEECH, 12 to 14 feet; COMMON LAUREL, 4 to 7 feet. Must be well rooted. State price delivered.
Geo. J. Woollett, Nurseries, Caterham, Surrey.

Winter-flowering Heaths.
JOHN FRASER, Lea Bridge Road Nurseries, N.E., begs to offer fine plants of ERICA HYEMALIS, and other Winter-flowering sorts, now coming into full bloom. The prices will be given on application. A reference or remittance respectfully requested from unknown correspondents.

TO BE SOLD, Cheap, for Cash, a quantity of very fine strong TRANSPLANTED LARCH.
Apply to Dreghorn & Aitken, Nurserymen, Kilmarnock, N.B.

LARGE ENGLISH and IRISH YEWS.—Handsome single-stemmed ENGLISH and IRISH YEWS, 7, 8, and 9 feet high. Price according to size and number required on application to
T. Jackson & Son, Nurseries, Kingston, S.W.

LARGE EVERGREENS.—A quantity of LARGE EVERGREENS, DECIDUOUS SHRUBS, FRUIT, FOREST, and ORNAMENTAL TREES, with a general Collection of Nursery Stock of all kinds, Selling off Cheap, at
R. T. Pennett's Nursery, Park Lane, Tottenham, N.E.

To the Trade.
CUPRESSUS LAWSONIANA SEED (True), of best quality. Crop of 1865. Price 5s. per oz., post free; 5 oz., 20s.; 8 oz., 30s.
Charles Burgess, The Nurseries, London Road, Cheltenham.

TO the TRADE.—10,000 LAURUSTINUS, Cheap. They are fine young healthy, bushy, and well-rooted plants, 15 to 18 inches, twice transplanted, and well set with bloom. Apply to
W. Rossiter, Nurseryman and Seedsman, Paignton, Devon

To Gentlemen, Nurserymen, and Others.
TO BE SOLD, from 6,000 to 10,000 COMMON LAURELS, from 2 to 7 feet high, at 6s. per 100; also a large quantity of FOREST TREES, SHRUBS, &c.
William Hood, Nursery Ground, Ashby-de-la-Zouch, Leicestershire.

Elvaston Nurseries.—Important to Planters.

WILLIAM BARRON begs to offer the following at extremely low figures to Noblemen, Gentlemen, and others engaged in Planting on a large scale:—

PINUS LARICIO (true).—This highly ornamental tree surpasses the Larch both as to rapidity of growth and quality of timber. It will thrive where the Larch will not. It is also used as spars and masts in the French navy. Two-year Seedlings.

PINUS ROMANA.—Two-year Seedlings.

PINUS PALLASIANA.—Two-year Seedlings.

ABIES MENZIESII.—Few people are aware of the value of the timber of this beautiful tree. 2½ to 3 feet.

PICEA NOBILIS.—Very fine. 6 to 9 inches.

BERBERIS DARWINII.—Too much cannot be said of this fine evergreen species. It is hardy, and the profusion of its orange-coloured blossoms, together with the quantity of berries which it bears (of which pheasants are very fond,) render it one of the most attractive and desirable plants for lawn, as well as cover planting, ever introduced. One-year Seedlings.

BERBERIS WALLICHIANA.—One-year Seedlings.

MAHONIA JAPONICA.—These plants cannot be too highly recommended. For cover planting they must become favourites. Their foliage is magnificent; they produce fruit in abundance, much relished by pheasants, &c., and are proved to be the hardiest of all hardy plants. 6 to 12 inches.

Prices will be forwarded on application.

Elvaston Nurseries, Borrowash, near Derby.

RICHARD SMITH,

NURSERYMAN and SEED MERCHANT, Worcester.

ROSES.—12 of the very best Standard, Perpetual, and Moss Roses for 18s.; 50 for 63s.; 100 for £5.
12 ditto Dwarf do. do. for 12s.; 50 for 42s.; 100 for 75s.
12 ditto, New Sorts of 1865, for 24s.
Descriptive List on application.

FORTY ACRES of FRUIT TREES.—Apples, Pears, Plums, Cherries, Peaches, Nectarines, and Apricots in every form desired for Fruiting.

DWARF-TRAINED TREES, by the Thousand, Hundred, or Dozen.
APPLES, PEARS, PLUMS, CHERRIES, PEACHES, and NECTARINES.
Fine, flat, well-trained, of best quality, and true to name.

PYRAMID APPLES, PEARS, PLUMS, CHERRIES.
Beautiful Trees for Garden or Orchard Houses.

ORCHARD-HOUSE TREES, Fruiting in Pots.—Peaches, Nectarines, Apricots, Cherries, Plums, Pears, Apples, Vines, and Figs.

EVERGREENS for Ornamental Planting or Avenues, handsome, well grown, and transplanted within the last two years. For prices of smaller sizes and quantities, see Conifer List.

At 30s. per dozen:—

Abies alba, 5 to 7 feet	Juniperus thurifera, 3 to 4 feet
„ Douglasii, 3 to 4 feet	Laurel, Colchic, 5 to 6 feet
„ inverta, 1½ to 2 feet	„ Portugal, Pyramids, 3 to 4 ft.
„ orientalis, 1½ to 2 feet	Pinus cembra, 3 to 4 feet
Arbor-vitæ, American, 6 to 7 feet	„ excelsa, 5 feet
„ Siberian, 4 to 5 feet	Taxodium sempervirens, 7 to 8 ft.
Cedar, Red, 5 to 6 feet	Thuja Lobbii, 3 to 4 feet
Cryptomeria viridis, 4 to 5 feet	„ aurea, 1½ foot
Cupressus Lawsoniana, 3 to 4 feet	„ compacta, 1½ to 2 feet
„ fragrans, 3 feet	Thujopsis borealis, 3 feet
Irish Yew, 4 to 5 feet	Wellingtonia gigantea, 2 feet

At 42s. per dozen:—

Abies Douglasii, 4 to 5 feet	Pinus excelsa, 6 feet
„ inverta, 2 to 2½ feet	„ Lambertiana, 3 to 4 feet
„ orientalis, 2 to 2½ feet	„ insignis, 3 to 4 feet
„ pyramidalis, 2 to 2½ feet	Thuja Lobbii, 4 to 5 feet
Araucaria imbricata, 2 to 2½ feet	„ compacta, 2 to 2½ feet
Arbor-vitæ, Siberian, 5 to 6 feet	„ aurea, 2 feet
„ American, 7 to 8 feet	Thujopsis borealis, 4 feet
Cedar, Red, 6 to 8 feet	Wellingtonia gigantea, 2½ feet
Cupressus Knightii, 6 to 7 feet	Yew, Irish, 5 to 5½ feet
„ Lawsoniana, 4 to 4½ ft.	Laurels, Pyramid, Portugal, 4 to 4½ feet
Juniperus thurifera, 4 to 5 feet	„ Colchic, 6 to 7 feet
Pinus Cembra, 4 to 5 feet	

At 60s. per dozen:—

Abies inverta, 2½ to 3 feet	Juniperus thurifera, 5 to 6 feet
„ Douglasii, 5 to 5½ feet	Laurels, Pyramid Portugal, 5 ft.
„ Menziesii, 5 to 6 feet	Pinus excelsa, 6 to 8 feet
„ orientalis, 2½ to 3 feet	„ Lambertiana, 5 to 6 feet
„ pyramidalis, 3 to 4 feet	„ Cembra, 5 to 6 feet
Araucaria imbricata, 2½ to 3 feet	Thuja japonica, 2½ to 3 feet
Arbor-vitæ, Siberian, 6 to 7 feet	„ aurea, 2½ feet
Cedrus Deodara, 6 feet	Taxodium sempervirens, 8 to 10 ft.
Cupressus Knightii, 7 to 8 feet	Wellingtonia gigantea, 2 feet
„ Lawsoniana, 5 feet	Yew, Irish, 6 feet

At 84s. per dozen:—

Abies Douglasii, 7 to 8 feet	Cedrus Deodara, 7 to 8 feet
„ inverta, 3 to 4 feet	Juniperus thurifera, 6 to 7 feet
„ Menziesii, 6 to 8 feet	Pinus excelsa, 8 to 10 feet
„ orientalis, 3 to 4 feet	Taxodium sempervirens, 10 to 12ft.

Each:—

Abies Douglasii, 8 to 10 ft., 12s. 6d.	Picea nobilis, 2½ to 5 ft., 21s. to 63s.
„ „ 10 to 12 feet, 15s.	„ Nordmanniana, 2½ to 4 feet, 10s. 6d. to 42s.
„ „ 12 to 15 feet, 21s.	„ „ 4 to 6 feet, 42s. to 84s.
„ inverta, 4 to 5 feet, 10s. 6d.	„ Pinsapo, 3 to 5 ft., 10s. 6d. to 42s.
„ „ 6 feet, 21s.	Pinus excelsa, 10 to 12 feet, 10s. 6d.
Araucaria imbricata, 3 to 4 feet, 7s. 6d. to 21s.	„ „ 12 to 15 feet, 15s.
„ „ 4 to 8 ft., 21s. to 84s.	„ Lambertiana, 6 to 8 feet, 10s. 6d. to 21s.
Cedar of Lebanon, 8 to 10 feet, 21s.	Thuja incurvata, 8 to 9 ft., 10s. 6d.
Cedrus Deodara, 8 to 10 ft., 10s. 6d. to 21s.	Taxodium sempervirens, 12 to 15 feet, 10s. 6d. to 15s.
Picea nobilis, 2 to 2½ feet, 10s. 6d. to 21s.	

American Arbor-vitæ, for Hedges, 3 to 4 feet, at 50s. per 100.
„ „ „ 4 to 5 feet, at 75s. „
„ „ „ 5 to 6 feet, at 100s. „

FLOWERING and STANDARD ORNAMENTAL TREES. At 12s. per dozen:—

Ash, Mountain, 7 to 9 feet	Chestnut, Spanish, 6 to 8 feet
Acacia, 7 to 9 feet	Hornbeam, 8 to 10 feet
Birch, Weeping, 8 to 10 feet	Poplar, Silver, 8 to 10 feet
Crab, Siberian, scarlet, 6 to 7 feet	„ Lombardy, 9 to 10 feet
„ yellow, 6 to 7 feet	Pyrus spectabilis, 6 to 7 feet

At 18s. per dozen:—

Almond, flowering, 7 to 8 feet	Chestnut, Spanish, 8 to 10 feet
Acacia, 8 to 10 feet	Cytisus, 3 to 4 feet
Ash, Mountain, 9 to 12 feet	Elm, Chichester, 8 to 10 feet
Acer Negundo, 6 to 8 feet	Poplar, Lombardy, 11 to 12 feet
Birch, 10 to 12 feet	„ Silver, 10 to 12 feet
Crab, Siberian, yellow, 7 to 8 feet	Pyrus spectabilis, 7 to 8 feet
„ scarlet, 7 to 8 feet	Thorn, double pink, 6 to 7 feet

At 30s. per dozen:—

Almond, flowering, 8 to 10 feet	Cytisus in variety, 4 to 5 feet
Acer Negundo variegata, 6 to 8 ft.	Poplar, Silver, 12 to 15 feet
Acacia, ball, 6 to 7 feet	Thorns, double pink, 8 to 10 feet
Chestnut, scarlet, 6 to 8 feet	Willow, Ameri. Weeping, 6 to 8 ft.

RICHARD SMITH'S LIST of all the EVERGREEN FIR TRIBE, suitable for Britain, giving size, price, popular and botanical names, derivations, description, form, colour, foliage, growth, timber, use in arts, native country and size there, situation, soil, and other information, with copious Index of their synonymes.
Enlarged Edition, free by post for 12 postage stamps.

RICHARD SMITH'S FRUIT LIST contains a sketch of the various forms of Trees, with Directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Cropping, Treatment under Glass; also their synonymes, quality, size, form, skin, colour, flesh, flavour, use, growth, duration, season, price, &c.
Free by post for one stamp.

RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

D. S. THOMSON begs to inform intending Planters that he has a large assortment of TREES and SHRUBS in excellent condition for planting, being well-rooted, young and healthy. An enormous quantity of IVIES and HARDY CLIMBING PLANTS on reasonable terms. Planting contracted for.
The Nursery, 3 minutes' walk from the Wimbledon Station, Main Line South Western Railway.

F. PERKINS begs to offer the following, all of which are in fine condition for removal:—
LIMES, 6 to 8, 8 to 10, and 10 to 12 feet.
COPPER BEECH, 5 to 6, and 6 to 8 feet.
LOMBARDY POPLARS, 6 to 8, 8 to 10, and 10 to 12 feet.
HORSE CHESTNUTS, 6 to 8 feet.
Also a large quantity of LARCH FIR, 1½ to 2, 2 to 3, and 3 to 4 ft.
PAMPAS GRASS, fine in pots. Prices on application to
FREDERICK PERKINS, Bedford Road Nurseries, Northampton.

G. J. WOOLLETT begs to offer the following, cheap:—About 20,000 HORSE CHESTNUTS, 1-year Seedling; 2000 strong ENGLISH OAK, 4 to 8 feet; 1000 COMMON ASH, 6 to 9 ft.; 300 SYCAMORE, 5 to 7 feet; strong IRISH IVIES, 4 to 6 feet; SPANISH CHESTNUT, 6 to 8 feet; PURPLE BEECH, 2 to 3 feet; Standard THORNS, of sorts; SPRUCE FIR; RIBES, of sorts, 2 to 3 feet; Standard and Dwarf ROSES, &c. As the ground is required for building, they will be sold cheap. Price on application.
Nurseries, Caterham, Surrey.

Irish Yews, Hollies, Cucumber Seed, &c.

W. WRIGHT, East Retford, Nottinghamshire, begs to offer:—
IRISH YEWS, 1½ to 2½ ft., 25s. per 100; 2½ to 3½ ft., 30s. per 100.
„ 5 to 6 ft., 15s. per dozen; 120s. per 100.
„ 6, 7, and 8 ft., 3s. 6d., 5s. 6d., to 7s. 6d. each; these are handsome specimens, pruned to one stem.
HOLLIES, 15 to 18 inches, 15s. per 100; 1½ to 2 ft., 3s. 6d. per dozen, 24s. per 100.
HOLLIES, 2 to 3 ft., 7s. 6d. per dozen, 48s. per 100.
PRIVET, 10 to 12 inches, 6s. 6d. per 1000.
CUCUMBER SEED—Carter's Champion, Improved Sion House, Lord Kenyon, Wright's Improved Black Spine, and Wright's Wonder, 15s. per ounce, 1s. per packet.
CATALOGUES of TREES, SHRUBS, &c., on application.
Terms Cash, or Reference from unknown correspondents

ONE MILLION strong HAWTHORN QUICK, 15s. to 20s. per 1000; samples of 100 for 2s. 6d.
Half a Million strong LARCH, 18s. to 25s. per 1000; samples of 100 for 2s. 6d., will be sent on application.
Large EVERGREENS, extremely cheap. Prices according to quantity required.

24s. per dozen:—
ABIES DOUGLASII, 3 to 4 feet; A. ALBA, 5 to 6 feet; A. MENZIESII, 3 to 4 feet; A. MORINDA, 3 to 4 feet.
ARBOR-VITÆ, American, 4 to 5 feet; Chinese, 5 to 7 feet.
BIOTA GLAUCA, 2 feet; B. AUREA, 1½ foot; B. JAPONICA, 2 feet; B. COMPACTA, 2 to 3 feet.
CUPRESSUS LAMBERTIANA, 4 to 5 feet; C. LAWSONIANA, 3 feet; C. GOVENIANA, 3 feet.
PINUS EXCELSA, 4 to 5 feet; P. AUSTRIACA, 4 feet; P. INSIGNIS, 3 to 4 feet; P. PYRENAICA, 2½ feet; P. PALLASIANA, 2 to 3 feet.
LAURUSTINUS, fine bushes, 2 to 3 feet through.
PORTUGAL LAURELS, 3 to 4 feet.
YEW, IRISH, 4 to 5 feet; YEW, COMMON, 4 to 5 feet.
Prices for larger Evergreens on application.
GEORGE DAVISON, White Cross Nurseries, Hereford.

To the Trade.

2,000,000 of TRANSPLANTED LARCH, very fine. For price apply to
JAMES SMITH, Darley Dale Nurseries, near Matlock.

TO THE TRADE.
2,000,000 of TRANSPLANTED ALDER, BIRCH, ASH, QUICK, SCOTCH, SPRUCE, BEECH, &c. For price apply to
JAMES SMITH, Darley Dale Nurseries, near Matlock.

TO THE TRADE.
4,000,000 of RHODODENDRONS. For price apply to
JAMES SMITH, Darley Dale Nurseries, near Matlock.

TO THE TRADE.
40,000 HARDY HEATHS, MENZIESIAS, KALMIAS, LEDUMS, ANDROMEDAS, &c. For price apply to
JAMES SMITH, Darley Dale Nurseries, near Matlock.

TO THE TRADE.
60,000 DWARF EVERGREENS for covering or planting under Trees, including COTONEASTERS, PERNETTYAS, Double Blue and Double Purple VINCA, VINCA ELEGANTISSIMA, VINCA MINOR VARIEGATA, &c. For price apply to
JAMES SMITH, Darley Dale Nurseries, near Matlock.

TO THE TRADE.
80,000 EVERGREENS, including COMMON and PORTUGAL LAURELS, YEWS, BERBERIS, CEDARS, JUNIPERS, THUJOPSIS, CUPRESSUS LAWSONIANA, &c. For price apply to
JAMES SMITH, Darley Dale Nurseries, near Matlock.

To Farmers, Gardeners, and the Trade.

EXCELLENT STRONG CABBAGE PLANTS may be had in large or small quantities of the following well-known good sorts at 2s. 6d. per 1000 for cash:—Early Nonpareil, Early York, East Ham, Robinson's, Large Drumhead or Cattle.
A SPECIAL PRICE LIST of NEW SEEDS on application.
A remittance must accompany all orders.
FREDERICK GEE, Seed Merchant and Grower, Biggleswade, Beds.

Caution.—Nuneham Park Onion.

WM. CUTBUSH AND SON having purchased the entire stock of this superb ONION, beg to CAUTION their friends and the public against the gross misrepresentations of a person in the service of a London Seed Firm, who booked and received cash from a gentleman for Seed at the Guildhall, where the Onion was exhibited, the order having subsequently been executed with another variety totally distinct. No one will be able to supply it true, except our accredited Agents, whose names will be published in the *Gardeners' Chronicle*.
WM. CUTBUSH & SON have been requested to state that Messrs. J. CARTER & Co. are not the Firm alluded to above. It is necessary to make this statement, as there were only two London Seed Firms exhibitors. Highgate Nurseries, London, N.

Sutton's Ringleader (or Carter's First Crop) Pea.

THE EARLIEST PEA IN CULTIVATION.

MESSRS. SUTTON, anticipating a large demand this season for the above popular Pea, respectfully request early orders, the stock being limited.

The following Seedsmen have already ordered a supply:—
Messrs. Cooper & Bolton, 152, Fleet Street, London, E.C.
„ Hurst & Son, 6, Leadenhall Street, London, E.C.
„ Minter, Nash, & Nash, 60, Strand, London, W.C.
„ Jacob Wrench & Son, London Bridge, London, S.
„ Waite, Burnell, & Co., 181, High Holborn, London, W.C.
„ Nutting & Sons, 60, Barbican, London, E.C.
„ Thorburn & Co., New York, U.S.A.
„ Dobson & Sons, Woodlands Nursery, Isleworth, W.
„ J. & C. Lee, Hammersmith, W.
„ Osborn & Sons, Fulham, London, S.W.
„ Rutley & Co., 412, Strand, W.C.
„ Garaway & Co., Durdham Down, Bristol.
Mr. J. Veitch, Chelsea, London, S.W.
Mr. Christmas Quincy, Peterborough.
Price to the Trade on application.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

DICKSON'S "FIRST and BEST" EARLY PEA.

THE BEST EARLY PEA IN CULTIVATION.

This Pea has been tested against all the earliest varieties, and is pronounced by most of the best practical Gardeners in the kingdom to be superior to any other Early Pea for its productiveness, and general good qualities. Price per quart, 2s. 6d.

PRICED CATALOGUES of KITCHEN-GARDEN, Flower, and AGRICULTURAL SEEDS; also separate CATALOGUES of the Various Classes of Nursery Stock will be forwarded, post free, on application.

FRANCIS & ARTHUR DICKSON & SONS, The Old Established Seed Warehouse, 106, Eastgate Street, and Upton Nurseries, Chester.

THE EARLIEST and BEST OUT-DOOR GROWN PEA we have tasted this season—vide *Journal of Horticulture* of the 13th of June, 1865; it was also favourably noticed in the *Gardeners' Chronicle* of June 3, 1865.

The above Early Pea is now being sent out by ROBERT H. POYNTER, at 1s. 6d. per quart. Height 3 feet. The kind was gathered from a good condition as early as the 20th of May, and was sent to the Editor as above on the 28th.

None genuine except from accredited Agents.
All over two quart packages free on Great Western Railway.
ROBERT H. POYNTER, Seed Merchant, Taunton.

The Yorkshire Hero Pea.

E. P. DIXON AND SON, SEED MERCHANTS, 57, Queen Street, Hull, beg to intimate that they have this year harvested a fine lot of their YORKSIRE HERO PEA, a variety sent out by them, which has always sustained the very high character given of it, being remarkably prolific, early, and of good flavour. This Pea is similar in appearance to Veitch's Perfection, but much dwarfer, about a fortnight earlier, and far more prolific; upwards of 70 pods are frequently found upon a stem. It is a Pea which withstands the mildew better than any other, and we have every confidence in saying that it is the best Pea extant.

All who have grown the Yorkshire Hero Pea have pronounced it to be the best variety of its class, and one which will become a great favourite in every garden. Price 2s. per quart.

TESTIMONIALS.

From Mr. THOMAS GIBB, *Gardener to the* Right Honourable the Earl of Yarborough, *Brocklesby Park Gardens.*

"I grew the Yorkshire Hero Pea the last season, and found it an abundant bearer and an excellent Pea of the Marrow sort. It resisted the hot weather of July, and remained quite green to the last, while other sorts at the same time were covered with mildew."

From Mr. WILLIAM BROWN, *Gardener to* Sir T. A. Clifford Constable, Bart., *Burton Constable Gardens.*

"I am highly pleased with your new Pea, 'The Yorkshire Hero,' and shall give it my best recommendation. I believe it to be the best Dwarf Pea grown, and much superior to Veitch's Perfection; it is dwarfer, much earlier, and more prolific."

From Mr. JAMES ROBERTSON, *Gardener to the* Dowager Countess of Ripon, *Nocton Hall Gardens.*

"It gives me great pleasure to contribute my mite of praise to the very excellent Pea sent out by you last season, under the name of 'The Yorkshire Hero.' I sowed it in the months of March, May, and June, each of which sowings were equally productive, and very prolific, and in point of flavour cannot be surpassed. Several gentlemen in this neighbourhood tasted, and spoke very highly of it, and I think it a remarkably distinct variety, and one that will become a general favourite."

From Mr. WALTER HARDIE, *Forester to the* Right Honourable the Earl of Yarborough, *Brocklesby Park Nursery.*

"Having grown the 'Yorkshire Hero' Pea, I can bear testimony to its excellence in every respect, especially its delicious flavour and productiveness."

From Mr. GEORGE FAIRBANKS, *Gardener to* Joseph Robinson Pease, Esq., *Hesslewood House, near Hull.*

"I had some of the 'Yorkshire Hero' Peas from you the past season, and can truly say that it is a most excellent sort; being dwarf, of most delicious flavour, and an extraordinary bearer, withstood the mildew better than any other Pea we had."

From Mr. W. KEMP, *late Gardener to* Sir Thomas Beckett, Bart., *Somerby Park.*

"The Yorkshire Hero Pea is a splendid variety of the Marrow, 2½ feet in height, very branching, and an abundant bearer; requires sowing very thin in good rich soil, and will produce from 50 to 70 well-filled pods of a most delicious flavour, and very; the skin, full 10 days or a fortnight earlier than Veitch's Perfection, and superior in every respect; it is the best Pea I am acquainted with, and will become a general favourite in every garden requiring such an immense forest of sticks to support them as other sorts do. I may further mention that from the part of seed I from you I have saved 6 pecks of well-ripened Peas, which I easily dispose of at 5s. per quart to those who saw them in bearing."

From R. R. BROWN, Esq., *Bridlington Quay.*

"I have great pleasure in subscribing my testimony in favour of the wonderfully productive qualities of your Yorkshire Hero; they are very large, and at the same time delicious eating, and I pronounce them, with the greatest degree of truth, to be the dwarf Pea I have ever grown."

Price 2s. per quart. Price to the Trade on application.
E. P. DIXON & SON, The Yorkshire Seed Establishment, 57, Queen Street; also 76 and 77, High Street, Hull.

NEW PRIZE MELONS.

E. G. HENDERSON & SON

Respectfully offer the following Varieties as worthy of a place in all selections of DESSERT FRUIT, having received high commendations in favour of their superior quality and growth.

Wills's Oulton Park Hybrid (scarlet-fleshed).

Fruit round, of medium size, from 2 to 2½ lb. in weight; flesh bright salmon-scarlet, very rich in flavour, remarkably tender and melting. Considered by the eminent judges to whom it was submitted on two occasions as "a great acquisition among Melons." The plant is vigorous in growth, not subject to canker or die off at the collar; a free setter, and by judicious treatment yielding a second crop almost equal to the first.

Of this variety Dr. Hogg bears his testimony as follows:—"Your Melon is by far the finest scarlet-fleshed variety I ever tasted, and very distinct, and well deserves the highest Certificate which has been awarded."

Wills's Green Pine-apple Gem (green-fleshed).

This beautiful and distinct variety in growth is of an excellent constitution, free and vigorous, not subject to disease at the collar or base of the stem, an abundant bearer, sure setter, swelling fruit off regularly, which is round, rather larger than the "Gem," from which it was obtained by a cross with the "Cashmere" variety. The fruit is generally smooth, but sometimes beautifully netted. Flesh green as grass, tender and very rich, a rich Pine-apple flavour. It was regarded by the judges by whom it was awarded a Certificate, as the best green-fleshed in cultivation.

The above varieties of Melons received their respective Testimonials of Merit from the Fruit Committee of the Royal Horticultural Society.

Seed Packets, 2s. 6d. and 5s. each. The Trade supplied.

E. G. HENDERSON AND SON, WELLINGTON NURSERY, ST. JOHN'S WOOD, N.W.

Lincolnshire Gem Dwarf and Giant Hales Tall Marrow Peas.

MARTIN AND SON, 7, Market Place, Hull, and Cottingham, beg respectfully to offer the above NEW PEAS, which are of first-class excellence, as the following Testimonials testify. In sealed packages, 3s. 6d. per quart.

From Mr. USHER, *Gardener to* Major Sykes, *West Ella*.

"The Lincolnshire Gem Pea is one of the finest Peas in cultivation, a dwarf, immense cropper, and fine flavour, much superior to Dixon's Yorkshire Hero, and earlier than Veitch's; the quality of your seeds in general has always pleased me."

From *The Grange, Cottingham*, Mr. G. COTTAM, *Gardener to* Jno. Ringrose, Esq.

"The Lincolnshire Gem Pea is the best Pea I ever grew, superior to Veitch's or Dixon's Yorkshire Hero, immensely prolific, of good flavour, height about 2½ feet, and loaded with fine long pods of a great green colour; it is also very early; Giant Hales is tall growing, and a very great cropper; these Peas are superior to any Peas I have grown. I must also say that your seeds altogether are of excellent quality."

From *The Park House, Cottingham*, Mr. WILLIAM NASSAU, *Gardener to* David Wilson, Esq.

"As you wish to know my opinion of your new Peas, I beg to say that Giant Hales is a splendid Pea, a great cropper and superior flavour, from 6 to 7 feet high; Lincolnshire Gem is the best of the dwarf Peas I know of, growing 2½ feet high, very prolific, and of exquisite flavour, beautiful green when cooked. In fact, the seeds we have got from you have given the greatest satisfaction."

From *Hesslewood House*, Mr. GEO. FAIRBANK, *Gardener to* J. R. Pease, Esq.

"The Lincolnshire Gem Pea is very good, superior to either Veitch's Perfection or Dixon's Yorkshire Hero. I like it much better than any of the new Peas I have grown; height about 2½ feet, strong grower, and loaded with pods; indeed it is 'the best' bearer and finest of the dwarf growing sorts: Giant Hales is very tall, a great cropper, and of excellent flavour. These are really seeds, and I shall recommend all my friends to try them."

From *Hull Bank House, the residence of* B. Haworth, Esq. *Gardener*, Mr. JAS. LUNN.

"The Lincolnshire Gem Pea is without doubt a first-rate Pea; too much cannot be said in its favour: a real good cropper, height about 2½ feet. Giant Hales is tall growing, and equally good in flavour, &c. Your seeds in general are of first-class excellence."

BROWN'S INCOMPARABLE WHITE BROCCOLI.—An extraordinary large variety, remarkably hardy and short-stemmed. The heads are very compact and white. It is the dwarfest variety out, and we have no hesitation in saying that it is the best late Broccoli in cultivation. Price 2s. 6d. per packet.

E. P. DIXON & SON, 57, Queen Street, Hull.

May be had in London of Messrs. Hurst & Son, 6, Leadenhall Street, E.C.; Messrs. Cooper & Holton, 152, Fleet Street, E.C.; Messrs. Beck, Henderson, & Child, Thames Street, E.C.

New Cucumber Seeds.

JOSEPH HAMILTON informs Cucumber Growers that he has grown his INVINCIBLE and BRITISH VOLUNTEER much finer than any he Exhibited in Manchester, Stockport, &c., where he obtained all the 1st Prizes but one for 14 successive years. At 2s. 6d. per Packet. May also be had of SUTTON & SONS, Royal Seed Establishment, Reading; J. & C. LEE, Royal Vineyard Nursery, Hammersmith, London, W.; FISHER, HOLMES, & Co., Handsworth Nursery, Sheffield; G. & W. YATES, Market Place, Manchester; LAING & BALLANTYNE, Nurserymen, Carlisle; F. & A. DIXON & Sons, Nurserymen, Chester; AUSTIN & MCASLON, Nurserymen and Seedsmen, Buchanan Street, Glasgow; SAMUEL FINNEY & Co., Gateshead Nursery, Gateshead.

Wellington Place, near Carlisle.

Erin's Queen Dwarf Ashleaf Potato.

WAITE, BURNELL, AND CO. have the pleasure of again introducing this really true and pure stock of the Ashleaf variety, which gave great satisfaction during the past season. It is very dwarf in the haulm, foliage of a dark green colour, very early, and invaluable for frames. Price 10s. 6d. per bushel.

A liberal discount to the Trade.

Seed Warehouse, 181, High Holborn, London, W.C.

Paterson's Famed Seedling Potatos.

MESSRS. SUTTON AND SONS, Reading (after having grown our approved varieties of NEW POTATOS, and found them equal to reports from the leading Agriculturists throughout the country, and well worthy of extensive cultivation), have been appointed our AGENTS for BERKS and surrounding districts for the sale of our Potatos.

WM. PATERSON & SONS, Seed Potato Merchants and Seedling Raisers, Dundee.

The Earliest Variety of the Ash-leaf Kidney Potato is Mona's Pride.

MR. MYATT has much pleasure in offering this first-class EARLY POTATO, the stock of which has been saved from sets kindly sent him by Mr. Routledge, of the Isle of Man. In the *Gardeners' Chronicle* of August 26, page 795, it is described by a correspondent as the Earliest and best of the Ash-leaf varieties; also at page 819, September 2, it is said by another correspondent, "All must give way to the superiority of Mona's Pride." Here, at Manor Farm, it has proved all that can be desired.

To be sent out in Peck Bags of One Stone at 5s., delivered free to any Railway Station in London. The usual allowance to the Trade where not less than a sack of four bushels is ordered.

Terms cash from unknown correspondents, and no orders from such will be attended to unless accompanied by a remittance.

Manor Farm, Deptford, December 2.

Seed Potatos.

H. AND F. SHARPE invite the attention of the Trade to the following varieties of SEED POTATOS, which they have grown from the finest selected stocks; they comprise all the sorts worthy of cultivation. The quality is excellent, being free from disease; and prices very moderate:—

Early Ash-leaved Kidney	Early Oxford
" Myatt's prolific Kidney	" Forty-fold
Webb's Imperial Kidney	Daintree's Earliest
Early King, very fine	Early Dalmahoy Round
" Martin's Globe	" Cockney
" Golden Globe	" British Queen
" Foxe's Seedling	Fluke Kidney
" Round Frame	Yorkshire Regent

Seed Growing Establishment, Wisbech, Cambs.

NEW CEREALS.—RICHARD'S WHEAT, a HYBRID and LONGFELLOW OAT.

THE WHEAT FAMILY, male, female, and offspring, with their seeds of different crops, and the NEW OAT, will be exhibited at the approaching Smithfield Show, on the Stand of PETER LAWSON & SON, and orders received for crop 1866, by

PATRICK SHIRREFF, Haddington.

Retiring from Business.

JAMES TOUGH, in retiring from the NURSERY and SEED BUSINESS, which he has carried on in Kirkcaldy for the last 48 years, most respectfully and gratefully returns his best thanks to his numerous Customers for the patronage so liberally bestowed upon him during that long period.

He at the same time begs to intimate having disposed of his Stock of Nursery Plants and Seeds to his well-known neighbours, EDWARD SANG AND SONS, whom he takes the liberty of recommending as his Successors in Business.

Kirkcaldy—Dec. 2.

THOMAS J. BOOTH can supply a first-class PEAT, suitable for Orchids (same as recommended by Mr. Anderson in *Gardeners' Chronicle*, page 1035), in large or small quantities.

Samples with price on application.

Rainhill Nursery, Prescot, Lancashire.

FOR SALE, at half price, a SPAN-ROOF GREENHOUSE, 50 feet by 15; Hot-water Pipes, 3-inch, complete.
A SPAN-ROOF HOTHOUSE, 30 feet by 11; Hot-water Pipes, 4-in.
A four-room Brick built COTTAGE complete.
FOREST and FRUIT TREES, Dwarf and Standard ROSES.
EVERGREENS, SHRUBS, fine PRIVET HEDGES, &c.
GERANIUMS in great variety. Two large POTTING SHEDS.
At H. STILLWELL'S, Kilburn Park Nursery, Carlton Road, W.

Autumn Sowing.—Odams's Blood Manure for Wheat.

MANUFACTURED BY ... PATENT

NITRO-PHOSPHATE OF BLOOD MANURE COMPANY, LIMITED, consisting of Twenty Patentees, possessing upwards of 50,000 Acres of Land.

Chairman.—JOHN CLAYDEN, Littlehampton, Sussex.

Manager (pro tem.), JAMES ODAMS.

Particulars of this Standard Manure may be obtained at the Offices; C. T. MACCHAM, Secretary: or of the Local Agents. Chief Office, 109, Fenchurch Street, London. Works, Littlehampton, Sussex. Branch Offices, Queen Street Station, Exeter; Mark Lane, Tavistock, Devon; and Elsford, near Tavistock, Devonshire.

LAWES' WHEAT MANURE for AUTUMN SOWING. A supply of the above Manure is now ready for delivery at J. B. Lawes' Factories, Deptford and Barking Creek, Essex, or Barking Road. Two to three cwt. per acre to be harrowed in immediately the seed is sown. It can be obtained of Mr. Lawes, or through any of his appointed Agents, viz.:

SUPERPHOSPHATE of LIME .. .. £6 6 per ton.
MINERAL SUPERPHOSPHATE .. 2 5 " "

Genuine PERUVIAN GUANO direct from the Importers and all Chemical Manures of value.

AMERICAN and other ASHES for manure purposes.

Address John Bennet Lawes, Offices, 1, Arundel Place, London Bridge, E.C.; and 24, Eden Quay, Dublin.

THE LONDON MANURE COMPANY (ESTABLISHED 1840).

Have ready for delivery,

WHEAT MANURE for Autumn Sowing.

DISSOLVED BONES, Superphosphate Lime, &c.

SUPERPHOSPHATES of LIME, &c.

Genuine PERUVIAN GUANO (per NITRATE of SODA, ex Land Warehouse, SULPHATE of AMMONIA, FISH GUANO, SALT, &c.

Offices, 116, Fenchurch Street, E.C. EDWARD PARKES, Secretary.

CATTLE PLAGUE.—CARBOLIC ACID ... used in Holland ... the most powerful ... known. F. C. CALVERT & Co., Manchester.

COCOA-NUT REFUSE ... of Charing Cross, at 2s. per bag.

For particulars and testimonials, see Gardeners' Chronicle of the 31st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped, J. BARSHAM'S Patent.

GENUINE TOBACCO PAPER, in 4-lb. packets. Price ... Apply to HENRY APPLEBY, Potter Street, Hackney; Messrs. Perry & Sons, Bermondsey, Surrey.

BY ROYAL ... LETTERS PATENT.

TOBACCO TISSUE, for Fumigating Greenhouses, Pits, &c., Manufactured from Pure Tobacco.

Testimonials have been received from the following persons who have tried the above article:—

Mr. George Eyles, Royal Horticultural Society, South Kensington.
Mr. George Fairbairn, Gardener to His Grace the Duke of Northumberland, Syon House, Isleworth.
Mr. James Kirtland, Albion Nursery, Stoke Newington.
Mr. J. Wheeler, Gardener to J. Philpot, Esq., Stamford Hill.
Mr. Thomas Edwards, Gr. to Lady Langdale, Fawood House, Kensington.
Mr. John M'Elroy, Gardener to W. J. Lancaster, Stamford Hill.
Mr. E. Berry, Gr. to the Earl of Leven and Melville, Roehampton House.
Mr. G. Baker, Gardener to A. Bassett, Esq., Stamford Hill.
Mr. G. Press, Prospect Place Nursery, Hackney.
Mr. E. Rendall, Elizabeth Walk, Stoke Newington.
Mr. J. George, Gardener to Miss Nicholson, Stamford Hill.

Sold by Messrs. ROBERTS & SONS, Tobacco Manufacturers, 51, St. John Street, Clerkenwell, E.C.; and by all Seedsmen and Nurserymen.

Red Spider — Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Scunton be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes, 1s., 2s., and 10s. 6d. each.

Wholesale by

PRICE'S PATENT CANDLE COMPANY (LIMITED)

Thomson's Styptic for Preventing the Bleeding of Vines.

BALLANTYNE AND SON have been appointed Agents for the Sale of THOMSON'S STYPTIC, which is highly recommended as being the most effectual remedy yet introduced, and all who have tried it testify to its worth. In Bottles, price 3s., with full directions for use. The Trade ... liberal terms.

The Nursery and Seed Establishment, Carlisle.

Removal of Large Trees.

TREES FROM 50 FEET HEIGHTWARDS REMOVED ANY DISTANCE BY

WILLIAM BARRON'S TRANSPLANTING MACHINES.

Five different sizes kept for the Removal of Trees of various dimensions, any of which may be had, with efficient men to work them, at a moderate charge.

A List of Prices for the hire of such machines will be forwarded, post free, on application.

Machines ready to order.

Elvaston Nurseries, Borrowash, near Derby.

Caution to Gardeners.—When you ask for

SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the Corporate mark OBTAIN WARRANTED, without which none are genuine.

S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an inferior class of knives of inferior quality, having been sold for the genuine ones, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted by makers and makers.

S. & C.'s Pruning and Budding Knives are the best and the cheapest in the market.

Paxton Works, Sheffield. Established upwards of 125 years.

Smithfield Club Cattle Show.—Notice.

BENJAMIN EDGINGTON, TENT MAKER to Her Majesty, will have a STAND in the GALLERY in the same situation as last year (No. 89). An Illustrated Catalogue of Marquees, Tents, Rick Cloths, Flags, &c., free on application.

Be particular to observe the Christian Name.

BENJAMIN EDGINGTON (only), 2, Duke Street, London Bridge, S.E.

No other Establishment.

Glass for Garden Purposes.

JAMES PHILLIPS AND CO. beg to offer the following prices as follows:—

BELL GLASSES.

Each.—s. d.		Each.—s. d.	
8 inches in diameter ..	0 3½	12 inches in diameter ..	1 [illegible]
[illegible]	[illegible]	[illegible]	[illegible]
11 " " ..	1 4	[illegible]	[illegible]

BAND GLASSES WITH CLOCK TOPS.

Each.—s. d.		Each.—s. d.	
12 inches	6 6	18 inches	9 [illegible]
14 "	7 6	20 "	10 6
16 "	8 6	24 "	13 6
		26 "	15 6

[illegible]

LOOTS AND ... FOR HOLDEN'S INTERCHANGEABLE PATENT ... PLANT.

LINSEED OIL, GENUINE WHITE LEAD, CARBON PAINT, PAINTS of ... Prices ...

[illegible]

SMITH, BECK, AND BECK'S GREENHOUSE ... BOTTLE THERMOMETER ...

GREEN'S PATENT SILENS MESSOR, or NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

GREEN'S PATENT ... best, and have carried off every Prize that has been ... competition. ... Illustrated Price Lists of ... free by post.

THOMAS GREEN & SON, Smithfield Iron Works, Leeds Road, Holborn Hill, London, E.C.; ... Street, Liverpool; and 19, Eden Quay, Dublin.

GARDEN BORDER EDGING TILES, in great variety of patterns and sizes, the ... being especially suited for KITCHEN GARDENS ... hardiness ... Beds and Borders, ... Bitumen, and ... further labour and expense ... Edging, ... quently ... Gravel.

GARDEN VASES, FOUNTAINS, &c., in Art Terra Cotta, of great durability, and in great variety of designs.

F. & G. ROBSON, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.

Sole London Agents for FOXLEY'S PATENT GARDEN WALL BRICKS. Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Dairies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also TESSELATED PAVEMENTS of more enriched designs than the above.

WHITE GLAZED TILES for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Glazed and other Stable Paving Bricks of great durability, Dutch, and A Imperial Gardens, Walls, Cottages, Red and Stoneware Drain Pipes, Stoves, Conserves, &c.

To be obtained of F. & G. ROBSON, at their Premises as above.

SILVER SAND (REIGATE, best quality), at the above addresses—14s. per Ton, or 3s. 6d. per Load; 2s. per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less.

FLINTS, BLACK BALLS or CLINKERS, for Beckenham or Grotto Walks.

F. & G. ROBSON.—A liberal reply.

N.B. Orders promptly executed on Railway.

PATENT GUTTA PERCHA SOLES.—IMPORTANT TO GARDENERS.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. GLENNY, Esq., the celebrated Florist:—

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they ... the wear ... dry ... feet ... Many a gardener would ... by the use of Gutta Percha Soles. Your ... G. GLENNY."

Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Sheet, Pump Buckets, Fire Buckets, Hoses, Bison Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Cabinet trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town or country.

The GUTTA PERCHA COMPANY, Patentees, 18, Wharf Road, City Road, London, E.C.

Fruiting Vines, in large pots, extra strong Canes.

GRAPE VINES, IN 6-INCH POTS, FOR PLANTING OUT.

WM. WOOD AND SON having a very superior stock of the above, beg to solicit early orders to insure the strongest Canes. Address,

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

Extra, extra strong Fruiting Vines.

FRANCIS AND ARTHUR DICKSON AND SONS, The "Upton" Nurseries, Chester, beg to direct attention to their very large stock of the above, which includes the newest and best varieties in cultivation. They have been pronounced to be "magnificent stuff" by all who have seen them, and they believe a finer lot of Vines were never grown. Inspection invited.

Prices and all particulars on application.
Sample plants sent if desired.

2000 VINES, from Eyes, strong and extra strong, for immediate Fruiting in Pots, and for Planting-out; including all the leading varieties, with stout, close-jointed, and thoroughly ripened Canes, many of which will produce from 4 lb. to 8 lb. of Grapes next season. Prices and particulars upon application to

JAMES DICKSON & SONS, The "Newton" Nurseries, Chester.

Lancashire Show Gooseberries and Currants.

M. A. LAKE, The Nurseries, Bridgewater, has to offer several thousand of the above, of the choicest kinds.

EVERGREEN HOLLIES, from 1 to 2 feet, and EVERGREEN PRIVET; also HORSE CHESTNUTS, ELMS, OAKS, SYCAMORE, MAPLE, and POPLARS, of sorts; fine Trees, from 10 to 12 feet.

Prices moderate, which will be forwarded on application.

PEACH TREES for Cordons; Pyramidal PEACH, APRICOT, and NECTARINE TREES, in pots, full of blossom buds, 5 to 6 feet in height, for diagonal cordon training or pot culture. Average price, 5s. each. The above have all been under close summer pinching, and are very handsome Trees.

Messrs. THOS. RIVERS & SON, Nurseries, Sawbridgeworth.

WILLIAM HOOPER, St. John's Hill, Wandsworth, S.W., begs to offer GOOSEBERRIES, Red, Black, and White CURRANTS, good sorts, all clean and well grown, 2 years transplanted, 4s. to 6s. per dozen. Strong SEA KALE roots, from 10s. to 12s. per 100. Prices of Fruit Trees and Ornamental Trees and Shrubs on application.

B. S. WILLIAMS begs to direct special attention to the undermentioned, of which he now holds a fine stock. PRICED and DESCRIPTIVE LISTS can be had on application.

VINES.—Strong Planting and Fruiting Canes of all the best varieties, including the new Grape ROYAL VINEYARD.

PINES.—Strong Fruiting and Succession plants, and suckers of all the leading kinds.

BECK'S NEW PELARGONIUMS.—For the present season, at the moderate price of 10s. 6d. each; also a large assortment of the best PELARGONIUMS and GERANIUMS, including BEATON'S best NOSEGAYS.

DUTCH BULBS.—Splendid roots of the strongest flowering HYACINTHS for glasses or pots, at 6s., 8s., 9s., 10s. and 12s. per dozen. POLYANTHUS, NARCISSUS, CROCUS, Early TULIPS, and all other bulbs.

ENGLISH-GROWN SEEDLING GLADIOLI, 9s. and 12s. per dozen, ready next month. As the supply of these is limited, early orders are solicited.

Paradise and Victoria Nurseries, Holloway, London, N.

CHARLES B. SAUNDERS, NURSERYMAN, &c., Jersey, has the following surplus articles to offer this season, of fine growth, for which he respectfully solicits orders.

BLACK HAMBURGH, BLACK VICTORIA, and MUSCAT of ALEXANDRIA VINES, 30s. per doz., fruiting rods, 7 to 8 ft. long
Dwarf Fruiting PEAR TREES, best sorts, Pyramidal and Trained, 20s. to 30s. per dozen.
Dwarf Fruiting APPLE TREES, 12s. to 18s. per dozen.
Dwarf-trained APRICOT and NECTARINE TREES, 24s. to 30s. per dozen.
QUINCE STOCKS for PEARS, of fine size, 6s. per 100.
GUERNSEY ELMS and TURKEY OAKS, fine strong stuff, 7 to 10 feet, 50s. per 100.
CAMELLIA STOCKS, fit for grafting, 30s. to 40s. per 100.

Besides a general and extensive Nursery Stock, CATALOGUES of which may be obtained on application.

Orange Tree.

FOR SALE, a fine healthy specimen in Fruit, and promises well for spring blooming. Stands about 8 feet high and 6 feet in diameter. Will prove a noble object in Conservatory or Orangery. Price on application by letter or personally to

Mrs. LEWIS, Orleans Villa, Old Chester Road, Erdington, Birmingham.

SEA KALE and TREES.—5000 extra strong SEA KALE plants for forcing; also 700 BEECH, 3 to 4 ft.; 900 SYCAMORES, 4 to 5 ft.; 2500 MOUNTAIN ASH, 2 to 4 ft.; 2000 COMMON ASH, 1 to 3 ft. All recently transplanted.

Apply to Mr. JOHN GALLACHER, Sutton, Surrey.

To Gentlemen Planting.

IN CONSEQUENCE of some of my Nursery Grounds being required for Building, I am induced to offer a large quantity of the following, cheap:—

STANDARD ROSES, DWARF ROSES, and Dwarf Roses in Pots, Standard Dwarf FRUIT TREES, Standard Ornamental Trees and Shrubs, large specimen CEDRUS DEODARA, varying from 3 to 15 ft. high, and a general collection of Evergreens, American Plants, &c., including some of the newest and best kinds of RHODODENDRONS, and some very large trees, suitable for making an immediate blind.

CATALOGUES to be had on application.

R. NEAL, The Nurseries, Wandsworth Common, S.W.

Transplanted Larch and Quicks.

CHIVAS AND WEAVER (late GEORGE CHIVAS), Chester, offer several Millions of TRANSPLANTED LARCH, from 1½ to 4½ feet, very stout, grown in an exposed situation; specially fine plants, and at prices greatly in favour of the buyers. Also several Millions of TRANSPLANTED QUICKS, a large quantity of which are of great strength; strong English Oaks superior Spruce, up to 2½ feet, together with a general stock of other Forest Trees, as well as a large stock of Evergreens and Ornamental Trees; many Thousand fine Standard Apples, and extra strong Transplanted Apple Stocks.

For prices and conditions of free delivery, see CATALOGUE, which will be forwarded on application.

Surplus Stock of Evergreens, &c.

WILLIAM BOOSEY, The Nurseries, Middlewich, Cheshire, will be glad to furnish, on application, special quotations for Transplanted EVERGREENS, &c., consisting of Hollies, Siberian Arbor-vitæ, Berberis Aquifolium, Pinus austriaca, Pinus excelsa, Abies Menziesii, Portugal Laurels, Yews, Cotoneaster, Pernettya, Lombardy Poplar, Horse Chestnuts, &c., of various sizes and of excellent quality.

To Nurserymen and Others.

JOHN PERKINS, SEN., has the following to offer at moderate prices:—

2,000,000 LARCH FIRS, 3 to 4 feet.
1,000,000 SPRUCE and SCOTCH FIRS, 2 to 3 feet.
2,000,000 BLACK THORN, 1, 2, and 3 years.
2,000 CEDRUS DEODARA, from 4 to 8 feet.

Dwarf-trained PEACHES, NECTARINES, APRICOTS, and CHERRIES, Standard PEARS, &c.

Prices of the above on application to JOHN PERKINS, 52, Market Square, opposite the Corn Exchange, Northampton.

To Noblemen and Gentlemen about to be engaged in Planting.

DICKSONS AND CO., NURSERYMEN, SEEDSMEN, and FLORISTS, Waterloo Place, Edinburgh, have this season a large and very healthy stock of Seedling and Transplanted LARCH (native and Tyrolese), True Native Highland SCOTCH FIR, Spruce, Oak, Plane or Sycamore, Spanish Chestnut, Alder, Ash, Elm, Thorn Quick, Beech, Evergreen Privet, Poplar, Willow, &c., as well as all other kinds of Forest and Ornamental Trees and Shrubs, Fruit Trees, Roses, Greenhouse and Stove Plants, Herbaceous and Alpine Plants, Ferns, &c.

Their Forest Trees, which are grown on exposed ground, are this season finely ripened, and can be sent with perfect safety to any part of the kingdom.

Samples and prices will be sent free on application.

Exhibition of Chrysanthemums.

JOHN SALTER'S unique COLLECTION of these beautiful flowers (including the New Varieties for 1866), is NOW in BLOOM. The WINTER GARDEN is open every day except Sunday, admittance free.

Versailles Nursery, William Street, Hammersmith, W., near Kensington Railway Station.

CHRYSANTHEMUMS, and How to have them Fine for Exhibition.—Use STANDEN'S GARDENER'S and AMATEUR'S FRIEND.

STANDEN'S GARDENER'S and AMATEUR'S FRIEND, a highly concentrated Inodorous Fertiliser, for Chrysanthemums and all kinds of Stove and Greenhouse Plants, Vines and other Fruit Trees in pots, &c.; also Vegetables, &c., in the open ground.

No. 1 FERTILIZER is the best adapted for Chrysanthemums and Hard-wooded Plants of every description.

No. 2 FERTILIZER is recommended for Soft-wooded Plants, Bulbs, &c.

Sample Canisters, 1s. & 2s. 6d. Bags, 5s. 6d., 10s. 6d., and 21s.

May be had of the leading Nurserymen and Seedsmen.

BARR & SUGDEN, Seed and Plant Merchants, 12, King Street Covent Garden, W.C.

A List of Agents will shortly be published.

GLADIOLI.—First Prize for 24 varieties at the Crystal Palace in 1864; First and Second Prize for 24 varieties at the Crystal Palace in 1865; First Prize for 6 varieties at the Royal Horticultural Society in 1865, have been awarded to

KELWAY & SON, Langport, Somerset.

PRICED CATALOGUES, containing full descriptions of upwards of 300 varieties—amongst them many new ones—27 of which obtained First-class Certificates during the past season, are now ready, free by post on application.

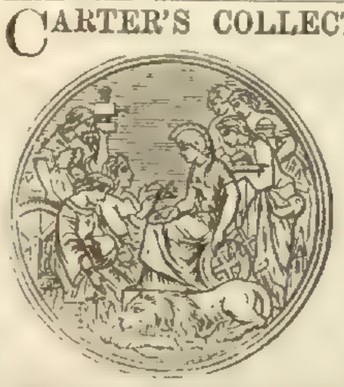
Fruiting Vines, Camellias, &c.

JAMES CARTER AND CO. have NOW on VIEW at their Crystal Palace Nursery, Perry Hill, Sydenham, S.E., a large and choice COLLECTION of extra strong FRUITING VINES in Pots, well-ripened, and sure to produce a heavy crop of Fruit, at from 10s. 6d. to 12s. 6d. each; also, a large assortment of the best kinds of CAMELLIAS, well set with Buds, at 24s. to 42s. per dozen; also, a choice COLLECTION of CHRYSANTHEMUMS, fit for present season's blooming, at 6s. per dozen.

PRICE LISTS gratis and post free on application to

JAMES CARTER & Co., 237 and 238, High Holborn, London, W.C.

CARTER'S COLLECTIONS of PICKED BULBS.



For the convenience of those of our Customers who do not wish the trouble of selecting for themselves, we offer the under-mentioned COLLECTIONS of BULBS, which contain, respectively, all the sorts required for the purpose mentioned; and, the choice of varieties being left to ourselves, we offer the entire Collection at a much lower rate than if the sorts had been chosen at the option of the Purchaser.

No. 1. Complete Collection of Bulbs for Forcing, including Basket and Packing, price 84s.
No. 2. Complete Collection of Bulbs for Forcing, including Basket and Packing, price 42s.
No. 3. Complete Collection of Bulbs for Forcing, including Box and Packing, price 21s.
No. 4. Complete Collection of Bulbs for Conservatory and Outdoor Planting, including Basket and Packing, price 84s.
No. 5. Complete Collection of Bulbs for Conservatory and Outdoor Planting, including Box and Packing, price 42s.
No. 6. Complete Collection of Bulbs for Conservatory and Outdoor Planting, including Box and Packing, price 30s.
No. 7. Complete Collection of Bulbs for Conservatory and Outdoor Planting, including Box and Packing, price 15s.
No. 8. Complete Collection of Bulbs for Outdoor Planting only, including Basket and Packing, price 84s.
No. 9. Complete Collection of Bulbs for Outdoor Planting only, including Box and Packing, price 42s.
No. 10. Complete Collection of Bulbs for Outdoor Planting only, including Box and Packing, price 21s.

PRICE LIST gratis and post free on application to JAMES CARTER & Co., 237, 238, and 261, High Holborn, London, W.C.

Lobelia Snowflake.

Extract from GARDENERS' CHRONICLE:—

"Mr. Cox, Gardener to Lord Beauchamp, exhibited a beautiful White Lobelia called Snowflake, to which a First-class Certificate was awarded. Floral Committee of the Roya Horticultural Society, July 25, 1865."

JOHN AND CHARLES LEE having acquired the stock of this desirable NEW BEDDING PLANT, they have much pleasure in offering SEED in SEALED PACKETS for present sowing for spring pot culture, for which it is well adapted.

As a BEDDING LOBELIA it stands unrivalled. The plant is of dwarf compact habit: the flowers are large, perfectly even, and of the purest white. The stock comes perfectly true from seed.

Price 2s. 6d. per packet. Price to the Trade on application.

Royal Vineyard Nursery and Seed Establishment, Hammersmith W.

New Grass Seeds for Exportation.

SUTTON AND SONS have received their supply of NEW GRASS SEEDS of the present year's growth in fine dry condition. Prices will be forwarded on application.

This is one of the best months for exporting Grass Seeds.

SUTTON & SONS, Seed Merchants, Reading.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY, Limited,

CORN, SEED, MANURE, and OILCAKE MERCHANTS,

Address, 89, Seed Market, Mark Lane, E.C.; or Basingstoke.

Samples and Prices Post free on application. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

** SMITHFIELD SHOW.—STAND No. 50 in GALLERY.

To Gentlemen and Pine Growers.

TO BE DISPOSED OF, about 40 FRUITING PLANTS, and 140 SUCCESSIONS; all clean and in healthy condition, the Stock having been skilfully grown in different stages, to keep up a constant supply of Fruit for the table of a Gentleman who is now relinquishing growing. This stock is well worth the notice of any Gentleman or Gardener who is about to commence growing. The sorts are mostly Queens, Ripley Queens, with a few Black varieties. For particulars, apply to

Mr. E. SPARY, Nurseryman, &c., Queen's Graperies, Brighton.

American Plants, New Hardy Rhododendrons.

WATERER AND GODFREY'S PRICED DESCRIPTIVE CATALOGUE of AMERICAN PLANTS, as exhibited in the Horticultural Gardens, South Kensington, free on application. This Catalogue fairly describes the Rhododendrons most worth growing, as well as some new and very handsome kinds exclusively in their possession, and now for the first time offered.

Knap Hill Nursery, Woking, Surrey.

New Rhododendrons.

JOHN WATERER is prepared to execute Orders for the following Six RHODODENDRONS at the subjoined price. They are this season offered for the first time, and are particularly recommended for the following qualities, viz, Hardiness, fine Free Bloomers, and as being perfectly distinct from any other known kinds.

ALEXANDER ADIE.—Brilliant rosy scarlet.
SIR JAMES CLARK.—Dark shaded crimson.
SIR WILLIAM ARMSTRONG.—A very bright crimson.
THE DUCHESS OF SUTHERLAND.—Nearly white centre bordered with rose.
LADY EMILY PEEL.—A very bright rose, intensely marked with chocolate-coloured spots.
RAPHAEL.—Reddish crimson, and large bold flower.

The Set for 6l. 6s. Usual discount to the Trade.

The American Nursery, Bagshot, Surrey.

Hardy Scarlet Rhododendrons.

JOHN WATERER'S CATALOGUE of HARDY SCARLET and other CHOICE RHODODENDRONS as annually displayed in the Royal Botanic Gardens, Regent's Park, can now be had on application.

It contains faithful descriptions of all the varieties really worthy of cultivation, as well as a selection of HARDY CONIFERS, with heights and prices, with ORNAMENTAL EVERGREENS, FOREST TREES, &c.

The American Nursery, Bagshot, Surrey.

Rhododendrons.

JOHN WATERER begs to offer the following Six RHODODENDRONS, in good, strong, healthy plants, at 4l. 4s. the Set, the usual discount to the Trade:—

SIDNEY HERBERT	MRS. FITZGERALD
JOSEPH WHITWORTH	THE WARRIOR
SIR ROBERT PEEL	SURPRISE

The American Nursery, Bagshot, Surrey.

INTERNATIONAL HORTICULTURAL EXHIBITION and BOTANICAL CONGRESS.—Those who are preparing Plants for the above Exhibition should feed them liberally with STANDEN'S GARDENER'S and AMATEUR'S FRIEND. Sold by the leading Nurserymen and Seedsmen.

VIOLETS, now in Full Bloom, and in first-rate condition for planting out.—A large stock of all kinds of VIOLET Plants, including the Giant, Neapolitan, Crimea, Russian, &c. Lists of prices on application.

JOHN STEDMAN, Violet Grower, Thornton Heath, Surrey, S.

VIOLETS.—The GIANT VIOLET, bearing a finer bloom and a more beautiful perfume than any of its kind, now in full bloom and perfection, and in good condition for planting out.

Fine large healthy roots 12s. per doz. All sorts of Violet Roots always in stock.

JOHN STEDMAN, Violet Grower, Thornton Heath, Surrey.

NEW RUSSIAN VIOLET, THE CZAR. Raised by F. J. GRAHAM, Esq., and awarded two First-class Certificates. NOW in BLOOM, and will last till May. The flowers attain 1¼ in., and the leaves 5½ in.

Very large Plants may be had of Mr. JOHN GRAHAM, Cranford, £5 per 100; 12s. per dozen, pre paid. An Allowance to the Trade.

New Catalogue of Plants, Dutch Bulbs, &c.

ROBERT PARKER begs to announce that his NEW CATALOGUE, containing Select Descriptive and Priced List of New, Rare, and Beautiful Greenhouse, Hardy, and Stove Plants, Fruit Trees, Grapes, &c., Amaryllis, Crocuses, Gladioli, Hyacinths, Narcissus, Tulips, and other Bulbs, is now published, and will be forwarded to applicants.

Exotic Nursery, Tooting, Surrey, S.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

*** Part II. (Exotic Ferns) will be issued as early as possible.

Foot's Cray Nursery, S.E.

CARNATIONS and PICOTEES for the Million. Fine Strong Plants at reduced prices.

Every one should send for the revised CATALOGUE of CARNATIONS, PICOTEES, PINKS, PANSIES, ROSES, FRUIT TREES, BULBS, &c.

HOLLAND & JONES, Proprietors, Bradshaw Gardens, Chadderton near Manchester.

SPRING-BLOOMING PLANTS, FLOWER ROOTS, &c.—Polyanthus, Violets, Pink, Red and White Daisy, Alyssum, Lavender, Arabis, Wallflowers, Cheiranthus Marshallii, Cowslip, Gentiana acaulis, and a general collection of Rock and Herbaceous Plants.

THOMAS S. WARE, Hale Farm Nurseries, Tottenham, N.

DOBSON AND SONS' Seeds of Superior Quality.
CALCEOLARIA, second to none, 1s. 6d., 2s. 6d., 3s. 6d., and 5s.
CINERARIA, second to none, 1s., 2s. 6d., and 5s.
PRIMULA, second to none, 1s., 2s. 6d., and 5s.
PELARGONIUM, second to none, 2s. 6d. and 5s.

Sealed Packets post free.

J. DOBSON & SONS, Seedsmen, Isleworth, W.

To the Trade.—New Flower Seeds for 1866.

W. THOMPSON, SEEDSMAN, Tavern Street, Ipswich, respectfully announces to the Trade, that he is now able to supply SEED of the following interesting Novelties, of which full descriptions and prices may be had on application:—

Waitzia grandiflora	Pectis angustifolia
Waitzia acuminata albo-purpurea	Cedronella cana
Waitzia acuminata citrina	Pentstemon grandiflorus
Palafoxia Hookeriana	Actinella grandiflora

Machæranthera glabra.

W. T. can also supply Seeds of his previous introductions at very moderate prices.

NEW PLANTS.

AUBRIETIA CAMPBELLI (effective spring flower).
FUCHSIA BANKS'S BEAUTY.
VERONICA FRUTICOSA GLAUCA.
CLIANTHUS DAMPIERI, in varieties (seed only).

Coloured Plates, post free on receipt of Stamps, of the following:—
AUBRIETIA CAMPBELLI, 7d.
CLIANTHUS DAMPIERI ALBIFLORA, 1s. 1d.

For description of the above see E. G. HENDERSON & SON'S NEW AUTUMN CATALOGUE, forwarded post free.

Wellington Nursery, St. John's Wood, London, N.W.

To the Trade.

CUPRESSUS LAWSONIANA SEED (true), of excellent quality, and warranted crop of present season. Price, postage paid, 5s. 2d. per oz.; 32s. per half lb.; 60s. per lb. nett. From unknown Correspondents a remittance must accompany order.

WHOLESALE CATALOGUES of GENERAL NURSERY STOCK can be had on application to

THOS. CRIPPS, Nurseryman, Tunbridge Wells, Kent.

Hardy Climbers.—To the Trade.

CLEMATIS JACKMANNI.—Large intense violet purple, rugose and veiny in centre, 2 to 2½ feet bine; 30s. per dozen.

CLEMATIS RUBRO-VIOLACEA.—Reddish violet, sepals moderate, fine; 30s. per dozen.

CLEMATIS STANDISHI.—Beautiful violet blue; 30s. per dozen.

Besides other good old varieties.

A CATALOGUE, including Description and Treatment of Clematises, will be forwarded free on application to

GEO. JACKMAN & SON, Woking Nursery, Surrey.

BUTLER AND McCULLOCH, SEED MERCHANTS, South Row (or Strand side), opposite Southampton Street, Covent Garden Market, London, W.C., beg to offer the following choice COLLECTIONS of DUTCH and CAPE FLOWERING BULBS, all of the first size and quality.

FOR GREENHOUSE.

No. 1	No. 2.	No. 3.	No. 4.	No. 5.	No. 6.
100s.	50s.	25s.	21s.	15s.	10s. 6d.

FOR FLOWER GARDEN.

No. 7.	No. 8.	No. 9.	No. 10.	No. 11.	No. 12.
100s.	60s.	40s.	25s.	21s.	10s. 6d.

FOR GREENHOUSE and FLOWER GARDEN.

No. 13.	No. 14.	No. 15.	No. 16.	No. 17.	No. 18.
105s.	52s. 6d.	42s.	21s.	15s.	10s. 6d.

All orders amounting to 21s. and upwards sent carriage paid.
BUTLER & McCULLOCH, Covent Garden Market, W.C.

Sutton's Unrivalled Collections of Bulbs.

SUTTON'S GUINEA COLLECTION of BULBS for BLOOMING in POTS and GLASSES.
SUTTON'S GUINEA COLLECTIONS for BEDS and BORDERS
For particulars see SUTTON'S AUTUMN CATALOGUE, which may be had gratis and post free.
SUTTON & SONS, Royal Berks Seed Establishment, Reading.

New Seeds, Growth of 1865.

ROYAL BERKSHIRE SEED ESTABLISHMENT.

SUTTON AND SONS are now prepared to execute orders for all kinds of GARDEN SEEDS.
The prices are moderate and the quality fine, owing to their having been harvested well
Royal Berkshire Seed Establishment, Reading.

THE COMMITTEE of the UNITED HORTICULTURAL SOCIETY desire to return their sincere thanks to all the Exhibitors who assisted them by sending their productions to the Guildhall Show. They further take this opportunity of informing the Friends and Supporters of the Society, that the recent Exhibition has resulted in a substantial addition to the Benefit Fund, full particulars of which will be published shortly. ROBERT PINCE GLENDINNING, Hon. Sec.
Chiswick Nursery, W.

ANNUAL GREAT FRUIT and FLOWER SHOW, at the TOWN HALL, BIRMINGHAM.
SATURDAY NEXT, December 2, Private View, from 12 to 5 P.M., 5s. 6d: after that hour, until 10 P.M., 1s.
MONDAY NEXT, December 4, from 10 A.M. to 10 P.M., 1s.
TUESDAY NEXT, December 5, from 10 A.M. to 9 P.M., 1s.
An excellent Band, under the direction of Mr. Davis, the celebrated Harpist, each afternoon and evening. ALEX. FORREST, Secretary.
Cherry Street, Birmingham.

Ladies' Prizes for Indoor Plants.

THE PROPRIETORS of the GARDENERS' CHRONICLE will in 1866 give THREE PRIZES for ORNAMENTAL PLANTS, cultivated in a room by Ladies. The Prizes will be of the value of £10, £7, and £3, and will be given respectively for the best, second best, and third best specimens produced; but no one Exhibitor can take more than one Prize.
The competition, which is to be amongst Ladies only (managing their own plants), will take place in the Garden of the Royal Horticultural Society at South Kensington on June 14, the day of a Special Show for Prizes presented to the Society.
The Plants are to be such as are suitable for drawing-room decoration. They must have been grown in a room for AT LEAST six weeks before the Show, and during the whole time have been under the Management of the Exhibitor, without professional assistance. The length of time during which they have been so cultivated MUST BE STATED on a ticket attached to each plant, and will be taken into account in awarding the Prizes.
Flowering Plants and Foliage Plants will compete on equal terms. The BEST CULTIVATED plants are to win. They may have been grown in pots or baskets, or other contrivances suitable for drawing-rooms, glass cases excepted.
The Plants must be sent in according to the Rules in force for the Special Show of June 14.

The Gardeners' Chronicle.

SATURDAY, DECEMBER 2, 1865.

MEETINGS FOR THE ENSUING WEEK.

MONDAY,	Dec.	4	Handsworth (Fruit and Chrysanthemum Show), at the Town Hall, Birmingham .. .. 10 A.M.
TUESDAY,	—	5	
TUESDAY,	—	5	Royal Horticultural (Floral and Fruit Committees), at S. Kensington .. 11 A.M.
THURSDAY,	—	7	Linnean .. .. 8 P.M.
SATURDAY, to SATURDAY,	—	9	Royal Horticultural (International Show of Fruit and Vegetables), at South Kensington.
	—	16	

WE are glad to find that the Report of the Education Committee of the Royal Horticultural Society, relating to the maintenance of CHISWICK GARDEN, is not to remain a dead letter. The Council has at length taken action in the matter; and although, from lack of funds, all may not be at once accomplished which it would be desirable to undertake, yet we are bound to receive this instalment in good faith, and hope for better times. The scheme is to be carried out under a Board of Direction, which is announced in the following terms:—

"The Council have had under their repeated consideration the recommendations embodied in the valuable report made to them by the Committee on the Improved Education of Gardeners. It appeared to be essential to the successful carrying out of any scheme for the education of young men, that a responsible head should reside on the spot, and the difficulty has been to find for the office a person possessing great practical skill in gardening and such scientific attainments as would be necessary to direct the studies of the pupil gardeners. Instead, however, of continuing to seek a superintendent who in his own person possesses all the qualifications necessary to supervise so extensive a scheme of education as the following, and at the same time to maintain the position of Chiswick as a garden of choice horticultural objects, the Council have determined to place the superintendence of the garden under a good practical gardener, and give him the assistance of a Board of scientific horticulturists to guide his operations. The organisation having now been matured, the Council have the satisfaction of laying their decision before the Fellows. The Board will consist of the Rev. M. J. BERKELEY, F.L.S., Mr. THOMAS MOORE, F.L.S., and Dr. HOGG, F.L.S."

The Report of the Committee is published *in extenso* in the last Number of the *Proceedings* of the Society, to which we refer those who are desirous of examining it in detail. We confine ourselves here to a statement of the recommendations which have been adopted. The Report is comprised under four principal heads, having reference (1) to the Garden, (2) to the Staff, (3) to the Students, and (4) to the Examinations which it was thought desirable should be instituted. We will glance through these in the order in which they occur.

As to the Gardens, the principal recommendations approved by the Council, and to be carried out as far as the funds will admit, are the following:—The examples of cultivation in illustration of all the departments of Horticulture, and the collections of the principal sorts of cultivated plants at present at Chiswick are to be completed; and the Committee say they should include—

(*a*) Tender Fruits, as Pines, Grapes, Melons, Cucumbers.
(*b*) Orchard-house Fruits, &c.
(*c*) Hardy Fruits, as Apples, Pears, Cherries, Strawberries, &c.
(*d*) Vegetables of all kinds in their seasons; examples of the best systems adopted in Private Gardens, Market Gardens, &c. *
(*e*) Tender Plants, as Stove and Greenhouse Ornamental Plants, Orchids, Popular Decorative Pot Plants, Fuchsias, Pelargoniums, &c.
(*f*) Hardy Plants and Out-door Summer Flowers of all kinds, as Bedding Plants, popular Herbaceous Perennials, Ornamental Annuals, and Florists' Flowers.
(*g*) Hardy Trees, to test their capability for decoration or other purposes.
(*h*) Illustrations of Unusual Processes, such as continental systems of pruning, training, &c., on which lessons should be given.
(*i*) Hybridisation.†
(*k*) General Keeping, which should be neat and orderly, but need not be of an expensive character.

As to the Staff, the Council have now separated the duties of superintending the gardens at Chiswick and Kensington. The Superintendent for Chiswick will have placed under him—

(*a*) A Kitchen Garden and Fruit Foreman, competent to carry out, and to teach and explain horticultural practice, so far as concerns the culture of vegetables and fruits; and to have charge of the trials of these subjects.
(*b*) A Plant Foreman, having similar qualifications as regards flowers, and to have charge of the trials of flowers.

The Committee recommended that the Foremen should be persons competent to explain the daily operations in the garden, to instruct the students in the theory and practice of Horticulture, and to read and explain to them selected passages from standard Horticultural works bearing on the practice of their respective departments; and that each Foreman should give a class-lecture or reading at least once a week, for which one hour, at the most convenient time, should be set apart. The Council concur in the advisability of obtaining the best informed Foremen available; and hope at some future time to arrange for a series of practical demonstrations in Horticulture, but for the present do not see their way to employ paid Lecturers on theoretical science.

The persons employed at Chiswick under the respective Foremen, it was recommended, should consist, for the most part, of Students. To enable a person to have his name placed on the books as a candidate for admission as a student, he must have (1) the written recommendation of a Fellow; (2) he must be at least 20 years of age; (3) he must have good health; (4) he must have been three years at least in good private gardens, one year of which shall have been in the same garden; (5) he must have a good character; (6) he must write a good hand, spell well, and have a competent knowledge of arithmetic. It was suggested that a premium might be paid, of which a portion might be given to the Superintendent and his assistants for the instruction imparted; but the Council think the premium might be dispensed with, and the Foremen be rewarded by a bonus for every pupil-gardener who passes a satisfactory examination either in Pomological or Floricultural garden practice.

The name and address of all candidates for admission as Students are to be registered in the order in which the applications are received; and when a vacancy occurs, the first applicant on the list is to be appointed, provided he has complied with the before-named conditions. The students may, if they are able, pass their final examination at the end of the first or second year, but may continue for a time not longer than three years, if they prefer it. Those who make satisfactory progress are to be systematically transferred from one department to another, the Foremen certifying as to their conduct and proficiency. No Fellow is to have, at any time, more than one nominee a student in the garden.

The weekly wages recommended to be paid to students was 13s. for the first year, 14s. for the second, and 15s. for the third,* provided they should have passed a satisfactory examination at the end of the first year; but the Council think the wages might be reduced by 1s. or 2s. per week, as no premium will be required, and rewards will be offered for meritorious practical work.

Instruction is to be imparted to all Students alike, and is to consist of—

(*a*) Practice in the ordinary operations of the department in which for the time being each is placed, with verbal instructions and comments thereupon by the Superintendent or his Foreman.
(*b*) Readings on practical subjects by the Foremen.
(*c*) Occasional special Demonstrations and Lectures by persons qualified in particular subjects, which, as well as Lectures on theoretical subjects, will, it is hoped, be added hereafter.
(*d*) A library and reading-room containing a selection of Horticultural works, and of books on the collateral sciences, the Horticultural periodicals, and such other books and educational appliances as may be attainable.

As to Examinations, the Committee recommended that an examination should take place at Lady-day and Michaelmas in each year, to test the proficiency of the students; and that candidates not passing a satisfactory examination should be liable to be discharged, while those who twice failed to pass should be unconditionally dismissed. This recommendation has been adopted, except that one examination only is to be held in 1866.

The Final Examination which must be passed in order to obtain the Society's Certificate is to comprise the following heads, viz:—1, Subjects necessary for qualification as gardeners: to include reading, writing, and arithmetic; kitchen-garden practice, including forcing, &c.; fruit-garden practice, including the culture of tender fruits; flower-garden practice, including the culture of tender plants, pruning, training, potting, draining, &c. 2, Subjects necessary for qualification as Associates of the Society: to include, in addition to what is specified under No. 1, book-keeping, practical geometry, land-measuring and plan-drawing, theory of horticulture, systematic botany, and the tasteful laying-out of gardens.

A register of all who gain Certificates at the examinations is to be kept, and is to be open to Fellows gratis, and to others on payment of a fee of 2s. 6d. If a copy of the Certificate is required, it is to be obtainable on payment of another 2s. 6d.

The results of the examination are to be published in the Society's Proceedings, and sent to the editors of other Horticultural periodicals.

The Council announce that they have entered into relations with the Society of Arts in reference to these questions, and hope to carry out with their aid so much of the Examinations of Gardeners as can be accomplished by written answers. Last year, they offered prizes for gardeners passing successfully the Examinations of the Society of Arts in Botany, and they have this year undertaken also to provide the necessary funds to enable that Society to employ Examiners in Fruit and Vegetable Culture, and in Floriculture.

We have only space to add that we trust sufficient funds will be found for carrying out this

* "The best examples of the cultivation of Vegetables, if carried out on a limited scale, would not only be beneficial to young gardeners, but would rub off the rust from old ones who have not had time or opportunity to see or learn the various modes adopted by successful market and gentlemen's gardeners. This subject has been very much neglected for many years past, but no gardening operation is more important than to obtain good kinds and well-grown vegetables for the daily supply of a gentleman's table."

† This is a subject of the utmost importance, which should be carried out very fully and systematically. The Council propose to do this with the assistance of the Board of Direction, the Superintendent taking the hybridisation experiments under his own especial charge.

* The advantages of instruction and certificates provided for the students would, it was observed, be an equivalent for higher wages. The Committee, therefore, in fixing on these sums, guarded themselves against being supposed to be fixing a general standard of wages for under gardeners.

work, which is entirely in the right direction, but which, without a fair expenditure on the Garden, it will, we fear, be useless to attempt.

We have to announce that the Proprietors of the *Gardeners' Chronicle* will repeat next year their offer of Ladies' Prizes for the culture of In-door plants. The prizes will be of the value of 10*l.*, 7*l.*, and 3*l.* respectively, and will be awarded to the first, second, and third best specimens produced in competition by different exhibitors.

The very interesting array of plants which was brought together on the last occasion when these prizes were offered, as compared with the display of the previous year, leads us to hope that the honours will be well contested in 1866—a year which is to mark an era among horticultural competitions.

There will be this difference made on the occasion now announced, that instead of two first prizes for different classes of plants, there will be three prizes—a first, second, and third—for one class, so that the fair competitors will have a better chance of coming off victorious. The principal terms laid down for the guidance of exhibitors are the following:—

The competition, which is to be amongst Ladies only (managing their own plants), will take place in the Garden of the Royal Horticultural Society at South Kensington on June 14, the day of a Special Show for prizes presented to the Society.

The plants are to be such as are suitable for drawing-room decoration. They must have been grown in a room for AT LEAST six weeks before the show, and during the whole time have been under the management of the exhibitor, without professional assistance. The length of time during which they have been so cultivated MUST BE STATED on a ticket attached to each plant, and will be taken into account in awarding the prizes.

Flowering Plants and Foliage Plants will compete on equal terms, those which are best cultivated receiving the awards. They may have been grown in pots or baskets, or other contrivances suitable for drawing-rooms, GLASS CASES EXCEPTED.

The plants must be sent in according to the rules in force for the Special Show of June 14; which rules may be ascertained by a reference to the Horticultural Society's announcements for next year's shows.

—— We are glad to be able to report, in reference to the Botanical Congress which is to take place next May in conjunction with the International Horticultural Exhibition, that the Executive Committee has just taken a step which augurs well for the success of this department of the International scheme. M. Alphonse De Candolle, of Geneva, has been unanimously elected Chairman of the Congress, and we understand that he will accept the post, and also prepare a comprehensive discourse relative to the present state and mutual position of Botany and Horticulture. No better selection could have been made, for M. De Candolle possesses a European reputation; we therefore congratulate the Committee on having appointed so efficient and influential a person to so important an office. It now remains for the botanists and botanico-horticulturists, both of Europe and of the British Isles, to be prepared to rally round the chair.

—— Considerable amusement and some disgust have been felt as to the barbarous and ugly name applied to one of the handsomest of the newly introduced Palms—viz., the Thief Palm, Phœnicophorium sechellarum, Herm. Wendland. The history of the plant is thus given in a late number of the "Journal of Botany:"—"Recently a great deal of idle speculation has been going on, and some absurd guesses have been ventured about the name of a spiny Palm from the Seychelles with simple leaves, which has now become a more frequent inmate of our gardens than it was when the circumstance took place to which the genus owes its name. There is no longer any necessity of making a mystery of the whole affair, after the person who had most reason to be annoyed at it thought proper to make himself a pointed public allusion to it, by imposing on the plant the name of Phœnicophorium sechellarum, which, freely translated, might be rendered "the Palm derived or carried off from the Seychelles," but which gardeners have now more literally rendered "The Thief Palm from the Seychelles." Some years ago, Mr. Hermann Wendland, of the Royal Botanic Gardens of Herrenhausen, and Mr. John Smith, were looking over the collections at Kew with a view of exchanging plants, when Mr. Wendland's eye fell upon some small Palms, then cultivated there under the name of Areca sechellarum. He expressed a wish to have, if possible, one of them for the rich Palm collection under his charge. There being only three small specimens, Mr. Smith could not make up his mind to accede to this at once, but told him that he would see about the matter. The two gentlemen then walked on, looking at other plants, and probably never thinking any more about the Palms. The next morning, much to the annoyance of every one, one of these rare plants had disappeared, and everybody had his own opinion about its disappearance. The authorities of the garden never could find out; but Mr. Wendland, for his own satisfaction, succeeded in discovering that it was stolen by an Irishman employed at Kew, who sold it, it is said, for a few shillings. The plant went thence to the continent, and there fetched 5*l.*; ultimately coming into the hands of Mr. Borsig, of Berlin, who, it is said, had to give at least four times that sum for it. Professor Karl Koch, ignorant of the whole transaction, and taking the Palm, from its habit, to be an Astrocaryum, named it in 1859 A. Borsigianum. It was shortly after Mr. Wendland had succeeded in tracing out the case, that he gave to the new genus, of which he had obtained herbarium specimens, the name of Phœnicophorium sechellarum, afterwards published in a scientific form. Mr. Duncan, curator of the Botanic Gardens of Mauritius, after this gave, in compliment to Governor Stevenson, of Mauritius, the MS. name of Stevensonia to both this species and a plant (Verschaffeltia) somewhat resembling it, but differing generically. Duncan's name, not being published nor accompanied by any scientific description, must of course fall to the ground, and Phœnicophorium be upheld. In Duncan's "Catalogue of Plants in the Royal Botanic Gardens, Mauritius," fol., Port Louis, Mauritius, 1863, p. 87, we find only this entry, "Stevensonia grandiflora, Palmaceæ, Dependencies of Mauritius. A. [*i.e.* one of the plants introduced since Mr. Duncan took charge of the garden]." Grandiflora is doubtless a misprint, the plant more frequently going under the name of S. grandifolia. This is simply the history of the generic name of the plant (excellently figured and described in Van Houtte's Fl. des Serres, t. 1595—1596). It might perhaps have been desirable to adopt a different nomenclature, but after a name has once been given, nobody can possibly revoke it, not even the author himself if he were thus inclined. The law of priority does not admit of exceptions."

—— In a letter which we publish to-day, occurs a passage relating to the International Horticultural Show, which we think requires a word of comment on our part. We are not the apologists of the International Schedule, but we happen to know that it is the result of the jostling and conflict of a great variety of opinions, and that its several items were accepted as occupying a mediate position between extremes on all sides. It might have been anticipated, that individuals interested in particular classes would wish to extend the prizes for those classes *ad infinitum*, and would probably seek to depreciate others to a similar extent. The object of the Committee has, we imagine, been to reconcile such extreme views, and to hold out fair inducements to all. In the case of New Plants *versus* Roses, for example, which is mentioned in the letter to which we allude, without depreciating the interest or value of the former, which we would be the first to support, the fact remains that the Rose grower gets his prize for high-class culture and finish in the production of his plants, whilst the new plant grower makes no attempt at culture, but exhibits mainly for the purpose of obtaining an extensive sale for his novelties, in addition to such prizes as he may win. Besides, we doubt, after all, if the prizes offered at the London show are in any cases lower than those which our continental friends are in the habit of awarding at their own great exhibitions, only theirs are put in the form of medals, not of money.

—— Dr. Hooker has kindly forwarded us for publication a letter addressed to Sir Charles Elliot, the Governor of St. Helena, relating to the Brown Scale Insect which proves so destructive to the Orange and Lemon trees at the Cape and elsewhere. Mr. Bicker, in the letter alluded to, says that he has tried lime-water, Tobacco-water, corrosive sublimate, and other things without success, but at length he met with an account of some experiments made by a French physician with paraffine or kerosine oil. Mr. Bicker accordingly tried this with his Lime and Lemon trees, and reports most favourable of its efficacy. Two trees that were nearly killed by the scale, were washed over with paraffine oil, which destroyed the parasite, so that the trees are now perfectly recovered, and are in vigorous condition. The mode of application is as follows:—'Go over the young shoots lightly with a feather, and where the bark of the larger shoots is affected, use a paint brush. By so doing (in dry weather) the trees will be completely cleansed from the insect, and after a few days the scales will fall off and dry of themselves."

THEORY AND PRACTICE OF VENTILATION.

No. III.

The great sea currents of hot water now claim our notice. These run north and south in opposite directions, from the equator to the Poles; for the Great Ocean on one side of the globe and the Atlantic on the other both cross the equator and reach to the poles. Two causes maintain these currents in constant action: one, and of course the principal, is the influence of heat, another the difference of density caused, not by a difference of heat only, but by the addition of solid matter to the water. I will notice the last first.

I have never seen a very satisfactory reason assigned for the saltness of the ocean. Perhaps one of the chief, which seems to have been entirely overlooked, is that the salt helps to maintain the great ocean circulation so essential for our world. Some parts of the sea contain as much again of salt as others. These parts are those from which the sun has evaporated most water; for the sun is dainty in his tastes, choosing clean water only, and leaving all the salt and filth of earth behind. Consequently the hottest parts of the ocean are the saltest. Salt water is heavier than fresh water. It follows that a stream of hot brine would be the strongest motive power that could be employed to ensure the circulation and intermixture of the waters of the mighty deep. And this is just the agent that the Almighty uses. Rendered dense by the loss of pure water, and hot by the power of a vertical sun, a stream of hot brine shoots off right and left from the equator to the poles, with sufficient force and velocity to extend its influence through those icy regions, and bring these cold waters back to the source of heat. And just as the density induced by salt helps the advancing hot water, so does the comparative absence of salt in the cold water, originating in the abundance of rain or snow, and comparative weakness of evaporation in those cold regions, assist it in reaching the equator; for fresh water is much lighter than salt, and of course the salt will displace the fresh, push it in fact out of the way, and send it back to the starting place of the outward current.

Heat acts in a somewhat different manner, but leads to the same result. Were the currents of the ocean maintained by a difference of density caused by a varying per centage of salt only, the hot current of water would flow along the bottom of the sea towards the poles, and most of its heat be lost to us. In the same way the lightness of the polar water would keep it on the surface. Instead of this, the heat added to the brine sends it along the surface of the ocean, and the cold overcomes the levity of the fresh water and sinks it down. Hence we find, with a few exceptions arising from accidental circumstances, or for special reasons, that the hot water flows out on the surface of the ocean, and the cold comes back at a lower level; at many points they also seem to take opposite sides of the great ocean basin. Scarcely ever does the water flow in a straight line from the equator to the poles. The form and motion of the earth, and the laws of fluids, render it impossible for it to do so. The cold waters that encircle the poles are almost stationary. As they advance to the latitude of England they travel at the rate of 600 miles an hour; in the centre of the Atlantic and Pacific that rate is doubled. Now water being a flowing liquid it does not accommodate itself all at once to these different rates of progression, but lags behind a little in its ocean bed. On the other hand, the dense tropical brine brings with it a revolving speed of 1000 miles an hour to parts of the earth which go round with a velocity of only 500; and so it has a tendency to go faster than the solid earth beneath it. These influences give an oblique set to the currents of the ocean, and send them circling round and round in enormous eddies or whirlpools. They have an important influence upon the thorough or complete admixture of the warm and cold waters, and to one of them we are indebted for the geniality and mildness of our climate. The waters from the tropics move towards the east as well as proceed in the direction of the poles. The currents of the ocean that bound the coast of South America flow along into the Caribbean Sea; from there they sweep past the promontory of Yucatan and enter the Gulf of Mexico. This is formed like a crescent, and this peculiar configuration of coast line (helping the set of the great Atlantic current) causes the water to be thrown out on its north-eastern bend with such force and velocity as to send an oblique stream of warm water to bathe the coast of Great Britain and Ireland all the year round. A mighty current of hot water, raised in the Gulf itself 6° higher than the great Atlantic stream, that is to 86°, rushes past between Florida and the Island of Cuba, with a volume 1000 times greater than the Amazon. The Gulf Stream is 120 miles wide, and 3000 feet deep, and moves with a speed of nearly five miles an hour. It is the grandest hot-water apparatus with which we are acquainted. Its heating power is enormous. It carries off heat enough from the Gulf of Mexico to melt a mountain mass of iron of sufficient bulk to keep a stream of molten metal running as large as one of the chief rivers of the earth. To it, as already stated, we are chiefly indebted for the mildness of our climate.

Did the hot air system alone warm the earth, our health, comfort, and very life would be imperilled. Then climate would become a mere affair of latitude. Labrador is in the same latitude as Great Britain, yet it continues an icy desert throughout the year; the reason of the difference is that they have a cold bath from the polar seas, and we have the great Atlantic current bent out of its course to give us a warm one. Were an earthquake to rend asunder the Isthmus of Panama, so that the Gulf Stream could pass straight through into the Pacific, Macaulay's famous prophecy of the decline and fall of England would be at once fulfilled—if indeed our climate did not all at once become too cold for the visit of the historical New Zealander, or the existence of the solitary rook on the broken arch mourning over the ruins of St. Paul's.

One is strongly tempted to moralise here, and it is scarcely possible to pass on without expressing admiration at the sublimity, grandeur, and antiquity of

Nature's works, and contrasting them with the short-sighted discoveries and littleness of those of man. The Almighty has been heating the world with hot water from the beginning—the sun His fire, the ocean currents His pipes, and the wide world the house He has warmed and ventilated. And yet man has only learned to go and attempt to do likewise yesterday, as it were, after looking on for 6000 years.

It can hardly be necessary to add that this flux and reflux of water of different temperatures produces great changes in the air that impinges everywhere on its surface, and is a fertile source of wind or ventilation. It will also be obvious to all who have accompanied me thus far, that water is heated in the very same way as the air, viz., by convection or a displacement of cold atoms by hotter ones throughout its entire volume.

Having thus sat at Nature's feet and gathered up a few general principles as the basis of the subject, I purpose endeavouring to elucidate the theory and practice of ventilation by considering the air as a mechanical force; as a plant feeder; as a carrier of water; as the conserver and diffuser of heat and light; proceeding then to notice modes and places for admitting air to our plant-houses; and mechanical contrivances for regulating and working the same. *D. T. Fish.*

DESSERT ORANGE CULTURE.

From seldom or never seeing this department of fruit culture practised by our gardeners, I am led to think that it is not recognised as legitimate by them. Thinking thus, I have been induced to visit my neighbour Mr. Rivers, who seems to have been the first to reduce the culture of the Citron tribe to anything like method for the purpose of giving us home-grown Oranges fit for dessert. My visit was paid on the 24th ult., and if I tell what I saw, an idea may be formed of the time taken to ripen Oranges for our tables.

On entering the Orange house, a very elegant iron structure, erected by Dennis of Chelmsford, so light and so bright that one could almost fancy one was in some southern clime instead of in England—and that too in the dull month of November—my attention was particularly called to two large standard trees of the Tangierine Orange, with remarkably large fruit on them. The stems of these trees are about 3 feet in height, and as stout as a broomstick; their age about 10 years. There was something very graceful in the bright golden fruit suspended by the delicate Weeping Willow-like shoots; something novel and very interesting. These Tangierines were quite ripe and very rich, aromatic, and good. On one of these trees there were about two dozen fruit, and some had been gathered; they hung in groups, with the sun shining on them, and the air being perfumed with the odour of the blossoms of some of the other trees, made it a scene not to be forgotten.

I was particularly pleased with the young trees of Tangierine Oranges now in flower and setting their fruit; these consisted of a few trees put early to rest in summer by being placed out of doors, so that when brought into the fruiting-house in October, they put forth blossoms and are now setting their fruit. It is, I learnt, an experiment to ascertain if their fruit will ripen early in summer. The usual time of the flowering of this sort of Orange is, in Lisbon, the end of February or beginning of March, and under proper cultivation this will be the case in the Orange-house, the fruit then ripening in October and November. There appear to be several varieties of this kind of Orange, probably from seed; some have Pear-shaped fruit, some round, and others large and flat, like what is called the Mandarin in Covent Garden.

The St. Michael's Orange also varies, some having smooth glossy rinds, and others rough. The trees of this sort are very beautiful, the fruit large, and the branches bending with their weight.

The Maltese Blood Oranges are very distinct in their habit, their foliage very abundant, and the trees robust and full of health. The blood-red colour varies much, for on the same tree you have red-fleshed fruit, and others not differing from the St. Michael's.

A white-fleshed Orange from the Azores is a very great bearer, and its fruit is of a very superior flavour.

The variegated Orange has fruit striped with green and yellow; the leaves of this sort are variegated with white, and the tree is very ornamental.

The Sweet Lime produces a small fruit, not yet nearly ripe, so that it seems to require strong heat.

The Egg Orange is a variety from St. Michael's, the fruit of which is very handsome.

The Ampton Orange, from Ampton, in Suffolk, is a most beautiful and prolific sort; its rind is quite smooth and shining; it seems later than the St. Michael's, and apparently will not be ripe till after Christmas. This is of course some foreign sort introduced and cultivated at Ampton.

These few lines on dessert Orange culture may possibly interest some of your readers, as I feel convinced that in a few years we shall have many such "Orange groves" scattered over the country in place of those we now have, the fruit from which cannot be eaten. I can truly say that I never remember seeing anything in the gardening way more cheering than this new mode of Orange culture, especially as the trees seem in their glory in November.

The house is 60 feet long and 12 feet wide, and, as has been stated, remarkably light, so that it is admirably adapted for a winter house; and few things can be more cheerful than Orange trees in full fruit and blossom. *B., Herts.*

ENCEPHALARTOS HORRIDA.

I forward you some particulars in regard to the fruiting of Zamia horrida (now Encephalartos horrida) in England. There is, or was, a plant in the Royal Botanic Society's Garden in the Regent's Park, which fruited a few years ago. The cone in this case was but small. There is an exceedingly fine plant (which may be seen at any time) in my Palm-house at Highgate. It was given to me 16 years ago by Dr. Lindley, having belonged to the Horticultural Society. It has flourished remarkably under my gardener's care, and is now a very fine object for those who admire plants of this kind. It bore a small cone soon after it came into my possession. But it appeared in full perfection 14 years ago. The cone, when quite ripe, was 32 centimetres (about 12½ inches) high, and about 18 centimetres in diameter.

abc, the tetragono-peltate termination of the scale: *d*, extremity of the scale, by which it is attached to the axis of the cone; *e f, g h*, the two ovules or drupes, two of which are attached to every scale by the extremities *e, g*, the other extremities *f, h*, being directed towards the axis and in apposition with it.

The annexed rude sketch may assist in explaining what occurred. The drupes went on enlarging and pressing against the axis, and at the same time the attachment of the scale to the axis at *d* became weaker and weaker. At length the scales broke loose, and, as it appeared, with some degree of force. The upper half of the axis was left bare, and the surface of the interior of the cone presented a remarkable and splendid appearance, the scales of a light green radiating on every side, and the bright crimson drupes filling the interstices. In this state I took the cone to the Royal Botanic Society, where there happened to be a flower-show in July, 1851. Mr. James De Carle Sowerby made an admirable coloured drawing of it, which is probably still in his possession. This drawing shows the colour of the ripe fruit, bright crimson. The fruit is edible. Like all the other parts of the plant, it abounds in starch, and is nutritious, not particularly agreeable, though perfectly innocuous. The Dioon edule, I believe, has its specific name from the circumstance of the drupes, or nuts, being eaten. I have a large coloured drawing of the same plant, made before it fruited.

I will only add that my collection of Cycads is now in fine order, and may be seen whenever any of your correspondents visit Highgate. *James Yates, Lauderdale House, Highgate, Nov.* 1865.

ON THE CULTIVATION OF PALMS.—No. II.

My paper which, under the above title, appeared in your number of November 4 (see p. 1036), brought me a communication from Mr. J. Linden, the eminent botaniste-voyageur et horticulteur of Brussels. He therein draws my attention to his trade catalogue, in which I observe, with unfeigned astonishment, that no fewer than 262 species of Palms are offered for sale. Am I wrong in believing that there is not a single house in this country that could furnish half that number?

Many of these, Mr. Linden informs me, have been recently procured from the Lower Amazon, the Rio Negro, the Madeira, and the Tapajoz; while many quite new and extremely interesting species of Cocos, Iriartea, Desmoncus, &c., of very small dimensions, have been lately sent home by Mr. M. G. Wallis, one of his collectors, from the Peruvian part of the Upper Amazon. "The same indefatigable collector," he adds, "after a five years' exploration on the Amazon, the Negro, the Branco, (as far as the Sierra de Parima), the Madeira, the Purus, &c., is now in the cold regions of Ecuador, the proper home of the elegant little Geonomas and Chamaedoreas, so that I expect a rich addition to my collection."

It is true that Mr. Linden's printed catalogue gives no information whatever to the grower on the important point touched in my former paper—the aptitude of the species for cultivation in small or moderate-sized houses, so that we might study it with the utmost care, and yet be ignorant, unless we happened to possess considerable knowledge of botany, whether a single species named would come within the limits of our accommodation. On my seeking for information on this point, Mr. Linden has favoured me with a manuscript list of 80 species (including a few not enumerated in his published catalogue, but I suppose imported since), which he says do not exceed 10 feet in height when fully developed. To some of these Mr. Wallis assigns a three or four times greater altitude, and a few that I happen to have known personally in Jamaica certainly there reach double the [illegible]; but Mr. Linden, apparently aware of this objection, says, "If any of these Palms do, in their native countries, attain a development somewhat greater than that indicated, I am nevertheless convinced that they do not exceed those limits when cultivated in our plant-houses." After all, we may readily consent to waive such exceptions, since there indubitably remain many hands of slender and minute and elegant Palms—Linospadyxes, Chamaedoreas, Bactris, Geonomas—already available, whose lovely crowns of foliage would wave with full-grown honours in the stove of the lowliest amateur.

It may be as well to caution the unwary against being misled by the mere altitude of the stem of a Palm. Merely dwarf species are not desirable. Such kinds as Lœopoldinia Piassaba and Astrocaryum Murumuru, that have short thick stems and wide-spread heads of foliage, are uncouth and inelegant. Raphia taedigera is a Palm of most stately port and great beauty; and as it seldom or not generally attains a greater height than 6 feet, the incautious plant lover might be led to order this species for growth in a small house. He would find himself somewhat encumbered, however, when he saw the grand leaves, 60 feet long, arching out and forming an immense head of plumes 70 feet in height and 40 feet in diameter. Even the Palm-house at Kew would scarcely afford "ample room and verge enough" for a well grown example of this noble Amazonian queen. The Astrocaryum humile, whose stem is never more than a yard high, is merely a large Palm dwarfed, and does not come within the category that I am advocating. Not dwarf Palms, but miniature Palms, I want to see grown; species having all the normal proportions of the tall, slender, plume-crowned forms—the Arecas, Euterpes, &c., which convey to our minds the very beau-ideal of a Palm, yet reduced in all their details to the tiniest dimensions. I want to see in our stoves Palms growing in 10-inch pots, with crowns of feathery foliage 40 inches in diameter, waving at the summit of a stem two feet in length, and of the ordinary thickness throughout not exceeding that of a black lead pencil. And these exquisite creatures are easily to be obtained for a few shillings! It would be very desirable that English growers should have an opportunity of seeing specimens of these plants; and on my receipt of Mr. Linden's first communication, announcing (what, when I wrote to the *Chronicle*, I had no dream of) that such plants were already in cultivation, I took the liberty of suggesting, not less in his interest than in our own, that he would do well to bring over a few examples of these tiny Palms to the International Horticultural Exhibition to be held in London next May. He replies as follows:—"I would very willingly send over a collection of little Palms if there were a class (*concours*) established, but there would be a group of not less than twelve species to produce any effect. *Apropos* of the coming Exhibition, I find that the prizes to certain classes have been strangely appointed. Thus, for example, look at plants newly introduced, which in all exhibitions possess a powerful attraction, since in the enriching of European horticulture with such, the introducer imposes on himself great sacrifice, and often unmitigated loss, while the collector risks his life, or at least his health. Well, these new plants, the very soul of European horticulture, and the hope of its future, have been classed, by the insignificance of the prizes offered for them, as if they were no better than rabbit food. Thus, for 12 new plants you offer a prize of 6*l.*, and for six, 3*l.*; for six new plants directly introduced, and which are not yet found in commerce, the prize is 6*l.*; while for 12 Roses you offer 12*l.*, and for six Roses, 7*l.* Who would expose his new plants to a depreciation so ridiculous?"

I have contented myself with translating my correspondent's *ipsissima verba*, as literally as I was able, because they touch upon a delicate subject on which I dare not venture to form an opinion. But perhaps I may venture to express a wish that the Committee of the forthcoming Exhibition, instead of offering a prize for "the largest and finest Palm" (Class 35), had offered one for the most minute and elegant Palm of adult age. The proposition as it stands caters for the gratification of (how many shall I say?) half a dozen persons in the three kingdoms; the substitute would contribute to that of thousands. *F. H. Gosse, F.R.S., Torquay.* [We believe large Palms are invited to give effect to the show. Our friend Linden might carry off some of the prizes in the Miscellaneous Class, with his Miniature Palms.]

INDOOR CLIMBERS.

Bignonia cœnsata.—Wherever conservatory decoration is wanted from September to December, a space should be found for this fine old plant, which I consider has no equal at that season. Like many other plants from South America, it is generally subjected to a moist stove temperature. When fairly established, it will, however, grow vigorously in a warm conservatory,

i.e., a good-sized house, in which a general collection of plants in bloom is arranged for effect, and where for the sake of the more tender kinds or for keeping damp out, a little fire heat is kept up as autumn approaches. I noticed also during the past summer that a shoot of it which had escaped through an aperture in the roof of our conservatory grew healthily even in the open air.

In habit this Bignonia resembles our common Clematis, except that it is evergreen. The leaves are produced opposite one another on a single footstalk, which again divides into another short footstalk to each leaf, forming two leaves on each side of the shoot. Tendrils also issue from between the forks of each pair of leaves. The flowers are produced at the axil of each leaf-stalk upon the current year's growth, which is not unfrequently covered with bloom for 6 or more feet, thus forming beautiful festoons of rich orange. I remember seeing some very fine specimens of the flowers of this plant exhibited to the Floral Committee of the Royal Horticultural Society about two years ago. They were furnished by Mr. Rogers, gr. to Mr. Noble, Berry Hill, and were the admiration of all who saw them. Owing to its flowering upon the young wood, it will be apparent that to have this Bignonia in perfection it should be well cut in immediately after blooming.

In preparing a permanent place for this plant, a considerable portion of brick rubbish or good sandstone, such as is found among peaty soils, well broken up, should be placed at the bottom of the pit for it, filling up with a mixture of light loam or couch mould and a little peat. As regards general treatment, the best effect is obtained by allowing a properly regulated quantity of shoots to fall down from the ratters or from one end of a house, and the higher the latter is, the greater is the effect produced. *J. F.*

TRADE MEMORANDUM.

Wanted, the address of Thomas L. Reid, Seedsman, late of No. 47, Cross Cheaping, Coventry.

Home Correspondence.

Comparative Hardiness of the Male and Female Bay Laurel.—Some time since (p. 866) you expressed a wish to know the sexes of any large Bay trees. I inclose two pieces with flower buds on them; the larger piece is from the tree mentioned at p. 868 in the paragraph on evergreen Oaks, but the dimensions should have been 10 feet 9 inches in height, and 7 feet 11 inches the greatest diameter of the branches. The smaller piece is from a tree 7 feet 10 inches high, and the same in diameter, about 20 years planted. *Charles Palmer, Stewkley Grange.* [The flowers in both instances are of the male sex.]

The Blue Orchid of Borneo.—In Mr. F. Boyle's book just published, "Adventures in Borneo," which were accomplished in 1863, occurs the following passage (p. 60):—"For its flowers Bidi is deservedly famous; from thence have been obtained some of our finest Orchids and Delitra. The celebrated Blue Orchid was discovered accidentally by Mr. Bentley upon the bough of a tree which he had passed a hundred times. As he described it to us, the blossoms hung in an azure garland from the branch, more gracefully than art could design. The specimen then discovered is, I believe, the only one at present known, and both Malays and Dyaks are quite ignorant of such a flower, though they begin to be aware of the present mania for Orchids in England, and to distinguish the rarer species." Can any of your readers inform me what are "Delitra?" And what is meant by this unique Blue Orchid, which Mr. Boyle alludes to as "the celebrated?" *P. H. G.*

Larches.—Last autumn I planted some hundreds of these on my estate, and now to my dismay I find that nearly the whole of them are without their leading shoots, which have been bitten off by hares and rabbits. As I am anxious to raise a good plantation of Larches, and have no possible means whatever of getting it enclosed, I should feel obliged by any of your correspondents favouring me with some advice upon the matter. *A Subscriber.*

Wellingtonia gigantea.—I have been much interested by Mr. Day's account (see p. 1109) of the Wellingtonia at Theydon Grove, Epping. It must be a very fine plant, and I should much like to see it. There are, however, one or two points in Mr. Day's letter which seem to me to require further explanation. In speaking of planting his Wellingtonia, he says, "I planted it in well-prepared soil, consisting chiefly of good loam;" will he kindly say what he did to his soil in order to "well prepare it," and mention of what its other component parts consisted, besides the chief part good loam. Mr. Day says, that if some of our beautiful valleys in England were planted with Wellingtonias, in a few years their general appearance would be greatly improved. This may be true, or it may not, but I should like to ask him what would be the value of his Wellingtonias, "in a few years," when they were beginning to improve the general appearance of his valley. I fear the utilitarian owners and occupiers of the valley in question would prefer good crops of Wheat, Barley, Oats, Mangels, Swedes, and similar unpoetical and every-day results, to all the Wellingtonias in existence; although if veterinarian professors and the rinderpest between them should knock all our cattle on the head, we may as well plant that portion of our valleys which has hitherto grown cattle food with Wellingtonia or some other ornamental tree, as not, for the principal use of Swedes and Mangel "will be gone." Even under these distressing circumstances, however, I would rather recommend to the notice of our valley proprietors Pinus Laricio, for I see by an advertisement in your Paper that it is a highly ornamental tree, surpassing the Larch both as regards rapidity of growth and quality of timber, and it is also said to grow and thrive where Larch will not, and to this advertisement is attached a name worthy of confidence. Pinus Laricio, therefore, may be considered useful quick-growing and hardy, and I may also add cheap, for I have seen it quoted in a nurseryman's catalogue at 10*s.* per thousand, whereas the Wellingtonia, however much it may deserve the title of ornamental, and I hope I may add of hardy, will, I fear, never deserve that of useful, and will be some time yet before it is cheap. I am, however, quite as enthusiastic an admirer of the Wellingtonia as Mr. Day is, and would wish to see it not only generally planted in suitable situations, but judiciously planted, so as to insure a similarly rapid development with that which has resulted from his well-considered preparation; and it is to enable those about to plant specimens of this beautiful and interesting tree to realise the same pleasing results as he has done, that I ask him to be so obliging as to detail his actual proceedings in regard to it. *C. F. P., The Grange, Kingston, near Taunton.*

Late Peaches in 1860 and 1865.—One bright morning in December, 1860—it was, I think, on the 15th—I called upon my neighbour to look at a Peach tree I had given him a few years previously, and which he had sent to tell me was then full of fruit. To my surprise I found a fine vigorous Peach tree trained to a south-west wall, with its leaves green as if it were August, and every branch studded with fruit of a bright crimson and gold colour. I remember standing before the tree perfectly struck with its appearance. On tasting the tempting-looking fruit, I found it—not, like the Apples of Sodom, full of ashes—but merely a Peach full of insipid watery juice, really without the least Peach flavour. On the 19th of December of the same year, only a few days after my visit, our first severe frost occurred, and then came that fatal one of the 25th, which will never be forgotten by those who witnessed it and its effects on vegetation. The frost of the 19th of course demolished my neighbour's beautiful looking Peaches. On the 10th of last October I went to my neighbour to take my annual look at my favourite tree. I found it full of fine fruit, all crimson and gold; and on tasting them, instead of the disappointment I experienced in December, 1860, I found them rich and juicy beyond any late wall Peach I had ever tasted. This sort which I have thus partially described, is an American variety which I imported some years ago under the name of Poole's Late Yellow. Downing, in his "Fruit Trees of America," calls it Poole's Large Yellow, and describes it as "flesh yellow, red at the stone, rich, juicy, and of excellent flavour;" its leaves have reniform glands, and its flowers are small. These yellow-fleshed Peaches require clear hot weather, or they are often "flat, stale, and unprofitable." This Poole's Late seems one of the best of them, beating Salway out and out in piquancy; the latter is one of the yellow Mediterranean Peaches, which reproduce themselves from stones almost like a species, so that if a traveller brought from Italy a hundred stones of yellow Peaches, the chances are he would raise a hundred Salways. On the whole the American yellow Peaches are better than the European, but they will not come out in flavour in dull, cloudy weather. Poole's Late Yellow has not, I believe, been propagated to any extent, and never advertised. The tree is not nearly so rampant in its growth as the Salway, but seems of a modest nature, making short prolific shoots, and bearing freely. *T. R.*

Mildness of the Season.—We have several beds of Black Prince Strawberry, which after bearing a large crop early in the season came again into bloom in September last, and set a quantity of fruit, which is beginning to ripen. To-day (Nov. 28) I have gathered several perfectly ripe berries, showing what an extraordinary season it has been even in this part of North Durham. *Thomas Dobson, Whitburn Hall, Sunderland.*

Forcing Roses.—Many say that Roses taken up in autumn will not do for forcing, but that is a mistake; some of the most distinguished Rose growers on the Continent take their Roses up after the occurrence of one or two severe frosts, and put them into as small pots as possible, filling the latter within an inch and a-half of the brim with soil, so as to leave room for top-dressing. They then put them into bottom heat, giving at the same time plenty of air to keep the tops cool. In four or five weeks they will be well rooted, and ready to be introduced into the proper forcing house. *John A. Lederhofer, Oxton, Cheshire.*

Orchid Baskets.—Can any of your correspondents inform me where I can get Orchid baskets of an ornamental character? *Alpha.* [Those who have such articles on sale should advertise them.]

Arundo conspicua (see p. 1109).—This has flowered here these last two years, and has been much admired. It is not so robust or stately as the Pampas Grass, but on the other hand it is more dressy and graceful. It stands well upon Grass in a flower garden; its elastic flower stems, coming up in summer with their drooping panicles of brownish white, contrasting well with the varied glowing colours with which they are associated, whereas the Pampas belongs to a [illegible] season of the year, when trees and shrubs are [illegible] in their autumnal tints. Though a native of New Zealand it requires no protection. It has been found to grow most luxuriantly here, planted close to a [illegible] in a somewhat sheltered situation, where a [illegible] of moisture is within reach. It should nevertheless stand freely exposed to light and air, in order that the flower stems may be induced to grow sufficiently robust to carry their large drooping heads without support. *T. C. E., Melbury.*

Chinese Banana (*Musa Cavendishii*).—I have sent you a portion of a cluster of fruit of this Banana for inspection. It is the first time it has fruited in this part of the Scotch Highlands. The pendent fruit-stalk first began to push on the 15th of May last, and I gathered the first ripe fruit on the 1st of November, being little more than five months from the time of starting until the first ripe pip was gathered. I have been told that this Banana takes in general a much longer time than this to ripen its fruit; I should therefore be glad if any of your practical correspondents would favour us with their experience in the matter. The pip sent, which is of a fair average size, is one of 56 of which the cluster consists; some have been much larger, and only a few smaller than that sent. A gentleman here, who has often eaten this Banana abroad, says that it is the best he has ever tasted. *James Russell, Gardener to John Malcolm, Esq., of Poltalloch, Callton Mór, Argyleshire.* [The portion of fruit in question, though bruised and otherwise spoiled by travelling, was perfectly ripe, and as good in flavour as fruit of the kind ever is.]

Black Alicante Grape.—Being in Worcester some few days ago, I endeavoured to ascertain as far as possible the origin of this Grape, and I find from reliable data that it must have been cultivated in that county during a period of nearly 60 years, and that it was first brought into notice by the late Mr. Williams, of Pitmaston, who called it the Liverpool, or Horsforth Grape, names under which it was freely distributed about that quarter. Mr. Boughton, of Lower Wick, had it, as had also Mr. Hale, then gardener to R. Nuttall, Esq., of Kempsey, from whom Mr. John Cox got his stock. The Kempsey Alicante and Liverpool or Horsforth Grapes are therefore identical. I may add that I had the pleasure of seeing at Dr. Carden's, Foregate Street, Worcester, quite an original specimen of the Liverpool Grape, grown and planted there by Mr. Williams for his sister (Mrs. Wall), quite 50 years ago. It is a fine old tree, the stem of which I should think measures nearly 4 inches in diameter inside the Vinery about 3 feet from the ground. It was in full bearing when I saw it (Nov. 3), and had at least 60 or 70 good-sized, well-set and well-ripened bunches upon it. *Robert H. Poynter, Taunton.*

Stoneless Berberries.—Your correspondent "W. D. F." (see p. 1084), states that he never saw stoneless Berberries in the Midland Counties or in the North. Here in Westmoreland we have abundance of them, some of the plants of which are between 200 and 300 years old; others are quite young. One small specimen planted four years ago was this season quite covered with fruit, all of which was stoneless. I have also examined many trees in the woods at this place, some of them old, others quite young, and in all cases I have been unable to meet with one plant bearing stoned fruit. To-day (Nov. 23), the plants are one mass of red fruit, although nearly all the leaves are off them, thus producing a very fine effect. Had we not had this fine season such heavy crops of all wild fruit, our friends the blackbirds would have thinned their numbers long before this time. *R. Craig, Gardener, Levens Hall, Westmoreland.*

Salisburia adiantifolia.—By far the finest tree I have seen of this, grows on Sir W. Miles' property in Somersetshire, near the river Avon, and village of Pill, at Ham Green. *J. G. S., Windsor.*

Odontoglossum Alexandræ.—In your report of the meeting of the Horticultural Society (p. 1109), it is stated that Mr. Blunt sent home a specimen of an Odontoglossum, which was considered by Prof. Reichenbach to be distinct from O. Alexandræ, and that examples of both were shown in flower at that meeting, the one called O. Bluntii being much the handsomer of the two. A flower of each of the two plants in question was sent to me by Mr. Bateman, and I beg to be allowed to state that specimens of both the varieties were gathered by me before Mr. Blunt saw either of them; and moreover, that the very specimen sent home by Mr. Blunt was given to him by me. The true history of the plant is as follows:—While at Pacho, about the end of May last year, looking for O. crispum, I discovered this species, and returned to Bogota with plants and flowers in the month of June. There I met Mr. Blunt, who saw the flowers, and being much struck with their beauty, he asked me to give him some, which I did, taking them at random from the specimens I had dried. These flowers, sent home to his employers, were no doubt the origin of O. Bluntii. I at the same time sent some plants and specimens, and wrote to the Royal Horticultural Society, giving a short description of the plant, and distinctly stating that it varied much in the size, colouring, and form of the flowers, and especially that some were more crisp and much more spotted than others. In the month of July I returned to Pacho to collect more plants, and as Mr. Blunt was anxious to obtain some of

the same kind, he accompanied me. We collected a large number of plants, many of them in flower, and varying as much and even more than the two varieties grown at South Kensington. I dried a number of specimens of the beautiful flowers, some of which I afterwards gave to Mr. Blunt, as he did not see any himself. However varied, therefore, the flowers of individual plants may be, I claim to be the sole discoverer of this beautiful species, and must protest against its bearing any other name than that given to it by Mr. Bateman. *John Weir.* [What does our correspondent Prof. Reichenbach say as to the identity of the two plants in question?—for that is the real point at issue, and not by whom it was found, nor who has been complimented in the name. On these latter, we are happy to give Mr. Weir an opportunity to speak for himself.]

The International Schedule.—This surely needs enlarging, for it appears to me to be anything but what it ought to be, as the horticultural pioneer of the times. New plants of course come first. Here there is no want of encouragement, though I think two other classes might with propriety have been added, namely, for one new plant in flower, and for one not in flower. This would give those a chance who may have a new plant, though they are not introducers. The new plant merchants surely cannot object to this. The stove and greenhouse plants are classed together, which is all very well under ordinary circumstances, but when upwards of 300*l.* are offered for this class, a few prizes ought to have been offered separately for each. Again, it appears to me that prizes for the best stove plant in flower, and the best not in flower; and the same for greenhouse plants, would be improvements. Upwards of 100*l.* are offered for fine-foliaged plants; here again prizes for single plants would be an improvement. Passing over the hardy trees, shrubs, and herbaceous plants, which appear to be liberally thought of, we come to the Orchids, for which very nearly 250*l.* are offered. This is truly international. Still there is not a prize for a hardy Orchis; why not? Some of them are surely worth notice. Palms, &c., have not been forgotten; but why class stove and greenhouse Ferns together? Separate prizes would surely have been better. The miscellaneous plants seem pretty well represented, with the exception of Petunias and Verbenas. Azaleas, Pelargoniums, &c., are liberally dealt with. Now, let us see what has been done for fruit. Prizes for Vines are offered, the amount of which is exceeded by one class of Hollies. As only the Nelsons and Wellingtons amongst gardeners can exhibit in this class, there ought to have been one of six varieties. Next comes the king of fruits, the Pine-apple; and if it were not in black and white before me I could hardly have believed that an executive committee of the calibre that heads this schedule, could have offered the paltry sum of 15*l.* for all the varieties of Pine-apple thought deserving of cultivation, and that when 7*l.* 15*s.* is offered for a few pots of Mignonette. The cut Grapes appear to be pretty fairly represented, but prizes for single plants in pots would be desirable. Melons are poorly encouraged; it would be better to offer something handsome for a collection, and the same with Peaches, Nectarines, Raspberries, and Figs. Plums and Apricots are apparently beneath notice; but let us hope these will find a place in the second edition. Prizes are offered for 12 fruit trees in pots, and it appears they may be exhibited with the fruit either ripe or green; but if the gardeners of this country cannot produce ripe Peaches, &c., on pot trees by the end of May, why not get the Dutch to show them the way? There ought to be prizes given not only for dozens and half dozens, but special prizes for Pines, Peaches, Nectarines, Apricots, Plums, Cherries, Strawberries, Raspberries, and Figs in pots. Mr. Rivers should take this part of the Schedule under his wing, for pot trees ought to be encouraged, and no place of any pretensions ought to be without 300 or 400 for early and late work. Why should not Cucumbers be shown in pots? It is to be regretted that neither a Loudon, a Hooker, a Lindley, or a Paxton has lived to see this world's wonder, which, as a really deserving move in the right direction, merits our good wishes. *D. Ferguson.*

Magnolia Lenné.—This has fruited in Messrs. Osborn's nursery this autumn, 18 seeds being taken out of one cone. M. conspicua, M. Soulangeana, and M. speciosa have also all produced numerous ripe seeds. M. grandiflora has now several large cones on it well advanced in growth, but too late, I fear, for the seeds in them to ripen. More trees and shrubs have perfected their fruit this season than have, perhaps, ever been known to do so before. *Ebor.*

Japan Flax (see p. 1107).—This is, I believe, the produce of Bœhmeria nivea. *F.L.S.* [In our Volume for 1863, p. 150, it is said to be the cleaned inner bark of Broussonetia papyrifera, the Paper Mulberry.]

Root Fungi.—I quite agree with your Correspondent (see p. 1108) that it is a rare occurrence for Fungi to travel from decaying roots to living ones. So seldom, indeed, do they do this, that I consider it to be a useless and unnecessary expense to remove old roots before re-planting fresh trees. Every winter, for these last 18 years, I have cut down a few acres of trees, and replanted the same season, and I do not believe that better trees than mine can be found anywhere in the North of England. The trees cut down consisted principally of Elm (Ulmus montana), with a few Beech, Ash, Spruce, &c., intermixed with them. For these, Oak, Scotch Fir, Spruce, P. austriaca, P. Laricio, and Privet for underwood, were substituted. The soil varies from sharp sand to a cold wet clay. *J. Marshall, Forester, London Park, Fence House, Durham.*

M. Naudin and the Origin of Species.—I observe in your columns (see p. 1081) a note from Mr. Berkeley explaining, on my friend M. Naudin's authority, that the latter never pretended to claim the hypothesis of the derivative origin of species as his own discovery. This excellent botanist and candid author has written to me to the same effect, and I may add that the article in the "Natural History Review" which gave rise to the fallacious appearance, is an isolated chapter from M. Naudin's elaborate and also thesis presented to the Academy. A perusal of the whole thesis would no doubt correct this erroneous impression as certainly as M. Naudin's written assurance does. What M. Naudin justly claims is the merit of having independently convinced himself of the truth of the hypothesis by a series of laborious and valuable physiological experiments instituted for the purpose of testing it, and which in my opinion do him great credit, and enable him justly to take the highest rank as a working apostle of the doctrine of the derivative origin of species. *Jos. D. Hooker, Royal Gardens, Kew.* [We feel assured that no one who knows M. Naudin personally, and who is aware of what he has done for botany and horticulture, will attribute to him any unworthy assumption of the credit belonging to others. In the present instance the misapprehension seems to have arisen from the perusal of a single chapter apart from the memoir of which it formed a portion.]

Gladioli.—In reference to a recent advertisement by Messrs. Youell & Co., of Yarmouth, respecting Gladioli at the Crystal Palace and Royal Horticultural Society, allow me to say the only prizes offered for Gladioli on the 19th August at the Royal Horticultural, and on Aug. 30 and 31 at the Crystal Palace, were awarded to Messrs. Kelway & Son, Langport. *J. K.*

Gardeners' Wages in Nurseries.—In your last week's impression (p. 1103) there is a short article under this heading, signed "G. C.," complaining that gardeners' wages in nurseries are only 12*s.* per week, and suggesting that they should be raised to 15*s.* per week. The matter being thus brought (I think fairly and calmly) to my notice, I have considered the subject fully, and I am bound at once to confess that I have no substantial argument wherewith to combat the broad fact that 12*s.* per week is under all circumstances too low. I shall therefore from this time pay 15*s.* per week to all regularly established head gardeners who may be employed in my nurseries. Although, however, I am converted on the simple point of wages, yet, on the other side, "G. C." must remember that there is something to be said. Gardeners frequently come into a nursery solely to suit themselves, and when nurserymen are really not wanting additional help; and they come just for a resting place until they can find another head gardener's situation, with the feeling (no doubt a laudable one) that it is better to earn something (if only partial wages) than nothing; it also keeps body and mind employed; and it is never supposed that they are earning, or are paid their head gardeners' value, as if they were in noblemen's or gentlemen's places. Again, there are very great differences in the intelligence, knowledge, and energy of gardeners; if all showed whilst working in a nursery the same interest, industry, and usefulness in their work that some do, nurserymen might be able to give higher wages still than the 15*s.* per week, which henceforth I shall cheerfully pay. *James Veitch, Royal Exotic Nursery, King's Road, Chelsea.*——Your correspondent "G. C." says that while all other trades are receiving a rise in wages, those of gardeners in a nursery remain the same, viz. 12*s.* per week, and he considers that with the present price of provisions, destruction of clothes, &c., that sum is totally inadequate to support a wife and family. This I think few would be bold enough to deny, and were I a nurseryman of any importance, I should without hesitation advance an extra three shillings per week. It is, however, a fact that however diligent and persevering gardeners may be when in a situation, they are generally unenergetic while waiting for a re-engagement: their labour is therefore not the cheapest that a nurseryman might employ. Your correspondent "G. C." appears to me to be totally out of order when he compares the position of a mechanic in employment with that of a gardener out of a situation, the two cases having no analogy between them whatever. The mechanic is receiving full pay for the performance of a certain branch of business in which he is a skilled workman. A gardener in a nursery is in a very different position. *John Blunt.* [We find some misapprehension has arisen as to the signature "G. C.," to remove which we have to state distinctly that those initials are those of the writer of the letter in question, who is totally unconnected with the *Gardeners' Chronicle.*]

Foreign Correspondence.

Fine Specimen of Musa Ensete at Florence.—This noble plant, unfortunately hitherto so little cultivated in Europe, must be seen to be fully appreciated. Description can give but a meagre idea of its beauty. In a Palm house here I have a plant of it, which has been the admiration of all who have seen it. It has a trunk 2 yards and a half in circumference and 20 feet in height, of a bright glossy green, crowned by a cluster of leaves, many of which measure 11 feet long and 4 feet wide. The leaves, too, being produced with great uniformity round the stem, and of a lanceolate form, give this stately Musa an extremely graceful appearance. Standing moreover as it does among Palms and other large-foliaged plants, it boldly challenges attention, not less for its noble appearance than for its striking form. A Frenchman's idea of it is expressed by his comprehensive word *magnifique.* And [illegible] would have [illegible] been at all [illegible] used in regard to the plant just mentioned. In spring it produced a flower-spike from the crown of the leaves [illegible] which measured fully 8 feet in length. It is now furnished with from [illegible] of which are [illegible] and good. [illegible] produces its [illegible] and in due course we shall see its present [illegible]. It is, however, to be hoped that it will soon become more generally [illegible], as by [illegible] or other large hothouse should be [illegible]. Young it requires considerable [illegible] to fully develop itself; but there are [illegible] in the country capable of accommodating it, and for any room which it might take up, its extreme beauty would amply compensate. *J. Cornhill* [illegible] *Madame Carnarvon's, Elbeuf, Seine Inférieure, France.*

Societies.

Botanical of Edinburgh.—*Nov. 9.*—Dr. Dickson, President, in the chair. Among donations to the Museum at the Royal Botanic Garden were specimens of gum copal from the East Coast of Africa from Colonel Playfair, who writes that the larger specimen is the so-called fossil gum, which is obtained by digging about 3 feet below the surface; the smaller is used in preference by the merchants "in lieu" [illegible] of shellac, and is said to be second. Mr. Peter, nurseryman, Inverness, furnished cones of Pinus Nordmannia and Wellingtonia gigantea. The President then delivered an opening address, in which he alluded to the progress and prosperity of the Society, saying that the considerable increase in the number of new members during last year, as compared with the previous one, was a satisfactory indication that an interest in botany was on the increase. He referred to the loss by death sustained by the Society. Some of the others deceased members stood in the foremost rank among the cultivators of botanical science. The following deaths had occurred in the Society during the last session—viz., two honorary members, Sir W. J. Hooker, and Dr. Lindley; four ordinary members—Drs. Paterson, Badger-Baikie, and Dickinson, and the Rev. J. Wynne of Hazlewood; and one associate, Mr. J. Robertson. After briefly considering the events of the last session, Dr. Dickson discussed at considerable length the keenly debated question as to the nature of the female coniferous flower, with special reference to the arguments of Dr. Hooker, contained in his paper on Welwitschia. Dr. Dickson contended that the absence of a proper stigma in those plants could not be held to indicate the absence of carpels, because a stigma was no necessary or essential characteristic of a carpel, being in some cases developed, not from the carpel at all, but from the placenta. The absence of vessels in the presumed carpels of Coniferæ had been urged by Dr. Hooker as an objection to the carpellary view, but Dr. Dickson thought there was no *à priori* improbability that carpellary leaves of reduced type should be destitute of vessels, seeing that ordinary leaves in certain cases are destitute of vessels, as in the Podostemaceæ. Dr. Dickson said that next to the results of organogenic observation, the analogy which, on the carpellary view, the Coniferæ would present to certain Lamiifloræ afforded the best argument of a positive character in favour of that view; that in both families we would have ovules reduced to naked nuclei, solitary and basilar in the Coniferæ, and frequently so in the Lamiifloræ; that in both there would be a tendency to the production of what Schleiden termed "general infera," or an adhesion of ovule, where from preponderating development of the very base of the ovule, it becomes more or less immersed in the substance of the floral axis; and that in both families there would be the occasional occurrence of a plurality of embryo sacs, &c. Dr. Dickson conceded that the *onus probandi* lay with the supporters of Robert Brown's hypothesis of naked ovules, and that no botanist should accept that hypothesis, involving as it does the assumption of a great anomaly, unless he were able to convince himself that the carpellary view is untenable. The following communications were read:—1. *List of Lichens collected in Otago, New Zealand,* by Dr. W. Lauder Lindsay.——2. A letter from Dr. J. C. Brown, colonial botanist at the Cape of Good Hope, intimating that he had sent for the gardens at Edinburgh and Glasgow specimens of Welwitschia mirabilis. The plants had been contributed by Mr. Chapman. Professor Balfour stated that they unfortunately had reached Edinburgh in a very unsatisfactory condition, and the specimen in the Garden had shown no signs of vitality.——As some doubts had been expressed relative to the occurrence of Sison Ammomum in Scotland, Professor Balfour exhibited specimens collected by himself in August, 1831, in the neighbourhood of Coldstream, not far from The

Hirsel, the residence of the Earl of Home. He also stated that Œnanthe fistulosa, which is not recorded as a Scotch plant by Professor Babington, occurs abundantly in Wigtonshire, Kirkcudbrightshire, and Dumfries-shire, in all of which localities he had collected it. ——Dr. Balfour exhibited specimens of an Aster, apparently Aster salignus (salicifolius), which he found growing in quantity on an island in the Tay, near Dalguise, far from any gardens, and apparently naturalised. He remarked that several species of Aster were spread over Britain, and he exhibited specimens of two species which had been collected near Coldstream, and on the banks of the Thames.—Dr. Balfour read a letter from Dr. Murchison, of London, in reference to the Falconer Memorial and the Falconer Natural History Fellowship, in which he stated that the sum now amounted to upwards of 1800*l.* In order to endow a proper fellowship in the University of Edinburgh, the sum of 2500*l.* or 3000*l.* will be required. He requested Scotch naturalists to aid in the cause.—Dr. Balfour called attention to the Horticultural Exhibition and Botanical Congress which is to take place in London in 1866.——A correspondent of the Society mentioned that at Bonchurch, near Ventnor, Isle of Wight, he noticed a Fuchsia nearly 22 feet high, and having a trunk 7 inches in diameter.——Mr. M'Nab laid before the Society specimens of Raphanus caudatus, grown in the open air, and stated that he had exhibited a growing specimen at the last meeting in July, but as time did not then allow of any remarks being made, he now communicated the following notes. The seeds of the plant were received from Mr. William Bell, Superintendent of the Botanic Garden, Saharunpore, in April, 1865, under the name of "Radish, 3 feet long." The seeds were dibbled into a piece of ground prepared for the purpose, and a two-light frame placed over them. They very soon commenced to grow, so that the glazed frame had to be removed. Seven weeks after being sown, they flowered profusely, and numerous seed-vessels of a purplish green colour were produced. These went on elongating till many of them had reached the length of 2 feet 9 inches, each plant bearing from 18 to 20 of these long tapering snake-shaped seed-vessels. In the young state the siliquas or seed-pods may be used like the ordinary cultivated ground Radish, as they possess a peculiar pungent taste. They will also be found very useful for making up mixed pickles, &c. About eight years ago seeds were received from Madras under the name of "Rat-tail Radish, Raphanus caudatus," with seed pods 8 inches long. This variety produces seeds freely, and is annually grown in the garden. It possesses the same pungent taste as the long-fruited plant. The large Radish is very hardy, as both flowers and fruit were found on it in the open air as late as 9th November, 1865. Independent of the various culinary purposes to which this Radish may be turned, it is of itself a remarkable vegetable curiosity. If the seed is sown singly and each plant is tied upright, the fruit will, when matured, be found hanging all round—sometimes perfectly straight, at other times assuming contorted forms. This peculiar contortion is most perceptible at the period when the seeds in the upper portion of the siliqua are swelling. At no stage of their growth do either of the varieties show the slightest tendency to produce the Radish under ground. It will be curious to observe the nature of the offspring when the plant is fertilised with the ordinary garden Radish—in all likelihood the hybrids will produce edible Radishes, both above and under ground.——Mr. Buchan exhibited a specimen of wood found in peat in Orkney. The specimen was taken from a tree 5 feet in diameter, and was transmitted by Mr. Baikie.

Entomological: *Nov. 6.*—F. Pascoe, Esq., F.L.S., President, in the chair. The deaths of General Sir J. B. Hearsey, who had formed large collections of insects in India, and of Mr. Bouchard at Santa Marta, in New Granada, were announced by the Secretary. Mr. Stone, of Brightampton, sent for exhibition a remarkable specimen of Sphinx Atropos, having only one antenna, together with the pupa case, in which the wanting antenna was represented by a short curved horn. Mr. McLachlan exhibited some beautiful bred specimens of Sterrha sacraria, varying greatly from the type of the species. The larvæ had been fed upon Polygonum aviculare by the Rev. Mr. Hellins. Mr. F. Bond exhibited a new British moth, Acidalia mancuniata; also a series of excellent photographs of magnified insects, executed by Dr. Maddox. Mr. McLachlan also exhibited a remarkable female specimen of Calepteryx splendens, the left fore-wing of which was coloured as in the male, and the right fore-wing blotched with dark colour. Mr. Iansen exhibited a new species of British Brachelytra, and Mr. Crotch three new British Coleoptera of small size, namely, Ægialea rufa, Lithocharis maritima, and Monotoma 4-foveolata. Mr. Stevens exhibited some fine insects of various orders collected in Damara Land by Mr. Anderson. The following communications were read:—1. On the Genera Calamobius and Hippopsis, by Mr. Pascoe.—2. On Varieties of Chrysophanus virgaureæ and Phlæas from Zermatt and the Himalayas, by Mr. Hewitson.—3. Descriptions of New Exotic Butterflies belonging to the Family Hesperiidæ, by Mr. Hewitson.—4. Descriptions of New Genera and Species of Gallerucidæ, by Mr. Baly.—5. On the Structure of the Thread of the Silk Moth as it issues from the mouth of the Caterpillar, by Captain J. Mitchell.—6. On the Acclimatisation of Pontia Rapæ in North America, by D. Jordan.—7. On the Superior Advantages of Collecting the Lepidoptera of Europe rather than those of England alone, by the Rev. Douglas Timmins.—8. On the British Species of Agathidium, by Mr. David Sharp.

Notices of Books.

Manual of Materia Medica and Therapeutics: being an Abridgment of the late Dr. Pereira's Elements of Materia Medica, &c. **By F. J. Farre, M.D., F.L.S., assisted by Robert Bentley, F.L.S., and Robert Warrington, F.R.S. Longmans. 1865. 8vo, pp. 614.**

Dr. Pereira's work on Materia Medica has long been known as a standard book of reference on the subjects on which it treats. It partakes rather of the nature of an encyclopædia than of an ordinary text book. Its very copiousness is in some instances embarrassing, and this remark applies more especially to the therapeutical portion. Dr. Pereira's diligence and research were beyond praise; he compiled most accurate and complete histories of the various substances of animal, vegetable, or mineral origin that are used in medicine, but in treating of the application of these remedies he bewildered the student by the number, variety, and often conflicting nature of the statements he collected from various sources. Seldom, comparatively speaking, did he give the results of his own experience; seldom did he give any clue whereby the apparent discrepancies as to the utility of certain drugs might be reconciled, and so it has happened to many diligent students of "Pereira," that they have acquired a scepticism as to the value of drugs, which bids fair to be only less mischievous than that excessive trust in physic that characterised our ancestors.

But we have in this place rather to look to the value of the work as a natural history of drugs, than as a philosophical treatise on their proper use in the various diseases to which flesh is heir.

The present volume is an abridgment of the larger work, and contains an account simply of those material agents which find a place in the recently published British Pharmacopœia. Hygienic remedies and agents, influencing the mind, are omitted from this abstract, as is also the historical account of the various systems of classification of drugs.

On the other hand, the editor and his colleagues have added much new matter, so as to bring the work up to the present date.

In its present shape then, Pereira's "Manual" is little else but a new edition of the Pharmacopœia with comprehensive explanatory notes. The Editor has availed himself of the most recent researches on pharmaceutical subjects, and is fortunate in having been assisted by two gentlemen who, from the positions they occupy, and from their long practical experience, are peculiarly well qualified for the task they have undertaken.

Books Received.—*My Library*, by Pamphilius (Ward, Lock, & Co.), is to consist of a series of sixpenny volumes, comprising a "condensation of the primary aspirations of the great, the good, and the practical, whose examples are calculated to engender and animate virtue, to create emulation, to teach the rising generation to struggle, to endure, and to conquer difficulties." The two volumes before us—*Economy of Life* and *Patient Boys*—contain, in the shape of fragmentary stories, with reflections thereon, much good advice conducive to this end.——*Scientia Scientiarum* (Hardwicke). Under this title a member of the Victoria Institute explains the origin and objects of that association. Anything that will in any way tend to clear away error and promote truth must receive the sympathy and support of all conscientious workers, but we fear the attempt proposed by the "Victoria Institute or Philosophical Society of Great Britain," will only result in failure and the widening of the breach between the two classes of thinkers. The reasonings and assumptions of theologians seem to us, in many respects, as fallible as those of the students of science. Neither can boast of infallibility, but both should work on without bias to render their respective objects of study as free from error as human imperfection will allow.——*On the Scientific Investigation of Disease in Animals and Man*, by a Fellow of the Royal Society and of the Royal College of Physicians (Harrison). We commend this excellent little pamphlet to the members of the Victoria Institute. It contains forcible arguments in favour of the prosecution of all branches of knowledge in a spirit of pure inquiry, the author expressing his confidence that in due time such labours, however unproductive at first of what practical men would call useful results, will ultimately elicit some important and useful generalisations. The author's illustrations refer chiefly to medical science, but they are just as applicable to all other departments of knowledge. The writer suggests that Government aid should be extended to scientific men engaged in prosecuting particular lines of research, on a plan similar to that which has been found to work well in the case of the Kew Observatory, and, we may add, in the drawing up of Colonial Floras.——Messrs. Longman have issued an illustrated edition of the *Recreations of a Country Parson*, got up with such luxuriousness that it makes one long to be a country parson and read this pleasant book under the spreading Beech trees. Truly both author and publisher seem to understand "the art of putting things" in the most enjoyable aspect.——*How to Use the Barometer*. London. Bemrose & Sons. We prefer the shorter title on the outside of this useful little book to the rather lengthy one on the title page, but it becomes necessary to add that the author is the Rev. R. Tyas. To amateur meteorologists, to farmers and gardeners, this publication is likely to be very useful.——*Flowers and the Flower Garden*, by Elizabeth Watts (Warne & Co.) is a little book giving instructions for laying-out gardens, descriptions of ornamental trees and flowers, and directions for the operations necessary in each month. The information is concise, and in many respects useful, but like some other popular writings not always sufficiently exact, and therefore not to be implicitly followed. There are also far too many errors of the press or of the pen. What, for example, is the "Wortlebury family?" Here, again, is a passage which puzzles us:—"The Canary Creeper, Ampelopsis hederacea, canariensis, or Tropæolum peregrinum, is pretty from the bright delicate harmony of its gay yellow flowers and pale green foliage." What has the Canary Creeper to do with Ampelopsis? We also doubt the utility in such a work of the chapter on Tender Foliage Plants.——*Chinese Miscellanies*, by Sir J. F. Davies (Murray), is a collection of interesting and instructive papers, many of which have already appeared, either as contributions to the Edinburgh and Quarterly Reviews, or have been read before some of the learned Societies. Still, in the present form they will afford much pleasure and information to any who are desirous of becoming more intimately acquainted with the peculiarities and characteristics of that strange and most ancient race, some of whom are said to trace an undisputed lineal descent for more than 2000 years. Amongst other things are notices on Travels in Thibet and various parts of the Empire, and a detailed analysis of a work on Husbandry and Botany, presented to the Horticultural Society with the original work. There are also two very excellent chapters on the principles of the language, with an account of the origin and progress of Chinese Literature in England.——*Cholera Prospects: compiled from Personal Observation in the East, &c.*, by Tilbury Fox, M.D. Lond. 8vo pamphlet. (Hardwicke.) A sensible paper, read at the Harveian Society, and inculcating as the best means of preventing the access of cholera, cleanliness, good and plentiful food, and full employment for body and mind. Not very new this, but none the less valuable. The author gives a caution as to the use of bad rice, from the use of which he has seen prejudicial effects.

Catalogues Received.—*William Barron's (Borrowash) Catalogue of Coniferæ and Ornamental Trees* is a comprehensive list, with the sizes of the plants carefully noted.—*Kelway & Son's (Langport) Descriptive Catalogue of Gladioli* offers a numerous selection, embracing many seedlings, to 27 of which they state that First-class Certificates have been awarded this season.—*Godwin's & Son's (Ashbourne) Catalogue of Roses.*

The Apiary.

"In your note appended to my paper on the Profitable Management of Bees, recommending large hives for them, you have not fully understood one thing; for you ask, if large hives are so good, why not adopt them at once? I answer, simply because swarms from small hives could not fill large ones during the first year. The queens would lay eggs enough, but the working bees would be so small in number that they could not build combs or hatch eggs enough to fill large hives. Canada, or the States of America, are too large for the mother country to colonise in one year. One hundred navvies can do more work than 30; but they are not equal to the work of 200 navvies. Hence I advise the bee-keepers of England to get hives about one-third or one-half larger for their swarms next year; if these are filled in 1866 and kept for stock, they will do twice as much work and send off swarms twice as large in 1867. These swarms in 1867 will require big hives, and gather from 2 lb. to 5 lb. of honey per day in favourable weather. Advance a step further in 1868, and we shall hear of hives in England weighing from 80 lb. to 130 lb. When in the north lately I read in *The Scotsman* newspaper, a letter from a Hertfordshire bee-keeper, who was on a visit to Edinburgh. He had nothing to say about the Castle, or Arthur's Seat, or Salisbury Crags, or Holyrood Palace, but he was astonished to find in the shop windows so many large boxes and skeps full of pure honeycomb. In his letter he said, 'we can produce nothing like them in England,' and then asked for information as to how he was to proceed. My answer is, keep large hives, and this is only a repetition of what I said 22 years ago. While butter is 17*d.* per lb. and children fond of honey, you will, I am sure, do good and lasting service to the cottagers of England by inducing them to keep hives large and roomy. It may take time to remove prejudices, but facts and experiences in the end sweep them away like straws in a stream. I may shortly trouble you again

with another suggestion or two on bee-management; but the great secret of success will be found in large hives." *A. Pettigrew, Brighton Grove, Manchester.*

In our reply to Mr. Pettigrew's former communication (see p. 1086), we did not misunderstand his meaning. In the first place, we object altogether to hives anything approaching the size of those recommended by our correspondent in his first letter. Bees would never fill them, and few if any swarms would ever issue out of them. But we can hardly suppose that he seriously advocates the use of a hive equalling in internal dimensions *ten* of those known as Neighbour's "Improved Cottage Hive." This would contain, at a rough guess, upwards of 11,000 cubic inches of building and breeding space. If Mr. Pettigrew's logic were good, there is no doubt that it would be advisable to increase the size of the hives gradually; but as his premises are wrong, so must be the conclusions to which he has arrived. For argument's sake we will suppose that hives double or three times the ordinary dimensions are to be recommended. If a swarm of the usual size be considered too small, let two or more of such be united and hived in it; this is by no means unusual, particularly by the Ayrshire bee-keepers. Surely this must be as well as waiting for two seasons or more. The bees are enabled to construct a much greater quantity of comb, and of course, if Mr. Pettigrew is correct, ought to throw off a swarm of double the usual size the following season. But is this the fact? Certainly not, so far, at least, as our experience has gone.

We have many times united two first or prime swarms, and placed them in large-sized hives. We have more than once known doubled swarms, which have come together during the excitement of swarming, to be domiciled in some large receptacle, such as a small barrel; but we have never known them succeed after the first season one whit better than colonies arising from single swarms. The reason is that the queen of any hive, whether large or small, can only lay a limited number of eggs. True it is, that this limited number is very much larger than has been usually believed to be the case; but still there is a limit to her power of laying. Consequently, however populous a colony may have been during the summer and autumn, yet in the spring there will be few, if any, more bees than in an adjoining hive which was peopled with a single swarm at the same date.

This last summer we had two enormous swarms unite together after having been secured in separate hives. The bees were put into a large-sized frame box, which apparently was unable to contain them all. A super therefore was put on in addition. The lower or stock box was rapidly filled with combs, and a super of 25 lb. weight was taken for our share. But what is the state of the case at this present time? There are not any more bees in it than there are in one close by, which sent off two swarms in June, and by next spring it most probably will not be at all more populous than the majority of the hives in the apiary. Those large doubled swarms answer very well the first summer, provided there is a good honey harvest, but there seems to be little advantage arising from them in succeeding seasons.

A small second swarm may not nearly succeed in filling its hive the first season; the next summer it may not throw off a swarm, but will fill its hive with combs, and the bees will by the autumn have become very numerous. The following year it may be the strongest colony in the apiary, and throw off large and early swarms. So it is with these large hives recommended by Mr. Pettigrew. If the bees are unable to completely occupy the space the first season, they would the next, so that we do not imagine there is any real necessity for incurring the additional expense of medium-sized hives, which are only intended to be used temporarily.

But we are also compelled to differ from Mr. Pettigrew in his inference that hives so large as those he recommends, throw off swarms of double or treble the size of those usually adopted. We frequently have had swarms from very large hives, not at all exceeding those from cottagers' skeps, and such hives possess the disadvantage of swarming a week or a fortnight later, which frequently (at any rate in the south) is fatal to the prospect of any honey harvest from the swarm for that year. This fact was very apparent this last summer. While great numbers of the cottagers' hives in our neighbourhood, and several of our own smaller hives, were sending off swarms from the middle to the end of May, most of our full-sized hives, that were not entirely prevented doing so, did not swarm until the first and second week in June. Some of these late swarms have done badly, while the early ones have filled their domiciles, and in some cases worked well in supers in addition.

We should be glad to know what the dimensions are which Mr. Pettigrew would really advise to be adopted. We should like also to hear of the results of any mammoth hives that he may know to be in use. If the enlargement is to be limited to one-third or one-half more of interior capacity, there is no objection on our part, as it would in most districts be found a great improvement; but further than this we cannot recommend.

We shall be obliged if Mr. Pettigrew will favour us from time to time with further hints and suggestions on the subject of Bee Management.

Garden Memoranda.

TARRANT RUSHTON.—There are some places whose fame rests in their present occupants, and which possess little or no interest unconnected with them, and of this class is the vicarage garden of Tarrant Rushton. A Dorsetshire hamlet is this said Rushton, with a sparse population, neither picturesque in themselves nor in their houses: the church, an old, ugly, barn like edifice; the vicarage itself plain and old-fashioned, and probably after the present year to pass away from the memory of all save the few personally interested in it. Rushton has become a classical name, and that entirely through the indefatigable perseverance and energetic skill of its amiable, kind-hearted, and enthusiastic vicar. Mr. Radclyffe has so often enriched your columns with his shrewd and sensible observations upon the growth of Roses, Strawberries, and Peaches, that I am quite sure there will be a general feeling of regret at the announcement that he bids adieu to Rushton for ever in April, and that his Roses, Strawberries, Peach trees, and Pears must be left to the tender mercies of another. And he retires from active parochial work, to enjoy the *otium cum dignitate* he has well earned; but this will be all a gain to the horticultural world; he will have more time to give to his pets; he will be able to let us know more about them, and our hope is that he may obtain a residence better suited in its soil and situation for his favourite pursuits. I was with him a few weeks ago, and although the matter of leaving was decided on, yet the time was uncertain; but a letter from him recently informs me that it is definitively fixed for April next. A few farewell notes on it may not, then, be uninteresting.

The situation of the garden is a very exposed one—open to the south-westerly gales that prevail so much in that part of England; lying on the side of a small hill, at the bottom of which flows a good-sized brook, consequently liable to heavy frosts in the winter, and destructive ones in early spring. The soil is poor and hot; one that an ordinary person looking at would say, "I can make nothing grow here—least of all Roses;" but the Vicar of Rushton is not an ordinary person—and as the sleek common-councilman becomes under the generous hospitality of civic London the portly and obese alderman, so has the vicarage garden of Rushton fattened by the rich food provided for it. "My Roses live like the Lord Mayor," is the vicar's own description of them; and hence he has been able to produce as fine plants and splendid blooms as can be obtained in more favoured localities, and been enabled to successfully compete both at the metropolitan and provincial shows. He grows, when he has ascertained that a Rose is good, a large number of it, discarding worthless varieties however "new" they may be, and rejecting no good ones because they are old. How he loves those Roses! verily they are his children. (He is a bachelor, and, as they say in Ireland, more's the pity!) Hear him as he walks round, apostrophising them. What beauties he sees in them, how he apostrophises them as he tells of their excellence. "Ah! my dear Charles Lefebvre, you *are* a beauty!" "Ah, Jules, you never fail me; always ready to cheer me with a bloom," and so on. Doubtless a non-Rosarian would think him a "leetle gone;" but it is only the enthusiasm of one thoroughly in earnest. There is no need of my telling of the Roses he grows, for it would be just simply to cull the best out of the catalogues: but it is amusing to see how well he is known in the neighbourhood. Although heavy rains had nearly washed away all the Roses, he gave me a good bouquet of blooms to take to a friend at Blandford, who was that day entertaining some of his clerical brethren. When put on the dinner table, the exclamation was, "Ah! you've been to Rushton," as few other Roses like them could be produced.

The Peach trees, which I remember once to have seen in full fruit, were looking well; the secret of his growing he has often told. I much fear that the care they require to produce the results he has attained will hardly fall to their share now, and at any rate the chronicle of their produce will no more come before the horticultural world.

The Strawberries were looking beautiful; during all the hot weather they had been drenched with water, and were now showing how much they had appreciated it, for nothing could exceed their vigour. Sir Joseph Paxton seemed to be the strongest grower; but all were looking well—Eliza, Wonderful, &c., and amongst them that which Mr. Ingram is going to call after the Vicar himself. May it be worthy of the name!

The grand yellow Roses that covered the front of the house will all remain, but the greater bulk of his favourites Mr. Radclyffe removes to a garden he has in the adjoining parish, until he finds a place to roost in. There are ties which bind him to Dorsetshire, and so we shall probably hear of him from the neighbourhood of Blandford. I have thought that many of his friends, many who know him not personally, would not be sorry to hear of his movements; they, I am sure, wish him well, and did they know him personally, those wishes would be intensified. We may differ from him in his judgment sometimes, but we cannot be insensible to the good he has done to Rose culture by the zeal, uprightness, and kindliness with which he has advocated the interests of his favourite flower. Rushton will lose its charms for us now, but its whilom vicar will always have, I am sure, a large place in the kindly feelings of every lover of the Queen of Flowers. *D., Dorset.*

ALEXANDRA PARK, HORNSEY.—Operations connected with the formation of this Park, which have been suspended during the last twelve months, have now commenced in earnest, and we hope will not cease until the work is completed. The foundations of the principal building are progressing fast, under the direction of Messrs. Kelk & Lucas, the contractors; and your readers will be glad to hear that the building is to be completed next year. The views to be obtained from this Park are magnificent, looking as they do over the Essex Hills, Epping Forest, High Beach, Walthamstow Forest, and the counties of Herts and Middlesex. St. Paul's and the Crystal Palace may also be seen from this Park, which is studded with fine old trees, and is so situated as to be easy of access from all parts of London. It is bordered on one side by the Great Northern Railway; the North London Railway will also run to it, as well as several others. It cannot therefore fail to be an acquisition to the northern part of our great metropolis. This Park will contain about 200 acres inside, while outside will be about 300 acres, which are to be used for building purposes. To Mr. M'Kenzie belongs the credit of having drawn up the plan for laying out the ground work. We do not doubt, therefore, that it will be carried out in such a manner as will make the Park attractive to the millions of people of different tastes who may be expected to visit it. Nature herself has done much for the place, and if the plans in question are properly carried out, this Park will be one of the most beautiful anywhere to be found. Among old deciduous trees to be met with on it are the Oak, Elm, Ash, which, if intermixed with groups of various kinds of Conifers, &c., will be set off to increased advantage; for nothing is so effective in a good landscape as Pines and different kinds of Evergreens. In short, under liberal and judicious management, this Park may be made an honour to the illustrious name by which it is distinguished.

Miscellaneous.

American Heather.—The earliest notice of the Scotch Heath as an inhabitant of America is that of Sir William Hooker in Index to the "Flora Boreali-Americana," where it is stated "This should have been inserted at p. 39 as an inhabitant of Newfoundland, on the authority of De la Pylaie." It was supposed, however, that Pylaie had made a mistake, and it was a generally received axiom among botanists that Heath were limited to the Old World. In the year 1861 Prof. Gray of Harvard announced the unexpected discovery by Mr. Jackson Dawson of Heath in Tewksbury, Massachusetts. It was supposed by some that the Heath had been planted there, and there is an elaborate paper by Mr. Sprague in the Boston N. H. Society's Proceedings, in which it is strongly argued that no native Heath had ever been found in Newfoundland, or on the American continent. In November, 1863, at the sale of the Linnean Society's collections, in London, Mr. Watson bought a parcel of plants in which were found two flowerless branches of Calluna vulgaris, identical with the Heath of the British moors, and labelled "Head of St. Mary's Bay—Trepassey Bay, also, very abundant. S.E. of Newfoundland, considerable tracts of it." Evidence thus seemed to accumulate, but was still imperfect. In the city of Halifax there is a common but mistaken belief that there is plenty of Heather at Point Pleasant and the North-west Arm, but all the specimens that have been collected have proved on examination by botanists to belong to other plants, and not to the Heath family. However, in September, 1864, Dr. Lawson obtained specimens of the genuine Heather in swampy ground on Ulston Farm, St. Ann's, Cape Breton, where it has been known by the proprietor, Mr. Robertson, for about ten years. The plant is quite wild, and native. Soon afterwards it was announced that Mr. Richardson, who was making a geological survey of Newfoundland, had found Heather there. And lastly, during the present summer, a young lady brought to Dr. Lawson's botanical class a specimen of Calluna vulgaris (agreeing in every respect with the Scotch and Cape Breton plant), which had been collected on the Dartmouth hills in 1850. There is now, therefore, ample evidence that Scotch Heather grows, as an indigenous plant, in Massachusetts, Nova Scotia, Cape Breton, and Newfoundland; but is extremely local in its distribution, and in fact one of our rarest plants. Wherever a patch of Heather grows, the proprietor should fence it in, and preserve it carefully, otherwise we shall be apt to lose the plant, and with it one of the claims of our province to its cherished name of Nova Scotia. English and American botanists will hear with much interest of the Dartmouth habitat, as it serves in some measure to connect the Massachusetts one with those of Cape Breton and Newfoundland, which latter, on the other hand, connects (distantly) through Greenland, Iceland and the Azores, with the great Heath centre of Northern Europe. *Nova Scotia Journal of Agriculture.*

Always Garlic.—Garlic is as dear to a Venezuelan as the Shamrock to an Irishman, and one feels surprised that it is not adopted as the national emblem. I was assured by a traveller that he had exhausted his

inventive powers in devising means to escape eating of dishes flavoured with this herb, but all in vain. As a *dernier ressort*, and when half-starved, he determined to live on eggs, but the fatal fragrance pursued him still, much to his astonishment as well as disgust. At last, on carefully examining an egg before attempting to break it, he found that the small end had been perforated, and some of the favourite herb introduced by the innkeeper, who was resolved that the national taste should be vindicated, and that, too, *ab ovo* and *in extremis*. *Dickens's All the Year Round.*

Pears Extraordinary.—We (*Hertfordshire Express*) have been favoured with an inspection of some Pears of remarkable size and weight, produced this season in Mr. Goodwin's garden, at Bancroft House. Of two specimens selected, one measures 20 inches round the long way, and 14½ inches in circumference at about two-thirds its length from the stem. The other measures 19¼ inches round lengthways, and 14 inches at its greatest circumference. They weigh respectively 2 lb. 4¼ oz., and 2lb. 2½ oz. These gigantic specimens are also most handsome in appearance, from the perfection of shape in which they are grown. [Of what sort were they? Single fruit of Uvedale's St. Germain sometimes weigh as much as 4 lb.]

Erasine.—Grease, &c., is readily dissolved by benzine; but the latter has the disadvantage of an offensive odour. A new substance has, however, lately been discovered, which possesses the useful properties of benzine, while, at the same time, any odour it emits is agreeable. It has been called Erasine, and is the product of a species of Pine, accidentally discovered by some persons who were collecting turpentine, and remarked that none could be obtained in the usual way from certain trees; but, instead of it, a juice possessing the power of dissolving all animal and vegetable oils, without leaving any stains, or injuring the most delicate colours. Erasine has already found its way into commerce, and it would answer well for burning in lamps, but that it is too dear. *Intellectual Observer.*

The Plane-tree of Vostitza.—The chief wonder of Vostitza is the celebrated Plane-tree, with the fountain close by. We reached it by a good and clean paved road, creditable to the police of Vostitza. The Plane-tree, which is now in almost decrepit old age, has suffered greatly since the Revolution. At what period it became hollow, no one knows; but its branches are broken in many places, and the foliage is a scant remnant of its old flourishing wardrobe. I well remember it in its better days, with its white, fresh-looking mosque near, its well-arranged encircling seats, its Turkish-built fountain, and all the usual encouragement and provision for true Oriental kief. The Plane-tree suffered, about a century ago, from lightning and a fierce whirlwind; but the injury was apparently confined to its branches, which still, however, have a circumference of 60 feet; that of the trunk measures 30 feet. A guard keeps watch in the bowels of the tree. It answers capitally as a substitute for a gigantic sentry-box. Not satisfied with this, the Greeks have imposed upon it a sort of *café*. We saw chairs and tables placed inside in the usual confusion. The scooped-out centre is capacious enough for all. These hollow Plane-trees are to be found in many parts of Greece. At Cheledonia, near Kephissia, is one, in the interior of which you can dine. *Wyse's Excursion in the Peloponnesus.*

Corsican Vegetation.—A large portion of the surface of Corsica—I may say all that is not a primeval forest or under cultivation—is covered with what they call "Maquis." I do not like to use the word brushwood or scrub, for such are very common terms to apply to groves of underwood composed of Myrtle, Arbutus, Cistus, Rock-roses, and Mediterranean Heath, and yet of such is the interminable "maquis" composed. These choice shrubs are the weeds of Corsica, growing wherever Nature is left to herself, wherever the soil is not covered with timber, and soon again turning even cultivated lands into brushwood if left uncultivated for a few years. In the northern part of Corsica I found everywhere flowering luxuriantly a very lovely purple Cyclamen. In the Castagniccia it was quite a weed. *Bennet's Mentone, 3d Edition.*

Large Mushroom.—At a recent meeting of the Tetbury Horticultural Society, Mr. Reynolds, gardener to the Earl of Suffolk, exhibited a very fine Mushroom, measuring 12 inches across, which was grown in Charlton Park. *Wiltshire Independent.*

Calendar of Operations.

(*For the ensuing week.*)

Grapes at this season are valuable or otherwise, just in proportion to the degree of perfection in which they have been preserved after becoming ripe. Three conditions of growth are, however, particularly necessary in order to ensure success:—1st, they must be well fed in the berry; 2d, they must be thoroughly ripened pretty early in autumn; and 3d, they should receive abundance of ventilation. To be well fed the Vines must possess good root action, which is of more importance than overloading the border with manure; thorough drainage, and such a constitution of soil as will at all times readily transmit moisture, are also necessary in order to ensure healthy growth. To be thoroughly ripened, they must have plenty of warmth, a dry atmosphere, and a free circulation of air day and night. They should, moreover, be well coloured before sun-heat becomes deficient. Attention to these principles will scarcely fail to ensure success. As to the application of fire-heat, if the house is too cold, or too damp, keep fire enough to remedy the evil.

FLOWER GARDEN AND PLANT HOUSES.

Advantage should be taken of frosty weather, should it occur, to do any rough work in the principal part of the pleasure-ground, such as pruning trees and shrubs, the doing of which involves a considerable mess, which can be more easily removed in hard weather. A similar opportunity should be taken to wheel old exhausted soil from the flower-beds, and to replace it with fresh material, as this kind of work can be done during frost in half the time that it would take if done when the ground and walks are soft, and with a tithe of the injury to both which would inevitably occur in the latter case. At this time of the year, it often happens that severe frosts follow heavy wet. When plants are overdone with moisture, they are more susceptible of frost than when moderately dry. It is therefore good policy to guard against extremes of either one or the other.

Auriculas.—A double mat will be advisable over the Auricula frame at night, but should it be possible, even in severe weather, to give air, by all means let it be done.

Bulbs.—Tulip beds will be more safe covered than exposed; and Ranunculus and Anemone beds had better be thrown up, in order to sweeten and insure the destruction of insects, &c.

Polyanthuses.—These will, perhaps, now claim extra notice. Those on beds, if parted at the usual time, will often have the collar exposed too much, and the roots comparatively bare; independently of this, earthworms may have drawn leaves, &c., into their holes, which, with their castings, give the beds an untidy appearance. One plan of avoiding these results is to carefully fork up the soil, so as to disturb the fibres of the plants as little as possible, removing the rotting or broken leaves; then, with a mixture of decayed leaves and cow-manure, which had been prepared, and under cover some time previously, go carefully over the bed, filling up all inequalities, placing a couple of handfuls round each plant; in fact, giving them a complete top-dressing. This operation will prove highly beneficial; and its result will be a strong and vigorous start in the spring.

FORCING GARDEN.

Pines.—Let the temperature of fruiting pits range from 55° to 60° by night, and from 65° to 75° during the day: bottom-heat should be about 80°. Admit as much fresh air as possible, moderating the quantity when the wind is very keen. The day temperature, and moisture, should be regulated by the clearness of the weather and the amount of air which can be admitted. Do not on any account allow the moisture to be in such abundance as to condense and run into the plants. Crownless and deformed fruit are the result of moisture being allowed to accumulate in the hearts of the plants at the time the fruit is coming up. Where the pot system is practised, the plants in all stages should be examined once in two or three weeks, and a portion of those whose roots have made the greatest progress should be repotted.

Vines.—In starting these, after washing the stems and glass, the woodwork, and everything else about the house, should be painted if not already done. If the outside border is not already covered with litter, this should be done before the Vines are started. Unless the roots extend into the interior of the house, the border should be covered with 18 inches of fermenting material, such as stable litter and leaves, to produce a gentle warmth in the soil before the inner temperature is raised higher than 50°. Before the litter is laid on, all loose or exhausted soil should be scraped off the border as far as the roots, and replaced by a top-dressing of charred turf, crushed bones, charcoal, and fresh horse-droppings. The inside border should also have the exhausted soil removed, and be top-dressed with a similar mixture. Commence with a gentle heat of from 45° to 50° night temperature, and from 50° to 60° by day.

HARDY FRUIT AND KITCHEN GARDEN.

Where fruit rooms are not furnished with a stove or a coil of hot-water pipes, considerable difficulty is often experienced at this season in excluding cold and damp. Of the two, perhaps, the latter is the greater enemy. It may, however, be remedied by spreading some unslaked lime in wide pans or drawers, exposing as much as possible of its surface to the atmosphere, and exchanging it for fresh as soon as its absorbing powers are somewhat satisfied. Frost should be excluded if possible; but if this is to be effected by the aid of artificial heat, the latter should always be used in connection with ventilation, that the moisture evaporated may be allowed to escape. If there are, however, no such conveniences, the simple means of matting up the doors and windows must be adopted; and if, in spite of these precautions the internal temperature falls below the freezing point, care must be taken to prevent a sudden thaw by keeping the room close and shaded for a short period after the return of warmer weather. This points out the advantage of constructing such places on the north side of a wall, as they are thereby preserved from extreme heat in summer and from sudden variations in winter. Many of the finest dessert Pears require placing in a temperature of 60° for a few days previous to use; there they will become quite ripe and will attain their full richness of flavour, while they would have lain in the cool fruit-room shrivelling till useless.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON
For the Week ending Nov. 29, 1865, as observed at the Horticultural Gardens

Nov.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth 1 foot deep	Temperature of the Earth 2 feet deep	Wind	Rain
Thurs. 23	5	29.454	29.347	54	46	50.0	51½	44	S W	
Friday 24	6	29.535	29.179	51	35	43.0	51	44	S W	
Satur. 25	7	29.311	29.186	47	42	44.5	50	44	S W	
Sunday 26	8	29.507	29.196	44	26	35.0	50	43½	S W	
Mon. 27	9	29.694	29.460	41	33	37.0	49	43	S W	
Tues. 28	10	29.359	29.114	48	41	44.5	49	43½	N E	
Wed. 29	11	29.687	29.520	49	35	42.0	49	43	S E	
Average		29.506	29.286	47.7	36.8	42.3	46.9	43	W	

Nov. 23—Very clear till 2 P.M., then overcast, rain at night.
— 24—Boisterous and showery; fine; clear.
— 25—Fine; densely overcast; rain; overcast
— 26—Fine, but windy; damp and showery; fine at night.
— 27—Foggy; very fine; showery.
— 28—Rain; showery; wet at night.
— 29—Overcast; densely clouded and cold, cloudy at night.

STATE OF THE WEATHER AT CHISWICK,
During the last 39 years, for the ensuing Week, ending Dec. 9, 1865.

Dec.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds: N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Rain
Sunday.. 3	47.0	35.4	41.2	21	0.26 in	1	6	5	2	4	12			
Mon. .. 4	47.7	36.1	41.9	17	0.39	4	2	2	3	5	3	1		
Tues. .. 5	48.8	34.7	41.7	23	0.25	—	3	2	1	5	12			
Wed. .. 6	47.9	36.2	42.1	19	0.76	2	4	2	3	6	10	1		
Thurs. .. 7	48.4	36.3	42.3	19	1.02	1	6	2	2	4	14	1		
Friday .. 8	46.9	34.0	40.4	18	0.58	2	5	1	2	2	6	4		
Satur. .. 9	46.8	35.4	41.2	16	0.40	2	4	3	3	5	10	1		

The highest temperature during the above period occurred on the 4th, 1857—therm. 61 deg.; and the lowest on the 5th, 1844—therm. 14 deg.

Notices to Correspondents.

Books: *G F.* Cuthill's Treatise on Sea Kale, &c, may possibly answer your purpose.—*A Gardener.* Lindley's Theory and Practice of Horticulture costs about 21*s.*; and the Vegetable Kingdom 36*s.*

Carte de Visite of the late Dr. Lindley: *A Gardener and Others.* A very satisfactory portrait may be obtained of Mr. Sawyer, 46, London Street, Norwich. We refer you to our advertising columns.

Centuries of Time: *W H G.* Some consider the year 1800 to be the last year of the 18th century, and others believe it to be the first year of the 19th. But to which century it really does belong admits of decided proof. An epoch may be denoted by a point in the course of time; and one of such marks the commencement of the Christian Era, from which years and centuries are successively numbered; and when 100 years are completed, the first century is completed. When 1800 years are determined by 1800 revolutions of the earth round the sun, which is the case at the end of 1800, the 18th century is ended; and the 19th century begins Jan. 1, 1801, and not till then. If a catalogue were drawn up of the plants that have been introduced in the different centuries, those introduced in the year 1800 must be included with those of the last century.‖

Fruit at Exhibitions: *T E.* For exhibition purposes a dish of Apples or Pears is usually defined by the schedule to mean so many fruits—usually half a dozen. If it is defined you must exhibit accordingly; if not, you can vary the number shown at your pleasure. Generally, a dish of Grapes is to consist of three bunches; Peaches, Pears, &c., six fruits, and Plums, nine fruits.

Game Cover: *Alpha.* The land on which you propose to sow Gorse should be prepared in the spring the same as for a crop of corn, and sown down in April, either broadcast or in drills, it is not material which, but it should not be harrowed in very deep, and the ground should be rolled after sowing. From 25 to 30 lb. of seed per acre will produce an abundant crop, if the soil is suitable. It is by some preferred to mix the seed with common Grass seeds, and drill it in the same as in laying down Grass land, in which case 20 lb. per acre would suffice. Whether it may be desirable to plant Privet and Black Thorn amongst the Gorse must be considered a matter of taste and convenience. Supposing it to form a feature in any landscape, it would most certainly relieve the monotonous appearance, but otherwise it would be best to confine it to the Gorse. If the land is drained with drain pipes alone, and those perhaps of a not very large diameter, it is certainly not improbable that some of them may in the course of time become choked, more particularly if Privet is used, that being much more likely to enter them than either of the others. If the pipes had been covered with broken stones to the depth of a foot or so, this injury need not have been apprehended.

Insects: *J M.* We found a few young specimens of Thrips on your Azalea leaves. If the plants could be separately fumigated uder a vessel or a parapetticoat, you would doubtless get rid of them. *W.*

Names of Plants: *R P.* All communications should be addressed to the Editor. We cannot undertake to name plants from leaves only. Yours is Gymnostachyum Verschaffelii.—*K G.* 1, Euonymus europæus, the common Spindle tree; 2, Adamia cyanea, Nepal.—*A Gardener.* 1, not recognised without a better specimen; 2, Lastrea decomposita; Æschynanthus grandiflorus.—*John.* 1 and 2, Lastrea Filix-mas; 3, Lastrea dilatata; 4, Polypodium vulgare; 5 and 6, Lastrea Filix-mas paleacea.—*A B.* Berberis aristata.—*Hooper & Co.* A Convolvulacea, and probably an Ipomœa, but indeterminable without flowers.—*W R.* Leontopodium alpinum.

Oak Leaf: *J S M.* Your leaf is covered with Oak spangles, a full account of which may be found at p. 52 of our volume for 1843.

Orange Trees: *Westfield.* Under the circumstances described your Orange trees are more likely to be suffering from defective root action than from too much heat. Examine the roots. If they are healthy, and the soil not sodden, they may probably want feeding, and a little guano-water may be given; but if the soil and roots are in bad condition they should be taken out, replanted in good open soil, and provided with gentle bottom heat.

Stephanotis and other Seeds: *Major Trevor Clarke* requests us to state that he will feel greatly obliged to any correspondent who could send him fresh seeds of Stephanotis, Portlandia, Dipladenia, Echites (excepting splendens), Thunbergia angulata, Justicia, and Gardenia; also Secnium edule. He would be glad to make any return of the kind in his power. His address is Welton Park, Daventry.

Transplanting Machines: *Cambrian.* Barron's (of Elvaston) and McGlashan's may, we believe, both be had on hire. The perhaps that represented at p. 531 of our present year's Volume may answer your purpose.

Communications Received.—Prof. Oudemans (with many thanks).—J. Backhouse, jun.—W. B. Booth—Rev. J. Smith.

MECHI TESTIMONIAL.—CATTLE SHOW. Noblemen and Gentlemen attending the Cattle Show who are desirous to subscribe to the TESTIMONIAL to be presented to Mr. ALDERMAN MECHI, as an acknowledgment of his undefatigable exertions in the cause of Agriculture, are respectfully informed that a Committee will attend at an Office adjoining the Cloak Room, Hall, Second entrance, during the hours of Exhibition, in order to receive subscriptions.
DONALD NICOLL, Hon. Sec.
Regent Circus, S.W.

PRELIMINARY NOTICE.—At Special Meetings held by the WAKEFIELD and WEST RIDING FARMERS' Clubs on the 17th and 24th ult., it has been determined, after consulting many of the other Agricultural Societies and Clubs, to convene a PUBLIC MEETING in LONDON during the Smithfield Cattle Show week, to discuss the questions arising out of the CATTLE PLAGUE, and to determine upon some uniform course of action throughout the country, and also to consider the position of Agriculturists in respect to the Destruction of their Cattle by the orders of the Government inspectors, and if requisite to form an influential deputation to wait upon the Home Secretary on the subject. Further particulars will be given by advertisement or on application to
M. B. HICK, Secretary to the Wakefield and West Riding Farmers' Club.—Wakefield, December 2, 1865.
Proposed by Mr. CLAY. Seconded by Mr. WILMOT.
Carried unanimously, J. B. CHARLESWORTH.
The numerous Secretaries to Farmers' Clubs who wished replies to their Letters will please accept this as such; as it is impossible for me to reply to so many communications.—M. B. H.

BINGLEY HALL, BIRMINGHAM.—The SEVENTEENTH GREAT ANNUAL EXHIBITION of FAT CATTLE, SHEEP, PIGS, DOMESTIC POULTRY, CORN, ROOTS, and IMPLEMENTS, will be held in BINGLEY HALL, on MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, December 4, 5, 6, and 7.
For SPECIAL RAILWAY ARRANGEMENTS see the Advertisements and Bills of the several Companies.

CURZON EXHIBITION HALL, BIRMINGHAM.—The SIXTH NATIONAL EXHIBITION of SPORTING and other DOGS will be held in the new CURZON EXHIBITION HALL, Birmingham, on MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, December 4, 5, 6, and 7.
For SPECIAL RAILWAY ARRANGEMENTS see the Advertisements and Bills of the several Companies.

SMITHFIELD CLUB CATTLE SHOW, AGRICULTURAL HALL.
Open MONDAY, December 11. Admission 1st Day, 5s.

CATTLE SHOW, AGRICULTURAL HALL.—The SMITHFIELD CLUB CATTLE SHOW contains an epitome of the Best BRITISH LIVE STOCK in Cattle, Sheep, and Pigs. Admission, Monday, after 2 o'clock, 5s.; Tuesday, Wednesday Thursday, One Shilling.

SMITHFIELD CLUB CATTLE SHOW, AGRICULTURAL HALL.
In CATTLE:—Short-horns, Herefords, Devons, Highlanders, Galloways, Irish and Welsh Blacks, Half Breds. In SHEEP:—Leicesters, Southdowns, Cotswolds, Lincolns, Shropshire Downs, Hampshire Downs, West Country Downs, Oxford Downs, and Cross Breds. In PIGS:—Large, Medium, and Small White, Black, and Black and White, Bacon Hogs, and Small Porkers, from all the counties.

SMITHFIELD CLUB CATTLE SHOW, AGRICULTURAL HALL.
CHEAP EXCURSION TRAINS and Return Tickets to London. See Time Tables of all the Railways.

The Agricultural Gazette.

SATURDAY, DECEMBER 2, 1865.

MEETINGS FOR THE ENSUING WEEK.

MONDAY,	Dec. 4	Midland Counties' Show of Fat Cattle, Sheep, and Pigs, at Bingley Hall, Birmingham.
TUESDAY,	— 5	
WEDNESDAY,	— 6	
THURSDAY,	— 7	
WEDNESDAY,	— 6	—Agri. Society of England—(Noon).

THE Cattle Plague appears to be spreading rapidly,—deaths from it are taking place at the rate of nearly 3000 weekly, and it appears to be now more virulent and fatal in country districts than in towns. Farmers are coming round to the impression that the total cessation for a sufficient time of the live traffic, with all the enormous inconvenience of such a measure, will be a much less loss and evil than the spread of the contagion and consequent destruction of whole herds, which seems otherwise to be inevitable. The Central Farmers' Club last Monday presented to the Privy Council, by a deputation of their members, a memorial, which submitted that for the next two months, say from December 1st, 1865, to Feb. 1st, 1866, all traffic in cattle be prohibited, saving only in the case of fat stock, as sent to market for immediate slaughter—that all fat cattle thus exhibited in any market be not permitted to again leave the boundaries of any such city or town wherein the market is held; but that these animals be there slaughtered within eight days. And further, that all foreign beasts imported be killed for food at the port of disembarkation immediately on their arrival, or within such reasonable time as may allow of their sale to the butcher—that all fat cattle be marked or branded before leaving any market, and that a similar brand be made on all beasts bought privately for slaughter in the country previous to these leaving the farmer's premises, under a penalty of —*l.* for every animal removed without such marks being affixed, and this fine to be recoverable from either buyer or seller—that a cordon be drawn around all infected districts or parishes, and that no animals be suffered to leave such prevalent districts alive until one month after the last herd of stock struck with the plague has died, been killed, or completely recovered from the attack—that the importation from foreign countries infected with the plague be prohibited—and that the hides of diseased animals be not removed from their slaughter-houses until thoroughly disinfected; nor any manure from any infected farm or cowsheds, and that no cattle, during the prohibited time, be turned upon any road, common, or unenclosed land.

It will be seen that the Order in Council which we give in another page, enables local authorities, if they think proper, to do in their respective districts nearly all that the Farmers' Club desires to have done. No order of the kind will be of any avail unless local public opinion sanctions it; and the Government has done well therefore to make the adoption of this order the work of the local magistracy, who alone are capable of judging rightly whether or not it is practicable or advisable. Our readers will find in another column several communications, some of them addressed to ourselves and others to the columns of the *Times*, on the subject of compensation, treatment, and prevention.

—— WE have used none but BUSBY'S prize CARTS. They cannot be surpassed for strength and general usefulness, but they have one grievous defect. The space between the sides and wheels is so very small that if a hard frozen Swede gets jammed, woe to the spokes. Moreover, the iron slot below the tail-board, at least at either extremity where it ought to be extra strong to carry the side stay, is too weak; and the slot bar connecting the shafts behind is faulty, and requires more and better disposed iron work. Now to BUSBY, supposing him to have been a good type of a man, these facts were of more value than pages of praise. Where were the judges' eyes?—for BUSBY was cart king for many a day. We are told that the stone carts in Paris are very long, and mounted on huge wheels, and carry great weights. A short-bodied cart is always heavy on the horse; perhaps the East Lothian and Berwickshire type is too short. We remember that all the carts used by the grain dealers who bought and carried from Haddington to Edinburgh were long, almost sideless carts. Such is the type of the Edinburgh (Craigleith quarry) stone carts, and of the railway trans-shipment carts of CAMERON & Co., railway carriers for heavy goods in Edinburgh from Waverley Station to Lothian Road, Caledonian Station. We have noted length as characteristic of carts, and our bailiff repeats the observation for Preston and the west of Lancashire. There is an endless diversity in types of carts; but there must be only a very few—perhaps not above three or four good types, as in the case of ploughs, and what are they? The plough question has come to hair-splitting and fiddle-faddle; but grubbers and carts are yet an open question, and well worthy of far more attention than they have yet received. *H.*

MR. CLAYDEN ON THE CATTLE PLAGUE.

THE following is the substance of the evidence given by Mr. Clayden, of Saffron Walden, before the Cattle Plague Commissioners:—

"I am chairman to the Agricultural Hall Company. I farm about 1800 acres of land; 1000 under Lord Braybroke, and nearly 800 of my own. I am mayor of the borough of Saffron Walden in Essex; and we have shut up the Saffron Walden market for six weeks last Saturday, also the fair on the 1st day of November next. My wish would be that every head of cattle should be confined to the spot where it now is, for at least one month. The disease is of the most virulent and most contagious character, and it requires the most active measures to counteract it, and this season of the year is the best that could be adopted for that purpose.—Meat will keep good for a long time, and the means of conveyance in the country are exceedingly good, and there is no frost to affect the quality of the meat. There are very few farmyards in which a shed could not be soon formed for a slaughter-house. I do not mean to say that it would be as good as a butcher's slaughter-house, but it could be formed; and if you could confine the disease to the place where it now exists, for one month, which would entail the slaughtering of all foreign cattle near the port of disembarkation, it would have a very beneficial effect. I consider those strong measures necessary because of the contagious character of the disease, and the loss that it entails both to the purchaser and the seller and the consumer. —It is my opinion that store animals congregating together in a town acquire the disease, and that when they are sold they spread it through different parts of the country. The profits of farming are now cut down so low that the graziers buying cattle for grazing cannot afford to lose a bullock; they can scarcely afford to lose his tail; and great loss is caused throughout the country through the movement of the store cattle, and the farming interest will be reduced to a most woeful state if this thing is to continue. The disease is of that nature that great inconvenience must be felt, but I do not see when it could better come than now, because the country is exceedingly full of feed, and it is a time of year when cattle will not suffer. We know that there are many grazing farms where they are sold from, but still there never was such an abundance of feed as there is now. I would confine every animal in the kingdom, England, Ireland, and Scotland, to the place where it now is for one month. And in doing that the foreigner would have no cause of complaint, because his cattle would be treated just the same as the English farmers'. I feel sure that the butchers' trade could be carried on if all the animals were obliged to be slaughtered on the farms themselves. There is not a farm on which a slaughter-house could not be made, and it is a time of year when meat would not suffer from exposure. In the winter season the meat would be very much injured by the frost, and in hot weather by exposure to the weather, but that is not the case now.

"I have the honour of being chairman of a Cattle Plague Association in our neighbourhood, and we all feel that the disease was imported by foreign animals and given to the London cows. We have only had two cases in our district, and they both arose from calves bought from the London dairies. In consequence of our having an association, and insisting upon every animal being killed, we have not had a single case of the disease spreading in our district. In the two cases in which the disease originated, every animal was slaughtered on the farms, and it did not spread, either in the district or in the individual parishes. I would slaughter foreign cattle at the port of disembarkation. I would place them on the same footing as English cattle, and you would use the foreign importer more fairly by slaughtering his cattle than you would by putting them in quarantine. Just picture a lot of cattle taken out of the hold of a vessel and put on to a marshy meadow, and having to be there for three weeks; that is more likely to bring the disease than to prevent it.

"I would extend the prohibition to the movement of sheep as well as cattle. In our neighbourhood, last Saturday three weeks, a man named Giblin, of Wethersfield, near Braintree, bought 80 sheep at Colchester market of a man named Johnstone, and on the Monday following they arrived home; five died immediately, and they kept dying till Professor Simonds was sent for. Other veterinarians were had recourse to, but they said that it was not the Cattle Plague. Professor Simonds then reduced the lot down to 54, and the other 26 he slaughtered as good for human food. They all died, and they died within 18 days of being purchased. They were wether sheep —shearling sheep. That has made us afraid of this disease; and to prove that this was the disease a man named Raven, whose fields adjoin Giblin's, and where there was a brook not so wide as this table between the fields, had two cows, one of which took the disease and died, and the other he had killed; and another farmer in the same parish had the disease also from those sheep as it was supposed, as the fields adjoined."

AGRICULTURAL EDUCATION.

ON MIDDLE CLASS EDUCATION, having reference to the Improvement of the Education of those who depend upon the Cultivation of the Soil for their Support. By Mr. R. DUKE, 14, Burton Crescent.

As connected with the welfare of the agriculturist, the improvement of the education of those who depend upon the cultivation of the soil for their support is a subject well worthy of the attention of the Royal Agricultural Society. It is, moreover, one which may be expected to have an influence upon agriculture, and, as such, is specially an object of the Society's interest. If improved education contribute also to improved agriculture, it comes legitimately within the scope of its duties, and possesses obvious claims upon its consideration. What, then, is Education—and how can its improvement be effected? In considering this, education may be divided into two kinds—general education and technical education. General education is to a great extent of a rudimentary character, and though it may be more or less advanced, it has no necessary connection with the calling or business of life. Technical education, on the other hand, is so connected, and is determined by the profession or calling selected. General education has rather to do with the social position. As such, its value is recognised by the agricultural as by all other classes, and it is hardly necessary to solicit for it the aid of the Society, even if it comes within the sphere of the Society's duties. The agriculturist, however, requires a technical or an agricultural education, and which should comprehend all that relates to the advance of agriculture. If there are branches of knowledge by means of which agriculture can be improved, a diffusion of that knowledge will be the best means of improving the education of those who depend upon agriculture for support. Here is a large field with which the Society may legitimately have to do. It is a subject of great and growing importance. Unlike her other resources, the soil of England does not increase, and it can only be by increasing the productiveness of that soil that its capabilities can be made to keep pace with her increasing population. Since the beginning of the century this population has doubled, and within the next 50 years may be again doubled at the present rate of increase. Can, then, the produce of the land be made to keep pace with this enormous increase of population? Can the soil be made more productive by the applica-

tion of advancing knowledge? Beyond a certain limit this may not be possible, but has this limit been attained? The great improvements of late years, in implements, in stock, and in all the details of practical farming, indicate the advances which may be made. The adoption of these improvements, however, has been in very different degrees in the various parts of the country. The climate has, doubtless, had much to do with this, but does not altogether explain the differences which prevail. The best farmed districts are those, where, as on the eastern coasts of the island, the rainfall is least. The climate of Ireland is, in this respect, much inferior, but it is not a sufficient reason for the backward state of agriculture prevalent there.

Can then a knowledge of these practical improvements be made more general—can they be still further advanced by scientific information? This is the problem which agricultural education has to solve. An extension of the knowledge of the best practice must be of unquestionable advantage. How far agriculture may be still further assisted, we shall now consider in examining the sciences which bear upon it.

I. Of these sciences I would first speak of *Mathematical knowledge*. Not only is this knowledge of the most improving kind to the mind generally, but it is, including arithmetic, the foundation of two of the most useful aids to the farmer—land surveying and book-keeping. An agricultural education should comprehend a good knowledge of arithmetic, of the first four rules with fractions, proportion and interest, and of at least the first book of Euclid, with the principles of land measurement and mensuration generally. To none more than the farmer is the science of measurement useful; he should constantly have to do with it, and can be with advantage guided by it. I can remember on my first experience in farming, distributing a large manure heap pretty evenly over a Turnip field, and being complimented by a labourer saying, "I had guessed it well;" but it was not the result of guessing, but of measurement. A knowledge of measurement, solid as well as superficial, should be acquired by the farmer, and to him land measurement is of peculiar utility. By it he is enabled to ascertain the contents of any piece of land which may be desired. Even without instruments this may be done. The necessary triangles or rectangles being laid off, the number of paces in their sides will give with sufficient accuracy their length in yards, from which the required result may be computed. With a knowledge of scientific principles this need present no difficulty, but without this knowledge it will be impossible in all cases to arrive at accuracy.

Book-keeping, or a knowledge of accounts, is perhaps of all others the kind of knowledge which will be most generally useful to the farmer. The forms of farm book-keeping hitherto published have been too complicated, and the farmer has in too many instances solved the difficulty by keeping no book at all. But every farmer should be able to keep a book, and to draw up some kind of balance sheet. In every business it is necessary occasionally to take stock and to form some kind of estimate; in none more so than farming. The farmer reaps his harvest and it may appear abundant; 12 months must elapse before he can know the result of the actual yield and price obtained. Meanwhile his expenses, family and otherwise, go on as usual, and thus if there is any serious shortcoming he is placed in a difficult position and unable to meet his rent. Farming is a profession involving much uncertainty. It is influenced by the seasons and dependent upon the markets. To how great an extent, the following striking Table will show, being a report of the produce upon a Lincolnshire fen farm, where an account had been kept for a number of years:—

PRODUCE OF WHEAT UPON A FEN FARM.

Year.	Cost of cutting.		Produce per acre.		Sold at per quarter.			Realised per acre.		
	s.	d.	qrs.	bus.	£	s.	d.	£	s.	d.
1842	11	1	5	3	2	6	8	12	10	10
1843	13	7	4	6⅝	2	10	8	12	4	9
1844	10	9	6	0¾	2	5	8	13	18	2
1845	10	2½	4	0	2	6	0	9	4	0
1846	13	2½	5	1	2	18	9	15	0	9
1847	13	6	5	2	2	7	4	12	9	4
1848	12	2½	5	3½	2	6	0	12	10	0
1849	12	6	5	4	1	16	5	9	19	0
1850	9	1½	3	4	1	10	0	5	8	0
1851	10	9½	5	5	1	15	3	10	0	0
1852	13	2	5	7	1	16	6	10	13	10
1853	14	7	5	1	3	16	8	19	16	10
1854	12	4½	5	5⅜	3	7	4	19	2	3
1855	10	7½	3	2½	3	8	9	11	7	7
1856	17	5½	5	7	2	15	7	16	11	0
1857	15	0	6	0	2	9	0	14	14	6
1858	13	10	5	0	2	4	2	11	0	2
1859	18	4	3	2	2	3	6	7	2	4
1860	12	9½	3	0	2	2	6	6	0	0
1861	11	0	3	3¼	2	17	6	9	15	7
1862	12	0	4	2	2	16	11	10	0	0

This return, taken from the *Agricultural Gazette* for Jan. 23, 1864, exhibits in a remarkable degree the fluctuations to which corn farming is subject, whether as regards the yield obtained or price realised. The former varies from 3 quarters per acre in 1860 to over 6 quarters per acre in 1844, and the latter from 1*l.* 10*s.* per qr. in 1850 to 3*l.* 16*s.* 8*d.* per qr. in 1853, while the combination of yield and price cause the amount realised per acre to vary from 5*l.* 8*s.* in 1850 to 19*l.* 16*s.* 10*d.* in 1853.

Nor are these variations confined to corn farming. The following report of the produce of a herd of dairy cows, by Mr. Egerton Harding, of Old Springs, Market Drayton, published in the Society's Journal, exhibits considerable differences on a comparison of the different years:—

PRODUCE OF A HERD OF DAIRY COWS.

Year.	No. of Cows.	Weight of Cheese per Cow.	Amount received for Cheese, Butter, &c.			Amount received per Cow.		
		lb.	£	s.	d.	£	s.	d.
1852	24	509	358	17	5	14	14	10
1853	26	515	454	8	9	17	9	6
1854	27	395	406	7	5	15	1	0
1855	25	515	449	12	2	17	19	8
1856	26	488	469	9	7	18	1	1
1857	26	400	334	13	9	12	15	11
1858	26	488	424	7	8	16	6	5
1859	27	465	418	5	8	15	9	9
1860	26	414	419	6	3	16	2	6
1861	27	335	263	7	3	9	15	1
1862	25	333	264	2	1	10	11	3

In this case the rent of the farm was 200*l.*, an amount which is exceeded by the difference between the return for the year 1856, and that for the year 1861.

All these fluctuations the tenant has to fear, his rent is fixed, and many of his other expenses also, so that while in one year a handsome profit may be realised, in another a positive loss may accrue. To none then, more than the farmer, is it necessary to form an estimate; he cannot be too early informed of the probable result, and upon his ability to form a correct estimate, much of the success of farming may depend. That a correct estimate can be formed in regard to a crop, Mr. Coleman, of Woburn Park Farm, has shown in the *Mark Lane Express* for Sept. 4, 1863, wherein he states that the estimated yield of the crop, 1862, on a farm of 155 acres, was 5115 bushels, and the quantity actually threshed was 5135 bushels. In the case of the Turnip crop, it is still more necessary to form an opinion. What will be the return, and how many head of stock can he feed, are questions the farmer must ask and answer. To do this judgment is required, but the assistance of figures is also necessary. With these he must be well acquainted, and they should form an integral part of the mathematical knowledge required in his professional education. That mathematical knowledge can tend to the improvement of agriculture must be admitted, and we may proceed to consider those other sciences from which assistance may be derived.

II. The next science of importance to the agriculturist is *Veterinary science*. When the great value of the live stock throughout the country is considered, this importance will sufficiently appear. This is strikingly exhibited in the returns which have been made both in Scotland and Ireland. In Ireland accurate statistics are taken, both of the crops and stock, every year. From this we are enabled to estimate their respective values. The returns for the year 1864 are as given below, made up from the report of the Registrar-General:—

RETURN OF THE IRISH CROPS AND STOCK FOR 1864.

CROP.

	Acres.		Per Acre. £	s.	d.		£
Wheat	279,863	at	10	0	0	=	2,798,630
Oats	1,809.918	at	5	0	0	=	9,049,590
Barley	172,662	at	7	0	0	=	1,208,634
Bere	8,992	at	6	0	0	=	53,952
Beans and Peas ..	16,026	at	8	0	0	=	128,208
Potatos	1,039,282	at	10	0	0	=	10,392,820
Turnips, &c. ..	406,335	at	5	0	0	=	2,031,675
Flax	301,860	at	15	0	0	=	4,527,900
Total value of crop ..							£30,191,409

STOCK.

			£	s.	d.		£
Horses	561,361	at	8	0	0	=	4,490,888
Cattle	3,257,309	at	6	10	0	=	21,172,508
Sheep	3,363,068	at	1	2	0	=	3,699,374
Pigs	1,056,249	at	1	5	0	=	1,320,311
Total value of stock ..							£30,683,081

From this it appears that the value of the stock is quite equal to that of all the cultivated crops grown. The rates assumed for the stock are those of the Census Commissioners for 1841, since which time the improved character of the stock and increased price of meat will both have tended to improve its value.

The Scotch returns exhibit the same result. The last year for which these were obtained was 1857. The return for the crop for that year, was, as officially estimated, and taking the prices which then prevailed, as follow. The stock is estimated at the rates given in the Irish returns, although this may be considered too low in the case of horses and cattle, and perhaps too great in the case of sheep.

RETURN OF THE CROPS AND STOCK IN SCOTLAND, 1857.

CROP.

	Bushels.		Per Bushel. £	s.	d.		£
Wheat	6,154,986	at	0	6	8	=	2,051,662
Barley	6,494,534	at	0	5	0	=	1,623,633
Oats	32,750,763	at	0	3	4	=	5,458,460
Bere	671,778	at	0	4	0	=	134,356
Beans and Peas ..	1,037,760	at	0	5	2	=	268,087
	Tons.		Per Ton.				
Turnips	6,690,109	at	0	6	8	=	2,230,036
Potatos	436,468	at	5	0	0	=	2,182,340
Total value of the crop ..							£13,948,574

STOCK.

			£	s.	d.		£
Horses	185,409	at	8	0	0	=	1,483,272
Cattle	974,437	at	6	10	0	=	6,333,840
Sheep	5,683,178	at	1	2	0	=	6,251,496
Pigs	146,354	at	1	5	0	=	182,942
Total value of the stock ..							£14,251,550

This Table exhibits the value of the stock to be [illegible] equal to that of the cultivated crops, as in the case of Ireland. In both countries the proportion of land [illegible] small which is under crop, compared with the total extent of the country, being in Scotland, 2,[illegible] and in Ireland, 4,034,938 acres, out of 19,352,[illegible] and 20,808,271 acres, their extents respectively. In Scotland this is to a great extent necessarily the case from the great extent of mountain pasture [illegible] impracticable for arable purposes.

For England we have no similar returns, but it may be assumed that the rule still holds, and that although a much larger proportion of the country is arable, yet that the superior character of the stock renders it [illegible] inferior in value to that of the cultivated crops.

These considerations tend to show the great interest which the farmer has in his stock. It is, in fact, [illegible] unfrequently more than half his wealth. Whatever therefore, tends to maintain its value, tends also materially to his advantage. If the liability to disease and consequent losses therefrom be considered, the value of [illegible] ever may diminish this risk will be apparent. This is the object of veterinary science, and none of the sciences which concern agriculture have of late years made greater advances. It is not to be expected that every farmer will or can become a veterinary surgeon. That is a distinct profession, requiring a great amount of competent knowledge; but it will be of the greatest utility to the farmer if he can be enabled to detect a disease by its symptoms, and apply the proper means to check its progress till the veterinary surgeon can be called in, and meanwhile communicate to him such information, that he may come provided with the proper remedies. The death of a single animal may be a serious loss to a farmer, and although we may not be able to assert like old Clater, in his "Every Man his own Cattle Doctor," that a drink or two at a shilling or eighteenpence each would have saved this, yet a knowledge of the principles of the veterinary art may often enable the progress of disease to be stayed, that the regular practitioner when called in has a fair chance of effecting a cure. Veterinary practitioners now exist in considerable numbers, and receive an education well qualified to fit them for their profession. It is, therefore, to the interest of the farmer to avail himself of their assistance when required, and in order properly to carry out the treatment which they may prescribe, to acquire for himself some preliminary knowledge of the subject. Veterinary science is also connected with the important subject of ascertaining the age of animals by their dentition. The usual indications of age in the horse are derived from certain marks in the incisor teeth, principally those in the lower jaw. It is by practice alone that proficiency in this can be attained, but it is necessary in the first place to be informed what the indications are to be looked for. This information veterinary science will impart, and by it the age of the horse can be determined even up to 20 years. The other domesticated animals bred upon the farm have also their dental indications, from which, when necessary, their age can be ascertained. Veterinary science has an essentially practical bearing upon agriculture, and as such demands the attention of every enlightened agriculturist.

III. The next science of importance to agriculture is *Mechanical science*. As implements may be characterised as the right hand of agriculture, so mechanical science, it has been said, by improving their form and advancing their construction, has given cunning to that right hand. By investigating the strength of the materials it employs, it makes use of no more material in the manufacture of implements than is sufficient to overcome the force of resistance, and it seeks to discover that form which overcomes resistance with the least power. Simplicity of construction, beauty of form, mathematical adjustment and symmetrical proportion of the whole machine, are now the characteristics of our implements, and it is not the fault of either implements or implement makers, if field work is not now efficiently, neatly, and quickly performed. Amid the multiplicity of inventions it may not be necessary for the farmer to be an inventor, but he may still render as great a service to agriculture by simplifying the action of any useful machine, and thus rendering it less liable to derangement, as by inventing a new one. The number of eminent agricultural engineers who are now to be found in all parts of the country have, to a great extent, simplified the practical difficulties which are connected with this branch of agricultural science; and the farmer may to a great extent leave the matter in their hands, provided he makes himself acquainted with the particular merits and specialities of the machines which daily issue from their workshops.

The employment of steam power, however, is a branch of this subject which merits special attention. This great motive power, hitherto employed upon the farm for threshing, and now coming into use for ploughing, requires to be understood by every agriculturist farming on a scale to require its adoption. Two considerations specially lead to this—the risk incurred from accident through ignorance or inattention in its management, and the loss arising from the expense of working inferior engines. In many parts of the country coals are a serious item of cost in the employment of steam, and it is therefore of importance that this expense be reduced to a minimum. A little knowledge at the original purchase may prove of great utility, and tend to effect a saving on every subsequent

employment of the machine. As the steam engine is the most expensive implement the farmer employs, a knowledge of its capabilities and working is worthy of attention, and will enable him to select one of good construction and of a power sufficient for his requirements.

Where water is employed as a motive power, a knowledge of the manner of its application to water wheels, and of the principles of their construction, will be of advantage to the agriculturist, and may be studied in connection with this branch of his education.

(To be continued.)

THE CATTLE PLAGUE.

1. CATTLE PLAGUE RETURNS.—These returns do not profess to give the total number of cases which have occurred in Great Britain, but only those which have been ascertained from the official information received at this office from inspectors, whether appointed by the Clerk of the Council or by the local authorities. Column 1 only records the cases reported as having commenced during the weeks indicated by the headings, "back" cases being added to Column 2:—

Census Divisions.	1 Attacked. Week ending October 21.	Week ending October 28	Week ending November 4.	Week ending November 11.	Week ending November 18.	Attacked.	Killed.	Died.	Recovered.	Remaining.
						Result of reported cases from the commencement of the Disease. 2				
1. Metropolitan Police District	194	158	49	77	216	6081	2887	2436	181	577
2. South Eastern Counties	154	205	74	137	92	3009	1318	1796	279	216
3. South Midland Counties	94	280	74	345	211	1563	574	718	102	169
4. Eastern Counties	183	335	124	214	212	3675	1359	1685	251	380
5. South Western Counties	11	3	2	26	36	191	69	95	5	22
6. West Midland Counties	9	31	81	85	34	481	168	237	29	47
7. North Midland Counties	32	18	21	57	63	276	125	86	26	39
8. North Western Counties	39	42	43	129	149	600	177	242	49	132
9. Yorkshire	30	113	108	234	453	1419	286	789	75	319
10. Northern Counties	56	34	79	43	70	731	207	321	53	50
11. Monmouthshire and Wales	60	56	52	27	96	364	56	329	10	60
12. Scotland	828	660	1058	1206	1040	8492	1772	4048	708	1966
	1739	1777	1766	2380	3689	27,482	8088	12,680	1777	4977

2. THE NEW ORDER IN COUNCIL.—The following, extracted from the supplement to the *London Gazette* published November 23, gives so much of the Order in Council then published as is new. The previous Orders are revoked, with the exception of so much of the Order of the 24th of July, 1865, as empowers the Clerk of her Majesty's Privy Council to appoint inspectors within the limits of the metropolitan police district, provided that such revocation shall not affect any appointment made, or any notice given, or any act done, or penalty recoverable under any Order hereby revoked.

4. (Abridged). Whenever the local authority shall be satisfied of the existence of the said disorder in, or have reason to apprehend its approach to, the district over which his jurisdiction extends, it shall be lawful for such local authority to appoint one or more veterinary surgeon or surgeons, or other duly qualified person or persons, to be an inspector or inspectors within the district.

5. (Abridged). The local authority—in any municipal borough in England or Wales the mayor—in any petty sessional division in England or Wales shall be the justices acting in and for such petty sessional division.

8. (Abridged). Every person having in his possession or under his custody any animal labouring under the said disorder, shall forthwith give notice thereof to the inspector of the district within which such animal may be.

9. Every inspector shall have power, within the district for which he is appointed, to enter upon and inspect any premises or place in which any animals which he suspects to be labouring under the said disorder may be found, and to examine and inspect, whenever and wherever he may deem it necessary, any animal which he suspects to be labouring under the said disorder within such district.

10. Every inspector shall have power within his district to cause to be cleansed and disinfected in any manner which he may think proper any premises in which animals labouring under the said disorder have been, or may be, and to cause to be disinfected, and, if necessary, destroyed, any fodder, manure, or refuse matter which he may deem likely to propagate the said disorder. And every owner or occupier of such premises shall obey any order given by such inspector for that purpose.

11. Every person having in his possession or under his custody any animal labouring under such disorder shall keep such animal separate from all other animals, and no person shall send or bring to any fair or market, or expose for sale, or send or carry by any railway, or by any ship or vessel coastwise, or place upon or drive along any highway or the sides thereof, any such animal.

12. No person having in his possession or under his custody any animal labouring under the said disorder, or which has been in the same shed or stable, or in the same herd or flock, or in contact with any animal labouring under the said disorder, shall remove such animal alive from his land or premises without the licence of an inspector; or, if no inspector has been appointed for the district within which such animal may be, without the licence of a justice of the peace, acting in and for the jurisdiction within which such animal may be; provided that such licence shall be in writing, and shall only permit the removal of such animal to some place where it can be conveniently kept apart from all other animals until such inspector or justice is satisfied that there is no reasonable probability of such animal propagating the said disorder.

13. No person shall place or keep any animal labouring under the said disorder in any common or unenclosed land, or if the animal be in a district for which an inspector has been appointed, in any field or pasture where, in the judgment of the inspector, such animal may be likely to propagate the said disorder.

14. Every inspector shall have power within his district to direct that any animal labouring under the said disorder, or which he suspects to be labouring under the said disorder, shall be kept separate from animals free from the said disorder. And every person having such animal in his possession or under his custody shall obey any direction given by such inspector for that purpose. And where the person having such animal in his possession or under his custody shall disobey such direction given by such inspector, then, and in such case, and such case only, shall such inspector have power to seize and slaughter, or to cause to be seized and slaughtered, such animal.

15. All animals having died of the said disorder, or having been slaughtered on account thereof, shall be buried as soon as practicable, in any convenient place, with their skins, and with a sufficient quantity of quicklime or other disinfectant, and shall be covered with at least 5 feet of earth, or shall, in districts for which an inspector has been appointed, be otherwise disposed of, with the consent of the owner, in manner directed by the inspector, and the inspector shall have power to cause the carcase to be disinfected, when necessary, previous to the burial or other disposal thereof.

16. Whenever any local authority, as hereinbefore defined, declares, by notice published in any newspaper circulating within his or their jurisdiction, that it is expedient for a time to be specified in such notice to prevent the removal of animals as hereinbefore defined, or some specified description thereof, either absolutely, or except under such conditions as such local authority shall think fit to impose, with a view to prevent the spreading of the said disorder, to any market or fair, or to any place whatever within his or their jurisdiction, for the purpose of exhibition or sale, then in such case, and after the publication of such notice, it shall not be lawful for any person to bring or send any such animal, or description thereof, except in accordance with such conditions as aforesaid, into such market or fair, or to any place within such jurisdiction, for the purpose of exhibition or sale, or to receive, exhibit, buy, or sell any such animals so brought or sent.

17. Where the removal of animals, or any specified description thereof, to any market or fair or elsewhere for the purpose of exhibition or sale, has been or shall be prohibited absolutely or conditionally, within the jurisdiction of any local authority in pursuance of any of the powers conferred by this or any of the said recited Orders, and complaint is made by such local authority to one of her Majesty's Principal Secretaries of State that the local authority for some adjoining or neighbouring district neglects or refuses to publish a notice with a view to a similar prohibition within the jurisdiction of such last-mentioned authority, and that in consequence of such neglect or refusal there is reason to apprehend the spreading of the said disorder, then in such case it shall be lawful for such Secretary of State, and he is hereby empowered, to publish such notice in any newspaper circulating within the jurisdiction of such last-mentioned local authority, and such notice so published by the Secretary of State shall have the same effect as if it had been published by the local authority so neglecting or refusing as aforesaid; provided that nothing contained in this or the preceding clause of this Order shall be held to prohibit any person from exhibiting or selling on his own land or premises any animal belonging to him which has been on such land or premises for not less than 14 days previous to such sale.

18. Whenever any local authority, as hereinbefore defined, declares, by notice published in any newspaper circulating within his or their jurisdiction, and also by notice published in some newspaper or newspapers circulating within the county or counties bordering upon the county within which the jurisdiction of such local authority is situate, that it is expedient, for a time to be specified in such notice, that animals, as hereinbefore defined, or some specified description thereof, shall not, either absolutely or except under such conditions as such local authority shall think fit to impose with a view to prevent the spreading of the said disorder, be brought from any other part of Great Britain into any place within his or their jurisdiction, it shall not be lawful for any person to bring or send any such animal or description thereof, except in accordance with such conditions aforesaid, from any place in Great Britain beyond such jurisdiction into any place within such jurisdiction; and the copy of any such notice shall be sent forthwith by the local authority by whom it is made to the Clerk of her Majesty's Privy Council, and shall be published by him in the *London Gazette;* provided always, that nothing contained in this clause of this Order shall make it unlawful for any person to send or carry any such animals by railway through such jurisdiction; and provided also that nothing contained in this clause of this Order shall make it unlawful for any person to bring or send, with the licence of any two justices acting in and for the jurisdiction to which such notice applies, any such animals, from any land or premises in his own occupation, and beyond such jurisdiction, to any other land or premises in his own occupation within such jurisdiction.

19. Any such local authority, or any of Her Majesty's principal Secretaries of State, may from time to time, if he or they think fit, renew, revoke, or modify all or any part of any notice published or to be published by them or him under the powers given under this or the said revoked Orders, either absolutely or under such conditions as to such local authority or to such Secretary of State may seem proper, by a further notice to be published in the same manner as such notice is required to be published.

20. During the continuance of the cattle plague within the said City of London or the metropolitan police district, no person shall bring or send, or cause to be brought or sent, any cow, heifer, bull, bullock, ox, or calf to the Metropolitan Cattle Market, except for the purpose of being there sold for immediate slaughtering; and every such animal so brought or sent shall, before being allowed to leave the said market, and although such animal may not have been sold, be marked in the manner in which cattle are ordinarily marked for slaughter in the said market—*videlicet*, by clipping the hair off the end of the tail. And the officers of the said market shall cause such mark to be duly made. And no person shall buy or sell, or cause to be bought or sold, any such animal in the said market except for immediate slaughtering; and every person buying any such animal in any such market shall slaughter or cause the same to be slaughtered, in all cases, within seven days of such purchase, and if such animal be removed beyond the limits of the metropolitan police district, within 48 hours after such removal.

21. This Order shall be in force until the 1st day of March next, and no longer, unless continued by some further Order.

22. Every person offending against this Order shall, in pursuance of the said Act, for every such offence forfeit any sum, not exceeding 20*l.*, which the justices before whom he or she shall be convicted of such offence may think fit to impose.

Arthur Helps.

3. COMPENSATION (Abridged).—I have been waiting with patience (or rather impatience), for the amended Report of the Cattle Plague Commissioners; and I am sorry to say that, in spite of the great names which figure on the roll of hens, a more disappointing set of eggs never fell to housewife's lot. I really do not think there will be a healthy chicken from the whole batch.

The only step in the right direction which I observe is the abolition of summary slaughter without indemnity to owners; but this is qualified by a previous statement which I own astonishes me—viz., that "the Commissioners see insuperable difficulty in working a system of indemnity."

Now, Sir, are these gentlemen aware that the system was worked without difficulty in the 11 years from 1745 to 1756, during which the last great murrain lasted?

An affidavit of the owner certified by the overseer, constable of the parish, or inspector that was called in, constituted a document as good as a bank-note, and Mr Sharpe (the Mr. Helps of the day) was furnished with a constant supply of money to pay at his office, 11, Lincoln's Inn, every such certificate on presentation, as one may say, over the counter.

I will not pay the Commissioners the bad compliment of supposing that they mean to charge the owners of cattle, as a body, with such an amount of ingrained and ineradicable dishonesty as to make it impossible for the country to treat them otherwise than as rogues; and yet my poor intellect is utterly incapable of inventing any other solution to account for these "insuperable difficulties in the way of indemnity," to which the Commissioners so mistily and mysteriously allude.

I, Sir, am old enough to remember the time when the estates of this realm were called upon to pay down twenty millions for some black chattels belonging to their fellow-citizens, and, what's more, they paid the money. I shall not now go into the question of property in human flesh, and whether a good title can be made to it. I only know what was done, and I do not see that the sacrifice has resulted in any very superabundant love or gratitude on the part of the recipients of our justice, or our bounty, call it by which name you will. To my poor thinking, one thing, however, is clear. A man has a better title before God to the property in a cow than the property in a man, be he ten times the descendant of Ham. I therefore come to the conclusion that the same country which bought up the slave-owners' property at the price of 1,250,000 cows, or thereabouts, rather than incur the odium of imputed confiscation, must be strangely altered in its appreciation of right and wrong when, on public or any other grounds, it orders peremptory slaughter of a farmer's or dairyman's stock without at the same time tendering him compensation upon some scale or other.

I challenge the whole Commission to furnish any proof that the country was cheated on a great scale during the murrain of 1745-56; and had it not been the fashion for a long time past (half in joke and half in earnest) to pile everything from gross stupidity down to unhallowed greediness on the broad back of the farmer, I believe that we should not now have had so outrageous an insult offered to us even in inuendo.

So much for the question of indemnity and its difficulties, styled insuperable; now for the rest of the Report.

I will tell you, sir, what points I expected to find in it, and what, with the aid of a pair of clearers, I have totally failed in finding.

I expected—for the plague first broke out in the unwholesome cellars of the London dairyman—to meet with an order preventing the keeping of cows in any sheds or stables which are not above ground, and in every respect as roomy and comfortable as stabling for horses, with licensers within the limits of London and all great towns.

In the second place, I expected an order prohibiting the importation of any foreign beast in vessels not built for the express purpose, one of the conditions of which should be that every beast have room to lie down. A ruminating animal that is forced to stand upon its legs for any lengthened period is likely, even when it start in a healthy condition, to generate disease in itself or others before the end of the journey.

The horrors of the Middle Passage appear to have been imitated, not unsuccessfully, by the importers of cattle. I suppose they think that a percentage will pay sufficiently well, and that it is no business of theirs, so long as they find purchasers, what state the meat be in.

In the third place, I expected that, instead of killing foreign beasts on their arrival, certain fields and enclosures would have been set apart at the different ports for importation, where the beast could be rested and brought round a little previous to his slaughter. I should suppose that the meat under such regulations would be much fitter for human food, and I see no difficulty in preventing the egress of the animal otherwise than in the carcase.

Fourthly, I hope that the Commissioners would not have neglected to insist upon one of the principal conditions in the directions for the burying beasts dying of the plague notified in the Order of Council of 1745—viz., that the hide should be slashed at an interval of every 6 inches, in order that no resurrectionist might make it available for the currier, which I am far from supposing may not now be done.

Fifthly, I expected that with an indemnity compulsory slaughter would have been insisted on when prudently and advisedly ordered by competent persons. It must be quite clear to any one going into the details of the last great plague that slaughter on the instant of its appearance was the only chance of arresting its progress. Those who tried to cure lost on an average nine out of 10; those who killed at once not unfrequently stamped out the pestilence.

Sixthly, I concluded that the Commissioners would have told us the unpalatable but inexorable truth—that in the previous pestilence (although occasional recoveries took place under all modes of treatment) no certain or even recommendable cure was ever devised, and that it died out, as it came, without any ostensible reason, or any available remedy turning up. I further expected as rider to the above that they would have told us one more truth—viz., that up to the present date no system or remedy can be recommended with confidence or even hope, but that recoveries have taken place under all modes of treatment and without any.

Lastly, I expected that we should be told who is to pay the inspector and policeman's bill and all the other items of expense entailed on somebody by the necessary *surveillance*, which sort of shepherding, I presume, is not done for nothing.

As a plain-dealer I should like to have been informed on all these points, and I cannot think that I am unreasonable in expressing my disappointment at finding that none of them are treated in a full or satisfactory manner.

I will be judged by any practical man, and do not hesitate to affirm that an Order in Council such as I expected would have been hailed by the country with gratitude; whereas, I very much doubt whether the present one is worth the paper upon which it will be printed. *Winchilsea and Nottingham, Eastwell Park, Ashford, Kent, Nov. 24—in the Times.*

4. NOURISHMENT; NOT "TREATMENT."—The following facts connected with the outbreak of the cattle disease in my stock may prove of interest to your readers. They have led me to the conclusion that more may be effected by judicious attempts to support nature by food than by active medical treatment

and I think this simple method deserves a more extended trial.

The stock consisted of 14 milch cows and 20 younger beasts. It was a mixed one, chiefly Ayrshires, with some of the Alderney and Guernsey breeds. They were kept in three lots in different parts of the farm, and with different supplies of water. One of the cows was first attacked on the 11th of September. She was instantly separated from the others, but the disease gradually spread through the whole stock, and I found myself after an interval of little more than a month with only 9 out of 34 remaining. Death has been tolerably impartial as to age. The survivors are two cows, two calves, and five young bullocks and heifers.

Though a severe sufferer, I have fared better than most of my neighbours, for in this county (Surrey) the disease has been almost as fatal as in town byres. I see that in the report of the Cattle Plague Commissioners the proportion of recoveries to deaths is barely 6 per cent., but as the deaths include the large item of killed, no sound inferences can be drawn from such statistics.

To come now to the attempts made to cope with this formidable adversary, some preventive measures were tried, but without success. Chloride of lime was freely used. Some of the cows were washed in a warm and weak solution of it, and vinegar, so confidently recommended by some of your correspondents, was tried with others internally, as well as washing the noses and mouths. Nor was I more fortunate in medical treatment. A veterinary surgeon made some attempts, but soon gave it up. I desired my bailiff to follow a treatment recommended by a medical committee in Edinburgh. He also administered by my direction Condy's disinfectant fluid, which one of your correspondents reported to have been successful in his case. The wet sheet and blankets were also tried. All the animals thus experimented upon died. My bailiff also tried his hand, and he thinks with some success. After some deaths had taken place, he gave a wineglassful mixture of cayenne pepper, mustard, and vinegar, diluted, twice a day, about a wineglassful to each. It made the animals cough and sneeze violently, and cleared both nose and throat, and also stimulated the appetite. He persevered with it to the last, but it was too uncertain in its effect to be relied upon.

To what, then, do I attribute the recovery of the nine? Simply to careful feeding. Good constitutions and good condition may have helped them through, but without good nourishment few of the nine would have survived. This was administered to each and all three times a day with a bottle. Oatmeal gruel was first used—not a thin mash, but strong and nourishing. It was soon changed, with advantage, for a mixture of Barley-meal and Linseed-cake, ground down and forming a thick gruel, just thin enough to pour. It cost some trouble, for in the tender state of the poor animals' mouths and throats it was difficult to handle them, and some of the calves were so prostrated that they had to be lifted on their legs to receive their dose. So satisfied were they with their nurses' treatment that after a few doses they came forward and drank it out of a pail. In the cases of a young bullock and heifer that were very ill, the inspector advised my bailiff to kill them. He persevered, however, with his bottle, and they rallied, and are now well. This simple treatment has, I doubt not, been tried by others, but I question if it has, except in rare instances, been so sedulously and judiciously applied. Attention to diet is a leading item in the different medical reports that have appeared. It forms an essential part of the successful treatment of some cows reported on by Dr. Smart to the Edinburgh magistrates last month, and I think it will be found to agree with the experience of many of your readers in the treatment of human disorders.

It sometimes happens during severe maladies that the mouth and throat are as tender as the poor cows with the rinderpest, or the stomach loathes its accustomed food, or the system requires stimulants. A judicious nurse supplies nourishment to the frame in the form in which it can be received, and enables the patient to bear up and conquer the malady.

Judging from what has come under my observation, I think that the owners of stock have been too much inclined to look to specifics, and, when they fail, to fold their arms and perhaps complain of the want of science in the veterinary profession. Now, I am hopeful that more may be done in the way of support, and a larger proportion of recoveries may be relied upon. *Edward Colebrooke, Petersham Park, Nov. 24.*

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5. Chelsea Cow Houses.—Many months have elapsed since we first heard that a terrible disease had broken out amongst our cattle; and notwithstanding the best efforts of our Government to discover the origin, possible cure, or prevention of this so-called "rinderpest," the public are left in a state of greater alarm and doubt on these subjects than even at first.

The Special Commission appointed to investigate the matter seem to have come to the conclusion that cure is impossible, and slaughter the only resource so soon as disease appears; a system which, as now carried out, involves not only the slaughter of the sick animals, but also that of all others which may be in the same shed with them.

They do, however, speak of the possibility of finding means to prevent the plague from spreading, and invite suggestions as to these means. I therefore think it a duty to the public to give my experience in this matter, which is by no means small.

During the first week of the present month I was called in to see a cow in a herd of 18, which was so diseased that I ordered it to be slaughtered, but I set to work earnestly to stop the mischief. I used Condy's Fluid diluted with water (about a wineglassful to a pail) freely about the sheds, gave it internally, and mixed with the grains they fed on. I washed the cows' mouths, as far as the hand could reach, with alum and water, using plenty of the fluid. I had the sheds lime-washed, the walls covered with gas tar about 8 feet high, and prepared the following dose:—Half a pint of whiskey and 1 lb. of spirits of nitre mixed in a pail of water arrowroot—and had a quart given to each cow, and there has been no second case on those premises, although a fortnight has elapsed.

Previously to this, about a month ago, five cows were attacked in another shed, and I used this fluid, which I am sure is the best disinfecting agent known, being not only innoxious but positively wholesome to inhale or drink. I administered gruel, old ale, and Linseed tea mixed in equal quantities, viz., one quart of each, and out of the five cows four were saved, and only one died.

In the large district of Chelsea only six cases have occurred, and I attribute our immunity from this scourge to the active and intelligent interest Dr. Barclay, the medical officer of health for Chelsea, takes in the subject. I owe to his instructions the plans for disinfection and purification which I carried out, as described above, with gratifying success. *Ealand Alder, Sanitary Inspector to the Vestry of Chelsea, Trafalgar Cottage, Trafalgar Square, Chelsea.*

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6. The Pole-axe.—What an effectual remedy has been propounded to get rid of the cattle plague! Nothing more nor less than the destruction of the animal, even, suspected of being under the influence of the malady or likely to be so. This extraordinary measure, adopted by authority, so contrary to the principles of science, is now happily wearing out, though it has been exceedingly mischievous in its operation, and does not speak favourably of veterinary skill and practice. Much has been said and written upon the interesting subject of the cow murrain, without throwing much light upon the mysterious disease. No specific is likely to be discovered, because the constitutions of animals which have become domesticated are as various as human beings, and this fact must be taken into consideration before particular and individual treatment is adopted. Though no cure for the Rinderpest is known, yet there are many palliatives very beneficial when the animal is first affected, which, if strictly followed, may ward off infection or mitigate the attack. Precautions, such as cleanliness, proper ventilation, nutritious food, good water, and protection from extreme atmospheric changes, tend to invigorate the constitutions of all animals, and give them a better chance of escaping sickness. Not London treatment, which uses up a healthy cow in two years or less by unnaturally feeding the unfortunate brute to force the milk, and keeping it in dirty, damp, unwholesome stalls. In a civilised country this system is monstrous, not only torturing the animal itself, but distributing to the public impure milk, which of course must partake of the feverish condition of the cow so shamefully abused. A legislative enactment should be passed early in the forthcoming session of Parliament, to prevent cows being located in large towns. Whether it is or not, there is a fine opening, and the speculation would pay well under judicious management, of establishing dairies within 20 miles of London to supply the inhabitants with pure milk and cream, which they now seldom taste; and the use of chalk, brains, suet, &c., would then become a matter of history as ingredients to adulterate milk and cream. *Falcon.*

AGRICULTURAL ECONOMY.

[The following paper was lately read before the Croydon Farmers' Club by Mr. E. Stables, of Fickleshole.]

The wise man says, "To everything there is a season, and a time to every purpose under heaven." Now, it certainly is not the time to talk over the profits of the past three years, but it will readily be allowed that it is the proper time to inquire how are the profits to be obtained? And if so, the economy of production must form a very important part of the general question. But before we inquire as to the importance of economy, the question naturally arises, What is economy? What does it consist of? Perhaps that question can be best answered by first referring to what is not economy.

In the first place, then, we will state without fear of contradiction, that bad farming is not economy; and in the next place, we will assert with equal boldness that a too limited use of manures is not economy. I am convinced that the generality of the farmers of the present day make a grand mistake here. After having incurred all the fixed charges against the crop, such as rent, taxes, labour, and all the sundries which cannot be avoided, how common it is to see only half a crop, solely for want of a moderate outlay in some suitable manures. I would ask, is it economy to spend 5*l.* an acre for half a crop, or 6*l.* per acre for a full crop? It is not economy to overwork or underkeep, or in any wise neglect the farm horses. An insufficiency of nourishing food to the live stock generally is not economy. It is a common mistake to allow an animal about sufficient food to enable him just to maintain his condition; whereas a little more—only a little more—would enable him to improve and leave a profit, often to double his value in the course of six months. It is not economy to allow an animal a sufficiency of food, and not also to provide him suitable lodgings, and a good bed, and also to see to it that he is kindly treated; that he is in circumstances, and surrounded by circumstances, in which he can be happy and contented; if he is in constant fear he cannot thrive. My own experience is, that it requires one-third more food to keep up the animal heat when exposed in a cold yard, than when suitably and comfortably housed. I believe that if farmers generally knew how much they annually lose for want of suitable shelter for the animals and their manure, the landlords would hear more about it. What we want in a farmstead is such buildings as will enable us to make the best of the stock and crop, otherwise we cannot farm with economy and profit. It is not economy to allow either animals or implements to get out of repair. How true is it that "a stitch in time saves nine!" "For want of a nail the shoe was lost; for want of a shoe the horse was lost; for want of a horse the rider was lost." How many a good horse has been ruined for want of a little timely rest and medicine!

It is not economy to allow the land to get out of cultivation; one year's seeding will cause seven years weeding. A farm may soon be run out of condition, but it takes a series of years of expensive and unremunerative cultivation to get it into a profitable state again. Whatever may be the seasons or markets, profits and losses to one and all, I would say, if it be possible, keep your cultivation up to the mark. Unfavourable seasons require additional outlay, both in the cultivation and in the application of manures; whereas it is a common practice (especially if we have, as we lately have had, low prices in conjunction with unfavourable seasons) to let the land out of condition. It is suicidal policy. Not only does it cost much more to get it into condition again than what was saved by running it a little bare when good seasons and better markets come, where are you? Why, busy enough getting your land into cultivation, which you will accomplish in time for another wet season and low prices.

But whilst true economy does not consist in unduly reducing the outgoings of the farm, nor in producing middling crops at a small expense, but in producing the largest results at a moderate cost, I am convinced there is often much lost for want of a due attention to the minutiæ of the expenditure. The aggregate expenditure is made up of various items, and if the various items were examined one by one, it would be easy to prove that on some farms from 25 to 50 per cent. of the expenditure is wasted, especially on farms occupied by gentlemen who have spent the early part of their lives in the commercial world, and have realised a fortune, and naturally enough think they would like to farm; and because they don't know much about it themselves rely upon the bailiff; and what is the consequence? True, they generally succeed in growing respectable crops; but what about the expenditure? It may be quite as healthy as they expected, but where are the large profits they prospectively boasted of? A good education is of great importance to the farmer. He should know almost everything. He should understand the scientific and theoretical part of his business; but woe unto him if he is not thoroughly up in the practical part.

In the simple operation of ploughing the land, I have often seen a man and a boy and four horses, using an antediluvian plough, doing about $2\frac{3}{4}$ roods per day. Reckoning each horse at 3*s.* 6*d.*, the man at 2*s.* 3*d.*, and the boy at 1*s.* 6*d.*, this costs 25*s.* per acre; when over the hedge, on similar land, you might see a modern plough worked by one man and three horses abreast, doing an acre per day with ease, making quite as good or better work than the other, and, reckoning the horses and man at the same rate, at an expense of 12*s.* 6*d.* per acre, being a difference of 50 per cent. in the expense of the operation. And if you look out at seed time, you will probably see, if the seed is sown broadcast, one man pretending to sow with one hand, and getting over about 6 acres per day. In the other you will probably see a man using both hands, and doing 12 acres a day, and making better work; nay, I have even seen two men, one boy, and two horses, using a drill, with coulters jacked up, putting the seed on broadcast, costing 2*s.* per acre, where the work might have been equally well done for 3*d.* per acre. Don't understand me to recommend broadcast sowing; I would always drill when the land is a proper state. Then, again, in the operation of harrowing: in the one case the old-fashioned wooden harrows will be drawn over the ground three or four times; and in the other case twice over with a modern implement will make quite as good work, and much better if you don't want the land treading. And if you follow out the various operations of the two fields until you get the corn into the market, reaping in the one case with the sickle, and in the other with the reaping machine—threshing in the one case with the most primitive of machines, and in the other with the steam-engine—you will find a difference in the expense of about 50 per cent. throughout.

The importance of economy is strikingly evinced in the different modes of working the fallows. The old system—that of working exclusively with the plough and harrows—is very expensive. In this way, four or five ploughings and harrowings, and rollings out of count, are necessary to make a respectable fallow. True, it has been well exposed to the atmospheric influences, and in that way has been much benefited; but it is very doubtful whether the Couch-grass and other weeds have been destroyed, unless the weather has been very dry and hot. There has not been time for the Couch, and especially the Knot-grass, to die before it must be ploughed in again, and with such frequent ploughings the soil is generally in a rough state, and unfavourable to the germination of the seeds of weeds. Of course it is a very important part of the fallowing operation to cause the seeds of weeds to germinate, which is certain destruction to them. It is also important to bear in mind that there is a class of weeds, such as the Dock, which cannot grow without the crown. In this case a shallow broadsharing in the autumn is far more effective than several deep ploughings in the following summer. If you take off the top of the root with the broadshare, and keep it on the surface of the ground, occasionally moving it with the harrow until it is dead, there is no need to trouble about the bottom part of the root: it will never grow without the crown, but the crown will grow if it be in the ground at all with ever so little root

so it. Some of our modern farmers discard the turnover plough altogether, using the cultivator exclusively in the working of the fallows; and certainly it is a much better and a much cheaper mode than the old fashion of ploughing and harrowing. But my opinion is that a medium between the two extremes is much the best, and quite as cheap as working exclusively with the cultivator. I prefer to put the cultivator two or three times through, with intervening harrowing, until the Couch, &c., is worked out and kept at the top sufficiently long to ensure its destruction; and also of having the surface so perfectly pulverised as to ensure the growth and destruction of all the seeds of weeds, after which I want to see the other side of the soil, when some more Couch, previously unseen, and another crop of annual weeds, is sure to be the result of fresh soil brought up.

The practice of some farmers is always to plough the land one stereotyped depth. Now I hold there is great economy in varying the depth — once in a course of cropping. When it is fallow, I prefer to have it thoroughly bottomed; then, cost what it may, I want it ploughed as deep as it well can be ploughed. The leas and general seed furrow I plough a moderate depth; but after the sheep I prefer either to plough very thin, or, if the field is not so clean as desirable, I use the cultivator instead of the plough. I consider that ploughing various depths is not only a great saving of actual and direct expenditure—four inches deep not taking near half the power of eight inches in depth—but is also most economical, inasmuch as the evils of the old beaten, almost waterproof bottom are avoided.

The importance of autumn cultivation, in an economical point of view, cannot well be overstated. It is a well-known fact that Couch-grass and other weeds do not make much progress so long as there is a good crop of corn on the ground; but let the corn crop be removed, the rubbish will at once begin to grow and prosper. One class of weeds will then be taking firm root-hold; another will be ripening and maturing its seeds ready for a future crop; and if you allow the weeds undisturbed possession of the ground for about six weeks after harvest, then plough the ground a nice depth, the Couch roots will be preserved in good health, and the seeds of weeds, then fully matured, will remain in a dormant state for months or years, as the case may be, until they are turned up again, when, if the land is in good heart, a luxuriant crop or crops is sure to be the result. But why allow this if we are to farm with economy and profit? These weeds must be destroyed, and the sooner after the harvest the better. The cultivator must be used, the Couch-grass and the roots pulled out to the surface, and the surface so pulverised as to compel the seeds of weeds to germinate. If this is done, no matter how much rubbish, if it is fairly got to the top and shot out, and left to bleach until the winter, it may then be quite safely ploughed in; it will cause no more trouble. It will certainly decay in the ground, especially if it is buried a good depth. It is not easy to estimate the importance of this in an economical point of view. The difference in the expense between cleaning the land in this way, and of allowing the weeds to increase, greatly impoverishes the land, whereas it derives great benefit from atmospheric influences in the process of these autumn fallows.

The economical farmer will also be careful to apply the proper kind of manure to his various crops, and he will also be careful to apply them at the right time. A great deal more effect is produced from manures thus applied than when improperly applied. It requires good judgment and some experience to know when the application of artificial manures is likely to pay. It is folly to expend money in manure, if the crop has other difficulties to contend with—if the land is in a rough, unkind state—if it is foul with weeds—or if it is wet for want of draining; but if it is clean, if a good tilth has been obtained by using the cultivator freely, and other circumstances are favourable, a judicious outlay in manures will almost invariably leave a large profit upon the outlay—I say a judicious outlay. The different kinds of crops require different nourishment, just as the different kinds of animals require different kinds of food suited to their constitution, and supplied at the proper time, *i.e.* frequently. I don't believe in a heavy dressing of manure once in two or three years, any more than I believe in supplying an animal with food to last him two or three weeks. The animal will not only waste his food, but he will not thrive at all; he will be glutted one day and famished the next. I would not only supply this land with nourishment every year, but two or three times a year where it is practicable. It is sound philosophy not only to get the land into good heart, but to keep it in good heart. As a matter of economy the proper direction and supervision of the farm labourer is of importance. It is like a complicated machine, wheels within wheels, and if it is not properly constructed and directed, breakage and loss is the result. I am convinced that a difference of more than 25 per cent. is often made in the amount expended in labour, attributable entirely to the general direction. Instance the difference in the manner in which the dung-carrying is done. In one case the carter loads his own cart, then goes along with the cart to its destination and unloads it, perhaps in small heaps on the land—the spreading to be another operation; the consequence is that the horses are about half their time waiting for the man, and the man about half his time waiting for the horses. In another case you may see three men loading the cart, and one horse in the cart. Just as the cart is loaded a boy with an empty cart and two horses makes his appearance. He transfers his trace-horse to the loaded cart, and away it goes. There will be other boys to drive, and trace-horses according to the distance the manure has to go. At the other end will be two men spreading the manure out of the cart direct to the land, which they will be able to do just fast enough to keep the fillers at work. Thus there will be a steady stream of manure going out, and nobody waiting, and nobody overworked. Of course the same remarks apply to all carrying operations. There is great economy in paying the men by the piece instead of by the day whenever it can be done. Not only is the work done cheaper, but it is more just to the men. If one man, in consequence of more strength or skill, can earn more than another, he ought to be paid for his strength and skill. In common justice to ourselves we are bound to pay for work done, and not simply for time spent. We are bound to encourage skilled labour in every way we can, for we are becoming more and more dependent on it; and if the farmer is not sufficiently master of his business to be able to estimate the value of the different kinds of work done, and to let it to his men at a fair price, he must suffer the consequence of his want of skill. If a tradesman or a professional man is not skilled in his business, what is the consequence? Why, he has to go to the wall. So it must be with the farmer.

It is said that there are secrets in all trades, and if the farmer does not know the secrets of his own profession, woe betide him. Knowledge is power, but practice makes perfect; and it is only by diligent, intelligent attention to the practical part that the farmer can qualify himself for the successful prosecution of his business. See how carefully and expensively the professional man is educated and trained for his profession; but when he is fairly afloat in the world, what can he do without practical skill or good abilities in full practice? An important lesson may be learnt from the commercial and manufacturing world. If you walk round a large manufactory you will not fail to observe what careful attention is given to the very minutiæ of economy. The very existence of the manufactory depends upon this. A difference of one per cent. in the expense of the productions of the manufactured article would often be fatal to its success. The large fortunes that have been realised by some of the manufacturers is, as a general rule, the result of small (often very small) profits upon a large trade. Such is the severe competition amongst them that all and every of the essentials of capital and skill, all the modern discoveries of machinery and chemistry, with the most rigid economy, is brought to bear, or success is hopeless. Although his profits are now much smaller upon each manufactured article than formerly, yet, in consequence of a much larger production, by means of modern appliances, his income does not suffer, but otherwise. Is it not even so with the farmer? He is engaged in a severe competition with the whole world, and, so long as the malt-tax is on, a very unfair competition. He requires all modern appliances with skill and industry, and he can make two blades of Grass grow where one grew before. He can grow two quarters of corn where one grew before. And if so, with ordinary seasons and ordinary markets, shall we despair of success? By no means. But another very important lesson may be learnt from the manufacturer. You will always find him paying most attention to, and producing most of that particular article for which there is most demand, and on which there is most profit. You will always find him quickly adapting himself to the wants of the times. He will not bestow his capital and skill upon an article for which there is no longer a good demand. The price of Wheat has gradually declined until it is now 40 per cent. cheaper than it was a few years ago. The price of butcher's meat has gradually increased until it has become nearly double what it was 15 years ago; and this is not an accidental state of things. It is the natural effect of certain causes which will continue to operate in perpetuity. Then it is quite evident that if the farmer would succeed, he must not follow the old routine. He must not do so-and-so because his father and his grandfather did so before him. Of course he must continue to grow corn, and the more the merrier; but it must be done on a restricted number of acres, so as to leave an increased area for the production of a much increased quantity of summer and winter green crops. Our corn crops must be the natural result of the green crops, and of the heavy live stock kept to consume those green crops. The production of butcher's meat must be our primary object, to which we must look for our chief profit, and the growth of corn a secondary object. There are several other points of rural economy upon which I should like to have touched, such as the importance of labour-saving machines, of providing, but especially of preparing, suitable food for the various kinds of stock, of doing the right thing at the right time, of attending to the practice of economy in the commercial transactions of the farm, of buying in the cheapest and selling in the dearest market, &c. I will conclude by reminding you that economy is not frugality or parsimony, but the economist is described in the dictionary as one who manages his affairs well.

THE CATTLE MELON AND CATTLE MARROW OF 1865.

Having during the past season supplied a large number of growers with seeds of my Cattle Melon and Cattle Marrows, I need scarcely add that they have been extensively grown in nearly every county of England, also in different parts of Ireland and Scotland. Many growers have written me very satisfactory accounts both of the large size of the fruit produced, as well as of the abundant quantity per acre. These correspondents have agreed in a remarkable manner as to the feeding value of the fruit, some having given them with good effect to horses, some to cows and pigs, others to sheep; all accounts concurring as to the avidity with which the animals consumed them, to which I beg to add my own experience of the past season. My crops, both of Melons and Marrows, some of which have been produced as an intermediate crop with Mangel Wurzel, others grown by themselves, have been very abundant, and much superior to the produce of the two previous seasons, in both of which I grew 40 tons per acre. I have proved the value this season of other sorts and varieties than I had previously grown, and the result is very satisfactory both as to the cropping and feeding value of the new sorts; in fact the Marrows, some of which weighed 85 lb. each, grown in the open field, are an immense improvement upon anything I had before seen or ever contemplated; and the combined growth of both Melons and Marrows on the same land is particularly advantageous, some coming early to maturity, with great numbers of fruit and but little foliage, others throwing out most luxuriant and lengthened runners, producing fruit of immense size and valuable feeding properties, as an instance of which I here give the letter I received from Dr. Voelcker, and his analysis of part of a fruit which weighed 54 lb.:—

"11, Salisbury Square, Fleet Street, London, E.C., Nov. 22, 1865.

"To Mr. Joseph Blundell.—Dear Sir,—I have the pleasure of enclosing a copy of an analysis of your Cattle Melon. You will find oil mentioned as a constituent of this specimen of Cattle Melon, and in comparing the results with the composition of your former Cattle Melon, you will also observe a larger amount of albuminous compounds (flesh-forming matters) in the last variety than in that previously analysed by me. These differences are due to the fact that in the present instance the seeds in due proportion were mixed with the flesh, and both analysed together. The seeds are very oily and rich in flesh-forming matters, hence the oil and larger proportion of flesh-forming matters in the present analysis.

"Believe me, dear sir, yours faithfully, Augustus Voelcker."

Composition of a Cattle Melon sent by Mr. Joseph Blundell, Bursledon, near Southampton.

1. General Composition.

Water	92.98
Organic matter	6.42
Mineral matter (ash)	.60
	100.00

2. Detailed Composition.

Water	92.98
Oil	.73
*Albuminous compounds (flesh-forming matters)	1.53
Sugar, gum, and digestible fibre	2.51
Woody fibre (cellulose)	1.65
Mineral matter (ash)	.60
	100.00

Augustus Voelcker.

11, Salisbury Square, Fleet Street, Nov. 22.

The foregoing analysis is certainly favourable, inasmuch that it not only exhibits valuable properties for the feeding of milch cows, store pigs, &c., but also constituents really essential for fatting animals, viz. oil and albuminous compounds, including flesh-forming matters, in addition to sugar, gum, and digestible fibre. I was in fact quite prepared to expect a good analysis from my new sorts grown this year, my stock having done so well upon them. The young store cattle, both Devons and Short-horns, are receiving only a limited quantity of Melons and Marrows with Wheat straw, and nothing can show finer condition than they do. The pigs and dairy cows have also a liberal allowance of these fruit daily; the latter get them carted on the pasture, where they are spread and chopped with a spade; in this way they are all consumed without waste. The fatting bullocks have received no other root or fruit except the Melons and Marrows for the past 17 weeks, which are cut with Gardner's cutter, a small quantity of Barley and Bean meal being mixed with the cut fruit, and straw given *ad libitum*. Upon this feeding they have all fattened well, and will be sold for the Christmas shambles. The advantages of this fruit are now beginning to be understood by agriculturists and cow-keepers in different parts of the country, wherever they have been fairly tried. There is no doubt but a limited quantity is sufficient upon any farm, say for consumption during the months of August, September, October, and November, and during these months we have no root which can compete with them for the feeding of various kinds of stock at the homestead. There is another strong reason for growing a certain quantity upon farms in general: the culture of various kinds of roots has been carried in many instances to great excess, and the constant repetition of the crop has rendered them far more precarious and difficult to grow than formerly. But the Cattle Melon offers a good alternation of crop, particularly as through its gross foliage it derives so large a portion of nutriment from the atmosphere. I trust that in coming seasons growers in still greater

* Containing nitrogen, .245

numbers will be found ready and willing to aid in the advancement of our agricultural food productions, and be induced to fairly test the value of the Cattle Melon. Some of my fields of Melons this year were by the side of the highway, and passers by have had a full opportunity of seeing the crops; they have not been grown in a corner, but have been submitted to the inspection of many first-class farmers, some of whom had, I know, entertained prejudices against the introduction of this crop, but upon viewing it growing have been struck with astonishment at the unusual luxuriance and beauty of the crop and the enormous weight of produce, particularly when grown with Mangel in double culture. Seed of the best sorts has hitherto been unattainable for growing in ordinary field culture to any extent, except at a high and comparatively prohibitory price; that however will not be the case next season, for I shall be prepared to furnish seed sufficient for an acre of land at a moderate price. *Joseph Blundell, Bursledon, Southampton, Nov.* 25.

THE BLACKFACED SHEEP.

[The following capital paper on this subject was read some time ago before the Hexham Farmers' Club, by Mr. W. Cook, the Secretary.]

1. *On the Breeding of Blackfaced Sheep.*—Blackfaced sheep are only bred on those high, bleak, and exposed situations, where the finer breeds of sheep cannot exist, or be kept with profit to the flockmaster. They are to be met with on the highest hills of Lancashire, Yorkshire, Durham, Northumberland, Cumberland and Westmoreland, and on almost all the highest hills and mountains in Scotland. They are the hardiest sheep of which we know. In choosing black-faced ewes from which to breed, the mountain farmer must always have an eye to hardihood; for, whatever other good properties the ewe may present, if she shows signs of softness or want of constitution, I would reject her as worthless, as her progeny, if ever she managed to have any in such exposed situations, would in all probability inherit her defects and prove unremunerative. Having secured hardiness in a flock of ewes, I would then select those of good frame, with a broad back, good shoulders and quarters, with a prominent breast, and standing a good width betwixt the forelegs, as well as betwixt the hindlegs, and they should stand well and straight on their legs, on a good-sized well-shaped foot. As I would reject all those having knack knees or knack houghs, neither do I like a sheep too long in the legs. The ewe for breeding from should have a good sized head, clear full eye, lengthy face, and good open nostrils. The horns should come from the head with a graceful curve, of fair width, and towards the lowest part of the curve should incline a little forward (as I do not approve of the back horned kind), and the horns should be of a fair size; but I neither like too slender horns, which indicate weakness of constitution, or too coarse ones, which indicate want of quality. The head ought to be set on a neck which rises well from the breast and shoulders, and which is not of too short a length. And having mentioned the head, I must say a word about the tail. I would like to see it of a fair thickness, and would reject all those with very small tails, as this also indicates either old age or weakness of constitution.

Having described the body of a breeding ewe in a very imperfect manner, as I am quite sure that, on seeing a flock of ewes before me I can describe their good and bad properties in a much better manner than I can on paper from memory, let me say a word respecting the wool. The Blackfaced ewe having to be exposed in the most ungenial climate of our kingdom, to all the winter blasts, without in general having any shelter, except what Nature furnishes her with, it is absolutely necessary that she should be well clothed with wool—this, in the first instance, to keep her comfortable; in the second, to render her profitable to the flockmaster, as a great portion of the Blackfaced master's returns arises from his clip of wool. And as that article has of late years commanded much higher prices than usual, this subject at present requires more particular attention. Well, then, I would choose my ewes well set with wool from the ears and cheek all over the body and tail, and well down the legs, but none on the shanks below the knees and houghs. I would have the wool as thick set as is consistent with good quality and a fair length; but I would object to increase its thickness by choosing those animals whose wool is intermixed with kemp-hair, as this breed of sheep are neither profitable to the farmer nor approved of by the wool stapler.

Having described the selection of ewes for breeding, it now behoves me to describe the selection of a tup; and I may state that almost all I have stated regarding the ewe applies with much stronger force to the tup, inasmuch as while the ewe seldom breeds more lambs in one year than one, the tup very generally begets in one year three score—so that any defect in a tup puts the whole flock out of order much sooner than the defects in a single ewe. I would select the tup with a good robust constitution—a good firm horn, not coming too close to his cheeks (if possible), or not standing too wide—and I don't like a tup whose horns rise too much after leaving his head until they curve down, as such tups generally beget lambs of a like nature, which lambs are generally very fatal to the ewes in parturition. I would also be very careful to reject all club-horned tups. By this term I mean all tups whose horns do not separate before they leave the head. I would also reject all those having bloodhorns. Keeping in mind these remarks, and what I have stated regarding ewes, I do not think any practical man would go far wrong in selecting his tups, although I must say good ones are very difficult to lay hold of. The best time to put the Blackfaced tups to the ewes on the Northumbrian hills is from the 11th to the 20th of November, according to situation; but I would rather err by being a few days too late than by being too early, as the springs are so uncertain. And when the lambs arrive before the ewes have milk wherewith to suckle them, the loss of both is often extensive; and if these lambs do survive they are generally of stunted growth, while lambs in the same flock which are younger, but which have received plenty of milk from their birth, very soon outstrip them.

2. *On the Management of Blackfaced Sheep.*—In the management of Blackfaced sheep a great deal depends upon having a good sagacious shepherd, to carry out in an effectual manner the instructions of his master; and I cannot do better than give you an extract from "Little's Practical Observations on Mountain Sheep," "On the Qualifications of a Mountain Shepherd," every word of which I endorse:—

"The shepherd should be honest, active, careful, and, above all, calm-tempered. A shepherd who at any time gets into a passion with his sheep, not only occasionally injures them, but acts at great disadvantage both in herding them and working among them. A good-tempered man and a close-mouthed dog will effect the desired object with half the time and trouble that it gives to the hasty, passionate man. The qualification of a shepherd is not to train his dog to running and hounding, but to direct the sheep according to the nature of the soil, and the climate, and the situation of the farm, in such a manner as to obtain the greatest quantity of safe and nutritious food at all seasons of the year. It is not by walking much, or seeming to be doing much, that a shepherd proves himself to be a good one; but by walking so as to disturb the sheep the least, and by doing, and at the same time, whatever is necessary to be done. There is not an experienced shepherd who does not, as soon as he rises in the morning, and observes the state of the weather, know almost to a certainty where to find every sheep on the hill, and he will accordingly take his course to the place where he knows his presence is most wanted. If any of his own or his neighbour's sheep have trespassed, it is foolish to dog or abuse them; but the more quietly they can be turned back the better. If the boundary should be on the top or ridge of a height, towards which sheep are apt to draw at night, it is better to turn his own a little closer to the boundary in the afternoon than to drive back his neighbour's; it will better answer the same purpose; and after the flocks have been a few times gently divided in the morning, without dogs, they will become so well acquainted with their own side, that at the very sight of the shepherd they will take to it without trouble. Those shepherds who dog and force their flocks I take to be bad herdsmen for their masters, and bad herdsmen for the neighbouring farmers. If the boundary be a burn or brook on low ground, where the sheep graze in the middle of the day, the same plan should be adopted by turning the sheep down tolerably early in the day."

I will take the management from the time of lambing in the spring. When the ewes are about to lamb it is best to bring them into the most sheltered parts of the farm, and where there is the best bite of Grass for the ewe. After being lambed a fortnight or so, according to the season, the ewe and lamb are generally turned out to the common, to afford a better bite for those ewes or gimmers which are latest in lambing, and so on until they are all lambed. About the middle of October, all lambs are brought off the common, and salved or smeared with a mixture of tar and butter, or other preparation; but for high exposed situations I have never found any plan answer so well as the mixture of tar and butter. After the lambs have undergone this preparation they are then placed in as sheltered a situation as there is on the farm, or sent away to some more genial climate for the winter, where they remain until about the first week in April, and then return home to their native common. After the lambs are salved, then the ewes and wedders undergo the same operation, after which the ewes are generally sorted for the tup. With regard to shearing, I may state Blackfaced are usually shorn about the end of June or early part of July in each year. The wedders are generally kept till they are three years old, and are then usually sold for feeding purposes, but if they are not then sold they are fed off on Grass during the summer, or on Turnips during the ensuing winter. The ewes are generally kept until they are about five years old, when they are sold as draft ewes, and their places in the breeding flock are supplied by the shearling gimmers, which are at this age put to the tup as breeders. You must understand that in the foregoing observations I have strictly confined my attention to the "breeding and management of Blackfaced sheep," carried on where there is no tillage land or Turnips, but only hay, Grass, and moorland. Where there is a mixed farm, or where the breeding of mule lambs is carried on, as well as Blackfaced lambs, the ages at which the ewes are drafted from the farm, and many other matters, are materially altered.

Home Correspondence.

Steam Cultivation.—Mr. Nicholls has failed to prove that Mr. Hutchinson's statement is either "unfair" or "one-sided." He was invited to show a counter-statement, if based upon well-kept accounts. He has done nothing of the sort. Mr. Hodgkinson has; but his costs on medium soil are much over Mr. Hutchinson's on heavy soil, therefore the court is now open for Mr. Nicholls, or anybody else. Mr. Nicholls neither reads nor writes rightly, for I "referred" him to my letter of the 24th Oct. Mr. Nicholls may grovel to the depth of 18 inches if he likes, but I see no necessity of going to such a costly depth; yet if I did need it I could do it quite as well with my implement as he could with Fowler's, for that implement is a copy from mine, copied and shown for the first time at the World's Fair in 1862. I have fully explained my this year's work, and I have read what Mr. Nicholls says about his. I have told you that there are but about 45 days in a year on which steam tackle can be the most efficiently applied. Mr. Nicholls says that he has worked his tackle four or five times that number. That may be, but if he has, that does not say that he has worked the land to the best advantage, for it is clear that he must either have worked in the short, and dark days of the four winter months, or on land that ought to have been in crop. But then he asks me—"Can a man afford to buy a set of tackle worth 530*l.* and work it only eight days a year as I do?" I can show him the cost, &c, it is to me to do so, so that he and others may judge for themselves. When I began to work by steam power I sold three horses off, and ever since my start I have worked my land with three horses less in number than I had ever done before. I sold the horses at a greater price than I shall fix and calculate upon. I will fix the three at 100*l.*, and the tackle and implements at 30*l.*, and I will take Mr. Hutchinson's data as to steam tackle, repairs, &c.

Horses and Implements.
Investment, 130*l.*

	£	s.	d.
Horse keep for three horses, less the value of the manure	70	0	0
Shoeing horses, repair of their tackle and implements..	9	0	0
Repair of horses—the doctor's bill ..	3	0	0
Renewal fund every 15 years for horses, at 3½ p. cent., 100*l.*	5	14	0
Insurance	0	7	0
Interest on 130*l.* ..	6	10	0
	£94	11	0

All these items will be found very moderate. The average of the life of a horse is fixed at 20 years, buying him in at 5 years old.

Steam Tackle.
Investment, 500*l.*

	£	s.	d.
Coal: 5 tons 14 cwt., at 16*s.* 6*d.*	4	14	[illegible]
Oil and repair of apparatus	1	10	[illegible]
Water, at 4*s.* per day, for 8 days	1	12	[illegible]
Horses for removals .	1	0	[illegible]
Rope for 8 days ..	1	3	[illegible]
Annual fund to produce 100*l.* (see Mr. Hutchinson's statement)	[illegible]	[illegible]	[illegible]
A year's interest on 180*l.*, cost of apparatus . ..	[illegible]	[illegible]	[illegible]
Interest on engine ..	16	0	0
Repair of do. .	16	0	0
Ditto every ½ year ..	16	0	0
Ditto every 25 years ..	4	2	2
Insurance ..	1	1	0
	£53	3	2
⅗ to cultivation ..	31	17	11
	53	9	6
Balance in favour of steam	41	[illegible]	[illegible]
	£94	11	[illegible]

I have allowed on the engine the same as Mr. Hutchinson did for the repair of it; the allowance is very excessive—within a fraction, I may have struck the whole out at 16*l.* out.

Mr. Nicholls is mistaken if he thinks it does not pay me to keep a set of tackle to work my little farm. The above is positive evidence that it does pay, although I worked it only eight days this year, and that I am a gainer of 41*l.* 1*s.* 6*d.* per annum, as well as having my land worked double depth. I think I have shown you the men who can afford to buy. They are all who have got 100 acres of heavy ploughed land, who can sell three horses off, and can find 350*l.* more than they make of them. Mr. Nicholls does not explain about Fowler's tackle shifting over wet soil. He asks if mine can work in the wet, and then answers the question himself by telling us that at Exeter in 1863 it came wet, and that in an hour after the work had been done it was not possible to see where Smith's implement had gone. The same remark would apply to Fowler's, but then he tells us that mine got locked up in a barn instead of working the dry hard land in the autumn of 1864. That may be, the owner of it had a right to do just what he pleased with it. This much I do know: that I have worked my land not only in 1864, but for 11 years in succession, and I have never found the implement at fault, and it has never been broken. Mr. Nicholls admits that he has not had 2½ years' practice with his tackle. He tells us that he has got the broken drum tackle from Worcester, and he infers that the repairs of the Worcester breakage are only 8*s.* 6*d.* Now, will he tell us that he has got the old drum in work now, and that he paid the full price for the tackle after the Worcester show, without any deduction for the breakage of drum? I have told you that the Court is clear, Mr. Hodgkinson's price being too high. Then, with your permission, my case shall appear next, Mr. Nicholls having invited it. The contracting men cannot come in against it, neither can the 1000*l.* locomotive workers; and horse-farmers cannot compete, for they cannot work their land double depth for less than double the cost it is to me to work double their usual depth. I have a Hutchinson standing well at my back, and I have other Hutchinsons standing ready to step into court if they are needed. There stands my steam-engine work for my eleventh crop—eight days' work, as Mr. Nicholls says. Let me be very particular upon this point. The engine began to work on the heavy

had on Wednesday, the 20th September, at 9 A.M., and finished the four fields on the following Monday at 2 P.M. It was then shifted to the light land, and started on Tuesday, 9 A.M., and at 6.10 P.M. on the Friday following it finished work. Therefore it may be fairly said to have worked eight days, including the minor shifts, the other day being taken up by a main shift and arranging of apparatus. Then, as I said before, there stands my steam-engine work—eight days. The consumption of coal for the year's work, 5 tons 14 cwt. The three horses that I am obliged to keep to do carting, &c., not half employed; at the end of the year I shall be able to tell you what they did every day throughout the year. My 12 acres of Swedes this summer were grown without any horse operation whatever, not even horse-hoeing. I think I may say that it was the first field of 12 acres in extent that had ever been farmed for Swedes without the aid of the horse. My land now lies worked, and will be treated the same for next year's root crop, and my land is all clean. Now let us look to the comparative statement that I have shown above. The steam tackle wins with a balance on its side of 41*l.* 1*s.* 6*d.* Yes, and it wins more, for I have charged 16*l.* for repairs, 16*l.* for repairs every $\frac{1}{5}$ year, and 16*l.* for renewal every 25 for eight days' work—the same sums that Mr. Hutchinson charged for 127 days—for an engine that has never cost me a penny in repairs since I have had it. The Royal Agricultural Society of England may award its cut-and-dried prizes, but it cannot produce such facts as these. A little farm of only 112 acres of ploughed land, maintaining a complete set of steam cultivating tackle—steam power proving itself the winner. I respect that noble Society, but I will not barter my judgment upon the subject in question away to please it. I have been working and talking hard for the last 10 years, not to please them or anybody else in particular, but to do my best to assist in providing England with the big loaf. The evidence that I have brought forward is conclusive upon the point that land can be worked cheaper by steam-power than it has ever been with horses; that steam-cultivating tackle is, and has long since been well up to the mark in perfection, and all that is now needed is knowledge on the part of the farmer how to apply it. It must and will have its proper application. It is no use thinking of driving it along the old horse track. It would be just as consistent to try to make the horse stand up on his hind legs and dig, as man does, with the spade. *William Smith, Woolston, Bletchley Station, Bucks, Nov.* 28.

The New Water drill—A few years ago the water-drill was a comparative novelty in this neighbourhood, and I believe I had the good fortune to bring the first into this immediate locality. Doubt and fear were excited, and many were the apprehensions of failure. Predictions were freely ventured upon, and were hopeful or hopeless, as the constitutional temperament of their author was sanguine or otherwise. To set the matter fully at rest, and to decide what were the merits or demerits of the water-drill system on our Cambridgeshire fen lands, I resolved at the outset to make a number of experiments. These were repeated in two or three successive seasons, until further repetition became needless, the results being uniformly in favour of the system. As these experiments, and the results consequent thereupon, have been already publicly presented, I shall not further refer to them. The successful application of the principle very soon led to a wide extension of the system, and now we find its adoption almost universal. My first drill discharged the liquid from the cistern with cups affixed to a revolving cylinder, but this could only be used for the cultivation of green crops, there being a deficiency of space in the cistern for a sufficient number of cups for supplying the number of coulters required for the cultivation of cereal crops. This limit to the application of the principle was highly unsatisfactory. It was then felt that we ought at once to adopt the system in the growth of Oats, a crop always fickle and dangerous, and subsequent experience has fully confirmed the correctness of these early impressions. A new principle of drill was then discovered, and the liquid was discharged through small holes in plates fixed in the bottom of the cistern, and the discharge was regulated by a slide which passed over these plates, leaving the holes partially or wholly open or closed at pleasure. This principle required very careful and attentive drill-men to keep the flow equal and uniform, and also required the manure to be very finely sifted, or small lumps soon stopped the discharge-holes. Carelessness and inattention frequently led to serious losses in the crop. Hence dissatisfaction soon manifested itself, the result of which was a return to the old cup drill, which had been so improved in its construction as to become applicable to the culture of cereal crops. But many who possessed the slide drills, and who were becoming increasingly dissatisfied with their use, especially where badly manned, were nevertheless reluctant to expend the money required to fit them up as cup drills, but felt anxious to discover some method whereby an equal and uniform discharge of liquid could be secured without any expensive alteration. It has been often and truly said that "Necessity is the mother of invention," and we have another verification of this fact in the case before us. After long study, and frequent and anxious deliberations, Mr. C. S. Billups, of Chatteris, hit upon a plan, which is most simple and perfect. Rather than attempt a description of it here, I would invite every farmer who is interested in the successful application of the water-drill system to carefully inspect it at the Agricultural Hall, in London, during the cattle show week, where, I believe, it will be exhibited. Mr. Billups has obtained a patent for it, and will, I hope, place it in the hands of some first-class implement makers—men of honour and skill, and he will then, I doubt not, be well repaid for the labour and cost it has involved. It is so much superior in every sense to any other principle I have witnessed, that I conceive many who possess old slide drills will feel disposed to pay the patentee a fee, and have them adapted to the new system; and assuredly all who purchase new drills will not do so, if they are wise, until they have carefully examined Mr. Billup's most simple, light and efficient implement. *Alfred S. Ruston, Aylesby House, Chatteris, Nov.* 17.

Societies.

Highland and Agricultural: *Nov.* 24.—At the close of a county meeting at Aberdeen, summoned to make preliminary arrangements for the show of the Society in 1867, it was moved by the Earl of Kintore, and seconded by Mr. McCombie of Tillyfour,

"That this meeting, representing the various Agricultural Societies of the counties of Aberdeen, Banff, and Kincardine, as well as the members of the Highland and Agricultural Society of this district, welcome among them the presence of Mr. Hall Maxwell—gratefully record their deep sense of the valuable services which, in the constant and faithful performance of his multifarious and often arduous and anxious duties, as Secretary of the Highland and Agricultural Society of Scotland, he has in that capacity for a period of over 20 years rendered to the progress and interest of agriculture—avail themselves of this fitting opportunity of expressing their special acknowledgment of Mr. Maxwell's great kindness and urbanity and of his ever willing, prompt, and generous aid in furthering the objects and prosperity of the Associations—and their sincere trust that in now retiring from his hitherto active and responsible duties in the cause of agricultural advancement, Mr. Maxwell may for many years enjoy every comfort and happiness."

The Earl of Kintore said:—I am sure that the terms in which this resolution is expressed are not at all over-coloured, or depart in any way from the truth. I can assure Mr. Maxwell that the members of the Highland Society in this district will never fail to remember all his acts of kindness and courtesy in the official capacity which he has so long held with honour and credit to himself, and in now retiring, he leaves us, I am sure, with the good wishes of every one connected with that branch of the Highland Society with which he has had to do.

Farmers' Clubs.

Botley and South Hants: *The Cattle Plague.*—Mr. W. C. Spooner said: The Royal Commission were not unanimous in their views, the majority recommending the most stringent measures, such as a total cessation to the transit of cattle, in which the others did not accord; but all agreed as to the evidence which showed that the disease was the identical rinderpest or steppe-murrain of Russia. None who read the evidence could doubt that the disease was one of the most infectious that ever occurred, and that it was of foreign origin, although some men, such as Mr. Giblett, had written to the contrary. A table before him showed that 173 cattle in Hampshire had been attacked by the disease, of which 51 died, 102 were killed, and 12 remained alive at the date of the table. A great deal had been said and written on the "folly," as it was termed, of condemning cattle to be slaughtered, in order to get rid of the infection, and eminent scientific men who were in the habit of treating the diseases of animals, were taunted with not having discovered a remedy for this disease; but they should remember that although it had existed on the Continent for the last thousand years, and had carried off millions of cattle, and that although men of the greatest possible skill and science had been engaged in endeavouring to stop its ravages, yet the disease was so insidious and so virulent in its character that they had been unable to find a specific for it. Under these circumstances it was no reproach, he contended, to our own scientific men that they, with their little experience of the disease, had been unable to accomplish what others on the Continent had so long tried to do in vain. The disease was neither typhus nor typhoid fever, as some endeavoured to show; its symptoms were peculiar, its poison *sui generis*, nothing else than the "rinderpest," or steppe murrain of Russia, and there really was no "specific" for it, as there was for many other diseases. The best mode of treatment for it seemed to be that which assisted nature in relieving the animal from the poison, and supporting the system afterwards. He had read of a great many so-called remedies and some wonderful cures, including those of the homœopathic treatment; but he believed that in the majority of these cases the animals were never really affected, or would have got through without treatment. Notwithstanding all the remedies that had been tried, in eight cases out of ten the disease had been fatal. In some cases the inspectors had been very much blamed for ordering animals to be destroyed. These inspectors, in most instances, were veterinary surgeons, and could have no possible motive or interest in ordering animals to be slaughtered uselessly. On the contrary, it would be more profitable to them to put the diseased animals under treatment where the owner wished it to be done. He thought, therefore, that a great deal of unwarrantable abuse had been launched at those unfortunate men, who, he believed, had endeavoured, in the main, to do their duty honestly, and had accomplished much good, though in some cases the most competent men may not have been appointed. The Commissioners next alluded to the preventive measures which had been taken and proved ineffectual to stop the progress of the disease. The majority of them recommended that an entire stop should be put to the movement of cattle from place to place, but they were not unanimous upon the point. They argued that as a large quantity of carcases were annually slaughtered in the country and sent to London, the difficulty of closing the markets would not be so great now as it was on the occasion of the outbreak a hundred years ago. But he (Mr. Spooner) thought the practicability of carrying out such a step was exceedingly doubtful, and that the inconveniences resulting from it would be almost as bad as the disease itself.

In conclusion, he would just allude to the subject of cattle insurance. That Club had strongly recommended the formation of mutual insurance associations, but as it was found that in nine cases out of ten such societies were illegal, and would not be able to recover penalties, he thought they had done wisely in giving up the attempt to form such an association, especially as they had received no public support whatever. The inhabitants of Southampton, when appealed to, showed the greatest indifference to the subject, and when they, as members of the Club and landowners and occupiers, asked the High Sheriff of the County to call a meeting, he likewise threw cold water upon it, and declined to do so unless the people in North Hants sent a requisition likewise. Under these circumstances they thought it was better that they should rely upon their own means individually to withstand losses than embark as knights errant in an association for the benefit of the public, when that public gave them no promise of support. His own idea was that the most effectual means of stamping out the disease would be for the Government to establish a scheme for insuring the whole of the cattle in the country. They had sufficient data before them to form an estimate of the losses they might be called upon to reimburse, and which could hardly be greater for an equal period than during the last three or four months, and less, if anything like vigilance was exercised. If the Government were to insure cattle in infected counties at the rate of 5 per cent. per annum, and in uninfected counties at something like $2\frac{1}{2}$ per cent, it would be acted upon generally by stockowners, and would yield a great and sufficient revenue. He believed almost every one would insure his stock if such a scheme were set on foot, the premium, calculated at 5 per cent. on the value of the cattle, being paid quarterly in advance. Thus, a man having an animal worth 10*l* would be only called upon to pay 2*s.* 6*d.* per quarter. Under such a system all classes would be interested in carrying out such an amount of vigilance as would eventually bring the disease to an end. Although there was a strong feeling against any arbitrary interference by Government in the business transactions of the people, yet it had interfered in emergencies of far less importance than this, and with perfect impunity. He alluded to the system of Government Life Insurance and Post-office Savings Banks, the motive for which was not a hundredth part so important as for that he had alluded to, and he would suggest that the subject be brought before the attention of the Commissioners, as one worthy of their most careful consideration.

Mr. Milward, Q.C., said that in this country they had accustomed themselves to do without the assistance of Government; they trusted to themselves, and had schooled the Government into allowing them to do so. In this case there was a great difficulty to deal with, but the Government had no organisation for undertaking the risks of a cattle insurance society.

The Poultry Yard.

*Eggs and Poultry as a Source of Wealth.**—This is a shilling book, containing a great deal of information, much speculation, and some actual record of experience. It is well illustrated, chiefly with drawings of French breeds of poultry. The estimates probably err, as many a large scheme does, in imagining that large quantities of living creatures can be long depended on to remain in health when kept close together. Some of the alleged facts recorded are, however, moderate and trustworthy enough, and we extract the following example:—

"I occupied a small house at about 12 miles from town, to which a small garden was attached—I could not think of giving up my garden, therefore my fowls must be kept out of it. I fenced off a space at one end, and there constructed a hen-house. Everything required for the convenience and nourishment of my fowls, barley, oats, rice, bran, hay, straw, &c., I had to buy, and pay ready money for, still I did not despair of making both ends meet. I obtained from Calais a cock and hen of the Houdan breed, to which I added some Dorking hens. I was desirous of testing the good qualities of the Houdans, about which I had heard so much; not that they are such very fine large birds, but they begin laying early in the year. I have poulets which, hatched towards the end of March, gave me eggs at the beginning of November. But as the Houdans are not partial to sitting, I had to supply myself with other hens which had the reputation of being good nurses and mothers; and in the second year I added some Cochin China hens to my stock, because they are such capital sitters.

"My Houdans give me upon an average 120 eggs a year, which I consider a magnificent return for my care and expenditure. I fed them chiefly upon a mixture composed of one bushel of Barley to two of Oats. During the two worst months of the year, when moulting, I gave them Oats alone, as being more fortifying. Contrary to the usual practice, I bought only the

* Eggs and Poultry as a Source of Wealth. W. Oliver, 3, Amen Corner.

soundest and heaviest grain. I fancied it was the best economy, as there was no waste—every grain was consumed, and told in forming flesh. Instead of throwing the grain upon the ground, I put it into narrow troughs six feet long, with covers with holes in them, just large enough to admit the head of a fowl. By this plan I avoided waste.

"During the first week after being hatched, I gave the young chicks steamed rice, to which I added boiled skim milk, a diet upon which they thrive amazingly. The milk I obtained at a trifling cost, and rice is always to be had very cheap. I gradually changed this diet for ground Barley and Oats, made into a porridge with warm water, pot boilings, &c., and every day I gave the chicks the refuse of the dinner table—they enjoy picking a bone amazingly. A piece of meat as large as a walnut, cut very small with a pair of scissors, will serve as a good daily ration for a dozen chicks.

"Of course I do not reckon the vegetable portion of their diet as costing anything; the outside leaves of Lettuces, Cabbages, Pea shells, Potato peelings, and other refuse, must have been thrown on the dung heap, had I not been able to bestow it upon my poultry, which profited by it.

"The total cost of my poultry yard, building, stocking, &c., from August, 1862, to 31st December, 1864, was				£16	16	0
Deduct first outlay for birds, fittings, &c., ..				3	11	0
Leaves for cost of food, straw, &c.				£13	5	0
I obtained, in 1863, 790 eggs, valued at	2	10	0			
and ate 33 poulets at 2*s.* 6*d.*	4	2	6			
I obtained, in 1864, 1087 eggs, valued at	3	8	0			
and ate 22 poulets at 2*s.* 6*d.*	2	15	0			
On hand January 1, 1865, 29 poulets	3	12	6	profit 3	3	0
	£16	8	0	£16	8	0

"As my fattened poulets weighed 5 lb. each, the cost of this meat for the table was only 6*d.* per pound, while I was paying 10*d.* and 1*s.* per pound for prime joints of beef and mutton.

"The eggs I value at 16 a shilling, which is an average price at the cheesemongers for imported French eggs; of course my eggs were always new laid; and might have a much higher value put upon them than I have set down."

Calendar of Operations.

December.—*The Horse Labour* of December will consist in ploughing stubbles and subsoiling where advisable—this should be completed before the new year, in ploughing lea for Oats, in carting lime from the kiln, and marl from the pits or trenches, and spreading them on the fields where they are to be applied; in carting stones to roads, tiles to drains, manure to fields, and grain to market. Also, in carting from market the Linseed, Maize, or other food for cattle, sheep, and pigs, which must be purchased at intervals during the winter.

Draining.—This, with the preceding and succeeding months, is the most convenient season of the year for carrying on this work. It is only necessary to observe here, that while farmers will generally find it most convenient for themselves to effect the drainage of their farms in a gradual manner, field after field, in successive years, they should beware lest, in this piecemeal method of completing the work, they lose sight of the general plan on which the whole should proceed. They should begin with the lowest fields on the farm, and securing a good outfall for the water from them, they will run no risk of an insufficient drainage for the rest of the land. A main drain should run along the lowest edge or line in the farm, and it may be completed piecemeal as it is needed, to receive the waters of the drainage, which should gradually extend itself from field to field, towards the higher parts of the estate. Use may be made of the mole plough on pasture lands during this season.

Roads should be attended to this month: stones should be hauled and placed where they are needed for the repairs or new works that may be necessary.

Any top-dressing the farm will afford, either in manure or soil from ditches, road-sides, &c., may be applied to Grass lands.

The Cattle should continue to receive the same attention as in November. They must be kept warm, dry, and clean, by the use of abundance of litter. The common Turnips will now have been finished, and recourse must be had, first, to any hybrid Turnips that may have been grown, and then to the Swedish. The box-fed cattle, excepting when the floors of the boxes are unusually low, will require cleaning out for the first time towards the end of this month; and the yards, too, will be getting pretty full of manure. Both boxes and yards should be emptied during frosty weather, when the dung-cart can be worked without injury to the land. Heaps of manure should be made in the fields intended for green crops next year, the carts being driven over them as they bring their additions, so as, by condensation, to check any premature fermentation, and the manure should also be covered with earth, and sprinkled with salt and gypsum, to confine and fix the naturally volatile products of that fermentation. When frost and snow set in, breeding cows and ewes should have a daily feed of white or yellow Turnips. Hoggets should have their Turnips sliced for them.

Sheep in sheds must be carefully attended to, with especial reference to the disease of foot-rot, to which they are liable. Their feet should be closely pared once a fortnight, and when any festering or decay is apparent, diluted hydrochloric acid should be applied with a feather. As a preventive to foot-rot, it is a good plan to place a couple of sawn boards in front of the feeding troughs, as far apart as will permit the animals to stand on them with both fore and hind feet while feeding. The hard boards keep the hoofs from getting too long, while, at the same time, the soft part of the foot is kept nearer its natural condition, and, consequently, less disposed to disease. The boards should be turned over and laid above the straw every time the sheep are littered. They will be supplied as usual with Swedes and other food, and regularity should be observed in their meal times. They should be frequently littered, and thus kept dry. The manure may be removed from under them towards the end of the month. Sheep, especially hoggets, folded in the fields on Turnips, are very subject to inflammatory attacks, during the winter months, from eating frosted tops, and to mitigate this evil, it is advisable to cut off the tops a few days—three or four—before each removal of the hurdles, in order that they may become withered, in which state they are less injurious to the animals. It is also a good plan in winter to have a plentiful supply of Turnips stored up in heaps, and properly covered with straw and a little earth, to give to sheep during frost or snow. Ewes in the Grass fields ought to be supplied, in rough or snowy weather, with Turnips and cut chaff. Lambs must be very carefully attended to in every respect, increasing, as already named, their quantity of artificial food. Fatting sheep may now be drafted, and those ready for the butcher disposed of. Yearling and grazing sheep should have a few Turnips and Cabbages thrown on their pasture. The Turnips should be at all times carefully cleaned, and cut into small slices; and, if allowed to remain a while before being consumed, without being dried up, all the better, as they merely lose a portion of their watery particles.

Pigs should be sold as they fatten, and the larger stores, with the sows after their third litter, should be put up.

Cheese-Making may be said to cease towards the end of the month; all the milk produced being converted into butter and skim-milk cheese. The cows most advanced in pregnancy now go dry, and the animals are put on poor food. Unless the frosts set in unusually early, the cattle in the southern counties are allowed still to pasture in the grounds, to seek for the little Grass there is left—hay being served to them twice a day, either there or in the yards, to which they come twice a day to be milked as usual. The better plan, however, is to house them all now, feeding them in sheds or byres; water being brought to them twice daily.

Miscellaneous.

The Birmingham Cattle Show.—On this day the Cattle Show is opened in Bingley Hall, and it continues open from Monday till Thursday of the coming week. Due allowance being made for unfavourable circumstances, the entries afford conclusive evidence of the unabated interest which these meetings excite, and the desire felt by all classes of contributors to promote their success. Of cattle there are 135, a larger proportion than might fairly have been anticipated, considering the disastrous effects of the murrain, which, there can be no doubt, will at the last moment induce some intending competitors to abstain from "putting in an appearance," from the fear of contagion. Another difficulty has also arisen. Hitherto all the best animals have been forwarded from Birmingham to London, but the Council of the Smithfield Club have resolved that, in view of the present state of things, no ox or cow which has formed part of any exhibition held during the preceding month shall be eligible for admission to the Agricultural Hall at Islington, and as the bulk, if not the whole of the entries for both places had been made when this temporary regulation was determined upon, persons who had arranged to try their fortunes both here and in the metropolis will have to make their election between the two. We are informed, however, that the cases in which entries have been made of the same animals for both shows are much less numerous this year than usual. There are 90 entries of sheep—a much larger number than on several recent occasions, and above the average amount; while in respect to pigs, the catalogue will contain a list of 71 pens. In the department for corn, 45 entries have been made; and although the season which has just closed has not been propitious for roots, the judges will have to decide upon the respective merits of no fewer than 110 different lots. In other parts of the building the various classes will be amply filled. The feathered tribes will muster in greater force than usual, for the total of the pens of poultry will be 1676, and of pigeons 331, the latter display being the largest of the kind which has yet been witnessed. To all these the implements, seedsmen's stands, &c., must be added, and when this is done we have a bill of fare which can scarcely fail to satisfy the reasonable expectations of every class of visitors. *Midland Counties Herald.*

Sales of Stock, 1865.—From Mr. Morton's Almanac we quote his list of Stock Sales for 1865:—*Shorthorns.*—A detailed account of the extraordinary sale of Mr. Hegan's herd of Grand Duchesses is given in a separate paragraph. The following are a list of other sales during the past year:—

Name.	Head.	Average about £	s.	d.	Auctioneer
Sir C. Knightley, Bart. ..	20	40	0	0	H. Strafford
Earl Spencer	32	34	0	0	W. Carr
The Rugby Sale	57	35	0	0	Do.
E. A. Fawcett	64	32	0	0	H. Strafford
F. Turner	19	18	0	0	E. E. & G. [illegible]
W. F. Fryer	22	26	0	0	Walker & [illegible]
T. Dawson	30	30	0	0	Wethered
J. R. Kirkham	44	21	0	0	H. Strafford
R. Guilding	50	28	0	0	Do.
E. Bowley	38	41	0	0	Do.
W. Arkell	32	16	0	0	J. Dyke
G. Graham	19	40	0	0	H. Strafford
W. Wells	32	34	0	0	Do.
E. W. M. Waldo	16	35	0	0	Do.
J. Bowstead	37	33	0	0	J. Jackson
J. Hegan, of Dawpool .	17	81	0	0	H. Strafford
G. M. Tracey..	30	23	0	0	Do.
H. J. Sheldon	27	26	0	0	Do.
Colonel Pennant	46	38	0	0	W. Carr.
J. Kelk	17	26	0	0	H. Strafford
J. Beaseley	46	20	0	0	W. Carr.
J. N. Beasley..	14	23	0	0	Do.

Ram Sales, Leicesters.—The following are among the sales at Kelso which averaged more than 10[illegible] head:—

Name.	No. Sold.	Average Price. £	s.	d.	Highest Price £	s.	d.
Rev. R. W. Bosanquet ..	80	10	6	4	21	0	[illegible]
Mr. Dinning	54	11	5	9	30	0	[illegible]
Mr. Wood	38	10	15	5	19	0	[illegible]
Captain Barber	22	10	4	11	17	0	0
Mr. Stark	44	24	3	0	81	0	0
Messrs. Laing	35	10	5	1	49	0	[illegible]
Lord Polworth	35	37	18	10	95	0	[illegible]
Mr. Swinson	67	11	10	0	36	0	0
Mr. Purves	100	12	12	0	48	0	0
Mr. Torrance	43	12	16	6	41	0	0

Southdowns.—The following are among the most important sales:—

Name.	No. Sold.	Average Price. £	s.	d.	Highest Price. £	s.	d.
Mr. Waters, Motcombe ..	18		—		52	10	0
Mr. Rigden, Brighton ..	17	15	0	0	24	3	0
Mr. E. Emery, Storrington	21	9	9	0	14	14	0
Mr. Penfold, Selsey.. ..	—	10	10	0		—	
Sir T. Lennard, Belhus ..	—		—		27	6	0

Cotswolds.—The following is the result of the chief sales in Gloucestershire, 1865:—

Name.	No. Sold.	Average Price. £	s.	d.	Highest Price
F. Farncomb	40	13	0	9	—
J. W. Limbrick	40	12	19	0	—
M. G. Hewer	12	12	1	6	—
Mrs. Baxter	11	15	1	6	—
Mr. H. Howell	41	9	2	0	—
Mr. J. Lane	—		—		—
Mr. J. K. Tombs	36	7	7	0	—
Mr. C. Barton	49	12	14	9	—
Mr. W. Cother	54	7	7	4	—
Mr. W. Garne	32	7	18	2	—
Mr. W. Lane	52	17	9	9	—
Mr. J. Gillett	59	10	3	8	—
Mr. R. Garne	52	13	18	6	—
Mr. W. Smith	40	10	7	10	—
Mr. T. Porter	44	17	5	0	£80 17 0
Mr. Fletcher	51	13	5	2	—
Mr. W. Hewer	50	21	19	9	—
Mr. Howell	41	11	19	0	—
Mr. J. Barton	21	11	0	0	—
Mr. Barton	46	10	7	2	—
Mr. Handy	51	13	5	2	—
Mr. H. Cole	30	7	15	8	—
Mr. James Walker	40	16	10	6	—
Messrs. J. Wells	51	10	13	8	—

Shropshires.—The following are among the most noted sales of the past year:—

Name.	No. Sold.	Average Price. £	s.	d.	Highest Price. £	s.	d.
Mr. S. Byrd	30	14	18	6	42	0	0
Mr. Keeling	30	13	13	0	39	18	0
Mr. W. Masfen	35	10	7	0	19	19	0
Mr. Coxon	22	13	13	0	35	14	0
Mr. G. A. May	—	10	12	3	27	16	0
Messrs. Crane	30	16	16	0	29	18	0
Rev. C. P. Peters	7		—		42	0	0
Mr. J. Evan	20	15	15	0	24	3	0
Mr. Thornton	15	15	15	0		—	
Mr. Pryce Bowen	—	13	13	0	30	9	0
Mr. Mansell	—	18	18	0	39	18	0
Mr. Holland, M.P.	25	9	18	6	24	13	6
Mr. J. H. Bradburne	48	10	2	6	35	14	0
Mr. C. W. Hamilton	33	13	17	6	32	11	0
Lord Wenlock	20		13	0		—	

Lincolnshires. — The following are among the results of the autumnal sales:—

Name.	No. Sold.	Average Price. £	s.	d.	Highest Price. £	s.	d.
Messrs. Salter	80	10	10	0	20	0	0
Mr. Davy	118	13	1	6	76	0	0
Mr. J. H. Caswell	50	14	15	0	50	0	0
Mr. T. Caswell	48	14	2	6	70	0	0
Mr. Kirkham	150	16	18	6	73	10	0

The Royal Agricultural College Athletic Club.—On Wednesday, the 15th, the first meeting took place in Oakley Park, which had been kindly lent for the occasion by Earl Bathurst, and a most lovely day it was. The beauties of the noble park were never more

apparent. We have seldom seen such weather in the middle of November—sky, air, and all nature seemed to favour this first effort of the students. By the kindness of Colonel Wallington the band of the Royal North Gloucester Militia was in attendance, and inspirited the competitors by their efforts.

First Race.—100 yards. F. H. Field, 1st prize; 10½ seconds.
Pole Jumping.—D. Cochrane, 1st prize. Distance, 17 ft. 3 in.
Walking Match.—1 mile. H. St. Quintin, 1st prize. Time, 8 minutes 10 seconds.
Throwing the Weight.—J. C. Bowstead, 1st prize. Distance, [illegible] in.
First Race.—200 yards. L. Alberquerque, 1st prize.
High Jump.—H. St. Quintin, 1st prize. Height, 4 ft. 11 in.
First Race.—1 mile. R. C. Ellis, 1st prize. Time, 5 minutes [illegible] seconds.
Pole Leaping.—H. St. Quintin, 1st prize. Height. 9 ft.
Hurdle Race.—250 yards, 8 flights.—D. Cochrane, 1st prize.
Picking up 30 Stones.—One yard apart. H. Walker, 1st prize.
Throwing Cricket Ball.—H. St. Quintin, 1st prize. Distance, [illegible] yds. 4 in.
Stranger's Race.—250 yards, 8 flights. T. W. Haines, 1st prize.
Sack Race.—50 yards. H. St. Quintin, 1st prize.
Hurdle Race.—500 yards. J. C. Bowstead, 1st prize.
Consolation Race.—250 yards, 8 burdles. W. F. Marriott, 1st prize.

To those conversant with such sports, the feats accomplished were quite equal to, and in some cases exceeded, the average; for although the flat mile race was slow, the short racing was good—100 yards being done in 10 seconds. The wide jump of 17 feet 3 inches exceeded the jump of the winner of the Merton College, Oxford, prize by 1 foot 9 inches. All the visitors seemed much pleased with the pole leaping—the victor, Mr. St. Quintin, succeeded in getting over 9 feet, and would have attempted a higher jump, had not the President ruled that being conqueror by 10 inches, his success was sufficiently established. The hurdle racing throughout was very good. The throw of the cricket ball, 89 yards, was no mean throw, being 8 yards further than the champion throw at Merton College, Oxford, which we again refer to, because the sports there were held on the day previous. By special request, Mrs. Constable presented the prizes—and, making a few kind remarks to each victor, regretted that the Council's handsome prize of a silver medal for the winner of winners could only on this occasion be presented by hand to Mr. St. Quintin (the winner of six races). The dinner, which was served in the spacious College Hall, was an agreeable termination to a very pleasant but strength-trying day, and every spectator of it, as well as of the day's sports, must have been struck with the thorough spirit of unanimity which seemed to pervade all, from the Principal downwards. The Principal, in proposing, among other toasts, "The President and the Council of the College," expressed the great regret which the chairman, Mr. Holland, and the Hon. W. Bathurst had in being unavoidably absent, but was gratified to be able to tell them that in December, probably on the 20th, at the termination of the Session, his Grace the Duke of Marlborough would, if no unforeseen occurrence prevented, be among them, to distribute the prizes to those who were successful in another and more important struggle, and that then they would see their old friend, Mr. Holland, also, who was never absent when his presence was a help to any of them.

Notices to Correspondents.

BACON: *M R.* Bacon should be dried very gradually, and only by heat from *wood* fire. Bacon will very soon become "rusty" if kept within the reach of the least smoke from coal fire. To prevent the ill effects from this, it has been known to keep well tied, when quite dry, in a new hempen bag, such as those used for grain and flour, the bacon not touching the bottom of the bag. This also saves it from flies in the hot weather. An airy dry place on the north side of the house, where the temperature is as equal as you can find it, is the best preventive to its becoming rusty. Bacon is sometimes kept in chests in layers of malt dust, or Oat or Bean-meal—but hanging it in thick bags hung in an airy cool place answers better.

CATTLE FOOD: *F W D.* You may trust what is said on Palm-nut meal by Professor Coleman and others.

MILES' PATENT VERMIN TRAPS. These are a simple and apparently efficient modification of the common schoolboy's figure-of-4 trap. They may be so arranged as to catch foxes, marten cats, pole cats, &c., alive and without injury, or so as to kill them instantly. The improvements consist principally in the parts used in setting and releasing the trap, which are set at an inclination from the ground. The setting parts consist of three pieces of wood or other material, two of which are put together and used in the form of a strut to support the trap when set; the third piece forms a clip to keep the strut-pieces in position, as also a support for the bait. If the animal is to be killed, the trap is formed of a large flag-stone, or other weighty or weighted surface, which falling on it will produce immediate death; on the other hand, if the animal is to be caught alive, the trap is made of an inverted box-like form, and furnished with two or more feet at the corners, or otherwise, so that the trap may rest thereon in falling, and obviate the possibility of cruelty or injury to the animal's tail. Where the animals are to be caught alive, it is necessary to put the trap on a flat stone or other hard surface, to prevent burrowing, and in some cases (for instance for catching bears and other like animals), it may even be necessary to form or line the trap with metal. When it is desired to remove animals alive in the trap, it is supplied with a hinged flap on one side

TO HAUL MANURE: *A B.*—The distance is 500 yards. Employ four carts, three men loading at the heap, and one man unloading in the field, in heaps of one to a perch, and of such a number to each cart as the dressing you intend will amount to. One cart will be always in the field, one at the heap, one going full, and one returning empty. The party, if they work with a will, can load, carry, and spread 120 cubic yards in a day, and the best way to make them work with a will is to let the loading to the three men at the heap; it is worth ¾d. per yard.

PERUVIAN GUANO: *X Y.*—It is a perfectly trustworthy and excellent manure. We should, however, prefer Peruvian guano to it for meadow land.

AGRICULTURAL IMPLEMENTS.—Steam Engines, Threshing Machines, Pumps, Carts, Waggons, Ploughs, Harrows, Chaff Cutters, Cake Breakers, Turnip Cutters, Churns, Garden Tools, &c. Improved Wire Netting. Delivered carriage free.
Price Lists per post.
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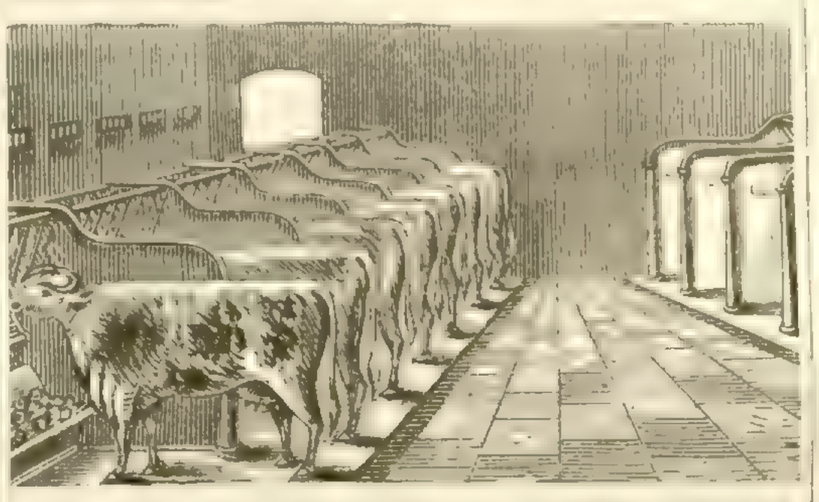
Works, Brentwood, Essex

£1000 UPON the WOOLSTON TACKLE against the NEWCASTLE "best application."
WILLIAM SMITH, Woolston, Bletchley Station.

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be seen at Work in every Agricultural County in England. For particulars apply to
JOHN FOWLER & Co., 28, Cornhill, London, E.C.; and Steam Plough Works, Leeds.

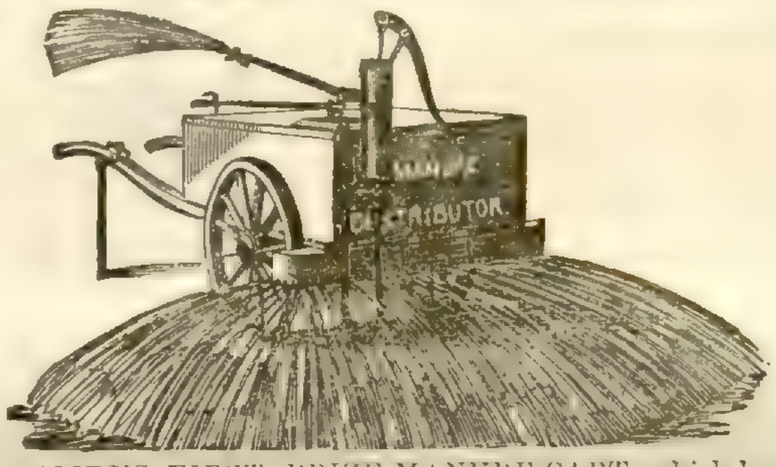
EARTH CLOSETS (MOULE'S PATENT).
No Unwholesome Cesspools.
No Bad Smells.
No Water Pipes to get out of order.
The Best Night Commodes.
The Apparatus (price 25s. and 30s.) may be applied to any Closet at trifling cost, and is self-acting.
By its use a valuable Manure is saved, and Fertility to the Soil ensured.
Earth is recommended by the Privy Council, in their report on Cholera, as a deodoriser and disinfectant.
Extract from Letter received from the SECRETARY *of the* NATIONAL RIFLE ASSOCIATION.
"I am further directed to state that they (the Closets) proved of the greatest use, and were found to act admirably."
WHITE & Co., 29, Bedford Street, Strand, London, W.C.
OLDHAM SHOW, STAND 46.

MUSGRAVE'S PATENT IRON COW STALLS and PIGGERIES, with fresh Air Inlets, as used in the Government Model Farms.



MUSGRAVE'S PATENT STABLE and HARNESS FITTINGS, adopted by His Royal Highness the Prince of Wales for Sandringham.
MUSGRAVE'S PATENT SLOW-COMBUSTION STOVES, employed by the Ecclesiastical Commissioners.
The PATENT IRON COW STALLS and AIR INLETS are perfect in their arrangements for Feeding and Ventilation; every part being of iron they are indestructible, inexpensive, very compact, cleanly, and healthful for the animal. Should sickness occur, if the iron work be painted and the walls washed with lime, they can neither harbour nor communicate contagion. This system in fact is found to be the only true SAFEGUARD AGAINST THE SPREAD OF EPIDEMIC.
Priced Engravings of all these Inventions sent post free on application to MUSGRAVE BROTHERS, Ann Street Iron Works, Belfast.

Silver Medal and Cup, 1863, awarded for



JAMES'S FIRST PRIZE MANURE CART, which has been awarded 20 PRIZES. Is now fitted up to answer for LIQUID MANURE, for supplying the STEAM PLOUGH, for WATERING STREETS, or for a FIRE ENGINE. Nearly 300 already sold.
Washing.
The last great improvement in Washing Machines is in JAMES'S new Patent PRIZE WASHING, WRINGING, and MANGLING MACHINES, awarded several FIRST PRIZES. Will Wash 20 Shirts in 20 Minutes, with much less injury than with the hand. More than 300 Sold.
Address, I. JAMES, Tivoli Works, Cheltenham.

Oil Paint no longer Necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.
From RICHARD HEMMING, Esq., *Bordesley Park, Worcestershire.*
"Gentlemen,—I have great pleasure in stating that I highly approve of your Black Varnish, as a substitute for paint for farm buildings, barn doors, gates, and especially when the wood has been previously painted in the usual way a few years before; in this particular case it leaves a very nice glazed surface, than which nothing could be better. The same observation also applies to ironwork of every description, such as iron hurdles, &c. The Wrought-iron Barrow with apparatus for heating gas tar has been found most useful, and so great a convenience do I consider it that I shall beg you to send me another, as well as a cask of the Black Varnish, for the use of the property which I have in Warwickshire. Please to send the whole by the same conveyance as before."
Sold in casks of about 30 gallons each, at 1s. 6d. per gallon, at the Manufactory, or 1s. 8d. per gallon paid to any Station in the kingdom.
Apply to HILL & SMITH, Brierly Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C., from whom only it can be obtained.

CLAYTON, SHUTTLEWORTH, AND CO., ENGINEERS, Manufacturers of PORTABLE and FIXED STEAM ENGINES, Machinery for Pumping, Hoisting, Grinding, Sawing, &c., Engines for Steam Cultivation, Self-Moving Engines for Common Roads and Agricultural Purposes generally.
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[*The best Steam Threshing Machinery made.*]

THE IMPROVED LEATHER DRIVING STRAPS for MACHINERY are stronger for a given weight, more effective, more durable, and cost considerably less than any other kind of driving belt.
SPECIAL STRAPS for PORTABLE ENGINES.
TURNER'S Patent Strap and Hose Company.
Manufactory: Armit Works, Greenfield, near Manchester.
Warehouse: 81, Mark Lane, London, E.C.
Mr. H. FERRABEE, Agent.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.
PROTECTION from COLD WINDS and MORNING FROSTS.
"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.

Two yards wide	1s. 9d. per yard run.
Four yards wide..	3s. 6d. per yard.
An improved make, 2 yards wide ..	1s. 9d. per yard.
An improved make, 3 yards wide ..	2s. 8d. per yard run.

Also "Frigi Domo" Netting, 2 yards wide, 1s. 6d. per yard run.
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"It is much cheaper than Mats as a covering."

W. S. UNDERHILL'S NEW PATENT IRON FENCE for GARDENS, LAWNS, &c.
Manufactory: Newport, Salop.
Warranted the strongest and most durable Fence ever offered at corresponding prices. It is easily repaired if broken from accidents, can be rolled up most compactly when not in use, is admirably adapted for exportation, and can be had of any height and mesh required, at prices from 4d. to 1s. 6d. per yard and upwards.
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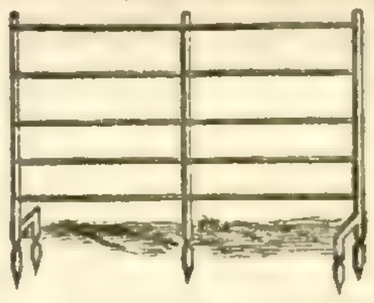
Iron Hurdles, Fencing, and Gates.
COTTAM'S HURDLES are made in the best manner of superior Wrought Iron. SHEEP HURDLES, from 4s.; CATTLE HURDLES, from 4s. 11d. each; CONTINUOUS FENCE, from 8d. per foot; FIELD GATES, from 25s. each. Illustrated Price List on application.



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GALVANISED WIRE CABLE STRAND FENCING, for FARMS, PARKS, and GARDENS.
The ORIGINAL INVENTORS and MANUFACTURERS.

The CHEAPEST, STRONGEST, and NEATEST FENCING in USE.
THOUSANDS of MILES of this FENCING have been SUPPLIED by us at home and abroad. It sustains no injury by being trespassed upon.
Price, with five lines of Strand and Iron-pronged Standards, and one straining post, stay and screw bolts to every 120 yards, 1s. per yard.
Five lines of Cable Strand and Staples for wooden posts, 6d. per yard
HURDLES, HURDLES, HURDLES, 1s. 9d. to 3s. 9d. per yard.
CONTINUOUS IRON FENCING, GATES of all kinds.
PATENT STRAINING PILLARS, &c.
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LAWN MOWERS, GARDEN ROLLERS.
ASPHALTE ROOFING FELT, 1d. per square foot.
MOTLEY & GREEN, late H. J. MORTON & Co.,
Illustrated Catalogues and Estimates free on application.
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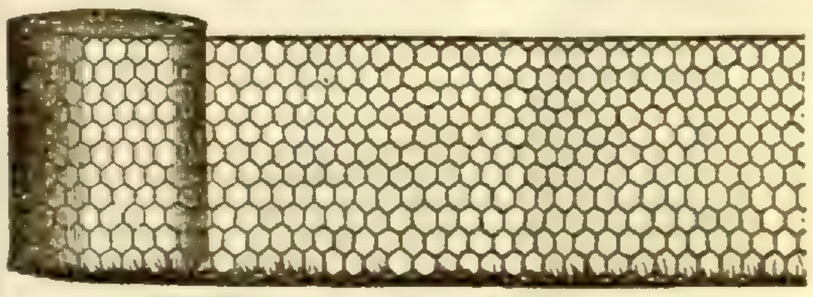
NEW IMPROVED PREMIUM WIRE NETTING
Great Improvement with Reduced Price.



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		s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
2½ in.	Hares, Dogs, Poultry	0 3	0 4	0 3½	0 5	0 4½	0 6	0 5½	0 7
2 in.	Game or Poultry Netting	0 3½	0 4½	0 4	0 5	0 5	0 6½	0 6½	0 8
1½ in.	Small Rabbits, Hares, &c.	0 4	0 4½	0 4½	0 6	0 5½	0 7	0 7	0 9
1¼ in.	Smallest Rabbits ..	0 5	0 6	0 5½	0 7	0 7	0 9	0 9	0 11
1 in.	Pheasantries, &c. ..	0 9	0 11	10½	1 1½	1 3	1 6	1 9	2 0
¾ in.	Aviaries, &c.	1 0	1 3	1 3	1 6	1 6	1 9	..	..

Quantities of 100 yards or upwards delivered free to nearly all the principal Railway Stations and Shipping Ports in England; and 200 yards or upwards delivered free to most parts of Scotland and Ireland.
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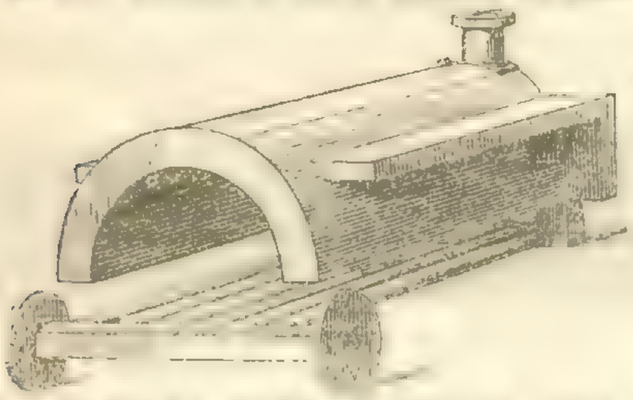
By Her Majesty's Royal Letters Patent.



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HOT WATER PIPES, from Stock, per yard:—2-inch, 1*s.* 2*d.*; 3-inch, 1*s.* 10*d.*; and 4-inch, 2*s.* 4*d.* BENDS, from Stock, 1*s.* 6*d.*, 2*s.* 6*d.*, and 3*s.* each. THROTTLE VALVES, 10*s.*, 13*s.*, and 14*s.* each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day. A discount to the Trade.

Midland Steam Power Horticultural and Hot-water Works, Loughborough.

T. G. MESSENGER, the Proprietor of the above Works, finding it necessary (through the great demand for his Horticultural Buildings and Heating Apparatus) to make large additions to his Premises, and to Fit the same with an entire set of STEAM-POWER MACHINERY, is now enabled to execute any Orders entrusted to him with the greatest dispatch, and at the lowest possible price consistent with good and substantial work.

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DEANE AND CO.'S Patent VENTILATING and SUSPENSION STOVES are simple, cheap, and efficient; have been largely adopted and approved; will burn many hours without attention, and at a small cost for fuel. Prices of Suspension Stoves, 20*s.*, 30*s.*, 38*s.*, and upwards. Ventilating Stoves, 50*s.*, 60*s.*, 70*s.*, 90*s.*

HOT-WATER APPARATUS for Conservatories, Greenhouses, Hothouses, Forcing Pits, &c., erected and fitted up complete.

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PATENT GALVANIZED METAL GREENHOUSES, "The Gardener's Own;" are tenant's fixtures.

PATENT GALVANIZED METAL ORCHARD HOUSES as supplied to Mr. Rivers, with his improved ventilation; are the most economical erection for this important branch of gardening.

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PATENT GALVANIZED METAL GREENHOUSES, "The Novelty," are tenants' fixtures and the cheapest buildings extant as a Lean-to, 20 ft. long, including glass, with 8 ft. rafter, £10; 10 ft., £12 17*s.* 6*d.*; 12 ft., £16 16*s.*

PATENT GALVANIZED METAL WALL TREE COVER should be possessed by every one who has a garden wall; it is a tenants' fixture, and costs for walls, 6 ft. high, 8*s.*; 7 ft., 9*s.*; 8 ft., 10*s.*; 9 ft. 11*s.*, per foot run including glass.

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Reference permitted to the Nobility and Gentry throughout Great Britain and Ireland.

Heating by Hot Water.

HOT-WATER PIPES, at Reduced Wholesale Prices, with Elbows, Syphons, Tee Pipes, and every other [illegible] Wrought and Cast-iron Boilers. Saddle, Conical, [illegible] and Elliptic, from 24*s.* each. Improved Boilers and [illegible] use without brickwork, 56*s.* each. Valves from 10*s.* 6*d.* each, [illegible] Valves, Improved Furnace Doors, Furnace Bars, Sugar Coppers, [illegible] Castings of every description in stock, at

Mr. LYNCH WHITE'S Iron Wharf, Upper Ground Street, Blackfriars Bridge, London, S. Price List on application.

Horticultural Works, Kensal Green, London, W.

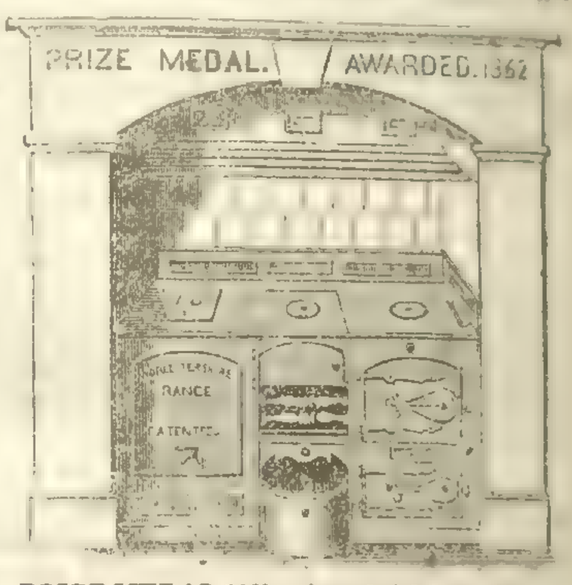
W. T. AND J. TAYLOR (late JOHN TAYLOR & SONS) have on hand for Sale THREE very handsome WOOD and GLASS CONSERVATORIES made to order. Two of them were prepared for a gentleman residing in Park Lane, an objection being raised on account of their intercepting the view from the adjoining houses. They were not fixed.

Designs and Prices fixed complete in any part of the United Kingdom forwarded upon application.

CRANSTON'S PATENT BUILDINGS for HORTICULTURE, Highly Commended by the Royal Horticultural Society, South Kensington. Plans and Estimates free on application. Houses of the following sizes always in stock:—Span, 18 by 15 feet, and 24 by 12 ft.; Half-span, 24 by 10 ft.; Lean-to, 24 by [illegible] Stereoscopic Slides of different houses post free for 6 stamps each.

Descriptive Book, fully illustrated, by post for 20 stamps from the Author and Patentee, James Cranston, Architect, No. 1, Temple Row West, Birmingham.

PATENT WORCESTERSHIRE RANGE



PRIZE MEDAL 1862. Awarded for excellence.

The Advantages of the above Range.—Two Ovens are heated with the same amount of Coal as one of any other.

Convenience of Cooking. Great saving of Fuel and Labour. Universal Adaptability, Cleanliness, Comfort, Durability, and simple arrangement is not surpassed.

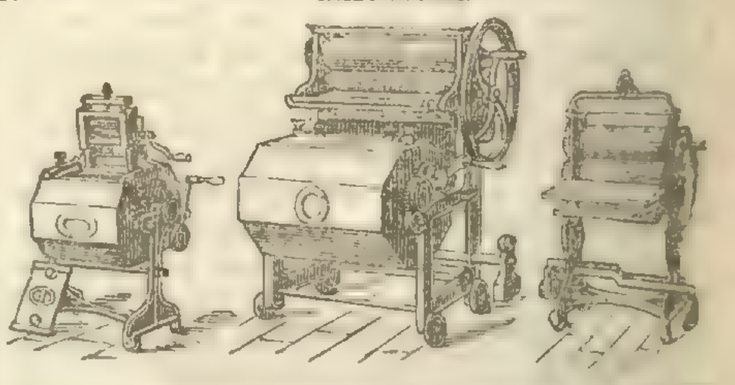
Warranted to CURE a SMOKY CHIMNEY.

Inventors and Manufacturers, Jones & Rowe, Worcester.

London Agents, Barron, Son, & Wilson, Ironmongers to her Majesty, 436, West Strand.

ILLUSTRATED CATALOGUES, with Prices and Books of Testimonials, forwarded on application.

BRADFORD'S NEW "VOWEL" WASHING MACHINES.

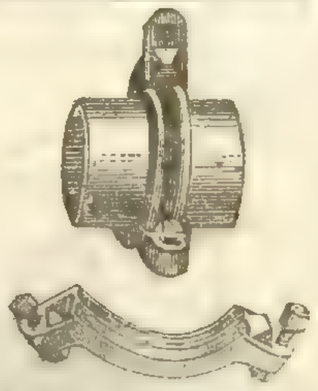


A remarkable success. Approved by Laundresses. Awarded Seven Prize Medals this year (the only Medals at Dublin and Cork International Exhibitions). The letters of unqualified approval received from purchasers daily (many with permission to publish) justify the Patentees in publicly soliciting a trial, which is allowed free of carriage or expense.

Thomas Bradford & Co., 63, Fleet Street, London, E.C.; Cathedral Steps, Manchester; Dawson Street, Dublin. Catalogues post free.

HOT-WATER APPARATUS,

WITH TRUSS' PATENT PIPE JOINTS.



T. S. TRUSS, C.E.,

53, GRACECHURCH STREET, LONDON, E.C.

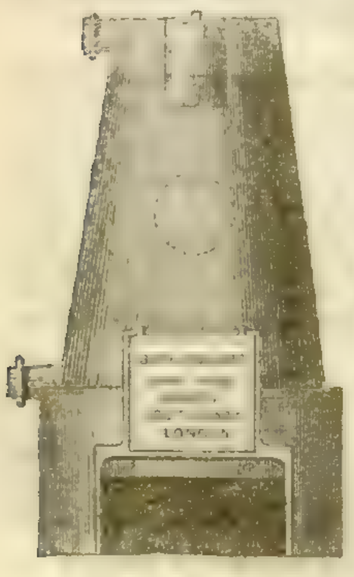
By means of these Joints the work is executed in less than half the time required for Socket Joints, and alterations can at any time be made, or the entire Apparatus removed and erected elsewhere with the greatest facility. A considerable saving in cost is also effected.

These Joints have been used for several years, giving entire satisfaction, and may be seen in use at the Royal Horticultural Society's Gardens, South Kensington and Chiswick, and many other places in Horticultural and Public Buildings.

For a few prices, see last week's Advertisement.

ESTIMATES, PLANS, AND PRICE LISTS FORWARDED ON APPLICATION.

BURY & POLLARD, LONDON, MANUFACTURERS.



HEATING BY HOT WATER.

Public and Private Buildings, Manufactories, Conservatories, &c., Heated on the most improved system, combined with perfect Ventilation. Baths fitted upon economical principles connected with Kitchen Ranges, ready for use night or day, without extra fire. Success in all cases guaranteed. Estimates free. References to hundreds of the Nobility's Seats, Botanical Societies, Public Buildings, Banks, Manufactories, &c. Several Boilers and long ranges of Pipes just fixed at Wollaton Gardens for Lord Middleton, by BURY AND POLLARD, Sole Manufacturers of the Improved CONICAL BOILERS, which are adapted for setting in Brickwork, or as shown in sketch they require No Brickwork, and which Boilers have, for their durability and economy, attained a celebrity far surpassing any other Boilers ever invented.

PARK IRON WORKS, 17, NEW PARK STREET, SOUTHWARK, LONDON, S.E.

N.B.—PATENT WINDMILLS for Pumping and Driving Farm Machinery, from Half-Horse Power upwards. To be seen daily at work as above.

Bury & Pollard having completed the order for the India Board, and the Government Gardens at Agra, are again supplying Her Majesty's Government for Ascension.

WIND ENGINES for ASCENSION.—The Admiralty Department officially report the two large Wind Engines supplied by BURY AND POLLARD three years ago for Ascension, as working most satisfactorily.

BURY AND POLLARD always keep a large Stock of their BOILERS, together with HOT-WATER PIPES of the best description.

NEW TARIFF OF GLASS AND HORTICULTURAL GOODS.

HAND GLASSES.

THOMAS MILLINGTON,

PRESERVE JARS.

GLASS AND COLOUR MERCHANT,

87, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

MILK PANS.

REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.

SHAW'S TIFFANY,

For samples and prices apply to

J. Shaw & Co., 29, Oxford Street, Manchester.

A CLOSE RANGE with an OPEN CHIMNEY.—[illegible] Medal awarded to Burrows & Green at the Dublin Inter-[illegible] No Smoke Chimneys. No close heat or smell [illegible] Thomas, 72, Bishopsgate Within, E.C.

J. WARNER AND SONS, London,

Manufacturers of

BOHEMIAN

FLOWER VASES

AND

HYDRO-CARBON

LAMPS.

The Lamp lifts out of the Vase, requiring no fixing.

Is fitted either with

WARNER'S

KOH-I-NOOR,

OR THE ORDINARY

FLAT-WICK BURNER.

The Koh-i-Noor Burner produces a superior light to the Moderator, at a much less cost, and is not liable to get out of order.

The real Vases are made in the best style of Bohemian Glass, and beautifully decorated.

	Round Burner.	Flat.
Gold Bead	23s. 6d.	14s 6d
Gold Lines	25 6	16 6
Rose Colour, Greek Border	30 0	21 0
Red Medallion (Antique)	32 0	23 0
Blue Medallion (Antique)	32 0	23 0
Glass, fluted with gold lines	46 0	37 0
Imitation Ruby, richly decorated with gold.	63 0	54 0

May be obtained of the Trade throughout the United Kingdom.

HEAL AND SON'S EIDER-DOWN QUILTS, from 25s. to Ten Guineas. Also GOOSE-DOWN QUILTS, from 10s. to 32s. Lists of prices and sizes sent free by post.

Heal & Son's Illustrated Catalogue of Bedsteads and Priced List of Bedding, also sent post free on application to 196, Tottenham Court Road, W.

THE PERFECT SUBSTITUTE for SILVER.—THE REAL NICKEL SILVER, introduced more than 30 years ago by William S. Burton, when PLATED by the patent process of Messrs. Elkington & Co., is beyond all comparison the very best metal next to sterling silver that can be employed as such, either medically or ornamentally, as by no possible test can it be distinguished from real silver.

A small useful set guaranteed of first quality for finish and durability, as follows:—

	Fiddle or Old Silver Pattern.			Bead Pattern.			Thread Pattern.			King's or Shell and Thread.		
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
12 Table Forks	1	13	0	2	0	0	2	4	0	2	10	0
12 Table Spoons	1	13	0	2	0	0	2	4	0	2	10	0
12 Dessert Forks	1	4	0	1	10	0	1	12	0	1	15	0
12 Dessert Spoons	1	4	0	1	10	0	1	12	0	1	15	0
12 Tea Spoons	0	16	0	1	0	0	1	2	0	1	5	0
6 Egg Spoons, gt. bowls..	0	10	0	0	12	0	0	12	0	0	13	6
2 Sauce Ladles	0	6	0	0	8	0	0	8	0	0	9	0
1 Gravy Spoon	0	6	6	0	9	0	0	10	0	0	11	0
4 Salt Spoons, gt. bowls..	0	3	4	0	4	0	0	4	0	0	4	6
1 Mustard Spoon, gt. bwl.	0	1	8	0	2	0	0	2	0	0	2	3
1 Pair of Sugar Tongs ..	0	2	6	0	3	6	0	3	6	0	4	0
1 Pair of Fish Carvers ..	1	4	0	1	10	0	1	10	0	1	10	0
1 Butter Knife	0	2	6	0	4	0	0	5	6	0	6	0
1 Soup Ladle	0	10	0	0	12	0	0	16	0	0	17	0
1 Sugar Sifter	0	3	3	0	4	6	0	4	6	0	5	0
Total	9	19	9	12	9	0	13	9	6	14	17	3

Any article to be had singly at the same prices. An oak chest to contain the above, and a relative number of knives, &c., 2l. 15s. Tea and coffee sets, dish covers and corner dishes, cruet and liqueur frames, &c., at proportionate prices. All kinds of replating done by the patent process.

CUTLERY, WARRANTED.—The most varied assortment of TABLE CUTLERY in the world, all warranted, and on Sale at William S. Burton's, at prices that are remunerative only because of the largeness of the sales.

Ivory Handles.	Table Knives per Dozen.		Dessert Knives per Dozen.		Carvers per Pair.	
	s.	d.	s.	d.	s.	d.
3-inch ivory handles	12	0	9	6	4	6
3-inch fine ivory handles	15	0	11	6	4	6
4-inch ivory balance handles	18	0	14	0	5	0
4-inch fine ivory handles	25	0	19	0	7	6
4-inch finest African ivory handles	33	0	26	0	11	6
Ditto, with silver ferules	40	0	33	0	13	0
Ditto, carved handles, silver ferules ..	50	0	43	0	17	6
Nickel electro silver handles, any pattern .	25	0	19	0	7	6
Silver handles, of any pattern	84	0	54	0	21	0
Bone and Horn Handles—Knives and Forks per dozen.	s.	d.	s.	d.	s.	d.
White bone handles	11	0	8	6	2	6
Ditto, balance handles	21	0	17	0	4	6
Black horn, rimmed shoulders	17	0	14	0	4	0
Ditto, very strong riveted handles ..	12	0	9	0	3	0

The largest stock in existence of Plated Dessert Knives and Forks, in cases and otherwise, and of the New Plated Fish Carvers.

DISH COVERS and HOT-WATER DISHES, in every material, in great variety, and of the newest and most recherché patterns, are on SHOW at William S. Burton's. Block Tin Dish Covers, elegant Modern Patterns, £4 4s. 6d. the set of six; Britannia Metal, with or without Silver-plated Handles, £3 2s. to £5 5s. the set of five; Electro Plated, £9 to £21 the set of four; Block Tin Hot-water Dishes, with Wells for Gravy, 13s. to 30s.; Britannia Metal, 21s. to 77s.; Electro Plated on Nickel, full size, £9.

WILLIAM S. BURTON, GENERAL FURNISHING IRONMONGER by appointment to H.R.H. the Prince of Wales, sends a CATALOGUE gratis and post paid. It contains upwards of 850 Illustrations of his illimited Stock of Sterling Silver and Electro-Plate, Nickel Silver and Britannia Metal Goods, Dish Covers, Hot-water Dishes, Stoves, Fenders, Marble Chimney-pieces, Kitchen Ranges, Lamps, Gaseliers, Tea-Trays, Urns and Kettles, Clocks, Table Cutlery, Baths, Toilet Ware, Turnery, Iron and Brass Bedsteads, Bedding, Bed Room Cabinet Furniture, &c., with Lists of Prices, and Plans of the 20 large Show Rooms, at 39, Oxford Street, W.; 1, 1a, 2, 3, and 4, Newman Street; 4, 5, and 6, Perry's Place, and 1, Newman Yard, London W.

CORNS and BUNIONS.—A Gentleman, many years tormented with Corns, will be happy to afford others the information by which he obtained their complete removal in a short period without pain or any inconvenience.—Forward address on a stamped envelope to W. Goodall, Esq., Epsom, Surrey.

TREE WISDOM.

A wise general on the eve of battle makes a proper disposition of his forces beforehand, thus, by timely thought and due preparation, reasonably expects a victory. This is what every one who has a desire to attain a healthy and happy old age, free from pain and sickness, must do in the battle of the frame, which is constantly subject to assaults, and has gained no strength by its past conflicts. It is a matter of prudence to pay proper attention to the state of his health. Many would scorn to use medicine to assist Nature in her operation, but, like a mariner at sea without his compass, knowing not where to steer, they first try this, and then that, and meet with nothing but disappointment; to these, how welcome must be the important fact, that PARR'S LIFE PILLS are now proved to be all that are required to conquer disease and prolong life.

A SAFE, EFFECTIVE, and SIMPLE MEDICINE.

"East Links, North Berwick, Scotland, Jan. 28, 1865.

"Gentlemen,—I cannot resist informing you that Parr's Life Pills have been to myself the most invaluable medicine for the last eight years, during which time I have had repeated dangerous illnesses, both in Edinburgh and elsewhere, and they were ever, to my medical adviser's knowledge and acknowledgment, the most effective and simple medicine I took. The fact is, I take them now regularly, and their praise I have sounded in England, Scotland, and America, and many have resorted to them at my recommendation, and did so the more readily as they were aware I was no approver of many drugs being taken, and they found them as excellent as I did.—Yours,

"G. C. Fraser."

SEVERE HEADACHE, LANGUOR, LOSS of APPETITE, &c.

"Hindley, Lancashire, July 20, 1863.

"Gentlemen,—Cases have come under my notice wherein the most obstinate forms of sick headache, indigestion, and loss of appetite have been effectually cured solely by the use of a small box of Parr's Life Pills.—I am, Gentlemen, yours truly,

"Chas. Eatock."

OPINION of an EMINENT CHEMIST.

"Gentlemen,—At the request of several friends, who have introduced Parr's Life Pills into their families as a medicine, I have submitted them to a strict chemical analysis, in order to ascertain whether they contained any of those active mineral and other mineral preparations now so commonly introduced into many advertised medicines. I beg to say that I find them worthy of being recommended to the public for their great efficacy and simplicity, and, as stated by the proprietors, to be really vegetable pills, containing, as they do, nothing but what is of vegetable origin.—I am, Gentlemen, your obedient Servant,

"John Dale, Analytical Chemist, Manchester."

PAINS in the BACK, KIDNEYS, &c.

"Crown Street, Brentwood, Essex, April 4, 1864.

"Gentlemen,—I write to you to thank you for the benefits I have derived from taking your Parr's Life Pills. I have suffered for a long time from pains in my back and kidneys; at times I could not stand upright, and no one knows the pain I have suffered but myself; but about two years I took your medicine, and soon got quite well, and, thank God, I have ever since enjoyed excellent health.—I am, your obedient Servant,

"Eliza Alles."

RHEUMATISM.

"Rusholme, Manchester, May 7, 1864.

"Gentlemen,—After suffering very much from rheumatism for many months, having tried various medicines, at the suggestion of my friends, but without any benefit, I fortunately read some account of Parr's Life Pills, and thought I would try a box. I did so, and after taking a small box found myself very much better. I continued to take them, and after the third box I was quite well. It is now nearly 12 months since, and I have had no return of rheumatism, or any other ailment, for I still take them occasionally, as I believe they are the best medicine in the world. I have recommended them to many of my friends, and they are all of the same opinion.—I am, Gentlemen, your obedient Servant,

"E. Oakes."

GENERAL DEBILITY, INDIGESTION, &c., CURED.

"Colchester, West Stockwell Street, March 6, 1864.

"Gentlemen,—About seven or eight years ago I suffered very much from ill health, which, I was told, was caused by indigestion; but whatever it was, nobody ever suffered more than I did. I was persuaded to try your Parr's Pills, and I am most thankful to say they gave me immediate relief; I have not taken any other kind of medicine, and I have been blessed ever since with excellent good health. I shall be glad if you will publish this letter, as I think it may benefit others suffering like I did.—I am, Gentlemen, yours respectfully,

"J. Ilyam."

LIVER COMPLAINTS, &c.

"London, 13, Acton Street, Gray's Inn Road, Feb. 20, 1864.

"Gentlemen,—I have derived, under the blessing of God, so much benefit from taking Parr's Life Pills, that I wish to make this public statement of their valuable efficacy, and of the vast amount of good they accomplish. I was afflicted for a long time previous to my taking your Pills with indigestion and derangement of the liver. I have tried everything and every advice, but nothing did me any good till I took your Parr's Pills. I have taken them now at times for 26 years, and no other medicine whatever, and now, I thank God, nobody has better health than myself.—I remain, your obedient Servant,

"J. S. Webb."

MR. CHARLES WARD'S OPINION.

"Printing and Stationery Establishment, Heckmondwike, Yorkshire, October 5, 1863.

"Gentlemen,—It is with great pleasure that I write to inform you of the extensive popularity of Parr's Life Pills in this town and district. What makes this the more remarkable is, that the large number of patent medicines that have been introduced to the public of late years would lead one to think that the sale of your invaluable medicine would be materially decreased; but such is not the case. Indeed, Parr's Life Pills have such a hold on public estimation that it is impossible for any other medicine to supersede them. I hear Parr's Life Pills highly spoken of by all classes, and some remarkable cases of their great efficacy have been brought before my notice. There are several families in this town of the highest respectability who are never without them in the house. I have always great pleasure in recommending Parr's Life Pills to my customers, as I feel I am selling the most valuable medicine of the day.—I am, Gentlemen, yours faithfully,

"Chas. Ward."

PARR'S LIFE PILLS TAKEN by a LADY AGED 80 YEARS.

"10, Moreton Terrace, Kentish Town, N.W., Jan. 19, 1863.

"Gentlemen,—I have much pleasure in informing you that, on the 16th ult., Mrs. Meadows, of 4, William Street, Harmood Street, called to procure a box of Parr's Life Pills, and spoke so highly of them, that I am induced to forward to you the particulars. She is now in her 79th year, and has taken the Pills for more than seven years, never using any other medicine, and she assured me that her health is much better than when she was seven years younger, and did not take Parr's Life Pills. This fact speaks for itself, and I need only add, that you are at liberty to use the statement as you think proper.—I remain, Gentlemen, yours truly

"Thomas Stokoe."

CAUTION.

In consequence of the many imitations of our medicine, we particularly call attention to the ENGLISH GOVERNMENT STAMP, on which is engraved the words "PARR'S LIFE PILLS," in WHITE letters on a RED ground, and which is affixed to the sides of each box of the right medicine.

Sole Proprietors,

T. ROBERTS AND CO.,

Crane Court, Fleet Street, London, E.C.

Sold by all respectable Chemists and Medicine Vendors. In boxes, 1s. 1½d., 2s. 9d., and family packets 11s. each. Directions with each box.

For Exportation.—Directions in Spanish, Portuguese, French, and English, are folded round each box.

No Emigrant should start without a good supply. They keep good in all climates.

Universal Microscope. Price £5 5s.

SMITH, BECK, AND BECK,

31, Cornhill, E.C., late 6, Coleman Street.

*** Catalogues sent on receipt of 6 postage stamps.

Manufacturers to the Queen and Prince of Wales.

FRY'S | HOMŒOPATHIC ROCK ICELAND MOSS PEARL | COCOA.

FRY'S SOLUBLE CHOCOLATE.

J. S. Fry & Sons, Bristol and London, are the only English Manufacturers of Cocoa who obtained the Prize Medal, 1862.

For Purity and Excellence of Quality,

COLMAN'S GENUINE MUSTARD

OBTAINED THE ONLY PRIZE MEDAL at the Great Exhibition, 1862.

Trade Mark, THE BULL'S HEAD, on each Package.

Their Genuine and Double Superfine are qualities particularly recommended for family use. Sold by all Grocers and Druggists.

J. & J. Colman, London.

Sauce.—Lea and Perrins'

WORCESTERSHIRE SAUCE.—This delicious Condiment, pronounced by Connoisseurs "THE ONLY GOOD SAUCE," is prepared solely by Lea & Perrins.

The public are respectfully cautioned against worthless imitations, and should see that Lea & Perrins' Names are on Wrapper, Label, Bottle, and Stopper. Ask for Lea & Perrins' Sauce.

*** Sold Wholesale and for Export, by the Proprietors, Worcester; Messrs. Crosse & Blackwell; Messrs. Barclay & Sons, London, &c.; and by Grocers and Oilmen universally.

DINNEFORD'S FLUID MAGNESIA.—The Medical profession for 30 years have approved of this pure solution of Magnesia as the best remedy for Gout and Stomachic disorders of every kind; and as a mild aperient it is especially adapted for Ladies and Children. Prepared solely by Dinneford & Co., Chemists, &c., 172, New Bond Street, London, W.; and sold throughout the World by all respectable Chemists. Caution.—See that "Dinneford & Co." is on each bottle and red label over the cork.

ROWLANDS' MACASSAR OIL.—This elegant and fragrant Oil is universally in high repute for its unparalleled success in promoting the growth, improving, and beautifying the Human Hair. It is patronised by Royalty and the Aristocracy of Europe, whilst its introduction into the Nursery of Royalty, and those of the Upper Classes, is a sufficient proof of its merits. Price 3s. 6d., 7s., 10s. 6d. (equal to four small), and 21s. per bottle. Sold by Chemists and Perfumers. Ask for Rowlands' Macassar Oil.

Valuable Remedies for the Afflicted.

DR. ROBERTS'S CELEBRATED OINTMENT, called THE POOR MAN'S FRIEND, is confidently recommended to the Public as an unfailing remedy for Wounds of every description, a certain Cure for Ulcerated Sore Legs, if of 20 years' standing; Cuts, Burns, Scalds, Bruises, Chilblains, Scorbutic Eruptions and Pimples on the Face, Sore and Inflamed Eyes, Sore Heads, Sore Breasts, Piles, Fistulas, and Cancerous Humours, &c. Sold in pots at 1s. 1½d., 11s., and 22s. each. Also his PILULÆ ANTI-SCROPHULÆ, confirmed by 60 years' experiment to be, without exception, one of the best alterative medicines ever compounded for purifying the blood, and assisting Nature in all her operations. Hence they are used in Scrofula, Scorbutic Complaints, Glandular Swellings, particularly those of the Neck, &c. They form a mild and superior family aperient that may be taken at all times without confinement or change of diet. Sold in boxes at 1s. 1½d., 2s. 9d., 4s 6d., 11s., and 22s. Sold Wholesale by the Proprietors, Beach & Barnicott, at their Dispensary, Bridport; by the London Houses. Retail by all respectable Medicine Vendors in the United Kingdom and Colonies.

Observe: No medicine sold under the above name can possibly be genuine, unless "Beach & Barnicott, late Dr. Roberts, Bridport," is engraved on the Government stamp affixed to each package.

WANTED to RENT, a SMALL HOUSE, with a few Acres of Land, within 20 miles of London.

T. R., Wyatt & Home, 3, Tavistock Street, Covent Garden, W.C.

Nursery and Seed Business to be Disposed of.

TO BE SOLD, in the neighbourhood of London, an old established NURSERY and SEED BUSINESS of good repute, with an excellent connection. The Nursery has for many years been noted for its cultivation of FRUIT TREES, and the Seed Business has a good retail connection. This is an eligible opportunity for any one who wishes to enter the trade.

For particulars apply by letter only to J. M. D., "Journal of Horticulture" Office, 171, Fleet Street, E.C.

To Agriculturists, Horticulturists, and Florists.

TO BE DISPOSED OF, IMMEDIATELY, a well-established BUSINESS in the above line, situated in one of the most prosperous towns in the county of Suffolk, and having communication by rail and water to any part of the kingdom.

The Premises consist of a Span-roof Conservatory, Vinery, Propagating and Hothouses fitted up on the most improved principle (by Ormson of Chelsea) with Hot-water Apparatus, &c., regardless of cost.

The Dwelling House and Shop are in excellent repair; consist of 5 Bed-rooms, 2 Sitting-rooms, Kitchen and Cellar. The Shop has a Double-front of commanding appearance, and is situated in the best part of the town, near the post-office, principal hotel and banks, only two minutes' walk from the railway station. The town is one of the most delightfully situated in the county, and a beautiful river runs at the foot.

The business has been successfully carried on for upwards of 20 years, and the only reason for disposing of the same is the death of a son. Apply by letter to

Mr. J. Jeffries, Woodbridge, Suffolk.

Sales by Auction.

St. James's Nursery, Cheltenham.

TO GENTLEMEN, NURSERYMEN, AND OTHERS.

Important Sale of First-rate Growing Nursery Stock.

MR. GILLING (late Lewis & Gilling), is instructed by the trustees of Mr. Brydges to SELL by PUBLIC AUCTION, on the above Premises (under the powers of a Bill of Sale), on MONDAY, December 11, and following days, each day at 11 o'clock punctually, the whole of the first-class NURSERY STOCK, consisting of several thousands of Apple, Pear, Plum, Peach, Nectarine, Apricot, Cherry, and other Fruit Trees, and some thousands of Choice Standard and Dwarf Roses, Flowering and Evergreen Shrubs, Ornamental, Deciduous, and Forest Trees. A large quantity of strong Grape Vines, in 10 and 12-inch Pots, and a good general selection of Greenhouse Plants; also Three Greenhouses, and other Nursery Effects, and several thousands of young growing Fruit and Forest Tree Stocks, on land in Heale's Road.

To Market Gardeners, Carmen, and Others.

MR. J. S. GOMME is favoured with instructions from the Proprietor, who is retiring from Business, to SELL by AUCTION, on the Premises, Crown Lane, North End, Fulham, S.W., on TUESDAY, December 12, at 11 for 12 o'clock precisely, all the LIVE and DEAD STOCK, together with the GROWING CROPS, comprising 500 nearly new Hand-lights, 50 Three-light Boxes, a 50-ft. Greenhouse, Forcing Pits and Lights, Five powerful Cart-horses, Market Waggons, Six Carts, Harness, 600 Loads Manure, 2 Tons Potatos, 20 Bushels Onions, 10 Bushels Scarlet Beans, Market Baskets, large Ware Tubs, 2 Tons Old Iron, Weighing Machines, Ladders, Fencing, 10,000 fine Moss Rose Trees, 20,000 Cabbage and Cauliflower Plants, Sprouting Broccoli, Savoys, Spinach, Lettuce Plants, Victoria and Albert Rhubarb Roots, Pear Trees, and numerous valuable effects.

May be viewed on Saturday, the Day prior, and Morning of Sale. Catalogues had on the Premises, at Way's Coffee House, Covent Garden, W.C.; Green Man, Farringdon Street, E.C.; and at the Offices of the Auctioneer, Land and Estate Agent, 10, Bucklersbury.

UPWARDS OF 60 PRIZES FOR ROSES DURING THE PAST SEASON.

PAUL & SON,

OLD CHESHUNT NURSERIES, CHESHUNT, N.,

BEG TO ANNOUNCE GENERAL PRICES FOR THE SEASON FOR

ROSES, FRUITS, HOLLYHOCKS, ETC.

Roses selected from our stock of above 100,000 of first-rate quality.

STANDARDS and HALF-STANDARDS, 18*s.* to 30*s.* doz. | DWARF STANDARDS and DWARFS, 9*s.* to 18*s.* doz.
NEW ROSES of 1865 (a first-rate year), 30*s.* to 42*s.* per doz.
DWARFS and STANDARDS of NEW YELLOW NOISETTE, 5*s.* each.

Fruits, all well formed Trees.

APPLES, 5 to 6 feet, fine stems, Standards, 18*s.*; Pyramids, 18*s.* to 30*s.*; Dwarf-trained, 30*s.* to 36*s.* per dozen.
PLUMS, CHERRIES, PEARS, Standards, 24*s.*; Pyramids, 24*s.* to 42*s.*; Dwarf-trained, 42*s.* per dozen.
PEACHES, NECTARINES, and APRICOTS, all well trained, Standards, 7*s.* 6*d.* to 10*s.* 6*d.*; Dwarfs, 5*s.* each.
VINES and FIGS, very strong for Planting, or for Fruiting, 60*s.* per dozen.
RASPBERRIES, 16*s.*; CURRANTS and GOOSEBERRIES, 24*s.* to 30*s.* per 100.

HOLLYHOCKS, in fine variety, 9*s.* to 12*s.*; new kinds, 18*s.* to 30*s.* per dozen.
CONIFERÆ, DECIDUOUS and EVERGREEN ORNAMENTAL TREES and SHRUBS, all at reasonable prices.
RHODODENDRONS and AMERICAN PLANTS in quantity, at our

NEW AMERICAN NURSERIES, HIGH BEECH, ESSEX.

NEW PRICED DESCRIPTIVE ROSE, FRUIT, and other LISTS free on application.

PAUL'S NURSERIES, WALTHAM CROSS, N.

WILLIAM PAUL

(Son and Successor to the late A. Paul,)

BEGS TO OFFER THE FOLLOWING LEADING ARTICLES OF FIRST-RATE QUALITY:—

ROSES.

STANDARDS, 15*s.* to 18*s.*; new sorts, 24*s.* to 42*s.* per doz. | DWARFS, 12*s.* to 18*s.*; new sorts, 24*s.* to 30*s.* per doz.
CLIMBING, 9*s.* to 12*s.* per doz.

The "ROSE GARDEN," Second Edition, with numerous Woodcuts, 6*s.* 6*d.*

DUTCH BULBS.

HYACINTHS, 6*s.* to 15*s.*; new sorts, 18*s.* to 30*s.* per doz.
BEDDING HYACINTHS, 18*s.* to 34*s.* per 100.
EARLY TULIPS, 1*s.* to 4*s.* per doz.
POLYANTHUS NARCISSUS, 3*s.* to 6*s.* per doz.
CROCUSES, 2*s.* to 4*s.* per 100.
GLADIOLI, 4*s.* to 12*s.* per doz.

And all other Bulbs equally reasonable.

BEATON'S GERANIUMS.

Reduction in price; the Set of 16 Varieties, 32*s.* These have now been thoroughly tested, and have proved even superior to the descriptions originally given of them; they have also been pronounced by many leading horticulturists indispensable in the future of every well-arranged flower garden.

FRUIT TREES, in and out of Pots.

Standard and Dwarf-trained Pyramid and Dwarf PEACHES, NECTARINES, APRICOTS, APPLES, PEARS CHERRIES, PLUMS, GOOSEBERRIES, CURRANTS, RASPBERRIES, STRAWBERRIES, FIGS, and FILBERTS. A selection of all the really good sorts, both young and fruiting trees, in splendid condition.

GRAPE VINES.

Two Thousand Fruiting and Planting, including the newest sorts.

EVERGREEN and ORNAMENTAL TREES.

One Thousand Species and Varieties, selected in a great measure for the beauty of their foliage.

PRICED DESCRIPTIVE CATALOGUES free by post.

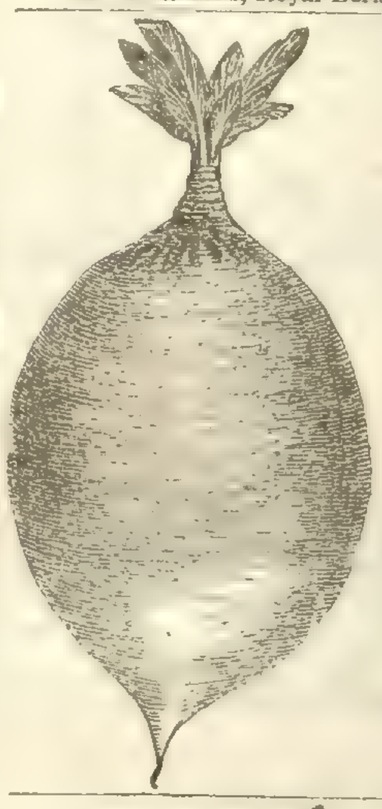
Bingley Hall, Birmingham.

SUTTON AND SONS, SEEDSMEN TO THE QUEEN,

Respectfully call the attention of their Patrons and Agriculturists generally, to their STAND in the GALLERY of BINGLEY HALL at the forthcoming Cattle Show, consisting of 250 distinct specimens of GRASSES for Permanent Pasture, Lawns, &c., all growing themselves in their trial grounds, Reading. Some very fine specimens of their Improved MANGEL WURZEL, CHAMPION SWEDE, Yellow and White-fleshed TURNIPS, &c., grown by their customers in various parts of the United Kingdom. Also a very fine Collection of the best varieties of POTATOS in cultivation.

One of the Firm will attend at the Stand each day, where orders will be received for Seeds at very moderate prices.

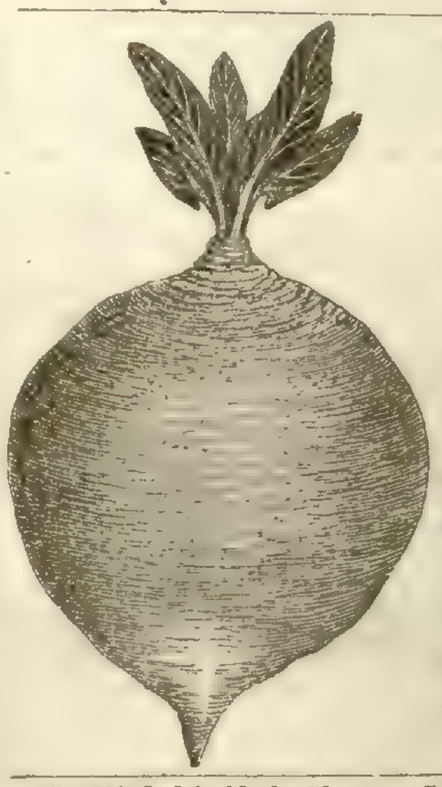
Sutton & Sons, Royal Berks Seed Establishment, Reading.



Cattle Show, 1865.

SPECIMENS OF SUTTON'S LARGE YELLOW GLOBE MANGEL may be seen on Messrs. Sutton's Central Stand, BINGLEY HALL, BIRMINGHAM,

Where Orders will be received for New Seed at moderate prices.



SPECIMENS OF THE NEW YELLOW INTERMEDIATE MANGEL may be seen on Messrs. Sutton's Central Stand, BINGLEY HALL, BIRMINGHAM,

Where Orders will be received for New Seeds at moderate prices.

Smithfield Club Show.—Stand No. 98 (Galleries).

WILLIAM SKIRVING begs to announce to his Friends and the Public that he will ATTEND, as usual, at the ensuing London Cattle Show (Agricultural Hall, Islington), to Exhibit ROOTS and Take Orders for AGRICULTURAL SEEDS of the most approved kinds.

Liverpool.—December 2.

COLLECTIONS of BULBS for In-door Decoration, 10*s.* 6*d.*, 21*s.*, 30*s.*, 42*s.*, 63*s.*, 84*s.*, and 105*s.*

COLLECTIONS of BULBS for Out-door Decoration, 10*s.* 6*d.*, 21*s.*, 30*s.*, 42*s.*, 63*s.*, 84*s.*, and 105*s.*

THE GOLDEN-RAYED **LILIUM AURATUM.**

Fine Established Bulbs, which have been two seasons in this country, and will probably flower in April, 1866, if required. 7*s.* 6*d.*, 10*s.* 6*d.*, and 15*s.*

Smaller roots, one season in this country, 5*s.* 6*d.*

Orders amounting to 21s. sent carriage paid.

SURPLUS BULBS for BEDDING.

HYACINTHS, 18*s.* to 25*s.* per 100.
TULIPS, 3*s.* to 10*s.* 6*d.* per 100.
CROCUS, 1*s.* 6*d.* to 3*s.* per 100.
NARCISSUS, 2*s.* 6*d.* to 7*s.* 6*d.* per 100.
SNOWDROPS, 2*s.* to 3*s.* per 100.
RANUNCULUS, 1*s.* 6*d.* to 3*s.* 6*d.* per 100.
ANEMONES, 3*s.* 6*d.* to 5*s.* 6*d.* per 100.
IRIS, 2*s.* 6*d.* to 5*s.* 6*d.* per 100.

SURPLUS COLLECTIONS.

The 21s. Hamper of Dutch Bulbs for In-door Decoration contains—

20 Splendid Named HYACINTHS, 12 do. POLYANTHUS NARCISSUS, 36 do. TULIPS, 200 CROCUS, 2 CYCLAMEN PERSICUM, 2 JAPAN LILIES, 50 Very Large SNOWDROPS.

The 21s. Hamper of Dutch Bulbs for Out-door Decoration contains—

30 HYACINTHS, 100 TULIPS, 50 NARCISSUS, 300 CROCUS, 100 SNOWDROPS, 50 RANUNCULUS, 50 ANEMONES, 20 IRIS, 6 LILIES.

The Cliveden Collections of Spring-blooming Plants, drawn from the Stock at Cliveden.

150 PANSIES ASSORTED | 200 DAISIES ASSORTED | 100 FORGET-ME-NOT | 100 SILENE | 50 COWSLIPS.

The above, 105*s.*; Half the quantity, 50*s.*; Quarter do., 25*s.*; Eighth, 12*s.* 6*d.*

FORGET-ME-NOT, blue .. .. 5*s.* 6*d.* per 100	SILENE, white .. .. .. 5*s.* 6*d.* per 100	POLYANTHUS, mixed .. .. 12*s.* 6*d.* per 100	SAPONARIA, white .. .. .. 15 0 "
" white .. .. 7 6 "	DAISY, pink .. .. 10 6 "	COWSLIPS, mixed .. .. .. 12 6 "	ARABIS ALPINA .. .. .. 50 0 "
SILENE, pink .. .. 5 6 "	" white .. .. 10 6 "	SAPONARIA, pink .. .. .. 5 6 "	" LUCIDA .. ..

STANDEN'S GARDENER'S and AMATEUR'S FRIEND, the best Manure for Chrysanthemums, &c. See Advertisement, page 1128.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 49.—1865.] SATURDAY, DECEMBER 9. {Price Fivepence. {Stamped Edition, 6*d*.

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☞ Notice to Advertisers.

AN ENLARGED SHEET of the GARDENERS' CHRONICLE and AGRICULTURAL GAZETTE will be published on SATURDAY, December 16, containing a FULL REPORT of the CATTLE SHOW.
ADVERTISEMENTS intended for this Number should reach the office not later than THURSDAY.

ROYAL HORTICULTURAL SOCIETY. INTERNATIONAL FRUIT and VEGETABLE SHOW OPENS THIS DAY. Band of Royal Horse Guards from 2 to 4. Admission 2*s* 6*d*.

NEW CHRYSANTHEMUMS, 1865, are now ready in strong Plants at 6*s*. per doz.
W. Holmes, Frampton Park Nursery, Hackney, N.E.

HAMPTON COURT BLACK HAMBURGH VINE.—Strong plants from Eyes of this excellent Grape, 5*s*. each; 50*s*. per dozen.
T. Jackson & Son, Nursery, King-ton, S.W.

Grape Vines.

S. GLENDINNING and SONS have a splendid lot of extra fine Fruiting Canes.
PRICED LIST may be had on application.
Chiswick Nursery, London, W.

Fruiting Vines.

E. G. HENDERSON and SON offer the above, with splendid Canes of well-matured growth, with prominent eyes, sure to give a heavy crop of fruit, 10*s*. 6*d*. each.
LIST of SORTS sent on application.
Wellington Nursery, St. John's Wood, London, N.W.

Grape Vines—Fruit Trees.

WM. CUTBUSH and SON have a fine stock of the above. CATALOGUE gratis on application.
Highgate Nurseries, London, N.

VINES, from Eyes.—Now ready, a DESCRIPTIVE CATALOGUE of GRAPES, by Thos. Rivers, free per post.
Nurseries, Sawbridgeworth.

To the Trade.

DWARF-TRAINED PEACHES, NECTARINES, and APRICOTS; Standard APPLES, and THORNS; Dwarf-trained VICTORIA PLUM, fine, and at reasonable prices.
Paul & Son, Old Cheshunt Nurseries, N.

To the Trade.

FINE DWARF-TRAINED PEACHES and NECTARINES.
FRANCIS and ARTHUR DICKSON and SONS can supply the above in fine, clean, healthy Trees.
Prices moderate, which will be forwarded on application.
"Upton" Nurseries, Chester.

RASPBERRY CANES.—Strong well-rooted Plants. Early Thimble, Fastolf, Fillbasket, and Prolific. May be had at 4*s*. per hundred, of
Mr. John Graham, Cranford, Hounslow.

To the Trade.

RASPBERRIES. CARTER'S PROLIFIC, 15,000 to 20,000. Can be had of Richard Chatfield, Market Gardener, Seven Oaks, Kent.
1 to 6 ft., £4 per 1000; 3 to 4 ft., £3; under 3 ft., £2.

HEAVY LANCASHIRE SHOW GOOSEBERRY TREES, 6*s*. per dozen. CATALOGUES on application.
Holland & Jones, Bradshaw Gardens, Chadderton, near Manchester.

WEBB'S PRIZE COB FILBERTS, and other Prize Nuts and Filberts. Trees of these splendid Nuts to be had of Mr. Webb, Calcot Gardens, Reading. Catalogues on application.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
Richard Smith, Nurseryman and Seed Merchant, Worcester.

British Queen Pear.

CHARLES TURNER has strong Fruiting Pyramids of this fine NEW PEAR, 5*s*. each; also Dwarf-trained, Bush, and Maiden Trees.
The Royal Nurseries, Slough.

WANTED, 20,000 each, CROWN BOB and WHITE SMITH GOOSEBERRY CUTTINGS.
Apply, with lowest cash price, to Wm. & Dd. Stewart, Fern Down Nurseries, Wimborne, Dorset.

Strong Standard Apples, Pyramid Pears, and LARCH FIR, 1½ to 4½ feet.
CHARLES BURGESS, The Nurseries, London Road, Cheltenham, has a fine stock of the above, and a general assortment of NURSERY STOCK. Prices on application.

Fruit Trees.

S. GLENDINNING and SONS invite attention to their superb stock of healthy well-grown FRUIT TREES.
PRICE LIST on application.
Chiswick Nursery, London, W.

Fruit Trees.

CHARLES TURNER has these of extra size, with well-ripened wood set for bloom, and in great variety.
CATALOGUES on application.
The Royal Nurseries, Slough.

Winter-flowering Heaths.

JOHN FRASER, Lea Bridge Road Nurseries, N.E., begs to offer fine plants of ERICA HYEMALIS, and other Winter-flowering sorts, now coming into full bloom. The prices will be given on application. A reference or remittance respectfully requested from unknown correspondents.

Spruce Firs for Christmas Trees.

WM. WOOD and SON have a fine stock of the above.
Woodlands Nursery, Maresfield, near Uckfield, Sussex.

Forest Trees, Ornamental Trees, and Shrubs.

PETER LAWSON and SON'S CATALOGUE for the current Season is now ready, and will be forwarded, free, on application. Edinburgh and London.

Quick.

CHARLES SHARPE and CO., Sleaford, have a large quantity of the above to offer. Price and Sample sent on application.

ONE HUNDRED THOUSAND strong Transplanted QUICKS, at 10*s*., 15*s*., 20*s*., and 25*s*. per 1000.
Also strong LARCH FIRS, from 3½ to 5 feet.
Samples of 500 sent on application. Address,
W. Wood & Son, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

Larch and Scotch Fir.

W. WITTY and SON have to offer 200,000 LARCH, from 2 to 2½ feet, stiff and well-rooted; and 50,000 SCOTCH FIR, from 12 to 18 inches; all healthy and well grown.
The Nurseries, Cottingham, near Hull.

LARCH FIRS, BERBERIS AQUIFOLIUM, and TREE BOX for Covers; also FRUIT TREES of all kinds, to be Sold cheap, surplus stock. Also PRIVET BERRIES.
Robt. H. Poynter, Seedsman and Nurseryman, Taunton, Somerset.

Larch and Scotch Fir.

MITCHELL and YOUNG, Brechin, N. B., beg to offer to the Trade 150,000 LARCH, 1½ to 3 feet, and 100,000 SCOTCH FIR, 9 to 12 inches, all healthy and well grown.
Samples and prices on application.

TO BE SOLD, Cheap, for Cash, a quantity of very fine strong TRANSPLANTED LARCH.
Apply to Dreghorn & Aitken, Nurserymen, Kilmarnock, N.B.

To Gentlemen, Nurserymen, and Others.

TO BE SOLD, from 6,000 to 10,000 COMMON LAURELS, from 2 to 7 feet high, at 6*s*. per 100; also a large quantity of FOREST TREES, SHRUBS, &c.
William Hood, Nursery Ground, Ashby-de-la-Zouch, Leicestershire.

THE GREAT NURSERIES of CORDIER, at Bernay (Eure), France.
More than 100,000,000 FOREST TREES for Plantations.
" 3,000,000 APPLES and other Fruit Trees for exportation.

ENGLISH ACORNS, SPANISH and HORSE CHESTNUT SEED, &c., to be had of
G. F. Scotchmer, Sible Hedingham, Essex.

To Nurserymen.

NINE BUSHELS of EVERGREEN OAK ACORNS.
Offers received for the Parcel.
Barr & Sugden, 12, King Street, Covent Garden, W.C.

WELLINGTONIA and CUPRESSUS.—WELLINGTONIA GIGANTEA, strong and handsome plants, 3, 4, and 5 feet, and nearly as much through; were all lifted in the spring. Also CUPRESSUS LAWSONIANA, 4 to 5 feet.
Thomas S. Ware, Hale Farm Nursery, Tottenham, N.

LARGE ENGLISH and IRISH YEWS.—Handsome single-stemmed ENGLISH and IRISH YEWS, 7, 8, and 9 feet high. Price according to size and number required on application to
T. Jackson & Son, Nurseries, Kingston, S.W.

LARGE EVERGREENS.—A quantity of LARGE EVERGREENS, DECIDUOUS SHRUBS, FRUIT, FOREST, and ORNAMENTAL TREES, with a general Collection of Nursery Stock of all kinds, Selling off Cheap, at
R. T. Pennett's Nursery, Park Lane, Tottenham, N.E.

Chinese Arbor-vitæ.

HUSSEY and SON have a large stock of the above to offer, all extra fine bushy well-rooted plants, from 3 to 5 feet in height, grown on light soil, sure to move safely. Prices on application. Mile End Nursery, Eaton, Norwich.

To the Trade.

CUPRESSUS LAWSONIANA SEED (True), of best quality, Crop of 1865. Price 5*s*. per oz., post free; 5 oz., 20*s*.; 8 oz., 30*s*.
Charles Burgess, The Nurseries, London Road, Cheltenham.

SUTTON'S RINGLEADER PEA (or CARTER'S FIRST CROP), the Earliest in Cultivation, as see correspondence in *Gardeners' Chronicle* of May and June last.

THE INVINCIBLE SCARLET SWEET PEA. The Trade can still be supplied. Price on application.
Stephen Brown, Seed Grower, Sudbury, Suffolk.

DIXON'S YORKSHIRE HERO PEA.—All who have grown this Pea pronounce it to be "the best" extant. See Testimonials in *Gardeners' Chronicle* of November 18.
Price 2*s*. per quart. Price to the Trade on application.
E. P. Dixon & Son, 57, Queen Street, Hull.

Ashleaf Potatos.

TO BE SOLD, about 400 bushels of the above. Warranted genuine. Grown upon sand land.
Enquire of Matthew Cousins, Cawood, near Selby.

EARLY KIDNEY POTATOS.—Webb's Telegraph, first early, 20*s*. per bushel; Webb's President, second early, 16*s*. per bushel; Webb's Imperial Kidney (best Potato known for all purposes), 12*s*. per bushel.
Apply to Mr. Webb, Calcot Gardens, Reading.

To the Trade.

BALLANTYNE and SON are now booking orders for MUSSELBURGH LEEK, True, grown expressly for their own retail trade. Early orders are respectfully solicited. Price on application. Nursery and Seed Establishment, Dalkeith, N.B.

Yellow Globe Mangel Seed.

MR. S. A. DAINTREE, of Fendrayton, St. Ives, Hunts, has a good stock of the above of his own growth and selection, which he offers to the Trade at 30*s*. per cwt., nett cash. Samples on application.

PELARGONIUM MRS. POLLOCK.—Strong Summer-struck Plants, well established in 60-pots, at 15*s*. per dozen.
The Trade supplied.
Alfred Fryer, Nurseries, Chatteris, Cambridgeshire.

MESSRS. SUTTON'S STAND, No. 94 (North Gallery), in the GALLERY of the AGRICULTURAL HALL, during the CATTLE SHOW.

Two Hundred and Fifty

DRIED SPECIMENS of GRASSES on Messrs. Sutton's STAND during the CATTLE SHOW.

Specimens of

THE NEW YELLOW INTERMEDIATE MANGEL on Messrs. Sutton's STAND during the CATTLE SHOW.

Specimens of

SUTTON'S CHAMPION SWEDE on Messrs. Sutton's STAND during the CATTLE SHOW.

A Collection of

THE BEST VARIETIES of POTATOS on Messrs. Sutton's STAND during the CATTLE SHOW.

ORDERS will be received for NEW SEEDS, at moderate prices; at
Messrs. Sutton's STAND during the CATTLE SHOW.

JAMES FAIRHEAD and SON, Seed Growers and Merchants, 7, Borough Market, London, S.E.
New and Genuine AGRICULTURAL, GARDEN, and FLOWER SEEDS. Special prices and advantageous offers on application.

H. and F. SHARPE, Seed Growers and Merchants, Wisbech.
SPECIAL PRICED LIST of NEW SEEDS on application.

Genuine Garden and Agricultural Seeds.

JAMES CARTER and CO., Seed Farmers, Merchants, and Nurserymen, 237 and 238, High Holborn, London, W.C.

Nursery and Seed Establishment (Established 1787).

THOMAS KENNEDY and CO., Nurserymen, Seedsmen, and Florists, Dumfries, N.B.
DESCRIPTIVE PRICED CATALOGUES forwarded to any address on application.

WM. and DD. STEWART, Wholesale and Retail Nurserymen, Fern Down, Near Wimborne, Dorset.
PRICED CATALOGUES will be forwarded on application.

Agricultural and Garden Seeds.

CHARLES SHARPE and CO., Seed Merchants and Seed Growers, Sleaford, have fine stocks of the above to offer to the Trade. List of prices sent on application.

Primula sinensis in Bloom.

THOMAS S. WARE HALE, Farm Nursery, Tottenham, Middlesex, N., begs to offer several hundred fine plants of the above. They are clean, and an excellent strain.
Delivered free, by our cart, within 10 miles of the Post Office.

Now ready, 1865 and 1866.

PAUL and SON'S NEW ROSE CATALOGUE. See Note on Forcing Roses. Post free on application.
Old Cheshunt Nurseries, N.

Select List of Show Roses, Old and New.

Consult
JOHN KEYNES' CATALOGUE.
Salisbury.—Dec. 9.

ROSES.—A DESCRIPTIVE CATALOGUE of ROSES, by Thos. Rivers, free per post.
Nurseries, Sawbridgeworth.

NEW ROSE CATALOGUE for 1865 and 1866, also GENERAL CATALOGUE of NURSERY STOCK.
Woodlands Nursery, near Uckfield, Sussex.
Wm. Wood & Son will be happy to forward copies of the above on application.

Roses.

WM. PAUL (Son and Successor to the late A. Paul) begs to announce that his NEW DESCRIPTIVE CATALOGUE of ROSES is now ready, and will be forwarded on application, free by post. The stock is large and in splendid condition.
Paul's Nurseries, Waltham Cross, London, N.

Roses.—Dwarfs for Potting or Bedding.

E. P. FRANCIS and CO. have the finest Stock of the above in the country, of most of the leading kinds.
CATALOGUES will be forwarded free on application.
The Nurseries, Hertford, Herts.

1865 and 1866.

JOHN FRASER begs to announce that his NEW DESCRIPTIVE CATALOGUE of PLANTS, ROSES, FRUIT TREES, &c., for the Autumn of 1865 and Spring of 1866, may be had on application.
The Lea Bridge Road Nurseries, N.E.

WANTED, Dwarf Plants of TEA-SCENTED DEVONIENSIS and VICOMTESSE DE CAZES ROSES.—Persons having the above to dispose of in large or small quantities, true to name, will state price to Wm. Wood & Son, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

WANTED to PURCHASE, MANETTI STOCKS. Apply with price required per 1000 to
Wm. Wood & Son, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

WANTED, some OLD STEMS of DRACÆNA TERMINALIS for stock. Any one having such to dispose of will please send size and price to
Mrs. G. S. Dods, Epsom Nursery, Epsom.

TO BE SOLD, a Bargain, in consequence of Railway alterations, 50 LILIUMS (AURATUM and 11 other varieties); 12 choice GLOXINIAS, 2 AMARYLLIS JOHNSONI.
For price, &c., address R. G. Charleton, Mr. Furber's, Chapel Street, Victoria Street, Westminster.

FRENCH GLADIOLI. The Newest and most beautiful Varieties.
Barr & Sugden, Seed, Bulb, and Plant Merchants, 12, King Street, Covent Garden, W.C.

SURPLUS STOCK of IMPORTED DUTCH BULBS. See large Advertisement, page 1172.
Barr & Sugden, Seed, Bulb, and Plant Merchants, 12, King Street, Covent Garden, W.C.

BUTLER and McCULLOCH'S ILLUSTRATED PRICED CATALOGUE, containing particulars of their Choice COLLECTIONS of DUTCH and CAPE FLOWERING BULBS, sent free and post paid upon application.
Butler & McCulloch, South Row, or Strand side, opposite Southampton Street, Covent Garden Market, W.C.

Gladiolus Brenchleyensis, true.

YOUELL AND CO. beg to inform the Nobility and Gentry that their stock of the above is this season unusually fine, and the Bulbs remarkably strong. Colour: Vermilion Scarlet, the brightest variety known.

No. 1 size BULBS, the very strongest, selected from our extensive stock, 3s. 6d. per dozen, £2 5s. per 100.

No. 2 size, 3s. per dozen, 20s. per 100. Strong flowering Bulbs.

The Trade liberally supplied.

CATALOGUES of their extensive and superb Collection of the above to be had on application.

Royal Nurseries, Great Yarmouth, Norfolk.

GLADIOLI.—First Prize for 24 varieties at the Crystal Palace in 1864; First and Second Prize for 24 varieties at the Crystal Palace in 1865; First Prize for 6 varieties at the Royal Horticultural Society in 1865, have been awarded to

KERWAN & SON, Langport, Somerset.

PRICED CATALOGUES, containing full descriptions of upwards of 300 varieties—amongst them many new ones—27 of which obtained First-class Certificates during the past season, are now ready, free by post on application.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his New and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

*** Part II. (Exotic Ferns) will be issued as early as possible.

Foot's Cray Nursery, S.E.

CARNATIONS and PICOTEES for the Million.

Fine Strong Plants at reduced prices.

Every one should send for the revised CATALOGUE of CARNATIONS, PICOTEES, PINKS, PANSIES, ROSES, FRUIT TREES, BULBS, &c.

HOLLAND & JONES, Proprietors, Bradshaw Gardens, Chadderton near Manchester.

New Grass Seeds for Exportation.

SUTTON AND SONS have received their supply of NEW GRASS SEEDS of the present year's growth in fine dry condition. Prices will be forwarded on application.

This is one of the best months for exporting Grass Seeds.

SUTTON & SONS, Seed Merchants, Reading.

Quick.

TO BE SOLD, from 1000 to 400,000 well-rooted 2-year old QUICK.—Price and sample to be had on application by letter to J. F. M., *Gardeners' Chronicle* Office, W.C.

Larch, Quickwood, Scotch Fir, &c.

MARTIN AND SON can furnish about Two Millions of the former, One Million of QUICK, and 200,000 SCOTCH FIR; also 20,000 LAURELS, 20,000 ENGLISH and IRISH YEWS, 10,000 ARBOR-VITÆ, 6000 LAURUSTINUS, and several thousands of Lilacs, Syringas, Deutzias, Cupressus, Thujopsis, Standard Roses, Ribes, Standard Horse Chesnut, Poplars, Elms, &c.

Special prices on application at the Hull Establishment, 7, Market Place, and Cottingham.

D. S. THOMSON begs to inform intending Planters that he has a large assortment of TREES and SHRUBS in excellent condition for planting, being well-rooted, young and healthy. An enormous quantity of IVIES and HARDY CLIMBING PLANTS on reasonable terms. Planting contracted for.

The Nursery, 3 minutes' walk from the Wimbledon Station, Main Line South Western Railway.

Transplanted Larch and Quicks.

CHIVAS AND WEAVER (late GEORGE CHIVAS), Chester, offer several Millions of TRANSPLANTED LARCH, from 1½ to 4½ feet, very stout, grown in an exposed situation; specially fine plants, and at prices greatly in favour of the buyers. Also several Millions of TRANSPLANTED QUICKS, a large quantity of which are of great strength; strong English Oaks superior Spruce, up to 2½ feet, together with a general stock of other Forest Trees, as well as a large stock of Evergreens and Ornamental Trees; many Thousand fine Standard Apples, and extra strong Transplanted Apple Stocks.

For prices and conditions of free delivery, see CATALOGUE, which will be forwarded on application.

Irish Yews, Hollies, Cucumber Seed, &c.

W. WRIGHT, East Retford, Nottinghamshire, begs to offer:—

IRISH YEWS, 1½ to 2½ ft., 25s. per 100; 2½ to 3½ ft., 30s. per 100.
" 5 to 6 ft., 15s. per dozen; 120s. per 100.
" 6, 7, and 8 ft., 3s. 6d., 5s. 6d., to 7s. 6d. each; these are handsome specimens, pruned to one stem.
HOLLIES, 15 to 18 inches, 15s. per 100; 1½ to 2 ft., 3s. 6d. per dozen,
HOLLIES, 2 to 3 ft., 7s. 6d. per dozen, 48s. per 100. [24s. per 100.
PRIVET, 10 to 12 inches, 6s. 6d. per 1000.
CUCUMBER SEED—Carter's Champion, Improved Syon House, Lord Kenyon, Wright's Improved Black Spine, and Wright's Wonder, 15s. per ounce, 1s. per packet.

CATALOGUES of TREES, SHRUBS, &c., on application.

Terms Cash, or Reference from unknown correspondents.

To the Trade and Others.

WOOD AND INGRAM beg to offer the following SURPLUS STOCK. Prices sent on application.

1,000 Dwarf Maiden Peaches
500 " cut in "
500 " trained "
50,000 British Oaks, 3 yrs. seedling
100,000 " " 1 " "
20,000 Maples, common, 1 year seedling
100,000 English Elms, 2 years seedling
1,000 Huntingdon Elms, grafted
10,000 Standard Apples, 7 to 10 ft.
2,000 Half Standard Apples, 7 to 10 feet
2,000 Dwarf Apples, 7 to 10 feet
40,000 Larch, 2 to 4 feet
1,000 Horse Chestnuts, 5 to 7 ft.
100,000 Ash, 1 year's seedling
400 Cupressus Lawsoniana, 1½ to 4 feet
250 Thuja Lobbii, 3 to 5 feet
1,000 Junipers, very handsome, 3 to 4 feet
500 Portugal Laurels, 3 to 4 ft.
300 Red Cedars, 2 to 4 feet
2000 Standard and Half-standard Roses
2800 Worked Dwarf Roses
1600 Siberian Arbor-vitæ, 1 to 3 feet
400 Chinese Arbor-vitæ, 2 to 5 feet
1500 Box, sorts, 2 to 3 feet
300 Aucuba japonica, 1 to 2½ ft.
1000 Common Yew, 1 to 2 feet
2000 Berberis Aquifolium, 1 to 2 ft.
500 " dulcis, 1 to 2 feet
400 doz. Currants, sorts
500 Cistus roseus, 1½ to 2 feet
450 Cupressus macrocarpa, 2 to 4 feet
900 Euonymus japonica, 1 to 2½ feet
600 Ivy, choice named sorts
200 Pyracantha, 2 to 3 feet
50 Taxus adpressa, 2 to 3 feet
300 Yucca recurvifolia, 1½ to 2 feet
200 Antirrhinums, new, in 6 varieties, including Double Italian
200 Bellis aucubæfolia
100 Pairs Show Carnations, in 3-inch pots
100 Pairs Cloves, 5 fine varieties, in 3-inch pots
500 Pairs Show Picotees, 5 fine varieties, in 3-inch pots
200 Cerastium Biebersteinii
500 " tomentosum
200 Cyclamen europæum
500 Herbaceous Plants, in 50 good varieties
100 Œnothera macrocarpa
60 Schizostylis coccinea
Mangel Wurzel, Yellow Globe Onion, White Spanish Peas, Dickson's Favourite and Essex Rival

The Nurseries, Huntingdon.

ONE MILLION strong HAWTHORN QUICK 17s. to 20s. per 1000; samples of 100 for 2s. 6d.

Half a Million strong LARCH, 18s. to 25s. per 1000; samples of 100 for 2s. 6d., will be sent on application.

Large EVERGREENS, extremely cheap. Prices according to quantity required.

24s. per dozen:—

ABIES DOUGLASII, 3 to 4 feet; A. ALBA, 3 to 6 feet; A. MENZIESII, 3 to 4 feet; A. MORINDA, 3 to 4 feet.
ARBOR-VITÆ, American, 4 to 6 feet; Chinese, 5 to 7 feet.
BIOTA GLAUCA, 2 feet; B. AUREA, 1½ foot; B. JAPONICA, 2 feet; B. COMPACTA, 2 to 3 feet.
CUPRESSUS LAMBERTIANA, 4 to 5 feet; C. LAWSONIANA, 3 feet; C. GOVENIANA, 3 feet.
PINUS EXCELSA, 4 to 5 feet; P. AUSTRIACA, 4 feet; P. INSIGNIS, 3 to 4 feet; P. PYRENAICA, 2½ feet; P. PALLASIANA, 2 to 3 feet.
LAURUSTINUS, fine bushes, 2 to 3 feet through.
PORTUGAL LAURELS, 3 to 4 feet.
YEW, IRISH, 4 to 5 feet; YEW, COMMON, 4 to 5 feet.

Prices for larger Evergreens on application

GEORGE DAVISON, White Cross Nurseries, Hereford.

NEW PRIZE MELONS.

E. G. HENDERSON & SON

Respectfully offer the following Varieties as worthy of a place in all selections of DESSERT FRUIT, received high commendations in favour of their superior quality and growth.

Wills's Oulton Park Hybrid (scarlet-fleshed).

Fruit round, of medium size, from 2 to 2½ lb. in weight; flesh bright salmon-scarlet, very rich in flavour, remarkably tender and melting. Considered by the eminent judges to whom it was submitted on two occasions as "a great acquisition among Melons." The plant is vigorous in growth, not subject to canker or die off at the collar; a free setter, and by judicious treatment yielding a second crop almost equal to the first.

Of this variety Dr. HOGG bears his testimony as follows:—"Your Melon is by far the finest scarlet-fleshed variety I ever tasted, and very distinct, and well deserves the highest Certificate which has been awarded."

Wills's Green Pine-apple Gem (Green-fleshed).

This beautiful and distinct variety in growth, habit of constitution, free and vigorous, not subject to disease at the collar or base of the stem, an abundant bearer, setting its fruit off regularly, which is round, rather [illegible] "Gem," from which it was obtained by a cross with the "Cashmere" variety. The fruit is generally speckled, and beautifully netted. Flesh green as grass, tender and [illegible] a rich Pine-apple flavour. It was regarded by the [illegible] by whom it was awarded a Certificate, as the best green-fleshed [illegible] in cultivation.

The above varieties of Melons received their respective Testimonials of Merit from the Fruit Committee of the Royal Horticultural Society.

Seed Packets, 2s. 6d. and 5s. each. The Trade supplied.

E. G. HENDERSON AND SON, WELLINGTON NURSERY, ST. JOHN'S WOOD, N.W.

THE ESSEX RIVAL PEA.

THIS VARIETY HAS PROVED TO BE THE FINEST, BEST FLAVOURED, AND MOST PRODUCTIVE EARLY PEA IN CULTIVATION.

THOMAS ELEY,

Of SIBLE HEDINGHAM, near HALSTEAD, ESSEX,

Who introduced this most excellent EARLY PEA to the general Public last season, has again much pleasure in inviting the attention of all admirers of a good Pea to this excellent Early variety, which (independent of the same season now past) fully sustains the high eulogiums given of it by most of the first Horticulturists of the kingdom. These will be confirmed by the subjoined Testimonials Mr. ELEY has again received from Gentlemen, most of whom he is totally unacquainted with, representing, as they do, the trials made in various districts.

Mr. ELEY thinks it quite needless to have printed the whole of the great number of satisfactory reports he has received; suffice it to say, the following TESTIMONIALS will, he trusts, be a sufficient guarantee that the ESSEX RIVAL PEA now stands unrivalled as an early variety.

From Mr. JNO. PARSONS, *Great Western Nursery, Leamington, Warwickshire.*

"I consider your 'Essex Rival' a first-class Early Pea, and it has given general satisfaction to those I supplied with it last season."

From Messrs. J. ROBERTS & SON, *Nursery and Seedsmen, Denbigh.*

"We beg to state we intend getting some of your Early Peas again this year, as we think it a first-class Early Pea."

From Mr. FRANK WARWICK, *Nursery and Seedsman, Sleaford, Lincolnshire.*

"I consider the 'Essex Rival' Pea to be with me a week earlier than 'Dillistone's Early.'"

From Messrs. JAMES IVERY & SON, *Dorking Nurseries, Surrey.*

"Please to receive our opinion of 'Essex Rival' Pea. We beg to say we like it much, and think it a very good second early kind."

From ELMY DURRANT, *Gardener to the* Rev. E. Holland, *Benhall Lodge, Saxmundham, Suffolk.*

"I beg to say I very much approve of your Pea, the 'Essex Rival.' I found it a good cropper and a delicious Pea."

From Dr. BARBER, *The Rectory, Little Stambridge, Essex.*

"Dr. Barber has much pleasure, indeed is quite anxious, to give the report of Mr. Eley's Early 'Essex Rival' Pea. Dr. Barber is quite delighted with them, finds them very prolific, and excellent in flavour; he will have much pleasure in recommending them to all his friends."

From CHARLES WILLIAMS, Esq., *Twickenham Green, Middlesex.*

"I have much pleasure in being able to bear testimony to the very excellent quality of your 'Essex Rival' Pea. I found (in spite of the long-continued dry season) the yield very abundant, and in my opinion, which agrees with that of a friend of mine to whom I gave some of the seed, but who is since dead, the flavour surpassed anything of the sort I ever tasted."

From SIMON QUIN VIALL, Esq., *Baythorne Hall, near Halstead, Essex.*

"I grew your Pea, the 'Essex Rival,' with 'Sangster's No. 1.' It was not so forward as this by two days, but far superior both in quantity and quality, in fact, I think it one of the best flavoured Peas grown."

From the Rev. WILLIAM NUGENT, *The Rectory, Ardrahan, Co. Galway, Ireland.*

"I have grown this year Mr. Eley's, of Sible Hedingham, 'Essex Rival' Pea, and have found it to be a very excellent one for the table, large and mellow, very early and productive; I can recommend it highly."

From JAMES FORD, Esq., *Morton Hall, Warwick.*

"I think your 'Essex Rival' a very good Early Pea, and far superior to many other sorts that are advertised as Early. In my trials of different sorts of Peas yours came in second, about the 9th of May, the sowing taking place on the previous 12th of January."

From Mr. G. WINYER, *Gardener to* Mrs. Pattison, *Wrackleford House, Dorsetshire.*

"Respecting your 'Essex Rival' Pea, I beg to say I like it much as an Early Pea. It was sown the same day as 'Sangster's No. 1' and 'Daniel O'Rourke' (which I consider one and the same), and they came fit for table all the same day, but I must give the preference to 'Essex Rival,' being a much larger pod Pea. I have saved enough for my early sowing, and shall sow no other."

From the Rev. ED. CHAUNCY ELLIS, *The Rectory, Langham by Colchester, Essex.*

"I have much pleasure in giving you my opinion of the 'Essex Rival' Pea, I beg to state I am very much pleased with it. It is rapid in its growth, and comes to maturity very quickly after throwing out its blossom, is very productive, and admirably adapted for domestic use, as it rises well, and does not waste in cooking."

From Mr. DAVID WARD, *of the Firm of* Ward & Payne, *Sleaford, Yorkshire.*

"I am glad to say the 'Essex Rival' Pea received from you last spring gave every satisfaction. As an amateur I have taken an interest in the various departments of Horticulture, and find that so really good flavoured a Pea can be had sufficient to do away with the necessity of occupying valuable garden space with so really indifferent varieties as 'Sangster's No. 1,' &c. In addition to being a good flavoured Pea, it is an excellent cropper."

From JOHN SIKES, Esq., J.P., *Sudbury, Suffolk.*

"I have tried your 'Essex Rival' Pea, and can confidently speak of its quality as an excellent early variety, and shall continue to grow it. No admirer of a good Pea should be without it."

From the Rev. R. T. WILSON TAYLOR, *The Rectory, St. Austell, near St. Austell, Cornwall.*

"I value the 'Essex Rival' Pea much for its earliness, flavour, and as a most abundant bearer."

From Messrs. RICHARD LOWE & Co., *Nurserymen, &c., High Green, Wolverhampton, Staffordshire.*

"We consider your 'Essex Rival' a very good second Pea; we grown it by the side of 'Early Favourite,' 'Beck's Gem,' and 'Marrow;' it was a few days earlier, and a far better cropper than either.

From J. C. WYNNE EDWARDS, Esq., *Brondyffryn, Denbigh.*

"I have much pleasure in bearing tribute to the excellent qualities of your Early Pea, the Essex Rival. We considered it the most delicious Pea which appeared on our table last summer."

From DAVIDSON WRIGHT, Esq., *Stamford Hill, Middlesex.*

"Having been advised to try your Pea, the Essex Rival, I have so, and have much pleasure in informing you that they are of excellent flavour, and the most productive I have ever seen. I shall certainly not use any other while they are to be obtained in the market. I shall feel very much pleasure in recommending them to those friends who may require any."

From the Rev. R. DRAKE PALMER, *The Rectory, Broadway, Ilminster, Somersetshire.*

"I can confidently speak most favourably of your Early Pea Essex Rival. I sowed it by the side of Daniel O'Rourke; it was quite early, a much finer pod, and greatly superior in flavour. I shall use every exertion to have the Pea brought into general use in my neighbourhood, for I have not yet seen its equal as an Early Pea."

From Messrs. PAUL & SON, *The "Old" Nurseries, Cheshunt, Herts.*

"Your Pea, the Essex Rival, seemed to us to be an excellent second early variety, following closely the first early sorts in our ground."

From Mr. C. W. JONES, *Gardener to* E. Sturt, Esq., *Clapham and Stockwell, Surrey.*

"I have grown your Pea, the Essex Rival, and find it an excellent cropper, early, and good flavoured, and intend growing it in future."

From SAMUEL HIGGS, Esq., *Mayor of Sudbury, Suffolk.*

"I beg to state that your excellent Pea, the Essex Rival, introduced by you last year, is the finest and best variety as an early Pea I have ever seen. I must say great praise is due to you for exertions in bringing so good an article before the public."

EXTRACT of a REPORT which appeared in the *Paris Horticultural Review* last season.

"We call attention to a variety of Pea, which, after the [illegible] have made, unites, in our idea, all the advantages of Early. This variety, obtained from Mr. Eley, of Essex, surpasses [illegible] known in France by the fulness of its bloom and the [illegible] grain, which is large, sweet, and delicious. It comes only [illegible] before our early Reichard Pea, and is not, it is true, so [illegible] Prince Albert Pea, but as it is much more prolific than the [illegible] as its quality is better, it ought to be preferred. We consider [illegible] bestowing a great advantage in recommending this precious [illegible] merits of which before introducing it in the commerce [illegible] have been for some time known in England, and we delay [illegible] at once, in its praise, that we give it the preference over all those at present known."

Mr. ELEY had the satisfaction of receiving a Reward of Merit for the excellent qualities of the above Pea awarded by the Judges at the Undercliffe Horticultural Exhibition, Isle of Wight, held in June last.

Price 1s. 6d. per Quart.

To be obtained of the Proprietor, Mr. THOS. ELEY, Sible Hedingham, near Halstead, Essex.

Also of the following appointed Agents:—

Messrs. Peter Lawson & Son, 28, King Street, Cheapside, London, E.C.
Mr. James Veitch, Royal Exotic Nursery, Chelsea.
Messrs. Cooper & Bolton, 152, Fleet Street, London, E.C.
" Fraser, Richardson, & Goad, 82, Bishopgate Within, E.C.
" Richard Lowe & Co., High Green, Wolverhampton, Staffordshire.
" J. Roberts & Son, Denbigh.
" Fisher, Holmes, & Co., Handsworth Nursery, Sheffield; Yorkshire.
Messrs. Saltmarsh & Son, Chelmsford, Essex.
Mr. Christmas Quincy, Peterborough, Northamptonshire.
" B. C. Mackenzie, Ventnor, Isle of Wight.
" A. F. Godward, Southend, Essex.
" B. Cant, St. John's Nursery, Colchester, Essex.
" George Taber, Rivenhall, near Witham, Essex.
M. Paul Tollard, Nurseryman and Florist, 4, Place des Trois Maries, Paris, France (Sole Agent).

The price being reduced to 1s. 6d. per quart, and liberal terms offered to the Trade, Mr. ELEY is sanguine that the ESSEX RIVAL PEA will henceforth become a universal favourite in every garden throughout the United Kingdom and on the Continent.

N.B.—The ESSEX RIVAL being of a hardy and robust nature, may be sown any month (weather permitting) from the 1st of November to the end of July. See Mr. ELEY'S TREATISE on GARDEN PEA CULTURE, which will be forwarded, with Testimonials, free on application.

DIXON'S YORKSHIRE HERO PEA.—[illegible] of this valuable New Pea, see [illegible]

[illegible] Yorkshire Seed Establishment, 37, Queen [illegible]

THE EARLIEST and BEST OUT-DOOR [illegible] PEA we have tasted this season—vide *Journal of* [illegible] of the 13th of June, 1865; it was also favourably noticed [illegible] *Chronicle* of June 3, 1865.

[illegible] Early Pea is now being sent out by ROBERT H. POYNTER, [illegible] per quart. Height 3 feet. The kind was gathered from in [illegible] condition as early as the 20th of May, and was sent to the [illegible] as above on the 28th.

None genuine except from accredited Agents.

All [illegible] packages free on Great Western Railway.

ROBERT H. POYNTER, Seed Merchant, Taunton.

New Pea.

HOOPER'S RIVAL PEA, the earliest of the early, and much better cropper than most of the new first early sorts.

Price 2s. 6d. per quart.

[illegible] was sent out last season, but the stock was too limited to [illegible]

[illegible] & Co., Seed Merchants, Covent Garden, London, W.C.

Brighton and Sussex Seed Warehouse.

CARPENTER'S EXPRESS, the EARLIEST PEA [illegible] gathered May 7. The earliest date on record.

The following are extracts from a few of the numerous Letters [illegible]

From Mr. JONES, *Gardener to* Lord Leconfield, *Petworth House, Sussex.*

"I sowed Carpenter's Express Pea on the 20th November, and [illegible] the first dish on the 7th May. I had Daniel O'Rourke and [illegible]'s Express side by side, but gathered first from Carpenter's [illegible]"

From Mr. MARSH, *Gardener to* Marchioness of Bath, *Worthing, Sussex.*

"I made a sowing of Carpenter's Express and Sangster's No. 1 [illegible] side, and I found Carpenter's Express to be up about a week [illegible] Sangster's."

From Mr. KEMSLEY, *Gardener to* C. Catt, Esq., *Brighton.*

"I made a sowing of Carpenter's Express and Daniel O'Rourke side by side, and I gathered Carpenter's Express at least a fortnight before the other was ready."

From Mr. DAWES, *Gardener to* H. Pegg, Esq., *Brighton.*

"I made a sowing of Carpenter's Express on the same day as Sangster's No. 1 and also Morning Star, and I gathered from Carpenter's Express 12 days before either of the others."

From Mr. JOHN COX, *Gardener to* W. Wells, Esq., *Redleaf, Staplehurst, Kent.*

"Having tried Carpenter's Express Peas, I beg to say that I gathered in quantity this season (1864) nine days in advance of any other early variety."

Mr. MAYWELL, *of The Gardens, Eaton Park, Oakham, on a letter to the* GARDENERS' CHRONICLE *of June* 12, 1865, *on Early Peas, says*—

"Carpenter's Express is a fortnight earlier than Sangster's No. 1, [illegible] days earlier than Dillistone's."

From Mr. C. COURT, *Gardener to* Captain Pratt, *Chichester.*

"I saw Carpenter's Express side by side with Sangster's No. 1, and found it to be **seven days earlier.**"

From Mr. ALEXANDER STEWART, *Gardener to* Colonel Leslie, *Slindon House, Arundel.*

"Carpenter's Express were sown side by side with Early Warwick and Early Frame, and I gathered from Carpenter's Express full a fortnight before either of the others."

THE EDITOR *of the* SUSSEX EXPRESS *of the* 1st *July*, 1865, *reports the following*:—

"Mr. Thomas Jenner, Lewes, sowed both Carpenter's Express and Sangster's No. 1 on the same day, and gathered from Carpenter's Express eight or nine days before the other sort. This seems to be universally the case."

THE CARPENTER'S EXPRESS PEAS have been awarded Two First Class Certificates at the Brighton Horticultural Society's Exhibitions as the Earliest Pea. 5s. per quart.

Early orders are solicited, as the stock is not large.

Trade price and CATALOGUES on application.

True Seed to be had ONLY of EDWARD CARPENTER, Seed Merchant and Grower, 36, St. James Street, Brighton; Messrs. WOOD & SON, Nurserymen, Maresfield; Messrs. OSBORN & SON, Nurserymen, Fulham, S.W.; W. BAYCE & Co., Seed Merchants, Glasgow; and Messrs. DICKSON & SON, Nurserymen, Chester.

LAXTON'S PROLIFIC EARLY LONG-POD PEA.—**We have much pleasure in introducing this valuable variety, raised by Thomas Laxton Esq., Stamford, to the notice of the Trade. Some pods (in a green state) were exhibited by us at Mark Lane in June last, averaging 11 and 12 Peas in a pod, and they were pronounced by several eminent members of the London Seed Trade to be an exceedingly fine variety. For a second Early Pea, and a Pea for early sowing in autumn, there is no Pea of a similar class in cultivation to equal it, and we feel every confidence that it will be in general cultivation in a very few years. The Pea has the same habit and character as Dickson's Favourite and Auvergne, excepting that the pods are nearly DOUBLE the size of these varieties. We have been favoured with the under-mentioned Testimonials, wherein will be found full corroboration of our own opinion as to its being a "First-class Pea."**

COPY OF TESTIMONIALS.

"GENTLEMEN,—In reply to your inquiries respecting Mr. Laxton's New Early Long-podded Pea, I beg to inform you that I have seen the variety on more than one occasion growing side by side with Dickson's Favourite and the Auvergne. I have also personally tested and can confidently recommend the New Pea as a first-class second early variety. The pods are finer and more prolific than those of Dickson's Favourite, the Auvergne, or any other variety ripening so early.—Your obedient Servant, M. MATHESON,

"Gardener to the Marquis of Exeter, K.G., Burghley Park."

"Stamford, November 11th, 1865.

"GENTLEMEN,—I have seen the new Early Prolific Long-podded Pea, raised by Mr. Laxton, growing side by side, under similar circumstances, with Dickson's Favourite and the Auvergne, and consider the former quite a distinct variety, the pods being large, more of the scimitar shape, and containing upon an average from 10 to 14 Peas in a pod. Sown on the same day as Sangster's No. 1, the new Peas were fit to be gathered four days after this variety. I consider it decidedly an improvement upon all other early Peas out.—I am, Gentlemen, your obedient Servant, GEORGE ABBOTT,

"Agent to Chaplain & Horne, and one of the Committee and Exhibitor of the Stamford Horticultural Society."

"Stamford, November, 1865.

"GENTLEMEN,—During the past three years I have seen Mr. Laxton's Seedling Peas growing under similar circumstances with about 50 other sorts, and consider the Early Prolific Long-Podded variety has the longest and finest pod of any yet sent out. It is an immense cropper, and is certainly a very distinct and superior Pea in every respect to Dickson's Favourite and the Auvergne.—I am,

"Gentlemen, your obedient Servant, C. CLARK,

"Superintendent Stamford Horticultural Society's Exhibitions.

"P.S.—I grow a great number of Peas, but have seen none to be compared to Mr. Laxton's."

Price per quart on application to JAMES CARTER & Co., 237 & 238, High Holborn, London, W.C.

Lincolnshire Gem Dwarf and Giant Hales Tall Marrow Peas

MARTIN AND SON, 5, Market Place, Hull, and Cottingham, have [illegible] to offer the following NEW PEAS [illegible]

From Mr. USHER, *Gardener to* Major Sykes, *West Ella.*

"The Lincolnshire Gem Pea is one of the finest Peas in cultivation, being dwarf, immense cropper, and fine flavoured, much superior to Dixon's Yorkshire Hero, and earlier than Veitch's; the quality of your seeds in general has always pleased me."

From The Grange, Cottingham, Mr. G. COTTAM, *Gardener to* Jno Ringrose, Esq.

"The Lincolnshire Gem Pea is the best Pea I ever grew, superior to either Veitch's or Dixon's Yorkshire Hero, immensely productive, [illegible] 2½ feet, and loaded with the finest pods. For a good green crop it is [illegible]. Giant Hales is the [illegible] and a very good cropper; these Peas are superior to any variety I have grown. I must not say that your seeds altogether are of excellent quality."

From Tickrill House, Cottingham, Mr. WILLIAM NASSEY, *Gardener to* David Wilson, Esq.

"As you wish to know my opinion of your new Peas, I beg to say that Giant Hales is a splendid Pea, a good cropper and superior flavoured from 6 to 7 feet high; Lincolnshire Gem is the best of the dwarf Peas I know of, growing 2½ feet high, very prolific, and of exquisite flavour, beautiful green when cooked. In fact, the seeds we have got from you have given the greatest satisfaction."

From Hesslewood House, Mr. GEO. PARRAWE, *Gardener to* J. J. Pease, Esq.

"The Lincolnshire Gem Pea is very good, superior to either Veitch's Perfection or Dixon's Yorkshire Hero. I took it round Easter than any of the new Peas I have grown; height about 2½ feet, strong growing, and loaded with pods, indeed it is 'the best' better and flavour of the dwarf growing sorts. Giant Hales is very tall, a great cropper, and of excellent flavour. These are really sweet, and I shall recommend all my friends to try them."

From Hall Beck House, the residence of E. Holworth, Esq., *Gardener*, Mr. JAS. LEAN.

"The Lincolnshire Gem Pea is without doubt a first-rate Pea, too much cannot be said in its favour; a real good cropper, height about 2 feet. Giant Hales is tall growing, and equally good in flavour, &c. Your seeds in general are of first-rate excellence."

From Mr. T. S. REA, *Gardener to* J. L. Leslie, Esq., *Seaton Lodge.*

"Having made a careful examination of the three lots of Peas this morning (24th June), namely, Lincolnshire Gem, Veitch's and Dixon's Yorkshire Hero, all sown exactly the same time and same manure, I find your Lincolnshire Gem to be fully seven days earlier than Dixon's, and about three earlier than Veitch's; your Gem has nearly double the crop of either. Dixon's, on an average, contained five Peas in a pod, your Gem and Veitch's six."

New and Choice Seeds.

BACKHOUSE'S WINTER WHITE PROTECTING BROCCOLI.—**We have much pleasure in being again able to** offer this valuable Broccoli. The favourable notice it received from the Editor of the *Gardeners' Chronicle* two years ago, was fully confirmed by those who tried it last year. Urgent applications were made to us for fresh supplies of seed, but the whole of the plants of that year having been destroyed, we were unable to supply any. Having this year succeeded in harvesting a moderate quantity of Seed, we offer it at 2s. per packet. The Broccoli comes into use EARLY in December, being in this neighbourhood ready to cut 14 days earlier than Snow's Winter White. The heads are large, compact, pure white, and deliciously tender; and being well covered by their large protecting leaves, they have been known to stand 20 deg. of frost without a trace of injury.

MATHIOLA BICORNIS.—An evening scented Stock of unrivalled fragrance, from the Mountains of Greece. No annual in cultivation, even including Mignonette, surpasses, if perhaps equals, it in the powerful and yet delicate perfume of its flowers. At a very considerable distance the scent of a large bed of this annual, on a summer's evening, was often so strong as to arrest special attention! The plant grows 1 foot or more in height, the upper half, or two-thirds, being a branching spike of pink and lilac blossoms, partially closed during the day time (when the scent is feeble), but expanding fully towards evening, and remaining so during the night and early morning. The perfume resembles that of the Stock and Sweet-scented Clematis combined. It must be treated as a common hardy annual. It has rarely, if ever, been our good fortune to meet with a plant so certain to become a general favourite. Packets 1s. each.

MALCOLMIA INCRASSATA.—A new species of Virgin Stock, also from the Mountains of Greece. This closely resembles the well-known Malcolmia maritima in general character and appearance. It is, however, of more robust habit, has rather larger and brighter-coloured flowers, and smooth, fleshy, deep-green leaves, instead of the dull green hairy ones of the common species. Packets 1s. 6d. each.

VERONICA GLAUCA.—A very dwarf annual from Greece, forming dense tufts 3 to 4 inches high, covered with deep and brilliant blue flowers, expanding freely in the sunshine. When grown in a mass, the effect is very pleasing. Care should be taken that it be sown in moist weather, as its propensity to flower is so great that in dry seasons it exhausts itself by blooming before the plant is properly developed. Packets 1s. 6d. each.

FRENCH KIDNEY POTATO.—**Having grown this variety for many years, we can confidently recommend it as an excellent early kind. With us it is 10 days or so earlier than the Ash-leaved Kidney, much more prolific, and of excellent flavour. A gentleman's gardener, in ordering a further supply, remarked, "It's the master of all the earlies." Market gardeners have also ordered it very freely, as they find it a very remunerative sort. Per Peck of 14 lb., 2s. 6d.**

The following Seedsmen will be able to execute orders:—

Hurst & Son, C, Leadenhall Street, E.C.
Cooper & Bolton, 152, Fleet Street, E.C.
Minter, Nash & Co., 60, Strand, W.C.
Nutting & Sons, 60, Barbican, E.C.
Bell, John, 10 and 11, Exchange Street, Norwich.
Bracher, Benjamin, Wokingham.
Bunyard, T., & Sons, Maidstone.
Butler & McCulloch, Covent Garden Market, W.C.
Dicksons & Brown, Corporation Street, Manchester.
Dickson, F. & A. & Sons, 106, Eastgate Street, Chester.
Drummond, W., & Sons, Dublin and Stirling.
Edmondson Brothers, 10, Dame Street, Dublin.
Ewing, J. W., Eaton Nursery, Norwich.
Farrell, F., & Son, Capel Street, Dublin.
Fisher, Holmes & Co., Handsworth, Sheffield.
Garaway, J., & Co., Durdham Down, Bristol.
Henderson, A., & Co., Pine-apple Place, Edgware Road, W.
Hooper & Co., Covent Garden Market, W.C.
Jackson, T., & Son, Kingston, Surrey.
Laird, W. P., & Sinclair, Dundee.
Lawson, P., & Son, Edinburgh.
Lee, J. & C., Royal Vineyard, Hammersmith, W.
Reid, B., & Co., Aberdeen.
Robertson, P. S., & Co., Edinburgh.
Smith, Richard, Worcester.
Sutton & Sons, Reading.
Turner, Charles, Royal Nurseries, Slough.
Wood, W., & Son, Woodlands Nursery, Maresfield, Uckfield.

Trade Prices will be supplied on application.

JAS. BACKHOUSE & SON, York Nurseries.

COCOA-NUT REFUSE delivered within 2½ miles of Charing Cross, at 2s. per bag.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—**Every Brush is stamped, J. BARSHAM's Patent.**

LAWES' WHEAT MANURE for AUTUMN SOWING. A supply of this above Manure is now ready for delivery, at J. B. Lawes' Deptford, Liverpool, and Barnsbury works. Price £5 per ton. Farmers and others who have hitherto had their seed sown before the Manure can be delivered, can now have it delivered at the same time and before the seed is sown. Orders to be addressed to Mr. Lawes, or through any of his accredited agents.

SUPERPHOSPHATE of LIME .. .. £5 0s. per ton.
MINERAL SUPERPHOSPHATE .. 5 5 " "

Genuine PERUVIAN GUANO direct from the Importers, and all Chemical Manures of value.

AMERICAN and other CAKES at market prices.

Address JOHN BENNET LAWES, Offices, 1, Adelaide Place, London Bridge, E.C.; and 22, Eden Quay, Dublin.

THE LONDON MANURE COMPANY (ESTABLISHED 1860).

Have now ready for delivery

WHEAT MANURE for Autumn Sowing.
DISSOLVED BONES, for Pasture Lands.
SUPERPHOSPHATES of LIME, &c.

Genuine PERUVIAN GUANO, NITRATE of SODA, ex Dock Warehouse, SULPHATE of AMMONIA, FISHERY SALT, &c.

Offices, 116, Fenchurch Street, E.C. EDWARD PARKER, Secretary.

Autumn Sowing.—Odams's Blood Manure for Wheat

MANUFACTURED BY THE PATENT

NITRO-PHOSPHATE or BLOOD MANURE COMPANY, LIMITED, consisting of Tenant Farmers occupying upwards of 20,000 Acres of Land.

Chairman—JOHN CLAYDEN, Littlebury, Essex.
Managing Director—JAMES ODAMS.

Full details of this Standard Manure may be obtained at the Offices, C. T. MACKRAN, Secretary, or of the Local Agents. Chief Office, 101, Fenchurch Street, London, E.C. Western Counties Branch, Queen Street Station, Exeter. Manufacturing Plant, Prestow, Essex, and Ebford, near Topsham, Devonshire.

LIME MANURE GRATIS at the immediate neighbourhood of Covent Garden Market.

Apply to LEWIS & SONS, 5, Stanhope Street, Clare Market, W.C.

PALM-NUT MEAL. Manufactured by ALEXANDER M. SMITH & Co., Kent Street Mills, Liverpool.

£6 10s. free to Rail or load in Liverpool.
£6 15s. delivered in Bristol.
£6 17s. delivered in Bath or London.

AMS L.

In Bags containing 2 cwt. each, sealed.

"This valuable Meal, containing about 20 per cent. of fatty matter, is recommended as an economical food to mix with home-cut hay, straw, &c." See Dr. VOELCKER, R. A. S. E. Journal, Vol. [illegible], page 179.

For full particulars and Analysis apply to Messrs. SMITH, or their Agents, Messrs. HEMMINGS & Co., Bristol.

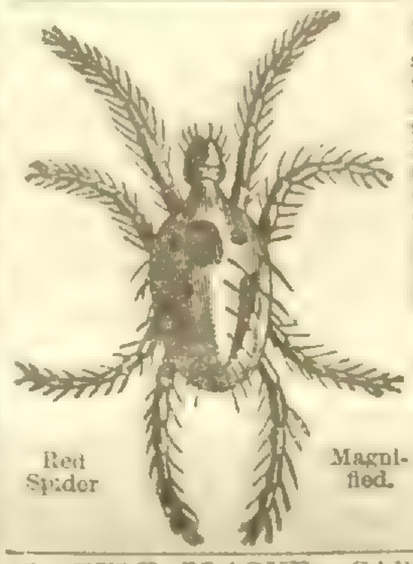
JOHN CHALMERS, Esq., Leadenhall Street, E.C., London Agent.

THOMSON'S STYPTIC for PREVENTING the **BLEEDING of VINES after PRUNING, is Manufactured and** Sold by JOHN YOUNG & Son, Dalkeith, N.B., and can be had of all Nurserymen and Seedsmen, in Bottles, price 2s., with directions for application. None is genuine unless the label on each Bottle bears the Signature of WILLIAM THOMSON.

Thomson's Styptic for Preventing the Bleeding of Vines.

BALLANTYNE AND SON have been appointed Agents for the Sale of THOMSON'S STYPTIC, which is highly recommended as being the most efficacious remedy yet introduced, and all who have tried it testify to its worth. In Bottles, price 2s., with full directions for use. The Trade supplied on liberal terms.

The Nursery and Seed Establishment, Dalkeith.



Red Spider. Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes, 1s., 3s., and 10s. 6d. each.

Wholesale by PRICE'S PATENT CANDLE COMPANY (LIMITED).

CATTLE PLAGUE.—CARBOLIC ACID (extensively used in Holland), the most powerful Antiseptic known. F. C. CALVERT & Co., Royal Institution, Manchester.

Cattle Plague.

PUBLIC NOTICE.—REPORT of the ROYAL COMMISSION. *See "Sanitary Recommendations and General Precautions to Prevent the Spread of the Disorder."*

THE DISINFECTING POWDER DESCRIBED IN THE REPORT IS

McDOUGALL'S PATENT DISINFECTING POWDER.—It is commended as the best means of Disinfecting Cattle Sheds, Farm Buildings, &c. Sold in bags, 1 cwt. each, at 10s. 6d., or £10 per ton. Carriage paid on ½-ton and upwards.

For Washing the bodies of both Healthy and Sick Cattle the Commissioners strongly recommend McDOUGALL'S PATENT DISINFECTING SOAP. Sold in 5lb. Cakes at 2s. 6d.; 10lb., 5s.; 20lb. kegs, 10s.; 50lb., 25s. Directions for use in each package.

ALEXANDER McDOUGALL, Manufacturing and Agricultural Chemist, London—11, Arthur Street West, London Bridge, E.C.; Manchester—Bridge Street, Spindle Hill; Glasgow—E. H. McLeod, 18, Dixon Street; Dublin—G. J. Alexander, 2, 3, and 4, Mary's Abbey. Agents in most Towns throughout the Kingdom.

NOURISHMENT.—CATTLE DISEASE.—Ninety out of every hundred Saved through using THORLEY'S NOURISHING TONIC STIMULATING FOOD. Only to be had in four-ounce packets, with the Inventor's signature engraved thereon, one penny each. An iron-bound case, containing 448 penny packets, sent carriage paid to any Railway Station in England, Ireland, Wales, or Scotland, also the Channel Islands, on receipt of Post Office Order for 30s., made payable to the Inventor and Sole Manufacturer, JOSEPH THORLEY, Spice Mills, Thornhill Bridge, King's Cross, London.

N.B.—No arsenic or other deleterious drugs are used in the manufacture of this Delicious Compound, which can only be had in penny packets. None other genuine.

EARTH CLOSETS (MOULE'S PATENT).

No Unwholesome Cesspools.
No Bad Smells.
No Water Pipes to get out of order.
The Best Night Commodes.
The Apparatus (price 25s. and 30s.) may be applied to any Closet at trifling cost, and is self-acting.
By its use a valuable Manure is saved, and Fertility to the Soil ensured.

Earth is recommended by the Privy Council, in their report on Cholera, as a deodoriser and disinfectant.

Extract from Letter received from the SECRETARY *of the* NATIONAL RIFLE ASSOCIATION.

"I am further directed to state that they (the Closets) proved of the greatest use, and were found to act admirably."

WHITE & Co., 29, Bedford Street, Strand, London, W.C.

OLDHAM SHOW, STAND 46.

Elvaston Nurseries.—Important to Planters.

WILLIAM BARRON begs to offer the following at extremely low figures to Noblemen, Gentlemen, and others engaged in Planting on a large scale:—

PINUS LARICIO (true).—This highly ornamental tree surpasses the Larch both as to rapidity of growth and quality of timber. It will thrive where the Larch will not. It is also used as spars and masts in the French navy. Two-year Seedlings.

PINUS ROMANA.—Two-year Seedlings.

PINUS PALLASIANA.—Two-year Seedlings.

ABIES MENZIESII.—Few people are aware of the value of the timber of this beautiful tree. 2½ to 3 feet.

PICEA NOBILIS.—Very fine. 6 to 9 inches.

BERBERIS DARWINII.—Too much cannot be said of this fine evergreen species. It is hardy, and the profusion of its orange-coloured blossoms, together with the quantity of berries which it bears (of which pheasants are very fond,) render it one of the most attractive and desirable plants for lawn, as well as cover planting, ever introduced. One-year Seedlings.

BERBERIS WALLICHIANA.—One-year Seedlings.

MAHONIA JAPONICA.—These plants cannot be too highly recommended. For cover planting they must become favourites. Their foliage is magnificent; they produce fruit in abundance, much relished by pheasants, &c., and are proved to be the hardiest of all hardy plants. 6 to 12 inches.

Prices will be forwarded on application.

Elvaston Nurseries, Borrowash, near Derby.

RICHARD SMITH,
NURSERYMAN and SEED MERCHANT, Worcester.

ROSES.—12 of the very best Standard, Perpetual, and Moss Roses for 18s.; 50 for 63s.; 100 for £5.
12 ditto Dwarf do. do. for 12s.; 50 for 42s.; 100 for 75s.
12 ditto, New Sorts of 1865, for 24s.
Descriptive List on application.

FORTY ACRES of FRUIT TREES.—Apples, Pears, Plums, Cherries, Peaches, Nectarines, and Apricots in every form desired for Fruiting.

DWARF-TRAINED TREES, by the Thousand, Hundred, or Dozen.
APPLES, PEARS, PLUMS, CHERRIES, PEACHES, and NECTARINES.
Fine, flat, well-trained, of best quality, and true to name.

PYRAMID APPLES, PEARS, PLUMS, CHERRIES.
Beautiful Trees for Garden or Orchard Houses.

ORCHARD-HOUSE TREES, Fruiting in Pots.—Peaches, Nectarines, Apricots, Cherries, Plums, Pears, Apples, Vines, and Figs.

EVERGREENS for Ornamental Planting or Avenues, handsome, well grown, and transplanted within the last two years. For prices of smaller sizes and quantities, see Conifer List.

At 30s. per dozen:—

Abies alba, 5 to 7 feet	Juniperus thurifera, 3 to 4 feet
„ Douglasii, 3 to 4 feet	Laurel, Colchic, 5 to 6 feet
„ inverta, 1½ to 2 feet	„ Portugal, Pyramids, 3 to 4 ft.
„ orientalis, 1½ to 2 feet	Pinus cembra, 3 to 4 feet
Arbor-vitæ, American, 6 to 7 feet	„ excelsa, 5 feet
„ Siberian, 4 to 5 feet	Taxodium sempervirens, 7 to 8 ft.
Cedar, Red, 5 to 6 feet	Thuja Lobbii, 3 to 4 feet
Cryptomeria viridis, 4 to 5 feet	„ aurea, 1½ foot
Cupressus Lawsoniana, 3 to 4 feet	„ compacta, 1½ to 2 feet
„ fragrans, 3 feet	Thujopsis borealis, 3 feet
Irish Yew, 4 to 5 feet	Wellingtonia gigantea, 2 feet

At 42s. per dozen:—

Abies Douglasii, 4 to 5 feet	Pinus excelsa, 6 feet
„ inverta, 2 to 2½ feet	„ Lambertiana, 3 to 4 feet
„ orientalis, 2 to 2½ feet	„ insignis, 3 to 4 feet
„ pyramidalis, 2 to 2½ feet	Thuja Lobbii, 4 to 5 feet
Araucaria imbricata, 2 to 2½ feet	„ compacta, 2 to 2½ feet
Arbor-vitæ, Siberian, 5 to 6 feet	„ aurea, 2 feet
„ American, 7 to 8 feet	Thujopsis borealis, 4 feet
Cedar, Red, 6 to 8 feet	Wellingtonia gigantea, 2½ feet
Cupressus Knightii, 6 to 7 feet	Yew, Irish, 5 to 5½ feet
„ Lawsoniana, 4 to 4½ ft.	Laurels, Pyramid, Portugal, 4 to 4½ feet
Juniperus thurifera, 4 to 5 feet	„ Colchic, 6 to 7 feet
Pinus Cembra, 4 to 5 feet	

At 60s. per dozen:—

Abies inverta, 2½ to 3 feet	Juniperus thurifera, 5 to 6 feet
„ Douglasii, 5 to 5½ feet	Laurels, Pyramid Portugal, 5 ft.
„ Menziesii, 5 to 6 feet	Pinus excelsa, 6 to 8 feet
„ orientalis, 2½ to 3 feet	„ Lambertiana, 5 to 6 feet
„ pyramidalis, 3 to 4 feet	„ Cembra, 5 to 6 feet
Araucaria imbricata, 2½ to 3 feet	Thuja japonica, 2½ to 3 feet
Arbor-vitæ, Siberian, 6 to 7 feet	„ aurea, 2½ feet
Cedrus Deodara, 6 feet	Taxodium sempervirens, 8 to 10 ft.
Cupressus Knightii, 7 to 8 feet	Wellingtonia gigantea, 3 feet
„ Lawsoniana, 5 feet	Yew, Irish, 6 feet

At 84s. per dozen:—

Abies Douglasii, 7 to 8 feet	Cedrus Deodara, 7 to 8 feet
„ inverta, 3 to 4 feet	Juniperus thurifera, 6 to 7 feet
„ Menziesii, 6 to 8 feet	Pinus excelsa, 8 to 10 feet
„ orientalis, 3 to 4 feet	Taxodium sempervirens, 10 to 12ft.

Each:—

Abies Douglasii, 8 to 10 ft., 12s. 6d.	Picea nobilis, 2½ to 5 ft., 21s. to 63s.
„ „ 10 to 12 feet, 15s.	„ Nordmanniana, 2½ to 4 feet, 10s. 6d. to 42s.
„ „ 12 to 15 feet, 21s.	„ „ 4 to 6 feet, 42s. to 84s.
„ inverta, 4 to 5 feet, 10s. 6d.	„ Pinsapo, 3 to 5 ft., 10s. 6d. to 42s.
„ „ 6 feet, 21s.	Pinus excelsa, 10 to 12 feet, 10s. 6d.
Araucaria imbricata, 3 to 4 feet, 7s. 6d. to 21s.	„ „ 12 to 15 feet, 15s.
„ „ 4 to 8 ft., 21s. to 84s.	„ Lambertiana, 6 to 8 feet, 10s. 6d. to 21s.
Cedar of Lebanon, 8 to 10 feet, 21s.	Thuja incurvata, 8 to 9 ft., 10s. 6d.
Cedrus Deodara, 8 to 10 ft., 10s. 6d. to 21s.	Taxodium sempervirens, 12 to 15 feet, 10s. 6d. to 15s.
Picea nobilis, 2 to 2½ feet, 10s. 6d. to 21s.	

American Arbor-vitæ, for Hedges, 3 to 4 feet, at 50s. per 100.
„ „ „ 4 to 5 feet, at 75s. „
„ „ „ 5 to 6 feet, at 100s. „

FLOWERING and STANDARD ORNAMENTAL TREES. At 12s. per dozen:—

Ash, Mountain, 7 to 9 feet	Chestnut, Spanish, 6 to 8 feet
Acacia, 7 to 9 feet	Hornbeam, 8 to 10 feet
Birch, Weeping, 8 to 10 feet	Poplar, Silver, 8 to 10 feet
Crab, Siberian, scarlet, 6 to 7 feet	„ Lombardy, 9 to 10 feet
„ yellow, 6 to 7 feet	Pyrus spectabilis, 6 to 7 feet

At 18s. per dozen:—

Almond, flowering, 7 to 8 feet	Chestnut, Spanish, 8 to 10 feet
Acacia, 8 to 10 feet	Cytisus, 3 to 4 feet
Ash, Mountain, 9 to 12 feet	Elm, Chichester, 8 to 10 feet
Acer Negundo, 6 to 8 feet	Poplar, Lombardy, 11 to 12 feet
Birch, 10 to 12 feet	„ Silver, 10 to 12 feet
Crab, Siberian, yellow, 7 to 8 feet	Pyrus spectabilis, 7 to 8 feet
„ scarlet, 7 to 8 feet	Thorn, double pink, 6 to 7 feet

At 30s. per dozen:—

Almond, flowering, 8 to 10 feet	Cytisus in variety, 4 to 5 feet
Acer Negundo variegata, 6 to 8 ft.	Poplar, Silver, 12 to 15 feet
Acacia, ball, 6 to 7 feet	Thorns, double pink, 8 to 10 feet
Chestnut, scarlet, 6 to 8 feet	Willow, Ameri. Weeping, 6 to 8 ft.

RICHARD SMITH'S LIST of all the EVERGREEN FIR TRIBE, suitable for Britain, giving size, price, popular and botanical names, derivations, description, form, colour, foliage, growth, timber, use in arts, native country and size there, situation, soil, and other information, with copious Index of their synonymes.
Enlarged Edition, free by post for 12 postage stamps.

RICHARD SMITH'S FRUIT LIST contains a sketch of the various forms of Trees, with Directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Cropping, Treatment under Glass; also their synonymes, quality, size, form, skin, colour, flesh, flavour, use, growth, duration, season, price, &c.
Free by post for one stamp.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

LARGE HORSE CHESTNUTS.
Large SCARLET HORSE CHESTNUTS.
Large ENGLISH and HUNTINGDON ELMS.
Extra large ORNAMENTAL & FOREST TREES for immediate effect
WM. WOOD & SON have a very large and well-grown stock of the above.
Woodlands Nursery, Maresfield, near Uckfield, Sussex.

J. DILLISTONE, of the Vale Nursery, Ramsgate, has to offer a few quarts of very fine ACORNS, of 6 varieties of Evergreen Oaks. The parent trees are now growing within 5 minutes walk of the sea. They stand on the most north-east point of England, and although growing and influenced by the most violent gales, their symmetry is unequalled. Price 2s. per quart.

J. D. also offers, on receipt of Post Office Order for 10s. 6d., 12 choice PERPETUAL ROSES, and 100 fine strong MANETTI CUTTINGS, which if planted at once will be fit to bud next July. Also a few dozen pairs of fine old Crimson CLOVES, pure White do., old dark Red do., at 6d. per pair if 12 pairs are taken.

Late DUTCH HONEYSUCKLES at a low price to the Trade.
Post Office Orders to be made payable at Ramsgate.
JOHN DILLISTONE, Nursery, Vale Road, Ramsgate.

70,000 Carnations and Picotees, 40,000 Pinks

OF THE CHOICEST KINDS, NOW READY FOR SENDING OUT.

ROYAL NURSERIES, GREAT YARMOUTH.

YOUELL AND CO. beg to offer to the Nobility, Gentry, and Trade generally, their extensive and superb Collection of the above, which are this season, as usual, strong and healthy, at the undermentioned prices.

CARNATIONS and PICOTEES.

YOUELL & Co.'s collection of these is probably the most extensive in the Trade, and having for a series of years paid special attention to their cultivation, introducing the best of the new varieties, they are enabled to offer them at the following prices for fine strong well-rooted plants:—

CARNATIONS, finest first-class varieties, by name, 18s. and 24s. per dozen pairs.
PICOTEES, finest first-class varieties, by name, 18s. and 24s. per dozen pairs.
Ditto, on yellow grounds, 20s. and 30s. per dozen pairs.
Finest mixed BORDER CARNATIONS and PICOTEES, 9s. per dozen pairs.

NEW ITALIAN YELLOW CARNATIONS.

YOUELL & Co. have succeeded in importing 25 very choice, distinct, and beautiful varieties of the above—the ground colours being a rich yellow, striped and suffused with various shades of scarlet, crimson, purple, plum, and blue; they are extremely hardy, very strong growers, highly fragrant, and will give general satisfaction. Price 3s. 6d. per pair, or 40s. per dozen pairs, of the most distinct kinds.

PERPETUAL FLOWERING or TREE CARNATIONS,
FLOWERING SUMMER AND WINTER.

This deservedly popular class has of late received many additions to its hitherto general favourites. They cannot be too strongly recommended, not only for their delightful fragrance, but the brilliant display they afford during the autumn and winter months, either in the Greenhouse, Conservatory, or open Garden in Summer Price 12s. to 18s. per dozen plants.

NEW SCARLET CLOVE CARNATION GARIBALDI.

YOUELL & Co. have much pleasure in offering the above magnificent variety, far surpassing any in cultivation; colour intense vivid scarlet, large and bold flowers, fine pod free from bursting; the delicious Clove scent which it possesses is not to be equalled in any of its class. Price 5s. per pair; if 12 pairs are ordered, £2.

NEW WHITE CLOVE CARNATION PRINCESS ALICE.

YOUELL & Co. beg to offer the above desirable variety, which possesses the same properties as Garibaldi (only differing in colour), being of the finest snowy white; undoubtedly the finest white and highly scented Clove Carnation ever offered. Price 5s. per pair; if 12 pairs are ordered, £2.

PINKS.

Our extensive Collection of these enables us to offer the finest first-class varieties by name, at 9s. and 12s. per dozen pairs.
Fine Mixed for Borders, 6s. per dozen pairs.
Trade price on application.
Royal Nurseries, Great Yarmouth.

For Season 1866.

Seeds in sealed packets Post Free.

B. S. WILLIAMS, Paradise and Victoria Nurseries, Holloway, London, N., begs to offer the following valuable SEEDS. They have each been carefully tried by competent judges, and proved to be quite equal in their qualities to the description given of each below.

MALVERN HALL MELON (SCARLET FLESH).—A valuable variety. This kind has been proved by the side of 30 of the best to be the earliest to ripen, and the freest in setting its fruit. The following description of it by Mr. Edlington, Head Gardener to the Earl of Strafford, Wrotham Park, in the *Scottish Gardener*, conveys a very just idea of its properties. He writes:—

"I have no hesitation in asserting that the above Melon is second to none in cultivation. I might even go a step further and not err in placing it first on the list of Scarlet-fleshed kinds. Gem, grown in the same house, and subjected exactly to the same treatment, bore no comparison in any one point. The Malvern Hall is most deliciously flavoured, remarkably thin-skinned, a very free setter, and early. These properties, in my judgment, constitute a first-class Melon.

"The Malvern Hall is nicely ribbed and moderate in size; those I grew this season averaged 2½ lb.—a size I consider amply large enough for ordinary desserts. Those who have not grown the Malvern Hall I recommend to do so, and those who have will, I think, agree with my remarks." Price 2s. per packet.

WILLIAMS'S MATCHLESS RED CELERY.—This variety has been in cultivation for several years, and all who have grown it pronounce it to be the best Red Celery. It is a dwarf grower and remarkably hardy, not apt to run to seed, but will last good till the middle of April. In flavour it is much superior to the other varieties, always possessing that sweet crispness which several of the other kinds, under some cultivation, entirely lack. When more known, its excellent qualities will cause it to become the leading variety. Price 1s. per packet.

DIGSWELL PRIZE ENDIVE is invaluable for its hardihood and good hearting qualities. As a curled-leaved sort, holding that happy medium between a coarse weedy kind and varieties so endwarfed and curled as to be of very small size, and very readily cut off by slight frosts, it took the First Prize at the International Fruit and Vegetable Show, R.H.S., 1864, and again the First Prize at the Dublin International Fruit, Root, and Vegetable Show, Oct. 3, 1865. Price 1s. per packet.

FIRST-CLASS EDGING PLANT, OXALIS CORNICULATA RUBRA.—A valuable perennial Ribbon-border Plant. A writer in the "Journal of Horticulture" thus speaks of it:—

"For edging purposes in narrow borders or small beds there is no plant of its colour so admirably adapted. It is compact in habit, rarely exceeding from 4 to 6 inches high, with foliage resembling the finest tinted Beet, and surpassing the Perilla in my estimation. In its younger growths it resembles the Amaranthus melancholicus ruber; but as it advances, the foliage assumes a darker tint. It strikes freely at any season, as freely as a Verbena, and will bear the same winter treatment, or it may be raised from seed; but it is a rather difficult matter to secure seed, owing to the extreme irritability of the seed-vessels characteristic of this class of plants."

If sown in February and March, like Lobelia speciosa, and treated like it, nice plants are obtained for planting out in May. Good plants may also be secured by sowing in pans in a frame late in summer, and, when large enough to handle, pricking off in small pots in sandy loam with a little leaf-mould and sand, and wintering in a cold frame. It is a charming plant for the lower fissures of rockwork. The flowers are bright yellow.
Price 1s. 6d. per packet.

The following Seedsmen have already ordered a supply:—

Messrs. W. Cutbush & Son, Highgate, London, N.	Messrs. P. Lawson & Son, Edinburgh.
„ W. Drummond & Sons, Stirling, N.B.	„ J. & C. Lee, Hammersmith.
„ Fisher, Holmes, & Co., Sheffield.	„ Sutton & Sons, Reading.
„ A. Fowler & Son, Glasgow.	Mr. B. Crossland, Sheffield.
„ Hurst & Son, 6, Leadenhall Street, London, E.C.	„ W. Dean, Bradford, Yorkshire.
	„ T. Gilbert, Coventry.
	„ C. Turner, Slough.

A liberal allowance to the Trade. Price forwarded on application.

NURSERY STOCK, UNSURPASSED for BEAUTY, HEALTH, and VARIETY.

FOREST TREES are grown in large breadth, and are supplied at low prices.

CONIFEROUS TREES and SHRUBS are extensively grown, in all sizes from 1 to 12 feet, and at prices to tempt purchasers.

DECIDUOUS SHRUBS are fine in quality, numerous in variety, and low in price.

DEODAR CEDARS are offered at 2s. 6d. to 5s. each, according from 4 feet to 8 feet.

BIOTAS, CUPRESSUS, JUNIPERS, PINUSES, THUJAS, and many other families, are grown in large numbers, and in sizes varying from 1 to 12 feet.

DESCRIPTIVE PRICED CATALOGUES are ready to be sent gratis; also the SEED CATALOGUE.

Apply to J. SCOTT, Merriott, Somerset.

ONE of the LARGEST and BEST COLLECTIONS of FRUIT TREES in ENGLAND.

APPLES, in 300 sorts, on Doucin, Pomme Paradis, and Free stock, Dwarf-trained, Pyramids, and Standards.

APRICOTS, 24 sorts, Dwarf-trained and Maiden, extra fine trees.

CHERRIES, 50 sorts on Mahaleb: Dwarf-trained, Pyramids, and Standards, a magnificent stock.

PEACHES and NECTARINES, 50 sorts, Dwarf-trained for walls, splendid trees.

PEARS, 550 sorts on Pear Stocks, and 250 sorts on Quince Stocks. They are offered as Dwarf-trained, Pyramids, and Standards; the Pyramids are from 2 to 12 feet high, full of fruit buds and well root pruned.

PLUMS, 100 sorts, in Dwarf-trained, Pyramid, and Standards, healthy and fine.

Also CURRANTS, FIGS, GRAPES, MEDLARS, NUTS, QUINCES, RASPBERRIES, STRAWBERRIES, and WALNUTS, all free from stuntedness, canker, or blight of any kind.

DESCRIPTIVE PRICED CATALOGUE, with cultural directions and many useful notes, sent free. It is allowed to be the best Catalogue on Fruit Trees out.

The VEGETABLE and AGRICULTURAL CATALOGUE is also ready, gratis.

Apply to J. SCOTT, Merriott, Somerset.

Surplus Stock of Evergreens, &c.

WILLIAM BOOSEY, The Nurseries, Middlewich, Cheshire, will be glad to furnish, on application, specific quotations for Transplanted EVERGREENS, &c., consisting of Hollies, Siberian Arbor-vitæ, Berberis Aquifolium, Pinus austriaca, Pinus excelsa, Abies Menziesii, Portugal Laurels, Yews, Cotoneaster, Pernettya, Lombardy Poplar, Horse Chestnuts, &c., of various sizes and of excellent quality.

F. PERKINS begs to offer the following, all of which are in fine condition for removal:—

LIMES, 6 to 8, 8 to 10, and 10 to 12 feet.
COPPER BEECH, 5 to 6, and 6 to 8 feet.
LOMBARDY POPLARS, 6 to 8, 8 to 10, and 10 to 12 feet.
HORSE CHESTNUTS, 6 to 8 feet.

Also a large quantity of LARCH FIR, 1½ to 2, 2 to 3, and 3 to 4 ft.
PAMPAS GRASS, fine in pots. Prices on application to
FREDERICK PERKINS, Bedford Road Nurseries, Northampton.

W. P. LAIRD AND SINCLAIR, Dundee, N. B., will be glad to make cheap offers of the following:—

SEEDLINGS.—1-yr. and 2-yrs. Larch; 2-yrs. Pinus Laricio; 1-yr. Sycamore; 2-yrs. Apples; 2-yrs. Oaks; 1-yr. and 2-yrs. Pinus maritima; 1-yr. White Broom; 2-yrs. Ash; 1-yr. Elm; 1-yr. Hazels; 1-yr. Hollies.

TRANSPLANTED.—Strong Larch, various sizes; 2-yrs. Scotch Fir; Silver Fir, 9 to 12 inches, fine clean leaders; strong Thorns, Irish Yews, 3 to 4 feet; Irish Junipers, various sizes; Abies pontica, 6 to 12 inches; Daphne neapolitana. Named Carnations. Potatos, best Garden varieties.

N.B. A few of the True Old DOUBLE WHITE ROCKETS to spare.

To Noblemen and Gentlemen about to be engaged in Planting.

DICKSONS AND CO., NURSERYMEN, SEEDSMEN, and FLORISTS, Waterloo Place, Edinburgh, have this season a large and very healthy stock of Seedling and Transplanted LARCH (native and Tyrolese), True Native Highland SCOTCH FIR, Spruce, Oak, Plane or Sycamore, Spanish Chestnut, Alder, Ash, Elm, Thorn, Quick, Beech, Evergreen Privet, Poplar, Willow, &c., as well as all other kinds of Forest and Ornamental Trees and Shrubs, Fruit Trees, Roses, Greenhouse and Stove Plants, Herbaceous and Alpine Plants, Ferns, &c.

Their Forest Trees, which are grown on exposed ground, are this season finely ripened, and can be sent with perfect safety to any part of the kingdom.

Samples and prices will be sent free on application.

New and Select kinds of Fruit.

MESSRS. THOS. RIVERS AND SON have much pleasure in making known the following kinds of Fruits. The Trees are not expensive, but the quality of all is guaranteed, the Trees having borne fruit with them. A DESCRIPTIVE CATALOGUE of FRUITS now ready free per post.

APRICOTS.

Early Moor Park, dwarfs, 2s. 6d.; trained, 5s.
Oulins' Early Peach, dwarfs, 2s. 6d.; trained, 5s.

These are the finest of all the very early Apricots, ripening a fortnight before the Moor Park.

CHERRIES.

Early Black Bigarreau, very early, 3s. 6d.
Bohemian Black Bigarreau, very large, 3s. 6d.
Early Purple Guigne, the earliest and finest known; pyramids, 2s.; trained trees, 3s. 6d.
Early Red Guigne, very early, 2s. 6d.
Large Black Bigarreau (Crimea), 2s. 6d.
Large Red Bigarreau, 2s. 6d.
Late Mottled Bigarreau, very large, 2s. 6d.
Late Purple Guigne, large and late, 2s. 6d.
Early Red Bigarreau, the earliest of its class, 2s. 6d.
Ludwig's Bigarreau, large and rich, 2s. 6d.
Rival, a very late Black Cherry, 2s. 6d.
Love Apple Cherry, very large, 2s. 6d.
Transparent, late and very good, 2s. 6d.

GRAPES.

Early Golden Frontignan, bearing canes, 10s. 6d.
Early Smyrna Frontignan, 7s. 6d.
These are two of the earliest and finest of this class. They will ripen on open walls and in cool vineries.
Trovéren Frontignan, bunches and berries large and very rich. Bearing canes, 7s. 6d.; planting canes, 5s.
Early Black Bordeaux, berries nearly as large as Black Hamburgh, very rich, ripen from four to five weeks earlier, 7s. 6d.

NECTARINES.

Prince of Wales (Rivers), a fine late September sort; dwarfs, 3s. 6d.; trained trees, 7s. 6d.
Victoria (Rivers), the finest known, dwarfs and pyramids; bearing trees, in pots, 5s; trained trees, 7s. 6d.; half standard and standard maiden trees, 5s.
Pine Apple (Rivers), a large and late variety of the Pitmaston; dwarfs, 2s. 6d.; bearing pyramids, in pots, 5s.

PEACHES.

Golden Rathripe, early and very large; dwarfs, 3s. 6d.
Princess of Wales (Rivers), large, rather late, very fine; dwarfs, 5s.
Prince of Wales (Rivers), very large, excellent; dwarfs, 5s.
Honey Peach, from China, very sweet; dwarfs, 3s. 6d.
Stump the World, very large and good; dwarfs, 2s. 6d.
Canary, bright yellow; dwarfs, 3s. 6d.
Exquisite, bright orange, very large; dwarfs, 2s. 6d.
Hale's Early, a new American early Peach; dwarfs, 3s. 6d.

PEARS.

Summer Beurré d'Aremberg (Rivers), a delicious early Pear, forms a natural pyramid; fine pyramids, 5s.
Passe Crassane (not Surpasse Crassane), a fine late Pear, 3s. 6d.
La Sœur Gregoire, a fine December Pear, 3s. 6d.

PLUMS.

Transparent Gage, the finest of all Plums, dwarfs and pyramids, 3s.
Decaisne, a large yellow Plum, earlier than Coe's Golden Drop; dwarfs, 2s. 6d.
Earliest Green Gage, a freestone and very early; dwarfs, 2s. 6d.
Early Cluster (Rivers), a rich early culinary Plum, 2s. 6d.
Large Black Imperial, a very large culinary Plum, 2s. 6d.
Cluster Damson, a most abundant bearer; pyramids, 2s. 6d.

STRAWBERRIES.

Royal Hautbois (Rivers), the largest and best of its class, 7s. 6d. per 100.

Carriage of all packages paid to London.

Nurseries, Sawbridgeworth, Herts.

2000 VINES, from Eyes, strong and extra strong, for immediate Fruiting in Pots, and for Planting; including all the leading varieties, with stout, close-jointed, and thoroughly ripened Canes, many of which will produce from 4 to 5 lb. of Grapes next season. Prices and particulars upon application to
JAMES DICKSON & SONS, The "Newton" Nurseries, Chester.

Extra, extra strong Fruiting Vines.

FRANCIS AND ARTHUR DICKSON AND SONS, The "Upton" Nurseries, Chester, beg to direct attention to their very large stock of the above, which includes the newest and best varieties in cultivation. They have been pronounced to be "magnificent stuff" by all who have seen them, and they believe a finer lot of Vines were never grown. Inspection invited.
Prices and all particulars on application.
Sample plants sent if desired.

Fruiting Vines, in large pots, extra strong Canes.

GRAPE VINES, IN 6-INCH POTS, FOR PLANTING OUT.

WM. WOOD AND SON having a very superior stock of the above, beg to solicit early orders to insure the strongest canes. Address,
Woodlands Nursery, Maresfield, near Uckfield, Sussex.

Fruiting Vines, Camellias, &c.

JAMES CARTER AND CO. have NOW on VIEW at their Crystal Palace Nursery, Perry Hill, Sydenham, S.E., a large and choice COLLECTION of extra strong FRUITING VINES in Pots, well-ripened, and sure to produce a heavy crop of Fruit, at from 10s. 6d. to 12s. 6d. each; also, a large assortment of the best kinds of CAMELLIAS, well set with Buds, at 24s. to 42s. per dozen; also, a choice COLLECTION of CHRYSANTHEMUMS, fit for present season's blooming, at 6s. per dozen.
PRICE LISTS gratis and post free on application to
JAMES CARTER & CO., 237 and 238, High Holborn, London, W.C.

Pine Plants and Vines.

THOMAS PAPE can supply strong Fruiting and Succession PINE PLANTS of Providence, Black Prince, Montserrat, Queens, and Jamaicas. Also strong VINES for fruiting in pots or planting out, of all the leading kinds.
Undercliffe Gardens, Bradford, Yorkshire.

Ottersham Nurseries, Chertsey.

WILLIAM FLETCHER begs to offer a large Stock of Dwarf-trained CHERRIES, APRICOTS, PEACHES, NECTARINES, and PLUMS; also MAIDEN and CUT-BACK TREES of the above. EVERGREENS, FOREST TREES, and all kinds of NURSERY STOCK.
Prices forwarded on application.

Lancashire Show Gooseberries and Currants.

M. A. LAKE, The Nurseries, Bridgewater, has to offer several thousand of the above, of the choicest kinds.
EVERGREEN HOLLIES, from 1 to 2 feet, and EVERGREEN PRIVET; also HORSE CHESTNUTS, ELMS, OAKS, SYCAMORE, MAPLE, and POPLARS, of sorts; fine Trees, from 10 to 12 feet.
Prices moderate, which will be forwarded on application.

PEACH TREES for Cordons; Pyramidal PEACH, APRICOT, and NECTARINE TREES, in pots, full of blossom buds, 5 to 6 feet in height, for diagonal cordon training or pot culture. Average price, 5s. each. The above have all been under close summer pinching, and are very handsome Trees.
Messrs. THOS. RIVERS & SON, Nurseries, Sawbridgeworth.

MAGNIFICENT Dwarf-trained FRUIT TREES, PEACHES, NECTARINES, APRICOTS, PLUMS, and CHERRIES; extra fine Trained MAY DUKE and MORELLO CHERRIES; ROYAL GEORGE PEACHES. Prices very moderate.
STANDARD-TRAINED PEACHES.—WM. WOOD & SON have an enormous stock to offer of the above. They feel certain the Trees cannot be surpassed in quality.
Woodlands Nursery, Maresfield, near Uckfield, Sussex.

B. S. WILLIAMS begs to direct special attention to the undermentioned, of which he now holds a fine stock. PRICED and DESCRIPTIVE LISTS can be had on application.
VINES.—Strong Planting and Fruiting Canes of all the best varieties, including the new Grape ROYAL VINEYARD.
PINES.—Strong Fruiting and Succession plants, and suckers of all the leading kinds.
BECK'S NEW PELARGONIUMS.—For the present season, at the moderate price of 10s. 6d. each; also a large assortment of the best PELARGONIUMS and GERANIUMS, including BEATON'S best NOSEGAYS.
DUTCH BULBS.—Splendid roots of the strongest flowering HYACINTHS for glasses or pots, at 6s., 8s., 9s., 10s. and 12s. per dozen. POLYANTHUS, NARCISSUS, CROCUS, Early TULIPS, and all other bulbs.
ENGLISH-GROWN SEEDLING GLADIOLI, 9s. and 12s. per dozen, ready next month. As the supply of these is limited, early orders are solicited.
Paradise and Victoria Nurseries, Holloway, London, N.

New Rhododendrons.

JOHN WATERER is prepared to execute Orders for the following Six RHODODENDRONS at the subjoined price. They are this season offered for the first time, and are particularly recommended for the following qualities, viz, Hardiness, fine Foliage, Free Bloomers, and as being perfectly distinct from any other known kinds.
ALEXANDER ADIE.—Brilliant rosy scarlet.
SIR JAMES CLARK.—Dark shaded crimson.
SIR WILLIAM ARMSTRONG.—A very bright crimson.
THE DUCHESS OF SUTHERLAND.—Nearly white centre bordered with rose.
LADY EMILY PEEL.—A very bright rose, intensely marked with chocolate-coloured spots.
RAPHAEL.—Reddish crimson, and large bold flower.
The Set for 6l. 6s. Usual discount to the Trade.
The American Nursery, Bagshot, Surrey.

Hardy Scarlet Rhododendrons.

JOHN WATERER'S CATALOGUE of HARDY SCARLET and other CHOICE RHODODENDRONS as annually displayed in the Royal Botanic Gardens, Regent's Park, can now be had on application.
It contains faithful descriptions of all the varieties really worthy of cultivation, as well as a selection of HARDY CONIFERS, with heights and prices, with ORNAMENTAL EVERGREENS, FOREST TREES, &c.
The American Nursery, Bagshot, Surrey.

Rhododendrons.

JOHN WATERER begs to offer the following Six RHODODENDRONS, in good, strong, healthy plants, at 4l. 4s. the Set, the usual discount to the Trade:—

SIDNEY HERBERT	MRS. FITZGERALD
JOSEPH WHITWORTH	THE WARRIOR
SIR ROBERT PEEL	SURPRISE

The American Nursery, Bagshot, Surrey.

American Plants, New Hardy Rhododendrons.

WATERER AND GODFREY'S PRICED and DESCRIPTIVE CATALOGUE of AMERICAN PLANTS, as exhibited in the Horticultural Gardens, South Kensington, free on application. This Catalogue fairly describes the Rhododendrons most worth growing, as well as some new and very handsome kinds exclusively in their possession, and now for the first time offered.
Knap Hill Nursery, Woking, Surrey.

BUTLER AND McCULLOCH, SEED MERCHANTS, South Row (or Strand side), opposite Southampton Street, Covent Garden Market, London, W.C., beg to offer the following choice COLLECTIONS of DUTCH and CAPE FLOWERING BULBS, all of the first size and quality.

FOR GREENHOUSE.

No. 1.	No. 2.	No. 3.	No. 4.	No. 5.	No. 6.
100s.	50s.	25s.	21s.	15s.	10s. 6d.

FOR FLOWER GARDEN.

No. 7.	No. 8.	No. 9.	No. 10.	No. 11.	No. 12.
100s.	60s.	40s.	25s.	21s.	10s. 6d.

FOR GREENHOUSE and FLOWER GARDEN.

No. 13.	No. 14.	No. 15.	No. 16.	No. 17.	No. 18.
105s.	52s. 6d.	42s.	21s.	15s.	10s. 6d.

All orders amounting to 21s. and upwards sent carriage paid.
BUTLER & McCULLOCH, Covent Garden Market, W.C.

Chrysanthemums.

ADAM FORSYTH begs to inform his friends and the public that his Specimen and other CHRYSANTHEMUMS are NOW in FLOWER, and can be seen every day, Sunday excepted.
Brunswick and Shacklewell Nurseries (opposite West Hackney Church), Stoke Newington.

Wholesale Catalogue.

GEORGE JACKMAN AND SON will have much pleasure in forwarding on application, free by post, their DESCRIPTIVE and PRICED CATALOGUE of NURSERY STOCK for 1865 and Spring 1866.
Woking Nursery, Surrey.

Early Spring Flowers.

WEBB'S GIANT POLYANTHUS, and GIANT COWSLIPS, and other varieties, largest stock in England.
List and prices on application to Mr. WEBB, Calcot Gardens, Reading.

SPRING-BLOOMING PLANTS, FLOWER ROOTS, &c.—Polyanthus, Violets, Pink, Red and White Daisy, Alyssum, Lavender, Arabis, Wallflowers, Cheiranthus Marshallii, Cowslip, Gentiana acaulis, and a general collection of Rock and Herbaceous Plants.
THOMAS S. WARE, Hale Farm Nurseries, Tottenham, N.

J. IVERY AND SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

NEW RUSSIAN VIOLET, THE CZAR. Raised by F. J. GRAHAM, Esq., and awarded two First-class Certificates. NOW in BLOOM, and will last till May. The flowers attain 1¼ in., and the leaves 5½ in.
Very large Plants may be had of Mr. JOHN GRAHAM, Cranford, £5 per 100; 12s. per dozen, pre paid. An Allowance to the Trade.

New Catalogue of Plants, Dutch Bulbs, &c.

ROBERT PARKER begs to announce that his NEW CATALOGUE, containing Select Descriptive and Priced Lists of New, Rare, and Beautiful Greenhouse, Hardy, and Stove Plants, Fruit Trees, Grapes, &c., Amaryllis, Crocuses, Gladioli, Hyacinths, Narcissus, Tulips, and other Bulbs, is now published, and will be forwarded to applicants.
Exotic Nursery, Tooting, Surrey, S.

To the Trade.—Pampas Grass Seed.

SUTTON AND SONS having succeeded in harvesting good plump SEED of the above, can supply it on advantageous terms. Price to the Trade on application.
SUTTON & SONS, Seed Growers, Reading.

New Seeds, Growth of 1865.

ROYAL BERKSHIRE SEED ESTABLISHMENT.

SUTTON AND SONS are now prepared to execute orders for all kinds of GARDEN SEEDS.
The prices are moderate and the quality fine, owing to their having been harvested well.
Royal Berkshire Seed Establishment, Reading.

The Gardeners' Chronicle.

SATURDAY, DECEMBER 9, 1865.

MEETING FOR THE ENSUING WEEK.

SATURDAY, Dec. 9 to 16 { Royal Horticultural (International Show of Fruit and Vegetables, and Weekly Show), at South Kensington.

EVERY day proves more clearly what great caution ought to be exercised in PLANTING on ground which has formerly been occupied by trees. A few sceptical remarks are occasionally heard, leaning simply on mere negatives, but the positive proofs are too numerous and stringent to leave any room for doubt. We have now before us a portion of the roots of a Wellingtonia, which were in close proximity to an old decayed post, and are now densely clothed with fungous spawn, which is rapidly destroying the tree, one of an avenue of 160; and fears are entertained that the rest will suffer. Different remedies have been tried without any success, and we feel convinced that any chemical which could reach the diseased roots through the soil, would soon destroy those roots which still remain sound. The only plan likely to succeed is to lift the trees carefully, and prune away every diseased root. We have known this treatment successful, and we can suggest no other.

There is little doubt that a large portion of the Larch-rot is due to this cause, and we have been informed by an extensive forest owner in Scotland, that after a plantation of Scotch Fir is cut down, it is useless replanting it till the ground is covered with strong Heath, by which time the old roots have lost their power of mischief. It would be easy to suggest other chemicals than those which have been tried, but we feel quite sure that the attendant expense, which might be considerable, would only end in disappointment. In this, as in so many other instances, prevention is much easier than cure. If trees must be planted where others have preceded them, there is little chance of success except the ground is deeply trenched and every root removed. *M. J. B.*

WE have on more than one occasion adverted to the importance of having the PLANTS in our public parks and gardens legibly NAMED, particularly such plants as are of especial interest, owing to their being used as food, or medicine, or in the arts and manufactures. Without objecting in any way to such plants having their Latin or scientific names attached to them, we would have their English names in particular placed conspicuously before them. Our public parks and gardens, being designed for the recreation and instruction of the people at large, would be rendered more interesting and instructive by this matter being better attended to.

We alluded to this subject last year when making some friendly criticisms on the sub-tropical garden at Battersea Park, and on the garden of the Royal Horticultural Society at Chiswick, and we endeavoured to show how much Mr. GIBSON would add to the pleasure of the numerous visitors to Battersea if he would put English names to the many interesting things there, which, even without names, attracted thousands from all parts of the metropolis, and indeed from all parts of the country, to look at them. On paying a visit to Battersea a short time ago we were glad to notice that this year the only fault we had to find with the sub-tropical garden had been removed, and that all plants of more than usual interest, owing to the uses to which they are applied, had their names placed in front of them. Nor were our expectations as to the result of this arrangement at all disappointed. The sub-tropical garden was apparently more crowded than ever, and the visitors were evidently more thoroughly enjoying the sight of the plants on account of being able to ascertain what those odd un-English looking forms really were. They had been pleased on former occasions with the new and strange sorts of foliage which they looked upon, but now they were doubly interested by knowing, for example, that that tall plant with the dark-coloured broad leaves was the Castor Oil, or that another was the Rice-paper plant of China, another the Bamboo, and so on. What enjoyment has this little addition given to the poor pent-up Londoner, who runs up to Battersea on a Sunday for a little country and fresh air—what pleasant little lectures has he been able to give to his wife and children, and how easily and inexpensively has this enjoyment been supplied! All honour, then, to the authorities of Battersea for this new boon to the public, and we say to others, "go and do likewise." We may add that the plants in the sub-tropical garden this year were particularly luxuriant and healthy. Owing to the hot summer and autumn, no doubt, they had made a most luxuriant growth. In former years we have heard more than one person express a doubt as to the success of this style of gardening. The plants, they said, merely existed, but did not grow. This year, however, there could be no doubt as to their growth, which in many instances was of the most luxuriant kind; indeed many of them looked much more healthy and vigorous than they do usually in our stoves and greenhouses.

In Kensington Gardens, in St. James's Park, and in many others of our London public gardens, a laudable desire is evinced to instruct the public by adding the English to the botanical names of our shrubs and trees. Sometimes, however, the attempts to render the Latin names into English, if not very successful, have been at least rather amusing. For example, there is, or was, in Kensington Gardens, a plant named the *horrid-looking* Colletia, and another was called the *fierce* Rose. What was horrid about the Colletia horrida, or very fierce-looking about the poor little Rose, we could not discern. The names so translated, if we take them in their vulgar sense, were certainly not very complimentary to either of the plants we have mentioned.

When writing on the subject of naming plants, we are naturally brought to another matter which we think deserves some attention. We allude to the way in which many of our new introductions are named by persons who have but little acquaintance with botanical science. The time was, and that not very long ago, when no one, or at least very few individuals, thought of naming plants unless they were able at the same time to describe them in a scientific manner, and in a way fit for publication. Now-a-days, all who can write their name, and, shall we say, some who are almost unable to do this, take upon themselves the responsibility of

giving plants scientific names (so called!), and truth compels us to say that not unfrequently such names are calculated to bring discredit upon botanical science. And in addition to this the system has a tendency to throw the whole of our garden botanical nomenclature into the most inextricable confusion. For example, a plant is introduced to England and then sent out to the public with, probably, a long string of queer-looking Latin names, without its being figured or described in any recognised botanical publication. When, at last, the said plant reaches the hands of the botanist, either at home or on the Continent, to be described and published, it gets a new name, or is probably referred to a species which has been named and described a long time ago by some old botanical author. In this way our garden nomenclature becomes chaotic. There is some consolation in knowing that the time will soon come round when these so-called names, which have been given to plants by unqualified persons, will be discarded for those which have been given by botanists. They may struggle for existence for awhile, but like the plants in the vegetable kingdom the strong will eventually overcome the weak, and the latter will disappear from a position which they should never have occupied. But nevertheless, there is a present inconvenience in the practice.

We are perfectly well aware that in most instances the names of which we complain are not given with any desire to impose upon the public. People say, and perhaps with some truth, that a plant without a name will not sell, and therefore they give it one. But we put it to all advocates of correct botanical nomenclature, who are not sufficiently educated themselves, whether it would not be more desirable to endeavour to have their plants scientifically and correctly named by qualified botanists than to send such plants out to the public oftentimes not correctly named, or not unfrequently provided with names of questionable taste. The suggestion of Professor Koch, of Berlin, alluded to in our columns (p. 985), that a supposed new Orchid should be sent for identification to the botanist who has made Orchids his especial study, and the same with Palms, Ferns, &c., seems to us a good one, and a move in the right direction. In England we have a noble herbarium at Kew, with some of the best botanists in Europe at work there, and we are quite sure that every assistance would be rendered there to all who would take the trouble to avail themselves of it.

The remarks we have made above do not apply to florists' flowers, or to any mere variety of plant which has no permanent characters. But we are most anxious that all the plants in our gardens which are commonly called *species* should be correctly named, and that the names which are given to them should be in accordance with the rules of science and of good taste. *F.*

We have on various occasions alluded to the plan for the Examination of Gardeners which has been arranged by the Royal Horticultural Society with the Society of Arts, in furtherance of the report from the Education Committee to which we drew attention last week. We find in the last Number of the Proceedings of the Royal Horticultural Society some further explanations referring to this subject, which we are happy to transfer to our columns.

These examinations, it is observed, will provide a more efficient and widespread means of bringing out the theoretical talent in the rising generation of gardeners than any system of examination which the Council would be able to institute in the metropolis or elsewhere by their own machinery; but they propose an extension of their examinations to practical skill in gardening operations, and have decided to bestow diplomas, medals, and certificates on successful candidates. At present, at least, such practical examinations can be held only at South Kensington or Chiswick.

1. Diplomas will be granted to those who, having been certificated by the Society of Arts, or other public body of examiners recognised by the Council, in Mensuration, in Book-keeping, in Practical Geometry, in Botanical knowledge, in Floriculture, and in Fruit and Vegetable culture, shall also receive Certificates from the Royal Horticultural Society for practical skill in the cultivation of Fruit and Vegetables, and in the culture of Flowers, and shall show a fair amount of skill in Surveying and Plan-drawing, and taste in Laying-out Gardens. Such diplomas will confer the title of Associates of the Society.

2. First and Second-class Certificates for the following branches of practical gardening will be granted by the Royal Horticultural Society to candidates who shall pass the Society's examinations in those branches:—

(*a*) In the operations of the Fruit and Vegetable garden.

(*b*) In the operations of the Flower-garden.

3. A medal will be presented annually to the candidate who, having taken the Certificates of the Society of Arts in Botany, and in the cultivation of Fruit and Vegetables and in Floriculture, shall gain the highest number of marks in practical gardening at the examinations of the Society.

Candidates will be eligible for examination in practical gardening if they have previously obtained Certificates from the Society of Arts in Botany and in Floriculture, or in Botany and Fruit and Vegetable culture; and in case they obtain a Certificate in either branch of practical gardening, will have their travelling expenses paid. A candidate who can present a written recommendation from any Fellow of the Royal Horticultural Society, from the President of any Floral or Horticultural Association acknowledged by the Society, or from the Director of any public park or garden, may also be examined in practical gardening; but whether he obtains a Certificate or not, he must himself bear the expense of his journey,

The names of Associates of the Society will be published with the list of Fellows of the Society; and Associates will be entitled to the privilege of free entrance into the Gardens at the shows of the Society and on all ordinary occasions.

The names of medallists, with the year in which they obtained their medals, will also be published with the list of Fellows.

The time for holding the practical examinations of the Royal Horticultural Society will be hereafter announced.

—— In a notice of the Gardens at Dangstein (p. 1039) it is mentioned that in order to secure Fruits of the Granadilla, Mr. Vair finds it necessary to fertilise the blossoms, not with the pollen of the Granadilla flowers, but with that of Passiflora cœrulea, which is found much more effective. This is a fact similar to those recorded by Mr. John Scott of the Edinburgh Botanic Garden, in the eighth volume of the Journal of the Linnean Society, where the details of numerous experiments on this curious subject may be found. It thus appears that many species of Passion-flower are not susceptible of fertilisation by their own pollen, but prefer that of another kind, the potency of their own pollen on other flowers being proved by its effectively fertilising other species.

—— In our notice of the Royal Horticultural Society's meeting (p. 1109) mention is made of a branch of the Black Frontignan Grape, exhibited by Mr. Young, gr. to Lord Fitzwilliam, in which "one eye had produced the usual black coloured fruit of that variety; while another eye on the same shoot, without any grafting or budding, furnished a bunch of White Grapes, which was found to produce the same Frontignan flavour as that of the black bunch." Sports of this kind are not unusual, and are not always easily accounted for. Cases of this sort have been recorded wherein Red and White Currants were produced on the same bush; and pure Sulphur Roses among variegated flowers of the red Austrian Briar Rose. One of the most remarkable instances of this nature is that alluded to in our volume for 1855, p. 596, wherein Mr. Telfer, of Woodhouse Hurlet, near Glasgow, is stated to have had a Gooseberry bush, which bore indifferently on each small twig, red or yellow berries, the red superior in flavour to the yellow, and both dissimilar; the reds, too, were unlike, for some were rough, others smooth; and the yellows bear seed that is red. Chrysanthemums frequently exhibit this tendency to sport. In those not uncommon cases where there are different coloured berries in the same bunch, the phenomenon may be accounted for by intercrossing with the pollen of another kind; thus in a case, the exact reference to which we have not at the moment by us, where White Burgundy, Red Rülander, and Black Burgundy Grapes were growing on the same bunch, the three kinds of Grape were growing side by side in continuous rows, so that the pollen might easily have been carried from the anthers of the one to the stigmas of the other. But this action of the pollen will not of course serve to explain the other cases of dimorphism to which we have alluded, and to which our florists owe so many of their novelties.

GENEALOGICAL TREE OF THE PEACH TRIBE.

(*Concluded from p.* 1012.)

From the foregoing examples it may be seen how by the simple fact of "extension," or of "natural selection," a given type may produce other secondary types. And Nature does the same for woody plants as she does for the herbaceous ones; our fruit trees, our forest or our ornamental trees furnish numerous examples of this; in all of them a single type has by extension produced a considerable number of varieties, and although the facts are not in all cases equally apparent, they exist nevertheless. They appear to be more rare and more difficult to associate because these plants are less frequently multiplied by seeds than are herbaceous plants; and as the period of infancy is considerably longer, the generations are also slower in their development, so that the individuals appear less apt to become fixed. The effect is the same in all cases, but it is produced more slowly in some than in others.

It is thoroughly understood that all variations are not equally plastic; some are more so than others—all have not the same tendency to become permanent. Thus, while there are some which become fixed almost immediately, there are others that are only fixed with difficulty, or that cannot be rendered permanent at all. We have no guide, no means of telling beforehand, or on seeing a plant, if it will prove readily pliable or the reverse. Experience alone can decide this. Among indigenous plants there is a large number which, when introduced into our gardens, furnish examples of the modifications of which we have just spoken, and which prove to us how a type, by the simple fact of its being cultivated, may become so greatly modified and produce races that often far excel in degree of permanency other plants that we consider good species. Take, for instance the Carrot. In its wild state, the Carrot has a fibrous, tough, much branched root of a white colour. Nevertheless, we have procured in a few generations large, fleshy, fibreless roots of a red, white, or yellow colour, some short, some of moderate length, others very long. These varieties are fixed, for the most part, and constitute races that do not vary. From seeds of the wild Carrot gathered by himself in the department of Aube, far away from any residence, and in comparatively inaccessible situations, M. Carrière has obtained in the first generation long, spindle-shaped, soft, fibreless roots, some of which were white, others yellow, and some even were of a reddish violet colour. And as with the Carrot so also with the Parsnip.

Having thus given illustrations of the way in which any given type may vary, M. Carrière proceeds to apply the principles he has laid down to the Peach group.

The various subdivisions of this group are characterised by the presence or absence of foliar glands, and by the form of those organs. Thus they are globular or kidney-shaped, or intermediate between these two in shape. These "mixed glands" seem to belong to the reniform series, as they are generally found in association with them. Many authors have asserted that in those varieties characterised by globular glands, kidney-shaped ones never exist; but this is a mistake, as the "Brugnon jaune" possesses both forms, and may be considered as a type with "mixed glands." The adoption of this third series of glands has the advantage of supplying an additional means of diagnosis between one variety and another, and of pointing out to the observer that certain varieties have this propensity of producing glands of different forms, and thus of rendering him more careful in discriminating and applying names to the several varieties. It must be borne in mind that in young seedling plants the glands are frequently not well developed till towards the end of the summer, and hence it is better to study them on adult plants, on well developed branches, and on the first leaves that are produced from the bud, the innermost leaves having comparatively few glands on them. The leaves, too, on the central portions of the branches are those which present the most defined characters.

Next to the glands, the distinctive characters of the series are to be sought for in the form, dimensions, and colour of the flowers; then in the appearance of the fruits, whether they are smooth or downy; the colour and nature of the flesh, whether adherent to the stone or free from it, &c.

In the progressive development of the Peach group, independently of the process of natural selection which has given origin to its various series, dimorphism has also come into play. An instance of this latter is presented by the Nectarine, which, having made its appearance, has become fixed, so as to constitute a sub-genus, which has given rise in its turn to particular races absolutely analogous to those of the true original Peach. Hence it follows that at the present time the general group Peach comprises two large sections, which run parallel one to the other, and present almost complete analogy, one with the other, in their evolution.

Before proceeding further, it is desirable to call attention to the fact that as we are unable to go back to the *absolute* origin of things, we must assume a *relative* starting point, being guided in this assumption by the invariable progress of things from the simple to the complicated; and thus we may admit, that when the Peach was introduced into cultivation it presented the simplest and least complex characters—that it had, in fact, leaves provided with *kidney-shaped glands*, small rose-coloured, *bell-shaped flowers*,* *downy fruit* with *adherent flesh*, of a white colour, except around the stone, where it was of a pale rose hue. But

* M. Carrière uses the term "campanulacées" as applied to these polypetalous flowers in a different sense to that in which it is generally applied in technical botany, *i.e.*, to a peculiar form of gamopetalous corolla.

as nothing on earth is isolated, but on the contrary is, in some way or other, closely allied to something else, it follows that the Peach group must have some near relationship with some other group. Thus the Peach is not only allied to but is even confounded with the genus Almond, of which it is indeed only a form. The general characters of the Peach and the Almond are absolutely identical: their flowers are alike, their fruit only differs in secondary points. We find among Almonds flesh-coloured, white, and highly-coloured flowers. There are also rosaceous (spreading) corollas, and others with very small bell-shaped blooms. There are also among the Almonds leaves of very different size and form, fruits of all dimensions, some long and curved (Amande Cornichon), others regular and oval. In some cases the skin is smooth, in others downy. There are equal diversities in the character of the flesh. In some it is edible, and of a red colour around the stone, as in most Peaches; such is the Almond Peach (Amande Pêche). There is, moreover, a form of Almond which M. Carrière calls the "doubtful," or "mixed Peach" (*sic*), on account of its intermediate characters. The fruit of this is so like a Peach that it is only by observing the stone that it can be determined to be an Almond. But still there are among Peaches some varieties that have stones very like those of the "Pêcher mixte." This intermediate form, moreover, presents in different seasons the most opposite characters, so much so, that in some years the fruits are like those of Almonds, while in other seasons they are true Peaches. The form and appearance of the leaves of this Persica intermedia and those of the glands are like those of the Almond.

Just in the same manner as differences exist in the form of the flowers, fruit, and stones, so there is a corresponding diversity in the flavour of Peaches; some are sweet, others insipid, and with less flavour than the Almond Peach. M. Carrière also states that he has met with Almonds with short stones rounded at both ends, and furrowed like those of certain varieties of Peaches.

ORCHIDS AND THEIR CULTIVATION.—No X.

No plants have had more experiments performed upon them, in a cultural point of view, than Orchids; and were it not that they have a special organisation, differing from other plants, in being furnished with pseudobulbs, and generally with succulent roots, their vitality inevitably must have succumbed. As it is, however, many of the samples are very tenacious of life, and can with impunity undergo a somewhat severe ordeal, which accounts, in some measure, for their living and growing under treatment so opposite in its character, that no allied plants could be subjected to the like for any length of time without fatal results. And yet, notwithstanding all this, when once an established plant becomes unhealthy, or has "gone queer," as our southern growers term it, it often requires years to get it into condition again; if it be Paphinia cristata, or even Vanda cœrulea, and some others that could be named, it may be disfigured for life, or pine away and die. It is a curious fact, which must be known to every cultivator of experience, that imported plants, although shrivelled up nearly to the last stages of exhaustion, are much more easily brought into a healthy vigorous state than established plants that have become exhausted through an injudicious mode of treatment. It is, therefore, of the first importance to maintain if possible a high order of health; and pots and potting have something to do with it.

Common pots, of whatever size, are generally made as deep as they are wide across the mouth, and in this form they are very serviceable for a variety of plants, and in some instances also for Orchid cultivation; but when we come to medium-sized specimens, or such as require pots larger than 8 inches in diameter, then, in my opinion, width is more necessary than depth, even in the case of such gross succulent-rooting plants as Odontoglots. What, I would ask, is the use of encumbering a semi-terrestrial plant with an unnecessary cairn of broken pots or crocks up to two-thirds of the depth of the pot, which is a very common method? I can understand the necessity, and have seen the force of the practice, in the case of purely epiphytal Orchids, such as Phalænopsids, Saccolabiums, and their congeners, for the roots of these plants delight to permeate the chinks, and embrace the surface of the burnt clay, but the roots of Odontoglots, Lycastes, Cattleyas, and such like, prefer somewhat stronger feeding. Some may aver that these cairns of potsherds, like those of brick-rubbish in Mr. Gibson's sub-tropical garden, are a capital medium for absorbing and diffusing heat and moisture, and on that account form powerful auxiliaries to exuberance; but the parallel is not complete, and the logic not pertinent, for the plants are growing in an artificial atmosphere, and entirely under control. Such a form of pot, then, as No. 1 represents, which is about a third wider than deep, and which can be made in that proportion up to any size, is admirably suited for the great majority of free-growing Orchids. For the cool plants with which I am dealing, the drainage does not require to be more than a couple of inches deep, and with a careful covering of the most fibry of the material, immediately above, to prevent the smaller particles getting among the interstices, the compost, such as I have described (see p. 1035) can be used, the plant being inserted, with the base of its pseudobulbs at

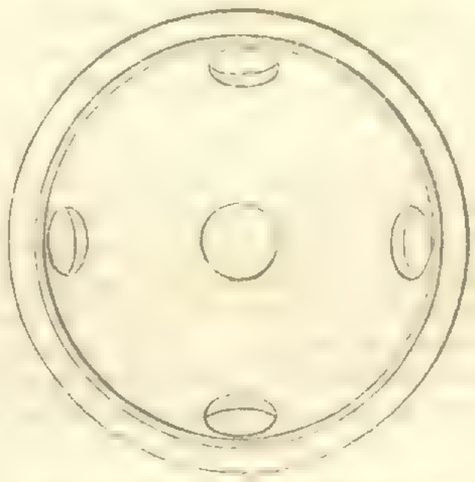
No. 1.—One seventh full size.

least 2 inches above the rim, which is sufficient, even making allowance for subsidence, to ward against any excess of moisture.

The No. 2 pot is one of the most useful pots in Orchid cultivation. It emanated from this place, and is

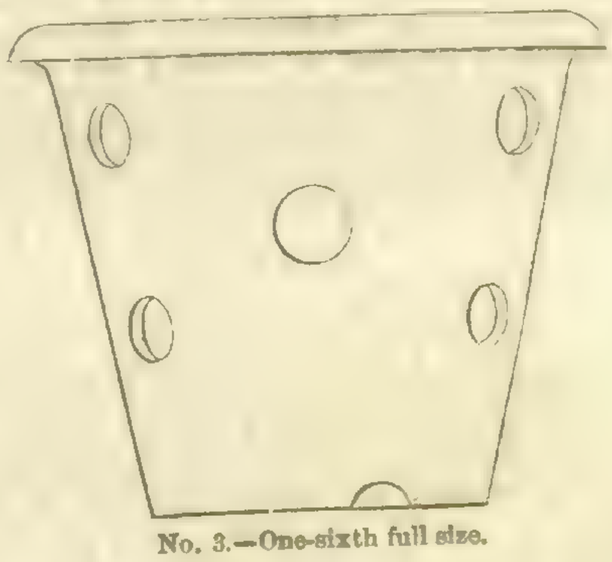
No. 2.—One-sixth full size.

unquestionably one of the most valuable auxiliaries that has ever been adopted in Orchid growing. A great many of the plants that we were accustomed to grow



No. 2 (plan).—One-sixth full size.

upon blocks, after being planted in these hanging pots for a time, put on an appearance that was perfectly astonishing. They are better in most instances than wooden baskets, because they are neater, more durable, and the roots fasten themselves to the surface, both exterior and interior, with avidity. Three of the most beautiful Cattleyas that the eye can rest upon, and three of the most critical to manage under any circumstances — Pinelli grandiflora, superba, and Aclandiæ, are quite "at home" with us growing in these pots. The motion of the air in constant circulation about and around the suspended pots, the nutritive matter which can be absorbed by the roots being placed in small compass and not so liable to extreme fluctuations as to drought or moisture, obviously explain how such a contrivance is favourable to both roots and leaves in performing their functions. In order that there may be no mistake as to the form of this useful auxiliary, there are two engravings; the one representing, as it were, the ground plan, and the other the elevation. Ample



No. 3.—One-sixth full size.

provision is made by the large holes perforated round the sides, on the one hand for thorough drainage, and on the other for thorough aëration, which is not the least desideratum in the culture of Epiphytes. Such pots, however, are unnecessary for Odontoglossums of all kinds, because their roots are generally greedy of retaining moisture, while this pot was planned to counteract that tendency. Moreover, I do not look upon Odontoglots, Lycastes, the bulk of Oncidiums, Trichopilias, and some others, as true Epiphytes, neither can they be reckoned terrestrial; but if the elements of successful culture are to be recognised in fixing their position, they must be called semi-terrestrial. Enough has been said, I presume, concerning this pot to set growers on the *qui vive*: and if they act upon the advice, I promise them, for certain, more success than with blocks in the one instance, as being too impoverishing; or with pots on the other, as being liable to retain too much moisture, being also less airy as to position, and often considerably further from the glass or light—conditions the importance of which cannot be over-estimated.

No. 3 represents a pot, suitable for most of the tropical purely epiphytal species with long fleshy roots, requiring extremes of moisture and drought at different periods of the day. Any one must have observed that the roots of such things as Phalænopsis and Saccolabium in particular, if placed in a compact compost where moisture continually prevails, get crammed with a species of food that they cannot digest, and hence become a mass of corruption. This would be the extreme of bad management; but even suppose the compost to be permeable to air, if kept ever-moist during the day the same evil would overtake the roots, although they would tide over a more lengthened period. Such a pot, therefore, as is represented in the engraving would meet the difficulty, if the material with which it was filled was right in other respects. I have seen a pot after the same fashion at Mr. Veitch's, but it is completely riddled with holes, and has a false bottom, and must, like the one referred to, be admirably suited for all these East Indian gems. This pattern which is engraved, I saw at Glasgow 10 years ago in the hands of a gentleman who used to grow a few Orchids at that time. It is of the common form as to outline, the width and depth being the same, and I don't see any reason why these proportions, so far as the plants in question are concerned, should be altered.

Trifling as the formation of pots may appear to a novice, yet they exercise an influence in Orchid cultivation which cannot be overrated; and the further advanced the student is in practice, the more ready will he be to acknowledge and appreciate the value of such little things; for, as Bishop Butler truly remarked, "things, seemingly the most insignificant imaginable, are perpetually observed to be necessary conditions to other things of the greatest importance."

Wooden baskets and blocks are also necessary helps for promoting the growth of this large and varied Orchidaceous family. It is not advisable, however, to treat sickly or imported Odontoglossums to either blocks, baskets, or basket-pots. By far the best method with the race is to put the imported pieces, or sickly plants, into common pots filled with potsherds, and stake the pseudobulbs until they have made roots sufficient to fix themselves. Most of these plants that come to hand have scarcely a vestige of life in their roots, and are entirely dependent on the vital energies of their pseudobulbs. Moderate heat, and a proportionate degree of moisture, are all that they have to live upon, and it is beyond doubt, if judiciously applied, sufficient to recruit the vital forces, to excite growth, and induce root propagation. These potsful of crocks should be plunged into a bed of sand, where they will retain sufficient moisture to replenish the loss of fluid caused by perspiration, and where the supply may be regular. Such plants ought to be kept in a tolerably close atmosphere, and about 5° warmer than what is recommended for established plants. *James Anderson, Meadow Bank.*

DOUBLE-GLAZING.

As I observe that a discussion has been going on for some time past in your Journal respecting the merits and demerits of this system of glazing, I wish to offer a few remarks on the subject, as this system has been in operation here for several years past. Mr. Anderson (see p. 987) speaks of double-glazed houses as being "all but hermetically sealed from the influence of atmospheric air;" and in another place he states that the supporters of the system enjoin their being made perfectly air-tight; and Mr. Deal (p. 1084) speaks of the "great detriment of perfect ventilation," which he assumes to be a necessary result. Now it would appear that these writers have confounded together two matters wholly distinct—ventilation and radiation. The effect of double glazing is to reduce the latter to a degree nearly inappreciable. For instance, were I wholly to withdraw the heating power from one of the houses here at midday, in the depth of winter during hard frost, the temperature of the house being, say 60° and stop all ventilation, the reduction of heat on the following morning would not exceed 3° to 4°. So much for radiation. But ventilation is a totally different thing, and is altogether independent of the double-glazing. It must be indeed obvious, there being practically no radiation from the roof and sides of the house, that a far greater amount of ventilation may be given without materially reducing the temperature, than if a rapid reduction of heat were constantly taking place through a single-glazed roof. Here we give air (more or less, according to the season, &c.) night and day all the year round, except during severe gales or frosts. The

result is, that instead of the close, confined, and oppressive atmosphere too often found in plant houses, visitors constantly remark upon the sweet, genial, and enjoyable condition of the air in the houses. They never feel close. There is much less difficulty in regulating the temperature of double-glazed houses than that of single ones; in fact, we can have it whatever we please, no matter what is going on outside. We can keep them warm or cool, dry or damp, precisely as we wish, and consequently the system does not render it in any way necessary to keep Orchids "almost simmering in steam."

So far from the outer roof being "superfluous," if not "a positive evil," in summer (see p. 1084), I believe it is quite as well adapted for maintaining plants in perfect health and beauty at that season as in any other. Here we never take the outer roofs off, and as to the condition of the plants which have been growing under them for years past, I have only to say "Come and see them, and judge for yourselves." One great value of double-glazing in summer is, that it enables me to retain a health-giving amount of moisture in the air of the houses in hot weather; whereas with single glass, during sunshine the temperature rises so rapidly, that much ventilation is needed, and this carries off the natural moisture, and the house becomes dry almost to aridity. This can only be prevented by repeated waterings or syringings, and then we have alternations of dry and moist, highly detrimental to the health of plants.

As to the recommendation of Mr. Deal, that a "thick woollen or flannel roller covering for the roof" at night be substituted for double-glazing, I may say that we tried this plan for years, and were sick of it. It was a costly, cumbrous nuisance. We have here upwards of 400 feet of double-glazed houses, span-roofed, averaging about 20 feet in width. The gardener and his assistants, who would have to cover and uncover these night and morning with "horse-cloth material," would indeed be to be pitied. I suspect at the end of a few years the cost would be found to be far greater than that of a double roof.

Since writing the foregoing I have seen the remarks of "J. F." (p. 1107) in reference to double roofs, and wish to correct an error into which he has fallen respecting the plants grown here under that system. He states that the principal plants were Tree and other Ferns. In addition to these we have Orchids and a large collection of stove plants, including many varieties of those remarkable for beautiful foliage. So far from there being any deficiency of colour either in the foliage or flowers, it would appear that double roofing brings it out with remarkable brilliancy and effect.

A striking illustration has just occurred, indicating the value of double-glazing here. This place lies low and flat, and consequently complete drainage is impracticable. We have had during the last 36 hours an excessive fall of rain, and the boiler, which heats two long ranges containing Orchids and stove plants, is flooded, and the fire out. There appears no hope of relighting the fire for two or three days, and this during bitter cold weather, with a heavy gale from the N.E.! I have no fear however of any serious result. *J. Sayers, Gardener to T. Bewley, Esq., Rockville, near Dublin.*

TRADE MEMORANDUM.

Mr. Thomas L. Reid begs to inform our Correspondent (see p. 1132) that his address is 2, Burlington Place, Burlington Road, Fulham, S.W.

Home Correspondence.

Evening Work for Gardeners.—Why is a gardener the only operative who does not work by artificial light?—a carpenter, smith, printer, weaver, painter, bricklayer, &c., can and do worse when under cover. Now that glass erections are so common, as also convenient sheds, with warming apparatus that does not require night attendance, there is plenty of work, as preparing tallies, providing drainage, cleaning pots, potting plants, &c., all of which could be done in the hour now lost in the mornings and evenings, and greatly relieve the press of work that occurs in the spring, making all work in arrear; the long winter evenings are a great inducement to resort to the public-house or cards. I think very few gardeners attempt to improve themselves by reading. I notice the complaint of a gardener at the low wages given by nurserymen, but the time in winter is but short, and certainly they can learn much in a nursery, and I certainly would sooner take a gardener from a nurseryman's recommendation than from a gentleman's, where if you go and look at his place there is nothing to garden. *One who has been Gardening for 40 years.* [We hardly think this proposition would be willingly acceded to.]

Double glazing.—Mr. Joseph Goode, gardener to Prince Demidoff, at Florence, says in reference to this system of glazing:—"I hope you have by this time placed a double roof on one of your hothouses. You have nothing to fear, and I will thank you to place my name amongst its advocates, for I know that it will become in a short time very generally adopted. It will be strange to me if after two or three months' trial of double-glazing for Orchids, your gardener does not come to you, saying something like this: 'It will do, sir, it's first-rate; look at the increased amount of root growth, the intense verdure, the durability of the blossoms, and the plants don't require half the attendance. In a word, it is perfection, and no mistake.' My own experience is similar to that just related. And now allow me to suggest a similar plan, one adopted by my late lamented employer, Mr. Booth, of Hamburgh, viz., make a set of lights to fit inside the rafters below the original roof, and just tack them up in their place with a fillet of 1-inch stuff all round, care being taken to keep a space of from 4 to 5 inches between the lights. Many thanks to you for keeping up this discussion, the credit of which in a great measure belongs to you." Let us hope that Mr. Goode's remarks may tend to elicit further information from experienced men. *Robert Warner, Broomfield.*

Winter-flowering Orchids.—Orchids in flower during the dull months of winter are much to be desired; with a little care and management a good collection of them should produce a fair show of bloom all the year round, more especially as we know many kinds will continue in perfect flower for months together should the state of the atmosphere of the house they are in be suitable for the longevity of the flowers. A great want in general prevails amongst Orchid growers, namely, a separate house for plants in flower in which the temperature should be kept lower, with rather a dry atmosphere. In my collection at present may be seen in flower the following, viz.:—

Cattleya labiata	Cypripedium insigne
Vanda tricolor	,, venustum
Lælia anceps	Lycaste Skinneri
,, autumnalis	,, macrophyllum
Oncidium Papilio	Barkeria Skinneri
Burlingtonia rigida alba	Epidendrum rhizophorum
Calanthe Masuca	Zygopetalum Mackayi
,, vestita lutea oculata	Dendrobium secundum
Phalænopsis amabilis	Catasetum species
Cypripedium Farrieanum	Cœlogyne speciosa

These are grown in four small houses attached to each other, and heated by one of Thomson's excellent retort boilers, each house having a different temperature. As the plants come into bloom they are removed to a cool house. *P., Fernfield House, Bridge of Allan.*

Theory of Ventilation.—Mr. Fish must excuse me if I am not convinced by his very scientific argument (see p. 1083); on the contrary, he seems to strengthen my position unconsciously at every step. He says, for instance, "They (the currents of air) are all governed by this general law—that fluids strive to find rest in an equilibrium of temperature." What is this "striving to find rest" but another mode of expressing the simple law of gravitation, which compels everything, whether water, air, or stone, to seek its centre? Again, he says, "Water being so much heavier than the air, cannot remain as such in the atmosphere, and therefore falls as rain or snow." Surely here is my principle admitted in so many words. The cork, which he used as an illustration in his first paper, floats on water because the water is heavier: but try the very simplest experiment—fill a tumbler with water, as cold as you please, and drop a pebble into it: it falls with more or less rapidity, in proportion to its weight, to the bottom, and the water makes room for it, and rises; drop another, and the water overflows, not from any inherent powers which it has in itself of rising, but because the stone is heavier, and elbows it out, as it were; and so with air, which, in proportion to its density, strives to find rest at the bottom, forcing up the lighter particles to make room for itself; and so, as in all cases, the greater force (or its equivalent, weight) prevails, and the "weaker goes to the wall." In one sense, heat is of course the cause of circulation in air and water; by making one portion light it reduces its power of resistance to the heavier, and so the currents are set in motion. We are agreed as to facts, but I submit that Mr. F. confounds cause and effect, which tends to mislead. I have not the book at hand, but I believe Dr. Arnott (no mean authority), in his work on ventilation, entirely supports the theory which I am advocating. As Mr. F. writes under his own name, I have no right to conceal mine. Since writing the above I have read Mr. F.'s third article, in which I observe the following direct confirmation of what I have just said: "Fresh water is much lighter than salt, and of course the salt will displace the fresh—push it, in fact, out of the way." Mr. F. therefore admits all that I have contended for, in water, through he denies it in regard to air. *T. Phillpotts, Porthgwidden.*

Larches (see p. 1132).—Though I cannot pretend to tell your correspondent "A Subscriber" the best mode of proceeding in the case he relates, I will tell him what I did with very fair success under similar circumstances. The leading shoots of a Larch plantation lately planted by me were eaten off by hares. To plant over again trees of a similar size would have been useless. On inquiry I found that some nurserymen were in the habit of throwing away a number of Larches which had grown too large for sale, and occupied ground which would be more profitably occupied by other stock. From one of these I bought a sufficient quantity of Larch, 4 feet high and more, and I planted them. The hares did me some damage, and I had to look after the Larch for some time to fasten them in the ground when much shaken by wind. Enough of them prospered to make a good and flourishing plantation, but I got more trouble and saved no time by planting them large. *A. K.*——I have been very much annoyed by hares and rabbits eating the branches and leading shoots of a great number of young Coniferæ which I had planted in a Pinetum that was under my care. After trying many plans, and all to no purpose, I at last found a simple remedy, which proved very effectual in preventing any further destruction of the young trees by those pests. I got some common Furze, and placed a thick layer of it round each young tree; it was laid flat on the ground, 2 feet from the stem, taking care that every portion of the surface was covered, so as to leave no resting place for the depredators. When the trees were larger I laid a wider circle of the Furze placed round them. Young Larch would not require so large a layer of Furze as trees planted in a Pinetum, as the space allotted for the former would be a great deal smaller than that of the latter. Judging from my own experience, this plan is one of the best and cheapest that can be adopted. In addition to protecting the branches and leading shoots, the Furze prevents the rabbits from burrowing round and under the young trees, consequently the roots escape injury. *John Boyle, Royal Vineyard, Hammersmith.*——If your correspondent who complains of hares and rabbits nipping his Larch would try a good caudle of cloacine, lime, and soot, dipping them in it previous to planting, the probability is that he might save his Larches for a year or so, after which time the depredators in question would not be so likely to interfere with them, as it is new work or fresh-planted stock to which they are most partial. I have found a lacquer of this mixture applied to the stems of Coniferæ, &c., subject to their attacks to be sufficient protection for a year or more. A better protection still would be to bed up or fill in with Pinus austriaca to double thickness, *i. e.*, three of the latter to one of the former, when every stump of the austriaca would be devoured before the Larch or anything else were touched, during which time the leaders would be getting out of the way. *Anon.*

Japan Flax.—The Bœhmeria nivea is stated to produce this article of commerce; I received it from the Botanic Garden, St. Petersburg, with a label stating that it was the true plant, and from the large amount of fibre it produced, I believe the statement to be correct. *Ebor.*

Pears.—The months of October, November, and December are, *par excellence*, the Pear season. The Strawberry, Cherry, Apricot, Peach, Nectarine, and Plum are unrivalled in their respective periods; but when Peaches belong to time past, when the last Golden Drop has been gathered from the wall, the hours of light lessened, and the dinner can no longer be finished without the lamp, then do we acknowledge the supremacy of the Pear. Foremost among late varieties are Marie Louise, peerless, and unrivalled, excelling all others in beauty and goodness; Louise Bonne of Jersey, Gansel's Bergamot, whose good qualities cannot be adequately described; Beurré Hardy, Conseiller de la Cour, handsome and well flavoured, described by that enthusiastic raiser of Pears, Vans Mons, as "la meilleure Poire existante;" Beurré de Caen, a robust cousin of the venerable Brown Beurré, with all the good qualities of that variety, added to a good constitution; Marie Louise d'Uccle, hardy, with a clear title to nobility; Doyenné de Comice, handsome, well developed, and highly coloured, with remarkable sweetness; Beurré Bachelier, noble in size, and in all respects good; Huyshe's Victoria and Prince of Wales, worthy descendants of illustrious sires; Josephine de Malines, a good Christmas Pear—as are also Bergamot d'Esperen, rough but excellent at heart; Madame Millet, sparkling and delicate; and lastly, with the green leaves of a returning summer, Bezy Mai, a very tough hero indeed, fighting a good fight unto the last. These candidates for honours are, as will be seen, not new; on the contrary some of them are very old. So great an advance has however been made of late years that good Pears may now be had during eight months in the year. An extensive field is nevertheless yet open to those who are cunning in the mysteries of raising new fruits, and the plan of potting the trees designed for seed greatly facilitates the work. By careful and intelligent crossing we may yet expect the most unhoped-for results. *Amnes.*

Gardeners' Wages in Nurseries.—Your correspondent "G. C." (see p. 1109) deserves the best thanks of gardeners for introducing this subject, which has already borne good fruit. Every Saturday night, however, should have told employers that 12*s.* per week was an inadequate remuneration, without waiting to be reminded of it in your pages. The most manly way, nevertheless, was to admit the fact as well as to remedy it at once, as Mr. Veitch has done. Mr. V. is, however, not very clear on one point. He says that "all regularly established head gardeners" are to be raised 3*s.* per week. Does this mean only such as have filled a situation as head gardener? If so, the proportion of those who are to receive the advance will be about four in every twelve, a large majority of operatives in nurseries being single young men, either wishing for a foreman's situation, or hoping to get a place as chief gardener. I have been more than once in a nursery, and can speak from experience. While this subject is being discussed, it is but right to mention that Mr. Turner, of the Royal Nursery, Slough, has always given 14*s.* per week (equal to 15*s.* in London) to his men, and to those most useful in plant culture he gives 15*s.* It is only fair, however, to nurserymen to state that the continual changing of men who are of necessity unsettled during the time they are in a nursery, is a disadvantage to them, and occasionally they have to employ more hands than they want,

causing them considerable loss. *John Chalmers, Gardener to E. J. Coleman, Esq., Stoke Park, Slough.*—"G. C." gives as one of his reasons for an advance of wages, the large profits which nurserymen are now receiving. If he thinks the profits have been larger of late years than formerly, he is mistaken; for it is well known that in most branches of the nursery trade, more especially in the hardy department, they are much less. We candidly confess that we feel that the other reasons adduced by "G. C." in favour of an advance, carry conviction with them. We may also remark, that while we agree with Mr. Veitch's sensible comments on the subject (see p. 1133), we would go a step farther and ask why an able-bodied young gardener, a candidate for a foreman's situation, or for a first start as head gardener, should be paid less in a nursery than an "established head gardener." We consider them equally competent (without detracting in the least from the merits of experienced men) to do all that is usually required of them; for this reason we have decided upon paying all gardeners employed by us 15*s.* per week, in full confidence that they will unhesitatingly conform to our rules, and do as they would be done by, when they themselves have the direction of others. *Osborn & Sons, The Nurseries, Fulham, S.W.*

Fig Trees.—I should be glad to know how to manage my Fig trees, which have produced a large crop of fruit, but so late in the season as to be of no use. The trees are against a south wall. Ought all the Figs to be pulled off? *Westfield.* [The past season has been very favourable to the production of a great abundance of what are called second-crop Figs, which very rarely ripen in this country, and that only under circumstances peculiarly favourable as to soil and situation. The first crop, which ripens about August, is produced from the little embryo Figs which may be seen at the points of the shoots of the present year, and are not much larger than pins' heads. It will be quite proper therefore for you to break off all the young green Figs of the second crop which have attained to any size. But as, after very mild winters, we have known such as are as large or rather larger than Marrowfat Peas to swell out and produce the earliest fruit in the succeeding summer, we should leave all such for the chance of an early crop. The necessary pruning is confined to thinning out the wood. No shortening of the shoots must be practised except where fresh shoots are required for filling up vacancies; and all the bearing wood should be laid in close to the wall its full length. The Fig tree is of a very luxuriant habit of growth, and it is just possible that yours may be growing in too rich a soil, in which case it would have a tendency to cast off all the summer fruit. This, if so, must be corrected by root-pruning, and a careful attention to stopping the young shoots through the summer, so as to keep the growth more under control, and to produce a good supply of short-jointed shoots for the succeeding year's fruit. If the second-crop Figs are removed early, and when the tree is in full growth, it will often happen that embryo fruit will be produced from their base, which will swell out and ripen the succeeding summer, but this is never the case when they are left on until the dormant season. *J. C.*]

Root Fungi and Planting.—"J. M.," though a forester, must surely be mistaken in the advice he gives about planting trees. He says (p. 1133), "I consider it to be a useless and unnecessary expense to remove old roots before replanting fresh trees." Experience has proved to me of late that there is a great deal too much of this done at the present day, when we ought to expect better things. I have no doubt that, as stated, J. M.'s trees look healthy and well; but most likely their flourishing condition is due to the peculiar nature of the soil, not the planting; and as for the root Fungus, there is plenty of time for that to come hereafter. The roots of Elm, Beech, and Ash remain for a long time in the ground before much decay takes place, particularly if they have been allowed to sprout a little after the tree has been cut down. Spruce is different, and soon decays, but I do not remember ever having seen much of this sort of Fungus upon the roots of Fir trees. Elm is perhaps the one of four named that it grows most freely upon. I should not have noticed this advice had not circumstances lately brought before me instances that forcibly illustrated the mischievous effects of not properly preparing ground for any sort of trees. I was called in by a gentleman, who had several years ago bought some good plants of the better kinds of Pinus, none of which had succeeded; they had all a sickly appearance, which on examination was easily accounted for. At planting, small square holes had been dug, in bare proportion to the size of the ball or pot, and the plant introduced. From the nature of the soil these pits were neither more nor less than water traps, and at all times kept the soil in immediate contact with the roots in a sour state—hence the bad results. A pressure of other work a few years ago compelled us to plant a small plantation in a similar way to that which your correspondent mentions, but the unsatisfactory progress of the trees has induced us since to take them all up and trench the ground in a proper manner. I could mention many more instances—in fact, there are too many of them about; and I am certain every gentleman planting, or about to plant, whether for purposes of pleasure, shelter, or profit, will gain that end sooner and doubly better by first draining where it is required, and then before planting, properly trenching the ground. It will repay this extra outlay in less than 18 years. Where this care is not taken, in nine cases out of ten the hard-wooded forest trees intended to be permanent will become stunted scrubs, such as will never become timber, and the soft-wooded portion intended for thinning will be years longer in reaching a profitable height; whereas young trees, properly treated, make fine clean growth, which is the only foundation for sound good timber. I hope, with your leave, to return to this interesting subject again at some future time. *Hortus* [By all means do so: it is one of the greatest importance.]

The Frangipane.—Can you tell me what tree is alluded to in the following passage from Willis's "Trip to the Tropics?":—"In one of the West Indian islands, at St. Pierre, in the island of Martinique, while walking in the suburbs, we passed a garden in which there was a flowering tree of a beauty quite new to us. Its green foliage was very full, and the tree about as tall as the common Tulip tree, but it looked precisely as if a soft damp snow had fallen in the night, and laden down its branches with as much as they could bear. The rich white flowers lay cupped in the middle of each spreading branch, a large lapful in every cluster. We found on inquiry that it was the Frangipane tree—wonderfully-beautiful flowering tree." *W. W.* [The Frangipane is a species of Plumieria.]

Wellingtonia gigantea.—In answer to your correspondent "C. F. P." (see p. 1132), I beg to state that the soil which was prepared for the tree in question consisted of eight cartloads of rich black loam, two of forest peat, and a small portion of road sand. This was well turned and mixed together. A pit was prepared some 12 feet across, and sufficiently deep to hold that quantity of soil. In this my Wellingtonia was planted, and it has well repaid me for the labour bestowed upon it. This material I apprehend must resemble the soil in which the Wellingtonia grows in its native climate, as it is reported to be found in a very rich black deep loam. Although the timber of the Wellingtonia may not be so valuable as that of many other Conifers, still this tree may be recommended for ornamental purposes; and why I recommended it to be planted in valleys is because I have an idea that it likes a moist situation. Of several plants in the park here, one is planted in a very wet place—in short, its roots are literally covered with water during the winter months. On measuring its growth the other day, I was surprised to find that it had grown 3 feet 4 inches in height this season. *H. Day, Theydon Grove, Epping, Essex.*

Societies.

Royal Horticultural: *Dec.* 5.—W. Wilson Saunders, Esq., in the Chair. Five new Fellows were elected. The Rev. M. J. Berkeley directed attention to certain points of interest connected with the different subjects exhibited. A ripe fruit of Monstera deliciosa, contributed by Mr. Vair, gr. to Lady Dorothy Nevill, was found on trial to be extremely luscious and excellent in flavour; the spicules in it, however, it was said, make it unpleasant to the throat; and it was mentioned that a gardener who had eaten about half a fruit suffered considerably from its effects. It was considered doubtful, therefore, whether it would ever become a general favourite. Fruit of Stauntonia latifolia, ripened out-of-doors, was furnished by Mr. Jack, gr. to the Duke of Cleveland at Battle Abbey, Sussex; it was not unlike, Mr. Berkeley said, a Brinjal in appearance; upon trial it proved tasteless and of little value, as was also said to be the case with a species of this genus which is eaten in Japan. Examples of the horn-like fruit of Mandevilla suaveolens were also shown at this meeting. Among Orchids two Angræcums were communicated—one, sesquipedale, remarkable for the length of its spur; the other, pertusum, less striking in appearance, but nevertheless a general favourite on account of the charming way in which the small, waxy, nearly spurless blossoms, are arranged on the spike, so as to resemble an edging of lace. This last came from Mr. Saunders; the other was shown by Mr. Veitch. Mr. Saunders also furnished a Cœlogyne, which it was thought might be new. It differed in several important particulars from speciosa, with which it was compared, and to which it bore some resemblance. Attention was next directed to an Odontoglossum from Mr. Weir, peculiar in the vertical position of the extreme point of the lip. Cut specimens of Thibaudia ocanensis, and of a Gaultheria, from Mr. Bateman, also received special notice. The strong resemblance which the Thibaudia bore to Rhododendron Keysii was adverted to; and of the Gaultheria it was said that it might be a variety of ferruginea. Musa coccinea was noticed as having one of the floral bracts foliaceous, and with a few words in praise of a handsome variety of Polystichum angulare from Mr. Pince, Mr. Berkeley concluded his remarks.

The Chairman then made a few observations respecting three plants of Oncidium carthaginense which he exhibited. They had been only recently imported, and he produced them to show that considerable differences, both in regard to the spots on the petals, as well as to the colour, and size of blossom, exist in different plants of the same species even in their native habitats. With reference to the Cœlogyne alluded to by Mr. Berkeley, he pointed out a peculiarity in the side petals, which looked as if they had vanished into hair-like appendages. The Monstera, he stated, fruited readily with him every year, and he took occasion to describe the interesting and singular way in which the young leaf unfolds itself. As regards culture he mentioned that the roots were extremely fond of water, and that when they got into a tank they soon filled it, causing the plant to grow with great rapidity. The beauty of the cut and slashed leaves, especially when viewed against the light, was next commented upon, and it was stated that even if the fruit should not prove of much value, the plant was well worth growing, on account of its very ornamental appearance.

Dec. 5 (*Floral Committee*).—Collections of highly interesting plants were shown on this occasion by Mr. Veitch, to whom two Special Certificates were awarded. They contained among other things specimens of the pretty scarlet winter-flowering Manettia micans, which blossoms freely even in 3-inch pots, and which will doubtless prove a valuable basket plant; various little half standard Epiphyllums; the white-spotted-leaved Sonerila margaritacea; the red spotted-leaved Bertolonia guttata, and the equally handsome hairy rather than downy-leaved B. pubescens; the pretty sulphur-striped leaved Eriocnema marmorea; a fine specimen of the yellow variegated New Zealand Flax; the extremely handsome Thibaudia macrantha, with large waxy pinkish flowers, barred crossways with crimson; and the white blossomed Rhododendron Princess Alexandra. The same collections contained, moreover, Aucuba japonica vera, loaded with handsome red fruit; various fine varieties of Lycaste Skinneri, the charming rosy-flowered hybrid Calanthe Veitchii, the unusually handsome lilac blossomed Cattleya Dominiana, Dendrobium Tattonianum, the Cuphea like Libonia floribunda, and one or two other plants. From Mr. Wilson Saunders came the Angræcums mentioned above, and one or two other interesting Orchids. To Messrs. Lucombe & Pince was awarded a First-class Certificate for the handsome variety of Polystichum angulare called parvissimum, mentioned by Mr. Berkeley; and a large collection of plants came from the Society's Garden, in which were various Cypripediums, Barkeria Skinneri, the charming little Sophronitis grandiflora, Lycaste Skinneri, the Odontoglossum from Mr. Weir alluded to above, Zygopetalum crinitum, Poinsettia pulcherrima, with splendid heads of scarlet floral leaves; Dracænas, Crotons, a Peperomia from Mr. Weir, with silvery marked leaves, Musa coccinea, Hibiscus Cooperi, and one or two other plants.

Dec. 5 (*Fruit Committee*).—Few subjects of exhibition were produced on this occasion. Mr. Vair sent the fruit of Monstera, adverted to above; Mr. Parsons a dish of very fine Winter Nelis and other Pears; and a small, but very good seedling Pear came from Mr. Myatt, of Deptford.

Handsworth Horticultural.—This Society's Annual Fruit and Chrysanthemum Show was held at the Town Hall, Birmingham, on Saturday, Monday, and Tuesday last. The display of fruit was excellent. The Pears and Apples were generally large and highly coloured; those from the Channel Islands were particularly well grown and in excellent condition. Chrysanthemums were past their best.

The Society's ten guinea cup for the best collection of fruit, 24 varieties, was awarded to Mr. C. J. Perry, of Castle Bromwich. This collection contained fine Queen, Cayenne, and Enville Pines; large bunches of Muscat, Trebbiana, Alicante, Lady Downes', Barbarossa, and Black Prince Grapes; choice specimens of Chaumontel, Duchesse d'Angoulême, General Todtleben, Glou Morceau, Beurré d'Aremberg, and Beurré Diel Pears; and Cox's Orange Pippin, Cornish Gilliflower, and King of Pippin Apples. Mr. C. J. Perry had beautiful examples of Queen and Smooth Cayenne Pines.

Dessert Pears consisted chiefly of Chaumontel, Duchesse d'Angoulême, Triomphe de Jodoigne, Passe Colmar, General Todtleben, Vicar of Winkfield, Beurré Clairgeau, Ne plus Meuris, Knight's Monarch, and Colmar. Stewing Pears were remarkably showy. The most noticeable were Belle de Jersey, Catillac, Savarin, Verulam, Beurré d'Espagne, Bezi d'Heri, Belissime, and Spring Beurré.

Dessert Apples were beautiful in colour and form, but not large. The best were Cox's Orange Pippin, Ribston Pippin, Cornish Gilliflower, King of Pippins, Scarlet Nonpareil, Dutch Mignonne, Sykehouse Russet, Golden Harvey, Golden Russet, and Fearn's Pippin. Kitchen Apples were large, and in excellent condition. The finest varieties were Alfriston, Blenheim Orange, Reinette du Canada, Wellington, Emperor Alexander, Duke of Gloster, Mère de Ménage, Royal Russet, and Hanwell Souring.

Cut blooms of Chrysanthemums were not generally large, but some excellent flowers were staged. The best were Etoile Polaire, Plutus, Robert James, Rev. J. Dix, Rifleman, Sam Slick, Cherub, Themis, Anaxo, Nonpareil, Belladonna, and Lady Hardinge.

The principal open awards were as follows:—*Pine-apples.*—1, Mr. J. C. Perry, Castle Bromwich; 2, Mr. R. A. Cartwright, Edgcott House, Banbury. *Dessert Pears.*—12: 1, Mr. Pluck, Jersey; 2, Mr. C. J. Perry; 3, Mr. Bailey, Birmingham. *Stewing Pears.*—1, Mr. C. J. Perry; 2, Mr. Pluck; 3, Mr. Bailey. *Dessert Apples.*—1, Mr. R. A. Cartwright; 2, Mr. C. J. Perry; 3, Mr. G. Thomas, Jersey. *Kitchen Apples.*—1, Mr. R. A. Cartwright; 2, Mr. C. J. Perry; 3, Mr. Pluck.

Chrysanthemums.—24: 1, Mr. J. L. King, Camois Hall, near Newmarket; 2, Mr. Hobbs, Bristol; 3, Mr. J. George, London. 18: 1, Mr King; 2, Mr. George. 12: 1, Mr. King;

2, Mr. George. Extra prizes to Mr. R. H. Vertegans, Edgbaston, for a collection of Ornamental Ferns; and to Mr. Pluck, Jersey, for a collection of Fruit.

The following extra prizes given by gentlemen interested in Horticulture created keen competition:—

A silver cup, value five guineas, given by Mr. C. J. Perry, for the three heaviest bunches of Grapes, one or more variety: awarded to Mr. C. M. Campbell, Woodseat, Ashbourne, Derbyshire.

An electro-silver dessert set, given by Mr. E. W. Field, for the second heaviest three bunches of Grapes: awarded to Mr. G. Thomas, of Jersey.

A silver cup, value five guineas, given by Mr. John Mole, for the best 12 dishes of Pears, eight in a dish, six dishes to be dessert and six stewing kinds: awarded to Mr. G. Thomas, of Jersey.

A silver cup, value five guineas, given by Messrs. Jones & Son, of Bankside, London, for the best 12 dishes of Apples and six dishes of Pears (number in each dish optional), grown by the exhibitor, a resident of either Warwickshire, Worcestershire, or Staffordshire: awarded to the Rev. C. W. Holbech, Farnborough Hall, Warwickshire.

Other prizes were open to competition only amongst members of the Society. The principal of these were awarded as follows:—*Chrysanthemums*—9 in pots: 1st, Mr. C. J. Perry. 6 in pots: 1st, Mr. Chambers. Single specimen: Mr. Chambers. 9 Pompons in pots: 1st, Mr. W. H. Dawes. 6 Pompons: 1st, Mr. W. H. Dawes. Single specimen Pompons: 1st, Mr. W. H. Dawes. *Primulas*—12: 1st, Mr. Chambers. 6: 1st, Mr. Vertegans. *Pine*—1st, Mr. W. H. Dawes. *Grapes*—9 bunches, not less than three varieties: 1st, the Hon E. S. P. Jervis. *Dessert Apples*—6: 1st, the Hon. E. S. P. Jervis. *Kitchen Apples*—6: 1st, Mr. G. Redfern. *Dessert Pears*—1st, Mr. W. H. Dawes.

Zoological of London: *Nov.* 14.—J. Gould, Esq., in the chair.—Mr. S. Stevens exhibited the egg of an extinct species of Dinornis, supposed to be that of D. ingens, Owen, which had been placed in his hands for sale.——Mr. Blyth exhibited some remarkable horns of the Wapiti stag (Cervus canadensis), and made some remarks on the different varieties of this species of deer.——Mr. P. L. Sclater contributed a collection of bird-skins made in the vicinity of Hakodadi, Japan, by Mr. H. Whitely, and pointed out several species of great interest, which had not been previously known to occur in that country.——A communication was read from Mr. E. L. Layard, of Cape Town, on the habits, nest, and eggs of Saxicola spectabilis, a new species from the Cape Colony, which had been lately described by Dr. G. Hartlaub in the Society's Proceedings.——Mr. A. Newton exhibited and made remarks on a series of bones of an extinct species of Didus, transmitted by Mr. Edward Newton to this country, having been obtained by that gentleman's correspondents from caverns in the island of Rodriguez.——Mr. P. L. Sclater exhibited and pointed out the characters of a new species of parrot, of the genus Nasiterna, proposed to be called Nasiterna pusio. Two specimens of this diminutive bird had been forwarded to this country by Mr. Krefft, of the Australian Museum, Sydney, having been received from one of the Salomon Islands.——A paper was read by Mr. J. H. Gurney on a new and very singular raptorial bird discovered by Mr. C. J. Anderson in Damara-Land. For this peculiar type, which, although Buteonine in its general aspect, presented some points of resemblance to the Owls, Mr. Gurney proposed the name Stringonyx Andersoni.——A communication was read from Dr. G. Hartlaub on a new species of Francolin discovered in Central Africa during Captain Speke's expedition, and proposed to be called Francolinus Grantii.——Dr. J. Murie exhibited and made some remarks on a specimen of a leech (Trochæta subviridis) found in the viscera of a Moluccan Deer.——A paper was read by Dr. J. E. Gray, entitled "Notice of Rhodophyton, a new form of Alcyoniidæ found on the coast of Cornwall."——Dr. Gray also communicated descriptions of two new forms of lizards from Damara-Land, proposed to be called Cordylosaurus trivirgatus and Ptenopus maculatus, and gave a short account of part of a skeleton of a Finner Whale, sent by Mr. Swinhoe from the coast of Formosa.——Mr. Gould exhibited and pointed out the characters of five supposed new species of Asiatic birds belonging to the genera Enicurus, Nectarinia, and Otocompsa.——Mr. G. French Angas communicated the second portion of a *resumé* of the marine molluscan Fauna of the province of South Australia.——Mr. A. G. Butler read a monograph of the Lepidopterous insects of the genus Charaxes, of which 68 known species were recognised. Mr. Butler also described six butterflies new to science, belonging to the genera Heterochroa and Romalœosoma.——Dr. Gray communicated a note by Miss Staveley on the teeth on the maxillæ of Spiders, which appeared to have hitherto escaped the notice of naturalists.——A communication was read from Mr. Gerard Krefft, of the Australian Museum, Sydney, on a supposed new species of Sperm Whale, of the genus Euphysetes, proposed to be called E. Macleayi. The specimen upon which Mr. Krefft's description was founded had been stranded at Manly Beach, near Sydney, in August last.

Notices of Books.

Narrative of an Expedition to the Zambesi and its Tributaries, and of the Discovery of the Lakes Shirwa and Nyassa. 1858-1864. By David and Charles Livingstone. London: Murray, 1865. Pp. 608.

Another and most interesting volume from the pen of Dr. Livingstone, whose modesty equals his courage. In the present work we have a record, compiled from the Doctor's own diary, and from that of his brother, of travels in tracts of country previously unexplored, and containing notices of their river systems, natural productions, and capabilities.

The misery entailed by the slave trade in the inland districts is depicted in a style which does honour to the indefatigable traveller, and leaves on the mind of the reader a firm impression that no more than the truth has been spoken. To remedy this state of things, Dr. Livingstone looks forward with hope to the future establishment of commercial intercourse between Europe and the interior of Africa, and to this end the results of his journeyings may contribute in various ways. He has discovered, for instance, a port that can be made available for commercial purposes, and a means of transit to healthy highland regions.

As to the natural productions of the country, indigo has been found growing luxuriantly over large tracts. Cotton of different varieties and of superior quality exists in abundance, and might be much more extensively cultivated than it is, as the soil and climate are pre-eminently suited for its growth. Tobacco, the Castor-oil Plant, and the Sugar-cane all grow well in this fertile soil. One drawback is mentioned, and that a serious one—the occurrence of prolonged droughts once in five years, or in other places about once in 10 or 15 years. Lack of vegetation cannot be assigned as the reason of their occurrence, as the hills and valleys are covered with trees and herbage.

The naturalist will find a great deal of interesting information in this volume on beasts, birds, plants, &c. Space does not allow of our inserting more than the following extract relating to the singular habits of birds.

"The Honey-guide is an extraordinary bird; how is it that every member of its family has learned that all men, white or black, are fond of honey? The instant the little fellow gets a glimpse of a man he hastens to greet him with the hearty invitation to come—as Mbia translated it—to a bee's hive, and take some honey. He flies on in the proper direction, perches on a tree, and looks back to see if you are following; then on to another and another, until he guides you to the spot. If you do not accept his first invitation he follows you with pressing importunities, quite as anxious to lure the stranger to the bees' hive as other birds are to draw him away from their own nests. Except while on the march our men were sure to accept the invitation, and manifested the same by a peculiar responsive whistle, meaning, as they said, 'All right, go ahead; we are coming.' The bird never deceived them, but always guided them to a hive of bees, though some had but little honey in store. Has this peculiar habit of the honey-guide its origin, as the attachment of dogs, in friendship for man, or in love for the sweet pickings of the plunder left on the ground? Self-interest aiding in preservation from danger seems to be the rule in most cases, as, for instance, in the bird that guards the buffalo and rhinoceros. The Grass is often so tall and dense that one could go close up to these animals quite unperceived; but the guardian bird, sitting on the beast, sees the approach of danger, flaps its wings and screams, which causes its bulky charge to rush off from a foe he has neither seen nor heard; for his reward the vigilant little watcher has the pick of the parasites of his fat friend."

It is greatly to be desired that Dr. Kirk, the naturalist of the expedition, may fulfil the hope thrown out in the introduction to this volume, by giving us an account of the natural history of the country he passed through, and by working up the extensive collections sent home by him, some of which, unfortunately, never reached their destination. In the journeys which Dr. Livingstone is now again about to undertake, we trust he may not be hampered by an "asthmatic" steamboat, and that we may in due time welcome home one who is so thoroughly in earnest in all he undertakes.

Books Received.—*Penny Readings in Prose and Verse*, selected by J. E. Carpenter. London: Warne & Co. Pp. 248. A capital series of extracts from many of our best writers is here offered at so cheap a rate that we trust it may have an extended circulation, and serve to divert many a hardworking man during the coming winter evenings. Four volumes of the series have already appeared, characterised by a similar healthy principle of selection to that displayed in the one now before us.——*British Almanac and Companion for* 1866. Knight & Co. This is, as usual, crammed full of information upon a great variety of subjects for which the public has been taught to look in almanacs. In the *Companion* the reader will find carefully-written articles on Ocean Telegraphy, on the Forests and Open Places round London, on the Constitution of the Sun, and on Working Men's Institutions, besides a summary of our artistic, architectural, and political progress as a nation. In so extensive and valuable an epitome of things in general, it is not wonderful that a few press errors are to be found. Charles Waterton, whose death was so often announced, is at last said in the obituary to this Almanac to have died at the age of 38!——*Annotationes Criticæ in Cupuliferas nonnullas Javanicas scripsit.* C. A. J. A. Oudemans. 4to. Amstelodami, 1865. The learned Amsterdam professor has here given us a description of several Javanese Oaks, collected for the most part by Junghuhn. The detailed account of these Cupuliferæ is accompanied by 12 lithographed plates, and by an analytical table of the Oaks of the Dutch Indies.——*Glenny's Garden Almanac and Florists' Directory* for 1866, as usual deals out hard words pretty freely, the Horticultural Society and the gardening journals coming in for the greater share. There is a very good amateurs' calendar, and select lists of plants, flowers, and fruits, not too correctly printed.——*Hogg's Gardeners' Year-Book, Almanac and Directory*, 1866, which is the best of the annuals which have reached us, comprises, besides the usual almanac matter, a very useful and ample Directory, copious lists of new plants, flowers, and fruits, and a fruit garden calendar.

The Apiary.

In our reply to Mr. Pettigrew, we did not altogether differ from him as to his views on the subject of Large Hives; but we certainly thought that he advocated hives of dimensions out of all proportion to the usual requirements of bees, and which if brought into use would prove only a delusion and a snare. But we quite agree with him in believing that most of the hives throughout the country are much too small. We fear there is little hope of the majority of bee-keepers agreeing as to the proper size for all hives. Doubtless much depends on the district, but it is not always a mere matter of locality. We have known several bee-keepers of good practical and scientific ability, residing within a radius of a mile, all differing strongly in their views as to the capacity of the hive best adapted to the district.

The Woodbury hive will not, in our opinion, if properly tried, and judiciously managed, be found at all too large for any part of Great Britain or Ireland. It is, if anything, too small for some of the best honey localities of the south of England. The space within the frames available for the bees is 1411¾ cubic inches. The entire internal capacity is, as stated by Mr. Carr, 1892 cubic inches. But the portion of the interior occupied by the frames, with the spaces of three-eighths of an inch between the frames, and the top, bottom, back and front sides of the box, must not be taken into account in calculating the internal capacity of bar-and-frame hives.

The hives chiefly in use in our own apiary are much larger, their full measurement being 2140 cubic inches, their real working dimensions containing 1725 cubic inches. We have frequently obtained supers of 40 lb. to 54 lb. from these hives, and have very rarely seen a grub or an egg above the breeding combs in their lower apartments. But hives of this, for British soil, unusual size, may not be adapted to all localities, and we should hesitate to recommend their general adoption. On the other hand Mr. Carr's hive appears to be as much too small. If its available internal capacity be calculated in the same way, it cannot, we believe, exceed 1050 cubic inches. We should be very sorry to have such diminutive hives in our apiary.

Mr. Carr probably speaks of Keys' when alluding to the hives that he asserts were the best that were known prior to the introduction of the bar and frame hives. Here again we must beg to differ from him. Dr. Bevan's and Taylor's bar hives, and the Stewarton hives, with many others we could mention, were each and all improvements on Keys' system.

Mr. Carr's plan for gradully enlarging the supers is a good one. It is however not new to us; the plan in use in our apiary is, we think, an improvement. The large hive, usually called the "Canada hive," alluded to by Mr. Carr, undoubtedly seems unsuited to this country, but we know that a plan of keeping bees very analogous to it has, in America or Canada, occasionally been found to answer. We have been informed by a gentleman of one which came under his notice somewhere in America. He accompanied the proprietor on a visit to his bees for the purpose of obtaining a dish of pure fresh honeycomb for the tea-table. A room constituted the bee-hive. On entering at the door there were visible masses of comb and clusters of bees suspended in various parts from the ceiling or from shelves. The means of exit and entrance our informant did not observe particularly, but he imagined there were slits through the wall in various places. There were no separate hives used; the bees worked as their fancy led them. The owner, without any protection to hands or face, cut away as much honeycomb as he required for that occasion. He also said that the bees did well, and gave him no trouble. How far such a plan would answer, if a large amount of honey for sale were a desideratum, we cannot say, as our informant, from being somewhat ignorant on the subject of bees, and rather too much afraid of them to venture his sacred person in close proximity, did not investigate the matter very particularly.

Profitable Bee-keeping.—I can confirm your statement that large hives do not answer, nor even hives of the size you have tried, containing 1760 cubic inches, except in a very good bee country. Woodbury's hives measuring 14½ inches square by 9 inches deep, containing 1892 square inches, do not answer in these parts, and, after many years' experience with nearly all descriptions of hives, including some my father got made in 1805 after Kay's (query, Keys') plan (which were decidedly the best hives until the bar-frame system came out), I have adopted improved bar-frame hives containing 1458 square inches, which I find to answer the best in Lancashire, and also in the south of England.

The system that I recommend for profitable bee-keeping is to prevent swarming, as the summers in

England are so short that the bees cannot send out swarms and also collect large stores of honey. A strong stock that is prevented swarming will collect three to four times the quantity of honey that it would have done if allowed to swarm. I therefore use large supers the same size as the hive, but with only seven bar-frames instead of nine in the stock-box, so as to get thicker honeycombs, weighing from six to nine pounds each.

When I first put the super on, if I think it is too large for the bees to commence work in it, I remove one of the bar-frames and drop a solid piece of one-inch Pine in its place, and so reduce the size of the supers to any size that I like; and when they are wanting more room, this solid piece of wood takes the place of another bar-frame, and so the super is enlarged as required.

As Mr. Pettigrew says that he has never seen a hive half large enough in any county, I beg to inform him that Mr. Downie, of Barnet, makes what is called the American box hive, containing upwards of 20,000 square inches. I saw one of this make of hives at work in 1859 at the Garden of the London Apiarian Society at Muswell Hill; it was an ordinary bell-shaped straw hive, placed on a shelf near to the top of the box, and the bottom of the hive projected half-way over the shelf. The bees had extended the combs a considerable distance down into the box. The queen in this case was not curbed in her enormous prolificness, but had every inducement for laying in these extended combs, as they continued from the top of the hive, and she laid eggs in them, but nothing like to the extent she might have done if she had had the eggs to lay, as there were plenty of bees to hatch the brood out, or to extend the combs still farther if she required them.

Mr. Tegetmeier, the Secretary of the Society, on the 13th of April, 1861, says, after giving this system a fair trial and getting no honey the two last years—"That it is inferior in a profitable point of view to the employment of hives with movable bar frames, but that it is interesting to see the bees working in so large a box." *William Carr, Newton Heath, near Manchester, Nov. 25.*

Bee-hives.—In order to assist the uninitiated, I would suggest that you should, if possible, publish a plan and section of each of the best forms of hive, which, with the dimensions, would greatly assist country tradesmen in making them when required. It would also be of great service if clear and precise instructions were given of the best mode of manipulating the various approved hives. *J.*

We hope shortly to commence a series of articles in which we will endeavour to give full and explicit directions and measurements. With regard to plans of each hive and its appurtenances, woodcuts will be given, so far as the expense of engraving blocks will permit.

Garden Memoranda.

The Royal Gardens of Sans Souci, at Potsdam, Prussia.—We are glad to have the opportunity of printing the following interesting account of these Gardens, which has, we believe, been approved of by H.R.H. the Crown Princess:—

These very celebrated and magnificent Gardens are situate on the island of that name, about 16 English miles south of Berlin. The whole island may be considered as one great park, most of the noble palaces having a share of the general and extensive landscape arrangements. I will first notice, as being of most interest to us, the Palace occupied as a summer residence by the Crown Prince and our Princess Royal. It is situate at the west end of the great garden arrangement, and is known by name as the New Palace. It was begun by Frederick the Great of Prussia in the year 1763, and was finished in 1770, at a cost of upwards of three million dollars. The style is a mixture of old Dutch and Italian, with an addition of some 230 Corinthian pilasters to a dome 176 feet high. Around the parapet at a high elevation, and at proper intervals, are arranged 428 statues of sandstone, in different attitudes, each from 8 to 9 feet high. The length of the front is 680 feet. The imposing effect must, I think, tell forcibly on the mind of every spectator, as it did upon mine.

In front of this building is a handsome flower garden, designed by the Princess Royal. It is English in style and a half circle in form, and contains in all about 2 acres. There is a broad centre walk, and the whole is surrounded by a double walk with a border between, upon which are placed alternately at intervals, fine Orange trees and white marble statues. The decorative portion of this design is interlined with Box, forming a highly finished geometrical design upon a Grass platform. The outside walk is again backed up by fine trees and underwood; but if we consider that here the gardener has to treat all his Rhododendrons and Laurels, both Portugal and Common, as greenhouse plants, and also that to get the Grass in the fine condition in which I saw it, a daily process of watering is necessary, we may feel how much the path to success in decoration is beset with difficulties, and that nothing short of great perseverance would ever bring out such results as Mr. Emile Sello has produced in respect to the state of keeping in these gardens.

To the right of the Palace are some squares enclosed by hedges of Beech some 20 feet high, and used as playgrounds for the Royal children. To the left are similar squares, but the hedges are lower towards the south, and the gardens are filled with a truly English mixture of fruit, flowers, and vegetables, pleasingly arranged, and kept with scrupulous neatness; and although they, like the gardens on the other side, are mainly for the amusement of the Royal children, yet they are frequently visited and superintended by their Royal Highnesses the Crown Prince and Princess. In a wood close by is a colony of English wild flowers, such as common yellow Primroses, Polyanthus, Cowslips, Snowdrops, Lily of the Valley, Foxgloves, &c. May they continue to flourish, and be as much at home and as happy as their Royal patrons!

The broad centre walk already mentioned, in front of the Palace, is the commencement of a long straight avenue, running from east to west, and connecting all the beautiful grounds and gardens of Sans Souci. At the lower end of this avenue are three fountains, the main or centre of which, when in full play, throws a column of water to a height of upwards of 700 feet. The basin to this is 120 feet in diameter, with a bold marble curb, and is well stocked with gold fish. Surrounding the fountain, numerous marble seats and many beautiful statues in the same material are placed. A little southward of this, and newly erected by order of the present King, is a white Carrara marble monument of Frederick the Great, by a sculptor of Rome. The site is exceedingly well chosen, as opposite to the north is the famous Castle of Sans Souci, so named by himself, where he spent many hours of his life, including the last. The name Sans Souci (without care) appears contradictory to what we read of his anxious and energetic life. The building itself is only one story high, but it is situated upon the top of a hill, and made, as it were, the centre of the grounds and the other palaces. The views are also magnificent, few equalling them in their way. Voltaire, who frequently stayed there with Frederick the Great, named this abode "Le Paradis de Philosophe." The landscape extends as far as the eye can reach over the fine trees of the park; while between the Castle and a range of hills is a large sheet of water, with numerous sailing vessels passing to and fro, adding life to the scene. Below this Castle, at the foot of the hill, is the great fountain already alluded to. To the left we have the interesting town of Potsdam, with its spires and colossal copper-gilt Atlas supporting the globe, peeping through the trees. This town is noted as the birthplace of the celebrated traveller Alexander von Humboldt. To the right of this is the historical Windmill, still kept in good repair as a remembrance of the miller's success over the King.*

In the front of the Castle is a plateau, about one acre in extent, decorated with flower beds on Grass, and surrounded at intervals with fine Orange trees. In this centre are several very fine marble fountains. From the plateau extending down to the great fountain are six terraces, each equal in size to the top plateau, and on these are nicely arranged about 400 magnificent Orange trees—I should think the finest in Europe; even the trees at Versailles in their palmiest days were not equal to them. The fronts of these terraces are planted with Vines, Figs, and Peaches, and are termed sun walls, being only covered with glass at the approach of winter to protect the trees. These terraces give a length of 2340 feet of sun wall, and in another part of the garden there are 7026 feet more, making nearly one and a half mile of this sort of glass. On each side of these terraces are broad flights of steps, the plateau forming landings. The effect of these terraces is wonderful, from either top or bottom.

To the left and right of Sans Souci are two buildings joining these terraces. The one is a picture gallery, and has in front a nice flower garden laid out in the Dutch style; the other is used as a residence for the ladies in waiting upon the Queen Dowager, who occupies this palace as a summer residence. From the north, at this point, the view is also fine. In front is an isolated hill covered with Pinus sylvestris, surmounted with stately Corinthian ruins. Near them is a great reservoir 150 feet in diameter and 12 feet deep, which supplies all the fountains, and is in turn supplied from the River Havel by an engine of 80-horse power.

A little westward of the Castle are what are named the Sicilian and Northern Gardens, both laid out in the Italian style, and forming terraces on high slopes. They contain some nice Conifers. These are surrounded by arbours, and many marble figures, and are enlivened by several fountains, the upper slope having in its centre a fine grotto. Close to these gardens stands, on another height, a large and imposing Italian erection, with a tower at each end, from which fine views are obtained. This is the Orangery, and is in length 330 feet, forming inside a sort of magnified winter garden. The roof is glass, with an architectural front surmounted by balustrades. In front of this building, which faces full south, is a good-sized flower-garden, also Italian, with numerous statues and fountains. From hence numerous massive flights of steps lead down to the public road, which runs parallel with the long avenue before mentioned.

Following up this public road, which has gardens on each side, we come shortly upon two handsome Italian villas, one the residence of a royal architect, and the other that of Mr. Sello, one of the eight royal head gardeners in this establishment, and brother to Mr. Emile Sello, the gardener to the Crown Prince and Princess at the New Palace. These are upon the left; while upon the right is a most singular looking garden, named the Paradise Garden, with a stebadium (Italian bathplace) in the centre, and a cascade opposite to it. The whole garden is planted with the different sorts of Vines, Virginian Creepers, &c., which are trained to all kinds of arbours, arches, espaliers, pagodas, &c. In spring the garden is said to be deliciously scented with the blossoms of the Sweet Vine, Vitis odoratissima, and V. riparia. We overlook this Vine in planting creepers; besides its sweetness, it is quite as effective and hardy as many of the American varieties so much praised of late. The whole garden is quite novel and pleasing. Between the arbours are planted Mulberry, Chestnut, and Walnut trees in rows, the whole intersected by straight walks and borders of flowers. On each side, joined to this garden, is a large Vineyard of 8 acres in extent, situate on the steep slope of a hill. It is formed into three terraces, with three sun walls each 725 feet long and 8 feet high, covered with glass at an angle of 75°; one-sixth of these walls is planted with Peaches and the other portion with Vines.

The system of treatment followed for these is something similar to the English, except in the pruning, for they adopt the long-spur treatment, instead of the now almost universal system of short pruning which is followed here. The produce of Grapes from these walls is upwards of 14,000 bunches a year, with an average of 3000 Peaches. The best Vines grown here are those known under the names of Muscatelle, green, red, yellow, and blue; Muscat of Alexandria; Malvoisin, blue, white, and grey; Cibebe (this has fine large bunches, 1½ foot in length, and weighs on an average 4 to 5 lb., and appears different from the Weisser Cibebe we know); St. Laurent, Chasselas Royal, Chasselas Fontainebleau, Green Edling, Lenné's Honour, Frankenthal, or Black Hamburgh; Cypher, white and red; Borromeo, blue; Ungar, grey and blue; Lachrymæ Christi, with some 50 other sorts. Of Peaches the following are most esteemed:—Madeleine, red and white; Mignonne Ordinaire, Pêche Malti, Galande ou Grande Noire de Montreuil, Incomparable, Melcaton Hâtive, La Belle Chevreuse, Belle de Tirlemont, Newington, Téton de Venus, Brugnon Stanwick, &c. Some of the Vines are trained outside on trellises, and come in about a fortnight later than those on the sun walls.

Passing some interesting enclosures, of some 70 acres in extent, for foreign and other fowls, known as the Pheasantry, we enter another extensive pleasure ground of 120 acres, with a fine Italian villa in the centre. This is named Charlottenhof, and was a birthday present of King Frederick William III. to his son, the late King William IV, at that time Crown Prince. It is chiefly noted for its fine Rose garden, and is much frequented by the people of Berlin during the Rose season. Near to this is another residence of a royal head gardener, also built in the Italian style, and having in connection with it a Roman bath-place. We may here notice that all the residences of the head officials, both gardeners and others, are so placed and built as to form objects in avenues, or to serve as features in the views and landscapes; even the engine-house is quite an ornamental piece of architecture. I think we do not consider this sufficiently in England.

Leaving Charlottenhof, on our way eastward we pass a fine Japanese Pavilion, surrounded by some stately trees. A little way across the meadow are two fine houses at the end of a cross avenue, one the residence of Mr. Lenné, the Director General of all the Royal Gardens; and the other occupied by a portion of his staff. Close behind these dwellings is the forcing department, which consists of 25 glass houses and a great number of pits. Each house is about 120 feet long, and varying in width from 15 to 24 feet. They stand about 50 feet apart, in straight lines, facing full south. Here they force Peaches, Apricots, Cherries, Figs, Strawberries, Raspberries, French Beans, Mushrooms, &c. A little further on is another forcing department for Pine-apples, Melons, Cucumbers, Plums, &c. Near to M. Lenné's residence is what is known as the Marly Garden, very beautifully laid out, and kept as a private garden for the Queen Dowager.

Besides the different places noticed in this hasty sketch, there are many more fine palaces and gardens on the island, but so nicely combined together that the whole appears to consist of one great park. There is, for instance, the seat of the present king at Babelsberg, a new and fine building; Glienicke, the residence of Prince Charles, brother to the king, attached to which is a fine park and garden; while opposite is the residence of Prince Frederick Charles; also the Peacocks' Island (Pfaueninsel), surrounded by the river Havel; the Marble Palace, with several others. The river, it may be noticed, expands into a broad lake, on which a large number of vessels is continually moving about. Most of these palaces are so situated as to get views of this and they also themselves form beautiful objects in the landscape. *J. Fleming.*

* This mill was the subject of a lawsuit, in which Frederick the Great was worsted by the miller.

Miscellaneous.

Ladders.—The cause of ladders "snapping" in two is very easy of explanation; and the sooner our makers of ladders are enlightened upon the subject the safer

will it be for those who are compelled to use them. Ladders, by the professed manufacturers, are made of a pole cut down the middle; each side is then bored for the insertion of the rungs, and the rungs being in their place, the ladder is knocked together; holes are bored through the thick part of each side right through the rung, and a pin is then driven in to tie the ladder together. Now, in this last boring lies the mischief; and if ladders were made without these borings and these pins, and were simply tied together at intervals by small riveted bolts placed under the rungs, I feel sure fewer accidents from the "snapping" of ladders would result. *W. H. C., in Builder.*

Corsican Wines.—The Mountain of Cap Corso and its ravines have even a local reputation for their wines. My friends at Bastia repeatedly excited my envy by the choice specimens of these unknown wines that they offered me. Of late years but little has been made, owing to the ravages of the Oïdium, which the Corsicans have not yet learnt to conquer. But new Vines are now being extensively planted everywhere throughout Corsica, to replace those that have been destroyed by disease. In a few years large quantities of good wine will be again made, both in the Cap Corso region and others. In the southern regions of Corsica the Oïdium is still unknown, and perhaps the best wine of Corsica is still produced there in considerable quantity—the Vin de Tallano. This wine is made in the vicinity of Sartene, and is really good and choice. It resembles a full-bodied Burgundy, although it has a peculiar rich flavour of its own. This wine has already obtained such a reputation in Corsica that it has become valuable. M. Jiacomini, the mayor of Tallano, the principal grower, tells me that his present prices are 2f. 50c. the litre or quart for the wine of 1860, 2f. 25c. for that of 1861, and 2f. for that of 1862 in the wood. His wines gained the prize at the recent exhibition at Ajaccio (May 1865). *Bennet's Mentone, 3d Edition.*

Kidd Testimonial.—A testimonial, consisting of an elegant silver tea service, was presented the other day to Mr. James Kidd, gr. to Lord Kinnaird at Rossie Priory, on the occasion of his completing his 50th year in the service of that gentleman, as well as to show the esteem in which he is held by his brother gardeners, who, to about the number of 200, each subscribed half a guinea towards the gift. The inscription on the testimonial is as follows:—

Jubilee Testimonial,
presented with
A Silver Tea Service, &c.
by Members of the
Royal Horticultural Society of Perthshire
and numerous other friends,
to
JAMES KIDD,
Gardener to the Right Hon. Lord Kinnaird,
on completing
his 50 years' service at Rossie Priory,
in testimony of their esteem for the many amiable
qualities which have throughout life adorned his personal
and professional character.
November 1865.

Sicilian Vegetation.—As we approach Catania, the very peculiar, grim, coal-mouth character of the region becomes more and more apparent. The walls on the roadside, and in the fields and the outhouses, are all made of clinkers, the road of cinders, the soil of ashes. Vineyards are numerous; the Vines—indeed, nearly all plants in Sicily—are planted in the fields between ridges or pyramids of the loose black soil, some 18 inches high, in order to retain moisture. Even Wheat is planted in this way in tufts at the bottom of furrows, and between ridges. In flower gardens the same system is followed. This soil, formed of decomposed lava, appears to contain all the elements of nutrition required for vegetation; everything seeming to flourish and thrive in it, provided there be water. The ground vegetation shows less difference than that of the trees. Beans and Peas are ripe, and Vetches are in full blossom. Lupines, white and blue, are very abundant, and are extensively cultivated as fodder for cattle. The Hellebore is in flower and very common; Almond trees are in full leaf, and the fruit natural size; white and red Convolvulus and scarlet Poppies are common. Occasionally, near water, are Poplars in full leaf; in the same situations, Bamboos have new shoots, 3 or 4 feet long. They grow to 20 feet or more, and are much used for light fencing, as supports to Vines, and for a variety of similar purposes. Pomegranate trees are often seen from 10 to 20 feet in height. Within the last few miles of Catania, where the separation of the clinkers, cinders, and soil has not been made, rivers of lava are crossed, lying in masses, in mounds, in sheets, in plains, and producing little else but Crassulaceæ. The fertility of the lava is evidently the result of human labour combined with artificial irrigation, brought to bear on it when decayed by atmospheric influences and by time. *Bennet's Mentone, 3d Edition.*

Calendar of Operations.

(*For the ensuing week.*)

WHEN out-door work cannot be carried on, let the Fig house, Cherry house, and all late forcing houses be made ready for work when required. The walls should be whitewashed, and the trellises either washed or painted. Fig trees that have been properly managed during the summer will not now need much pruning; a few of the thickest branches may, however, be taken out if necessary. Fruit trees in pots which it is intended to force next spring should, if not already done, be mulched in order to protect the roots from frost. If Strawberries in pots are not under cover some may now be taken into any of the late houses, in order to prepare them for being forced after Christmas.

FLOWER GARDEN AND PLANT HOUSES.

Look carefully over rock plants, and protect the roots of such as are tender. When the walks are dry, manure may be wheeled on borders, to be dug in during winter as opportunity offers. Land that is naturally very stiff should receive a coat of sand or lime rubbish, to lighten it; but by no means disturb the soil unless it is dry and in a fit state for digging. Cabbage and Provins Roses might now be pruned if the weather continues mild; but Chinese and other tender kinds should be left till winter is over. Roll walks and lawns, sweep up leaves, and keep all clean and orderly. If the soil in the pots of plants in pits has become green on the surface, it should be carefully removed while the weather is mild. Scarcely any water will be required at this season; if the plants flag, a little should, however, be given in fine weather. Remove decaying leaves, and give air every fine day.

AZALEAS.—These should be kept comparatively cool, and not in too damp an atmosphere. Let the plants stand as near the glass as possible.

CARNATIONS AND PICOTEES.—Keep these clear of dead leaves, and give them as much air as possible while the weather is favourable.

CINERARIAS.—If not already done, let plants intended for specimens have a final shift. Water, when necessary, should be given in the morning in order that the leaves may get dry before night. Thin out superfluous shoots in order to allow those that remain to have more light and air. Keep the plants as near the light as possible, and avoid frosty draughts.

DAHLIAS.—Examine the tubers, in order to see that they are in a proper condition to stand the winter. Any seed which may have been saved should be wintered in a dry place.

PELARGONIUMS. — Plants which require shifting should now receive attention. Keep them close for a short time after the operation; but when established do not allow the temperature to rise above 40°. In short, if frost is excluded, that will be sufficient. Fancy varieties like a little more heat. Water in the morning, and let the plants stand thinly on the stages. Train as often as the shoots indicate that that operation is necessary.

FORCING GARDEN.

PEACHES.—These dislike hard forcing, therefore apply little fire-heat, unless the temperature falls below 40°; and when the weather is favourable, give air daily. The outside border should be protected by a good covering of leaves, thatched over with straw.

PINES.—It will be a trying task just now to manage these plants, with no other heating material than fermenting litter. Every favourable opportunity should be taken to turn the linings, and add to them if required. Let them at least be protected by some kind of covering; and if possible let them be entirely enclosed, that they may of themselves supply a sufficient amount of heat to do away with the necessity of keeping the pits covered during any portion of these short days. Young Pines are frequently much drawn during winter, and the mischief is not noticed until they are taken out in the spring to be repotted or planted; and then it is that the gardener repents not having given more air, and more light, by keeping the glass clean. If the bottom-heat is 80°, the top may occasionally be as low as 55°, without the plant suffering; and particular care should be taken that no injury occurs from excessive dampness at the root from any cause.

HARDY FRUIT AND KITCHEN GARDEN.

Dig or trench all vacant ground, earth up Peas and Beans as they require it, and protect the most forward Celery ridges from frost and too much wet.

PEAR TREES.—In pruning very young trees, the object should be to encourage the growth of wood in proper directions. The form in which the tree is to be trained must be first decided upon. For walls and espaliers the horizontal disposition of the branches is the best; therefore, if the tree be a maiden plant, it must be headed back to the three buds best situated for producing a horizontal branch on each side, whilst the third or uppermost is trained upright. If the tree is a year older, and has been treated as above in the former season, the upright is to be cut 1 foot, or four courses of bricks higher than it was formerly. Sometimes a little deviation will be necessary on account of the buds; but generally the upright should be cut immediately above that bud which is nearest the line of brick-work along which it is desirable the horizontals should be trained. The buds to produce the latter will of course be situated below that line; it is proper they should be so, in order that the shoots may grow diverging upwards a little way before they take a strictly horizontal direction. These directions with regard to the management of the upright leading shoot are applicable every year till it be finally stopped on reaching the top of the wall or espalier. If the horizontal shoots be weak, it will be advisable to shorten them about one-third. Other hardy fruit trees may also now be pruned and trained.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Dec. 6, 1865, as observed at the Horticultural Gardens.

Nov. and Dec		Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth. 1 foot deep.	Temperature of the Earth. 2 feet deep	Prevailing Winds
Thurs.	30	12	30.001	29.812	49	36	42.5	49	[illegible]	[illegible]
Friday	1	13	30.018	29.991	49	35	42.0	48	45	[illegible]
Satur.	2	○	29.795	29.637	45	35	41.5	48	45	[illegible]
Sunday	3	15	29.599	29.466	49	35	42.0	47	45	[illegible]
Mon.	4	16	29.752	29.283	51	36	43.5	47	45	[illegible]
Tues.	5	17	29.723	29.556	50	40	44.0	48	45	[illegible]
Wed.	6	18	29.997	29.887	53	46	49.5	48	47	[illegible]
Average			29.797	29.650	49.8	37.5	43.7	47.8	[illegible]	

Nov. 30—Hazy; partially overcast; fine at night
Dec. 1—Hazy clouds; overcast; slight rain.
— 2—Fine, very fine; becoming overcast, fine.
— 3—Foggy; showery; fine at night.
— 4—Hazy; cloudy; boisterous.
— 5—Fine; cloudy; overcast at night.
— 6—Densely and uniformly overcast; warm S. wind.
Mean temperature of the week, 1½ deg. above the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 39 years, for the ensuing Week, ending Dec. 16 inclusive.

Dec.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N	NE	E	SE	S	SW	W	NW
Sunday..10	46.8	32.9	39.9	24	0.67 in	2	[illegible]	2	2	2	[illegible]	[illegible]	[illegible]
Mon. ..11	46.0	32.9	39.5	16	1.02	3	5	5	1	[illegible]	[illegible]	[illegible]	[illegible]
Tues. ..12	46.0	33.3	39.6	17	0.56	3	4	2	3	1	[illegible]	[illegible]	[illegible]
Wed. ..13	46.7	32.5	39.8	22	1.16	2	9	4	2	6	[illegible]	[illegible]	[illegible]
Thurs. ..14	46.1	33.6	39.8	19	1.24	6	5	5	5	2	4	[illegible]	[illegible]
Friday ..15	46.0	34.6	40.3	16	0.34	2	6	5	3	5	[illegible]	[illegible]	[illegible]
Satur. ..16	45.5	34.0	39.7	13	0.34	6	4	4	3	6	[illegible]	[illegible]	[illegible]

The highest temperature during the above period occurred on the 12th, 1841—therm. 63 deg.; and the lowest on the 15th 1842—therm. 18 deg.

Notices to Correspondents.

BOOKS: *M C.* Cuthill's Treatise on Market Gardening round London.—*E C.* Thomson on the Vine.

CELERY FLY: *A Constant Subscriber.* The best remedy for the Celery fly is to pick off the blotched leaflets while the grub is still in them, and either crush or burn them. Unless very much infested, the quality of the crop will not be materially affected by it.

ODONTOGLOSSUM: *An Orchid Grower.* We cannot notice anonymous communications.

FERNS: *J S.* Goniophlebium subauriculatum is a native of Java and the Philippine Islands; Nephrolepis tuberosa is widely spread over India and the East, and is found also in South America.

GARDENERS' WAGES IN NURSERIES: *B F. Manchester, and Ot.* We are glad to know that the case you mention is not a single instance, and hope that it will become general.

HEATING GREENHOUSE: *S L* We cannot recommend gas for keeping frost out of a small lean-to greenhouse opening to a room. Hot water is far better; and may in your case, perhaps, be applied by means of a pipe from the kitchen boiler, or a small detached boiler might be used.

INTERNATIONAL HORTICULTURAL EXHIBITION: *J Whedee.* We will hand your letter to the Executive Committee for whom, we are sure, it will receive full consideration. We do not, however, think there is good reason for your objections to the schedule—certainly not on the grounds stated. Several of the principal exhibitors, including the President of the Exhibitors' Society, are members of the Executive Committee; others were invited to act on the Provisional Committee, but either declined or did not attend; and others, again, before the final adoption of the schedule, while making general objections, declined to offer any specific suggestions. The word distinct is, we believe, intended to mean dissimilar, and therefore admits distinct varieties; but common sense will suggest to every exhibitor that he cannot introduce too many varieties of one species, nor too many species of one genus, without losing some points on the score of distinctness as regards the collection taken as a whole. Some of the other points you mention are, we think, deserving of consideration.

MEDLARS: *Dunny.* Medlars should hang on the tree till the stalk parts from it readily; they should then be gathered quite dry, and laid out on shelves in a ventilated store-room. They are liable to be attacked by a minute Fungus, and to prevent this it is considered advisable to dip the end of the stalk in a strong solution of common salt. The fruit should be frequently looked over, and those which become affected by the Fungus at once removed. Packages received with thanks.

MONSTERA FRUIT: *T G S.* It will not ripen now, we fear. Please send it.

MUSHROOMS: *F R H S.* You had better put in two 4-inch pipes in your winter Mushroom-house, 7 feet 6 inches high by 9 feet wide. If you are serious in your inquiry about the manure from horses, not mares, being alone suitable for Mushroom culture, we can only refer you to the schoolboy's adage, "A mare is a horse, though a horse isn't a mare."

NAMES OF FRUITS: *H W.* 1, Conseiller de la Cour Pear: 2 Beurré d'Aremberg; 3, Court of Wick Apple; 4, Scarlet Nonpareil; 5, Newtown Pippin, small.—*S J A S.* Apple unknown.—*W H.* A seedling Apple, dry, and of very inferior quality.—*G T S.* The Chayote Gourd, Sechium edule, a full account of which is given at p. 51 of our present volume.

NAMES OF PLANTS: *J S.* 1, Allosorus crispus, the Parsley Fern; 2, Selaginella uncinata; 3, S. apus; 4, Ceterach officinarum; 5, Asplenium Trichomanes; 6, Blechnum Spicant.—*A T D.* Ceropegia elegans.—*Geofrey.* 1, Juncus compressus; 2, Carex arenaria.—*Hooper & Co.* 2, Euonymus punctata?—*W M.* There appears to be some mistake about the country given with the plant sent. It is a Centaurea, perhaps C. americana, but that is only known from the S. W. States.—*H B.* 1, Lastrea Filix-mas; 2, Scolopendrium vulgare; 3, Pteris tremula.

POTATO DISEASE: *A Constant Subscriber.* This disease is so capricious, that it cannot be fairly attributed to any particular mode of culture. In your case, if the manure used was of the ordinary kind, and not excessive in quantity, it can hardly have been deleterious in such a season as the past. In moist seasons it might prove to be so by causing rankness of growth.

PYRUS JAPONICA: *R B.* The fruit of this is not edible.

RATING: *Querist.* We know of no such Association as that you name. Glass-houses are subject to poor-rate.

REMOVAL OF GREENHOUSES, &c: *Surrey.* If you are, as you say, a florist and nurseryman, we should think that you might remove greenhouses, &c., erected by you to carry on your business, at the expiration of your tenancy; but you had better consult your solicitor.

SCALE: *J D.* Carefully scrape the branches of your Peach trees affected with this pest with some blunt instrument that will not injure the bark, and then give them a good scrubbing with a strong solution of Gishurst Compound. Washing with water heated to 160° is also stated to kill it.

SEEDS FOR AUSTRALIA; *Sig E Fenzi, Florence.* Send without delay to the Editor of the *Gardeners' Chronicle.*

COMMUNICATIONS RECEIVED: *M. de Jonghe.* Yes, certainly.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.
GENERAL MEETING of Members will be held at 12, Hanover Square, on WEDNESDAY.
By order of the Council,
H. HALL DARE, Secretary.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.
ON WEDNESDAY, December 13, at 8 o'clock P.M., Dr. VOELCKER will LECTURE on "DISINFECTANTS, the PREVENTION of INFECTION," &c. By order of the Council,
H. HALL DARE, Secretary.

MERRI TESTIMONIAL.—CATTLE SHOW.
Those Gentlemen attending the Cattle Show who wish to SUBSCRIBE to the TESTIMONIAL to be presented to HERBERT MERRI, as an acknowledgment of his indefatigable exertions in the cause of Agriculture, are respectfully informed that a Book will attend at an Office adjoining the Cloak Room, Horse Street entrance, during the hours of Exhibition, in order that the Subscriptions may be entered.
DONALD NICOLL, Hon. Sec.
Smithfield, S.W.

THE CATTLE PLAGUE.
PUBLIC MEETING in LONDON.
CHAIRMAN—The Right Hon. Lord Viscount COMBERMERE, Combermere Abbey, Cheshire.
In accordance with the preliminary Advertisement of last week, the COMMITTEE of the WAKEFIELD and WEST RIDING FARMERS' CLUB hereby GIVE NOTICE that they have made arrangements for a PUBLIC MEETING to be held in the ST. JAMES'S HALL (entrance Regent Street, London), on WEDNESDAY the 14th inst., at 11 A.M., to discuss the important question arising out of the Cattle Plague, and to determine upon a general course of action throughout the country; also to define the position of Agriculturists in respect to the destruction of Cattle by the orders of the Government Inspectors, and it is hoped to form an influential deputation to wait upon the Home Secretary on the subject.
The Committee earnestly request all the Agricultural Societies throughout the Country to send deputations to this Meeting as suggested in the circular sent to the various Secretaries (as far as could be ascertained) last November last, as it is of the greatest importance that the Agriculture should be represented at such a Meeting, to obtain a remedy applicable to the whole country if possible, as well for the guidance of the Privy Council as the benefit of the community.
Further particulars will be given on application to M. B. HICK, Secretary to the Wakefield and West Riding Farmers' Club.
Seconded by C. CLAY. Carried unanimously.

SMITHFIELD CLUB SHOW of CATTLE, SHEEP, PIGS, AGRICULTURAL IMPLEMENTS, ROOTS, and SEEDS, on MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, December 11, 12, 13, and 14.

SMITHFIELD CLUB CATTLE SHOW, AGRICULTURAL HALL.
Open MONDAY, December 11. Admission First Day, 5s.

CATTLE SHOW, AGRICULTURAL HALL.—The SMITHFIELD CLUB CATTLE SHOW contains an assemblage of the best British Live Stock in CATTLE, SHEEP, and PIGS. Admission, Monday, after 2 P.M. (Private View), 5s.; Tuesday, Wednesday, and Thursday, 1s.

SMITHFIELD CLUB CATTLE SHOW, AGRICULTURAL HALL, contains—
CATTLE:—Short-horns, Herefords, Devons, Sussex, Suffolk, Norfolk, Long Horned, Highlanders, Polled Scots, Horned Scots, Welsh, and Half Breds.
SHEEP:—Leicesters, Southdowns, Cotswolds, Lincolns, Shropshire Downs, Hampshire Downs, West Country Downs, Oxford Downs, Romneys, Rycland, Herdwick, Cheviot, Dorset, Black-faced Scotch, &c.
PIGS.—Large, Medium, and Small White, Black, and Black and White, Bacon Hogs, and Small Porkers, from all Counties.

SMITHFIELD CLUB CATTLE SHOW, AGRICULTURAL HALL.
CHEAP EXCURSION TRAINS and Return Tickets to London. See Time Tables of the Railways.

The Agricultural Gazette.
SATURDAY, DECEMBER 9, 1865.

MEETINGS FOR THE ENSUING WEEK.

MONDAY,	Dec.	11	Smithfield Club's Cattle Show, at the Agricultural Hall, Islington.
TUESDAY,	—	12	
WEDNESDAY,	—	13	
THURSDAY,	—	14	
MONDAY,	—	11	Central Farmers' Club (Mr. Duckham on Cattle Management)—6 P.M.
TUESDAY,	—	12	General Meeting of Smithfield Club. Annual Dinner of Farmers' Club, at the Salisbury Hotel—5 P.M. Royal Agri. Society (Dr. Voelcker on Disinfectants)—8 P.M.
WEDNESDAY,	—	13	Royal Agri. Soc. (General Meeting)—Noon. Dinner of Smithfield Club, at Radley's Hotel—6 P.M. Society of Arts (Mr. J. C. Morton on London Milk)—8 P.M.
THURSDAY,	—	14	Meeting at St. James's Hall on the Cattle Plague—11 A.M.

—— THE above list indicates sufficiently the number and interest of the agricultural engagements for the coming week. As regards the Show at the Agricultural Hall, we learn that it will be a fair average in numbers, and above average in quality, at the expense of the various provincial Shows, for the reason that the prizes offered by the Club are so large that the exhibitors, compelled by recent stringent regulations to select and confine themselves to one Show, prefer that at the Agricultural Hall to Birmingham and other county displays. The following list will show that there will be sufficient in each class to satisfy the most enthusiastic amateurs:—Beasts, 205, viz., 52 Devons, 26 Herefords, 48 Shorthorns, 51 of Norfolk, Suffolk, and Sussex breeds, 29 Scotch, and 19 extra stock of various breeds. Sheep, 344, viz., 115 Long-woolled, 184 Short-woolled, and 45 Crossbreds. Pigs, 137.

We call attention especially to the meeting on Thursday, under the presidency of Viscount COMBERMERE, at St. James's Hall, at 11 A.M., when representatives of the various Farmers' Clubs throughout the country will assemble to discuss the position of landlords, tenants, consumers, and the Government in reference to the Cattle Plague. We observe that great indignation is expressed by some gentlemen because Government does not at once forbid all live cattle traffic throughout the country. We presume that Government knows it has not got the power to stop the cattle traffic, however it may be *forbidden*, unless local opinion sanctions such a step; so that in placing the power to such traffic in the hands of local authorities, it really has done all that is possible.

If the majority of local authorities should put in exercise the powers for this purpose with which they are invested, it can hardly be doubted that Government would at once come forward to make the work complete by extending the rule over the minority of cases where the local authority had not acted. Meanwhile, public opinion is fast hurrying on to the result thus indicated. The cases of disease reported during the last three weeks to the Veterinary department of the Privy Council have been 2600, 3600, and nearly 4000 respectively.

—— IT is the trustworthy records of pedigrees of our domestic animals, combined with their inherent excellence, which brings all the world to England for such breeds as are deemed suitable for the wants of other nations. It cannot be doubted but that with the world-wide dispersion of the Anglo-Saxon race and the improvement of agriculture in all the temperate regions of the globe, the traffic in first-class breeding animals is yet in its infancy.

Many a fearful tale of pecuniary loss, moral ruin, and broken hearts circles around the Stud Book; very different results would flow from Stud Books of the Cleveland Bay, the Suffolk Punch, the old English cart-horse, and the Clydesdale. The happiest results have attended the formation and publication of the Herd Books of the Shorthorns, Herefords, Devons, and Polled Angus. May the circle of usefulness soon be completed by the addition of the Galloway and Ayrshire!

As for our Leicesters, Southdowns, Cotswolds, and other breeds of lesser note pertaining to combined tillage and pasture, and the Cheviot, Black-faced, and other local breeds of upland pastures—why should the well-earned fame of the national agricultural or first-class local agricultural Societies be lost (so to speak) to the world in the flock of his fortunate owner? We know the value of a name in connection with a herd; we know the value of a Comet, Duke, or Duchess strain of blood. The honest breeder of a prize sheep would welcome a Sheep Stock Book, and the world would ultimately have a moiety of his profits.

In carrying out these suggestions, embodying a few rays of hope propounded in this hour of agricultural distress, perseverance and method, combined with honesty of purpose, must grapple with great difficulties. Here is fitting work for many master minds, as well as for those who are content "to labour and to wait,"—a worthy object for the contributions of the wealthy, and for the surplus funds of agricultural societies.

—— We smiled at a neighbour 14 years ago who employed a donkey and cart for odd jobs, but we repented on reflection, and our gains by following up the suggestion are really enormous:—We found a first-class (in point of shape) Welsh pony, say 12½ hands, well fed, could do more work than the best stamp of our farm horses. A big horse gets sick or giddy; the above-mentioned pony could do double the amount of horse-work labour that any horse could do. In the course of a year a thousand and one jobs will occur which could be quite as well executed by a light pony cart as with an ordinary one-horse cart. There is no breaking of a team; and a boy entrusted with a pony cart rises high in his own estimation and that of his compeers,—he learns how to handle a pony and aspires to a horse. The effects upon the agricultural training of 12 boys are most satisfactory. *B. M. F.*

AGRICULTURAL EDUCATION.

ON MIDDLE CLASS EDUCATION, having reference to the Improvement of the Education of those who depend upon the Cultivation of the Soil for their Support. By Mr. R. DUKE, 14, Burton Crescent.

(*Continued from* p. 1139.)

IV. We now come to the consideration of the important subject of *Chemistry*, as the fourth science which is necessary to the improvement of agriculture. Liebig has stated that it is from chemistry alone that any great advance in agriculture is to be expected, and he has recently warned the agriculturists of Great Britain, that it will be necessary for them to farm upon more strictly chemically scientific principles. Chemistry is a science which takes cognizance of all substances in Nature, both those which are organic, as in the animal and vegetable kingdoms; and those which are inorganic, as in the mineral. The former also all have a portion which is inorganic; and while their organic part can be consumed and dissipated by fire, the inorganic remains. Now, it may be stated generally, that plants, for the most part, derive their organic portion from the air, and their inorganic from the soil. The latter is much smaller than the former, but it is not on that account to be disregarded. The bulk of the plant, however, is derived from the air, and the condition of the atmosphere materially affects it. Where that condition is most favourable, as in the tropics, we see the magnificence of tropical vegetation. The atmosphere, however, is beyond our control; we cannot improve it or render it more favourable to the growth of plants than it is naturally. With the soil, however, it is different. From the soil is derived the inorganic part of plants. This inorganic part is composed of several different substances, as will be seen from the following Table, taken chiefly from the analyses of Boussingault, published in his "Economie Rurale," and showing the composition of the inorganic part of some of the cultivated farm crops:—

Component Substances.	Wheat.	Wheat Straw.	Beans.	Turnips.	Potatoes.	Cabbages.	Meadow Hay.
Potash	30.12	9.56	47.14	41.96	59.95	11.70	18.11
Soda	—	0.31	—	5.09	—	20.42	1.35
Lime	3.00	8.88	5.32	13.60	2.09	20.97	22.95
Magnesia ..	16.20	5.19	8.98	5.34	6.28	5.94	6.75
Oxide of Iron	—	1.04	—	1.28	0.59	0.69	1.69
Phosph. acid	48.30	3.22	35.67	7.58	13.16	12.37	5.97
Sulphuric acid	1.01	1.04	1.66	13.00	8.27	21.48	2.70
Chlorine ..	—	0.62	0.71	8.69	3.14	5.77	2.59
Silica	1.31	70.19	0.51	7.95	6.52	0.75	37.89
	100.00	100.00	100.00	100.00	100.00	100.00	100.00

These substances which are found in the plant are also all found in the soil, at least in a fertile soil, and are there combined with one another in various ways. Changes are always going on, although slowly, amongst them by which they are rendered available for the plant. It is only in certain conditions that the plant can take them up. The presence of the air facilitates these changes, and where it cannot enter, as in the solid rock, which may be composed of the same substances as the soil, no change takes place. The influence of the air in effecting these changes may be seen in the domestic operation of stirring a fire. Here, by admitting the air, the fire is caused to burn more briskly. This is nothing but a chemical change which is going on, accompanied, as chemical change is, when violent, by light and heat. The coals are being more rapidly converted into carbonic acid and other gases. In like manner, stirring the soil, by admitting the air, causes changes to go more rapidly forward which are beneficial to the plant. It is by these enabled to assimilate the substances in the soil which are necessary to its growth. But these substances exist in the soil sometimes in very small quantities, and may even be altogether absent. These deficiencies it is the function of manure to supply. As stirring the soil, or tillage, is a mechanical science, so manuring is a chemical science. Manures have also an important action in promoting the changes in the soil which have been spoken of. The required substance may be abundant in the soil, but unavailable for the plant. This subject is still, however, involved in considerable obscurity, and it is only by each farmer comprehending what has already been ascertained, and acting himself in accordance with fixed principles, that progress can be made. There is nothing in the province of the farmer of greater importance. Manure is the foundation of all his success, and of the manures he employs too much cannot be known. Formerly all the manure employed upon a farm was made upon it, now there are few farms where some extra manure is not made use of. To inquire into the nature and efficacy of the many foreign substances used as manures is peculiarly the province of chemistry. Different kinds of crops require different kinds of manures. Farmyard manure is suited to every crop, but it is not so with these special manures. They must be applied with competent skill to produce the desired effect. The same manure produces different effects upon different crops, on different soils, and in different seasons. An overdose of farmyard manure was never apprehended as prejudicial, but with the manures of which we speak it would be possible to kill every plant. They are, moreover, generally very expensive, and require therefore to be applied with care to avoid waste, and in order to develop their best effects. Not only does the application of these manures require judgment, but their purchase also. They all exist in the market in a greater or less degree of purity, that is, in a greater or less degree of strength. Guano, although it may be perfectly genuine, varies considerably in composition, some kinds being of low value, and some kinds the most valuable manure that can be put upon land. Besides guano there are many substances coming into extended use as special manures, such as sulphate of ammonia, nitrates of potash and soda, common salt, superphosphate, and refuse substances of various kinds. But the farmer ought not to purchase anything of which he does not know the value, and of the effect of which he is not quite sure. These substances have a very differing composition, and as manure a function peculiar to themselves. To understand their differences and their effects the farmer must know something of chemistry; and although there is much which it belongs to the professional chemist to investigate, there is much already ascertained which may be usefully acquired.

Farmers, then, need not be chemists in the professional sense of the term, but should yet possess some knowledge of this subject. Few of them can hope to compete successfully in their business without having recourse to special manuring. To do this upon correct principles is all-important, and these principles chemistry alone can explain.

But it is not only with reference to the subject of manuring that a knowledge of the science is requisite, but in connection also with many questions regarding the feeding and management of stock. Thus, why are warmth and shelter necessary?—why are some kinds of food more fattening than others?—which is the best kind of food for young stock, that it may grow to the bone?—for milch cows, that the quality of their milk may be improved?—for fattening stock, that they may lay on flesh? These are all questions intimately connected with chemistry, and although it may require the labours of the more professional chemist to clear up these points, yet a knowledge of this science will alone enable the farmer to comprehend the researches which may be necessary, and appropriate the practical results arrived at. Lastly, chemistry is necessary to a knowledge of the veterinary pharmacopœia, many of the medicines being purely chemical substances, the nature of which it is necessary to understand to prevent mistakes which might otherwise arise, and to employ the remedies with the desired effect.

V. *Geology* is the next science to be considered as useful to agriculture. This science is intimately connected with the character and origin of soils. Beneath the soil and the loose or drifted matter of which it is composed, we everywhere find the solid rock. This superficial covering of loose materials varies from a few inches to some hundreds of feet. Where the naked rocks present themselves, it is observed that the action of the air, rain, or frost, causes their surfaces gradually to shiver off, crumble down, or wear away. Hence on comparatively level surfaces the crumbling of the rocks gradually forms a soil; on those which are more inclined the rain will wash away the loose materials as soon as they are separated, and carry them down to form deep deposits in the valleys. Hence it may be inferred that the earthy matter of all soils is derived from the gradual decay, disintegration, or crumbling down of previously existing rocks. The soils formed from these, therefore, must have a similar composition. A sandy soil will be formed from a sandstone, a calcareous soil from a limestone, and a clay from a slate or shale, while from a mixed rock a soil will result, which contains a mixture of earthy ingredients in proportions corresponding to those contained in the rock from which it is derived. The character of the soil, then, is essentially that of the rock from which it is derived. An acquaintance therefore with the rocks which occur will tend to increase our knowledge of the soil. Rocks are of two kinds: those which occur in layers or strata, and those in which no layers or strata are perceptible, but which are found in more or less solid masses. The latter are of two kinds, the former are divided by geologists into nine different groups or formations, which are again subdivided into numerous beds. Upon good geological maps 26 of these are marked, but there are numerous others, although of small extent. These are all distinguished by their own peculiar characteristics, the most certain of which is the fossil remains peculiar to each, and which is so sure an indication, that by the discovery of a single scale of a fossil fish the geological formation of a whole tract of country has been settled. All these beds have for the most part an agricultural character peculiar to themselves. Geology thus explains to us the cause of the differences which occur in soils, and indicates to us the general character of the soils and subsoils throughout the country, as they are affected by the character of the rock upon which they rest. As an illustration of this, a comparison of the soils derived from the two kinds of unstratified rock, granite and trap, is interesting. Granite consists of quartz, felspar, and mica, substances which are destitute of lime. Trap on the other hand consists essentially of felspar and hornblende; this latter mineral being rich in lime. A remarkable difference exists, therefore, between these two rocks, a difference which must exist in the soils derived from them. A granite soil, in addition to silicious sand, will consist chiefly of silica, alumina, and potash derived from the felspar. A trap soil, in addition to the silica, alumina, and potash derived from the felspar, will generally contain also much lime, magnesia, and oxide of iron derived from the hornblende. If the variety of trap consist chiefly of hornblende, as is sometimes the case, the soil formed from it will derive nearly 2½ cwt. each of lime, magnesia, and oxide of iron from every ton of decayed rock. A trap soil contains, therefore, a greater number of the inorganic substances which plants require for their healthy growth, and will therefore generally prove more productive, than a soil of decayed granite. In the former, the two minerals, felspar and hornblende, will form a soil more favourable for vegetable life than the latter, in which the felspar is the principal source of all the earthy matter it is capable of yielding. In the former the potash and soda of which the hornblende is nearly destitute, is abundantly supplied by the felspar, while it yields lime and magnesia, which exercise such an important influence upon the progress of vegetation. Thus, while granite soils may be peculiarly unproductive, trap soils may be eminently fertile, and such is actually the result of observation in every part of the country. Unproductive granite soils cover nearly the whole of Scotland, north of the Grampians, as well as large tracts of land in Devon and Cornwall, and in the east and west of Ireland. On the other hand, fertile trap soils extend over thousands of square miles, in the lowlands of Scotland and north of Ireland; and in Cornwall, where they occasionally mix with the granite soils, they are found to redeem them from their natural infertility. Among the stratified rocks similar differences are observed in the characters of the soils resting upon them. On some, as on the new red sandstone, the soil is almost always fertile, while on some, as in the coal measures, the soil is in its natural condition always unproductive, while some districts are found, as the greensand, of extraordinary fertility from the presence so largely of organic remains which abound in phosphate of lime. On different geological formations also, burning clays is found to produce different effects; Oxford clay, for instance, is said to be more benefited than Lias clay by this operation. Geology, therefore, is a science which has many close relations with practical agriculture, and it especially throws light upon the nature and origin of soils, on the causes of their diversity, and on the unlike effects the same manure, as lime, may have upon them. It tells beforehand by the mere inspection of a map what is the general character of the soil in this or that district, where good land may be expected, and where improvements are likely to be necessary.

It only remains to observe upon the discordance which may sometimes be observed to exist between the indications of geology, as to the connection of the soils with the rocks on which they rest, and the actually observed character of those soils in certain districts. This difference is caused by the accumulation of materials transported by various agencies, and from which a soil is produced which often has no relation to the character of the rock on which it rests. It may be true that here and there the original rock may have been overlaid and the natural soil buried by drifted materials, the character of which a knowledge of the adjacent rocks does not enable us to predict. But this in no way tends to discredit the conclusions to be drawn from the facts and principles of geology. These are still generally true; the exceptions are local, and the difficulties which they present only demand a more careful study of the disturbing causes. A knowledge of geology then, that is of the kind of rock which appears on the surface in any part of the country, generally enables us, if it be not covered by foreign accumulations, to predict the kind of soil which is likely to rest upon it; and it must be abundantly evident that an intimate relation exists between the geological structure of a country and the agricultural capabilities of those soils found on its surface.

VI. The last science which may be considered of importance to agriculture is *Botany*. The study of the vegetable kingdom has been called botany, and it embraces, 1st, a knowledge of the various parts composing plants, of their functions, and mode of growth; and 2d, an arrangement of plants in classes and families, according to certain prevailing resemblances, by which they are named and described, so that they can readily be known. The former is named vegetable physiology, and the latter systematic botany. The botanist, however, deals with plants in a very different way from the agriculturist. The botanist extends his observation to all plants, the farmer to comparatively few, while the characters and properties which engage the attention of the latter hardly find a place in the classifications of the former. The one has to deal with plants in a natural state, the other in one which is highly artificial. The diseases of plants, moreover, are still involved in much obscurity, upon which this branch of science has not as yet thrown much light. I incline, therefore, to think that purely scientific botany is of comparatively little value to the practical farmer. A knowledge, however, of the weeds and Grasses is indispensable to him. The character of many soils may be distinguished by the weeds or plants growing upon them, and many of the Grasses are most surely discerned by the minute characteristics which the scientific botanist has observed in them. To some extent, therefore, botany may with advantage be studied by the agriculturist; but it would be a special course of study, which may be denominated agricultural botany, which would most profitably engage his attention.

[The conclusions to which Mr. Duke leads his readers, after the above discussion of the several sciences in which the Agriculturist is interested, are given in the remaining part of his essay, which will be given the week after next.]

THE CATTLE PLAGUE.

1. Chloric Ether Treatment.—Presuming that any information likely to be of benefit relating to this epidemic will be acceptable, I beg leave to lay before your readers the result of a treatment I have had an opportunity of testing in this locality. A gentleman here lost six cows and a calf, and another cow having been attacked, I asked permission of the inspector to try the effect of a remedy which I had for some time been anxious to do, and which I believed, if taken in time, would prove beneficial and effectual in the early or premonitory stage of the complaint. He did not object, and I administered the medicine; the result was that of three cows attacked two have recovered, and I have not the least doubt that if the same means had been employed with the cows that died, some of them might have been saved. It appears to me a most extraordinary and cruel proceeding to destroy infected cattle without even a trial of anything to save them, which has been the case in hundreds of instances, and I believe many will agree with me in the opinion that a very large number have been sacrificed. I do not desire to enter into a controversy upon the subject, but if you think this worthy of a place in your influential Journal, I hope the publication of it may prove serviceable. The medicine I used was chloric ether, combined with tonics, and I shall be happy to give any further particulars to any one who may require them. *J. B. Shillcock, Pharmaceutical Chemist, Bromley, Kent.*

2. Treatment.—To the popular mind the word "treatment" mainly suggests or implies a course more or less extended of drug swallowing. The external conditions of the animal as regards temperature, ablutions, food, &c., may be diametrically opposite to those which are habitual to it; but supposing only that some potion, weak or strong, is given also, the final result is popularly ascribed to it, and the potion acquires the name of remedy.

Now, not one tittle of evidence has ever yet been offered to support the assumption that cures have been produced by any single drug employed as a remedy. As to the effect of those mixtures of drugs of which your columns have almost daily offered some notable examples, I doubt whether it would be morally possible to attain the data necessary to be possessed for the formation of an opinion. So many varying influences must be estimated, so many collateral circumstances be taken into account, that the problem becomes too complex for solution by any human mind. No subject is more difficult to deal with than the action of drugs on man; none requires more patient and philosophic observation, since the influence of so many associated circumstances must be fairly estimated, and eliminated if possible, in the calculation which aims to isolate and appraise at its proper value the influence of even a single drug.

What real knowledge then, in this matter of treatment, is it possible to acquire?

1. It is possible to know what is the ordinary duration and intensity of the disease, as well as the mortality in, say 1000 cases (less would be useless, 10,000 would be better, for truth dwells only with large numbers) occurring among tolerably healthy cattle, all being kept in clean, and at this time of year warm and sheltered places, and supplied with such external appliances as their conditions manifestly require. Such are, briefly, warm clothing and drink if the animal is chilled and thirsty, nutritious fluids if solid food is refused and the former appear to be grateful; the removal of all offensive secretions, and the free use of approved disinfectants about the house and yards. I am quite certain that a considerable portion so treated would recover, but until we know the proportion of recoveries resulting from such rational measures, it is a delusion to suppose, and a snare to others to publish, that we have saved so many per cent. of animals, because we have administered so much or so little of "opium," or of "arsenicum," or what not, in addition to the dietetic and hygienic arrangements collaterally carried out. And here I may venture to say that, were I myself the proprietor of a diseased herd, I would sedulously employ the regimenal means denoted above, but until proof exists of the efficacy of some drug, my cattle should not receive a dose. In the infinite variety of these agents which exists, am I not extremely more likely to give the wrong than the right one, and consequently to do harm to my patients rather than good?

And after all, why do we refuse our faith in that source of remedial agency which always coexists with life—in that ever-present tendency which is inherent in the body to eliminate evil from its structure? The very symptoms, distressing and painful as they are, the sum of which we call a malady, are but the efforts of nature to throw off some incubus. No action is really more healthful than that which we name disease, and the administration of drugs, blind and empirical as it is in nine cases out of ten, does but embarrass, *pro tanto*, the process by which the constitution is endeavouring to rid itself of evil.

2. When by intelligent and co-ordinated observations the natural history of the rinderpest has been obtained, the next step is to learn the effect of some single therapeutical agent, in addition to the hygienic means referred to above. This can only be attained by its use on a large scale to similarly affected animals. One agent judiciously selected should be tried by itself—say alcohol, a very powerful one for good or for evil, or mild laxatives, or quinine, or any other agent of which the appreciable effects have been confessedly long observed in individuals of our own species. For it would be manifestly idle to employ remedies the value of which has not yet been fully tested on man, and to this category certainly the majority belong.

Very probably it may be contended that such a scheme is Utopian; that it is impossible to wait for a natural history of the disease before we begin to treat it; that the urgent want of the day is a specific, a remedy, and so forth. No doubt it is, but no royal road to such a remedy, if it exists, will be found. Sooner or later, the road by patient humble inquiry into

natural phenomena must be travelled. It is painful beyond expression to a looker-on, who knows full well by long experience its difficulties in regard to human disease, and how small a part of treatment in all acute maladies is the administration of drugs, to witness the crude and spasmodic efforts which are made to stamp some favourite drug with the reputation of a remedy; and this without preliminary knowledge of the disease, and without trial of the agent under conditions in which it is possible to judge. Happily, it is probable that these doings may not cause much physical injury, though doubtless they are not innocuous. But their employment is leading inquirers on a wrong scent, and rendering impossible the acquirement of sound information and the ability to extract some good for the future out of this present and terrible calamity. *A Metropolitan Hospital Surgeon.*

3. Suspension of Cattle Movement. — I have looked with deep anxiety for the suggestion of a remedy for this dire calamity, and have seen none which gives the least promise of success except that which advises the suspension of the movement of all cattle, the recommendation of the majority of the Royal Commission.

This remedy has been sharply criticised, but the critics have everywhere failed to suggest a better one. To this remedy I believe we must come; it will not be, perhaps, till we have been driven to it by the loss of some half million of our stock. There are those who have said that the remedy is worse than the disease. We have seen what the disease is, and what it may become. I would ask for a brief consideration of the proposed remedy. The proposal is that the movement of all horned cattle should be suspended for a certain period, it may be for two or three months—the object, a self-evident one, being to stop the spread of contagion, which would likewise also require the exercise of other and secondary precautions. If this proposal were fully and fairly adopted, the plague must cease. On the other hand, it is said that the measure is impracticable, and could not be carried out, and that the price of meat would be so much enhanced that many of our carnivorous population must become vegetarians, and that there would be danger of a riotous outcry. The price of meat is high now, and must become higher still if the present fear of infection and uncertainty as to cattle trade are allowed to continue. Many fairs and markets have been closed, causing great losses to tradesmen and others. Farmers are unwilling to buy stock, and are too willing to sell and slaughter all that they have. A single year of the present system will ruin the home trade in cattle, and cause infinitely more mischief than the suspension of traffic for three months, ending with the obliteration of the plague. Neither would the loss or inconvenience of these three months be as great as interested persons would make it appear. The traffic in store cattle and in milch cows is a minor difficulty, which needs not now be considered. The chief objection to the proposal rests on the interference with the supply of fat cattle, the food of the people. The importation of fat cattle from abroad has increased to such an extent that in the Metropolitan market two foreign beasts are now sold to one bred in England. If, therefore, at half-a-dozen ports of import, suitable markets and lairs, with slaughter-houses, were provided by the Government, the foreign stock would come for our supply in the like or in increased proportion. They would be killed under inspection, and the dead meat sent to market. Thus two-thirds at least of our food would still be provided. There might be some difficulty in providing the remainder, by killing fat animals on the farms of our graziers, and bringing the dead meat to market; but the difficulty would very soon disappear. Hundreds of tons of dead meat are weekly sent now to London and other markets by railway.

No doubt there would be inconveniences felt at first; but the benefit would soon counterbalance them. Under the present system of fat cattle markets and slaughter-houses in towns, cattle are carried great distances by rail, and driven by road. On the railways they are fearfully knocked about, exposed to all weathers, shunted at station after station, and allowed to remain frequently on the road for 30 or 40 hours without food or water. They are driven through our crowded streets, embarrassing traffic, they themselves being frightened, fevered, and excited; they are then killed in close and filthy slaughter-houses, and the meat is thus rendered far less wholesome than it would otherwise be.

In London alone some 5000 cattle are killed weekly, each one affording from 2 cwt. to 3 cwt. of filth and offal. Thus, each week about 600 tons, a good sized shipload, of what, if left in the country, would constitute manure, is brought into our crowded city, to be carried out again after polluting our atmosphere. Surely any system which would get rid of this detestable practice would be a blessing. The meat of animals killed when cool, healthy, and unexcited, in a clean farm-shed, would clearly be preferable to that killed under the circumstances above described. The carriage of dead meat would soon be provided for. There is scarcely a place in England so remote from railway that the body of an ox grazing this morning on its pasture, may not be to-morrow morning in the London dead-meat market. Clean, suitable, well-ventilated vans would be provided by railway companies. A few years hence people will wonder how the present horrible system of carnage and slaughter has been so long tolerated. A different system must inevitably be introduced for all foreign cattle, inasmuch as were the plague stopped here, to-morrow it would be brought back again by cattle imported, as they are now, from all parts of Eastern Europe.

The time is passing, the cold season is advancing, and grave will be the responsibility of those who do not now do all that can be done before it becomes too late to check this devastation. *Q., in the Times.*

4. The Vapour Bath.—"A farmer in Russia sent to the British Ambassador at St. Petersburgh an alleged cure for the cattle plague. By its means he cured 600 head of cattle, and lost but 6 per cent. As soon as the first symptom of the malady (dryness of the skin) shows itself, the diseased animal should be placed in a vapour bath, the moist temperature of which should be such as not to cause too great a difficulty in breathing. Then the animal should be rubbed dry, covered over with several woollen blankets, and put in a stall, thoroughly sheltered from draughts, the greatest care being taken to prevent its catching cold. This is of the utmost importance in the treatment. Cooling draughts and food easily digested were then given. This simple treatment, he says, has already twice saved him from great losses. 'For the last 31 years,' he remarks, 'I have farmed and bred cattle.' The first 13 he spent in Mecklenburg, and the last 18 in Russia, where he managed the large estates of Count Bobrinsky. 'From my heart,' he says, 'I trust this simple treatment may be of as much service to my fellow farmers in England as it has been to me, and I entreat your Excellency, in the general interest, to cause the greatest publicity to be given to this treatment.' The vapour bath used consisted of a room, the floor of which was not level, but raised at one end, so that the animal could be brought by degrees into a higher temperature. The steam he obtained by means of an oven covered with iron plates, on which water was poured after the room had been already heated to a temperature of 35 degrees Reaumur."

Now, I am inclined to think that a much more simple plan of employing a vapour bath for cattle may be made use of than that just referred to. For instance, a large wooden box which can be taken to pieces, in which an animal can stand, with an opening so that the head may protrude, and a spirit lamp or lamp to burn spirits of wine or naphtha within, to heat the animal and generate perspiration, might be contrived at no great expense. The plan adopted by Priessnitz, and approved by the Emperor of Austria, was to employ an abundance of tepid water to wash away the diseased secretions from the skin as they exuded from the animal after the employment of the lamp bath or vapour bath.

Priessnitz's eminent success in the cure of cattle arose from the powerful action determined on that extensive organ, the skin, and also from the circumstance that the poisonous secretions connected with the cattle disease were thrown out by the skin, and by the action of water thoroughly cleansed and eliminated from the system. Now, I know that by many it will be objected that this plan is attended with a great deal of trouble. I can assure them, however, that, if properly managed, the trouble and expense are very small, and the good derived is far more than commensurate for the little trouble caused. The results, too, are very speedy, as immediate good is produced where the disease is taken in time. It has also the advantage that people ignorant of medicine can in some cases employ it after once seeing how it is carried out. In fact, in many cases the farmers can safely do it themselves. *William Forbes Laurie, M.D. Edin., Dunstable, Bedfordshire, Nov. 20.*

5. Scotland.—The Edinburgh Committee on the Cattle Plague, having been commissioned by the Royal Cattle Plague Commission to make observations and experiments in reference to the prevention and treatment of the cattle plague, have considered it desirable, in addition to the experiments on treatment which they propose to institute themselves, to obtain a record of observations and experiments made by as large a number as possible of qualified veterinary practitioners throughout the country. With this view they have drawn out the following suggestions for methods of treatment of various kinds, prophylactic and curative, which they are anxious should be tested on an extensive scale. They have also drawn up a schedule for the purpose of rendering definite the record of the results of the methods of treatment suggested by them. The committee, before specifying the various methods of treatment in detail, would premise a few general remarks which they consider to be applicable to all cases:—1. As to general sanitary measures, disinfection, &c.—The Committee content themselves with referring for full information on these matters to the Supplement of the Report of the Royal Cattle Plague Commission, which is in the hands of all veterinary inspectors. 2. As to food.—The committee deem it desirable to state it as their opinion, that as a general rule, at all stages of the disease, and whatever treatment is used, food should not be pressed on the affected animal. They believe that too much even of the softest food is hurtful, the powers of digestion being so greatly impaired by the disease. During the earlier stages, they believe that the safest articles of diet are Oatmeal gruel, Barleymeal gruel, with Linseed tea, hay tea, or bran tea, and that little if any addition to these is needed. During convalescence, it is also very necessary that the food should be both sparing and of easy digestion. The same diet as during the earlier stages may be continued, with the addition of mashes of well-boiled Turnips or Carrots, but in moderate quantity. When rumination commences to be re established, a handful of sound hay, damped with salt and water, may then be given in addition. 3. As to the maintenance of the heat of the animal.—The tendency to chill of the surface is a marked feature of the disease, and it is very essential that the animal should be guarded against cold. The byre should be kept heated up to a temperature of 65°. The animal should be thoroughly rubbed down from time to time, and be kept covered with an ample clean rug fastened on with a roller or band of any kind. As to the state of the bowels.—In the early stages they are apt to be constipated. To remove this condition, mild laxatives may be required, but strong purgatives of all kinds are both unnecessary and unsafe. The best laxatives are either raw Linseed oil, in the dose of a chopin-bottleful (an English quart), or from 2 oz. to 3 oz. of flowers of sulphur, mixed up with 2 lb. by weight of treacle and two chopin-bottlefuls of water. These doses may be repeated cautiously according to circumstances. Sometimes, even in the early stages, but more frequently when the disease has continued for some days, diarrhœa or scouring is apt to come on, and to prove irritating and exhausting to the animal. The simplest and best treatment for this symptom is 1 ounce of laudanum, mixed with a chopin-bottleful of lime-water, repeated twice or even thrice a day, if necessary. Having thus premised these general recommendations, the committee proceed to state in detail particular methods of treatment, classified under the heads of—A. Diaphoretic and stimulant treatment; B. Acid treatment; C. Restorative treatment without drugs; D. Prophylactic treatment. A. Diaphoretic and stimulant.—The committee are anxious to give a full trial to the method of exciting sweating by the means of the vapour bath. The method of using this agent is as follows.—The animal is to be placed in a stall enclosed on all sides, the height of the enclosure being a few inches more than that of the animal. Over the top of the box or enclosure thus formed is thrown a tarpaulin, which should cover it completely, with the exception that an opening is left in it sufficient for the animal's head to pass through. There is then to be placed on the floor of the enclosure, under the animal, a tub containing boiling water to the depth of half a foot. A continuous evolution of steam is to be maintained for half an hour by means of red hot bricks thrown into the tub one after another. Under the use of this steam bath, if properly managed, the animal may be expected to become warm and to perspire profusely. After each vapour bath the animal should be washed with tepid water containing M'Dougall's disinfecting soap, taking care to dry it well after the washing. It should then be covered with an ample rug, kept, as already stated, closely applied to its body by means of a roller or band of any kind. The bath may be repeated either on the same day or following days, according to circumstances. During and after the bath the animal should be allowed a draught of cold water, which helps to promote perspiration. The objects chiefly aimed at by the use of the vapour bath are to promote the circulation at the surface, to relieve the congestion of the mucous membranes, and to eliminate the poison from the system. Combined with the vapour bath may be used various other remedies not incompatible with it, but calculated to aid its action. Several of these remedies the committee now proceed to mention, it being, however, understood that only one of them is to be used along with the bath in each case where the experiment is made; they are not to be used together in the same case. A 1. Oil of turpentine.—This may be administered in doses of four table-spoonfuls, well shaken up with a chopin bottleful of gruel, and may be given twice a day. This remedy may be expected to act beneficially by its powers of stimulating and of exciting perspiration. It may probably also, in most cases where it is used, supersede the necessity for giving any laxative medicine. A 2. Infusion of coffee.—The method of preparing this remedy is by infusing two ounces of ground roasted coffee for a quarter of an hour in a chopin bottleful of boiling water. It must, of course, be allowed to cool somewhat before being administered, and may be given in the above quantity every six hours. In addition to its stimulant and nutritive qualities, the coffee may act beneficially in consequence of the empyreumatic oil and caseine which it contains. A 3. Carbonate of ammonia.—This medicine, which has been found in many cases to act beneficially as a powerful diffusable stimulant, may be administered three times a day, in doses of half an ounce, either alone or preferably combined with three drachms of nitre dissolved in a chopin-bottleful of gruel. B. Acid treatment.—This treatment is suggested in consequence of the alkaline state of the secretions, which is found to exist uniformly in the cattle plague. B 1. Diluted muriatic acid is said to have been successful in Holland. It may be given twice a-day in doses of 3 drachms mixed with a chopin-bottleful of gruel. B 2. Vinegar.—This may be used in doses of 2 oz., mixed with a chopin-bottleful of gruel, and may be given four times a day. C. Restorative treatment without drugs.—This consists in carrying out in full the sanitary instructions of the Royal Cattle Plague Commission—in regulating the diet according to the instructions already given—in keeping the animal warm, and in administering two chopin-bottlefuls of good Scotch sweet ale three or four times a day. It is desirable that this system should be carried out in a certain proportion of cases, all drugs being rigidly abstained from. D. Prophylactic treatment.—The committee would further desire to draw attention to the importance of experiments being made as to the efficacy of prophylatic (protective) treatment either in preventing the development of the disease or modifying the intensity of the symptoms when the disease becomes developed in animals which have been exposed to the infection. In such cases, of course, all the sanitary measures of the Cattle Plague Commission should be strictly carried out. There may also be given at the earliest possible period prophylactic drugs, of which those most deserving of trial seem to be—D 1. Sulphite of soda* given morning and evening, in doses of 1 oz. dissolved in a bucketful of water. D 2. M'Dougall's solution, of which a wine-glassful in a bucketful of water may be given twice a day. D 3. A mixture of half-an-ounce of sulphite of soda and two tablespoonfuls of M'Dougall's solution in a bucketful of water may be given twice a day. It would have been easy for the committee to have given a much longer catalogue of methods of treatment, but this would only have been embarrassing to practitioners. In the suggestions made they have sought to combine simplicity, safety, and economy. Whatever the results of the experiments may be, all of them may be easily and cheaply carried out under almost any circumstances. It should be borne in mind that the results of the experiments, whether positive or negative, will be important. The committee, in conclusion, beg to invite communications as to the results of treatment from practitioners, and are prepared to give their best consideration to any plans which may be proposed for experiment. In name of the committee. *Andrew Wood, M.D., Chairman.*

6. Isolation.—The long-established British principle is to arrest and imprison any evil: the violators of our laws are adjudged to be kept in confinement—obviously this is the way to adopt with the cattle plague: imprison it on the place, preventing all intercourse, in some such manner as Austria, Prussia, &c., do. There are not so many centres where our enemy has established itself as to make it a very difficult or harsh proceeding to do so, but to aid this perfectly compensation should be given for all cattle taken under the control of the country, bearing always in mind the supreme question is to save the people's food. The plague is reported as having been brought into Yorkshire by three truckloads of cattle from an infected district in Norfolk, and by some Irish cattle which had been sent into an infected district where the farmers were afraid to buy, and so they found their way into Yorkshire, and were sold by the crafty dealer at 4*l.* 10*s.* each, when, had they been all right, they were worth 9*l.* each; nearly all these have not only died, but they have been the cause, as your Paper shows, of 1419 being attacked after the 18th Nov., and how many others killed (unreturned), as having been in contact, will never be known. It is said, upon trustworthy authority, that in the alarm farmers are killing cattle and selling the carcase at 3*d.* per lb., which is then taken by Yorkshiremen to the large manufacturing towns of that county and Durham, where they retail it at 5*d.* to 7*d.* per lb. Up to Nov. 18, the returns of attacks show a total of 27,432; double it, and

* The sulphite of soda is a prophylactic, and must not be confounded with sulphate of soda (or Glauber salts), which is a purgative, and not a prophylactic.

say there have been 54,864. Now if 10*l.* a-head had been given in compensation, there would not have been upon this extreme estimate much above half a million of the public money expended, and see how this would have interposed an inducement to the owners not to have sent their contagious cattle into Yorkshire, &c. This last Order in Council acts upon a wrong principle. How much easier it is to confine and watch the plague on a small spot than it is for each district to prevent it coming into it! At Thirsk it is reported a party was detected driving off his contagious cattle at night. If this party could have got from the public half the ordinary value, he would not have risked inflicting this evil upon the public of spreading the infection. Mr. Booth, of Warlaby, informed a gentleman in Darlington 10 days ago, that it was within three miles of his fine herd, and 15,000*l.* was offered and refused for this herd a year ago, and though, if the plague reached Mr. Booth's cattle, it would be a large private loss, yet it would also be a national loss to have this herd decimated. The longer the ultimate necessary measures are deferred, the more rigorous and extensive they must at last be. I would suggest that the Central Farmers' Club should not be satisfied with their ill-success with the Privy Council, but should issue a petition, and send copies of it to all places of importance, with a request to get them signed as numerously as possible, one petition to be presented to the Privy Council and another to the House of Commons. We need some strong and active central body, and the fiddle-faddle step-by-step progress of the Privy Council greatly needs the application of outward pressure. The last Order in Council is the 7th. I feel sure a very little labour would obtain a monster of a petition of some millions of signatures, and this would put right the weak nerves and intelligences of our Privy Council. *W. Wooler, Sadberge Hall, Darlington, Dec. 2.*

Home Correspondence.

The Cattle Plague in Herefordshire.—I am much grieved to tell you the plague continues spreading. Mr. Dent has lost 80 of his herd, and 20 more are ill, and about 20 in a fair way of recovery. He is not so sanguine respecting homœopathy as last week, neither is he so sanguine respecting remedies recommended by Professor Simonds, about an equal number having recovered under each, and the larger proportion that he has recovering are some to which he did nothing; of these he has 8 out of a lot of 37 he considers quite safe, although they were very ill, and he has hopes of two more. Mr. Goode, of Felton, has lost one cow from his large and valuable herd. Mr. Goatman, of Syde, has lost two; these are fresh sufferers. *T. Duckham, Ross.*

The New Water Drill.—Since writing to you on the 17th Nov., I have ascertained that Mr. Billup's new principle of water drill will be exhibited at Mr. Coultas' stand, No. 37, at the Agricultural Hall during the Cattle Show week. *A. S. Ruston.*

Mr. Hodgkinson's Experience in Steam Cultivation.—By this morning's post Mr. Hodgkinson kindly informed me that he worked his engine in the three seasons 81 days threshing, and that his land is "clay, and of such a nature that none of it could be ploughed the first time with less than three strong horses, and part of it requires four horses." Mr. Hutchinson says in his pamphlet, at page 18, "this farm (Dunton Lodge) consists of such tenacious clay, that with four horses it is seldom ploughed more than 4 inches deep." Your readers will now have the whole matter fairly before them. *Wm. Smith, Woolston, Bletchley Station, Nov. 22.*

Foreign Correspondence.

Ossweil, near Stuttgart: *The Beetroot Sugar Manufactory at S., and its Agriculture.*—The Beetroot sugar manufactory at S. was erected in the year 1849 by Messrs. Fr. R. & Sons, and though several manufactories of this kind have been erected since then in the kingdom of Würtemberg, none have achieved so much success, and acquired so high a reputation as the above, especially in what concerns the agricultural part of this extensive business. The machinery and the buildings of the manufactory—which has an excellent situation, close to the principal railway station of the country, were constructed for the easy working of 300,000 cwt. (1 German cwt. equal to 100 lb. of Zollgewicht) of raw Beetroots a-year. Scarcely the half of this sum was manufactured in the earlier years, but now nearly 15,000 tons of Beets are converted into sugar every year. The last season was rather favourable to the manufacturers, and though altogether 340,000 cwt. of Beetroots were obtained, the latter did not grow too large to apprehend a decrease in their saccharine substance. In the manufacture of the Beetroots Messrs. R. have adopted the system of pulping and pressing the washed Beetroots, without pouring on water. There are about 16 large hydraulic presses at the establishment, and nearly 100 tons of Beetroots are worked just now daily. During the last "campagne" (or manufacturing season) about 11,500*l.* were paid to the Government for duties, at the rate of nearly 9*d.* per 100 lb. of washed Beetroots. The produce of sugar is varying, according to the influence of the season on the crop, between 8 and 9 lb. of raw sugar per 100 lb. of Beetroots. The raw sugar is all refined into loaf sugar, and the bone-black required for this purpose is prepared by Messrs. R. at a place distant about two miles from the manufactory. About 500 workmen are occupied in the Beetroot-sugar manufactory during the "campagne," which begins in October and lasts until March or April. Oxen do all the work at the factories and farms, and more than a hundred are employed daily in carting Beetroots to the manufactory from pits, which are partly at a distance of one to 12 miles from the former. Messrs. R. think horses too expensive for their work, and as besides they could not be fed so well on the refuse of the pressed Beetroots, only some few are kept for the use of these gentlemen.

Mr. Adolph R., a cousin of mine, to whom I owe the most of these notes, is the principal manager of the technical and agricultural department, and although he turned only some 10 years ago to this latter profession, you will see by the following sketch, that by means of energy and perseverance he has overtaken many of his colleagues who have been accustomed to farming since their childhood.

Messrs. R. & Sons, who at first got all their Beetroots from adjacent farmers, soon saw the necessity of purchasing and renting land for themselves, with the double intention of getting a larger supply of roots, and of inciting many tardy cultivators to a more extensive cultivation of this crop.

They began with buying some 20 to 30 acres of land near the manufactory, at the rate of 100*l.* to 150*l.* per imp. acre, and possess now within 1 to 3 miles from the factory some 50 to 60 acres of very good land, whilst for some 15 to 20 acres more they pay a rent of 4*l.* per imp. acre. In a radius of 4 to 10 miles from S. four farms, of 250 to 300 acres each, were rented from time to time in the course of the latter 10 years, including altogether about 1200 w. morgen (1 acre imp. = 1.283 morgen of Würtemberg) are farmed now by Messrs. R. on their own account. About 5000 to 6000 tons of Beetroots are cultivated thus by Messrs. R. themselves, whilst two-thirds of the amount required are yet grown by the surrounding farmers. Last year 9½*d.* and this year 10*d.* per 100 lb. of Beets were paid to the cultivators, who have to cart them to the factory or to one of the stations or stores Messrs. R. have established near several railway stations, at a distance of 10 to 15 miles from the manufactory. The Beetroots are thrown from the waggons into very long pits, which at their base are dug out about 4 feet, and for the better ventilation of the roots a wall of earth, 1 foot thick, has lately been left along and in the midst of these holes, which seem to have thus two compartments. The Beetroots being piled up regularly about 3 feet over the ground, are covered with earth, and left there till wanted at the manufactory. Having been lately over one of the farms, and the style of farming being the same there as on the other 900 acres of land, it may perhaps be of some interest to you and your readers to hear some details on this really well directed husbandry.

The farm in question is called "Piesenhausen," and is 951 feet above the level of the sea, at a distance of about 8 miles from the manufactory. Its present size is 302 w. morgen (or 236 imp. acres), some 40 acres having been acquired lately at the rate of 50*l.* per w. acre. This farm as well as two of the other three, belongs to the Crown of Wurtemberg; its lease lasts 18 years, from 1858 to 1876, and the rent amounts to 16 gulden per morgen, or about 1*l.* 12*s.* per English acre. The soil of this farm is mostly a rich loam formed of the triassic system, which is partly wanting in Great Britain. It is rich in organic matters, or humus, and consists of a lower stratum of the rich Keuper, called "Lettenkohle" in Germany. The farm steadings do not present so homely an aspect as those of England or Scotland; they consist of a large barn for securing the corn, of a stable for the cattle, and of a simple farmhouse, which is habited by the steward and his family. The Beetroots are cultivated now in a two-years' shift, viz:—1, Barley and forage plants dunged; 2, Beetroots undunged. Until some years ago two succeeding crops of Beetroots were taken, but the second crop getting always weaker, Mr. A. R. has found it better to bring a change between each root crop. The 302 w. acres of Piesenhausen were cropped last year in the following manner:—

126 w. acres of	Beetroots	
25 ,,	,,	Maize or Indian Corn (for being mown green)
90 ,,	,,	Barley and Maize (as second crop for getting ripe)
25 ,,	,,	Beetroot seed
26 ,,	,,	Lucerne (or "Eternal Clover")
10 ,,	,,	Meadows or permanent Grass land.
302 w. acres.		

The produce of these crops per imp. acre was:—

	Last Year.	On the Average of Several Years.
Barley	7 qrs.	6 3 qrs.
Sorgho (seed) ..	8 ,,	6 ,,
Maize (seed) ..	6 ,,	5 ,,
Ditto as forage ..	400 cwt.	300 cwt.
Beetroot	260 ,,	250 ,,
Beetroot seed ..	15 ,,	12 ,,

The cultivation of Sorgho (Sorghum saccharatum or Holcus saccharatus), a forage plant, which has some resemblance to the Maize, was introduced from Italy to this country by Mr. A. R., who cultivates every year some 80 to 100 w. acres on his farms. This plant, which sometimes grows 15 to 18 feet high, requires a very rich and well-manured land, and a climate where wine and Maize may be grown yet with some success. The land must be dunged and ploughed deep before winter, and in the month of May the seed is drilled 12 to 16 inches apart, at the rate of 10 to 15 lb. per acre. The Sorgho can be mown three to four times a year, but Mr. A. R. does it only twice, and gets according to a more or less warm summer, from 300 to 600 cwt. of green Sorgho per acre. It is a very good food for milking and feeding cattle, and Mr. A. R. has found the value of 100 lb. of green Sorgho equal to that of 35 lb. of good hay. The seed of this plant does not get always ripe in this country, but last year its produce was very prolific. The panicles, freed from the ripe or unripe seed, give an excellent material for all kinds of brooms and brushes.

Mr. A. R. being a great advocate of deep culture, all his land is ploughed before winter 10 to 12 inches deep by a team of four oxen, which do as much as two ploughs with a couple of oxen before each. The ploughs used there are all made at the sugar manufactory, and are distinguished from our common Brabant or Belgian ploughs by having higher mould boards, made of hammered iron. Besides the manure which is got by the stock and the refuse of the factory, large quantities of horse-dung are bought from a cavalry barrack at S. As all fields cannot be dunged before winter, and Mr. A. R. thinks very highly of top-dressing, much of the dung is applied to the Barley and forage crops when they are already brairding, or some inches out of the ground. By this way the straw can be raked off after some weeks, and 300 cwt. of stable dung yield usually about 100 cwt. of straw for litter. Barley, of which Chevalier and a Bavarian kind are chiefly grown, is mostly dunged before winter; and, as a second furrow is never given, the land is grubbed and harrowed thoroughly in spring and then the seed drilled with Garrett's machine 6 in. apart, at the rate of only 22 lb. of Barley per imperial acre. In considering this really astonishing small quantity of seed, the advantage and the rentability of the drill culture will be clear by-and by to the most tenacious or incredulous individuals. Last year Mr. A. R. made, as I was told, a rather successful experiment with growing Barley and Maize in the same field, and getting thus two crops in one year. For this purpose the drill-sowing machine was arranged in such a way that between three and four rows of Barley, the space of a foot's breadth was left empty. On the breadth of 8 feet of the drill came by this way at first three rows of Barley (6 in. apart), then a row of Maize, 1 foot apart from the Barley, then four rows of Barley, another row of Maize, and then three drills of Barley again, and so on. The Maize or Indian Corn was sown or dibbled some weeks after the Barley and yielded besides 5 quarters of the latter still some 4 to 5 quarters of ripe Maize clubs. Barley is hand-hoed at the cost of 1*s.* 6*d.* per imperial acre, and the steward of P. estimates the increase through this operation at nearly 4 bushels per imperial acre. For Sorgho, Indian Corn, and Beet-root seed the dung is mostly top-dressed and hoed in after some time. Of the Maize, an American kind, called here Pferde-zahn, or Horse-tooth Maize, is grown by preference for the ripe crop, of which latter a field of 6 imperial acres yielded 40 quarters of ripe corn.

The culture of Beetroot seed is carried out to a large extent, as all Beetroot cultivators have to draw their seed from Messrs. R., who besides sell large quantities to other countries. For the cultivation of this crop, the land is grubbed and harrowed repeatedly in spring, and then squares are made by means of a kind of rake, which has three to four teeth, 3 feet apart, and is moved at first along and then across the field. On each angle of the square a sound Beetroot is planted, and a stake applied, which serves as a hold to the grown-up roots. As the seed of this crop does not grow ripe at the same time, the harvesting of about 1200 cwt. of Beetroot seed is no trifle; but considering its large price (last year as much as 4*l.* 10*s.* were paid per 100 lb. of seed) this crop has been found to be one of the best paying. The cultivation of the Beetroot for the sugar manufactory is of course the most important, and takes on this farm nearly the half of the whole area. As the Beetroot sugar manufacturers do not like the roots of a large size (containing more water than sugar) no direct dressing is applied for this crop, and after the stubble of Barley, &c., has been ploughed in deep before winter, the seed is drilled in spring, after a repeated grubbing, harrowing, and rolling, 14 inches apart, and 8 to 10 lb per acre. 15 to 20 acres may be sown daily with Garrett's drill, and after the sowing the land is rolled, and, after some weeks, horse-hoed. The plants are singled as soon as possible, and left at first half a foot and at the second hoeing one foot apart, one plant from the other. At the harvest of the Beetroot the shaws are cut off and given to the oxen, whilst the roots are put in pits, and removed from thence to the factory in the course of the winter. Lucerne, an excellent kind of Clover, is drilled here likewise across a field sown previously with Barley. Instead of 20 lb. of seed per acre, which is required for broadcast sowing of this crop, only 8 to 9 lb per acre are sown here, and three to four cuttings yield sometimes 50 to 60 cwt. of hay per w. acre. *Julius Reihlen, Stuttgart, December 1.*

(*To be continued.*)

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

MONTHLY COUNCIL: *Wednesday, Dec.* 6, 1865.—Present, Lord Tredegar, President, in the chair; the Earl of Powis, the Earl of Shrewsbury, Lord Feversham, Lord Walsingham, Major-General the Hon. A. N. Hood, the Hon. A. H. Vernon, Sir T. Western, Bart, M.P., Mr. Acland, M.P., Mr. Amos, Mr. Barnett, Mr. Barthropp, Mr. Bowly, Mr. Cantrell, Colonel Challoner, Mr. Clayden, Mr. Dent, Mr. Druce, M.P., Mr. Brandreth Gibbs, Mr. Holland, M.P., Mr. Hudson, Mr. Sanday, Mr. Jonas, Colonel Kingscote, M.P., Mr. Lawes, Mr. Milward, Mr. Pain, Mr. Randell, Mr. Rigden, Mr. R. Smith, Mr. Thompson, M.P., Mr. Torr, Mr. Wells, Mr. Jacob Wilson, Mr. Frere, Professor Simonds, and Dr. Voelcker.

The following New Members were elected:—

Allcock, William, Bulwell, Nottingham
Carpenter-Garnier, J., South Sydenham, Tavistock
Cropper, Edward William, Thornton Fields, Guisboro'
Curteis, Robert Bassett, Ashenden, Tenterden
Dalton, Richard, Kelmarsh, Northampton
Dacre, Henry, Auckland, New Zealand
Dyson, Robert, Whiston Grove, Rotherham
Easterson, Thomas, Bawdsey, Woodbridge, Suffolk
Greene, John M., Steadishall, Newmarket
Gruning, Louis, Broomborough, Chester
Hammersley, William, Nottingham
Harvey, Robert John Harvey, M.P., Brundall House, Blofield, Norfolk
Herbert, Colonel the Hon. Percy Egerton, 43, Charles Street, Berkeley Square, London, W.
Kilpin, Wm. Wells, Bickerings Park, Woburn
Preston, T. H., Moreby Hall, York
Price, Thomas, Pentrecoon, Churchstoke, Salop
Townend, Edward, The Nook, Cullingworth, Bingley, York
Warington, Robert, jun., R.A. College, Cirencester
Wilson, Matthew, Stretford Bury, Leominster
Worthington, Geo. Samuel, Cardiff

FINANCES.—Major-General the Hon. A. N. Hood, Chairman, presented the Report, from which it appeared that the Secretary's receipts, during the past three months, had been duly examined by the Committee and by Messrs. Quilter, Ball, & Co., the Society's accountants, and found correct. The balance in the hands of the bankers on the 30th November was 923*l.* 8*s.* 8*d.* The Committee are of opinion that a printed notice of arrear should be attached to the last number of the Journal which is sent to those who are in arrear of their last year's subscription, in order to draw the attention of the defaulting member more prominently. This Report was adopted.

JOURNAL.—Mr. Thompson, M.P., reported that the cost of the Journal for 1865 might be approximately stated at 1529*l.*

CHEMICAL.—Mr. Dent, M.P., reported that Professor Voelcker has lectured upon Natural Deposits of Potash in Germany, and on the Qualities of Water used for Irrigation. He has furnished four papers for the Journal. Papers on Disinfectants, and on the Composition of Mangel Tops and Bulbs, are in course of preparation for the forthcoming number; and a lecture on Disinfectants will be delivered at 8 P.M. on Tuesday next.

The following investigations are in progress:—

1. On Good and Bad Waters for Irrigation.
2. On the Chemical Points involved in the Growth of Clover Seeds and Artificial Grasses.
3. On the Chemical Changes which take place in Grass during Hay-making and Keeping in the Stack.

During his investigations on Disinfectants the Professor has found much necessity for further inquiry into the disinfecting properties of carbolic acid.

He further suggests that a continuation of field experiments be carried out upon

1. The effects of Salt on Root Crops.
2. On the efficiency of Crude Potash Salts upon (*a*) Roots, (*b*) Potatos, (*c*) Clover.
3. On the Growth of Clover Seeds.
4. On Permanent Pastures.

In order that these experiments may be uniform, the Professor will be glad to furnish any gentleman anxious to co-operate, with a schedule of the manures to be used in each experiments.

The number of analyses made for Members of the Society is much as usual.

Analyses made for Members of the Royal Agricultural Society, January to November, 1865.

Guanos	27
Superphosphates and similar artificial manures	58
Bone-dust and boiled bones	15
Ammoniacal salts and nitrate of soda	19
Refuse manures	23
Limestones, minerals, and clays	27
Oilcakes	48
Feeding meals and vegetable productions	31
Soils	28
Waters	33
Examinations for poisons	3
	312

The Professor called attention to the great feeding value of crushed Cotton seed, from which a portion of the husk is removed by sifting through a sieve.

Composition of Cotton-seed Meal.

Moisture	8.86
Oil	29.34
*Albuminous compounds (flesh-forming matters)	22.75
Gum, mucilage, and sugar	7.58
Woody fibre (cellulose)	24 69
Mineral matter (ash)	6.78
	100.00

*Containing nitrogen, 3.64

Mr. Randell moved that a Committee be appointed to consider the best means of endeavouring to check the spread of the Cattle Plague by restricting the transit of cattle; and that an application be made to the Privy Council to receive a deputation from the Council of this Society thereupon. The motion was seconded by Mr. Thompson, and carried.

Mr. Brandreth Gibbs presented the Report of the Veterinary Committee, who had received the printed Reports of the Veterinary department of the Privy Council, and several communications proposing remedies for the Cattle Plague, which were referred to the Society's Veterinary Inspector, Professor Simonds.

SHOW-YARD CONTRACTS.—Mr. Randell reported that a number of tenders for the Society's Show-yard Works had been received, which would be examined in detail next week.

On the nomination of Mr. Milward, Mr. Wells was unanimously appointed a Steward of Live Stock in the place of Mr. Dent, M.P., whose term of office had expired.

Mr. Holland, M.P., presented the Report of the EDUCATION COMMITTEE.

1. The Committee, after the adoption by the Council of the Report placed before them on the 5th April last, at once proceeded to make the intentions of the Society as widely known as possible, and for this purpose sent circular letters to all the secretaries of the Local Agricultural Societies in England and Wales, drawing their attention to the scheme, and soliciting their assistance. The Committee also sent circular letters to all the Schoolmasters whose names were published in the last class lists of the Oxford and Cambridge Local Examinations. Notices were also sent to the principal Agricultural newspapers and Educational periodicals, and to the local newspapers. The local Secretaries of the Cambridge Local Examinations were also apprised of the scheme, from whom, as well as from the authorities of the Cambridge University itself, the Committee have received the utmost courtesy and attention. It may be further stated that the Cambridge authorities have consented to take a fee of 10*s.*, instead of 1*l.* 1*s.*, from such of the candidates as compete for the Society's extra prizes (List III.) only.

2. The total number of candidates who have entered for the prizes of the Society is 119, drawn from 17 counties of England. Of these candidates, 82 are under the age of 16, of whom 74 are entered for the general junior examinations, 60 for prizes in pure Mathematics, 15 in Elementary Mechanics, 4 in Chemistry, and 1 in Botany. There are 27 under the age of 18 who have entered for the general senior examination, and of these 21 are entered for prizes in pure Mathematics, 12 in applied Mathematics, 2 in Chemistry, 2 in Zoology, 1 in Botany, and 1 in Geology. Those only who have passed the preliminary examination are eligible to obtain a prize in a special subject.

In List III., open to candidates not exceeding 25 years of age, 13 have entered to compete for one or both of the extra subjects; 6 compete in Mechanics and 12 in Chemistry applied to Agriculture. In all these prize lists many candidates have entered in more than one subject. 103 describe themselves as the sons of farmers or others in some way dependent on the cultivation of the soil for their support, and the remaining 16 express themselves as intending to follow agricultural pursuits in after life.

3. As regards the examination of the Candidates for the Society's extra prizes (List III.), the Council have obtained the assistance of Mr. Besant, of St. John's College, Cambridge (Senior Wrangler, 1850), to examine in Mechanics applied to Agriculture, in conjunction with Mr. Amos, the Society's consulting engineer. Mr. Liveing, Professor of Chemistry in the University of Cambridge, and the Society's consulting Chemist, Dr. Voelcker, will conduct the examination in Chemistry applied to Agriculture.

The Annual Reports of all the Standing Committees were presented by the respective Chairmen.

The Standing Committees for 1866, viz., Finance Committee, Journal Committee, Chemical Committee, House Committee, Implement Committee, Veterinary Committee, Stock Prizes Committee, and Education Committee, were appointed.

The Council stands adjourned till Wednesday, 13th inst., at 11 A.M., to consider the Report of the General Bury Committee.

A Deputation from the Society, consisting of Lord Tredegar, President, Lord Feversham, Lord Walsingham, Major-General the Hon. A. N. Hood, Hon. Augustus Vernon, Mr. Dyke Acland, M.P., Mr. Barthropp, Mr. Brandreth Gibbs, Mr. Holland, M.P., Colonel Kingscote, M.P., Mr. Pain, Mr. Randell, Mr. Sanday, Mr. Thompson, and Professor Simonds, waited on the Lord President of the Council, at the Privy Council Office, on Thursday the 7th instant, and impressed on his Lordship the following resolutions, which had been agreed to at a meeting of the Council:—

RESOLUTIONS OF THE COUNCIL.

1. That it is the opinion of the Council of the Royal Agricultural Society of England that the most effectual means of suppressing the cattle plague would be to stop for a time all fairs and markets. If this is impracticable, then the Council would suggest the following regulations.

2. That any cattle, sheep, or pigs exhibited for sale in a market or fair in or near any town be forthwith branded, and not allowed to leave such town alive.

3. That all cattle, sheep, or pigs offered for sale elsewhere than on the premises of the owner, or in any place whatever where they have not been 21 days previously, be branded and slaughtered within 48 hours on (or near) the spot where such offer has been made.

4. It is submitted that all foreign cattle, sheep, and pigs should be slaughtered at the port of disembarcation and their skins disinfected forthwith, but in case this should be considered too stringent a proceeding, then the owner or consignee of any imported cattle, sheep, or pigs, or his agent, shall be obliged to state, on their arrival in port, to what town or place he intends to forward them. After being duly inspected and certified to be free from disease, they shall be marked with a special brand, and be allowed to proceed, and shall be slaughtered at such town or place.

5. That no cattle, sheep or pigs be allowed to travel upon any public road from any farm or place upon or in which there is or has been within two months any case of cattle plague.

6. That the penalty for any infringing of these regulations be 20*l.* for each animal sold, driven, or in any way dealt with contrary to such regulations, one-half of the penalty in every case to go to the informer.

7. That local inspectors be not at liberty to go upon any farm without the consent of the occupier unless authorised by a magistrate of the district.

8. It is submitted that the necessary orders for carrying out these resolutions be issued by the Government, and that the local authorities be required to enforce them so that the practice may be uniform throughout the country.

9. That the Government be requested to institute experiments on an extensive scale in order to ascertain the real character of the cattle plague and to test various methods of prevention and cure.

By Order of the Council,
H. HALL DARE, Secretary.

Earl Granville thanked the deputation, and promised that the resolutions should have due consideration.

MIDLAND COUNTIES CATTLE SHOW.

BINGLEY HALL, BIRMINGHAM.—The contents of the Hall—of greater merit than ever in the Poultry department, and perhaps better than ever in the section set apart for Root crops—good as ever, too, in the division occupied by Implements—are less satisfactory in the cattle Classes, and perhaps generally in the livestock department, than they have been. The regulations of the Smithfield Club forbidding all animals that had been shown elsewhere, at once cancelled those entries for all other shows which had been intended to travel on to the Agricultural Hall; and the large numbers of blanks in almost every class show how disastrous an effect has been thus produced upon the promised display at Bingley Hall. Independently of this, however, there have certainly been a larger number of inferior animals exhibited in many of the classes than we have seen for several past years; both the female classes of Herefords are inferior, the judges withholding many of the offered prizes for want of merit. The Shorthorn class of older oxen may indeed be pronounced the only really good feature of the meeting, so far as the cattle classes are concerned; the Devon classes being very scantily filled, though showing their usual beautiful quality.

In the older class of HEREFORD Oxen the 1st prize is awarded to Mr. Aldworth, of Frilford, for a capital specimen of the breed, massive, deep, and well covered; the 2d goes to Lieut.-Col. L. Lindsay for a less evenly covered beast, very thick over the loin, but not so good forward.

In the younger class, Mr. Shirley, of Bawcott, carries off the prizes with two well-fed thick steers, the best of which, with its deep and long line of rib-flesh and wonderful size (girthing 7 feet 10 inches and 5 feet 2 inches long (age 2 years and 7 months), reminded one of the extraordinary 2-year old with which he won the gold medal some years ago. He carries off the extra prize for the best animal in the Hereford classes. In Hereford Cows, a very short class, Mr. Baldwin's cow, bred by the late Mr. Rea, and repeatedly taking the 1st prize as a breeding animal at the Royal Agricultural Shows, is easily the leader. She girths 8 ft. 3 in., with capital rib, and laden with useful meat. She is pronounced the best cow in the yard, thus carrying off the gold medal. The younger class are extremely poor; Mr. Lloyd's heifers should have been killed at home. Mr. Pitt, of Chadnor Court, takes the 1st prize without much competition.

We now come to the SHORTHORNS and to the noble class of oxen, standing first on their list. Mr. Wood's roan, under four years old, girths 9 ft. 6 in., and is 5 ft. 6 in. long. He is a wonderfully even cylindrically barrelled ox—first-rate forward, and good over rib and loin and flank. Though debarred from competing at the Agricultural Hall, where he might have increased the list of his honours, he has carried off sufficient glory here to satisfy his owner. First in his class, he also takes the gold medal as the best ox in the yard—25*l.* as the best Short-horn, 25*l.* as the best beast, both bred and fed by its exhibitor, 15*l.* as the best Short-horn (bred and fed), and the innkeepers' prize of 25*l.*, with a silver medal as the best animal in the Cattle classes. Mr. Foljambe's ox takes the 2d prize.

Among the younger oxen there was not so much competition—and the winners are not by any means of first-rate quality.

The Cow and Heifer Classes are neither of them satisfactory. In the younger class Mr. Woodward wins with a heifer showing plenty of hair and constitution, good over rib, but thin over loin; and Mr. Aldworth, of Frilford, is 2d.

The DEVON breed shows smaller than ever, both in number and in size—there are not more than two or three in a class—and the prizes, six to about nine entries, go to Messrs. Smith (of Exeter), Farthing, Frampton, and Taylor, in about equal proportions. We shall see a much larger representation of the breed in the coming week at Islington.

The Long-horn classes are hardly represented, and the Norfolk classes are altogether vacant.

A few Polled oxen, not in any way remarkable

specimens of their breed, and a large show of capital West Highland cattle, many of them of good quality, and a few cross-bred animals, complete the show. In the extra classes we have the inevitable Brahma bull, and the equally inevitable monstrous working ox—a pair of the latter being shown by Mr. Lythall, of Banbury.

The SHEEP CLASSES are many of them fairly filled, the Shropshire breed as usual being in great force. The judges have appeared in many instances to incline to quantity rather than quality; and in one example, where pens of five were weighed against each other, the scale determined the award, though we believe the difference, not more than 6 lb. a sheep, would in all probability have been the other way when the offal came to be deducted.

Mr. Boast's Leicesters and Mr. Kearsey's Cotswolds carried off the prizes in their classes. Lord Radnor's entries in both the Southdown classes stand before Lord Walsingham's; the former are longer sheep, with darker faces; the latter girth more, and would be pronounced by a Sussex man as more truly representing the best quality of the breed. The Shropshire classes are very large indeed; still betraying, however, too great a variety of type to be satisfactory.

The Class of pens for Fat Wethers is first rate. Mr. Beach takes the 1st prize, and Mr. Smith, of Shiffnal, is "very highly commended," and judgments will differ as to the relative merit of the two entries. Mr. Smith is 1st in the Classes of old sheep. In the Lincoln and Cotswold Class the former beat the latter; Mr. Marshall, of Branston, who sells and lets 150 sheep a year, at an average of 13*l.*, taking the 1st prize, and beating Mr. Smith, of Bibury.

The PIG CLASSES are shorter than usual. Many pens are disqualified by Prof. Gamgee—the dentition indicating either that the pigs in the pen are not of *one* age, or are over the age specified. We foresee that either this disqualification will not much longer be submitted to, or that those who have the disagreeable duty of examining for it will exercise their powers in only very glaring and unquestionable cases for the future. So many instances are known to us in which men of unquestionable honour and great carefulness have been disqualified in this way, that it is plain the indications on which the experts rely are not to be depended upon for the *nice* determination of age.

Mr. Stearn's capital black pigs, the white pigs from the Royal farm, Mr. Mangles' and Mr. Crisp's entries, and the capital show of breeding pigs of the Berkshire breed, may be noted as the features of a somewhat inferior exhibition.

We refer to the Prize List for the successful names in the show of Roots. A wonderful display of Mangel Wurzels and extraordinary Carrots and Cabbages and good Kohl Rabi, were the noteworthy points. When a ton of Mangels is made up of about 50 roots, we think we have attained our *end* as root-growers.

Messrs. Sutton and Dickson, Perry, and others display wonderfully fine collections of roots and plants and seeds.

The Implement Stands are well filled. We shall refer to them in detail next week.

The following is the List of Prizes:—

FAT CATTLE.

HEREFORDS.

CLASS 1. HEREFORD OXEN OR STEERS, OVER 3¼ YEARS.—1st, 15*l.*, Mr. William Aldworth, Frilford, Abingdon; 2d, 10*l.*, Lieut.-Colonel Loyd Lindsay, M.P., Lockinge Park, Berks; 3d, 5*l.*, Mr. Aaron Pike, Mitton, Tewkesbury.

CLASS 2. HEREFORD STEERS, NOT EXCEEDING 3 YEARS AND 3 MONTHS OLD.—1st, 15*l.*, extra 25*l.*, and Silver Medal as breeder, Mr. Richard Shirley, Bawcot, Munslow, Church Stretton, Salop; 2d, 10*l.*, ditto ditto; 3d, 5*l.*, Mr. G. Pitt, Chadnor Court, Dilwyn, Leominster.

CLASS 3. HEREFORD COWS.—1st, 15*l.*, and Gold Medal as best cow or heifer, Mr. John Baldwin, Luddington, Stratford-upon-Avon; 2d, 10*l.*, The Right Hon. Lord Bateman, Shobdon Court, Herefordshire; 3d withheld.

CLASS 4. HEREFORD HEIFERS.—1st, 15*l.*, and Silver Medal as breeder, Mr. George Pitt, Chadnor Court; 2d and 3d withheld.

SHORT-HORNS.

CLASS 5. SHORT-HORN OXEN OR STEERS, OVER 3¼ YEARS OLD.—1st, 15*l.*, extra 25*l.*, the Earl of Aylesford's 15*l.*, President's 25 guineas, Gold Medal, Hotel and Innkeepers' Cup, Silver Medal given by Mr. Ottley, and Silver Medal as breeder, Mr Rowland Wood, Clapton, near Thrapstone, Northamptonshire; 2d, 10*l.*, G. S. Foljambe, Esq., Osberton Hall, Worksop, Nottinghamshire; 3d, 5*l.*, Mr. Joseph Laycock, Low Gosforth, Northumberland. Highly Commended: Mr. Samuel Spencer, Snarestone, near Ashby-de-la Zouch. The class generally Commended.

CLASS 6. SHORT-HORN STEERS, NOT EXCEEDING 3 YEARS AND 3 MONTHS OLD.—1st, 15*l.*, and Silver Medal as breeder, Allan Pollok, Esq., Lismany; 2d, 10*l.*, the Right Hon. the Earl of Aylesford, Packington Hall, Coventry; 3d, 5*l.*, Thomas Walker, Esq., Berkswell Hall, Coventry.

CLASS 7. SHORT-HORN COWS.—1st, 15*l.* and Silver Medal as breeder, Mr. William Fletcher, Radmanthwaite, Mansfield; 2d, 10*l.*, Mr. John Lynn, Church Farm, Stroxton, Grantham; 3d, 5*l.*, Mr. Aaron Pike, Mitton, near Tewkesbury, Gloucestershire. Commended: Col. Kingscote, Kingscote, Gloucestershire.

CLASS 8. SHORT-HORN HEIFERS.—1st, 15*l.*, and Silver Medal as breeder, Mr. W. Woodward, Northway House, Tewkesbury; 2d, 10*l.*, Mr. W. Aldworth, Frilford, Abingdon; 3d, 5*l.*, Robert S. Doyne, Wells, Wexford.

DEVONS

CLASS 9. DEVON OXEN OR STEERS, OVER 3¼ YEARS OLD.—1st, 15*l.*, and extra 25*l.*, Mr. W. Smith, Higher Hoopern, Exeter; 2d, 10*l.*, Mr. Walter Farthing, Stowey Court, Bridgewater, Somerset.

CLASS 10. DEVON STEERS, NOT EXCEEDING 3 YEARS AND 3 MONTHS.—1st, 15*l.*, Mr. Harry Frampton, Blandford, Dorsetshire; 2d, 10*l.*, Mr. William Smith, Higher Hoopern, Exeter. Highly Commended: Mr. Harry Frampton, Blandford.

CLASS 11. DEVON COWS.—1st, 15*l.*, Mr. William Taylor, Harptree Court, Somersetshire; 2d, 10*l.*, Mr. Walter Farthing, Stowey Court, Bridgewater. Highly Commended: Mr. William Smith, Higher Hoopern, Exeter.

CLASS 12. DEVON HEIFERS.—1st, 15*l.*, Mr. Walter Farthing, Stowey Court, Bridgewater.

LONG-HORNS.

CLASS 13. LONG-HORN OXEN OR STEERS.—No animals sent.

CLASS 14. LONG-HORN COWS OR HEIFERS.—1st, 10*l.*, and Silver Medal as breeder, Mr. Joseph H. Burbery, The Chase, Kenilworth; 2d, 5*l.*, Mr. John Faulkner, Bretby Farm, Burton-upon-Trent.

SCOTCH BREEDS.

CLASS 15. POLLED OXEN AND STEERS.—1st, 15*l.*, and extra 25*l.*, the Right Hon. the Earl of Crawford and Balcarres, Haigh Hall, Wigan; 2d, 10*l.*, Mr. William McCombie, Tillyfour, Aberdeen, N.B.; 3d, 5*l.* Allan Pollok, Esq., Lismany, Ballinasloe.

CLASS 16. WEST HIGHLAND OXEN OR STEERS.—1st, 15*l.*, Mr. Joseph Gray, Seatonburn, Newcastle upon-Tyne; 2d, 10*l.*, Mr. Robert Mowbray, Cambus, Stirling; 3d, 5*l.*, Ralph Sneyd, Esq., Keele Hall, Staffordshire. Commended: His Grace the Duke of Beaufort, Badminton, Chippenham.

CLASS 17. SCOTCH COWS OR HEIFERS.—1st, 10*l.* 10*s.*, extra 10*l.* given by Charles Ratcliff, Esq., and Silver Medal as breeder, Allan Pollok, Esq., Lismany, Ballinasloe; 2d, 5*l.*, The Right Honourable the Earl of Crawford and Balcarres, Haigh Hall, near Wigan.

WELSH BREEDS.

CLASS 18. WELSH OXEN OR STEERS.—1st, 10*l.*, Richard Doig, Esq., Lillingstone Hall, near Buckingham; 2d, 5*l.*, Henry Platt, Esq., Bryn-y-Neuadd, near Bangor.

CLASS 19. WELSH COWS OR HEIFERS. No entry.

NORFOLK AND SUFFOLK POLLED BREEDS.

CLASS 20. FAT OXEN OR STEERS. No animals sent.

FOR OTHER PURE BREEDS AND CROSS-BRED ANIMALS.

CLASS 21. FAT OXEN OR STEERS.—1st, 10*l.*, Mr. William McCombie, Tillyfour, Aberdeen; 2d, 5*l.*, Allan Pollok, Esq., Lismany. Highly Commended: Mr. Andrew Longmore, Rattie, Banffshire; Mr. Robert Valentine, East Drumnagair, Kincardineshire; Mr. Robert Valentine. Commended: Allan Pollok, Esq., Lismany.

CLASS 22. FAT COWS.—1st, 10*l.*, and Silver Medal as breeder, Mr. Aaron Pike, Mitton, Tewkesbury, Gloucestershire.

CLASS 23. FAT HEIFERS.—1st, 10*l.*, and Silver Medal as breeder, Mr. John Faulkner, Bretby Farm, Burton-upon-Trent.

EXTRA CLASSES,

Not qualified to compete in any of the foregoing Classes.

CLASS 24. OXEN OR STEERS.—5*l.*, Mr. Frederick Lythall, Spittal Farm, Banbury.

CLASS 25. COWS OR HEIFERS.—Not qualified to compete in any of the foregoing Classes. 5*l.*, and Silver Medal as breeder, Mr. Charles Speede, Exton, near Oakham. Highly Commended: The Right Hon. Lord Leigh, Stoneleigh Abbey.

SHEEP.

LEICESTERS.

CLASS 26. FAT WETHERS, NOT EXCEEDING 22 MONTHS OLD.—1st, 15*l.*, extra 10*l.* 10*s* given by W. D. Bromley, Esq., M.P., extra 10*l.* given by the Linen and Woollen Drapers of Birmingham, and Silver Medal as breeder, Mr. John Boast, North Dalton, Driffield; 2d, 10*l.*, William Perry Herrick, Esq., Beaumanor Park, Leicestershire; 3d, 5*l.*, William Perry Herrick, Esq. Highly Commended: G. S. Foljambe, Esq., Osberton Hall. Commended: Mr. William Browne, Highgate Farm, Holme on Spalding Moor, York.

LONG-WOOLLED SHEEP, NOT BEING LEICESTERS.

CLASS 27. FAT WETHERS, NOT EXCEEDING 22 MONTHS OLD.—15*l.* and Silver Medal as breeder, Mr. Charles Kearsey, Glewstone, near Ross, Herefordshire; 2d, withheld.

SOUTH AND OTHER DOWN SHEEP.

CLASS 28. FAT WETHERS, NOT EXCEEDING 22 MONTHS OLD.—15*l.*, extra of 15*l.* given by the Linen and Woollen Drapers of Birmingham, and Silver Medal given by Mr. Ottley, the Right Hon. the Earl of Radnor, Coleshill House, Highworth, Wiltshire; 2d, 10*l.*, the Right Hon. Lord Walsingham, Merton Hall, Thetford, Norfolk; 3d, 5*l.*, and Silver Medal as breeder, the Right Hon. Lord Walsingham. Commended: G. S. Foljambe, Esq., Osberton Hall, Worksop.

CLASS 29. FAT WETHERS, EXCEEDING 22 BUT NOT EXCEEDING 34 MONTHS OLD.—1st, 10*l.*, and extra of 10*l.* 10*s.* given by Alderman Hodgson and Councillor Baldwin, and Silver Medal as breeder, the Right Hon. the Earl of Radnor; 2d, 5*l.*, the Right Hon. Lord Walsingham. Highly Commended: the Right Hon. Lord Walsingham.

SHROPSHIRE SHEEP.

CLASS 30. PENS OF FIVE FAT WETHERS, NOT EXCEEDING 22 MONTHS OLD.—21*l.*, and twenty guineas given by Henry Wiggin, Esq., Mr. Joseph Beach, The Hattons, Brewood, and Dudley. Very Highly Commended: Mr. Henry Smith, Sutton Maddock, Shiffnal.

CLASS 31. PENS OF THREE FAT WETHERS, NOT EXCEEDING 22 MONTHS OLD.—1st., 15*l.* and Silver Medal as breeder, The Right Honourable Lady Willoughby de Broke, Compton Verney, Warwick; 2d, 10*l.*, Mr. Joseph Beach, The Hattons, Brewood, and Dudley; 3d, 5*l.*, Mr. James Hand, Ludlow.

CLASS 32. FAT WETHERS, EXCEEDING 22 BUT NOT EXCEEDING 34 MONTHS OLD.—1st, 10*l.*, extra 10*l.* 10*s.* given by C. N. Newdegate, Esq., M.P., and Silver Medal as breeder, Mr. Henry Smith, Sutton Maddock, Shiffnal; 2d, 5*l.*, The Hon. Beilby Lawley, Escrick Park, near York.

CLASS 33. SINGLE SHROPSHIRE WETHERS, EXCEEDING 22 MONTHS OLD.—5*l.* 5*s.*, given by Messrs. Mapplebeck & Lowe, Mr. Henry Smith, Sutton Maddock, Shiffnal.

OXFORDSHIRE DOWNS.

CLASS 34. FAT WETHERS, NOT EXCEEDING 22 MONTHS OLD.—15*l.*, and Silver Medal as breeder, His Grace the Duke of Marlborough, Blenheim Palace, Woodstock.

CROSS-BRED SHEEP.

CLASS 35. FAT WETHERS, NOT EXCEEDING 22 MONTHS OLD.—1st, 10*l.*, and Silver Medal as breeder, Mr. John Overman, Burnham Sutton, Burnham Market; 2d, 5*l.*, Mr. Zachariah W. Stilgoe, Adderbury Grounds, Banbury, Oxfordshire.

LEICESTER EWES.

CLASS 36. FAT EWE, OF ANY AGE HAVING BRED ONE OR MORE LAMBS.—1st, 5*l.*, and Silver Medal as breeder, John Gregory Watkins, Esq., Woodfield, near Droitwich; 2d, 3*l.*, Mr. William Browne, Highgate Farm, Holme on Spalding Moor, York.

LINCOLN AND COTSWOLD EWES.

CLASS 37. FAT EWE, OF ANY AGE, HAVING BRED ONE OR MORE LAMBS.—1st, 5*l.*, and Silver Medal as breeder, Mr. Thos. B. Marshall, Branston, near Lincoln; 2d, 3*l.*, Mr. Charles Kearsey, Glewstone, near Ross, Herefordshire.

SOUTH AND OTHER DOWN EWES.

CLASS 38. FAT EWE, OF ANY AGE, HAVING BRED ONE OR MORE LAMBS.—1st, 5*l.*, and Silver Medal as breeder, His Grace the Duke of Marlborough; 2d, 3*l.*, Mr. William Hewins, Coldicott, near Moreton-in-Marsh. Highly Commended: The Right Hon. Lord Walsingham, Merton Hall, Thetford, Norfolk. The Class Commended.

SHROPSHIRE EWES.

CLASS 39. FAT EWE, OF ANY AGE, HAVING BRED [illegible] LAMBS.—1st, 5*l.*, and Silver Medal as breeder, The Hon. Beilby Lawley, Escrick Park, York; 2d, 3*l.*, Mr. John Cotton, Freeford, near Lichfield. Highly Commended: Mr. Thomas Horley, jun., The Fosse, near Leamington. Commended: Mr. Thomas Horley, jun.; The Honourable Beilby Lawley, Escrick Park, York.

FAT PIGS.

CLASS 40. THREE FAT PIGS OF ONE LITTER, NOT EXCEEDING 10 MONTHS OLD.—1st, 10*l.*, extra 5*l.* 5*s.*, and Silver Medal as breeder, Mr. Samuel Geater Stearn, Brandeston, Wickham Market, Suffolk; 2d, 5*l.*, Major-General the Honourable A. N. Hood; 3d, 3*l.*, The Right Honourable the Countess of Chesterfield. Commended: Henry Platt, Esq., Bryn-y-Neuadd, near Bangor.

CLASS 41. THREE FAT PIGS OF ONE LITTER, NOT EXCEEDING 15 MONTHS OLD.—1st, 10*l.*, and Silver Medal as breeder, Major-General the Hon. A. N. Hood; 2d, 5*l.*, Mr. Thomas Crisp, Butley Abbey, Wickham Market; 3d, 3*l.*, Mr. Samuel Geater Stearn, Brandeston.

CLASS 42. FAT PIGS EXCEEDING 15 MONTHS OLD.—1st, 6*l.*, and Silver Medal as breeder, Mr. George Mangles, Givendale, Ripon, Yorkshire; 2d, 4*l.*, Mr. Samuel Geater Stearn, Brandeston; 3d, 2*l.*, Mr. William Smith, Bibury, Fairford. Highly Commended: Mr. Thomas Atherton, Speke, Lancashire. Commended: Mr. John Darling, Beaudesert; Mr. George Mangles, Givendale, Ripon.

BREEDING PIGS.

PIGS OF THE BERKSHIRE BREED.

CLASS 43. FIVE PIGS OF ONE LITTER, EXCEEDING 3 AND NOT EXCEEDING 6 MONTHS OLD.—1st, 10*l.*, Extra 5*l.* 5*s.*, Silver Medal given by Mr. Ottley, and Silver Medal as breeder, Mr. Joseph Smith, Henley-in-Arden; 2d, 5*l.*, Mr. Joseph Smith, Henley-in-Arden; 3d, 3*l.*, Bell Fletcher, Esq., M.D., Dorridge House, Knowle; Silver Medal, Mr. John Spencer, Villiers House, Kenilworth; Silver Medal, Mr. John Edwards, "Duke of York," Aston Road, Birmingham. Commended: Aaron Dixon, Esq., Birches Green, Birmingham; Mr. William Y[illegible], Round Robin Farm, Highworth, Wiltshire.

PIGS OF OTHER LARGE BREEDS.

CLASS 44. FIVE PIGS OF ONE LITTER, EXCEEDING 3 AND NOT EXCEEDING 6 MONTHS OLD.—1st, 10*l.*, and Silver Medal as breeder, William Bradley Wainman, Esq., Carhead, near Cross Hills, Yorkshire; 2d, 5*l.*, Messrs. James & Frederick Howard, Britannia Farms, Bedford; 3d, 3*l.*, Mr. Frederick Fildyment, Wells, Weston-under-Wetherley, Leamington. Commended: Mr. William Endall, Beaudesert Park Farm, Henley-in-Arden.

PIGS OF A SMALL BREED.

CLASS 45. FIVE PIGS OF ONE LITTER, EXCEEDING 3 AND NOT EXCEEDING 6 MONTHS OLD.—1st, 10*l.*, extra 5*l.* 5*s.*, and a Silver Medal as breeder, Mr. George Mangles, Givendale, Ripon, Yorkshire; 2d, 5*l.*, William Bradley Wainman, Esq., Carhead, near Cross Hills; 3d, 3*l.*, Mr. Samuel Geater Stearn, Brandeston, Wickham Market, Suffolk. Silver Medal, Robert Berkeley, Esq., Spetchley Park, Worcester. Highly Commended: The Right Honourable the Countess of Coventry. Commended: Edward Claudius Walker, Esq., The Leadworks, Chester.

The Judges recommend that pigs that are painted be not qualified in future.

CORN.

CLASS 1. WHITE WHEAT.—1st, 2*l.* 2*s.*, Mr. Frederick Lythall, Spittal Farm, Banbury; 2d., 1*l.* 1*s.*, Messrs. Raynbird, Caldecott, Bawtree, Dowling & Co., Limited, Basingstoke, Hants.

CLASS 2. RED WHEAT.—1st, 2*l.* 2*s.*, Mr. Thomas Horley, jun., The Fosse near Leamington; 2d, 1*l.* 1*s.*, W. J. Merritt Pocock, Esq., Wonston Manor, Micheldever, Hants.

BARLEY.

CLASS 3. 1st, 2*l.* 2*s.*, Mr. Joseph H. Clark, Altwood House, Maidenhead; 2d, withheld.

OATS.

CLASS 4. 1st, 2*l.* 2*s.*, Mr. Frederick Lythall, Spittal Farm, Banbury; 2d, 1*l.* 1*l.*, Messrs. Raynbird, Caldecott, Bawtree, Dowling & Co., Limited, Basingstoke.

BEANS.

CLASS 5.—1st, 2*l.* 2*s.*, Mr. Joseph H. Clark, Altwood House, Maidenhead; 2d, 1*l.* 1*s.*, Mr. Frederick Lythall, Spittal Farm, Banbury.

PEAS.

CLASS 6. WHITE PEAS.—1st. 2*l.* 2*s.*, Mr. Joseph H. Clark, Altwood House, Maidenhead; 2d, 1*l.* 1*s.*, Mr. Frederick Lythall, Spittal Farm, Banbury.

CLASS 7. PEAS OF ANY OTHER VARIETY.—1st, 2*l.* 2*s.*, Mr. Frederick Lythall, Spittal Farm, Banbury; 2d, 1*l.* 1*s.*, Messrs. James and Frederick Howard, Britannia Farms, Bedford.

ROOTS.

CLASS 1.—A Silver Cup, or other article of plate, of the value of 10*l.* 10*s.*, offered by Messrs. Proctor & Ryland, of Birmingham, as a Prize for the best Collection of the four following varieties, viz:—Long Mangel Wurzel, Globe Mangel Wurzel, Swedes, and Carrots. Six Roots of each to be shown for the prize alone:—John Moore, Esq., Warwick.

CLASS 2.—A Silver Cup, or other article of plate, of the value of 10*l.* 10*s.*, offered by Messrs. Griffin, Morris & Griffin, Wolverhampton, for the best Collection of Long Mangel Wurzel, Globe Mangel Wurzel, Swedes, and Ox Cabbage—The Right Hon. Lord Boston, Hedsor, Maidenhead.

CLASS 3. KOHL RABI.—1st, 2*l.* 2*s.*, Colonel North, M.P., Wroxton Abbey, Banbury; 2d, 1*l.* 1*s.*, Colonel North, M.P.

CLASS 4. LONG MANGEL WURZEL.—1st, 2*l.* 2*s.*, Messrs. Sutton & Sons, Reading; 2d, 1*l.* 1*s.*, John Moore, Esq., Warwick.

CLASS 5. GLOBE MANGEL WURZEL.—1st, 2*l.* 2*s.*, The Rev. Thomas Stevens, Bradfield, Reading, Berks; 2d, 1*l.* 1*s.*, Colonel North, M.P., Wroxton Abbey, Banbury.

CLASS 6. SWEDES OF ANY VARIETY.—1st, 2*l.* 2*s.*, Allan Pollok, Esq., Lismany, Ballinasloe; 2d, 1*l.* 1*s.*, Mr. Nathaniel Stilgoe, Adderbury Manor Farm, Banbury.

CLASS 7. COMMON TURNIPS.—1st, 2*l.* 2*s.*, The Rev. Thomas Stevens, Bradfield, Reading, Berks; 2d, 1*l.* 1*s.*, Mr. William McCombie, Tillyfour, Aberdeen.

CLASS 8. CARROTS OF ANY VARIETY.—1st, 2*l.* 2*s.*, Mr. Frederick Lythall, Spittal Farm, Banbury; 2d, 1*l.* 1*s.*, Mr. Frederick Lythall.

CLASS 9. OX CABBAGE.—1st, 2*l.* 2*s.*, Mr. Frederick Lythall, Spittal Farm, Banbury; 2d, 1*l.* 1*s.*, Mr. Frederick Lythall, Spittal Farm, Banbury.

CLASS 10. KIDNEY POTATOS.—1st, 2*l.* 2*s.*, Mr. George Mangles, Givendale, Ripon; 2d, 1*l.* 1*s.*, Mr. George Mangles.

CLASS 11. ROUND POTATOS.—1st, 2*l.*, Mr. George Mangles, Givendale, Ripon; 2d, 1*l.*, G. S. Foljambe, Esq., Osberton Hall, Worksop.

Reviews.

Rats and Mice. By C. Belcher, Coxwell, Farringdon. Simpkin, Marshall & Co.

In these pages preventive measures as regards new buildings, barn floors, and old buildings, are recommended. Various particulars in the natural history of rats and mice are pointed out, and sundry devices for poisoning and destroying them are described. The pamphlet ought to find its way into the north of Scotland, where the newspapers tell us of a rat-invasion; but it will be useful everywhere, and deserves the widest circulation. We extract a piece—a sensible paragraph on the management of barns and yards at harvest time:

"When corn is put into barns at harvest time, a free passage for cats may easily be made alongside the lower part of the walls of the interior, by placing on the ground broad boards or hurdles lengthways, sloping them against the end and side walls; this plan will allow the cats to pass along under the corn in search of mice, &c., near the foundation of the walls, and it is there that vermin are likely to congregate when the corn remains unthreshed but a few weeks after it is housed.

"Many persons assert that they suffer less from the depredations of rats and mice, now they place all corn-ricks on the ground, than when they previously used rick-stands. Such may be the case where the staddles were not well made, or where ricks were propped, or sticks or other things placed against the stacks, serving effectually though not intended as ladders, by which rats or mice could readily ascend and obtain admission, but if staddles are properly constructed, and ordinary care used to prevent anything being placed against the ricks, they most surely serve as safeguards in the matter. 'Tis true that rats are endowed with much cunning, and are accused of running a short distance and taking a springing bound to the top of the staddle-cap; where this is proved or suspected, their cunning may easily be defeated by having plates of tin or zinc nailed on to the lower part of the timber immediately above the staddle-caps; the pieces of metal need not be more than two feet across, and would not be expensive to purchase or apply. I think that prejudice has often been raised against rick-stands, not in consequence of their inefficiency, but through carelessness in their management. Frequently they are left for months together with straw-sacks partly on them and partly on the ground, and in the hurry of harvest time some of the straw is thrust off and a corn-stack immediately reared in the place, with perhaps some mouse families in the old straw or crevices of the timber, ready to propagate and increase their numbers, and regale themselves with the taste of the first fruits of the harvest field.

"Care should always be taken to keep the staddles as clear when they are not loaded with corn as when stacks of grain are on them. Oftentimes mice are carried to the ricks in the sheaves direct from the harvest field: such cases are unavoidable, the remedy for them will be suggested when we come to the part of this paper which treats of destruction. For the present we must confine ourselves to means to prevent the depredations of our little marauding foes."

The Poultry Yard.

THE BIRMINGHAM POULTRY SHOW.—Those gentlemen who have nursed this exhibition to maturity from its infancy, must have been gratified at the result of their exertions and care, when they threw open to the public on Monday last a collection of two thousand and six pens of the choicest birds in the kingdom. Year after year they have worked unflinchingly to attain the position they have now made for themselves. They have had many difficulties and much opposition to contend with, but have succeeded in placing their exhibition at the head of the list, so that a commendation obtained there tells for more than many prizes gained elsewhere. Many efforts have been made to get up a show of a similar kind in London; but with the exception of an effort at the Agricultural Hall under the auspices of the Poultry Club, which was a complete failure, nothing is now heard on the subject.

Birmingham is the town for a meeting of the kind, and the fact of the Poultry Show being held in conjunction with that of cattle, sheep, and implements, tends to make it of much more importance than if held alone. We will hope that all agricultural Englishmen read the report of this Show in the *Times* of Monday, Dec. 4, and that they noted what was there said as to the value of poultry as a portion of farm stock and source of revenue. That this branch of produce is claiming some attention may be judged by the fact that at 4 P.M. on Monday, the first day of the Show, 600*l.* had been taken at the sale office for birds claimed. It would be impossible to condense into one paper a full report of so many classes so worthily filled; and to give a list of all the winners would require more space than is allowed. The competition is generally keenest amongst Dorkings, Cochins, Brahmas, and Game for fowls, and the Aylesbury ducks.

It must not be inferred from this that the other varieties have not their zealous and vigorous supporters, but that the birds do not enlist general notice to the same extent as those which may be called the more important classes.

To the present meeting the Grey and Speckled Dorkings contributed 180 pens. The 1st prizes were taken by Admiral Hornby, Viscountess Holmesdale, Messrs. Cork and Cadogan. So keen was the competition in these classes, that the judges were obliged to distribute commendations to many pens which in shows of less calibre would have taken high honours, but here did not stand a chance. The White Dorkings, which are said by some (erroneously we think) to be the originals of all our Dorkings, were worthily represented by Messrs. Lingwood & Robinson, both being names always associated with 1st prizes in this class. The noble and aristocratic Spanish brought more than 50 pens into competition, and presented a striking front to the admiring and criticising public. The birds shown were of great merit, and the prizes were taken by Messrs. Lane & Rouse to Bristol, a city which has been for years famous for the excellence of its Spanish fowls, owing principally to the pains taken with them by Messrs. Rake, Jones, and others.

In the Buff Cochin China classes the struggle was one of giants. These favourite birds were exhibited in great numbers, and nearly all those who sent had been winners at some time or other; the competition was very keen, and the birds of a quality never before equalled. Mr. Cattell took 1st for adults, Mr. John Nelson for chickens, Mr. Stephens of Walsall for hens, Mr. Lingwood of Needham Market for pullets. Captain Heaton, whose success has been great, was obliged to put up with a 3d prize and a commendation. In the classes for single cocks, Mrs. White and Mr. Rodbard were 1st. Of a dusky hue, but none the less admired on that account, the Brown and Partridge-feathered Cochins number among their patrons some of the most vigorous poultry amateurs of the day. When first the Cochin fowls were imported they were all of this colour, and great was the success achieved by them. Messrs. Sturgeon of Grays, and the late Mr. Punchard of Blunts Hall, were the first breeders of them.

The classes allotted to them at Bingley Hall were well filled with birds that fully justified their supporters in adding the amateur prizes to those offered by the Society. The winners were Mr. Stretch, who took the lion's share, and Captain Heaton. The White Cochins are those that are always more feebly represented than any others, but this year they have done what poor Mrs. Dombey could not do—they have "made an effort," and come out in creditable numbers, earning one 1st prize for Mr. Chase, and one for the Rev. F. Taylor.

The Pencilled Brahma Pootras, the marvellous winter layers, favourites on that account, and also because they are so easily reared, were present in great force, and from their very striking appearance attracted great attention. Messrs. Lacy and Statter received 1st prizes for old and young birds respectively. Yielding to the request of many amateurs and breeders, the Birmingham Committee, anxious to give every breed and variety a fair trial, this year added to its already liberal prize sheet two classes for the light-coloured variety of Brahmas. The result was satisfactory, and some beautiful birds were exhibited. It is hardly necessary to add that Mr. Pares took 1st for old birds; he was, however, beaten in the chicken class by Mr. Clark of Chiswick. What can we say for the Malays? they have their good qualities and their admirers, but they are few. The birds exhibited were very good, and the Rev. Mr. Brooke and Mr. Hinton each won a 1st prize. The Crêvecœurs may be considered as still on their trial in this country, but there is no doubt they are steadily making way, and are destined to play an important part in this country as egg producers. When first they were exhibited they were sneered at, called bastard Polands, and had to bear a great deal of neglect and prejudice. One pen of them, that had won 1st at Marseilles, Lyons, Avignon, and Paris, was exhibited three or four times in this country without attracting any notice more favourable than that above mentioned. In the classes for adults and chickens at Bingley Hall, the 1st prizes were taken by Mr. Blinkhorn and Mrs. Hurt respectively.

He is a bold man who rushes into the description of the Hamburghs at Birmingham. Their appearance in the catalogue and prize list is like that of the irregular verbs in the Eton Latin Grammar—there is no end to them. Who shall describe the 18 classes of them, especially when he knows that there are 16 classes of Game waiting for him afterwards? In Golden-Pencilled Hamburghs Mr. Powers of Biggleswade took 1st prizes in both classes, an achievement to be proud of. Sir St. George Gore took 1st for adult Silvers and for Silver-Pencilled pullets, the 1st for chickens going to Mr. Preston. Mr. Kershaw of Preston, and Mr. Buckley Preston. Mr. Kershaw of Preston, and Mr. Buckley of Ashton, took the 1st prizes for adults and chickens in the classes for Golden-Spangled Hamburghs. Sir St. George Gore was again successful with Silver-Spangled over one year old. Mr. Hardman winning for chickens, Mr. Palmer for hens, and Mr. Whitcombe for pullets.

Mr. T. P. Edwards, as usual, won 1st for adult Black Polands; Mrs. Procter taking 1st for chickens.

Mr. Beldon was successful with his Golden Polish, and Mr. G. C. Adkins added this year both 1st prizes to the many trophies won for him by his Silver-Spangled birds.

In the class allotted to that refuge for the destitute, "any other variety," the 1st prize was taken by a good pen of La Flèche, the 2d by some Cuckoo Dorkings, the 3d by Andalusians, and the 4th by Japanese.

For the Game, and remaining classes, our report must appear in next week's Number.

(*To be continued.*)

Farm Memoranda.

CHESHIRE FARMING.—The following is the prize essay by Mr. Heywood, of Dunham Massey, Altrincham, on the Comparative Profit of Making Cheese or Butter, Selling Milk or Grazing, published in the current number of the Agricultural Society's Journal:—

On a little consideration of this subject it will appear that the comparative profits of these methods of farming must necessarily depend, in a great measure, on the nature of the soil, as well as the situation, &c., of the respective farms to be compared; therefore it is obvious that it will be the fairest test to deal with cases that are somewhat analogous as regards the quality of the soil, and are also on a par as regards other advantages.

With this view I propose to state approximately the actual results on several farms of equal size of the same description of soil, and situate in the same locality, but farmed in the three several ways, namely, cheese and butter making, milk selling and grazing, rather than to write an essay not based on actual practice.

In the first place, I may explain that, as butter-making forms the chief feature on comparatively few farms of any size, and as the expenses, stock kept, risks, and general results are, so far as my experience goes, very similar to those of cheesemaking, in both instances the skill of the dairymaid having much to do with the profits, I have represented butter and cheese making by one case of the latter, and have added a case of milk-selling, which is now becoming a much more extended system of farming than it formerly was, especially since our towns have grown so large, and railways have made them so easy of access for produce requiring a quick despatch. Before their introduction, milk had of necessity to be produced in the vicinity of its consumption but, as the market is now thrown open, a system of farming is now practicable in almost any part of the country, that equals, if it does not surpass, in profit any other kind of management.

I propose at the same time to show the respective merits of the different methods as regards their effects upon the land upon which they are practised; this, I consider, is an item of as much importance as the immediate pecuniary return.

The land in question is of a mixed kind, varying from a strong soil upon a clay subsoil to a dry friable loam on sand and red sandstone. The rents average from 35*s.* to 40*s.* per statute acre; the tithes and parish rates being about the customary average, say, respectively, 3*s.* per acre, and 2*s.* 6*d.* in the pound on the assessment.

I will first take the case of the cheese-farm, 200 acres, upon which the stock is 50 milk-cows, 50 ewes (which, with their lambs, are fed off fat), 5 horses, 30 pigs, reared up and fattened, and 12 to 15 young horned cattle, consisting of calves, yearlings, and two-year-olds. The farm is self-supplying as regards all food for stock, having sufficient land under plough, viz 45 acres in 15-acre shifts—lea-Oats, Turnips, and Wheat—to grow the Oats, Turnips, and straw required, in addition to the old meadow hay. The value of the produce of this farm is considerably over the average, on account of the superior quality of the cheese made, which has sold at prices varying from 75*s.* to 85*s.* per cwt., the quantity made being also large.

The financial results of this farm have been as follows:—

Produce.	£.	s.	d.
9 tons 7 cwt. 2 qrs. of cheese, at 80*s.* per cwt. ..	750	0	0
70 lambs, at 27*s.* 6*d.*	96	5	0
Profit on 50 ewes and wool, at 15*s.*	37	10	0
15 acres of Wheat, at 12*l.*	180	0	0
Profit on 30 pigs, at 5*l.*	150	0	0
	£1213	15	0

Expenses.		£.	s.	d.
Rent, 200 acres, at 40*s.*		400	0	0
Tithes, at 3*s.* per acre; rates 2*s.* 6*d.* on assessment		58	15	0
Wages—5 men, at 40*l.*	£200			
2 lads, at 20*l.*	40			
Extra men..	26			
Harvesting	30			
		296	0	0
Tradesmen's bills, 52*l.* 10*s.*; Grass-seeds, 22*l.* 10*s.*; other seeds, 20*l.*		95	0	0
Paid on improvement accounts, including draining, 40*l.*; boning, 60*l.*; and repairs, 25*l.* . ..		125	0	0
Contingent expenses		50	0	0
		1024	15	0
Profit		£189	0	0

For the object of comparing the relative profits of cheese or butter making with those derived from milk selling, I fortunately am enabled to select a farm—the one last described—on which both methods have been practised by the same tenant, who is an excellent farmer. It was managed as a cheese farm up to four years ago with the results stated above: since that time, in consequence of the advantage of a railway station within one mile of the farm, and 12 miles from the market town, the tenant has sold his milk, delivered at the station, at 1*s.* 10*d.* per dozen quarts, keeping the management of the farm in other respects precisely as before, the stock and expenses remaining also the same, except that the number of pigs fattened is reduced.

The result, under the system of milk selling, is as follows:

Produce.	£	s.	d.
*Milk of 50 cows, at 1s. 10d. per dozen quarts ..	1065	0	0
70 lambs, at 27s. 6d.	96	5	0
Profit on 50 ewes and wool, at 15s.	37	10	0
15 acres of Wheat, at 12l.	180	0	0
Profit on 10 pigs, at 5l.	50	0	0
	£1428	15	0

Expenses.	£	s.	d.
As per statement in cheese-making account ..	1024	15	0
Add cost of exchanging cows to keep up supply of milk at certain seasons	100	0	0
	1124	15	0
Profit	£304	0	0

On the grazing farm referred to the stock is 60 cows, 100 ewes (whose lambs are fed off fat), 4 horses.

The result is as follows:—

Produce.	£	s.	d.
Profit on 60 cows, at 12l...	720	0	0
140 lambs, at 27s. 6d.	192	10	0
Profit on 100 ewes and wool, at 15s.	75	0	0
15 acres of Wheat, at 12l.	180	0	0
	£1167	10	0

Expenses.		£	s.	d.
Rent, 200 acres, at 40s.		400	0	0
Tithes, 15l.; rates, 43l. 15s.		58	15	0
Wages—4 men, at 40l.	£160			
1 man, at 20l.	20			
Extra man	13			
Harvesting	20			
		213	0	0
Tradesmen's bills, 32l. 10s.; Grass seeds, 22l. 10s.; other seeds, 20l.		75	0	0
Paid on account of improvements, including draining, 40l.; boning, 60l.; and repairs, 25l.		125	0	0
Paid for oil-cake		50	0	0
Contingent expenses		30	0	0
		951	15	0
Profit		£215	15	0

The three systems will therefore stand as follows:—

	Receipts.			Expenses.			Profit.		
	£	s.	d.	£	s.	d.	£	s.	d.
Cheese or butter making.	1213	15	0	1024	15	0	189	0	0
Grazing	1167	10	0	951	15	0	215	15	0
Milk-selling	1428	15	0	1124	15	0	304	0	0

It thus appears that the experience of this district is decidedly in favour of milk-selling; but before coming to a definite conclusion on the subject, the strain put upon the land by the two systems—milk-producing and fattening—has to be taken into account.

I feel that the grazing account may require some little explanation to some whose experience may be somewhat different. The profit of 12l. per head on the cows may be thought excessive. I can, however, but state that such is the annual average profit realised by a number of graziers in this immediate neighbourhood, who buy in lean but healthy Short-horns, at an average of 10l. to 12l. per head, in the first two months of the year. They then freshen them on straw, Turnips, and a little cake, putting them out a little each day—weather permitting—until spring, by which time they have fairly begun to grow; and when a flush of Grass comes they do not, like cows newly bought, lose time in making a start. They are then grazed through the summer, tied up in October to Turnips, ground Oats, oil-cake, and straw, and sold from the middle of December to the middle of January at 22l. to 24l. per head. The extent of land may also seem small for the number of beasts and sheep kept; but this is accounted for by the circumstance that all the Grass land is available for pasture, only a small quantity of hay being required for the horses. Again, the practice is to break up a fresh turf-field every year for lea Oats, to be succeeded by Turnips, which, aided by the moist climate of the district, is always a very heavy crop, averaging from 33 to 38 tons per statute acre; hence the large amount of winter keep from so small an extent of arable land.

The item of 50l. for cake may also appear small, but I may state that cake is not used as the chief article for fattening beasts, but rather as conducive to their health and as an aid to the corn and Turnips, which are mainly relied upon for fattening them. The sheep and lambs get no cake.

I may also further state that of the 60 cows grazed, not more than 50 are tied up in the autumn, as the remainder either go out from Grass or as calvers, of which there are always a few, and which pay equally well, regard being paid at the time of purchasing that they are right in their milking organs.

But I should hardly do justice to the merits of this system of grazing by simply giving the practical results of my own neighbourhood, and comparing them financially with those of cheese or butter making and milk selling. Grazing has collateral advantages in many forms that do not show themselves in such a comparison, but which assume so large an amount in the aggregate, that though milk selling excels it in direct profit by, say 88l. 5s. per annum on a farm of 200 acres, I yet consider that in the main grazing is the preferable system, as I will endeavour to show.

In the first place, I consider that the apparent margin in favour of milk selling may fairly be reduced somewhat on account of the extra risks attending the system from the more general tendency to delicacy and sickness of milking as compared with fattening cows. Again, we must not overlook the risk of making bad debts with the milk dealers, who, as a body in the large towns, are not the best of payers. In saying this I do but speak the experience of milk producers. Again, under the system of grazing, the farm will regularly increase in fertility, as a much greater portion of the nutriment, either extracted from the ground or artificially supplied, is then returned to it again by the animal, than under the system either of cheese making or milk selling. If, then, we suppose a tenant to have a lease for, say 21 years, at a fixed rent, the progressive improvement of his farm under grazing will yearly increase his crops of beef, mutton, and corn: and with improved condition of land comes decrease of expense in cultivation; and thus his profit will yearly go on increasing, the ultimate result being most beneficial alike to himself and his landlord.

As regards the labour attending the practice of these systems of farming, that of grazing has a decided advantage over the others, not only in out-door labour, as shown in the accounts of expenditure, but also in the labour and responsibility saved in-doors, since the care and management of milk in any way entails much of both, and requires an amount of skill that has often to be remunerated at a very high rate.

One of the best indications of the progressive improvement attendant on this system of grazing is obtained by one simply observing the very great difference in the quality of the dung-heaps collected under the respective systems, the comparatively cold, aqueous appearance of that produced from milking-stock contrasting remarkably with the fermenting, oily nature of that collected from fattening beasts. The effect of this difference upon the farm must be obvious to any one. In fact, I have myself watched its progressive effect under good management with extreme satisfaction, seeing the ordinary condition of the farm rise gradually to that of high cultivation; the weeds disappearing as the crops become stronger, and the land being more easily worked as it becomes more disintegrated by the more luxuriant growth of the herbage upon it. Here I cannot but state the particular attention paid by the farmers of this district (North Cheshire) to the mode of seeding down their pastures, which, coupled with the clean fallow or green crop, is undoubtedly, after draining, the foundation of all good farming, and the secret of success in the cases now under my notice. By attention to this particular, a sod is obtained by the aid of bones, which, after a few years' growth, is equal to that produced in the ordinary way by 20 years' lea; and experience shows me that a good sod that breaks up oily and mellow through the action of the fibres of luxuriant herbage, conduces more to a good and inexpensive course of crops than any manure that can possibly be applied artificially, to say nothing of the economy of restricting the need for such manures; for, after all, artificial manures are but a defective substitute for the elements as naturally combined in a virgin soil.

Holding these views, and considering the present scarcity and consequent high price of beef and mutton, I cannot commend too strongly a system so conducive to the mutual advantage of both tenant and landlord as that of grazing. *Dunham Massey, Altrincham.*

* More milk is produced per cow in consequence of the supply being kept up throughout the year by exchange of cows and artificial feeding.

Miscellaneous.

The Birmingham Dog Show (Times Report).—The show of dogs is larger and better than ever, numbering about 1,000 specimens, now established in the new Curzon Hall, a very spacious and handsome structure, erected at a cost of 8000l. upon ground which cost 8000l. more. But for variety of taste in the choice of hobbies, and division of labour in the culture of fancy things, a visitor might be equally *au fait* among the cattle, the birds, the produce, the machines, or the dogs. Mankind, however, having divided themselves into groups giving their lives to specialities, you need a handbook at every new show you enter, whereby otherwise imperceptible excellences may reveal themselves, it may be in Roses or Melons, in silkworms or white mice. You admire the interminable ranks of handsome, lively bits of intelligence and faithfulness; the graceful, sturdy, alert, pompous, or comic creatures that growl, whine, and bark their own in Curzon Hall; but you don't understand a dog, and are perhaps unaware that one side of your newspaper might be filled with the points of perfection and demerit in the numerous breeds and their subdivided strains. Look, then, at the picturesque, warm your heart with the affection of these playful pets, feel physically powerful in the company of those noble hounds. Perhaps some compassionate critic may lead you round by the elbow and discourse technically of minute differences in build, carriage, and colour of the animals before you, till you wonder whether canine study is not an encyclopædic science. For instance, here is Class 1. The simple-minded answer to the catechism-question, "What is the chief end of man?"—"His head, sir!" does apply to a pointer; for this shell of the brain is the seat of that marvellous smelling faculty that forms his main qualification. His jaw is not narrow like that of a hog, his long soft ears hang close to his cheeks, and his throat is devoid of a hairy dewlap. Strength for work demands a broad muscular loin and limbs with strong bone; speed requires a well-set shoulder; his round, cat-like feet have natural shoe-soles of horny pad, and his "stern," that warning index to the sportsman, is long and sharpened to a point. That you may readily espy him in a [illegible] his coat shines white, with lemon or liver-[illegible] patches adorning it. You learn that the breeding [illegible] these dogs is a difficult art, the great aim being [illegible] combine the graceful elastic frame of the [illegible] strains with a more stalwart size for working among [illegible] growing green crops and bushy heather. The judge [illegible] value the symmetry and constitution of the dog, [illegible] his stanchness, courage, action, and sensitive nose [illegible] can tell little without shooting over him. You [illegible] like a setter's head lighter than a pointer's, though [illegible] without a snipe nose; his ears round-ended, not pointed like a Vine-leaf; his body marked more by depth than breadth; his feet standing straight; and you are [illegible] notice the arching of the toes with the tufts of [illegible] between. The stern curves upward, with a depending silky "feather," thinning off at the tip; but the [illegible] coat must not curl, though beautifully fringing the profile of the body. If you are well up in your [illegible] you will understand the great point of colour in the [illegible] setter, the coat being deep blood-red and rich [illegible] nut or mahogany, not golden yellow, fallow, nor [illegible] so unmixed with black that when tested in a strong light there must be no black waves or shadows, [illegible] less a black fringe to the ears or the profile of the frame. And you will doubly admire the setter of the Gordon blood when you know that he is according [illegible] rule in being raven black, with a blue or plum bloom on the bright lights, in having his "tan" a rich red [illegible] burnt sienna colour, with brilliant red on cheeks, [illegible] throat, and feet, a spot of tan over each eye, an allowable "white shirt-frill," and a stern like a stump—the greatest trouble to breeders being the long "teapot tail" with a curl at the end. His virtues consist in going longer without water than other setters, and displaying more variety of attitude "on the point." The pointers and setters in the present Show surpass in numbers and merit the display of former years. The foxhounds make a very fine show, including some of the most famous sires from the best kennels. The greyhounds are inferior; the retrievers excellent; the spaniels remarkably meritorious. There is a splendid show of bulls and bull terriers, of Newfoundlands, St. Bernards, and toy-terriers. A peculiar feature this year is the provision of classes for dogs of small size and for puppies of every breed. The Show is altogether by far the best we have ever seen.

Calendar of Operations.

December: *Claying and Marling* is work proper for the winter months; though if it can be completed before the frost has left, so much the better. Let us quote an actual experience on peaty and light land soils, thus described by Mr. Almack, in the Agricultural Society's Journal. He says:—I have no hesitation in saying that the value of many millions sterling is buried under what is now comparatively unproductive soil in England alone. As an instance, I was shown in Norfolk what a gentleman called his "hidden jewel," so near the surface, that one plunge of his walking-stick convinced me it would be practicable to bring up sufficient by merely ploughing deeply with the common plough the first time he broke up the land, which he said he intended doing immediately after the tithe-rent charge was apportioned. On the surface was light "fen," to a common observer apparently of little value, yet immediately below was the valuable slate-coloured clay, ready for its improvement. In the fens near Downham this clay is from 4 to 6 feet below the surface. Pits are dug about 6 feet by 3, and 3 feet apart, in rows, generally two rows in a chain (of 22 yards), and they take out two or three spits deep of clay from each pit. In digging one pit, part of the peat is put in that which was last made. The cost varies, being under or over 50s. per acre, according to circumstances; but it is very well repaid by the crops of Red Clover, Wheat, and Beans which the land will afterwards grow.

The farm of Mr. Cambridge, of South Runston, may be named as a favourable specimen of what has been done for the soil of Norfolk, and to account for its present productive state; but so far from being a solitary instance of such improvements, the practice has been almost universal throughout the county, the quantity of clay applied varying according to circumstances. 54,055 loads of clay have been applied on this farm to 286 acres, or, on an average, 188 loads per acre. Mr. Keppel, of Lexham Hall, has made great improvement in his light sandy land, by claying at the rate of 50 loads per acre. Near Swaffham I observed some men claying a field from a pit nearly in the centre of it; they were paid at the rate of one halfpenny per barrowful, or 7d. per "load;" their orders being to apply 80 such loads per acre; making the cost of it under 50s., though the work was done without the use of horses; employment was thus found for more labourers, without fear, too, of injury to the land by its being cut in using carts when not sufficiently dry.

Chalk, also, as well as clay and marl, may be dug and spread on light sandy soils in the winter months.

Fences give some work to do in December. It is well to plant the Quicks for young fences as early as possible in the winter months—though February will also do very well—and to postpone the cutting back and relaying fences till February, though this work is described in the month of January.

The following are good remarks by Mr. Martinson,

before the Newcastle Farmers' Club. He says:—The ground intended for a line of new fence should undergo deep ploughing or trenching at least 12 months previous to planting, and have all the weeds and rubbish as nearly as possible eradicated; and a little lime might be advantageously employed in decomposing any vegetable matter which may remain. The stem of each plant, before being deposited, is cut through to about 6 or 8 inches long, and then these plants are placed as firmly as possible in their bed; a furrow with the spade being made, in which the plants are inserted, the roots are covered with soil, and that soil compressed by the foot, more mould being applied to fill the furrow. A sharp knife is used in cutting off the stems close by the surface, and you cover these cuts with a very light sprinkling of earth, merely to preserve them from frost. They come away beautifully in the spring after being planted now. About seven or eight plants to a yard are enough. One advantage of this mode of planting is, that much less room is required, as you dispense with the usual cast or mound, and you can cultivate and crop your land much nearer to the fences. This mode may be objected to on wet land; but such land should be drained, and that not by an open ditch along the line of fence, but by a systematic underground drainage. The proper season for planting is from about the middle of October till the end of March, or during the inertness of the sap.

The Thorns being now planted, it is desirable, and necessary, that they should be protected from injury by the trespass of cattle and sheep. The best protection is wooden railing. This precaution should be taken immediately on the completion of the fence, or at least before any animals have access to it. The protection of these young hedges by railing is expensive, but yet I am certain that the young hedges come to perfection much sooner when thus protected. The hedge being planted and protected, great care is to be exercised in opening out those Thorns in spring which have been covered up. This is best done by loosening the earth with the hand, or with a small stick; and lest injury be done in this way to the buds, neither a spade nor any other sharp instrument ought ever to be used in this operation. The most essential point afterwards is to keep the plants clean and free from weeds.

Mr. Martinson adds:—I have endeavoured to ascertain the best time for cutting old hedges, in order to secure the quickest growth, which is a very desirable object. I have found that those cut from about the middle of February to the end of March have shot away again most vigorously, whilst those cut from November to the beginning of February have been much more tardy in shooting forth, and their shoots have been neither so strong nor so numerous. In these cases the hedges were much the same in appearance and age previous to cutting. I am therefore determined to confine the time of cutting, in future, from the beginning of February to the end of March, or to cut as nearly as possible to the rising of the sap, and then the cuts or wounds have not so long to struggle with the inclemency of winter storms.

One further remark we add:—However partially I may have spoken of Thorn hedges, there is one particular place on the farm where they should never be planted; that is, around the stackyard. That fence ought always to be a stone wall. Hedgerow trees ought never to be planted in Thorn fences. Nothing is more destructive to their growth; nor anything more prejudicial to adjoining crops.

Notices to Correspondents.

Abortion: *Essex.* This serious evil is often produced by the cows feeding on old pastures on which the old Rye-grass stems have not been mown, and which often contains Ergot. Remove the cattle and change the food as much as possible. If hay have been given, change it for straw and oil-cake, and separate immediately the animals that have aborted, or threatened to do so.

Alopecurus: *Highgate.* The seeds sent belong to this genus; but whether it be a rough variety of A. pratensis (Meadow Foxtail, or a distinct species, it is difficult to say from the seed alone.—*B O R.* The usual practice with regard to the droppings on the pastures is to knock them abroad when they have arrived at a certain degree of consistency. We believe that an old man and donkey cart might be usefully employed constantly during summer in collecting them and forming a heap, wherever there is extent and herd enough to give him work.

Artificial Manures: *Scipio.* For Italian Rye-grass any ammoniacal manure—sulphate of ammonia, 1 cwt. per acre, washed in once or twice a year. For Turnips superphosphate or phospo Peruvian guano. The latter is worth its extra price. For Potatos, as an addition to a dressing of farmyard dung, 2 cwt. of guano sown over the drills before covering up.

Barking Trees: *A.* Kill the hares and rabbits. If you may not, take as much thoroughly skimmed milk as required, and mix it up with soot till about as thick as paint. With this paint over the tree with a whitewash brush. It lasts well one season.

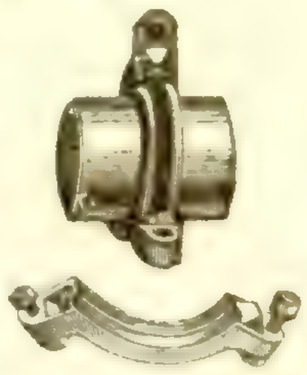
Gorse: *F F.* It is usually grown from seed—hoe in 20 lb. per acre in March in rows about 18 inches apart. Cut every other row during alternate winters. We believe some kinds are propagated by cuttings. Perhaps some of our readers who have had experience will say when, and under what circumstances this plan is to be followed.

Stable Dung: *J S* Five fanged dung is very much injured. The best way to save the stable dung is to throw every day's portion on to the end of a ridge-formed heap standing on about 4 yards width of land, and piled up ridgewise as steep as it will lie, covering it up on both sides with earth as it daily lengthens. This is the plan of Mr. Lawrence, of Cirencester. It keeps the manure of its full original goodness, and saves it from the injury of five-fanging, which is owing to excessive local fermentation.

PORTABLE HOT-WATER APPARATUS,

WITH TRUSS' PATENT JOINTS FOR HEATING CONSERVATORIES, HOTHOUSES, &c.

T. S. TRUSS



Begs to offer complete HOT-WATER APPARATUS for GREEN-HOUSES (consisting of 4-inch Pipes and Joints, Saddle Boiler, Fire Doors, Bars, Soot Doors, Damper, Supply Cistern, Feed and Air Pipes, Pipe Stands, &c., of the best quality), delivered to any Railway Station in England, and to erect the same within 25 miles of London, at the following prices:—

4-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House	Apparatus complete.	Erection.	Size of House.	Apparatus complete.	Erection.
16 feet by 8 feet	£8 10 0	£2 0 0	30 feet by 12 feet	£11 15 0	£2 10 0
20 feet by 10 feet	9 0 0	2 0 0	40 feet by 15 feet	15 0 0	2 15 0
25 feet by 12 feet	10 5 0	2 5 0	50 feet by 15 feet	18 0 0	3 0 0

Erection beyond 25 miles of London, Railway Fare for one Man charged extra.

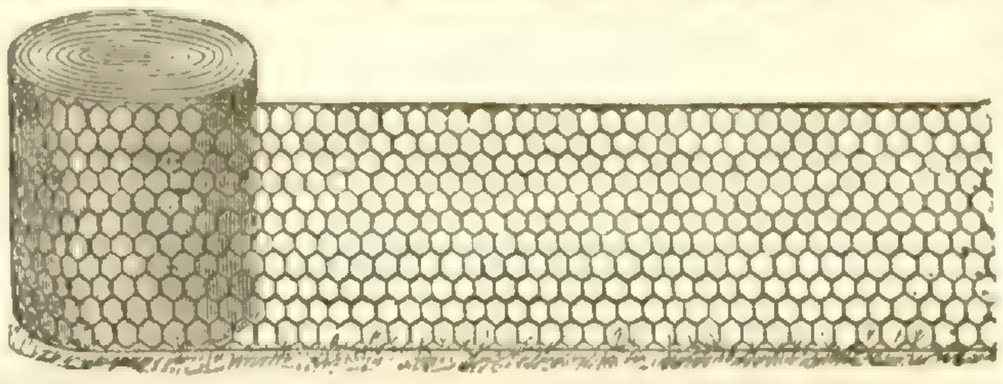
By the use of these Joints the Apparatus is easily altered or removed without injury to either Pipes or Joints.

Estimates and Plans forwarded on application to

T. S. TRUSS, C.E., 53, GRACECHURCH STREET, LONDON, E.C.

NEW IMPROVED PREMIUM WIRE NETTING.

GREAT IMPROVEMENT,



WITH REDUCED PRICE.

PRICES PER LINEAL YARD, 24 INCHES HIGH.

Size of Mesh.	Mostly used for	Light. Japanned.	Light. Galvanized.	Medium. Japanned.	Medium. Galvanized.	Strong. Japanned.	Strong. Galvanized.	Extra Strong. Japanned.	Extra Strong. Galvanized.
2¼ inch	Hares, Dogs, Poultry ..	3*d.*	4*d.*	3¾*d.*	5*d.*	4½*d.*	6*d.*	5½*d.*	7*d.*
2 inch	Game or Poultry Netting	3½*d.*	4½*d.*	4*d.*	5*d.*	5*d.*	6½*d.*	6½*d.*	8*d.*
1⅝ inch	Small Rabbits, Hares, &c.	4*d.*	4¾*d.*	4¾*d.*	6*d.*	5½*d.*	7*d.*	7*d.*	9*d.*
1½ inch	Smallest Rabbits	5*d.*	6*d.*	5¾*d.*	7*d.*	7*d.*	9*d.*	9*d.*	11*d.*

Quantities of 100 yards or upwards delivered free at nearly all the principal Railway Stations and Shipping Ports in England; and 200 yards or upwards delivered free to most parts of Scotland and Ireland.

*** *Every description of Netting warranted to give satisfaction, and if not approved will be exchanged or may be returned unconditionally.*

J. B. BROWN AND CO. OFFICES: 18, CANNON STREET, CITY, LONDON, E.C.,

Nearly opposite St. Swithin's Lane and London Stone, and near London Bridge.

WAREHOUSE (where Netting is kept in stock), 148, UPPER THAMES STREET, E.C., opposite the City of London Brewery, and close to the London Bridge Steam Boat Pier.

JAMES PHILLIPS & CO.,

HORTICULTURAL GLASS MERCHANTS,

180, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

PRESENT PRICES OF SHEET GLASS FOR HORTICULTURAL PURPOSES.

ENGLISH SHEET GLASS.

Packed in Crates of about 280 feet.

	16-ounce.	21-ounce.
Best	5½*d.*	7½*d.*
Seconds	4½*d.*	5½*d.*
Thirds	2¾*d.*	3¾*d.*
Fourths	2½*d.*	3½*d.*

HORTICULTURAL GLASS,

Stock Sizes, 16-ounce.

In 100 feet Boxes. Boxes included.

These prices only apply to the sizes stated.

				4ths.	3rds.
11 by 9	12 by 9	13 by 9	14 by 9	13*s.* 6*d.*	15*s.* 0*d.*
12 ,, 10	13 ,, 10	14 ,, 10	15 ,, 10		
13 ,, 11	14 ,, 11	..	..		
14 ,, 12	15 ,, 12	15 ,, 11	16 ,, 11	14*s.* 6*d.*	17*s.* 0*d.*
18 ,, 12	19 ,, 12	16 ,, 12	17 ,, 12		
16 ,, 13	17 ,, 13	20 ,, 12	21 ,, 14		
19 ,, 13	20 ,, 13	18 ,, 13	..		
16 ,, 14	17 ,, 14	21 ,, 13	..		
19 ,, 14	20 ,, 14	18 ,, 14	..	16 to 17 oz. to the foot.	

FOREIGN SHEET GLASS.

In Cases for cutting up, in Sizes as Manufactured.

	16-oz., 200 ft. £ *s.* *d.*	16-oz., 300 ft. £ *s.* *d.*	21-oz., 200 ft. £ *s.* *d.*
Best	3 7 0	..	5 14 0
Seconds	3 10 0	..	4 13 0
Thirds	..	2 10 0	2 10 0
Fourths	..	2 0 0	2 0 0

GLASS for ORCHARD HOUSES,

As supplied by us to Mr. Rivers, to the Royal Horticultural Society, and to most of the Nobility, Clergy, and Gentlemen of the United Kingdom.

Each Box contains 100 feet. The prices only apply to the sizes stated.

Squares 20 by 12, 20 by 13, 20 by 14, 20 by 15.

	16 oz. to the foot.	21 oz.
Fourth quality	14*s.* 6*d.*	17*s.* 0*d.*
Third quality	17*s.* 0*d.*	21*s.* 0*d.*
Seconds	19*s.* 0*d.*	22*s.* 0*d.*
English	19*s.* 0*d.*	24*s.* 0*d.*

The above prices include the Boxes, which are not returnable.

SMALL SHEET SQUARES.

In 100 feet Boxes.

6 by 4	6½ by 4½	7 by 5	7½ by 5½	11*s.*6*d.*
8 ,, 6	8½ ,, 6⅜	9 ,, 7	9½ ,, 7½	11*s.*6*d.*
		10 ,, 8	10½ ,, 8½	12*s.*6*d.*

Boxes 2*s.* each, returnable at full price.

HARTLEY'S PATENT ROUGH PLATE GLASS.

Packed in Boxes of 50 feet each.

6 by 4	and 6½ by 4½	10*s.* 6*d.* per box.
7 ,, 5	,, 7½ ,, 5½	12*s.* 0*d.* ,,
8 ,, 6	,, 8½ ,, 6½	13*s.* 6*d.* ,,
9 ,, 7	,, 9½ ,, 7½ and 10 by 8	15*s.* 0*d.* ,,

Boxes 2*s.* each, returnable at full price.

GLASS TILES and SLATES in SHEET and ROUGH PLATE. PLATE GLASS, PATENT PLATE, and HARTLEY'S IMPROVED ROUGH PLATE. PAINTS, COLOURS, VARNISHES, &c.

GENUINE WHITE LEAD.
LINSEED OIL PUTTY.
ANTI-CORROSION PAINT.
TURPENTINE.

FINE OAK VARNISH.
CARRIAGE VARNISH.
PATENT DRYERS.
BRUSHES.

LINSEED OIL.
BOILED OIL.
GLAZING KNIVES.

Lead in Sheets or Cut to Sizes, Lead Pipe, Lift Pumps, Water Closets, and Plumbers' Brass Work of every description.

PERFORATED GLASS for Ventilation, ORNAMENTAL GLASS, GROUND GLASS, COLOURED and STAINED GLASS, Patent DIAMONDS, &c.

N.B. In consequence of a considerable advance in the cost price of every description of Glass, we have been compelled to alter our prices, which from this day will be as above.

NEW TARIFF OF GLASS AND HORTICULTURAL GOODS.

HAND GLASSES.

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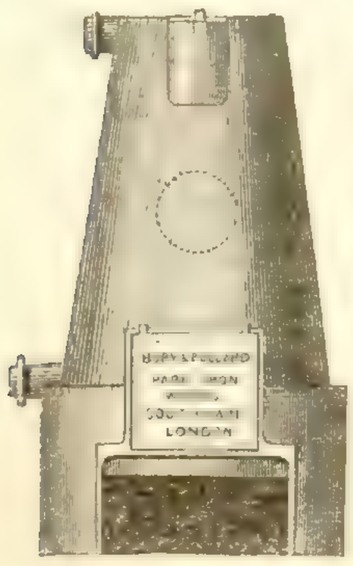
PRESERVE JARS.

MILK PANS.

REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.



BURY & POLLARD, LONDON, MANUFACTURERS.

HEATING BY HOT WATER.

Public and Private Buildings, Manufactories, Conservatories, &c., Heated on the most improved system, combined with perfect Ventilation. Baths fitted upon economical principles connected with Kitchen Ranges, ready for use night or day, without extra fire. Success in all cases guaranteed. Estimates free. References to hundreds of the Nobility's Seats, Botanical Societies, Public Buildings, Banks, Manufactories, &c. Several Miles long ranges of Pipes just fixed at Wollaton Gardens for Lord Middleton, by BURY AND POLLARD, Sole Manufacturers of the Improved CONICAL BOILERS, which are adapted for setting in Brickwork, or as shown in sketch they require No BRICKWORK, and which Boilers have their durability and economy, attained a celebrity far surpassing any other Boilers ever invented.

PARK IRON WORKS, 17, NEW PARK STREET, SOUTHWARK, LONDON, S.E.

N.B.—PATENT WINDMILLS for Pumping and Driving Farm Machinery, from Half-Horse Power upwards. To be seen daily at work at the Works.

Bury & Pollard having completed the order for the India Board, and the Government Gardens at Agra, are again supplying Her Majesty's Government for Ascension.

WIND ENGINES for ASCENSION.—The Admiralty Department officially report the two large Wind Engines supplied by BURY AND POLLARD three years ago for Ascension, as working most satisfactorily.

BURY AND POLLARD always keep a large Stock of their BOILERS, together with HOT-WATER PIPES of the best description.

CAUTION.

THE SUCCESS AND GREAT EXTENT OF BUSINESS ORDERS WITH WHICH

HENRY ORMSON

FIRST CLASS PRIZE MEDAL
FOR ORMSON'S CONSERVATORY,
At the INTERNATIONAL EXHIBITION.

Has been favoured by the Nobility, Gentry, &c. in all parts of the United Kingdom, for the last 20 years, have been the cause of some persons making use of his name as a subterfuge for obtaining Orders for themselves.

H. ORMSON trusts such pretensions will be treated with proper consideration, as he confidently assures his patrons, and others, that the mere putting forth of these pretensions is no guarantee whatever for Horticultural Buildings and Heating Apparatus being constructed in his superior style, so well known in all parts of the country for many years past.

H. ORMSON always has been, and still continues to be his own Manager, and carefully Superintends, personally, every Department of his Business. All Orders with which he may be favoured will at all times receive his most careful attention, and every HORTICULTURAL BUILDING and HEATING APPARATUS erected by him will be Designed and Constructed on the most approved and scientific principles; and from his extensive experience, and knowledge of horticultural science, will also be properly adapted to the successful cultivation of all descriptions of Exotic Plants and Fruits.

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Plans, Specifications, and Estimates on application.

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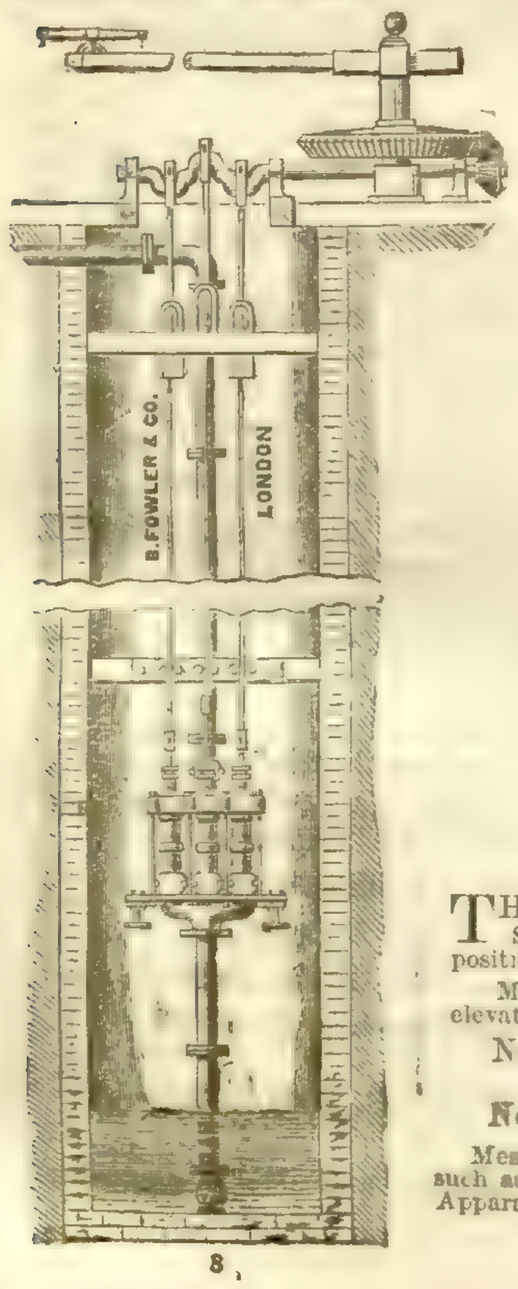


8.

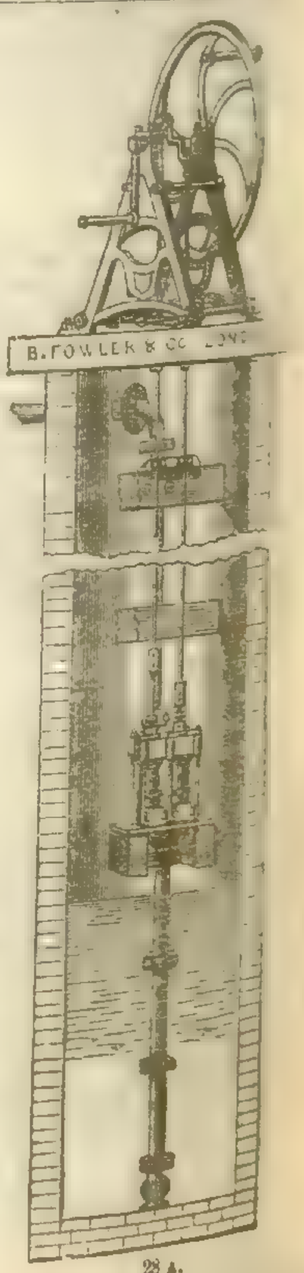
CLINTON & OWENS

(LATE BENJAMIN FOWLER & CO.)

MANUFACTURERS OF

PUMPS AND HYDRAULIC MACHINERY,

WHITEFRIARS STREET, FLEET STREET, LONDON, E.C.



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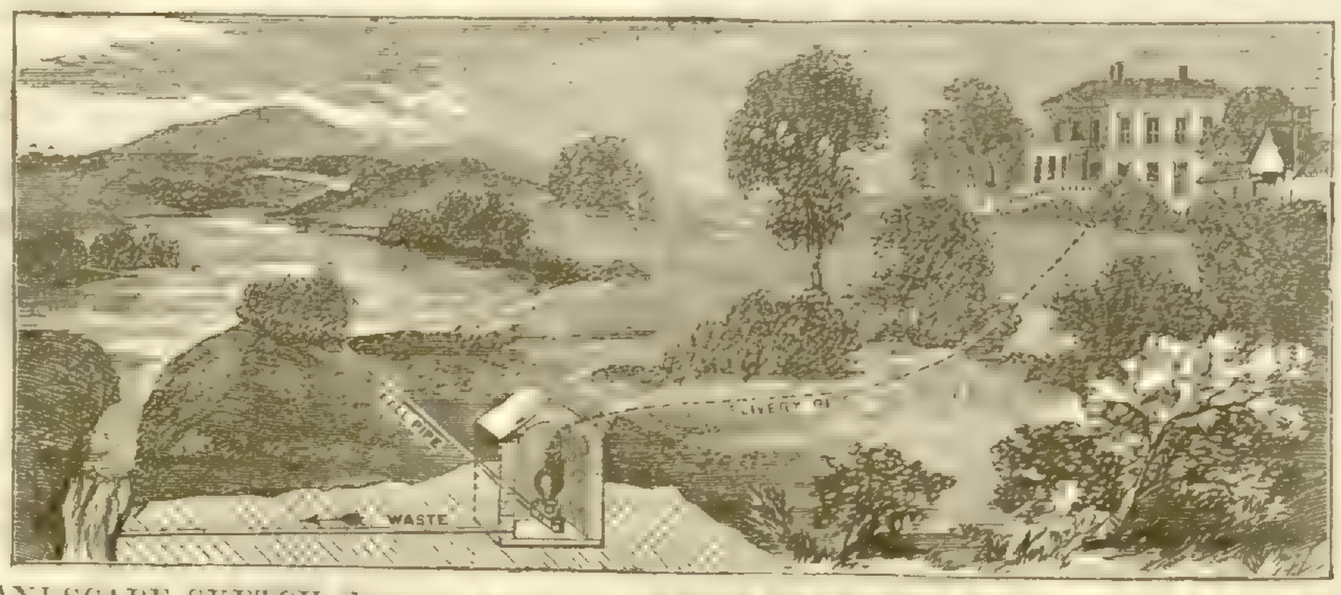


THE LANDSCAPE SKETCH shows an adaptation of THE IMPROVED HYDRAULIC RAM. This is a simple Self-acting Machine, suited for raising a Supply of Water for use in Public and Private Establishments. Its adoption is not confined to positions as shown, but it is suited for any situation where a Fall can be obtained from a Stream, Brook, or Spring.

Messrs. CLINTON & OWENS have fixed a great many in various parts of the country for raising from 600 to 6000 or more Gallons per day to elevations varying from 30 to 300 feet, and forcing through main pipes 50 yards to several miles in length.

No. 37. IMPROVED TREBLE BARREL PUMPS with HORSE GEARING for Raising Water from DEEP WELLS for the supply of MANSIONS and PUBLIC BUILDINGS.

No. 28a. DOUBLE BARREL PUMPS for HAND-POWER for similar purposes.

Messrs. CLINTON & OWENS Manufacture and Erect every description of Engineer's Work required in Public or Private Establishments, such as Pumps for any purpose on the largest or smallest scale, Steam Engines, Water Wheels, Turbines, Warming and Drying Apparatus, Baths, Gas Works and Fittings. Estimates furnished from Plans or on inspection of position.

Price Lists of Pumps, &c. free on application.

Caution to Gardeners.—When you ask for

SYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get [illegible] Scissors, and the corporate mark Orbis [illegible] WARRANTED, without which none are genuine.

S. & C. regret having to caution Gardeners and others, but are [illegible] imitation, of considerable [illegible] and for the extreme cut, and which has caused [illegible] to be made to them of Knives which were not of [illegible] of which are unwarranted both by sellers and makers.

S. & C.'s Budding and Budding Knives are the best and the cheapest [illegible]

Porton Works, Sheffield. Established upwards of 125 years.

GREEN'S PATENT SILENS MESSOR, or NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

GREEN'S PATENT LAWN MOWERS have proved to be the best, and have carried off every Prize that has been given in all cases of competition. Above 26,000 have been sold since the year 1856.

Illustrated Price Lists of Lawn Mowers and Garden Rollers Free.

THOMAS GREEN & SON, Smithfield Iron Works, Leeds; 2, Farringdon Road, Holborn Hill, London, E.C.; Hadwin's Buildings, Tithebarn Street, Liverpool; and 19, Eden Quay, Dublin.

Oil Paint no longer Necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

From ROBT. RAIKES, Esq., *East Dale, near Brough, Yorkshire.*

"I have used your Black Varnish for park palings and consider it to be the most durable and best thing of the kind I have ever seen. I think it might be applied with still greater advantage to iron fencing instead of paint, and it is my intention so to employ it in future."

Sold in casks of about 30 gallons each, at 1s. 6d. per gallon, at the Manufactory, or 1s. 8d. per gallon paid to any Station in the kingdom. Apply to HILL & SMITH, Brierly Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C., from whom only it can be obtained.

TRADE MARK.

ENTERED AT STATIONERS HALL.

WALTER CARSON AND SONS, of Great Winchester Street, respectfully notify that they have removed their principal office to their Warehouse in LA BELLE SAUVAGE YARD, Ludgate Hill, E.C. (three doors East of Railway Viaduct), and have discontinued their West-end Office, 31, St. James's Street.

CARSONS' ANTI-CORROSION PAINT, specially manufactured for out-door work, is the best and cheapest. All colours. Is simple in application, so that any person can use it.

Is twice as durable as genuine white lead. See Testimonials sent with patterns and prices post free.

Three cwt. carriage free to any station in England and Wales, and most Seaports of the United Kingdom.

CARSONS' PAINT for all OUT-DOOR WORK

CARSONS' PAINT for WOOD and IRON WORK

CARSONS' PAINT for BRICK and COMPO.

CARSONS' ANTI-CORROSION PAINT used by nearly all the eminent Horticulturists, the Nobility and Gentry, for their Gardens.

CARSONS' PAINT for CONSERVATORIES.

CARSONS' PAINT for GREENHOUSES.

CARSONS' PAINT for HOTHOUSES.

TESTIMONIAL.

"Exotic Nurseries, Southampton, August 10, 1865.

"GENTLEMEN,—I will thank you to forward, &c. What I had from you last season has, after a twelvemonth's wear, proved most satisfactory; there is not a crack in the putty, but, on the contrary, it is as solid as though the glass were cemented in, which I have rarely found with white lead.—I am, yours truly, "JOSIAH ELCOMBE."

"Messrs. W. CARSON & SONS, La Belle Sauvage Yard, Ludgate Hill."

CARSONS' ANTI-CORROSION PAINT will keep for years in a dry place. All orders to be sent direct to WALTER CARSON & SONS, La Belle Sauvage Yard, Ludgate Hill, E.C. Three doors East of Railway Viaduct.

£1000 UPON the WOOLSTON TACKLE against the NEWCASTLE "Best [illegible]."

WILLIAM SMITH, Wooster [illegible]

THE IMPROVED LEATHER DRIVING STRAPS for MACHINERY are stronger for a given weight, more effective, [illegible] and more economical than any other kind of driving band.

SPECIAL STRAPS for LOCOMOTIVE ENGINES.

TURNER'S Patent Strap Leather Company.

Manufactory: Anson Works, Cheetham Hill, near Manchester.

Warehouse: 81, Mark Lane, London, E.C.

Mr. H. FERRABEE, Agent.

GARDEN BORDER EDGING TILES, in great variety of patterns and material, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down cost no further labour and expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.

F. & G. ROSNER, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.

Sole London Agents for FOXLEY'S PATENT GARDEN WALL BRICKS. Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also TESSELATED PAVEMENTS of more enriched designs than the above.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cements, &c.

To be obtained of F. & G. ROSNER, at their Premises as above.

SILVER SAND (REIGATE, best quality), at the above addresses—14s. per Ton, or 1s. 3d. per Bushel; 2s. per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less.

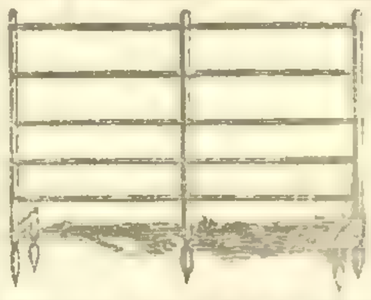
FLINTS, BRICK BURRS or CLINKERS, for Rockeries or Grotto Work.

F. & G. ROSNER.—Addresses see above.

N.B. Orders promptly executed by Railway.

Iron Hurdles, Fencing, and Gates.

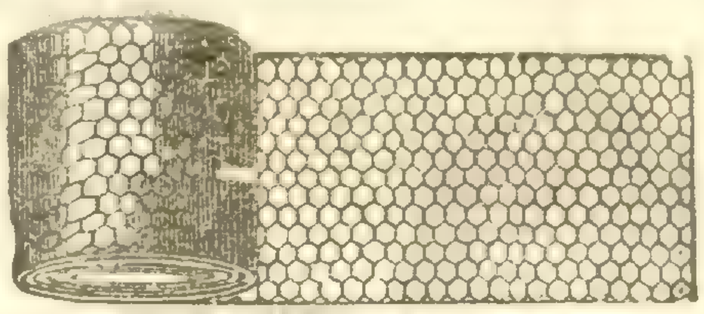
COTTAM'S HURDLES are made in the best manner of superior Wrought Iron. SHEEP HURDLES, from 4s.; CATTLE HURDLES, from 4s. 11d. each; CONTINUOUS FENCE, from 8d. per foot; FIELD GATES, from 25s. each. Illustrated Price List on application.



ENTRANCE GATES, RAILING, and IRON WORK of every description. Designs and Estimates free of

COTTAM & Co.,
No. 2, Winsley Street
(opposite the Pantheon),
Oxford Street, London, W.

GALVANISED WIRE NETTING



PRICES of NETTING, 24 INCHES HIGH.

Size of Mesh.	Proof against	Light, per Yard.	Medium, per Yard.	Strong, per Yard.	Extra strong per Yard.
2½ inch	Hares, Dogs, Poultry, &c.	4d.	5d.	6d.	7d.
2 inch	All kinds of Game ..	4½d.	5d.	6½d.	8d.
1⅝ inch	Small Rabbits, Hares, &c.	4½d.	6d.	7d.	9d.
1½ inch	Ditto Ditto	6d.	7d.	9d.	11d.

100 Yards and upwards Carriage Free.

GALVANISED IRON WATER CISTERNS.
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GALVANISED IRON PUMPS.
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GALVANISED IRON ROOFS and BUILDINGS.
LAWN MOWERS, GARDEN ROLLERS.
ASPHALTE ROOFING FELT, 1d. per square foot.
HURDLES, HURDLES, HURDLES, 1s. 9d. to 3s. 9d. per yard.

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E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.

PROTECTION from COLD WINDS and MORNING FROSTS.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required lengths.

Two yards wide	1s. 9d. per yard run.
Four yards wide	3s. 6d. per yard.
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An improved make, 3 yards wide ..	2s. 8d. per yard run.

Also "Frigi Domo" Netting, 2 yards wide, 1s. 6d. per yard run.

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TO BE LET, with Immediate Possession, for a term of years, a good RESIDENCE and first-class FARM of 150 Acres, situate four miles from Southampton. For particulars apply to Mr. JOSEPH BLUNDELL, Land Agent, &c., Bursledon, Southampton.

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TO BE LET on LEASE, UNFURNISHED, or partially FURNISHED, WEDDERBURN CASTLE, situated in the Parish of Dunse, and within two miles of the Dunse and Edrom Stations on the North British Railway.

The House contains five Public Rooms, seven Bedrooms, besides Servants' Apartments. There are Stables for ten horses, Double Coach-houses, Byres, Yards, &c.; a good Kitchen Garden, and seven Cottages for Servants, together with about 220 Imperial Acres of excellent Grass Land and Ornamental Plantations.

Immediate possession can be had to the House, Gardens, Pleasure Grounds, and Offices, and to the Pasture Land on the 1st January, 1866. The Hounds and Harriers hunt in the neighbourhood, and good Trout Fishing and Shooting may be secured if required.

For particulars apply to Mr. A. BUTTON, Factor, Milne Graden Coldstream. David Swanston, the Steward at Wedderburn, will show the House and Lands.—Milne Graden, December 9.

To Agriculturists, Horticulturists, and Florists.

TO BE DISPOSED OF, IMMEDIATELY, a well established BUSINESS in the above line, situated in one of the most prosperous towns in the county of Suffolk, and having [illegible]

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The Dwelling House and Shop are in excellent repair; consist of 5 Bed-rooms, 2 Sitting-rooms, Kitchen and Cellar. The Shop has a Double front of commanding appearance, and is situated in the best part of the town, near the post-office, principal hotel and banks, only two minutes' walk from the railway station. The town is one of the most delightfully situated in the county, and a beautiful river runs at the foot.

The business has been successfully carried on for upwards of 20 years, and the only reason for disposing of the same is the death of a son. Apply by letter to

Mr. J. JEFFERIES, Woodbridge, Suffolk.

Sales by Auction.

Roses, Fruit Trees, and Hardy Shrubs.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, December 13, and SATURDAY, December 16, at half-past 12 o'Clock precisely, a splendid assortment of STANDARD and DWARF ROSES, PYRAMID and TRAINED FRUIT TREES, HARDY and ORNAMENTAL SHRUBS, &c.

On view the Mornings of Sale, and Catalogues had.

St. James's Nursery, Cheltenham.

TO GENTLEMEN, NURSERYMEN, AND OTHERS.

IMPORTANT SALE OF FIRST-RATE GROWING NURSERY STOCK.

MR. GILLING (late LEWIS & GILLING) is instructed by the trustees of Mr. Brydges to SELL by PUBLIC AUCTION, on the above Premises (under the powers of a Bill of Sale), on MONDAY, December 11, and following days, each day at 11 o'clock punctually, the whole of the first-class NURSERY STOCK, consisting of several thousands of Apple, Pear, Plum, Peach, Nectarine, Apricot, Cherry, and other Fruit Trees, and some thousands of Choice Standard and Dwarf Roses, Flowering and Evergreen Shrubs, Ornamental, Deciduous, and Forest Trees. A large quantity of strong Grape Vines, in 10 and 12-inch Pots, and a good general selection of Greenhouse Plants; also Three Greenhouses, and other Nursery Effects, and several thousands of young growing Fruit and Forest Tree Stocks, on land in Heale's Road.

To Market Gardeners, Carmen, and Others.

MR. J. S. GOMME is favoured with instructions from the Proprietor, who is retiring from Business, to SELL by AUCTION, on the Premises, Crown Lane, North End, Fulham, S.W., on TUESDAY, December 12, at 11 for 12 o'clock precisely, all the LIVE and DEAD STOCK, together with the GROWING CROPS, comprising 500 nearly new Hand-lights, 50 Three-light Boxes, a 50-ft. Greenhouse, Forcing Pits and Lights, Five powerful Cart-horses, Market Waggons, Six Carts, Harness, 600 Loads Manure, 2 Tons Potatos, 20 Bushels Onions, 10 Bushels Scarlet Beans, Market Baskets, large Ware Tubs, 2 Tons Old Iron, Weighing Machines, Ladders, Fencing, 10,000 fine Moss Rose Trees, 20,000 Cabbage and Cauliflower Plants, Sprouting Broccoli, Savoys, Spinach, Lettuce Plants, Victoria and Albert Rhubarb Roots, Pear Trees, and numerous valuable effects.

May be viewed on Saturday, the Day prior, and Morning of Sale. Catalogues had on the Premises, at WAY'S Coffee House, Covent Garden, W.C.; Green Man, Farringdon Street, E.C.; and at the Offices of the Auctioneer, Land and Estate Agent, 10, Bucklersbury.

Hayes House and Hayes Lodge, near Uxbridge, Middlesex.

ELIGIBLE INVESTMENT, OR FOR OCCUPATION.

MR. H. CHAPMAN has received instructions from the Executors of the late George Treadaway, Esq., to OFFER by AUCTION, on the Premises, at Hayes House, Hayes, on TUESDAY, Dec. 12, at 11 o'clock, the Valuable LEASE of the above ESTATE, comprising two semi-detached Residences, recently put in substantial repair, and pleasantly situated on the Longford Road, about 2½ miles from the capital Market Town of Uxbridge, and one from the Hayes Station on the Great Western Railway, with extensive Gardens and Pleasure Grounds, Greenhouses, Gardeners' and Coachman's Cottages, Coach-house, Stabling, &c. The whole held for the unexpired term of 19 years, at the low rental of £75 per annum.

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Hayes, near Uxbridge, Middlesex.

TO GARDENERS, NURSERYMEN, AND FLORISTS.

MR. H. CHAPMAN has received instructions from the Executors of the late George Treadaway, Esq., to SELL by AUCTION on the Premises, at Hayes House, Hayes, on WEDNESDAY, December 13, at 11 o'Clock, the whole of the GARDEN and OUT-DOOR EFFECTS, Green and Hothouse Plants, Shrubs, Evergreens, Fruit Trees, Heaths, Ferns, &c.: the Plants comprise choice Camellias, Azaleas, Primulas, Begonias, Cassias, Genistas, Geraniums, and some valuable Orchids; the Shrubs—Rhododendrons, Arbor-vitæ, Laurustinus, Aucubas, Box Trees, Portugal and Common Laurels; Apricot, Peach, Fig, Nectarine, and Plum Trees; Black Hamburgh, Muscat, and Sweetwater Vines, &c.: a handsome Town-built Brougham, lined with blue camlet; Brougham Horse and Harness, a Basket-chaise, Pony, and Harness.

May be viewed two days previous, and Morning of Sale. Catalogues had at the Inns in the neighbourhood, place of Sale, and free by post of Mr. HENRY CHAPMAN, Auctioneer, &c., Harefield and Harrow, Middlesex, N.W.

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AUBRIETIA CAMPBELLI (effective spring flower).
FUCHSIA BANKS'S BEAUTY.
VERONICA FRUTICOSA GLAUCA.
CLIANTHUS DAMPIERI, in varieties (seed only).

Coloured Plates, post free on receipt of Stamps, of the following:—
AUBRIETIA CAMPBELLI, 7*d.*
CLIANTHUS DAMPIERI ALBIFLORA, 1*s.* 1*d.*

For description of the above see E. G. Henderson & Son's New AUTUMN CATALOGUE, forwarded post free.

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CLEMATIS JACKMANNI.—Large intense violet purple, rugose and veiny in centre, 2 to 2½ feet bine; 30*s.* per dozen.

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CLEMATIS STANDISHI.—Beautiful violet blue; 30*s.* per dozen. Besides other good old varieties.

A CATALOGUE, including Description and Treatment of Clematises, will be forwarded free on application to

Geo. Jackman & Son, Woking Nursery, Surrey.

To the Trade.

CUPRESSUS LAWSONIANA SEED (true), of excellent quality, and warranted crop of present season. Price, postage paid, 5*s.* 2*d.* per oz.; 32*s.* per half lb.; 60*s.* per lb. nett. From unknown Correspondents a remittance must accompany order.

WHOLESALE CATALOGUES of GENERAL NURSERY STOCK can be had on application to

Thos. Cripps, Nurseryman, Tunbridge Wells, Kent.

Lobelia Snowflake.

Extract from Gardeners' Chronicle:—

"Mr. Cox, Gardener to Lord Beauchamp, exhibited a beautiful White Lobelia called Snowflake, to which a First-class Certificate was awarded. Floral Committee of the Roya Horticultural Society, July 25, 1865."

JOHN AND CHARLES LEE having acquired the stock of this desirable NEW BEDDING PLANT, they have much pleasure in offering SEED in SEALED PACKETS for present sowing for spring pot culture, for which it is well adapted.

As a BEDDING LOBELIA it stands unrivalled. The plant is of dwarf compact habit: the flowers are large, perfectly even, and of the purest white. The stock comes perfectly true from seed.

Price 2*s.* 6*d.* per packet. Price to the Trade on application.

Royal Vineyard Nursery and Seed Establishment, Hammersmith W.

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Clarkia integripetala alba Tom Thumb
Tropæolum King Theodore
Waltzia grandiflora
Tropæolum elegans nana
Œnothera Drummondi nana alba
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Linum perenne rosea
Tropæolum Zandieri nigra
Lupinus tricolor mutabilis
Aquilegia alba pleno
Xeranthemum, new double white
Invincible Scarlet Sweet Pea
Lilium auratum
Carter's First Crop (or Sutton's Ringleader) Pea
McLean's Little Gem Pea
Carter's Champion Broccoli
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Feather Stem Savoy
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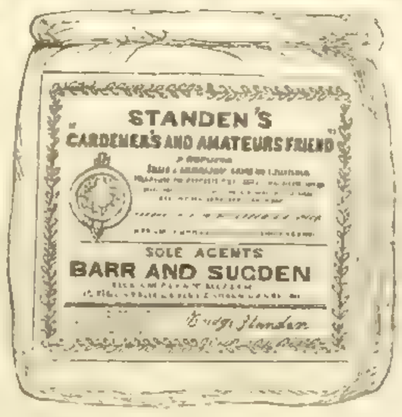

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May be had of the leading Nurserymen and Seedsmen.

Barr & Sugden, Seed and Plant Merchants, 12, King Street Covent Garden, W.C.

A List of Agents will shortly be published.

Smithfield Club Cattle Show.

STAND 94, NORTH GALLERY.

SUTTON AND SONS, SEEDSMEN TO THE QUEEN,

Respectfully inform their numerous patrons that they will have as usual a STAND in the GALLERY of the AGRICULTURAL HALL, ISLINGTON, during the Cattle Show. On their Stand will be found 250 separate and distinct kinds of GRASSES, all grown by themselves in their grounds at Reading, some exceedingly fine specimens of their selected Yellow Globe, New Yellow Intermediate, Elvetham Long Red, and Improved Long Yellow MANGELS. The celebrated CHAMPION SWEDE, and improved varieties of Yellow and White-fleshed TURNIPS, CARROTS, &c. Also a Collection of the best kinds of POTATOS in cultivation.

Attendance will be given at the Stand during the Show, and Orders received for New Seeds at very moderate prices.

Sutton & Sons, Royal Berks Seed Establishment, Reading.

Smithfield Cattle Show, 1865.

STAND 94, NORTH GALLERY.

SPECIMENS OF SUTTON'S LARGE YELLOW GLOBE MANGEL may be seen on MESSRS. SUTTON'S STAND in the AGRICULTURAL HALL during the Cattle Show,

Where Orders will be received for New Seeds at moderate prices.

Smithfield Cattle Show, 1865.

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Where Orders will be received for New Seeds at moderate prices.

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WM. CUTBUSH AND SON having purchased the entire stock of this superb ONION, beg to CAUTION their friends and the public against the gross misrepresentations of a person in the service of a London Seed Firm, who booked and received cash from a gentleman for Seed at the Guildhall, where the Onion was exhibited, the order having subsequently been executed with another variety totally distinct. No one will be able to supply it true, except our accredited Agents, whose names will be published in the *Gardeners' Chronicle.*

Highgate Nurseries, London, N.

Smithfield Club Cattle Show, 1865.

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*** SMITHFIELD SHOW.—STAND No. 50, N. GALLERY.

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MESSRS. SUTTON AND SONS, Reading, have grown our approved varieties of NEW POTATOS, and find them equal to reports from the leading Agriculturists throughout the country, and well worthy of extensive cultivation, have been appointed our AGENTS for BERKS and surrounding districts for the Sale of our Potatos.

Wm. Paterson & Son, Seed Potato Merchants and Seedling Raisers, Dundee.

Erin's Queen Dwarf Ashleaf Potato.

WAITE, BURNELL, AND CO. have the pleasure of again introducing the really true and pure stock of the Ashleaf variety which gave great satisfaction during the last season. It is very dwarf in the haulm, foliage of a dark green colour, very early, and invaluable for frames. Price 10*s.* 6*d.* per bushel

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H. AND F. SHARPE invite the attention of the Trade to the following varieties of SEED POTATOS, which they have grown from the finest selected stocks; they comprise all the sorts worthy of cultivation. The quality is excellent, being free from disease; and prices very moderate:—

Early Ash-leaved Kidney	Early Oxford
" Myatt's prolific Kidney	" Forty-fold
Webb's Imperial Kidney	Daintree's Earliest
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" Golden Globe	" British Queen
" Foxe's Seedling	Fluke Kidney
" Round Frame	Yorkshire Regent

Seed Growing Establishment, Wisbech, Cambs.

The Earliest Variety of the Ash-leaf Kidney Potato is Mona's Pride.

MR. MYATT has much pleasure in offering this first-class EARLY POTATO, the stock of which has been saved from sets kindly sent him by Mr. Routledge, of the Isle of Man. In the *Gardeners' Chronicle* of August 26, page 795, it is described by a correspondent as the Earliest and best of the Ash-leaf varieties; also at page 819, September 2, it is said by another correspondent, "All must give way to the superiority of Mona's Pride." Here, at Manor Farm, it has proved all that can be desired.

To be sent out in Peck Bags of One Stone at 5*s.*, delivered free to any Railway Station in London. The usual allowance to the Trade where not less than a sack of four bushels is ordered.

Terms cash from unknown correspondents, and no orders from such will be attended to unless accompanied by a remittance.

Manor Farm, Deptford, December 9.

DIXON'S YORKSHIRE HERO PEA is the best Dwarf Green Wrinkled Marrow in cultivation. See Testimonials in *Gardeners' Chronicle* of November 18.

Price 2*s.* per quart. Price to the Trade on application.

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To Farmers, Gardeners, and the Trade.

EXCELLENT STRONG CABBAGE PLANTS may be had in large or small quantities of the following well-known good sorts at 2*s.* 6*d.* per 1000 for cash:—Early Nonpareil, Early York, East Ham, Robinson's, Large Drumhead or Cattle.

A SPECIAL PRICE LIST of NEW SEEDS on application.

A remittance must accompany all orders.

Frederick Gee, Seed Merchant and Grower, Biggleswade, Beds.

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JOSEPH HAMILTON informs Cucumber Growers that he has grown his INVINCIBLE and BRITISH VOLUNTEER much finer than any he Exhibited in Manchester, Stockport, &c., where he obtained all the 1st Prizes but one for 14 successive years. At 2*s.* 6*d.* per Packet. May also be had of Sutton & Sons, Royal Seed Establishment, Reading; J. & C. Lee, Royal Vineyard Nursery, Hammersmith, London, W.; Fisher, Holmes, & Co., Hanover Nursery, Sheffield; G. & W. Yates, Market Place, Manchester; Little & Ballantyne, Nurserymen, Carlisle; F. & A. Dickson & Sons, Nurserymen, Chester; Austin & McAslon, Nurserymen and Seedsmen, Buchanan Street, Glasgow; Samuel Finney & Co., Gateshead Nursery, Gateshead.

Wellington Place, near Carlisle.

SURPLUS STOCK OF BULBS.

COLLECTIONS of the above for In-door Decoration, 10*s.* 6*d.*, 21*s.*, 30*s.*, 42*s.*, 63*s.*, 84*s.*, and 105*s.*

COLLECTIONS of the above for Out-door Decoration, 10*s.* 6*d.*, 21*s.*, 30*s.*, 42*s.*, 63*s.*, 84*s.*, and 105*s.*

THE GOLDEN-RAYED LILIUM AURATUM.

Fine Established Bulbs of the above, which have been in seasons in this country, 5*s.* to 7*s.* 6*d.*, 10*s.* 6*d.*, and 15*s.*

For Bedding out, Lilium hæmocifolium album, roseum, and rubrum, 6*s.*, 9*s.*, and 12*s.* per doz.

Orders amounting to 21s. sent carriage paid.

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HYACINTHS, 15*s.* to 25*s.* per 100.
TULIPS, 2*s.* 6*d.* to 10*s.* 6*d.* per 100.
CROCUS, 1*s.* to 2*s.* 6*d.* per 100.
NARCISSUS, 2*s.* 6*d.* to 7*s.* 6*d.* per 100.
RANUNCULUS, 1*s.* 6*d.* to 3*s.* 6*d.* per 100.
ANEMONES, 3*s.* 6*d.* to 5*s.* 6*d.* per 100.
IRIS, 2*s.* 6*d.* to 5*s.* 6*d.* per 100.
POLYANTHUS NARCISSUS, 10*s.* to 15*s.* per 100.

SURPLUS COLLECTIONS.

The 21s. Hamper (No. 3) of Dutch Bulbs for In-door Decoration contains—

25 Splendid Named HYACINTHS, 15 do. POLYANTHUS NARCISSUS, 50 do. TULIPS, 200 CROCUS, 2 CYCLAMEN PERSICUM, 3 JAPAN LILIES.

The 21s. Hamper (No. 4) of Dutch Bulbs for Out-door Decoration contains—

40 HYACINTHS, 150 TULIPS, 100 NARCISSUS, 300 CROCUS, 100 RANUNCULUS, 50 ANEMONES, 30 IRIS, 8 LILIES.

Clearing off Surplus Stock of the Cliveden Spring-blooming Plants.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by William Bradbury, of 13, Upper Woburn Place, in the Parish of St. Pancras, in the Co. of Middlesex, and Frederick Mullett Evans, of No. 11, Bouverie Street, in the Precinct of Whitefriars, City of London, Printers, at their Office, Lombard St., Precinct of Whitefriars, City of London, and Published by them at the Office, No. 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said Co.—Saturday, December 9, 1865.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 50.—1865.] SATURDAY, DECEMBER 16. {Price Fivepence. Stamped Edition, 6d.

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ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON.
A MEETING of the FRUIT and FLORAL COMMITTEES will be held on TUESDAY NEXT, December 19, at 11 o'clock.

INTERNATIONAL HORTICULTURAL EXHIBITION and BOTANICAL CONGRESS.
Under the Patronage of Her Majesty The Queen, and of their Royal Highnesses the Prince of Wales and the Duke of Cambridge.
The EXHIBITION and CONGRESS will OPEN on MAY 22, and continue till May 25. Subscribers' names will be received, and Schedules and Prospectuses may be obtained on application to the Secretary, at the Offices, 1, William Street, Lowndes Square, London.

Select List of Show Roses, Old and New.
Consult
JOHN KEYNES' CATALOGUE.
Salisbury.—Dec. 16.

ROSES.—A DESCRIPTIVE CATALOGUE of ROSES, by Thos. Rivers, free per post.
Nurseries, Sawbridgeworth.

NEW ROSE CATALOGUE for 1865 and 1866, also GENERAL CATALOGUE of NURSERY STOCK.
Woodlands Nursery, Maresfield, near Uckfield, Sussex.
Wm. Wood & Son will be happy to forward copies of the above on application.

Roses.
WM. PAUL (Son and Successor to the late A. Paul) begs to announce that his NEW DESCRIPTIVE CATALOGUE of ROSES is now ready, and will be forwarded on application, free by post. The stock is large and in splendid condition.
Paul's Nurseries, Waltham Cross, London, N.

Roses.—Dwarfs for Potting or Bedding.
E. F. FRANCIS and CO. have the finest Stock of the above in the country, of most of the leading kinds.
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The Nurseries, Hertford, Herts.

Now ready, 1865 and 1866.
PAUL and SON'S NEW ROSE CATALOGUE.
See Note on Forcing Roses. Post free on application.
Old Cheshunt Nurseries, N.

1865 and 1866.
JOHN FRASER begs to announce that his NEW DESCRIPTIVE CATALOGUE of PLANTS, ROSES, FRUIT TREES, &c., for the Autumn of 1865 and Spring of 1866, may be had on application.
The Lea Bridge Road Nurseries, N.E.

WANTED, Dwarf Plants of TEA-SCENTED DEVONIENSIS and VICOMTESSE DE CAZES ROSES.—Persons having the above to dispose of in large or small quantities, true to name, will state price to Wm. Wood & Son, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

To Gladiolus Growers.
SUTTON'S PRICED LIST of the best Sorts exhibited this Season is now ready, and will be forwarded post free.
Sutton & Sons, Royal Berks Seed Establishment, Reading.

NEW CHRYSANTHEMUMS, 1865, are now ready in strong Plants at 5s. per doz.
W. Holmes, Frampton Park Nursery, Hackney, N.E.

FRENCH GLADIOLI.
The Newest and most beautiful Varieties.
Barr & Sugden, Seed, Bulb, and Plant Merchants, 12, King Street, Covent Garden, W.C.

Early Spring Flowers.
WEBB'S GIANT POLYANTHUS, and GIANT COWSLIPS, and other varieties, largest stock in England.
List and prices on application to Mr. Webb, Calcot Gardens, Reading.

J. IVERY and SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

SURPLUS STOCK of IMPORTED DUTCH BULBS.
See large Advertisement, page 1196.
Barr & Sugden, Seed, Bulb, and Plant Merchants, 12, King Street, Covent Garden, W.C.

NEW RUSSIAN VIOLET, THE CZAR. Raised by F. J. Graham, Esq., and awarded two First-class Certificates. Now in BLOOM, and will last till May. The flowers attain 1¼ in., and the leaves 5½ in.
Very large Plants may be had of Mr. John Graham, Cranford, £5 per 100; 12s. per dozen, prepaid. An Allowance to the Trade.

CAMELLIAS, well set with Flower Buds, 21s. per dozen. ORANGE TREES with Fruit. A large quantity of DUTCH BULBS at greatly reduced prices.
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To the Trade.—Pampas Grass Seed.
SUTTON and SONS having succeeded in harvesting good plump SEED of the above, can supply it on advantageous terms.
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ITALIAN RYE-GRASS SEED, SWEDE TURNIPS, and FLUKE POTATOS. Offered by
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Retail and Trade prices on application.
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Butler & McCulloch, South Row, or Strand side, opposite Southampton Street, Covent Garden Market, W.C.

SUTTON'S RINGLEADER PEA (or CARTER'S FIRST CROP), the Earliest in Cultivation, as see correspondence in *Gardeners' Chronicle* of May and June last.

THE INVINCIBLE SCARLET SWEET PEA.
The Trade can still be supplied. Price on application.
Stephen Brown, Seed Grower, Sudbury, Suffolk.

ESSEX RIVAL PEA.—The above fine Pea can be supplied in quantity at 1s. per quart, or £1 per bushel.
Price to the Trade on application to
Thomas Harrison, Seed Grower and Merchant, Leicester.

To the Trade.
The EARLIEST and BEST PEA. See Advertisement, p. 1194.
R. H. POYNTER has but few of these left to offer, therefore early application is necessary.
Robt. H. Poynter, Taunton.

Several Tons of Seed Potatos, Garden Varieties.
W. P. LAIRD and SINCLAIR, Nurserymen and Seedsmen, Dundee, N.B.
Special offer of above on application.

EARLY POTATO, the LEMON KIDNEY, Earliest variety. See article in "Royal Agricultural Journal."
Apply to Author's Bailiff, J. Helm, Poulton Hall, Morecambe.
2s. 6d. per stone. Copy of Essay, 1s.

EARLY SEED POTATOS for SALE.
SHAW'S, KING'S, and MYATT'S PROLIFICS.
Apply to H. Cheverel, Borough Market, London, S.E.

Ashleaf Potatos.
TO BE SOLD, about 400 Bushels of the above.
Warranted genuine. Grown upon sand land.
Enquire of Matthew Cousins, Cawood, near Selby.

WANTED, One Ton of TRUE ASHLEAF KIDNEY SEED POTATOS (not Myatt's).
State lowest price, delivered in London.
Reply to A. B. C., *Gardeners' Chronicle* Office, W.C.

EARLY KIDNEY POTATOS.—Webb's Telegraph, first early, 20s. per bushel; Webb's President, second early, 16s. per bushel; Webb's Imperial Kidney (best Potato known for all purposes), 12s. per bushel.
Apply to Mr. Webb, Calcot Gardens, Reading.

Hague House, Isle of Man.
MONA'S PRIDES, the Earliest and best POTATO in cultivation.
Introduced, grown, and sold by Mr. R. W. O. Rutledge,
To whom Orders addressed as above will be attended to.

ASPARAGUS and SEA KALE for Forcing.—A few Thousands of the above to be had of J. Cooper, Balfour Cottage, Fulham Fields, S.W. Also 1, 2, and 3 years old ASPARAGUS.

To the Trade.
BALLANTYNE and SON are now booking orders for MUSSELBURGH LEEK, True, grown expressly for their own retail trade. Early orders are respectfully solicited. Price on application. Nursery and Seed Establishment, Dalkeith, N.B.

THE GREAT NURSERIES of CORDIER, at Bernay (Eure), France.
More than 100,000,000 FOREST TREES for Plantations.
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SURPLUS STOCK.
About 100 fine thick ARBOR-VITÆ, 5 to 6 feet.
About 100 IRISH YEW, 5 to 6 feet.
About 300 very strong SWEET BRIAR, 5 feet, in pots.
Charles Southby, Nurseryman, Clapham, S.

ONE HUNDRED THOUSAND strong Transplanted QUICKS, at 10s., 15s., 20s., and 25s. per 1000.
Also strong LARCH FIRS, from 3½ to 5 feet.
Samples of 500 sent on application. Address,
W. Wood & Son, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

Grape Vines.
S. GLENDINNING and SONS have a splendid lot of extra fine Fruiting Canes.
PRICED LIST may be had on application.
Chiswick Nursery, London, W.

Fruiting Vines.
E. G. HENDERSON and SON offer the above, with splendid Canes of well-matured growth, with plump eyes, sure to give a heavy crop of fruit, 10s. 6d. each.
LIST of SORTS sent on application.
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WM. CUTBUSH and SON have a fine stock of the above. CATALOGUE free on application.
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VINES, from Eyes.—Now ready, a DESCRIPTIVE CATALOGUE of GRAPES, by Thos. Rivers, free per post.
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HAMPTON COURT BLACK HAMBURGH VINE.—Strong plants from Eyes of this excellent Grape, 5s. each; 50s. per dozen.
T. Jackson & Son, Nursery, Kingston, S.W.

To the Trade.
FINE DWARF-TRAINED PEACHES and NECTARINES.
FRANCIS and ARTHUR DICKSON and SONS can supply the above in fine, clean, healthy Trees.
Prices moderate, which will be forwarded on application.
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To the Trade.
RASPBERRIES.
CARTER'S PROLIFIC, 15,000 to 20,000. Can be had of Richard Chatfield, Market Gardener, Seven Oaks, Kent.
4 to 6 ft., £4 per 1000; 3 to 4 ft., £3; under 3 ft., £2.

RASPBERRIES.—The Small Prolific Red, the best known for preserving, any quantity, at 2s. 6d. per 1000. Also BEECH and SCOTCH FIR TREES, from 4 to 12 feet high. Apply to Mr. James Hopkins, Salperton, Andoversford, Gloucestershire.

HEAVY LANCASHIRE SHOW GOOSEBERRY TREES, 6s. per dozen. CATALOGUES on application.
Holland & Jones, Bradshaw Gardens, Chadderton, near Manchester.

GOOSEBERRY and CURRANTS.—Fine 2 and 3-years old plants, in 200 varieties, 8s. per 100.
GLADIOLUS BRENCHLEYENSIS, 1[illegible] per 100.
Large YELLOW DUTCH CROCUS, 1s. per 1000.
GIANT ASPARAGUS, 2 years, 12s. 6d.; 3 years, 1[illegible] per 1000.
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WEBB'S PRIZE COB FILBERTS, and other Prize Nuts and Filberts. Trees of these splendid Nuts to be had of Mr. Webb, Calcot Gardens, Reading. Catalogues on application.

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S. GLENDINNING and SONS invite attention to their superb stock of healthy well-grown FRUIT TREES.
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Forest Trees, Ornamental Trees, and Shrubs.
PETER LAWSON and SON'S CATALOGUE for the current Season is now ready, and will be forwarded, free, on application. Edinburgh and London.

Seedling and Transplanted Forest Trees, &c.
W. P. LAIRD and SINCLAIR, Nurserymen, Dundee, N.B.
Special quotations to the Trade on application.

Larch and Scotch Fir.
W. WITTY and SON have to offer 200,000 LARCH, from 2 to 2½ feet, stiff and well-rooted; and 50,000 SCOTCH FIR, from 12 to 18 inches; all healthy and well grown.
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MITCHELL and YOUNG, Brechin, N. B., beg to offer to the Trade 150,000 LARCH, 1½ to 3 feet, and 100,000 SCOTCH FIR, 9 to 12 inches, all healthy and well grown.
Samples and prices on application.

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FINE TRANSPLANTED LARCH, and other Nursery Stock. PRICED LIST now ready.
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Please state quantity and price to
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WANTED, ENGLISH OAK and PINUS LARICIO Stout transplanted.
Particulars to James Dickson & Sons, Newton Nurseries, Chester.

WANTED, Young healthy well-rooted Plants of the COMMON ELDER, also fine PYRAMID TREES of the True WYKEN PIPPIN APPLE.
Address, with price, to Wm. Wood & Son, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

ENGLISH ACORNS, SPANISH and HORSE CHESTNUT SEED, &c., to be had of
G. F. Scotchmer, Sible Hedingham, Essex.

To Nurserymen.
NINE BUSHELS of EVERGREEN OAK ACORNS.
Offers received for the Parcel.
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LARGE ENGLISH and IRISH YEWS.
Handsome single-stemmed ENGLISH and IRISH YEWS, 7, 8, and 9 feet high. Price according to size and number required on application to
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Winter-flowering Heaths.
JOHN FRASER, Lea Bridge Road Nurseries, N.E., begs to offer fine plants of ERICA HYEMALIS, and other Winter-flowering sorts, now coming into full bloom. The prices will be given on application. A reference or remittance respectfully requested from unknown correspondents.

INTERNATIONAL HORTICULTURAL EXHIBITION AND BOTANICAL CONGRESS.

TO BE HELD IN LONDON IN MAY, 1866.

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PATRON.
HIS ROYAL HIGHNESS THE PRINCE OF WALES.

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The following Resolutions form the basis of the Scheme :—

1. That there shall take place in London, in 1866 (in the Garden of the Royal Horticultural Society, at South Kensington), a Grand International Horticultural Exhibition and Congress, to be open four days, from May 22 to May 25, and to which the leading Botanists and Horticulturists throughout Europe shall be invited.

2. That Two Morning Meetings (of the nature of a Congress) shall be held, at which Papers prepared by leading Botanists or Horticulturists shall be read, the Papers to be previously printed in English and French, or German, and circulated, and discussion thereon invited.

3. That there shall be Two Conversazioni, at which Foreigners invited to assist at the Exhibition and Congress shall have the opportunity of meeting with our own leading Horticulturists, Botanists, Exhibitors, &c.

4. That there shall be a Banquet, to which leading Foreign Visitors shall be invited as guests, and to which also Ladies subscribing will be admitted. Tickets 3 Guineas each.

5. That the Committee will endeavour to arrange that the most easily-accessible English Gardens, in which some feature of British Gardening—such as "Forcing," "Decorative Gardening," &c.—is well illustrated, shall be open to Foreign Visitors.

6. That a Subscription List be opened for the purpose of obtaining the Fu[illegible] necessary to the formation of a liberal Prize List (the Prizes offered amount to £2500), the erection or part erection of the necessary Exhibition Building[illegible] entertainment of Foreign Visitors, and for the working expenses of the Exhibi[illegible] and Congress; and that a Guarantee Fund be also entered on.

7. That Gentlemen subscribing TEN GUINEAS shall be entitled to one Din[illegible] Ticket of the value of £3 3*s.*; to one Card of invitation to each of the Soi[illegible] available for one Gentleman and two Ladies; and to Eight Tickets of admiss[illegible] the opening of the Horticultural Show, when the admission by payment wi[illegible] One Guinea each person. Subscribers of FIVE GUINEAS, or Guarantors of £50, [illegible] receive one Card of invitation for each Soirée, available for one Gentlemen [illegible] two Ladies, and Four Tickets for the opening of the Horticultural Show. Subs[illegible] and Guarantors of smaller amounts will receive in proportion.

8. Subscribers' Tickets may, if desired, be commuted, so as to be available i[illegible] Banquet, three of the before-mentioned Tickets for the opening of the Exhi[illegible] being exchangeable for one Dinner Ticket, provided that notice of such wi[illegible] exchange them is given before the 31st of March, 1866. Subscribers' Tickets [illegible] used on the opening day will admit on any subsequent day, in the manner [illegible] stated thereon.

Gentlemen willing to lend their support to this undertaking will perhaps be kind enough to communicate at once with the Secretaries.

A SECOND LIST of SUPPORTERS will be published shortly.

COMMITTEE ROOMS—ROYAL HORTICULTURAL GARDENS, SOUTH KENSINGTON, W.
OFFICES—1, WILLIAM STREET, LOWNDES SQUARE, LONDON, S.W.

Fellows of the Society, who have benefited so much by the beautiful plants sent home by their late Collector, will not be unwilling to subscribe to provide for one who has lost his health in their service." We believe Mr. WEIR's recovery is hopeless, and that this is a case which may be recommended with confidence to the sympathies of the charitable. During his brief career as a collector, Mr. WEIR has introduced many beautiful plants for the decoration of our gardens.

— We are glad to learn that the ROYAL CALEDONIAN HORTICULTURAL SOCIETY, which some time since was languishing for lack of support, has now strengthened its hands by amalgamating with the younger more vigorous and successful Edinburgh Horticultural Society. On the 6th inst. a special meeting of the Caledonian Society was held, "to receive a report from the Council of the arrangements which have been concluded with the Commissioners of Woods and Forests in regard to the sale and transference of the Experimental Garden to the Board of Works; and also to consider a proposal for the admission of the members of the Edinburgh Horticultural Society." A resolution confirming and adopting the former proposition was agreed to. The Experimental Garden will in consequence become part of the Royal Botanic Garden, and is to be converted into an arboretum. The proposal for the amalgamation of the two Societies was also agreed to; and at the general meeting held on the following day, a Council selected from the two bodies respectively, and under the presidency of the Duke of BUCCLEUCH, was elected. With this accession of practical strength, we hope to see the Caledonian Society more prosperous in the future than it has been in the past; and we must add that every well-wisher to the cause of Horticulture would, with us, be glad to see the London Society winning and receiving the general support of practical men, in like manner.

— We hear with much pleasure that His Royal Highness the PRINCE OF WALES has consented to become the President of the Gardeners' Royal Benevolent Institution, in the room of the late Duke of NORTHUMBERLAND, and has presented the Institution with a donation of 25 guineas. We also learn that Sir C. WENTWORTH DILKE, Bart., M.P., will take the chair at the anniversary dinner to be held in the ensuing summer, when we trust the funds of the Institution will be abundantly replenished.

CLIMATE IN SCOTLAND.

In your leading article of Saturday, November 23, I notice some rather erroneous representations in a quoted statement regarding the Scottish climate. You mention, "It has been said, perhaps with too much acerbity, that north of the Humber one never meets with an Apple, grown on a standard, that is worth eating," and without, perhaps, fully agreeing with this sweeping detraction, you afterwards add, in relation to the above and other assertions, "that it is what might have been expected, for 4½ degrees of latitude must make a vast difference in climate." In reply to this, though it may appear rather egotistical, I must refer to my experience of 70 years' acquaintance with orchard fruits. I cultivate fruit extensively in Perthshire, about 56° 35′ north lat. I have managed orchards for 58 years; have planted orchards—many thousand Apple and Pear trees in Scotland, Germany, and a small one in Spain; have paid special attention to those fruits in different countries, and I must say that I have had Apples, and even certain Pears, grown in the Carse of Gowrie and on Gourdiehill, of the following kinds, equal in quality, beauty, and production to any fruit I have seen:—the Gourdiehill Lemon, the King, the Queen, the Sovereign, the Kerry Pippin, the Plum Apple, the Violet, the Peach or Pine Apple, the Margil, the Winter Strawberry or Cam'nethan Pippin, the Green Fulwood or Irish Green, the Pearmain or Summer Nonpareil, the Gravenstein, the Orange Blenheim, and last, though not least, the Lady Johnstone (named after a progenitor of my family), which I have measured 15 inches round, of the same form but much larger than the Newtown Pippin of New York. Also of Pears, I never ate better than the best variety of the Galston Muirfowl Egg, a melting Pear, which combines the acid with the sweet; the Crawford Pear, matured to a red cheek; and the Beurré d'Aremberg, all grown upon Gourdiehill.

In 1827 I forwarded specimens of my fruit, all from standard trees, to the London Horticultural Society, and also to the Caledonian Horticultural Society, and received a medal from both. Is this a proof that the climate north of the Humber cannot produce an Apple from standard trees worth eating? It is not the Carse of Gowrie only that is famed for fruit, and was still more famed at a former period, when the climate was warmer. More than a degree farther north, on the shore of the Murray Firth, the climate is also favourable for fruit, and at the same time highly salubrious, and productive of grain of fine quality; and the purity of the air seems to benefit alike the vegetable and animal kingdoms. I have sent off cargoes of Wheat from that district to London, not surpassed at Mark Lane in plumpness of grain, smoothness of skin, and fineness of colour, though not quite so sharp-ended as that of Essex and Kent. I have also found Oats at Thurso, grown within sight of the Orkneys, superior in plumpness to any I have observed elsewhere. The largest, finest, and most productive Jargonelle Pear tree I have seen was on a garden wall at Banff, covering the whole extent of the north high wall of a large garden, the garden being an ancient sand bank from which the sea had receded. A remarkable difference of climate exists between that portion of Scotland north of the Grampian range and that to the southward. In the portion northward there is less putrid effluvium in the atmosphere, and less developed electricity. I have not had opportunity to observe the condition as to ozone. On the shore of the Murray Firth it is said that beef or other flesh will keep double the length of time fresh, that is, free from putrid taint, under the same temperature, that it will do southward of the Grampians. On this northern coast there is less leaven of putrescency in the air to act as a commencing germ, and not so much developed electricity as to interfere to loosen the chemico-vital attractions in living organisms, or even on dead organic matter, as in lower latitudes. This indisposition to putrefaction pervades the whole of high northern latitudes. A fresh leg of mutton hung at the stern of a whaler for six months has been found free from taint and good; while a few hours at Sierra Leone, where so much electricity is developed, would have rendered it a mass of corruption. The living organism is to a considerable extent similarly affected. For dyspeptic patients, a high latitude is the most effectual cure; and even for consumptive patients, a summer residence in the north of Scotland will be found more advantageous than in Madeira, where solvent electricity abounds, and where the atmosphere is too thin, too unsubstantial, to supply the necessary oxygen where only a portion of the lungs remains in working order. The heat and solvent electricity only hasten the progress of the disease.

Harvest is generally begun in Morayshire the first of any part of the island north of Hull and Liverpool; East Lothian, and the Carses of Gowrie and of Falkirk follow. The climate of East Lothian and the north of Morayshire is modified by having sea to the northward, higher ground to the south-west, having in consequence less rain, and also being mostly dry-bottom, there is less evaporation to produce cold and cloud—hence under the long northern day of sunshine the progress of vegetation is more rapid, causing early harvest; the Carses of Gowrie and Falkirk both being walled in like a garden, especially to the northward, by ranges of trap hills, speedily follow. These Carses—mud deltas of the Tay and Forth, now elevated about 20 feet above high water and dried—are the favourite soil of the Apple and Pear tree, which continue their productiveness for centuries, the subsoil abounding in their nutriment, and consumption never appearing—a disease so common in other soils when the fruit essentials become exhausted. I have found in the Carse soil Pear-tree roots of considerable size 6 feet deep. A Pear tree on this soil, cultivated by a nephew of the writer, is still productive, though many centuries old. It is about 5 feet in diameter of stem 6 feet up from the ground, and has produced more than 2 tons of fruit in a season. Numbers of other large trees, centuries old and productive, exist in the Carse of Gowrie. Do the valleys of the Thames, the Severn, or the Humber produce many such? It is true the climate of Scotland as well as of the north of Europe, and extending southward even to the Spanish shores of the Bay of Biscay, has been slowly becoming colder for a number of centuries, of which there are many indications, and a time may arrive when neither Scotland nor England can produce an Apple worth eating. But I see no reason to convert a future contingency into a present fact. The cause or purpose of this variation in temperature, this cooling, and the probability of a turning point, is beyond our present science, perhaps may continue beyond our power to compass or influence. At present we have Scottish science, so especially directed to natural history and to vegetable production, to contend against and so far compensate for decrease of temperature. Had the writer of this disparaging article of the fruit grown north of the Humber visited Gourdiehill orchard two months ago, he might perhaps have seen cause to promulgate a different doctrine. At present I can only refer him to the vendors of fruit in Edinburgh, Dundee, Arbroath, and Aberdeen, for the accuracy of his statements. *Patrick Matthew, Gourdiehill.*

[We thank Mr. Matthew for his correction. The remark to which he takes exception, viz., that north of the Humber one never meets with an Apple grown on a standard that is worth the eating, was professedly given as not our own, and was only partially endorsed by us. It is clearly a matter of opinion whether an Apple is worth eating. The remark was a general one, and it may be true in the main, though it may admit of exceptions. Possibly Gourdiehill is one of these. We beg our readers to remember that the climate of Britain, if it is to be taken as extending from Land's End to John O'Groat's, is an extremely complex subject, involving many peculiarities, which obviously cannot be detailed in one article of moderate dimensions. As a Scotchman, Mr. Matthew probably knows the two sets of people, who according to the proverb, should not see things half done. We have still a great deal to say on this matter, and we shall rejoice if our remarks attract attention to it, even at the expense of incurring contradiction. By all means let those who are wiser, or better informed than we, say their say. We are far from wishing unjustly to depreciate the climate of Scotland or aught else connected with that country. We may add that in the above communication, Mr. Matthew expresses more than one opinion to which we are not prepared unreservedly to assent.]

NEW PEARS.

WE have received the following communication from M. de Jonghe, of Brussels, in reference to the origin of the new Pears figured by us in outline at p. 1060 of our present Volume:—

The *Conseiller à la Cour* is one of the late Van Mons' seedlings, and was procured by him in 1831. A few years after it was dedicated by its originator to his son Theodore, at that time "Conseiller à la Cour d'Appel," of Brussels. After the death of Van Mons, in September 1844, the trees of the Louvain nursery were transported (in 1845) to Geest St. Remy, near Jodoigne, at which place the original seedling bore fruit in 1848–49; and the then possessor of the variety, M. Bivort, gave it the name of Duc d'Orléans, in ignorance, no doubt, of its first denomination.

This Pear, then, has three different names: 1st, that of Maréchal de la Cour, creating confusion with the variety dedicated by Van Mons to M. Dillen, "Maréchal de la Cour" of the King of Wurtemburg; 2dly, that of Duc d'Orléans, given by M. Bivort to an already named sort, whose label had probably been lost in the transport from Louvain to Geest St. Remy; the third name is that which is sanctioned by the law of priority and is also the most widely known, viz., Conseiller à la Cour. This variety is in truth very robust and hardy: too much so indeed on the Quince. In my opinion it should be grown on a free stock and planted out in the orchard.

Marie Louise d'Uccle is a seedling of the late M. Gambier, a contemporary of Van Mons, who died quite recently at his country seat of Rhode St. Genèse, a village two leagues from Brussels. Here the plant produced its first fruits in 1846 and 1847. Transplanted in 1848 into the garden of another residence at Uccle belonging to the same proprietor, the seedling again bore fruit in abundance in 1850. When I saw it in 1851 the tree seemed to be planted in a poor and compact soil, and the fruits were not half the size of that represented in the *Gardeners' Chronicle* (l. c., p. 1060). It was at that time difficult to judge concerning the growth of the tree, or the form and flavour of the fruit. The possessor told us that in his garden at Rhode, the tree was more vigorous and the fruits finer, so much resembling Van Mons' Marie Louise that he called it Marie Louise d'Uccle. On remarking to M. Gambier that this name would introduce additional confusion into the nomenclature of Pears, he remarked, "I know it: there is one Marie Louise obtained by M. l'Abbé Duquenne of Mons, another by Van Mons of Brussels, and a third Marie Louise by Delecourt of Cuesmes, a village near Mons. Nevertheless, I cannot now alter the name, having distributed several grafts to amateurs under that denomination. Besides (added he), this variety will long remain under this name, because it succeeds wonderfully well on the Quince, while the other varieties do not." The surmises of M. Gambier have turned out to be correct.

We owe also to M. Gambier the Abricot Pêche fondant, the Vieux Calvil Apple, and two other good Pears, viz., Beurré de Jonghe and Bergamotte Pendula.

In 1857 M. Gambier, stricken in years, and a great sufferer, returned to Rhode, where, on account of his ill health, he only received a limited number of friends. He continued, however, to the end of his days, to sow the seeds of his best fruits; and on one of my visits to his garden I noticed a certain number of Peaches, of Nectarines, of Plums, and Pears, which seemed sufficiently deserving to be named, and to take place among the other choice varieties. *J. de Jonghe.*

COPAL RESIN.

To clear up any of the doubts which exist as to the true source or rather sources of this resin, would be to solve one of the many problems in economic botany. The term Copal, as is well known, is applied in commerce to most clear resins capable of producing a colourless varnish, for instance, East Indian Copal or Piney Varnish is produced by Vateria indica, L., a tree of the natural order Dipterocarpaceæ, while the African copals are undoubtedly the produce of Leguminous trees. The source of gum Anime is another of these economic puzzles. One of the differences between these two resins—copal and anime— is that the former is mostly very clear and almost colourless, while the latter is always of a brownish tint. Both resins are sometimes rough on the surface, caused by the action of sand while the resin is in a soft state. The trees grow in the neighbourhood of the seashore, and the resin exuding trickles down and buries itself in the sand beneath. This roughened surface, called at Zanzibar "goose-skin," is, of course, found only on the resin which has been buried, but the distinguishing characters of the resins themselves are so well known as hardly to need mention; what we are chiefly concerned about is to know how many distinct plants furnish the Copal of commerce.

Lieut.-Col. Playfair, H. M. Consul at Zanzibar, has recently transmitted to the Kew Museum, in answer to a request of the late Sir W. J. Hooker, some fine specimens of the bark of a tree with the resin *in situ*, together with fruits of the same plant, and various specimens of collected resin. On the bark the resin is

thickly formed in large irregular masses; the external appearance is of a dusky grey, but its fracture is of a clear light shining yellow. The tree yielding this resin, Col. Playfair thinks, is the true Copal of the mainland of Zanzibar; this is an announcement of some importance, in support of which we anxiously look for further confirmation. Believing, however, the fruits to be what Col. Playfair sends them for, viz., the fruits of the Zanzibar Copal tree, there seems little doubt, on comparing them with specimens in the Kew Herbarium, that they belong to Hymenæa mossambicensis, Kl. Col. Playfair says in his report to the Foreign Office, in reply to Earl Russell's inquiries respecting the supply of resin, that the value of copal exported from Zanzibar amounted during the year 1863-64 to 163,353 dollars, the average price being about six pounds for one Austrian dollar. These sums were made up as follows:—

	Dollars.
United Kingdom	30,030
British India	50,044
Kertch	500
United States	5,000
Hamburgh	30,000
Italy	2,339
Total	163,353

If, therefore, a revenue like this is derived from the resin of this particular plant in Zanzibar, it would be well if Madagascar, where the plant likewise grows, could open up a similar traffic in the same commodity.

Captain Burton says of the Zanzibar Copal tree, that out of its trunk "canoes have been formed 60 feet long, and that a single tree has sufficed for the keelson of a brig; the average size, however, is about half that height, with from 5 to 6 feet girth near the ground." The trunk "is dotted with exudations of raw gum, which is found scattered in bits about the base." The resin is also found in a semi-fossil state, sometimes in places overflowed by the high tides, or when sinking piles for huts, &c.

Captain Burton further says that "the East African seaboard from Ras Gomani in S. lat. 3°, to Ras Delgado, in 10° 41′, with a medium depth of 30 miles, may be called the Copal Coast."

At Zanzibar the resin is sifted and cleansed from impurities before it finds its way into the hands of the foreign merchants; after this it is again cleansed by washing in chemical solutions of various degrees of strength, care being taken to thoroughly purify, but at the same time not to injure, the so-called "goose-skin," or the impress of the sand.

All parts of the plants of the copal-yielding species of Hymenæa are highly charged with resin, and in none is it more apparent than in the fruits of the species sent home by Colonel Playfair. The little warts or verrucosities upon the surface of these pods are lumps of clear, colourless resin, simply covered with the thin epidermis or cuticle of the pod. To such an extent are these pods charged with resin that they burn freely upon the least approach of flame. The same property is observable in the pods of the South American species Hymenæa Courbaril, from the trunk of which exudes very large quantities of resin, but this pod being larger and more ligneous, and the resin distributed in small ducts all over the surface without penetrating the substance of the pod, does not burn so readily, nor is the quantity of resin so large. The outside of these pods much resembles in appearance the sand-fretted surface of the resin. *J.*

Home Correspondence.

Iresine Herbstii (*Achyranthes Verschaffeltii*).—As some of your correspondents have very emphatically pronounced in favour of this plant, it is but right to give publicity to the opposite opinion, which I am convinced is the general one. I will begin by saying that some who praise it did so before it was even tried in the open air in England, and by quoting a few words from that distinguished American, Mr. Hosea Biglow, who says, "It ain't Nater for a feller to let on that he 's sick o' any bizness that He went intu off his own free will and a Cord." Those who admire the plant as a bedder think that it will be much better during a wet season. According to this it should have been better during the past summer in Scotland, in the west, and in Ireland—in the moister places, in fact, than about London; but the reverse was the case. The *Irish Farmers' Gazette* has pronounced the plant "a sell;" its colour when I visited Liverpool and Sheffield in September was so indescribably ugly, that to say it resembled a badly shanked bunch of Grapes would be to pay it a high compliment. Even those who admire it confess that it was unsightly till the end of August. This is too true, And what are we to think of a bedding plant that in its best state only begins to look well at the end of August? I am fully aware that at Kew and several other places about London it was beautiful late in the autumn, but I am equally aware that the past autumn has been the most brilliant within the memory of man, and to this may be attributed the well-doing of the plant in many places late in the season. It should be noted also that specimens in the hand may look well, while their effect a little way off may be wretched, from a habit the plant has of turning up the edges of its leaves. It must, too, be patent to every one that a plant which does well at Kew, and badly at Battersea, must have a curious captiousness about it that is anything but a good feature in a bedding plant which people have to depend upon to produce a certain effect. I have had letters about it from some of the most successful bedders in the country, and hardly one in favour of it. Mr. Thomson, of Archerfield, has had some planted "in a very favourable situation, and they looked most unsightly throughout the season." I need not tell what Mr. Gibson thinks of it. Mr. Anderson does not think it would have any chance in an ordinary season as a flower garden plant. Mr. Fleming has not yet perceived its beauties, though with a large opportunity of doing so. The Coleus and Amaranthus are in beauty six weeks or more before the Iresine becomes in the least attractive; it is most uncertain in its effects even under the best management, and therefore I would advise your readers who have not already tried it, to do so on a small scale at first. I am perfectly aware of the effect it gave in some gardens very late, and in consequence of the bright and delightful weather, but none the less do I think that the fact of its having disappointed and even disgusted the majority of those who tried it should be as fully known as that it has given satisfaction to a few, particularly in the "shade." If it would grow in the colder parts of the country, where Coleus and even Amaranthus cannot be grown well, it would be a boon; but this I am pretty sure it will not do. Amaranthus is the best plant for the cold soils and districts. *W. Robinson.*

Granadilla Fruit.—If Mr. Vair, after eating one of his Granadillas, were to sow the seeds, the produce would be a plant of much hardier habit and probably still eatable, supposing that the pollen parent was cœrulea, and that fertilisation had taken place by the agency of that pollen. On the other hand, certain hybrid Passifloras have been found to be barren, or nearly so. A cross between the tender large-fruited sorts, such as laurifolia and quadrangularis, and the hardier edulis, which fruits profusely without artificial impregnation, would be very desirable. *R. T. C.*

Lime Trees.—I shall be grateful for any information which any of your correspondents will kindly give me as to the relative rapidity of growth and quality of the timber of the two varieties (or is Sir James E. Smith right in considering them distinct species?), Tilia europæa, and T. europæa grandifolia? Selby, in his "Forest Trees," gives not much information about the latter; and Brown, in his "Forester," does not even mention its existence. I also would know whether I can propagate, and the best way of doing so, from four trees of about 16 inches diameter in the trunk, which are all that I have of this variety, or that I know of for miles round. I may remark that this year, on the 8th November, these trees were almost in full foliage, whilst some trees of the common species were almost completely stripped of leaf. *Diss.*

Paterson's Seedling Potatos.—In a late Number (see p. 1107) there is a long report of the presentation of a testimonial to Mr. Paterson, the raiser of some new varieties of Potato. According to some of the speakers at that meeting, Mr. Paterson is entitled to the thanks of the nation at least, if not indeed to something of more substantial value, but unless his new Potatos have proved infinitely better in other places than some of them have here, the glorification accorded to that gentleman as the raiser of them rests upon a very shaky foundation. Tempted by the numerous testimonials in favour of Mr. P.'s seedlings, I was induced to try the following varieties in the garden here—Blue Round, Blue Kidney, Victoria, and Seedling Rock. These were planted in the ordinary way by the side of other older varieties, and treated in the same manner. The haulm grew so luxuriantly that I anticipated a heavy crop, but the blight (which has been more virulent here this season than for several years past) destroyed the foliage before the tubers had completed their growth, which of course materially lessened the yield. The disease also affected the tubers in quite as great a degree as in any of the older sorts; therefore immunity from blight cannot be claimed for either of those four varieties. Then, as to quality and productiveness:—Paterson's Blue Round is a large late Potato, belonging to the same class as the Lancashire Red, Phillips's Red, or Stafford Hall, well-known old sorts, which, being late, have been nearly or quite driven out of cultivation by the prevalent disease. There is, however, a Potato of this class now known in the London markets by the name of Jersey Blue, which Paterson's Blue so closely resembles, that if the two sorts were thrown together, I question whether Mr. Paterson himself could separate them. In growth and foliage they are also similar, and being both of good quality the new variety possesses no advantage whatever over the old one; therefore it is no acquisition. Paterson's Blue Kidney is quite distinct in appearance from any sort known to me. The tubers are long and narrow, and therefore deficient in substance, and it yielded the smallest crop of all the four varieties. The Victoria is one of those irregular-shaped Potatos which cut much to waste in paring. Its quality is good, but in what respect is it superior to the Dalmahoy? With me the crop was not so heavy, and it is certainly not better for the table than the Dalmahoy in the proper season of the latter, which is up to the end of January. As to the Seedling Rock, I could not discern any difference between it and the White Rock obtained from Ireland. The same four varieties of Mr. Paterson's Potatos were also grown by Mr. Ivery, Nurseryman, Dorking, who, I venture to say, will corroborate my assertion, that in no one property is either of them better than many of our well-known sorts which have been in general cultivation for years past. *J. B. Whitelegg, The Deepdene Garden, Dorking.*

Stoneless Berberries.—In the hope that from the information so kindly given by your correspondent I may achieve the possession of a tree or trees of them, I would ask to be favoured with some receipts for cooking, preserving, and otherwise using the fruit. *Dens.*

Iris susiana and Fritillaria kamtschatkense (*Lilium nigrum*).—Can any of your readers tell me how to grow and flower these plants well and freely? Of course they may be kept alive, and perhaps occasionally flowered with general treatment, but one would like to see them do as well as commoner kinds of the same genera. *W. R.*

Pears.—Your correspondent "Amnes" (see p. 1156) has given a list of the best late Pears in the months of Oct., Nov., and December, but unaccountably he has omitted one of the very best, namely, Winter Nelis. This variety with me this year is now excellent, and from growing it on south-east and west walls, I manage to have a succession of it till after Christmas. Those from a south wall this year are the largest I have ever grown, quite equal in size to any I ever saw imported, and of the most delicious flavour. In "Amnes'" list of late Pears, which is an excellent one, the following varieties have fruited with me in pots, and were very large and of fine flavour, viz.:—Marie Louise, Louise Bonne of Jersey, Beurré Hardy, Conseiller à la Cour, Doyenné de Comice, Josephine de Malines, and Hoyenne Victoria. I fully believe with "Amnes" that the system of growing fruit trees in pots will yet lead to great advances in raising new varieties of fruits by careful hybridisation. The trees being always under the eye of the operator and portable, he can secure perfect success in keeping off insects, and procuring pollen at the proper time. *William Tillery.*

Raspberries.—Having seen (p. 1109) the Raspberry called Belle de Fontenay recommended as a valuable autumn variety, I beg to say that we have this day (December 8) gathered a good dish of a kind known here as Rivers' Autumn Red. Although the weather has been very wet for the last three weeks, and before that time we had a few nights of frost varying from 5° to 7°, the fruit is not at all of a bad flavour; it is of fair average size, and good in colour. This is, in short, the best late kind with which I am acquainted. *J. Moore, Gardener, Mountainstown, Navan, Ireland.*

Double-Glazing.—I have virtually used this plan of glazing for years upon a house in which are kept a few Orchids, and where I desired to prevent drip, by putting a second light on when needed. *N., Broadlands, near Newport, Isle of Wight.*

Solanum Capsicastrum.—Having seen this popular decorative plant in an unusually beautiful and perfect state at Bicton recently, a few words as to the way it is treated there may be of use to your readers. It is often seen a somewhat erect and even naked-sided little bush, and now and then "spidery" and poor, but even with neat cultivators I have not seen it anything like so good and pretty as with Mr. Barnes, whose plants, while perfect in shape, hang down so freely as almost to obscure the pot, and are densely covered with berries. Yet they are grown in the simplest possible way. They are struck from cuttings, and in the first place turned out in the open garden in early summer; they grow and flower away without any attention during the summer, and by the time they are wanted for the houses in the autumn they are little hillocks of bright berries and dense foliage. They are then dug up and potted. Plants grown in frames or houses you would scarcely recognise as the same. Nothing could be more useful for the winter embellishment of the conservatory than the plants grown in this way, except, perhaps, the Tree Carnations, which are beautifully managed at Bicton—but of these more anon. *W. Robinson.*

Societies.

Royal Horticultural: *Dec.* 9 to 16 (*International Show of Fruits and Vegetables*).—This exhibition, which after being open for a week will close this evening, is one of extreme interest, owing to the large amount of foreign fruits, of which it in a great measure consists. Denmark is well represented, as are also Nova Scotia, Malta, and even India.

Of the British portion, the most striking features are the magnificent collections of continental and English fruit shown by Mr. Lewis Solomon and Messrs. Webber & Co., of Covent Garden. Mr. Solomon has wonderful Shaddocks, Oranges of several kinds, magnificent Pomegranates, Prickly Pears, very fine Medlars, Uvedale's St. Germain Pears, each weighing not less than 2½ lb.; Admirable, Glou Morceau, Chaumontel, Easter Beurré, and Duchesse d'Angoulême Pears; while of Apples he has Ribstons of wonderful size and beauty; Reine d'Angleterre, a fine-looking French variety; very large examples of Reinette du Canada, White Calville, and pretty-looking fruit of the little Lady Apple, or Pomme d'Api of the French. The same collection also contains Pine-apples and Grapes, Bananas, Truffles, bundles of green and white Asparagus, Green Peas, Seakale, Kidney Beans, large and fine Cardoons, Lettuces, and Artichokes. For these Mr. Solomon has received two medals, viz., a First Gold Knightian, and a First Gold Banksian. From

Messrs. Webber also come wonderful Pears, especially Uvedale's St. Germain, eight of which weigh between [illegible] lb., and 12 grown in Bedfordshire, 22½ lb. The same exhibitors have likewise magnificent specimens of Easter Beurré, Joséphine de Malines, Cadillac, and Passe Colmar. Of Apples they furnish beautiful examples of Golden Noble, Reinette du Canada, Striped Beefing, a showy and excellent kitchen fruit; White Calville, Pomme d'Api, and Gloria Mundi. Grapes consist of Muscats and Black Hamburghs; and Pines of Cayenne and Black Jamaica. The collection moreover contains Scarlet Gem Melons, Tangierine Oranges, Prickly Pears, Pomegranates, Shaddocks, Litchees, fruit of a Solanum from St. Michael's, Sapucaia Nuts from Mexico, Cob, Monkey, Hickory, and Pistachia Nuts. Many of the specimens of Easter Beurré in this collection measure as much as 13½ inches in circumference and 4½ inches in height.

The Gold Medal of the Society, offered for the best collection of fruit and vegetables produced in the garden of a Sovereign, was won by Mr. Ingram, Royal Gardens, Frogmore, who contributes an admirable collection. It consists of six very finely ripened Smooth-leaved Cayenne Pines, weighing about 7 lb. each; Black Hamburgh Grapes in excellent condition, from the large Vine at Cumberland Lodge; a seedling late Black Grape, West's St. Peter's, Alicante, and Muscats; excellent dishes of Apples, among which we remarked beautifully coloured fruit of Scarlet Nonpareil, Cox's Orange Pippin, and Court Pendu Plat; also Dutch Mignonne, King of the Pippins, a yellow seedling called Nugget, Wellington or Dumelow's Seedling, Blenheim, Old Nonpareil, Rosemary Russet, Cockle Pippin, and Downton Nonpareil. Pears consist of Prince Albert, an excellent variety raised by Mr. Ingram: remarkably fine Vicar of Winkfield, Glou Morceau, Easter Beurré, Ne Plus Meuris, Beurré Diel, Forelle, Beurré Clairgeau, and many others. Vegetables comprise Mohawk Kidney Beans, Asparagus, Hammersmith Hardy Green, Royal Cabbage and Brown Cos Lettuces, finely blanched Endive, broad-leaved Sorrel, Basil, Chervil, Mint, Mustard and Cress, Powell's Early Tomato, and Chilies.

A Second Gold Knightian Medal is awarded to Mr. Ford, gr. to W. E. Hubbard, Esq., Horsham, for a fine collection of English-grown fruit. It consists of finely-coloured Mère de Ménage Apples, together with beautiful examples of Flower of Kent, Blenheim, Wadhurst Pippin, Golden Reinette; a handsome Apple, shown under the local name of Leppard's Pippin; Adams' Pearmain, Cornish Gilliflower, Elstead Pippin, King of the Pippins, Court Pendu Plat, Pearson's Plate, and others. Of Pears the collection contains Forelle or Trout, Duchesse d'Angoulême, Easter Beurré, Knight's Monarch, Beurré Diel, Glou Morceau, Broom Park and Uvedale's St. Germain. The same exhibitor has, moreover, Red and White Currants, still in an admirable state of preservation; Oranges, Limes, Calabrian Raisin Grapes, and cones of Picea Webbiana, stated to come from a tree 20 feet in height and 18 years of age; also examples of Indian Corn, fruit of some species of Physalis, honey, and dried flowers. To Mr. Whiting, gr. at The Deepdene, near Dorking, is awarded a Second Gold Banksian Medal for a charming collection of Apples, among which are fine fruit of Court Pendu Plat, Adams' Pearmain, Cox's Pomona, Fearn's Pippin, Blenheim Orange, Franklin's Golden Pippin, Ribston Pippin, Mickleham Pearmain, Alfriston and Brabant Bellefleur. From Mr. Webb, Reading, came Cob Nuts and Filberts, and Apples and Pears. Among the Apples are beautiful examples of Scarlet Pearmain, Fearn's Pippin, Court Pendu Plat, King of the Pippins, Scarlet Nonpareil, and Golden Russet; also Reinette du Canada, Blenheim Pippin, Cockle Pippin, Golden Harvey, Old Pomeroy, Syke House Russet, French Crab, Beachamwell, Sturmer Pippin, Golden Pippin, Court of Wick and Excelsior, the last a waxy-looking red-skinned showy variety. Comte de Paris, Van Mons Léon le Clerc, and some other Pears are also well represented in this collection. Mr. Dixon, Holland House, contributes Cluster, Golden Pippin, Rymer, Cox's Orange Pippin, Barcelona Pearmain, Beauty of Kent, French Crab, Royal Russet, and other Apples, together with Glou Morceau, Duchesse d'Angoulême, and Beurré Diel Pears. From Mr. Young, gr. to R. Barclay, Esq., Highgate, come excellent specimens of Alexander, Alfriston, Blenheim Pippin, and Syke House Russet Apples. Mr. Snow, gr. to the Countess of Cowper, Wrest Park, contributes six Uvedale's St. Germain Pears, weighing together 13 lb. 13 oz.; and from G. F. Wilson, Esq., come fine Chaumontels from a pot tree in an orchard-house moved out-of-doors to ripen its fruit. Mr. Smythe, gr. to Lord Sondes, has Apples and Pears. A similar exhibition from the Rev. G. W. St. John, the Rectory, Woodstock, contains remarkably fine Easter Beurré Pears, Duchesse d'Angoulême, and many other well-known varieties, together with French Crab Apples of 1864 and 1865, and Cox's Orange Pippin grown with and without house sewage, the former being much the finer of the two.

Mr. Hannan, gr. to R. T. Crawshay, Esq., Merthyr Tydvil, contributes four good Enville Pines and an Antigua; and Messrs. Rivers & Son a number of small Orange trees in pots, consisting of the Tangierine, St. Michael's, Maltese, Ampton, and variegated varieties. From Mr. Downing, gr. to T. Grissell, Esq., Norbury Park, Surrey, come very fine Pomegranates grown in an orchard house without artificial heat; Messrs. A. Henderson & Co. furnish a finely flowered mass of Eucharis amazonica, and from F. J. Graham, Esq., come Violets, charmingly interspersed with Maidenhair and other Ferns, inserted in Custard Vegetable Marrow vases. Among other miscellaneous articles are preserved fruits, pickles, &c., from Messrs. Fortnum & Mason, Fargess & Sons, Miss Small, of Coldbrook; and Mr. Beesley, Twyford Abbey.

In the Foreign Department the Gold Medal of the Society offered for the best representative Collection of Fruit and Vegetables from any of the Colonies, is carried off by the Fruit Growers' Association of Nova Scotia, from which comes a large and fine collection of Apples and a few Pears, the latter however not in good condition. The Apples are for the most part large and fine, though scarcely equal to those shown from the same colony on former occasions. Besides many local varieties, Baldwin, Æsopus Spitzemberg, Northern Spy, Ribston Pippin, Blenheim Pippin, Emperor Alexander, Gloria Mundi, Rhode Island Greening, Gravenstein, and Dutch Codlin are large and fine. We also noticed the old Golden Pippin, King Apple, a fine-looking variety, red on the sunny side; Black's Red, Blue Pearmain, Black Detroit, Pomme d'Api, and Margaret Pippin. From Malta come preserves, several dishes of different kinds of Oranges, Lemons, Shaddocks, Pomegranates, Prickly Pears, Bananas, Bread Melons, Tomatos, Cucumbers, very large Gourds, Water Melons, Artichokes, Turnips, Onions, Garlic, Peas, very poor Celery, and other vegetables, none of them remarkable for perfection, but nevertheless creditable considering the dry, hot, light land on which they are grown. Victoria sends the models of fruits and vegetables lately exhibited at Dublin; and India, preserved fruits and vegetables, together with a book of drawings and photographs of edible fruit and vegetables, dedicated by Dr. Shortt to the President of the Royal Horticultural Society, also a book of specimens of the leaves of vegetables eaten by the natives of Southern India. To the Agricultural and Horticultural Society of Madras is awarded a First Gold Banksian Medal for various interesting Indian fruits, which have not, however, arrived in very good condition. They are chiefly in cans and jars, in some kind of spirit. From the Mysore Government Gardens of Bangalore also come various fruits. Among these we noticed Artocarpus incisa, or Bread-fruit, the seeds and pulpy matter of which are eaten, the former when roasted tasting not unlike Spanish Chestnuts; A. integrifolia, or Jack-fruit, the roasted seeds of which are eaten by the natives of India; Pomegranates, valued for their agreeable sub acid pulp: the wild Mango, together with examples of Malgova, Raspberry, and Chitteor, varieties which are inarched on it, that being the only way of increasing these good varieties; Citrons of different sorts; Averrhoa Carambola, or country Gooseberry; Musas, of which many are cultivated in India; Brinjals, which are used in curries; Custard Apple, Ægle Marmelos, or Bael fruit, useful for its medicinal properties; Papaw, of a dwarf description, which fruits when only 4 or 5 feet in height; Guavas, of which many are cultivated in India; Cocoa Nuts in their husks; and Loquats, which make useful preserves. From India also come specimens of Arachis hypogæa, or Ground Nut, which is stated to be one of the staple articles of food among the lower classes in Mysore; Castanospermum australe, or Moreton Bay Chestnut, the large pods of which contain five neatly arranged seeds, which, however, are not edible; Calysaccion longifolium, the fruit of which is highly esteemed for dessert, the pulp between the rind and seed being sweet and agreeable to many. There are likewise dry seed pods of different sorts, and a specimen of great length of the singular-looking ribbed Luffa ægyptiaca, a species of Cucurbit. Painted models in terra cotta of several kinds of Indian fruit are also exhibited. Among these are examples of red and other Plantains; Aubergines, Pomegranates, Sweet Potato, and Telinga Potato (Amorphophallus campanulatus).

The Cape of Good Hope contributes dried fruits of Walnuts, Almonds, Apricots, Quinces, Pears and Apples, cut and flat; Figs, Peaches, Plums, and Prunes and Raisins.

The Gold Medal of the Society is awarded to Denmark for an extensive exhibition of Apples and Pears, many of which are evidently of English origin. These are contributed by the Horticultural Society of Copenhagen, and comprise among others examples of Reinette du Canada, Court Pendu Plat, London Pippin, King of the Pippins, Golden Pearmain, Red Gravenstein, Cardinal Apple, Long Island, Office Apple, a kind something like the Emperor Alexander; Autumn Calville, French Crab, Norfolk Beefing, Nonesuch, Claygate Pearmain, &c. Besides these there are numbers of showy Apples, such as Pigeon Rouge, Nonnetitty, a long-shaped variety mottled with red; Princess Alexandra, a new Danish Apple, with a clear yellow skin; and others. The Pears from such a climate as that of Denmark could not be expected to be remarkable; among them are Seckel, Joséphine de Malines, Winter Nelis, Vicar of Winkfield, Beurré Rance, Uvedale's St. Germain, and Verulam. M. Cappeneck, Ghent, Belgium, exhibits a numerous collection of Apples and Pears; and from M. Corbiere, Cerisy, Belle Etoile, Normandy, come Easter Beurré, labelled Doyenné d'Hiver; Duchesse d'Hiver, a fine large variety; and other kinds of Pears, all good examples of skilful cultivation.

In the Vegetable department Mr. Whiting exhibits a very fine collection, for which he is deservedly entitled to much praise. Of Potatos it contains Early Shaw, Dalmahoy, Jackson's Ashleaf Kidney, Princess of Wales's Kidney, Paterson's Blue Round, Sussex Kidney, and Eugénie Kidney, a long clear-skinned variety. To these First-class Certificates are awarded, while Second-class Certificates are given to the following, viz., Sutton's Early Racehorse, Ormskirk, Napoléon, Fluke, and Fortyfold; and to White Rock, Rivers' Ashleaf, Red Pegent, Early Handsworth, and Myatt's Ashleaf Third-class awards are made. Of other vegetables the collection contains very fine Chinese Yams, Long Surrey, Early Horn, and James' Carrots, Cardoons, very good Scorzonera, Parsnips, Crosche's Beet, a fine sort; Batavian and Curled Endive, Brussels Sprouts, beautiful white Spanish Onions, and Stone Turnips, altogether an extremely interesting exhibition. Messrs. Barr & Sugden show a large and well varied group of Gourds, some of them remarkably handsome, also Danvers Onion, and various nicely arranged Fern cases. From the Royal Gardens, Frogmore, Mr. Ingram furnishes Webb's Imperial, Noble's new Kidney and Dalmahoy Potatos, Russian Shallot, a large sort, James's Keeping and Strasburg Onions, Cardoons, London Flag Leek, very fine specimens of James Scarlet Carrot, Hollow-crowned Parsnip, Seymour's Red and Incomparable White Celery, Whyte's Crimson Beet, Chinese Yams of great length, but not nearly so good as those mentioned above; Horseradish, Mitchell's Matchless Parsley, Brussels Sprouts, Green-topped Turnip, Prickly Spinach, Walcheren Broccoli, London and Rosette Coleworts, curled Scotch Kale, and green curled Savoy. From Mr. Ford came Myatt's Prolific Ashleaf, Ford's Prince of Prussia, a medium-sized, clean skinned, white Kidney; Red Regent, and Red Ashleaf Potatos; Brussels Sprouts, Veitch's Red Globe and Snowball Turnips; Endive, Incomparable Celery, Early Ulm Savoy, Ayton Castle Giant Leek, Jerusalem Artichokes, Improved Nonpareil Cabbage, Improved Hollow-crowned Parsnip, Scotch and Variegated Kale, and various pot herbs. From Mr. Budd, gr. to Lord Darnley, come a collection of Variegated and other Kales, well-grown Carrots, Scorzonera, Salsafy, Walcheren Broccoli, Savoys, Snowball Turnip, Danvers Onion, Parsnips, Musselburgh Leeks, Black-seeded Brown Cos Lettuce, Celery, Endive, and a brace of small Telegraph Cucumbers. Examples of Variegated Kail are contributed by Messrs. A. Henderson & Co. From the Rev. G. W. St. John come a collection of 12 varieties of Potatos, to which as many First-class Certificates are awarded. Among them are Daintree's new Kidney, a fine kind, said to be earlier than the Lapstone; Fenn's Onwards, a good second early; Hogg's Coldstream, a useful variety, both early and late in the season; Haigh's Kidney, a fine purple sort; British Queen, a seedling from the Fluke; Mitchell's Early Albion and Shutford Seedling, both good kinds for forcing; and others, all grown on the ridge and furrow system, with Winter Greens between the rows. Of the latter specimens of Brussels Sprouts were contributed to show the advantage of using house sewage as manure, those so treated being about twice the size of the sample to which this kind of manure had not been given. Noble specimens of Nuneham Park Onion are exhibited by Messrs. Cutbush; and Messrs. Dewar, of Newcastle, show Northumberland Champion Celery, and examples of their Beet. From Nova Scotia come 38 dishes of Potatos, most of them coarse sorts of Kidneys; also Onions, Gourds, Parsnips, Beet, and Kohl Rabi.

Notices of Books.

The illustrations in the *Botanical Magazine* for November and December comprise some very interesting subjects. Those of the November number are—*Ionopsis paniculata*, a charmingly graceful white-blossomed Orchid, introduced from Brazil by Messrs. Low & Co., and by far the finest species of its genus; it has linear-lanceolate keeled leaves, and large spreading panicles of white flowers with a purple eye, the lip large, while the other parts of the flower are small.—*Calathea tubispatha*, a beautiful Tropical American herb introduced by Mr. Veitch, and exhibited by him during the past summer as a species of Maranta; its broad obovate-elliptic shortly acuminate leaves are of a bright green, variegated with paler green, and marked with two rows of oblong brown blotches, arranged in pairs, and the few pale yellow flowers issue from a curious tubular spathe, formed by the convolution of the bracts.—*Pachypodium succulentum*, a South African gouty-stemmed shrub of the Apocynaceous order, identified with the nearly forgotten P. tuberosum of Lindley, and introduced by W. W. Saunders, Esq. It has pretty rose-coloured flowers. Dr. Hooker observes of this plant, in connection with the Adenium obesum, and the Vitis Bainesii and macropus—all gouty-stemmed plants, recently figured, that their exceptional habit in their respective families

"affords an interesting problem for the consideration of those who incline to the derivative origin of species, and may be supposed to illustrate one kind of useful character 'selected,' and thus apparently moulded, by the external conditions to which they have been exposed through a long period of time.—*Abronia fragrans* is a procumbent herb, with opposite oblong-ovate leaves, and large dense umbels of white hypocrateriform flowers, which are said to be very fragrant. "It is the finest species of the small genus to which it belongs, and may be regarded as a valuable addition to our garden flora." The plant comes from the eastern flank of the Rocky Mountains, and has been flowered by Mr. Thompson.—*Begonia Pearcei*, introduced by Mr. Veitch from La Paz, is a really beautiful yellow-flowered Begonia, with a succulent leafy stem, obliquely ovate acuminate irregularly crenato-serrate leaves of a velvety-green above, red beneath, and large clear yellow flowers; it is allied to B. cinnabarina.

The figures in the December number represent—*Palumbina candida*, a slender elegant white-flowered Orchid, already described in our columns (p. 793).—*Thibaudia Jessicæ*, one of a series of magnificent Vacciniaceous shrubs, which have been much neglected by cultivators. It has pendulous branches, long ovate-lanceolate membranous leaves, and short dense racemes of large tubular rosy carmine flowers, and is supposed to come from the mountains of Caraccas, having been derived from M. Linden under the name of T. macrophylla, a plant which is said to differ remarkably in the long pedicels of its flowers.—*Calceolaria hyssopifolia*, a slender twiggy shrub with linear oblong or oblong-lanceolate leaves, revolute at the margins, and corymbs of large pale sulphur-coloured flowers, of which the circumference is crenulate, and the mouth closed; it comes from an elevation of 10–11,000 feet on the Quitinian Andes, and has been introduced by Isaac Anderson Henry, Esq.—*Palafoxia Hookeriana*, a showy hardy herbaceous plant, 2 to 4 feet high, with lance-shaped three-nerved leaves, and corymbs of rosy red flower-heads, the rays of which spread out to a diameter of an inch and a half. It is a native of New Mexico, Texas, and Arkansas, and has been raised by Mr. Thompson.—*Trichopilia turialvæ*, an interesting pale-coloured species from the slopes of the snow-capped Turialva—literally "white tower,' a name given to the mountain to describe its remarkable appearance from the sea; this plant was noticed by us at p. 770.—*Dianella tasmanica*, a handsome greenhouse plant, with rigid ensiform spinulose leaves, and large branched panicles of drooping pale blue flowers, succeeded by dark blue oblong berries, from half an inch to three-fourths of an inch long; it is a native of Tasmania, and has been raised at Kew, where the great beauty of its bright blue berries renders it a conspicuous ornament in a conservatory.

The recent numbers of *Seemann's Journal of Botany* (33 to 36) contain figures of the following plants—*Muenteria tomentosa* and *M. stenocarpa*, two species of a new genus of Bignoniaceæ, separated from Spathodea, the former a tree of 30 feet high, with pinnated leaves, and large showy yellow flowers streaked with reddish-violet; the latter a smaller tree, with smaller yellow flowers. They were collected in Angola by Dr. Welwitsch.—*Ferdinandia superba*, also collected by Welwitsch, and one of the most beautiful trees of the rich flora of Angola; it is named after his Majesty Ferdinand King of Portugal, the munificent patron of African explorations, and is a tree 30 to 35 feet high, nearly leafless at the time of flowering. The leaves are pinnate, and the flowers, in short racemes, are very large, with a violet-purple velvety calyx, and a vermilion-orange corolla, striped with blood-red.—*Catophractes Welwitschii*, an erect shrub, niveo-tomentose in the young state, and bearing numerous showy white long-tubed flowers.—*Spathodea campanulata*, including a representation of the fruit, "which is unknown to most botanists;" that which Palisot figured being here stated to have belonged to Kigelia.—*Toricellia tiliæfolia*, an Indian plant which the Editor rejects from his group Hederaceæ and refers to Haloragaceæ. Of the many interesting papers in these numbers we can only here briefly mention—Dr. Seemann's revision of Araliaceæ; Mr. Carruthers on the Nomenclature of British Hepaticæ; Mr. Ernst on Venezuelan Medicinal plants; Mr. J. G. Baker on Gardens at a high elevation, an interesting paper, which we shall take an opportunity of reprinting; Dr. Hance on the genus Brainea; Dr. G. Bennett on the Waratáh or Native Tulip-tree of New South Wales; and Mr. Wendland on a new classification of Palms.

The *Florist and Pomologist* for November figures *Narcissus juncifolius*, a beautiful little hardy bulb of the Jonquil series, native of the mountainous provinces of the south of France and of Spain and Portugal. The December number contains a good representation of *Phalænopsis Lüddemanniana*.

The *Floral Magazine* has recently given figures of *Pelargonium* (zonal) *Wiltshire Lass, Gladiolus Sir James Clark, Bignonia argyræa violascens, Azalea (indica) Princess Alexandra, Cattleya exoniensis, Fuchsias: Day-Dream, Lizzy Hexham, Catherine Parr*, and *Lady Dumbello*; and *Stauranthera grandiflora*.

Catalogues Received.—*F. & A. Dickson & Sons' Forest Trees* is a well-arranged and ample list, and giving the heights of the plants, may be usefully consulted by planters; also *Stove and Greenhouse Plants* from the same.—*Louis Van Houtte's Prix Courant de Graines* comprises an excellent assortment of the various kinds of seeds—annuals, herbaceous plants, trees, &c.

Florists' Flowers.

We take the following practical remarks on the Gladiolus, by a writer who signs himself "Rambler," from the *West of Scotland Horticultural Magazine*, a well-conducted monthly serial, to which we have referred on various previous occasions:—

The Gladiolus has now fairly established itself as the king of autumn flowers for exhibition. No cut flower presents, when properly staged, such an imposing appearance combined with beauty and delicacy of colour. Horticultural Societies will do well to make a point of having this flower the leading one at their September shows. The effectiveness of Gladioli when staged, however, depends a great deal on arrangements. At Edinburgh they had a very imposing appearance, and at Kilmarnock, too, nothing could have exceeded the effect produced by their splendid arrangement; but at Glasgow, on the other hand, their beauty was completely lost by their being huddled together in a very chaotic manner, every stand apparently being put down where room could be found to hold it, without any attention being paid to the position of other stands.

Gladioli, besides being most effective for exhibition, have now become the greatest favourites of the florist. They are suitable alike for large and small gardens, are easy of cultivation, and rich in variety. For general garden decoration, too, they are highly useful, and for many purposes they ought to be used more largely than they yet have been. In the back rows of ribbon borders they have a splendid appearance; planted about a yard apart, they add greatly to the richness of the border, and break the level monotony, too often observable in this state of gardening. Among the varieties suitable for this purpose, the best perhaps are Brenchleyensis and Penelope, which, planted alternately, have a very striking effect.

The improvement in this magnificent tribe of plants has during the past few years been so great, that many of the splendid novelties recently introduced have little resemblance to the dingy-hued sorts of former years. The varieties, however, have so much increased, that cultivators are completely bewildered by the long lists of names presented in trade catalogues for their selection. In all our florist flowers, while new varieties are annually being introduced, a number of old ones are at the same time discarded and pass into oblivion; but with Gladioli, we find the catalogue year after year getting bigger; new varieties are being introduced, but the old ones are retained, till now some of the catalogues tend only to mislead and disappoint purchasers. One trade list received this season contains upwards of 300 varieties, half of which are only fit for the rubbish heap. This is a matter which must be amended. I see no benefit to be gained from growing any variety after it has been surpassed by another of the same class. The sooner all inferior varieties are weeded from the lists, the better for both buyer and seller. A number of seedsmen make a great boast of having large collections, but what is the use of a large array of names, when fully the half of them, either from want of distinctness or from inferiority, are unworthy of cultivation. I am highly pleased to see some of the trade moving in the right direction in this matter, and trust all will follow.

It may here be asked, What constitutes a good Gladiolus? The first requisite is that it should be perfectly distinct from all other varieties; it should be of a good colour; the flowers should be close on the stem, and open all one way (the worst fault a Gladiolus can have is for the flowers to look in two directions). The flowers should also be well open, with the under and side petals recurved; the bottom petal or ear should be large, and all the petals should be of good substance; and last, but not least, the plant should be of vigorous growth. The most perfect varieties I know are Penelope and Madame Vilmorin; they are in nearly every respect model flowers. Madame Haquin, too, though wanting in some points, is in its individual flowers all that could be wished.

I shall now proceed to give a list of the principal varieties I have seen exhibited, with my notes regarding them. For convenience sake I divide them into two classes:—

1.—*Varieties of Recent Introduction.*

Charles Dickens,* a very peculiar-coloured variety, described in the lists as delicate rose, tinted with chamois, blazed and striped with rosy carmine; its colour makes it very attractive in a stand.

Charles Smith, scarlet red, spotted with violet; a fairish flower, but not a great acquisition.

Crystal Palace,* a pretty light flower, white striped with rose on the edge of the petals, centre of under petals striped with violet; when shaded it comes pure white, and is very beautiful.

Dr. Lindley,* light rose edged with brighter rose, lower petals stained dark cherry colour; a very fine flower, both as regards form and substance; spike very long.

Edulia, top petals light cherry, with a light stripe of white in the centre, lower petals white, stained with violet; flower medium size, good shape, very distinct and pretty.

Empereur Maximilian, red, with yellowish-white stripes, very poor as I saw it.

Fulton,* vermilion-red, with purple stain; a very fine variety, good spike, good form, petals of great substance.

Imperatrice Eugénie, a very pretty white variety, heavily striped with lilac; a telling and pleasing colour.

James Veitch, reddish-crimson, stained with purple, a well opened flower, good bold variety.

James Carter, reddish-orange, stained with pure white; a good flower, but no better than others of the same class.

John Waterer,* fine light red, large stain of white, striped with rose; a beautiful large bold flower.

L'Ornement des Parterres, white ground, flamed with rosy lilac, the edges heavily marked with carmine; a beautiful and distinct flower.

Madame Allister, a variety somewhat like Madame de Vatry, and as I saw it, no better than that fine old sort.

Madame de Sevigné,* light cherry, stained and lined with white, good form; a very attractive variety.

Madame Domage,* rosy white, striped with carmine, and stained with amaranth, a very beautiful, bold, distinct flower.

Madame Furtado,* rosy white, very much flamed with carmine; a very distinct bold flower, forms a grand spike, and in every respect first-rate.

Madame Isidore Salles, white, striped with rose, and stained with carmine; a very pleasing and beautiful flower.

Madame Vilmorin,* bright rose, lighted with white in the centre, stained with carmine; in every respect a superior variety, form, substance, and spike all that could be desired; this is indisputably one of the very best in cultivation.

Mademoiselle Clara Loise, light flesh colour, striped with rose and heavily spotted with carmine; a very beautiful and effective variety.

Meyerbeer,* very brilliant red, flamed and stained with a different shade of red; a flower of great merit in its class.

Monsieur Camille Bernardin,* very bright red, a very effective and fine variety.

Peter Lawson, rosy lilac, stained with white; a new and pleasing shade of colour.

Prince of Wales,* very bright red, lower petal stained with white; a magnificent variety, fine form and substance, and beautiful spike.

Princess of Wales,* pure white, flamed and spotted with carmine, large and distinct flower; in every respect first-rate; was in a great many stands.

Roi Leopold, flowers arranged like floribundus, and therefore of no value.

Stephenson,* cherry colour, stained with white, large flowers; fine shape and spike.

Stewart Low, purplish rose, stained and blazed with a deeper colour; a novel colour, very distinct and effective, but in some respects not first-rate.

Walter Scott, flesh colour, spotted with yellow, and striped with carmine; a good variety.

The varieties with which I was most pleased among the above, are marked with an asterisk.

2.—*Varieties of Older Date.*

These I shall not describe in detail, as they are better known. I shall, therefore, only give the names of a number of the finest varieties, and will mention none but what ought to please the most fastidious:—

Achille*	Madame de Vatry*
Calypso	Madame Haquin
Ceres*	Madame Periere*
Clemence	Madame Lesèble*
Comte de Morny*	Madame Rabourdin*
Diana Chateaubriand	Maria
Duc de Malakoff*	Mathilde de Landevoisin*
Dumortier*	Mazeppa*
El Dorado	Napoléon III.*
Endymion	Nemesis
Florian*	Neptune
Galathée	Ninon de l'Enclos
James Watts	Ophir
Janire*	Oracle
John Bull	Pallas
Junon	Penelope*
Le Poussin*	Princess Clotilde*
Linné*	Princess Mathilde
Lord Granville*	Raphael*
Lord Raglan*	Reine Victoria*
MacMahon	Rubens*
Madame Adèle Souchet	Velleda
Madame Basseville*	Vesta*
Madame Binder*	Vicomtesse de Belleval

The two lots above mentioned include the greater part of the really fine varieties. The finest of the second lot are also marked with an asterisk, but those unacquainted with them need not be afraid to select from it, for I am confident that there is not an inferior variety in the lot. Parties who intend to compete much should grow a few bulbs each of such sorts as Le Poussin, Lord Raglan, Florian, Duc de Malakoff, Comte de Morny, Penelope, Madame de Vatry, Mathilde de Landevoisin, &c., as these varieties, if got in good order, are not easily beaten. This season I have resolved to discard Aglaë, Dr. Audry, Imperatrice, Daphne, Hé'ène, Hebe, Celine, Triomphe d'Enghien, Goliath, and a few others, that have been "weighed in the balance and found wanting."

The Apiary.

The following few extracts from a private letter which we have received from the Rev. L. L. Langstroth, an American apiarian of great celebrity, may not be unacceptable to our readers. Mr. Langstroth was the original inventor of the Frame Hive, a modification of which is now largely in use in this country. To him, therefore, English apiarians are largely indebted for the great advance which has been made during the last few years in our scientific knowledge and management of the bee.

Mr. Langstroth says:—"I find little difficulty in breeding pure Ligurian queens, although I am surrounded by black bees, the neighbouring forests abounding in them. As soon as bee-forage begins to fail, and stocks commence killing their drones, I select strong colonies, and give them drone combs (say half the cells worker, and half drone) placed in the centre of the hive, and feed the bees with from half a pint to a pint of sugar syrup every evening, which feeding I keep up as long as I need the services of the drones. In a few days the queen will begin to lay drone eggs, and by the time that the black drones have mostly disappeared, I have tens of thousands of Ligurian drones in readiness for pairing with the young queens raised at that time. Later in the season the black stocks often raise a second edition of drones, but not

one in ten of my queens reared in August proves impure."

Unless in exceptional cases our English bees seldom raise any second edition of drones later in the season than August; there would, therefore, be even less to fear of the chances of an impure cross. A gentleman of our acquaintance, who has reared as many Italian queens as perhaps any one in England, has invariably had a greater amount of success with his late bred queens than with others bred earlier in the season.

Mr. Langstroth continues: "I notice what you say as to the size of my hives, and you will probably be surprised to learn that for old stocks I am using hives still larger, holding 13, instead of 10, frames. For a long time our bee-keepers persisted in using small hives, but the best of them are now convinced that they were mistaken. Of course I do not presume to affirm that my hive is not too large for your country, but hope that you and Mr. Woodbury will try a few as large as those described in my work. A writer in your London *Gardeners' Chronicle and Agricultural Gazette*, for November 3, speaks of taking supers weighing over 100 lb. each from two of his hives. So long as our beekeepers persisted in using very small hives, so long they obtained very meagre results. A large apiarian, using my hives, has harvested this season 15,000 lb. of surplus honey."

We have quoted this part of the letter relating to the use of large hives, as it bears upon a matter which has been lately a subject of discussion in our columns. Mr. Langstroth's testimony in favour of large hives may be used as powerful evidence on the side of Mr. Pettigrew. We have hitherto been much inclined to believe the hive as described by Mr. Langstroth in the late edition of his excellent work, as being too large for general adoption in this country, but we now find him the advocate for even a larger hive than that one. It must be remembered, however, that America generally is a far finer country for bees than ours, and very much larger returns are realised there from their labours than we can hope to see.

We refrain from publishing Mr. Pettigrew's last communication, as we can see no good that could arise from it. Mr. Pettigrew expresses his dislike to controversy, which his letter could only provoke. We hope, however, that Mr. Pettigrew will continue his remarks on the subject of his former paper, and if more agreeable to him, we will defer passing any opinions or comments of our own until he has concluded his observations.

Feeding Bees.—On changing the floor-boards of my hives to suit their new home, I found that I had quite under-estimated the weight of the board of that one the bees and honey of which I lately stated weighed together 17 lb. I now find that the weight of the whole inside contents of this hive is only 13½ lb. Do you think that this will suffice to carry the stock over the winter, and, if so, to what period in spring?

I administered 55 lb. weight of sugar and honey between the two hives mentioned, which quantity has, with what the bees collected, produced about 35 lb. of inside contents, including the stocks themselves, both of which are moderately populous. Whatever amount of honey this may indicate, a considerable part of it is doubtless owing to the Heath in the neighbourhood, to which, during the month of August, the bees resorted in crowds. It was exceedingly interesting to see them go and come. The Heath-covered hills are about a mile distant, and rise considerably above the eminence on which I live. I was at first doubtful if I should be able to know whether the bees really did go there, but there was soon no doubt about it. From some time in August, every fine evening between four and five o'clock, from high up in the air, higher than it was possible to see them, down came the bees in a shower, almost perpendicularly, on the side of the hives next the Heath, dividing off to the right and left as they reached the range. They had evidently flown straight from the top of the neighbouring hills, across the intervening mile of low country, till just over their hives, and then descended. This going and coming was continued all day, though more apparent at the general evening return. The invitation, "Come into the garden, and see the bees coming home from the Heath," always produced expressions of wonder, and sometimes of pity that it should be necessary to kill such intelligent and industrious little things.

Your saying in the number of the 14th October that a tolerably free admission of air is conducive to health makes me ask—how much of the entrances of hives would you leave open in winter? When would you take away the wedges which you recommend to be put under the back of the floor boards, for the purpose of tilting the hives forward to promote the escape of condensed moisture? The back, by the way, would always be better by being a trifle higher than the front, I think. *A. B.*

[The amount of the internal contents of your hive will, most probably, just carry it through the winter. The supply of food is certainly rather limited, but we would not, under the circumstances, give any more at present. At the end of February, or early in March, treat the bees with a small quantity, say 2 or 3 ounces, twice a week during mild weather, taking care not to allow the bottle-feeder to remain on longer than is necessary, otherwise the moisture, which may condense in it to a considerable extent, will fall down into the hive and do much injury. If the winter prove to be a very mild one, visit the hive before the time mentioned above, as the consumption of sealed stores may be more rapid. Doubtless your bees collected something from the Heather, but it has been a subject of general remark that hives which have been sent to the Heather this autumn have done little or no good.

We usually regulate the width of the entrances of hives in winter (or indeed at all other times) by their strength. For a strong and well-filled hive a space of 3 inches by ⅜-inch, is what we allow, but for a weaker colony we reduce to 2 inches, or even less.

The wedges used for tilting the hives we usually allow to remain until the time of affording super accommodation. It is a matter of little importance how long they may be in use, except for the convenience of supering.]

Garden Memoranda.

Bicton.—The houses and the flower-garden are what I now propose to notice; though as regards "the houses," I would rather treat that topic as the old writer did his chapter on the snakes of Ireland, which was headed "Concerning the Snakes of Ireland," or something to that effect, he then proceeding to say, "There are no snakes in Ireland." Now who could think of investigating "houses" with any degree of interest, when through the glass, one could see outside, dark, very dark, and healthy beds of evergreens, composed of Lady Hume's Blush, and the old white and other Camellias!

To describe the instruction gathered and pleasure experienced during three days at Bicton would be impossible in this essay. I may however give the "landmarks." First day: passed through an avenue of Araucarias, 25 to 30 feet high, and investigated the flower garden. Second day: breakfasted partially on the roasted seeds of Araucaria imbricata, after the manner of the Chilian Indians; perfect seeds, the first, I believe, that have ripened in Britain. From the tower in the woods looked down upon the clear and delightfully varied sea-coast of Devon, and also upon that Hayes Wood in which little Walter Raleigh (whose memory gardeners should respect for first bringing us the Potato), was born, and made an expedition through the forcing houses and kitchen garden. Third day: saw as much as was practicable of an arboretum two miles round, including a magnificent Pinetum.

But about the houses that are situated at the head of the flower garden? To be candid I thought them prosaic. I was looking more outside than in, as the Pampas was waving sumptuously in the flower garden in plenty, and about 16 feet high; there were stately Dracænas—a new sight to me—growing in the turf of Britain, and beds of Salvia splendens quite brilliant with flowers. In short, I did not care for Mr. Barnes's house plants, but wanted to get out, and I "drew him out" as soon as I saw a dense line of the stems of the Belladonna Lily running along the front of the range, supporting numerous balls of seed and the latest flowers. For more than 300 feet, in and out, along the front of this varied range, there was a dense line—a dozen stems thick—of this charming flower, the perfume and effect of which I may leave to the imagination of the reader. The soil of the place is congenial to such things, but Mr. Barnes accommodates these with deep turfy loam intermixed with charcoal. These fine autumnal flowers may be grown equally well in a thousand English gardens in which they do not now exist in perfection.

The flower garden at Bicton is not like any other that I have seen. This may be a fault, but I felt much more pleasure in it than is possible where mechanical landscape gardening is the chief feature. I cannot tell anything of its plan. I cannot describe it in a few lines, as I could a piece of wall paper, because, both in winter and in summer, the beauty of vegetation obliterates the geometrical lines and twirlings of man. It is an open-air drawing-room, but not one in which interest of detail is sacrificed to general effect. I believe it is not considered nice taste to do this in a drawing-room. Every good flower garden should be interesting in its parts, while agreeable in its general effect. There is nothing to prevent its being so—absolutely nothing. English flower gardening must come to this—it is coming to it. I do not say that this Bicton flower garden is perfect—it is anything but that; but then few things that give us great pleasure are; and even Man, the most noble and divine of created things, is in some respects the most imperfect and ignoble. For instance, here is a Pinus macrocarpa 70 feet high and 6 feet 6 inches in diameter—that perhaps meddles with the proprieties, but no matter. The bedding plants, for which there is plenty of space, are gone, but the beauty of such a garden is, that when they are gone, you don't miss them much. Thujopsis borealis and many elegant and tapering young medium-sized Pines diversify its surface; a great Cryptomeria here and there, drooping with fruit, stops the way now and then; while beautiful shrubs, standard Wistarias, and elegant Junipers are interspersed. The men are busy planting thousands of Crocuses, and Tulips, and Violets round the borders and in the beds. Magnolia fuscata is just opening its last blooms for the season on the walls, which are rich with sweet Verbena, and things that like the greenhouse in the north. Rhododendrons, including arboreum, campanulatum, and cinnamomeum—species usually grown indoors—are in healthy bushes on the turf, cinnamomeum making especially striking standards, from the peculiar colour of the under side of its leaves. "Yes," some of your northern readers may say; "but what is the good of telling us about these things! we can never grow them out of doors"—a remark more selfish than sensible, as surely the mild southern parts of England and Ireland are not the least important parts of these islands, and your northern friends have had so much attention paid to them, that they can well spare a little extra discussion on the milder portion of this island. The fact is, there are thousands of places in which a result as good or better than that obtained at Bicton is possible, and, if I may indulge in a little prophecy, in which it will yet be fully attained. And when this has come to pass, how pleasant will it be for the lovers of horticulture, and the lovers of Nature, to pass from the cold and harsh north, to the glistening evergreens and richly verdant Conifers and Myrtles, Camellias and Azaleas of the south, all in one day! It is true some things get touched by a very rare winter like that of 1860, but then they spring up again, and may go on untouched for half a generation. The Camellias did not suffer in the least from this severe frost; the long, long walls of the Exmouth variety of Magnolia grandiflora did, however, but the plants are now growing fast and covering the walls again. The two long side walls of the flower garden, running down to the church built by Lady Rolle in memory of her husband, are given up to this fine plant alone. During the flowering season these plants used to scent the vale for a mile around. Mr. Barnes' description of the perfume reminded me of Lalla Rookh. During the past summer the young plants have made shoots 3 or even 4 feet long, so he will soon again enjoy it. Bambusa gracilis is a charming plant at Bicton, and might be used with great effect in many places, associated with the two Arundos and the Pampas Grass. There are splendid plants of Dracæna longifolia in the flower garden, and most strikingly they vary it.

I entertain no doubt that a great many more of such plants might be tried out of doors in similar places. Would not Cordyline indivisa succeed? It is worth trying, and would have at least as good a chance as the Dracænas. All the bedding plants are gone, except beds of Salvia splendens in full bloom. The beds of Camellias look remarkably healthy, and are densely studded with bloom buds. If the blooms do get hurt with a nip of spring frost, there are plenty ready to unfold the day after. Bushes and hedges of Fuchsias are common. The old white and other Camellias are planted out and doing beautifully in the shrubberies around, and, as above stated, Violets abound in spring.

Conifers occur here, there, and everywhere at Bicton. We rambled out of the flower garden to see noble specimens of male Araucaria imbricata studded over with budding cones. Down where the flower garden merges gradually into the shrubbery and wood there is a little rivulet margined with Arundo Donax and the Pampas, and near at hand several noble plants of these male Araucarias from 25 to 30 feet high. The female plant that has produced abundance of seed this year is away from this, in the arboretum, but Mr. Barnes attends to its wants with branches of male cones. These plants and those which compose the avenue could all be put in a hat 24 years ago. They were all planted by Mr. Barnes. He has no belief in the degeneracy of Conifers from home-grown seeds, as there are hundreds of perfect specimens at Bicton raised in that way. There are also noble plants of Picea cephalonica and the Deodar at the lower end of the flower garden, that have been struck from cuttings. Some of the Yuccas make stems 16 feet high.

There is a hollow dell with stony pool on one side of the flower garden among the trees, and here was growing a specimen of Araucaria Cunninghami, nearly 30 feet high, but looking very blue or rather brown, for as it makes its growth at the wrong time of the year it gets nipped and looks disappointed at all times. Here are some very slender rods, tapering and graceful, with a leaf on here and there, arching over this water; they are the strong shoots, "water shoots" to use pruning phraseology, of Bambusa gracilis. They would make fishing rods for ladies should such be required. It is a graceful and valuable plant for all such situations.

I am not as a rule devoted to idols or shells or to the ordnance of aboriginals—they are devoid of chlorophyll; but as some may go to Bicton, taking these observations as a rough guide, it should be said that in this nook is a little temple, with a marvellous array of shells and Australian spears, garnished with sharks' teeth and clubs and boomerangs, with some compound-pronged instruments not yet put into a genus; also Indian idols in white marble, of an angelic type of countenance; and last, and I hope *the last* of its race, the old Oak stump and ring to which was chained and roasted the last man burnt at Exeter, for the love of God, in the good old times.

I do not know that I should say a word about the planthouses were it not from seeing in the Orangery that splendid gorgeous greenhouse climber Tacsonia Van Volxemii, in full flower for the first time. It is indeed a grand addition to the resources of those who wish to make a feature of climbers in the show-house

or conservatory. It is quite easy of culture under ordinary treatment, and grows and flowers freely—and such flowers! They hang down from the stem 10 or 12 inches, by a threadlike peduncle, the flower spreading boldly out 5 inches or more—not all tube, like some Tacsonias, but with none visible. I will not describe the colour—that must be seen to be appreciated. There may be a more beautiful free-growing greenhouse climber in the country, but if there is, I confess I don't know one so good. It should be planted out in a bed of light loamy earth, and would be best trained over an arch, or along a beam, but will not be out of place in any position.

The Camellia house is a noble one, a tall span, with fine specimens in the pit, planted out of course, the back wall well covered, and the pillars of the front glass wall also green with Camellias. It is like a Camellia grove—you can see very little of the house, but a great deal of a full collection of Camellias. It is 125 feet long, with neat walk all round, affording an agreeable promenade in winter or on wet days—a delightful one at present, as the plants are full of flower, and will continue so for months. That such a house does not exist in any public garden is remarkable; it would not be expensive, would not require much care if well planted at first, and could not fail to be most attractive to the public. Camellias never do so well in pots or tubs as in this way. There were scores of vigorous Tree Carnations embellishing the houses. They are grown in the open air, from young plants, during the summer, and potted up, rich, fresh, and full of flower for the houses in October. The Deutzias were in very small pots for forcing, but the heads bushy and full. They are prepared by planting them for the summer on a very sandy poor piece of ground. Such plants flower very much better than they do with the treatment usually pursued. Pinks are very largely forced, and very wisely, because nicely-forced Pinks are among the very cream of forced flowers; and they may be bloomed as well thus as in the open air. *W. Robinson.*

Miscellaneous.

Sicilian Vegetation in April.—I found on the 17th of April at the Botanical Garden, Palermo, as also in the fine grounds of the Princess Butera, the following plants in bloom:—Salvias, Iris, Roses (White, Red, and China), Wallflower, Anemone, Petunia, Verbena, Mignonette, Sunflower, Gladiolus, Spiræa, Nasturtium, Poppy, Marigold, Geranium, Candytuft, Hollyhock (3 feet high, but not in blossom), Stock, Carnation, Tulip, Pæony, Auricula, Cyclamen, Eschscholtzia, Banksian Rose, Judas tree, Chestnut tree, Elder tree, Hawthorn (about to blossom), Alyssum, Shrubby Euphorbias, Yellow Jasmine, Nettles and Asphodel. All these flowers, shrubs, and trees I had left equally advanced, and flourishing six days previously on the Riviera. Peaches were set as large as small Walnuts; Strawberries were served in profusion at every meal at the hotel; Oranges were numerous and first-rate, sweet and juicy. *Bennet's Mentone, 3d Edition.*

Calendar of Operations.

(*For the ensuing week.*)

The chief things to be attended to in reference to glasshouses at the present time is to keep as low a temperature as is consistent with the health of the inmates, as a hot close atmosphere would, in a few days, do more injury than could be repaired during months of care after the mischief is done. Ventilate with judgment; but let there be ventilation even where the most tender plants are kept, although it be at the cost of a little extra fuel, to maintain the necessary temperature in connection with a circulation of fresh air. Watering will also require to be done with great caution, and we cannot perhaps do better than to repeat the directions which we have so frequently given, viz, never to water till the soil immediately below the surface is sufficiently dry to warrant a full supply. Be careful to prevent sourness; as, if this takes place, and is not rectified, the loss of the roots will be the inevitable consequence. Avoid spilling water on the floor when watering, and endeavour by every means to maintain a sweet and not over-damp nor over-dry atmosphere.

FLOWER GARDEN AND PLANT HOUSES.

Should the weather prove unfavourable for out-door work, prepare labels for all ornamental trees and shrubs; and when well painted, and thoroughly dry, they can be put in their proper places. Crocuses and other bulbs should be protected from the ravages of mice, for which traps should be employed before they do any mischief, as afterwards they are very particular about taking the bait. If there are any choice seeds of Rhododendrons or Azaleas which it is desirable should be saved, they must be seen to at once, as during the sunny days in January the capsules will open, and the seeds drop out.

Carnations and Picotees.—These are apt occasionally to have small portions of soil lodge in the axils of the leaves. These must be carefully removed, for should they be damp and wet, serious injury to the plants will most certainly be the result. Carnations and Picotees, too, if kept close, will contract mouldiness, being liable to the attacks of parasitical Fungi. The leaves affected must be cut away; and, if possible, the affected plants removed from the others, giving plenty of air, the want of which, and late planting, superinduce these evils.

Pansies.—Those on beds should, if in exposed places, be protected if severe weather should set in; the best material for the purpose consists of small branches of the Spruce Fir.

Tulips.—Hoop over beds, and cover during severe weather. The tops of the spike being near the surface, this precaution is absolutely necessary.

FORCING GARDEN.

Cucumbers.—These must now have careful attention. By a proper arrangement of the ventilators a constant circulation of air should, if possible, be secured whenever the weather is at all favourable.

Peaches.—Those in pots may now be brought into the house, and plunged in Oak leaves, that are in a slightly fermenting state; from 55° to 60° in the plunging material, whatever it may be, will be sufficient during the first month. The atmosphere should range from 45° to 50° by night, and from 55° to 60° by day. Syringe frequently during fine weather, but never when it is damp.

Strawberries.—Where very early Strawberries are required, some of the strongest plants of Keens' Seedling may be brought into a pit for starting, but no artificial heat need be applied for the first week or ten days. Let the plants be freed from decaying leaves, and top-dress the surface with rich loamy soil, having a sprinkling of soot in it, to drive out any worms which may be in the pots.

Vines.—Let the heat of the litter about the roots of Vines recently started be daily examined; and see that it is regularly kept at a temperature of 60°, until the rods are coming into leaf, when a slight increase of heat should be obtained. It will be well, however, not to exceed 70° for some time yet, as too great an amount of root-heat produces a weakly growth. The temperature of the atmosphere should be kept at 50° by night and 60° by day until the buds are all starting, when a rise of one degree each night may be indulged in until it reaches 58° or 60°, with a corresponding increase by day. It will not, however, be safe to go beyond 60° by night, and a small portion of air should be always allowed, to keep the atmosphere sweet and in motion. With sun-heat, should it occur, a rise of 10°, with a gradual increase of air, must be obtained as often as possible, and to assist in this the heat in the pipes must be increased early whenever there is the appearance of sunshine. Vines in pots are greatly benefited by being plunged in a gentle bottom-heat, and their shoots should be depressed, so as to cause them to break all the buds. The atmosphere for these should be similar to that for Vines established in the border.

HARDY FRUIT AND KITCHEN GARDEN.

The fruit room will now require daily attention. Fruit least likely to keep should be picked out for immediate use, or when they decay they will injure that which is sound. Let an uniform temperature be preserved, and give sufficient ventilation to allow damp to escape.

Rotation of Crops.—Previous to the general manuring and trenching of vacant ground, the rotation of crops which are to be cultivated upon it during the ensuing summer, should be decided upon. One of the first principles to be attended to in this arrangement is that no annual crop be grown for two successive years on the same plot of ground. Another variation should be made by taking care that those crops which immediately succeed each other are not such as are liable to be preyed upon by the same kind of insect, as their increase is encouraged to a fearful extent by thus putting in their way the food of which they are most fond. It is important that both the manuring and the depth of the trenching be regulated by the requirements of the crops; and their rotation should be so arranged, that the ground be not trenched to the same depth for two successive seasons, but so that different portions of the soil be brought to the surface in turns. The perennial or permanent crops will of course form a class by themselves, as they do not require a change of situation for many years; but when this is necessary with any portion of them, the ground from which they are removed will fall into the ordinary rotation in the way of a regular exchange. By cultivating the Celery and Cardoon on the Scotch or wide-bed system, a large ridge of soil is thrown up between the trenches, the surface of which is excellently adapted for the cultivation of dwarf Peas, Beans, Spinach, Turnips, and similar vegetables; observing, however, that only the earlier sowings of these several crops should be made on these ridges, that they may be removed in due course, before the ground is required for earthing up the principal crop. As a matter of course this arrangement must not interfere with the very earliest crops of Peas, &c., which are generally allowed a place on the side borders near the walls. For the latest crops of Peas, &c., a portion of ground must be allotted, which, with that occupied by the Celery and Cardoon ridges, will generally amount to about one-third of the ground occupied by annual vegetables. The extensive turning over which the Celery and Cardoon soil undergoes, acts admirably in preparing the ground for deep-rooting plants, such as Turnips, Carrots, Onions, &c., and in the following year may be devoted to the cultivation of the Cabbage family, whose roots are confined more nearly to the surface. If the vegetable garden is so large as to allow of the cultivation of a portion of the general Potato crop within the walls, it will form a fourth course in the rotation, and will come in after the Brassica tribe. Working upon this system, Cabbages have been planted during the autumn on ground which had been occupied by late summer Turnips; and the ground which now requires trenching is that from which the later Turnips, Onions, Carrots, Beet, &c., have been removed, and which will next spring be planted with Cauliflower, Broccoli, &c. Preparation for these should be made by trenching in a very heavy dressing of manure, which shall serve for that and the succeeding crop; as the last few years have fully convinced us of the impropriety of planting Potatos on ground recently manured.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Dec. 13, 1865, as observed at the Horticultural Gardens.

Dec.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth. 1 foot deep.	Temperature. Of the Earth. 2 feet deep.	Wind.	Rain.
Thurs. 7	9	30.323	30.151	52	47	49.5	49	[illegible]	[illegible]	[illegible]
Friday 8	10	30.492	30.467	49	44	46.8	[illegible]	48	[illegible]	[illegible]
Satur. 9	11	30.473	30.431	47	36	41.5	50	[illegible]	[illegible]	[illegible]
Sunday 10	12	30.564	30.515	43	30	37.5	49	[illegible]	[illegible]	[illegible]
Mon. 11	13	30.618	30.613	46	29	37.5	49	[illegible]	[illegible]	[illegible]
Tues. 12	14	30.537	30.320	43	25	34.0	48	[illegible]	[illegible]	[illegible]
Wed. 13	15	30.464	30.425	48	28	38.0	48	47½	[illegible]	[illegible]
Average		30.496	30.417	47.1	34.1	40.6	49.0	48.1		

Dec. 7—Densely clouded, and mild; overcast at night; rain.
— 8—Hazy; uniform haze; overcast
— 9—Foggy; hazy; overcast at night.
— 10—Foggy; cloudy; overcast; slight frost.
— 11—Fine; overcast at night; slight frost.
— 12—Cloudy and fine; overcast; frosty.
— 13—Clear; very clear and fine; quite cloudless; slight frost.
Mean temperature of the week, 1-.th deg. above the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 39 years, for the ensuing Week, ending Dec. 21 1865.

Dec.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday..17	45.6	33.2	39.4	18	0.38 in	10	5	3	1	[illegible]	[illegible]	[illegible]	[illegible]
Mon. ..18	44.7	32.5	38.6	19	0.56	4	6	3	3	3	[illegible]	[illegible]	[illegible]
Tues. ..19	44.9	33.2	39.0	18	0.87	1	4	4	4	4	[illegible]	[illegible]	[illegible]
Wed. ..20	44.1	33.7	38.9	14	0.76	3	9	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Thurs. ..21	43.5	33.8	38.5	15	0.20	1	8	3	2	2	1	[illegible]	[illegible]
Friday ..22	44.6	32.5	38.5	19	0.37	6	8	3	1	[illegible]	[illegible]	[illegible]	[illegible]
Satur. ..23	44.1	31.8	37.9	20	1.13	6	9	2	2	1	[illegible]	[illegible]	[illegible]

The highest temperature during the above period occurred on the 17th, 1832 and 17th, 1837—therm. 57 deg.; and the lowest on the 19th, 1859—therm. 7 deg.

Notices to Correspondents.

*** Letters intended for publication anonymously, should be authenticated by the addition, in all cases, of the real name and address of the writers, for the private inspection of the Editors. No notice can be taken of communications if this rule be not complied with.

Books: *Enquirer.* Cuthill's Treatise on the Mushroom.

Conifers: *J J R.* The affection which you have observed on Pinus Pinaster and Pinus insignis is not uncommon on other species, and is not confined to young shoots. We have seen it on the stems of trees of four or five years growth. The cause of it is very obscure, but once it occurred where there was an impervious subsoil. You had better watch your Pinus insignis, and see if any of the insects are still about, and if not, the haybands had better be removed the first frosty day. *M J B.*

Eccentric Pith: *J C.* This arises from the greater thickness of the woody rings on one side than on another, a condition resulting from more full exposure to light and air, or the general operation of more favourable conditions for growth on one side than on the other.

Fuchsias: *J Milton.* Fuchsias may be grown with equal success in one season from either autumn-struck or spring-struck plants. The former, of course, make the larger plants, and come earliest into bloom.

Gardener's Herbarium: *W Johnson.* Use stout cartridge paper of as good quality as you can afford, and don't adopt too large a size, as a smaller one is far more convenient, and with a little contrivance will take in specimens as large as necessary. The size of common demy paper is ample: half less than this will do. Have the paper cut into half sheets with four clean trimmed edges. Fasten down the specimens with carpenter's glue, with which a little corrosive sublimate has been mixed, having previously washed them over with a solution of the sublimate, so as to "poison" them, and prevent the ravages of insects, and then label them as fully as you can. Put one species only on each half sheet; or, if those of the same genus within a whole sheet used as a cover, writing the generic name outside, in the lower left-hand corner; and then arrange the genera according to the best book of reference you may happen to have. The natural arrangement in Loudon's Hortus Britannicus, which you are very likely to possess, will suit the purpose well.

Grass Seeds: *W L., Edinburgh.* Quite correct.

Growth of Timber: *J C.* It is still an open question whether fast-grown or slow-grown timber be the strongest and most durable. Our own opinion is that the balance of evidence is in favour of the fast-grown wood. See our columns for October 21 of the present year.

Names of Plants: *G M., Frome.* Ruscus racemosus.—*Pa[illegible]* 1, Scolopendrium vulgare; 2, Lycopodium alpinum; 3, Lycopodium inundatum; 4, Asplenium viride; 5, Justicia speciosa.—*J M.* Platyloma falcatum.—*E K.* Your Orchid is one of an extensive group of Maxillarias that will no doubt be eventually regarded as mere varieties of M. picta.—*D [illegible]* Hexacentris mysorensis.—*J Ward.* Yes, it is Pittosporum tenuifolium.—*Diss.* We cannot say what your plant is without flowers.—*X Y.* Pteris serrulata.—*W M.* Centaurea [illegible] Plectrocephalus americanus.

Pears for a North Wall: *Anon.* Jargonelle, Suffolk Thorn, Comte de Lamy; and for stewing, the Verulam and Catillac.

Pine-apples: *J C.* Your Pine seems affected exactly in the same way with one sent to the Royal Horticultural Society a short time since, which appeared sound externally, but on cutting inside was a mass of decay, the injury proceeding from below upwards. It is not possible to say what the cause of such a disease may be, but we should not like to make use of such a compost as you describe. It does not appear that the decay arises from Fungi. It is far more probable, from the symptoms, that it is derived from something in the soil. *M J B.*

Received.—J. R. S., Norwich (with thanks).—Prof. Schmitz (with thanks).—Rev. J. Smith.—W. B. Booth.—Major Clark.—R. T. Pince (many thanks).—E. G. Henderson & Son.—N. Wilson, Jamaica.—L. V. Houtte.—Wellingtonia.—D. Mackellar.—Armagh (Cones.)—Brassica.—Rugby.

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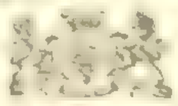
MANUFACTURED BY  THE PATENT

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The Agricultural Gazette.
SATURDAY, DECEMBER 16, 1865.

—— AMIDST all the agricultural excitement of the past week, the principal event undoubtedly has been the declared resolution of the Council of the Royal Agricultural Society to postpone its next annual meeting till 1867. We were prepared for the postponement of very much of it, but not for the abandonment of the whole. There would have been an opportunity for a prolonged trial and examination of agricultural implements; and we might have had a first-rate show of horses; and this could have been done with no risk of the rinderpest to any one, but with great benefit to all. It appears, however, that it is deemed unadvisable to have a half-meeting; and the interregnum, it may be expected, will tell to the benefit of the meeting in 1867.

Let no one think that this inaction and the consequent saving in the expenditure of the Society will tend to its financial prosperity. Inaction and non-expenditure upon the proper agricultural objects will tend more than anything else to the withdrawal of members and to the diminution of income. It behoves those responsible for the direction of the Society to take care that the enforced postponement of the annual show next year be as far as possible compensated by increased activity in every other way that remains open. Let us hope that our leaders will take the position that belongs to them as representatives of English agriculture in the difficulties which the plague has brought upon us, and make the voice of the Royal Agricultural Society of England be heard, and, if possible, obeyed, in the discussions that are sure to arise on the relations in connection with this subject between consumers and producers, and Government as representing both.

DR. VOELCKER gave us a capital lecture last Tuesday on a most important subject—one especially well adapted to the present anxieties for our live stock. The proper object of Disinfectants, and the purpose actually served by them, whether as disinfectants or as mere deodorisers, or on the other hand as antiseptics, was explained with great lucidity; and we hope next week to be able to give a fuller report of the discourse. The principal disinfectants named were chlorine, obtained from chloride of lime, and from muriatic acid with black manganese, and sulphurous acid obtained by burning sulphur, quicklime, and common earth. But especial weight was most properly laid upon the comparative inefficiency of mere deodorisers and antiseptics, the former of which merely lay hold of certain foul gases with which the morbific matter whose destruction is desired may be accompanied, and the latter of which may not destroy, but on the contrary *preserve* this morbific matter until, after time has set it free again, it may reappear as mischievous as ever. The true agency is one which shall utterly disorganise and disperse in the form of its ultimate elements the organic poison by which contagion acts. This is to be done first by a thorough scouring, which shall detach it from walls, and floors, and mangers, and then by sulphurous acid fumes, or chlorine gas, or by actual burning, or by that less intense oxidation which takes place in the pores of earth or charcoal. Dr. VOELCKER's lecture went fully into the detail of the process as applied to the purifying and disinfection of houses, dead bodies, manures, implements, garments, &c. It will no doubt be published in full in the pages of the Journal, but we hope to be able to give a fuller account of it next week.

THE substance of Mr. DUCKHAM's paper on Cattle Breeding, read before the Central Farmers' Club last Monday, is given in another page. The discussion which followed it was hardly up to the standard of merit which the debates of the Farmers' Club generally attain.

Mr. Alderman MICHI declared that the same principles of bodily treatment which are sound in the case of the animal man ought to guide us in our management of the other animals of the farm. These should be housed and fed in warmth and comfort. Who ever saw a lean lady's lapdog? If you want animals to fatten, they too must be placed in comfortable circumstances. Shelter is useful not only for the beasts but for the value of their manure. The sheepfold is better than the dung-cart, simply because the land in the former case gets *all* the manure, whereas, in the latter case, much of it, under the unsheltered condition of our yards, is washed to waste before it is carried to the land.

Mr. WOODWARD, of Ashchurch, believed as to breeding that the period was best determined by Nature. In the case of precocious Short-horn stock, if the heifer is not put to the bull as soon as she is ready, she will turn to fatting instead of breeding. Abortion in dairy stock, he believed, is often the fault of the bull, and in instances known to him the evil has disappeared when another bull has been used. As to the time of the year for calving, the autumn is the best period for animals intended to be fed and *fattened*; the spring is the best time for animals to be kept for breeding. Mangel Wurzel is bad for breeding stock; the more it was used, the more he had found his cows go barren. Continued shelter under sheds is not good for cattle, unless combined with occasional washings and frequent use of the curry-comb.

Mr. MARRIOTT, of Northamptonshire, agreed with Mr. WOODWARD that animals are the better for being rained upon, and that the outcry for sheds and shelter has become excessive.

Mr. WALTON, of Hampshire, wanted to know why good shedding and proper buildings, if good, have not been provided. Is it to be expected that tenants are to build them? It is necessary that the landlord should lend a hand, lay out more capital of his own, and offer better security for that of the farmer.

Mr. SHORTHOUSE urged that the supply of young stock for feeding is diminishing, owing to excessive in-and-in breeding in the case of *made* breeds. Herefords, West Highland, and Devon cattle, Blackfaced sheep, and other *original* breeds can be bred in-and-in with advantage. But an artificial breed, like Shorthorn cattle and Leicester sheep, dies out under the process!

Mr. LITTLE, of Chippenham, explained how, in his county, they provide young stock for the feeder. Each cow is made to rear 15 calves, and even more in the course of the year. By dint of Linseed, Oatmeal, Irish Moss, and other ingredients, diluted milk is made to serve the purpose. And by good feeding afterwards, the calves being kept in yards continually, and not suffered out at all, they are turned out as yearlings in very excellent and improving condition; and three year old heifers reared in this way often reach the price of 30 guineas each.

Mr. C. HOWARD combatted Mr. DUCKHAM's objections to overfeeding for show. Show animals are the exceptional specimens urged to the utmost as illustrations of the possibilities of the breed. Only one or two in a whole herd are spoiled, if, indeed, they are spoiled in this way, and in the meantime the advantage is obtained of a public opinion, impressed with the full value of the breed in question. As to Mr. SHORTHOUSE's idea of original breeds and artificial ones—Did he suppose that West Highlanders and Devons went into the Ark? They are as much artificial breeds as Short-horns, and Short-horns are as much an original breed as they. In all cases they are the result of artificial circumstances and human ingenuity, and any rule as to breeding in-and-in or otherwise applies to all alike. As for choice of breed, Herefords and Devons are very good—for the circumstances of their respective counties. He did not see why he should not follow an example, and talk a little "shop," like his neighbours; so he would say that while Herefords and Devons are properly confined to Herefordshire and Devonshire, he believed that Short-horns are good for all the world!

Mr. COLEMAN, of Wolborn, believed that every man would do best to breed the stock of his own county, whether Herefordshire or Devonshire—but good as these cattle are for the graziers of other counties, they are not to be obtained in sufficient numbers. Short-horns are generally the best for our purpose, because they can be had and others cannot. His plan was to feed high and breed early. It is best to take young stock from a poorish country (certainly not from sheltered yards), to be grazed elsewhere.

The CHAIRMAN declared from his experience that it is better to give plenty of cake than only a small quantity. If a bullock in fair condition is put up to fatten, it will take less cake to make it ready for the butcher if it eats 14 lb. a day than if it gets only 4 or 5 lb. a day.

This was the substance of the debate, which closed with the usual votes of thanks to the lecturer and the Chairman.

—— AN important meeting on the subject of the Cattle Plague was held at St. James's Hall on Thursday, under the presidency of Viscount COMBERMERE. It had been summoned by the Wakefield Farmers' Club, in the name of many other farmers' clubs throughout the kingdom; and there were accordingly representatives from the Midland Counties, from Lancashire and Yorkshire, from Lincolnshire, and Gloucestershire, and Devonshire, and Berkshire, and many other counties. The resolutions adopted declared the insufficiency of the present Orders in Council, and expressed a general acquiescence in the resolutions which had been adopted by the Royal Agricultural Society of England, and urged by them upon the Government. Mr. MOORE, representing the Highworth Mutual Cattle Assurance Company, moved that Government should forbid, for a limited time, the removal of any cattle from one place to another, except those for immediate slaughter, which should be accompanied by a certificate of health. To this resolution the representatives of the Midland Counties Agricultural Association opposed an amendment recommending in preference a simple expression of confidence in and satisfaction with the recommendations of the Royal Agricultural Society. It would be better to insist upon a penalty, as there suggested, for any offence, than to require a certificate, which would be capable of forgery; and moreover the efforts of agriculturists to induce the Government to take some arbitrary step for the suppression of live cattle traffic would be more efficient if they were united. The Smithfield Club had adopted the Agricultural Society's resolutions, and this meeting had better do the same. Mr. SPOONER, of Southampton, greatly preferred that the meeting should be independent of the Society; and urged the adoption of the original resolution. Mr. RANDAL, of Evesham, and Mr. TORR, on the other hand, strongly recommended that there should be a unanimous adoption of the proposal to accept the resolutions of the Central Society, with any further expression of feeling on the subject which the meeting might think proper to add to them. In the end, the resolutions of the Agricultural Society were adopted, along with a rider to the effect that if the Government deemed it possible, it would be advisable to slaughter all animals before removal, In his remarks on this point, Mr. C. S. READ, M.P., said that the calamity was of foreign origin, and needed a foreign remedy; and if the Government on its outbreak had taken a holiday for a fortnight, and invited the EMPEROR over to take their place for a week or two, the plague would very soon have disappeared.

It is plain that public opinion is fast approaching the point at which Government interference will be universally welcome, and when, therefore, it is likely to be efficient.

ARE SHEEP LIABLE TO CATTLE PLAGUE?

THE spread of the cattle plague is so certain, and its effects appear so fatal, that the flockmasters of this and other counties must necessarily feel anxious as to the possibility of sheep being affected with a similar disease. Scientific men have declared that sheep have been affected with rinderpest during the past autumn, and many practical men have declared themselves of a contrary opinion.

I may tell you that I formed one of a party of seven practical men who were invited to meet some scientific

men on the estate of Mr. Harvey, M.P., at Crown Point, near Norwich, on the 5th of October last, to examine and consider the state of the lambs, which were said to be dying from cattle plague, or rinderpest. My opinion then was that the lambs were suffering from a disease (in an aggravated form) similar in almost every respect to what had killed several lambs of my own a short time before.

I retained this opinion until Monday morning the 20th of November, when I became so much alarmed at the condition in which I found my flock of hoggets, that both my shepherd and myself were impressed with the feeling that they were suffering from rinderpest in a most malignant form.

The whole case has been so deeply interesting that I have been requested by my friends and neighbours to give the particulars to the public through your columns, if you will kindly insert them at your convenience.

My flock of hoggets comprised 287 healthy animals, and since the end of last September they have improved in condition and done well. On the 9th of October they were put on Turnips, each hogget having a daily allowance of ¼ lb. of Linseed-cake, and three-fourths of a pint of bran mixed with a little chaff. They had plenty of hurdle room from the time they were first put on the Turnips, and therefore did not suffer from close folding.

On Saturday the 18th of November my shepherd observed one sheep having a slight discharge from the nose and mouth, and on examination the mouth was found to be sore, and some spots on the inside of the lips. On the following morning, Sunday, two more were observed with the same symptoms, and these died during the day. On the Monday morning the appearance of nearly the whole lot was so truly alarming that I felt convinced I should lose the greater part of them.

The symptoms of from 80 to 90 of the worst cases were as follow:—The animals were standing with their backs arched, the ears hanging down, and showing every appearance of suffering great pain. A slimy glutinous-like discharge streaked with blood was running from the mouth and nostrils, and hung at least 5 inches from the chin. The animals moved with difficulty, and staggered as they walked. The tongue was covered with gangrenous-like ulcers, which extended as far as could be seen; and in the sheep that died, these spots were found all the way down the gullet. The outside of the gums was very pale, and here and there were lines of a dead blue colour. On running the finger over the outside of the gums, the whole surface sloughed off like pieces of thick white blotting paper, leaving the gums raw and skinless. In the milder cases the gums and lips were much ulcerated; which symptoms extended through nearly the whole lot of sheep. There was no particular looseness of the bowels, or scouring as it is commonly called; but the excrement of some of the animals was slimy and mixed with blood. These appearances were similar to those I had seen among Mr. Harvey's sheep at Crown Point, but more aggravated.

The sheep were bred on my farm, have never been off it, and we have not a case of rinderpest within 10 miles. I, however, believed my sheep were affected with rinderpest, and immediately went to Mr. Woods (Lord Walsingham's agent) to consult him as to what I had better do under the circumstances.

Mr. Woods went with me to look at the sheep, and said they were worse than anything he had ever seen, and the symptoms were very alarming; but, considering the situation of my farm, which is in a ring fence and abuts on Merton Park, and that the sheep had never been near any other sheep or strange cattle, he did not believe they were suffering from rinderpest; and kindly said if I would place them unreservedly under his care and treatment he thought he could cure them, and even ventured an opinion that he hoped I should not lose 20 more.

I was only too glad to agree to this proposition, and the result has been far more satisfactory than I could possibly have hoped for.

Mr. Woods gave to every sheep a dose of medicine of his own preparing, which had been successful in saving many sheep during the late autumn, and they were removed to another part of the farm and had a complete change of food.

On Tuesday morning, the 21st November, three of the worst cases were found dead, and, as it may interest your scientific readers, I may as well state they were carefully examined, and the *post mortem* appearances were as follow:—The liver was diseased, being friable to the touch, the lungs were very much congested, the fourth stomach covered with streaky blood-like spots, and a good deal of inflammation about the small bowels. The windpipe was much inflamed, the tongue ulcerated and covered with spots of frothy-like matter, and the entrance to the gullet had the gangrenous ulcers, which extended down to the paunch.

On Wednesday morning the sheep had a second dose of medicine, and, when opening the mouths of the sheep, my shepherd said to me, "These sheep are improving; for the ulcers are scabbing over, and their gums are getting pinky, or their natural colour." The sheep were improving, and the second dose of medicine, together with the judicious treatment carried out, has been the means under Providence of saving my flock of hoggets.

I have only lost two since Tuesday, the 21st, and the remaining 280 are, to all appearance, as well as ever they were, and are now put on to Turnips again.

There is one interesting feature connected with this disease worthy of notice. Out of the lambs attacked in September, 32 were treated by Mr. Woods and recovered, and of that number only two (and those very weakly animals) were affected during the late attack.

I have given the whole fact as plainly as lies in my power, and can now only say, that if my sheep were affected with a disease similar to the rinderpest in cattle, it is proved beyond the shadow of a doubt that in sheep it is curable if proper treatment is adopted. *Thos. Palmer, Tottington, Thetford.*

ON LONDON MILK.

[Read last Wednesday before the Society of Arts, by Mr. J. Chalmers Morton.]

It is the object of the following paper to relate whatever information on the production and consumption of milk in London could be collected within a very limited time by a single volunteer inquirer. The subject was suggested 12 months ago as proper for discussion before this Society, which occupies itself not only with strictly agricultural questions, but also with matters connected with the health and general welfare of the population; and it has since then excited unusual interest, owing to the diminished supply of milk which has latterly been occasioned by the cattle plague. It was not, however, until a fruitless attempt had been made to enlist another inquirer who possessed better opportunities than mine of investigating this subject, that I resolved to devote whatever time could be commanded during October and November to its examination for the purpose of this report.

No justification will be considered necessary of an attempt of this kind to throw all the light that can be brought to bear on an important branch of our food supply—neither has any such justification been required by the great majority of those to whom my inquiries have been addressed. From wholesale and retail dealers in milk—from wholesale and retail consumers of milk—from the railway companies who are carriers of milk—from the district medical officers of the metropolis, whose inspectors have the oversight of the cowhouses within their respective districts—from these inspectors, and from all the cowkeepers without exception to whom they have introduced me, I have had frank replies to all my questions; and it seemed in this way to be cordially admitted that the outside public, whose interest in the subject I represented, had a right to the information that was sought. It was doubtless perfectly competent for any of these authorities to have refused to me personally the insight that was desired into their respective shares in the great business of supplying London with milk, but they very kindly took my inquiries as having no personal object whatever, but as emanating from that justifiable interest of the outside public in the subject to which I have referred. Although perfectly aware that every Englishman's *house* is his castle, they knew that this rule does not apply to his *shop*. Customers have a right to enter there, and indeed are always welcome. They have to be satisfied, informed, propitiated. And however able generally to take care of themselves, Government has made, and public opinion sanctions, so many interferences in their behalf, that an inquiry conducted in their interest comes to be received with a civility and friendliness for which in this particular instance my best thanks are due.

It is the result of this inquiry that I have now to lay before you, and it becomes necessary in the outset to state the means of information which were open to me, and of which use was made. There was in the first place sufficient acquaintance with the experience of farmers in many of our dairy districts. I know their management, and personally many of themselves in the Vale of Gloucester, in Wiltshire, Cheshire, Ayrshire, and I am thus sufficiently acquainted with the relation between cow food and dairy produce in the country. Moreover, the precise returns for many years of quantity and produce on the Frocester Court farm, Gloucestershire, have been published by Mr. Harrison; similar information has been published by Mr. MacAdam, of Crewe, and the results of prolonged investigations have been given by Dr. Voelcker. To any questions of the quantity and quality of the milk produced under ordinary country feeding, there are thus sufficient answers. As to the quantity of milk supplied to London, the metropolitan railways have given me monthly returns of their imports—most of them for several years, all of them for several months. The clerks or inspectors of the 44 divisions in which the metropolitan district is arranged, have told me the number of their licensed cowhouses, and they and the Veterinary Department of the Privy Council have given me returns of the number of cows milked in them usually and at present. Thanks for the most part to the inspectors, to whom I was introduced by the medical officers of the several districts, I have examined cowhouses in the Hendon district, in the Islington district, in Marylebone, in St. Pancras, in Belgravia, in the Strand, in the City, in Chelsea, in Clerkenwell, in Bethnal Green, Mile End Old Town, and Limehouse. I have thus seen 51 cowhouses in all, and in every case conversation with the cowkeeper or their men has informed me as to the food given, the milk produced, and the risks and losses incurred. In one case, that of Lord Granville's large dairy near Hendon, I have had the recorded results of several years' experience as to food and produce, expenditure, losses and receipts placed in my hands by Mr. Panter, his lordship's steward; and the corresponding figures for Chas. Talbot's equally large dairy at Sudbury have also been shown to me. There is, moreover, the corresponding experience to some extent of very large cowhouses in the supply of other towns, as, for example, the large dairy on Mr. Littledale's farm at Birkenhead, the monster establishment of Mr. Harvey at Port Dundas in Glasgow, several of the Leith and Edinburgh dairies, that of Mr. Hilder near Woking, and Mr. Collinson Hall near Brentwood—from all of which particulars bearing on the subject have been gleaned. Then as to the trade in milk, I have been informed by Messrs. Marriage & Impey and Mr. Collinson Hall, wholesale dealers, who supply probably 100,000 quarts a week throughout the year, and to a very large number of retail dealers—both men who keep cows and sell their produce, and men who buy milk from the wholesale dealers to sell again, and I have had conversation with the men in charge of the railway traffic.

Lastly, as to the consumption of milk, the statistics of the milk supply to Stirling in Scotland, and Mansfield and Bedford in England, have been secured for me as a sort of datum line for comparison, and a good deal of information has been received as to the consumption of milk in country villages and families. Moreover, I have gone to institutions where the food of inmates has been under medical supervision, and where the dietary has been framed with a simple view to health, and I have to thank the officers of numerous different hospitals—not infirmaries for the treatment of patients, but asylums, orphan houses, schools, and workhouses, for the actual daily consumption of milk by many thousand healthy people, including 5300 children under 10 years of age and 3000 adults. And, on the other hand, thanks to some of the benevolent people labouring in the district, I have obtained information of the milk consumption in two or three of the lowest courts in the Strand district, where it is hard necessity which dictates the maximum, not medical advice which limits the minimum, scale of feeding. Lastly, we all have in the reports of Dr. Smith to Government an immense mass of information on the dietaries (including milk) of the poorer classes throughout the kingdom.

Applying such data as we thus obtain to the population of London, we learn whether it can be considered well-fed or not as regards its milk.

Here the question of Quality comes in. Starting with a very strong impression that London milk is almost invariably diluted, I am bound to say that as you make your rounds among inspectors, its dealers, and even its producers, you find (with many an exception where you cannot doubt the thorough honesty of the retail dealer) that this impression is equally strong in those who are most closely connected with the trade itself. Milk, incapable of being kept, and with more or less of a variable supply, must be stretched by dilution, more or less, to meet even a constant demand, and still more is a stretch of this kind required to meet an uncertain demand, varying considerably from day to day. But indeed it matters very little to the nourishment of the consumer, and not much, I would add, to the conscience of the producer, whether the dilution of the milk be produced by the direct addition of water or by feeding the cows on watery and succulent food. I saw two cowhouses in St. Pancras, one of which was in a wretched plight, the cows being extremely dirty and fed on the very poorest food—great quantities of distillery wash and of grains, with a little Covent Garden refuse greens—and the other over-full perhaps of cows, which, however, were cleanly kept, and well fed on hay and Mangel and grains with a little meal. I would rather have milk from the latter of these dairies, notwithstanding that coming to it unannounced at milking time, I saw a can of beautifully clean water standing conveniently near to the tins into which the milk was being poured. It is not however on mere inference from the necessities of the trade that the presumption of dilution rests. Many analyses have been published in proof of it. Dr. Whitmore of Wimpole Street, the medical officer of the Marylebone district, has been good enough to give me analyses which he has made, proving both the honesty and dishonesty of the instances examined. Dr. Druitt, the medical officer of St. George's, Hanover Square, has given me reports of many analyses by him. Dr. Voelcker has made many analyses of town and country milk, and he has been good enough to make several for me of milk collected from consumers in the two courts to which I have alluded. And Prof. G. T. Brown's microscopic examination of milk, as published in the "Quarterly Journal of Science," and in the *Agricultural Gazette*, also throw light on this subject.

I think then that on the whole a good deal of information has been collected on the quantity and quality of milk supplied to London, and on the costs and risks and produce of its manufacture; also on the consumption of milk in London as compared with other places, and on the risks which the consumers of it as well as its producers run. Of course the

great gap made in our produce by the cattle plague could not fail of being noticed. Its relations to the present and the future supply of the metropolis have been to some extent discussed in the recent Blue Book issued by the Cattle Plague Commissioners, and will no doubt be further discussed this evening.

This, then, is the material which has been gradually collected during the past three months. All the documentary part of it lay unread until time offered for its arrangement a few days ago, but of course inspections and conversations have been all along gradually influencing and forming the opinions which on the whole I believe them to justify. Looking at the thing itself, and if possible at my own relationship to it entirely from the outside, just as I have weekly had to do with agricultural evidence of all kinds for many past years, it must, I believe, be admitted that we have here a good witness—with sufficient previous knowledge and sufficient practice in the work of inspecting and reporting agricultural matters, to materially reduce the risk of his being misled by what he saw and heard—and with sufficient interest in the subject and sufficient indifference as to the lessons it might teach him, to make him at once industriously gather facts and ungrudgingly accept any conclusions which they fairly indicated. Of course no one with any previous knowledge of a subject comes altogether unprejudiced to a further study of it; but I can unhesitatingly declare that in studying this particular subject I have not cared one jot what the truth might be, and that I have had no personal end to serve during this endeavour to discover it. My prejudices were those of a countryman—that cows are healthier and better, and yield the best and wholesomest milk in fields—that London cowhouses are a nuisance to be abated, and that they ought to be all removed outside—that the best way of supplying a large town with milk is to bring it in from the country—that it is more reasonable, cheaper, better to carry 10 lb. weight of milk from a country farm to the town consumer's door, than to carry 60 lb. of green and other food from that farm to a cowhouse close by the consumer, there to convert it into the 10 lb. of milk which it will produce—and finally, that Londoners are worse fed with milk than any considerable body of men, women, and children elsewhere in the island. The whole inquiry, I am bound to say, has led me very materially to alter these impressions. I now believe that London cowhouses need not be a nuisance—not so great a nuisance certainly as London stables; I believe that the milk made in them is better than what is delivered at our railway stations from the country—that it is a wiser, cheaper, and better thing to carry heavy Mangel, Grass, and hay the few miles needed to the town than to carry one-sixth their weight of the milk they yield 20 or 30 miles from the country. I believe that cows in London cowhouses are and may be healthily and comfortably kept—nowhere more so—and that the risk of loss by disease is not greater here than in the Gloucestershire and Cheshire pastures; and I believe that hitherto, in point of fact, London, badly as it has been supplied, has at least been better fed with milk than the average of south-country villages.

These conclusions will startle and perhaps disgust some who may have come here expecting a wholesale condemnation of the existing London milk trade, with all its presumed abominations of filthy cowhouses and adulterations. I believe them, nevertheless, to be inevitable by any one who shall give sufficient time to a fair examination of the subject. They are the conclusions simply of an agriculturist anxious that the best food should be produced and offered to the consumer. Medical men, who are professionally interested not only in people being well fed but in their being kept free from active sources of mischief to their health, may insist upon it that animals, using and spoiling so much more air than men, should not be permitted in densely populated districts. And I can quite understand the outraged feeling with which the medical officer of a district having power given to him to reduce the number of human inmates of a tenement within certain limits, and exercising that power unhesitatingly for their good, finds himself (as in instances known to me he has been) thwarted, when he endeavours to secure the dismissal from a thickly populated district of animals such as cows, which individually vitiate so much more air than is spoiled by men. But this is not my subject; all I have to do with is how to secure the best supply of milk to a densely populated district.

Dismissing, therefore, this aspect of the subject (though I can foresee that it will be strongly, perhaps indignantly insisted upon in the subsequent discussion), I will state once for all, that while the facts are in favour of the milk being made near the consumer, and while there are a sufficient number of well-managed cowhouses in the town to prove that a cowhouse need not be so great a nuisance as a stable to the dwelling-house next door, yet the conditions of the best arrangement are no doubt best observed when cowhouses are situate in the immediate outskirts of a town, not within its boundaries. It may, however, be usefully remembered as regards the metropolis, that a cowhouse, one storied, with an animal to every 40 or 50 square feet of surface, and giving, as it almost always does, upon a yard, will not, advantageously to the health, be replaced, as it legally may and probably will be, by a building covering both ground-plan and yard, with dwelling houses four or five stories high, and perhaps whole families in each.

I proceed now, therefore, to the facts of the case; and leaving a great deal of tabular matter to be read in the Journal, I hope the story may be told without boring you very much with figures.

COUNTRY PRODUCE.

1. *Of Country Produce* I have not very much to say. The herd, averaging 65 cows (fair country Shorthorns), at Frocester Court Farm, Gloucestershire—fed on Grass and hay, with roots and straw in winter—produced, according to Mr. Harrison's careful records, 245,458 gallons of milk in seven years, or 535 gallons each cow per annum.—Mr. McAdam, of Gorsty Hill, near Crewe, who has long been known as an experienced dairyman, tells me that during the past four years 61 cows (Ayrshires) on his farm have averaged 550 gallons each.—Taking the Gloucestershire experience as our guide: for every 100 acres (22 being arable, as ascertained by Mr. Harrison in the case of 23 farms) in a district where the average crop of meadow hay is probably 28 cwt. per acre, the stock kept is about 20 cows, four 2-year olds, four yearlings, four calves, 20 sheep, and three horses, equal in consuming power to about 32 cows. The hay crop represents perhaps rather less than 7 tons of Grass, and the aftermath (at ⅔ the first cut) is probably less than 3 tons per acre. The whole cattle food of the 100 acres, half the arable land being taken as in Turnips and Clover, may thus be put at 900 tons of Grass, or 28 tons of green food per cow per annum, equal to 170 lb. of Grass a day to each. This, however, is where the Grass is depastured—that is, fed in the most wasteful way; and it is probable that if the calculation had had to deal with the case of house-fed cows, it would appear that 150 lb. of green food daily, of the quality of ordinary meadow Grass, or its equivalent, would suffice for ordinary Gloucestershire dairy cows. Putting, however 530 gallons of milk against 28 tons of this green food, we have 1 lb. of milk to every 11 or 12 lb. of Grass, or as nearly as possible 100 gallons of milk to every ton of hay. If the consuming value of hay (*i. e.* the price at which it can be grown at a fair profit to be consumed upon the land) be 60*s.* or 70*s.* a ton, then the milk can be produced in Gloucestershire to be sold at 7*d.* to 8¼*d.*, or say 7¾*d.* per gallon. And to this the dairy statistics of other countries pretty nearly corresponds. The figures from a farm near Christiania, published in the *Agricultural Gazette* (p. 102, 1863), show that in 1863 and 1864, taking the average of the two years, 41 cows yielded 27,000 gallons in the year, or 630 gallons each, consuming during that time, in all, 229 tons of calculated hay value, viz., in Grass during 120 days of summer, and Turnips, hay, and chaff, with a little oilcake, during the other 245 days of the year. This is at the rate of 100 gallons for every 17 cwt. of hay, or about 6½*d.* per gallon for food alone. But the cows (Ayrshire and country cows) were at least 100 gallons above the average in their annual produce.

Sixpence half-penny or 7¼*d.* per gallon, however, does not cover the risk of loss by disease and death.—Mr. Palin, of Stapleford, near Tarvin, Cheshire, tells me that his loss during 20 years over a stock of 50 cows was about 5 per cent. in general, 60 per cent. from pleuro-pneumonia during two years of the time, and 15*s.* a cow for loss of milk on four separate occasions from foot-and-mouth disease. Putting all this together, his loss has been 86*l.* a-year over the 20 years in question, or nearly 12 per cent. on the value of his stock.

Mr. McAdam tells me, that out of 1500 cows which he has had through his hands in country dairies during the past 15 years, 19 have died and 35 have been sold at a loss of 9*l.* each, from pleuro pneumonia; two have died from foot-and-mouth disease, and 21 have died from other causes. The foot-and-mouth disease, moreover, attacked 200 cows in this time (killing in one per cent. of the cases and) resulting probably in a loss of 10,000 gallons of milk. The whole loss must have exceeded 1300*l.* or 1400*l.* in the 15 years, much less per cent. than the other quoted case. And to the cost of food, 7¾*d.* per gallon, there must therefore, taking the latter case as our guide, be added from ⅓*d.* to ½*d.* per gallon, for that is what the loss comes to over 1500 times 530 gallons, making the cost of milk to those who make it from Grass and from hay at about 8*d.* per gallon.—If cows are sold 3*l.* per ton, at least 8*d.* per gallon.—If cows are sold after seven or eight months milking, it will be at the cost, on such feeding, of probably 5*l.* or 6*l.* a head to replace them with others just calved, while the consumption of food would probably be rather larger per annum. The produce, in place of being 530 gallons, would be at least 730; and the 200 extra gallons being obtained at the cost of this 5*l.*, or at 6*d.* a gallon, the whole produce of the year might not cost more than 7*d.* a gallon; but the risk from infectious diseases would be very greatly increased—more than doubled or tripled by the constant change of stock; so that in all probability milk would not be obtained much more cheaply thus than under ordinary country management, where cows are kept for five or six years upon an average, and fed in the summer time in pastures, and in winter time on hay and straw and roots, with access to both field and shed. Of course, when the object is to produce milk for London, as on many country farms a long way from town is now the case, they find cheaper, and, for their purpose, better food than hay, and they will adopt more economical management than grazing dairy cows in growing Grass. And though I hear that in the Aylesbury district hay and Grass and roots and grazing in the field up till now are still the rule, yet no doubt ultimately brewers' grains and cut Grass, and succulent food of all kinds given in sheds, will become the rule outside the town just as they are the rule within. Human nature is a pretty constant quantity, whether it be town or country bred, and countrymen who engage in contracts for the supply of milk to London dealers very soon find out the cheapest way of producing it in the largest quantity.

That way has long been studied and worked out with all the earnestness which self-interest inspires. You will meet in London with men who have been engaged in the business for 30 and 40 years, with a staff of servants, too, who have been in their employ almost as long. When the St. Pancras committee went round to inspect the cowhouses of the parish, and to condemn especially all of them which were in any way connected with dwelling-houses, they were met at the door of one to whom they announced the decision against him with an introduction to his grandfather and his father, then living with him, both of whom had carried on the business there before him. "And here, too, are my children, gentlemen—four generations of us. It does not look as if the cows had been injurious to health, close by themselves." Of course where a business has been carried on for such a long series of years, and men come to it in this way with inherited ability, as you may say, and there has been a long experience of all kinds, both prosperous and adverse—they cannot have much to learn of the best way to supply the demand for milk, even though the production of it be carried on under the great difficulty, as one would think it, of their long distance from green fields. But indeed this is no difficulty at all. Even in the midst of green fields the cowkeeper finds it the best policy for the production of good, abundant, and wholesome milk to keep the cows in houses; and in London, where the supply of brewers' grains is so abundant, it being the constant food all the year round wherever milk is produced for direct consumption—where large markets for Mangels and for hay exist, and where Grass can be supplied in abundance during summer at the cowhouse for 20*s.* to 25*s.* a ton, the means of keeping cows are especially good. Here, too, we have that guarantee of the quality of milk which is afforded by a high premium on keeping cows in good condition; there is here the best market in the world for cattle of all kinds, if they are fit for the butcher, and probably as poor a market as there is anywhere for poor dry cows; moreover the risk of infectious disorders, necessarily greatest in the crowded cowhouse, makes it especially necessary for the town cowkeeper to keep his stock in fattening condition, that they may be disposable at a minute's notice. And all these circumstances secure the best feeding being adopted here—much better feeding than satisfies the ordinary country dairyman. I have no doubt, therefore, that the milk yielded by a London cow is better than that which the same cow would produce under ordinary Gloucestershire or Cheshire management.

LONDON COWHOUSES.

2. What, then, is a London cowhouse? and what the nature of the manufacture—as we may call it—which is carried on in it?

A London cow-house may be, and often is, a piece of ill-conditioned, rather ricketty old stabling, with a sort of brick built manger on the floor, the length divided by short and scanty stall divisions, 7 feet or 7½ feet apart, furnished with ropes or straps or chains, with running rings, so as to tie up two between each pair. This floor is roughly causewayed, and there is a gutter lengthwise down it, parallel with the manger, and a little more than a cow's length from it. The house may be only wide enough for a single row of cows, or there may be one on either side, with the gutter between them for the drainage of both. I am now referring to the average style of the smaller and inferior cowhouses of the city, and in the poorer districts of the metropolis. You come upon one from some street of third-rate houses through an archway, perhaps under a dwelling-house, which leads you into a small back yard, half filled with this poor shedding. There may be a small pit for the dung, a store of some sort for the grains, and the small quantity of hay and roots which are kept on hand are stowed away in any convenient corner—at present there is room enough, for a full cowhouse, even of this small class, in London now is a very rare exception. The roof is either low, with plenty of ventilation through its loosely-lying tiles, or if higher, there is a "tallet" or floor overhead where hay and other food is placed, and in which wide spaces are left next the walls and over the heads of the cattle, and then the space of this upper room is measured into the 1000 cubic feet per cow, which is the rule that must be observed (for instance, in St. Pancras) if the cowkeeper wishes to avoid being opposed for a renewal of his licence. There are

window places, which at this season of the year are closed, perhaps with a bit of sacking nailed over them.

This, then, is the ordinary style of a small cowhouse—such as the majority of them are. You find in them six or eight or ten capital Short-horn cows, or perhaps here and there occasionally along with them a few black and white Dutch cattle. It is either a clean and tidy place, where both the cowmen and their stock are clean and dry and comfortable, everything in its place, the animals all lying down, having comfortably fed, and the air with no other perceptible smell than that of the chloride which the careful owner sprinkles once or twice a day along the gutter—*or*, it is a filthy hole. In some cases (generally in Bethnal Green) the dung pit is boarded over with a loose slab, to be replaced after every fresh addition to its contents, and the yard is clean and orderly and sweet. In others you will find a mess of dirty straw, originally purchased after use in a neighbouring stable, spread abroad to dry and clean itself over poles and hurdles for repeated use as litter. In some, fresh grains, good Mangels, and the best hay, with oilcake and peasmeal—the very best of cow-food,—are kept tidily, and served out regularly and neatly, and the whole management is punctual, clean, and systematic. In others you will find a bin of sour distillery wash, and a heap of stinking Turnip-tops and Cabbage refuse, and the whole place dirty and offensive. In general the accommodation—limited as it is—is quite apart from the dwelling-house, but there are exceptions even to this. There is a cowhouse in the St. Pancras district, otherwise well kept, which is the lower apartment—cellar it may be called—of a dwelling-house, though it opens on a yard descending to it from the street; 16 feet square and 7 feet high, barely 1800 cubic feet in all, it now holds 2 cows, and formerly it held 11—its licence is not to be renewed. There is another in the Strand district not so cleanly kept, where the shop or dairy is approached through the removal, as it were, of the ground-floor front room, which is thus laid open to the street, and as you walk through it you look down the central opening upon a cowhouse of considerable size in the cellarage, where there is accommodation for a dozen or more—only three being there at present. They must have been lowered to their place by ropes.

Such then is the smaller, but most numerous sort of London cowhouse.

Go a step higher and you come upon a class of men, many of them also occupying small farms near town, all of them employing very considerable capital, which has, however, very largely disappeared during the past autumn under the ravages of the plague. They keep 30, 50, 80 cows or more apiece, and these are lodged either in larger establishments of the kind already described—not unfrequently ram-shackle old buildings with yards attached, either with double-rowed cow-stalls, or covering a square, sometimes with a floor overhead and at others open to the roof, where the cows are arranged, first around the walls and then in a square block, head to head in the middle.

Sometimes there are parallel rows of roofing together covering a square, and double rows of stalls under each. And here too there is the same variety of management as to cleanliness and order. I could point out some examples even of this higher class, which are unquestionable nuisances, and others as clean and sweet as a parlour; for in this middle class of cowhouses, as they may be called, there are examples of the very best style of cow accommodation.

In Chelsea there are many examples where cows, as good for milk as any in England, are as comfortably housed as you shall find them anywhere—in sheds open to a clean and airy yard during summer, but provided with hanging flaps and doors for winter time. For example, you may enter through a wide gateway a passage roofed with glass, covered with Vine-leaf and sometimes Grapes, leading you to a well-kept yard, with clean and comfortable cow-shed on one side, and stabling, hay-house, and food store on the other, and an inner cowhouse further on. Both shed and house are filled with first-rate large-framed fleshy Shorthorn cows—fed on grains and hay, and Mangels, meal, and cake in winter, and Vetches or Grass and grain and meal in summer time, and the master, in the highly polished shop and dairy on the premises, hands you testimonials from half the titled families in the west to the quality of his milk. Or you may enter a larger yard in a poorer neighbourhood and find shedding closed against the winter, providing as good accommodation, in single rows, for as good a herd of dairy cows as I ever saw—and cleanliness and good order are apparent everywhere. Or you may pass from a well-kept mews into a lofty, clean, and through ceiled, well-ventilated and well-drained apartment, 10 or 12 feet high, with, I should suppose, 60 square feet of standing ground to every beast—warm, well watered, and well fed. Where could cows be more comfortably kept? In every instance I am describing actual examples.

In Marylebone you find, in a good street, a corner shop, where the side road leads to a well-kept first-class mews. The master takes you through his three-storied cow-house, as you may call it—and first into an apartment for 12 or 16 cows, which is the quarantine station through which after some weeks' trial they pass into the other rooms, one directly overhead, reached by a sloping gangway, and the other alongside, but lower down. The floors are all closely bricked in cement, the upper one being laid on brick arches, and the drainage is everywhere perfect. I may refer directly to Mr. Drewell's establishment at No 6, Upper Weymouth Street, for the example of intelligence and pluck with which great losses have been met by him, and further losses have been resisted. He has taken special precautions against infection, and shown extreme care in destroying it whenever it appeared. The whole of the brick flooring has been taken up and disinfected and relaid. The plan of tarring the noses of the cattle, so as to disinfect the very air they breathe, was adopted, but ultimately abandoned for the neater plan of nailing on the wall before them a wide strip of absorbent deal well soaked in creosote. Iron having been pronounced a remedy or preventive, the well upon the premises was thoroughly chalybeated by throwing in old iron, and every possible device was used to insure the perfect sweetness of floor and food and air. I can assure this meeting, containing no doubt many countrymen, that they will nowhere find better, cleaner, neater, and sweeter cowhouses than, taking these examples as an illustration, may be kept and are to be found in London streets.

Lastly, I come to the larger establishments, and Mr. Drewell, holding a couple of large cowhouses, and originally milking 140 to 150 cows, of which, however, he has since lost 100 by the plague, might have been referred to under this division. I refer, however, now to the largest houses, where 200 cows and upwards have been generally milked. And here too you find two classes of establishments—houses on the one hand where you can touch the ceiling, dark and dirty, and crowded with unfortunate beasts; or where, in spite of ample space and lofty roof, the poor cows are comfortless and filthy—and places on the other hand where the accommodation is first-rate, roomy, clean, and comfortable—a single cattle shed, it may be, like Mr. Camp's, of St. Pancras, in the midst of a large and roomy yard, 90 yards long and 26 feet wide, with a broad gangway between two rows of cattle—or several sheds, clean and dry and warm, each well managed, placed at intervals in a clean and spacious yard, such as Mr. Veale's first-rate establishment in the Acacia Road, St. John's Wood.

Such then are the London cowhouses, of many sizes, and of at least two styles of management, in one of which a daily cleansing of the whole establishment, dung pits included, insures perfect order and condition, and in the other muddle and dirt easily create a nuisance.

Let me here state it as a mere matter of fact, that the fatality and even the advent of the cattle plague has had no sort of connection or relationship with the condition of the cowhouses where it appeared or where it did not appear. Any one going round the London cowhouses to study the cattle plague in them, is thus shut up to the conviction that it is the result of some new and special poison which has been introduced. The largest, cleanest, best managed cowhouses have been swept out, and the filthiest holes have in many instances escaped. And in Bethnal Green you come repeatedly on small cowkeepers who have lost their all, and close by are others who have not suffered, and there has been no difference whatever in their management. Mrs. Nicholls' cowhouse (Laycock's Dairy), Islington, where the disease first appeared, a large and roomy, clean and well-kept place, lost all its cows, and a second lot bought in immediately were also carried off. In Mr. Camp's capital house the disease appeared in a couple of instances, and the whole stock was immediately sent to market. Only the other day, on applying at the Vestry of Mile End Old Town for an introduction, through the inspector, to the cowhouses there, I was told, "One of our largest men, Mr. Alexander, is so particular that he won't let you come in if you have been to any other cowhouse in the district." I called on Mr. Alexander, and found that the disease had appeared or threatened in a case or two in his well-kept establishment, and he had immediately sent the whole of his stock to market. One cowkeeper in St. Pancras—a capital fellow I know he is, for the hearty way in which he stands under the heavy losses he has suffered—had two cowhouses, one lofty, large, and roomy, the other offering very dilapidated, low, and poor accommodation. The cattle in the good house died, and the plague has never entered the other. And one of the dirtiest cowhouses I know in London, where cabbage refuse, stinking wash, and dirty stable-dung for litter, combined to make as filthy a hole as ever cows were kept in, not far off this place, had not then been visited. And where indeed will you find a better illustration of the same kind than is afforded by Lord Granville's well-kept, lofty, roomy cowhouses at Golder's Green, in the midst of green fields. It was as bad a case as any of losses by the plague, and his 100 cows, among the best kept in London, were among the first to suffer.

I may here add that as a general rule the London cowkeepers have shown great energy and resolution in combatting their new and dreadful enemy. You smell chlorine in the cowhouses almost everywhere, and the interiors are generally fresh lime-washed at intervals. Where the disease has occurred, the flooring has been grubbed up and disinfected with both chloride of lime and caustic lime, the whole place has been scrubbed and limewashed, and sufficient time has generally been allowed to go before fresh cows are brought in.

The Milk Produce.

Such being the cowhouse, what is the manufacture carried on in it?—In order to the profitable conversion of cow-food into milk, you must make use of the best animals in the right constitutional condition, and you must feed them well, and you must keep them warm. Fresh-calved Short-horn cows or animals of the black and white Dutch (a good dairy) breed are therefore selected. They are fed on grains and hay and roots in winter, and grains and Grass in summer, and watered regularly. In many dairies meal or bran is also always given daily to the cows, and in some it is given very liberally, but when in heavy milk they almost always get a quart of Pea or Barleymeal, or half a peck of bran thrown in with their grains, morning and evening, and when shrinking their milk after being six or seven or eight months at the pail (and these are examples spoken of and sometimes seen in almost all large dairies where cows milk on without breeding for one and two and even a third year) they receive cake and meal to get them fat as rapidly as possible. They are sold, you may say invariably, to the butcher at such time as, considering the demand for milk (up to the last they are giving some), or the state of the market, is most convenient to the owner; and fresh-calved cows are bought in their place. The average time a cow remains on hand varies exceedingly. In order to keep 100 stalls always full of milking cows 100, 120, 150, 170, and even 200 are annually bought, making in the several instances the average length of time during which a cow is kept in milk, 12, 11, 9, 8, 6 months respectively; and sometimes they are calved down and kept on a second year. The loss upon the exchange varies very much, from 2*l.* or 3*l.* to 4*l.* or even 5*l.* a head, and that corresponds of course to much more per stall, *i.e.*, per cow actually in milk, because there may be 150 of these exchanges in the year for every 100 cow stalls. It matters nothing whether you take your examples of management from the country or from the town, for the management and experience are alike in both. I give therefore the following figures from Lord Granville's dairy farm at Hendon, and from Colonel the Hon. T. W. Talbot's farm at Sudbury. The former had a good deal of loss from foot-and-mouth disease and pleuro-pneumonia during the last two or three years, and the latter has been in perfect prosperity; the former represents average management as to feeding—the latter represents the highest feeding, and thus the average of the two may fairly represent the average of the town dairymen.

Mr. Panter, his lordship's steward, tells me that they milk from 90 to 130 cows, averaging 100, 108, and 120 cows respectively in the years ending Midsummer 1863, 1864, and 1865 respectively. Taking the middle year of these:—To keep 108 cows in milk they sold 161 for 2317*l.*, or 14*l.* 14*s.* each, and bought 163 for 18*l.* 18*s.* each, losing 4*l.* 4*s.* apiece by the transaction, but more than 6*l.* per stall or cow kept milking. The milk sold during that year fetched 4300*l.*, which, at the price it realised, 1*s.* 10*d.* per barn gallon, corresponds to 93,818 imperial gallons, or 868 gallons per cow in constant milk, *i. e.*, per stall; and this is 9½ quarts a day upon an average. They received daily 1½ bushel of grains apiece, 15 lb. of hay, and 30 lb. of Mangels during winter; and in summer the grains with Grass, viz., ¾ of an acre of a crop equal to 30 cwt. of hay as the daily rations of 120 cows, which may thus be said to have eaten rather more than 1 cwt. apiece. Besides all this, 4 lb. daily of Pea or other meal were given with the grains as the cows began to fail in milk; so that when they fell to perhaps 5 quarts of milk a day they were fat enough to go to the butcher. In three years, the stock being 100, 108, and 120 cows respectively, the return varied from 3900*l.*, 4300*l.*, equal in all to about 40*l.* per stall under the feeding; from which had to be deducted a yearly loss of 6*l.* or 7*l.* per stall to keep the stock of constant value.

During these years, however, the herd suffered frequently from foot-and-mouth disease, and occasionally from pleuro, so that forced sales and diminished yield were frequent, and thus the loss of 4*l.* 4*s.* per head, or nearly 7*l.* per stall, is no doubt very much larger than it is in the average of town dairies. In Colonel Talbot's dairy at Sudbury, where the feeding is higher and there had been no disease, they milked about 80 cows, and sold 153 in the course of last year, purchased for 19*l.* 10*s.* apiece, and sold for 18*l.* 10*s.* apiece upon an average, so that there has been a loss of about 1*l.* per head or 2*l.* per stall; and the returns here are 4090*l.*, which, at 1*s.* 10*d.* per barn gallon (8 quarts) represents 89,236 imperial gallons, or nearly 1100 gallons per cow in milk, which is close on 3 gallons per stall a day. Here the feeding included meal of various kinds, 3 or 4 lb. a head daily throughout the year, and the cows, bought at an average of 19*l.* 10*s.*, are of first-rate quality.

I have here a Table, giving the daily rations of each cow, and in some cases, the actual, but generally the estimated daily return of milk in 14 of the instances examined by me, a dozen of which are strictly town dairies. The letter F, opposite the entries of meal or food, indicates that in these cases it was given only to fatting cows, in others it was given continually. In

will be seen that the grains given vary from ¼ of a bushel daily to as much as nearly 2 bushels a day; the hay from 6 lb. to 15 lb.; the roots from 25 lb. to 60 lb., and cake or meal from nothing up to 5 lb. apiece, given regularly, or to from 3 to 5 lb. given only to fattening stock. And the daily produce per stall, *i. e.* per cow in milk, is estimated at from 9 to 12 quarts daily, a difference not greater than has actually existed

	Cows Milked	Cows bought per annum.	Loss on Sales per Stall.	Daily Winter Rations of a Cow. Grains.	Hay.	Distillery Wash.	Roots.	Meal or Cake.	Daily produce of Milk per Stall.
	No	No.		Bsh	Lb	Gal.	Lb.	Lb.	Qts.
1	108	160	£7	1½	15	..	30	3 (F)	9½
2	85	150	?	1½	?	..	?	4	12
3	40	40	?	1	14	..	40	2 (F)	10
4	18	76	?	1	?	..	42	?	9½
5	10	?	?	1¼	12	..	60	2 (F)	?
6	100	150	?	¾	9	..	56	3	?
7	20	?	?	1	6	..	56	3	?
8	?	?	?	1	14	..	28	pint condiment	12
9	50	100	?	1	12	..	28	peck bran	12
10	?	?	?	1½	9	..	28	pint meal	9½
11	?	?	?	1½	15	..	30	?	12
12	50	75	?	1	14	.	25	5	10*
13	?	?	?	1½	7	..	60	4	9*
14	?	?	?	1½	11	6	42	3	10

The summer ration is Grass, as much as they will eat, grains, and a little meal.

between Lord Granville and Colonel Talbot during the past few years. Distillery wash is only mentioned once in this table; it is however given in many dairies of all sizes at from 4 to 10 or 12 gallons daily—generally mixed up in a mess with grains and hay chaff, and sometimes meal.

I must now compare food and produce here, as I did in the case of country milk. Putting hay at 5*l.* a ton, grains at 3*d.* a bushel, meal at 1*d.* per lb., and roots at 20*s.* a ton—the mere food of a town-fed cow may be said to average 9*s.* or 10*s.* a week, and it is often as much as 12*s.*, and the milk from this food, at 2*s.* a barn gallon, is worth 17*s.* 6*d.* or more a week. Out of the difference the cowkeeper has to pay for rent and labour, and for the cost, under natural deterioration and occasional disease, of keeping the stock good. There are no actual records attainable on a sufficient scale of time and number to be trustworthy, but I believe that the disposal of at least one in every ten of the cows that are bought is a forced sale. This is mainly owing to the occasional sweeping attacks of pleuro-pneumonia which are suffered. The first symptoms of its approach are always carefully watched for, and the animal is at once sold to the butcher at whatever sacrifice. The loss per stall is, in the case of many a cow, nothing whatever from these changes. Under good feeding the stock is often kept at full value for milking purposes without loss. But taking forced and hurried sales into account, the loss can hardly be considered less than 5*l.* a year per stall, or 2*s.* a-week. For 12*s.* a-week these animals may be kept to yield 17 or 18 gallons of milk, which is at the cost of about 9*d.* an imperial gallon. I cannot tell you in detail what the expense of rent and labour on the average of London dairies is. These items, and fair profit too, were considered in the assumed price of hay upon the country farm; but, adding rent and labour, and fair profit to the cost of keeping stock in food and health in towns, the wholesale price of 1*s.* an imperial gallon does not much exceed the total cost of it. The expense of labour must be very considerable, and the life generally is a hard one, both of the labouring men and of the master, who generally shares it and always superintends it.

Let me describe a day's experience of it. You rise at 4, clean out the house, and milk the cows, taking probably 12 to your own share. The milk is taken from you to the dairy, and there placed in the cans in which it is carried round to customers. You then feed the cows with half a bushel of grains or more to each, with perhaps a quart of meal in it, or half a peck of bran, or it may be no addition at all. I have met with the use of spiced meal or condiment in two or three cases, at the rate of half a pint to each. You give them a bit of hay apiece, and you then sweep up the house and go to undertake the labour, or at least a share of it, of carrying round the milk and crying it along the streets. At 8 o'clock you breakfast, and at 9 the cows are watered, and perhaps 20 lb. of Mangels and another lot of hay, 2 or 3 lb. apiece, are served round, and then they are swept out and left till milking-time again. This is at 1 o'clock, when the place is again cleaned, and the gutters swilled out and the cows are milked and fed on grains and hay as before, and you then go round with the milk again, come in and give them roots and hay and water, and litter them down or leave them for the night. Or take the example of a farm 20 miles from London; I quote the letter of a correspondent:—

"We begin milking at 1 o'clock in the morning; each man should have 15 cows. This milk arrives at 5 o'clock in London. The cows are again milked at 10 o'clock, and in London at 1 o'clock.

"They are fed as follows:—each man gives about 4 lb. of meadow hay to his 15 cows, and then goes to bed. At 7 o'clock he mixes ½ bushel of grains with a bushel of sweet chaff, and a handful of salt; the cows are then cleaned and fresh littered; 2 lb. of hay given, and at 11 o'clock 1 bushel of Mangel is given; at 4 o'clock p.m. 1 bushel grains and chaff; and at 6 about 1 or 2 lb. of hay. The cows are not tethered, that they may not mix together, and their water is carried to them. I have never seen them more healthy than at present, or giving more milk. We feed often, and not large quantities at once.

"Lime on the floors, and gas tar enough to be not offensive, and 20 drops of arsenic and chloride in their water; great cleanliness, and all the provender good; not putting too many in one shed; good ventilation at the top, no draughts. These are my precautions.

"The London milk usually sold (excepting by the larger dealers) is about one-third water, but there are some that make up a compound, one-third being milk. I am informed the French police inspect the milk vended in Paris. Could this not be enforced for London?"

So much for mere labour: and, now, what for trouble and anxiety of mind?—The cowkeeper has to deal with one of the most excitable and sensitive of animals, and his mode of keeping her on the richest succulent food and in if possible constant summer's warmth—for the warmth of the cow-house is a point of great importance to its productiveness of milk—goes no doubt to increase the natural sensibility to the utmost. Moreover, he has to deal with one of the most easily spoiled and sensitive of commodities. Everything may be said to be in the condition of ticklish equilibrium—a breath of infection may sweep the cattle stalls to ruin, or at any rate to almost ruinous loss: a passing thunder storm or blast of hot air may spoil the contents of the dairy. I say that if milk is delivered to the purchaser as the cow delivers it to the pail, the cowkeeper wins his profit out of more labour and anxiety than almost any other manufacturer or tradesman. And unquestionably the milk very often *is* delivered genuine, for the milk dealers who give 2*s.* a barn gallon (less formerly, but more at present) often come and milk the cows themselves.

The remainder of this paper will be given next week.]

Home Correspondence.

Steam Cultivation.—Mr. R. T. Smith, of the Whitchurch Steam Ploughing Company, has not supplied me with the names and addresses of the occupiers of the 48 farms in question; I therefore jump at the conclusion that he does not want me to test his statements of quantity and depth, &c. Well, I am content, leaving the public to draw their own conclusions from his silence. Here the matter might have ended, but Mr. Hutchinson will not be content until the public know the whole truth about the hedges, and a little about Mr. Smith, who has so recklessly branded him with untruthfulness. He has called my attention to what he said about the hedges in his essay published two years ago, and he has forwarded to me a copy of the correspondence that has recently passed between himself and Mr. R. T. Smith. I therefore beg your indulgence to allow me to explain. At page 8 of Mr. Hutchinson's essay he writes thus:—"The quantities refer to the estate survey, consequently include the fences." This is positive evidence that he did not make even a mistake in including the hedges, but a mere oversight in not placing a note at the foot of his statement showing that the hedges were included. Mr. Hutchinson's character for truthfulness stands untarnished; now let us see about Mr. R. T. Smith's. Mr. R. T. Smith says in his letter (dated Oct. 16, 1865) when speaking of removals:—

"You would require eight (horses) under favourable circumstances, and if you had been in some of the bad roads we have had to travel, you would have wanted eight-and-twenty."

Now, if this is his conviction, I will show you that he sticks to it. In another letter of his (dated Oct. 25, 1865) he writes thus:—

"I know something about moving heavy engines about the country with horses, and adhere to my statement that in some of the bad roads we have had to travel at least eight-and-twenty horses would have been required to move your tackle."

It is plain that there was plenty of time for him to well consider what he said (nine days after his first statement), and it is plain that he wrote the last time in earnest. Well, at all events, it does not say much for the New Highway Act that has been put in force in the county of Shropshire in opposition to the wish of the general body of rate-payers. Let us see what awful roads they must be that it would require "at least 28 horses" to draw a set of my tackle over them. A set of my tackle weighs 8 tons—this divided by 28 gives to each horse not quite 6 cwt. Why, in the old pack-horse time the horse used to carry as much upon his back through the then bad roads. Have the Shropshire roads gone back to the state in which they were in the pack-horse day? They must have gone worse, for, according to Mr. Smith's account, a horse could not now pull more than 6 cwt., to say nothing about carrying it upon his back. Who will believe him? I will not; and I cannot think that his neighbours in Shropshire will be over pleased with him for trying to make the world believe that their roads are so very bad that it needs 28 horses to draw 8 tons weight over them. Mr. R. T. Smith says, in his letter dated October 18, 1865—

"I have seen both engines (Fowler's) sunk 3 feet deep, one in old culvert, the other in a bog hole that had recently been filled up. A few fence rails were thrown before the wheels, and both engines fought their way out on the solid ground without any aid whatever, and they were in such a position that they could not aid each other. This happened in the presence of Lord Hill and many other gentlemen."

Now, sir, just look at Fowler's 14-horse engine, 12 tons weight, standing "3 feet deep in a bog hole." The front wheels over their hubs, the back wheels up to their hubs, and the fire box and water tank imbedded half a yard deep in the bog. "The fence rails thrown before the wheels" must have laid upon the bog above the widest part of the wheels projecting forward. I will not believe that the engine wheels, standing 36 inches in mud, could mount those rails. Mr. R. T. Smith must put my Lord Hill and his many other gentlemen into the witness-box, or I will not believe it. I will now leave Mr. R. T. Smith's 691 acres, worked from 12 to 16 inches deep, untested; leave him grovelling over his dirty Shropshire roads with his 28 horses, and with his two engines stuck in the mud a yard deep, to get over the road and out of the mud the best way he can. The word untruthfulness certainly recoils from Mr. Hutchinson's hand. *William Smith, Woolston, Bletchley Station, Bucks, Dec.* 5.

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

ADJOURNED MONTHLY COUNCIL: *Wednesday, Dec.* 13, 1865.—Present: Lord Tredegar, President, in the chair; the Earl of Shrewsbury, the Earl of Lovelace, Lord Feversham, Lord Walsingham, Lord Berners, the Hon. A. H. Vernon, Sir Massey Lopes, Bart., M.P.; Sir J. V. Shelley, Bart.; Mr. Amos, Mr. Bowly, Colonel Challoner, Mr. Druce, Mr. Brandreth Gibbs, Mr. Hutton, Mr. Sunday, Mr. Pope, Mr. Randell, Mr. Thompson, Mr. Torr, Mr. O. Wallis, Mr. Jacob Wilson, Mr. Frere, Professor Simonds, and Dr. Voelcker.

MEETING AT BURY ST. EDMUND'S.—The General Bury Committee reported that they had consulted the members of the Local Bury Committee as to whether it would be desirable to hold in 1866 a Show limited to Implements and Horses, or to postpone the Show to 1867; and having read the Minute of the Stock Prizes Committee recommending such postponement, the Mayor stated that the Local Committee would meet on Friday, and that he should desire to take their opinion on the subject. The minute of the Stock Prizes Committee referred to was as follows:—"Recommended, that in consequence of the cattle plague it is desirable—subject to the concurrence of the authorities of Bury St. Edmund's—to postpone the Meeting of the Society intended to be held next year in that town to the year 1867." A letter from the authorities of Bury St. Edmund's having been read, the Council resolved, on the motion of Sir John Shelley, seconded by Mr. Thompson, that in reference to the communication from the Mayor of Bury, the Secretary be instructed to inform the Bury authorities that the Council left to the Local Committee the selection of one of two propositions, viz.:—

1. That a Show of Implements and Horses should be held at Bury in 1866.
2. That the Meeting at Bury be postponed to 1867. That the Society will be prepared to vote half of the sum of 200*l.* to be paid to the Tenant for any extra loss which may be incurred by him owing to such postponement if decided upon by the Bury authorities, but that the Society will not hold itself responsible for any further extra local expenses.

SHOW-YARD CONTRACTS.—Mr. Randell reported that the Committee had received six Tenders for the Show-yard Works, and five for the Portable Buildings. For the entrances and portable buildings attached thereto, they recommend that the plans be reconsidered with a view to reduction of costs, and they ask the Council to continue to this Committee the authority to modify the present plans, and to ask those who have now tendered for these works to send in fresh tenders. For the Show-yard Works they recommend that Mr. Pollard's tender be accepted for the year 1867, subject to his concurrence in the postponement of the Show to that year, and to further inquiry as to his responsibility. This Report was accepted.

The draft Report to the General Meeting was then settled, and the Council adjourned to their Meeting in February.

GENERAL MEETING.—At the General Meeting of the Society held on Wednesday, Lord Tredegar in the chair, the following Report was read:—

Since the last General Meeting, one governor and 43 members have died; the names of five members have been removed from the list by retirement or otherwise, and three governors and 129 new members have been elected; so that the Society now consists of 78 Life Governors, 84 Annual Governors, 1394 Life Members, 4261 Annual Members, and 16 Honorary Members; making a total of 5833; being an increase of 81 names.

Mr. George Clive, M.P., of Perrystone Court, Ross, Herefordshire, has been elected a member of Council to fill the vacancy caused by the resignation of the Right Hon. Lord Leigh.

The finances of the Society are in a satisfactory condition, as is shown by the balance sheet to the 30th June, which has been already published in the "Journal." In consequence of the large expenses attendant on the Plymouth Show, and the sum devoted to the purchase of show-yard plant, the Council has been compelled to sell out 2000*l.* of the funded property, which now stands at 19,027*l.* 19*s.* 6*d* in the New Three per Cents.

The plans and specifications for the show-yard works have been prepared by the Society's surveyor, and the Council trust that a considerable saving will be effected in the future annual cost of the buildings required at the country meetings. They have purchased from the former contractor a large portion of the plant—consisting of portable buildings, turnstiles, exits, &c.—which was annually hired; and which it is calculated will last for some years. The acquisition of these has necessarily thrown a heavy charge on the funds of the Society this year.

The Governors of the Royal Veterinary College, in their annual report of the progress made at that Institution in the application of the veterinary art and the treatment of the diseases of cattle, sheep, and pigs, state that the number of pupils qualified to act as practitioners in carrying out these objects of the Society continues to increase; but they regret that the members of the Society do not avail themselves more

extensively of their privilege of sending diseased animals in a live or dead state to the College; thus furnishing means for the acquisition of a larger amount of practical experience by the pupils.

A special circular was prepared by the Veterinary Committee and forwarded to every member of the Society, drawing attention to the distinctive symptoms of the cattle plague, in order to assist the members in distinguishing between it and the pleuro-pneumonia, and the mouth and foot disease. The circular also set out the precautions which the committee at that time recommended to the attention of agriculturists.

The Plymouth Meeting has been one of the largest in point of receipts ever held by the Society, although a General Election was going on throughout the country at the time. The Prince and Princess of Wales were pleased to honour the Society by a visit to the showyard on Wednesday, the 19th July, which added considerably to its success. Their Royal Highnesses were pleased to express to the President their satisfaction with the whole of the arrangements made for their reception and entertainment. The attractions of the Show were further increased by the presence of the French fleet, of an Austrian man-of-war, and of the ships of the Channel squadron, and the Society had the satisfaction of receiving as visitors a large number of the foreign officers and sailors. Although the receipts for admission of visitors to the showyard amounted to 6270*l*, the outlay required for so extensive an assemblage of implements and cattle, and for the elaborate and highly satisfactory trial of implements on the occasion, has proved so great that the excess of expenditure over receipts on account of the meeting amounts to about 750*l*. The general meeting of the members on leaving Plymouth conveyed to the Mayors of Plymouth and Devonport, and to the local committee and others who had zealously co-operated with the Council in promoting the success of the meeting, an expression of their best acknowledgments for their kind exertions.

The Council have the satisfaction of reporting that 120 candidates from 18 counties have been entered for their prizes in connection with the Cambridge local examinations, which take place during the present month. Of these candidates 83 are under the age of 16, of whom 75 are entered for the general junior examination, 60 for prizes in pure mathematics, 15 in elementary mechanics, four in chemistry, and one in botany. There are 27 under the age of 18 who have entered for the general senior examination, and of these 21 are entered for the prizes in pure mathematics, 12 in applied mathematics, two in chemistry, two in zoology, one in botany, and one in geology. Those only who have passed the preliminary examination are eligible to obtain a prize in a special subject. In the list open to candidates not exceeding 25 years of age, 13 have entered to compete for one or both of the extra subjects, six compete in mechanics, and 12 in chemistry applied to agriculture. Many candidates have entered in more than one subject; 104 describe themselves as the sons of farmers or others in some way dependent on the cultivation of the soil for their support, and the remaining 16 express themselves as intending to follow agricultural pursuits in after life.

The Council have obtained the assistance of Mr Besant, of St. John's College, Cambridge (Senior Wrangler, 1850), to examine in mechanics applied to agriculture, in conjunction with Mr. Ames, the Society's consulting engineer. Mr. Liveing, professor of chemistry in the University of Cambridge, and the Society's consulting chemist, Professor Voelcker, will conduct the examination in chemistry applied to agriculture.

Professor Voelcker has delivered lectures before the members of the Society on Irrigation and Disinfectants.

The Council have from time to time been favoured with various communications from her Majesty's Secretary of State for Foreign Affairs, and from the Lord President of the Council, the substance of which has been made public in the published Proceedings of the Meetings at which they were read.

The adoption of the Report was moved by Mr. Duckham, who adverted to the imperfect and insufficient measures taken by the Government for the restriction of the cattle plague.—Dr. Crisp declared the Order in Council to be utterly useless; the inspector, on whose "pass" the cattle traffic was to depend, could not by any possibility detect disease in its incipient stage—not only sheep but six distinct species of ruminants were capable of taking the disease, and packs of hounds traversing the country were capable of conveying the contagion—nothing but absolute isolation of the infected animal could hinder the spread of the mischief.—Lord Walsingham explained the case in his neighbourhood to which Dr. Crisp had referred, in which a flock of sheep had been attacked, and treated by Mr. Woods, his lordship's agent, with remarkable success. [Reference is made to this case in another column.]

Professor Simonds gave a detailed account of experiments and observations on the relations of sheep to the cattle plague, proving conclusively that they are liable to it, and that it was as fatal in their case as in that of others.

Thanks were voted to the auditors and to Lord Tredegar, as President of the Society, and the meeting closed.

THE SMITHFIELD CLUB CATTLE SHOW.

The four days of capital weather during which the Show has been open have probably answered the purpose of the Agricultural Hall Company as well as the five days, which is the usual period, have hitherto done. The attractions have not generally been as good as usual; but they have been equally efficient in drawing a multitude of spectators. Excepting the Devons, the Sussex, and the Kyloes, the cattle classes have not generally been up to the ordinary standard. The sheep classes are indeed first-rate—they were never better; but, on the other hand, the pig show is inferior in both number and quality. The galleries and area around the central hall are filled with an unusual display of implements.

The Show may be said to have suffered somewhat from the cattle plague, seeing that Mr. Wood's ox, which was first at Birmingham, and which has during the week been holding levées at the Crystal Palace, is hindered by it, or rather by the consequent rules of the Club, from appearing here—for nothing so good is exhibited in the Agricultural Hall. Every precaution against infection is taken around and within the building; the whole area and all its approaches are repeatedly disinfected every day, and every sheep and pig has been more or less daily dredged with a "safety" powder, and no harm, that we have heard of, has arisen during the week.

The CATTLE CLASSES commence with an admirable display of *Devons*. The younger class of steers in this breed hold their own for ripeness and precocity with the corresponding class of any of the other breeds. Indeed the few Devon steers under 30 months of age appeared to us to be even riper and fatter for the butcher than the animals certainly of the Hereford breed, and perhaps also of the Short-horns. Mr. Overman's 1st prize young steer girths 7 ft. 8 in., though only 2 years and 5 months old, and is wonderfully ripe and good for its age. General Hood's 2d prize steer in the same class is also an excellent specimen for its age—particularly good over loin and in flank, perhaps hardly so straight to the end as the others. The 2d class, steers under 39 months, is well filled and very meritorious. Mr. Overman's bullock is a great thick massive animal, well deserving its first place. Mr. Frampton, Mr. Coate, Mr. Burton, General Hood, and others show well. In the older class General Hood takes the 1st prize for a very large and massive ox of good quality, straight from end to end, with good flank and loin. Mr. Heath's ox, particularly good on the latter point, and of first-rate quality, is 2d. The whole class is admirable. The class of heifers, small in number, is of excellent quality. Mr. Farthing's 1st prize heifer is wonderfully thick, and well covered with flesh along the ribs. Mr. Walter takes the 2d prize with a very beautiful animal. There is no more attractive class in the Show for those of fastidious taste as to form and colour. The older class of Devon cows is of inferior quality, and small in numbers.

We now come to the *Herefords*. There are only two young steers, and they are not equal in quality and ripeness to the Devons of the same age. The older classes are the same grand and massive animals that we all well know. The 2d class, though ripe and good, is, however, not equal in merit to what we have seen on other occasions. They are various as to colour; the roan and mottled face takes precedence in point of merit to the more characteristic red and white. Mr. Loyd's 1st prize ox is a grand thick massive animal, not of remarkable quality. Mr. Wortley and Lord Darnley are 2d and 3d. The older class is a very fine one. Mr. Heath's 1st prize ox is of great length and size and girth. Mr. Pike's ox is very thickly covered, especially over loin and flank. The female classes are not particularly well filled.

The *Short-horn Steers* under 30 months old are represented by a larger number of animals than in any of the other breeds; and in that way, but not especially by the ripeness of the individual specimens, is the superior precocity of the breed illustrated. There are however a number of well-fattened beasts in the class, and in particular Mr. How's 1st prize steer is very thick and large and good. Lord Aylesford's white ox is a beauty; and Colonel Lindsay's steer is heavily fleshed. The older class of steers contains 10, most of them good beasts. Messrs. Martin's ox is straight and thick, with grand bosom and capital over loin. Mr. Greenway's 2d prize beast is round and ripe and straight. Mr. Upson's ox, with its drooping back, and Mr. Clayden's with its cow head and neck are not first rate. Mr. Wood, the prize taker at Birmingham, exhibits here a fair ox, inferior in the hind quarter, but good forwards. On the whole the class is not first rate. The older class of oxen contains 14 animals. Mr. Baker's 1st prize ox, coarse headed and of not first-rate quality, is good over back and loin. Colonel Pennant shows a good beast, and Lord Spencer's is of good quality. The class is not first-rate. The heifer class is beautiful. Lord Radnor is 1st with a massive thoroughly well fed beast, with beautiful head, and thick everywhere; rather coarse on the shoulder, and not very deep though wide in the twist. Lord Hardwicke's heifer is good forwards and middle, rather light in the hind quarters. Mr. Aldworth's heifer is good. The Short-horn cows are a lot of grand and massive animals.

There never was a better show of *Sussex* stock, for length and breadth and quality. The oxen, and especially the heifers, are first-rate. The cows are uneven, and some of them particularly ugly. Messrs. Heasman, Napper, Shoosmith, Cane, and Botting have made a capital display for their county. The Norfolk breed is represented by a few thick, well-made Galloway-looking beasts, of a breed as good as any for milk; they are also first-rate for the butcher, and deserve more general extension then they have received.

The *Kyloes* are capital classes. The Silver Cup for the best ox in the yard was awarded to the Duke of Sutherland's rich brown brindled ox in this class, receiving it in competition with the best Short-horn, Hereford, and even Devon. He is a great, massive, deep, straight-backed, long, wide, well-rounded beast, carrying plenty of first-rate meat, and he has well-earned his distinction. This competition amongst breeds, which in the award of this and two or three other cups, arises at this Show, is one of the most useful parts of the rivalry here displayed; and great good is done by an unusual award of this kind. Whether it excites displeasure or not—at all events it puts the men of other breeds upon their mettle, and will whip them on to greater effort. The *Polled Angus* breed is well represented by a very excellent class, of high and uniform merit. The *Irish* class is a medley of all sorts. The *Welsh*, a large black breed, are fairly represented, and the Cross-bred classes are very fairly filled. Mr. Druce takes the 1st prize in the class of Steers, with a very thick and well-covered Hereford and Shorthorn, showing a very fair proportion of both breeds in the appearance. In the older class, Mr. Napper takes the 1st prize with a capital cross-bred Devon and Sussex.

The following is the award of prizes in the Cattle Classes:—

CLASS 1. DEVON STEERS NOT EXCEEDING 2 YEARS 6 MONTHS OLD.—1st, 20*l*., John Overman, of Burnham-Sutton, Burnham Market, Norfolk; Silver Medal to the breeder, Mrs. Clarke, of Burnham Market, Norfolk; 2d, 10*l*., Major-General the Hon. A. N. Hood, of Cumberland Lodge, Windsor, Berks.

CLASS 2. DEVON STEERS NOT EXCEEDING 3 YEARS 3 MONTHS OLD.—1st, 30*l*., John Overman; Silver Medal, Mrs. Clarke; 2d, 20*l*., John Burton, of Pennycott, Shobrooke, Crediton, Devon; 3d, 10*l*., John Coate, of Hammoon, Blandford, Somerset.

CLASS 3. DEVON STEERS OR OXEN ABOVE 3 YEARS AND 3 MONTHS OLD.—1st, 30*l*. and Silver Medal, Major-General the Hon. A. N. Hood; 2d, 20*l*., William Heath, of Ludham Hall, Norwich, Norfolk; 3d, 10*l*., Thomas Bond, of Parc North Petherton, Bridgewater, Somerset.

CLASS 4. DEVON HEIFERS NOT EXCEEDING 4 YEARS OLD.—1st, 25*l*. and Silver Medal, Walter Farthing, of Stowey Court, Bridgewater, Somerset; 2d, 15*l*., John Walter, of Bearwood, Wokingham, Berks; 3d, 10*l*., John Blomfield, of Warham, Wells-next-the-Sea, Norfolk.

CLASS 5. DEVON COWS ABOVE 4 YEARS OLD.—1st, 25*l*., William Heath, of Ludham Hall; Silver Medal, John Tapp, of Tawstock, South Molton; 2d, 15*l*., William Smith, of Higher Bowden, Exeter; 3d, 10*l*., Walter Farthing, Stowey Court, Bridgewater.

CLASS 6. HEREFORD STEERS NOT EXCEEDING 2 YEARS 6 MONTHS OLD.—1st, 20*l*., and Silver Medal, Edward Tanner, jun., of Hopton Castle, Aston-on-Clun, Salop; 2d, 10*l*., Henry Bettridge, of East Hanney, Wantage.

CLASS 7. HEREFORD STEERS NOT EXCEEDING 3 YEARS AND 3 MONTHS OLD.—1st, 30*l*., Lewis Loyd, of Monks Orchard, Addington, Surrey; Silver Medal, George Pitt, of Cricklade Court; 2d, 20*l*., Robert Wortley, of Suffield Hall, Aylsham, Norfolk; 3d, 10*l*., The Earl of Darnley, of Cobham Hall, Gravesend.

CLASS 8. HEREFORD STEERS OR OXEN ABOVE 3 YEARS AND 3 MONTHS OLD.—1st, 30*l*., William Heath, of Ludham Hall; Silver Medal, the late Lord Berwick; 2d, 20*l*., Aaron Pike, of Mitton, Tewkesbury; 3d, 10*l*., Robert Wortley, of Suffield Hall.

CLASS 9. HEREFORD HEIFERS NOT EXCEEDING 4 YEARS OLD.—1st, 25*l*., and Silver Medal, Thomas Jones, of Shrewsbury; 2d, 15*l*., Thomas Garrett, of Compton Scorpion, Shipston-on-Stour; 3d, 10*l*., Aaron Pike, of Mitton.

CLASS 10. HEREFORD COWS ABOVE 4 YEARS OLD.—1st, [illegible] Henry Bettridge, of East Hanney; Silver Medal, Mrs. Martin Coates, of Brierley; 2d, 15*l*., Arthur Thomas James, Monnington-on-Wye; 3d, 10*l*., Rees Williams Bridgewater, Great Porthamal, Talgarth.

CLASS 11. SHORT-HORN STEERS NOT EXCEEDING 2 YEARS 6 MONTHS OLD.—1st, 20*l*., and Silver Medal, James [illegible], Broughton, Huntingdon; 2d, 10*l*., Earl of Aylesford, Packington Hall, Coventry.

CLASS 12. SHORT-HORN STEERS NOT EXCEEDING 3 YEARS AND 3 MONTHS OLD.—1st, 30*l*., J. and W. Martin, of Aberdeen; Silver Medal, Alexander Aiken, Alford, Aberdeen; 2d, 20*l*., Henry Greenway, of Hambrook, Bristol; 3d, 10*l*., G. S. Foljambe, of Osberton Hall, Worksop.

CLASS 13. SHORT-HORNED STEERS OR OXEN ABOVE 3 YEARS AND 3 MONTHS OLD.—1st, 30*l*. and Silver Medal, William Henry Baker, Cottesmore, Oakham; 2d, 20*l*., Earl Spencer, Althorp; 3d, 10*l*., the Hon. Colonel Pennant, M.P., of Penrhyn Castle.

CLASS 14. SHORT-HORNED HEIFERS NOT EXCEEDING 4 YEARS OLD.—1st, 25*l* and Silver Medal, the Earl of Radnor, of Coleshill, Highworth; 2d, 15*l*., the Right Hon. the Earl of Hardwicke, of Wimpole; 3d, 10*l*., Frederick Stoneham, of Craigiehall, near Erith.

CLASS 15. SHORT HORNED COWS ABOVE 4 YEARS OLD.—1st, 25*l*., William Aldworth, of Frilford; Silver Medal to the breeder, Giles Brooks, of Lyford, Wantage; 2d, 15*l*., Ralph John Newton, of Campsfield Farm, Woodstock; 3d, 10*l*., James Roberson, of Bayfordbury, Herts.

CLASS 16. SUSSEX STEERS OR OXEN NOT EXCEEDING 3 YEARS OLD.—1st, 20*l*. and Silver Medal, J. E. and A. Heasman, of Angmering, Arundel, Sussex; 2d, 10*l*., John Napper, of Lea Farm, Wisborough Green, Horsham, Sussex.

CLASS 17. SUSSEX STEERS OR OXEN ABOVE 3 YEARS OLD.—1st, 25*l*. and Silver Medal, Thomas Barton, of The Grove, Robertsbridge, Hurstgreen; 2d, 15*l*., Edward Cane, of Berwick Court, Lewes, Sussex; 3d, 10*l*., John Shoosmith, of Berwick, Lewes, Sussex.

CLASS 18. SUSSEX HEIFERS NOT EXCEEDING 4 YEARS OLD.—1st, 20*l*. and Silver Medal, John Shoosmith; 2d, 15*l*., Lee Steere, of Jaye's Park, Dorking.

CLASS 19. SUSSEX COWS ABOVE 4 YEARS OLD.—1st, 20*l*. and Silver Medal, John and Alfred Heasman, of Angmering, Arundel, Sussex; 2d, 15*l*., William Botting, of Westmeston Place, Hurstpierpoint.

CLASS 20. NORFOLK OR SUFFOLK POLLED STEERS, OR OXEN OF ANY AGE.—1st, 15*l*. and Silver Medal, Mrs. Beare, of Paston, North Walsham, Norfolk; 2d, 10*l*., Manfred Biddell, of Playford, Ipswich.

CLASS 21. NORFOLK OR SUFFOLK POLLED HEIFERS OF ANY AGE.—1st, 15*l*., Robert C. Cooke, of Livermore, Bury St. Edmunds; Silver Medal to the breeder, William Harvey, of Timworth, Bury St. Edmunds; 2d, 10*l*., John Overman, of Burnham-Sutton, Burnham Market, Norfolk.

CLASS 22. LONG HORNED STEER OR OXEN OF ANY AGE.—1st, 10*l*., R. H. Chapman, of Upton, Nuneaton, Warwick; Silver Medal to the breeder, John Godfrey, of Wigston Parva, Hinckley, Leicester.

CLASS 23. LONG-HORNED HEIFERS OR COWS OF ANY AGE.—No Entry.

CLASS 24. SCOTCH HORNED STEERS OR OXEN OF ANY AGE.—1st, 30*l*., The Duke of Sutherland, of Dunrobin Mains, Golspie, Sutherland-shire; Silver Medal to the breeder, Dr. Gillivray, of Barrd: 2d, 15*l*., William Banbury, of Prospect Hill Park, Reading.

CLASS 25. SCOTCH HORNED HEIFERS OR COWS OF ANY AGE.—1st, 15*l*., Richard Eastwood, of Thorney Holme, Clitheroe; Breeder unknown; 2d, 10*l*., Allan Pollok, of Lismany, Ballinasloe.

CLASS 26. SCOTCH POLLED STEERS OR OXEN OF ANY AGE.—1st, 30*l*., Andrew Longmore, of Linksfield, Rattie, Banff; Silver Medal to the breeder, Robert Walker, of Moubleton, Banff; 2d, 15*l*., William M'Combie, of Tillyfour, Aberdeen.

CLASS 27. SCOTCH POLLED HEIFERS OR COWS OF ANY AGE.—1st, 15*l*., William M'Combie, of Tillyfour; Silver Medal to the breeder, Alexander Paterson, of Mulben.

CLASS 28. IRISH STEERS OR OXEN OF ANY AGE.—1st, 10*l*. and Silver Medal, Allan Pollok, of Lismany; 2d, 5*l*., Thomas Bridge, of Ramsey, Tyrel, Ingatestone, Essex.

CLASS 29. IRISH HEIFERS OR COWS OF ANY AGE.—1st, 10*l*. and Silver Medal, Allan Pollok; 2d, 5*l*., Lord Berners, of Keythorpe Hall, Leicester.

CLASS 30. WELSH STEERS OR OXEN (RUNTS) OF EVERY AGE.—1st, 20*l*., The Hon. Colonel Pennant, M.P.; Silver Medal to the breeder, William Humphreys, of Tal-y-bont, Anglesey; 2d, William Frankish, of Limber-Magna, Ulceby, Lincoln.

CLASS 31. WELSH HEIFERS OR COWS OF ANY AGE.—No Entry.

Exhibition Prize Medal, 1862.

HOTHOUSES for the MILLION.—On the principle invented and patented by Sir Joseph Paxton, M.P., combining simplicity, cheapness, excellence, and durability. SPAN-ROOF HOUSES, painted three coats, and glazed with English Sheet Glass, can be supplied ready for fixing, 21 ft. by 13 ft., 24*l.*; 43 ft. by 19 ft., 73*l.* 5*s.*: 64 ft. by 25 ft., 161*l.*

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Also, A HANDBOOK on VINE and FRUIT TREE CULTIVATION, 2d Edition, price 1*s.*; post free, 1*s.* 1*d.*

HOT-WATER APPARATUS, of every description, fixed complete in any part of the country, or the materials, viz., Boilers, Pipes, &c., delivered to any Station.

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CRANSTON'S PATENT BUILDINGS for HORTICULTURE, Highly Commended by the Royal Horticultural Society, South Kensington. Plans and Estimates free on application. Houses of the following sizes always in stock:—Span, 30 by 15 feet, and 24 by 12 ft.; Half-span, 24 by 10 ft.; Lean-to, 24 by 8 ft. Stereoscopic Slides of different houses post free for 6 stamps each.

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DEANE AND CO.'S Patent VENTILATING and SUSPENSION STOVES are simple, cheap, and efficient; have been largely adopted and approved; will burn many hours without attention, and at a small cost for fuel. Prices of Suspension Stoves, 20*s.*, 30*s.*, 38*s.*, and upwards. Ventilating Stoves, 50*s.*, 60*s.*, 70*s.*, 90*s.*

HOT-WATER APPARATUS for Conservatories, Greenhouses, Hothouses, Forcing Pits, &c., erected and fitted up complete.

DEANE & Co., 46, King William Street, London Bridge, E.C.

Established A.D. 1700.

Midland Steam Power Horticultural and Hot-water Works, Loughborough.

T. G. MESSENGER, the Proprietor of the above Works, finding it necessary (through the great demand for his Horticultural Buildings and Heating Apparatus) to make large additions to his Premises, and to Fit the same with an entire set of STEAM-POWER MACHINERY, is now enabled to execute any Orders entrusted to him with the greatest dispatch, and at the lowest possible price consistent with good and substantial work.

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NASH AND JOYCE'S PATENT, for AIRING, DRYING, and WARMING HALLS, SHOPS, ROOMS, &c., a new especial Stove for Conservatories, Greenhouses, Fruit-Ripening, &c.; to Burn without re-lighting all winter by filling with fuel every 12 hours. Temperature, any degree required, without varying. Price from 12*s.* 6*d.* to 6 guineas.

MINCING and SAUSAGE FILLING and MASTICATING MACHINES of the best makers, 10*s.* 6*d.*

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The ONLY PRIZE MEDAL for HORTICULTURAL BUILDINGS has been awarded to

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PATENT GALVANIZED METAL GREENHOUSES, "The Gardener's Own;" are tenant's fixtures.

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EARTH CLOSETS (MOULE'S PATENT).

No Unwholesome Cesspools.
No Bad Smells.
No Water Pipes to get out of order.
The Best Night Commodes.
The Apparatus (price 25*s.* and 30*s.*) may be applied to any Closet at trifling cost, and is self-acting.
By its use a valuable Manure is saved, and Fertility to the Soil ensured.
Earth is recommended by the Privy Council, in their report on Cholera, as a deodoriser and disinfectant.

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GREEN'S PATENT LAWN MOWERS have proved to be the best, and have carried off every Prize that has been given in all cases of competition. Above 26,000 have been sold since the year 1856.

Illustrated Price Lists of Lawn Mowers and Garden Rollers Free.

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WALTER CARSON AND SONS, of Great Winchester Street, respectfully notify that they have removed their principal office to their Warehouse in LA BELLE SAUVAGE YARD, Ludgate Hill, E.C. (three doors East of Railway Viaduct), and have discontinued their West-end Office, 31, St. James's Street.

CARSONS' ANTI-CORROSION PAINT, specially manufactured for out-door work, is the best and cheapest. All colours. Is simple in application, so that any person can use it.

Is twice as durable as genuine white lead. See Testimonials sent with patterns and prices post free.

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"GENTLEMEN,—I will thank you to forward, &c. What I had from you last season has, after a twelvemonth's wear, proved most satisfactory; there is not a crack in the putty, but, on the contrary, it is as solid as though the glass were cemented in, which I have rarely found with white lead.—I am, yours truly, "JOSIAH ELCOMBE."

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HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

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"I have much pleasure in saying I have known your Black Varnish to be used for some time by friends of mine, and they all speak highly of it, which has induced me to get the quantity I have from you. That I have used looks remarkably well."

Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the kingdom.

Apply to HILL & SMITH, Brierly Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C., from whom only it can be obtained.

The Cheapest House for Elastic Stockings, Knee Caps, &c. Warranted to wear 12 months.

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LAMPS.

The Lamp lifts out of the Vase, requiring no fixing.

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KOH-I-NOOR,

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FLAT-WICK BURNER.

The Koh-i-Noor Burner produces a superior light to the Moderator, at a much less cost, and is not liable to get out of order.

The Opal Vases are made in the best style of Bohemian Glass, and beautifully decorated.

	Round Burner.	Flat.
With Gold Bead	23*s.* 6*d.*	14*s.* 6*d.*
With Gold Lines	26 6	16 6
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Ruby Glass, fluted with gold lines	46 0	37 0
Emerald or Ruby richly decorated with gold	52 0	44 0

May be obtained of the Trade throughout the United Kingdom.

FOR SALE, a FRUITERER'S and GREENGROCERY, with Seed and Florist Business, Greenhouses, &c. Situated in a highly improving locality in the Old Kent Road, near the Royal Nelson; the present occupier has been in possession the last 11 years.

For particulars apply on the premises, 396, Old Kent Road, S.E.

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TO BE LET, with Immediate Possession, a very compact HORTICULTURAL ESTABLISHMENT, situated at the north part of the above improving town, surrounded by villas and other property, securing a good trade. The present occupier (who is relinquishing the profession) has successfully carried on the business for 9 years, and devoted every attention to renders the Hot-water Apparatus, Vine Borders, Potting Sheds, &c. Grounds are about 2 acres, a nice convenient Dwelling House attached, a Show House for the sale of plants, seeds, &c.; and 11 others, consisting of Graperies, Peach House, Forcing Houses for plants, Greenhouses, Pits, and Frames. The whole of the Grapery is stocked with productive Vines, having been recently planted. New Borders made with the most appropriate compost; the Peach House well stocked with trees, the Plant Houses stocked with suitable sorts to command sale; also the Borders and Quarters with hardy plants. A Seed and Jobbing Trade; 11 years unexpired Lease, at the end of which 21 more are secured. The whole to be taken to at valuation unless otherwise agreed on. To any skilful and industrious man such an opportunity seldom offers.

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Important Sale of Plants from France.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, December 20, at half-past 12 o'Clock precisely, a first-class Assortment of FRUIT TREES, STANDARD and DWARF ROSES, Hardy and Ornamental SHRUBS, RUSTIC GARDEN SEATS, STOOLS, VASES, &c.

On view the Morning of Sale, and Catalogues had.

Consignment of Plants from Ghent.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, December 23, at half-past 12 o'Clock precisely, 300 CAMELLIAS, 200 INDIAN AZALEAS, 200 RHODODENDRONS, 200 Pyramid Pears, 200 Standard Roses, 100 Iris gladica, 14 Orange Trees, 40 Specimen Camellias, Dwarf Named Fruit Trees, 100 Cannas, Variegated Aloes, Laurustinus, Lagerstroemia lancifolium rubrum, album, and punctatum, &c.

On view the Morning of Sale, and Catalogues had.

Sale of Dutch Bulbs, Standard Roses, Fruit Trees, &c.

MESSRS. PROTHEROE AND MORRIS will SELL at the City Auction Rooms, 38, and 39, Gracechurch Street, E.C., on TUESDAY, December 19, at 1 o'Clock precisely, a first-class Collection of DUTCH BULBS, consisting of the finest Double and Single Hyacinths, Narcissus, Crocus, Tulips, Gladiolus, Anemones, &c.; a fine assortment of 300 handsome STANDARD and DWARF ROSES; selected AMERICAN PLANTS, FRUIT TREES; some fine BULBS of LILIUM LANCIFOLIUM, of sorts.

On view the Morning of Sale. Catalogues had at the Rooms, as above; and of the Auctioneers, American Nurseries, Leytonstone, Essex, N.E.

Sale of Dutch Bulbs, Double Camellias, and Azalea indica, Standard Roses, &c.

MESSRS. PROTHEROE AND MORRIS will SELL at the City Auction Rooms, 38 and 39, Gracechurch Street, on FRIDAY, December 22, at 1 o'Clock precisely, a first-class Collection of DUTCH BULBS, choice DOUBLE CAMELLIAS, and AZALEA INDICA; handsome STANDARD and DWARF ROSES; LILIUM LANCIFOLIUM sorts, selected FRUIT TREES, AMERICAN PLANTS, &c.

On view the Morning of Sale. Catalogues had at the Rooms, as above; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Newbury, Berks.—Donnington Nurseries.

ON THE OXFORD ROAD, 1 MILE FROM THE RAILWAY STATION.

MESSRS. ALEX. DAVIS AND T. PALMER have received instructions from Mr. W. H. Davis (who is removing the business of the above Nurseries to those carried on by him in the Wash Road) to SELL by AUCTION, on the Premises, on TUESDAY, December 19, at 11 o'Clock, about 5000 STANDARD and DWARF ROSES, comprising all the best varieties in cultivation. The Auctioneers have much confidence in calling the attention of gentlemen to the above sale of Roses; they will be found on inspection true to name, and budded on strong and well selected stocks. Mr. DAVIS has had great experience in the cultivation of Roses, and has been well known as a most extensive Rose grower for many years past.

The Roses may be viewed the Morning of Sale, and Catalogues may be had one week prior to the Sale, by applying to Mr. W. H. DAVIS, at the Nurseries; and of Messrs. DAVIS & PALMER, Auctioneers and Valuers, Market Place, Newbury, Berks.

To Noblemen and Gentlemen about to be engaged in Planting.

DICKSONS AND CO., NURSERYMEN, SEEDSMEN, and FLORISTS, Waterloo Place, Edinburgh, have this season a large and very healthy stock of Seedling and Transplanted LARCH (native and Tyrolese), True Native Highland SCOTCH FIR, Spruce, Oak, Plane or Sycamore, Spanish Chestnut, Alder, Ash, Elm, Thorn Quick, Beech, Evergreen Privet, Poplar, Willow, &c., as well as all other kinds of Forest and Ornamental Trees and Shrubs, Fruit Trees, Roses, Greenhouse and Stove Plants, Herbaceous and Alpine Plants, Ferns, &c.

Their Forest Trees, which are grown on exposed ground, are this season finely ripened, and can be sent with perfect safety to any part of the kingdom.

Samples and prices will be sent free on application.

To Noblemen and Gentlemen Planting.

WOOD AND CO., Barbourne Nurseries, Worcester, have the undermentioned SURPLUS STOCK to dispose of, all of which is in a good healthy state for removal.

50,000 EVERGREEN PRIVET, 3 to 4 feet, bushy.
26,000 " " 2 to 3 feet.
4,000 TURKEY OAK, 3 to 5 feet.
4,000 ENGLISH OAK, 2½ to 4 feet.
100,000 SPRUCE FIR, 3 to 4 feet.
50,000 " " 2½ to 3 feet.
40,000 WEYMOUTH PINES, 4 to 5 feet.
2,000 AUSTRIAN PINES, 3 to 5 feet.
10,000 RHODODENDRON PONTICUM, 2 feet, bushy.
20,000 2-years HAWTHORN QUICK, good.
5,000 STANDARD APPLES, choice sorts, strong, and with good heads, for Orchard Planting.
66 SPECIMEN CEDARS of LEBANON.

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JOSEPH SMITH, SEN., invites Planters and the Trade to inspect his Nursery of 80 Acres of high land. The soil is of a fibrous nature, and the plants take up with excellent roots, such as to ensure the best success in their removal. The Nursery contains many Hundred Thousands of RHODODENDRONS, COMMON and PORTUGAL LAURELS, BOX, BROOMS, BERBERIS, HOLLIES, PRIVETS, YEWS, &c. The FOREST TREES are very extensive. Of all the leading kinds there are 15 Acres of LARCHES, of different sizes, and all others in proportion. Prices moderate, which can be had on application as above.

To Nurserymen.

SHRUBS, EVERGREENS, and TREES WANTED at Sevenoaks.—A considerable quantity, and of large size.

Address, stating descriptions, size, and lowest price per 100, delivered at the Station, X. G., Mr. RICKARDS, 12, Parliament Street, Westminster, S.W.

To Landowners Planting this and next Month.

TWO MILLIONS of LARCH, SILVER, SCOTCH, BIRCH, and ALDER.—We are determined to clear one of our Yanwath Nurseries, being wanted for our Farm. Our prices will be so low as to find immediate orders. Reference to Noblemen and their Stewards in our neighbourhood. For prices apply to

JOSEPH TREMBLE & SONS, Penrith.

ONE MILLION strong HAWTHORN QUICK, 15*s.* to 20*s.* per 1000; samples of 100 for 2*s.* 6*d.*

Half a Million strong LARCH, 18*s.* to 25*s.* per 1000; samples of 100 for 2*s.* 6*d.*, will be sent on application.

Large EVERGREENS, extremely cheap. Prices according to quantity required.

24*s.* per dozen:—

ABIES DOUGLASII, 3 to 4 feet; A. ALBA, 5 to 6 feet; A. MENZIESII, 3 to 4 feet; A. MORINDA, 3 to 4 feet.
ARBOR-VITÆ, American, 4 to 5 feet; Chinese, 5 to 7 feet.
BIOTA GLAUCA, 2 feet; B. AUREA, 1½ foot; B. JAPONICA, 2 feet; B. COMPACTA, 2 to 3 feet.
CUPRESSUS LAMBERTIANA, 4 to 5 feet; C. LAWSONIANA, 3 feet; C. GOVENIANA, 3 feet.
PINUS EXCELSA, 4 to 5 feet; P. AUSTRIACA, 4 feet; P. INSIGNIS, 3 to 4 feet; P. PYRENAICA, 2½ feet; P. PALLASIANA, 2 to 3 feet.
LAURUSTINUS, fine bushes, 2 to 3 feet through.
PORTUGAL LAURELS, 3 to 4 feet.
YEW, IRISH, 4 to 5 feet; YEW, COMMON, 4 to 5 feet.

Prices for larger Evergreens on application.

GEORGE DAVISON, White Cross Nurseries, Hereford.

To the Trade.

TWO MILLIONS of Transplanted LARCH, very fine. For price apply to

JAMES SMITH, Darley Dale Nurseries, near Matlock.

TO THE TRADE.

2,000,000 of Transplanted ALDER, BIRCH, ASH, QUICK, SCOTCH, SPRUCE, BEECH, &c. For price apply to JAMES SMITH, Darley Dale Nurseries, near Matlock.

TO THE TRADE.

4,000,000 of RHODODENDRONS. For price apply to JAMES SMITH, Darley Dale Nurseries, near Matlock.

TO THE TRADE.

40,000 HARDY HEATHS, MENZIESIAS, KALMIAS, LEDUMS, ANDROMEDAS, &c. For price apply to JAMES SMITH, Darley Dale Nurseries, near Matlock.

TO THE TRADE.

60,000 DWARF EVERGREENS for covering or planting under Trees, including COTONEASTERS, PERNETTYAS, Double Blue and Double Purple VINCA, VINCA ELEGANTISSIMA, VINCA MINOR VARIEGATA, &c. For price apply to JAMES SMITH, Darley Dale Nurseries, near Matlock.

TO THE TRADE.

80,000 EVERGREENS, including COMMON and PORTUGAL LAURELS, YEWS, BERBERIS, CEDARS, JUNIPERS, THUJOPSIS, CUPRESSUS LAWSONIANA, &c. For price apply to

JAMES SMITH, Darley Dale Nurseries, near Matlock.

TWENTY LARGE SPECIMEN GREEN HOLLIES, 8 feet to 15 feet.

Apply to WILLIAM WOOD & SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

N.B.—Strong transplanted ALDER, extra strong ditto, SPANISH CHESTNUTS, from 3 to 7 feet.

LARGE HORSE CHESTNUTS.
Large SCARLET HORSE CHESTNUTS.
Large ENGLISH and HUNTINGDON ELMS.

Extra large ORNAMENTAL & FOREST TREES for immediate effect. WM. WOOD & SON have a very large and well-grown stock of the above. Woodlands Nursery, Maresfield, near Uckfield, Sussex.

Forest and Ornamental Trees, &c.

THOMAS KENNEDY AND CO., NURSERYMEN and SEEDSMEN, Dumfries, N.B., have this season an unusually large and superior stock of FOREST, FRUIT, and ORNAMENTAL TREES; DECIDUOUS and EVERGREEN SHRUBS, &c. Adapted either for extensive planting or giving immediate effect in the formation and improving of Ornamental Parks, Pleasure Grounds, &c. DESCRIPTIVE PRICED CATALOGUES furnished on application.

D. S. THOMSON begs to inform intending Planters that he has a large assortment of TREES and SHRUBS in excellent condition for planting, being well-rooted, young and healthy. An enormous quantity of IVIES and HARDY CLIMBING PLANTS on reasonable terms. Planting contracted for.

The Nursery, 3 minutes' walk from the Wimbledon Station, Main Line South Western Railway.

Specimen Evergreen Shrubs

AUCUBA, ARBOR-VITÆ, HOLLY, YEW, CUPRESSUS LAWSONIANA, THUJA AUREA, &c.—The above are adapted for giving immediate effect, and move with large balls. Also very fine IRISH IVY, 6 to 10 feet; HARDY PASSION-FLOWER, 6 to 8 feet; WISTARIA, 6 to 8 ft.; CLIMBING ROSES, 6 to 8 feet, all in pots.

CHARLES SOUTHBY, Nurseryman, Clapham, S.

IMPORTANT TO NURSERYMEN.

		Inches.			Inches.
6,000,000	1-yr. Larch, strong	4 to 6	150,000	1-yr. Horse Chestnut	6 to 12
2,000,000	1-yr. Scotch Fir	2 to 3	100,000	1-yr. Spanish do.	10 to 18
800,000	2-yr. Scotch Fir	3 to 5	200,000	1-yr. Chinese Arbor Vitæ ..	3 to 4
2,000,000	2-yr. Spruce Fir	2 to 4	100,000	1-yr. American do.	2
1,000,000	3-yr. Spruce Fir	3 to 6	30,000	Transplanted American do.	12 to 18
200,000	1-yr. Pinus austriaca	2	100,000	1-yr. Crab Stock	4 to 10
60,000	1-yr. Weymouth Pine	2	1,600,000	2-yr. Thorn Quick	4 to 12
500,000	1-yr. Birch, strong	2 to 5	40,000	2-yr. Evergreen Privet ..	12 to 24
1,500,000	1-yr. Alder, strong	3 to 6	40,000	1-yr. Laurel ..	6 to 12
200,000	2-yr. " "	4 to 10	20,000	2-yr. Laurel ..	12 to 24
100,000	1-yr. " trans.	12 to 18	500	Wellingtonia gigantea ..	12 to 24
2,000,000	2-yr. Elm ..	5 to 10	1,000	Cotoneaster microphylla ..	12 to 18
500,000	2-yr. Ash ..	6 to 12	6,000	Irish Yews ..	12 to 18
500,000	1-yr. Sycamore ..	4 to 9			
600,000	1-yr. Beech ..	4 to 7			
300,000	1-yr. English Oak	5 to 10			
30,000	1-yr. Evergreen	3 to 5			

The Subscriber begs to call the attention of his numerous friends and customers to the above stock, which he believes for quality cannot be surpassed in the Trade. PRICE LIST on application to

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1,000 Dwarf Maiden Peaches
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500 " trained "
50,000 British Oaks, 3 yrs. seedling
100,000 " " 1 " "
20,000 Maples, common, 1 year seedling
100,000 English Elms, 2 years seedling
1,000 Huntingdon Elms, grafted
10,000 Standard Apples, 7 to 10 ft.
2,000 Half Standard Apples, 7 to 10 feet
2,000 Dwarf Apples, 7 to 10 feet
40,000 Larch, 2 to 4 feet
1,000 Horse Chestnuts, 5 to 7 ft.
100,000 Ash, 1 year's seedling
400 Cupressus Lawsoniana, 1½ to 4 feet
250 Thuja Lobbii, 3 to 5 feet
1,000 Junipers, very handsome, 3 to 4 feet
500 Portugal Laurels, 3 to 4 ft.
300 Red Cedars, 2 to 4 feet
2000 Standard and Half-standard Roses
2800 Worked Dwarf Roses
1600 Siberian Arbor-vitæ, 1 to 3 feet
400 Chinese Arbor-vitæ, 2 to 5 feet
1500 Box, sorts, 2 to 3 feet
900 Aucuba japonica, 1 to 2½ ft.
1000 Common Yews, 1 to 2 feet
2000 Berberis Aquifolium, 1 to 2 ft.
500 " dulcis, 1 to 2 feet
400 doz. Currants, sorts
500 Cistus roseus, 1½ to 2 feet
450 Cupressus macrocarpa, 2 to 4 feet
900 Euonymus japonica, 1 to 2½ feet
600 Ivy, choice named sorts
200 Pyracantha, 2 to 3 feet
50 Taxus adpressa, 2 to 3 feet
300 Yucca recurvifolia, 1½ to 2 feet
200 Antirrhinums, new, in 6 varieties, including Double Italian
200 Bellis aucubæfolia
100 Pairs Show Carnations, in 3-inch pots
100 Pairs Cloves, 5 fine varieties, in 3-inch pots
500 Pairs Show Picotees, 5 fine varieties, in 3-inch pots
200 Cerastium Biebersteinii
500 " tomentosum
200 Cyclamen europæum
500 Herbaceous Plants, in 50 good varieties
100 Œnothera macrocarpa
60 Schizostylis coccinea
Mangel Wurzel, Yellow Globe
Onion, White Spanish
Peas, Dickson's Favourite and Essex Rival

The Nurseries, Huntingdon.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY, Limited,
CORN, SEED, MANURE, and OILCAKE MERCHANTS,
Address, 89, Seed Market, Mark Lane, E.C.; or Basingstoke.

Samples and Prices Post free on application. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

INTERNATIONAL HORTICULTURAL EXHIBITION and BOTANICAL CONGRESS.—Those who are preparing Plants for the above Exhibition should feed them liberally with STANDEN'S GARDENER'S and AMATEUR'S FRIEND. Sold by the leading Nurserymen and Seedsmen.

SUTTON'S CHAMPION SWEDE.—1st Prize Silver Cup for the best Swede Crop in all Ireland, also the 1st Prize Silver Cup at the Dublin International Show for Pulled Roots, has this season been awarded to SUTTON'S CHAMPION SWEDE, from Seed supplied by

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

To Farmers, Gardeners, and the Trade.

EXCELLENT STRONG CABBAGE PLANTS may be had in large or small quantities of the following good sorts at 2*s.* 6*d.* per 1000 for cash:—Early Nonpareil, Early East Ham, Robinson's, Large Drumhead or Cattle.

A SPECIAL PRICE LIST of NEW SEEDS on application.

A remittance must accompany all orders.

FREDERICK GEE, Seed Merchant and Grower, Biggleswade, Beds.

Nuneham Park Onion.

WM. CUTBUSH AND SON have purchased the whole stock of this superb ONION, which can be strongly recommended for its size, weight, and length of keeping. It has received the following awards:—1st Prize at International Show, Edinburgh; First-class Certificate United Horticultural Society; First-class Certificate Royal Horticultural Society.

The Seed will be sent out in sealed packets at 2*s.* 6*d.* each on and after the 1st January next.

The following Seedsmen have already ordered a supply:—
Messrs. Ballantyne & Son, Dalkeith, N.B.
" Beck, Henderson, & Co., Upper Thames Street, E.C.
" Bunyard & Sons, Maidstone, Kent.
" Butler & McCulloch, Covent Garden Market, W.C.
" Downie, Laird, & Laing, Edinburgh.
" Dickson & Turnbull, George Street, Perth, N.B.
" Dreghorn & Aitken, Kilmarnock, N.B.
" Drummond & Sons, Dawson Street, Dublin.
" Farrell & Sons, 120, Capel Street, Dublin.
" Francis & Co., Hertford.
" Garaway & Co., Bristol.
" Gartshore, Sons, & Co., Falkirk, N.B.
" Hogg & Robertson, Mary Street, Dublin.
" Jeffries & Son, Cirencester.
" Kennedy & Co., Dumfries, N.B.
" Lawson & Son, 28, King Street, Cheapside, E.C.; and [Edinburgh.
" Low & Co., Clapton, N.E.
" Martin & Son, Hull, Yorkshire.
" Maule & Sons, Bristol.
" Osborn & Sons, Fulham, S.W.
" Robertson & Co., St. Andrew's Square, Edinburgh.
" Sutton & Sons, Reading.
" Wheeler & Son, Gloucester.
Mr. J. Bell, 10 & 11, Exchange Street, Norwich.
" W. H. Caparn, 28, Kirkgate Street, Newark.
" W. Coomber, Caverley Park, Tunbridge Wells.
" Edward Cooling, 18, Irongate, Derby.
" W. Cutbush, Barnet, Herts.
" F. G. Godwin, Norfolk Street, Sheffield.
" H. J. Oldroyd, Shrewsbury.
" C. Turner, Slough.
" B. S. Williams, Holloway, N.

Highgate Nurseries, London, N.

Erin's Queen Dwarf Ashleaf Potato.

WAITE, BURNELL, AND CO. have the pleasure of again introducing a really true and pure stock of the Ashleaf variety which gave great satisfaction during the past season. It is very dwarf in the haulm, of a dark green colour, very early, and invaluable for frames. Price 10*s.* 6*d.* per bushel.

A liberal discount to the Trade.

Seed Warehouse, 181, High Holborn, London, W.C.

Paterson's Famed Seedling Potatos.

MESSRS. SUTTON AND SONS, Reading (after having grown our approved varieties of NEW POTATOS, and found them equal to reports from the leading Agriculturists throughout the country, and well worthy of extensive cultivation), have appointed our AGENTS for BERKS and surrounding districts for the Sale of our Potatos.

WM. PATERSON & SON, Seed Potato Merchants and Seedling Raisers, Dundee.

The Earliest Variety of the Ash-leaf Kidney Potato is Mona's Pride.

MR. MYATT has much pleasure in offering this first-class EARLY POTATO, the stock of which has been saved from sets kindly sent him by Mr. Routledge, of the Isle of Man. In the *Gardeners' Chronicle* of August 26, page 795, it is described by a correspondent as the Earliest and best of the Ash-leaf varieties, also at page 819, September 2, it is said by another correspondent, "All must give way to the superiority of Mona's Pride." Here, at Manor Farm, it has proved all that can be desired.

To be sent out in Peck Bags of One Stone at 5*s.*, delivered free at any Railway Station in London. The usual allowance to the Trade where not less than a sack of four bushels is ordered.

Terms cash from unknown correspondents, and no orders from such will be attended to unless accompanied by a remittance.

Manor Farm, Deptford, December 16.

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H. AND F. SHARPE invite the attention of the Trade to the following varieties of SEED POTATOS, which they have grown from the finest selected stocks; they comprise all the sorts worthy of cultivation. The quality is excellent, being free from disease; and prices very moderate:—

Early Ash-leaved Kidney	Early Oxford
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" Golden Globe	" British Queen
" Foxe's Seedling	Fluke Kidney
" Round Frame	Yorkshire Regent

Seed Growing Establishment, Wisbech, Cambs.

SURPLUS STOCK OF BULBS.

COLLECTIONS of the above for In-door Decoration, 10*s.* 6*d.*, 21*s.*, 30*s.*, 42*s.*, 63*s.*, 84*s.*, and 105*s.*

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BARR & SUGDEN.
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GOLDEN-RAYED
LILIUM AURATUM.

Fine Established Bulbs of the above, which have been in seasons in this country, 5*s.*, 7*s.* 6*d.*, 10*s.* 6*d.*, and 15*s.*

For Bedding out, Lilium candidum, cifolium album, roseum, and rubrum, 6*s.*, 9*s.*, and 12*s.* per doz.

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CROCUS, 1*s.* to 2*s.* 6*d.* per 100.
NARCISSUS, 2*s.* 6*d.* to 7*s.* 6*d.* per 100.
RANUNCULUS, 1*s.* 6*d.* to 3*s.* 6*d.* per 100.
ANEMONES, 3*s.* 6*d.* to 5*s.* 6*d.* per 100.
IRIS, 2*s.* 6*d.* to 5*s.* 6*d.* per 100.
POLYANTHUS NARCISSUS, 10*s.* to 15*s.* per 100.

SURPLUS COLLECTIONS.

The 21s. Hamper (No. 3) of Dutch Bulbs for In-door Decoration contains—

25 Splendid Named HYACINTHS, 15 do. POLYANTHUS NARCISSUS, 50 do. TULIPS, 200 CROCUS, 2 CYCLAMEN PERSICUM, 3 JAPAN LILIES.

The 21s. Hamper (No. 4) of Dutch Bulbs for Out-door Decoration contains—

40 HYACINTHS, 150 TULIPS, 100 NARCISSUS, 300 CROCUS, 100 RANUNCULUS, 50 ANEMONES, 30 IRIS, 8 LILIES.

Clearing off Surplus Stock of the Cliveden Spring-blooming Plants.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by WILLIAM BRADBURY, of 13, Upper Woburn Place, in the Parish of St. Pancras, in the Co. of Middlesex, and FREDERICK MULLETT EVANS, of No. 11, Bouverie Street, in the Precinct of Whitefriars, City of London, Printers, at their Office, Lombard St., Precinct of Whitefriars, City of London, and Published by them at the Office, No. 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said Co.—SATURDAY, December 16, 1865.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 51.—1865.] SATURDAY, DECEMBER 23. {Price Fivepence. Stamped Edition, 6d.

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THE LATE PROFESSOR LINDLEY.—On SATURDAY, January 6, 1866, will be presented to the Subscribers of the GARDENERS' CHRONICLE a PORTRAIT of the late DR. LINDLEY, printed on Toned Paper. Single Copies will be sent on receipt of Six Postage Stamps.
41, Wellington Street, Strand, W.C.

INTERNATIONAL HORTICULTURAL EXHIBITION and BOTANICAL CONGRESS.
Under the Patronage of Her Majesty The Queen, and of their Royal Highnesses the Prince of Wales and the Duke of Cambridge.
The EXHIBITION and CONGRESS will OPEN on MAY 22, and continue till May 25. Subscribers' names will be received, and Schedules and Prospectuses may be obtained on application to the Secretary, at the Offices, 1, William Street, Lowndes Square, London.

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SPECIAL PRICED LIST of NEW SEEDS on application.

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All orders amounting to 21s. carriage paid.
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To the Trade.
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WEBB'S GIANT POLYANTHUS and GIANT COWSLIPS, and other varieties, largest stock in England.
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J. IVERY AND SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

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Nuneham Park Onion.
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To the Trade.
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EARLY SEED POTATOS for SALE.
SHAW'S, KING'S, and MYATT'S PROLIFICS.
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2s. 6d. per stone. Copy of Essay, 1s.

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Introduced, grown, and sold by Mr. R. W. O. Rutledge,
To whom Orders addressed as above will be attended to.

EARLY KIDNEY POTATOS.—Webb's Telegraph, first early, 20s. per bushel; Webb's President, second early, 16s. per bushel; Webb's Imperial Kidney (best Potato known for all purposes), 12s. per bushel.
Apply to Mr. Webb, Calcot Gardens, Reading.

ITALIAN RYE-GRASS SEED, SWEDE TURNIPS, and FLUKE POTATOS. Offered by
Jos. Dixon, Seedsman, Kendal, Westmoreland.

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More than 100,000,000 FOREST TREES for Plantations.
" 3,000,000 APPLES and other Fruit Trees for exportation.

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Please state quantity and price to
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TO BE SOLD, very Cheap, 1 CYCAS REVOLUTA, 4 feet; a few PAVETTA BORBONICA (true); 1 fine specimen STEPHANOTIS FLORIBUNDA, and all the new Tricolor-leaved GERANIUMS. For size and price apply to
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E. G. HENDERSON AND SON offer the above, with splendid Canes of well-matured growth, with prominent eyes, sure to give a heavy crop of fruit, 10s. 6d. each.
LIST of SORTS sent on application.
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Fruiting Vines, in large pots, extra strong Canes.
GRAPE VINES, in 6-inch Pots, for Planting Out.
WM. WOOD AND SON having a very superior stock of the above, beg to solicit early orders to insure the strongest Canes. Address,
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Grape Vines—Fruit Trees.
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VINES, from Eyes.—Now ready, a DESCRIPTIVE CATALOGUE of GRAPES, by Thos. Rivers, free per post.
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Grape Vines.
S. GLENDINNING AND SONS have a splendid lot of extra fine Fruiting Canes.
PRICED LIST may be had on application.
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Price on application.

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To the Trade.
RASPBERRIES.
CARTER'S PROLIFIC, 15,00 to 20,00. Can be had of
Richard Chatfield, Market Gardener, Seven Oaks, Kent.
4 to 6 ft., £4 per 1000; 3 to 4 ft., £3; under 3 ft., £2.

RASPBERRIES.—The Small Prolific Red, the best known for preserving, any quantity, at 3s. per 100. Also BEECH and SCOTCH FIR TREES, from 4 to 12 feet high. Apply to Mr. James Hopkins, Salperton, Andoversford, Gloucestershire.

HEAVY LANCASHIRE SHOW GOOSEBERRY TREES, 6s. per dozen. CATALOGUES on application.
Holland & Jones, Bradshaw Gardens, Chadderton, near Manchester.

To the Trade.
FRUIT TREE STOCKS.—Pears, Apple, Crab, Cherries, &c., of various strengths, fit to work. Price on application to
James Dickson & Sons, The "Newton" Nurseries, Chester.

WEBB'S PRIZE COB FILBERTS, and other Prize Nuts and Filberts. Trees of these splendid Nuts to be had of Mr. Webb, Calcot Gardens, Reading. Catalogues on application.

ORCHARD-HOUSE TREES, Fruiting in Pots—PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
Richard Smith, Nurseryman and Seed Merchant, Worcester.

Strong Standard Apples, Pyramid Pears, and LARCH FIR, 1½ to 4½ feet.
CHARLES BURGESS, The Nurseries, London Road, Cheltenham, has a fine stock of the above, and a general assortment of NURSERY STOCK. Prices on application.

Fruit Trees.
S. GLENDINNING AND SONS invite attention to their superb stock of healthy well-grown FRUIT TREES.
PRICE LIST on application.
Chiswick Nursery, London, W.

Fruit, Forest, and Ornamental Trees and Shrubs.
JNO. THOMPSON AND SON have on hand a large and superior stock of the above. PRICED CATALOGUES may be had free on application at 18, French Gate, Doncaster.

Forest Trees, Ornamental Trees, and Shrubs.
PETER LAWSON AND SON'S CATALOGUE for the current Season is now ready, and will be forwarded, free, on application. Edinburgh and London.

To Noblemen Requiring this Season
SCOTCH PINE from Strathspey Forest, fine healthy plants, 2 and 3-years Transplanted, Messrs. Tremble will, on application, forward prices.
The Nurseries, Penrith, Cumberland.

Planting Season.
FINE TRANSPLANTED LARCH, and other Nursery Stock. PRICED LIST now ready.
Wm. Urquhart & Sons, Dundee.

TO the TRADE.—The Subscribers have to offer several Millions of fine LARCH of all sizes, from 1 year's Seedling, up to 3½ feet. Cardno & Darling, Aberdeen.

TWO HUNDRED THOUSAND Superior LARCH, from 3 to 4 feet, to be Sold. For Samples and Prices apply to
John Hemsley, High Fields, Melbourne, near Derby.

Larch and Scotch Fir.
W. WITTY AND SON have to offer 200,000 LARCH, from 2 to 2½ feet, stiff and well-rooted; and 50,000 SCOTCH FIR, from 12 to 18 inches; all healthy and well grown.
The Nurseries, Cottingham, near Hull.

ONE HUNDRED THOUSAND strong Transplanted QUICKS, at 10s., 15s., 20s., and 25s. per 1000.
Also strong LARCH FIRS, from 3½ to 5 feet.
Samples of 500 sent on application. Address,
W. Wood & Son, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

LARGE HORSE CHESTNUTS.
Large SCARLET HORSE CHESTNUTS.
Large ENGLISH and HUNTINGDON ELMS.
Extra large ORNAMENTAL & FOREST TREES for immediate effect.
Wm. Wood & Son have a very large and well-grown stock of the above.
Woodlands Nursery, Maresfield, near Uckfield, Sussex.

INTERNATIONAL HORTICULTURAL EXHIBITION and BOTANICAL CONGRESS.—Those who are preparing Plants for the above Exhibition should feed them liberally with STANDEN'S GARDENER'S and AMATEUR'S FRIEND. Sold by the leading Nurserymen and Seedsmen.

Lilium auratum for Forcing.

WM. T. CATLEUGH has strong well-rooted Bulbs to offer in large 32 and 24-size pots, at 7*s.* 6*d.* and 10*s.* 6*d.* each, and 84*s.* and 120*s.* per doz. Price per 100 on application.

Some of these Bulbs have already begun to push, and will probably flower in April. Hans Street, Chelsea, S.W.

CHRYSANTHEMUMS, and How to have them Fine for Exhibition.—Use STANDEN'S GARDENER'S and AMATEUR'S FRIEND.

STANDEN'S GARDENER'S and AMATEUR'S FRIEND, a highly concentrated Inodorous Fertiliser, for Chrysanthemums and all kinds of Stove and Greenhouse Plants, Vines and other Fruit Trees in pots, &c.; also Vegetables, &c., in the open ground.

No. 1 FERTILIZER is the best adapted for Chrysanthemums and Hard-wooded Plants of every description.

No. 2 FERTILIZER is recommended for Soft-wooded Plants, Bulbs, &c.

Sample Canisters, 1*s.* & 2*s.* 6d. Bags, 5*s.* 6*d.*, 10*s.* 6*d.*, and 21*s.*

May be had of the leading Nurserymen and Seedsmen.

BARR & SUGDEN, Seed and Plant Merchants, 12, King Street Covent Garden, W.C.

A List of Agents will shortly be published.

Extra Fine One Year Seedling Larch.

FRANCIS AND ARTHUR DICKSON AND SONS have several Millions of the above to dispose of, of extra quality. The Trade supplied. Price and Samples forwarded free by post on application, stating probable quantity required.

"Upton" Nurseries, Chester.

TWENTY LARGE SPECIMEN GREEN HOLLIES, 8 feet to 15 feet.

Apply to WILLIAM WOOD & SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

N.B.—Strong transplanted ALDER, extra strong ditto, SPANISH CHESTNUTS, from 3 to 7 feet.

Larch, Quickwood, Scotch Fir, &c.

MARTIN AND SON can furnish about Two Millions of the former, One Million of QUICK, and 200,000 SCOTCH FIR; also 20,000 LAURELS, 20,000 ENGLISH and IRISH YEWS, 10,000 ARBOR-VITÆ, 6000 LAURUSTINUS, and several Thousands of Lilacs, Syringas, Deutzias, Cupressus, Thujopsis, Standard Roses, Ribes, Standard Horse Chesnut, Poplars, Elms, &c.

Special prices on application at the Hull Establishment, 7, Market Place, and Cottingham.

D. S. THOMSON begs to inform intending Planters that he has a large assortment of TREES and SHRUBS in excellent condition for planting, being well-rooted, young and healthy. An enormous quantity of IVIES and HARDY CLIMBING PLANTS on reasonable terms. Planting contracted for.

The Nursery, 3 minutes' walk from the Wimbledon Station, Main Line South Western Railway.

To Noblemen and Gentlemen about to be engaged in Planting.

DICKSONS AND CO., NURSERYMEN, SEEDSMEN, and FLORISTS, Waterloo Place, Edinburgh, have this season a large and very healthy stock of Seedling and Transplanted LARCH (native and Tyrolese), True Native Highland SCOTCH FIR, Spruce, Oak, Plane or Sycamore, Spanish Chestnut, Alder, Ash, Elm, Thorn Quick, Beech, Evergreen Privet, Poplar, Willow, &c., as well as all other kinds of Forest and Ornamental Trees and Shrubs, Fruit Trees, Roses, Greenhouse and Stove Plants, Herbaceous and Alpine Plants, Ferns, &c.

Their Forest Trees, which are grown on exposed ground, are this season finely ripened, and can be sent with perfect safety to any part of the kingdom.

Samples and prices will be sent free on application.

JNO. THOMPSON AND SON beg to call attention to their large and superior FRUIT and NURSERY STOCK of the following kinds, viz.:—

Standard, Half-Standard, Dwarf, Pyramid, Trained, and Maiden Fruit Trees, which for size, strength, and quality, cannot be surpassed, and consist of Apples, Pears, Plums, and Cherry Trees. Larch, from 1 ft. to 5 ft.; Spruce and Scotch Firs, from 1 to 3 ft.; Ash, from 2 to 6 ft. (clean and well-grown); Berberis Aquifolium, Common and Portugal Laurels) fine bushy plants), &c.

PRICED CATALOGUES may be had free by post on application to JNO. THOMPSON & SON, 18, French Gate, Doncaster.

WELLINGTONIA GIGANTEA, the Mammoth Tree of California.—This noble tree is perfectly hardy, and is probably the finest ever introduced. Its graceful habit, silvery foliage, and extraordinary rapid growth must render it a general favourite. Strong well-grown specimens, 2 feet, 5*s.* each, or 50*s.* per dozen, are offered by W. H. ROGERS, Red Lodge Nursery, Southampton.

A PRICED CATALOGUE of Conifers, Scarlet and other Rhododendrons, American Plants, Fruit and Forest Trees, Evergreen and Flowering Shrubs, Standard and Dwarf Roses, may be had on application.

IMPORTANT TO NURSERYMEN.

		Inches.			Inches.
6,000,000	1-yr. Larch, strong	4 to 6	150,000	1-yr. Horse Chestnut	6 to 12
2,000,000	1-yr. Scotch Fir	2 to 3	100,000	1-yr. Spanish do.	10 to 18
800,000	2-yr. Scotch Fir	3 to 5	200,000	1-yr. Chinese Arbor Vitæ ..	3 to 4
2,000,000	2-yr. Spruce Fir	2 to 4	100,000	1-yr. American do.	2
1,000,000	3-yr. Spruce Fir	3 to 6	30,000	Transplanted American do.	12 to 18
200,000	1-yr. Pinus austriaca	2	100,000	1-yr. Crab Stock	4 to 10
60,000	1-yr. Weymouth Pine	2	1,600,000	2-yr. Thorn Quick	4 to 12
500,000	1-yr. Birch, strong	2 to 5	40,000	2-yr. Evergreen Privet ..	..12 to 24
1,500,000	1-yr. Alder, strong	3 to 6	40,000	1-yr. Laurel	.. 6 to 12
200,000	2-yr. " "	4 to 10	20,000	2-yr. Laurel	..12 to 24
100,000	1-yr. " trans.	12 to 18	500	Wellingtonia gigantea	..12 to 24
2,000,000	2-yr. Elm	.. 5 to 10	1,000	Cotoneaster microphylla	..12 to 18
500,000	2-yr. Ash	.. 6 to 12	6,000	Irish Yews	..12 to 18
500,000	1-yr. Sycamore	.. 4 to 9			
600,000	1-yr. Beech	.. 4 to 7			
300,000	1-yr. English Oak	5 to 10			
30,000	1-yr. Evergreen	3 to 5			

The Subscriber begs to call the attention of his numerous friends and customers to the above stock, which he believes for quality cannot be surpassed in the Trade. PRICE LIST on application to

MICHAEL BURKE, Drumlargan and Garadice Nurseries, Summer Hill, County Meath, Ireland.

To Landowners Planting this and next Month.

TWO MILLIONS of LARCH, SILVER, SCOTCH, BIRCH, and ALDER.—We are determined to clear one of our Yanwath Nurseries, being wanted for our Farm. Our prices will be so low as to find immediate orders. Reference to Noblemen and their Stewards in our neighbourhood. For prices apply to

JOSEPH TREMBLE & SONS, Penrith.

ONE MILLION strong HAWTHORN QUICK, 15*s.* to 20*s.* per 1000; samples of 100 for 2*s.* 6*d.*

Half a Million strong LARCH, 18*s.* to 25*s.* per 1000; samples of 100 for 2*s.* 6*d.*, will be sent on application.

Large EVERGREENS, extremely cheap. Prices according to quantity required.

24*s.* per dozen:—

ABIES DOUGLASII, 3 to 4 feet; A. ALBA, 5 to 6 feet; A. MENZIESII, 3 to 4 feet; A. MORINDA, 3 to 4 feet.
ARBOR-VITÆ, American, 4 to 5 feet; Chinese, 5 to 7 feet.
RIOTA GLAUCA, 2 feet; B. AUREA, 1½ foot; B. JAPONICA, 2 feet; B. COMPACTA, 2 to 3 feet.
CUPRESSUS LAMBERTIANA, 4 to 5 feet; C. LAWSONIANA, 3 feet; C. GOVENIANA, 3 feet.
PINUS EXCELSA, 4 to 5 feet; P. AUSTRIACA, 4 feet; P. INSIGNIS, 3 to 4 feet; P. PYRENAICA, 2½ feet; P. PALLASIANA, 2 to 3 feet.
LAURUSTINUS, fine bushes, 2 to 3 feet through.
PORTUGAL LAURELS, 3 to 4 feet.
YEW, IRISH, 4 to 5 feet; YEW, COMMON, 4 to 5 feet.

Prices for larger Evergreens on application.

GEORGE DAVISON, White Cross Nurseries, Hereford.

Transplanted Larch and Quicks.

CHIVAS AND WEAVER (late GEORGE CHIVAS), Chester, offer several Millions of TRANSPLANTED LARCH, from 1½ to 4½ feet, very stout, grown in an exposed situation; specially fine plants, and at prices greatly in favour of the buyers. Also several Millions of TRANSPLANTED QUICKS, a large quantity of which are of great strength; strong English Oaks superior Spruce, up to 2½ feet, together with a general stock of other Forest Trees, as well as a large stock of Evergreens and Ornamental Trees; many Thousand fine Standard Apples, and extra strong Transplanted Apple Stocks.

For prices and conditions of free delivery, see CATALOGUE, which will be forwarded on application.

W. P. LAIRD AND SINCLAIR, Dundee, N. B., will be glad to make cheap offers of the following:—

SEEDLINGS.—1-yr. and 2-yrs. Larch; 2-yrs. Pinus Laricio; 1-yr. Sycamore; 2-yrs. Apples; 2-yrs. Oaks; 1-yr. and 2-yrs. Pinus maritima; 1-yr. White Broom; 2-yrs. Ash; 1-yr. Elm; 1-yr. Hazels; 1-yr. Hollies.

TRANSPLANTED.—Strong Larch, various sizes; 2-yrs. Scotch Fir; Silver Fir, 9 to 12 inches, fine clean leaders; strong Thorns; Irish Yews, 3 to 4 feet; Irish Junipers, various sizes; Azalea pontica, 6 to 12 inches; Daphne neapolitana. Named Carnations. Potatos, best Garden varieties.

N.B. A few of the True Old DOUBLE WHITE ROCKETS to spare.

RICHARD SMITH,
NURSERYMAN and SEED MERCHANT, Worcester.

ROSES.—12 of the very best Standard, Perpetual, and Moss Roses for 18*s.*; 50 for 63*s.*; 100 for £5.
12 ditto Dwarf do. do. for 12*s.*; 50 for 42*s.*; 100 for 75*s.*
12 ditto, New Sorts of 1865, for 24*s.*
Descriptive List on application.

FORTY ACRES of FRUIT TREES.—Apples, Pears, Plums, Cherries, Peaches, Nectarines, and Apricots in every form desired for Fruiting.

DWARF-TRAINED TREES, by the Thousand, Hundred, or Dozen.

APPLES, PEARS, PLUMS, CHERRIES, PEACHES, and NECTARINES.
Fine, flat, well-trained, of best quality, and true to name.

PYRAMID APPLES, PEARS, PLUMS, CHERRIES.
Beautiful Trees for Garden or Orchard Houses.

ORCHARD-HOUSE TREES, Fruiting in Pots.—Peaches, Nectarines, Apricots, Cherries, Plums, Pears, Apples, Vines, and Figs.

EVERGREENS for Ornamental Planting or Avenues, handsome, well grown, and transplanted within the last two years. For prices of smaller sizes and quantities, see Conifer List.

At 30*s.* per dozen:—

Abies alba, 5 to 7 feet	Juniperus thurifera, 3 to 4 feet
" Douglasii, 3 to 4 feet	Laurel, Colchic, 5 to 6 feet
" inverta, 1½ to 2 feet	" Portugal, Pyramids, 3 to 4 ft.
" orientalis, 1½ to 2 feet	Pinus cembra, 3 to 4 feet
Arbor-vitæ, American, 6 to 7 feet	" excelsa, 5 feet
" Siberian, 4 to 5 feet	Taxodium sempervirens, 7 to 8 ft.
Cedar, Red, 5 to 6 feet	Thuja Lobbii, 3 to 4 feet
Cryptomeria viridis, 4 to 5 feet	" aurea, 1½ foot
Cupressus Lawsoniana, 3 to 4 feet	" compacta, 1½ to 2 feet
" fragrans, 3 feet	Thujopsis borealis, 3 feet
Irish Yew, 4 to 5 feet	Wellingtonia gigantea, 2 feet

At 42*s.* per dozen:—

Abies Douglasii, 4 to 5 feet	Pinus excelsa, 6 feet
" inverta, 2 to 2½ feet	" Lambertiana, 3 to 4 feet
" orientalis, 2 to 2½ feet	" insignis, 3 to 4 feet
" pyramidalis, 2 to 2½ feet	Thuja Lobbii, 4 to 5 feet
Araucaria imbricata, 2 to 2½ feet	" compacta, 2 to 2½ feet
Arbor-vitæ, Siberian, 5 to 6 feet	" aurea, 2 feet
" American, 7 to 8 feet	Thujopsis borealis, 4 feet
Cedar, Red, 6 to 8 feet	Wellingtonia gigantea, 2½ feet
Cupressus Knightii, 6 to 7 feet	Yew, Irish, 5 to 5½ feet
" Lawsoniana, 4 to 4½ ft.	Laurels, Pyramid, Portugal, 4 to 4½ feet
Juniperus thurifera, 4 to 5 feet	" Colchic, 6 to 7 feet
Pinus Cembra, 4 to 5 feet	

At 60*s.* per dozen:—

Abies inverta, 2½ to 3 feet	Juniperus thurifera, 5 to 6 feet
" Douglasii, 5 to 5½ feet	Laurels, Pyramid Portugal, 5 ft.
" Menziesii, 5 to 6 feet	Pinus excelsa, 6 to 8 feet
" orientalis, 2½ to 3 feet	" Lambertiana, 5 to 6 feet
" pyramidalis, 3 to 4 feet	" Cembra, 5 to 6 feet
Araucaria imbricata, 2½ to 3 feet	Thuja japonica, 2½ to 3 feet
Arbor-vitæ, Siberian, 6 to 7 feet	" aurea, 2½ feet
Cedrus Deodara, 6 feet	Taxodium sempervirens, 8 to 10 ft.
Cupressus Knightii, 7 to 8 feet	Wellingtonia gigantea, 3 feet
" Lawsoniana, 5 feet	Yew, Irish, 6 feet

At 84*s.* per dozen:—

Abies Douglasii, 7 to 8 feet	Cedrus Deodara, 7 to 8 feet
" inverta, 3 to 4 feet	Juniperus thurifera, 6 to 7 feet
" Menziesii, 6 to 8 feet	Pinus excelsa, 8 to 10 feet
" orientalis, 3 to 4 feet	Taxodium sempervirens, 10 to 12ft.

Each:—

Abies Douglasii, 8 to 10 ft., 12*s.* 6*d.*	Picea nobilis, 2½ to 5 ft., 21*s.* to 63*s.*
" " 10 to 12 feet, 15*s.*	" Nordmanniana, 2½ to 4 feet, 10*s.* 6*d.* to 42*s.*
" " 12 to 15 feet, 21*s.*	" " 4 to 6 feet, 42*s.* to 84*s.*
" inverta, 4 to 5 feet, 10*s.* 6*d.*	" Pinsapo, 3 to 5 ft., 10*s.* 6*d.* to 42*s.*
" " 6 feet, 21*s.*	Pinus excelsa, 10 to 12 feet, 10*s.* 6*d.*
Araucaria imbricata, 3 to 4 feet, 7*s.* 6*d.* to 21*s.*	" " 12 to 15 feet, 15*s.*
" " 4 to 8 ft., 21*s.* to 84*s.*	" Lambertiana, 6 to 8 feet, 10*s.* 6*d.* to 21*s.*
Cedar of Lebanon, 8 to 10 feet, 21*s.*	Thuja incurvata, 8 to 9 ft., 10*s.* 6*d.*
Cedrus Deodara, 8 to 10 ft., 10*s.* 6*d.* to 21*s.*	Taxodium sempervirens, 12 to 15 feet, 10*s.* 6*d.* to 15*s.*
Picea nobilis, 2 to 2½ feet, 10*s.* 6*d.* to 21*s.*	

American Arbor-vitæ, for Hedges, 3 to 4 feet, at 50*s.* per 100.
" " " 4 to 5 feet, at 75*s.* "
" " " 5 to 6 feet, at 100*s.* "

FLOWERING and STANDARD ORNAMENTAL TREES. At 12*s.* per dozen:—

Ash, Mountain, 7 to 9 feet	Chestnut, Spanish, 6 to 8 feet
Acacia, 7 to 9 feet	Hornbeam, 8 to 10 feet
Birch, Weeping, 8 to 10 feet	Poplar, Silver, 8 to 10 feet
Crab, Siberian, scarlet, 6 to 7 feet	" Lombardy, 9 to 10 feet
" yellow, 6 to 7 feet	Pyrus spectabilis, 6 to 7 feet

At 18*s.* per dozen:—

Almond, flowering, 7 to 8 feet	Chestnut, Spanish, 8 to 10 feet
Acacia, 8 to 10 feet	Cytisus, 3 to 4 feet
Ash, Mountain, 9 to 12 feet	Elm, Chichester, 8 to 10 feet
Acer Negundo, 6 to 8 feet	Poplar, Lombardy, 11 to 12 feet
Birch, 10 to 12 feet	" Silver, 10 to 12 feet
Crab, Siberian, yellow, 7 to 8 feet	Pyrus spectabilis, 7 to 8 feet
" scarlet, 7 to 8 feet	Thorn, double pink, 6 to 7 feet

At 30*s.* per dozen:—

Almond, flowering, 8 to 10 feet	Cytisus in variety, 4 to 5 feet
Acer Negundo variegata, 6 to 8 ft.	Poplar, Silver, 12 to 15 feet
Acacia, ball, 6 to 7 feet	Thorns, double pink, 8 to 10 feet
Chestnut, scarlet, 6 to 8 feet	Willow, Ameri. Weeping, 6 to 8 ft.

RICHARD SMITH'S LIST of all the EVERGREEN FIR TRIBE, suitable for Britain, giving size, price, popular and botanical names, derivations, description, form, colour, foliage, growth, timber, use in arts, native country and size there, situation, soil, and other information, with copious Index of their synonymes.

Enlarged Edition, free by post for 12 postage stamps.

RICHARD SMITH'S FRUIT LIST contains a sketch of the various forms of Trees, with Directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Cropping, Treatment under Glass; also their synonymes, quality, size, form, skin, colour, flesh, flavour, use, growth, duration, season, price, &c.

Free by post for one stamp.

RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

Tansley Nurseries, near Matlock, Derbyshire.

JOSEPH SMITH, SEN., invites Planters to inspect his Nursery of 80 Acres of high land. The soil is fibrous nature, and the plants take up with excellent roots, to ensure the best success in their removal. The Nursery many Hundred Thousands of RHODODENDRONS, PORTUGAL LAURELS, BOX, BROOMS, BERBERIS, PRIVETS, YEWS, &c. The FOREST TREES Of all the leading kinds there are 15 Acres; LARCHES sizes, and all others in proportion. Prices Lowest, which can be had on application as above.

DIXON'S YORKSHIRE HERO For Testimonials of this valuable New Pea, see *Chronicle* of November 18.

Price 2*s.* per quart. The Trade supplied.

E. P. DIXON & SON, Yorkshire Seed Establishment, 8, Lowgate Street, Hull.

New Kidney Bean.—Dickson's Eclipse.

JAMES DICKSON AND SONS have great confidence in introducing and recommending this New and Distinct KIDNEY BEAN, as being a THOROUGHLY SUPERIOR variety. Testimonials from well-known gardeners who have carefully tested its merits, fully explaining its superior qualities, forwarded by post on application. It is offered in sealed pint packets at 2*s.* 6*d.*

Seed Warehouse, 102, Eastgate Street, and the Nurseries, Chester.

Nuneham Park Onion.

WM. CUTBUSH AND SON have purchased the entire stock of this superb ONION, which can be recommended for its size, weight, and length of keeping. It has received the following awards:—1st Prize at International Show, 1869; First-class Certificate United Horticultural Society, 1869; Certificate Royal Horticultural Society.

The Seed will be sent out in sealed packets at 2*s.* 6*d.* each on or after the 1st January next.

In addition to those whose names appeared in the Gardeners' *Chronicle* of Saturday last, the following Seedsmen have ordered supply:—

Messrs. Backhouse & Son, York
" Carter & Co., High Holborn, E.C.
" Dickson & Sons, 102, Eastgate Street, Chester
" J. & C. Lee, Hammersmith, S.W.
Mr. Stephen Brown, Sudbury, Suffolk
Mr. John Harrison, Darlington
Mrs. Pontey, Plymouth

Highgate Nurseries, London, N.

JAMES GARAWAY AND CO., Durdham Nurseries, Bristol, offer the following SEEDS, which they can guarantee to be of great excellence, and decided acquisitions:—

Prices to the Trade on application.

BROCCOLI (Garaway's Late White).—Pure white, very dwarf, has been exhibited at the local shows, in first-rate condition, beginning of June. Retail price, 1*s.* 6*d.* and 2*s.* 6*d.* per packet.

CELERY (Burbank's Superb Red and Burbank's Superb White). Solid, crisp, and of fine flavour, has been grown for several years by the raiser, Mr. Burbank, and given very great satisfaction. Retail price, 1*s.* per packet.

CUCUMBER (Pain's Ridge).—Very hardy, fine flavour, good size and remarkably productive. First-class Certificate awarded by Fruit Committee of Royal Horticultural Society, August 1, 1871. Retail price, 1*s.* per packet.

LETTUCE (Clifton Hardy Green Cos).—As hardy as Hardy Hammersmith, large, and of good flavour. Retail price, 1*s.* per packet.

JAMES GARAWAY & CO.'S PRICED LIST of SEEDS for the coming seasons will shortly be ready, and will be forwarded post free on application.

New and Choice Seeds.

BACKHOUSE'S WINTER WHITE PROTECTING BROCCOLI.—We have much pleasure in being again enabled to offer this valuable Broccoli. The favourable notice it received from the Editor of the *Gardeners' Chronicle* two years ago, was fully confirmed by those who tried it last year. Urgent applications were made to us for fresh supplies of seed, but the whole of the crop that year having been destroyed, we were unable to supply them. Having this year succeeded in harvesting a moderate quantity of Seed, we offer it at 2*s.* per packet. The Broccoli comes in EARLY IN DECEMBER, being in this neighbourhood 10 to 14 days earlier than Snow's Winter White. The heads are large, compact, pure white, and deliciously tender; and being well covered by their own protecting leaves, they have been known to stand 20 deg. of frost without a trace of injury.

MATHIOLA BICORNIS.—An evening-scented Stock of unrivalled fragrance, from the Mountains of Greece. No annual in cultivation, even including Mignonette, surpasses, or perhaps equals, the powerful and yet delicate perfume of its flowers. At 100 yards the scent of a large bed of this annual, on a summer's evening, is often so strong as to arrest special attention! The plant is 1 foot or more in height, the upper half, or two-thirds, being a dense spike of pink and lilac blossoms, partially closed during the day (when the scent is feeble), but expanding fully towards evening, remaining so during the night and early morning. The fragrance resembles that of the Stock and Sweet-scented Clematis combined. It must be treated as a common hardy annual. It has rarely been our good fortune to meet with a plant so certain to become a general favourite. Packets 1*s.* each.

MALCOLMIA INCRASSATA.—A new species of Virgin Stock, also from the Mountains of Greece. This closely resembles the well-known Malcolmia maritima in general character and appearance, is, however, of more robust habit, has rather larger and more deep coloured flowers, and smooth, fleshy, deep-green leaves, instead of the dull green hairy ones of the common species. Packets 1*s.* and 2*s.* 6*d.*

VERONICA GLAUCA.—A very dwarf annual from Greece, forming dense tufts 3 to 4 inches high, covered with deep and brilliant blue flowers, expanding freely in the sunshine. When grown in mass, the effect is very pleasing. Care should be taken that it is sown in moist weather, as its propensity to flower is so great that in dry seasons it exhausts itself by blooming before the plant is properly developed. Packets 6*d.* each.

FRENCH KIDNEY POTATO.—Having grown this variety for many years, we can confidently recommend it as an excellent early kind. With us it is 10 days or so earlier than the Ash-leaved Kidney, much more prolific, and of excellent flavour. A gentleman writes us in ordering a further supply, remarked, "It's the master of all the earlies." Market gardeners have also ordered it very freely, as they find it a very remunerative sort. Per Peck of 14 lb., 2*s.* 6*d.*

The following Seedsmen will be able to execute orders:—

Hurst & Son, 6, Leadenhall Street, E.C.
Cooper & Bolton, 152, Fleet Street, E.C.
Minier, Nash & Co., 60, Strand, W.C.
Nutting & Sons, 60, Barbican, E.C.
Bell, John, 10 and 11, Exchange Street, Norwich.
Bracher, Benjamin, Wincanton.
Bunyard, T., & Sons, Maidstone.
Butler & McCulloch, Covent Garden Market, W.C.
Dicksons & Brown, Corporation Street, Manchester.
Dickson, F. & A. & Sons, 106, Eastgate Street, Chester.
Drummond, W., & Sons, Dublin and Stirling.
Edmondson Brothers, 10, Dame Street, Dublin.
Ewing, J. W., Eaton Nursery, Norwich.
Farrell, F., & Son, Capel Street, Dublin.
Fisher, Holmes & Co., Handsworth, Sheffield.
Garaway, J., & Co., Durdham Down, Bristol.
Henderson, A., & Co., Pine-apple Place, Edgware Road, W.
Hooper & Co., Covent Garden Market, W.C.
Jackson, T., & Son, Kingston, Surrey.
Laird, W. P., & Sinclair, Dundee.
Lawson, P., & Son, Edinburgh
Lee, J. & C., Royal Vineyard, Hammersmith, W.
Reid, B., & Co., Aberdeen.
Robertson, P. S., & Co., Edinburgh.
Smith, Richard, Worcester.
Sutton & Sons, Reading.
Turner, Charles, Royal Nurseries, Slough.
Wood, W., & Son, Woodlands Nursery, Maresfield, Uckfield
Cutbush, W. & Son, Highgate Nurseries, N.
Dods, W., Haddington.
May, Samuel, 180, Wade Lane, Leeds.
Perkins, John, 52, Market Square, Northampton.

Trade Prices will be supplied on application.

JAS. BACKHOUSE & SON, York Nurseries.

DIXON'S YORKSHIRE HERO PEA is the best [illegible] Wrinkled Marrow in cultivation. See Testi- [illegible] *Chronicle* of November 18. [illegible] Price to the Trade on application.
[illegible] & Son, Yorkshire Seed Establishment, 57, Queen, [illegible]

New Pea.

HOOPER'S RIVAL PEA, the earliest of the early, and much better cropper than most of the new first early sorts.

Price 2s. 6d. per quart.

This Pea was sold out last season, but the stock was too limited to [illegible] information.
[illegible] & Co., Seed Merchants, Covent Garden, London, W.C.

The Earliest Pea known is

CARPENTER'S EXPRESS, gathered May 7th, the [illegible] date on record. See Testimonials in *Gardeners'* [illegible] September 2 and 9, October 16, and November 6. Price [illegible] Trade price on application.
[illegible] only of EDWARD CARPENTER, Seed Merchant [illegible], Brighton and Sussex Seed Warehouse, 96, St. James's [illegible]; and of Messrs. WOOD & SON, Nurserymen, Mares- [illegible] Messrs. OSBORN & SONS, Nurserymen, Fulham, S.W.; Messrs. [illegible] & Co., Seed Merchants, Glasgow; and Messrs. DICKSON & SONS, Nurserymen, Chester. Catalogues on application.
PRICED CATALOGUES of DUTCH BULBS now ready.

THE EARLIEST and BEST OUT-DOOR GROWN PEA we have tasted this season—vide *Journal of* [illegible] of the 13th of June, 1865; it was also favourably noticed [illegible] *Chronicle* of June 3, 1865.
The above Early Pea is now being sent out by ROBERT H. POYNTER, [illegible] per quart. Height 3 feet. The kind was gathered from in good condition as early as the 20th of May, and was sent to the Editor as above on the 28th.
None genuine except from accredited Agents.
All over two quart packages free on Great Western Railway.
ROBERT H. POYNTER, Seed Merchant, Taunton.

Sutton's Ringleader (or Carter's First Crop) Pea.

THE EARLIEST PEA IN CULTIVATION.

MESSRS. SUTTON, anticipating a large demand this season for the above popular Pea, respectfully recommend early orders, the stock being limited.

The Horticultural Seedsmen have already ordered a supply:—

Messrs. Cooper & Bolton, 152, Fleet Street, London, E.C.
" Hurst & Son, 6, Leadenhall Street, London, E.C.
" Miner, Nash, & Nash, 60, Strand, London, W.C.
" Jacob Wrench & Son, London Bridge, London, E.C.
" Waite, Burnell, & Co., 181, High Holborn, London, W.C.
" Nutting & Sons, 60, Barbican, London, E.C.
" Thorburn & Co., New York, U.S.A.
" Dobson & Sons, Woodlands Nursery, Isleworth, W.
" J. & C. Lee, Hammersmith, W.
" Osborn & Sons, Fulham, London, S.W.
" Rutley & Co., 412, Strand, W.C.
" Garraway & Co., Durdham Down, Bristol.
" James Dickson & Sons, South Hanover Street, Glasgow
" Jefferies & Sons, Royal Nurseries, Cirencester
Mr. J. Veitch, Chelsea, London, S.W.
" Christmas Quincy, Peterborough.
Mrs. Pontey, Plymouth.

Price to the Trade on application.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

THE ESSEX RIVAL PEA.—This variety has proved to be the finest, best-flavoured, and most productive EARLY [illegible] in cultivation. See Testimonials in "Journal of Horticulture" [illegible] December 5, and in *Gardeners' Chronicle* of December 9. Price 1s. 6d. per quart.
To be obtained of the proprietor, Mr. Thomas ELEY, Sible Hedingham, near Halstead, Essex. Also of the following appointed Agents:—
Messrs. Peter Lawson & Son, 28, King Street, Cheapside, London, E.C.
Mr. James Veitch, Royal Exotic Nursery, Chelsea.
Messrs. Cooper & Bolton, 152, Fleet Street, London, E.C.
" Fraser, Richardson, & Goad, 82, Bishopgate Within, E.C.
" Richard Lowe & Co., High Green, Wolverhampton, Staffordshire.
" J. Roberts & Son, Denbigh.
" Fisher, Holmes, & Co., Handsworth Nursery, Sheffield, Yorkshire.
" Saltmarsh & Son, Chelmsford, Essex.
" Sutton & Sons, Reading, Berkshire.
" Joseph Tremble & Sons, Penrith, Cumberland.
Mr. Christmas Quincy, Peterborough, Northamptonshire.
" B. C. Mackenzie, Ventnor, Isle of Wight.
" A. F. Godward, Southend, Essex.
" B. Cant, St. John's Nursery, Colchester, Essex.
" George Taber, Rivenhall, near Witham, Essex.
M. Paul Tollard, Nurseryman and Florist, 4, Place des Trois Maries, Paris, France (Sole Agent).
The price being reduced to 1s. 6d. per quart, and liberal terms offered to the Trade, Mr. ELEY is sanguine that the Essex Rival Pea will henceforth become a universal favourite in every garden throughout the United Kingdom and on the Continent.
N.B.—The height of the Essex Rival is 3 feet, and being of a hardy and robust nature, may be sown in any month (weather permitting), from the 1st of November to the end of July. See Mr. ELEY's remarks on "Garden Pea Culture," which will be forwarded with Testimonials free on application.

Lincolnshire Gem Dwarf and Giant Hales Tall Marrow Peas.

MARTIN AND SON, 7, Market Place, Hull, and Cottingham, beg respectfully to offer the above NEW PEAS, which are of first-class excellence, as the following Testimonials show. In sealed packages, 3s. 6d. per quart.

From Mr. USHER, *Gardener to* Major Sykes, *West Ella.*

"The Lincolnshire Gem Pea is one of the finest Peas in cultivation, being dwarf, immense cropper, and fine flavour, much superior to Dixon's Yorkshire Hero, and earlier than Veitch's; the quality of your seeds in general has always pleased me."

From The Grange, Cottingham, Mr. G. COTTAM, *Gardener to* Jno. Ringrose, Esq.

"The Lincolnshire Gem Pea is the best Pea I ever grew, superior to either Veitch's or Dixon's Yorkshire Hero, immensely prolific, excellent flavour, height about 2½ feet, and loaded with fine long pods of a good green colour; it is also very early; Giant Hales is tall growing, and a very great cropper; these Peas are superior to any variety I have grown. I must also say that your seeds altogether are of excellent quality."

From Thwaite House, Cottingham, Mr. WILLIAM NASSAU, *Gardener to* David Wilson, Esq.

"As you wish to know my opinion of your new Peas, I beg to say that Giant Hales is a splendid Pea, a great cropper and superior flavour, from 6 to 7 feet high; Lincolnshire Gem is the best of the dwarf Peas I know of, growing 2½ feet high, very prolific, and of exquisite flavour, beautiful green when cooked. In fact, the seeds we have got from you have given the greatest satisfaction."

From Hesslewood House, Mr. GEO. FAIRBANK, *Gardener to* J. R. Pease, Esq.

"The Lincolnshire Gem Pea is very good, superior to either Veitch's Perfection or Dixon's Yorkshire Hero. I like it much better than any of the new Peas I have grown; height about 2½ feet, strong growing, and loaded with pods; indeed it is 'the best' bearer and flavour of the dwarf-growing sorts: Giant Hales is very tall, a great cropper, and of excellent flavour. These are really select, and I shall recommend all my friends to try them."

From Hull Bank House, the residence of B. Haworth, Esq. *Gardener,* Mr. JAS. LUNN.

"The Lincolnshire Gem Pea is without doubt a first-rate Pea; too much cannot be said in its favour; a real good cropper, height about 2 feet. Giant Hales is tall growing, and equally good in flavour, &c. Your seeds in general are of first-class excellence."

From Mr. T. S. REW, *Gardener to* J. Beadle, Esq., *South Ella.*

"Having made a careful examination of the three rows of Peas this morning (24th June), namely, Lincolnshire Gem, Veitch's and Dixon's Yorkshire Hero, all sown exactly the same time and same management, I find your Lincolnshire Gem to be fully seven days earlier than Dixon's, and about three earlier than Veitch's; your Gem has 'nearly double the crop of either.' Dixon's, on an average, contains five Peas in a pod, your Gem and Veitch's six."

DICKSON'S "FIRST and BEST" EARLY PEA

THE BEST EARLY PEA IN CULTIVATION.

This Pea has been tested against all the earliest varieties known, and is pronounced by most of the best practical Gardeners in the Kingdom to be superior to any other Early Pea for earliness, productiveness, and general good qualities. [illegible] per quart, 2s. 6d.
PRICED CATALOGUES of KITCHEN GARDEN, FLOWER, and AGRICULTURAL SEEDS; also separate CATALOGUES of the Various Classes of Nursery Stock, will be forwarded, post free, on application.
FRANCIS & ANDREW DICKSON & SONS, The Old Established Seed Warehouse, 106, Eastgate Street, and Upton Nurseries, Chester.

Dewar's Northumberland Champion Celery.

HENRY DEWAR AND SON beg respectfully to offer Seed of this excellent sort WHITE CELERY, so highly esteemed by all who have grown it to be the best variety in cultivation. Awarded a First-class Certificate at International Show, South Kensington, December 9, 1862. In sealed Packets 1s. each, post free 13 stamps, usual allowance to the Trade.
DEWAR'S IMPROVED SHORT-TOP RED BEET. They also beg to offer Seed of this very superior [illegible], which received Certificates by the First Committee of the Royal Horticultural Society, November 7, 1865, and at the International Show, South Kensington, December 9, 1862. In sealed Packets 1s. each, post free 13 stamps. Usual allowance to the Trade.
Seed Establishment, 97, Grey Street, Newcastle-on-Tyne.

New and Choice Vegetable Seeds.

STUART AND MEIN, NURSERYMEN and SEEDSMEN, Kelso, N.B., beg to intimate that they have the following really useful and desirable Novelties to offer this season.

THE PRINCE PEA.—It is with much pleasure S. & M. offer the above New Pea. They are well aware of the almost endless variety of Peas, both new and old, now offered to the public, and with many are anxious to see these entitled to the most useful distinct. Having had The Prince Pea in their possession for some seasons, and being of opinion that it was quite an acquisition, they were determined not to offer it to the public until it was really proved by unprejudiced parties that such was the case; accordingly they submitted trials to several, and the following Testimonials, amongst others, have been received. The Pea was sent to the Gardens of the Royal Horticultural Society for trial under the name of the Prince of Wales, but as there is another variety in cultivation under this designation, they consider it better to change the name to The Prince.

COPY OF TESTIMONIALS.

From the ROYAL HORTICULTURAL SOCIETY, *Chiswick.*

"Your Prince of Wales Pea has been grown here for the last two seasons alongside of nearly all the existing varieties. We believe the Prince of Wales to be distinct and an acquisition; likewise, being dwarf, very productive, of good colour, sweet, and withstanding the summer drought, better than most varieties. We also grew also that Prince of Wales, received from one of the London Houses, different from yours; the height, colour, and general appearance precisely the same, but several days later, not so prolific, and altogether an inferior variety."

From H. MARSHALL, Esq., *Sands House, Durham.*

"I last year (1864) grew the Prince of Wales Pea in juxtaposition, and sown at the same time with the Yorkshire Hero, in a piece of good rich land. I found the latter not so high in the stem, and about seven days earlier than the former. The quality of both is excellent, but the Prince of Wales is decidedly the most productive; the haulm was covered with Peas from a foot up to the top; the great difference in productiveness was very apparent to the eye. I greatly prefer the Prince of Wales. I caused both to be grown for seed, and will prove them again in 1865."

The same CORRESPONDENT *writes, Nov.* 15, 1865.

"I grew three rows of Peas this season, viz: Prince of Wales, Veitch's Perfection, and Yorkshire Hero, on the same square. Although all of them did well, yet the Prince of Wales nearly doubled the others in quantity of produce. It strikes me that the Prince of Wales resisted the drought better than either of the others, as the row continued producing long after the haulms of the others were in the decadence."

From Mr. GEORGE SCRYMGER, *Sonning, near Reading.*

"I beg to inform you that I tried the Prince of Wales Pea you sent me alongside of Veitch's Perfection and McLean's Princess Royal, and found it in every respect equal to Veitch's Perfection in quality and in time, and more productive than that first-class variety. The Princess Royal I found an earlier variety. I may state that the trial was a fair one in every respect, sowing the same quantity of seed in the same length of drill, and measuring the crop exactly, your variety proving the heaviest cropper."

Many other testimonials can be furnished similar to the above. Price 5s. per quart. As the Stock is limited, early orders are requested.

THE ALBERT SPROUT (MELVILLE).—A hybrid between the Drumhead Savoy and the Brussels Sprout. The stems are long, studded with hearting Sprouts, and having a top resembling a small Savoy. As a late hardy winter and spring vegetable it will be found most invaluable, being fit for use when other Sprouts are over, and vegetables are scarce.

"The flavour after cooking was all that could be desired, being mild and mellow, without any kind of coarseness."—*Gardeners' Chronicle,* April 23, 1864. Price 1s. per Packet.

DALMENY SPROUTS (MELVILLE).—A valuable hybrid between the Cabbage and Brussels Sprouts. The flavour is free from the Savoy Sprout taste. After the tops are cut off, a fine succession of Sprouts is obtained. 2s. per oz., or 6d. per Packet.

SHEARER'S LATE WHITE BROCCOLI.—Heads large and compact, pure white, fit for use in April and May.

Mr. LEES, Gardener to the Earl of Haddington, Tyninghame, writes of this valuable variety—"I have great pleasure in bearing testimony to the superior quality of Shearer's Broccoli. I have grown all the new Broccoli which have come out for years, and they are not few, and I have not met with one which is equal to this variety, either for whiteness or fine flavour. It is a very hardy protecting sort, and comes into use in April and May. 1s. per Packet.

THE HOLME PARK LETTUCE.—S. & M. have the pleasure of sending out this valuable New Cos Lettuce for the first time. It has large crisp heads of good flavour, but its great recommendation is its standing so long fit for use without running to seed. It was grown alongside of 16 varieties, including the sorts of recent introduction, and was found to be the last to run to seed. For general purposes it will be found the most valuable Lettuce in cultivation.

"Last summer, amongst other varieties, such as the Alma, Moore Park, Neapolitan, and several others, I grew the Holme Park, and found it the very best for a hot season, as it stood far longer than any of the others before it ran to seed; and in other respects it is first-rate, being large, crisp, and sweet, and does not require tying up, but forms itself into a compact-hearted Lettuce, something in shape like the Barrack Cabbage. I can strongly recommend this variety to all who esteem fine Lettuce in the heat of summer."—DAVID THOMSON, Archerfield, in the *Scottish Gardener.*

Similar testimonials have been received from Mr. ROSE, gr. to His Grace the Duke of Roxburghe, Mr. FAIRBAIRN, gr. to His Grace the Duke of Northumberland, Syon House, and many others. 1s. 6d. per packet.

SMITH'S EARLY POTATO.—Very distinct, and the best round Potato in cultivation for first use. 12s. per Bushel.

From the ROYAL HORTICULTURAL SOCIETY, *Chiswick.*

"We have grown Smith's early Potato for the last two seasons; it proves to be quite distinct, and about the same in point of earliness as the Handsworth, but much more robust, more prolific, and of better quality than that variety. We consider it the best early round Potato that has come under our notice, and have been saving all the seed possible to grow for general use in the garden."

From Mr. SCRYMGER, *Sonning, near Reading.*

"With regard to the Potato you sent me, I may say that we were so pleased with them, that I shall grow no other for second crop; its quality, earliness, and productiveness, prove it a first-class variety."

From Mr. FAIRBAIRN, *Gardener to the* Duke of Northumberland, *Syon House, London.*

"I planted Smith's early Potato on March 24, and dug some of them on June 1, and found them to be quite ripe. There are a good many points in their favour; they are a beautiful shape, few eyes, and very white and floury; they are the earliest round Potato I know of."

FAIRBAIRN'S PINK SEEDLING, raised by Mr. Fairbairn, Gardener to the Duke of Northumberland, Syon House, from the 100-fold. It is an extra good keeping variety, very handsome and productive. A prize-taking variety. 8s. per Bushel.

The Trade prices of the above may be had on application.

Paterson's Famed Seedling Potatos.

MESSRS. SUTTON AND SONS, Reading (after having grown our approved varieties of NEW POTATOS, and found them equal to reports from the London Amateurs throughout the country, and we, wonders of cultivation, have been appointed the AGENTS for [illegible] and surrounding districts for the Sale of our Potatos.
WM. PATERSON & SON, Seed Potato Merchants and Seed Growers, [illegible]

Erin's Queen Dwarf Ashleaf Potato.

WAITE, BURNELL, AND CO. have [illegible] this really true and pure stock of the Ashleaf variety, which gave great satisfaction during the past season. It is very dwarf, of the habit of a dark green, compact, very early, and invaluable for frames. Price [illegible] per pound.
A [illegible] 181, High Holborn, London, W.C.

The Earliest Variety of the Ash-leaf Kidney Potato is Mona's Pride.

MR. MYATT has [illegible] this Tender EARLY POTATO, the sample of which has been saved [illegible] Mr. [illegible] of the Isle of Man. In the *Gardeners' Chronicle* of August 26, page 795, it is described by a correspondent as the Earliest and best of the Ash-leaf varieties. [illegible] September [illegible] "A [illegible] of Mona's Pride." Here at Manor Farm, it has proved all that can be desired.
[illegible] free to any Railway Station in England. [illegible] to the Trade where not less than [illegible]
Terms cash. [illegible] from such will be attended to [illegible]
Manor Farm, Deptford, December 8.

Seed Potatos.

H. AND F. SHARPE invite the attention of the Trade to the following varieties of SEED POTATOS, which they have grown from the finest selected stock; they comprise all the sorts worthy of cultivation. The quality is excellent, being free from disease; and prices very moderate:—

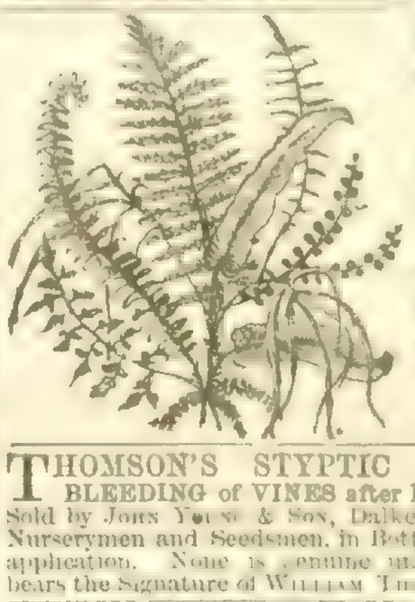
Early Ashleaved Kidney	Early Cornish
" Myatt's prolific Kidney	" Forty-fold
" Webb's Imperial Kidney	Daintree's Earliest
Early King, very fine	Early Dalmahoy Round
" Martin's Cradle	" Cockney
" Golden Globe	" British Queen
" Foxe's Seedling	[illegible]
" Round France	[illegible]

Seed Growing Establishment, Wisbech, Cambs.

To the Trade and Others.

ON OFFER AT ADVANTAGEOUS PRICES.

GENUINE NEW ONION, MANGEL, TURNIP, CARROT, CABBAGE, PARSNIP, SCARLET RUNNER BEANS, &c. See Special Priced List on application.
A vast quantity of excellent CABBAGE PLANTS still on offer at 2s. 6d. per 1000 for cash, of several of the best varieties.
FREDERICK COX, Seed Merchant and Grower, Bagshawe, Derby.



COCOA-NUT REFUSE delivered within 25 miles of Charing Cross, at 5s. per ton.

For particulars, and how to use it, see long Advertisement in *Gardeners' Chronicle* of the 21st March, 1863; or apply to the PATENT COCOA FIBRE COMPANY, Kingston-upon-Thames.

Postage Stamps or Post-office Orders payable to J. BARSHAM & Co.

BARSHAM'S BRUSHES and MATS are sold in every town.

CAUTION.—Every Brush is stamped, J. BARSHAM's Patent.

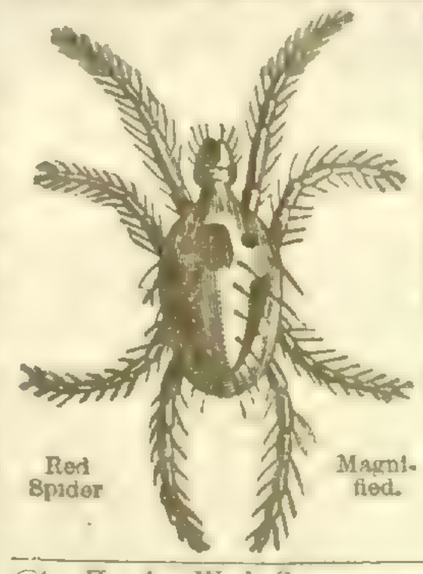
THOMSON'S STYPTIC for PREVENTING the BLEEDING of VINES after PRUNING, is Manufactured and Sold by JOHN YOUNG & SON, Dalkeith, N.B., and can be had of all Nurserymen and Seedsmen, in Bottles, price 4s., with directions for application. None is genuine unless the Label on each Bottle bears the Signature of WILLIAM THOMSON.

Thomson's Styptic for Preventing the Bleeding of Vines.

BALLANTYNE AND SON have been appointed Agents for the Sale of THOMSON'S STYPTIC, which is highly recommended as being the most effectual remedy yet introduced, and all who have tried it testify to its worth. In Bottles, price 3s., with full directions for use. The Trade supplied on liberal terms.
The Nursery and Seed Establishment, Dalkeith.

Important to Florists, Gardeners, and Others.

VERMUM CONFECTOR, for Destroying Worms in Lawns, Gravel Paths, &c.—This Preparation being perfectly free from all injurious substance may be used without the least injury to the tenderest plant. Sold in packets at 1s. 6d., 2s. 6d., and 5s. each. Full directions for use are given with each packet.
WYMOND & GRIFFIN, Seven Sisters' Road, Holloway, London, N.



Red Spider Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes, 1s., 3s., and 10s. 6d. each.

Wholesale by
PRICE'S PATENT CANDLE COMPANY (LIMITED).

SHAW'S TIFFANY,
For samples and prices apply to
J. SHAW & Co., 29, Oxford Street, Manchester.

PATENT GUTTA PERCHA SOLES.—IMPORTANT TO GARDENERS.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. GLENNY, Esq., the celebrated Florist:—

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles.—Your obedient servant, "G. GLENNY.

Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Calbotype trays, &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town or country.

The GUTTA PERCHA COMPANY, Patentees, 18, Wharf Road, City Road, London, E.C.

2000 VINES, from Eyes, strong and extra strong, for immediate Fruiting in Pots, and for Planting-out; including all the leading varieties, with stout, close-jointed, and thoroughly ripened Canes, many of which will produce from 4 lb. to 8 lb. of Grapes next season. Prices and particulars upon application to

James Dickson & Sons, The "Newton" Nurseries, Chester.

Ottersham Nurseries, Chertsey.

WILLIAM FLETCHER begs to offer a large Stock of Dwarf-trained CHERRIES, APRICOTS, PEACHES, NECTARINES, and PLUMS; also MAIDEN and CUT-BACK TREES of the above. EVERGREENS, FOREST TREES, and all kinds of NURSERY STOCK.

Prices forwarded on application.

Lancashire Show Gooseberries and Currants.

M. A. LAKE, The Nurseries, Bridgewater, has to offer several thousand of the above, of the choicest kinds.

EVERGREEN HOLLIES, from 1 to 2 feet, and EVERGREEN PRIVET; also HORSE CHESTNUTS, ELMS, OAKS, SYCAMORE, MAPLE, and POPLARS, of sorts; fine Trees, from 10 to 12 feet.

Prices moderate, which will be forwarded on application.

PEACH TREES for Cordons; Pyramidal PEACH, APRICOT, and NECTARINE TREES, in pots, full of blossom buds, 5 to 6 feet in height, for diagonal cordon training or pot culture. Average price, 5s. each. The above have all been under close summer pinching, and are very handsome Trees.

Messrs. Thos. Rivers & Son, Nurseries, Sawbridgeworth.

MAGNIFICENT Dwarf-trained FRUIT TREES, PEACHES, NECTARINES, APRICOTS, PLUMS, and CHERRIES; extra fine Trained MAY DUKE and MORELLO CHERRIES; ROYAL GEORGE PEACHES. Prices very moderate.

STANDARD-TRAINED PEACHES.—Wm. Wood & Son have an enormous stock to offer of the above. They feel certain the Trees cannot be surpassed in quality.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

B. S. WILLIAMS begs to direct special attention to the undermentioned, of which he now holds a fine stock. PRICED and DESCRIPTIVE LISTS can be had on application.

VINES.—Strong Planting and Fruiting Canes of all the best varieties, including the new Grape ROYAL VINEYARD.

PINES.—Strong Fruiting and Succession plants, and suckers of all the leading kinds.

BECK'S NEW PELARGONIUMS.—For the present season, at the moderate price of 10s. 6d. each; also a large assortment of the best PELARGONIUMS and GERANIUMS, including BEATON'S best NOSEGAYS.

DUTCH BULBS.—Splendid roots of the strongest flowering HYACINTHS for glasses or pots, at 6s., 8s., 9s., 10s. and 12s. per dozen. POLYANTHUS NARCISSUS, CROCUS, Early TULIPS, and all other bulbs.

ENGLISH-GROWN SEEDLING GLADIOLI, 9s. and 12s. per dozen, ready next month. As the supply of these is limited, early orders are solicited.

Paradise and Victoria Nurseries, Holloway, London, N.

New Edition of

SCOTT'S FRUIT TREE CATALOGUE of the finest Collection in England. The Catalogue is allowed to be the best published, and is full of information about the Cultivation of Fruits, over 1000 being described. Apply to

J. Scott, Merriott, Somerset.

ANDERSON'S INTERMEDIATE STOCK.—This beautiful variety of Stock is extensively used in the principal flower gardens in East Lothian for masses or ribboning purposes, and has called forth the admiration of all who have seen it grown in such perfection. It is of a fine rose colour, and blends happily with almost any colour. It should be sown early in February, and will come into flower in July, and continue flowering till Christmas or till killed by frost. Eight or nine double flowers in the dozen may be counted upon. Sent out in sealed packets, 1s. 6d. and 2s. 6d. Usual discount to the Trade.

Stuart & Mein, Nurserymen and Seedsmen, Kelso, N.B.

CARTER'S GARDENERS' VADE MECUM for 1866 now ready.

Rhododendrons.

JOHN WATERER begs to offer the following Six RHODODENDRONS, in good, strong, healthy plants, at 4l. 4s. the Set, the usual discount to the Trade:—

SIDNEY HERBERT	MRS. FITZGERALD
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The Gardeners' Chronicle.

SATURDAY, DECEMBER 23, 1865.

MEETING FOR THE ENSUING WEEK.

SATURDAY, Dec. 30 { Royal Horticultural (Weekly Show), at South Kensington .. .. 2 P.M.

How long will the managers of our great FRUIT SHOWS persevere in their present course of DISPLAYING THE ARTICLES exhibited in the most UNATTRACTIVE manner possible? How long is the public to be invited to inspect long flat tables covered with green baize, and spread out with coarse crockery, varied, as in the late Show at South Kensington, with battered tin cans exhaling anything but an agreeable perfume, and with frowsy pickle bottles, such as one might expect to find in a marine-store dealer's shop, but would hardly look for in an elegant conservatory? How long is the eye to be offended by an ill-assorted heap of "greens," placed cheek by jowl with a similar aggregation of Potatos, or of sticks of Horse-radish?

We feel convinced that some such questions as these must have suggested themselves to many who visited the really fine display of fruits and vegetables in the Conservatory of the Royal Horticultural Society last week.

It is not fair to the visitors who come to see; it is unjust to the exhibitors, who would naturally prefer that their productions should be displayed to the best advantage; especially hard is it upon those foreign and colonial growers who have been at such pains to collect and transmit samples of their produce. These gentlemen know, of course, that their articles must show to disadvantage when contrasted with the fresher, brighter growths of this country, but that only furnishes an additional and more cogent reason why attempts should be made to compensate for these drawbacks by displaying the objects sent in the most sightly manner possible.

It may be said that the chief interest in these fruits is botanical, or that they are not intended to please the eye merely. If this be so, why exhibit them at all? We can hardly imagine any amateur or any botanist caring to pry closely into the dirty-looking tubs and tins when exhibited at Kensington. The request that visitors should abstain from touching is needless in such a case. In the study or the work-room, the matter would be very different, and these "pickles," instead of inspiring disgust, would be regarded with keen interest.

Anyone, too, looking at the glorious colours of the Gourds, the Savoys, the crisped many-hued Kails, the ruddy Apples, the mellow browns and yellows of the Pears, must have felt that a fine opportunity was lost. What a group might have been made of some of these things to delight the eye, not only of an artist, but of the most prosaic visitor! As it was, a costermonger's barrow, or, still more, a greengrocer's shop in Christmas week, presents a much more effective and picturesque appearance. Let the reader who happened to notice the fine cone of Encephalartos Altensteinii, now in full beauty in the Society's Conservatory, consider how comparatively ineffective it would look, if removed from the centre of its coronal of noble leaves, and placed by itself on a stoneware dish! And yet this is what was done with the Pine-apples on this occasion, though we must in justice to some of the exhibitors of these noble fruit, say that they showed a sense of propriety and good taste, by placing a few flowers at the base of the specimens.

It was aggravating to see huge primrose-coloured Pommeloes and Shaddocks, glowing Pears, and blushing Lady Apples, thus huddled together without regard to effect. Of course we are quite aware of the many difficulties in the way of such an arrangement as would at the same time satisfy the eye of taste, and supply the requirements of the professional exhibitor or spectator; but we can see no reason why, after the judges have made their award, some concessions should not be made in this matter; and if it is not desirable that all the objects exhibited should be thus tastefully arranged, at least some of them might be thus treated—the inferior and uncertificated ones, for instance, by way of compensation for their want of success in the competition. The "undecorated" articles would, in this way, attract even more general admiration than their more highly honoured rivals.

Where a show only lasts for one day, the main difficulties of arranging such group or groups as we should like to see, would consist in the short space of time available for the purpose; but in a case like this, where the Show lasts for several days, the objection on the score of want of time, can hardly be said to exist.

Though we have on this occasion confined our remarks to the effective arrangement of fruit and vegetables, they will apply, though in a less degree, to the grouping of flowers at flower shows—in a less degree, because, fortunately, it is impossible, however much some exhibitors may try to do so, to conceal the leaves altogether. At any rate, next May, we earnestly hope we shall see something done to remedy this state of things, and inaugurate a new era, for if we persist in the old plan, we shall be a laughing stock to our Continental friends, who pay great attention to what they call the "toilette" of their shows.

BEEF at 3*d.* a pound! We can fancy a chorus of thrifty housewives eagerly demanding where; and, not to keep them in suspense longer than we can help, we point to QUEENSLAND as the spot where meat is to be had at this low price. We have already published in our columns (p. 1037) a report from Mr. HILL, the Colonial botanist, upon the agricultural capabilities of certain districts discovered by him. Brisbane papers since received contain additional reports upon other regions explored by the same diligent observer during the latter part of the year 1864. No corner, from the outermost limits of Moreton Bay to the Macalister River, has escaped his search, but before proceeding to give the substance of Mr. HILL'S observations, we extract a few particulars from the Registrar-General's report for the year 1864, which may be of interest to some of our readers who are thinking of migrating to that rapidly advancing colony.

Queensland extends "from the northern boundary of the colony of New South Wales, in latitude 31° south, to the extreme northern part of the Australian continent at Cape York, in latitude 11° south. This wide extent of country, spreading over 20° of latitude, and running from the temperate far into the torrid zone, necessarily includes climates varying in temperature, in humidity, and in salubrity. The changes are, however, hardly so marked as those found in other countries of similar extent. From north to south the climate still remains essentially Australian, and well suited to European constitutions. At Cape York, where the healthiness of the European inhabitants is remarkable, the mid-day heat is not greater than it is at Brisbane — although the average reading of the thermometer will doubtless be found higher, the temperature being more even.

"Inland, on the elevated table land, whether at the Valley of Lagoons in lat. 19° south; or the Peak downs, in lat. 22° south; or on the Darling downs, in lat. 28° south, the climate still shows the usual Australian peculiarities, observable in its highest elevation, and differing but little in temperature, the summer sun being equally hot, and the winter nights equally cold." The total population is estimated at about 74,000, only 28,000 of whom are females.

The number of marriages is generally considered as one of the most certain indications of general prosperity, of abundance of money, and of a high rate of wages. In this country the marriage rate is said to be 16.40 to every 1000 inhabitants, whereas in Queensland, taking the mean of five years, the proportion of marriages was 24 in a thousand.

Reverting now to the before-mentioned reports of Mr. HILL upon the districts visited by him, we find that he speaks of the land as being in most instances exceedingly well adapted for cultivation; in one instance only does Mr. HILL report unfavourably. What could be expected from a place called "Humpie Bong?" The district with this odd name is situated on the northern shores of Moreton Bay, and seems generally unsuitable for agricultural purposes, although even here small quantities of excellent sugar and tobacco have been obtained.

The quantity of timber to be cleared is one drawback, but this is compensated for by the facilities offered by water communication. The want of proper roads also forms a great objection to some of the localities. Many of the "reserves" are well adapted for the growth of oaten hay, which is largely imported into Brisbane, and also for the cultivation of Wheat. Sugar-growing, as we learn from the *Brisbane Courier*, is rapidly extending; the growth of Cotton is also being vigorously carried on. Maize, Arrowroot, Tobacco, Ginger, are all more or less the objects of the cultivator's care, and all might be greatly increased, while promise of the future production of tropical fruits is held out by the receipt of a Wardian case from Sir HENRY BARKLY, the Governor of the Mauritius, containing plants of the Mango, the Avocado Pear, the Mangosteen, the Argan tree of Mogador, the Matingola Plum of Natal, &c.

Conscious that this pleasing picture must have its reverse side, we trust any of our readers who may be thinking of wending their way to this popular colony will not do so without making full inquiries for themselves. We frequently receive applications from intending emigrants as to the colony they should choose, but it must be obvious that all we can do, without incurring the risk of giving what may turn out to be disastrous counsel, is to lay before them such facts as we have reason to believe are beyond dispute.

Looking at the matter in another aspect, we think botany in general, and Kew in particular, have reason to be proud that two of the finest districts in Australia were not only discovered but recommended for immediate colonisation by Colonial Botanists, viz.:—Liverpool Plains by ALLAN CUNNINGHAM, and the plains watered by the Macalister River, made known by Mr. HILL, in the reports to which we have alluded.

Australia at least should never raise the cry of *cui bono* against the botanists, for she is under the heaviest obligations to CUNNINGHAM, FERDINAND MUELLER, and HILL.

—— OUR readers will see in another column that the Council of the Royal Horticultural Society has determined to award a new medal, to be called the LINDLEY MEDAL, to meritorious Exhibitors at the Tuesday Scientific Meetings only. As a mark of respect towards the memory of one who worked hard for the Society, and in recognition of the interest and value of the Tuesday meetings, this medal is doubly appropriate.

—— From a communication of M. KOLB, the Inspector of the Botanic Garden of Munich, in recent number of the *Revue Horticole*, we are glad to

learn that an INSTITUTE FOR THE STUDY OF THE PHYSIOLOGY OF PLANTS has been in operation for the last four years in the Botanic Garden at Munich. There is a laboratory fitted with every convenience for the prosecution of researches into the composition of the soil, and that of the plant. The experiments are conducted under the direction of Baron LIEBIG, the founder of the Institute, and of MM. NEGELI and VOLLHARD. A first set of experiments, of which we need not reproduce the details, has shown that the substances found in the ashes of a plant, when added to a sterile soil, render it fertile.

—— The general demand at this festive season for LEAVES and BERRIES for DECORATIVE PURPOSES recals to us the Aucuba, which in a very few years will take its place with the Holly and the Mistleto in the adornment of our houses. How effective it will be may be judged by a visit to the Conversatory at South Kensington, where also Solanum pseudo-Capsicastrum asserts its claim to be employed in a similar manner.

—— The Portrait of the late DR. LINDLEY, which we some time ago promised to give in our columns, is now ready, and will be presented to our readers with the first Number in the New Year.

OUR SMALL FRUITS.

WE are perhaps too apt to think of our Gooseberries, Raspberries, and Currants with some little contempt, as being fruits more adapted for the kitchen than the dessert, and thus some very interesting traits in fruit culture are passed over. Gooseberry and Currant bushes without culture and half-wild in appearance are to be found in cottagers' and farmers' gardens in great numbers, to the great delight of the boys in summer, and the comfort of the industrious housewife. How vividly the idea of the first Gooseberry pudding at Whitsuntide comes to one's mind, tasting of spring and the singing of birds; and then again, in July, the first Currant and Raspberry pudding—what delight! what an aroma when it is opened to administer the proper quantity—a large one—of sugar! It is only those who have spent all their young lives in the country that can have such feelings, more vivid perhaps because a little more mildly sensual, than finding the first blackbird's nest in March.

We took pen in hand to write about a few varieties of our small fruits, and have unconsciously got into the poetry of a country boy's life, if puddings and pies are at all in that way. At first our idea was to commence in a business-like alphabetical way with Currants, and so on to Gooseberries and Raspberries, but a great interest in Raspberries has got hold of me (I cannot hold on with the editor-like "we"), and so to them I will devote a few lines.

The Red Antwerp Raspberry is a name rife in all our market gardens, but to which sort of red Raspberry it properly belongs would be found on inquiry a difficult question to solve, almost every large cultivator having his favourite—one perhaps asserting that the true kind has canes nearly smooth, another that the best sort has rough or bristly canes. It is perhaps sufficient to say that most of the sorts known under this name produce good fruit, capable of making a rich jam, now a profitable article of export to our colonies, where doubtless the flavour of Raspberry jam recalls many pleasant days spent in the "old country."

Next to the Red Antwerp in estimation is the Fastolf, which came accidentally from seed in a garden at Filby, near Yarmouth; this sort about 20 years ago made a great noise in the horticultural world from its being happily named after the Castle of Fastolf, near Yarmouth, and from its realising a considerable sum to the firm that named it and sent it out. It is simply a good and prolific red Raspberry, as good as any of the varieties of red Antwerp.

There are several other varieties of red Raspberries, some of which adapt themselves to peculiar soils, and thus become favourites. Among these Carter's Prolific, a Yorkshire sort, is prolific and good, with fruit large and more round than conical; its flavour rich and pleasant. The Fillbasket, a Northumberland sort, is also a hardy free-bearing variety, with nothing remarkable belonging to it, either in size or taste.

The Prince of Wales (Cutbush's) is remarkable for the vigorous growth of its canes, its large fruit of good flavour, and from its root producing too many suckers, which in some soils are often a great evil. Another of these vigorous-growing varieties is a sort with a very odd name—"Semper Fidelis;" at present it is, or at least last summer it was, faithful to acidity, and its fruit not remarkable for size. A variety called the Round Antwerp is worthy of notice from its large round fruit of excellent flavour. In America they have raised several sorts of red Raspberries from seed. The sort most worthy of cultivation in our climate is Vice-President French; this sort produces large fruit, more round than conical, and of excellent flavour.

In French catalogues 10 or 12 varieties of red summer Raspberries are enumerated, besides those above mentioned. I have not found any of these superior to, or even equal to our favourite English varieties.

I have thus far enumerated the varieties of red summer Raspberries worthy of notice. There are two or three yellow-fruited sorts usually cultivated for the dessert, and worthy of a place in the fruit garden. The largest, sweetest, and best of these is the Sweet Yellow Antwerp, the origin of which is lost. Mr. Rivers states that it was known by his grandfather, and cultivated by him about 1780; he supposes it must have been one of the sorts imported from Holland, as it was called simply the Yellow Antwerp. It differs from the numerous sorts of yellow Raspberries so named in producing slender canes, deeply tinted with brown, with but few spines or bristles, and giving large yellow fruit, very rich and sweet. Of the Yellow Antwerp there are several varieties, some of them worthless from their small fruit and tendency to produce crowds of suckers. The true sort, known in France as "Framboisier du Chili"—perhaps because it never grew in Chili—produces fruit rather large than otherwise, and of a good flavour; this does not produce suckers in profusion, and is a good variety. A yellow Raspberry which was introduced from America a few years since, under the name of Brinckle's Orange, I had great hopes of, as it is highly esteemed there, but its fruit proved small and acid, and its suckers thick as leaves on the ground in November. The size and flavour of its fruit were evidently influenced by our cloudy skies, for during the past summer, which was American-like in clear skies and great heat, I found its fruit sweet and good. It will probably succeed in France, for in the *Revue Horticole* some cultivator speaks highly of it, and offers canes at two francs each—a most profitable crop if it gives suckers there as here.

A comparatively new race of Raspberries has of late come prominently into notice, not adapted to the cool climates north of the Trent, but very fertile in warm autumns in the south and east of England. One of the best of these is the October Red, raised in France from an autumn-bearing cane of the Fastolf, and named Merveille des Quatre Saisons Rouge. Why it should be called a Marvel of Four Seasons, when it only bears one good crop, is a sort of *lucus &c.*, not easily comprehended. Its English name of October Red is much more applicable, for although the canes of the preceding year give a few small fruit in July, its main crop—and most beautiful and abundant it is—is given on the young summer canes in October, and but rarely before that period. Its fruit are too delicate to gather singly; the long racemes should be clipped off with scissors, and then turned up and placed on the dessert table gently. They are very ornamental, and the fruit delicate and agreeable, reminding one of summer when summer has fled. A sort with exactly the same characteristics is the October Yellow; this was raised in France from the October Red, and named Merveille &c. à Fruits jaunes. We owe both the English names to Mr. Rivers. This is sweeter than the red variety, with the same very tender flesh. In dry warm autumns it is a very nice addition to the dessert.

A sort of autumn-bearing Raspberry, raised or sent out by a Mr. Rogers, of King's Road, Chelsea, between 20 and 30 years since, under the name of Rogers' Victoria, is a delicate grower, but bears full-sized red fruit, of good flavour. Its peculiarity is its ripening in September, nearly a month before the October Red, The Belle de Fontenay, an autumnal red Raspberry, is a pestilent weed, from its putting forth crowds of suckers; replanted every season it gives large fruit.

I now come to a very peculiar race of autumnal Raspberries, interesting alike to the physiologist and cultivator.

Many years ago I cultivated a sort of summer Raspberry sent to me as the Black Raspberry, said to be a cross between the Dewberry (Rubus cæsius) and the Raspberry; its canes were of a dark purple, and its fruit of a reddish purple and very acid. I felt interested in this sort, and raised several generations of seedlings from it; some of them bore fruit larger and of a darker purple than others, but on the whole I found them adhering pretty closely to the parent stock. It was after doing this, and perhaps some ten years ago, that I received, among other fruits from my numerous American friends, a variety of the Black Cap (Rubus occidentalis), called the Ohio Everbearing: this is a curious fruit, seeming as much a Blackberry as a Raspberry, its berries being very firm, black, and partially covered with a white web-like film. Moreover, in this climate it produces its fruit in autumn. I must add that its canes are purplish-red, covered with a purple bloom. Well, on receiving this interesting sort of Raspberry it was planted with other new kinds near my summer Black Raspberry, from which I continued to raise seedlings. Among the first batch raised after the introduction of the Black Cap, I observed several with purple canes quite distinct from the parent stock. I watched them with some interest, and soon found them quite new in character, giving but a few small fruit in summer, but producing an abundant crop in September and October. I selected a few of those which seemed the most distinct, their canes purple, and their fruit as large and as black as our common Blackberry. These select few were planted by themselves, so as apparently to be safe from casual impregnation. Seed from them was sown, and, much to my surprise, for I quite hoped that I had established a race, produced varieties almost endless, some having large black fruit, some giving large orange-coloured fruit, some nearly white, others of a pale flesh colour, and others from pale to dark red, the flavour of each differing: those with black fruit having purple canes like the Black Cap, and partaking of the flavour of the Blackberry; those with orange and white fruit varying from agreeable sweetness to unpleasant acidity. None of these seedlings have proved to be summer Raspberries; all have ripened in August, September, and October. It is curious, but still to be regretted, that, like the American Black Cap, none of them put forth any suckers, so that none of them, producing the largest fruit ever seen on a Raspberry, cannot be propagated: cuttings of the roots even failing to grow. This race of Raspberries seems to offer a curious study to the physiologist, for we have the curious fact of a tribe of plants varying but little for many generations, and always retaining the usual character of our English Raspberries in bearing fruit only in July, at once changing their nature from the introduction of a foreign species. In the whole course of my long experience in raising seedling trees and plants I have never found anything so remarkable, and when I look over the innumerable variations in a few hundreds of my seedling Raspberries—no two being exactly alike—I am led to the belief that as yet we are only on the margin of the "Origin of Species."

Among American small fruits are some varieties of the Blackberry (Rubus fruticosus), which have been much written about and advertised by our cousins over the water. The two most prominent kinds are the Lawton—so named from a grower who made some dollars by it—a new Rochelle; this is much like our common Blackberry, but its fruits are more conical, and in this country not so large. The other sort is the Dorchester; this gives fruit of the same shape, but a trifle smaller than the preceding. Their flavour does not differ from our English sort, being sweet and flat, but their time of ripening is very different, as they ripen here early in August, nearly six weeks before our Blackberry.

Some varieties of the Dewberry (Rubus cæsius) have been figured in the American periodicals, and if described truly they may be of interest. Our Dewberry—the Dewberry of Shakespeare?—is most plentiful in parts of Hertfordshire and Essex, generally in stiff clayey soils and on the banks of streams; this pretty dwarf shrub, with its large-granuled fruit, is the boy's great pet, for it ripens in the heat of summer, and when angling for perch the rod is often left to itself while the angler searches for Dewberries. Ah! those angling days, how "jolly!"

I propose in my next to discourse about Currants, if you can open your columns to such "small deer."

Rubus.

DOUBLE-GLAZING.

THE article (see p. 987) containing Mr. Anderson's "conservative promulgations" concerning my recommendation of a system which, in spite of his expostulations, will find its way into "English favour and English gardens," has unfortunately but just now come to my notice. I therefore hasten to send a few lines in reply, much regretting this retardation, as it will probably have induced some of your readers to interpret my silence into a tacit acknowledgment of the validity of Mr. A.'s hyperbolic anti-double-glazing assertions.

Much to my astonishment I see that Mr. A. does not for a single moment hesitate to condemn a system which, as may readily be deduced from his own remarks, he has never as yet even had an opportunity of submitting to a test; and I cannot but avow that in my opinion it would, in the interest of the advancement of horticulture in general, and of Orchid culture in particular, have been far more judicious on Mr. A.'s part, had he refrained from publishing his prejudicial views on this subject until such a time, at least, as might have enabled him to support his "thoroughly practical opinion," (which in general I much appreciate, but which in this instance, however, does not seem quite impartial), by something like a "thorough practical experience" in the matter.

As for such indelicate intentions as those which Mr. A. has not scrupled to impute to one who has ever been fond of England and its gardening, who, moreover, is a total stranger here, and who, consequently, has no motive whatever for "throwing down the gauntlet to British gardeners," or for "tilting one country against the other" (*que de bruit pour une omelette!*), I shall merely refer him to Professor Koch's "Wochenschrift für Gärtnerei und Pflanzenkunde," Nos. 2, 33, 42–44, of which contain a few translations from the columns of this paper (*Gardeners' Chronicle*), accompanied by remarks furnishing most unquestionable proofs as well of my admiration of the flourishing state of British gardening as of my high appreciation of the merits of British cultivators. Mr. A. will find a couple of these translations signed "R. Hamilton," a pseudonym which I assumed to avoid being charged with "Anglomania," an accusation I am but too frequently exposing myself to.

But *revenons à nos moutons.* Mr. A. seems to labour under the strange mistake that by advising air-tight double-glazing I intended to propagate a system of constructing plant-houses devoid of all means of ventilation whatever. If he will take the trouble of looking over my remarks on the subject he will soon convince himself of his error, for I have not in a single instance recommended or even mentioned anything like "a house that requires to be made perfectly air-tight," but have simply recommended air-tight "glazing;" and if I have forgotten or thought it unnecessary to mention in particular that "every one" of the double-glazed houses I have spoken of is provided with very ample and very efficacious arrangements for as thorough

a ventilation as ever a proper treatment of the plants it contains demands, it can only be attributed to the circumstance that I never deemed any one eccentric enough to believe that such an abnormity as an "hermetically sealed" house would be recommended by anybody whatever, far less by one who, although not fortunate enough to possess such "thoroughly practical opinions" as our Meadowbank *célébrité*, is nevertheless not quite so destitute of a moderate share of practical experience in the cultivation of Orchids as Mr. A. may think.

By taking a glance at my former remarks I find that, speaking of the Palm house of A. Borsig, Esq., I distinctly made mention of "some of the top lights being destined for airing;" and if it is found indispensable to ventilate Palm houses, how much more so must it be in the case of so decidedly epiphytal a class of plants as Orchids in general are, and which, as every one knows, assimilate the greater part of the constituents of their nourishment directly from the surrounding atmosphere. I am as much in favour of thorough, *i. e.* a sufficient degree of ventilation, as Mr. A. can possibly be, yet I have an inveterate aversion for an "over-sufficient one," that is for all draught, especially for cold draughts and dry currents in Orchid houses; and if I mainly ascribe the causes of the different varieties of spot which unfortunately to so great an extent exist in English collections, to the deficiencies of single roofs, Mr. A., who himself has been able to furnish such fine samples of various forms as those which, in conjunction with the talented "M. J. B.," he has so explicitly described in No. 7 (p. 147), will certainly find no reasonable grounds for contradicting me.

It therefore appears to me that, even if all other advantages which air-tight double-glazing offers were for a moment left out of consideration, the only one of bringing every cubic inch of air entering the house or escaping from it within the direct control of the cultivator, would certainly in itself be important enough to induce every Orchid-grower to adopt this system, for it must be obvious to every one that a house so constructed is comparatively far superior to the deficient single-glazed structures, which, through the medium of the innumerable apertures formed by every lap of glass and every joint about the building, offer as many "open doors" for the ingress of spot as well as other discrepancies, and a host of insects besides. If the dimensions, insignificant as they may seem, of all such apertures about a single-roofed house could be summed up into one collective figure, this figure would represent an opening of such a size as would, if properly considered, undoubtedly greatly assist Mr. A. in coming to a conclusion as to the causes of such varieties of spot as those which he has described himself, and the origin of which appears to him so deeply immersed in mystery.

Next to cold draughts and over-moisture, I consider aridity the most dangerous agent in the production of spot. The exceedingly hot summer we had this year has furnished examples of it here, which, on some future occasion, I may speak of at length.

If Mr. A. finds it necessary to remind me of the importance of such agents in Orchid culture as soil, air, circulation, and moisture, it may in return not be superfluous to remind him of the fact, that the three last of these important agents are in a great measure, and in a most direct way, dependent upon the construction of the roof.

As for Mr. A.'s plants, the measurements of which he gives with so much complacency, and which he so modestly calls "magnificent examples of first class cultivation" (in my opinion they might, *à juste titre*, be called Orchidaceous prodigies), I must avow that, in spite of every exertion, I cannot find anything here to surpass, if even to equal them, Phalænopsis Schilleriana excepted; the plant in the collection of L. Reichenheim, Esq., mentioned at p. 963, having lately produced two new leaves, the first of which has attained 17 inches in length, by 5⅔ inches in width, the other fairly promising to reach the same size, although since its appearance the plant has thrown out two flower-spikes, or rather panicles, upon which may already be counted over 140 buds, viz., 119 on one, and 22 on the other; as this number may increase yet, and as the flowers will probably all be expanded at one time, this plant will by far surpass that of Mr. Anderson. Although this Phalænopsid will ever rank very high among even the most precious of our Orchidaceous gems, I am inclined to consider it, in *point de vue* of culture, an Orchidaceous weed, for it seems to succeed equally well under all circumstances, and under the most deviating modes of treatment.

Since Mr. A.'s plants are open to inspection, I may on my next visit to England take the liberty of availing myself of an opportunity offering so rare a treat; and in that case I shall not at all be surprised (despite the incomprehensible aversion which he at present is showing for the "excellent system") to find most of his rarities, and especially his "prodigies," under a double-roof, and although its beneficial influences will not have been of so miraculous a nature as to have induced the already fine-sized leaves of his Phalænopsis Schilleriana to assume the size of those of a Musa Ensete, or the pseudobulbs of his thriving Odontoglots to surpass an exhibition Pumpkin in corpulence, I nevertheless feel confident that the comparative insurance against all draughts and sudden fluctuations of temperature, the saving of fuel and labour, the total exclusion of almost all insects, &c. will have more than outweighed the disadvantage of a slight obstruction to light which Mr. A. is exaggerating so much, and which this construction undeniably offers, but which, if brought into close consideration, is not by far so detrimental as might be concluded from Mr. A.'s hyperbolic apprehensions, especially regarding those most valuable of all Orchids—the distichous-leaved species of East Indian Vandeæ, which—strange coincidence—are also those most exposed to spotting of all descriptions. Some of the choicest species of this class are even in a high degree fond of shade, especially during their season of growth—for instance, the beautiful Vanda (Renanthera) Lowii, a plant as averse to intense sunshine as a bat, and which cannot even for half an hour be exposed to the direct influence of a strong summer sun with impunity.

As may readily be inferred from the above remarks, I am as much enamoured of double glazing as ever; and if Mr. A.'s "opinion" induces him to condemn it, the "experience" of others induces and entitles them to recommend it. I have not the least apprehension of ever being discomfited in maintaining that an air-tightly glazed double roof is superior to a single one; and although I willingly concede that if England had Andersons enough to cultivate its Orchids, double-glazing would be comparatively superfluous with you, I still have substantial reasons for doubting that such is the case, and I therefore profit by the occasion once more to recommend my pet system. I am mischievous enough to believe, and even to assert, that through the inappreciable advantages of double-glazing, many a one whose Orchids are at present more adorned with spot than with bloom, will in due course of time become a most formidable rival to the "northern paragon," and such plants as those which he may justly be proud of, will thereby be brought within the scope of every one's admiration and enjoyment who will not shun the few extra expenses which double-glazing will necessarily cause.

Since a few well-known cultivators have taken the matter in hand in a far more efficient way than that of indulging in polemics upon the subject, that is by submitting the system to a practical test, I consider a further discussion of the matter entirely superfluous, at least for the present; and I therefore conclude my observations, hoping that whenever Mr. A. will take a fancy again to refute remarks as well intended as those which, in the interest of the advancement of horticulture in general, and of Orchid culture in particular, I have ventured to make on the subject in question, he will at least have the kindness to select a moment for so doing when his humour will be a little more *couleur de rose* than it has been in this instance.

Fear of incurring his censure once more, keeps me from availing myself of this opportunity to state that I have for some time past been indulging in speculations on the appropriation of the hygrometer for horticultural, and especially Orchidocultural purposes; and although the complicated nature of the contrivances at present in use under this denomination, as yet precludes the possibility of its general introduction, I am confident that as soon as a modification of it, combining simplicity, accuracy, and durability, shall make its appearance, it will find a most rapid propagation, and as universal an application in horticulture as the thermometer at present enjoys. *A. R. E.*

[The publication of this letter has been unavoidably delayed.]

TROPICAL BOTANY.—No. II.

We alluded in a former article on this subject to the singular fact of the Indian spring taking place in the driest and hottest month of the year, and it is no less strange that we never observed this fact noticed by any writer on India. As we could not account for the phenomenon by any favourable conditions of climate, such as subterranean or atmospheric moisture, it was concluded that the evolution of buds, tender shoots, &c., was due to specific vital action unconnected with external circumstances.

If this is the correct interpretation, then it must be admitted that European writers, judging from the phenomena of temperate climates only, have but partial and incorrect opinions on this subject, for they tell us, one and all, that heat alone sets the vital principle of plants in motion, and that an increase of temperature is the cause of the appearance of spring, and that dryness in the air is fatal to vegetation. But the extraordinary fact is before our eyes every March, that in an atmosphere which curls up the stiffest boards, and causes furniture to split, Nature has chosen to put forth her tenderest productions, and that, too, unaffected by this apparently adverse condition of the air.

One of the greatest of living botanists has written to us to say that the Indian spring is a puzzle, and he has suggested a series of observations on the temperature of the ground at a depth of 3 feet.

Fortunately we are already in possession of such a series of observations, taken during the three years 1843 to 1845 by Mr. Caldecott at Trevandrum. From this we observe that the lowest temperature of the earth at a depth of 3 feet is in July, when vegetation is in its greatest luxuriance, and the highest is in April, when tree vegetation only has already made considerable progress, and that between these two extremes there are only about 5° Fahr.

From August to January the temperature of the earth at 3 feet is almost stationary at 84½°, while from February to April there is a gradual rise to 89½°. These facts seem to give support to the general opinion that the rise in temperature during March is the cause of the evolution of buds, young shoots, and blossoms.

But it will scarcely be denied that an earth temperature of 84½° is quite high enough for any plant in the world; nor could we bring ourselves to believe that, if the temperature were to remain steadfast at 84½°, occurrences in the tropical vegetable world would be other than what they are.

We are supported in this view by the fact that there is a partial spring for several tropical trees in December, when the Mountain Olive (Olea dioica) sends forth multitudes of new leaves and fragrant blossoms.

Moreover, if a tree which usually develops new leaves and branches in March happens to meet with extensive injury in July, the month of lowest earth temperature, all the appearances of spring will then take place. It is in July that many young Mango trees send forth new branches, and we happened to notice a Mhowa tree (Bassia) which in June lost its crown in a storm, push forth with incredible force new branches through the old bark in the following month. Facts such as these seem to show that the higher earth temperature of March has nothing to do with the appearance of spring.

It may be concluded, therefore, that there is a principle of life peculiar to each species of tree, and sometimes even to individuals, as in the case of the Glastonbury Thorn and Cadenham Oak, the former blooming and the latter budding in the depth of winter.

It is by this principle of life that a seed, a dormant bud, a wheel animalcule, and a helix, can remain as if dead and yet unchanged for years, but which if dead would be immediately subject to the laws of inorganic nature.

From hygrometrical observations made at Benares by Mr. James Prinsep, it appears that at that place January is absolutely the driest month in the year, *i. e.*, that there is a less quantity of aqueous vapour in a given quantity of air in January, than in any other month of the year; but yet, owing to the gradual increase of temperature, the drying power of the air is five times greater in March than in January, and goes on increasing till May. The depression of the wet bulb thermometer is 1.2 in January, and 14.0 in May. From this month it decreases rapidly till August, when there is no difference between the wet and dry bulb thermometer. We have seen from the tables of terrestrial heat that the earth is hottest in March, and coolest in July, and yet that by cutting off the crown of a tree in July we can reproduce the appearance of spring, and we conclude that the terrestrial heat of March is rather an accompaniment to the phenomena of spring than the cause of them; and that the season in which arboreal vegetation begins and continues to be developed is not in consequence of circumstances favourable to it, but in spite of circumstances most opposed to all the conditions generally regarded as necessary to vegetation. *N. A. Dalzell.*

Home Correspondence.

Climate of Scotland.—I have observed (see p. 1105) some remarks made by you upon the Chaumontel Pear and other fruits grown in the north. I have therefore been induced to send you a specimen of our "Chaumontel" gathered from a standard growing within a walled garden of 6½ acres. The produce has been about half a bushel of fruit of somewhat corresponding size. This is the third year since 1857 in which the fruit has ripened of the same size. The two former years were 1858 and 1859, some of the produce of which was sent to Dr. Lindley, who said that it was about equal to that grown on standards in the south of England. This corroborates your own ideas that climate does not at all times correspond with latitude. We are about 2° north of Edinburgh, and what you described as failing to succeed on a wall there, does well here in the shape of standards. We are however favourably situated, being near the south shores of the Moray Frith, and our soil is of a warm and early character, containing a good proportion of silicate. I enclose two or three other examples of Pears to show you what our climate can do in the case of other varieties. I employ largely the root lifting of fruit trees, and I attribute some portion of my success to the roots being well up towards the surface. *J. Webster, Gordon Castle.*

[The Pears which accompanied this communication were of good size, well coloured, and in other respects quite equal to the same kinds grown in the south.]

Education of Gardeners.—The proposed scheme of the Royal Horticultural Society, in reference to this subject, is a step in the right direction, and I hope it will meet with good healthy support. I also trust that the Society will use its best endeavours to obtain men who are well qualified to impart instruction to those that are under them. It is well to know how to prune, how to nail trees to make them look workman-like, how to pot, and the different soils to use for certain plants, &c.; and it is quite as well to know how to dig. How many young men are there in fine establishments in this country, who know how to perform this operation properly? Put a spade into their hands, and tell them to go and turn over a certain piece of ground,

and I ask how many know how to do this in a workman-like manner? Very few, indeed. They think this essential operation beneath notice; the spade seems cumbersome in their hands; they cannot put it into the ground with that ease and grace with which it ought to be done. Some may think that this statement is an exaggeration; but let me see a man dig, and I will tell you what he is worth. He may not have the soft parts of conversation that those of the kid-glove fraternity have; he may not be able to tell my lady in glowing terms the component parts of his garden soil, yet he knows what quarter of his garden suits such and such a crop, and above all, he keeps the family well supplied with vegetables, which is a great matter. Let the Society impress this upon the minds of their students—I can scarcely say students, the word sticks in my throat. And wherefore does it? Because it is like putting the kid gloves on the young men at the very beginning. Go, go to college, journeyman gardener! do not forget thy scent-bottle, thy cambric handkerchief; above all, remember thy cane and gloves! *Brassica.*

Mr. Paterson's Potatos.—At page 1180 I observe a communication from Mr. Whiting, of The Deepdene, near Dorking, in which he speaks disparagingly of certain varieties of Mr. Paterson's seedling Potatos; and wherein he also seems to infer that the testimonial so recently presented to that gentleman by his neighbours, for the service he has rendered to his country by his success in raising new and improved varieties of the Potato, has been somewhat questionably bestowed. Now, as I would rather leave the defence of Mr. Paterson's reputation as a raiser of Potatos to those who know him best, I trust I may be permitted to say a few words respecting certain sorts of that gentleman's Potatos which I have grown during the past summer. I received them originally twelve months ago from a source in which I can place implicit confidence, and I have no doubt whatever that they are quite true to name. Among the sorts which I grew were Scotch Blue, Irish Blue, Blue Kidney, Buff Kidney, Goliath White, Seedling Rock, Seedling Regent, Victoria, Napoleon, Paterson's Early, and several other varieties of which I cannot at present recall the names, but all of Mr. Paterson's raising. The whole of them were grown in one plot of ground, with more than 20 other good standard varieties, and thus I was enabled to contrast them with the rest in all their respective points. Mr. Whiting apparently depreciates the worth of Mr. Paterson's Potatos upon the strength of having tried four sorts, and of these four I have already discarded two from my collection as not possessing any especial features to make them worth retaining; these were Seedling Rock and Blue Kidney, thus showing that two out of the four he grew were in my estimation among the worst of the whole. But the two other varieties seem to merit some further consideration, especially the Victoria, which, judging from Mr. Whiting's own description, I doubt very much whether he possesses true to name; with me it has proved a splendid cropper, strong and erect in the haulm, with a particularly handsome white tuber, of a flattish round shape, and with very shallow eyes. With respect to the round Blue I can only say that I grew no blue variety that in any degree resembles the description he gives of it. The best of the Blues with me was the Scotch Blue, a Potato apparently as good of its class as the Victoria, which it somewhat resembles in shape, while it is of a beautiful purple hue, which renders it peculiarly attractive. These, along with Napoleon, a brother Potato to the Victoria, Paterson's Regent, and Paterson's Early, I found not only to be among the best round Potatos of my collection, but I also believe them to be among the best sorts in cultivation. There is yet one other recommendation to be attached to them, viz., that while nearly all the other late Potatos suffered more or less from the disease, especially the older kinds, not one of Mr. Paterson's was attacked; and, from the time of their being dug till the present moment, I have not found a single diseased tuber among them. I have been induced to pen these remarks somewhat unwillingly, because, although I had intended at some future time to have given a statement of my experience in this matter, I did not wish to do so until I had given my Potatos the test of another years' growth, which I believed would then have placed me in a position to pass upon their merits an unbiassed and experienced verdict. Had Mr. Whiting but waited for further experience, and extended his experiments to a larger number than four sorts of Mr. Paterson's Potatos, I feel certain that his opinion of that gentleman's labours would have been very different. While upon this subject I should like to say a word or two upon Potato culture generally. From the experience of the past year or two I am led to believe that one great aid in warding off the attacks of the disease is to plant as soon as possible, whether early or late kinds, that is, not later than the early part of March. I have found this practice to be very successful, as the Potatos have usually reached their full growth before being attacked; and then, as soon as I detect signs of disease in the haulm, both by sight and smell, I set the riphook to work, and cut off the whole of it, believing it best to be cleared away in order to give free access to the sun and air to purify the soil. The only piece of Potatos in which I was troubled with the disease to any extent consisted of some Regents which were not planted till a crop of winter stuff had been cleared off, and these suffered severely. I have another practice, which I believe to be a good one, and that is to expose the seed Potatos out of doors for a considerable time after digging, until they have become very green and hard. I think that this has a tendency to harden the constitution of the Potato, and in proof of this I may say that last winter a few tubers of that very popular variety, Webb's Imperial, having been left lying on the open ground till near Christmas, were put down upon the brick-floor of an outhouse, with a north aspect, and minus door or window; they laid there unprotected during the whole of the winter, exposed to all the frost, and yet, when the genial influences of spring came to be felt, they put forth strong roots and shoots, and grew apparently uninjured. The practice of storing Potatos for seed in a large bulk, whether in pits or heaps, is necessarily very exhaustive to the tubers; and although doubtless many will plead want of space to store them otherwise, yet this practice cannot be too strongly deprecated. The whole of my seed Potatos for next season's planting are now lying upon the floor of an old barn, exposed to all the light and air they can obtain; and should severe frost set in, a few mats and some straw will soon make all safe, and can speedily be removed when the danger has passed away; then the advantage of the plan is seen, as I shall be enabled to plant the whole of my sets with robust well-hardened shoots, instead of leaving them that operation to perform in the soil, which must be the case where they have previously sprouted and the shoots have been rubbed off. *Alexander Dean, Maybush.*

Gardeners' Wages in Nurseries.—We have much pleasure in stating that the Messrs. Lee, Royal Vineyard Nurseries, Hammersmith, have advanced the wages of all the gardeners now employed by them (without exception) to 15*s.* per week. And we take this opportunity of returning our best thanks to them for having done so, as the increase was given with cheerfulness. *The Gardeners employed by Messrs. Lee.*

Rainfall.—The following amount has fallen at St. Leonard's Lodge, near Horsham, Sussex, during the past six months of 1865:—

June	In.	July	In.	Aug.	In.	Sept.	In.	Oct.	In.	Nov.	In.
1	.60	6	.75	2	.53	21	.21	9	.11	3	.20
3	.12	10	.05	3	.15			11	.60	7	.14
29	.46	11	.12	8	.12		.21	18	2.32	9	.01
		13	.32	10	.40			19	.43	17	.33
	1.18	14	.12	11	.02			21	.21	19	.90
		16	.24	12	.60			22	.03	21	.59
		17	.36	14	.07			24	.32	22	.10
		18	.07	15	.57			26	1.02	23	.08
		23	.40	16	.18			27	.10	25	.31
		31	.15	23	1.72			28	.42	28	.36
				28	.05			30	.89		
			2.58					31	.75		3.02
					4.41				8.10		

Total, 19 in. *S. F.*——I have to ask your readers' attention for a few moments to a request on this subject, the importance of which in relation to engineering and drainage questions is well known. It is now some years since I began collecting returns of the fall of rain—with what success I will mention presently, but my main difficulty has been to find out the persons who keep such records, and one of the most obvious sources of assistance is the public press; I now, therefore, ask from each and every journal in the British Isles their all-powerful aid. When the collection was first organised in 1860, scarcely 200 persons were known to observe and record the rainfall; by steady perseverance, and the aid of a portion of the press, the number has been raised until there are now more than 1200 places whence returns are regularly received. Still I know there are many more, probably hundreds, who have either never heard of the establishment of a central depot to which copies of all rain records should be sent, or they have been too diffident to send them. It is of paramount importance to gather these, and make the tables yet more complete. I therefore beg to ask every reader to think for a moment if he or she knows of any one who keeps, or has kept, a rain-gauge; or who has any tables of rainfall (or old weather journals) in their possession. And if they do know of such persons, I ask them on behalf of science, of my fellow-observers, and on my own behalf, to use every effort to secure their assistance, and to favour me with their names and addresses. We want old records, we want records for the present year. I may add that an influential committee of the British Association has been appointed to superintend and assist in my investigations, and that they cordially support my present application. *G. J. Symons*, 136, *Camden Road, London, N. W.*

Spiders' Webs.—Much of the mystery of the spider's web may be cleared up by describing first, its structure, and then the form and parts of the spinning apparatus. The first has been attempted in your columns of November 26, last year (p. 1132); it now remains to try the latter. The spinning apparatus of the garden spider consists of six lobes or spinnerets—two posterior (nearly in a line with the vent), two anterior, opposite to these; and two smaller central ones, close together, in the depression between the other four. All these spinnerets are furnished at their summits with numerous spinning tubes, drawn out to horny points of exquisite fineness; the posterior and central spinnerets have each, besides these, one tube of larger diameter, of conical shape and wide open extremity, as much larger in proportion to the spinning tubes as the usual end of a common drawing-pencil is to its point. These might be called gum tubes, for they are adapted to the deposition of gum drops, though they may have other uses: especially it seems not improbable that it is through one of these the insect sometimes throws a web into the air as from a syringe; from the fine points of the spinning tubes this would be impossible. Leuwenhoek, the patriarch of microscopists, nearly two centuries ago observed a difference in the form of the spinning tubes, and it has been noticed by others since, but it does not appear that any one has described it or assigned its object. A very careful preparation of the spinning apparatus will disclose other tubes, two or three in number, of a more delicate texture, springing from the bases of each of the posterior spinnerets, and extending nearly to their summits; these seem fitted for pouring out fluids upon a thread, and are perhaps used in applying that delicate saline fluid which films over the elastic cross-bars and their globules. We have, then, the spinning tubes for the scaffolding of the web, the side and radial lines, the gum tubes for the gum drops and elastic cross bars, which are gum drops drawn out; and the pouring tubes for fluids: but in what way the spider applies these instruments it must be impossible exactly to describe. When the parts are so small as to be invisible while in use, we can have only the evidence of results. *S. S.*

Solanum Fruits.—Can any of your correspondents furnish me with the name of the plant which produces the orange-coloured egg-shaped fruit shown at the recent exhibition at South Kensington by Messrs. Webber, under the name of "Solanum fruits from St. Michael's." They are about the size of a bantam's egg, or a little larger, and of a fine rich colour. *S. L.*

Dahlia imperialis.—We herewith forward a flowering specimen of Dahlia imperialis, sent to us by Mr. Grieve, of Culford Hall Gardens, near Bury St. Edmund's. Mr. Grieve has not named the size of his plant, but we think M. Roezl stated in his former announcement of it that it reached from 8 to 10 feet in height, and required to be potted from the garden and transferred to the conservatory, where it succeeds the Chrysanthemums in bloom. Its style of growth is unique amongst herbaceous plants; and its Aralia-like leaves, of immense size when seen in a detached position, are very attractive. The branching side growth, with its large conical buds and partially drooping flowers, will give you an idea of its effective character as a centre group in large conservatories. *E. G. Henderson & Son.* [In the specimens sent the ray florets, which are fully 2 inches long, and lanceolate acuminate in form, are white with a delicate blush tint, those of the disk yellow. The heads appear to be abundantly produced in succession. The two forms of involucral scale are remarkably distinct.]

Micmac Potato.—What is the Micmac Potato? In looking over a recent number of the Nova Scotia "Journal of Agriculture," I find the following passage: "In Mr. B. Murdoch's valuable 'History of Nova Scotia' the Micmac name of Shubenacadie is said to be 'Saa gaa ban akady,' (place where the Saa-gaa-ban or Micmac Potato grows). Can any reader tell us what plant the Micmac Potato is? Should the botanical name not be known, a specimen of the plant itself would answer as well." *Enquirer.* [This is doubtless the Apios tuberosa, of which a figure is given at p. 165 of our volume for 1849.]

Iresine Herbstii.—Your correspondent, "W. Robinson," bears sorry testimony to the way in which Iresine Herbstii has behaved itself in many parts of the country, and which, if fully acted on, will, I fear, prevent its doing duty again. But when I consider that as much or more was said against Amaranthus melancholicus, which I suppose is that meant by your correspondent "as the best plant for cold soils and districts," I take courage, and hope that some might even be inclined to give Iresine Herbstii another trial. The plant behaved very well indeed in the Horticultural Gardens at South Kensington, where four beds were planted with it, alternately with the Coleus Verschaffeltii. The plants were well hardened off before turning them out, and they grew and filled the beds by the end of June, and continued until the end of October in full beauty. I think, on the whole, they were as much admired as the Coleus. When the afternoon sun lighted up its leaves, the colours were particularly effective. The plant is much hardier than the Coleus, and, not producing seed, it keeps its leaves fresh much longer in the autumn than the Amaranthus. I therefore venture to hope that as it has done well here and at Kew, many will be induced to try it again. I have little doubt it will outlive all the hard things that have been said against it. *E.*

Thief Palm.—My attention has been called to an article in your impression of the 2d of December taken from the "Journal of Botany," relating to the Thief Palm, wherein it is stated that it was stolen by an Irishman from the Royal Botanic Gardens at Kew. I had thought that this Palm affair was dead and buried long ago. We folks at Kew must be greatly obliged to Mr. Hermann Wendland for the trouble he has taken in ascertaining the real thief to be an Irishman, but I beg leave to say that this statement is quite void of truth, and I am quite certain that the late Curator, Mr. John Smith, as well as a young man who holds a very responsible situation in the Botanic Garden at Kew, will certify to the truth of what I say, that no Irishman

had either hand, act, or part in this Palm job. Had Mr. Hermann Wendland written to the Director or Curator at Kew he would have saved himself a great deal of trouble, and have found that it was a German who stole the Palm, and not an Irishman. It is well known that this young man was dismissed from the gardens at that time—not for his good conduct, we may be sure. *N. N., Kew.* [The statement in the above communication agrees with what we have ourselves heard of the matter. It does not, however, follow that because one Irishman or one German was dishonest, that all are so. As well say all Irishmen are Fenians!]

Foreign Correspondence.

British Columbia Botanical Association.—The following are extracts from the interesting journal of Mr. Brown, the collector, recently received by the Committee. It is written from Rogue River Valley, Southern Oregon (lat. 42° 25′ N.), and dated 26th August last:—

I have just returned from the journey into the country east of the Cascade Mountains, and embrace the first opportunity which my return to the white settlements gives me to furnish an outline of the character and results of that exploration.

On the 17th of July the little village of Eugene, at the head waters of the Willamette River, was quite alive with the unwonted stir of mounted troopers taking their departure for the "plains" and the Indian country, and on the afternoon of the same day they marched eastward. That same evening I overtook them, and I need not say received a warm welcome as a guest of the United States' Government, and was duly installed a member of the officers' mess, which was already constituted, seated on logs, stumps, rocks, and saddles round the military chest, under the shade of a noble Oak (Q. Garryana?); and what with the tents, the troops of horses pasturing under mounted guards, and the groups of soldiers loitering under trees, the whole scene presented quite a Tartar-looking encampment. Before I bade good-bye to my military friends I had got familiar enough with that scene. The space at my disposal and the shortness of my time will only permit me to place the summary of the last month's travels into a diary form. Amongst others, I obtained seeds of the Mahonia glauca, Iris tenax, &c.; and I noticed here, for the first time, Libocedrus decurrens, Torr., a stately tree, not unlike in general appearance to Thuja Menziesii, but hardly so elegant in contour and in the downward sweep of the branches. On the 18th we were off by break of day, and camped before noon—the usual routine. We passed quaint little primitive farms, at the base of rocky bluffs, during the first few hours of our march, then the farms got fewer and fewer, and the road rougher and rougher, until we crossed the middle fork of the Willamette, and left all settlements behind. We rode along in sight of the Willamette, which is here a picturesque little stream, gliding along between wooded banks of Pine and Alder and yellow-leaved Maple, or through cultivated valleys between rocky "buttes." On the 20th we travelled eight miles over a very bad trail, with projecting points of rocks and "yawning gulfs" beyond. I saw no tree of any great interest with the exception of Libocedrus, though Abies Douglasii was everywhere the common tree as yet. On the 21st we entered the beautiful valley of Grande Prairie, and on the 22d camped on Little Prairie, where we lay over until the 23d. Rattlesnakes (Crotalus lucifer, Baird), and the western chip monk (Tamias Townsendii, Bach.), began to appear in considerable numbers.

On the 24th we travelled in a south-easterly course, through woods of fine timber, Abies Douglasii, Thuja gigantea, Libocedrus decurrens, Picea grandis, and amabilis; and I now noticed, for the first time so far north, splendid trees of the stately Pinus Lambertiana. Rhododendron maximum, L., began to appear, associated with a southern shrub, Castanea chrysophylla, Dougl., (C. sempervirens, Kellog), with a Lonicera, Rubus nutkanus and divaricatus (is R. nutkanus only a variety of R. odoratus?) I also noticed Alnus oregana, Nutt., and a smaller species, probably Alnus viridis. By the stream appeared Populus monilifera (the stately Cottonwood tree), characteristic of the western rivers, and Cornus Nuttallii, with its showy white blossoms. I may here remark that I have never found what Nuttall describes in his "Sylva" as Thuja plicata. I believe it to be only a synonym of Thuja gigantea, Nutt. It was described as being found on the islands north-west of the Straits of Juan de Fuca. I have visited several of these islands, amongst others Whitby's Island, and there I have seen a Thuja resembling it in smaller size and denser branches, but considered it nothing more than Th. gigantea, and in this opinion I believe Dr. Cooper of San Francisco also coincides. I also observed thickets of Ceanothus velutinus, Dougl., which is, I believe, what I sent in th ecollection of 1863 as Oreodaphne, sp. No. 11. (?) I had not then seen its flower. It is a very fragrant shrub, with bright glistening leaves.

We were up at break of day at *reveillé*, saddled our horses at "stable call"—catching them in the grey dawn of pleasant summer mornings on the prairie, or hunting them through the open woods; then breakfast, and the quartermaster, surgeon, and myself would go on a-head and select the camp. After taking something to eat we would separate through the fragrant woods in twos or threes, or alone; in my case up the hills or over the prairie picking up plants and seeds, climbing Pine trees, or sitting for hours over a pile of cones with my note-book on my knee, meditating on Dr. Nuttall's species, or Mr. Andrew Murray's synonyms, sometimes, more than once, to drop asleep in the shade.

As we travelled along, P. Lambertiana became quite common, disputing the ground with its congener—not unlike P. ponderosa in appearance—here a very stately tree, different from the same species in the northern portion of British Columbia. We had been gradually ascending, but it was not until the 27th that we commenced the passage of the Cascades, south of Diamond Peak, in right earnest. The ascent was a very easy grade, though much more difficult than some of the passes in the Rocky Mountains (*e. g.*, the "South Pass," where the grade is almost imperceptible), but the altitude showed itself in the Flora. Plants in seed in the valleys we had passed through, were here in flower. The Rhododendrons were in unripe seeds at the base, but as we rode on they appeared partially in flower, until as we gained the summit we passed through fragrant thickets in a flush of their pink-blossoms, standing out in relief from the snows of Diamond Peak, giving one some idea of what the Rhododendron thickets of the Himalayas must be. Here also I found a magnificent species of Lilium, the seeds or bulbs of which I hope to obtain in the "fall." Here, also, were shrubberies of Ceanothus velutinus, Dougl., with its bunches of white blossoms. The summit of the pass was 4441 feet in height, and Diamond Peak probably 10,000, and a little south of the 44th parallel of north latitude. The scenery was splendid. The bold crags of Diamond Peak were on the left, and away in the southern distance the snows of Scott's Peak and Mount Williamson, while the wooded valleys and lesser heights of the main chain of the Cascades lay beneath us.

As we passed through the snow-drifts I found several trees of the true Abies Williamsonii, Newb., a tall graceful tree, though spreading and somewhat irregular in its habits. Newberry found it, whilst attached to the Pacific Road Survey, a little north of this, above 6000 feet in height. There is no doubt of the identity, and I am inclined to believe that the Abies No. 189, which I discovered on the Puntledge Mountains, Vancouver's Island, last year, if not identical, is closely allied. The descent to the "Deschutes (Falls) River" was an easy grade through groves of Pinus contorta, Dougl., probably the "black Pine" described to me by the U. S. explorers as growing in the waterless desert east of this.

Before arriving at Deschutes River, we observed two beautiful lakes in the valleys, surrounded by wooded shores, and lying calmly glistening in the sun. Here we found in great abundance, though, as always happens, sparingly in fruit, Taxus Lindleyana, Murr., which might, when found near the sea, be profitably exported as a wood for bows. Abies Douglasii now disappeared, as indeed most of the Coniferæ of the western slopes. The two declivities of the Cascade Mountains, and the productions on either side, differ more widely than do the two sides of the Rocky Mountains—different soil, different climate, different animals, and different species of plants. This bears true until the termination of the range, though towards the boundary of California, where the climates approximate, it is less marked; but in Oregon, Washington Territory, and British Columbia, the most superficial observer cannot fail to notice it.

For the next seven days our course lay through a dry sandy country, covered with pumice-stone and streams of lava, thrown out of the many now extinct volcanoes of the Cascade range, and intersected by streams flowing from the snow peaks. These streams presented a curious phenomenon characteristic of most of the creeks flowing from the snow peaks in the southern section of Oregon and in California. In the morning they were almost dry, whilst in the afternoon, by the melting of the snow under the hot sun, they gushed from bank to bank. Near Shasta Butte, in N. California, travellers may be seen waiting, thirsty and anxious, until the stream come down, which towards the end of the season does not happen often until 9 P.M., when horses and men rush to the stream to quench their thirst. The Coniferæ were limited to three—P. contorta, P. Lambertiana, and P. ponderosa; though I believe that many of the groves were of the variety (or species shall I call it?) described by Professor Balfour for the Oregon Committee, under the name of P. Jeffreyi. It may possibly be a constant variety (which is a species to all intents and purposes), though P. ponderosa is very sportive, and would afford materials for long study. It is more than likely that P. brachyptera, Engl.; P. Engelmanni, Torr.; P. Beardsleyi, Murr.; and P. Benthamiana, Hartweg, are all merely varieties. Often on the same tree may be found such differences. In these mountains may be also found Picea nobilis, Pinus monophylla and flexilis, which I will search for later in the season, when I have secured the earlier seeding ones in lower ground; also Pinus cembroides, Zucc., on the summit of these ranges. Pinus Sabiniana, Dougl., with its huge cones, now makes its appearance in these latitudes, though Mr. Douglas's description is not of the tree I have seen, but agrees better with that of P. Coulteri of Don. The Manzaneta, or "little Apple" of the Mexicans (Arctostaphylos glauca), now made its appearance, though the figures I have seen of it are very erroneous, as indeed are most botanical drawings of trees made by artists who were more anxious to secure a telling picture than an accurate figure of the general habit and appearance of the object.

(*To be continued.*)

Societies.

Royal Horticultural: *Dec.* 19.—W. Wilson Saunders, Esq., in the chair. Two new Fellows were elected. The Chairman, adverting to a magnificent group of Lycaste Skinneri and other winter-flowering plants shown at this meeting by Mr. Veitch, stated that the Council, in order to indicate the high appreciation in which such displays are held by it, had resolved to have a new medal prepared, to be awarded at the Tuesday meetings only, to exhibitions similar to that furnished on this occasion by Mr. Veitch. This is to be second in value to the gold Banksian, and is to be called the Lindley Medal, in honour of one who had done so much for the Society, and whose loss it now had to lament. Mr. Saunders alluded in terms of satisfaction to the success which had attended these fortnightly Tuesday meetings, and expressed his conviction that they would be even more interesting next season than they had been during the year now about to close. The Rev. M. J. Berkeley directed attention to three new Odontoglossums, which were shown by Mr. Robson, gr. to G. Cooper, Esq., Old Kent Road. Two of them had yellow and brown-coloured blossoms, somewhat resembling those of Hallii or radiatum; the other, which looked like a spotless variety of O. Alexandræ, evidently belonged, he said, to the same category as Pescatorei, pulchellum, and membranaceum, but differed from all these in having the column fringed instead of loped, as is the case in the species just named. The great value of Poinsettia pulcherrima for the decoration of conservatories in winter was next pointed out; after which attention was directed to a dried specimen of Libocedrus decurrens, which had borne fruit freely this year at Orton Longeville, near Peterborough, one of the seats of the Marquis of Huntly. It was stated that in its native country this Libocedrus forms a magnificent tree 120 feet in height, with a stem some 7 feet in diameter. In this country it was said to be difficult to propagate by cuttings, which, although they callus, refuse to root; therefore, if it should prove to ripen seeds, a point of considerable importance will be gained. Mr. Wilson Saunders drew attention to numbers of cut sprigs of Chimonanthus fragrans and the variety grandiflorus, which were placed on one of the tables for distribution. This favourite hardy wall plant, he said, seldom seeds; the large-flowered variety had been obtained from cuttings struck from fragrans—a singular sport, the true origin of which had, he thought, never yet been satisfactorily explained.

Dec. 19 (*Floral Committee*).—Mr. Veitch's valuable collection of plants above alluded to consisted of no fewer than 53 well-bloomed specimens of Lycaste Skinneri, no two of which were exactly alike, showing in an eminent degree the great liability to variation which exists in this species of Orchid. Associated with them were also Barkeria Skinneri and its darker coloured variety called atropurpurea; the Australian Dendrobium Tattonianum; the charming Rhododendrons Princess Alexandra and Princess Helena, the first nearly pure white, the second bright rosy pink; Thibaudia macrantha; Poinsettia pulcherrima; three kinds of Aucuba, viz., longifolia, japonica vera, and variegata, all bearing bright red fruit; and the clear yellow-blossomed Urceolina aurea, a valuable Amaryllidaceous plant introduced by Mr. Veitch, a year or two ago, from Peru. From the garden of the Society came plants of the common variegated Aucuba in fruit; the bright yellow-flowered Jasminum nudiflorum, a useful shrub at this season of the year; Musa coccinea, one or two Crotons, Dracænas of different sorts, one of the newer kinds of Gymnogramma, and other plants.

Dec. 19 (*Fruit Committee*).—A dish of Tangierine Oranges was shown on this occasion from Mr. Rivers, and M. Capeinick, of Ghent, reproduced the collection of Apples and Pears shown by him last week at the International Exhibition of Fruit. Some Potatos also came from Messrs. Stuart & Mein.

Zoological of London: *Nov.* 28.—Dr. J. E. Gray, F.R.S., in the chair.—Mr. Sclater made some remarks on some recent interesting additions to the Society's Menagerie, and on some animals which he had observed in various zoological gardens on the Continent.——An extract was read from a letter addressed to Dr. Günther by Capt. J. M. Dow, F.Z.S., on the occurrence of two additional specimens of a poisonous fish (Thallassophryne) at Panama.——Extracts were read from letters addressed to the Secretary by Mr. R. Swinhoe, H.M. Vice-Consul in Formosa, concerning specimens intended to be transmitted to the Society's Menagerie.——Dr. Gray communicated a revision of the species of Golden Moles (Chrysochloris), founded upon an examination of the specimens in the British Museum. He also read some notes on the habits of the Kinkajou (Cercoleptes caudivolvulus), and on the external

characters presented by two species of Ratel, as observed in the specimens living in the Society's Menagerie.——A communication was read from Capt. George Bulger, Corr. Memb., on the habits of the Musquash of North America (Fiber zibethicus).——Mr. A. D. Bartlett read a paper on the affinities of the Prong Buck (Antilocapra furcifera). The conclusions arrived at by Mr. Bartlett were—1. That the Prong Buck was not a true Bovine Animal; 2, That this animal sheds its horns; and 3, That the structure of these organs appears to be imperfectly understood.——A communication was read from Mr. E. P. Ramsay, of Dobroyde, N.S.W., on the nidification of a species of Australian Lark (Mirafra Horsfieldii).——A communication was read from Lieut. R. C. Beavan, Corr. Memb., entitled "Indian Ornithological Notes, chiefly on the migration of species."——A communication was read from Dr. J. C. Cox, of Sydney, containing descriptions of seven new species of Australian Land-shells.——Mr. G. French Angas communicated a paper entitled "Descriptions of Two New Species of Marine Bivalve Shells from South Australia."——A paper was read by Mr. A. G. Butler, F.Z.S., entitled "Description of a New Species of Cetonia, with Remarks on allied species."——Mr. F. Moore communicated the first portion of an account of a collection of Lepidopterous Insects made in Bengal by Mr. A. E. Russell, of the Bengal Civil Service. This part consisted of a list of the species of the families Papilionidæ, Erycinidæ, Lycænidæ, Hesperidæ, Sphingidæ, and Bombycidæ, embracing descriptions of various new genera, and of upwards of 120 new species.——Dr. J. E. Murie, Prosector to the Society, read a paper upon the Hairy-nosed Wombat (Phascolomys lasiorhinus of Gould), which he showed to be identical with the species previously described by Professor Owen under the name Ph. latifrons. Dr. Murie, having examined a series of specimens of this form in the collections of this country, had arrived at the conclusion that there were three good species of Wombats at present known to science. Two of these, P. Wombat and P. platyrhinus, Owen, belonged to the typical genus Phascolomys; the third, P. latifrons, Owen, offered such striking distinctions in its osteological characters as would necessitate the adoption for it of the generic term Lasiorhinus, proposed for it by Dr. Gray on its external characters.——Dr. Günther pointed out the characters of a new British species of Charr, from Loch Killen, in Invernesshire, for which he proposed the name Salmo killenensis.——Mr. W. H. Flower made some observations upon various points of the structure of a large Fin Whale (Physalus antiquorum, Gray), lately stranded in Pevensey Bay.——Mr. P. L. Sclater read a paper upon the structure of the bird called Leptosoma discolor, from Madagascar, which had been generally referred to the Cuculidæ, but which, from various characters, he was inclined to think would be more correctly located as type of a separate family in the neighbourhood of the Coraciidæ.

Nova Scotia Fruit Growers' Association.—The Annual Exhibition of the Fruit Growers' Association of Nova Scotia was held at Wolfville on the 11th October last. The collections of Apples were such as, it is believed, were never before brought together at a single exhibition in any country. They were both fine and abundant, but other fruits were not remarkable. One feature of the Exhibition showed a healthy sign, namely, the great effort on the part of the fruit growers not so much to extend the number of varieties as to bring forward the best possible samples of well-known standard sorts. There were, for example, 18 lots of Ribston Pippin (in addition to those exhibited in collections), 17 lots of Gravenstein, 22 lots of Bellefleur, 25 lots of Rhode Island Greening, and other market Apples were represented in nearly the same full manner. The weights of the largest Apples were as follows:—Ribston Pippin, 9½ oz.; Nonpareil, 10 oz.; Greening, 11 oz.; Yellow Bellefleur, 11 oz.; Baldwin, 12½ oz.; Gravenstein, 13½ oz.; Cathead Pippin, 17½ oz.; Emperor Alexander, 18 oz.; Gloria Mundi, 20 oz. *Nova Scotia Journal of Agriculture.*

Notices of Books.

The Harvest of the Sea: a Contribution to the Natural and Economic History of the British Food Fishes. By James G. Bertram. London: Murray.

This book contains a most useful and comprehensive account of the present position and future prospects of the Fisheries of Great Britain. The author has collected a vast amount of information and very numerous statistics upon this most interesting subject, and the result forms a volume of 500 pages, the perusal of which will delight the varied tastes of all classes of readers.

Beginning with the classification of fish, their shape, form, and colour, we are next presented with the complete history of a salmon, from the fertilisation of the ovum until it becomes a full-sized perfect fish. The more useful herring is not neglected, but has many a page devoted to it, as have also the herring harvest, and the various processes of curing and packing performed in that town of Wick which is so notorious for its "ancient and fish-like odour."

The White-fish fisheries claim a large share of attention; and the history and culture of oysters and mussels are not overlooked among the many other claimants for care and interest. Mr. Bertram's book contains a full account of the piscatorial establishments of Huningue, Comacchio, Buisse, and the Stormontfield salmon-breeding ponds. The angler also will find not only an account of the fish he may obtain, but how and where he may best catch them. The author's style is an agreeable one, and he has a pleasant way of interspersing his more solid information with sketches like the following:—

"There are points of contrast between the salmon and the herring which I cannot pass without notice. They form the St. Giles's and St. James's of the fish world, the one being a portion of the rich man's food, and the other filling the poor man's dish. The salmon is hedged round by protecting Acts of Parliament, but the herring gets leave to grow just as it swims, parliamentary statutes being thought unnecessary for its protection. The salmon is born in its fine nursery, and is wakened into life by the music of beautiful streams; it has nurses and night watchers, who hover over its cradle and guide its infant ways; but the herring, like the brat of some wandering pauper, is dropped in the great ocean workhouse, and cradled amid the hoarse roar of the ravening waters; and whether it lives or dies is a matter of no moment, and no one's business. Herring mortality in its infantile stages is appalling, and even in its old age, at a time when the rich man's fish is protected from the greed of its enemies, the herring is doomed to suffer the most. And then, to finish up with the same appropriateness as they have lived, the venison of the waters is daintily laid out on a slab of marble, while the vulgar but beautiful herring is handled by a dirty costermonger, who hurls it about in a filthy cart drawn by a wretched donkey. At the hour of reproduction the salmon is guarded with jealous care from the hand of man, whilst at the same season the herring is offered up a wholesale sacrifice to the destroyer. It is only at its period of spawning that the herring is fished. How comes it to pass that what is a highly punishable crime in the one instance is a government-rewarded merit in the other? To kill a gravid salmon is as nearly as possible felony; but to kill a herring as it rests on the spawning-bed is an act at once meritorious and profitable!"

The book is illustrated amply, and in various styles, some of the sketches being from the pencil of such artists as Mr. Stewart of Edinburgh, Mr. J. R. Prentice, and E. W. Cooke, Esq., R.A.

We cordially recommend this clever compilation to the notice of our readers, whether fish eaters or fish cultivators.

Books Received.—The December Number of the *Geological Magazine* opens with an announcement that its price is in future to be raised to 1*s.* 6*d.*, which, considering the excellence of the matter, is not unreasonable. The present part has, among other things, a paper on some new species of Cypræa from the Eocene near Highgate, accompanied by a lithographed plate. The subject of most interest to botanists discussed in this Number is contained in an abstract of a paper on Calamite fruits from the Spathic iron-ore, near Huttigen on the Ruhr, by Dr. Ludwig. The spikes in question are cylindrical, tapering at both ends, and consist of a series of sharply pointed overlapping scales, 15 in a whorl; these scales conceal five cavities, into which project five sets of spore cases, each set consisting of five egg-shaped spore capsules, with hard shining shells attached to a central stalk, which emerges from the main axis of the spike. Woodcuts are given to illustrate this curious relic.——The *Technologist* for this month contains articles on the Propagation of Trout in America; on Torbite, a new preparation of Peat; on the Food Products and Chemicals at the Dublin Exhibition, &c. The notice on the uses of Peat as a fuel is particularly worthy of attention, as it is estimated that there are available some twenty thousand millions of tons of this material, which is most valuable in the iron manufacture, and also for the generation of steam.——Nos. 31 and 32 of the *Journal of the Linnean Society* (Zoology) contain a great variety of interesting papers on subjects hardly coming within our scope. The President's address is mainly occupied with an account of the various publications of the several European Academies and Natural History Societies, as well as of independent journals. The list is a very extensive one, and, however satisfactory as a proof of the universal interest felt in the natural history sciences, is anything but agreeable to the student who has to refer to such vast collections. It is, however, fortunate that most of these publications are accessible at the Society's library, or at that of the Royal Society, under the same roof. In the same Number are to be found the obituary notices of Fellows deceased within the year.——With the Twelfth Part the re-issue of *Webster's Dictionary* terminates. The present Part contains a variety of miscellaneous information, adding considerably to the value of the Dictionary.——*Science Gossip* for December opens with an article "*in memoriam*," and refers to the severe losses which Science has this year sustained by the death of so many of its masters. The remaining articles are such as will sustain the repute of this excellent periodical, now 12 months old, and which seems to have filled, and well too, a void in our popular scientific literature.——*A Letter to the Fellows of Oriel on University Extension*, by Charles [illegible] M.D., F.R.S. As coming from the pen of [illegible] done so much for science in Oxford, one who [illegible] time stood almost alone in its advocacy, this pamphlet should receive more than ordinary attention. The object is to suggest the establishment of a College or Hall for medical students only, where they may have the advantages of academic training without the drawbacks and expenses which would result from a residence in the existing colleges. This is no place to discuss the matter in full, but we must remark that the Professor seems to have overlooked the fact, that great improvements have been made in medical education during the last 10 years, and that the system he describes is quite of a bygone day. Even the preliminary examinations are at least as comprehensive as those of the same kind at Oxford, while for the higher degrees we imagine the standard to be more exacting in London than in the older University. The prestige conveyed by a residence at the latter is altogether another matter, but it is doubtful whether this indescribable endowment would not be a source of embarrassment rather than an advantage to a practitioner whose ministrations were mainly confined to the poorer classes.——*Visits to Monasteries in the Levant*, by the Hon. R. Curzon, jun. Murray. Pp. 367. When a book reaches five editions, it is pretty clear that there is little need to say much in its favour, but those who would form some idea of what Egypt, Syria, and the Levant were before the days of the overland route, and of the sources whence many of the most remarkable manuscripts have been derived, should peruse the pages of this pleasant volume.

Florists' Flowers.

It would appear from a retrospect of the past season or two that the Cineraria has almost ceased to be an exhibition flower, either in the form of specimen plants or seedlings. The well-known and unrivalled Slough plants are numbered with the past, and the raising of new varieties seems to be on the wane, while from other sources seedling flowers have been very sparingly produced. Perhaps the unusually fine weather in the spring of the present year very much hastened their blooming season to a premature end, and destroyed the hopes of growers who might have indulged in unfulfilled visions of "Certificates" for their protegés. I fear the cause is however deeper seated, and that the Cineraria is not so popular as it was only a few years ago. It has certainly lost ground, a fact proved by the small numbers and somewhat inferior quality of the specimen plants produced at the early shows; by the paucity of seedling flowers that are staged for certificates; and by the circumstance that in the various gardening publications the Cineraria has but rarely been the subject-matter of a paper—very rarely indeed as compared with 10 years ago. Why this, one of the most beautiful of spring flowering plants, should betray symptoms of a decline I do not know; but I venture to put in a plea for an old favourite that is losing its hold on popular favour.

I remember the enthusiasm that centred round the Cineraria in 1847–49. I suppose growers are more practical now, and the poetry of the florist has been eliminated in some manner. At this period to which I refer, enthusiasm glowed with fervency over Henderson's Carlotta Grisi and Kendall's Sanspareil, and a year later waxed ecstatic about Lady Hume Campbell and Madame Sontag. Then came an annual procession of new flowers up to 1863, each year betraying the most indubitable evidence of advancement, which would seem to have culminated in the rare seedling flowers of Messrs. Turner and Smith that season produced. The years 1864-65 gave but little in the way of novelty, and that but of average excellence.

It is to be feared that the cultivation of this flower is in some quarters but imperfectly understood. Inveterate prejudices have risen up against and assailed it on the ground that it is so liable to be infested by green-fly, which will often destroy the beauty of bloom while only in the bud. This is easily avoided if the plants are kept growing vigorously, and are well syringed in the spring. They are often allowed to get "pot-bound," and dry at the roots, and when this occurs a debilitated constitution ensues. The Cineraria is a plant very susceptible of neglect and ill-treatment, and conversely its progress is correspondingly rapid when favourable conditions surround it. When neglect of watering and shifting is combined with a close atmosphere, green-fly clusters about the young and delicate shoots, and a kind of vegetative paralysis ensues.

Young and vigorous plants should be selected about the beginning of October, and potted according to the size of the plants. The compost employed should consist of fibrous virgin loam and leaf-mould, in equal parts, and a good admixture of silver sand. Such a soil will be rich, and yet light and open, just what the delicate rootlets of the plant will revel in. The position of the plants at this period should be a frame into which heat can be turned at any time, and they should be placed as near the glass as possible. If raised up on inverted pots so much the better, for good drainage is thereby secured; and while drought is injurious, excessive moisture at the roots is equally so.

By keeping the plants close for a few days after the shift they soon become established, and as growth ensues, plenty of light and air should be given in fine weather, cold draughts being studiously excluded. The plants should never be allowed to want water, or to become pot-bound; this induces them to produce premature heads of bloom; and in a growing state, when a good-sized plant is wished for, one or two shifts at least should be made before the plants are put into the blooming pots. When exposed to a check, mildew and aphis immediately put in their appearance. The former is a tiresome pest, and needs the constant application of sulphur to the affected parts of the plant. Sometimes stress of weather necessitates close confinement, and originates green-fly, but a gentle fumigation will speedily remove them. Such a visitation need cause the grower no uneasiness, as, if other conditions are favourable, the plants soon become free from the pest. Should it be necessary during the prevalence of frost to apply fire-heat, some air should be given at mid-day if possible, as a dry atmosphere of this character tends to produce red spider. On the other hand, in cold and dull moist weather, the plants should be carefully watered, so that the foliage be not wetted when but little air can be given.

About January the plants should receive a final shift into the blooming pots, using a soil compounded of good turfy loam, and about equal parts of well-decomposed cow-dung, if it can be procured, and leaf-mould, with the addition of some silver sand. When shifted they should be kept close for a few days till established, not, however, excluding air altogether if needed. By the middle or end of February they will make rapid growth, and thenceforth in sunny warm weather the plants can be occasionally sprinkled overhead, or syringed. It is, however, in sunny weather that great mischief is often done to the plants. A rapid evaporation of moisture takes place, and unless watering is carefully looked after, and a suitable shading provided, the foliage flags, and irremediable injury ensues. This point cannot be too strongly or too often insisted on. At the period of rapid growth all superfluous leaves and small shoots should be thinned out, so as to admit air freely and prevent mildew. When near blooming time, they should be removed to the greenhouse or conservatory, where they will make a good display for a considerable time.

As the Cineraria seeds very freely, some can very readily be saved. A few plants of the very best kinds, that is having florets of the best possible form, and of clear, well-regulated, well-defined colours, should be selected and placed in a close house, to which air can be admitted at will; as fast as the seed heads burst they should be gathered, as in a remarkably short time they become scattered. The seed should be sown in August in a seed pan, using fine sandy soil, and should be placed in a cool place. When the plants are large enough they should be pricked off thinly into shallow pots, and then again into pots singly when they have grown large enough.

When the crop of seed is gathered from the old plants, they should be cut down to about 4 inches from the base of the stalk, and placed under a wall or fence having a north aspect. Late in the summer small offshoots are thrown up from the roots, which can be potted when large enough to be removed. These stock plants require protection from heavy or continued rain, as many would die if the soil becomes thoroughly soddened.

But little has been seen at the shows of the new flowers sent out in the autumn of 1864 and spring of 1865. Caliban, an intensely bright crimson self, the flower-heads of fine form; Cynosure, white, with deep edging of rich fiery crimson, and dark disc; Louisa, white with a deep edging of clear red shaded with purple, and dark disc, a flower of splendid form and very striking; and Unique, pure white, with a very deep edging of purplish lilac, of a beautiful colour when just opening, and dark disc, a flower of fine form—these were the cream of the last batch of new flowers. This autumn adds but little to what is already possessed, with the exception of Lord Amberley, a remarkably fine violet plum-coloured self, with a wonderful richness of colour, the florets being of great substance and breadth. To this variety the Floral Committee awarded its highest Certificate. Two or three self flowers from Slough, not in good condition, were yet promising, and Mr. B. S. Williams offers some new varieties that do not appear to have been exhibited as seedlings. *Quo.*

The Apiary.

"Most of my hives," says "Apis," "had in September left off breeding, even the old queens; but I found, on my resorting to feeding, that they commenced again, and are even now (Oct. 24) continuing to breed. I have this year been unfortunate in my attempt to raise pure breeding Italian queens. In four of my old stocks from which swarms have been taken, the young reigning queens have become hybridised, and breed dark-coloured bees. This seems strange, as there are few black bees kept near me, but it does seem very problematical whether I shall be able to retain the Ligurians in a pure state. I think of occasionally importing queens from abroad, in order to keep up the purity of the breed. How do you account for an imported queen, two years old this last summer, which in the previous year was a breeder of very fine-coloured Ligurians, having this year become a breeder of much darker bees? From inquiries, I find generally that hives are very light, and have, in some instances, been brought back from the moors lighter than when sent in August. I fear, therefore, that there will be a great mortality among the hives this winter.

"I fancy that the hybrid Ligurian queens, and also the drones, are handsomer than the pure-bred ones. From one of my queens sent to me from Switzerland, a breeder of pure bees, I raised several young queens, which were the finest I have ever seen, but every one of them bred dark-coloured bees. It certainly is very vexing and disheartening to find, when I fancied myself far enough removed from black bees and black drones—those to me, under present circumstances, *bêtes noires*—that my young Italians become crossed by the common drones, and breed impure bees. In 1864 every one of my young queens came true; not so, however, in 1865. A few hives of common bees have been kept rather closer to me than formerly. To this I must attribute my want of success in raising pure breeding queens."

Continuous feeding late in autumn will always stimulate the queens to lay eggs, and the bees to hatch out the brood. Whether this forced breeding is beneficial or not to the prosperity of a hive, is a matter worthy of being tested. In some respects it would seem highly conducive to the prosperity of the hive in the coming season. The young bees thus hatched so late in the year, are in their prime the following early spring, and live later than their older sisters, thereby helping on the colony to the time when the large spring increase of bees takes effect, and the honey harvest begins. But the question remains—Does this forced breeding, at a time when the queens would naturally be at rest, affect their fecundity at a later period? It is possible that it may. We are undecided as to the real facts of the case. With artificial swarms, raised rather late in the season, we have no doubt that judicious feeding, for the purpose of stimulating late breeding, is a very good thing; but how far it may be of real permanent benefit to well-established stocks, we are as yet unable to speak positively.

If "Apis" will refer to the few extracts from a private letter of the Rev. L. L. Langstroth, in our last week's number, he will see that the best time for raising pure breeding Ligurian queens is in August, after the disappearance of the black drones in the ordinary course. Then, by the judicious administration of food, the Ligurian queen mothers are induced to deposit eggs, and by the insertion of drone combs in the centre, drone eggs. Then, when these drones arrive at maturity, the young princesses will stand the very best chance of meeting with only pure Ligurian drones. We would, therefore, recommend him to depend on the late-bred queens in his apiary only, for the perpetuation of the species, and adopt the system recommended by Mr. Langstroth, and previously adopted by Mr. Woodbury, and to some extent by ourselves.

With regard to the queen, which "Apis" says was, when imported, a breeder of pure Italians, but has since fallen off in this respect—is it at all certain that the queen now in the hive is the original one as imported? It is almost impossible for any apiarian, however close an observer he may be, to determine, with any degree of certainty, the age of his queens, or their identity with those which might have been at the head of his stocks only a few months previously. Queens are changed, either from accident or by premeditation, far oftener than the majority of bee-keepers have any idea. So it may be with the queen of the hive mentioned by "Apis."

There is a great difference to be seen among hives as to their weight and provision for the winter. In the south, many of the old hives, and the early swarms have stored up ample supplies, and are in fact really very heavy. The later swarms and some stocks which weakened themselves by over-swarming, are, on the contrary, very light. The short space of one week seemed to make all the difference in the prosperity of the swarms. Our later natural and artificial swarms which arrived or were made about the middle of June, all required feeding to enable them to stand the winter, while those established at the beginning of the month were very amply supplied with all necessaries. Hence it will be manifest how great is the advantage which arises from obtaining early swarms, either natural or forced.

Some of the hybridised queens are certainly most beautiful creatures, and are splendid breeders. From one, we this year had drones which we have never seen at all equalled, so fine and well marked were they. The bees too were to all appearance quite pure; but all the queens which we raised from the brood of this hive—and we started a large number—turned out almost worthless, so far as breeders of good coloured bees was concerned. There must have been a cross, which only shows itself in the succeeding generation, as this queen still continues to breed most beautifully coloured bees.

Truly there is much yet to be learnt respecting these wonderful insects.

Bee Houses.—What would you advise me to do in the following case? My bee house, containing three hives, was blown over in the late storm. The hives, which were furnished with supers and all complete were much injured, the crowns were knocked off, and all the combs broken down and lying about in confusion. I have attempted to remedy the misfortune by setting up the combs on the floorboards as well as I could, putting the hives down over them. The bees have cemented them together. The hives seem to have sustained a very great injury, and I fear will hardly recover the effects of the accident. *S., Crediton, Devon.* [If you had frame hives, you could readily have done much to remedy the unfortunate accident. The combs could have been fixed in the frames by wires or small laths of wood; the bees would quickly have made all secure. It would, however, have been advisable to unite the bees and combs so as to form two stocks instead of three, and we are not at all sure that we should not, if such an accident had occurred in our own apiary, have united the whole so as to constitute one strong colony. Perhaps as the winter is so far advanced, it would be better to leave them as they now are until late in February or early in March, when you can inspect the state of affairs, and act accordingly. We most probably should then recommend a junction of the whole into one good stock.]

Garden Memoranda.

Shalimar the Residence of the late Samuel Rickards, Esq.—This is situated on the west of London, rather more than five miles from the Marble Arch, and about half a mile northward from the ancient village of Acton. The neighbourhood, although greatly changed within the last 20 years, is still very beautiful and open, finely diversified with rich undulating pasture land, well covered with hedgerow timber, and interspersed with fields in a high state of cultivation, altogether presenting a variety of charming landscapes that would please an artist, and afford delight to those who have a taste for rural scenery.

From the village an agreeable and somewhat picturesque road shortly brings us to the quiet suburban retreat of Shalimar. In going towards it we pass the vicarage grounds, in which are some handsome trees that overhang the road, and have a pretty effect. Two growing in the valley are particularly worthy of notice—one a large and graceful Weeping Willow (Salix babylonica), of itself a perfect picture; the other a noble example of the common Poplar (Populus nigra), which for height and symmetry we think is not surpassed by any of its kind in the country.

The grounds of Shalimar are not extensive, but have been arranged with much judgment, so as to combine utility with convenience and good taste. The house is a substantial and commodious building, placed on a slightly elevated platform, from which the ground gradually slopes towards the east. Attached to it, and entered from the drawing-room, is a handsome conservatory, containing some nicely grown Orange and Lemon trees, in fine health, and loaded with large and beautiful fruit, equal to any from the sunny South when perfectly ripe, and occasionally sent to table as a part of the dessert. Camellias, Azaleas, and a variety of other choice flowering plants, are brought here in succession throughout the year, and are most effective for decorating this delightful appendage to the house, and rendering it more interesting and attractive. On the north and west there is a considerable extent of trimly kept lawn for recreation and amusement, with suitable walks for air and exercise when the turf is wet and unfit for walking on. Adjoining the pleasure ground on the south, but screened from it by shrubbery, is the fruit and kitchen garden, in which Mr. Rickards took great interest, especially in all that related to the culture and forcing of the various fruits that are most esteemed for the dessert. Some might object to the garden being placed so near the house, but we do not think a more convenient or appropriate site could have been chosen for it, nor one that offers a better example of the way in which the useful and ornamental departments of gardening may be made to harmonise with each other, than is to be found here. The first thing that attracts attention on entering this garden is the neat appearance of the fruit trees in the borders on either side of the principal walks. They are all espaliers, trained to wire trellises, which is perhaps the best mode of training that could have been adopted for making the most of a garden of limited extent. The trees occupy but little room, and while their branches are exposed to the sun and air, they are prevented from being broken by high winds, and the fruit from being blown down just when it has nearly arrived at maturity in the autumn. Gooseberries, as well as Red and White Currants, are also trained to wire trellises, and by means of a thin covering being thrown over some of the bushes, the fruit is protected from birds and preserved in a perfect state until the middle or latter end of October.

Within the last few years a considerable extent of glass has been erected here. Against the east wall is an orchard house, 95 feet long, 13 feet wide, and 11 feet high, with a front wall 3 feet high, in which are openings for the admission of air, besides the ventilators in the sashes on the plan recommended by Paxton. Trained to the wall are some fine healthy Peach and Nectarine trees, while along the middle of the house dwarf Plum and Cherry trees are planted at proper distances, and others in pots are grown between them. Eugenia Ugni is successfully cultivated here,

and highly esteemed for its delicious fruit, which is produced in abundance, and attains a tolerable size. We consider this dwarf evergreen shrub to be admirably adapted for orchard-house cultivation. It is nearly hardy, requiring no more than a slight protection from frost, and the fruit, though small, is of exquisite flavour, surpassing in this respect that of any other with which we are acquainted. No artificial heat is given to this house; yet it is found extremely useful for a variety of purposes during winter, and is a good example of the kind of glass structure which the late Sir Joseph Paxton was the means of bringing into notice.

The Fig-house is a lean-to against the north wall of the garden, and adjoins the orchard-house. It is 32 feet long, 11 feet high, and 11 feet wide, heated by hot water, and ventilated by moveable openings in the sashes in Paxton's manner, but has no front wall. The trees are planted along the back, and trained against the wall; while in front are Vines trained up the rafters near the glass.

For early Peaches there is a house of the same dimensions as the Fig house, heated and ventilated in a similar manner. Trees are placed against the back wall, and others in front are trained to horizontal wires, stretched along the house within a short distance of the glass. Forcing is usually commenced about the middle of December, in order to have ripe fruit in the beginning of June.

For Grapes there are two vineries, each of which is 30 feet long, 15 feet wide, and 15 feet high, with upright sashes in front, both heated by hot water. In one of these, we were informed, the Vines had become exhausted and unproductive, owing perhaps to repeated hard forcing. It was, therefore, deemed advisable to remove them, and young Vines were accordingly grown for the purpose of occupying their place. When these were ready, the old Vines were started early, and a tolerable crop obtained from them last May. They were then removed, the border thoroughly remade, and the young Vines planted in their stead. These have now filled the house with strong, healthy, short-jointed rods, that we think will amply repay with choice fruit the little extra labour and expense that may have been incurred towards its production.

Pines are grown to great perfection. Indeed, we never saw plants in finer condition, or more promising in their show of fruit. The house they occupy is 30 ft. long, and 13 ft. wide, heated by hot water. The sorts preferred are the Smooth-leaved Cayenne and Black Jamaica for winter fruiting, and the Queen for general culture. A very handsome specimen of the latter that we had an opportunity of seeing weighed, exceeded 4 lb.

The true Dwarf Banana (Musa Cavendishii) has been successfully grown and fruited here. As it forms a valuable addition to the dessert, we are somewhat surprised to find it is not more generally cultivated. The fruit ripened in this country is stated to have an insipid taste, but the specimen with which we were favoured from this plant, proved luscious and sugary, resembling a rich Beurré Pear, far surpassing in flavour that of the Bananas from Brazil, which we have repeatedly eaten and enjoyed.

Melons and Cucumbers are as usual grown throughout the season, and scarcely a day passes without a Cucumber being sent to table.

Strawberries are a favourite fruit at this place, and in great request, either forced or when they can be obtained from the open garden. The varieties which have been proved to be well adapted for forcing are Reeves's Eclipse, Myatt's Eleanor, Sir Joseph Paxton, and Sir Charles Napier; and for late forcing none surpasses Ingram's Pine. Keens' Seedling used to be one of the best sorts to depend on for a crop, but from some unknown cause it has of late years failed to sustain its former high character. The forcing-house is span-roofed, 30 feet long and 13 feet wide, heated by hot water. A footpath is carried down the centre, and on each side is a bed in which dwarf Figs are grown in pots and forced.

The usual time for commencing Strawberry forcing is about the middle or latter end of November, so as to have ripe fruit in February or early in March, after which a succession is kept up until fruit can be gathered from the beds in the garden.

Besides the varieties above mentioned, there is another grown here under the name of "Brown Bess," which we do not remember to have seen or heard of before. It is believed to have originated with Mr. Webb, of Calcot, near Reading. The fruit is very large and highly-coloured, but irregular in shape, and compressed in such a manner as to resemble a cock's-comb. The flavour is rich and equal to that of the best variety in cultivation. Although unsuited for early forcing it has been found very useful for the latter part of the season.

The raising of Mushrooms is carried on with as much regularity as that of the different sorts of vegetables required for daily use. For this purpose a house at the back of one of the Vineries has been fitted up with beds on the floor, and on shelves. The first bed is usually prepared in the early part of October, and in six or eight weeks Mushrooms are expected to be obtained from it. Other beds are from time to time prepared and spawned in succession, and thus a constant supply is maintained throughout the season, until they become plentiful in the open fields.

Leaving the fruit and forcing garden, the orchard next claims attention. It is a long and rectangular piece of ground, facing the south, with a gentle slope towards the east, and forms a valuable addition to the kitchen garden, from which it is separated by the coach-house and stables. On the north it is screened by trees, so as not to be seen from the approach, and is enclosed by a strong Thorn hedge. In front of the latter is a wide border for the growth of early crops, and such as require occasional protection. The rest of the ground is set apart for the culture of vegetables, and the smaller kinds of fruit—such as Currants and Raspberries, &c. A walk surrounds the whole, and another crosses in the centre. In the long borders on the south and north espalier fruit trees are planted and trained to wire trellises, like those in the kitchen garden already noticed. This obviates the necessity of having larger spreading trees interspersed among the vegetables and small fruit bushes, to shade and otherwise injure them. One of the most striking features in this orchard is a long row of pyramidal Pear trees of the very best kinds, both for dressing and the dessert. They are well grown and beautifully trained in the manner called by the French "en quenouille," but with this difference, that the points of the shoots are tied down so as to check the upward flow of sap, and induce the formation of fruit-buds. The plan is an excellent one, which we remember to have seen practised many years ago in the garden of the Horticultural Society at Chiswick.

In concluding our remarks on this place, which contains many objects of interest to the amateur as well as the practical horticulturist, we think it is due to Mr. Gilbert, the able and experienced gardener, to state that the clean and orderly manner in which every thing under his charge is kept, does him great credit. He seems to be thoroughly imbued with a love of his profession, and takes a pride in trying to bring whatever he cultivates to the highest degree of perfection. Alas! that even since the preceding remarks were penned, his excellent employer has been removed from amongst us by death. *M. E. H.*

Calendar of Operations.

(For the ensuing week.)

As the weather still continues favourable, if not already done, trimming and cleaning out hedges should receive attention before the season commences, when other things will occupy all spare time. As neatness should always be a leading feature in every garden, everything that can be done to promote this should be forwarded now, when little else can be performed. Anything that appears unsightly, and that will make manure, should be removed to the rot heap; this should be turned over occasionally and covered with a little soil to prevent all noxious effluvia from escaping. The soil also mixes among the decaying vegetables, and becomes excellent compost. Soapsuds have a good effect on many kinds of vegetables, and should not be thrown away; they act beneficially on soils where Cabbages are infested with the club, and in some instances have been known to entirely cure that disease.

FLOWER GARDEN AND PLANT HOUSES.

Seldom have we had such a fine season for out-door improvements or alterations as that now about to close. Tender plants are, however, in a somewhat forward state, and it is necessary to keep them securely protected at night, as frost may come upon us when we little expect it.

AURICULAS.—These may soon be top-dressed, removing carefully the surface-soil, and substituting some two-year decayed hotbed manure and leaf-soil. Avoid all hot, stimulating composts, for though they may increase the size of the flowers for the current season, yet they are so uncongenial with the nature of the plant that the foundation of future disease will, in all probability, be laid.

CAPE HEATHS.—Let these have close attention as to watering. Keep up a gentle ventilation day and night if possible; let the air steal in moderately, and dispense with strong fires.

CARNATIONS.—Still give these all the air possible. If green-fly begins to be troublesome, remove it with a camel-hair brush.

PANSIES.—In some places these are showing a tendency to bloom, arising from the past mild weather. The blossoms, however, will be better removed, as their being allowed to remain will only weaken the plants.

PELARGONIUMS.—Give air whenever the weather will admit of it; but avoid cold draughts, and keep out frost. On the other hand, be careful, however, not to use too much fire-heat. Training and shifting must also receive attention.

PINKS.—Soon after the shortest day the wireworm gets more active and mischievous. If there is reason to suspect that any of these lurk in the beds, cut a Potato into quarters, inserting a skewer in each; place them in various parts just below the soil, and examine them daily. This is an effectual trap.

POLYANTHUSES.—Plants grown in pots may be kept moderately moist, and a similar top-dressing to that recommended for the Auricula will be of infinite service to them. They may, however, be grown on beds, with a north-east aspect, with great success. A cool bottom, either natural or artificial, it must be borne in mind, is a *sine quâ non* for their perfect cultivation.

RANUNCULUSES.—In selecting roots for bloom, choose those with a high crown in preference to flat. The following are a few well-known good kinds, viz.—Tyso's Edgar, yellow edged with puce; Cardinal Apollo, crimson self; Mr. Welch, white, edged with deep pink; Madeline, white, beautiful rose edge; Bartlett's Charlotte, superbly mottled; and Rubella, white, purple edge. The very old flowers—Sultan, splendid dark; Socrates, olive; and Le Tonnant, pink stripe—still continue excellent in their respective classes.

TULIPS.—As yet there has been but little frost to affect these. As they advance they will, however, require strict attention to guard them from its ill effects, as well as from those of heavy wet.

FORCING GARDEN.

CUCUMBERS.—Continue to prepare fermenting materials for the growth of these in frames.

PINES.—If in looking over the succession plants they are observed to be unhealthy, the sooner they are disrooted and repotted the better, choosing a mild day for the operation. They will soon begin to make new roots in the fresh soil, and will be re-established before they are required to make a start. Those plants that are in good condition at the roots, and not likely to require the soil to be shaken from them, but merely shifted into larger-sized pots, will do better if this be deferred for some time yet.

VINES.—If there is ample means of obtaining a moist atmosphere, it will be necessary to pay some attention to this point during damp close weather: as it is possible to have more than is necessary for the health of the Vine after it is in leaf. Keep watch sticks in the fermenting material upon the borders, and examine them frequently to see if the heat is regular.

HARDY FRUIT AND KITCHEN GARDEN.

Continue to trench, dig, and ridge every spare piece of ground when frost permits, during which let the manure necessary be wheeled out for the whole of the spring cropping, laying it in heaps, either on the spot where it will be wanted, or as near as possible to it. That portion not required for immediate digging should be piled in small mounds and soiled over to prevent loss by evaporation.

FRUIT TREES.—With regard to bush fruit, if, as we have stated before, dressings with hot lime and soot when the trees are wet were more attended to, we should not hear so much of the ravages of birds upon the buds, and we would recommend their application also to standard Plum trees wherever practicable, as they not only keep them free from Moss and Lichen, but assist in the extirpation of those insects, in the search for which birds commit such ravages.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the Week ending Dec. 20, 1865, as observed at the Horticultural Gardens.

Dec.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth 1 foot deep.	Temperature. Of the Earth 2 feet deep.	Wind.
Thurs. 14	25	30.427	30.392	49	28	38.5	47	46½	N
Friday 15	26	30.744	30.598	45	22	33.5	45	46½	N
Satur. 16	27	30.685	30.589	42	36	39.0	44	45½	W
Sunday 17	28	30.593	30.564	44	35	39.5	45	45½	W
Mon. 18	●	30.469	30.364	43	30	36.5	45	45½	N W
Tues. 19	1	30.257	30.149	48	29	38.5	45	45	S E
Wed. 20	2	30.224	30.134	54	39	46.5	45½	45	S W
Average		30.487	30.398	46.4	31.8	39.9	45.2	45.4	

Dec. 14—Fine; clear and fine; fine.
— 15—Partially overcast and fine; very clear and fine; clear starlight.
— 16—Overcast; densely overcast.
— 17—Overcast throughout.
— 18—Foggy throughout.
— 19—Foggy, occasionally some drops of rain; very fine at night.
— 20—Drizzly; very fine; foggy at night.

Mean temperature of the week, ½ deg. below the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 39 years, for the ensuing Week, ending Dec. 30, 1865.

Dec.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday..24	43.8	31.5	37.6	16	0.30 in	4	5	4	2	1			
Mon. ..25	43.3	29.0	36.1	9	0.45	4	9	3	—	3			
Tues. ..26	42.8	31.3	37.0	13	0.39	3	7	3	4	4			
Wed. ..27	42.7	29.5	36.1	14	0.49	5	5	2	5	2			
Thurs. ..28	42.1	28.9	35.0	11	0.21	4	4	4	3	3			
Friday ..29	43.2	33.4	38.3	17	0.62	2	5	1	4	5			
Satur. ..30	44.6	32.2	38.4	15	0.18	1	6	2	2	5			

The highest temperature during the above period occurred on the 25th, 1827 and 28th, 1855—therm. 58 deg.; and the lowest on the 28th, 1860—therm. 1 deg. below zero.

Notices to Correspondents.

*** Letters intended for publication anonymously, should be authenticated by the addition, in all cases, of the name and address of the writers, for the private inspection of the Editors. No notice can be taken of communications if this rule be not complied with.

CONES: *A Subscriber, Armagh.* We share your doubts as to the truth of the statement. Were both the cones gathered warded from the same tree? We should refer them to variety of P. sylvestris, perhaps P. Mughus.

NAMES OF FRUITS: *J T.* The Rymer Apple, a fine specimen.—*J S. C A C.* Winter Nelis Pear.—*R C.* Glou Morceau Pear.—*J S.* Apple, like Court of Wick, is probably a seedling. The Pear worthless.—*D M.* Your five Apples and Pear arrived bruised, and partly rotten, that they could not be tried. No numbers were affixed to them. Among them appeared to be one Sturmer Pippin, and one Stubbard. fruit should have a piece of paper with a number pasted or gummed on, as it is impossible to return fruit.

NAMES OF PLANTS: *Tyro.* A very good form of Scolopendrium vulgare ramosum.—*G A W.* We cannot undertake to name plants from an inspection of the leaves only.—*A S. bridge Wells.* Cotoneaster affinis.—*A I.* Pernettya mucronata.—*I P.* Cotoneaster obtusa.

Autumn Sowing.—Odams's Blood Manure for Wheat.

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"This valuable Meal, containing above 20 per cent. of fatty matter, is recommended as an economical food to mix with home-grown produce." (See Dr. Voelcker, R. A. S. E. Journal, Vol. I., 2d Series, page 176).
For further particulars and Analysis apply to Messrs. SMITH, or their Agents, Messrs. HUMPHRIES & Co., Bristol.
JOHN COLEMAN, 150, Leadenhall Street, E.C., London Agent.

Cattle Plague.

PUBLIC NOTICE.—REPORT of the ROYAL COMMISSION.
See "Sanitary Recommendations and General Precautions to Prevent the Spread of the Disorder."

THE DISINFECTING POWDER DESCRIBED IN THE REPORT IS

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Landowners assessed under the provisions of any Act of Parliament, Royal Charter, or Commission in respect of any public or general works of Drainage or other improvements, may borrow their proportionate share of the cost, and charge the same with the expenses on the lands improved.
No investigation of title is required, and the Company being of a strictly financial character do not interfere with the plans and execution of the Works, which are controlled only by the Government Enclosure Commissioners.
For further information, and for forms of application, apply to the Honourable WILLIAM NAPIER, Managing Director, 3, Parliament Street, London, S.W.

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J. BAILEY DENTON, Principal Engineer.
Under this Company's Act Tenants for Life, Trustees, Mortgagees, Guardians, Committees of Incompetent Persons, Beneficial Lessees, Corporations (Ecclesiastical or Municipal), Incumbents, Charitable Trustees, &c., may effect the following Land Improvements, and charge the outlay and expenses on the estate improved, by way of rentcharge, to be paid by half-yearly instalments, viz:—
1. All works of Drainage, Irrigation, Warping, and Embankment.
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3. The Construction of Roads.
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The owners of Estates, not entailed, who may be desirous to avoid the expense or inconvenience of a Legal Mortgage, may also charge their Estates with an Outlay on Improvements under the simple and inexpensive process of the Company's Act.
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The Arrangements for Effecting Improvements are threefold:
No. 1. The Works may be Designed and Executed entirely by the Landowner's Agent, and the Company employed only to supply the Loan and conduct the matter through all the official Forms for Charging the Outlay on the Estate.
No. 2. The Company will supply Plans, Specifications, and Estimates for any Improvements to be executed by the Landowner's Agent as under No. 1. In each of these cases the Landowner will be solely under the control of the Enclosure Commissioners.
No. 3. The Company will undertake the entire responsibility of the Improvements, prepare the Plans, execute the Works, and finally charge on the Estate the actual amount expended, with their Commission thereon, approved by the Enclosure Commissioners.
Landowners may thus obtain what assistance they require from the Company, and no more, in effecting the objects in view.
Works of Drainage and other Improvements are also executed on Commission for Landowners, who merely require the skill and experience of the Company's Officers and Staff in constant practice.
Applications to be addressed to WILLIAM CLIFFORD, the Secretary, at the Office of the Company, 32, Whitehall Place, London, S.W.

Drainage of Land.

MR. C. F. HUMBERT, F.G.S., of Watford, Herts, and formerly Senior Surveyor to the Tithe Commission, a Land Surveyor and Land Agent, more than 20 years established in practice, undertakes Works of Drainage either at a contract price, or to lay out and overlook the same at a commission of 5s. per acre; and he has at his command a staff of experienced workmen. His custom is to charge merely the expenses out of pocket in making the preliminary Survey and Estimate where the works are not carried out.

Drainage, &c.

MR. J. BEAUMONT, LAND AGENT, SURVEYOR, and DRAINAGE ENGINEER (for several years Assistant to Mr. Josiah Parkes), undertakes the Planning and Execution of Works of Drainage, and Estate Improvements generally; including Embankments and River Works; Reclamation of Marshes and Waste Lands; Irrigation and Warping; the Erection of Farm Buildings, Labourers' Cottages, &c., either at the private cost of the Landowner, or through the medium of the various Land Improvement Acts.
Estates Surveyed and Mapped, or Inspected and Reported upon for contemplated Improvements.
22, Parliament Street, Westminster, S.W.

The Agricultural Gazette.
SATURDAY, DECEMBER 23, 1865.

IT will be seen from the correspondence in another column, that the HOME SECRETARY is at length endeavouring to collect Statistics of our Live Stock. Surely those who have hitherto obstructed Government in the attempts which have been already made to gather information on this subject, lest they should facilitate a suspected class taxation, must regret their lack of public spirit now that an appeal is being made to the CHANCELLOR of the EXCHEQUER for help to bear a blow which through that class has fallen upon the whole community. The information now sought will be gladly rendered; but the facts will not be obtained so accurately under a hurried inquiry of this kind, as they would have been by this time under the periodical correction of an annual inquiry, had the work begun some years ago. We shall however no doubt now learn with sufficient accuracy what the weight of the blow which has befallen us is in exact proportion to the width of the shoulders on which, unaided and alone, it in the meantime rests. If the average loss attendant on live stock management has been hitherto not more than 6 or 8 per cent. per annum, we shall see what a frightful multiple of the ordinary losses this cattle plague amounts to, and the need of diminishing if possible the severity of the blow by distributing its weight will become apparent. It seems only fair that those should bear a share of it in whose interest Government interference has already in many instances aggravated its destructive effect on individual fortunes.

The disease has at length attacked our great Dairy districts, Cheshire, Gloucestershire, and Wilts. In the first county there were 1200 fresh cases last week, and of the whole number, 3000, which had then been attacked, nearly 2000 were dead, about 900 being still under treatment.

THE Society of Arts has latterly been occupying itself pretty frequently with agricultural affairs. On Wednesday of last week the subject of London milk was discussed before it in an elaborate paper, which has since been given in our columns. And on a previous Wednesday Mr. BAILEY DENTON called attention, as he has often done before, to the important question of the water supply, especially in country places. We are not about to connect these two subjects by any remarks of ours, as was attempted by a witty speaker last Wednesday. Neither shall we pretend to estimate their relative agricultural importance. That the production of milk is a considerable branch of the English food manufacture is unquestionable, and it is equally certain that the sale consequent upon its production for London of at least 30,000 cows as fat meat, every year in the very prime of their powers as milk producers and as breeding stock, is a great and influential fact in the agricultural economy of this country. The water supply is also an agricultural subject of the very foremost class. And no one has done more than Mr. BAILEY DENTON to take it out of the rank of merely social questions and to illustrate its agricultural relations. It is indeed to him, originally we may say alone, that we owe the position as an agricultural question which is now everywhere accorded to it. The relations of land drainage to this subject have been thoroughly studied by him, and urged repeatedly upon the attention of localities, societies, and Government. And in his paper read the other day before the Society of Arts, they were once more laid before the public.

There may still be some who think that the difficulties of the water supply belong exclusively to towns and densely populated districts; and who imagine that in the country all that is needed for the supply of any house is just to sink a well. They require perhaps to be informed that over large tracts in this country wells have to be dug 100 yards and deeper before water is reached; and that the area which depends on surface water collection is very great indeed. In cases of prolonged drought, such districts labour under very serious difficulties. Evaporation reduces the contents of the ponds until the water in them becomes a saturated solution of mischievous impurities; and fatal diseases often rise which are fairly traceable to this source. Moreover, the supply of water to the live stock of the farm then becomes both difficult and laborious. On both sides of the valley of the Thames, where the river traverses the chalk, there has been thus during the last two summers an immense amount of labour involved in watering stock. Farms five or six miles from the river have had to devote at least a quarter of their horse power for months together to the carriage of water. And thus it is that the supply of water to country places becomes a strictly agricultural question.

It was, however, left to Mr. BAILEY DENTON to point out that in a still directer way the agricultural relations of the subject are of the very highest importance. Land drainage is supposed to have diminished the supply of rivers, but this is a mistake. The more rapidly that rain-water finds its way to rivers, the less waste by evaporation will it suffer on its way. Land drainage has thus increased the river supply. But it does this intermittently. Floods in the lower grounds are more frequent than they were, and they follow the rainfall more rapidly than they used to do. And thus, though lagging by the way, as water does in undrained districts, tends to loss by evaporation, it also tends to a more uniform supply. Land drainage, which is of course promoted, and will be so still more, simply for its fertilising influence, is thus rather increasing than diminishing the difficulties of the water supply to country districts. The remedy which Mr. DENTON urges is the conservation of the winter store for summer use. This winter store from "through" drainage, whatever its actual quality may be, is certainly better than that of mere surface collection. It is the latter on which many a village now depends, and it is this which often fails them in a drought. If the drainage water of the neighbourhood of any village (of only a few acres indeed) were collected and stored up, the quality would be better and the quantity would be surer.

This is the point on which Mr. DENTON has so long insisted, and which he has illustrated both by prolonged observation of the relations between the rainfall and the drainage water in the case of soils of various porosity, and by published plans and estimates suitable for various local circumstances. A very competent body of men are now engaged under a Royal Commission in examining the relations of the rivers to the towns. The water supply of one-half the population is thus being investigated, and we shall learn no doubt from their labours much that will tend to its improvement. The water supply of the other half of Her Majesty's subjects who live in country places is equally deserving of investigation; and we are confident that any one who should take up such a subject for thorough and exhaustive treatment, would find it large enough, as well as sufficiently difficult,

fruitful, and important, both to need much special information and ability for its efficient examination, and to offer many valuable economical and social results as the reward of its patient investigation.

—— IN our reference the other day to the need of Herd Books for the several breeds of cattle and of sheep, we expressed the hope that the circle of usefulness might soon be completed by the addition of the Galloways and Ayrshires to the list at present incomplete. We find on examining the Preface to Mr. RAVENSCROFT's Polled Herd Book that an effort has already been made in the direction of the Galloways; and though, owing to the apathy of breeders, it contains a poor array of names, yet there is in that volume a distinct and separate list of some of the Galloway herds. It is, however, certain that the Galloway and Angus cattle do not exist as pure and separate breeds. The very best Angus breeders cross with Galloways, and *vice versâ*, and probably the best plan for recording their several herds would be by the issue of an Improved-polled Herd Book, in which breeders should frankly acknowledge their obligations to one another.

—— PAPER PIPES FOR WATER AND DRAINAGE. Sheets of paper dressed with bitumen rolled on a mandril under heavy pressure. We believe they have stood the test of 10 or 12 years as GAS pipes in Paris. Is it known how long these pipes will last underground? For a turbine they can be safely recommended as far as strength and cheapness are concerned, but durability is the question. There is no power like water for machinery, and the modern turbines with guide blades to regulate supply according to demand, for 1-horse power pulper, or 1½-horse power chaff-cutter, or 4-horse power threshing machine, have much to recommend them.

—— WIND POWER FOR TURNIP CUTTERS FOR SHEEP is particularly worthy of the attention of flockmasters on the breezy South Downs. Twenty years ago we remember a clever shepherd who, when there was a sufficiency of wind, took off the Turnip cutter handle, fixed on a simple windmill, and cut the roots. The whole framework for the vanes consisted of light iron rods. *B. M. F.*

STATISTICS OF LIVE STOCK.

THE Secretary of the Board of Trade presents his compliments to the Editor of the *Gardeners' Chronicle and Agricultural Gazette*, and requests that he will be good enough to publish the enclosed copy of a correspondence that has passed between the Board of Trade and the Home Office respecting the collection of returns of the number of live stock in Great Britain, together with a copy of the Schedule to be issued by the Board of Trade, and of a letter that has been addressed by Sir George Grey on the subject to the Lords-Lieutenants of the several counties. The form will be sent to, and is to be returned by, each occupier of land through the post office (wherever available), and the return is to be made by the occupier upon the day that will be specified in the Schedule, probably not earlier than the 1st March, 1866, owing to the very large number of Schedules that will have to be printed and distributed.

Whitehall, Dec. 16, 1865.

"Office of Committee of Privy Council for Trade,
"Whitehall, December 6.

"Sir,—I am directed by the Lords of the Committee of Privy Council for Trade, to request that you will move Secretary Sir George Grey to cause the County Magistrates in England and Wales (and the corresponding authorities in Scotland) to be informed of the steps about to be taken by the Board of Trade, for the purpose of ascertaining the number of Live Stock existing in Great Britain.

"My Lords rely much upon the good offices of the County Magistrates, whose assistance will be most valuable in advising their own tenantry and the neighbouring farmers to give prompt and careful attention to the Schedule to be transmitted to them by post, for a return of the number of Live Stock upon land in their occupation.

"The published correspondence upon this subject between the Cattle Plague Commission and the Board of Trade will explain the object of the inquiry, and my Lords entertain the hope that the required information will be successfully obtained by voluntary returns from the farmers and occupiers of land. But it is very desirable that no means should be neglected of guarding against the refusal of information in consequence of misapprehension on the part of the farmers as to the intentions of the Government in making the present inquiry.

"The collection of returns from so large a class of persons as the occupiers of land in Great Britain can only be undertaken by the Government; and it is of course desirable, on the ground of public economy, that officers already employed in the public service should, if practicable, be made available for collecting the statistics of Live Stock.

"In order, therefore, to avoid creating a new and costly machinery, the distribution and collection of the Schedules will be intrusted to the Department of the Inland Revenue, acting on behalf of the Board of Trade.

"The Schedules will bear the Post Office Stamp for transmission to and return by each Occupier of not less than five acres of land.

"There will, therefore, be no occasion to trouble the Occupiers by a personal application for the return, if they will only be good enough to fill up the Schedule and return it by post according to the address printed upon it.

"As the value of the information will depend upon the completeness of the returns, it will be necessary to make a further written or personal application to Occupiers who neglect to fill up and return the Schedule.

"It is to be hoped that this trouble to the Occupiers and the Officers employed will seldom be necessary, as it will occasion delay in the publication of the results of the inquiry; and an early knowledge of the supply of Stock in the Country is manifestly most desirable.

"Every endeavour will be made to obtain the returns with the least possible trouble and inconvenience to the Occupiers of land, and it is the earnest hope of my Lords that English Agriculturists will show themselves as ready to afford information of such special and national interest as the Agriculturists in Scotland, Ireland, and Foreign Countries.

"Copies of the correspondence between the Cattle Plague Commission and the Board of Trade, and of the Form of Schedule to be issued by the Board of Trade, are enclosed, which my Lords suggest should be transmitted with the letters from the Secretary of State.—I have the honour to be, Sir, your obedient Servant, (Signed) J. EMERSON TENNENT."

"The Under Secretary of State, Home Office."

BOARD OF TRADE—SCHEDULE FOR RETURN OF LIVE STOCK,

It is particularly requested that this Schedule may be filled up on the day of , 1866, and transmitted, immediately thereafter, by post, as addressed on the other side. The Returns of Individual Occupiers will not be published.

Number of Live Stock upon Land in the Occupation of the Undersigned, on the day of , 1866.

If separate farms in two or more parishes be occupied, separate Returns of Stock are to be made for each Farm.

Parish of County of

1. Stock taken in to Graze is to be returned as belonging to the Occupier of the Land upon which the stock is grazing.
2. Stock driven to Fairs, Markets, or elsewhere for Sale, upon the of , should be included in this Return by Owners of such Stock.

	Number of Cattle.			Number of Sheep.		Number of Pigs.
	Milk Cows.	Other Cattle. Two years of age, and above.	Other Cattle. Under two years of age.	One-year-old and above.	Under one year old.	
Please insert on this line, *in Figures*, the particulars required						

(Signed) Occupier.

The Cattle Plague Commissioners have reported that it is highly desirable to obtain Returns of the number of Cattle and Sheep within the area of every parish in Great Britain.

"Whitehall, 9th December, 1865.

"Sir,—I have the honour to transmit to you the copy of a letter with its enclosures, which has been addressed to this department by the Board of Trade, and I have to request that you will be so good as to cause the purport of it to be made known generally to the magistrates of your county.

"Her Majesty's Government have no doubt that you will concur with them in the opinion that it is important to obtain with as much accuracy as possible the information which the Board of Trade is endeavouring to procure, and they trust that the county magistrates will readily give any assistance in their power towards the attainment of this object.—I have, &c.
(Signed) G. GREY."

"Lord Lieutenant of the county of ."

"Whitehall, Dec. 13, 1865.

"Sir,—With reference to your letter of the 6th inst., requesting that the county magistrates in England and Wales (and the corresponding authorities in Scotland), should be informed of the steps about to be taken by the Board of Trade for the purpose of ascertaining the number of Live Stock existing in Great Britain, I am directed by Secretary Sir George Grey to transmit to you for the information of the Lords of the Committee of Council for Trade, copies of the circular letter which has been addressed to the Lords-Lieutenants of counties throughout Great Britain. "I am, &c.,
(Signed) H. WADDINGTON."

"Sir J. Emerson Tennent, Board of Trade."

RINDERPEST.

MY attention has been called to a review upon no less than six pamphlets upon this subject, amongst which was one written by myself. It has been said, "Oh that mine enemy would write a book!" It has also been said that every one has a mania, observable by other people, but not by himself. Your reviewer thinks he has found out what my mania is, and accuses me as being "wild upon gypsum," and by inference would lead your readers to believe that in my pamphlet, entitled "Rinderpest, its Prevention and Cure; and Gypsum, its advantages as a Manure, Deodoriser, and Sanitary Agent," I had stated that gypsum "might have hindered rinderpest;" and also that I was of opinion "that neither crops nor animals can grow healthily without it." He also distinctly says: "This particular plague is more connected with the absence of manganese from the body!" He then goes on to quote a paragraph relating to manganese, and finishes his critique with "so much for No. 3" upon his list.

Those who really read the book will find that what I actually stated was, first, that gypsum rendered all animal and vegetable decomposing matter more valuable as manure, by the absorption of ammonia resulting therefrom. Secondly, that by fixing the ammonia, which I consider is the vehicle by which contagious diseases are carried in the atmosphere from place to place, there is a possibility that the plague might be arrested or isolated, where it may happen to exist, without the terrible necessity of stopping cattle traffic; and I quoted in support of this theory the opinions of Roubiquet, who says that gaseous contagious matters are generally accompanied by ammonia, which may be considered in many cases as the means through which the contagious matter receives a gaseous form, just as it is the means of causing the smell of innumerable substances of little volatility, and many of which have no odour; and of Liebig, in 1840, who said—"Ammonia is very generally produced in cases of disease. It is always emitted in those in which contagion is generated, and is always present in the chambers of those afflicted with a contagious disease." Thirdly, after speaking of destroying the vehicle of the disease by fixing the ammonia, simply describing gypsum as a deodoriser, I then named what further means of prevention by disinfection I had found by experience to be the most efficacious. Apart from my own experience, your reviewer will find in Mechi's "Sewage of Towns," App. p. 89, a table of disinfectants, compiled by Dr. Letheby, wherein it is stated that the article I recommended as the best for that purpose, namely Condy's Fluid, is among all the deodorisers the only "complete disinfectant" which is at the same time a "powerful direct oxidiser." The only other complete disinfectant is chloride of lime, which, however, he describes as a "powerful indirect oxidiser," in consequence of which it is also a powerful destructive agent, and this latter property is no doubt a reason for its injurious action upon the mucous membrane and lungs, which should in all animals (man or beast) be carefully avoided if possible during epidemics and epizootics.

My whole theory consists in the prevention of rinderpest by disinfecting the morbific matter, and by fixing the ammonia which carries it from place to place, and it has been found in practice that this plan is most effectual.

I may add that a cure will be found almost certain by immediately after the disease is discovered administering an injection of a wineglassful of Condy's Red Fluid in a quart of warm water, and giving by the mouth half a pint of Linseed oil, mixed with a quarter of a pint of good spirits of turpentine; immediately after which the animal should be well washed or sponged all over with Condy's Red Fluid, of the strength of a wineglassful or more to a bucket of water, and quickly and carefully rubbed dry with cloths, and well covered up to secure warmth. About an hour or less after the oil and turpentine have been given, a wineglassful of the following mixture should be given every hour for twelve hours:—Half a wine-bottle of Condy's Red Fluid, 1½ oz. of sulphuric acid, and water sufficient to fill up the bottle. The cow should then have a quiet rest for six hours, when a wineglassful per hour during the day may be given of a mixture of equal quantities of Condy's Red Fluid and water without acid for some time, diminishing the doses or frequency of them as the fever abates. After the rest of six hours, instead of alcoholic stimulants it has been found better to administer every three hours a dose of 2 oz. of good coffee (without chicory) made in a pint of hot water, and when sufficiently cooled to be given warm with a horn, both liquid and grounds. This will be found to act as an astringent, antiseptic, tonic, and stimulant. When the coffee is given, a dose of the Red Fluid will be better omitted. During this time great care should be taken to keep the ammonia neutralised, and the shed and fences disinfected by Condy's Red Fluid; and all other animals in the same herd would be better well sponged occasionally with the fluid and rubbed dry, and have administered to them once or twice a day half a wineglassful of the fluid in two wineglassfuls of water by the horn till the afflicted animal is cured. During the illness no food should be given that requires rumination, but bran water and starchy food will be found the best. After recovery, which should take place in three to four days, great care should be taken not to give too much food, and especially not too many Turnips or raw Potatos, which have in many cases caused the death of animals rapidly recovering. *John J. Lundy, Leith, Dec.* 14.

ON LONDON MILK.

[The following is the conclusion of the paper on this subject read December 13th before the Society of Arts, by Mr. J. Chalmers Morton, and partly published last week.]

QUALITY OF THE MILK.

Now therefore for the question of quality. It cannot be doubted that with the feeding which it is the interest of the cowkeeper to adopt in town, the quality of the milk must be first-rate, and analysis has often proved it so.

I have here the analysis of a sample, not as taken from the cow, but I am thankful to be able to say, for it is very good, impounded 14 days ago at a poor door in a poor court in the Strand district. It contained 12 per cent. of cream and 3.84 of pure fatty matter, and was undoubtedly a genuine and first-rate milk. This single fact will prove that not merely the dealer who buys it from the cow-keeper—not merely the retail shopman who buys it from the dealer—but the poor consumer who buys it from the servant of the last-named man, and on whom therefore the risk of an accumulated dishonesty falls—does sometimes get milk pure. I must, however,

frankly confess my belief that this is a very rare exception to the general rule.

The following table gives examples of nine analyses which Dr. Voelcker has been good enough to make for me for the purpose of this report, all of different samples, from different courts and poor quarters in the Strand district. All except No. 5 were exceedingly, many of them shamefully, adulterated.

COMPOSITION OF FIVE SAMPLES OF MILK.
(Strand District.)

	1	2	3	4	5
Water	93.75	93.04	90.28	96.32	88.38
Pure fatty matters .. .	1.71	2.15	2.78	1.69	3.84
(Specific fatty and a little albumen)	1.75	1.75	2.56	1.60	3.18
Milk sugar	2.13	2.37	3.41	2.04	[illegible]
Mineral matter (ash) ..	.63	.39	[illegible]	.65	.70
	100.00	100.00	100.00	100.00	100.00
Containing nitrogen ..	.28	.28	.40	.27	.51
Percentage of cream by volume	4	6½	6	4½	12
Specific gravity of milk at 62°	1.019	1.017	1.021	1.020	1.030
Specific gravity of skimmed milk at 62° F.	1.020	1.019	1.0.3	Not determined.	

PARTIAL ANALYSIS AND DETERMINATIONS IN SOME SAMPLES OF LONDON MILK
(Strand District.)

	6.	7.	8.	9.
Specific gravity of milk .	1.018	1.022	1.021	1.021
Percentage of cream by volume	5½	7	6	5

SAMPLES FROM KENSINGTON AND CAMDEN TOWN.

	Kensington				Camden Town
	10.	11.	12.	13.	14.
Specific gravity	1.026	1.029	1.025	1.023	1.019
Percentage of cream ..	8½	Not yet made.			5
Percentage of water ..	..				93.26

It will be seen by the reader of this Table that in eight cases out of nine in the Strand district the milk was diluted up to 40 or 50 per cent. with water. In Kensington and Camden Town a somewhat smaller proportion was found to be adulterated.—In a late report to the Marylebone vestry, Dr. Whitmore, the medical officer of that district, refers to the general results of analyses by himself, from which you gather that out of 20 samples indiscriminately purchased there were only eight adulterated, and of the others some were particularly rich, containing 10, 11, and even 14 per cent. of cream. Dr. Druitt, in one of his quarterly publications, as medical officer for St. George's, Hanover Square, speaks of 82 analyses made in the autumn months of 1861, of samples purchased indiscriminately from 46 dealers all over that parish, and of these 22 proved to be "reasonably good,"—24, though probably genuine, were poor—23 were of extremely low specific gravity from the addition of water, and three were in such a condition (it is supposed from artificial treatment) that they would not coagulate with rennet, and were probably therefore unfit for children. As to the specific gravity, Dr. Whitmore alleges its inadequacy, owing to the fact that water as well as cream is lighter than milk—so that a low specific gravity may be due to the excess of either one or other of these very different ingredients—but Dr. Voelcker informs me that cream, though lighter than milk, is heavier than water, and therefore, excepting the case when *water has been added in well devised proportion to skim milk!* (and when therefore the adulteration must be obvious at once) the specific gravity test may be depended on.

There are, I believe, cowkeepers in this room who know, from their own conscientious management of their business, that genuine milk is to be had in London shops (and remember, I have not been speaking of the impossibility of individual consumers, with a personal knowledge of those with whom they deal, getting good milk—it is of the supply upon the whole to the millions of the metropolis that I have been speaking) yet I believe that cowkeepers will universally admit that generally it is watered. The popular prejudice on this point is no doubt correct. As to the other popular prejudice, however, connected with the subject—the idea for instance that chalk is added, the outrageous idea that "brains," as we have heard, and other filthy animal jellies are added, they may be dismissed as utter fiction. I have never met with a chemist who has detected chalk in milk, and to any one who knows how difficult it is even in country houses to keep good milk sweet for any length of time, the idea of any other addition than pure water is absurd. I am not here to defend nor yet to condemn the London milk trade, but simply to tell the truth about it, regardless whom it may affect, and I have no doubt the truth is, that the milk which we drink in London is (probably in the majority of cases) diluted; nor can there be the slightest hesitation in declaring that this dilution, supposing it to be practised and denied, is dishonesty morally equivalent to theft; so also is the sale, as new, of milk that has been skimmed.

Well, gentlemen, how are you going to avoid being cheated in this way? Are you going to depend on milk brought in from the country, or perhaps on the large and wholesale management of monster cowhouses by great companies, under the guarantee of gentlemen of unimpeachable honour, and under the skilful direction of distinguished veterinary authority? I believe it will be found in the long run that the standard of morality is pretty uniform—not higher even in the fields and lanes and cottages of country life than in the shops and streets of cities, and the dealer—I mean of course the *honest* dealer—who fills his cans amidst green fields, will have no better chance (though a very good one no doubt he has) of supplying you with undiluted milk than the man who takes his milk from London cowhouses. In every case, too, whether that of a company or of a town or country dealer, you are dependent (generally, no doubt, *safely* dependent) on the honesty of the servant who distributes it. But Dr. Whitmore tells me that his analyses have proved that milk purchased casually in the shop, and milk delivered by the carrier at the door of the consumer from the very same shop, are often very different things. A dishonest carrier has the chance, if he chooses, of supplying milk to a dishonest retail dealer, and filling up his can with water. In fact adulteration can only be prevented by the establishment of analytic supervision—a scientific agency constantly employed in comparing the composition of the milk offered in the shops with that of the milk drawn from the cow. An agency of the kind would, doubtless, be a very efficient and useful department of police, and there seems no reason why quality should not be tested constantly in this way by comparison with the genuine article, seeing that quantity is being constantly determined by the official comparison of weights and measure with the proper standards.

Suppose, however, that absolute honesty were (as I believe the per centage of honesty *on the great scale* to be) a pretty constant quantity and generally prevalent; how *then* about country milk as compared with that of the London cowhouse? Why, even then I believe the latter is likely to be the better of the two. First, it is more the interest of the cowkeeper here to feed his stock well than it would be the interest of the cowkeeper there; the latter has conveniences for calving his cows and keeping them on; the latter must sell his cows as they get dry to the butcher. Secondly, milk brought 50 or 60 miles, as very much now is, to London, must be at least 12 hours old before it reaches the consumer; that from the London cowhouse is about four hours old, or barely so much. Thirdly, the shaking of the milk along the course of 50 or 60 miles of railway, and the rattling over the roads to and from the station, is certain in a proportion of instances to injure the milk, in other cases utterly to spoil it—in all, I may say, so far to injure it that it will not keep so long nor be so useful for certain purposes. That is the presumptive case against the country milk as compared with that produced in London? What is the *fact?* If you want to know the real value of one or other, you must find out, not what the consumers of it give, but what dealers in it can afford to give who supply the shops—that unquestionably is the true measure of its value. Dealers in milk will give from 4*d.* to 6*d.* per barn gallon more for town-shed milk than for what is delivered by the railways. And no wonder, for even now it often comes in sour, and what must it be in the hot weather of summer? It is with very great regret indeed that the retail dealer finds himself cut off from his supply of town-shed milk, and forced to betake himself to the dealer from the country. London milk in London is worth more by ½*d.* to ¾*d.* a quart than country milk in London; and that is a difference quite enough to account for the fact that bulky Grass and Mangels are carried many miles to London cowhouses, there to be consumed instead of being consumed by cows at home, even though there were not the great advantage which the London cow-keeper has in the close neighbourhood of the great breweries, with their enormous supplies of grains.

But whatever the superiority of the town-shed milk, it is plain from the way in which the cowhouses have been emptied by the plague, that London will hereafter be fed from the country more generally than it has been. What is the quantity which has been hitherto consumed in town? I have here the published returns from the metropolitan association of medical officers of health of the number of cowsheds and of cows, so far as could be ascertained by inspection and inquiry, on the 13th of August last. Four districts out of 44 sent no returns, but adding a proportionate number for them, it appears that the number usually kept in the metropolitan districts amounted to about 18,000, and very probably in outlying parishes, sending milk up by cart and not by railway, there may be several thousands more. I may therefore probably assume that London has been hitherto supplied by 24,000 cows, besides what it has got by railway.

I have to thank the managers of the several metropolitan railways for the material of the following Table, from which I see that the Great Western Railway has sent very little up till latterly; that the North Western has sent up 40,000, 60,000, and 100,000 gallons annually during the last three years; that the Great Northern has sent up 250,000 and 300,000 gallons in 1863-4; that the Great Eastern has sent up 600,000, 800,000, 900,000, and 1,000,000 gallons respectively in the last four years; that the South Eastern has sent up 120,000 to 180,000 gallons; the Brighton about 50,000 gallons, and the South Western about 4[illegible],000 gallons annually. Upwards of 2,000,000 gallons were thus brought up last year, and this must be added to the 24,000,000 gallons with which, exaggerating perhaps a little, we shall credit our 24,000 cows. We cannot, at any rate, make out more than 26,000,000 of gallons for the 3,000,000 of London population last year. This is just 8 gallons (64 pints) a head per annum; rather more than one-sixth part of a pint of milk a day apiece.

GALLONS OF MILK ANNUALLY IMPORTED BY METROPOLITAN RAILWAYS.

	1861	1862.	1863.	1864.
Great Western		Very little until 1865.		
North Western, at 16 gallons to the can	4,[illegible]	4,760	60,[illegible]	
Great Northern		..	25,[illegible]	
Midland				
Great Eastern	None	654,[illegible]	54,703	
North Eastern	600,000	122,483	154,000	
Brighton and South Coast	114,[illegible]	9,[illegible]	18,406	
London, Chatham, and Dover	[illegible]	No return.		
South Western		(target 1500 gallons a day=)		

GALLONS OF MILK IMPORTED MONTHLY IN 1865.

	Jan.	Feb.	March.	April.	May.	June.	July.	August	Sept.	October	1864.
Great Western	?	?	?	?	?	?	?	2,474	[illegible]	[illegible]	
North Western, 16 gallons per can	14,125	19,[illegible]	12,752	[illegible]	6,624	6,660	5,180	26,152	[illegible]	105,214	
Great Northern	14,904	11,276	16,416	[illegible]	20,124	21,392	20,[illegible]	21,952	[illegible]	133,052	
Great Eastern	76,[illegible]	70,840	74,[illegible]	[illegible]	49,891	65,712	82,[illegible]	71,005	[illegible]	26,016	
North Eastern	[illegible]	74,[illegible]	17,546	14,414	25,843	22,[illegible]	20,080	22,550	[illegible]	112,[illegible]	
London, Brighton, and South Coast	16,[illegible]	10,345	5,[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	21,318	

At the rate of 24,000 gallons a year 400,000

	1863	1864	1865	Number usually kept.	Number of Cows kept now.
PARISH OR DISTRICT.	Number of Cowsheds.				
Fulham	..	..	65	350	530
Kensington	49	38	33	750	300
Paddington	..	.	..	273	200
Marylebone	69	70	56	1314	292
Chelsea	..	..	30	745	560
St. George's, Hanover Square ..	..	..	14	395	?
Westminster	..	..	21	431	?
St. James's	..	..	0	0	0
Strand	..	.	4	92	20
Holborn	21	19	18	398	43
Hampstead	..	..	22	483	?
St. Pancras	100	99	92	1178	266
Islington	..	71	69	1317	108
St. Martin's-in-the-Fields	..	..	0	0	0
City of London	..	..	17	248	156
St. Luke's	..	..	?	..	..
Clerkenwell	..	33	29	650	160
St. Giles and St. George . ..	..	..	9	170	nearly empty
Shoreditch	..	49	50	620	395
Hackney	..	83	83	1288	450
Bethnal Green	..	0	40	468	277
Limehouse	..	..	23	185	71
Whitechapel	..	37	34	522	?
Mile End Old Town	34	38	29	560	?
St. George's East	16	18	18	210	53
Poplar Union, North District } Bow .. .. }	.	..	11	206	?
Poplar, All Saints	45	48	47	290	270
Wandsworth	..	..	26	112	?
Putney and Roehampton	..	..	9	83	?
Clapham	..	..	25	..	?
Lambeth	..	..	134	980	?
Camberwell	..	..	50	555	?
Streatham, Tooting, and Balham	..	..	19	121	?
St. John and St. Olave	..	3	2	38	9
St. George the Martyr, Southwark	..	..	..	207	?
Bermondsey	..	..	24	300	119
Lewisham	17	19	12	?	?
Lee and Kidbroke	..	..	10	235	?
Eltham	..	..	21	309	?
Newington, S.	31	33	33	452	?
Charlton	..	..	..	..	?
Plumstead	..	..	42	168	?
Greenwich	57	51	46	700	?
Rotherhithe	..	..	4	25	?

The returns given in another Table, for which I have to thank the vestry clerks and inspectors of the several parishes within the metropolitan districts, show the way in which the number of licences for town cowhouses is being reduced from year to year. The present

number of the cows has been told me in very few instances; but I see that Mr. Jones, of the East London Cowkeepers' Association, announces that of 4456 cows usually kept in his district, only 805 are now remaining. And though this is much beyond the average of other districts (for instance, in Chelsea there were 745 cows usually kept, 182 have been sold fat during the autumn, and not above 10 or a dozen have been killed by the plague, and 45 fresh cows have been bought in;) but I gather from an inspection of the returns, yet imperfect, to the Privy Council Office that there is no reason to doubt that more than one half of the London cows have disappeared, and we are probably now dependent on 10,000 instead of 24,000 cows in and around London.

Under these circumstances of course the railways have been brought into more active use, and they certainly now must lay themselves out more systematically than hitherto for the conveyance of milk. Special trains perhaps will be appointed, and special carriages constructed to enable its prompter and more safe conveyance. The Table shows that the Great Western Railway, formerly conveying little milk, brought in 23,000, 39,000, and 103,000 gallons in August, September, and October (much of it from Wiltshire); the London and North-Western Railway in four successive autumn months imported 6000, 17,000, 57,000, and 92,000 gallons; the Great Eastern rose from 70,000 to 100,000, and at length 112,000 gallons monthly. The South-Western has risen from 1500 to 3760 gallons a day, bringing much of it more than 100 miles; and other railways have increased in somewhat similar proportion, so that London was supplied in October last with country milk at the rate of 5,000,000 gallons annually, which, however, was still a very inadequate substitution for the milk of the 14,000 cows which we have lost.

The Consumption of Milk.

I shall now state, as shortly as possible, such facts as I have gathered on the consumption of milk. Fourteen schools and asylums for children, containing 5321 between 2 and 16, with about 500 adults to take care of them, consume, as I have been kindly informed by the managers of them, as nearly as possible 1650 quarts a day. Two adult asylums, not infirmaries, nor gaols, nor workhouses, containing 2350 adults, men and women of all ages, consume only 350 quarts. I believe a company of 5320 children, up to 16 years of age, need about 9000 adults of all ages to be added to them, in order to make a community of all ages in the proportionate number which such ages represent in every general population. Add, therefore, to the consumption of these that of 9000 adults, according to the quantity of the two instances already specified, and you have a total of about 2400 quarts drunk daily by 11,320 people, which is as nearly as possible (.42 pint), 2-5ths of a pint a day apiece consumed by a large general population under medical direction. It is plain, then, that London, which under the very liberal estimate already made does not get one-half of this quantity a head, is very imperfectly fed with milk.

Daily Consumption of Milk in Institutions.

Institutions.	Average age of Children.	Children.	Adults.	Daily Milk.
Asylums:—	Years.	No.	No.	Quarts.
1	2 to 18	1150	60	173
2	11½	471	?	128
3	3 to 12	420	100	240
4	4 to 15	545	70	280
5	3 to 14	300	30	188
6	7 to 14	330	?	106
7	2 to 14	210	?	56
8	9 to 14	291	81	40
9	7 to 16	147	?	48
10	?	160	15	74
11	7 to 15	120	?	45
Schools:—				
12	11 to 15	757	?	94
13	?	170	15	55
14	14	250	?	127 (skim)
Adult Asylums:—				
15	..	..	2250	300
16	..	..	300	50
		5321	2871	2004
Add adults (estimated) in attendance on asylums and schools not specified above			229	
			3000	

What do other places get? Stirling, in Scotland, has a population of 12,500 persons, and is supplied by 190 cows in the town, besides 200 gallons a day of buttermilk (a most nutritive and useful food) brought in by rail and otherwise. We have here a cow to every 60 people; and this, at the average of 800 gallons yearly to every cow in milk (less than I have put the produce of a London cow, because there is not so frequent a change among them) gives 100 imperial pints per annum to every man, woman, and child, or about 2-7ths of a pint a day apiece, very nearly the medical standard, and indeed exceeding it when the 200 gallons a day of buttermilk are taken into account, for this would furnish half a pint a day to the 3200 belonging to the labouring class in a community of 12,500. I have to thank Mr. David Morton, of Stirling, for the above facts.

Take now Mansfield, in Nottinghamshire. There are here about 10,000 people, and 108 cows, one to every 93 people, just midway between Stirling and London. Taking these at 800 gallons a head per annum, and adding 20 gallons of skim milk daily, of which I hear as being sold in the outskirts of the town, we have only 9 gallons (72 pints a head) per annum, or 1-5th of a pint a day apiece—one half the medical standard.

And this result corresponds to the ascertained consumption of seven working men and their families in Mansfield. These included 31 souls, and their consumption per week of milk cost altogether 4*s.*, just 1*d.* a day to each family, for which they would get 1-10th of a gallon—5 gallons a week for 31 people, or 40 pints for 217 days of one person, is less than one-fifth of a pint a day. I have to thank Mr. Henry Wilson, of Sherwood, for these facts.

Take, now, Bedford. It contains at present about 15,000 people, and there are exactly 100 cows in the town, and 123 gallons of milk, the produce of about 50 other cows, are brought in by railway. One hundred and fifty cows to 15,000 people are one cow to 100 people, about the same as at Mansfield; and this, at 800 gallons a cow, is about 70 pints a year, or one-fifth of a pint a year apiece—one-half the medical standard. I have to thank Messrs. Howard, of Bedford, for the above statistics.

All these instances exceed the London standard, though the two last are not so much beyond the metropolitan supply. It is plain, however, from these figures, that London is imperfectly supplied, yet I have still to justify the belief I have expressed that it is as well fed as many south-country villages. Single instances will hardly prove this, or I could say that in my own village there are labourers' families with many small children who hardly ever taste milk after they are weaned. And I have seen the year's accounts of an Essex labourer who received the prize of 5*l.* offered for many years by Mr. Wood, of Rochford, for the best-kept year's cash book, kept by an agricultural labourer. His family with five children spent 6*s.* 2*d.* on milk in 1863, representing probably 150 pints of skim milk—or two-thirds of a pint—not of whole milk for one, but of skim milk for seven daily. But the thing cannot be proved by individual cases. Let us therefore take the result of Dr. Smith's inquiry for Government into the diet of the poorer classes of the country. He found that the weekly consumption of milk in the families of agricultural labourers (and he examined into from 10 to 30 cases in each county, chosen with a special view to fairness) was 12 pints in Devonshire, 2½ pints in Somerset, 3 in Dorset, 3¾ in Wilts, 3 or 4 pints in Bucks, Herts, Cambridgeshire, 1-3d of a pint in Surrey, 1-5th of a pint (9 families examined) in Gloucestershire. Of course I am choosing the lowest examples on his list, but they are all examples of whole counties. Now, these numbers have to be divided by 5 (the average number of the family), and by 7, the days of the week, before you can ascertain the quantity consumed by each individual daily.

I find that in a poor court in the Strand there are 57 families, 294 souls living in 13 houses, and their daily consumption of milk is less than 4*s.* in all, for which they get 9 quarts or thereabouts. This is $\frac{1}{16}$th part of a pint apiece, and there was among them a baby brought up by hand, which had 1 pint a day to its own share, which still further reduced the general proportion. The milk for the baby, I may add, cost 2½*d.* in the shop, or 3*d.* if had direct from the cow. This is very little indeed, but there was an unusual number of adults in the company, only 40 children out of 294; and I will engage to find within two miles of my house at Streatley households numbering 294 in all, with double this number of children among them, who don't spend 4*s.* a day on milk nor anything like it, and who have not the chance of buying milk even at 3*d.* a pint from the cow if they wished it.

Looking at the quantity consumed by agricultural labourers in some of the southern counties in Gloucestershire, for example, which may be called a land flowing with milk, I think I am right in saying that London, badly off as it is, is yet as well supplied as many south-country villages. Of course, however, it will not do to compare the quantity consumed in London with that which is used in Westmoreland and Northumberland and Scotland. Dr. Smith returns them there at 24 to 30 pints per family each week, or nearly a pint a day apiece.

In Berwickshire and many Lowland counties it is almost universal for the farm labourers with families to keep cows and drink the whole of their skim-milk themselves, and where will you find better proof than in the labouring population of Scotland and the North of England, of the truth of words which I venture to quote from a letter of Mr. Chadwick to myself:—

"I can state as my general conclusion, from all my observation and information in respect to populations, that a cheap and abundant supply of fresh and good milk is of more importance for their health and strength than an abundant supply of meat. The foundation of the adult is laid in childhood and youth. Now our strongest and best labourers are from milk and oatmeal fed, or milk and bread and milk and potato-fed children, as also from milk and oatmeal men with little or no meat. The strongest navvies are from the hill districts of Lancashire, our strongest labourers from Cumberland and Westmoreland, from the hill districts of Scotland, Aberdeenshire in particular. These have been the favourite recruiting grounds for Guardsmen and soldiers of the greatest size and strength."

I add here that I am told the Northumberland militia regiment, recruited from the milk-fed agricultural population of that county, covers more ground than any other county regiment in the province.

But I must not forget that my subject is London milk. If the facts I have collected shall do nothing more than clear away prejudice and exaggeration from the minds of its consumers, the labour of gathering them will not have been useless; but I hope that they may have some influence on the trade; that the public attention being directed to the enormous increase in the railway carriage of it, some improvement in the facility and safety of the traffic may be effected; and, above all, that attention being directed to the very deficient supply of milk to London, some increased spur to enterprise in milk production may ensue.

One word more: On Tuesday of last week I had been all day over Clerkenwell, and Bethnal Green, and Mile End Old Town along with the inspector through some 12 or 14 cowhouses, and it was almost dark when we reached the last upon our list. I there saw what I had not seen all day before, a full cowhouse — 70 or 80 first-rate Short-horn cows, well and comfortably housed, lighted up with gas, being fed and cleaned up for the night — the master busy working with his men. I said to him—"You seem all alive here. I have not seen a full cowhouse to-day before; have you had no plague here?" He told me that he had had 40 stricken and killed by it; but the other 40 had been in the pastures, and so were saved. I said, "But there are more than 40 here. You have shown great pluck in bringing your 40 home and buying others." He said—"We grubbed up the floor, double lime-washed walls and mangers, and spread 2 inches of hot lime over everything, and waited a couple of months; and I believe therefore we are safe. They tell me I am mad," he added; "but it is a madness I take great delight in, and as long as I have money to buy a cow and a place to tie her up in, I'll have her."—"Well," I said, "at all events you are making a pretty penny now with Mangers cheap and grains for the asking, and milk at 5*d.* a quart." He gave me, I suppose, banter for my banter, for we all know that pure milk is to be bought wholesale for 3½*d.* to 4*d.* a quart, and retail in many places for 1*d.* more. "5*d.* a quart!" he said; "I won't sell from milk to you or any other man for less than 6*d.*; but you can get a quart of *something* in the shop there for 3*d.* if you like." Now if any gentleman here is disposed to say "name!" I must refuse to give the name, for I have not aimed at personality at all in the course of this statement, and have only named one or two where especial credit was due; but if the inspector who was with me then be present now, he will remember the conversation and also the laugh that followed his own assent to the nature of the "something."—"Yes," he said, "blue *ruin*." I tell this story, for it represents a very large portion of my case. London milk comes from the very best cows in the world, for both milk and flesh—from the best fed cows in the world, taking all the year round—and, taking the average experience, most of it from the most comfortably housed cows in the world, taking 24,000 everywhere else and all the year round. I will also say that it comes from the hands of one of the most hearty and energetic sets of men in the world; for the London cowkeepers, especially of course those in large business, want neither energy nor intelligence. And, seeing that country milk, whether better or not in the fields, is not so good at the railway terminus, London milk is originally the best milk in the world for Londoners; but it is very generally *spoiled* between the milk-pail and the tea-cup—so that when it reaches the consumer it is often little better than what Mr. Inspector called it—a mere *ruin*.

LORD SPENCER ON THE CATTLE PLAGUE.

[The following is the greater portion of his lordship's speech on December 13, as Chairman at the Annual Dinner of the Smithfield Club.]

At this time there is a great necessity for agriculturists to improve their breeds of cattle. The consumption of meat in this country has for some years been increasing to an enormous extent, and what has been the result? People who before hardly ate fresh meat once a year have it now almost daily; and to supply their wants there has been a vast importation of foreign stock. I do not think the people of this country are generally aware how great this importation is. In the year 1862 there were imported into the United Kingdom 97,887 head of neat cattle and 299,472 sheep. Two years later, in the year 1864, the importation of neat cattle had increased to 231,733, and that of sheep to 496,243; and this year the returns will come out still larger. It is difficult to compare the number of English stock sent to market with foreign stock, for at this moment there are no reliable returns in existence. It is computed, however, that there are in the United Kingdom 7,000,000 cattle. This is a mere guess. The farmer is left entirely in the dark with regard to the number of cattle in the country, and I think it is really a matter of great importance that there should be some reliable statistics obtained as to the actual number of the stock in the United Kingdom.

I find that in 1862 the number of English cattle sent into the metropolitan markets was 249,051, and of foreign 51,466. In 1864 the English had fallen off to 220,224, and the foreign had increased to 119,174. The English farmer cannot put an end to foreign importation—he ought not even to wish to

check it—but he can compete most successfully with our improved breeds against all foreigners. There is no country in Europe that can produce such meat as England does. Mr. Giblett has talked of foreign beasts which fetched 40*l.* apiece, and I know Hungary produces good stock, but there really are no animals so good for meat as the English. Breeders, however, ought to study to preserve their power of successful competition by improving the breeds of cattle as much as possible. There is no doubt, too, that the cattle disease has most seriously affected the interest not only of the agriculturists, but of all classes in the kingdom, who will feel most severely the pressure which will have to be put upon them if the plague be not stayed. I was chosen as one of the commission to inquire into the nature of the cattle plague. That commission first met at the beginning of October, and it proceeded with its investigations without delay. We examined into the earliest cases, and had the evidence of those who first brought the subject under the notice of the Government. We very soon came to the conclusion that we ought to recommend the Government to take measures to check, if possible, the spread of the disease in the country. But we had to remember that this country was a very different one from those of the Continent, and we therefore did not adopt the details of those foreign expedients, but recommended some modified measures to the consideration of our Government. Our first report was a preliminary one, and referred almost solely to measures of sanitary police. We had to consider the different theories which were urged upon us as to the introduction of the disease into this country, and its origin. As to how it came or how it originated I say nothing; but speaking individually as to the spread of the disease in England, it is my opinion that it was first found in the Metropolitan market, and wherever it has been found in the country it has been carried thither by beasts from the Metropolitan market or in immediate communication with it. Wherever a strict cordon could be maintained to prevent importations, those districts have been kept free. I adduce, for example, the cases of Ireland and the Scotch Highlands. In those cases, and in all similar ones, the cattle have escaped. In France the same thing has happened. It has broken out once or twice, but a strict isolation has been maintained, and it has not spread. There is a case in point just now in Paris. The disease was taken there by some gazelles bought in London and sent to the Paris Zoological Gardens, but immediate and vigorous steps were taken, and I believe it has not gone any further. So far I have been speaking of contagion by contact; but candour compels me to go further, and say that when once the disease is introduced into a district, it is impossible to trace its spread in every case to actual contact. I believe it never breaks out spontaneously, but when it is once established its spread seems to be due to atmospheric causes. I know that in admitting that I lay myself open to the question—Why, then, do you propose measures of restriction? That may be a very proper objection; but what we want to do is to localise the disease as much as possible. If we have a runaway horse we can do nothing with him; but when we get him to moderate his speed we are again able to manage him, and perhaps prevent him from starting again. And so, if we can but once localise this disease, we may be able to do something with it—we get a breathing time to seek for a cure, or perhaps find the means of stamping it out altogether; but so long as it is raging through the country at such a terrific rate, we shall not be able to stop it. At first there was a disposition to think that the Commissioners took too serious a view of the matter, but since then most people have come round to our conclusions. The disease increased rapidly from the 14th of October to the 2d of December; and the number of places at which cattle have been attacked within three weeks advanced from 3398 to 5118. That really shows a terrible state of things, and by this time no fewer than 30,000 cattle have perished by the plague. Although there has been much discussion everywhere, all the views of the Commissioners have been confirmed, and they do not wish to alter the recommendations they offered to the Government one tittle. There is one other point which I should like to allude to, and that is the treatment of the disease. Much wonder has been expressed that the Commissioners have not recommended some system of treatment; but the truth is they came to the conclusion that they ought not to recommend any treatment unless they knew it to be really good. We should have been mere quacks to recommend this or that unless we knew it was really good. We asked our medical colleagues to look at the subject, and they are now doing so. Various eminent scientific men have taken different branches to investigate: they will shortly report the results to the Commissioners, and I trust we shall soon be able to make some useful recommendations as to treatment. Indeed, I believe this will eventually prove to be the most useful result of our labours. There are already discoveries made which will throw considerable light upon the pathology of the disease, and may possibly lead to the discovery of a cure. And I must mention, as a proof, that we are earnest in our endeavours to find out the best mode of treatment, that experiments are now proceeding as to the suggested homœopathic treatment. I am not a homœopath myself; but every proposition offering a fair chance of success ought to be tested. The experiments now going on in Norfolk are under the inspection of a skilful veterinary surgeon, and I shall be glad if they can make a satisfactory report. I am in favour of homœopathy, or any other "pathy" which will give us a cure for the disease. The commercial aspect of this question is somewhat remarkable. I was surprised to find what a large trade we do with Holland in the matter of stock. Out of 230,000 cattle imported, 144,000 came from Holland. I am, therefore, truly sorry to say that in Holland they are suffering most severely from the disease, and that the country is in a bad condition. We have had a report from the Dutch Commissioners now sitting with reference to the plague, and it is most unsatisfactory. They say that in the districts isolated the disease is increasing, and that during the last three weeks they have had many more cases. The only crumb of comfort is that the cases are less severe; but still it seems to be apprehended that the disease will not disappear till all the animals are carried off. The report complains of the gross carelessness of owners of stock, who are reckless about what they buy, who bring fresh cattle into infected sheds, who do not disinfect the manure of diseased animals, but spread it about their fields, and thus sow broadcast the seeds of the contagion all over the country. This ought to be a warning to us to practise every possible care. I believe this disease is as catching as the small pox where there is no vaccination; and we ought to nurse and attend to the animals suffering from it as we would nurse our households, if the small-pox were raging in the neighbourhood. There is one fact worth mentioning. The Dutch animals do not suffer from the disease with the intensity that English animals do; and even in our London dairies by far the greater number of those cured are Dutch. It has also been observed in Russia that if stock there has any cross of English blood, they suffer more than those which are purely native. I fear we have a dark future before us; but I really do not see what can be done except isolating our cattle as much as possible, and of getting, if possible, one uniform system of action throughout the country. The disease ought to be combated in its very earliest stages, and cleanliness and care will, I think, be found more effective than any medicine we yet know of.

THE CATTLE PLAGUE.

1. The following returns were issued yesterday:—

These returns do not profess to give the total number of cases which have occurred in Great Britain, but only those which have been ascertained from the official information received at this office from inspectors, whether appointed by the Clerk of the Council, or by the local authorities. The divisions of England are those of the census. Column 1 only records the cases reported as having commenced during the weeks indicated by the headings, "back" cases being added to column 2.

Census Divisions.	1 Number Attacked.												2 Total Reported Cases from Commencement of Disease.				
	Week ending October 21.	Week ending October 28	Week ending November 4.	Week ending November 11.	Week ending November 18	Week ending November 25.	Week ending December 2.	Week ending December 9.	Week ending December 16.	Attacked.	Killed.	Died.	Recovered.	Remaining.
1. Metropolitan Police District ..	194	158	49	77	216	75	44	129	43	7013	3056	3122	268	567
2. South Eastern Counties ..	154	205	74	137	92	71	104	55	70	4416	1431	2399	343	643
3. South Midland Counties ..	94	290	74	345	211	392	510	627	745	4742	1257	2679	219	587
4. Eastern Counties ..	183	335	124	214	212	106	189	245	390	5732	2120	2761	357	514
5. South Western Counties ..	11	3	2	26	39	18	23	71	101	482	126	248	15	93
6. West Midland Counties ..	9	31	81	85	34	78	102	84	148	1424	376	726	117	395
7. North Midland Counties ..	32	18	21	57	63	95	78	171	818	1188	508	1718	66	200
8. North Western Counties ..	39	42	43	129	143	216	423	673	945	3174	324	2225	912	200
9. Yorkshire ..	39	113	108	234	453	726	938	1037	1202	6954	490	4133	715	1616
10. Northern Counties ..	86	34	79	43	70	63	119	138	109	1197	443	530	93	138
11. Monmouthshire and Wales ..	60	35	52	27	96	185	116	245	287	1446	82	998	136	240
12. Scotland	828	606	1058	1206	1040	1582	1191	1881	1701	17,588	2951	9703	2129	3315
	1729	1873	1765	2580	2669	3610	3828	5376	6054	55,386	12,380	29,700	4689	8620

2. Permission of Fat Cattle Traffic.—Amongst the numerous suggestions now rising uppermost with regard to the Cattle Plague, the following are the most prominent:—

1. The stoppage for two months or more of all fairs, markets, sales, and shows, so far as cattle are concerned.
2. The absolute stoppage of all movement of live cattle, whether fat or lean.
3. Indemnity for those persons whose cattle have died from the plague, or been killed in consequence thereof.
4. Government insurance.

The majority of those interested in the subject agree as to the propriety of the first proposition, but Government, dreading the difficulty as to the supply of meat, are not disposed to assent; principally because it is unwilling to shut out fat cattle from Islington market.

The Smithfield Club, whilst recommending the extreme measure, has not scrupled to hold its meeting, and even to allow the animals to be sent away to any parts of England. Probably it might be well in certain defined populous places to allow fat cattle to be sent on condition that they are to be slaughtered within seven days. Supposing, however, this proposition to be accepted with or without the exception referred to, let us consider the second proposition—the absolute non-removal of cattle from place to place. The advocates of this extreme measure mostly reside in districts where the cattle plague exists, but they are equally desirous of extending the ban to districts not affected by the plague, somewhat on the principle of the fox that lost his tail, and they argue that the lesser evil should be submitted to to get rid of the greater, and exclaim, "What is temporary inconvenience compared to the losses from the cattle plague?"

In districts (and by a district we mean a petty sessional division where the plague exists), the non-removal of animals, whether fat or lean, may be very desirable, and is pretty well secured by recent measures; but as the divisions free from disease are far more numerous than those suffering under it, we question very much if the plan so glibly recommended of sending the butcher to the beast instead of the beast to the butcher is the better plan of the two. Let us see how it operates in a healthy district, by which we mean one in which there has been no case for the last two months. First, then, let us consider the butcher to the beast plan. A grazier has half a score of fat beasts fit for slaughter, and the food being exhausted and the money wanted he informs his butcher, Mr. A., who drives over a distance of 6 or 7 miles to look at them, and probably takes a man with him. After a great deal of higgling about price (each thinking the other wants to take advantage of the plague to enhance or reduce the price), the bargain is made, and the time fixed for slaughtering the animals, which must not be removed alive. Of course they are not all wanted at once, but probably on three or four different occasions. Two men are sent over for the purpose of slaughtering, and of course, as the meat requires to be hung some time, another visit with two carts is required to bring home the carcases. Thus there are seven journeys made to the farm, involving the travelling of 100 miles before these 10 animals are converted into human food. The farm and of course the herd of cattle are exposed to the visits of the men on all these occasions.

If there is no disease for many miles round, the only effect is that the beasts must be bought under the value, or the public must pay a much higher price than usual, in order to reimburse the butcher for his extra expenses. But supposing that the disease exists some 10 miles off in another direction, and that a number of beasts are slaughtered for fear they should become affected by the disease to which they may have been exposed. The same butchers as in the former case are probably called in to slaughter the animals, and probably convey the infection in their clothes, in one of their repeated visits to the farm from which the first ten beasts came. So that we contend that besides the increased expense and inconvenience, the dange of infection is greater from the butcher to the beast plan than that from the beast to the butcher, for as in the latter instance the animal passes to that bourne from whence no traveller returns, no injury can possibly arise. A tight cord is all very well, but if it snaps from overtightness the security is less than before. Then, again, take the case of breeding heifers. A farmer with a lot of dairy cows is leaving his farm or has no keep for them; although the district is quite healthy, he must not sell, and if a poor man, he is ruined. Another farmer has a large number of in-calf cows and heifers at straw-yard on an arable farm where there is no dairy. As they calve they are sold to replenish the dairies of others. But no! although all the surrounding districts may be healthy, the one must not sell, and the other farmer must not buy; the cows must not go where they are wanted, but must stay where they are not wanted, to the infinite detriment of both farmers, and the injury of the commonwealth, without the slightest influence on the extinction of the rinderpest. We leave the subject to the common sense of our readers, and in our next we will consider the two propositions—Indemnity and Government Insurance. *W. C. S.*

3. Huntingdonshire: *Tilbrook, Kimbolton.*—That dire disease, the cattle plague, having baffled th skill of our professional men, any treatment which proves successful should, I think, be made public. In

this village we have been visited severely, a neighbour of mine having lost 28 out of 30 beasts. I have lost 12 beasts out of 18; only one having as yet escaped the disease. The last three cows that were taken ill, I had bled, and two of them have recovered. One of the three, which has recovered, I had not the slightest hopes of, but after bleeding she rapidly got better. I have had nine calves taken with the disease, to all of which I gave Day, Son, & Hewitt's Gaseous Fluid, but only three recovered. Should any more cattle fall with the disease upon any of my farms, I shall certainly bleed them, and give starch in their gruel. *Thomas Smith.*

AGRICULTURAL EDUCATION.

On Middle Class Education, having reference to the Improvement of the Education of those who depend upon the Cultivation of the Soil for their Support. By Mr. R. Duke, 14, Burton Crescent.

(*Continued from* p. 1162.)

These, then, are the sciences by which agriculture may be assisted, and from which its advancement may reasonably be expected. Science has been said to be shortened experience, and as such, in all that bears upon his profession, it has an interest for the practical man. But attainments in science will not teach agriculture. The chemist is no more necessarily a farmer than the veterinary surgeon or agricultural engineer. Agriculture is an art to be acquired by observation alone. The late Lord Ducie expressed this truth forcibly by saying, that a young man would never be a farmer unless he could enjoy sitting for two hours on a hurdle to look at a sheep. Practical observation should be the foundation of the farmer's education; on it will depend much of his subsequent success. To judge of the rent of land and of its capabilities—of the proper time and state of the weather for ploughing, for sowing, and all the other operations of the farm—to know the kind of seed and crop best suited for his land, the tilth and condition of his soil, the time and mode of harvesting and disposing of his crop, and, above all, to be a judge of stock, is not to be attained from scientific information, but must be acquired in the field by personal observation. This practical knowledge must be obtained, and it should precede the acquisition of scientific information. The young farmer must find the means of acquiring it, and if he is a farmer's son, he has upon the farm on which he has been brought up, the required opportunity. That his practical knowledge may be advanced, we have seen, by means of those sciences which bear upon agriculture, and therefore their acquisition is further necessary. But it has been objected that this scientific knowledge may render the practical man less practical; but is there anything antagonistic between them? Is this found to be the case in other professions? The engineer, for instance, is eminently a practical man, but at the same time requires to possess great scientific attainments. If this profession is thought to be too limited and exceptional to illustrate this point, that of the sailor is an instance of one of a more common character. Perhaps there is no calling or business in life of so practical a nature as that of those who follow the sea. Bound at an early age to their profession, seamen have little opportunity of acquiring education, and their subsequent mode of life presents few occasions for remedying the deficiency. A certain amount of science, however, being required in navigating a ship, the Board of Trade has of late years made it requisite that all masters and mates of foreign-going ships shall possess a certificate, showing that they are duly qualified in the art of navigation; this certificate is granted upon their passing an examination, the requirements of which in the case of a second mate are as follows:—"He must be 17 years of age, and have been four years at sea; he must write a legible hand, and understand the first five rules of arithmetic, and the use of logarithms; he must be able to work a day's work complete, including the bearings and distance of the port he is bound to, by Mercator's method; to correct the sun's declination for longitude, and find his latitude by meridian altitude of the sun, and work such other easy problems of a like nature as may be put to him. He must understand the use of the sextant, and be able to observe with it, and read off the arc."

In addition to this, an examination in practical seamanship. For a first or chief mate still higher qualifications are required. He must be 19 years of age, and have been five years at sea. "In addition to the qualifications required for a second mate he must be able to observe and calculate the amplitude of the sun, and deduce the variation of the compass therefrom, and be able to find the longitude by chronometer by the usual methods. He must know how to lay off the place of the ship on the chart, both by bearings of known objects, and by latitude and longitude. He must be able to determine the error of a sextant and adjust it, and find the time of high water from the known time at full and change." The qualifications required for a master are still higher.

Here, then, we have a considerable amount of scientific requirement from men whose education has been of the most practical kind, and who are not allowed to rise in their profession without these scientific attainments.

Science, then, is not antagonistic to practice, nor is its acquisition incompatible with practical ability. The case of the agriculturist is no exception to this rule. The best farmer is not necessarily an uneducated man. An extended literary education he may not require, but a certain amount of scientific knowledge he ought to possess. How this knowledge is to be obtained we shall further see, but may, in the first place, inquire of what value its acquisition will be to its possessor. Will his attainments, if examined into and certified to by the Royal Agricultural Society, act prejudicially to him, or as a recommendation in his favour? Would he be considered to have attained a competent knowledge of his business, or merely to have acquired some superfluous information? Would he be looked upon as a man who was likely to get on in his profession, or as one of whom nothing certain was to be expected? No doubt it may be answered that this would be seen in the result. But this result would depend upon his opportunities. Agriculture is not a business in which a man can embark at will. It is not a calling which can be followed independently of the consent of others. In order to get a farm, as a tenant farmer he must deal with his landlord, as a land steward with his employer. It will therefore be necessary to solicit their sympathy for any educational scheme. If they should look with disfavour upon agricultural science, there will be little inducement to study it. A young man, previous to obtaining a farm, is not likely to do so if it is to be prejudicial to him. On the other hand, when it is obtained, he is, as it were, settled for life, and he has no object in acquiring information of which he does not know the value, even if the daily avocations of a farm admitted of it.

Among the numerous landed proprietors who are supporters of the Royal Agricultural Society, there are doubtless many who are interested in the welfare of agriculture. Could their assistance be enlisted in this matter? As landlords it must frequently happen that they are in want of good tenants, who, besides all the ordinary qualifications, might be able to bring extraordinary qualifications in addition. Would they be disposed to consider the attainment of scientific knowledge as a recommendation, and favourably to regard the claims of those who had acquired it? Young agriculturists might thus be induced to come forward and add to their practical knowledge an acquaintance with those sciences which may assist it. With the view of promoting this object the following suggestion is made: Let the Royal Agricultural Society annually hold an examination at which all who are candidates for her diploma or certificate of competence may be examined. Of this examination we shall speak more particularly, but to lead candidates to come forward some inducement must be held out. Could there be any inducement like the prospect of a settlement in life? If the Society were able to announce that the proprietors of a certain number of farms had communicated their intention of conferring them upon holders of the Society's diploma, what an incentive would be thus created! And this need involve no sacrifice on the part of the landlord. He is desirous of obtaining a good tenant, and is disposed to consider the certificate of the Society as an indication of competence on the part of its possessor. Let then the diploma of the Society be an introduction for the young tenant to his future landlord, and where both parties are mutually satisfied, a bargain may be concluded, and the farm let in the usual manner. Of course satisfactory evidence must be afforded as to the possession of the necessary capital, and the young tenant need not expect any further favour than the best bargain he can make. As a qualified agriculturist he is competent to enter upon a farm, to judge of its capabilities, and of the rent that he should offer. In offering this general idea it is not necessary to go into detail, but where the candidates were numerous, and the openings few, they might be offered to them in succession according to the rank obtained in the diploma examination; or all might be considered candidates equally, and each allowed to send in his application for the farm he might desire to obtain. A landlord would be thus enabled to consider each case, and select the tenant he thought most suitable. In another way, also, might this suggestion be carried out, and perhaps with more satisfaction to both parties. Let a landowner select his own tenant, and offer him a farm if he succeeds in obtaining the Society's certificate. In this way he would obtain a tenant who was eligible, and who was also possessed of the qualifications necessary for improved agriculture. In like manner also might the Society's diploma procure situations as land-stewards or bailiffs for those who were unable, or did not intend, to follow farming on their own account. In the ways suggested, then, might value be given to an agricultural diploma, so that it would be regarded, not merely as an honour, but as leading possibly to substantial advantage.

The Society might also institute a series of prizes of their own, as the reward of successful examination for their diploma. The number and amount of these might be matter for consideration, but 50*l.* might well be bestowed for the undoubted honour of standing at the head of the examination list—of being, in fact, a senior wrangler in agriculture.

Thus, then, might the youth be assisted and stimulated, who, intending to make agriculture his profession, had come forward to receive the Society's diploma. It is as this diploma has a practical value that it will be sought for, and valued when obtained. The Highland Society have had to lament the small number of candidates for their diploma, which shows that apart from more substantial considerations, the honour of scientific acquirements is not a sufficient inducement. Let, then, the Royal Agricultural Society assist with its great influence in giving a practical value to its certificate. It is thus that the knowledge it is the means of diffusing will be put in practice, and the young farmer enabled to practise what he knows. Knowledge without opportunity is of comparative inutility, and it is in proportion as this latter is afforded, that its value becomes apparent, and that a stimulus is furnished for its acquisition.

(*To be concluded next week.*)

Home Correspondence.

Water Supply.—In those districts of England where surface springs and constant streams do not abound, or where water has to be obtained from wells of great depth, a supply of good water in reasonable abundance is often very deficient in the cottages of the labourer. To overcome this great need, each cottage or pair of cottages should be supplied with an underground tank, in which the surplus water falling on the roof during periods of abundant rainfall can be preserved for future use. The advantage of these tanks has been so beneficially felt in this village during the dry seasons of the past few years, that I venture to give the result of my experience for the benefit of those who cannot help themselves without the provident care of the owner of the cottage or farm. Cottages should be tiled or slated, and iron or copper guttering fixed under the eaves which will convey the rainfall, first into a galvanised iron cistern, containing from 50 to 100 gallons. This will supply the daily wants of a family in wet seasons without recourse to the pump. The overflow of these cisterns must be conveyed into the tank, which is underground and covered over with an arch of brick. No air or light should be admitted into these reservoirs. The water is preserved in greater sweetness and coolness than when exposed to the atmosphere. The method of building these tanks is first to dig a hole of the required size, then build walls of stone, brick or flint, about 12 inches thick, fill them well in with grouting or concrete against the earth, and make a concrete bottom of broken flint or brick; cover in with an arch of brick, one or two courses in thickness, according to the strength required; leave a man hole at the top, and two holes at the ends, one to admit the water, the other for the overflow and for the admission of the lead pipe of the pump. After the walls have become tolerably dry, perhaps in a fortnight, coat the walls and bottom with a covering of good Roman cement, or with two or three courses of tiles laid in good grey lime mortar; all the work requires to be carefully and substantially done. In less than a month the tank will be ready for use. The water where admitted should not run down the walls, but empty itself through a piece of iron or earthen pipe clear of the wall. The size of these tanks varies from 30 to 300 hogsheads, but one of 50 hogsheads will be sufficient for a pair of cottages. If the average rainfall of a district be about 30 inches, the quantity of water which would fall on the roof of a pair of good-sized cottages may be estimated at about 200 hogsheads. This water will be sweet, cool, and wholesome, will require no filtering process, and is better than spring water for all household purposes, for brewing, for tea, and cooking, and especially for washing, as without soda it will save more than half the soap. A tank of 50 hogsheads will require to be 12 feet long, 6 feet wide, and 6 feet deep inside measure. The hole will require to be dug out 14 feet long, 8 feet wide, and 10 or 11 feet deep, thus allowing the arch to be entirely underground. To build such a tank, there will be required 18 tons of flints, 15 tons of sand and coal ashes, 10 quarters of lime, 5 casks of cement, and about 600 bricks for the arch if only one brick in thickness. The cost of digging out will be about 30*s.*, or 40 yards at 9*d.*, and the bricklayer's work about 5*l.*, without reckoning the cost of the carriage of materials. The tank can thus be built for about 14*l.*; a galvanised cistern 36 × 30 × 24 inches would cost 50*s.*, and the guttering and pump about 6*l.* For the sum of about 22*l.* two families can be supplied with excellent water; when wells vary in depth from 100 to 300 feet, the labour of drawing water is very great, and falls chiefly on the man on his return home from a hard day's work. With a tank the wife or child can pump as the water is required. A cottager would cheerfully pay an additional rent of 10*s.* for such a supply of good water. *Anon.*

The Champion Wheat Crop.—Will you kindly give insertion to this letter? As Mr. Hallett has given you an account of his 7 acres of Wheat, it will, perhaps, not be out of place if I say a word or two about mine, now that Mr. H. has finally refused to go on with the trial. He tells us that he has grown 11 sacks an acre; now, all that have seen my crop pronounce it to be the largest they ever saw. I paid one guinea an acre for cutting it, and my workpeople will make an affidavit before a magistrate that there were sacks an acre more than Mr. Hallett states his crop to be, and what is more, it is worth shillings per quarter more than his, and half as much again as his Pedigree Nursery. I think I have pretty fully proved that Mr. Hallett cannot show us how to double our crops yet; Mr. Hallett reckoned without his host when he challenged the United Kingdom to produce a field of Wheat equal to

ing. The fact is, and I have stated it before, that there is no modern system that will beat the best ancient one. Mr. Smith, of Woolston, says I am a bold man when I say so, and I have proved myself still bolder when I accepted the challenge of one who says he has grown 13¼ quarters of Wheat an acre, and therefore I think I am fully entitled to wear the belt, and I shall wear it for a good long time before those who sow less than a peck an acre can wrest it from me. What say you practical farmers? I remain [therefore] *the Champion Wheat Grower of England, Charles Bates.*

The Best Rotation for Light Land.—The past two seasons have been unfavourable to the production of corn on most light-land farms; consequently the returns on such farms have been below the average of a series of years. On such soils the four-course system of cropping has long been practised, and was, and still is, considered by many practical farmers and good managers the best rotation for such soils. Within the last few years, consequent on the low prices of cereals and the high prices of store stock and butchers' meat, various other rotations have been tried in different localities, and with various degrees of success. I trust a comparison of the different methods may not be uninteresting to the reader — 1st, the five-course. 1, Wheat; 2, roots, fed off with sheep, which now generally receive an allowance either of corn or cake; 3, spring Wheat, Oats, or Barley; 4, Barley or Oats, sown down with seeds; 5, seeds, generally grazed with sheep, eating corn or artificial food. The only practical objection to this system is the occurrence of two white crops in succession on weak soils; it is found necessary to spend from 20*s.* to 30*s.* per acre in the purchase of artificial manures for the second crop, in order to insure an average return. The great merits of this system principally devolve on the more general certainty of a full crop of Clover or young seeds; a merit of no inadequate importance when we consider that the loss of the seed crop does not end with a single year, but exerts a deteriorating influence on the whole crops throughout the rotation. Another five-course is sometimes practised—1st, Wheat; 2d, roots, eaten on the ground as before described; 3d, Barley, Oats, or spring Wheat, sown down with Clovers or mixed seeds; 4th, seeds, grazed or mown; 5th, seeds grazed. Under the existing prices of corn and meat we think this cannot fail to be the most profitable rotation for many of the weak sandy soils of the country. The seeds if grazed both years, and artificial food used at the same time, the manurial and productive powers of the land would soon become greatly increased; it would also be more self-supporting, and unless as a stimulant to the root crop, the purchase of artificial manures would be unnecessary. The expenses of cultivation would likewise be reduced; thus, for instance, on a farm of 200 acres the reduction of horse and manual labour would effect a saving of from 80*l.* to 100*l.* a year, and though the average of corn grown yearly would be less by 20 acres than that of the four-course, yet from the superior condition of the land nearly an equal gross produce might be expected. The extent of roots would be less by 10 acres, and that of the seeds increased by 30 acres; a sufficient supply of green food could thus be produced on a farm of 200 acres, equal to the keep of from 300 to 400 sheep throughout the year. The six-course rotation is now obtaining more general favour; 1st, Wheat; 2d, Oats or Barley; 3d, Roots; 4th, Barley or Oats; 5th, seeds, grazed as before; 6th, seeds grazed. Here we have the same extent under cereals as in the four-course system, but lose 16⅔ acres in roots, and gain the same extent in seeds, so that the same number of stock cannot be kept when the land is cultivated on the six-course that it will support when under four or five-course with two years seeds, a fact which was never of greater importance than at the present time. *G. Murray, Elvaston Castle, Derby.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

Disinfectants.—The following is an abridged report of Dr. Voelcker's Lecture on this subject on Dec. 12.

He first spoke of disinfectants, their mode of action, and their comparative efficacy; next, the application of disinfectants to particular purposes; then of preventives. It would be well if the word disinfectant were confined solely to those solid, liquid, or gaseous materials which possessed the power of disorganising or destroying all matters capable of reproducing disease in animals. Frequently the word was applied to substances which, though they removed disagreeable smelling gases and vapours, did not destroy that which produced them. Properly these were deodorisers, and not disinfectants. The application of chlorine or nitrous acid not only removed the smell proceeding from fæcal matters, but completely broke up the organic matter and resolved it into ultimate products, comparatively harmless. Chlorine and nitrous acid, therefore, had to be considered, not merely as deodorisers, but also as true disinfectants. The means used for the purpose of preventing or retarding putrefaction, which give rise to foul odours, were often regarded as disinfectants. If, however, a disinfectant was that which broke up the constitution of organic matter and destroyed it altogether, the same term was inapplicable when applied to substances which, instead of hastening the destruction of organic matters, preserved them from disorganisation and destruction. Properly, substances which retarded or prevented putrefaction were antiseptics. Thus, carbolic acid, creosote, and other preparations of tar, which, in minute quantities, were capable of preventing putrefaction, were true antiseptics, and the very reverse in their action on organic matter to disinfectants, such as chlorine and nitric acid. He would call disinfectants those substances which would destroy all matters capable of producing disease; deodorisers those which neutralised disagreeable smelling gases without destroying the organic bodies from which they emanated; whilst substances employed to prevent putrefaction, or impeding the putrefaction, should be called antiseptics rather than disinfectants.

The various disinfectants: chloride of lime, chlorine gas, sulphurous acid gas, nitric and nitrous acid gas, charcoal (both wood and peat), quick-lime, the caustic alkalies, earth, manganic and per-manganic acid salts, and last, though not least, fire, heat, and air. Chloride of lime, common bleaching powder, contained hypochlorous acid and lime. The acid was very rapidly destroyed; or rather it broke up very rapidly into free oxygen and chlorine, two gases which, acting upon meat and nearly all animal and vegetable matters, destroyed or burned them, and disorganised them completely. For use, 1 lb. of chloride of lime to three gallons of water. Chlorine gas, which was a still more powerful disinfectant, must be regarded as a convenient and concentrated form in which a powerful disinfectant of organic matter can be applied. For certain purposes, the disinfection of cowsheds in particular, occasional fumigation might be resorted to with great propriety. Sulphurous acid, which acted in a similar way, but not in a precisely similar manner as chlorine gas, but destroyed organic matters, might also be used for disinfecting purposes with very great propriety. He especially recommended this because it was so readily prepared. Light some flowers of sulphur; the resulting gas was sulphurous acid, and this acted as a most powerful destroyer of organic matter, and might be usefully employed in the disinfection of air and parts of buildings not otherwise accessible to bleaching powder or other disinfectants. Nitric acid might also be used for the same purpose. Pour upon 4 oz. of powdered nitre 4 oz. of vitriol, to which 2 oz. of water had been added. The mixture should be put into an earthen vessel. Nitrous acid was also rapidly developed by pouring upon 2 or 3 oz. of copper shavings half a pound of concentrated nitric acid. The mixture should be placed in a tall jar or a common basin. Wood or peat charcoal possessed a remarkable destroying power on organic substances. It had been supposed that charcoal preserved meat; but the investigations of Dr. Stenhouse had shown that charcoal actually hastened very much the destruction of flesh, meat, and all kinds of animal matter. It was very porous, and its pores were filled with condensed oxygen to the extent of eight times its bulk. We had therefore in charcoal, oxygen gas, which supports combustion, or lights fires, in a condensed and more active condition than in common air which we ordinarily breathe. Hence it was that organic matters in contact with charcoal were so rapidly destroyed. Peat charcoal might be similarly used. Where neither could be obtained, earth was an efficient disinfectant. In a similar manner, and perhaps more powerfully for some purposes, quick-lime, or caustic soda, or soda ash, acted in destroying animal matter. The soda ash of commerce appeared to be superior to quick-lime for disinfecting purposes, for the simple reason that it rapidly dissolved in water, and could enter porous substances—like wood, which could not be readily touched by quick-lime. Moreover, soda was a powerful detergent; it was a good washer, and removed what would not be removed by bleaching power. Condy's Disinfecting Liquid was a solution of much utility as a disinfectant; but he was afraid that for the purposes of the farmer it would scarcely be applicable. In permanganic acid we had oxygen in an active condition operating as a powerful destroyer of organic matter. Fire, air, heat, steam: heat at 250° Fahrenheit destroyed readily infectious poison. Boiling water, and, better still, high pressure steam, completely disinfects meat from diseased animals, and hence might be used for boiling down carcases of diseased animals and utilising the fat.

Of deodorisers, perchloride of iron in solution, sulphate of iron, sulphate of zinc, nitrate of lead, and chloride of zinc were mentioned.

Antiseptics, or preventers of putrefaction, were creosote, carbolic acid, and several most powerful disinfectants prepared from coal tar, among them being McDougall's and Tomlinson's Disinfectants.

For all the purposes for which a farmer or dairyman might require to have recourse to disinfectants, his choice of materials might well be confined to chloride of lime, quick-lime and earth, to which might perhaps be added, fumigation with sulphur and chlorine. Soap or soda, plenty of water, a copious supply of fresh air, were the most important disinfectants on which to rely for the disinfection of sheds; for although certain artificial disinfectants were necessary for the perfect destruction of the infectious matter, yet the use of these should always be preceded by the free use of soft soap or soda ash and water, and be followed up by fully ventilating the place two or three days before putting on the premises healthy stock again. The discharges from and the skins of diseased animals were the principal and primary seat of the infectious matter of the cattle plague. Therefore, manure which the cattle have made should be disinfected; every part of the shed they had used should be well scraped and washed with soft soap and water, or, better still, with 1 lb. of soda ash to a pail of water, followed by cold water. The pavement should be taken up and cleansed; a hot mixture of lime and water, and lastly, chloride of lime, should be used, and the pavement should be relaid in a fresh bedding of concrete; the floor should be mopped over with 1½ lb. of chloride of lime to a pail of water. The infection might be carried into the walls and rafters. In such case he recommended fumigation with sulphurous acid, or chlorine gas, or nitrous acid. All ventilators, windows, and apertures must be closed, and everything prepared for the fumigation. For a copious supply of sulphurous acid for a cowshed, ½ lb. to 1 lb. of sulphur burned on the floor on three or four places would be sufficient. The windows and doors of the cowhouse must be well closed, for otherwise the fumes would create a nuisance in the neighbourhood. This, indeed, was the objection to employing chlorine or sulphurous acid gas. In the country fumigation presented no difficulty: but in a densely populated locality it was not easy to apply a remedy which would make the whole neighbourhood cough and run away for safety, which would be the case if the sheds were in a dilapidated condition, or could not be effectually closed. After the fumigation had been carried on for 20 hours with closed doors and windows, the shed should be ventilated by opening the windows and doors, and the walls be whitewashed. If the floors were taken up, cleansed, and relaid, as he had described, and the shed afterwards fumigated and whitewashed, the disinfection would be as perfect as it could be.

As to the disposal of the manure of diseased cattle, such manure should not on any account be allowed to be used with other manure. Any hay or straw left by the diseased cattle should be burned at once. The manure that would have to be removed should be covered over with quick-lime. For a ton of manure, or a good cartload, he would take not less than 5 cwt. of quick-lime, previously slacked. It would be useless to substitute a small quantity of chloride of lime. The manure should be carted into the field, and put with earth in alternate layers, ending with earth. As an extra precaution he would cover the heap with peat charcoal or quick-lime. In three or four months there would be a valuable compost heap, which might be spread without any fear as to its containing infectious matter.

As to the disinfection of pastures. All that could be done was to knock about with the pitchfork the droppings of cows, and then apply a dressing of lime at the rate of 100 bushels to the acre. In two or three weeks, provided rain had fallen in the interim, stock might be safely placed in such pastures.

Agricultural implements and utensils should be cleansed with soft soap and chloride of lime, half a pound to a pailful of water.

As to preventives. Were there any means by which the disease could be prevented from extending? There should be perfect isolation of diseased stock; perfect destruction of the infection by fire, chloride of lime, sulphurous acid, or other disinfectants. Inasmuch, however, as artificial disinfectants, if powerful, cannot always be employed, because themselves destructive to animal life, we were practically thrown on perfect isolation as the only means at present known of safety from the spread of the cattle plague.

Colonel the Hon. W. P. Talbot, who has a large dairy at Sudbury, said he had had during the last five months 100 cows, which had been attacked by the cattle plague last Thursday. When the plague was first heard of, being of opinion that charcoal would be a good antiseptic, he gave his bailiff orders to administer to each cow a quarter of a pint of prepared charcoal daily, and an ounce of nitre dissolved in a pint of cold water each other day. His bailiff, a practical man, who had for 12 years had the charge of 300 cows, told him a few days afterwards that the unpleasant odour of the cows' breath, which he had experienced in drenching them, had disappeared. He also used very largely Burnett's Disinfecting Fluid, which he believed was chloride of zinc; he used it freely in the drains, with a watering pot, and poured it about the sheds and mangers. He also lime-whited the buildings. The result was that the sheds were perfectly inodorous, although the smell of a cowshed was generally discernible as far as 200 or 300 yards off. The animals were bought at farm houses, and not at fairs and markets; and when they reached home they were washed with Burnett's Disinfecting Fluid. They were kept in the most perfect isolation that he could devise; but yet, after all, the horrid plague at last attacked him. It attacked an old cow; not one of the new ones. He had read everything that had been written on the subject; and by chance he heard of a medicine, called Worbena. On Friday night last he had 11 cows suffering from the plague. One of them he treated homœopathically, and she died. The other 10 he treated with the Worbena. To-day six of them had perfectly recovered, and one yielded 19 quarts of milk a day; and they were ravenous for food. The proper course was to watch every animal, and the moment they found one the least off her food treat her as if she had the plague. He would administer an aperient, 1½ lb. of treacle, 2 or 3 ounces of salts, 2 table-spoonfuls of sulphur, and a bottle of Day's Fluid; he would allow that aperient to work for 12 hours, and then administer the Worbena. The result of such treatment was most remarkable. If this did not cure the animal in two days, they should adopt further measures. He would cover the animals, as recommended by Mr. Graham, with three wet rugs and three dry ones, to produce perspiration, and if this did not succeed, he would proceed thus—he had a cow under treatment of this sort—he had her stomach rubbed with turpentine and mustard, two setons placed in the stomach, and the whole covered with a hot poultice. What the result would be

he did not know. He had thought it right to state what he had done; and he believed that there were few who could say as he could himself, that he had saved six cows out of nine.

Smithfield.—We must delay for a week the promised report of the Implement Galleries at the late Show of the Smithfield Club. The following is the Report of the Council laid before the General Meeting of the Club at its late Annual Meeting, and then adopted:—

The Council has held three meetings during the year, which have been well attended, especially the important one on the 1st November last.

The following subjects, in addition to the ordinary routine business, have had their careful attention:—

I. The payment of a fee to the Stewards for their attendance at the Show, as it involves their being in London several days. The Council resolved that they should receive a fee of 10*l.* each.

II. The preparation of the Prize Sheet for the present Show, and the suggestions that had been made relative to the ages of animals—the rules of competition and new classes. Various prizes have been increased in amount, and the condition of the classes adjusted, so as to establish a class for Kentish and Romney Marsh sheep, and a distinct one for any other long-woolled sheep not qualified to compete in any of the other divisions specified.

The Council resolved to offer a Silver Cup in lieu of a Gold Medal for the best pen of pigs. And also to give a Gold Medal to the breeder of the best ox or steer, and to the breeder of the best cow or heifer in any of the classes, in lieu of the Silver Medal, as hitherto; also that there be three Butchers' Cups instead of one, viz., 20*l.* to the largest purchaser of Beasts, 15*l.* to the largest purchaser of Sheep, 10*l.* to the largest purchaser of Pigs.

The rules of the Club respecting fines for the non-exhibition of animals entered have been considered and amended.

The Implement Committee appointed by the Council have amended the regulations for the exhibition of implements, and for the management of implement galleries during the exhibition.

III.—The Council deemed it their duty to take into their most serious and earnest consideration the alarming aspect of the cattle plague, and felt that under existing circumstances it became their duty to take unusual and exceptional means in order to lessen, as far as lay in their power, the risk there would be of animals sent to the Show becoming infected. After patient and careful consideration they came to the following resolutions:—

1. That the date of the Show be altered to Monday the 11th of December (instead of Monday the 4th), thus bringing it a week nearer to Christmas than was originally fixed.
2. That no beast, sheep, or pig that has been exhibited at any show within one month previous to the Smithfield Club Show, be allowed to enter the Agricultural Hall.
3. That each Exhibitor be required to produce a Certificate from a qualified veterinary surgeon, showing that each animal is free from the rinderpest, and has not been on the same farm where infected animals have been within 21 days previously.
4. The Council appointed a Committee to make arrangements respecting disinfected conveyances in which animals for the Show may be carted from the railway termini in London, and to communicate with the railway authorities in reference to the conveyance of animals on their respective lines.
5. That every animal shall undergo an inspection on its arrival at the Hall; and that the Royal Veterinary College be requested to make arrangements for the constant attendance of Veterinary Inspectors.
6. That, with the concurrence of the Agricultural Hall Company, the Show shall not remain open so long as usual, and that it shall close on Thursday evening instead of the Friday.

A Circular was forthwith sent to every Exhibitor, informing him of the above decisions, and the same were made public immediately through the London press and the agricultural journals.

The Council have to express to the Directors of the Agricultural Hall Company their thanks for the ready and cordial manner in which they have acceded to the wishes of the Council in this matter, involving as it does the loss of payment for the admission of the public for a whole day.

The Council have further to express their acknowledgment to the Governors of the Royal Veterinary College for the arrangements so kindly made by them to admit of the attendance of the officers of the College on the necessary days.

The Committee appointed in reference to the conveyance of Stock decided that exhibitors be recommended to send all animals in covered carts from the respective farms on which they have been fed to the railways by which they have been forwarded to London, as this precaution would materially diminish the risk of infection between the farms and the station. The Committee also strongly recommended that all animals be sent in horse boxes on the railways. The attention of the different Boards has been urgently drawn to this subject, and while it is to be regretted that the Directors of the principal lines have not acceded to the request made to them in respect to the reduced rate of charge, still it is hoped that their refusal may not have precluded exhibitors using horse-boxes.

It was resolved that no animal (cattle, sheep, nor pigs) be admitted into the Smithfield Show conveyed in any hired cattle carts, vans, &c., which had not been cleansed and disinfected under the superintendence of the officer appointed for that purpose by the Club.

The Council have to express their thanks to several of the proprietors of cattle conveyances and vans who have met the wishes of the Club in this respect. The names and addresses of these proprietors were duly sent to every exhibitor.

IV. The Council selected the judges for the present Show, and made the necessary arrangements respecting the Prize Cups, on the same principle that gave satisfaction last year, viz., that the winner shall have the option of selecting any other plate of the same value.

They also prepared the House List of members whom they recommended to succeed the eight who retire from the Council at this meeting by rotation.

V. The Council having submitted the arrangements for the annual dinner of the Club to the consideration of the Stewards, it has been decided that it shall this year be held at Radley's Hotel, Bridge Street, Blackfriars, on Wednesday next, and a special letter has been addressed to each member of the Club, and to each exhibitor, drawing attention to the desirability of a larger attendance than there has been for the last few years.

The Council have the pleasure of stating that the animals arrived at the yard in a most satisfactory manner. The veterinary inspectors, who were in constant attendance night and day, had not to reject a single animal, and it is most satisfactory to find that up to this time no case of the rinderpest has shown itself.

A special Divine service was held on Sunday evening for the herdsmen and shepherds in attendance on the animals. The Council have to return their thanks to the Rev. D. Wilson, the Vicar of Islington, for the arrangements made by him for the attendance of the Rev. J. W. Bardsley, who officiated. The Hon. Secretary reports that the attendance was most satisfactory. The Council have the pleasure of laying before the meeting the annual audited balance-sheet, which shows balances in hand up to the 1st of December, amounting to 2690*l.* 1*s.*

In conclusion, the Council lament the calamity that has fallen on this country through the ravages of the cattle plague, and they hope that the members of the Club and exhibitors will rest satisfied that the unusual course which they felt compelled to adopt was rendered absolutely necessary to protect the interests of the exhibitors themselves and the public at large. The Council, therefore, with confidence appeal to this meeting to approve the course they have pursued.

By Order of the Council.
(Signed) B. T. Brandreth Gibbs,
Hon. Secretary.

Reviews.

Rinderpest, its Prevention and Cure; and Gypsum as a Sanitary Agent. By John J. Lundy, F.G.S., &c. W. P. Nimmo, Edinburgh.

"Mr. Lundy is wild upon gypsum." He is not, however, very well pleased at our saying so. Perhaps we ought rather to have used the word "ignorant," but we fear that it would have pleased him even less. "Ignorant," however, would undoubtedly have been the right word in the right place, for, so far as its multitude of references to gypsum is concerned, his pamphlet is very much what might have been written a quarter of a century ago; and we have learned a good deal since then which goes for nothing in its pages.

Sir Humphry Davy, Sprengel, and Liebig (of 1840), are the authorities on whom its statements rest; and accordingly it is full of the powers of gypsum as a fixer of ammonia and deodoriser, as a manure of extraordinary efficiency, as a preventive of Clover sickness, as increasing the growth of wool, as of service for Barley, Oats, and Wheat, as an excellent auxiliary to the action of other manures for Turnips, as promoting the growth of Potatos with a *finer and cleaner skin*, as doubling the value of the farmyard manure to which it is added, as a deodoriser of the filthy refuse heaps of glue yards and tanneries, also of graveyards and cemeteries. We submit that the author of these assertions is fairly described as being not only wild upon his subject, but ignorant of it. As to the power of gypsum to fix the ammoniacal fumes of putrefying organic matter, which is here alleged, we should have heard of it from Dr. Voelcker the other evening, in his lecture on Disinfectants, if it had been so great. But among the many deodorisers and antiseptics and true disinfectants referred to in that lecture, gypsum was not even named. Its imperfect solubility, and the near equality of the affinities which on the one side tend to retain the elements concerned, as sulphate of lime and carbonate of ammonia, with those on the other, which would redistribute them as sulphate of ammonia and carbonate of lime, give it very inferior power as a fixer of ammonia. And indeed Mr. Lundy's assertions of the very remarkable fertilising power which he supposes gypsum to possess, are not more valuable than his idea of its relations to ammonia. They are made apparently in ignorance of all our experience since 1840. It was the fashion to write then about gypsum just as Mr. Lundy writes about it now. The chemist's dictum, founded both on the existence of gypsum in the ashes of plants, and on the unrivalled powers which it was then supposed to have as a fixer of ammonia, was then received as final. But we have learned since then to value the dicta of the mere chemist on agricultural subjects more accurately. He is required to know his agriculture as well as his chemistry before the farmer now will listen to him at all. And so he ought to be. Why should any man with fields and crops and live stock, and a long experience of the well-understood farm management out of which they enable him to pay his rent and maintain his family, go to school to the mere chemist, who can only tell him the relations of dead atoms as they are found to act on one another in flasks and tubes and crucibles. Let the latter rather come to school upon the farm and learn there what the relations are which his elements and compounds sustain to one another within the living plant and in the great laboratory of Nature. And so he gladly does; and he thus learns that which is instructive not only to himself as a man of science, but to the other also as a practical man. If any one, whether he be a chemist or a farmer, wants to know the value of gypsum in English agriculture, whether as a disinfector or manure, let him not seek it, as Mr. Lundy seems to have done, in the pages of Sprengel, Sir H. Davy, or even Liebig, but let him study it in the experience of the last quarter of a century in English homesteads and in English fields. As a disinfector it has been found inferior to many other substances. And as a general rule the addition of it to our soils as a manure has proved altogether useless. There is probably enough of it already in most soils—at all events no one uses it. And from having once enjoyed considerable reputation, it has now, we may say, altogether disappeared from the price lists of manure dealers, and it is not likely to reappear from the wild and ignorant assertions upon the subject which are to be found in Mr. Lundy's pages.

But it is not only through gypsum, and its powers as a disinfectant, that the author deals with rinderpest. That we may not misrepresent him here, we quote all he says on mangan ese:—

"In a letter to the *Leith Burghs Pilot* of 21st September last, I stated, that in attempting to account for the origin of rinderpest, it may not be inappropriate to notice that Sprengel says that in 100,000 parts of the urine of the cow, in a fresh state, ranging in a [illegible] pasture, he found one part of oxide of manganese; and it were well to investigate how that one part of manganese gets into the system. If in the field in the normal state of feeding, then it may be that by the unnatural mode of stall-feeding upon draff, sewage Grass, &c., it is deprived of food which contains manganese, or the atmosphere of the byres loaded with ammonia that it is not able to assimilate from its food enough to keep free from disease when gaseous contagious matters are in the atmosphere. If such be the case, it may be that the oxide of manganese, separated from the permanganate of an alkali (like any of Condy's Fluids) by the liberation of the ozonic-oxygen (the natural scavenger for all organic putridities), would be a cure for the disease by simply supplying the want of manganese in the system. To the healthy as well as diseased, manganese acts as a tonic like iron, and a portion of the liberated oxygen from the per-manganate no doubt combines with the hydrogeneous gases, and passes off as water, precipitating sulphur, or forming sulphate of potash or soda, in either case assisting to liberate the stomach, which might otherwise remain charged with 'wind' and undigested food, that being a great desideratum in attempting to cure the disease. Since then black oxide of manganese has been tried in Edinburgh with varied success."

Our readers will no doubt experience varied success in their efforts to understand this passage; but if Mr. Lundy were any better acquainted with chemistry than he is with agriculture, he would not have ventured to build a curious theory of rinderpest upon ".001 per cent." in one of Sprengel's analyses. There never was a poorer foundation than this, and whatever be the efficiency of any of Condy's Fluids which he connects with it, the facts are certainly altogether opposed to the author's statement of the power of manganese as a preventive. The "varied success" of black oxide of manganese as a remedy, ought, we doubt not, rather to be described as "entire failure." The author's conviction that cattle will retain their health if they receive a small quantity of Condy's Fluid daily, has been found in examples within our knowledge good for nothing. Mr. Lundy says of this practice, with an amusing confidence:—

"Were it universally adopted to pour a small quantity into all the water given the cattle to drink, and the byres daily disinfected by Condy's Fluid, and kept constantly deodorised with gypsum, to fix the ammonia and sweeten the atmosphere, the rinderpest would be swept from any locality in a few days, without resorting to the knife."

We repeat the few words which were used the other day to characterise his pamphlet, certain that they were very properly applied:—

"Mr. Lundy is wild upon gypsum. Neither crops nor animals can grow healthily without it; and its use as a fixer of ammonia would hinder disease, and might have hindered Rinderpest. This particular plague, however, is more connected with the absence of manganese from the body! Sprengel found one part in 100,000 of cows' urine to be manganese.

"'It may be that the oxide of manganese, separated from the permanganate of an alkali (like any of Condy's Fluids) by the liberation of the ozonic-oxygen (the natural scavenger for all organic putridities), is one cause of the cure of the disease by simply supplying the want of manganese in the system, &c.'

"So much for No. 3 upon our list."

Miscellaneous.

The Game Question and Agricultural Politics.—There was a very uphill game for any manager of an estate where there was only a six months' notice to quit. He maintained that it was necessary for the tenant to have some sort of protection, whether it were given in the shape of a lease or in that of tenant right. It was impossible that the agriculture of this country could progress unless tenants had some protection. As regarded game, he hoped no one would suppose that he should like to annihilate sport, or desire the total abrogation of the game laws. What he protested against was excessive game preserving, but he would encourage by every means proper and legitimate sport. Mention had been made by the Chairman of the honour conferred upon the county of Norfolk by the Prince of Wales becoming a Norfolk landowner and farmer. No one appreciated that honour more than he did; and it was a noble and soul-stirring sight to see the Prince of Wales in the hunting field in Norfolk. Whenever his Royal Highness intimated his intention to join a "meet," every farmer within 20 or 30 miles around, who could ride—and there were very few who could not—thought it necessary to go and meet him, so that as many as 400 or 500 mustered at one time in the field. Now, if the fox happened to escape such a mob of sportsmen, away they all went helter-skelter over the Clover, the young Wheat, and the fences. But who was the man whom they saw pounding away on his nag in the foremost of the throng? It was the tenant farmer who raised the ironical cry of "'ware Wheat," and went bang through it himself. Why was he so pleased with himself? He fancied, poor man, that he was contributing something to the sport of the Prince of Wales. He was delighted at the fact that he and his brother farmers were allowed to join in the sport;

and he held in his cob, and sat back in his saddle to tell his neighbour to believe the almost impossible fact that Albert Edward Prince of Wales, the future King of England, had that very morning left all the great lords and fine ladies by whom he was surrounded, and come up to him and said, "Good morning, Mr. Bull," and shaken him by the hand! What a total change would come over the spirit of that farmer's dream if his landlord were then to intimate to him that that day two years he should invite his Royal Highness to a *battue!* Look at the loss, the misery, and the utter ruin, which, in a dry and barren season, the protection of that game would inflict. What was the result? Why, that for four or five hours his Royal Highness, and eight or 10 members of the aristocracy, slaughtered between 4000 and 5000 head of game, and the only drawback they experienced in the full enjoyment of the sport was, that the stupid pheasants would make them believe that they had come to feed and not to shoot them. Now, he must remark that, in common he believed with almost every other farmer, he was pleased with the alteration which was made in the poor law in the last session. But in his opinion it did not go far enough, and the Legislature ought to abolish the law of settlement altogether. As a matter of course they found the great towns, saying, "We have had free-trade enough, we have had enough alterations of the poor laws;" they did not like giving up the choice of sending back the casual English poor, and especially the Irish emigrants. But in his opinion the Government had lost a noble opportunity of doing away with the exceptions which now exist. How did it come to pass that there were certain real properties in this country that paid no share of the local burdens? He contended that whether land produced a crop of Wheat or a crop of timber, whether it were stocked with sheep or with game, whether it produced iron or clay, it ought to pay a fair and equal share of taxation. He would not say a word on the subject of the cattle plague, because, having had it only about 100 yards from his own door, he was sick to death of it. Neither would he say a word about the Malt-tax, except that that dire and dreadful calamity which had befallen the country would not make them forget what was due to themselves and to the country at large. It would be remembered that the temporary sun of prosperity which beamed upon them during the Crimean war diverted their attention from the question of the repeal of the obnoxious impost to which he now alluded. Let them, now that they were really depressed, be armed with the courage of despair, and go to the Government to ask for nothing more and nothing less than justice. *Mr. C. S. Read, M.P., at the Annual Dinner of the London Farmers' Club.*

Mr. Thomas Bowick.—We extremely regret to learn that severe illness, for which perfect bodily rest is prescribed, has enforced Mr. Bowick's resignation of the management of Messrs. Howard's steam-cultivated farms near Bedford, which he has held for some years. Mr. Bowick has for many years been known as a clever and original agricultural writer and a good practical agriculturist, and we sincerely hope that his withdrawal from active work may be only temporary. The Bedford paper tells us that the men employed on his farms met the other day for the purpose of presenting to Mr. and Mrs. Bowick a testimonial of their esteem. "The deepest sympathy is felt here for Mr. Bowick in his affliction, and the earnest hope was expressed that the period of absolute rest enjoined by his medical advisers, may result in restoration to perfect health and strength, and that he may be able again to enter on the duties of active life. The highly successful cultivation of these farms, and the promise afforded of their greatly increased productiveness, have more than confirmed the high reputation previously earned by Mr. Bowick; whilst the kind and judicious efforts of Mr. and Mrs. Bowick to promote the welfare of all who are employed on the farms are highly appreciated, and have greatly endeared them."

Royal Agricultural College.—On Wednesday afternoon last the Duke of Marlborough presented the prizes to the students at the Agricultural College. In doing so his lordship paid a high compliment to the Principal, his staff, and the students for the great efficiency which they had attained, and thanked them for the position to which they had called him as patron of the College. Earl Ducie, Mr. Sotheron Estcourt, the Hon. W. H. Bathurst, Mr. Edward Holland, M.P., and the Rev. Dr. Barry also addressed the students. The prizemen were Mr. Mundry, Mr. Carter, Mr. Elliott, Mr. Boastead, Mr. Jones, Mr. Kingdon, Mr. Tapley, Mr. Field, Mr. Farley, Mr. Matson, Mr. Ricketts, Mr. Stace, Mr. Wilson, and Mr. St. Quintin.

Notices to Correspondents.

Salt: *M A R.* 4 cwt. per acre will not kill weeds on light land. You must get the weeds up by scarifying, harrowing, gathering, and burning. Earlier in the year you might have done a good deal to it by mere sunshine.

True Ayrshires: *Inquirer.* "The muzzle is usually dark, though often it is flesh-coloured;" this is Prof. Low's account. We, however, publish your question that it may receive a fuller answer from some Ayrshire reader. "Have the true Ayrshire breed black or white noses or muzzles, and is the roof of the mouth black?"

What is Worbena? *T.* Colonel Talbot's use of this patent medicine is said to have been very successful. It was introduced by Dr. Collis Browne as a patent medicine.

HOTHOUSES FOR THE MILLION.

AWARDED A PRIZE MEDAL, 1862.

ON THE PRINCIPLE INVENTED AND PATENTED BY

SIR JOSEPH PAXTON, M.P.

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The Cash Prices of LEAN-TO HOUSES, with Water-troughs, Doors and Ends complete, are as follows:—

Ft. In.	Six Lights	Ten Ft. Lights	Ft. In.	12 ft. Lights	14 ft. Lights	16 ft. Lights
20 7 in length ..	£12 0 0 ..	£16 0 0	20 11 in length	£21 18 0	£28 10 0	£34 5 0
31 3 in length ..	16 10 0 ..	21 2 6	31 9 in length	29 6 0	37 12 0	45 16 0
41 11 in length ..	20 18 0 ..	26 18 6	42 7 in length	36 16 0	46 14 0	57 7 0
63 3 in length ..	30 6 0 ..	38 10 0	64 3 in length	51 14 0	64 18 0	80 10 0
84 7 in length ..	39 6 0 ..	49 11 6	85 11 in length	66 12 0	83 2 0	103 11 0
105 11 in length ..	48 17 6 ..	60 12 6	107 7 in length	81 10 0	101 10 0	126 13 0

SPAN-ROOF HOUSES at double the above prices for each length of house.

Circulars, with Lists of Prices and Cards to view houses in operation in the neighbourhood of London, also Estimates for Heating and Erection complete, can be had on application to

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A HANDBOOK of VINE and FRUIT TREE CULTIVATION, as adapted to the above Patent Hothouses, may be had of Mr. Hereman. Second Edition, price 1*s.*; post free, 1*s.* 1*d.*

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INTERNATIONAL EXHIBITION, Class IX., No. 2119.

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NEW OVAL TUBULAR BOILER,

acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in Gardeners' Chronicle *of International Exhibition, May* 24, *page* 476.

The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. Gray's variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so, the change, though a slight one, is no doubt an improvement."

They are made of all sizes, which, with prices, may be had on application.

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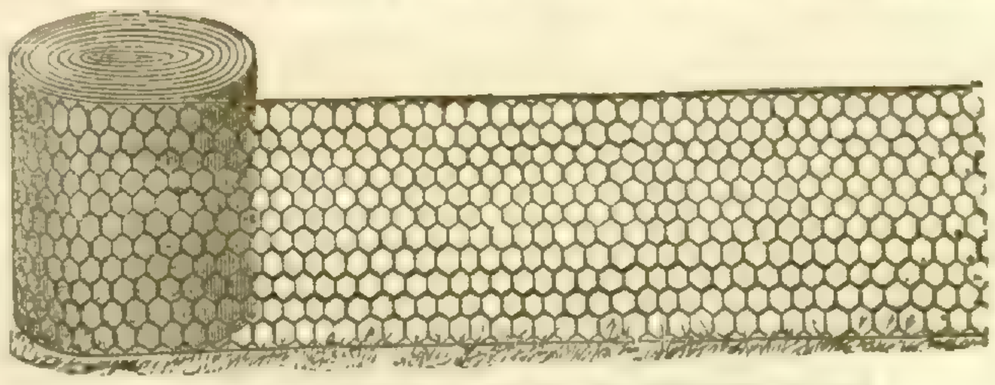
NEW IMPROVED PREMIUM WIRE NETTING.

GREAT IMPROVEMENT,



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Size of Mesh.	Mostly used for	Light. Japanned.	Light. Galvanized.	Medium. Japanned.	Medium. Galvanized.	Strong. Japanned.	Strong. Galvanized.	Extra Strong. Japanned.	Extra Strong. Galvanized.
2¼ inch	Hares, Dogs, Poultry ..	3*d.*	4*d.*	3¾*d.*	5*d.*	4½*d.*	6*d.*	5½*d.*	7*d.*
2 inch	Game or Poultry Netting	3½*d.*	4½*d.*	4*d.*	5*d.*	5*d.*	6½*d.*	6½*d.*	8*d.*
1⅝ inch	Small Rabbits, Hares, &c.	4*d.*	4¾*d.*	4¾*d.*	6*d.*	5½*d.*	7*d.*	7*d.*	9*d.*
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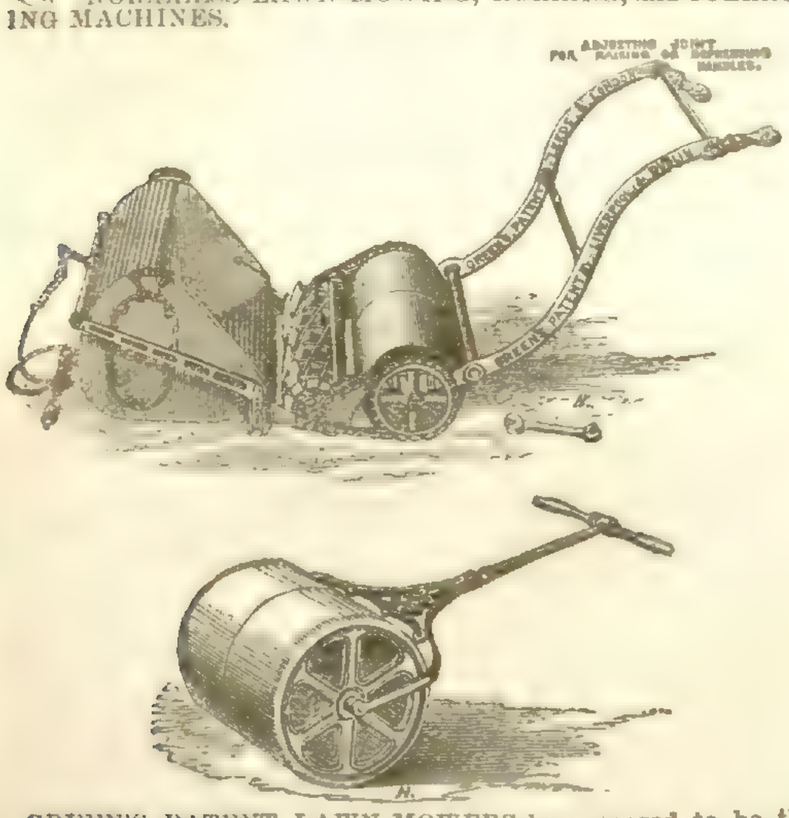

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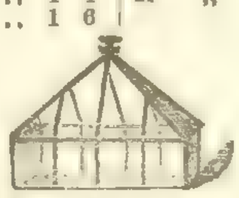
2 inches in diameter ..	0	3½	12 inches in diameter ..	1	9
3 " " ..	0	4½	13 " " ..	2	0
4 " " ..	0	5½	14 " " ..	2	6
5 " " ..	0	6½	15 " " ..	3	0
6 " " ..	0	8	16 " " ..	3	6
7 " " ..	0	10	17 " " ..	4	0
8 " " ..	1	0	18 " " ..	5	0
9 " " ..	1	2	19 " " ..	6	0
10 " " ..	1	4	20 " " ..	7	0
11 " " ..	1	6			

HAND GLASSES,  WITH OPEN TOPS.

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12 inches	6	6	18 inches	9	6
14 "	7	6	20 "	10	6
16 "	8	6	22 "	11	6
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The Orchid Pots referred to in Mr. Anderson's [illegible] *Gardeners' Chronicle* of Dec. 9, p. 1155, are Mr. [illegible] WELLINGTON POTTERY, 604, [illegible]
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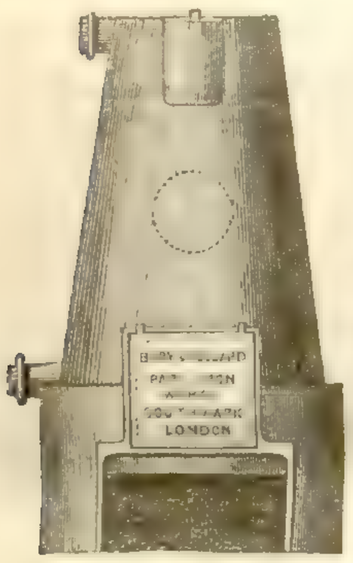

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Exhibition Prize Medal, 1862.

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This Stove is the nearest approach to Warming by Hot Water.

It will burn in Churches from Saturday till Sunday evening, without attention during the hours of worship. In Halls will burn day and night for weeks, with little care. Capable of Warming a large Apartment for 24 hours, at a cost of 3d.; and deserving of special attention, because of its safety, healthfulness, durability, and extreme simplicity.

It is also made for small Conservatories, with a vapour chamber.

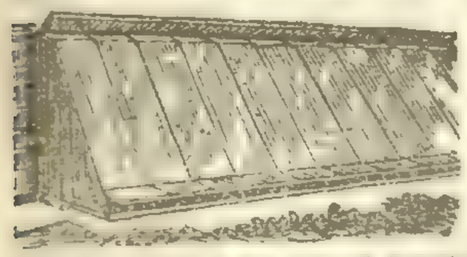
For particulars of the above, and of MUSGRAVE'S PATENT STABLE and COW-HOUSE FITTINGS, which attracted so much attention at the Exhibition, address

MUSGRAVE BROTHERS, Ann Street Iron Works, Belfast.

This Stove can be seen in operation at Messrs. COX & SON, 3, Southampton Street, Strand, W.C.

Under the Patronage of Her Majesty.

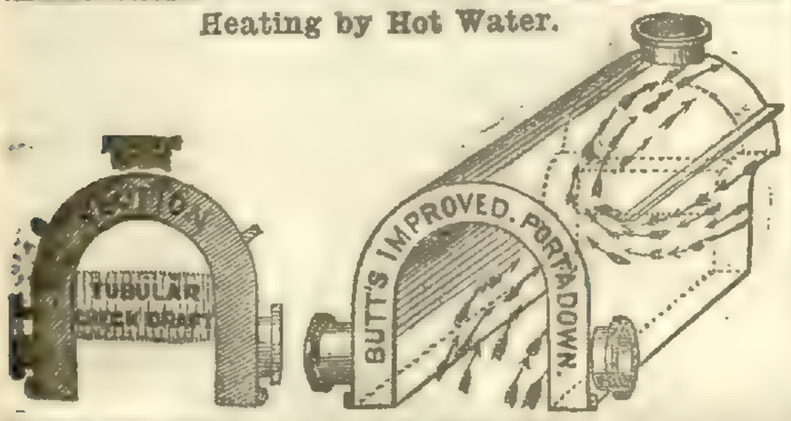
CLARK AND HOPE (LATE CLARK) 55, Lionel Street, Birmingham, MANUFACTURERS of METALLIC and WOODEN HOT-HOUSES, CONSERVATORIES, VERANDAHS, &c., COPPER and WROUGHT IRON SASHES, SKYLIGHTS, &c., and HOT WATER APPARATUS for Horticultural and Domestic purposes.



C. & H. beg to call attention to their NEW TREE COVER, or Continuous Glass Covering for Garden Walls; which is constructed of Cast and Wrought Iron, glazed with or without putty, and fitted together with bolts and nuts, constituting a Tenant's Fixture. It can be made 6, 7, or 8 feet wide, and 10, 12, or 14 feet high; the Lights being opened together, by means of simple and durable machinery, in lengths of about 50 feet; and the cost does not exceed that of a wooden structure.

Further particulars, with prices, forwarded upon application; and on receipt of the amount in postage stamps, a Book of Designs, plain, 1s. 6d., coloured 2s. 6d., for Horticultural Buildings, &c.

Heating by Hot Water.



THE ORIGINAL SADDLE BOILER, with Improved Tubular Check Draft, Flued Ends, and Ribbed Sides, for Heating Greenhouses, Vineries, Forcing Pits, Public Buildings, &c. These Boilers possess increased heating surface capacity, power, economy in fuel, and are the only class of Boilers, all points considered, when properly fixed, that can be relied upon with safety for Heating Greenhouses, &c., of any extent, by Hot Water, and at a moderate price.

Gardeners interested in such work should write for List of Testimonials, sent Post Free on application to FREDERICK WILLIAM BUTT late of London), Portadown, Ireland.

Greenhouses—Heating Apparatus.

DUBLIN,

THE ONLY PRIZE MEDAL FOR GREENHOUSES HAS BEEN AWARDED TO T. H. P. DENNIS for IMPROVEMENTS in the CONSTRUCTION and APPLICATION of WROUGHT-IRON to HORTICULTURAL BUILDINGS.

DENNIS'S PATENT WROUGHT-IRON PRIZE MEDAL CONSERVATORIES are of the highest order.

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DENNIS'S PATENT WROUGHT-IRON PRIZE MEDAL ORCHID HOUSES and STOVES, with double-glazed roofs, are a complete arrangement.

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N.B. Orders promptly executed by Railway.

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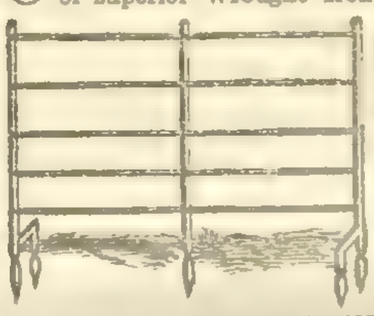

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GALVANISED WIRE CABLE STRAND FENCING, for FARMS, PARKS, and GARDENS.

The ORIGINAL INVENTORS and MANUFACTURERS.

The CHEAPEST, STRONGEST, and NEATEST FENCING in USE. THOUSANDS of MILES of this FENCING have been SUPPLIED by us at home and abroad. It sustains no injury by being trespassed upon.

Price, with five lines of Strand and Iron-pronged Standards, and one straining post, stay and screw bolts to every 120 yards, 1s. per yard.

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HURDLES, HURDLES, HURDLES, 1s. 9d. to 3s. 9d. per yard.

CONTINUOUS IRON FENCING, GATES of all kinds.

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Universal Microscope. Price £5 5s.

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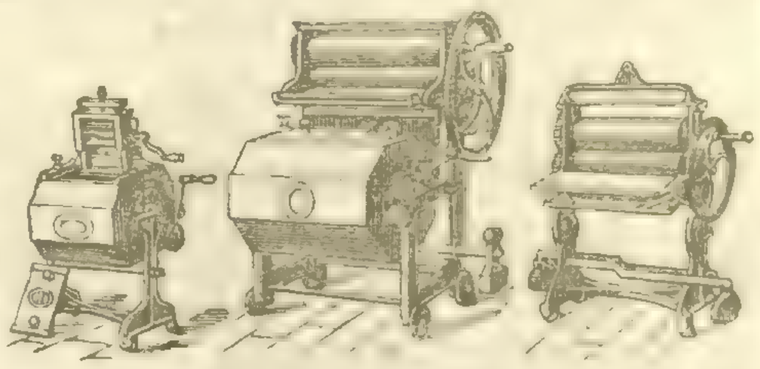

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S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an inferior [illegible] of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by sellers and makers.

S. & C.'s Pruning and Budding Knives are the best and the cheapest in the market.

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PROTECTION from COLD WINDS and MORNING FROSTS.

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"It is much cheaper than Matting as a covering."

AGRICULTURAL IMPLEMENTS.—Steam Engines, Threshing Machines, Thomas Corn Winnows, Ploughs, Harrows, Chaff Cutters, Cake Breakers, Root Crushers, Chaff, Garden Tools, &c. Improved Wire Netting. Illustrated catalogues free. Price Lists post free.

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No Unwholesome Cesspools.
No Night Soil.
No Water Pipes to get out of order.
The Best Night Conveniences.

The Apparatus (price 25s. and 30s.) may be applied to any Closet at trifling cost, and is self-acting.

By its use a valuable Manure is saved, and health to the Community secured.

Earth is recommended by the Privy Council, in their report on Cholera, as a deodorizer and disinfectant.

Extract from Letter received from the SECRETARY *of the* NATIONAL RIFLE ASSOCIATION.

I am further directed to state that they (the Closets) proved of greatest use, and were found to act admirably."

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J. WARNER AND SONS, London, Manufacturers of

BOHEMIAN
FLOWER VASES
AND
HYDRO CARBON
LAMPS.

The Lamp fits out of the Vase, requiring no fixing.

Is fitted either with
WARNER'S
KOH-I-NOOR,
OR THE ORDINARY
FLAT-WICK BURNER.

The Koh-i-Noor Burner produces a superior light to the Moderator, at a much less cost, and is not liable to get out of order.

The Opal Vases are made in the best style of Bohemian Glass, and beautifully decorated.

	Round Burner	Flat
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With Gold Lines	25 6	16 6
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Ruby Glass, fluted with gold lines	46 0	37 0
Emerald or Ruby, richly decorated with gold .	63 0	54 0

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To Seedsmen, Florists, and Others.

MR. EDWARD SMITH is instructed by the Assignee of Mr. F. K. Bennett, Seed Farmer and Nurseryman, of Colchester, under a deed of Assignment, for the general benefit of his Creditors, to offer for SALE by PUBLIC TENDER, in one lot, his entire valuable STOCK of SEEDS. Payment to be made in Cash. The Stock may be inspected on the Premises, Layer Road, Colchester, up to SATURDAY, January 6, on which day, at 5 minutes past 12 o'Clock, the Tenders will be received and opened at the Offices of Mr. EDWARD SMITH, North Hill, Colchester.

Parties Tendering for the Stock, and who do not attend the Sale, will please send them under cover, addressed as above, Sealed and endorsed "Tender for Bennett's Stock," as the Tenders will be opened only at the time appointed, and in the presence of those who attend. Catalogues of the Stock will be forwarded to any address on application by post.

TO BE DISPOSED of, a FIRST-CLASS NURSERY and SEED BUSINESS in one of the principal towns in England, and the principal business in the neighbourhood.

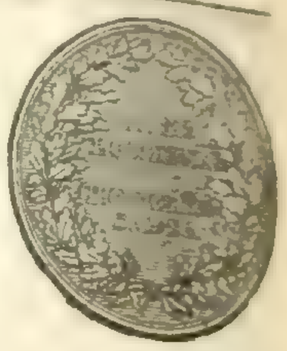
Apply X. Y. Z., *Gardeners' Chronicle* Office, W.C.

To Nurserymen, Seedsmen, Gardeners, &c.

TO BE DISPOSED OF, the Residue of LEASE, the GREENHOUSES, PITS, SHEDS, small SEED SHOP, PLANT, GOODWILL, &c., of the Dell Nursery, Rock Ferry, Cheshire. Established 1844. This compact Nursery, comprising about 1 acre, is well stocked with Evergreen and Deciduous Shrubs, Fruit, and Forest Trees; extensive collection of Roses, Bedding Plants, Greenhouse Plants, Ferns, &c., and being so close to Liverpool and the rising town of Birkenhead, affords an opportunity not usually offered. There is a convenient House, Stables, and all required Outbuildings on the premises.

Further particulars may be had on application to the EXECUTORS of the late J. Kellock, The Dell Nursery, Rock Ferry, Cheshire.

LAXTON'S PROLIFIC EARLY LONG-POD PEA.



We have much pleasure in introducing this valuable variety, raised by Thomas Laxton, Esq., Stamford, to the notice of the Trade; some pods (in a green state) were exhibited by us at Mark Lane, in June last, averaging 11 and 12 Peas in a pod, and they were pronounced by several eminent members of the London Seed Trade to be an exceedingly fine variety. For a second Early Pea, and a Pea for early sowing in autumn, there is no Pea of a similar class in cultivation to equal it, and we feel every confidence that it will be in general cultivation in a very few years. The Pea has the same habit and character as "Dickson's Favourite" and "Auvergne," excepting that the pods are nearly DOUBLE the size of these varieties. We have been favoured with the annexed Testimonials, wherein will be found full corroboration of our own opinion as to its being a "First-class Pea."

COPY OF TESTIMONIALS.

"Gentlemen,
"In reply to your inquiries respecting Mr. Laxton's New Early Long-podded Pea, I beg to inform you that I have seen the variety on more than one occasion growing side by side with Dickson's Favourite and the Auvergne. I have also personally tested and can confidently recommend the New Pea as a first-class second early variety; the pods are finer and more [illegible] than those of the Favourite, Auvergne, or any other variety ripening [illegible] early.—Your obedient Servant,
"M. Maurice,
"Gr. to the Marquis of Exeter, K.G.
Burghley Park."

"Stamford, Nov. [illegible] 1865.
"Gentlemen,
"I have seen the New Early Prolific Long-podded Pea, raised by Mr. Laxton, growing side by side, under similar circumstances, with Dickson's Favourite and Auvergne, and consider the former a distinct variety, the pods being large, like of the Scimitar type, and containing upon an average from 11 to 14 Peas in a pod. So on the same day as Sangster's No. 1, the new Peas were fit to be gathered four days after this variety. I consider it decidedly an improvement upon all other early Peas out.—I am, Gentlemen, your obedient Servant,
"George Abbott,
"Agent to Chaplin & Horne, and one of the Committee and Exhibitor of Stamford Horticultural Society."

"Stamford, Nov. 1st.
"Gentlemen,
"During the past three years I have seen Mr. Laxton's Seedling Peas growing under similar circumstances with about 30 other sorts, and consider the Early Prolific Long-podded variety has the longest and finest pod of any yet sent out. It is an immense cropper, and is certainly a very distinct and superior Pea in every respect to Dickson's Favourite and the Auvergne.—I am, Gentlemen, your obedient Servant,
"C. Clark,
"Superintendent Stamford Horticultural Society's Exhibitions.

"P.S.—I grow a great number of Peas, but have seen none to be compared to Mr. Laxton's."

In Sealed Quarts and Pints, 3s. 6d. per quart, 2s. per pint.

Price to the Trade on application.

A LIST OF THE SEEDSMEN WHO HAVE ORDERED SUPPLIES OF THIS INVALUABLE PEA WILL BE PUBLISHED IN NEXT WEEK'S *GARDENERS' CHRONICLE.*

McLEAN'S LITTLE GEM PEA.

A dwarf prolific Green Wrinkled Marrow; habit similar to Beck's Gem or Tom Thumb, and is a first early.

*** This Pea is a great acquisition, as the chief fault hitherto in early Peas has been want of flavour, and this valuable variety has all the sugary flavour of the late wrinkled Peas coupled with a first early Pea; height 1 foot, and requires no stakes. This Pea will give great satisfaction both as an early and late Pea, if sown in succession.

Price, per Quart, 3s. 6d.

CARTER'S SUMMER BROCCOLI.

A new variety, with enormous close white heads, having the desirable merit of being fully a fortnight later than Carter's Champion (from which it was selected, and which has hitherto been considered the latest variety in cultivation). "Carter's Summer Broccoli" may be had fit for use in June, thus filling up the gap which formerly existed between Broccolis and Cauliflowers. This variety is very distinct from all other sorts, in seed, foliage, and head.

Per Packet, 2s. 6d.

JAMES CARTER AND CO., SEED MERCHANTS, 237 and 238, HIGH HOLBORN, LONDON, W.C.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by William Bradbury, of 13, Upper Woburn Place, in the Parish of St. Pancras, in the Co. of Middlesex, and Frederick Mullett Evans, of No. 11, Bouverie Street, in the Precinct of Whitefriars, City of London, Printers, at their Office, Lombard St., Precinct of Whitefriars, City of London, and Published by them at the Office, No. 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said Co.—Saturday, December 26, 1868.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 52.—1865.] SATURDAY, DECEMBER 30. {Price Fivepence. STAMPED EDITION, 6d.

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THE LATE PROFESSOR LINDLEY.—On SATURDAY, January 6, 1866, will be presented to the Subscribers of the GARDENERS' CHRONICLE a PORTRAIT of the late DR. LINDLEY, printed on Toned Paper. Single copies will be sent on receipt of Six Postage Stamps.
41, Wellington Street, Strand, W.C.

INTERNATIONAL HORTICULTURAL EXHIBITION and BOTANICAL CONGRESS.
Under the Patronage of Her Majesty THE QUEEN, and of their Royal Highnesses the PRINCE of WALES and the DUKE of CAMBRIDGE.
The EXHIBITION and CONGRESS will OPEN on MAY 22, and continue till May 25. Subscribers' names will be received, and Schedules and Prospectuses may be obtained on application to the Secretary, at the Offices, 1, William Street, Lowndes Square, London.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—The ANNUAL GENERAL MEETING of the Subscribers to this Institution will be held at the BEDFORD HOTEL, COVENT GARDEN, on THURSDAY, the 18th January next, for the purpose of receiving the Report of the Committee and the Accounts of the Institution for the present year, and electing Officers for the ensuing year. The Chair to be taken at 7 o'Clock precisely. EDWD. R. CUTLER, Secretary.
14, Tavistock Row, Covent Garden, W.C.

NEW CHRYSANTHEMUMS, 1865, are now ready in strong Plants at 5s. per doz.
W. HOLMES, Frampton Park Nursery, Hackney, N.E.

Chrysanthemums.—Notice.
IN ANSWER TO NUMEROUS ENQUIRIES,
ADAM FORSYTH begs to inform his Friends and the Public that he will be prepared to send out his large Collection of CHRYSANTHEMUMS early in the Spring 1866.
CATALOGUES may now be had for one stamp.
Brunswick and Shacklewell Nurseries, Stoke Newington, N.

To the Trade.
DOUBLE ITALIAN TUBEROSES, fine large picked roots.
JAMES CARTER & Co., 237 and 238, High Holborn, London, W.C.

GLADIOLI.—Collections of the above, including the choicest varieties in cultivation, from 12s. to 63s.
All orders amounting to 21s. carriage paid.
BUTLER & MCCULLOCH, South Row, Covent Garden Market, W.C.

To Gladiolus Growers.
SUTTON'S PRICED LIST of the best Sorts exhibited this Season is now ready, and will be forwarded post free.
SUTTON & SONS, Royal Berks Seed Establishment, Reading.

Early Spring Flowers.
WEBB'S GIANT POLYANTHUS and GIANT COWSLIPS, and other varieties, largest stock in England.
List and prices on application to Mr. WEBB, Calcot Gardens, Reading.

TIVERY AND SON beg to announce that their DESCRIPTIVE PRICED CATALOGUES of AZALEA INDICA, HARDY BRITISH FERNS, ROSES, CONIFERÆ, GRAPE VINES, and SEEDS, may be had on application at their Dorking Nursery.

AMBROISE VERSCHAFFELT, NURSERYMAN, Ghent, Belgium, begs to offer to the Trade fine strong Bulbs of LILIUM LANCIFOLIUM SPECIOSUM (true rubrum), at 35s. per 100.

NEW ROSE CATALOGUE for 1865 and 1866, also GENERAL CATALOGUE of NURSERY STOCK.
Woodlands Nursery, Maresfield, near Uckfield, Sussex.
WM. WOOD & SON will be happy to forward copies of the above on application.

Roses.
WM. PAUL (Son and Successor to the late A. PAUL) begs to announce that his NEW DESCRIPTIVE CATALOGUE of ROSES is now ready, and will be forwarded on application, free by post. The stock is large and in splendid condition.
PAUL'S Nurseries, Waltham Cross, London, N.

Now ready, 1865 and 1866.
PAUL AND SON'S NEW ROSE CATALOGUE.
See Note on Forcing Roses. Post free on application.
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ROSES.—A DESCRIPTIVE CATALOGUE of ROSES, by THOS. RIVERS, free per post.
Nurseries, Sawbridgeworth.

To the Trade.—Dwarf Roses.
HUSSEY AND SON can still supply fine plants of all the leading HYBRID PERPETUAL ROSES, budded on Manetti Stocks, at £2 per 100.
Mile End Nursery, Eaton, Norwich.

WANTED, LARCH, SCOTCH, and SPRUCE FIR, 3 years old, delivered at Londonderry or Dundalk. Samples, with prices, to be forwarded to H. M. D'ARCY IRVINE, Esq., Castle Irvine, Enniskillen, Ireland.

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There is room for a few dozen smaller Camellias, at a price, if bushy.

Genuine Garden and Agricultural Seeds.
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New and Genuine AGRICULTURAL, GARDEN, and FLOWER SEEDS. Special prices and advantageous offers on application.

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VERBENAS and PETUNIAS, of sorts, with plenty of Cuttings, 3s. per dozen, for cash.
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Several Tons of Seed Potatos, Garden Varieties.
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To the Trade.
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More than 100,000,000 FOREST TREES for Plantations.
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Samples of 500 sent on application. Address,
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Large SCARLET HORSE CHESTNUTS.
Large ENGLISH and HUNTINGDON ELMS.
Extra large ORNAMENTAL & FOREST TREES for immediate effect.
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WANTED, a quantity of young COLTER BIRCH and other Trees, between 6 and 12 feet in height.
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JOHN WATERER begs to offer the following Six RHODODENDRONS, in good, strong, healthy plants, at 4*l.* 4*s* the Set, the usual discount to the Trade:—

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It contains faithful descriptions of all the varieties really worthy of cultivation, as well as a selection of HARDY CONIFERS, with heights and prices, with ORNAMENTAL EVERGREENS, FOREST TREES, &c.

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ALEXANDER ADIE.—Brilliant rosy scarlet.
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SIR WILLIAM ARMSTRONG.—A very bright crimson.
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The Set for 6*l.* 6*s.* Usual discount to the Trade.
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Some of these Bulbs have already begun to push, and will probably flower in April. Hans Street, Chelsea, S.W.

VIOLETS.—Now in full bloom and in first-rate condition for planting out, the Giant, Crimea, Russian, &c.; the Giant, bearing a finer bloom and a more beautiful perfume than any of its kind, in perfection. All sorts of Violet Plants always in stock. CATALOGUES of PRICES on application.

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Lobelia Snowflake.

Extract from GARDENERS' CHRONICLE:—

"Mr. Cox, Gardener to Lord Beauchamp, exhibited a beautiful White Lobelia called Snowflake, to which a First-class Certificate was awarded. Floral Committee of the Roya Horticultural Society, July 25, 1865."

JOHN AND CHARLES LEE having acquired the stock of this desirable NEW BEDDING PLANT, they have much pleasure in offering SEED in SEALED PACKETS for present sowing for spring pot culture, for which it is well adapted.

As a BEDDING LOBELIA it stands unrivalled. The plant is of dwarf compact habit: the flowers are large, perfectly even, and of the purest white. The stock comes perfectly true from seed.

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To Noblemen and Gentlemen about to be engaged in Planting.

DICKSONS AND CO., NURSERYMEN, SEEDSMEN, and FLORISTS, Waterloo Place, Edinburgh, have this season a large and very healthy stock of Seedling and Transplanted LARCH (native and Tyrolese), True Native Highland SCOTCH FIR, Spruce, Oak, Plane or Sycamore, Spanish Chestnut, Alder, Ash, Elm, Thorn Quick, Beech, Evergreen Privet, Poplar, Willow, &c., as well as all other kinds of Forest and Ornamental Trees and Shrubs, Fruit Trees, Roses, Greenhouse and Stove Plants, Herbaceous and Alpine Plants, Ferns, &c.

Their Forest Trees, which are grown on exposed ground, are this season finely ripened, and can be sent with perfect safety to any part of the kingdom.

Samples and prices will be sent free on application.

Extra fine 1-year Seedling Larch and Hazel.

FRANCIS AND ARTHUR DICKSON AND SONS have several Millions of 1-year SEEDLING LARCH to Dispose of, of extra quality. Samples and prices forwarded free by post on application, stating probable quantity required. Also very fine 1-year SEEDLING HAZEL

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LINCOLNSHIRE GEM PEA is the best Pea grown. MARTIN & SON, 7, Market Place, Hull; and Cottingham.

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STANDEN'S GARDENER'S and AMATEUR'S FRIEND, a highly concentrated Inodorous Fertiliser, for Chrysanthemums and all kinds of Stove and Greenhouse Plants, Vines and other Fruit Trees in pots, &c.; also Vegetables, &c., in the open ground.

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Sample Canisters, 1*s.* & 2*s.* 6*d.* Bags, 5*s.* 6*d.*, 10*s.* 6*d.*, and 21*s.*
May be had of the leading Nurserymen and Seedsmen.

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A List of Agents will shortly be published.

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SELECT CATALOGUE OF THE ABOVE

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	Per packet.—*s.*	*d.*
OSBORN'S WHITE WINTER BROCCOLI ..	1	6
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This is very large, and less watery than the old Red.

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SCOTT'S SUPERB WHITE COS LETTUCE ..	1
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These three Lettuces are less liable to run than any we know.

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JAMES VEITCH

BEGS TO ANNOUNCE THAT HIS

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The CATALOGUE will be found to contain all NEW VEGETABLE and FLOWER SEEDS of merit, in addition to those kinds in general cultivation.

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THE GOLDEN-RAYED JAPAN LILY.

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Respectfully offer NEW SEED of this most beautiful species, saved from their own plants, at 1*s.* and 2*s.* 6*d.* per packet.

The Trade supplied by the 100, 1000, *or* 10,000 *Seeds. Prices on application.*

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For descriptions of these first-class Fruits, see last Numbers of *Gardeners' Chronicle.*

THE NEW CLIANTHUS DAMPIERI,

In varieties of colour, as saved from the White and others, as exhibited by the Raiser.

2*s.* 6*d.* and 5*s.* per packet of 12 and 24 Seeds.

The present is the best time for sowing, to ensure bloom the first season.

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SUTTON'S SPRING CATALOGUE

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AMATEUR'S GUIDE for 1866.

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Also a Useful and Concise Calendar of Operations in the Kitchen Garden, for the whole year, written expressly for this work. Original Articles on the Potato Disease, use of Frozen Mangels, &c., and a valuable Coloured Railway Map of England, containing important information.

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COLLECTIONS of the above for In-door Decoration, 10*s.* 6*d.*, 21*s.*, 30*s.*, 42*s.*, 63*s.*, 84*s.*, and 105*s.*

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Fine Established Bulbs of the above, which have been two seasons in this country, 5*s.* 6*d.*, 7*s.* 6*d.*, 10*s.* 6*d.*, and 15*s.*

For Bedding out, Lilium lancifolium album, roseum, and rubrum, 6*s.*, 9*s.*, and 12*s.* per doz.

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No. 2.	" " " " ..	15	6
No. 3.	" " " " ..	21	0
No. 4.	" " " " ..	30	0
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No. 6.	" " " " ..	63	0
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B. S. WILLIAMS begs to direct special attention to the undermentioned, of which he now holds a fine stock. PRICED and DESCRIPTIVE LISTS can be had on application.

VINES.—Strong Planting and Fruiting Canes of all the best varieties, including the new sorts ROYAL VINEYARD [illegible]

[illegible] Strong Flowering and Show Pelargoniums, [illegible]

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HYACINTHS.—Specimen roots of the strongest flowering [illegible] POLYANTHUS NARCISSUS, CROCUS, Early TULIPS, [illegible] ENGLISH GROWN SEEDLING GLADIOLI, 9s. and 12s. per [illegible] ready next month. As the supply of these is limited, early [illegible] completed.

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WILLIAM FLETCHER begs to offer a large Stock of Dwarf-trained CHERRIES, APRICOTS, PEACHES, NECTARINES, and PLUMS; also MAIDEN and CUT-BACK TREES of the above. EVERGREENS, FOREST TREES, and all kinds of NURSERY STOCK.

Prices forwarded on application.

2000 VINES, from Eyes, strong and extra strong, for immediate Fruiting in Pots, and for Planting, including all the leading varieties, with stout, close-jointed, well-ripened Canes, many of which will produce from 4 to 5 lb. of Grapes next season. Prices and particulars upon application.

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Rust's Thames Bank Peach.

OSBORN AND SONS have a few Maiden Plants left for Sale of the above-named new late Yellow-fleshed PEACH. Dr. Hogg, in the "Gardeners' Year Book for 1864" says:—"The fruit is tender, melting, and juicy." He further adds, "This is certainly the best of the Yellow-fleshed Peaches we know."

Price 18s. 6d. each. An allowance to the Trade.

Fulham Nursery, S.W.

MAGNIFICENT Dwarf-trained FRUIT TREES, PEACHES, NECTARINES, APRICOTS, PLUMS, and CHERRIES; extra fine Trained MAY DUKE and MORELLO CHERRIES; ROYAL GEORGE PEACHES. Prices very moderate. STANDARD TRAINED PEACHES.—Wm. Wood & Son have an enormous stock to offer of the above. They feel certain the Trees cannot be surpassed in quality.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

New Edition of

SCOTT'S FRUIT TREE CATALOGUE of the finest Collection in England. The Catalogue is allowed to be the best published, and is full of information about the Cultivation of Fruits, over 1000 being described. Apply to

J. Scott, Merriott, Somerset.

JOHN GRIGOR AND CO., Nurseries, Forres, Scotland, have received the numerous Premiums awarded by the Highland and Agricultural Society for the cultivation of the True Native HIGHLAND SCOTCH PINE, and beg to offer strong 1-year Seedlings; also LARCH, hardy plants, grown from Seed, collected in some of the best Forests in the North of Scotland. Prices on application.

Tansley Nurseries, near Matlock, Derbyshire.

JOSEPH SMITH, Sen., invites Planters and the Trade to inspect his Nursery of 80 Acres of high land. The soil is of a strong nature, and the plants take up with excellent roots, such as to ensure the best success in their removal. The Nursery contains many Hundred Thousands of RHODODENDRONS, COMMON and PORTUGAL LAURELS, BOX, BROOMS, BERBERIS, HOLLIES, PRIVETS, YEWS, &c. The FOREST TREES are very extensive. Of all the leading kinds there are 15 Acres of LARCHES, of different sizes, and all others in proportion. Prices moderate, which can be had on application as above.

Transplanted Larch and Quicks.

CHIVAS AND WEAVER (late GEORGE CHIVAS), Chester, offer several Millions of TRANSPLANTED LARCH, from 1½ to 4½ feet, very stout, grown in an exposed situation; specially fine plants, and at prices greatly in favour of the buyers. Also several Millions of TRANSPLANTED QUICKS, a large quantity of which are of great strength; strong English Oaks, superior Spruce, up to 2½ feet, together with a general stock of other Forest Trees, as well as a large stock of Evergreens and Ornamental Trees; many Thousand fine Standard Apples, and extra strong Transplanted Apple Stocks.

For prices and conditions of free delivery, see CATALOGUE, which will be forwarded on application.

To the Trade and Others.

WOOD AND INGRAM beg to offer the following SURPLUS STOCK. Prices sent on application.

1,000 Dwarf Maiden Peaches
500 " cut in "
500 " trained "
50,000 British Oaks, 3 yrs. seedling
100,000 " " 1 " "
20,000 Maples, common, 1 year seedling
100,000 English Elms, 2 years seedling
1,000 Huntingdon Elms, grafted
10,000 Standard Apples, 7 to 10 ft.
2,000 Half Standard Apples, 7 to 10 feet
2,000 Dwarf Apples, 7 to 10 feet
40,000 Larch, 2 to 4 feet
1,000 Horse Chestnuts, 5 to 7 ft.
100,000 Ash, 1 year's seedling
400 Cupressus Lawsoniana, 1½ to 4 feet
250 Thuja Lobbii, 3 to 5 feet
1,000 Junipers, very handsome, 3 to 4 feet
500 Portugal Laurels, 3 to 4 ft.
300 Red Cedars, 2 to 4 feet
2000 Standard and Half-standard Roses
500 Worked Dwarf Roses
1000 Siberian Arbor-vitæ, 1 to 3 feet
100 Chinese Arbor-vitæ, 2 to 5 feet
1500 Box, sorts, 2 to 3 feet
900 Aucuba japonica, 1 to 2½ ft.
1000 Common Yews, 1 to 2 feet
2000 Berberis Aquifolium, 1 to 2 ft.
500 " dulcis, 1 to 2 feet
400 doz. Currants, sorts
500 Cistus roseus, 1½ to 2 feet
450 Cupressus macrocarpa, 2 to 4 feet
900 Euonymus japonica, 1 to 2½ feet
600 Ivy, choice named sorts
200 Pyracantha, 2 to 3 feet
50 Taxus adpressa, 2 to 3 feet
300 Yucca recurvifolia, 1½ to 2 feet
200 Antirrhinums, new, in 6 varieties, including Double Italian
200 Bellis aucubæfolia
100 Pairs Show Carnations, in 3-inch pots
100 Pairs Cloves, 5 fine varieties, in 3-inch pots
500 Pairs Show Picotees, 5 fine varieties, in 3-inch pots
200 Cerastium Biebersteinii
500 " tomentosum
200 Cyclamen europæum
500 Herbaceous Plants, in 50 good varieties
100 Œnothera macrocarpa
60 Schizostylis coccinea
Mangel Wurzel, Yellow Globe Onion, White Spanish Peas, Dickson's Favourite and Essex Rival

The Nurseries, Huntingdon.

IMPORTANT TO NURSERYMEN.

		Inches.
6,000,000	1-yr. Larch, strong	4 to 6
2,000,000	1-yr. Scotch Fir	2 to 3
800,000	2-yr. Scotch Fir	3 to 5
2,000,000	2-yr. Spruce Fir	2 to 4
1,000,000	3-yr. Spruce Fir	3 to 6
200,000	1-yr. Pinus austriaca	2
60,000	1-yr. Weymouth Pine	2
500,000	1-yr. Birch, strong	2 to 5
1,500,000	1-yr. Alder, strong	3 to 6
200,000	2-yr. " "	4 to 10
100,000	1-yr. " trans.	12 to 18
2,000,000	2-yr. Elm ..	5 to 10
500,000	2-yr. Ash ..	6 to 12
500,000	1-yr. Sycamore ..	4 to 9
600,000	1-yr. Beech ..	4 to 7
300,000	1-yr. English Oak	5 to 10
30,000	1-yr. Evergreen	3 to 5
150,000	1-yr. Horse Chestnut	6 to 12
100,000	1-yr. Spanish do.	10 to 18
200,000	1-yr. Chinese Arbor Vitæ ..	3 to 4
100,000	1-yr. American do.	2
30,000	Transplanted American do.	12 to 18
100,000	1-yr. Crab Stock	4 to 10
1,600,000	2-yr. Thorn Quick	4 to 12
40,000	2-yr. Evergreen Privet ..	12 to 24
40,000	1-yr. Laurel ..	6 to 12
20,000	2-yr. Laurel ..	12 to 24
500	Wellingtonia gigantea ..	12 to 24
1,000	Cotoneaster microphylla ..	12 to 18
6,000	Irish Yews ..	12 to 18

The Subscriber begs to call the attention of his numerous friends and customers to the above stock, which he believes for quality cannot be surpassed in the Trade. PRICE LIST on application to

MICHAEL BURKE, Drumlargan and Garadice Nurseries, Summer Hill, County Meath, Ireland.

To Clear Ground

SPECIAL OFFER.—[illegible] per cent. off Catalogue prices, HOLLY GREEN YEWS, EVERGREEN ARBUTUS, LAURELS (Common), Laurels (Portugal), Cupressus Lawsoniana, Thuja Lobbii, Pinus insignis, P. excelsa, P. pinea, Deodara, Hollies in large breadths, Lord Hill's Spruce, Austrian Pine, &c., &c. The trees and prices are CATALOGUED, and will be sent on application to

J. Scott, Merriott, Somerset.

SPECIAL OFFER of FRUIT TREES.—[illegible] per cent. off Catalogue. Having a large and fine stock of the undermentioned, they are offered at greatly reduced prices, to clear ground.—Peaches, Nectarines, and Apricots, trained and untrained. Apples, Pears, Plums, and Cherries, trained and untrained.

DESCRIPTIVE CATALOGUES on application to

J. Scott, Merriott, Somerset.

JNO. THOMPSON AND SON beg to call attention to their large and superior FRUIT and NURSERY STOCK of the following kinds, viz.:—

Standard, Half-Standard, Dwarf, Pyramid, Espalier, and Maiden Fruit Trees, which for size, strength, and quality, cannot be surpassed, and consist of Apples, Pears, Plums, and Cherry Trees. Larch, from 1 ft. to 4 ft.; Spruce and Scotch Firs, from 1 to 4 ft., Ash, from 2 to 6 ft. (clean and well grown); Berberis Aquifolium, Common and Portugal Laurels, Yews, Privets, &c.

PRICED CATALOGUES may be had free by post on application to Jno. Thompson & Son, 18, French Gate, Doncaster.

RICHARD SMITH,

NURSERYMAN and SEED MERCHANT, Worcester.

ROSES.—12 of the very best Standard, Perpetual, and Moss Roses for 18s.; 50 for 63s.; 100 for £6. 12 extra Dwarf do. do. for 12s.; 50 for 42s.; 100 for 75s. 12 Fine, New Sorts of 1865, for 24s.

Descriptive List on application.

FORTY ACRES of FRUIT TREES.—Apples, Pears, Plums, Cherries, Peaches, Nectarines, and Apricots in every form desired for Planting.

DWARF-TRAINED TREES, by the Thousand, Hundred, or Dozen.

APPLES, PEARS, PLUMS, CHERRIES, PEACHES, and NECTARINES.

Fine, flat, well-trained, of best quality, and true to name.

PYRAMID APPLES, PEARS, PLUMS, CHERRIES.

Beautiful Trees for Gardens or Orchard Houses.

ORCHARD-HOUSE TREES, Fruiting in Pots.—Peaches, Nectarines, Apricots, Cherries, Plums, Pears, Apples, Vines, and Figs.

EVERGREENS for Ornamental Planting or Avenues, handsome, well grown, and transplanted within the last two years. For prices of smaller sizes and quantities, see Conifer List.

At 30s. per dozen:—

Abies alba, 5 to 7 feet
" Douglasii, 3 to 4 feet
" inverta, 1½ to 2 feet
" orientalis, 1½ to 2 feet
Arbor-vitæ, American, 6 to 7 feet
" Siberian, 4 to 5 feet
Cedar, Red, 5 to 6 feet
Cryptomeria viridis, 4 to 5 feet
Cupressus Lawsoniana, 3 to 4 feet
" fragrans, 3 feet
Irish Yew, 4 to 5 feet
Juniperus thurifera, 3 to 4 feet
Laurel, Colchic, 5 to 6 feet
" Portugal, Pyramids, 3 to 4 ft.
Pinus cembra, 3 to 4 feet
" excelsa, 5 feet
Taxodium sempervirens, 7 to 8 ft.
Thuja Lobbii, 3 to 4 feet
" aurea, 1½ foot
" compacta, 1½ to 2 feet
Thujopsis borealis, 3 feet
Wellingtonia gigantea, 2 feet

At 42s. per dozen:—

Abies Douglasii, 4 to 5 feet
" inverta, 2 to 2½ feet
" orientalis, 2 to 2½ feet
" pyramidalis, 2 to 2½ feet
Araucaria imbricata, 2 to 2½ feet
Arbor-vitæ, Siberian, 5 to 6 feet
" American, 7 to 8 feet
Cedar, Red, 6 to 8 feet
Cupressus Knightii, 6 to 7 feet
" Lawsoniana, 4 to 4½ ft.
Juniperus thurifera, 4 to 5 feet
Pinus Cembra, 4 to 5 feet
Pinus excelsa, 6 feet
" Lambertiana, 3 to 4 feet
" insignis, 3 to 4 feet
Thuja Lobbii, 4 to 5 feet
" compacta, 2 to 2½ feet
" aurea, 2 feet
Thujopsis borealis, 4 feet
Wellingtonia gigantea, 2½ feet
Yew, Irish, 5 to 5½ feet
Laurels, Pyramid, Portugal, 4 to 4½ feet
" Colchic, 6 to 7 feet

At 60s. per dozen:—

Abies inverta, 2½ to 3 feet
" Douglasii, 5 to 5½ feet
" Menziesii, 5 to 6 feet
" orientalis, 2½ to 3 feet
" pyramidalis, 3 to 4 feet
Araucaria imbricata, 2½ to 3 feet
Arbor-vitæ, Siberian, 6 to 7 feet
Cedrus Deodara, 6 feet
Cupressus Knightii, 7 to 8 feet
" Lawsoniana, 5 feet
Juniperus thurifera, 5 to 6 feet
Laurels, Pyramid Portugal, 5 ft.
Pinus excelsa, 6 to 8 feet
" Lambertiana, 5 to 6 feet
" Cembra, 5 to 6 feet
Thuja japonica, 2½ to 3 feet
" aurea, 2½ feet
Taxodium sempervirens, 8 to 10 ft.
Wellingtonia gigantea, 3 feet
Yew, Irish, 6 feet

At 84s. per dozen:—

Abies Douglasii, 7 to 8 feet
" inverta, 3 to 4 feet
" Menziesii, 6 to 8 feet
" orientalis, 3 to 4 feet
Cedrus Deodara, 7 to 8 feet
Juniperus thurifera, 6 to 7 feet
Pinus excelsa, 8 to 10 feet
Taxodium sempervirens, 10 to 12ft.

Each:—

Abies Douglasii, 8 to 10 ft., 12s. 6d.
" " 10 to 12 feet, 15s.
" " 12 to 15 feet, 21s.
" inverta, 4 to 5 feet, 10s. 6d.
" " 6 feet, 21s.
Araucaria imbricata, 3 to 4 feet, 7s. 6d. to 21s.
" " 4 to 8 ft., 21s. to 84s.
Cedar of Lebanon, 8 to 10 ft., 10s. 6d. to 21s.
Cedrus Deodara, 8 to 10 ft., 10s. 6d. to 21s.
Picea nobilis, 2 to 2½ feet, 10s. 6d.
Picea nobilis, 2½ to 5 ft., 21s. to 63s.
" Nordmanniana, 2½ to 4 feet, 10s. 6d. to 42s.
" " 4 to 6 feet, 42s. to 84s.
" Pinsapo, 3 to 5 ft., 10s. 6d. to 42s.
Pinus excelsa, 10 to 12 feet, 10s. 6d.
" " 12 to 15 feet, 15s.
" Lambertiana, 6 to 8 feet, 10s. 6d. to 21s.
Thuja incurvata, 8 to 9 ft., 10s. 6d.
Taxodium sempervirens, 12 to 15 feet, 10s. 6d. to 15s.

American Arbor-vitæ, for Hedges, 3 to 4 feet, at 50s. per 100.
" " " 4 to 5 feet, at 75s. "
" " " 5 to 6 feet, at 100s. "

FLOWERING and STANDARD ORNAMENTAL TREES.

At 12s. per dozen:—

Ash, Mountain, 7 to 9 feet
Acacia, 7 to 9 feet
Birch, Weeping, 8 to 10 feet
Crab, Siberian, scarlet, 6 to 7 feet
" yellow, 6 to 7 feet
Chestnut, Spanish, 6 to 8 feet
Hornbeam, 8 to 10 feet
Poplar, Silver, 8 to 10 feet
" Lombardy, 9 to 10 feet
Pyrus spectabilis, 6 to 7 feet

At 18s. per dozen:—

Almond, flowering, 7 to 8 feet
Acacia, 8 to 10 feet
Ash, Mountain, 9 to 12 feet
Acer Negundo, 6 to 8 feet
Birch, 10 to 12 feet
Crab, Siberian, yellow, 7 to 8 feet
" scarlet, 7 to 8 feet
Chestnut, Spanish, 8 to 10 feet
Cytisus, 3 to 4 feet
Elm, Chichester, 8 to 10 feet
Poplar, Lombardy, 11 to 12 feet
" Silver, 10 to 12 feet
Pyrus spectabilis, 7 to 8 feet
Thorn, double pink, 6 to 7 feet

At 30s. per dozen:—

Almond, flowering, 8 to 10 feet
Acer Negundo variegata, 6 to 8 ft.
Acacia, ball, 6 to 7 feet
Chestnut, scarlet, 6 to 8 feet
Cytisus in variety, 4 to 5 feet
Poplar, Silver, 12 to 15 feet
Thorns, double pink, 8 to 10 feet
Willow, Ameri. Weeping, 6 to 8 ft.

RICHARD SMITH'S LIST of all the EVERGREEN AND FIR TRIBE, suitable for Britain, giving size, price, popular and botanical names, derivations, description, form, colour, foliage, growth, timber, use in arts, native country and size there, situation, soil, and other information, with copious Index of their synonymes.

Enlarged Edition, free by post for 12 postage stamps.

RICHARD SMITH'S FRUIT LIST contains a sketch of the various forms of Trees, with Directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Cropping, Treatment under Glass; also their synonymes, quality, size, form, skin, colour, flesh, flavour, use, growth, duration, season, price, &c.

Free by post for one stamp.

RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

Specimen Evergreen Shrubs

AUCUBA, ARBUTUS, HOLLY, YEW, CUPRESSUS LAWSONIANA, YUCCA, ARALIA, &c.—The above are adapted for giving immediate effect, and are well large sizes. Also a fine stock of [illegible] HOLLY HASSOCK, FLOWER BASKETS, WIRE ARBOURS, CLIMBING ROSES, &c., &c., &c.

Catalogues on application.

Nurseries, Camberwell, S.

Larch, Scotch, &c.

MARTIN AND SON offer Two Millions of LARCH, [illegible] LARCH, SCOTCH FIR, [illegible] ELM, [illegible] ASH, [illegible] LILACS, SYRINGAS, [illegible] LAWSONIANA, THUJAS, &c.

E. Market Place, Hull, and Lincolnshire.

To the Trade

W. HOADE has to offer the following, for Cash only:—

Per 1000.			
Pear Stocks	[illegible]	Seedling Berry	6s.
Plum Stocks (Mussel)	[illegible]	Berberis Darwinii	20s.
Per 100.			
Roses on own roots	[illegible]	Mexican Nasturtium	[illegible]
Pyramids and Standards (Roses)	[illegible]	Little Pomfreys	[illegible]
Wisteria sinensis	[illegible]	Little Apricots	50s.
Maiden Apples	[illegible]	Little Plums	40s.
Little Pears	40s.		

Lion Nurseries, Surrey.

New and Choice Vegetable Seeds.

STUART AND MEIN, NURSERYMEN and SEEDSMEN, KELSO, N.B., have pleasure in calling attention to the following very useful and desirable Novelties in Seed Peas this season.

THE PRINCE OF WALES PEA.—S. & M. offer the above New Pea. They are well aware of the almost endless varieties of Peas, both new and old, now offered for the present season, many of which are sent out as the best combined for the purpose of second and third crop, Marrowfat Peas. The Prince of Wales Pea is their possession for a couple of years, and being of opinion that it was equal to any of the kind they were acquainted with, they were determined not to offer it for the public until it was proved, beyond any question, particularly from the fact that the seed germinated in the pod, and the growing Peas, notwithstanding all the severe and continued frosts to which they were exposed, have been preserved. The Pea was sent to the Committee of the Royal Horticultural Society for trial under the patronage of His Royal Highness the Prince of Wales, but as there is a prejudice existing in public against this description, they consider it better to change the name to The Prince.

Copy of Testimonials.

From the Journal of the Royal Horticultural Society, Chiswick.

"Your Prince of Wales Pea has been grown here for the last two seasons, and is [illegible] We believe the Prince of Wales to be distinct from any known variety. Likewise, being dwarf, very productive, of good flavour, and [illegible] the earliest of all, [illegible] the Prince of Wales, received from you as The Queen, Blue, a Special from years; the height, [illegible] appearance [illegible] the same, but several days later, not so prolific, and altogether an inferior variety."

From B. MARSHALL, Esq., *Sandy House, Dunfermline.*

"I last year (and grew the Prince of Wales Pea as an experiment, and sown at the same time with the Yorkshire Hero, in a piece of good rich land. I found the earlier and as high in the stem, and about seven days earlier than the former. The quality of both is excellent, but the Prince of Wales is decidedly the most productive; the height was covered with Peas from a foot up to the top, the great difference in product among the very apparent to the eye. I greatly prefer the Prince of Wales. I caused both to be grown for seed, and will prove them again in 1866."

From the Gardeners' Chronicle office, Nov. 11, 1865.

"I grew three rows of Peas this season, viz. Prince of Wales, Veitch's Perfection, and Yorkshire Hero, on the same square. Although all of them did well, yet the Prince of Wales nearly doubled the others in quantity of produce. It strikes me that the Prince of Wales resisted the drought better than either of the others, as the row continued producing long after the haulms of the others were in the decadence."

From Mr. GEORGE SCRYMGEOUR, *Sonning, near Reading.*

"I beg to inform you that I tried the Prince of Wales Pea you sent me alongside of Veitch's Perfection, and McLean's Princess Royal, and found it, in every respect equal to Veitch's Perfection in quality and in time, and more productive than that first class variety. The Princess Royal I found an earlier variety. I may state that the trial was a fair one in every respect, sowing the same quantity of seed in the same length of drill, and measuring the crop exactly, your variety proving the heaviest cropper."

Many other testimonials can be furnished similar to the above. Price 5s. per quart. As the Stock is limited, early orders are requested.

THE ALBERT SPROUT (Melville).—A hybrid between the Drumhead Savoy and the Brussels Sprout. The stems are long, studded with heart-like Sprouts, and having a top resembling a small Savoy. As a late hardy winter and spring vegetable it will be found most invaluable, being fit for use when other Sprouts are over, and vegetables are scarce.

"The flavour after cooking was all that could be desired, being mild and mellow, without any kind of coarseness."—*Gardeners' Chronicle*, April 23, 1864. Price 1s. per Packet.

DALMENY SPROUTS (Melville).—A valuable hybrid between the Cabbage and Brussels Sprouts. The flavour is free from the Savoy Sprout taste. After the tops are cut off, a fine succession of Sprouts is obtained. 2s. per oz., or 6d. per Packet.

SHEARER'S LATE WHITE BROCCOLI.—Heads large and compact, pure white, fit for use in April and May.

Mr. LEES, Gardener to the Earl of Haddington, Tyninglame, writes of this valuable variety—"I have great pleasure in bearing testimony to the superior quality of Shearer's Broccoli. I have grown all the new Broccoli which have come out for years, and they are not few, and I have not met with one which is equal to this variety, either for whiteness or fine flavour. It is a very hardy protecting sort, and comes into use in April and May. 1s. per Packet.

THE HOLME PARK LETTUCE.—S. & M. have the pleasure of sending out this valuable New Cos Lettuce for the first time. It has large crisp heads of good flavour, but its great recommendation is its standing so long fit for use without running to seed. It was grown alongside of 16 varieties, including the sorts of recent introduction, and was found to be the last to run to seed. For general purposes it will be found the most valuable Lettuce in cultivation.

"Last summer, amongst other varieties, such as the Alma, Moore Park, Neapolitan, and several others, I grew the Holme Park, and found it the very best for a hot season, as it stood far longer than any of the others before it ran to seed; and in other respects it is first-rate, being large, crisp, and sweet, and does not require tying up, but forms itself into a compact-hearted Lettuce something in shape like the Barrack Cabbage. I can strongly recommend this variety to all who esteem fine Lettuce in the heat of summer."—DAVID THOMSON, Archerfield, in the *Scottish Gardener*.

Similar testimonials have been received from Mr. ROSE, gr. to His Grace the Duke of Roxburghe, Mr. FAIRBAIRN, gr. to His Grace the Duke of Northumberland, Syon House, and many others. 1s. 6d. per packet.

SMITH'S EARLY POTATO.—Very distinct, and the best round Potato in cultivation for first use. 12s. per Bushel.

From the ROYAL HORTICULTURAL SOCIETY, *Chiswick.*

"We have grown Smith's early Potato for the last two seasons: it proves to be quite distinct, and about the same in point of earliness as the Handsworth, but much more robust, more prolific, and of better quality than that variety. We consider it the best early round Potato that has come under our notice, and have been saving all the seed possible to grow for general use in the garden."

From Mr. SCRYMGEOUR, *Sonning, near Reading.*

"With regard to the Potato you sent me, I may say that we were so pleased with them, that I shall grow no other for second crop; its quality, earliness, and productiveness, prove it a first-class variety."

From Mr. FAIRBAIRN, *Gardener to the* Duke of Northumberland, *Syon House, London.*

"I planted Smith's early Potato on March 24, and dug some of them on June 1, and found them to be quite ripe. There are a good many points in their favour; they are a beautiful shape, few eyes, and very white and floury; they are the earliest round Potato I know of."

FAIRBAIRN'S PINK SEEDLING, raised by Mr. Fairbairn, Gardener to the Duke of Northumberland, Syon House, from the 100-fold. It is an extra good keeping variety, very handsome and productive. A prize-taking variety. 8s. per Bushel.

The Trade prices of the above may be had on application.

ROYAL BERKSHIRE SEED ESTABLISHMENT.

ECONOMY IN THE GARDEN.

SUTTON'S

UNRIVALLED COLLECTIONS of GARDEN SEEDS for ONE YEAR'S SUPPLY.

ALL GOODS CARRIAGE FREE, EXCEPT VERY SMALL PARCELS.

1. A COMPLETE COLLECTION of KITCHEN GARDEN SEEDS for ONE WHOLE YEAR'S SUPPLY, with Instructions on Cultivation .. £3 3 0
2. A COMPLETE COLLECTION of KITCHEN GARDEN SEEDS, in quantities proportionately reduced 2 2 0
3. A COMPLETE COLLECTION of KITCHEN GARDEN SEEDS ditto 1 11 6
4. A COMPLETE COLLECTION of KITCHEN GARDEN SEEDS ditto 1 1 0
5. A COMPLETE COLLECTION of KITCHEN GARDEN SEEDS ditto 0 15 0
6. A COMPLETE COLLECTION of KITCHEN GARDEN SEEDS for a SMALL GARDEN 0 10 6
7. A COMPLETE COLLECTION of KITCHEN GARDEN SEEDS, extra quantities, for a LARGE FAMILY 5 5 0

The sorts of Vegetables included in these Collections are those which have proved to be the most prolific, best flavoured, and most worthy of general cultivation, and of which sorts we have therefore grown large Crops of Seed. We exclude from our Collections not only inferior old sorts, but also such new ones as we have been unable to test the merits of, and which are selling at high prices. By this means, and from the great convenience experienced in supplying every purchaser with the same sorts, we are enabled to furnish a Complete Collection at much less expense than when a Gentleman or his Gardener makes his own selection; but if the latter mode of ordering is preferred, we shall be happy to send our DESCRIPTIVE CATALOGUE, with prices of every article, which are fixed as low as possible; but we cannot supply the quantities named below for the small sums prefixed, if the SORTS are selected either entirely or in part by the purchaser.

QUANTITIES CONTAINED IN SUTTON'S COLLECTIONS :—

	£3 3 0 Collection.	£2 2 0 Collection.	£1 11 6 Collection.	£1 1 0 Collection.	15s. Collection.	10s. 6d. Collection.
PEAS, the best sorts for succession, as proved in Messrs. Sutton's Trial Grounds	20 quarts	12 quarts	9 quarts	6 quarts	4 quarts	4 pints
BEANS, the best sorts for succession do. do.	10 ditto	6 ditto	4 ditto	3 ditto	2 ditto	2 ditto
FRENCH BEANS, Runners and Dwarfs do. do.	6 pints	3½ pints	3 pints	1½ pint	1½ pint	1 ditto
BEET, the finest in cultivation	3 ounces	2 ounces	2 packets	1 packet	1 packet	1 packet
BORECOLE, or Sprouting Kale, of best sorts for succession ..	5 packets	4 packets	3 ditto	3 ditto	2 ditto	2 ditto
BRUSSELS SPROUTS, fresh imported seed	1 large pkt.	1 large pkt.	1 ditto	1 ditto	1 ditto	1 ditto
BROCCOLI, the best sorts for succession, as tested in Messrs. Sutton's Sample Ground	8 large pkts.	7 ditto	6 ditto	5 ditto	4 ditto	2 ditto
CABBAGE, best sorts for succession	8 packets	6 packets	5 ditto	4 large ditto	3 ditto	1 ditto
SAVOYS, fine or curled	4 ditto	3 ditto	3 ditto	2 large ditto	1 ditto	1 ditto
CARROT, best sorts for summer and winter use	16 ounces	10 ounces	7 ounces	3 ounces	2 ounces	1 ounce
CAULIFLOWER, true Walcheren and others	2 large pkts.	2 large pkts.	1 packet	1 packet	1 packet	
CELERY, white and red	2 ditto	2 packets	2 ditto	2 ditto	1 ditto	1 packet
COUVE TRONCHUDA, a most delicious vegetable	1 packet	1 ditto	1 ditto	1 ditto	1 ditto	1 ditto
ENDIVE, best sorts	1½ ounce	2 ditto	1 ditto	1 ditto	1 ditto	1 ditto
CRESS, plain, curled, &c.	1½ pint and 2 packets	8 ounces & 2 packets	6 ounces & 1 packet	4 ounces & 1 packet	3 ounces & 1 packet	3 ditto
CUCUMBERS, the best sorts in cultivation	4 packets	3 packets	3 packets	2 packets	2 packets	1 ditto
LEEK, large sort, very fine	1 ounce	1 ounce	1 ditto	1 ditto	1 ditto	1 ditto
LETTUCE, Sutton's Superb Cos, and others, for succession ..	5 packets	4 packets	3 ditto	3 ditto	2 ditto	2 ditto
MUSTARD	1 quart	1 pint	½ pint	4 ounces	3 ounces	2 ounces
MELON, choicest sorts known	3 packets	2 packets	2 packets	1 packet	1 packet	1 packet
ONION, true Reading and others	14 ounces	8 ounces	6 ounces	3 ounces	2 ounces	1 ounce
PARSLEY, Myatt's and other curled kinds	3 ditto	2 ditto	1 ditto	1 ditto	1 packet	1 packet
PARSNIP, Student	6 ditto	4 ditto	3 ditto	2 ditto	1 ounce	1 ditto
RADISH, finest sorts for succession	1 pint and 10 ounces	14 ditto	9 ditto	6 ditto	4 ditto	3 ounces
SPINACH, summer and winter kinds	3 pints	1½ pint	6 ditto	4 ditto	3 ditto	2 ditto
SALSAFY	1 large pkt.	1 packet	1 packet			
SCORZONERA	1 ditto	1 ditto	1 ditto			
TURNIP, finest sorts for succession	16 ounces	8 ounces	6 ounces	3 ditto	2 ounces	2 ditto
VEGETABLE MARROW, best sorts	1 large pkt.	1 large pkt.	1 packet	1 packet	1 packet	1 packet
SWEET and POT HERBS, of all the useful kinds	8 packets	6 packets	4 ditto	4 ditto	2 ditto	2 ditto
MIXED GOURDS	1 ditto	1 ditto	1 ditto	1 ditto		
RAMPION	1 ditto	1 ditto	1 ditto	1 ditto		
TOMATO	1 ditto	1 ditto	1 ditto	1 ditto		
CAPSICUM and CHILI	2 ditto	2 ditto	1 ditto			
CORN SALAD	1 ditto	1 ditto	1 ditto	1 ditto	1 ditto	1 ditto
ORACHE	1 ditto	1 ditto	1 ditto	1 ditto		

From H. WHIELDON, Esq., *Court House, Chipping, March* 23, 1865.
"No one in this neighbourhood for 20 miles round had such Celery as I had this season from your seed; in fact, all my crops, although the summer was unprecedentedly dry, were the envy of every one."

From Mr. F. ENSTON, *Heligan, St. Austell, June* 12, 1865.
"My vegetable garden is the admiration of all that see it, the whole of the seeds are so true and good."

From JOHN HICKEN, Esq., *Bourton, Rugby, April* 19, 1865.
"I have with your seed won the prize offered by the Rugby and Dunchurch Association six times in succession."

From W. B. DYER, Esq., *Kendal, April* 18, 1865.
"The vegetable seeds are well up, I must add with that certainty and regularity I have always found in the seeds I have had from you."

From Major WILY, *Roath, Cardiff, May* 11, 1865.
"Of the seeds furnished by you not one has failed, and they are the admiration of the gardeners about here."

From Mr. WM. GULLICK, *Gardener to* H. Clark, Esq., *Edgcumbe, August* 16, 1865.
"At the Tavistock Cottage Garden and Amateurs' Show I exhibited a collection of vegetables, the produce of your seeds, which took the first prize, beating several very good competitors. I also exhibited a Melon (Ward's Scarlet Flesh) which took the first prize."

From Rev. JOSEPH HEATH, *The Parsonage, New Bolingbroke, January* 19, 1865.
"The vegetables from Messrs. Sutton's seed carried off nearly all the prizes at the Society's Show last year, and the fact was announced in the *Stamford Mercury*."

From Rev. J. W. BARTON, *Stramshall Parsonage, January* 11, 1865.
"Mr. Barton was successful again last year at the Uttoxeter Show, having got first and second prizes for all the vegetables exhibited."

From Professor BUCKMAN, *Bradford Abbas.*
"Your seeds of last year were excellent."

If any of the above articles are not required they should be named when giving the order, and increased quantities of other sorts will be given in lieu of those omitted.

☞ *By ordering one of the above Collections once a year much trouble and expense will be saved.*

SUTTON'S COLLECTIONS of FLOWER SEEDS, Free by Post or Rail.

Amateurs requiring showy kinds of Flower Seeds are respectfully recommended to leave the selection of sorts wholly or in part to us, and we will supply those which we know to be really worthy of cultivation. Should any sorts of Flower Seeds be already possessed, they should be named, that we may omit them.

No. 1. The best 100 sorts of FLOWER SEEDS, hardy and half hardy, with instructions £1 1 0
No. 2. The best 50 sorts of FLOWER SEEDS, ditto 0 10 6
No. 3. The best 36 sorts of FLOWER SEEDS, ditto £0 7 6
No. 4. The best 24 sorts of FLOWER SEEDS, ditto 0 5 0
No. 5. The best 24 sorts of FLOWER SEEDS, all hardy 0 5 0

SEEDS for EXPORTATION.

SUTTON AND SONS are constantly packing FARM and GARDEN SEEDS for Australia, India, New Zealand, Africa, and other Foreign parts, and receive the most gratifying accounts of the excellent condition in which they arrive, and of the crops produced from their Seeds.

From Messrs. CROUCH, *Portland, Victoria.*
"We may remark that Messrs. Sutton's shipment of seeds have given the greatest satisfaction as far as they have been tried; the Grasses, Clovers, and Lucerne are up. We find the crop will be far too thick. If the vegetable seeds turn out as well, we may say that, without exception, they are the best lot of seeds ever received in this place from Europe."

From Sir R. MONTGOMERY, Lieutenant-Governor, *Punjab, India.*
"The Seeds you sent me last year answered very well, and I carried off the First Prizes both for vegetables and flowers, as you will see by an extract from the *Lahore Chronicle*, which I enclose."

And numerous others.

SUTTON AND SONS deliver the packages free of all expense to the ship's side at London, Southampton, Bristol, and other English Ports. Prepayment is requested for all Foreign orders, and a few days' notice for packing previous to the departure of a vessel.

Also NATURAL GRASSES for LAWNS and MEADOWS, fine sorts of MANGEL WURZEL, TURNIP, and other AGRICULTURAL SEEDS, Priced Lists of which will be forwarded post free on application.

Remittances may be made by Cheques on Town or Country Bankers, or by Post Office Orders payable to

SUTTON AND SONS, ROYAL BERKSHIRE SEED ESTABLISHMENT, READING.

Just published, price 1s.,

CARTER'S GARDENERS' and FARMERS' VADE MECUM, containing a most extensive List of Flower, Vegetable, and Farm Seeds; also a Calendar of Operations for Flower and Kitchen Gardens, together with copious remarks on Farm Management.

JAMES CARTER & Co., 237 and 238, High Holborn, London, W.C.

LAXTON'S PROLIFIC EARLY LONG-POD PEA.—We have much pleasure in introducing this valuable variety, raised by Thomas Laxton, Esq., Stamford, to the notice of the Trade; some pods (in a green state) were exhibited by us at Mark Lane in June last, averaging 11 and 12 Peas in a pod, and they were pronounced by several eminent members of the London Seed Trade to be an exceedingly fine variety. For a second early Pea, and a Pea for early sowing in autumn, there is no Pea of a similar class in cultivation to equal it, and we feel every confidence that it will be in general cultivation in a very few years. The Pea has the same habit and character as Dickson's Favourite and Auvergne, excepting that the pods are nearly double the size of these varieties. We have been favoured with the annexed Testimonials, wherein will be found full corroboration of our own opinion as to its being "a first-class Pea."

COPY OF TESTIMONIALS.

"GENTLEMEN,—In reply to your inquiries respecting Mr. Laxton's New Early Long-podded Pea, I beg to inform you that I have seen the variety on more than one occasion, growing side by side with Dickson's Favourite and the Auvergne. I have also personally tested, and can confidently recommend the New Pea as a first-class second early variety; the pods are finer and more prolific than those of Dickson's Favourite, the Auvergne, or any other variety ripening so early.—Your obedient Servant, M. MATHESON, Gardener to the Marquis of Exeter, K.G., Burghley Park."

"Stamford, Nov. 11, 1865.

"GENTLEMEN,—I have seen the New Early Prolific Long-podded Pea, raised by Mr. Laxton, growing side by side, under similar circumstances, with Dickson's Favourite and the Auvergne, and consider the former quite a distinct variety, the pods being large, more of the Scimitar shape, and containing upon an average from 10 to 14 peas in a pod. Sown on the same day as Sangster's No. 1, the new Peas were fit to be gathered four days after this variety. I consider it decidedly an improvement upon all other early Peas out.—I am, Gentlemen, your obedient Servant, GEORGE ABBOTT, Agent to Chaplin & Horne, and one of the Committee and Exhibitor of Stamford Horticultural Society."

"Stamford, November, 1865.

"GENTLEMEN,—During the past three years I have seen Mr. Laxton's Seedling Peas growing under similar circumstances with about 50 other sorts, and consider the Early Prolific Long-podded variety has the longest and finest pod of any yet sent out. It is an immense cropper, and is certainly a very distinct and superior Pea in every respect to Dickson's Favourite and the Auvergne.—"I am, Gentlemen, your obedient Servant, C. CLARK, Superintendent Stamford Horticultural Society's Exhibitions.

"P.S.—I grow a great number of Peas, but have seen none to be compared to Mr. Laxton's."

In Sealed Quarts and Pints, 3s. 6d. per quart, 2s. per pint.
Price to the Trade on application.

The following Seedsmen have ordered supplies of this invaluable Pea:—

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Bunyard & Son, Messrs., Maidstone
Church, W., Mr., Mulbarton
Cooper & Bolton, Messrs., Fleet St.
Davidson, J., Mr., Ayr
Dean, W., Mr., Bradford
Dicksons & Brown, Messrs., Manchester
Dods, W., Mr., Haddington
Drummond & Sons, Messrs., Dublin
Drummond & Sons, Messrs., Stirling
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Hannaford, W., Mr., Teignmouth
Henderson, E. G. & Son, Messrs., St. John's Wood
Hurst & Son, Messrs., Leadenhall Street, E.C.
Higgins, D. H., Mr., Clonmel
Jenkinson, M., [Mr., Newcastle, Staffordshire
Kilvington, G., Mr., Briston Thetford
Mackey, J. W., Mr., Dublin
Maule & Son, Messrs., Bristol
Nelson, John, Mr., Bristol
Nutting & Sons, Messrs., Barbican
Parsons, John, Mr., Leamington
Pierpoint, B. L., Mr., Warrington
Platz & Son, Messrs., Erfurt, Prussia
Poynter, R. H., Mr., Taunton
Ridley, G., Mr., Durham
Sang & Son, Messrs., Kirkcaldy
Saunders, John, Mr., Jersey
Smale, W. B., Mr., Torquay
Spence, E. B., Mr., Darlington
Sutton & Sons, Messrs., Reading
Toole & Co., Messrs., Dublin
Waite, Burnell & Co., Messrs., High Holborn
Williamson, G., Mr., Thetford
Wood & Son, Messrs., Maresfield
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LINCOLNSHIRE GEM PEA is the best Pea grown, superior to Dixon's Yorkshire Hero or Veitch's. See Testimonials, last week's Paper. 3s. 6d. per quart.

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AUBRIETIA CAMPBELLI (effective spring flower).
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VERONICA FRUTICOSA GLAUCA.
CLIANTHUS DAMPIERI, in varieties (seed only).

Coloured Plates, post free on receipt of Stamps, of the following:—
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For description of the above see E. G. HENDERSON & SON'S New AUTUMN CATALOGUE, forwarded post free.

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New Seeds, Growth of 1865.

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The prices are moderate and the quality fine, owing to their having been harvested well.

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The Gardeners' Chronicle.

SATURDAY, DECEMBER 30, 1865.

MEETING FOR THE ENSUING WEEK

SATURDAY, Jan. 6 { Royal Horticultural Weekly Show, at South Kensington .. .. 2 P.M.

NATURE has pretty equally divided her gifts, according to the Old World the genus which produces the largest flowers—Rafflesia; to the New that which has the largest undivided leaves—Victoria; and, strange to add, she had hidden these most gigantic of all vegetable forms from European eyes until the end of last century. No sooner were they made known, than they became the prize on the attainment of which the heart of every true horticulturist was set; but although efforts were made to bring them into cultivation, about half a century elapsed before that object was attained. At last, in 1849, Victoria regia was safely lodged in our hothouses, and few will forget the thrill of delight which ran through the gardening world when it was announced that the Queen of Water Lilies was actually in flower at Chatsworth. We have had to record many horticultural triumphs, such as the establishment of Cinchona Plantations in India, and the successful cultivation of Orobanches, the flowering of the dwarf Cocoa Nut, and the fruiting of the Mangosteen in Europe; but none of these events excited such attention as that at Chatsworth. A few years later, in 1854, a yet greater horticultural feat was achieved. Mr. TEYSMANN, the Curator of the Botanic Gardens at Buitenzorg in Java, succeeded in cultivating the largest of all known flowers, that curious stemless, leafless parasite, the Rafflesia Arnoldi, bearing flowers which often measure 3 feet across, petals a foot long, and nectaria capable of holding 12 pints of water. How long will it be before this "flower, very large! beautiful! wonderful!" as the Malay servants justly termed it, when running breathlessly to Dr. ARNOLD to tell him of what they had just seen in the Sumatran forest—how long will it be, we may ask, before this floral giant will be in our hothouses? How long will the tropical house which LOUDON designed for Rafflesias in the centre of the Birmingham garden remain a castle in the air? Twelve years have elapsed since Mr. TEYSMANN succeeded in growing the plant, and published the secret of his mode of cultivation, and yet we have not heard of a single honest attempt to profit by the example of the great Dutch gardener and explorer.

After carefully reading his report, and bearing in mind that we do now grow many genuine parasites, such as Cuscutas, Orobanches, and Loranthaceæ, formerly deemed beyond the gardener's skill, we cannot but think that the cultivation of the Rafflesias is merely a matter of £ s. d., a whim, if you like to call it so, which any gentleman can gratify by writing a cheque for a few hundred pounds; or a good advertisement, and a cheap one to boot, for any enterprising nurseryman who has the pluck to go into it.

Rafflesia Arnoldi has been ascertained to grow parasitically on two species of Cissus, viz., C. scariosa and C. serrulata; but there is reason to believe that, like most parasites, it is not very particular what exact species it takes up its abode on, provided climatic and other circumstances are suitable. At all events, the fact that this Rafflesia is known to flourish on at least two species of Vine, shows it to have a tendency that way. This may prove a great point in our favour. Our readers are aware that modern science has established the generic identity of Cissus and Vitis, and as we have good representatives of the latter genus in the shape of Vitis vinifera, the Grape Vine, some of our Vineries might be converted into Rafflesia houses, and the seeds might be sown on the roots and lower part of the stem of strong old plants. Rafflesias would require a higher temperature than is generally accorded to the Grape Vine, but we have seen the latter bearing fruit in the hottest part of the globe, and do not therefore anticipate any obstacle from applying the necessary degree of temperature to Rafflesias when sown on the roots and stems of our common Vine.

It is impossible *ex cathedrâ* to give any hints about the means to be adopted in introducing the seeds of these floral giants. We know very little indeed of the nature of the Rafflesia seeds, and how long and under what circumstances they retain their vitality. The safest plan, of course, would be to dig up some tolerably large Sumatran Vitis, establish them well in Wardian cases, and inoculate the Rafflesia seeds in the manner Mr. TEYSMANN has done. We do not think that it would be necessary to ship "a few hundred feet of the strands of a tropical climber inoculated with the germs of the wondrous Rafflesia." The chances are that a Vitis of such length, suddenly deprived of the greater part of its roots, and transported to Europe, would die before it reached its destination.

But there may, after all, be no real necessity for having recourse even to the precautions we have mentioned. They can only be required, if the assumption be correct that Rafflesia seeds lose their germinating power very rapidly unless they are inoculated without loss of time in the plants upon which they grow. The Rafflesias decay a few days after flowering, and the ripening of the seeds must therefore be very rapid. Mr. TEYSMANN's idea is that they are carried away by insects, probably by some living underground, as he found the greater number of the buds on the thinner roots of Vitis, although a few flowers were also noticed by him on the stem several feet above the ground. But with all due deference to Mr. TEYSMANN, the insects may not do anything of the sort; the seeds may be scattered about as those of other plants; they may retain their vitality for a reasonable period, and begin to germinate, like those of Orobanches, the moment they come in contact with the plant upon which they live. At all events, before any great expense is incurred, it might be worth while to act upon the inexpensive assumption that Rafflesia seeds retain their vitality for a reasonable period, and will grow on our Grape Vine as readily as on any of the Vines of the virgin forests of Sumatra.

A MEMOIR by Dr. A. S. TAYLOR, on a case of POISONING with FUNGI at Ipswich, appears in the last number of the Guy's Hospital Reports, p. 381, which, coming as it does from such an unquestionable authority on matters which relate to medical jurisprudence, requires some notice, as it contains one or two matters which might hereafter mislead. Dr. TAYLOR does not profess to be a mycologist, and were it not for a reference contained in the report, to a case which occurred near Bury St. Edmund's during the past summer, and which was noticed by us in this Journal, Sept. 23, 1865, one or two inaccuracies might perhaps have been passed by as harmless. We were however in correspondence with Mr. IMAGE on the case in question, and he kindly gave us every information, and forwarded us specimens of the supposed fungous matter which was found on a *post mortem* examination. As the examination of these gives a very different impression from the erroneous report which was published at the time in a country paper, and which did anything but justice to Mr. IMAGE's observations, we think it imperative to state what we believe to be the actual case.

It is not necessary to make any other statement with respect to the Ipswich case reported by Dr. TAYLOR, than to say that some of the Fungi which were forwarded to him, and which from their offensive smell, resembling that of putrescent animal matter, and their actual state of putrefaction, could scarcely have admitted of correct determination even by a practised mycologist, were referred to Amanita citrina of PAULET. Why a memoir should be referred to which was published by PAULET in 1776, rather than to the works of FRIES or some modern author, Dr. TAYLOR does not explain. The peculiar form of Agaricus phalloides, figured by PAULET, is certainly not a very common one in this country, but the species, as well as the very similar one, Agaricus mappa, is undoubtedly highly poisonous, and ORFILA reports a case in which six persons suffered who partook of a stew composed of it. Dr. TAYLOR speaks in the memoir referred to, of some Fungi from Cambridge supposed to be poisonous, which were submitted to Dr. LINDLEY. That excellent botanist, however, would never have ventured in a matter of some importance to determine the species of an Agaric had it been submitted to him, as he was confessedly unacquainted with the subject. The truth is that the article on Fungi in the "Vegetable Kingdom" was not prepared by Dr. LINDLEY at all, but by another person, as stated in a foot-note,

and to whom Professor Henslow sent the specimens in question.

Dr. Taylor strangely confounds Agaricus arvensis with the true A. Georgii. The latter has white gills, but not the former, which is far more commonly sold in London than A. campestris, except where specimens of the latter are derived from artificial cultivation.

These, however, are matters of little importance. The Bury case, however, is not so, as it may be quoted hereafter in some judicial investigation on the authority of Dr. Taylor. It is quite true that some granules were found in the stomach of a child 53 days after death under suspicious circumstances, and the presence of these granules suggested the probability or possibility of poisoning with Fungi. A practised mycologist would not have been misled, even supposing the nature of these granules clearly ascertained, as he would have known that though they might possibly have been produced by some mould, they were not the least likely to have been referable to any form of an Agaric. Mr. Image most kindly sent some of the granules to us, without the slightest reservation, and the first impression on submitting one to the microscope was certainly in favour of its being a particular state of some Fungus. But on reflection it seemed so improbable that it had anything to do with the death of the child that we determined to submit what remained to a chemical test, and on treating them first with sulphuric acid and then with nitric acid, they passed away with strong effervescence, and when the moisture was evaporated left crystals, which as far as we could ascertain from the minute quantity we had to examine, were crystals of carbonate and nitrate of lime. The probability is, though we have no information to that effect, that the child had taken chalk mixture, and that the granules were due to it. We did not detect any crystals of arsenic, and it is very possible that the child may have been poisoned with Fungi, though the granules afforded no evidence that such was the case, and could not probably have suggested any suspicion as to poisoning with Fungi. Certainly the Bury case ought not to be quoted in any treatise on medical jurisprudence, except to show how easily erroneous conclusions may arise from phenomena which are not thoroughly understood.

No general rule can be given for the determination whether Fungi are poisonous or not. Colour is quite indecisive, and some of the most dangerous Fungi, and amongst them Agaricus phalloides, are void of any unpleasant smell when fresh, though the most wholesome may be extremely offensive when old. Experience is the only safe test, and no one should try species incautiously with whose character he is not thoroughly acquainted. *M. J. B.*

—— The Annual General Meeting of the Gardeners' Royal Benevolent Institution is to be held at the Bedford Hotel, Covent Garden, on Thursday, the 18th January next. It is announced that on this occasion two of the candidates for election, namely, William Snow, late of Putney, aged 67, a subscriber of 22 years; and Fanny Foster, of Clapham, aged 72, widow of the late John Foster, a subscriber of 21 years, having in every way complied with the regulations, will, in conformity with the rules, be placed upon the list of pensioners without an election. Let us add that the commencement of a new year affords a good opportunity to those who have not hitherto recognised the duty of supporting such an Institution, to make amends by becoming subscribers.

—— We understand that the remarks we made at p. 1201 on the Non-effective Arrangements at our present Exhibitions have already borne fruit, and that it is intended to hold a discussion on the subject at the first of the Royal Horticultural Society's Tuesday meetings in next year, which takes place in the Council Room on the 23d January. The discussion is to be "on the best method of arranging Flower and Fruit Shows, with a view to the introduction of a more artistic and decorative mode of displaying the various specimens sent for exhibition." We are informed that Mr. John Hungerford Pollen will open the discussion with a short address on the subject. We hope some practical and practicable hints may be dropped, which will lead to a general improvement in these matters, for certainly some improvement is needed. We trust, moreover, that exhibitors will fall in with such changes for the better as it may be found possible to adopt.

—— We learn from a Californian paper that Mr. Thomas Bridges, so well known for his early botanical explorations in Chili, Peru, and Bolivia, and more recently in Panama, California, and British Columbia, died on the 9th of November last, while on his return from a scientific expedition to Nicaragua. Not only botany, but ornithology, entomology, and conchology have profited largely by Mr. Bridge's researches, and his loss will be generally regretted by the cultivators of these various sciences.

—— We regret also to announce the death of Mr. G. Francis, the able Superintendent of the Adelaide Botanic Garden. He has, we hear, been succeeded in his office by Dr. Schomburgk, the brother and fellow-traveller of the late Sir Robert Schomburgk.

New Plants.

322. Odontoglossum Dawsonianum.

Aff. Odontoglosso cœrulescenti A. Rich. et Gal. ! et O. rubescenti Lindl. Racemo paucifloro tri- quadrifloro, bracteis triangulis carinatis, sepalis lanceolatis subacutis apicem usque maculatis, petalis cuneato-oblongis acutis, labelli ungue a basi dilatata transverse ovato-ligulato, apice abrupte bidentato, dentibus divaricatis papuliformibus, carina interjecta, lamina abbreviata subrotunda retuse crenulata, columna aptera.

Oh these Odontoglots! Which is a species? Which is a variety? Which is a mule? Why do Messrs. Low & Co. introduce such quantities of illegitimate plants, not bearing proper certificates as to their descent? And why do they call for names for all such introductions? Would it not be safer to have blossoms of three times the number of the new company, and thus to put one's mind right as to species and hybrids? These are our ideas as to all these new things—new-looking to-day and doubtful to-morrow, when with cruel boldness an unexpected connecting link makes its appearance.

No wonder we were doubtful as to this very pretty introduction. Imagine a lovely plant, in the way of Odontoglossum Rossii, bearing slender racemes of three or four flowers, each larger than a florin; the sepals rose-coloured, with crimson blotches extending to the apex, and the petals and lip pure rose. "Why do you not call it Ehrenbergii?" Odontoglossum Ehrenbergii, we reply, has the callosity at the base of the lip quite blunt at the apex, without any teeth; its colours, too, are those of the old Odontoglossum Rossii, Lindl. "But why is it not Odontoglossum cœrulescens of Achille Richard and Galeotti?" This has larger longer flowers, with narrower acute sepals and petals, a much larger and longer plate on the lip, and the anterior callosity quite retuse, bearing a keel on each side. "And why is it not Odontoglossum rubescens of Lindley?" This, too, has a much longer flower, quite as long as that of O. cœrulescens, and is scarcely well distinguished by the anterior callosity being emarginate and very broad. "Are you sure of the constancy of these features?" No; no one can say he is; but, from all we have seen, we believe they are so. But if ever, as is possible, connecting links between all these species should be found, and such as are certainly not hybrids, it would still be a very distinct and most lovely variety. Hence we do not hesitate to name the beautiful plant Odontoglossum Dawsonianum, in honour of an eminent collector, T. Dawson, Esq., of Meadow Bank, near Glasgow.

This Odontoglot has just been introduced by Messrs. Low & Co., who have favoured us with dried flowers sent home by their most assiduous Mexican collector, one of those *raræ aves* among collectors, who, instead of walking and smoking, as they now appear to do generally, think of science and begin to dry specimens. The credit of the discovery of the species appears to belong to H. Galeotti, who also discovered another very curious unpublished species of this genus. *H. G. Rchb. fil., Hamburgh.*

THEORY AND PRACTICE OF VENTILATION.

No. IV.

We come now to treat of the physical qualities and mechanical force of the air. The ancients materialised the air too much. With them it ranked as an element. Earth, fire, water, and air built up their universe. However wrong in their theories, or mistaken in their classifications, they were not far from the truth in their broad statements of fact. The present order of things is mainly built up and sustained by the influence of these four powers or elements, as they called them. The earth is the solid basis on which all rests. Water is Nature's great solvent. Heat or fire unlooses the strong grasp of attraction of cohesion on solid matter, and sufficiently loosens or disintegrates it to supply the wants of vegetable and animal life. And the air provides at once the workers and the workshop for transforming the raw materials of the world into forms of usefulness, beauty, and glory.

If our fathers overrated the importance of the atmosphere, we err still more by underrating it. Our true theories concerning it have not yet permeated deep enough to reach or control our practice. Because the air is not seen, it is too often spoken of and treated as if it were not; and this not only by those who measure alike the extent of their faith and the amount of their knowledge by the limited range of their bodily vision, but by many whose education has taught them a more rational standard of faith, and a broader basis of wisdom. Men intelligent on most other subjects continue profoundly ignorant on this. For proof, if proof were needed, it is only necessary to listen to the loose language and take note of the equally loose practice prevalent among gardeners in reference to ventilation. "Put on," or "take off" that air are their daily, hourly orders. Now, either they know that such orders are absurdly impossible, or they do not; and in either case it is high time these formulæ should be altered. The influence of our daily habits, thoughts, and language soon neutralises the effects of special teaching. Constantly speaking of the air, for instance, as a something that can be kept in or shut out at pleasure, will speedily override our true theories on the subject, supposing these to exist. But too often our everyday language in reference to any matter, affords the truest index to the measure of our knowledge. I decline, however, to accept this as the explanation of the looseness of expression in reference to ventilation. Multitudes who know better thus speak from habit and convenience alone. But there are many more who verily believe that air can be kept out or in as easily as a load of soil or bricks can be carted from one place to another. Air with them is a mere mechanical thing, used solely as a controller of temperature. Just as so much coal is thrown into a furnace to keep up, so air is swept through their houses to keep down the heat. In their estimation, when their houses are shut up they are destitute of air, when open they have "air on." Nothing could well be more contrary to fact.

Such ideas have the worst possible influence upon the young men engaged in gardening. As a class it is generally admitted they are less studious than they were. Doubtless there are many honourable exceptions; but taking them as a whole they seem to have resolved to learn their business more by the teaching of example than by the study of first principles that has distinguished so many of their predecessors—hence they are almost sure to accept many of our ideas about the air on trust. These ideas are most erroneously conveyed by the usual orders given, and in this manner false theories are propagated, and loose careless practice engendered. To a young man who either looks upon the air as a mere mechanical contrivance to control temperature or a thin attenuated essence that he may safely etherialise off the face of the earth if he can, strict orders about its circulation on chemical or alimentary grounds would seem absurd. Present to him its whole complex marvellous power on vegetable life, and he would cease to be an obstructive automaton grovelling in the dark, and become an intelligent agent to guide the elements of nature into the desired channels of special production.

It is much easier to find fault with existing practices and customs than to originate new and better ones; and it is incumbent on those who condemn old formulas to substitute new in their place. If "give" and "take off" air are to be abolished, what better expressions are available? "Ventilate that house," would be objected to by many as inaccurate. Aëration is difficult to pronounce and indefinite. In the absence of better terms I venture to suggest "open" and "shut." These are short as the usual words, and can become definite by stating back or front, or top and bottom, as at present. Quantity can readily be stated in inches or parts of an inch. To facilitate exactness in this respect, an index should form part of all mechanical appliances for the movement of ventilators. These expressions make no reference to the air at all, which would be far preferable to referring to it merely to convey false notions about it as at present. The index, as a test of exactness, would also have a good indirect influence. It would impress upon all concerned the importance of the air to vegetable life.

As illustrative of this importance I will notice some of the physical properties of the atmosphere. These come

within the range of our senses. The first lesson we learn about the air is, that it possesses great mechanical force and motive power. Wind is simply air in motion. The gentlest zephyr that plays with the blushing Rose-bud without robbing it of the pearly dew drops which add new lustre to its dazzling beauty, and the rudest tempest that ever strewed earth or ocean with the wreck of utter desolation, are only air moving at different velocities. From whence does the air itself derive these gentle or mighty powers?—simply from the fact, that air, subtile and intangible though it seems at first sight, is endowed with most of the properties of solids and liquids. It is subject, for instance, to the great law of attraction, and possesses inertia, impenetrability, compressibility, density, and elasticity.

Attraction is that latent power that binds all bodies to each other; imparts weight to matter, maintains suns and planets in their courses, and at the same moment steers the comet through its erratic orbit, and regulates the falling of an Apple or the return of an atom of dust to the earth. It is also the strong invisible cable that draws the air like a thick garment around the world, with a strain of 15 lb. to every square inch. Were this to be snapped asunder, the amazing velocity of the earth's course round the sun and on its own axis would speedily sweep off all the air, clear the world of vegetable and animal life, dissipate water, earthy matter and soft substance into space, and leave the earth whirling round the sun, a barren black mass of primitive rocks. Were it ever to relax its hold sufficiently to cause any serious difference in the velocities of the solid earth and its aerial covering, the probabilities are that the friction thus induced would rend asunder the hardest rocks, and scatter the substance of our globe in fragmentary *débris* through space. But the strong power of attraction binds the atmosphere so firmly round us, that it only lags behind or advances slightly before the earth at different points sufficiently to give a desirable and a most useful bend to the wind.

Speaking generally, the earth and air may be said to whirl through space together at the same velocity. Looking at the elastic and volatile nature of air, this is perfectly wonderful. That solid bodies should remain together in masses and adhere to the earth is to us natural enough. Their particles are bound together by the attraction of cohesion, which causes their atoms to stick together. That fluids, such as water, should remain on the surface is more wonderful. But chemical attraction comes to the aid of slight cohesive attraction to keep them there. But the air is a simple admixture of two gases; its particles instead of cohering, actually repel each other. They are bound together by no chemical affinity. If influenced, as it probably is, by magnetic or electrical attraction, these are quite as likely to repel it from as to draw it to the earth. As far as we know, the attraction of gravitation alone binds the air around us. What this power is we cannot tell. We can only allude to a few of the laws by which it works. The chief of these are — that the attractive power of all substances is in proportion to the quantity of matter they contain. Substances of equal bulk may contain very different quantities of matter. Lead and cork afford a striking instance of this. To attract each other equally the respective bulk of these substances would vary as 12 to 1. The large piece of cork, however, would only then contain the same amount of matter as the small lump of lead. It is on this principle that the attraction of the atmosphere on the earth is almost *nil*, while that of the solid earth on the air is so powerful. And all bodies draw other bodies to them in proportion to their mass. Attraction of gravitation also proceeds from the centre of bodies. Its force is greatest as bodies approach each other. Its power increases or diminishes in proportion to the squares of the distances between separate masses of matter. These laws of attraction of gravitation are of the first importance as bearing upon the atmosphere. It is in virtue of these that the atmosphere presses downwards, and is endowed with gravity or weight. For the same reason the weight of the air varies at different latitudes and various altitudes. The air is heavier at the poles than at the equator, independent of the great difference of temperature. These laws also explain the diminution of atmospheric weight or pressure on the top of high mountains. For every mile of ascent the downward pull of the earth on the air is lessened and weakened by the square of the distance. Hence the rapid diminution of atmospheric pressure on ascending into the atmosphere. It is not a correct explanation of this extraordinary difference of weight to say that it originates from the fact that the higher strata of the atmosphere have less of the superincumbent mass of air to support than those nearer the surface, and that they are consequently lighter, just as the bottom layers of a load of wool will be more compressed than the top. For apart from the influences of attraction of gravitation, there is no reason why the air should press itself more firmly down against the solid earth than up against the open sky. It is well known that up and down, however convenient, as expressions, have no existence in fact, and there is a strong reason why the present order of atmospheric pressure should be reversed. But the truth is, the diminution of weight in the atmosphere as we ascend arises chiefly, if not entirely, from the fact, that the higher we ascend above the earth, the less strongly is the air drawn towards it by attraction; consequently, its particles bound further apart from each other, and it is thus lightened. Atmospheric pressure or weight, then, is simply one of the results of attraction of gravitation, and a measure of the force with which the solid mass of the earth pulls its outer gaseous covering around it. It is of such vital importance to ventilation, and, indeed, the whole science of gardening and the economy of the universe, that a few facts demonstrative of its existence, and illustrative of its nature and force, cannot be out of place. *D. T. Fish.*

TURFING OVER VINE BORDERS.

The question as to whether it is desirable or not to turf over the borders of fruit trees comes up occasionally to the surface of the troubled sea of modern gardening literature, but never seems to excite any very great degree of attention, or claim much observation, probably because practical men generally can perceive at a glance that the practice is very much in opposition to that which they are accustomed to consider the right one. The subject is referred to now, because some time back a correspondent expressed his intention of turfing over his Vine borders, and keeping the Grass short; first, as he said, for the sake of a neat appearance; next, because, being laid at a proper slope, heavy rains would pass away without injury; and, finally, because it would secure many important conditions affecting the well-being of the roots; and he concluded by asking for information.

Now, if my opinion were to be asked on the subject, I should feel inclined to give it in the curt form in which advice was once offered to persons about to marry—"don't;" but as that would be but scant courtesy, and as the subject is not an unimportant one, I have endeavoured to throw together a few remarks, which, bearing on the subject, may perhaps be found of a general as well as individual interest.

The inference that the practice would be beneficial to the roots forms the sole test on which a reply can be founded, and my opinion will most probably not coincide with that of the querist. The well-being of the roots implies that they are placed in a medium from and through which they may extract the necessary elements of food, consisting of gaseous and atmospheric matter, in such proportions as we are taught by experience are most conducive to the healthy performance of their functions. Now the first great requisite in the furnishing of this medium is a thoroughly efficient system of drainage, which when secured is of itself eminently calculated to correct and render harmless one of the evils which the turfing over the border is intended to remedy, viz., the accumulation of heavy rains. This will be still further strengthened by attention to the next requisite, which is that the materials of which the border is formed shall be of such a composition as is calculated to preserve and maintain a certain degree of openness of texture, so that both air and water may permeate freely through it to the drainage below. It is also imperative that the light and heat of the sun may be free to act upon the surface of the border.

Vines are gross feeders, and no border, however well made, will suffice to supply their wants beyond a certain period, so that resort must in the end be had to surface cultivation, by which I mean keeping the surface of the border loosened, and frequently applying those stimulating substances by which the roots are attracted and preserved nearer the surface, and therefore most readily acted upon by the beneficial influences of the atmosphere, without which support other means would avail nothing.

Supposing, therefore, a border to be ever so well made and planted, and then turfed over with Grass, it is obvious that many of the conditions which we are accustomed to consider essential to good cultivation must be dispensed with. The benefit to be derived from the action of the sun's rays on the surface of the border would to a great extent be neutralised by the Grass, and this latter again would feed upon the best constituents of the border; while the absence of stimulating matter at the surface would cause the Vines to strike root deeper into the ground in search of fresh food. All this will be sure to tell to the disadvantage of the Vines in the long run; first in the ill-colouring of the Grapes, and eventually in the weakening of the whole system of the tree. Fortuitous circumstances arising from soil and situation might modify this to some extent in a few isolated instances, but under ordinary conditions of soil and cultivation such would be the effect of forcing the roots downwards in search of nourishment.

It is certainly very desirable during certain stages of the growth of the Vine to be able to ward off the injurious effects likely to arise from too great an influx of water into the border during heavy rains, but this may very easily be carried too far, and such officious treatment might, with a very efficient drainage, be much more advantageously dispensed with than some of the other conditions which govern success. At the same time it is well to have such means at command in case of emergencies—such, for instance, as when ripe fruit is required to hang long on the trees. And, after all, the actual time during which such contrivances are really required is comparatively so short, that any objections on the score of their being unpleasing in appearance should be well considered before being allowed to weigh against the requirements of superior cultivation. I would further observe that there is no need for such contrivances to be very unsightly. Thus large sheets of corrugated zinc are admirably adapted for the purpose, very durable, and certainly not ugly in appearance.

These remarks are not founded on theory. I have in the course of my experience turfed over more than one Vine border for the sake of appearance, but I never found anything so desirable in the practice as to recommend it for adoption under any circumstances whatever. On the contrary, in one case the trees were so much deteriorated as to render it necessary to re-make the border and renovate the Vines. I should indeed sooner expect to find Vines flourishing under a good coating of well-rolled gravel, than I should under Grass, however well kept it might be.

Amongst the considerations which ought to influence one in arriving at a just decision on this subject, is that of the temperature to which the Vines are to be subjected—whether they are to be forced very early, or but moderately early, or whether natural conditions and influences are simply to be assisted by a moderate heat, so as to assimilate the temperature more nearly to that of those countries in which the Vine is found to flourish and attain perfection without the aid of artificial heat. It is very certain that Vines do not arrive at great perfection unless the temperature be constantly maintained up to a certain degree, which the climate of this country does not afford them, and therefore we are obliged to resort to the stimulus of artificial heat; but in applying this heat we ought not to forget that in countries where the Vine arrives at perfection in the open air, the heat of the sun acts powerfully upon the earth, and thus the roots are constantly subjected to a temperature very nearly assimilated to that in which the trees are growing. If therefore we apply artificial heat to Vines, the roots of which are growing in an outside border which is turfed over, we are subjecting the roots to a proportionately much lower temperature than that by which the branches are surrounded; and considering what an important part the sun plays in the matter, it is obviously the better practice to keep the surface of the border loose, so as to permit of its absorbing and retaining as much heat as possible. This subject of endeavouring to approximate the temperature of the earth to that of the atmosphere has led in many instances to the adoption of heated chambers, by which a genial warmth is diffused in the soil of the borders from beneath, but even here a covering of turf is not sufficient to confine the heat to the border and prevent its radiating from the surface, for radiation will always take place under such circumstances, in consequence of the tendency of cold and heated air to amalgamate.

In conclusion, I cannot imagine any condition in which it could be advantageous or desirable to turf over the surface of a Vine border, or indeed of any fruit border, except for the sake of appearance; and if this is taken into consideration, the question of fruit-growing is necessarily made a secondary object. *John Cox.*

VIOLETS AT BICTON.

At a dinner party, of which one of the guests was an American judge, the green Peas were being handed round, and when they came to him, instead of helping himself after the ordinary 19th century fashion, he poured the dishful on to his plate! "I guess, stranger," said he to a diner who looked at him with some amazement, "you think I'm a whale at Peas!" I went to Bicton, expecting to see some things done in a colossal way; I knew that Mr. Barnes was a grower of Conifers of the largest type, from the extraordinary fruiting specimens sent to the Regent's Park exhibition last summer. I had good reason too to suppose him a whale among cultivators of the king of fruits, but I was equally well pleased to find him quite a Balænoptera at Violets.

Just outside the fine Camellia house, 125 feet long, now gay with thousands of varied blooms, there was a line of Russian Violets, about 2 feet wide, the flowers beginning to peep up over the healthy green foliage, although the plants had then been only a fortnight in that position. By this time they are (and I was told that all through the spring they would be) a mass of blue, and there was every indication of it. Thousands of bunches of Violets are required, and thousands may be easily gathered from this and numerous other beds about. They are all young plants; the old ones furnish flowers too short in the stalk, and are not so free and vigorous in their flowering. They are growing on the flag which runs along in front of the Camellia house, and the soil, plants, and all are "fresh every year." When the Violet season is past, both plants and soil are removed. When the time comes again for planting, a row of bricks is placed along the outer edge of the row of flag-stones, and fresh turfy loam put to the depth of a few inches.

The Camellia house forms one side of a quadrangle of houses and pits, and in consequence the shelter for this particular bed is perfect, while the aspect and of course the drainage are equally so. There are numerous other beds too, which come in after this—beds in the kitchen garden, beds in many places about, and lines along the long borders in the flower garden,

besides plantations in the shrubberies, all consisting of young but by no means small plants. The seed is sown in February, and the plants are grown in borders with a north aspect for the summer months. They are then lifted and planted in these warm borders in October, and in the flower garden perhaps a little later. The quadrangle was fragrant with them at the time of my visit (first week of November), and Mr. Barnes's description of the delight that these "Violets dim, but sweeter than the lids of Juno's eyes or Cytherea's breath," afforded him when the clear days of spring have induced the flowers to come out and sun themselves *en masse*, reminded me of Moore and Oriental flowers.

Never having previously seen this delightful little plant in anything like such perfection, I thought a special note on the subject might be of use to your readers. The fine climate of course makes such cultivation all the easier, but there are many places equally well off in that respect, but in which Viola is poorly treated; and similar borders, which could be made in most places where houses are numerous, would no doubt afford a nearly equally satisfactory result in most parts of these islands. *W. Robinson.*

Home Correspondence.

Mr. Paterson's Potatos.—The unfavourable opinion expressed by Mr. Whiting (see p. 1180) respecting these Potatos has no doubt somewhat damped the expectations of those who, like myself, had determined on giving them a trial this season, but I am glad to find (see p. 1204) that my neighbour, Mr. Dean, has given such a favourable report of them. Now, although I have every confidence in the judgment and experience of Mr. Dean, still the unqualified expressions of such an excellent cultivator as Mr. Whiting seem to point to the fact, that these Potatos have not, as has been asserted, the valuable property of being entirely free from disease, and it would be well if those who have actually tried them in various localities, would give their experience of them, in that as well as in other particulars. Apart from the property just alluded to, I am inclined to believe that there are many kinds, especially those of recent introduction, which in point of productiveness and quality will maintain a place by the side of Mr. Paterson's varieties. The few remarks made by Mr. Dean respecting the culture of the Potato are very good, especially those relating to early planting, for I have invariably found that if you can get a crop of Potatos matured, or nearly so, before the disease makes its appearance, they are safe; and I have found it good practice to take them up directly the haulm begins to turn yellow, and not to let them remain, as is generally done, till the haulm is completely gone. Of course this only applies to early kinds, for it is impossible to get such varieties as the Fluke or Rock sufficiently ripe before the disease arrives, which is generally the latter part of July. I may remark, however, that the two varieties just named appear to have a stronger constitution, and are thus better able to resist disease than most other varieties, and this seems to support Mr. Paterson's view of the case, viz., that it may be possible eventually to produce a race of Potatos which will bid defiance to the ravages of disease. *W., Southampton.*

Eleagnus reflexa.—It may gratify some of your readers to invite their attention to this very ornamental shrub. It is hardy, evergreen, and of rapid growth, making long shoots in one season. The leaves are of a bright green above, and of a golden bronze colour beneath. It is now (December 25) covered with numerous white blossoms, about the size of those of a Privet, and they are faintly aromatic in smell. *G., Bath.*

Iresine Herbstii alias *Achyranthes Verschaffeltii.*—Mr. Robinson's remarks (see p. 1180) respecting this plant are very severe. During the season, it has been held in such high estimation here, that any further observations by me respecting its beauty would be superfluous. I was among the first to recommend it for decorative purposes, and all that I have said in its favour has been fully realised at Osberton. Mr. R. states that if it would grow in the colder parts of the country, where Coleus and even Amaranthus will not, it would be a boon. Now I am pretty certain that it will succeed even in comparatively cold districts, although I admit that there is no rule without an exception. For instance, here it is too cold and damp for the Coleus. The Amaranthus does well with us during the summer months, but it dies off too early in autumn. The Iresine is in full beauty for weeks after the Amaranthus has passed away; and because the Iresine does not succeed well everywhere, I cannot see why it should be so strongly condemned. The Amaranthus fails to my knowledge in many places, as does also the Cloth of Gold Pelargonium; while in others it is all that could be desired. The Iresine, notwithstanding Mr. R.'s remarks, will, I feel confident, yet be a general favourite; indeed, I question if it is not the very best decorative plant for the flower garden which we possess. With little trouble it can be had of all sizes and of varying heights; and with respect to its hardiness, allow me to state that after the following severe frosts which we have had at Osberton, viz., Nov. 4, 15°; Nov. 14, 17°; Nov. 27, 22°, plants of it are still alive just below the surface of the soil, and are pushing young growths. I may add that it was not a handful of plants that have looked beautiful here during the past season, but nearly 700. I trust that those who may not have seen this plant in perfection will not discard it before giving it a fair trial. *Edward Bennett, Osberton Hall, Worksop, Notts.*—I concur with "E." (see p. 1204) and Mr. Bennett in their appreciation of the Iresine Herbstii, but I differ from the speculation of the latter as to the cause of its success at Osberton. He grew it in a damp, sheltered garden; mine, which was quite as successful, was in great beauty for three months on high ground, fully exposed to the south and west, on clay soil—his was in light sand. My best success with it was in the shape of two rows, inclosing within them a row of Amaranthus melancholicus, for the close upright growth of the former contrasted and harmonised with the more spreading tendency of the latter. The season, however, seemed especially to favour all crimson-leaved plants, as I never saw the Coleus do so well in the open air in Notts as it has done this year. *G. H. V.*

Pears.—Mr. Webster (see p. 1203) may obtain at Gordon Castle half a bushel of fine Pears from a standard Chaumontel. But are they fit for anything but show? I had last year from my garden in Notts Pears fit to eat in every month of the year except July. This is effected by judicious application of the four walls to the varieties suited to each. I mention this to prove that after 50 years' experience I should not have extirpated the Chaumontel had I not found that while almost every other sort has found a situation where it would ripen duly, we never found it mellow or well-flavoured even on a south wall. Gansel's Bergamot and Glou Morceau also require a south wall to do them justice. Pyramid Pear trees succeed well with my neighbour 300 feet below me, but mine keep much better. *G. H. V.*

Planting Pears on Quince Stocks.—A neighbour of mine recently asked my advice as to how he should plant his Pears, which were budded on Quince stocks; he had been instructed to plant them so as to have the juncture of the bud or graft with the stock 2 or 3 inches below the surface, in order that that part might be completely buried. I showed him a plantation of Pears on Quince stocks, in which every tree was planted so that the junction in question might be just above the surface, leaving about half an inch of space between the lower part of the graft and the soil. He wished me to explain why I did this, and I told him that a few years ago I had received directions for planting similar to his, but that my soil being deep and rich, the graft or budded part when covered with soil struck root; my trees thus lost the effect of the Quince stock, and started into vigorous growth, and I was obliged to take them up, remove all the Pear roots, and replant as he now saw them. I mention this very simple matter in order that some of your readers who may have been wrongly advised may avoid the trouble to which I have been put. *W. L. B.*

Heating Vine Borders.—I am intending to put up a Vinery for raising early Grapes, and am somewhat perplexed as to whether I should heat the borders by means of iron pipes, as recommended by Mr. Thomson in his book, in preference to other artificial means of keeping the roots warm. I observe that Mr. Meredith, in an article on Vine borders, does not allude to heating them in this manner; and correspondents frequently recommend other artificial means of procuring warmth without mentioning iron pipes. One authority to whom I spoke on the subject said that he did not believe in this way of giving warmth to the roots, and preferred concreting the surface of the border. Dr. Lindley, I notice, also lays stress on this manner of treating Vine borders—*i. e.* concreting the upper surface. If this is an open question, perhaps your correspondents will give their experience upon the subject. *E. C., Malvern.*

Mow Chok Bamboo.—Can anybody tell me the botanic name of a Bamboo so much boasted of by Mr. Fortune in his work, "Residence among the Chinese," under the Chinese name of *mow-chok*? I have planted in the open air B. gracilis, B. Metake, B. aurea, B. nigra, B. officinalis, B. mitis, B. scriptaria, B. verticillata, B. spinosa, B. Thouarsii—is this *mow-chok* to be referred to any of the preceding? *E. O. F., Florence.*

Evening Work for Gardeners.—In your Paper (p. 1156) "One who has been Gardening for 40 years" asks—"Why is a gardener the only operative who does not work by artificial light?" Surely, if the exchequer of that 40 years' gardener has only increased in the same ratio as his judgment has improved, he will be credited with but a small balance at his banker's. He says that a carpenter, smith, printer, weaver, painter, bricklayer, &c., can and do work even under cover. We all know that a journeyman of any of these trades can command from 25*s.* to 30*s.* per week for his labour; is it fair, therefore, to put a journeyman gardener (I beg pardon, a student that is to be), against those trades, when he only receives from 12*s.* to 18*s.* per week? Who would be a gardener? The long winter evenings are a great inducement to resort to the public-house, he says; yes, and he ought to have added, the high rate of wages gardeners receive enables them to go often! I think that he measures a bushel out of his own sack (of what he has been) when he says very few gardeners attempt to improve themselves by reading. This is incorrect; for it is well known, as a rule, that no class of workmen improve themselves by reading more than young gardeners do, and as they have a character to uphold higher than that of other workmen, it naturally makes them shun the public-house. It were best, perhaps, to have let the opinions of this 40 years' gardener with regard to this subject, die a natural death. But he advances others which ought to be adverted to. He says that "he would sooner take a gardener from a nurseryman's recommendation than from a gentleman's, where, if you go to look at his place, he has nothing to garden." In such a case, what need has a gentleman of a gardener? If the garden is but small, and the gardener keeps it well dressed, it is not a natural result that he has nothing to garden. If it be large, and a general routine of business is carried on by men whom the gardener thinks are equal to the task, whether would it be better to take a man with a recommendation from a place like this, or from a nursery, where I consider a man learns very little calculated to benefit him in his capacity of gardener to a gentleman. *Brassica.*—Do the many operative mechanics and others named by your Correspondent, work over-time by artificial light without being paid for it? Has your Correspondent derived his practical lessons from either or from all of the following branches:—worked at budding in a nursery, not omitting the ground-budding of Manetti stocks; kept large pots free from weeds; tugged away at two 4-gallon waterpots from 6 to 6, amidst shrubs and trees surrounded by buildings, causing a heat equal to that experienced in an Indian Corn field. Has he moreover followed the foreman, executing orders in fruit and other deciduous trees; taking them up in wet clayey ground, with little room to stir?—a navvy's work, the removal of a mass, *en masse*, is easy comparatively with this. Has he likewise spent the winter months amidst Orchids, &c., and when going out from them in the morning to breakfast, or at night to tea, in sharp weather, has he found his limbs shivering and his hair highly charged with atmospheric moisture, standing in fact "like quills upon the fretful porcupine?" Has he, I would inquire, followed any of these phases of nursery life, and can he say that such after-work as he suggests would be even desired by the very excellent and esteemed nurserymen of our day? Nothing, in short, could be gained by late over-work, for with a will a man is capable of doing a good day's labour even upon the shortest day. *William Early, Digswell.* [We have received other letters on this subject, all pointing out the inutility of night work.]

Culture of the Cocoa Nut.—Can any of your correspondents furnish me with the name of any book treating on the culture of the Cocoa Nut (Cocos nucifera) in tropical regions? *L. S.*

Foreign Correspondence.

British Columbia Botanical Association.—(*Continued from p.* 1205).—On the 3d of August we arrived at the famous Klamath Marsh of Fremont, where I searched for Darlingtonia californica of Torrey in vain. You may remember that it is a curious Pitcher Plant, found in a "marsh bordering a tributary of the Sacramento River." I obtained several good plants here, which I will notice further on. During the past week we had progressed slowly along, not disturbed by Indians. We had seen them in the distance paddling in their "dug outs," gathering the seeds of the yellow Water Lily (Nuphar advena, Ait.?) for food, a sort of rude "lotus-eating idleness." They were friendly.

At Klamath Marsh I bade good-bye to my quondam travelling companions, and started westerly over a ridge of mountains, in company with Lieutenant M'Call and an escort of dragoons. We travelled through one of the finest groves of Pinus Jeffreyi I had ever seen, with Sugar Pine (P. Lambertiana) and Picea grandis and amabilis. Through these quiet glades we often saw the Californian Coyoté wolf skulking along, his exodus rather expedited by a carbine bullet. On many of the Sugar Pines (only the burnt ones), we picked the famous sugar which gives its popular name. It is sweetish, pleasant, and usefully cathartic. After riding some 15 miles, from the brow of a ridge we looked down into the valley of Klamath Basin, with the long expanse of green prairie shut in by snow-tipped mountains, and studded with clumps of trees, like the islands in some lake, and by evening we arrived at Fort Klamath, where we received a most courteous welcome from the commandant, Major Reinhart, and his officers.

At the Fort I remained a couple of days to recruit, and participated in several excursions into the neighbouring country, to the Great Lake, &c., and was about to take my solitary journey over the mountains to the valley of Roque River, when Mr. Huntingdon arrived with his escort. Huntingdon was about to go 50 miles east of the Fort, into the country of Moshynkasketz, to meet the Snake chiefs, and asked me to accompany him. As the trip was to a new part, and would only occupy a few days, I joined him, and travelled east to the valley of Sprague's River, where for seven days we encamped; and whilst Huntingdon sat in council with the Snake warriors, I pursued my researches around, and obtained many seeds of flowering plants: amongst others, the fine Pæonia Brownii, Dougl. Though trees were rare, the Sage bush deserts now commencing, I found here in abundance (the fruit not sufficiently ripe), the tree known as Juniperus occidentalis, Hook. (Andiana of Nuttall); though if this is J. occidentalis, then the Juniperus, No. 6, and J. No. 212 (J. Henryana, R. Br. Jun.) is very different. I have been sometimes afraid it was the same, but this settles me. The "Sage bush" was

principally Artemisia tridentata. On the 14th the ever-memorable Snake Council broke up, and with Huntington I returned to the Fort. On the way we picked several seeds, amongst others a species of Liliaceæ, the flowers of which I did not see, but I was informed that it was very fine. Though my hospitable friend would have desired me to return with him to the Warm Springs' Agency, I took the journey to Roque River Valley on the 16th of August. Whilst passing the Great Klamath Lake, we visited some of the encampments of the Klamaths. They are very degraded, and only rank superior to the Diggers of the mountains of California, and are as much inferior to the Warm Springs and most other tribes as these are inferior to the highest class of Caucasians. They were busy laying in one of the staples of their winter's food, the wokas, or seeds of the Nuphar, which covered the borders of the lake; and here we had an instance of the truth of the old truism, that "one-half of the world does not know how the other half lives." Many of the men were bringing in canoe loads of the fresh capsules, while others were drying them in heaps; then, in another place, some squaws were breaking them up, and separating the husk from the seed with platters wove of tule (Scirpus lacustris, Linn.); whilst, finally, another group of women were bagging it and carefully stowing it off for use. When a Klamath squaw gets up on a winter morning, her first duty is to take some of this wokas, stir it up in a platter with a few hot coals (of wood), and so parch it, and then grind it between two stones, when it is ready for use after being mixed with a little water. Sometimes they float the shells off and eat it whole. In this condition it tastes not unlike parched corn, and is said to be very nutritive and strengthening. The Indians say they can travel further on this than on any other description of food. We crossed Williamson's Run, and travelled until after dark to find a spring, the waters of the lake being almost undrinkable on account of alkali.

Next day we rode round among rocks, up and down steep ascents by Indian trails, and through thickets of the Wild Plum (Prunus subcordata) and Amelanchier alnifolia, Nutt. Towards afternoon we left the Klamath Basins, and struck S.E. Before, however, leaving these very remarkable basins, I may be allowed to enumerate the plants either observed or gathered here by me or others, principally Dr. Newberry. I could profitably have spent a summer here, but as my objects were different, I had to limit my collection to such as I could get seeds of:—Erysimum elatum, Nutt.; Eschscholtzia californica, Cham.; Hypericum Scouleri, Hook.; Linum perenne, Linn., growing in natural fields, and used by the natives here, as also in the north, for nets, lines, &c.; Erodium cicutarium, L'Herit.; Rhus diversiloba, T. & G.—the "Poison Oak," and though I have seen many people badly hurt with this "Oak," yet it never injured me; Frangula californica, Gray; Vicia oregana, Nutt.; Lupinus polyphyllus, Lindl.; Œnothera trichiocalyx, Nutt.; Megarrhiza oregana, Nutt.; Ribes, with large red berries, perhaps R. glutinosum; Saxifraga integrifolia, Hook.; Symphoricarpus racemosus; Galium Aparine and boreale; Aster falcatus, Lindl.; Chænactis Douglasii, H. & A.; Pentstemon speciosum, Dougl.; Mimulus primuloides, Benth.; Scutellaria antirrhinoides, Benth.; S. galericulata, L.; Eutoca phacelioides, Benth.; Emmenanthe parviflora, A. Gray; Polemonium cœruleum, L.; Gentiana simplex, A. Gray; Obione argentea, Moq.; Blitum rubrum, Reich.; Atriplex patula, Linn.; Polygonum tenue, Michx.; Rumex maritimus, Linn.; Typha latifolia, Linn.; Potamogeton natans, Linn.; Sagittaria variabilis, Linn.; the bulbs of this plant form a great food of the Indians of the Columbia River, and is called by them "wappato," which is also the word for "Potato;" Sagittaria littoralis of Douglas is, perhaps, as suggested by Dr. Cooper, an Abronia, as the former plant is not now used in the locality stated by that lamented botanist, but at the present day an Abronia is dug up for food by the Chinook; Alopecurus geniculatus var. aristulatus, Torr., &c.

At Link River we found a camp of Klamaths, who helped us to cross our horses. Near this place is Boiling Spring, and the curious natural stone bridge of Lost River lies off to the eastward. An Elymus was the prevailing Grass, and much relished by the horses. It was described to me as the real "Bunch Grass" of the emigrants, and as such sent to you in 1863. I had not then seen it in flower; but on the present occasion Mr. Applegate, who is an old mountaineer, assures me that, though that Elymus is occasionally called "Bunch Grass," yet the Grass to which the name ought to be and is generally applied is a small Grass now commencing to appear—viz., Festuca scabrella, Torr. I obtained a little seed from it. I also noticed Cerasus marginata, with its bitter fruit.

On the night of the 17th we camped on the Klamath River, a few miles north of the California boundary line (42° N.E.), and on the morning of the 18th we struck N. W. up a wooded slope, through forests of Sugar Pine and Pinus ponderosa, and finally emerged through a low gap in the Cascade Range, on the Emigrant Trail. The country soon began to change, and Abies Douglasii resumed possession (in joint sovereignty with P. ponderosa) of the forest. On the 20th we entered Roque River, and saw the first Oak in this direction, I am told, until you get to the Missouri River. The Oaks were of two species: one with leaves deeply sinuate, the three principal lobes on either side terminating in several acute points, glabrous above and below. The acorn is solitary or clustered, nearly sessile; gland round ovoid or frequently elliptical, terminating in an acute projecting point, greenish brown in colour, 1 to 1½ inch long, in a dry long cup, hemispherical, and covered with elongated acute scales. It is Quercus Kelloggii, Newb., hitherto little known, even botanically, in England, and as far as I am aware not yet introduced into cultivation. The other was certainly the Quercus Hindsii, Benth., and the Q. longiglandis, Frem. It is allied to Q. alba, but apparently distinct. Of both I will endeavour to secure a supply in good preservation. On both were clustered great quantities of a species of Mistleto, and on P. ponderosa, the Lichen, Evernia Fremonti, Tuck., which I had seen frequently before on P. contorta.

In the afternoon we came to a spring where a very good description of aerated water rushes out of the ground. This was the first sign of civilisation, and here an enterprising Yankee had built a ho-tel, which with a church and a "whisky-still," forms the first elements of a rising "city" in the West. An hour before we had crossed Keen's Creek, where, a year or two ago, in a fight with Indians—inferior in numbers—the whites were repulsed, and Keen killed. We soon after crossed Bear Creek, famous for fever and ague; and then we entered the high road from California, with pretty little farms, crops all cut already, and everybody complaining in this valley that their trees were breaking down with loads of fruit. At Mr. Lindsay Applegate's I saw bunches of ripe Grapes growing in the open air, ripened by the few months of summer heat: for snow falls here in the winter, and the mean temperature, from observations made by the surgeon at Fort Lane, is 38° 39′, whilst Fort Vancouver, on the Columbia, is 39° 54′ (owing to the warmer winters), though Grapes will not ripen there. I arrived at the little town of Jacksonville, the centre of the Roque River Valley, on the 21st of August, 1865. I start off to-morrow (having been occupied these last few days in assorting my collections, and answering my correspondence, whilst my horse rests), on a collecting journey over and through the mountains, until I strike the sea, 120 miles west from this place, returning from which I promise myself, if the season holds out, a journey into the Cascade Mountains, and the ascent of some of the peaks.

Societies.

Linnean: *December* 7.—G. Bentham, Esq., President, in the chair. Dr. Kirk exhibited numerous specimens of the Tsetze fly, received by him from the Basle mission near Accra, West Africa, a locality in which that insect had been hitherto unknown. The cattle there had suffered for some time, and had died in great numbers from a disease which was eventually found to be due to the attacks of the Tsetze. J. G. Jeffreys, Esq., and the Rev. S. Tarratt Nevill, were elected Fellows. The following papers were read:—1. *Notes on some of the Climbing Plants near Desterro, in South Brazil*, by Herr Fritz Müller, in a letter to C. Darwin, Esq. The author, alluding to Mr. Darwin's statement that he had seen no tendrils formed by the modification of branches, pointed out that such exist in a species of Strychnos, as well as in Cauloteetus, one of the Leguminosæ, a still more interesting example occurring in a climbing papilionaceous shrub supposed to belong to the Dalbergiæ. In this latter case the highly modified tendrils might be seen changed again into true branches. In two different plants which he had observed, however, the very branches without modification acted as tendrils. One of these being leafless at the time it was noticed, was unknown; the other was a Securidaca, and a most powerful climber——2. *Remarks on the genus Moringa*, by N. A. Dallzell, Esq. In this paper the author pointed out the remarkable resemblance of the ripe capsule in Moringa to the fruit of the Bignoniaceæ, and indicated other points of resemblance, from all which he arrived at the conclusion that the genus should be placed in the Bignonial alliance.——3. *On Arthonia melaspernella, Nyl*, by W. Lauder Lindsay, M.D.——4. *On a Double-flowered variety of Orchis mascula*, by M. T. Masters, M.D.

December 21.—G. Bentham, Esq., President, in the chair. The Rev. T. Wiltshire was elected a Fellow. The Secretary read a letter from Sir C. Wentworth Dilke, Bart., dated Alice Holt, by Farnham, Surrey, announcing that a specimen of the rare Gyr-falcon had just been killed by one of his keepers. The following papers were read:—1. *On the Metamorphosis of (Chlœon) Ephemera*, by Sir J. Lubbock, Bart.——2. *Observations on the Habits, History, and Microscopic Character of the Cynips Rosæ*, by H. Hailey, Esq.——3. *On Amber*, by P. J. Butler, Esq.; communicated by Buxton Shillitoe, Esq.——4. *On some Helminthological Experiments by Prof. Leuckart; and on the Relationship existing between the free and parasitic Nematoids*, by H. C. Bastian, M.A., M.B.

Entomological: *Dec.* 4.—F. Pascoe, Esq., F.L.S., President, in the Chair. An interesting collection of insects made in British Burmah by Lieut. Beavan, was exhibited, amongst which were new species of butterflies belonging to the Hesperiidæ and Euplœa, and a curious new tortoise beetle of the genus Prioptera. Mr. Stevens exhibited a very beautiful collection of butterflies and moths taken near Santa Martha, in Venezuela, by the late Mr. Bouchard, containing many new species. Also a specimen of the Goliathus Drurii, being the only insect brought home by Mr. Du Chaillu, taken at 100 miles distance from Fernando Vaz, in his hasty retreat from the interior. Mr. Stainton exhibited some dark brown specimens of Tinea closcella, reared from dead Birch trees at Llangollen, by Mr. Gregson. Mr. F. Smith exhibited specimens of the Saw-fly, Crossus septentrionalis, which he had reared from the larva at the end of September last. He also exhibited specimens of the "bogong," forwarded from Australia by Mr. George Bennett, which is fed upon by the natives, and which proves to be a very greasy species of moth belonging to the genus Agrotis. Some conversation took place as to the origin of the noise ascribed to the death-watch. Mr. McLachlan read a paper on the recently reared varieties of the moth Sterrha sacraria, in which he entered upon the general question of the cause and extent of modifications in species of Lepidopterous insects. Prof. Westwood read descriptions of several new species of Longicorn beetles belonging to the genus Cantharocnemis, but forming different subgenera, for which he proposed a series of uniform subgeneric names. The Rev. J. Greene exhibited some specimens of the new British moth Acidalia marginata. Some farther notes on the Buprestidæ of New Holland, by Mr. C. A. Wilson, of Adelaide, were read by the Secretary; also the description of a new species of Papilio (P. Godefroyi), from one of the Pacific islands, by G. Semper, Esq., of Altona. A fine series of Drawings of the insects of North America injurious to the Cotton, Orange, Lime, Potato, &c., intended for publication, was exhibited by Mr. Moore.

Botanical of Edinburgh: *Dec.* 14.—Prof. Balfour in the Chair. The following communications were read:—I. *Observations on the Genus Moringa.* By N. A. Dalzell, M.A., Bombay.——II. *On Asplenium Petrarchæ, as an Irish Plant.* By F. Naylor, Esq.——III. *Notice of the effects of the Cyclone of 5th October, 1864, on the Botanic Garden, Calcutta.* By Dr. T. Anderson.——IV. *Notice of Plants collected in Iceland, &c.* By M. Ed. Jardin, Cherbourg.——V. *Letter from Mr. W. Milne, dated Cameroon, Africa, 27th June*, 1865. Communicated by Mr. John Sadler. Mr. Milne alludes to the improvement which has taken place in Fernando Po and its vicinity, by the clearing of the ground, and the planting of Chocolate trees and Cotton. By the end of this year one firm will have upwards of 100,000 Cocoa trees above ground, and these plants will produce in 1867 about 500,000 lb. of cocoa. During the early stage of the plantation, Cotton is planted among the Chocolate trees. Coffee has also been extensively planted, and thrives well. Mr. Milne alludes to the bark of a tree called Sarien, which, he says, is more rapidly fatal in its effects than the Calabar Bean, and is used as an ordeal poison by the natives. He alludes to the introduction of the Mango, Bread-fruit, Soursop, Citron, Tamarind, and other important plants into Calabar and the Gaboon. Mr. Milne then gives an account of an excursion to the Cameroon Mountains, and notices some of the plants collected.

Notices of Books.

The Life of Man, symbolised by the Months of the Year. 4to. Longmans. 1865.

We hardly know how to speak without seeming to exaggerate, of the beauties of this superb volume. It consists of a series of illustrations by John Leighton, F.S.A., relating to the several epochs of human life, from the cradle to the grave. Many of these, especially the larger ones, show traces of the influence on the designer's mind of Albert Dürer, but, beautiful as they are, we even prefer the smaller woodcuts, the initial letters, and the tail-pieces; the latter are in particular very charming. The text comprises a large and well-selected series of extracts from a great number of authors, most carefully printed on toned paper, and the types so arranged as to indicate the period at which the authors, from whose works the extracts are made, lived. A passage from Caxton, for instance, is printed in black letter, one from Cicero in Roman type, and so forth.

As so beautiful a specimen of art workmanship and literary taste is likely to be a gift-book not for this season only but for many others, we would point attention to a mistake in a Latin quotation on the page following the title page to "August," which may possibly be rectified in another issue.

Report on the Cheap Wines from France, Italy, Austria, Greece, and Hungary, &c., by Robert Druitt. London: Renshaw. 1865. Without assenting to all that is written in sparkling terms in this little volume, and specially not being disposed to exalt light wines as a common beverage in preference to sound wholesome malt liquor, we nevertheless feel that the public is under obligation to Mr. Druitt for his unsparing condemnation of Hamburgh sherry, and similar vile compounds, and for his advocacy of a very serviceable, palatable, and pure class of wines.

Several foreign serials, which have been for some time lying on our table, claim a brief notice:—

In *Neerlands Plantentuin* (Afl. 11—12) the plates

represent a group of Herbaceous *Delphiniums*, consisting of *formosum cœlestinum*, a greyish blue, *Hermann Stenger*, a double purple, and two ordinary single blues, *Madame Guichard* and *Madame Bedinghaus*; *Roella ciliata*; and *Abies Nordmanniana*, a sketch of a young tree. The plates give a low idea of the present state of Dutch art.—*La Belgique Horticole* (liv. 10) figures *Disemma coccinea*, a New Holland climber with red starry flowers, related to Passiflora; and *Hypœstes sanguinolenta*, the Eranthemum sanguinolentum of gardens.—In *L'Horticulteur Français* (Nos. 10, 11) are illustrations of *Pelunias M. Chaté fils, Beauté des Parterres*, and *La Renommée*; they are striped kinds, the first with a reticulated lilac star in the centre, and five wedge-shaped lilac blotches on the edges of the segments; the second white with five long bilobed wedge shaped cerise bars; the third crimson with a white border, and a white star in the centre; they are both novel and curious. What is called *Rhododendron Maddeni* appears to be rather R. calophyllum. *Calceolaria E. Hamel* is a yellow-flowered shrubby variety, with a large crimson blotch. *Pelargonium Martial de Chanflourd*, described as the first of the full double scarlet-flowered sorts; it was raised by M. Martial de Chanflourd, a distinguished amateur, who had previously obtained the semi-double Auguste Ferrier.

The *Flore des Serres*, which for some time past had been issued at distant and irregular intervals, has lately appeared more frequently. The numbers which have been sent out during the present year (liv. 172 to 178) comprise representations of many interesting plants, of which the more striking are the following:—*Gymnostachyum Verschaffeltii*, changed to *Fittonia Verschaffeltii* in a subsequent number. *Dendrobium nodatum. Eranthemum sanguinolentum*, now referred to Hypœstes. *Codonopsis gracilis*, a graceful climber, with blue tubulose flowers, not yet introduced from India. *Malus floribunda*, a hardy Japanese tree of great beauty, represented in three states—a tree in bud, a tree in full bloom, and a branch of the natural size. The flowers are bright red on the outside, and as they are so abundant as literally to crowd the branches, the effect must be very gorgeous. It was introduced by M. von Siebold. *Aplotaxis gossypina*, a dwarf woolly-headed Carlina-like Thistle from India, not yet introduced. *Dischidia Rafflesiana*, a curious Asclepiadaceous pitcher-bearing plant from Malacca, recently introduced to M. Van Houtte's establishment. *Maximowiczia chinensis*, the Kadsura chinensis of some botanists, a Siberian sarmentose shrub, with obovate elliptic leaves, diœcious flowers, and loosely-spicate pear-shaped cinnabar-red berries attached to an elongated torus. *Phœnicophorium sechellarum*, the beautiful Seychelles Palm, otherwise called Stevensonia grandifolia; and *Verschaffeltia splendida*, the Regelia majestica of gardens. *Abutilon megapotamicum*, the pretty red-sepaled yellow-petaled Malvaceous plant, called Abutilon vexillarium by Morren. *Cereus giganteus*, one of the column-like Cacti of New Mexico. *Iresine Herbstii*, under the name of I. Verschaffeltii. *Amorphophallus campanulatus*, with a most remarkable inflorescence. *Vanda suavis Hrubyana*, a very handsomely spotted variety, distinguished by its broad sepals and petals, and short lip. *Rhododendron Madame L. Van Houtte*, one of the maximum series, with very large heads of flowers, which are white edged with flesh-colour. *Eucodonopsis nœgelioides*, a large-flowered dwarf plant Gloxinia-like as to flower and habit, but with the colours of a Tydæa, rose spotted with crimson. It is a very beautiful hybrid production. *Aucuba japonica*, the female plant with berries. Four double plates full of choice varieties of *Hippeastrum*, from M. Van Houtte's establishment. Three double plates of *Azalea indica—punctulata, punctulata variegata*, and *punctulata omnicolor*, the two latter being sports from the first, which is a red-striped sort, the second superior in shape and white-edged like variegata, and the third producing, besides flowers like two last, others which are self-coloured and red. *Odontoglossum Pescatorei. Rose* (Bourbon) *Madame Josephine Guyet*, a deep crimson. *Clianthus Dampieri flore-albo rubro-marginato*, in which the flowers are represented as white, with a red edge and black boss. *Lilium Thunbergianum aureum nigro-maculatum*, a fine orange-coloured Lily marked with scattered black spots. *Clematis Jackmanni* and *C. rubro-violacea. Pardanthus sinensis. Dendrobium formosum giganteum. Camellia japonica planipetala*, a very beautiful cup-petaled double white, apparently quite distinct in character. *Phalænopsis Luddemanniana. Schizostylis coccinea. Nœgelia Sceptre Cerise*, a very handsome variety with vermilion flowers spotted with yellow, and rich bronzy-red leaves. *Rose* (Tea) *Maréchal Niel*, a decided acquisition amongst pure yellow Roses. Finally, a group of parti-coloured Peruvian *Alströmerias* completes No. 178, the last which has reached us.

Florists' Flowers.

It is refreshing to see even a passing notice of florists' flowers in these degenerate (floral) days, and I read with real pleasure a few practical notes on the Gladiolus in your issue of the 16th by "Rambler," copied from the "West of Scotland Horticultural Magazine." "Rambler's" experiences relative to the most beautiful of autumn flowers accord with mine on most points, but one variety, Roi Leopold,* which he proposes to discard, I consider most charming, and have ordered two extra bulbs for next season from my good friend Mr. Dean, of Shipley. This flower attracts the notice of ladies at once, either in the garden or in the show box, and is certainly quite distinct from any other sorts I know—and of a good or beautiful thing the ladies, as a rule, are no bad judges.

"Rambler's" lists of new flowers, and of those of older date, are in my opinion judicious. To each of them I propose to make a few additions of sorts which please well in this country, and which will probably assist young growers in making their selection; and I will add a third short list of about a dozen of what I consider to be the very best sorts extant, either for garden ornament or for the exhibition table. I would call "Rambler's" attention to the fact that of this choice list of sorts of great beauty some five or six come from a source of which he seems to be as yet unaware; I allude to the splendid collection of Mr. John Standish, formerly of Bagshot, and now of the Royal Nursery, Ascot, a very enthusiastic and most successful raiser of Gladioli, ranking second only to M. Souchet, of Fontainebleau. Mr. Standish's flowers are well known and most justly valued in England, and also in this country, where the Gladiolus is an immense favourite, and attains to great perfection, owing, doubtless, in a great measure to the richness of our soil, and the softness and humidity of our climate; and with us I may add that no collection is considered complete which does not contain a large infusion of Mr. Standish's flowers.

For several years I have ordered what seemed to be considered the "cream" of the Continental and English novelties, and have amused myself in crossing the sorts which seemed to possess the best constitutions, the finest shapes and the richest colouring; and as I shall bloom some 800 to 1200 well-bred seedlings annually, and have been rewarded with a few fine novelties already, I am sanguine as to future results from my labours. Seed generally ripens with us from the 1st to the 20th of September. I sow it as soon as ready in pans in a cool greenhouse, and the great majority of the bulbs will bloom in about two years, and will take up fine and large, fully as good as are generally offered for sale by our leading nurserymen.

The Gladiolus seems to become hardier every year. I left one bed of seedlings out undisturbed all last winter, merely top-dressing to the extent of about 2 inches with rich loam and leaf-mould in November; and in April they came up well and bloomed finely. It is a pity we cannot discover some means of averting "the rinderpest" which sometimes strikes our choicest flowers so suddenly, often when the spikes are in their full glory, mostly rendering the bulb beneath black and worthless; but doubtless the disease (whatever it be) affects the bulb first and the spike afterwards. While on this branch of the subject I may add, that where splendid spikes of bloom have rewarded my labours, the bulbs (most of which I take up early and dry in the sun), now and then turn bad, and are good for nothing after three or four weeks. Those exceptional, and I may add, inexplicable deaths, number with me about one in 40 or 50; and though my seedlings did not seem the worse for wintering out last year, I find the best practice with my general stock is to take them up early when the stalk is still quite green, and dry the bulbs in the sun and air, before the autumn frosts set in.

As regards the position which the Gladiolus should take at our autumn exhibitions, all that "Rambler" suggests has already been fully carried out in Ireland. At our metropolitan shows handsome prizes are annually offered in the various classes, which usually consist of stands of 36, 24, 12, and 8, with three prizes in each class, and the sums given are much more liberal than those of the great London societies. The sure and certain result of this wise liberality is a magnificent display, delightful to all beholders, and likely to exercise a powerful influence on incipient floricultural exhibitors.

The following may be safely added to "Rambler's" list of new and first-rate varieties:—

Kate Kearney (Standish)	Mrs. Edward Nott (Standish)
Samuel Weymouth (Standish)	Princess Maude (Standish)
Ensign (Standish)	Blair Athol (Standish)
The Colonel (Standish)	Roscius (Standish)
Carminata (Standish)	Garibaldi (Standish)
J. W. Lane (Standish)	Lady Alice Hill (Standish)
Eleanor Norman (Standish)	Aurelian (Standish)
The Major (Standish)	Flore
Miss Porter (Standish)	Mons. Lebrun D'Albanne

To the list of older flowers I would add—

Rembrandt	Pline
Madame Eugène Verdier	Prince Imperial
Walter Scott (Souchet)	Maid of Perth (Standish)
Julia	The Favourite (Standish)
Rebecca	Mr. Marnock (Standish)
Cuvier	Mr. Mowbray Morris (Standish)

The following round dozen I would consider the very best, for the number, of all the good Gladioli at present in cultivation:—

Prince of Wales	Madame Rabourdin
Madame de Sevigné	Samuel Weymouth (Standish)
Fulton	Ensign (Standish)
Meyerbeer	Carminata (Standish)
James Veitch	Eleanor Norman (Standish)
Madame Furtado	J. W. Lane (Standish)
Princess of Wales	

My list of "discarded" is just the same as "Rambler's," with three or four additions. These subtracted, I find that my list of real genuine good sorts, many of them also very moderate in price, still consists of over 150 varieties. *Autis, Dublin, Dec.* 19.

* Perhaps "Rambler" has not got the true sort.

The Apiary.

The Christmas season is usually considered, among a certain class of people, as a time of rest from harassing care and labour, and it is a matter of considerable wonderment to some that we should find anything at all to say about bees at this period of year, "when they are at rest, and nothing of interest can be seen, and when no care or attention of the beemaster is required for two or three months to come." But are the bees at rest? No, not quite, for on Christmas Day, in the south of Devon, some hives were carrying in considerable quantities of pollen. So these our little favourites choose to avail themselves of every favourable opportunity for adding to their stores, and acting their part in life. We generally begin to look for signs of work and pollen gathering about the end of January or beginning of February, but we are inclined to believe, from the observations of two or three past seasons, that in the south of Devon pollen gathering may be observed throughout any part of the winter, provided the weather be sufficiently fine and mild for the season. In the north, and in colder districts than ours, there is doubtless a period of more decided repose. But whether the bees rest or not at this time, there is no reason why their owners should entirely rest from all their apiarian labours until the hives are fairly going ahead in the spring.

Now is the time to go through the apiary and see what the requirements may be for the coming campaign. Now is the fitting period for deciding what additional hives may be required, or any other of the appurtenances of a well-ordered apiary. If any such be wanting, we would advise the services of a good carpenter to be put in requisition as soon as may be. Let the mind be thoroughly made up as to what is to be done, and then set the aforesaid carpenter to work. Have everything completed and quite ready for immediate use, some time before you may actually need them. Avoid every possibility of the bees getting ahead of you, and of the desired appliances not being at hand. Much loss may accrue from a departure from this rule. A very short delay in supplying needful accommodation in early summer may involve the entire loss of valuable first swarms; or may be fatal to the successful filling of a much wished-for super. Therefore decide in your own mind, and avoiding all hurry, let every deficiency in your apiarian department be rectified now.

Many bee-keepers rest contented with an entire neglect of their bees in winter. They never pay them a visit, believing that they are all right and cannot require any attention. This is frequently a great mistake. Hives may become saturated with moisture, externally or otherwise; after a time of protracted cold the entrances may be partially or entirely choked up by dead bees. In some districts a small but destructive enemy may be constantly at work, destroying hundreds of most valuable lives. This enemy is the tomtit, which is often very destructive among the bees in winter. It is little that is likely to be necessary to attend to among the bees themselves, and an occasional visit of inspection is all that will be necessary to rectify anything that may be going wrong.

The bees of some hives in the immediate vicinity of Exeter were observed to be carrying in a considerable quantity of pollen on Christmas Day. This was more particularly noticeable in respect to some artificial swarms which had been made rather late in autumn.

We heartily wish all apiarians, for their bees as well as for themselves, "A Happy New Year."

Securing Bee-hives.—During the last great storm I was asked to lend my aid to a friend who was at a loss to know what to do with a hive which had been blown over. On proceeding to the spot, I found a large octagonal box-hive, which had been tenanted with a swarm in June, to be the subject of the misfortune. Every comb was broken down, and very much injured. They had been picked up and placed anyhow inside the box; the bees that had not been hurt or had not become chilled, had congregated about them. I saw at once that little good could result from attempting to fix the combs in frames for being transferred to a new box. I therefore brushed the bees from the combs on to the floor board, and resting that on the alighting place of an adjacent populous colony, the bees rushed eagerly in, and were received without any fighting. I watched carefully for a queen, but failing to distinguish one, concluded that she must have been injured in the fall, or left on the ground. What made this accident the more vexing was, that to this hive, being short of winter store, many pounds of food had been supplied a few weeks previously. Much of this was found to be stored and sealed, but the combs were in too damaged a condition for it to be made available. All this might have been prevented if the precaution given in a late Number of the *Chronicle*, of securely fastening down all hives and outer cases to their stands, had been attended to. *Apiator.*

Garden Memoranda.

Meadow Bank, Glasgow, the Seat of Thomas Dawson, Esq.—When this place was last noticed (see p. 1111) I promised to allude to the fine collection of Orchids, which is kept here in wonderful health and beauty by your correspondent Mr. Anderson. I have been a grower of this charming tribe of plants for

upwards of 20 years, and I have seen all the best collections of them in the country, but never have I witnessed such specimens of them as may be found here; indeed I could scarcely have believed that plants of this kind could have been grown to such a large size as many of them are at Meadow Bank. But let your readers go and judge for themselves.

The houses are all span-roofed, and it may be safely said that they are well adapted for the cultivation of Orchids. There are in all eight of them, of which one, 72 feet in length, is devoted to Cattleyas and a few Lælias. It has a pathway up the centre paved with stone, and a table on each side of the same material. The ventilation of this house is so planned that the cold air does not rush in too suddenly—a point of importance as regards the health of Orchids. Among the plants were many fine specimens of C. Mossiæ and its variety Warscewiczii delicata, 3 feet in diameter, and showing eight flower-sheaths; C. labiata Pescatorei, of similar size, with 13 flower-spikes; the rare C. Dawsoni, another wonderful plant, together with some fine examples of Lælia elegans. Of L. purpurata there were a great many fine plants, as well as of Cattleya intermedia and amethystina. The latter are grown well here, being kept tolerably moist at the roots, for if allowed to get too dry the bulbs and leaves shrivel, after which they seldom recover. A few years ago it was not uncommon to see large specimens, 3 and 4 feet in diameter, of C. Harrisonii and violacea, but we seldom meet with them now-a-days; this is to be regretted, as they flower at a time when few Cattleyas are in bloom, and blossoming twice a year is another advantage which they possess. Associated with the Cattleyas were Chysis Limminghii in excellent condition, and the rare Dendrobium Schröderi, generally called D. densiflorum album, the flowers of which continue in perfection much longer than those of densiflorum. Immediately over the central pathway were some splendid plants of Oncidium crispum, throwing up strong spikes for blooming. This plant is seldom grown well; when on blocks it gets too dry, but when placed in earthenware baskets, similar to those figured at page 1155, it succeeds admirably. Hundreds of plants are grown here in such baskets, and always with success; for example, Cattleya superba, which is seldom found doing well—here it grows as freely as other Cattleyas, as do also C. marginata, Pitelli, and Walkeriana. Pleione lagenaria, Wallichii, and maculata were in an equally good condition, and blossom every year as freely as a Crocus. The best method of cultivating these little treasures is to give them a season of rest, and when in active growth a good supply of water, which must be withheld when growth is completed; but when they commence showing flower, a little water may be given to assist them in expanding their lovely blossoms. At the end of this house is a glass case, in which are sown seeds of Orchids. Mr. Anderson informed me that two years ago he sowed some seed of Phalænopsis, from which he doubtless anticipated a good crop; but after very careful examination of the stumps upon which they were sown, nothing in the shape of plants could be detected.

The next house adjoining this is about 40 feet in length and 12 feet in width, with plant tables on each side. A magnificent sight here presented itself, for two lovely banks of the most beautiful Orchids were in bloom; had an artist been present he could not have selected a prettier subject for a painting than these tables furnished, for they contained all shades of colour; and the plants being arranged with good taste, and judiciously intermixed with a few Ferns and other graceful-foliaged plants, had a highly imposing effect, which no amount of bloom without foliage could have produced. Miltonia Clowesiana had 40 spikes of flower on it. Here also were the rare Oncidium crispum marginatum, bearing a charming spike of bronzy flowers edged with orange-yellow; a variety of Oncidium Lanceanum, with flowers of a beautiful dark colour; and Cattleya Aclandiæ, with several fine blossoms on it: this was growing in a basket, and was nearly 2 feet in diameter. Associated with these were an Oncidium much in the way of divaricatum; Calanthe Dominii in the way of C. Masuca; Vanda tricolor superba, with two fine spikes of flowers; two varieties of Cattleya bicolor; Dendrobium formosum, producing some fine large white blossoms; Lælia præstans, a charming species, producing large flowers, different from those of Cattleya marginata, with which it is sometimes said to be identical; Aerides nobile, a lovely kind, with several spikes of sweet-scented flowers on it; the showy Dendrobium chrysanthum, and many others.

The East India house, of which a good description is given in your columns of August 19 (p. 771), contains some of the finest plants that have ever come under my notice. On the centre table was a magnificent specimen of Vanda insignis; suavis was also a noble plant, 6 feet in height, as was likewise tricolor. Aerides and Vandas occupied one of the side tables, conspicuous on which were Vanda Batemanni, 5 feet in height; Aerides Larpentæ, A. odoratum purpurascens, and Cœlogyne pandurata. On another side table was a good collection of Cypripediums, accompanied by fine plants of Dendrobium anosmum, and of the rare Dendrobium primulinum giganteum, which is one of the most beautiful of its class. Keeping company with these were likewise Dendrobium albo-sanguineum and D. Devonianum, which is seldom grown well. This was in a basket filled with Moss and suspended from the roof. The general cause of this fine species not thriving is that it is kept too dry, and thus its leaves get attacked by red spider.

In a cooler house, with two span roofs, was a wonderful example of Angulœa Clowesii, which measured several feet across, producing sometimes as many as 60 flowers at one time! A. eburneum, a rare plant, with white blossoms spotted with crimson, was also here; as were likewise fine specimens of Lycaste Skinneri, Lælia cinnabarina, L. anceps showing 18 flower spikes, Cœlogyne cristata equally fine, Cattleya Skinneri, Epidendrum nemorale majus, the finest of all the Epidendrums; also several plants of the new Lælia Wolstenholmiæ, Phajus maculatus, Zygopetalum maxillare, growing on a block, on which it succeeds better than in a pot; and the rare Cattleya quadricolor and Uropedium Lindenii. In the same house, moreover, was a number of imported plants, consisting of about 50 Cattleya Triansei, and no doubt many other sorts.

Another house contained a miscellaneous collection of plants, among which was a fine lot of imported Odontoglossums, such as Bluntii, Pescatorei, gloriosum, membranaceum, and many supposed new ones; also Trichopilias, nearly all throwing up strong growths; Lælia majalis, Epidendrum vitellinum, of which I noticed some good varieties in bloom. The showy Lapageria rosea was likewise here, along with all the best varieties of Nerinum Fothergilli, loaded with scarlet flowers. These ought to be cultivated more extensively than they are, ranking as they do among the most lovely of the bulb tribe; they require the same treatment as the Amaryllis. The Odontoglossums were starting vigorously. They were first put into small pots and plunged in sand, a plan which appears to keep them moist without using too much water, which is often dangerous to freshly imported Orchids, as it causes their bulbs to rot and their young growths to damp off.

The next house was devoted to Odontoglossoms; it is span-roofed, and has a pathway up the centre, and a table on each side; it also contains a division for plants requiring a different temperature. Your readers have doubtless often both heard of and seen Odontoglossum grande, and I have done the same, but never did I witness such a splendid sight at one time as this plant furnished here. One side of the house was a mass of bloom. On some of the plants I counted 20 spikes, on some of which were 15 expanded flowers; smaller plants were also magnificent. In the same house was likewise Odontoglossum Pescatorei, with large bulbs, producing strong spikes, on which are sometimes as many as 100 flowers. Associated with this were O. caudatum, a noble plant, which has produced 300 blooms this year, and I believe as many last season; O. nævium majus; Epidendrum vitellinum, with 20 spikes, on each of which were some 10 flowers; and many other fine plants. In an adjoining house was a splendid plant of Odontoglossum citrosmum roseum, 3 feet in diameter.

In another house of the same size as the last, with a division in the centre, were two grand plants of Phalænopsis Schilleriana, with leaves some 18 inches in length; also fine plants of P. grandiflora, a number of the rare Vanda cristata; Saccolabium præmorsum, in particularly good health; S. ampullaceum, and the pretty Phalænopsis cornu-cervi.

One often hears it stated that where Orchids predominate little else is cultivated; but it is not the case here, for other classes of plants are grown in great perfection. For example, at Meadow Bank is the finest collection of Amaryllis in the country, the bulbs of which are of an enormous size and promise to yield a fine display of bloom. Mr. Dawson admires these plants quite as much as Orchids; and what are more showy? They bloom when flowers are scarce, and by skilful management they may be had in flower all through the winter and spring months. There was but one in bloom at the time of my visit; it was named Unique, a splendid kind, of fine form, the petals being broad and of a brilliant scarlet, while the centre of each was shaded with black, and the throat was marked with white. I also noticed some fine bulbs of Ackermanni, which is one of the largest flowering kinds, and bright crimson in colour; likewise pulcherrima, which is one of the best in cultivation, generally bearing four flowers, fine in form, of a rich violet purple colour, shaded with crimson. Hawkinsiana is also a splendid variety, having flowers of large size and of a rich velvety crimson colour. The collection contained, moreover, marginata venusta, marked with scarlet and white; Bearii, a great favourite of Mr. Anderson, producing fine white flowers flamed with crimson; also Graveana, the flowers of which are well formed, and of an orange scarlet colour; venosa grandiflora, bright scarlet with almost invisible white stains; gigantea, with large scarlet flowers, of fine form; and Edith, producing beautiful light-coloured blossoms. Johnsonii major is also a fine bright crimson showy kind, which produces eight flowers on a spike; as is also Wheelerii, an excellent scarlet. In the same house was the beautiful Vallota purpurea, which is one of the most lovely of summer and autumn-flowering plants. I cannot leave this class of bulbs without expressing regret that they are not grown more than they are. Some greatly neglect them after they have finished blooming—this is the time when they require to make growth; and after this is completed, a good rest should be given them by laying them down on their sides until they are ready to start again. The soil best adapted for them is fibrous loam, with a small portion of rotten manure. They require a good supply of moisture when growing. When at rest they are extremely accommodating, as they can be stowed away under stages, whilst other plants occupy their places.

After leaving this house the walk leads through a Rose garden, and onwards to a large show greenhouse, 22 feet in width, and about 50 in length, span-roofed, and well ventilated at the top. This is furnished with a centre and two side tables, and has a path round it. Here were some good plants, especially of Phœnicoma prolifera Barneoi, a well-formed plant, 6 feet in diameter, and when I saw it, magnificently in bloom; also fine plants of Pimelea decussata, Polygala Dalmaisiana, Acacia gracilis, which is one of the most beautiful of its class; Chorozema flavum; a very large specimen of Eriostemon, the lovely sweet-scented Rhododendron Edgworthii, Statices, Destontainea spinosa, in the shape of a large plant, which blooms well annually; Rondeletia speciosa: and quantities of Tritonia aurea. This last makes a good show in August and September. There were moreover a good collection of Zonal Pelargoniums, which make a grand display; together with Lilium auratum, intermixed with Orchids, amongst which was a new Orchid on which had seven spikes of bloom on it, and on some of them 200 fully expanded flowers of a bright yellow and marked with brown. This is one of the finest kinds with which I am acquainted, for in addition to its beautiful flowers it has leaves of a charming light green colour, and appears to be a free growing kind. If undescribed it should be named after its worthy owner, O. Dawsoni. It lasts in perfection a long time, and succeeds perfectly in a greenhouse whilst in bloom. Last year this house contained all the plants of Odontoglossum grande when in bloom, and when intermixed with the foliage of the greenhouse plants they had a pretty effect.

Another greenhouse was filled with specimen Azaleas, consisting of all the best kinds, the whole of the plants being models of cultivation and well set with bloom. Adjoining was a small span-roofed house for foliage plants, amongst which was a fine specimen of Croton angustifolium; also a good example of the rare Pandanus reflexus, a singular plant, and one seldom seen. In the same house was likewise a large specimen of Selaginella cæsia arborea, of a beautiful blue colour.

Farther on are two large vineries, the first devoted to Black Hamburgh Grapes, of which there had been a good crop. Another house contained Muscats, the bunches of which were not large, but the berries were good. In this house is grown a collection of Camellias, amongst which I noticed Pauline Maggie, Queen of Denmark, Leopold I., Cup of Beauty, Duchess of Orleans, Saccoi Nova, Bianca, Countess of Derby, Countess of Ellesmere, Candidissima, Imbricata, Mathotiana, Bothwelliana, Mrs. Abby Wilder, Archduchess Augusta, Reine des Fleurs, &c. Let us hope that Mr. Dawson may ere long build a house specially for this fine collection, to which it is well entitled. *B. W.*

Miscellaneous.

The Silkworm.—The following account is taken from the report of Mr. Meadows, H.B.M. Consul at the port of Newchwang:—"In a journey to the Corean borders during the autumn of 1863, I found myself, so soon as I had crossed the watershed of the Leaou mountains, travelling through a silk-producing country. I had, indeed, heard before of silk being produced at and near Fung-hwang city, but had considered it merely an amateur domestic occupation, not capable of being developed into a trade. That it is much more than this, and that it may furnish in time what the port greatly wants, an article of export to Europe, I have now no doubt. Questions have been raised as to the nature and characteristics of the silkworm peculiar to this district, but only a personal visit to the silk-producing country for the express purpose of getting information could enable me to give answers to them on which I myself could place full reliance. It is difficult enough to extract good information from the Chinese when in the midst of the things inquired about; at a distance it is next to impossible. As an instance of this, I may state that in spite of all my frequent inquiries, made both when in the silk-producing district and at this port from natives of that district, it is only within the last few months that I have heard of another tree besides the Oak on which the large worm feeds. The Oak-bush is called locally *Po lih ko tsi.* The other bush is called *Chien tso tsi.* Its leaves are narrow and long, as compared with those of the Oak-bush. Its bark is of a greenish white hue, and is smooth, and its trunk and branches straight and ungnarled as compared with those of the Oak. It produces a seed or fruit on which pigs feed. It must, I think, be a species of Beech. The silk produced by worms fed exclusively on this bush is said to be stronger than it is when they are fed on the Oak. It is, I fear, beyond doubt that the Oak-leaf-eating worm, the *shan keen* or mountain worm, as the Chinese here call it, is of a different species from the Mulberry-leaf-eater, which is here called the *kea keen* or domestic worm; and that, therefore, the hope of a beneficial crossing cannot be indulged in. On the other hand, the Mulberry-leaf-eater or domestic worm

of the Newchwang consular district does seem to be of the same species as that of middle China; and it might be desirable to try the effects of a crossing with an animal that has probably for many generations been a separate inhabitant of this widely different climate. As the cocoon produced by the mountain worm is about three times the size of that produced by the domestic worm, so the worm itself is about thrice the thickness, though little if anything longer. It is of a brown or dry-earth colour, and has on its back little knobs or protuberances. In its flying stage the 'mountain' insect is a large and richly coloured butterfly, measuring from tip to tip of its expanded wings some 7 to 9 inches, 'as large as a swallow.' A native of the silk country, now here, professes to have once fed a few mountain worms on Mulberry leaves. They ate as much as five or six times the number of domestic worms, and the cocoons they spun did not at all differ in their appearance from those spun by mountain worms fed on Oak bushes. The same man tells me that the stuff made from the cocoon of the mountain worm will take only a black or a purple dye, and that those who desire to make with it a stuff of other colour are obliged to use some proportion of cotton threads. Looking to the three great classes of textiles, cotton, wool, and silk, the produce of the mountain worm must be classed with the latter, inasmuch as it neither grows on a shrub nor on an animal's back, but is produced by a leaf-eating worm; and, viewed as 'silk,' it is manifestly of an inferior quality. But if we choose to look at it simply as a new textile, there is some reason to believe that it may prove to have useful qualities not possessed by either silk, wool, or cotton. Should it be found to possess some such peculiar quality so useful as to make it specially marketable, then it will become a matter of interest to ascertain whether a cocoon-forming worm which exists in a wild state in British North America—near the Canadian lakes, I think—is not the same insect as the Newchwang 'mountain' worm. The climate of the two regions is essentially the same, and if the cultivation should seem desirable in Canada, the difficulty of want of experience as well as want of sufficient labourers might be got over by introducing Chinese emigrants from the Newchwang silk-districts. Be that as it may, the produce of the mountain worm spun into thread or as cocoons should, if the provincial authorities are not allowed to interpose barriers to foreign adventure, prove a fairly remunerative export from this port town, and that for the reason stated in the accompanying memorandum; it has 'for generations back paid Chinese dealers to send it seaward in junks." *Journal of the Society of Arts.*

Royal Forests.—The accounts lately issued for the year ending with March, 1865, show that the receipts from the New Forest in that year amounted to 16,636*l.*, and the expenditure to 11,105*l.* Dean Forest produced 7,407*l.*, and the expenditure was 5,944*l.*; the mines bringing in a further sum of 14,841*l*, *minus* 1,970*l.* expenses. High-meadow Woods—receipts, 5,301*l.*; expenditure, 1,723*l.* Alice Holt Woods—receipts, 1,641*l.*; expenditure, 642*l.* Woolmer Estate, 1,114*l*, *minus* 173*l.* expenditure. Bere Woods, 1,583*l.*, *minus* 619*l.*; Parkhurst Woods, 369*l.*, *minus* 331*l.*; Hazleborough Wood, 570*l.*, *minus* 300*l.*; Salcey Wood, 2,018*l.* *minus* 889*l.*; Delamare Woods, 6,134*l.*, *minus* 1,543*l.*; Epping Forest—receipt, *nil*; expenditure, 50*l.*; Chopwell woods—receipts, 33*l.*; expenditure, 446*l.*; and the mines produced 58*l.* An epidemic has been prevailing for a long time among the Larch in Chopwell woods; the trees have become stunted in growth, and were described by the superintendent some months since as assuming a blackened, sickly hue, holding out but a poor prospect of ultimate successful development. The entire receipts of the year from the Royal forests and woodlands (without reckoning the items above given in relation to mines) amounted to 42,807*l.*; the expenditure was 23,765*l.* But the growing timber is represented as increasing in value by more than 60,000*l.* a year. The foregoing figures do not include Windsor Park and woods; the year's receipts from that great Royal domain amounted to 8095*l.*, and the expenditure was 18,922*l.*; but it must be remembered that it is not maintained for mere purposes of revenue, either present or prospective. In the Royal forests there are but about 100,000 acres over which the Crown has more than a bare forestal right, and a considerable proportion of the land is subject to rights of common on the part of a numerous body of persons, much being also not worth cultivation. More than 50,000 acres, however, are enclosed and planted with timber; it requires above a century to bring an Oak to maturity, but the plantations have reached the stage in which they pay their expenses and yield a small income by the sale of the thinnings that are cleared away to make room for the crop that is to grow to maturity. In the forests disafforested in recent years under the authority of Parliament, the Crown allotments which admitted of more profitable occupation than for the growth of navy timber have been converted into farms.

Sicilian Vegetation.—The city of Messina, and its northern and western suburbs, show the influence of the snow-covered Calabrian mountains; there is all but a complete absence of the southern vegetation of Palermo. The hills are covered with Fir and small Olive trees, and the Orange and Lemon trees disappear, or are only observed in sheltered corners. The Fig trees were only just beginning to show their leaves, the Vines were only sprouting on the 25th of April, and there were very few flowers in bloom to be seen. Indeed, the proximity of the cold Calabrian mountains appeared to have brought the northern suburbs and the city of Messina, which are in the same latitude as Palermo, to the level of Cannes. *Bennet's Mentone, 3d Edition.*

Calendar of Operations.

(*For the ensuing week.*)

The season of the year has arrived when everything in the shape of flowers is scarce. Fruit-bearing plants will therefore now be in requisition, and foremost among them may be mentioned the different kinds of Aucuba, Solanums of various sorts, and last but not least, the small fruited sorts of Oranges. These will all form plants suitable either for room or conservatory decoration. A very good effect may also be produced by bringing prominently into view plants with handsome foliage. What can be finer for example than Ferns when well grown? The Poinsettia pulcherrima, Calathea zebrina, Dracæna terminalis, and many other plants of a similar description are also valuable, on account of their beautiful and highly coloured leaves or bracts.

FLOWER GARDEN AND PLANT HOUSES.

While the weather is still favourable look carefully over half-hardy stock, and if any has not already received sufficient protection, let no time be lost in rendering it as secure as possible for the winter.

Climbers.—Attention should now be paid to securing as much light as possible in all plant-houses; where the rafters or roofs, therefore, are used as trellises for climbers, the latter should be reduced within convenient bounds. Late-flowering sorts as yet unpruned will now be sufficiently ripened for the purpose, but little more should be done after removing the changed leaves than to prune the weakest shoots; their final pruning should be deferred till March or April. If larger and stronger shoots are cut now, they are apt to commence growing, in spite of the moderate temperature, and thus expend the strength which ought to be reserved till spring. The shoots of Maurandyas should be considerably reduced in bulk, as they are affected by the slightest damp during winter.

Pelargoniums.—Give air whenever the weather will admit of it; but avoid cold draughts, and keep out frost. On the other hand, be careful not to use too much fire-heat. Training and shifting must also receive attention.

Solanum Capsicastrum.—As even small plants of this bear berries freely, the following hints as to its cultivation may be worth attention:—If good-sized specimens are wanted in a comparatively short time, let the young plants be introduced into warmth early in spring, and as soon as they have started freely into growth shift them into larger sized pots. When potted place them again in heat, giving little water for a time; but syringe overhead occasionally in order to keep the atmosphere moist. After that, water with water of the same temperature as that of the house in which they are growing. They will now succeed perfectly well under the kind of treatment usually given to plants in a growing state, paying attention to stopping all straggling shoots, so as to induce a compact pyramidal habit. For ordinary purposes 6-inch pots are large enough. About the end of June they should be placed out of doors in as hot and sunny a situation as possible, when they will keep flowering and set fruit better than they would indoors. In September let them be moved under glass, where, when covered with brilliant orange-scarlet berries, they are extremely ornamental. Indeed few plants can be compared with this for winter decoration, and what is important, the berries are so permanent that the bushes bearing them retain their vivid colouring for several months at a time. The soil most suitable for this Solanum is a light fibry loam intermixed with a little peat and sand.

Veronicas.—Andersoni, Lindleyana, and Meldensis, are charming plants for the decoration of conservatories at this season, and should be everywhere grown for that purpose. They may be made to form standards, and in that shape produce a good effect when intermixed with low-growing plants.

FORCING GARDEN.

Cucumbers.—Give those growing in pits all the light possible by taking off the covering early in the morning, and keeping the glass clean. Be careful that red spider does not make its appearance, which may be the case in Pine stoves, where the drier atmosphere favours its increase.

Pines.—Do not allow cold weather, should it occur, to seal up the ventilators; the admission of air must, of course, be gradually reduced in accordance with the season, but this is a very different matter to almost discontinuing it. Let water be very sparingly used during the present dull weather, but have an eye to those plants which stand near flues or hot-water pipes, as they are liable to get dry before their neighbours.

Vines.—In some instances houses from which the fruit has been cut will long before this time have been converted into greenhouses; the Vines under such circumstances require to be kept cool and dry, and the plants want very nearly the same treatment; frost, however, must be carefully excluded. While the plants are in these temporary dormitories, particular care should be taken to keep them perfectly clean and free from insects of all descriptions, or these latter will leave broods behind them, which will be very troublesome some another season.

HARDY FRUIT AND KITCHEN GARDEN.

Examine fruit and root stores to see if all is in a state of good preservation. The dressing of fruit trees against walls, with Gishurst Compound or a mixture of a little lime, soot, and tobacco water (water in which tobacco has been boiled), with a small quantity of size to fix the mixture to the trees, should now be proceeded with. No scale or the larvæ of any troublesome pests can withstand this simple recipe; and as fruit trees are so liable to the attacks of insects, it is well worth the trouble of applying it. After the trees are dressed, proceed actively with retraining. Take grafts of any good kinds of Pear and Apple which it may be desirable to increase, and lay them well into the ground on the north side of a wall. The wood for this purpose should be the well-ripened shoots of last year, and care must be taken to provide only such as are healthy and free from all kinds of insects. Cuttings of choice Gooseberries and Currants should be put in. Handsome standard Currant trees may be quickly obtained, by splitting up old bushes that have many stems. Take them up wholly with plenty of roots, divide them into single stems, trim the roots, and spur the shoots up the stem, as it will bear all the way up; shorten in the shoots which are to form the future head to within 5 or 6 inches; plant in good rich soil, and tie them to a stout straight stake, and a standard is at once obtained.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Dec. 27, 1865, as observed at the Horticultural Gardens.

Dec.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth. 1 foot deep.	Temperature. Of the Earth. 2 feet deep.	Wind.
Thurs. 21	3	30.285	30.224	54	41	47.5	43½	43	S W
Friday 22	4	30.310	30.266	44	36	40.0	45	45	S W
Satur. 23	5	30.310	30.283	43	28	35.5	45	45	S
Sunday 24	6	30.308	30.311	37	30	33.5	44½	45	S W
Mon. 25	7	30.283	30.283	48	32	40.0	44½	44½	S W
Tues. 26	8	30.191	30.111	50	26	38.0	44	45	S W
Wed. 27	9	30.305	30.176	46	28	37.0	45	43	W
Average		30.29[illegible]	30.224	45.5	31.[illegible]	38.7	44.8	40.3	

Dec. 21—Fine; overcast; mild night and day for the season.
— 22—Densely clouded; overcast; densely overcast at night
— 23—Cloudy; densely clouded; overcast; slight frost.
— 24—Densely clouded; overcast; foggy at night; slight frost
— 25—Overcast, fine throughout.
— 26—Densely overcast; slight frost at night.
— 27—Dense fog; hazy; foggy at night, with slight frost
Mean temperature of the week, 1½ deg. above the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 40 years, for the ensuing Week, ending Jan. 6, 1866.

Dec. and Jan.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday..31	44.2	33.3	38.7	13	0.44 in	1	9	1	3	6	1	[illegible]	[illegible]
Mon. .. 1	43.3	30.9	37.1	12	0.70	5	6	3	3	6	9	[illegible]	[illegible]
Tues. .. 2	42.4	29.5	35.9	16	0.21	3	5	2	2	4	1	[illegible]	[illegible]
Wed. .. 3	43.0	30.6	36.8	19	0.56	1	3	7	1	6	1	[illegible]	[illegible]
Thurs. .. 4	42.6	31.3	36.9	16	0.85	4	7	6	5	2	1	[illegible]	[illegible]
Friday .. 5	41.8	30.0	35.9	14	0.40	4	8	4	4	4	1	[illegible]	[illegible]
Satur. .. 6	41.0	28.8	34.9	13	0.33	4	7	5	4	4	1	[illegible]	[illegible]

The highest temperature during the above period occurred on the 3d, 1860—therm. 57 deg.; and the lowest on the 2d, 1861—therm. 4 deg.

Notices to Correspondents.

*** Letters intended for publication anonymously, should be authenticated by the addition, in all cases, of the real name and address of the writers, for the private inspection of the Editors. No notice can be taken of communications if this rule be not complied with.

Books: *William.* The Handbook of British Ferns, and the Fern Manual, are the best we can recommend within the limits which you mention.—*J W.* Thomson on the Vine.

Cooking Fungi: *B N.* The species of Clavaria, Sparassis, and such like edible Fungi should, before cooking, be well cleaned from any particles of soil which may adhere to them, washed in warm water and thoroughly drained, and afterwards baked with butter, Parsley, and a little Shallot, and seasoned with pepper and salt. When tender, cream and yolk of egg should be added. While baking, a few spoonfuls of stock broth may be added occasionally, with advantage. In Austria they are fried in butter, and seasoned with sweet basil. Sparassis laminosa, a species as big as a Cauliflower, but not British, is, when young and pure in colour, said to be excellent, but when it acquires a yellow tinge and disagreeable smell, which it soon does, it is unfit to be eaten. Our native Sparassis crispa is smaller.

Heating: *G L B.* An ordinary kitchen boiler would not suffice for heating the houses indicated. A proper boiler fixed as you propose, would heat the conservatory and Vinery, by branches from one flow-pipe. The hall in the opposite direction had better not be attempted from the same boiler, but might, however, be sufficiently warmed from that in the kitchen. The kind you mention is very good, but there are none preferable to a well-set saddle boiler.—*C H.* The Polmaise system has been fully described by us in former volumes, especially in those of 1847 and 1848.

Names of Plants: *F. W. Benarth.* Escallonia macrantha.

Schedule of International Horticultural Exhibition of 1866: *Anon.* We are authorised to state that the word "distinct," used in many of the classes, and concerning which some inquiries have been made, will admit dissimilar varieties to competition; though, of course, dissimilar species (in classes where that word will apply) being more distinct than varieties of one species, would have an advantage in that point, which would decide the award in their favour, other points being equal. The kind practical guide will be followed the usual course at the great metropolitan shows.

Vine Borders: *E C.* Warmed borders are undoubtedly preferable for early crops of Grapes, but how to attain the result may be a question in particular cases. Hot-water pipes afford the most expensive, though otherwise the most troublesome way, but in inexperienced hands there is some risk of injury from drying the roots; and there is no doubt that other means, such as covering the border with fermenting material, are efficient. Opinions are divided as to the use of concrete.

Communications Received.—Signor Fenzi (seeds).—J. D. H.—J. V.—A. P.—P. H.—D. Alton.

LINCOLNSHIRE GEM PEA is the best Pea grown. MARTIN & SON, 7, Market Place, Hull; and Cottingham.

DICKSON'S "FIRST and BEST" EARLY PEA.

THE BEST EARLY PEA IN CULTIVATION.

This Pea has been tested against all the earliest varieties known, and is pronounced by most of the best practical Gardeners in the kingdom to be superior to any other Early Pea for earliness, productiveness, and general good qualities. Price per quart, 2s. 6d.

PRICED CATALOGUES of KITCHEN-GARDEN, FLOWER, and AGRICULTURAL SEEDS; also separate CATALOGUES of the Various Classes of Nursery Stock will be forwarded, post free, on application.

HENRY & ARTHUR DICKSON & SONS, The Old Established Seed Warehouse, 102, Eastgate Street, and Upton Nurseries, Chester.

The Earliest Pea known is

CARPENTER'S EXPRESS, gathered May 7th, the Earliest date on record. See Testimonials in *Gardeners' Chronicle* of September 2 and 9, October 16, and November 6. Price 5s. per quart. Trade price on application.

True seed to be had only of EDWARD CARPENTER, Seed Merchant and Grower, Brighton and Sussex Seed Warehouse, 95, St. James's Street, Brighton; and of Messrs. WOOD & SON, Nurserymen, Maresfield; Messrs. OSBORN & SONS, Nurserymen, Fulham, S.W.; Messrs. W. BRICE & Co., Seed Merchants, Glasgow; and Messrs. DICKSON & SONS, Nurserymen, Chester. Catalogues on application.

PRICED CATALOGUES of DUTCH BULBS now ready.

THE EARLIEST and BEST OUT-DOOR GROWN PEA we have tasted this season—vide *Journal of Horticulture* of the 13th of June, 1865; it was also favourably noticed in the *Gardeners' Chronicle* of June 3, 1865.

The above Early Pea is now being sent out by ROBERT H. POYNTER, at 1s. 6d. per quart. Height 3 feet. The kind was gathered from in good condition as early as the 20th of May, and was sent to the Editor as above on the 28th.

None genuine except from accredited Agents.

All over two-quart packages free on Great Western Railway.

ROBERT H. POYNTER, Seed Merchant, Taunton.

THE ESSEX RIVAL PEA.—This variety has proved to be the finest, best-flavoured, and most productive EARLY PEA in cultivation. See Testimonials in "Journal of Horticulture" of December 5, and in *Gardeners' Chronicle* of December 9. Price 1s. 6d. per quart.

To be obtained of the proprietor, Mr. Thomas ELEY, Sible Hedingham, near Halstead, Essex. Also of the following appointed Agents:—

Messrs. Peter Lawson & Son, 28, King Street, Cheapside, London, E.C.
Mr. James Veitch, Royal Exotic Nursery, Chelsea.
Messrs. Cooper & Bolton, 152, Fleet Street, London, E.C.
" Fraser, Richardson, & Goad, 82, Bishopgate Within, E.C.
" Richard Lowe & Co., High Green, Wolverhampton, Staffordshire.
" J. Roberts & Son, Denbigh.
" Fisher, Holmes, & Co., Handsworth Nursery, Sheffield, Yorkshire.
" Saltmarsh & Son, Chelmsford, Essex.
" Sutton & Sons, Reading, Berkshire.
" Joseph Tremble & Sons, Penrith, Cumberland.
Mr. Christmas Quincy, Peterborough, Northamptonshire.
" B. C. Mackenzie, Ventnor, Isle of Wight.
" A. F. Godward, Southend, Essex.
" B. Cant, St. John's Nursery, Colchester, Essex.
" George Taber, Rivenhall, near Witham, Essex.
M. Paul Tollard, Nurseryman and Florist, 4, Place des Trois Maries, Paris, France (Sole Agent).

The price being reduced to 1s. 6d. per quart, and liberal terms offered to the Trade, Mr ELEY is sanguine that the Essex Rival Pea will henceforth become a universal favourite in every garden throughout the United Kingdom and on the Continent.

N.B.—The height of the Essex Rival is 3 feet, and being of a hardy and robust nature, may be sown in any month (weather permitting), from the 1st of November to the end of July. See Mr. ELEY's remarks on "Garden Pea Culture," which will be forwarded with Testimonials free on application.

The Yorkshire Hero Pea.

E. P. DIXON AND SON, SEED MERCHANTS, 57, Queen Street, Hull, beg to intimate that they have this year harvested a fine lot of their YORKSIRE HERO PEA, a variety sent out by them, which has always sustained the very high character given of it, being remarkably prolific, early, and of delicious flavour. This Pea is similar in appearance to Veitch's Perfection, but much dwarfer, about a fortnight earlier, and far more prolific: upwards of 70 pods are frequently found upon a stem. It is also a Pea which withstands the mildew better than any other, and we have every confidence in saying that it is the best Pea extant.

All who have grown the Yorkshire Hero Pea have pronounced it to be the best variety of its class, and one which will become a great favourite in every garden. Price 2s. per quart.

TESTIMONIALS.

From Mr. THOMAS GIBB, *Gardener to the* Right Honourable the Earl of Yarborough, *Brocklesby Park Gardens.*

"I grew the Yorkshire Hero Pea the last season, and found it an abundant bearer and an excellent Pea of the Marrow sort. It resisted the hot weather of July, and remained quite green to the last, while other sorts at the same time were covered with mildew."

From Mr. WILLIAM BROWN, *Gardener to* Sir T. A. Clifford Constable, Bart., *Burton Constable Gardens.*

"I am highly pleased with your new Pea, 'The Yorkshire Hero,' and shall give it my best recommendation. I believe it to be the best Dwarf Pea grown, and much superior to Veitch's Perfection, as it is dwarfer, much earlier, and more prolific."

From Mr. JAMES ROBERTSON, *Gardener to the* Dowager Countess of Ripon, *Nocton Hall Gardens.*

"It gives me great pleasure to contribute my meed of praise to the very excellent Pea sent out by you last season, under the name of 'The Yorkshire Hero.' I sowed it in the months of March, May, and June, each of which sowings were equally productive, indeed very prolific, and in point of flavour cannot be surpassed. Several gentlemen in this neighbourhood tasted, and spoke very highly of it, and I think it a remarkably distinct variety, and one that will become a general favourite."

From Mr. WALTER HARDIE, *Forester to the* Right Honourable the Earl of Yarborough, *Brocklesby Park Nursery.*

"Having grown the 'Yorkshire Hero' Pea, I can bear testimony to its excellence in every respect, especially its delicious flavour and productiveness."

From Mr. GEORGE FAIRBANKS, *Gardener to* Joseph Robinson Pease, Esq., *Hesslewood House, near Hull.*

"I had some of the 'Yorkshire Hero' Peas from you the past season, and can truly say that it is a most excellent sort; being early, dwarf, of most delicious flavour, and an extraordinary bearer, it withstood the mildew better than any other Pea we had."

From Mr. W. KEMP, *late Gardener to* Sir Thomas Beckett, Bart., *Somerby Park.*

"The Yorkshire Hero Pea is a splendid variety of the Wrinkled Marrow, 2½ feet in height, very branching, and an abundant bearer, requires sowing very thin in good rich soil, and will produce from 50 to 70 well-filled pods of a most delicious flavour, and very thin in the skin, full 10 days or a fortnight earlier than Veitch's Perfection, and superior in every respect; it is the best Pea I am acquainted with, and will become a general favourite in every garden, not requiring such an immense forest of sticks to support them as most sorts do. I may further mention that from the quart of seed I had from you I have saved 6 pecks of well-ripened Peas, which I can easily dispose of at 5s. per quart to those who saw them in bearing."

From R. R. BROWN, Esq., *Bridlington Quay.*

"I have great pleasure in subscribing my testimony in favour of the wonderfully productive qualities of your Yorkshire Hero Pea; they are very large, and at the same time delicious eating, and I can pronounce them, with the greatest degree of truth, to be the best dwarf Pea I have ever grown."

Price 2s. per quart. Price to the Trade on application.

E. P. DIXON & SON, The Yorkshire Seed Establishment, 57, Queen Street; also 76 and 77, High Street, Hull.

New Kidney Bean.—Dickson's Eclipse.

JAMES DICKSON AND SONS have great confidence in introducing and recommending this NEW and DISTINCT KIDNEY BEAN, as being a THOROUGHLY SUPERIOR variety. Testimonials from well-known gardeners who have carefully tested its merits, fully explaining its superior qualities, forwarded by post upon application. It is offered in sealed pint packets at 2s. 6d.

Seed Warehouse, 102, Eastgate Street, and the "Newton" Nurseries, Chester.

Dewar's Northumberland Champion Celery.

HENRY DEWAR AND SON beg respectfully to offer Seed of this excellent sort WHITE CELERY, as now adopted by all who have grown it to be the best variety in cultivation. Awarded a First-class Certificate at International Show, South Kensington, December 9, 1865. In sealed Packets 1s. each, post free 13 stamps, usual allowance to the Trade.

DEWAR'S IMPROVED SHORT-TOP RED BEET.—They also beg to offer Seed of this very superior Beet, awarded First-class Certificates by the Fruit Committee of the Royal Horticultural Society, November 7, 1865, and at the International Show, South Kensington, December 9, 1865. In sealed Packets 1s. each, post free 13 stamps. Usual allowance to the Trade.

Seed Establishment, 97, Grey Street, Newcastle-on-Tyne.

JAMES GARAWAY AND CO., Durdham Down Nurseries, Bristol, offer the following SEEDS, which they can guarantee to be of great excellence, and decided acquisitions.

Prices to the Trade on application.

BROCCOLI (Garaway's Late White).—Pure white, very large, late, has been exhibited at the local shows, in first-rate condition, in the beginning of June. Retail price, 1s. 6d. and 2s. 6d. per packet.

CELERY (Burbank's Superb Red and Burbank's Superb White). Solid, crisp, and of fine flavour, has been grown for several years by the raiser, Mr. Burbank, and given very great satisfaction. Retail price, 1s. per packet.

CUCUMBER (Palm's Ridge).—Very hardy, fine flavour, good size, and remarkably productive. First-class Certificate awarded by Fruit Committee of Royal Horticultural Society, August 8, 1865. Retail price, 1s. per packet.

LETTUCE (Clifton Hardy Green Cos).—As hardy as Hardy Hammersmith, large, and of good flavour. Retail price, 1s. per pkt.

JAMES GARAWAY & Co.'s PRICED LIST of SEEDS for the ensuing seasons will shortly be ready, and will be forwarded post free on application.

Seed Potatos.

H. AND F. SHARPE invite the attention of the Trade to the following varieties of SEED POTATOS, which they have grown from the finest selected stocks; they comprise all the sorts worthy of cultivation. The quality is excellent, being free from disease; and prices very moderate:—

Early Ash-leaved Kidney	Early Oxford
" Myatt's prolific Kidney	" Forty-fold
Webb's Imperial Kidney	Dauntree's Earliest
Early King, very fine	Early Dalmahoy Round
" Martin's Globe	" Cockney
" Golden Globe	" British Queen
" Foxe's Seedling	Fluke Kidney
" Round Frame	Yorkshire Regent

Seed Growing Establishment, Wisbech, Cambs.

Paterson's Famed Seedling Potatos.

MESSRS. SUTTON AND SONS, Reading (after having grown our approved varieties of NEW POTATOS, and found them equal to reports from the leading Agriculturists throughout the country, and well worthy of extensive cultivation), have been appointed our AGENTS for BERKS and surrounding districts for the Sale of our Potatos.

WM. PATERSON & SON, Seed Potato Merchants and Seedling Raisers, Dundee.

Erin's Queen Dwarf Ashleaf Potato.

WAITE, BURNELL, AND CO. have the pleasure of again introducing this really true and pure stock of the Ashleaf variety, which gave great satisfaction during the past season. It is very dwarf in the haulm, foliage of a dark green colour, very early, and invaluable for frames. Price 10s. 6d. per bushel.

A liberal discount to the Trade.

Seed Warehouse, 181, High Holborn, London, W.C.

To the Trade and Others.

ON OFFER AT ADVANTAGEOUS PRICES.

GENUINE NEW ONION, MANGEL, TURNIP, CARROT, CABBAGE, PARSNIP, SCARLET RUNNER BEANS, &c. See Special Priced List on application.

A vast quantity of excellent CABBAGE PLANTS still on offer at 2s. 6d. per 1000 for cash, of several of the best varieties.

FREDERICK GEE, Seed Merchant and Grower, Biggleswade, Beds.

SUTTON'S CHAMPION SWEDE.—Referring to an Advertisement which appeared in the *Gardeners' Chronicle* of the 19th inst. relative to the Prizes gained by the above Swede at the Irish Root Competition, Messrs. SUTTON & SONS regret to state they appear to have been misinformed as to the result of the awards. Messrs. SUTTON & SONS lose no time in withdrawing the statement which was given them at their stand at Birmingham, upon what they supposed to be reliable information. This celebrated Swede has again greatly distinguished itself in Ireland this season, and they had no doubt at the time as to the correctness of the information received in that instance, or the statement would not have been allowed to appear. Reading.—December 27, 1865.

The Agricultural Gazette.

SATURDAY, DECEMBER 30, 1865.

THE new Order in Council meets the difficulty to which Lord CARNARVON's letter in another column refers. Authority is now given to the county magistrates to place the live cattle traffic under restrictions—not in petty sessional districts, but in quarter sessions assembled. The area is thus increased over which any restriction tells, and one step more is taken towards that centralisation of authority on the subject towards which public opinion is tending as being alone sufficient to deal with the evil, and which will no doubt be adopted as soon as the existence of a corresponding local urgency of feeling everywhere exists.

The letter from Mr. CAIRD on the homœopathic treatment of the disease, and the extract from the "Medical Journal" on the character of the disease, will be read with interest. It appears now to be admitted that the disease is an eruptive or spotted* fever of the same class to which small-pox belongs. And it is possible therefore that some method of preventing it, corresponding to that of vaccination in the analogous disorder, may be discovered.

The number of new cases reported during the past week was 6256—the largest number yet reported in any one week. And in Cheshire alone upwards of 1600 fresh instances of attack are reported: and the daily deaths were 162.

THE Annual Meeting of the Smithfield Club is as busy and urgent a time for the implement manufacturer as it is for the stock feeder. Almost every department of agriculture indeed is well represented in the Agricultural Hall that week. The soil itself cannot be presented, but the implements by which it is cultivated, the plants it has grown, and the animals they have fed, are all exhibited, and each in specimens of the very highest merit. For illustrations of the earliest maturity and most rapid growth, where will you find more wonderful specimens than the cattle, sheep, and pigs in the area, or the Mangels, Swedes, Cattle-melons, Grasses, exhibited in the galleries? When Wurzels average between 40 and 50 lb. apiece, and Swedes reach 18 and 20 lb., and Kohl Rabi exceed a stone, and Turnips are many of them over a quarter of a cwt., there does not seem much opportunity for improvement. And we may believe that, thanks to the implements exhibited, and through the plants exhibited, and by means of the varied improved breeds of stock exhibited, the maximum per acre of food for man has been extracted from the soil. We have not hitherto given a detailed report of the machinery exhibited on these annual occasions; for the Implement Catalogue of the Smithfield Club is much the same thing as that of the Royal Agricultural Society of England; and the area and galleries of the Agricultural Hall are very much the same thing as the country showyard covered in.

The powerful engines and threshing machinery of our best makers are represented on 20 different stands. Implements of tillage and of culture, and for seeding—steam ploughs and cultivators, ordinary ploughs, common and "excelsior" harrows, grubbers, horse hoes, corn drills and manure distributors, are seen everywhere. All kinds of machinery for harvesting crops and for preparing food, reapers, mowers, harvest carts, rakes, hay tedders, chaff cutters, of the one class; and Turnip cutters and pulpers, corn crushers, mills, and steaming apparatus of the other (these last probably the most appropriate class of implements for the season and the occasion) are exhibited at almost every stand. Domestic apparatus, washing machines, cooking contrivances, mincing machines, &c., are shown in large numbers. And, reverting to the farm, barn machinery, from the threshing machine and winnower to the weighing machine and the sack holder, is amply illustrated. The whole range of manufacture in which the farmer or his wife is interested is thus represented. And at many of the stands many thousand pounds worth of machinery are exhibited. So that the whole forms a wonderful illustration, both of the extent and the enterprise of the English agricultural machine trade.

Among the specialities deserving notice at the recent Show may be named Mr. BILLUP's contrivance for evenly dividing and distributing the water of a water drill among the several coulter drills into which it falls. It is manufactured by Mr. J. COULTAS, jun., of Grantham (Lincoln).—Mr. PENNEY's adjustable corn separator, in which a cylindrical spiral wire screen is made fine or coarse by the simple expedient of squeezing it together, or elongating it, also deserves mention.—Mr. PATTERSON's (Beverley) crushing mill is noteworthy for the simple way in which a rub and a squeeze are combined by the approach to one another of the bevilled surfaces of two wheels or discs, one larger than the other, and placed at an acute angle to it.—WEDLAKE's (Hornchurch) enormous apparatus for distributing liquid manure may be of service for market gardens and for richer liquid than common sewage; but it can hardly be supposed that the poor watery stuff of our sewers will pay for any other carrier than itself.

SAINTY's (Burnham Market) spring coulters for the corn drill, first shown at Plymouth, are exhibited here on several stands.—GRANT's (Staplehurst) portable railway for both 11-inch and 2 feet 2-inch gauge, is exhibited with its turn-table and waggons.—BOYD's (Leadenhall Street) turnip cutter and pulper in one, with flap in the hopper between the two enabling you to choose whether your roots shall be delivered in finger-shaped pieces or in "sawdust," must be named.—A great variety of churns are exhibited; TINKLER's (Penrith) simple barrel churn on a friction roller; IRELAND's (Manchester) 3-motion vertical churn, oscillating, plunging, and revolving all in one; and others.

Among the more important of the larger machines exhibited is ALLEN's double expansion engine, to which we have already directed notice in our columns. A saving of fuel and water is promised by it of upwards of one-half, besides a reduction of wear and tear. If this be true, it seems impossible that the old form of engine can

* "Exanthematous"=efflorescent.

hold its position. Since the introduction of steam ploughing, agriculturists are getting accustomed to higher pressures, and with this it appears inevitable that more use should be made of the steam than is now done. To let it out of the cylinder at the same pressure at which it enters, or nearly so, is perfectly monstrous, but this is actually done in ordinary engines, although nearly three times the power is theoretically obtainable if the steam be fully expended. Mr. ALLEN's arrangement accomplishes the most complete expansion, and this without duplication of cylinders; and actual experience shows that 3½ lb. of coal and 2 gallons of water per actual horse power per hour are sufficient for engines made on his plan, whereas 10½, 13, and even 14 lb. is the usual consumption. We strongly recommend an examination into this matter by both farmers and contractors.

—— ON SLEDGES. We once saw a sledge used for hay on boggy ground near Loch Katrine, which was well adapted for the work and ground. In one of MURRAY's Handbooks, published in 1847, we find that sledges are preferred to carts on the quays of Rotterdam; a vessel of water with a little spigot is suspended in front of each on the runner of the sledge, to diminish the friction. We believe that the quays are very narrow—little room to turn a cart. Sledges can be drawn from front or rear. They are occasionally used for many purposes in Devonshire, and very properly so under certain circumstances. Having a rough harrow-and-brushwood-carrying sledge tried in the hay-field, we were so much pleased that we used to borrow it from neighbours, and have repeatedly pressed a stout field gate into service in the hay field. A lad can load a sledge; a little boy, girl, or woman can lead a horse yoked to it with plough and trace gear, up to the rick, leave it for a man to pitch, and return with empty sledge or gate. It is well to reflect on novelties and always to remember to live—not vegetate—and learn. What may not the value of this hint in a catchy hay season be?

—— When a farmer meets with a new machine —grist-mill, straw-cutter, &c., the vital question to put to the exhibitor is—What parts are most subject to tear and wear, and breakage, and how can it be repaired? Most of the steel corn-crushers, until the American grist-mill appeared, were a case in point. There was a smart fellow from London selling sewing-machines at the West of England Agricultural Show for 40*s.* or 60*s.* On being taken aside and asked, if the machine was broken, how it could be repaired, he told us that it could not be repaired, which was all we wished to know. *B. M. F.*

THE CATTLE PLAGUE.

1. NEW ORDER IN COUNCIL.—The new Order published on December 23, revokes so much of the Order dated the 23d of November, 1865, as defines the local authority in Great Britain, and defines it now as follows:—Subject to the powers reserved by the Order of the 23d of November to the Clerk of her Majesty's Privy Council, the local authority within the City of London and the liberties thereof shall be the Lord Mayor; in every borough in England or Wales which is within the provisions of the Municipal Corporation Act the mayor; in every county, riding, or division of a county, or liberty having a separate Court of Quarter Sessions of the Peace in England or Wales the Justices of the Peace for the said county, riding, or division of a county, or liberty, in General or Quarter Sessions assembled, provided that no county of a city, or county of a town, or borough which is within the provisions of the Municipal Corporations Act shall be deemed for the purposes of this Order part of a county, riding, division, or liberty. The local authority in every burgh or town in Scotland having a Town Council shall be the provost or other principal magistrate; and in any other place in Scotland the justices of the county in sessions assembled.

2. THE CATTLE PLAGUE UNDER HOMŒOPATHY.—In the attempt to treat this formidable disease, the Association instituted three weeks ago the first of a series of careful experimental trials in Norfolk. Notice of this was given to the Cattle Plague Commissioners, and an experienced veterinary surgeon, under their direction, has daily watched and noted the proceedings. The Association engaged the services of a skilful and experienced homœopathic veterinary, who, with two competent assistants, has remained in constant attendance on the cases. The local and personal influence of Lord Bury was warmly engaged in our behalf. But, notwithstanding all these advantages, the result of our first trial has been that, of 36 cases undertaken on the first day of this month, only six remained alive and were convalescent on the 22d.

The cases were taken fairly and indiscriminately, some moribund, others in the first, and some in advanced stages of the disease.

Our first trial has thus fallen far short of the anticipations formed from the success of similar practice in Holland. We have but 16 per cent. of cures to place against 46, the proportion shown under all kinds of treatment by the Dutch returns of the 22nd November. This may possibly be accounted for in part by the different condition of the food of the English and Dutch cattle, the former having been on their winter food of roots and fodder, while the latter were still on their succulent and easily digestible pastures. There would seem to be something also in the nature of the animal itself, as both in Norfolk and in London it has been observed that Dutch cows recover from the disease in much larger proportion than English.

But, though we have to lament the want of success which has attended our first trial, it has been full of instruction for future guidance. While the disease has proved very fatal, it is not incurable, and many cases which had been successfully treated relapsed from the subsequent use of improper food. Our experience in regard to diet is clear and decisive, and I venture to urge it as a vital point in the management of this disease, whatever principle of medical treatment may be adopted.

Solid food in any form, in the active stages of the disease, is positively pernicious. It arrests recovery, and when partial, or even complete, restoration from the disease itself has been effected, it causes a relapse which almost certainly proves fatal. The safest and only necessary food is well-boiled gruel, given in moderate quantities four times a day, a quart or a pint at a time, according to age and strength; the gruel to be made of Wheat, Indian Corn, Barley, or Rice-meal, whichever is handiest. When the appetite returns, soft, fresh made mashes of pollard, mixed with meal, may be given lukewarm, but no roots in any mode of preparation until the animal is convalescent. Then boiled roots in moderate quantity may be given with the mash, but Turnips, from their action on the kidneys, are objectionable at any stage. All straw and dry fodder should be kept out of reach, and, if necessary, the head of the animal should be so tied as to prevent it eating its litter. The animal should be kept comfortably warm, and be well rubbed over from time to time, and the discharge from its eyes, nose, and other parts carefully wiped away.

The nature of the disease is not yet understood. It is epidemic, highly contagious, but yet not uniformly so. It is an exanthematous disease—that is, fever, attended with eruption on the skin; whether analogous to any eruptive fever of man is not yet determined. It may be latent for weeks. It affects every organ, is most complex in its nature, the bones even in many cases are affected. Other diseases seem to give way before it. Where it enters, the foot-and-mouth disease and pleuro-pneumonia disappear. The formidable character of this disease, its rapid spread, and weekly increase both in this country and Holland, and the fear that it may be communicable to sheep, render the consideration of its curative treatment a subject of the gravest national importance.

We are not dismayed by the comparative failure of a first trial. The difficulties have been great—a new, complex, and terrible disease, dumb patients unable to give their medical attendant any history of the case, attendants sometimes careless and obstinate, and never with any earnest faith in the possibility of cure; but we persevere. The experience we have gained in Norfolk we are about to carry into Cheshire. From a feeding we pass into a breeding and dairy district, where the cure of the animals is even of more vital importance. Our practice is open to public inspection, and its results will be faithfully reported. The field is ample enough for many inquirers and for different remedies. We claim for ourselves no more than a place in that field, wherein we may hope to gain, by patience and perseverance, some mastery over a disease the danger of which to the welfare of the community cannot be exaggerated. In the name of the Association, *James Caird, Vice-Chairman, 6, Adelphi Terrace, Strand, Dec. 26. (In the Times.)*

3. NATURE OF THE DISORDER.—Mr. Ceely, of Aylesbury, has, we believe, thoroughly satisfied himself that the rinderpest is a specific eruptive fever, having no relation either to typhus or typhoid fever. He has satisfied himself, from historical records, that the rinderpest which formerly visited this country was a specific eruptive fever; and it was from this study of the past history of the disease that he came to this conclusion. If, he argued, the present cattle epidemic is the rinderpest of former days, it must be accompanied with an eruption. Like Le Verrier with his new planet, he said to pathologists, "Seek for an eruption, and you will find one." Pathologists have sought, and have found the eruption to be a constant phenomenon of the disease. The Medical Committee of the Norwich Cattle Plague Association, who have just issued a report, refer to the fact in the following terms:—

"Quite recently the attention of your Committee has been directed to the state of the skin in the diseased animals. It appears now to be certain that, in a large proportion of cases of rinderpest, certain spottings or markings are present upon some portions of the skin, and can be easily seen after death by shaving off the hair and holding the integument up to the light. They are also rendered [illegible] stinct by the earlier processes which the hide undergoes in the course of tanning. These spots, when examined, appear either as [illegible] imperfect vesicles, or as small rounded spots [illegible] over the surface, in small or larger number, and they are [illegible] to be most numerous behind the shoulder. On [illegible] skin, also, surrounding the valvæ of the [illegible] spots or markings may be found. They look to the naked eye like petechiæ; but on examination with a magnifying glass they are seen to be really elevated above the surface, and [illegible] in fact, papulæ or pimples, acuminated, with [illegible] vesications or semi-purulent corrugations of their apex; the colour and general appearance approximating very closely to that of the spottings that have been seen on the mucous membrane of the larynx and trachea. Such appearances confirm very forcibly what has been said as to the specific and eruptive type of the disease; and indeed, in the opinion of your Committee, supply the only link hitherto wanting to prove most conclusively the truth of what has been advanced above."

This phase of the case will naturally bring forward the question of vaccination as prophylactic of the disease. We shall hope shortly to lay before the profession a full account of Mr. Ceely's views on this important matter. The report of the Norwich Commission above alluded to is a valuable and instructive document. The members of the Committee are Dr. Eade, Dr. Bateman, Mr. Nichols, and Mr. Cadge, with Messrs. Wells and Smith, M.R.C.V.S., and Mr. Forrester as Secretary. We regret that we are only able summarily to allude to it. Their conclusions are as follows:—

"1. That the disease is the result of a specific blood-poison. 2. That it is an eruptive disease, closely allied in its nature to the exanthemata in man. 3. That it is both infectious and contagious. 4. That it is communicable from ox to ox, from sheep to sheep, and between these two classes of animals by mere association. 5. That it is also inoculable by means of the discharges from bullocks to sheep, from sheep to bullocks, and to each other respectively. 6. That the disease as seen in sheep is identical in nature with that of bullocks, but is milder in type, and is also modified as to its *post mortem* appearances."

A full account is given in the report of the symptoms of the disease, as observed in the ox and the sheep, as well as of the *post mortem* appearances. With regard to its communicability to man, they say:—

"The human species does not appear to be liable to suffer either from exposure to contaminated air, or from punctured wounds made by instruments charged with fluid from the carcases; neither does it appear that the diseased meat is, in its early stages, unwholesome as food; but that the poison may enter into the human system, and be retained there, is shown by the fact that the smell peculiar to this disease may be perceptible in urine and stools passed many hours after its inhalation. How peculiar and characteristic this smell is, is borne testimony to by all who have had any experience of the disease; and, indeed, from it alone, as emitted by the living animals, or in a still more marked degree by the dead carcases, and especially their abdominal viscera, the presence of the disease may often be diagnosed."

The Committee add, that they have as yet no data before them from which to judge of the efficacy of any kind of treatment of the disease.—*Medical Journal.*

4. STATISTICS OF THE PLAGUE.—Believing it to be of great importance to ascertain whether the cattle plague has appeared in any localities where it can be clearly proved no communication with any infected sources has taken place, may I beg any of your numerous readers to favour me with reports on this point, where to the best of their belief the disease has broken out in their own stock or that of their immediate neighbours, where there has been no communication with diseased animals, or any other mode by which infection from diseased sources could be conveyed. I shall feel extremely obliged for any statements from any parties who have themselves had the opportunity of investigating the facts on the spot. It will be proper to ascertain that no individual, no horse, or dog, or other animal has been about the premises that could possibly have come in contact with any diseased animal or contaminated matter previously to the appearance of the plague. I trust that some gentleman in Scotland and the north will favour me with communications on this important question. *Thomas Ingle, M.D., The Villetta, Emsworth, Hants.*

P.S. The plague first appeared in London, and it would be satisfactory to learn when it first was known among the stock north of the Tweed, and how far north in Scotland it is now prevailing, and if in some of the remote districts instances of the spontaneous generation of the plague have not occurred. They of course must be well attested, and direct from a party on the spot, or they could not be regarded as conclusive.

5. FROM LORD CARNARVON.—There are yet six weeks to the meeting of parliament and the consideration of legislative measures for the suppression of the cattle plague, and with every week a marked increase in the ravages of the disorder is noted in the official returns of the Veterinary Department of the Privy Council Office. The Government—whether rightly or wrongly I will not now determine—have sought to cast the responsibility and the burden of action upon the local authorities, telling us that the powers conferred upon them under the last Order in Council are sufficient. Whether this be so or not, local authorities have clearly no alternative but to exercise those powers to the fullest legal extent.

A week hence the entire magistracy of the country will meet in quarter sessions, and though their powers are narrow, and the difficulty of effective measures great, an opportunity of practical good will be lost if they separate without an attempt at some common course of action.

Apart from minor suggestions and regulations there are, I think, four principal objects which are desirable—

1. To stop all fairs and markets and the public sale or exhibition of animals, whether fat or store, in any place within the several petty sessional divisions; 2. To prohibit the importation of cattle from any other part of the United Kingdom within the same limits; 3. To secure—probably through the chief constable—a careful supervision of all roads where the movement of cattle is likely, and, by means of a single inspector, an inspection of suspected animals upon as regular a system as is practicable, with a proper removal and disinfecting of all contagious matter; 4. To obtain, as far as possible, the co-operation of the authorities of the boroughs lying within the counties. These measures, if fairly carried out, will strike at the principal centres of infection, limit the spread of disease from within, and prevent the introduction of it from without. Most of them, as authorised by the 16th and 18th sections of the last Order in Council, have already been agreed to by the magistrates of this county and of Gloucestershire, and it is my intention to make a corresponding proposal in Hampshire at the ensuing quarter sessions there.

On the other hand, there is a difficulty in giving effect to these provisions, and it is one which has been gratuitously created by the terms of the Order in Council. The "local authorities" to whom power is intrusted are not the magistrates acting in quarter sessions [this is now altered], and consequently able to adopt comprehensive and consistent measures for the whole county, but the magistrates acting in petty sessions for the small and irregular areas of their limited jurisdictions. This subdivision of authority, if maintained in practice, must be obviously fatal to uniformity of action. One division will move too fast, another too slow, another not at all, and in this irregularity of procedure points will be left unguarded in the line of defence, by which the disease will make its way into the heart of a county. But though quarter sessions have no authority to control or regulate the independence of the petty sessional divisions, yet it ought not to be difficult in a court where all parts of a county are represented to secure a general understanding as to the course to be adopted in each division. A common form of order with reference to the sale, the movement, and the introduction of cattle can easily be adopted. A common inspector can be appointed for the whole county by an agreement of the several petty sessions to accept the same individual; nor need there be any difficulty, where local circumstances may require it, in creating a committee, which, by corresponding with the various petty sessional divisions, may contribute towards uniformity of action on questions arising from time to time. In counties which are as yet free from the disease, non-intercourse with other parts of the country, and a more or less suspension of traffic, offers, for the present at least, a reasonable chance of escape; and even in counties where the plague has broken out, a very rigid isolation of the places infected, in addition to the more general measures adopted, may limit the operation of the evil; but neither non-intercourse nor suspension of traffic, nor the isolation of particular places, will avail without uniformity of action. Precious time has already been lost in waiting for help from the Government; half measures are as useless as they are burdensome, and I fully believe that the vast majority of large and intelligent farmers in the South of England are ready and anxious to submit to the sacrifices and inconveniences involved in the adoption of stringent measures in order to escape the infinitely greater losses and suffering which the further spread of the pestilence must necessarily entail upon them. *Carnarvon, Pixton, Somerset, Dec. 23.*

AGRICULTURAL EDUCATION.

On Middle Class Education, having reference to the Improvement of the Education of those who depend upon the Cultivation of the Soil for their Support. By Mr. R. Duke, 14, Burton Crescent.

(*Concluded from p. 1214.*)

It remains to consider how the certificate or diploma of the Society should be conferred, and upon whom. Examinations are now the order of the day for testing qualifications, and a great deal is made to depend upon their results. All the appointments in the Civil Service of the Crown are now made as the result of examinations. The valuable appointments in the Civil Service of India are made in the same way. In the majority of these appointments no special technical knowledge is required. Still more may a properly conducted examination test technical qualifications. These require to be founded on substantial information, and they cannot be acquired by superficial means. An examination, then, in agriculture and its kindred sciences, would to a great extent indicate the qualifications of the agriculturist. Let the Royal Agricultural Society institute such an examination, which should include, in addition to the sciences which have been mentioned, a thorough examination in practical agriculture; acquaintance with all the detail of a farm, and with the prevailing practice of the most improved districts. To conduct this examination competent examiners would be required, one for each of the sciences, and one for agriculture. Three of these may be said to exist in the chemist, the consulting engineer, and the veterinary surgeon of the Society. Others might be appointed for the remaining subjects, the most difficult of which to fill would be that of agriculture; but with the many eminent agriculturists and agricultural writers of the present day, this would not be impossible. The examination might be held annually in London, in the first instance, and other opportunities might be subsequently afforded when required.

The standard of examination should be fixed by a Committee of the Royal Agricultural Society, and should be sufficiently high, that the diploma of the Society might be a certificate of considerable attainments. This would require more attention in the first instance till the character of these examinations was established. To meet some of the expense, a fee might be attached to each diploma granted, and even a preliminary fee required from all who presented themselves for examination, as considerable outlay might be incurred to secure the services of competent examiners. In the first instance, however, the Society might be willing to bear the whole expense. As a preliminary to examination, a certificate of residence upon a farm might also be required; one year's residence at least with a rent-paying farmer, as some guarantee that the candidate was also a practical man. In residing upon a farm some observation must be exercised, and some practical knowledge acquired, and thus the foundation laid of a sound agricultural education. Being thus assured that the practical qualifications were acquired afield, the examiners would proceed to ascertain the attainments of the young agriculturist in those other branches of knowledge which have been considered.

Here it might be considered that the Society would assist him in obtaining this scientific knowledge, that the action of the Society might commence, and some means be provided for supplying these additional acquirements. This, however, would not be altogether necessary. The Civil Service Commissioners conduct, on the part of Government, as many as two thousand examinations yearly, and yet the Government has not thought it necessary to provide the means for supplying the information which must be acquired to pass these examinations. Nor is there this necessity. It is not more true that Nature abhors a vacuum than that demand creates supply. The latter adage, indeed, may be considered the present rendering of the old philosophic maxim. If therefore prizes are to be won and distinction gained, candidates will come forward who will take care to be furnished with the required information. The examinations of the Royal Agricultural Society would create a demand which it would be the care of the educational means of the country to supply. Candidates would come forward who, in addition to their practical knowledge, would be able to show an acquaintance with those branches of science by which that practical knowledge might be further assisted.

The Society, however, might aid materially, and perhaps also most usefully, on this matter. The examiners being the most competent men in their respective branches of knowledge, might be authorised to give a course of lectures, each upon his own particular subject. This would have the special advantage of being adapted to the requirements of agriculture, as has been noticed under Botany. The examiner or professor of agriculture might also give a course of lectures upon the most improved practice, and call attention to all the newest improvements that may appear. The lecture room possesses many advantages for this, even over a model or experimental farm. It is impossible upon the same farm to illustrate the management proper for different soils and conditions, as for heavy and for light land, so as to exhibit the difference between sheep and cattle management, between tillage and grazing, breeding and feeding, dairy husbandry and corn farming. If some of these are suited and proper for a district, then others are unsuited and wrong. If a little of each are adopted and carried on, in an experimental manner, then the result is, that the farm is carried on at a loss, the balance sheet exhibits a deficiency, and profitable farming is thus depreciated in the eyes of the student, who ought to consider that as the fundamental principle of any system. It is for this reason that model or experimental farms are so apt to fail. Instead of adhering to the practice best suited to the district, they are necessarily obliged to adopt a variety of practice, much of which is unsuited, and therefore unprofitable. As experimental farms, there is nothing to be said against them; on the contrary, they may be of great utility and add much to our knowledge. But it is impossible upon the same farm to exhibit all the varieties of practice which necessarily prevail. Good farming of course has much in common in any district, but still differences exist with which it is necessary for the agriculturist to become acquainted. He may not be able to determine his own lot in life, or to fix beforehand the agricultural circumstances in which he may be placed. It is impossible, however, to expect a young man to have lived on several different farms, merely to learn his profession, even if opportunities were available. This requirement a course of lectures on agriculture and agricultural reading may supply. Being already in possession of a certain amount of practical knowledge, acquired upon the farm where he has resided, he is competent to understand descriptions of more improved practice. There are many practices being daily adopted by practical men of which they have had no previous practical experience. Steam ploughing is an instance of this, and to a still more general extent machine reaping. These great improvements of late years are being daily adopted by men who have derived their information on the subject not from experience, but through the agricultural press of the country. It is by means of the information which the press disseminates that the agriculturist becomes acquainted with these improvements, and is enabled successfully to adopt them and appreciate their advantages. In like manner also, may a lecturer on agriculture instruct his pupils. It will be his care to make them acquainted with the most approved practice, and by adding to their previously acquired experience, bring up their knowledge to a level with his own. In connection with this subject, and as a material means of assistance to any course of agricultural lectures, the Society might institute an Agricultural Museum. In Edinburgh the Highland and Agricultural Society have a very beautiful one, containing a collection of models of all the implements in use, with specimens of seeds, roots, and everything of agricultural interest. There is also a museum in connection with the lectures on agriculture delivered in the University of Edinburgh, in which is contained a series of paintings of all the breeds of domesticated animals in Great Britain. The Royal Dublin Society has a collection of the actual implements used in agriculture, by various makers, which is both interesting and useful; but perhaps this is less necessary where such exhibitions as those of the Smithfield Club are periodically available. These kinds of institutions are of material assistance to the student of agriculture, and an agricultural museum is indeed indispensable to the lecturer on agriculture to enable him to illustrate his lectures. It is therefore worthy of the consideration of the Royal Agricultural Society how far it may in this way supply this means of agricultural education.

An examination, then, in agriculture and its kindred sciences having been successfully passed, would be the basis on which the diploma of the Society would be awarded. The result would be determined by marks, and the numbers might be published, as is at present done with certain examinations for the army. All coming up to a certain standard would receive the Society's diploma, which would thus be a certificate of agricultural attainment on the part of its possessor. The education thus certified to would be the best that could be obtained, and the young agriculturist would now be as well qualified to embark in his profession as the young engineer to enter upon his, or the young medical man to take a practice.

It only remains to consider who are to be admitted to these examinations. The object of the Royal Agricultural Society should be, by producing good agriculturists, to advance agriculture rather than to disseminate information to any particular class. Therefore examine all who present themselves who can certify to their having acquired practical knowledge by a certain residence upon the farm of a rent-paying farmer. The soundness of this knowledge and the extent of their attainments in science, it will be the province of the examiners to ascertain.

Naturally it will be those who intend to make farming their profession, the sons and other relatives of that well defined agricultural middle class, the present tenant farmers of England, who will present themselves. According to the last census the number of farmers in England and Wales was 249,735, and the number of sons and other relatives residing with them 92,321, who were taking part in the management of the farm, doubtless with the view of following agriculture as their profession, either as tenant farmers or farm bailiffs. The number of these latter, though comparatively small, exhibits considerable increase of late years, having risen from 10,561 in 1851, to 15,698 in 1861. To undertake, then, directly the education of this large body, which, recruited also from other sources, might amount to 100,000 persons, must be obviously beyond the means at the command of the Royal Agricultural Society, and would require nothing short of a national system of education. But if the mountain cannot come to Mahomet, Mahomet may go to the mountain, and if the attractions of the diploma of the Society can enhance the popularity of scientific agriculture, and influence this large body to avail themselves of the means of education which must in consequence arise, the great object will be equally attained. Local examinations might then be held, and the system extended as necessity may require. In this way may the education of the future tenant-farmers of England be improved. It is by increasing their knowledge that the progress of agriculture may be effected, and made to keep pace with the requirements of the population. This progress rests essentially with them, and it is by advancing their education rather than of those below them that it will be accomplished. The education of the agricultural labourer is another matter, and is connected rather with his social position than with the improvement of agriculture. The acquisition of knowledge which he cannot employ will not avail him, and it is through the enlightened practice of the improving agriculturist that the labourer is best educated for his duties.

It is then with the education of the farmer that the Society has to do, and in concluding I would recall the words of Mr. Holland, at the discussion of the subject of agricultural education before the Society in April, 1864, in which "he trusted that as the question of education had now been fairly mooted, they would not leave the lad who was intended to be a farmer in the lurch, after

having assisted to give him the benefit of a good education, and perhaps encouraged and stimulated him by means of prizes in connection either with agriculture directly or with the natural sciences which were connected with agriculture, but that they would be able to hit upon some plan for aiding those who were obliged to gain a practical knowledge of their profession immediately after leaving school, and give them an opportunity of improving their knowledge in the sciences connected with their profession."

These objects it has been the aim of this essay to discuss, and to offer some suggestions by which the Royal Agricultural Society may carry out the seventh object of its Charter, viz, to take measures for the improvement of the education of those who depend upon the cultivation of the soil for their support, in accordance with the spirit of the Society's practical motto, "Practice with Science."

THE CHEMISTRY OF WOOL.

THIS was the subject of a lecture by Professor Anderson before the Highland Society at Inverness. We make the following extracts:—The subject I have selected for consideration, taken in its broadest aspect, is one of great extent, and might, in fact, be made to include the entire management of the sheep; for the production of a good crop of wool of the highest quality involves the nicest attention to the breed of the animal and its perfect health. But these, and especially the former, are matters which do not come within the province of chemistry, and cannot, therefore, be discussed here. Neither is it always possible to explain by analysis the cause of the difference in quality of different kinds of wool, the commercial value of which is due not so much to its composition as to its structure. We shall see presently that there are often differences in the composition of the various kinds of wool, but on the other hand two samples may be chemically undistinguishable from one another, although the experienced wool stapler will set down one as of the highest, and the other of the lowest quality. Even the wool of a single fleece is separated by the manufacturer into many qualities, fitted for different purposes, and bearing very different values. The cause of this is rendered obvious when the wool is examined by the microscope, when it is seen that its quality depends partly on the fineness and uniformity of the fibre, and partly on the length of the staple, which fits it for the manufacture of particular fabrics. It is well known that these qualities are greatly affected by the breed and the climate in which the sheep has lived, and it is by attention to the former that the character of Scotch wool has been so much raised; while the latter is a difficulty with which our sheep farmers will always have to contend, and which must prevent our wool in general from bringing as high a price as that produced in more favoured localities. The nature of the food supplied to the sheep has, no doubt, a material influence on the quality of the wool, and is a subject which well merits attention. But I do not propose to enter upon the consideration of this question on the present occasion, and that principally because the information regarding it is of the most scanty description; and I have failed to discover any experiments on the influence of the food on the weight or quality of the fleece. We know generally that the best wool is obtained from animals fed on the richest pastures, but it is not possible to tell how far the superiority is due to the more nutritious character of the Grasses or merely to the more favourable climate. The composition and nutritive value of the cultivated and natural Grasses of lowland districts are well known, but there is absolutely no information regarding those which form the bulk of mountain pastures. Many of the species are no doubt the same as those found in the lower districts, and their composition is probably very similar, though others are different, and of their composition we are entirely ignorant. There would, of course, be no difficulty in making analyses of these; but the information they would convey would be of little use, unless it were coupled with a knowledge of those which the sheep select and avoid. It is probable, indeed, that the higher or lower value of mountain pastures depend not so much on the difference in the nutritive value of the Grasses of which they are composed, as on the greater or less abundance of those which are most palatable to the stock—for sheep prefer the finer Grasses, and are only compelled by hunger to consume the coarser species, although they are often just as nutritive as those they select. The influence of an abundant supply of food on the quantity at least of the wool is sufficiently obvious, but it becomes still more striking when we consider what that quantity is, and how active must be the animal functions by which it is produced. To do this it is necessary to look at the relative weights of the fleece and the animal which produces it. These vary greatly with the breed, as may be seen from the table here given, which contains those which are most widely distributed in this country:—

Long-woolled.—Lincolnshire, 8 to 10 lb.; Devon, 9 lb.; Leicester, 7 lb.; Blackfaced, 3 lb.

Intermediate.—Dorset, 6 lb.; Cheviot, 5 lb.

Short-woolled.—Merino, 6 to 8 lb.; Shropshire Down, 7 lb.; Southdown, 3 to 4 lb.

Taking all the breeds together, the average weight of a fleece may be set down at 6 lb., while that of the sheep in the unfattened condition will not exceed 90 or 100 lb. It thus appears that a sheep produces every year a quantity of wool equal to about a sixteenth of its own weight. Even this, however, does not give a perfect idea of the matter, which can only be obtained by making the comparison between the dry wool and the dry matter of the sheep. Wool in its natural state contains about 16 per cent. of water, and if an allowance be made for dirt adhering to it, the weight of actual wool in each fleece is about 5 lb. But the entire body of the sheep contains about two-thirds of its weight of water, so that if dried up (exclusive of wool) it would weigh only 30 lb.; and hence it follows that a sheep produces annually, in the shape of dry wool, a quantity of matter equal to about one-sixth of the solid substances contained in its body. These facts are sufficient to show the importance of an abundant supply of nutritive food to support the drain in the system occasioned by the growth of this large quantity of animal matter. When we further consider the delicate organisation of the skin, each hair of the wool growing within a little tube of its own, furnished with minute glands, by which it is furnished with a peculiar oily secretion necessary to promote its growth and keep it in a soft and pliant condition, and others by which the perspiration is evolved, and that the growth of the wool depends upon all this complex machinery performing its functions in a perfectly healthy manner, the importance of an exact knowledge of all the conditions affecting them will be sufficiently obvious. Without venturing to discuss the physiological questions connected with the functions of the skin, I proceed to remark that the chemical composition of the wool is extremely complex. As removed from the animal, it consists of two parts—the wool proper, that is, the fibre which is used by the manufacturer; and the "yolk," a peculiar substance secreted by the glands of the skin, by which the fibre is moistened and protected. In the process of scouring the wool, which is the first step in its manufacture, the greater part of the yolk is removed by means of water and other agents, the action of which will be afterwards explained, and the fibre obtained in a more or less pure state. By careful treatment, the scientific chemist removes them entirely, and then obtains the pure fibre, which then differs but little from the hair of other animals. We shall consider separately the nature of each of these. The pure wool is of itself a very complex substance. It contains a small quantity of fixed or mineral matters, which are left behind in the ash when it is burnt, and this contains a comparatively large quantity of silica, a substance found in extremely limited quantity in the animal body. Setting aside these substances, the wool consists of—carbon, 50.65; hydrogen, 7.02; nitrogen, 17.71; sulphur, 2.31; oxygen, 22.31. Total, 100.00. In composition, therefore, it does not materially differ from the nitrogenous constituents of other parts of the animal body. It is as rich in nitrogen as the gelatine of the bones, and surpasses every other animal substance in the proportion of sulphur it contains.

1. *Sulphur.*—The state in which this sulphur exists in it is peculiar. A very distinguished French chemist, M. Chevreul, supposed that it might be removed from it without injuring the quality of the fibre, but more recent experiments have disproved this view. But they show that a portion can be easily extracted, although the remainder resists all agents, except those which completely destroy the fibre. So feebly is part of the sulphur retained, that it is actually expelled when the wool is boiled with water, and even slowly escapes at ordinary temperatures; and this is the reason why metallic, especially silver, articles become black on the surface when left for a long time in contact with it. A portion of the sulphur can be easily removed by alkalies, but a part resists their action, and from this difference in the condition in which it is present it is not improbable that the fibre of wool is composed of two different compounds, but chemists have not yet succeeded in devising a method by which they can be separated. This opinion derives support from the fact that the quantity of sulphur varies in different samples of wool, and appears to depend in some way on its quality. It has been found to vary from 3.4 per cent. down to 1.89, and one observer has even found as little as 0.89, although this result appears to be doubtful. The largest proportion (3.4 per cent.) was found in the wool of a particular breed which feeds on moorlands in Germany, and which is extremely coarse and inferior in quality, while the lowest was found a particularly fine wool. The quantity in ordinary wools is about 2.5 per cent., and from that to 2 per cent was found in several samples of English wool, though the experimenter unfortunately omits to specify the breeds.

2. *Potash.*—The "yolk," as it is called, which is mixed with the wool proper in the fleece, is still more complicated in its composition, and is a mixture of a variety of substances secreted by the oil and sweet glands of the skin. The proportion found in the fleece varies very greatly, sometimes amounting to nearly half the entire weight of the fleece, though in general it does not exceed 25 per cent. In one instance examined by Chevreul the wool contained only 31 per cent. of pure fibre, but the loss in this case included 26 per cent. of earthy matter adhering to the fleece; but even including dirt, the quantity rarely exceeds half the weight. It appears that the yolk is largest in the finer varieties of wool, but upon this point there appears to be considerable room for further inquiry. The chemical nature of the yolk was first examined in the end of the last century by Vauquelin. Before his time it had usually been considered to be of a fatty nature, but he showed that it was principally composed of a soap containing potash as its base, some carbonate of potash, small quantities of some other salts of potash, and an animal matter. More recently Chevreul examined the yolk, and found it to contain, in addition to these substances, two peculiar substances of a fatty nature, but differing from ordinary fats in being incapable of forming soaps with the alkalies, but which have not been more particularly studied since his time. When wool is immersed in water, a portion of the yolk, consisting of the matters exuded by the glands, rapidly dissolves, and the matter so taken up is rich in potash, and has to some extent the qualities of soap. As this accumulates in the water it acquires a powerful detergent property, and causes the fatty matters of the wool, which are themselves insoluble in water, to enter into solution. In this way Chevreul found that 32 per cent, of the wool entered into solution, but it retained 8½ per cent. of fat, which could only be extracted from it by spirits of wine or by a [illegible] These substances are removed from the wool in the process of scouring, first by the use of water, and afterwards by [illegible] an ammoniacal solution. Formerly urine allowed to stand until ammonia was produced in it was employed for this purpose; but the facility of obtaining the pure article has led to its being substituted, and in some cases soap is [illegible] The nature of the soluble matters of wool has undergone a careful examination within the last few years by two Frenchmen named Maumene and Rogelet, who have founded upon it an interesting branch of manufacture peculiarly worthy of the attention of the farmer, because it gives him some idea of what sheep are receiving from the soil. According to their observations, average wool, when washed with water, yields it 15 per cent. of its weight of yolk, composed of a particular animal acid in union with potash, of which it contains about 33 per cent. According to this calculation, a fleece weighing 6 lb. must contain about 5 ounces of potash which are for ever removed from the soil and have hitherto been entirely lost. MM. Maumene and Rogelet, however, recover this, and the process is in actual operation in some of the great centres of the woollen manufactures of France, and is in all respects a most interesting and important one. They buy from the woollen manufacturers the yolk obtained in their process of washing, according to a carefully graduated scale, giving for that extracted from a ton of wool about 15*s.* if it be diffused through 69 gallons of water, and only 4*s.* 5*d.* if contained in 600 gallons, and at proportionate rates for intermediate degrees of concentration, the different prices paid for the same article in different degrees of dilution depending on the increased cost of recovering the potash from the more dilute fluids. By this means the manufacturers are induced to adopt a systematic mode of washing the wool so as to use the minimum amount of water. These fluids are then evaporated to dryness, and the residue introduced into iron retorts, where it is calcined [illegible] (which can be used for illuminating purposes) and ammonia being driven off, and the potash left behind in the form of carbonate. The quantity of potash which might be thus recovered from the wool is very large. MM. Maumene and Rogelet state that there are 47,000,000 sheep in France, and from their wool, if it were all carefully washed, there would be obtained annually 11,700 tons of carbonate of potash, worth about 350,000*l.*, which is sufficient to supply the entire demand for that substance in that country. In Britain the figures are still higher. There are supposed to be 55,000,000 sheep in the United Kingdom, and in 1859 we imported the fleeces of about 22,000,000; and if the whole of this wool, both native and imported, were subjected to the process, it would yield upwards of 19,000 tons of carbonate of potash, worth £70,000*l.* Of course it is not practicable to recover the whole of this, for a good deal of wool will always be washed on the small scale when the potash cannot be profitably recovered, and the operation must therefore be restricted to the great manufacturing centres, where it can be carried on on a large scale and in a continuous manner. The matter, however, is not on that account the less important to the farmer, for the rise of an industry of this kind brings forcibly before him the extent to which valuable substances are being removed from the soil. The wool produced in this country carries off annually 14,000 tons of carbonate of potash, equivalent to 9,500 tons of pure potash, all of which is at present entirely lost, and which it would cost nearly 200,000*l.* to replace if the farmer bought it in the market even in its cheapest form. It is to be remembered too that potash is the very substance of which, according to the modern system of manuring, we return the smallest quantity to the soil, so that if at any time our land should show symptoms of exhaustion, it will most probably be due to deficiency of potash. There seems no good reason why the farmer, though he cannot recover the potash in a pure state, should not wash wool in a systematic manner, and apply the fluid as liquid manure to the soil. Although the yolk must be considered as a refuse matter, its presence has an important influence on the quality of the fleece. When it is deficient the wool becomes harsh, more or less brittle, and unfitted for the manufacture of the finer fabrics. A proper supply of it must therefore be of much importance, and can only be maintained by attending to the health of the animal; but unfortunately it is liable to be removed, and it is necessary to protect the animal as much as possible against its loss, or to produce some substitute for it.

3. *Smearing and Dressing.*—In those localities where much rain falls, the yolk, from its solubility, is liable to be washed out of the fleece, and the quality of the wool is thereby affected. In these districts it is customary to resort to the practice of smearing the sheep with various mixtures. This process is usually stated to be also employed for the purpose of protecting the sheep from the effects of cold and wet. For the former of these purposes I think it must be admitted that it can have no efficacy, for it seems impossible to conceive that the application of a small quantity of a greasy mixture to the skin can be of any use to an animal so well protected from cold. The real use of the smear is to destroy the tick and other parasites which infest the sheep, and by its oily nature to keep the wool in a soft condition. The mode of application of the regular old-fashioned smear was of the kind least suited to fulfil this object. The substance, always a greasy mixture, was rubbed into the skin in place of being applied to the wool. In practice, no doubt, what is applied to the skin gradually spreads itself through the wool; but in the meantime the thick oily coating is far from favourable to the proper performance of the functions of the skin, stopping up the pores, and preventing exhalation from them, while the substances mixed with the grease occasionally produce irritation of the skin. In fact, the application of such substances to the skin appears to be a violation of the laws of physiology, although their application to the wool itself might possibly be defended on the principle of keeping it in a soft and elastic condition, and preventing it acquiring a harsh and coarse texture—in fact, acting as an artificial yolk, when that is washed away by the rains. Of course this opinion goes on the assumption that the yolk really is washed out; but whether this happens, and to what extent, is a matter in regard to which there is no very definite information. I am inclined to think that the extent to which it occurs is over-rated, for it must be remembered that the wool in its natural condition repels moisture, and it is probable that water can penetrate it in sufficient quantity to affect the yolk only under exceptional circumstances. That this must be the case, I think, derives confirmation from the fact that the process of smearing is gradually disappearing, and is being more and more replaced by that of dipping, the object of which is merely to destroy parasites. It would be out of place to enter here into minute details regarding the composition of the various smears and dips in use in different districts, for they are really endless in number, but it may be useful to make a few general observations regarding them. They are either made up by the farmer from receipts which have been long in use and are well known, or they are manufactured by persons who make it their business. The oldest kind of smears were mixtures of grease, butter, palm oil, or other fatty matter with wood tar, or brown spirits of tar, and sometimes a little sulphur, resin, or soap. To these poisons were afterwards added to destroy the tick, those in most common use being arsenic, corrosive sublimate, and white hellebore. These materials were melted together and applied by separating the wool and rubbing the mixture well into the skin. Dips are mixtures of a similar kind, but generally containing a larger quantity of soap, in order to enable them to be mixed with the water

They consist in many cases of soft soap, tallow and oil, soda, and tar, which are well mixed together with the addition of some water, so as to give the whole a proper consistence, and the poisonous substance is stirred in while they are hot, or sometimes is added to the water in the first instance. Of course there are endless varieties in the nature of the mixture and the mode in which the materials are combined, each of which claims some superiority. In general, the mixtures made by farmers themselves are of a simple character, but I have seen a receipt in which almost all the substances already mentioned were mixed together, somewhat on the same principle, I presume, as that on which unskilled physicians are said sometimes to mix together a variety of drugs in the hope that some one of those he uses may produce a beneficial effect. When the farmer makes up a dip for himself he may rest assured that the simpler it is the better. Very little good can be expected from the mixture of a variety of different oils or of several poisonous substances. In regard to the latter especially too great care cannot be exercised, and the risk of accidents from poison being kept on the farm, and of carelessness on the part of those who use the dips, is one of the great objections to the practice of the farmer preparing for himself those poisonous mixtures. Several cases have come under my notice in which the disadvantage arising from poisons is well illustrated. I particularly remember a case of malicious poisoning of calves, which undoubtedly arose from the suspected person having got access to arsenic which was kept on the farm for making a dip. A large number of calves—17 or 18, so far as I now remember—died with all the symptoms of poisoning, and, on examination of the contents of the stomach, arsenic was easily detected in them. The animals had been fed on cooked linseed, and although none of it remained, I was able, by examining the pot in which it was boiled, to detect it there; and suspicion pointed to a particular farm servant who was known to harbour an ill-will towards his master; but the fact that arsenic was kept on the farm rendered it impossible to bring the thing home to him—for there was no means of proving that he had had access to it, and that the other farm servants had not. The fact of arsenic having been kept at the farm in this case defeated the ends of justice, and no doubt also formed the temptation to use it. The man would have hesitated long before he ventured to buy it, and had he done so the crime would have been brought home to him with unerring certainty. Accidents also occasionally occur from the careless use of poisons in the dips. This is well illustrated by what happens when arsenic is employed That substance dissolves with great difficulty in water, and being sold in the form of a very coarse powder, part of which is in grains as large as those of sand, it falls rapidly to the bottom of the fluid, and can only be kept imperfectly in suspension by constant stirring. When this is not properly attended to, and the dip is nearly exhausted, it sometimes happens that the last sheep get far more than their due share of the poison. Particles of arsenic adhere to the skin and produce irritation, or being absorbed into the system affect the general health of the animal. Of course this illustrates the misuse of the poison, and it is against this that it is necessary to guard. As far as the destruction of the tick is concerned the action of these poisons leaves nothing to be desired; the risk which attends their use is the sole difficulty, and that may be got over by the exercise of sufficient care. Notwithstanding this, accidents do occur, and hence a demand has arisen for non-poisonous sheep dips. Several of these have recently come into use, and they appear to be made chiefly from certain coal-tar products, oil and alkalis. In one, that portion of the coal-tar oil which is heavier than water is employed, and its action is attributed to its containing a substance called carbolic acid, which closely resembles the creosote extracted from wood tar. It is doubtful indeed whether they are not identical, and it is well known that a great deal of what is now sold as creosote is actually carbolic acid. The action of a smear or dip containing this part of coal tar cannot differ materially from that made in a similar manner from wood tar, and it is not easy to see wherein the superiority consists, unless it be in economy of cost. The other dip is made from a portion of the coal tar which contains no carbolic acid, and it is stated to be equally efficacious in destroying the tick. The use of products from the distillation of bituminous substances for the manufacture of sheep smears is by no means new. It dates back a considerable period, a patent having been taken out for the use of the oil obtained from bituminous shales (which contains carbolic acid) so long ago as 1770, although it does not very clearly appear how it was employed, and the substance probably never came into general use. It is only of late years that these substances have been again resorted to, and how far they have proved superior to mixtures containing wood tar I am unable to state. It is not easy to form any opinion regarding the relative advantages of different dips or smears, but it may be stated generally that those made from the purest materials are to be preferred. Hitherto the great object of the manufacturer appears to have been to make them as nasty as possible, which may be very right, when any virulent poison is mixed with them, because the sheep are thus prevented from licking it; but on the other hand, it is proportionally injurious to the wool. The fact is that the inferiority of laid wool depends to a great extent on the difficulty the wool scourer finds in removing the filthy matters contained in the smears; and what at the present moment is most required, especially in the case of a smear, is a mixture which shall not colour the wool and shall not be too easily removed by water, but can be completely extracted by the materials used in scouring it. In order to attain this object it seems most reasonable to use the purest materials which can be obtained, and as the chief disadvantages arise from the colour of the tar, there seems no good reason why carbolic acid itself should not be used. Of course, it is much dearer, but a comparatively small quantity would probably suffice. In the manufacture of dips and smears there appears still to be great scope for improvements; and the attention of manufacturers should be directed to devising some mixture which shall in a manner waterproof the wool, and shall yet be easily extracted from it without leaving any colour; and it is probable that this will some time or other be accomplished. From the facts I have brought under your notice on the present ocasion, it will be seen that there many points beside the nature of soil, manures, &c., in which chemistry can assist the farmer; and I trust it will be found that some information and instruction may be derived from what has now been said. Whatever we may otherwise think, I imagine that no one can fail to see the advantage of looking at the same thing from different points of view, and examining both the sides which are proverbially to be found in every question.

Mr. GENTLES, Lochness-side, said that he could not agree with the conclusions to which Dr. Anderson had come with regard to smears and dips. He had never used anything but smears all his life, and always with success; while those who had used dips had always lost their wool. He considered dips of no earthly use, and in spite of all that science could say to the contrary, he meant to continue to use smears.

Mr. PATERSON, Birthwood, said that his experience was exactly the opposite of that of the gentleman who had just spoken. He had used both smears and dips, and he had never seen anything but unsatisfactory results from the former, while the latter had in his hands always succeeded. It was quite true that where dips were used the weight of the fleece was smaller than when it was smeared, but the greater value of the wool more than counterbalanced the diminution in quantity. He had always used arsenic in his dips; but he had taken care to mix it up well with the other materials, and had never seen any of the bad effects to which Dr. Anderson alluded. The great defect of all the substances applied to the wool was that they could not be removed satisfactorily by washing, and especially where tar was used it resisted all the efforts of the bleacher. He would like to ask Dr. Anderson whether guano might not be employed with advantage in making dips.

Dr. ANDERSON said there was an old saying as to who should decide when doctors disagreed? which had been often quoted to the disadvantage of science; but he thought that what they had just heard raised the far more difficult problem of who should decide when practical men disagreed! It was impossible for two persons to be more diametrically opposed to their views than the gentlemen who had just spoken; one upholding smears as keenly as the other condemned them. He thought that they might derive from this an instructive lesson, for it taught them that they must not dogmatise. Science and practice were in fact only two different modes of arriving at the truth, and when our knowledge was perfect we should be enabled to explain and reconcile the discrepancies which arose. Mr. Paterson had somewhat misapprehended what he (Dr. Anderson) had said regarding poisons. It was not their use, but their careless use, that he condemned. Arsenic, especially, was a most valuable substance, in consequence of the specific effect it produced on the skin, which made it the sheet-anchor of the physician in treating all diseases. Mr. Paterson had obviously used it with care, and the result had been satisfactory. As regarded gum he did not think it could be used with advantage, because it was too soluble. What was wanted was some means of waterproofing the wool, as it were, and he thought that something of the kind would yet be devised.

RECENT DISCOVERIES IN AGRICULTURAL CHEMISTRY.

By DR. F. CRACE CALVERT, F.R.S., F.C.S.

One of the Cantor Lectures delivered before the Society of Arts.

I SHALL in this lecture follow the same plan as I observed in my last, taking a general view of the subject under consideration, and introducing as I proceed some of the most important discoveries which have been published of late on each particular subject. By adopting this plan I shall, on the one hand, avoid publishing a mere review of the results obtained, and, on the other, I shall be enabled to give a general outline of the views entertained by most chemists of the present day on the subject of agricultural chemistry. You will also be better prepared to appreciate the value of the important discoveries made by our own countrymen, who, I am happy to say, are not surpassed in that branch of applied chemistry by any other class of chemists existing on the Continent.

The largest number of organic substances are composed of only three elements or simple bodies, viz., carbon, hydrogen, and oxygen, and even in many the latter substance is absent—for example, in many essential oils and the products resulting from the destructive distillation of organic substances, whilst those which contain oxygen are chiefly represented by starches, gums, resins, organic acids, and fixed oils: another class, such as morphine, quinine, and indigo, contain nitrogen, in addition to the substances mentioned. There is another class of substances, limited in number, which contain sulphur and phosphorus besides the four elements above cited; these are represented by albumen, corresponding to the white of an egg, or the serum of blood in animals; fibrine, represented in animals by the clot of blood; caseine, characterised in animals by the curd of milk. Therefore the whole of the organic matter of the vegetable kingdom is represented by the uniting together in various portions (influenced by particular molecular arrangements) of six elements, viz., carbon, hydrogen, oxygen, nitrogen, sulphur, and phosphorus.

Although organic matters are composed of two or more of these elementary substances, they are never found in vegetable matters in their pure and isolated condition. They are always combined with a certain quantity of mineral matters which appear essential to the healthy condition of plants, and are, so far as we know, essential to the formation of the organic bodies themselves. Thus chemists have ascertained that plants generally contain lime, potash, soda, magnesia, oxide of iron, sulphuric acid, phosphoric acid, &c.

Let us examine the principal sources from which plants derive the elements essential to their formation, growth, or healthy progress. The most important element of all vegetable substances, and which, in fact, characterises all organic matter, is carbon, or what is commonly called charcoal. This element is derived entirely in vegetables from a colourless, invisible, and slightly acid gas, having a specific gravity of 1.52, and also sparingly soluble in water—I mean carbonic acid. You will easily conceive on reflection what an enormous proportion of carbonic acid must be produced annually, when you consider the vast amount of vegetation which surrounds us, produced either by the hand of man, under the influence of the plough and other instruments, or by the rapid growth of trees and other vegetation which covers our hills and mountains. In truth, the Divine Being has provided for an abundant supply, for there exist many sources of production of this gas so necessary to vegetation. It is useless to record here the well-known modes of producing this gas by respiration and combustion, but I wish to call your attention to some more special sources of its production with which you may not be so perfectly acquainted. M. F. Kuhlmann, a well-known chemist, published in 1861 and 1862 a most interesting series of papers on the production of carbonic acid through the oxidation and reduction of the oxides of iron by their contact with organic matter. Thus he found that, if he took a clod of earth, the bulk of the iron existing on its surface was in a state of peroxide, mixed with a small quantity of protoxide, whilst towards the interior of the soil the reverse was observed. M. Kuhlmann thus found that the oxygen of the oxide of iron was conveyed to the organic matter to convert it into carbonic acid. He further made the remark that sulphate of lime was, as M. Chevreul had already observed, a powerful oxidising agent, or served as a conveyor of the oxygen of the atmosphere to the organic matter in soils, the sulphate of lime becoming converted into sulphuret of calcium. These results explain certain facts observed by two learned chemists, MM. Boussingault and Löwig, who found that there existed large quantities of carbonic acid in cultivated soils, and especially in those that were highly manured, and that the production of this gas was continuous and most abundant. The following table, taken from their researches, will satisfy you, I hope, of the correctness of the above assertion:—

	Carbonic Acid.
Air	0.4
Recently manured soil	81.6
[illegible]	236.3
Vineyard	282.4
Forest loam	76.6
Forest land	88.2
Soil rich in manure	420.8
Meadow	161.8

Another source of the production of carbonic acid gas is one lately pointed out by a gentleman whom I cited last year with great, but not exaggerated praise, as a successful demonstrator of the untruth of the theory of spontaneous generation. M. Pasteur has demonstrated that wherever there is decay there is life—that, in fact, the rapid decay of organic matter depends in a great measure on the existence and maintenance of microscopic beings, and, as I stated in my last year's lecture, death to life. For M. Pasteur has shown that in all decaying matter exposed to the atmosphere, there exist mycoderms which carry the oxygen of the atmosphere to the organic matter, converting its carbon into carbonic acid, its hydrogen into water, its sulphur into sulphuric acid, its phosphorus into phosphoric acid. As to its nitrogen, other chemical actions come into play. There is still another source of production of carbonic acid, which I cannot pass by in silence, for though at the present day its activity is decreased by the better cultivation of land, its influence must have been very great when men were less numerous on the surface of our planet, and no doubt, even now, that source of production of carbonic acid plays a great part in the vegetation of wild forests such as those of Northern and Southern America. Dr. Lyon Playfair, Mr. J. A. Ransome, and M. Morin, proved some years since that certain small vegetable substances, known under the names of confervæ and algæ, had the property, under the influence of light, of decomposing carbonic acid; while, on the contrary, in diffused light or darkness they yield carbonic acid. Strange it is to think that often some of the trees of these wild forests carry on their surface or their bark the vegetables which are to destroy them by absorbing their sap, and to feed them by liberating the carbonic acid essential to their growth. As to the confervæ, which exist in marshy lands, pools, and other stagnant waters, they disappear by the hand of man as he drains the land and improves it for agricultural purposes. Notwithstanding the abundant sources of the production of carbonic acid, the atmosphere appears to contain but a minute quantity, viz., four parts in 10 000. This fact may be regarded as owing, first, to a law discovered by Dalton of the extraordinary property which gases have of being diffused and mingling together; secondly, to the immensity of the atmosphere as compared even with the abundant sources of carbonic acid; thirdly, to its removal by constant vegetation, either on land or in the ocean; fourthly, that a great portion of the carbonic acid which is produced in the interior of soils is absorbed by the spongelets of plants. Liebig calculated, some years since, that if our sources of production of carbonic acid were to cease, and the present state of vegetation on the surface of our planet still continued, there was a sufficient amount of carbonic acid in the atmosphere to maintain it in full activity for a great number of years. As to the decomposition of carbonic acid by the leaves of plants under the influence of the chemical rays of light—scientific points which have engaged the attention of many chemists, among whom I may cite Boussingault, Dr. Gladstone, Grinwenden, and others, it is unnecessary that I should do more than state that the carbon of the carbonic acid is retained by the plant and contributes to produce the organic matters which form the frame of it, whilst the oxygen is liberated in a pure state to contribute again to the reproduction of carbonic acid by fixing itself on the carbon of decaying matter, or that which is produced by combustion or animal respiration.

NITROGEN.—The absorption and fixation of nitrogen in plants are of the highest importance to vegetation, and no subject has more engaged the attention of chemists and agriculturists than the ascertaining how nitrogen was supplied to plants, for if nitrogen is found but in small quantities in plants, still its supply to vegetation is essential to the growth and health of those plants. The quantity of nitrogen that a plant requires is but small, but still, as it is an essential element to the formation of nitrogenated sub-

tion of advancing knowledge? Beyond a certain limit this may not be possible, but has this limit been attained? The great improvements of late years, in implements, in stock, and in all the details of practical farming, indicate the advances which may be made. The adoption of these improvements, however, has been in very different degrees in the various parts of the country. The climate has, doubtless, had much to do with this, but does not altogether explain the differences which prevail. The best farmed districts are those, where, as on the eastern coasts of the island, the rainfall is least. The climate of Ireland is, in this respect, much inferior, but it is not a sufficient reason for the backward state of agriculture prevalent there.

Can then a knowledge of these practical improvements be made more general—can they be still further advanced by scientific information? This is the problem which agricultural education has to solve. An extension of the knowledge of the best practice must be of unquestionable advantage. How far agriculture may be still further assisted, we shall now consider in examining the sciences which bear upon it.

I. Of these sciences I would first speak of *Mathematical knowledge*. Not only is this knowledge of the most improving kind to the mind generally, but it is, including arithmetic, the foundation of two of the most useful aids to the farmer—land surveying and book-keeping. An agricultural education should comprehend a good knowledge of arithmetic, of the first four rules with fractions, proportion and interest, and of at least the first book of Euclid, with the principles of land measurement and mensuration generally. To none more than the farmer is the science of measurement useful; he should constantly have to do with it, and can be with advantage guided by it. I can remember on my first experience in farming, distributing a large manure heap pretty evenly over a Turnip field, and being complimented by a labourer saying, "I had guessed it well;" but it was not the result of guessing, but of measurement. A knowledge of measurement, solid as well as superficial, should be acquired by the farmer, and to him land measurement is of peculiar utility. By it he is enabled to ascertain the contents of any piece of land which may be desired. Even without instruments this may be done. The necessary triangles or rectangles being laid off, the number of paces in their sides will give with sufficient accuracy their length in yards, from which the required result may be computed. With a knowledge of scientific principles this need present no difficulty, but without this knowledge it will be impossible in all cases to arrive at accuracy.

Book-keeping, or a knowledge of accounts, is perhaps of all others the kind of knowledge which will be most generally useful to the farmer. The forms of farm book-keeping hitherto published have been too complicated, and the farmer has in too many instances solved the difficulty by keeping no book at all. But every farmer should be able to keep a book, and to draw up some kind of balance sheet. In every business it is necessary occasionally to take stock and to form some kind of estimate; in none more so than farming. The farmer reaps his harvest and it may appear abundant; 12 months must elapse before he can know the result of the actual yield and price obtained. Meanwhile his expenses, family and otherwise, go on as usual, and thus if there is any serious shortcoming he is placed in a difficult position and unable to meet his rent. Farming is a profession involving much uncertainty. It is influenced by the seasons and dependent upon the markets. To how great an extent, the following striking Table will show, being a report of the produce upon a Lincolnshire fen farm, where an account had been kept for a number of years:—

Produce of Wheat upon a Fen Farm.

Year.	Cost of cutting.		Produce per acre.		Sold at per quarter.			Realised per acre.		
	s.	d.	qrs.	bus.	£	s.	d.	£	s.	d.
1842	11	1	5	3	2	6	8	12	10	10
1843	13	7	4	6⅝	2	10	8	12	4	9
1844	10	9	6	0¼	2	5	8	13	18	2
1845	10	2½	4	0	2	6	0	9	4	0
1846	13	2½	5	1	2	18	9	15	0	9
1847	13	6	5	2	2	7	4	12	9	4
1848	12	2½	5	3½	2	6	0	12	10	0
1849	12	6	5	4	1	16	5	9	19	0
1850	9	1½	3	4	1	10	0	5	8	0
1851	10	9½	5	5	1	15	3	10	0	0
1852	13	2	5	7	1	16	6	10	13	10
1853	14	7	5	1	3	16	8	19	16	10
1854	12	4½	5	5⅜	3	7	4	19	2	3
1855	10	7½	3	2½	3	8	9	11	7	7
1856	17	5½	5	7	2	15	7	16	11	0
1857	15	0	6	0	2	9	0	14	14	6
1858	13	10	5	0	2	4	2	11	0	2
1859	18	4	3	2	2	3	6	7	2	4
1860	12	9½	3	0	2	2	6	6	0	0
1861	11	0	3	3¼	2	17	6	9	15	7
1862	12	0	4	2	2	16	11	10	0	0

This return, taken from the *Agricultural Gazette* for Jan. 23, 1864, exhibits in a remarkable degree the fluctuations to which corn farming is subject, whether as regards the yield obtained or price realised. The former varies from 3 quarters per acre in 1860 to over 6 quarters per acre in 1844, and the latter from 1*l.* 10*s.* per qr. in 1850 to 3*l.* 16*s.* 8*d.* per qr. in 1853, while the combination of yield and price cause the amount realised per acre to vary from 5*l.* 8*s.* in 1850 to 19*l.* 16*s.* 10*d.* in 1853.

Nor are these variations confined to corn farming. The following report of the produce of a herd of dairy cows, by Mr. Egerton Harding, of Old Springs, Market Drayton, published in the Society's Journal, exhibits considerable differences on a comparison of the different years:—

Produce of a Herd of Dairy Cows.

Year.	No. of Cows.	Weight of Cheese per Cow.	Amount received for Cheese, Butter, &c.			Amount received per Cow.		
		lb.	£	s.	d.	£	s.	d.
1852	24	509	358	17	5	14	14	10
1853	26	515	454	8	9	17	9	6
1854	27	395	406	7	5	15	1	0
1855	25	515	449	12	2	17	19	8
1856	26	488	469	9	7	18	1	1
1857	26	400	334	13	9	12	15	11
1858	26	488	424	7	8	16	6	5
1859	27	465	418	5	8	15	9	9
1860	26	414	419	6	3	16	2	6
1861	27	335	263	7	3	9	15	1
1862	25	333	264	2	1	10	11	3

In this case the rent of the farm was 200*l.*, an amount which is exceeded by the difference between the return for the year 1856, and that for the year 1861.

All these fluctuations the tenant has to fear, his rent is fixed, and many of his other expenses also, so that while in one year a handsome profit may be realised, in another a positive loss may accrue. To none then, more than the farmer, is it necessary to form an estimate; he cannot be too early informed of the probable result, and upon his ability to form a correct estimate, much of the success of farming may depend. That a correct estimate can be formed in regard to a crop, Mr. Coleman, of Woburn Park Farm, has shown in the *Mark Lane Express* for Sept. 4, 1863, wherein he states that the estimated yield of the crop, 1862, on a farm of 155 acres, was 5115 bushels, and the quantity actually threshed was 5135 bushels. In the case of the Turnip crop, it is still more necessary to form an opinion. What will be the return, and how many head of stock can he feed, are questions the farmer must ask and answer. To do this judgment is required, but the assistance of figures is also necessary. With these he must be well acquainted, and they should form an integral part of the mathematical knowledge required in his professional education. That mathematical knowledge can tend to the improvement of agriculture must be admitted, and we may proceed to consider those other sciences from which assistance may be derived.

II. The next science of importance to the agriculturist is *Veterinary science*. When the great value of the live stock throughout the country is considered, this importance will sufficiently appear. This is strikingly exhibited in the returns which have been made both in Scotland and Ireland. In Ireland accurate statistics are taken, both of the crops and stock, every year. From this we are enabled to estimate their respective values. The returns for the year 1864 are as given below, made up from the report of the Registrar-General:—

Return of the Irish Crops and Stock for 1864.

Crop.

	Acres.		Per Acre. £	s.	d.		£
Wheat	279,863	at	10	0	0	=	2,798,630
Oats	1,809,918	at	5	0	0	=	9,049,590
Barley	172,662	at	7	0	0	=	1,208,634
Bere	8,992	at	6	0	0	=	53,952
Beans and Peas ..	16,026	at	8	0	0	=	128,208
Potatos	1,039,282	at	10	0	0	=	10,392,820
Turnips, &c. ..	406,335	at	5	0	0	=	2,031,675
Flax	301,860	at	15	0	0	=	4,527,900
Total value of crop ..							£30,191,409

Stock.

			£	s.	d.		£
Horses	561,361	at	8	0	0	=	4,490,888
Cattle	3,257,309	at	6	10	0	=	21,172,508
Sheep	3,363,068	at	1	2	0	=	3,699,374
Pigs	1,056,249	at	1	5	0	=	1,320,311
Total value of stock ..							£30,683,081

From this it appears that the value of the stock is quite equal to that of all the cultivated crops grown. The rates assumed for the stock are those of the Census Commissioners for 1841, since which time the improved character of the stock and increased price of meat will both have tended to improve its value.

The Scotch returns exhibit the same result. The last year for which these were obtained was 1857. The return for the crop for that year, was, as officially estimated, and taking the prices which then prevailed, as follow. The stock is estimated at the rates given in the Irish returns, although this may be considered too low in the case of horses and cattle, and perhaps too great in the case of sheep.

Return of the Crops and Stock in Scotland, 1857.

Crop.

	Bushels.		Per Bushel. £	s.	d.		£
Wheat	6,154,086	at	0	6	8	=	2,051,662
Barley	6,494,534	at	0	5	0	=	1,623,633
Oats	32,750,763	at	0	3	4	=	5,458,460
Bere	671,778	at	0	4	0	=	134,356
Beans and Peas ..	1,037,760	at	0	5	2	=	268,087
	Tons.		Per Ton.				
Turnips	6,690,109	at	0	6	8	=	2,230,036
Potatoes	486,468	at	5	0	0	=	2,182,340
Total value of the crop ..							£13,948,574

Stock.

			£	s.	d.		£
Horses	185,409	at	8	0	0	=	1,483,272
Cattle	974,437	at	6	10	0	=	6,333,840
Sheep	5,683,178	at	1	2	0	=	6,251,496
Pigs	146,854	at	1	5	0	=	182,942
Total value of the stock ..							£14,251,550

This Table exhibits the value of the stock to be quite equal to that of the cultivated crops, as in the case of Ireland. In both countries the proportion of land is small which is under crop, compared with the total extent of the country, being in Scotland, 2,083,063 acres, and in Ireland, 4,034,938 acres, out of 19,352,320 acres, and 20,808,271 acres, their extents respectively. In Scotland this is to a great extent necessarily the case, from the great extent of mountain pasture quite impracticable for arable purposes.

For England we have no similar returns, but it may be assumed that the rule still holds, and that although a much larger proportion of the country is arable, yet that the superior character of the stock renders it not inferior in value to that of the cultivated crops.

These considerations tend to show the great interest which the farmer has in his stock. It is, in fact, not unfrequently more than half his wealth. Whatever, therefore, tends to maintain its value, tends also materially to his advantage. If the liability to disease and consequent losses therefrom be considered, the value of whatever may diminish this risk will be apparent. This is the object of veterinary science, and none of the sciences which concern agriculture have of late years made greater advances. It is not to be expected that every farmer will or can become a veterinary surgeon. That is a distinct profession, requiring a great amount of competent knowledge; but it will be of the greatest utility to the farmer if he can be enabled to detect a disease by its symptoms, and apply the proper means to check its progress till the veterinary surgeon can be called in, and meanwhile communicate to him such information, that he may come provided with the proper remedies. The death of a single animal may be a serious loss to a farmer, and although we may not be able to assert like old Clater, in his "Every Man his own Cattle Doctor," that a drink or two at a shilling or eighteenpence each would have saved this, yet a knowledge of the principles of the veterinary art may so enable the progress of disease to be stayed, that the regular practitioner when called in has a fair chance of effecting a cure. Veterinary practitioners now exist in considerable numbers, and receive an education well qualified to fit them for their profession. It is, therefore, to the interest of the farmer to avail himself of their assistance when required, and in order properly to carry out the treatment which they may prescribe, to acquire for himself some preliminary knowledge of the subject. Veterinary science is also connected with the important subject of ascertaining the age of animals by their dentition. The usual indications of age in the horse are derived from certain marks in the incisor teeth, principally those in the lower jaw. It is by practice alone that proficiency in this can be attained, but it is necessary in the first place to be informed what the indications are to be looked for. This information veterinary science will impart, and by it the age of the horse can be determined even up to 20 years. The other domesticated animals bred upon the farm have also their dental indications, from which, when necessary, their age can be ascertained. Veterinary science has an essentially practical bearing upon agriculture, and as such demands the attention of every enlightened agriculturist.

III. The next science of importance to agriculture is *Mechanical science*. As implements may be characterised as the right hand of agriculture, so mechanical science, it has been said, by improving their form and advancing their construction, has given cunning to that right hand. By investigating the strength of the materials it employs, it makes use of no more material in the manufacture of implements than is sufficient to overcome the force of resistance, and it seeks to discover that form which overcomes resistance with the least power. Simplicity of construction, beauty of form, mathematical adjustment and symmetrical proportion of the whole machine, are now the characteristics of our implements, and it is not the fault of either implements or implement makers, if field work is not now efficiently, neatly, and quickly performed. Amid the multiplicity of inventions it may not be necessary for the farmer to be an inventor, but he may still render as great a service to agriculture by simplifying the action of any useful machine, and thus rendering it less liable to derangement, as by inventing a new one. The number of eminent agricultural engineers who are now to be found in all parts of the country have, to a great extent, simplified the practical difficulties which are connected with this branch of agricultural science; and the farmer may to a great extent leave the matter in their hands, provided he makes himself acquainted with the particular merits and specialities of the machines which daily issue from their workshops.

The employment of steam power, however, is a branch of this subject which merits special attention. This great motive power, hitherto employed upon the farm for threshing, and now coming into use for ploughing, requires to be understood by every agriculturist farming on a scale to require its adoption. Two considerations specially lead to this—the risk incurred from accident through ignorance or inattention in its management, and the loss arising from the expense of working inferior engines. In many parts of the country coals are a serious item of cost in the employment of steam, and it is therefore of importance that this expense be reduced to a minimum. A little knowledge at the original purchase may prove of great utility, and tend to effect a saving on every subsequent

employment of the machine. As the steam engine is the most expensive implement the farmer employs, a knowledge of its capabilities and working is worthy of attention, and will enable him to select one of good construction and of a power sufficient for his requirements.

Where water is employed as a motive power, a knowledge of the manner of its application to water wheels, and of the principles of their construction, will be of advantage to the agriculturist, and may be studied in connection with this branch of his education.

(To be continued.)

THE CATTLE PLAGUE.

1. CATTLE PLAGUE RETURNS.—These returns do not profess to give the total number of cases which have occurred in Great Britain, but only those which have been ascertained from the official information received at this office from inspectors, whether appointed by the Clerk of the Council or by the local authorities. Column 1 only records the cases reported as having commenced during the weeks indicated by the headings, "back" cases being added to Column 2:—

Census Divisions.	1 Attacked. Week ending October 21.	Week ending October 28	Week ending November 4.	Week ending November 11.	Week ending November 18.	2 Result of reported cases from the commencement of the Disease. Attacked.	Killed.	Died.	Recovered.	Remaining.
1. Metropolitan Police District	194	158	49	77	216	6081	2837	2436	181	577
2. South Eastern Counties	154	205	74	137	92	3609	1318	1766	279	216
3. South Midland Counties	94	280	74	345	211	1563	574	718	102	169
4. Eastern Counties	183	335	124	214	212	3675	1359	1685	251	380
5. South Western Counties	11	3	2	26	39	191	69	95	5	22
6. West Midland Counties	9	31	81	85	34	481	168	237	29	47
7. North Midland Counties	32	18	21	57	63	276	195	86	26	89
8. North Western Counties	39	42	43	129	143	600	177	242	49	132
9. Yorkshire	89	113	108	234	453	1419	236	789	75	310
10. Northern Counties	86	34	79	43	70	731	307	321	53	50
11. Monmouthshire and Wales	60	35	52	27	96	364	56	229	19	60
12. Scotland	828	666	1058	1206	1040	8492	1772	4046	708	1966
	1720	1873	1766	2680	2669	27,482	8908	12,680	1777	3677

2. THE NEW ORDER IN COUNCIL.—The following, extracted from the supplement to the *London Gazette* published November 23, gives so much of the Order in Council then published as is new. The previous Orders are revoked, with the exception of so much of the Order of the 24th of July, 1865, as empowers the Clerk of her Majesty's Privy Council to appoint inspectors within the limits of the metropolitan police district, provided that such revocation shall not affect any appointment made, or any notice given, or any act done, or penalty recoverable under any Order hereby revoked.

4. (Abridged). Whenever the local authority shall be satisfied of the existence of the said disorder in, or have reason to apprehend its approach to, the district over which his jurisdiction extends, it shall be lawful for such local authority to appoint one or more veterinary surgeon or surgeons, or other duly qualified person or persons, to be an inspector or inspectors within the district.

5. (Abridged). The local authority — in any municipal borough in England or Wales the mayor—in any petty sessional division in England or Wales shall be the justices acting in and for such petty sessional division.

8. (Abridged). Every person having in his possession or under his custody any animal labouring under the said disorder, shall forthwith give notice thereof to the inspector of the district within which such animal may be.

9. Every inspector shall have power, within the district for which he is appointed, to enter upon and inspect any premises or place in which any animals which he suspects to be labouring under the said disorder may be found, and to examine and inspect, whenever and wherever he may deem it necessary, any animal which he suspects to be labouring under the said disorder within such district.

10. Every inspector shall have power within his district to cause to be cleansed and disinfected in any manner which he may think proper any premises in which animals labouring under the said disorder have been, or may be, and to cause to be disinfected, and, if necessary, destroyed, any fodder, manure, or refuse matter which he may deem likely to propagate the said disorder. And every owner or occupier of such premises shall obey any order given by such inspector for that purpose.

11. Every person having in his possession or under his custody any animal labouring under such disorder shall keep such animal separate from all other animals, and no person shall send or bring to any fair or market, or expose for sale, or send or carry by any railway, or by any ship or vessel coastwise, or place upon or drive along any highway or the sides thereof, any such animal.

12. No person having in his possession or under his custody any animal labouring under the said disorder, or which has been in the same shed or stable, or in the same herd or flock, or in contact with any animal labouring under the said disorder, shall remove such animal alive from his land or premises without the licence of an inspector; or, if no inspector has been appointed for the district within which such animal may be, without the licence of a justice of the peace, acting in and for the jurisdiction within which such animal may be; provided that such licence shall be in writing, and shall only permit the removal of such animal to some place where it can be conveniently kept apart from all other animals until such inspector or justice is satisfied that there is no reasonable probability of such animal propagating the said disorder.

13. No person shall place or keep any animal labouring under the said disorder in any common or unenclosed land, or if the animal be in a district for which an inspector has been appointed, in any field or pasture where, in the judgment of the inspector, such animal may be likely to propagate the said disorder.

14. Every inspector shall have power within his district to direct that any animal labouring under the said disorder, or which he suspects to be labouring under the said disorder, shall be kept separate from animals free from the said disorder. And every person having such animal in his possession or under his custody shall obey any direction given by such inspector for that purpose. And where the person having such animal in his possession or under his custody shall disobey such direction given by such inspector, then, and in such case, and such case only, shall such inspector have power to seize and slaughter, or to cause to be seized and slaughtered, such animal.

15. All animals having died of the said disorder, or having been slaughtered on account thereof, shall be buried as soon as practicable, in any convenient place, with their skins, and with a sufficient quantity of quicklime or other disinfectant, and shall be covered with at least 5 feet of earth, or shall, in districts for which an inspector has been appointed, be otherwise disposed of, with the consent of the owner, in manner directed by the inspector, and the inspector shall have power to cause the carcase to be disinfected, when necessary, previous to the burial or other disposal thereof.

16. Whenever any local authority, as hereinbefore defined, declares, by notice published in any newspaper circulating within his or their jurisdiction, that it is expedient for a time to be specified in such notice to prevent the removal of animals as hereinbefore defined, or some specified description thereof, either absolutely, or except under such conditions as such local authority shall think fit to impose, with a view to prevent the spreading of the said disorder, to any market or fair, or to any place whatever within his or their jurisdiction, for the purpose of exhibition or sale, then in such case, and after the publication of such notice, it shall not be lawful for any person to bring or send any such animal, or description thereof, except in accordance with such conditions as aforesaid, into such market or fair, or to any place within such jurisdiction, for the purpose of exhibition or sale, or to receive, exhibit, buy, or sell any such animals so brought or sent.

17. Where the removal of animals, or any specified description thereof, to any market or fair or elsewhere for the purpose of exhibition or sale, has been or shall be prohibited absolutely or conditionally, within the jurisdiction of any local authority in pursuance of any of the powers conferred by this or any of the said recited Orders, and complaint is made by such local authority to one of her Majesty's Principal Secretaries of State that the local authority for some adjoining or neighbouring district neglects or refuses to publish a notice with a view to a similar prohibition within the jurisdiction of such last-mentioned authority, and that in consequence of such neglect or refusal there is reason to apprehend the spreading of the said disorder, then in such case it shall be lawful for such Secretary of State, and he is hereby empowered, to publish such notice in any newspaper circulating within the jurisdiction of such last-mentioned local authority, and such notice so published by the Secretary of State shall have the same effect as if it had been published by the local authority so neglecting or refusing as aforesaid; provided that nothing contained in this or the preceding clause of this Order shall be held to prohibit any person from exhibiting or selling on his own land or premises any animal belonging to him which has been on such land or premises for not less than 14 days previous to such sale.

18. Whenever any local authority, as hereinbefore defined, declares, by notice published in any newspaper circulating within his or their jurisdiction, and also by notice published in some newspaper or newspapers circulating within the county or counties bordering upon the county within which the jurisdiction of such local authority is situate, that it is expedient, for a time to be specified in such notice, that animals, as hereinbefore defined, or some specified description thereof, shall not, either absolutely or except under such conditions as such local authority shall think fit to impose with a view to prevent the spreading of the said disorder, be brought from any other part of Great Britain into any place within his or their jurisdiction, it shall not be lawful for any person to bring or send any such animal or description thereof, except in accordance with such conditions aforesaid, from any place in Great Britain beyond such jurisdiction into any place within such jurisdiction; and the copy of any such notice shall be sent forthwith by the local authority by whom it is made to the Clerk of her Majesty's Privy Council, and shall be published by him in the *London Gazette;* provided always, that nothing contained in this clause of this Order shall make it unlawful for any person to send or carry any such animals by railway through such jurisdiction; and provided also that nothing contained in this clause of this Order shall make it unlawful for any person to bring or send, with the licence of any two justices acting in and for the jurisdiction to which such notice applies, any such animals, from any land or premises in his own occupation, and beyond such jurisdiction, to any other land or premises in his own occupation within such jurisdiction.

19. Any such local authority, or any of Her Majesty's principal Secretaries of State, may from time to time, if he or they think fit, renew, revoke, or modify all or any part of any notice published or to be published by them or him under the powers given under this or the said revoked Orders, either absolutely or under such conditions as to such local authority or to such Secretary of State may seem proper, by a further notice to be published in the same manner as such notice is required to be published.

20. During the continuance of the cattle plague within the said City of London or the metropolitan police district, no person shall bring or send, or cause to be brought or sent, any cow, heifer, bull, bullock, ox, or calf to the Metropolitan Cattle Market, except for the purpose of being there sold for immediate slaughtering; and every such animal so brought or sent shall, before being allowed to leave the said market, and although such animal may not have been sold, be marked in the manner in which cattle are ordinarily marked for slaughter in the said market—*indelibly*, by clipping the hair off the end of the tail. And the officers of the said market shall cause such mark to be duly made. And no person shall buy or sell, or cause to be bought or sold, any such animal in the said market except for immediate slaughtering; and every person buying any such animal in any such market shall slaughter or cause the same to be slaughtered, in all cases, within seven days of such purchase, and if such animal be removed beyond the limits of the metropolitan police district, within 48 hours after such removal.

21. This Order shall be in force until the 1st day of March next, and no longer, unless continued by some further Order.

22. Every person offending against this Order shall, in pursuance of the said Act, for every such offence forfeit any sum, not exceeding 20*l.*, which the justices before whom he or she shall be convicted of such offence may think fit to impose.

Arthur Helps.

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3. COMPENSATION (Abridged). — I have been waiting with patience (or rather impatience), for the amended Report of the Cattle Plague Commissioners; and I am sorry to say that, in spite of the great names which figure on the roll of hens, a more disappointing set of eggs never fell to housewife's lot. I really do not think there will be a healthy chicken from the whole batch.

The only step in the right direction which I observe is the abolition of summary slaughter without indemnity to owners; but this is qualified by a previous statement which I own astonishes me—viz., that "the Commissioners see insuperable difficulty in working a system of indemnity."

Now, Sir, are these gentlemen aware that the system was worked without difficulty in the 11 years from 1745 to 1756, during which the last great murrain lasted?

An affidavit of the owner certified by the overseer, constable of the parish, or inspector that was called in, constituted a document as good as a bank note, and Mr Sharpe (the Mr. Helps of the day) was furnished with a constant supply of money to pay at his office, 11, Lincoln's Inn, every such certificate on presentation, as one may say, over the counter.

I will not pay the Commissioners the bad compliment of supposing that they mean to charge the owners of cattle, as a body, with such an amount of ingrained and ineradicable dishonesty as to make it impossible for the country to treat them otherwise than as rogues; and yet my poor intellect is utterly incapable of inventing any other solution to account for these "insuperable difficulties in the way of indemnity," to which the Commissioners so mistily and mysteriously allude.

I, Sir, am old enough to remember the time when the estates of this realm were called upon to pay down twenty millions for some black chattels belonging to their fellow citizens, and what's more, they paid the money. I shall not now go into the question of property in human flesh, and whether a good title can be made to it. I only know what was done, and I do not see that the sacrifice has resulted in any very superabundant love or gratitude on the part of the recipients of our justice, or our bounty, call it by which name you will. To my poor thinking, one thing, however, is clear. A man has a better title before God to the property in a cow than the property in a man, be he ten times the descendant of Ham. I therefore come to the conclusion that the same country which bought up the slave owners' property at the price of 1,250,000 cows, or thereabouts, rather than incur the odium of imputed confiscation, must be strangely altered in its appreciation of right and wrong when, on public or any other grounds, it orders peremptory slaughter of a farmer's or dairyman's stock without at the same time tendering him compensation upon some scale or other.

I challenge the whole Commission to furnish any proof that the country was cheated on a great scale during the murrain of 1745-56; and had it not been the fashion for a long time past (half in joke and half in earnest) to pile everything from gross stupidity down to unhallowed greediness on the broad back of the farmer, I believe that we should not now have had so outrageous an insult offered to us even in imagine.

So much for the question of indemnity and its difficulties, styled insuperable; now for the rest of the Report.

I will tell you, sir, what points I expected to find in it, and what, with the aid of a pair of clearers, I have totally failed in finding.

I expected—for the plague first broke out in the unwholesome cellars of the London dairyman—to meet with an order preventing the keeping of cows in any sheds or stables which are not above ground, and in every respect as roomy and comfortable as stabling for horses, with licensers within the limits of London and all great towns.

In the second place, I expected an order prohibiting the importation of any foreign beast in vessels not built for the express purpose, one of the conditions of which should be that every beast have room to lie down. A ruminating animal that is forced to stand upon its legs for any lengthened period is likely, even when it start in a healthy condition, to generate disease in itself or others before the end of the journey.

The horrors of the Middle Passage appear to have been imitated, not unsuccessfully, by the importers of cattle. I suppose they think that a percentage will pay sufficiently well, and that it is no business of theirs, so long as they find purchasers, what state the meat be in.

In the third place, I expected that, instead of killing foreign beasts on their arrival, certain fields and enclosures would have been set apart at the different ports for importation, where the beast could be rested and brought round a little previous to his slaughter. I should suppose that the meat under such regulations would be much fitter for human food, and I see no difficulty in preventing the egress of the animal otherwise than in the carcase.

Fourthly, I hope that the Commissioners would not have neglected to insist upon one of the principal conditions in the directions for the burying beasts dying of the plague notified in the Order of Council of 1745—viz., that the hide should be slashed at an interval of every 6 inches, in order that no resurrectionist might make it available for the currier, which I am far from supposing may not now be done.

Fifthly, I expected that with an indemnity compulsory slaughter would have been insisted on when prudently and advisedly ordered by competent persons. It must be quite clear to any one going into the details of the last great plague that slaughter on the instant of its appearance was the only chance of arresting its progress. Those who tried to cure lost on an average nine out of 10; those who killed at once not unfrequently stamped out the pestilence.

Sixthly, I concluded that the Commissioners would have told us the unpalatable but inexorable truth—that in the previous pestilence (although occasional recoveries took place under all modes of treatment) no certain or even recommendable cure was ever devised, and that it died out, as it came, without any ostensible reason, or any available remedy turning up. I further expected as rider to the above that they would have told us one more truth—viz., that up to the present date no system or remedy can be recommended with confidence or even hope, but that recoveries have taken place under all modes of treatment and without any.

Lastly, I expected that we should be told who is to pay the inspector and policeman's bill and all the other items of expense entailed on somebody by the necessary *surveillance*, which sort of shepherding, I presume, is not done for nothing.

As a plain-dealer I should like to have been informed on all these points, and I cannot think that I am unreasonable in expressing my disappointment at finding that none of them are treated in a full or satisfactory manner.

I will be judged by any practical man, and do not hesitate to affirm that an Order in Council such as I expected would have been hailed by the country with gratitude; whereas, I very much doubt whether the present one is worth the paper upon which it will be printed. *Winchilsea and Nottingham, Eastwell Park, Ashford, Kent, Nov. 24—in the Times.*

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4. NOURISHMENT; NOT "TREATMENT"—The following facts connected with the outbreak of the cattle disease in my stock may prove of interest to your readers. They have led me to the conclusion that more may be effected by judicious attempts to support nature by food than by active medical treatment

with no other food than good hay. On putting the same animal upon London food—grains, Swedes, and cake—it was true that the yield of milk was increased from 3½ gallons to 5 gallons per day, but there was not one ounce more butter in the latter quantity than in the former, and the 3½ gallons yielded an equal quantity of nutritive constituents to the 5 gallons. That cow produced at the present price of milk 8*s.* 4*d.* per day, and he was keeping it for 11*s.* 6*d.* per week, which left him about 2*l.* profit, an amount which he thought a dairyman ought to be satisfied with. He thought London would be better supplied with milk from the country than from within itself, but the great difficulty at present was the transit of the article by railway; and when he stated the fact that from Aylesbury and an adjacent station, as much as 2000 gallons of milk per day were sent, at a cost of about 3000*l.* per annum, and that 10 such stations would yield a return of 30,000*l.* a year to the railway company, he thought it would be to the interest of the company to supply proper appliances to convey the milk to London in an uninjured condition. For that purpose he suggested the employment of trucks with double roofs like the carriages in India and Egypt, so that the current of air passing through the double roof would keep the milk in a cool state, while a simple mechanical contrivance would prevent that shaking which so materially deteriorated the milk. He further suggested that the loads of milk sent up at night should remain in the trucks all night (especially in hot weather) in a siding four or five miles from London, and that they should be brought up to town specially at an early hour in the morning. By these means the quality of the milk would be best preserved. In his opinion the future supply to London would depend entirely upon the railways. They had heard the case of one enterprising cowkeeper who lost the whole of his stock and a great part of a second stock, and unless there was a cessation of the disease he felt pretty certain that cow-keeping in London would cease altogether, and their only supply would be from the country.

Mr. Jones stated that as an amateur dairyman he had on some occasions a great deal of milk thrown on his hands through being spoilt in keeping, and this led him to adopt the plan of cooling the milk down by placing it in pans of water. With regard to the alleged better quality of London milk, he would be glad to be informed in what sense the term "better" was taken? Did the superiority consist in the quality of the article or in the time it would keep good? because in the mind of the London dealer the milk which would keep the longest was best for his purposes, and he did not trouble himself either about the proportions of caseine or other constituents, or its specific gravity. If the country milk were treated in the same way as the London, the probability was it would arrive in better condition; but if milk was put into the cans warm, and closed over so that the steam could not escape, the condensed vapour dropping into the milk would have a prejudicial effect in promoting decomposition.

Mr. Lundy, of Edinburgh, suggested a mechanical contrivance for the carriage of milk by railway, similar to that adopted for suspending the mariner's compass. As a member of the Sanitary Committee of the Town Council of Edinburgh, he expressed himself very strongly against the system of feeding the milch stock of that locality on the coarse rank Grass produced on the Craigentinny meadows by sewage irrigation. Yet it was the fact that those meadows were let to cow-keepers at the enormous rent of 40*l.* per acre.

The Chairman said the time had now arrived when it became his agreeable duty to propose a vote of cordial thanks to Mr. Morton for the exceedingly interesting and valuable paper he had read. If time had permitted, he should have been glad to have entered a little into the discussion of this subject, but there was one point to which he would refer. The subject treated of in the paper was the supply of London with milk, and Mr. Morton had not taken up the sanitary considerations pertaining to the question; but in such a large population as existed in London he thought the sanitary question was one that ought not to be overlooked. He was sure he only expressed the feeling of the meeting when he said they tendered to Mr. Morton their best thanks for the exceedingly able, clear, and interesting paper which he had read.

Mr. Morton said he was much obliged for the compliment paid him. He would merely confirm the statement made by Mr. Lundy, that the rank Grass produced by the Edinburgh sewage brought the enormous rent of 40*l.* per acre for the production of milk. He thought this was a sufficient answer to the objections urged by that gentleman against feeding cows on that description of pasture.

Farmers' Clubs.

Cirencester: *December 4.—Town Sewage.*—A lecture on "Sewage," was delivered by Dr. J. H. Gilbert at Cirencester. The chair was occupied by E. Bowly, Esq. There was a good attendance of the farmers and gentlemen of the neighbourhood.

Dr. Gilbert commenced by referring to the difficulties that beset the question. The objects desired were perfect utilisation of excretal matter, and at the same time perfect freedom from nuisance. In those countries, as China and Japan, where the "dry" system was adopted, the utilization was very perfect, but the nuisance such as would not be endured amongst ourselves.

He thought that Moule's "dry earth" closets might be employed in villages with success, but in towns the use of water was the only means consistent with comfort or health.

The liquid sewage obtained on the present plan when turned into the rivers destroyed the fish, and rendered the water unfit for human consumption. Could the sewage be applied to land, the manurial matters it contains would be turned to account, while the drainage water from the fields would be so far free from impurities that rivers would not be polluted by it. Taking this as the scheme that must be used both to utilise and purify the sewage of towns, the next point is the value of sewage as a manure.

The composition of sewage was liable to great fluctuations, from the varying amount of rain and drainage water mixed with it. In the experiments at Rugby, conducted by the Royal Commission, 93 analyses of sewage had been made during a period of nearly three years, each sample being an average of several days' sewage; the highest amount of nitrogen found was equal to 15.64 grains of ammonia per gallon; the lowest to 2.55 grains per gallon. The average composition of the sewage for the 31 months was 7.0 grains of ammonia per gallon, or in 1000 tons 224 lb. of ammonia and 2960 lb. of total solid matter. If we give the ammonia a value of 8*d.* per lb., this will include the value of the other important ingredients. The value of the Rugby sewage thus calculated would be 1¾*d.* per ton—this is of course giving the ammonia the value it has in dry and portable manures.

The lecturer referred to other calculations, which gave as the composition of human excrements, 12½ lb. of ammonia per head per annum, for a mixed population; with a value of 8*s.* 4*d.* These 12½ lb. of ammonia were at Rugby distributed through 56 tons of fluid.

With regard to the sewage of London the lecturer had Professor Way's permission to refer to some analyses recently made by him, which pointed to a lower value for London sewage than that obtained at Rugby.

Since sewage was in composition a nearly perfect manure, it would appear suitable for a great variety of crops; in practice, however, the application was almost confined to Grass. Other crops can only be treated with small amounts of sewage, and that only in dry weather; moreover, the simple plan of distribution by open runs is inadmissible. The sewage has thus to be conducted over a larger area, and at a greater cost, than is the case with Grass. Moreover, sewage must be employed on the land all the year round, or the rivers suffer pollution.

At Rugby the average crop of Grass obtained was, with 3000 tons of sewage, 22¼ tons; with 6000 tons, 30¼ tons; and with 9000 tons, 32½ tons. The fields were not large enough for the same sewage to be repeatedly used, so that the increase was not so great as it would be under more favourable circumstances. Of the two fields, that which gave the smaller natural produce gave somewhat the larger under the influence of sewage, being flatter, and the soil of a more porous nature.

The Royal Commission had applied the sewaged Grass at Rugby to the fattening of oxen and the production of milk. The increase in weight of the oxen was small when fed on the Grass alone, but became tolerably good when oilcake was added. With cows the result was much better. The Grass from 5000 tons of sewage will yield about 1000 gallons of milk; this at 8*d.* a gallon gives a return of 33*l.* Were the whole sewage of a given population converted into milk, the result would be 2½ pints per head per week.

By feeding animals with sewaged Grass, and manuring arable land with the dung thus obtained, sewage would contribute to the production of grain crops.

The lecturer then passed in review the results obtained in various towns. In most cases very large quantities of sewage were applied, and over 60 tons of Grass per acre were in some places produced. The purification of the sewage when large quantities were applied was very imperfect; the Commissioners recommended the use of only 5000 tons per acre.

With regard to profit by towns from the application of sewage, it must depend chiefly on the cost of distribution. Where the sewage could be conveyed to Grass land by gravitation, a profit may be looked for; but if machinery had to be employed, or the sewage taken to a distance, the undertaking, though necessary on sanatory grounds, might not cover its expenses.

At the conclusion of the lecture a short discussion followed. Mr. Bowly then rose and said, he had been asked not to let the meeting separate without suggesting the formation of a Farmers' Club for the district of Cirencester. He dwelt on the benefit conferred by the club which had formerly existed; and trusted they might look to the College for assistance in the supply of lecturers.

Mr. Ruck then moved the formation of a Farmers' Club, and proposed Mr. Bowly as chairman. The resolution was unanimously agreed to.

The Rev. J. Constable said, on behalf of the College, they were ready to give their hearty co-operation to the scheme, and expected its benefits would extend to their own institution.

It was then arranged that a meeting should be held on the Monday following, and that Prof. Murray should be asked to deliver a lecture on the Cattle Plague.

Reviews.

Newcomb's Midland Counties Almanack and Rural Handbook (Ninth year of publication), 1866. W. J. Newcomb. Stanford.

Newcomb's Farmer's Pocket Book. 1866.

These are both of them very excellent, well-arranged and useful publications. The latter contains many ruled pages for diary, memoranda and cash accounts, a well-arranged Almanac, list of fairs, and numerous tables, ready reckoner, and a great variety of useful information. The Almanac is full of maxims, recipes, descriptions, records, and information for the most part bearing upon agriculture.

The Poultry Yard.

The Ovarium.—It has been ascertained that the ovarium of a fowl is composed of 600 ovulas or eggs; therefore a hen during the whole of her life cannot possibly lay more eggs than 600, which in a natural course are distributed over nine years in the following proportion:—

First year after birth	..	..	..	..	15 to	20
Second	,,	,,	..	..	100 ,,	120
Third	,,	,,	..	..	120 ,,	135
Fourth	,,	,,	..	..	100 ,,	115
Fifth	,,	,,	..	..	60 ,,	80
Sixth	,,	,,	..	..	50 ,,	60
Seventh	,,	,,	..	..	35 ,,	40
Eighth	,,	,,	..	..	15 ,,	20
Ninth	,,	,,	..	..	1 ,,	10

It follows that it would not be profitable to keep hens after their fourth year, as their produce would not pay for their keep, except when they are of a valuable or scarce breed.

Natural Hatching.—The hens of all kind of gallinaceous fowls sit for 21 days; ducks of the usual kind, such as Aylesbury, Rouen, and others, 28 days; Muscovy ducks, 30 to 35 days; geese, 30 to 35 days; Guinea fowls, 28 to 30 days; turkeys, 28 days; pea hens, 28 to 30 days. With a view of obtaining more eggs in a given time from a fowl, many writers suggest to prevent the hen from sitting by cooping her up in a dark place on a low diet. Nothing can be more cruel than to force nature without giving that necessary rest which overwork requires. Already the domesticated fowls lay many more eggs than wild ones between their hatchings, and, by a judicious housing and feeding, can be made to lay still more; but then it is absolutely necessary to allow her to recruit her strength by a rest of 21 days on her nest, and a liberal poultaceous diet, as the laying of eggs, and more particularly of large ones, is attended with considerable pain, as is evidenced by the difference of sound hens utter before and after their laying, and also from their uneasiness whilst on their nest. Besides, domesticated fowls are naturally of a sociable disposition, and to separate a hen from her companions, and to keep her on a low diet when she requires rest and nourishing food to recruit her strength after she has become exhausted from the pain of laying and the drain on her constitution, by the rapid formation of eggs, is the height of cruelty, and would surely not be practised were breeders aware of the injury they do the health of their hens. *Geyelin's Poultry Breeding.*

J G F. We should recommend you to keep Brahma Pootras, Crêvecœurs, or Game fowls, but you do not say whether you want them for eggs, table, or exhibition. For ducks we should advise the Rouen or Buenos Ayres (East Indian, or Labrador, the variety is called by all three names); Turkeys the large black, called the Normandy, but which is in reality the improved Norfolk. The Cambridgeshire is also an excellent turkey, and attains great weight. "Fowls," by Baily, 113, Mount Street, is plain, practical, and has passed through many editions. As regards the purchase of your stock birds you must consult the Birmingham prize list, or the advertisement columns.

G B. Eggs for sitting may be obtained in the season from the principal dealers and breeders. It is full early yet, but our advertising columns will doubtless give you information very shortly on the subject.

A F P. The Cambridgeshire turkeys are this year decidedly inferior in fat and weight to the average of those from Norfolk. The breeders in the latter county are making use of the so-called Normandy bird for fresh blood, and are finding the benefit thereof.

Miscellaneous.

Steam Cultivation in East Lothian.—As facts are worth a cartload of arguments in showing the value of steam cultivation, it will not be uninteresting to mention one or two in connection with Mr. Sadler's farm at Ferrygate. In the spring of this year he prepared a 45-acre field (Scotch) for Barley. It was steam-ploughed on the 3d of March with a 10-inch furrow. The soil was a good loam, not over-stiff, and a fine seed-bed was obtained. From the depth to which the ground had been stirred, the great droughts of the season did not seem to affect the crop to any perceptible extent. The braird came away vigorously, soon covered the clods, and never received a check. The produce of the crop was somewhat remarkable, and if any of the agriculturists of the county wish to see for themselves what can be done through the aid of the steam plough, they cannot do better than take a drive between Dirleton and North Berwick. On the north side of the road they will not fail to observe a long line of goodly stacks—38 in number—standing in one of the fields. These stacks are the produce of the one field, and have been put up where they were grown—the yield being nearly a stack per acre. This

would be remarkable under any circumstances, but, occurring in such a peculiar season as this, and amid a general deficiency in the Barley crop, it is something extraordinary. The other crops, particularly that of the Potato, have also derived great benefit from the cultivation of the steam plough. The Potatos were grown after Turnips eaten down by sheep, and without any application whatever of farmyard manure, but with a double tine of Fowler's cultivator—going east and west the one way, and north and south the other. There was an application, but not a heavy one, of artificial manure, and the result in this case was one of the largest crops, both for bulk and quality, that has ever been grown at Ferrygate. We may further mention that in a careful experiment instituted by Mr. Sadler for his own guidance, he found that the cost of preparing a seed furrow with a man and a pair of horses cost 12*s.* per English acre, and this when the soil was a light medium loam. On a field of stiffish clay the cost per English acre by the steam plough was 7*s.* 6*d.*, showing a large percentage in favour of steam. *Haddington Courier.*

Scour in Calves.—The *North British Agriculturist* contains the following letter: "Having observed a letter a short time ago asking advice for scour in calves—a disease which yearly causes great loss, and although you gave a recipe for its treatment, I feel induced to mention a patent medicine called 'Gaseous Fluid,' manufactured by Messrs. Day, Son, & Hewitt, London, which I have used for that malady for some years most successfully—so much so that I have never found it to fail. It is also frequently a quick remedy for colic in horses, and an excellent medicine for many diseases incidental to horses, sheep, and cattle. Should anyone trying that medicine derive as much benefit from it as I have, it will speedily be in very general use."—*Mark Lane Express, Nov.* 27, 1865.

Cattle Plague.—The following is the number of cases reported in Cheshire to the 25th inst.:—Died, 2850; killed, 186; under treatment, 1409; recovered, 194. Total, 4639. Since the 18th inst., fresh cases have appeared in 29 additional townships, making a total of 134 different places in which the disease has manifested itself. The number attacked during the past week has been 1651, or 235 per diem, and those died and killed, 1139, or 162 per diem.——At the Devon Quarter Sessions Mr. Acland, M.P., will move—"That a memorial be presented to the Secretary of State for the Home Department, representing that in the opinion of this Court it is expedient, with a view to insure for the future prompt and simultaneous action on the subject of the cattle plague, that further measures be adopted for the regulation of cattle traffic throughout the area of counties or larger districts. That in the framing of any measures for the regulation of cattle traffic, provision be made for the transfer, with due precaution, of live cattle from the farms where they are reared to the farms where such cattle are usually grazed. And further, that provision be made for the supply, under such restrictions only as may be absolutely necessary, of cattle for immediate slaughter to the consuming population, subject, however, to the condition that cattle so sent to any town or place be not allowed to leave such town or place alive."——Cases have been reported in Essex at Great Bentley, Wix, St. Osyth, &c., but the disease does not appear to be extending very seriously.——The cattle plague is spreading and increasing in virulence in Oxfordshire, more particularly in the Woodstock district, adjoining Oxford. Many fatal cases have occurred in the parishes of Cassington, Yarnton, Kidlington, and Watereaton, which is one of the finest grazing villages in the county. The homœopathic system is still being tried there, and on a farm at Tuscot, on the banks of the Cherwell and adjoining Marston, where the plague almost decimated the horned cattle, the Russian remedy, the vapour bath, has had a trial, the apparatus being most elaborate, but the four cases submitted to it have all resulted fatally. In the Otmoor towns (Bicester district) it has also appeared, as well as at Crawley (Witney district). The neighbouring counties of Berks and Bucks have also felt the influence of the plague.——The disease has been making great strides in Suffolk, in the neighbourhood of Mildenhall. Messrs. Gittus, Youngman, Butcher, Aves, Rolfe, and others have lost altogether nearly 30 beasts. In the Ixworth district the inspector has had no fresh cases to report, and he has now no diseased beasts on his hands; during the past week, however, three beasts have died. The neighbourhood of Rickinghall is also now free from the disease. Of the whole number of beasts attacked belonging to Messrs. Sheldrick, Bryant, and Clarke, five have been saved under the treatment pursued by Mr. W. Rush, veterinary surgeon.

Notices to Correspondents.

CHARCOAL AND SALT: *E W, Bath.* Either of them may be useful as a manure. 30 bushels of soot broadcast per acre over growing Wheat is the best way of applying the former; and one or two cwt. broadcast per acre also over luxuriant Wheat, or over a growing Mangel crop, may be a good way of applying the latter.

CHLORIDE OF LIME: *Vicar.* Please excuse the delay of your letter for a week.

MR. COLLINSON HALL'S HERD: *Worcestershire.* They were still safe when we heard a week ago.

RINDERPEST: *Ebor.* Once recovered from an attack they are said to be safe.

SMALL HOMESTEADS: *Builder.* You will find some plans in some of the earlier volumes of the "Edinburgh Quarterly Journal of Agriculture."

ANDERSON'S INTERMEDIATE STOCK.—This beautiful variety of Stock is extensively used in the principal flower gardens in East Lothian for masses or ribboning purposes, and has called forth the admiration of all who have seen it grown in such perfection. It is of a fine rose colour, and blends happily with almost any colour. It should be sown early in February, and will come into flower in July, and continue flowering till Christmas or till killed by frost. Eight or nine double flowers in the dozen may be counted upon. Sent out in sealed packets, 1s. 6d. and 3s. 6d. Usual discount to the Trade.

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LIME MANURE GRATIS in the immediate neighbourhood of Covent Garden Market.
Apply to ESSEX & SONS, 28, Stanhope Street, Clare Market, W.C.

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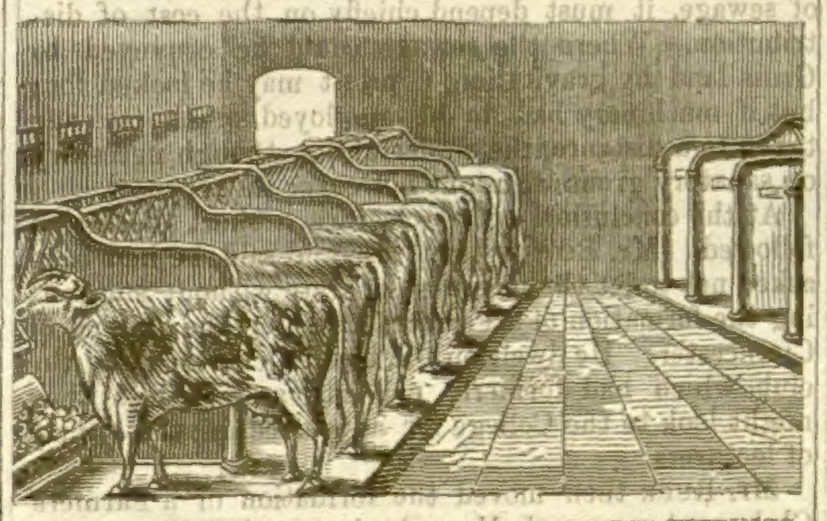

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Cattle Plague.

PUBLIC NOTICE.—REPORT of the ROYAL COMMISSION, *See "Sanitary Recommendations and General Precautions to Prevent the Spread of the Disorder."*

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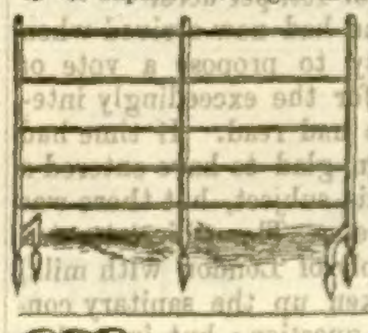

ENTRANCE GATES, RAILING, and IRON WORK of every description. Designs and Estimates free of
COTTAM & Co.,
No. 2, Winsley Street
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GARDEN BORDER EDGING TILES, in great variety of patterns and material, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.

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Sole London Agents for FOXLEY'S PATENT GARDEN WALL BRICKS. Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also TESSELATED PAVEMENTS of more enriched designs than the above.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cements, &c.
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N.B. Orders promptly executed by Railway.

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GENERAL HORTICULTURAL BUILDER,
Knotty Ash, near Liverpool.

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Glass for Garden Purposes.

JAMES PHILLIPS AND CO.
beg to submit their prices as follows:—

PROPAGATING GLASSES.

	Each.—s. d.		Each.—s. d.
2 inches in diameter ..	0 3½	12 inches in diameter ..	1 9
3 " " ..	0 4½	13 " " ..	2 0
4 " " ..	0 5½	14 " " ..	2 6
5 " " ..	0 6½	15 " " ..	3 0
6 " " ..	0 8	16 " " ..	3 6
7 " " ..	0 10	17 " " ..	4 0
8 " " ..	1 0	18 " " ..	5 0
9 " " ..	1 2	19 " " ..	6 0
10 " " ..	1 4	20 " " ..	7 0
11 " " ..	1 6		

HAND GLASSES, WITH OPEN TOPS.

	Each.—s. d.		Each.—s. d.
12 inches	6 6	18 inches	9 6
14 "	7 6	20 "	10 6
16 "	8 6	22 "	11 6
		24 "	12 6

Painted and Glazed with 16-oz. Sheet Glass.
London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.
LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS, PAINTS of various colours ground ready for use.
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Universal Microscope. Price £5 5s.

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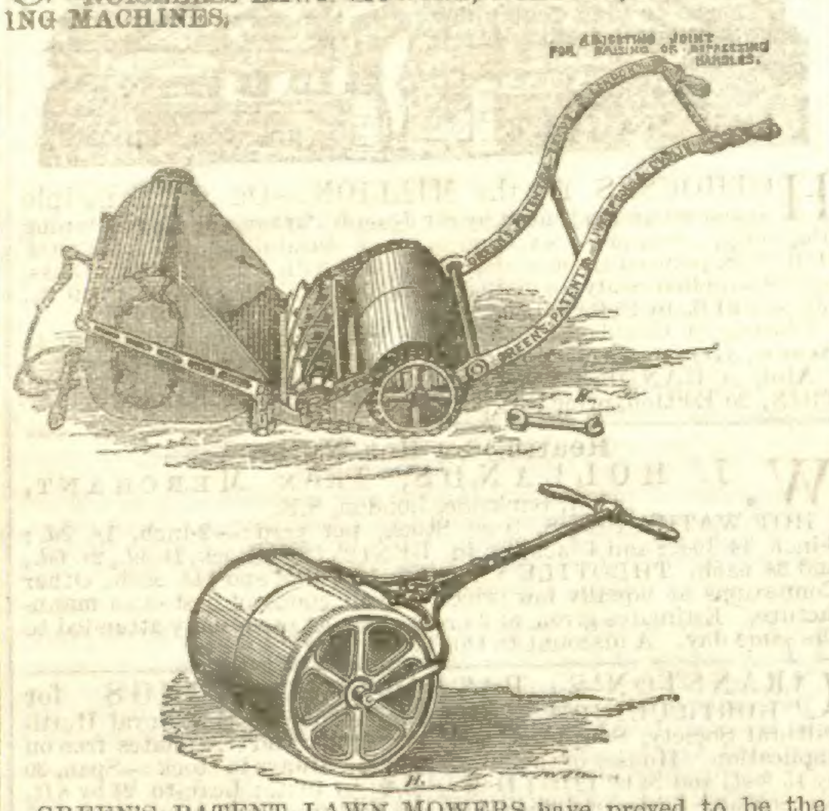
*** Catalogues sent on receipt of 6 postage stamps.

GREEN'S PATENT SILENS MESSOR, or NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.



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Illustrated Price Lists of Lawn Mowers and Garden Rollers Free.
THOMAS GREEN & SON, Smithfield Iron Works, Leeds; 2, Farringdon Road, Holborn Hill, London, E.C.; Hadwin's Buildings, Tithebarn Street, Liverpool; and 19, Eden Quay, Dublin.

HOT-WATER APPARATUS, of every description, fixed complete in any part of the country, or the materials, viz., Boilers, Pipes, &c., delivered to any Station.
Estimates on application.
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Oil Paint no longer Necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

From J. A. TAYLOR, Esq., *Strensham Court.*

"In answer to your inquiries, I beg to inform you I find your Black Varnish an excellent substitute for oil paint upon iron and wood out of doors, and have found the iron Barrow with apparatus essential in applying the Varnish to lines of fencing. I can strongly recommend the Black Varnish for all out-door work as superior to anything I have yet used for the purpose, and it can be applied with great economy by careful labourers."

Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the kingdom.
Apply to HILL & SMITH, Brierly Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C., from whom only it can be obtained.

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HAND GLASSES.

THOMAS MILLINGTON,

PRESERVE JARS.

GLASS AND COLOUR MERCHANT,

87, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

MILK PANS.

REDUCED TARIFF FOR SHEET GLASS AND HORTICULTURAL GOODS.

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HEATING BY HOT WATER.

Public and Private Buildings, Manufactories, Conservatories, &c., Heated on the most improved system, combined with perfect Ventilation. Baths fitted upon economical principles connected with Kitchen Ranges, ready for use night or day, without extra fire. Success in all cases guaranteed. Estimates free. References to hundreds of the Nobility's Seats, Botanical Societies, Public Buildings, Banks, Manufactories, &c. Several Boilers and long ranges of Pipes just fixed at Wollaton Gardens for Lord Middleton, by BURY AND POLLARD, Sole Manufacturers of the Improved CONICAL BOILERS, which are adapted for setting in Brickwork, or as shown in sketch they require No BRICKWORK, and which Boilers have, for their durability and economy, attained a celebrity far surpassing any other Boilers ever invented.

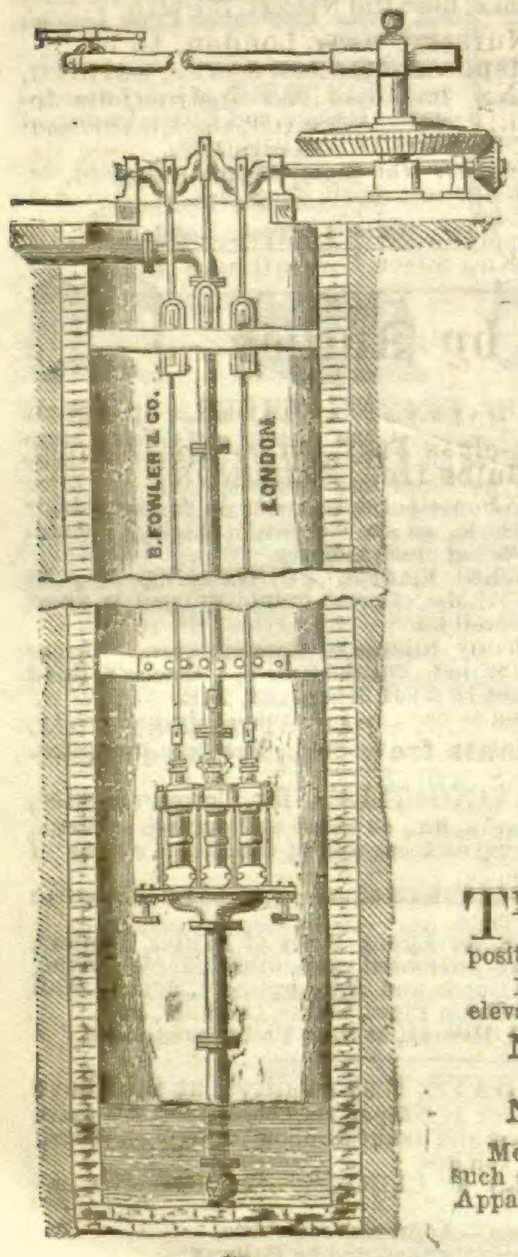
PARK IRON WORKS, 17, NEW PARK STREET, SOUTHWARK, LONDON, S.E.

N.B.—PATENT WINDMILLS for Pumping and Driving Farm Machinery, from Half-Horse Power upwards. To be seen daily at work as above.

Bury & Pollard having completed the order for the India Board, and the Government Gardens at Agra, are again supplying Her Majesty's Government for Ascension.

WIND ENGINES for ASCENSION.—The Admiralty Department officially report the two large Wind Engines supplied by BURY AND POLLARD three years ago for Ascension, as working most satisfactorily.

BURY AND POLLARD always keep a large Stock of their BOILERS, together with HOT-WATER PIPES of the best description.



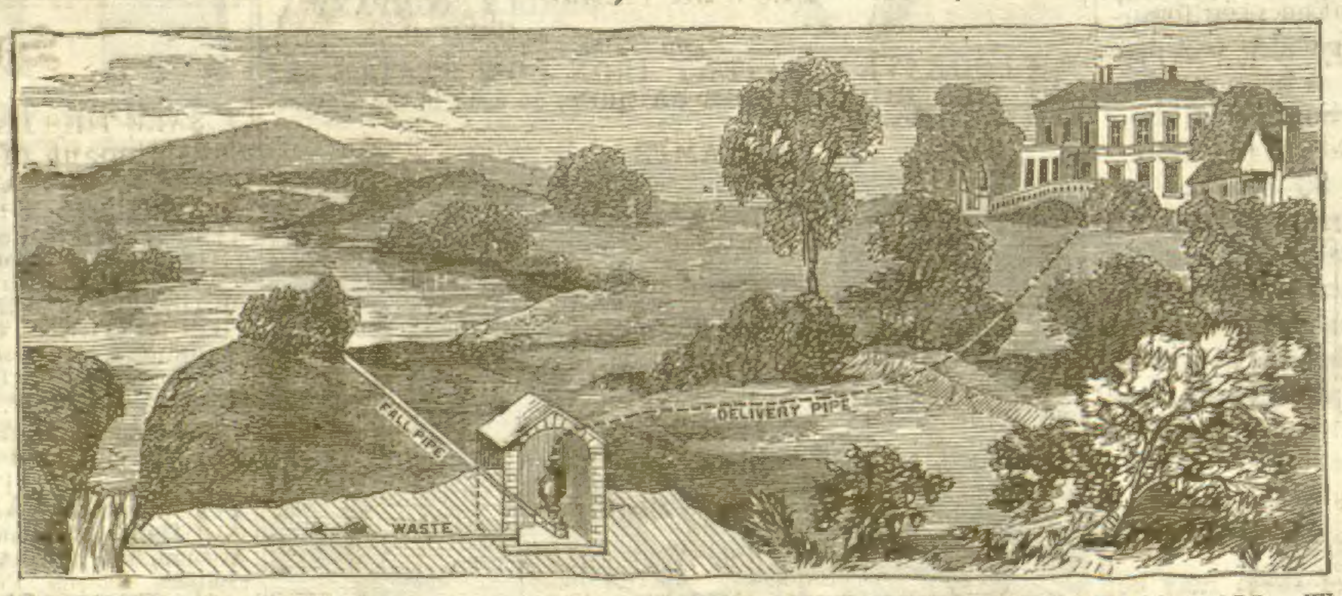
37

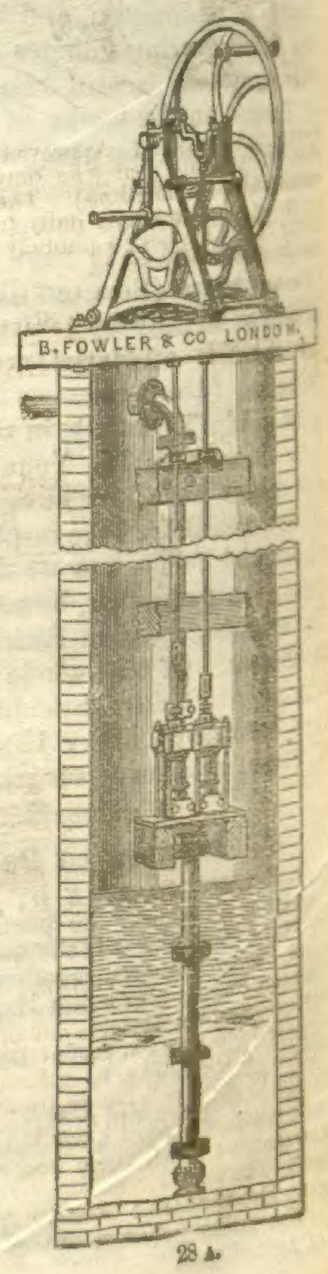
CLINTON & OWENS

(LATE BENJAMIN FOWLER & CO.)
MANUFACTURERS OF

PUMPS AND HYDRAULIC MACHINERY,

WHITEFRIARS STREET, FLEET STREET, LONDON, E.C.





28 A.

THE LANDSCAPE SKETCH shows an adaptation of THE IMPROVED HYDRAULIC RAM. This is a simple Self-acting Machine, suited for raising a Supply of Water for use in Public and Private Establishments. Its adoption is not confined to positions as shown, but it is suited for any situation where a Fall can be obtained from a Stream, Brook, or Spring.

Messrs. CLINTON & OWENS have fixed a great many in various parts of the country for raising from 600 to 6000 or more Gallons per day to elevations varying from 30 to 300 feet, and forcing through main pipes 50 yards to several miles in length.

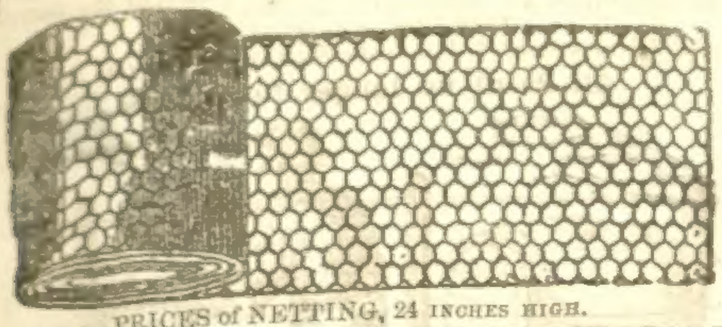
No. 37. IMPROVED TREBLE BARREL PUMPS with HORSE GEARING for Raising Water from DEEP WELLS for the supply of MANSIONS and PUBLIC BUILDINGS.

No. 28*a*. DOUBLE BARREL PUMPS for HAND-POWER for similar purposes.

Messrs. CLINTON & OWENS Manufacture and Erect every description of Engineer's Work required in Public or Private Establishments, such as Pumps for any purpose on the largest or smallest scale, Steam Engines, Water Wheels, Turbines, Warming and Drying Apparatus, Baths, Gas Works and Fittings. Estimates furnished from Plans or on inspection of position.

Price Lists of Pumps, &c. free on application.

GALVANISED WIRE NETTING.



PRICES of NETTING, 24 INCHES HIGH.

Size of Mesh.	Proof against	Light, per Yard.	Medium, per Yard.	Strong, per Yard.	Extra strong per Yard.
2½ inch	Hares, Dogs, Poultry, &c.	4d.	5d.	6d.	7d.
2 inch	All kinds of Game ..	4½d.	5d.	6½d.	8d.
1½ inch	Small Rabbits, Hares, &c.	4½d.	6d.	7d.	9d.
1½ inch	Ditto Ditto ..	6d.	7d.	9d.	11d.

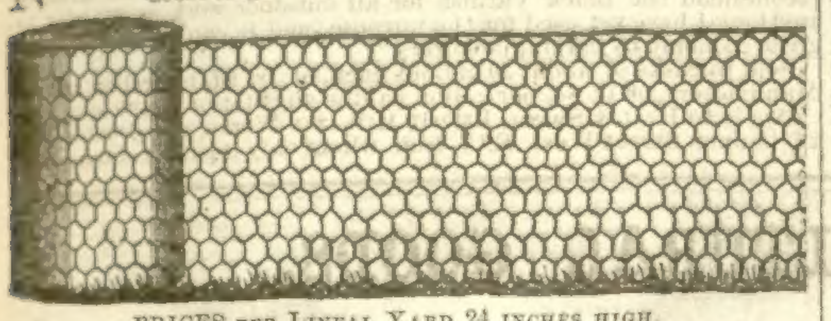
100 Yards and upwards Carriage Free.

GALVANISED IRON WATER CISTERNS.
GALVANISED CABLE STRAND FENCING.
GALVANISED IRON PUMPS.
GALVANISED SWING WATER BARROWS.
GALVANISED IRON ROOFS and BUILDINGS.
LAWN MOWERS, GARDEN ROLLERS.
ASPHALTE ROOFING FELT, 1d. per square foot.
HURDLES, HURDLES, HURDLES, 1s. 9d. to 3s. 9d. per yard.

MOTLEY & GREEN, late H. J. MORTON & Co.
Illustrated Catalogues and Estimates free on application.
12, Great George Street, Leeds.

NEW IMPROVED PREMIUM WIRE NETTING.

Great Improvement with Reduced Price.



PRICES PER LINEAL YARD 24 INCHES HIGH.

Size of Mesh.	Mostly used for	Light. Jap	Light. Gal	Medium Jap	Medium Gal	Strong. Jap	Strong. Gal	Extra Strong. Jap	Extra Strong. Gal
		s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
2½ in.	Hares, Dogs, Poultry	0 3	0 4	0 3¾	0 5	0 4½	0 6	0 5½	0 7
2 in.	Game or Poultry Netting	0 3½	0 4½	0 4	0 5	0 5	0 6½	0 6½	0 8
1½ in.	Small Rabbits, Hares, &c.	0 4	0 4¾	0 4¾	0 6	0 5½	0 7	0 7	0 9
1½ in.	Smallest Rabbits ..	0 5	0 6	0 5¾	0 7	0 7	0 9	0 9	0 11
1 in.	Pheasantries, &c. ..	0 9	0 11	10½	1 1½	1 3	1 6	1 9	2 0
¾ in.	Aviaries, &c.	1 0	1 3	1 3	1 6	1 6	1 9	..	..

Quantities of 100 yards or upwards delivered free to nearly all the principal Railway Stations and Shipping Ports in England; and 200 yards or upwards delivered free to most parts of Scotland and Ireland.

*** Every description of Netting warranted to give satisfaction, and if not approved will be exchanged, or may be returned unconditionally.

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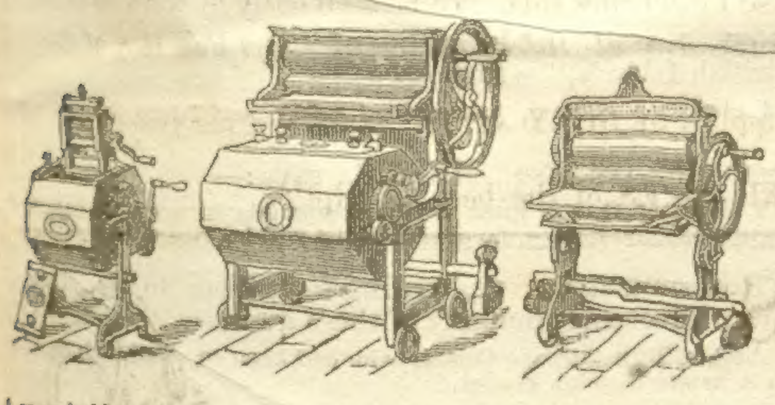
BRADFORD'S NEW "VOWEL" WASHING MACHINES.



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PRIZE MEDAL 1862. Awarded for excellence.

The ADVANTAGES of the above RANGE.—Two Ovens are heated with the same amount of COAL as one of any other.

CONVENIENCE of COOKING. Great saving of Fuel and Labour, Universal Adaptability, Cleanliness, Comfort, Durability, and for simple arrangement is not surpassed.

Warranted to CURE a SMOKY CHIMNEY.

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Is fitted either with
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KOH-I-NOOR,
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FLAT-WICK BURNER.

The Koh-i-Noor Burner produces a superior light to the Moderator, at a much less cost, and is not liable to get out of order.

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With Gold Lines	25 6	16 6
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PROTECTION from COLD WINDS and MORNING FROSTS.

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Two yards wide	1*s.* 9*d.* per yard run.
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To Nurserymen, Florists, and Gardeners.

ROSE HILL NURSERY, BRIGHTON.

TO BE LET, with Immediate Possession, a very compact HORTICULTURAL ESTABLISHMENT, situated at the north part of the above improving town, surrounded by villas and other property, securing a good trade. The present occupier (who is relinquishing the profession) has successfully carried on a business for 9 years, and devoted every attention to improve the Hot-water Apparatus, Vine Borders, Potting Sheds, &c. Grounds are about 2 acres, a nice convenient Dwelling House attached, a Show House for the sale of plants, seeds, &c.; and 11 others, consisting of Graperies, Peach House, Forcing Houses for plants, Greenhouses, Pits, and Frames. The whole of the Graperies stocked with productive Vines, having been recently planted. New Borders made with the most appropriate compost; the Peach House well stocked with trees; the Plant Houses stocked with suitable sorts to command sale; also the Borders and Quarters with hardy plants. A Seed and Jobbing Trade; 11 years unexpired Lease, at the end of which 21 more are secured. The whole to be taken to at valuation unless otherwise agreed on. To any skilful and industrious man such an opportunity seldom offers.

For particulars of terms, &c., apply to Mr. SPARY, Queen's Graperies; or Mr. CRUTTENDEN, Rose Hill Nursery, Brighton.

Old-Established Nursery, near London, to be Disposed of.

MR. J. C. STEVENS has received instructions to offer for SALE by PRIVATE CONTRACT, the LEASE and GOODWILL of an OLD-ESTABLISHED NURSERY, within six miles of London. The Nursery, which is 9 Acres in extent, is principally stocked with the choicest Fruit Trees, for which it has for many years been celebrated.

For further particulars apply to Mr. J. C. STEVENS, Horticultural Auctioneer and Valuer, 38, King Street, Covent Garden, W.C.

Sales by Auction.

SALE THIS DAY AT HALF-PAST TWELVE O'CLOCK.

Consignment of First-class Fruit Trees and Shrubs from France. Bulbs from Holland, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., THIS DAY, December 30, at half-past 12 o'Clock precisely, several thousand Dwarf-trained Standard, Pyramid, and Dwarf PEAR, PLUM, PEACH, ALMOND, APPLE, APRICOT, and CHERRY TREES, from a well-known Nurseryman in the South of France; some choice hardy SHRUBS, Rustic Garden Seats, Standard and Dwarf ROSES, 1500 Bulbs of GLADIOLUS BOWIENSIS, and a good selection of DUTCH BULBS for present planting.

On view the Morning of Sale, and Catalogues had.

Important Sale of Plants from Surrey and France.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, January 3, at half-past 12 o'Clock precisely, a fine Assortment of HARDY TREES and SHRUBS, consisting of Conifers, Laurels, Privet, Quick, Poplars, Laurustinus, Rhododendrons, Berberis, Arbutus, Elms, Lilacs, Laburnums, Ivies, Sea Kale and Asparagus Roots, Fruit Trees, &c. Also a Consignment of first-class Fruit Trees and Shrubs from the South of France. A few choice Bulbs from Holland, Rustic Garden Seats, Stools, Vases, &c.

On view the Morning of Sale, and Catalogues had.

Conifer Seeds, and Imported Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, January 4, at half-past 12 o'Clock precisely, an importation of CALIFORNIAN CONIFER SEEDS, in fine condition, collected by the late Mr. Bridges, consisting of Wellingtonia gigantea, Picea grandis, P. amabilis, Libocedrus decurrens, Cupressus Lawsoniana, C. macrocarpa, and other good sorts. Also, a few lots of ORCHIDS just received direct from Mexico.

On view the Morning of Sale, and Catalogues had.

THE ELEVATOR GUN.

SECURED BY ROYAL LETTERS PATENT.

The Invention of EDWARD CHARLESWORTH, Esq., F.G.S., who after traversing the noted robber passes in the mountains of Mexico, turned his attention to the construction of a FIRE-ARM, which should comprise within the smallest possible compass the greatest amount of power, and which, in the hands of a Traveller, should be equally effective as

A WEAPON of DEFENCE, or a FOWLING-PIECE.

THE UNDERSIGNED HAVING OBTAINED FROM MR. CHARLESWORTH AN

EXCLUSIVE LICENCE FOR THE MANUFACTURE AND SALE OF THE ELEVATOR GUN,

HAS, BEFORE INTRODUCING THE INVENTION TO THE PUBLIC GENERALLY, OBTAINED FROM GENTLEMEN, WELL KNOWN THROUGHOUT THE UNITED KINGDOM, THEIR OPINION OF ITS MERITS.

Captain Burton, the African explorer, says:—

"The utility of the Elevator is sufficiently established. I am taking one out with me to South America."

Captain W. H. Patten-Saunders, K.C.G., says:—

"Your Elevator Gun is a step in advance of anything I have ever seen. I can certainly do with it what I have never been able to do with any other."

Viscount Milton says:—

"I consider Mr. Charlesworth's Elevator Gun peculiarly adapted for travellers."

John Phillips, Esq., of Granville Park, says:—

"I have tried the Elevator Gun constructed by Mr. Charlesworth, and for general purposes much prefer it to the shoulder gun; while the readiness with which this new fire-arm can be used on horseback, and the small compass in which it can be stowed away, make it invaluable to travellers."

Captain Norton, in a communication to the *Times*, speaks of the Elevator Gun as "a very remarkable weapon."

Colonel Battersby (Stanley Villa, Surbiton), in a letter to Captain Norton, speaking of the death of Captain Speke, and the numerous gun accidents occurring about the same date, writes:—

"Though time alone must decide how far the adoption of the Elevator principle may diminish the number of gun accidents, I have no hesitation in saying, as a sportsman and an old soldier, that in the combination of power, portability, and facility of shooting, these Elevator guns surpass anything yet known.

"Mr. W. P. Colchester, writing from Grundisburgh Hall, Suffolk, tells me that he took out one of these guns with him to Jamaica, and that, though the principle was then quite new to him, he found he not only could kill birds on the wing with the same facility as with the shoulder gun, but that on horseback he could get shots in positions where the shoulder gun could not have been used. I therefore own myself won over to the opinion you have expressed in the *Times*, and am prepared to see the shoulder pieces of our guns succumb to the Elevator in the same way as flint and steel have given way before the detonating cap."

Captain Norton, in reply to the above, says:—

"I am most happy to hear that Mr. Charlesworth's Elevator system of shooting is attracting the attention it so greatly deserves. Public lectures are most necessary to guard against gun accidents; and if the youths at schools were in this way instructed, it would be the means of saving many valuable lives and most serious injuries."

Samuel Waring, Esq., of The Oaks, Gipsy Hill, Norwood, writes:—

"I find I can shoot quite as well with the Elevator as with the shoulder gun, and much prefer it; it throws the recoil on the hands, which are much more able to bear the shock of a heavy charge. It is also much cheaper, lighter, and certainly safer."

F. H. Salvin, Esq., of Killingbeck Hall, Leeds, author of "The Falconry of the British Islands," writes:—

"The Elevator Gun, for which I enclose a cheque, has arrived safely, and I like it upon very much."

Edmund Thomas Higgins, Esq., M.R.C.S., says:—

"I have found Mr. Charlesworth's Elevator Gun a most useful companion in my ornithological rambles, and I think that when these guns become known, no ornithologist will be without one."

Captain Bedford, R.N., on the Government Survey, writing from Oban to Mr. Mo[illegible] of the Free Museum, Liverpool, remarks of these guns:—

"When last I saw Sir Angus Campbell, of Dunstaffnage Castle, who had been supplied with one, he expressed himself highly satisfied with it, as was also his keeper."

Richard Taylor, Esq., of Wimbledon Common, says:—

"I have had but one opportunity of trying the patent Elevator Gun which I purchased last [illegible] but that was a very satisfactory one.

"I went out for an hour in the afternoon on Wednesday last in the plantations of Carclew, Corn[illegible] and shot with it three times. The first time at a blackbird on the wing, the second at a rabbit, the third at a woodcock, killing all three, finding the gun very handy and quick."

The late Sir Angus Campbell, of Dunstaffnage Castle, Argyleshire, writes:—

"I have received the Elevator Gun, and find it a very handy weapon. My keeper at the first killed a swallow with it on the wing."

From J. B. Davies, Esq., of the Natural History Museum, Edinburgh:—

"I have given one of these guns a trial, and can report favourably of the facility and certainty with which it can be used. My friend, Dr. James Hector, who has just gone out to investigate the geology and zoology of New Zealand, has taken one with him."

The Editor of *Bell's Life*, after trying these guns, says, in the columns of that Paper:—

"We are inclined to think with Captain Norton, that this Elevator principle will, before long, be recognised as one of the most important inventions of the present day."

GENERAL ADVANTAGES

Presented by the ELEVATOR GUN over the shoulder fowling-piece:—It is less costly, far more portable, more easily cleaned; has nothing about it liable to break by an ordinary fall; is less liable by bursting or accidental discharge to injure the shooter or his companions; offers complete security against the loss of an eye by the escape of the percussion cap.

SHOOTING ADVANTAGES.

Greater effectiveness in thick cover, as it comes up quicker, and commands shots in positions not available with a gun resting against the shoulder.

Especially adapted for shooting in boats and for ornithologists. As a house[illegible] protective weapon, it makes the loud report of a gun, while, like a pistol, it can be loaded under lock and key in a bedroom drawer, or in its case.

Price, with Case and Fittings Complete, £7 7s.
Price, without Case and Fittings, £4 4s.

CHARLES POMEROY BUTTON, 142 and 143, CHEAPSIDE, LONDON, E.C.

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